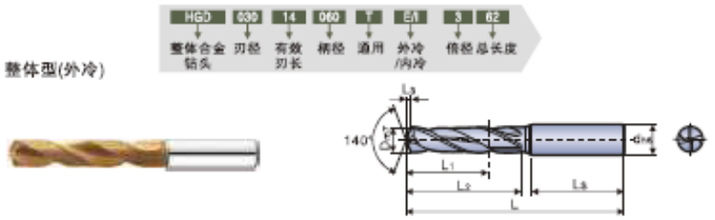
钻头(3 x D)



编号	外冷3倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	L4	OP130M
BZ310WF0300	HGD030-14-040-TE3-62	3.0	4.0	62	14	20	0.5	34	●
BZ310WF0310	HGD031-14-040-TE3-62	3.1	4.0	62	14	20	0.5	34	●
BZ310WF0320	HGD032-14-040-TE3-62	3.2	4.0	62	14	20	0.5	34	●
BZ310WF0330	HGD033-14-040-TE3-62	3.3	4.0	62	14	20	0.5	34	●
BZ310WF0340	HGD034-14-040-TE3-62	3.4	4.0	62	14	20	0.5	34	●
BZ310WF0350	HGD035-14-040-TE3-62	3.5	4.0	62	14	20	0.6	34	●
BZ310WF0360	HGD036-14-040-TE3-62	3.6	4.0	62	14	20	0.6	34	●
BZ310WF0370	HGD037-14-040-TE3-62	3.7	4.0	62	14	20	0.6	34	●
BZ310WF0380	HGD038-17-040-TE3-66	3.8	4.0	66	17	24	0.6	35	●
BZ310WF0390	HGD039-17-040-TE3-66	3.9	4.0	66	17	24	0.6	35	●
BZ310WF0400	HGD040-17-040-TE3-66	4.0	4.0	66	17	24	0.6	35	●
BZ310WF0410	HGD041-17-060-TE3-66	4.1	6.0	66	17	24	0.7	35	●
BZ310WF0420	HGD042-17-060-TE3-66	4.2	6.0	66	17	24	0.7	35	●
BZ310WF0430	HGD043-17-060-TE3-66	4.3	6.0	66	17	24	0.7	35	●
BZ310WF0440	HGD044-17-060-TE3-66	4.4	6.0	66	17	24	0.7	35	●
BZ310WF0450	HGD045-17-060-TE3-66	4.5	6.0	66	17	24	0.7	35	●
BZ310WF0460	HGD046-17-060-TE3-66	4.6	6.0	66	17	24	0.7	35	●
BZ310WF0470	HGD047-17-060-TE3-66	4.7	6.0	66	17	24	0.8	35	●
BZ310WF0480	HGD048-20-060-TE3-66	4.8	6.0	66	20	28	0.8	36	●
BZ310WF0490	HGD049-20-060-TE3-66	4.9	6.0	66	20	28	0.8	36	●
BZ310WF0500	HGD050-20-060-TE3-66	5.0	6.0	66	20	28	0.8	36	●
BZ310WF0505	HGD0505-20-060-TE3-66	5.05	6.0	66	20	28	0.8	36	●
BZ310WF0510	HGD051-20-060-TE3-66	5.1	6.0	66	20	28	0.8	36	●
BZ310WF0520	HGD052-20-060-TE3-66	5.2	6.0	66	20	28	0.8	36	●
BZ310WF0530	HGD053-20-060-TE3-66	5.3	6.0	66	20	28	0.8	36	●
BZ310WF0540	HGD054-20-060-TE3-66	5.4	6.0	66	20	28	0.8	36	●
BZ310WF0550	HGD055-20-040-TE3-66	5.5	6.0	66	20	28	0.9	36	●
BZ310WF0560	HGD056-20-060-TE3-66	5.6	6.0	66	20	28	0.9	36	●
BZ310WF0570	HGD057-20-060-TE3-66	5.7	6.0	66	20	28	0.9	36	●
BZ310WF0580	HGD058-20-060-TE3-66	5.8	6.0	66	20	28	0.9	36	●
BZ310WF0590	HGD059-20-060-TE3-66	5.9	6.0	66	20	28	0.9	36	●
BZ310WF0600	HGD060-20-060-TE3-66	6.0	6.0	66	20	28	0.9	36	●
BZ310WF0610	HGD061-24-080-TE3-79	6.1	8.0	79	24	34	1.0	36	●
BZ310WF0620	HGD062-24-080-TE3-79	6.2	8.0	79	24	34	1.0	36	●
BZ310WF0630	HGD063-24-080-TE3-79	6.3	8.0	79	24	34	1.0	36	●
BZ310WF0640	HGD064-24-080-TE3-79	6.4	8.0	79	24	34	1.0	36	●
BZ310WF0650	HGD065-24-080-TE3-79	6.5	8.0	79	24	34	1.0	36	●
BZ310WF0660	HGD066-24-080-TE3-79	6.6	8.0	79	24	34	1.0	36	●
BZ310WF0670	HGD067-24-080-TE3-79	6.7	8.0	79	24	34	1.1	36	●
BZ310WF0675	HGD0675-24-080-TE3-79	6.75	8.0	79	24	34	1.1	36	●
BZ310WF0680	HGD068-24-080-TE3-79	6.8	8.0	79	24	34	1.1	36	●
BZ310WF0690	HGD069-24-080-TE3-79	6.9	8.0	79	24	34	1.1	36	●
BZ310WF0700	HGD070-24-080-TE3-79	7.0	8.0	79	24	34	1.1	36	●
BZ310WF0710	HGD071-29-080-TE3-79	7.1	8.0	79	29	41	1.1	36	●
BZ310WF0720	HGD072-29-080-TE3-79	7.2	8.0	79	29	41	1.1	36	●
BZ310WF0730	HGD073-29-080-TE3-79	7.3	8.0	79	29	41	1.1	36	●
BZ310WF0740	HGD074-29-080-TE3-79	7.4	8.0	79	29	41	1.2	36	●

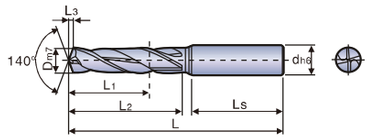
订货示例: HGD030-14-040-TE3-62 OP130M 接受非标订制

● 标准库存 ○ 不需备库存

钻头(3 × D)

整体型(外冷)





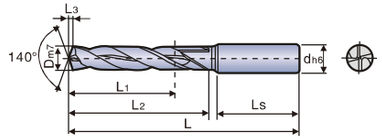
编号	外冷3倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	Ls	OP130M
BZ310WF0750	HGD075-29-080-TE3-79	7.5	8.0	79	29	41	1.2	36	●
BZ310WF0760	HGD076-29-080-TE3-79	7.6	8.0	79	29	41	1.2	36	●
BZ310WF0770	HGD077-29-080-TE3-79	7.7	8.0	79	29	41	1.2	36	●
BZ310WF0780	HGD078-29-080-TE3-79	7.8	8.0	79	29	41	1.2	36	●
BZ310WF0790	HGD079-29-080-TE3-79	7.9	8.0	79	29	41	1.3	36	●
BZ310WF0800	HGD080-29-080-TE3-79	8.0	8.0	79	29	41	1.3	36	●
BZ310WF0810	HGD081-35-100-TE3-89	8.1	10.0	89	35	47	1.3	40	●
BZ310WF0820	HGD082-35-100-TE3-89	8.2	10.0	89	35	47	1.3	40	●
BZ310WF0830	HGD083-35-100-TE3-89	8.3	10.0	89	35	47	1.3	40	●
BZ310WF0840	HGD084-35-100-TE3-89	8.4	10.0	89	35	47	1.3	40	●
BZ310WF0850	HGD085-35-100-TE3-89	8.5	10.0	89	35	47	1.3	40	●
BZ310WF0860	HGD086-35-100-TE3-89	8.6	10.0	89	35	47	1.4	40	●
BZ310WF0870	HGD087-35-100-TE3-89	8.7	10.0	89	35	47	1.4	40	●
BZ310WF0875	HGD0875-35-100-TE3-89	8.7	10.0	89	35	47	1.4	40	●
BZ310WF0880	HGD088-35-100-TE3-89	8.8	10.0	89	35	47	1.4	40	●
BZ310WF0890	HGD089-35-100-TE3-89	8.9	10.0	89	35	47	1.4	40	●
BZ310WF0900	HGD090-35-100-TE3-89	9.0	10.0	89	35	47	1.4	40	●
BZ310WF0910	HGD091-35-100-TE3-89	9.1	10.0	89	35	47	1.4	40	●
BZ310WF0920	HGD092-35-100-TE3-89	9.2	10.0	89	35	47	1.4	40	●
BZ310WF0930	HGD093-35-100-TE3-89	9.3	10.0	89	35	47	1.5	40	●
BZ310WF0940	HGD094-35-100-TE3-89	9.4	10.0	89	35	47	1.5	40	●
BZ310WF0950	HGD095-35-100-TE3-89	9.5	10.0	89	35	47	1.5	40	●
BZ310WF0960	HGD096-35-100-TE3-89	9.6	10.0	89	35	47	1.5	40	●
BZ310WF0970	HGD097-35-100-TE3-89	9.7	10.0	89	35	47	1.5	40	●
BZ310WF0980	HGD098-35-100-TE3-89	9.8	10.0	89	35	47	1.6	40	●
BZ310WF0990	HGD099-35-100-TE3-89	9.9	10.0	89	35	47	1.6	40	●
BZ310WF1000	HGD100-35-100-TE3-89	10.0	10.0	89	35	47	1.6	40	●
BZ310WF1010	HGD101-40-120-TE3-102	10.1	12.0	102	40	55	1.6	45	●
BZ310WF1020	HGD102-40-120-TE3-102	10.2	12.0	102	40	55	1.6	45	●
BZ310WF1030	HGD103-40-120-TE3-102	10.3	12.0	102	40	55	1.6	45	●
BZ310WF1040	HGD104-40-120-TE3-102	10.4	12.0	102	40	55	1.6	45	●
BZ310WF1050	HGD105-40-120-TE3-102	10.5	12.0	102	40	55	1.6	45	●
BZ310WF1060	HGD106-40-120-TE3-102	10.6	12.0	102	40	55	1.7	45	●
BZ310WF1070	HGD107-40-120-TE3-102	10.7	12.0	102	40	55	1.7	45	●
BZ310WF1080	HGD108-40-120-TE3-102	10.8	12.0	102	40	55	1.7	45	●
BZ310WF1090	HGD109-40-120-TE3-102	10.9	12.0	102	40	55	1.7	45	●
BZ310WF1100	HGD110-40-120-TE3-102	11.0	12.0	102	40	55	1.7	45	●
BZ310WF1110	HGD111-40-120-TE3-102	11.1	12.0	102	40	55	1.7	45	●
BZ310WF1120	HGD112-40-120-TE3-102	11.2	12.0	102	40	55	1.8	45	●
BZ310WF1130	HGD113-40-120-TE3-102	11.3	12.0	102	40	55	1.8	45	●
BZ310WF1140	HGD114-40-120-TE3-102	11.4	12.0	102	40	55	1.8	45	●
BZ310WF1150	HGD115-40-120-TE3-102	11.5	12.0	102	40	55	1.8	45	●
BZ310WF1160	HGD116-40-120-TE3-102	11.6	12.0	102	40	55	1.8	45	●
BZ310WF1170	HGD117-40-120-TE3-102	11.7	12.0	102	40	55	1.9	45	●
BZ310WF1180	HGD118-40-120-TE3-102	11.8	12.0	102	40	55	1.9	45	●
BZ310WF1190	HGD119-40-120-TE3-102	11.9	12.0	102	40	55	1.9	45	●
BZ310WF1200	HGD120-40-120-TE3-102	12.0	12.0	102	40	55	1.9	45	●

