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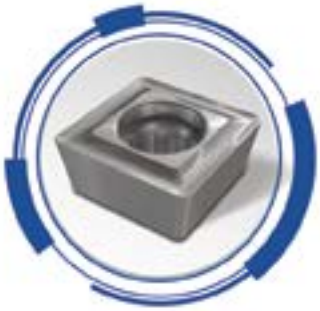


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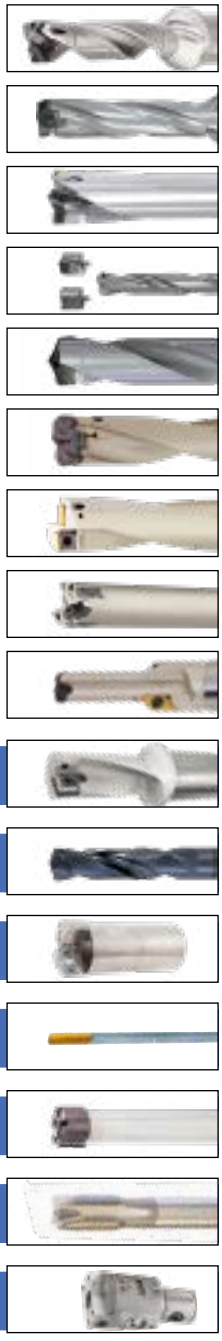

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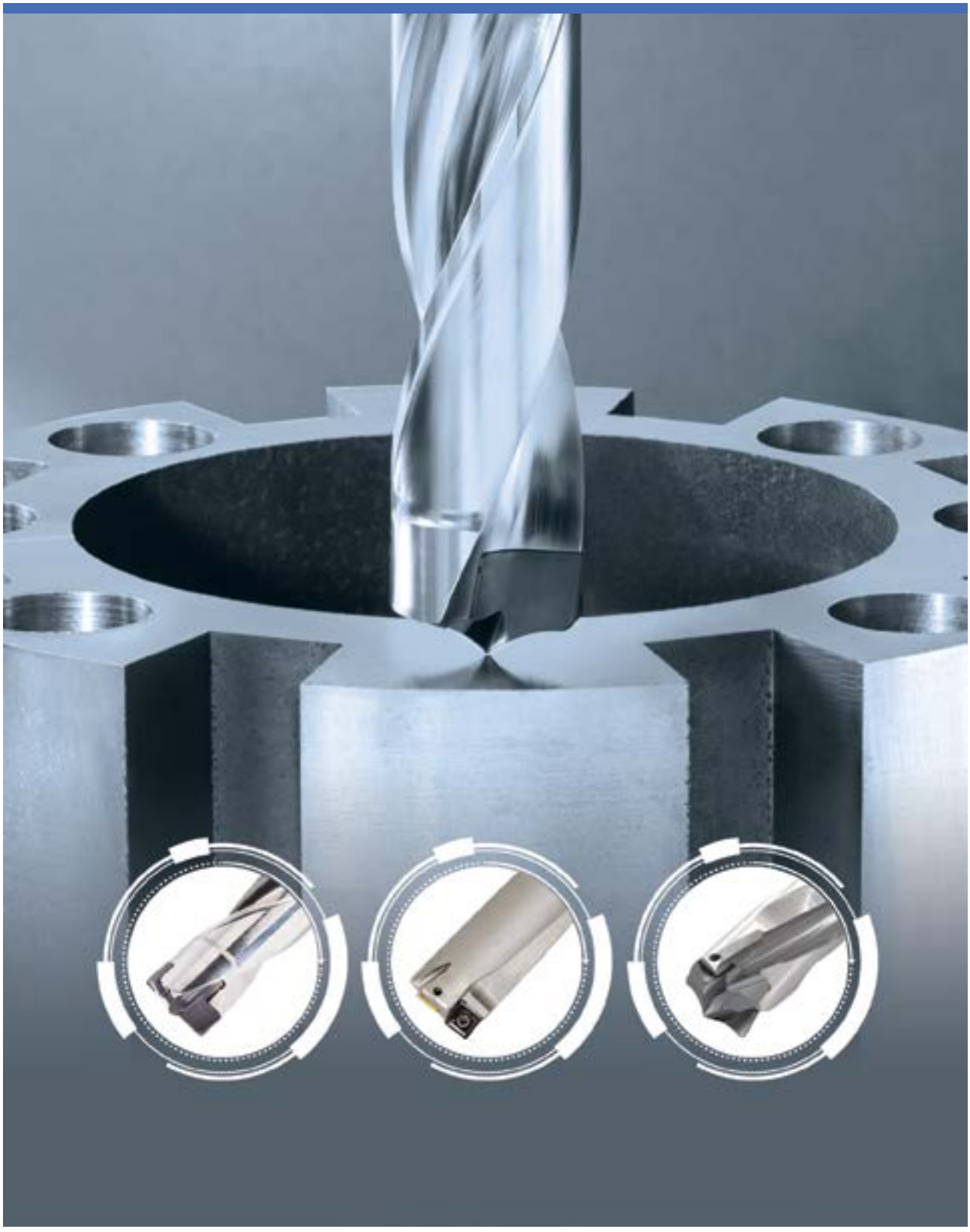
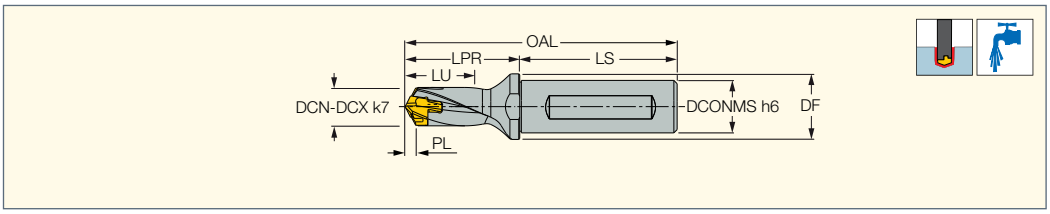
INDEXABLE DRILLS



SUMOCHAM CHAMDRILL LINE

DCN A-1.5D

Exchangeable Head Drills with Coolant Holes and One Flat Shank, Drilling Depth 1.5xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-009-12A-1.5D	6.00	6.40	12.00	16.00	9.96	23.0	0.960	45.0	68.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-010-12A-1.5D	6.50	6.90	12.00	16.00	10.93	24.1	1.180	45.0	69.10	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-011-12A-1.5D	7.00	7.40	12.00	16.00	11.51	25.1	1.010	45.0	70.10	7.0	ICP 070	K DCN 6-9.99
DCN 075-011-12A-1.5D	7.50	7.90	12.00	16.00	12.35	25.9	1.100	45.0	70.90	7.0	ICP 075	K DCN 6-9.99
DCN 080-012-12A-1.5D	8.00	8.40	12.00	16.00	13.20	27.9	1.200	45.0	72.90	8.0	ICP 080	K DCN 6-9.99
DCN 085-013-12A-1.5D	8.50	8.90	12.00	16.00	14.04	28.2	1.290	45.0	73.20	8.0	ICP 085	K DCN 6-9.99
DCN 090-014-12A-1.5D	9.00	9.40	12.00	16.00	14.85	29.3	1.350	45.0	74.30	9.0	ICP 090	K DCN 6-9.99
DCN 095-014-12A-1.5D	9.50	9.90	12.00	16.00	15.69	30.1	1.440	45.0	75.10	9.0	ICP 095	K DCN 6-9.99
DCN 100-015-16A-1.5D	10.00	10.40	16.00	20.00	16.50	31.2	1.500	48.0	79.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-016-16A-1.5D	10.50	10.90	16.00	20.00	17.34	32.0	1.590	48.0	80.00	10.0	ICP 105	K DCN 10-13.99
DCN 110-017-16A-1.5D	11.00	11.40	16.00	20.00	18.17	33.1	1.670	48.0	81.10	11.0	ICP 110	K DCN 10-13.99
DCN 115-017-16A-1.5D	11.50	11.90	16.00	20.00	19.01	33.9	1.760	48.0	81.90	11.0	ICP 115	K DCN 10-13.99
DCN 120-018-16A-1.5D	12.00	12.40	16.00	20.00	19.82	35.0	1.820	48.0	83.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-019-16A-1.5D	12.50	12.90	16.00	20.00	20.66	35.8	1.910	48.0	83.80	12.0	ICP 125	K DCN 10-13.99
DCN 130-020-16A-1.5D	13.00	13.40	16.00	20.00	21.46	37.1	1.960	48.0	85.10	13.0	ICP 130	K DCN 10-13.99
DCN 135-020-16A-1.5D	13.50	13.90	16.00	20.00	22.30	37.9	2.050	48.0	85.90	13.0	ICP 135	K DCN 10-13.99
DCN 140-021-16A-1.5D	14.00	14.40	16.00	20.00	23.12	41.1	2.120	48.0	89.10	14.0	ICP 140	K DCN 14-17.99
DCN 145-022-16A-1.5D	14.50	14.90	16.00	20.00	23.96	41.9	2.210	48.0	89.90	14.0	ICP 145	K DCN 14-17.99
DCN 150-023-20A-1.5D	15.00	15.90	20.00	25.00	24.77	46.2	2.270	50.0	96.20	15.0	ICP 150	K DCN 14-17.99
DCN 160-024-20A-1.5D	16.00	16.90	20.00	25.00	26.42	49.3	2.420	50.0	99.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-026-20A-1.5D	17.00	17.90	20.00	25.00	28.09	52.4	2.590	50.0	102.40	17.0	ICP 170	K DCN 14-17.99
DCN 180-027-25A-1.5D	18.00	18.90	25.00	32.00	29.73	55.5	2.730	56.0	111.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-029-25A-1.5D	19.00	19.90	25.00	32.00	31.38	58.5	2.880	56.0	114.50	19.0	ICP 190	K DCN 18-21.99
DCN 200-030-25A-1.5D	20.00	20.90	25.00	32.00	33.02	61.6	3.020	56.0	117.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-032-25A-1.5D	21.00	21.90	25.00	32.00	34.68	64.7	3.180	56.0	120.70	21.0	ICP 210	K DCN 18-21.99
DCN 220-033-25A-1.5D	22.00	22.90	25.00	32.00	36.32	67.8	3.320	56.0	123.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-035-32A-1.5D	23.00	23.90	32.00	42.00	37.96	70.9	3.460	60.0	130.90	23.0	ICP 230	K DCN 22-26.99
DCN 240-036-32A-1.5D	24.00	24.90	32.00	42.00	39.62	73.9	3.620	60.0	133.90	24.0	ICP 240	K DCN 22-26.99
DCN 250-038-32A-1.5D	25.00	25.90	32.00	42.00	41.30	77.0	3.800	60.0	137.00	25.0	ICP 250	K DCN 22-26.99
DCN 260-039-32A-1.5D	26.00	26.90	32.00	42.00	42.95	80.1	3.950	60.0	140.10	26.0	ICP 260	K DCN 22-26.99
DCN 270-041-32A-1.5D	27.00	27.90	32.00	42.00	44.60	83.1	4.100	60.0	151.10	27.0	ICP 270	K DCN 27-32.99
DCN 280-042-32A-1.5D	28.00	28.90	32.00	42.00	46.25	86.2	4.250	60.0	146.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-044-32A-1.5D	29.00	29.90	32.00	42.00	47.93	89.3	4.430	60.0	149.30	29.0	ICP 290	K DCN 27-32.99
DCN 300-045-32A-1.5D	30.00	30.90	32.00	42.00	49.59	92.4	4.590	60.0	152.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-047-32A-1.5D	31.00	31.90	32.00	42.00	51.26	95.5	4.760	60.0	155.50	31.0	ICP 310	K DCN 27-32.99
DCN 320-048-32A-1.5D	32.00	32.90	32.00	42.00	52.86	98.5	4.860	60.0	158.50	32.0	ICP 320	K DCN 27-32.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] Cutting diameter minimum

[2] Cutting diameter maximum

[3] Seat size code

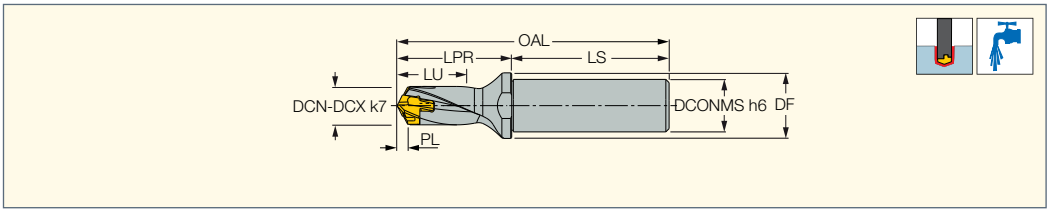
[4] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN R-1.5D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 1.5xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-009-12R-1.5D	6.00	6.40	12.00	16.00	9.96	23.0	0.960	45.0	68.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-010-12R-1.5D	6.50	6.90	12.00	16.00	10.78	24.1	1.030	45.0	69.10	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-011-12R-1.5D	7.00	7.40	12.00	16.00	11.51	25.1	1.010	45.0	70.10	7.0	ICP 070	K DCN 6-9.99
DCN 075-011-12R-1.5D	7.50	7.90	12.00	16.00	12.35	25.9	1.100	45.0	70.90	7.0	ICP 075	K DCN 6-9.99
DCN 080-012-12R-1.5D	8.00	8.40	12.00	16.00	13.20	27.9	1.200	45.0	72.90	8.0	ICP 080	K DCN 6-9.99
DCN 085-013-12R-1.5D	8.50	8.90	12.00	16.00	14.04	28.2	1.290	45.0	73.20	8.0	ICP 085	K DCN 6-9.99
DCN 090-014-12R-1.5D	9.00	9.40	12.00	16.00	14.85	29.3	1.350	45.0	74.30	9.0	ICP 090	K DCN 6-9.99
DCN 095-014-12R-1.5D	9.50	9.90	12.00	16.00	15.69	30.1	1.440	45.0	75.10	9.0	ICP 095	K DCN 6-9.99
DCN 100-015-16R-1.5D	10.00	10.40	16.00	20.00	16.50	31.2	1.500	48.0	79.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-016-16R-1.5D	10.50	10.90	16.00	20.00	17.27	32.0	1.520	48.0	80.00	10.0	ICP 105	K DCN 10-13.99
DCN 110-017-16R-1.5D	11.00	11.40	16.00	20.00	18.17	33.1	1.670	48.0	81.10	11.0	ICP 110	K DCN 10-13.99
DCN 115-017-16R-1.5D	11.50	11.90	16.00	20.00	19.01	33.9	1.760	48.0	81.90	11.0	ICP 115	K DCN 10-13.99
DCN 120-018-16R-1.5D	12.00	12.40	16.00	20.00	19.82	35.0	1.820	48.0	83.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-019-16R-1.5D	12.50	12.90	16.00	20.00	20.66	35.8	1.910	48.0	83.80	12.0	ICP 125	K DCN 10-13.99
DCN 130-020-16R-1.5D	13.00	13.40	16.00	20.00	21.46	37.1	1.960	48.0	85.10	13.0	ICP 130	K DCN 10-13.99
DCN 135-020-16R-1.5D	13.50	13.90	16.00	20.00	22.30	37.9	2.050	48.0	85.90	13.0	ICP 135	K DCN 10-13.99
DCN 140-021-16R-1.5D	14.00	14.40	16.00	20.00	23.12	41.1	2.120	48.0	89.10	14.0	ICP 140	K DCN 14-17.99
DCN 145-022-16R-1.5D	14.50	14.90	16.00	20.00	23.96	41.9	2.210	48.0	89.90	14.0	ICP 145	K DCN 14-17.99
DCN 150-023-20R-1.5D	15.00	15.90	20.00	25.00	24.77	46.2	2.270	50.0	96.20	15.0	ICP 150	K DCN 14-17.99
DCN 160-024-20R-1.5D	16.00	16.90	20.00	25.00	26.42	49.3	2.420	50.0	99.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-026-20R-1.5D	17.00	17.90	20.00	25.00	28.09	52.4	2.590	50.0	102.40	17.0	ICP 170	K DCN 14-17.99
DCN 180-027-25R-1.5D	18.00	18.90	25.00	32.00	29.73	55.5	2.730	56.0	111.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-029-25R-1.5D	19.00	19.90	25.00	32.00	31.38	58.5	2.880	56.0	114.50	19.0	ICP 190	K DCN 18-21.99
DCN 200-030-25R-1.5D	20.00	20.90	25.00	32.00	33.02	61.6	3.020	56.0	117.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-032-25R-1.5D	21.00	21.90	25.00	32.00	34.68	64.7	3.180	56.0	120.70	21.0	ICP 210	K DCN 18-21.99
DCN 220-033-25R-1.5D	22.00	22.90	25.00	32.00	36.32	67.8	3.320	56.0	123.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-035-32R-1.5D	23.00	23.90	32.00	42.00	37.96	70.9	3.460	60.0	130.90	23.0	ICP 230	K DCN 22-26.99
DCN 240-036-32R-1.5D	24.00	24.90	32.00	42.00	39.62	74.0	3.620	60.0	134.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-038-32R-1.5D	25.00	25.90	32.00	42.00	41.30	77.0	3.800	60.0	137.00	25.0	ICP 250	K DCN 22-26.99
DCN 260-039-32R-1.5D	26.00	26.90	32.00	42.00	42.95	80.1	3.950	60.0	140.10	26.0	ICP 260	K DCN 22-26.99
DCN 270-041-32R-1.5D	27.00	27.90	32.00	42.00	44.60	83.1	4.100	60.0	143.10	27.0	ICP 270	K DCN 27-32.99
DCN 280-042-32R-1.5D	28.00	28.90	32.00	42.00	46.25	86.2	4.250	60.0	146.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-044-32R-1.5D	29.00	29.90	32.00	42.00	47.93	89.3	4.430	60.0	149.30	29.0	ICP 290	K DCN 27-32.99
DCN 300-045-32R-1.5D	30.00	30.90	32.00	42.00	49.59	92.4	4.590	60.0	152.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-047-32R-1.5D	31.00	31.90	32.00	42.00	51.26	95.5	4.760	60.0	155.50	31.0	ICP 310	K DCN 27-32.99
DCN 320-048-32R-1.5D	32.00	32.90	32.00	42.00	52.86	98.5	4.860	60.0	158.50	32.0	ICP 320	K DCN 27-32.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] Cutting diameter minimum

[2] Cutting diameter maximum

[3] Seat size code

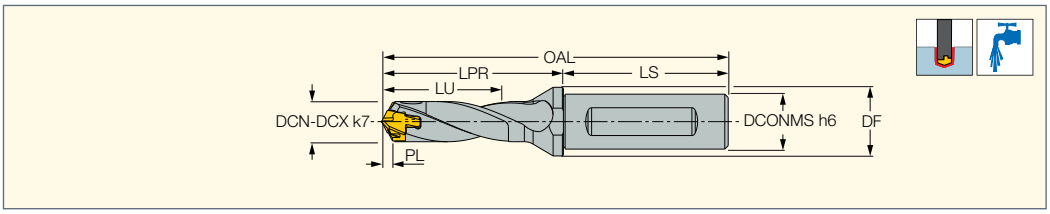
[4] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN A-3D

Exchangeable Head Drills with Coolant Holes and One Flat Shank, Drilling Depth 3xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-018-12A-3D	6.00	6.40	12.00	16.00	18.96	32.0	0.960	45.0	77.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-020-12A-3D	6.50	6.90	12.00	16.00	20.68	33.8	1.180	45.0	78.80	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-021-12A-3D	7.00	7.40	12.00	16.00	22.01	35.6	1.010	45.0	80.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-023-12A-3D	7.50	7.90	12.00	16.00	23.60	37.1	1.100	45.0	82.10	7.0	ICP 075	K DCN 6-9.99
DCN 080-024-12A-3D	8.00	8.40	12.00	16.00	25.20	39.4	1.200	45.0	84.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-025-12A-3D	8.50	8.90	12.00	16.00	26.79	40.9	1.290	45.0	85.90	8.0	ICP 085	K DCN 6-9.99
DCN 090-027-12A-3D	9.00	9.40	12.00	16.00	28.35	42.8	1.350	45.0	87.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-029-12A-3D	9.50	9.90	12.00	16.00	29.94	44.3	1.440	45.0	89.30	9.0	ICP 095	K DCN 6-9.99
DCN 100-030-16A-3D	10.00	10.40	16.00	20.00	31.50	46.2	1.500	48.0	94.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-032-16A-3D	10.50	10.90	16.00	20.00	33.09	47.7	1.590	48.0	95.70	10.0	ICP 105	K DCN 10-13.99
DCN 110-033-16A-3D	11.00	11.40	16.00	20.00	34.67	49.6	1.670	48.0	97.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-035-16A-3D	11.50	11.90	16.00	20.00	36.26	51.1	1.760	48.0	99.10	11.0	ICP 115	K DCN 10-13.99
DCN 120-036-16A-3D	12.00	12.40	16.00	20.00	37.82	53.0	1.820	48.0	101.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-037-16A-3D	12.50	12.90	16.00	20.00	39.41	54.5	1.910	48.0	102.50	12.0	ICP 125	K DCN 10-13.99
DCN 130-039-16A-3D	13.00	13.40	16.00	20.00	40.96	56.6	1.960	48.0	104.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-041-16A-3D	13.50	13.90	16.00	20.00	42.55	58.1	2.050	48.0	106.10	13.0	ICP 135	K DCN 10-13.99
DCN 140-042-16A-3D	14.00	14.40	16.00	20.00	44.12	62.1	2.120	48.0	110.10	14.0	ICP 140	K DCN 14-17.99
DCN 145-044-16A-3D	14.50	14.90	16.00	20.00	45.71	63.6	2.210	48.0	111.60	14.0	ICP 145	K DCN 14-17.99
DCN 150-045-20A-3D	15.00	15.90	20.00	25.00	47.27	68.7	2.270	50.0	118.70	15.0	ICP 150	K DCN 14-17.99
DCN 160-048-20A-3D	16.00	16.90	20.00	25.00	5.42	73.3	2.420	50.0	123.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-051-20A-3D	17.00	17.90	20.00	25.00	53.59	77.9	2.590	50.0	127.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-054-25A-3D	18.00	18.90	25.00	32.00	56.73	82.5	2.730	56.0	138.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-057-25A-3D	19.00	19.90	25.00	32.00	59.88	87.0	2.880	56.0	143.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-060-25A-3D	20.00	20.90	25.00	32.00	63.02	91.6	3.020	56.0	147.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-063-25A-3D	21.00	21.90	25.00	32.00	66.18	96.2	3.180	56.0	152.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-066-25A-3D	22.00	22.90	25.00	32.00	69.32	100.8	3.320	56.0	156.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-069-32A-3D	23.00	23.90	32.00	42.00	72.46	105.4	3.460	60.0	165.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-072-32A-3D	24.00	24.90	32.00	42.00	75.62	110.0	3.620	60.0	170.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-075-32A-3D	25.00	25.90	32.00	42.00	78.80	114.5	3.800	60.0	174.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-078-32A-3D	26.00	26.90	32.00	42.00	81.95	119.0	3.950	60.0	179.00	26.0	ICP 260	K DCN 22-26.99
DCN 270-081-32A-3D	27.00	27.90	32.00	42.00	85.10	123.7	4.100	60.0	191.70	27.0	ICP 270	K DCN 27-32.99
DCN 270-081-40A-3D	27.00	27.90	40.00	50.00	85.10	123.7	4.100	68.0	183.70	27.0	ICP 270	K DCN 27-32.99
DCN 280-084-32A-3D	28.00	28.90	32.00	42.00	88.25	128.2	4.250	60.0	196.20	28.0	ICP 280	K DCN 27-32.99
DCN 280-084-40A-3D	28.00	28.90	40.00	50.00	88.25	128.2	4.250	68.0	188.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-087-32A-3D	29.00	29.90	32.00	42.00	91.43	132.8	4.430	60.0	200.80	29.0	ICP 290	K DCN 27-32.99
DCN 290-087-40A-3D	29.00	29.90	40.00	50.00	91.43	132.8	4.430	68.0	192.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-090-32A-3D	30.00	30.90	32.00	42.00	94.59	137.4	4.590	60.0	205.40	30.0	ICP 300	K DCN 27-32.99
DCN 300-090-40A-3D	30.00	30.90	40.00	50.00	94.59	137.4	4.590	68.0	197.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-093-32A-3D	31.00	31.90	32.00	42.00	97.76	142.0	4.760	60.0	210.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-096-32A-3D	32.00	32.90	32.00	42.00	100.86	146.5	4.860	60.0	214.50	32.0	ICP 320	K DCN 27-32.99
DCN 320-096-40A-3D	32.00	32.90	40.00	50.00	100.86	146.5	4.860	68.0	206.50	32.0	ICP 320	K DCN 27-32.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

(3) Seat size code

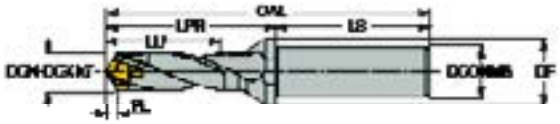
(4) Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN R-3D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 3xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-018-12R-3D	6.00	6.40	12.00	16.00	18.96	32.0	0.960	45.0	77.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-020-12R-3D	6.50	6.90	12.00	16.00	20.68	33.8	1.180	45.0	78.80	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-021-12R-3D	7.00	7.40	12.00	16.00	22.01	35.6	1.010	45.0	80.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-023-12R-3D	7.50	7.90	12.00	16.00	23.60	37.1	1.100	45.0	82.10	7.0	ICP 075	K DCN 6-9.99
DCN 080-024-12R-3D	8.00	8.40	12.00	16.00	25.20	39.4	1.200	45.0	84.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-025-12R-3D	8.50	8.90	12.00	16.00	26.79	40.9	1.290	45.0	85.90	8.0	ICP 085	K DCN 6-9.99
DCN 090-027-12R-3D	9.00	9.40	12.00	16.00	28.35	42.8	1.350	45.0	87.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-029-12R-3D	9.50	9.90	12.00	16.00	29.94	44.3	1.440	45.0	89.30	9.0	ICP 095	K DCN 6-9.99
DCN 100-030-16R-3D	10.00	10.40	16.00	20.00	31.50	46.2	1.500	48.0	94.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-032-16R-3D	10.50	10.90	16.00	20.00	33.09	47.7	1.590	48.0	95.70	10.0	ICP 105	K DCN 10-13.99
DCN 110-033-16R-3D	11.00	11.40	16.00	20.00	34.67	49.6	1.670	48.0	97.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-035-16R-3D	11.50	11.90	16.00	20.00	36.26	51.1	1.760	48.0	99.10	11.0	ICP 115	K DCN 10-13.99
DCN 120-036-16R-3D	12.00	12.40	16.00	20.00	37.82	53.0	1.820	48.0	101.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-037-16R-3D	12.50	12.90	16.00	20.00	39.41	54.5	1.910	48.0	102.50	12.0	ICP 125	K DCN 10-13.99
DCN 130-039-16R-3D	13.00	13.40	16.00	20.00	40.96	56.6	1.960	48.0	104.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-041-16R-3D	13.50	13.90	16.00	20.00	42.55	58.1	2.050	48.0	106.10	13.0	ICP 135	K DCN 10-13.99
DCN 140-042-16R-3D	14.00	14.40	16.00	20.00	44.12	62.1	2.120	48.0	110.10	14.0	ICP 140	K DCN 14-17.99
DCN 145-044-16R-3D	14.50	14.90	16.00	20.00	45.71	63.6	2.210	48.0	111.60	14.0	ICP 145	K DCN 14-17.99
DCN 150-045-20R-3D	15.00	15.90	20.00	25.00	47.27	68.7	2.270	50.0	118.70	15.0	ICP 150	K DCN 14-17.99
DCN 160-048-20R-3D	16.00	16.90	20.00	25.00	50.42	73.3	2.420	50.0	123.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-051-20R-3D	17.00	17.90	20.00	25.00	53.59	77.9	2.590	50.0	127.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-054-25R-3D	18.00	18.90	25.00	32.00	56.73	82.5	2.730	56.0	138.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-057-25R-3D	19.00	19.90	25.00	32.00	59.88	87.0	2.880	56.0	143.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-060-25R-3D	20.00	20.90	25.00	32.00	63.02	91.6	3.020	56.0	147.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-063-25R-3D	21.00	21.90	25.00	32.00	66.18	96.2	3.180	56.0	152.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-066-25R-3D	22.00	22.90	25.00	32.00	69.32	100.8	3.320	56.0	156.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-069-32R-3D	23.00	23.90	32.00	42.00	72.46	105.4	3.460	60.0	165.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-072-32R-3D	24.00	24.90	32.00	42.00	75.62	110.0	3.620	60.0	170.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-075-32R-3D	25.00	25.90	32.00	42.00	78.80	114.5	3.800	60.0	174.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-078-32R-3D	26.00	26.90	32.00	42.00	81.95	119.0	3.950	60.0	179.00	26.0	ICP 260	K DCN 22-26.99
DCN 270-081-32R-3D	27.00	27.90	32.00	42.00	85.10	123.7	4.100	60.0	183.70	27.0	ICP 270	K DCN 27-32.99
DCN 280-084-32R-3D	28.00	28.90	32.00	42.00	88.25	128.2	4.250	60.0	188.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-087-32R-3D	29.00	29.90	32.00	42.00	91.43	132.8	4.430	60.0	192.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-090-32R-3D	30.00	30.90	32.00	42.00	94.59	137.4	4.590	60.0	197.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-093-32R-3D	31.00	31.90	32.00	42.00	97.76	142.0	4.760	60.0	202.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-096-32R-3D	32.00	32.90	32.00	42.00	100.86	146.5	4.860	60.0	206.50	32.0	ICP 320	K DCN 27-32.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

(3) Seat size code

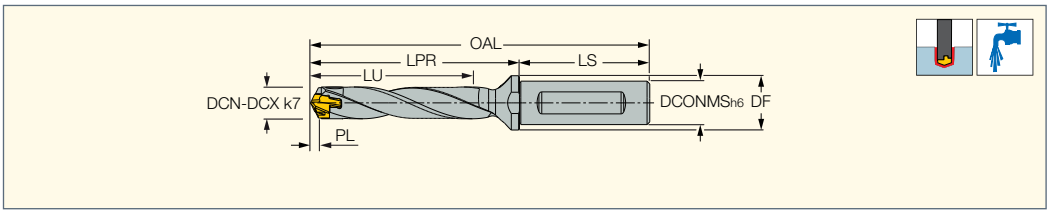
(4) Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN A-5D

Exchangeable Head Drills with Coolant Holes and One Flat Shank, Drilling Depth 5xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-030-12A-5D	6.00	6.40	12.00	16.00	30.96	44.0	0.960	45.0	89.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-033-12A-5D	6.50	6.90	12.00	16.00	33.68	46.8	1.180	45.0	91.80	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-035-12A-5D	7.00	7.40	12.00	16.00	36.01	49.6	1.010	45.0	94.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-038-12A-5D	7.50	7.90	12.00	16.00	38.60	52.1	1.100	45.0	97.10	7.0	ICP 075	K DCN 6-9.99
DCN 080-040-12A-5D	8.00	8.40	12.00	16.00	41.20	55.4	1.200	45.0	100.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-042-12A-5D	8.50	8.90	12.00	16.00	43.79	57.9	1.290	45.0	102.90	8.0	ICP 085	K DCN 6-9.99
DCN 090-045-12A-5D	9.00	9.40	12.00	16.00	46.35	60.8	1.350	45.0	105.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-048-12A-5D	9.50	9.90	12.00	16.00	48.94	63.3	1.440	45.0	108.30	9.0	ICP 095	K DCN 6-9.99
DCN 100-050-16A-5D	10.00	10.40	16.00	20.00	51.50	66.2	1.500	48.0	114.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-053-16A-5D	10.50	10.90	16.00	20.00	54.09	68.7	1.590	48.0	116.70	10.0	ICP 105	K DCN 10-13.99
DCN 110-055-16A-5D	11.00	11.40	16.00	20.00	56.67	71.6	1.670	48.0	119.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-058-16A-5D	11.50	11.90	16.00	20.00	59.26	74.1	1.760	48.0	122.10	11.0	ICP 115	K DCN 10-13.99
DCN 120-060-16A-5D	12.00	12.40	16.00	20.00	61.82	77.0	1.820	48.0	125.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-062-16A-5D	12.50	12.90	16.00	20.00	64.41	79.5	1.910	48.0	127.50	12.0	ICP 125	K DCN 10-13.99
DCN 130-065-16A-5D	13.00	13.40	16.00	20.00	66.96	82.6	1.960	48.0	130.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-068-16A-5D	13.50	13.90	16.00	20.00	69.55	85.1	2.050	48.0	133.10	13.0	ICP 135	K DCN 10-13.99
DCN 140-070-16A-5D	14.00	14.40	16.00	20.00	72.12	90.2	2.120	48.0	138.20	14.0	ICP 140	K DCN 14-17.99
DCN 145-073-16A-5D	14.50	14.90	16.00	20.00	74.71	92.7	2.210	48.0	140.70	14.0	ICP 145	K DCN 14-17.99
DCN 150-075-20A-5D	15.00	15.90	20.00	25.00	77.27	98.7	2.270	50.0	148.70	15.0	ICP 150	K DCN 14-17.99
DCN 160-080-20A-5D	16.00	16.90	20.00	25.00	82.42	105.3	2.420	50.0	155.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-085-20A-5D	17.00	17.90	20.00	25.00	87.59	111.9	2.590	50.0	161.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-090-25A-5D	18.00	18.90	25.00	32.00	92.73	118.5	2.730	56.0	174.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-095-25A-5D	19.00	19.90	25.00	32.00	97.88	125.0	2.880	56.0	181.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-100-25A-5D	20.00	20.90	25.00	32.00	103.02	131.6	3.020	56.0	187.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-105-25A-5D	21.00	21.90	25.00	32.00	108.18	138.2	3.180	56.0	194.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-110-25A-5D	22.00	22.90	25.00	32.00	113.32	144.8	3.320	56.0	200.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-115-32A-5D	23.00	23.90	32.00	42.00	118.46	151.4	3.460	60.0	211.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-120-32A-5D	24.00	24.90	32.00	42.00	123.62	158.0	3.620	60.0	218.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-125-32A-5D	25.00	25.90	32.00	42.00	128.80	164.5	3.800	60.0	224.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-130-32A-5D	26.00	26.90	32.00	42.00	133.95	171.0	3.950	60.0	231.00	26.0	ICP 260	K DCN 22-26.99
DCN 270-135-32A-5D	27.00	27.90	32.00	42.00	139.10	177.7	4.100	60.0	237.65	27.0	ICP 270	K DCN 27-32.99
DCN 270-135-40A-5D	27.00	27.90	40.00	50.00	139.10	177.7	4.100	68.0	245.65	27.0	ICP 270	K DCN 27-32.99
DCN 280-140-32A-5D	28.00	28.90	32.00	42.00	144.25	184.2	4.250	60.0	252.20	28.0	ICP 280	K DCN 27-32.99
DCN 280-140-40A-5D	28.00	28.90	40.00	50.00	144.25	184.2	4.250	68.0	244.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-145-32A-5D	29.00	29.90	32.00	42.00	149.43	190.8	4.430	60.0	258.80	29.0	ICP 290	K DCN 27-32.99
DCN 290-145-40A-5D	29.00	29.90	40.00	50.00	149.43	190.8	4.430	68.0	250.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-150-32A-5D	30.00	30.90	32.00	42.00	154.59	197.4	4.590	60.0	265.40	30.0	ICP 300	K DCN 27-32.99
DCN 300-150-40A-5D	30.00	30.90	40.00	50.00	154.59	197.4	4.590	68.0	257.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-155-32A-5D	31.00	31.90	32.00	42.00	159.76	204.0	4.760	60.0	272.00	31.0	ICP 310	K DCN 27-32.99
DCN 310-155-40A-5D	31.00	31.90	40.00	50.00	159.76	204.0	4.760	68.0	264.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-160-32A-5D	32.00	32.90	32.00	42.00	164.86	210.5	4.860	60.0	278.50	32.0	ICP 320	K DCN 27-32.99
DCN 320-160-40A-5D	32.00	32.90	40.00	50.00	164.86	210.5	4.860	68.0	270.50	32.0	ICP 320	K DCN 27-32.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] Cutting diameter minimum

[2] Cutting diameter maximum

[3] Seat size code

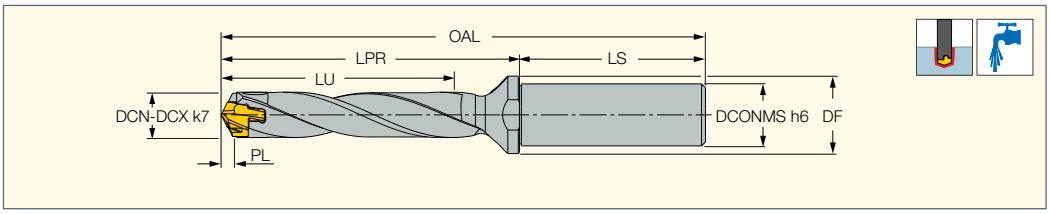
[4] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN R-5D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 5xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-030-12R-5D	6.00	6.40	12.00	16.00	30.96	44.0	0.960	45.0	89.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-033-12R-5D	6.50	6.90	12.00	16.00	33.68	46.8	1.180	45.0	91.80	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-035-12R-5D	7.00	7.40	12.00	16.00	36.01	49.6	1.010	45.0	94.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-038-12R-5D	7.50	7.90	12.00	16.00	38.60	52.1	1.100	45.0	97.10	7.0	ICP 075	K DCN 6-9.99
DCN 080-040-12R-5D	8.00	8.40	12.00	16.00	41.20	55.4	1.200	45.0	100.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-042-12R-5D	8.50	8.90	12.00	16.00	43.79	57.9	1.290	45.0	102.90	8.0	ICP 085	K DCN 6-9.99
DCN 090-045-12R-5D	9.00	9.40	12.00	16.00	46.35	60.8	1.350	45.0	105.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-048-12R-5D	9.50	9.90	12.00	16.00	48.94	63.3	1.440	45.0	108.30	9.0	ICP 095	K DCN 6-9.99
DCN 100-050-16R-5D	10.00	10.40	16.00	20.00	51.50	66.2	1.500	48.0	114.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-053-16R-5D	10.50	10.90	16.00	20.00	54.09	68.7	1.590	48.0	116.70	10.0	ICP 105	K DCN 10-13.99
DCN 110-055-16R-5D	11.00	11.40	16.00	20.00	56.67	71.6	1.670	48.0	119.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-058-16R-5D	11.50	11.90	16.00	20.00	59.26	74.1	1.760	48.0	122.10	11.0	ICP 115	K DCN 10-13.99
DCN 120-060-16R-5D	12.00	12.40	16.00	20.00	61.82	77.0	1.820	48.0	125.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-062-16R-5D	12.50	12.90	16.00	20.00	64.41	79.5	1.910	48.0	127.50	12.0	ICP 125	K DCN 10-13.99
DCN 130-065-16R-5D	13.00	13.40	16.00	20.00	66.96	82.6	1.960	48.0	130.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-068-16R-5D	13.50	13.90	16.00	20.00	69.55	85.1	2.050	48.0	133.10	13.0	ICP 135	K DCN 10-13.99
DCN 140-070-16R-5D	14.00	14.40	16.00	20.00	72.12	90.2	2.120	48.0	138.20	14.0	ICP 140	K DCN 14-17.99
DCN 145-073-16R-5D	14.50	14.90	16.00	20.00	74.62	92.7	2.210	48.0	140.70	14.0	ICP 145	K DCN 14-17.99
DCN 150-075-20R-5D	15.00	15.90	20.00	25.00	77.27	98.7	2.270	50.0	148.70	15.0	ICP 150	K DCN 14-17.99
DCN 160-080-20R-5D	16.00	16.90	20.00	25.00	82.42	105.3	2.420	50.0	155.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-085-20R-5D	17.00	17.90	20.00	25.00	87.59	111.9	2.590	50.0	161.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-090-25R-5D	18.00	18.90	25.00	32.00	92.73	118.5	2.730	56.0	174.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-095-25R-5D	19.00	19.90	25.00	32.00	97.88	125.0	2.880	56.0	181.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-100-25R-5D	20.00	20.90	25.00	32.00	103.02	131.6	3.020	56.0	187.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-105-25R-5D	21.00	21.90	25.00	32.00	108.18	138.2	3.180	56.0	194.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-110-25R-5D	22.00	22.90	25.00	32.00	113.32	144.8	3.320	56.0	200.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-115-32R-5D	23.00	23.90	32.00	42.00	118.46	151.4	3.460	60.0	211.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-120-32R-5D	24.00	24.90	32.00	42.00	123.62	158.0	3.620	60.0	218.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-125-32R-5D	25.00	25.90	32.00	42.00	128.80	164.5	3.800	60.0	224.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-130-32R-5D	26.00	26.90	32.00	42.00	133.95	171.0	3.950	60.0	231.00	26.0	ICP 260	K DCN 22-26.99
DCN 270-135-32R-5D	27.00	27.90	32.00	42.00	139.10	177.7	4.100	60.0	237.70	27.0	ICP 270	K DCN 27-32.99
DCN 280-140-32R-5D	28.00	28.90	32.00	42.00	144.25	184.2	4.250	60.0	244.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-145-32R-5D	29.00	29.90	32.00	42.00	149.43	190.8	4.430	60.0	250.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-150-32R-5D	30.00	30.90	32.00	42.00	154.59	197.4	4.590	60.0	257.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-155-32R-5D	31.00	31.90	32.00	42.00	159.76	204.0	4.760	60.0	264.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-160-32R-5D	32.00	32.90	32.00	42.00	164.86	210.5	4.860	60.0	270.50	32.0	ICP 320	K DCN 27-32.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] Cutting diameter minimum

[2] Cutting diameter maximum

[3] Seat size code

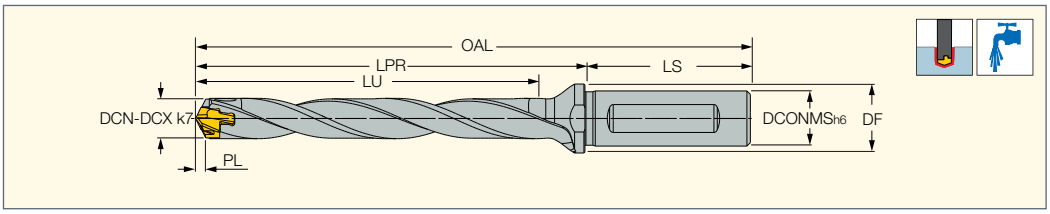
[4] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN A-8D

Exchangeable Head Drills with Coolant Holes and One Flat Shank, Drilling Depth 8xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 060-048-12A-8D	6.00	6.40	12.00	16.00	48.96	62.0	0.960	45.0	107.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-052-12A-8D	6.50	6.90	12.00	16.00	53.18	66.3	1.180	45.0	111.30	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-056-12A-8D	7.00	7.40	12.00	16.00	57.01	70.6	1.010	45.0	115.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-060-12A-8D	7.50	7.90	12.00	16.00	61.10	74.6	1.100	45.0	120.00	7.0	ICP 075	K DCN 6-9.99
DCN 080-064-12A-8D	8.00	8.40	12.00	16.00	65.20	79.4	1.200	45.0	124.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-068-12A-8D	8.50	8.90	12.00	16.00	69.29	83.4	1.290	45.0	128.40	8.0	ICP 085	K DCN 6-9.99
DCN 090-072-12A-8D	9.00	9.40	12.00	16.00	73.36	87.8	1.360	45.0	132.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-076-12A-8D	9.50	9.90	12.00	16.00	77.44	91.8	1.440	45.0	136.80	9.0	ICP 095	K DCN 6-9.99
DCN 100-080-16A-8D	10.00	10.40	16.00	20.00	81.50	96.2	1.500	48.0	144.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-084-16A-8D	10.50	10.90	16.00	20.00	85.59	100.2	1.590	48.0	148.20	10.0	ICP 105	K DCN 10-13.99
DCN 110-088-16A-8D	11.00	11.40	16.00	20.00	89.67	104.6	1.670	48.0	152.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-092-16A-8D	11.50	11.90	16.00	20.00	93.76	108.6	1.760	48.0	156.60	11.0	ICP 115	K DCN 10-13.99
DCN 120-096-16A-8D	12.00	12.40	16.00	20.00	97.82	113.0	1.820	48.0	161.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-100-16A-8D	12.50	12.90	16.00	20.00	101.91	117.0	1.910	48.0	165.00	12.0	ICP 125	K DCN 10-13.99
DCN 130-104-16A-8D	13.00	13.40	16.00	20.00	105.96	121.6	1.960	48.0	169.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-108-16A-8D	13.50	13.90	16.00	20.00	110.05	125.6	2.050	48.0	173.60	13.0	ICP 135	K DCN 10-13.99
DCN 140-112-16A-8D	14.00	14.40	16.00	20.00	114.12	132.1	2.120	48.0	180.10	14.0	ICP 140	K DCN 14-17.99
DCN 145-116-16A-8D	14.50	14.90	16.00	20.00	118.21	136.2	2.210	48.0	184.20	14.0	ICP 145	K DCN 14-17.99
DCN 150-120-20A-8D	15.00	15.90	20.00	25.00	122.27	143.7	2.270	50.0	193.70	15.0	ICP 150	K DCN 14-17.99
DCN 160-128-20A-8D	16.00	16.90	20.00	25.00	130.42	153.3	2.420	50.0	203.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-136-20A-8D	17.00	17.90	20.00	25.00	138.59	162.9	2.590	50.0	212.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-144-25A-8D	18.00	18.90	25.00	32.00	146.73	172.5	2.730	56.0	228.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-152-25A-8D	19.00	19.90	25.00	32.00	154.88	182.0	2.880	56.0	238.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-160-25A-8D	20.00	20.90	25.00	32.00	163.02	191.6	3.020	56.0	247.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-168-25A-8D	21.00	21.90	25.00	32.00	171.18	201.2	3.180	56.0	257.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-176-25A-8D	22.00	22.90	25.00	32.00	179.32	210.8	3.320	56.0	266.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-184-32A-8D	23.00	23.90	32.00	42.00	187.46	220.4	3.460	60.0	280.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-192-32A-8D	24.00	24.90	32.00	42.00	195.62	230.0	3.620	60.0	290.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-200-32A-8D	25.00	25.90	32.00	42.00	203.80	239.5	3.800	60.0	299.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-208-32A-8D	26.00	26.90	32.00	42.00	211.95	249.3	3.950	60.0	309.30	26.0	ICP 260	K DCN 22-26.99
DCN 270-216-32A-8D	27.00	27.90	32.00	42.00	220.10	258.6	4.100	60.0	318.60	27.0	ICP 270	K DCN 27-32.99
DCN 280-224-32A-8D	28.00	28.90	32.00	42.00	228.25	268.2	4.250	60.0	328.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-232-32A-8D	29.00	29.90	32.00	42.00	236.43	277.8	4.430	60.0	337.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-240-32A-8D	30.00	30.90	32.00	42.00	244.59	287.4	4.590	60.0	347.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-248-32A-8D	31.00	31.90	32.00	42.00	252.76	297.0	4.760	60.0	357.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-256-32A-8D	32.00	32.90	32.00	42.00	260.86	306.5	4.860	60.0	366.50	32.0	ICP 320	K DCN 27-32.99

- Prior to using the 8xD drill, it is recommended to drill a pre-hole by using a DCN 1.5xD drill or a centering drill. It is not required if HCP or QCP drilling head is used
- Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

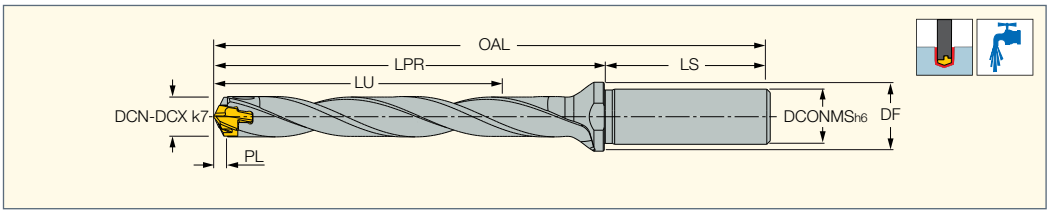
[1] Cutting diameter minimum
[2] Cutting diameter maximum
[3] Seat size code
[4] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN R-8D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 8xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	MIID(4)	
DCN 060-048-12R-8D	6.00	6.40	12.00	16.00	48.96	62.0	0.960	45.0	107.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-052-12R-8D	6.50	6.90	12.00	16.00	53.18	66.3	1.180	45.0	111.30	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-056-12R-8D	7.00	7.40	12.00	16.00	57.01	70.6	1.010	45.0	115.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-060-12R-8D	7.50	7.90	12.00	16.00	61.10	74.6	1.100	45.0	120.00	7.0	ICP 075	K DCN 6-9.99
DCN 080-064-12R-8D	8.00	8.40	12.00	16.00	65.20	79.4	1.200	45.0	124.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-068-12R-8D	8.50	8.90	12.00	16.00	69.29	83.4	1.290	45.0	128.40	8.0	ICP 085	K DCN 6-9.99
DCN 090-072-12R-8D	9.00	9.40	12.00	16.00	73.35	87.8	1.350	45.0	132.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-076-12R-8D	9.50	9.90	12.00	16.00	77.44	91.8	1.440	45.0	136.80	9.0	ICP 095	K DCN 6-9.99
DCN 100-080-16R-8D	10.00	10.40	16.00	20.00	81.50	96.2	1.500	48.0	144.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-084-16R-8D	10.50	10.90	16.00	20.00	85.59	100.2	1.590	48.0	148.20	10.0	ICP 105	K DCN 10-13.99
DCN 110-088-16R-8D	11.00	11.40	16.00	20.00	89.67	104.6	1.670	48.0	152.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-092-16R-8D	11.50	11.90	16.00	20.00	93.76	108.6	1.760	48.0	156.60	11.0	ICP 115	K DCN 10-13.99
DCN 120-096-16R-8D	12.00	12.40	16.00	20.00	97.82	113.0	1.820	48.0	161.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-100-16R-8D	12.50	12.90	16.00	20.00	101.91	117.0	1.910	48.0	165.00	12.0	ICP 125	K DCN 10-13.99
DCN 130-104-16R-8D	13.00	13.40	16.00	20.00	105.96	121.6	1.960	48.0	169.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-108-16R-8D	13.50	13.90	16.00	20.00	110.05	125.6	2.050	48.0	173.60	13.0	ICP 135	K DCN 10-13.99
DCN 140-112-16R-8D	14.00	14.40	16.00	20.00	114.12	132.1	2.120	48.0	180.10	14.0	ICP 140	K DCN 14-17.99
DCN 145-116-16R-8D	14.50	14.90	16.00	20.00	118.21	136.2	2.210	48.0	184.20	14.0	ICP 145	K DCN 14-17.99
DCN 150-120-20R-8D	15.00	15.90	20.00	25.00	122.27	143.7	2.270	50.0	193.70	15.0	ICP 150	K DCN 14-17.99
DCN 160-128-20R-8D	16.00	16.90	20.00	25.00	130.42	153.3	2.420	50.0	203.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-136-20R-8D	17.00	17.90	20.00	25.00	138.59	162.9	2.590	50.0	212.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-144-25R-8D	18.00	18.90	25.00	32.00	146.73	172.5	2.730	56.0	228.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-152-25R-8D	19.00	19.90	25.00	32.00	154.88	182.0	2.880	56.0	238.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-160-25R-8D	20.00	20.90	25.00	32.00	163.02	191.6	3.020	56.0	247.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-168-25R-8D	21.00	21.90	25.00	32.00	171.18	201.2	3.180	56.0	257.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-176-25R-8D	22.00	22.90	25.00	32.00	179.32	210.8	3.320	56.0	266.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-184-32R-8D	23.00	23.90	32.00	42.00	187.46	220.4	3.460	60.0	280.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-192-32R-8D	24.00	24.90	32.00	42.00	195.62	230.0	3.620	60.0	290.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-200-32R-8D	25.00	25.90	32.00	42.00	203.80	239.5	3.800	60.0	299.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-208-32R-8D	26.00	26.90	32.00	42.00	211.95	249.3	3.950	60.0	309.30	26.0	ICP 260	K DCN 22-26.99
DCN 270-216-32R-8D	27.00	27.90	32.00	42.00	220.10	258.6	4.100	60.0	318.60	27.0	ICP 270	K DCN 27-32.99
DCN 280-224-32R-8D	28.00	28.90	32.00	42.00	228.25	268.2	4.250	60.0	328.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-232-32R-8D	29.00	29.90	32.00	42.00	236.43	277.8	4.430	60.0	337.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-240-32R-8D	30.00	30.90	32.00	42.00	244.59	287.4	4.590	60.0	347.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-248-32R-8D	31.00	31.90	32.00	42.00	252.76	297.0	4.760	60.0	357.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-256-32R-8D	32.00	32.90	32.00	42.00	260.86	306.5	4.860	60.0	366.50	32.0	ICP 320	K DCN 27-32.99

- Prior to using the 8xD drill, it is recommended to drill a pre-hole by using a DCN 1.5xD drill or a centering drill. It is not required if HCP or QCP drilling head is used
- Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

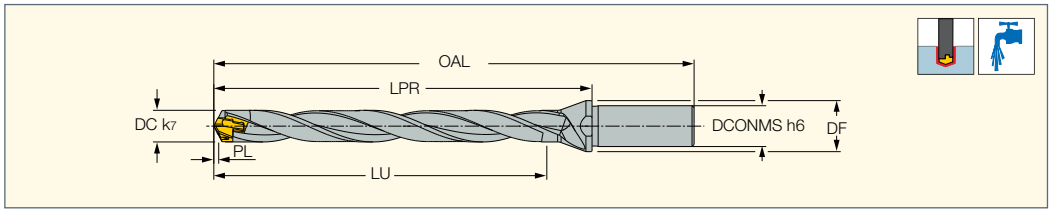
(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) Seat size code
(4) Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN R-10D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 10xD



Designation	DC	DCONMS	DF	LU	LPR	PL	OAL	SSC(1)	
DCN 160-160-20R-10D	16.00	20.00	25.00	162.40	185.30	2.420	235.30	16.0	K DCN 14-17.99
DCN 190-190-25R-10D	19.00	25.00	32.00	192.90	220.00	2.880	276.00	19.0	K DCN 18-21.99
DCN 250-250-32R-10D	25.00	32.00	42.00	253.80	289.50	3.800	349.50	25.0	K DCN 22-26.99

- Prior to using the 10xD drill, it is recommended to drill a pre-hole by using a DCN 1.5xD drill or a centering drill. It is not required if HCP or QCP drilling head is used • Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

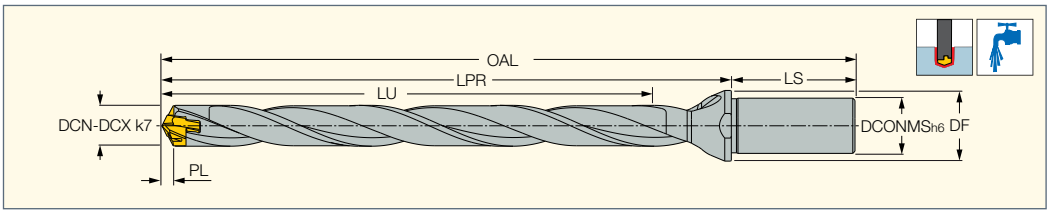
(1) Seat size code

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

DCN R-12D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 12xD



Designation	DCN[1]	DCX[2]	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC[3]	MIID[4]	
DCN 080-096-12R-12D	8.00	8.40	12.00	16.00	97.50	111.4	1.200	45.0	156.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-102-12R-12D	8.50	8.90	12.00	16.00	103.60	117.4	1.290	45.0	162.40	8.0	ICP 085	K DCN 6-9.99
DCN 090-108-12R-12D	9.00	9.40	12.00	16.00	109.60	123.8	1.350	45.0	168.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-114-12R-12D	9.50	9.90	12.00	16.00	115.70	129.8	1.440	45.0	174.80	9.0	ICP 095	K DCN 6-9.99
DCN 100-120-16R-12D	10.00	10.40	16.00	20.00	121.80	136.2	1.500	48.0	184.20	10.0	ICP 100	K DCN 10-13.99
DCN 105-126-16R-12D	10.50	10.90	16.00	20.00	127.90	142.2	1.590	48.0	190.20	10.0	ICP 105	K DCN 10-13.99
DCN 110-132-16R-12D	11.00	11.40	16.00	20.00	134.00	148.6	1.670	48.0	196.60	11.0	ICP 110	K DCN 10-13.99
DCN 115-138-16R-12D	11.50	11.90	16.00	20.00	140.10	154.6	1.760	48.0	202.60	11.0	ICP 115	K DCN 10-13.99
DCN 120-144-16R-12D	12.00	12.40	16.00	20.00	146.20	161.0	1.820	48.0	209.00	12.0	ICP 120	K DCN 10-13.99
DCN 125-150-16R-12D	12.50	12.90	16.00	20.00	152.30	167.0	1.910	48.0	215.00	12.0	ICP 125	K DCN 10-13.99
DCN 130-156-16R-12D	13.00	13.40	16.00	20.00	158.40	173.6	1.960	48.0	221.60	13.0	ICP 130	K DCN 10-13.99
DCN 135-162-16R-12D	13.50	13.90	16.00	20.00	164.50	179.6	2.050	48.0	227.00	13.0	ICP 135	K DCN 10-13.99
DCN 140-168-16R-12D	14.00	14.40	16.00	20.00	170.60	188.2	2.120	48.0	236.00	14.0	ICP 140	K DCN 14-17.99
DCN 145-174-16R-12D	14.50	14.90	16.00	20.00	176.60	194.2	2.210	48.0	242.00	14.0	ICP 145	K DCN 14-17.99
DCN 150-180-20R-12D	15.00	15.90	20.00	25.00	182.70	203.7	2.270	50.0	253.73	15.0	ICP 150	K DCN 14-17.99
DCN 160-192-20R-12D	16.00	16.90	20.00	25.00	194.90	217.3	2.420	50.0	267.30	16.0	ICP 160	K DCN 14-17.99
DCN 170-204-20R-12D	17.00	17.90	20.00	25.00	207.10	230.9	2.590	50.0	280.90	17.0	ICP 170	K DCN 14-17.99
DCN 180-216-25R-12D	18.00	18.90	25.00	32.00	219.30	244.5	2.730	56.0	300.50	18.0	ICP 180	K DCN 18-21.99
DCN 190-228-25R-12D	19.00	19.90	25.00	32.00	231.50	258.0	2.880	56.0	314.00	19.0	ICP 190	K DCN 18-21.99
DCN 200-240-25R-12D	20.00	20.90	25.00	32.00	243.60	271.6	3.020	56.0	327.60	20.0	ICP 200	K DCN 18-21.99
DCN 210-252-25R-12D	21.00	21.90	25.00	32.00	255.80	285.2	3.180	56.0	341.20	21.0	ICP 210	K DCN 18-21.99
DCN 220-264-25R-12D	22.00	22.90	25.00	32.00	268.00	298.8	3.320	56.0	354.80	22.0	ICP 220	K DCN 22-26.99
DCN 230-276-32R-12D	23.00	23.90	32.00	42.00	280.20	312.3	3.460	60.0	362.40	23.0	ICP 230	K DCN 22-26.99
DCN 240-288-32R-12D	24.00	24.90	32.00	42.00	292.40	325.9	3.620	60.0	386.00	24.0	ICP 240	K DCN 22-26.99
DCN 250-300-32R-12D	25.00	25.90	32.00	42.00	304.60	339.5	3.800	60.0	399.50	25.0	ICP 250	K DCN 22-26.99
DCN 260-312-32R-12D	26.00	26.90	32.00	42.00	316.70	381.1	3.950	60.0	441.10	26.0	ICP 260	K DCN 22-26.99
DCN 270-324-32R-12D	27.00	27.90	32.00	42.00	328.90	393.7	4.100	60.0	453.60	27.0	ICP 270	K DCN 27-32.99
DCN 280-336-32R-12D	28.00	28.90	32.00	42.00	341.10	406.2	4.250	60.0	466.20	28.0	ICP 280	K DCN 27-32.99
DCN 290-348-32R-12D	29.00	29.90	32.00	42.00	353.30	418.8	4.430	60.0	478.80	29.0	ICP 290	K DCN 27-32.99
DCN 300-360-32R-12D	30.00	30.90	32.00	42.00	365.50	431.4	4.590	60.0	491.40	30.0	ICP 300	K DCN 27-32.99
DCN 310-372-32R-12D	31.00	31.90	32.00	42.00	377.60	444.0	4.760	60.0	504.00	31.0	ICP 310	K DCN 27-32.99
DCN 320-384-32R-12D	32.00	32.90	32.00	42.00	389.80	457.5	4.860	60.0	516.50	32.0	ICP 320	K DCN 27-32.99

• Prior to using the 12xD drill, it is recommended to drill a pre-hole by using a DCN 1.5xD drill or a centering drill • The HCP or QCP drilling head may eliminate the need for a pre-hole • Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] Cutting diameter minimum

[2] Cutting diameter maximum

[3] Seat size code

[4] Master insert identification

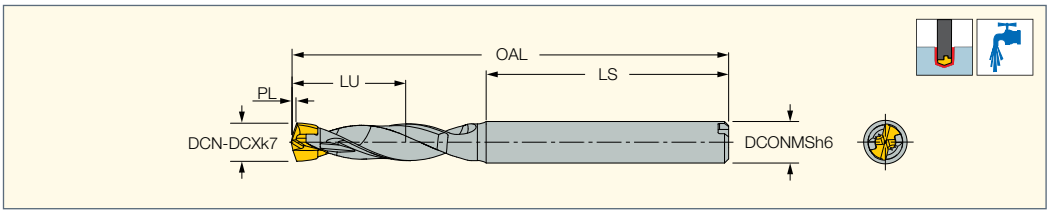
For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

Standard Tools

SUMOCHAM CHAMDRILL LINE

DCN C-3D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 3xD



Designation	DCN[2]	DCX[3]	DCONMS	LU	PL	LS	OAL	SSC[4]	MIID[5]	
DCN 040-012-06C-3D [1]	4.00	4.40	6.00	12.62	0.620	35.0	57.70	4.0	ICP 040	
DCN 045-014-06C-3D [1]	4.50	4.90	6.00	14.16	0.660	35.0	59.65	4.5	ICP 045	
DCN 050-015-06C-3D [1]	5.00	5.40	6.00	15.73	0.730	35.0	61.30	5.0	ICP 050	
DCN 055-017-06C-3D [1]	5.50	5.90	6.00	17.31	0.810	35.0	63.15	5.5	ICP 055	
DCN 060-018-08C-3D	6.00	6.40	8.00	18.96	0.960	36.0	64.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-020-08C-3D	6.50	6.90	8.00	20.68	1.180	36.0	65.80	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-021-08C-3D	7.00	7.40	8.00	22.01	1.010	36.0	67.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-023-08C-3D	7.50	7.90	8.00	23.60	1.100	36.0	69.10	7.0	ICP 075	K DCN 6-9.99
DCN 080-024-10C-3D	8.00	8.40	10.00	25.20	1.200	40.0	75.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-026-10C-3D	8.50	8.90	10.00	27.69	1.290	40.0	76.90	8.0	ICP 085	K DCN 6-9.99
DCN 090-027-10C-3D	9.00	9.40	10.00	28.38	1.350	40.0	78.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-029-10C-3D	9.50	9.90	10.00	29.94	1.440	40.0	80.30	9.0	ICP 095	K DCN 6-9.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] The SK DCN key is supplied with the insert

[2] Cutting diameter minimum

[3] Cutting diameter maximum

[4] Seat size code

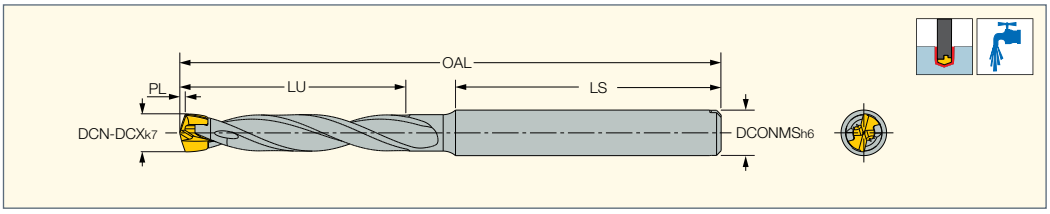
[5] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52)

SUMOCHAM CHAMDRILL LINE

DCN C-5D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 5xD



Designation	DCN[2]	DCX[3]	DCONMS	LU	PL	LS	OAL	SSC[4]	MIID[5]	
DCN 040-020-06C-5D [1]	4.00	4.40	6.00	20.62	0.620	35.0	65.70	4.0	ICP 040	
DCN 045-023-06C-5D [1]	4.50	4.90	6.00	23.16	0.660	35.0	68.65	4.5	ICP 045	
DCN 050-025-06C-5D [1]	5.00	5.40	6.00	25.73	0.730	35.0	71.30	5.0	ICP 050	
DCN 055-028-06C-5D [1]	5.50	5.90	6.00	28.31	0.810	35.0	74.15	5.5	ICP 055	
DCN 060-030-08C-5D	6.00	6.40	8.00	30.96	0.960	36.0	76.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-033-08C-5D	6.50	6.90	8.00	33.68	1.180	36.0	78.80	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-035-08C-5D	7.00	7.40	8.00	36.01	1.010	36.0	81.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-038-08C-5D	7.50	7.90	8.00	38.60	1.100	36.0	84.10	7.0	ICP 075	K DCN 6-9.99
DCN 080-040-10C-5D	8.00	8.40	10.00	41.20	1.200	40.0	91.40	8.0	ICP 080	K DCN 6-9.99
DCN 085-043-10C-5D	8.50	8.90	10.00	43.79	1.290	40.0	93.90	8.0	ICP 085	K DCN 6-9.99
DCN 090-045-10C-5D	9.00	9.40	10.00	46.35	1.350	40.0	96.80	9.0	ICP 090	K DCN 6-9.99
DCN 095-048-10C-5D	9.50	9.90	10.00	48.94	1.440	40.0	99.30	9.0	ICP 095	K DCN 6-9.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

[1] The SK DCN key is supplied with the insert

[2] Cutting diameter minimum

[3] Cutting diameter maximum

[4] Seat size code

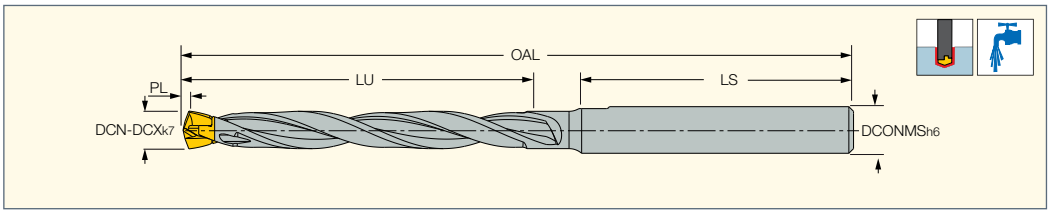
[5] Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52)

SUMOCHAM CHAMDRILL LINE

DCN C-8D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 8xD



Designation	DCN(1)	DCX(2)	DCONMS	LU	PL	LS	OAL	SSC(3)	MIID(4)
DCN 040-032-06C-8D	4.00	4.40	6.00	32.62	0.620	35.0	77.70	4.0	ICP 040
DCN 045-036-06C-8D	4.50	4.90	6.00	36.66	0.660	35.0	82.20	4.5	ICP 045
DCN 050-040-06C-8D	5.00	5.40	6.00	40.73	0.730	35.0	86.30	5.0	ICP 050
DCN 055-044-06C-8D	5.50	5.90	6.00	44.81	0.810	35.0	90.70	5.5	ICP 055

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

(3) Seat size code

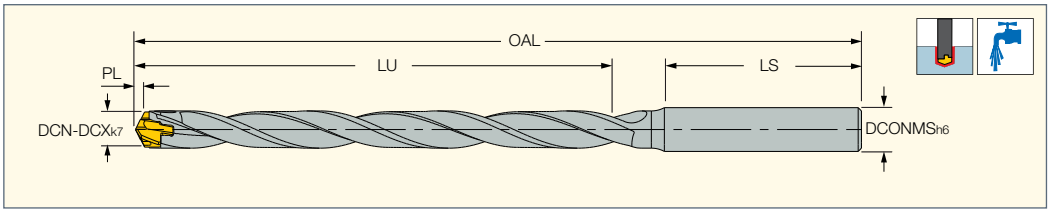
(4) Master insert identification

For inserts, see pages: ICP (18) • ICK (28) • ICM (36) • HCP-IQ (47) • FCP (52)

SUMOCHAM CHAMDRILL LINE

DCN C-12D

Exchangeable Head Drills with Coolant Holes and a Cylindrical Shank, Drilling Depth 12xD



Designation	DCN(1)	DCX(2)	DCONMS	LU	PL	LS	OAL	SSC(3)	MIID(4)	
DCN 060-072-08C-12D	6.00	6.40	8.00	72.96	0.960	36.0	120.00	6.0	ICP 060	K DCN 6-9.99-Y
DCN 065-078-08C-12D	6.50	6.90	8.00	79.18	1.180	36.0	126.30	6.5	ICP 065	K DCN 6-9.99-Y
DCN 070-084-08C-12D	7.00	7.40	8.00	85.01	1.010	36.0	132.60	7.0	ICP 070	K DCN 6-9.99
DCN 075-090-08C-12D	7.50	7.90	8.00	91.10	1.100	36.0	136.60	7.0	ICP 075	K DCN 6-9.99

• Prior to using the 12xD drill, it is recommended to drill a pre-hole by using a DCN 1.5xD drill or a centering drill • The HCP or QCP drilling head may eliminate the need for a pre-hole • Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

(3) Seat size code

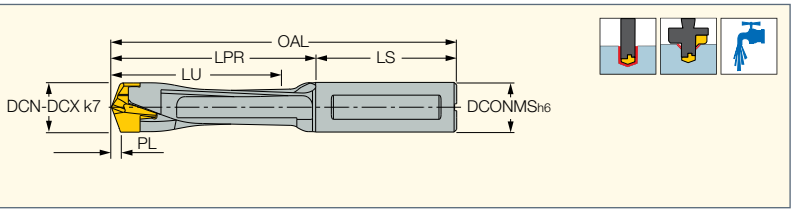
(4) Master insert identification

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52)

SUMOUNICHAM

DCNS-3D

Exchangeable Head Drills without a Flange and One Flat Shank, Drilling Depth 3xD, Suitable for Chamfering Holders



Designation	DCN(1)	DCX(2)	DCONMS	LU	LPR	PL	LS	OAL	SSC(3)	
DCNS 075-022-080B-3D	7.50	7.90	8.00	23.60	34.2	1.100	36.0	70.20	7.0	K DCN 6-9.99
DCNS 080-024-080B-3D	8.00	8.40	8.00	25.20	34.7	1.200	36.0	70.70	8.0	K DCN 6-9.99
DCNS 085-025-090B-3D	8.50	8.90	9.00	26.79	36.8	1.290	36.0	72.90	8.0	K DCN 6-9.99
DCNS 090-027-090B-3D	9.00	9.40	9.00	28.35	38.8	1.350	36.0	74.80	9.0	K DCN 6-9.99
DCNS 095-029-100B-3D	9.50	9.90	10.00	29.94	40.3	1.440	36.0	76.30	9.0	K DCN 6-9.99
DCNS 100-030-100B-3D	10.00	10.40	10.00	31.50	45.2	1.500	41.0	86.20	10.0	K DCN 10-13.99
DCNS 105-032-110B-3D	10.50	10.90	11.00	33.09	46.7	1.590	41.0	87.70	10.0	K DCN 10-13.99
DCNS 110-033-110B-3D	11.00	11.40	11.00	34.67	48.6	1.670	41.0	89.60	11.0	K DCN 10-13.99
DCNS 115-035-120B-3D	11.50	11.90	12.00	36.26	50.1	1.760	41.0	91.10	11.0	K DCN 10-13.99
DCNS 120-036-120B-3D	12.00	12.40	12.00	37.82	52.0	1.820	41.0	93.00	12.0	K DCN 10-13.99
DCNS 125-037-130B-3D	12.50	12.90	13.00	34.41	53.5	1.910	46.0	99.50	12.0	K DCN 10-13.99
DCNS 130-039-130B-3D	13.00	13.40	13.00	40.96	55.6	1.960	47.0	102.60	13.0	K DCN 10-13.99
DCNS 135-041-140B-3D	13.50	13.90	14.00	42.55	57.1	2.050	43.0	100.10	13.0	K DCN 10-13.99
DCNS 140-042-140B-3D	14.00	14.40	14.00	44.12	59.2	2.120	44.0	103.20	14.0	K DCN 14-17.99
DCNS 145-044-150B-3D	14.50	14.90	15.00	45.71	60.7	2.210	45.0	105.70	14.0	K DCN 14-17.99
DCNS 150-045-150B-3D	15.00	15.90	15.00	47.27	62.7	2.270	45.0	107.70	15.0	K DCN 14-17.99
DCNS 160-048-160B-3D	16.00	16.90	16.00	50.42	69.6	2.420	48.0	117.70	16.0	K DCN 14-17.99
DCNS 170-051-170B-3D	17.00	17.90	17.00	53.59	71.9	2.590	48.0	119.90	17.0	K DCN 14-17.99
DCNS 180-054-180B-3D	18.00	18.90	18.00	56.73	75.5	2.730	48.0	123.50	18.0	K DCN 18-21.99
DCNS 190-057-190B-3D	19.00	19.90	19.00	59.88	78.6	2.880	54.0	132.60	19.0	K DCN 18-21.99
DCNS 200-060-200B-3D	20.00	20.90	20.00	63.02	88.1	3.020	54.0	142.10	20.0	K DCN 18-21.99
DCNS 210-063-210B-3D	21.00	21.90	21.00	66.18	90.7	3.180	60.0	150.70	21.0	K DCN 18-21.99
DCNS 220-066-220B-3D	22.00	22.90	22.00	69.32	94.3	3.320	60.0	154.30	22.0	K DCN 22-26.99
DCNS 230-069-230B-3D	23.00	23.90	23.00	72.46	97.8	3.460	60.0	157.80	23.0	K DCN 22-26.99
DCNS 240-072-240B-3D	24.00	24.90	24.00	75.62	101.3	3.620	60.0	161.40	24.0	K DCN 22-26.99
DCNS 250-075-250B-3D	25.00	25.90	25.00	78.80	105.0	3.800	60.0	165.00	25.0	K DCN 22-26.99

- Do not mount smaller drilling heads other than the specified range of the drill body
- For user guide and cutting conditions, see pages 86-81
- For CHAMRING, see page 139

