INDUSTRY 4.0
NEW PRODUCT ANNOUNCEMENT
2022

DEEP TWIST™

AHB
DRILLING PRODUCTS
TOOLING & MACHINERY
COMPLETE METALWORKING SOLUTIONS
(800) 991-4225 www.ahbinc.com
ISO Certified customerservice@ahbinc.com

Drill Depth:
7.874" (200 mm) standard
15.748" (400 mm) standard
31.500" (800 mm) special

Tip Diameters:
.394" - 1.020"
10.0 - 25.9 mm

Geometries:
TPA - Steel
TMA - Stainless Steel
TKA - Cast Iron
TNA - Non- Ferrous
TPC - Self-Centering Steel and Cast Iron

Grades:
IN2505
IN05S

Applications:
Die & Mold
General Purpose
Aerospace
Automotive
Shipbuilding
Heat Exchangers
Hydraulics
Machine Builders
Weapon Industry

DeepTwist™ Drills - A New Series of Deep Hole Drill Bodies Utilizing GoldTwist Tips

DeepTwist is a two-effective, deep drilling tool consisting of a replaceable tip style drill body and a screw-on shank (driver). Standard bodies provide either 7.87" (200mm) or 15.75" (400mm) drilling depth capability and use the same standard tips as Ingersoll's GoldTwist™ product line. Special bodies can be produced on request with drilling depth capability up to 31.50" (800mm).

Modular, screw-on drivers provide flexibility for machine shops using a variety of different shank diameters or styles, and are available in cylindrical, Weldon or whistle notch configurations.

Features

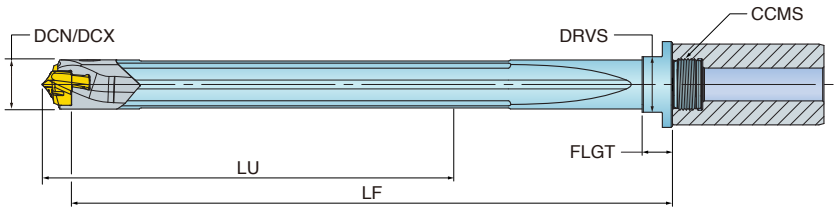
- Two-effective design provides 2 to 5 times higher feed rates than standard brazed drills
- Reinforced, double flute steel body with two coolant holes
- Quick change tips reduce/eliminate set-up time
- Modular shank (driver) provides flexibility when moving between machines
- Wide selection of geometries and coated carbide grades
- Excellent straightness and concentricity
- Maintains high hole precision and center alignment
- Surface roughness of 16 – 72 Ra can be expected