订货示例: HGD075-29-080-TE3-79 OP130M 接受非标订制　　● 标准库存　○ 不常备库存

钻头(5 × D)

整体型(外冷)





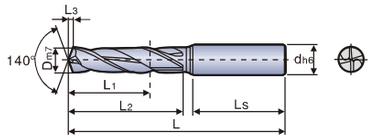
编号	外冷5倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	Ls	OP130M
BZ510WF0300	HGD030-23-040-TE5-66	3.0	4.0	66	23	28	0.5	34	●
BZ510WF0310	HGD031-23-040-TE5-66	3.1	4.0	66	23	28	0.5	34	●
BZ510WF0320	HGD032-23-040-TE5-66	3.2	4.0	66	23	28	0.5	34	●
BZ510WF0330	HGD033-23-040-TE5-66	3.3	4.0	66	23	28	0.5	34	●
BZ510WF0340	HGD034-23-040-TE5-66	3.4	4.0	66	23	28	0.5	34	●
BZ510WF0350	HGD035-23-040-TE5-66	3.5	4.0	66	23	28	0.6	34	●
BZ510WF0360	HGD036-23-040-TE5-66	3.6	4.0	66	23	28	0.6	34	●
BZ510WF0370	HGD037-23-040-TE5-66	3.7	4.0	66	23	28	0.6	34	●
BZ510WF0380	HGD038-29-040-TE5-74	3.8	4.0	74	29	36	0.6	35	●
BZ510WF0390	HGD039-29-040-TE5-74	3.9	4.0	74	29	36	0.6	35	●
BZ510WF0400	HGD040-29-060-TE5-74	4.0	4.0	74	29	36	0.6	35	●
BZ510WF0410	HGD041-29-060-TE5-74	4.1	6.0	74	29	36	0.7	35	●
BZ510WF0420	HGD042-29-060-TE5-74	4.2	6.0	74	29	36	0.7	35	●
BZ510WF0430	HGD043-29-060-TE5-74	4.3	6.0	74	29	36	0.7	35	●
BZ510WF0440	HGD044-29-060-TE5-74	4.4	6.0	74	29	36	0.7	35	●
BZ510WF0450	HGD045-29-060-TE5-74	4.5	6.0	74	29	36	0.7	35	●
BZ510WF0460	HGD046-29-060-TE5-74	4.6	6.0	74	29	36	0.7	35	●
BZ510WF0470	HGD047-29-060-TE5-74	4.7	6.0	74	29	36	0.8	35	●
BZ510WF0480	HGD048-35-060-TE5-82	4.8	6.0	82	35	44	0.8	36	●
BZ510WF0490	HGD049-35-060-TE5-82	4.9	6.0	82	35	44	0.8	36	●
BZ510WF0500	HGD050-35-060-TE5-82	5.0	6.0	82	35	44	0.8	36	●
BZ510WF0505	HGD0505-35-060-TE5-82	5.05	6.0	82	35	44	0.8	36	●
BZ510WF0510	HGD051-35-060-TE5-82	5.1	6.0	82	35	44	0.8	36	●
BZ510WF0520	HGD052-35-060-TE5-82	5.2	6.0	82	35	44	0.8	36	●
BZ510WF0530	HGD053-35-060-TE5-82	5.3	6.0	82	35	44	0.8	36	●
BZ510WF0540	HGD054-35-060-TE5-82	5.4	6.0	82	35	44	0.8	36	●
BZ510WF0550	HGD055-35-060-TE5-82	5.5	6.0	82	35	44	0.9	36	●
BZ510WF0560	HGD056-35-060-TE5-82	5.6	6.0	82	35	44	0.9	36	●
BZ510WF0570	HGD057-35-060-TE5-82	5.7	6.0	82	35	44	0.9	36	●
BZ510WF0580	HGD058-35-060-TE5-82	5.8	6.0	82	35	44	0.9	36	●
BZ510WF0590	HGD059-35-060-TE5-82	5.9	6.0	82	35	44	0.9	36	●
BZ510WF0600	HGD060-35-060-TE5-82	6.0	6.0	82	35	44	0.9	36	●
BZ510WF0610	HGD061-43-080-TE5-91	6.1	8.0	91	43	53	1.0	36	●
BZ510WF0620	HGD062-43-080-TE5-91	6.2	8.0	91	43	53	1.0	36	●
BZ510WF0630	HGD063-43-080-TE5-91	6.3	8.0	91	43	53	1.0	36	●
BZ510WF0640	HGD064-43-080-TE5-91	6.4	8.0	91	43	53	1.0	36	●
BZ510WF0650	HGD065-43-080-TE5-91	6.5	8.0	91	43	53	1.0	36	●
BZ510WF0660	HGD066-43-080-TE5-91	6.6	8.0	91	43	53	1.0	36	●
BZ510WF0670	HGD067-43-080-TE5-91	6.7	8.0	91	43	53	1.1	36	●
BZ510WF0675	HGD0675-43-080-TE5-91	6.75	8.0	91	43	53	1.1	36	●
BZ510WF0680	HGD068-43-080-TE5-91	6.8	8.0	91	43	53	1.1	36	●
BZ510WF0690	HGD069-43-080-TE5-91	6.9	8.0	91	43	53	1.1	36	●
BZ510WF0700	HGD070-43-080-TE5-91	7.0	8.0	91	43	53	1.1	36	●
BZ510WF0710	HGD071-43-080-TE5-91	7.1	8.0	91	43	53	1.1	36	●
BZ510WF0720	HGD072-43-080-TE5-91	7.2	8.0	91	43	53	1.1	36	●
BZ510WF0730	HGD073-43-080-TE5-91	7.3	8.0	91	43	53	1.1	36	●
BZ510WF0740	HGD074-43-080-TE5-91	7.4	8.0	91	43	53	1.2	36	●

订货示例: HGD030-23-040-TE5-66 OP130M 接受非标订制　　● 标准库存　○ 不常备库存

钻头(5 × D)

整体型(外冷)





