

**High Performance Cutting Tools** 

# PRODUCT PORTFOLIO



**Forbes Precision Tools and Machine Parts Limited** 



# FORBES PRECISION TOOLS MANUFACTURING FACILITY

High Performance Cutting Tools

WALUJ, AURANGABAD









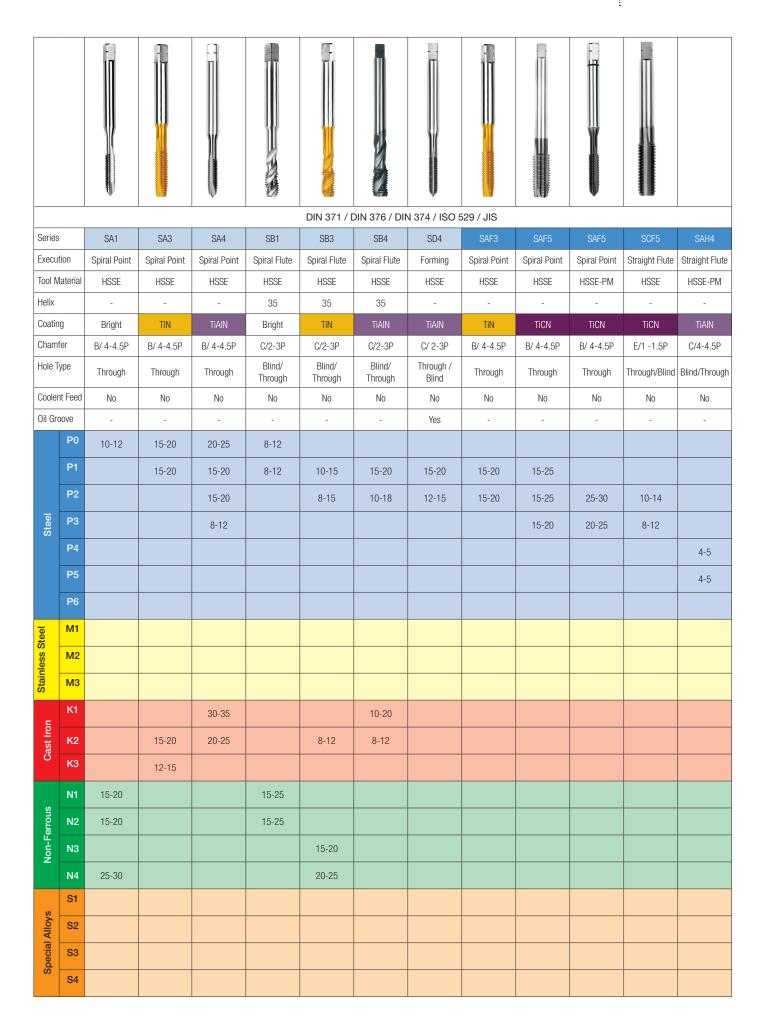






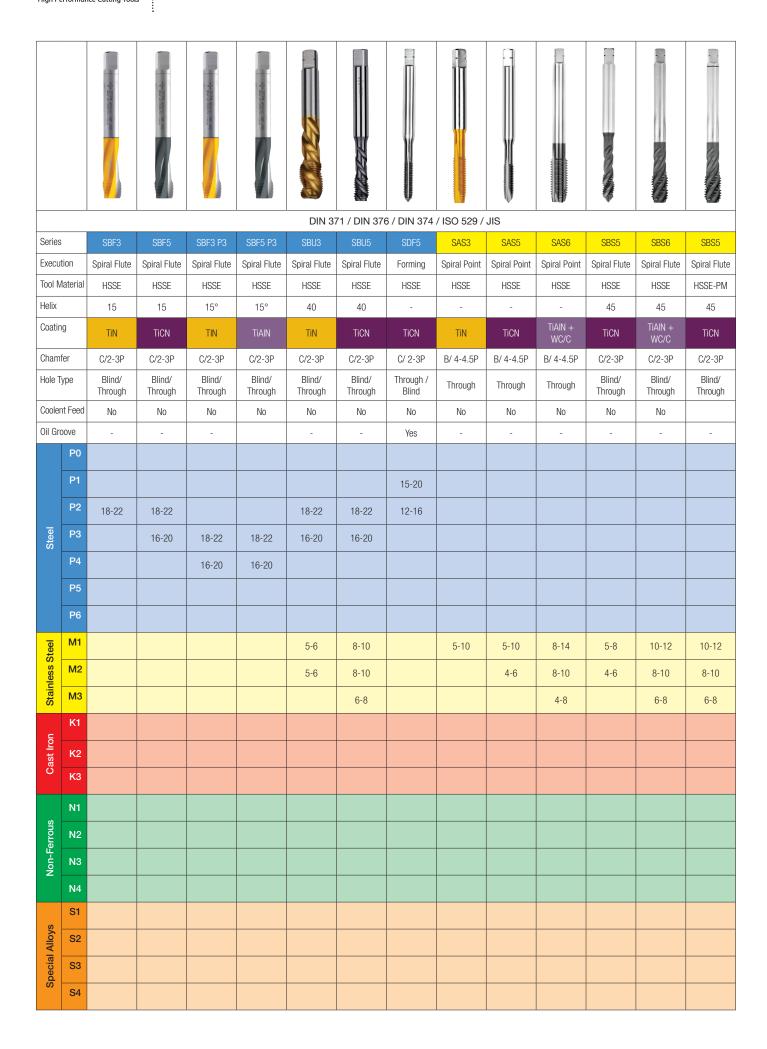
# **TAP SELECTION CHART**







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					DIN 3	371 / DIN 376	6 / DIN 374 /	ISO 529 / JI	S				
Series	3	SAI6	SBI6	SC3	SC4	SC4TC	SC4	SC4TC	SD1	SD3	SD1	SD3	SBA3
Execu	tion	Spiral Point	Spiral Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Forming	Forming	Forming	Forming	Spiral Flute
Tool N	/laterial	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE-PM	HSSE-PM	HSSE	HSSE	HSSE	HSSE	HSSE
Helix		-	-	-	-	-	-	-	-	-	-	-	15°
Coatir		TiAIN + WC/C	TiAIN + WC/C	TiN	TiAIN	TiAIN	TiAIN	TiAIN	Bright	TiN	Bright	TiN	TiN
Cham		B/ 4-4.5P	C/2-3P	E/1 -1.5P	E/1 -1.5P	E/1 -1.5P	E/1 -1.5P	E/1 -1.5P	C/ 2-3P	C/ 2-3P	C/ 2-3P	C/ 2-3P	C/2-3P
Hole T		Through	Blind/ Through	Through/Blind	Through/Blind	Blind	Through/Blind	Blind	Through / Blind	Through / Blind	Through / Blind	Through / Blind	Blind/Through
	nt Feed	No	No	No	No	Yes	No	Yes	No	No	No	No	No
Oil Gr	1	-	-	-	-	-	-	-	Yes	Yes	-	-	
	P0									15-20		20-25	
	P1									15-20		25-20	
	P2									12-15		15-18	
Steel	P3												
	P4												
	P5												
	P6												
teel	M1												
Stainless Steel	M2												
Stain	МЗ												
_	K1			25-30	30-40	30-40	40-50	40-50					