(1) Cutting diameter minimum

(2) Cutting diameter maximum

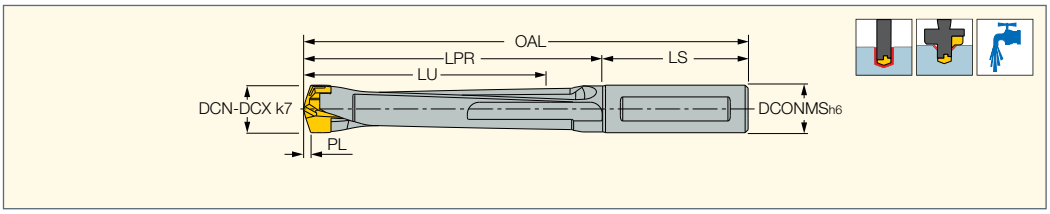
(3) Seat size code

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMO UNICHAM

DCNS-5D

Exchangeable Head Drills without a Flange and One Flat Shank, Drilling Depth 5xD, Suitable for Chamfering Holders



Designation	DCN(1)	DCX(2)	DCONMS	LU	LPR	PL	LS	OAL	SSC(3)	
DCNS 075-037-080B-5D	7.50	7.90	8.00	38.60	49.2	1.100	36.0	85.20	7.0	K DCN 6-9.99
DCNS 080-040-080B-5D	8.00	8.40	8.00	41.20	56.4	1.200	36.0	92.40	8.0	K DCN 6-9.99
DCNS 085-042-090B-5D	8.50	8.90	9.00	43.79	53.9	1.290	36.0	89.90	8.0	K DCN 6-9.99
DCNS 090-045-090B-5D	9.00	9.40	9.00	46.35	56.8	1.350	36.0	92.80	9.0	K DCN 6-9.99
DCNS 095-048-100B-5D	9.50	9.90	10.00	48.94	59.2	1.440	36.0	95.30	9.0	K DCN 6-9.99
DCNS 100-050-100B-5D	10.00	10.40	10.00	51.50	65.2	1.500	41.0	106.20	10.0	K DCN 10-13.99
DCNS 105-053-110B-5D	10.50	10.90	11.00	54.09	67.7	1.590	41.0	108.70	10.0	K DCN 10-13.99
DCNS 110-055-110B-5D	11.00	11.40	11.00	56.67	70.6	1.670	41.0	111.60	11.0	K DCN 10-13.99
DCNS 115-058-120B-5D	11.50	11.90	12.00	59.26	73.1	1.760	41.0	114.10	11.0	K DCN 10-13.99
DCNS 120-060-120B-5D	12.00	12.40	12.00	61.82	75.9	1.820	41.0	117.00	12.0	K DCN 10-13.99
DCNS 125-062-130B-5D	12.50	12.90	13.00	64.41	78.5	1.910	46.0	124.50	12.0	K DCN 10-13.99
DCNS 130-065-130B-5D	13.00	13.40	13.00	66.96	81.5	1.960	47.0	128.60	13.0	K DCN 10-13.99
DCNS 135-068-140B-5D	13.50	13.90	14.00	69.55	84.1	2.050	43.0	127.10	13.0	K DCN 10-13.99
DCNS 140-070-140B-5D	14.00	14.40	14.00	72.12	87.1	2.120	44.0	131.20	14.0	K DCN 14-17.99
DCNS 145-073-150B-5D	14.50	14.90	15.00	74.71	89.7	2.210	45.0	134.70	14.0	K DCN 14-17.99
DCNS 150-075-150B-5D	15.00	15.90	15.00	77.27	92.7	2.270	45.0	137.70	15.0	K DCN 14-17.99
DCNS 160-080-160B-5D	16.00	16.90	16.00	82.42	101.7	2.420	48.0	149.70	16.0	K DCN 14-17.99
DCNS 170-085-170B-5D	17.00	17.90	17.00	87.59	105.9	2.590	48.0	153.90	17.0	K DCN 14-17.99
DCNS 180-090-180B-5D	18.00	18.90	18.00	92.73	111.5	2.730	48.0	159.50	18.0	K DCN 18-21.99
DCNS 190-095-190B-5D	19.00	19.90	19.00	97.88	116.6	2.880	54.0	170.60	19.0	K DCN 18-21.99
DCNS 200-100-200B-5D	20.00	20.90	20.00	103.02	128.1	3.020	54.0	182.10	20.0	K DCN 18-21.99
DCNS 210-105-210B-5D	21.00	21.90	21.00	108.18	132.6	3.180	60.0	192.70	21.0	K DCN 18-21.99
DCNS 220-110-220B-5D	22.00	22.90	22.00	113.32	138.3	3.320	60.0	198.30	22.0	K DCN 22-26.99
DCNS 230-115-230B-5D	23.00	23.90	23.00	118.46	143.8	3.460	60.0	203.80	23.0	K DCN 22-26.99
DCNS 240-120-240B-5D	24.00	24.90	24.00	123.62	149.4	3.620	60.0	209.40	24.0	K DCN 22-26.99
DCNS 250-125-250B-5D	25.00	25.90	25.00	128.80	155.0	3.800	60.0	215.00	25.0	K DCN 22-26.99

- Do not mount smaller drilling heads other than the specified range of the drill body
- For user guide and cutting conditions, see pages 68-81
- For CHAMRING, see page 139

(1) Cutting diameter minimum

(2) Cutting diameter maximum

(3) Seat size code

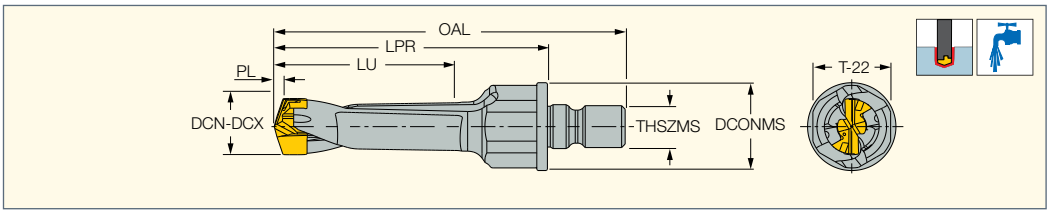
For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

SUMOCHAM CHAMDRILL LINE

FLEXFIT

DCNM

Modular SUMOCHAM Drill with FLEXFIT Connection for Multi-Spindle and Swiss-Type Machines



Designation	DCN[1]	DCX[2]	DCONMS	LU	LPR	PL	OAL	THSZMS	SSC[3]	TQ_3[4]	
DCNM 060-018-M12-3D	6.00	6.40	25.00	22.00	42.0	0.960	64.00	M12	6.0	33	K DCN 6-9.99-Y
DCNM 065-020-M12-3D	6.50	6.90	25.00	24.30	44.3	1.180	66.30	M12	6.5	33	K DCN 6-9.99-Y
DCNM 070-021-M12-3D	7.00	7.40	25.00	25.60	45.6	1.010	67.60	M12	7.0	33	K DCN 6-9.99
DCNM 075-023-M12-3D	7.50	7.90	25.00	27.60	47.6	1.100	69.60	M12	7.0	33	K DCN 6-9.99
DCNM 080-024-M12-3D	8.00	8.40	25.00	29.40	49.4	1.200	71.40	M12	8.0	33	K DCN 6-9.99
DCNM 085-025-M12-3D	8.50	8.90	25.00	30.40	50.4	1.290	72.40	M12	8.0	33	K DCN 6-9.99
DCNM 090-027-M12-3D	9.00	9.40	25.00	32.80	52.8	1.350	74.80	M12	9.0	33	K DCN 6-9.99
DCNM 095-029-M12-3D	9.50	9.90	25.00	34.80	54.8	1.440	76.80	M12	9.0	33	K DCN 6-9.99
DCNM 100-030-M12-3D	10.00	10.40	25.00	36.20	56.2	1.500	78.20	M12	10.0	33	K DCN 10-13.99
DCNM 105-032-M12-3D	10.50	10.90	25.00	38.20	58.2	1.590	80.20	M12	10.0	33	K DCN 10-13.99
DCNM 110-033-M12-3D	11.00	11.40	25.00	39.60	59.6	1.670	81.60	M12	11.0	33	K DCN 10-13.99
DCNM 115-035-M12-3D	11.50	11.90	25.00	41.60	61.6	1.760	83.60	M12	11.0	33	K DCN 10-13.99
DCNM 120-036-M12-3D	12.00	12.40	25.00	43.00	63.0	1.820	85.00	M12	12.0	33	K DCN 10-13.99
DCNM 125-037-M12-3D	12.50	12.90	25.00	44.00	64.0	1.910	86.00	M12	12.0	33	K DCN 10-13.99
DCNM 130-039-M12-3D	13.00	13.40	25.00	46.60	66.6	1.960	88.60	M12	13.0	33	K DCN 10-13.99
DCNM 135-041-M12-3D	13.50	13.90	25.00	48.60	68.6	2.050	90.60	M12	13.0	33	K DCN 10-13.99
DCNM 140-042-M12-3D	14.00	14.40	25.00	50.20	70.2	2.120	92.15	M12	14.0	33	K DCN 14-17.99
DCNM 145-044-M12-3D	14.50	14.90	25.00	52.20	72.2	2.210	94.15	M12	14.0	33	K DCN 14-17.99
DCNM 150-045-M12-3D	15.00	15.90	25.00	53.70	73.7	2.270	95.73	M12	15.0	33	K DCN 14-17.99
DCNM 160-048-M12-3D	16.00	16.90	25.00	57.30	77.3	2.420	99.30	M12	16.0	33	K DCN 14-17.99
DCNM 170-051-M12-3D	17.00	17.90	25.00	60.90	80.9	2.590	102.90	M12	17.0	33	K DCN 14-17.99
DCNM 180-054-M12-3D	18.00	18.90	25.00	64.50	84.5	2.730	106.50	M12	18.0	33	K DCN 18-21.99
DCNM 190-057-M12-3D	19.00	19.90	25.00	68.00	88.0	2.880	110.00	M12	19.0	33	K DCN 18-21.99
DCNM 200-060-M12-3D	20.00	20.90	25.00	71.60	91.6	3.020	113.60	M12	20.0	33	K DCN 18-21.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

(3) Seat size code

(4) Tool tightening torque Nxm (lbfxin)

For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57)

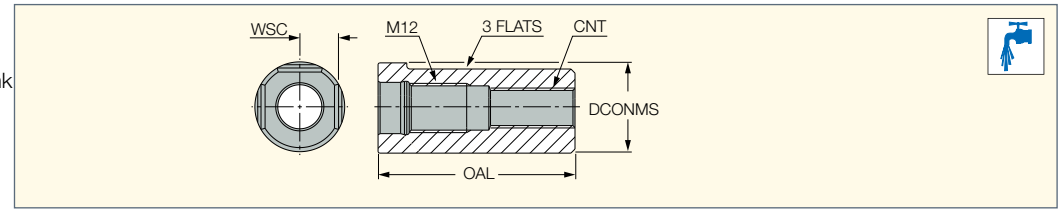
For holders, see pages: FLEXFIT HOLDER (17)

For more holders see ISCAR MILLING LINES catalog

FLEXFIT

FLEXFIT HOLDER

FLEXFIT Threaded Modular Shank with 3 Flats for Side Clamping



Designation	DCONMS	OAL	WSC[1]	CNT
FLEXFIT 160-HOLDER-DCN-MS	16.00	36.00	7.5	5/16"-24
FLEXFIT 1905-HOLDER-DCNMS	19.05	36.00	8.5	5/16"-24
FLEXFIT 200-HOLDER-DCN-MS	20.00	36.00	8.5	G1/8" BSP
FLEXFIT 220-HOLDER-DCN-MS	22.00	48.00	9.5	G1/8" BSP
FLEXFIT 250-HOLDER-DCN-MS	25.00	54.00	11.0	G1/8" BSP
FLEXFIT 254-HOLDER-DCN-MS	25.40	54.00	11.0	G1/8" BSP

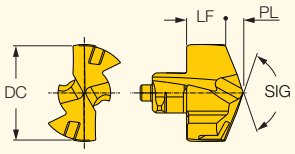
(1) For all 3 flats

For tools, see pages: DCNM (17)

SUMOCHAM CHAMDRILL LINE

ICP

Exchangeable Drilling Heads for DCN Drills, for Machining ISO P Materials



Designation	Dimensions DC	PL	LF	SIG	SSC(1)		IC908
ICP 040	4.00	0.620	2.48	140	4.0	SK DCN 4-4.99	•
ICP 041	4.10	0.620	2.48	140	4.0	SK DCN 4-4.99	•
ICP 042	4.20	0.620	2.48	140	4.0	SK DCN 4-4.99	•
ICP 043	4.30	0.620	2.48	140	4.0	SK DCN 4-4.99	•
ICP 044	4.40	0.620	2.48	140	4.0	SK DCN 4-4.99	•
ICP 045	4.50	0.660	2.89	140	4.5	SK DCN 4-4.99	•
ICP 046	4.60	0.680	2.87	140	4.5	SK DCN 4-4.99	•
ICP 047	4.70	0.700	2.85	140	4.5	SK DCN 4-4.99	•
ICP 048	4.80	0.710	2.84	140	4.5	SK DCN 4-4.99	•
ICP 049	4.90	0.730	2.82	140	4.5	SK DCN 4-4.99	•
ICP 050	5.00	0.730	2.97	140	5.0	SK DCN 5-5.99	•
ICP 051	5.10	0.750	3.02	140	5.0	SK DCN 5-5.99	•
ICP 052	5.20	0.770	3.00	140	5.0	SK DCN 5-5.99	•
ICP 053	5.30	0.780	2.99	140	5.0	SK DCN 5-5.99	•
ICP 054	5.40	0.800	2.97	140	5.0	SK DCN 5-5.99	•
ICP 055	5.50	0.810	3.04	140	5.5	SK DCN 5-5.99	•
ICP 056	5.60	0.830	3.02	140	5.5	SK DCN 5-5.99	•
ICP 057	5.70	0.850	3.00	140	5.5	SK DCN 5-5.99	•
ICP 058	5.80	0.860	2.99	140	5.5	SK DCN 5-5.99	•
ICP 059	5.90	0.880	2.97	140	5.5	SK DCN 5-5.99	•
ICP 060	6.00	0.960	3.04	140	6.0		•
ICP 061	6.10	0.980	3.02	140	6.0		•
ICP 062	6.20	1.000	3.00	140	6.0		•
ICP 063	6.30	1.010	2.99	140	6.0		•
ICP 0635	6.35	1.020	2.98	140	6.0		•
ICP 064	6.40	1.030	2.97	140	6.0		•
ICP 065	6.50	1.180	3.12	140	6.5		•
ICP 066	6.60	1.200	3.10	140	6.5		•
ICP 067	6.70	1.220	3.08	140	6.5		•
ICP 068	6.80	1.230	3.07	140	6.5		•
ICP 069	6.90	1.250	3.05	140	6.5		•
ICP 070	7.00	1.010	3.59	140	7.0		•
ICP 071	7.10	1.030	3.57	140	7.0		•
ICP 072	7.20	1.050	3.55	140	7.0		•
ICP 073	7.30	1.060	3.54	140	7.0		•
ICP 074	7.40	1.080	3.52	140	7.0		•
ICP 075	7.50	1.100	3.50	140	7.0		•
ICP 076	7.60	1.120	3.48	140	7.0		•
ICP 077	7.70	1.140	3.46	140	7.0		•
ICP 078	7.80	1.160	3.44	140	7.0		•
ICP 079	7.90	1.170	3.43	140	7.0		•
ICP 080	8.00	1.200	4.20	140	8.0		•
ICP 081	8.10	1.220	4.18	140	8.0		•
ICP 082	8.20	1.240	4.16	140	8.0		•
ICP 083	8.30	1.250	4.15	140	8.0		•
ICP 084	8.40	1.270	4.13	140	8.0		•
ICP 085	8.50	1.290	4.11	140	8.0		•
ICP 086	8.60	1.310	4.09	140	8.0		•
ICP 087	8.70	1.330	4.07	140	8.0		•
ICP 088	8.80	1.350	4.05	140	8.0		•
ICP 089	8.90	1.360	4.04	140	8.0		•
ICP 090	9.00	1.350	4.45	140	9.0		•
ICP 091	9.10	1.370	4.43	140	9.0		•
ICP 092	9.20	1.390	4.41	140	9.0		•
ICP 093	9.30	1.400	4.40	140	9.0		•

• The drill head has a honed cutting edge • For cutting conditions see page 68-81

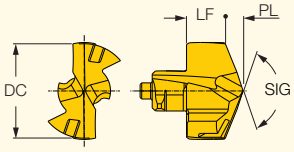
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO P Materials



Designation	Dimensions					IC908
	DC	PL	LF	SIG	SSC(1)	
ICP 094	9.40	1.420	4.38	140	9.0	•
ICP 095	9.50	1.440	4.36	140	9.0	•
ICP 096	9.60	1.460	4.34	140	9.0	•
ICP 097	9.70	1.480	4.32	140	9.0	•
ICP 098	9.80	1.500	4.30	140	9.0	•
ICP 099	9.90	1.510	4.29	140	9.0	•
ICP 100	10.00	1.500	4.70	140	10.0	•
ICP 101	10.10	1.520	4.68	140	10.0	•
ICP 102	10.20	1.540	4.66	140	10.0	•
ICP 103	10.30	1.550	4.65	140	10.0	•
ICP 104	10.40	1.570	4.63	140	10.0	•
ICP 105	10.50	1.590	4.61	140	10.0	•
ICP 106	10.60	1.610	4.59	140	10.0	•
ICP 107	10.70	1.630	4.57	140	10.0	•
ICP 108	10.80	1.650	4.55	140	10.0	•
ICP 109	10.90	1.660	4.54	140	10.0	•
ICP 110	11.00	1.670	4.93	140	11.0	•
ICP 111	11.10	1.690	4.91	140	11.0	•
ICP 112	11.20	1.710	4.89	140	11.0	•
ICP 113	11.30	1.720	4.88	140	11.0	•
ICP 114	11.40	1.740	4.86	140	11.0	•
ICP 115	11.50	1.760	4.84	140	11.0	•
ICP 116	11.60	1.780	4.82	140	11.0	•
ICP 117	11.70	1.800	4.80	140	11.0	•
ICP 118	11.80	1.820	4.78	140	11.0	•
ICP 119	11.90	1.830	4.77	140	11.0	•
ICP 120	12.00	1.820	5.18	140	12.0	•
ICP 121	12.10	1.320	5.16	140	12.0	•
ICP 122	12.20	1.340	5.14	140	12.0	•
ICP 123	12.30	1.350	5.13	140	12.0	•
ICP 124	12.40	1.370	5.11	140	12.0	•
ICP 125	12.50	1.390	5.09	140	12.0	•
ICP 126	12.60	1.410	5.07	140	12.0	•
ICP 127	12.70	1.430	5.05	140	12.0	•
ICP 128	12.80	1.450	5.03	140	12.0	•
ICP 129	12.90	1.460	5.02	140	12.0	•
ICP 130	13.00	1.960	5.64	140	13.0	•
ICP 131	13.10	1.980	5.62	140	13.0	•
ICP 132	13.20	2.000	5.60	140	13.0	•
ICP 133	13.30	2.010	5.59	140	13.0	•
ICP 134	13.40	2.030	5.57	140	13.0	•
ICP 135	13.50	2.050	5.55	140	13.0	•
ICP 136	13.60	2.070	5.53	140	13.0	•
ICP 137	13.70	2.090	5.51	140	13.0	•
ICP 138	13.80	2.110	5.49	140	13.0	•
ICP 139	13.90	2.120	5.48	140	13.0	•
ICP 140	14.00	2.120	6.03	140	14.0	•
ICP 141	14.10	2.140	6.01	140	14.0	•
ICP 142	14.20	2.160	5.99	140	14.0	•
ICP 143	14.30	2.170	5.98	140	14.0	•
ICP 144	14.40	2.190	5.96	140	14.0	•
ICP 145	14.50	2.210	5.94	140	14.0	•
ICP 146	14.60	2.230	5.92	140	14.0	•
ICP 147	14.70	2.250	5.90	140	14.0	•

• The drill head has a honed cutting edge • For cutting conditions see page 68-81

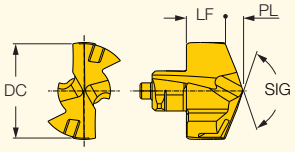
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO P Materials



Designation	Dimensions					IC908
	DC	PL	LF	SIG	SSC(1)	
ICP 148	14.80	2.270	5.88	140	14.0	•
ICP 149	14.90	2.280	5.87	140	14.0	•
ICP 150	15.00	2.270	6.46	140	15.0	•
ICP 151	15.10	2.290	6.44	140	15.0	•
ICP 152	15.20	2.310	6.42	140	15.0	•
ICP 153	15.30	2.320	6.41	140	15.0	•
ICP 154	15.40	2.340	6.39	140	15.0	•
ICP 155	15.50	2.360	6.37	140	15.0	•
ICP 156	15.60	2.380	6.35	140	15.0	•
ICP 157	15.70	2.400	6.33	140	15.0	•
ICP 158	15.80	2.420	6.31	140	15.0	•
ICP 159	15.90	2.430	6.30	140	15.0	•
ICP 160	16.00	2.420	6.88	140	16.0	•
ICP 161	16.10	2.440	6.86	140	16.0	•
ICP 162	16.20	2.460	6.84	140	16.0	•
ICP 163	16.30	2.470	6.83	140	16.0	•
ICP 164	16.40	2.490	6.81	140	16.0	•
ICP 165	16.50	2.510	6.79	140	16.0	•
ICP 166	16.60	2.530	6.77	140	16.0	•
ICP 167	16.70	2.550	6.75	140	16.0	•
ICP 168	16.80	2.570	6.73	140	16.0	•
ICP 169	16.90	2.580	6.72	140	16.0	•
ICP 170	17.00	2.590	7.31	140	17.0	•
ICP 171	17.10	2.610	7.29	140	17.0	•
ICP 172	17.20	2.630	7.27	140	17.0	•
ICP 173	17.30	2.640	7.26	140	17.0	•
ICP 174	17.40	2.660	7.24	140	17.0	•
ICP 175	17.50	2.680	7.22	140	17.0	•
ICP 176	17.60	2.700	7.20	140	17.0	•
ICP 177	17.70	2.720	7.18	140	17.0	•
ICP 178	17.80	2.740	7.16	140	17.0	•
ICP 179	17.90	2.750	7.15	140	17.0	•
ICP 180	18.00	2.730	7.77	140	18.0	•
ICP 181	18.10	2.750	7.75	140	18.0	•
ICP 182	18.20	2.770	7.73	140	18.0	•
ICP 183	18.30	2.780	7.72	140	18.0	•
ICP 184	18.40	2.800	7.70	140	18.0	•
ICP 185	18.50	2.820	7.68	140	18.0	•
ICP 186	18.60	2.840	7.66	140	18.0	•
ICP 187	18.70	2.860	7.64	140	18.0	•
ICP 188	18.80	2.880	7.62	140	18.0	•
ICP 189	18.90	2.890	7.61	140	18.0	•
ICP 190	19.00	2.880	8.12	140	19.0	•
ICP 1905	19.05	2.890	8.11	140	19.0	•
ICP 191	19.10	2.900	8.10	140	19.0	•
ICP 192	19.20	2.920	8.08	140	19.0	•
ICP 1927	19.27	2.930	8.07	140	19.0	•
ICP 193	19.30	2.930	8.07	140	19.0	•
ICP 194	19.40	2.950	8.05	140	19.0	•
ICP 195	19.50	2.970	8.03	140	19.0	•
ICP 196	19.60	2.990	8.01	140	19.0	•
ICP 197	19.70	3.010	7.99	140	19.0	•
ICP 198	19.80	3.030	7.97	140	19.0	•
ICP 199	19.90	3.040	7.96	140	19.0	•
ICP 200	20.00	3.020	8.58	140	20.0	•

• The drill head has a honed cutting edge • For cutting conditions see page 68-81

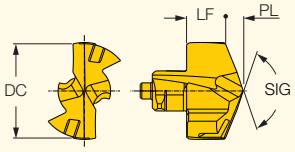
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO P Materials



Designation	Dimensions					IC908
	DC	PL	LF	SIG	SSC(1)	
ICP 201	20.10	3.040	8.56	140	20.0	•
ICP 202	20.20	3.060	8.54	140	20.0	•
ICP 203	20.30	3.070	8.53	140	20.0	•
ICP 204	20.40	3.090	8.51	140	20.0	•
ICP 205	20.50	3.110	8.49	140	20.0	•
ICP 206	20.60	3.130	8.47	140	20.0	•
ICP 207	20.70	3.150	8.45	140	20.0	•
ICP 208	20.80	3.170	8.43	140	20.0	•
ICP 209	20.90	3.180	8.42	140	20.0	•
ICP 210	21.00	3.180	9.00	140	21.0	•
ICP 211	21.10	3.200	8.98	140	21.0	•
ICP 212	21.20	3.220	8.96	140	21.0	•
ICP 213	21.30	3.230	8.95	140	21.0	•
ICP 214	21.40	3.250	8.93	140	21.0	•
ICP 215	21.50	3.270	8.91	140	21.0	•
ICP 216	21.60	3.290	8.89	140	21.0	•
ICP 217	21.70	3.310	8.87	140	21.0	•
ICP 218	21.80	3.330	8.85	140	21.0	•
ICP 219	21.90	3.340	8.84	140	21.0	•
ICP 220	22.00	3.320	9.44	140	22.0	•
ICP 221	22.10	3.340	9.42	140	22.0	•
ICP 222	22.20	3.360	9.40	140	22.0	•
ICP 223	22.30	3.370	9.39	140	22.0	•
ICP 224	22.40	3.390	9.37	140	22.0	•
ICP 225	22.50	3.410	9.35	140	22.0	•
ICP 226	22.60	3.430	9.33	140	22.0	•
ICP 227	22.70	3.450	9.31	140	22.0	•
ICP 228	22.80	3.470	9.29	140	22.0	•
ICP 229	22.90	3.480	9.28	140	22.0	•
ICP 230	23.00	3.460	9.87	140	23.0	•
ICP 231	23.10	3.480	9.85	140	23.0	•
ICP 232	23.20	3.500	9.83	140	23.0	•
ICP 233	23.30	3.510	9.82	140	23.0	•
ICP 234	23.40	3.530	9.80	140	23.0	•
ICP 235	23.50	3.550	9.78	140	23.0	•
ICP 236	23.60	3.570	9.76	140	23.0	•
ICP 237	23.70	3.590	9.74	140	23.0	•
ICP 238	23.80	3.610	9.72	140	23.0	•
ICP 239	23.90	3.620	9.71	140	23.0	•
ICP 240	24.00	3.620	10.28	140	24.0	•
ICP 241	24.10	3.640	10.26	140	24.0	•
ICP 242	24.20	3.660	10.24	140	24.0	•
ICP 243	24.30	3.670	10.23	140	24.0	•
ICP 244	24.40	3.690	10.21	140	24.0	•
ICP 245	24.50	3.710	10.19	140	24.0	•
ICP 246	24.60	3.730	10.17	140	24.0	•
ICP 247	24.70	3.750	10.15	140	24.0	•
ICP 248	24.80	3.770	10.13	140	24.0	•
ICP 249	24.90	3.780	10.12	140	24.0	•
ICP 250	25.00	3.800	10.70	140	25.0	•
ICP 251	25.10	3.820	10.68	140	25.0	•
ICP 252	25.20	3.840	10.66	140	25.0	•
ICP 253	25.30	3.850	10.65	140	25.0	•
ICP 254	25.40	3.870	10.63	140	25.0	•
ICP 255	25.50	3.890	10.61	140	25.0	•

• The drill head has a honed cutting edge • For cutting conditions see page 68-81

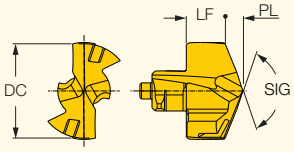
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO P Materials



Designation	Dimensions					IC908
	DC	PL	LF	SIG	SSC(1)	
ICP 256	25.60	3.910	10.59	140	25.0	•
ICP 257	25.70	3.930	10.57	140	25.0	•
ICP 258	25.80	3.950	10.55	140	25.0	•
ICP 259	25.90	3.960	10.54	140	25.0	•
ICP 260	26.00	3.950	11.12	140	26.0	•
ICP 261	26.10	3.970	11.10	140	26.0	•
ICP 262	26.20	3.990	11.08	140	26.0	•
ICP 263	26.30	4.000	11.07	140	26.0	•
ICP 264	26.40	4.020	11.05	140	26.0	•
ICP 265	26.50	4.040	11.03	140	26.0	•
ICP 266	26.60	4.060	11.01	140	26.0	•
ICP 267	26.70	4.080	10.99	140	26.0	•
ICP 268	26.80	4.100	10.97	140	26.0	•
ICP 269	26.90	4.110	10.96	140	26.0	•
ICP 270	27.00	4.100	11.55	140	27.0	•
ICP 271	27.10	4.120	11.53	140	27.0	•
ICP 272	27.20	4.140	11.51	140	27.0	•
ICP 273	27.30	4.150	11.50	140	27.0	•
ICP 274	27.40	4.170	11.48	140	27.0	•
ICP 275	27.50	4.190	11.46	140	27.0	•
ICP 276	27.60	4.210	11.44	140	27.0	•
ICP 277	27.70	4.230	11.42	140	27.0	•
ICP 278	27.80	4.250	11.40	140	27.0	•
ICP 279	27.90	4.260	11.39	140	27.0	•
ICP 280	28.00	4.250	11.97	140	28.0	•
ICP 281	28.10	4.270	11.95	140	28.0	•
ICP 282	28.20	4.290	11.93	140	28.0	•
ICP 283	28.30	4.300	11.92	140	28.0	•
ICP 284	28.40	4.320	11.90	140	28.0	•
ICP 285	28.50	4.340	11.88	140	28.0	•
ICP 2858	28.58	4.360	11.86	140	28.0	•
ICP 286	28.60	4.360	11.86	140	28.0	•
ICP 287	28.70	4.380	11.84	140	28.0	•
ICP 288	28.80	4.400	11.82	140	28.0	•
ICP 289	28.90	4.410	11.81	140	28.0	•
ICP 290	29.00	4.430	12.37	140	29.0	•
ICP 291	29.10	4.450	12.35	140	29.0	•
ICP 292	29.20	4.470	12.33	140	29.0	•
ICP 293	29.30	4.480	12.32	140	29.0	•
ICP 294	29.40	4.500	12.30	140	29.0	•
ICP 295	29.50	4.520	12.28	140	29.0	•
ICP 296	29.60	4.540	12.26	140	29.0	•
ICP 297	29.70	4.560	12.24	140	29.0	•
ICP 298	29.80	4.580	12.22	140	29.0	•
ICP 299	29.90	4.590	12.21	140	29.0	•
ICP 300	30.00	4.590	12.79	140	30.0	•
ICP 301	30.10	4.610	12.77	140	30.0	•
ICP 302	30.20	4.630	12.75	140	30.0	•
ICP 303	30.30	4.640	12.74	140	30.0	•
ICP 304	30.40	4.660	12.72	140	30.0	•
ICP 305	30.50	4.680	12.70	140	30.0	•
ICP 306	30.60	4.700	12.68	140	30.0	•
ICP 307	30.70	4.720	12.66	140	30.0	•
ICP 308	30.80	4.740	12.64	140	30.0	•

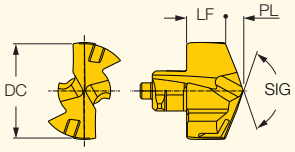
• The drill head has a honed cutting edge • For cutting conditions see page 68-81

(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

ICP (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO P Materials



Designation	Dimensions DC	PL	LF	SIG	SSC(1)	IC908
ICP 309	30.90	4.750	12.63	140	30.0	●
ICP 310	31.00	4.760	13.20	140	31.0	●
ICP 311	31.10	4.780	13.18	140	31.0	●
ICP 312	31.20	4.800	13.16	140	31.0	●
ICP 313	31.30	4.810	13.15	140	31.0	●
ICP 314	31.40	4.830	13.13	140	31.0	●
ICP 315	31.50	4.850	13.11	140	31.0	●
ICP 316	31.60	4.870	13.09	140	31.0	●
ICP 317	31.70	4.890	13.07	140	31.0	●
ICP 3175	31.75	4.900	13.06	140	31.0	●
ICP 318	31.80	4.910	13.05	140	31.0	●
ICP 319	31.90	4.920	13.04	140	31.0	●
ICP 320	32.00	4.860	13.68	140	32.0	●
ICP 321	32.10	4.880	13.66	140	32.0	●
ICP 322	32.20	4.900	13.64	140	32.0	●
ICP 323	32.30	4.910	13.63	140	32.0	●
ICP 324	32.40	4.930	13.61	140	32.0	●
ICP 325	32.50	4.950	13.59	140	32.0	●
ICP 326	32.60	4.970	13.57	140	32.0	●
ICP 327	32.70	4.990	13.55	140	32.0	●
ICP 328	32.80	5.010	13.53	140	32.0	●
ICP 329	32.90	5.020	13.52	140	32.0	●

• The drill head has a honed cutting edge • For cutting conditions see page 68-81

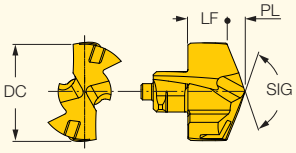
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP-2M

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
ICP 060-2M	6.00	2.91	1.090	140	6.0	•
ICP 061-2M	6.10	2.89	1.110	140	6.0	•
ICP 062-2M	6.20	2.87	1.130	140	6.0	•
ICP 064-2M	6.40	2.84	1.160	140	6.0	•
ICP 065-2M	6.50	3.12	1.180	140	6.5	•
ICP 066-2M	6.60	3.10	1.200	140	6.5	•
ICP 067-2M	6.70	3.08	1.220	140	6.5	•
ICP 068-2M	6.80	3.06	1.240	140	6.5	•
ICP 069-2M	6.90	3.04	1.260	140	6.5	•
ICP 070-2M	7.00	3.33	1.270	140	7.0	•
ICP 071-2M	7.10	3.31	1.290	140	7.0	•
ICP 073-2M	7.30	3.27	1.330	140	7.0	•
ICP 074-2M	7.40	3.25	1.350	140	7.0	•
ICP 075-2M	7.50	3.24	1.360	140	7.0	•
ICP 077-2M	7.70	3.20	1.400	140	7.0	•
ICP 078-2M	7.80	3.18	1.420	140	7.0	•
ICP 079-2M	7.90	3.16	1.440	140	7.0	•
ICP 080-2M	8.00	3.94	1.460	140	8.0	•
ICP 081-2M	8.10	3.93	1.470	140	8.0	•
ICP 082-2M	8.20	3.91	1.490	140	8.0	•
ICP 083-2M	8.30	3.89	1.510	140	8.0	•
ICP 084-2M	8.40	3.87	1.530	140	8.0	•
ICP 085-2M	8.50	3.85	1.550	140	8.0	•
ICP 086-2M	8.60	3.83	1.570	140	8.0	•
ICP 087-2M	8.70	3.82	1.580	140	8.0	•
ICP 088-2M	8.80	3.80	1.600	140	8.0	•
ICP 089-2M	8.90	3.78	1.620	140	8.0	•
ICP 090-2M	9.00	4.16	1.640	140	9.0	•
ICP 091-2M	9.10	4.14	1.660	140	9.0	•
ICP 092-2M	9.20	4.13	1.670	140	9.0	•
ICP 093-2M	9.30	4.11	1.690	140	9.0	•
ICP 094-2M	9.40	4.09	1.710	140	9.0	•
ICP 095-2M	9.50	4.07	1.730	140	9.0	•
ICP 096-2M	9.60	4.05	1.750	140	9.0	•
ICP 097-2M	9.70	4.03	1.770	140	9.0	•
ICP 098-2M	9.80	4.02	1.780	140	9.0	•
ICP 099-2M	9.90	4.00	1.800	140	9.0	•
ICP 100-2M	10.00	4.38	1.820	140	10.0	•
ICP 101-2M	10.10	4.36	1.840	140	10.0	•
ICP 102-2M	10.20	4.34	1.860	140	10.0	•
ICP 103-2M	10.30	4.33	1.870	140	10.0	•
ICP 104-2M	10.40	4.31	1.890	140	10.0	•
ICP 105-2M	10.50	4.29	1.910	140	10.0	•
ICP 106-2M	10.60	4.27	1.930	140	10.0	•
ICP 107-2M	10.70	4.25	1.950	140	10.0	•
ICP 108-2M	10.80	4.23	1.970	140	10.0	•
ICP 109-2M	10.90	4.22	1.980	140	10.0	•
ICP 110-2M	11.00	4.60	2.000	140	11.0	•
ICP 111-2M	11.10	4.58	2.020	140	11.0	•
ICP 112-2M	11.20	4.56	2.040	140	11.0	•
ICP 113-2M	11.30	4.54	2.060	140	11.0	•
ICP 114-2M	11.40	4.53	2.070	140	11.0	•
ICP 115-2M	11.50	4.51	2.090	140	11.0	•
ICP 116-2M	11.60	4.49	2.110	140	11.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

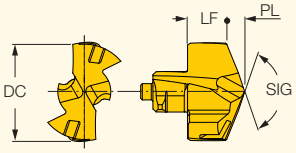
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP-2M (continued)

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
ICP 117-2M	11.70	4.47	2.130	140	11.0	•
ICP 118-2M	11.80	4.45	2.150	140	11.0	•
ICP 119-2M	11.90	4.43	2.170	140	11.0	•
ICP 120-2M	12.00	4.82	2.180	140	12.0	•
ICP 121-2M	12.10	4.80	2.200	140	12.0	•
ICP 122-2M	12.20	4.78	2.220	140	12.0	•
ICP 123-2M	12.30	4.76	2.240	140	12.0	•
ICP 124-2M	12.40	4.74	2.260	140	12.0	•
ICP 125-2M	12.50	4.73	2.270	140	12.0	•
ICP 126-2M	12.60	4.71	2.290	140	12.0	•
ICP 127-2M	12.70	4.69	2.310	140	12.0	•
ICP 128-2M	12.80	4.67	2.330	140	12.0	•
ICP 129-2M	12.90	4.65	2.350	140	12.0	•
ICP 130-2M	13.00	5.23	2.370	140	13.0	•
ICP 131-2M	13.10	5.22	2.380	140	13.0	•
ICP 132-2M	13.20	5.20	2.400	140	13.0	•
ICP 133-2M	13.30	5.18	2.420	140	13.0	•
ICP 134-2M	13.40	5.16	2.440	140	13.0	•
ICP 135-2M	13.50	5.14	2.460	140	13.0	•
ICP 136-2M	13.60	5.13	2.470	140	13.0	•
ICP 137-2M	13.70	5.11	2.490	140	13.0	•
ICP 138-2M	13.80	5.09	2.510	140	13.0	•
ICP 139-2M	13.90	5.07	2.530	140	13.0	•
ICP 140-2M	14.00	5.60	2.550	140	14.0	•
ICP 141-2M	14.10	5.58	2.570	140	14.0	•
ICP 142-2M	14.20	5.57	2.580	140	14.0	•
ICP 143-2M	14.30	5.55	2.600	140	14.0	•
ICP 144-2M	14.40	5.53	2.620	140	14.0	•
ICP 145-2M	14.50	5.51	2.640	140	14.0	•
ICP 146-2M	14.60	5.49	2.660	140	14.0	•
ICP 147-2M	14.70	5.47	2.680	140	14.0	•
ICP 148-2M	14.80	5.46	2.690	140	14.0	•
ICP 149-2M	14.90	5.44	2.710	140	14.0	•
ICP 150-2M	15.00	6.00	2.730	140	15.0	•
ICP 151-2M	15.10	5.98	2.750	140	15.0	•
ICP 152-2M	15.20	5.96	2.770	140	15.0	•
ICP 153-2M	15.30	5.95	2.780	140	15.0	•
ICP 154-2M	15.40	5.93	2.800	140	15.0	•
ICP 155-2M	15.50	5.91	2.820	140	15.0	•
ICP 156-2M	15.60	5.89	2.840	140	15.0	•
ICP 157-2M	15.70	5.87	2.860	140	15.0	•
ICP 158-2M	15.80	5.85	2.880	140	15.0	•
ICP 159-2M	15.90	5.84	2.890	140	15.0	•
ICP 160-2M	16.00	6.39	2.910	140	16.0	•
ICP 161-2M	16.10	6.37	2.930	140	16.0	•
ICP 162-2M	16.20	6.35	2.950	140	16.0	•
ICP 163-2M	16.30	6.33	2.970	140	16.0	•
ICP 165-2M	16.50	6.30	3.000	140	16.0	•
ICP 166-2M	16.60	6.28	3.020	140	16.0	•
ICP 167-2M	16.70	6.26	3.040	140	16.0	•
ICP 170-2M	17.00	6.81	3.090	140	17.0	•
ICP 171-2M	17.10	6.79	3.110	140	17.0	•
ICP 172-2M	17.20	6.77	3.130	140	17.0	•
ICP 174-2M	17.40	6.73	3.170	140	17.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

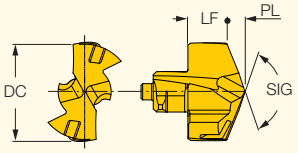
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP-2M (continued)

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions					IC608
	DC	LF	PL	SIG	SSC(1)	
ICP 175-2M	17.50	6.72	3.180	140	17.0	•
ICP 177-2M	17.70	6.68	3.220	140	17.0	•
ICP 178-2M	17.80	6.66	3.240	140	17.0	•
ICP 179-2M	17.90	6.64	3.260	140	17.0	•
ICP 180-2M	18.00	7.22	3.280	140	18.0	•
ICP 181-2M	18.10	7.21	3.290	140	18.0	•
ICP 182-2M	18.20	7.19	3.310	140	18.0	•
ICP 183-2M	18.30	7.17	3.330	140	18.0	•
ICP 184-2M	18.40	7.15	3.350	140	18.0	•
ICP 185-2M	18.50	7.13	3.370	140	18.0	•
ICP 186-2M	18.60	7.12	3.380	140	18.0	•
ICP 187-2M	18.70	7.10	3.400	140	18.0	•
ICP 188-2M	18.80	7.08	3.420	140	18.0	•
ICP 189-2M	18.90	7.06	3.440	140	18.0	•
ICP 190-2M	19.00	7.54	3.460	140	19.0	•
ICP 191-2M	19.10	7.52	3.480	140	19.0	•
ICP 192-2M	19.20	7.51	3.490	140	19.0	•
ICP 1925-2M	19.25	7.50	3.500	140	19.0	•
ICP 1927-2M	19.27	7.49	3.510	140	19.0	•
ICP 193-2M	19.30	7.49	3.510	140	19.0	•
ICP 194-2M	19.40	7.47	3.530	140	19.0	•
ICP 195-2M	19.50	7.45	3.550	140	19.0	•
ICP 196-2M	19.60	7.43	3.570	140	19.0	•
ICP 197-2M	19.70	7.41	3.590	140	19.0	•
ICP 198-2M	19.80	7.40	3.600	140	19.0	•
ICP 199-2M	19.90	7.38	3.620	140	19.0	•
ICP 200-2M	20.00	7.96	3.640	140	20.0	•
ICP 201-2M	20.10	7.94	3.660	140	20.0	•
ICP 202-2M	20.20	7.92	3.680	140	20.0	•
ICP 203-2M	20.30	7.91	3.690	140	20.0	•
ICP 204-2M	20.40	7.89	3.710	140	20.0	•
ICP 206-2M	20.60	7.85	3.750	140	20.0	•
ICP 207-2M	20.70	7.83	3.770	140	20.0	•
ICP 208-2M	20.80	7.81	3.790	140	20.0	•
ICP 209-2M	20.90	7.80	3.800	140	20.0	•
ICP 210-2M	21.00	8.38	3.820	140	21.0	•
ICP 211-2M	21.10	8.36	3.840	140	21.0	•
ICP 212-2M	21.20	8.34	3.860	140	21.0	•
ICP 213-2M	21.30	8.32	3.880	140	21.0	•
ICP 214-2M	21.40	8.31	3.890	140	21.0	•
ICP 215-2M	21.50	8.29	3.910	140	21.0	•
ICP 216-2M	21.60	8.27	3.930	140	21.0	•
ICP 217-2M	21.70	8.25	3.950	140	21.0	•
ICP 218-2M	21.80	8.23	3.970	140	21.0	•
ICP 219-2M	21.90	8.21	3.990	140	21.0	•
ICP 220-2M	22.00	8.80	4.000	140	22.0	•
ICP 221-2M	22.10	8.78	4.020	140	22.0	•
ICP 222-2M	22.20	8.76	4.040	140	22.0	•
ICP 223-2M	22.30	8.74	4.060	140	22.0	•
ICP 224-2M	22.40	8.72	4.080	140	22.0	•
ICP 225-2M	22.50	8.71	4.090	140	22.0	•
ICP 226-2M	22.60	8.69	4.110	140	22.0	•
ICP 227-2M	22.70	8.67	4.130	140	22.0	•
ICP 228-2M	22.80	8.65	4.150	140	22.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

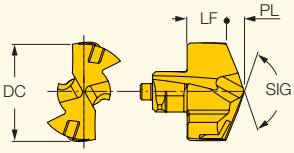
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICP-2M (continued)

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
ICP 229-2M	22.90	8.63	4.170	140	22.0	•
ICP 230-2M	23.00	9.11	4.190	140	23.0	•
ICP 231-2M	23.10	9.10	4.200	140	23.0	•
ICP 232-2M	23.20	9.08	4.220	140	23.0	•
ICP 233-2M	23.30	9.06	4.240	140	23.0	•
ICP 234-2M	23.40	9.04	4.260	140	23.0	•
ICP 235-2M	23.50	9.02	4.280	140	23.0	•
ICP 236-2M	23.60	9.01	4.290	140	23.0	•
ICP 237-2M	23.70	8.99	4.310	140	23.0	•
ICP 238-2M	23.80	8.97	4.330	140	23.0	•
ICP 239-2M	23.90	8.95	4.350	140	23.0	•
ICP 240-2M	24.00	9.53	4.370	140	24.0	•
ICP 241-2M	24.10	9.51	4.390	140	24.0	•
ICP 242-2M	24.20	9.50	4.400	140	24.0	•
ICP 243-2M	24.30	9.48	4.420	140	24.0	•
ICP 245-2M	24.50	9.44	4.460	140	24.0	•
ICP 246-2M	24.60	9.42	4.480	140	24.0	•
ICP 247-2M	24.70	9.40	4.500	140	24.0	•
ICP 248-2M	24.80	9.39	4.510	140	24.0	•
ICP 249-2M	24.90	9.37	4.530	140	24.0	•
ICP 250-2M	25.00	9.95	4.550	140	25.0	•
ICP 251-2M	25.10	9.93	4.570	140	25.0	•
ICP 252-2M	25.20	9.91	4.590	140	25.0	•
ICP 253-2M	25.30	9.90	4.600	140	25.0	•
ICP 254-2M	25.40	9.88	4.620	140	25.0	•
ICP 255-2M	25.50	9.86	4.640	140	25.0	•
ICP 256-2M	25.60	9.84	4.660	140	25.0	•
ICP 2567-2M	25.67	10.58	3.920	140	25.0	•
ICP 257-2M	25.70	9.82	4.680	140	25.0	•
ICP 258-2M	25.80	9.80	4.700	140	25.0	•
ICP 259-2M	25.90	9.79	4.710	140	25.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

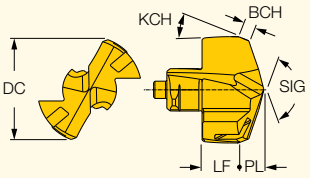
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK

Exchangeable Drilling Heads for DCN Drills, for Machining ISO K Materials



Designation	Dimensions								Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)		IC908	IC907
ICK 050	5.00	2.45	1.250	0.60	30.0	140	5.0	SK DCN 5-5.99	•	
ICK 055	5.50	2.47	1.380	0.60	30.0	140	5.5	SK DCN 5-5.99	•	
ICK 059	5.90	2.47	1.380	0.60	30.0	140	5.5	SK DCN 5-5.99	•	
ICK 061	6.10	2.48	1.520	0.72	30.0	140	6.0		•	
ICK 062	6.20	2.48	1.520	0.72	30.0	140	6.0		•	
ICK 063	6.30	2.48	1.520	0.72	30.0	140	6.0		•	
ICK 0635	6.35	2.48	1.520	0.72	30.0	140	6.0		•	
ICK 064	6.40	2.48	1.520	0.72	30.0	140	6.0		•	
ICK 065	6.50	2.64	1.660	0.72	30.0	140	6.5		•	
ICK 066	6.60	2.64	1.660	0.72	30.0	140	6.5		•	
ICK 067	6.70	2.64	1.660	0.72	30.0	140	6.5		•	
ICK 068	6.80	2.64	1.660	0.72	30.0	140	6.5		•	
ICK 069	6.90	2.64	1.660	0.72	30.0	140	6.5		•	
ICK 070	7.00	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 071	7.10	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 072	7.20	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 073	7.30	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 074	7.40	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 075	7.50	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 076	7.60	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 078	7.80	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 079	7.90	3.02	1.580	0.84	30.0	140	7.0		•	
ICK 080	8.00	3.43	1.970	0.96	30.0	140	8.0		•	•
ICK 082	8.20	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 083	8.30	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 084	8.40	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 085	8.50	3.43	1.970	0.96	30.0	140	8.0		•	•
ICK 086	8.60	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 087	8.70	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 088	8.80	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 089	8.90	3.43	1.970	0.96	30.0	140	8.0		•	
ICK 090	9.00	3.60	2.200	1.08	30.0	140	9.0		•	•
ICK 091	9.10	3.60	2.200	1.08	30.0	140	9.0		•	•
ICK 092	9.20	3.60	2.200	1.08	30.0	140	9.0		•	
ICK 094	9.40	3.60	2.200	1.08	30.0	140	9.0		•	
ICK 095	9.50	3.60	2.200	1.08	30.0	140	9.0		•	•
ICK 098	9.80	3.60	2.200	1.08	30.0	140	9.0		•	
ICK 099	9.90	3.60	2.200	1.08	30.0	140	9.0		•	
ICK 100	10.00	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 101	10.10	3.77	2.430	1.20	30.0	140	10.0		•	
ICK 102	10.20	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 103	10.30	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 104	10.40	3.77	2.430	1.20	30.0	140	10.0		•	
ICK 105	10.50	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 106	10.60	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 107	10.70	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 108	10.80	3.77	2.430	1.20	30.0	140	10.0		•	•
ICK 109	10.90	3.77	2.430	1.20	30.0	140	10.0		•	
ICK 110	11.00	3.94	2.660	1.32	30.0	140	11.0		•	
ICK 111	11.10	3.94	2.660	1.32	30.0	140	11.0		•	•
ICK 112	11.20	3.94	2.660	1.32	30.0	140	11.0		•	
ICK 113	11.30	3.94	2.660	1.32	30.0	140	11.0		•	•
ICK 114	11.40	3.94	2.660	1.32	30.0	140	11.0		•	
ICK 115	11.50	3.94	2.660	1.32	30.0	140	11.0		•	•
ICK 116	11.60	3.94	2.660	1.32	30.0	140	11.0		•	

• The drill head is produced with a ground chamfer and a honed cutting edge • For cutting conditions see page 68-81

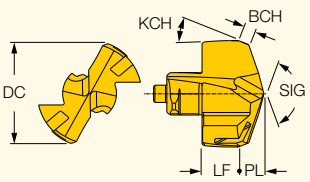
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO K Materials



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 117	11.70	3.94	2.660	1.32	30.0	140	11.0	•	•
ICK 118	11.80	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 119	11.90	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 120	12.00	4.10	2.180	1.44	30.0	140	12.0	•	•
ICK 121	12.10	4.10	2.200	1.44	30.0	140	12.0	•	
ICK 122	12.20	4.10	2.220	1.44	30.0	140	12.0	•	
ICK 123	12.30	4.10	2.240	1.44	30.0	140	12.0	•	
ICK 124	12.40	4.10	2.260	1.44	30.0	140	12.0	•	
ICK 125	12.50	4.10	2.270	1.44	30.0	140	12.0	•	•
ICK 126	12.60	4.10	2.290	1.44	30.0	140	12.0	•	
ICK 127	12.70	4.10	2.310	1.44	30.0	140	12.0	•	
ICK 128	12.80	4.10	2.330	1.44	30.0	140	12.0	•	•
ICK 129	12.90	4.10	2.350	1.44	30.0	140	12.0	•	
ICK 130	13.00	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 131	13.10	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 132	13.20	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 133	13.30	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 134	13.40	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 135	13.50	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 136	13.60	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 137	13.70	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 138	13.80	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 139	13.90	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 140	14.00	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 141	14.10	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 142	14.20	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 143	14.30	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 144	14.40	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 145	14.50	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 146	14.60	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 147	14.70	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 148	14.80	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 149	14.90	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 150	15.00	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 151	15.10	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 152	15.20	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 153	15.30	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 154	15.40	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 155	15.50	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 156	15.60	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 157	15.70	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 158	15.80	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 159	15.90	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 160	16.00	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 161	16.10	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 162	16.20	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 163	16.30	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 164	16.40	5.55	3.750	1.92	30.0	140	16.0	•	•
ICK 165	16.50	5.55	3.750	1.92	30.0	140	16.0	•	•
ICK 166	16.60	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 167	16.70	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 168	16.80	5.55	3.750	1.92	30.0	140	16.0	•	•
ICK 170	17.00	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 171	17.10	5.84	4.060	2.04	30.0	140	17.0	•	•

• The drill head is produced with a ground chamfer and a honed cutting edge • For cutting conditions see page 68-81

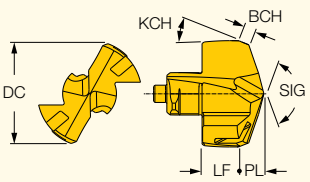
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO K Materials



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 172	17.20	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 173	17.30	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 174	17.40	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 175	17.50	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 176	17.60	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 177	17.70	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 178	17.80	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 179	17.90	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 180	18.00	6.21	4.290	2.16	30.0	140	18.0	•	•
ICK 181	18.10	6.21	4.290	2.16	30.0	140	18.0	•	•
ICK 182	18.20	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 183	18.30	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 184	18.40	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 185	18.50	6.21	4.290	2.16	30.0	140	18.0	•	•
ICK 186	18.60	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 187	18.70	6.21	4.290	2.16	30.0	140	18.0	•	•
ICK 189	18.90	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 190	19.00	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 1905	19.05	6.47	4.530	2.28	30.0	140	19.0	•	•
ICK 191	19.10	6.47	4.530	2.28	30.0	140	19.0	•	•
ICK 192	19.20	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 193	19.30	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 194	19.40	6.47	4.530	2.28	30.0	140	19.0	•	•
ICK 195	19.50	6.47	4.530	2.28	30.0	140	19.0	•	•
ICK 196	19.60	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 197	19.70	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 198	19.80	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 199	19.90	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 200	20.00	6.81	4.790	2.40	30.0	140	20.0	•	•
ICK 201	20.10	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 204	20.40	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 205	20.50	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 206	20.60	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 207	20.70	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 208	20.80	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 209	20.90	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 210	21.00	7.20	4.980	2.52	30.0	140	21.0	•	•
ICK 211	21.10	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 212	21.20	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 213	21.30	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 215	21.50	7.20	4.980	2.52	30.0	140	21.0	•	•
ICK 216	21.60	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 217	21.70	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 218	21.80	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 219	21.90	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 220	22.00	7.54	5.220	2.64	30.0	140	22.0	•	•
ICK 221	22.10	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 222	22.20	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 223	22.30	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 225	22.50	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 226	22.60	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 227	22.70	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 230	23.00	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 231	23.10	7.88	5.450	2.76	30.0	140	23.0	•	•
ICK 233	23.30	7.88	5.450	2.76	30.0	140	23.0	•	

• The drill head is produced with a ground chamfer and a honed cutting edge • For cutting conditions see page 68-81

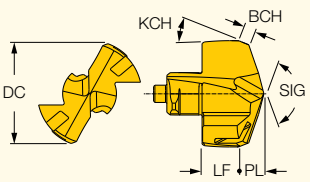
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO K Materials



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 234	23.40	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 235	23.50	7.88	5.450	2.76	30.0	140	23.0	•	•
ICK 236	23.60	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 238	23.80	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 239	23.90	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 240	24.00	8.21	5.690	2.88	30.0	140	24.0	•	•
ICK 243	24.30	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 245	24.50	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 247	24.70	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 248	24.80	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 249	24.90	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 250	25.00	8.56	5.940	3.00	30.0	140	25.0	•	•
ICK 251	25.10	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 252	25.20	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 253	25.30	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 254	25.40	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 255	25.50	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 256	25.60	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 258	25.80	8.56	5.940	3.00	30.0	140	25.0	•	•
ICK 259	25.90	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 260	26.00	9.05	6.020	3.12	30.0	140	26.0	•	
ICK 264	26.40	9.05	6.020	3.12	30.0	140	26.0	•	
ICK 265	26.50	9.05	6.020	3.12	30.0	140	26.0	•	
ICK 269	26.90	9.05	6.020	3.12	30.0	140	26.0	•	
ICK 270	27.00	9.44	6.210	3.24	30.0	140	27.0	•	
ICK 275	27.50	9.44	6.210	3.24	30.0	140	27.0	•	
ICK 279	27.90	9.44	6.210	3.24	30.0	140	27.0	•	
ICK 280	28.00	9.78	6.440	3.36	30.0	140	28.0	•	
ICK 285	28.50	9.78	6.440	3.36	30.0	140	28.0	•	
ICK 289	28.90	9.78	6.440	3.36	30.0	140	28.0	•	
ICK 290	29.00	10.10	6.700	3.48	30.0	140	29.0	•	
ICK 295	29.50	10.10	6.700	3.48	30.0	140	29.0	•	
ICK 299	29.90	10.10	6.700	3.48	30.0	140	29.0	•	
ICK 300	30.00	10.45	6.930	3.60	30.0	140	30.0	•	
ICK 305	30.50	10.45	6.930	3.60	30.0	140	30.0	•	
ICK 309	30.90	10.45	6.930	3.60	30.0	140	30.0	•	
ICK 310	31.00	10.78	7.180	3.72	30.0	140	31.0	•	
ICK 315	31.50	10.78	7.180	3.72	30.0	140	31.0	•	
ICK 3175	31.75	10.78	7.180	3.72	30.0	140	31.0	•	
ICK 319	31.90	10.78	7.180	3.72	30.0	140	31.0	•	
ICK 320	32.00	11.18	7.360	3.84	30.0	140	32.0	•	
ICK 325	32.50	11.18	7.360	3.84	30.0	140	32.0	•	
ICK 329	32.90	11.18	7.360	3.84	30.0	140	32.0	•	

• The drill head is produced with a ground chamfer and a honed cutting edge • For cutting conditions see page 68-81

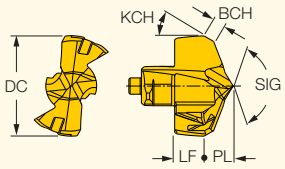
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK-2M

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO K Materials with High Surface Finish Results



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 060-2M	6.00	2.48	1.520	0.72	30.0	140	6.0	•	
ICK 061-2M	6.10	2.48	1.520	0.72	30.0	140	6.0	•	
ICK 062-2M	6.20	2.48	1.520	0.72	30.0	140	6.0	•	
ICK 063-2M	6.30	2.48	1.520	0.72	30.0	140	6.0	•	
ICK 0635-2M	6.35	2.48	1.520	0.72	30.0	140	6.0	•	
ICK 064-2M	6.40	2.48	1.520	0.72	30.0	140	6.0	•	
ICK 065-2M	6.50	2.64	1.660	0.72	30.0	140	6.5	•	
ICK 066-2M	6.60	2.64	1.660	0.72	30.0	140	6.5	•	
ICK 067-2M	6.70	2.64	1.660	0.72	30.0	140	6.5	•	
ICK 068-2M	6.80	2.64	1.660	0.72	30.0	140	6.5	•	
ICK 069-2M	6.90	2.64	1.660	0.72	30.0	140	6.5	•	
ICK 070-2M	7.00	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 071-2M	7.10	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 072-2M	7.20	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 073-2M	7.30	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 074-2M	7.40	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 075-2M	7.50	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 076-2M	7.60	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 077-2M	7.70	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 078-2M	7.80	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 079-2M	7.90	3.02	1.580	0.84	30.0	140	7.0	•	
ICK 080-2M	8.00	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 081-2M	8.10	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 083-2M	8.30	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 084-2M	8.40	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 085-2M	8.50	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 086-2M	8.60	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 087-2M	8.70	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 088-2M	8.80	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 089-2M	8.90	3.43	1.970	0.96	30.0	140	8.0	•	
ICK 090-2M	9.00	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 091-2M	9.10	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 093-2M	9.30	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 094-2M	9.40	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 095-2M	9.50	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 096-2M	9.60	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 097-2M	9.70	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 098-2M	9.80	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 099-2M	9.90	3.60	2.200	1.08	30.0	140	9.0	•	
ICK 100-2M	10.00	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 101-2M	10.10	3.77	2.430	1.20	30.0	140	10.0	•	•
ICK 102-2M	10.20	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 103-2M	10.30	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 104-2M	10.40	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 105-2M	10.50	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 106-2M	10.60	3.77	2.430	1.20	30.0	140	10.0	•	•
ICK 107-2M	10.70	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 108-2M	10.80	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 109-2M	10.90	3.77	2.430	1.20	30.0	140	10.0	•	
ICK 110-2M	11.00	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 111-2M	11.10	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 112-2M	11.20	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 113-2M	11.30	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 114-2M	11.40	3.94	2.660	1.32	30.0	140	11.0	•	

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

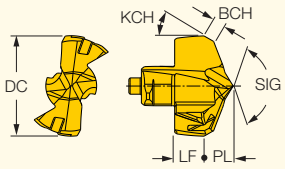
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK-2M (continued)

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO K Materials with High Surface Finish Results



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 116-2M	11.60	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 117-2M	11.70	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 118-2M	11.80	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 119-2M	11.90	3.94	2.660	1.32	30.0	140	11.0	•	
ICK 120-2M	12.00	4.10	2.180	1.44	30.0	140	12.0	•	
ICK 121-2M	12.10	4.10	2.200	1.44	30.0	140	12.0	•	
ICK 122-2M	12.20	4.10	2.220	1.44	30.0	140	12.0	•	
ICK 123-2M	12.30	4.10	2.240	1.44	30.0	140	12.0	•	
ICK 124-2M	12.40	4.10	2.260	1.44	30.0	140	12.0	•	
ICK 125-2M	12.50	4.10	2.270	1.44	30.0	140	12.0	•	
ICK 126-2M	12.60	4.10	2.290	1.44	30.0	140	12.0	•	
ICK 127-2M	12.70	4.10	2.310	1.44	30.0	140	12.0	•	
ICK 128-2M	12.80	4.10	2.330	1.44	30.0	140	12.0	•	
ICK 131-2M	13.10	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 132-2M	13.20	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 133-2M	13.30	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 134-2M	13.40	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 135-2M	13.50	4.48	3.120	1.56	30.0	140	13.0	•	•
ICK 136-2M	13.60	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 137-2M	13.70	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 138-2M	13.80	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 139-2M	13.90	4.48	3.120	1.56	30.0	140	13.0	•	
ICK 140-2M	14.00	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 141-2M	14.10	4.79	3.360	1.68	30.0	140	14.0	•	•
ICK 142-2M	14.20	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 144-2M	14.40	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 145-2M	14.50	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 146-2M	14.60	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 147-2M	14.70	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 148-2M	14.80	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 149-2M	14.90	4.79	3.360	1.68	30.0	140	14.0	•	
ICK 150-2M	15.00	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 151-2M	15.10	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 152-2M	15.20	5.14	3.590	1.80	30.0	140	15.0	•	•
ICK 153-2M	15.30	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 154-2M	15.40	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 155-2M	15.50	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 156-2M	15.60	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 159-2M	15.90	5.14	3.590	1.80	30.0	140	15.0	•	
ICK 160-2M	16.00	5.55	3.750	1.92	30.0	140	16.0	•	•
ICK 161-2M	16.10	5.55	3.750	1.92	30.0	140	16.0	•	•
ICK 162-2M	16.20	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 163-2M	16.30	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 164-2M	16.40	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 165-2M	16.50	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 166-2M	16.60	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 167-2M	16.70	5.55	3.750	1.92	30.0	140	16.0	•	•
ICK 168-2M	16.80	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 169-2M	16.90	5.55	3.750	1.92	30.0	140	16.0	•	
ICK 170-2M	17.00	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 171-2M	17.10	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 172-2M	17.20	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 173-2M	17.30	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 174-2M	17.40	5.84	4.060	2.04	30.0	140	17.0	•	

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

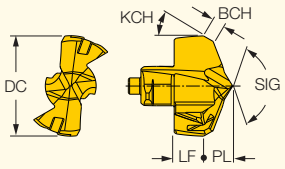
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK-2M (continued)

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO K Materials with High Surface Finish Results



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 175-2M	17.50	5.84	4.060	2.04	30.0	140	17.0	•	•
ICK 176-2M	17.60	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 178-2M	17.80	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 179-2M	17.90	5.84	4.060	2.04	30.0	140	17.0	•	
ICK 180-2M	18.00	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 181-2M	18.10	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 183-2M	18.30	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 184-2M	18.40	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 185-2M	18.50	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 186-2M	18.60	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 187-2M	18.70	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 188-2M	18.80	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 189-2M	18.90	6.21	4.290	2.16	30.0	140	18.0	•	
ICK 190-2M	19.00	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 191-2M	19.10	6.47	4.530	2.28	30.0	140	19.0	•	•
ICK 192-2M	19.20	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 193-2M	19.30	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 195-2M	19.50	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 196-2M	19.60	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 197-2M	19.70	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 198-2M	19.80	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 199-2M	19.90	6.47	4.530	2.28	30.0	140	19.0	•	
ICK 200-2M	20.00	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 201-2M	20.10	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 202-2M	20.20	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 203-2M	20.30	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 204-2M	20.40	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 205-2M	20.50	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 206-2M	20.60	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 207-2M	20.70	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 208-2M	20.80	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 209-2M	20.90	6.81	4.790	2.40	30.0	140	20.0	•	
ICK 210-2M	21.00	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 211-2M	21.10	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 212-2M	21.20	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 213-2M	21.30	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 214-2M	21.40	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 215-2M	21.50	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 216-2M	21.60	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 217-2M	21.70	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 218-2M	21.80	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 219-2M	21.90	7.20	4.980	2.52	30.0	140	21.0	•	
ICK 220-2M	22.00	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 221-2M	22.10	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 222-2M	22.20	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 223-2M	22.30	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 224-2M	22.40	7.54	5.220	2.64	30.0	140	22.0	•	•
ICK 225-2M	22.50	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 226-2M	22.60	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 227-2M	22.70	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 228-2M	22.80	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 229-2M	22.90	7.54	5.220	2.64	30.0	140	22.0	•	
ICK 230-2M	23.00	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 231-2M	23.10	7.88	5.450	2.76	30.0	140	23.0	•	

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

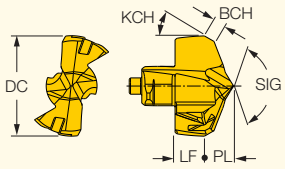
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICK-2M (continued)

Exchangeable Double Margin Drilling Heads for DCN Drills, for Machining ISO K Materials with High Surface Finish Results



Designation	Dimensions							Tough ↔ Hard	
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	IC908	IC907
ICK 232-2M	23.20	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 233-2M	23.30	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 234-2M	23.40	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 235-2M	23.50	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 236-2M	23.60	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 237-2M	23.70	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 238-2M	23.80	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 239-2M	23.90	7.88	5.450	2.76	30.0	140	23.0	•	
ICK 240-2M	24.00	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 241-2M	24.10	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 242-2M	24.20	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 243-2M	24.30	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 244-2M	24.40	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 245-2M	24.50	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 246-2M	24.60	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 247-2M	24.70	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 249-2M	24.90	8.21	5.690	2.88	30.0	140	24.0	•	
ICK 250-2M	25.00	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 251-2M	25.10	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 252-2M	25.20	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 253-2M	25.30	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 254-2M	25.40	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 255-2M	25.50	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 256-2M	25.60	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 257-2M	25.70	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 258-2M	25.80	8.56	5.940	3.00	30.0	140	25.0	•	
ICK 259-2M	25.90	8.56	5.940	3.00	30.0	140	25.0	•	

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

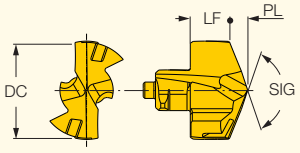
(1) Seat size code

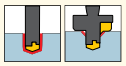
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

ICM

Exchangeable Drilling Heads for DCN Drills, for Machining ISO M and ISO S Materials





Designation	Dimensions DC	PL	LF	SIG	SSC(1)		Tough ↔ Hard IC908	IC907
ICM 050	5.00	0.700	3.00	140	5.0	SK DCN 5-5.99	•	
ICM 051	5.10	0.720	2.98	140	5.0	SK DCN 5-5.99	•	
ICM 052	5.20	0.740	2.96	140	5.0	SK DCN 5-5.99	•	
ICM 053	5.30	0.750	2.95	140	5.0	SK DCN 5-5.99	•	
ICM 054	5.40	0.770	2.93	140	5.0	SK DCN 5-5.99	•	
ICM 055	5.50	0.900	2.95	140	5.5	SK DCN 5-5.99	•	
ICM 056	5.60	0.920	2.93	140	5.5	SK DCN 5-5.99	•	
ICM 057	5.70	0.940	2.91	140	5.5	SK DCN 5-5.99	•	
ICM 058	5.80	0.960	2.89	140	5.5	SK DCN 5-5.99	•	
ICM 059	5.90	0.970	2.88	140	5.5	SK DCN 5-5.99	•	
ICM 060	6.00	0.960	3.04	140	6.0		•	
ICM 061	6.10	0.980	3.02	140	6.0		•	
ICM 062	6.20	1.000	3.00	140	6.0		•	
ICM 063	6.30	1.010	2.99	140	6.0		•	
ICM 0635	6.35	1.020	2.98	140	6.0		•	
ICM 064	6.40	1.030	2.97	140	6.0		•	
ICM 065	6.50	1.270	3.03	140	6.5		•	
ICM 066	6.60	1.290	3.01	140	6.5		•	
ICM 067	6.70	1.310	2.99	140	6.5		•	
ICM 068	6.80	1.330	2.97	140	6.5		•	
ICM 069	6.90	1.340	2.96	140	6.5		•	
ICM 070	7.00	1.010	3.59	140	7.0		•	
ICM 071	7.10	1.030	3.57	140	7.0		•	
ICM 072	7.20	1.050	3.55	140	7.0		•	
ICM 073	7.30	1.060	3.54	140	7.0		•	
ICM 074	7.40	1.080	3.52	140	7.0		•	
ICM 075	7.50	1.100	3.24	140	7.0		•	•
ICM 076	7.60	1.120	3.48	140	7.0		•	
ICM 077	7.70	1.140	3.46	140	7.0		•	
ICM 078	7.80	1.160	3.44	140	7.0		•	
ICM 079	7.90	1.170	3.43	140	7.0		•	
ICM 080	8.00	1.200	3.94	140	8.0		•	•
ICM 081	8.10	1.220	4.18	140	8.0		•	
ICM 082	8.20	1.240	4.16	140	8.0		•	
ICM 083	8.30	1.250	4.15	140	8.0		•	
ICM 084	8.40	1.270	4.13	140	8.0		•	
ICM 085	8.50	1.290	3.85	140	8.0		•	•
ICM 086	8.60	1.310	4.09	140	8.0		•	
ICM 087	8.70	1.330	3.82	140	8.0		•	•
ICM 088	8.80	1.350	4.05	140	8.0		•	
ICM 089	8.90	1.360	4.04	140	8.0		•	
ICM 090	9.00	1.360	4.16	140	9.0		•	•
ICM 091	9.10	1.380	4.14	140	9.0		•	•
ICM 092	9.20	1.400	4.40	140	9.0		•	
ICM 093	9.30	1.410	4.39	140	9.0		•	
ICM 094	9.40	1.430	4.37	140	9.0		•	•
ICM 095	9.50	1.450	4.07	140	9.0		•	•
ICM 096	9.60	1.470	4.33	140	9.0		•	
ICM 097	9.70	1.490	4.03	140	9.0		•	•
ICM 098	9.80	1.510	4.29	140	9.0		•	
ICM 099	9.90	1.520	4.00	140	9.0		•	•
ICM 100	10.00	1.500	4.38	140	10.0		•	•
ICM 101	10.10	1.520	4.68	140	10.0		•	

- The drill head features a T-land on the cutting edge
- For cutting conditions see page 68-81

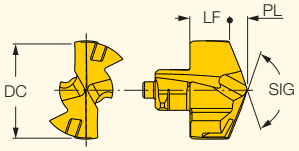
(1) Seat size code

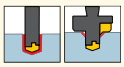
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

ICM (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO M and ISO S Materials





Designation	Dimensions					Tough ↔ Hard	
	DC	PL	LF	SIG	SSC(1)	IC908	IC907
ICM 102	10.20	1.540	4.66	140	10.0	•	•
ICM 103	10.30	1.550	4.65	140	10.0	•	•
ICM 104	10.40	1.570	4.31	140	10.0	•	•
ICM 105	10.50	1.590	4.29	140	10.0	•	•
ICM 106	10.60	1.610	4.27	140	10.0	•	•
ICM 107	10.70	1.630	4.25	140	10.0	•	•
ICM 108	10.80	1.650	4.55	140	10.0	•	
ICM 109	10.90	1.660	4.54	140	10.0	•	
ICM 110	11.00	1.660	4.94	140	11.0	•	•
ICM 111	11.10	1.680	4.58	140	11.0	•	•
ICM 112	11.20	1.700	4.56	140	11.0	•	•
ICM 113	11.30	1.710	4.89	140	11.0	•	
ICM 114	11.40	1.730	4.87	140	11.0	•	
ICM 115	11.50	1.750	4.51	140	11.0	•	•
ICM 116	11.60	1.770	4.83	140	11.0	•	
ICM 117	11.70	1.790	4.81	140	11.0	•	
ICM 118	11.80	1.810	4.45	140	11.0	•	•
ICM 119	11.90	1.820	4.43	140	11.0	•	•
ICM 120	12.00	1.810	4.82	140	12.0	•	•
ICM 121	12.10	1.830	5.17	140	12.0	•	
ICM 122	12.20	1.850	5.15	140	12.0	•	
ICM 123	12.30	1.860	4.76	140	12.0	•	•
ICM 124	12.40	1.880	4.74	140	12.0	•	•
ICM 125	12.50	1.900	4.73	140	12.0	•	•
ICM 126	12.60	1.920	5.08	140	12.0	•	
ICM 127	12.70	1.940	4.69	140	12.0	•	•
ICM 128	12.80	1.960	5.04	140	12.0	•	
ICM 129	12.90	1.970	4.65	140	12.0	•	•
ICM 130	13.00	1.950	5.23	140	13.0	•	•
ICM 131	13.10	1.970	5.22	140	13.0	•	•
ICM 132	13.20	1.990	5.61	140	13.0	•	
ICM 133	13.30	2.000	5.60	140	13.0	•	
ICM 134	13.40	2.020	5.58	140	13.0	•	
ICM 135	13.50	2.040	5.14	140	13.0	•	•
ICM 136	13.60	2.060	5.13	140	13.0	•	•
ICM 137	13.70	2.080	5.52	140	13.0	•	
ICM 138	13.80	2.100	5.50	140	13.0	•	
ICM 139	13.90	2.110	5.49	140	13.0	•	
ICM 140	14.00	2.110	5.60	140	14.0	•	•
ICM 141	14.10	2.130	6.02	140	14.0	•	
ICM 142	14.20	2.150	5.57	140	14.0	•	•
ICM 143	14.30	2.160	5.55	140	14.0	•	•
ICM 144	14.40	2.180	5.97	140	14.0	•	
ICM 145	14.50	2.200	5.51	140	14.0	•	•
ICM 146	14.60	2.220	5.93	140	14.0	•	
ICM 147	14.70	2.240	5.91	140	14.0	•	•
ICM 148	14.80	2.260	5.89	140	14.0	•	
ICM 149	14.90	2.270	5.88	140	14.0	•	
ICM 150	15.00	2.260	6.00	140	15.0	•	•
ICM 151	15.10	2.280	6.45	140	15.0	•	
ICM 152	15.20	2.300	6.43	140	15.0	•	
ICM 153	15.30	2.310	6.42	140	15.0	•	
ICM 154	15.40	2.330	6.40	140	15.0	•	
ICM 155	15.50	2.350	5.91	140	15.0	•	•