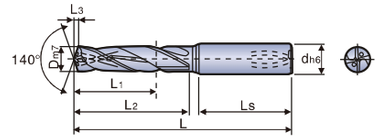
编号	外冷5倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	Ls	OP130M
BZ510WF0750	HGD075-43-080-TE5-91	7.5	8.0	91	43	53	1.2	36	●
BZ510WF0760	HGD076-43-080-TE5-91	7.6	8.0	91	43	53	1.2	36	●
BZ510WF0770	HGD077-43-080-TE5-91	7.7	8.0	91	43	53	1.2	36	●
BZ510WF0780	HGD078-43-080-TE5-91	7.8	8.0	91	43	53	1.2	36	●
BZ510WF0790	HGD079-43-080-TE5-91	7.9	8.0	91	43	53	1.3	36	●
BZ510WF0800	HGD080-43-080-TE5-91	8.0	8.0	91	43	53	1.3	36	●
BZ510WF0810	HGD081-49-100-TE5-103	8.1	10.0	103	49	61	1.3	40	●
BZ510WF0820	HGD082-49-100-TE5-103	8.2	10.0	103	49	61	1.3	40	●
BZ510WF0830	HGD083-49-100-TE5-103	8.3	10.0	103	49	61	1.3	40	●
BZ510WF0840	HGD084-49-100-TE5-103	8.4	10.0	103	49	61	1.3	40	●
BZ510WF0850	HGD085-49-100-TE5-103	8.5	10.0	103	49	61	1.3	40	●
BZ510WF0860	HGD086-49-100-TE5-103	8.6	10.0	103	49	61	1.4	40	●
BZ510WF0870	HGD087-49-100-TE5-103	8.7	10.0	103	49	61	1.4	40	●
BZ510WF0875	HGD0875-49-100-TE5-103	8.7	10.0	103	49	61	1.4	40	●
BZ510WF0880	HGD088-49-100-TE5-103	8.8	10.0	103	49	61	1.4	40	●
BZ510WF0890	HGD089-49-100-TE5-103	8.9	10.0	103	49	61	1.4	40	●
BZ510WF0900	HGD090-49-100-TE5-103	9.0	10.0	103	49	61	1.4	40	●
BZ510WF0910	HGD091-49-100-TE5-103	9.1	10.0	103	49	61	1.4	40	●
BZ510WF0920	HGD092-49-100-TE5-103	9.2	10.0	103	49	61	1.4	40	●
BZ510WF0930	HGD093-49-100-TE5-103	9.3	10.0	103	49	61	1.5	40	●
BZ510WF0940	HGD094-49-100-TE5-103	9.4	10.0	103	49	61	1.5	40	●
BZ510WF0950	HGD095-49-100-TE5-103	9.5	10.0	103	49	61	1.5	40	●
BZ510WF0960	HGD096-49-100-TE5-103	9.6	10.0	103	49	61	1.5	40	●
BZ510WF0970	HGD097-49-100-TE5-103	9.7	10.0	103	49	61	1.5	40	●
BZ510WF0980	HGD098-49-100-TE5-103	9.8	10.0	103	49	61	1.6	40	●
BZ510WF0990	HGD099-49-100-TE5-103	9.9	10.0	103	49	61	1.6	40	●
BZ510WF1000	HGD100-49-100-TE5-103	10.0	10.0	103	49	61	1.6	40	●
BZ510WF1010	HGD101-56-120-TE5-118	10.1	12.0	118	56	71	1.6	45	●
BZ510WF1020	HGD102-56-120-TE5-118	10.2	12.0	118	56	71	1.6	45	●
BZ510WF1030	HGD103-56-120-TE5-118	10.3	12.0	118	56	71	1.6	45	●
BZ510WF1040	HGD104-56-120-TE5-118	10.4	12.0	118	56	71	1.6	45	●
BZ510WF1050	HGD105-56-120-TE5-118	10.5	12.0	118	56	71	1.6	45	●
BZ510WF1060	HGD106-56-120-TE5-118	10.6	12.0	118	56	71	1.7	45	●
BZ510WF1070	HGD107-56-120-TE5-118	10.7	12.0	118	56	71	1.7	45	●
BZ510WF1080	HGD108-56-120-TE5-118	10.8	12.0	118	56	71	1.7	45	●
BZ510WF1090	HGD109-56-120-TE5-118	10.9	12.0	118	56	71	1.7	45	●
BZ510WF1100	HGD110-56-120-TE5-118	11.0	12.0	118	56	71	1.7	45	●
BZ510WF1110	HGD111-56-120-TE5-118	11.1	12.0	118	56	71	1.7	45	●
BZ510WF1120	HGD112-56-120-TE5-118	11.2	12.0	118	56	71	1.8	45	●
BZ510WF1130	HGD113-56-120-TE5-118	11.3	12.0	118	56	71	1.8	45	●
BZ510WF1140	HGD114-56-120-TE5-118	11.4	12.0	118	56	71	1.8	45	●
BZ510WF1150	HGD115-56-120-TE5-118	11.5	12.0	118	56	71	1.8	45	●
BZ510WF1160	HGD116-56-120-TE5-118	11.6	12.0	118	56	71	1.8	45	●
BZ510WF1170	HGD117-56-120-TE5-118	11.7	12.0	118	56	71	1.9	45	●
BZ510WF1180	HGD118-56-120-TE5-118	11.8	12.0	118	56	71	1.9	45	●
BZ510WF1190	HGD119-56-120-TE5-118	11.9	12.0	118	56	71	1.9	45	●
BZ510WF1200	HGD120-56-120-TE5-118	12.0	12.0	118	56	71	1.9	45	●

订货示例: HGD075-43-080-TE5-91 OP130M接受非标订制　　● 标准库存　○ 不常备库存

钻头(3 × D)

整体型(内冷)





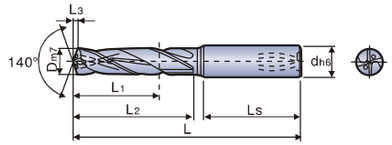
编号	内冷3倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	Ls	OP130M
BZ310NF0300	HGD030-14-040-TI3-62	3.0	4.0	62	14	20	0.5	34	●
BZ310NF0310	HGD031-14-040-TI3-62	3.1	4.0	62	14	20	0.5	34	●
BZ310NF0320	HGD032-14-040-TI3-62	3.2	4.0	62	14	20	0.5	34	●
BZ310NF0330	HGD033-14-040-TI3-62	3.3	4.0	62	14	20	0.5	34	●
BZ310NF0340	HGD034-14-040-TI3-62	3.4	4.0	62	14	20	0.5	34	●
BZ310NF0350	HGD035-14-040-TI3-62	3.5	4.0	62	14	20	0.6	34	●
BZ310NF0360	HGD036-14-040-TI3-62	3.6	4.0	62	14	20	0.6	34	●
BZ310NF0370	HGD037-14-040-TI3-62	3.7	4.0	62	14	20	0.6	34	●
BZ310NF0380	HGD038-17-040-TI3-66	3.8	4.0	66	17	24	0.6	35	●
BZ310NF0390	HGD039-17-040-TI3-66	3.9	4.0	66	17	24	0.6	35	●
BZ310NF0400	HGD040-17-060-TI3-66	4.0	4.0	66	17	24	0.6	35	●
BZ310NF0410	HGD041-17-060-TI3-66	4.1	6.0	66	17	24	0.7	35	●
BZ310NF0420	HGD042-17-060-TI3-66	4.2	6.0	66	17	24	0.7	35	●
BZ310NF0430	HGD043-17-060-TI3-66	4.3	6.0	66	17	24	0.7	35	●
BZ310NF0440	HGD044-17-060-TI3-66	4.4	6.0	66	17	24	0.7	35	●
BZ310NF0450	HGD045-17-060-TI3-66	4.5	6.0	66	17	24	0.7	35	●
BZ310NF0460	HGD046-17-060-TI3-66	4.6	6.0	66	17	24	0.7	35	●
BZ310NF0470	HGD047-17-060-TI3-66	4.7	6.0	66	17	24	0.8	35	●
BZ310NF0480	HGD048-20-060-TI3-66	4.8	6.0	66	20	28	0.8	36	●
BZ310NF0490	HGD049-20-060-TI3-66	4.9	6.0	66	20	28	0.8	36	●
BZ310NF0500	HGD050-20-060-TI3-66	5.0	6.0	66	20	28	0.8	36	●
BZ310NF0505	HGD0505-20-060-TI3-66	5.05	6.0	66	20	28	0.8	36	●
BZ310NF0510	HGD051-20-060-TI3-66	5.1	6.0	66	20	28	0.8	36	●
BZ310NF0520	HGD052-20-060-TI3-66	5.2	6.0	66	20	28	0.8	36	●
BZ310NF0530	HGD053-20-060-TI3-66	5.3	6.0	66	20	28	0.8	36	●
BZ310NF0540	HGD054-20-060-TI3-66	5.4	6.0	66	20	28	0.8	36	●
BZ310NF0550	HGD055-20-060-TI3-66	5.5	6.0	66	20	28	0.9	36	●
BZ310NF0560	HGD056-20-060-TI3-66	5.6	6.0	66	20	28	0.9	36	●
BZ310NF0570	HGD057-20-060-TI3-66	5.7	6.0	66	20	28	0.9	36	●
BZ310NF0580	HGD058-20-060-TI3-66	5.8	6.0	66	20	28	0.9	36	●
BZ310NF0590	HGD059-20-060-TI3-66	5.9	6.0	66	20	28	0.9	36	●
BZ310NF0600	HGD060-20-060-TI3-66	6.0	6.0	66	20	28	0.9	36	●
BZ310NF0610	HGD061-24-080-TI3-79	6.1	8.0	79	24	34	1.0	36	●
BZ310NF0620	HGD062-24-080-TI3-79	6.2	8.0	79	24	34	1.0	36	●
BZ310NF0630	HGD063-24-080-TI3-79	6.3	8.0	79	24	34	1.0	36	●
BZ310NF0640	HGD064-24-080-TI3-79	6.4	8.0	79	24	34	1.0	36	●
BZ310NF0650	HGD065-24-080-TI3-79	6.5	8.0	79	24	34	1.0	36	●
BZ310NF0660	HGD066-24-080-TI3-79	6.6	8.0	79	24	34	1.0	36	●
BZ310NF0670	HGD067-24-080-TI3-79	6.7	8.0	79	24	34	1.1	36	●
BZ310NF0675	HGD0675-24-080-TI3-79	6.75	8.0	79	24	34	1.1	36	●
BZ310NF0680	HGD068-24-080-TI3-79	6.8	8.0	79	24	34	1.1	36	●
BZ310NF0690	HGD069-24-080-TI3-79	6.9	8.0	79	24	34	1.1	36	●
BZ310NF0700	HGD070-24-080-TI3-79	7.0	8.0	79	24	34	1.1	36	●
BZ310NF0710	HGD071-29-080-TI3-79	7.1	8.0	79	29	41	1.1	36	●
BZ310NF0720	HGD072-29-080-TI3-79	7.2	8.0	79	29	41	1.1	36	●
BZ310NF0730	HGD073-29-080-TI3-79	7.3	8.0	79	29	41	1.1	36	●
BZ310NF0740	HGD074-29-080-TI3-79	7.4	8.0	79	29	41	1.2	36	●