Cast Iron	K2			15-20	20-25	20-25	30-40	30-40					
O	К3				12-15	15-20	25-30	25-30					
	N1								20-25	25-30	20-25	25-30	25-30
errous	N2			25-30					20-25	25-30	20-25	25-30	25-30
Non-Ferrous	N3			20-25						20-25		20-25	20-25
	N4												
(0	S1	10-15	6-10										
Alloy	S2	6-12	5-8										
Special Alloys	S3	8-12	6-8										
S	S4	4-6	3-5										





# **HIGH PERFORMANCE MACHINE TAPS**

- Manufactured from High Grade HSSE & HSSE PM Steel
- Consistent and tight thread tolerance
- High operating parameters suitable for CNC / SPM Machines
- Material specific tool geometry for optimal performance
- Surface treatment to suit application material for greater wear & heat resistance

#### SA - SPIRAL POINTED TAPS

 Material specific angular geometry ensures chips are pushed downwards

Axial through coolant taps

#### **SERIES**

SA: General steel, SG Iron

SAF: Forged steel

SAH: Alloy and Hardened Steel

SAS: Stainless Steel

SAI: Super Alloys



#### SB - SPIRAL FLUTED TAPS

• Specific flute design for excellent chip evacuation

Helix angle as per material category

Radial through coolant taps

#### **SERIES**

SB: General steel, SG Iron, Aluminium

SBF: Forged steel (P2-P3)

SBF P3: Forged Steel (P3-P4)

**SBS**: Stainless steel

SBU: Steel / SS / WCB / CF8

**SBI:** Super alloys **SBA:** Aluminium



#### SC - STRAIGHT FLUTED TAPS

- · Cutting edge geometry production short chips
- Special process for stress relieving on cutting edge