• The drill head features a T-land on the cutting edge • For cutting conditions see page 68-81

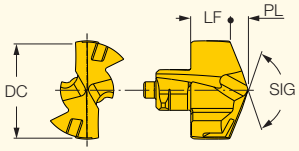
(1) Seat size code

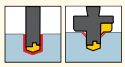
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

ICM (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO M and ISO S Materials





Designation	Dimensions					Tough ↔ Hard	
	DC	PL	LF	SIG	SSC(1)	IC908	IC907
ICM 156	15.60	2.370	6.36	140	15.0	•	
ICM 157	15.70	2.390	5.87	140	15.0	•	•
ICM 158	15.80	2.410	6.32	140	15.0	•	
ICM 159	15.90	2.420	5.84	140	15.0	•	•
ICM 160	16.00	2.420	6.39	140	16.0	•	•
ICM 1605	16.05	2.430	6.87	140	16.0	•	
ICM 161	16.10	2.440	6.86	140	16.0	•	
ICM 162	16.20	2.460	6.84	140	16.0	•	
ICM 163	16.30	2.470	6.83	140	16.0	•	
ICM 164	16.40	2.490	6.32	140	16.0	•	•
ICM 165	16.50	2.510	6.30	140	16.0	•	•
ICM 166	16.60	2.530	6.77	140	16.0	•	
ICM 167	16.70	2.550	6.26	140	16.0	•	•
ICM 168	16.80	2.570	6.73	140	16.0	•	
ICM 169	16.90	2.580	6.72	140	16.0	•	
ICM 170	17.00	2.570	6.81	140	17.0	•	•
ICM 171	17.10	2.590	6.79	140	17.0	•	•
ICM 172	17.20	2.610	7.29	140	17.0	•	
ICM 173	17.30	2.620	7.28	140	17.0	•	
ICM 174	17.40	2.640	7.26	140	17.0	•	
ICM 175	17.50	2.660	6.72	140	17.0	•	•
ICM 176	17.60	2.680	7.22	140	17.0	•	
ICM 177	17.70	2.700	7.20	140	17.0	•	
ICM 178	17.80	2.720	7.18	140	17.0	•	
ICM 179	17.90	2.730	6.64	140	17.0	•	•
ICM 180	18.00	2.720	7.22	140	18.0	•	•
ICM 182	18.20	2.760	7.74	140	18.0	•	
ICM 183	18.30	2.770	7.73	140	18.0	•	
ICM 184	18.40	2.790	7.71	140	18.0	•	
ICM 185	18.50	2.810	7.69	140	18.0	•	•
ICM 186	18.60	2.830	7.67	140	18.0	•	
ICM 187	18.70	2.850	7.65	140	18.0	•	
ICM 188	18.80	2.870	7.63	140	18.0	•	
ICM 189	18.90	2.880	7.62	140	18.0	•	
ICM 190	19.00	2.870	7.54	140	19.0	•	•
ICM 1905	19.05	2.880	8.12	140	19.0	•	•
ICM 191	19.10	2.890	8.11	140	19.0	•	
ICM 192	19.20	2.910	8.09	140	19.0	•	
ICM 1925	19.25	2.920	8.08	140	19.0	•	
ICM 1927	19.27	2.920	8.08	140	19.0	•	
ICM 193	19.30	2.920	8.08	140	19.0	•	
ICM 194	19.40	2.940	8.06	140	19.0	•	
ICM 195	19.50	2.960	8.04	140	19.0	•	
ICM 196	19.60	2.980	8.02	140	19.0	•	
ICM 197	19.70	3.000	7.41	140	19.0	•	•
ICM 198	19.80	3.020	7.98	140	19.0	•	
ICM 199	19.90	3.030	7.97	140	19.0	•	
ICM 200	20.00	3.020	7.96	140	20.0	•	•
ICM 201	20.10	3.040	8.56	140	20.0	•	
ICM 202	20.20	3.060	8.54	140	20.0	•	
ICM 203	20.30	3.070	8.53	140	20.0	•	
ICM 204	20.40	3.090	8.51	140	20.0	•	
ICM 205	20.50	3.110	7.87	140	20.0	•	•

• The drill head features a T-land on the cutting edge • For cutting conditions see page 68-81

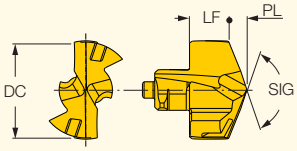
(1) Seat size code

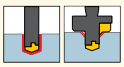
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

ICM (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO M and ISO S Materials





Designation	Dimensions DC	PL	LF	SIG	SSC(1)	Tough ↔ Hard IC908	IC907
ICM 206	20.60	3.130	8.47	140	20.0	•	
ICM 207	20.70	3.150	8.45	140	20.0	•	
ICM 208	20.80	3.170	8.43	140	20.0	•	
ICM 209	20.90	3.180	8.42	140	20.0	•	
ICM 210	21.00	3.200	8.38	140	21.0	•	•
ICM 211	21.10	3.220	8.96	140	21.0	•	
ICM 212	21.20	3.240	8.94	140	21.0	•	
ICM 213	21.30	3.250	8.93	140	21.0	•	
ICM 214	21.40	3.270	9.91	140	21.0	•	
ICM 215	21.50	3.290	9.89	140	21.0	•	
ICM 216	21.60	3.310	8.87	140	21.0	•	
ICM 217	21.70	3.330	8.85	140	21.0	•	
ICM 218	21.80	3.350	8.83	140	21.0	•	
ICM 219	21.90	3.360	8.82	140	21.0	•	
ICM 220	22.00	3.350	8.80	140	22.0	•	•
ICM 221	22.10	3.370	9.39	140	22.0	•	
ICM 222	22.20	3.390	9.37	140	22.0	•	
ICM 223	22.30	3.400	9.36	140	22.0	•	
ICM 224	22.40	3.420	9.34	140	22.0	•	
ICM 225	22.50	3.440	9.32	140	22.0	•	
ICM 226	22.60	3.460	9.30	140	22.0	•	
ICM 227	22.70	3.480	9.28	140	22.0	•	
ICM 228	22.80	3.500	9.26	140	22.0	•	
ICM 229	22.90	3.510	9.25	140	22.0	•	
ICM 230	23.00	3.510	9.82	140	23.0	•	
ICM 232	23.20	3.550	9.78	140	23.0	•	
ICM 233	23.30	3.560	9.77	140	23.0	•	
ICM 234	23.40	3.580	9.75	140	23.0	•	
ICM 235	23.50	3.600	9.73	140	23.0	•	
ICM 237	23.70	3.640	9.69	140	23.0	•	
ICM 238	23.80	3.660	9.67	140	23.0	•	
ICM 239	23.90	3.670	9.66	140	23.0	•	
ICM 240	24.00	3.640	10.26	140	24.0	•	
ICM 241	24.10	3.660	10.24	140	24.0	•	
ICM 242	24.20	3.680	10.22	140	24.0	•	
ICM 243	24.30	3.690	10.21	140	24.0	•	
ICM 244	24.40	3.710	10.19	140	24.0	•	
ICM 245	24.50	3.730	10.17	140	24.0	•	
ICM 246	24.60	3.750	10.15	140	24.0	•	
ICM 247	24.70	3.770	10.13	140	24.0	•	
ICM 248	24.80	3.790	10.11	140	24.0	•	
ICM 249	24.90	3.800	10.10	140	24.0	•	
ICM 250	25.00	3.840	10.66	140	25.0	•	
ICM 251	25.10	3.860	10.64	140	25.0	•	
ICM 252	25.20	3.880	10.62	140	25.0	•	
ICM 253	25.30	3.890	10.61	140	25.0	•	
ICM 254	25.40	3.910	10.59	140	25.0	•	
ICM 255	25.50	3.930	10.57	140	25.0	•	
ICM 256	25.60	3.950	10.55	140	25.0	•	
ICM 2565	25.65	3.960	10.54	140	25.0	•	
ICM 2567	25.67	3.960	10.54	140	25.0	•	
ICM 257	25.70	3.970	10.53	140	25.0	•	
ICM 258	25.80	3.990	10.51	140	25.0	•	
ICM 259	25.90	4.000	10.50	140	25.0	•	

• The drill head features a T-land on the cutting edge • For cutting conditions see page 68-81

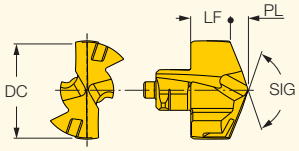
(1) Seat size code

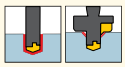
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

ICM (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO M and ISO S Materials





Designation	Dimensions					Tough ↔ Hard	
	DC	PL	LF	SIG	SSC(1)	IC908	IC907
ICM 260	26.00	3.970	11.10	140	26.0	•	
ICM 261	26.10	3.990	11.08	140	26.0	•	
ICM 262	26.20	4.010	11.06	140	26.0	•	
ICM 263	26.30	4.020	11.05	140	26.0	•	
ICM 264	26.40	4.040	11.03	140	26.0	•	
ICM 265	26.50	4.060	11.01	140	26.0	•	
ICM 266	26.60	4.080	10.99	140	26.0	•	
ICM 267	26.70	4.100	10.97	140	26.0	•	
ICM 268	26.80	4.120	10.95	140	26.0	•	
ICM 269	26.90	4.130	10.94	140	26.0	•	
ICM 270	27.00	4.130	11.52	140	27.0	•	
ICM 271	27.10	4.150	11.50	140	27.0	•	
ICM 272	27.20	4.170	11.48	140	27.0	•	
ICM 273	27.30	4.180	11.47	140	27.0	•	
ICM 274	27.40	4.200	11.45	140	27.0	•	
ICM 275	27.50	4.220	11.43	140	27.0	•	
ICM 276	27.60	4.240	11.41	140	27.0	•	
ICM 277	27.70	4.260	11.39	140	27.0	•	
ICM 278	27.80	4.280	11.37	140	27.0	•	
ICM 279	27.90	4.290	11.36	140	27.0	•	
ICM 280	28.00	4.280	11.94	140	28.0	•	
ICM 281	28.10	4.300	11.92	140	28.0	•	
ICM 282	28.20	4.320	11.90	140	28.0	•	
ICM 283	28.30	4.330	11.89	140	28.0	•	
ICM 284	28.40	4.350	11.87	140	28.0	•	
ICM 285	28.50	4.370	11.85	140	28.0	•	
ICM 286	28.60	4.390	11.83	140	28.0	•	
ICM 287	28.70	4.410	11.81	140	28.0	•	
ICM 288	28.80	4.430	11.79	140	28.0	•	
ICM 289	28.90	4.440	11.78	140	28.0	•	
ICM 290	29.00	4.460	12.34	140	29.0	•	
ICM 291	29.10	4.480	12.32	140	29.0	•	
ICM 292	29.20	4.500	12.30	140	29.0	•	
ICM 293	29.30	4.510	12.29	140	29.0	•	
ICM 294	29.40	4.530	12.27	140	29.0	•	
ICM 295	29.50	4.550	12.25	140	29.0	•	
ICM 296	29.60	4.570	12.23	140	29.0	•	
ICM 297	29.70	4.590	12.21	140	29.0	•	
ICM 298	29.80	4.610	12.19	140	29.0	•	
ICM 300	30.00	4.610	12.77	140	30.0	•	
ICM 301	30.10	4.630	12.75	140	30.0	•	
ICM 302	30.20	4.650	12.73	140	30.0	•	
ICM 303	30.30	4.660	12.72	140	30.0	•	
ICM 304	30.40	4.680	12.70	140	30.0	•	
ICM 305	30.50	4.700	12.68	140	30.0	•	
ICM 306	30.60	4.720	12.66	140	30.0	•	
ICM 307	30.70	4.740	12.64	140	30.0	•	
ICM 308	30.80	4.760	12.62	140	30.0	•	
ICM 309	30.90	4.770	12.61	140	30.0	•	
ICM 310	31.00	4.790	13.17	140	31.0	•	
ICM 311	31.10	4.810	13.15	140	31.0	•	
ICM 312	31.20	4.830	13.13	140	31.0	•	
ICM 315	31.50	4.880	13.08	140	31.0	•	
ICM 317	31.70	4.920	13.04	140	31.0	•	

• The drill head features a T-land on the cutting edge • For cutting conditions see page 68-81

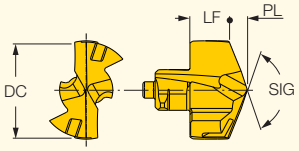
(1) Seat size code

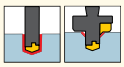
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

ICM (continued)

Exchangeable Drilling Heads for DCN Drills, for Machining ISO M and ISO S Materials





Designation	Dimensions DC	PL	LF	SIG	SSC(1)	Tough ↔ Hard IC908	IC907
ICM 3175	31.75	4.930	13.03	140	31.0	•	
ICM 318	31.80	4.940	13.02	140	31.0	•	
ICM 319	31.90	4.950	13.01	140	31.0	•	
ICM 320	32.00	4.890	13.65	140	32.0	•	
ICM 321	32.10	4.910	13.63	140	32.0	•	
ICM 322	32.20	4.930	13.61	140	32.0	•	
ICM 323	32.30	4.940	13.60	140	32.0	•	
ICM 324	32.40	4.960	13.58	140	32.0	•	
ICM 325	32.50	4.980	13.56	140	32.0	•	
ICM 326	32.60	5.000	13.54	140	32.0	•	
ICM 327	32.70	5.020	13.52	140	32.0	•	
ICM 328	32.80	5.040	13.50	140	32.0	•	
ICM 329	32.90	5.050	13.49	140	32.0	•	

• The drill head features a T-land on the cutting edge • For cutting conditions see page 68-81

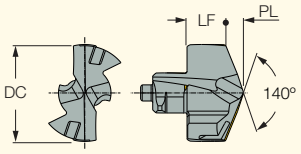
(1) Seat size code

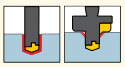
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

ICN

Exchangeable Drilling Heads for DCN Drills, for Machining ISO N Materials





Designation	Dimensions DC	PL	LF	SIG	SSC(1)	IC08
ICN 0635	6.35	1.020	2.98	140	6.0	•
ICN 0952	9.52	1.440	4.36	140	9.0	•
ICN 100	10.00	1.500	4.70	140	10.0	•
ICN 102	10.20	1.540	4.66	140	10.0	•
ICN 103	10.30	1.550	4.65	140	10.0	•
ICN 105	10.50	1.590	4.61	140	10.0	•
ICN 108	10.80	1.650	4.55	140	10.0	•
ICN 110	11.00	1.670	4.93	140	11.0	•
ICN 111	11.10	1.690	4.91	140	11.0	•
ICN 115	11.50	1.760	4.84	140	11.0	•
ICN 119	11.90	1.830	4.77	140	11.0	•
ICN 120	12.00	1.820	5.18	140	12.0	•
ICN 123	12.30	1.350	5.65	140	12.0	•
ICN 125	12.50	1.390	5.61	140	12.0	•
ICN 127	12.70	1.430	5.57	140	12.0	•
ICN 130	13.00	1.960	5.64	140	13.0	•
ICN 135	13.50	2.050	5.55	140	13.0	•
ICN 137	13.70	2.090	5.51	140	13.0	•
ICN 140	14.00	2.120	6.03	140	14.0	•
ICN 141	14.10	2.140	6.01	140	14.0	•
ICN 142	14.20	2.160	5.99	140	14.0	•
ICN 1427	14.27	2.170	5.98	140	14.0	•
ICN 145	14.50	2.210	5.94	140	14.0	•
ICN 150	15.00	2.270	6.46	140	15.0	•
ICN 157	15.70	2.400	6.33	140	15.0	•
ICN 158	15.80	2.420	6.31	140	15.0	•
ICN 1587	15.87	2.430	6.30	140	15.0	•
ICN 160	16.00	2.420	6.88	140	16.0	•
ICN 165	16.50	2.510	6.79	140	16.0	•
ICN 167	16.70	2.550	6.75	140	16.0	•
ICN 170	17.00	2.590	7.31	140	17.0	•
ICN 175	17.50	2.680	7.22	140	17.0	•
ICN 180	18.00	2.730	7.77	140	18.0	•
ICN 185	18.50	2.820	7.68	140	18.0	•
ICN 190	19.00	2.880	8.12	140	19.0	•
ICN 1905	19.05	2.890	8.11	140	19.0	•
ICN 195	19.50	2.970	8.03	140	19.0	•
ICN 2062	20.62	3.130	8.47	140	20.0	•
ICN 2222	22.22	3.360	9.40	140	22.0	•
ICN 254	25.40	3.870	10.63	140	25.0	•

• The drill is manufactured with a sharp cutting edge and polished flutes • For cutting conditions see page 68-81

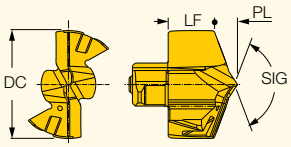
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM CHAMDRILL LINE

QCP-2M

Exchangeable Double Margin & Self-Centering Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
QCP 060-2M	6.00	2.79	1.210	136	6.0	•
QCP 061-2M	6.10	2.77	1.230	136	6.0	•
QCP 062-2M	6.20	2.75	1.250	136	6.0	•
QCP 0635-2M	6.35	2.72	1.280	136	6.0	•
QCP 064-2M	6.40	2.71	1.290	136	6.0	•
QCP 065-2M	6.50	2.89	1.410	136	6.5	•
QCP 066-2M	6.60	2.87	1.430	136	6.5	•
QCP 067-2M	6.70	2.85	1.450	136	6.5	•
QCP 068-2M	6.80	2.83	1.470	136	6.5	•
QCP 069-2M	6.90	2.81	1.490	136	6.5	•
QCP 070-2M	7.00	3.25	1.350	136	7.0	•
QCP 071-2M	7.10	3.23	1.370	136	7.0	•
QCP 072-2M	7.20	3.21	1.390	136	7.0	•
QCP 073-2M	7.30	3.19	1.410	136	7.0	•
QCP 074-2M	7.40	3.17	1.430	136	7.0	•
QCP 075-2M	7.50	3.15	1.450	136	7.0	•
QCP 076-2M	7.60	3.13	1.470	136	7.0	•
QCP 077-2M	7.70	3.11	1.490	136	7.0	•
QCP 078-2M	7.80	3.09	1.510	136	7.0	•
QCP 079-2M	7.90	3.07	1.530	136	7.0	•
QCP 080-2M	8.00	3.78	1.620	136	8.0	•
QCP 081-2M	8.10	3.76	1.640	136	8.0	•
QCP 082-2M	8.20	3.74	1.660	136	8.0	•
QCP 083-2M	8.30	3.72	1.680	136	8.0	•
QCP 084-2M	8.40	3.70	1.700	136	8.0	•
QCP 085-2M	8.50	3.68	1.720	136	8.0	•
QCP 086-2M	8.60	3.66	1.740	136	8.0	•
QCP 087-2M	8.70	3.64	1.760	136	8.0	•
QCP 088-2M	8.80	3.62	1.780	136	8.0	•
QCP 090-2M	9.00	3.89	1.910	136	9.0	•
QCP 091-2M	9.10	3.87	1.930	136	9.0	•
QCP 092-2M	9.20	3.85	1.950	136	9.0	•
QCP 093-2M	9.30	3.83	1.970	136	9.0	•
QCP 094-2M	9.40	3.81	1.990	136	9.0	•
QCP 095-2M	9.50	3.79	2.010	136	9.0	•
QCP 096-2M	9.60	3.77	2.030	136	9.0	•
QCP 097-2M	9.70	3.75	2.050	136	9.0	•
QCP 098-2M	9.80	3.73	2.070	136	9.0	•
QCP 099-2M	9.90	3.71	2.090	136	9.0	•
QCP 100-2M	10.00	4.70	2.090	136	10.0	•
QCP 101-2M	10.10	4.68	2.110	136	10.0	•
QCP 102-2M	10.20	4.66	2.130	136	10.0	•
QCP 103-2M	10.30	4.64	2.150	136	10.0	•
QCP 104-2M	10.40	4.62	2.170	136	10.0	•
QCP 105-2M	10.50	4.60	2.190	136	10.0	•
QCP 106-2M	10.60	4.58	2.210	136	10.0	•
QCP 107-2M	10.70	4.56	2.230	136	10.0	•
QCP 108-2M	10.80	4.54	2.250	136	10.0	•
QCP 109-2M	10.90	4.52	2.270	136	10.0	•
QCP 110-2M	11.00	4.93	2.320	136	11.0	•
QCP 111-2M	11.10	4.91	2.340	136	11.0	•
QCP 112-2M	11.20	4.89	2.360	136	11.0	•
QCP 113-2M	11.30	4.87	2.380	136	11.0	•
QCP 114-2M	11.40	4.85	2.400	136	11.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

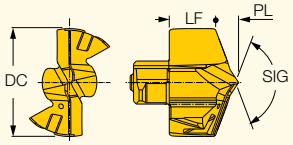
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

QCP-2M (continued)

Exchangeable Double Margin & Self-Centering Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions DC	LF	PL	SIG	SSC(1)	IC908
QCP 115-2M	11.50	4.83	2.420	136	11.0	•
QCP 116-2M	11.60	4.81	2.440	136	11.0	•
QCP 117-2M	11.70	4.79	2.460	136	11.0	•
QCP 118-2M	11.80	4.77	2.480	136	11.0	•
QCP 119-2M	11.90	4.75	2.500	136	11.0	•
QCP 120-2M	12.00	5.18	2.450	136	12.0	•
QCP 121-2M	12.10	5.16	2.470	136	12.0	•
QCP 122-2M	12.20	5.14	2.490	136	12.0	•
QCP 123-2M	12.30	5.12	2.510	136	12.0	•
QCP 124-2M	12.40	5.10	2.530	136	12.0	•
QCP 125-2M	12.50	5.08	2.550	136	12.0	•
QCP 126-2M	12.60	5.06	2.570	136	12.0	•
QCP 127-2M	12.70	5.04	2.590	136	12.0	•
QCP 128-2M	12.80	5.02	2.610	136	12.0	•
QCP 129-2M	12.90	5.00	2.630	136	12.0	•
QCP 130-2M	13.00	5.64	2.710	136	13.0	•
QCP 131-2M	13.10	5.62	2.730	136	13.0	•
QCP 132-2M	13.20	5.60	2.750	136	13.0	•
QCP 133-2M	13.30	5.58	2.770	136	13.0	•
QCP 134-2M	13.40	5.56	2.790	136	13.0	•
QCP 135-2M	13.50	5.54	2.810	136	13.0	•
QCP 136-2M	13.60	5.52	2.830	136	13.0	•
QCP 137-2M	13.70	5.50	2.850	136	13.0	•
QCP 138-2M	13.80	5.48	2.870	136	13.0	•
QCP 139-2M	13.90	5.46	2.890	136	13.0	•
QCP 140-2M	14.00	6.03	2.930	136	14.0	•
QCP 141-2M	14.10	6.01	2.950	136	14.0	•
QCP 142-2M	14.20	5.99	2.970	136	14.0	•
QCP 143-2M	14.30	5.97	2.990	136	14.0	•
QCP 144-2M	14.40	5.95	3.010	136	14.0	•
QCP 145-2M	14.50	5.93	3.030	136	14.0	•
QCP 146-2M	14.60	5.91	3.050	136	14.0	•
QCP 147-2M	14.70	5.89	3.070	136	14.0	•
QCP 148-2M	14.80	5.87	3.090	136	14.0	•
QCP 149-2M	14.90	5.85	3.110	136	14.0	•
QCP 150-2M	15.00	6.46	3.180	136	15.0	•
QCP 151-2M	15.10	6.44	3.200	136	15.0	•
QCP 152-2M	15.20	6.42	3.220	136	15.0	•
QCP 153-2M	15.30	6.40	3.240	136	15.0	•
QCP 155-2M	15.50	6.36	3.280	136	15.0	•
QCP 156-2M	15.60	6.34	3.300	136	15.0	•
QCP 157-2M	15.70	6.32	3.320	136	15.0	•
QCP 158-2M	15.80	6.30	3.340	136	15.0	•
QCP 159-2M	15.90	6.28	3.360	136	15.0	•
QCP 160-2M	16.00	6.88	3.390	136	16.0	•
QCP 161-2M	16.10	6.86	3.410	136	16.0	•
QCP 162-2M	16.20	6.84	3.430	136	16.0	•
QCP 163-2M	16.30	6.82	3.450	136	16.0	•
QCP 165-2M	16.50	6.78	3.490	136	16.0	•
QCP 166-2M	16.60	6.76	3.510	136	16.0	•
QCP 167-2M	16.70	6.74	3.530	136	16.0	•
QCP 170-2M	17.00	7.31	3.570	136	17.0	•
QCP 171-2M	17.10	7.29	3.590	136	17.0	•
QCP 172-2M	17.20	7.27	3.610	136	17.0	•
QCP 174-2M	17.40	7.23	3.650	136	17.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

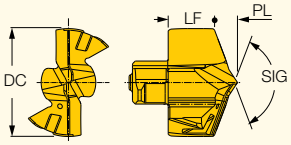
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

QCP-2M (continued)

Exchangeable Double Margin & Self-Centering Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions DC	LF	PL	SIG	SSC(1)	IC908
QCP 175-2M	17.50	7.21	3.670	136	17.0	•
QCP 177-2M	17.70	7.17	3.710	136	17.0	•
QCP 178-2M	17.80	7.15	3.730	136	17.0	•
QCP 179-2M	17.90	7.13	3.750	136	17.0	•
QCP 180-2M	18.00	7.77	3.780	136	18.0	•
QCP 181-2M	18.10	7.75	3.800	136	18.0	•
QCP 183-2M	18.30	7.71	3.840	136	18.0	•
QCP 185-2M	18.50	7.67	3.880	136	18.0	•
QCP 186-2M	18.60	7.65	3.900	136	18.0	•
QCP 187-2M	18.70	7.63	3.920	136	18.0	•
QCP 188-2M	18.80	7.61	3.940	136	18.0	•
QCP 189-2M	18.90	7.59	3.960	136	18.0	•
QCP 190-2M	19.00	8.12	3.990	136	19.0	•
QCP 1905-2M	19.05	8.11	4.000	136	19.0	•
QCP 191-2M	19.10	8.10	4.010	136	19.0	•
QCP 192-2M	19.20	8.08	4.030	136	19.0	•
QCP 1927-2M	19.27	8.07	4.040	136	19.0	•
QCP 193-2M	19.30	8.06	4.050	136	19.0	•
QCP 194-2M	19.40	8.04	4.070	136	19.0	•
QCP 195-2M	19.50	8.02	4.090	136	19.0	•
QCP 197-2M	19.70	7.98	4.130	136	19.0	•
QCP 198-2M	19.80	7.96	4.150	136	19.0	•
QCP 199-2M	19.90	7.94	4.170	136	19.0	•
QCP 200-2M	20.00	8.58	4.240	136	20.0	•
QCP 201-2M	20.10	8.56	4.260	136	20.0	•
QCP 202-2M	20.20	8.54	4.280	136	20.0	•
QCP 203-2M	20.30	8.52	4.300	136	20.0	•
QCP 204-2M	20.40	8.50	4.320	136	20.0	•
QCP 205-2M	20.50	8.48	4.340	136	20.0	•
QCP 206-2M	20.60	8.46	4.360	136	20.0	•
QCP 207-2M	20.70	8.44	4.380	136	20.0	•
QCP 209-2M	20.90	8.40	4.420	136	20.0	•
QCP 210-2M	21.00	9.00	4.400	136	21.0	•
QCP 213-2M	21.30	8.94	4.460	136	21.0	•
QCP 215-2M	21.50	8.90	4.500	136	21.0	•
QCP 217-2M	21.70	8.86	4.540	136	21.0	•
QCP 218-2M	21.80	8.84	4.560	136	21.0	•
QCP 220-2M	22.00	9.44	4.600	136	22.0	•
QCP 221-2M	22.10	9.42	4.620	136	22.0	•
QCP 222-2M	22.20	9.40	4.640	136	22.0	•
QCP 223-2M	22.30	9.38	4.660	136	22.0	•
QCP 225-2M	22.50	9.34	4.700	136	22.0	•
QCP 226-2M	22.60	9.32	4.720	136	22.0	•
QCP 227-2M	22.70	9.30	4.740	136	22.0	•
QCP 230-2M	23.00	9.87	4.840	136	23.0	•
QCP 233-2M	23.30	9.81	4.900	136	23.0	•
QCP 234-2M	23.40	9.79	4.920	136	23.0	•
QCP 235-2M	23.50	9.77	4.940	136	23.0	•
QCP 237-2M	23.70	9.73	4.980	136	23.0	•
QCP 238-2M	23.80	9.71	5.000	136	23.0	•
QCP 240-2M	24.00	10.28	5.030	136	24.0	•
QCP 242-2M	24.20	10.24	5.070	136	24.0	•
QCP 243-2M	24.30	10.22	5.090	136	24.0	•
QCP 245-2M	24.50	10.18	5.130	136	24.0	•
QCP 246-2M	24.60	10.16	5.150	136	24.0	•

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

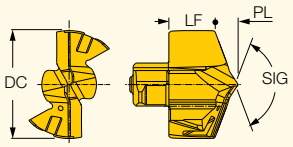
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM CHAMDRILL LINE

QCP-2M (continued)

Exchangeable Double Margin & Self-Centering Drilling Heads for DCN Drills, for Machining ISO P Materials with High Surface Finish Results



Designation	Dimensions DC	LF	PL	SIG	SSC(1)	IC908
QCP 247-2M	24.70	10.14	5.170	136	24.0	●
QCP 249-2M	24.90	10.10	5.210	136	24.0	●
QCP 250-2M	25.00	10.70	5.280	136	25.0	●
QCP 251-2M	25.10	10.68	5.300	136	25.0	●
QCP 252-2M	25.20	10.66	5.320	136	25.0	●
QCP 253-2M	25.30	10.64	5.340	136	25.0	●
QCP 254-2M	25.40	10.62	5.360	136	25.0	●
QCP 255-2M	25.50	10.60	5.380	136	25.0	●
QCP 256-2M	25.60	10.58	5.400	136	25.0	●
QCP 2567-2M	25.67	10.56	5.420	136	25.0	●
QCP 257-2M	25.70	10.56	5.420	136	25.0	●
QCP 258-2M	25.80	10.54	5.440	136	25.0	●
QCP 259-2M	25.90	10.52	5.460	136	25.0	●

• Can provide high surface finish of up to 1.6 Ra hole cylindricity and straightness of up to 0.05 mm • For cutting conditions see page 68-81

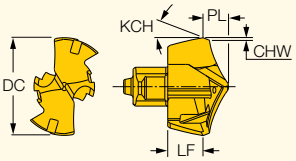
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAMIQ
CHAMDRILL LINE

HCP-IQ

Exchangeable Self-Centering Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions							IC908
	DC	LF	PL	CHW	KCH	SSC(1)		
HCP 040-IQ	4.00	2.40	1.160	0.20	30.0	4	SK DCN 4-4.99	•
HCP 041-IQ	4.10	2.40	1.160	0.20	30.0	4	SK DCN 4-4.99	•
HCP 042-IQ	4.20	2.40	1.160	0.20	30.0	4	SK DCN 4-4.99	•
HCP 043-IQ	4.30	2.40	1.160	0.20	30.0	4	SK DCN 4-4.99	•
HCP 044-IQ	4.40	2.40	1.160	0.20	30.0	4	SK DCN 4-4.99	•
HCP 045-IQ	4.50	2.64	1.190	0.20	30.0	4.5	SK DCN 4-4.99	•
HCP 046-IQ	4.60	2.64	1.190	0.20	30.0	4.5	SK DCN 4-4.99	•
HCP 047-IQ	4.70	2.64	1.190	0.20	30.0	4.5	SK DCN 4-4.99	•
HCP 048-IQ	4.80	2.64	1.190	0.20	30.0	4.5	SK DCN 4-4.99	•
HCP 049-IQ	4.90	2.64	1.190	0.20	30.0	4.5	SK DCN 4-4.99	•
HCP 050-IQ	5.00	2.79	1.440	0.25	30.0	5.0	SK DCN 5-5.99	•
HCP 051-IQ	5.10	2.79	1.440	0.25	30.0	5.0	SK DCN 5-5.99	•
HCP 052-IQ	5.20	2.79	1.440	0.25	30.0	5.0	SK DCN 5-5.99	•
HCP 053-IQ	5.30	2.79	1.440	0.25	30.0	5.0	SK DCN 5-5.99	•
HCP 054-IQ	5.40	2.79	1.440	0.25	30.0	5.0	SK DCN 5-5.99	•
HCP 055-IQ	5.50	2.75	1.630	0.25	30.0	5.5	SK DCN 5-5.99	•
HCP 056-IQ	5.60	2.75	1.630	0.25	30.0	5.5	SK DCN 5-5.99	•
HCP 057-IQ	5.70	2.75	1.630	0.25	30.0	5.5	SK DCN 5-5.99	•
HCP 058-IQ	5.80	2.75	1.630	0.25	30.0	5.5	SK DCN 5-5.99	•
HCP 059-IQ	5.90	2.75	1.630	0.25	30.0	5.5	SK DCN 5-5.99	•
HCP 060-IQ	6.00	2.35	1.650	0.29	30.0	6.0		•
HCP 061-IQ	6.10	2.35	1.650	0.29	30.0	6.0		•
HCP 062-IQ	6.20	2.35	1.650	0.29	30.0	6.0		•
HCP 063-IQ	6.30	2.35	1.650	0.29	30.0	6.0		•
HCP 064-IQ	6.40	2.35	1.650	0.29	30.0	6.0		•
HCP 065-IQ	6.50	2.63	1.670	0.29	30.0	6.5		•
HCP 066-IQ	6.60	2.63	1.670	0.29	30.0	6.5		•
HCP 067-IQ	6.70	2.63	1.670	0.29	30.0	6.5		•
HCP 068-IQ	6.80	2.63	1.670	0.29	30.0	6.5		•
HCP 069-IQ	6.90	2.63	1.670	0.29	30.0	6.5		•
HCP 070-IQ	7.00	2.83	1.770	0.35	30.0	7.0		•
HCP 071-IQ	7.10	2.83	1.770	0.35	30.0	7.0		•
HCP 072-IQ	7.20	2.83	1.770	0.35	30.0	7.0		•
HCP 073-IQ	7.30	2.83	1.770	0.35	30.0	7.0		•
HCP 074-IQ	7.40	2.83	1.770	0.35	30.0	7.0		•
HCP 075-IQ	7.50	2.83	1.770	0.35	30.0	7.0		•
HCP 076-IQ	7.60	2.83	1.770	0.35	30.0	7.0		•
HCP 077-IQ	7.70	2.83	1.770	0.35	30.0	7.0		•
HCP 078-IQ	7.80	2.83	1.770	0.35	30.0	7.0		•
HCP 079-IQ	7.90	2.83	1.770	0.35	30.0	7.0		•
HCP 080-IQ	8.00	3.24	2.160	0.40	30.0	8.0		•
HCP 081-IQ	8.10	3.24	2.160	0.40	30.0	8.0		•
HCP 082-IQ	8.20	3.24	2.160	0.40	30.0	8.0		•
HCP 083-IQ	8.30	3.24	2.160	0.40	30.0	8.0		•
HCP 084-IQ	8.40	3.24	2.160	0.40	30.0	8.0		•
HCP 085-IQ	8.50	3.24	2.160	0.40	30.0	8.0		•
HCP 086-IQ	8.60	3.24	2.160	0.40	30.0	8.0		•
HCP 087-IQ	8.70	3.24	2.160	0.40	30.0	8.0		•
HCP 088-IQ	8.80	3.24	2.160	0.40	30.0	8.0		•
HCP 089-IQ	8.90	3.20	2.160	0.40	30.0	8.0		•
HCP 090-IQ	9.00	3.55	2.250	0.46	30.0	9.0		•
HCP 091-IQ	9.10	3.55	2.250	0.46	30.0	9.0		•
HCP 092-IQ	9.20	3.55	2.250	0.46	30.0	9.0		•
HCP 093-IQ	9.30	3.55	2.250	0.46	30.0	9.0		•

• Advance Self-Centering and high surface finish • For cutting conditions see page 68-81

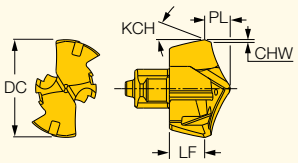
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • MNC-7/8D (67) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAMIQ CHAMDRILL LINE

HCP-IQ (continued)

Exchangeable Self-Centering Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions						IC908
	DC	LF	PL	CHW	KCH	SSC(1)	
HCP 094-IQ	9.40	3.55	2.250	0.46	30.0	9.0	•
HCP 095-IQ	9.50	3.55	2.250	0.46	30.0	9.0	•
HCP 096-IQ	9.60	3.55	2.250	0.46	30.0	9.0	•
HCP 097-IQ	9.70	3.55	2.250	0.46	30.0	9.0	•
HCP 098-IQ	9.80	3.55	2.250	0.46	30.0	9.0	•
HCP 099-IQ	9.90	3.55	2.250	0.46	30.0	9.0	•
HCP 100-IQ	10.00	3.48	2.720	0.46	30.0	10.0	•
HCP 101-IQ	10.10	3.48	2.720	0.46	30.0	10.0	•
HCP 102-IQ	10.20	3.48	2.720	0.46	30.0	10.0	•
HCP 103-IQ	10.30	3.48	2.720	0.46	30.0	10.0	•
HCP 104-IQ	10.40	3.48	2.720	0.46	30.0	10.0	•
HCP 105-IQ	10.50	3.48	2.720	0.46	30.0	10.0	•
HCP 106-IQ	10.60	3.48	2.720	0.46	30.0	10.0	•
HCP 107-IQ	10.70	3.48	2.720	0.46	30.0	10.0	•
HCP 108-IQ	10.80	3.48	2.720	0.46	30.0	10.0	•
HCP 109-IQ	10.90	3.48	2.720	0.46	30.0	10.0	•
HCP 110-IQ	11.00	3.85	2.750	0.52	30.0	11.0	•
HCP 111-IQ	11.10	3.85	2.750	0.52	30.0	11.0	•
HCP 112-IQ	11.20	3.85	2.750	0.52	30.0	11.0	•
HCP 113-IQ	11.30	3.85	2.750	0.52	30.0	11.0	•
HCP 114-IQ	11.40	3.85	2.750	0.52	30.0	11.0	•
HCP 115-IQ	11.50	3.85	2.750	0.52	30.0	11.0	•
HCP 116-IQ	11.60	3.85	2.750	0.52	30.0	11.0	•
HCP 117-IQ	11.70	3.85	2.750	0.52	30.0	11.0	•
HCP 118-IQ	11.80	3.85	2.750	0.52	30.0	11.0	•
HCP 119-IQ	11.90	3.85	2.750	0.52	30.0	11.0	•
HCP 120-IQ	12.00	3.84	3.160	0.52	30.0	12.0	•
HCP 121-IQ	12.10	3.84	3.160	0.52	30.0	12.0	•
HCP 122-IQ	12.20	3.84	3.160	0.52	30.0	12.0	•
HCP 123-IQ	12.30	3.84	3.160	0.52	30.0	12.0	•
HCP 124-IQ	12.40	3.84	3.160	0.52	30.0	12.0	•
HCP 125-IQ	12.50	3.84	3.160	0.52	30.0	12.0	•
HCP 126-IQ	12.60	3.84	3.160	0.52	30.0	12.0	•
HCP 127-IQ	12.70	3.84	3.160	0.52	30.0	12.0	•
HCP 128-IQ	12.80	3.84	3.160	0.52	30.0	12.0	•
HCP 129-IQ	12.90	3.84	3.160	0.52	30.0	12.0	•
HCP 130-IQ	13.00	4.09	3.510	0.58	30.0	13.0	•
HCP 131-IQ	13.10	4.09	3.510	0.58	30.0	13.0	•
HCP 132-IQ	13.20	4.09	3.510	0.58	30.0	13.0	•
HCP 133-IQ	13.30	4.09	3.510	0.58	30.0	13.0	•
HCP 134-IQ	13.40	4.09	3.510	0.58	30.0	13.0	•
HCP 135-IQ	13.50	4.09	3.510	0.58	30.0	13.0	•
HCP 136-IQ	13.60	4.09	3.510	0.58	30.0	13.0	•
HCP 137-IQ	13.70	4.09	3.510	0.58	30.0	13.0	•
HCP 138-IQ	13.80	4.09	3.510	0.58	30.0	13.0	•
HCP 139-IQ	13.90	4.09	3.510	0.58	30.0	13.0	•
HCP 140-IQ	14.00	4.52	3.630	0.64	30.0	14.0	•
HCP 141-IQ	14.10	4.52	3.630	0.64	30.0	14.0	•
HCP 142-IQ	14.20	4.52	3.630	0.64	30.0	14.0	•
HCP 143-IQ	14.30	4.52	3.630	0.64	30.0	14.0	•
HCP 144-IQ	14.40	4.52	3.630	0.64	30.0	14.0	•
HCP 145-IQ	14.50	4.52	3.630	0.64	30.0	14.0	•
HCP 146-IQ	14.60	4.52	3.630	0.64	30.0	14.0	•
HCP 147-IQ	14.70	4.52	3.630	0.64	30.0	14.0	•
HCP 148-IQ	14.80	4.52	3.630	0.64	30.0	14.0	•

• Advance Self-Centering and high surface finish • For cutting conditions see page 68-81

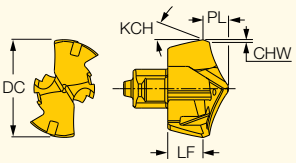
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • MNC-7/8D (67) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAMIQ CHAMDRILL LINE

HCP-IQ (continued)

Exchangeable Self-Centering Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions						IC908
	DC	LF	PL	CHW	KCH	SSC(1)	
HCP 149-IQ	14.90	4.52	3.630	0.64	30.0	14.0	•
HCP 150-IQ	15.00	4.85	3.880	0.69	30.0	15.0	•
HCP 151-IQ	15.10	4.85	3.880	0.69	30.0	15.0	•
HCP 152-IQ	15.20	4.85	3.880	0.69	30.0	15.0	•
HCP 153-IQ	15.30	4.85	3.880	0.69	30.0	15.0	•
HCP 154-IQ	15.40	4.85	3.880	0.69	30.0	15.0	•
HCP 155-IQ	15.50	4.85	3.880	0.69	30.0	15.0	•
HCP 156-IQ	15.60	4.85	3.880	0.69	30.0	15.0	•
HCP 157-IQ	15.70	4.85	3.880	0.69	30.0	15.0	•
HCP 158-IQ	15.80	4.85	3.880	0.69	30.0	15.0	•
HCP 159-IQ	15.90	4.85	3.880	0.69	30.0	15.0	•
HCP 160-IQ	16.00	5.39	3.910	0.64	30.0	16.0	•
HCP 1605-IQ	16.05	5.39	3.910	0.62	30.0	16.0	•
HCP 161-IQ	16.10	5.39	3.910	0.64	30.0	16.0	•
HCP 162-IQ	16.20	5.39	3.910	0.64	30.0	16.0	•
HCP 163-IQ	16.30	5.39	3.910	0.64	30.0	16.0	•
HCP 164-IQ	16.40	5.39	3.910	0.64	30.0	16.0	•
HCP 165-IQ	16.50	5.39	3.910	0.64	30.0	16.0	•
HCP 166-IQ	16.60	5.39	3.910	0.64	30.0	16.0	•
HCP 167-IQ	16.70	5.39	3.910	0.64	30.0	16.0	•
HCP 168-IQ	16.80	5.39	3.910	0.64	30.0	16.0	•
HCP 169-IQ	16.90	5.39	3.910	0.64	30.0	16.0	•
HCP 170-IQ	17.00	5.33	4.570	0.87	30.0	17.0	•
HCP 171-IQ	17.10	5.33	4.570	0.87	30.0	17.0	•
HCP 172-IQ	17.20	5.33	4.570	0.87	30.0	17.0	•
HCP 173-IQ	17.30	5.33	4.570	0.87	30.0	17.0	•
HCP 174-IQ	17.40	5.33	4.570	0.87	30.0	17.0	•
HCP 175-IQ	17.50	5.33	4.570	0.87	30.0	17.0	•
HCP 176-IQ	17.60	5.33	4.570	0.87	30.0	17.0	•
HCP 177-IQ	17.70	5.33	4.570	0.87	30.0	17.0	•
HCP 178-IQ	17.80	5.33	4.570	0.87	30.0	17.0	•
HCP 179-IQ	17.90	5.33	4.570	0.87	30.0	17.0	•
HCP 180-IQ	18.00	5.84	4.660	0.81	30.0	18.0	•
HCP 181-IQ	18.10	5.84	4.660	0.81	30.0	18.0	•
HCP 182-IQ	18.20	5.84	4.660	0.81	30.0	18.0	•
HCP 183-IQ	18.30	5.84	4.660	0.81	30.0	18.0	•
HCP 184-IQ	18.40	5.84	4.660	0.81	30.0	18.0	•
HCP 185-IQ	18.50	5.84	4.660	0.81	30.0	18.0	•
HCP 186-IQ	18.60	5.84	4.660	0.81	30.0	18.0	•
HCP 187-IQ	18.70	5.84	4.660	0.81	30.0	18.0	•
HCP 188-IQ	18.80	5.84	4.660	0.81	30.0	18.0	•
HCP 189-IQ	18.90	5.84	4.660	0.81	30.0	18.0	•
HCP 190-IQ	19.00	6.34	4.660	0.75	30.0	19.0	•
HCP 191-IQ	19.10	6.34	4.660	0.75	30.0	19.0	•
HCP 192-IQ	19.20	6.34	4.660	0.75	30.0	19.0	•
HCP 1927-IQ	19.27	6.34	4.660	0.75	30.0	19.0	•
HCP 193-IQ	19.30	6.34	4.660	0.75	30.0	19.0	•
HCP 194-IQ	19.40	6.34	4.660	0.75	30.0	19.0	•
HCP 195-IQ	19.50	6.34	4.660	0.75	30.0	19.0	•
HCP 196-IQ	19.60	6.34	4.660	0.75	30.0	19.0	•
HCP 197-IQ	19.70	6.34	4.660	0.75	30.0	19.0	•
HCP 198-IQ	19.80	6.34	4.660	0.75	30.0	19.0	•
HCP 199-IQ	19.90	6.34	4.660	0.75	30.0	19.0	•
HCP 200-IQ	20.00	6.79	4.810	0.58	30.0	20.0	•
HCP 201-IQ	20.10	6.79	4.810	0.58	30.0	20.0	•

• Advance Self-Centering and high surface finish • For cutting conditions see page 68-81

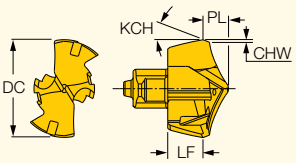
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • MNC-7/8D (67) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAMIQ CHAMDRILL LINE

HCP-IQ (continued)

Exchangeable Self-Centering Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions						IC908
	DC	LF	PL	CHW	KCH	SSC(1)	
HCP 202-IQ	20.20	6.79	4.810	0.58	30.0	20.0	•
HCP 203-IQ	20.30	6.79	4.810	0.58	30.0	20.0	•
HCP 204-IQ	20.40	6.79	4.810	0.58	30.0	20.0	•
HCP 205-IQ	20.50	6.79	4.810	0.58	30.0	20.0	•
HCP 206-IQ	20.60	6.79	4.810	0.58	30.0	20.0	•
HCP 207-IQ	20.70	6.79	4.810	0.58	30.0	20.0	•
HCP 208-IQ	20.80	6.79	4.810	0.58	30.0	20.0	•
HCP 209-IQ	20.90	6.79	4.810	0.58	30.0	20.0	•
HCP 210-IQ	21.00	7.24	4.940	0.69	30.0	21.0	•
HCP 211-IQ	21.10	7.24	4.940	0.69	30.0	21.0	•
HCP 212-IQ	21.20	7.24	4.940	0.69	30.0	21.0	•
HCP 213-IQ	21.30	7.24	4.940	0.69	30.0	21.0	•
HCP 214-IQ	21.40	7.24	4.940	0.69	30.0	21.0	•
HCP 215-IQ	21.50	7.24	4.940	0.69	30.0	21.0	•
HCP 216-IQ	21.60	7.24	4.940	0.69	30.0	21.0	•
HCP 217-IQ	21.70	7.24	4.940	0.69	30.0	21.0	•
HCP 218-IQ	21.80	7.24	4.940	0.69	30.0	21.0	•
HCP 219-IQ	21.90	7.20	4.940	0.69	30.0	21.0	•
HCP 220-IQ	22.00	7.56	5.200	0.69	30.0	22.0	•
HCP 221-IQ	22.10	7.56	5.200	0.69	30.0	22.0	•
HCP 222-IQ	22.20	7.56	5.200	0.69	30.0	22.0	•
HCP 223-IQ	22.30	7.56	5.200	0.69	30.0	22.0	•
HCP 224-IQ	22.40	7.56	5.200	0.69	30.0	22.0	•
HCP 225-IQ	22.50	7.56	5.200	0.69	30.0	22.0	•
HCP 226-IQ	22.60	7.56	5.200	0.69	30.0	22.0	•
HCP 227-IQ	22.70	7.56	5.200	0.69	30.0	22.0	•
HCP 228-IQ	22.80	7.56	5.200	0.69	30.0	22.0	•
HCP 229-IQ	22.90	7.56	5.200	0.69	30.0	22.0	•
HCP 230-IQ	23.00	8.05	5.280	0.75	30.0	23.0	•
HCP 231-IQ	23.10	8.05	5.280	0.75	30.0	23.0	•
HCP 232-IQ	23.20	8.05	5.280	0.75	30.0	23.0	•
HCP 233-IQ	23.30	8.05	5.280	0.75	30.0	23.0	•
HCP 234-IQ	23.40	8.05	5.280	0.75	30.0	23.0	•
HCP 235-IQ	23.50	8.05	5.280	0.75	30.0	23.0	•
HCP 236-IQ	23.60	8.05	5.280	0.75	30.0	23.0	•
HCP 237-IQ	23.70	8.05	5.280	0.75	30.0	23.0	•
HCP 238-IQ	23.80	8.05	5.280	0.75	30.0	23.0	•
HCP 239-IQ	23.90	8.05	5.280	0.75	30.0	23.0	•
HCP 240-IQ	24.00	8.27	5.630	0.81	30.0	24.0	•
HCP 241-IQ	24.10	8.27	5.630	0.81	30.0	24.0	•
HCP 242-IQ	24.20	8.27	5.630	0.81	30.0	24.0	•
HCP 243-IQ	24.30	8.27	5.630	0.81	30.0	24.0	•
HCP 244-IQ	24.40	8.27	5.630	0.81	30.0	24.0	•
HCP 245-IQ	24.50	8.27	5.630	0.81	30.0	24.0	•
HCP 246-IQ	24.60	8.27	5.630	0.81	30.0	24.0	•
HCP 247-IQ	24.70	8.27	5.630	0.81	30.0	24.0	•
HCP 248-IQ	24.80	8.27	5.630	0.81	30.0	24.0	•
HCP 249-IQ	24.90	8.27	5.630	0.81	30.0	24.0	•
HCP 250-IQ	25.00	8.80	5.700	0.64	30.0	25.0	•
HCP 251-IQ	25.10	8.80	5.700	0.64	30.0	25.0	•
HCP 252-IQ	25.20	8.80	5.700	0.64	30.0	25.0	•
HCP 253-IQ	25.30	8.80	5.700	0.64	30.0	25.0	•
HCP 254-IQ	25.40	8.80	5.700	0.64	30.0	25.0	•
HCP 255-IQ	25.50	8.80	5.700	0.64	30.0	25.0	•
HCP 256-IQ	25.60	8.80	5.700	0.64	30.0	25.0	•

• Advance Self-Centering and high surface finish • For cutting conditions see page 68-81

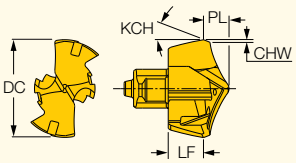
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • MNC-7/8D (67) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAMIQ CHAMDRILL LINE

HCP-IQ (continued)

Exchangeable Self-Centering Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions						IC908
	DC	LF	PL	CHW	KCH	SSC(1)	
HCP 2565-IQ	25.65	8.80	5.700	0.67	30.0	25.0	●
HCP 257-IQ	25.70	8.80	5.700	0.64	30.0	25.0	●
HCP 258-IQ	25.80	8.80	5.700	0.64	30.0	25.0	●
HCP 259-IQ	25.90	8.80	5.700	0.64	30.0	25.0	●
HCP 260-IQ	26.00	9.12	5.950	0.58	30.0	26.0	●
HCP 262-IQ	26.20	9.12	5.950	0.58	30.0	26.0	●
HCP 265-IQ	26.50	9.12	5.950	0.58	30.0	26.0	●
HCP 266-IQ	26.60	9.12	5.950	0.58	30.0	26.0	●
HCP 269-IQ	26.90	9.12	5.950	0.58	30.0	26.0	●
HCP 270-IQ	27.00	9.45	6.200	0.64	30.0	27.0	●
HCP 275-IQ	27.50	9.45	6.200	0.64	30.0	27.0	●
HCP 277-IQ	27.70	9.45	6.200	0.64	30.0	27.0	●
HCP 280-IQ	28.00	9.80	6.420	0.64	30.0	28.0	●
HCP 285-IQ	28.50	9.80	6.420	0.64	30.0	28.0	●
HCP 290-IQ	29.00	10.16	6.640	0.64	30.0	29.0	●
HCP 295-IQ	29.50	10.16	6.640	0.64	30.0	29.0	●
HCP 300-IQ	30.00	10.50	6.880	0.69	30.0	30.0	●
HCP 305-IQ	30.50	10.50	6.880	0.69	30.0	30.0	●
HCP 310-IQ	31.00	11.00	6.960	0.69	30.0	31.0	●
HCP 315-IQ	31.50	11.00	6.960	0.69	30.0	31.0	●
HCP 3175-IQ	31.75	11.00	6.960	0.69	30.0	31.0	●
HCP 320-IQ	32.00	11.20	7.340	0.75	30.0	32.0	●
HCP 325-IQ	32.50	11.20	7.340	0.75	30.0	32.0	●
HCP 329-IQ	32.90	11.20	7.340	0.75	30.0	32.0	●

• Advance Self-Centering and high surface finish • For cutting conditions see page 68-81

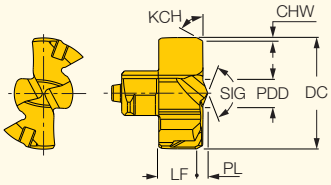
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • MNC-7/8D (67) • DCNT (M8-M24) (136) • MNSNT (293)

SUMOCHAM FLAT HEAD

FCP

Exchangeable Flat Bottom Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions									IC908
	DC	PDD	LF	PL	CHW	KCH	SIG	SSC(1)		
FCP 040-IQ	4.00	1.44	2.50	0.440	0.17	60.0	140	4	SK DCN 4-4.99	•
FCP 041-IQ	4.10	1.44	2.50	0.440	0.17	60.0	140	4	SK DCN 4-4.99	•
FCP 042-IQ	4.20	1.44	2.50	0.440	0.17	60.0	140	4	SK DCN 4-4.99	•
FCP 043-IQ	4.30	1.44	2.50	0.440	0.17	60.0	140	4	SK DCN 4-4.99	•
FCP 044-IQ	4.40	1.44	2.50	0.440	0.17	60.0	140	4	SK DCN 4-4.99	•
FCP 045-IQ	4.50	1.56	2.80	0.480	0.17	60.0	140	4.5	SK DCN 4-4.99	•
FCP 046-IQ	4.60	1.56	2.80	0.480	0.17	60.0	140	4.5	SK DCN 4-4.99	•
FCP 047-IQ	4.70	1.56	2.80	0.480	0.17	60.0	140	4.5	SK DCN 4-4.99	•
FCP 048-IQ	4.80	1.56	2.80	0.480	0.17	60.0	140	4.5	SK DCN 4-4.99	•
FCP 049-IQ	4.90	1.56	2.80	0.480	0.17	60.0	140	4.5	SK DCN 4-4.99	•
FCP 050-IQ	5.00	1.98	2.90	0.610	0.23	60.0	140	5.0	SK DCN 5-5.99	•
FCP 051-IQ	5.10	1.98	2.90	0.610	0.23	60.0	140	5.0	SK DCN 5-5.99	•
FCP 052-IQ	5.20	1.98	2.90	0.610	0.23	60.0	140	5.0	SK DCN 5-5.99	•
FCP 053-IQ	5.30	1.98	2.90	0.610	0.23	60.0	140	5.0	SK DCN 5-5.99	•
FCP 054-IQ	5.40	1.98	2.90	0.610	0.23	60.0	140	5.0	SK DCN 5-5.99	•
FCP 055-IQ	5.50	2.02	2.90	0.610	0.23	60.0	140	5.5	SK DCN 5-5.99	•
FCP 056-IQ	5.60	2.02	2.90	0.610	0.23	60.0	140	5.5	SK DCN 5-5.99	•
FCP 057-IQ	5.70	2.02	2.90	0.610	0.23	60.0	140	5.5	SK DCN 5-5.99	•
FCP 058-IQ	5.80	2.02	2.90	0.610	0.23	60.0	140	5.5	SK DCN 5-5.99	•
FCP 059-IQ	5.90	2.02	2.90	0.610	0.23	60.0	140	5.5	SK DCN 5-5.99	•
FCP 060	6.00	1.15	2.40	0.610	0.23	60.0	140	6.0		•
FCP 061	6.10	1.15	2.40	0.610	0.23	60.0	140	6.0		•
FCP 062	6.20	1.15	2.40	0.610	0.23	60.0	140	6.0		•
FCP 063	6.30	1.15	2.40	0.610	0.23	60.0	140	6.0		•
FCP 064	6.40	1.15	2.40	0.610	0.23	60.0	140	6.0		•
FCP 065	6.50	1.54	2.60	0.680	0.23	60.0	140	6.5		•
FCP 066	6.60	1.54	2.60	0.680	0.23	60.0	140	6.5		•
FCP 067	6.70	1.54	2.60	0.680	0.23	60.0	140	6.5		•
FCP 068	6.80	1.54	2.60	0.680	0.23	60.0	140	6.5		•
FCP 069	6.90	1.54	2.60	0.680	0.23	60.0	140	6.5		•
FCP 070	7.00	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 071	7.10	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 072	7.20	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 073	7.30	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 074	7.40	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 075	7.50	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 076	7.60	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 077	7.70	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 078	7.80	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 079	7.90	1.54	2.90	0.680	0.23	60.0	140	7.0		•
FCP 080	8.00	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 081	8.10	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 082	8.20	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 083	8.30	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 084	8.40	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 085	8.50	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 086	8.60	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 087	8.70	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 088	8.80	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 089	8.90	2.44	3.30	1.090	0.40	60.0	140	8.0		•
FCP 090	9.00	2.55	3.50	1.110	0.40	60.0	140	9.0		•
FCP 091	9.10	2.55	3.50	1.110	0.40	60.0	140	9.0		•
FCP 092	9.20	2.55	3.50	1.110	0.40	60.0	140	9.0		•
FCP 093	9.30	2.55	3.50	1.110	0.40	60.0	140	9.0		•
FCP 094	9.40	2.55	3.50	1.110	0.40	60.0	140	9.0		•

• For nearly flat bottom hole applications • For cutting conditions see page 68-81

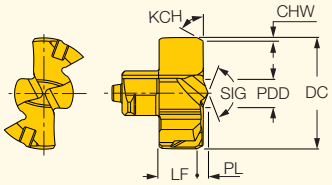
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM FLAT HEAD

FCP (continued)

Exchangeable Flat Bottom Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions								IC908
	DC	PDD	LF	PL	CHW	KCH	SIG	SSC(1)	
FCP 095	9.50	2.55	3.50	1.110	0.40	60.0	140	9.0	•
FCP 096	9.60	2.55	3.50	1.110	0.40	60.0	140	9.0	•
FCP 097	9.70	2.55	3.50	1.110	0.40	60.0	140	9.0	•
FCP 098	9.80	2.55	3.50	1.110	0.40	60.0	140	9.0	•
FCP 099	9.90	2.55	3.50	1.110	0.40	60.0	140	9.0	•
FCP 100	10.00	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 101	10.10	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 102	10.20	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 103	10.30	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 104	10.40	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 105	10.50	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 106	10.60	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 107	10.70	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 108	10.80	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 109	10.90	2.89	3.70	1.170	0.40	60.0	140	10.0	•
FCP 110	11.00	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 111	11.10	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 112	11.20	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 113	11.30	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 114	11.40	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 115	11.50	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 116	11.60	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 117	11.70	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 118	11.80	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 119	11.90	2.98	3.80	1.250	0.40	60.0	140	11.0	•
FCP 120	12.00	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 121	12.10	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 122	12.20	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 123	12.30	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 124	12.40	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 125	12.50	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 126	12.60	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 127	12.70	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 128	12.80	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 129	12.90	3.13	4.10	1.260	0.40	60.0	140	12.0	•
FCP 130	13.00	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 131	13.10	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 132	13.20	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 133	13.30	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 134	13.40	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 135	13.50	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 136	13.60	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 137	13.70	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 138	13.80	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 139	13.90	3.52	4.40	1.280	0.40	60.0	140	13.0	•
FCP 140	14.00	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 141	14.10	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 142	14.20	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 143	14.30	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 144	14.40	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 145	14.50	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 146	14.60	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 147	14.70	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 148	14.80	3.81	4.80	1.310	0.40	60.0	140	14.0	•
FCP 149	14.90	3.81	4.80	1.310	0.40	60.0	140	14.0	•

• For nearly flat bottom hole applications • For cutting conditions see page 68-81

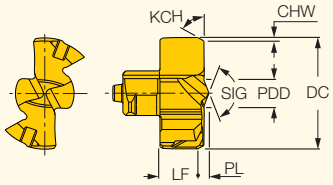
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM FLAT HEAD

FCP (continued)

Exchangeable Flat Bottom Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions								IC908
	DC	PDD	LF	PL	CHW	KCH	SIG	SSC(1)	
FCP 150	15.00	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 151	15.10	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 152	15.20	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 153	15.30	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 154	15.40	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 155	15.50	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 156	15.60	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 157	15.70	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 158	15.80	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 159	15.90	4.24	5.23	1.350	0.40	60.0	140	15.0	•
FCP 160	16.00	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 161	16.10	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 162	16.20	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 163	16.30	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 164	16.40	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 165	16.50	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 166	16.60	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 167	16.70	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 168	16.80	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 169	16.90	4.06	5.60	1.390	0.40	60.0	140	16.0	•
FCP 170	17.00	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 171	17.10	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 172	17.20	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 173	17.30	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 174	17.40	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 175	17.50	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 176	17.60	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 177	17.70	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 178	17.80	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 179	17.90	4.14	5.90	1.400	0.40	60.0	140	17.0	•
FCP 180	18.00	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 181	18.10	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 182	18.20	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 183	18.30	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 184	18.40	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 185	18.50	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 186	18.60	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 187	18.70	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 188	18.80	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 189	18.90	4.16	6.18	1.420	0.40	60.0	140	18.0	•
FCP 190	19.00	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 191	19.10	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 192	19.20	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 193	19.30	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 194	19.40	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 195	19.50	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 196	19.60	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 197	19.70	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 198	19.80	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 199	19.90	4.25	6.50	1.440	0.40	60.0	140	19.0	•
FCP 200	20.00	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 201	20.10	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 202	20.20	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 203	20.30	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 204	20.40	6.56	7.50	1.770	0.40	60.0	140	20.0	•

• For nearly flat bottom hole applications • For cutting conditions see page 68-81

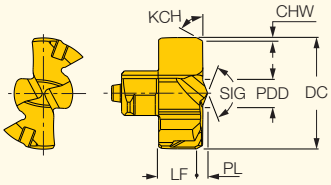
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM FLAT HEAD

FCP (continued)

Exchangeable Flat Bottom Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials



Designation	Dimensions								IC908
	DC	PDD	LF	PL	CHW	KCH	SIG	SSC(1)	
FCP 205	20.50	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 206	20.60	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 207	20.70	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 208	20.80	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 209	20.90	6.56	7.50	1.770	0.40	60.0	140	20.0	•
FCP 210	21.00	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 211	21.10	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 212	21.20	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 213	21.30	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 214	21.40	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 215	21.50	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 216	21.60	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 217	21.70	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 218	21.80	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 219	21.90	6.92	7.90	1.790	0.40	60.0	140	21.0	•
FCP 220	22.00	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 221	22.10	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 222	22.20	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 223	22.30	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 224	22.40	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 225	22.50	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 226	22.60	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 227	22.70	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 228	22.80	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 229	22.90	7.13	8.20	1.810	0.40	60.0	140	22.0	•
FCP 230	23.00	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 231	23.10	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 232	23.20	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 233	23.30	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 234	23.40	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 235	23.50	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 236	23.60	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 237	23.70	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 238	23.80	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 239	23.90	7.42	8.60	1.830	0.40	60.0	140	23.0	•
FCP 240	24.00	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 241	24.10	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 242	24.20	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 243	24.30	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 244	24.40	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 245	24.50	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 246	24.60	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 247	24.70	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 248	24.80	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 249	24.90	7.45	9.00	1.860	0.40	60.0	140	24.0	•
FCP 250	25.00	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 251	25.10	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 252	25.20	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 253	25.30	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 254	25.40	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 255	25.50	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 256	25.60	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 257	25.70	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 258	25.80	7.54	9.40	1.900	0.40	60.0	140	25.0	•
FCP 259	25.90	7.54	9.40	1.900	0.40	60.0	140	25.0	•

• For nearly flat bottom hole applications • For cutting conditions see page 68-81

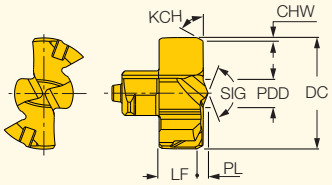
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)

SUMOCHAM FLAT HEAD

FCP (continued)

Exchangeable Flat Bottom Drilling Heads for DCN Drills, for Machining ISO P and ISO K Materials

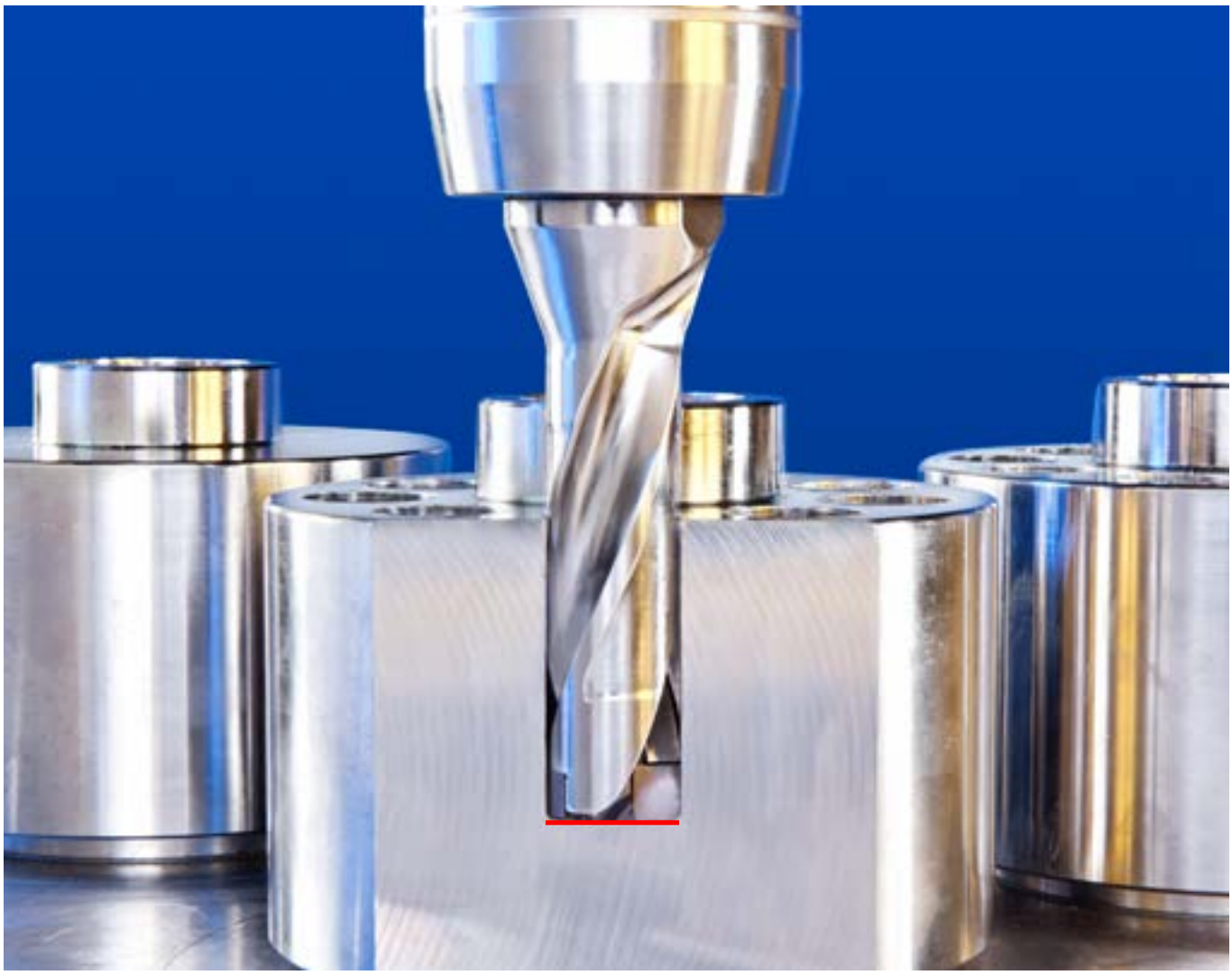


Designation	Dimensions								IC908
	DC	PDD	LF	PL	CHW	KCH	SIG	SSC(1)	
FCP 260	26.00	8.00	9.70	1.990	0.40	60.0	140	26.0	●
FCP 265	26.50	8.00	9.70	1.990	0.40	60.0	140	26.0	●
FCP 270	27.00	8.10	10.40	2.050	0.40	60.0	140	27.0	●
FCP 275	27.50	8.10	10.40	2.050	0.40	60.0	140	27.0	●
FCP 280	28.00	8.80	10.50	2.150	0.40	60.0	140	28.0	●
FCP 285	28.50	8.80	10.50	2.150	0.40	60.0	140	28.0	●
FCP 290	29.00	9.00	10.80	2.200	0.40	60.0	140	29.0	●
FCP 295	29.50	9.00	10.80	2.200	0.40	60.0	140	29.0	●
FCP 300	30.00	9.10	11.40	2.150	0.40	60.0	140	30.0	●
FCP 305	30.50	9.10	11.40	2.150	0.40	60.0	140	30.0	●
FCP 310	31.00	9.10	11.70	2.180	0.40	60.0	140	31.0	●
FCP 315	31.50	9.10	11.70	2.180	0.40	60.0	140	31.0	●
FCP 320	32.00	9.80	12.30	2.210	0.40	60.0	140	32.0	●
FCP 325	32.50	9.80	12.30	2.210	0.40	60.0	140	32.0	●

• For nearly flat bottom hole applications • For cutting conditions see page 68-81

(1) Seat size code

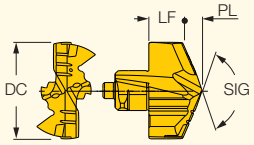
For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCN C-3D (13) • DCN C-5D (13) • DCN C-8D (14) • DCN C-12D (14) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • DCNT (M8-M24) (136)



SUMOCHAM CHAMDRILL LINE

ICG

Exchangeable Chip Splitting Drilling Heads for DCN Drills, for Machining ISO M and ISO P Materials



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
ICG 140	14.00	5.08	2.770	130	14.0	•
ICG 142	14.20	5.08	2.770	130	14.0	•
ICG 145	14.50	5.08	2.770	130	14.0	•
ICG 150	15.00	5.45	2.980	130	15.0	•
ICG 155	15.50	5.33	3.100	130	15.0	•
ICG 160	16.00	5.81	3.190	130	16.0	•
ICG 163	16.30	5.81	3.190	130	16.0	•
ICG 165	16.50	5.81	3.190	130	16.0	•
ICG 170	17.00	6.20	3.400	130	17.0	•
ICG 175	17.50	6.20	3.400	130	17.0	•
ICG 177	17.70	6.20	3.400	130	17.0	•
ICG 180	18.00	6.60	3.600	130	18.0	•
ICG 185	18.50	6.60	3.600	130	18.0	•
ICG 190	19.00	6.89	3.810	130	19.0	•
ICG 193	19.30	6.89	3.810	130	19.0	•
ICG 195	19.50	6.89	3.810	130	19.0	•
ICG 200	20.00	7.22	3.980	130	20.0	•
ICG 203	20.30	7.22	3.980	130	20.0	•
ICG 205	20.50	7.22	3.980	130	20.0	•
ICG 210	21.00	7.65	4.130	130	21.0	•
ICG 215	21.50	7.65	4.130	130	21.0	•
ICG 220	22.00	8.05	4.310	130	22.0	•
ICG 225	22.50	8.05	4.310	130	22.0	•
ICG 230	23.00	8.44	4.490	130	23.0	•
ICG 235	23.50	8.44	4.490	130	23.0	•
ICG 240	24.00	8.81	4.690	130	24.0	•
ICG 245	24.50	8.81	4.690	130	24.0	•
ICG 250	25.00	9.18	4.920	130	25.0	•
ICG 253	25.30	9.18	4.920	130	25.0	•
ICG 257	25.70	9.18	4.920	130	25.0	•
ICG 259	25.90	9.18	4.920	130	25.0	•

