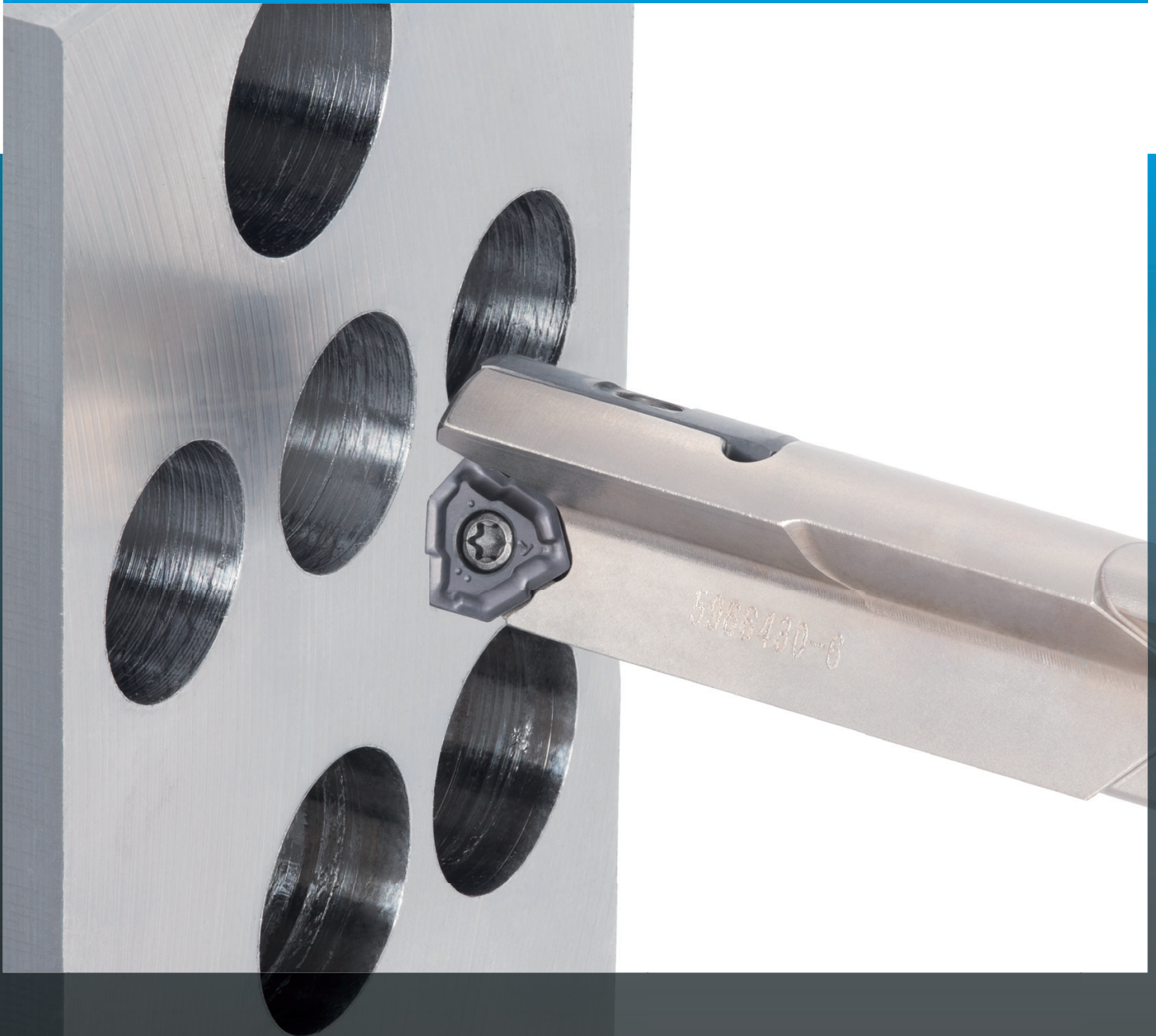
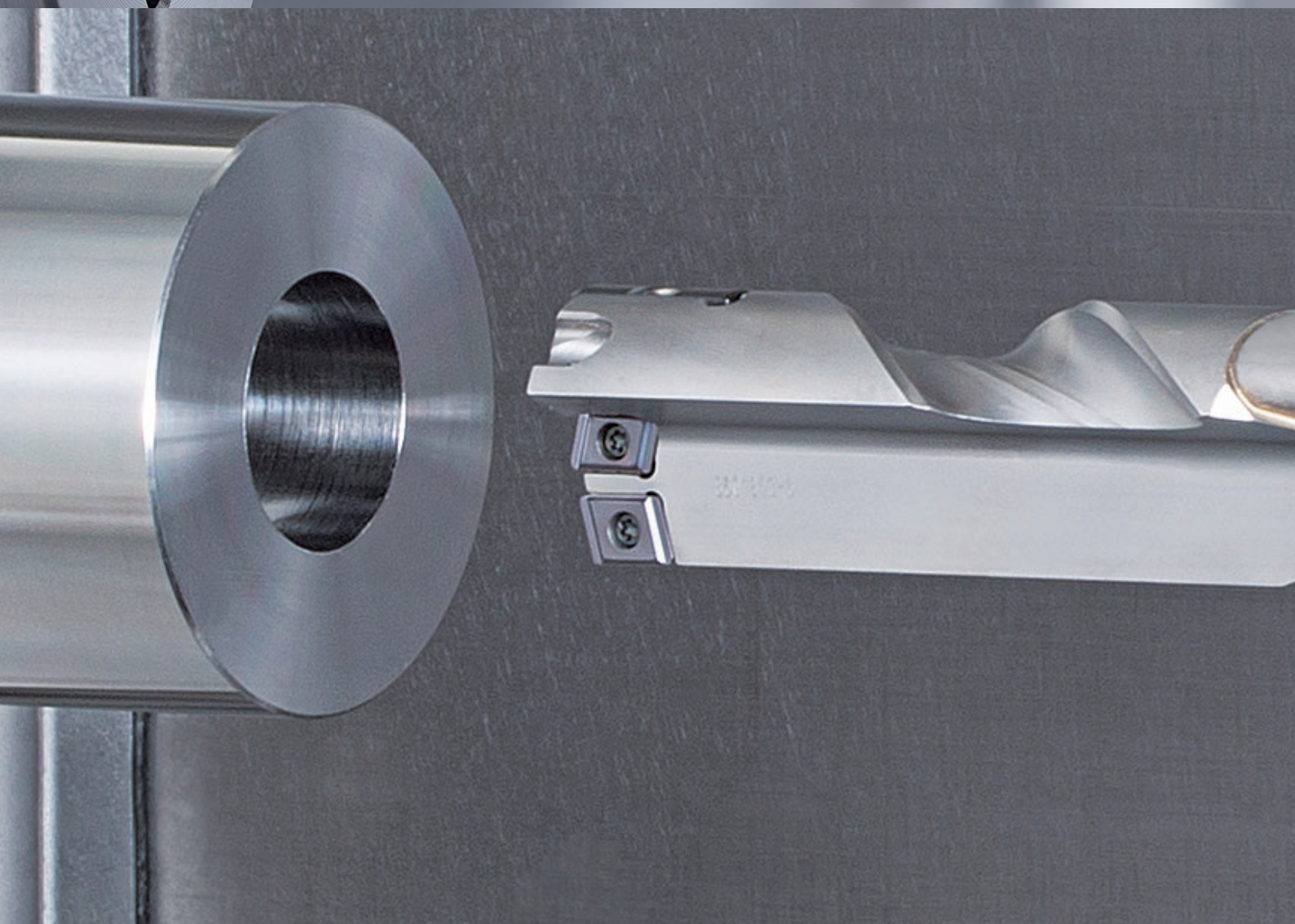
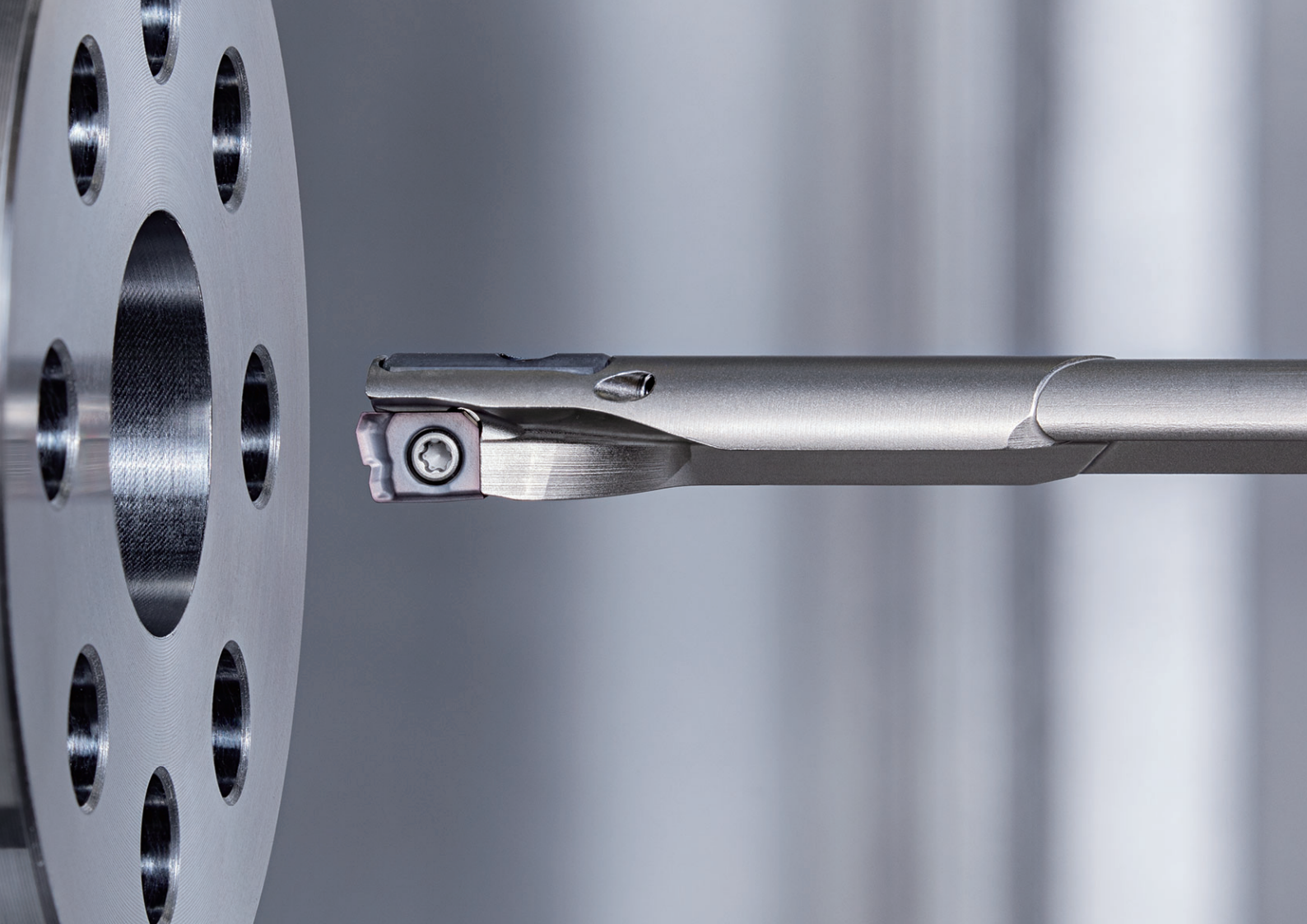


Deep hole drill

DeepTri-Drill

Indexable gun drills ensures
**reliable deep hole drilling at
accelerated feeds and speeds**