• Radial and axial through coolant taps

#### SERIES

**SC:** Cast iron, SG Iron, Aliminium Casting

**SCF:** Forged steel

**SCH:** Hardened steel



### SD - FORMING TAPS

- Optimized lobe form reduces friction
- Chamfer geometry for uniform load distribution

Radial and axial through coolant taps

#### SERIES

SD: Aluminium and aluminium alloys

SDF: Steel and Forged steel



Standards	DIN, ISO, JIS, ANSI
Thread form	METRIC, UNC, UNF, BSP
Range	3mm - 25mm

SA	SPIRAL POINT	sc	STRAIGHT FLUTE
SB	SPIRAL FLUTE	SD	ROLL TAP OR FORMING TAP

#### **COATING**

1	BF	Bright Finish	5	TiCN	Titanium Carbo Nitride Coating
3	TiN	Titanium Nitride Coating	6	TiAIN + WC/C	Hardlube
4	TiAlN	Titanium Aluminium Nitride Coating	7	AlCrN	HELICA





# **CARBIDE TAPS**

Manufactured from premium grade micro-grain solid cardie for longer tool life

TOTEM Solid carbide taps are manufactured on state of art machines. Special tooling attachments are used to get high accuracy on thread form

Ideal for mass production with cutting speeds higher compared to HSS-E taps

Fewer tool changes due to high wear resistance, resulting in optimum machine output

Internal coolant option with radial or axial coolant outlet for improved swarf management which results in longer tool life

#### **RANGE**

M3 to M20 (Metric Coarse & Fine Pitch)

#### SBK - SPIRAL FLUTE TAPS

- Low helix (15°) and new geometry suitable for short and long chipping materials
- Special flute geometry for excellent chip evacuation
- Edge polishing done on cutting edges which avoids chipping off
- Steel 700 N/mm2 to 1100N/mm2



#### **SCK – STRAIGHT FLUTE TAPS**

- This cutting-edge geometry produces short chips even in long chipping materials
- High speed & higher productivity results in less CPC
- Internal through coolant taps available which enables optimum transportation of swarf
- Aluminium Castings, Grey Cast Iron
   & SG Iron



#### **SDK - FORMING / ROLL TAPS**

- New chamfer geometry for uniform load distribution
- Optimised lobe form reduces friction and increases tool life
- Internal through coolant taps available
- High parameters and higher productivity for optimum output
- Aluminium & Aluminium Alloy







# **NIB TAPS**

# High performance Nut taps for Mild Steels, High Tensile Steel and Stainless Steel

- Manufactured from High Grade HSSE Steel
- Tight thread tolerance for better consistency
- · Special treatment for stress relieving

#### **MATERIAL**

**HSSE** 

#### **RANGE**

Metric - M3 - M24 BSW/UNC/UNF - 3/16" - 1"

#### **SURFACE TREATMENT**

TiN/TiCN





#### **HSS HAND AND SHORT / LONG MACHINE TAPS**

- Manufactured in state of art CNC machines
- HSS- M2 steel Straight Flute, Spiral Pointed taps and Long Shank Taps

#### **RANGE**

Metric (Coarse and Fine Pitch) M1.0- M180 Imperial 1/16"- 6"

#### **PIPE THREADS**

1/16"- 4"

#### **THREAD FORM**

Metric, BSW, BSF, BSCY, BA, BSB, ME, BSCON, UNC, UN, UNS, BSP, BSPT, NPT, NPTF, NPSI, NPSF



# HAND TAPS (SERIAL FORM)

# Super Alloys, Hardened Steel and Stainless Steel

- Material HSS M42 and HSSE/HSS M42 Steel
- Set of 3 (OR) Set of 4 TiN coated
- Inconel, Titanium, Nickel based Alloy, Tool Steel, Maraging Steel, Die Steel, Stainless Steel
- Distribution of cutting load- Thread accuracy
- Thread accuracy and long life

#### **RANGE**

M2.5 - M120





#### THREADING TAPS





# CARBON STEEL TAPS

#### All taps manufactured from first grade High Carbon Steel

- Heat treated in atmospheric controlled furnace with modern timers and temperature controllers
- Every tap passes through stringent inspection tests

#### **STANDARDS**

Metric & British standard tap - BS949:1951 American standard taps - ANSI 94.9- 1951

#### RANGE

Metric – M2 – M52 (Coarse & Fine pitch) Imperial - 1/16" - 2" Pipe threads- 1/8" - 2"

