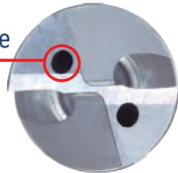




Feature 1

High hole accuracy

Through coolant hole



Unique geometry for firmly engaging the surface for high positioning accuracy

Feature 2

Capable of a wide range of applications such as spot facing on slope, correction of eccentric holes, and thin plate machining.

Feature 3

Double margin allows high precision straight drilling.

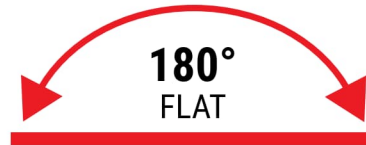
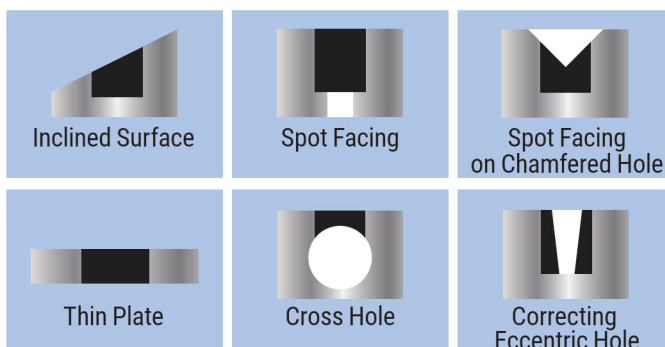
Feature 4

DV coating which has perfect balance between fracture & wear resistance and Smooth treatment on surface of drill ensure excellent tool life.

Feature 5

Applicable for a wide range of work materials; Carbon steel, Tool steel, Mould steel, Stainless steel, Cast iron and Aluminium.

Applications



DOUBLE MARGIN



FLAT DRILL

TLD3D Type

TLD3D
TYPE

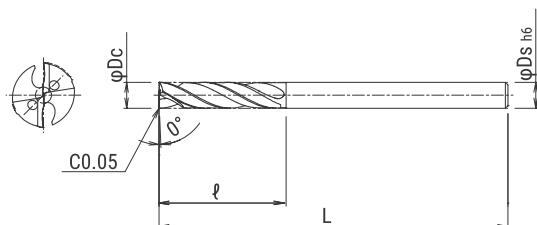
For Spot facing



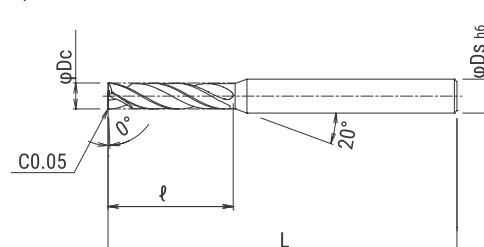
Cat.No	Stock	Dimension(mm)			
		φDc	ℓ	L	φDs
TLD3DCH0300S03	●	3.0	14	60	3
TLD3DCH0310S04	●	3.1			4
TLD3DCH0320S04	●	3.2	15		
TLD3DCH0330S04	●	3.3			
TLD3DCH0340S04	●	3.4	17		
TLD3DCH0350S04	●	3.5			
TLD3DCH0360S04	●	3.6	19		
TLD3DCH0370S04	●	3.7			
TLD3DCH0380S04	●	3.8	21		
TLD3DCH0390S04	●	3.9			
TLD3DCH0400S04	●	4.0	23		
TLD3DCH0410S05	●	4.1		24	
TLD3DCH0420S05	●	4.2	25		
TLD3DCH0430S05	●	4.3		26	
TLD3DCH0440S05	●	4.4	27		
TLD3DCH0450S05	●	4.5		28	
TLD3DCH0460S05	●	4.6	29		
TLD3DCH0470S05	●	4.7		30	
TLD3DCH0480S05	●	4.8	31		
TLD3DCH0490S05	●	4.9		32	
TLD3DCH0500S05	●	5.0	33		
TLD3DCH0510S06	●	5.1		34	
TLD3DCH0520S06	●	5.2	35		
TLD3DCH0530S06	●	5.3		36	
TLD3DCH0540S06	●	5.4	37		
TLD3DCH0550S06	●	5.5		38	
TLD3DCH0560S06	●	5.6	39		
TLD3DCH0570S06	●	5.7		40	
TLD3DCH0580S06	●	5.8	41		
TLD3DCH0590S06	●	5.9		42	
TLD3DCH0600S06	●	6.0	43		
TLD3DCH0610S07	●	6.1		44	
TLD3DCH0620S07	●	6.2	45		

