



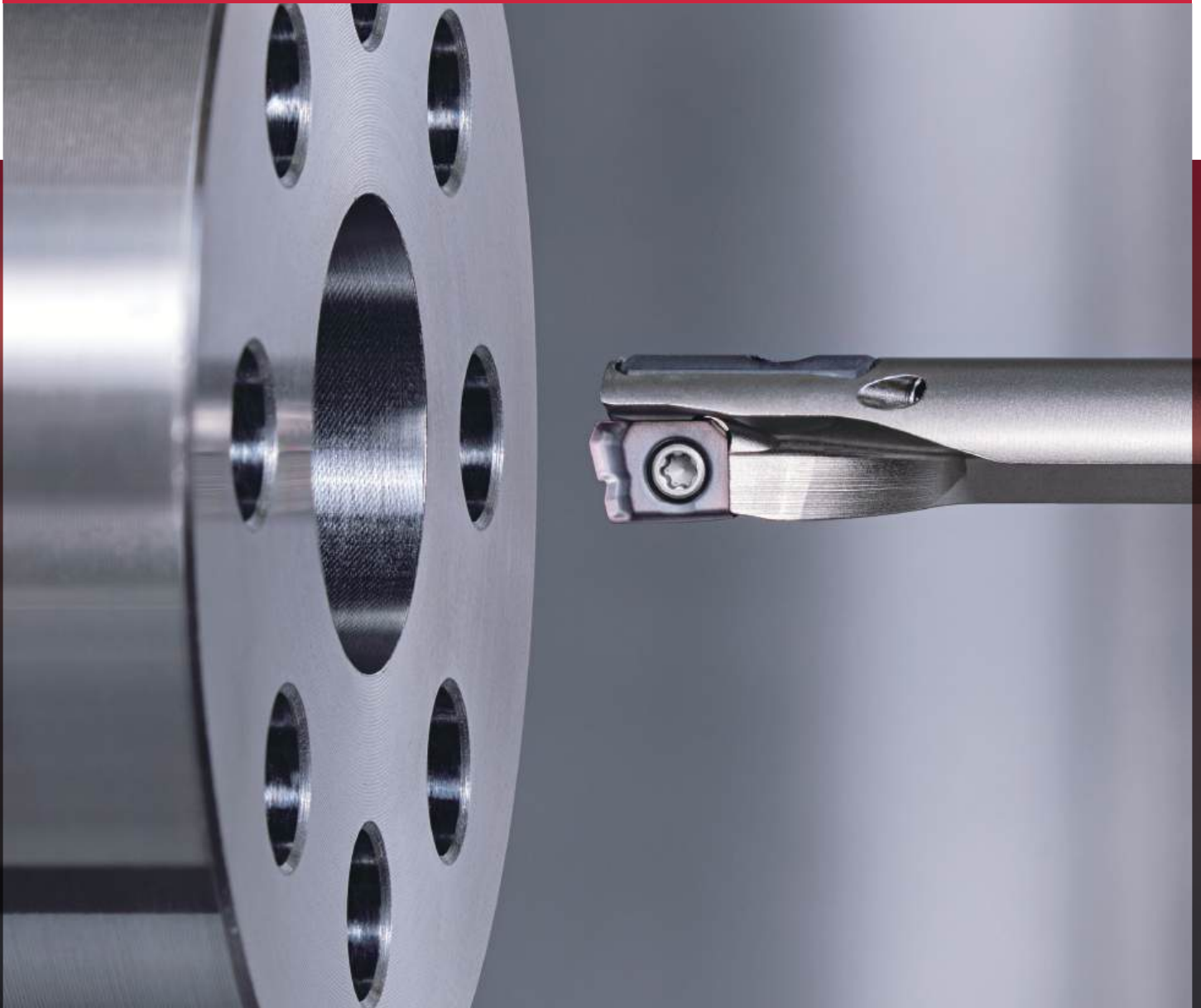
For more information

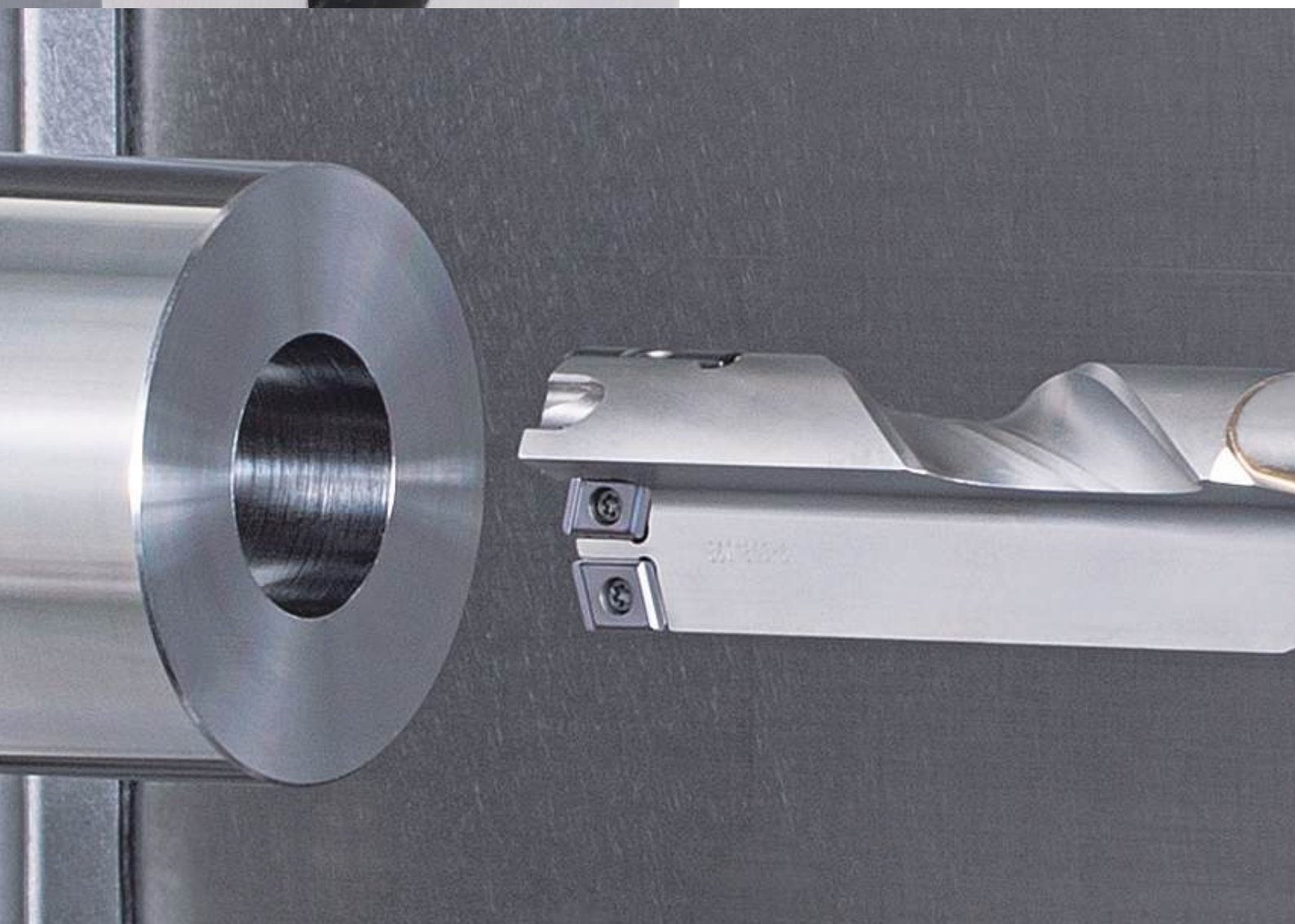
Deep hole drill

DEEPT^{RI}DRILL

Tungaloy Report No. 430-US

Introducing new 0.313" drill line to
the highly efficient indexable gundrill series







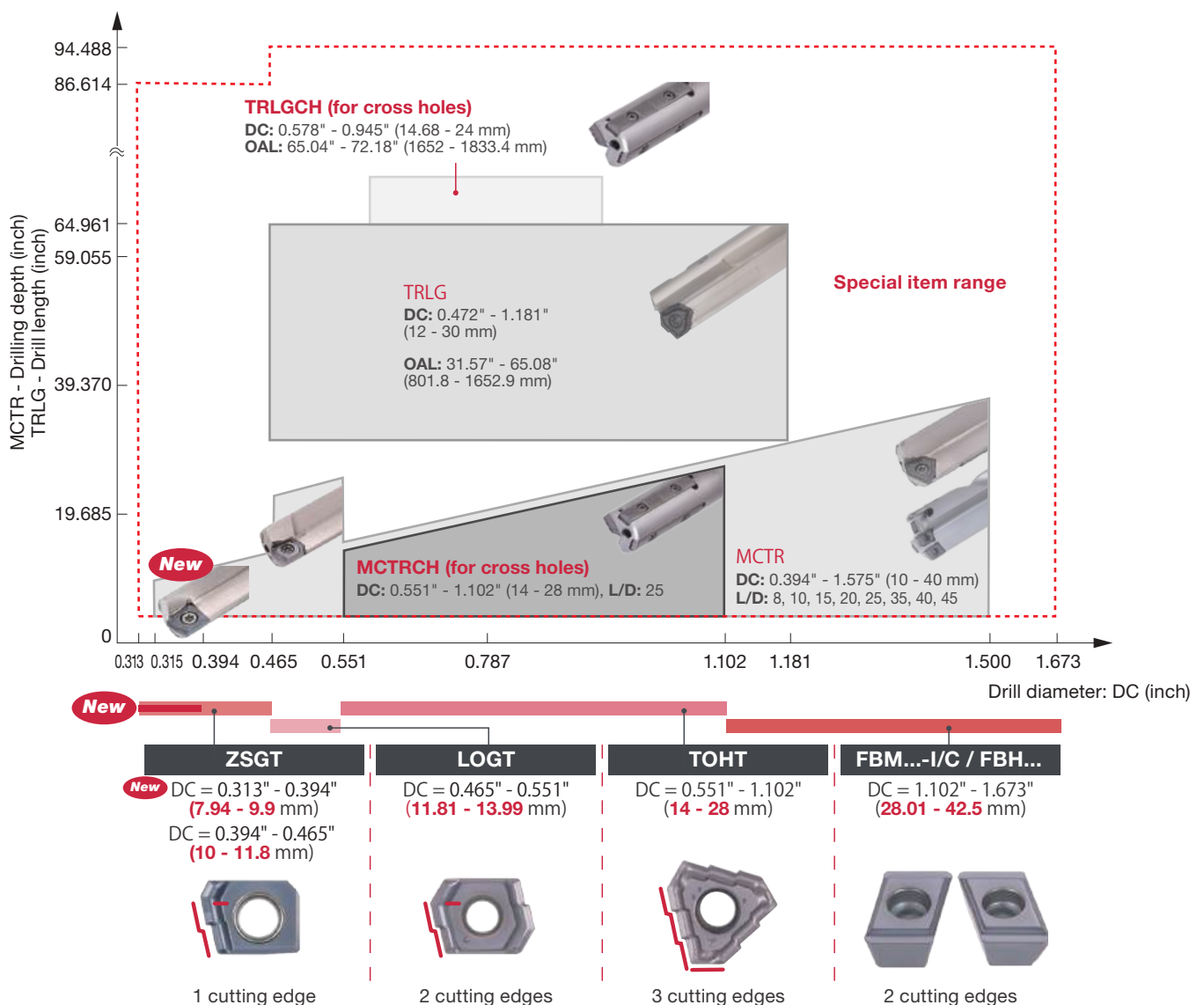
DEEPT^{RI}DRILL



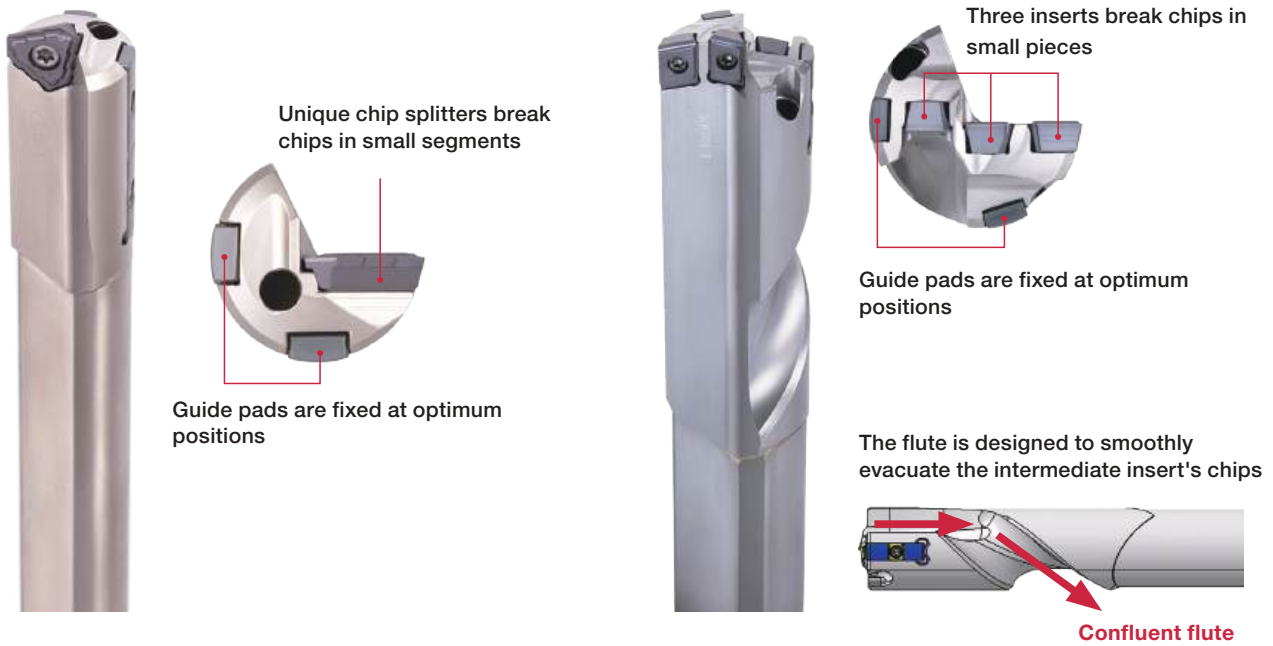
Indexable gundrills ensures reliable deep hole drilling
at accelerated feeds and speeds

DeepTri-Drill indexable gundrill with exceptional efficiency now offers **smaller diameters**

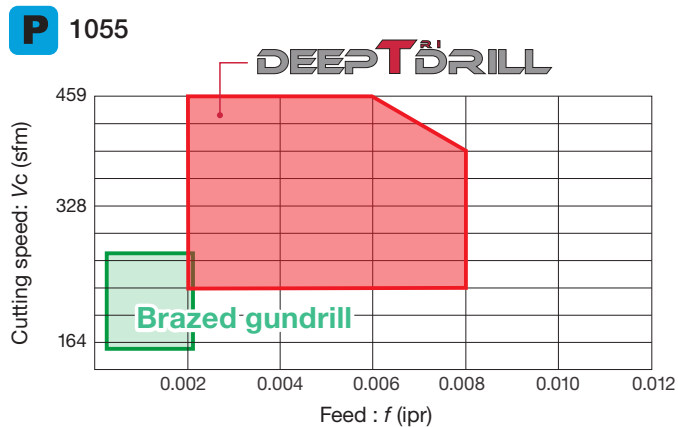
■ Wide range of solutions for various deep hole applications



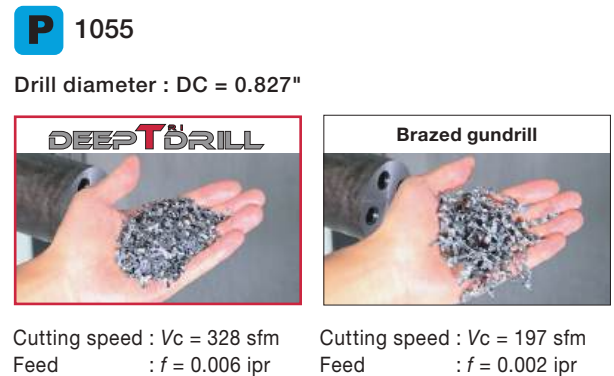
■ Optimal tool design



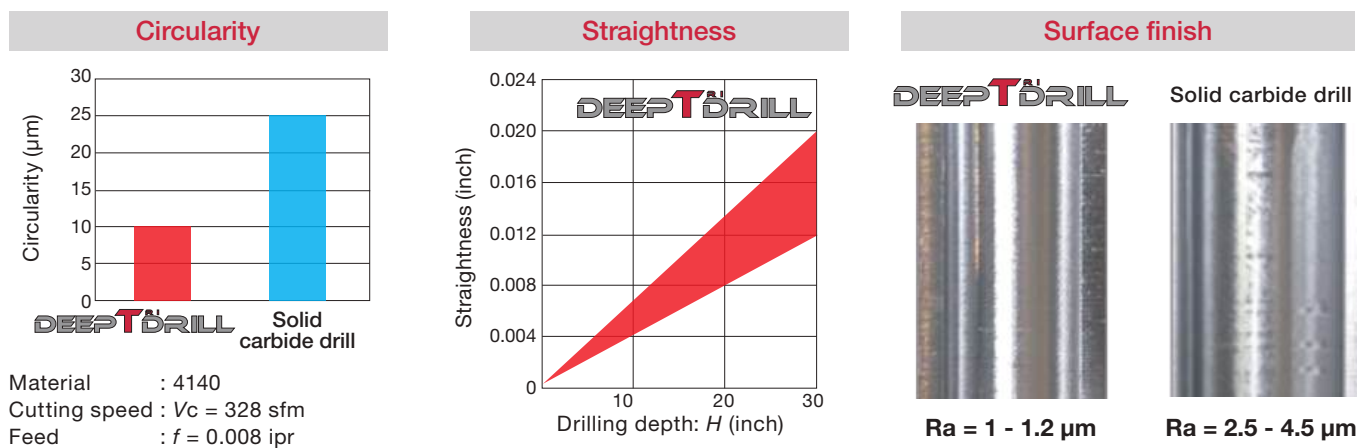
■ Comparison of performance between brazed and indexable gundrills



