DEEP TRIO™

An Extensive Family of Deep Hole Drilling Tools

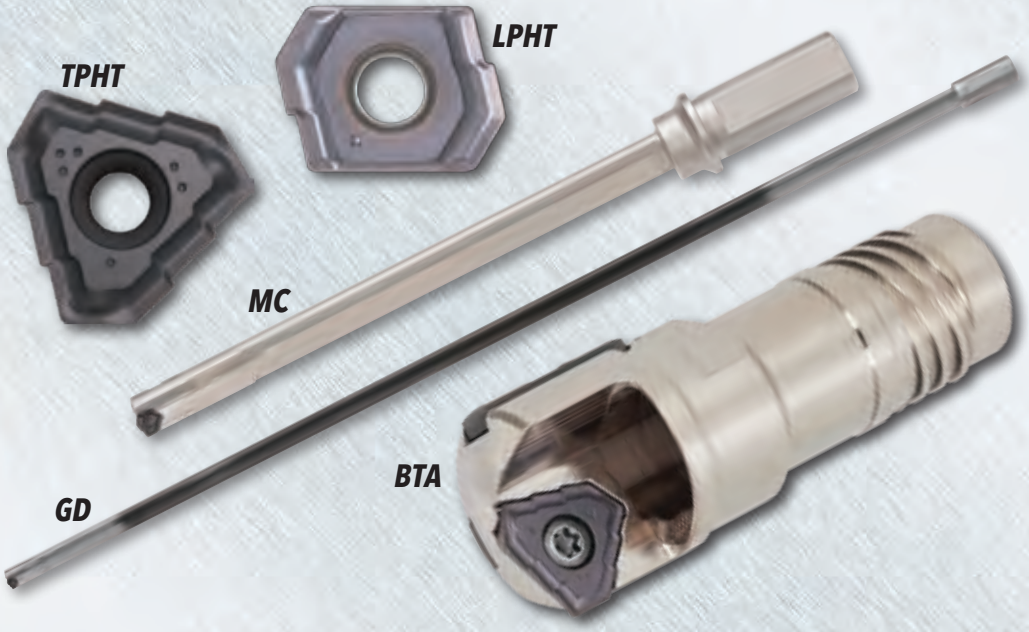
DEEP TRIO MC™ - Conventional style drill for lathes or mills,
Conventional cross-hole style drill for lathes or mills
Standard Lengths 10xD, 15xD and 25xD

DEEP TRIO GD™ - Gundrill style
Gundrill cross-hole style
Both styles offer lengths up to 94.488" OAL (2400mm)

DEEP TRIO BTA™ - BTA drilling head available for STS & DTS systems

Two Insert Styles

TPHT inserts offer 3 full cutting edges, and the new LPHT inserts for smaller diameter tools offer 2 cutting edges. All inserts feature chip splitters and two unique chip breaker designs.



Drilling Range:
Ø .472 - 1.260 (12mm - 32mm)

Thread Types:
STS Outer four start thread
STS Inner single start thread
DTS Outer four start thread

Insert Grades*:
IN2005

Chip breakers:
"DT" - Standard
"ML" - Low Feed/Power Applications

Guide Pads*:
CD-SA - Solid carbide pad
High wear resistance
CD-SB - Solid carbide pad
High toughness
CD-SC - Solid carbide pad
Higher toughness

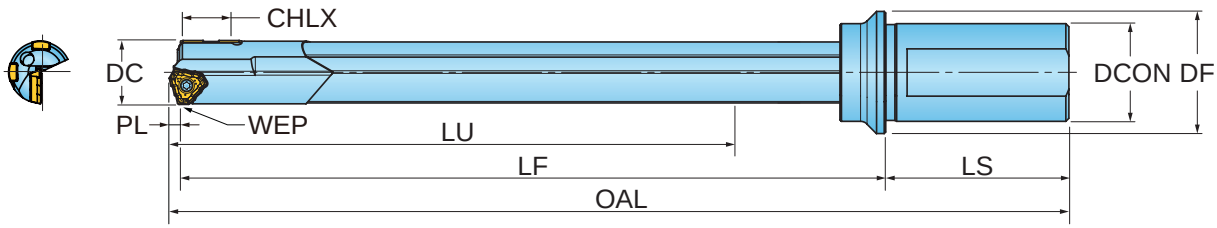
PRODUCT ANNOUNCEMENT
UPDATE
2020

Features & Benefits:

- Expanded Diameter Range: .472" (12mm) - 1.260" (32mm)
- Excellent Hole Accuracy (IT10) and Surface Finish
- Very High Feed Rates
- Replaceable Inserts Provide Long Tool Life and Eliminate Regrinding
- Cross-holes up to 1.259" (32mm) Diameter
- NEW • Diameter Adjusting Shims
- NEW • Available in Two Chip Breakers
- NEW • TRH Replacement Heads for Brazing

**Guide Pads and inserts must be purchased separately.*

Member IMC Group
Ingersoll Cutting Tools



Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LU Usable Length Max.	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Connection Dia.	DF Flange Dia.	ULDR Usable Length Dia. Ratio
GT12700190N5R01	0.500	0.071	0.63	7.75	8.86	2.21	10.90	1.000	1.26	15
GT12700317N5R01	0.500	0.071	0.63	12.87	14.13	2.21	16.41	1.000	1.26	25
GT13490202N5R01	0.531	0.071	0.63	8.34	9.65	2.21	11.92	1.000	1.26	15
GT13490337N5R01	0.531	0.071	0.63	13.85	15.16	2.21	17.43	1.000	1.26	25
GT14270225N5R01	0.562	0.077	0.63	8.94	10.28	2.21	12.56	1.000	1.26	15
GT14270357N5R01	0.562	0.077	0.63	14.84	16.18	2.21	18.46	1.000	1.26	25
GT14680146N5R01	0.578	0.077	0.63	5.98	7.36	2.21	9.57	1.000	1.26	10
GT14680225N5R01	0.578	0.077	0.63	8.93	10.31	2.21	12.59	1.000	1.26	15
GT14680375N5R01	0.578	0.077	0.63	14.84	16.22	2.21	18.50	1.000	1.26	25
GT15060146N5R01	0.593	0.077	0.63	6.37	7.80	2.21	10.08	1.000	1.26	10
GT15060320N5R01	0.593	0.077	0.63	9.52	10.95	2.21	13.22	1.000	1.26	15
GT15060400N5R01	0.593	0.077	0.63	15.82	17.24	2.21	19.52	1.000	1.26	25
GT15880160N5R01	0.625	0.077	0.63	5.71	7.13	2.21	9.33	1.000	1.26	10
GT15880240N5R01	0.625	0.077	0.63	9.53	10.98	2.21	13.27	1.000	1.26	15
GT15880400N5R01	0.625	0.077	0.63	15.83	17.28	2.21	19.57	1.000	1.26	25
GT17450175N5R02	0.687	0.087	0.63	7.17	8.66	2.21	10.95	1.000	1.26	10
GT17450262N5R02	0.687	0.087	0.63	10.72	12.21	2.21	14.50	1.000	1.26	15
GT17450436N5R02	0.687	0.087	0.63	17.80	19.29	2.21	21.58	1.000	1.26	25
GT18240182N5R01	0.718	0.118	0.63	7.60	9.13	2.21	11.46	1.000	1.26	10
GT18240274N5R01	0.718	0.118	0.63	11.34	12.87	2.21	15.20	1.000	1.26	15
GT18240456N5R01	0.718	0.118	0.63	18.82	20.35	2.21	22.68	1.000	1.26	25
GT18640186N5R01	0.734	0.118	0.63	7.60	9.13	2.21	11.46	1.000	1.26	10
GT18640280N5R01	0.734	0.118	0.63	11.34	12.87	2.21	15.20	1.000	1.26	15
GT18640466N5R01	0.734	0.118	0.63	18.82	20.35	2.21	22.68	1.000	1.26	25
GT19050191N5R01	0.750	0.118	0.63	7.99	9.57	2.21	11.89	1.000	1.26	10
GT19050286N5R01	0.750	0.118	0.63	11.93	13.50	2.21	15.83	1.000	1.26	15
GT19050476N5R01	0.750	0.118	0.63	19.80	21.38	2.21	23.70	1.000	1.26	25
GT20620206N6R01	0.812	0.118	0.63	8.39	10.04	2.36	12.52	1.250	1.57	10
GT20620309N6R01	0.812	0.118	0.63	12.53	14.17	2.36	16.65	1.250	1.57	15
GT20620516N6R01	0.812	0.118	0.63	20.80	22.44	2.36	24.92	1.250	1.57	25
GT22230222N6R01	0.875	0.126	0.63	9.19	10.95	2.36	13.44	1.250	1.57	10
GT22230333N6R01	0.875	0.126	0.63	13.72	15.47	2.36	17.97	1.250	1.57	15
GT22230556N6R01	0.875	0.126	0.63	22.77	24.53	2.36	27.02	1.250	1.57	25
GT23800238N6R01	0.937	0.126	0.63	9.98	11.85	2.36	14.35	1.250	1.57	10

