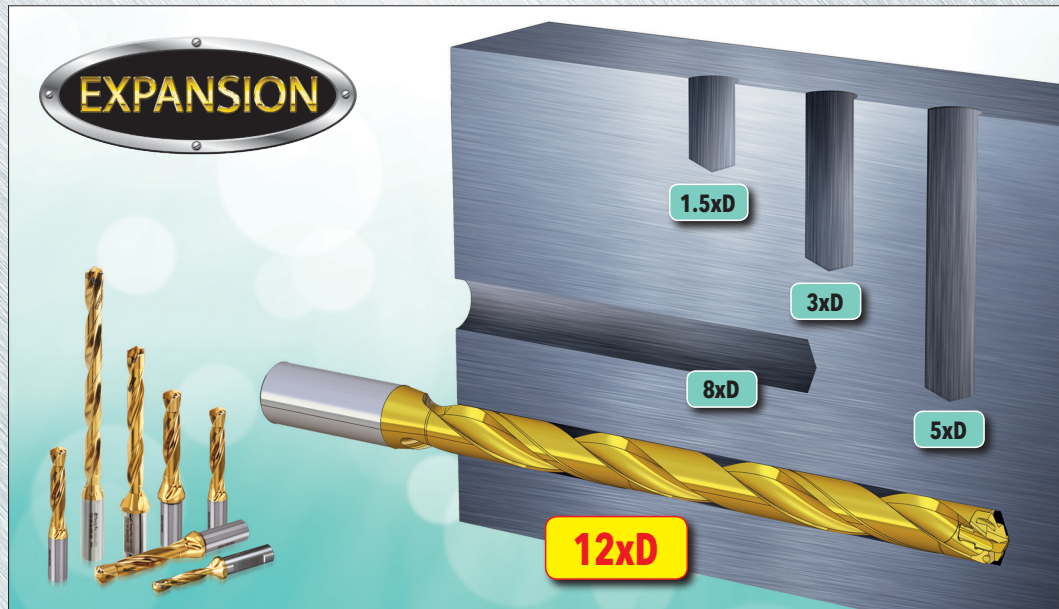


# GOLD TWIST

DRILL LINE

## Deeper Hole Drilling Solution: 12xD Expansion



### Diameters:

**8.0 mm to 11.9 mm**  
(.3150" - .4685")

**12.0 mm to 25.9 mm**  
(.4724" - 1.0197")

### Bodies:

Cylindrical Shank Only

### Tips:

**8.0 mm to 11.9 mm**  
(.3150" - .4685")

**12.0 mm to 25.9 mm**  
(.4724" - 1.0197")

### Geometries:

TPA - Steel

TMA - Stainless & Exotics

TKA - Cast Iron

TPF - Flat Bottom - General Purpose

**PRODUCT  
ANNOUNCEMENT  
• UPDATE •  
2019**

Ingersoll's remarkable high performance **GOLD TWIST** line has expanded for 12xD applications to now include a diameter range of .3150" - .4685" (8.0mm - 11.9mm) making it suitable for a wider range of applications and customers. Entire diameter range now available is .3150" - 1.0197" (8.0mm - 25.9mm).

The polished flutes and twisted coolant channels enable smooth chip evacuation and improved chip control due to the deeper chip gullet design. The 12xD body characterized by high stiffness guarantees stable performance without deviation or chattering during machining.

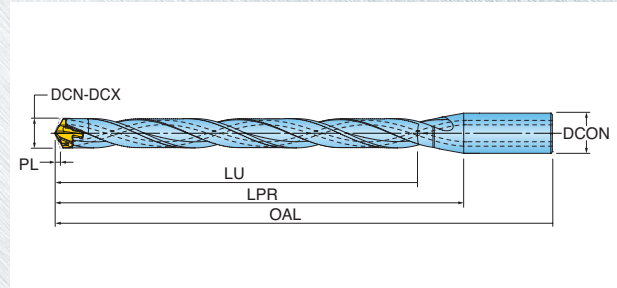
Furthermore, the 12xD expansion offers higher productivity for deep hole drilling applications without the need for pecking cycles.