■ Chip forms

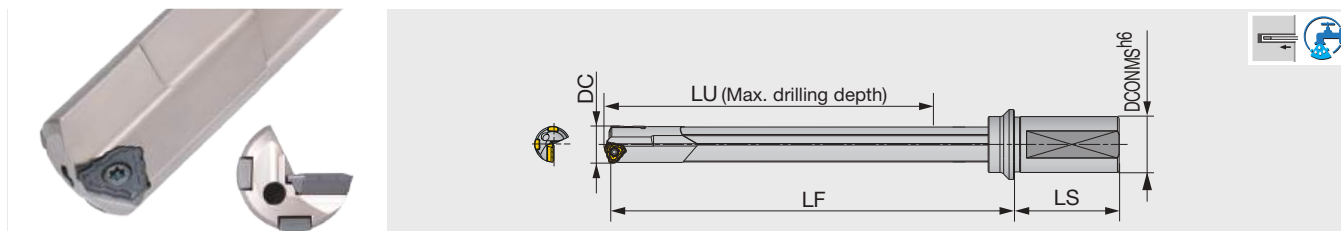


■ Excellent hole roundness, straightness, and surface finish



MCTR L/D=10

Indexable gundrill, L/D = 10, for lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR15.88XU25.4-10	0.625	1.000	6.378	2.205	7.835	TOHT07...	GP05-060, GP05-18-060-DC
MCTR17.45XU25.4A-10	0.687	1.000	7.173	2.205	8.661	TOHT08...	GP05-075, GP05-18-075-DC
MCTR18.24XU25.4-10	0.718	1.000	7.598	2.205	9.134	TOHT09...	GP06-085, GP06-20-085-DC
MCTR18.64XU25.4-10	0.734	1.000	7.598	2.205	9.134	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.05XU25.4-10	0.750	1.000	7.992	2.205	9.567	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.94XU31.75-10	0.785	1.250	8.386	2.362	10.039	TOHT09...	GP06-085, GP06-20-085-DC
MCTR20.62XU31.75-10	0.812	1.250	8.394	2.362	10.039	TOHT10...	GP06-085, GP06-20-085-DC
MCTR22.23XU31.75-10	0.875	1.250	9.189	2.362	10.945	TOHT11...	GP06-100, GP06-20-100-DC
MCTR23.80XU31.75-10	0.937	1.250	9.976	2.362	11.850	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.40XU31.75-10	1.000	1.250	10.378	2.362	12.283	TOHT12...	GP06, GP06-20-120-DC
MCTR26.97XU31.75X-10	1.062	1.250	11.165	2.362	13.189	TOHT12...	GP06, GP06-20-120-DC

Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR16.00XM25A-10	16	25	172.2	56	209	TOHT08...	GP05-075, GP05-18-075-DC
MCTR16.50XM25A-10	16.5	25	172.2	56	209	TOHT08...	GP05-075, GP05-18-075-DC
MCTR17.00XM25A-10	17	25	182.2	56	220	TOHT08...	GP05-075, GP05-18-075-DC
MCTR17.45XU25.4A-10	17.45	25.4	182.2	56	220	TOHT08..	GP05-075, GP05-18-075-DC
MCTR18.00XM25A-10	18	25	192.2	56	232	TOHT08...	GP05-075, GP05-18-075-DC
MCTR18.24XU25.4-10	18.24	25.4	193	56	232	TOHT09..	GP06-085, GP06-20-085-DC
MCTR18.64XU25.4-10	18.64	25.4	193	56	232	TOHT09..	GP06-085, GP06-20-085-DC
MCTR19.00XM25-10	19	25	203	56	243	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.05XU25.4-10	19.05	25.4	203	56	243	TOHT09..	GP06-085, GP06-20-085-DC
MCTR19.94XU31.75-10	19.94	31.75	213	60	255	TOHT09..	GP06-085, GP06-20-085-DC
MCTR20.00XM32-10	20	32	213	60	255	TOHT09...	GP06-085, GP06-20-085-DC
MCTR20.62XU31.75-10	20.62	31.75	213.2	60	255	TOHT10...	GP06-085, GP06-20-085-DC
MCTR21.00XM32-10	21	32	223.2	60	266	TOHT10...	GP06-085, GP06-20-085-DC
MCTR22.00XM32-10	22	32	233.4	60	278	TOHT11...	GP06-100, GP06-20-100-DC
MCTR22.23XU31.75-10	22.23	31.75	233.4	60	278	TOHT11..	GP06-100, GP06-20-100-DC
MCTR23.00XM32-10	23	32	243.4	60	289	TOHT11...	GP06-100, GP06-20-100-DC
MCTR23.80XU31.75-10	23.8	31.75	253.4	60	301	TOHT11..	GP06-100, GP06-20-100-DC
MCTR24.00XM32-10	24	32	253.4	60	301	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.00XM32-10	25	32	263.4	60	312	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.40XU31.75-10	25.4	31.75	263.7	60	312	TOHT12..	GP06, GP06-20-120-DC
MCTR26.00XM40-10	26	40	273.7	70	324	TOHT12...	GP06, GP06-20-120-DC
MCTR26.97XU31.75X-10	26.97	31.75	283.7	60	335	TOHT12..	GP06, GP06-20-120-DC
MCTR27.00XM40-10	27	40	283.7	70	335	TOHT12...	GP06, GP06-20-120-DC
MCTR28.00XM40-10	28	40	283.7	70	337	TOHT12...	GP06, GP06-20-120-DC

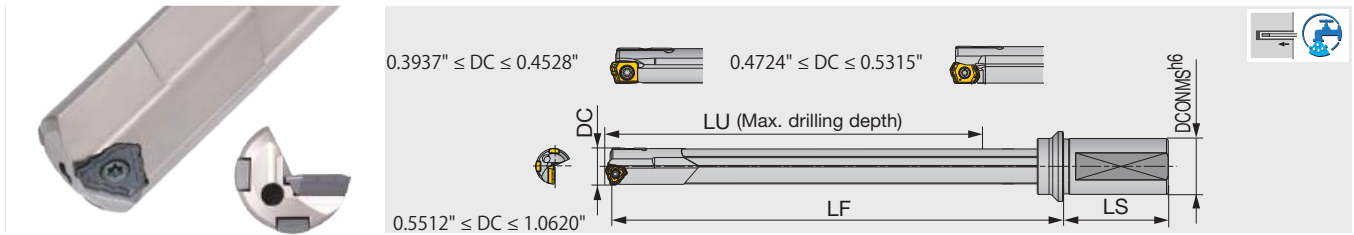
DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.625 - 1.102	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

Reference pages: Spare parts → **P.13**, Inserts → **P.25**, Guide pads → **P.29**

MCTR L/D=15

Indexable gundrill, L/D = 15, for lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR11.11XU19.05-15	0.437	0.750	7.154	1.968	8.228	ZSGT06...	GP04-16-050-DC
MCTR12.70XU25.4-15	0.500	1.000	7.748	2.205	9.016	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.49XU25.4-15	0.531	1.000	8.339	2.205	9.646	LOGT06...	GP04-055, GP04-16-055-DC
MCTR14.27XU25.4-15	0.562	1.000	8.937	2.205	10.276	TOHT07...	GP05-060, GP05-18-060-DC
MCTR15.88XU25.4-15	0.625	1.000	9.528	2.205	10.984	TOHT07...	GP05-060, GP05-18-060-DC
MCTR17.45XU25.4A-15	0.687	1.000	10.717	2.205	12.205	TOHT08...	GP05-075, GP05-18-075-DC
MCTR18.24XU25.4-15	0.718	1.000	11.339	2.205	12.874	TOHT09...	GP06-085, GP06-20-085-DC
MCTR18.64XU25.4-15	0.734	1.000	11.339	2.205	12.874	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.05XU25.4-15	0.750	1.000	11.929	2.205	13.504	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.94XU31.75-15	0.785	1.250	12.520	2.362	14.173	TOHT09...	GP06-085, GP06-20-085-DC
MCTR20.62XU31.75-15	0.812	1.250	12.528	2.362	14.173	TOHT10...	GP06-085, GP06-20-085-DC
MCTR22.23XU31.75-15	0.875	1.250	13.717	2.362	15.472	TOHT11...	GP06-100, GP06-20-100-DC
MCTR23.80XU31.75-15	0.937	1.250	14.898	2.362	16.772	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.40XU31.75-15	1.000	1.250	15.496	2.362	17.402	TOHT12...	GP06, GP06-20-120-DC
MCTR26.97XU31.75X-15	1.062	1.250	16.677	2.362	18.701	TOHT12...	GP06, GP06-20-120-DC

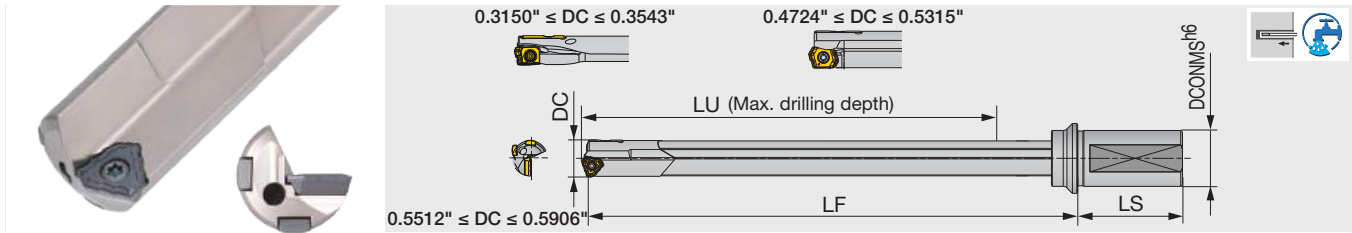
Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR12.00XM20-15	12	20	196.8	50	225	LOGT06...	GP04-055, GP04-16-055-DC
MCTR12.50XM20-15	12.5	20	196.8	50	226	LOGT06...	GP04-055, GP04-16-055-DC
MCTR12.70XU25.4-15	12.7	25.4	196.8	56	229	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.00XM25-15	13	25	211.8	56	245	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.49XU25.4-15	13.49	25.4	211.8	56	245	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.50XM25-15	13.5	25	211.8	56	245	LOGT06...	GP04-055, GP04-16-055-DC
MCTR14.00XM25-15	14	25	227	56	245	TOHT07...	GP05-060, GP05-18-060-DC
MCTR14.27XU25.4-15	14.27	25.4	227	56	261	TOHT07..	GP05-060, GP05-18-060-DC
MCTR14.50XM25-15	14.5	25	227	56	262	TOHT07...	GP05-060, GP05-18-060-DC
MCTR15.00XM25-15	15	25	242	56	278	TOHT07...	GP05-060, GP05-18-060-DC
MCTR15.88XU25.4-15	15.88	25.4	242	56	279	TOHT07..	GP05-060, GP05-18-060-DC
MCTR16.00XM25A-15	16	25	257.2	56	294	TOHT08...	GP05-075, GP05-18-075-DC
MCTR16.50XM25A-15	16.5	25	257.2	56	294	TOHT08...	GP05-075, GP05-18-075-DC
MCTR17.00XM25A-15	17	25	272.2	56	310	TOHT08...	GP05-075, GP05-18-075-DC
MCTR17.45XU25.4A-15	17.45	25.4	272.2	56	310	TOHT08..	GP05-075, GP05-18-075-DC
MCTR17.50XM25A-15	17.5	25	272.2	56	310	TOHT08...	GP05-075, GP05-18-075-DC
MCTR18.00XM25A-15	18	25	287.2	56	327	TOHT08...	GP05-075, GP05-18-075-DC
MCTR18.24XU25.4-15	18.24	25.4	288	56	327	TOHT09..	GP06-085, GP06-20-085-DC
MCTR18.50XM25-15	18.5	25	288	56	327	TOHT09...	GP06-085, GP06-20-085-DC
MCTR18.64XU25.4-15	18.64	25.4	288	56	327	TOHT09..	GP06-085, GP06-20-085-DC
MCTR19.00XM25-15	19	25	303	56	343	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.05XU25.4-15	19.05	25.4	303	56	343	TOHT09..	GP06-085, GP06-20-085-DC
MCTR19.50XM25-15	19.5	25	303	56	343	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.94XU31.75-15	19.94	31.75	318	60	360	TOHT09..	GP06-085, GP06-20-085-DC
MCTR20.00XM32-15	20	32	318	60	360	TOHT09...	GP06-085, GP06-20-085-DC
MCTR20.62XU31.75-15	20.62	31.75	318.2	60	360	TOHT10..	GP06-085, GP06-20-085-DC
MCTR21.00XM32-15	21	32	333.2	60	376	TOHT10...	GP06-085, GP06-20-085-DC
MCTR22.00XM32-15	22	32	348.4	60	393	TOHT11...	GP06-100, GP06-20-100-DC
MCTR22.23XU31.75-15	22.23	31.75	348.4	60	393	TOHT11..	GP06-100, GP06-20-100-DC
MCTR23.00XM32-15	23	32	363.4	60	409	TOHT11...	GP06-100, GP06-20-100-DC
MCTR23.80XU31.75-15	23.8	31.75	378.4	60	426	TOHT11..	GP06-100, GP06-20-100-DC
MCTR24.00XM32-15	24	32	378.4	60	426	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.00XM32-15	25	32	393.4	60	442	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.40XU31.75-15	25.4	31.75	393.7	60	442	TOHT12..	GP06, GP06-20-120-DC
MCTR26.00XM40-15	26	40	408.7	70	459	TOHT12...	GP06, GP06-20-120-DC
MCTR26.97XU31.75X-15	26.97	31.75	423.7	60	475	TOHT12..	GP06, GP06-20-120-DC
MCTR27.00XM40-15	27	40	423.7	70	475	TOHT12...	GP06, GP06-20-120-DC
MCTR28.00XM40-15	28	40	423.7	70	477	TOHT12...	GP06, GP06-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.437 - 1.102	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

MCTR L/D=20

Indexable gundrill, L/D = 20, for lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR11.11XU19.05-20	0.437	0.750	9.516	1.968	10.591	ZSGT06...	GP04-16-050-DC

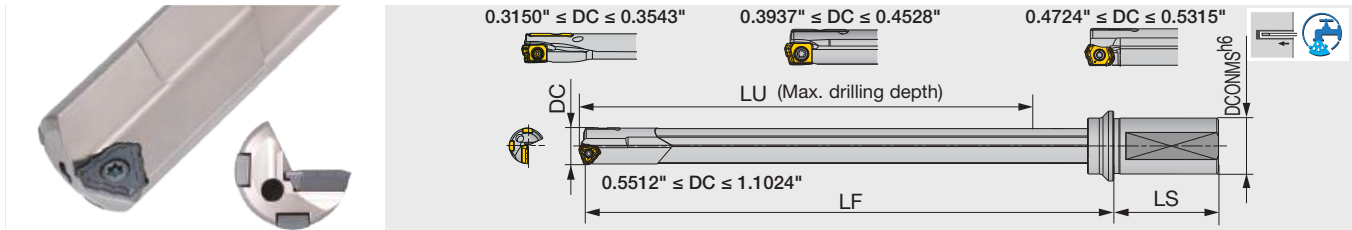
Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR12.00XM20-20	12	20	261.8	50	290	LOGT06...	GP04-055, GP04-16-055-DC
MCTR12.50XM20-20	12.5	20	261.8	50	291	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.00XM25-20	13	25	281.8	56	315	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.50XM25-20	13.5	25	281.8	56	315	LOGT06...	GP04-055, GP04-16-055-DC
MCTR14.00XM25-20	14	25	302	56	336	TOHT07...	GP05-060, GP05-18-060-DC
MCTR14.50XM25-20	14.5	25	302	56	337	TOHT07...	GP05-060, GP05-18-060-DC
MCTR15.00XM25-20	15	25	322	56	358	TOHT07...	GP05-060, GP05-18-060-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.437	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

MCTR L/D=25

Indexable gundrill, L/D = 25, for lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR07.94XU19.05-25	0.313	0.750	8.315	1.969	9.213	ZSGT04...	SGP03-12-035-DC
MCTR08.73XU19.05-25	0.344	0.750	8.906	1.969	9.843	ZSGT04...	SGP03-12-040-DC
MCTR09.53XU19.05-25	0.375	0.750	9.591	1.969	10.571	ZSGT05...	SGP03-12-040-DC
MCTR11.11XU19.05-25	0.437	0.750	11.878	1.969	12.953	ZSGT06...	GP04-16-050-DC
MCTR12.70XU25.4-25	0.500	1.000	12.866	2.205	14.134	LOGT06...	GP04-055, GP04-16-055-DC
MCTR13.49XU25.4-25	0.531	1.000	13.850	2.205	15.157	LOGT06...	GP04-055, GP04-16-055-DC
MCTR14.27XU25.4-25	0.562	1.000	14.843	2.205	16.181	TOHT07...	GP05-060, GP05-18-060-DC
MCTR15.88XU25.4-25	0.625	1.000	15.827	2.205	17.283	TOHT07...	GP05-060, GP05-18-060-DC
MCTR17.45XU25.4A-25	0.687	1.000	17.803	2.205	19.291	TOHT080...	GP05-075, GP05-18-075-DC
MCTR18.24XU25.4-25	0.718	1.000	18.819	2.205	20.354	TOHT09...	GP06-085, GP06-20-085-DC
MCTR18.64XU25.4-25	0.734	1.000	18.819	2.205	20.354	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.05XU25.4-25	0.750	1.000	19.803	2.205	21.378	TOHT09...	GP06-085, GP06-20-085-DC
MCTR19.94XU31.75-25	0.785	1.250	20.787	2.362	22.441	TOHT09...	GP06-085, GP06-20-085-DC
MCTR20.62XU31.75-25	0.812	1.250	20.795	2.362	22.441	TOHT10...	GP06-085, GP06-20-085-DC
MCTR21.46XU31.75-25	0.845	1.250	21.780	2.362	23.465	TOHT10...	GP06-100, GP06-20-100-DC
MCTR22.23XU31.75-25	0.875	1.250	22.772	2.362	24.528	TOHT11...	GP06-100, GP06-20-100-DC
MCTR23.80XU31.75-25	0.937	1.250	24.740	2.362	26.614	TOHT11...	GP06-100, GP06-20-100-DC
MCTR25.40XU31.75-25	1.000	1.250	25.732	2.362	27.638	TOHT12...	GP06, GP06-20-120-DC
MCTR26.97XU31.75X-25	1.062	1.250	27.701	2.362	29.724	TOHT12...	GP06, GP06-20-120-DC
MCTR26.97XU38.1-25	1.062	1.500	27.701	2.756	29.724	TOHT12...	GP06, GP06-20-120-DC