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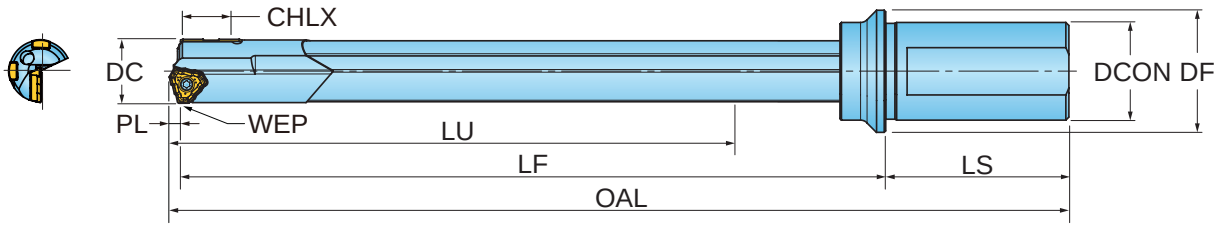
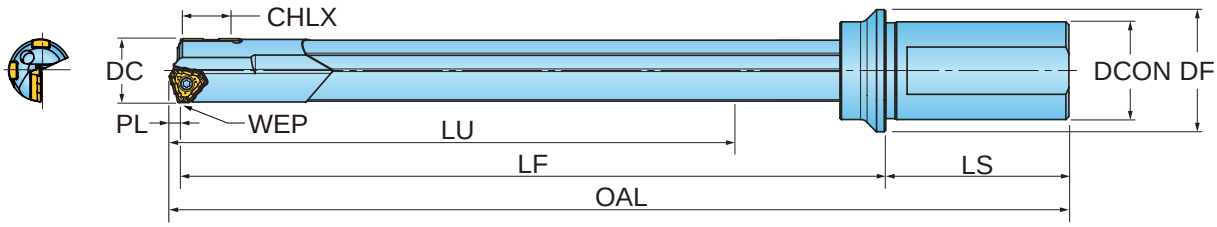


Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LU Usable Length Max.	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Connection Dia.	DF Flange Dia.	ULDR Usable Length Dia. Ratio
GT23800357N6R01	0.937	0.126	0.63	14.90	16.77	2.36	19.27	1.250	1.57	15
GT23800595N6R01	0.937	0.126	0.63	24.74	26.61	2.36	29.11	1.250	1.57	25
GT25400254N6R01	1.000	0.134	0.63	10.38	12.28	2.36	14.78	1.250	1.57	10
GT25400381N6R01	1.000	0.134	0.63	15.50	17.40	2.36	19.90	1.250	1.57	15
GT25400635N6R01	1.000	0.134	0.63	25.74	27.64	2.36	30.13	1.250	1.57	25
GT26970270N6R01	1.062	0.142	0.63	11.17	13.19	2.72	15.69	1.250	1.57	10
GT26970405N6R01	1.062	0.142	0.63	16.68	18.70	2.72	21.21	1.250	1.57	15
GT26970674N6R01	1.062	0.142	0.63	27.71	29.72	2.72	34.73	1.250	1.57	25
GT28580285N6R01	1.125	0.102	0.63	11.52	14.17	2.72	16.99	1.250	1.57	10
GT28580429N6R01	1.125	0.102	0.63	17.23	19.88	2.72	22.70	1.250	1.57	15
GT28580715N6R01	1.125	0.102	0.63	28.13	30.78	2.72	33.50	1.250	1.57	25
GT31750318N6R01	1.250	0.118	0.63	12.72	15.55	2.72	18.39	1.250	1.57	10
GT31750476N6R01	1.250	0.118	0.63	19.02	21.85	2.72	24.69	1.250	1.57	15
GT31750806N6R01	1.250	0.118	0.63	31.25	33.90	2.72	36.62	1.250	1.57	25



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NEW GT12000197JER01	12	1.8	0.63	197	225	50	277	20	25	15
NEW GT12000262JER01	12	1.8	0.63	262	290	50	342	20	25	20
NEW GT12000327JER01	12	1.8	0.63	327	355	50	407	20	25	25
NEW GT12500197JER01	12.5	1.8	0.63	197	226	50	278	20	25	15
NEW GT12500262JER01	12.5	1.8	0.63	262	291	50	343	20	25	20
NEW GT12500327JER01	12.5	1.8	0.63	327	356	50	408	20	25	25
NEW GT13000212JFR01	13	1.8	0.63	212	245	56	303	25	32	15
NEW GT13000282JFR01	13	1.8	0.63	282	315	56	373	25	32	20
NEW GT13000352JFR01	13	1.8	0.63	352	385	56	443	25	32	25
NEW GT13500212JFR01	13.5	1.8	0.63	212	245	56	303	25	32	15
NEW GT13500282JFR01	13.5	1.8	0.63	282	315	56	373	25	32	20
NEW GT13500352JFR01	13.5	1.8	0.63	352	385	56	443	25	32	25
GT14000225JFR01	14	2.0	0.63	227	245	56	303	25	32	15
GT14000300JFR01	14	2.0	0.63	302	336	56	394	25	32	20
GT14000375JFR01	14	2.0	0.63	377	411	56	469	25	32	25
GT14500225JFR01	14.5	2.0	0.63	227	262	56	320	25	32	15
GT14500300JFR01	14.5	2.0	0.63	302	337	56	395	25	32	20
GT14500375JFR01	14.5	2.0	0.63	377	412	56	470	25	32	25
GT15000240JFR01	15	2.0	0.63	242	278	56	336	25	32	15
GT15000320JFR01	15	2.0	0.63	322	358	56	416	25	32	20
GT15000400JFR01	15	2.0	0.63	402	438	56	496	25	32	25
GT16000160JFR02	16	2.2	0.63	172	209	56	267	25	32	10
GT16000240JFR02	16	2.2	0.63	257	294	56	352	25	32	15
GT16000400JFR02	16	2.2	0.63	427	464	56	522	25	32	25
GT16500160JFR02	16.5	2.2	0.63	172	209	56	267	25	32	10
GT16500248JFR02	16.5	2.2	0.63	257	294	56	352	25	32	15
GT16500413JFR02	16.5	2.2	0.63	427	464	56	522	25	32	25
GT17000170JFR02	17	2.2	0.63	182	220	56	278	25	32	10
GT17000255JFR02	17	2.2	0.63	272	310	56	368	25	32	15
GT17000425JFR02	17	2.2	0.63	452	490	56	548	25	32	25
GT17500263JFR02	17.5	2.2	0.63	272	310	56	368	25	32	15
GT17500445JFR02	17.5	2.2	0.63	452	490	56	548	25	32	25
GT18000180JFR02	18	2.2	0.63	192	232	56	290	25	32	10
GT18000270JFR02	18	2.2	0.63	287	327	56	385	25	32	15
GT18000450JFR02	18	2.2	0.63	477	517	56	575	25	32	25

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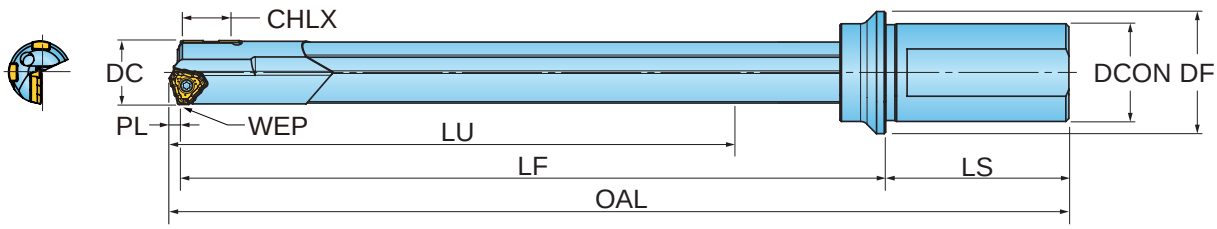
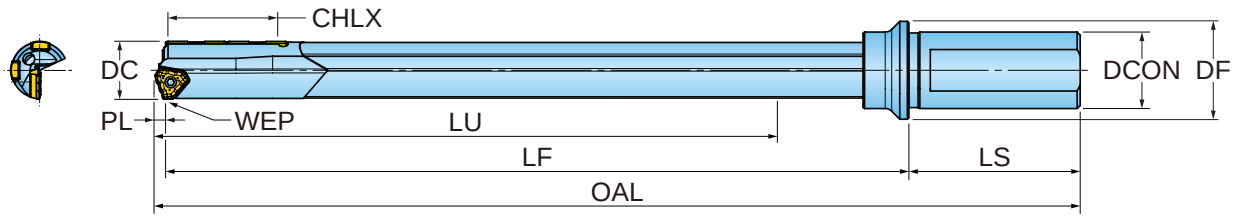
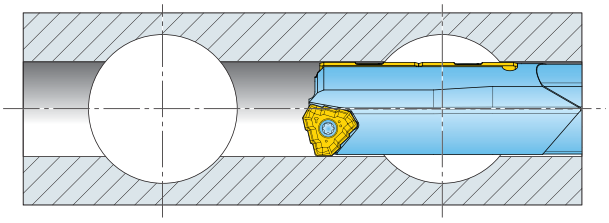


Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LU Usable Length Max.	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Connection Dia.	DF Flange Dia.	ULDR Usable Length Dia. Ratio
GT18500278JFR01	18.5	3.0	0.63	288	327	56	386	25	32	15
GT18500463JFR01	18.5	3.0	0.63	478	517	56	576	25	32	25
GT19000190JFR01	19	3.0	0.63	203	243	56	302	25	32	10
GT19000285JFR01	19	3.0	0.63	303	343	56	402	25	32	15
GT19000475JFR01	19	3.0	0.63	503	543	56	602	25	32	25
GT19500293JFR01	19.5	3.0	0.63	303	343	56	402	25	32	15
GT19500488JFR01	19.5	3.0	0.63	503	543	56	602	25	32	25
GT20000200JGR01	20	3.0	0.63	213	255	60	318	32	40	10
GT20000300JGR01	20	3.0	0.63	318	360	60	423	32	40	15
GT20000500JGR01	20	3.0	0.63	528	570	60	633	32	40	25
GT21000210JGR01	20	3.2	0.63	223	266	60	329	32	40	10
GT21000315JGR01	21	3.2	0.63	333	376	60	439	32	40	15
GT21000525JGR01	21	3.2	0.63	553	596	60	659	32	40	25
GT22000220JGR01	22	3.4	0.63	233	278	60	341	32	40	10
GT22000330JGR01	22	3.4	0.63	348	393	60	456	32	40	15
GT22000550JGR01	22	3.4	0.63	578	623	60	686	32	40	25
GT23000230JGR01	23	3.4	0.63	243	289	60	352	32	40	15
GT23000345JGR01	23	3.4	0.63	363	409	60	472	32	40	15
GT23000575JGR01	23	3.4	0.63	603	649	60	712	32	40	25
GT24000240JGR01	24	3.4	0.63	253	301	60	365	32	40	15
GT24000360JGR01	24	3.4	0.63	378	426	60	489	32	40	15
GT24000600JGR01	24	3.4	0.63	628	676	60	739	32	40	25
GT25000250JGR01	25	3.4	0.63	263	312	60	375	32	40	15
GT25000375JGR01	25	3.4	0.63	393	442	60	505	32	40	15
GT25000625JGR01	25	3.4	0.63	653	702	60	765	32	40	25
GT26000260JHR01	26	3.6	0.63	273	324	70	398	40	50	15
GT26000390JHR01	26	3.6	0.63	409	459	70	533	40	50	15
GT26000650JHR01	26	3.6	0.63	679	729	70	803	40	50	25
GT27000270JHR01	27	3.6	0.63	284	335	70	409	40	50	10
GT27000405JHR01	27	3.6	0.63	424	475	70	549	40	50	15
GT27000675JHR01	27	3.6	0.63	704	755	70	829	40	50	25
GT28000280JHR01	28	3.6	0.63	284	337	70	411	40	50	10
GT28000420JHR01	28	3.6	0.63	424	477	70	551	40	50	15
GT28000700JHR01	28	3.6	0.63	704	757	70	831	40	50	25

CONVENTIONAL CROSS-HOLE DRILLS (INCH)



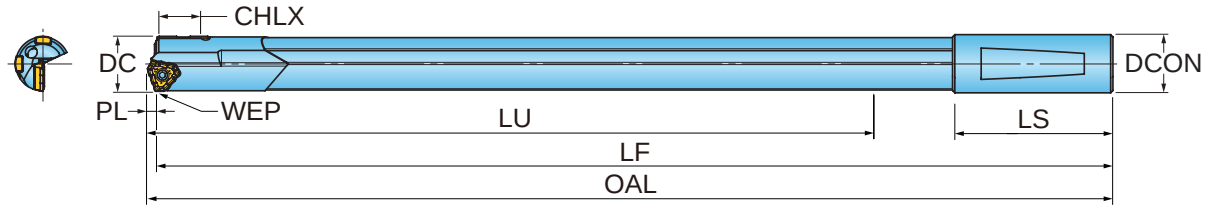
Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LU Usable Length Max.	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Connection Dia.	DF Flange Dia.	ULDR Usable Length Dia. Ratio
GTADP14680147N5R01	0.578	0.077	1.26	5.98	7.36	2.21	9.64	1.000	1.26	10
GTADP14680220N5R01	0.578	0.077	1.26	8.93	10.32	2.21	12.59	1.000	1.26	15
GTADP14680367N5R01	0.578	0.077	1.26	14.84	16.22	2.21	18.50	1.000	1.26	25
GTADP15060151N5R01	0.593	0.077	1.26	6.37	7.80	2.21	10.08	1.000	1.26	10
GTADP15060226N5R01	0.593	0.077	1.26	9.45	10.94	2.21	13.23	1.000	1.26	15
GTADP15060377N5R01	0.593	0.077	1.26	15.83	17.24	2.21	19.53	1.000	1.26	25
GTADP18240182N5R01	0.718	0.118	1.26	7.48	9.13	2.21	11.46	1.000	1.26	10
GTADP18240274N5R01	0.718	0.118	1.26	11.22	12.87	2.21	15.20	1.000	1.26	15
GTADP18240456N5R01	0.718	0.118	1.26	18.82	20.35	2.21	22.68	1.000	1.26	25
GTADP18640186N5R01	0.734	0.118	1.26	7.48	9.13	2.21	11.46	1.000	1.26	10
GTADP18640280N5R01	0.734	0.118	1.26	11.22	12.87	2.21	15.20	1.000	1.26	15
GTADP18640466N5R01	0.734	0.118	1.26	18.82	20.35	2.21	22.68	1.000	1.26	25
GTADP23800238N6R01	0.937	0.126	1.26	9.84	11.85	2.76	14.35	1.250	1.57	10
GTADP23800357N6R01	0.937	0.126	1.26	14.76	16.77	2.76	19.27	1.250	1.57	15
GTADP23800507N6R01	0.937	0.126	1.26	21.28	23.15	2.36	25.65	1.250	1.57	20
GTADP23800595N6R01	0.937	0.126	1.26	24.74	26.61	2.36	29.11	1.250	1.57	25
NEW GTADP29360293N6R01	1.156	0.102	1.26	11.56	14.21	2.36	16.93	1.250	1.57	10
NEW GTADP29360440N6R01	1.156	0.102	1.26	17.34	19.99	2.36	22.71	1.250	1.57	15
NEW GTADP29360734N6R01	1.156	0.102	1.26	28.90	31.55	2.36	34.27	1.250	1.57	25



Extra long guide pads allow drilling through cross-holes up to 1.26" (32mm) dia.

An additional guide pad stabilizes the drill when the insert passes the cross-hole

For Cross-Hole Applications:
Deep-Trio BTA, MC and GD with single row of guide pads can cross up to a .63" (16 mm) hole.
Deep-Trio MC and GD with a double row of guide pads can cross up to a 1.26" (32 mm) hole.



Deep-Trio Gundrills are made to order per application.
Use the following guideline to determine the Description:

GT	XXXX	YYYY	ZZ	RXX
Series	Drill Dia. (mm)	Drill Length (OAL) (mm)	Driver	Variation

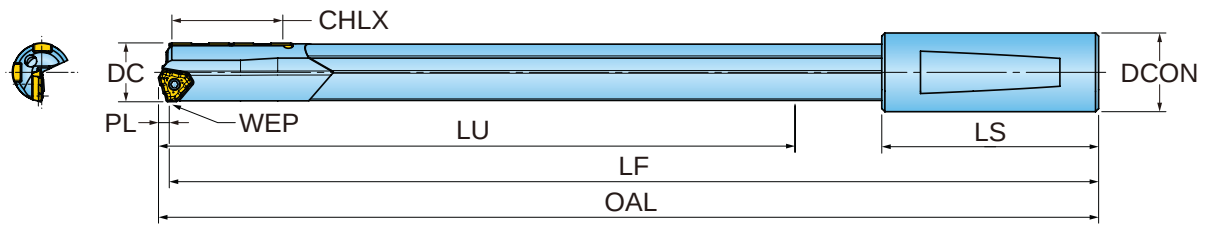
Example:
.75" diameter drill with 72" OAL and 1.00" driver = GT-1905-1828-58-RXX

Reference pages 12-15 for Insert and Guide Pad information.
Reference page 9 for Driver information.