DeepTri-Drill

04 General Features

06 Line Up

06 Drill Bodies

06 For lathes and machining centers

- 06 MCTR
- 11 MCTRCH
- 12 MCTR-F

16 For gundrill machines

- 16 TRLG
- 18 TRLGCH
- 19 TRLG-F

20 Tailor-made tools

22 Inserts

26 Guide Pads

27 Shims

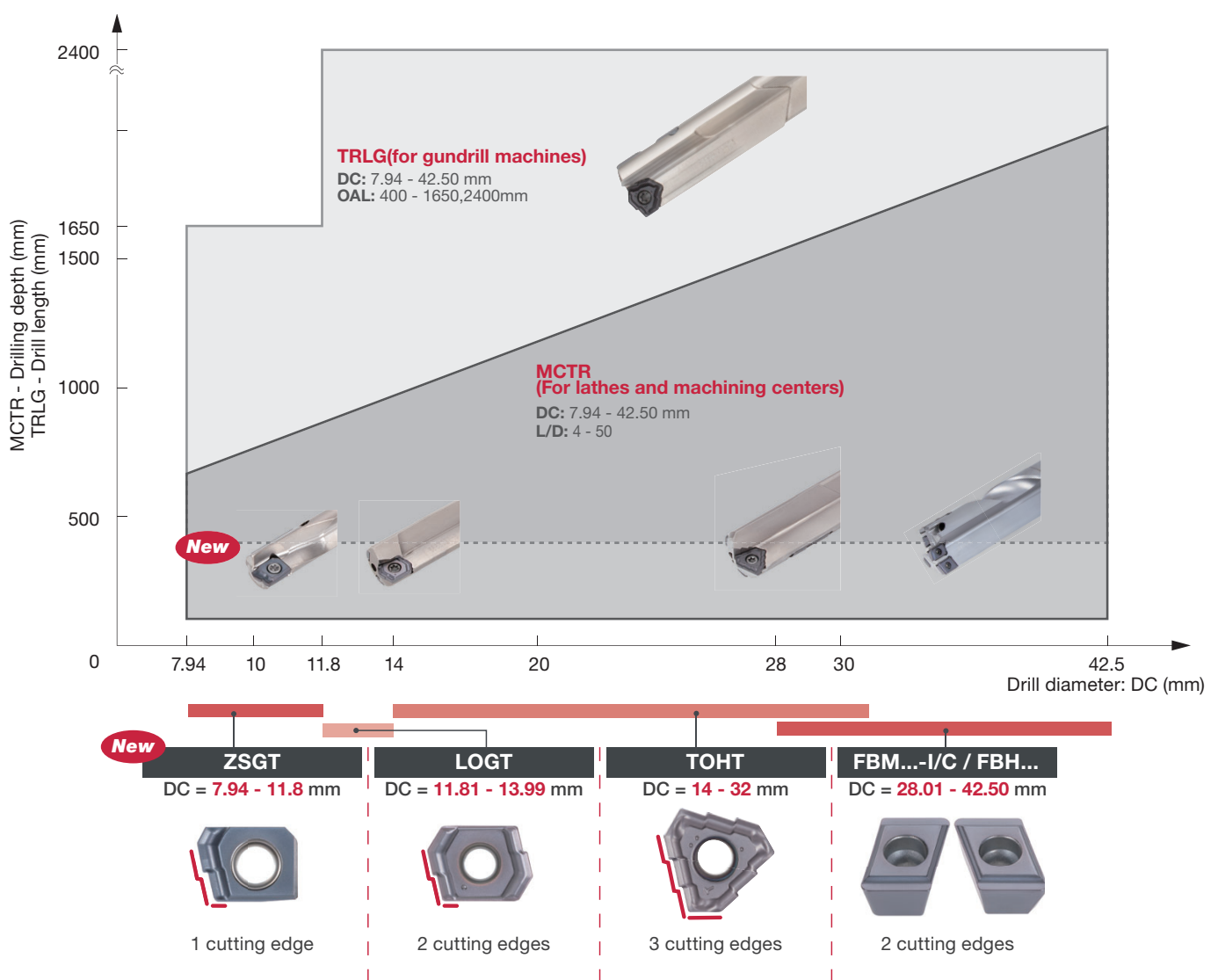
28 Technical Guide

39 Practical Examples

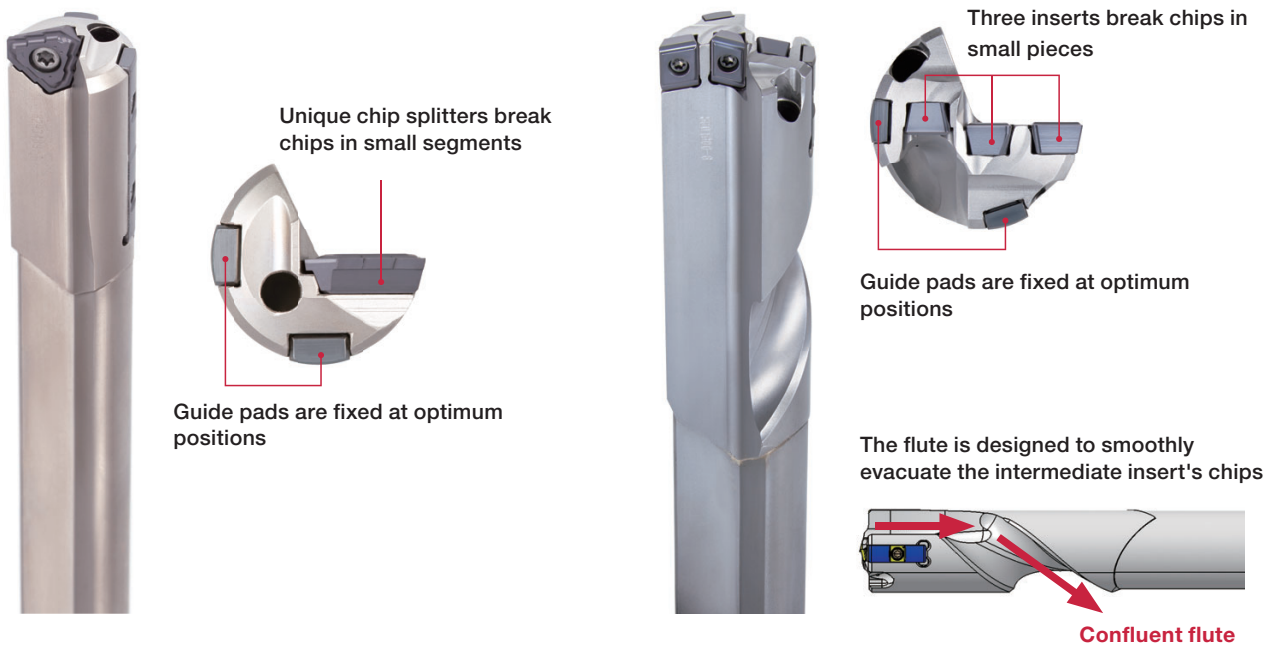
DeepTri-Drill

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

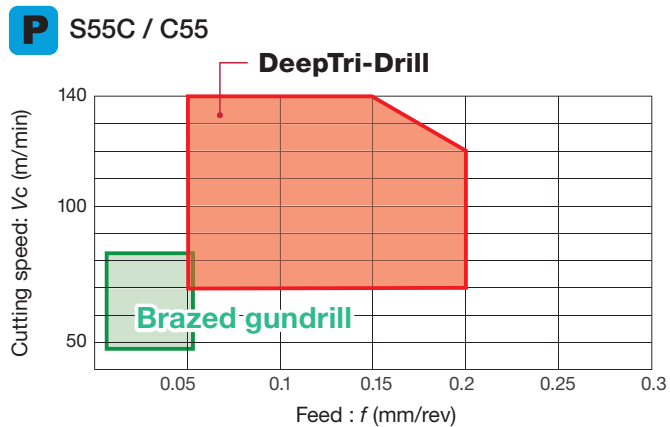
■ Wide range of solutions for various deep hole applications



■ Optimal tool design



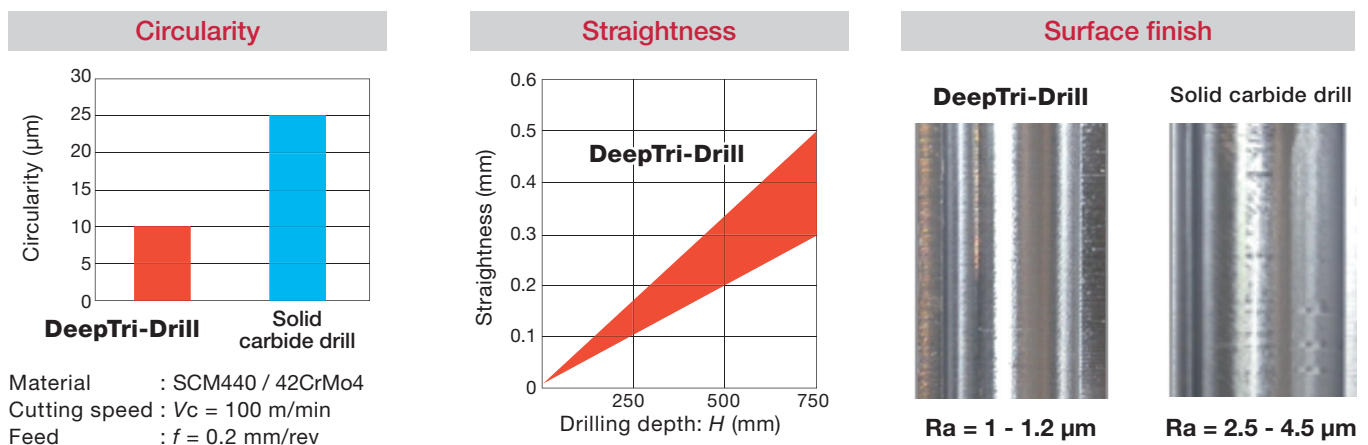
■ Comparison of performance between brazed and indexable gun drills



■ Chip forms



■ Excellent hole roundness, straightness, and surface finish

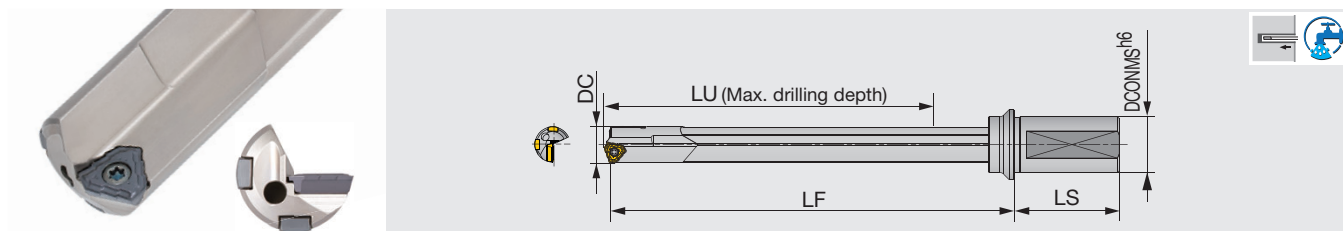


DeepTri-Drill

For lathes and machining centers

MCTR L/D=10

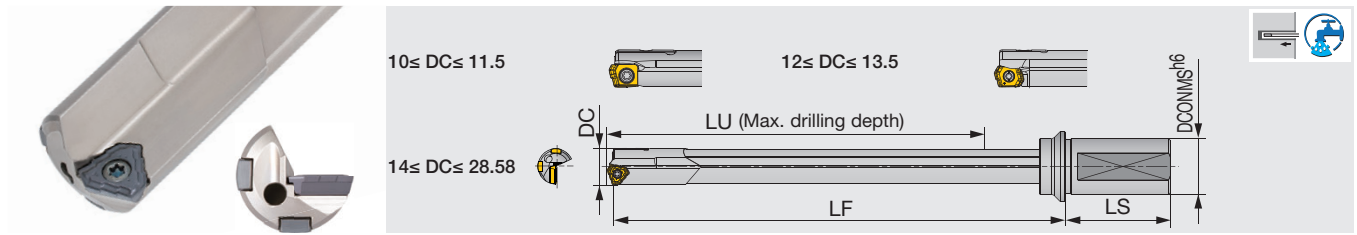
Drill body for lathes and machining centers, L/D = 10, Tool diameter $\varnothing 16 - \varnothing 32$ mm



Designation	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
MCTR28.58AXFU38.1-10	28.58	38.1	294.6	69	360	TOHT13...	GP06, GP06-20-120-DC
MCTR29.00AXFM40-10	29	40	294.6	69	360	TOHT13...	GP06, GP06-20-120-DC
MCTR30.00AXFM40-10	30	40	314.6	69	383	TOHT13...	GP07, GP07-20-120-DC
MCTR31.00AXFM40-10	31	40	314.6	69	383	TOHT13...	GP07, GP07-20-120-DC
MCTR31.75AXFU38.1-10	31.75	38.1	324.6	69	395	TOHT13...	GP07, GP07-20-120-DC
MCTR32.00AXFM40-10	32	40	324.6	69	395	TOHT13...	GP07, GP07-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
16 - 32	0 / - 0.07	+ 0.05 / - 0.1

Reference pages: Spare parts → **P.10**, Inserts → **P.22**, Guide pads → **P.26**

MCTR L/D=15Drill body for lathes and machining centers, L/D = 15, Tool diameter $\varnothing 10 - \varnothing 28.58$ mm

Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR10.00XM20-15	10	20	159.2	50	184.5	ZSGT06...	GP04-16-045-DC
MCTR10.50XM20-15	10.5	20	166.7	50	193	ZSGT06...	GP04-16-045-DC
MCTR11.00XM20-15	11	20	181.7	50	209	ZSGT06...	GP04-16-050-DC
MCTR11.50XM20-15	11.5	20	181.7	50	209	ZSGT06...	GP04-16-050-DC
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
MCTR28.58AXFU38.1-15	28.58	38.1	439.6	69	505	TOHT13...	GP06, GP06-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
10 - 13.99	0 / - 0.08	+ 0.05 / - 0.11
14 - 28.58	0 / - 0.07	+ 0.05 / - 0.1

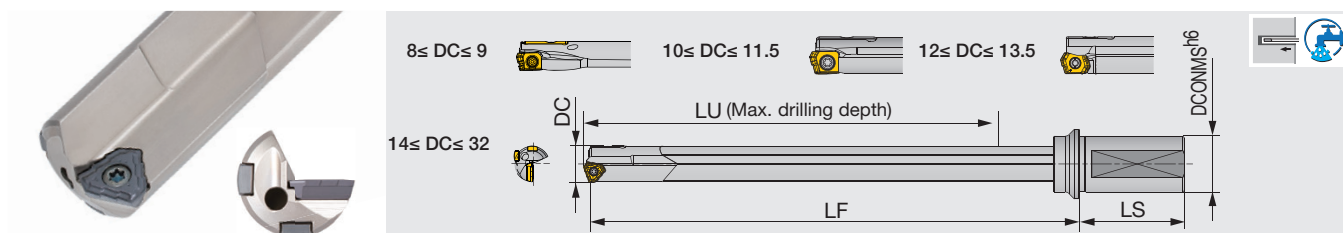
Reference pages: Spare parts → **P.10**, Inserts → **P.22**, Guide pads → **P.26**

DeepTri-Drill

For lathes and machining centers

MCTR L/D=20

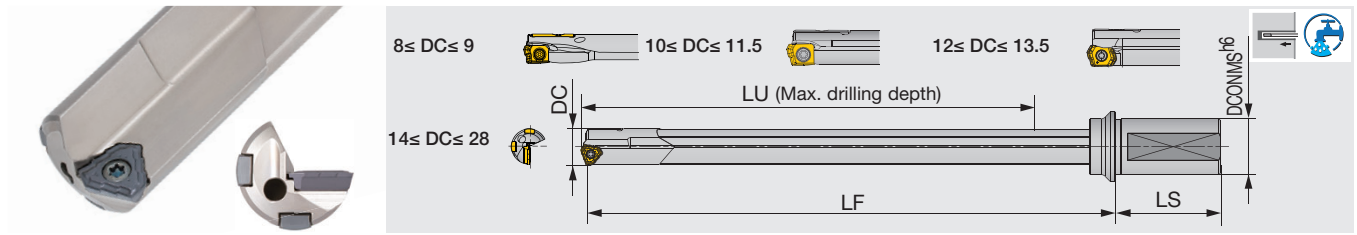
Drill body for lathes and machining centers, L/D = 20, Tool diameter $\varnothing 8 - \varnothing 32$ mm



	Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
New	MCTR08.00XM20-20	8	20	169.2	50	192	ZSGT04...	SGP03-12-035-DC
	MCTR10.00XM20-20	10	20	211.7	50	237	ZSGT06...	GP04-16-045-DC
	MCTR10.50XM20-20	10.5	20	221.7	50	248	ZSGT06...	GP04-16-045-DC
	MCTR11.00XM20-20	11	20	241.7	50	269	ZSGT06...	GP04-16-050-DC
	MCTR11.50XM20-20	11.5	20	241.7	50	269	ZSGT06...	GP04-16-050-DC
	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
	MCTR28.58AXFU38.1-20	28.58	38.1	584.6	69	650	TOHT13...	GP06, GP06-20-120-DC
	MCTR29.00AXFM40-20	29	40	584.6	69	650	TOHT13...	GP06, GP06-20-120-DC
	MCTR30.00AXFM40-20	30	40	624.6	69	693	TOHT13...	GP07, GP07-20-120-DC
	MCTR31.00AXFM40-20	31	40	624.6	69	693	TOHT13...	GP07, GP07-20-120-DC
	MCTR31.75AXFU38.1-20	31.75	38.1	644.6	69	715	TOHT13...	GP07, GP07-20-120-DC
	MCTR32.00AXFM40-20	32	40	644.6	69	715	TOHT13...	GP07, GP07-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
8 - 13.99	0 / - 0.08	+ 0.05 / - 0.11
14 - 32	0 / - 0.07	+ 0.05 / - 0.1