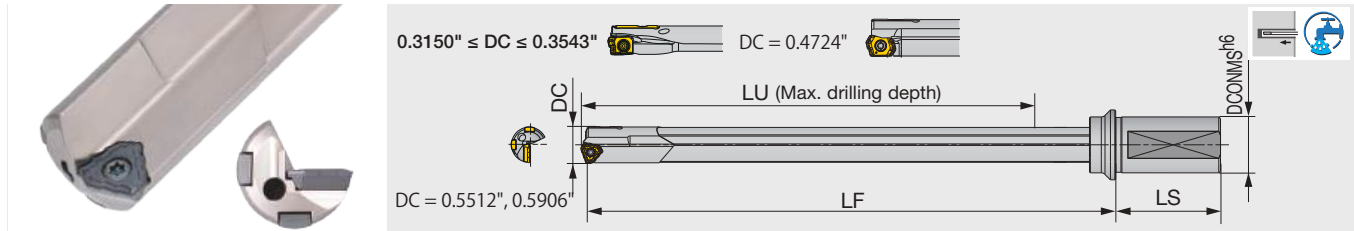
	Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
New	MCTR08.00XM20-25	8	20	211.2	50	234	ZSGT04...	SGP03-12-035-DC
New	MCTR08.50XM20-25	8.5	20	218.7	50	242.5	ZSGT04...	SGP03-12-040-DC
New	MCTR09.00XM20-25	9	20	236.1	50	261	ZSGT05...	SGP03-12-040-DC
	MCTR10.00XM20-25	10	20	264.2	50	289.5	ZSGT06...	GP04-16-045-DC
	MCTR11.00XM20-25	11	20	301.7	50	329	ZSGT06...	GP04-16-050-DC
	MCTR11.50XM20-25	11.5	20	301.7	50	329	ZSGT06...	GP04-16-050-DC
	MCTR12.00XM20-25	12	20	326.8	50	355	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR12.50XM20-25	12.5	20	326.8	50	356	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR12.70XU25.4-25	12.7	25.4	326.8	56	359	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR13.00XM25-25	13	25	351.8	56	385	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR13.49XU25.4-25	13.49	25.4	351.8	56	385	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR13.50XM25-25	13.5	25	351.8	56	385	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR14.00XM25-25	14	25	377	56	411	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR14.27XU25.4-25	14.27	25.4	377	56	411	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR14.50XM25-25	14.5	25	377	56	412	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR15.00XM25-25	15	25	402	56	438	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR15.88XU25.4-25	15.88	25.4	402	56	439	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR16.00XM25A-25	16	25	427.2	56	464	TOHT08...	GP05-075, GP05-18-075-DC
	MCTR16.50XM25A-25	16.5	25	427.2	56	464	TOHT08...	GP05-075, GP05-18-075-DC
	MCTR17.00XM25A-25	17	25	452.2	56	490	TOHT08...	GP05-075, GP05-18-075-DC
	MCTR17.45XU25.4A-25	17.45	25.4	452.2	56	490	TOHT08...	GP05-075, GP05-18-075-DC
	MCTR17.50XM25A-25	17.5	25	452.2	56	490	TOHT08...	GP05-075, GP05-18-075-DC
	MCTR18.00XM25A-25	18	25	477.2	56	517	TOHT08...	GP05-075, GP05-18-075-DC
	MCTR18.24XU25.4-25	18.24	25.4	478	56	517	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR18.50XM25-25	18.5	25	478	56	517	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR18.64XU25.4-25	18.64	25.4	478	56	517	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR19.00XM25-25	19	25	503	56	543	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR19.05XU25.4-25	19.05	25.4	503	56	543	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR19.50XM25-25	19.5	25	503	56	543	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR19.94XU31.75-25	19.94	31.75	528	60	570	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR20.00XM32-25	20	32	528	60	570	TOHT09...	GP06-085, GP06-20-085-DC
	MCTR20.62XU31.75-25	20.62	31.75	528.2	60	570	TOHT10...	GP06-085, GP06-20-085-DC
	MCTR21.00XM32-25	21	32	553.2	60	596	TOHT10...	GP06-085, GP06-20-085-DC
	MCTR22.00XM32-25	22	32	578.4	60	623	TOHT11...	GP06-100, GP06-20-100-DC
	MCTR22.23XU31.75-25	22.23	31.75	578.4	60	623	TOHT11...	GP06-100, GP06-20-100-DC
	MCTR23.00XM32-25	23	32	603.4	60	649	TOHT11...	GP06-100, GP06-20-100-DC
	MCTR23.80XU31.75-25	23.8	31.75	628.4	60	676	TOHT11...	GP06-100, GP06-20-100-DC
	MCTR24.00XM32-25	24	32	628.4	60	676	TOHT11...	GP06-100, GP06-20-100-DC
	MCTR25.00XM32-25	25	32	653.4	60	702	TOHT11...	GP06-100, GP06-20-100-DC
	MCTR25.40XU31.75-25	25.4	31.75	653.7	60	702	TOHT12...	GP06, GP06-20-120-DC
	MCTR26.00XM40-25	26	40	678.7	70	729	TOHT12...	GP06, GP06-20-120-DC
	MCTR26.97XU31.75X-25	26.97	31.75	703.7	60	755	TOHT12...	GP06, GP06-20-120-DC
	MCTR27.00XM40-25	27	40	703.7	70	755	TOHT12...	GP06, GP06-20-120-DC
	MCTR28.00XM40-25	28	40	703.7	70	757	TOHT12...	GP06, GP06-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.315 - 1.102	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

MCTR L/D=35, 40, 45

Indexable gundrill, L/D = 35, 40, 45, for lathes and machining centers



Inch	DC	L/D	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR07.94XU19.05-35	0.313	35	0.750	11.622	1.969	12.520	ZSGT04...	SGP03-12-035-DC
MCTR08.73XU19.05-45	0.344	45	0.750	15.992	1.969	16.929	ZSGT04...	SGP03-12-040-DC
MCTR09.53XU19.05-45	0.375	45	0.750	17.228	1.969	18.209	ZSGT05...	SGP03-12-040-DC
MCTR11.11XU19.05-35	0.437	35	0.750	16.602	1.969	17.677	ZSGT06...	GP04-16-050-DC
MCTR11.11XU19.05-45	0.437	45	0.750	21.327	1.969	22.402	ZSGT06...	GP04-16-050-DC

	Metric	DC	L/D	DCONMS	LU	LS	LF	Insert	Guide pad
New	MCTR08.00XM20-45	8	45	20	379.2	50	402	ZSGT04...	SGP03-12-035-DC
New	MCTR08.50XM20-40	8.5	40	20	349.2	50	373	ZSGT04...	SGP03-12-040-DC
New	MCTR09.00XM20-40	9	40	20	377.1	50	402	ZSGT05...	SGP03-12-040-DC
	MCTR12.00XM20-35	12	35	20	456.8	50	485	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR12.00XM20-40	12	40	20	521.8	50	550	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR12.00XM20-45	12	45	20	586.8	50	615	LOGT06...	GP04-055, GP04-16-055-DC
	MCTR14.00XM25-35	14	35	25	527	56	561	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR14.00XM25-40	14	40	25	602	56	636	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR15.00XM25-35	15	35	25	562	56	598	TOHT07...	GP05-060, GP05-18-060-DC
	MCTR15.00XM25-40	15	40	25	642	56	678	TOHT07...	GP05-060, GP05-18-060-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.313 - 0.437	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

INCH SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR07.94... - MCTR09.53...	CSPB-2FL3.1	IP-6F	CSPB-2FL2.7-LH	IP-6F
MCTR11...	SR-M2.5X0.35L3.8	T-7F	CSTB-2	T-6F
MCTR12... - MCTR13.5...	SR10503833L040	T-7F	CSPB-2L043	IP-6F
MCTR14... - MCTR20.00...	SR 14-560/S	T-8F	SR 34-508	T-7F
MCTR20.62... - MCTR21...	SR34-506	T-9F	SR 34-508	T-7F
MCTR22... - MCTR25.00...	SR 14-571/S	T-10/5	SR 34-508	T-7F
MCTR25.4... - MCTR26.97...	SR14-506	T-15F	SR 34-508	T-7F

Recommended clamping torque (lb-ft): CSPB-2L043, CSPB-2FL2.7-LH, CSPB-2FL3.1, CSTB-2=0.52, SR10503833L040=0.96, SR14-506=3.54, SR 14-560/S=0.89, SR 14-571/S=2.36, SR34-506=0.66, SR 34-508=0.66, SR-M2.5X0.35L3.8=0.66

METRIC SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
New MCTR08...	CSPB-2FL3.1	IP-6F	CSPB-2FL2.7-LH	IP-6F
New MCTR08.5..., MCTR09...	CSPB-2FL3.1	IP-6F	CSPB-2FL3.1	IP-6F
MCTR10... - MCTR11.5...	SR-M2.5X0.35L3.8	T-7F	CSTB-2	T-6F
MCTR12... - MCTR13.5...	SR10503833L040	T-7F	CSPB-2L043	IP-6F
MCTR14... - MCTR20...	SR14-560/S	T-8F	SR34-508	T-7F
MCTR20.62... - MCTR21...	SR34-506	T-9F	SR34-508	T-7F
MCTR22... - MCTR25...	SR14-571/S	T-10/5	SR34-508	T-7F
MCTR25.4... - MCTR28...	SR14-506	T-15F	SR34-508	T-7F

Recommended torque (N·m) for clamping: CSPB-2FL3.1, CSPB-2FL2.7-LH=0.6, CSPB-2L043=0.7, CSTB-2=0.7, SR34-508, SR34-506=0.9, SR14560/S=1.2, SR14-571/S=3.2, SR14-506=4.8, SR10503833L040=1.3, SR-M2.5X0.35L3.8=0.9



Caution

Color of screws and its tightening direction are different for inserts and guide pads.

Inch Tools: ($\phi 0.313'' \leq \phi DC < \phi 0.375''$)
Metric Tools: ($\phi 7.94 \text{ mm} \leq \phi DC < \phi 8.5 \text{ mm}$)

Screws for inserts

CSPB-2FL3.1



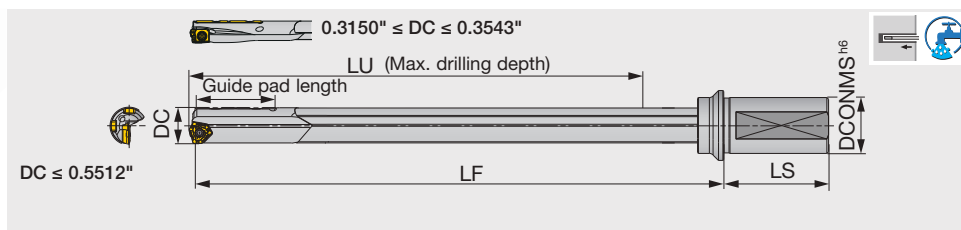
Screws for guide pads

CSPB-2FL2.7-LH



MCTRCH L/D=25, 40, 45

Indexable drill, L/D = 25, 40, 45 for drilling cross hole applications on CNC lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad	Guide pad length
MCTRCH14.68XU25.4-25	0.578	1	14.843	2.205	16.220	TOHT07...	GP05-060, GP05-18-060-DC	1.417
MCTRCH15.06XU25.4-25	0.593	1	15.827	2.205	17.244	TOHT07...	GP05-060, GP05-18-060-DC	1.417
MCTRCH18.24XU25.4-25	0.718	1	18.819	2.205	20.354	TOHT09...	GP06-085, GP06-20-085-DC	1.575
MCTRCH18.64XU25.4-25	0.734	1	18.819	2.205	20.354	TOHT09...	GP06-085, GP06-20-085-DC	1.575
MCTRCH23.80XU31.75-25	0.937	1.25	24.740	2.362	26.614	TOHT11...	GP06-100, GP06-20-100-DC	1.575

	Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad	Guide pad length
New	MCTRCH08.00XM20-25	8	20	211.2	50	234	ZSGT04...	SGP03-12-035-DC	24
New	MCTRCH08.00XM20-45	8	20	379.2	50	402	ZSGT04...	SGP03-12-035-DC	24
New	MCTRCH08.50XM20-25	8.5	20	218.7	50	242.5	ZSGT04...	SGP03-12-040-DC	24
New	MCTRCH08.50XM20-40	8.5	20	349.2	50	373	ZSGT04...	SGP03-12-040-DC	24
	MCTRCH14.00XM25-25	14	25	377	56	411	TOHT07...	GP05-060, GP05-18-060-DC	36
	MCTRCH14.68XU25.4-25	14.68	25.4	377	56	412	TOHT07...	GP05-060, GP05-18-060-DC	36
	MCTRCH15.00XM25-25	15	25	402	56	438	TOHT07...	GP05-060, GP05-18-060-DC	36
	MCTRCH15.06XU25.4-25	15.06	25.4	402	56	438	TOHT07...	GP05-060, GP05-18-060-DC	36
	MCTRCH16.00XM25A-25	16	25	427.2	56	464	TOHT08...	GP05-075, GP05-18-075-DC	36
	MCTRCH18.00XM25A-25	18	25	477.2	56	517	TOHT08...	GP05-075, GP05-18-075-DC	36
	MCTRCH18.24XU25.4-25	18.24	25.4	478	56	517	TOHT09...	GP06-085, GP06-20-085-DC	40
	MCTRCH18.64XU25.4-25	18.64	25.4	478	56	517	TOHT09...	GP06-085, GP06-20-085-DC	40
	MCTRCH19.00XM25-25	19	25	503	56	543	TOHT09...	GP06-085, GP06-20-085-DC	40
	MCTRCH20.00XM32-25	20	32	528	60	570	TOHT09...	GP06-085, GP06-20-085-DC	40
	MCTRCH23.00XM32-25	23	32	603.4	60	649	TOHT11...	GP06-100, GP06-20-100-DC	40
	MCTRCH23.80XU31.75-25	23.8	31.75	628.4	60	676	TOHT11...	GP06-100, GP06-20-100-DC	40
	MCTRCH24.00XM32-25	24	32	628.4	60	676	TOHT11...	GP06-100, GP06-20-100-DC	40
	MCTRCH28.00XM40-25	28	40	703.7	70	757	TOHT12...	GP06, GP06-20-120-DC	40

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.551 - 1.102	0 / - 0.004	+ 0.002 / - 0.005

(Unit: Inch)

INCH SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTRCH14... - MCTRCH20...	SR 14-560/S	T-8F	SR 34-508	T-7F
MCTRCH23...	SR 14-571/S	T-10/5	SR 34-508	T-7F

Recommended torque (lb-ft) for clamping: SR 14-560/S=0.89, SR 14-571/S=2.36, SR 34-508=0.66

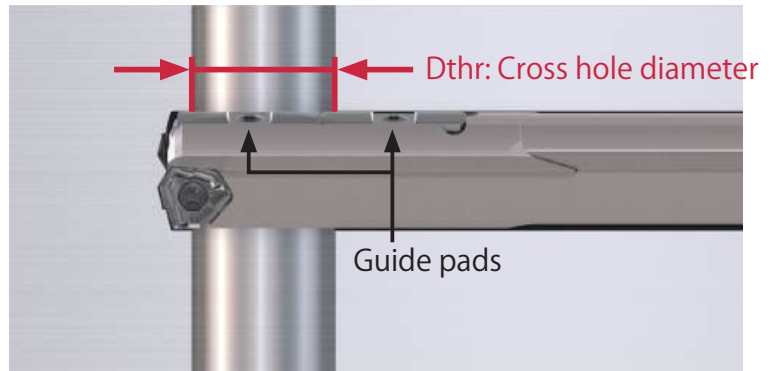
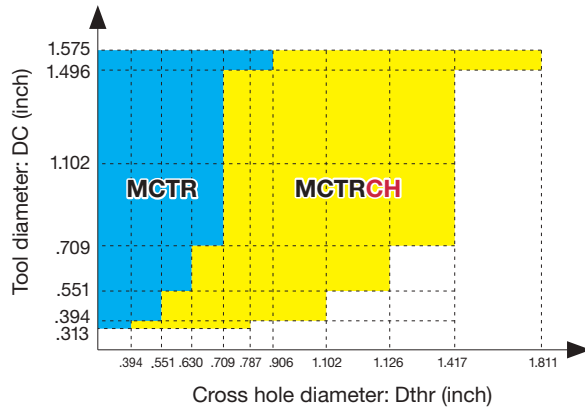
METRIC SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTRCH08...	CSPB-2FL3.1	IP-6F	CSPB-2FL2.7-LH	IP-6F
MCTRCH14... - MCTRCH20...	SR14-560/S	T-8F	SR34-508	T-7F
MCTRCH23... - MCTRCH24...	SR14-571/S	T-10/5	SR34-508	T-7F
MCTRCH28...	SR14-506	T-15F	SR34-508	T-7F

Recommended torque (N·m) for clamping: CSPB-2FL3.1, CSPB-2FL2.7-LH=0.6, SR34-508=0.9, SR14-560/S=1.2, SR14-571/S=3.2, SR14-506=4.8

Reference pages: Inserts → **P.25**, Guide pads → **P.29**

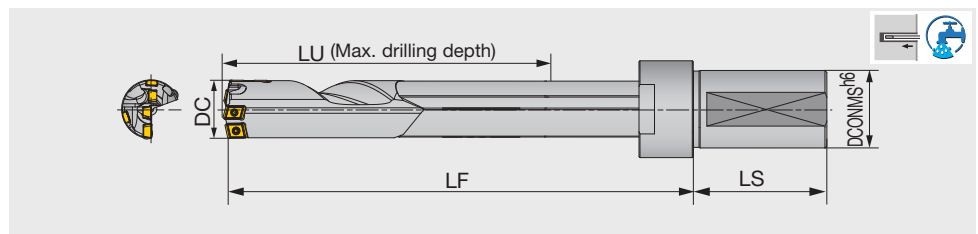
■ Tool selection with regard to cross hole diameters and drill diameters



Note: An MCTR drill can be used when the cross hole diameter (Dthr) is smaller than the drill's guide pad length. When the cross hole diameter is larger than the drill's guide pad length, use an MCTRCH drill.

MCTR-F L/D=8

Indexable gundrill, L/D = 8, for lathes and machining centers



Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR33.10XFM40-8	33.1	40	275	69	350	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR39.10XFM40-8	39.1	40	323	69	407	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC

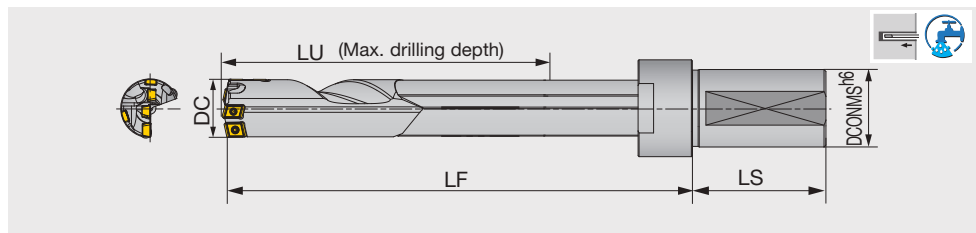
DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
33.1, 39.1	0 / - 0.07	+ 0.05 / - 0.1

(Unit: mm)

Caution:
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven. This, however, will not affect the performance of the drill.