Member IMC Group
Ingersoll Cutting Tools

DEEP TWIST™ DRILL BODIES

Drilling

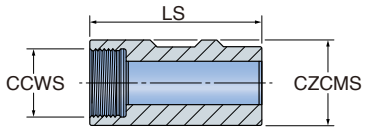
Coolant



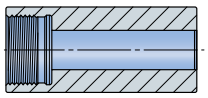
Description	DCN Cutting Dia. Min.	DCX Cutting Dia.Max.	SSC Insert Seat Size	LU Usable Length	LF Functional Length	CCMS Adaption Thread	FLGT Flange Thicknes	DRVS Driver Size
TD1000200MTR00	0.3937" (10.0 mm)	0.4094" (10.4 mm)	10	7.87	10.54	MF16X1	0.394	0.63
TD1000400MTR00	0.3937" (10.0 mm)	0.4094" (10.4 mm)	10	15.75	18.47	MF16X1	0.394	0.63
TD1050200MTR00	0.4134" (10.5 mm)	0.4291" (10.9 mm)	10.5	7.87	10.54	MF16X1	0.394	0.63
TD1050400MTR00	0.4134" (10.5 mm)	0.4291" (10.9 mm)	10.5	15.75	18.47	MF16X1	0.394	0.63
TD1100200MTR00	0.4331" (11.0 mm)	0.4488" (11.4 mm)	11	7.87	10.57	MF16X1	0.394	0.63
TD1100400MTR00	0.4331" (11.0 mm)	0.4488" (11.4 mm)	11	15.75	18.40	MF16X1	0.394	0.63
TD1150200MTR00	0.4528" (11.5 mm)	0.4685" (11.9 mm)	11.5	7.87	10.57	MF16X1	0.394	0.63
TD1150400MTR00	0.4528" (11.5 mm)	0.4685" (11.9 mm)	11.5	15.75	18.40	MF16X1	0.394	0.63
TD1200200MTR00	0.4724" (12.0 mm)	0.4882" (12.4 mm)	12	7.87	10.55	MF16X1	0.394	0.63
TD1200400MTR00	0.4724" (12.0 mm)	0.4882" (12.4 mm)	12	15.75	18.38	MF16X1	0.394	0.63
TD1250200MTR00	0.4921" (12.5 mm)	0.5079" (12.9 mm)	12.5	7.87	10.55	MF16X1	0.472	0.63
TD1250400MTR00	0.4921" (12.5 mm)	0.5079" (12.9 mm)	12.5	15.75	18.38	MF16X1	0.472	0.63
TD1300200MTR00	0.5118" (13.0 mm)	0.5276" (13.4 mm)	13	7.87	10.57	MF16X1	0.472	0.63
TD1300250MTR00	0.5118" (13.0 mm)	0.5276" (13.4 mm)	13	9.84	12.54	MF16X1	0.472	0.63
TD1300400MTR00	0.5118" (13.0 mm)	0.5276" (13.4 mm)	13	15.75	18.44	MF16X1	0.472	0.63
TD1350200MTR00	0.5315" (13.5 mm)	0.5472" (13.9 mm)	13.5	7.87	10.57	MF16X1	0.472	0.63
TD1350250MTR00	0.5315" (13.5 mm)	0.5472" (13.9 mm)	13.5	9.84	12.54	MF16X1	0.472	0.63
TD1350400MTR00	0.5315" (13.5 mm)	0.5472" (13.9 mm)	13.5	15.75	18.44	MF16X1	0.472	0.63
TD1400200MTR00	0.5512" (14.0 mm)	0.5669" (14.4 mm)	14	7.87	10.54	MF16X1	0.472	0.63
TD1400250MTR00	0.5512" (14.0 mm)	0.5669" (14.4 mm)	14	9.84	12.51	MF16X1	0.472	0.63
TD1400400MTR00	0.5512" (14.0 mm)	0.5669" (14.4 mm)	14	15.75	18.42	MF16X1	0.472	0.63
TD1450200MTR00	0.5709" (14.5 mm)	0.5866" (14.9 mm)	14.5	7.87	10.54	MF16X1	0.472	0.63
TD1450250MTR00	0.5709" (14.5 mm)	0.5866" (14.9 mm)	14.5	9.84	12.51	MF16X1	0.472	0.709
TD1450400MTR00	0.5709" (14.5 mm)	0.5866" (14.9 mm)	14.5	15.75	18.42	MF16X1	0.472	0.709
TD1500400MTR00	0.5906" (15.0 mm)	0.6260" (15.9 mm)	15	15.75	18.71	MF16X1	0.472	0.709
TD1600400MUR00	0.6299" (16.0 mm)	0.6654" (16.9 mm)	16	15.75	18.69	MF20X1	0.472	0.709
TD1700400MUR00	0.6693" (17.0 mm)	0.7047" (17.9 mm)	17	15.75	18.70	MF20X1	0.472	0.866
TD1800400MUR00	0.7087" (18.0 mm)	0.7441" (18.9 mm)	18	15.75	18.72	MF20X1	0.472	0.866
TD1900400MUR00	0.7480" (19.0 mm)	0.7835" (19.9 mm)	19	15.75	18.71	MF20X1	0.472	0.866
TD2000400MUR00	0.7874" (20.0 mm)	0.8228" (20.9 mm)	20	15.75	18.77	MF20X1	0.472	0.866
TD2100400MUR00	0.8268" (21.0 mm)	0.8622" (21.9 mm)	21	15.75	19.32	MF20X1	0.827	1.102
TD2200400MUR00	0.8661" (22.0 mm)	0.9016" (22.9 mm)	22	15.75	19.34	MF20X1	0.827	1.102
TD2300400MUR00	0.9055" (23.0 mm)	0.9409" (23.9 mm)	23	15.75	19.32	MF20X1	0.827	1.102
TD2400400MUR00	0.9448" (24.0 mm)	0.9803" (24.9 mm)	24	15.75	19.33	MF20X1	0.827	1.102
TD2500400MUR00	0.9843" (25.0 mm)	1.0197" (25.9 mm)	25	15.75	19.35	MF20X1	0.827	1.102