### Features:

- Smooth chip evacuation
- Twisted through coolant channels enable a deeper gullet design
- Drill bodies feature polished flutes
- High accuracy: Cylindrical shank for minimal run-out

**\*Note:** Prior to using the 12xD drill, it is recommended to drill a pilot hole using a TD 1.5xD drill with same tip for stable machining. See page 4 for complete details.

## DRILLS - 12xD



NEW  
NEW  
NEW  
NEW  
NEW  
NEW  
NEW

Part Number	DCN Cutting Dia. Min.	DCX Cutting Dia. Max.	SSC Insert Seat Size	PL Point Length	LU Usable Length	LPR Protruding Length	OAL Overall Length	DCON Shank Dia.	Locking Key
TD0800096S4R01	0.3150 (8.0mm)	0.3307 (8.4mm)	8	0.057	3.84	4.39	6.16	0.500	KTD6.0-9.9
TD0850102S4R01	0.3346 (8.5mm)	0.3504 (8.9mm)	8.5	0.061	4.08	4.62	6.39	0.500	KTD6.0-9.9
TD0900108S4R01	0.3543 (9.0mm)	0.3701 (9.4mm)	9	0.065	4.32	4.87	6.65	0.500	KTD6.0-9.9
TD0950114S4R01	0.3740 (9.5mm)	0.3898 (9.9mm)	9.5	0.068	4.56	5.11	6.88	0.500	KTD6.0-9.9
TD1000120S6R01	0.3937 (10.0mm)	0.4094 (10.4mm)	10	0.072	4.80	5.36	7.25	0.625	KTD10.0-19.9
TD1050126S6R01	0.4133 (10.5mm)	0.4291 (10.9mm)	10.5	0.075	5.04	5.60	7.45	0.625	KTD10.0-19.9
TD1100132S6R01	0.4331 (11.0mm)	0.4488 (11.4mm)	11	0.079	5.28	5.85	7.74	0.625	KTD10.0-19.9
TD1150138S6R01	0.4528 (11.5mm)	0.4685 (11.9mm)	11.5	0.082	5.52	6.09	7.98	0.625	KTD10.0-19.9
TD1200144S6R01	0.4724 (12.0mm)	0.4882 (12.4mm)	12	0.086	5.76	6.34	8.23	0.625	KTD10.0-19.9
TD1250150S6R01	0.4921 (12.5mm)	0.5079 (12.9mm)	12.5	0.090	6.00	6.58	8.47	0.625	KTD10.0-19.9
TD1300156S6R01	0.5118 (13.0mm)	0.5276 (13.4mm)	13	0.093	6.14	6.81	8.70	0.625	KTD10.0-19.9
TD1350162S6R01	0.5315 (13.5mm)	0.5472 (13.9mm)	13.5	0.097	6.38	7.05	8.94	0.625	KTD10.0-19.9
TD1400168S6R01	0.5512 (14.0mm)	0.5669 (14.4mm)	14	0.100	6.61	7.40	9.29	0.625	KTD10.0-19.9
TD1450174S6R01	0.5709 (14.5mm)	0.5866 (14.9mm)	14.5	0.104	6.85	7.64	9.53	0.625	KTD10.0-19.9
TD1500180S7R01	0.5906 (15.0mm)	0.6260 (15.9mm)	15	0.107	7.09	8.27	10.24	0.750	KTD10.0-19.9
TD1600192S7R01	0.6299 (16.0mm)	0.6654 (16.9mm)	16	0.115	7.56	8.82	10.79	0.750	KTD10.0-19.9
TD1700204S7R01	0.6693 (17.0mm)	0.7047 (17.9mm)	17	0.122	8.03	9.37	11.34	0.750	KTD10.0-19.9
TD1800216S1R01	0.7087 (18.0mm)	0.7441 (18.9mm)	18	0.129	8.50	9.92	12.13	1.000	KTD10.0-19.9
TD1900228S1R01	0.7480 (19.0mm)	0.7835 (19.9mm)	19	0.136	8.98	10.47	12.68	1.000	KTD10.0-19.9
TD2000240S1R01	0.7874 (20.0mm)	0.8228 (20.9mm)	20	0.143	9.45	11.02	13.23	1.000	KTD20.0-26.9
TD2100252S1R01	0.8268 (21.0mm)	0.8622 (21.9mm)	21	0.150	9.92	11.57	13.78	1.000	KTD20.0-26.9
TD2200264S1R01	0.8661 (22.0mm)	0.9016 (22.9mm)	22	0.157	10.39	12.13	14.33	1.000	KTD20.0-26.9
TD2300276S9R01	0.9055 (23.0mm)	0.9409 (23.9mm)	23	0.165	10.87	12.68	15.04	1.250	KTD20.0-26.9
TD2400288S9R01	0.9449 (24.0mm)	0.9803 (24.9mm)	24	0.172	11.34	13.23	15.59	1.250	KTD20.0-26.9
TD2500300S9R01	0.9843 (25.0mm)	1.0197 (25.9mm)	25	0.179	11.81	13.78	16.14	1.250	KTD20.0-26.9

**Notes:**

- Metric bodies shown in Ecat
- PL dimension based off smallest diameter tip

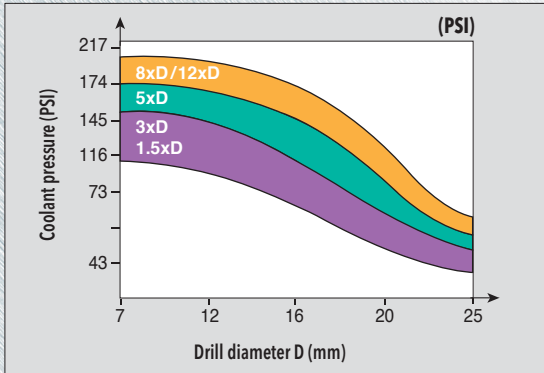
## OPERATING GUIDELINES

ISO	Material	Condition	Tensile Strength Rm (N/mm <sup>2</sup> )	Hardness (HB)	Matl No.	Cutting Speed Vc (SFM)	Feed vs Drill Diameter					
							D= 8-9.9mm (.315-.390")	D= 10-11.9mm (.394-.469")	D= 12-13.9mm (.472-.547")	D= 14-15.9mm (.551-.626")	D= 16-19.9mm (.630-.783")	D= 20-25.9mm (.787-1.019")
							IPR (inches/rev)					
P	Non-alloy steel <0.25% C & cast steel, >= 0.25% C free cutting <0.55% C steel >= 0.55% C	Annealed	420	125	1	260-360-460	.005 .007 .009	.006 .008 .011	.007 .009 .012	.008 .011 .014	.010 .014 .018	.010 .014 .018
		Annealed	650	190	2	260-345-430						
		Quenched & Tempered	850	250	3	260-330-400						
		Annealed	750	220	4	230-295-360						
		Quenched & Tempered	1000	300	5	165-230-300						
	Low alloy steel & cast steel (less than 5% alloying elements)	Annealed	600	200	6	230-315-400	.005 .007 .010	.006 .008 .011	.006 .009 .013	.007 .010 .014	.009 .012 .016	.010 .014 .018
		Quenched & Tempered	930	275	7	230-295-360						
			1000	300	8	165-230-300						
	High alloy steel, cast steel, & tool steel	Annealed	680	200	10	165-230-300	.005 .006 .008	.005 .006 .007	.006 .008 .010	.007 .009 .011	.008 .010 .012	.009 .011 .013
		Quenched & Tempered	1100	325	11	130-200-265						
M	Stainless steel & cast stainless steel	Ferritic/martensitic	680	200	12	130-180-230	.004 .005 .006	.005 .006 .007	.006 .007 .008	.006 .008 .009	.006 .008 .010	.007 .009 .012
		Martensitic	820	240	13	130-180-230						
		Austenitic	600	180	14	100-165-230						
K	GreyCast Iron (GG)	Ferritic		160	15	300-410-525	.006 .009 .012	.008 .011 .014	.010 .013 .016	.012 .015 .018	.014 .018 .022	.014 .018 .024
		Pearlitic		250	16	265-360-460						
	Cast Iron Nodular (GGG)	Ferritic		180	17	300-450-600						
		Pearlitic		260	18	265-360-460						
	Malleable Cast Iron	Ferritic		130	19	300-410-525						
Pearlitic		230	20	265-360-460								
N	Aluminum - wrought alloy	Not cureable		60	21	300-510-725	.008 .011 .014	.010 .013 .016	.012 .015 .018	.014 .017 .020	.016 .020 .024	.018 .022 .028
		Cured		100	22	300-510-725						
	Aluminum - cast, alloyed	Not cureable		75	23	300-510-725						
		Cured		90	24	300-510-725						
		High temperature		130	25	265-400-525						
	Copper alloys	Free cutting		110	26	300-510-725						
		Brass		90	27	300-510-725						
		Electrolytic copper		100	28	300-510-725						
	Non-metallic	Duro & fiber plastics			29	-						
		Hard rubber			30	-						
S	High temp alloys	Fe based	Annealed	200	31	100-150-200	.002 .003 .004	.003 .004 .005	.004 .005 .006	.005 .006 .007	.005 .006 .008	.006 .007 .009
			Cured		280	32						
		Ni or Co based	Annealed	250	33	70-115-165						
			Cured	350	34	70-115-165						
			Cast	320	35	70-115-165						
	Titanium, Ti alloys		Rm 400		36	70-115-165						
		Alpha+beta alloys cured	Rm 1050		37	70-115-165						
H	Hardened steel	Hardened		55 HRC	38	70-115-165	.002 .004 .005	.003 .004 .006	.004 .006 .007	.005 .007 .008	.006 .007 .009	.006 .008 .010
		Hardened		60 HRC	39	70-115-165						
	Chilled cast iron	Cast		400	40	-						
	Cast iron nodular	Hardened		55 HRC	41	-						