MCTR-F L/D=10

Indexable gundrill, L/D = 10, for lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR28.58XFU31.75-10	1.125	1.250	11.520	2.717	14.173	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR31.75XFU31.75-10	1.250	1.250	12.717	2.717	15.551	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR34.93XFU31.75-10	1.375	1.250	13.902	2.717	16.850	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.10XFU31.75-10	1.500	1.250	15.488	2.717	18.661	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC

Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR28.58XFU31.75-10	28.58	31.75	292.6	69	360	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR29.00XFM40-10	29	40	292.6	69	360	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR30.00XFM40-10	30	40	312.9	69	383	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR31.00XFM40-10	31	40	312.9	69	383	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR31.75XFU31.75-10	31.75	31.75	323	69	395	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR32.00XFM40-10	32	40	323	69	395	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR33.00XFM40-10	33	40	333.1	69	406	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR34.00XFM40-10	34	40	343	69	418	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR34.93XFU31.75-10	34.93	31.75	353.1	69	428	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR35.00XFM40-10	35	40	353.1	69	428	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR36.00XFM40-10	36	40	363.1	69	441	FBM08**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR37.00XFM40-10	37	40	373	69	451	FBM08**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.00XFM40-10	38	40	383.1	69	464	FBM08**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.10XFU31.75-10	38.1	31.75	393.4	69	474	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC
MCTR39.00XFM40-10	39	40	393.4	69	474	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC
MCTR40.00XFM40-10	40	40	403.3	69	487	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
1.125 - 1.500	0 / - 0.003	+ 0.002 / - 0.004

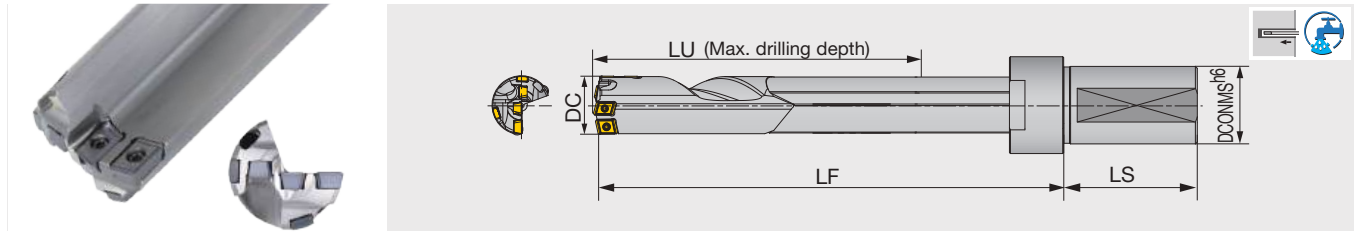
(Unit: Inch)

Caution:

The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven. This, however, will not affect the performance of the drill.

MCTR-F L/D=15, 25

Indexable gundrill, L/D = 15, 25 for lathes and machining centers



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR28.58XFU31.75-15	1.125	1.250	17.228	2.717	19.882	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR28.58XFU31.75-25	1.125	1.250	28.646	2.717	31.299	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR31.75XFU31.75-15	1.250	1.250	19.016	2.717	21.850	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR31.75XFU31.75-25	1.250	1.250	31.614	2.717	34.449	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR34.93XFU31.75-15	1.375	1.250	20.791	2.717	23.740	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR34.93XFU31.75-25	1.375	1.250	34.571	2.717	37.520	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.10XFU31.75-15	1.500	1.250	23.165	2.717	26.339	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC
MCTR38.10XFU31.75-25	1.500	1.250	38.520	2.717	41.693	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC

Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR28.58XFU31.75-15	28.58	31.75	437.6	69	505	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR28.58XFU31.75-25	28.58	31.75	727.6	69	795	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR29.00XFM40-15	29	40	437.6	69	505	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR30.00XFM40-15	30	40	467.9	69	538	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR30.00XFM40-25	30	40	777.9	69	848	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR31.00XFM40-15	31	40	467.9	69	538	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR31.75XFU31.75-15	31.75	31.75	483	69	555	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR31.75XFU31.75-25	31.75	31.75	803	69	875	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR32.00XFM40-15	32	40	483	69	555	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR33.00XFM40-15	33	40	498.1	69	571	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR34.00XFM40-15	34	40	513	69	588	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR34.93XFU31.75-15	34.93	31.75	528.1	69	603	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR34.93XFU31.75-25	34.93	31.75	878.1	69	953	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR35.00XFM40-15	35	40	528.1	69	603	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR36.00XFM40-15	36	40	543.1	69	621	FBM08**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR37.00XFM40-15	37	40	558	69	636	FBM08**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.00XFM40-15	38	40	573.1	69	654	FBM08**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.10XFU31.75-15	38.1	31.75	588.4	69	669	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC
MCTR38.10XFU31.75-25	38.1	31.75	978.4	69	1059	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC
MCTR39.00XFM40-15	39	40	588.4	69	669	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC
MCTR40.00XFM40-15	40	40	603.3	69	687	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
1.125 - 1.500	0 / - 0.003	+ 0.002 / - 0.004

Max. DC = 40: Available tailor-made tools (Unit: Inch)

Caution:

The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven. This, however, will not affect the performance of the drill.

Reference pages: Spare parts → [P.18](#), Inserts → [P.26](#), Guide pads → [P.29](#)

INCH SPARE PARTS



Designation	Insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
MCTR28.58...	CSTB-2.5	T-8F	CSTB-2.2	T-7F	CSTB-2.2	T-7F	SR34-508	T-7F
MCTR31.75...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	SR34-508	T-7F
MCTR34.93..., MCTR38.10...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-3S	T-9F

Recommended torque (lb·ft) for clamping: CSTB-2.2=0.74, CSTB-2.5=0.96, CSTB-3S=1.70, SR 34-508=0.66

METRIC SPARE PARTS

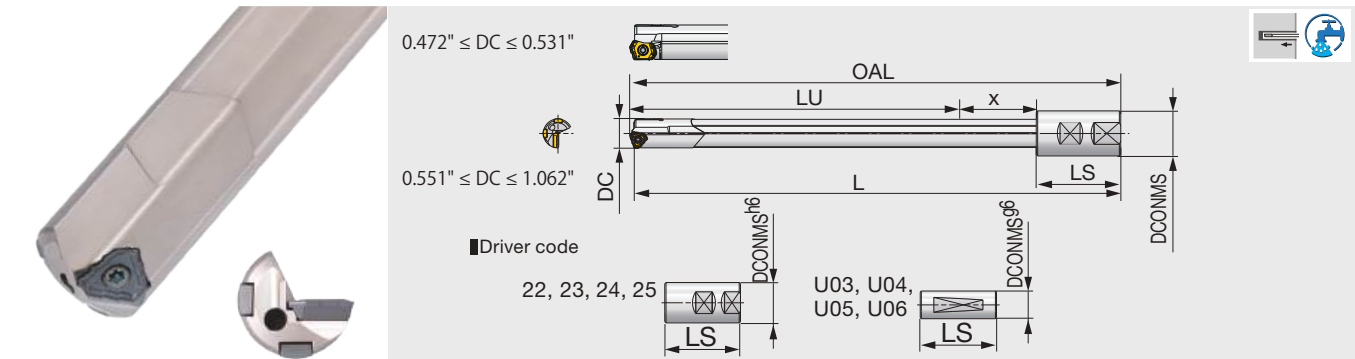


Designation	Insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
MCTR28.58... - MCTR29...	CSTB-2.5	T-8F	CSTB-2.2	T-7F	CSTB-2.2	T-7F	SR34-508	T-7F
MCTR30... - MCTR33...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	SR34-508	T-7F
MCTR33.1... - MCTR40...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-3S	T-9F

Recommended torque (N·m) for clamping: CSTB-2.5=1.3, CSTB-2.2=1, SR34-508=0.9, CSTB-3S=2.3

TRLG

Indexable gundrill for gundrilling machines



Inch	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG12.70X1219-U04	0.500	47.992	1.000	44.559	48.063	2.756	0.748	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.70X1524-U04	0.500	60.000	1.000	56.567	60.071	2.756	0.748	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.49X1219-U04	0.531	47.992	1.000	44.520	48.063	2.756	0.787	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.49X1527-U04	0.531	60.118	1.000	56.646	60.189	2.756	0.787	U04	LOGT06...	GP04-055, GP04-16-055-DC

Metric	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG12.00X800-U03	12	800	19.05	713.8	801.8	70	18	U03	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.00X800-22	12	800	20	733.8	801.8	50	18	22	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.00X1000-U03	12	1000	19.05	913.8	1001.8	70	18	U03	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.00X1000-22	12	1000	20	933.8	1001.8	50	18	22	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.00X1650-U03	12	1650	19.05	1563.8	1651.8	70	18	U03	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.00X1650-22	12	1650	20	1583.8	1651.8	50	18	22	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.70X1219-U04	12.7	1219	25.4	1131.8	1220.8	70	19	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG12.70X1524-U04	12.7	1524	25.4	1436.8	1525.8	70	19	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.00X800-U04	13	800	25.4	711.8	801.8	70	20	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.00X800-23	13	800	25	725.8	801.8	56	20	23	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.00X1000-U04	13	1000	25.4	911.8	1001.8	70	20	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.00X1000-23	13	1000	25	925.8	1001.8	56	20	23	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.00X1650-U04	13	1650	25.4	1561.8	1651.8	70	20	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.00X1650-23	13	1650	25	1575.8	1651.8	56	20	23	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.49X1219-U04	13.49	1219	25.4	1130.8	1220.8	70	20	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG13.49X1527-U04	13.49	1527	25.4	1438.8	1528.8	70	20	U04	LOGT06...	GP04-055, GP04-16-055-DC
TRLG14.00X800-23	14	800	25	725	802	56	21	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.00X800-U04	14	800	25.4	711	802	70	21	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.00X1000-23	14	1000	25	925	1002	56	21	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.00X1000-U04	14	1000	25.4	911	1002	70	21	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.00X1650-23	14	1650	25	1575	1652	56	21	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.00X1650-U04	14	1650	25.4	1561	1652	70	21	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.50X800-23	14.5	800	25	724	802	56	22	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.50X800-U04	14.5	800	25.4	710	802	70	22	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.50X1000-23	14.5	1000	25	924	1002	56	22	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.50X1000-U04	14.5	1000	25.4	910	1002	70	22	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.50X1650-23	14.5	1650	25	1574	1652	56	22	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG14.50X1650-U04	14.5	1650	25.4	1560	1652	70	22	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG15.00X800-23	15	800	25	723	802	56	23	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG15.00X800-U04	15	800	25.4	709	802	70	23	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG15.00X1000-23	15	1000	25	923	1002	56	23	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG15.00X1000-U04	15	1000	25.4	909	1002	70	23	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG15.00X1650-23	15	1650	25	1573	1652	56	23	23	TOHT07...	GP05-060, GP05-18-060-DC
TRLG15.00X1650-U04	15	1650	25.4	1559	1652	70	23	U04	TOHT07...	GP05-060, GP05-18-060-DC
TRLG16.00X800-23A	16	800	25	722.2	802.2	56	24	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG16.00X800-U04A	16	800	25.4	708.2	802.2	70	24	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG16.00X1000-23A	16	1000	25	922.2	1002.2	56	24	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG16.00X1000-U04A	16	1000	25.4	908.2	1002.2	70	24	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG16.00X1500-23A	16	1500	25	1422.2	1502.2	56	24	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG16.00X1500-U04A	16	1500	25.4	1408.2	1502.2	70	24	U04	TOHT08...	GP05-075, GP05-18-075-DC

Metric	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG17.00X800-23A	17	800	25	721.2	802.2	56	25	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG17.00X800-U04A	17	800	25.4	707.2	802.2	70	25	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG17.00X1000-23A	17	1000	25	921.2	1002.2	56	25	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG17.00X1000-U04A	17	1000	25.4	907.2	1002.2	70	25	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.00X800-23A	18	800	25	719.2	802.2	56	27	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.00X800-U04A	18	800	25.4	705.2	802.2	70	27	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.00X1000-23A	18	1000	25	919.2	1002.2	56	27	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.00X1000-U04A	18	1000	25.4	905.2	1002.2	70	27	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.00X1500-23A	18	1500	25	1419.2	1502.2	56	27	23	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.00X1500-U04A	18	1500	25.4	1405.2	1502.2	70	27	U04	TOHT08...	GP05-075, GP05-18-075-DC
TRLG18.50X1500-23	18.5	1500	25	1420	1503	56	27	23	TOHT09...	GP06-085, GP06-20-085-DC
TRLG18.50X1500-U04	18.5	1500	25.4	1406	1503	70	27	U04	TOHT09...	GP06-085, GP06-20-085-DC
TRLG19.00X800-23	19	800	25	719	803	56	28	23	TOHT09...	GP06-085, GP06-20-085-DC
TRLG19.00X800-U04	19	800	25.4	705	803	70	28	U04	TOHT09...	GP06-085, GP06-20-085-DC
TRLG19.00X1000-23	19	1000	25	919	1003	56	28	23	TOHT09...	GP06-085, GP06-20-085-DC
TRLG19.00X1000-U04	19	1000	25.4	905	1003	70	28	U04	TOHT09...	GP06-085, GP06-20-085-DC
TRLG20.00X800-24	20	800	32	713	803	60	30	24	TOHT09...	GP06-085, GP06-20-085-DC
TRLG20.00X800-U05	20	800	31.75	703	803	70	30	U05	TOHT09...	GP06-085, GP06-20-085-DC
TRLG20.00X1000-24	20	1000	32	913	1003	60	30	24	TOHT09...	GP06-085, GP06-20-085-DC
TRLG20.00X1000-U05	20	1000	31.75	903	1003	70	30	U05	TOHT09...	GP06-085, GP06-20-085-DC
TRLG21.00X1000-24	21	1000	32	912.2	1003.2	60	31	24	TOHT10...	GP06-085, GP06-20-085-DC
TRLG21.00X1000-U05	21	1000	31.75	902.2	1003.2	70	31	U05	TOHT10...	GP06-085, GP06-20-085-DC
TRLG22.00X1000-24	22	1000	32	910.4	1003.4	60	33	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG22.00X1000-U05	22	1000	31.75	900.4	1003.4	70	33	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG22.00X1500-24	22	1500	32	1410.4	1503.4	60	33	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG22.00X1500-U05	22	1500	31.75	1400.4	1503.4	70	33	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG23.00X1000-24	23	1000	32	909.4	1003.4	60	34	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG23.00X1000-U05	23	1000	31.75	899.4	1003.4	70	34	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG23.00X1500-24	23	1500	32	1409.4	1503.4	60	34	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG23.00X1500-U05	23	1500	31.75	1399.4	1503.4	70	34	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG24.00X1000-24	24	1000	32	907.4	1003.4	60	36	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG24.00X1000-U05	24	1000	31.75	897.4	1003.4	70	36	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG24.00X1500-24	24	1500	32	1407.4	1503.4	60	36	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG24.00X1500-U05	24	1500	31.75	1397.4	1503.4	70	36	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG25.00X1000-24	25	1000	32	906.4	1003.4	60	37	24	TOHT11...	GP06-100, GP06-20-100-DC
TRLG25.00X1000-U05	25	1000	31.75	896.4	1003.4	70	37	U05	TOHT11...	GP06-100, GP06-20-100-DC
TRLG26.00X1000-25	26	1000	40	894.6	1003.7	70	39	25	TOHT12...	GP06, GP06-20-120-DC
TRLG26.00X1000-U06	26	1000	38.1	894.6	1003.7	70	39	U06	TOHT12...	GP06, GP06-20-120-DC
TRLG27.00X1000-25	27	1000	40	893.6	1003.7	70	40	25	TOHT12...	GP06, GP06-20-120-DC
TRLG27.00X1000-U06	27	1000	38.1	893.6	1003.7	70	40	U06	TOHT12...	GP06, GP06-20-120-DC
TRLG28.00X1000-25	28	1000	40	891.6	1003.7	70	42	25	TOHT12...	GP06, GP06-20-120-DC
TRLG28.00X1000-U06	28	1000	38.1	891.6	1003.7	70	42	U06	TOHT12...	GP06, GP06-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.472 - 1.102	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

INCH SPARE PARTS



Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLG12... - TRLG13...	SR10503833L040	T-7F	CSPB-2L043	IP-6F

Recommended torque (lb·ft) for clamping: CSPB-2L043=0.52, SR10503833L040=0.96

METRIC SPARE PARTS

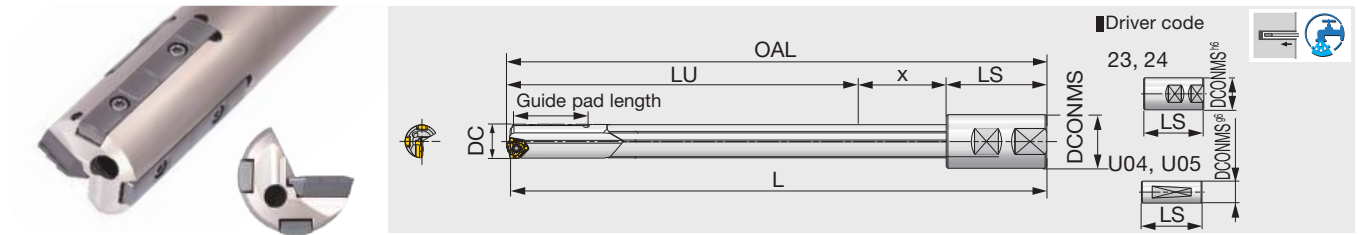


Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLG12... - TRLG13...	SR10503833L040	T-7F	CSPB-2L043	IP-6F
TRLG14... - TRLG20...	SR14-560/S	T-8F	SR34-508	T-7F
TRLG21...	SR34-506	T-9F	SR34-508	T-7F
TRLG22... - TRLG25...	SR14-571/S	T-10/5	SR34-508	T-7F
TRLG26... - TRLG28...	SR14-506	T-15F	SR34-508	T-7F

Recommended torque (N·m) for clamping: CSPB-2L043=0.7, SR34-508=0.9, SR34-506=0.9, SR14-560/S=1.2, SR10503833L040=1.3, SR14-571/S=3.2, SR14-506=4.8