Cat.No	Stock	Dimension(mm)					
		φDc	ℓ	L	φDs		
TLD3DCH0630S07	●	6.3	29	75	7		
TLD3DCH0640S07	●	6.4					
TLD3DCH0650S07	●	6.5	30				
TLD3DCH0660S07	●	6.6					
TLD3DCH0670S07	●	6.7	31				
TLD3DCH0680S07	●	6.8					
TLD3DCH0690S07	●	6.9	32				
TLD3DCH0700S07	●	7.0					
TLD3DCH0710S08	●	7.1	33	80	8		
TLD3DCH0720S08	●	7.2					
TLD3DCH0730S08	●	7.3	34				
TLD3DCH0740S08	●	7.4					
TLD3DCH0750S08	●	7.5	35				
TLD3DCH0760S08	●	7.6					
TLD3DCH0770S08	●	7.7	36				
TLD3DCH0780S08	●	7.8					
TLD3DCH0790S08	●	7.9	37			90	9
TLD3DCH0800S08	●	8.0					
TLD3DCH0810S09	●	8.1	38				
TLD3DCH0820S09	●	8.2					
TLD3DCH0830S09	●	8.3	39				
TLD3DCH0840S09	●	8.4					
TLD3DCH0850S09	●	8.5	40				
TLD3DCH0860S09	●	8.6					
TLD3DCH0870S09	●	8.7	41				
TLD3DCH0880S09	●	8.8					
TLD3DCH0890S09	●	8.9	42	95	10		
TLD3DCH0900S09	●	9.0					
TLD3DCH0910S10	●	9.1	43				
TLD3DCH0920S10	●	9.2					
TLD3DCH0930S10	●	9.3	43				
TLD3DCH0940S10	●	9.4					
TLD3DCH0950S10	●	9.5					

$\varphi D_c = \varphi D_s$



$\varphi D_c < \varphi D_s$



Cat.No	Stock	Dimension(mm)					
		φDc	ℓ	L	φDs		
TLD3DCH0960S10	●	9.6	44	95	10		
TLD3DCH0970S10	●	9.7					
TLD3DCH0980S10	●	9.8	45				
TLD3DCH0990S10	●	9.9					
TLD3DCH1000S10	●	10.0					
TLD3DCH1010S11	●	10.1	46	105	11		
TLD3DCH1020S11	●	10.2					
TLD3DCH1030S11	●	10.3	47				
TLD3DCH1040S11	●	10.4					
TLD3DCH1050S11	●	10.5	48				
TLD3DCH1060S11	●	10.6					
TLD3DCH1070S11	●	10.7	49				
TLD3DCH1080S11	●	10.8					
TLD3DCH1090S11	●	10.9	50				
TLD3DCH1100S11	●	11.0					
TLD3DCH1110S12	●	11.1					
TLD3DCH1120S12	●	11.2	51			115	12
TLD3DCH1130S12	●	11.3					
TLD3DCH1140S12	●	11.4	52				
TLD3DCH1150S12	●	11.5					
TLD3DCH1160S12	●	11.6	53				
TLD3DCH1170S12	●	11.7					
TLD3DCH1180S12	●	11.8	54				
TLD3DCH1190S12	●	11.9					
TLD3DCH1200S12	●	12.0					
TLD3DCH1250S13	●	12.5	57	125	13		
TLD3DCH1300S13	●	13.0	59				
TLD3DCH1350S14	●	13.5	61	130	14		
TLD3DCH1400S14	●	14.0	63				

Drill dia.	Tolerance
$D_c \leq 3$	0 -0.01
$3 < D_c \leq 6$	0 -0.012
$6 < D_c \leq 10$	0 -0.015
$10 < D_c$	0 -0.018