SEMI-STANDARD ITEMS

Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LU Usable Length Max.	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Connection Dia.
GT-1270-1219-58-R01	0.500	0.071	0.63	43.78	48.00	2.20	48.07	1.000
GT-1270-1524-58-R01	0.500	0.071	0.63	55.78	60.00	2.20	60.07	1.000
GT-1348-1219-58-R01	0.531	0.071	0.63	43.66	48.00	2.20	48.07	1.000
GT-1348-1527-58-R01	0.531	0.071	0.63	55.66	60.00	2.20	60.07	1.000
GT-1745-1500-58-R01	0.687	0.087	0.63	55.40	56.30	2.76	59.14	1.000
GT-1824-1500-58-R01	0.718	0.118	0.63	55.35	56.30	2.76	59.17	1.000
GT-1864-1500-58-R01	0.734	0.118	0.63	55.35	56.30	2.76	59.17	1.000
GT-1905-1500-59-R01	0.750	0.118	0.63	55.35	56.30	2.76	59.17	1.000
GT-2062-1500-59-R01	0.812	0.118	0.63	55.24	56.30	2.76	59.18	1.250
GT-2223-1500-59-R01	0.875	0.134	0.63	55.13	56.30	2.76	59.19	1.250
GT-2380-1500-59-R01	0.937	0.134	0.63	55.02	56.30	2.76	59.19	1.250
GT-2540-1500-59-R01	1.000	0.134	0.63	54.98	56.30	2.76	59.20	1.250

DEEP TRIO GD™ CROSS-HOLE GUNDRILLS (INCH)



Deep-Trio Gundrills are made to order per application.
Use the following guideline to determine the Description:

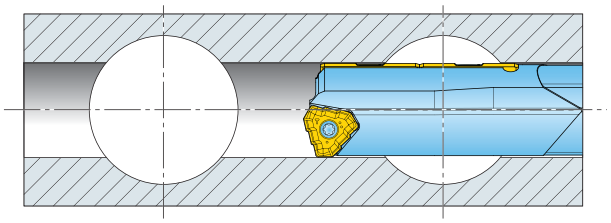
GTADP	XXXX	YYYY	ZZ	RXX
Series	Drill Dia. (mm)	Drill Length (OAL) (mm)	Driver	Variation

Example:
.75" diameter drill with 72" OAL and 1.00" driver = GTADP-1905-1828-58-RXX

Reference pages 12-15 for Insert and Guide Pad information.
Reference page 9 for Driver information.

STANDARD ITEMS

Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LU Usable Length Max.	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Connection Dia.
GTADP-1427-1828-S9-R10	0.562	0.077	1.26	68.49	72.00	2.76	72.08	1.250
GTADP-1468-1524-S9-R01	0.578	0.077	1.26	56.46	60.00	2.76	60.08	1.250
GTADP-1468-1828-S9-R01	0.578	0.077	1.26	68.46	72.00	2.76	72.08	1.250
GTADP-1468-2286-S9-R01	0.578	0.077	1.26	86.46	90.00	2.76	90.08	1.250
GTADP-1506-1500-S9-R01	0.593	0.077	1.26	55.48	59.06	2.76	59.14	1.250
GTADP-1506-1828-S9-R01	0.593	0.077	1.26	68.42	72.00	2.76	72.08	1.250
GTADP-1824-1524-S9-R01	0.718	0.118	1.26	56.30	60.00	2.76	60.12	1.250
GTADP-1824-1828-S9-R01	0.718	0.118	1.26	68.30	72.00	2.76	72.12	1.250
GTADP-1824-2286-S9-R01	0.718	0.118	1.26	86.30	90.00	2.76	90.12	1.250
GTADP-1864-1500-S9-R01	0.734	0.118	1.26	55.36	59.06	2.76	59.12	1.250
GTADP-1864-1828-S9-R01	0.734	0.118	1.26	68.30	72.00	2.76	72.12	1.250
GTADP-2380-1524-S9-R01	0.937	0.126	1.26	55.10	59.06	2.76	59.19	1.250
GTADP-2380-1828-S9-R01	0.937	0.126	1.26	68.04	72.00	2.76	72.13	1.250
GTADP-2380-2286-S9-R01	0.937	0.126	1.26	86.04	90.00	2.76	90.13	1.250
NEW GTADP-2936-1828-S9-R01	1.156	0.102	1.26	66.52	72.00	2.76	72.10	1.250

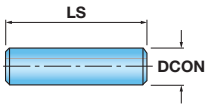
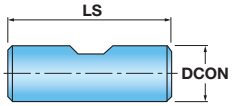
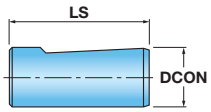
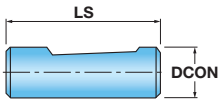
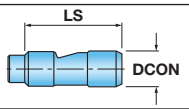
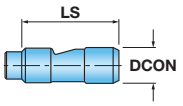
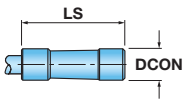
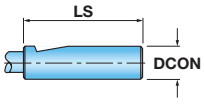
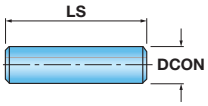
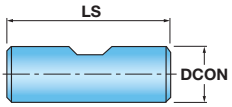


Extra long guide pads allow drilling through cross-holes up to 1.26" (32mm) dia.

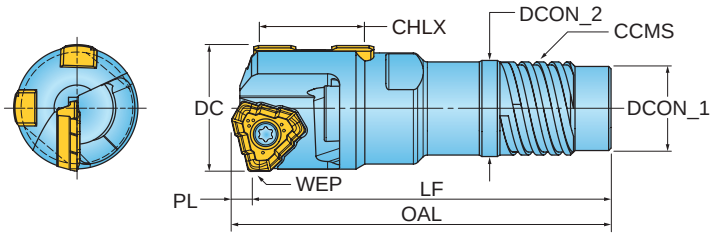
An additional guide pad stabilizes the drill when the insert passes the cross-hole

For Cross-Hole Applications:
Deep-Trio BTA, MC and GD with single row of guide pads can cross up to a .63" (16 mm) hole.
Deep-Trio MC and GD with a double row of guide pads can cross up to a 1.26" (32 mm) hole.

DEEP TRIO GD™ STANDARD GUNDRILL DRIVERS

	Driver Type	Drawing	DCON	LS	Driver Code	Carbide Tipped Gun Drills	Solid Carbide Gun Drills
METRIC	Cylindrical DIN1835A DIN6535HA		10	40	05	●	●
			12	45	06	●	●
			16	48	08	●	●
			20	50	10	●	
			25	56	11	●	
	Weldon DIN1835B DIN6535HB		10	40	18	●	●
			12	45	19	●	●
			16	48	20	●	●
			20	50	22	●	●
			25	56	23	●	
	Whistle Notch DIN1835E		10	40	30	●	●
			12	45	31	●	●
			16	48	32	●	●
			20	50	34	●	●
			25	56	35	●	
	Whistle Notch DIN6535HE		10	40	40	●	●
			12	45	41	●	●
			16	48	42	●	●
			18	50	44	●	●
	Central clamping surface 15°		10	40	54	●	●
			16	45	55	●	
			25	70	57	●	
INCH	Central clamping surface 15°		.750	2.748	56	●	
			1.00	2.748	58	●	
	Central clamping tapered		.750	2.748	76	●	
	Frontal clamping surface 2°		.750	2.748	79	●	
			1.00	2.748	80	●	
	Cylindrical DIN1835A DIN6535HA		.500	1.781	94	●	
			.750	2.031	95	●	
			1.000	2.281	96	●	
			1.250	2.281	97	●	
			1.250	2.755	S9	●	
	Weldon DIN1835B DIN6535HB		.500	1.781	98	●	
			.750	2.031	99	●	
			1.000	2.281	100	●	
			1.250	2.281	101	●	