TRLGCH

Indexable gundrill for drilling cross hole applications on gundrilling machines



Inch	DC	L	DCONMS	LU	OAL	LS	X	Driver code	Insert	Guide pad	Guide pad length
TRLGCH14.68X1830-U05	0.578	72.047	1.250	68.504	72.126	2.756	0.866	U05	TOHT07...	GP05-060, GP05-18-060-DC	1.417
TRLGCH15.06X1830-U05	0.593	72.047	1.250	68.465	72.126	2.756	0.906	U05	TOHT07...	GP05-060, GP05-18-060-DC	1.417
TRLGCH18.24X1830-U05	0.718	72.047	1.250	68.346	72.165	2.756	1.063	U05	TOHT09...	GP06-085, GP06-20-085-DC	1.575
TRLGCH18.64X1830-U05	0.734	72.047	1.250	68.346	72.165	2.756	1.063	U05	TOHT09...	GP06-085, GP06-20-085-DC	1.575
TRLGCH23.42X1830-U05	0.922	72.047	1.250	68.087	72.181	2.756	1.339	U05	TOHT11...	GP06-100, GP06-20-100-DC	1.575
TRLGCH23.80X1830-U05	0.937	72.047	1.250	68.008	72.181	2.756	1.417	U05	TOHT11...	GP06-100, GP06-20-100-DC	1.575

Metric	DC	L	DCONMS	LU	OAL	LS	X	Driver code	Insert	Guide pad	Guide pad length
TRLGCH14.68X1830-U05	14.68	1830	31.75	1740	1832	70	22	U05	TOHT07...	GP05-060, GP05-18-060-DC	36
TRLGCH15.00X1650-U04	15	1650	25.4	1559	1652	70	23	U04	TOHT07...	GP05-060, GP05-18-060-DC	36
TRLGCH15.00X1650-23	15	1650	25	1573	1652	56	23	23	TOHT07...	GP05-060, GP05-18-060-DC	36
TRLGCH15.06X1830-U05	15.06	1830	31.75	1739	1832	70	23	U05	TOHT07...	GP05-060, GP05-18-060-DC	36
TRLGCH18.00X1650-U04A	18	1650	25.4	1555.2	1652.2	70	27	U04	TOHT08...	GP05-075, GP05-18-075-DC	36
TRLGCH18.00X1650-23A	18	1650	25	1569.2	1652.2	56	27	23	TOHT08...	GP05-075, GP05-18-075-DC	36
TRLGCH18.24X1830-U05	18.24	1830	31.75	1736	1833	70	27	U05	TOHT09...	GP06-085, GP06-20-085-DC	40
TRLGCH18.64X1830-U05	18.64	1830	31.75	1736	1833	70	27	U05	TOHT09...	GP06-085, GP06-20-085-DC	40
TRLGCH23.00X1650-U05	23	1650	31.75	1549.4	1653.4	70	34	U05	TOHT11...	GP06-100, GP06-20-100-DC	40
TRLGCH23.00X1650-24	23	1650	32	1559.4	1653.4	60	34	24	TOHT11...	GP06-100, GP06-20-100-DC	40
TRLGCH23.42X1830-U05	23.42	1830	31.75	1729.4	1833.4	70	34	U05	TOHT11...	GP06-100, GP06-20-100-DC	40
TRLGCH23.80X1830-U05	23.8	1830	31.75	1727.4	1833.4	70	36	U05	TOHT11...	GP06-100, GP06-20-100-DC	40
TRLGCH24.00X1650-U05	24	1650	31.75	1547.4	1653.4	70	36	U05	TOHT11...	GP06-100, GP06-20-100-DC	40
TRLGCH24.00X1650-24	24	1650	32	1557.4	1653.4	60	36	24	TOHT11...	GP06-100, GP06-20-100-DC	40

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.578 - 0.945	0 / - 0.004	+ 0.002 / - 0.005

(Unit: Inch)

INCH SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLGCH14... - TRLGCH18...	SR14-560/S	T-8F	SR34-508	T-7F
TRLGCH23...	SR14-571/S	T-10/5	SR34-508	T-7F

Recommended torque (lb-ft) for clamping: SR 14-560/S=0.89, SR 14-571/S=2.36, SR 34-508=0.66

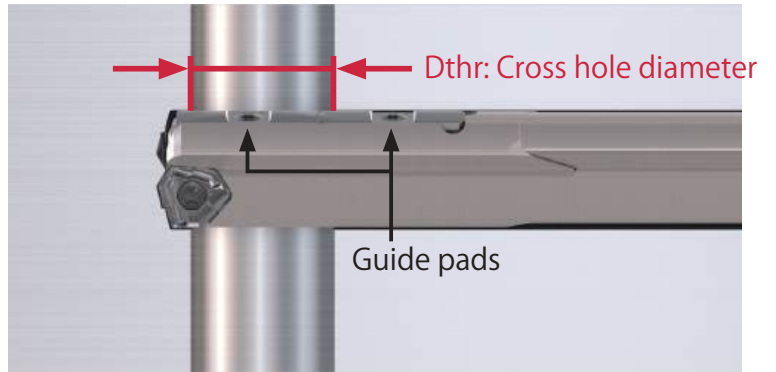
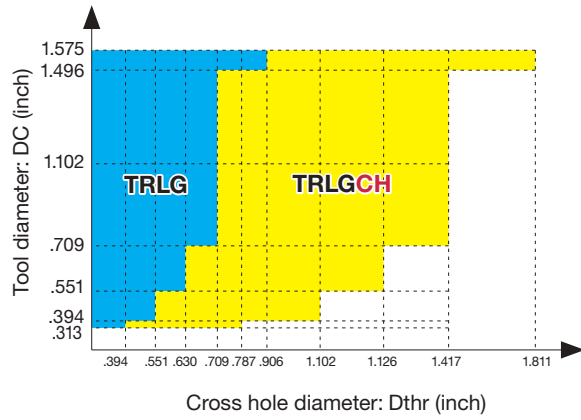
METRIC SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLGCH14... - TRLGCH18...	SR14-560/S	T-8F	SR34-508	T-7F
TRLGCH23... - TRLGCH24...	SR14-571/S	T-10/5	SR34-508	T-7F

Recommended torque (N·m) for clamping: SR34-508=0.9, SR14-560/S=1.2, SR14-571/S=3.2

Reference pages: Inserts → [P.25](#), Guide pads → [P.29](#)

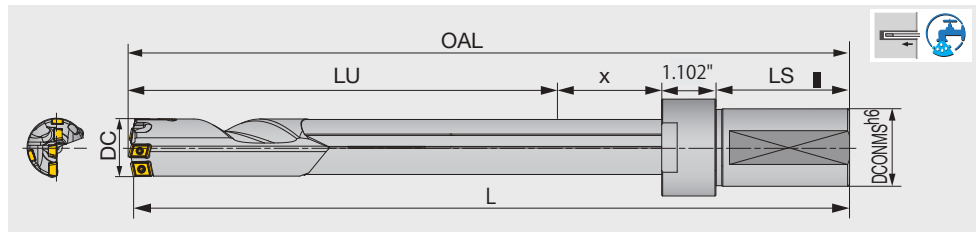
■ Tool selection with regard to cross hole diameters and drill diameters



Note: A TRLG drill can be used when the cross hole diameter (Dthr) is smaller than the drill's guide pad length.
When the cross hole diameter is larger than the drill's guide pad length, use an TRLGCH drill.

TRLG-F

Indexable gundrill for gundrilling machines



Inch	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG29.36X1828-FU31.75	1.156	71.969	1.250	66.520	72.071	2.717	1.732	FU31.75	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC

Metric	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG29.36X1828-FU31.75	29.36	1828	31.75	1689.6	1830.6	69	44	FU31.75	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
TRLG30.00X1000-FM40	30	1000	40	860.9	1002.9	69	45	FM40	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
TRLG30.00X1650-FM40	30	1650	40	1510.9	1652.9	69	45	FM40	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
TRLG30.00X1650-FU38.1	30	1650	38.1	1510.9	1652.9	69	45	FU38.1	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
1.156	0 / - 0.003	+ 0.002 / - 0.004

(Unit: Inch)

Caution:

The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven. This, however, will not affect the performance of the drill.

INCH SPARE PARTS

Designation	Insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
TRLG29.36...	Screw	Wrench	Screw	Wrench	Screw	Wrench	SR34-508	T-7F

Recommended torque (lb·ft) for clamping: CSTB-2.2=0.74, CSTB-2.5=0.96, SR 34-508=0.66

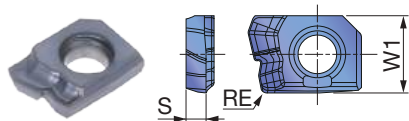
METRIC SPARE PARTS

Designation	Insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
TRLG29.36...	Screw	Wrench	Screw	Wrench	Screw	Wrench	SR34-508	T-7F
TRLG30...	Screw	Wrench	Screw	Wrench	Screw	Wrench	SR34-508	T-7F

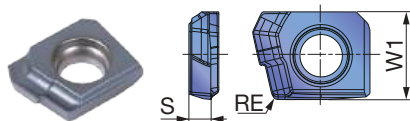
Recommended torque (N·m) for clamping: CSTB-2.2=1, SR34-508=0.9, CSTB-2.5=1.3

■ INSERT

ZSGT-NDJ (04...,05...)



ZSGT-NDJ (06...)



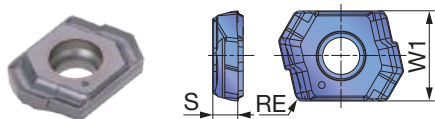
P	Steel	★			
M	Stainless	★			
K	Cast iron	★			
N	Non-ferrous	★			
S	Superalloys	★			
H	Hard materials	★			

★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated								W1	S	RE
			AH9130										
ZSGT040104R-NDJ	0.3126	0.3539	●								0.189	0.049	0.0157
ZSGT050104R-NDJ	0.3543	0.3933	●								0.209	0.053	0.0157
ZSGT060204R-NDJ	0.3937	0.4646	●								0.236	0.059	0.0157

New
New

LOGT-NDJ



(Unit: Inch)
 ● : New product
 ● : Line up
 Package quantity = 10 pcs.

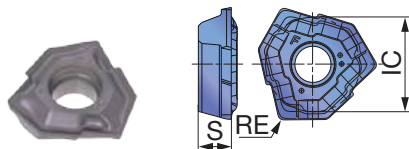
P	Steel	★ ☆	
M	Stainless	★ ☆	
K	Cast iron	★ ☆	
N	Non-ferrous	★ ☆	
S	Superalloys	★ ☆	
H	Hard materials	★ ☆	

★ : First choice
☆ : Second choice

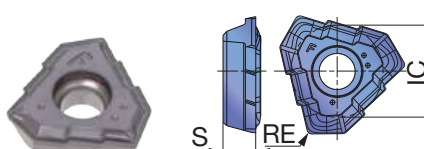
Designation	DCN	DCX	Coated								W1	S	RE	
			AH9130	AH725										
LOGT060204R-NDJ	0.465	0.551	●	●								0.279	0.079	0.015

(Unit: Inch)
● : Line up
Package quantity = 10 pcs.

TOHT-NDL (07..., 08...)



TOHT-NDL (09... - 12...)



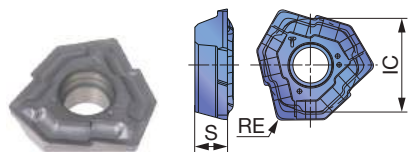
P	Steel	★				
M	Stainless	★				
K	Cast iron	★				
N	Non-ferrous	★				
S	Superalloys	★				
H	Hard materials	★				

★ : First choice
☆ : Second choice

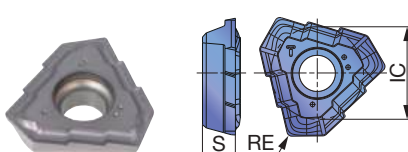
Designation	DCN	DCX	Coated								IC	S	RE
TOHT070304R-NDL	0.5511	0.6295	●								0.303	0.091	0.015
TOHT080305R-NDL	0.6299	0.7087	●								0.337	0.110	0.019
TOHT090305R-NDL	0.7090	0.7874	●								0.328	0.118	0.019
TOHT100305R-NDL	0.7877	0.8657	●								0.363	0.130	0.019
TOHT110405R-NDL	0.8661	0.9843	●								0.409	0.150	0.019
TOHT120405R-NDL	0.9846	1.1024	●								0.456	0.169	0.019

(Unit: Inch)
● : Line up
Package quantity = 10 pcs.

TOHT-NDJ (070..., 080...)



TOHT-NDJ (090... - 120...)



P Steel	★	☆	
M Stainless	★	☆	
K Cast iron	★	☆	
N Non-ferrous	★	☆	
S Superalloys	★	☆	
H Hard materials	★	☆	

★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated		IC	S	RE
			AH9130	AH725			
TOHT070304R-NDJ	0.5511	0.6295	●	●	0.303	0.091	0.016
TOHT080305R-NDJ	0.6299	0.7087	●	●	0.337	0.110	0.020
TOHT090305R-NDJ	0.7090	0.7874	●	●	0.328	0.118	0.020
TOHT100305R-NDJ	0.7877	0.8657	●	●	0.363	0.130	0.020
TOHT110405R-NDJ	0.8661	0.9843	●	●	0.409	0.150	0.020
TOHT120405R-NDJ	0.9846	1.1024	●	●	0.456	0.169	0.020

(Unit: Inch)

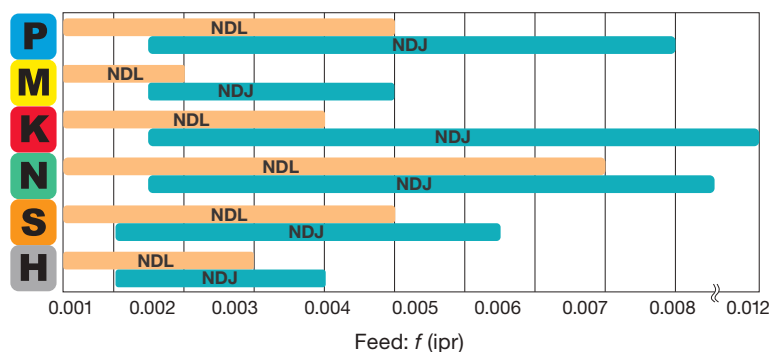
● : Line up

Package quantity = 10 pcs.

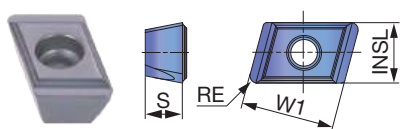
■ Identifications for NDL and NDJ geometries

Chipbreaker	NDL	NDJ
Cutting edge strength	Strong	Very strong
ID on insert		

■ Recommended feed rates



FBM-C(For central)



P Steel	★	☆	☆
M Stainless	★	☆	☆
K Cast iron	★	☆	☆
N Non-ferrous	★	☆	☆
S Superalloys	☆	☆	★
H Hard materials	☆	☆	★

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated			S	DCN	DCX	RE
			AH9130	AH725	AH8015				
FBM070408L-G-C	0.256	0.394	●	●	●	0.157	1.1028	1.3780	0.0315
FBM080408L-G-C	0.315	0.394	●	●	●	0.157	1.3783	1.7323	0.0315

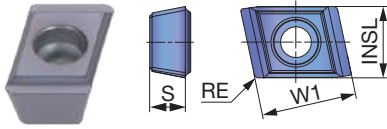
(Unit: Inch)

● : Line up

Package quantity = 10 pcs.

INSERT

FBM-I (For intermediate)



P	Steel	★	☆	☆
M	Stainless	★	☆	☆
K	Cast iron	★	☆	☆
N	Non-ferrous	★	☆	☆
S	Superalloys	☆	☆	★
H	Hard materials	☆	☆	★

★ : First choice
☆ : Second choice

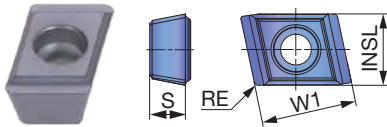
Designation	INSL	W1	Coated									S	DCN	DCX	RE
			AH9130	AH725	AH8015										
FBM060304R-G-I	0.217	0.315	●	●	●							0.118	0.9842	1.1807	0.0157
FBM060304R-DL-I	0.217	0.315		●								0.118	0.9842	1.1807	0.0157
FBM070404R-G-I	0.256	0.394	●	●	●							0.157	1.1811	1.6142	0.0157
FBM070404R-DL-I	0.256	0.394		●								0.157	1.1811	1.6142	0.0157

(Unit: Inch)

● : Line up

Package quantity = 10 pcs.

FBH-P (For peripheral)



P	Steel	★	☆	☆
M	Stainless	★	☆	☆
K	Cast iron	★	☆	☆
N	Non-ferrous	★	☆	☆
S	Superalloys	☆	☆	★
H	Hard materials	☆	☆	★

★ : First choice
☆ : Second choice

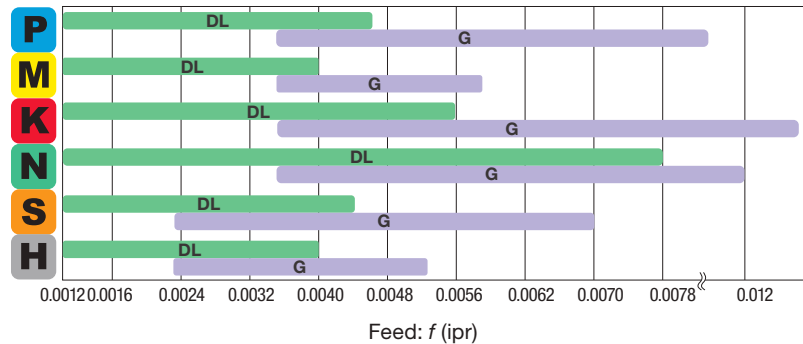
Designation	INSL	W1	Coated									S	DCN	DCX	RE
			AH9130	AH725	AH8015										
FBH060304R-G-P	0.236	0.315		●								0.118	0.9842	1.1807	0.0157
FBH060308R-G-P	0.236	0.315	●	●	●							0.118	0.9842	1.1807	0.0315
FBH080404R-G-P	0.295	0.394		●								0.157	1.1811	1.4961	0.0157
FBH080408R-G-P	0.295	0.394	●	●	●							0.157	1.1811	1.4961	0.0315
FBH090404R-G-P	0.354	0.394		●								0.157	1.4965	1.8504	0.0157
FBH090408R-G-P	0.354	0.394	●	●	●							0.157	1.4965	1.8504	0.0315

(Unit: Inch)

● : Line up

Package quantity = 10 pcs.

