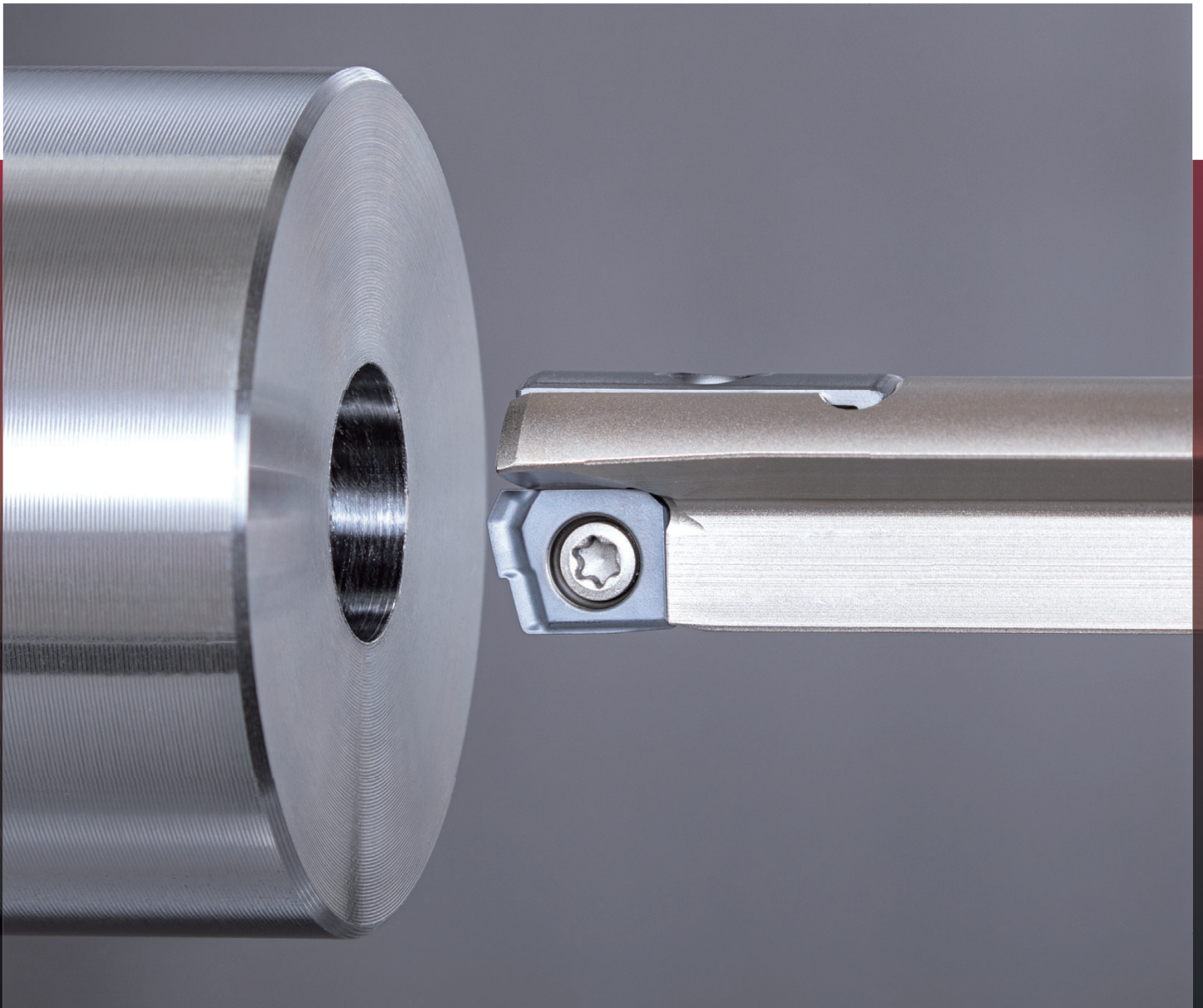


Deep hole drill

# DEEPT<sup>RI</sup>DRILL

Tungaloy Report No. 430S3-US

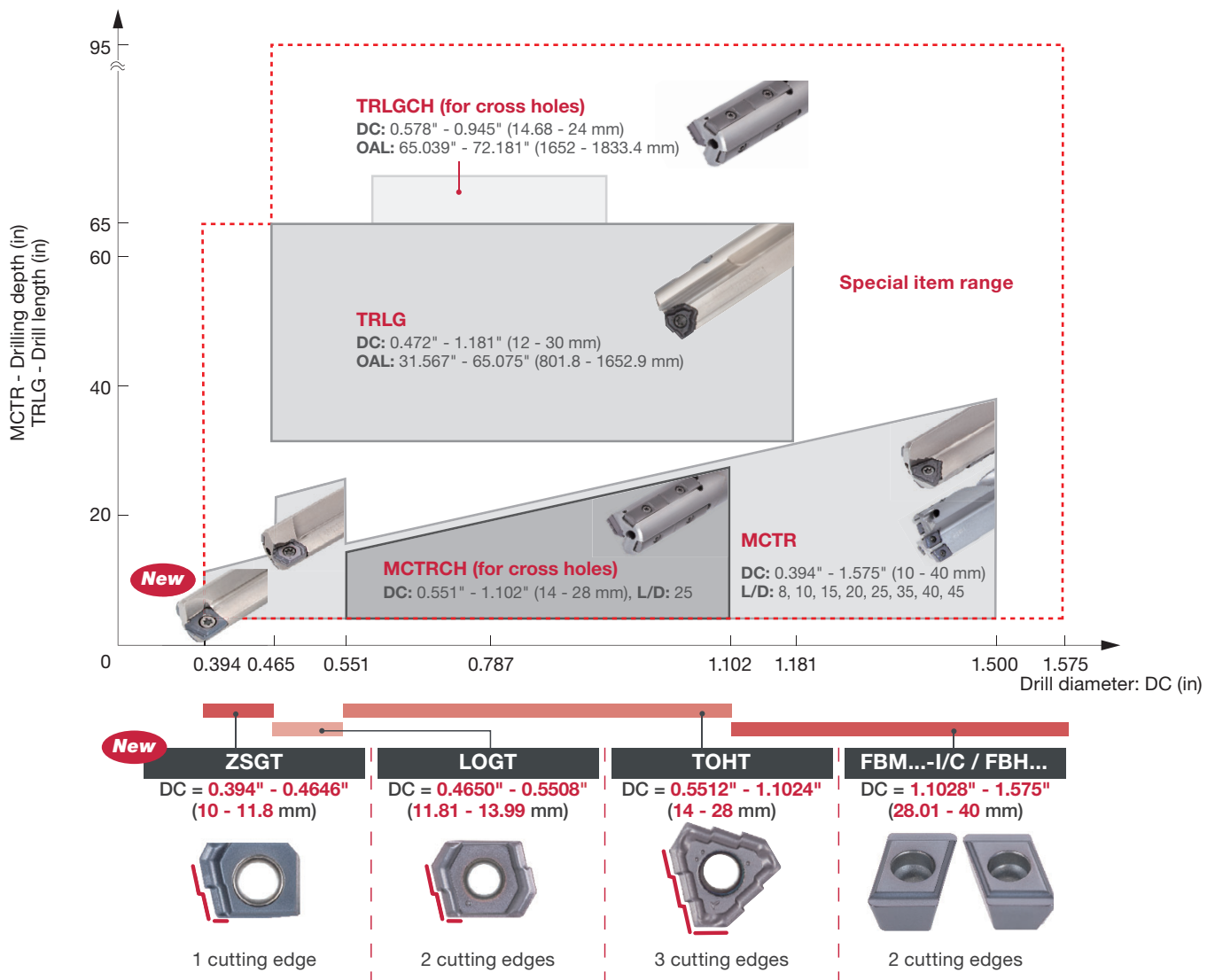
Smallest diameter indexable gun drill  
- **DeepTri-Drill expansion**  
**down to  $\varnothing 0.394''$  (10 mm)**