Reference pages: Spare parts → [P.10](#), Inserts → [P.22](#), Guide pads → [P.26](#)

MCTR L/D=25Drill body for lathes and machining centers, L/D = 25, Tool diameter $\varnothing 8 - \varnothing 28$ mm

	Designation	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
	MCTR10.50XM20-25	10.5	20	276.7	50	303	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
8 - 13.99	0 / - 0.08	+ 0.05 / - 0.11
14 - 28	0 / - 0.07	+ 0.05 / - 0.1

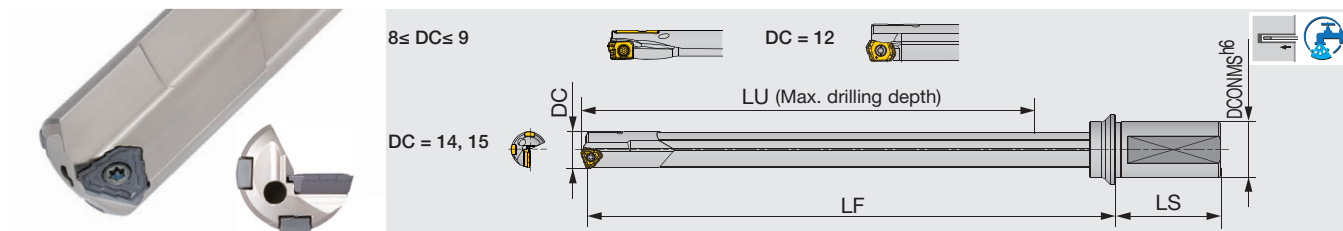
Reference pages: Spare parts → **P.10**, Inserts → **P.22**, Guide pads → **P.26**

DeepTri-Drill

For lathes and machining centers

MCTR L/D=35, 40, 45

Drill body for lathes and machining centers, L/D = 35, 40, 45, Tool diameter $\varnothing 8$ - $\varnothing 15$ mm



	Designation	DC	L/D	DCONMS	LU	LS	LF	Insert	Guide pad
New	MCTR08.00XM20-35	8	35	20	295.2	50	318	ZSGT04...	SGP03-12-035-DC
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
8 - 13.99	0 / - 0.08	+ 0.05 / - 0.11
14 - 15	0 / - 0.07	+ 0.05 / - 0.1

SPARE PARTS

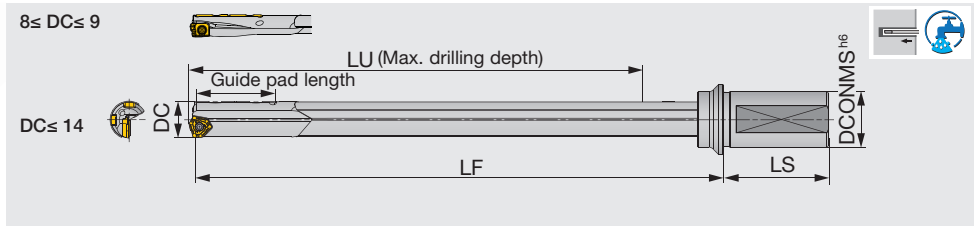
Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR08... - MCTR08.49...	CSPB-2FL3.1	IP-6F	CSPB-2FL2.7-LH	IP-6F
MCTR08.5... - MCTR09.99...	CSPB-2FL3.1	IP-6F	CSPB-2FL3.1	IP-6F
MCTR10... - MCTR11.5...	SR-M2.5X0.35L3.8	T-7F	CSTB-2	T-6F
MCTR12... - MCTR13.5...	SR10503833L040	T-7F	CSPB-2L043	IP-6F
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
MCTR28.01... - MCTR29.99...	SR 16-212/L10	T-20/5	SR34-508	T-7F
MCTR30... - MCTR32...	SR 16-212/L10	T-20/5	CSTB-3S	T-9F

Recommended torque (N·m) for clamping: CSPB-2FL3.1, CSPB-2FL2.7-LH=0.6, SR-M2.5X0.35L3.8=0.9, CSTB-2=0.7, SR10503833L040=0.9, CSPB-2L043=0.7, SR14-560/S=1.2, SR34-508=0.9, SR34-506=0.9, SR14-571/S=3.2, SR14-506=4.8, SR 16-212/L10=9, CSTB-3S=2.3

Reference pages: Inserts → [P.22](#), Guide pads → [P.26](#)

MCTRCH L/D=10, 25, 40, 45

Drill body for drilling cross hole applications on CNC lathes and machining centers, L/D = 10, 25, 40, 45,
Tool diameters ø8 mm - ø29.36 mm



	Designation	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
	MCTRCH14.68XM25.4-25	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
	MCTRCH15.06XM25.4-25	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
	MCTRCH18.24XM25.4-25	18.24	25.4	478	56	517	TOHT09...	GP06-085, GP06-20-085-DC	40
	MCTRCH18.64XM25.4-25	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
	MCTRCH23.80XM31.75-25	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
	MCTRCH29.36AXFM40-10	29.36	40	304.6	69	372	TOHT13...	GP06, GP06-20-120-DC	40

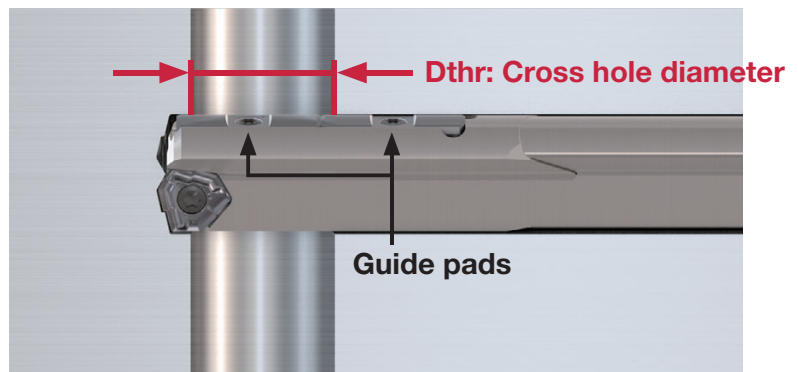
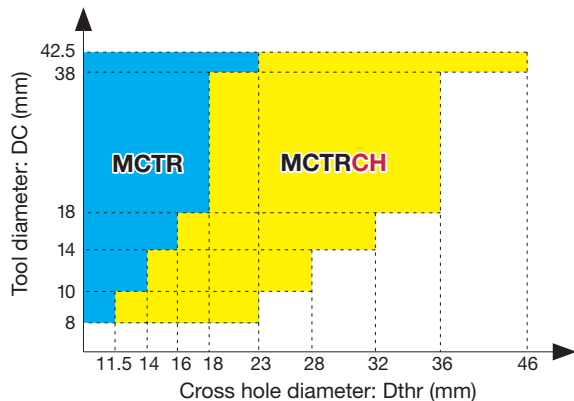
DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
8 - 13.99	0 / - 0.10	+ 0.05 / - 0.13
14 - 29.36	0 / - 0.09	+ 0.05 / - 0.12

SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTRCH08... - MCTRCH08.49...	CSPB-2FL3.1	IP-6F	CSPB-2FL2.7-LH	IP-6F
MCTRCH08.5... - MCTRCH09.99...	CSPB-2FL3.1	IP-6F	CSPB-2FL3.1	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
MCTRCH29...	SR 16-212/L10	T-20/5	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, SR 16-212/L10=9

■ 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.

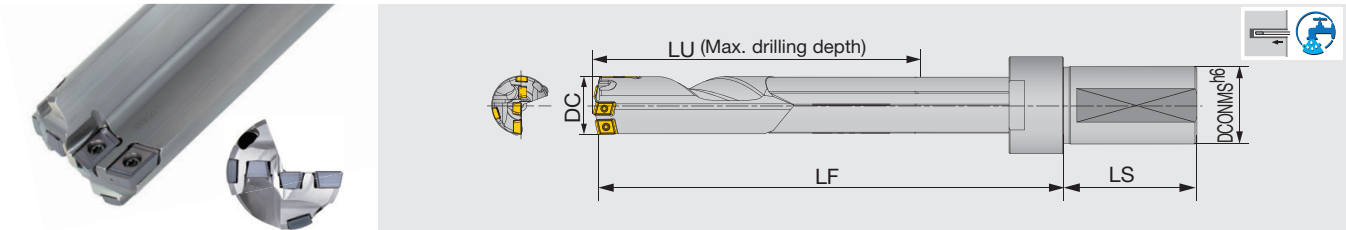
Reference pages: Inserts → [P.22](#), Guide pads → [P.26](#)

DeepTri-Drill

For lathes and machining centers

MCTR-F L/D=8

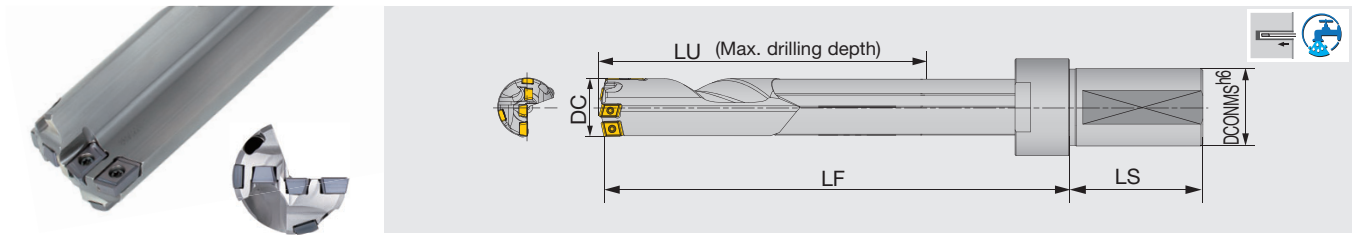
Drill body for lathes and machining centers, L/D = 8, Tool diameter $\varnothing 33.1$, $\varnothing 39.1$ mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR33.10XFM40-8	33.1	40	275	69	350	FBM07**-C, FBM06**-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

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=10Drill body for lathes and machining centers, L/D = 10, Tool diameter $\varnothing 28.58 - \varnothing 40$ mm

Designation	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
28.58 - 40	0 / - 0.07	+ 0.05 / - 0.1

Caution:

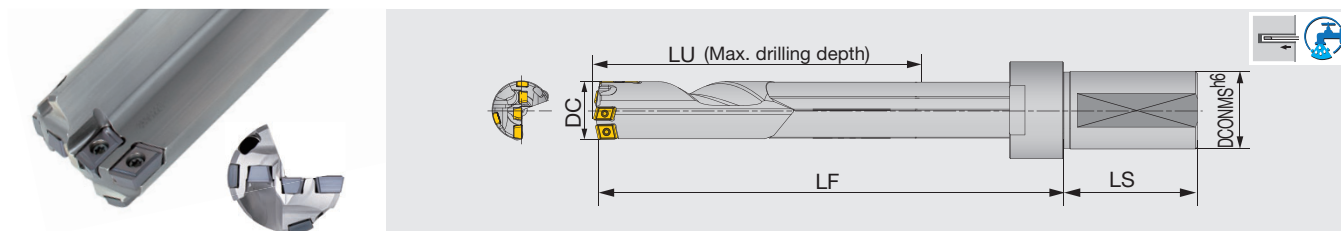
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven. This, however, will not affect the performance of the drill.

DeepTri-Drill

For lathes and machining centers

MCTR-F L/D=15

Drill body for lathes and machining centers, L/D = 15, Tool diameter $\varnothing 28.58 - \varnothing 40$ mm



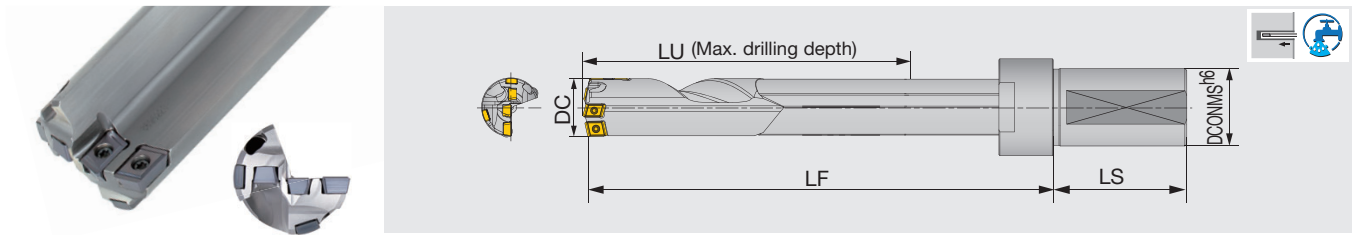
Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR28.58XFU31.75-15	28.58	31.75	437.6	69	505	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR29.00XFM40-15	29	40	437.6	69	505	FBM07**-C, FBM06**-I, FBH06**-P	GP06, GP06-20-120-DC
MCTR30.00XFM40-15	30	40	467.9	69	538	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
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
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
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
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
28.58 - 40	0 / - 0.07	+ 0.05 / - 0.1

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.15](#), Inserts → [P.23](#), Guide pads → [P.26](#)

MCTR-F L/D=25Drill body for lathes and machining centers, L/D = 25, Tool diameter $\varnothing 28.58 - \varnothing 38.1$ mm

Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR28.58XFU31.75-25	28.58	31.75	727.6	69	795	FBM07**-C, FBM06**-I, FBH06**-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
MCTR31.75XFU31.75-25	31.75	31.75	803	69	875	FBM07**-C, FBM07**-I, FBH08**-P	GP06, GP06-20-120-DC
MCTR34.93XFU31.75-25	34.93	31.75	878.1	69	953	FBM07**-C, FBM07**-I, FBH08**-P	GP07, GP07-20-120-DC
MCTR38.10XFU31.75-25	38.1	31.75	978.4	69	1059	FBM08**-C, FBM07**-I, FBH09**-P	GP08, GP08-25-155-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
28.58 - 38.1	0 / - 0.07	+ 0.05 / - 0.1

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.