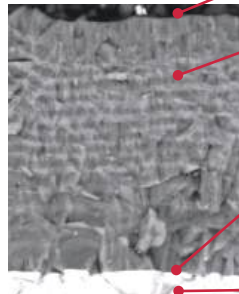
■ Recommended feed rates



Note: For cross hole drilling, please use the DL type chipbreaker because the feed needs to be reduced.

■ Insert grade

AH9130



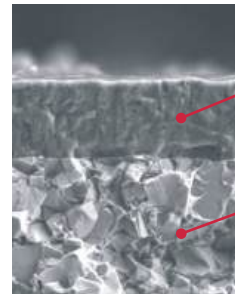
Resistance to built-up edge
Coating layer to resist built-up edge

Resistance to wear, oxidation, and fracture
2 coating layers for wear and oxidation resistance. Layered alternatively to prevent crack from propagating to fracture.

Strong coating-substrate adhesion
Coating is provided with strong adhesion between the coating layer and carbide substrate to prevent coating delamination

Substrate
Carbide substrate features wear and fracture resistance

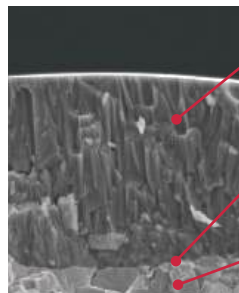
AH725



Drastically improves adhesion strength between the coating and the substrate.

Substrate provides plastic deformation resistance and toughness.

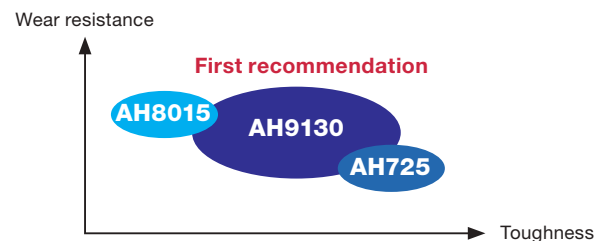
AH8015



Nano-multi-layered AlTiN coating with high Al content
Prevents micro cracks from developing. Long tool life & stable machining

Improved adhesion strength
Prevents notch wear that tends to occur in machining heat-resistant alloys

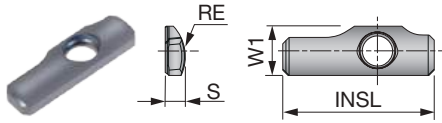
Specially designed substrate



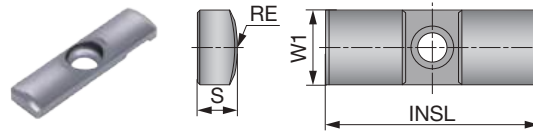
CARBIDE GUIDE PADS

New

SGP03



GP04, 05, 06, 07, 08



P	Steel	☆	★	☆
M	Stainless	☆	☆	★
K	Cast iron	☆	★	☆
N	Non-ferrous	☆	★	☆
S	Superalloys	☆	★	☆
H	Hard materials	☆	★	☆

★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated				W1	INSL	S	RE
			F1122	FH3125	FH3135					
New SGP03-12-035-DC	0.313	0.335		●			0.154	0.472	0.063	0.1378
New SGP03-12-040-DC	0.335	0.394		●			0.154	0.472	0.063	0.1575
GP04-16-045-DC	0.394	0.433		●			0.157	0.630	0.071	0.1772
GP04-16-050-DC	0.433	0.472		●			0.157	0.630	0.071	0.1969
GP04-055	0.472	0.551	●				0.157	0.630	0.079	0.2165
GP04-16-055-DC	0.472	0.551		●	●		0.157	0.630	0.079	0.2165
GP05-060	0.551	0.630	●				0.197	0.709	0.098	0.2362
GP05-18-060-DC	0.551	0.630		●	●		0.197	0.709	0.098	0.2362
GP05-075	0.630	0.709	●				0.197	0.709	0.098	0.2953
GP05-18-075-DC	0.630	0.709		●	●		0.197	0.709	0.098	0.2953
GP06-085	0.709	0.827	●				0.236	0.787	0.118	0.3346
GP06-20-085-DC	0.709	0.827		●	●		0.236	0.787	0.118	0.3346
GP06-100	0.827	0.984	●				0.236	0.787	0.118	0.3937
GP06-20-100-DC	0.827	0.984		●	●		0.236	0.787	0.118	0.3937
GP06	0.984	1.300	●				0.236	0.787	0.118	0.4724
GP06-20-120-DC	0.984	1.300		●	●		0.236	0.787	0.118	0.4724
GP07	1.300	1.496	●				0.276	0.787	0.138	0.4724
GP07-20-120-DC	1.300	1.496		●	●		0.276	0.787	0.138	0.4724
GP08	1.496	1.575	●				0.315	0.984	0.177	0.6102
GP08-25-155-DC	1.496	1.575		●	●		0.315	0.984	0.177	0.6102

(Unit: Inch)

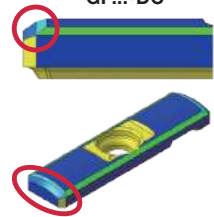
● : New product

● : Line up

Package quantity = 5 pcs.

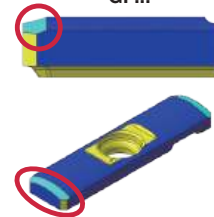
Double chamfer

GP...-DC



Single chamfer

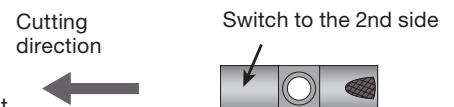
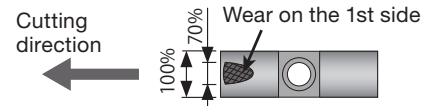
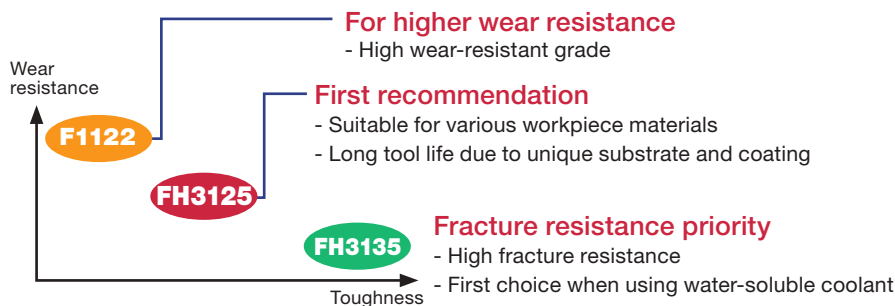
GP...



Guide pad grade and the timing for replacement

Guide pads are subject to wear, like inserts

- The guide pad has two sides.
- Each guide pad can be used on two sides. When the first corner wears out to 70% of the width, reverse the guide pad to use the second side.
- Replace with a new guide pad when the second side wears out.

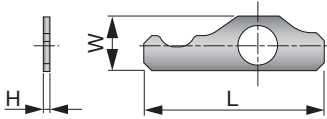


SHIMS

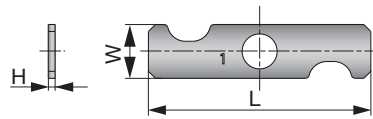
For fine adjustments of hole diameters

New

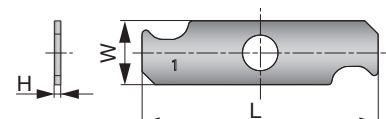
SHIMSET-SGP03



SHIMSET-GP04



SHIMSET-GP05



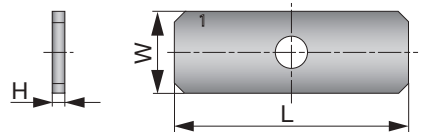
New

Designation	DC	W	L	H
SHIMSET-SGP03	0.313 - 0.394	0.136	0.449	0.00039 - 0.00197
SHIMSET-GP04	0.394 - 0.551	0.157	0.630	0.00039 - 0.00197
SHIMSET-GP05	0.551 - 0.709	0.197	0.709	0.00039 - 0.00197
SHIMSET-GP06	0.709 - 1.299	0.236	0.787	0.00039 - 0.00197

- A shim set contains 5 shims in thicknesses of 0.0004 in, 0.0008 in, 0.0012 in, 0.0016 in, and 0.0020 in, respectively.
 - Adjusting shims are sold by set only, not to be sold separately.

(Unit: Inch)

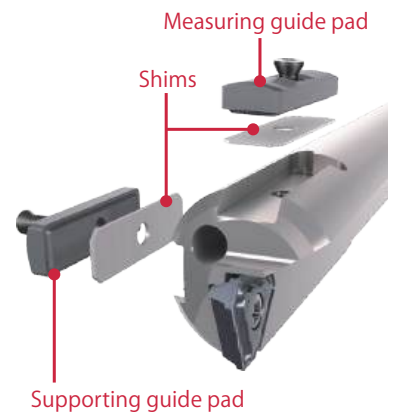
SHIMSET-GP06



Shim combinations for various diameters

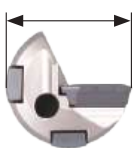
Diameter adjustments	Shim(s) for measuring guide pad	Shim(s) for supporting guide pad	Number of shim sets needed
+0.0004	0.0004	-	1
+0.0008	0.0008	0.0004	1
+0.0012	0.0012	0.0004 + 0.0008	1
+0.0016	0.0016	0.0004 + 0.0012	1
+0.0020	0.0020	0.0008 + 0.0012	1
+0.0024	0.0004 + 0.0020	0.0008 + 0.0016	1
+0.0028	0.0008 + 0.0020	0.0012 + 0.0016	1
+0.0031	0.0012 + 0.0020	0.0016 + 0.0016	2
+0.0035	0.0016 + 0.0020	0.0016 + 0.0020	2
+0.0039	0.0020 + 0.0020	0.0016 + 0.0016 + 0.0008	2

(Unit: Inch)



How to install adjusting shims

1. Measure the drill diameter.



2. Select the shim sizes for adjustment.

Note: Consider that the hole diameter may expand during drilling (for +ø0.0008 to +ø0.0012 in).

<https://www.tungaloy.com/product/deeptri-drill/>



3. Remove the guide pads.



4. Place the shims underneath both guide pads.

5. Measure to make sure the required diameter is achieved.



6. Drill a test hole to ensure the required hole size is achieved.

Note: For higher drilling precision, drill a hole after Step 1 to confirm the size difference between the measured drill diameter and actual drilled hole diameter.

STANDARD CUTTING CONDITIONS

Drill diameter: DC = $\varnothing 0.313$ " - $\varnothing 0.394$ "

ISO	Workpiece material	Chip-breaker	Grade	Cutting speed Vc (sfm)	Feed: f (ipr)
P	Low carbon steel (C < 0.3) 70, 1025, etc.	NDJ	AH9130	197 - 328	0.002 - 0.031
	Carbon steel (C > 0.3) 1045c, 1055, etc.	NDJ	AH9130	197 - 328	0.002 - 0.006
	Low alloy steel (C < 0.3) 5120, etc.	NDJ	AH9130	197 - 328	0.002 - 0.031
	Alloy steel (C > 0.3) 4140, etc.	NDJ	AH9130	197 - 328	0.002 - 0.006
M *	Stainless steel (Austenitic) 304, 316, etc.	NDJ	AH9130	197 - 262	0.002 - 0.031
	Stainless steel (Martensitic, Ferritic) 430, 416, etc.	NDJ	AH9130	197 - 262	0.002 - 0.031
	Stainless steel (Precipitation hardening) S17400, etc.	NDJ	AH9130	197 - 262	0.002 - 0.031
K	Gray cast iron No.250B, etc.	NDJ	AH9130	197 - 328	0.002 - 0.008
	Ductile cast iron 700, etc.	NDJ	AH9130	197 - 328	0.002 - 0.008
N	Aluminium alloys	NDJ	AH9130	197 - 328	0.002 - 0.007
S	Heat-resistant alloys Inconel 718, etc.	NDJ	AH9130	66 - 164	0.0016 - 0.0024
	Titanium alloys Ti-6Al-4V, etc.	NDJ	AH9130	98 - 197	0.0016 - 0.004
H	Hardened steel ≥ 40HRC	NDJ	AH9130	66 - 164	0.0016 - 0.0024

*Coolant recommendations for drilling stainless steel:

- Oil coolant is first priority
- Water soluble coolant requires at least 20% oil concentration

Drill diameter: DC = $\varnothing 0.394$ " - 1.102"

ISO	Workpiece material	Priority	Chip-breaker	Grade	Cutting speed Vc (sfm)	Feed: f (mm/rev)				
						0.394 - 0.465	0.465 - 0.551	0.551 - 0.709	0.709 - 0.102	
P	Low carbon steel (C < 0.3) 70, 1025, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0039	0.0012 - 0.0039	
		First choice	NDJ	AH9130	262 - 459	0.0020 - 0.0031	0.0020 - 0.0039	0.0024 - 0.0047	0.0031 - 0.0063	
	Carbon steel (C > 0.3) 1045c, 1055, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0039	0.0012 - 0.0047	
		First choice	NDJ	AH9130	262 - 459	0.0020 - 0.0055	0.0020 - 0.0063	0.0028 - 0.0071	0.0031 - 0.0079	
	Low alloy steel (C < 0.3) 5120, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0047	0.0031 - 0.0039	
		First choice	NDJ	AH9130	262 - 459	0.0020 - 0.0031	0.0020 - 0.0039	0.0024 - 0.0047	0.0031 - 0.0063	
M *	Alloy steel (C > 0.3) 4140, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0039	0.0012 - 0.0047	
		First choice	NDJ	AH9130	262 - 394	0.0020 - 0.0055	0.0020 - 0.0063	0.0028 - 0.0071	0.0031 - 0.0079	
	Stainless steel (Austenitic) 304, 316, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0024	0.0012 - 0.0024	
		First choice	NDJ	AH9130	197 - 328	0.0020 - 0.0031	0.0020 - 0.0039	0.002 - 0.0039	0.002 - 0.0047	
	Stainless steel (Martensitic, Ferritic) 430, 416, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0024	0.0012 - 0.0024	
		First choice	NDJ	AH9130	197 - 328	0.0020 - 0.0031	0.0020 - 0.0039	0.002 - 0.0039	0.002 - 0.0047	
K	Stainless steel (Precipitation hardening) S17400, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0024	0.0012 - 0.0024	
		First choice	NDJ	AH9130	197 - 328	0.0020 - 0.0031	0.0020 - 0.0039	0.002 - 0.0039	0.002 - 0.0047	
	Gray cast iron No.250B, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0059	0.002 - 0.0071	
		First choice	NDJ	AH9130	262 - 459	0.0020 - 0.0079	0.0020 - 0.0098	0.002 - 0.0098	0.002 - 0.0118	
	Ductile cast iron 700, etc.	Lower feed	NDL	AH725	164 - 328	-	-	0.0012 - 0.0059	0.002 - 0.0071	
		First choice	NDJ	AH9130	262 - 459	0.0020 - 0.0079	0.0020 - 0.0098	0.002 - 0.0098	0.002 - 0.0118	
N	Aluminium alloys	Lower feed	NDL	AH725	262 - 525	-	-	0.0012 - 0.0059	0.0012 - 0.0059	
		First choice	NDJ	AH9130	328 - 656	0.0020 - 0.0071	0.0020 - 0.0079	0.0031 - 0.0087	0.0039 - 0.0098	
	Heat-resistant alloys Inconel 718, etc.	Lower feed	NDL	AH725	66 - 164	-	-	0.0012 - 0.0024	0.0012 - 0.0031	
		First choice	NDJ	AH9130	66 - 164	0.0016 - 0.0024	0.0016 - 0.0031	0.0016 - 0.0031	0.0016 - 0.0039	
	Titanium alloys Ti-6Al-4V, etc.	Lower feed	NDL	AH725	98 - 197	-	-	0.0012 - 0.0039	0.0012 - 0.0047	
		First choice	NDJ	AH9130	98 - 197	0.0016 - 0.0039	0.0020 - 0.0051	0.002 - 0.0051	0.002 - 0.0059	
H	Hardened steel ≥ 40HRC	Lower feed	NDL	AH725	131 - 328	-	-	0.0012 - 0.0031	0.0012 - 0.0031	
		First choice	NDJ	AH9130	164 - 328	0.0016 - 0.0024	0.0016 - 0.0031	0.0016 - 0.0031	0.0016 - 0.0039	

The use of NDL chipbreakers is recommended for cross hole drilling with low feed conditions.

*Coolant recommendations for drilling stainless steel:

- Oil coolant is first priority
- Water soluble coolant requires at least 20% oil concentration

Drill diameter: DC = Ø1.102" - 1.575"

ISO	Workpiece material	Priority	For central		For intermediate		For peripheral		Cutting speed Vc (sfm)	Feed f (ipr) Ø1.102 - Ø1.575
			Chip-breaker	Grade	Chip-breaker	Grade	Chip-breaker	Grade		
P	Low carbon steel (C < 0.3) 70, 1025, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0039
		First choice	G	AH725	G	AH725	G	AH725	262 - 459	0.0039 - 0.0098
	Carbon steel (C > 0.3) 1045c, 1055, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0047
		First choice	G	AH725	G	AH725	G	AH725	262 - 459	0.0039 - 0.0118
	Low alloy steel (C < 0.3) 5120, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0039
		First choice	G	AH725	G	AH725	G	AH725	262 - 459	0.0039 - 0.0098
	Alloy steel (C > 0.3) 4140, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0047
		First choice	G	AH725	G	AH725	G	AH725	262 - 394	0.0039 - 0.0118
M*	Stainless steel (Austenitic) 304, 316, etc.	Lower feed	G	AH8015	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0039
		First choice	G	AH8015	G	AH8015	G	AH8015	197 - 328	0.0039 - 0.0059
	Stainless steel (Martensitic, Ferritic) 430, 416, etc.	Lower feed	G	AH8015	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0039
		First choice	G	AH8015	G	AH8015	G	AH8015	197 - 328	0.0039 - 0.0059
	Stainless steel (Precipitation hardening) S17400, etc.	Lower feed	G	AH8015	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0039
		First choice	G	AH8015	G	AH8015	G	AH8015	197 - 328	0.0039 - 0.0059
K	Gray cast iron No.250B, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0055
		First choice	G	AH725	G	AH725	G	AH725	262 - 459	0.0039 - 0.0138
	Ductile cast iron 700, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	164 - 328	0.0012 - 0.0055
		First choice	G	AH725	G	AH725	G	AH725	262 - 459	0.0039 - 0.0138
N	Aluminium alloys	Lower feed	G	AH725	DL	AH725	G	AH725	262 - 525	0.0012 - 0.0079
		First choice	G	AH725	G	AH725	G	AH725	328 - 656	0.0039 - 0.0118
S	Heat-resistant alloys Inconel 718, etc.	Lower feed	G	AH8015	DL	AH725	G	AH725	66 - 164	0.0012 - 0.0031
		First choice	G	AH8015	G	AH8015	G	AH8015	66 - 164	0.0024 - 0.0051
	Titanium alloys Ti-6Al-4V, etc.	Lower feed	G	AH725	DL	AH725	G	AH725	98 - 197	0.0012 - 0.0039
		First choice	G	AH725	G	AH725	G	AH725	98 - 197	0.0039 - 0.0071
H	Hardened steel ≥ 40HRC	Lower feed	G	AH8015	DL	AH725	G	AH725	131 - 328	0.0012 - 0.0039
		First choice	G	AH8015	G	AH8015	G	AH8015	164 - 328	0.0024 - 0.0051

The use of DL chipbreakers is recommended for cross hole drilling with low feed conditions.

*Coolant recommendations for drilling stainless steel:

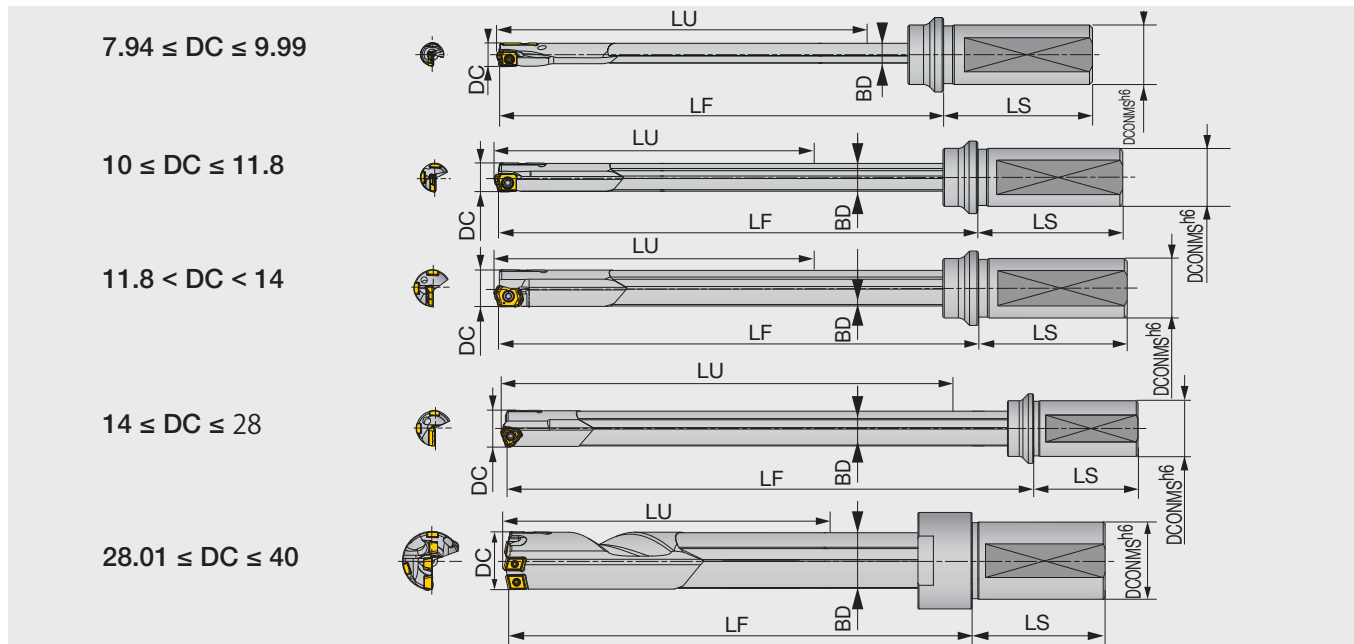
- Oil coolant is first priority
- Water soluble coolant requires at least 20% oil concentration

DESIGNATION FOR TAILOR-MADE TOOLS

Special tool code may be created per below according to your specific drilling needs.

1	2	3	4
MCTR	18.50	XM	25 - 22

1 Series		2 Drill dia. DC (mm)		3 Driver dia. DCONMS (mm)		4 LU/DC ratio
MCTR	DeepTri-Drill (For machining centers and lathes)	18.50	18.50	25	25	
MCTRCH	DeepTri-Drill (For cross hole drilling on machining centers and lathes)					



AVAILABLE RANGE OF TAILOR-MADE DRILL BODIES

DC	DCONMS	LU	LS	LF	BD	DC	DCONMS	LU	LS	LF	BD
7.94 - 8.39	20	144 - 421	50	179-444	7.7	18.7 - 19.69	25	140 - 1003	56	170 - 1043	18.2
8.40 - 8.69	20	143 - 436	50	180-459	8	19.7 - 20.69	32	138 - 1053	60	170 - 1095	19
8.70 - 8.99	20	143 - 451	50	180-474	8	20.7 - 21.69	32	137 - 1103	60	171 - 1145	20
9.00 - 9.39	20	142 - 471	50	181-494	8.6	21.7 - 22.69	32	135 - 1153	60	171 - 1197	21
9.40 - 9.69	20	142 - 486	50	181-509	9	22.7 - 23.69	32	134 - 1203	60	171 - 1248	22
9.70 - 9.99	20	141 - 501	50	182-524	9	23.7 - 24.69	32	132 - 1253	60	171 - 1300	23
10 - 10.39	20	145 - 526	50	164 - 551	9.6	24.7 - 25.69	32	132 - 1303	60	171 - 1351	24
10.4 - 10.69	20	144 - 551	50	164 - 577	9.9	25.7 - 26.69	40	130 - 1353	70	171 - 1403	25
10.7 - 10.99	20	144 - 551	50	164 - 577	10.2	26.7 - 27.69	40	129 - 1403	70	171 - 1454	26
11 - 11.49	20	143 - 601	50	164 - 628	10.5	27.7 - 28	40	127 - 1403	70	171 - 1456	27
11.5 - 11.8	20	143 - 601	50	164 - 628	11	28.01 - 29	40	128, 177* - 1452	69	222 - 1519	27
11.81 - 12.49	20	142 - 651	50	164 - 679	11.5	29.01 - 29.99	40	126, 175* - 1502	69	222 - 1571	28
12.5 - 12.99	20	141 - 651	50	164 - 680	12	30 - 31	40	125, 174* - 1552	69	222 - 1622	29
13 - 13.49	25	140 - 701	56	164 - 734	12.5	31.01 - 32	40	123, 172* - 1602	69	222 - 1674	30
13.5 - 13.99	25	140 - 701	56	164 - 734	13	32.01 - 33	40	171 - 1653	69	222 - 1726	31
14 - 14.49	25	146 - 752	56	170 - 786	13.5	33.01 - 34	40	169 - 1702	69	222 - 1777	32
14.5 - 14.99	25	145 - 752	56	170 - 787	14	34.01 - 35	40	169 - 1753	69	222 - 1828	32
15 - 15.49	25	144 - 802	56	170 - 838	14.5	35.01 - 36	40	166 - 1803	69	222 - 1881	34
15.5 - 15.99	25	144 - 802	56	170 - 839	15	36.01 - 37	40	166 - 1852	69	222 - 1930	34
16 - 16.79	25	143 - 852	56	171 - 888	15.5	37.01 - 38	40	163 - 1903	69	222 - 1984	36
16.8 - 17.69	25	142 - 902	56	171 - 939	16.2	38.01 - 39	40	168 - 1953	69	227 - 2033	36
17.7 - 18.69	25	141 - 952	56	171 - 991	17.2	39.01 - 40	40	165 - 2003	69	227 - 2086	38

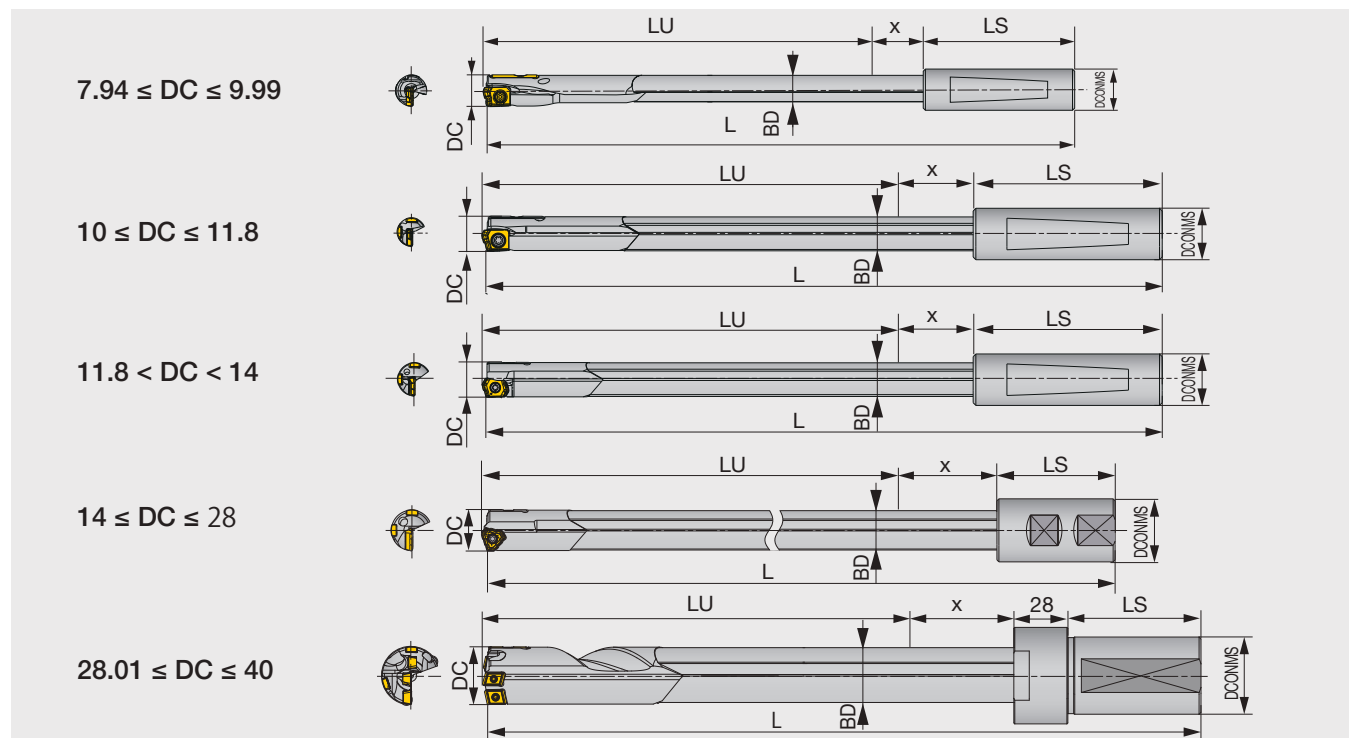
Please provide the driver shape necessary for your request

*3 inserts type

For tailor-made drills, use the guide below to make the designation (Cat. No).

1 **TRLG** **2** **18.50** **3** **X 900** **4** **- 23**

1 Series		2 Drill dia. DC (mm)		3 Overall length: L (mm)		4 Driver code	
TRLG	DeepTri-Drill (For gundrill machines)	18.50	18.50	900	900	23	23
TRLGCH	DeepTri-Drill (For cross hole drilling on gundrilling machines)						

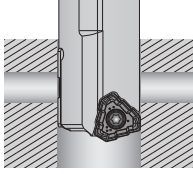
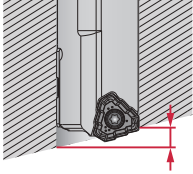
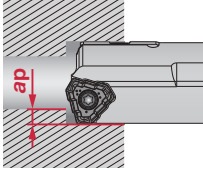


AVAILABLE RANGE OF TAILOR-MADE DRILL BODIES

DC	L	x	BD	DC	L	x	BD
7.94 - 8.39	400 - 2200	12	7.7	19.7 - 20.69	400 - 2400	30	19
8.40 - 8.99	400 - 2200	13	8	20.7 - 21.69	400 - 2400	31	20
9.00 - 9.39	400 - 2200	14	8.6	21.7 - 22.69	400 - 2400	33	21
9.40 - 9.69	400 - 2200	14	9	22.7 - 23.69	400 - 2400	34	22
9.70 - 9.99	400 - 2200	15	9	23.7 - 24.69	400 - 2400	36	23
10 - 10.39	400 - 2200	15	9.6	24.7 - 25.69	400 - 2400	37	24
10.4 - 10.69	400 - 2200	16	9.9	25.7 - 26.69	400 - 2400	39	25
10.7 - 10.99	400 - 2200	16	10.2	26.7 - 27.69	400 - 2400	40	26
11 - 11.49	400 - 2200	17	10.5	27.7 - 28	400 - 2400	42	27
11.5 - 11.99	400 - 2200	17	11	28.01 - 29	400 - 2400	42	27
12 - 12.49	400 - 2400	18	11.5	29.01 - 29.99	400 - 2400	44	28
12.5 - 12.99	400 - 2400	19	12	30 - 31	400 - 2400	45	29
13 - 13.49	400 - 2400	20	12.5	31.01 - 32	400 - 2400	47	30
13.5 - 13.99	400 - 2400	20	13	32.01 - 33	400 - 2400	48	31
14 - 14.49	400 - 2400	21	13.5	33.01 - 34	400 - 2400	50	32
14.5 - 14.99	400 - 2400	22	14	34.01 - 35	400 - 2400	50	32
15 - 15.49	400 - 2400	23	14.5	35.01 - 36	400 - 2400	53	34
15.5 - 15.99	400 - 2400	23	15	36.01 - 37	400 - 2400	53	34
16 - 16.79	400 - 2400	24	15.5	37.01 - 38	400 - 2400	56	36
16.8 - 17.69	400 - 2400	25	16.2	38.01 - 39	400 - 2400	56	36
17.7 - 18.69	400 - 2400	27	17.2	39.01 - 40	400 - 2400	59	38
18.7 - 19.69	400 - 2400	28	18.2				

Please provide the driver shape necessary for your request

APPLICATION RANGE

Feed f (ipr)	0.001 - 0.002	0.001 - 0.002	0.004 - 0.012
Application	OK Cross hole drilling	OK Inclined exit	OK Boring
			

Note 1) When drilling cross holes or exiting inclined surfaces, ensure that the length of the guide pads are sufficient enough to sustain the drill stability during these applications.

Note 2) A pilot hole is needed prior to boring operations. $ap \geq .04"$ is recommended for boring operations.

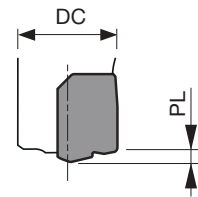
BLIND HOLE SHAPES OF THE HOLE BOTTOM

DC	Insert	Maximum difference PL
New 0.313 - 0.354	ZSGT04...	0.047
New 0.354 - 0.394	ZSGT05...	0.043
0.394 - 0.465	ZSGT06...	0.067
0.465 - 0.551	LOGT06...	0.071
0.551 - 0.630	TOHT07...	0.079
0.630 - 0.709	TOHT08...	0.087
0.709 - 0.787	TOHT09...	0.118
0.788 - 0.866	TOHT10...	0.126
0.866 - 0.985	TOHT11...	0.134
0.985 - 1.102	TOHT12...	0.142

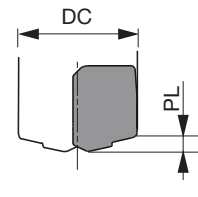
(Unit: Inch)

New

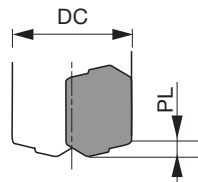
ZSGT04..., 05...



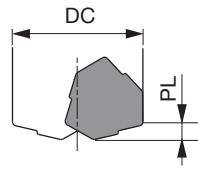
ZSGT06...



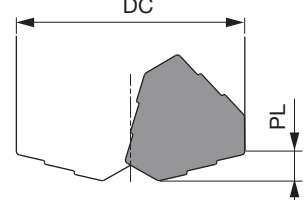
LOGT06...



TOHT07..., 08...



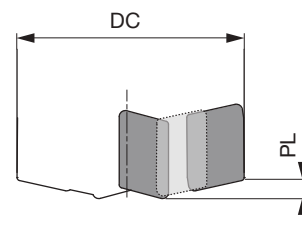
TOHT09... - TOHT12...



DC	Central	Insert Intermediate	Peripheral	Maximum difference PL
1.103 - 1.135	FBM07**-C	FBM06**-I	FBH06**-P	0.098
1.135 - 1.142	FBM07**-C	FBM06**-I	FBH06**-P	0.102
1.142 - 1.174	FBM07**-C	FBM06**-I	FBH06**-P	0.098
1.174 - 1.181	FBM07**-C	FBM06**-I	FBH06**-P	0.110
1.181 - 1.206	FBM07**-C	FBM07**-I	FBH08**-P	0.110
1.206 - 1.241	FBM07**-C	FBM07**-I	FBH08**-P	0.114
1.241 - 1.278	FBM07**-C	FBM07**-I	FBH08**-P	0.118
1.278 - 1.299	FBM07**-C	FBM07**-I	FBH08**-P	0.122
1.299 - 1.320	FBM07**-C	FBM07**-I	FBH08**-P	0.114
1.320 - 1.356	FBM07**-C	FBM07**-I	FBH08**-P	0.118
1.356 - 1.378	FBM07**-C	FBM07**-I	FBH08**-P	0.122
1.378 - 1.394	FBM08**-C	FBM07**-I	FBH08**-P	0.118
1.394 - 1.417	FBM08**-C	FBM07**-I	FBH08**-P	0.122
1.417 - 1.438	FBM08**-C	FBM07**-I	FBH08**-P	0.114
1.438 - 1.473	FBM08**-C	FBM07**-I	FBH08**-P	0.118
1.473 - 1.496	FBM08**-C	FBM07**-I	FBH08**-P	0.122
1.496 - 1.501	FBM08**-C	FBM07**-I	FBH09**-P	0.130
1.501 - 1.535	FBM08**-C	FBM07**-I	FBH09**-P	0.134
1.535 - 1.544	FBM08**-C	FBM07**-I	FBH09**-P	0.126
1.544 - 1.575	FBM08**-C	FBM07**-I	FBH09**-P	0.130

(Unit: Inch)

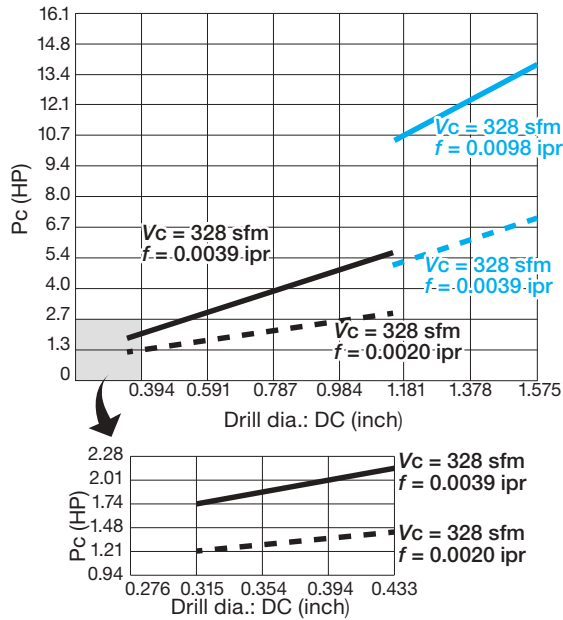
FBM...