#### THREAD FORMS

Metric (Coarse & Fine), BSW, BSF, BA, BSB, BSCY, ME, BSCON, UNC, UNF, UN, UNS, BSP, BSPT, NPT, NPS

LH taps can be supplied against requirement





### THREADING DIES & DIE NUTS (HSS & CARBON STEEL)

- HSS Dies manufactured of HSS M2 Steel
- Carbon Steel Dies manufactured of High Carbon Steel
- High Carbon Steel Split Round Dies (BS 1127:1976)
- HSS Ground Dies (DIN 223)
- High Carbon Steel Hexagonal Die Nuts
- HSS Hexagonal Die Nuts

#### **RANGE**

OD - 13/16"- 4"

#### **SPLIT DIES**

Metric - M2- M60 (Fine and Coarse pitch) Imperial - 1/8"- 1" Pipe thread - 1/8" - 2"

#### **SOLID ROUND DIES**

Metric M2- M24 Imperial 5/32" - 3/4"

#### **HEXAGONAL DIE NUTS**

A/F - 0.710"-3.890" Metric- M3- M56 Imperial - 1/8" - 2 1/4" Pipe thread - BSP- 1/8"- 2"

#### THREAD FORM

Metric (Coarse & Fine), BSW, BSF, BSB, BSCY, ME, BA, WF, BSP, BSPT, UNC, UNF, NPT









# **CARBIDE MILLING TOOLS**



#### END MILLS FOR HIGH TEMPERATURE ALLOYS (TURBO - TR)

#### F177TR / F178TR / F175TR

#### **FEATURES**

- Variable pitch and Variable helix
- Stable core geometry
- Optimized centre cutting geometry
- New generation coating
- Available in 4 Flutes, 5 Flutes, 6 Flutes and 7 Flutes
- Available with Neck options

#### **FUNCTIONS & BENEFITS**

- Higher productivity
- Reinforced core gives the ability to work at higher parameters.

- Superior Tool Life.
- Excellent Surface Finish.
- High MRR

#### **RANGE**

- Standard 6mm 20mm
- Specials 1.5mm 25.4mm





#### **END MILLS FOR TROCHOIDAL MILLING**

#### 5VR / 6VR

#### **FEATURES**

- Robust core design
- 5/6 flutes for high productivity
- Optimized Centre cutting geometry

#### **FUNCTIONS & BENEFITS**

- Operates at high cutting speeds
- Effective for Trochoidal milling and I-machining
- Geometry programmed to suit adequate material removal at various engagement angles

- Highest dynamic speed rates
- Least cutting forces
- Prolonged tool life due to reduced shock

# **RANGE**

- 5VR: Standard 6mm-16mm
- 6VR: Standard 6mm-20mm





# END MILLS FOR GRAPHITE MILLING

#### **PROTON HD**

#### **FEATURES**

- Superior nano grain structure raw material
- Multilayer coating for Hardened moulds and Diamond Coating for graphite milling
- Wear resistant grade
- Ideal Chip flow geometry
- Close tolerance end mills for finishing for higher accuracy
- Special Roughing Pitch for graphite roughers

#### **FUNCTIONS & BENEFITS**

- No EDM required as milling is a much faster operation
- Operates at high cutting speeds on hardened materials

- Polishing for hardened dies can be minimized
- No need of multiple setups, Job can be finished with single clamping and it is much easy yto achieve high accuracy
- Higher Tool Life and consistency
- High Productivity
- Superior Surface finish in graphite moulds

#### **RANGE**

- Standard 0.1mm-25mm available in stub/standard/long/extra long/ long
- Specials 0.1mm-32mm available in stub/standard/long/extra long/ long



# **CARBIDE MILLING TOOLS**





#### **END MILLS FOR HARDENED STEELS 45-70 HRC**

#### **PROTON HD**

#### **FEATURES**

- Superior nano grain structure raw material
- Multilayer coating for Hardened moulds
- Ideal Chip flow geometry
- Close tolerance end mills for finishing for higher accuracy

#### **FUNCTIONS & BENEFITS**

- No EDM required as milling is a much faster operation
- Operates at high cutting speeds on hardened materials

- Polishing for hardened dies can be minimized
- No need of multiple setups, Job can be finished with single clamping and it is much easy to achieve high accuracy
- Higher Tool Life and consistency
- High Productivity

#### **RANGE**

- Standard 0.1mm-25mm available in stub/ standard/long/extra long/ long reach
- Specials 0.1mm-32mm available in stub/ standard/long/extra long/ long reach