● Recommended design

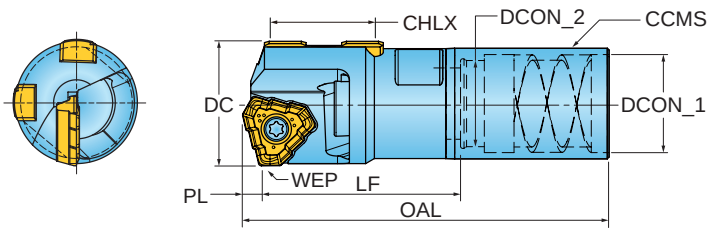


Part Number	DC Cutting Dia.	PL Point Length	LF Functional Length	OAL Overall Length	DCON1 Shank Dia.	DCON2 Shank Dia.	CCMS Connection Code	TUBE Part Number
TBTA-DT.XXXSE4-14	.630 - .657	0.087	2.165	2.252	0.425	0.496	BTA SE4-14	BTSI014
TBTA-DT.XXXSE4-15	.658 - .696	0.087	2.165	2.252	0.465	0.535	BTA SE4-15	BTSI015
TBTA-DT.XXXSE4-16	.697 - .744	0.118	2.205	2.323	0.492	0.571	BTA SE4-16	BTSI016
TBTA-DT.XXXSE4-17	.745 - .787	0.118	2.205	2.323	0.531	0.610	BTA SE4-17	BTSI017
TBTA-DT.XXXSE4-18	.788 - .858	0.126	2.362	2.488	0.551	0.630	BTA SE4-18	BTSI018
TBTA-DT.XXXSE4-20	.859 - .866	0.126	2.500	2.626	0.630	0.709	BTA SE4-20	BTSI020
TBTA-DT.XXXSE4-20	.867 - .948	0.134	2.579	2.713	0.630	0.709	BTA SE4-20	BTSI020
TBTA-DTX.XXXSE4-22	.949 - .984	0.134	2.579	2.713	0.689	0.768	BTA SE4-22	BTSI022
TBTA-DTX.XXXSE4-22	.985 - 1.039	0.142	2.657	2.799	0.689	0.768	BTA SE4-22	BTSI022
TBTA-DTX.XXXSE4-24	1.040 - 1.102	0.142	2.657	2.799	0.748	0.827	BTA SE4-24	BTSI024

STANDARD ITEMS

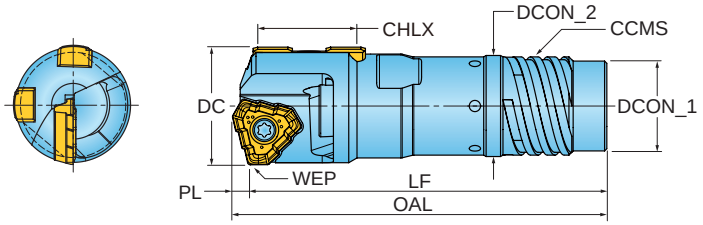
Part Number	DC Cutting Dia.	PL Point Length	CHLX Cross-Hole Length Max.	LF Functional Length	OAL Overall Length	DCON1 Shank Dia.	DCON2 Shank Dia.	CCMS Connection Code	TUBE Part Number
TBTA-DT.687SE4-15	0.687	0.087	0.566	2.165	2.252	0.465	0.535	BTA SE4-15	BTSI015
TBTA-DT.718SE4-16	0.718	0.118	0.630	2.205	2.323	0.492	0.571	BTA SE4-16	BTSI016
TBTA-DT.734SE4-16	0.734	0.118	0.630	2.205	2.323	0.492	0.571	BTA SE4-16	BTSI016
TBTA-DT.750SE4-17	0.750	0.118	0.630	2.205	2.323	0.531	0.610	BTA SE4-17	BTSI017
TBTA-DT.812SE4-18	0.812	0.126	0.630	2.362	2.488	0.551	0.630	BTA SE4-18	BTSI018
TBTA-DT.875SE4-20	0.875	0.134	0.630	2.579	2.713	0.630	0.709	BTA SE4-20	BTSI020
TBTA-DT.937SE4-20	0.937	0.134	0.630	2.579	2.713	0.630	0.709	BTA SE4-20	BTSI020
TBTA-DT1.000SE4-22	1.000	0.142	0.630	2.657	2.799	0.689	0.768	BTA SE4-22	BTSI022
TBTA-DT1.062SE4-24	1.062	0.142	0.630	2.657	2.799	0.748	0.827	BTA SE4-24	BTSI024

DEEP TRIO BTA™ TBTA-DT DRILL HEADS STS Single Tube System INNER SINGLE START THREAD



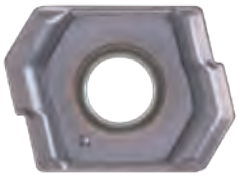
Part Number	DC Cutting Dia.	PL Point Length	LF Functional Length	OAL Overall Length	DCON1 Shank Dia.	DCON2 Shank Dia.	CCMS Connection Code	TUBE Part Number
TBTA-DT.XXXSI1-13A	0.629	0.087	2.106	2.193	0.425	0.488	BTA SI1-13A	BTSE013A
TBTA-DT.XXXSI1-13B	.630 - .649	0.087	2.106	2.193	0.437	0.500	BTA SI1-13B	BTSE013B
TBTA-DT.XXXSI1-14A	.650 - .679	0.087	2.106	2.193	0.465	0.528	BTA SI1-14A	BTSE014A
TBTA-DT.XXXSI1-14B	.680 - .708	0.087	2.106	2.193	0.476	0.539	BTA SI1-14B	BTSE014B
TBTA-DT.XXXSI1-15	.709 - .748	0.118	2.106	2.224	0.504	0.567	BTA SI1-15	BTSE015
TBTA-DT.XXXSI1-16.5	.749 - .787	0.126	2.106	2.232	0.543	0.606	BTA SI1-16.5	BTSE016.5
TBTA-DT.XXXSI1-18	.788 - .866	0.126	2.283	2.409	0.571	0.650	BTA SI1-18	BTSE018
TBTA-DT.XXXSI1-20	.867 - .983	0.134	2.362	2.496	0.630	0.748	BTA SI1-20	BTSE020
TBTA-DT.XXXSI1-22	.984 - 1.062	0.142	2.559	2.701	0.669	0.787	BTA SI1-22	BTSE022
TBTA-DT.XXXSI1-24	1.063 - 1.102	0.142	2.559	2.701	0.748	0.866	BTA SI1-24	BTSE024

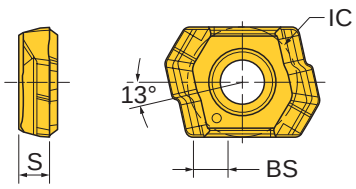
DEEP TRIO BTA™ TBTA-DT DRILL HEADS DTS Double Tube System OUTER FOUR START THREAD



Part Number	DC Cutting Dia.	PL Point Length	LF Functional Length	OAL Overall Length	DCON1 Shank Dia.	DCON2 Shank Dia.	CCMS Connection Code	TUBE Part No. (Outer)	TUBE Part No. (Inner)
TBTA-DT.XXXDE4-18	.724 - .787	0.118	2.402	2.520	0.551	0.630	BTA DE4-18	BTDO018	BTDI012
TBTA-DT.XXXDE4-19.5	.788 - .858	0.126	2.500	2.626	0.630	0.709	BTA DE4-19.5	BTDO019.5	BTDI014
TBTA-DT.XXXDE4-21.5	.859 - .865	0.126	2.500	2.626	0.689	0.768	BTA DE4-21.5	BTDO021.5	BTDI015
TBTA-DT.XXXDE4-21.5	.866 - .948	0.134	2.579	2.713	0.689	0.768	BTA DE4-21.5	BTDO021.5	BTDI015
TBTA-DT.XXXDE4-23.5	.949 - .984	0.134	2.579	2.713	0.748	0.837	BTA DE4-23.5	BTDO023.5	BTDI016
TBTA-DT.XXXDE4-23.5	.985 - 1.039	0.142	2.657	2.657	0.748	0.837	BTA DE4-23.5	BTDO023.5	BTDI016
TBTA-DT.XXXDE4-23.5	1.040 - 1.102	0.142	2.775	2.917	0.827	9.250	BTA DE4-26	BTDO026	BTDI018

DEEP-TRIO™ LPHT INSERTS



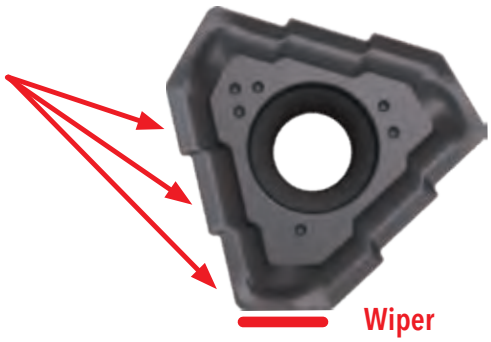


Drill Diameter - inch (mm)	Insert Number	Dims (inch)		Grade
		IC Inscribed Circle	**S** Thickness	IN2005
.472 - .550" (12.00mm - 13.99mm)	**LPHT060204R-DT**	0.278	0.078	•