SPARE PARTS

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

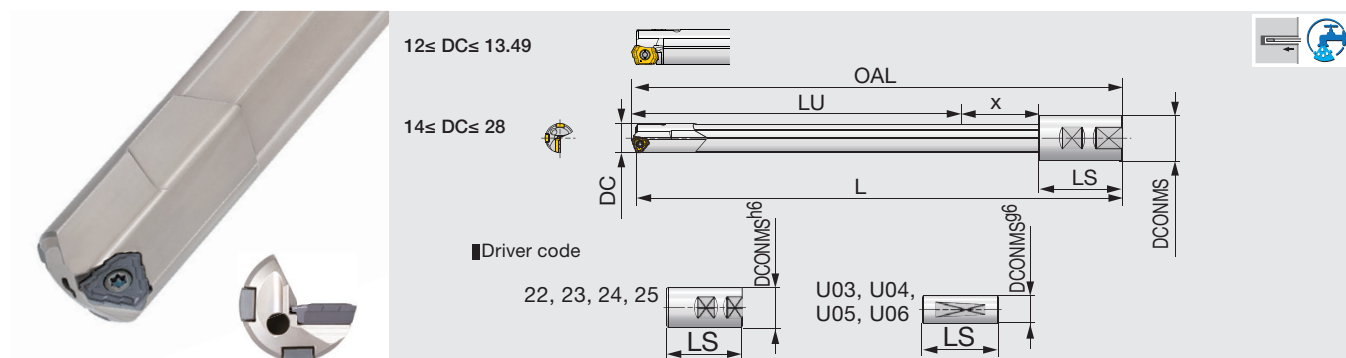
Recommended torque (N·m) for clamping: CSTB-2.5=1.3, CSTB-2.2=1, SR34-508=0.9, CSTB-3S=2.3

DeepTri-Drill

For gundrill machines

TRLG

Drill body for gundrill machines, Tool diameters $\varnothing 12$ - $\varnothing 28.58$ mm



Designation	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

Designation	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	894.7	1003.7	70	39	25	TOHT12...	GP06, GP06-20-120-DC
TRLG26.00X1000-U06	26	1000	38.1	894.7	1003.7	70	39	U06	TOHT12...	GP06, GP06-20-120-DC
TRLG27.00X1000-25	27	1000	40	893.7	1003.7	70	40	25	TOHT12...	GP06, GP06-20-120-DC
TRLG27.00X1000-U06	27	1000	38.1	893.7	1003.7	70	40	U06	TOHT12...	GP06, GP06-20-120-DC
TRLG28.00X1000-25	28	1000	40	891.7	1003.7	70	42	25	TOHT12...	GP06, GP06-20-120-DC
TRLG28.00X1000-U06	28	1000	38.1	891.7	1003.7	70	42	U06	TOHT12...	GP06, GP06-20-120-DC
TRLG28.58AX1282-FU38.1	28.58	1282	38.1	1143	1286.6	69	70	FU38.1	TOHT13...	GP06, GP06-20-120-DC
TRLG28.58AX1511-FU38.1	28.58	1511	38.1	1372	1515.6	69	70	FU38.1	TOHT13...	GP06, GP06-20-120-DC
TRLG28.58AX939-FU38.1	28.58	939	38.1	800	943.6	69	70	FU38.1	TOHT13...	GP06, GP06-20-120-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
12 - 13.99	0 / - 0.08	+ 0.05 / - 0.11
14 - 28.58	0 / - 0.07	+ 0.05 / - 0.1

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=0.9, SR14-571/S=3.2, SR14-506=4.8

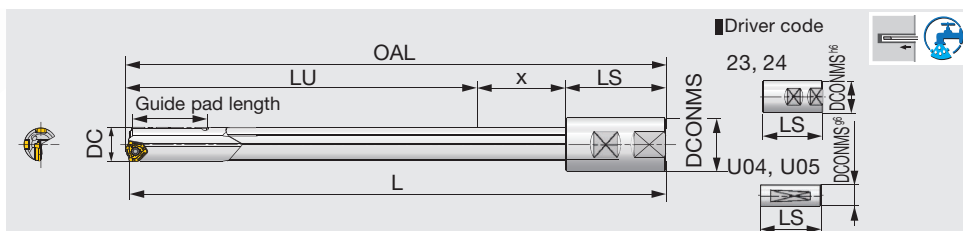
Reference pages: Inserts → **P.22**, Guide pads → **P.26**

DeepTri-Drill

For drilling cross hole applications on gun drilling machines

TRLGCH

Drill body for drilling cross hole applications on gun drilling machines, Tool diameters $\varnothing 14.68$ mm - $\varnothing 24$ mm



Designation	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

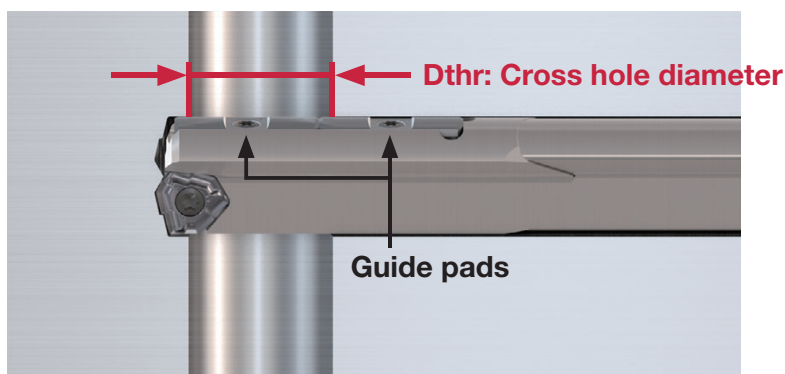
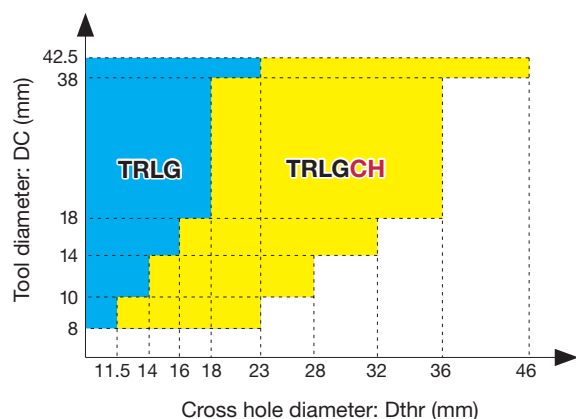
DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
14.68 - 24	0 / - 0.09	+ 0.05 / - 0.12

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

Tool selection with regard to cross hole diameters and drill diameters

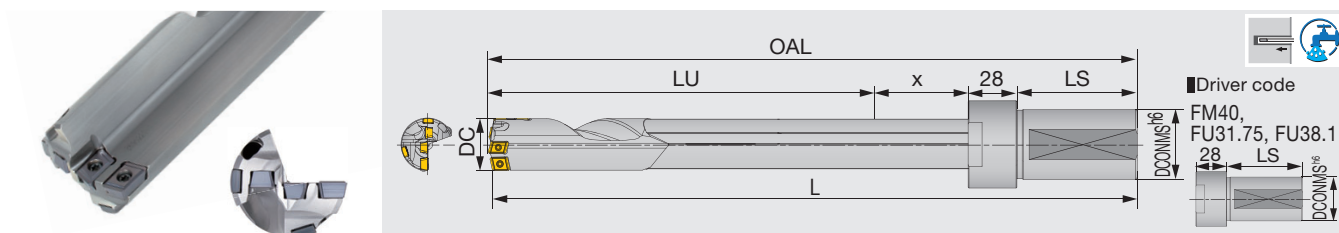


Note: A TRLG drill can be used when the cross hole diameter (Dthr) is smaller than the drill's guide pad length. When the cross hole diameter is larger than the drill's guide pad length, use an TRLGCH drill.

Reference pages: Inserts → [P.22](#), Guide pads → [P.26](#)

TRLG-F

Drill body for gundrill machines, Tool diameter $\varnothing 29.36$, $\varnothing 30$ mm



Designation	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
29.36, 30	0 / - 0.07	+ 0.05 / - 0.1

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.

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: SR34-508=0.9, CSTB-2.5=1.3

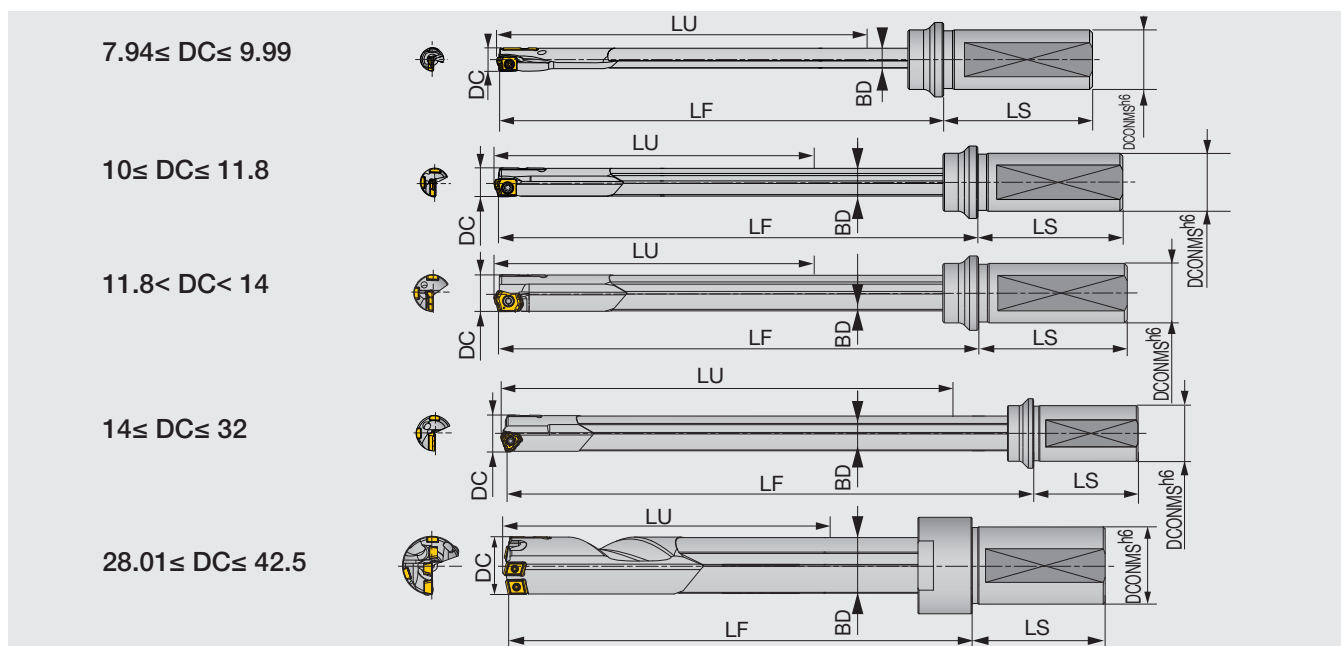
DeepTri-Drill

DESIGNATION FOR TAILOR-MADE TOOLS

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

MCTR	18.50	XM	25	-	22
1	2	3	4		

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



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	19.7 - 20.69	32	138 - 1053	60	170 - 1095	19
8.40 - 8.69	20	143 - 436	50	180-459	8	20.7 - 21.69	32	137 - 1103	60	171 - 1145	20
8.70 - 8.99	20	143 - 451	50	180-474	8	21.7 - 22.69	32	135 - 1153	60	171 - 1197	21
9.00 - 9.39	20	142 - 471	50	181-494	8.6	22.7 - 23.69	32	134 - 1203	60	171 - 1248	22
9.40 - 9.69	20	142 - 486	50	181-509	9	23.7 - 24.69	32	132 - 1253	60	171 - 1300	23
9.70 - 9.99	20	141 - 501	50	182-524	9	24.7 - 25.69	32	132 - 1303	60	171 - 1351	24
10 - 10.39	20	145 - 526	50	164 - 551	9.6	25.7 - 26.69	40	130 - 1353	70	171 - 1403	25
10.4 - 10.69	20	144 - 551	50	164 - 577	9.9	26.7 - 27.69	40	129 - 1403	70	171 - 1454	26
10.7 - 10.99	20	144 - 551	50	164 - 577	10.2	27.7 - 28	40	127 - 1403	70	171 - 1456	27
11 - 11.49	20	143 - 601	50	164 - 628	10.5	28.01 - 29	40	128, 177* - 1452	69	222 - 1519	27
11.5 - 11.8	20	143 - 601	50	164 - 628	11	29.01 - 29.99	40	126, 175* - 1502	69	222 - 1571	28
11.81 - 12.49	20	142 - 651	50	164 - 679	11.5	30 - 31	40	125, 174* - 1552	69	222 - 1622	29
12.5 - 12.99	20	141 - 651	50	164 - 680	12	31.01 - 32	40	123, 172* - 1602	69	222 - 1674	30
13 - 13.49	25	140 - 701	56	164 - 734	12.5	32.01 - 33	40	171 - 1653	69	222 - 1726	31
13.5 - 13.99	25	140 - 701	56	164 - 734	13	33.01 - 34	40	169 - 1702	69	222 - 1777	32
14 - 14.49	25	146 - 752	56	170 - 786	13.5	34.01 - 35	40	169 - 1753	69	222 - 1828	32
14.5 - 14.99	25	145 - 752	56	170 - 787	14	35.01 - 36	40	166 - 1803	69	222 - 1881	34
15 - 15.49	25	144 - 802	56	170 - 838	14.5	36.01 - 37	40	166 - 1852	69	222 - 1930	34
15.5 - 15.99	25	144 - 802	56	170 - 839	15	37.01 - 38	40	163 - 1903	69	222 - 1984	36
16 - 16.79	25	143 - 852	56	171 - 888	15.5	38.01 - 39	40	168 - 1953	69	227 - 2033	36
16.8 - 17.69	25	142 - 902	56	171 - 939	16.2	39.01 - 40	40	165 - 2003	69	227 - 2086	38
17.7 - 18.69	25	141 - 952	56	171 - 991	17.2	40.01 - 42.5	40	170 - 2003	69	257 - 2086	38
18.7 - 19.69	25	140 - 1003	56	170 - 1043	18.2						