• Drilling head equipped with chip breaker and chip splitter • For cutting conditions see page 68-81

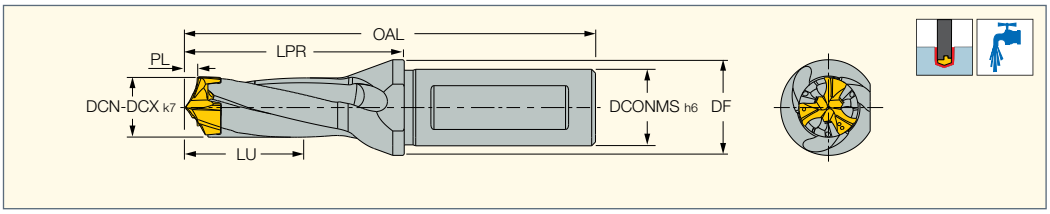
(1) Seat size code

For tools, see pages: DCN A-1.5D (4) • DCN R-1.5D (5) • DCN A-3D (6) • DCN R-3D (7) • DCN A-5D (8) • DCN R-5D (9) • DCN A-8D (10) • DCN R-8D (11) • DCN R-10D (11) • DCN R-12D (12) • DCNS-3D (15) • DCNS-5D (16) • DCNM (17) • MNC-5D (66) • DCNT (M8-M24) (136) • MNSNT (293)

LOGIQ3CHAM THREE FLUTE CHAMDRILL

D3N A-1.5D

Exchangeable Head 3 Flute Drills with Coolant Holes and One Flat Shank, Drilling Depth 1.5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-018-16A-1.5D	12.00	12.40	16.00	20.00	20.71	42.92	2.710	90.92	12	K D3N 12-13.99
D3N 125-019-16A-1.5D	12.50	12.90	16.00	20.00	21.46	44.42	2.710	92.42	12	K D3N 12-13.99
D3N 130-020-16A-1.5D	13.00	13.40	16.00	20.00	22.41	46.58	2.910	94.58	13	K D3N 12-13.99
D3N 135-020-16A-1.5D	13.50	13.90	16.00	20.00	23.16	48.08	2.910	96.08	13	K D3N 12-13.99
D3N 140-021-16A-1.5D	14.00	14.40	16.00	20.00	24.10	50.08	3.100	98.08	14	K D3N 14-15.99
D3N 145-022-16A-1.5D	14.50	14.90	16.00	20.00	24.85	51.58	3.100	99.58	14	K D3N 14-15.99
D3N 150-023-20A-1.5D	15.00	15.90	20.00	25.00	25.97	53.66	3.470	103.66	15	K D3N 14-15.99
D3N 160-024-20A-1.5D	16.00	16.90	20.00	25.00	27.44	57.25	3.440	107.25	16	K D3N 16-17.99
D3N 170-026-20A-1.5D	17.00	17.90	20.00	25.00	29.02	60.72	3.520	110.72	17	K D3N 16-17.99
D3N 180-027-25A-1.5D	18.00	18.90	25.00	32.00	30.90	64.36	3.900	120.36	18	K D3N 18-19.99
D3N 190-029-25A-1.5D	19.00	19.90	25.00	32.00	32.60	67.92	4.100	123.92	19	K D3N 18-19.99
D3N 200-030-25A-1.5D	20.00	20.90	25.00	32.00	34.32	71.24	4.320	127.24	20	K D3N 20-21.99
D3N 210-032-25A-1.5D	21.00	21.90	25.00	32.00	36.05	74.80	4.550	130.80	21	K D3N 20-21.99
D3N 220-033-25A-1.5D	22.00	22.90	25.00	32.00	37.69	78.62	4.690	134.62	22	K D3N 22-23.99
D3N 230-035-32A-1.5D	23.00	23.90	32.00	40.00	39.41	82.00	4.910	142.00	23	K D3N 22-23.99
D3N 240-036-32A-1.5D	24.00	24.90	32.00	40.00	41.21	85.54	5.210	145.54	24	K D3N 24-25.99
D3N 250-038-32A-1.5D	25.00	25.90	32.00	40.00	42.81	89.22	5.310	149.11	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

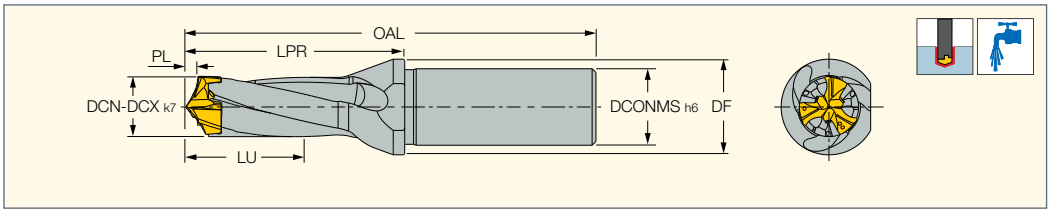
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ3CHAM THREE FLUTE CHAMDRILL

D3N R-1.5D

Exchangeable Head 3 Flute Drills with Coolant Holes and A Round Shank, Drilling Depth 1.5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-018-16R-1.5D	12.00	12.40	16.00	20.00	20.71	42.92	2.710	90.92	12	K D3N 12-13.99
D3N 125-019-16R-1.5D	12.50	12.90	16.00	20.00	21.46	44.42	2.710	92.42	12	K D3N 12-13.99
D3N 130-020-16R-1.5D	13.00	13.40	16.00	20.00	22.41	46.58	2.910	94.58	13	K D3N 12-13.99
D3N 135-020-16R-1.5D	13.50	13.90	16.00	20.00	23.16	48.08	2.910	96.08	13	K D3N 12-13.99
D3N 140-021-16R-1.5D	14.00	14.40	16.00	20.00	24.10	50.08	3.100	98.08	14	K D3N 14-15.99
D3N 145-022-16R-1.5D	14.50	14.90	16.00	20.00	24.85	51.58	3.100	99.58	14	K D3N 14-15.99
D3N 150-023-20R-1.5D	15.00	15.90	20.00	25.00	25.97	53.66	3.470	103.66	15	K D3N 14-15.99
D3N 160-024-20R-1.5D	16.00	16.90	20.00	25.00	27.44	57.25	3.440	107.25	16	K D3N 16-17.99
D3N 170-026-20R-1.5D	17.00	17.90	20.00	25.00	29.02	60.72	3.520	110.72	17	K D3N 16-17.99
D3N 180-027-25R-1.5D	18.00	18.90	25.00	32.00	30.90	64.36	3.900	120.36	18	K D3N 18-19.99
D3N 190-029-25R-1.5D	19.00	19.90	25.00	32.00	32.60	67.92	4.100	123.92	19	K D3N 18-19.99
D3N 200-030-25R-1.5D	20.00	20.90	25.00	32.00	34.32	71.24	4.320	127.24	20	K D3N 20-21.99
D3N 210-032-25R-1.5D	21.00	21.90	25.00	32.00	36.05	74.80	4.550	130.80	21	K D3N 20-21.99
D3N 220-033-25R-1.5D	22.00	22.90	25.00	32.00	37.69	78.62	4.690	134.62	22	K D3N 22-23.99
D3N 230-035-32R-1.5D	23.00	23.90	32.00	40.00	39.41	82.00	4.910	142.00	23	K D3N 22-23.99
D3N 240-036-32R-1.5D	24.00	24.90	32.00	40.00	41.21	85.54	5.210	145.54	24	K D3N 24-25.99
D3N 250-038-32R-1.5D	25.00	25.90	32.00	40.00	42.81	89.22	5.310	149.11	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

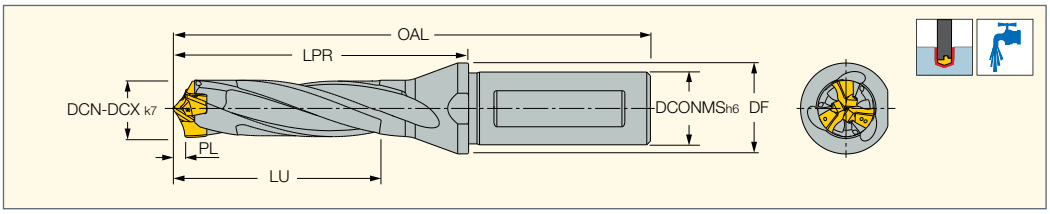
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

D3N A-3D

Exchangeable Head 3 Flute Drills with Coolant Holes and One Flat Shank, Drilling Depth 3xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-036-16A-3D	12.00	12.40	16.00	20.00	38.71	60.92	2.710	108.92	12	K D3N 12-13.99
D3N 125-037-16A-3D	12.50	12.90	16.00	20.00	40.21	63.17	2.710	111.17	12	K D3N 12-13.99
D3N 130-039-16A-3D	13.00	13.40	16.00	20.00	41.91	66.08	2.910	114.08	13	K D3N 12-13.99
D3N 135-041-16A-3D	13.50	13.90	16.00	20.00	43.41	68.33	2.910	116.33	13	K D3N 12-13.99
D3N 140-042-16A-3D	14.00	14.40	16.00	20.00	45.10	71.08	3.100	119.08	14	K D3N 14-15.99
D3N 145-044-16A-3D	14.50	14.90	16.00	20.00	46.60	73.33	3.100	121.33	14	K D3N 14-15.99
D3N 150-045-20A-3D	15.00	15.90	20.00	25.00	48.47	76.16	3.470	126.16	15	K D3N 14-15.99
D3N 160-048-20A-3D	16.00	16.90	20.00	25.00	51.44	81.25	3.440	131.25	16	K D3N 16-17.99
D3N 170-051-20A-3D	17.00	17.90	20.00	25.00	54.52	86.22	3.520	136.22	17	K D3N 16-17.99
D3N 180-054-25A-3D	18.00	18.90	25.00	32.00	57.90	91.36	3.900	147.36	18	K D3N 18-19.99
D3N 190-057-25A-3D	19.00	19.90	25.00	32.00	61.10	96.42	4.100	152.42	19	K D3N 18-19.99
D3N 200-060-25A-3D	20.00	20.90	25.00	32.00	64.32	101.24	4.320	157.24	20	K D3N 20-21.99
D3N 210-063-25A-3D	21.00	21.90	25.00	32.00	67.55	106.30	4.550	162.30	21	K D3N 20-21.99
D3N 220-066-25A-3D	22.00	22.90	25.00	32.00	70.69	111.62	4.690	167.62	22	K D3N 22-23.99
D3N 230-069-32A-3D	23.00	23.90	32.00	42.00	73.91	116.50	4.910	176.50	23	K D3N 22-23.99
D3N 240-072-32A-3D	24.00	24.90	32.00	42.00	77.21	121.54	5.210	181.54	24	K D3N 24-25.99
D3N 250-075-32A-3D	25.00	25.90	32.00	42.00	80.31	126.72	5.310	186.61	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

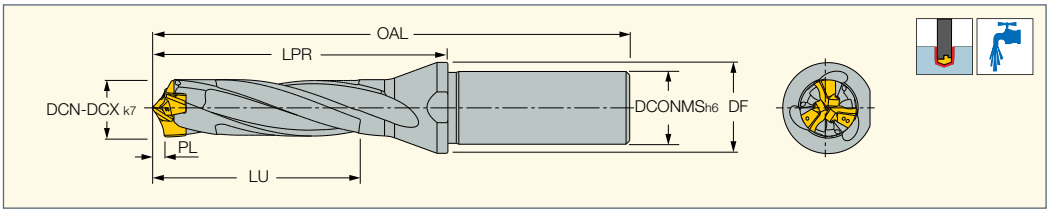
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

D3N R-3D

Exchangeable Head 3 Flute Drills with Coolant Holes and A Round Shank, Drilling Depth 3xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-036-16R-3D	12.00	12.40	16.00	20.00	38.71	60.92	2.710	108.92	12	K D3N 12-13.99
D3N 125-037-16R-3D	12.50	12.90	16.00	20.00	40.21	63.17	2.710	111.17	12	K D3N 12-13.99
D3N 130-039-16R-3D	13.00	13.40	16.00	20.00	41.91	66.08	2.910	114.08	13	K D3N 12-13.99
D3N 135-041-16R-3D	13.50	13.90	16.00	20.00	43.41	68.33	2.910	116.33	13	K D3N 12-13.99
D3N 140-042-16R-3D	14.00	14.40	16.00	20.00	45.10	71.08	3.100	119.08	14	K D3N 14-15.99
D3N 145-044-16R-3D	14.50	14.90	16.00	20.00	46.60	73.33	3.100	121.33	14	K D3N 14-15.99
D3N 150-045-20R-3D	15.00	15.90	20.00	25.00	48.47	76.16	3.470	126.16	15	K D3N 14-15.99
D3N 160-048-20R-3D	16.00	16.90	20.00	25.00	51.44	81.25	3.440	131.25	16	K D3N 16-17.99
D3N 170-051-20R-3D	17.00	17.90	20.00	25.00	54.52	86.22	3.520	136.22	17	K D3N 16-17.99
D3N 180-054-25R-3D	18.00	18.90	25.00	32.00	57.90	91.36	3.900	147.36	18	K D3N 18-19.99
D3N 190-057-25R-3D	19.00	19.90	25.00	32.00	61.10	96.42	4.100	152.42	19	K D3N 18-19.99
D3N 200-060-25R-3D	20.00	20.90	25.00	32.00	64.32	101.24	4.320	157.24	20	K D3N 20-21.99
D3N 210-063-25R-3D	21.00	21.90	25.00	32.00	67.55	106.30	4.550	162.30	21	K D3N 20-21.99
D3N 220-066-25R-3D	22.00	22.90	25.00	32.00	70.69	111.62	4.690	167.82	22	K D3N 22-23.99
D3N 230-069-32R-3D	23.00	23.90	32.00	42.00	73.91	116.50	4.910	176.50	23	K D3N 22-23.99
D3N 240-072-32R-3D	24.00	24.90	32.00	42.00	77.21	121.54	5.210	181.54	24	K D3N 24-25.99
D3N 250-075-32R-3D	25.00	25.90	32.00	42.00	80.31	126.72	5.310	186.61	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

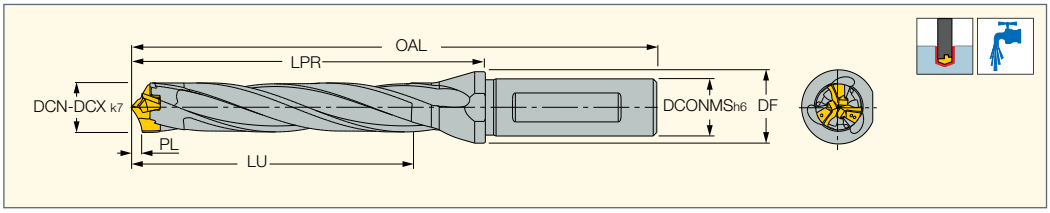
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

D3N A-5D

Exchangeable Head 3 Flute Drills with Coolant Holes and One Flat Shank, Drilling Depth 5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-060-16A-5D	12.00	12.40	16.00	20.00	62.71	84.92	2.710	132.92	12	K D3N 12-13.99
D3N 125-062-16A-5D	12.50	12.90	16.00	20.00	65.21	88.17	2.710	136.17	12	K D3N 12-13.99
D3N 130-065-16A-5D	13.00	13.40	16.00	20.00	67.91	92.08	2.910	140.08	13	K D3N 12-13.99
D3N 135-068-16A-5D	13.50	13.90	16.00	20.00	70.41	95.33	2.910	143.33	13	K D3N 12-13.99
D3N 140-070-16A-5D	14.00	14.40	16.00	20.00	73.10	99.08	3.100	147.08	14	K D3N 14-15.99
D3N 145-073-16A-5D	14.50	14.90	16.00	20.00	75.60	102.33	3.100	150.33	14	K D3N 14-15.99
D3N 150-075-20A-5D	15.00	15.90	20.00	25.00	78.47	106.16	3.470	156.16	15	K D3N 14-15.99
D3N 160-080-20A-5D	16.00	16.90	20.00	25.00	83.44	113.25	3.440	163.25	16	K D3N 16-17.99
D3N 170-085-20A-5D	17.00	17.90	20.00	25.00	88.52	120.22	3.520	170.22	17	K D3N 16-17.99
D3N 180-090-25A-5D	18.00	18.90	25.00	32.00	93.90	127.36	3.900	183.36	18	K D3N 18-19.99
D3N 190-095-25A-5D	19.00	19.90	25.00	32.00	99.10	134.42	4.100	190.42	19	K D3N 18-19.99
D3N 200-100-25A-5D	20.00	20.90	25.00	32.00	104.32	141.24	4.320	197.24	20	K D3N 20-21.99
D3N 210-105-25A-5D	21.00	21.90	25.00	32.00	109.55	148.30	4.550	204.30	21	K D3N 20-21.99
D3N 220-110-25A-5D	22.00	22.90	25.00	32.00	114.69	155.62	4.690	211.62	22	K D3N 22-23.99
D3N 230-115-32A-5D	23.00	23.90	32.00	42.00	119.91	162.50	4.910	222.50	23	K D3N 22-23.99
D3N 240-120-32A-5D	24.00	24.90	32.00	42.00	125.21	169.54	5.210	229.54	24	K D3N 24-25.99
D3N 250-125-32A-5D	25.00	25.90	32.00	42.00	130.31	176.72	5.310	236.61	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

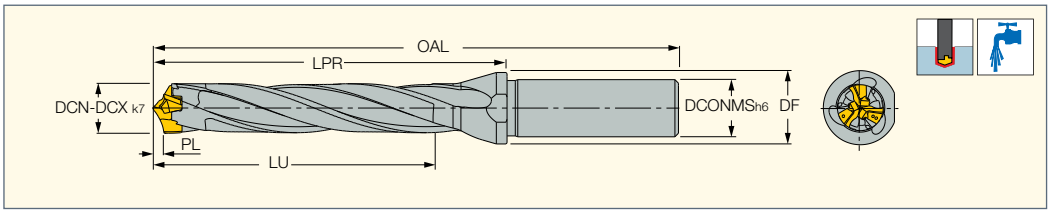
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

D3N R-5D

Exchangeable Head 3 Flute Drills with Coolant Holes and A Round Shank, Drilling Depth 5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-060-16R-5D	12.00	12.40	16.00	20.00	62.71	84.92	2.710	132.92	12	K D3N 12-13.99
D3N 125-062-16R-5D	12.50	12.90	16.00	20.00	65.21	88.17	2.710	136.17	12	K D3N 12-13.99
D3N 130-065-16R-5D	13.00	13.40	16.00	20.00	67.91	92.08	2.910	140.08	13	K D3N 12-13.99
D3N 135-068-16R-5D	13.50	13.90	16.00	20.00	70.41	95.33	2.910	143.33	13	K D3N 12-13.99
D3N 140-070-16R-5D	14.00	14.40	16.00	20.00	73.10	99.08	3.100	147.08	14	K D3N 14-15.99
D3N 145-073-16R-5D	14.50	14.90	16.00	20.00	75.60	102.33	3.100	150.33	14	K D3N 14-15.99
D3N 150-075-20R-5D	15.00	15.90	20.00	25.00	78.47	106.16	3.470	156.16	15	K D3N 14-15.99
D3N 160-080-20R-5D	16.00	16.90	20.00	25.00	83.44	113.25	3.440	163.25	16	K D3N 16-17.99
D3N 170-085-20R-5D	17.00	17.90	20.00	25.00	88.52	120.22	3.520	170.22	17	K D3N 16-17.99
D3N 180-090-25R-5D	18.00	18.90	25.00	32.00	93.90	127.36	3.900	183.36	18	K D3N 18-19.99
D3N 190-095-25R-5D	19.00	19.90	25.00	32.00	99.10	134.42	4.100	190.42	19	K D3N 18-19.99
D3N 200-100-25R-5D	20.00	20.90	25.00	32.00	104.32	141.24	4.320	197.24	20	K D3N 20-21.99
D3N 210-105-25R-5D	21.00	21.90	25.00	32.00	109.55	148.30	4.550	204.30	21	K D3N 20-21.99
D3N 220-110-25R-5D	22.00	22.90	25.00	32.00	114.69	155.62	4.690	211.62	22	K D3N 22-23.99
D3N 230-115-32R-5D	23.00	23.90	32.00	42.00	119.91	162.50	4.910	222.50	23	K D3N 22-23.99
D3N 240-120-32R-5D	24.00	24.90	32.00	42.00	125.21	169.54	5.210	229.54	24	K D3N 24-25.99
D3N 250-125-32R-5D	25.00	25.90	32.00	42.00	130.31	176.72	5.310	236.61	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

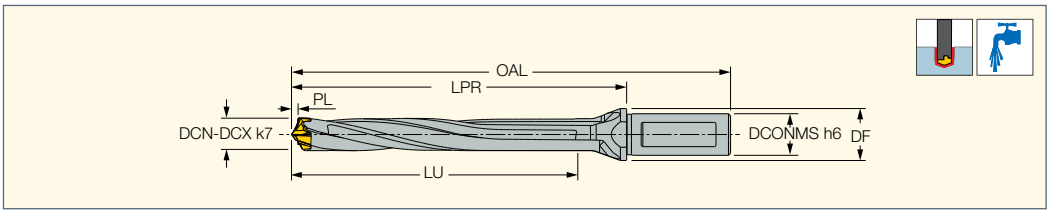
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

D3N A-8D

Exchangeable Head 3 Flute Drills with Coolant Holes and One Flat Shank, Drilling Depth 8xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-096-16A-8D	12.00	12.40	16.00	20.00	98.71	120.92	2.710	168.90	12	K D3N 12-13.99
D3N 125-100-16A-8D	12.50	12.90	16.00	20.00	102.71	125.67	2.710	173.70	12	K D3N 12-13.99
D3N 130-104-16A-8D	13.00	13.40	16.00	20.00	106.91	131.08	2.910	179.10	13	K D3N 12-13.99
D3N 135-108-16A-8D	13.50	13.90	16.00	20.00	110.91	135.83	2.910	183.80	13	K D3N 12-13.99
D3N 140-112-16A-8D	14.00	14.40	16.00	20.00	115.10	141.08	3.100	189.10	14	K D3N 14-15.99
D3N 145-116-16A-8D	14.50	14.90	16.00	20.00	119.10	145.83	3.100	193.80	14	K D3N 14-15.99
D3N 150-120-20A-8D	15.00	15.90	20.00	25.00	123.47	151.16	3.470	201.20	15	K D3N 14-15.99
D3N 160-128-20A-8D	16.00	16.90	20.00	25.00	131.44	161.25	3.440	211.30	16	K D3N 16-17.99
D3N 170-136-20A-8D	17.00	17.90	20.00	25.00	139.52	171.22	3.520	221.30	17	K D3N 16-17.99
D3N 180-144-25A-8D	18.00	18.90	25.00	32.00	147.90	181.36	3.900	237.40	18	K D3N 18-19.99
D3N 190-152-25A-8D	19.00	19.90	25.00	32.00	156.10	191.42	4.100	247.40	19	K D3N 18-19.99
D3N 200-160-25A-8D	20.00	20.90	25.00	32.00	164.32	201.24	4.320	257.20	20	K D3N 20-21.99
D3N 210-168-25A-8D	21.00	21.90	25.00	32.00	172.55	211.30	4.550	267.30	21	K D3N 20-21.99
D3N 220-176-25A-8D	22.00	22.90	25.00	32.00	180.69	221.62	4.690	277.60	22	K D3N 22-23.99
D3N 230-184-32A-8D	23.00	23.90	32.00	42.00	188.91	231.50	4.910	291.50	23	K D3N 22-23.99
D3N 240-192-32A-8D	24.00	24.90	32.00	42.00	197.21	241.54	5.210	301.50	24	K D3N 24-25.99
D3N 250-200-32A-8D	25.00	25.90	32.00	42.00	205.31	251.72	5.120	311.70	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

(2) Cutting diameter maximum

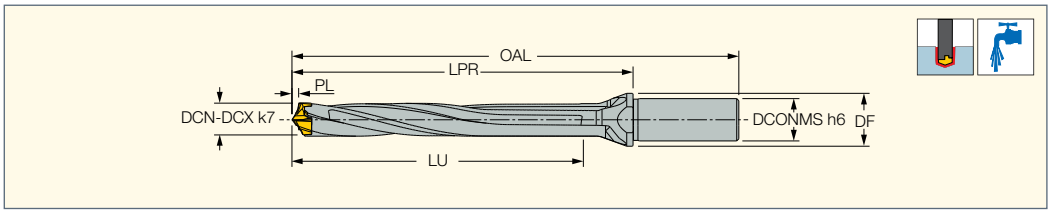
(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

D3N R-8D

Exchangeable Head 3 Flute Drills with Coolant Holes and A Round Shank, Drilling Depth 8xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	OAL	SSC(3)	
D3N 120-096-16R-8D	12.00	12.40	16.00	20.00	98.71	120.92	2.710	168.90	12	K D3N 12-13.99
D3N 125-100-16R-8D	12.50	12.90	16.00	20.00	102.71	125.67	2.710	173.70	12	K D3N 12-13.99
D3N 130-104-16R-8D	13.00	13.40	16.00	20.00	106.91	131.08	2.910	179.10	13	K D3N 12-13.99
D3N 135-108-16R-8D	13.50	13.90	16.00	20.00	110.91	135.83	2.910	183.80	13	K D3N 12-13.99
D3N 140-112-16R-8D	14.00	14.40	16.00	20.00	115.10	141.08	3.100	189.10	14	K D3N 14-15.99
D3N 145-116-16R-8D	14.50	14.90	16.00	20.00	119.10	145.83	3.100	193.80	14	K D3N 14-15.99
D3N 150-120-20R-8D	15.00	15.90	20.00	25.00	123.47	151.16	3.470	201.20	15	K D3N 14-15.99
D3N 160-128-20R-8D	16.00	16.90	20.00	25.00	131.44	161.25	3.440	211.30	16	K D3N 16-17.99
D3N 170-136-20R-8D	17.00	17.90	20.00	25.00	139.52	171.22	3.520	221.20	17	K D3N 16-17.99
D3N 180-144-25R-8D	18.00	18.90	25.00	32.00	147.90	181.36	3.900	237.40	18	K D3N 18-19.99
D3N 190-152-25R-8D	19.00	19.90	25.00	32.00	156.10	191.42	4.100	247.40	19	K D3N 18-19.99
D3N 200-160-25R-8D	20.00	20.90	25.00	32.00	164.32	201.24	4.320	257.20	20	K D3N 20-21.99
D3N 210-168-25R-8D	21.00	21.90	25.00	32.00	172.55	211.30	4.550	267.30	21	K D3N 20-21.99
D3N 220-176-25R-8D	22.00	22.90	25.00	32.00	180.69	221.62	4.690	277.60	22	K D3N 22-23.99
D3N 230-184-32R-8D	23.00	23.90	32.00	42.00	188.91	231.50	4.910	291.50	23	K D3N 22-23.99
D3N 240-192-32R-8D	24.00	24.90	32.00	42.00	197.21	241.54	5.210	301.50	24	K D3N 24-25.99
D3N 250-200-32R-8D	25.00	25.90	32.00	42.00	205.31	251.72	5.120	311.70	25	K D3N 24-25.99

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 68-81

(1) Cutting diameter minimum

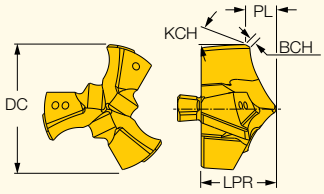
(2) Cutting diameter maximum

(3) Seat size code

For inserts, see pages: H3P (62) • F3P (65)

LOGIQ 3 CHAM
THREE FLUTE CHAMDRILL

H3P
Exchangeable 3 Flute Drilling Heads for Machining Carbon and Alloy Steel (ISO P) and Cast Iron (ISO K)



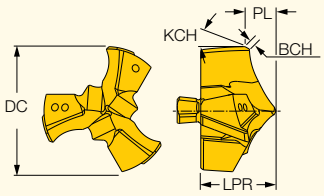
Designation	Dimensions					IC908
	DC	LPR(1)	PL(2)	KCH	BCH	
H3P 120-IQ	12.00	6.92	2.710	15.0	0.40	•
H3P 121-IQ	12.10	6.92	2.710	15.0	0.40	•
H3P 122-IQ	12.20	6.92	2.710	15.0	0.40	•
H3P 123-IQ	12.30	6.92	2.710	15.0	0.40	•
H3P 124-IQ	12.40	6.92	2.710	15.0	0.40	•
H3P 125-IQ	12.50	6.92	2.710	15.0	0.40	•
H3P 126-IQ	12.60	6.92	2.710	15.0	0.40	•
H3P 127-IQ	12.70	6.92	2.710	15.0	0.40	•
H3P 128-IQ	12.80	6.92	2.710	15.0	0.40	•
H3P 129-IQ	12.90	6.92	2.710	15.0	0.40	•
H3P 130-IQ	13.00	7.58	2.910	15.0	0.40	•
H3P 131-IQ	13.10	7.58	2.910	15.0	0.40	•
H3P 132-IQ	13.20	7.58	2.910	15.0	0.40	•
H3P 133-IQ	13.30	7.58	2.910	15.0	0.40	•
H3P 134-IQ	13.40	7.58	2.910	15.0	0.40	•
H3P 135-IQ	13.50	7.58	2.910	15.0	0.40	•
H3P 136-IQ	13.60	7.58	2.910	15.0	0.40	•
H3P 137-IQ	13.70	7.58	2.910	15.0	0.40	•
H3P 138-IQ	13.80	7.58	2.910	15.0	0.40	•
H3P 139-IQ	13.90	7.58	2.910	15.0	0.40	•
H3P 140-IQ	14.00	8.10	3.100	15.0	0.40	•
H3P 141-IQ	14.10	8.10	3.100	15.0	0.40	•
H3P 142-IQ	14.20	8.10	3.100	15.0	0.40	•
H3P 143-IQ	14.30	8.10	3.100	15.0	0.40	•
H3P 144-IQ	14.40	8.10	3.100	15.0	0.40	•
H3P 145-IQ	14.50	8.10	3.100	15.0	0.40	•
H3P 146-IQ	14.60	8.10	3.100	15.0	0.40	•
H3P 147-IQ	14.70	8.10	3.100	15.0	0.40	•
H3P 148-IQ	14.80	8.10	3.100	15.0	0.40	•
H3P 149-IQ	14.90	8.10	3.100	15.0	0.40	•
H3P 150-IQ	15.00	8.66	3.470	15.0	0.40	•
H3P 151-IQ	15.10	8.66	3.470	15.0	0.40	•
H3P 152-IQ	15.20	8.66	3.470	15.0	0.40	•
H3P 153-IQ	15.30	8.66	3.470	15.0	0.40	•
H3P 154-IQ	15.40	8.66	3.470	15.0	0.40	•
H3P 155-IQ	15.50	8.66	3.470	15.0	0.40	•
H3P 156-IQ	15.60	8.66	3.470	15.0	0.40	•
H3P 157-IQ	15.70	8.66	3.470	15.0	0.40	•
H3P 158-IQ	15.80	8.66	3.470	15.0	0.40	•
H3P 159-IQ	15.90	8.66	3.470	15.0	0.40	•
H3P 160-IQ	16.00	9.26	3.440	15.0	0.40	•
H3P 161-IQ	16.10	9.26	3.440	15.0	0.40	•
H3P 162-IQ	16.20	9.26	3.440	15.0	0.40	•
H3P 163-IQ	16.30	9.26	3.440	15.0	0.40	•
H3P 164-IQ	16.40	9.26	3.440	15.0	0.40	•
H3P 165-IQ	16.50	9.26	3.440	15.0	0.40	•
H3P 166-IQ	16.60	9.26	3.440	15.0	0.40	•
H3P 167-IQ	16.70	9.26	3.440	15.0	0.40	•
H3P 168-IQ	16.80	9.25	3.440	15.0	0.40	•
H3P 169-IQ	16.90	9.26	3.440	15.0	0.40	•
H3P 170-IQ	17.00	9.72	3.520	15.0	0.40	•
H3P 171-IQ	17.10	9.72	3.520	15.0	0.40	•
H3P 172-IQ	17.20	9.72	3.520	15.0	0.40	•
H3P 173-IQ	17.30	9.72	3.520	15.0	0.40	•
H3P 174-IQ	17.40	9.72	3.520	15.0	0.40	•
H3P 175-IQ	17.50	9.72	3.520	15.0	0.40	•

• For user guide and cutting conditions, see pages 68-81
(1) LPR tolerance ±0.05 mm
(2) PL tolerance ±0.1 mm
For tools, see pages: D3N A-1.5D (58) • D3N R-1.5D (58) • D3N A-3D (59) • D3N R-3D (59) • D3N A-5D (60) • D3N R-5D (60) • D3N A-8D (61) • D3N R-8D (61)

LOGIQ 3 CHAM THREE FLUTE CHAMDRILL

H3P (continued)

Exchangeable 3 Flute Drilling Heads for Machining Carbon and Alloy Steel (ISO P) and Cast Iron (ISO K)



Designation	Dimensions					IC908
	DC	LPR(1)	PL(2)	KCH	BCH	
H3P 176-IQ	17.60	9.72	3.520	15.0	0.40	•
H3P 177-IQ	17.70	9.72	3.520	15.0	0.40	•
H3P 178-IQ	17.80	9.72	3.520	15.0	0.40	•
H3P 179-IQ	17.90	9.72	3.520	15.0	0.40	•
H3P 180-IQ	18.00	10.36	3.900	15.0	0.40	•
H3P 181-IQ	18.10	10.36	3.900	15.0	0.40	•
H3P 182-IQ	18.20	10.36	3.900	15.0	0.40	•
H3P 183-IQ	18.30	10.36	3.900	15.0	0.40	•
H3P 184-IQ	18.40	10.36	3.900	15.0	0.40	•
H3P 185-IQ	18.50	10.36	3.900	15.0	0.40	•
H3P 186-IQ	18.60	10.36	3.900	15.0	0.40	•
H3P 187-IQ	18.70	10.36	3.900	15.0	0.40	•
H3P 188-IQ	18.80	10.36	3.900	15.0	0.40	•
H3P 189-IQ	18.90	10.36	3.900	15.0	0.40	•
H3P 190-IQ	19.00	10.92	4.100	15.0	0.40	•
H3P 1905-IQ	19.05	10.92	4.100	15.0	0.40	•
H3P 191-IQ	19.10	10.92	4.100	15.0	0.40	•
H3P 192-IQ	19.20	10.92	4.100	15.0	0.40	•
H3P 1927-IQ	19.27	10.92	4.100	15.0	0.40	•
H3P 193-IQ	19.30	10.92	4.100	15.0	0.40	•
H3P 194-IQ	19.40	10.92	4.100	15.0	0.40	•
H3P 195-IQ	19.50	10.92	4.100	15.0	0.40	•
H3P 196-IQ	19.60	10.92	4.100	15.0	0.40	•
H3P 197-IQ	19.70	10.92	4.100	15.0	0.40	•
H3P 198-IQ	19.80	10.92	4.100	15.0	0.40	•
H3P 199-IQ	19.90	10.92	4.100	15.0	0.40	•
H3P 200-IQ	20.00	11.24	4.320	15.0	0.40	•
H3P 201-IQ	20.10	11.24	4.320	15.0	0.40	•
H3P 202-IQ	20.20	11.24	4.320	15.0	0.40	•
H3P 203-IQ	20.30	11.24	4.320	15.0	0.40	•
H3P 204-IQ	20.40	11.24	4.320	15.0	0.40	•
H3P 205-IQ	20.50	11.24	4.320	15.0	0.40	•
H3P 206-IQ	20.60	11.24	4.320	15.0	0.40	•
H3P 207-IQ	20.70	11.24	4.320	15.0	0.40	•
H3P 208-IQ	20.80	11.24	4.320	15.0	0.40	•
H3P 209-IQ	20.90	11.24	4.320	15.0	0.40	•
H3P 210-IQ	21.00	11.80	4.550	15.0	0.40	•
H3P 211-IQ	21.10	11.80	4.550	15.0	0.40	•
H3P 212-IQ	21.20	11.80	4.550	15.0	0.40	•
H3P 213-IQ	21.30	11.80	4.550	15.0	0.40	•
H3P 214-IQ	21.40	11.80	4.550	15.0	0.40	•
H3P 215-IQ	21.50	11.80	4.550	15.0	0.40	•
H3P 216-IQ	21.60	11.80	4.550	15.0	0.40	•
H3P 217-IQ	21.70	11.80	4.550	15.0	0.40	•
H3P 218-IQ	21.80	11.80	4.550	15.0	0.40	•
H3P 219-IQ	21.90	11.80	4.550	15.0	0.40	•
H3P 220-IQ	22.00	12.63	4.690	15.0	0.40	•
H3P 221-IQ	22.10	12.63	4.690	15.0	0.40	•
H3P 222-IQ	22.20	12.63	4.690	15.0	0.40	•
H3P 223-IQ	22.30	12.63	4.690	15.0	0.40	•
H3P 224-IQ	22.40	12.63	4.690	15.0	0.40	•
H3P 225-IQ	22.50	12.63	4.690	15.0	0.40	•
H3P 226-IQ	22.60	12.63	4.690	15.0	0.40	•
H3P 227-IQ	22.70	12.63	4.690	15.0	0.40	•
H3P 228-IQ	22.80	12.63	4.690	15.0	0.40	•
H3P 229-IQ	22.90	12.63	4.690	15.0	0.40	•

• For user guide and cutting conditions, see pages 68-81

(1) LPR tolerance ±0.05 mm

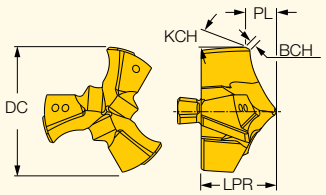
(2) PL tolerance ±0.1 mm

For tools, see pages: D3N A-1.5D (58) • D3N R-1.5D (58) • D3N A-3D (59) • D3N R-3D (59) • D3N A-5D (60) • D3N R-5D (60) • D3N A-8D (61) • D3N R-8D (61)

LOGIQ 3CHAM THREE FLUTE CHAMDRILL

H3P (continued)

Exchangeable 3 Flute Drilling Heads for Machining Carbon and Alloy Steel (ISO P) and Cast Iron (ISO K)



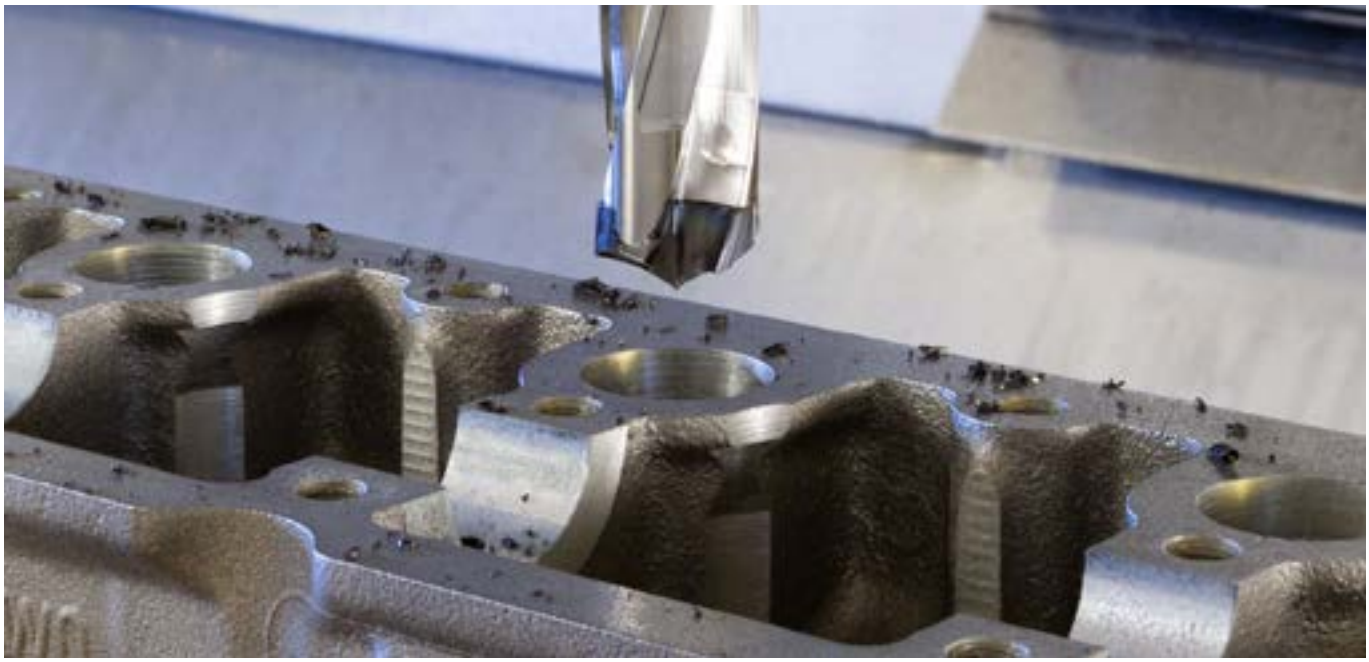
Designation	Dimensions					IC908
	DC	LPR(1)	PL(2)	KCH	BCH	
H3P 230-IQ	23.00	13.00	4.910	15.0	0.40	•
H3P 231-IQ	23.10	13.00	4.910	15.0	0.40	•
H3P 232-IQ	23.20	13.00	4.910	15.0	0.40	•
H3P 233-IQ	23.30	13.00	4.910	15.0	0.40	•
H3P 234-IQ	23.40	13.00	4.910	15.0	0.40	•
H3P 235-IQ	23.50	13.00	4.910	15.0	0.40	•
H3P 236-IQ	23.60	13.00	4.910	15.0	0.40	•
H3P 237-IQ	23.70	13.00	4.910	15.0	0.40	•
H3P 238-IQ	23.80	13.00	4.910	15.0	0.40	•
H3P 239-IQ	23.90	13.00	4.910	15.0	0.40	•
H3P 240-IQ	24.00	13.54	5.210	15.0	0.40	•
H3P 241-IQ	24.10	13.54	5.210	15.0	0.40	•
H3P 242-IQ	24.20	13.54	5.210	15.0	0.40	•
H3P 243-IQ	24.30	13.54	5.210	15.0	0.40	•
H3P 244-IQ	24.40	13.54	5.210	15.0	0.40	•
H3P 245-IQ	24.50	13.54	5.210	15.0	0.40	•
H3P 246-IQ	24.60	13.54	5.210	15.0	0.40	•
H3P 247-IQ	24.70	13.54	5.210	15.0	0.40	•
H3P 248-IQ	24.80	13.54	5.210	15.0	0.40	•
H3P 249-IQ	24.90	13.54	5.210	15.0	0.40	•
H3P 250-IQ	25.00	14.11	5.310	15.0	0.40	•
H3P 251-IQ	25.10	14.11	5.310	15.0	0.40	•
H3P 252-IQ	25.20	14.11	5.310	15.0	0.40	•
H3P 253-IQ	25.30	14.11	5.310	15.0	0.40	•
H3P 254-IQ	25.40	14.11	5.310	15.0	0.40	•
H3P 255-IQ	25.50	14.11	5.310	15.0	0.40	•
H3P 256-IQ	25.60	14.11	5.310	15.0	0.40	•
H3P 2565-IQ	25.65	14.11	5.310	15.0	0.40	•
H3P 257-IQ	25.70	14.11	5.310	15.0	0.40	•
H3P 258-IQ	25.80	14.11	5.310	15.0	0.40	•
H3P 259-IQ	25.90	14.11	5.310	15.0	0.40	•

• For user guide and cutting conditions, see pages 68-81

(1) LPR tolerance ±0.05 mm

(2) PL tolerance ±0.1 mm

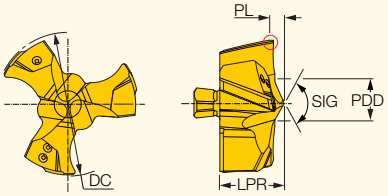
For tools, see pages: D3N A-1.5D (58) • D3N R-1.5D (58) • D3N A-3D (59) • D3N R-3D (59) • D3N A-5D (60) • D3N R-5D (60) • D3N A-8D (61) • D3N R-8D (61)



LOGIQ 3CHAM THREE FLUTE CHAMDRILL

F3P

Exchangeable 3 Flute Flat Drilling Heads for Machining Carbon and Alloy Steel (ISO P) and Cast Iron (ISO K)



Designation	Dimensions								IC908
	DC	LPR(1)	PL	PDD	SIG	BCH	KCH	SSC(2)	
F3P 120-IQ	12.00	4.90	0.790	2.96	133	0.40	15.0	12	●
F3P 125-IQ	12.50	4.90	0.790	2.96	133	0.40	15.0	12	●
F3P 130-IQ	13.00	5.39	0.990	3.52	130	0.40	15.0	13	●
F3P 135-IQ	13.50	5.39	0.990	3.52	130	0.40	15.0	13	●
F3P 140-IQ	14.00	6.42	1.110	4.16	124	0.40	15.0	14	●
F3P 145-IQ	14.50	6.42	1.110	4.16	124	0.40	15.0	14	●
F3P 150-IQ	15.00	6.72	1.190	3.81	121	0.40	15.0	15	●
F3P 155-IQ	15.50	6.72	1.190	3.81	121	0.40	15.0	15	●
F3P 160-IQ	16.00	7.03	1.090	3.95	121	0.40	15.0	16	●
F3P 165-IQ	16.50	7.03	1.090	3.95	121	0.40	15.0	16	●
F3P 170-IQ	17.00	7.70	1.160	4.09	121	0.40	15.0	17	●
F3P 175-IQ	17.50	7.70	1.160	4.09	121	0.40	15.0	17	●
F3P 180-IQ	18.00	8.02	1.230	5.86	131	0.40	15.0	18	●
F3P 185-IQ	18.50	8.02	1.230	5.86	131	0.40	15.0	18	●
F3P 190-IQ	19.00	8.09	1.270	6.19	131	0.40	15.0	19	●
F3P 195-IQ	19.50	8.09	1.270	6.19	131	0.40	15.0	19	●
F3P 200-IQ	20.00	8.59	1.340	6.54	132	0.40	15.0	20	●
F3P 205-IQ	20.50	8.59	1.340	6.54	132	0.40	15.0	20	●
F3P 210-IQ	21.00	9.02	1.410	6.92	132	0.40	15.0	21	●
F3P 215-IQ	21.50	9.02	1.410	6.92	132	0.40	15.0	21	●
F3P 220-IQ	22.00	9.97	1.680	7.19	132	0.40	15.0	22	●
F3P 225-IQ	22.50	9.97	1.680	7.19	132	0.40	15.0	22	●
F3P 230-IQ	23.00	10.17	1.750	7.66	132	0.40	15.0	23	●
F3P 235-IQ	23.50	10.17	1.750	7.66	132	0.40	15.0	23	●
F3P 240-IQ	24.00	10.59	1.820	7.79	132	0.40	15.0	24	●
F3P 245-IQ	24.50	10.59	1.820	7.79	132	0.40	15.0	24	●
F3P 250-IQ	25.00	10.81	1.660	8.09	131	0.40	15.0	25	●
F3P 255-IQ	25.50	10.81	1.660	8.09	131	0.40	15.0	25	●

• For nearly flat bottom hole applications • For user guide and cutting conditions, see pages 68-81

(1) LPR tolerance ±0.05 mm

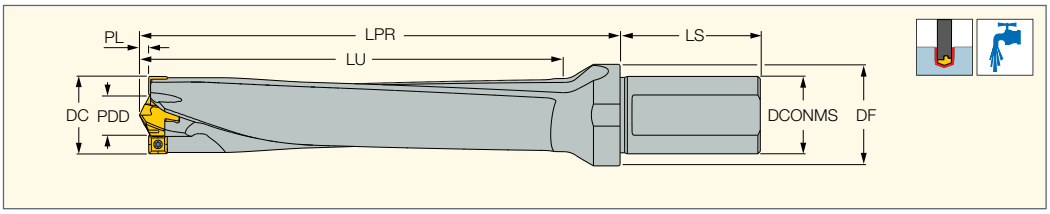
(2) Seat size code

For tools, see pages: D3N A-1.5D (58) • D3N R-1.5D (58) • D3N A-3D (59) • D3N R-3D (59) • D3N A-5D (60) • D3N R-5D (60) • D3N A-8D (61) • D3N R-8D (61)

COMBICHAM

MNC-5D

Large Diameter Indexable Drills with a Pilot Drilling Head and One Flat Shank, Drilling Depth 5xD



Designation	DC	LU	PL	DCONMS	PDD	DF	LS	LPR	Insert[1]	Insert 1[2]
MNC 260-130 A32-150-06-5D	26.00	132.93	2.93	32.00	15.00	42.00	60.0	166.92	SOGX 060304-W	ICP 150
MNC 265-132 A32-155-06-5D	26.50	135.53	3.03	32.00	15.50	42.00	60.0	167.03	SOGX 060304-W	ICP 155
MNC 270-135 A32-160-06-5D	27.00	138.10	3.10	32.00	16.00	42.00	60.0	170.10	SOGX 060304-W	ICP 160
MNC 280-140 A32-170-06-5D	28.00	143.25	3.25	32.00	17.00	42.00	60.0	174.30	SOGX 060304-W	ICP 170
MNC 290-145 A32-160-07-5D	29.00	148.10	3.10	32.00	16.00	42.00	60.0	180.11	SOGX 070305-W	ICP 160
MNC 295-148 A32-165-07-5D	29.50	150.69	3.19	32.00	16.50	42.00	60.0	183.21	SOGX 070305-W	ICP 165
MNC 300-150 A32-165-07-5D	30.00	153.19	3.19	32.00	16.50	42.00	60.0	186.21	SOGX 070305-W	ICP 165
MNC 310-155 A32-175-07-5D	31.00	158.34	3.34	32.00	17.50	42.00	60.0	193.30	SOGX 070305-W	ICP 175
MNC 320-160 A32-185-07-5D	32.00	163.49	3.49	32.00	18.50	42.00	60.0	198.50	SOGX 070305-W	ICP 185
MNC 330-165 A32-175-09-5D	33.00	168.64	3.64	32.00	17.50	42.00	60.0	203.60	SOGT 09T306-W	ICP 175
MNC 340-170 A32-180-09-5D	34.00	173.70	3.70	32.00	18.00	42.00	60.0	208.70	SOGT 09T306-W	ICP 180
MNC 350-175 A32-189-09-5D	35.00	178.86	3.86	32.00	18.90	42.00	60.0	213.90	SOGT 09T306-W	ICP 189
MNC 360-180 A32-190-10-5D	36.00	183.85	3.85	32.00	19.00	42.00	60.0	218.80	SOGT 100408-W	ICP 190
MNC 370-185 A32-200-10-5D	37.00	189.01	4.01	32.00	20.00	42.00	60.0	224.00	SOGT 100408-W	ICP 200
MNC 375-188 A32-205-10-5D	37.50	191.60	4.10	32.00	20.50	42.00	60.0	227.11	SOGT 100408-W	ICP 205
MNC 380-190 A40-209-10-5D	38.00	194.17	4.17	40.00	20.90	50.00	68.0	231.21	SOGT 100408-W	ICP 209
MNC 390-195 A40-215-10-5D	39.00	199.26	4.26	40.00	21.50	50.00	68.0	237.28	SOGT 100408-W	ICP 215
MNC 400-200 A40-225-10-5D	40.00	204.41	4.41	40.00	22.50	50.00	68.0	244.36	SOGT 100408-W	ICP 225
MNC 405-203 A40-235-10-5D	40.50	207.07	4.57	40.00	23.50	50.00	68.0	247.53	SOGT 100408-W	ICP 235
MNC 410-205 A40-239-10-5D	41.00	209.64	4.64	40.00	23.90	50.00	68.0	249.64	SOGT 100408-W	ICP 239
MNC 420-210 A40-249-10-5D	42.00	214.77	4.77	40.00	24.90	50.00	68.0	254.80	SOGT 100408-W	ICP 249
MNC 430-215 A40-259-10-5D	43.00	219.99	4.99	40.00	25.90	50.00	68.0	263.00	SOGT 100408-W	ICP 259
MNC 440-220 A40-210-12-5D	44.00	225.18	5.18	40.00	21.00	50.00	68.0	264.18	SOGT 120408-W	ICP 210
MNC 450-225 A40-219-12-5D	45.00	230.33	5.33	40.00	21.90	50.00	68.0	269.38	SOGT 120408-W	ICP 219
MNC 460-230 A40-229-12-5D	46.00	235.48	5.48	40.00	22.90	50.00	68.0	274.46	SOGT 120408-W	ICP 229
MNC 470-235 A40-239-12-5D	47.00	240.64	5.64	40.00	23.90	50.00	68.0	280.63	SOGT 120408-W	ICP 239
MNC 480-240 A40-249-12-5D	48.00	245.77	5.77	40.00	24.90	50.00	68.0	284.80	SOGT 120408-W	ICP 249
MNC 490-245 A40-259-12-5D	49.00	250.99	5.99	40.00	25.90	50.00	68.0	292.00	SOGT 120408-W	ICP 259
MNC 500-250 A40-269-12-5D	50.00	256.11	6.11	40.00	26.90	50.00	68.0	297.07	SOGT 120408-W	ICP 269

• Hole tolerance: D+0.10/-0.05 in average conditions. However, it can be higher or lower according to machine and tooling conditions • Intermediate sizes are available on request • For user guide and cutting conditions, see pages 68-81

[1] Outer insert

[2] Central insert

For inserts, see pages: HCP-IQ (47) • ICG (57) • ICP (18) • SOGT-W (67) • SOGX-W (67)

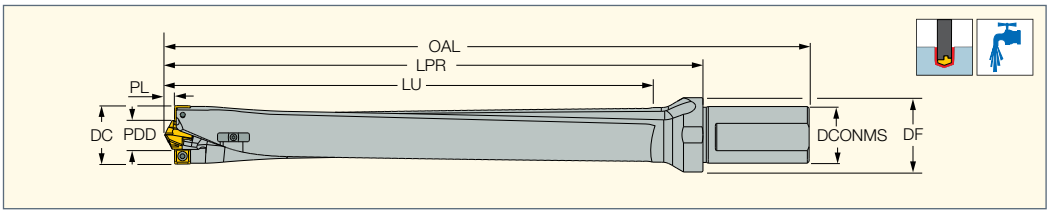
Spare Parts

Designation					
MNC 260-130 A32-150-06-5D	SR 34-508/L	T-7/51			K MNC MULTI
MNC 265-132 A32-155-06-5D	SR 34-508/L	T-7/51			K MNC MULTI
MNC 270-135 A32-160-06-5D	SR 34-508/L	T-7/51			K MNC MULTI
MNC 280-140 A32-170-06-5D	SR 34-508/L	T-7/51			K MNC MULTI
MNC 290-145 A32-160-07-5D	SR 14-560	T-8/53			K MNC MULTI
MNC 295-148 A32-165-07-5D	SR 14-560	T-8/53			K MNC MULTI
MNC 300-150 A32-165-07-5D	SR 14-560	T-8/53			K MNC MULTI
MNC 310-155 A32-175-07-5D	SR 14-560	T-8/53			K MNC MULTI
MNC 320-160 A32-185-07-5D	SR 14-560	T-8/53			K MNC MULTI
MNC 330-165 A32-175-09-5D	SR 34-506		BLD T09/M7-SW4	SW4-SD	K MNC MULTI
MNC 340-170 A32-180-09-5D	SR 34-506		BLD T09/M7-SW4	SW4-SD	K MNC MULTI
MNC 350-175 A32-189-09-5D	SR 34-506		BLD T09/M7-SW4	SW4-SD	K MNC MULTI
MNC 360-180 A32-190-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC MULTI
MNC 370-185 A32-200-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC MULTI
MNC 375-188 A32-205-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC MULTI
MNC 380-190 A40-209-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC MULTI
MNC 390-195 A40-215-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC MULTI
MNC 400-200 A40-225-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC 22-33
MNC 405-203 A40-235-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC 22-33
MNC 410-205 A40-239-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC 22-33
MNC 420-210 A40-249-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC 22-33
MNC 430-215 A40-259-10-5D	SR 14-571		BLD T10/S7	SW6-SD	K MNC 22-33
MNC 440-220 A40-210-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC MULTI
MNC 450-225 A40-219-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC MULTI
MNC 460-230 A40-229-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC 22-33
MNC 470-235 A40-239-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC 22-33
MNC 480-240 A40-249-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC 22-33
MNC 490-245 A40-259-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC 22-33
MNC 500-250 A40-269-12-5D	SR 14-544/S		BLD T15/S7	SW6-SD	K MNC 22-33

COMBICHAM

MNC-7/8D

Large Diameter Indexable Drills for the Wind Turbine Industry



Designation	DC	PDD	LU	PL	LPR	OAL	DCONMS	DF	Insert(1)	Insert 1(2)
MNC 332-265 A32-175-09-8D	33.20	17.50	270.60	5.570	304.40	358.80	32.00	42.00	SOGT 09T306-W	HCP 175-IQ
MNC 362-289 A32-190-10-8D	36.20	19.00	294.60	5.570	326.90	381.30	32.00	42.00	SOGT 100408-W	HCP 190-IQ
MNC 392-289 A40-219-10-7D	39.20	21.90	294.90	5.940	352.20	414.30	40.00	50.00	SOGT 100408-W	HCP 219-IQ

• Hole tolerance: D+0.10/-0.05 in average conditions. However, it can be higher or lower according to machine and tooling conditions • Intermediate sizes are available on request • For user guide and cutting conditions, see pages 68-81

(1) Outer insert

(2) Central insert

For inserts, see pages: HCP-IQ (47) • SOGT-W (67)

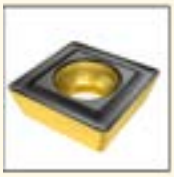
Spare Parts

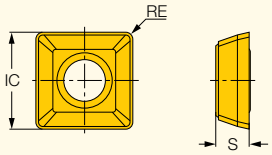
Designation							
MNC 332-265 A32-175-09-8D	SR 34-506	BLD T09/M7-SW4	SW4-SD	K MNC MULTI	SR 34-508	SR 34-508/S-HG	T-7/51
MNC 362-289 A32-190-10-8D	SR 14-571	BLD T10/S7	SW6-SD	K MNC MULTI	SR 34-508		T-7/51
MNC 392-289 A40-219-10-7D	SR 14-571	BLD T10/S7	SW6-SD	K MNC MULTI	SR 34-508		T-7/51

COMBICHAM

SOGX-W

Precision Ground Inserts with DT General Use Chipformer and a Wiper for MNC Large Diameter Drills





Designation	Dimensions IC	S	RE	Tough ↔ Hard IC808	IC8080
SOGX 050204-W	5.40	2.40	0.40	•	
SOGX 060304-W	6.20	3.20	0.40	•	
SOGX 070305-W	7.70	3.60	0.50	•	•

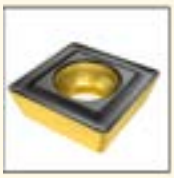
• For user guide and cutting conditions, see pages 68-81

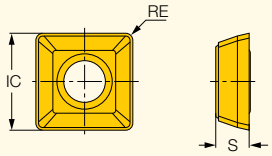
For tools, see pages: MNC-5D (66)

COMBICHAM

SOGT-W

Precision Ground Inserts with DT General Use Chipformer and a Wiper for MNC Drills





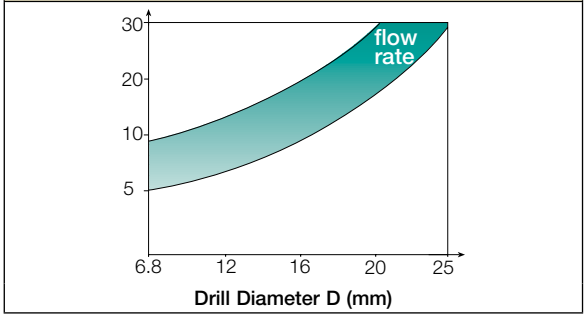
Designation	Dimensions IC	S	RE	Tough ↔ Hard IC808	IC8080
SOGT 09T306-W	9.00	3.81	0.60	•	•
SOGT 100408-W	9.80	4.30	0.80	•	•
SOGT 120408-W	12.70	4.76	0.80	•	

• For user guide and cutting conditions, see pages 68-81

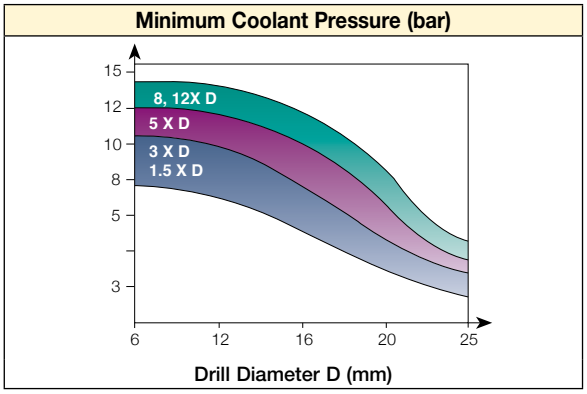
For tools, see pages: MNC-5D (66) • MNC-7/8D (67)

- When drilling stainless steel or high temperature alloys using the **ICM** drilling head, it is highly recommended to apply high-pressure oil or 7-10% mineral or vegetable based oil emulsion.
- Following is the recommended coolant flow rate and pressure.

Coolant Flow Rate (liter/min)



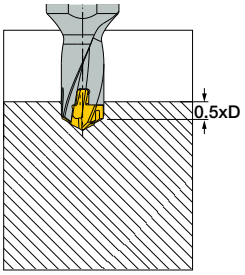
Minimum Coolant Pressure (bar)



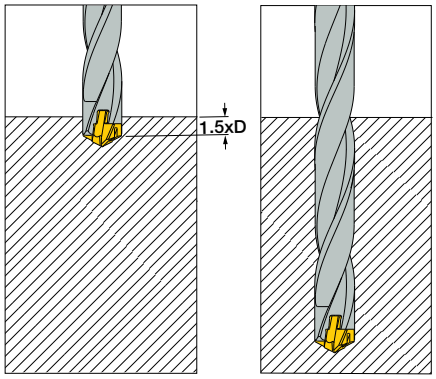
- For optimal performance, it is recommended to adjust runout of outer points or chisel with a maximum of 0.02 mm. Large runout will influence drill performance tool life and hole quality.
- No setup time is needed after indexing the **SUMOCHAM** drill head.
- **SUMOCHAM** drills can be used either on milling centers or lathe machines.
- When using **SUMOCHAM** drill in stationary (lathe) applications, we recommend using the **ISCAR GYRO** device or eccenter sleeve to reduce misalignment. Misalignment will cause poor performance of the **SUMOCHAM** drill or even tool breakage.

- Prior to using 8D or 12D drills, it is recommended to drill a 0.5xD pre-hole using a short or centering drill. Enter the pre-hole at slow speed and feed until 2-5 mm from its bottom. Start the cooling system and increase rotation to the recommended drilling speed. Hold for 2-3 seconds, then continue at the recommended drilling feed.

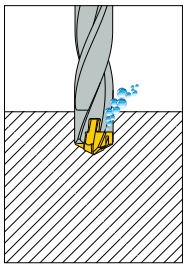
1 Pre-hole 0.5xD deep for centering



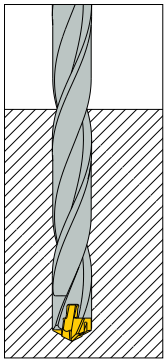
2 Slow rotation and feed while entering the pre-hole



3 Maintain for 2-3 seconds and activate the cooling system



4 Continue drilling at recommended cutting conditions

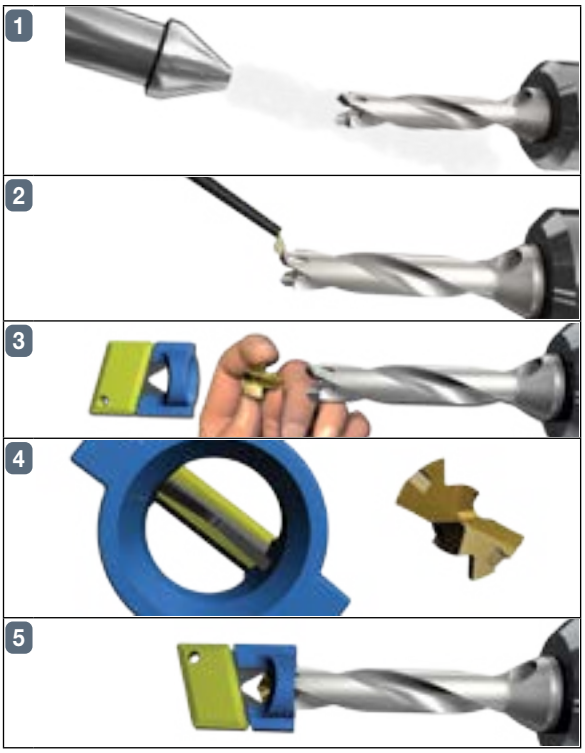


PreHole Adjustment

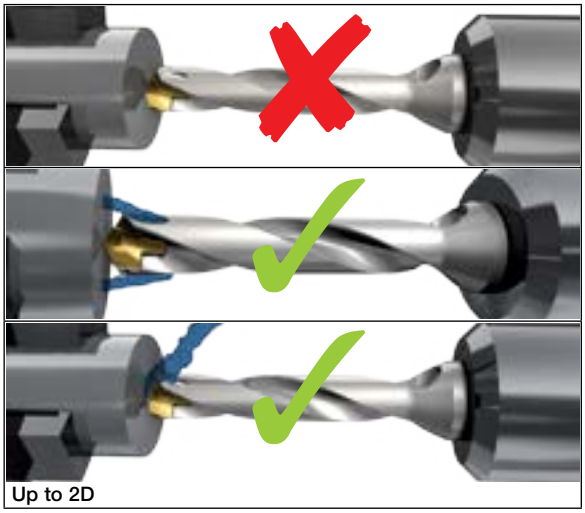
Hole \ PreHole	ICP/ ICM/ ICN	ICK	HCP/H3P	FCP/F3P	QCP	ICG
ICP ICM ICN	ICP/M/N PreHole ✓	ICK PreHole ✗	H#P PreHole ✗	FCP PreHole ✗	QCP PreHole ✗	ICG PreHole ✗
ICK	ICP/M/N PreHole ✓	ICK PreHole ✓	H#P PreHole ✗	FCP PreHole ✗	QCP PreHole ✗	ICG PreHole ✗
HCP H3P	ICP/M/N PreHole ✓	ICK PreHole ✗	H#P PreHole ✓	FCP PreHole ✓	QCP PreHole ✗	ICG PreHole ✗
FCP F3P	ICP/M/N PreHole ✗	ICK PreHole ✗	H#P PreHole ✗	FCP PreHole ✓	QCP PreHole ✗	ICG PreHole ✗
QCP	ICP/M/N PreHole ✓	ICK PreHole ✗	H#P PreHole ✗	FCP PreHole ✓	QCP PreHole ✓	ICG PreHole ✗
ICG	ICP/M/N PreHole ✓	ICK PreHole ✓	H#P PreHole ✗	FCP PreHole ✗	QCP PreHole ✗	ICG PreHole ✓

*For proper insert performance and centering, a bigger insert within a 1.0 mm range of the same diameter may be used

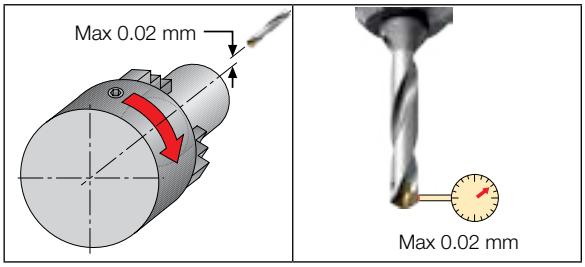
Drilling Head Mounting Procedure



Coolant Recommendations



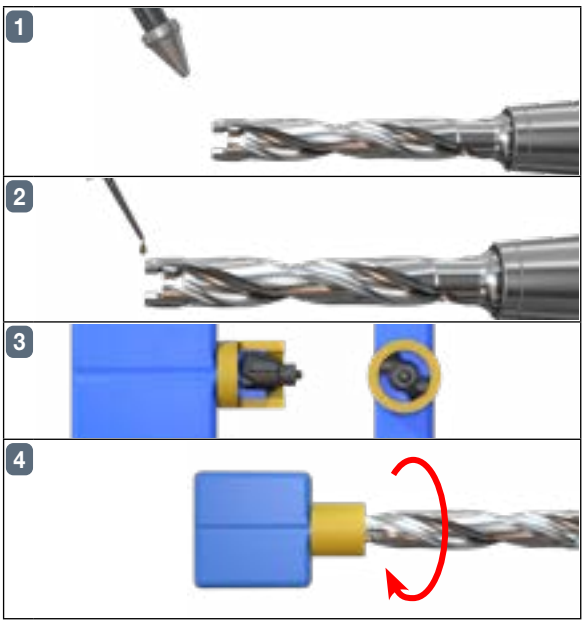
Maximum Runout, Misalignment



K DCN MULTI

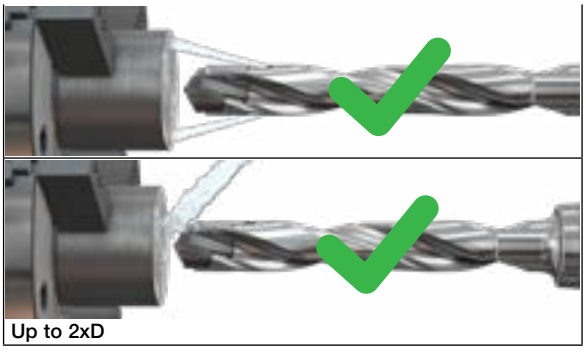
The optional K DCN MULTI key enables clamping all currently available **SUMOCHAM** drilling heads in a 6-26.9 mm diameter range.