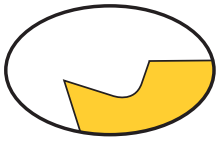
• = Stocked Items

DEEP-TRIO™ TPHT INSERT FEATURES

Chip Splitter

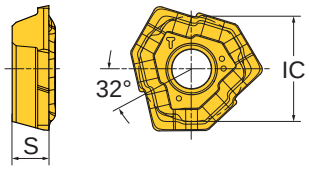


Positive Chipbreaker

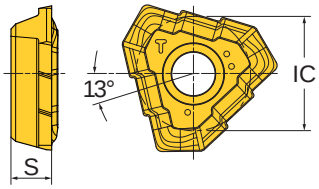


DEEP-TRIO™ TPHT...-DT INSERTS

TPHT07...-DT - TPHT08...-DT



TPHT09...-DT - TPHT13...-DT

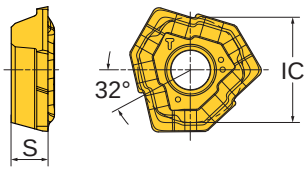


Drill Diameter - inch (mm)	Insert Number	Dims (inch)		Grade
		IC Inscribed Circle	**S** Thickness	IN2005
.551 - .629" (14.00mm - 15.99mm)	**TPHT070304R-DT**	0.302	0.090	•
.630 - .708" (16.00mm - 18.00mm)	**TPHT080304R-DT**	0.336	0.090	•
.709 - .787" (18.01mm - 20.00mm)	**TPHT090305R-DT**	0.328	0.118	•
.788 - .865" (20.01mm - 21.99mm)	**TPHT100305R-DT**	0.363	0.130	•
.866 - 984" (22.00mm - 25.00mm)	**TPHT110405R-DT**	0.409	0.150	•
.985 - 1.102" (25.01mm - 28.00mm)	**TPHT120405R-DT**	0.456	0.169	•
1.103 - 1.260" (28.01mm - 32.00mm)	**TPHT130408R-DT**	0.506	0.187	•

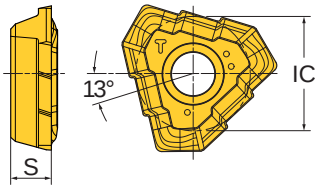
• = Stocked Items

DEEP TRIO™ TPHT...-ML INSERTS

TPHT07...-DT - TPHT08...-DT

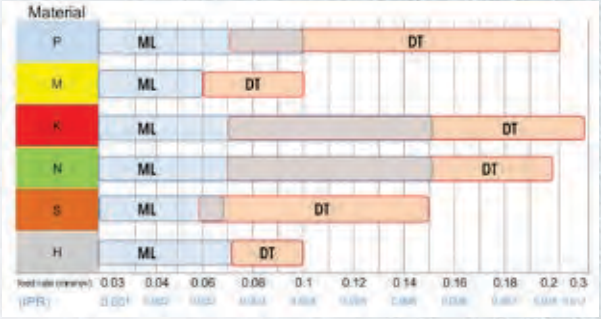


TPHT09...-DT - TPHT13...-DT

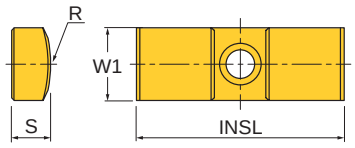


Drill Diameter - inch (mm)	Insert Number	Dims (inch)		Grade
		IC Inscribed Circle	**S** Thickness	IN2005
.551 - .629" (14.00mm - 15.99mm)	**TPHT070304R-ML**	0.302	0.090	•
.630 - .708" (16.00mm - 18.00mm)	**TPHT080304R-ML**	0.336	0.090	•
.709 - .787" (18.01mm - 20.00mm)	**TPHT090305R-ML**	0.328	0.118	•
.788 - .865" (20.01mm - 21.99mm)	**TPHT100305R-ML**	0.363	0.130	•
.866 - 984" (22.00mm - 25.00mm)	**TPHT110405R-ML**	0.409	0.150	•
.985 - 1.102" (25.01mm - 28.00mm)	**TPHT120405R-ML**	0.456	0.169	•
1.103 - 1.260" (28.01mm - 32.00mm)	**TPHT130408R-ML**	0.506	0.187	•

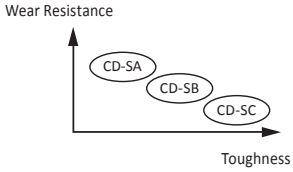
• = Stocked Items



DEEP TRIO™ GUIDE PADS



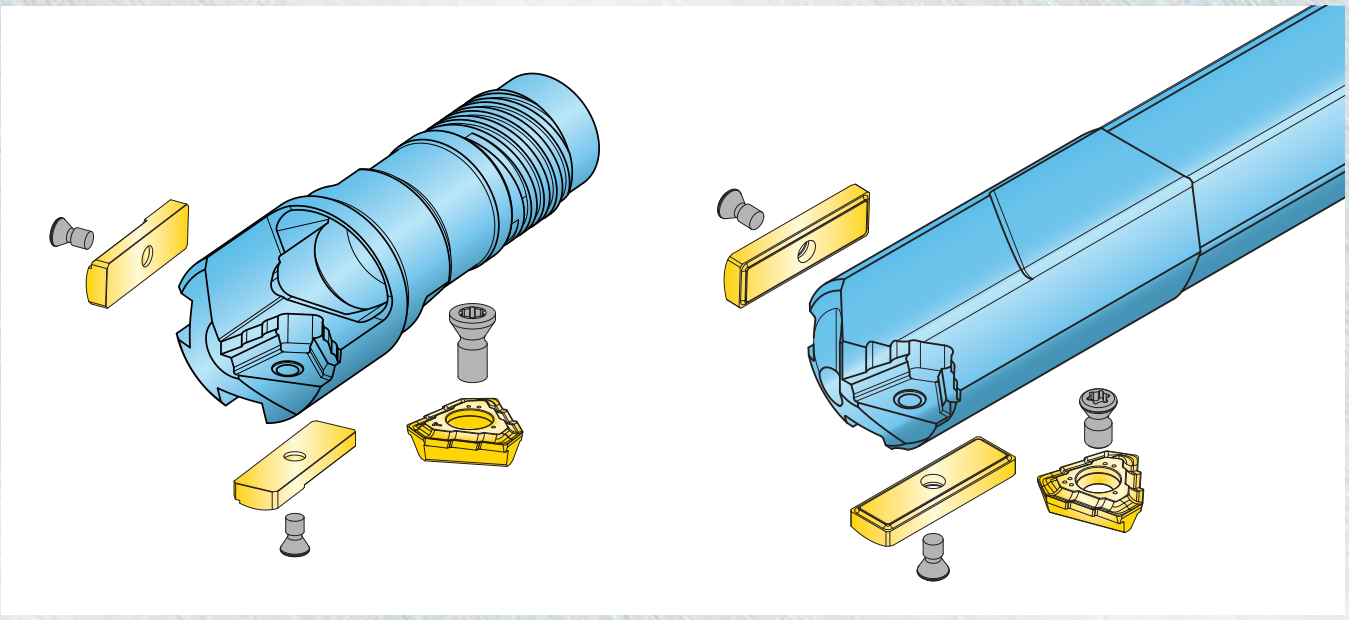
GRADE APPLICATION



Drill Diameter - inch (mm)	Guide Pad Size	Dims (inch)				Grades		
		W1	S	INSL	R	CD-SA	CD-SB	CD-SC
.472 - .550" (12.00mm - 13.99mm)	**PAD-GO04-055...**	0.157	0.078	0.629	0.216	•	•	•
.551 - .629" (14.00mm - 15.99mm)	**PAD-GO05-060...**	0.196	0.098	0.708	0.236	•	•	•
.630 - .708" (16.00mm - 18.00mm)	**PAD-GO05-075...**	0.196	0.098	0.708	0.295	•	•	•
.709 - .826" (18.01mm - 21.00mm)	**PAD-GO06-085...**	0.236	0.118	0.787	0.346	•	•	•
.827 - .984" (21.01mm - 25.00mm)	**PAD-GO06-100...**	0.236	0.118	0.787	0.394	•	•	•
.985 - 1.180" (25.01mm - 29.99mm)	**PAD-GO06...**	0.236	0.118	0.787	0.472	•	•	•
1.181 - 1.260" (30.00mm - 32.00mm)	**PAD-GO07...**	0.276	0.138	0.787	0.472	•	•	•