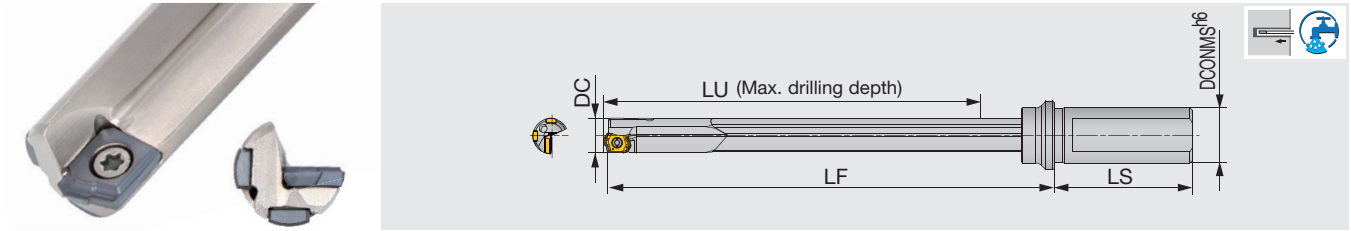
## DeepTri-Drill for lathe and CNC machining centers in the diameter range **ø0.394" - ø0.465" (10 - 11.8 mm)**

■ Wide range of solutions for various deep hole applications



### MCTR L/D=15

Drill body for lathes and machining centers, L/D = 15, Tool diameter  $\phi 0.437"$



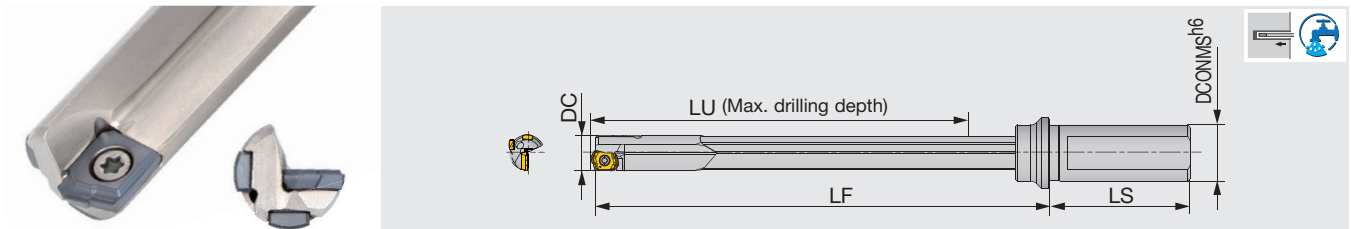
Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR11.11XU19.05-15	0.437	0.750	7.154	1.968	8.228	ZSGT06...	GP04-16-050-DC

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

(Unit: Inch)

### MCTR L/D=20

Drill body for lathes and machining centers, L/D = 20, Tool diameter  $\phi 0.437"$



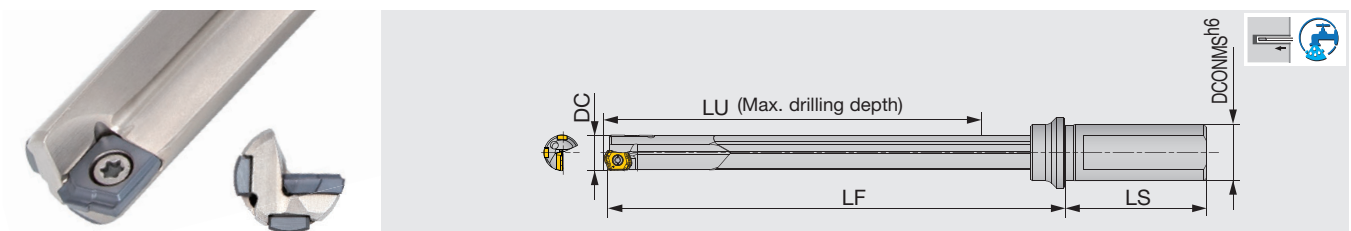
Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR11.11XU19.05-20	0.437	0.750	9.516	1.968	10.591	ZSGT06...	GP04-16-050-DC