FLAT DRILL

TLD5D Type

TLD5D
TYPE

For Spot facing

Through
coolant
holeDV
Coating5D
L/D

Spot Facing

Drilling

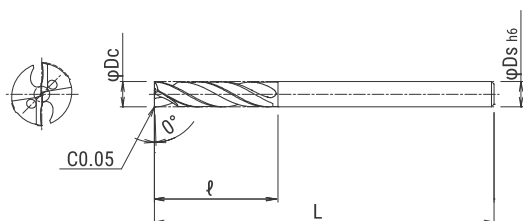
180°



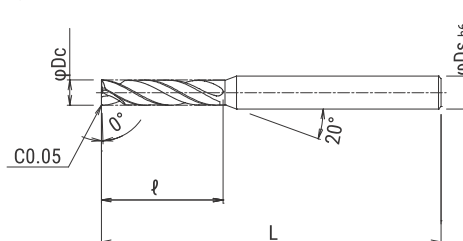
Cat.No	Stock	Dimension(mm)			
		φDc	ℓ	L	φDs
TLD5DCH0300S03	○	3.0	20	70	3
TLD5DCH0310S04	○	3.1	21		4
TLD5DCH0320S04	○	3.2	22		
TLD5DCH0330S04	○	3.3			
TLD5DCH0340S04	○	3.4	23		
TLD5DCH0350S04	○	3.5	24		
TLD5DCH0360S04	○	3.6			
TLD5DCH0370S04	○	3.7	25		
TLD5DCH0380S04	○	3.8	26		
TLD5DCH0390S04	○	3.9			
TLD5DCH0400S04	○	4.0	27	80	5
TLD5DCH0410S05	○	4.1	28		
TLD5DCH0420S05	○	4.2			
TLD5DCH0430S05	○	4.3	29		
TLD5DCH0440S05	○	4.4	30		
TLD5DCH0450S05	○	4.5			
TLD5DCH0460S05	○	4.6	31		
TLD5DCH0470S05	○	4.7	32		
TLD5DCH0480S05	○	4.8			
TLD5DCH0490S05	○	4.9	33		
TLD5DCH0500S05	○	5.0	34		
TLD5DCH0510S06	○	5.1			
TLD5DCH0520S06	○	5.2	35		
TLD5DCH0530S06	○	5.3	36		
TLD5DCH0540S06	○	5.4			
TLD5DCH0550S06	○	5.5	37		
TLD5DCH0560S06	○	5.6	38		
TLD5DCH0570S06	○	5.7			
TLD5DCH0580S06	○	5.8	39		
TLD5DCH0590S06	○	5.9	40		
TLD5DCH0600S06	○	6.0			
TLD5DCH0610S07	○	6.1	41	95	7
TLD5DCH0620S07	○	6.2	42		

Cat.No	Stock	Dimension(mm)			
		φDc	ℓ	L	φDs
TLD5DCH0630S07	○	6.3	42	95	7
TLD5DCH0640S07	○	6.4	43		
TLD5DCH0650S07	○	6.5	44		
TLD5DCH0660S07	○	6.6			
TLD5DCH0670S07	○	6.7	45		
TLD5DCH0680S07	○	6.8	46		
TLD5DCH0690S07	○	6.9			
TLD5DCH0700S07	○	7.0	47		
TLD5DCH0710S08	○	7.1	48	100	8
TLD5DCH0720S08	○	7.2			
TLD5DCH0730S08	○	7.3	49		
TLD5DCH0740S08	○	7.4	50		
TLD5DCH0750S08	○	7.5			
TLD5DCH0760S08	○	7.6	51		
TLD5DCH0770S08	○	7.7	52		
TLD5DCH0780S08	○	7.8			
TLD5DCH0790S08	○	7.9	53		
TLD5DCH0800S08	○	8.0	54	110	9
TLD5DCH0810S09	○	8.1			
TLD5DCH0820S09	○	8.2	55		
TLD5DCH0830S09	○	8.3	56		
TLD5DCH0840S09	○	8.4			
TLD5DCH0850S09	○	8.5	57		
TLD5DCH0860S09	○	8.6	58		
TLD5DCH0870S09	○	8.7			
TLD5DCH0880S09	○	8.8	59		
TLD5DCH0890S09	○	8.9	60	120	10
TLD5DCH0900S09	○	9.0			
TLD5DCH0910S10	○	9.1	61		
TLD5DCH0920S10	○	9.2	62		
TLD5DCH0930S10	○	9.3			
TLD5DCH0940S10	○	9.4	63		
TLD5DCH0950S10	○	9.5	64		