• = Stocked Items

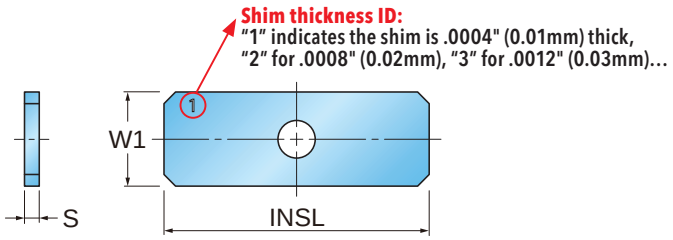
DEEP TRIO™ PARTS LIST



Components		Drill Diameter (inch)				
		.472 - .550	.551 - .629	.630 - .708	.709 - .787	.788 - .826
Insert	Part No.	LPHT060204R	TPHT070304R	TPHT080305R	TPHT090305R	TPHT100305R
	Screw	SR10503833L040	SR14-560/S	SR14-560/S	SR14-560/S	SR34-506
	Wrench	T-7F	T-8F	T-8F	T-8F	T-9F
Guide Pads	Part No.	PAD-GO04-055CD	PAD-GO05-060CD	PAD-GO05-075CD	PAD-GO06-085CD	PAD-GO06-085CD
	Screw	CSPB-2L043	SR34-508	SR34-508	SR34-508	SR34-508
	Wrench	IP-6F	T-7F	T-7F	T-7F	T-7F

Components		Drill Diameter (inch)				
		.827 - .865	.866 - .984	.985 - 1.102	1.103-1.180	1.181-1.260
Insert	Part No.	TPHT100305R	TPHT110405R	TPHT120405R	TPHT130408R	TPHT130408R
	Screw	SR34-506	SR14-571/S	SR14-506	SR16-212/L10	SR16-212/L10
	Wrench	T-9F	T-15F	T-15F	T-20/5	T-20/5
Guide Pads	Part No.	PAD-GO06-100CD	PAD-GO06-100CD	PAD-GO06CD	PAD-GO06CD	PAD-GO07CD
	Screw	SR34-508	SR34-508	SR34-508	SR34-508	CSTB-3L065
	Wrench	T-7F	T-7F	T-7F	T-7F	T-9F

DEEP-TRIO™ DIAMETER ADJUSTING SHIMS

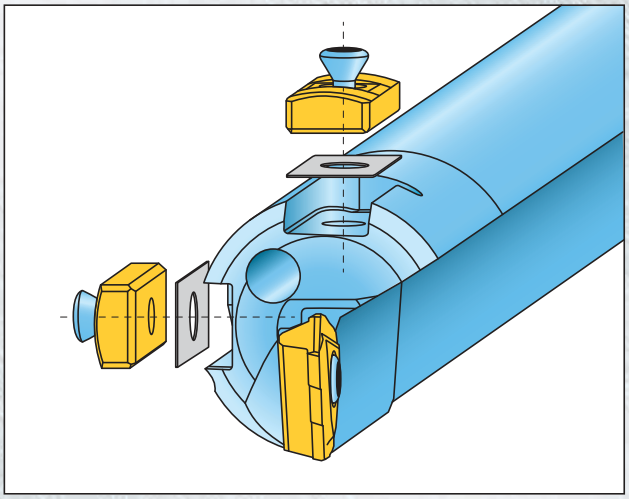


0.01mm / 0.02mm / 0.03mm / 0.04mm / 0.05mm
.0004" / .0008" / .0012" / .0016" / .0020"

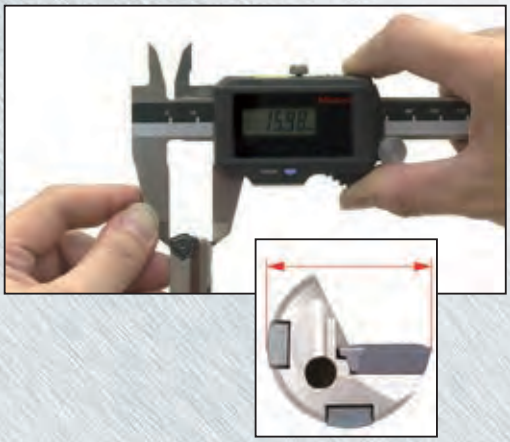
Part Number	W1 Width inch (mm)	INSL Length inch (mm)	S Thickness inch (mm)	Application Guide Pad Size
SHIMSET-GP04	.157 (4)	.626 (15.9)	.0004 - .0020 (0.01 - 0.05)	PAD-G004
SHIMSET-GP05	.197 (5)	.709 (18)	.0004 - .0020 (0.01 - 0.05)	PAD-G005
SHIMSET-GP06	.236 (6)	.787 (20)	.0004 - .0020 (0.01 - 0.05)	PAD-G006

- A shim set contains 5 shims in thicknesses of .0004" (0.01mm), .0008" (0.02mm), .0012" (0.03mm), .0016" (0.04mm) and .0020" (0.05mm), respectively.
- **Adjusting shims are sold by set only, not to be sold separately.**

Diameter Adjustments inch (mm)	Shim(s) for measuring guide pad inch (mm)	Shim(s) for supporting guide pad inch (mm)	Number of shim sets needed
+.0004 (+0.01)	.0004 (0.01)	-	1
+.0008 (+0.02)	.0008 (0.02)	.0004 (0.01)	1
+.0012 (+0.03)	.00012 (0.03)	.0004 + .0008 (0.01 + 0.02)	1
+.0016 (+0.04)	.00016 (0.04)	.0004 + .0012 (0.01 + 0.03)	1
+.0020 (+0.05)	.00020 (0.05)	.0008 + .0012 (0.02 + 0.03)	1
+.0024 (+0.06)	.0004 + .0020 (0.01 + 0.05)	.0008 + .0016 (0.02 + 0.04)	1
+.0028 (+0.07)	.0008 + .0020 (0.02 + 0.05)	.0012 + .0016 (0.03 + 0.04)	1
+.0031 (+0.08)	.0012 + .0020 (0.03 + 0.05)	.0016 + .0016 (0.04 + 0.04)	2
+.0035 (+0.09)	.0016 + .0020 (0.04 + 0.05)	.0016 + .0020 (0.04 + 0.05)	2
+.0039 (+0.010)	.0020 + .0020 (0.05 + 0.05)	.0016 + .0016 + .0008 (0.04 + 0.04 +0.02)	2



HOW TO INSTALL ADJUSTING SHIMS



STEP 1:
Measure the Deep•Trio drill diameter between the measuring guide pad and the insert cutting edge. If a presetter is not available, use a micrometer or caliper.
For a precise drill diameter measurement, it is recommended to test-drill a hole and measure the hole diameter.

STEP 2:
Select the shim combinations according to the chart on Page 15 to obtain the required hole diameter. Take into consideration that the actual diameter of the drilled hole tends to be slightly larger (usually +.0008" to +.0012") than the drill's nominal diameter – i.e. add .0008"-.0012" to the measured drill diameter in Step 1 above before the final drill diameter.

STEP 3:
Remove the guide pads.

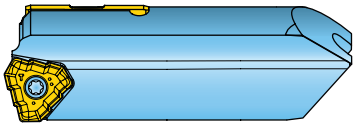
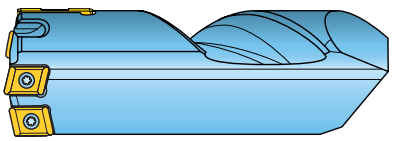
STEP 4:
Install the adjusting shims underneath the guide pads, respectively. Put the guide pads back on the tool.

STEP 5:
Measure the drill diameter again to confirm the required diameter is obtained on the Deep•Trio.

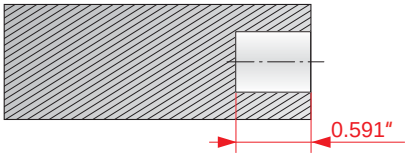
STEP 6:
Test drill a hole to confirm that the required hole diameter is achieved.

DEEP TRIO™ NEW TRH HEAD

Now Available! The TRH brazed head of the Deep Trio tools are now available as a separate item which allows customers to repair their Deep Trio tools by brazing a new head onto the body after removing the old one.