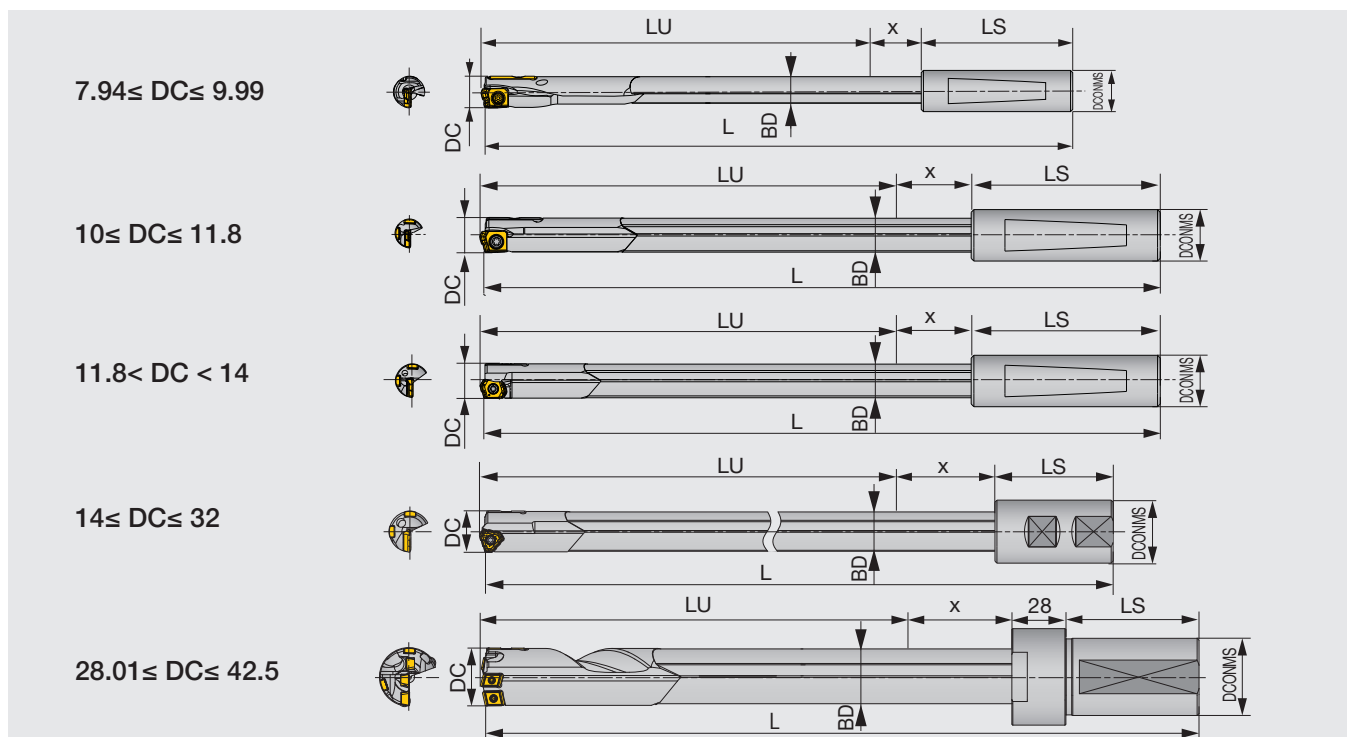
*3 inserts type

Please provide the driver shape necessary for your request

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

1 **TRLG** **2** **18.50** **X** **3** **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)						

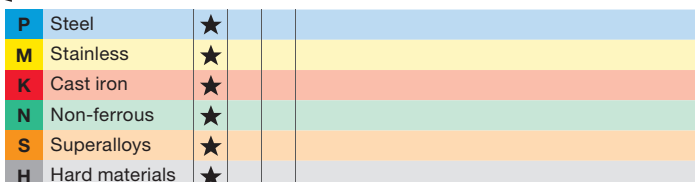


AVAILABLE RANGE OF TAILOR-MADE DRILL BODIES

DC	L	x	BD	DC	L	x	BD
7.94 - 8.39	400 - 1650	12	7.7	19.7 - 20.69	400 - 2400	30	19
8.40 - 8.99	400 - 1650	13	8	20.7 - 21.69	400 - 2400	31	20
9.00 - 9.39	400 - 1650	14	8.6	21.7 - 22.69	400 - 2400	33	21
9.40 - 9.69	400 - 1650	14	9	22.7 - 23.69	400 - 2400	34	22
9.70 - 9.99	400 - 1650	15	9	23.7 - 24.69	400 - 2400	36	23
10 - 10.39	400 - 1650	15	9.6	24.7 - 25.69	400 - 2400	37	24
10.4 - 10.69	400 - 1650	16	9.9	25.7 - 26.69	400 - 2400	39	25
10.7 - 10.99	400 - 1650	16	10.2	26.7 - 27.69	400 - 2400	40	26
11 - 11.49	400 - 1650	17	10.5	27.7 - 28	400 - 2400	42	27
11.5 - 11.99	400 - 1650	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 - 42.5	400 - 2400	59	38
18.7 - 19.69	400 - 2400	28	18.2				

Please provide the driver shape necessary for your request

ZSGT-NDJ



Designation	DCN	DCX	Coated							W1	S	RE
			AH9130									
ZSGT040104R-NDJ AH9130	7.94	8.99	●							4.8	1.24	0.4
ZSGT050104R-NDJ AH9130	9	9.99	●							5.3	1.35	0.4
ZSGT060204R-NDJ AH9130	10	11.8	●							6	1.5	0.4

Package quantity = 10 pcs.

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

Designation	DCN	DCX	Coated						W1	S	RE		
			AH9130	AH725									
LOGT060204R-NDJ	11.81	13.99	●	●							7.08	2	0.4

Package quantity = 10 pcs.

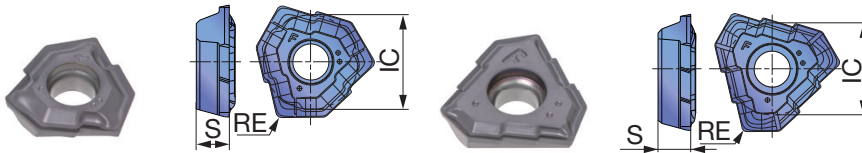
P	Steel	★			
M	Stainless	★			
K	Cast iron	★			
N	Non-ferrous	★			
S	Superalloys	★			
H	Hard materials	★			

[illegible]

Package quantity = 10 pcs.

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

TOHT-NDL (09... - 13...)



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

★ : First choice

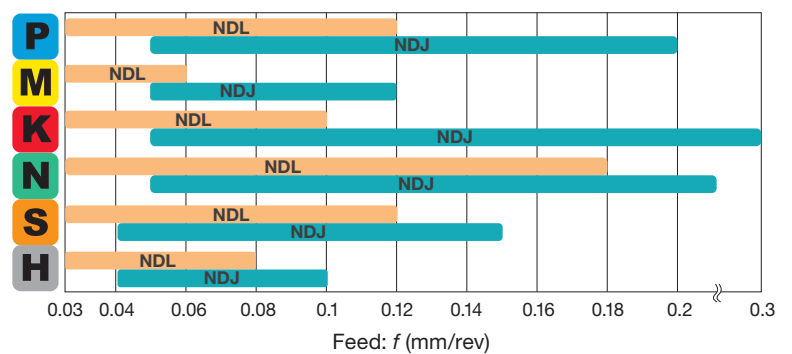
Designation	DCN	DCX	Coated							IC	S	RE
			AH725									
TOHT070304R-NDL	14	15.99	●							7.69	2.3	0.4
TOHT080305R-NDL	16	18	●							8.55	2.8	0.5
TOHT090305R-NDL	18.01	20	●							8.32	3	0.5
TOHT100305R-NDL	20.01	21.99	●							9.23	3.3	0.5
TOHT110405R-NDL	22	25	●							10.4	3.8	0.5
TOHT120405R-NDL	25.01	28	●							11.59	4.3	0.5
TOHT130408R-NDL	28.01	32	●							12.85	4.76	0.8

● : Line up
Package quantity = 10 pcs.

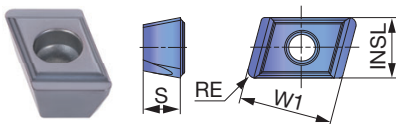
■ Identifications for NDL and NDJ geometries

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

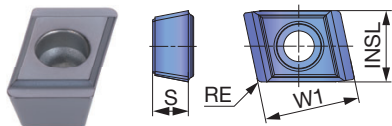
Designation	INSL	W1	Coated			S	DCN	DCX	RE
			AH9130	AH8015	AH725				
FBM070408L-G-C	6.5	10	●	●	●	4	28.01	35	0.8
FBM080408L-G-C	8	10	●	●	●	4	35.01	42.5	0.8

● : Line up
Package quantity = 10 pcs.

DeepTri-Drill

INSERT

FBM-I (For intermediate)



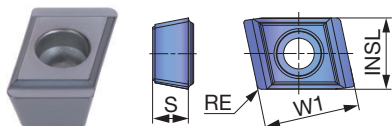
P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	☆	★
H	Hard materials	☆	★

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated			S	DCN	DCX	RE
			AH9130	AH8015	AH725				
FBM060304R-G-I	5.5	8	●	●	●	3	28.01	29.99	0.4
FBM060304R-DL-I	5.5	8	●	●	●	3	28.01	29.99	0.4
FBM070404R-G-I	6.5	10	●	●	●	4	30	41	0.4
FBM070404R-DL-I	6.5	10	●	●	●	4	30	41	0.4
FBM080404R-G-I	8	10	●	●	●	4	41.01	42.5	0.4

● : Line up
Package quantity = 10 pcs.

FBH-P (For peripheral)



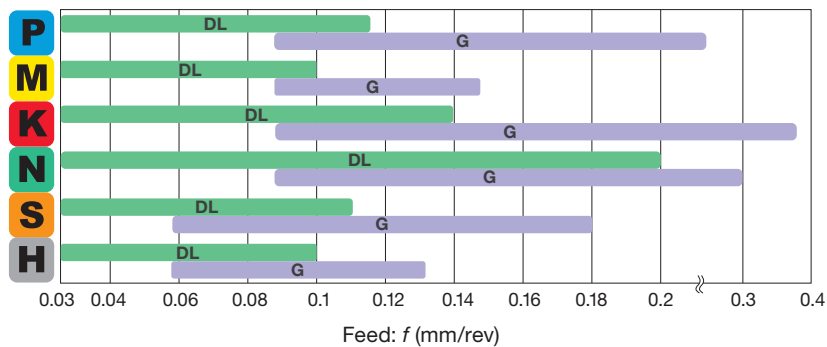
P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	☆	★
H	Hard materials	☆	★

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated			S	DCN	DCX	RE
			AH9130	AH8015	AH725				
FBH060304R-G-P	6	8	●	●	●	3	28.01	29.99	0.4
FBH060308R-G-P	6	8	●	●	●	3	28.01	29.99	0.8
FBH080404R-G-P	7.5	10	●	●	●	4	30	38	0.4
FBH080408R-G-P	7.5	10	●	●	●	4	30	38	0.8
FBH090404R-G-P	9	10	●	●	●	4	38.01	42.5	0.4
FBH090408R-G-P	9	10	●	●	●	4	38.01	42.5	0.8

● : Line up
Package quantity = 10 pcs.

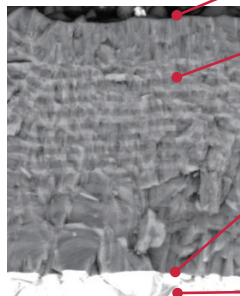
■ Recommended feed rates



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

■ Insert grade

AH9130



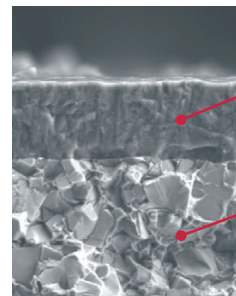
Resistance to built-up edge
Coating layer to resist built-up edge

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

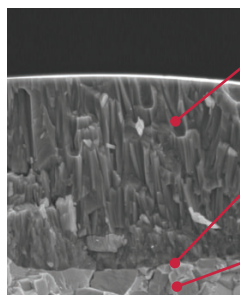
AH725



Drastically improves adhesion strength between the coating and the substrate.

Substrate provides plastic deformation resistance and toughness.

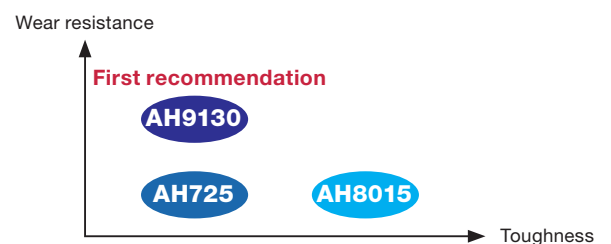
AH8015



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

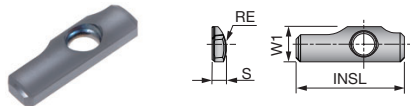
Specially designed substrate



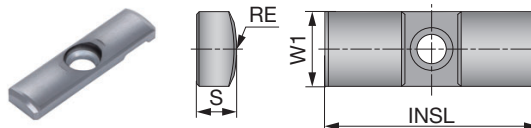
DeepTri-Drill

CARBIDE GUIDE PADS

SGP03

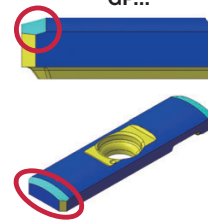


GP04, 05, 06, 07, 08



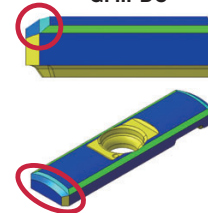
Single chamfer

GP...



Double chamfer

GP...-DC



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

★ : First choice
☆ : Second choice

Designation	1 insert		3 inserts		Coated			W1	INSL	S	RE
	DCN	DCX	DCN	DCX	F1122	FH3125	FH3135				
New SGP03-12-035-DC	7.94	8.49				●		3.9	12	1.6	3.5
New SGP03-12-040-DC	8.50	9.99				●		3.9	12	1.6	4
GP04-16-045-DC	10	10.99				●		4	16	1.8	4.5
GP04-16-050-DC	11	11.99				●		4	16	1.8	5
GP04-055	12	13.99			●			4	16	2	5.5
GP04-16-055-DC	12	13.99			●	●		4	16	2	5.5
GP05-060	14	15.99			●			5	18	2.5	6
GP05-18-060-DC	14	15.99			●	●		5	18	2.5	6
GP05-075	16	18			●			5	18	2.5	7.5
GP05-18-075-DC	16	18			●	●		5	18	2.5	7.5
GP06-085	18.01	21			●			6	20	3	8.5
GP06-20-085-DC	18.01	21			●	●		6	20	3	8.5
GP06-100	21.01	25			●			6	20	3	10
GP06-20-100-DC	21.01	25			●	●		6	20	3	10
GP06	25.01	29.99	28.01	33	●			6	20	3	12
GP06-20-120-DC	25.01	29.99	28.01	33	●	●		6	20	3	12
GP07	30	32	33.01	38	●			7	20	3.5	12
GP07-20-120-DC	30	32	33.01	38	●	●		7	20	3.5	12
GP08			38.01	42.5	●			8	25	4.5	15.5
GP08-25-155-DC			38.01	42.5	●	●		8	25	4.5	15.5

● : New product

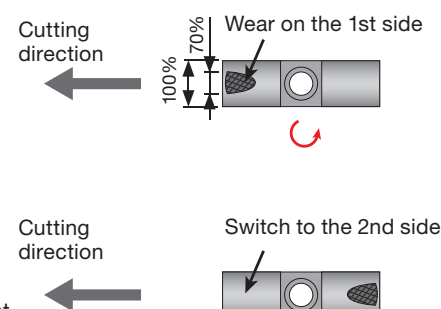
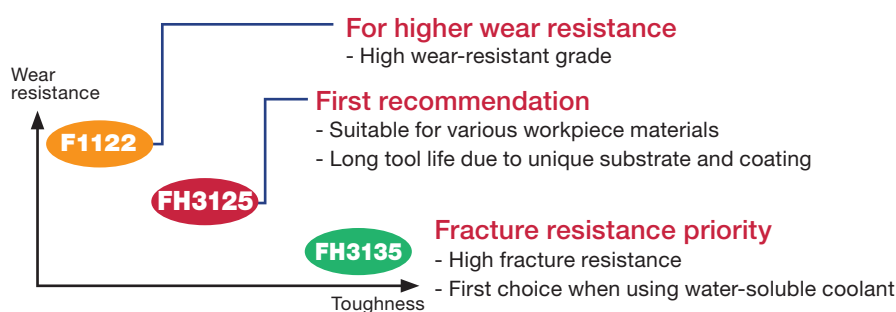
● : Line up

Package quantity = 5 pcs.