#### END MILLS FOR STEEL 32-45 HRC

#### **HSM**

#### **FEATURES**

- Superior micro grain structure raw material
- Wear resistant grade
- 2/4 Flute
- Same tool for Roughing and Finishing for Mould Machining
- Ideal to machine upto 42 HRc

#### **FUNCTIONS & BENEFITS**

- Optimized coating for better tool life
- Operates at high cutting speeds on Moulds

- Higher Tool Life and consistency
- No EDM is required (milling is much faster)

#### **RANGE**

- Standard 1 mm to 20 mm
- Specials





#### ROUGHERS AND FINISHERS (CHIP BREAKERS)

#### F192CB / F193CB / F194CB

#### **FEATURES**

- 3-4 Flutes
- Center Cutting
- Sinosoidal Pitch
- Superior Coating

#### **FUNCTIONS & BENEFITS**

- High MRR
- Stable cutting at high cutting speeds
- Superior Tool Life

#### RANGE

- Standard 8mm 20mm available in standard
- Specials 6mm 25.4mm available in standard









# **RAZOR CUT SERIES FOR ALUMINIUM**

#### **FEATURES**

- 3 Flutes
- Center Cutting
- Coarse Pitch
- Roughing for Aluminium
- Uncoated

#### **FUNCTIONS & BENEFITS**

- High MRR
- Excellent for roughing and finishing of Alumnium
- Superior Tool Life

#### **RANGE**

- Standard 6mm 25mm available in regular/long reach
- Specials 4mm 25mm available in regular/long reach



CBC SERIES coarse pitch roughing for Aluminium



CBCH SERIES chamfered pitch roughing for Aluminium



**3FWF SERIES wiper design**finishing for Aluminium



3FWFXL SERIES wiper design finishing for Aluminium



3FWFCR SERIES wiper design finishing for Aluminium



**2FWF SERIES wiper design**finishing for Aluminium



# **GENERAL PURPOSE END MILL**

#### **FEATURES**

- Excellent choice for application on variety of material
- Special nano grain carbide raw material with an optimum balance of hardness and toughness
- Special geometry better feed rates and longer tool life
- High performance TiAIN coating for superior wear resistance

#### **FUNCTIONS & BENEFITS**

- Best value for money
- Best Suitable for Steel, Stainless Steel, Cast iron, Aluminium

#### **RANGE**

- Standard 1mm to 25mm available in stub/standard/long/extra long/ long reach
- Specials 0.3mm to 32mm available in stub/standard/long/extra long/ long reach



# THREAD MILL



A thread mill can be thought of as an end mill with the profile of the thread on the side. To perform a Thread Milling operation, a helical interpolation movement is required. Helical interpolation is a CNC function producing tool movement along a helical path. This helical motion combines circular movement in one plane (x,y coordinate) with a simultaneous linear motion in a plane perpendicular to the first (z coordinate).

- Totem has introduced Threadmill in the market with multiple thread forms. These thread mills are available in the below thread forms as standard (M, MF, UNC, UNF, UNEF, MJ, UNJ, NPT, NPTF, BSP, BSPT)
- They are available in two design, Regular and Multi-Tooth.
- The Regular is available in Helical flute (RH) and Straight flute (RS), Through Coolant and Non Through Coolant, For Internal and External Threading (RHS/RHTS/RHC/RHTC/RSS/RSTS)
- The Multi Tooth is available with 2D (MT2D)/3D (MT3D)/4D (MT4D) cutting options and also for Hard Part Threading (MTH2D & MTH3D)
- Taper preperation end Mills (TP) for the NPT and NPTF Threads which are to be used prior to the Threading options
- Chamfer Tools (CT) available in Short (A90S) and Long (A90L)

СТ	CHAMFER TOOL
TP	TAPER PREPERATION
TM	THREAD MILL
ST P60	SINGLE TOOTH PARTIAL PROFILE
MT2D	MULTI TOOTH 2D
MT3D	MULTI TOOTH 3D
MT4D	MULTI TOOTH 4D
MTH2D	MULTI TOOTH 2D FOR HARD PART
MTH3D	MULTI TOOTH 3D FOR HARD PART

RHS	REGULAR HELICAL FLUTE SOLID
RHTS	REGULAR HELICAL FLUTE TAPER SOLID
RHC	REGULAR HELICAL FLUTE COOLANT
RHTC	REGULAR HELICAL FLUTE TAPER COOLANT
RSS	REGULAR STRAIGHT FLUTE SOLID
RSTS	REGULAR STRAIGHT FLUTE TAPER SOLID
A90S	ANGLE 90 SHORT TOOL
A90L	ANGLE 90 LONG TOOL

#### **ADVANTAGES OF THREAD MILLING**

- Thread milling is a secure machining operation with less chances of part damage and breakage of the tool
- Threading in difficult to machine materials and hard materials is easy
- Higher thread quality

The cutting conditions are extremely good when you are thread milling. The result of the thread is a higher quality of surface finish, tolerance, angle, etc. Compared with other threading methods.