REQUIRED SPINDLE POWER AND COOLANT PRESSURE

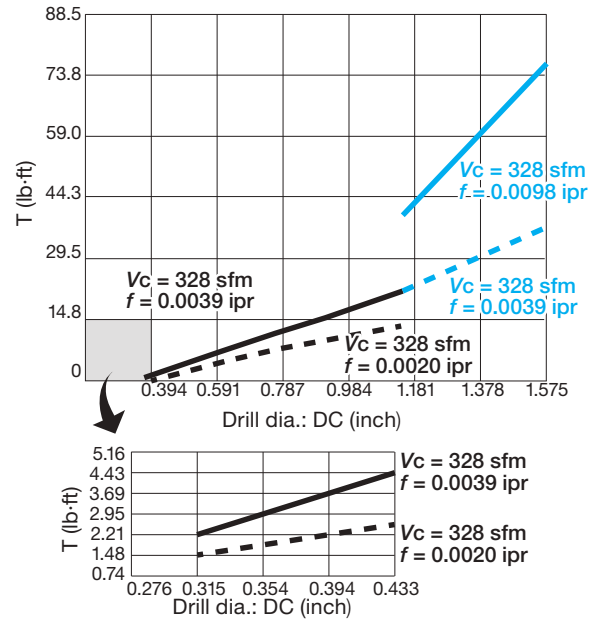
Net power

P 1055

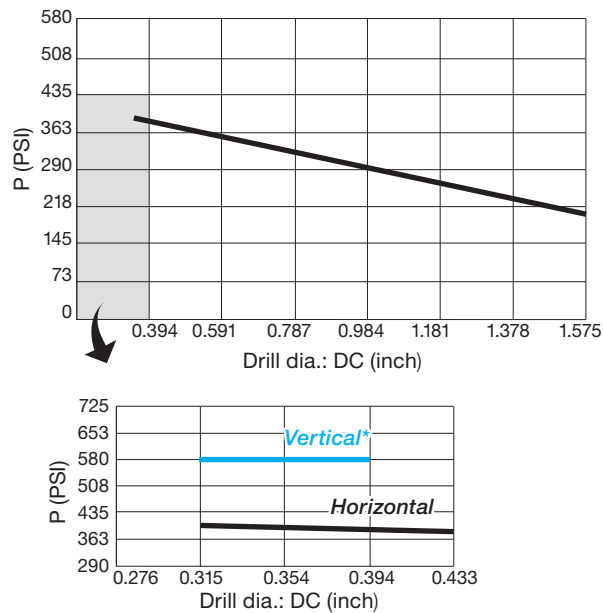


Torque

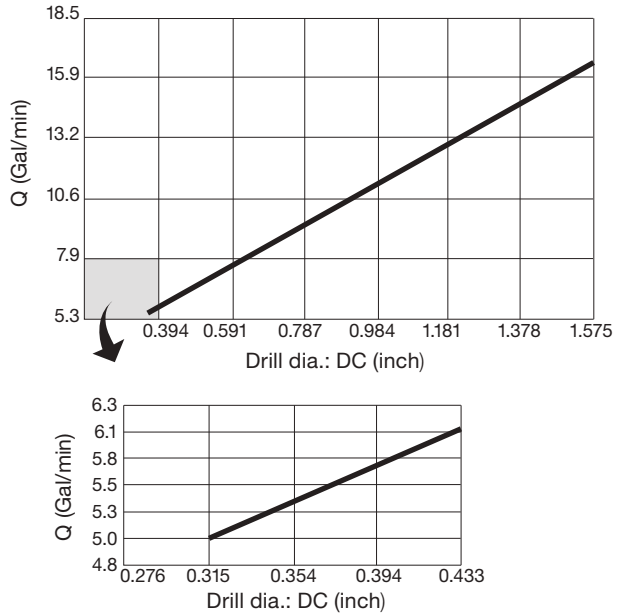
P 1055



Coolant pressure



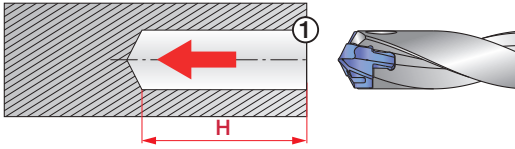
Coolant flow rate



*Vertical machining requires a coolant pressure of 580 PSI or higher to evacuate chips.

DRILLING PROCEDURE ON MACHINING CENTERS AND LATHES

Proceed as instructed below in order to maximize the tool performance.



① Drill a pilot hole

Hole diameter tolerance: $+0.0004'' - +0.0020''$

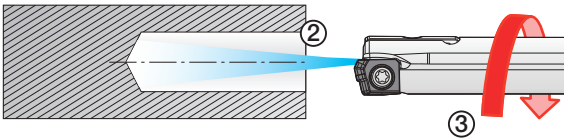
Hole depth: $H = 0.984''$

Note: Drill $H = 1.772''$ when using an MCTRCH drill (for cross-hole).

Please use DrillMeister or DrillForce-Meister for a pilot hole.

Use a drill with 3xD or smaller.

Note: Recommend to use a drill with 5xD when using an MCTRCH drill.



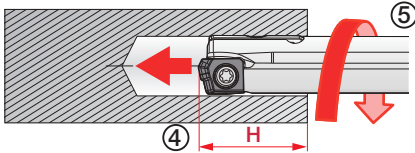
② Start coolant

③ Slowly insert DeepTri-Drill into the pilot hole

No. of revolution: $n = 50 - 100$ rpm

Feed rate: $V_f = 4 - 12$ ipm

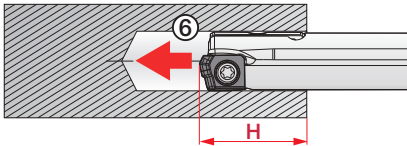
Note: Do not rotate the drill at full machining speed before engaging the pilot hole.



④ Stop the drill at $H = 0.787''$ depth

Note: Stop at $H = 1.575''$ when using an MCTRCH drill.

⑤ Start rotating at full machining speed



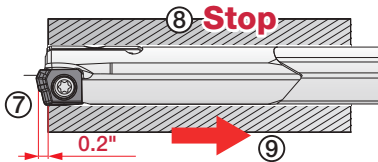
⑥ Start feeding

At the entry ($H = 0.787'' - 1.181''$ mm) $\rightarrow$ Feed: $f = 80\%$ of programmed feed

Note: Drill $H = 1.575'' - 1.969''$ when using an MCTRCH drill.

Hole depth: $H \geq 1.181'' \rightarrow$ Feed: $f = 100\%$

Note: Drill $H = 1.969''$ or more when using an MCTRCH drill.



⑦ For a through hole

Continue drilling until the drill head passes through the workpiece by $0.2''$.

Note: When machining gummy materials such as low carbon steel, reduce the feed rate to 70% of the normal level right before exiting the material to prevent chips from scattering.

⑧ Stop the rotation and coolant

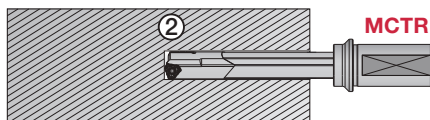
⑨ Return the drill, and operation finished

■ HOW TO USE A TRLG OR MCTR (> 25xD) DRILL ON A MACHINING CENTER OR HORIZONTAL BORING MACHINE

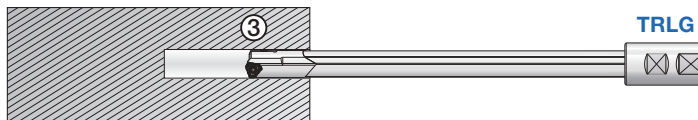
When using a long-overhang TRLG or MCTR drill of over 25xD on a conventional machining center or horizontal boring machine with no drill guide or anti-whip bushings that support the tool along its entire length, apply the following instructions to prevent the drill from "whipping" during machining.



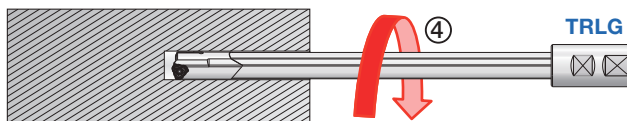
- ① Drill a pilot hole



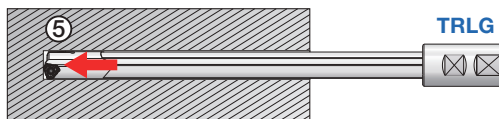
- ② Use an MCTR drill of $\leq 25xD$ to make the pilot hole as deep as possible.



- ③ Start with a low drill revolution and low penetration rate as the TRLG or MCTR (> 25xD) drill enters the pilot hole.
No. of revolution: $n = 50 - 100$ rpm
Feed speed: $V_f = 4 - 12$ ipm



- ④ When TRLG drill reaches all the way to the end of the pilot hole, increase drill rotation at full machining speed.



- ⑤ Start feeding to complete the drilling

Note:

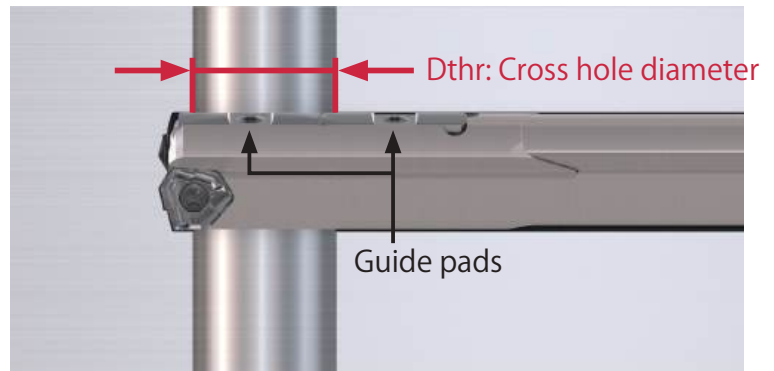
Do NOT skip Step ②. The tool will whip during machining, which may lead to drill breakage and possible personal injury.

CAUTION FOR CROSS HOLE DRILLING

- Decrease the feed rate when the drill head comes in contact with a cross hole
($f = 0.001 - 0.002$ ipr)
- Retract the gundrill with a slow rotation
($n = 100$ rpm, $V_f = 12$ ipm)
- When the gundrill is rapidly pulled out without rotating, the insert and/or guide pads may come in contact with burrs on the cross holes on the way back, resulting in damages

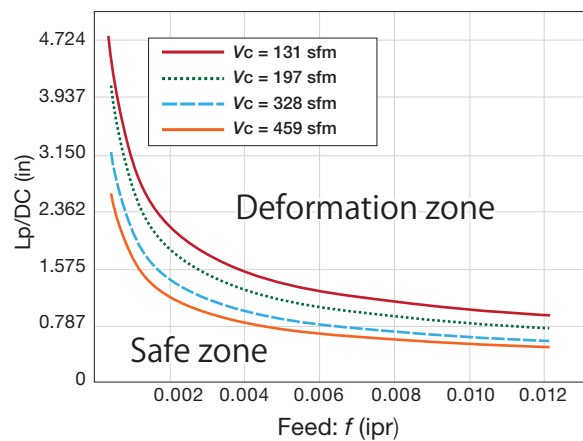
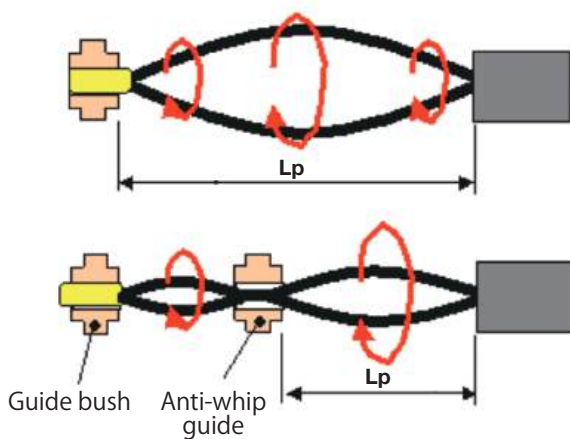


Designed for cross hole drilling



DEFORMATION BY CENTRIFUGAL FORCE

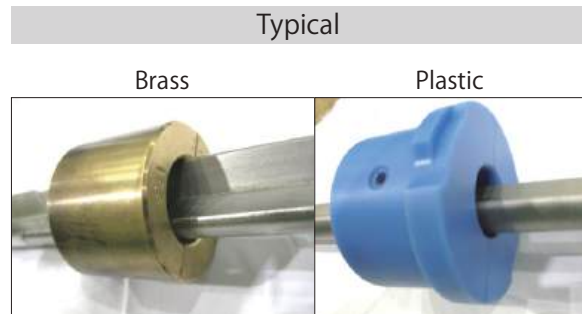
Every gundrill tool is prone to “whip” under certain circumstances. This phenomenon is fully dependent on tool length and cutting speed. If the parameters are in the deforming zone as shown in the graph, consider amending the cutting speed or using an anti-whip guide.



RECOMMENDED WHIP GUIDE SHAPE

A whip guide may be necessary for secure drilling.

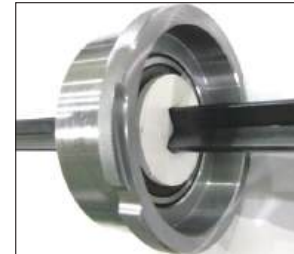
A bearing and Gizmo® bush* is recommended for stable deep drilling.



Gizmo® bush* is a trademark of The Whip Guide Company.

Recommendation

Bearing + Gizmo® bush*



⚠ Caution

Be sure to check that the drill head is twisted and can be attached to the whip guide.
($\phi 7.94 \leq \phi DC < \phi 10$)



Color of screws and its tightening direction are different for inserts and guide pads.
($\phi 7.94 \leq \phi DC < \phi 8.5$)

Screws for inserts

CSPB-2FL3.1

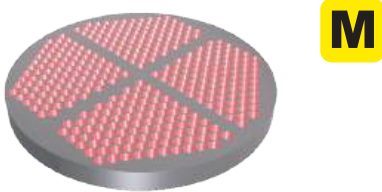
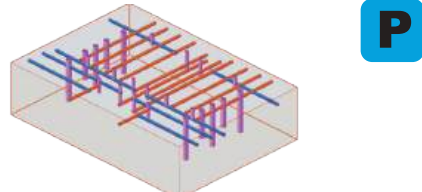
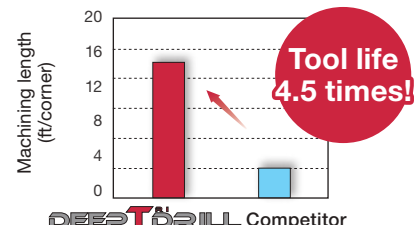
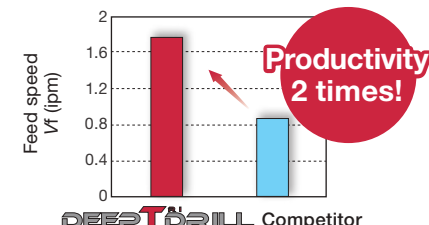


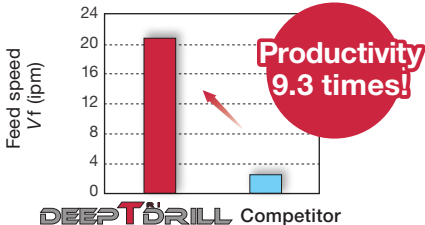
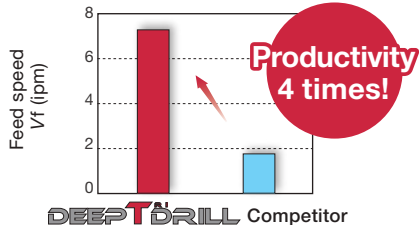
Screws for guide pads

CSPB-2FL2.7-LH



PRACTICAL EXAMPLES

Workpiece type		Tube Sheet	Plastic mold
Drill		MCTR20.00XM32-10 ($\phi 0.787"$)	TRLGCH18.00X1500-36A ($\phi 0.709"$)
Insert		TOHT090305R-NDL	TOHT080305R-NDJ
Grade		AH725	AH725
Guide pad		GP06-085 F2122	GP06-075 F2122
Workpiece material		304	H13 (45 HRC)
			
Cutting conditions	Cutting speed : V_c (sfm)	260	200
	Feed : f (ipr)	0.002	0.002
	Feed speed : V_f (ipm)	2.1	1.7
	Drilling depth : H (Inch)	7.9	28
	Machine	Horizontal M/C	Horizontal M/C
	Coolant	Wet	Wet
Results		 The NDL style chipbreaker has improved chip control and provides stable machining. Extended tool life with machining stability.	 DeepTri-Drill has improved productivity and drilling stability with double the feed rate and eliminated premature tool failures. No need for regrinding worn drills, reducing tool inventory and management.

Workpiece type		Shaft	Axel shaft
Drill		MCTR12.00XM20-20 (ø0.472")	MCTR14.00XM25-15 (ø0.551")
Insert		LOGT060204R-NDJ	TOHT070304R-NDJ
Grade		AH725	AH725
Guide pad		GP04-055 F2122	GP05-060 F2122
Workpiece material		Low alloy steel	4135H
		 P	 P
Cutting conditions	Cutting speed: V_c (sfm)	490	260
	Feed : f (ipr)	0.005	0.004
	Feed speed : V_f (ipm)	20	7.2
	Hole diameter: ϕD_c (in)	0.472	0.551
	Drilling depth : H (in)	9.2	7.9
	Machine	Vertical M/C	Lathe
	Coolant	Wet	Internal
Results		 DEEPTDRILL Competitor DeepTri-Drill increases productivity by 9.3 times over the current brazed gundrill. No need for reconditioning.	 DEEPTDRILL Competitor Unlike the competitor's HSS drill, DeepTri-Drill does not require step feed and increases productivity by 4 times.

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