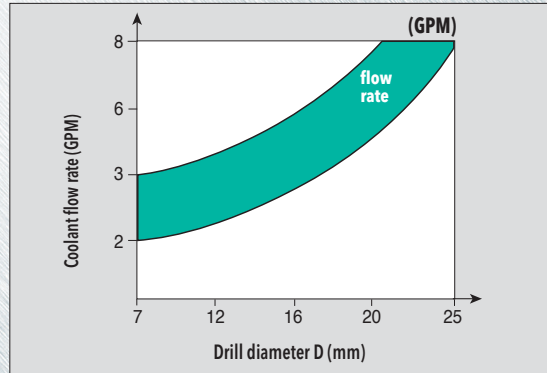
\* Feed Rates are based on Two Effective - DO NOT DOUBLE.

## TECHNICAL INFORMATION

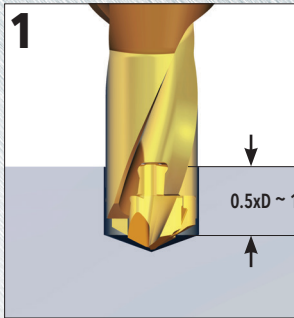
**Recommended coolant pressure (min)**



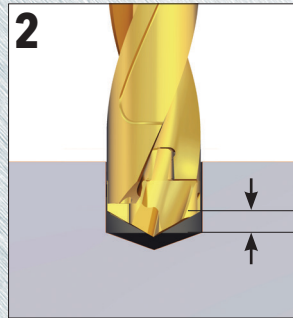
**Recommended coolant flow rate**



**Recommended procedure for using 8xD, 12xD holder**



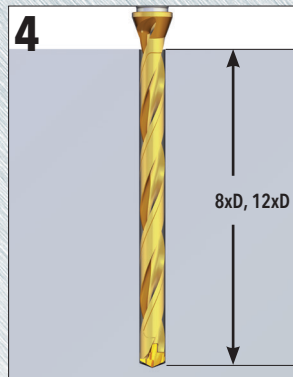
- Pre-hole drilling
  - diameter(D) X 0.5 depth for 8xD
  - diameter(D) X 1.5 depth for 12xD
  - using standard 1.5xD holder



- Approach the pre-hole at reduced speed and feed



- Activate the cooling system
- Dwell for 2~3 seconds



- After drilling, exit from hole at reduced speed and feed

## CASE STUDY

Machine	Machining center (Spindle : Vertical type / BT50)	
Cutting conditions	Speed (V)	262 / 328 / 393 (sfm)
	Feed (f)	.008 / .012 / .016 (ipr)
Coolant	Internal (290 psi)	
Material	Alloy steel (AISI 4140 / 42CrMo4)	
Body	TD1200144S6R01	
Head	TPA1200R01 IN2505 (12.0mm)	

### Hole Enlargement