DEEP TWIST™ DRIVERS

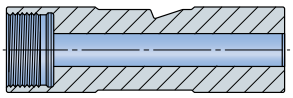
Weldon (W) Type



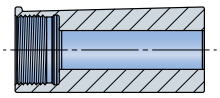
Cylindrical (C) Type



Whistle Notch 15° (S) Type



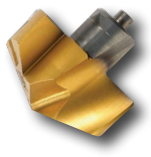
Whistle Notch (WN) Type



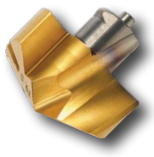
Designation	CCWS	CZCMS	Shank Type	LS Shank Length
INCH DRIVERS				
GDV56-MF16X1-I-WN.75"	MF16X1	0.75	WN	2.748
GDV99-MF16X1-I-W.75"	MF16X1	0.75	W	2.748
GDV80-MF16X1-I-WN1.00"	MF16X1	1.00	WN	2.748
GDV100-MF20X1-I-W1.00"	MF20X1	1.00	W	2.280
GDV58-MF20X1-I-WN1.00"	MF20X1	1.00	WN	2.748
GDV101-MF20X1-I-W1.25"	MF20X1	1.25	W	2.280
GDV97-MF20X1-I-C1.25"	MF20X1	1.25	C	2.280
METRIC DRIVERS				
GDV10-MF16X1-M-C20	MF16X1	20	C	50
GDV22-MF16X1-M-W20	MF16X1	20	W	50
GDV11-MF20X1-M-C25	MF20X1	25	C	56
GDV23-MF20X1-M-W25	MF20X1	25	W	56
GDV57-MF20X1-M-WN25	MF20X1	25	WN	70
GDV12-MF20X1-M-C32	MF20X1	32	C	60
GDV24-MF20X1-M-W32	MF20X1	32	W	60
GDV13-MF20X1-M-C40	MF20X1	40	C	70
GDV25-MF20X1-M-W40	MF20X1	40	W	70