#### Flexible tool

Same cutter can be used for right hand and left hand thread. Threads with different diameters can be made with the same tool as long as the pitch is the same. The same thread mill can be used for blind holes and through hales.

#### Threading in blind holes

When thread milling you will get a complete thread profile to the bottom of the hole. When tapping its necessary to drill much deeper as its not until the third thread the tap will make a complete thread profile.

#### • Less wear on the machine spindle

Thread milling will give you longer life to the machine spindle compared with tapping as the rotation on the spindle doesn't need to be stopped and reversed for every thread.

#### • Energy-saving production

Law energy consumption as the machine spindle doesn't need to be stopped and started after each thread.

#### Thread Milling in a lathe with live tools

Reduced machining time compared with thread turning. Excellent chip control.







# HIGH PERFORMANCE TD DRILLS

#### **FEATURES**

- Reinforced core geometry for higher feed rates
- Special flute form for effective chip evacuation
- Special nano grain carbide raw material with an optimum balance of hardness and toughness
- High performance coating for superior wear resistance at higher cutting speeds

#### **FUNCTIONS & BENEFITS**

- Universal geometry which can be used for Cast Iron and Steel
- Higher productivity

- High feed rate
- Stable core contributing to lower breakages and rejection rates.

#### **RANGE**

- Standard 1mm-20mm in L/D 3-5 Solid Drills
- Standard 3mm 20mm in L/D 3 -5-7 Through Coolant Drills
- Specials 1mm 32mm







# DHD DEEP HOLE DRILLING

#### **FEATURES**

- Reinforced Core Design
- Superior Surface Treatment
- 4 Margins to Guide
- High Performance Coating
- Optimized Flute Design

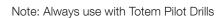
#### **FUNCTIONS & BENEFITS**

- Stable cutting edge
- Better Chip Evacuation

- Better Hole Straightness
- Superior Tool Life
- Eliminate Breakages

#### **RANGE**

3mm to 16mm Available in 12X, 15X, 20X



# **CARBIDE DRILLING TOOLS**





#### TMRT CARBIDE REAMERS

#### **ABOUT TMRT - TOTEM MULTIFLUTE REAMING TOOLS**

- These reamers are designed for the highest metal removal rates from diameter 1.5mm to 12mm as a std
- All standard reamers are ground to an ISO H7 tolerance class hole to address most common applications.
- Special coatings and lead chamfer configurations enable high-speed machining of steel, stainless steel, cast iron, and non-ferrous materials at high speeds.

#### **FEATURES & BENEFITS**

- Higher Productivity and Profitability
- Longer tool life with increased hole and surface quality
- Highest metal removal rate at higher speeds and feeds due to reaming-specific low cobalt grades and substrates.
- Intermediate diameters from 1.5mm to 20mm can be offered as per various lead chamfer configuration as a custom solution.
- All TMRT reamers are also offered with internal coolant supply.





#### GENERAL PURPOSE SOLID CARBIDE DRILLS

# **F226 SOLID CARBIDE DRILLS** 3X STUB LENGTH DRILLS

#### **RANGE**

1mm to 20mm

# **F224 SOLID CARBIDE DRILLS 5X JOBBER LENGTH DRILLS**

#### **RANGE**

1mm to 20mm





# CARBIDE CENTER DRILLS IN DIN333

# **CENTER DRILL AVAILABLE** IN DIN 333 STANDARD IN LH/RH WITH BOTH **FORM A & FORM B**

#### **RANGE**

1mm to 8mm





# **SPOTTING DRILLS WITH TIN COATING**

#### **60 DEGREE SPOTTING DRILLS,**

Right-hand helix, standard length Cut Shank Dia. = h6 tolerance range; point angle tolerance +0°/-1°

**RANGE:** 2mm to 16mm

#### 90 DEGREE SPOTTING DRILLS,

Right-hand helix, standard length Cut / Shank Dia. = h6 tolerance range; point angle tolerance +0°/-1°