订货示例: HGD030-14-040-TI3-62 OP130M 接受非标订制　　● 标准库存　○ 不常备库存

钻头(3×D)

整体型(内冷)





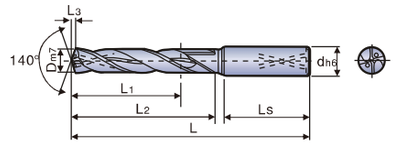
编号	内冷3倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	Ls	OP130M
BZ310NF0750	HGD075-29-080-TI3-79	7.5	8.0	79	29	41	1.2	36	●
BZ310NF0760	HGD076-29-080-TI3-79	7.6	8.0	79	29	41	1.2	36	●
BZ310NF0770	HGD077-29-080-TI3-79	7.7	8.0	79	29	41	1.2	36	●
BZ310NF0780	HGD078-29-080-TI3-79	7.8	8.0	79	29	41	1.2	36	●
BZ310NF0790	HGD079-29-080-TI3-79	7.9	8.0	79	29	41	1.3	36	●
BZ310NF0800	HGD080-29-080-TI3-79	8.0	8.0	79	29	41	1.3	36	●
BZ310NF0810	HGD081-35-100-TI3-89	8.1	10.0	89	35	47	1.3	40	●
BZ310NF0820	HGD082-35-100-TI3-89	8.2	10.0	89	35	47	1.3	40	●
BZ310NF0830	HGD083-35-100-TI3-89	8.3	10.0	89	35	47	1.3	40	●
BZ310NF0840	HGD084-35-100-TI3-89	8.4	10.0	89	35	47	1.3	40	●
BZ310NF0850	HGD085-35-100-TI3-89	8.5	10.0	89	35	47	1.3	40	●
BZ310NF0860	HGD086-35-100-TI3-89	8.6	10.0	89	35	47	1.4	40	●
BZ310NF0870	HGD087-35-100-TI3-89	8.7	10.0	89	35	47	1.4	40	●
BZ310NF0875	HGD0875-35-100-TI3-89	8.7	10.0	89	35	47	1.4	40	●
BZ310NF0880	HGD088-35-100-TI3-89	8.8	10.0	89	35	47	1.4	40	●
BZ310NF0890	HGD089-35-100-TI3-89	8.9	10.0	89	35	47	1.4	40	●
BZ310NF0900	HGD090-35-100-TI3-89	9.0	10.0	89	35	47	1.4	40	●
BZ310NF0910	HGD091-35-100-TI3-89	9.1	10.0	89	35	47	1.4	40	●
BZ310NF0920	HGD092-35-100-TI3-89	9.2	10.0	89	35	47	1.4	40	●
BZ310NF0930	HGD093-35-100-TI3-89	9.3	10.0	89	35	47	1.5	40	●
BZ310NF0940	HGD094-35-100-TI3-89	9.4	10.0	89	35	47	1.5	40	●
BZ310NF0950	HGD095-35-100-TI3-89	9.5	10.0	89	35	47	1.5	40	●
BZ310NF0960	HGD096-35-100-TI3-89	9.6	10.0	89	35	47	1.5	40	●
BZ310NF0970	HGD097-35-100-TI3-89	9.7	10.0	89	35	47	1.5	40	●
BZ310NF0980	HGD098-35-100-TI3-89	9.8	10.0	89	35	47	1.6	40	●
BZ310NF0990	HGD099-35-100-TI3-89	9.9	10.0	89	35	47	1.6	40	●
BZ310NF1000	HGD100-35-100-TI3-89	10.0	10.0	89	35	47	1.6	40	●
BZ310NF1010	HGD101-40-120-TI3-102	10.1	12.0	102	40	55	1.6	45	●
BZ310NF1020	HGD102-40-120-TI3-102	10.2	12.0	102	40	55	1.6	45	●
BZ310NF1030	HGD103-40-120-TI3-102	10.3	12.0	102	40	55	1.6	45	●
BZ310NF1040	HGD104-40-120-TI3-102	10.4	12.0	102	40	55	1.6	45	●
BZ310NF1050	HGD105-40-120-TI3-102	10.5	12.0	102	40	55	1.6	45	●
BZ310NF1060	HGD106-40-120-TI3-102	10.6	12.0	102	40	55	1.7	45	●
BZ310NF1070	HGD107-40-120-TI3-102	10.7	12.0	102	40	55	1.7	45	●
BZ310NF1080	HGD108-40-120-TI3-102	10.8	12.0	102	40	55	1.7	45	●
BZ310NF1090	HGD109-40-120-TI3-102	10.9	12.0	102	40	55	1.7	45	●
BZ310NF1100	HGD110-40-120-TI3-102	11.0	12.0	102	40	55	1.7	45	●
BZ310NF1110	HGD111-40-120-TI3-102	11.1	12.0	102	40	55	1.7	45	●
BZ310NF1120	HGD112-40-120-TI3-102	11.2	12.0	102	40	55	1.8	45	●
BZ310NF1130	HGD113-40-120-TI3-102	11.3	12.0	102	40	55	1.8	45	●
BZ310NF1140	HGD114-40-120-TI3-102	11.4	12.0	102	40	55	1.8	45	●
BZ310NF1150	HGD115-40-120-TI3-102	11.5	12.0	102	40	55	1.8	45	●
BZ310NF1160	HGD116-40-120-TI3-102	11.6	12.0	102	40	55	1.8	45	●
BZ310NF1170	HGD117-40-120-TI3-102	11.7	12.0	102	40	55	1.9	45	●
BZ310NF1180	HGD118-40-120-TI3-102	11.8	12.0	102	40	55	1.9	45	●
BZ310NF1190	HGD119-40-120-TI3-102	11.9	12.0	102	40	55	1.9	45	●
BZ310NF1200	HGD120-40-120-TI3-102	12.0	12.0	102	40	55	1.9	45	●

订货示例: HGD075-29-080-TI3-79 OP130M 接受非标订制　　●标准库存　○不常备库存

钻头(5×D)

整体型(内冷)





编号	内冷5倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	Ls	OP130M
BZ510NF0300	HGD030-23-040-TI5-66	3.0	4.0	66	23	28	0.5	34	●
BZ510NF0310	HGD031-23-040-TI5-66	3.1	4.0	66	23	28	0.5	34	●
BZ510NF0320	HGD032-23-040-TI5-66	3.2	4.0	66	23	28	0.5	34	●
BZ510NF0330	HGD033-23-040-TI5-66	3.3	4.0	66	23	28	0.5	34	●
BZ510NF0340	HGD034-23-040-TI5-66	3.4	4.0	66	23	28	0.5	34	●
BZ510NF0350	HGD035-23-040-TI5-66	3.5	4.0	66	23	28	0.6	34	●
BZ510NF0360	HGD036-23-040-TI5-66	3.6	4.0	66	23	28	0.6	34	●
BZ510NF0370	HGD037-23-040-TI5-66	3.7	4.0	66	23	28	0.6	34	●
BZ510NF0380	HGD038-29-040-TI5-74	3.8	4.0	74	29	36	0.6	35	●
BZ510NF0390	HGD039-29-040-TI5-74	3.9	4.0	74	29	36	0.6	35	●
BZ510NF0400	HGD040-29-060-TI5-74	4.0	4.0	74	29	36	0.6	35	●
BZ510NF0410	HGD041-29-060-TI5-74	4.1	6.0	74	29	36	0.7	35	●
BZ510NF0420	HGD042-29-060-TI5-74	4.2	6.0	74	29	36	0.7	35	●
BZ510NF0430	HGD043-29-060-TI5-74	4.3	6.0	74	29	36	0.7	35	●
BZ510NF0440	HGD044-29-060-TI5-74	4.4	6.0	74	29	36	0.7	35	●
BZ510NF0450	HGD045-29-060-TI5-74	4.5	6.0	74	29	36	0.7	35	●
BZ510NF0460	HGD046-29-060-TI5-74	4.6	6.0	74	29	36	0.7	35	●
BZ510NF0470	HGD047-29-060-TI5-74	4.7	6.0	74	29	36	0.8	35	●
BZ510NF0480	HGD048-35-060-TI5-82	4.8	6.0	82	35	44	0.8	36	●
BZ510NF0490	HGD049-35-060-TI5-82	4.9	6.0	82	35	44	0.8	36	●
BZ510NF0500	HGD050-35-060-TI5-82	5.0	6.0	82	35	44	0.8	36	●
BZ510NF0505	HGD0505-35-060-TI5-82	5.05	6.0	82	35	44	0.8	36	●
BZ510NF0510	HGD051-35-060-TI5-82	5.1	6.0	82	35	44	0.8	36	●
BZ510NF0520	HGD052-35-060-TI5-82	5.2	6.0	82	35	44	0.8	36	●
BZ510NF0530	HGD053-35-060-TI5-82	5.3	6.0	82	35	44	0.8	36	●
BZ510NF0540	HGD054-35-060-TI5-82	5.4	6.0	82	35	44	0.8	36	●
BZ510NF0550	HGD055-35-060-TI5-82	5.5	6.0	82	35	44	0.9	36	●
BZ510NF0560	HGD056-35-060-TI5-82	5.6	6.0	82	35	44	0.9	36	●
BZ510NF0570	HGD057-35-060-TI5-82	5.7	6.0	82	35	44	0.9	36	●
BZ510NF0580	HGD058-35-060-TI5-82	5.8	6.0	82	35	44	0.9	36	●
BZ510NF0590	HGD059-35-060-TI5-82	5.9	6.0	82	35	44	0.9	36	●
BZ510NF0600	HGD060-35-060-TI5-82	6.0	6.0	82	35	44	0.9	36	●
BZ510NF0610	HGD061-43-080-TI5-91	6.1	8.0	91	43	53	1.0	36	●
BZ510NF0620	HGD062-43-080-TI5-91	6.2	8.0	91	43	53	1.0	36	●
BZ510NF0630	HGD063-43-080-TI5-91	6.3	8.0	91	43	53	1.0	36	●
BZ510NF0640	HGD064-43-080-TI5-91	6.4	8.0	91	43	53	1.0	36	●
BZ510NF0650	HGD065-43-080-TI5-91	6.5	8.0	91	43	53	1.0	36	●
BZ510NF0660	HGD066-43-080-TI5-91	6.6	8.0	91	43	53	1.0	36	●
BZ510NF0670	HGD067-43-080-TI5-91	6.7	8.0	91	43	53	1.1	36	●
BZ510NF0675	HGD0675-43-080-TI5-91	6.75	8.0	91	43	53	1.1	36	●
BZ510NF0680	HGD068-43-080-TI5-91	6.8	8.0	91	43	53	1.1	36	●
BZ510NF0690	HGD069-43-080-TI5-91	6.9	8.0	91	43	53	1.1	36	●
BZ510NF0700	HGD070-43-080-TI5-91	7.0	8.0	91	43	53	1.1	36	●
BZ510NF0710	HGD071-43-080-TI5-91	7.1	8.0	91	43	53	1.1	36	●
BZ510NF0720	HGD072-43-080-TI5-91	7.2	8.0	91	43	53	1.1	36	●
BZ510NF0730	HGD073-43-080-TI5-91	7.3	8.0	91	43	53	1.1	36	●
BZ510NF0740	HGD074-43-080-TI5-91	7.4	8.0	91	43	53	1.2	36	●