DEEP TWIST™ DRILL TIPS

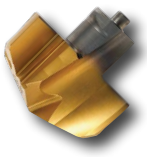
TPA
for Steels & General Purpose



TMA
for Stainless Steels & Exotics



TKA
for Cast Iron



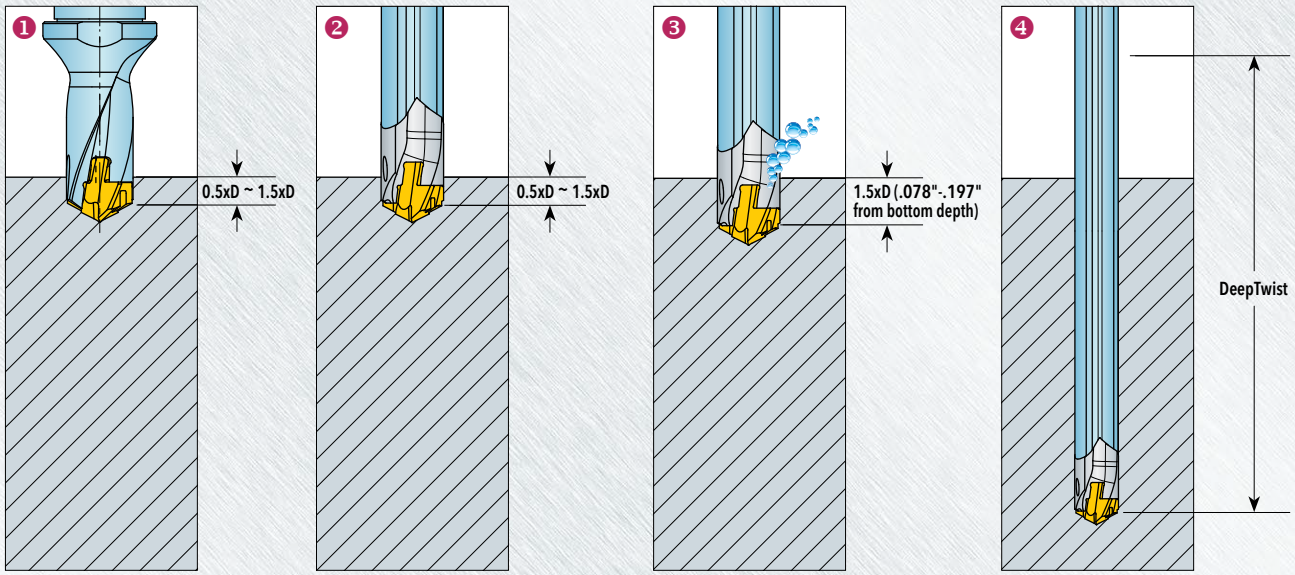
TNA
for Non-Ferrous

TPC
Self-Centering Steels & Cast Iron

Scan this QR code for specific information regarding available tip geometries and grades:

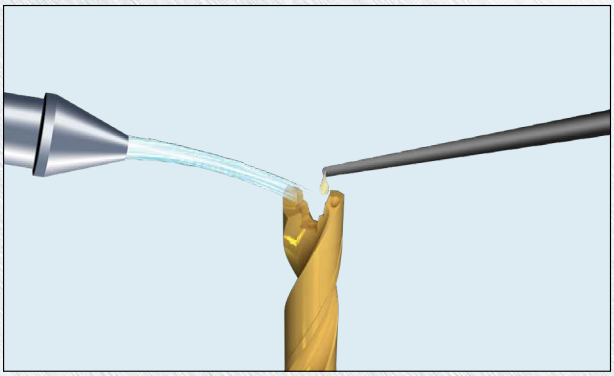
DEEPTWIST™ RECOMMENDED PILOTING PROCEDURE

1. Pre-hole 0.5xD~1.5xD deep for centering
2. Slow rotation and feed during entrance to the pre-hole
3. Maintain for 2-3 seconds and activate the cooling system
4. Continue drilling at recommended cutting guidelines

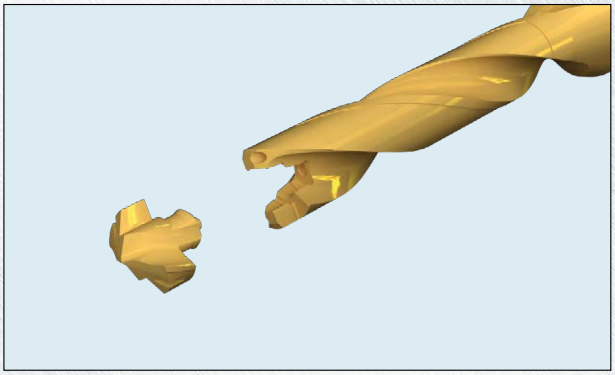


1. Prior to using DeepTwist drills, it is recommended to drill pilot holes from 0.5xD~1.5xD using a short drill. A GOLDTWIST™ 1.5xD holder is recommended.
2. Approach the pre-hole at reduced speed and feed until .078"-.197" from it's bottom depth.
3. Increase up to recommended speed and maintain feed rate for 2~3 seconds applying coolant.
4. Start drilling at the recommended feed rate.
5. After reaching the required depth, reduce speed by 50% while exiting from the hole.
6. No pecking is required.

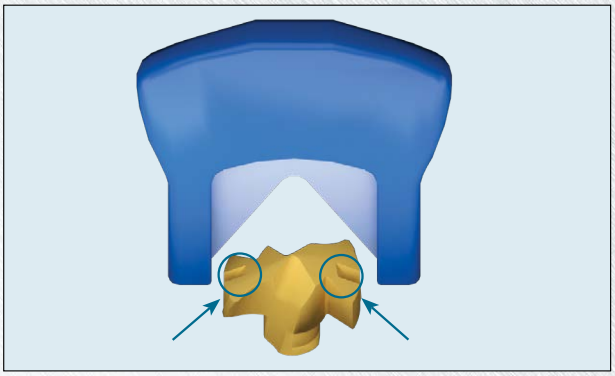
DEEP TWIST™ SET UP (DRILLING TIP MOUNTING PROCEDURE)



