GESAC®

HOLEMAKING TOOLS

Cutting Tools

XTC XIAMEN GOLDEN EGRET SPECIAL ALLOY CO.,LTD.

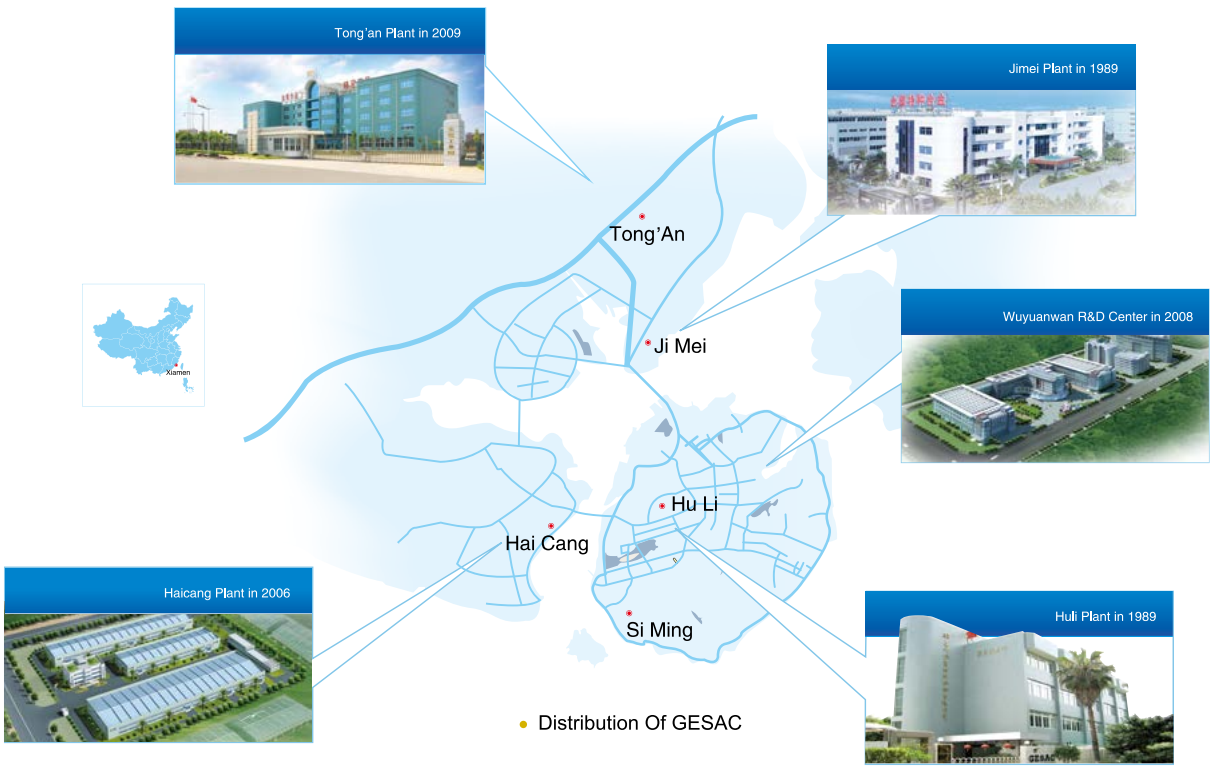
About GESAC

Xiamen Golden Egret Special Alloy Co., Ltd. (GESAC) is a Sino-foreign joint venture company established in 1989. It is designated by the State as a high-tech enterprise.GESAC is the largest subsidiary of the Shanghai Stock Exchange listed company: Xiamen Tunsten Co.,LTD.(Stock code:SH600549) It's main products are tungsten metal powder, tungsten carbide powder, cemented carbide, cutting tools and other tungsten related products. GESAC is the largest producer and exporter of tungsten metal powder and tungsten carbide powder in China and also enjoys good reputation in manufacturing high quality cemented carbide and precision cutting tools.

GESAC has a team of talented staff constantly striving to be stronger. GESAC is equipped with the world's most advanced technologies, manufacturing equipment and testing facilities. The "Golden Egret"brand products are renowned for high quality and excellent service. Our clients are spread across more than forty developed countries and regions all over the world.

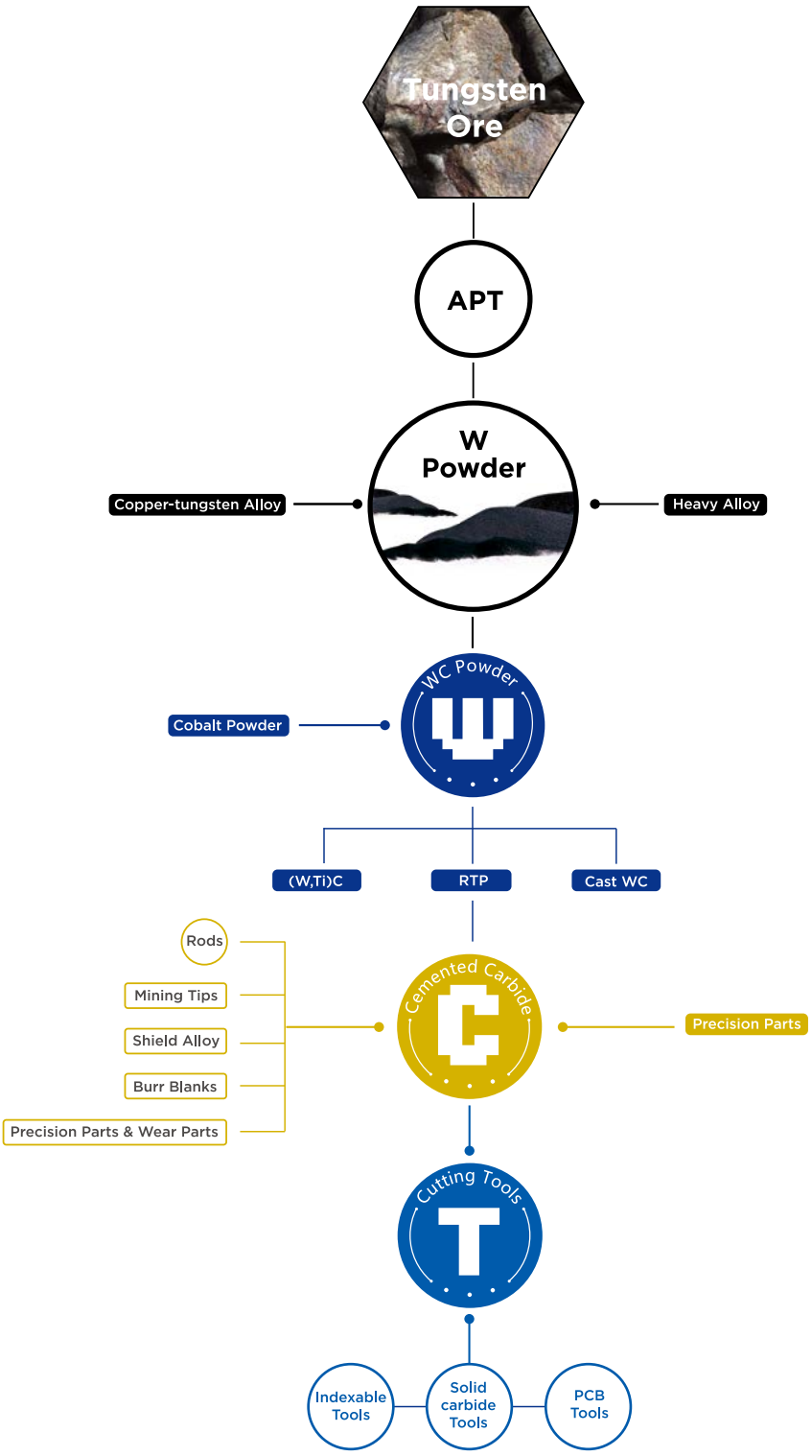
GESAC owns a national level R&D center, and has undertaken and finished many national and provincial research projects independently, such as National Science and Technology Support Plan project, National major special science and technology project, National Key Technologies R&D Program, National Torch Program, National Important New Products project etc. GESAC has received numerous awards such as "National Standard High-tech Enterprise", "Enterprise with Advanced Technology" and "Export-oriented Enterprise" from the state government.

GESAC adheres to the philosophy of "sincerity and dependability are our essence" and strives to develop into a modern enterprise with "first class equipment, first class technology, first class management, first class quality and first class service".



Product Chain

GESAC has a complete tungsten product chain from tungsten ore to tungsten powder, cemented carbide products and cutting tools.



GESAC

Contents

INDEXABLE DRILLING

Indexable Drill Body Identification System

GHD - 200 - 3D - FC 25 - Q 06 A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①Tool type	
GHD	Indexable drills

②Dia of drill	
Range	Φ14-Φ51

③Aspect Ratio
2D/3D/4D/5D

④Shank type	
FC	Flange-Flat
FW	Flange-Weldone
FH	Flange - Whistle

⑤Shank size
Φ20 Φ25
Φ32 Φ40

⑥Insert shape	
Q	

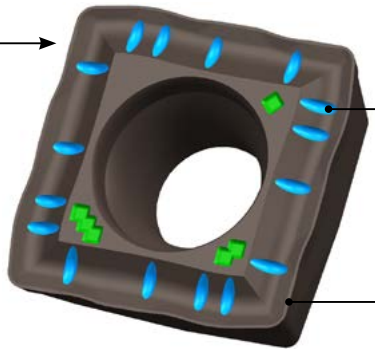
⑦Cutting edge length
04、05、06、07 09、11、13、15

⑧Drill type	
A	General
D	Custom make

QPMG Drilling Inserts

Fist shape cutting edge
- Having better performance of chip control and cutting stability

Same insert can be used as inside or outside insert
- Convenient for tools management

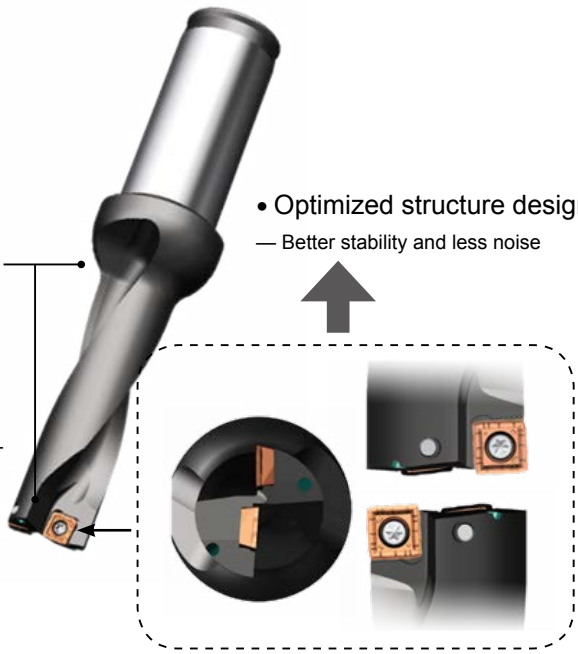


Cooling groove design
- Perfect cooling performance

Local wide cutting edge and small rake angle
- Having better fracture resistance

GHD Drill Body

- High-quality alloy steel
  —Superior rigidity and fracture resistance
- Advanced spiral groove design and manufacturing technology
  — Improving chipremoval performance
- Nickel-coated surface treatment
  Great corrosion resistance

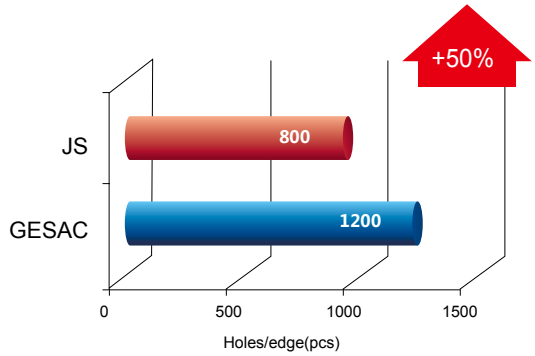


- Optimized structure design
  — Better stability and less noise

Case Studies

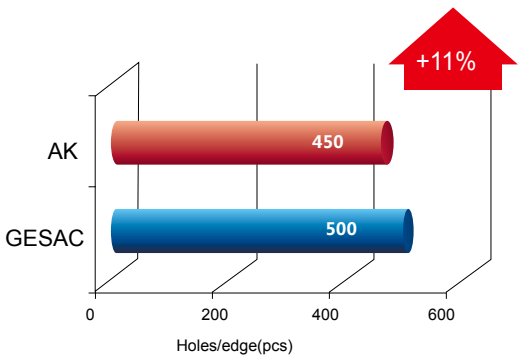
Valve Drilling

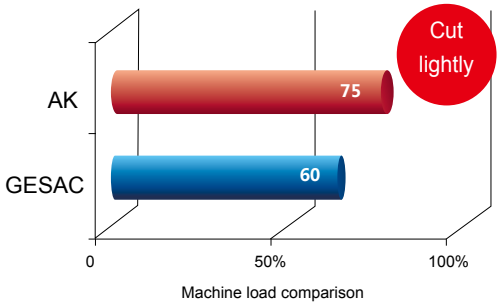
Workpiece Material	Stainless Steel (HB300)
Processing way	Drilling , Internal coolant
Cutting Parameters	Vc=116m/min, fz=0.13mm/rev Depth=22mm
Insert and cutter	QPMG050204-DP-GA4230 GHD-185-3D-FC25-Q05A



Connecting rod Drilling

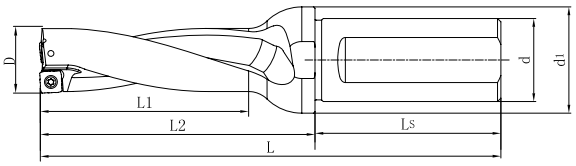
Workpiece Material	36MnVS4 (HB300)
Processing way	Drilling , Internal coolant
Cutting Parameters	Vc=216m/min, fz=0.08mm/rev Depth=23mm
Insert and cutter	QPMG07T306-DP-GA4230 GHD-230-3D-FC25-Q07A





GHD-2D

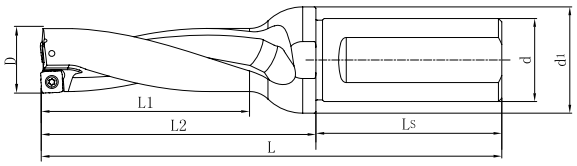
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ14.0	GHD-140-2D-FC20-Q04A	14.0	20	25	50	46	30	96	QPMG040204
Φ14.5	GHD-145-2D-FC20-Q04A	14.5	20	25	50	46	30	96	
Φ15.0	GHD-150-2D-FC20-Q04A	15.0	20	25	50	50	32	100	
Φ15.5	GHD-155-2D-FC20-Q04A	15.5	20	25	50	50	32	100	
Φ16.0	GHD-160-2D-FC20-Q05A	16.0	20	25	50	52	34	102	QPMG050204
Φ16.5	GHD-165-2D-FC20-Q05A	16.5	20	25	50	52	34	102	
Φ17.0	GHD-170-2D-FC25-Q05A	17.0	25	32	56	54	36	110	
Φ17.5	GHD-175-2D-FC25-Q05A	17.5	25	32	56	54	36	110	
Φ18.0	GHD-180-2D-FC25-Q05A	18.0	25	32	56	59	39	115	
Φ18.5	GHD-185-2D-FC25-Q05A	18.5	25	32	56	59	39	115	
Φ19.0	GHD-190-2D-FC25-Q06A	19.0	25	32	56	61	41	117	QPMG060204
Φ19.5	GHD-195-2D-FC25-Q06A	19.5	25	32	56	61	41	117	
Φ20.0	GHD-200-2D-FC25-Q06A	20.0	25	32	56	63	43	119	
Φ20.5	GHD-205-2D-FC25-Q06A	20.5	25	32	56	63	43	119	
Φ21.0	GHD-210-2D-FC25-Q06A	21.0	25	32	56	65	45	121	
Φ21.5	GHD-215-2D-FC25-Q06A	21.5	25	32	56	65	45	121	
Φ22.0	GHD-220-2D-FC25-Q06A	22.0	25	32	56	67	47	123	
Φ22.5	GHD-225-2D-FC25-Q06A	22.5	25	32	56	67	47	123	
Φ23.0	GHD-230-2D-FC25-Q07A	23.0	25	32	56	69	49	125	QPMG07T306
Φ23.5	GHD-235-2D-FC25-Q07A	23.5	25	32	56	69	49	125	
Φ24.0	GHD-240-2D-FC25-Q07A	24.0	25	32	56	71	51	127	
Φ24.5	GHD-245-2D-FC25-Q07A	24.5	25	32	56	71	51	127	
Φ25.0	GHD-250-2D-FC25-Q07A	25.0	25	32	56	73	53	129	
Φ25.5	GHD-255-2D-FC32-Q07A	25.5	32	42	60	81	56	141	
Φ26.0	GHD-260-2D-FC32-Q07A	26.0	32	42	60	81	56	141	
Φ26.5	GHD-265-2D-FC32-Q07A	26.5	32	42	60	81	56	141	
Φ27.0	GHD-270-2D-FC32-Q07A	27.0	32	42	60	83	58	143	

GHD-2D

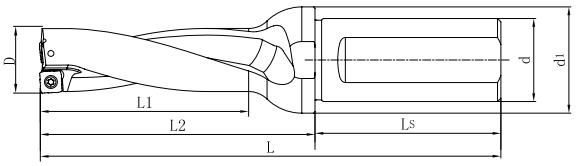
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ27.5	GHD-275-2D-FC32-Q09A	27.5	32	42	60	83	58	143	QPMG09T308
Φ28.0	GHD-280-2D-FC32-Q09A	28.0	32	42	60	85	60	145	
Φ28.5	GHD-285-2D-FC32-Q09A	28.5	32	42	60	85	60	145	
Φ29.0	GHD-290-2D-FC32-Q09A	29.0	32	42	60	87	62	147	
Φ29.5	GHD-295-2D-FC32-Q09A	29.5	32	42	60	87	62	147	
Φ30.0	GHD-300-2D-FC32-Q09A	30.0	32	42	60	89	64	149	
Φ30.5	GHD-305-2D-FC32-Q09A	30.5	32	42	60	89	64	149	
Φ31.0	GHD-310-2D-FC32-Q09A	31.0	32	42	60	91	66	151	
Φ31.5	GHD-315-2D-FC32-Q09A	31.5	32	42	60	91	66	151	
Φ32.0	GHD-320-2D-FC32-Q09A	32.0	32	42	60	93	68	153	
Φ32.5	GHD-325-2D-FC32-Q09A	32.5	32	42	60	93	68	153	
Φ33.0	GHD-330-2D-FC40-Q09A	33.0	40	48	70	99	71	169	
Φ33.5	GHD-335-2D-FC40-Q11A	33.5	40	48	70	99	71	169	QPMG110408
Φ34.0	GHD-340-2D-FC40-Q11A	34.0	40	48	70	101	73	171	
Φ34.5	GHD-345-2D-FC40-Q11A	34.5	40	48	70	101	73	171	
Φ35.0	GHD-350-2D-FC40-Q11A	35.0	40	48	70	103	75	173	
Φ35.5	GHD-355-2D-FC40-Q11A	35.5	40	48	70	103	75	173	
Φ36.0	GHD-360-2D-FC40-Q11A	36.0	40	48	70	105	77	175	
Φ36.5	GHD-365-2D-FC40-Q11A	36.5	40	48	70	105	77	175	
Φ37.0	GHD-370-2D-FC40-Q11A	37.0	40	48	70	107	79	177	
Φ37.5	GHD-375-2D-FC40-Q11A	37.5	40	48	70	107	79	177	
Φ38.0	GHD-380-2D-FC40-Q11A	38.0	40	48	70	109	81	179	
Φ38.5	GHD-385-2D-FC40-Q11A	38.5	40	48	70	109	81	179	
Φ39.0	GHD-390-2D-FC40-Q11A	39.0	40	48	70	111	83	181	
Φ39.5	GHD-395-2D-FC40-Q11A	39.5	40	48	70	111	83	181	
Φ40.0	GHD-400-2D-FC40-Q11A	40.0	40	48	70	113	85	183	

GHD-2D

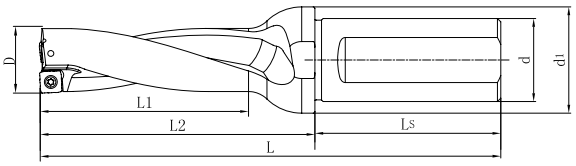
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ40.5	GHD-405-2D-FC40-Q13A	40.5	40	48	70	113	85	183	QPMG130408
Φ41.0	GHD-410-2D-FC40-Q13A	41.0	40	48	70	118	88	188	
Φ41.5	GHD-415-2D-FC40-Q13A	41.5	40	48	70	118	88	188	
Φ42.0	GHD-420-2D-FC40-Q13A	42.0	40	48	70	120	90	190	
Φ42.5	GHD-425-2D-FC40-Q13A	42.5	40	48	70	120	90	190	
Φ43.0	GHD-430-2D-FC40-Q13A	43.0	40	48	70	122	92	192	
Φ43.5	GHD-435-2D-FC40-Q13A	43.5	40	48	70	122	92	192	
Φ44.0	GHD-440-2D-FC40-Q13A	44.0	40	48	70	124	94	194	
Φ44.5	GHD-445-2D-FC40-Q13A	44.5	40	48	70	124	94	194	
Φ45.0	GHD-450-2D-FC40-Q13A	45.0	40	48	70	126	96	196	
Φ45.5	GHD-455-2D-FC40-Q15A	45.5	40	48	70	126	96	196	QPMG150512
Φ46.0	GHD-460-2D-FC40-Q15A	46.0	40	48	70	133	98	203	
Φ46.5	GHD-465-2D-FC40-Q15A	46.5	40	48	70	133	98	203	
Φ47.0	GHD-470-2D-FC40-Q15A	47.0	40	48	70	135	100	205	
Φ47.5	GHD-475-2D-FC40-Q15A	47.5	40	48	70	135	100	205	
Φ48.0	GHD-480-2D-FC40-Q15A	48.0	40	48	70	137	102	207	
Φ48.5	GHD-485-2D-FC40-Q15A	48.5	40	48	70	137	102	207	
Φ49.0	GHD-490-2D-FC40-Q15A	49.0	40	49	70	139	104	209	
Φ49.5	GHD-495-2D-FC40-Q15A	49.5	40	49	70	139	104	209	
Φ50.0	GHD-500-2D-FC40-Q15A	50.0	40	50	70	141	106	211	
Φ50.5	GHD-505-2D-FC40-Q15A	50.5	40	50	70	141	106	211	
Φ51.0	GHD-510-2D-FC40-Q15A	51.0	40	51	70	143	108	213	

GHD-3D

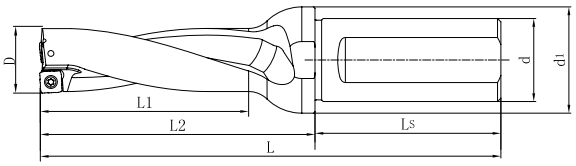
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ14.0	GHD-140-3D-FC20-Q04A	14.0	20	25	50	60	44	110	QPMG040204
Φ14.5	GHD-145-3D-FC20-Q04A	14.5	20	25	50	60	44	110	
Φ15.0	GHD-150-3D-FC20-Q04A	15.0	20	25	50	65	47	115	
Φ15.5	GHD-155-3D-FC20-Q04A	15.5	20	25	50	65	47	115	
Φ16.0	GHD-160-3D-FC20-Q05A	16.0	20	25	50	68	50	118	QPMG050204
Φ16.5	GHD-165-3D-FC20-Q05A	16.5	20	25	50	68	50	118	
Φ17.0	GHD-170-3D-FC25-Q05A	17.0	25	32	56	71	53	127	
Φ17.5	GHD-175-3D-FC25-Q05A	17.5	25	32	56	71	53	127	
Φ18.0	GHD-180-3D-FC25-Q05A	18.0	25	32	56	77	57	133	
Φ18.5	GHD-185-3D-FC25-Q05A	18.5	25	32	56	77	57	133	
Φ19.0	GHD-190-3D-FC25-Q06A	19.0	25	32	56	80	60	136	QPMG060204
Φ19.5	GHD-195-3D-FC25-Q06A	19.5	25	32	56	80	60	136	
Φ20.0	GHD-200-3D-FC25-Q06A	20.0	25	32	56	83	63	139	
Φ20.5	GHD-205-3D-FC25-Q06A	20.5	25	32	56	83	63	139	
Φ21.0	GHD-210-3D-FC25-Q06A	21.0	25	32	56	86	66	142	
Φ21.5	GHD-215-3D-FC25-Q06A	21.5	25	32	56	86	66	142	
Φ22.0	GHD-220-3D-FC25-Q06A	22.0	25	32	56	89	69	145	
Φ22.5	GHD-225-3D-FC25-Q06A	22.5	25	32	56	89	69	145	
Φ23.0	GHD-230-3D-FC25-Q07A	23.0	25	32	56	92	72	148	QPMG07T306
Φ23.5	GHD-235-3D-FC25-Q07A	23.5	25	32	56	92	72	148	
Φ24.0	GHD-240-3D-FC25-Q07A	24.0	25	32	56	95	75	151	
Φ24.5	GHD-245-3D-FC25-Q07A	24.5	25	32	56	95	75	151	
Φ25.0	GHD-250-3D-FC25-Q07A	25.0	25	32	56	98	78	154	
Φ25.5	GHD-255-3D-FC32-Q07A	25.5	32	42	60	107	82	167	
Φ26.0	GHD-260-3D-FC32-Q07A	26.0	32	42	60	107	82	167	
Φ26.5	GHD-265-3D-FC32-Q07A	26.5	32	42	60	107	82	167	
Φ27.0	GHD-270-3D-FC32-Q07A	27.0	32	42	60	110	85	170	

GHD-3D

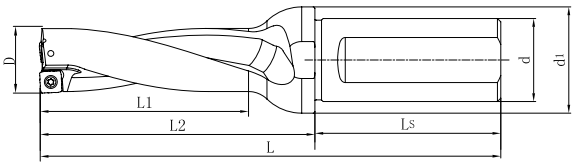
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ27.5	GHD-275-3D-FC32-Q09A	27.5	32	42	60	110	85	170	QPMG09T308
Φ28.0	GHD-280-3D-FC32-Q09A	28.0	32	42	60	113	88	173	
Φ28.5	GHD-285-3D-FC32-Q09A	28.5	32	42	60	113	88	173	
Φ29.0	GHD-290-3D-FC32-Q09A	29.0	32	42	60	116	91	176	
Φ29.5	GHD-295-3D-FC32-Q09A	29.5	32	42	60	116	91	176	
Φ30.0	GHD-300-3D-FC32-Q09A	30.0	32	42	60	119	94	179	
Φ30.5	GHD-305-3D-FC32-Q09A	30.5	32	42	60	119	94	179	
Φ31.0	GHD-310-3D-FC32-Q09A	31.0	32	42	60	122	97	182	
Φ31.5	GHD-315-3D-FC32-Q09A	31.5	32	42	60	124	97	182	
Φ32.0	GHD-320-3D-FC32-Q09A	32.0	32	42	60	125	100	185	
Φ32.5	GHD-325-3D-FC32-Q09A	32.5	32	42	60	125	100	185	
Φ33.0	GHD-330-3D-FC32-Q09A	33.0	32	42	60	128	103	188	
Φ33.5	GHD-335-3D-FC40-Q11A	33.5	40	48	70	135	107	205	QPMG110408
Φ34.0	GHD-340-3D-FC40-Q11A	34.0	40	48	70	135	107	205	
Φ34.5	GHD-345-3D-FC40-Q11A	34.5	40	48	70	135	107	205	
Φ35.0	GHD-350-3D-FC40-Q11A	35.0	40	48	70	138	110	208	
Φ35.5	GHD-355-3D-FC40-Q11A	35.5	40	48	70	138	110	208	
Φ36.0	GHD-360-3D-FC40-Q11A	36.0	40	48	70	141	113	211	
Φ36.5	GHD-365-3D-FC40-Q11A	36.5	40	48	70	141	113	211	
Φ37.0	GHD-370-3D-FC40-Q11A	37.0	40	48	70	144	116	214	
Φ37.5	GHD-375-3D-FC40-Q11A	37.5	40	48	70	144	116	214	
Φ38.0	GHD-380-3D-FC40-Q11A	38.0	40	48	70	147	119	217	
Φ38.5	GHD-385-3D-FC40-Q11A	38.5	40	48	70	147	119	217	
Φ39.0	GHD-390-3D-FC40-Q11A	39.0	40	48	70	150	122	220	
Φ39.5	GHD-395-3D-FC40-Q11A	39.5	40	48	70	150	122	220	
Φ40.0	GHD-400-3D-FC40-Q11A	40.0	40	48	70	153	125	223	

GHD-3D

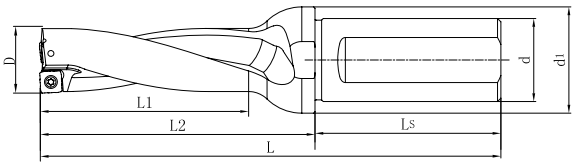
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ40.5	GHD-405-3D-FC40-Q13A	40.5	40	48	70	153	125	223	QPMG130408
Φ41.0	GHD-410-3D-FC40-Q13A	41.0	40	48	70	159	129	229	
Φ41.5	GHD-415-3D-FC40-Q13A	41.5	40	48	70	159	129	229	
Φ42.0	GHD-420-3D-FC40-Q13A	42.0	40	48	70	162	132	232	
Φ42.5	GHD-425-3D-FC40-Q13A	42.5	40	48	70	162	132	232	
Φ43.0	GHD-430-3D-FC40-Q13A	43.0	40	48	70	165	135	235	
Φ43.5	GHD-435-3D-FC40-Q13A	43.5	40	48	70	165	135	235	
Φ44.0	GHD-440-3D-FC40-Q13A	44.0	40	48	70	168	138	238	
Φ44.5	GHD-445-3D-FC40-Q13A	44.5	40	48	70	168	138	238	
Φ45.0	GHD-450-3D-FC40-Q13A	45.0	40	48	70	171	141	241	
Φ45.5	GHD-455-3D-FC40-Q15A	45.5	40	48	70	171	141	241	QPMG150512
Φ46.0	GHD-460-3D-FC40-Q15A	46.0	40	48	70	179	144	249	
Φ46.5	GHD-465-3D-FC40-Q15A	46.5	40	48	70	179	144	249	
Φ47.0	GHD-470-3D-FC40-Q15A	47.0	40	48	70	182	147	252	
Φ47.5	GHD-475-3D-FC40-Q15A	47.5	40	48	70	182	147	252	
Φ48.0	GHD-480-3D-FC40-Q15A	48.0	40	48	70	185	150	255	
Φ48.5	GHD-485-3D-FC40-Q15A	48.5	40	48	70	185	150	255	
Φ49.0	GHD-490-3D-FC40-Q15A	49.0	40	49	70	188	153	258	
Φ49.5	GHD-495-3D-FC40-Q15A	49.5	40	49	70	188	153	258	
Φ50.0	GHD-500-3D-FC40-Q15A	50.0	40	50	70	191	156	261	
Φ50.5	GHD-505-3D-FC40-Q15A	50.5	40	50	70	191	156	261	
Φ51.0	GHD-510-3D-FC40-Q15A	51.0	40	51	70	194	159	264	

GHD-4D

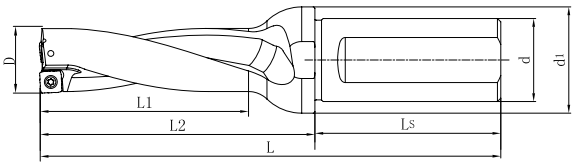
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ14.0	GHD-140-4D-FC20-Q04A	14.0	20	25	50	74	58	124	QPMG040204
Φ14.5	GHD-145-4D-FC20-Q04A	14.5	20	25	50	74	58	124	
Φ15.0	GHD-150-4D-FC20-Q04A	15.0	20	25	50	80	62	130	
Φ15.5	GHD-155-4D-FC20-Q04A	15.5	20	25	50	80	62	130	
Φ16.0	GHD-160-4D-FC20-Q05A	16.0	20	25	50	84	66	134	QPMG050204
Φ16.5	GHD-165-4D-FC20-Q05A	16.5	20	25	50	84	66	134	
Φ17.0	GHD-170-4D-FC25-Q05A	17.0	25	32	56	88	70	144	
Φ17.5	GHD-175-4D-FC25-Q05A	17.5	25	32	56	88	70	144	
Φ18.0	GHD-180-4D-FC25-Q05A	18.0	25	32	56	95	75	151	
Φ18.5	GHD-185-4D-FC25-Q05A	18.5	25	32	56	95	75	151	
Φ19.0	GHD-190-4D-FC25-Q06A	19.0	25	32	56	99	79	155	QPMG060204
Φ19.5	GHD-195-4D-FC25-Q06A	19.5	25	32	56	99	79	155	
Φ20.0	GHD-200-4D-FC25-Q06A	20.0	25	32	56	103	83	159	
Φ20.5	GHD-205-4D-FC25-Q06A	20.5	25	32	56	103	83	159	
Φ21.0	GHD-210-4D-FC25-Q06A	21.0	25	32	56	107	87	163	
Φ21.5	GHD-215-4D-FC25-Q06A	21.5	25	32	56	107	87	163	
Φ22.0	GHD-220-4D-FC25-Q06A	22.0	25	32	56	111	91	167	
Φ22.5	GHD-225-4D-FC25-Q06A	22.5	25	32	56	111	91	167	
Φ23.0	GHD-230-4D-FC25-Q07A	23.0	25	32	56	115	95	171	QPMG07T306
Φ23.5	GHD-235-4D-FC25-Q07A	23.5	25	32	56	115	95	171	
Φ24.0	GHD-240-4D-FC25-Q07A	24.0	25	32	56	119	99	175	
Φ24.5	GHD-245-4D-FC25-Q07A	24.5	25	32	56	119	99	175	
Φ25.0	GHD-250-4D-FC25-Q07A	25.0	25	32	56	123	103	179	
Φ25.5	GHD-255-4D-FC32-Q07A	25.5	32	42	60	133	108	193	
Φ26.0	GHD-260-4D-FC32-Q07A	26.0	32	42	60	133	108	193	
Φ26.5	GHD-265-4D-FC32-Q07A	26.5	32	42	60	133	108	193	
Φ27.0	GHD-270-4D-FC32-Q07A	27.0	32	42	60	137	112	197	