Drilling Head Dia. 4.0-5.99mm Mounting Procedure



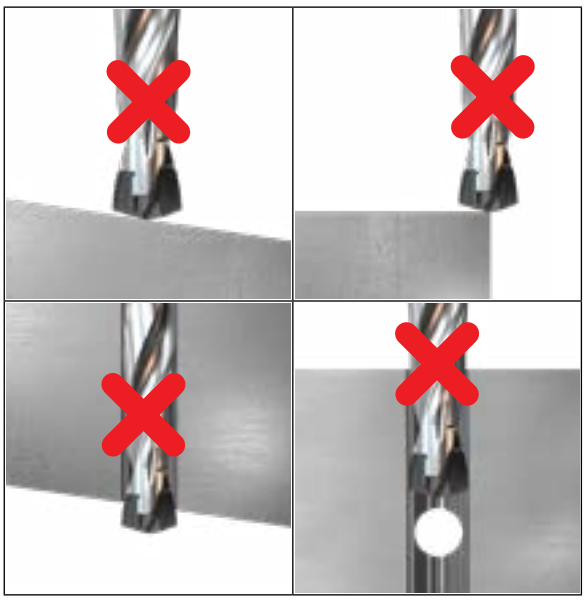
Coolant Recommendations

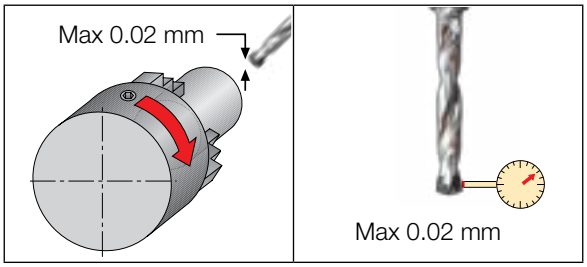
Dry machining



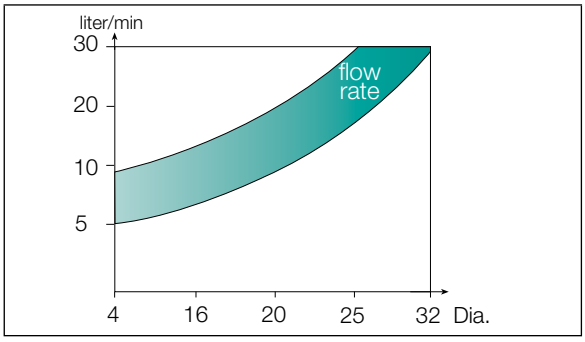
Up to 2xD

Drilling Limitations



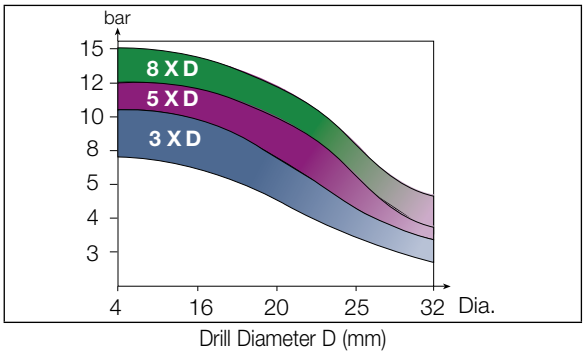


Coolant Flow Rate



Drill Diameter D (mm)

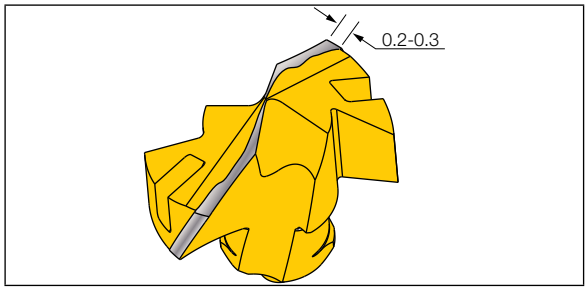
Minimum Coolant Pressure



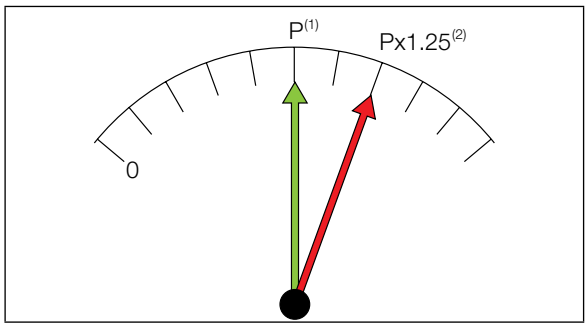
Drill Diameter D (mm)

Indication of Drill Head Wear

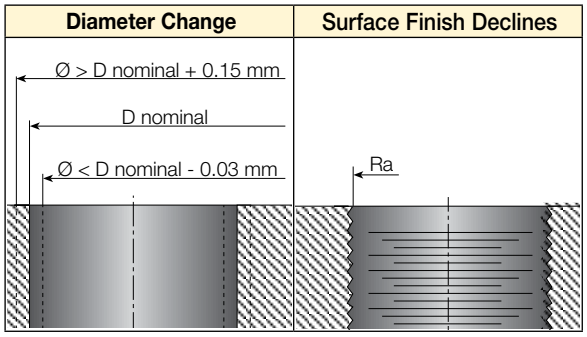
Wear Limit



Power Restriction

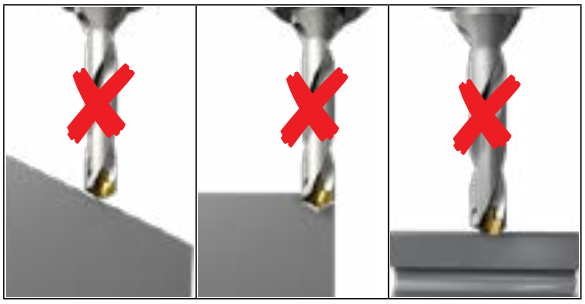


(1) New drilling head
(2) Worn-out drilling head



Vibration Noise Drastically Increases

Drilling Limitations



Material Groups

Recommended Machining Conditions

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.(1)	V m/min	SUMOCHAM Feed vs. Drill Diameter									
								D=4-4.9	D=5-5.9	D=6-7.9	D=8-9.9	D=10-11.9	D=12-13.9	D=14-15.9	D=16-19.9	D=20-25.9	D=26-32.9
										mm/rev							
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	80-**110**-140	0.04	0.07	0.09	0.12	0.15	0.18	0.20	0.25	0.25	0.30
		≥ 0.25 %C	Annealed	650	190	2	80-**105**-130	**0.06**	**0.09**	**0.11**	**0.17**	**0.21**	**0.24**	**0.27**	**0.35**	**0.35**	**0.40**
		< 0.55 %C	Quenched and tempered	850	250	3	80-**100**-120	0.08	0.11	0.13	0.22	0.28	0.30	0.35	0.45	0.45	0.50
		≥ 0.55 %C	Annealed	750	220	4	70-**90**-110										
			Quenched and tempered	1000	300	5	50-**70**-90										
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	80-**100**-120	0.04	0.07	0.09	0.12	0.14	0.16	0.18	0.23	0.25	0.30
			Quenched and tempered	930	275	7	70-**90**-110	**0.06**	**0.10**	**0.12**	**0.18**	**0.21**	**0.24**	**0.26**	**0.31**	**0.35**	**0.40**
				1000	300	8	50-**70**-90	0.08	0.13	0.15	0.25	0.28	0.32	0.35	0.40	0.45	0.50
				1200	350	9	40-**55**-70										
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	50-**70**-90	0.06	0.07	0.09	0.12	0.12	0.15	0.18	0.20	0.22	0.25
			Quenched and tempered	1100	325	11	40-**60**-80	**0.07**	**0.09**	**0.11**	**0.16**	**0.17**	**0.20**	**0.23**	**0.25**	**0.27**	**0.30**
								0.08	0.10	0.12	0.20	0.22	0.25	0.28	0.30	0.33	0.35
	Stainless steel and cast steel		Ferritic/martensitic	680	200	12	40-**55**-70	0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.16	0.18	0.20
			Martensitic	820	240	13	40-**55**-70	**0.06**	**0.07**	**0.09**	**0.12**	**0.15**	**0.17**	**0.20**	**0.21**	**0.24**	**0.27**
								0.07	0.08	0.10	0.15	0.18	0.20	0.24	0.26	0.30	0.35
M	Stainless steel and cast steel		Austenitic, duplex	600	180	14	30-**50**-70	0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.16	0.18	0.20
								0.06	**0.07**	**0.09**	**0.12**	**0.15**	**0.17**	**0.20**	**0.21**	**0.24**	**0.27**
								0.07	0.08	0.10	0.15	0.18	0.20	0.24	0.26	0.30	0.35
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15	90-**125**-160										
			Pearlitic / martensitic		260	16	80-**110**-140										
	Nodular cast iron (GGG)		Ferritic		160	17	90-**135**-180	0.04	0.10	0.12	0.15	0.20	0.25	0.30	0.35	0.35	0.40
			Pearlitic		250	18	80-**110**-140	**0.06**	**0.13**	**0.15**	**0.22**	**0.27**	**0.32**	**0.37**	**0.45**	**0.47**	**0.50**
	Malleable cast iron		Ferritic		130	19	90-**125**-160	0.08	0.15	0.18	0.30	0.35	0.40	0.45	0.55	0.60	0.60
			Pearlitic		230	20	80-**110**-140										
N	Aluminum-wrought alloys		Not hardenable		60	21	90-**155**-220										
			Hardenable		100	22											
	Aluminum-cast alloys	≤12% Si	Not hardenable		75	23											
			Hardenable		90	24					0.20	0.25	0.30	0.35	0.40	0.45	0.50
		>12% Si	High temperature		130	25	80-**120**-160				**0.27**	**0.32**	**0.37**	**0.42**	**0.50**	**0.57**	**0.67**
	Copper alloys	>1% Pb	Free cutting		110	26					0.35	0.40	0.45	0.50	0.60	0.70	0.75
			Brass		90	27	90-**155**-220										
			Electrolytic copper		100	28											
	Non metallic		Duroplastics, fiber plastics			29											
			Hard rubber			30											
S	High temperature alloys	Fe based	Annealed		200	31	30-**45**-60										
			Hardened		280	32	20-**35**-50			0.05	0.06	0.08	0.10	0.12	0.12	0.14	0.16
		Ni or Co based	Annealed		250	33				**0.06**	**0.08**	**0.10**	**0.12**	**0.15**	**0.16**	**0.18**	**0.20**
			Hardened		350	34				0.07	0.11	0.13	0.15	0.18	0.20	0.22	0.25
			Cast		320	35											
	Titanium alloys		Pure	400		36	20-**35**-50			0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.18
			Alpha+beta alloys, hardened	1050		37				**0.06**	**0.09**	**0.11**	**0.14**	**0.16**	**0.18**	**0.20**	**0.22**
										0.07	0.12	0.15	0.18	0.20	0.22	0.25	0.27
H	Hardened steel		Hardened		55 HRC	38	20-**35**-50			0.05	0.06	0.08	0.10	0.12	0.14	0.16	0.18
			Hardened		60 HRC	39				**0.06**	**0.09**	**0.11**	**0.14**	**0.16**	**0.18**	**0.20**	**0.22**
										0.07	0.12	0.15	0.18	0.20	0.22	0.25	0.27

Recommended cutting data

(1) For workpiece materials list, see pages 495-524 . As a starting value, the middle of the recommended machining range should be used.

Then, according to the wear results, conditions can be changed to optimize performance.

The data refers to IC908

- When using external coolant supply only, reduce cutting speed by 10%
- Use internal coolant supply when machining austenitic stainless steel
- When using more than 5XD drill ratio, reduce cutting parameters by 10%

Material Groups

Recommended Machining Conditions

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.(1)	V m/min	SUMOCHAM Feed vs. Drill Diameter D=4-4.9	D=5-5.9	D=6-7.9	D=8-9.9	D=10-11.9	D=12-13.9	D=14-15.9	D=16-19.9	D=20-25.9	D=26-32.9
								mm/rev									
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	80-**110**-140	0.04	0.07	0.09	0.12	0.15	0.18	0.20	0.25	0.25	0.30
		≥ 0.25 %C	Annealed	650	190	2	80-**105**-130	**0.06**	**0.09**	**0.11**	**0.17**	**0.21**	**0.24**	**0.27**	**0.35**	**0.35**	**0.40**
		< 0.55 %C	Quenched and tempered	850	250	3	80-**100**-120	0.08	0.11	0.13	0.22	0.28	0.30	0.35	0.45	0.45	0.50
		≥ 0.55 %C	Annealed	750	220	4	70-**90**-110										
			Quenched and tempered	1000	300	5	50-**70**-90										
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	80-**100**-120	0.04	0.07	0.09	0.12	0.14	0.16	0.18	0.23	0.25	0.30
			Quenched and tempered	930	275	7	70-**90**-110	**0.06**	**0.09**	**0.12**	**0.18**	**0.21**	**0.24**	**0.26**	**0.31**	**0.35**	**0.40**
				1000	300	8	50-**70**-90	0.08	0.11	0.15	0.25	0.28	0.32	0.35	0.40	0.45	0.50
				1200	350	9	40-**55**-70										
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	50-**70**-90	0.06	0.07	0.09	0.12	0.12	0.15	0.18	0.20	0.22	0.25
			Quenched and tempered	1100	325	11	40-**60**-80	**0.07**	**0.09**	**0.11**	**0.16**	**0.17**	**0.20**	**0.23**	**0.25**	**0.27**	**0.30**
								0.08	0.10	0.12	0.20	0.22	0.25	0.28	0.30	0.33	0.35
	Stainless steel and cast steel		Ferritic/ martensitic	680	200	12	40-**55**-70	0.05	0.06	0.08	0.11	0.11	0.14	0.17	0.22	0.21	0.24
								0.06	**0.07**	**0.10**	**0.15**	**0.16**	**0.19**	**0.22**	**0.24**	**0.26**	**0.29**
			Martensitic	820	240	13		0.07	0.08	0.11	0.19	0.21	0.24	0.27	0.29	0.32	0.34
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15	90-**125**-160	0.04	0.10	0.12	0.15	0.20	0.25	0.30	0.35	0.35	0.40
			Pearlitic / martensitic		260	16	80-**110**-140	**0.06**	**0.13**	**0.15**	**0.22**	**0.27**	**0.32**	**0.37**	**0.45**	**0.47**	**0.50**
	Nodular cast iron (GGG)		Ferritic		160	17	90-**135**-180	0.08	0.15	0.18	0.30	0.35	0.40	0.45	0.55	0.60	0.60
			Pearlitic		250	18	80-**110**-140										
	Malleable cast iron		Ferritic		130	19	90-**125**-160										
			Pearlitic		230	20	80-**110**-140										

Recommended cutting data

(1) For workpiece materials list, see pages 495-524 . As a starting value, the middle of the recommended machining range should be used.

Then, according to the wear results, conditions can be changed to optimize performance.

The data refers to IC908

- When using external coolant supply only, reduce cutting speed by 10%
- When using more than 5XD drill ratio, reduce cutting parameters by 10%

No need to reduce the cutting parameters while using 8XD and up holders

Recommended Machining Conditions for ICG Inserts

Material group	Material number	Cutting Speed V_c m/min	Feed mm/rev		
			D=14-15.99	D=16-19.9	D=20-25.9
P	3	80-100-120	0.15 0.22 0.27	0.18 0.24 0.3	0.2 0.27 0.35
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12	60-80-100	0.12 0.2	0.16 0.23	0.18 0.26
	13				
M	14	60-80-100	0.12 0.2 0.27	0.16 0.23 0.3	0.18 0.26 0.35
N	21	80-200-300	0.35 0.45 0.5	0.4 0.5 0.6	0.45 0.57 0.65
	22				
	23				
	24				
	25				
	26				
	27				
	28				
S	31	25-30-35	0.10 0.14 0.22	0.12 0.18 0.25	0.12 0.18 0.25
	32				
	33				
	34				
	35				
	36				
	37				
H	38	20-35-50	0.12 0.15 0.2	0.14 0.18 0.22	0.16 0.2 0.25
	39				

Recommended cutting data

Recommended Machining Conditions for ICN Inserts

		SUMOCHAM			
		Feed vs. Drill Diameter			
		D=10-11.9	D=12-13.9	D=14-15.9	D=16-19.9
Mtl. No.	V m/min	mm/rev			
21	90-155-220	0.25 0.32 0.40	0.30 0.37 0.45	0.35 0.42 0.50	0.40 0.50 0.60
22					
23					
24					
25	80-120-160				
26	90-155-220				
27					
28					

Recommended cutting data

According to the wear results, conditions can be changed to optimize performance.

Material Groups

Recommended Machining Conditions

ISO	Material		Condition	Tensile Strength Rm [N/mm²]	Hardness HB	Mtl. No.	VC m/min	Feed vs. Drill Diameter D=12-13.9 mm/rev	D=14-15.9	D=16-17.9	D=18-19.9	D=20-21.9	D=22-23.9	D=24-25.9
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	80-**100**-120	0.30 **0.39** 0.45	0.36 **0.45** 0.51	0.45 **0.51** 0.57	0.48 **0.57** 0.63	0.51 **0.60** 0.66	0.54 **0.63** 0.69	0.57 **0.66** 0.72
		≥ 0.25 %C	Annealed	650	190	2								
		< 0.55 %C	Quenched and tempered	850	250	3								
		≥ 0.55 %C	Annealed	750	220	4	70-**85**-100							
			Quenched and tempered	1000	300	5	50-**65**-80							
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	70-**90**-110	0.33 **0.39** 0.42	0.36 **0.42** 0.48	0.39 **0.48** 0.54	0.42 **0.51** 0.60	0.45 **0.54** 0.63	0.48 **0.57** 0.66	0.51 **0.60** 0.69
			Quenched and tempered	930	275	7	70-**85**-100							
				1000	300	8	50-**65**-80							
				1200	350	9	40-**50**-60							
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	50-**70**-90	0.27 **0.33** 0.36	0.30 **0.36** 0.39	0.33 **0.39** 0.42	0.36 **0.42** 0.45	0.39 **0.45** 0.48	0.42 **0.48** 0.51	0.45 **0.51** 0.54
			Quenched and tempered	1100	325	11	40-**60**-80							
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15	90-**125**-140	0.40 **0.60** 0.78	0.45 **0.66** 0.84	0.54 **0.72** 0.90	0.60 **0.78** 0.96	0.66 **0.84** 1.02	0.72 **0.90** 1.08	0.78 **0.96** 1.14
			Pearlitic / martensitic		260	16	80-**110**-120							
	Nodular cast iron (GGG)		Ferritic		160	17	90-**135**-160							
			Pearlitic		250	18	80-**110**-120							
	Malleable cast iron		Ferritic		130	19	90-**125**-140							
			Pearlitic		230	20	80-**110**-120							

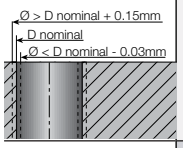
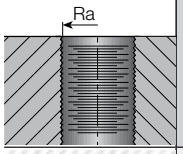
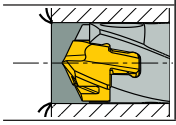
Recommended cutting data

Recommended Machining Conditions for MNC drills

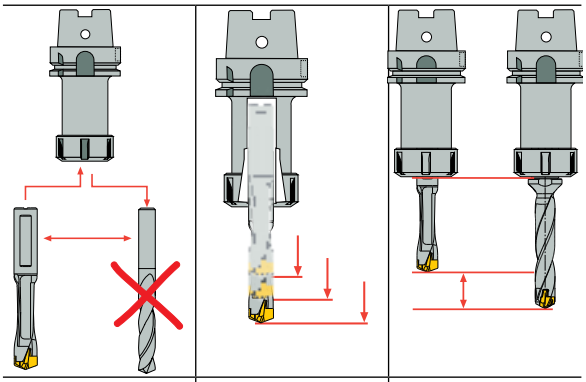
ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.(1)	Cutting Speed V_c [m/min]		Feed vs. Drill Diameter F [mm/rev]									
									26< ∅D <28		29< ∅D <32		33< ∅D <35		36< ∅D <43		44< ∅D <50	
							Vc min	Vc max	f min	f max	f min	f max	f min	f max	f min	f max	f min	f max
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	120	200	0.25	0.35	0.25	0.35	0.25	0.40	0.25	0.40	0.28	0.45
		≥ 0.25 %C	Annealed	650	190	2												
		< 0.55 %C	Quenched and tempered	850	250	3	130	190										
		≥ 0.55 %C	Annealed	750	220	4												
			Quenched and tempered	1000	300	5												
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	120	180	0.25	0.33	0.25	0.33	0.25	0.38	0.25	0.38	0.26	0.43
			Quenched and tempered	930	275	7												
				1000	300	8												
				1200	350	9												
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	100	160	0.25	0.33	0.25	0.33	0.25	0.36	0.25	0.36	0.26	0.41
			Quenched and tempered	1100	325	11												
	Stainless steel and cast steel		Ferritic/ martensitic	680	200	12	90	140	0.12	0.24	0.12	0.24	0.16	0.25	0.18	0.25	0.18	0.30
			Martensitic	820	240	13												
M	Stainless steel and cast steel		Austenitic, duplex	600	180	14	90	140	0.12	0.24	0.12	0.24	0.16	0.25	0.18	0.25	0.18	0.30
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15												
			Pearlitic / martensitic		260	16												
	Nodular cast iron (GGG)		Ferritic		160	17	150	250	0.25	0.40	0.25	0.45	0.3	0.50	0.3	0.50	0.35	0.55
			Pearlitic		250	18												
	Malleable cast iron		Ferritic		130	19												
			Pearlitic		230	20												
N	Aluminum-wrought alloys		Not hardenable		60	21												
			Hardenable		100	22	160	260	0.3	0.50	0.3	0.50	0.35	0.55	0.35	0.55	0.4	0.60
	Aluminum-cast alloys	≤12% Si	Not hardenable		75	23												
			Hardenable		90	24												
		>12% Si	High temperature		130	25												
	Copper alloys	>1% Pb	Free cutting		110	26												
			Brass		90	27												
			Electrolytic copper		100	28												
	Non metallic		Duroplastics, fiber plastics			29												
			Hard rubber			30												
S	High temperature alloys	Fe based	Annealed		200	31												
			Hardened		280	32												
		Ni or Co based	Annealed		250	33												
			Hardened		350	34												
			Cast		320	35												
	Titanium alloys		Pure	400		36												
			Alpha+beta alloys, hardened	1050		37												
H	Hardened steel		Hardened		55 HRC	38	20	50	0.1	0.16	0.12	0.18	0.14	0.2	0.14	0.2	0.16	0.22
			Hardened		60 HRC	39												
	Chilled cast iron		Cast		400	40												
	Cast iron		Hardened		55 HRC	41												

(1) For workpiece materials list, see pages 495-524 . As a starting value, the middle of the recommended machining range should be used. Then, according to the wear results, conditions can be changed to optimize performance.

Troubleshooting

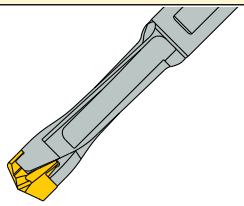
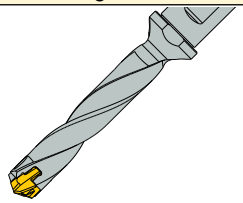
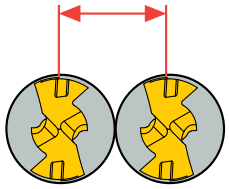
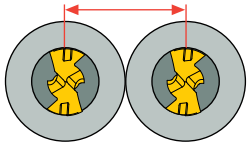
	**Cutting Edge Chipping** 1 Check the stability of the machine spindle, tool and workpiece clamping rigidity. 2 Reduce feed rate, increase speed. 3 If the drill vibrates, reduce cutting speed and increase feed rate. 4 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 30-50% when entering and exiting. 5 Check cooling lubricant and increase coolant pressure. In case of external coolant supply, improve jet direction and add cooling jets.
	**Chisel Area Chipping** 1 Reduce feed rate. 2 Increase coolant pressure. 3 Check the adaptation. Use hydraulic clamping chuck, MAXIN power chuck or side lock systems. 4 Increase workpiece chucking force.
	**Excessive Flank Wear** 1 Check that the correct geometry is used. 2 Reduce cutting speed. 3 Increase internal coolant pressure.
	**Excessive Flute Land Wear** 1 Check that the correct geometry is used. 2 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 3 Reduce cutting speed. 4 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 30-50% when entering and exiting. 5 Increase coolant pressure. 6 Check the chisel point runout and make sure it is within 0.02 mm T.I.R. 7 Increase workpiece chucking force stability and rigidity. 8 If there is low pocket gripping force - replace drill body.
	**Built-Up Edge** 1 Increase cutting speed/feed. 2 Increase coolant pressure.
	**Deviation of Hole Tolerance** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial cutting points). 2 Reduce feed rate. 3 Check the chisel point runout and make sure that it is within 0.02 mm T.I.R. 4 Wrong cutting edge. Replace head. 5 Increase workpiece chucking force. 6 Check the adaptation. Use hydraulic clamping chuck, **MAXIN** power chuck or side clamping systems. 7 Increase internal coolant pressure.
	**Surface Finish Too Rough** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Adjust the feed for improved chip formation. 3 In case of chip jamming - increase the coolant flow and/or reduce the cutting speed. 4 Increase the coolant pressure. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R. 6 Use pecking cycle. 7 Use double margin geometry.
	**Hole Not Straight:** 1 Use 2M geometry. 2 Drill a pre-hole for centering (check recommendations for pre-hole operation). 3 Increase coolant pressure, improve jet direction in case of external coolant supply. 4 Increase the feed.
	Inaccurate Hole Position 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Check the stability of the machine spindle, tool and workpiece clamping rigidity. 3 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 30%-50% when entering. 4 Drill a pre-hole with a 140° point angle for centering. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R.
	**Burrs on Exit** 1 Reduce the feed rate by 30%-50% when exiting. 2 Replace the worn head. 3 Check the adaptation. Use hydraulic clamping chuck, **MAXIN** power chuck or side clamping systems.

Applications for DCNS Drills



Replaces solid carbide drills without changing any holding components	When using SUMOUNICHAM, the drill's projection can be adjusted	Shorter projection compared to SUMOCHAM, when required

For better stability in rough applications and interrupted cuts

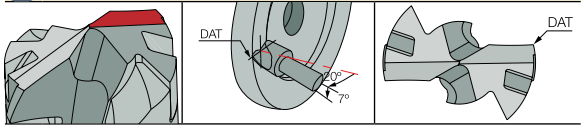
SUMOUNICHAM Moderate Helix	SUMOCHAM High Helix
	
SUMOUNICHAM	**SUMOCHAM**
	
Can be used on multi-spindle applications for close spacing between adjacent drills	

Regrinding Instructions

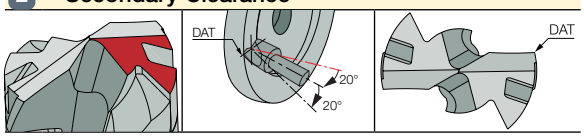
Regrinding Instructions for ICM Geometry

After each grinding operation, rotate the drill 180° and repeat the grinding procedure.

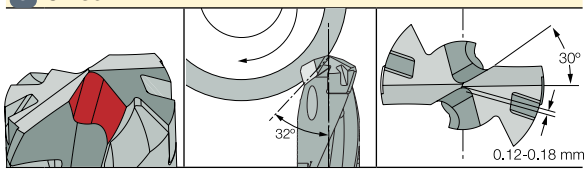
1 Primary Clearance



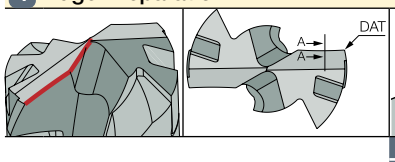
2 Secondary Clearance



3 Chisel



4 Edge Preparation

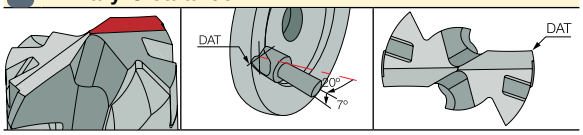


T	D Range
0.05	8-11.99
0.07	12-15.99
0.08	16-19.99
0.1	20-25.99
0.12	26-32.99

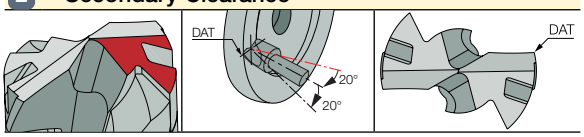
Regrinding Instructions for ICK Geometry

After each grinding operation, rotate the drill 180° and repeat the grinding procedure.

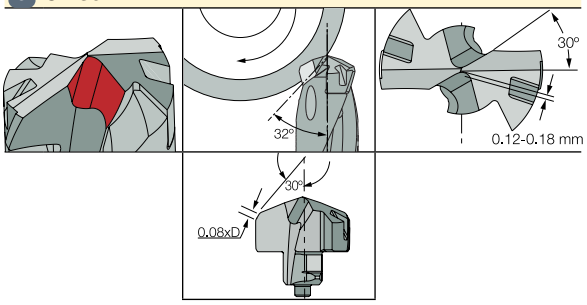
1 Primary Clearance



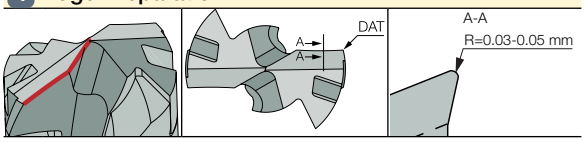
2 Secondary Clearance



3 Chisel



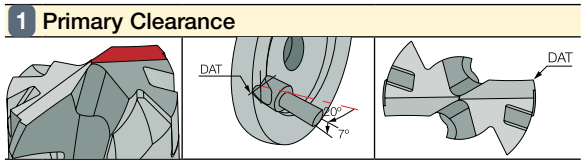
4 Edge Preparation



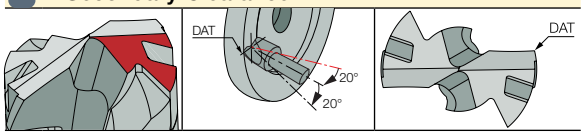
Regrinding Instructions for ICP Geometry

After each grinding operation, rotate the drill 180° and repeat the grinding procedure.

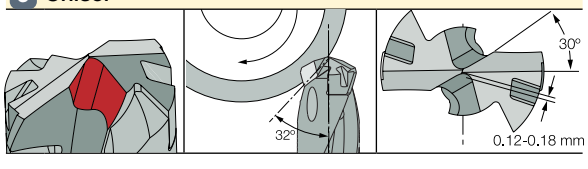
1 Primary Clearance



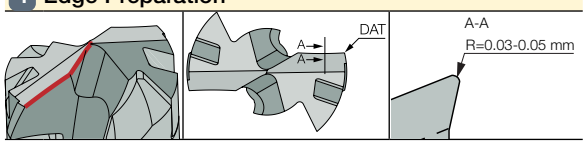
2 Secondary Clearance



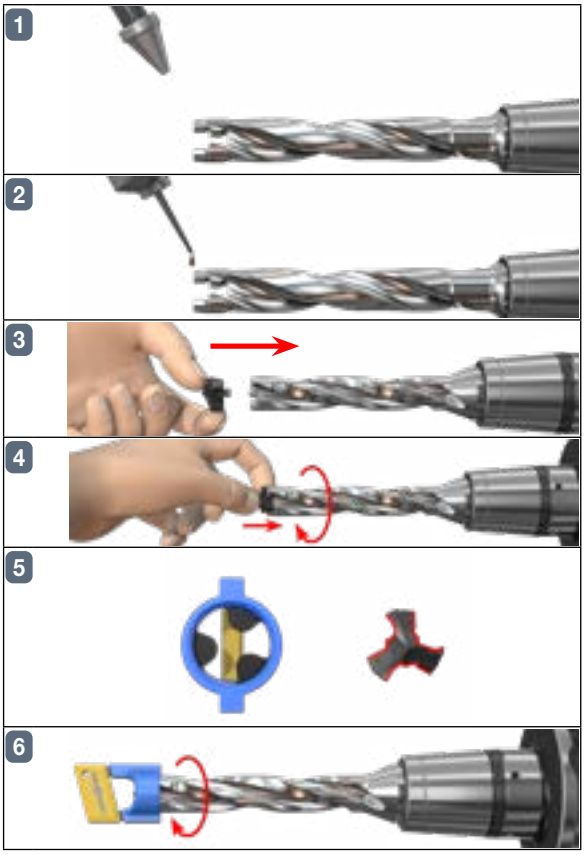
3 Chisel



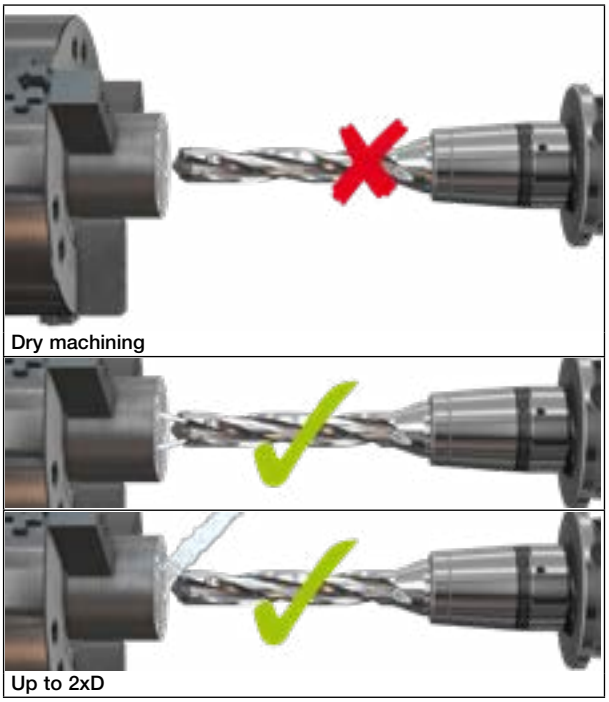
4 Edge Preparation



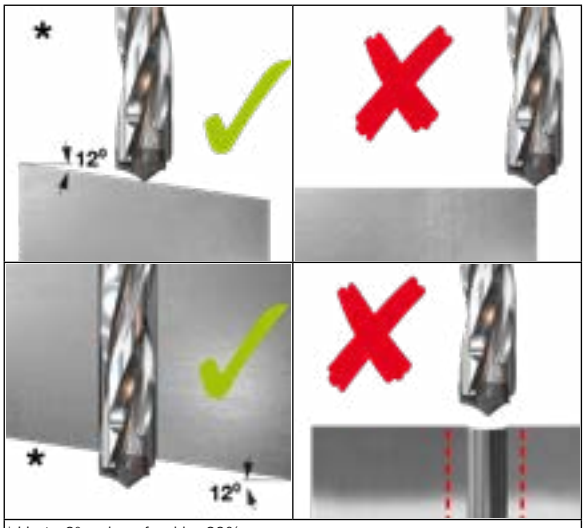
Drilling Head Mounting Procedure



Coolant Recommendations

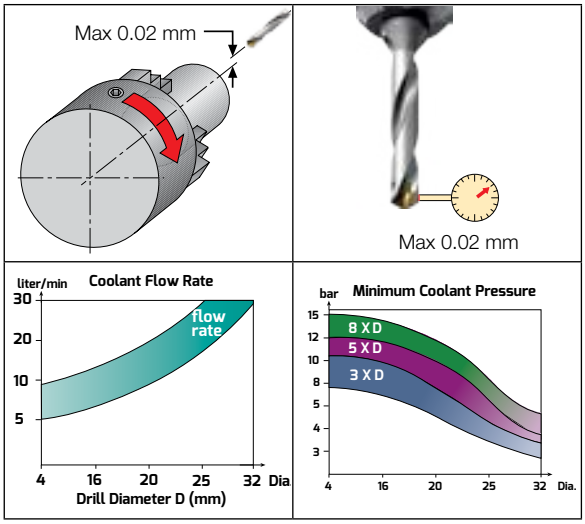


Drilling Limitations

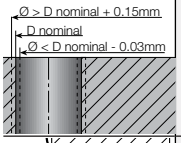
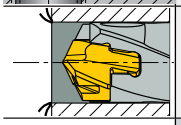
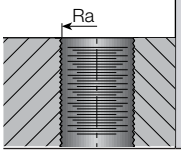


* Up to 6° reduce feed by 20%
* 6°-12° reduce feed by 50%

Maximum Runout, Misalignment



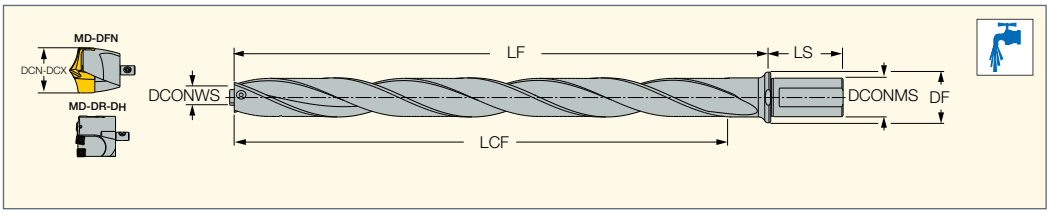
Troubleshooting

	**Cutting Edge Chipping** 1 Check the stability of the machine spindle, tool and workpiece clamping rigidity. 2 Reduce feed rate, increase speed. 3 If the drill vibrates, reduce cutting speed and increase feed rate. 4 When drilling rough, hard or angled (up to 12° angular surface), reduce the feed rate by 30-50%. 5 Check cooling lubricant. Increase coolant pressure. In case of external coolant supply, improve jet direction and add cooling jets.
	**Chisel Area Chipping** 1 Reduce feed rate. 2 Increase coolant pressure. 3 Increase workpiece chucking force.
	**Excessive Flank Wear** 4 Reduce cutting speed. 5 Increase internal coolant pressure.
	**Excessive Land Wear** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Reduce cutting speed. 3 When drilling rough, hard or angled (up to 12° angular surface), reduce the feed rate by 30-50%. 4 Increase coolant pressure. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R. 6 Increase workpiece chucking force stability and rigidity.
	**Built-Up Edge** 1 Increase cutting speed/feed. 2 Increase
	Inaccurate Hole Position 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Check the stability of the machine spindle, tool and workpiece clamping rigidity. 3 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 30%-50% when entering. 4 Drill a pre-hole with a 140° point angle for centering. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R.
	**Deviation of Hole Tolerance** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial cutting points). 2 Reduce feed rate. 3 Check the chisel point runout and make sure that it is within 0.02 mm T.I.R. 4 Wrong cutting edge. Replace head. 5 Increase workpiece chucking force. 6 Increase internal coolant pressure.
	**Burrs on Exit** 1 Reduce the feed rate by 50%-70% during exit. 2 Replace the worn head.
	**Surface Finish Too Rough** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Adjust the feed for improved chip formation. 3 In case of chip jamming - increase the coolant flow and/or reduce the cutting speed. 4 Increase the coolant pressure. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R. 6 Use pecking cycle. 7 Replace the drilling head.

MODUDRILL
MODULAR HEADS

MD-BODY

Modular Drill Bodies, Each Can Carry a Variety of Exchangeable Drilling Heads with Different Diameters



Designation	DCONMS	DF	LS	LF	LCF	DCN(1)	DCX(2)	DCONWS(3)			
MD-BODY-33-36-400-32A	32.00	42.00	60.0	445.00	393.3	33.00	36.90	6.70	SET SCREW M6-MODUDRILL	BLD T15/S7	SW6-T-SH
MD-BODY-37-40-400-32A	32.00	42.00	60.0	445.00	393.3	37.00	40.00	6.90	SET SCREW M6-MODUDRILL	BLD T15/S7	SW6-T-SH

(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) HEAD connection size

For tools, see pages: MD-DFN-HEAD (82) • MD-DR-DH-HEAD (83)

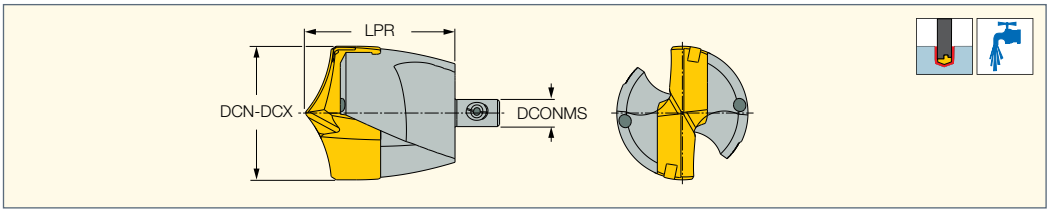
MODULAR DFN Assembly Options

Holder	Head	Pocket Range	CSI
DFN 33-36-A32-8.5-HOLDER	DFN 330 HEAD-09-33	33.00-33.50	8.5
	DFN 340 HEAD-09-33	34.00-34.50	8.5
	DFN 350 HEAD-09-33	35.00-35.50	8.5
	DFN 360 HEAD-09-33	36.00-36.50	8.5
DFN 37-40-A32-9.5-HOLDER	DFN 370 HEAD-10-33	37.00-37.50	9
	DFN 380 HEAD-10-33	38.00-38.50	9
	DFN 390 HEAD-10-33	39.00-40.00	9

MODUDRILL
MODULAR HEADS

MD-DFN-HEAD

Exchangeable Drilling Heads Carrying CHAMIQDRILL Solid Carbide Inserts



Designation	DCN(1)	DCX(2)	LPR	DCONMS	PL	SSC(3)	MIID(4)	
MD-DFN 330 HEAD	33.00	33.90	36.90	6.70	7.330	33.0	HFP 330-IQ	K DFN 30-40
MD-DFN 340 HEAD	34.00	34.90	37.20	6.70	7.620	34.0	HFP 340-IQ	K DFN 30-40
MD-DFN 350 HEAD	35.00	35.90	37.20	6.70	7.650	35.0	HFP 350-IQ	K DFN 30-40
MD-DFN 360 HEAD	36.00	36.90	37.60	6.70	8.150	36.0	HFP 360-IQ	K DFN 30-40
MD-DFN 370 HEAD	37.00	37.90	37.60	6.90	8.040	37.0	HFP 370-IQ	K DFN 30-40
MD-DFN 380 HEAD	38.00	38.90	38.00	6.90	8.200	38.0	HFP 380-IQ	K DFN 30-40
MD-DFN 390 HEAD	39.00	40.00	38.00	6.90	8.430	39.0	HFP 390-IQ	K DFN 30-40

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 84-85

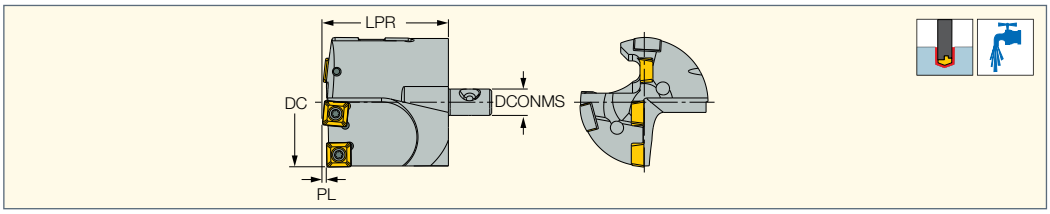
(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) Seat size code
(4) Master insert identification

For inserts, see pages: HFP-IQ (87)
For holders, see pages: MD-BODY (82) • MD-EXTENSION (83)

MODUDRILL
MODULAR HEADS

MD-DR-DH-HEAD

Exchangeable Drilling Heads with Guide Pads Carrying Square Inserts



Designation	DC	LPR	DCONMS	MIID[1]	MIID_2[2]	PL
MD-DR-DH 330 070606-06	33.00	33.00	6.70	SOMX 06	SOMX 07 [3]	1.000
MD-DR-DH 333 070606-06	33.30	33.00	6.70	SOMX 06	SOMX 07 [3]	1.000
MD-DR-DH 340 070606-06	34.00	33.00	6.70	SOMX 06	SOMX 07 [3]	1.000
MD-DR-DH 349 070606-06	34.90	33.00	6.70	SOMX 06	SOMX 07 [3]	1.000
MD-DR-DH 350 070606-06	35.00	33.00	6.70	SOMX 06	SOMX 07 [3]	1.000
MD-DR-DH 360 070707-06	36.00	33.00	6.70	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 365 070707-06	36.50	33.00	6.70	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 370 070707-06	37.00	39.00	6.90	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 380 070707-06	38.00	39.00	6.90	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 381 070707-06	38.10	39.00	6.90	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 390 070707-06	39.00	39.00	6.90	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 397 070707-06	39.70	39.00	6.90	SOMX 07	SOMX 07 [3]	1.000
MD-DR-DH 400 070707-06	40.00	40.00	6.90	SOMX 07	SOMX 07 [3]	1.000

- For user guide and cutting conditions, see pages 84-85

[1] Master insert identification
[2] Master insert identification 2
[3] Central insert

For inserts, see pages: SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)
For holders, see pages: MD-BODY (82) • MD-EXTENSION (83)

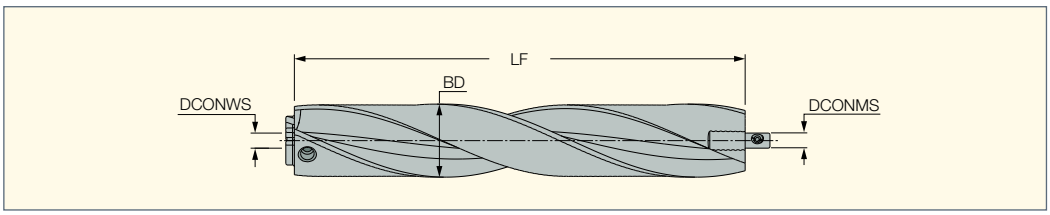
Spare Parts

Designation					
MD-DR-DH-HEAD	SR 14-560-HG	T-8/53	SR 22052/HG-P	IP-7/51	GPS-06-20-120

MODUDRILL
MODULAR HEADS

MD-EXTENSION

Modular Extension Holder to Prolong The Overall Length by 200 mm



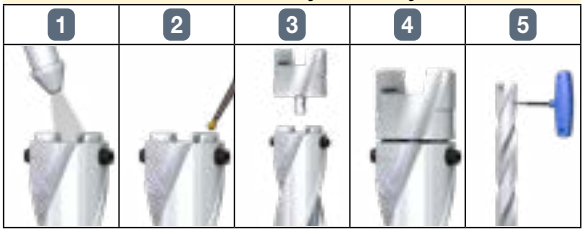
Designation	BDRED	LF	DCONWS	DCONMS
MD-EXTENSION-33-36-200	32.40	200.00	6.70	6.70
MD-EXTENSION-37-40-200	36.40	200.00	6.90	6.90

For tools, see pages: MD-DFN-HEAD (82) • MD-DR-DH-HEAD (83)

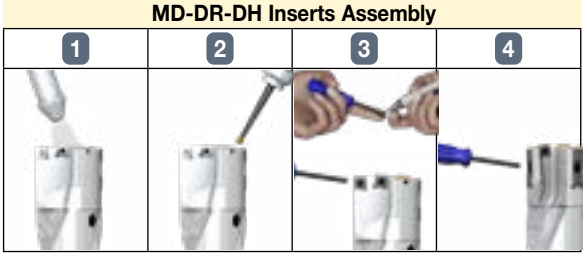
Spare Parts

Designation				
MD-EXTENSION	SET SCREW M6-MODUDRILL	SR M5X4 DIN913	BLD T15/S7	SW6-T-SH

Head and Body Assembly



MD-DR-DH Inserts Assembly

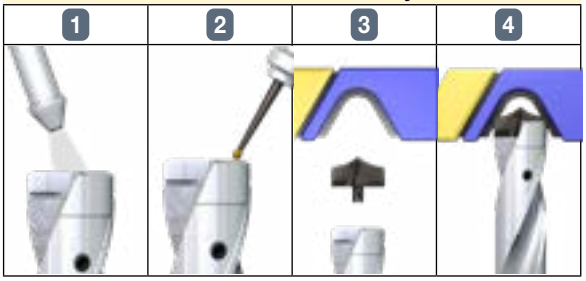


Important:

For MD-DR-DH Head

- A short pre-hole 1XD deep (minimum) with H8 hole tolerance should be prepared to guide the long drill (an endmill can be used)
- Use HD chip breaker for internal insert

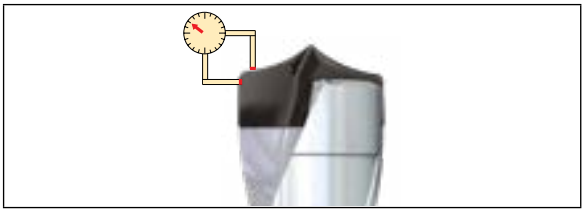
MD-DFN Head Assembly



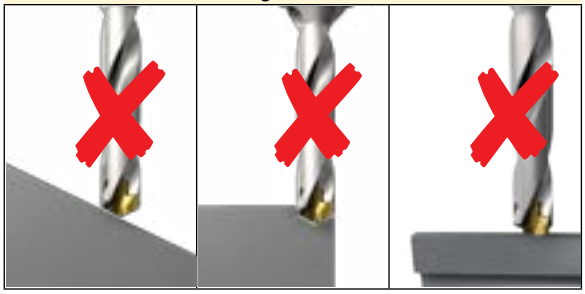
For MD-DFN Head

Max allowed Δ = 0.04 mm

Axial runout & Radial runout



Drilling Limitations



Flow Rate vs. Pressure & Drill Diameter

Drill Diameter (mm)	Pressure (bar)	Flow Rate (liter/min)
33	20	60
34	20	60
35	20	60
36	20	60
37	20	60
38	20	70
39	20	70
40	20	70

- Internal coolant supply only

MD-DR-DH Cutting Parameters

ISO	Material		Condition	Tensile Strength Rm [N/mm²]	Hardness HB	Material No.	V_c [m/min]	Feed Vs. Drill Diameter 33<∅D<40 (mm) f [mm/rev]
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	100-150	0.10-0.25
		≥ 0.25 %C	Annealed	650	190	2		
		< 0.55 %C	Quenched and tempered	850	250	3	80-150	0.15-0.30
		≥ 0.55 %C	Annealed	750	220	4		
			Quenched and tempered	1000	300	5		
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6		
			Quenched and tempered	930	275	7	70-120	0.15-0.30
				1000	300	8		
				1200	350	9		
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	80-150	0.10-0.25
			Quenched and tempered	1100	325	11	70-120	0.10-0.25
K	Grey cast iron (GG)		Ferritic / pearlitic		180	15	180-300	0.18-0.35
			Pearlitic / martensitic		260	16		
	Nodular cast iron (GGG)		Ferritic		160	17	150-250	0.15-0.30
			Pearlitic		250	18		
	Malleable cast iron		Ferritic		130	19		0.15-0.35
			Pearlitic		230	20		

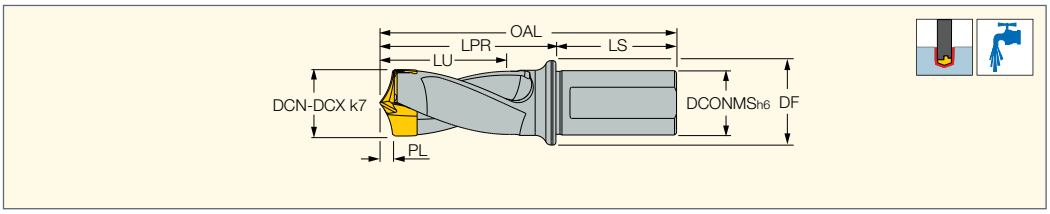
MD-DFN Cutting Parameters

ISO	Material		Condition	Tensile Strength Rm [N/mm²]	Hardness HB	Material No.	V_c [m/min]	Feed Vs. Drill Diameter 33<∅D<40 (mm) f [mm/rev]
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	80-110-140	0.30 0.40 0.50
		≥ 0.25 %C	Annealed	650	190	2	90-105-130	
		< 0.55 %C	Quenched and tempered	850	250	3	80-100-120	
		≥ 0.55 %C	Annealed	750	220	4	70-90-110	
			Quenched and tempered	1000	300	5	50-70-90	
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	80-100-120	0.30 0.40 0.50
			Quenched and tempered	930	275	7	70-90-110	
				1000	300	8	50-70-90	
				1200	350	9	40-55-70	
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	50-70-90	0.25 0.30 0.35
			Quenched and tempered	1100	325	11	40-60-80	
K	Grey cast iron (GG)		Ferritic / pearlitic		180	15	90-125-160	0.40 0.50 0.60
			Pearlitic / martensitic		260	16	80-110-140	
	Nodular cast iron (GGG)		Ferritic		160	17	90-135-180	
			Pearlitic		250	18	80-110-140	
	Malleable cast iron		Ferritic		130	19	90-125-160	
			Pearlitic		230	20	80-110-140	

CHAMIQDRILL 700 LINE

DFN A-1.5D-IQ

Exchangeable Head Drills with Flat Shank and Internal Coolant Holes. Drilling Depth: 1.5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DFN 330-050-32A-1.5D-IQ	33.00	33.90	32.00	42.00	50.0	87.5	7.330	60.0	147.50	33.0	K DFN 30-40
DFN 340-051-32A-1.5D-IQ	34.00	34.90	32.00	42.00	51.0	90.2	7.620	60.0	150.20	34.0	K DFN 30-40
DFN 350-053-32A-1.5D-IQ	35.00	35.90	32.00	42.00	53.0	92.8	7.650	60.0	152.80	35.0	K DFN 30-40
DFN 360-054-32A-1.5D-IQ	36.00	36.90	32.00	42.00	54.0	95.5	8.150	60.0	155.50	36.0	K DFN 30-40
DFN 370-056-32A-1.5D-IQ	37.00	37.90	32.00	42.00	56.0	98.1	8.040	60.0	158.10	37.0	K DFN 30-40
DFN 380-057-32A-1.5D-IQ	38.00	38.90	32.00	42.00	57.0	100.8	8.200	60.0	160.80	38.0	K DFN 30-40
DFN 390-059-32A-1.5D-IQ	39.00	40.00	32.00	42.00	59.0	103.4	8.430	60.0	163.40	39.0	K DFN 30-40

- Do not mount smaller drilling heads other than the specified range of the drill body
- For user guide and cutting conditions, see pages 89-91

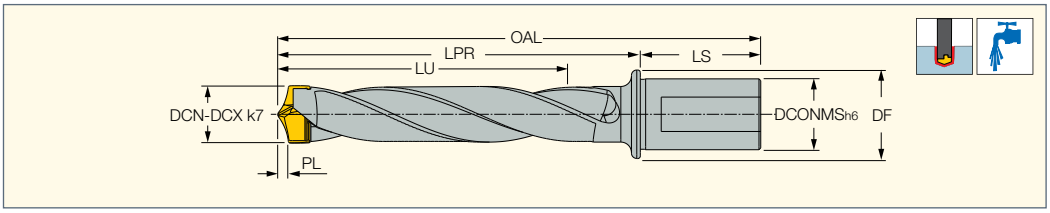
(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) Seat size code

For inserts, see pages: HFP-IQ (87)

CHAMIQDRILL 700 LINE

DFN A-3D-IQ

Exchangeable Head Drills with Flat Shank and Internal Coolant Holes. Drilling Depth: 3xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DFN 330-099-32A-3D-IQ	33.00	33.90	32.00	42.00	99.0	137.0	7.330	60.0	197.00	33.0	K DFN 30-40
DFN 340-102-32A-3D-IQ	34.00	34.90	32.00	42.00	102.0	141.2	7.620	60.0	201.20	34.0	K DFN 30-40
DFN 350-105-32A-3D-IQ	35.00	35.90	32.00	42.00	105.0	145.3	7.650	60.0	205.30	35.0	K DFN 30-40
DFN 360-108-32A-3D-IQ	36.00	36.90	32.00	42.00	108.0	149.5	8.150	60.0	209.50	36.0	K DFN 30-40
DFN 370-111-32A-3D-IQ	37.00	37.90	32.00	42.00	111.0	153.6	8.040	60.0	213.60	37.0	K DFN 30-40
DFN 380-114-32A-3D-IQ	38.00	38.90	32.00	42.00	114.0	157.8	8.200	60.0	217.80	38.0	K DFN 30-40
DFN 390-117-32A-3D-IQ	39.00	40.00	32.00	42.00	117.0	161.9	8.430	60.0	221.90	39.0	K DFN 30-40

- Do not mount smaller drilling heads other than the specified range of the drill body
- For user guide and cutting conditions, see pages 89-91

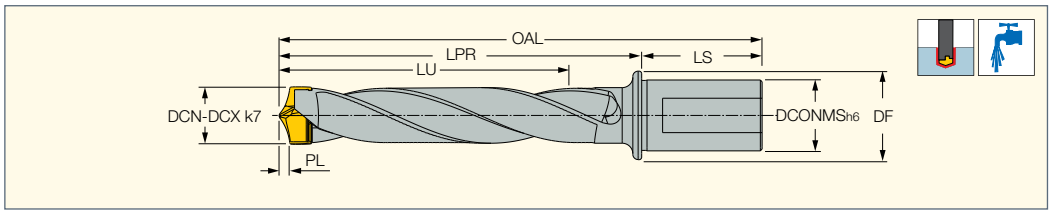
(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) Seat size code

For inserts, see pages: HFP-IQ (87)

CHAMIQDRILL 700 LINE

DFN A-5D-IQ

Exchangeable Head Drills with Flat Shank and Internal Coolant Holes. Drilling Depth: 5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DFN 330-165-32A-5D-IQ	33.00	33.90	32.00	42.00	165.0	203.0	7.330	60.0	263.00	33.0	K DFN 30-40
DFN 340-170-32A-5D-IQ	34.00	34.90	32.00	42.00	170.0	209.2	7.620	60.0	269.20	34.0	K DFN 30-40
DFN 350-175-32A-5D-IQ	35.00	35.90	32.00	42.00	175.0	215.3	7.650	60.0	275.30	35.0	K DFN 30-40
DFN 360-180-32A-5D-IQ	36.00	36.90	32.00	42.00	180.0	221.5	8.150	60.0	281.50	36.0	K DFN 30-40
DFN 370-185-32A-5D-IQ	37.00	37.90	32.00	42.00	185.0	227.6	8.040	60.0	287.60	37.0	K DFN 30-40
DFN 380-190-32A-5D-IQ	38.00	38.90	32.00	42.00	190.0	233.8	8.200	60.0	293.80	38.0	K DFN 30-40
DFN 390-195-32A-5D-IQ	39.00	40.00	32.00	42.00	195.0	239.9	8.430	60.0	299.90	39.0	K DFN 30-40

- Do not mount smaller drilling heads other than the specified range of the drill body
- For user guide and cutting conditions, see pages 89-91

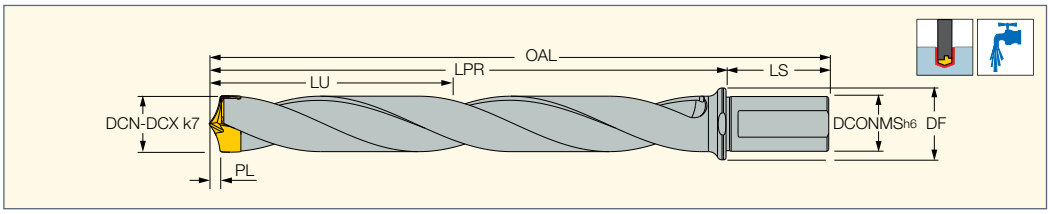
(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) Seat size code

For inserts, see pages: HFP-IQ (87)

CHAMIQDRILL 700 LINE

DFN A-8D-IQ

Exchangeable Head Drills with Flat Shank and Internal Coolant Holes. Drilling Depth: 8xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DFN 330-264-32A-8D-IQ	33.00	33.90	32.00	42.00	264.0	302.0	7.330	60.0	362.00	33.0	K DFN 30-40
DFN 340-272-32A-8D-IQ	34.00	34.90	32.00	42.00	272.0	311.2	7.620	60.0	371.20	34.0	K DFN 30-40
DFN 350-280-32A-8D-IQ	35.00	35.90	32.00	42.00	280.0	320.3	7.650	60.0	380.30	35.0	K DFN 30-40
DFN 360-288-32A-8D-IQ	36.00	36.90	32.00	42.00	288.0	329.5	8.150	60.0	389.50	36.0	K DFN 30-40
DFN 370-296-32A-8D-IQ	37.00	37.90	32.00	42.00	296.0	338.6	8.040	60.0	398.60	37.0	K DFN 30-40
DFN 380-304-32A-8D-IQ	38.00	38.90	32.00	42.00	304.0	347.8	8.200	60.0	407.80	38.0	K DFN 30-40
DFN 390-312-32A-8D-IQ	39.00	40.00	32.00	42.00	312.0	356.9	8.430	60.0	416.90	39.0	K DFN 30-40

• Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see pages 89-91

(1) Cutting diameter minimum

(2) Cutting diameter maximum

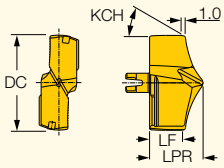
(3) Seat size code

For inserts, see pages: HFP-IQ (87)

CHAMIQDRILL 700 LINE

HFP-IQ

Exchangeable DFN Drill Heads for Carbon and Alloy Steel (ISO P) and Cast Iron (ISO K)



Designation	Dimensions					IC908
	DC	LPR	LF	SSC(1)	KCH	
HFP 330-IQ	33.00	18.50	11.2	33.0	30.0	•
HFP 331-IQ	33.10	18.50	11.2	33.0	30.0	•
HFP 332-IQ	33.20	18.50	11.2	33.0	30.0	•
HFP 333-IQ	33.30	18.50	11.2	33.0	30.0	•
HFP 334-IQ	33.40	18.50	11.2	33.0	30.0	•
HFP 335-IQ	33.50	18.50	11.2	33.0	30.0	•
HFP 339-IQ	33.90	18.50	11.2	33.0	30.0	•
HFP 340-IQ	34.00	19.70	12.1	34.0	30.0	•
HFP 343-IQ	34.30	19.70	12.1	34.0	30.0	•
HFP 345-IQ	34.50	19.70	12.1	34.0	30.0	•
HFP 349-IQ	34.90	19.70	12.1	34.0	30.0	•
HFP 350-IQ	35.00	19.70	12.1	35.0	30.0	•
HFP 355-IQ	35.50	19.70	12.1	35.0	30.0	•
HFP 360-IQ	36.00	20.80	12.7	36.0	30.0	•
HFP 362-IQ	36.20	20.80	12.7	36.0	30.0	•
HFP 364-IQ	36.40	20.80	12.7	36.0	30.0	•
HFP 365-IQ	36.50	20.80	12.7	36.0	30.0	•
HFP 370-IQ	37.00	20.80	12.8	37.0	30.0	•
HFP 375-IQ	37.50	20.80	12.8	37.0	30.0	•
HFP 380-IQ	38.00	22.00	13.8	38.0	30.0	•
HFP 381-IQ	38.10	22.00	13.8	38.0	30.0	•
HFP 385-IQ	38.50	22.00	13.8	38.0	30.0	•
HFP 390-IQ	39.00	22.00	13.6	39.0	30.0	•
HFP 392-IQ	39.20	22.00	13.6	39.0	30.0	•
HFP 395-IQ	39.50	22.00	13.6	39.0	30.0	•
HFP 397-IQ	39.70	22.00	13.6	39.0	30.0	•
HFP 400-IQ	40.00	23.00	14.4	39.0	30.0	•

• Advance self centering, and high surface finish • Intermediate sizes can be supplied on request • For user guide and cutting conditions, see pages 89-91

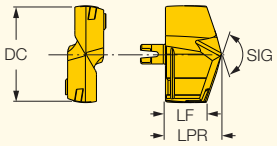
(1) Seat size code

For tools, see pages: DFN A-1.5D-IQ (86) • DFN A-3D-IQ (86) • DFN A-5D-IQ (86) • DFN A-8D-IQ (87) • MD-DFN-HEAD (82)

CHAMIQDRILL 700 LINE

IFP-IQ

Exchangeable DFN Drill Heads for Machining ISO P, ISO M and High Temp. Alloys (ISO S) Materials



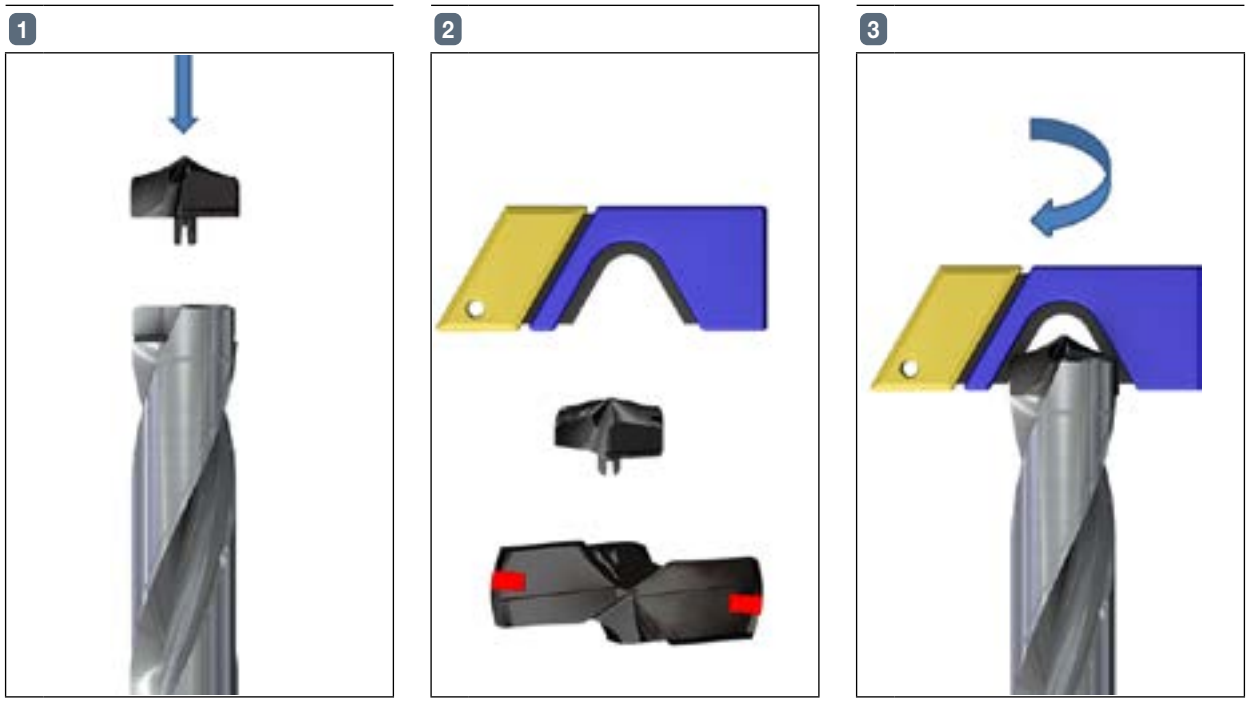
Designation	Dimensions DC	LPR	LF	SSC(1)	SIG	IC908
IFP 330-IQ	33.00	18.50	13.48	33	140	●
IFP 332-IQ	33.20	18.50	13.45	33	140	●
IFP 335-IQ	33.50	18.50	13.41	33	140	●
IFP 340-IQ	34.00	19.70	14.53	34	140	●
IFP 345-IQ	34.50	19.70	14.46	34	140	●
IFP 350-IQ	35.00	19.70	14.38	35	140	●
IFP 355-IQ	35.50	19.70	14.30	35	140	●
IFP 360-IQ	36.00	20.80	15.33	36	140	●
IFP 362-IQ	36.20	20.80	15.30	36	140	●
IFP 370-IQ	37.00	20.80	15.18	37	140	●
IFP 375-IQ	37.50	20.80	15.10	37	140	●
IFP 380-IQ	38.00	22.00	16.22	38	140	●
IFP 385-IQ	38.50	22.00	16.15	38	140	●
IFP 390-IQ	39.00	22.00	16.07	39	140	●
IFP 392-IQ	39.20	22.00	16.04	39	140	●
IFP 395-IQ	39.50	22.00	16.00	39	140	●
IFP 400-IQ	40.00	22.00	15.92	40	140	●

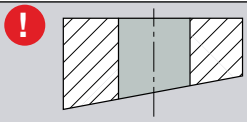
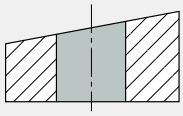
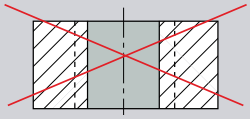
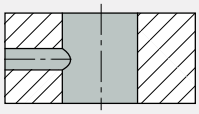
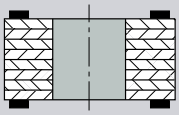
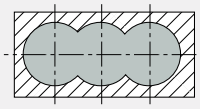
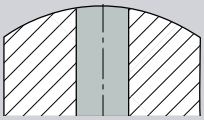
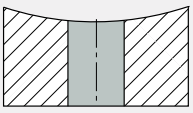
• Intermediate sizes can be supplied on request • For user guide and cutting conditions, see pages 89-91

(1) Seat size code

For tools, see pages: DFN A-1.5D-IQ (86) • DFN A-3D-IQ (86) • DFN A-5D-IQ (86) • DFN A-8D-IQ (87) • MD-DFN-HEAD (82)

Insert Clamping Instructions



1		**Exiting inclined surface** Up to 7°, reduce feed by 50-70% during exiting
2		**Entering inclined surface** Up to 7°
3		**Boring** Not possible
4		**Cross hole** Maximum cross hole diameter must be ¼ of drill diameter
5		**Stacked plates** Requires a rigid clamping
6		**Chamber** Reduce feed by 50-70%, maximum depth 3XD
7		**Convex** The radius of the penetration surface must be 4X the CHAMIQDRILL head ØD. Short pre-hole is needed
8		**Concave** Spot facing operation is needed before drilling

Cutting Condition Recommendations

Mtl. No.	V m/min	CHAMIQDRILL Feed vs. Drill Diameter D=33.0-40.0 mm/rev
1	80-**110**-140	0.30 **0.40** 0.50
2	80-**105**-130	
3	80-**100**-120	
4	70-**90**-110	
5	50-**70**-90	
6	80-**100**-120	0.30 **0.40** 0.50
7	70-**90**-110	
8	50-**70**-90	
9	40-**55**-70	
10	50-**70**-90	0.25 **0.30** 0.35
11	40-**60**-80	
15	90-**125**-160	0.40 **0.50** 0.60
16	80-**110**-140	
17	90-**135**-180	
18	80-**110**-140	
19	90-**125**-160	
20	80-**110**-140	

Recommended cutiing data

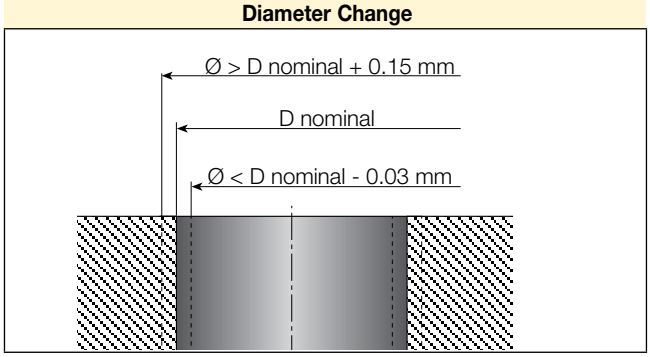
Flow Rate vs. Pressure and Drill Diameter

Drill Diameter (mm)	Pressure (bar)	Flow Rate (liter/min)
33	20	60
34	20	60
35	20	60
36	20	60
37	20	60
38	20	70
39	20	70
40	20	70

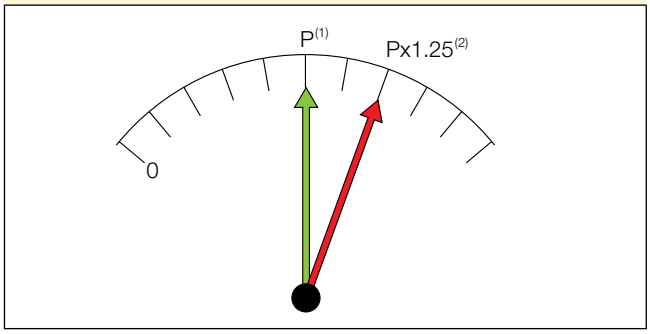
Indication of Drill Head Wear

Wear Limit

Diameter Change

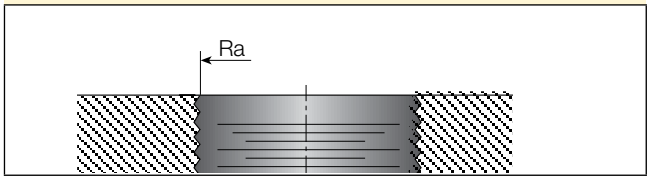


Power Restriction



(1) New drilling head
(2) Worn-out drilling head

Surface Finish Declines



Achievable Hole Tolerances

5xD Drills
Alloy and Carbon Steel and Cast Iron

Hole Geometrical Feature	What Should You Expect
Ø Diameter tolerance	+0.06 mm
Circularity ◯	0.035
Hole axis straightness (/100mm)	0.03-0.10
Surface finish ✓	0.6-3.2Ra

400 mm Modular Drills Alloy and Carbon Steel and Cast Iron

Hole Geometrical Feature	What Should You Expect
Ø Diameter tolerance	+0.06 mm
Circularity ◯	0.035
Hole axis straightness (/100mm)	0.03-0.15
Surface finish ✓	0.6-3.2Ra

Troubleshooting

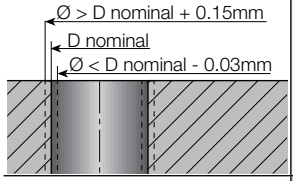
Cutting Edge Chipping
1 Check the stability of the machine spindle, tool and workpiece clamping rigidity.
2 Reduce feed rate, increase speed.
3 If the drill vibrates, reduce cutting speed and increase feed rate.
4 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 50-70% when entering and exiting.
5 Check cooling lubricant and increase coolant pressure. In case of external coolant supply, improve jet direction and add cooling jets.

Chisel Area Chipping
1 Reduce feed rate.
2 Increase coolant pressure.
3 Increase workpiece chucking force.

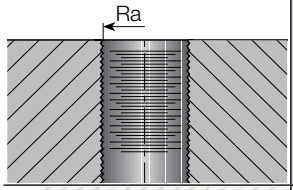
Excessive Flank Wear
1 Reduce cutting speed.
2 Increase internal coolant pressure.

Excessive Land Wear
1 Check the runout and make sure it is within 0.03 mm T.I.R. (radial and axial).
2 Reduce cutting speed.
3 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 50%-70% when entering and exiting.
4 Increase coolant pressure.
5 Check the chisel point runout and make sure it is within 0.03 mm T.I.R.
6 Increase workpiece chucking force stability and rigidity.

Built-Up Edge
1 Increase cutting speed/feed.
2 Increase coolant pressure.



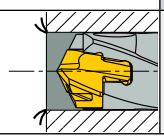
Deviation of Hole Tolerance
1 Check the runout and make sure it is within 0.03 mm T.I.R. (radial and axial cutting points).
2 Reduce feed rate.
3 Check the chisel point runout and make sure it is within 0.03 mm T.I.R.
4 Worn cutting edge. Replace head.
5 Increase workpiece chucking force.
6 Increase internal coolant pressure.



Surface Finish Too Rough
1 Check the runout and make sure it is within 0.03 mm T.I.R. (radial and axial).
2 Adjust the feed for improved chip formation.
3 In case of chip jamming - increase the coolant flow and/or reduce the cutting speed.
4 Increase the coolant pressure.
5 Check the chisel point runout and make sure it is within 0.03 mm T.I.R.
6 Use pecking cycle.
7 Replace the drilling head

Hole Not Straight
1 Drill a pre-hole for centering (check recommendations for pre-hole operation).
2 Increase coolant pressure, improve jet direction in case of external coolant supply.
3 Increase the feed.

Inaccurate Hole Position
1 Check the runout and make sure it is within 0.03 mm T.I.R. (radial and axial).
2 Check the stability of the machine spindle, tool and workpiece clamping rigidity.
3 When drilling rough, hard or sloped surfaces (up to 7°), reduce the feed rate by 50%-70% when entering.
4 Drill a pre-hole with a 140° point angle for centering.
5 Check the chisel point runout and make sure it is within 0.03 mm T.I.R.

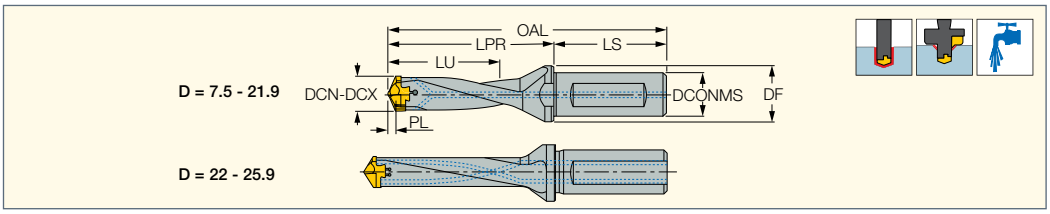


Burrs on Exit
1 Reduce the feed rate by 50%-70% when exiting.
2 Replace the worn head.

CHAMDRILL

DCM-3D (7.5-25.9 mm)

Exchangeable Head Drills with One Flat Shank, Drilling Depth 3xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DCM 075-022-12A-3D	7.50	7.90	12.00	16.00	22.0	33.1	1.360	45.0	78.10	8.0	K DCM- 8
DCM 080-024-12A-3D	8.00	8.40	12.00	16.00	24.0	35.0	1.460	45.0	80.00	8.0	K DCM- 8
DCM 085-025-12A-3D	8.50	8.90	12.00	16.00	25.0	37.0	1.550	45.0	82.00	8.0	K DCM- 8
DCM 090-027-12A-3D	9.00	9.40	12.00	16.00	27.0	39.1	1.640	45.0	84.10	9.0	K DCM- 9
DCM 095-028-12A-3D	9.50	9.90	12.00	16.00	28.0	41.1	1.730	45.0	86.10	9.0	K DCM- 9
DCM 100-030-16A-3D	10.00	10.40	16.00	20.00	30.0	44.0	1.820	48.0	92.00	10.0	K DCM-10
DCM 105-031-16A-3D	10.50	10.90	16.00	20.00	31.0	46.0	1.910	48.0	94.00	10.0	K DCM-10
DCM 110-033-16A-3D	11.00	11.40	16.00	20.00	33.0	48.1	2.000	48.0	96.10	11.0	K DCM-11
DCM 115-034-16A-3D	11.50	11.90	16.00	20.00	34.0	50.0	2.090	48.0	98.00	11.0	K DCM-11
DCM 120-036-16A-3D	12.00	12.40	16.00	20.00	36.0	52.2	2.180	48.0	100.20	12.0	K DCM-12
DCM 125-037-16A-3D	12.50	12.90	16.00	20.00	37.0	53.8	2.270	48.0	101.80	12.0	K DCM-12
DCM 130-039-16A-3D	13.00	13.40	16.00	20.00	39.0	56.5	2.370	48.0	104.50	13.0	K DCM-13
DCM 135-040-16A-3D	13.50	13.90	16.00	20.00	40.0	58.5	2.460	48.0	106.50	13.0	K DCM-13
DCM 140-042-16A-3D	14.00	14.40	16.00	20.00	42.0	61.2	2.550	48.0	109.20	14.0	K DCM-14
DCM 145-043-16A-3D	14.50	14.90	16.00	20.00	43.0	64.8	2.640	48.0	112.80	14.0	K DCM-14
DCM 150-045-20A-3D	15.00	15.90	20.00	25.00	45.0	65.7	2.730	50.0	115.70	15.0	K DCM-15
DCM 160-048-20A-3D	16.00	16.90	20.00	25.00	48.0	70.0	2.910	50.0	120.00	16.0	K DCM-16
DCM 170-051-20A-3D	17.00	17.90	20.00	25.00	51.0	73.5	3.090	50.0	123.50	17.0	K DCM-17
DCM 180-054-25A-3D	18.00	18.90	25.00	32.00	54.0	78.3	3.280	56.0	134.30	18.0	K DCM-18
DCM 190-057-25A-3D	19.00	19.90	25.00	32.00	57.0	82.3	3.460	56.0	138.30	19.0	K DCM-19
DCM 200-060-25A-3D	20.00	20.90	25.00	32.00	60.0	87.0	3.640	56.0	143.00	20.0	K DCM-20
DCM 210-063-25A-3D	21.00	21.90	25.00	32.00	63.0	90.8	3.820	56.0	146.80	21.0	K DCM-21
DCM 220-066-25A-3D	22.00	22.90	25.00	32.00	66.0	95.1	4.000	56.0	151.10	22.0	K DCM-22
DCM 230-069-25A-3D	23.00	23.90	25.00	32.00	69.0	99.5	4.190	56.0	155.50	23.0	K DCM-23
DCM 240-072-25A-3D	24.00	24.90	25.00	32.00	72.0	103.6	4.370	56.0	159.60	24.0	K DCM-24
DCM 250-075-25A-3D	25.00	25.90	25.00	32.00	75.0	109.0	4.550	56.0	165.00	25.0	K DCM-25

• Do not mount smaller drilling heads other than the specified range of the drill body • Drill tolerance: k7 • For user guide and cutting conditions, see pages 101-105

(1) Cutting diameter minimum

(2) Cutting diameter maximum

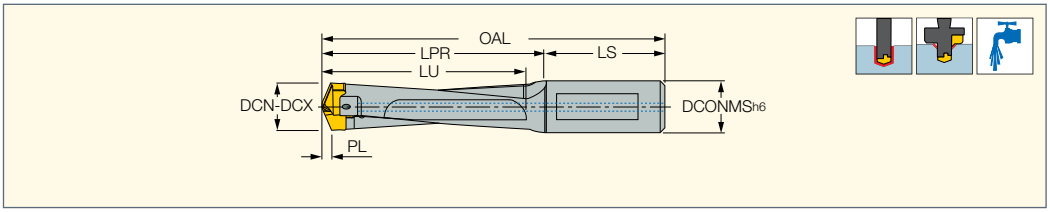
(3) Seat size code

For inserts, see pages: IDI-SG (94) • IDI-SK (98)

UNICHAMDRILL

DCM-3.5D (7.5-20.9 mm)

UNICHAMDRILL Exchangeable Head Drills without Flange and with Flat Shank, Drilling Depth 3.5xD, for Chamfering Holders



Designation	DCN(1)	DCX(2)	DCONMS	LU	LPR	PL	LS	OAL	SSC(3)	
DCM 075-026-8B-3.5D	7.50	7.90	8.00	26.0	33.7	1.360	43.0	76.70	8.0	K DCM- 8
DCM 080-028-8B-3.5D	8.00	8.40	8.00	28.0	35.9	1.460	43.0	78.90	8.0	K DCM- 8
DCM 085-029-9B-3.5D	8.50	8.90	9.00	29.0	36.8	1.549	43.0	79.90	8.0	K DCM- 8
DCM 090-031-9B-3.5D	9.00	9.40	9.00	31.0	39.1	1.640	43.0	82.10	9.0	K DCM- 9
DCM 095-033-10B-3.5D	9.50	9.90	10.00	33.0	40.3	1.730	43.0	83.30	9.0	K DCM- 9
DCM 100-033-10B-3.5D	10.00	10.40	10.00	33.0	42.9	1.829	43.0	86.00	10.0	K DCM-10
DCM 105-034-11B-3.5D	10.50	10.90	11.00	34.0	44.8	1.910	43.0	87.80	10.0	K DCM-10
DCM 110-036-11B-3.5D	11.00	11.40	11.00	36.0	46.9	2.000	43.0	89.90	11.0	K DCM-11
DCM 115-038-12B-3.5D	11.50	11.90	12.00	38.0	48.6	2.090	43.0	91.60	11.0	K DCM-11
DCM 120-042-12B-3.5D	12.00	12.40	12.00	42.0	50.8	2.184	43.0	93.80	12.0	K DCM-12
DCM 125-042-13B-3.5D	12.50	12.90	13.00	42.0	52.6	2.270	43.0	95.60	12.0	K DCM-12
DCM 130-042-13B-3.5D	13.00	13.40	13.00	42.0	54.6	2.362	45.0	99.50	13.0	K DCM-13
DCM 135-044-14B-3.5D	13.50	13.90	14.00	44.0	56.1	2.464	45.0	101.20	13.0	K DCM-13
DCM 140-048-14B-3.5D	14.00	14.40	14.00	48.0	59.2	2.540	45.0	104.20	14.0	K DCM-14
DCM 145-050-15B-3.5D	14.50	14.90	15.00	50.0	60.9	2.640	45.0	105.90	14.0	K DCM-14
DCM 150-052-15B-3.5D	15.00	15.90	15.00	52.0	63.0	2.718	45.0	108.10	15.0	K DCM-15
DCM 160-052-16B-3.5D	16.00	16.90	16.00	52.0	67.1	2.921	48.0	115.00	16.0	K DCM-16
DCM 170-055-17B-3.5D	17.00	17.90	17.00	55.0	73.6	3.090	48.0	121.60	17.0	K DCM-17
DCM 180-060-18B-3.5D	18.00	18.90	18.00	60.0	78.2	3.277	48.0	126.30	18.0	K DCM-18
DCM 190-062-19B-3.5D	19.00	19.90	19.00	62.5	81.8	3.460	54.0	135.80	19.0	K DCM-19
DCM 200-066-20B-3.5D	20.00	20.90	20.00	66.0	84.6	3.632	54.0	138.60	20.0	K DCM-20

• Do not mount smaller drilling heads other than the specified range of the drill body • Drill tolerance: k7 • For user guide and cutting conditions, see pages 101-105

(1) Cutting diameter minimum

(2) Cutting diameter maximum

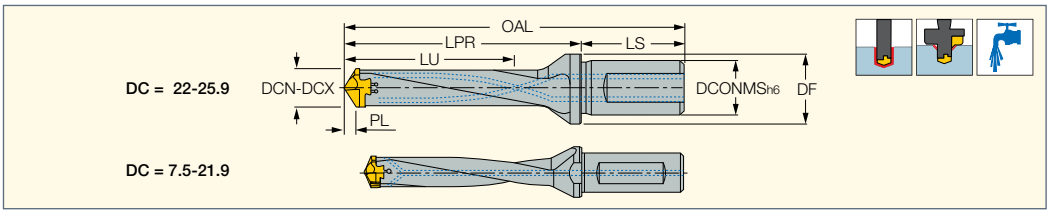
(3) Seat size code

For inserts, see pages: IDI-SG (94) • IDI-SK (98)

CHAMDRILL

DCM-5D (7.5-25.9 mm)

Exchangeable Head Drills with One Flat Shank, Drilling Depth 5xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DCM 075-037-12A-5D	7.50	7.90	12.00	16.00	37.0	48.1	1.360	45.0	93.10	8.0	K DCM- 8
DCM 080-040-12A-5D	8.00	8.40	12.00	16.00	40.0	51.0	1.460	45.0	96.00	8.0	K DCM- 8
DCM 085-042-12A-5D	8.50	8.90	12.00	16.00	42.0	54.0	1.550	45.0	99.00	8.0	K DCM- 8
DCM 090-045-12A-5D	9.00	9.40	12.00	16.00	45.0	57.1	1.640	45.0	102.10	9.0	K DCM- 9
DCM 095-047-12A-5D	9.50	9.90	12.00	16.00	47.0	60.1	1.730	45.0	105.10	9.0	K DCM- 9
DCM 100-050-16A-5D	10.00	10.40	16.00	20.00	50.0	64.0	1.820	48.0	112.00	10.0	K DCM-10
DCM 105-052-16A-5D	10.50	10.90	16.00	20.00	52.0	67.0	1.910	48.0	115.00	10.0	K DCM-10
DCM 110-055-16A-5D	11.00	11.40	16.00	20.00	55.0	70.1	2.000	48.0	118.10	11.0	K DCM-11
DCM 115-057-16A-5D	11.50	11.90	16.00	20.00	57.0	73.0	2.090	48.0	121.00	11.0	K DCM-11
DCM 120-060-16A-5D	12.00	12.40	16.00	20.00	60.0	76.2	2.180	48.0	124.20	12.0	K DCM-12
DCM 125-062-16A-5D	12.50	12.90	16.00	20.00	62.0	79.2	2.270	48.0	127.20	12.0	K DCM-12
DCM 130-065-16A-5D	13.00	13.40	16.00	20.00	65.0	82.5	2.370	48.0	130.50	13.0	K DCM-13
DCM 135-067-16A-5D	13.50	13.90	16.00	20.00	67.0	85.5	2.460	48.0	133.50	13.0	K DCM-13
DCM 140-070-16A-5D	14.00	14.40	16.00	20.00	70.0	89.2	2.550	48.0	137.20	14.0	K DCM-14
DCM 145-072-16A-5D	14.50	14.90	16.00	20.00	72.0	92.2	2.640	48.0	140.20	14.0	K DCM-14
DCM 150-075-20A-5D	15.00	15.90	20.00	25.00	75.0	95.7	2.730	50.0	145.70	15.0	K DCM-15
DCM 160-080-20A-5D	16.00	16.90	20.00	25.00	80.0	102.0	2.910	50.0	152.00	16.0	K DCM-16
DCM 170-085-20A-5D	17.00	17.90	20.00	25.00	85.0	107.5	3.090	50.0	157.50	17.0	K DCM-17
DCM 180-090-25A-5D	18.00	18.90	25.00	32.00	90.0	114.3	3.280	56.0	170.30	18.0	K DCM-18
DCM 190-095-25A-5D	19.00	19.90	25.00	32.00	95.0	120.3	3.460	56.0	176.30	19.0	K DCM-19
DCM 200-100-25A-5D	20.00	20.90	25.00	32.00	100.0	127.0	3.640	56.0	183.00	20.0	K DCM-20
DCM 210-105-25A-5D	21.00	21.90	25.00	32.00	105.0	132.8	3.820	56.0	188.80	21.0	K DCM-21
DCM 220-110-25A-5D	22.00	22.90	25.00	32.00	110.0	139.1	4.000	56.0	195.10	22.0	K DCM-22
DCM 230-115-25A-5D	23.00	23.90	25.00	32.00	115.0	145.5	4.190	56.0	201.50	23.0	K DCM-23
DCM 240-120-25A-5D	24.00	24.90	25.00	32.00	120.0	151.6	4.370	56.0	207.60	24.0	K DCM-24
DCM 250-125-25A-5D	25.00	25.90	25.00	32.00	125.0	159.0	4.550	56.0	215.00	25.0	K DCM-25

• Do not mount smaller drilling heads other than the specified range of the drill body • Drill tolerance: k7 • For user guide and cutting conditions, see pages 101-105

(1) Cutting diameter minimum

(2) Cutting diameter maximum

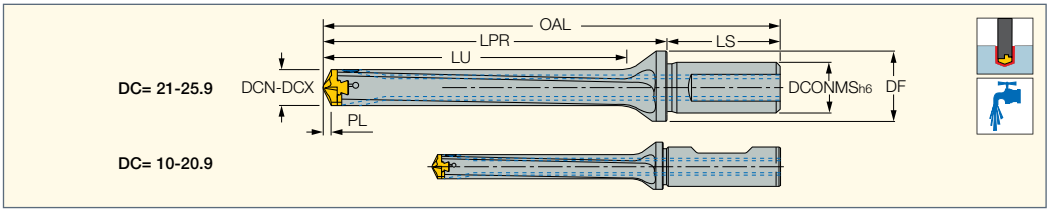
(3) Seat size code

For inserts, see pages: IDI-SG (94) • IDI-SK (98)

CHAMDRILL

DCM-8D (10-25.9 mm)

CHAMDRILL Exchangeable Head Drills with One Flat Shank, Drilling Depth: 8xD



Designation	DCN(1)	DCX(2)	DCONMS	DF	LU	LPR	PL	LS	OAL	SSC(3)	
DCM 100-080-16A-8D	10.00	10.90	16.00	20.00	80.0	94.0	1.820	48.0	142.00	10.0	K DCM-10
DCM 110-088-16A-8D	11.00	11.90	16.00	20.00	88.0	103.2	2.000	48.0	151.20	11.0	K DCM-11
DCM 120-096-16A-8D	12.00	12.90	16.00	20.00	96.0	112.3	2.180	48.0	160.30	12.0	K DCM-12
DCM 130-104-16A-8D	13.00	13.90	16.00	20.00	104.0	121.5	2.370	48.0	169.50	13.0	K DCM-13
DCM 140-112-16A-8D	14.00	14.90	16.00	20.00	112.0	131.2	2.550	48.0	179.20	14.0	K DCM-14
DCM 150-120-20A-8D	15.00	15.90	20.00	25.00	120.0	140.7	2.730	50.0	190.70	15.0	K DCM-15
DCM 160-128-20A-8D	16.00	16.90	20.00	25.00	128.0	150.0	2.910	50.0	200.00	16.0	K DCM-16
DCM 170-136-20A-8D	17.00	17.90	20.00	25.00	136.0	158.5	3.090	50.0	208.50	17.0	K DCM-17
DCM 180-144-25A-8D	18.00	18.90	25.00	32.00	144.0	168.3	3.280	56.0	224.30	18.0	K DCM-18
DCM 190-152-25A-8D	19.00	19.90	25.00	32.00	152.0	177.3	3.460	56.0	233.30	19.0	K DCM-19
DCM 200-160-25A-8D	20.00	20.90	25.00	32.00	160.0	187.2	3.640	56.0	243.20	20.0	K DCM-20
DCM 210-168-25A-8D	21.00	21.90	25.00	32.00	168.0	196.2	3.820	56.0	252.20	21.0	K DCM-21
DCM 220-176-25A-8D	22.00	22.90	25.00	32.00	176.0	205.2	4.000	56.0	261.20	22.0	K DCM-22
DCM 230-184-25A-8D	23.00	23.90	25.00	32.00	184.0	215.1	4.190	56.0	271.10	23.0	K DCM-23
DCM 240-192-25A-8D	24.00	24.90	25.00	32.00	192.0	224.5	4.370	56.0	280.50	24.0	K DCM-24
DCM 250-200-25A-8D	25.00	25.90	25.00	32.00	200.0	233.7	4.550	56.0	289.70	25.0	K DCM-25

• Do not mount smaller drilling heads other than the specified range of the drill body • Drill tolerance: k7 • For user guide and cutting conditions, see pages 101-105

(1) Cutting diameter minimum

(2) Cutting diameter maximum

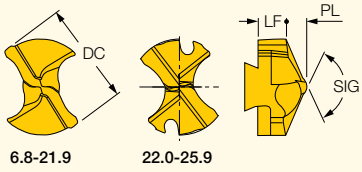
(3) Seat size code

For inserts, see pages: IDI-SG (94) • IDI-SK (98)

CHAMDRILL

IDI-SG

General Use DCM Drill Heads



Designation	Dimensions DC	LF	PL	SIG	SSC(1)	IC908
IDI 068-SG	6.80	2.86	1.240	140	6.8	•
IDI 075-SG	7.50	2.74	1.360	140	8.0	•
IDI 076-SG	7.60	2.72	1.380	140	8.0	•
IDI 077-SG	7.70	2.70	1.400	140	8.0	•
IDI 078-SG	7.80	2.68	1.420	140	8.0	•
IDI 079-SG	7.90	2.66	1.440	140	8.0	•
IDI 080-SG	8.00	2.64	1.460	140	8.0	•
IDI 081-SG	8.10	2.63	1.470	140	8.0	•
IDI 082-SG	8.20	2.61	1.490	140	8.0	•
IDI 083-SG	8.30	2.59	1.510	140	8.0	•
IDI 084-SG	8.40	2.57	1.530	140	8.0	•
IDI 085-SG	8.50	2.55	1.550	140	8.0	•
IDI 086-SG	8.60	2.53	1.570	140	8.0	•
IDI 087-SG	8.70	2.52	1.580	140	8.0	•
IDI 088-SG	8.80	2.50	1.600	140	8.0	•
IDI 089-SG	8.90	2.48	1.620	140	8.0	•
IDI 090-SG	9.00	2.66	1.640	140	9.0	•
IDI 091-SG	9.10	2.64	1.660	140	9.0	•
IDI 092-SG	9.20	2.63	1.670	140	9.0	•
IDI 093-SG	9.30	2.61	1.690	140	9.0	•
IDI 094-SG	9.40	2.59	1.710	140	9.0	•
IDI 095-SG	9.50	2.57	1.730	140	9.0	•
IDI 096-SG	9.60	2.55	1.750	140	9.0	•
IDI 097-SG	9.70	2.53	1.770	140	9.0	•
IDI 098-SG	9.80	2.52	1.780	140	9.0	•
IDI 099-SG	9.90	2.50	1.800	140	9.0	•
IDI 100-SG	10.00	3.48	1.820	140	10.0	•
IDI 101-SG	10.10	3.46	1.840	140	10.0	•
IDI 102-SG	10.20	3.44	1.860	140	10.0	•
IDI 103-SG	10.30	3.43	1.870	140	10.0	•
IDI 104-SG	10.40	3.41	1.890	140	10.0	•
IDI 105-SG	10.50	3.39	1.910	140	10.0	•
IDI 106-SG	10.60	3.37	1.930	140	10.0	•
IDI 107-SG	10.70	3.35	1.950	140	10.0	•
IDI 108-SG	10.80	3.33	1.970	140	10.0	•
IDI 109-SG	10.90	3.32	1.980	140	10.0	•
IDI 110-SG	11.00	3.50	2.000	140	11.0	•
IDI 111-SG	11.10	3.48	2.020	140	11.0	•
IDI 112-SG	11.20	3.46	2.040	140	11.0	•
IDI 113-SG	11.30	3.44	2.060	140	11.0	•
IDI 114-SG	11.40	3.43	2.070	140	11.0	•
IDI 115-SG	11.50	3.41	2.090	140	11.0	•
IDI 116-SG	11.60	3.39	2.110	140	11.0	•
IDI 117-SG	11.70	3.37	2.130	140	11.0	•
IDI 118-SG	11.80	3.35	2.150	140	11.0	•
IDI 119-SG	11.90	3.33	2.170	140	11.0	•
IDI 120-SG	12.00	3.62	2.180	140	12.0	•
IDI 121-SG	12.10	3.60	2.200	140	12.0	•
IDI 122-SG	12.20	3.58	2.220	140	12.0	•
IDI 123-SG	12.30	3.56	2.240	140	12.0	•
IDI 124-SG	12.40	3.54	2.260	140	12.0	•
IDI 125-SG	12.50	3.53	2.270	140	12.0	•
IDI 126-SG	12.60	3.51	2.290	140	12.0	•
IDI 127-SG	12.70	3.49	2.310	140	12.0	•
IDI 128-SG	12.80	3.47	2.330	140	12.0	•
IDI 129-SG	12.90	3.45	2.350	140	12.0	•

• For cutting conditions see pages 101-105

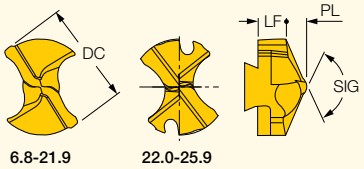
(1) Seat size code

For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

CHAMDRILL

IDI-SG (continued)

General Use DCM Drill Heads



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
IDI 130-SG	13.00	3.63	2.370	140	13.0	•
IDI 131-SG	13.10	3.62	2.380	140	13.0	•
IDI 132-SG	13.20	3.60	2.400	140	13.0	•
IDI 133-SG	13.30	3.58	2.420	140	13.0	•
IDI 134-SG	13.40	3.56	2.440	140	13.0	•
IDI 135-SG	13.50	3.54	2.460	140	13.0	•
IDI 136-SG	13.60	3.53	2.470	140	13.0	•
IDI 137-SG	13.70	3.51	2.490	140	13.0	•
IDI 138-SG	13.80	3.49	2.510	140	13.0	•
IDI 139-SG	13.90	3.47	2.530	140	13.0	•
IDI 140-SG	14.00	4.25	2.550	140	14.0	•
IDI 141-SG	14.10	4.23	2.570	140	14.0	•
IDI 142-SG	14.20	4.22	2.580	140	14.0	•
IDI 143-SG	14.30	4.20	2.600	140	14.0	•
IDI 144-SG	14.40	4.18	2.620	140	14.0	•
IDI 145-SG	14.50	4.16	2.640	140	14.0	•
IDI 146-SG	14.60	4.14	2.660	140	14.0	•
IDI 147-SG	14.70	4.12	2.680	140	14.0	•
IDI 148-SG	14.80	4.11	2.690	140	14.0	•
IDI 149-SG	14.90	4.09	2.710	140	14.0	•
IDI 150-SG	15.00	4.67	2.730	140	15.0	•
IDI 151-SG	15.10	4.65	2.750	140	15.0	•
IDI 152-SG	15.20	4.63	2.770	140	15.0	•
IDI 153-SG	15.30	4.62	2.780	140	15.0	•
IDI 154-SG	15.40	4.60	2.800	140	15.0	•
IDI 155-SG	15.50	4.58	2.820	140	15.0	•
IDI 156-SG	15.60	4.56	2.840	140	15.0	•
IDI 157-SG	15.70	4.54	2.860	140	15.0	•
IDI 158-SG	15.80	4.52	2.880	140	15.0	•
IDI 159-SG	15.90	4.51	2.890	140	15.0	•
IDI 160-SG	16.00	4.99	2.910	140	16.0	•
IDI 161-SG	16.10	4.97	2.930	140	16.0	•
IDI 162-SG	16.20	4.95	2.950	140	16.0	•
IDI 163-SG	16.30	4.93	2.970	140	16.0	•
IDI 164-SG	16.40	4.92	2.980	140	16.0	•
IDI 165-SG	16.50	4.90	3.000	140	16.0	•
IDI 166-SG	16.60	4.88	3.020	140	16.0	•
IDI 167-SG	16.70	4.86	3.040	140	16.0	•
IDI 168-SG	16.80	4.84	3.060	140	16.0	•
IDI 169-SG	16.90	4.82	3.080	140	16.0	•
IDI 170-SG	17.00	4.31	3.090	140	17.0	•
IDI 171-SG	17.10	4.29	3.110	140	17.0	•
IDI 172-SG	17.20	4.27	3.130	140	17.0	•
IDI 173-SG	17.30	4.25	3.150	140	17.0	•
IDI 174-SG	17.40	4.23	3.170	140	17.0	•
IDI 175-SG	17.50	4.22	3.180	140	17.0	•
IDI 176-SG	17.60	4.20	3.200	140	17.0	•
IDI 177-SG	17.70	4.18	3.220	140	17.0	•
IDI 178-SG	17.80	4.16	3.240	140	17.0	•
IDI 179-SG	17.90	4.14	3.260	140	17.0	•
IDI 180-SG	18.00	5.02	3.280	140	18.0	•
IDI 181-SG	18.10	5.01	3.290	140	18.0	•
IDI 182-SG	18.20	4.99	3.310	140	18.0	•
IDI 183-SG	18.30	4.97	3.330	140	18.0	•
IDI 184-SG	18.40	4.95	3.350	140	18.0	•
IDI 185-SG	18.50	4.93	3.370	140	18.0	•
IDI 186-SG	18.60	4.92	3.380	140	18.0	•

• For cutting conditions see pages 101-105

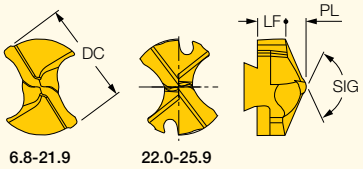
(1) Seat size code

For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

CHAMDRILL

IDI-SG (continued)

General Use DCM Drill Heads



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
IDI 187-SG	18.70	4.90	3.400	140	18.0	•
IDI 188-SG	18.80	4.88	3.420	140	18.0	•
IDI 189-SG	18.90	4.86	3.440	140	18.0	•
IDI 190-SG	19.00	5.04	3.460	140	19.0	•
IDI 1905-SG	19.05	5.03	3.470	140	19.0	•
IDI 191-SG	19.10	5.02	3.480	140	19.0	•
IDI 192-SG	19.20	5.01	3.490	140	19.0	•
IDI 193-SG	19.30	4.99	3.510	140	19.0	•
IDI 194-SG	19.40	4.97	3.530	140	19.0	•
IDI 195-SG	19.50	4.95	3.550	140	19.0	•
IDI 196-SG	19.60	4.93	3.570	140	19.0	•
IDI 197-SG	19.70	4.91	3.590	140	19.0	•
IDI 198-SG	19.80	4.90	3.600	140	19.0	•
IDI 199-SG	19.90	4.88	3.620	140	19.0	•
IDI 200-SG	20.00	5.66	3.640	140	20.0	•
IDI 201-SG	20.10	5.64	3.660	140	20.0	•
IDI 202-SG	20.20	5.62	3.680	140	20.0	•
IDI 203-SG	20.30	5.61	3.690	140	20.0	•
IDI 204-SG	20.40	5.59	3.710	140	20.0	•
IDI 205-SG	20.50	5.57	3.730	140	20.0	•
IDI 206-SG	20.60	5.55	3.750	140	20.0	•
IDI 207-SG	20.70	5.53	3.770	140	20.0	•
IDI 208-SG	20.80	5.51	3.790	140	20.0	•
IDI 209-SG	20.90	5.50	3.800	140	20.0	•
IDI 210-SG	21.00	5.68	3.820	140	21.0	•
IDI 211-SG	21.10	5.66	3.840	140	21.0	•
IDI 212-SG	21.20	5.64	3.860	140	21.0	•
IDI 213-SG	21.30	5.62	3.880	140	21.0	•
IDI 214-SG	21.40	5.61	3.890	140	21.0	•
IDI 215-SG	21.50	5.59	3.910	140	21.0	•
IDI 216-SG	21.60	5.57	3.930	140	21.0	•
IDI 217-SG	21.70	5.55	3.950	140	21.0	•
IDI 218-SG	21.80	5.53	3.970	140	21.0	•
IDI 219-SG	21.90	5.51	3.990	140	21.0	•
IDI 220-SG	22.00	6.30	4.000	140	22.0	•
IDI 221-SG	22.10	6.28	4.020	140	22.0	•
IDI 222-SG	22.20	6.30	4.000	140	22.0	•
IDI 2222-SG	22.22	6.26	4.040	140	22.0	•
IDI 223-SG	22.30	6.24	4.060	140	22.0	•
IDI 224-SG	22.40	6.22	4.080	140	22.0	•
IDI 225-SG	22.50	6.21	4.090	140	22.0	•
IDI 226-SG	22.60	6.19	4.110	140	22.0	•
IDI 227-SG	22.70	6.17	4.130	140	22.0	•
IDI 228-SG	22.80	6.15	4.150	140	22.0	•
IDI 229-SG	22.90	6.13	4.170	140	22.0	•
IDI 230-SG	23.00	6.21	4.190	140	23.0	•
IDI 231-SG	23.10	6.20	4.200	140	23.0	•
IDI 232-SG	23.20	6.18	4.220	140	23.0	•
IDI 233-SG	23.30	6.16	4.240	140	23.0	•
IDI 234-SG	23.40	6.14	4.260	140	23.0	•
IDI 235-SG	23.50	6.12	4.280	140	23.0	•
IDI 237-SG	23.70	6.09	4.310	140	23.0	•
IDI 238-SG	23.80	6.07	4.330	140	23.0	•
IDI 239-SG	23.90	6.05	4.350	140	23.0	•
IDI 240-SG	24.00	6.43	4.370	140	24.0	•
IDI 241-SG	24.10	6.41	4.390	140	24.0	•
IDI 242-SG	24.20	6.40	4.400	140	24.0	•

• For cutting conditions see pages 101-105

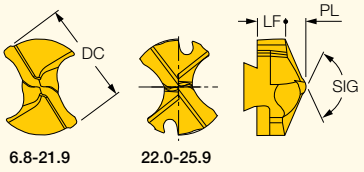
(1) Seat size code

For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

CHAMDRILL

IDI-SG (continued)

General Use DCM Drill Heads



Designation	Dimensions					IC908
	DC	LF	PL	SIG	SSC(1)	
IDI 243-SG	24.30	6.38	4.420	140	24.0	●
IDI 244-SG	24.40	6.36	4.440	140	24.0	●
IDI 245-SG	24.50	6.34	4.460	140	24.0	●
IDI 246-SG	24.60	6.32	4.480	140	24.0	●
IDI 247-SG	24.70	6.30	4.500	140	24.0	●
IDI 248-SG	24.80	6.29	4.510	140	24.0	●
IDI 249-SG	24.90	6.27	4.530	140	24.0	●
IDI 250-SG	25.00	6.45	4.550	140	25.0	●
IDI 251-SG	25.10	6.43	4.570	140	25.0	●
IDI 252-SG	25.20	6.41	4.590	140	25.0	●
IDI 253-SG	25.30	6.40	4.600	140	25.0	●
IDI 254-SG	25.40	6.38	4.620	140	25.0	●
IDI 255-SG	25.50	6.36	4.640	140	25.0	●
IDI 256-SG	25.60	6.34	4.660	140	25.0	●
IDI 257-SG	25.70	6.32	4.680	140	25.0	●
IDI 258-SG	25.80	6.30	4.700	140	25.0	●
IDI 259-SG	25.90	6.29	4.710	140	25.0	●

• For cutting conditions see pages 101-105

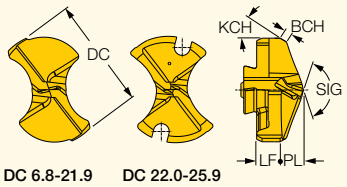
(1) Seat size code

For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

CHAMDRILL

IDI-SK

DCM Drill Heads for Cast Iron



Designation	Dimensions							IC908
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	
IDI 068-SK	6.80	2.86	1.240	0.48	30.0	140	6.8	•
IDI 080-SK	8.00	2.64	1.460	0.56	30.0	140	8.0	•
IDI 081-SK	8.10	2.63	1.470	0.57	30.0	140	8.0	•
IDI 085-SK	8.50	2.55	1.550	0.60	30.0	140	8.0	•
IDI 087-SK	8.70	2.52	1.580	0.61	30.0	140	8.0	•
IDI 088-SK	8.80	2.50	1.600	0.62	30.0	140	8.0	•
IDI 090-SK	9.00	2.66	1.640	0.63	30.0	140	9.0	•
IDI 091-SK	9.10	2.64	1.660	0.64	30.0	140	9.0	•
IDI 095-SK	9.50	2.57	1.730	0.67	30.0	140	9.0	•
IDI 100-SK	10.00	3.48	1.820	0.70	30.0	140	10.0	•
IDI 102-SK	10.20	3.44	1.860	0.71	30.0	140	10.0	•
IDI 103-SK	10.30	3.43	1.870	0.72	30.0	140	10.0	•
IDI 105-SK	10.50	3.39	1.910	0.74	30.0	140	10.0	•
IDI 106-SK	10.60	3.37	1.930	0.74	30.0	140	10.0	•
IDI 107-SK	10.70	3.35	1.950	0.75	30.0	140	10.0	•
IDI 108-SK	10.80	3.33	1.970	0.76	30.0	140	10.0	•
IDI 109-SK	10.90	3.32	1.980	0.76	30.0	140	10.0	•
IDI 110-SK	11.00	3.50	2.000	0.77	30.0	140	11.0	•
IDI 111-SK	11.10	3.48	2.020	0.78	30.0	140	11.0	•
IDI 112-SK	11.20	3.46	2.040	0.78	30.0	140	11.0	•
IDI 113-SK	11.30	3.44	2.060	0.79	30.0	140	11.0	•
IDI 115-SK	11.50	3.41	2.090	0.81	30.0	140	11.0	•
IDI 116-SK	11.60	3.39	2.110	0.81	30.0	140	11.0	•
IDI 118-SK	11.80	3.35	2.150	0.83	30.0	140	11.0	•
IDI 120-SK	12.00	3.62	2.180	0.84	30.0	140	12.0	•
IDI 122-SK	12.20	3.58	2.220	0.85	30.0	140	12.0	•
IDI 123-SK	12.30	3.56	2.240	0.86	30.0	140	12.0	•
IDI 124-SK	12.40	3.54	2.260	0.87	30.0	140	12.0	•
IDI 125-SK	12.50	3.53	2.270	0.88	30.0	140	12.0	•
IDI 127-SK	12.70	3.49	2.310	0.89	30.0	140	12.0	•
IDI 130-SK	13.00	3.63	2.370	0.91	30.0	140	13.0	•
IDI 131-SK	13.10	3.62	2.380	0.92	30.0	140	13.0	•
IDI 132-SK	13.20	3.60	2.400	0.92	30.0	140	13.0	•
IDI 133-SK	13.30	3.58	2.420	0.93	30.0	140	13.0	•
IDI 135-SK	13.50	3.54	2.460	0.95	30.0	140	13.0	•
IDI 136-SK	13.60	3.53	2.470	0.95	30.0	140	13.0	•
IDI 137-SK	13.70	3.51	2.490	0.96	30.0	140	13.0	•
IDI 138-SK	13.80	3.49	2.510	0.97	30.0	140	13.0	•
IDI 139-SK	13.90	3.47	2.530	0.97	30.0	140	13.0	•
IDI 140-SK	14.00	4.25	2.550	0.98	30.0	140	14.0	•
IDI 141-SK	14.10	4.23	2.570	0.99	30.0	140	14.0	•
IDI 142-SK	14.20	4.22	2.580	0.99	30.0	140	14.0	•
IDI 143-SK	14.30	4.20	2.600	1.00	30.0	140	14.0	•
IDI 144-SK	14.40	4.18	2.620	1.01	30.0	140	14.0	•
IDI 145-SK	14.50	4.16	2.640	1.02	30.0	140	14.0	•
IDI 146-SK	14.60	4.14	2.660	1.02	30.0	140	14.0	•
IDI 147-SK	14.70	4.12	2.680	1.03	30.0	140	14.0	•
IDI 148-SK	14.80	4.11	2.690	1.04	30.0	140	14.0	•
IDI 150-SK	15.00	4.67	2.730	1.05	30.0	140	15.0	•
IDI 151-SK	15.10	4.65	2.750	1.06	30.0	140	15.0	•
IDI 152-SK	15.20	4.63	2.770	1.06	30.0	140	15.0	•
IDI 153-SK	15.30	4.62	2.780	1.07	30.0	140	15.0	•
IDI 154-SK	15.40	4.60	2.800	1.08	30.0	140	15.0	•
IDI 155-SK	15.50	4.58	2.820	1.09	30.0	140	15.0	•
IDI 156-SK	15.60	4.56	2.840	1.09	30.0	140	15.0	•
IDI 157-SK	15.70	4.54	2.860	1.10	30.0	140	15.0	•

• For cutting conditions see pages 101-105

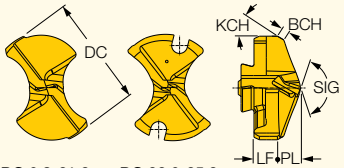
(1) Seat size code

For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

CHAMDRILL

IDI-SK (continued)

DCM Drill Heads for Cast Iron



DC 6.8-21.9 DC 22.0-25.9

Designation	Dimensions							IC908
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	
IDI 158-SK	15.80	5.02	2.880	1.11	30.0	140	15.0	•
IDI 159-SK	15.90	5.01	2.890	1.11	30.0	140	15.0	•
IDI 160-SK	16.00	4.99	2.910	1.12	30.0	140	16.0	•
IDI 161-SK	16.10	4.97	2.930	1.13	30.0	140	16.0	•
IDI 162-SK	16.20	4.95	2.950	1.13	30.0	140	16.0	•
IDI 163-SK	16.30	4.93	2.970	1.14	30.0	140	16.0	•
IDI 165-SK	16.50	4.90	3.000	1.16	30.0	140	16.0	•
IDI 166-SK	16.60	4.88	3.020	1.16	30.0	140	16.0	•
IDI 167-SK	16.70	4.86	3.040	1.17	30.0	140	16.0	•
IDI 168-SK	16.80	4.84	3.060	1.18	30.0	140	16.0	•
IDI 169-SK	16.90	4.82	3.080	1.18	30.0	140	16.0	•
IDI 170-SK	17.00	4.31	3.090	1.19	30.0	140	17.0	•
IDI 171-SK	17.10	4.29	3.110	1.20	30.0	140	17.0	•
IDI 172-SK	17.20	4.27	3.130	1.20	30.0	140	17.0	•
IDI 173-SK	17.30	4.25	3.150	1.21	30.0	140	17.0	•
IDI 174-SK	17.40	4.23	3.170	1.22	30.0	140	17.0	•
IDI 175-SK	17.50	4.22	3.180	1.23	30.0	140	17.0	•
IDI 176-SK	17.60	4.20	3.200	1.23	30.0	140	17.0	•
IDI 177-SK	17.70	4.18	3.220	1.24	30.0	140	17.0	•
IDI 178-SK	17.80	4.16	3.240	1.25	30.0	140	17.0	•
IDI 179-SK	17.90	4.14	3.260	1.25	30.0	140	17.0	•
IDI 180-SK	18.00	5.02	3.280	1.26	30.0	140	18.0	•
IDI 181-SK	18.10	5.01	3.290	1.27	30.0	140	18.0	•
IDI 182-SK	18.20	4.99	3.310	1.27	30.0	140	18.0	•
IDI 183-SK	18.30	4.97	3.330	1.28	30.0	140	18.0	•
IDI 185-SK	18.50	4.93	3.370	1.30	30.0	140	18.0	•
IDI 186-SK	18.60	4.92	3.380	1.30	30.0	140	18.0	•
IDI 187-SK	18.70	4.90	3.400	1.31	30.0	140	18.0	•
IDI 188-SK	18.80	4.88	3.420	1.32	30.0	140	18.0	•
IDI 190-SK	19.00	5.04	3.460	1.33	30.0	140	19.0	•
IDI 1905-SK	19.05	5.03	3.470	1.33	30.0	140	19.0	•
IDI 191-SK	19.10	5.02	3.480	1.34	30.0	140	19.0	•
IDI 194-SK	19.40	4.97	3.530	1.36	30.0	140	19.0	•
IDI 195-SK	19.50	4.95	3.550	1.37	30.0	140	19.0	•
IDI 197-SK	19.70	4.91	3.590	1.38	30.0	140	19.0	•
IDI 198-SK	19.80	4.90	3.600	1.39	30.0	140	19.0	•
IDI 200-SK	20.00	5.66	3.640	1.40	30.0	140	20.0	•
IDI 201-SK	20.10	5.64	3.660	1.41	30.0	140	20.0	•
IDI 202-SK	20.20	5.62	3.680	1.41	30.0	140	20.0	•
IDI 203-SK	20.30	5.61	3.690	1.42	30.0	140	20.0	•
IDI 205-SK	20.50	5.57	3.730	1.44	30.0	140	20.0	•
IDI 206-SK	20.60	5.55	3.750	1.44	30.0	140	20.0	•
IDI 210-SK	21.00	5.68	3.820	1.47	30.0	140	21.0	•
IDI 211-SK	21.10	5.66	3.840	1.48	30.0	140	21.0	•
IDI 212-SK	21.20	5.64	3.860	1.48	30.0	140	21.0	•
IDI 214-SK	21.40	5.61	3.890	1.50	30.0	140	21.0	•
IDI 215-SK	21.50	5.59	3.910	1.51	30.0	140	21.0	•
IDI 216-SK	21.60	5.57	3.930	1.51	30.0	140	21.0	•
IDI 217-SK	21.70	5.55	3.950	1.52	30.0	140	21.0	•
IDI 219-SK	21.90	5.51	3.990	1.53	30.0	140	21.0	•
IDI 220-SK	22.00	6.30	4.000	1.54	30.0	140	22.0	•
IDI 221-SK	22.10	6.28	4.020	1.55	30.0	140	22.0	•
IDI 223-SK	22.30	6.24	4.060	1.56	30.0	140	22.0	•
IDI 224-SK	22.40	6.22	4.080	1.57	30.0	140	22.0	•
IDI 225-SK	22.50	6.21	4.090	1.58	30.0	140	22.0	•
IDI 230-SK	23.00	6.21	4.190	1.61	30.0	140	23.0	•
IDI 231-SK	23.10	6.20	4.200	1.62	30.0	140	23.0	•

• For cutting conditions see pages 101-105

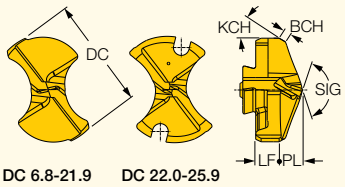
(1) Seat size code

For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

CHAMDRILL

IDI-SK (continued)

DCM Drill Heads for Cast Iron



Designation	Dimensions							IC908
	DC	LF	PL	BCH	KCH	SIG	SSC(1)	
IDI 232-SK	23.20	6.18	4.220	1.62	30.0	140	23.0	●
IDI 234-SK	23.40	6.14	4.260	1.64	30.0	140	23.0	●
IDI 236-SK	23.60	6.11	4.290	1.65	30.0	140	23.0	●
IDI 237-SK	23.70	6.09	4.310	1.66	30.0	140	23.0	●
IDI 238-SK	23.80	6.07	4.330	1.67	30.0	140	23.0	●
IDI 240-SK	24.00	6.43	4.370	1.68	30.0	140	24.0	●
IDI 241-SK	24.10	6.41	4.390	1.69	30.0	140	24.0	●
IDI 243-SK	24.30	6.38	4.420	1.70	30.0	140	24.0	●
IDI 244-SK	24.40	6.36	4.440	1.71	30.0	140	24.0	●
IDI 245-SK	24.50	6.34	4.460	1.72	30.0	140	24.0	●
IDI 249-SK	24.90	6.27	4.530	1.74	30.0	140	24.0	●
IDI 250-SK	25.00	6.45	4.550	1.75	30.0	140	25.0	●
IDI 251-SK	25.10	6.43	4.570	1.76	30.0	140	25.0	●
IDI 254-SK	25.40	6.38	4.620	1.78	30.0	140	25.0	●
IDI 255-SK	25.50	6.36	4.640	1.79	30.0	140	25.0	●
IDI 258-SK	25.80	6.30	4.700	1.81	30.0	140	25.0	●
IDI 259-SK	25.90	6.29	4.710	1.81	30.0	140	25.0	●

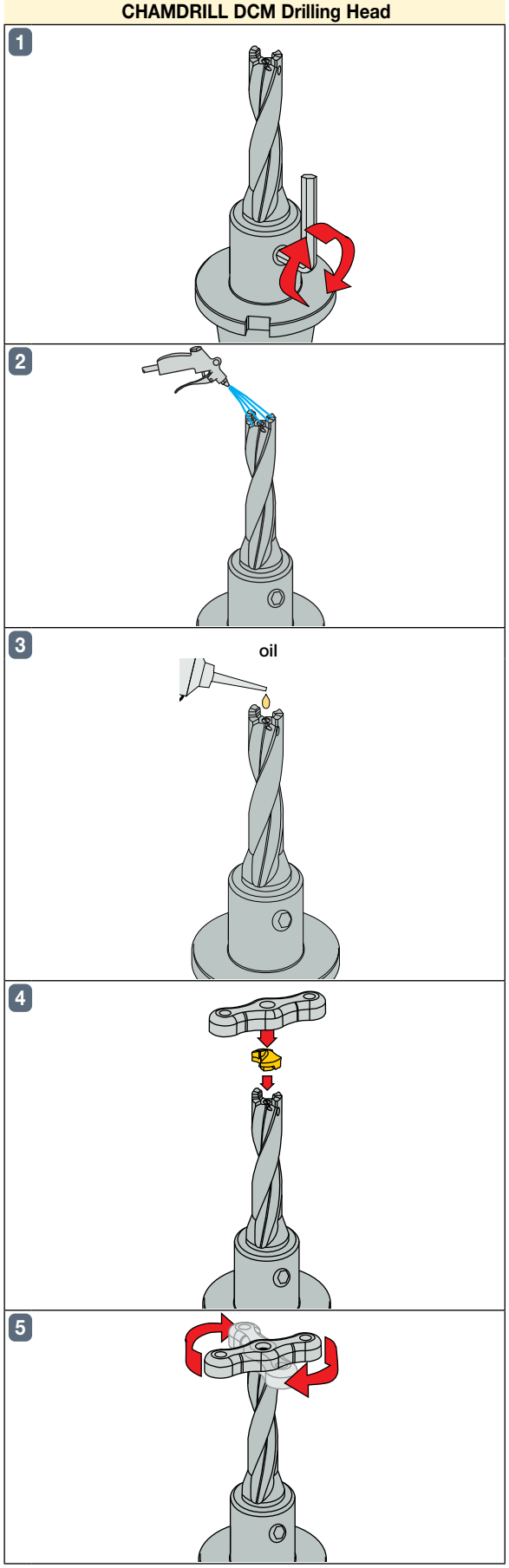
• For cutting conditions see pages 101-105

(1) Seat size code

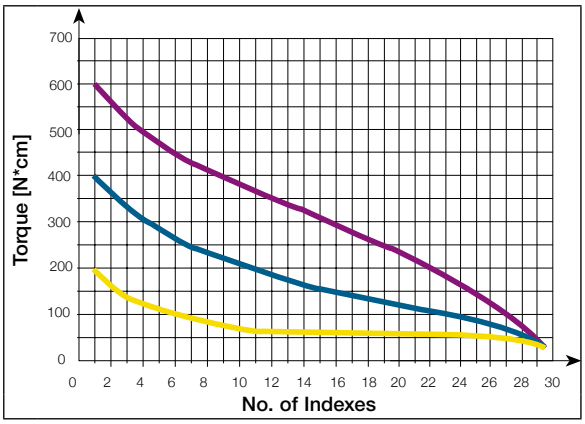
For tools, see pages: DCM-3.5D (7.5-20.9 mm) (92) • DCM-3D (7.5-25.9 mm) (92) • DCM-5D (7.5-25.9 mm) (93) • DCM-8D (10-25.9 mm) (93) • DCT (M8-M24) (134)

Drilling Head Mounting Procedure

CHAMDRILL DCM Drilling Head



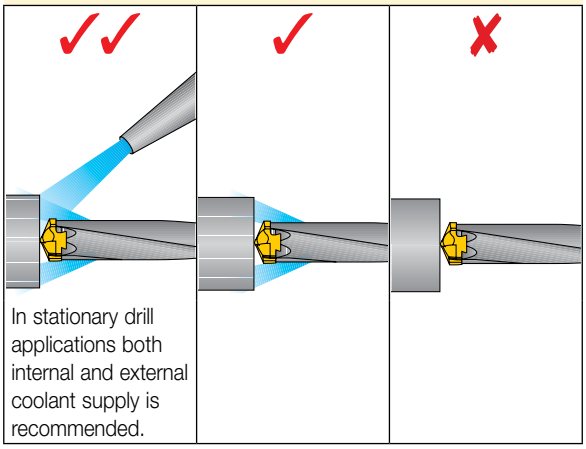
CHAMDRILL Unlocking Change in Torque
Typical Unlocking Torque Range



- Dia. 17-25.9 mm
- Dia. 11-16 mm
- Dia. 7.5-10.5 mm

The number of indexing changes according to machine/ clamping rigidity, machining conditions, workpiece material, coolant, cooling pressure and correct usage.

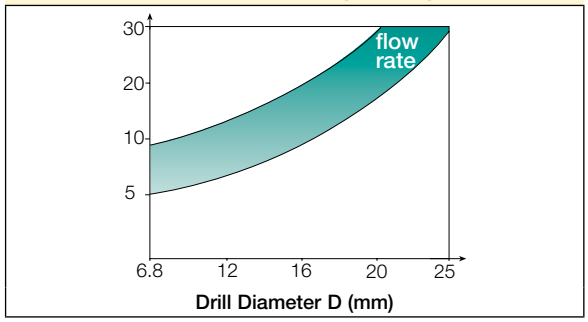
Coolant



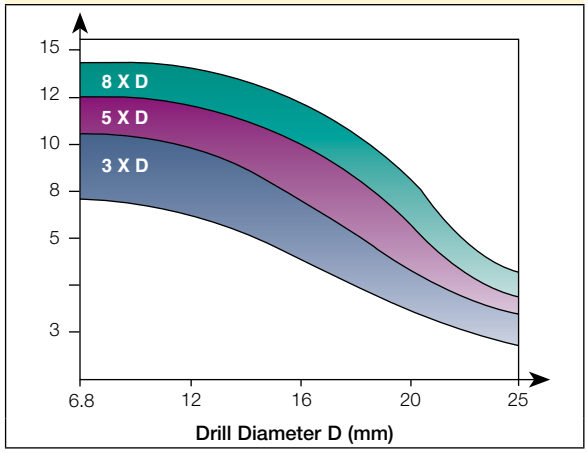
In stationary drill applications both internal and external coolant supply is recommended.

Recommended Coolant Pressure and Flow Rate

Coolant Flow Rate (liter/min)



Minimum Coolant Pressure (bar)



* For special drills more than 8xD, it is recommended to use higher coolant pressure 15–70 bar.

To guarantee chip evacuation, the coolant must always flow through the tool. If the machine is not equipped with coolant through the spindle, we recommend using a coolant inducer. External coolant supply can be used if hole depth is less than 1xD and reduced cutting data is applied. The diagram shows the coolant flow rates for different drills and pressures.

Coolant Mix

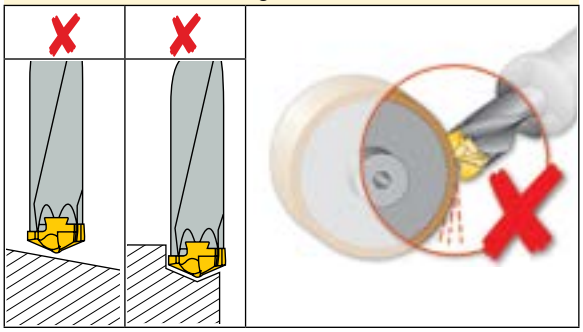
Recommended emulsion mix is 6-8%.
When drilling in stainless and high strength steels, a mix of 10% is recommended.

When using the IDI drilling head, high pressure oil or 7-15% mineral or vegetable based oil emulsion is highly recommended for drilling stainless steel and high temperature alloys.

Dry Drilling

It is possible to drill without coolant in cast iron.
Oil mist through the drill is then required (for 2xD max).

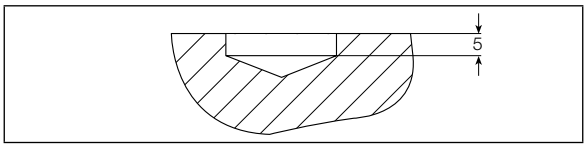
Drilling Limitations

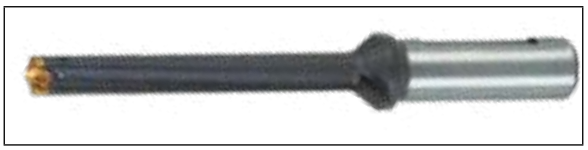


Regrinding of drill head is not recommended, it may cause drill malfunction.

Centering Hole Data for DCM 8xD

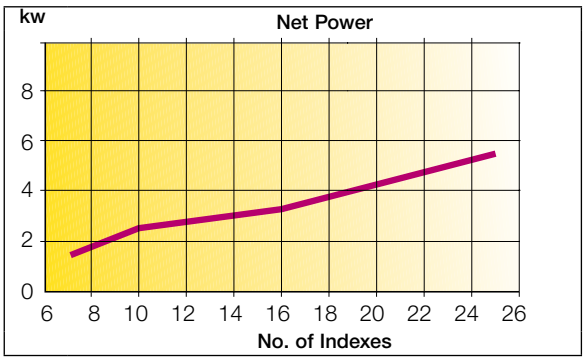
We strongly recommend the use of DCN 1.5D drill of the same diameter to drill a centering pre-hole. The use of the centering pre-hole improves hole location, accuracy, roundness, straightness and surface finish and reliability.





Use internal coolant with at least 15 bar pressure.

Power/Force Requirements



Material: SAE 4340
Speed: 100 m/min
Feed: 0.2 mm/rev

Values change for different materials and drilling conditions.

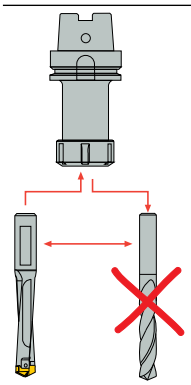
Material Groups

Recommended Machining Conditions

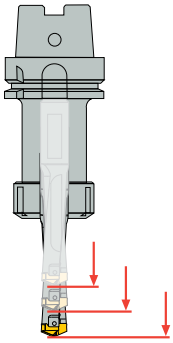
ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Material No.	Cutting Speed V_c m/min	Feed vs. Drill Diameter mm/rev				
								D=6.8-10.9	D=11-12.9	D=13-14.9	D=15-16.9	D=17-20.9	D=21-25.9
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	50-130	0.12-0.2	0.15-0.25	0.2-0.3	0.25-0.35	0.25-0.45	0.25-0.45
		≥ 0.25 %C	Annealed	650	190	2	100-120						
		< 0.55 %C	Quenched and tempered	850	250	3	90-110						
		≥ 0.55 %C	Annealed	750	220	4	90-120						
			Quenched and tempered	1000	300	5	70-90						
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	80-130	0.12-0.2	0.15-0.25	0.2-0.3	0.25-0.35	0.3-0.4	0.3-0.45
			Quenched and tempered	930	275	7	70-110						
				1000	300	8	60-90						
				1200	350	9	40-70						
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	50-80	0.12-0.2	0.12-0.22	0.15-0.25	0.2-0.28	0.25-0.33	0.25-0.35
			Quenched and tempered	1100	325	11	40-70						
	Stainless steel and cast steel		Ferritic/ martensitic	680	200	12	20-50	0.08-0.14	0.12-0.22	0.12-0.15	0.14-0.20	0.16-0.24	0.15-0.28
			Martensitic	820	240	13							
M	Stainless steel and cast steel		Austenitic, duplex	600	180	14	20-50	0.08-0.14	0.12-0.22	0.12-0.15	0.14-0.20	0.16-0.24	0.15-0.28
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15	90-140	0.2-0.3	0.25-0.35	0.3-0.4	0.35-0.45	0.4-0.5	0.4-0.6
			Pearlitic / martensitic		260	16	80-130						
	Nodular cast iron (GGG)		Ferritic		160	17	100-180						
			Pearlitic		250	18	90-160						
	Malleable cast iron		Ferritic		130	19							
			Pearlitic		230	20							
N	Aluminum-wrought alloys		Not hardenable		60	21	90-160	0.2-0.35	0.25-0.4	0.3-0.45	0.35-0.5	0.4-0.6	0.4-0.65
			Hardenable		100	22	80-120						
	Aluminum-cast alloys	≤12% Si	Not hardenable		75	23	90-160						
			Hardenable		90	24							
		>12% Si	High temperature		130	25							
	Copper alloys	>1% Pb	Free cutting		110	26							
			Brass		90	27							
			Electrolytic copper		100	28							
	Non metallic		Duroplastics, fiber plastics			29							
			Hard rubber			30							
S	High temperature alloys	Fe based	Annealed		200	31	30-50	0.05-0.1	0.08-0.13	0.1-0.15	0.12-0.18	0.12-0.2	0.12-0.22
			Hardened		280	32	20-40						
		Ni or Co based	Annealed		250	33	20-50	0.06-0.12	0.09-0.15	0.12-0.18	0.15-0.2	0.15-0.23	0.15-0.25
			Hardened		350	34							
			Cast		320	35							
	Titanium alloys		Pure	400		36							
			Alpha+beta alloys, hardened	1050		37							
H	Hardened steel		Hardened		55 HRC	38	20-50	0.06-0.12	0.09-0.15	0.12-0.18	0.15-0.2	0.15-0.23	0.15-0.25
			Hardened		60 HRC	39							
	Chilled cast iron		Cast		400	40	20-50	0.06-0.12	0.09-0.15	0.12-0.18	0.15-0.2	0.15-0.23	0.15-0.25
	Cast iron		Hardened		55 HRC	41							

• When using external coolant supply only, reduce cutting speed by 10% • When using more than 5XD drill ratio, reduce cutting parameters by 10% As a starting value, the middle of the recommended machining range should be used. Then, according to the wear results, conditions can be changed to optimize performance. The data refers to IC908. For IC1008, cutting speed should be increased by 15%.

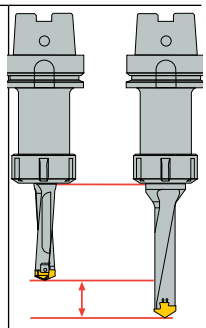
Applications for DCM 3.5D



Replaces solid carbide drils without changing any holding components

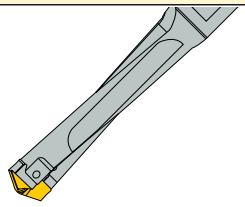
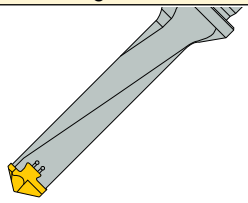


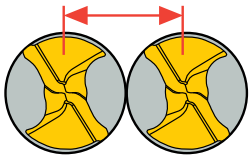
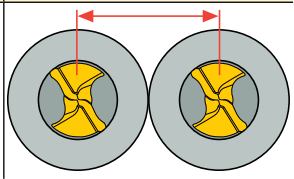
When using SUMOUNICHAM, the drill's projection can be adjusted



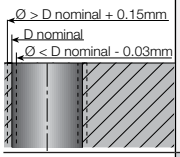
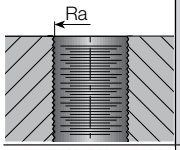
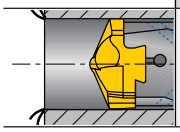
Shorter projection compared to CHAMDRILL when required

For better stability in rough applications and interrupted cuts

UNICHAMDRILL Moderate Helix	CHAMDRILL High Helix
	

UNICHAMDRILL	CHAMDRILL
	
Can be used on multi-spindle applications for close spacing between adjacent drills	

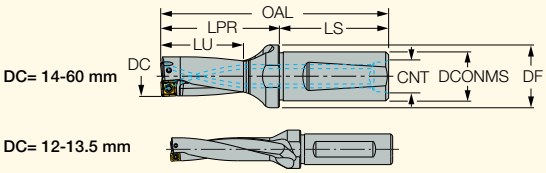
Troubleshooting

	**Cutting Edge Chipping** 1 Check the stability of the machine spindle, tool and workpiece clamping rigidity. 2 Reduce feed rate, increase speed. 3 If the drill vibrates, reduce cutting speed and increase feed rate. 4 When drilling rough, hard or sloped surfaces (up to 6°), reduce the feed rate by 30-50% when entering and exiting. 5 Check cooling lubricant and increase coolant pressure. In case of external coolant supply, improve jet direction and add cooling jets.
	**Excessive Flank Wear** 1 Check that the correct geometry is used. 2 Reduce cutting speed. 3 Increase internal coolant pressure.
	**Chisel Area Chipping** 1 Reduce feed rate. 2 Increase coolant pressure. 3 Check the adaptation. Use hydraulic clamping chuck, maxin power chuck or side lock systems. 4 Increase workpiece chucking force.
	**Excessive Flute Land Wear** 1 Check that the correct geometry is used. 2 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 3 Reduce cutting speed. 4 When drilling rough, hard or sloped surfaces (up to 6°), reduce the feed rate by 30-50% when entering and exiting. 5 Increase coolant pressure. 6 Check the chisel point runout and make sure it is within 0.02 mm T.I.R. 7 Increase workpiece chucking force stability and rigidity. 8 If there is low pocket gripping force - replace drill body.
	**Built-Up Edge** 1 Increase cutting speed. 2 Increase coolant pressure.
	**Deviation of Hole Tolerance** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial cutting points). 2 Reduce feed rate. 3 Check the chisel point runout and make sure that it is within 0.02 mm T.I.R. 4 Wrong cutting edge. Replace head. 5 Increase workpiece chucking force. 6 Check the adaptation. Use hydraulic clamping chuck, maxin power chuck or side clamping systems. 7 Increase internal coolant pressure.
	**Surface Finish Too Rough** 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Adjust the feed for improved chip formation. 3 In case of chip jamming - increase the coolant flow and/or reduce the cutting speed. 4 Increase the coolant pressure. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R. 6 Use pecking cycle.
	**Insufficient Pocket Gripping Torque** 1 Check unlocking gripping torque with TK DCM torque key. If there is no click indication - replace drill head. 2 Increase coolant pressure.
	Inaccurate Hole Position 1 Check the runout and make sure it is within 0.02 mm T.I.R. (radial and axial). 2 Check the stability of the machine spindle, tool and workpiece clamping rigidity. 3 When drilling rough, hard or sloped surfaces (up to 6°), reduce the feed rate by 30-50% when entering. 4 Drill a pre-hole with a 140° point angle for centering. 5 Check the chisel point runout and make sure it is within 0.02 mm T.I.R.
	**Burrs on Exit** 1 Reduce the feed rate by 30-50% when exiting. 2 Replace the worn head. 3 Check the adaptation. Use hydraulic clamping chuck, maxin power chuck or side clamping systems.

DR-TWIST
INDEXABLE DRILL LINE

DR-2D-N

Indexable Square Insert Drills with Coolant Holes, Drilling Depth 2xD



Designation	DC	DCX[1]	LU	LPR	LS	OAL	DCONMS	DF	CNT	MIID[2]
DR120-024-16-04-2D-N	12.00	12.40	24.0	42.0	48.0	90.00	16.00	20.00	-	AOMT 04
DR125-025-16-04-2D-N	12.50	12.90	25.0	43.0	48.0	91.00	16.00	20.00	-	AOMT 04
DR130-026-16-04-2D-N	13.00	13.40	26.0	44.0	48.0	92.00	16.00	20.00	-	AOMT 04
DR135-027-16-04-2D-N	13.50	13.90	27.0	45.0	48.0	93.00	16.00	20.00	-	AOMT 04
DR140-028-20-05-2D-N	14.00	16.80	28.0	46.0	50.0	96.00	20.00	25.00	G1/4"	SOMX 05
DR145-029-20-05-2D-N	14.50	17.10	29.0	47.0	50.0	97.00	20.00	25.00	G1/4"	SOMX 05
DR150-030-20-05-2D-N	15.00	17.40	30.0	48.0	50.0	98.00	20.00	25.00	G1/4"	SOMX 05
DR155-031-20-05-2D-N	15.50	17.60	31.0	49.0	50.0	99.00	20.00	25.00	G1/4"	SOMX 05
DR160-032-20-05-2D-N	16.00	17.80	32.0	50.0	50.0	100.00	20.00	25.00	G1/4"	SOMX 05
DR165-033-20-05-2D-N	16.50	18.10	33.0	51.0	50.0	101.00	20.00	25.00	G1/4"	SOMX 05
DR170-034-20-05-2D-N	17.00	18.30	34.0	52.0	50.0	102.00	20.00	25.00	G1/4"	SOMX 05
DR175-035-20-05-2D-N	17.50	18.50	35.0	53.0	50.0	103.00	20.00	25.00	G1/4"	SOMX 05
DR180-036-25-06-2D-N	18.00	20.30	36.0	56.0	56.0	112.00	25.00	32.00	G3/8"	SOMX 06
DR185-037-25-06-2D-N	18.50	20.50	37.0	57.0	56.0	113.00	25.00	32.00	G3/8"	SOMX 06
DR190-038-25-06-2D-N	19.00	20.80	38.0	58.0	56.0	114.00	25.00	32.00	G3/8"	SOMX 06
DR195-039-25-06-2D-N	19.50	21.00	39.0	59.0	56.0	115.00	25.00	32.00	G3/8"	SOMX 06
DR200-040-25-06-2D-N	20.00	21.30	40.0	60.0	56.0	116.00	25.00	32.00	G3/8"	SOMX 06
DR205-041-25-06-2D-N	20.50	21.60	41.0	61.0	56.0	117.00	25.00	32.00	G3/8"	SOMX 06
DR210-042-25-07-2D-N	21.00	24.50	42.0	62.0	56.0	118.00	25.00	32.00	G3/8"	SOMX 07
DR215-043-25-07-2D-N	21.50	24.70	43.0	63.0	56.0	119.00	25.00	32.00	G3/8"	SOMX 07
DR220-044-25-07-2D-N	22.00	25.00	44.0	64.0	56.0	120.00	25.00	32.00	G3/8"	SOMX 07
DR225-045-25-07-2D-N	22.50	25.20	45.0	65.0	56.0	121.00	25.00	32.00	G3/8"	SOMX 07
DR230-046-25-07-2D-N	23.00	25.50	46.0	66.0	56.0	122.00	25.00	32.00	G3/8"	SOMX 07
DR235-047-25-07-2D-N	23.50	25.70	47.0	67.0	56.0	123.00	25.00	32.00	G3/8"	SOMX 07
DR240-048-25-07-2D-N	24.00	26.00	48.0	68.0	56.0	124.00	25.00	32.00	G3/8"	SOMX 07
DR025-050-32-09-2D-N	25.00	29.50	50.0	82.0	58.0	140.00	32.00	42.00	G1/2"	SOMT 09
DR026-052-32-09-2D-N	26.00	30.00	52.0	84.0	58.0	142.00	32.00	42.00	G1/2"	SOMT 09
DR027-054-32-09-2D-N	27.00	30.50	54.0	86.0	58.0	144.00	32.00	42.00	G1/2"	SOMT 09
DR028-056-32-09-2D-N	28.00	31.00	56.0	88.0	58.0	146.00	32.00	42.00	G1/2"	SOMT 09
DR029-058-32-09-2D-N	29.00	31.50	58.0	90.0	58.0	148.00	32.00	42.00	G1/2"	SOMT 09
DR030-060-32-09-2D-N	30.00	32.00	60.0	92.0	58.0	150.00	32.00	42.00	G1/2"	SOMT 09
DR031-062-32-09-2D-N	31.00	32.50	62.0	94.0	58.0	152.00	32.00	42.00	G1/2"	SOMT 09
DR032-064-32-09-2D-N	32.00	33.00	64.0	96.0	58.0	154.00	32.00	42.00	G1/2"	SOMT 09
DR033-066-32-09-2D-N	33.00	34.00	66.0	98.0	58.0	156.00	32.00	42.00	G1/2"	SOMT 09
DR034-068-32-09-2D-N	34.00	34.50	68.0	100.0	58.0	158.00	32.00	42.00	G1/2"	SOMT 09
DR035-070-32-12-2D-N	35.00	40.50	70.0	106.0	58.0	164.00	32.00	50.00	G1/2-1	SOMT 12
DR036-072-32-12-2D-N	36.00	41.00	72.0	108.0	58.0	166.00	32.00	50.00	G1/2-1	SOMT 12
DR037-074-32-12-2D-N	37.00	41.50	74.0	110.0	58.0	168.00	32.00	50.00	G1/2-1	SOMT 12
DR038-076-32-12-2D-N	38.00	42.00	76.0	112.0	58.0	170.00	32.00	50.00	G1/2-1	SOMT 12
DR039-078-32-12-2D-N	39.00	42.50	78.0	114.0	58.0	172.00	32.00	50.00	G1/2-1	SOMT 12
DR040-080-40-12-2D-N	40.00	43.00	80.0	116.0	68.0	184.00	40.00	50.00	G3/4-14	SOMT 12
DR041-082-40-12-2D-N	41.00	43.50	82.0	118.0	68.0	186.00	40.00	50.00	G3/4-14	SOMT 12
DR042-084-40-12-2D-N	42.00	44.00	84.0	120.0	68.0	188.00	40.00	50.00	G3/4-14	SOMT 12
DR043-086-40-12-2D-N	43.00	44.50	86.0	122.0	68.0	190.00	40.00	50.00	G3/4-14	SOMT 12
DR044-088-40-12-2D-N	44.00	45.00	88.0	124.0	68.0	192.00	40.00	50.00	G3/4-14	SOMT 12
DR045-090-40-16-2D-N	45.00	51.00	90.0	126.0	68.0	194.00	40.00	60.00	G3/4-14	SOMT 16
DR046-092-40-16-2D-N	46.00	51.50	92.0	128.0	68.0	196.00	40.00	60.00	G3/4-14	SOMT 16
DR047-094-40-16-2D-N	47.00	52.00	94.0	130.0	68.0	198.00	40.00	60.00	G3/4-14	SOMT 16

• Hole tolerance D+0.15/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions • For eccenter sleeves (used with tool diameter range of 14.00-60.00 only), see page 118. • For user guide and cutting conditions, see pages 117-128

(1) The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

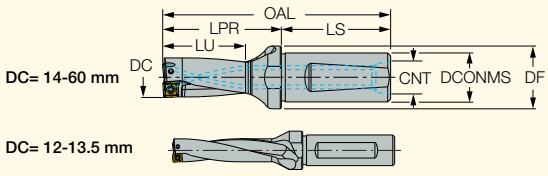
(2) Master insert identification

For inserts, see pages: AOMT/AOGT (114) • SOGX/T-AL (115) • SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

DR-TWIST
INDEXABLE DRILL LINE

DR-2D-N (continued)

Indexable Square Insert Drills with Coolant Holes, Drilling Depth 2xD



Designation	DC	DCX[1]	LU	LPR	LS	OAL	DCONMS	DF	CNT	MIID[2]
DR048-096-40-16-2D-N	48.00	52.50	96.0	132.0	68.0	200.00	40.00	60.00	G3/4-14	SOMT 16
DR049-098-40-16-2D-N	49.00	53.00	98.0	134.0	68.0	202.00	40.00	60.00	G3/4-14	SOMT 16
DR050-100-40-16-2D-N	50.00	54.00	100.0	136.0	68.0	204.00	40.00	60.00	G3/4-14	SOMT 16
DR051-102-40-16-2D-N	51.00	54.50	102.0	138.0	68.0	206.00	40.00	60.00	G3/4-14	SOMT 16
DR052-104-40-16-2D-N	52.00	55.00	104.0	140.0	68.0	208.00	40.00	60.00	G3/4-14	SOMT 16
DR053-106-40-16-2D-N	53.00	55.50	106.0	142.0	68.0	210.00	40.00	60.00	G3/4-14	SOMT 16
DR054-108-40-16-2D-N	54.00	56.00	108.0	144.0	68.0	212.00	40.00	60.00	G3/4-14	SOMT 16
DR055-110-40-16-2D-N	55.00	56.50	110.0	146.0	68.0	214.00	40.00	60.00	G3/4-14	SOMT 16
DR056-112-40-16-2D-N	56.00	57.00	112.0	148.0	68.0	216.00	40.00	60.00	G3/4-14	SOMT 16
DR057-114-40-16-2D-N	57.00	57.50	114.0	150.0	68.0	218.00	40.00	60.00	G3/4-14	SOMT 16
DR058-116-40-16-2D-N	58.00	58.00	116.0	152.0	68.0	220.00	40.00	60.00	G3/4-14	SOMT 16
DR059-118-40-16-2D-N	59.00	59.00	118.0	154.0	68.0	222.00	40.00	60.00	G3/4-14	SOMT 16
DR060-120-40-16-2D-N	60.00	60.00	120.0	156.0	68.0	224.00	40.00	60.00	G3/4-14	SOMT 16

• Hole tolerance D+0.15/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions • For eccenter sleeves (used with tool diameter range of 14.00-60.00 only), see page 118 • For user guide and cutting conditions, see pages 117-128

[1] The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

[2] Master insert identification

For inserts, see pages: AOMT/AOGT (114) • SOGX/T-AL (115) • SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

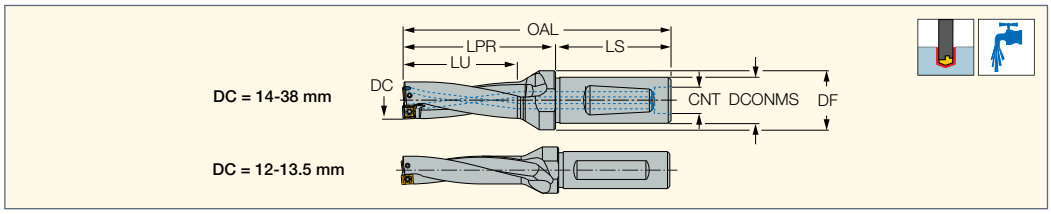
Spare Parts

Designation						
DR(120-135)...-04-2D-N	SR 34-588	T-6/5				
DR(140-175)...-05-2D-N	SR 34-533/L	T-6/5				
DR(180-205)...-06-2D-N	SR 34-508/L		T-7/51			
DR(210-240)...-07-2D-N	SR 14-560		T-8/53			
DR(025-034)...-09-2D-N	SR 34-506			BLD T09/M7-SW4	SW4-SD	
DR(035-044)...-12-2D-N	SR 14-544/S			BLD T15/87	SW5-SD	
DR(044-060)...-16-2D-N	SR 76-961			BLD T15/M7		SW5-T