RANGE: 2mm to 16mm

#### 120 DEGREE SPOTTING DRILLS.

Right-hand helix, standard length Cut / Shank Dia. = h6 tolerance range; point angle tolerance +0°/-1°

RANGE: 2mm to 16mm





# **CHAMFER TOOLS WITH TIN COATING**

# **60 DEGREE COUNTERSINK TOOLS** WITH 4 FLUTES

#### **RANGE**

3mm to 16mm

# 90 DEGREE COUNTERSINK TOOLS **WITH 4 FLUTES**

# **RANGE**

3mm to 16mm





# CARBIDE DEBURRING TOOLS



# TUNGSTEN CARBIDE ROTARY BURRS

Workpiece Material	Workpiece Material groups			Cut Type				
			Standard (Single)	Supreme (Double)	Deluxe (Diamond)	Aluma	Chip Breaker	
Steel (P)	Non Hardened, non heat treated steel upto 1200 N/ mm²(<35 HRc)	Constructional Steels, Carbon Steel, Tool Steels, Non Alloyed Steels, Case Hardened Steels, Steel Casting	√	√	√			
, ,	Hardened, Heat treated steels exceeding 1200 N/ mm²(>35 HRc)  Tool Steels, Tempering Steels, Alloyed Steels, Steel Casting		√	√				
Stainless Steel (M)		Austenitic and Ferritic High Grade Steels			√		√	
	Soft Non-Ferrous Metals	Aluminium Alloys, Brass, Copper, Zinc				√ √		
Non-Ferrous Metals (N)	Hard Non-Ferrous Metals	Bronze, Titanium/Titanium Alloys, Very Hard Aluminium Alloys (High Si content)	√	√	√			
	Heat Resistant Alloys	Nickel based Alloys, NiCo Alloys (Aircraft engine and turbine construction)	√	√	√			
Cast Iron (K)		Grey Cast Iron, Spheroidal Graphite Cast Iron	V	√	√			
Plastic /Other Materials		Fiber Reinforced Plastic, Thermoplastics Hard Rubber				√ √		

# **BURR SETS**

We also offer burr case sets in 6 mm and 3 mm shank

BS1 C8, B6, S4, TB3, T3, F4, K2, A3 BS2 C4, B3, S3, TB2, T2, F3, K6, A11

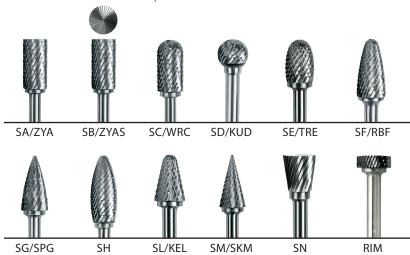
MINI BS1 MC1, MC5, MBO, MB1, MSO, M01, MTB2, MT5,

MF1, MK3, MA5, MA3

Series	Shape Description	Totem Reference
SA/ZYA	Cylindrical without end cut	С
SB/ZYAS	Cylindrical with end cut	CE
SC/WRC	Cylindrical with radius end	В
SD/KUD	Ball Shape	S
SE/TRE	Oval shape burr	0
SF/RBF	Tree shape with radius end	ТВ
SG/SPG	Tree shape with point end	Т
SH	Flame shape	F
SL/KEL	Cone with radius burr	К
SM/SKM	Cone shaped burr	А
SN	Inverted cone shape burrs	N
RIM	Rim shape burrs	R



- Ask your local representative about our long shank program -Available in 4",5",6",7",8",9"10",11"& 12"
- All sizes available as a special in left hand cut
- Coarse cut burrs available on request
- Full carbide burrs available on request



# **HSS DRILLING TOOLS**





#### JOBBER, TAPER & REDUCED SHANK DRILLS

#### **FEATURES**

- Made from Premium Grade HSS Steel
- Manufactured in State of Art CNC machine setup

#### **FUNCTIONS & BENEFITS**

- An excellent general purpose drill with conventional 118° point angle
- Stable Cutting edge
- Better chip evacuation
- Better hole straightness
- Superior Tool life

SERIES	STANDARD	RANGE
HSS Parallel Shank Twist Drills – Jobber Series	IS 5101 : 2002, DIN 338 : 1984	1mm to 20mm & 3/64" to 13/16"
HSS Taper Shank Twist Drill – Fully Ground Taper Shank Drills	IS 5103 : 2002, DIN345 : 1986	8mm to 75mm & 3/8" to 2"
HSS Reduced Shank Drills	-	13.5mm to 30mm