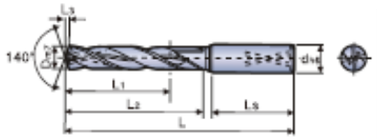
订货示例: HGD030-23-040-TI5-66 OP130M 接受非标订制　　●标准库存　○不常备库存

F 倒角/专用刀具

钻头(5 x D)

整体型(内冷)





编号	内冷5倍直径	尺寸(mm)							牌号
		D	d	L	L1	L2	L3	La	OP130M
BZ510NF0750	HGD075-43-080-TI5-91	7.5	8.0	91	43	53	1.2	36	●
BZ510NF0760	HGD076-43-080-TI5-91	7.6	8.0	91	43	53	1.2	36	●
BZ510NF0770	HGD077-43-080-TI5-91	7.7	8.0	91	43	53	1.2	36	●
BZ510NF0780	HGD078-43-080-TI5-91	7.8	8.0	91	43	53	1.2	36	●
BZ510NF0790	HGD079-43-080-TI5-91	7.9	8.0	91	43	53	1.3	36	●
BZ510NF0800	HGD080-43-080-TI5-91	8.0	8.0	91	43	53	1.3	36	●
BZ510NF0810	HGD081-49-100-TI5-103	8.1	10.0	103	49	61	1.3	40	●
BZ510NF0820	HGD082-49-100-TI5-103	8.2	10.0	103	49	61	1.3	40	●
BZ510NF0830	HGD083-49-100-TI5-103	8.3	10.0	103	49	61	1.3	40	●
BZ510NF0840	HGD084-49-100-TI5-103	8.4	10.0	103	49	61	1.3	40	●
BZ510NF0850	HGD085-49-100-TI5-103	8.5	10.0	103	49	61	1.3	40	●
BZ510NF0860	HGD086-49-100-TI5-103	8.6	10.0	103	49	61	1.4	40	●
BZ510NF0870	HGD087-49-100-TI5-103	8.7	10.0	103	49	61	1.4	40	●
BZ510NF0875	HGD0875-49-100-TI5-103	8.7	10.0	103	49	61	1.4	40	●
BZ510NF0880	HGD088-49-100-TI5-103	8.8	10.0	103	49	61	1.4	40	●
BZ510NF0890	HGD089-49-100-TI5-103	8.9	10.0	103	49	61	1.4	40	●
BZ510NF0900	HGD090-49-100-TI5-103	9.0	10.0	103	49	61	1.4	40	●
BZ510NF0910	HGD091-49-100-TI5-103	9.1	10.0	103	49	61	1.4	40	●
BZ510NF0920	HGD092-49-100-TI5-103	9.2	10.0	103	49	61	1.4	40	●
BZ510NF0930	HGD093-49-100-TI5-103	9.3	10.0	103	49	61	1.5	40	●
BZ510NF0940	HGD094-49-100-TI5-103	9.4	10.0	103	49	61	1.5	40	●
BZ510NF0950	HGD095-49-100-TI5-103	9.5	10.0	103	49	61	1.5	40	●
BZ510NF0960	HGD096-49-100-TI5-103	9.6	10.0	103	49	61	1.5	40	●
BZ510NF0970	HGD097-49-100-TI5-103	9.7	10.0	103	49	61	1.5	40	●
BZ510NF0980	HGD098-49-100-TI5-103	9.8	10.0	103	49	61	1.6	40	●
BZ510NF0990	HGD099-49-100-TI5-103	9.9	10.0	103	49	61	1.6	40	●
BZ510NF1000	HGD100-49-100-TI5-103	10.0	10.0	103	49	61	1.6	40	●
BZ510NF1010	HGD101-56-120-TI5-118	10.1	12.0	118	56	71	1.6	45	●
BZ510NF1020	HGD102-56-120-TI5-118	10.2	12.0	118	56	71	1.6	45	●
BZ510NF1030	HGD103-56-120-TI5-118	10.3	12.0	118	56	71	1.6	45	●
BZ510NF1040	HGD104-56-120-TI5-118	10.4	12.0	118	56	71	1.6	45	●
BZ510NF1050	HGD105-56-120-TI5-118	10.5	12.0	118	56	71	1.6	45	●
BZ510NF1060	HGD106-56-120-TI5-118	10.6	12.0	118	56	71	1.7	45	●
BZ510NF1070	HGD107-56-120-TI5-118	10.7	12.0	118	56	71	1.7	45	●
BZ510NF1080	HGD108-56-120-TI5-118	10.8	12.0	118	56	71	1.7	45	●
BZ510NF1090	HGD109-56-120-TI5-118	10.9	12.0	118	56	71	1.7	45	●
BZ510NF1100	HGD110-56-120-TI5-118	11.0	12.0	118	56	71	1.7	45	●
BZ510NF1110	HGD111-56-120-TI5-118	11.1	12.0	118	56	71	1.7	45	●
BZ510NF1120	HGD112-56-120-TI5-118	11.2	12.0	118	56	71	1.8	45	●
BZ510NF1130	HGD113-56-120-TI5-118	11.3	12.0	118	56	71	1.8	45	●
BZ510NF1140	HGD114-56-120-TI5-118	11.4	12.0	118	56	71	1.8	45	●
BZ510NF1150	HGD115-56-120-TI5-118	11.5	12.0	118	56	71	1.8	45	●
BZ510NF1160	HGD116-56-120-TI5-118	11.6	12.0	118	56	71	1.8	45	●
BZ510NF1170	HGD117-56-120-TI5-118	11.7	12.0	118	56	71	1.9	45	●
BZ510NF1180	HGD118-56-120-TI5-118	11.8	12.0	118	56	71	1.9	45	●
BZ510NF1190	HGD119-56-120-TI5-118	11.9	12.0	118	56	71	1.9	45	●
BZ510NF1200	HGD120-56-120-TI5-118	12.0	12.0	118	56	71	1.9	45	●

订货示例: HGD075-43-080-TI5-91 OP130M 接受非标订制

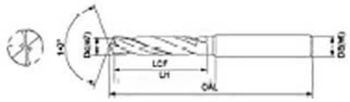
● 标准库存 ○ 不常备库存

3310

外冷硬质合金钻头

Externally cooled carbide drills





P	M	K	N	S	H	O
☆	☆	☆	☆	☆	☆	☆

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	直径 (L/D)	槽长 LCF	避位长 LH	全长 OAL	有效长 LF	肩长 PL
3310-001	3.0	6	3	18	25	62	61.5	0.5
3310-002	3.0	6	5	26	29	66	65.5	0.5
3310-003	4.0	6	3	23	29	66	65.3	0.7
3310-004	4.0	6	5	35	37	74	73.3	0.7
3310-005	5.0	6	3	27	29	66	65.1	0.9
3310-006	5.0	6	5	43	45	82	81.1	0.9
3310-007	6.0	6	3	27	29	66	64.9	1.1
3310-008	6.0	6	5	43	45	82	80.9	1.1
3310-009	7.0	8	3	33	42	79	77.7	1.3
3310-010	7.0	8	5	52	54	91	89.7	1.3
3310-011	8.0	8	3	39	42	79	77.5	1.5
3310-012	8.0	8	5	52	54	91	89.5	1.5
3310-013	9.0	10	3	45	47	89	87.4	1.6
3310-014	9.0	10	5	59	61	103	101.4	1.8

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	直径 (L/D)	槽长 LCF	避位长 LH	全长 OAL	有效长 LF	肩长 PL
3310-015	10.0	10	3	45	47	89	87.2	1.8
3310-016	10.0	10	5	59	61	103	101.2	1.8
3310-017	11.0	12	3	58	55	102	100.0	2.0
3310-018	11.0	12	5	69	71	118	116.0	2.0
3310-019	12.0	12	3	53	55	102	99.8	2.2
3310-020	12.0	12	5	69	71	118	115.8	2.2
3310-021	13.0	14	3	58	60	107	104.6	2.4
3310-022	13.0	14	5	75	77	124	121.6	2.4
3310-023	14.0	14	3	58	60	107	104.5	2.5
3310-024	14.0	14	5	75	77	124	121.5	2.5
3310-025	15.0	16	3	62	64	115	112.3	2.7
3310-026	15.0	16	5	80	82	133	130.3	2.7
3310-027	16.0	16	3	62	64	115	112.1	2.9
3310-028	16.0	16	5	80	82	133	130.1	2.9

单位(Unit) : mm (Unit (Size : mm))

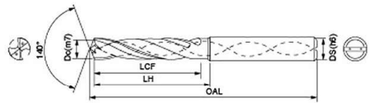
推荐切削条件 Recommended cutting conditions

3310系列推荐切削条件								
刃径	切削条件	碳素钢 Q235 (SS400) (~200HB)	一般钢 S45 (200~300HB)	合金钢 42CrMo (SCM440H) (250~300HB)	耐磨钢 4Cr5MoSiV1 (SKD61) (~45HRC)	不锈钢 0Cr18Ni9 (SUS304) (~200HB)	灰口铸铁 HT250 (~300HB)	球墨铸铁 QT450 (~300HB)	耐热超合金 Inco718 (~170HB)
-Ø5.0	Vc	40-60-100	40-60-100	30-50-70	20-30-40	10-20-30	40-60-70	40-50-60	10-15-20
	f	0.15-0.20-0.25	0.15-0.20-0.25	0.10-0.15-0.20	0.06-0.08-0.10	0.05-0.07-0.10	0.15-0.20-0.30	0.15-0.20-0.25	0.05-0.06-0.07
-Ø10.0	Vc	60-70-100	60-70-100	40-60-80	20-30-40	15-20-30	50-60-80	50-60-70	10-15-20
	f	0.20-0.25-0.30	0.20-0.25-0.30	0.20-0.25-0.30	0.10-0.12-0.15	0.08-0.12-0.15	0.20-0.28-0.35	0.20-0.28-0.35	0.08-0.09-0.10
-Ø16.0	Vc	60-80-100	60-80-100	40-60-80	20-30-40	20-25-30	60-70-90	60-70-80	10-15-20
	f	0.20-0.25-0.35	0.20-0.28-0.35	0.20-0.25-0.30	0.10-0.12-0.15	0.08-0.12-0.15	0.25-0.30-0.35	0.25-0.30-0.35	0.08-0.09-0.10

3410

内冷硬质合金钻头
Internal coolant carbide drill





CARBIDE MG | Micro | 2 | 30° | φd h6 | ≤40 HRC

Drill 3xDc | Drill 4xDc | Drill 7xDc

P	M	K	N	S	H	O
碳素钢 · 合金钢 · 工具钢 Carbon Steels · Alloy Steels · Tool Steels	不锈钢 Stainless Steels	铸铁 Cast Iron	铝合金 · 铜合金 Aluminum · Copper	钛合金 Titanium Alloy	淬火钢 Hardened Steels	树脂 Plastic
☆	☆	☆	☆	☆	☆	☆

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3410-001	3.0	6	3	19	25	62	61.5	0.5
3410-002	3.0	6	5	26	29	66	65.5	0.5
3410-003	3.0	6	7	30	33	70	69.5	0.5
3410-004	4.0	6	3	23	29	66	65.3	0.7
3410-005	4.0	6	5	35	37	74	73.3	0.7
3410-006	4.0	6	7	37.5	38	75	74.3	0.7
3410-007	5.0	6	3	27	29	66	65.1	0.9
3410-008	5.0	6	5	43	45	82	81.1	0.9
3410-009	5.0	6	7	51	53	90	89.1	0.9
3410-010	6.0	6	3	27	29	66	64.9	1.1
3410-011	6.0	6	5	43	45	82	80.9	1.1
3410-012	6.0	6	7	58	60	97	95.9	1.1
3410-013	7.0	8	3	33	42	79	77.7	1.3
3410-014	7.0	8	5	52	54	91	89.7	1.3
3410-015	7.0	8	7	77	79	116	114.7	1.3
3410-016	8.0	8	3	39	42	79	77.5	1.5
3410-017	8.0	8	5	52	54	91	89.5	1.5
3410-018	8.0	8	7	77	79	116	114.5	1.5
3410-019	9.0	10	3	45	47	89	87.4	1.6
3410-020	9.0	10	5	59	61	103	101.4	1.6
3410-021	9.0	10	7	87	89	131	129.4	1.6

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3410-022	10.0	10	3	45	47	89	87.2	1.8
3410-023	10.0	10	5	59	61	103	101.2	1.8
3410-024	10.0	10	7	95	97	139	137.2	1.8
3410-025	11.0	12	3	53	55	102	100.0	2.0
3410-026	11.0	12	5	69	71	118	116.0	2.0
3410-027	11.0	12	7	106	108	155	153.0	2.0
3410-028	12.0	12	3	53	55	102	99.8	2.2
3410-029	12.0	12	5	69	71	118	115.8	2.2
3410-030	12.0	12	7	114	116	163	160.8	2.2
3410-031	13.0	14	3	58	60	107	104.6	2.4
3410-032	13.0	14	5	75	77	124	121.6	2.4
3410-033	13.0	14	7	133	135	182	179.6	2.4
3410-034	14.0	14	3	58	60	107	104.5	2.5
3410-035	14.0	14	5	75	77	124	121.5	2.5
3410-036	14.0	14	7	133	135	182	179.5	2.5
3410-037	15.0	16	3	62	64	115	112.3	2.7
3410-038	15.0	16	5	80	82	133	130.3	2.7
3410-039	15.0	16	7	151	153	204	201.3	2.7
3410-040	16.0	16	3	62	64	115	112.1	2.9
3410-041	16.0	16	5	80	82	133	130.1	2.9
3410-042	16.0	16	7	151	153	204	201.1	2.9

单位[规格： mm] Unit [Size : mm]

推荐切削条件 Recommended cutting conditions

3410系列推荐切削条件

刃径	切削条件	底碳钢 Q235 (SSM400) (~200HB)	一般钢 S45 (200~300HB)	合金钢 42CrMo (SCM440H) (250~300HB)	高硬度钢 4Cr5MoSiV1 (SKD61) (~45HRC)	不锈钢 0Cr18Ni9 (SUS304) (~200HB)	灰口铸铁 HT250 (~300HB)	球墨铸铁 QT450 (~300HB)	钛合金 6A1-4V-Ti (~350HB)	镍基耐热合金 inco718 (~170HB)
~D5.0	Vc	50·80·120	50·80·120	40·60·80	30·40·50	30·45·60	50·70·90	40·60·80	10·20·30	10·20·30
	f	0.15·0.20·0.25	0.15·0.20·0.25	0.10·0.15·0.20	0.08·0.12·0.15	0.06·0.10·0.15	0.15·0.20·0.30	0.15·0.20·0.25	0.08·0.09·0.10	0.05·0.06·0.08
~D10.0	Vc	70·110·150	70·110·150	60·80·100	30·40·50	40·60·60	60·80·100	50·70·90	25·32·40	15·22·30
	f	0.20·0.28·0.35	0.20·0.28·0.35	0.20·0.25·0.30	0.10·0.15·0.20	0.10·0.15·0.20	0.20·0.28·0.35	0.20·0.28·0.35	0.08·0.10·0.12	0.08·0.09·0.10
~D16.0	Vc	80·120·160	80·120·160	60·90·120	30·40·50	50·60·80	70·100·120	60·80·100	25·32·40	20·28·35
	f	0.25·0.30·0.35	0.25·0.30·0.35	0.20·0.25·0.30	0.12·0.20·0.25	0.10·0.15·0.20	0.25·0.30·0.35	0.25·0.30·0.35	0.10·0.12·0.15	0.08·0.09·0.10

3510

内冷深孔硬质合金钻头
Internal coolant deep hole carbide drill





CARBIDE MG | Micro | 2 | 30° | φd h6 | ≤40 HRC

Drill 3xDc | Drill 7xDc | Drill 12xDc | Drill 15xDc | Drill 20xDc | Drill 25xDc | Drill 30xDc

P	M	K	N	S	H	O
碳素钢 · 合金钢 · 工具钢 Carbon Steels · Alloy Steels · Tool Steels	不锈钢 Stainless Steels	铸铁 Cast Iron	铝合金 · 铜合金 Aluminum · Copper	钛合金 Titanium Alloy	淬火钢 Hardened Steels	树脂 Plastic
☆	☆	☆	☆	☆	☆	☆

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3510-001	2.1	3	3	15	17	68	67.7	0.3
3510-002	2.1	3	10	38	40	89	88.6	0.4
3510-003	2.1	3	15	48	50	99	98.6	0.4
3510-004	2.1	3	20	61	63	112	111.6	0.4
3510-005	2.1	3	25	73	75	124	123.6	0.4
3510-006	2.1	3	30	86	88	137	136.6	0.4
3510-007	2.2	3	3	15	17	68	67.7	0.3
3510-008	2.2	3	10	38	40	89	88.6	0.4
3510-009	2.2	3	15	48	50	99	98.6	0.4
3510-010	2.2	3	20	61	63	112	111.6	0.4
3510-011	2.2	3	25	73	75	124	123.6	0.4
3510-012	2.2	3	30	86	88	137	136.6	0.4
3510-013	2.3	3	3	15	17	68	67.7	0.3
3510-014	2.3	3	10	38	40	89	88.6	0.4
3510-015	2.3	3	15	48	50	99	98.6	0.4
3510-016	2.3	3	20	61	63	112	111.6	0.4
3510-017	2.3	3	25	73	75	124	123.6	0.4
3510-018	2.3	3	30	86	88	137	136.6	0.4
3510-019	2.4	3	3	15	17	68	67.7	0.3
3510-020	2.4	3	10	38	40	89	88.6	0.4
3510-021	2.4	3	15	48	50	99	98.6	0.4
3510-022	2.4	3	20	61	63	112	111.6	0.4
3510-023	2.4	3	25	73	75	124	123.6	0.4
3510-024	2.4	3	30	86	88	137	136.6	0.4
3510-025	2.5	3	3	15	17	68	67.7	0.3
3510-026	2.5	3	10	38	40	89	88.5	0.5
3510-027	2.5	3	15	48	50	99	98.5	0.5
3510-028	2.5	3	20	61	63	112	111.5	0.5
3510-029	2.5	3	25	73	75	124	123.5	0.5
3510-030	2.5	3	30	86	88	137	136.5	0.5
3510-031	2.6	3	3	17.5	20	68	67.7	0.3
3510-032	2.6	3	10	45	45	94	93.5	0.5
3510-033	2.6	3	15	60	60	109	108.5	0.5
3510-034	2.6	3	20	75	75	124	123.5	0.5
3510-035	2.6	3	25	90	90	139	138.5	0.5
3510-036	2.6	3	30	105	105	154	153.5	0.5

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3510-037	2.7	3	3	17.5	20	68	67.6	0.4
3510-038	2.7	3	10	45	45	94	93.5	0.5
3510-039	2.7	3	15	60	60	109	108.5	0.5
3510-040	2.7	3	20	75	75	124	123.5	0.5
3510-041	2.7	3	25	90	90	139	138.5	0.5
3510-042	2.7	3	30	105	105	154	153.5	0.5
3510-043	2.8	3	3	17.5	20	68	67.6	0.4
3510-044	2.8	3	10	45	45	94	93.5	0.5
3510-045	2.8	3	15	60	60	109	108.5	0.5
3510-046	2.8	3	20	75	75	124	123.5	0.5
3510-047	2.8	3	25	90	90	139	138.5	0.5
3510-048	2.8	3	30	105	105	154	153.5	0.5
3510-049	2.9	3	3	17.5	20	68	67.6	0.4
3510-050	2.9	3	10	45	45	94	93.5	0.5
3510-051	2.9	3	15	60	60	109	108.5	0.5
3510-052	2.9	3	20	75	75	124	123.5	0.5
3510-053	2.9	3	25	90	90	139	138.5	0.5
3510-054	2.9	3	30	105	105	154	153.5	0.5
3510-055	3.0	3	3	17.5	20	68	67.6	0.4
3510-056	3.0	3	10	45	45	94	93.5	0.5
3510-057	3.0	3	15	60	60	109	108.5	0.5
3510-058	3.0	3	20	75	75	124	123.5	0.5
3510-059	3.0	3	25	90	90	139	138.5	0.5
3510-060	3.0	3	30	105	105	154	153.5	0.5
3510-061	4.0	4	3	22.5	24	73	72.5	0.5
3510-062	4.0	4	10	60	60	109	108.3	0.7
3510-063	4.0	4	15	80	80	129	128.3	0.7
3510-064	4.0	4	20	100	100	149	148.3	0.7
3510-065	4.0	4	25	120	120	169	168.3	0.7
3510-066	4.0	4	30	140	140	189	188.3	0.7
3510-067	5.0	5	3	27.5	29	81	80.3	0.7
3510-068	5.0	5	10	75	75	126	125.1	0.9
3510-069	5.0	5	15	100	100	151	150.1	0.9
3510-070	5.0	5	20	125	125	176	175.1	0.9
3510-071	5.0	5	25	150	150	201	200.1	0.9
3510-072	5.0	5	30	175	175	226	225.1	0.9

单位[规格： mm] Unit [Size : mm]

3510

内冷深孔硬质合金钻头
Internal coolant deep hole carbide drill





CARBIDE MG | Micro | 2 | 30° | ϕd h6 | ≦40 HRC

Drill 3xDc | Drill 7xDc | Drill 10xDc | Drill 15xDc | Drill 20xDc | Drill 25xDc | Drill 30xDc

P	M	K	N	S	H	O
碳素钢・合金钢・工具钢 Carbon Steels・Alloy Steels・Tool Steels	不锈钢 Stainless Steels	铸铁 Cast Iron	铝合金・铜合金 Aluminum・Copper	钛合金 Titanium Alloy	淬火钢 Hardened Steels	树脂 Plastic
☆	☆	☆	☆	☆	☆	☆

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3510-073	6.0	6	3	30	30	83	82.2	0.8
3510-074	6.0	6	10	90	90	143	141.9	1.1
3510-075	6.0	6	15	120	120	173	171.9	1.1
3510-076	6.0	6	20	150	150	203	201.9	1.1
3510-077	6.0	6	25	180	180	233	231.9	1.1
3510-078	6.0	6	30	210	210	263	261.9	1.1
3510-079	7.0	7	3	35	35	89	88.1	0.9
3510-080	7.0	7	10	105	105	159	157.7	1.3
3510-081	7.0	7	15	140	140	194	192.7	1.3
3510-082	7.0	7	20	175	175	229	227.7	1.3
3510-083	7.0	7	25	210	210	264	262.7	1.3
3510-084	7.0	7	30	245	245	299	297.7	1.3
3510-085	8.0	8	3	40	40	95	93.9	1.1
3510-086	8.0	8	10	120	120	175	173.5	1.5
3510-087	8.0	8	15	160	160	215	213.5	1.5
3510-088	8.0	8	20	200	200	255	253.5	1.5
3510-089	8.0	8	25	240	240	295	293.5	1.5
3510-090	8.0	8	30	280	280	335	333.5	1.5
3510-091	9.0	9	3	45	45	101	99.8	1.2
3510-092	9.0	9	10	135	135	192	190.4	1.6
3510-093	9.0	9	15	180	1870	237	235.4	1.6
3510-094	9.0	9	20	225	225	282	280.4	1.6
3510-095	9.0	9	25	270	270	327	325.4	1.6
3510-096	9.0	9	30	315	315	372	370.4	1.6
3510-097	10.0	10	3	50	50	107	105.7	1.3
3510-098	10.0	10	10	150	150	208	206.2	1.8

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3510-099	10.0	10	15	200	200	258	256.2	1.8
3510-100	10.0	10	20	250	250	308	306.2	1.8
3510-101	10.0	10	25	300	300	358	356.2	1.8
3510-102	11.0	11	3	55	55	118	116.5	1.5
3510-103	11.0	11	10	165	165	228	226.0	2.0
3510-104	11.0	11	15	220	220	283	281.0	2.0
3510-105	11.0	11	20	275	275	338	336.0	2.0
3510-106	11.0	11	25	330	330	393	391.0	2.0
3510-107	12.0	12	3	60	60	124	122.4	1.6
3510-108	12.0	12	10	180	180	244	241.8	2.2
3510-109	12.0	12	15	240	240	304	301.8	2.2
3510-110	12.0	12	20	300	300	364	361.8	2.2
3510-111	13.0	13	3	65	65	130	128.3	1.7
3510-112	13.0	13	10	195	195	260	257.6	2.4
3510-113	13.0	13	15	260	260	325	322.6	2.4
3510-114	13.0	13	20	325	325	390	387.6	2.4
3510-115	14.0	14	3	70	70	136	134.1	1.9
3510-116	14.0	14	10	210	210	277	274.5	2.5
3510-117	14.0	14	15	280	280	347	344.5	2.5
3510-118	15.0	15	3	75	75	142	140.0	2.0
3510-119	15.0	15	10	225	225	293	290.3	2.7
3510-120	15.0	15	15	300	300	368	365.3	2.7
3510-121	16.0	16	3	80	80	148	145.9	2.1
3510-122	16.0	16	10	240	240	309	306.1	2.9
3510-123	16.0	16	15	320	320	389	386.1	2.9

单位[规格：mm] Unit [Size : mm]

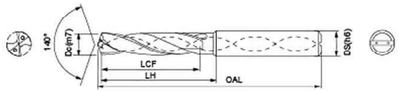
推荐切削条件 Recommended cutting conditions

刃径 / 类型 / 切削条件 / 工件材质		铸铁 HT/QT材	软钢 (~200HB)	一般钢 (~250HB)	合金钢 (~300HB)	高硬度材 (~40HRC)
		3510系列推荐切削条件				
~D3.0	Vc	40-55-70	50-60-80	60-80-100	40-55-70	30-40-50
	f	0.15-0.18-0.23	0.12-0.15-0.20	0.12-0.15-0.20	0.10-0.13-0.16	0.06-0.08-0.12
~D5.0	Vc	50-60-70	50-60-80	60-80-100	50-60-70	30-45-55
	f	0.17-0.25-0.35	0.15-0.20-0.25	0.15-0.23-0.30	0.12-0.15-0.20	0.08-0.10-0.14
~D10.0	Vc	50-65-80	50-70-90	60-80-110	50-65-80	30-50-60
	f	0.25-0.28-0.35	0.20-0.25-0.30	0.20-0.25-0.32	0.15-0.20-0.25	0.10-0.15-0.20
~D20.0	Vc	50-65-80	60-80-100	60-90-120	50-65-80	40-55-70
	f	0.25-0.30-0.35	0.25-0.30-0.35	0.25-0.30-0.35	0.15-0.23-0.27	0.12-0.15-0.23

3610

微小径深孔钻
Micro Diameter Deep Hole Drill





CARBIDE MG | Micro | 2 | 30° | ϕd h6 | ≦40 HRC

Drill 10xDc | Drill 15xDc | Drill 20xDc

P	M	K	N	S	H	O
碳素钢・合金钢・工具钢 Carbon Steels・Alloy Steels・Tool Steels	不锈钢 Stainless Steels	铸铁 Cast Iron	铝合金・铜合金 Aluminum・Copper	钛合金 Titanium Alloy	淬火钢 Hardened Steels	树脂 Plastic
☆	☆	☆	☆	☆	☆	☆

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3610-001	1.6	3	10	27	30	77	76.7	0.3
3610-002	1.6	3	15	37	40	87	86.7	0.3
3610-003	1.6	3	20	47	50	97	96.7	0.3
3610-004	1.7	3	10	27	30	77	76.7	0.3
3610-005	1.7	3	15	37	40	87	86.7	0.3
3610-006	1.7	3	20	47	50	97	96.7	0.3
3610-007	1.8	3	10	27	30	77	76.7	0.3
3610-008	1.8	3	15	37	40	87	86.7	0.3
3610-009	1.8	3	20	47	50	97	96.7	0.3
3610-010	1.9	3	10	27	30	77	76.6	0.4
3610-011	1.9	3	15	37	40	87	86.6	0.4
3610-012	1.9	3	20	47	50	97	96.6	0.4
3610-013	2.0	3	10	27	30	77	76.6	0.4
3610-014	2.0	3	15	37	40	87	86.6	0.4
3610-015	2.0	3	20	47	50	97	96.6	0.4
3610-016	2.1	3	10	38	40	89	88.6	0.4
3610-017	2.1	3	15	48	50	99	98.6	0.4
3610-018	2.1	3	20	61	63	112	111.6	0.4
3610-019	2.2	3	10	38	40	89	88.6	0.4
3610-020	2.2	3	15	48	50	99	98.6	0.4
3610-021	2.2	3	20	61	63	112	111.6	0.4
3610-022	2.3	3	10	38	40	89	88.6	0.4
3610-023	2.3	3	15	48	50	99	98.6	0.4

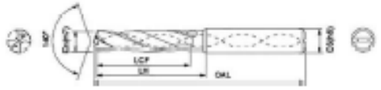
产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	锥度长 LH	全长 OAL	肩全长 LF	肩长 PL
3610-024	2.3	3	20	61	63	112	111.6	0.4
3610-025	2.4	3	10	38	40	89	88.6	0.4
3610-026	2.4	3	15	48	50	99	98.6	0.4
3610-027	2.4	3	20	61	63	112	111.6	0.4
3610-028	2.5	3	10	38	40	89	88.5	0.5
3610-029	2.5	3	15	48	50	99	98.5	0.5
3610-030	2.5	3	20	61	63	112	111.5	0.5
3610-031	2.6	3	10	45	45	94	93.5	0.5
3610-032	2.6	3	15	60	60	109	108.5	0.5
3610-033	2.6	3	20	75	75	124	123.5	0.5
3610-034	2.7	3	10	45	45	94	93.5	0.5
3610-035	2.7	3	15	60	60	109	108.5	0.5
3610-036	2.7	3	20	75	75	124	123.5	0.5
3610-037	2.8	3	10	45	45	94	93.5	0.5
3610-038	2.8	3	15	60	60	109	108.5	0.5
3610-039	2.8	3	20	75	75	124	123.5	0.5
3610-040	2.9	3	10	45	45	94	93.5	0.5
3610-041	2.9	3	15	60	60	109	108.5	0.5
3610-042	2.9	3	20	75	75	124	123.5	0.5
3610-043	3.0	3	10	45	45	94	93.5	0.5
3610-044	3.0	3	15	60	60	109	108.5	0.5
3610-045	3.0	3	20	75	75	124	123.5	0.5

单位[规格：mm] Unit [Size : mm]

3710

内冷钻头
Internal Coolant Drill





P	M	K	N	S	H	O
碳素钢 · 合金钢 · 工具钢 Carbon Steels · Alloy Steels · Tool Steels	不锈钢 Stainless Steels	铸 铁 Cast Iron	铝合金 · 铜合金 Aluminum · Copper	钛合金 Titanium Alloy	淬火钢 Hardened Steels	树 脂 Plastic
☆	☆	☆	☆	☆	☆	☆

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	颈度长 LH	全长 OAL	肩全长 LF	肩长 PL
3710-001	3.0	6	3	19	25	62	61.5	0.5
3710-002	3.0	6	5	26	29	66	65.5	0.5
3710-003	3.0	6	7	30	33	70	69.5	0.5
3710-004	4.0	6	3	23	29	66	65.3	0.7
3710-005	4.0	6	5	35	37	74	73.3	0.7
3710-006	4.0	6	7	37.5	38	75	74.3	0.7
3710-007	5.0	6	3	27	29	66	65.1	0.9
3710-008	5.0	6	5	43	45	82	81.1	0.9
3710-009	5.0	6	7	51	53	90	89.1	0.9
3710-010	6.0	6	3	27	29	66	64.9	1.1
3710-011	6.0	6	5	43	45	82	80.9	1.1
3710-012	6.0	6	7	58	60	97	95.9	1.1
3710-013	7.0	8	3	33	42	79	77.7	1.3
3710-014	7.0	8	5	52	54	91	89.7	1.3
3710-015	7.0	8	7	77	79	116	114.7	1.3
3710-016	8.0	8	3	39	42	79	77.5	1.5
3710-017	8.0	8	5	52	54	91	89.5	1.5
3710-018	8.0	8	7	77	79	116	114.5	1.5
3710-019	9.0	10	3	45	47	89	87.4	1.6
3710-020	9.0	10	5	59	61	103	101.4	1.6
3710-021	9.0	10	7	87	89	131	129.4	1.6

产品代码 Code No.	刃径 (Dc)	柄径 (Ds)	孔深 (L/D)	槽长 LCF	颈度长 LH	全长 OAL	肩全长 LF	肩长 PL
3710-022	10.0	10	3	45	47	89	87.2	1.8
3710-023	10.0	10	5	59	61	103	101.2	1.8
3710-024	10.0	10	7	95	97	139	137.2	1.8
3710-025	11.0	12	3	53	55	102	100.0	2.0
3710-026	11.0	12	5	69	71	118	116.0	2.0
3710-027	11.0	12	7	106	108	155	153.0	2.0
3710-028	12.0	12	3	53	55	102	99.8	2.2
3710-029	12.0	12	5	69	71	118	115.8	2.2
3710-030	12.0	12	7	114	116	163	160.8	2.2
3710-031	13.0	14	3	58	60	107	104.6	2.4
3710-032	13.0	14	5	75	77	124	121.6	2.4
3710-033	13.0	14	7	133	135	182	179.6	2.4
3710-034	14.0	14	3	58	60	107	104.5	2.5
3710-035	14.0	14	5	75	77	124	121.5	2.5
3710-036	14.0	14	7	133	135	182	179.5	2.5
3710-037	15.0	16	3	62	64	115	112.3	2.7
3710-038	15.0	16	5	80	82	133	130.3	2.7
3710-039	15.0	16	7	151	153	204	201.3	2.7
3710-040	16.0	16	3	62	64	115	112.1	2.9
3710-041	16.0	16	5	80	82	133	130.1	2.9
3710-042	16.0	16	7	151	153	204	201.1	2.9

单位(英寸：mm) Unit (Size : mm)

推荐切削条件 Recommended cutting conditions

刃径	切削条件	低碳钢 Q235 (SSM400) (~200HB)	一般钢 S45 (200~300HB)	合金钢 42CrMo (SCM440H) (250~300HB)	高硬度钢 4Cr5MoSiV1 (SKD61) (~45HRC)	灰口铸铁 (HT250) (~300HB)	球墨铸铁 (QT450) (~300HB)	钛合金 6Al-4V-Ti (~350HB)	镍铬铁合金 Inco718 (~170HB)
3710系列推荐切削条件									
~D5.0	Vc	50-70-100	50-70-100	40-60-80	40-50-60	50-70-100	40-60-90	10-20-40	10-20-40
	f	0.15-0.20-0.25	0.15-0.20-0.25	0.10-0.15-0.20	0.08-0.12-0.15	0.15-0.20-0.25	0.15-0.20-0.25	0.08-0.09-0.10	0.05-0.06-0.08
~D10.0	Vc	70-110-120	70-110-120	60-80-100	50-70-90	60-80-100	50-70-90	30-40-50	20-30-40
	f	0.20-0.25-0.30	0.20-0.25-0.30	0.15-0.20-0.25	0.10-0.15-0.20	0.20-0.28-0.35	0.20-0.28-0.35	0.08-0.10-0.15	0.06-0.09-0.10
~D16.0	Vc	80-120-140	80-120-140	60-90-120	50-70-80	70-100-120	60-80-100	30-40-50	20-30-40
	f	0.20-0.25-0.30	0.20-0.25-0.30	0.20-0.25-0.30	0.12-0.18-0.23	0.25-0.30-0.35	0.25-0.30-0.35	0.10-0.15-0.18	0.08-0.09-0.10