GHD-4D

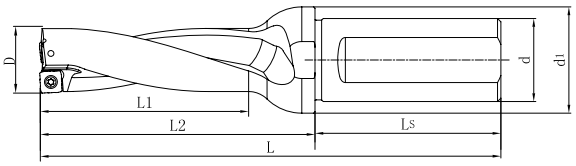
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ27.5	GHD-275-4D-FC32-Q09A	27.5	32	42	60	137	112	197	QPMG09T308
Φ28.0	GHD-280-4D-FC32-Q09A	28.0	32	42	60	141	116	201	
Φ28.5	GHD-285-4D-FC32-Q09A	28.5	32	42	60	141	116	201	
Φ29.0	GHD-290-4D-FC32-Q09A	29.0	32	42	60	145	120	205	
Φ29.5	GHD-295-4D-FC32-Q09A	29.5	32	42	60	145	120	205	
Φ30.0	GHD-300-4D-FC32-Q09A	30.0	32	42	60	149	124	209	
Φ30.5	GHD-305-4D-FC32-Q09A	30.5	32	42	60	149	124	209	
Φ31.0	GHD-310-4D-FC32-Q09A	31.0	32	42	60	153	128	213	
Φ31.5	GHD-315-4D-FC32-Q09A	31.5	32	42	60	153	128	213	
Φ32.0	GHD-320-4D-FC32-Q09A	32.0	32	42	60	157	132	217	
Φ32.5	GHD-325-4D-FC32-Q09A	32.5	32	42	60	157	132	217	
Φ33.0	GHD-330-4D-FC40-Q09A	33.0	40	48	70	165	137	235	
Φ33.5	GHD-335-4D-FC40-Q11A	33.5	40	48	70	165	137	235	QPMG110408
Φ34.0	GHD-340-4D-FC40-Q11A	34.0	40	48	70	169	141	239	
Φ34.5	GHD-345-4D-FC40-Q11A	34.5	40	48	70	169	141	239	
Φ35.0	GHD-350-4D-FC40-Q11A	35.0	40	48	70	173	145	243	
Φ35.5	GHD-355-4D-FC40-Q11A	35.5	40	48	70	173	145	243	
Φ36.0	GHD-360-4D-FC40-Q11A	36.0	40	48	70	177	149	247	
Φ36.5	GHD-365-4D-FC40-Q11A	36.5	40	48	70	177	149	247	
Φ37.0	GHD-370-4D-FC40-Q11A	37.0	40	48	70	181	153	251	
Φ37.5	GHD-375-4D-FC40-Q11A	37.5	40	48	70	181	153	251	
Φ38.0	GHD-380-4D-FC40-Q11A	38.0	40	48	70	185	157	255	
Φ38.5	GHD-385-4D-FC40-Q11A	38.5	40	48	70	185	157	255	
Φ39.0	GHD-390-4D-FC40-Q11A	39.0	40	48	70	189	161	259	
Φ39.5	GHD-395-4D-FC40-Q11A	39.5	40	48	70	189	161	259	
Φ40.0	GHD-400-4D-FC40-Q11A	40.0	40	48	70	193	165	263	

GHD-4D

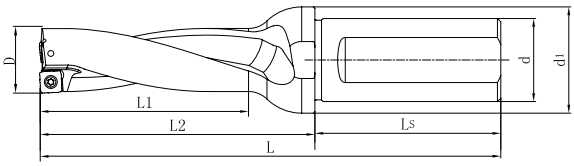
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ40.5	GHD-405-4D-FC40-Q13A	40.5	40	48	70	193	165	263	QPMG130408
Φ41.0	GHD-410-4D-FC40-Q13A	41.0	40	48	70	200	170	270	
Φ41.5	GHD-415-4D-FC40-Q13A	41.5	40	48	70	200	170	270	
Φ42.0	GHD-420-4D-FC40-Q13A	42.0	40	48	70	204	174	274	
Φ42.5	GHD-425-4D-FC40-Q13A	42.5	40	48	70	204	174	274	
Φ43.0	GHD-430-4D-FC40-Q13A	43.0	40	48	70	208	178	278	
Φ43.5	GHD-435-4D-FC40-Q13A	43.5	40	48	70	208	178	278	
Φ44.0	GHD-440-4D-FC40-Q13A	44.0	40	48	70	212	182	282	
Φ44.5	GHD-445-4D-FC40-Q13A	44.5	40	48	70	212	182	282	
Φ45.0	GHD-450-4D-FC40-Q13A	45.0	40	48	70	216	186	286	
Φ45.5	GHD-455-4D-FC40-Q15A	45.5	40	48	70	216	186	286	QPMG150512
Φ46.0	GHD-460-4D-FC40-Q15A	46.0	40	48	70	225	190	295	
Φ46.5	GHD-465-4D-FC40-Q15A	46.5	40	48	70	225	190	295	
Φ47.0	GHD-470-4D-FC40-Q15A	47.0	40	48	70	229	194	299	
Φ47.5	GHD-475-4D-FC40-Q15A	47.5	40	48	70	229	194	299	
Φ48.0	GHD-480-4D-FC40-Q15A	48.0	40	48	70	233	198	303	
Φ48.5	GHD-485-4D-FC40-Q15A	48.5	40	48	70	233	198	303	
Φ49.0	GHD-490-4D-FC40-Q15A	49.0	40	49	70	237	202	307	
Φ49.5	GHD-495-4D-FC40-Q15A	49.5	40	49	70	237	202	307	
Φ50.0	GHD-500-4D-FC40-Q15A	50.0	40	50	70	241	206	311	
Φ50.5	GHD-505-4D-FC40-Q15A	50.5	40	50	70	241	206	311	
Φ51.0	GHD-510-4D-FC40-Q15A	51.0	40	51	70	245	210	315	

GHD-5D

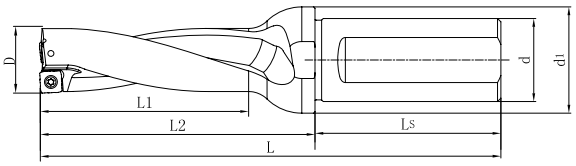
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ14.0	GHD-140-5D-FC20-Q04A	14.0	20	25	50	88	72	138	QPMG040204
Φ14.5	GHD-145-5D-FC20-Q04A	14.5	20	25	50	88	72	138	
Φ15.0	GHD-150-5D-FC20-Q04A	15.0	20	25	50	95	77	145	
Φ15.5	GHD-155-5D-FC25-Q04A	15.5	25	32	56	98	77	154	
Φ16.0	GHD-160-5D-FC25-Q05A	16.0	25	32	56	103	82	159	QPMG050204
Φ16.5	GHD-165-5D-FC25-Q05A	16.5	25	32	56	103	82	159	
Φ17.0	GHD-170-5D-FC25-Q05A	17.0	25	32	56	108	87	164	
Φ17.5	GHD-175-5D-FC25-Q05A	17.5	25	32	56	108	87	164	
Φ18.0	GHD-180-5D-FC25-Q05A	18.0	25	32	56	113	93	169	
Φ18.5	GHD-185-5D-FC25-Q05A	18.5	25	32	56	113	93	169	
Φ19.0	GHD-190-5D-FC25-Q06A	19.0	25	32	56	118	98	174	QPMG060204
Φ19.5	GHD-195-5D-FC25-Q06A	19.5	25	32	56	118	98	174	
Φ20.0	GHD-200-5D-FC25-Q06A	20.0	25	32	56	123	103	179	
Φ20.5	GHD-205-5D-FC25-Q06A	20.5	25	32	56	123	103	179	
Φ21.0	GHD-210-5D-FC25-Q06A	21.0	25	32	56	128	108	184	
Φ21.5	GHD-215-5D-FC25-Q06A	21.5	25	32	56	128	108	184	
Φ22.0	GHD-220-5D-FC25-Q06A	22.0	25	32	56	133	113	189	
Φ22.5	GHD-225-5D-FC25-Q06A	22.5	25	32	56	133	113	189	
Φ23.0	GHD-230-5D-FC32-Q07A	23.0	32	42	56	138	118	194	QPMG07T306
Φ23.5	GHD-235-5D-FC32-Q07A	23.5	32	42	56	138	118	194	
Φ24.0	GHD-240-5D-FC32-Q07A	24.0	32	42	56	143	123	199	
Φ24.5	GHD-245-5D-FC32-Q07A	24.5	32	42	56	143	123	199	
Φ25.0	GHD-250-5D-FC32-Q07A	25.0	32	42	56	148	128	204	
Φ25.5	GHD-255-5D-FC32-Q07A	25.5	32	42	56	148	128	204	
Φ26.0	GHD-260-5D-FC32-Q07A	26.0	32	42	60	159	134	219	
Φ26.5	GHD-265-5D-FC32-Q07A	26.5	32	42	60	159	134	219	
Φ27.0	GHD-270-5D-FC32-Q07A	27.0	32	42	60	164	139	224	

GHD-5D

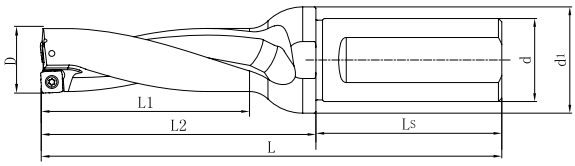
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ27.5	GHD-275-5D-FC32-Q09A	27.5	32	42	60	169	144	229	QPMG09T308
Φ28.0	GHD-280-5D-FC32-Q09A	28.0	32	42	60	169	144	229	
Φ28.5	GHD-285-5D-FC32-Q09A	28.5	32	42	60	169	144	229	
Φ29.0	GHD-290-5D-FC32-Q09A	29.0	32	42	60	174	149	234	
Φ29.5	GHD-295-5D-FC32-Q09A	29.5	32	42	60	174	149	234	
Φ30.0	GHD-300-5D-FC32-Q09A	30.0	32	42	60	179	154	239	
Φ30.5	GHD-305-5D-FC32-Q09A	30.5	32	42	60	179	154	239	
Φ31.0	GHD-310-5D-FC32-Q09A	31.0	32	42	60	184	159	244	
Φ31.5	GHD-315-5D-FC32-Q09A	31.5	32	42	60	184	159	244	
Φ32.0	GHD-320-5D-FC32-Q09A	32.0	32	42	60	189	164	249	
Φ32.5	GHD-325-5D-FC40-Q09A	32.5	40	48	60	194	169	254	
Φ33.0	GHD-330-5D-FC40-Q09A	33.0	40	48	60	194	169	254	
Φ33.5	GHD-335-5D-FC40-Q11A	33.5	40	48	70	203	175	273	QPMG110408
Φ34.0	GHD-340-5D-FC40-Q11A	34.0	40	48	70	203	175	273	
Φ34.5	GHD-345-5D-FC40-Q11A	34.5	40	48	70	203	175	273	
Φ35.0	GHD-350-5D-FC40-Q11A	35.0	40	48	70	208	180	278	
Φ35.5	GHD-355-5D-FC40-Q11A	35.5	40	48	70	208	180	278	
Φ36.0	GHD-360-5D-FC40-Q11A	36.0	40	48	70	213	185	283	
Φ36.5	GHD-365-5D-FC40-Q11A	36.5	40	48	70	213	185	283	
Φ37.0	GHD-370-5D-FC40-Q11A	37.0	40	48	70	218	190	288	
Φ37.5	GHD-375-5D-FC40-Q11A	37.5	40	48	70	218	190	288	
Φ38.0	GHD-380-5D-FC40-Q11A	38.0	40	48	70	223	195	293	
Φ38.5	GHD-385-5D-FC40-Q11A	38.5	40	48	70	223	195	293	
Φ39.0	GHD-390-5D-FC40-Q11A	39.0	40	48	70	228	200	298	
Φ39.5	GHD-395-5D-FC40-Q11A	39.5	40	48	70	228	200	298	
Φ40.0	GHD-400-5D-FC40-Q11A	40.0	40	48	70	233	205	303	

GHD-5D

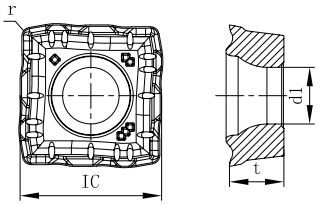
Indexable drill (Patented)



Dia.	Drilling Body	Dimension							Insert
		D	d	d1	Ls	L2	L1	L	
Φ40.5	GHD-405-5D-FC40-Q13A	40.5	40	48	70	241	211	311	QPMG130408
Φ41.0	GHD-410-5D-FC40-Q13A	41.0	40	48	70	241	211	311	
Φ41.5	GHD-415-5D-FC40-Q13A	41.5	40	48	70	241	211	311	
Φ42.0	GHD-420-5D-FC40-Q13A	42.0	40	48	70	246	216	316	
Φ42.5	GHD-425-5D-FC40-Q13A	42.5	40	48	70	246	216	316	
Φ43.0	GHD-430-5D-FC40-Q13A	43.0	40	48	70	251	221	321	
Φ43.5	GHD-435-5D-FC40-Q13A	43.5	40	48	70	251	221	321	
Φ44.0	GHD-440-5D-FC40-Q13A	44.0	40	48	70	256	226	326	
Φ44.5	GHD-445-5D-FC40-Q13A	44.5	40	48	70	256	226	326	
Φ45.0	GHD-450-5D-FC40-Q13A	45.0	40	48	70	261	231	331	
Φ45.5	GHD-455-5D-FC40-Q15A	45.5	40	48	70	261	231	331	QPMG150512
Φ46.0	GHD-460-5D-FC40-Q15A	46.0	40	48	70	271	236	341	
Φ46.5	GHD-465-5D-FC40-Q15A	46.5	40	48	70	271	236	341	
Φ47.0	GHD-470-5D-FC40-Q15A	47.0	40	48	70	276	241	346	
Φ47.5	GHD-475-5D-FC40-Q15A	47.5	40	48	70	276	241	346	
Φ48.0	GHD-480-5D-FC40-Q15A	48.0	40	48	70	281	246	351	
Φ48.5	GHD-485-5D-FC40-Q15A	48.5	40	48	70	281	246	351	
Φ49.0	GHD-490-5D-FC40-Q15A	49.0	40	49	70	286	251	356	
Φ49.5	GHD-495-5D-FC40-Q15A	49.5	40	49	70	286	251	356	
Φ50.0	GHD-500-5D-FC40-Q15A	50.0	40	50	70	291	256	361	
Φ50.5	GHD-505-5D-FC40-Q15A	50.5	40	50	70	291	256	361	
Φ51.0	GHD-510-5D-FC40-Q15A	51.0	40	51	70	296	261	366	

QPMG

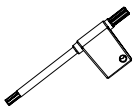
Indexable Drill Insert (Patented)



Type	Grade	Dimension				Dia. of Drill	Stock
		IC	t	r	d1		
QPMG040204-DP	GA4230	4.7	2.3	0.4	2.2	Φ14.0 ~ Φ15.9	●
QPMG050204-DP	GA4230	5.7	2.5	0.4	2.6	Φ16.0 ~ Φ18.9	●
QPMG060204-DP	GA4230	6.5	2.5	0.4	2.6	Φ19.0 ~ Φ22.5	●
QPMG07T306-DP	GA4230	7.94	3.2	0.6	2.85	Φ22.6 ~ Φ27.0	●
QPMG09T308-DP	GA4230	9.7	3.5	0.8	3.5	Φ27.1 ~ Φ33.0	●
QPMG110408-DP	GA4230	11.5	4.76	0.8	4.4	Φ33.1 ~ Φ40.0	●
QPMG130408-DP	GA4230	13.2	4.76	0.8	4.4	Φ40.1 ~ Φ45.0	●
QPMG150512-DP	GA4230	15.2	5.2	1.2	5.5	Φ45.1 ~ Φ51.0	●

● Stock ○ Order

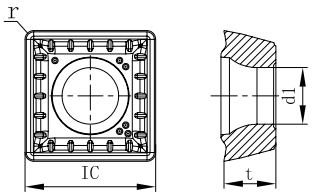
Drill Body Parts



Insert Type	Screw		Wrench	
	Type	Ordering Code	Type	Ordering Code
QPMG040204	SI60M2*4.3	730100961019	T06	720309000975
QPMG050204	SI60M2.2*5	730109003032	T07	720300960507
QPMG060204	SI60M2.2*5	730109003032	T07	720300960507
QPMG07T306	SI60M2.5*6.5	730109003036	T07	720300960507
QPMG09T308	SI60M3*7.2	730109003038	T09	720309000971
QPMG110408	SI60M4*9	730109003045	T15	720300960510
QPMG130408	SI60M4*9	730109003045	T15	720300960510
QPMG150512	SI60M5*14	730100961200	T20	720309000979

SPMG

General Drill Insert

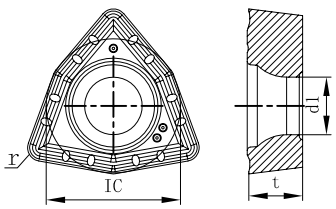


Type	Grade	Dimension				Dia. of Drill	Stock
		IC	t	r	d1		
SPMG050204-DM	GA4230	5	2.38	0.4	2.2	Φ13.0 ~ Φ15.0	●
SPMG060204-DM	GA4230	6	2.38	0.4	2.6	Φ15.5 ~ Φ21.5	●
SPMG07T308-DM	GA4230	7.94	3.97	0.8	2.8	Φ22.0 ~ Φ27.5	●
SPMG090408-DM	GA4230	9.8	4.3	0.8	4.23	Φ28.0 ~ Φ33.0	●
SPMG110408-DM	GA4230	11.5	4.76	0.8	4.4	Φ33.0 ~ Φ41.0	●
SPMG140512-DM	GA4230	14.3	5.2	1.2	5.75	Φ42.0 ~ Φ50.0	●

● Stock ○ Order

WCMT

General Drill Insert



Type	Grade	Dimension				Dia. of Drill	Stock
		IC	t	r	d1		
WCMT030208-DU	GA4230	5.56	2.38	0.8	2.8	Φ15.0 ~ Φ20.5	●
WCMT040208-DU	GA4230	6.35	2.38	0.8	2.9	Φ21.0 ~ Φ24.5	●
WCMT050308-DU	GA4230	7.94	3.18	0.8	3.4	Φ25.0 ~ Φ30.0	●
WCMT06T308-DU	GA4230	9.52	3.97	0.8	3.8	Φ30.5 ~ Φ39.5	●
WCMT080412-DU	GA4230	12.7	4.76	1.2	4.4	Φ40.0 ~ Φ60.0	●

● Stock ○ Order

Recommended Cutting Data

Indexable Drill

Workpiece Materials		Material Hardness (HB)	Vc Recommended Cutting Speed(m/min)	Feed (mm/rev)			
				Ø14.0 – 22.5	Ø23.0 – 27.0	Ø27.5 – 33.0	Ø33.5 – 51.0
P	Low Carbon Steel	80 – 170	(240) 160 – 300	0.04-0.06	0.04-0.06	0.04-0.08	0.04-0.08
	High Carbon Steel	170 – 250	(180) 140 – 220	0.04-0.10	0.04-0.12	0.06-0.16	0.08-0.18
	Low Alloy Steel	140 – 260	(180) 160– 250	0.04-0.10	0.06-0.12	0.08-0.16	0.08-0.18
	High Alloy Steel	180 – 300	(160) 140 – 200	0.04-0.10	0.06-0.12	0.08-0.16	0.08-0.18
	Cast Steel	180 – 300	(160) 140 –200	0.05-0.08	0.06-0.12	0.08-0.14	0.08-0.16
M	(Fer/Mar) Stainless Steel	150 – 270	(180) 140 – 250	0.04-0.10	0.06-0.12	0.06-0.14	0.06-0.16
	Austenitic	150 – 270	(180) 150– 250	0.04-0.10	0.06-0.12	0.06-0.14	0.06-0.16
K	Forged Cast Iron	150 – 230	(180) 120–220	0.04-0.10	0.06-0.14	0.06-0.16	0.08-0.20
	Gray Cast Iron	150 – 230	(200) 160–250	0.04-0.10	0.06-0.14	0.06-0.16	0.08-0.20
	Nodular Cast Iron	160 – 260	(180) 150–220	0.04-0.12	0.06-0.16	0.08-0.18	0.08-0.20
S	(Ni+/Fe+/Co+)HRSA	130 – 400	(50) 30–80	0.04-0.06	0.04-0.08	0.04-0.10	0.06-0.12
	(Ti+)HRSA	130 – 400	(50) 30–70	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.11
H	Hardened Steel	400 –	(45) 30–60	0.04-0.08	0.04-0.10	0.06-0.12	0.08-0.14

Indexable Deep Drill Body Identification System

GD 600 A – 016.10 S E 4

① ② ③ ④ ⑤ ⑥ ⑦

①Drill type	
GD	Indexable Deep Drill

②Major series code	
600	600 series

③Minor series code	
A	Minor series A
Omitted	Default

④Drill diameter	
016.10	Drill dia.=Ø16.10

⑤Tube type	
S	Single tube
D	Double tube

⑥Interface type	
E	External thread
I	Internal thread
Omitted	Default (double tube)

⑦Thread number	
4	4 Start thread

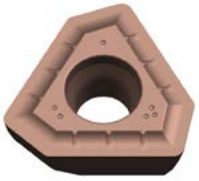
Product list of indexable deep hole drill

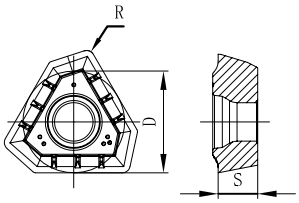
Type	Series	Figure	Application	Advantage
Indexable Deep Drill	GD600		Deep hole drilling for general materials Hole dia. : Φ38 ~ Φ107mm Max. Depth : 100xD	Screw Locking Higher productivity, lower cost, better performance consistence
	GD601		Deep hole drilling for general materials Hole dia. : Ø25 ~ 28.7mm Max. Depth : 100xD	Screw Locking Higher productivity, lower cost, better performance consistence
	GD602A		Deep hole drilling for general materials Hole dia. : ≤Φ25mm Max. Depth : 100xD	Brazed Single-edge design, superior hole machining accuracy
	GD602B		Deep hole drilling for general materials Hole dia. : Ø16 ~ 36mm Max. Depth : 100xD	Brazed Multi-edge design, superior hole machining accuracy

GD600 Series

TPMT

Indexable deep drill insert



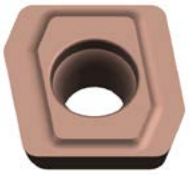


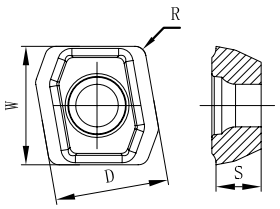
Type	Grade	Dimension (mm)				Stock
		D	S	R	W	
TPMT140308-ED	GA4230	8.45	3.50	0.80	-	●
TPMT1704DD	GA4230	10.30	4.00	0.80	-	●
TPMT2405DD	GA4230	14.20	5.50	1.20	-	●
TPMT280716-ED	GA4230	17.00	7.50	1.60	-	●

● Stock ○ Order

NPMT

Indexable deep drill insert



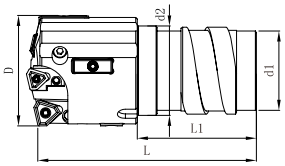


Type	Grade	Dimension (mm)				Stock
		D	S	R	W	
NPMT080308-DD	GA4230	8.00	3.18	0.80	8.36	○

● Stock ○ Order

GD600

Indexable deep drill body



Type	D	L	L1	d1	d2
GD600-XXX.XXSE4	Ø38.00-39.60	85	37	27	30
GD600-XXX.XXSE4	Ø39.61-43.00	85	37	30	33
GD600-XXX.XXSE4	Ø43.01-47.00	95	37	33	36
GD600-XXX.XXSE4	Ø47.01-51.70	95	37	36	39
GD600-XXX.XXSE4	Ø51.71-56.20	100	41	39.5	43
GD600-XXX.XXSE4	Ø56.21-60.60	110	41	43.5	47
GD600-XXX.XXSE4	Ø60.61-65.00	110	77	47	52
GD600-XXX.XXSE4	Ø65.01-66.99	150	77	47	52
GD600-XXX.XXSE4	Ø67.00-72.99	150	77	53	58
GD600-XXX.XXSE4	Ø73.00-79.99	150	77	58	63
GD600-XXX.XXSE4	Ø80.00-86.99	180	100	64	70
GD600-XXX.XXSE4	Ø87.00-99.99	180	100	71	77
GD600-XXX.XXSE4	Ø100.00-106.99	180	100	83	89

GD600 Series

Insert Assembly		Diameter(mm)						
		Ø38.00-39.99	Ø40.00-44.99	Ø45.00-47.99	Ø48.00-51.99	Ø52.00-54.99	Ø55.00-57.99	Ø58.00-59.99
Insert	External	NPMT080308-DD	TPMT140308-ED	TPMT140308-ED	TPMT140308-ED	TPMT1704DD	TPMT1704DD	TPMT1704DD
	Internal	NPMT080308-DD	NPMT080308-DD	NPMT080308-DD	TPMT140308-ED	TPMT140308-ED	TPMT140308-ED	TPMT1704DD
	Central	NPMT080308-DD	NPMT080308-DD	TPMT140308-ED	TPMT140308-ED	TPMT140308-ED	TPMT1704DD	TPMT1704DD

Insert Assembly		Diameter(mm)						
		Ø60.00-63.99	Ø64.00-67.99	Ø68.00-77.99	Ø78.00-84.99	Ø85.00-91.99	Ø92.00-98.99	Ø99.00-106.99
Insert	External	TPMT1704DD	TPMT2405DD	TPMT1704DD	TPMT2405DD	TPMT280716-ED	TPMT2405DD	TPMT280716-ED
	Internal	TPMT1704DD	TPMT1704DD	TPMT2405DD	TPMT2405DD	TPMT2405DD	TPMT280716-ED	TPMT280716-ED
	Central	TPMT1704DD	TPMT1704DD	TPMT2405DD	TPMT2405DD	TPMT2405DD	TPMT280716-ED	TPMT280716-ED

Recommended Cutting Parameters

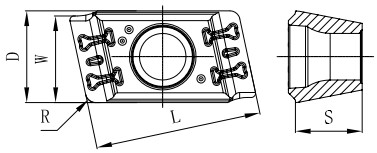
Indexable deep drill GD600

Workpiece Material				HB	Vc (m/min)	Feed (mm/rev)				
						Ø38.00 -39.99	Ø40.00 -51.99	Ø52.00 -63.99	Ø64.00 -84.99	Ø85.00 -106.99
P	Nonalloysteel, caststeel, free cutting steel	0.1-0.25%C	Annealed	125	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		0.25-0.55%C	Annealed	190	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		0.25-0.55%C	Quenched and tempered	250	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		0.55-0.80%C	Annealed	220	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		0.55-0.80%C	Quenched and tempered	300	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
	Low alloy steel and cast steel(less than 5% of alloying elements)		Annealed	200	60-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Quenched and tempered	275	60-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
				300	50-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
				350	50-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
	High alloy steel, cast steel and tool stee		Annealed	200	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Quenched and tempered	325	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
M	Stainless steel and cast steel		Ferritic/ Matensite	200	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Matensite	240	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Austenite	180	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
K	Malleable Cast Iron		Ferritic/ Matensite	130	60-100	0.08-0.13	0.1-0.15	0.13-0.18	0.15-0.2	0.18-0.23
			Pearlitic	230	60-100	0.08-0.13	0.1-0.15	0.13-0.18	0.15-0.2	0.18-0.23
	Gray Cast Iron (GG)		Ferritic	160	60-100	0.08-0.13	0.1-0.15	0.13-0.18	0.15-0.2	0.18-0.23
			Pearlitic	250	60-100	0.08-0.13	0.1-0.15	0.13-0.18	0.15-0.2	0.18-0.23
	Nodular Cast Iron (GGG)		Ferritic	180	60-100	0.08-0.13	0.1-0.15	0.13-0.18	0.15-0.2	0.18-0.23
			Pearlitic	260	60-100	0.08-0.13	0.1-0.15	0.13-0.18	0.15-0.2	0.18-0.23
N	Aluminum - wrought Alloy		Not curable	60	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
			Cured	100	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
	Aluminum-cast Alloy		Not curable	75	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
			Not curable	90	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
			High temp	130	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
	Copper Alloy		Free cutting copper	110	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
			Brass	90	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
			Electrolytic copper	100	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33

GD601 Series

NPMT

Indexable deep drill insert

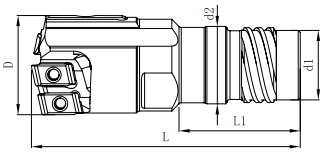


Type	Grade	Dimension (mm)					Stock
		D	S	R	W	L	
NPMT05504R1	GA4230	5.50	4.00	0.60	5.20	10.00	●

●Stock ○ Order

GD601

Indexable deep drill body



Type	D	L	L1	d1	d2
GD601-XXX.XXSE4	Ø25.00-26.40	65.00	21.50	19.00	21.00
GD601-XXX.XXSE4	Ø 26.41-28.70	70.00	24.50	21.00	23.50

GD601 Series

Insert Assembly		Diameter (mm)	
		Ø25.00-26.40	Ø 26.41-28.70
Insert	External	NPMT05504R1	NPMT05504R1
	Internal	NPMT05504R1	NPMT05504R1
	Central	NPMT05504R1	NPMT05504R1

Recommended Cutting

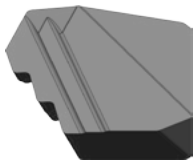
Indexable Deep Drill GD601

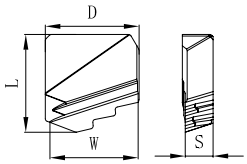
Workpiece Material				HB	Vc (m/min)	Feed (mm/rev) Ø25-28.7
P	Non-alloysteel, caststeel, free cutting steel	0.1-0.25%C	Annealed	125	70-130	0.1-0.20
		0.25-0.55%C	Annealed	190	70-130	0.1-0.20
		0.25-0.55%C	Quenched and tempered	250	70-130	0.1-0.20
		0.55-0.80%C	Annealed	220	70-130	0.1-0.20
		0.55-0.80%C	Quenched and tempered	300	70-130	0.1-0.20
	Low alloy steel and cast steel(less than 5% of alloying elements)		Annealed	200	70-110	0.1-0.20
			Quenched and tempered	275	60-110	0.1-0.20
				300	60-110	0.1-0.20
				350	60-110	0.1-0.20
	High alloy steel, cast steel and tool stee		Annealed	200	70-130	0.1-0.20
			Quenched and tempered	325	70-130	0.1-0.20
M	Stainless steel and cast steel		Ferritic/Matensite	200	40-110	0.1-0.20
			Matensite	240	40-110	0.1-0.20
			Austenite	180	40-110	0.1-0.20
K	Malleable cast iron		Ferritic/Matensite	130	70-110	0.1-0.20
			Pearlitic	230	70-110	0.1-0.20
	Gray cast iron (GG)		Ferritic	160	60-110	0.1-0.20
			Pearlitic	250	60-110	0.1-0.20
	Cast iron nodular(GGG)		Ferritic	180	50-110	0.1-0.20
			Pearlitic	260	50-110	0.1-0.20
N	Aluminum - wrought alloy		Not curable	60	65-130	0.1-0.20
			Cured	100	65-130	0.08-0.18
	Aluminum-cast , alloyed		Not curable	75	65-130	0.08-0.18
			Not curable	90	65-130	0.08-0.18
			High temp.	130	65-130	0.08-0.18
	Copper alloys		Free cutting copper	110	65-130	0.08-0.18
			Brass	90	65-130	0.08-0.18
			Electrolytic copper	100	65-130	0.08-0.18

GD602 A Series

ZOMR

Brazed deep drill insert



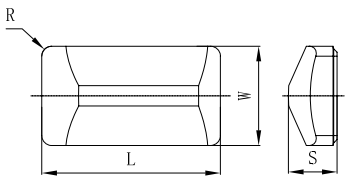


Type	Grade	Dimension (mm)				Stock
		D	S	W	L	
ZOMR0903PA	GN9125	9.45	2.8	8.89	9.84	●

●Stock ○ Order

PAD

Brazed guide pad

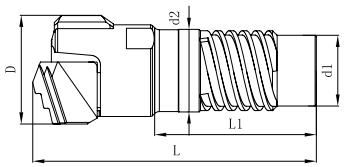


Type	Grade	Dimension (mm)				Stock
		W	S	L	R	
PAD-05085A	GT20A	5.00	2.45	9.00	0.5	○

●Stock ○ Order

GD602A

Brazed deep drill body

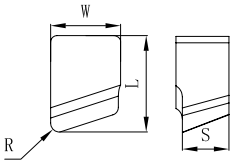


Type	Dimension (mm)				
	D	L	L1	d1	d2
GD602A-XXX.XXSE4	16.10	43.30	25.00	10.80	12.60

GD602B series

ZOMR

Brazed deep drill insert

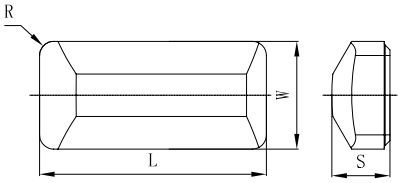


Type	Grade	Dimension (mm)				Stock
		S	R	W	L	
ZOMR0502-PA	GN9125	2.2	0.35	4.0	5.0	○
ZOMR0402-PA	GN9125	2.2	0.4	4.1	6.1	○
ZOMR0302-PA	GN9125	2.2	0.4	3.3	4.5	○

●Stock ○ Order

PAD

Brazed guide pad

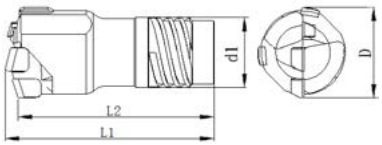


Type	Grade	Dimension (mm)				Stock
		W	S	L	R	
PAD-04080A	GT20A	3.8	2.05	8.00	0.5	○

●Stock ○ Order

GD602B

Brazed deep drill body



Type	Dimension (mm)			
	D	L1	L2	d
GD602B-XXX.XXSE4	15.6-16.2	43	40.3	12.6
	16.21-16.7			
GD602B-XXX.XXSE4	16.71-17.2			13.6
	17.21-17.7			
GD602B-XXX.XXSE4	17.71-18.4	47	44.2	14.5
	18.41-18.9		44.1	
GD602B-XXX.XXSE4	18.91-19.2		44.1	15.5
	19.21-20.0		44	
GD602B-XXX.XXSE4	20.01-20.9	52.5	49.4	16
	20.91-21.8		49.2	
GD602B-XXX.XXSE4	21.81-22.9	56	52.8	18
	22.91-24.1		52.6	
GD602B-XXX.XXSE4	24.11-25.2	57.5	54	19.5
	25.21-26.4			
GD602B-XXX.XXSE4	26.41-27.5		53.8	21
	27.51-28.7			
GD602B-XXX.XXSE4	28.71-29.8	63.5	59.5	23.5
	29.81-31		59.3	
GD602B-XXX.XXSE4	31.01-32.1		59.4	25.5
	32.11-33.3		59.1	
GD602B-XXX.XXSE4	33.31-34.8		59	28
	34.81-36.2		58.9	

Note:Drills of other diameters can be customized

Recommended Cutting Parameters

Brazed deep drill GD602A/B

ISO	Workpiece Material		Feature	HB	Vc (m/min)	Feed (mm/rev)			
						Ø8.00 -15.59	Ø15.60 -20.00	Ø20.01 -31.00	Ø31.01 -36.20
P	Non-alloysteel, caststeel, free cutting steel	0.1-0.25%C	Annealed	125	70-120	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
		0.25-0.55%C	Annealed	190	70-120	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
		0.25-0.55%C	Quenched and tempered	250	40-70	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
		0.55-0.80%C	Annealed	220	70-120	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
		0.55-0.80%C	Quenched and tempered	300	55-100	0.05-0.1	0.08-0.12	0.1-0.15	0.13-0.17
	Low alloy steel and cast steel(lessthan 5% of alloying elements)		Annealed	200	70-100	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
			Quenched and tempered	275	55-100	0.05-0.1	0.08-0.12	0.1-0.15	0.13-0.17
				300	55-100	0.05-0.1	0.08-0.12	0.1-0.15	0.13-0.17
				350	55-100	0.05-0.1	0.08-0.12	0.1-0.15	0.13-0.17
	High alloy steel, cast steel and tool steel		Annealed	200	50-85	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
			Quenched and tempered	325	55-100	0.05-0.1	0.08-0.12	0.1-0.15	0.13-0.17
M	Stainless steel and cast steel		Ferritic/ Matensite	200	60-100	0.05-0.13	0.08-0.15	0.1-0.28	0.13-0.3
			Matensite	240	60-100	0.05-0.13	0.08-0.15	0.1-0.28	0.13-0.3
			Austenite	180	60-100	0.05-0.12	0.05-0.12	0.08-0.25	0.1-0.28
K	Malleable cast iron		Ferritic/ Matensite	130	80-100	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
			Pearlitic	230	80-100	0.05-0.13	0.08-0.15	0.1-0.17	0.13-0.2
	Gray cast iron (GG)		Ferritic	160	60-100	0.05-0.13	0.06-0.13	0.08-0.18	0.1-0.2
			Pearlitic	250	60-100	0.05-0.13	0.06-0.13	0.08-0.18	0.1-0.2
	Cast iron nodular (GGG)		Ferritic	180	50-100	0.05-0.13	0.06-0.13	0.08-0.18	0.1-0.2
			Pearlitic	260	50-100	0.05-0.13	0.06-0.13	0.08-0.18	0.1-0.2
N	Aluminum - wrought alloy		Not curable	60	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
			Cured	100	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
	Aluminum-cast , alloyed		Not curable	75	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
			Not curable	90	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
			High temp.	130	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
	Copper alloys		Free cutting copper	110	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
			Brass	90	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25
			Electrolytic copper	100	65-130	0.05-0.13	0.08-0.15	0.1-0.2	0.15-0.25

INDEXABLE BORING SYSTEM

Modular Boring System

BT-GCK Boring Adapter

GCK Extension Adapter

GCK special diameter extension handle

RB rough boring tool

FB Finish boring tool

SFB exactly micro adjustment finish boring tool

GBJ Finish Boring Tool

GST-DRB Large diameter rough boring tool

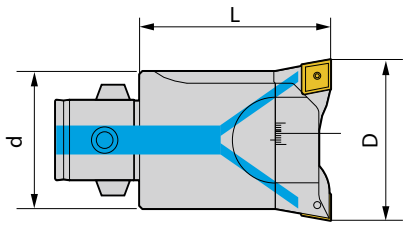
GBJ16 Finish-boring Bar

GST holder

GST-FB Large diameter Finish boring tool

RB

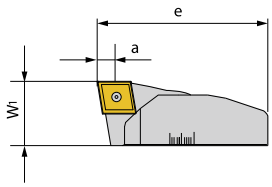
Rough Boring Tool

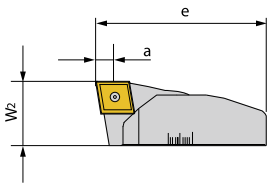


Ordering Code	d	L	Boring Bange	Adapter Size	Insert Holder	Weight
GCK1-GRB-20	19	32.5	20-26	GCK1	DZA2026 DZB2026	0.06
GCK2-GRB-25	24	35.5	25-33	GCK2	DZA2533 DZB2533	0.12
GCK2-RB25-M	25	50	29-36	GCK2	DZA2936 DZB2936	0.17
GCK2-RB25-L	25	50	35-42	GCK2	DZA3542 DZB3542	0.19
GCK3-RB32-M	32	65	36-45	GCK3	DZA3645 DZB3645	0.37
GCK3-RB32-L	32	65	44-53	GCK3	DZA4453 DZB4453	0.37
GCK4-RB40-M	40	63	45-56	GCK4	DZA4556 DZB4556	0.56
GCK4-RB40-L	40	63	55-66	GCK4	DZA5566 DZB5566	0.58
GCK5-RB50-M	50	80	56-74	GCK5	DZA5674 DZB5674	1.10
GCK5-RB50-L	50	80	74-92	GCK5	DZA7492 DZB7492	1.14
GCK6-RB63-M	64	82	70-90	GCK6	DZA7090 DZB7090	1.78
GCK6-RB63-L	64	82	90-110	GCK6	DZA90110 DZB90110	1.90
GCK6-RB80-M	80	82	90-130	GCK6	DZA90130 DZB90130	2.30
GCK6-RB80-L	80	82	130-170	GCK6	DZA130170 DZB130170	2.44
GCK7-GRB160	90	71	160-204	GCK7	DZA160204 DZB160204	5.8

DZA/DZB

Insert Holder

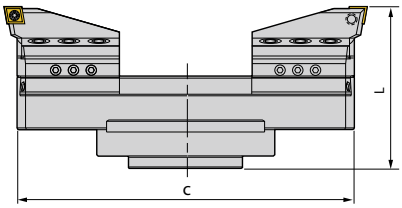




Ordering		e	W1	W2	a	Boring range	Insert Bolder	Insert	Insert Screw	Wrench	Weight
Holder A holder	Holder B holder										
DZA2026	DZB2026	17.0	13.2	13.0	0.5-2	20-26	GRB20	CCMT0602	M025W060	Q08	0.01
DZA2533	DZB2533	20.9	13.2	13.0	0.5-2	25-33	GRB25	CCMT0602	M025W060	Q08	0.01
DZA2936	DZB2936	25	11.7	11.5	0.5-2	29-36	RB25	CCMT0602	M025W060	Q08	0.01
DZA3542	DZB3542	30	11.7	11.5	0.5-2	35-42	RB25	CCMT0602	M025W060	Q08	0.02
DZA3645	DZB3645	32	11.7	11.5	0.5-2	36-45	RB32	CCMT0602	M025W060	Q08	0.02
DZA4453	DZB4453	38	11.7	11.5	0.5-2	44-53	RB32	CCMT0602	M025W060	Q08	0.02
DZA4556	DZB4556	40	15.6	15.4	0.5-3	45-56	RB40	CCMT09T3	M040S1100-1	Q15	0.04
DZA5566	DZB5566	40.5	15.6	15.4	0.5-3	55-66	RB40	CCMT09T3	M040S1100-1	Q15	0.05
DZA5674	DZB5674	49	17.6	17.4	0.5-3	56-74	RB50	CCMT09T3	M040S1100-1	Q15	0.06
DZA7492	DZB7492	62	17.6	17.4	0.5-3	74-92	RB50	CCMT09T3	M040S1100-1	Q15	0.09
DZA7090	DZB7090	60	22.6	22.4	0.5-4	70-90	RB63	CCMT1204	M050Y110-1	Q20	0.12
DZA90110	DZB90110	78	22.6	22.4	0.5-4	90-110	RB63	CCMT1204	M050Y110-1	Q20	0.18
DZA90130	DZB90130	82	22.6	22.4	0.5-4	90-130	RB80	CCMT1204	M050Y110-1	Q20	0.18
DZA130170	DZB130170	99.5	22.6	22.4	0.5-4	130-170	RB80	CCMT1204	M050Y110-1	Q20	0.23
DZA160204	DZB160204	120.5	29.7	29.4	0.5-0.4	160-204	GRB160	CCMT1204	M050Y110-1	Q20	0.235

DRB

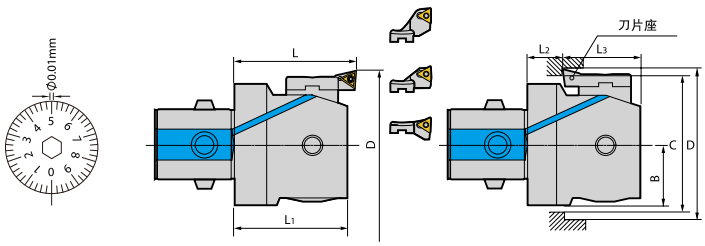
Rough Boring Tool



Ordering Code		C	L	Boring Bange	Adapter Size	B-Boring Bange	Work-depth	Insert Holder & Insert	Screw	Wre-nch	Weig-ht
GST	DRB200310	180	130	200-310	GST	-	55	GB200-C12 (CCMT1204) GB200-T16 (TCMT16T3) GB200-T22 (TCMT2204) GB200-S12 (SCMT1204)	M060U500-0	L03	11.40
	DRB300410	280	130	300-410	GST	0-93	55		M060U500-0	L03	13.45
	DRB400510	380	130	400-510	GST	93-193	55		M060U500-0	L03	15.60
	DRB500610	480	130	500-610	GST	193-293	55		M060U500-0	L03	17.71
	DRB600710	580	130	600-710	GST	293-393	55		M060U500-0	L03	19.83
	DRB700810	680	130	700-810	GST	393-493	55		M060U500-0	L03	21.95
	DRB800910	780	130	800-910	GST	493-593	55		M060U500-0	L03	24.07

FB

Finish Boring Tool

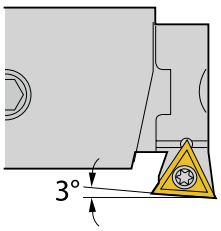


Ordering Code	Insert Holder	Boring		range D	Back Boring			range D	Insert	Screw	Wrench	Weight
		L1	L		B	L2	L3					
GCK1-FB20-36	DPZFB1-A	29.5	32.5	20-26	10	10.5	19	-	TPET080202	M020W050	Q06	0.06
	DPZFB1-B			25-31				-				0.06
	DPZFB1-C			30-36				30-36				0.06
GCK2-FB25-47	DPZFB2-A	32.5	35.5	25-33	12.5	11.5	21	-				0.12
	DPZFB2-B			32-40				36-40				0.12
	DPZFB2-C			39-47				39-47				0.12
GCK3-FB32-60	DPZFB3-A	35	40	32-42	16	10	25	-				0.20
	DPZFB3-B			41-51				46-51				0.20
	DPZFB3-C			50-60				50-60				0.20
GCK4-FB41-74	DPZFB4-A	43	47	41-54	20	14	29	-	TCMT110204 (With) TPEH110304 (For choice)	M025W060 M030W070	Q08	0.39
	DPZFB4-B			50-63				53-63				0.39
	DPZFB4-C			61-74				61-74				0.39
GCK5-FB53-95	DPZFB5-A	53	57	53-70	25.5	19	34	62-70				0.80
	DPZFB5-B			65-82				65-82				0.80
	DPZFB5-C			78-95				78-95				0.80
GCK6-FB68-150	DPZFB6-A	67.2	71	68-100	32.5	22	45.2	80-100				1.75
	DPZFB6-B			94-126				94-126				1.75
	DPZFB6-C			118-150				118-150				1.75
GCK7-FB100-203	DPZFB6-A	67.2	71	110-153	45.5	22	45.2	112-153				2.47
	DPZFB6-B			126-179				126-179				2.47
	DPZFB6-C			150-203				150-203				2.47

Remarks:
Reverse boring needs to meet the condition as follows: C>B+D/2 C: Minimum through-hole diameter B: Boring cutter radius D: Reverse boring machining
Spindle reverses rolling when reverse boring.

DPZFB

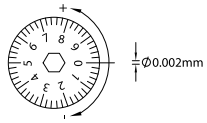
Insert Holder

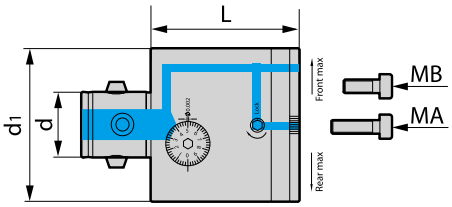
Ordering Code		Figure	Insert	Boring head
DPZFB	1-A		TPET080202	GCK1-FB20-36
	1-B			
	1-C			
	2-A			GCK2-FB25-47
	2-B			
	2-C			
	3-A			GCK3-FB32-60
	3-B			
	3-C			
	4-A-TP/TC		TCMT110204 (With) TPEH110304 （For choice）	GCK4-FB41-74
	4-B-TP/TC			
	4-C-TP/TC			
	5-A-TP/TC			GCK5-FB53-95
	5-B-TP/TC			
	5-C-TP/TC			
	6-A-TP/TC			GCK6-FB68-150 GCK7-FB100-203
	6-B-TP/TC			
	6-C-TP/TC			

Remarks :
Quotation with Insert holder DPZFBX-1 included, while DPZFBX-2 and DPZFBX-3 shall be ordered separately

SFB

Micro-boring Tool

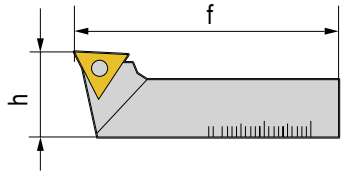




Type	d1	L	Boring Bange	Adapter Size	Insert Holder	Screw	Wrench	Weight
GCK2-SFB25-M	25	50	29-38	GCK2	DPZ2938	M040U050-D	T02	0.15
GCK3-SFB32-M	32	63	36-52	GCK3	DPZ3652	M040U060-D	T02	0.33
GCK4-SFB40-M	40	63	48-68	GCK4	DPZ4868	M050U080-D	T025	0.53
GCK5-SFB50-BM	50	80	57-80	GCK5	DPZ5780	M060U080-D	T03	1.02
GCK6-SFB63-BMA	64	8	70-110	GCK6	DPZ70110	M060U0120-D	T03	1.70
GCK6-SFB80-BMB	80	100	110-150	GCK6	DPZ110150	M060U0200-D	T03	3.50

SFB

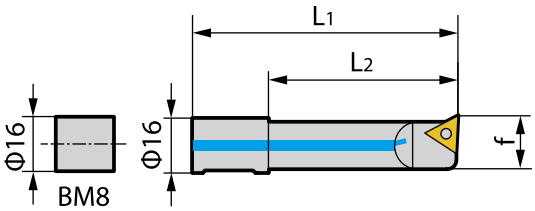
Boring Tool Insert Holder



Type		h	f	Boring Bange	Adapter Size	Insert Holder	Screw	Wrench	Weight
DPZ	2938	11	27	29-38	GCK2-SFB25	TPEH0902..L	M025W050	Q08	0.01
	3652	13	35	36-52	GCK3-SFB32	TPEH0902..L	M025W060	Q08	0.02
	4868	13	43	48-68	GCK4-SFB40	TPEH0902..L	M025W060	Q08	0.03
	5780	20	54	57-80	GCK5-SFB50	TPEH1103..L	M030W070	Q08	0.09
	70110	20	66	70-110	GCK6-SFB63	TPEH1103..L	M030W070	Q08	0.14
	110150	20	106	110-150	GCK6-SFB80	TPEH1103..L	M030W070	Q08	0.25

SFB

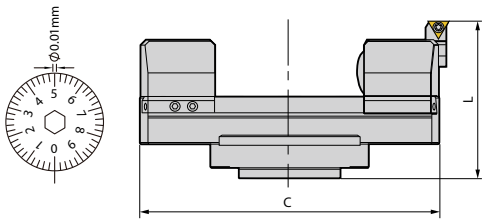
Micro -boring Bar



Ordering Code	L1	L2	Boring Bange	Adapter Size	Insert Holder	Screw	Wrench	Weight
DG1606-21	65	21	6-9	GCK5-SFB50 GCK6-SFB63 GCK6-SFB80	WBGT0601..L	M020W040	Q06	0.04
DG1608-28	63	28	8-11		TBGT0601..L	M020W040	Q06	0.04
DG1610-35	63	35	10-13		TBGT0601..L	M020W040	Q06	0.05
DG1612-42	73	42	12-15		TPEH0902..L	M020W040	Q08	0.06
DG1614-50	78.5	50	14-17		TPEH0902..L	M020W040	Q08	0.08
DG1616-60	88	60	16-20		TPEH0902..L	M020W040	Q08	0.11
DG1620-65	92	65	20-24		TPEH1103..L	M020W040	Q08	0.06
DG1624-68	95	68	24-28		TPEH1103..L	M020W040	Q08	0.20
BM5	60+DPZ2938 or DPZ3652 or DPZ4868					E050U160	-	0.25
BM8	+DPZ5780 or DPZ70110 or DPZ110150					E100U250	-	0.04

GST-FB

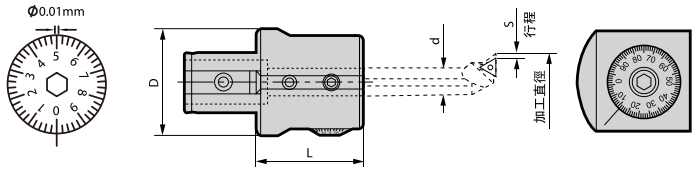
Large Diameter Finish Boring Tool



Ordering Code	Insert Holder	C	L	range	Adap-ter size	Boring-range	Work-depth	Insert Holder	Screw	Wrench	Weight
GST-FB200329	DPZFB6-A	180	130	200-305	GST	0-25	53	TCMT11 (with) TPEH11 (For choice)	35W060	L04 L05 Q08	11.85
	DPZFB6-B	180	130	224-329	GST	-	53				11.85
GST-FB300429	DPZFB6-A	280	130	300-405	GST	25-125	53				13.86
	DPZFB6-B	280	130	324-429	GST	25-100	53				13.86
GST-FB400529	DPZFB6-A	380	130	400-505	GST	125-225	53				15.87
	DPZFB6-B	380	130	424-529	GST	100-200	53				15.87
GST-FB500629	DPZFB6-A	480	130	500-605	GST	225-325	53				17.88
	DPZFB6-B	480	130	524-629	GST	200-300	53				17.88
GST-FB600729	DPZFB6-A	580	130	600-705	GST	325-425	53				19.89
	DPZFB6-B	580	130	624-729	GST	300-400	53				19.89
GST-FB700829	DPZFB6-A	680	130	700-805	GST	425-525	53				21.91
	DPZFB6-B	680	130	724-829	GST	400-500	53				21.91
GST-FB800929	DPZFB6-A	780	130	800-905	GST	525-625	53				23.94
	DPZFB6-B	780	130	824-929	GST	500-600	53				23.94

GBJ16

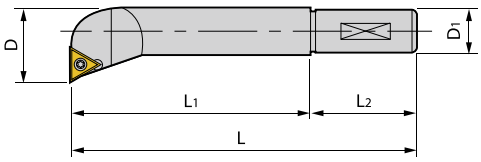
Micro-boring Head



Ordering Code	D	d	L	Dial distance	Micro precision	Adapt-er size	Boring Range	Screw	Screw	Wrench	Weight
GBJ16	63	16	50	0.01	5	GCK6	8-50	M0100U100-D	M100U140-D	T05	1.14

GBJ16

GBJ16 Micro-boring Bar



Ordering Code		D	D1	L1	L2	L	Insert	Boring Bange	Screw	Wrench	Weight
GBJ	1608-32	8	16	32	32	64	TBGH0601L	8-11	M020W040	Q06	0.07
	1610-40	10	16	40	32	72	TBGH0601L	10-13	M020W040	Q06	0.07
	1612-53	12	16	53	32	85	TPEH0902L	12-17	M025W060	Q08	0.09
	1616-68	16	16	68	32	100	TPEH0902L	16-21	M025W060	Q08	0.13
	1620-83	20	16	83	32	115	TPEH1103L	20-26	M030W070	Q08	0.20
	1625-90	25	16	90	32	122	TPEH1103L	25-32	M030W070	Q08	0.25
	1630-90	30	16	90	32	122	TPEH1103L	30-42	M030W070	Q08	0.25
	1640-90	40	16	90	32	122	TPEH1103L	40-50	M030W070	Q08	0.26

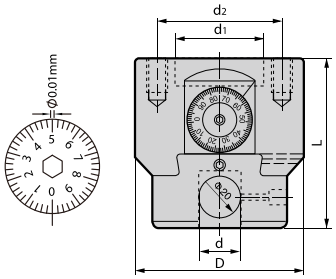
GBJ16

Micro-boring Tool Kit

Ordering Code	Range	Adapter	Weight
BT40-GBJ16-8PCS	8-50	BT40-GCK6-55	3.68
BT50-GBJ16-8PCS	8-50	BT50-GCK6-85	6.74

GBH2084

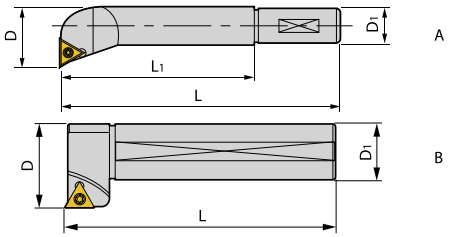
Micro-boring head



Ordering Code	D	d	d1	d2	L	Micro diatance	Boring Range	Dial precision(Dia.)	Adaptsize	Weight
GBH2084	84	20	35	60	80	28	8-280	0.01	GBH-A.B	2.74
						Adjusting screw	T Wrench	Locking screw	T Wrench	
						M080U120-D	T04	M120U140-D	T06	

GBH2084

Micro-boring bar



Ordering Code		D	D1	L1	L	Figure	Insert	Range	Screw	Wrench	Weight
GBH	2008-32	8	20	32	74	A	TBGH0601L	8-11	M020W040	Q06	0.09
	2010-40	10	20	40	75	A	TBGH0601L	10-13	M020W040	Q06	0.10
	2012-53	12	20	53	88	A	TPEH0902L	12-17	M025W060	Q08	0.12
	2016-68	16	20	68	103	A	TPEH0902L	16-21	M025W060	Q08	0.16
	2020-83	20	20	83	115	A	TPEH1103L	20-26	M025W070	Q08	0.22
	2025-96	25	20	96	131	A	TPEH1103L	25-135	M025W070	Q08	0.35
	2030-115	30	20	115	159	A	TPEH1103L	30-140	M025W060	Q08	0.52
	20120-97	30	20	-	97	B	TPEH1103L	120-280	M025W070	Q08	0.25

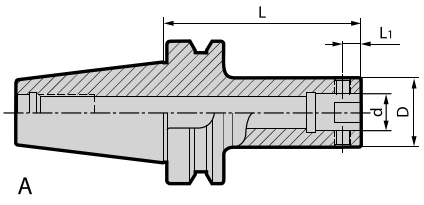
GBH2084

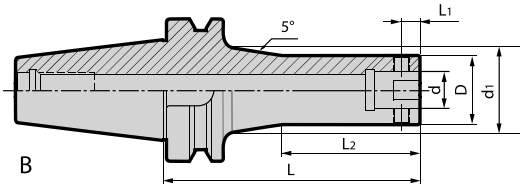
Micro-boring Tool Kit

Ordering Code	Range	Adapter	Weight
BT40-GBH2084-8PCS	8-280	BT40- GBH-A50	6.44
BT50-GBH2084-8PCS	8-280	BT50- GBH-A50	8.89

BT-GCK

Boring Adapter

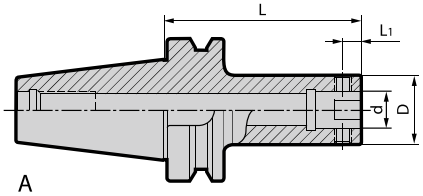


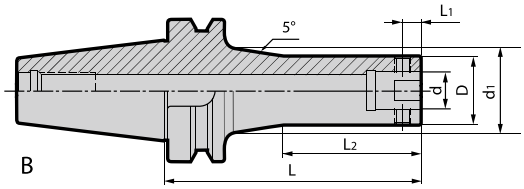


Ordering Code		Figure	D	d1	d	L1	L2	L	Screw	Wrench	Weight
	GCK1-70	A	19	-	11	5.05	-	70	M050Z050-30P-D	L025	1.03
	GCK1-100L	B	19	20.7	11	5.05	60	100	M050Z050-30P-D	L025	1.10
	GCK1-130L	B	19	25.5	11	5.05	60	130	M050Z050-30P-D	L025	1.18
	GCK2-75	A	24	-	14	6.62	-	75	M050Z060-30P-D	L025	1.10
	GCK2-100	A	24	-	14	6.62	-	100	M050Z060-30P-D	L025	1.18
	GCK2-130L	B	24	28.3	14	6.62	75	130	M050Z060-30P-D	L025	1.33
	GCK2-160L	B	24	33.6	14	6.62	75	160	M050Z060-30P-D	L025	1.49
	GCK3-80	A	31	-	18	8	-	80	M060Z090-30P-D	L03	1.22
	GCK3-100	A	31	-	18	8	-	100	M060Z090-30P-D	L03	1.32
	GCK3-135L	B	31	34.5	18	8	75	135	M060Z090-30P-D	L03	1.54
	GCK3-165L	B	31	39.7	18	8	85	165	M060Z090-30P-D	L03	1.76
	GCK4-70	A	39	-	22	10	-	70	M080Z120-30P-D	L04	1.21
	GCK4-100	A	39	-	22	10	-	100	M080Z120-30P-D	L04	1.46
	GCK4-150L	B	39	43.4	22	10	85	150	M080Z120-30P-D	L04	1.90
	GCK4-170L	B	39	46.9	22	10	95	170	M080Z120-30P-D	L04	2.16
	GCK5-60	A	50	-	28	13	-	60	M100Z160-30P-D	L05	1.22
BT40	GCK5-80	A	50	-	28	13	-	80	M100Z160-30P-D	L05	1.52
	GCK5-100	A	50	-	28	13	-	100	M100Z160-30P-D	L05	1.80
	GCK5-150	A	50	-	28	13	-	150	M100Z160-30P-D	L05	2.52
	GCK5-180	A	50	-	28	13	-	180	M100Z160-30P-D	L05	2.90
	GCK6-55	A	64	-	36	16	-	55	M120Z200-30P-D	L06	1.22
	GCK6-100	A	64	-	36	16	-	100	M120Z200-30P-D	L06	2.29
	GCK6-150	A	64	-	36	16	-	150	M120Z200-30P-D	L06	3.50
	GCK6-180	A	64	-	36	16	-	180	M120Z200-30P-D	L06	4.22
	GCK5-100	A	50	-	28	13	-	100	M100Z160-30P-D	L05	1.80
	GCK5-150	A	50	-	28	13	-	150	M100Z160-30P-D	L05	2.52
	GCK5-180	A	50	-	28	13	-	180	M100Z160-30P-D	L05	2.90
	GCK6-55	A	64	-	36	16	-	55	M120Z200-30P-D	L06	1.22
	GCK6-100	A	64	-	36	16	-	100	M120Z200-30P-D	L06	2.29
	GCK6-150	A	64	-	36	16	-	150	M120Z200-30P-D	L06	3.50
	GCK6-180	A	64	-	36	16	-	180	M120Z200-30P-D	L06	4.22
	GCK7-100	A	90	-	46	19.15	-	100	M200Z290-30P-D	L10	3.50
	GCK7-150	A	90	-	46	19.15	-	150	M200Z290-30P-D	L10	5.50

BT-GCK

Boring Adapter

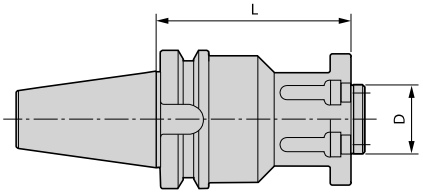




Ordering Code		Figure	D	d1	d	L1	L2	L	Screw	Wrench	Weight
BT50	GCK1-80	A	19	-	11	5.05	-	80	M050Z050-30P-D	L025	3.20
	GCK1-115L	B	19	20.7	11	5.05	50	115	M050Z050-30P-D	L025	3.73
	GCK1-145L	B	19	26	11	5.05	60	145	M050Z050-30P-D	L025	4.20
	GCK2-105	A	24	-	14	6.62	-	105	M050Z060-30P-D	L025	3.78
	GCK2-135L	B	24	26.6	14	6.62	65	135	M050Z060-30P-D	L025	3.89
	GCK2-165L	B	24	31.9	14	6.62	75	165	M050Z060-30P-D	L025	4.08
	GCK3-110	A	31	-	18	8	-	110	M060Z090-30P-D	L03	3.95
	GCK3-140L	B	31	32.7	18	8	75	140	M060Z090-30P-D	L03	4.09
	GCK3-170L	B	31	38	18	8	85	170	M060Z090-30P-D	L03	4.31
	GCK4-100	A	39	-	22	10	-	100	M080Z120-30P-D	L04	3.98
	GCK4-160L	B	39	42.5	22	10	85	160	M080Z120-30P-D	L04	4.50
	GCK4-205L	B	39	50	22	10	95	205	M080Z120-30P-D	L04	5.13
	GCK5-90	A	50	-	28	13	-	90	M100Z160-30P-D	L05	4.30
	GCK5-165	A	50	-	28	13	-	165	M100Z160-30P-D	L05	5.20
	GCK5-210L	B	50	57.8	28	13	120	210	M100Z160-30P-D	L05	5.92
	GCK5-270L	B	50	68.4	28	13	120	270	M100Z160-30P-D	L05	7.23
	GCK6-85	A	64	-	36	16	-	85	M120Z200-30P-D	L06	4.28
	GCK6-155	A	64	-	36	16	-	155	M120Z200-30P-D	L06	5.97
	GCK6-215	A	64	-	36	16	-	215	M120Z200-30P-D	L06	7.43
	GCK6-250	A	64	-	36	16	-	250	M120Z200-30P-D	L06	8.27
	GCK6-300L	B	64	80.5	36	16	160	300	M120Z200-30P-D	L06	10.21
	GCK6-350L	B	64	90	36	16	160	350	M120Z200-30P-D	L06	12.90
	GCK7-85	A	90	-	46	19.15	-	85	M200Z290-30P-D	L10	4.96
	GCK7-150	A	90	-	46	19.15	-	-	M200Z290-30P-D	L10	6.52
	GCK7-210	A	90	-	46	19.15	-	-	M200Z290-30P-D	L10	8.55
	GCK7-250	A	90	-	46	19.15	-	-	M200Z290-30P-D	L10	10.35
	GCK7-300	A	90	-	46	19.15	-	-	M200Z290-30P-D	L10	12.55
	GCK7-350	A	90	-	46	19.15	-	-	M200Z290-30P-D	L10	13.25

BT-GST

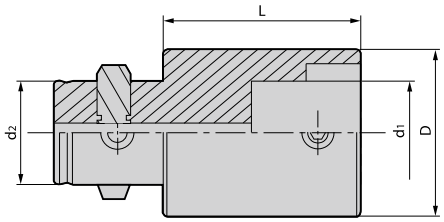
Boring Adapter



Ordering Code		D	L	Screw	Weight
BT40-	GST-100	50	100	E120U400-D	2.90
	GST-150	50	150	E120U400-D	4.24
BT50-	GST-100	50	100	E120U400-D	5.50
	GST-150	50	150	E120U400-D	6.38
	GST-200	50	200	E120U400-D	7.61
	GST-250	50	250	E120U400-D	10.44
	GST-300	50	300	E120U400-D	12.37
	GST-350	50	350	E120U400-D	14.33

GCK

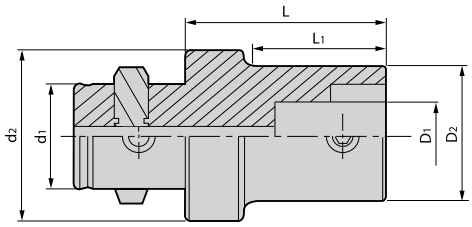
Extension Adapter with equal diameter



Ordering Code		D	d1	d2	L	Screw	Wrench	Weight
GCK	1-1-30	19	11	11	30	M050Z050-30P-D	L025	0.06
	2-2-30	24	14	14	30	M050Z060-30P-D	L025	0.09
	3-3-30	31	18	18	30	M060Z090-30P-D	L03	0.14
	4-4-45	39	22	22	45	M080Z120-30P-D	L04	0.29
	4-4-60	39	22	22	60	M080Z120-30P-D	L04	0.47
	5-5-60	50	28	28	60	M100Z160-30P-D	L05	0.75
	5-5-90	50	28	28	90	M100Z160-30P-D	L05	1.18
	6-6-60	64	36	36	60	M120Z200-30P-D	L06	1.46
	6-6-100	64	36	36	100	M120Z200-30P-D	L06	2.35
	7-7-105	90	46	46	105	M 200Z300-30P-D	L10	5028

GCK

Reducing Extension Adapter



Ordering Code		D1	D2	d1	d2	L1	L	Screw	Wrench	Weight
GCK	2-1-36	11	19	14	24	30	36	M050Z050-30P-D	L025	0.08
	3-1-41	11	19	18	31	30	41	M050Z050-30P-D	L025	0.12
	3-2-37	14	24	18	31	25	37	M050Z060-30P-D	L025	0.13
	4-1-58	11	19	22	39	40	58	M050Z050-30P-D	L025	0.24
	4-2-50	14	24	22	39	36	50	M050Z060-30P-D	L025	0.22
	4-3-50	18	31	22	39	37	50	M060Z090-30P-D	L03	0.30
	5-1-60	11	19	28	50	40	60	M050Z050-30P-D	L025	0.38
	5-2-54	14	24	28	50	35	54	M050Z060-30P-D	L025	0.38
	5-2-74	14	24	28	50	55	74	M050Z060-30P-D	L025	0.45
	5-3-47	18	31	28	50	29	47	M060Z090-30P-D	L03	0.46
	5-3-72	18	31	28	50	54	72	M060Z090-30P-D	L03	0.54
	5-4-42	22	39	28	50	25	42	M080Z120-30P-D	L04	0.43
	5-4-67	22	39	28	50	50	67	M080Z120-30P-D	L04	0.62
	6-1-70	11	19	36	64	40	70	M050Z050-30P-D	L025	0.90
	6-2-63	14	24	36	64	45	63	M050Z060-30P-D	L025	0.66
	6-2-93	14	24	36	64	75	93	M050Z060-30P-D	L025	0.71
	6-3-56	18	31	36	64	39	56	M060Z090-30P-D	L03	0.70
	6-3-96	18	31	36	64	79	96	M060Z090-30P-D	L03	0.91
	6-4-51	22	39	36	64	35	51	M080Z120-30P-D	L04	0.76
	6-4-101	22	39	36	64	85	101	M080Z120-30P-D	L04	1.19
	6-5-41	28	50	36	64	25	41	M100Z160-30P-D	L05	0.72
	6-5-91	28	50	36	64	75	91	M100Z160-30P-D	L05	1.46
	7-6-106	36	64	46	90	99	106	M 120Z200-30P-D	L05	3.12

Recommended Cutting Parameters

INDEXABLE BORING SYSTEM

Work Piece		Dia.of boring hole	Finish Boring			Rough Boring		
			Speed (m/min)	Feed (mm/rev)	Depth (mm)	Speed (m/min)	Feed (mm/rev)	Depth (mm)
P	Carbon Steel	25-33	110-140	0.05-0.15	0.05-0.3	100-300	0.15-0.25	2.2
		32-42	115-150	0.05-0.15	0.05-0.3	105-140	0.15-0.3	2.7
		40-55	115-150	0.05-0.15	0.06-0.35	105-150	0.15-0.3	2.7
		52-100	115-150	0.15-0.2	0.06-0.35	105-150	0.25-0.35	4.3
		95-164	115-150	0.15-0.2	0.7-0.5	105-150	0.3-0.4	4.3
		160-204	115-150	0.15-0.2	0.7-0.5	105-150	0.3-0.4	4.3
	Alloy steel	25-33	100-130	0.05-0.15	0.05-0.15	90-120	0.15-0.25	2.2
		32-42	110-140	0.05-0.15	0.05-0.15	100-130	0.15-0.3	3.7
		40-100	110-150	0.05-0.15	0.05-0.15	100-130	0.2-0.3	3.7
		52-100	110-150	0.15-0.2	0.15-0.2	100-130	0.25-0.35	4.3
		95-164	110-150	0.15-0.2	0.15-0.2	100-130	0.3-0.4	4.3
		160-204	110-150	0.15-0.2	0.15-0.2	100-130	0.3-0.4	4.3
M	Stainless steel	25-33	70-100	0.07-0.15	0.07-0.15	60-90	0.12-0.2	2.2
		32-42	80-110	0.07-0.15	0.07-0.15	70-100	0.15-0.25	3.7
		40-55	80-110	0.07-0.15	0.07-0.15	70-100	0.15-0.25	3.7
		52-100	80-110	0.1-0.2	0.1-0.2	70-100	0.2-0.3	4.3
		95-164	80-110	0.1-0.2	0.1-0.2	70-100	0.25-0.35	4.3
		160-204	80-110	0.1-0.2	0.1-0.2	70-100	0.25-0.35	4.3
K	Cast Iron	25-33	70-100	0.07-0.15	0.12-0.35	60-110	0.2-0.3	2.2
		32-42	80-110	0.07-0.15	0.12-0.35	60-110	0.25-0.35	3.7
		40-55	80-110	0.07-0.15	0.2-0.5	60-110	0.25-0.35	3.7
		52-100	80-110	0.12-0.2	0.2-0.5	60-110	0.3-0.4	4.3
		95-164	80-110	0.12-0.2	0.25-0.75	60-110	0.3-0.45	4.3
		160-204	80-110	0.12-0.2	0.25-0.75	60-110	0.3-0.45	4.3
N	Alumin-ium Alloy	25-33	150-300	0.05-0.15	0.12-0.35	120-300	0.2-0.3	2.2
		32-42	150-360	0.1-0.2	0.12-0.35	150-370	0.25-0.35	3.7
		40-55	150-360	0.1-0.2	0.2-0.5	150-370	0.25-0.35	3.7
		52-100	150-360	0.1-0.2	0.2-0.5	150-370	0.3-0.4	4.3
		95-164	150-360	0.1-0.25	0.25-0.75	150-370	0.3-0.45	4.3
		160-204	150-360	0.1-0.25	0.25-0.75	150-370	0.3-0.45	4.3
S	High tempe-rature alloys & Heat-Resistant Alloy	25-33	30-40	0.07-0.15	0.12-0.35	25-35	0.12-0.2	2.2
		32-42	40-45	0.07-0.15	0.12-0.35	30-40	0.15-0.25	3.7
		40-55	40-45	0.07-0.15	0.2-0.5	30-40	0.15-0.25	3.7
		52-100	40-45	0.1-0.2	0.2-0.5	30-40	0.2-0.3	4.3
		95-164	40-45	0.1-0.2	0.25-0.75	30-40	0.25-0.35	4.3
		160-204	40-45	0.1-0.2	0.25-0.75	30-40	0.25-0.35	4.3

C

SOLID CARBIDE DRILLS

Solid Carbide Drills Identification System

D938 –

①

Workpiece Material	①Drills Series	
Steel,Cast Iron, Non-steel Material	D101	Straight Shank 90° NC Centre Drills
	D102	Straight Shank 120° NC Centre Drills
	D103	Straight Shank 145° NC Centre Drills
Steel	D918	Twist Drills for General Purpose
	D938 NEW	Twist Drills for Steel
Stainless Steel	D968/D968S NEW	Twist Drills for Stainless Steel
Cast Iron	D928	Twist Drills for Cast Iron
Hardened Steel	D998	Twist Drills for Hardened Steel
Cast Iron	D713	Straight Flute Drills for Cast Iron
Composite Material	D612	Triple-angle Drills for Composite Material
	R733-C	Reamer for Composite Material
Composite and Metal	D973	Twist Drills for Composite and Metal
	D573	Core Drills for Composite and Metal
	R733-CM	Reamer for Composite and Metal

A 5 C – 1200

② ③ ④ ⑤

②Shank Type	
A	DIN6535HA
E	DIN6535HE
B	DIN6535HB
Y	Continuous Parallel Shank
M	Mose Shank

③Drilling Depth	
3	Drilling Depth≤3D
5	Drilling Depth≤5D
8	Drilling Depth≤8D
A	Drilling Depth≤10D
M	90° Point Angle
N	120° Point Angle
P	145° Point Angle

④Coolant Type	
C	Internal Coolant
N	External Coolant

⑤Drills Diameter	
0325	Dia : Φ3.25
0600	Dia : Φ6.00
1200	Dia : Φ12.00

Recommend

D101/D102/D103 NC Centre Drills

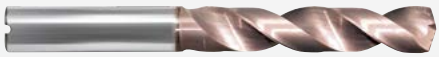
●Suitable for drilling the center hole and chamfer.
●Suitable for drilling steel, cast iron, aluminum alloys, copper alloy.

D918 Twist Drills for General Purpose

●Suitable for drilling steel, stainless steel, cast iron, non-ferrous material.
●Stub chisel, excellent self-center capability.
●curve point, smaller cutting resistance.
●Lip chamfer, higher feed rate, higher efficiency.

D938 Twist Drills for Steel

●Suitable for drilling Steel (≤48HRC) , Cast Iron.
●Unique cutting edge preparation to add strength to the cutting edge, and improve the drilling stability.
●New AlTiN-nano coating, superior wear resistance, longer tool life.
●Straight cutting edge, improves tool strength.



D968 Twist Drills for Stainless Steel

●Suitable for drilling stainless steel
●Excellent edge strength and excellent self-center capability.
●Straight lips, precise edge preparation is adapted, reinforce the strength of edge.
●Small edge home, largeblack taper, reduces friction and tor-que impaction.

D713 Straight Flute Drills for Cast Iron

●Straight flute design, suitable for drilling cast iron.
●Four margin design, improve hole wall quality and accuracy.
●X-shaped drills tip, excellent self-center capability.

D998 Twist Drills for Hardened Steel

●Suitable for drilling hardened steel.
●Large core thickness, small helix angle, high rigidity and strength.
●X-shaped drills tip, excellent self-center capability.
●Radius drills point, excellent hole wall quality.

D928 Twist Drills for Cast Iron

●Suitable for drilling cast iron of automobile industry and other industries.
●Wave formed cutting lips provides lowered machining torque.
●Four margin design, improves hole wall quality and accuracy.
●Increased Drills point strength through optimized chisel edge.

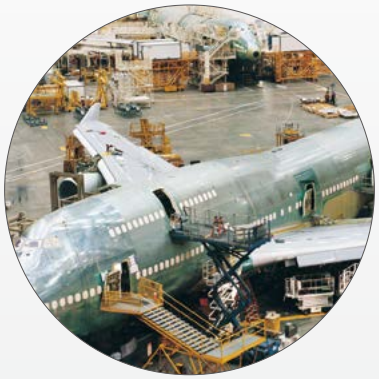
Recommend

D973 Twist Drills for Composite and Metal

●Suitable for carbon fiber / glass fiber reinforced plastic and metal laminated board material manual hole
●Suitable for aviation aluminum, titanium alloy, stainless steel metal materials
●Double edge and self centering design increases process stability
●Hole tolerance:+/-0.025mm (+/-0.001 ")
●Unique tip design reduces export burrs
●Recommended with the use of drilling sleeve

D573 Core Drills for Composite and Metal

●Suitable for manual reaming of CFRP / GFRP and metal Laminates
●Suitable for aviation aluminum, titanium alloy, stainless steel met-al materials
●Three-blade structure and drill tip design to increase processing stability
●Recommended with the use of drilling sleeve
●Hole tolerance:+/-0.025mm (+/-0.001 ")



R733-CM Reamer for Composite and Metal

●Suitable for high precision manual reaming of CFRP / GFRP and metal laminates
●Suitable for hole geometric accuracy and processing roughness demanding reaming
●Double Steps design can effectively increase the scope of application
●Hole tolerance: +/- 0.010mm

D612 Triple-angle Drill for Composite Material

●Suitable for all kinds of carbon fiber / glass fiber reinforced plastic manual drilling
●The tool slot is designed for unidirectional and braided belt type CFRP
●The unique tip design ensures stable and smooth drilling
●Sharp cutting edge can be processed out of excellent export / import quality
●Hole tolerance：+/-0.025mm (+/-0.001")

R733-C Reamer for Composite Material

●Suitable for all kinds of carbon fiber / glass fiber reinforced plastic high precision manual hinge processing
●Suitable for hole geometric accuracy and processing roughness demanding reaming
●Double ladder design can effectively increase the scope of application
●Hole tolerance:±0.010mm

Application Summary of Solid Carbide Drills

ISO Material Group		GESAC Material Group	Internal Coolant Drilling			External Coolant Drilling			Dry Drilling
			3*D	5*D	8*D	Chamfer and Center Hole	3*D	5*D	3*D
P	1 2 3 4	Carbon Steels , Alloy Steels (< 35HRC)	D918 D938		D938 NEW	D101 D102 D103	D918 D938		D938
	5	Alloy Steels (35-48HRC)							
	6	PH and Ferrite/Martensitic Stainless (< 35HRC)							
M	1 2 3	Stainless Steel	D968				D968S NEW		
K	1 2	Cast Iron , Ductile Cast Iron (< 32HRC)	D928 D713			D101 D102 D103	D928 D713		
	3	High Alloy Cast Cast Iron (35-45HRC)							
N	1 2	Wrought Aluminium Alloys,Aluminium Alloys(Si≤12%)				D101 D102 D103	D973 D573 D713		
	3	Cast Aluminium Alloys(Si > 12%)	D713					D713 D973	
	4	Copper Alloys (< 200HB)							
	5	Composite					D612		
S	1 2 3	Heat Resistant Super Alloys (< 450HB)							
	4	Titanium Alloys (< 400HB)					D573 D973 R733-CM	D973 R733-CM	
H	1 2	Hardened Steels (45-60HRC)					D998		D998
	3	Hardened Steels (60-65HRC)							

NEW PRODUCTS NEW

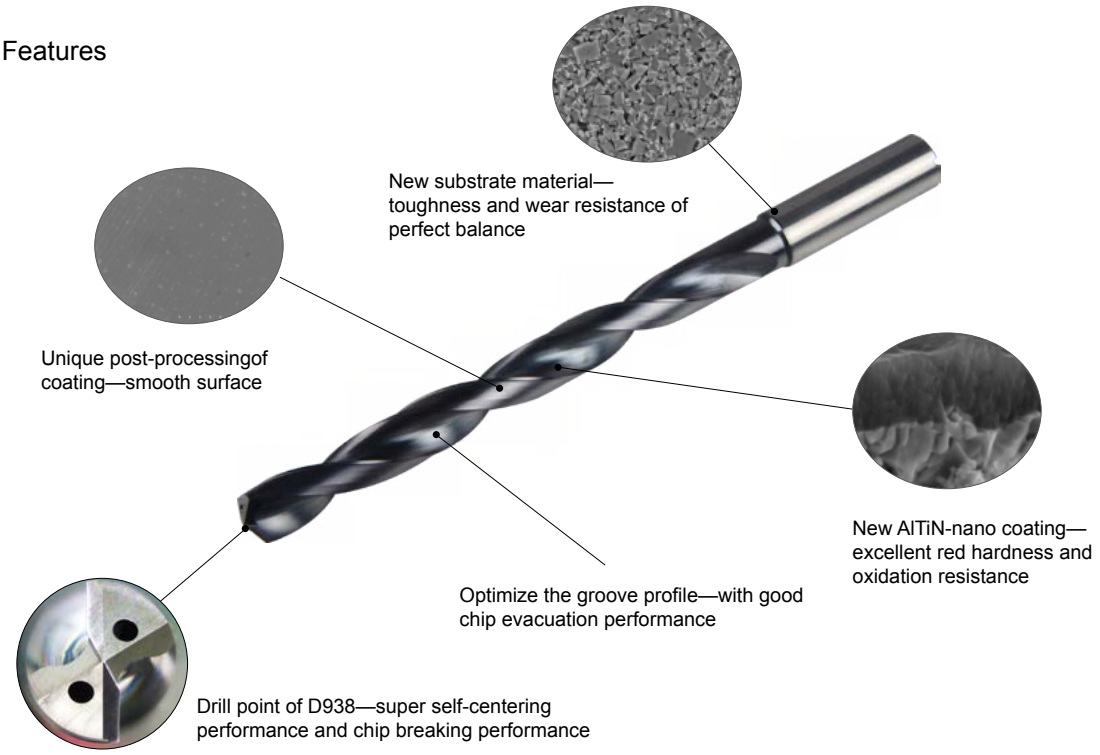
8D Inner Cooling Twist Drills of D938 Series

Wider machining range (≤48HRC)

Stable drilling performance

Longer lifetime

► Features



► Main Application Industry

Auto Industry

Construction Machinery Industry

Mould Industry

Valve Industry

Drills Content

Workpiece Material	Description		Point Angle	Shank Type	Coating	Drilling Depth	Coolant Type	Tool Type	Dimension Range	Dimen-sion on Page	Cutting Param-eters Page
Ste- els , Cast Iron , Non-steelm-aterial	**D101**										
	90° NC Centre Drill		90°	SHANK DIN 6535HA	TiAlN			D101-AMN	D5 ~ D20	P060	P114
	D102										
	120° NC Centre Drill		120°	SHANK DIN 6535HA	TiAlN			D102-ANN	D5 ~ D20	P061	P114
	D103										
	145° NC Centre Drill		145°	SHANK DIN 6535HA	TiAlN			D103-APN	D5 ~ D20	P062	P114
Steels	**D918**										
	3D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	TiAlN	3D		D918-A3N	D3 ~ D20	P063	P116
	3D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	TiAlN	3D		D918-A3C	D5 ~ D16	P066	P116
	5D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	TiAlN	5D		D918-A5N	D3 ~ D20	P068	P116
	5D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	TiAlN	5D		D918-A5C	D5 ~ D16	P071	P116
	D938										
	3D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D		D938-A3N	D3-D20	P073	P118
	3D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D		D938-A3C	D3-D20	P077	P118
	5D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	5D		D938-A5N	D3-D20	P081	P118
	5D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	5D		D938-A5C	D3-D20	P085	P118
	8D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	8D		D938-A8C NEW	D3-D16	P089	P120
Stainless Steels	**D968/D968S**										
	3D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D		D968S-A3N NEW	D3 ~ D20	P093	P122
	3D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	HELICA	3D		D968-A3C	D5 ~ D20	P096	P122
	5D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	HELICA	5D		D968-A5C	D5 ~ D20	P099	P122

◎ Most Suitable ○ Suitable

	Workpiece Material													
	P			M	K		N				S		H	
	1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1 2	3
	Carbon Steels、Alloy Steels	Alloy Steels, Tool Steels	PH and Ferrite/ Marte-ns itic Stainless	Stainl-ess Steel	Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Wrought Aluminium Alloys, Aluminium Alloys	Cast Alumin-ium Alloys	Copper Alloys	Com-pos-ite Mat-eri-al	Heat Resist-ant Super Alloys	Titani-um Alloys	Hardened Steels	Hardened Steels
	< 35HRC	35-48HRC			< 35HRC	35-45HRC	Si < 12%	Si > 12%	< 200HB		< 450HB	< 400HB	45-55HRC	55-60HRC
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	○			◎							○	○		
	○			◎							○	○		

Drills Content

Workpiece Material	Description		Point Angle	Shank Type	Coating	Drilling Depth	Coolant Type	Tool Type	Dimension Range	Dimen-sion on Page	Cutting Param-eters Page
Cast Iron	**D928**										
	3D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	HELICA	3D		D928-A3N	D3 ~ D20	P102	P124
	3D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	HELICA	3D		D928-A3C	D5 ~ D20	P103	P124
	5D External Co-oling, Twist Drill		140°	SHANK DIN 6535HA	HELICA	5D		D928-A5N	D3 ~ D20	P104	P124
	5D Inner Coolin-g,Twist Drill		140°	SHANK DIN 6535HA	HELICA	5D		D928-A5C	D5 ~ D20	P105	P124
Hardened steels	**D998**										
	3D External Co-oling, Twist Drill		140°	SHANK h6	AlTiN nano	3D		D998-Y3N	D4 ~ D16	P106	P126
Cast Iron	**D713**										
	5D External Co-oling, Twist Drill		130°	SHANK DIN 6535HA	TiAlN	5D		D713-A5N	D4 ~ D20	P107	P127
	5D Inner Coolin-g,Twist Drill		130°	SHANK DIN 6535HA	TiAlN	5D		D713-A5C	D4 ~ D20	P108	P127
Compo-site Material	**D612**										
	Triple-angle Drills		118°	SHANK	U-DIA	3D		D612-Y3N	D2.49-D7.94	P109	P128
	R733-C										
	Left Hand Helix Reamer			SHANK	HELICA		6	R733-C	D3.26-D12.7	P110	P128
Composite and Material	**D973**										
	5D External Co-oling, Twist Drill		120°	SHANK	HELICA	5D		D973-Y5N	D2.5-D8.0	P111	P128
	D573										
	3 Flute external coolant core drills			SHANK	HELICA	3D	3	D573-Y3N	D4-D9.3	P112	P129
	R733-CM										
	Left Hand Helix Reamer			SHANK	HELICA		6	R733-CM	D3.26-D12.7	P113	P129

◎ Most Suitable ○ Suitable

	Workpiece Material													
	P			M	K		N				S		H	
	1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1 2	3
	Carbon Steels、Alloy Steels	Alloy Steels, Tool Steels	PH and Ferrite/ Marte-ns itic Stainless	Stainl-ess Steel	Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Wrought Aluminium Alloys, Aluminium Alloys	Cast Alumin-ium Alloys	Copper Alloys	Com-pos-ite Mat-eri-al	Heat Resist-ant Super Alloys	Titani-um Alloys	Harden-ed Steels	Hardened Steels
	< 35HRC	35-48HRC			< 35HRC	35-45HRC	Si < 12%	Si > 12%	< 200HB		< 450HB	< 400HB	45-55HRC	55-60HRC
	○				◎	◎								
	○				◎	◎	○	○						
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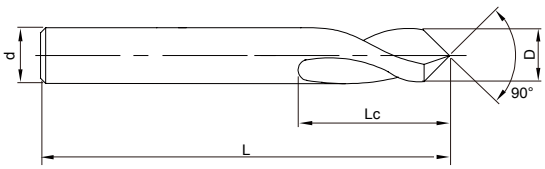
D101-AMN

90° NC Centre Drills



Ordering Code	D	Lc	L	d(h6)
D101-AMN-0500	5.00	10	62	5
D101-AMN-0600	6.00	15	66	6
D101-AMN-0800	8.00	17	79	8
D101-AMN-1000	10.00	20	89	10
D101-AMN-1200	12.00	25	102	12
D101-AMN-1400	14.00	30	107	14
D101-AMN-1600	16.00	35	115	16
D101-AMN-2000	20.00	40	131	20

Note：Accept non-standard custom from D2 to D20 tool.

unit(mm)

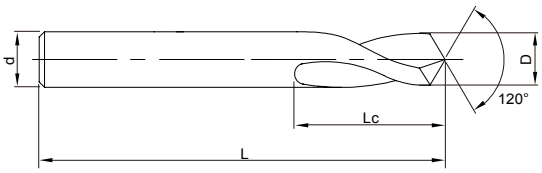
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○	○	○		◎		◎	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P114

D102-ANN

120° NC Centre Drills



Ordering Code	D	Lc	L	d(h6)
D102-ANN-0500	5.00	10	62	5
D102-ANN-0600	6.00	15	66	6
D102-ANN-0800	8.00	17	79	8
D102-ANN-1000	10.00	20	89	10
D102-ANN-1200	12.00	25	102	12
D102-ANN-1400	14.00	30	107	14
D102-ANN-1600	16.00	35	115	16
D102-ANN-2000	20.00	40	131	20

Note：Accept non-standard custom from D2 to D20 tool. unit(mm)

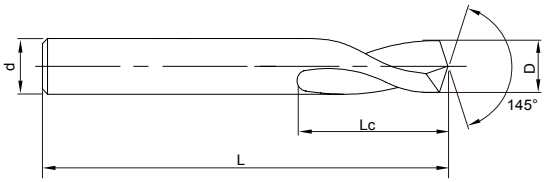
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○	○	○		◎		◎	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P114

D103-APN

145° NC Centre Drills



Ordering Code	D	Lc	L	d(h6)
D103-APN-0500	5.00	10	62	5
D103-APN-0600	6.00	15	66	6
D103-APN-0800	8.00	17	79	8
D103-APN-1000	10.00	20	89	10
D103-APN-1200	12.00	25	102	12
D103-APN-1400	14.00	30	107	14
D103-APN-1600	16.00	35	115	16
D103-APN-2000	20.00	40	131	20

Note：Accept non-standard custom from D2 to D20 tool. unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○	○	○		◎		◎	○	○

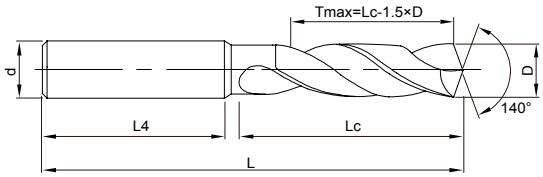
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P114

D918-A3N

SHANK DIN 6535HA | TiAlN | 3D

3D External Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3N-0300	3.00	20	36	62	6
D918-A3N-0325	3.25	20	36	62	6
D918-A3N-0330	3.30	20	36	62	6
D918-A3N-0340	3.40	20	36	62	6
D918-A3N-0350	3.50	20	36	62	6
D918-A3N-0370	3.70	20	36	62	6
D918-A3N-0400	4.00	24	36	66	6
D918-A3N-0420	4.20	24	36	66	6
D918-A3N-0430	4.30	24	36	66	6
D918-A3N-0450	4.50	24	36	66	6
D918-A3N-0465	4.65	24	36	66	6
D918-A3N-0480	4.80	28	36	66	6
D918-A3N-0500	5.00	28	36	66	6
D918-A3N-0510	5.10	28	36	66	6
D918-A3N-0520	5.20	28	36	66	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3N-0550	5.50	28	36	66	6
D918-A3N-0555	5.55	28	36	66	6
D918-A3N-0580	5.80	28	36	66	6
D918-A3N-0600	6.00	28	36	66	6
D918-A3N-0610	6.10	34	36	79	8
D918-A3N-0620	6.20	34	36	79	8
D918-A3N-0630	6.30	34	36	79	8
D918-A3N-0650	6.50	34	36	79	8
D918-A3N-0660	6.60	34	36	79	8
D918-A3N-0680	6.80	34	36	79	8
D918-A3N-0690	6.90	34	36	79	8
D918-A3N-0700	7.00	34	36	79	8
D918-A3N-0710	7.10	41	36	79	8
D918-A3N-0740	7.40	41	36	79	8
D918-A3N-0750	7.50	41	36	79	8

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎		○	○			

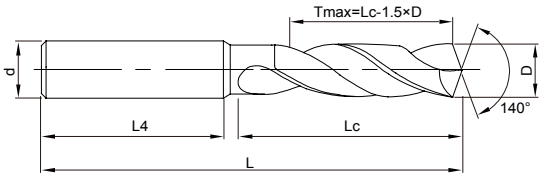
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P116

D918-A3N

SHANK DIN 6535HA | TiAlN | 3D

3D External Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3N-0780	7.80	41	36	79	8
D918-A3N-0800	8.00	41	36	79	8
D918-A3N-0810	8.10	47	40	89	10
D918-A3N-0840	8.40	47	40	89	10
D918-A3N-0850	8.50	47	40	89	10
D918-A3N-0860	8.60	47	40	89	10
D918-A3N-0870	8.70	47	40	89	10
D918-A3N-0880	8.80	47	40	89	10
D918-A3N-0900	9.00	47	40	89	10
D918-A3N-0930	9.30	47	40	89	10
D918-A3N-0950	9.50	47	40	89	10
D918-A3N-0960	9.60	47	40	89	10
D918-A3N-0980	9.80	47	40	89	10
D918-A3N-1000	10.00	47	40	89	10
D918-A3N-1025	10.25	55	45	102	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3N-1040	10.40	55	45	102	12
D918-A3N-1050	10.50	55	45	102	12
D918-A3N-1060	10.60	55	45	102	12
D918-A3N-1080	10.80	55	45	102	12
D918-A3N-1100	11.00	55	45	102	12
D918-A3N-1120	11.20	55	45	102	12
D918-A3N-1150	11.50	55	45	102	12
D918-A3N-1180	11.80	55	45	102	12
D918-A3N-1200	12.00	55	45	102	12
D918-A3N-1225	12.25	60	45	107	14
D918-A3N-1250	12.50	60	45	107	14
D918-A3N-1270	12.70	60	45	107	14
D918-A3N-1275	12.75	60	45	107	14
D918-A3N-1280	12.80	60	45	107	14
D918-A3N-1300	13.00	60	45	107	14

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎		○	○			

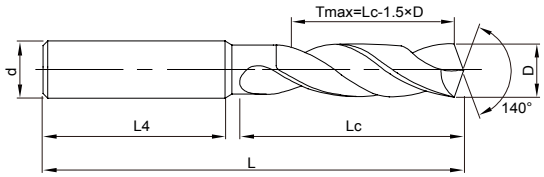
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P116

D918-A3N

SHANK DIN 6535HA | TiAlN | 3D

3D External Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3N-1310	13.10	60	45	107	14
D918-A3N-1350	13.50	60	45	107	14
D918-A3N-1380	13.80	60	45	107	14
D918-A3N-1400	14.00	60	45	107	14
D918-A3N-1425	14.25	65	48	115	16
D918-A3N-1450	14.50	65	48	115	16
D918-A3N-1475	14.75	65	48	115	16
D918-A3N-1480	14.80	65	48	115	16
D918-A3N-1500	15.00	65	48	115	16
D918-A3N-1510	15.10	65	48	115	16
D918-A3N-1550	15.50	65	48	115	16
D918-A3N-1580	15.80	65	48	115	16
D918-A3N-1600	16.00	65	48	115	16
D918-A3N-1650	16.50	73	48	123	18
D918-A3N-1675	16.75	73	48	123	18

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3N-1680	16.80	73	48	123	18
D918-A3N-1700	17.00	73	48	123	18
D918-A3N-1750	17.50	73	48	123	18
D918-A3N-1780	17.80	73	48	123	18
D918-A3N-1800	18.00	73	48	123	18
D918-A3N-1850	18.50	79	50	131	20
D918-A3N-1880	18.80	79	50	131	20
D918-A3N-1900	19.00	79	50	131	20
D918-A3N-1950	19.50	79	50	131	20
D918-A3N-1980	19.80	79	50	131	20
D918-A3N-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎		○	○			

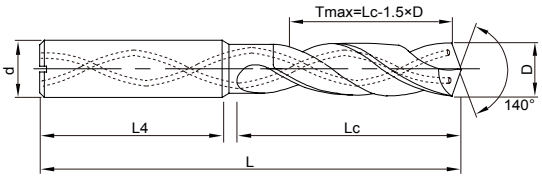
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P116

D918-A3C

SHANK DIN 6535HA | TiAlN | 3D

3D Inner Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3C-0500	5.00	28	36	66	6
D918-A3C-0510	5.10	28	36	66	6
D918-A3C-0520	5.20	28	36	66	6
D918-A3C-0550	5.50	28	36	66	6
D918-A3C-0555	5.55	28	36	66	6
D918-A3C-0580	5.80	28	36	66	6
D918-A3C-0600	6.00	28	36	66	6
D918-A3C-0610	6.10	34	36	79	8
D918-A3C-0620	6.20	34	36	79	8
D918-A3C-0630	6.30	34	36	79	8
D918-A3C-0650	6.50	34	36	79	8
D918-A3C-0660	6.60	34	36	79	8
D918-A3C-0680	6.80	34	36	79	8
D918-A3C-0690	6.90	34	36	79	8
D918-A3C-0700	7.00	34	36	79	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3C-0710	7.10	41	36	79	8
D918-A3C-0740	7.40	41	36	79	8
D918-A3C-0750	7.50	41	36	79	8
D918-A3C-0780	7.80	41	36	79	8
D918-A3C-0800	8.00	41	36	79	8
D918-A3C-0810	8.10	47	40	89	10
D918-A3C-0840	8.40	47	40	89	10
D918-A3C-0850	8.50	47	40	89	10
D918-A3C-0860	8.60	47	40	89	10
D918-A3C-0870	8.70	47	40	89	10
D918-A3C-0880	8.80	47	40	89	10
D918-A3C-0900	9.00	47	40	89	10
D918-A3C-0930	9.30	47	40	89	10
D918-A3C-0950	9.50	47	40	89	10
D918-A3C-0960	9.60	47	40	89	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎	○	○	○	○	○	○

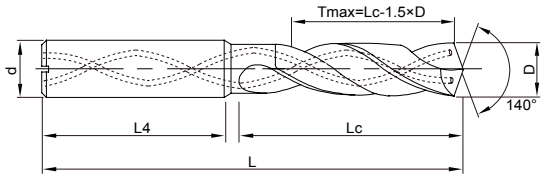
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P116

D918-A3C

SHANK DIN 6535HA | TiAlN | 3D

3D Inner Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A3C-0980	9.80	47	40	89	10
D918-A3C-1000	10.00	47	40	89	10
D918-A3C-1025	10.25	55	45	102	12
D918-A3C-1040	10.40	55	45	102	12
D918-A3C-1050	10.50	55	45	102	12
D918-A3C-1060	10.60	55	45	102	12
D918-A3C-1080	10.80	55	45	102	12
D918-A3C-1100	11.00	55	45	102	12
D918-A3C-1120	11.20	55	45	102	12
D918-A3C-1150	11.50	55	45	102	12
D918-A3C-1180	11.80	55	45	102	12
D918-A3C-1200	12.00	55	45	102	12
D918-A3C-1225	12.25	60	45	107	14
D918-A3C-1250	12.50	60	45	107	14
D918-A3C-1270	12.70	60	45	107	14

Note：Accept non-standard custom from D3 to D20 tool.

Ordering Code	(m7)	Lc	L4	L	d(h6)
D918-A3C-1275	12.75	60	45	107	14
D918-A3C-1280	12.80	60	45	107	14
D918-A3C-1300	13.00	60	45	107	14
D918-A3C-1310	13.10	60	45	107	14
D918-A3C-1350	13.50	60	45	107	14
D918-A3C-1380	13.80	60	45	107	14
D918-A3C-1400	14.00	60	45	107	14
D918-A3C-1425	14.25	65	48	115	16
D918-A3C-1450	14.50	65	48	115	16
D918-A3C-1475	14.75	65	48	115	16
D918-A3C-1480	14.80	65	48	115	16
D918-A3C-1500	15.00	65	48	115	16
D918-A3C-1510	15.10	65	48	115	16
D918-A3C-1550	15.50	65	48	115	16
D918-A3C-1580	15.80	65	48	115	16
D918-A3C-1600	16.00	65	48	115	16

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎	○	○	○	○	○	○

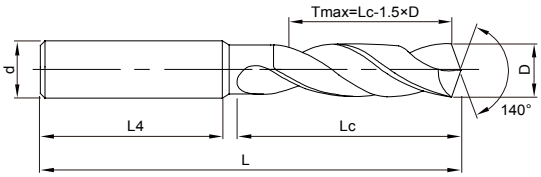
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P116

D918-A5N

SHANK DIN 6535HA | TiAlN | 5D

5D External Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5N-0300	3.00	28	36	66	6
D918-A5N-0325	3.25	28	36	66	6
D918-A5N-0330	3.30	28	36	66	6
D918-A5N-0340	3.40	28	36	66	6
D918-A5N-0350	3.50	28	36	66	6
D918-A5N-0370	3.70	28	36	66	6
D918-A5N-0400	4.00	36	36	74	6
D918-A5N-0420	4.20	36	36	74	6
D918-A5N-0430	4.30	36	36	74	6
D918-A5N-0450	4.50	36	36	74	6
D918-A5N-0465	4.65	36	36	74	6
D918-A5N-0480	4.80	44	36	82	6
D918-A5N-0500	5.00	44	36	82	6
D918-A5N-0510	5.10	44	36	82	6
D918-A5N-0520	5.20	44	36	82	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5N-0550	5.50	44	36	82	6
D918-A5N-0555	5.55	44	36	82	6
D918-A5N-0580	5.80	44	36	82	6
D918-A5N-0600	6.00	44	36	82	6
D918-A5N-0610	6.10	53	36	91	8
D918-A5N-0620	6.20	53	36	91	8
D918-A5N-0630	6.30	53	36	91	8
D918-A5N-0650	6.50	53	36	91	8
D918-A5N-0660	6.60	53	36	91	8
D918-A5N-0680	6.80	53	36	91	8
D918-A5N-0690	6.90	53	36	91	8
D918-A5N-0700	7.00	53	36	91	8
D918-A5N-0710	7.10	53	36	91	8
D918-A5N-0740	7.40	53	36	91	8
D918-A5N-0750	7.50	53	36	91	8

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎		○	○			

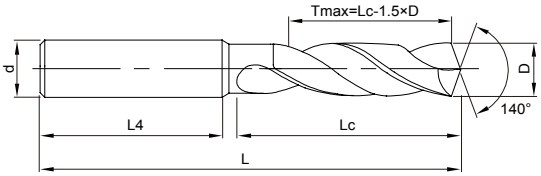
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P116

D918-A5N

SHANK DIN 6535HA | TiAlN | 5D

5D External Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5N-0780	7.80	53	36	91	8
D918-A5N-0800	8.00	53	36	91	8
D918-A5N-0810	8.10	61	40	103	10
D918-A5N-0840	8.40	61	40	103	10
D918-A5N-0850	8.50	61	40	103	10
D918-A5N-0860	8.60	61	40	103	10
D918-A5N-0870	8.70	61	40	103	10
D918-A5N-0880	8.80	61	40	103	10
D918-A5N-0900	9.00	61	40	103	10
D918-A5N-0930	9.30	61	40	103	10
D918-A5N-0950	9.50	61	40	103	10
D918-A5N-0960	9.60	61	40	103	10
D918-A5N-0980	9.80	61	40	103	10
D918-A5N-1000	10.00	61	40	103	10
D918-A5N-1025	10.25	71	45	118	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5N-1040	10.40	71	45	118	12
D918-A5N-1050	10.50	71	45	118	12
D918-A5N-1060	10.60	71	45	118	12
D918-A5N-1080	10.80	71	45	118	12
D918-A5N-1100	11.00	71	45	118	12
D918-A5N-1120	11.20	71	45	118	12
D918-A5N-1150	11.50	71	45	118	12
D918-A5N-1180	11.80	71	45	118	12
D918-A5N-1200	12.00	71	45	118	12
D918-A5N-1220	12.20	77	45	124	14
D918-A5N-1225	12.25	77	45	124	14
D918-A5N-1250	12.50	77	45	124	14
D918-A5N-1270	12.70	77	45	124	14
D918-A5N-1275	12.75	77	45	124	14
D918-A5N-1280	12.80	77	45	124	14

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

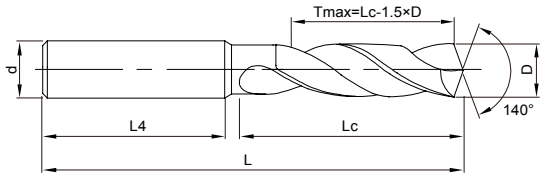
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎		○	○			

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P116

D918-A5N

5D External Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5N-1300	13.00	77	45	124	14
D918-A5N-1350	13.50	77	45	124	14
D918-A5N-1380	13.80	77	45	124	14
D918-A5N-1400	14.00	77	45	124	14
D918-A5N-1425	14.25	83	48	133	16
D918-A5N-1450	14.50	83	48	133	16
D918-A5N-1475	14.75	83	48	133	16
D918-A5N-1480	14.80	83	48	133	16
D918-A5N-1500	15.00	83	48	133	16
D918-A5N-1510	15.10	83	48	133	16
D918-A5N-1550	15.50	83	48	133	16
D918-A5N-1580	15.80	83	48	133	16
D918-A5N-1600	16.00	83	48	133	16

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5N-1650	16.50	93	48	143	18
D918-A5N-1675	16.75	93	48	143	18
D918-A5N-1680	16.80	93	48	143	18
D918-A5N-1700	17.00	93	48	143	18
D918-A5N-1750	17.50	93	48	143	18
D918-A5N-1780	17.80	93	48	143	18
D918-A5N-1800	18.00	93	48	143	18
D918-A5N-1850	18.50	101	50	153	20
D918-A5N-1900	19.00	101	50	153	20
D918-A5N-1950	19.50	101	50	153	20
D918-A5N-1980	19.80	101	50	153	20
D918-A5N-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit(mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎		○	○			

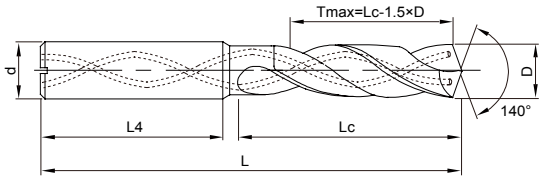
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P116

D918-A5C

5D Inner Cooling Twist Drills for General Purpose

SHANK DIN 6535HA | TiAlN | 5D



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5C-0500	5.00	44	36	82	6
D918-A5C-0510	5.10	44	36	82	6
D918-A5C-0520	5.20	44	36	82	6
D918-A5C-0550	5.50	44	36	82	6
D918-A5C-0555	5.55	44	36	82	6
D918-A5C-0580	5.80	44	36	82	6
D918-A5C-0600	6.00	44	36	82	6
D918-A5C-0610	6.10	53	36	91	8
D918-A5C-0620	6.20	53	36	91	8
D918-A5C-0630	6.30	53	36	91	8
D918-A5C-0650	6.50	53	36	91	8
D918-A5C-0660	6.60	53	36	91	8
D918-A5C-0680	6.80	53	36	91	8
D918-A5C-0690	6.90	53	36	91	8
D918-A5C-0700	7.00	53	36	91	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5C-0710	7.10	53	36	91	8
D918-A5C-0740	7.40	53	36	91	8
D918-A5C-0750	7.50	53	36	91	8
D918-A5C-0780	7.80	53	36	91	8
D918-A5C-0800	8.00	53	36	91	8
D918-A5C-0810	8.10	61	40	103	10
D918-A5C-0840	8.40	61	40	103	10
D918-A5C-0850	8.50	61	40	103	10
D918-A5C-0860	8.60	61	40	103	10
D918-A5C-0870	8.70	61	40	103	10
D918-A5C-0880	8.80	61	40	103	10
D918-A5C-0900	9.00	61	40	103	10
D918-A5C-0930	9.30	61	40	103	10
D918-A5C-0950	9.50	61	40	103	10
D918-A5C-0960	9.60	61	40	103	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

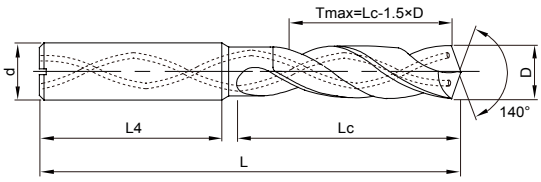
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎	○	○	○	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P116

D918-A5C

5D Inner Cooling Twist Drills for General Purpose



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5C-0980	9.80	61	40	103	10
D918-A5C-1000	10.00	61	40	103	10
D918-A5C-1025	10.25	71	45	118	12
D918-A5C-1040	10.40	71	45	118	12
D918-A5C-1050	10.50	71	45	118	12
D918-A5C-1060	10.60	71	45	118	12
D918-A5C-1080	10.80	71	45	118	12
D918-A5C-1100	11.00	71	45	118	12
D918-A5C-1120	11.20	71	45	118	12
D918-A5C-1150	11.50	71	45	118	12
D918-A5C-1180	11.80	71	45	118	12
D918-A5C-1200	12.00	71	45	118	12
D918-A5C-1220	12.20	77	45	124	14
D918-A5C-1225	12.25	77	45	124	14
D918-A5C-1250	12.50	77	45	124	14

Note：Accept non-standard custom from D3 to D20 tool.

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D918-A5C-1270	12.70	77	45	124	14
D918-A5C-1275	12.75	77	45	124	14
D918-A5C-1280	12.80	77	45	124	14
D918-A5C-1300	13.00	77	45	124	14
D918-A5C-1350	13.50	77	45	124	14
D918-A5C-1380	13.80	77	45	124	14
D918-A5C-1400	14.00	77	45	124	14
D918-A5C-1425	14.25	83	48	133	16
D918-A5C-1450	14.50	83	48	133	16
D918-A5C-1475	14.75	83	48	133	16
D918-A5C-1480	14.80	83	48	133	16
D918-A5C-1500	15.00	83	48	133	16
D918-A5C-1510	15.10	83	48	133	16
D918-A5C-1550	15.50	83	48	133	16
D918-A5C-1580	15.80	83	48	133	16
D918-A5C-1600	16.00	83	48	133	16

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

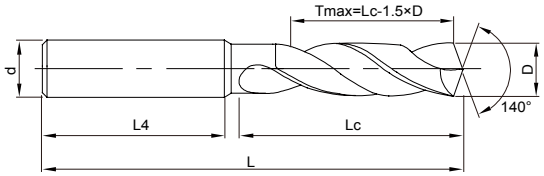
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
◎	○	◎	○	○	○	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P116

D938-A3N

3D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-0300	3.00	20	36	62	6
D938-A3N-0310	3.10	20	36	62	6
D938-A3N-0320	3.20	20	36	62	6
D938-A3N-0330	3.30	20	36	62	6
D938-A3N-0340	3.40	20	36	62	6
D938-A3N-0350	3.50	20	36	62	6
D938-A3N-0360	3.60	20	36	62	6
D938-A3N-0370	3.70	20	36	62	6
D938-A3N-0380	3.80	24	36	66	6
D938-A3N-0390	3.90	24	36	66	6
D938-A3N-0400	4.00	24	36	66	6
D938-A3N-0410	4.10	24	36	66	6
D938-A3N-0420	4.20	24	36	66	6
D938-A3N-0430	4.30	24	36	66	6
D938-A3N-0440	4.40	24	36	66	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-0450	4.50	24	36	66	6
D938-A3N-0460	4.60	24	36	66	6
D938-A3N-0470	4.70	24	36	66	6
D938-A3N-0480	4.80	28	36	66	6
D938-A3N-0490	4.90	28	36	66	6
D938-A3N-0500	5.00	28	36	66	6
D938-A3N-0510	5.10	28	36	66	6
D938-A3N-0520	5.20	28	36	66	6
D938-A3N-0530	5.30	28	36	66	6
D938-A3N-0540	5.40	28	36	66	6
D938-A3N-0550	5.50	28	36	66	6
D938-A3N-0560	5.60	28	36	66	6
D938-A3N-0570	5.70	28	36	66	6
D938-A3N-0580	5.80	28	36	66	6
D938-A3N-0590	5.90	28	36	66	6

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

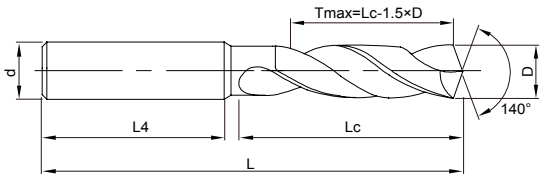
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A3N

3D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-0600	6.00	28	36	66	6
D938-A3N-0610	6.10	34	36	79	8
D938-A3N-0620	6.20	34	36	79	8
D938-A3N-0630	6.30	34	36	79	8
D938-A3N-0640	6.40	34	36	79	8
D938-A3N-0650	6.50	34	36	79	8
D938-A3N-0660	6.60	34	36	79	8
D938-A3N-0670	6.70	34	36	79	8
D938-A3N-0680	6.80	34	36	79	8
D938-A3N-0690	6.90	34	36	79	8
D938-A3N-0700	7.00	34	36	79	8
D938-A3N-0710	7.10	41	36	79	8
D938-A3N-0720	7.20	41	36	79	8
D938-A3N-0730	7.30	41	36	79	8
D938-A3N-0740	7.40	41	36	79	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-0750	7.50	41	36	79	8
D938-A3N-0760	7.60	41	36	79	8
D938-A3N-0770	7.70	41	36	79	8
D938-A3N-0780	7.80	41	36	79	8
D938-A3N-0790	7.90	41	36	79	8
D938-A3N-0800	8.00	41	36	79	8
D938-A3N-0810	8.10	47	40	89	10
D938-A3N-0820	8.20	47	40	89	10
D938-A3N-0830	8.30	47	40	89	10
D938-A3N-0840	8.40	47	40	89	10
D938-A3N-0850	8.50	47	40	89	10
D938-A3N-0860	8.60	47	40	89	10
D938-A3N-0870	8.70	47	40	89	10
D938-A3N-0880	8.80	47	40	89	10
D938-A3N-0890	8.90	47	40	89	10

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

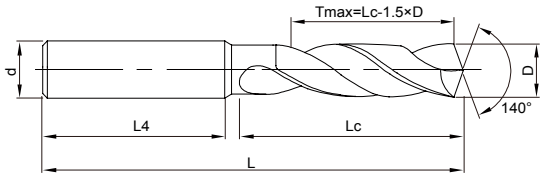
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A3N

3D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-0900	9.00	47	40	89	10
D938-A3N-0910	9.10	47	40	89	10
D938-A3N-0920	9.20	47	40	89	10
D938-A3N-0925	9.25	47	40	89	10
D938-A3N-0930	9.30	47	40	89	10
D938-A3N-0940	9.40	47	40	89	10
D938-A3N-0950	9.50	47	40	89	10
D938-A3N-0960	9.60	47	40	89	10
D938-A3N-0970	9.70	47	40	89	10
D938-A3N-0980	9.80	47	40	89	10
D938-A3N-0990	9.90	47	40	89	10
D938-A3N-1000	10.00	47	40	89	10
D938-A3N-1010	10.10	55	45	102	12
D938-A3N-1020	10.20	55	45	102	12
D938-A3N-1030	10.30	55	45	102	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-1040	10.40	55	45	102	12
D938-A3N-1050	10.50	55	45	102	12
D938-A3N-1060	10.60	55	45	102	12
D938-A3N-1070	10.70	55	45	102	12
D938-A3N-1080	10.80	55	45	102	12
D938-A3N-1090	10.90	55	45	102	12
D938-A3N-1100	11.00	55	45	102	12
D938-A3N-1110	11.10	55	45	102	12
D938-A3N-1120	11.20	55	45	102	12
D938-A3N-1130	11.30	55	45	102	12
D938-A3N-1140	11.40	55	45	102	12
D938-A3N-1150	11.50	55	45	102	12
D938-A3N-1160	11.60	55	45	102	12
D938-A3N-1170	11.70	55	45	102	12
D938-A3N-1180	11.80	55	45	102	12

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

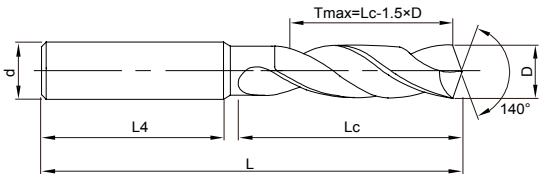
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A3N

3D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-1190	11.90	55	45	102	12
D938-A3N-1200	12.00	55	45	102	12
D938-A3N-1250	12.50	60	45	107	14
D938-A3N-1280	12.80	60	45	107	14
D938-A3N-1300	13.00	60	45	107	14
D938-A3N-1350	13.50	60	45	107	14
D938-A3N-1380	13.80	60	45	107	14
D938-A3N-1400	14.00	60	45	107	14
D938-A3N-1450	14.50	65	48	115	16
D938-A3N-1480	14.80	65	48	115	16
D938-A3N-1500	15.00	65	48	115	16
D938-A3N-1550	15.50	65	48	115	16
D938-A3N-1580	15.80	65	48	115	16

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3N-1600	16.00	65	48	115	16
D938-A3N-1650	16.50	73	48	123	18
D938-A3N-1680	16.80	73	48	123	18
D938-A3N-1700	17.00	73	48	123	18
D938-A3N-1750	17.50	73	48	123	18
D938-A3N-1780	17.80	73	48	123	18
D938-A3N-1800	18.00	73	48	123	18
D938-A3N-1850	18.50	79	50	131	20
D938-A3N-1880	18.80	79	50	131	20
D938-A3N-1900	19.00	79	50	131	20
D938-A3N-1950	19.50	79	50	131	20
D938-A3N-1980	19.80	79	50	131	20
D938-A3N-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

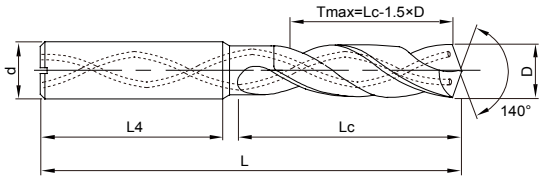
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A3C

3D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-0300	3.00	20	36	62	6
D938-A3C-0310	3.10	20	36	62	6
D938-A3C-0320	3.20	20	36	62	6
D938-A3C-0330	3.30	20	36	62	6
D938-A3C-0340	3.40	20	36	62	6
D938-A3C-0350	3.50	20	36	62	6
D938-A3C-0360	3.60	20	36	62	6
D938-A3C-0370	3.70	20	36	62	6
D938-A3C-0380	3.80	24	36	66	6
D938-A3C-0390	3.90	24	36	66	6
D938-A3C-0400	4.00	24	36	66	6
D938-A3C-0410	4.10	24	36	66	6
D938-A3C-0420	4.20	24	36	66	6
D938-A3C-0430	4.30	24	36	66	6
D938-A3C-0440	4.40	24	36	66	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-0450	4.50	24	36	66	6
D938-A3C-0460	4.60	24	36	66	6
D938-A3C-0470	4.70	24	36	66	6
D938-A3C-0480	4.80	28	36	66	6
D938-A3C-0490	4.90	28	36	66	6
D938-A3C-0500	5.00	28	36	66	6
D938-A3C-0510	5.10	28	36	66	6
D938-A3C-0520	5.20	28	36	66	6
D938-A3C-0530	5.30	28	36	66	6
D938-A3C-0540	5.40	28	36	66	6
D938-A3C-0550	5.50	28	36	66	6
D938-A3C-0560	5.60	28	36	66	6
D938-A3C-0570	5.70	28	36	66	6
D938-A3C-0580	5.80	28	36	66	6
D938-A3C-0590	5.90	28	36	66	6

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

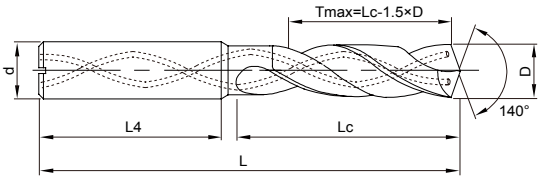
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A3C

3D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-0600	6.00	28	36	66	6
D938-A3C-0610	6.10	34	36	79	8
D938-A3C-0620	6.20	34	36	79	8
D938-A3C-0630	6.30	34	36	79	8
D938-A3C-0640	6.40	34	36	79	8
D938-A3C-0650	6.50	34	36	79	8
D938-A3C-0660	6.60	34	36	79	8
D938-A3C-0670	6.70	34	36	79	8
D938-A3C-0680	6.80	34	36	79	8
D938-A3C-0690	6.90	34	36	79	8
D938-A3C-0700	7.00	34	36	79	8
D938-A3C-0710	7.10	41	36	79	8
D938-A3C-0720	7.20	41	36	79	8
D938-A3C-0730	7.30	41	36	79	8
D938-A3C-0740	7.40	41	36	79	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-0750	7.50	41	36	79	8
D938-A3C-0760	7.60	41	36	79	8
D938-A3C-0770	7.70	41	36	79	8
D938-A3C-0780	7.80	41	36	79	8
D938-A3C-0790	7.90	41	36	79	8
D938-A3C-0800	8.00	41	36	79	8
D938-A3C-0810	8.10	47	40	89	10
D938-A3C-0820	8.20	47	40	89	10
D938-A3C-0830	8.30	47	40	89	10
D938-A3C-0840	8.40	47	40	89	10
D938-A3C-0850	8.50	47	40	89	10
D938-A3C-0860	8.60	47	40	89	10
D938-A3C-0870	8.70	47	40	89	10
D938-A3C-0880	8.80	47	40	89	10
D938-A3C-0890	8.90	47	40	89	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

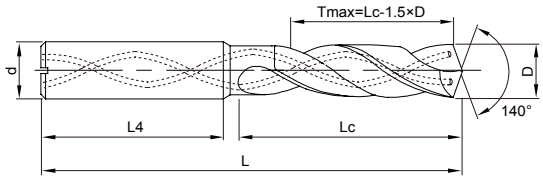
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A3C

3D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-0900	9.00	47	40	89	10
D938-A3C-0910	9.10	47	40	89	10
D938-A3C-0920	9.20	47	40	89	10
D938-A3C-0930	9.30	47	40	89	10
D938-A3C-0940	9.40	47	40	89	10
D938-A3C-0950	9.50	47	40	89	10
D938-A3C-0960	9.60	47	40	89	10
D938-A3C-0970	9.70	47	40	89	10
D938-A3C-0980	9.80	47	40	89	10
D938-A3C-0990	9.90	47	40	89	10
D938-A3C-1000	10.00	47	40	89	10
D938-A3C-1010	10.10	55	45	102	12
D938-A3C-1020	10.20	55	45	102	12
D938-A3C-1030	10.30	55	45	102	12
D938-A3C-1040	10.40	55	45	102	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-1050	10.50	55	45	102	12
D938-A3C-1060	10.60	55	45	102	12
D938-A3C-1070	10.70	55	45	102	12
D938-A3C-1080	10.80	55	45	102	12
D938-A3C-1090	10.90	55	45	102	12
D938-A3C-1100	11.00	55	45	102	12
D938-A3C-1110	11.10	55	45	102	12
D938-A3C-1120	11.20	55	45	102	12
D938-A3C-1130	11.30	55	45	102	12
D938-A3C-1140	11.40	55	45	102	12
D938-A3C-1150	11.50	55	45	102	12
D938-A3C-1160	11.60	55	45	102	12
D938-A3C-1170	11.70	55	45	102	12
D938-A3C-1180	11.80	55	45	102	12
D938-A3C-1190	11.90	55	45	102	12

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

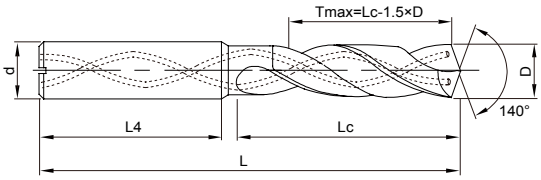
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A3C

3D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-1200	12.00	55	45	102	12
D938-A3C-1250	12.50	60	45	107	14
D938-A3C-1280	12.80	60	45	107	14
D938-A3C-1300	13.00	60	45	107	14
D938-A3C-1350	13.50	60	45	107	14
D938-A3C-1380	13.80	60	45	107	14
D938-A3C-1400	14.00	60	45	107	14
D938-A3C-1450	14.50	65	48	115	16
D938-A3C-1480	14.80	65	48	115	16
D938-A3C-1500	15.00	65	48	115	16
D938-A3C-1550	15.50	65	48	115	16
D938-A3C-1580	15.80	65	48	115	16
D938-A3C-1600	16.00	65	48	115	16

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A3C-1650	16.50	73	48	123	18
D938-A3C-1680	16.80	73	48	123	18
D938-A3C-1700	17.00	73	48	123	18
D938-A3C-1750	17.50	73	48	123	18
D938-A3C-1780	17.80	73	48	123	18
D938-A3C-1800	18.00	73	48	123	18
D938-A3C-1850	18.50	79	50	131	20
D938-A3C-1880	18.80	79	50	131	20
D938-A3C-1900	19.00	79	50	131	20
D938-A3C-1950	19.50	79	50	131	20
D938-A3C-1980	19.80	79	50	131	20
D938-A3C-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

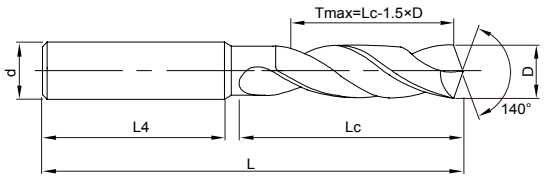
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A5N

5D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-0300	3.00	28	36	66	6
D938-A5N-0310	3.10	28	36	66	6
D938-A5N-0320	3.20	28	36	66	6
D938-A5N-0330	3.30	28	36	66	6
D938-A5N-0340	3.40	28	36	66	6
D938-A5N-0350	3.50	28	36	66	6
D938-A5N-0360	3.60	28	36	66	6
D938-A5N-0370	3.70	28	36	66	6
D938-A5N-0380	3.80	36	36	74	6
D938-A5N-0390	3.90	36	36	74	6
D938-A5N-0400	4.00	36	36	74	6
D938-A5N-0410	4.10	36	36	74	6
D938-A5N-0420	4.20	36	36	74	6
D938-A5N-0430	4.30	36	36	74	6
D938-A5N-0440	4.40	36	36	74	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-0450	4.5	36	36	74	6
D938-A5N-0460	4.6	36	36	74	6
D938-A5N-0465	4.65	36	36	74	6
D938-A5N-0470	4.7	36	36	74	6
D938-A5N-0480	4.8	44	36	82	6
D938-A5N-0490	4.9	44	36	82	6
D938-A5N-0500	5.0	44	36	82	6
D938-A5N-0510	5.1	44	36	82	6
D938-A5N-0520	5.2	44	36	82	6
D938-A5N-0530	5.3	44	36	82	6
D938-A5N-0540	5.4	44	36	82	6
D938-A5N-0550	5.5	44	36	82	6
D938-A5N-0555	5.55	44	36	82	6
D938-A5N-0560	5.6	44	36	82	6
D938-A5N-0570	5.7	44	36	82	6

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

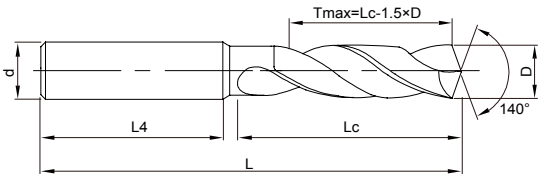
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A5N

5D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-0580	5.8	44	36	82	6
D938-A5N-0590	5.9	44	36	82	6
D938-A5N-0600	6.0	44	36	82	6
D938-A5N-0610	6.1	53	36	91	8
D938-A5N-0620	6.2	53	36	91	8
D938-A5N-0630	6.3	53	36	91	8
D938-A5N-0640	6.4	53	36	91	8
D938-A5N-0650	6.5	53	36	91	8
D938-A5N-0660	6.6	53	36	91	8
D938-A5N-0670	6.7	53	36	91	8
D938-A5N-0680	6.8	53	36	91	8
D938-A5N-0690	6.9	53	36	91	8
D938-A5N-0700	7.0	53	36	91	8
D938-A5N-0710	7.1	53	36	91	8
D938-A5N-0720	7.2	53	36	91	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-0730	7.3	53	36	91	8
D938-A5N-0740	7.4	53	36	91	8
D938-A5N-0750	7.5	53	36	91	8
D938-A5N-0760	7.6	53	36	91	8
D938-A5N-0770	7.7	53	36	91	8
D938-A5N-0780	7.8	53	36	91	8
D938-A5N-0790	7.9	53	36	91	8
D938-A5N-0800	8.0	53	36	91	8
D938-A5N-0810	8.1	61	40	103	10
D938-A5N-0820	8.2	61	40	103	10
D938-A5N-0830	8.3	61	40	103	10
D938-A5N-0840	8.4	61	40	103	10
D938-A5N-0850	8.5	61	40	103	10
D938-A5N-0860	8.6	61	40	103	10
D938-A5N-0870	8.7	61	40	103	10

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

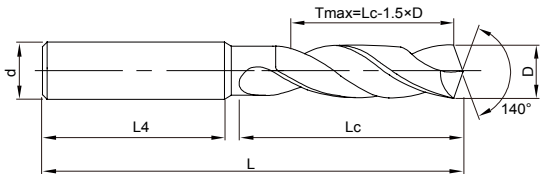
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A5N

5D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-0880	8.8	61	40	103	10
D938-A5N-0890	8.9	61	40	103	10
D938-A5N-0900	9.0	61	40	103	10
D938-A5N-0910	9.1	61	40	103	10
D938-A5N-0920	9.2	61	40	103	10
D938-A5N-0930	9.3	61	40	103	10
D938-A5N-0940	9.4	61	40	103	10
D938-A5N-0950	9.5	61	40	103	10
D938-A5N-0960	9.6	61	40	103	10
D938-A5N-0970	9.7	61	40	103	10
D938-A5N-0980	9.8	61	40	103	10
D938-A5N-0990	9.9	61	40	103	10
D938-A5N-1000	10.0	61	40	103	10
D938-A5N-1010	10.1	71	45	118	12
D938-A5N-1020	10.2	71	45	118	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-1025	10.25	71	45	118	12
D938-A5N-1030	10.3	71	45	118	12
D938-A5N-1040	10.4	71	45	118	12
D938-A5N-1050	10.5	71	45	118	12
D938-A5N-1060	10.6	71	45	118	12
D938-A5N-1070	10.7	71	45	118	12
D938-A5N-1080	10.8	71	45	118	12
D938-A5N-1090	10.9	71	45	118	12
D938-A5N-1100	11.0	71	45	118	12
D938-A5N-1110	11.1	71	45	118	12
D938-A5N-1120	11.2	71	45	118	12
D938-A5N-1130	11.3	71	45	118	12
D938-A5N-1140	11.4	71	45	118	12
D938-A5N-1150	11.5	71	45	118	12
D938-A5N-1160	11.6	71	45	118	12

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

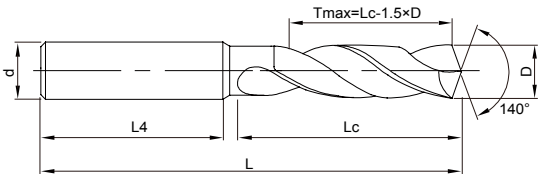
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A5N

5D External Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-1170	11.7	71	45	118	12
D938-A5N-1180	11.8	71	45	118	12
D938-A5N-1190	11.9	71	45	118	12
D938-A5N-1200	12.0	71	45	118	12
D938-A5N-1220	12.2	77	45	124	14
D938-A5N-1230	12.3	77	45	124	14
D938-A5N-1240	12.4	77	45	124	14
D938-A5N-1250	12.5	77	45	124	14
D938-A5N-1280	12.8	77	45	124	14
D938-A5N-1300	13.0	77	45	124	14
D938-A5N-1350	13.5	77	45	124	14
D938-A5N-1380	13.8	77	45	124	14
D938-A5N-1400	14.0	77	45	124	14
D938-A5N-1430	14.3	83	48	133	16
D938-A5N-1450	14.5	83	48	133	16
D938-A5N-1460	14.6	83	48	133	16

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5N-1480	14.8	83	48	133	16
D938-A5N-1500	15.0	83	48	133	16
D938-A5N-1550	15.5	83	48	133	16
D938-A5N-1580	15.8	83	48	133	16
D938-A5N-1600	16.0	83	48	133	16
D938-A5N-1650	16.5	93	48	143	18
D938-A5N-1660	16.6	93	48	143	18
D938-A5N-1680	16.8	93	48	143	18
D938-A5N-1700	17.0	93	48	143	18
D938-A5N-1750	17.5	93	48	143	18
D938-A5N-1780	17.8	93	48	143	18
D938-A5N-1800	18.0	93	48	143	18
D938-A5N-1850	18.5	101	50	153	20
D938-A5N-1900	19.0	101	50	153	20
D938-A5N-1950	19.5	101	50	153	20
D938-A5N-2000	20.0	101	50	153	20

Note：Accept non-standard custom from D1 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

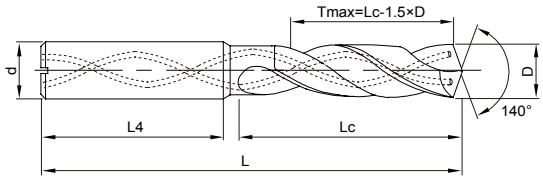
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A5C

5D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-0300	3.00	28	36	66	6
D938-A5C-0310	3.10	28	36	66	6
D938-A5C-0320	3.20	28	36	66	6
D938-A5C-0330	3.30	28	36	66	6
D938-A5C-0340	3.40	28	36	66	6
D938-A5C-0350	3.50	28	36	66	6
D938-A5C-0360	3.60	28	36	66	6
D938-A5C-0370	3.70	28	36	66	6
D938-A5C-0380	3.80	36	36	74	6
D938-A5C-0390	3.90	36	36	74	6
D938-A5C-0400	4.00	36	36	74	6
D938-A5C-0410	4.10	36	36	74	6
D938-A5C-0420	4.20	36	36	74	6
D938-A5C-0430	4.30	36	36	74	6
D938-A5C-0440	4.40	36	36	74	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-0450	4.50	36	36	74	6
D938-A5C-0460	4.60	36	36	74	6
D938-A5C-0465	4.65	36	36	74	6
D938-A5C-0470	4.70	36	36	74	6
D938-A5C-0480	4.80	44	36	82	6
D938-A5C-0490	4.90	44	36	82	6
D938-A5C-0500	5.00	44	36	82	6
D938-A5C-0510	5.10	44	36	82	6
D938-A5C-0520	5.20	44	36	82	6
D938-A5C-0530	5.30	44	36	82	6
D938-A5C-0540	5.40	44	36	82	6
D938-A5C-0550	5.50	44	36	82	6
D938-A5C-0555	5.55	44	36	82	6
D938-A5C-0560	5.60	44	36	82	6
D938-A5C-0570	5.70	44	36	82	6

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

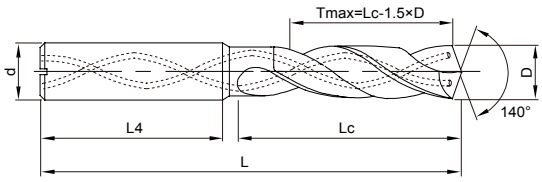
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A5C

5D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-0580	5.80	44	36	82	6
D938-A5C-0590	5.90	44	36	82	6
D938-A5C-0600	6.00	44	36	82	6
D938-A5C-0610	6.10	53	36	91	8
D938-A5C-0620	6.20	53	36	91	8
D938-A5C-0630	6.30	53	36	91	8
D938-A5C-0640	6.40	53	36	91	8
D938-A5C-0650	6.50	53	36	91	8
D938-A5C-0660	6.60	53	36	91	8
D938-A5C-0670	6.70	53	36	91	8
D938-A5C-0680	6.80	53	36	91	8
D938-A5C-0690	6.90	53	36	91	8
D938-A5C-0700	7.00	53	36	91	8
D938-A5C-0710	7.10	53	36	91	8
D938-A5C-0720	7.20	53	36	91	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-0730	7.30	53	36	91	8
D938-A5C-0740	7.40	53	36	91	8
D938-A5C-0745	7.45	53	36	91	8
D938-A5C-0750	7.50	53	36	91	8
D938-A5C-0760	7.60	53	36	91	8
D938-A5C-0770	7.70	53	36	91	8
D938-A5C-0780	7.80	53	36	91	8
D938-A5C-0790	7.90	53	36	91	8
D938-A5C-0800	8.00	53	36	91	8
D938-A5C-0810	8.10	61	40	103	10
D938-A5C-0820	8.20	61	40	103	10
D938-A5C-0830	8.30	61	40	103	10
D938-A5C-0840	8.40	61	40	103	10
D938-A5C-0850	8.50	61	40	103	10
D938-A5C-0860	8.60	61	40	103	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

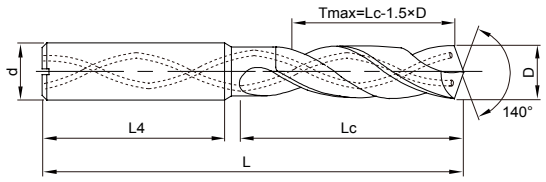
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A5C

5D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-0870	8.70	61	40	103	10
D938-A5C-0880	8.80	61	40	103	10
D938-A5C-0890	8.90	61	40	103	10
D938-A5C-0900	9.00	61	40	103	10
D938-A5C-0910	9.10	61	40	103	10
D938-A5C-0920	9.20	61	40	103	10
D938-A5C-0930	9.30	61	40	103	10
D938-A5C-0935	9.35	61	40	103	10
D938-A5C-0940	9.40	61	40	103	10
D938-A5C-0950	9.50	61	40	103	10
D938-A5C-0960	9.60	61	40	103	10
D938-A5C-0970	9.70	61	40	103	10
D938-A5C-0980	9.80	61	40	103	10
D938-A5C-0990	9.90	61	40	103	10
D938-A5C-1000	10.00	61	40	103	10

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-1010	10.10	71	45	118	12
D938-A5C-1020	10.20	71	45	118	12
D938-A5C-1030	10.30	71	45	118	12
D938-A5C-1040	10.40	71	45	118	12
D938-A5C-1050	10.50	71	45	118	12
D938-A5C-1060	10.60	71	45	118	12
D938-A5C-1070	10.70	71	45	118	12
D938-A5C-1080	10.80	71	45	118	12
D938-A5C-1090	10.90	71	45	118	12
D938-A5C-1100	11.00	71	45	118	12
D938-A5C-1110	11.10	71	45	118	12
D938-A5C-1120	11.20	71	45	118	12
D938-A5C-1130	11.30	71	45	118	12
D938-A5C-1140	11.40	71	45	118	12
D938-A5C-1150	11.50	71	45	118	12

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

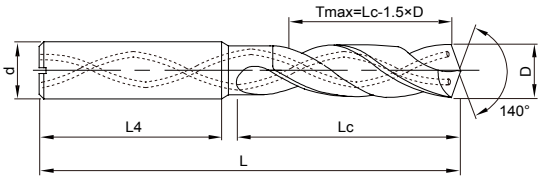
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P118

D938-A5C

5D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-1160	11.60	71	45	118	12
D938-A5C-1170	11.70	71	45	118	12
D938-A5C-1180	11.80	71	45	118	12
D938-A5C-1190	11.90	71	45	118	12
D938-A5C-1200	12.00	71	45	118	12
D938-A5C-1250	12.50	77	45	124	14
D938-A5C-1280	12.80	77	45	124	14
D938-A5C-1300	13.00	77	45	124	14
D938-A5C-1350	13.50	77	45	124	14
D938-A5C-1380	13.80	77	45	124	14
D938-A5C-1400	14.00	77	45	124	14
D938-A5C-1450	14.50	83	48	133	16
D938-A5C-1480	14.80	83	48	133	16
D938-A5C-1500	15.00	83	48	133	16
D938-A5C-1510	15.10	83	48	133	16

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A5C-1550	15.50	83	48	133	16
D938-A5C-1580	15.80	83	48	133	16
D938-A5C-1600	16.00	83	48	133	16
D938-A5C-1650	16.50	93	48	143	18
D938-A5C-1680	16.80	93	48	143	18
D938-A5C-1700	17.00	93	48	143	18
D938-A5C-1750	17.50	93	48	143	18
D938-A5C-1780	17.80	93	48	143	18
D938-A5C-1800	18.00	93	48	143	18
D938-A5C-1850	18.50	101	50	153	20
D938-A5C-1880	18.80	101	50	153	20
D938-A5C-1900	19.00	101	50	153	20
D938-A5C-1950	19.50	101	50	153	20
D938-A5C-1980	19.80	101	50	153	20
D938-A5C-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

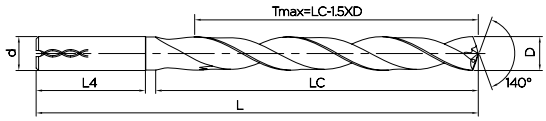
Workpiece Material				
P			K	
1 2 3 4	5	6 7	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P118

D938-A8C NEW

8D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-0300	3.00	34	36	72	6
D938-A8C-0310	3.10	34	36	72	6
D938-A8C-0320	3.20	34	36	72	6
D938-A8C-0330	3.30	34	36	72	6
D938-A8C-0340	3.40	34	36	72	6
D938-A8C-0350	3.50	34	36	72	6
D938-A8C-0360	3.60	34	36	72	6
D938-A8C-0370	3.70	34	36	72	6
D938-A8C-0380	3.80	43	36	81	6
D938-A8C-0390	3.90	43	36	81	6
D938-A8C-0400	4.00	43	36	81	6
D938-A8C-0410	4.10	43	36	81	6
D938-A8C-0420	4.20	43	36	81	6
D938-A8C-0430	4.30	43	36	81	6
D938-A8C-0440	4.40	43	36	81	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-0450	4.50	43	36	81	6
D938-A8C-0460	4.60	43	36	81	6
D938-A8C-0470	4.70	43	36	81	6
D938-A8C-0480	4.80	57	36	95	6
D938-A8C-0490	4.90	57	36	95	6
D938-A8C-0500	5.00	57	36	95	6
D938-A8C-0510	5.10	57	36	95	6
D938-A8C-0520	5.20	57	36	95	6
D938-A8C-0530	5.30	57	36	95	6
D938-A8C-0540	5.40	57	36	95	6
D938-A8C-0550	5.50	57	36	95	6
D938-A8C-0560	5.60	57	36	95	6
D938-A8C-0570	5.70	57	36	95	6
D938-A8C-0580	5.80	57	36	95	6
D938-A8C-0590	5.90	57	36	95	6

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material					
P			M	K	
1 2 3 4	5	6 7	1 2 3	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○	○

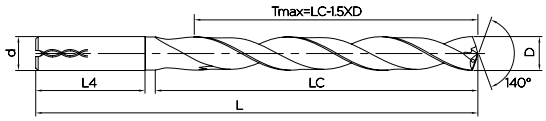
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P120

D938-A8C NEW

8D Inner Cooling Twist Drills for Steel

SHANK DIN 6535HA | AlTiN nano | 8D



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-0600	6.00	57	36	95	6
D938-A8C-0610	6.10	76	36	114	8
D938-A8C-0620	6.20	76	36	114	8
D938-A8C-0630	6.30	76	36	114	8
D938-A8C-0640	6.40	76	36	114	8
D938-A8C-0650	6.50	76	36	114	8
D938-A8C-0660	6.60	76	36	114	8
D938-A8C-0670	6.70	76	36	114	8
D938-A8C-0680	6.80	76	36	114	8
D938-A8C-0690	6.90	76	36	114	8
D938-A8C-0700	7.00	76	36	114	8
D938-A8C-0710	7.10	76	36	114	8
D938-A8C-0720	7.20	76	36	114	8
D938-A8C-0730	7.30	76	36	114	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-0740	7.40	76	36	114	8
D938-A8C-0750	7.50	76	36	114	8
D938-A8C-0760	7.60	76	36	114	8
D938-A8C-0770	7.70	76	36	114	8
D938-A8C-0780	7.80	76	36	114	8
D938-A8C-0790	7.90	76	36	114	8
D938-A8C-0800	8.00	76	36	114	8
D938-A8C-0810	8.10	95	40	142	10
D938-A8C-0820	8.20	95	40	142	10
D938-A8C-0830	8.30	95	40	142	10
D938-A8C-0840	8.40	95	40	142	10
D938-A8C-0850	8.50	95	40	142	10
D938-A8C-0860	8.60	95	40	142	10
D938-A8C-0870	8.70	95	40	142	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

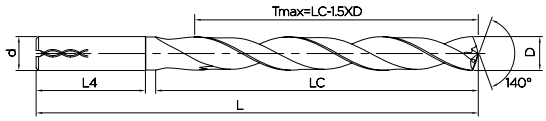
Workpiece Material					
P			M	K	
1 2 3 4	5	6 7	1 2 3	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P120

D938-A8C NEW

8D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-0880	8.80	95	40	142	10
D938-A8C-0890	8.90	95	40	142	10
D938-A8C-0900	9.00	95	40	142	10
D938-A8C-0910	9.10	95	40	142	10
D938-A8C-0920	9.20	95	40	142	10
D938-A8C-0930	9.30	95	40	142	10
D938-A8C-0940	9.40	95	40	142	10
D938-A8C-0950	9.50	95	40	142	10
D938-A8C-0960	9.60	95	40	142	10
D938-A8C-0970	9.70	95	40	142	10
D938-A8C-0980	9.80	95	40	142	10
D938-A8C-0990	9.90	95	40	142	10
D938-A8C-1000	10.00	95	40	142	10
D938-A8C-1020	10.20	114	45	162	12
D938-A8C-1030	10.30	114	45	162	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-1050	10.50	114	45	162	12
D938-A8C-1080	10.80	114	45	162	12
D938-A8C-1100	11.00	114	45	162	12
D938-A8C-1120	11.20	114	45	162	12
D938-A8C-1150	11.50	114	45	162	12
D938-A8C-1160	11.60	114	45	162	12
D938-A8C-1180	11.80	114	45	162	12
D938-A8C-1200	12.00	114	45	162	12
D938-A8C-1210	12.10	133	45	182	14
D938-A8C-1220	12.20	133	45	182	14
D938-A8C-1250	12.50	133	45	182	14
D938-A8C-1280	12.80	133	45	182	14
D938-A8C-1300	13.00	133	45	182	14
D938-A8C-1350	13.50	133	45	182	14
D938-A8C-1380	13.80	133	45	182	14

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

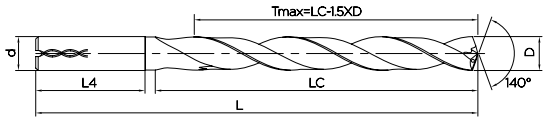
Workpiece Material					
P			M	K	
1 2 3 4	5	6 7	1 2 3	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P120

D938-A8C NEW

8D Inner Cooling Twist Drills for Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D938-A8C-1400	14.00	133	45	182	14
D938-A8C-1420	14.20	152	48	203	16
D938-A8C-1450	14.50	152	48	203	16
D938-A8C-1480	14.80	152	48	203	16
D938-A8C-1500	15.00	152	48	203	16
D938-A8C-1550	15.50	152	48	203	16
D938-A8C-1580	15.80	152	48	203	16
D938-A8C-1590	15.90	152	48	203	16
D938-A8C-1600	16.00	152	48	203	16

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

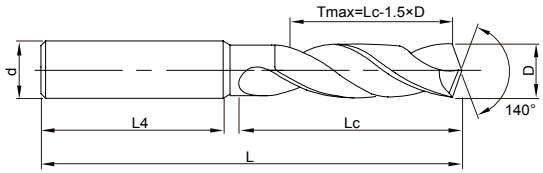
Workpiece Material					
P			M	K	
1 2 3 4	5	6 7	1 2 3	1 2	3
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)
◎	◎	○	○	○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P122

D968S-A3N NEW

3D External Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968S-A3N-0300	3.00	20	36	62	6
D968S-A3N-0325	3.25	20	36	62	6
D968S-A3N-0330	3.30	20	36	62	6
D968S-A3N-0340	3.40	20	36	62	6
D968S-A3N-0350	3.50	20	36	62	6
D968S-A3N-0370	3.70	20	36	62	6
D968S-A3N-0400	4.00	24	36	66	6
D968S-A3N-0420	4.20	24	36	66	6
D968S-A3N-0430	4.30	24	36	66	6
D968S-A3N-0450	4.50	24	36	66	6
D968S-A3N-0465	4.65	24	36	66	6
D968S-A3N-0480	4.80	28	36	66	6
D968S-A3N-0500	5.00	28	36	66	6
D968S-A3N-0510	5.10	28	36	66	6
D968S-A3N-0520	5.20	28	36	66	6

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968S-A3N-0550	5.50	28	36	66	6
D968S-A3N-0555	5.55	28	36	66	6
D968S-A3N-0580	5.80	28	36	66	6
D968S-A3N-0600	6.00	28	36	66	6
D968S-A3N-0610	6.10	34	36	79	8
D968S-A3N-0620	6.20	34	36	79	8
D968S-A3N-0630	6.30	34	36	79	8
D968S-A3N-0650	6.50	34	36	79	8
D968S-A3N-0660	6.60	34	36	79	8
D968S-A3N-0680	6.80	34	36	79	8
D968S-A3N-0690	6.90	34	36	79	8
D968S-A3N-0700	7.00	34	36	79	8
D968S-A3N-0710	7.10	41	36	79	8
D968S-A3N-0740	7.40	41	36	79	8
D968S-A3N-0750	7.50	41	36	79	8

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

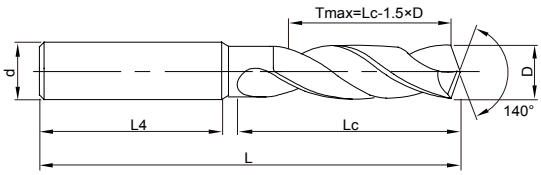
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P122

D968S-A3N NEW

SHANK DIN 6535HA | AlTiN nano | 3D

3D External Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968S-A3N-0780	7.80	41	36	79	8
D968S-A3N-0800	8.00	41	36	79	8
D968S-A3N-0810	8.10	47	40	89	10
D968S-A3N-0840	8.40	47	40	89	10
D968S-A3N-0850	8.50	47	40	89	10
D968S-A3N-0860	8.60	47	40	89	10
D968S-A3N-0870	8.70	47	40	89	10
D968S-A3N-0880	8.80	47	40	89	10
D968S-A3N-0900	9.00	47	40	89	10
D968S-A3N-0930	9.30	47	40	89	10
D968S-A3N-0950	9.50	47	40	89	10
D968S-A3N-0960	9.60	47	40	89	10
D968S-A3N-0980	9.80	47	40	89	10
D968S-A3N-1000	10.00	47	40	89	10
D968S-A3N-1025	10.25	55	45	102	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968S-A3N-1040	10.40	55	45	102	12
D968S-A3N-1050	10.50	55	45	102	12
D968S-A3N-1060	10.60	55	45	102	12
D968S-A3N-1080	10.80	55	45	102	12
D968S-A3N-1100	11.00	55	45	102	12
D968S-A3N-1120	11.20	55	45	102	12
D968S-A3N-1150	11.50	55	45	102	12
D968S-A3N-1180	11.80	55	45	102	12
D968S-A3N-1200	12.00	55	45	102	12
D968S-A3N-1225	12.25	60	45	107	14
D968S-A3N-1250	12.50	60	45	107	14
D968S-A3N-1270	12.70	60	45	107	14
D968S-A3N-1275	12.75	60	45	107	14
D968S-A3N-1280	12.80	60	45	107	14
D968S-A3N-1300	13.00	60	45	107	14

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

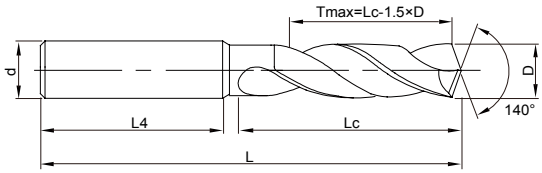
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P122

D968S-A3N NEW

3D External Cooling Twist Drills for Stainless Steel

SHANK DIN 6535HA | AlTiN nano | 3D



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968S-A3N-1310	13.10	60	45	107	14
D968S-A3N-1350	13.50	60	45	107	14
D968S-A3N-1380	13.80	60	45	107	14
D968S-A3N-1400	14.00	60	45	107	14
D968S-A3N-1425	14.25	65	48	115	16
D968S-A3N-1450	14.50	65	48	115	16
D968S-A3N-1475	14.75	65	48	115	16
D968S-A3N-1480	14.80	65	48	115	16
D968S-A3N-1500	15.00	65	48	115	16
D968S-A3N-1510	15.10	65	48	115	16
D968S-A3N-1550	15.50	65	48	115	16
D968S-A3N-1580	15.80	65	48	115	16
D968S-A3N-1600	16.00	65	48	115	16

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968S-A3N-1650	16.50	73	48	123	18
D968S-A3N-1675	16.75	73	48	123	18
D968S-A3N-1680	16.80	73	48	123	18
D968S-A3N-1700	17.00	73	48	123	18
D968S-A3N-1750	17.50	73	48	123	18
D968S-A3N-1780	17.80	73	48	123	18
D968S-A3N-1800	18.00	73	48	123	18
D968S-A3N-1850	18.50	79	50	131	20
D968S-A3N-1880	18.80	79	50	131	20
D968S-A3N-1900	19.00	79	50	131	20
D968S-A3N-1950	19.50	79	50	131	20
D968S-A3N-1980	19.80	79	50	131	20
D968S-A3N-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

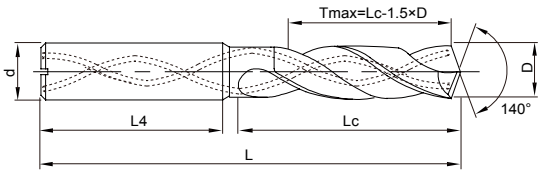
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P122

D968-A3C

SHANK DIN 6535HA | HELICA | 3D

3D Inner Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A3C-0500	5.00	28	36	66	6
D968-A3C-0510	5.10	28	36	66	6
D968-A3C-0520	5.20	28	36	66	6
D968-A3C-0550	5.50	28	36	66	6
D968-A3C-0555	5.55	28	36	66	6
D968-A3C-0580	5.80	28	36	66	6
D968-A3C-0600	6.00	28	36	66	6
D968-A3C-0610	6.10	34	36	79	8
D968-A3C-0620	6.20	34	36	79	8
D968-A3C-0630	6.30	34	36	79	8
D968-A3C-0650	6.50	34	36	79	8
D968-A3C-0660	6.60	34	36	79	8
D968-A3C-0680	6.80	34	36	79	8
D968-A3C-0690	6.90	34	36	79	8
D968-A3C-0700	7.00	34	36	79	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A3C-0710	7.10	41	36	79	8
D968-A3C-0740	7.40	41	36	79	8
D968-A3C-0750	7.50	41	36	79	8
D968-A3C-0780	7.80	41	36	79	8
D968-A3C-0800	8.00	41	36	79	8
D968-A3C-0810	8.10	47	40	89	10
D968-A3C-0840	8.40	47	40	89	10
D968-A3C-0850	8.50	47	40	89	10
D968-A3C-0860	8.60	47	40	89	10
D968-A3C-0870	8.70	47	40	89	10
D968-A3C-0880	8.80	47	40	89	10
D968-A3C-0900	9.00	47	40	89	10
D968-A3C-0930	9.30	47	40	89	10
D968-A3C-0950	9.50	47	40	89	10
D968-A3C-0960	9.60	47	40	89	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

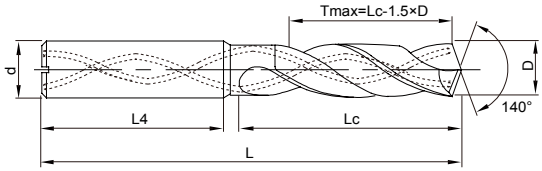
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P122

D968-A3C

SHANK DIN 6535HA | HELICA | 3D

3D Inner Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A3C-0980	9.80	47	40	89	10
D968-A3C-1000	10.00	47	40	89	10
D968-A3C-1025	10.25	55	45	102	12
D968-A3C-1040	10.40	55	45	102	12
D968-A3C-1050	10.50	55	45	102	12
D968-A3C-1060	10.60	55	45	102	12
D968-A3C-1080	10.80	55	45	102	12
D968-A3C-1100	11.00	55	45	102	12
D968-A3C-1120	11.20	55	45	102	12
D968-A3C-1150	11.50	55	45	102	12
D968-A3C-1180	11.80	55	45	102	12
D968-A3C-1200	12.00	55	45	102	12
D968-A3C-1225	12.25	60	45	107	14
D968-A3C-1250	12.50	60	45	107	14
D968-A3C-1270	12.70	60	45	107	14

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A3C-1275	12.75	60	45	107	14
D968-A3C-1280	12.80	60	45	107	14
D968-A3C-1300	13.00	60	45	107	14
D968-A3C-1310	13.10	60	45	107	14
D968-A3C-1350	13.50	60	45	107	14
D968-A3C-1380	13.80	60	45	107	14
D968-A3C-1400	14.00	60	45	107	14
D968-A3C-1425	14.25	65	48	115	16
D968-A3C-1450	14.50	65	48	115	16
D968-A3C-1475	14.75	65	48	115	16
D968-A3C-1480	14.80	65	48	115	16
D968-A3C-1500	15.00	65	48	115	16
D968-A3C-1510	15.10	65	48	115	16
D968-A3C-1550	15.50	65	48	115	16
D968-A3C-1580	15.80	65	48	115	16

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material

P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

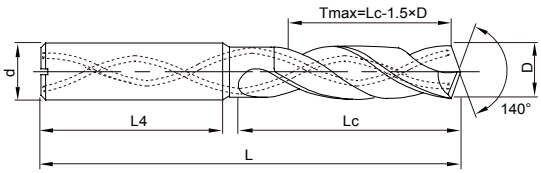
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P122

D968-A3C

SHANK DIN 6535HA | HELICA | 3D

3D Inner Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A3C-1600	16.00	65	48	115	16
D968-A3C-1700	17.00	73	48	123	18
D968-A3C-1800	18.00	73	48	123	18
D968-A3C-1900	19.00	79	50	131	20
D968-A3C-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

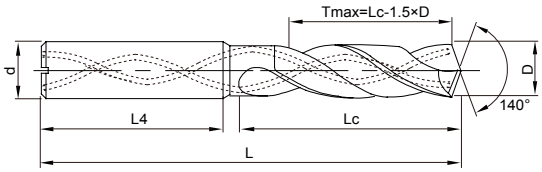
Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P122

D968-A5C

5D Inner Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A5C-0500	5.00	44	36	82	6
D968-A5C-0510	5.10	44	36	82	6
D968-A5C-0520	5.20	44	36	82	6
D968-A5C-0550	5.50	44	36	82	6
D968-A5C-0555	5.55	44	36	82	6
D968-A5C-0580	5.80	44	36	82	6
D968-A5C-0600	6.00	44	36	82	6
D968-A5C-0610	6.10	53	36	91	8
D968-A5C-0620	6.20	53	36	91	8
D968-A5C-0630	6.30	53	36	91	8
D968-A5C-0650	6.50	53	36	91	8
D968-A5C-0660	6.60	53	36	91	8
D968-A5C-0680	6.80	53	36	91	8
D968-A5C-0690	6.90	53	36	91	8
D968-A5C-0700	7.00	53	36	91	8

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A5C-0710	7.10	53	36	91	8
D968-A5C-0740	7.40	53	36	91	8
D968-A5C-0750	7.50	53	36	91	8
D968-A5C-0780	7.80	53	36	91	8
D968-A5C-0800	8.00	53	36	91	8
D968-A5C-0810	8.10	61	40	103	10
D968-A5C-0840	8.40	61	40	103	10
D968-A5C-0850	8.50	61	40	103	10
D968-A5C-0860	8.60	61	40	103	10
D968-A5C-0870	8.70	61	40	103	10
D968-A5C-0880	8.80	61	40	103	10
D968-A5C-0900	9.00	61	40	103	10
D968-A5C-0930	9.30	61	40	103	10
D968-A5C-0950	9.50	61	40	103	10
D968-A5C-0960	9.60	61	40	103	10

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

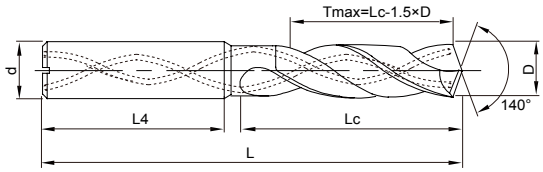
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P122

D968-A5C

5D Inner Cooling Twist Drills for Stainless Steel

SHANK DIN 6535HA | HELICA | 5D



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A5C-0980	9.80	61	40	103	10
D968-A5C-1000	10.00	61	40	103	10
D968-A5C-1025	10.25	71	45	118	12
D968-A5C-1040	10.40	71	45	118	12
D968-A5C-1050	10.50	71	45	118	12
D968-A5C-1060	10.60	71	45	118	12
D968-A5C-1080	10.80	71	45	118	12
D968-A5C-1100	11.00	71	45	118	12
D968-A5C-1120	11.20	71	45	118	12
D968-A5C-1150	11.50	71	45	118	12
D968-A5C-1180	11.80	71	45	118	12
D968-A5C-1200	12.00	71	45	118	12
D968-A5C-1220	12.20	77	45	124	14
D968-A5C-1225	12.25	77	45	124	14
D968-A5C-1250	12.50	77	45	124	14

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A5C-1270	12.70	77	45	124	14
D968-A5C-1275	12.75	77	45	124	14
D968-A5C-1280	12.80	77	45	124	14
D968-A5C-1300	13.00	77	45	124	14
D968-A5C-1350	13.50	77	45	124	14
D968-A5C-1380	13.80	77	45	124	14
D968-A5C-1400	14.00	77	45	124	14
D968-A5C-1425	14.25	83	48	133	16
D968-A5C-1450	14.50	83	48	133	16
D968-A5C-1475	14.75	83	48	133	16
D968-A5C-1480	14.80	83	48	133	16
D968-A5C-1500	15.00	83	48	133	16
D968-A5C-1510	15.10	83	48	133	16
D968-A5C-1550	15.50	83	48	133	16
D968-A5C-1580	15.80	83	48	133	16

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

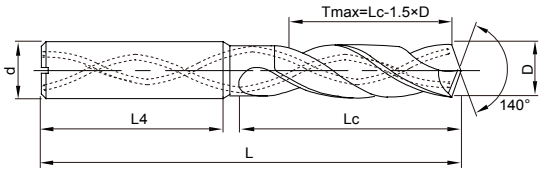
Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P122

D968-A5C

5D Inner Cooling Twist Drills for Stainless Steel



Tmax -Recommended Maximum Depth

》continue

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D968-A5C-1600	16.00	83	48	133	16
D968-A5C-1700	17.00	93	48	143	18
D968-A5C-1800	18.00	93	48	143	18
D968-A5C-1900	19.00	101	50	153	20
D968-A5C-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P	M	K		N			S	
1 2 3 4	1 2 3	1 2	3	1 2	3	4	1 2 3	4
Carbon Steels Alloy Steels (< 35HRC)	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Heat Resistant Super Alloys (< 450HB)	Titanium Alloys (< 400HB)
○	◎						○	○

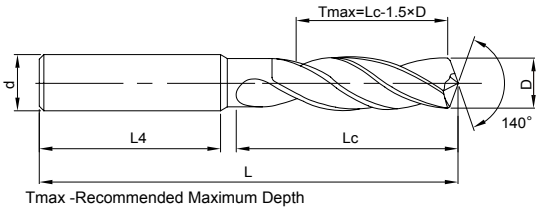
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P122

D928-A3N

SHANK DIN 6535HA | HELICA | 3D

3D External Cooling Twist Drills for Cast Iron



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A3N-0300	3.00	20	36	62	6
D928-A3N-0330	3.30	20	36	62	6
D928-A3N-0400	4.00	24	36	66	6
D928-A3N-0420	4.20	24	36	66	6
D928-A3N-0500	5.00	28	36	66	6
D928-A3N-0600	6.00	28	36	66	6
D928-A3N-0680	6.80	34	36	79	8
D928-A3N-0700	7.00	34	36	79	8
D928-A3N-0800	8.00	41	36	79	8
D928-A3N-0850	8.50	47	40	89	10
D928-A3N-0900	9.00	47	40	89	10
D928-A3N-1000	10.00	47	40	89	10
D928-A3N-1025	10.25	55	45	102	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A3N-1050	10.50	55	45	102	12
D928-A3N-1100	11.00	55	45	102	12
D928-A3N-1200	12.00	55	45	102	12
D928-A3N-1250	12.50	60	45	107	14
D928-A3N-1300	13.00	60	45	107	14
D928-A3N-1400	14.00	60	45	107	14
D928-A3N-1450	14.50	65	48	115	16
D928-A3N-1500	15.00	65	48	115	16
D928-A3N-1600	16.00	65	48	115	16
D928-A3N-1700	17.00	73	48	123	18
D928-A3N-1800	18.00	73	48	123	18
D928-A3N-1900	19.00	79	50	131	20
D928-A3N-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

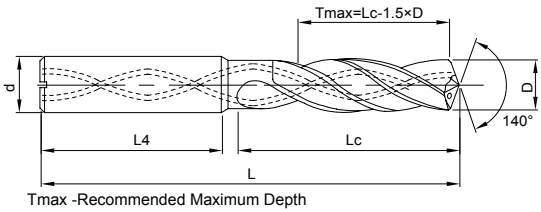
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○				◎	◎			

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P124

D928-A3C

3D Inner Cooling Twist Drills for Cast Iron



Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A3C-0500	5.00	28	36	66	6
D928-A3C-0600	6.00	28	36	66	6
D928-A3C-0680	6.80	34	36	79	8
D928-A3C-0700	7.00	34	36	79	8
D928-A3C-0800	8.00	41	36	79	8
D928-A3C-0850	8.50	47	40	89	10
D928-A3C-0900	9.00	47	40	89	10
D928-A3C-1000	10.00	47	40	89	10
D928-A3C-1025	10.25	55	45	102	12
D928-A3C-1050	10.50	55	45	102	12
D928-A3C-1100	11.00	55	45	102	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A3C-1200	12.00	55	45	102	12
D928-A3C-1250	12.50	60	45	107	14
D928-A3C-1300	13.00	60	45	107	14
D928-A3C-1400	14.00	60	45	107	14
D928-A3C-1450	14.50	65	48	115	16
D928-A3C-1500	15.00	65	48	115	16
D928-A3C-1600	16.00	65	48	115	16
D928-A3C-1700	17.00	73	48	123	18
D928-A3C-1800	18.00	73	48	123	18
D928-A3C-1900	19.00	79	50	131	20
D928-A3C-2000	20.00	79	50	131	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○				◎	◎	○	○	

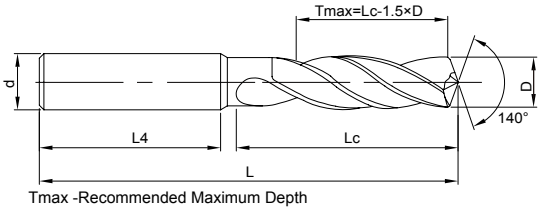
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P124

D928-A5N

SHANK DIN 6535HA | HELICA | 5D

5D External Cooling Twist Drills for Cast Iron



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A5N-0300	3.00	28	36	66	6
D928-A5N-0330	3.30	28	36	66	6
D928-A5N-0400	4.00	36	36	74	6
D928-A5N-0420	4.20	36	36	74	6
D928-A5N-0500	5.00	44	36	82	6
D928-A5N-0600	6.00	44	36	82	6
D928-A5N-0680	6.80	53	36	91	8
D928-A5N-0700	7.00	53	36	91	8
D928-A5N-0800	8.00	53	36	91	8
D928-A5N-0850	8.50	61	40	103	10
D928-A5N-0900	9.00	61	40	103	10
D928-A5N-1000	10.00	61	40	103	10
D928-A5N-1025	10.25	71	45	118	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A5N-1050	10.50	71	45	118	12
D928-A5N-1100	11.00	71	45	118	12
D928-A5N-1200	12.00	71	45	118	12
D928-A5N-1250	12.50	77	45	124	14
D928-A5N-1300	13.00	77	45	124	14
D928-A5N-1400	14.00	77	45	124	14
D928-A5N-1450	14.50	83	48	133	16
D928-A5N-1500	15.00	83	48	133	16
D928-A5N-1600	16.00	83	48	133	16
D928-A5N-1700	17.00	93	48	143	18
D928-A5N-1800	18.00	93	48	143	18
D928-A5N-1900	19.00	101	50	153	20
D928-A5N-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○				◎	◎			

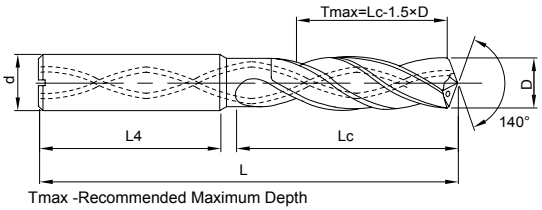
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P124

D928-A5C

5D Inner Cooling Twist Drills for Cast Iron

SHANK DIN 6535HA | HELICA | 5D



Tmax -Recommended Maximum Depth

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A5C-0500	5.00	44	36	82	6
D928-A5C-0600	6.00	44	36	82	6
D928-A5C-0680	6.80	53	36	91	8
D928-A5C-0700	7.00	53	36	91	8
D928-A5C-0800	8.00	53	36	91	8
D928-A5C-0850	8.50	61	40	103	10
D928-A5C-0900	9.00	61	40	103	10
D928-A5C-1000	10.00	61	40	103	10
D928-A5C-1025	10.25	71	45	118	12
D928-A5C-1050	10.50	71	45	118	12
D928-A5C-1100	11.00	71	45	118	12

Ordering Code	D(m7)	Lc	L4	L	d(h6)
D928-A5C-1200	12.00	71	45	118	12
D928-A5C-1250	12.50	77	45	124	14
D928-A5C-1300	13.00	77	45	124	14
D928-A5C-1400	14.00	77	45	124	14
D928-A5C-1450	14.50	83	48	133	16
D928-A5C-1500	15.00	83	48	133	16
D928-A5C-1600	16.00	83	48	133	16
D928-A5C-1700	17.00	93	48	143	18
D928-A5C-1800	18.00	93	48	143	18
D928-A5C-1900	19.00	101	50	153	20
D928-A5C-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(m7)	d(h6)
≥2—3	+0.002/+0.012	0.000/-0.006
>3—6	+0.004/+0.016	0.000/-0.008
>6—10	+0.006/+0.021	0.000/-0.009
>10—18	+0.007/+0.025	0.000/-0.011
>18—20	+0.008/+0.029	0.000/-0.013

unit (mm)

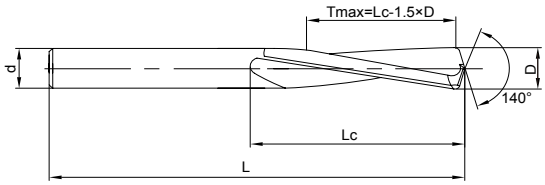
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
○				◎	◎	○	○	

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P124

D998-Y3N

3D External Cooling Twist Drills for Hardened Steel



Tmax -Recommended Maximum Depth

Ordering Code	D(h7)	Lc	L	d(h6)
D998-Y3N-0400	4.0	22	55	4
D998-Y3N-0500	5.0	26	62	5
D998-Y3N-0600	6.0	28	66	6
D998-Y3N-0700	7.0	34	74	7
D998-Y3N-0800	8.0	37	79	8
D998-Y3N-0900	9.0	40	84	9
D998-Y3N-1000	10.0	43	89	10

Ordering Code	D(h7)	Lc	L	d(h6)
D998-Y3N-1100	11.0	47	95	11
D998-Y3N-1200	12.0	51	102	12
D998-Y3N-1300	13.0	51	102	13
D998-Y3N-1400	14.0	54	107	14
D998-Y3N-1500	15.0	56	111	15
D998-Y3N-1600	16.0	58	115	16

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(h7)	d(h6)
≥2—3	0.000/-0.010	0.000/-0.006
>3—6	0.000/-0.012	0.000/-0.008
>6—10	0.000/-0.015	0.000/-0.009
>10—18	0.000/-0.018	0.000/-0.011
>18—20	0.000/-0.021	0.000/-0.013

unit (mm)

Workpiece Material							
P			M	K		H	
1 2 3 4	5	6	1 2 3	1 2	3	1	2
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Hardened Steels (45-55HRC)	Hardened Steels (55-60HRC)
						◎	○

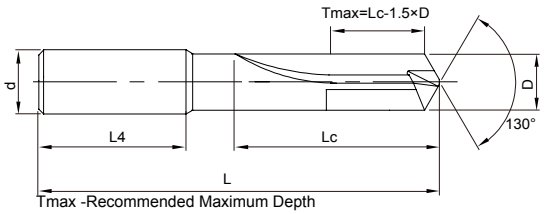
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P126

D713-A5N

SHANK DIN 6535HA | TiAlN | 5D

5D External Cooling Straight Fluted Drills for Cast Iron



Ordering Code	D(k6)	Lc	L4	L	d(h6)
D713-A5N-0400	4.00	36	36	74	6
D713-A5N-0420	4.20	36	36	74	6
D713-A5N-0500	5.00	44	36	82	6
D713-A5N-0600	6.00	44	36	82	6
D713-A5N-0680	6.80	53	36	91	8
D713-A5N-0700	7.00	53	36	91	8
D713-A5N-0800	8.00	53	36	91	8
D713-A5N-0850	8.50	61	40	103	10
D713-A5N-0900	9.00	61	40	103	10
D713-A5N-1000	10.00	61	40	103	10
D713-A5N-1025	10.25	71	45	118	12
D713-A5N-1100	11.00	71	45	118	12

Ordering Code	D(k6)	Lc	L4	L	d(h6)
D713-A5N-1200	12.00	71	45	118	12
D713-A5N-1300	13.00	77	45	124	14
D713-A5N-1400	14.00	77	45	124	14
D713-A5N-1500	15.00	83	48	133	16
D713-A5N-1550	15.50	83	48	133	16
D713-A5N-1600	16.00	83	48	133	16
D713-A5N-1700	17.00	93	48	143	18
D713-A5N-1750	17.50	93	48	143	18
D713-A5N-1800	18.00	93	48	143	18
D713-A5N-1950	19.50	101	50	153	20
D713-A5N-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D2 to D20 tool.

Nominal Size Range	D(k6)	d(h6)
≥2—3	+0.006/+0.000	0.000/-0.006
>3—6	+0.009/+0.001	0.000/-0.008
>6—10	+0.010/+0.001	0.000/-0.009
>10—18	+0.012/+0.001	0.000/-0.011
>18—20	+0.015/+0.002	0.000/-0.013

unit (mm)

Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
				◎	◎		◎	

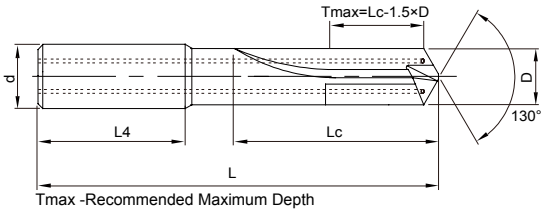
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P127

D713-A5C

SHANK DIN 6535HA | TiAlN | 5D

5D Inner Cooling Straight Fluted Drills for Cast Iron



Ordering Code	D(k6)	Lc	L4	L	d(h6)
D713-A5C-0400	4.00	36	36	74	6
D713-A5C-0420	4.20	36	36	74	6
D713-A5C-0500	5.00	44	36	82	6
D713-A5C-0600	6.00	44	36	82	6
D713-A5C-0680	6.80	53	36	91	8
D713-A5C-0700	7.00	53	36	91	8
D713-A5C-0800	8.00	53	36	91	8
D713-A5C-0850	8.50	61	40	103	10
D713-A5C-0900	9.00	61	40	103	10
D713-A5C-1000	10.00	61	40	103	10
D713-A5C-1025	10.25	71	45	118	12
D713-A5C-1100	11.00	71	45	118	12

Ordering Code	D(k6)	Lc	L4	L	d(h6)
D713-A5C-1200	12.00	71	45	118	12
D713-A5C-1300	13.00	77	45	124	14
D713-A5C-1400	14.00	77	45	124	14
D713-A5C-1500	15.00	83	48	133	16
D713-A5C-1550	15.50	83	48	133	16
D713-A5C-1600	16.00	83	48	133	16
D713-A5C-1700	17.00	93	48	143	18
D713-A5C-1750	17.50	93	48	143	18
D713-A5C-1800	18.00	93	48	143	18
D713-A5C-1950	19.50	101	50	153	20
D713-A5C-2000	20.00	101	50	153	20

Note：Accept non-standard custom from D3 to D20 tool.

Nominal Size Range	D(k6)	d(h6)
≥2—3	+0.006/+0.000	0.000/-0.006
>3—6	+0.009/+0.001	0.000/-0.008
>6—10	+0.010/+0.001	0.000/-0.009
>10—18	+0.012/+0.001	0.000/-0.011
>18—20	+0.015/+0.002	0.000/-0.013

unit (mm)

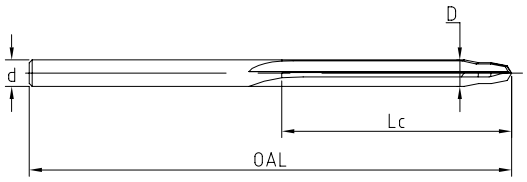
Workpiece Material								
P			M	K		N		
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)
				◎	◎		◎	

◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P127

D612-Y3N

Triple-angle Drills for Composite Material



Ordering Code	D(mm)	D(in)	Lc	OAL	d	Linen-umber / Diam-eter(in)
D612-Y3N-0249	2.49	0.0980	15	60	2.49	——
D612-Y3N-0270	2.70	0.1063	15	60	2.70	——
D612-Y3N-0300	3.00	0.1181	18	60	3.00	——
D612-Y3N-0320	3.20	0.1260	20	75	3.20	——
D612-Y3N-0326	3.26	0.1283	20	75	3.26	30#
D612-Y3N-0400	4.00	0.1575	30	75	4.00	——
D612-Y3N-0409	4.09	0.1610	30	75	4.09	20#
D612-Y3N-0450	4.50	0.1772	30	75	4.50	16#
D612-Y3N-0480	4.80	0.1890	30	75	4.80	12#

Ordering Code	D(mm)	D(in)	Lc	OAL	d	Linen-umber / Diam-eter(in)
D612-Y3N-04826	4.826	0.1900	30	75	4.83	——
D612-Y3N-0491	4.91	0.1933	30	75	4.91	10#
D612-Y3N-0500	5.00	0.1969	35	100	5.00	——
D612-Y3N-0505	5.05	0.1988	35	100	5.05	8#
D612-Y3N-0522	5.22	0.2055	35	100	5.22	5#
D612-Y3N-0600	6.00	0.2362	40	100	6.00	——
D612-Y3N-0635	6.35	0.2500	40	100	6.35	——
D612-Y3N-0794	7.94	0.3126	40	100	7.94	——

unit (mm)

Note：Accept non-standard custom from D1.5 to D16 tool.

Workpiece Material									
P			M	K		N			
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4	5
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Composite Material
									◎

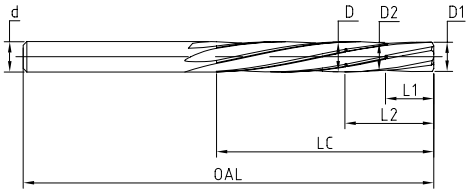
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P128

R733-C

Reamer for Composite Material

SHANK HELICA 6



Ordering Code	D(mm)	D(in)	D1	L1	D2	L2	Lc	OAL	d	Linenum-ber/Dia-meter(in)
R733-C-0326	3.26	0.128	3.10	6.5	-	-	35	75	3.26	30#
R733-C-0357	3.57	0.141	3.26	6.5	3.45	13.0	35	75	3.57	28#
R733-C-0400	4.00	0.157	3.45	6.5	3.86	13.0	35	75	4.00	-
R733-C-0417	4.17	0.164	3.86	6.5	4.00	13.0	40	100	4.17	-
R733-C-0450	4.50	0.177	4.17	6.5	4.39	13.0	40	100	4.50	-
R733-C-0485	4.85	0.191	4.50	6.5	4.70	13.0	40	100	4.85	11#
R733-C-0500	5.00	0.197	4.70	6.5	4.85	13.0	40	100	5.00	-
R733-C-0536	5.36	0.211	4.85	6.5	5.20	13.0	40	100	5.36	6#
R733-C-0556	5.56	0.219	5.18	6.5	5.40	13.0	40	100	5.56	7/32
R733-C-0595	5.95	0.234	5.56	6.5	5.79	13.0	40	100	5.95	15/64
R733-C-0600	6.00	0.236	5.56	6.5	5.85	13.0	40	100	6.00	-
R733-C-0635	6.35	0.250	5.95	7.5	6.20	15.0	40	100	6.35	1/4
R733-C-0794	7.94	0.313	7.54	7.5	7.67	15.0	45	120	7.94	5/16
R733-C-0953	9.53	0.375	9.00	7.5	9.30	15.0	50	120	9.53	3/8
R733-C-1270	12.70	0.500	12.00	7.5	12.40	15.0	60	150	12.70	1/2

Note：Accept non-standard custom from D3 to D16 tool. unit (mm)

Workpiece Material									
P			M	K		N			
1 2 3 4	5	6	1 2 3	1 2	3	1 2	3	4	5
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Grey Cast Iron Nodular Cast Iron (< 32HRC)	High Alloy Cast Iron (35-45HRC)	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Composite Material
									◎

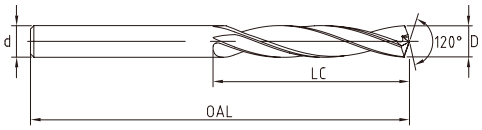
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P128

D973-Y5N

Twist Drills for Composite and Metal

SHANK HELICA 5D



Ordering Code	D(mm)	D(in)	Lc	OAL	d	Linenum-ber/ Dia-meter(in)
D973-Y5N-0250	2.50	0.0984	25	75	2.50	——
D973-Y5N-0270	2.70	0.1063	25	75	2.70	——
D973-Y5N-0300	3.00	0.1181	25	75	3.00	——
D973-Y5N-0310	3.10	0.1220	25	75	3.10	——
D973-Y5N-0326	3.26	0.1285	35	75	3.26	30#
D973-Y5N-0400	4.00	0.1575	35	100	4.00	——
D973-Y5N-0409	4.09	0.1610	40	100	4.09	20#
D973-Y5N-0417	4.17	0.1640	40	100	4.17	——
D973-Y5N-0470	4.70	0.1850	40	100	4.70	13#
D973-Y5N-0483	4.83	0.1900	40	100	4.83	——
D973-Y5N-0500	5.00	0.1969	40	100	5.00	——
D973-Y5N-0556	5.56	0.2190	40	100	5.56	——
D973-Y5N-0595	5.95	0.2344	40	100	5.95	15/64
D973-Y5N-0600	6.00	0.2362	40	100	6.00	——
D973-Y5N-0635	6.35	0.2500	40	100	6.35	1/4
D973-Y5N-0750	7.50	0.2953	45	120	7.50	——
D973-Y5N-0794	7.94	0.3125	45	120	7.94	5/16

Note：Accept non-standard custom from D2 to D16 tool.

unit (mm)

Workpiece Material								
P			M	N				S
1 2 3 4	5	6	1 2 3	1 2	3	4	5	1 2 3 4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Composite Material	Titanium alloy, Heat-resistant Super Alloys
○	○		◎	◎	◎		○	◎

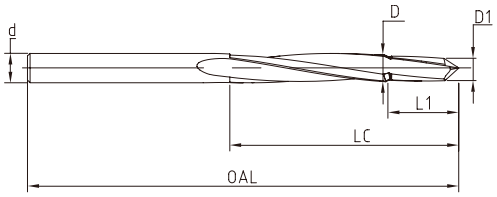
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P128

D573-Y3N

Core Drills for Composite and Metal

SHANK HELICA 3



Ordering Code	D(mm)	D(in)	D1	L1	Lc	d	OAL	Linenum-ber/Dia-meter(in)
D573-Y3N-0400	4.00	0.157	3.26	8.0	40.0	4.00	80	——
D573-Y3N-0409	4.09	0.161	3.37	8.0	40.0	4.09	80	20#
D573-Y3N-0417	4.17	0.164	3.37	8.0	40.0	4.17	80	——
D573-Y3N-0437	4.37	0.172	4.10	8.0	40.0	4.37	80	17#
D573-Y3N-0450	4.50	0.177	4.10	8.0	40.0	4.50	100	——
D573-Y3N-0470	4.70	0.185	4.17	8.0	40.0	4.70	100	13#
D573-Y3N-0485	4.85	0.191	4.37	8.0	40.0	4.85	100	11#
D573-Y3N-0500	5.00	0.197	4.37	10.0	50.0	5.00	100	——
D573-Y3N-0518	5.18	0.204	4.85	10.0	50.0	5.18	100	6#
D573-Y3N-0556	5.56	0.219	4.70	10.0	50.0	5.56	100	——
D573-Y3N-0595	5.95	0.234	5.56	10.0	50.0	5.95	100	——
D573-Y3N-0625	6.25	0.246	5.95	10.0	50.0	6.25	100	——
D573-Y3N-0754	7.54	0.297	6.35	10.0	50.0	7.54	100	——
D573-Y3N-0767	7.67	0.302	6.35	10.0	50.0	7.67	120	——
D573-Y3N-0930	9.30	0.366	8.40	10.0	50.0	9.30	120	——

Note：Accept non-standard custom from D3 to D16 tool.

unit (mm)

Workpiece Material								
P			M	N				S
1 2 3 4	5	6	1 2 3	1 2	3	4	5	1 2 3 4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Composite Material	Titanium alloy, Heat-resistant Super Alloys
○	○		◎	◎	◎		◎	◎

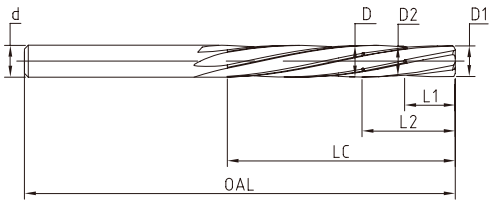
◎ Most Suitable ○ Suitable

Recommended Cutting Data※ P129

R733-CM

Reamer for Composite and Metal

SHANK HELICA 6



Ordering Code	D(mm)	D (in)	D1	L1	D2	L2	刃长 Lc	OAL	d	Linenum-ber/Dia-meter(in)
R733-CM-0326	3.26	0.128	3.10	6.5	-	-	35	75	3.26	30#
R733-CM-0357	3.57	0.141	3.26	6.5	3.45	13.0	35	75	3.57	28#
R733-CM-0400	4.00	0.157	3.45	6.5	3.86	13.0	35	75	4.00	-
R733-CM-0417	4.17	0.164	3.86	6.5	4.00	13.0	40	100	4.17	-
R733-CM-0450	4.50	0.177	4.17	6.5	4.39	13.0	40	100	4.50	-
R733-CM-0485	4.85	0.191	4.50	6.5	4.70	13.0	40	100	4.85	11#
R733-CM-0500	5.00	0.197	4.70	6.5	4.85	13.0	40	100	5.00	-
R733-CM-0536	5.36	0.211	4.85	6.5	5.20	13.0	40	100	5.36	6#
R733-CM-0556	5.56	0.219	5.18	6.5	5.40	13.0	40	100	5.56	7/32
R733-CM-0595	5.95	0.234	5.56	6.5	5.79	13.0	40	100	5.95	15/64
R733-CM-0600	6.00	0.236	5.56	6.5	5.85	13.0	40	100	6.00	-
R733-CM-0635	6.35	0.250	5.95	7.5	6.20	15.0	40	100	6.35	1/4
R733-CM-0794	7.94	0.313	7.54	7.5	7.67	15.0	45	120	7.94	5/16
R733-CM-0953	9.53	0.375	9.00	7.5	9.30	15.0	50	120	9.53	3/8
R733-CM-1270	12.70	0.500	12.00	7.5	12.40	15.0	60	150	12.70	1/2

Note：Accept non-standard custom from D3 to D16 tool. unit (mm)

Workpiece Material								
P			M	N				S
1 2 3 4	5	6	1 2 3	1 2	3	4	5	1 2 3 4
Carbon Steels Alloy Steels (< 35HRC)	Alloy Steels Tool Steels (35-48HRC)	PH and Ferrite/ Martensitic Stainless	Stainless Steel	Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%)	Cast Aluminium Alloys (Si > 12%)	Copper Alloys (< 200HB)	Composite Material	Titanium alloy, Heat-resistant Super Alloys
○			◎	◎	○		◎	◎

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P129

Recommended Cutting Data

D101/D102/D103 NC Centre Drills

Workpiece		Vc (m/min)	fn (mm/rev)			
			Φ4	Φ6	Φ8	Φ10
P	Low-carbon Steels,Long Chipping (< 125HB)	130-100-60	0.12-0.15-0.18	0.14-0.17-0.20	0.16-0.20-0.26	0.18-0.24-0.3
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	120-100-60	0.10-0.14-0.18	0.14-0.16-0.20	0.16-0.20-0.24	0.18-0.24-0.3
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	110-80-60	0.10-0.13-0.16	0.12-0.15-0.18	0.14-0.18-0.22	0.16-0.20-0.24
	Steels , Tool Steels. (< 35HRC)	110-80-60	0.10-0.13-0.16	0.12-0.15-0.18	0.14-0.18-0.22	0.16-0.20-0.24
	Alloy Steels , Tool Steels. (35-48HRC)	100-80-60	0.10-0.12-0.16	0.12-0.14-0.18	0.14-0.16-0.20	0.16-0.20-0.24
	PH and Ferrite/Martensitic Steels(< 35HRC)	100-80-60	0.10-0.12-0.16	0.12-0.14-0.18	0.14-0.16-0.20	0.16-0.20-0.24
K	Grey Cast Iron (< 32HRC)	140-120-60	0.12-0.20-0.26	0.17-0.26-0.32	0.20-0.32-0.40	0.25-0.30-0.36
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	130-105-60	0.12-0.18-0.24	0.15-0.20-0.27	0.17-0.22-0.30	0.20-0.26-0.32
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	120-90-60	0.10-0.16-0.22	0.10-0.13-0.16	0.13-0.17-0.21	0.15-0.20-0.26
N	Wrought Aluminium Alloys(Si<12%)	150-120-60	0.12-0.20-0.26	0.17-0.26-0.32	0.20-0.32-0.40	0.25-0.30-0.36
	Cast luminium Alloys(Si<12%)	150-120-60	0.12-0.18-0.24	0.15-0.20-0.27	0.17-0.22-0.30	0.20-0.26-0.32
	Cast Aluminium Alloys(Si>12%)	150-120-60	0.10-0.13-0.16	0.12-0.15-0.18	0.14-0.18-0.22	0.16-0.20-0.24
	Copper,Copper Alloys (< 200HB)	150-120-60	0.10-0.12-0.16	0.12-0.14-0.18	0.14-0.16-0.20	0.16-0.20-0.24

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D101/D102/D103 NC Centre Drills

Workpiece		Vc (m/min)	fn (mm/rev)			
			Φ12	Φ14	Φ16	Φ20
P	Low-carbon Steels,Long Chipping (< 125HB)	130-100-60	0.20-0.26-0.32	0.24-0.30-0.35	0.28-0.34-0.4	0.32-0.38-0.45
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	120-100-60	0.20-0.26-0.32	0.24-0.28-0.34	0.28-0.34-0.4	0.32-0.38-0.45
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	110-80-60	0.18-0.24-0.30	0.20-0.26-0.30	0.22-0.28-0.32	0.26-0.32-0.40
	Steels , Tool Steels. (< 35HRC)	110-80-60	0.18-0.24-0.30	0.20-0.26-0.30	0.22-0.28-0.32	0.26-0.32-0.40
	Alloy Steels , Tool Steels. (35-48HRC)	100-80-60	0.18-0.24-0.30	0.20-0.26-0.30	0.22-0.28-0.32	0.26-0.32-0.40
	PH and Ferrite/Martensitic Steels(< 35HRC)	100-80-60	0.18-0.24-0.30	0.20-0.26-0.30	0.22-0.28-0.32	0.26-0.32-0.40
K	Grey Cast Iron (< 32HRC)	140-120-60	0.26-0.32-0.38	0.28-0.32-0.40	0.30-0.36-0.42	0.32-0.38-0.44
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	130-105-60	0.22-0.28-0.34	0.24-0.30-0.36	0.26-0.32-0.38	0.30-0.36-0.42
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	120-90-60	0.17-0.22-0.28	0.19-0.26-0.31	0.20-0.27-0.33	0.28-0.29-0.35
N	Wrought Aluminium Alloys(Si<12%)	150-120-60	0.26-0.32-0.38	0.28-0.32-0.40	0.30-0.36-0.42	0.32-0.38-0.44
	Cast luminium Alloys(Si<12%)	150-120-60	0.22-0.28-0.34	0.24-0.30-0.36	0.26-0.32-0.38	0.30-0.36-0.42
	Cast Aluminium Alloys(Si>12%)	150-120-60	0.18-0.24-0.30	0.20-0.26-0.30	0.22-0.28-0.32	0.26-0.32-0.40
	Copper,Copper Alloys (< 200HB)	150-120-60	0.18-0.24-0.30	0.20-0.26-0.30	0.22-0.28-0.32	0.26-0.32-0.40

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D918 Twist Drills for General Purpose

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low-carbon Steels,Long Chipping (< 125HB)	100-80-50	140-100-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	100-75-50	140-100-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	90-70-45	120-80-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Steels , Tool Steels. (< 35HRC)	90-70-45	110-80-50	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Alloy Steels , Tool Steels. (35-48HRC)	80-60-40	90-60-40	0.09-0.12-0.14	0.10-0.14-0.17	0.13-0.17-0.22	0.17-0.23-0.29	0.21-0.28-0.35
	PH and Ferrite/ Martensitic Steels(< 35HRC)	70-50-30	80-50-30	0.09-0.12-0.14	0.10-0.14-0.17	0.13-0.17-0.22	0.17-0.23-0.29	0.21-0.28-0.35
M	Austenitic Stainless Steels (130- 200HB)	-	50-40-20	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.12-0.14	0.08-0.13-0.18	0.09-0.15-0.20
	High-Strength Austenitic Stainless Steels and Cast Stainless Steels (< 25HRC)	-	55-40-30	0.03-0.06-0.08	0.04-0.08-0.10	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.11-0.14
	Duplex Stainless Steels (<30HRC)	-	55-40-20	0.03-0.06-0.08	0.04-0.08-0.10	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.11-0.14
K	Grey Cast Iron (< 32HRC)	100-80-60	140-120-60	0.13-0.17-0.21	0.15-0.20-0.26	0.17-0.26-0.32	0.20-0.32-0.40	0.25-0.36-0.42
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	100-80-60	140-120-60	0.11-0.15-0.18	0.13-0.18-0.22	0.15-0.23-0.27	0.17-0.26-0.38	0.22-0.28-0.38
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	90-70-60	100-90-60	0.06-0.09-0.11	0.08-0.10-0.13	0.10-0.13-0.16	0.13-0.17-0.21	0.15-0.20-0.26
N	Wrought Aluminium Alloys(Si<12%)	-	315-230-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38
	Cast Aluminium Alloys(Si>12%)	-	315-230-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38
	Copper,Copper Alloys (< 200HB)	-	270-180-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38
	Copper , Copper Alloys (< 200HB)	-	180-135-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D918 Twist Drills for General Purpose

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low-carbon Steels,Long Chipping (< 125HB)	100-80-50	140-100-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	100-75-50	140-100-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	90-70-45	120-80-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Steels , Tool Steels. (< 35HRC)	90-70-45	110-80-50	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Alloy Steels , Tool Steels. (35-48HRC)	80-60-40	90-60-40	0.22-0.30-0.37	0.26-0.35-0.41	0.28-0.37-0.44	0.31-0.38-0.46	0.31-0.39-0.47
	PH and Ferrite/ Martensitic Steels(< 35HRC)	70-50-30	80-50-30	0.22-0.30-0.37	0.26-0.35-0.41	0.28-0.37-0.44	0.31-0.38-0.46	0.31-0.39-0.47
M	Austenitic Stainless Steels (130- 200HB)	-	50-40-20	0.10-0.17-0.22	0.11-0.18-0.24	0.12-0.20-0.24	0.13-0.22-0.26	0.14-0.24-0.28
	High-Strength Austenitic Stainless Steels and Cast Stainless Steels (< 25HRC)	-	55-40-30	0.08-0.13-0.16	0.09-0.13-0.18	0.10-0.14-0.18	0.10-0.14-0.20	0.12-0.16-0.22
	Duplex Stainless Steels (<30HRC)	-	55-40-20	0.08-0.13-0.16	0.09-0.13-0.18	0.10-0.14-0.18	0.10-0.14-0.20	0.12-0.16-0.22
K	Grey Cast Iron (< 32HRC)	100-80-60	140-120-60	0.26-0.38-0.46	0.28-0.40-0.50	0.30-0.42-0.52	0.32-0.44-0.54	0.36-0.48-0.56
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	100-80-60	140-120-60	0.22-0.34-0.42	0.24-0.35-0.44	0.26-0.40-0.48	0.30-0.40-0.46	0.34-0.43-0.50
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	90-70-60	100-90-60	0.17-0.22-0.28	0.19-0.26-0.31	0.20-0.27-0.33	0.23-0.28-0.34	0.23-0.29-0.35
N	Wrought Aluminium Alloys(Si<12%)	-	315-230-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48
	Cast luminium Alloys(Si<12%)	-	315-230-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48
	Cast Aluminium Alloys(Si>12%)	-	270-180-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48
	Copper,Copper Alloys (< 200HB)	-	180-135-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D938 3D/5D Twist Drills for Steel

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low-carbon Steels,Long Chipping (< 125HB)	120-80-50	140-100-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.32	0.16-0.22-0.35
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	120-75-50	140-100-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.32	0.16-0.22-0.35
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	120-70-45	120-80-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.30	0.16-0.22-0.32
	Steels , Tool Steels. (< 35HRC)	100-70-45	110-80-60	0.09-0.13-0.16	0.09-0.13-0.16	0.12-0.17-0.23	0.14-0.20-0.28	0.14-0.20-0.30
	Alloy Steels , Tool Steels. (35-48HRC)	80-60-35	90-60-35	0.08-0.11-0.14	0.08-0.11-0.14	0.08-0.14-0.20	0.09-0.16-0.25	0.09-0.16-0.28
	PH and Ferrite/ Martensitic Steels(< 35HRC)	70-50-30	90-60-30	0.05-0.08-0.11	0.05-0.08-0.11	0.07-0.12-0.17	0.08-0.14-0.20	0.08-0.14-0.23
	PH and Ferrite/ Martensitic Steels(35-48HRC)	70-45-25	80-50-30	0.04-0.06-0.08	0.04-0.06-0.08	0.06-0.10-0.14	0.08-0.13-0.18	0.08-0.13-0.20
K	Grey Cast Iron (< 32HRC)	140-100-60	160-120-60	0.13-0.17-0.20	0.15-0.20-0.23	0.17-0.25-0.30	0.20-0.27-0.35	0.23-0.30-0.40
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	120-80-60	140-100-60	0.11-0.15-0.18	0.13-0.17-0.20	0.15-0.20-0.25	0.17-0.25-0.32	0.20-0.28-0.36
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	100-70-50	100-80-50	0.06-0.09-0.11	0.08-0.10-0.13	0.10-0.13-0.16	0.12-0.16-0.20	0.14-0.20-0.26

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D938 3D/5D Twist Drills for Steel

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low-carbon Steels,Long Chipping (< 125HB)	120-80-50	140-100-60	0.18-0.28-0.40	0.22-0.32-0.45	0.22-0.32-0.45	0.25-0.38-0.50	0.25-0.38-0.50
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	120-75-50	140-100-60	0.18-0.28-0.40	0.22-0.32-0.45	0.22-0.32-0.45	0.25-0.38-0.50	0.25-0.38-0.50
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	120-70-45	120-80-60	0.18-0.28-0.38	0.22-0.32-0.45	0.22-0.32-0.45	0.25-0.38-0.50	0.25-0.38-0.50
	Steels , Tool Steels. (< 35HRC)	100-70-45	110-80-60	0.15-0.23-0.34	0.18-0.25-0.38	0.18-0.25-0.38	0.20-0.30-0.40	0.20-0.30-0.40
	Alloy Steels , Tool Steels. (35-48HRC)	80-60-35	90-60-35	0.11-0.19-0.30	0.12-0.22-0.32	0.12-0.22-0.32	0.14-0.24-0.34	0.14-0.24-0.34
	PH and Ferrite/ Martensitic Steels(< 35HRC)	70-50-30	90-60-30	0.10-0.18-0.28	0.12-0.20-0.30	0.12-0.20-0.30	0.14-0.24-0.32	0.14-0.24-0.32
	PH and Ferrite/ Martensitic Steels(35-48HRC)	70-45-25	80-50-30	0.10-0.18-0.28	0.12-0.20-0.30	0.12-0.20-0.30	0.14-0.24-0.32	0.14-0.24-0.32
K	Grey Cast Iron (< 32HRC)	140-100-60	160-120-60	0.25-0.33-0.45	0.28-0.36-0.48	0.30-0.40-0.50	0.32-0.42-0.52	0.35-0.45-0.55
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	120-80-60	140-100-60	0.22-0.30-0.42	0.24-0.33-0.45	0.25-0.35-0.48	0.28-0.38-0.48	0.30-0.40-0.50
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	100-70-50	100-80-50	0.16-0.22-0.28	0.18-0.24-0.30	0.20-0.26-0.32	0.22-0.28-0.34	0.23-0.28-0.35

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D938 8D Twist Drills for Steel

Workpiece			fn (mm/rev)			
			Φ3	Φ4	Φ6	Φ8
P	Low-carbon Steels,Long Chipping (< 125HB)	140-100-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.32
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	140-100-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.32
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	120-80-60	0.10-0.15-0.20	0.10-0.15-0.20	0.14-0.19-0.25	0.16-0.22-0.30
	Steels , Tool Steels.(< 35HRC)	110-80-60	0.09-0.13-0.16	0.09-0.13-0.16	0.12-0.17-0.23	0.14-0.20-0.28
	Alloy Steels , Tool Steels. (35-48HRC)	90-60-35	0.08-0.11-0.14	0.08-0.11-0.14	0.08-0.14-0.20	0.09-0.16-0.25
	PH and Ferrite/Martensitic Steels(< 35HRC)	90-60-30	0.05-0.08-0.11	0.05-0.08-0.11	0.07-0.12-0.17	0.08-0.14-0.20
	PH and Ferrite/Martensitic Steels(35-48HRC)	80-50-30	0.04-0.06-0.08	0.04-0.06-0.08	0.06-0.10-0.14	0.08-0.13-0.18
M	Austenitic Stainless Steels (130- 200HB)	60-50-40	0.04-0.08-0.10	0.04-0.08-0.10	0.06-0.10-0.12	0.06-0.10-0.12
	High-Strength Austenitic Stainless Steels and Cast Stainless Steels (< 25HRC)	60-50-40	0.04-0.06-0.08	0.04-0.06-0.08	0.06-0.08-0.10	0.06-0.08-0.10
	Duplex Stainless Steels (<30HRC)	50-40-30	0.04-0.06-0.08	0.04-0.06-0.08	0.06-0.08-0.10	0.06-0.08-0.10
K	Grey Cast Iron (< 32HRC)	160-120-60	0.13-0.17-0.20	0.15-0.20-0.23	0.17-0.25-0.30	0.20-0.27-0.35
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	140-100-60	0.11-0.15-0.18	0.13-0.17-0.20	0.15-0.20-0.25	0.17-0.25-0.32
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	100-80-50	0.06-0.09-0.11	0.08-0.10-0.13	0.10-0.13-0.16	0.12-0.16-0.20

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D938 8D Twist Drills for Steel

Workpiece			fn (mm/rev)			
			Φ10	Φ12	Φ14	Φ16
P	Low-carbon Steels,Long Chipping (< 125HB)	140-100-60	0.16-0.22-0.35	0.18-0.28-0.40	0.22-0.32-0.45	0.22-0.32-0.45
	Low-carbon Steels , Short Chipping , Free-cutting Steels(< 125HB)	140-100-60	0.16-0.22-0.35	0.18-0.28-0.40	0.22-0.32-0.45	0.22-0.32-0.45
	High-carbon Steels, Mediumcarbon Steels(< 25HRC)	120-80-60	0.16-0.22-0.32	0.18-0.28-0.38	0.22-0.32-0.45	0.22-0.32-0.45
	Steels , Tool Steels.(< 35HRC)	110-80-60	0.14-0.20-0.30	0.15-0.23-0.34	0.18-0.25-0.38	0.18-0.25-0.38
	Alloy Steels , Tool Steels. (35-48HRC)	90-60-35	0.09-0.16-0.28	0.11-0.19-0.30	0.12-0.22-0.32	0.12-0.22-0.32
	PH and Ferrite/Martensitic Steels(< 35HRC)	90-60-30	0.08-0.14-0.23	0.10-0.18-0.28	0.12-0.20-0.30	0.12-0.20-0.30
	PH and Ferrite/Martensitic Steels(35-48HRC)	80-50-30	0.08-0.13-0.20	0.10-0.18-0.28	0.12-0.20-0.30	0.12-0.20-0.30
M	Austenitic Stainless Steels (130- 200HB)	60-50-40	0.08-0.12-0.16	0.08-0.12-0.16	0.10-0.14-0.18	0.10-0.14-0.18
	High-Strength Austenitic Stainless Steels and Cast Stainless Steels (< 25HRC)	60-50-40	0.08-0.10-0.12	0.08-0.10-0.12	0.10-0.12-0.14	0.10-0.12-0.14
	Duplex Stainless Steels (<30HRC)	50-40-30	0.08-0.10-0.12	0.08-0.10-0.12	0.10-0.12-0.14	0.10-0.12-0.14
K	Grey Cast Iron (< 32HRC)	160-120-60	0.23-0.30-0.40	0.25-0.33-0.45	0.28-0.36-0.48	0.30-0.40-0.50
	Moderately Difficult Alloy Castiron , Nodular Cast Iron(< 28HRC)	140-100-60	0.20-0.28-0.36	0.22-0.30-0.42	0.24-0.33-0.45	0.25-0.35-0.48
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	100-80-50	0.14-0.20-0.26	0.16-0.22-0.28	0.18-0.24-0.30	0.20-0.26-0.32

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D968/D968S Twist Drills for Stainless Steel

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low-carbon Steels,Long Chipping (< 125HB)	100-80-50	140-100-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Low-carbon Steels , Short Chipping , Free-cutting Steels (< 125HB)	100-75-50	140-100-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	High-carbon Steels, Medium-carbon Steels (< 25HRC)	90-70-45	120-80-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Alloy Steels , Tool Steels. (< 35HRC)	90-70-45	110-80-50	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
M	Austenitic Stainless Steels (130- 200HB)	40-30-20	80-60-40	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.12-0.14	0.08-0.13-0.18	0.09-0.15-0.20
	High-Strength Austenitic Stainless Steels and Cast Stainless Steels (< 25HRC)	40-30-20	80-60-40	0.03-0.06-0.08	0.04-0.08-0.10	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.11-0.14
	Duplex Stainless Steels (<30HRC)	35-25-20	60-45-30	0.03-0.06-0.08	0.04-0.08-0.10	0.05-0.08-0.10	0.06-0.10-0.12	0.07-0.11-0.14
S	Iron-based Heat-resistant Alloys(160-260HB)	-	50-40-25	0.03-0.05-0.08	0.04-0.07-0.10	0.05-0.09-0.10	0.06-0.10-0.12	0.07-0.12-0.14
	(250-450HB) Cobalt-based Heat-resistant AlloysCobalt-based Heat-resistant Alloys	-	50-40-25	0.03-0.05-0.08	0.04-0.07-0.10	0.05-0.09-0.10	0.06-0.10-0.12	0.07-0.12-0.14
	Nickel-based Heat-resistant Alloys(160-450HB)	-	50-40-25	0.03-0.05-0.07	0.04-0.07-0.09	0.05-0.09-0.10	0.06-0.10-0.12	0.07-0.12-0.14
	Titanium and Titanium Alloys (300-400HB)	-	45-35-20	0.03-0.04-0.06	0.04-0.06-0.08	0.05-0.08-0.10	0.06-0.09-0.11	0.07-0.10-0.12

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D968/D968S Twist Drills for Stainless Steel

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low-carbon Steels,Long Chipping (< 125HB)	100-80-50	140-100-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Low-carbon Steels , Short Chipping , Free-cutting Steels (< 125HB)	100-75-50	140-100-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	High-carbon Steels, Medium-carbon Steels (< 25HRC)	90-70-45	120-80-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Alloy Steels , Tool Steels. (< 35HRC)	90-70-45	110-80-50	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
M	Austenitic Stainless Steels (130- 200HB)	40-30-20	80-60-40	0.10-0.17-0.22	0.11-0.18-0.24	0.12-0.20-0.24	0.13-0.22-0.26	0.14-0.24-0.28
	High-Strength Austenitic Stainless Steels and Cast Stainless Steels (< 25HRC)	40-30-20	80-60-40	0.08-0.13-0.16	0.09-0.13-0.18	0.10-0.14-0.18	0.10-0.14-0.20	0.12-0.16-0.22
	Duplex Stainless Steels (<30HRC)	35-25-20	60-45-30	0.08-0.13-0.16	0.09-0.13-0.18	0.10-0.14-0.18	0.10-0.14-0.20	0.12-0.16-0.22
S	Iron-based Heat-resistant Alloys(160-260HB)	-	50-40-25	0.08-0.14-0.16	0.09-0.15-0.18	0.10-0.17-0.18	0.10-0.16-0.20	0.12-0.18-0.22
	(250-450HB) Cobalt-based Heat-resistant AlloysCobalt-based Heat-resistant Alloys	-	50-40-25	0.08-0.14-0.16	0.09-0.15-0.18	0.10-0.17-0.18	0.10-0.16-0.20	0.12-0.18-0.22
	Nickel-based Heat-resistant Alloys(160-450HB)	-	50-40-25	0.08-0.14-0.16	0.09-0.15-0.18	0.10-0.17-0.18	0.10-0.16-0.20	0.12-0.18-0.22
	Titanium and Titanium Alloys (300-400HB)	-	45-35-20	0.08-0.12-0.14	0.09-0.13-0.16	0.10-0.14-0.16	0.10-0.15-0.18	0.12-0.16-0.20

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D928 Twist Drills for Cast Iron

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low-carbon Steels,Long Chipping (< 125HB)	100-80-50	140-100-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Low-carbon Steels , Short Chipping , Free-cutting Steels (< 125HB)	100-75-50	140-100-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	High-carbon Steels, Medium-carbon Steels (< 25HRC)	90-70-45	100-80-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
	Alloy Steels , Tool Steels. (< 35HRC)	90-70-45	100-80-60	0.09-0.13-0.16	0.11-0.15-0.19	0.14-0.19-0.23	0.19-0.25-0.31	0.23-0.30-0.38
K	Grey Cast Iron (< 32HRC)	100-80-60	160-140-60	0.13-0.17-0.21	0.15-0.20-0.26	0.17-0.26-0.32	0.20-0.32-0.40	0.25-0.36-0.42
	Moderately Difficult Alloy Castiron , Nodular Cast Iron (< 28HRC)	100-80-60	140-120-60	0.11-0.15-0.18	0.13-0.18-0.22	0.15-0.23-0.27	0.17-0.26-0.38	0.22-0.28-0.38
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	90-70-60	100-90-60	0.06-0.09-0.11	0.08-0.10-0.13	0.10-0.13-0.16	0.13-0.17-0.21	0.15-0.20-0.26
N	Wrought Aluminium Alloys (Si<12%)	-	315-230-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38
	Cast luminium Alloys (Si<12%)	-	315-230-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38
	Cast Aluminium Alloys (Si>12%)	-	270-180-90	0.06-0.09-0.11	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D928 Twist Drills for Cast Iron

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low-carbon Steels,Long Chipping (< 125HB)	100-80-50	140-100-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Low-carbon Steels , Short Chipping , Free-cutting Steels (< 125HB)	100-75-50	140-100-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	High-carbon Steels, Medium-carbon Steels (< 25HRC)	90-70-45	100-80-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
	Alloy Steels , Tool Steels. (< 35HRC)	90-70-45	100-80-60	0.24-0.33-0.41	0.28-0.38-0.45	0.30-0.42-0.50	0.33-0.42-0.50	0.34-0.43-0.51
K	Grey Cast Iron (< 32HRC)	100-80-60	160-140-60	0.26-0.38-0.46	0.28-0.40-0.50	0.30-0.42-0.52	0.32-0.44-0.54	0.36-0.48-0.56
	Moderately Difficult Alloy Castiron , Nodular Cast Iron (< 28HRC)	100-80-60	140-120-60	0.22-0.34-0.42	0.24-0.35-0.44	0.26-0.40-0.48	0.30-0.40-0.46	0.34-0.43-0.50
	Difficult High-alloy Cast Iron , Nodular Cast Iron(< 45HRC)	90-70-60	100-90-60	0.17-0.22-0.28	0.19-0.26-0.31	0.20-0.27-0.33	0.23-0.28-0.34	0.23-0.29-0.35
N	Wrought Aluminium Alloys (Si<12%)	-	315-230-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48
	Cast luminium Alloys (Si<12%)	-	315-230-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48
	Cast Aluminium Alloys (Si>12%)	-	270-180-90	0.22-0.34-0.42	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D998 Twist Drills for Hardened Steel

Workpiece		Vc (m/min)	fn (mm/rev)				
			Φ3	Φ4	Φ6	Φ8	Φ10
H	Hardened Steels Hardened Steels(45-55HRC)	40-30-20	0.04-0.06-0.08	0.05-0.08-0.10	0.06-0.10-0.13	0.08-0.12-0.15	0.09-0.14-0.16
	Hardened Steels Hardened Steels(55-60HRC)	30-20-15	0.03-0.05-0.07	0.03-0.06-0.08	0.04-0.08-0.12	0.06-0.10-0.13	0.08-0.12-0.15

Workpiece		Vc (m/min)	fn (mm/rev)				
			Φ12	Φ14	Φ16	-	-
H	Hardened Steels Hardened Steels(45-55HRC)	40-30-20	0.10-0.15-0.17	0.10-0.16-0.20	0.10-0.16-0.20	-	-
	Hardened Steels Hardened Steels(55-60HRC)	30-20-15	0.09-0.13-0.16	0.10-0.14-0.17	0.10-0.14-0.17	-	-

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D713 Straight Flute Drills for Cast Iron

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ4	Φ6	Φ8	Φ10	Φ12
K	Grey Cast Iron (< 32HRC)	100-80-60	140-110-60	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38	0.22-0.34-0.42
	Moderately Difficult Alloy Cast iron , Nodular Cast Iron (< 28HRC)	100-80-60	120-100-60	0.13-0.18-0.22	0.15-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.22-0.30-0.38
	Difficult High-alloy Cast Iron , Nodular Cast Iron (< 45HRC)	90-70-60	100-90-60	0.08-0.10-0.13	0.10-0.13-0.16	0.13-0.17-0.21	0.15-0.20-0.26	0.17-0.22-0.28
N	Cast Aluminium Alloys(Si>12%)	100-80-60	140-110-60	0.13-0.20-0.26	0.16-0.22-0.28	0.18-0.26-0.32	0.20-0.30-0.38	0.22-0.34-0.42

Workpiece		Vc (m/min)		fn (mm/rev)				
				Φ14	Φ16	Φ18	Φ20	-
K	Grey Cast Iron (< 32HRC)	100-80-60	140-110-60	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48	-
	Moderately Difficult Alloy Cast iron , Nodular Cast Iron(< 28HRC)	100-80-60	120-100-60	0.24-0.32-0.40	0.26-0.32-0.40	0.28-0.36-0.42	0.30-0.38-0.46	-
	Difficult High-alloy Cast Iron , Nodular Cast Iron (< 45HRC)	90-70-60	100-90-60	0.19-0.26-0.31	0.20-0.27-0.33	0.23-0.28-0.34	0.23-0.29-0.35	-
N	Cast Aluminium Alloys(Si>12%)	100-80-60	140-110-60	0.24-0.36-0.44	0.28-0.38-0.46	0.32-0.40-0.48	0.34-0.42-0.48	-

1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The Recommended Cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, Please refer to the table closest to the blade diameter size selection of cutting parameters, adjust to cut parameters according to actual working conditions during processing.

Recommended Cutting Data

D612 Triple-angle Drill for Composite Material

Application	Workpiece		Vc	fn
			m/min	mm/rev
Drilling	N	CFRP、GFRP	60	0.08

1.Please use the pneumatic tools with better rigidity, drill set and ensure processing stability
2.When using the small size cutting tool, reduce the tool feed 20%-30%

R733-C Reamer for Composite Material

Application	Workpiece		Vc	fn
			m/min	mm/rev
Drilling	N	CFRP、GFRP	60	0.08

1.Please use the pneumatic tools with better rigidity, drill set and ensure processing stability
2.When using the small size cutting tool, reduce the tool feed 20%-30%

D973 Twist Drills for Composite and Metal

Application	Workpiece		Vc	fn
			m/min	mm/rev
Drilling	N	CFRP+Aluminium Alloys	60	0.08
	N S	CFRP+Titanium alloy	20	0.05
	N	Aluminium Alloys	60	0.08
	S	Titanium alloy	15	0.05
	M	Stainless Steel	15	0.05

1.Please use the pneumatic tools with better rigidity, drill set and ensure processing stability
2.When using the small size cutting tool, reduce the tool feed 20%-30%

Recommended Cutting Data

D573 Core Drills for Composite and Metal

Application	Workpiece		Vc	fn
			m/min	mm/rev
Drilling	N	CFRP	60	0.08
	N	CFRP+ Aluminium Alloys	60	0.08
	N S	CFRP+Titanium alloy	20	0.05
	N	Aluminium Alloys	60	0.08
	S	Titanium alloy	15	0.05
	M	Stainless Steel	15	0.05

1.Please use the pneumatic tools with better rigidity, drill set and ensure processing stability
2.When using the small size cutting tool, reduce the tool feed 20%-30%

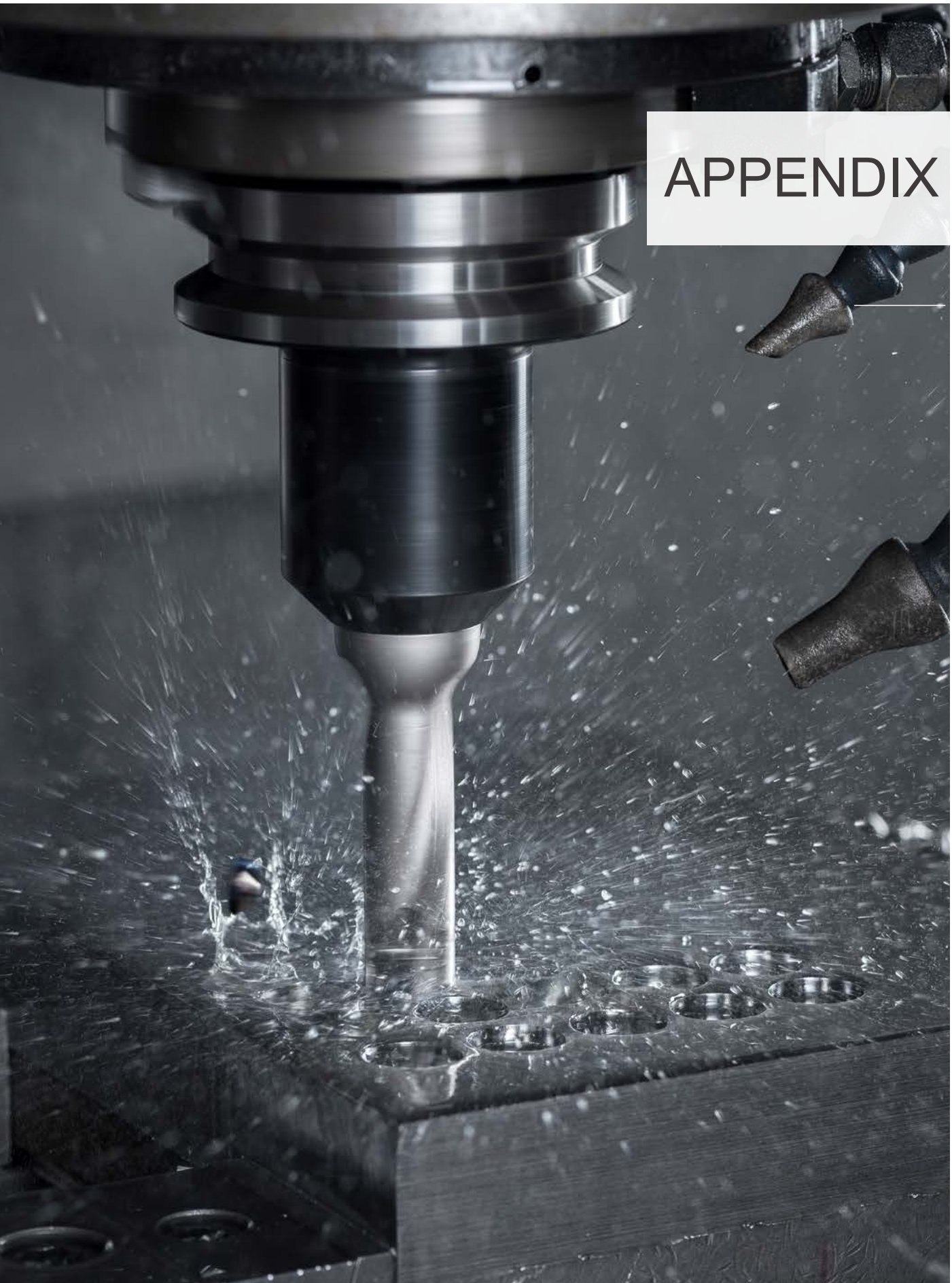
R733-CM Reamer for Composite and Metal

Application	Workpiece		Vc	fn
			m/min	mm/rev
Drilling	N	CFRP	60	0.08
	N	CFRP+ Aluminium Alloys	60	0.08
	N S	CFRP+Titanium alloy	20	0.05
	N	Aluminium Alloys	60	0.08
	S	Titanium alloy	15	0.05
	M	Stainless Steel	15	0.05

1.Please use the pneumatic tools with better rigidity, drill set and ensure processing stability
2.When using the small size cutting tool, reduce the tool feed 20%-30%

D

APPENDIX



Workpiece Material Table

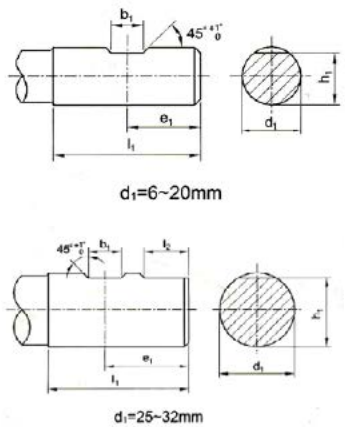
ISO Material Group	MC	Workpiece Material	Content	Tensile Strength N/mm2	Brinell Hardness HB	Rockwell Hardness HRC
P Steels	P1	Low-carbon Steels，Long Chipping	C<0.25%	<530	<125	
	P2	Low-carbon Steels，Short Chipping，Free-cutting Steels	C<0.25%	<530	<125	
	P3	High-carbon Steels, Medium-carbon Steels	C>0.25%	>530	<220	<25
	P4	Alloy Steels，Tool Steels.	C>0.25%	600-850	<330	<35
	P5	Alloy Steels，Tool Steels.	C>0.25%	850-1400	340-450	35-48
	P6	Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels	C=(0-0.4)%	600-900	<330	<35
	P7	High-strength Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels.	C=(0.1-0.6)%	900-1350	330-450	35-48
M Stainless Steels	M1	Austenitic Stainless Steels	C=(0.05-0.15)%	<600	130-200	
	M2	High-Strength Austenitic Stainless Steels and Cast Stainless Steels	C=(0.05-0.15)%	600-800	150-230	<25
	M3	Duplex Stainless Steels	C=(0.05-0.20)%	<800	135-275	<30
K Cast Iron	K1	Grey Cast Iron		125-500	120-290	＜32
	K2	Moderately Difficult Alloy Cast iron，Nodular Cast Iron.		<600	130-260	＜28
	K3	Difficult High-alloy Cast Iron，Nodular Cast Iron		>600	180-350	＜43
N Non-ferrous Materials	N1	Wrought Aluminium Alloys		<520	60-90	
	N2	Cast Aluminium Alloys	Si<12%	<350	70-100	
	N3	Cast Aluminium Alloys	Si>12%	200-320	60-120	
	N4	Copper，Copper Alloys		200-650	60-200	
	N5	Graphite，CFK，CFRP Graphite，Composite Materials		600-1500		
	N6	GFK，CFK Aluminium-based Composite Materials (MMCs)		<700	<210	
S Heat-resistant SuperAlloys、Titanium Alloys	S1	Iron-based Heat-resistant Alloys		500-1200	160-260	25-48
	S2	Cobalt-based Heat-resistant Alloys		1000-1450	250-450	25-48
	S3	Nickel-based Heat-resistant Alloys		600-1700	160-450	<48
	S4	Titanium and Titanium Alloys		900-1600	300-400	33-48
H Hardened Materials	H1	Hardened Steels				45-55
	H2	Hardened Steels				55-60
	H3	Hardened Steels				60-65
	H4	Hardened Steels				>65

The Structure of Shank-DIN Standard

DIN 6535-HA

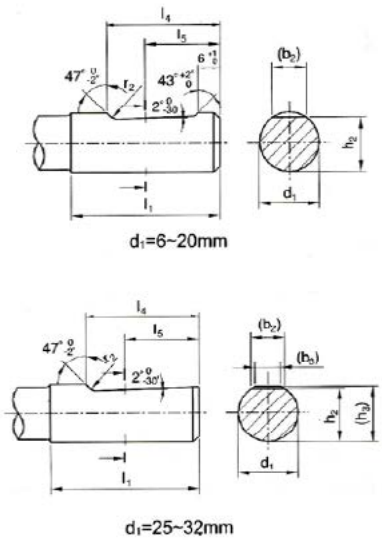
d_1h_6	2	3	4	5	6	8	10	12	14	16	18	20	25	32
l_1 +2 0	28				36		40	45		48		50	56	60

DIN 6535-HB



d_1 h_6	b_1 +0.05 0	e_1 0 -1	h_1 h_{11}	l_1 +2 0	l_2 +1 0
6.0	4.2	18.0	5.1	36.0	
8.0	5.5		6.9		
10	7.0	20.0	8.5	40.0	
12	8.0	22.5	10.4	45.0	
14			12.7		
16	10.0	24.0	14.2	48.0	
18			16.2		
20	11.0	25.0	18.2	50.0	
25	12.0	32.0	23.0	56.0	17.0
32	14.0	36.0	30.0	60.0	19.0

DIN 6535-HE



d_1	(b_2)	(b_3)	(h_2)	(h_3)	l_1	l_4	l_5	r_2
6.0	4.3		5.1		36.0	25.0	18.0	
8.0	5.5		6.9					
10	7.1		8.5		40.0	28.0	20.0	1.2
12	8.2		10.4		45.0	33.0	22.5	
14	8.1		12.7					
16	10.1		14.2		48.0	36.0	24.0	
18	10.8		16.2					
20	11.4		18.2		50.0	38.0	25.0	1.6
25	13.6	9.3	23.0	24.1	56.0	44.0	32.0	
32	15.5	9.9	30.0	31.2	60.0	48.0	35.0	

Cutting Calculations and Definitions

Parameter and Unit			
D Diameter	(mm)	Fn Feed per Revolution (mm/rev)	
ap Cutting Depth	(mm)	fz Feeding per Teeth (mm/tooth)	
ae Cutting Width	(mm)	Z Number of Teeth	
Vf Feed Rate	(mm/min)	n Spindle Speed (rev/min)	
Vc Cutting Speed	(m/min)	L Length (mm)	
Q Rate of Metal Removal	(cm^3/min)	Tc Processing Time (min)	

General Formula	
n Spindle Speed	$n = \frac{Vc * 1000}{\pi * D}$ (rev/min)
Vc Cutting Speed	$Vc = \frac{\pi * D * n}{1000}$ (m/min)
Vf Feed Rate	$V_f = f_z * z * n$ (mm/min)
fz Feed per Teeth	$f_z = \frac{V_f}{z * n}$ (mm)
Q Rate of Metal Removal	$Q = \frac{ae * ap * V_f}{1000}$ (cm^3/min)
Tc Processing Time	$T_c = \frac{L}{V_f}$ (min)

Comparison Table for Tensile Strength , Brinell Hardness and Rockwell Hardness

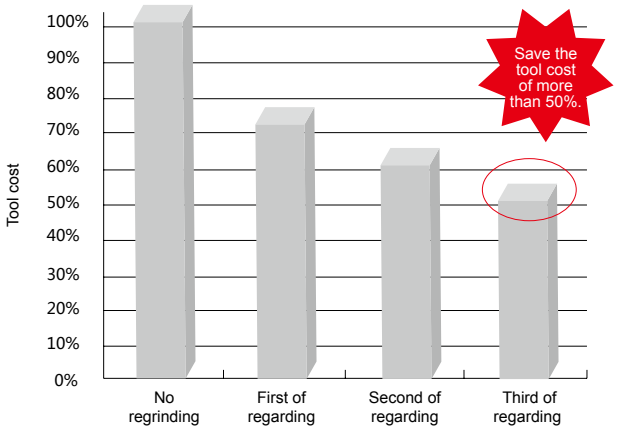
N/mm2	HV10	HB	HRC
240	75	71	
255	80	76	
270	85	81	
285	90	86	
305	95	90	
320	100	95	
335	105	100	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	157	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	
785	245	233	
800	250	238	22
820	255	242	23
835	260	247	24
860	268	255	25
870	272	258	26
900	280	266	27

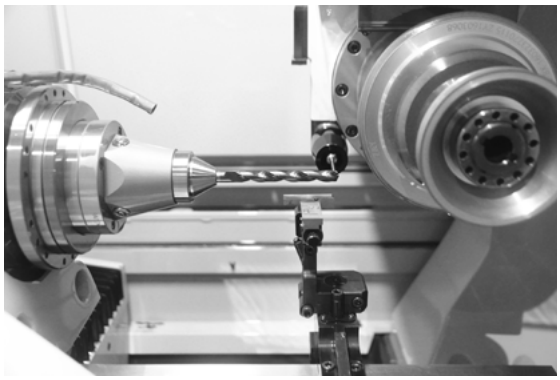
N/mm2	HV10	HB	HRC
920	287	273	28
940	293	278	29
970	302	287	30
995	310	295	31
1020	317	301	32
1050	327	311	33
1080	336	319	34
1110	345	328	35
1140	355	337	36
1170	364	346	37
1200	373	354	38
1230	382	363	39
1260	392	372	40
1260	403	383	41
1330	413	393	42
1360	423	402	43
1400	434	413	44
1440	446	424	45
1480	458	435	46
1530	473	449	47
1570	484	460	48
1620	497	472	49
1680	514	488	50
1730	527	501	51
1790	544	517	52
1845	560	632	53
1910	578	549	54
1980	596	567	55
2050	615	584	56
2140	639	607	57
	655	622	58
	675		59
	698		60
	720		61
	745		62
	773		63
	800		64
	829		65
	864		66
	900		67
	940		68

Service of Tool Regrinding

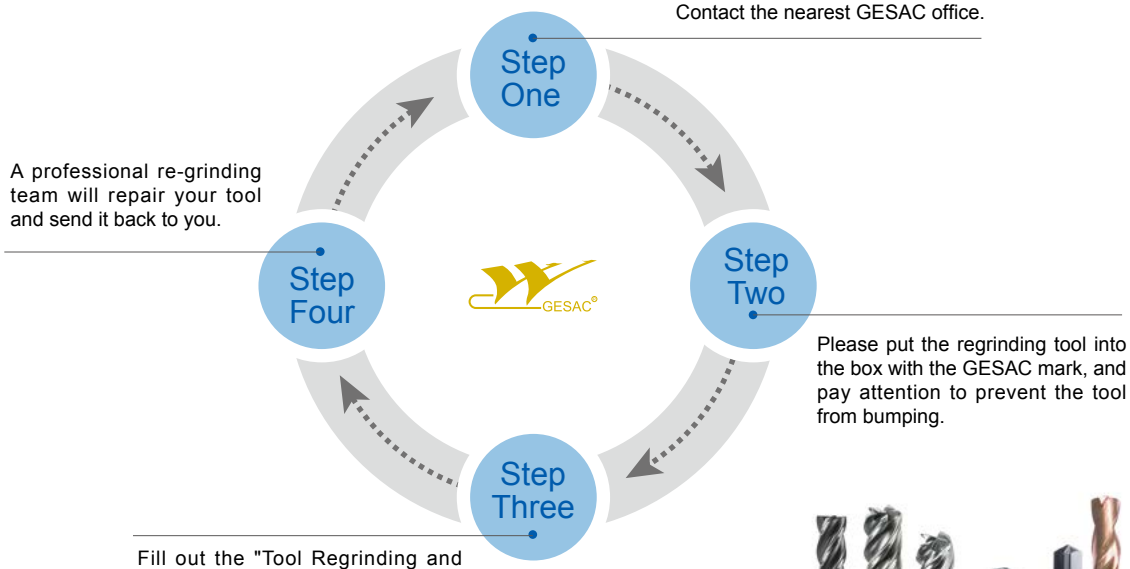
Through the system of grinding process and strict process quality control,Xiamen GESAC will let your wear tool to recover full new state. One more time to regrinding, to extend the tool life.Practical data show,reasonable tool grinding can save more than 50% of the total investment cost of tool.

Regrinding process can not only helps you save investment, reduce inventory, but also effectively avoid the waste of materials, saving resources and protecting the environment.
Xiamen GESAC cutter grinding service will help you achieve the dream of processing.
You only need to contact the nearest Xiamen GESAC agents to make your tool to restore as new!





► Please follow these steps



► GESAC provides regrinding services for a wide range of tool products, including

- Solid carbide drill
- Solid carbide endmill
- Solid carbide step drill

XTC

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