#### M35 SERIES – BLACK & GOLD DRILLS

#### **FEATURES**

- Made from premium grade High Speed Steel (5% Cobalt)
- Special Black & Gold surface treatment to increase lubricity & reduce friction
- The strong web construction provides greater strength & rigidity to the drill
- Precision ground 135° Split Point angle is Self Centring & reduces Thrust during application

# **FUNCTIONS & BENEFITS**

- High performance drills suitable for Production applications & also for tough Maintenance applications
- Well suited for drilling on Stainless Steel & challenging Alloy Steel materials
- Operating at higher feeds

SERIES	STANDARD	RANGE
HSS Parallel Shank Twist Drill –	IS 5101 : 2002,	1mm to 13mm &
Black & Gold (M35 Series)	DIN 338	3/64" to 1/2"





#### **HSS STUB DRILLS**

#### **FEATURES**

- An excellent general purpose drill with conventional 118° point angle
- Shorter flute & overall length increases the rigidity

#### **FUNCTIONS & BENEFITS**

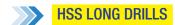
- · Less drill deflection, better hole accuracy & longer tool life
- Operating at higher feeds
- Ideal to use in manual hand held drilling application

SERIES	STANDARD	RANGE
HSS Parallel Shank Twist Drill –	IS 5100 : 2002,	1mm to 20mm &
Stub Series	DIN 1897:1984	3/64" to 9/16"



# **HSS DRILLING TOOLS**





#### **FEATURES**

- Stable cutting edge
- Better chip evacuation
- Better hole straightness

#### **FUNCTIONS & BENEFITS**

- Well suited for deep holes
- Superior tool life

SERIES	STANDARD	RANGE
Long Shank HSS Drill	IS 5102:2002, DIN 340:	1mm to 13mm,
	1978, ISO 494 : 1975, BS 328	3/64" to 1/2"





# HSS DRILL CASE SETS



As per IS 5101 - 2002

- M2 & M35 grade material
- M35 B&G Finish
- Sets from 13 nos/Set to 50 Nos/Set

DESCRIPTION	QTY PER CASE SET
HSS Drills Case Set 1.0 mm to 13.0 mm	25 pcs
HSS Drills Case Set 2.0 mm to 8.0 mm	13 pcs
HSS Drills Case Set 1/16" to 1/4"	13 pcs
HSS Drills Case Set 1/16" to 1/2"	29 pcs
HSS Drill Case Set M2 1.0 TO 10.0 mm	19 pcs
HSS Drill Case Set M2 1.0 TO 5.9 mm	50 pcs
HSS Drill Case Set M35 B&G 1.0 TO 10.0 mm	19 pcs
HSS Drill Case Set M35 B&G 1.0 TO 13.0 mm	25 pcs





# CENTRE DRILLS

#### **FEATURES**

- Made from Premium Grade HSS Steel in M2 Grade & M35 Grade
- Available in BS Standard, Type A & Type –B
- Also available with TIN coating

#### **FUNCTIONS & BENEFITS**

- Excellent choice for centring application
- Stable cutting edge
- Superior tool life

STANDARD	ТҮРЕ	PILOT DIA
AS PER BS 328 : PART II – 1990	BS SERIES	3/64 to 3/16
AS PER IS 6708-2002	TYPE A	1mm to 10mm
AS PER IS 6709-2002: ISO 2540-1972	TYPE B	1.6mm to 10mm







# HSS / HSS-E ANNULAR CUTTERS

#### **FEATURES**

- Made from premium grade High Speed Steel
- Multi cut geometry for ply cutting & lower friction to reach better performance of endurance & removal of chips
- Available in One Touch Shank (Universal shank Dia 3/4" or 19.05mm)

#### **FUNCTIONS & BENEFITS**

- Applicable to hole cutting & process of annular groove on various magnetic drills
- Meets requirements of hole cutting on various materials

RANGE	CUTTING DEPTH
12mm to 50mm	25mm & 50mm







# TCT ANNULAR CUTTERS

#### **FEATURES**

- Premium quality Tungsten Carbide tips for ply cutting & lower friction
- Multi Cut geometry for increases chip removal

# **FUNCTIONS & BENEFITS**

- Applicable to hole cutting & process of annular groove
- Suitable on various materials
- Universal shank 3/4" (19.05mm) for various magnetic drill machines

RANGE	CUTTING DEPTH
11mm to 40mm	40mm & 55mm









# **INDUSTRIES WE SERVE**



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