Guide pad grade and the timing for replacement

Guide pads are subject to wear, like inserts

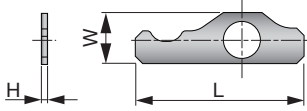
- The guide pad has two sides.
- Each guide pad can be used on two sides. When the first corner wears out to 70% of the width, reverse the guide pad to use the second side.
- Replace with a new guide pad when the second side wears out.



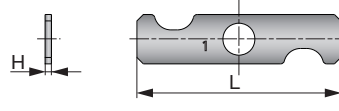
SHIMS

For fine adjustments of hole diameters

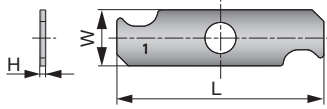
SHIMSET-SGP03



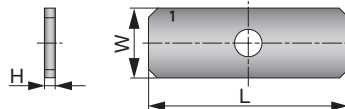
SHIMSET-GP04



SHIMSET-GP05



SHIMSET-GP06



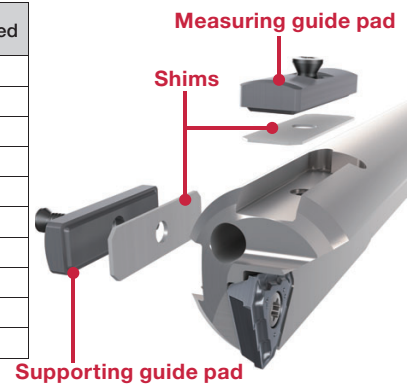
New

Designation	DC	W	L	H
SHIMSET-SGP03	7.94 - 9.99	3.45	11.4	0.01 - 0.05
SHIMSET-GP04	10 - 13.99	4	16	0.01 - 0.05
SHIMSET-GP05	14 - 18	5	18	0.01 - 0.05
SHIMSET-GP06	18.01 - 33	5	18	0.01 - 0.05

- A shim set contains 5 shims in thicknesses of 0.01 mm, 0.02 mm, 0.03 mm, 0.04 mm, and 0.05 mm, respectively.
 - Adjusting shims are sold by set only, not to be sold separately.

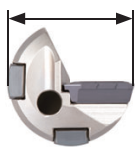
Shim combinations for various diameters

Diameter adjustments	Shim(s) for measuring guide pad	Shim(s) for supporting guide pad	Number of shim sets needed
+0.01	0.01	-	1
+0.02	0.02	0.01	1
+0.03	0.03	0.01 + 0.02	1
+0.04	0.04	0.01 + 0.03	1
+0.05	0.05	0.02 + 0.03	1
+0.06	0.01 + 0.05	0.02 + 0.04	1
+0.07	0.02 + 0.05	0.03 + 0.04	1
+0.08	0.03 + 0.05	0.04 + 0.04	2
+0.09	0.04 + 0.05	0.04 + 0.05	2
+0.1	0.05 + 0.05	0.04 + 0.04 + 0.02	2



How to install adjusting shims

1. Measure the drill diameter.



3. Remove the guide pads.



4. Place the shims underneath both guide pads.

2. Select the shim sizes for adjustment.

Note: Consider that the hole diameter may expand during drilling (for +0.02 to +0.03 mm).



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

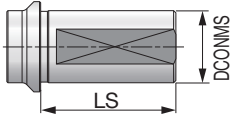
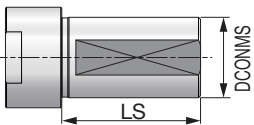
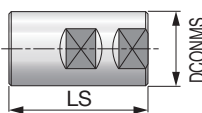
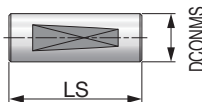
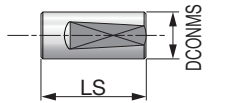
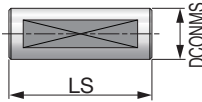
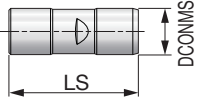
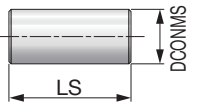


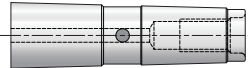
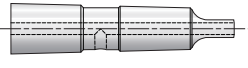
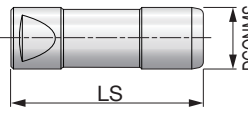
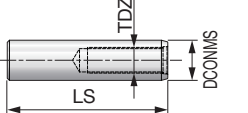
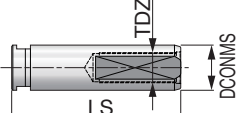
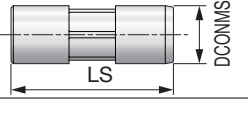
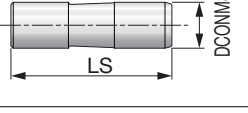
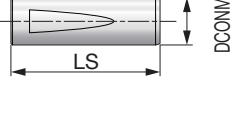
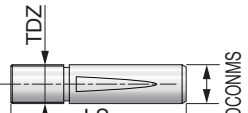
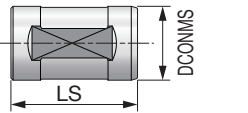
6. Drill a test hole to ensure the required hole size is achieved.

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.

DeepTri-Drill

DRIVERS

Shape	Driver Type	Driver Code(DC)	Dimension		
			DCONMS	LS	TDZ
	-	M20	20	50	
		M25	25	56	
		M32	32	60	
		M40	40	70	
		U19.05	19.5	50	
		U25.4	25.4	56	
		U31.75	31.75	60	
		U38.1	38.1	70	
	-	FM32	32	59	
		FM40	40	69	
		FU31.75	31.75	59	
		FU38.1	38.1	69	
	Weldon DIN1835B DIN6535HB	22	20	50	
		23	25	56	
		24	32	60	
		25	40	70	
		26	50	80	
		27	63	90	
	Whistle Notch DIN6535HE	U03	19.05	70	
		U04	25.4		
		U05	31.75		
		U06	38.1		
	Whistle Notch DIN1835E	34	20	50	
		35	25	56	
		36	32	60	
		37	40	70	
	-	C25	25	70	
	Central Clamping	55	16	45	
		57	25	70	
		58	25.4	69.85	
		59	31.75		
		60	38.1		
	Cylindrical	8	16	48	
		95	19.05	51.56	
		10	20	50	
		11	25	56	
		96	25.4	57.91	
		97	31.75		
		12	32	60	
		13	40	70	
		14	50	80	
		15	63	90	

Shape	Driver Type	Driver Code(DC)	Dimension		
			DCONMS	LS	TDZ
	DIN228AK	45	CM1		
		46	CM2		
		47	CM3		
		48	CM4		
	DIN228BK	49	CM1		
		50	CM2		
		51	CM3		
		52	CM4		
	Frontal Clamping	61	16	50	
	Cylindrical with thread	66	25	100	M16x1.5
		67	36	120	M24x1.5
	VDI Design	70	25	112	M16x1.5
		71	36	135	M24x1.5
	Central Clamping Hexagonal	72	25	70	
		73	32		
	Central Clamping Tapered	76	19.05	69.85	
		77	20	70	
	Frontal Clamping	80	25.4	69.85	
		81		100.08	
		82	31.75	69.85	
		83		100.08	
		84	38.1	69.85	
		85		100.08	
	Trapezoidal Thread	88	28	126	Tr28x2
		89	36	162	Tr36x2
	Spraymist Driver	91	25	50	
		92	35	60	

DeepTri-Drill

STANDARD CUTTING CONDITIONS

Drill diameter: DC = 7.94 - 9.99 mm

ISO	Workpiece material	Chip-breaker	Grade	Cutting speed Vc (m/min)	Feed: f (mm/rev)
P	Low carbon steel (C < 0.3) SS400, SM490, S25C, etc. E275A, C25, etc.	NDJ	AH9130	60 - 100	0.05 - 0.08
	Carbon steel (C > 0.3) S45C, S55C, etc. C45, C55, etc.	NDJ	AH9130	60 - 100	0.05 - 0.14
	Low alloy steel (C < 0.3) SCM415, 18CrMo4, etc.	NDJ	AH9130	60 - 100	0.05 - 0.08
	Alloy steel (C > 0.3) SCM440, SCr420, 42CrMo4, 20Cr4, etc.	NDJ	AH9130	60 - 100	0.05 - 0.14
M*	Stainless steel (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	NDJ	AH9130	60 - 80	0.05 - 0.08
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. X6Cr17, X12CrS13, etc.	NDJ	AH9130	60 - 80	0.05 - 0.08
	Stainless steel (Precipitation hardening) SUS630, X5CrNiCuNb16-4, etc.	NDJ	AH9130	60 - 80	0.05 - 0.08
K	Grey cast iron FC250, GG25, 250, etc.	NDJ	AH9130	60 - 100	0.05 - 0.2
	Ductile cast iron FCD700, 700-2, etc.	NDJ	AH9130	60 - 100	0.05 - 0.2
N	Aluminium alloys	NDJ	AH9130	60 - 100	0.05 - 0.18
S	Heat-resistant alloys Inconel 718, etc.	NDJ	AH9130	20 - 50	0.04 - 0.06
	Titanium alloys Ti-6Al-4V, etc.	NDJ	AH9130	30 - 60	0.04 - 0.1
H	Hardened steel ≥ 40HRC	NDJ	AH9130	20 - 50	0.04 - 0.06

*Coolant recommendations for drilling stainless steel:

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

Drill diameter: DC = 10 - 32 mm

ISO	Workpiece material	Priority	Chip-breaker	Grade	Cutting speed Vc (m/min)	Feed: f (mm/rev)				
						ø10 - ø11.8	ø11.81 - ø13.99	ø14 - ø18	ø18.01 - ø32	
P	Low carbon steel (C < 0.3) SS400, SM490, S25C, etc. E275A, C25, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.1	0.03 - 0.1	
		First choice	NDJ	AH9130	80 - 140	0.05 - 0.08	0.05 - 0.1	0.06 - 0.12	0.08 - 0.16	
	Carbon steel (C > 0.3) S45C, S55C, etc. C45, C55, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.1	0.03 - 0.12	
		First choice	NDJ	AH9130	80 - 140	0.05 - 0.14	0.05 - 0.16	0.07 - 0.18	0.08 - 0.2	
	Low alloy steel (C < 0.3) SCM415, 18CrMo4, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.12	0.08 - 0.1	
		First choice	NDJ	AH9130	80 - 140	0.05 - 0.08	0.05 - 0.1	0.06 - 0.12	0.08 - 0.16	
M*	Alloy steel (C > 0.3) SCM440, SCr420, 42CrMo4, 20Cr4, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.1	0.03 - 0.12	
		First choice	NDJ	AH9130	80 - 120	0.05 - 0.14	0.05 - 0.16	0.07 - 0.18	0.08 - 0.2	
	Stainless steel (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.06	0.03 - 0.06	
		First choice	NDJ	AH9130	60 - 100	0.05 - 0.08	0.05 - 0.1	0.05 - 0.1	0.05 - 0.12	
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. X6Cr17, X12CrS13, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.06	0.03 - 0.06	
		First choice	NDJ	AH9130	60 - 100	0.05 - 0.08	0.05 - 0.1	0.05 - 0.1	0.05 - 0.12	
K	Grey cast iron FC250, GG25, 250, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.15	0.05 - 0.18	
		First choice	NDJ	AH9130	80 - 140	0.05 - 0.2	0.05 - 0.25	0.05 - 0.25	0.05 - 0.3	
	Ductile cast iron FCD700, 700-2, etc.	Lower feed	NDL	AH725	50 - 100	-	-	0.03 - 0.15	0.05 - 0.18	
		First choice	NDJ	AH9130	80 - 140	0.05 - 0.2	0.05 - 0.25	0.05 - 0.25	0.05 - 0.3	
N	Aluminium alloys	Lower feed	NDL	AH725	80 - 160	-	-	0.03 - 0.15	0.03 - 0.15	
		First choice	NDJ	AH9130	100 - 200	0.05 - 0.18	0.05 - 0.2	0.08 - 0.22	0.1 - 0.25	
S	Heat-resistant alloys Inconel 718, etc.	Lower feed	NDL	AH725	20 - 50	-	-	0.03 - 0.06	0.03 - 0.08	
		First choice	NDJ	AH9130	20 - 50	0.04 - 0.06	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	
	Titanium alloys Ti-6Al-4V, etc.	Lower feed	NDL	AH725	30 - 60	-	-	0.03 - 0.1	0.03 - 0.12	
		First choice	NDJ	AH9130	30 - 60	0.04 - 0.1	0.05 - 0.13	0.05 - 0.13	0.05 - 0.15	
H	Hardened steel ≥ 40HRC	Lower feed	NDL	AH725	20 - 50	-	-	0.03 - 0.08	0.03 - 0.08	
		First choice	NDJ	AH9130	20 - 50	0.04 - 0.06	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	