DR-TWIST
INDEXABLE DRILL LINE

DR-3D-N

Indexable Square Insert Drills with Coolant Holes, Drilling Depth 3xD



Designation	DC	DCX[1]	LU	LPR	LS	OAL	DCONMS	DF	CNT	MIID[2]
DR120-036-16-04-3D-N	12.00	12.40	36.0	54.0	48.0	102.00	16.00	20.00	-	AOMT 040204-90DT
DR125-038-16-04-3D-N	12.50	12.90	38.0	55.5	48.0	103.50	16.00	20.00	-	AOMT 040204-90DT
DR130-039-16-04-3D-N	13.00	13.40	39.0	57.0	48.0	105.00	16.00	20.00	-	AOMT 040204-90DT
DR135-041-16-04-3D-N	13.50	13.90	41.0	58.5	48.0	106.50	16.00	20.00	-	AOMT 040204-90DT
DR140-042-20-05-3D-N	14.00	16.80	42.0	60.0	50.0	110.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR145-044-20-05-3D-N	14.50	17.10	43.5	61.5	50.0	111.50	20.00	25.00	G1/4"	SOMX 050204-DT
DR150-045-20-05-3D-N	15.00	17.40	45.0	63.0	50.0	113.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR155-047-20-05-3D-N	15.50	17.60	46.5	64.5	50.0	114.50	20.00	25.00	G1/4"	SOMX 050204-DT
DR160-048-20-05-3D-N	16.00	17.80	48.0	66.0	50.0	116.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR165-050-20-05-3D-N	16.50	18.10	49.5	67.5	50.0	117.50	20.00	25.00	G1/4"	SOMX 050204-DT
DR170-051-20-05-3D-N	17.00	18.30	51.0	69.0	50.0	119.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR175-053-20-05-3D-N	17.50	18.50	52.5	70.5	50.0	120.50	20.00	25.00	G1/4"	SOMX 050204-DT
DR180-054-25-06-3D-N	18.00	20.30	54.0	74.0	56.0	130.00	25.00	32.00	G3/8"	SOMX 060304-DT
DR185-056-25-06-3D-N	18.50	20.50	55.5	75.5	56.0	131.50	25.00	32.00	G3/8"	SOMX 060304-DT
DR190-057-25-06-3D-N	19.00	20.80	57.0	77.0	56.0	133.00	25.00	32.00	G3/8"	SOMX 060304-DT
DR195-059-25-06-3D-N	19.50	21.00	58.5	78.5	56.0	134.50	25.00	32.00	G3/8"	SOMX 060304-DT
DR200-060-25-06-3D-N	20.00	21.30	60.0	80.0	56.0	136.00	25.00	32.00	G3/8"	SOMX 060304-DT
DR205-062-25-06-3D-N	20.50	21.60	61.5	81.5	56.0	137.50	25.00	32.00	G3/8"	SOMX 060304-DT
DR210-063-25-07-3D-N	21.00	24.50	63.0	83.0	56.0	139.00	25.00	32.00	G3/8"	SOMX 070305-DT
DR215-065-25-07-3D-N	21.50	24.70	64.5	84.5	56.0	140.50	25.00	32.00	G3/8"	SOMX 070305-DT
DR220-066-25-07-3D-N	22.00	25.00	66.0	86.0	56.0	142.00	25.00	32.00	G3/8"	SOMX 070305-DT
DR225-068-25-07-3D-N	22.50	25.20	67.5	87.5	56.0	143.50	25.00	32.00	G3/8"	SOMX 070305-DT
DR230-069-25-07-3D-N	23.00	25.50	69.0	89.0	56.0	145.00	25.00	32.00	G3/8"	SOMX 070305-DT
DR235-071-25-07-3D-N	23.50	25.70	70.5	90.5	56.0	146.50	25.00	32.00	G3/8"	SOMX 070305-DT
DR240-072-25-07-3D-N	24.00	26.00	72.0	92.0	56.0	148.00	25.00	32.00	G3/8"	SOMX 070305-DT
DR025-075-32-09-3D-N	25.00	29.50	75.0	107.0	58.0	165.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR026-078-32-09-3D-N	26.00	30.00	78.0	110.0	58.0	168.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR027-081-32-09-3D-N	27.00	30.50	81.0	113.0	58.0	171.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR028-084-32-09-3D-N	28.00	31.00	84.0	116.0	58.0	174.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR029-087-32-09-3D-N	29.00	31.50	87.0	119.0	58.0	177.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR030-090-32-09-3D-N	30.00	32.00	90.0	122.0	58.0	180.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR031-093-32-09-3D-N	31.00	32.50	93.0	125.0	58.0	183.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR032-096-32-09-3D-N	32.00	33.00	96.0	128.0	58.0	186.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR033-099-32-09-3D-N	33.00	34.00	99.0	131.0	58.0	189.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR034-102-32-09-3D-N	34.00	34.50	102.0	134.0	58.0	192.00	32.00	42.00	G1/2"	SOMT 09T306-DT
DR035-105-32-12-3D-N	35.00	40.50	105.0	141.0	58.0	199.00	32.00	50.00	G1/2-14	SOMT 120408-DT
DR036-108-32-12-3D-N	36.00	41.00	108.0	144.0	58.0	202.00	32.00	50.00	G1/2-14	SOMT 120408-DT
DR037-111-32-12-3D-N	37.00	41.50	111.0	147.0	58.0	205.00	32.00	50.00	G1/2-14	SOMT 120408-DT
DR038-114-32-12-3D-N	38.00	42.00	114.0	150.0	58.0	208.00	32.00	50.00	G1/2-14	SOMT 120408-DT

• Hole tolerance D+0.25/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions • For eccenter sleeves (used with tool diameter range of 14.00-38.00 only), see page 118 • For user guide and cutting conditions, see pages 117-128

[1] The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

[2] Master insert identification

For inserts, see pages: AOMT/AOGT (114) • SOGX/T-AL (115) • SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

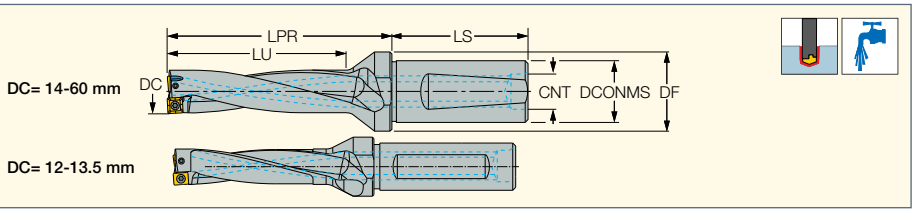
Spare Parts

Designation					
DR(120-135)...-04-3D-N	SR 34-533	T-6/5			
DR(140-175)...-05-3D-N	SR 34-533/L	T-6/5			
DR(180-205)...-06-3D-N	SR 34-538/L		T-7/51		
DR(210-240)...-07-3D-N	SR 14-560		T-8/53		
DR(025-034)...-09-3D-N	SR 34-506			BLD T09/M7-3W4	SW4-SD
DR(035-038)...-12-3D-N	SR 14-544/3			BLD T15/B7	SW6-SD

DR-TWIST
INDEXABLE DRILL LINE

DR-4D-N

Indexable Square Insert Drills with Coolant Holes, Drilling Depth 4xD



Designation	DC	DCX(1)	LU	LPR	LS	DCONMS	DF	CNT	MIID(2)
DR120-048-16-04-4D-N	12.00	12.40	48.0	66.0	48.0	16.00	20.00	-	AOMT 040204-90DT
DR125-050-16-04-4D-N	12.50	12.90	50.0	68.0	48.0	16.00	20.00	-	AOMT 040204-90DT
DR130-052-16-04-4D-N	13.00	13.40	52.0	70.0	48.0	16.00	20.00	-	AOMT 040204-90DT
DR135-054-16-04-4D-N	13.50	13.90	54.0	72.0	48.0	16.00	20.00	-	AOMT 040204-90DT
DR140-056-20-05-4D-N	14.00	16.80	56.0	74.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR145-058-20-05-4D-N	14.50	17.10	58.0	76.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR150-060-20-05-4D-N	15.00	17.40	60.0	78.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR155-062-20-05-4D-N	15.50	17.60	62.0	80.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR160-064-20-05-4D-N	16.00	17.80	64.0	82.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR165-066-20-05-4D-N	16.50	18.10	66.0	84.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR170-068-20-05-4D-N	17.00	18.30	68.0	86.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR175-070-20-05-4D-N	17.50	18.50	70.0	88.0	50.0	20.00	25.00	G1/4"	SOMX 050204-DT
DR180-072-25-06-4D-N	18.00	20.30	72.0	92.0	56.0	25.00	32.00	G3/8"	SOMX 060304-DT
DR185-074-25-06-4D-N	18.50	20.50	74.0	94.0	56.0	25.00	32.00	G3/8"	SOMX 060304-DT
DR190-076-25-06-4D-N	19.00	20.80	76.0	96.0	56.0	25.00	32.00	G3/8"	SOMX 060304-DT
DR195-078-25-06-4D-N	19.50	21.00	78.0	98.0	56.0	25.00	32.00	G3/8"	SOMX 060304-DT
DR200-080-25-06-4D-N	20.00	21.30	80.0	100.0	56.0	25.00	32.00	G3/8"	SOMX 060304-DT
DR205-082-25-06-4D-N	20.50	21.60	82.0	102.0	56.0	25.00	32.00	G3/8"	SOMX 060304-DT
DR210-084-25-07-4D-N	21.00	24.50	84.0	104.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR215-086-25-07-4D-N	21.50	24.70	86.0	106.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR220-088-25-07-4D-N	22.00	25.00	88.0	108.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR225-090-25-07-4D-N	22.50	25.20	90.0	110.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR230-092-25-07-4D-N	23.00	25.50	92.0	112.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR235-094-25-07-4D-N	23.50	25.70	94.0	114.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR240-096-25-07-4D-N	24.00	26.00	96.0	116.0	56.0	25.00	32.00	G3/8"	SOMX 070305-DT
DR025-100-32-09-4D-N	25.00	29.50	100.0	132.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR026-104-32-09-4D-N	26.00	30.00	104.0	136.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR027-108-32-09-4D-N	27.00	30.50	108.0	140.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR028-112-32-09-4D-N	28.00	31.00	112.0	144.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR029-116-32-09-4D-N	29.00	31.50	116.0	148.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR030-120-32-09-4D-N	30.00	32.00	120.0	152.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR031-124-32-09-4D-N	31.00	32.50	124.0	156.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR032-128-32-09-4D-N	32.00	33.00	128.0	160.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR033-132-32-09-4D-N	33.00	34.00	132.0	164.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR034-136-32-09-4D-N	34.00	34.50	136.0	168.0	58.0	32.00	42.00	G1/2"	SOMT 09T306-DT
DR035-140-32-12-4D-N	35.00	40.50	140.0	176.0	58.0	32.00	50.00	G 1/2"-14	SOMT 120408-DT
DR036-144-32-12-4D-N	36.00	41.00	144.0	180.0	58.0	32.00	50.00	G 1/2"-14	SOMT 120408-DT
DR037-148-32-12-4D-N	37.00	41.50	148.0	184.0	58.0	32.00	50.00	G 1/2"-14	SOMT 120408-DT
DR038-152-32-12-4D-N	38.00	42.00	152.0	188.0	58.0	32.00	50.00	G 1/2"-14	SOMT 120408-DT
DR039-156-32-12-4D-N	39.00	42.50	156.0	192.0	58.0	32.00	50.00	G 1/2"-14	SOMT 120408-DT
DR040-160-40-12-4D-N	40.00	43.00	160.0	196.0	68.0	40.00	50.00	G 3/4"-14	SOMT 120408-DT
DR041-164-40-12-4D-N	41.00	43.50	164.0	200.0	68.0	40.00	50.00	G 3/4"-14	SOMT 120408-DT
DR042-168-40-12-4D-N	42.00	44.00	168.0	204.0	68.0	40.00	50.00	G 3/4"-14	SOMT 120408-DT
DR043-172-40-12-4D-N	43.00	44.50	172.0	208.0	68.0	40.00	50.00	G 3/4"-14	SOMT 120408-DT
DR044-176-40-12-4D-N	44.00	45.00	176.0	212.0	68.0	40.00	50.00	G 3/4"-14	SOMT 120408-DT
DR045-180-40-16-4D-N	45.00	51.00	180.0	215.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR046-184-40-16-4D-N	46.00	51.50	184.0	219.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR047-188-40-16-4D-N	47.00	52.00	188.0	223.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR048-192-40-16-4D-N	48.00	52.50	192.0	227.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR049-196-40-16-4D-N	49.00	53.00	196.0	231.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR050-200-40-16-4D-N	50.00	54.00	200.0	235.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT

• Hole tolerance D+0.35/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions • For eccenter sleeves (used with tool diameter range of 14.00-60.00 only), see page 118 • For user guide and cutting conditions, see pages 117-128

(1) The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

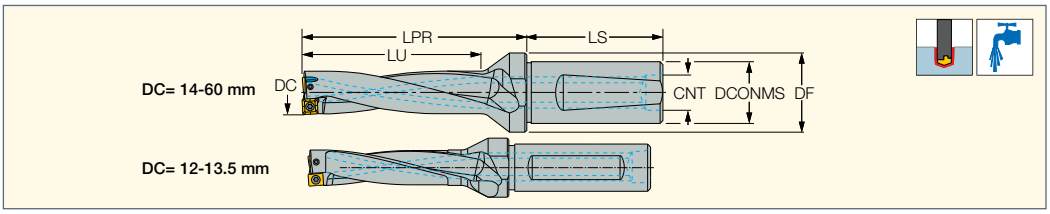
(2) Master insert identification

For inserts, see pages: AOMT/AOGT (114) • SOGX/T-AL (115) • SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

DR-TWIST
INDEXABLE DRILL LINE

DR-4D-N (continued)

Indexable Square Insert Drills with Coolant Holes, Drilling Depth 4xD



Designation	DC	DCX[1]	LU	LPR	LS	DCONMS	DF	CNT	MIID[2]
DR051-204-40-16-4D-N	51.00	54.50	204.0	239.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR052-208-40-16-4D-N	52.00	55.00	208.0	243.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR053-212-40-16-4D-N	53.00	55.50	212.0	247.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR054-216-40-16-4D-N	54.00	56.00	216.0	251.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR055-220-40-16-4D-N	55.00	56.50	220.0	255.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR056-224-40-16-4D-N	56.00	57.00	224.0	259.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR057-228-40-16-4D-N	57.00	57.50	228.0	263.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR058-232-40-16-4D-N	58.00	58.00	232.0	267.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR059-236-40-16-4D-N	59.00	59.00	236.0	271.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT
DR060-240-40-16-4D-N	60.00	60.00	240.0	275.0	68.0	40.00	60.00	G 3/4"-14	SOMT 160512-DT

• Hole tolerance D+0.35/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions • For eccenter sleeves (used with tool diameter range of 14.00-60.00 only), see page 118 • For user guide and cutting conditions, see pages 117-128

[1] The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

[2] Master insert identification

For inserts, see pages: AOMT/AOGT (114) • SOGX/T-AL (115) • SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

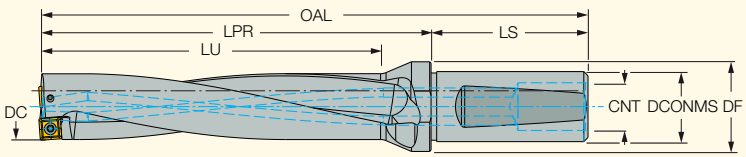
Spare Parts

Designation					
DR(120-135)...-04-4D-N	SR 34-533	T-6/5			
DR(140-175)...-05-4D-N	SR 34-533/L	T-6/5			
DR(190-205)...-06-4D-N	SR 34-506/L		T-7/51		
DR(210-240)...-07-4D-N	SR 14-560		T-8/53		
DR(025-034)...-09-4D-N	SR 34-506			BLD T0Q/MT-BM4	BM4-3D
DR(035-044)...-12-4D-N	SR 14-544/3			BLD T15/S7	BM6-3D
DR(045-060)...-16-4D-N	SR 76-561			BLD T15/M7	BM8-T

DR-TWIST
INDEXABLE DRILL LINE

DR-5D-N

Indexable Square Insert Drills with Coolant Holes, Drilling Depth 5xD



Designation	DC	DCX[1]	LU	LPR	LS	OAL	DCONMS	DF	CNT	MIID[2]
DR140-070-20-05-5D-N	14.00	16.10	70.0	88.0	50.0	138.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR150-075-20-05-5D-N	15.00	16.80	75.0	93.0	50.0	143.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR160-080-20-05-5D-N	16.00	17.35	80.0	98.0	50.0	148.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR170-085-20-05-5D-N	17.00	17.98	85.0	103.0	50.0	153.00	20.00	25.00	G1/4"	SOMX 050204-DT
DR180-090-25-06-5D-N	18.00	19.73	90.0	110.0	56.0	166.00	25.00	32.00	G3/8"	SOMX 060304-DT
DR190-095-25-06-5D-N	19.00	20.35	95.0	115.0	56.0	171.00	25.00	32.00	G3/8"	SOMX 060304-DT
DR200-100-25-06-5D-N	20.00	20.98	100.0	120.0	56.0	176.00	25.00	32.00	G3/8"	SOMX 060304-DT
DR210-105-25-07-5D-N	21.00	23.63	105.0	125.0	56.0	181.00	25.00 [3]	32.00	G3/8"	SOMX 070305-DT
DR220-110-25-07-5D-N	22.00	24.25	110.0	130.0	56.0	186.00	25.00 [3]	32.00	G3/8"	SOMX 070305-DT
DR230-115-25-07-5D-N	23.00	24.88	115.0	135.0	56.0	191.00	25.00 [3]	32.00	G3/8"	SOMX 070305-DT
DR240-120-25-07-5D-N	24.00	25.50	120.0	140.0	56.0	196.00	25.00 [3]	32.00	G3/8"	SOMX 070305-DT

- Hole tolerance D+0.35/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions
- For eccenter sleeves, see page 118
- For user guide and cutting conditions, see pages 117-128

[1] The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

[2] Master insert identification

[3] One flat shank

For inserts, see pages: SOGX/T-AL (115) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

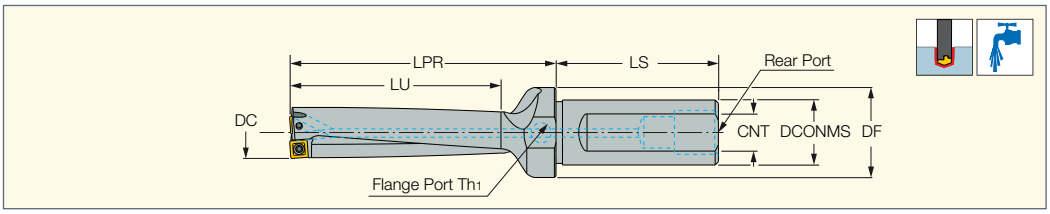
Spare Parts

Designation		
DR140-070-20-05-5D-N	SR 34-533/L	T-6/5
DR150-075-20-05-5D-N	SR 34-533/L	T-6/5
DR160-080-20-05-5D-N	SR 34-533/L	T-6/5
DR170-085-20-05-5D-N	SR 34-533/L	T-6/5
DR180-090-25-06-5D-N	SR 34-508/L	T-7/51
DR190-095-25-06-5D-N	SR 34-508/L	T-7/51
DR200-100-25-06-5D-N	SR 34-508/L	T-7/51
DR210-105-25-07-5D-N	SR 14-560	T-8/53
DR220-110-25-07-5D-N	SR 14-560	T-8/53
DR230-115-25-07-5D-N	SR 14-560	T-8/53
DR240-120-25-07-5D-N	SR 14-560	T-8/53

DR-TWIST
INDEXABLE DRILL LINE

DR-4D-T

Indexable Insert Drills for Non-Rotating Applications with Coolant Holes and One Flat Shank, Drilling Depth 4xD



Designation	DC	DCX[1]	LU	LPR	LS	DCONMS	DF	CNT	Th1	MIID[2]
DR140-056-20-05-4D-T	14.00	15.90	56.0	77.0	50.0	20.00	27.70	NPT 1/4-18	NPT 1/16-27	SOMX 050204-DT
DR160-064-20-05-4D-T	16.00	17.90	64.0	82.0	50.0	20.00	27.70	NPT 1/4-18	NPT 1/16-27	SOMX 050204-DT
DR180-072-25-06-4D-T	18.00	20.90	72.0	94.0	56.0	25.00	32.00	NPT 3/8-18	NPT 1/16-27	SOMX 060304-DT
DR210-084-25-07-4D-T	21.00	24.90	84.0	109.0	56.0	25.00	32.00	NPT 3/8-18	NPT 1/16-27	SOMX 070305-DT
DR250-100-32-09-4D-T	25.00	27.90	100.0	133.0	58.0	32.00	42.00	NPT 1/2-14	NPT 1/16-27	SOMT 09T306-DT
DR280-112-32-09-4D-T	28.00	30.90	112.0	144.0	58.0	32.00	42.00	NPT 1/2-14	NPT 1/16-27	SOMT 09T306-DT
DR310-124-32-09-4D-T	31.00	31.90	124.0	157.0	58.0	32.00	42.00	NPT 1/2-14	NPT 1/16-27	SOMT 09T306-DT
DR320-128-32-09-4D-T	32.00	32.90	128.0	161.0	58.0	32.00	42.00	NPT 1/2-14	NPT 1/16-27	SOMT 09T306-DT
DR350-140-32-12-4D-T	35.00	39.90	140.0	177.0	58.0	32.00	50.00	NPT 1/2-14	NPT 1/16-27	SOMT 120408-DT
DR400-160-40-12-4D-T	40.00	44.90	160.0	197.0	68.0	40.00	50.00	NPT 3/4-14	NPT 1/4-18	SOMT 120408-DT
DR450-180-40-16-4D-T	45.00	51.90	180.0	215.0	68.0	40.00	60.00	NPT 3/4-14	NPT 1/4-18	SOMT 160512-DT
DR520-208-40-16-4D-T	52.00	55.90	208.0	243.0	68.0	40.00	60.00	NPT 3/4-14	NPT 1/4-18	SOMT 160512-DT
DR560-224-40-16-4D-T	56.00	57.90	224.0	259.0	68.0	40.00	60.00	NPT 3/4-14	NPT 1/4-18	SOMT 160512-DT
DR580-232-40-16-4D-T	58.00	58.90	232.0	267.0	68.0	40.00	60.00	NPT 3/4-14	NPT 1/4-18	SOMT 160512-DT
DR590-236-40-16-4D-T	59.00	60.00	236.0	271.0	68.0	40.00	60.00	NPT 3/4-14	NPT 1/4-18	SOMT 160512-DT

- Hole tolerance D+0.35/-0.05 in average conditions. However it can be higher or lower according to machine and tooling conditions
- For eccenter sleeves, see page 118
- For user guide and cutting conditions, see pages 117-128

[1] The hole diameter can be enlarged by shifting the drill center along the lathe X-axis, or by using eccentric sleeves in drill rotating applications

[2] Master insert identification

For inserts, see pages: SOGX/T-AL (115) • SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116) • SOMX-DT (114) • SOMX-GF (114) • SOMX-HD (115)

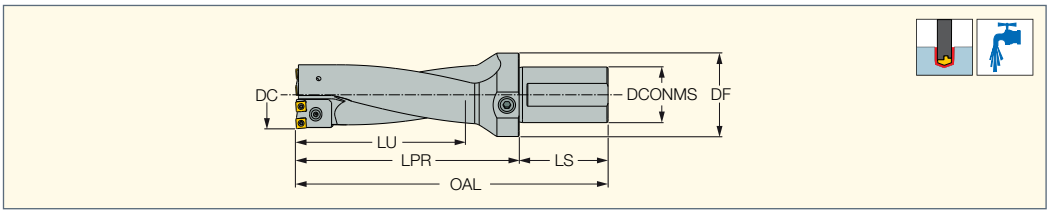
Spare Parts

Designation						
DR140-056-20-05-4D-T	SR 34-533/L	T-6/5			PLG 1/16PTF	PLG 1/4PTF Z C
DR160-064-20-05-4D-T	SR 34-533/L	T-6/5			PLG 1/16PTF	PLG 1/4PTF Z C
DR180-072-25-06-4D-T	SR 34-508/L	T-7/51			PLG 1/16PTF	PLG 3/8PTF
DR210-084-25-07-4D-T	SR 14-560	T-8/53			PLG 1/16PTF	PLG 3/8PTF
DR250-100-32-09-4D-T	SR 34-506		BLD T09/M7-SW4	SW4-SD	PLG 1/16PTF	PLG 1/2PTF
DR280-112-32-09-4D-T	SR 34-506		BLD T09/M7-SW4	SW4-SD	PLG 1/16PTF	PLG 1/2PTF
DR310-124-32-09-4D-T	SR 34-506		BLD T09/M7-SW4	SW4-SD	PLG 1/16PTF	PLG 1/2PTF
DR320-128-32-09-4D-T	SR 34-506		BLD T09/M7-SW4	SW4-SD	PLG 1/16PTF	PLG 1/2PTF
DR350-140-32-12-4D-T	SR 14-544/S		BLD T15/S7	SW6-SD	PLG 1/16PTF	PLG 1/2PTF
DR400-160-40-12-4D-T	SR 14-544/S		BLD T15/S7	SW6-SD	PLG 3/4PTF	PLG 1/4PTF Z C
DR450-180-40-16-4D-T	SR 76-961		BLD T15/M7	SW6-T	PLG 3/4PTF	PLG 1/4PTF Z C
DR520-208-40-16-4D-T	SR 76-961		BLD T15/M7	SW6-T	PLG 3/4PTF	PLG 1/4PTF Z C
DR560-224-40-16-4D-T	SR 76-961		BLD T15/M7	SW6-T	PLG 3/4PTF	PLG 1/4PTF Z C
DR580-232-40-16-4D-T	SR 76-961		BLD T15/M7	SW6-T	PLG 3/4PTF	PLG 1/4PTF Z C
DR590-236-40-16-4D-T	SR 76-961		BLD T15/M7	SW6-T	PLG 3/4PTF	PLG 1/4PTF Z C

DR-TWIST
INDEXABLE DRILL LINE

DR-CA

DR Large Diameter Drills (57-80 mm) with Cartridges and One Flat Shank



Designation	Dimensions						DCX(1)	Shim Plate	Cartridges	Inserts	Insert Clamping Screw	Key Blade & Handle
	DC	LU	DCONMS	DF	LPR	LS						
DR057>062-155-50-10/11CA	57	155	50	75	201	50	63	ISP-10-D058	Internal: CA57>62-IN-10/10	On internal cartridge: Ext.-SOMT 100408 Int.-SOMT 100408	On internal cartridge: Ext.&Int.-SR 14-571	On internal cartridge: Ext.&Int.-BLD T10/87
	58	155	50	75	201	50		ISP-10-D059				
	59	155	50	75	201	50		ISP-10-D060	External: CA57>62-EX-10/11	On external cartridge: Ext.-SOMT 110408 Int.-SOMT 100408	On external cartridge: Ext.-SR 14-544/8 Int.-SR 14-571	On external cartridge: Ext.-BLD T15/87 Int.-BLD T10/87
	60	155	50	75	201	50		ISP-10-D061				
	61	155	50	75	201	50		ISP-10-D062				
	62	155	50	75	201	50						
DR063>066-165-50-10/11CA	63	165	50	75	215	50	67	ISP-10-D064	Internal: CA63>66-IN-10/10	On internal cartridge: Ext.-SOMT 100408 Int.-SOMT 100408	On internal cartridge: Ext.&Int.-SR 14-571	On internal cartridge: Ext.&Int.-BLD T10/87
	64	165	50	75	215	50		ISP-10-D065				
	65	165	50	75	215	50		ISP-10-D066	External: CA63>66-EX-10/11	On external cartridge: Ext.-SOMT 110408 Int.-SOMT 100408	On external cartridge: Ext.-SR 14-544/8 Int.-SR 14-571	On external cartridge: Ext.-BLD T15/87 Int.-BLD T10/87
	66	165	50	75	215	50						
DR067>073-183-50-11/12CA	67	183	50	75	240	50	74	ISP-11-D068	Internal: CA67>73-IN-11/11	On internal cartridge: Ext.-SOMT 110408 Int.-SOMT 110408	On internal cartridge: Ext. & Int. SR 14-544/8	On internal cartridge: Ext.&Int.-BLD T15/87
	68	183	50	75	240	50		ISP-11-D069				
	69	183	50	75	240	50		ISP-11-D070	External: CA67>73-EX-11/12	On external cartridge: Ext.-SOMT 120408 Int.-SOMT 110408	On external cartridge: Ext.-SR 14-544/8 Int.-SR 14-544/8	On external cartridge: Ext.&Int.-BLD T15/87
	70	183	50	75	240	50		ISP-11-D071				
	71	183	50	75	240	50		ISP-11-D072				
	72	183	50	75	240	50		ISP-11-D073				
	73	183	50	75	240	50						
DR074>080-200-50-12/14CA	74	200	50	75	250	50	81	ISP-12-D075	Internal: CA74>80-IN-12/12	On internal cartridge: Ext.-SOMT 120408 Int.-SOMT 120408	On internal cartridge: Ext.&Int.-SR 14-544/8	On internal cartridge: Ext.&Int.-BLD T15/87
	75	200	50	75	250	50		ISP-12-D076				
	76	200	50	75	250	50		ISP-12-D077	External: CA74>80-EX-12/14	On external cartridge: Ext.-SOMT 140512 Int.-SOMT 120408	On external cartridge: Ext.-SD 50030 Int.-SR 14-544/8	On external cartridge: Ext.-BLD T20/87 Int.-BLD T15/87
	77	200	50	75	250	50		ISP-12-D078				
	78	200	50	75	250	50		ISP-12-D079				
	79	200	50	75	250	50		ISP-12-D080				
	80	200	50	75	250	50						

- Hole tolerance: $D^{\pm 0.5}$ in average conditions. However, it can be higher or lower according to machine and tooling conditions
- For user guide and cutting conditions, see pages 117-128

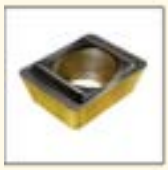
(1) Cutting diameter minimum
(2) Cutting diameter maximum
(3) Max. dia. on lathe, with the thickest shim plate

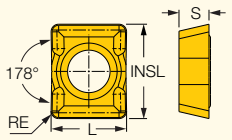
For inserts, see pages: SOMT-DT (116) • SOMT-GF (115) • SOMT-HD (116)

DR-TWIST INDEXABLE DRILL LINE

AOMT/AOGT

Inserts for DR Drills





Designation	Dimensions L	S	RE	INSL	Tough ↔ Hard IC08	IC1008	IC808	IC908
AOGT 040204-90AL	4.00	1.60	0.40	5.00	•			
AOMT 040204-90DT	4.00	1.60	0.40	5.00		•	•	•
AOMT 040204-90HD (1)	4.00	1.60	0.40	5.00			•	

• Used on 12-13.5 mm DR drills • For user guide and cutting conditions, see pages 117-128

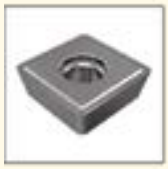
(1) For low carbon steel and soft materials.

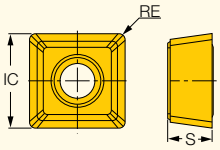
For tools, see pages: DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109)

DR-TWIST INDEXABLE DRILL LINE

SOMX-DT

Inserts for DR Drills with a DT General Use Chipformer





Designation	Dimensions IC	S	RE	Tough ↔ Hard IC5500	IC808	IC908	IC8080	IC9080
SOMX 050204-DT	5.40	2.40	0.40		•	•	•	•
SOMX 060304-DT	6.20	3.20	0.40	•	•	•	•	•
SOMX 070305-DT	7.70	3.60	0.50	•	•	•	•	•
SOMX 160512-DT	16.00	5.56	1.20			•		

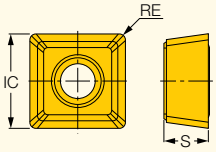
• DT - a general use chipformer for medium to high feed rates • For user guide and cutting conditions, see pages 117-128

For tools, see pages: DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-5D-N (111) • MD-DR-DH-HEAD (83)

DR-TWIST INDEXABLE DRILL LINE

SOMX-GF

Inserts with a GF Chipformer for Soft Materials Used on DR Drills



Designation	Dimensions IC	S	RE	IC908
SOMX 050204-GF	5.40	2.40	0.40	•
SOMX 060304-GF	6.20	3.20	0.40	•
SOMX 070305-GF	7.70	3.60	0.50	•

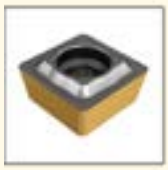
• GF - a narrow chipformer for use on soft materials at low to medium feed rates • For user guide and cutting conditions, see pages 117-128

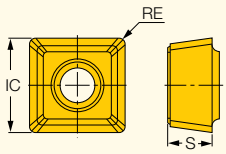
For tools, see pages: DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-5D-N (111) • MD-DR-DH-HEAD (83)

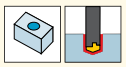
DR-TWIST INDEXABLE DRILL LINE

SOMX-HD

Inserts for DR Drills for Carbon Steel and Soft Materials







Designation	Dimensions IC	S	RE	IC808
SOMX 050204-HD	5.40	2.40	0.40	●
SOMX 060304-HD	6.20	3.20	0.40	●
SOMX 070305-HD	7.70	3.60	0.50	●

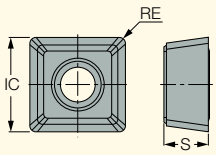
• For user guide and cutting conditions, see pages 117-128

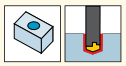
For tools, see pages: DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-5D-N (111) • MD-DR-DH-HEAD (83)

DR-TWIST INDEXABLE DRILL LINE

SOGX/T-AL

Inserts for DR Drills for Aluminum





Designation	Dimensions IC	S	RE	IC08
SOGX 050204-AL	5.40	2.40	0.40	●
SOGX 060304-AL	6.20	3.20	0.40	●
SOGX 070305-AL	7.70	3.60	0.50	●
SOGT 09T306-AL	9.00	3.81	0.60	●
SOGT 120408-AL	12.70	4.76	0.80	●

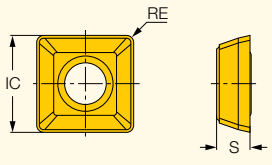
• Sharp cutting edge with polished rake for aluminum • For user guide and cutting conditions, see pages 117-128

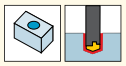
For tools, see pages: CR SOMT (411) • DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-5D-N (111)

DR-TWIST INDEXABLE DRILL LINE

SOMT-GF

Inserts for DR Drills for Soft Materials at Low-to-Medium Feeds





Designation	Dimensions IC	S	RE	Tough ↔ Hard IC328	IC908
SOMT 09T306-GF	9.00	3.81	0.60	●	●
SOMT 120408-GF	12.70	4.76	0.80		●
SOMT 160512-GF	16.00	5.56	1.20		●

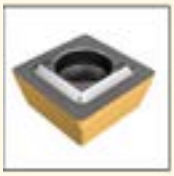
• For user guide and cutting conditions, see pages 117-128

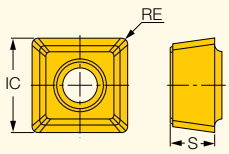
For tools, see pages: CR SOMT (411) • DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-CA (113)

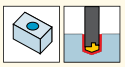
DR-TWIST INDEXABLE DRILL LINE

SOMT-HD

Inserts for DR Drills for Carbon Steel and Soft Materials







Designation	Dimensions IC	S	RE	IC808
SOMT 09T306-HD	9.00	3.81	0.60	●
SOMT 100408-HD	9.80	4.30	0.80	●
SOMT 110408-HD	11.50	4.80	0.80	●
SOMT 120408-HD	12.70	4.76	0.80	●
SOMT 160512-HD	16.00	5.56	1.20	●

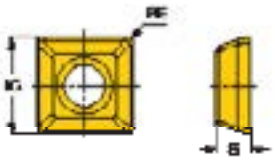
• For user guide and cutting conditions, see pages 117-128

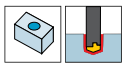
For tools, see pages: CR SOMT (411) • DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-CA (113)

DR-TWIST INDEXABLE DRILL LINE

SOMT-DT

Inserts for DR Drills for General Applications at Medium-to-High Feeds





Designation	Dimensions IC	S	RE	Tough ↔ Hard IC328	IC5500	IC808	IC908	IC8080	IC9080
SOMT 060204-DT	6.00	1.96	0.40	●		●	●		
SOMT 09T306-DT	9.00	3.81	0.60		●	●	●	●	●
SOMT 100408-DT	9.80	4.30	0.80			●	●	●	
SOMT 110408-DT	11.50	4.80	0.80			●	●		
SOMT 120408-DT	12.70	4.76	0.80			●	●	●	●
SOMT 140512-DT	14.30	5.20	1.20			●	●	●	
SOMT 160512-DT	16.00	5.56	1.20			●	●		●

• For user guide and cutting conditions, see pages 117-128

For tools, see pages: CR SOMT (411) • DR-2D-N (106) • DR-3D-N (108) • DR-4D-N (109) • DR-4D-T (112) • DR-CA (113)

Specially Tailored Designation Code Key

Metric
MN - SUMOCHAM heads
MNC - COMBICHAM
MF - CHAM-IQ-DRILL
M3N - LOGIQ-3-CHAM
MD - IDI Heads
MR - XOMT/SOMT/SOMX Inserts
MC - Assembly
MH - Combi Holder

Metric
#.##

Metric
#.##

Other Characteristics
F - Cartridge
A - Adjustable Cartridge
R - No Cartridge
L - Left-Hand Drill
B - Boring Tool
S - Stacked Plates
T - Flat Bottom
C - Frontal Coolant
H - Heavy Metal
P - Combi Head
Y - Combi Assembly
M - Twisted

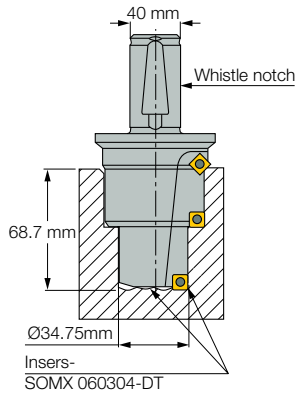
Inch
IN - SUMOCHAM heads
INC - COMBICHAM
IF - CHAM-IQ-DRILL
I3N - LOGIQ-3-CHAM
ID - IDI Heads
IR - XOMT/SOMT/SOMX Inserts
IC - Assembly
IH - Combi Heads

Inch
#.##

Inch
#.##

ANSI	ISO
A - 2	SOMT 06
F - 3	SOMT 09
H - 4	SOMT 12
K - 5	SOMT 16
T - 4	AOMT 04
P - 5	SOMX 05
Q - 6	SOMX 06
R - 7	SOMX 07
J - 10	SOMT 10
I - 11	SOMT 11
L - 14	SOMT 14
N - DCN/D3N Pocket	
E - DCM Pocket	

Line	Drill Diameter		Drilling Depth			Shank/Flange Code	Insert Size		Insert Qty	Other
M	R	3	4	8	-	0	6	9	N	D	-	Q	4	R



Shank Type Code	
F	One Parallel Flat
D	Two Parallel Flats (DZ Metric Type)
E	Extended Lengh (For Coolant Ring)
N	Whistle Notch (DR Metric Type)
L	One Flat (ISO 9266 Cham Shank)
R	Round (Fully Rounded)
W	Weldon
M	Morse
H	HSK
X	Special
P	CLICKFIT
B	BBS (ABS Compatible)(1)
K	IM (ISO 26622-1 standard)
C	CAMFIX
V	VDI (ISO 26623-1 standard)

Other types on request

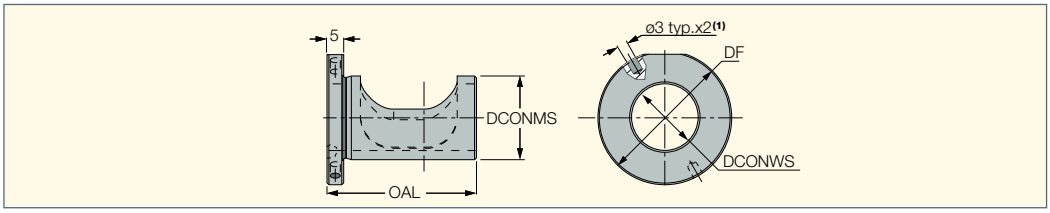
(1) The trademark ABS® is owned by the KOMET GROUP

Shank/Diameter Type Code			
P	10 mm	Z	.375"
S	12 mm	T	.437"
Q	14 mm	V	.500"
R	16 mm	W	.562"
H	18 mm	U	.625"
A	20 mm	J	.750"
B	25 mm	K	1.000"
C	32 mm	L	1.250"
D	40 mm	M	1.500"
E	50 mm	N	2.000"
F	63 mm	2	MT2
G	80 mm	3	MT3
X	Special	4	MT4
		5	MT5

Accessories

Drilling Eccenter Sleeves

Bushings for Enlarging or Reducing DR Nominal Drilling Diameters by Shifting the Drill Off-Center

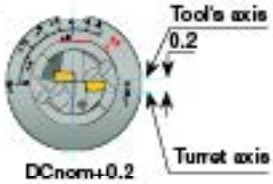


Designation	DCONWS	DCONMS	DF	OAL
ECCENTER SLEEVE 20X25	20.00	25.00	40.00	44.00
ECCENTER SLEEVE 25X32	25.00	32.00	50.00	46.00
ECCENTER SLEEVE 32X40	32.00	40.00	65.00	55.00
ECCENTER SLEEVE 40X50	40.00	50.00	75.00	77.00

- (1) Holes for inserting a pin, used to facilitate radial adjustment of the sleeve (pin not supplied)

Eccenter Sleeve Operating Instructions

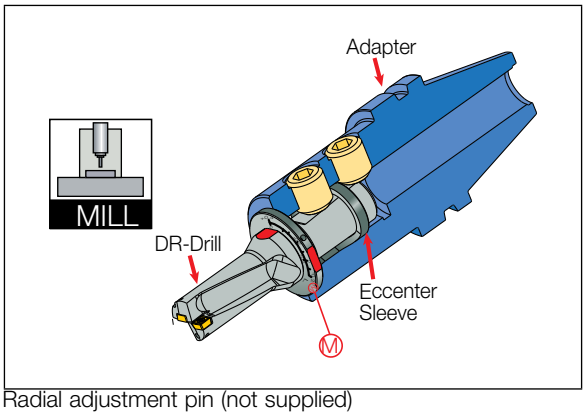
Operation on a Lathe



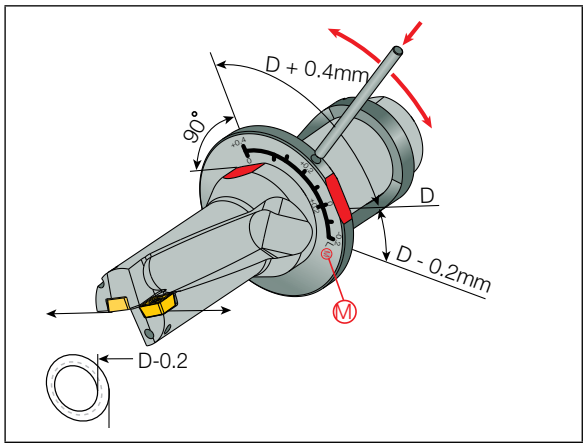
DCnom
Tool and turret axes coincide

On a lathe, the eccenter sleeve can shift the drill's axis to coincide with the spindle axis. The eccentric sleeve enables alignment of the drill's axis with the spindle axis within a 0.2 mm range (turn the sleeve counterclockwise to raise it).

On a milling machine, the drill's nominal diameter can be changed by shifting the drill's axis out of the tool spindle.

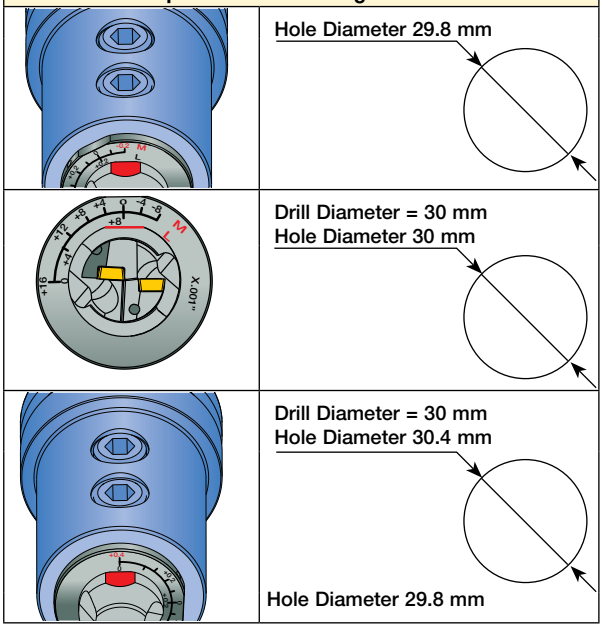


Radial adjustment pin (not supplied)

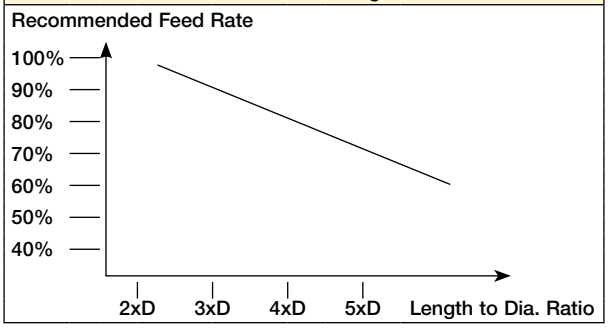


To enlarge the diameter, turn the sleeve clockwise

Operation on a Milling Machine



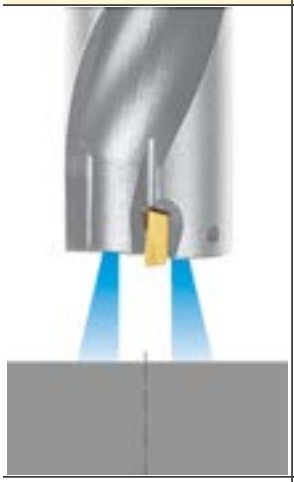
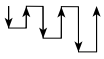
Recommended Feed When Using Eccenter Sleeves



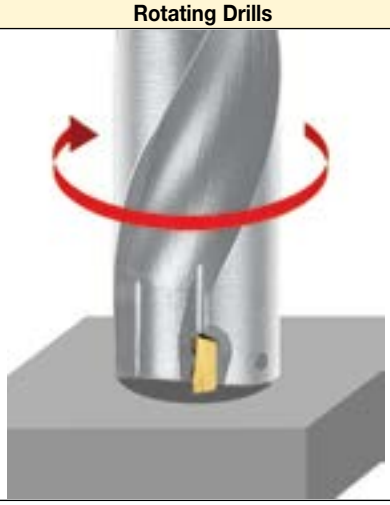
Machining Conditions

Cooling Methods

Directing the coolant through the tool is essential for reliable machining. This method prevents chip pile up, insert damage or breakage, and damage to the workpiece surface.

Internal Coolant	External Coolant
	
Apply standard cutting data.	Drilling depth is limited to 1.5xD. For larger depths, a pecking cycle is recommended. 

Rotating Drills



For best results:

1 Check adapter rigidity.
2 Minimize drill runout in relation to spindle center line.
3 Use recommended cutting conditions.

How to Select Cutting Parameters

Step 1 - Prior to Drilling

- Use charts on pages 122-124 to select feed and speed according to workpiece material.
- For the first grade choice, in general we recommend selecting IC808.

Step 2 - Initial Test Hole Drilling

- Evaluate chip evacuation. If not satisfactory, adjust feed and speed, using example photos below.
- If chip evacuation is still a problem, i.e. chips are too long, change the chipbreaker to GF as shown below.

SOMT/SOMX

Too Tight	Optimal Shape	Too Long
		
may cause insert damage		may cause tool damage

Optimizing Chip Shape

Chip control is one of the most important factors for tool performance in order to facilitate chip evacuation and avoid tool damage.
Cutting conditions must be adjusted to achieve optimal chip shape.

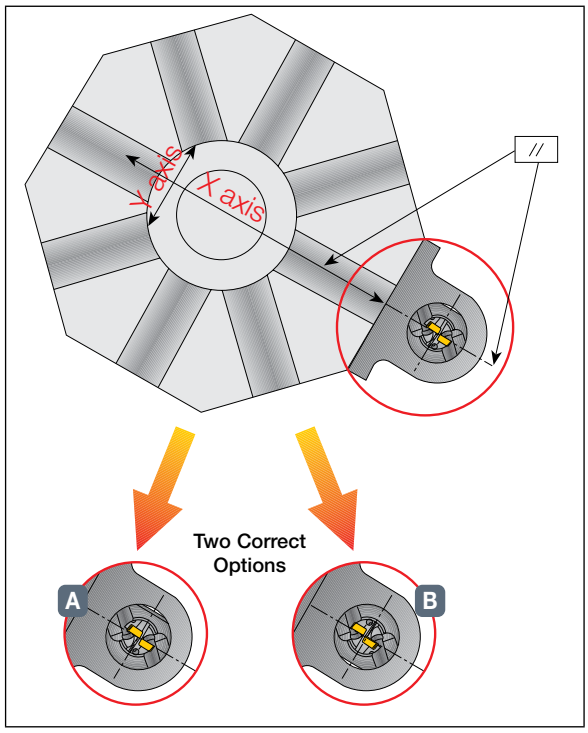
How To Achieve Optimal Chip Shape

Too Tight		Too Long
Increase speed within recommended limits. If not satisfactory, decrease feed.	→ Optimal Shape ←	If machining at high speed, first reduce speed. If unsatisfactory, increase feed, but do not exceed upper limit.

Setup of Non-Rotating Drills

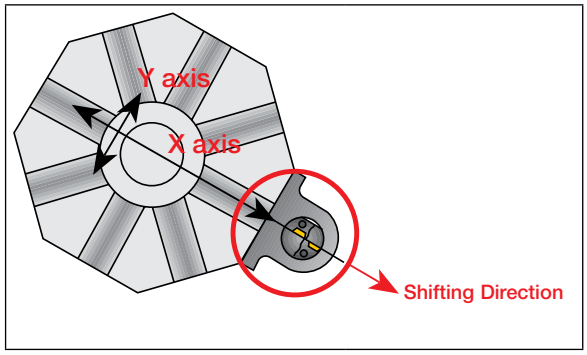
Drill Positioning on Turret Lathe

The peripheral insert cutting edge should be parallel to the machine X-axis.



The drill can be mounted on the X-axis or on a 180° rotation.

For better chip evacuation it is recommended to apply option **A** peripheral insert position.



Change hole diameter by shifting drill's center along lathe x-axis.

Diameter Change by Center Shift

DR-06	
D Nominal	**D Max. on Lathe**
16	19.5
17	20.0
18	20.5
19	21.0
20	21.5
21	22.0
22	23.0

DR-09	
D Nominal	**D Max. on Lathe**
23	28.5
24	29.0
25	29.5
26	30.0
27	30.5
28	31.0
29	31.5
30	32.0
31	32.5
32	33.3
33	34.0
34	34.5
35	35.0

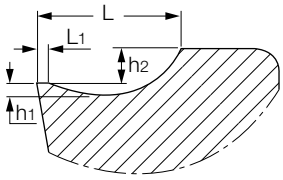
DR-12	
D Nominal	**D Max. on Lathe**
34	39.5
35	40.0
36	40.5
37	41.0
38	41.5
39	42.0
40	42.5
41	43.0
42	43.5
43	44.0
44	44.5
45	51.0
46	51.5
47	52.0
48	52.5
49	53.0
50	54.0
51	54.5
52	55.0
53	55.5
54	56.0
55	56.5
56	57.0
57	57.5
58	58.0
59	59.0
60	60.0

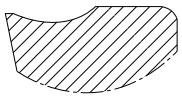
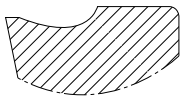
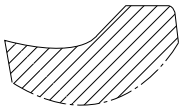
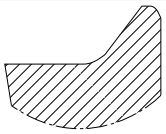
Applicable only when using SOMT inserts

Setup of Non-Rotating Drills

Machining Conditions

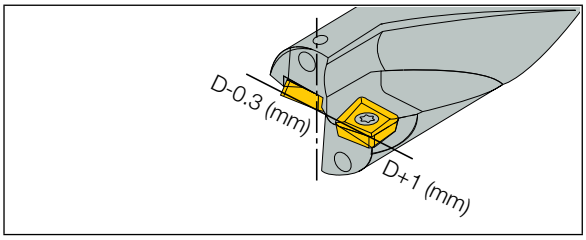
Optimizing Chip Shape for DR Drills



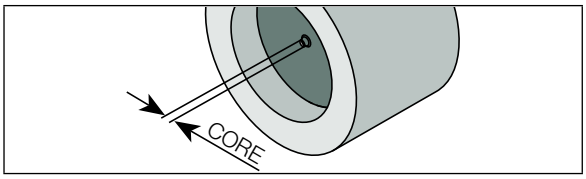
DT	GF
	
General use **For ISO – P/M/K/H/S materials** **For medium up to high feed rates** L – open H2 – low L1 – medium H1 – shallow	**For low up to medium feed rates** **For ISO – P material** L – close H2 – high L1 – small H1 – deep
AL	**HD**
	
For medium up to high feed rates **For ISO – N material** L – open H2 – high L1 – non H1 – deep	**For low up to medium feed rates** **For ISO – P material** L – open H2 – high L1 – non H1 – non

Make sure the center line of the drill is aligned with the spindle center line. It is recommended to verify the setup according to the instructions shown below.

DR-06



Under regular conditions it is possible to adjust the center line of the drill (X-axis of the machine) in order to change hole diameter size.

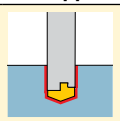


1 Drill a hole 6 mm deep with the drill center line aligned with the spindle center line.
2 Check the existing core. If there is no core, check the alignment of the Y-axis of the drill and spindle. Correct by checking the adapter or adjusting the Y-axis.
3 Check that the hole diameter equals the drill diameter +0.0- +0.2 mm. If not, adjust the X-axis.
4 Note: In some operations, part of the core may break. If this occurs, use finger contact to verify if any core remains

Warning: As the drill goes all the way through a workpiece, it ejects a disc.
For worker safety, guards should be used..

Drilling Insert Grades

Grades for Applications and Materials

Material Groups / Main Applications		ISO P		ISO M	ISO K	ISO N	ISO S	ISO H
		1-11	12-13	14	15-20	21-28	31-37	38-41
		Steel	Stainless Steel Ferritic & Martensitic	Stainless Steel Austenitic & Duplex (Ferritic-Austenitic)	Cast Iron	Nonferrous	High Temp	Hard Steel
 DRILLING	Harder							
		IC808 (908)	IC808 (908)	IC808 (908)	IC8080[1] (9080)	IC808 (908)	IC808 (908)	IC808 (908)
		IC5500			IC808 (908)			
	Tougher							

[1] Use for an outer insert on DR drills

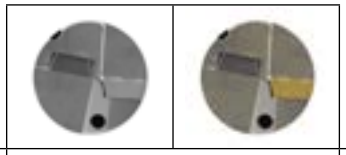
Default recommendation

Machining Data for DR Drills

ISO	Material		Condition	Tensile Strength [N/mm²]	Hardness HB	Group No.(1)
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1
		≥ 0.25 %C	Annealed	650	190	2
		< 0.55 %C	Quenched and tempered	850	250	3
		≥ 0.55 %C	Annealed	750	220	4
			Quenched and tempered	1000	300	5
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6
			Quenched and tempered	930	275	7
				1000	300	8
				1200	350	9
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10
			Quenched and tempered	1100	325	11
	Stainless steel and cast steel		Ferritic/martensitic	680	200	12
			Martensitic	820	240	13
M	Stainless steel and cast steel		Austenitic, duplex	600	180	14
K	Gray cast iron (GG)		Ferritic / pearlitic		180	15
			Pearlitic / martensitic		260	16
	Nodular cast iron (GGG)		Ferritic		160	17
			Pearlitic		250	18
	Malleable cast iron		Ferritic		130	19
			Pearlitic		230	20
N	Aluminum-wrought alloys		Not hardenable		60	21
			Hardenable		100	22
	Aluminum-cast alloys	≤12% Si	Not hardenable		75	23
			Hardenable		90	24
		>12% Si	High temperature		130	25
	Copper alloys	>1% Pb	Free cutting		110	26
			Brass		90	27
			Electrolytic copper		100	28
	Non metallic		Duroplastics, fiber plastics			29
			Hard rubber			30
S	High temperature alloys	Fe based	Annealed		200	31
			Hardened		280	32
		Ni or Co based	Annealed		250	33
			Hardened		350	34
			Cast		320	35
	Titanium alloys		Pure	400		36
			Alpha+beta alloys, hardened	1050		37
H	Hardened steel		Hardened		55 HRC	38
			Hardened		60 HRC	39
	Chilled cast iron		Cast		400	40
	Cast iron		Hardened		55 HRC	41

- This table refers to 2/3xD drill ratio usage. For 4xD ratio decrease cutting data by 15%
- Chipformer should be selected based on our geometry range recommendations
- When using external coolant supply only, reduce cutting speed by 10%
- Use internal coolant supply when machining austenitic stainless steel

(1) For workpiece materials list, see pages 495-524



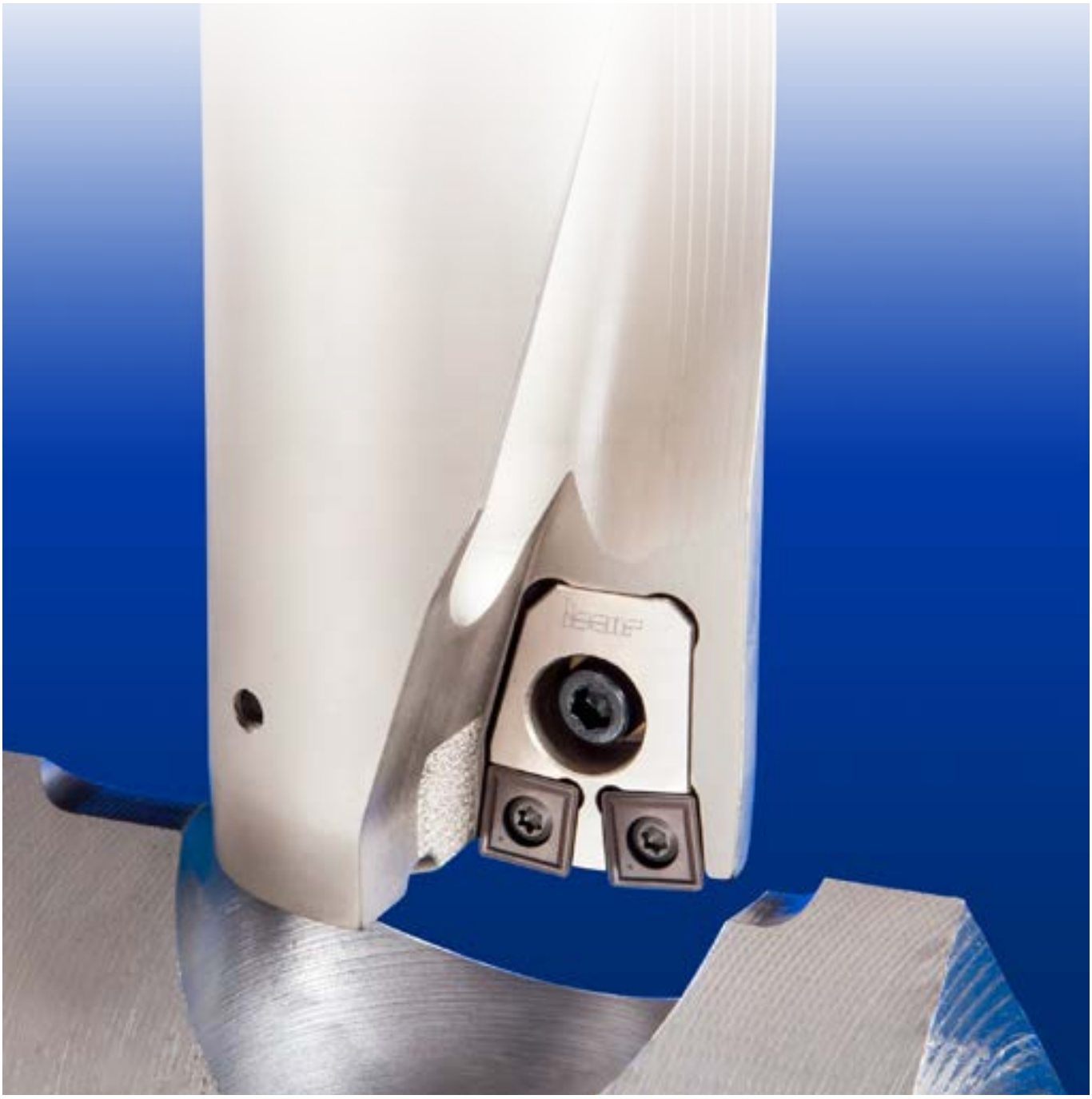
Mat. No.	Cutting Speed (1) V_c m/min IC808/ 908 external	V_c m/min IC8080 /9080 external	DR-04 AL/DT/HD	DR-05 GF/DT/AL/HD	DR-06 GF/DT/AL/HD	DR-07 GF/DT/AL/HD	DR-09/10 GF/DT/AL/HD	DR-11/12 GF/DT/AL/HD	DR-14/16 GF/DT/AL/HD
				Feed vs. Drill Diameter mm/rev					
1	200-300	260-390	0.04-0.08 0.02-0.06	0.06-0.10 0.10-0.15 0.04-0.08	0.07-0.12 0.10-0.16 0.04-0.08	0.08-0.12 0.12-0.18 0.05-0.10	0.10-0.15 0.14-0.22 0.05-0.10	0.12-0.16 0.15-0.25 0.08-0.15	0.14-0.17 0.16-0.26 0.08-0.15
2									
3	150-200	190-260							
4									
5									
6	150-220	190-290		0.06-0.10 0.10-0.14 0.04-0.08	0.07-0.12 0.10-0.15 0.04-0.08	0.08-0.12 0.10-0.16 0.05-0.10	0.10-0.14 0.14-0.20 0.05-0.10	0.12-0.15 0.14-0.22 0.08-0.15	0.14-0.16 0.15-0.24 0.08-0.15
7	120-180	160-230							
8									
9									
10	120-190	160-250		0.06-0.10 0.10-0.14 0.08-0.112	0.06-0.10 0.10-0.14 0.08-0.112	0.06-0.10 0.10-0.14 0.08-0.112	0.08-0.12 0.12-0.18 0.096-0.144	0.10-0.15 0.14-0.20 0.112-0.160	0.14-0.17 0.16-0.24 0.128-0.192
11	100-160	210-310							
12	160-240	210-310		0.06-0.10 0.048-0.08	0.06-0.10 0.048-0.08	0.06-0.12 0.048-0.096	0.08-0.12 0.064-0.096	0.10-0.14 0.08-0.112	0.12-0.20 0.096-0.160
13									
14	160-240	210-310	0.04-0.08	0.06-0.10	0.06-0.10	0.06-0.12	0.08-0.12	0.10-0.14	0.12-0.20
15	150-250	190-320	0.08-0.16	0.10-0.22	0.10-0.22	0.10-0.22	0.15-0.25	0.18-0.30	0.20-0.34
16									
17	120-180	160-230							
18									
19									
20									
21	150-300	190-390	0.08-0.24	0.12-0.25	0.12-0.25	0.12-0.25	0.20-0.30	0.2-0.35	0.28-0.45
22									
23									
24									
25									
26									
27									
28									
29									
30									
31	20-50	30-60	0.03-0.07	0.04-0.08	0.04-0.08	0.05-0.09	0.07-0.10	0.08-0.12	0.10-0.14
32									
33									
34									
35									
36	50-60	60-80							
37									
38	20-50	30-60	0.04-0.08	0.05-0.08	0.05-0.08	0.06-0.09	0.07-0.10	0.08-0.12	0.10-0.14
39									
40									
41									

(1) Central insert should always be IC808/IC908

- This table refers to 2/3xD drill lengths. For 4xD and 5XD drills, decrease cutting data by 15%
- When using only external coolant supply, reduce cutting speed by 10%
- Use internal coolant supply when machining austenitic stainless steel

Machining Conditions for Large Diameter DR-TWIST Drills

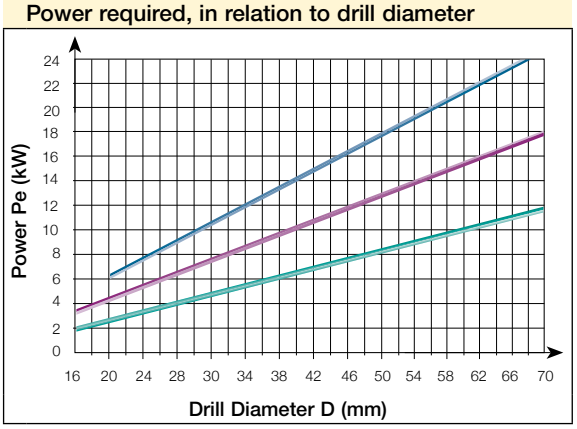
Material	V_c (m/min)	Feed (mm/rev)		
		57-66 dia.	67-73 dia.	74-80 dia.
Low Carbon Steel (<0.3% C)	180-250	0.08-0.12	0.08-0.12	0.09-0.14
Carbon Steel (>0.3% C)	160-220	0.12-0.18	0.12-0.18	0.14-0.21
Low Alloy Steel (<HB300)	150-220	0.10-0.18	0.10-0.18	0.12-0.21
High Alloy Steel (>HB300)	130-180	0.10-0.15	0.10-0.15	0.12-0.17
Stainless Steel	170-240	0.08-0.15	0.08-0.15	0.09-0.17
Cast Iron	180-250	0.15-0.22	0.15-0.22	0.17-0.25
Ductile Cast Iron	130-200	0.10-0.20	0.10-0.20	0.12-0.23
Aluminum	330-380	0.15-0.25	0.15-0.25	0.17-0.29
Ti Alloy (Ti 6Al)	30-60	0.12-0.16	0.12-0.16	0.14-0.18



Machining Conditions

Machine Power and Feed Force Requirements

Power required, in relation to drill diameter



f=0.25
f=0.18
f=0.1

Required Machine Power
Material: SAE 4140

Cutting speed: 100 m/min

For different cutting speeds, use factor as follows:

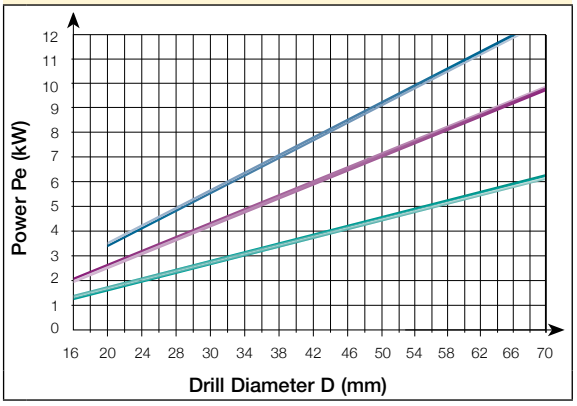
Machine Power

$$P = \frac{Pe \cdot C}{\eta}$$

V_c [m/min]	100	150	200
C	1.0	1.5	2.0

η=Machine efficiency

Feed force (thrust force) required, in relation to drill diameter



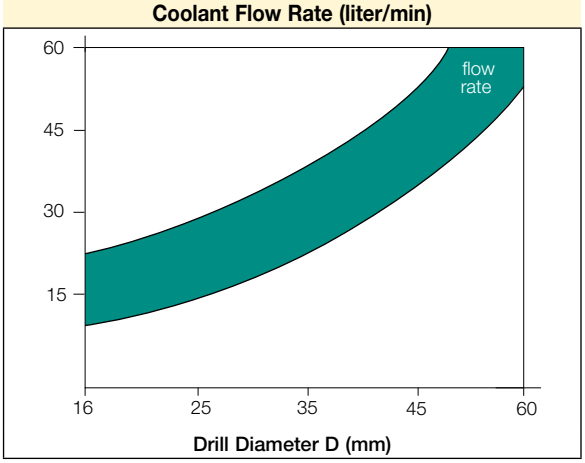
f=0.25
f=0.18
f=0.1

Required Feed Force
Material: SAE 4140

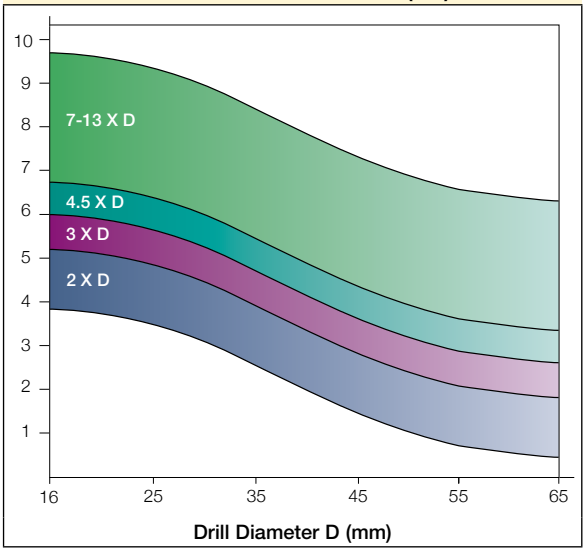
Internal Coolant Pressure

Selecting Coolant Pressure and Flow Rate

Coolant Flow Rate (liter/min)



Minimum Coolant Pressure (bar)

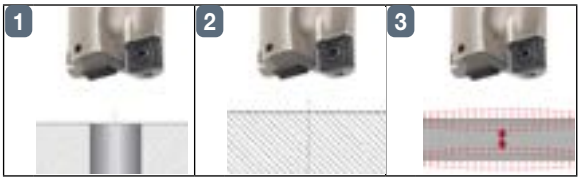


* For special drills more than 4xD, it is recommended to use high coolant pressure 15–70 bar

Troubleshooting

Irregular Conditions for DR Drills

If surface slope exceeds 5º, reduce feed by 50% during penetration or when exiting. It is preferred to pre-face the surface to eliminate slope.



1 Drilling into a pre-hole reduces feed to eliminate deflection(1) of the drill body.
2 Drilling an interrupted cut reduces feed during crossing to eliminate deflection(1) of the drill body.
3 Insufficient stability of workpiece requires additional support. Reduce feed.

(1) Deflection may be observed by a mark on the drill body.
Note: For irregular applications, use DR drills with XOMT inserts as a first priority.

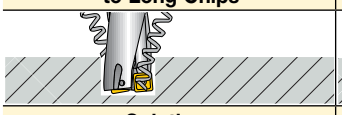
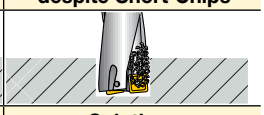
Stacked Plates

Drilling operation is not recommended, but may be done by specially designed drills in 16-60 mm range. Apply standard cutting data.

Regular Conditions for DR Drills

Note: For irregular applications, use DR drills with XOMT inserts as a first priority.

Indexable Insert Drills - Troubleshooting DR Chips

Chip Jamming due to Long Chips	Chip Jamming despite Short Chips
	
Solutions	**Solutions**
1 Increase feed. If drilling a very soft material, reduce feed and increase speed. 2 Choose a geometry with a tighter chipbreaker for lower feeds (GF). 3 Long chips that rotate around the drill are problematic. If chip formation can not be improved by changing the machining conditions, use a pecking cycle. 	1 Increase coolant pressure/volume. 2 Reduce cutting speed.

Chipping Along Cutting Edge	Machine Troubleshooting Vibrations
Solutions	**Solutions**
1 Reduce entrance feed. 2 Choose a tougher grade. 3 Choose a geometry with open chip breaking for higher feeds. (SOMT, WOLH) 4 Reduce feed.* 5 Reduce cutting speed. 6 Increase coolant pressure.	1 Check mounting of drill. 2 Check mounting of workpiece. 3 Increase feed. If drilling a very soft material, reduce feed and increase speed.* 4 Reduce cutting speed.

Chipping of Center Insert	Insufficient Torque
Solutions	**Solutions**
1 Check mounting of drill. 2 Check mounting of workpiece. 3 Reduce entrance feed. 4 Reduce cutting speed. 5 Check drill runout (should be 0.05 mm maximum).	1 Reduce feed.* 2 Choose a geometry with a looser chipformer.

Excessive Flank Wear	Insufficient Power
Solutions	**Solutions**
1 Reduce cutting speed. 2 Increase coolant pressure/volume. 3 Choose a better wear resistant grade.	1 Reduce cutting speed. 2 Reduce feed.* 3 Choose a geometry with a looser chipformer.

* Use GF chipformer

Troubleshooting

Undersized holes	Oversized holes
	

Rotating drill
- Check that overlapping is correct between inner and outer inserts
- Check inner insert over center
- Increase coolant pressure
- Change the insert chipbreaker

Non-rotating drill
- Check misalignment
- Check that overlapping is correct between inner and outer inserts
- Check inner insert over center
- Rotate drill 180 degrees
- Increase coolant pressure
- Change the insert chipbreaker

Cone Hole


Rotating drill
- Use shorter drill overhang (if possible)
- Reduce feed by 30-50%
- Check that overlapping is correct between inner and outer inserts
- Check inner insert is positioned over center within its limits
- Increase coolant pressure
- Change the insert chipbreaker

Non-rotating drill
- Check misalignment
- Check that overlapping is correct between inner and outer inserts
- Check inner insert is positioned over center within its limits
- Rotate drill 180 degrees
- Increase coolant pressure
- Change the insert chipbreaker

Pin in hole	Vibrations
	

Rotating drill
- Use shorter drill overhang (if possible)
- Reduce feed by 30-50%
- Check that overlapping is correct between inner and outer inserts
- Check inner insert is positioned over center within its limits
- Increase coolant pressure
- Change the insert chipbreaker

Non-rotating drill
- Check misalignment
- Check that overlapping is correct between inner and outer inserts
- Check inner insert over center
- Rotate drill 180 degrees
- Increase coolant pressure
- Change the insert chipbreaker

Bad Surface Finish


Rotating drill
- Improve chip formation (change chipbreaker type or cutting condition)
- Increase coolant pressure
- Increase speed and reduce feed
- Stabilize clamping device

Non-rotating drill
- Improve chip formation (change chipbreaker type or cutting condition)
- Increase coolant pressure
- Increase speed and reduce feed
- Stabilize clamping device

Chip jamming

Rotating drill
- Improve chip formation (change chipbreaker type or cutting condition)
- Increase coolant pressure

Non-rotating drill
- Improve chip formation (change chipbreaker type or cutting condition)
- Increase coolant pressure

Deflection

Rotating drill
- Use shorter drill overhang (if possible)
- Reduce feed by 30-50%
- Check that overlapping is correct between inner and outer inserts
- Check inner insert is positioned over center within its limits
- Increase coolant pressure
- Change the insert chipbreaker
- Stabilize clamping device

Non-rotating drill
- Check misalignment
- Check that overlapping is correct between inner and outer inserts
- Check inner insert is positioned over center within its limits
- Rotate drill 180 degrees
- Increase coolant pressure
- Change the insert chipbreaker

Broken Screw

- Use recommended torque wrench
- Lubricate the screw before tightening

Insufficient machine power-

- Reduce speed and feed
- Use recommended chipbreaker for low feed

Insufficient machine torque

- Reduce feed
- Use recommended chipbreaker for low feed

Chip Formation Problems

Long chip/ Chip jamming:
This typical problem with stainless or low carbon steel, can affect hole quality, especially on surface finish, and in some cases can cause insert or tool breakage.

Optimal Shape	Too Long	Too Tight
		
	If machining at high speed, first reduce speed. If unsatisfactory, increase feed, but do not exceed upper limit.	Increase speed within recommended limits. If not satisfactory, decrease feed.

DR-DH Deep Drills for Milling Centers and Lathe Machines

DR-DH are drills for a drilling depth-to-diameter ratio of 7xD and up, to be used on standard horizontal milling centers, turning, and multi-task machines. Use of supplementary machine and setup can be avoided. These drills can be used with the existing adaptations, not requiring any special coolant pressure or extra pump capacity.

DR-DH drills are available as semi-standard items in the diameter range of 25.4 to 69.5 mm.

Features

- High feed drilling: up to 0.35 mm/rev for high productivity
- Excellent surface quality: Ra = 0.6 – 2.0 [µm]
- Good hole cylindricity: 50-80 [µm]
- Hole tolerance: IT10
- Large drilling depth: L=7xD and higher – up to 800 mm
- Carries standard SOMX/SOMT indexable inserts with 4 cutting edges
- No dedicated machine or extra setup needed
- Standard coolant pressure as used in general drilling
- Standard indexable, double-ended guide pads
- Used for steel (ISO P) and cast iron (ISO K) materials

ISCAR offers two drill versions:

Single Flute
DR-DH-31.65-0350NC-2FS

- Very rigid tool
- Designed for easy to cut materials such as cast iron and low alloyed steel
- Patented chip gullet design

Double Flute
DR-DH-31.65-0350NC-2FD

- Double chip gullet for improved chip flow
- Designed for drilling gummy materials such as non-alloyed steel and high temperature alloys

Designation

Metric

DR - DH	-	31.65	-	0350	N	C	-	2	F	D
Family		Dia. (mm)		Drilling depth (mm)	Shank Type	Shank dia.		No. of Pads	F=Cartridge R= No cartridge	D=Double flute S=Single flute

Inch

DR - DH	-	1.500	-	12.00	N	C	-	2	F	D

- The **DR-DH** drills will be supplied upon request. For a quotation, please contact **ISCAR** headquarters, providing all necessary hole and drill details (See following requested information form).

Requested Information Form for Deep Hole Drill Design

Company name _____ **Telephone no.** _____

Address _____ **Date** _____

Contact person _____ **Customer no.** _____

Workpiece

Product name: _____ Hole diameter: _____

Hole depth: _____ No. of holes: _____ Tolerance (of hole): _____

Surface finish (Rz, Ra...): _____ Deviation (mm/100): _____ Straightness (mm/100): _____

Material

Material (DIN, AISI, JIS...): _____

Hardness (HB, HS, HRC...): _____

Condition: ☐ Quenched ☐ Tempered ☐ Cast ☐ Annealed

☐ Other _____

Machine

Machine supplier name: _____

Machine type/model: ☐ NC lathe ☐ Machining center ☐ Horizontal ☐ Vertical

Rigidity: ☐ Good ☐ Normal ☐ Poor

Spindle power (kW): _____

Tool and/or workpiece rotation (TR/WR):

☐ Tool and workpiece ☐ Rotating workpiece (WR) ☐ Rotating tool (TR)

Type of Coolant

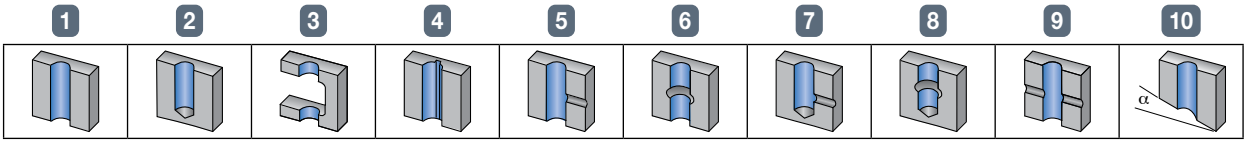
Water based: ☐ Soluble ☐ Emulsion _____%

Oil based: ☐ Coolant Pressure (bar): Coolant Volume (L/min):

Hole Data

Need a pre-hole drill quoation ☐ Pre-drilled hole size _____% (mm/inch)

Bore Type



Please sketch your drilling application

General Production Information

Quantity of parts per year _____

Grade, tool life, etc _____

Cutting data _____

Perfomance expectation V_c = _____ m/min N = _____ RPM F = _____ mm/min f = _____ mm/rev

Description of present system in use _____

Please fill in and return to your ISCAR representative.

User Guide

1 A short pre-hole 20 mm long (minimum) with **H8** hole tolerance should be prepared to guide the long drill (a standard **DR** drill or an endmill can be used).

Option No.1

1.1 Penetration with an endmill

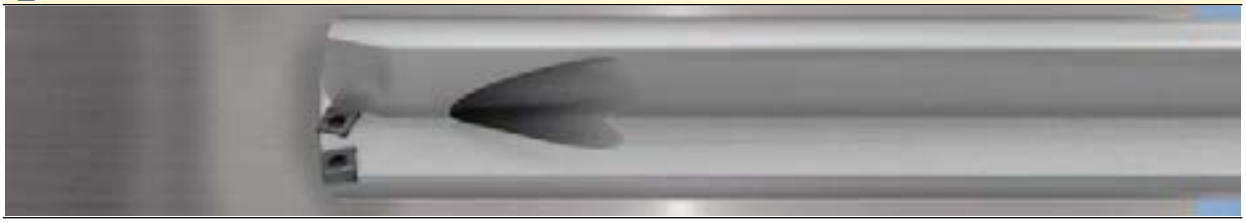
1.2 Enlargement with the endmill

Option No.2

2.1 Penetration by drilling

2.2 DRG-MF boring

3 Deep hole drilling with DR-DH



2 The **DR-DH** drill should enter into the pre-hole at slow rotation speed and with coolant supply.

DR-DH Insert Mounting Configuration vs. Drill Diameter

DR-DH ø##.# [mm]	Central Insert	Intermediate Insert	Peripheral Insert	Guiding Pad
25.4-28.5	SOMX 050204...	SOMX 050204...	SOMX 050204...	GPS-06-20-075
28.6-30.0	SOMX 050204...	SOMX 060304...	SOMX 050204...	GPS-07-20-120
30.1-33.0	SOMX 060304...	SOMX 060304...	SOMX 060304...	GPS-07-20-120
33.1-37.5	SOMX 060304...	SOMX 070305...	SOMX 060304...	GPS-08-25-155
37.6-40.5	SOMX 070305...	SOMX 070305...	SOMX 070305...	GPS-08-25-155
40.6-42.9	SOMX 070305...	SOMT 09T306...	SOMX 070305...	GPS-08-25-155
43.0-47.5	SOMT 09T306...	SOMT 09T306...	SOMT 09T306...	GPS-08-25-155
47.6-51.0	SOMT 100408...	SOMT 100408...	SOMT 100408...	GPS-10-30-200
51.1-54.0	SOMT 100408...	SOMT 110408...	SOMT 100408...	GPS-10-30-200
54.1-57.4	SOMT 100408...	SOMT 110408...	SOMT 110408...	GPS-10-30-200
57.5-61.0	SOMT 110408...	SOMT 110408...	SOMT 110408...	GPS-14-40-250
61.1-63.0	SOMT 110408...	SOMT 120408...	SOMT 110408...	GPS-14-40-250
63.1-69.5	SOMT 120408...	SOMT 120408...	SOMT 120408...	GPS-14-40-250

Spare Parts

Insert	Screw	Key
SOMX 050204...	SR 34-533/L	T-6/51
SOMX 060304...	SR 34-508/L	T-7/51
SOMX 070305...	SR 14-560	T-8/51
SOMT 09T306...	SR 34-506	T-9/51
SOMT 100408...	SR 14-571	T-10/51
SOMT 110408...	SR 14-544/S	T-15/51
SOMT 120408...	SR 14-544/S	T-15/51

Guiding Pad	Clamping Screw	Key
GPS-06-20-075	SR 11201753-1	T-7
GPS-06-20-085	SR 11201753-1	T-7
GPS-06-20-100	SR 11201753-1	T-7
GPS-14-40-250	SR 11201752-2	T-15
GPS-07-20-120	SR 11201753-4	T-9
GPS-10-30-200	SR 11201753-6	T-15

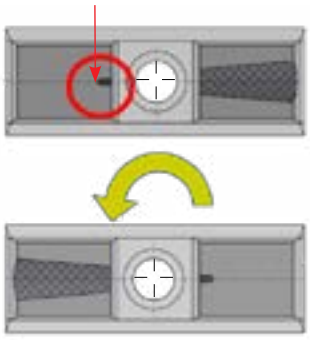
- DR-DH drills can be used with any type of adaptation. However, concentric adapters such as hydraulic chucks are advantageous for better runout. When machining high temperature alloys or applying very high machining loads, it is advisable to use strong gripping adapters such as: side lock adapters, power / hydraulic chucks.
- In case of chip formation or chip evacuation problems, the following sequence is recommended:

1 Reduce cutting speed by 10%
2 Increase internal coolant pressure
3 Apply a pecking cycle
4 Interrupted cut will have a direct influence on hole accuracy, quality and drill life. (Sometimes even tool breakage can occur).

Double-ended Pad

Worn support pads provide poor surface finish in a drilled hole. In this case, pads should be rotated or replaced.

Rotate when wear shows on the back side of the pad



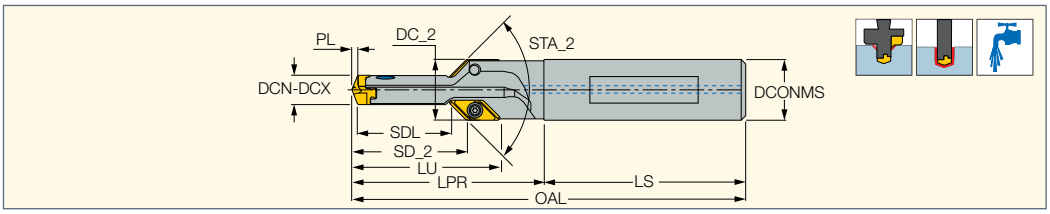
DR-DH Machining Recommendations

ISO	Material		Condition	Tensile Strength Rm [N/mm²]	Hardness HB	Mtl. No.	Cutting Speed v_c m/min	Feed mm/rev
P	Non-alloy steel and cast steel, free cutting steel	0.1 - 0.25 %C	Annealed	420	125	1	100-150	0.10-0.25
		0.25 - 0.25 %C	Annealed	650	190	2		0.10-0.25
		0.25 - 0.25 %C	Quenched and tempered	850	250	3	80-150	0.15-0.30
		0.55 - 0.80 %C	Annealed	750	220	4		0.15-0.30
		0.55 - 0.80 %C	Quenched and tempered	1000	300	5		0.15-0.30
	Low alloy and cast steel (less than 5% of alloying elements)		Annealed	600	200	6		0.15-0.30
			Quenched and tempered	930	275	7	70-120	0.15-0.30
				1000	300	8		0.15-0.30
				1200	350	9		0.15-0.30
	High alloyed steel, cast steel and tool steel		Annealed	680	200	10	80-150	0.10-0.25
			Quenched and tempered	1100	325	11	70-120	0.10-0.25
K	Grey cast iron (GG)		Ferritic / pearlitic		180	15	180-300	0.18-0.35
			Pearlitic / martensitic		260	16		0.18-0.35
	Nodular cast iron (GGG)		Ferritic		160	17	150-250	0.15-0.30
			Pearlitic		250	18		0.15-0.30
	Malleable cast iron		Ferritic		130	19		0.15-0.35
			Pearlitic		230	20		0.15-0.35

PRETHREAD

DCT (M8-M24)

Exchangeable Head Drills with Chamfering Inserts Mainly for Pre-Thread Holes



Designation	DCN[2]	Dnominal[3]	DCX[4]	DC_2	DCONMS	SDL	LU	LPR	OAL	LS	STA_2	PL	SSC[5]	Th[6]	SD_2			
DCT 068-021-14B-M8 [1]	6.80	6.80	7.40	13.90	14.00	20.9	31.70	43.10	88.14	45.0	90.0	1.240	6.8	M8	25.74	SR 34-508	T-7/51	K DCM- 8
DCT 085-026-14B-M10	8.30	8.50	8.90	14.00	14.00	26.3	36.60	48.00	93.05	45.0	90.0	1.550	8.0	M10	30.55	SR 34-508	T-7/51	K DCM- 8
DCT 102-030-14B-M12	10.00	10.20	10.90	14.00	14.00	30.0	39.80	53.90	98.86	45.0	90.0	1.860	10.0	M12	33.76	SR 34-508	T-7/51	K DCM-10
DCT 120-035-16B-M14	12.00	12.00	12.90	16.00	16.00	34.9	45.10	60.20	108.18	48.0	90.0	2.180	12.0	M14	39.08	SR 34-508	T-7/51	K DCM-12
DCT 140-039-18B-M16	14.00	14.00	14.90	18.00	18.00	39.0	49.60	62.50	110.55	48.0	90.0	2.550	14.0	M16	43.55	SR 34-508	T-7/51	K DCM-14
DCT 175-042-20B-M20	17.30	17.50	17.90	21.00	20.00	42.0	53.00	66.20	116.18	50.0	90.0	3.180	17.0	M20	46.98	SR 34-508	T-7/51	K DCM-17
DCT 210-048-25B-M24	21.00	21.00	21.90	25.50	25.00	48.2	60.30	72.80	128.82	56.0	90.0	3.820	21.0	M24	54.32	SR 34-508	T-7/51	K DCM-21

• Hole tolerance: D+0.05 in average conditions. However, it can be higher or lower according to machine and tooling conditions • Do not mount smaller drilling heads other than the specified range of the drill body • For user guide and cutting conditions, see page 135

(1) Reduce recommended feed for DCT 6.8 mm drills by 10%

(2) Cutting diameter minimum

(3) Pre-thread hole diameter

(4) Cutting diameter maximum

(5) Seat size code

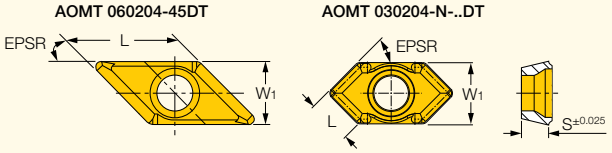
(6) Used for standard thread size

For inserts, see pages: AOMT-Chamfering (134) • IDI-SG (94) • IDI-SK (98)

PRETHREAD

AOMT-Chamfering

Chamfering Inserts



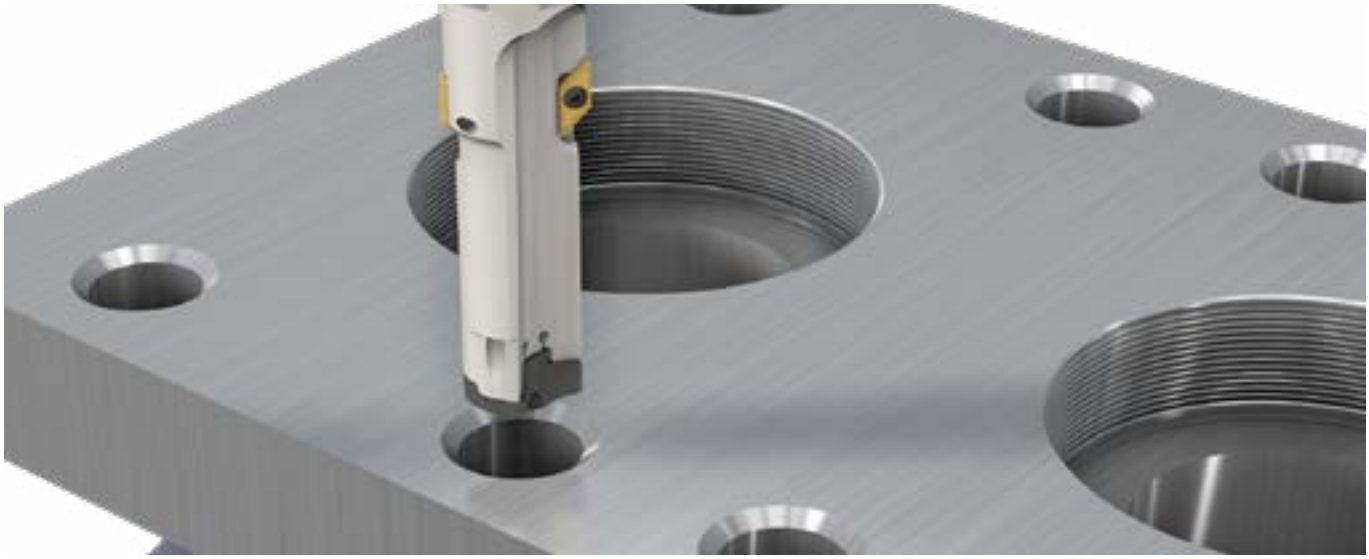
Designation	Dimensions L	W1	S	EPSR	Tough ↔ Hard IC1008	IC508	IC908
AOMT 060204-45DT	5.66	4.50	1.96	45.5		•	•
AOMT 060204-45HD [1]	5.66	4.50	1.96	45.5			•
AOMT 030204-N-45DT [2]	2.80	4.00	1.59	45.5	•		
AOMT 030204-N-30DT [2]	4.00	4.00	1.59	30.5	•		

• The cutting speed is dependent on the drilling insert being used

(1) For low carbon steel

(2) Used for specially tailored tools

For tools, see pages: DCNT (M8-M24) (136) • DCT (M8-M24) (134)

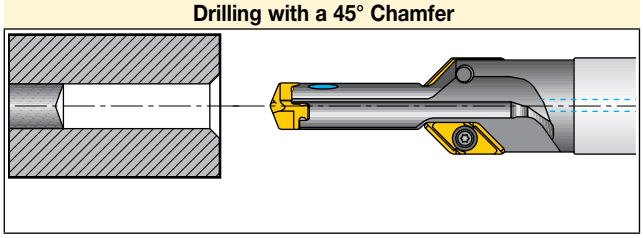


Pre-Thread DCT Drills

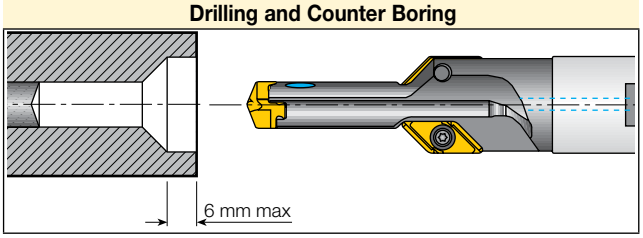
There are two main applications for pre-thread hole drilling:

Drilling pre-thread **blind** and **through holes**:

Drilling with a 45° Chamfer



Drilling and Counter Boring



Pre-Thread DCT Metric Threads Recommended Diameters

Drill Designation	Dia. Range	M Thread	Head Dia.	MF Head	Head Dia.	TR Thread	Head Dia.	M Helicoil Thread	Head Dia.
DCT 068-021-14B-M8	6.80-7.49	M8	6.8	MF8X0.75	7.20	TR10X3	7.49		
				MF8X1	7.00				
DCT 085-026-14B-M10	8.30-8.99	M10	8.5	MF10X1	8.99	TR10X1.5	8.60	M8	8.40
				MF10X1.25	8.80				
DCT 102-030-14B-M12	10.0-10.99	M12	10.2	MF11X1	10.00	TR12X2	10.20	M10	10.50
				MF12X1	10.99	TR14X4	10.50		
				MF12X1.25	10.80				
				MF12X1.5	10.50				
DCT 120-035-16B-M14	12.0-12.99	M14	12.0	MF13X1	12.00	TR14X2	12.20	M12	12.50
				MF14X1	12.99	TR16X4	12.30		
				MF14X1.25	12.80				
				MF14X1.5	12.50				
DCT 140-039-18B-M16	14.0-14.99	M16	14.0	MF14X1	14.00	TR18X4	14.30	M14	14.99
				MF16X1	14.99				
				MF16X1.5	14.50				
DCT 175-042-20B-M20	17.3-17.99	M20	17.5			TR22X5	17.30		
				MF20X2	17.99				
DCT 210-048-25B-M24	21.0-21.99	M24	21.0	MF22X1	21.00				

Inch Threads

Drill Designation	Dia. Range	UNF Thread	Head Dia.	UNC Thread	Head Dia.	UNC Helicoil Thread	Head Dia.	BSW Thread	Head Dia.	BSF Thread	Head Dia.
DCT 085-026-14B-M10	8.30-8.99	UNF3/8-24	8.5			UNC5/16-18	8.4				
DCT 102-030-14B-M12	10.0-10.99			UNC1/2-13	10.8			BSW1/2-12	10.5	BSF1/2-16	10.99
DCT 120-035-16B-M14	12.0-12.99			UNC9/16-12	12.3					BSF9/16-16	12.50
DCT 140-039-18B-M16	14.0-14.99	UNF5/8-18	14.5								
DCT 175-042-20B-M20	17.3-17.99	UNF3/4-16	17.5								

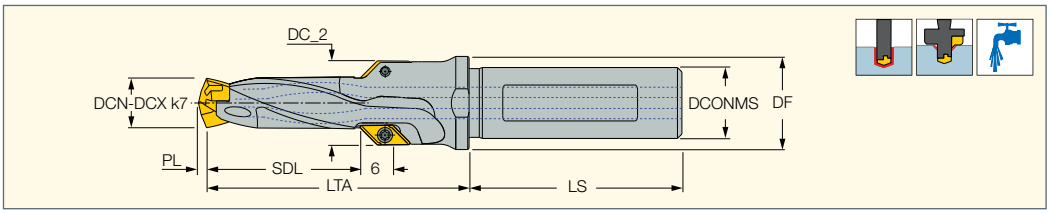
Inch Threads

Drill Designation	Dia. Range	NPT Thread	Head Dia.	BSF Thread	Head Dia.	BSP Thread	Head Dia.	UNEF Thread	Head Dia.	UNJF Helicoil Thread	Head Dia.
DCT 085-026-14B-M10	8.30-8.99	NPT1/8-27	8.5			G1/8-28	8.8	UNEF3/8-32	8.7	UNJF3/8-24	8.6
DCT 102-030-14B-M12	10.0-10.99			BSF1/2-16	10.99						
DCT 120-035-16B-M14	12.0-12.99			BSF9/16-16	12.50						
DCT 140-039-18B-M16	14.0-14.99	NPT3/8-18	14.5					UNEF5/8-24	14.8	UNJF5/8-18	14.5
DCT 175-042-20B-M20	17.3-17.99	NPT1/2-14	17.5					UNEF3/4-20	17.8		

PRETHREAD

DCNT (M8-M24)

Exchangeable Head Drills with Chamfering Inserts Mainly for Pre-Thread Holes



Designation	Dnominal[1]	Th[2]	DCN[3]	DCX[4]	DC_2	SDL	PL	LTA	DCONMS	DF	LS	SSC[5]
DCNT 068-021-12A-M8	6.80	M8	6.50	6.90	13.50	21.00	1.240	43.80	12.00	16.00	45.0	6.5
DCNT 085-026-12A-M10	8.50	M10	8.50	8.90	15.50	26.00	1.200	48.80	12.00	17.00	45.0	8.0
DCNT 102-030-16A-M12	10.20	M12	10.00	10.40	17.00	30.00	1.500	52.50	16.00	20.00	48.0	10.0
DCNT 120-035-16A-M14	12.00	M14	12.00	12.40	19.00	35.00	1.800	61.00	16.00	21.00	48.0	12.0
DCNT 140-039-16A-M16	14.00	M16	14.00	14.40	21.00	39.00	2.100	66.90	16.00	23.00	48.0	14.0
DCNT 175-042-20A-M20	17.50	M20	17.00	17.90	24.00	42.00	2.700	69.30	20.00	25.00	50.0	17.0
DCNT 210-048-25A-M24	21.00	M24	21.00	21.90	28.00	48.00	3.200	80.00	25.00	32.00	56.0	21.0

• Hole tolerance: D+0.05 in average conditions. However, it can be higher or lower according to machine and tooling conditions • Do not mount smaller drilling heads other than the specified range of the drill body. • For user guide and cutting conditions, see page 136

(1) Pre-thread hole diameter

(2) Used for standard thread size

(3) Cutting diameter minimum

(4) Cutting diameter maximum

(5) Pocket size

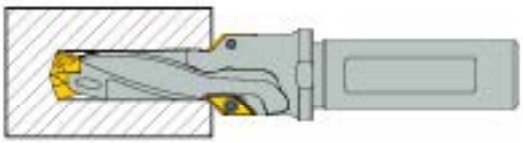
For inserts, see pages: ICP (18) • ICP-2M (24) • ICK (28) • ICK-2M (32) • ICM (36) • ICN (42) • QCP-2M (43) • HCP-IQ (47) • FCP (52) • ICG (57) • AOMT-Chamfering (134)

Spare Parts

Designation			
DCNT 068-021-12A-M8	SR 34-508	T-7/51	K DCN 6-9.99-Y
DCNT 085-026-12A-M10	SR 34-508	T-7/51	K DCN 6-9.99
DCNT 102-030-16A-M12	SR 34-508	T-7/51	K DCN 10-13.99
DCNT 120-035-16A-M14	SR 34-508	T-7/51	K DCN 10-13.99
DCNT 140-039-16A-M16	SR 34-508	T-7/51	K DCN 14-17.99
DCNT 175-042-20A-M20	SR 34-508	T-7/51	K DCN 14-17.99
DCNT 210-048-25A-M24	SR 34-508	T-7/51	K DCN 18-21.99

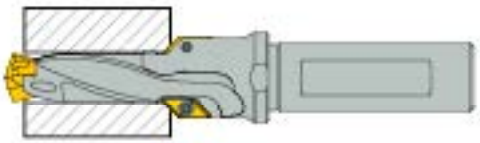
1. Drilling pre-thread blind holes:

Drilling with a 45° chamfer



2. Drilling pre-thread through holes:

Drilling with a 45° chamfer



Pre-Thread Recommended Hole Diameters with DCNT Drills

Drill Designation	Dia. Range	M Thread	Head Dia.	MF Head	Head Dia.	TR Thread	Head Dia.	M Helicoil Thread	Head Dia.
DCNT 068-021-12A-M8	6.5-6.99	M8	6.8						
DCNT 085-026-12A-M10	8.5-8.99	M10	8.5	MF10x1	8.99	TR10x1.5	8.6		
				MF10x1.25	8.8				
DCNT 102-030-16A-M12	10.0-10.99	M12	10.2	MF11x1	10.0	TR12x2	10.2	M10	10.5
				MF12x1	10.99				
				MF12x1.25	10.8	TR14x4	10.5		
				MF12x1.5	10.5				
DCNT 120-035-16A-M14	12.0-12.99	M14	12.0	MF13x1	12.0	TR14x2	12.2	M12	12.5
				MF14x1	12.99				
				MF14x1.25	12.8	TR16x4	12.3		
				MF14x1.5	12.5				
DCNT 140-039-16A-M16	14.0-14.99	M16	14.0		14.0	TR18x4	14.3	M14	14.99
				MF16x1	14.99				
				MF16x1.5	14.5				
DCNT 175-042-20A-M20	17.0-17.99	M20	17.5	MF20x2	17.99	TR22x5	17.3		
DCNT 210-048-25A-M24	21.0-21.99	M24	21.0	MF22x1	21.0				

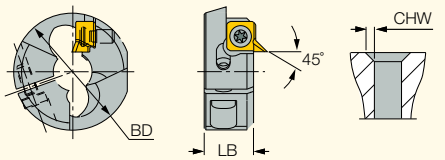
Drill Designation	Dia. Range	UNF Thread	Head Dia.	UNC Thread	Head Dia.	BSW Thread	Head Dia.	BSF Thread	Head Dia.
DCNT 068-021-12A-M8	6.5-6.99								
DCNT 085-026-12A-M10	8.5-8.99	UNF3/8-24	8.5						
DCNT 102-030-16A-M12	10.0-10.99			UNC1/2-13	10.8	BSW1/2-12	10.5	BSF1/2-16	10.99
DCNT 120-035-16A-M14	12.0-12.99			UNC9/16-12	12.3			BSF9/16-16	12.5
DCNT 140-039-16A-M16	14.0-14.99	UNF5/8-18	14.5						
DCNT 175-042-20A-M20	17.0-17.99	UNF3/4-16	17.5						
DCNT 210-048-25A-M24	21.0-21.99								

Drill Designation	Dia. Range	NPT Thread	Head Dia.	BSP Thread	Head Dia.	UNEF Thread	Head Dia.	UNJF Helicoil Thread	Head Dia.
DCNT 068-021-12A-M8	6.5-6.99								
DCNT 085-026-12A-M10	8.5-8.99	NPT1/8-27	8.5	G1/8-28	8.8	UNEF3/8-32	8.7	UNJF3/8-24	8.6
DCNT 102-030-16A-M12	10.0-10.99								
DCNT 120-035-16A-M14	12.0-12.99								
DCNT 140-039-16A-M16	14.0-14.99	NPT3/8-18	14.5			UNEF5/8-24	14.8	UNJF5/8-18	14.5
DCNT 175-042-20A-M20	17.0-17.99	NPT1/2-14	17.5			UNEF3/4-20	17.8		
DCNT 210-048-25A-M24	21.0-21.99								

CHAMDRILL

RING DCM

Chamfering Ring Mounted on CHAMDRILL Drills for Drilling and Chamfering in One Operation



Designation	SS[1]	DCN[2]	DCX[3]	BD[4]	LB	Ch	CHW	MIID[5]
RING DCM 100	DCM 100	10.00	10.40	33.00	14.3	1.5	1.50	XOGX
RING DCM 105	DCM 105	10.50	10.90	33.00	14.3	1.5	1.50	XOGX
RING DCM 110	DCM 110	11.00	11.40	35.00	14.5	1.5	1.50	XOGX
RING DCM 115	DCM 115	11.50	11.90	35.00	14.5	1.5	1.50	XOGX
RING DCM 120	DCM 120	12.00	12.40	37.50	14.6	1.5	1.50	XOGX
RING DCM 125	DCM 125	12.50	12.90	37.50	14.6	1.5	1.50	XOGX
RING DCM 130	DCM 130	13.00	13.40	39.00	14.6	1.5	1.50	XOGX
RING DCM 135	DCM 135	13.50	13.90	39.00	14.6	1.5	1.50	XOGX
RING DCM 140	DCM 140	14.00	14.40	41.00	15.3	1.5	1.50	XOGX
RING DCM 145	DCM 145	14.50	14.90	41.00	15.3	1.5	1.50	XOGX
RING DCM 150	DCM 150	15.00	15.90	43.00	16.5	1.5	1.50	XOGX
RING DCM 160	DCM 160	16.00	16.90	45.00	17.0	2.0	2.00	XOGX
RING DCM 170	DCM 170	17.00	17.90	47.00	17.5	2.0	2.00	XOGX
RING DCM 180	DCM 180	18.00	18.90	48.00	18.0	2.0	2.00	XOGX
RING DCM 200	DCM 200	20.00	20.90	52.00	18.0	2.0	2.00	XOGX

• RING DCM can be mounted only on DCM 3XD and DCM 5XD drills • For mounting instructions, see page 138

[1] Drill size
[2] Cutting diameter minimum
[3] Cutting diameter maximum
[4] BD=D ring
[5] Master insert identification

For inserts, see pages: XOGX-DT (137)

Spare Parts

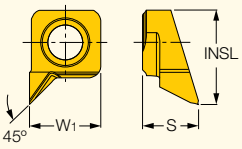
Designation						
RING DCM 100	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 105	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 110	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 115	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 120	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 125	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 130	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 135	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 140	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 145	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 150	SR 14-544/S	BLD T15/S7	SR M5X15 TORX 25[b]	BLD T25/S7		SW6-T
RING DCM 160	SR 14-544/S	BLD T15/S7	SR M6X20 DIN912[a]		HEX BIT HW5	SW6-T
RING DCM 170	SR 14-544/S	BLD T15/S7	SR M6X20 DIN912[a]		HEX BIT HW5	SW6-T
RING DCM 180	SR 14-544/S	BLD T15/S7	SR M6X20 DIN912[a]		HEX BIT HW5	SW6-T
RING DCM 200	SR 14-544/S	BLD T15/S7	SR M6X20 DIN912[a]		HEX BIT HW5	SW6-T

[a] Maximum tightening torque 10 N*m
[b] Maximum tightening torque 7 N*m

CHAMDRILL

XOGX-DT

Inserts Used on Chamfering Rings

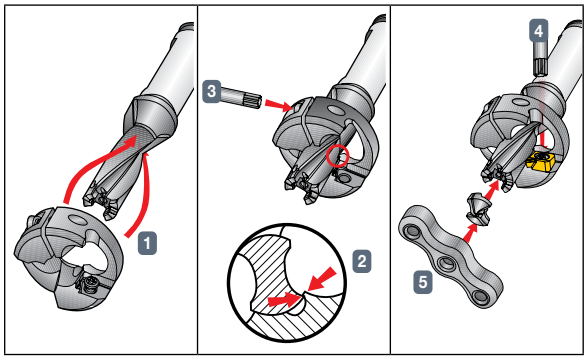


Designation	Dimensions			IC830
	W1	S	INSL	
XOGX 090700-45DT	9.00	7.00	12.00	•

For tools, see pages: RING DCM (137)

Chamfering Ring

Drilling and Chamfering in One Operation for DCM 3xD and 5xD Drills



Mounting Instructions

1. Insert the chamfering ring on the drill body and slide to the desired position(1).
2. Rotate the ring clockwise until the stopper engages the flute edge.
3. Tighten the ring screw according to the maximum tightening torque indicated on page 137.
4. Mount the chamfering insert.
5. Mount the **CHAMDRILL** head.

Chamfering Ring Position Range

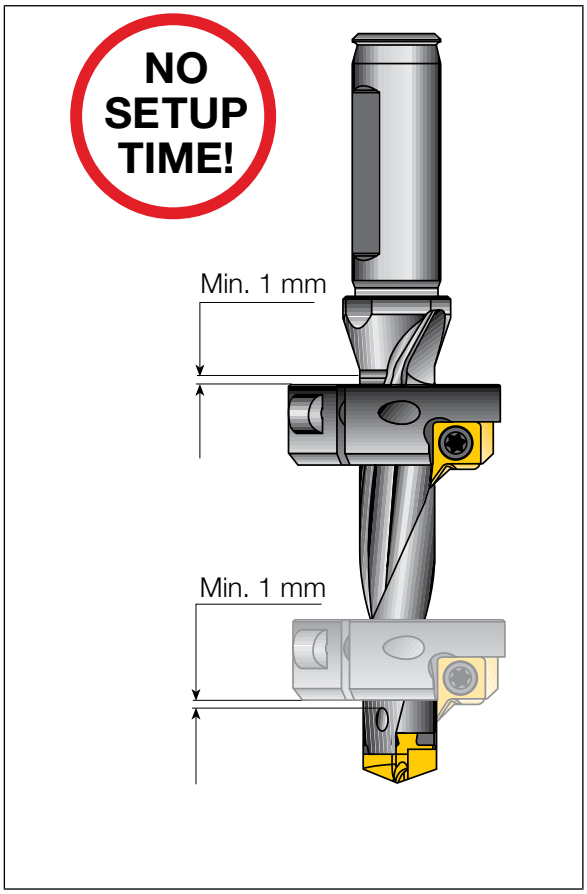
Drill Diameter	Drill Body 3xD L (min-max)	Drill Body 5xD L (min-max)	Maximum Chamfer Size
10	8-16	15-36	1.5
10.5	8-18	17-39	
11	8-19	18-41	
11.5	8-21	20-44	
12	8-22	21-46	
12.5	8-24	23-49	
13	8-25	24-51	
13.5	8-27	26-54	
14	9-29	28-57	
14.5	9-30	29-60	
15	9-31	30-60	
16	9-33	32-65	2.0
17	11-35	34-69	
18	11-38	34-74	
19	11-42	41-80	
20	11-45	44-85	

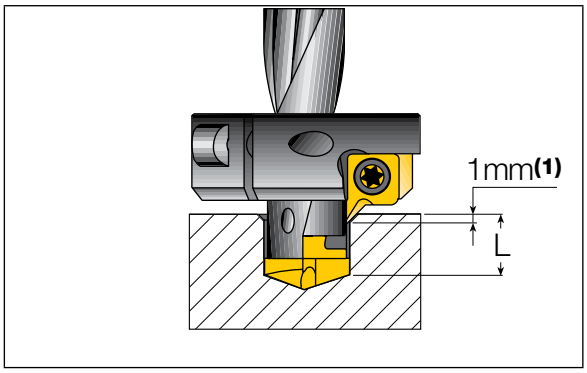
User Guide

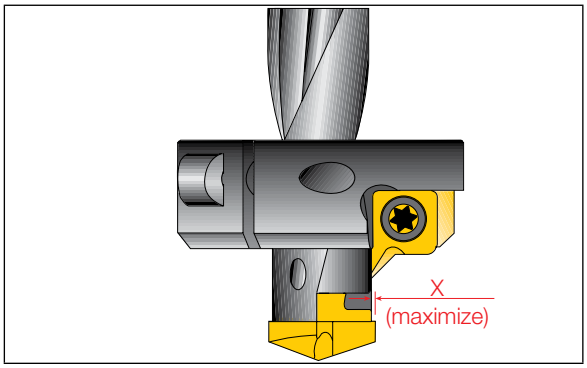
Recommendations for better stability:

1 Use 3xD drill instead of 5xD, if possible.
2 Mount the chamfering ring as close as possible to the drill shank.
3 For better chamfering insert life, apply a coolant to the chamfering insert, in addition to the internal and/or external coolant.
4 A wider gap "**X**" between the drill and the head size is preferred (i.e. for a 14.6 mm head, use a 14 mm body rather than 14.5 mm). A slightly larger "**X**" dimension can dramatically increase the chamfering insert life.

(1) The "**L**" dimension shown is relative to the common 1 mm chamfer. For other sizes, adjust "**L**" accordingly.

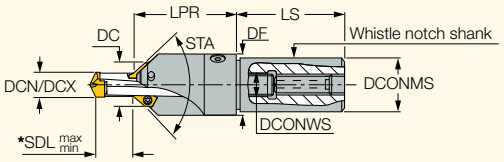






CHAMRING

CHAMRING
Drill Holders for Drilling and Chamfering in One Operation



Designation		DCN	DCX	DCNS 3D SDL min	DCNS 3D SDL max	DCM 3.5D SDL min	DCM 3.5D SDL max	DCNS 5D SDL min	DCNS 5D SDL max	DCONWS	DF	DC_2	LPR	LS	DCONMS	Inserts
CHAMRING 080-WN20-06	DC_ 075	7.5	7.9	12.7	18.6	12.4	21.9	15.7	33.6	8	25	18.8	47.4	50	20	XCGT 06..
	DC_ 080	8	8.4	13.6	19.2	14	23	23.6	40.9							
CHAMRING 090-WN20-06	DC_ 085	8.5	8.9	12.9	21.1	15.1	26.6	19.7	39.1	9	25	19.8	47.4	50	20	XCGT 06..
	DC_ 090	9	9.4	12.8	23.1	15.6	27.1	21.6	41.1							
CHAMRING 100-WN32-09	DC_ 095	9.5	9.9	12.2	22.8	17.2	29.2	26.6	42.2	10	35	24.9	67.3	60	32	XCGT 09..
	DC_ 100	10	10.4	12.6	28.2	14.3	28.3	32.6	48.2							
CHAMRING 110-WN32-09	DC_ 105	10.5	10.9	13.9	29.8	14.4	29.4	31.7	50.6	11	35	25.9	67.3	60	32	XCGT 09..
	DC_ 110	11	11.4	14.4	31.4	15	31	34.7	53.4							
CHAMRING 120-WN32-09	DC_ 115	11.5	11.9	14.1	31.4	15.6	33.1	34.0	54.4	12	35	26.9	67.3	60	32	XCGT 09..
	DC_ 120	12	12.4	15.1	33.4	19.2	35.2	36.9	57.3							
CHAMRING 130-WN32-09	DC_ 125	12.5	12.9	15.6	35.8	19.3	37.3	40.6	60.6	13	35	27.9	67.3	60	32	XCGT 09..
	DC_ 130	13	13.4	17.8	37.6	21.4	39.4	43.6	64.1							
CHAMRING 140-WN32-09	DC_ 135	13.5	13.9	16.1	38.2	19.5	39.5	42.6	65.2	14	35	28.4	67.3	60	32	XCGT 09..
	DC_ 140	14	14.4	18.0	40.8	21.5	41.5	46.0	69.3							
CHAMRING 150-WN32-09	DC_ 145	14.5	14.9	16.4	39.7	20.1	42.1	45.8	68.7	15	35	29.4	67.3	60	32	XCGT 09..
	DC_ 150	15	15.9	18.5	41.9	25.2	43.7	49.5	71.9							
CHAMRING 160-WN32-09	DC_ 160	16	16.9	26.2	51.6	26.3	49.3	59.2	83.6	16	35	30.4	67.3	60	32	XCGT 09..
CHAMRING 170-WN32-09	DC_ 170	17	17.9	22.6	49.0	28.4	52.4	56.6	83.0	17	35	31.4	67.3	60	32	XCGT 09..
CHAMRING 180-WN32-09	DC_ 180	18	18.9	25.1	52.5	31	57	61.1	88.5	18	35	32.4	67.3	60	32	XCGT 09..
CHAMRING 190-WN32-09	DC_ 190	19	19.9	28.3	58.3	32.3	59.3	66.3	96.3	19	35	33.4	75	60	32	XCGT 09..
CHAMRING 200-WN32-09	DC_ 200	20	20.9	38.3	68.4	36.6	67.1	78.3	108.3	20	35	34.4	75	60	32	XCGT 09..
CHAMRING 210-WN40-09	DC_ 210	21	21.9	33.9	63.3			75.9	105.3	21	50	35.4	84.4	68	40	XCGT 09..
CHAMRING 220-WN40-09	DC_ 220	22	22.9	37.9	66.7			81.3	110.7	22	50	36.4	84.4	68	40	XCGT 09..
CHAMRING 230-WN40-09	DC_ 230	23	23.9	40.7	70.1			85.7	115.1	23	50	37.4	84.4	68	40	XCGT 09..
CHAMRING 240-WN40-09	DC_ 240	24	24.9	44.2	73.6			92.2	121.6	24	50	38.4	84.4	68	40	XCGT 09..
CHAMRING 250-WN40-09	DC_ 250	25	25.9	47.6	77.0			97.6	127.0	25	50	39.4	84.4	68	40	XCGT 09..

- It is recommended to apply external coolant on the chamfering inserts
- Reduce the recommended feed and speed by 50% when machining maximum chamfer size
- *SDLmin & SDLmax dimensions are based on the 45° chamfering insert
- Chamfering angle (STA) depends on the chamfering insert being used

For inserts, see pages: XCGT-DT (140)

For UNICHAMDRILLS, see pages: DCM-3.5D (7.5-20.9 mm 3.5xD) (92) , DCNS-3D (15), DCNS-5D (16)

Assembly Instructions
- Insert the **UNICHAMDRILL** into the **CHAMRING** prior to clamping the chamfering inserts
- Adjust the **UNICHAMDRILL** protrusion by using the rear screw, then correct adjustment using the side clamping screw
- Attach the chamfering inserts

Adjustment of UNICHAMDRILL Protrusion
- Loosen the chamfering inserts clamping screws
- Loosen the side clamping screw
- Adjust the **UNICHAMDRILL** protrusion by using the rear screw, then correct adjustment using the side clamping screw
- Re-tighten the chamfering inserts

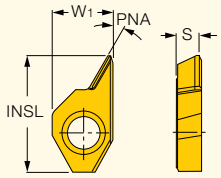
Spare Parts

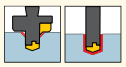
Designation								
CHAMRING 6-9	SR M6X8 DIN916	HW 6.0	SR M5X18	SW6-T-3H	SR 14-550	T-8/53		
CHAMRING 10-20	SR M10X10 DIN916	HW 6.0	SR M10X1.5S	SW6-T-3H	SR 14-544/5		BLD T15/37	SW6-SD
CHAMRING 21-25	SR M12X16 DIN1835-B	HW 6.0	SR M12X1.75S	SW6-T-3H	SR 14-544/5		BLD T15/37	SW6-SD

CHAMRING

XCGT-DT

Inserts used on Chamfering Drill Holders for Chamfering and Drilling in One Operation





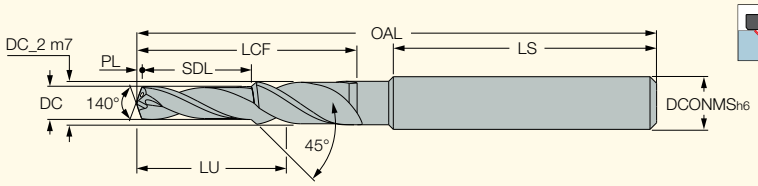
Designation	Dimensions W1	INSL	S	PNA	Tough ↔ Hard IC08	IC808
XCGT 060300-30DT	6.18	12.30	2.80	30.0	●	●
XCGT 060300-45DT	6.18	12.30	2.80	45.0	●	●
XCGT 060300-60DT	6.18	12.30	2.80	60.0	●	●
XCGT 090300-30DT	8.50	16.00	3.30	30.0	●	●
XCGT 090300-45DT	8.50	16.00	3.30	45.0	●	●
XCGT 090300-60DT	8.50	16.00	3.30	60.0	●	●

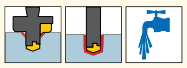
For tools, see pages: CHAMRING (139)

SOLIDDRILL PRETHREAD

SCDT

Pre-Thread Solid Carbide Drills with Coolant Holes





Designation	Dimensions DC	SDL	DCONMS	FTDZ(1)	DC_2	PL	LU	LCF	OAL	LS	IC908
SCDT 025-009-060-M3	2.50	8.8	6.00	M3	4.00	0.450	16.00	20.0	62.00	36.0	●
SCDT 033-011-060-M4	3.30	11.4	6.00	M4	4.50	0.600	19.00	24.0	62.00	36.0	●
SCDT 042-014-060-M5	4.20	13.6	6.00	M5	5.50	0.760	22.00	28.0	66.00	36.0	●
SCDT 050-017-080-M6	5.00	16.5	8.00	M6	6.60	0.910	27.00	34.0	79.00	40.0	●
SCDT 068-021-100-M8	6.80	21.0	10.00	M8	9.00	1.240	38.00	47.0	89.00	40.0	●
SCDT 085-026-120-M10	8.50	25.5	12.00	M10	11.00	1.550	45.00	55.0	102.00	40.0	●

- For user guide and cutting conditions, see pages 175-184

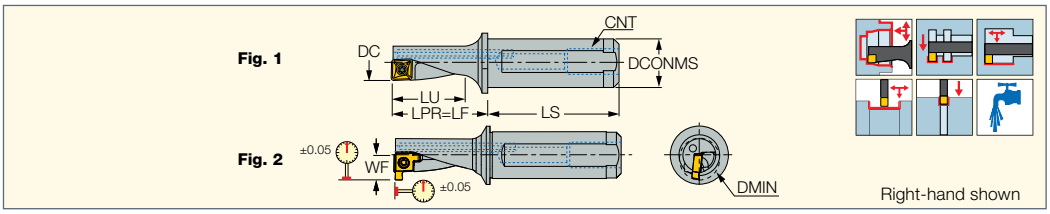
(1) Used for standard thread size

MULTIFUNCTION TOOLS

MULTIFUNCTION TOOLS

DRG-MF

Multifunction Drilling, Boring, Facing, External Turning and Internal Grooving Tools

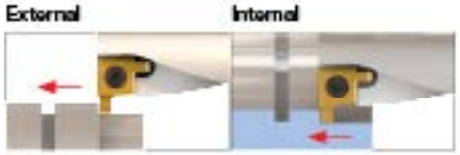


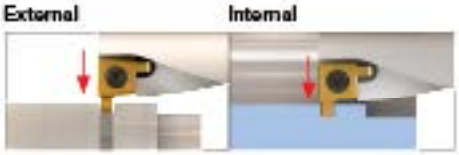
Designation	DC	DMIN	WF	LU	LPR	LS	DCONMS	CNT	Insert	Fig.		
DR-MF-08R/L-2.25D-12A-04	8.00	8.00	-	18.0	22.5	42.0	12.00	G 1/16	XCMT 04...	1	SR 18034/HG-P	IP-6/5
DRG-MF-10R/L-2.25D-12A-05	10.00	12.00	7.10	22.5	27.5	42.0	12.00	G 1/16	XCMT 05...	2	SR 20038/HG-P	IP-6/5
DRG-MF-12R/L-2.25D-16A-06	12.00	14.50	8.50	27.0	33.0	45.0	16.00	G 1/8	XCMT 06...	2	SR 22052/HG-P	IP-7/5
DRG-MF-14R/L-2.25D-16A-07	14.00	16.50	9.50	31.5	38.5	45.0	16.00	G 1/8	XCMT 07...	2	SR 25064/HG-P	IP-8/5
DRG-MF-16R/L-2.25D-20A-08	16.00	19.00	11.10	36.0	44.0	50.0	20.00	G 1/8	XCMT 08...	2	SR 30070/HG-P	IP-9/151
DRG-MF-20R/L-2.25D-25A-10	20.00	23.50	13.20	45.0	55.0	56.0	25.00	G 1/8	XCMT 10...	2	SR 35088I/HG-P	IP-10/151
DRG-MF-25R/L-2.25D-32A-13	25.00	29.00	16.50	56.5	69.0	61.0	32.00	G 1/8	XCMT 13...	2	SR 45A100I/HG	IP-20/51
DRG-MF-32R/L-2.25D-40A-17	32.00	36.50	20.50	72.0	86.0	74.0	40.00	G 1/8	XCMT 17...	2	SR 45A100I/HG	IP-20/51

• In non-rotating applications, hole diameter can be adjusted within the specified range by shifting drill's center line along machine's X-axis • The tools feature internal coolant holes

For inserts, see pages: XCMT-MF (143) • XCMT-MG (143)

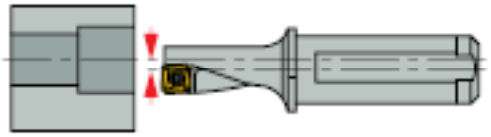
Typical Applications





Radial Adjustment (off-center drilling)

Radial adjustment is dependent on drill diameter



Holder	Drill dia.	Dmin	Dmax
DRG-MF 8	8	7.86	8.35
DRG-MF 10	10	9.82	10.60
DRG-MF 12	12	11.82	12.60
DRG-MF 14	14	13.80	14.60
DRG-MF16	16	15.76	16.50
DRG-MF 20	20	19.80	20.60
DRG-MF 25	25	24.80	25.80
DRG-MF 32	32	31.80	33.00

MULTIFUNCTION TOOLS

XCMT-MF

Inserts for DR-MF Multifunction Tools with Two Cutting Edges for Hard Materials and Interrupted Cut

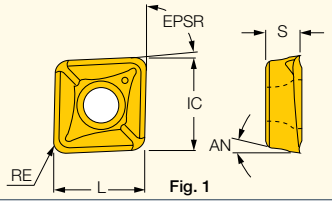


Fig. 1

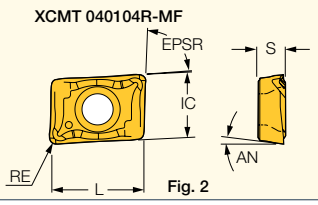


Fig. 2

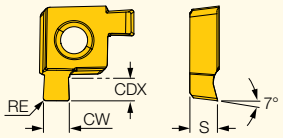
Designation	Dimensions IC	L	S	RE	AN	EPSR	Fig.	IC908
XCMT 040104R/L-MF	4.40	6.37	1.70	0.40	7.0	83.5	2	●
XCMT 050204-MF	5.60	5.60	2.10	0.40	7.0	83.5	1	●
XCMT 060204-MF	6.40	6.40	2.38	0.40	7.0	83.5	1	●
XCMT 070304-MF	7.50	7.50	3.18	0.40	7.0	83.5	1	●
XCMT 080304-MF	8.40	8.40	3.18	0.40	7.0	83.5	1	●
XCMT 10T304-MF	10.50	10.50	3.97	0.40	7.0	83.5	1	●
XCMT 10T308-MF	10.50	10.50	3.97	0.80	7.0	83.5	1	●
XCMT 130404-MF	13.40	13.40	4.76	0.40	7.0	83.5	1	●
XCMT 130408-MF	13.40	13.40	4.76	0.80	7.0	83.5	1	●
XCMT 170508-MF	17.40	17.40	5.56	0.80	7.0	83.5	1	●

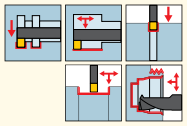
For tools, see pages: DRG-MF (142)

MULTIFUNCTION TOOLS

XCMT-MG

Two Cutting Edged Internal Grooving Inserts for DR-MF Multifunction Tools





Designation	Dimensions CW	CDX(1)	CWTOL(2)	RE	S	Tough ↔ Hard IC808	IC808G	Recommended Machining Data f turn (mm/rev)	f groove (mm/rev)
XCMT 05R-15718015MG	1.57	1.80	0.02	0.15	2.28	●		0.03-0.07	0.03-0.06
XCMT 05R-201802-MG	2.00	1.80	0.02	0.20	2.28		●	0.05-0.10	0.04-0.07
XCMT 06R-17820018MG	1.78	1.80	0.02	0.18	2.28	●		0.04-0.08	0.04-0.07
XCMT 06R-202002-MG	2.00	2.00	0.02	0.20	2.65		●	0.05-0.10	0.04-0.07
XCMT 07R-19620015MG	1.96	1.80	0.02	0.15	2.28	●		0.05-0.10	0.04-0.07
XCMT 07R-252002-MG	2.50	2.00	0.02	0.20	3.41		●	0.07-0.12	0.05-0.10
XCMT 08R-22125015MG	2.21	2.00	0.02	0.15	3.41	●		0.06-0.11	0.04-0.08
XCMT 08R-252502-MG	2.50	2.50	0.02	0.20	3.50		●	0.07-0.12	0.05-0.10
XCMT 10R-23930015MG	2.39	2.00	0.02	0.15	3.41	●		0.07-0.12	0.05-0.10
XCMT 10R-303003-MG	3.00	3.00	0.02	0.30	4.34		●	0.14-0.18	0.06-0.12
XCMT 13R-31835020MG	3.18	3.50	0.02	0.20	5.18	●		0.14-0.18	0.06-0.12
XCMT 13R-353503-MG	3.50	3.50	0.02	0.30	5.25		●	0.14-0.20	0.07-0.14
XCMT 17R-404004-MG	4.00	4.00	0.02	0.40	6.00		●	0.15-0.21	0.08-0.15

(1) Cutting depth maximum

(2) Cutting width tolerance (+/-)

For tools, see pages: DRG-MF (142)

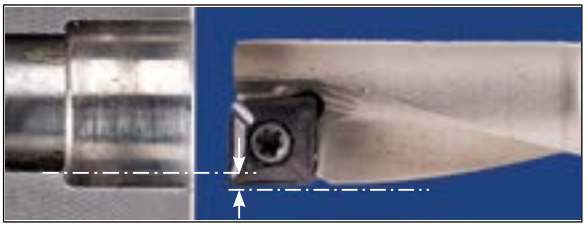
User guide for DRG-MF

Coolant Pressure

- Apply above 6 Bar in 2.25xD tools (optimal pressure is above 10 Bar).

Radial Adjustment (off-center drilling)

- Radial adjustment is dependent on drill diameter



Optimization of Chip Shape

- Apply high-speed machining on low carbon steel
- Produce thin chips, as most problems are caused by thick chips
- Regulate chips produced by machining medium-to-high carbon steel
- If too tight, either increase speed and reduce feed, or reduce speed and increase feed
- If too long, reduce speed and increase feed

Tool	Drill Dia.	Dmin	Dmax
DRG-MF-10	10	9.82	10.60
DRG-MF-12	12	11.82	12.60
DRG-MF-14	14	13.80	14.60
DRG-MF-16	16	15.76	16.50
DRG-MF-20	20	19.80	20.60
DRG-MF-25	25	24.80	25.80
DRG-MF-32	32	31.80	33.00

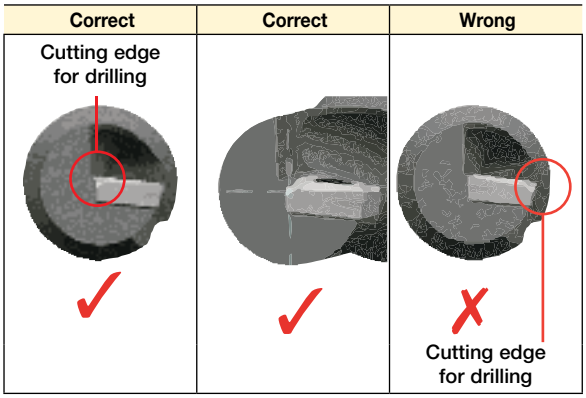
Troubleshooting

Problem	Solution
Chipping caused by built-up edge	• Increase cutting speed • Reduce feed • Check tool and workpiece rigidity • Reduce tool and workpiece overhang
Excessive flank wear	• Reduce cutting speed • Use a harder grade (special) • Increase coolant flow • Check cutting edge height
Edge deformation	• Reduce cutting speed • Use a harder grade (special) • Increase coolant flow • Reduce feed
Poor surface quality	• Reduce feed • Increase coolant flow • Check tool and workpiece rigidity • Increase cutting speed
Long chips	• Increase feed • Reduce cutting speed • Increase coolant flow
Tight chips	• Reduce feed
Vibrations	• Check tool and workpiece rigidity • Reduce tool and workpiece overhang • Reduce cutting speed • Increase feed • Check cutting edge height • Reduce feed and increase cutting speed on very soft materials

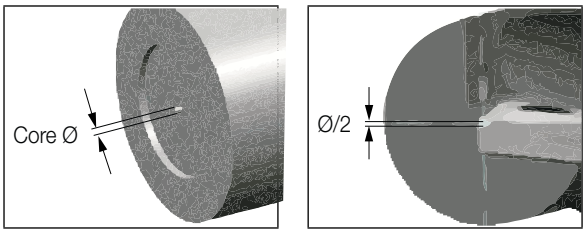
User Guide for Turn-Mill Machines

Insert Positioning

For drilling, cutting edge should be positioned in the center of tool body.

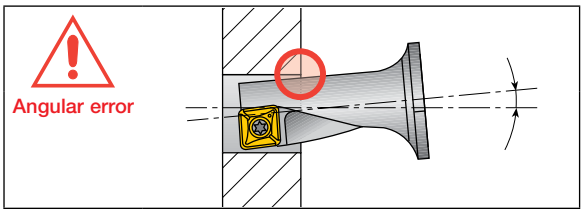


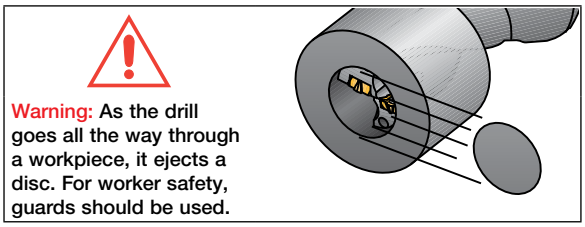
Setup



Check formation of core and its size after drilling 3 mm to 6 mm depth. The diameter of the core should be within 0.15-0.45 mm.
Adjust Y-axis of the tool body by using the new adjustable clamping unit (if available) or rotate the tool body 180° and secure it into a turret. Check the core again.

Important: If a core does not appear, this can cause breakage of insert vibration when drilling or turning.
If the size of the core is over the recommended size, it will cause overload and vibration.





Recommended Cutting Conditions for XCMT-MF Inserts

Cutting speed (V_c)

Workpiece Materials	Material No. VDI 3323	Hardness (BHN)	Cutting speed: V_c (m/min) for IC908	
			Drilling	Turning & Boring
Low carbon steel (<0.25% C)	1	~150	130-240	150-270
Carbon steel (≥0.25% C)	2	150-250	90-160	100-180
Low alloy steel	6	~180	120-210	140-230
Medium alloy steel	7	200-250	70-140	80-160
High alloy steel	8, 9	250-350	50-100	60-120
Martensitic stainless steel	12	200	110-180	130-200
Austenitic stainless steel	14	200	90-160	100-180
Grey cast iron	17, 18	180-220	110-180	120-200
Ductile cast iron	15, 16	200-240	90-160	100-180
Aluminum alloy	21-24	60-130	100-500	150-600
Copper alloy	26-28	90-100	100-400	100-500

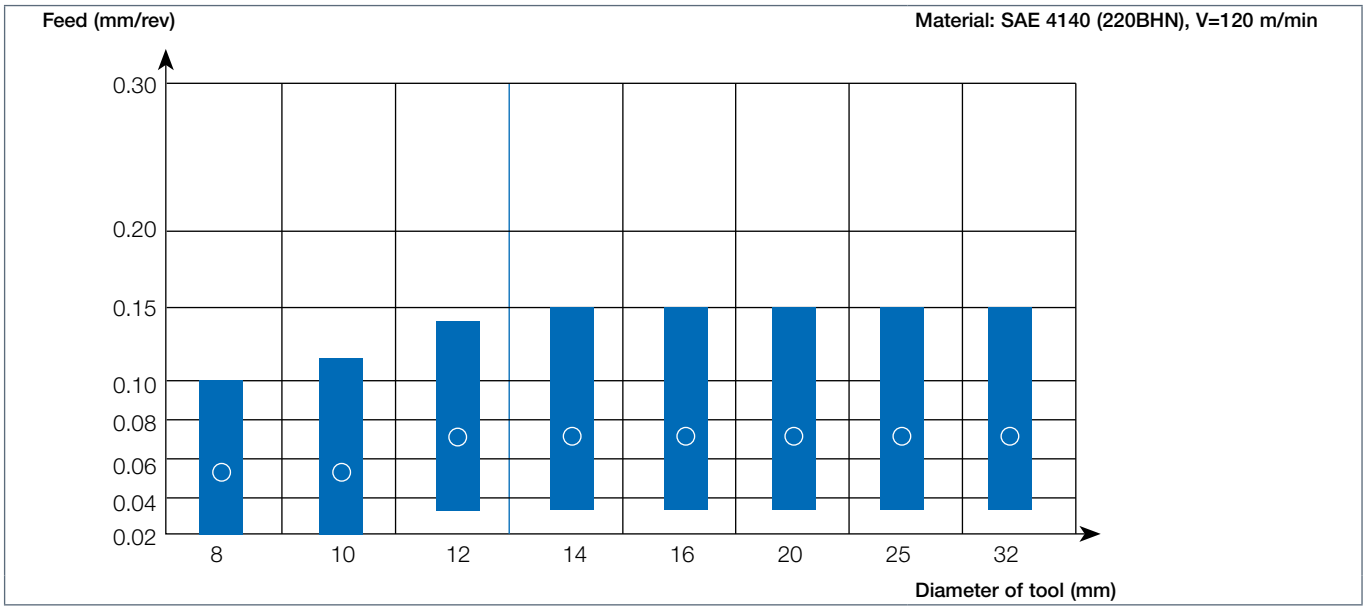
Recommended Cutting Conditions

Insert	Machining Type	Cutting Conditions	
		a_p (mm)	f (mm/rev)
XCMT 040104	External Turning	0.6 (0.2-1.8)	0.05 (0.02-0.15)
	Drilling	-	0.06 (0.02-0.10)
XCMT 050204	External Turning	0.8 (0.2-2.5)	0.08 (0.02-0.15)
	Face Turning	0.6 (0.2-1.7)	0.06 (0.02-0.13)
	Drilling	-	0.05 (0.02-0.10)
XCMT 060204	External Turning	1.0 (0.2-3.0)	0.10 (0.03-0.20)
	Face Turning	0.8 (0.2-2.5)	0.07 (0.03-0.15)
	Drilling	-	0.05 (0.02-0.10)
XCMT 070304	External Turning	1.3 (0.3-3.5)	0.12 (0.03-0.20)
	Face Turning	1.0 (0.25-3.0)	0.10 (0.03-0.18)
	Drilling	-	0.06 (0.03-0.12)
XCMT 0803..	Face Turning	1.5 (0.35-4.0)	0.14 (0.06-0.25)
	External Turning	1.2 (0.3-3.5)	0.12 (0.06-0.24)
	Drilling	-	0.08 (0.05-0.16)
XCMT 10T304	External Turning	1.8 (0.5-3.5)	0.12 (0.06-0.30)
	Face Turning	1.8 (0.5-3.5)	0.12 (0.06-0.30)
	Drilling	-	0.08 (0.03-0.15)
XCMT 10T308	External Turning	1.8 (0.5-3.5)	0.20 (0.10-0.40)
	Face Turning	1.8 (0.5-3.5)	0.20 (0.10-0.40)
	Drilling	-	0.08 (0.03-0.15)
XCMT 130404	External Turning	2.0 (0.6-4.3)	0.15 (0.07-0.32)
	Face Turning	2.0 (0.6-4.3)	0.15 (0.07-0.32)
	Drilling	-	0.08 (0.03-0.15)
XCMT 130408	External Turning	2.0 (0.6-4.3)	0.20 (0.10-0.40)
	Face Turning	2.0 (0.6-4.3)	0.20 (0.10-0.40)
	Drilling	-	0.08 (0.03-0.15)
XCMT 170508	External Turning	3.0 (0.7-5.3)	0.22 (0.10-0.40)
	Face Turning	3.0 (0.7-5.3)	0.22 (0.10-0.40)
	Drilling	-	0.08 (0.03-0.15)

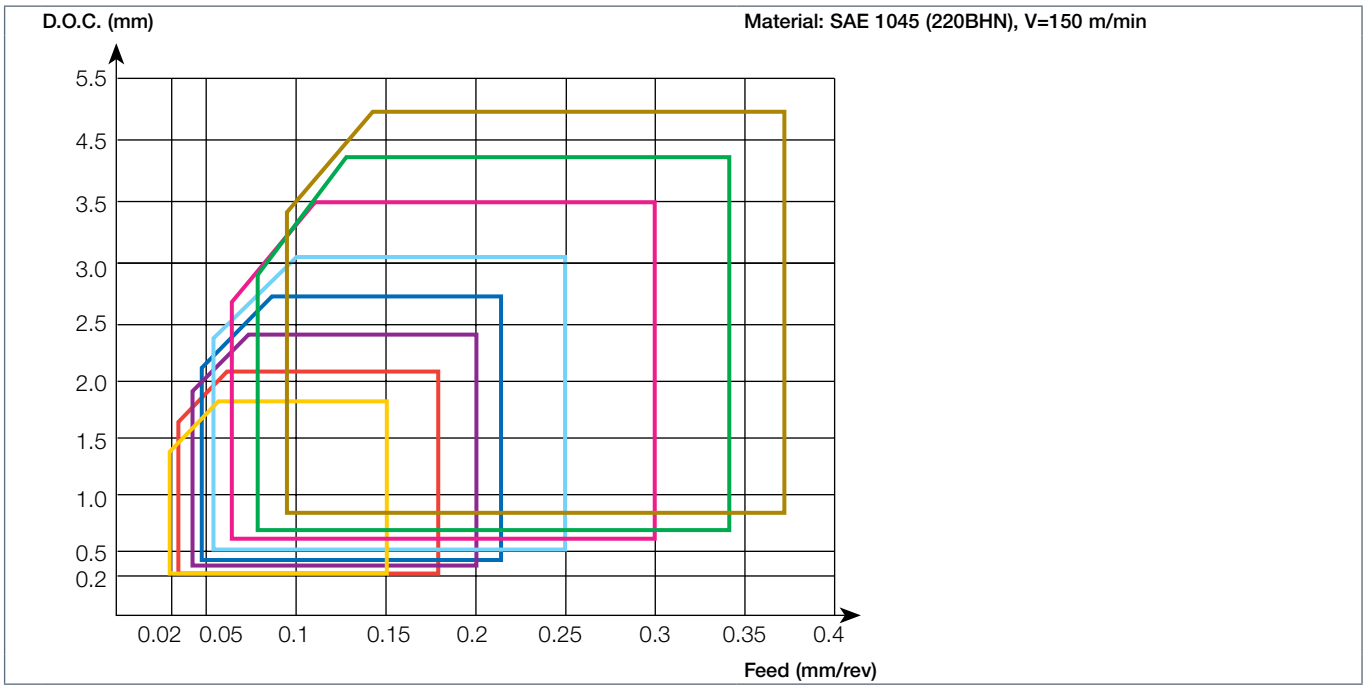
Cutting parameters are for 2.25xD steel shank
Internal coolant supply is recommended

Chip Control Range for DRG-MF

Drilling



Turning

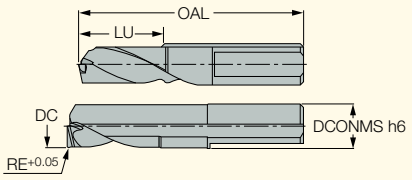


- XCMT 050204
- XCMT 050204
- XCMT 060204
- XCMT 070304
- XCMT 080304
- XCMT 100304
- XCMT 130304
- XCMT 170304

MULTIFUNCTION TOOLS

PICCO-MF

Multifunction Solid Carbide Tools for Drilling, Facing, Internal and External Turning on Swiss and Small CNC Machines



Right-hand shown

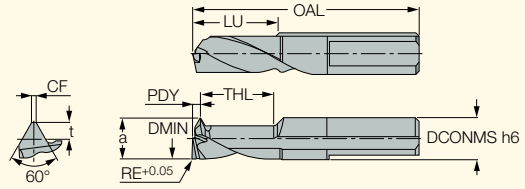
Designation	Dimensions DC	LU	OAL	DCONMS	RE	IC908
PICCO R-MF 6-3 L06	3.00	6.0	28.00	6.00	0.10	●
PICCO R/L-MF 6-4 L08	4.00	8.0	30.00	6.00	0.10	●
PICCO R/L-MF 6-4 L12	4.00	12.0	34.00	6.00	0.20	●
PICCO R/L-MF 6-5 L10	5.00	10.0	32.00	6.00	0.10	●
PICCO R/L-MF 6-5 L15	5.00	15.0	41.00	6.00	0.30	●
PICCO R/L-MF 6-6 L12	6.00	12.0	34.00	6.00	0.10	●
PICCO R/L-MF 6-6 L18	6.00	18.0	43.00	6.00	0.30	●
PICCO R/L-MF 8-7 L14	7.00	14.0	41.00	8.00	0.10	●
PICCO R/L-MF 8-7 L21	7.00	21.0	55.00	8.00	0.30	●
PICCO R/L-MF 8-8 L16	8.00	16.0	43.00	8.00	0.10	●
PICCO R/L-MF 8-8 L24	8.00	24.0	58.50	8.00	0.30	●

• Dmin can be 0.1 mm smaller by shifting tool center • Applications: drilling; face turning; internal chamfering; internal turning/ boring; internal profiling; external chamfering; external turning

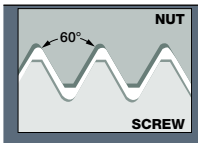
MULTIFUNCTION TOOLS

PICCO-MFT

Solid Carbide Tools for Drilling, Facing, Internal and External Turning and Threading on Swiss and Small CNC Machines



Right-hand shown



Designation	Dimensions DCONMS	DMIN	LU	TPN(2)	TPX(3)	t	a	CF	THL	OAL	PDY	RE	IC908
PICCO R/L-MFT60 6-4 L08	6.00	4.00	8.0	0.500	0.750	0.46	3.90	0.06	7.3	30.00	1.3	0.10	●
PICCO R-MFT60 6-4 L12	6.00	4.00	12.0	0.500	0.750	0.46	3.90	0.06	11.6	34.00	1.2	0.20	●
PICCO R/L-MFT60 6-5 L10	6.00	5.00	10.0	0.500	1.000	0.61	4.90	0.06	9.0	32.00	1.4	0.10	●
PICCO R/L-MFT60 6-5 L15 (1)	6.00	5.00	15.0	0.500	1.000	0.61	4.90	0.06	14.4	37.00	1.4	0.30	●
PICCO R/L-MFT60 6-6 L18 (1)	6.00	6.00	18.0	0.500	1.000	0.61	5.90	0.06	17.3	43.00	1.4	0.30	●
PICCO R-MFT60 6-6 L12	6.00	6.00	12.0	0.500	1.000	0.61	5.90	0.06	11.0	34.00	1.4	0.10	●
PICCO R/L-MFT60 8-7 L14	8.00	7.00	14.0	0.750	1.250	0.76	6.90	0.09	13.0	41.00	1.5	0.10	●
PICCO R-MFT60 8-7 L21	8.00	7.00	21.0	0.750	1.250	0.76	6.90	0.09	20.0	55.00	1.5	0.30	●
PICCO R/L-MFT60 8-8 L16	8.00	8.00	16.0	0.900	1.500	0.92	7.90	0.11	15.0	43.00	1.5	0.10	●
PICCO L-MFT60 8-8 L24 (1)	8.00	8.00	24.0	0.900	1.500	0.92	7.90	0.11	23.0	57.00	1.5	0.30	●
PICCO R-MFT60 8-8 L24	8.00	8.00	24.0	0.900	1.500	0.92	7.90	0.11	23.0	51.00	1.5	0.30	●

• Applications: Drilling; face turning; internal chamfering; internal turning/boring; internal profiling; external chamfering; external turning; internal and external 60° threading (right- and left-hand)

(1) Available on request

(2) Thread pitch minimum (mm)

(3) Thread pitch maximum (mm)

PICCO-MF Recommended Cutting Conditions

Cutting speed (V_c)

Workpiece Materials	Material No. VDI 3323	Hardness (BHN)	Cutting Speed: V_c (m/min) for IC908	
			Drilling	Turning & Boring
Low carbon steel (<0.25% C)	1	~150	40-100	40-180
Carbon steel (≥0.25% C)	2	150-250	40-100	40-180
Low alloy steel	6	~180	40-80	40-140
Medium alloy steel	7	200-250	40-80	40-140
High alloy steel	8, 9	250-350	40-60	40-120
Martensitic stainless steel	12	200	20-60	40-140
Austenitic stainless steel	14	200	20-60	40-140
Grey cast iron	15,16	180-220	40-140	40-140
Ductile cast iron	17,18	200-240	40-150	40-150
Aluminum alloy	21-24	60-130	50-200	150-320
Copper alloy	26-28	90-100	50-200	150-320

Feed (f) and depth of cut (a_p) 2xD

Tool Diameter (mm)	Machining Type	Cutting Conditions	
		a_p (mm)	f (mm/rev)
3-4	External Turning	0.8 (0.2-2.5)	0.04 (0.01-0.08)
	Face Turning	0.6 (0.02-1.7)	0.03 (0.01-0.06)
	Drilling	-	0.02 (0.01-0.06)
5-6	External Turning	1.0 (0.2-3.0)	0.04 (0.01-0.08)
	Face Turning	0.8 (0.2-2.5)	0.03 (0.01-0.06)
	Drilling	-	0.03 (0.01-0.08)
7-8	External Turning	1.3 (0.3-3.5)	0.04 (0.01-0.08)
	Face Turning	1.0 (0.25-0.3)	0.04 (0.01-0.07)
	Drilling	-	0.04 (0.01-0.10)

Feed (f) and depth of cut (a_p) 4xD

Tool Diameter (mm)	Machining Type	Cutting Conditions	
		a_p (mm)	f (mm/rev)
3-4	External Turning	0.8 (0.2-2.5)	0.03 (0.01-0.07)
	Face Turning	0.6 (0.02-1.7)	0.02 (0.01-0.04)
	Drilling	-	0.02 (0.01-0.05)
5-6	External Turning	1.0 (0.2-3.0)	0.03 (0.01-0.07)
	Face Turning	0.8 (0.2-2.5)	0.02 (0.01-0.04)
	Drilling	-	0.02 (0.01-0.06)
7-8	External Turning	1.3 (0.3-3.5)	0.03 (0.01-0.07)
	Face Turning	1.0 (0.25-0.3)	0.02 (0.01-0.04)
	Drilling	-	0.03 (0.01-0.08)