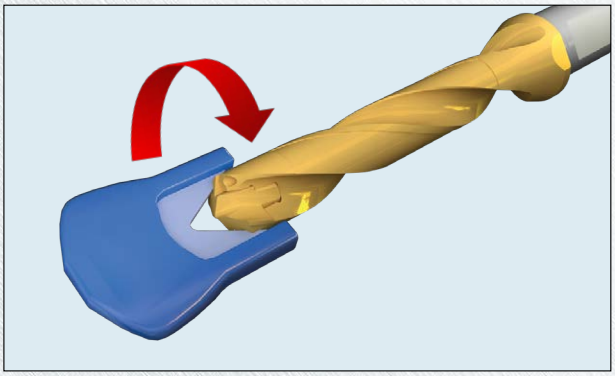
1. Clean the pocket and put oil



2. Mount the drill tip on the pocket



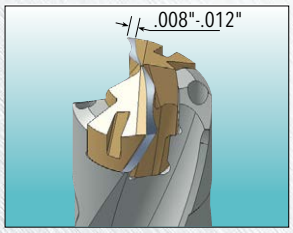
3. Insert key into the slots on tip



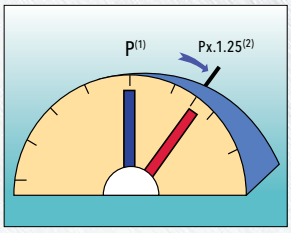
4. Tighten the tip by rotating the key CW