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

DeepTri-Drill

Drill diameter: DC = 28.01 - 42.5 mm

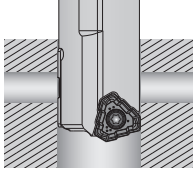
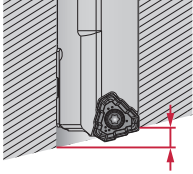
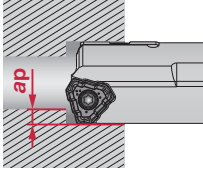
ISO	Workpiece material	Priority	For central		For intermediate		For peripheral		Cutting speed Vc (m/min)	Feed f (mm/rev) ø28.01 - ø42.5
			Chip-breaker	Grade	Chip-breaker	Grade	Chip-breaker	Grade		
P	Low carbon steel (C < 0.3) SS400, SM490, S25C, etc. E275A, C25, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.1
		First choice	G	AH9130	G	AH9130	G	AH9130	80 - 140	0.1 - 0.25
	Carbon steel (C > 0.3) S45C, S55C, etc. C45, C55, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.12
		First choice	G	AH9130	G	AH9130	G	AH9130	80 - 140	0.1 - 0.3
	Low alloy steel (C < 0.3) SCM415, 18CrMo4, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.1
		First choice	G	AH9130	G	AH9130	G	AH9130	80 - 140	0.1 - 0.25
M*	Alloy steel (C > 0.3) SCM440, SCr420, 42CrMo4, 20Cr4, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.12
		First choice	G	AH9130	G	AH9130	G	AH9130	80 - 120	0.1 - 0.3
	Stainless steel (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.1
		First choice	G	AH9130	G	AH9130	G	AH9130	60 - 100	0.1 - 0.15
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. X6Cr17, X12CrS13, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.1
		First choice	G	AH9130	G	AH9130	G	AH9130	60 - 100	0.1 - 0.15
K	Grey cast iron FC250, GG25, 250, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.14
		First choice	G	AH9130	G	AH9130	G	AH9130	80 - 140	0.1 - 0.35
	Ductile cast iron FCD700, 700-2, etc.	Lower feed	G	AH9130	DL	AH9130	G	AH9130	50 - 100	0.03 - 0.14
		First choice	G	AH9130	G	AH9130	G	AH9130	80 - 140	0.1 - 0.35
N	Aluminium alloys	Lower feed	G	AH9130	DL	AH9130	G	AH9130	80 - 160	0.03 - 0.2
		First choice	G	AH9130	G	AH9130	G	AH9130	100 - 200	0.1 - 0.3
S	Heat-resistant alloys Inconel 718, etc.	Lower feed	G	AH8015	DL	AH9130	G	AH8015	20 - 50	0.03 - 0.08
		First choice	G	AH8015	G	AH8015	G	AH8015	20 - 50	0.06 - 0.13
	Titanium alloys Ti-6Al-4V, etc.	Lower feed	G	AH8015	DL	AH9130	G	AH8015	30 - 60	0.03 - 0.1
		First choice	G	AH8015	G	AH8015	G	AH8015	30 - 60	0.1 - 0.18
H	Hardened steel ≥ 40HRC	Lower feed	G	AH8015	DL	AH9130	G	AH8015	20 - 50	0.03 - 0.1
		First choice	G	AH8015	G	AH8015	G	AH8015	20 - 50	0.06 - 0.13

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

APPLICATION RANGE

Feed f (mm/rev)	0.03 - 0.05	0.03 - 0.05	0.1 - 0.3
Application	OK Cross hole drilling	OK Inclined exit	OK Boring
		 16 mm or less (for standard drill)	

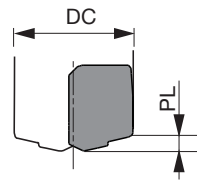
Note 1) When drilling cross holes or exiting inclined surfaces, ensure that the length of the guide pads are sufficient enough to sustain the drill stability during these applications.

Note 2) A pilot hole is needed prior to boring operations. $ap \geq 1$ mm is recommended for boring operations.

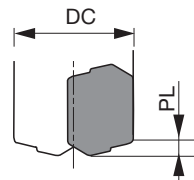
BLIND HOLE SHAPES OF THE HOLE BOTTOM

DC	Insert	Maximum difference PL
7.94 - 8.99	ZSGT04...	1.2
9.00 - 9.99	ZSGT05...	1.1
10 - 11.8	ZSGT06...	1.8
11.81 - 13.99	LOGT06...	1.8
14 - 15.99	TOHT07...	2
16 - 18	TOHT08...	2.2
18.01 - 20	TOHT09...	3
20.01 - 21.99	TOHT10...	3.2
22 - 25	TOHT11...	3.4
25.01 - 28	TOHT12...	3.6
28.01 - 32	TOHT13...	4.6

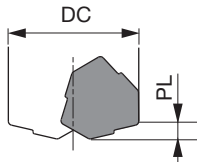
ZSGT04... - ZSGT06...



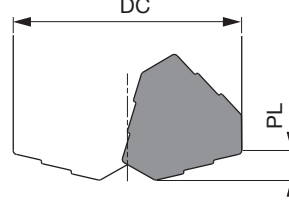
LOGT06...



TOHT07..., 08...

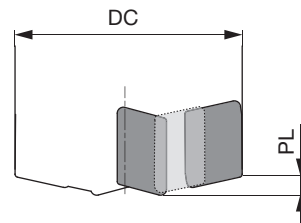


TOHT09... - TOHT13...



DC	Central	Insert Intermediate	Peripheral	Maximum difference PL
28.01 - 28.84	FBM07**-C	FBM06**-I	FBH06**-P	2.5
28.85 - 29	FBM07**-C	FBM06**-I	FBH06**-P	2.6
29.01 - 29.83	FBM07**-C	FBM06**-I	FBH06**-P	2.5
29.84 - 29.99	FBM07**-C	FBM06**-I	FBH06**-P	2.8
30 - 30.63	FBM07**-C	FBM07**-I	FBH08**-P	2.8
30.64 - 31.53	FBM07**-C	FBM07**-I	FBH08**-P	2.9
31.54 - 32.4	FBM07**-C	FBM07**-I	FBH08**-P	3
32.41 - 33	FBM07**-C	FBM07**-I	FBH08**-P	3.1
33.01 - 33.53	FBM07**-C	FBM07**-I	FBH08**-P	2.9
33.54 - 34.43	FBM07**-C	FBM07**-I	FBH08**-P	3
34.44 - 35	FBM07**-C	FBM07**-I	FBH08**-P	3.1
35.01 - 35.42	FBM08**-C	FBM07**-I	FBH08**-P	3
35.43 - 36	FBM08**-C	FBM07**-I	FBH08**-P	3.1
36.01 - 36.52	FBM08**-C	FBM07**-I	FBH08**-P	2.9
36.53 - 37.42	FBM08**-C	FBM07**-I	FBH08**-P	3
37.43 - 38	FBM08**-C	FBM07**-I	FBH08**-P	3.1
38.01 - 38.12	FBM08**-C	FBM07**-I	FBH09**-P	3.3
38.13 - 39	FBM08**-C	FBM07**-I	FBH09**-P	3.4
39.01 - 39.22	FBM08**-C	FBM07**-I	FBH09**-P	3.2
39.23 - 40	FBM08**-C	FBM07**-I	FBH09**-P	3.3
40.01 - 41	FBM08**-C	FBM07**-I	FBH09**-P	3.5
41.01 - 42	FBM08**-C	FBM08**-I	FBH09**-P	3.7
42.01 - 42.5	FBM08**-C	FBM08**-I	FBH09**-P	3.6

FBM...

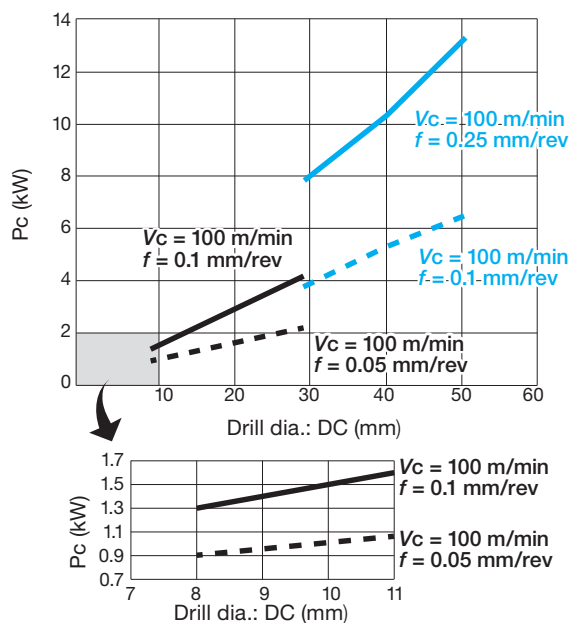


DeepTri-Drill

REQUIRED SPINDLE POWER AND COOLANT PRESSURE

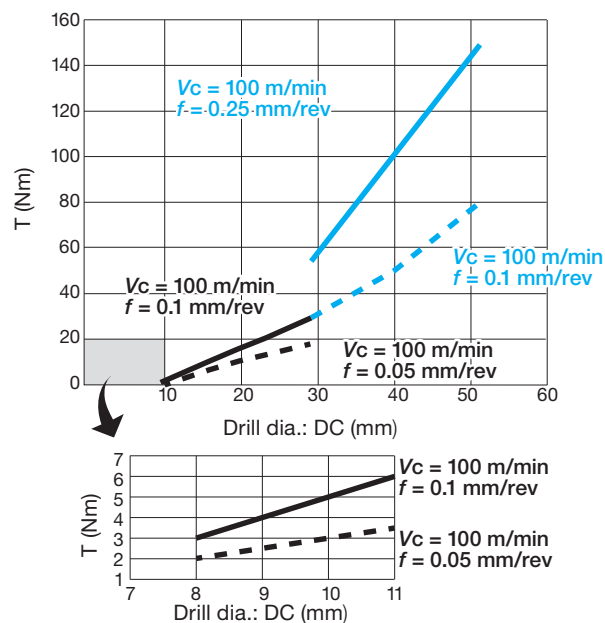
Net power

P S55C / C55

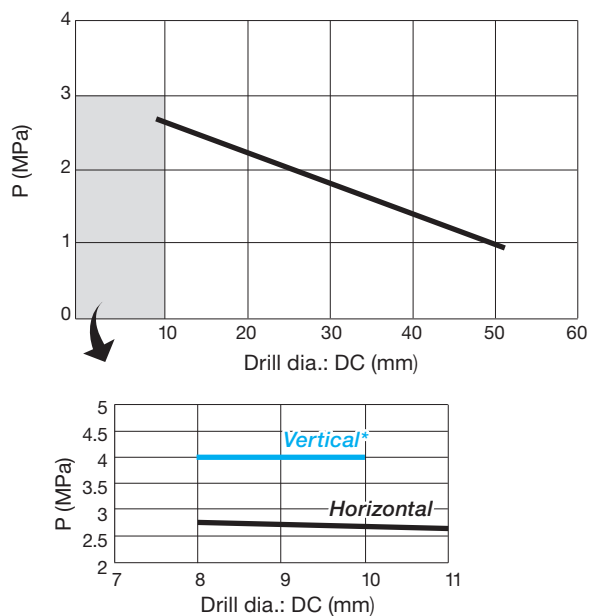


Torque

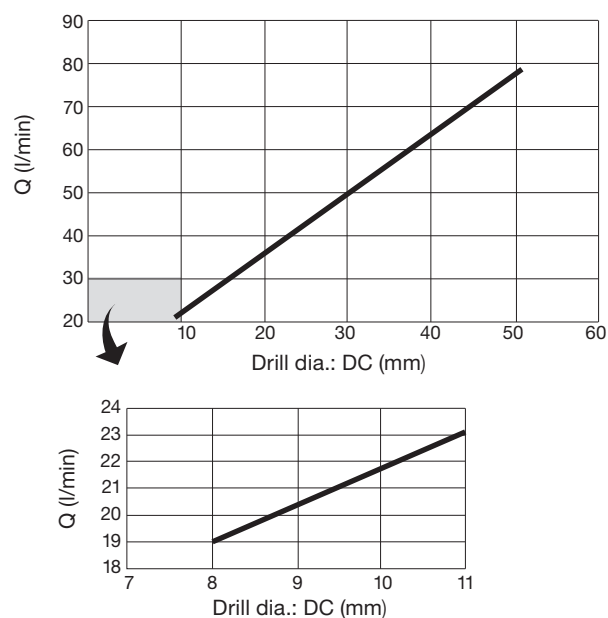
P S55C / C55



Coolant pressure



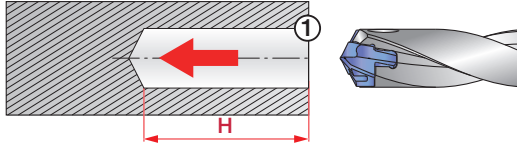
Coolant flow rate



*Vertical machining requires a coolant pressure of 4MPa or higher to evacuate chips.

DRILLING PROCEDURE ON MACHINING CENTERS AND LATHES

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



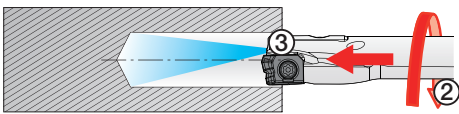
① Drill a pilot hole

Hole diameter tolerance: $+0.01 - +0.05$ mm

Hole depth: $H = 25$ mm

Note: Drill $H = 45$ mm when using an MCTRCH drill (for cross-hole).

Tool Diameter ≤ 9.99 mm



② Slowly insert DeepTri-Drill into the pilot hole

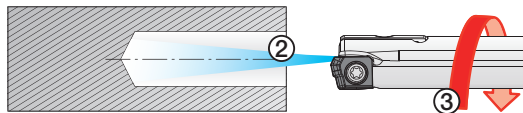
No. of revolution: $n = 50 - 100 \text{ min}^{-1}$

Feed rate: $V_f = 100 - 300 \text{ mm/min}$

Note: To prevent injuries, Do Not rotate the drill at full machining speed and start coolant before engaging the pilot hole.

③ Start coolant

Tool Diameter $10.00 \text{ mm} \leq$



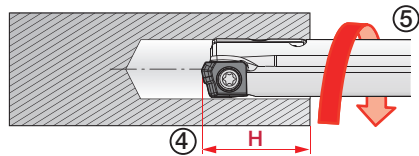
② Start coolant

③ Slowly insert DeepTri-Drill into the pilot hole

No. of revolution: $n = 50 - 100 \text{ min}^{-1}$

Feed rate: $V_f = 100 - 300 \text{ mm/min}$

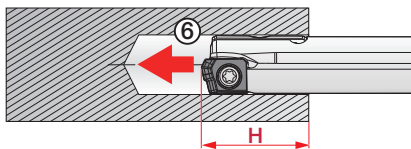
Note: To prevent injuries, Do Not rotate the drill at full machining speed before engaging the pilot hole.



④ Stop the drill at $H = 20$ mm depth

Note: Stop at $H = 40$ mm when using an MCTRCH drill.

⑤ Start rotating at full machining speed



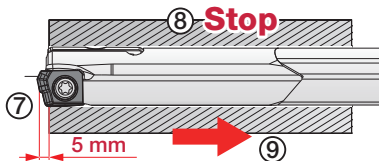
⑥ Start feeding

At the entry ($H = 20 - 30$ mm) $\rightarrow$ Feed: $f = 80\%$ of programmed feed

Note: Drill $H = 40 - 50$ mm when using an MCTRCH drill.

Hole depth: $H \geq 30$ mm $\rightarrow$ Feed: $f = 100\%$

Note: Drill $H = 50$ mm or more when using an MCTRCH drill.



⑦ For a through hole

Continue drilling until the drill head passes through the workpiece by 5 mm.

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

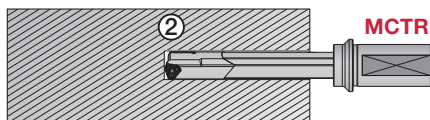
DeepTri-Drill

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

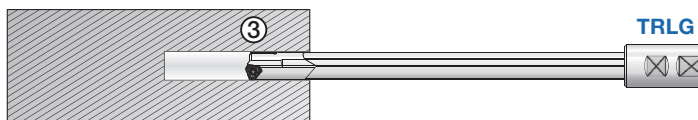
When using a long-overhang TRLG or MCTR drill of over 25xD on a conventional machining center or horizontal boring machine with no drill guide or anti-whip bushings that support the tool along its entire length, apply the following instructions to prevent the drill from "whipping" during machining.