$\varphi D_c = \varphi D_s$



$\varphi D_c < \varphi D_s$



Cat.No	Stock	Dimension(mm)			
		φDc	ℓ	L	φDs
TLD5DCH0960S10	○	9.6	64	120	10
TLD5DCH0970S10	○	9.7	65		
TLD5DCH0980S10	○	9.8	66		
TLD5DCH0990S10	○	9.9			
TLD5DCH1000S10	○	10.0	67		
TLD5DCH1010S11	○	10.1	68	130	11
TLD5DCH1020S11	○	10.2			
TLD5DCH1030S11	○	10.3	69		
TLD5DCH1040S11	○	10.4	70		
TLD5DCH1050S11	○	10.5			
TLD5DCH1060S11	○	10.6	71		
TLD5DCH1070S11	○	10.7	72		
TLD5DCH1080S11	○	10.8			
TLD5DCH1090S11	○	10.9	73		
TLD5DCH1100S11	○	11.0	74		
TLD5DCH1110S12	○	11.1			
TLD5DCH1120S12	○	11.2	75	145	12
TLD5DCH1130S12	○	11.3	76		
TLD5DCH1140S12	○	11.4			
TLD5DCH1150S12	○	11.5	77		
TLD5DCH1160S12	○	11.6	78		
TLD5DCH1170S12	○	11.7			
TLD5DCH1180S12	○	11.8	79		
TLD5DCH1190S12	○	11.9	80		
TLD5DCH1200S12	○	12.0			
TLD5DCH1250S13	○	12.5	84		
TLD5DCH1300S13	○	13.0	87		
TLD5DCH1350S14	○	13.5	90	160	14
TLD5DCH1400S14	○	14.0	94		

Drill dia.	Tolerance
$D_c \leq 3$	0 -0.01
$3 < D_c \leq 6$	0 -0.012
$6 < D_c \leq 10$	0 -0.015
$10 < D_c$	0 -0.018

FLAT DRILL

TLD3D/TLD5D Type

■ Recommended Cutting Conditions

● TLD3D type

Material	Structual Steel below 180HB	Carbon Steel below 280HB	Alloy Steel 280-350HB	Mold Steel 38-43HRC	Hardened Steel below 50HRC
Vc (m/min)	50 - 100	50 - 100	50 - 80	20 - 50	20 - 50
f (mm/rev)	0.06 - 0.24	0.06 - 0.24	0.06 - 0.24	0.06 - 0.20	0.08 - 0.20

Material	Titanium Alloy	Stainless Steel	Grey Cast Iron	Nodular Cast Iron	Aluminium Alloy
Vc (m/min)	20 - 50	25 - 50	50 - 100	50 - 100	120 - 200
f (mm/rev)	0.06 - 0.20	0.06 - 0.20	0.06 - 0.24	0.06 - 0.24	0.05 - 0.15

Note

1. These cutting conditions are for drilling flat surface. when drilling angled surfaces, parameters should be adjusted.
For inclined angle under 30°, apply 40-80% of (Vf) and for inclined angle 30° or more , apply 20-50% of (Vf) from standard cutting conditions.
2. Use water-soluble coolant. In case of external coolant , use step feed.
3. Drilling over 3 x Dc is not recommended.
4. Side milling is not possible.
5. In case of long chips , adjust parameters by increasing (Vf) or using step feed for breaking chips.

● TLD5D type

Material	Structual Steel below 180HB	Carbon Steel below 280HB	Alloy Steel 280-350HB	Mold Steel 38-43HRC	Hardened Steel below 50HRC
Vc (m/min)	50 - 100	50 - 100	50 - 80	20 - 50	30 - 50
f (mm/rev)	0.06 - 0.24	0.06 - 0.24	0.06 - 0.24	0.06 - 0.20	0.08 - 0.20

Material	Titanium Alloy	Stainless Steel	Grey Cast Iron	Nodular Cast Iron	Aluminium Alloy
Vc (m/min)	20 - 50	25 - 50	50 - 100	50 - 100	120 - 200
f (mm/rev)	0.06 - 0.20	0.06 - 0.20	0.06 - 0.24	0.06 - 0.24	0.05 - 0.15

Note

1. These cutting conditions are applied only on the condition that guide-hole drilled (0.5-1.0D depth).
2. Use water-soluble coolant. In case of external coolant , use step feed.
3. Drilling over 5 x Dc is not recommended.
4. Side milling is not possible.
5. In case of long chips , adjust parameters by increasing (Vf) or using step feed for breaking chips.