DEEP TWIST™ INDICATION OF HEAD WEAR

Wear Limit

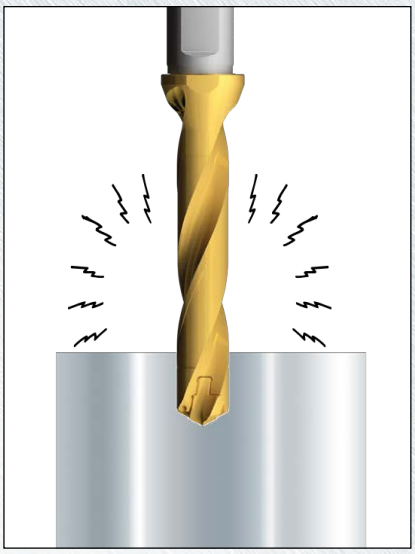


Power Restriction

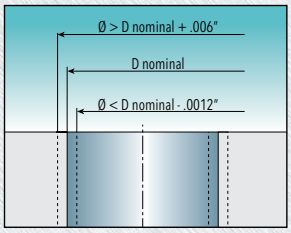


(1) New drilling head
(2) Worn-out drilling head

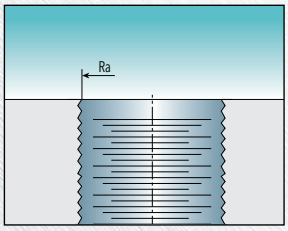
Vibration Noise Drastically Increases



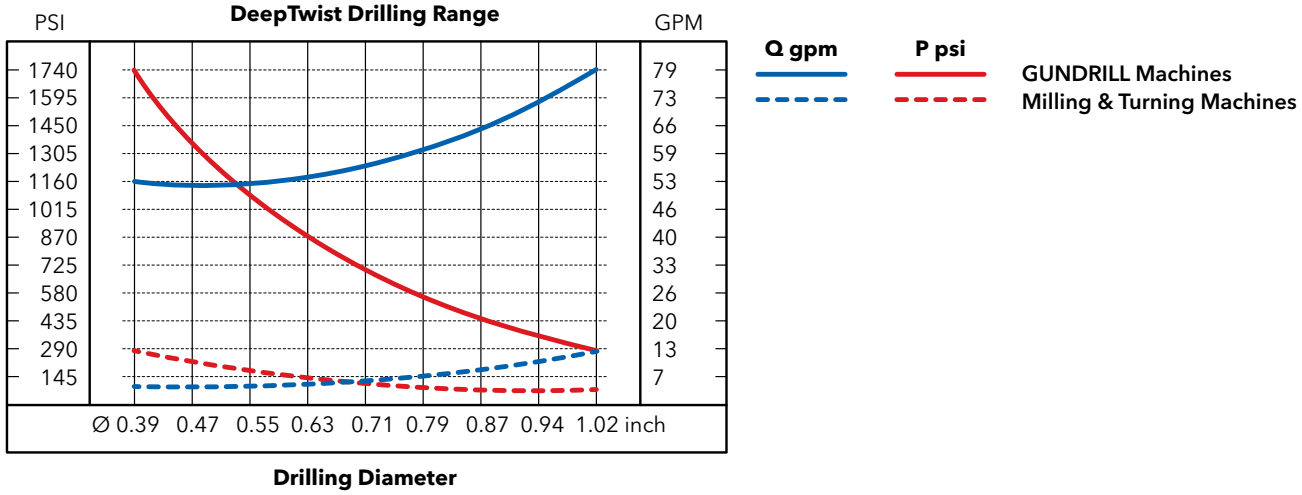
Diameter Change



Surface Finish Declines



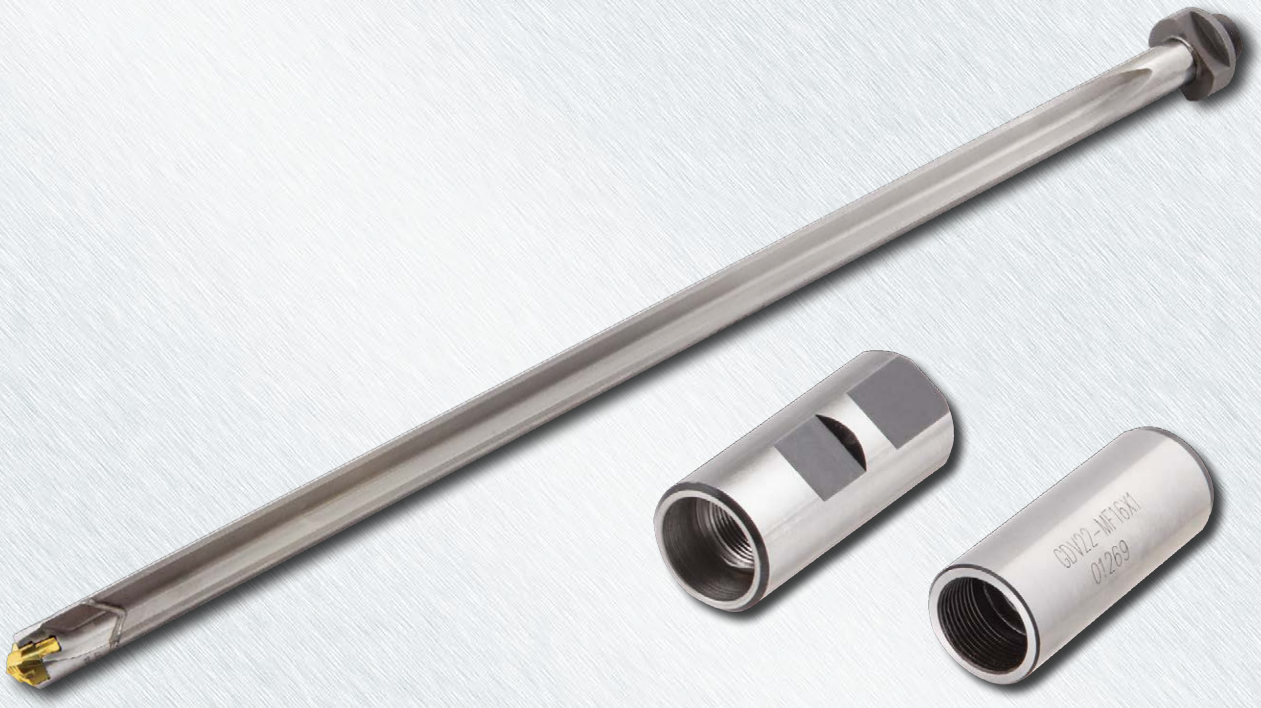
DEEPTWIST™ PRESSURE AND COOLANT FLOW RATE FOR DEEP TWIST



The best drilling performance is obtained by using oil for coolant. If water soluble is used then it is recommended to maintain a concentration of 10 - 15%.