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

(Unit: Inch)

### MCTR L/D=25

Drill body for lathes and machining centers, L/D = 25, Tool diameter  $\phi 0.437"$  and  $\phi 10$  mm -  $\phi 11.5$  mm



Inch	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR11.11XU19.05-25	0.437	0.750	11.878	1.968	12.953	ZSGT06...	GP04-16-050-DC

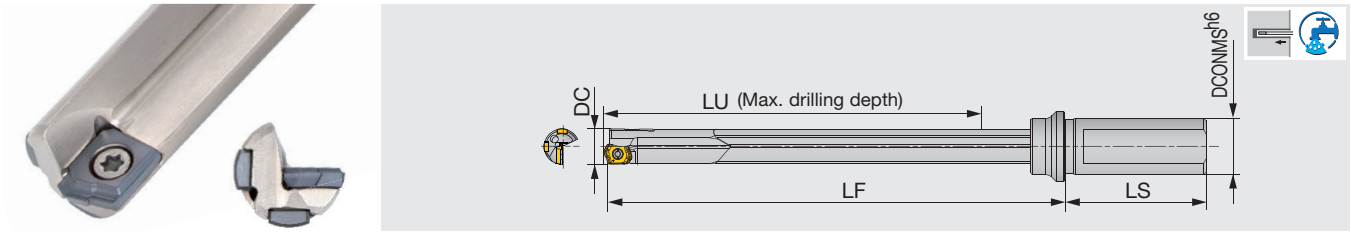
Metric	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR10.00XM20-25	10	20	264.2	50	289.5	ZSGT06...	GP04-16-045-DC
MCTR11.00XM20-25	11	20	301.7	50	329	ZSGT06...	GP04-16-050-DC
MCTR11.50XM20-25	11.5	20	301.7	50	329	ZSGT06...	GP04-16-050-DC

DC	Tool diameter tolerance	Applicable tolerance range of hole diameter
0.394 - 0.453	0 / - 0.0031	+ 0.0020 / - 0.0043

(Unit: Inch)

## MCTR L/D=35, 45

Drill body for lathes and machining centers, L/D = 35, 45, Tool diameter  $\varnothing 0.437''$



Inch	DC	L/D	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR11.11XU19.05-35	0.437	35	0.750	16.602	1.968	17.677	ZSGT06...	GP04-16-050-DC
MCTR11.11XU19.05-45	0.437	45	0.750	21.327	1.968	22.402	ZSGT06...	GP04-16-050-DC

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

(Unit: Inch)

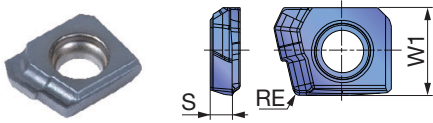
### SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR10..., MCTR11...	SR-M2.5X0.35L3.8	T-7F	CSTB-2	T-6F

Recommended torque (lb-ft) for clamping: SR-M2.5X0.35L3.8=0.66, CSTB-2=0.52

## INSERT

### ZSGT-NDJ

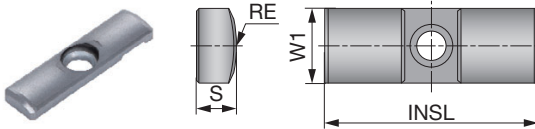


	P	M	K	N	S	H					
	Steel	★									
	Stainless	★									
	Cast iron	★									
	Non-ferrous	★									
	Superalloys	★									
	Hard materials	★									
									★ : First choice	☆ : Second choice	
Designation	Coated						W1	S	RE		
	AH9130										
ZSGT060204R-NDJ	●						0.236	0.059	0.016		

● : Line up  
Package quantity = 10 pcs.