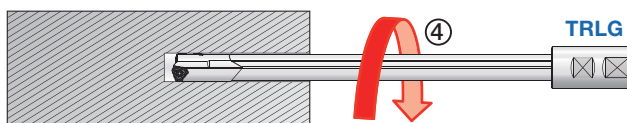
- ① Drill a pilot hole



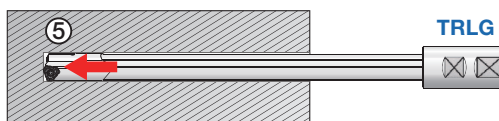
- ② Use an MCTR drill of $\leq 25xD$ to make the pilot hole as deep as possible.



- 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: $n = 50 - 100 \text{ min}^{-1}$
Feed speed: $V_f = 100 - 300 \text{ mm/min}$



- 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:

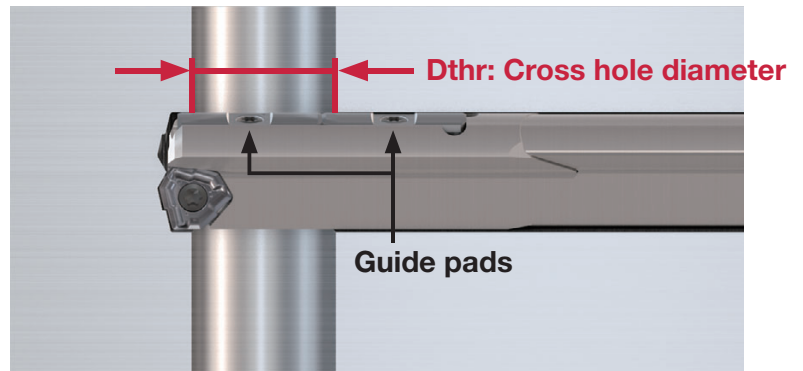
Do NOT skip Step ②. The tool will whip during machining, which may lead to drill breakage and possible personal injury.

CAUTION FOR CROSS HOLE DRILLING

- Decrease the feed rate when the drill head comes in contact with a cross hole
($f = 0.03 - 0.05 \text{ mm/rev}$)
- Retract the gundrill with a slow rotation
($n = 100 \text{ min}^{-1}$, $V_f = 300 \text{ mm/min}$)
- 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

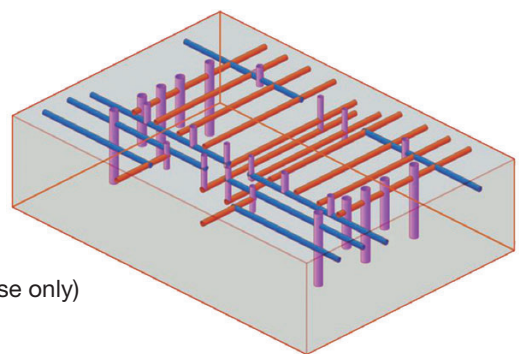


MYPACK SUPER CAM SYSTEM OFFERS A DEEP HOLE DRILLING PROGRAM MODULE FOR GUN DRILLS

Generates optimal programs to machine complex cross holes such as mold cooling channels. Allows improved cross-hole machining reliability as well as significant reduction of machining time

- Automatically recognizes crossing holes from given CAD models to calculate optimal feed rates
- Automatically controls feed rates when retracting the drill, greatly reducing the chance of tool breakage as well as optimizing drill retraction time
- Guide pad data of DeepTri-Drill is already registered in the system for operating convenience

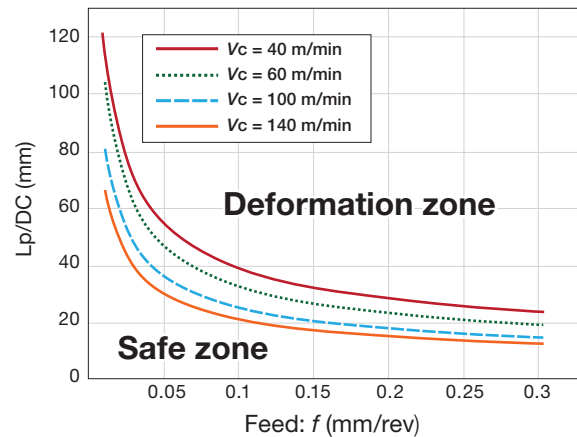
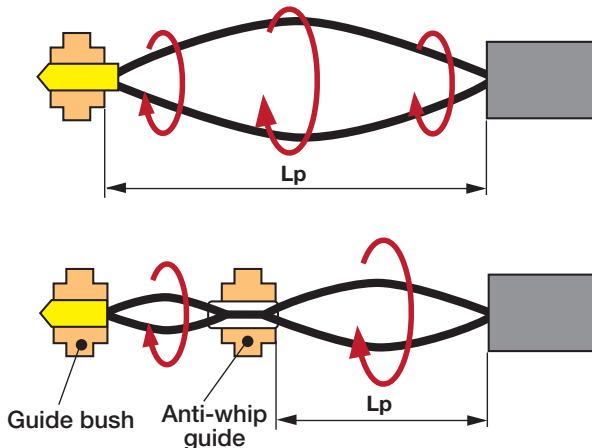
<http://www.kuraki.co.jp/solution/mypac/cam/machining/index.html> (Japanese only)
Please send inquiries to Kurashiki Kikai.



DeepTri-Drill

DEFORMATION BY CENTRIFUGAL FORCE

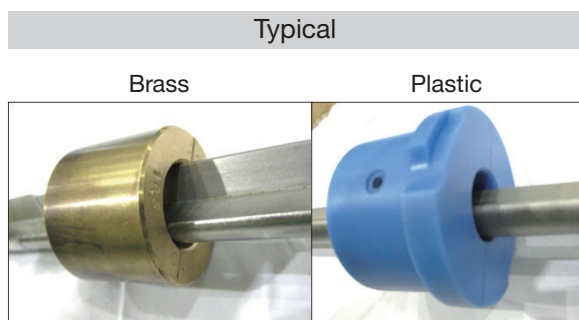
Every gundrill tool is prone to “whip” under certain circumstances. This phenomenon is fully dependent on tool length and cutting speed. If the parameters are in the deforming zone as shown in the graph, consider amending the cutting speed or using an anti-whip guide.



RECOMMENDED WHIP GUIDE SHAPE

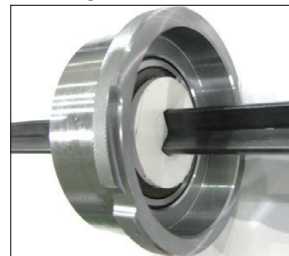
A whip guide may be necessary for secure drilling.

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



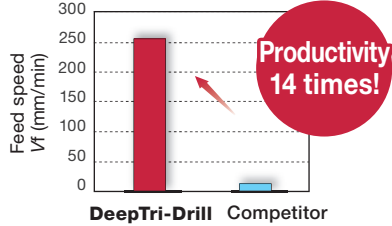
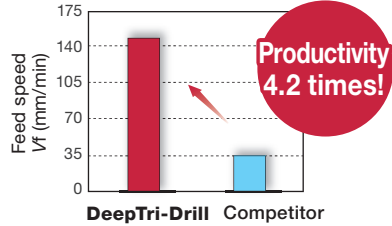
Recommendation

Bearing + Gizmo® bush*

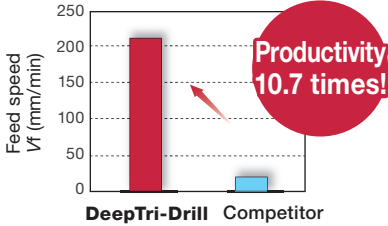
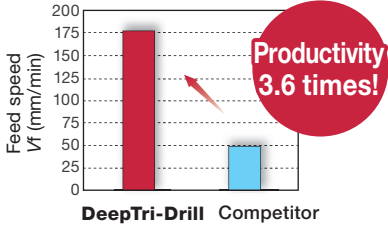


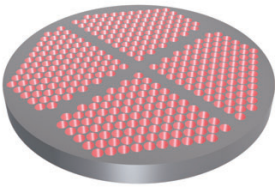
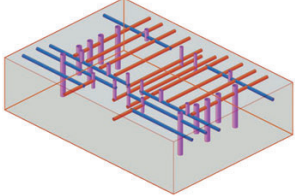
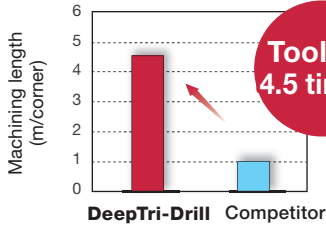
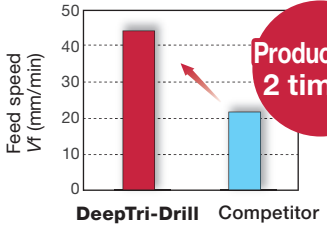
Gizmo® bush* is a trademark of The Whip Guide Company.

PRACTICAL EXAMPLES

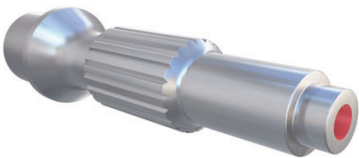
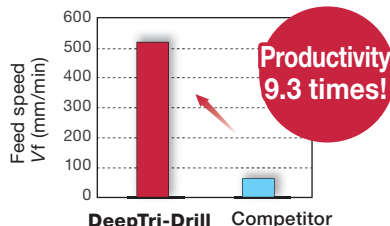
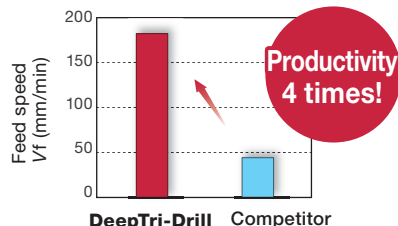
Workpiece type		Mold	Mold
	Drill	New MCTR8.00XM20-25	New MCTRCH8.00XM20-20
	Insert	ZSGT040104R-NDJ	ZSGT040104R-NDJ
	Grade	AH9130	AH9130
	Guide pad	SGP03-12-035-DC FH3125	SGP03-12-035-DC FH3125
Workpiece material		S50C / 1050	SKD61 / H13
			
Cutting conditions	Cutting speed: V_c (m/min)	80	60
	Feed : f (mm/rev)	0.08	0.06
	Feed speed : V_f (mm/min)	255	143
	Hole diameter: DC (mm)	8	8
	Drilling depth : H (mm)	200	160
	Coolant	Wet	Wet
	Machine	Horizontal M/C	Vertical M/C
Results		 DeepTri-Drill provided 14 times productivity gain over competitor's gun drill. Also eliminated the need for regrinding, simplifying tool management.	 DeepTri-Drill provided 4.2 times higher productivity over competitor's gun drill. It also offered smooth chip evacuation, eliminating peck-drilling required with HSS drills.

DeepTri-Drill

Workpiece type		Crankshaft	Mold
Drill		MCTR10.00XM20-25	MCTR11.50XM20-25
Insert		ZSGT060204R-NDJ	ZSGT060204R-NDJ
Grade		AH9130	AH9130
Guide pad		GP04-16-045-DC FH3125	GP04-16-050-DC FH3125
Workpiece material		Forged steel	S55C / C55
		 P	 P
Cutting conditions	Cutting speed: V_c (m/min)	80	80
	Feed : f (mm/rev)	0.08	0.08
	Feed speed : V_f (mm/min)	204	177
	Hole diameter: DC (mm)	10	11.5
	Drilling depth : H (mm)	200	250
	Coolant	Wet	Wet
	Machine	Horizontal M/C	Horizontal M/C
Results		 DeepTri-Drill provided 10.7 times productivity gain over competitor's gun drill. Also eliminated the need for regrinding, simplifying tool management.	 DeepTri-Drill provided 3.6 times higher productivity over HSS drill. It also offered smooth chip evacuation, eliminating peck-drilling required with HSS drills.

Workpiece type		Tube sheet	Plastic mold
Drill		MCTR20.00XM32-10	TRLGCH18.00X1500-36A
Insert		TOHT090305R-NDL	TOHT080305R-NDJ
Grade		AH725	AH9130
Guide pad		GP06-085 F2122	GP06-075 F2122
Workpiece material		SUS304 / X5CrNi18-9	SKD61 / X40CrMoV5-1 (45HRC)
			
Cutting conditions	Cutting speed: V_c (m/min)	80	62
	Feed : f (mm/rev)	0.04	0.04
	Feed speed : V_f (mm/min)	53	44
	Hole diameter: DC (mm)	20	18
	Drilling depth : H (mm)	200	700
	Coolant	Wet	Wet
	Machine	Horizontal M/C	Horizontal M/C
Results		 Tool life 4.5 times!	 Productivity 2 times!
		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.

DeepTri-Drill

Workpiece type		Shaft	Axel shaft
Drill		MCTR12.00XM20-20	MCTR14.00XM25-15
Insert		LOGT060204R-NDJ	TOHT070304R-NDJ
Grade		AH9130	AH9130
Guide pad		GP04-055 F2122	GP05-060 F2122
Workpiece material		SCM420H	SCM435H
			
Cutting conditions	Cutting speed: V_c (m/min)	150	80
	Feed : f (mm/rev)	0.13	0.1
	Feed speed : V_f (mm/min)	517	182
	Hole diameter: DC (mm)	12	14
	Drilling depth : H (mm)	233	200
	Coolant	Wet	Wet
	Machine	Vertical M/C	Lathe
Results		 DeepTri-Drill increases productivity by 9.3 times over the current brazed gundrill. No need for reconditioning.	 Unlike the competitor's HSS drill, DeepTri-Drill does not require step feed and increases productivity by 4 times.

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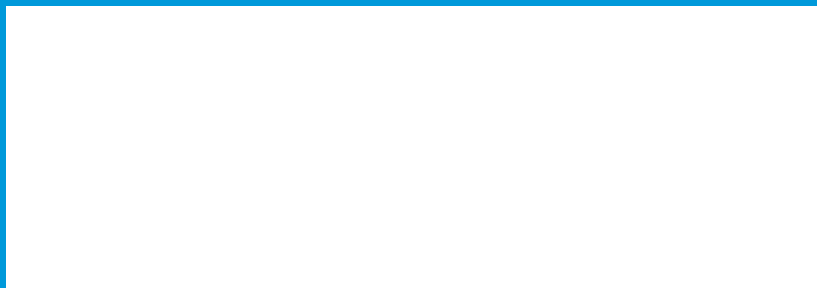
Deep hole tooling manufacturer

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