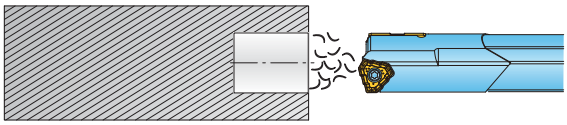
	Type	Tool Dia(mm)	Tool Dia(in)	Part Number
	1 insert type (metric)	12.70	0.500	TRH-12.70MKT
		14.00	0.551	TRH-14.00 MKT
		14.50	0.571	TRH-14.50 MKT
		15.00	0.591	TRH-15.00 MKT
		16.00	0.630	TRH-16.00 MKT
		16.50	0.650	TRH-16.50 MKT
		17.00	0.669	TRH-17.00 MKT
		17.50	0.689	TRH-17.50 MKT
		18.00	0.709	TRH-18.00 MKT
		18.50	0.728	TRH-18.50 MKT
		19.00	0.748	TRH-19.00 MKT
		19.50	0.768	TRH-19.50 MKT
		20.00	0.787	TRH-20.00 MKT
		21.00	0.827	TRH-21.00 MKT
		22.00	0.866	TRH-22.00 MKT
		22.50	0.886	TRH-22.50 MKT
		23.00	0.906	TRH-23.00 MKT
		23.50	0.925	TRH-23.50 MKT
		24.00	0.945	TRH-24.00 MKT
		25.00	0.984	TRH-25.00 MKT
		26.00	1.024	TRH-26.00 MKT
		27.00	1.063	TRH-27.00 MKT
		28.00	1.102	TRH-28.00 MKT
	1 insert type (inch)	12.70	0.500	TRH-12.70 MKT
		14.30	0.563	TRH-14.30 MKT
		15.90	0.626	TRH-15.90 MKT
		17.50	0.689	TRH-17.50 MKT
		19.10	0.752	TRH-19.10 MKT
		20.60	0.811	TRH-20.60 MKT
		22.20	0.874	TRH-22.20 MKT
		23.80	0.937	TRH-23.80 MKT
		25.40	1.000	TRH-25.40 MKT
		28.60	1.126	TRH-28.60 MKT
		31.80	1.252	TRH-31.80 MKT
	Cross hole type	14.00	0.551	TRH-14.00CH MKT
		15.00	0.591	TRH-15.00CH MKT
		16.00	0.630	TRH-16.00CH MKT
		17.00	0.669	TRH-17.00CH MKT
		18.00	0.709	TRH-18.00CH MKT
		19.00	0.748	TRH-19.00CH MKT
		20.00	0.787	TRH-20.00CH MKT
		21.00	0.827	TRH-21.00CH MKT
		22.00	0.866	TRH-22.00CH MKT
		23.00	0.906	TRH-23.00CH MKT
		24.00	0.945	TRH-24.00CH MKT
		25.00	0.984	TRH-25.00CH MKT
		26.00	1.024	TRH-26.00CH MKT
		27.00	1.063	TRH-27.00CH MKT
		28.00	1.102	TRH-28.00CH MKT
	3 Insert Type	29.00	1.142	TRH-29.00-FB MKT
		30.00	1.181	TRH-29.00-FB MKT
		31.00	1.220	TRH-29.00-FB MKT
		32.00	1.260	TRH-29.00-FB MKT
		33.00	1.299	TRH-29.00-FB MKT
		34.00	1.339	TRH-29.00-FB MKT
		35.00	1.378	TRH-29.00-FB MKT
		36.00	1.417	TRH-29.00-FB MKT

DEEP TRIO™ DRILLING PROCESS (STARTING)



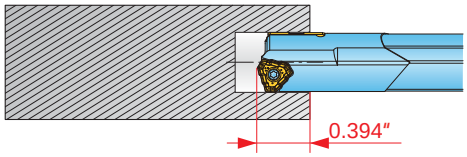
1. Pilot Hole

Drill Diameter +0.0039" ~ +0.0012"
Depth = 0.591"



2. Approach - Rapid, Coolant On

Vc = 16 ~ 32 SFM
f = 0.02" ~ 0.039"/rev
Depth = 0.394"

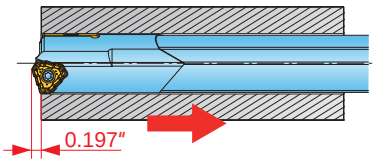


3. Enter Pilot Hole, Begin Drilling
0.394" ~ 0.984"

Vc: 100 %
f: 80 %

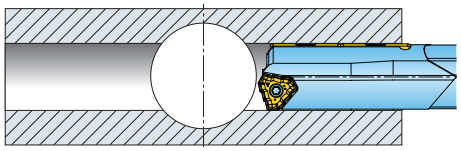
4. Drill Feed After 1.00"

Vc: 100 %
f: 100 %



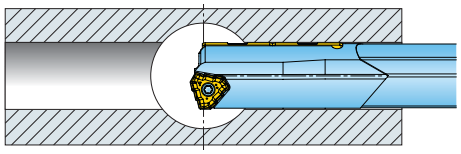
5. Retract. Stop rotation and coolant before moving the drill back to starting position.

DEEP TRIO™ DRILLING PROCESS (CROSS-HOLES)



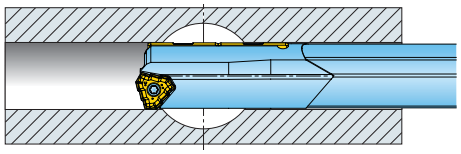
1. 1 - 2 mm before cross-hole

Reduce feed by 30 – 50%
Maintain same RPM



2. Cross through hole

Maintain same RPM



3. 1 - 2 mm after cross-hole.

Resume original feed rate and RPM

***NOTE:**
Possible risks: To prevent injuries, do NOT operate any deep hole drill, which uses pre-drilled pilot hole, at full speed before entering the pilot hole. The deep hole drill may fracture due to vibration and cause injuries.
Counter measures: Do NOT operate the deep hole drill at full speed before engaging the pilot hole. Enter the pilot hole slowly at a speed of 50 - 100 RPM.

DEEP TRIO BTA™ DRILL HEAD OPERATING PARAMETERS

ISO	Material	Condition	Speed (SFM)	ML Chip Breaker Feed (in/rev) .551 - .708	Feed (in/rev) .709 - 1.260
P	1, 2	Low carbon steels (C <0.3)	164 - 328	.001 - .004	.001 - .004
	3, 4, 5	Carbon steels (C>0.3)	164 - 328	.001 - .004	.001 - .005
	6, 10	Low alloy steels	164 - 328	.001 - .004	.001 - .004
	7, 8, 9, 11	Alloy steels	164 - 328	.001 - .004	.001 - .005
M	12, 13	Stainless steels (Matensitic and ferritic)	164 - 328	.001 - .002	.001 - .002
	14	Stainless steels (Austenitic)	164 - 328	.001 - .002	.001 - .002
		Stainless steels (Precipitation hardening)	164 - 328	.001 - .002	.001 - .002
K	15, 16, 19, 20	Ductile cast iron	164 - 328	.001 - .006	.001 - .007
	17, 18	Gray cast iron	164 - 328	.001 - .006	.001 - .007
N	21, 22, 23, 24	Aluminum Alloy	262 - 525	.001 - .006	.001 - .006
S	31, 32, 33, 34, 35	High Temp Alloy, Inconel 718, etc.	66 - 164	.001 - .002	.001 - .003
	36, 37	Titanium Alloy, Ti-Al-4V etc...	98 - 197	.001 - .004	.001 - .005
	38, 39, 40, 41	Hardened steel >40HRC	131 - 328	.001 - .003	.001 - .004

ISO	Material	Condition	DT Chip Breaker Speed (SFM) .472 - .551	Speed (SFM) .551 - .70"	Feed (in/rev) .472 - .551	Feed (in/rev) .551 - .708	Feed (in/rev) .709 - 1.260
P	1, 2	Low carbon steels (C <0.3)	262 - 459	262 - 394	.002 - .004	.003 - .004	.003 - .004
	3, 4, 5	Carbon steels (C>0.3)	262 - 459	262 - 394	.002 - .006	.003 - .006	.003 - .008
	6, 10	Low alloy steels	262 - 459	262 - 394	.002 - .004	.003 - .004	.003 - .004
	7, 8, 9, 11	Alloy steels	262 - 459	262 - 394	.002 - .006	.003 - .006	.003 - .008
M	12, 13	Stainless steels (Matensitic and ferritic)	197 - 328	197 - 328	.002 - .004	.003 - .004	.003 - .004
	14	Stainless steels (Austenitic)	197 - 328	197 - 328	.002 - .004	.003 - .004	.003 - .004
		Stainless steels (Precipitation hardening)	197 - 328	197 - 328	.002 - .004	.003 - .004	.003 - .004
K	15, 16, 19, 20	Ductile cast iron	262 - 459	197 - 459	.002 - .010	.003 - .010	.003 - .012
	17, 18	Gray cast iron	262 - 459	197 - 459	.002 - .010	.003 - .010	.003 - .012
N	21, 22, 23, 24	Aluminum Alloy	328 - 656	328 - 656	.002 - .008	.003 - .008	.003 - .008
S	31, 32, 33, 34, 35	High Temp Alloy, Inconel 718, etc.	66 - 164	66 - 164	.002 - .003	.002 - .003	.002 - .004
	36, 37	Titanium Alloy, Ti-Al-4V etc...	98 - 197	98 - 197	.002 - .005	.003 - .005	.003 - .006
	38, 39, 40, 41	Hardened steel >40HRC	164 - 328	131 - 328	.002 - .003	.002 - .003	.002 - .004