## CARBIDE GUIDE PADS

### GP04



	P	M	K	N	S	H						
	Steel	★										
	Stainless	★										
	Cast iron	★										
	Non-ferrous	★										
	Superalloys	★										
	Hard materials	★										
											★ : First choice	
											☆ : Second choice	
Designation	Coated						W1	INSL	S	RE		
	FH3125											
GP04-16-045-DC	●						0.157	0.630	0.071	0.177		
GP04-16-050-DC	●						0.157	0.630	0.071	0.197		

● : Line up  
Package quantity = 5 pcs.

## STANDARD CUTTING CONDITIONS

Drill diameter: DC = 0.394" - 0.465"

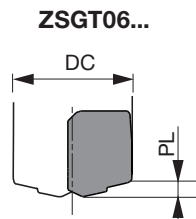
ISO	Workpiece material	Cutting speed Vc (sfm)	Feed f (ipr)
<b>P</b>	Low carbon steel (C < 0.3) 70, 1025, etc.	262 - 459	0.0020 - 0.003
	Carbon steel (C > 0.3) 1045c, 1055, etc.	262 - 459	0.0020 - 0.006
	Low alloy steel (C < 0.3) 5120, etc.	262 - 459	0.0020 - 0.003
	Alloy steel (C > 0.3) 4140, etc.	262 - 394	0.0020 - 0.006
<b>M</b> *	Stainless steel (Austenitic) 304, 316, etc.	197 - 328	0.0020 - 0.003
	Stainless steel (Martensitic, Ferritic) 430, 416, etc.	197 - 328	0.0020 - 0.003
	Stainless steel (Precipitation hardening) S17400, etc.	197 - 328	0.0020 - 0.003
<b>K</b>	Gray cast iron No.250B, etc.	262 - 459	0.0020 - 0.008
	Ductile cast iron 700, etc.	262 - 459	0.0020 - 0.008
<b>N</b>	Aluminum alloys	328 - 656	0.0020 - 0.007
<b>S</b>	Heat-resistant alloys Inconel 718, etc.	66 - 164	0.0016 - 0.002
	Titanium alloys Ti-6Al-4V, etc.	98 - 197	0.0016 - 0.004
<b>H</b>	Hardened steel ≥ 40HRC	164 - 328	0.0016 - 0.002

\*Coolant recommendations for drilling stainless steel:

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

## BLIND HOLE SHAPES OF THE HOLE BOTTOM

DC	Insert	Maximum difference PL
0.394 - 0.465	ZSGT06...	0.067



## DRILLING PROCEDURE ON MACHINING CENTERS AND LATHES

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

	<p><b>① Drill a pilot hole</b>            Hole diameter tolerance: +0.0004" - +0.0020"            Hole depth: H = 1"            Note: Drill H = 1.8" when using an MCTRCH drill (for cross-hole).</p> <p>Please use DrillMeister or DrillForce-Meister for a pilot hole.            Use a drill with 3xD or smaller.            Note: Recommend to use a drill with 5xD when using an MCTRCH drill.</p>
	<p><b>② Start coolant</b>  <b>③ Slowly insert DeepTri-Drill into the pilot hole</b>            No. of revolution: <math>n = 50 - 100</math> rpm            Feed rate: <math>V_f = 4 - 12</math> ipm  <b>Note: Do not rotate the drill at full machining speed before engaging the pilot hole.</b></p>
	<p><b>④ Stop the drill at H = 0.8" depth</b>            Note: Stop at H = 1.6" when using an MCTRCH drill.  <b>⑤ Start rotating at full machining speed</b></p>
	<p><b>⑥ Start feeding</b>            At the entry (H = 0.8" - 1.2") → Feed: <math>f = 80\%</math> of programmed feed            Note: Drill H = 1.6" - 2" when using an MCTRCH drill.            Hole depth: <math>H \geq 1.2"</math> → Feed: <math>f = 100\%</math>            Note: Drill H = 2" or more when using an MCTRCH drill.</p>
	<p><b>⑦ For a through hole</b>            Continue drilling until the drill head passes through the workpiece by 0.2".  <b>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.</b></p> <p><b>⑧ Stop the rotation and coolant</b>  <b>⑨ Return the drill, and operation finished</b></p>

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