It is recommended to use a filter of 20 microns or less.

Coolant temperature should be between 68 - 72 degrees. Temperatures above 122 degrees can result in 50% reduction in the effectiveness of the coolant.



DEEP TWIST™ OPERATING GUIDELINES

Materials					Tensile Stength N/mm²	HB Hardness	Vc Cutting Speed SFM	Feed rate fn (IPR) per Drill Dia. DC				
ISO	Mat'l Group	Condition						10 - 11.9 mm .394 - .469"	12 - 13.9 mm .472 - .547"	14 - 15.9 mm .551 - .626"	16 - 19.9 mm .630 - .783"	20 - 25.9 mm .787 - 1.020"
P	1	Carbon Steel High Carbon Cutting Steel	0.1 - 0.25 %C	Non-hardened	420	125	197 - 361	.004-.007	.004-.008	.005 -.009	.005-.010	.006-.011
	2		0.25 - 0.25 %C	Non-hardened	650	190	197 - 328					
	3		0.25 - 0.25 %C	Hardened & Tempered	850	250	197 - 328					
	4		0.55 - 0.80 %C	Non-hardened	750	220	164 -295					
	5		0.55 - 0.80 %C	Hardened & Tempered	100	300	131 - 295					
	6	Low Alloyed (Alloying element <5%)		Non-hardened	600	200	164 -328	.004-.007	.004-.008	.005-.009	.005-.009	.005-.010
	7			Hardened & Tempered	930	275	164 - 295					
	8				1000	300	131 - 95					
	9				1200	350	98 - 164					
	10	High Alloyed Cast Iron Tool Steel		Non-hardened	680	200	131 - 295	.004-.007	.004-.007	.004-.008	.004-.009	.004-.009
	11			Hardened & Tempered	1100	325	98 - 197					
M	12	Stainless Steel		Ferritic	680	200	98 - 164	.004-.006	.004-.006	.004-.007	.004-.008	.004-.009
	13			Martensitic	820	240	98 - 164					
	14			Austenitic	600	180	98 - 164					
K	15	Grey Cast Iron		Ferritic/Pearlitic		180	197 - 328	.006-.010	.007-.011	.008-.013	.008 -.014	.009-.016
	16			Pearlitic		260	197 - 328					
	17	Nodular Cast Iron		Ferritic		160	197 - 420					
	18			Pearlitic		250	197 - 361					
	19	Malleable Cast Iron		Ferritic		130	230 - 394					
	20			Pearlitic		230	197 - 361					
N	21	Aluminum Alloy Forging		Non-aged		60	230 - 558	.006-.010	.009-.014	.011-.016	.013-.019	.014-.022
	22			Soluted, Aged		100						
	23	Aluminum Alloy Casting	<=12% Si	Non-aged		75						
	24			Soluted, Aged		90						
	25		>12% Si	High silicon		130	197 - 427					
	26	Copper Alloy	>1% Pb	Free cutting cupper		110	230 - 558					
	27			Brass, Red brass		90						
	28			Electrolytic copper		100						
	29	Non-Metallic		Duroplastics, fiber plastics								
	30			Hard rubber								
S	31	Heat-Resistant Super Alloy	Fe base	Non-aged		200	66 - 164	.003-.004	.003-.005	.004-.006	.00-.006	.004-.007
	32			Soluted, Aged		280	66 - 131					
	33		Ni / Co base	Non-aged		250						
	34			Soluted, Aged		350						
	35			Casted		320						
	36	Titanium Alloy	α	Rm400			66 - 131	.003-.005	.003-.006	.004-.006	.004-.007	.005-.008
	37		α–β	Rm1050								
H	38	Hardened Steel		Hardened		55 HRc	66 - 131	.003-.005	.003-.006	.004-.006	.004-.007	.005-.008
	39			Hardened		60 HRc						
	40	Chilled Cast Iron		Cast		400						
	41	Cast Iron		Hardened		55 HrRc						

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases.