



V3 TOOLS

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Experience for Excellence

PRODUCT CATALOGUE

STEEL FILES



HSS P.SH. DRILLS



HSS CENTRE DRILLS



MASONRY DRILLS



HSS TAPS



SOLID CARBIDE END MILLS



SOLID CARBIDE BALL NOSE



SOLID CARBIDE DRILLS



SC THROUGH COOLANT DRILLS



SC ROUGHING END MILL



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High Performance Tools & Files



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Customer Care
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Our Presence

Always at your end
Indian Leading quality Tools Company

Dear V3 Tools Customer,

Since the V3 was founded over years ago.

To us sustainable, responsibility towards our customers and partners means to convey **reliability and competence in all our actions.**

We Committed

By making consequent investment in top quality tools. Cost effective process in **highest ability to supply** on the market and above all **in people.**

So that also in future, you have a skilled and committed partner in us to fulfill your expectations.

You as our customer stand clearly in the centre of company endeavour along with the benefit we bring you. Our focus in your **productivity, value creation and efficiency.** We are committed and challenge our self to improve bit by every day.

Challenge us

We take our responsibility seriously as Indian Leading partners for quality tools. You can relay on us. Today and in future

Do you have question or suggestion regarding our product and services?

Please feel free us to contact us we look forward to your email :
v3tools15@gmail.com

High Performance File



Premium
Quality





HIGH PERFORMANCE FILE & TOOLS

Our Company :-

V3 Tools is professionally managed Company by Sr. Person, Who is having **25 years** of Marketing & Plant Experience from Premium Cutting & Hand tools Industries. We meet our Customer's requirement by committing to ensure consistent quality, timely delivery & Satisfying Customer needs of the **Times by Learning & Growing**. Our promise you will find a reliable” Partner for Growth” to provide solution of speedy & effortless smooth Innovative Tool Technology to fulfill your expectation.

Range of Products: V3 Files offers wide range of diverse application.

Hand Files are classified into the following categories: Engineering Files, Saws Sharpening file, Needle Files, Milled Files, Rasps Files & Special Files. V3 Files are available in range of application in wood working, automobile, engineering, aviation, heavy Industry, garages, steel industry etc.

Description of V3 Files & Tools :

It is the shape and size of the work piece, the material from which it is made and desired finish that determine the Choice of File. V3 range covers all these areas meeting the requirement of most National & International Standards with ample margin.

Drills

HSS Drills range from 1 mm to 13 mm Jobber, Stiff, Long & Extra Long. Centre Drill widely Accepted in forging Industries.

Taps

HSS Taps coarse pitch and fine pitch, BSW, BSP, UNC, UNF & Nut taps for Auto and Ancillaries in range M3 to M60 mm.

Solid Carbide Tools

End mill VX1 & VX3 series from 1mm to 25 mm, Drills-Jobber & Stuff, VX1 & VX3 series from 1mm to 25 mm, Reamer, Roughing Endmill , Through Collant Drills and Full range of Centre Drills.

Our Operations

To become leading partner for growth in productivity metal working tools for machining. Our focus in your productivity efficiency and value creation.

Trading Competence

With the V3 tools you obtain most comprehensive range throughout market with **highest supply reliability through channel partner at the best value for money.**

Manufacturing Competence.

For more than 25 years of experience we had our finger on the pulse of the markets. Though a continuous dialogue with our customers and leading manufacturer for **premium quality.**

This know how and the unique technical competence of our manufacturer experts can be found combine in our premium brand v3

Service Competence

As a system partner for quality we are **always at your end**. From tool procurement to the optimum application. With comprehensive services for products and processes. From individual via professional advice. Always focused on **your success** due to **simplified processes and sustainable increase in productivity.**

Our Aim : Delighted Customers

Your Advantage

- Competent contact persons
- Highest Commitment
- Global Presence

Our Passion : Quality Tools

Our Vision : Our Customer's Success

Our Mission :

To become leading partner for growth in productivity metal working tools for machining

Our Values :

Simple

- In Communication
- In Organisation
- In all process

Focused :

- On Solutions / Services
- On core competencies
- On the essentials

Useful :

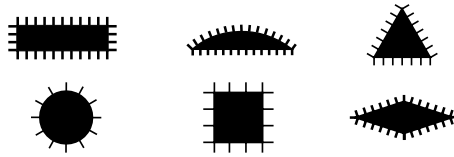
- For our Customers / Channel partner / suppliers
- For our company development
- For our staff / environment
- For the Next Generation.



- 1. Technical Guide.....
- 2. Machinist File.....
- 3. Special Files.....
- 4. Saw File.....
- 5. Chain Saw Files.....
- 6. RASP File.....
- 7. Needle Files.....
- 8. Diamond Files.....
- 9. Accessories.....

File type/ Shape :-

WHICH FILE TO USE DEPENDS ON THE WORK MATERIAL AND THE DESIRED FINISH



The different name given to files vary according to their shape and use. The most common name are : Hand, Flat, Half Round, Round, Square, Three Square, Knife and double edge. e.g Flat files for flat and concave surface, Round files for enlarging holes, Triangular files for filing corners and angles, etc.

Machinist File - For stock removal and surface finish requirements on machined components.

Saws Files - For sharpening wood working Saws and similar thin edges such as chaff cutter blade, matchets.

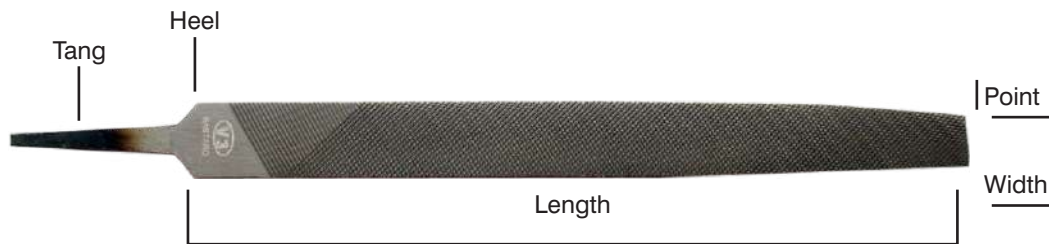
Special Purpose file - Designed and used for specific application /materials.

Diamond Needle & Needle files - For precision filing application in die making and Jewelry.

Rasps - Used wood by pattern/cabinet makers, leather and similar soft materials for rapid stock removal.

Length:-

Desired stroke length will determine the length of file. The V3 range include files from 4"(100 mm) in length to 16"(400 mm) depending on Type. The most suitable file length depends entirely on work to be done or desired stroke length. The length of the file is always is given excluding the tang with exception of needle file, where the total length includes the tang.



Tooth Type & Cut

The tothing of a file can vary in many different ways. Different type of cut are chosen depending on the work material, the desired rate of material removal and the desired finish. The most common cuts are Single cut, Double cut, oberg cut, Diagonal cut, Milled cut and rasp cut.

Single cut - Single cut files (mostly all saw Files are single cut) are used for sharpening & edging application e.g Sharpening of saws where the piece is hard, point of contact is less and finish is required.

Double Cut - Double Cut files need less effort for filing and also give good surface finish.

Bastard Cut - For stock removal and coarse finish.

Second Cut - For moderate stock removal and medium to coarse finish.

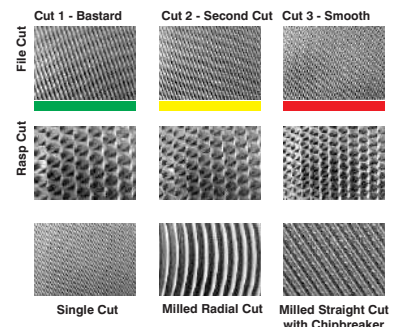
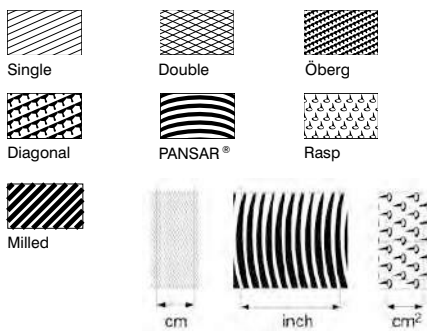
Smooth Cut - For smooth surface finish.

Rasp Cut - Special Cut formation for rapid stock removal from surface and softer materials like wood or leather.

For all cut Engineering needle and sharpening files the coarseness of cut is given in Number of work teeth per centimeter along with the length of the File. The most common degrees of coarseness are bastard and second and smooth cut should be chosen.

For diagonal files, milled files the degree of coarseness is given in number of tooth tips per cm².

AVAILABLE CUTS :-



Technical Guide

- A new file should be used with light pressure in the beginning, preferably on a surface which has been filed earlier.
- In case of clogging of file teeth, clean the teeth with a soft wire bush
- Use the files for cutting in the forward stroke only.
- Filing jobs should be held rigidly.

CHOOSE A FILE ACCORDING TO THE WORK OPERATION

- best choice, recommended
- good choice, adequate

	SINGLE CUT	DOUBLE CUT			MILLED STRAIGHT CUT	DIAGONAL	MILLED RADIAL CUT	RASP
		BASTARD	SECOND	SMOOTH				
Fine filing Sharpening								
Deburring Edging								
Rough filing Material removal								

CHOOSE A FILE ACCORDING TO THE WORK MATERIAL

- best choice, recommended
- good choice, adequate

	SINGLE CUT	DOUBLE CUT			MILLED STRAIGHT CUT	DIAGONAL	MILLED RADIAL CUT	RASP
		BASTARD	SECOND	SMOOTH				
High alloy steel								
Unhardened steel								
Cast iron								
Brass, bronze								
Aluminium								
Wood and hard plastics								

FLAT FILE :

Cut Available : ■ Bastard ■ Second ■ Smooth
■ Course Cut



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3FLT04	4	100	12.0	3.0
V3FLT06	6	150	16.0	4.0
V3FLT08	8	200	20.6	5.0
V3FLT10	10	250	25.4	6.15
V3FLT12	12	300	30.6	6.6
V3FLT14	14	350	36.0	7.7
V3FLT16	16	400	39.8	8.8

- For Filing flat surfaces sharp corner and shoulders as well for debarring
- Files are used for rapid removal of metal
- To work in high alloy tool steel for sharpening of heavy implements
- Rectangular in cross section and taper slightly towards point in width
- Surfaces Double-cut on sides, Single-cut on both edges

HAND FILE:

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3HND04	4	100	12.0	3.0
V3HND06	6	150	16.0	4.0
V3HND08	8	200	20.6	5.0
V3HND10	10	250	25.4	6.15
V3HND12	12	300	30.6	6.6
V3HND14	14	350	36.0	7.7

- For Filing flat surfaces sharp corner and shoulders as well for deburring
- Files are used for rapid removal of metal
- To work in high alloy tool steel for sharpening of heavy implements
- Rectangular in cross section
- Surfaces Double-cut on sides, Single-cut on both edges

HALF ROUND FILE:

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3HRD04	4	100	12.0	4.0
V3HRD06	6	150	16.3	5.0
V3HRD08	8	200	20.4	6.0
V3HRD10	10	250	24.9	7.3
V3HRD12	12	300	29.8	8.9
V3HRD14	14	350	34.8	10.5
V3HRD16	16	400	39.5	11.9

- Files are used for filing on cross section, concave, flat surface and large holes
- Suitable for deburring work metal
- To work in high alloy tool steel for sharpening of heavy implements
- Half round in cross section and taper towards point
- Double-cut on both sides

ROUND FILE:

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE		
	Length (inch)	Length (mm)	Thick (mm)
V3RND04	4	100	3.8
V3RND05	5	125	5.0
V3RND06	6	150	6.3
V3RND08	8	200	7.15
V3RND10	10	250	9.25
V3RND12	12	300	12
V3RND14	14	350	16

- Files are used used to file holes, large concave surface and round notches
- Suitable for deburring work metal
- To work in high alloy tool steel for sharpening of heavy implements
- Shape tapered towards point
- Round files with double spiral cut

SQUARE FILE :

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE		
	Length (inch)	Length (mm)	Thick (mm)
V3SQR04	4	100	3.0
V3SQR05	5	125	5.0
V3SQR06	6	150	6.0
V3SQR08	8	200	7.7
V3SQR10	10	250	9.6
V3SQR12	12	300	12.2
V3SQR14	14	350	15.9
V3SQR16	16	400	18.4

- For Filing grooves rectangular slots, Keyways and also for general surface
- Also used for rectangular holes inside corners and for fine adjustment for cutting tools
- To work in high alloy tool steel for sharpening of heavy implements
- Square in cross section and taper slightly towards point
- Surfaces Double-cut on all four sides

THREE SQUARE FILE:

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE		
	Length (inch)	Length (mm)	Thick (mm)
V3TSQ04	4	100	9.0
V3TSQ05	5	125	10.0
V3TSQ06	6	150	12.7
V3TSQ08	8	200	15.5
V3TSQ10	10	250	19.0
V3TSQ12	12	300	21.6
V3TSQ14	14	350	24.6

- Files are used to file angles, inner corners and grooves
- Its tapered surfaces make it well suited for flat filing
- To work in high alloy tool steel for sharpening of heavy implements
- Triangular in cross section
- Surfaces Double-cut on all three sides

WARDING FILE:

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3WRD03	3	75	10.0	1.5
V3WRD04	4	100	12.1	1.4
V3WRD05	5	125	14.1	2.0
V3WRD06	6	150	16.4	2.3
V3WRD08	8	200	20.5	2.9
V3WRD10	10	250	24.0	3.5

- Warding files are used principally by lock smiths in repairing or filing ward notches in keys
- For filing narrow grooves and passages etc.
- Edges tapered towards point, surface parallel
- Double-cut on both sides, single cut on edges

KNIFE FILE:

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3KNF04	4	100	12.9	3.3
V3KNF06	6	150	17.8	4.3
V3KNF08	8	200	22.3	5.4
V3KNF10	10	250	27.4	6.6
V3KNF12	12	300	32.5	7.6

- Files are used used to files sharp angles dies, gear slots and saws
- Suitable for deburring work metal
- Knife shape file with triangular profile
- Double cut on both sides, narrow edge with single cut



PILLAR REGULAR FILE

Cut Available : ■ Bastard



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3PIL06	6	150	11.3	
V3PIL08	8	200	14.5	7.3
V3PIL10	10	250	18	9.0
V3PIL12	12	300	21	10.6

- For jobs where a standard hand file is too wide or too thick e.g. for filing narrow grooves
- Filler files are used by mill weights
- For the manufacturing of dies and punches etc.
- These files are used mostly by machinists for filling slots and key ways. Similar to hand files but narrower
- Rectangular cross section is a similar design of hand file.
- Shape : edges and surfaces parallel
- Double cut one edge uncut, one edge single cut



FLAT ALUMINUM

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3ALF06	6	150	16	4
V3ALF08	8	200	20.5	4.45
V3ALF10	10	250	25	5.8
V3ALF12	12	300	29.8	6.1
V3ALF14	14	350	35.5	7.1

- For jobs used for flat surfaces of aluminum alloy and other non ferrous metal.
- Removal of soft material lead, aluminum, soft wood and fillers.
- Both side teeth are design for fast cutting and teeth minimize clogging of metal.
- Shape : Tapered towards the tip
- Edges parallel and double cut
- Rectangular in cross section
- Good for finishing in most material



HALF ROUND ALUMINUM

Cut Available : ■ Bastard



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3ALH06	6	150	16.1	4.7
V3ALH08	8	200	19.8	5.9
V3ALH10	10	250	24.6	7.3
V3ALH12	12	300	29.55	8.6
V3ALH14	14	350	34.5	10

- For jobs used for flat as well as curve surfaces of aluminum alloy and other non ferrous metal.
- Removal of soft material lead, aluminum, soft wood and fillers.
- One side in half round and other side is flat
- Shape : Tapered towards the tip
- Edges parallel and double cut
- Teeth are designed for fast cutting and to minimize clogging of metal
- Good for finishing in most metal



DREAD NAUGHT STD. CUT WITH TANG

Cut Available : ■ Bastard



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3DRD08	8	200	20.6	5
V3DRD10	10	250	25.4	6
V3DRD12	12	300	30.6	6.6
V3DRD14	14	350	33.5	7.7

- For jobs used for soft metal, carbon steel and aluminum alloy.
- Both side curved teeth
- One side in half round and other side is flat
- Shape : Edges parallel and single cut surface have milled teeth
- Files are milled cut with tang
- Good for finishing and free clearance for chips
- Teeth are designed for fast cutting and to minimize clogging of metal
- Good for finishing in most metal

V3

HIGH PERFORMANCE FILE & TOOLS

MILL REGULAR

Cut Available : ■ Bastard ■ Second ■ Smooth

CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3MRT04	4	100	11.5	1.9
V3MRT06	6	150	16.0	3.0
V3MRT07	7	175	18.0	3.2
V3MRT08	8	200	20.6	3.7
V3MRT10	10	250	25.4	4.8
V3MRT12	12	300	30.6	5.6
V3MRT14	14	350	36.0	6.5

- Suitable both as an engineering file and a sharpening file
- Useful for filing where a smooth finish is important
- Good for policy and deburring work on lathes.
- Shape : Surface parallel, edges tapered towards the point.
- Rectangular file with single cut on all four sides.
- Bastard cut commonly referred to as Mill bastard

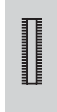
MILL BLUNT

Cut Available : ■ Bastard ■ Second ■ Smooth

CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3MBT06	6	150	16.0	3.0
V3MBT07	7	175	18.0	3.2
V3MBT08	8	200	20.6	3.7
V3MBT10	10	250	25.4	4.8
V3MBT12	12	300	30.6	5.6
V3MBT14	14	350	36	6.5

- They are available in TSE (Two Square Edge), ORE (One Round Edge), TRE (Two Round Edge), The Round Edge prevent the file from causing sharp corner or edge in the gullets of circular crosscut saws
- Suitable both as an engineering file and a sharpening file
- Useful for filing where a smooth finish is important
- Good for policy and deburring work on lathes.
- Shape : Surface parallel, edges tapered towards the point.
- Rectangular file with single cut on all four sides.
- Bastard cut commonly referred to as Mill bastard

FARMERS OWN FILE

Cut Available : ■ Second

CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3FMR061	6	150	20.6	3.7
V3FMR081	8	200	25.4	4.8
V3FMR101	10	250	30.6	5.6

- Single cut file with special handle, used by farmers.
- Used for sharpening agriculture tools and knives of reaping
- Rectangular file with single cut on all four sides.

FLAT SUPER LIGHT

Cut Available : ■ Bastard ■ Second

CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3SLT08	8	200	20.6	3.5
V3SLT10	10	250	25.4	4.8
V3SLT12	12	300	30.6	5.3

- For Filing flat surfaces sharp corner and shoulders as well for debarring
- Files are used for rapid removal of metal
- To work in high alloy tool steel for sharpening of heavy implements
- Rectangular in cross section and taper slightly towards point in width
- Surfaces Double-cut on sides, Single-cut on both edges

SPECIAL FILE

CROSS CUT FILE

Cut Available : ■ Second



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3CXS06	6	150	14.3	6.6
V3CXS08	8	200	18.1	21.8
V3CXS10	10	250	21.8	10.1

- Knife shaped file with round back, used for filing gullets and notches.

FLEXIBLE FILE

Cut Available : ■ Bastard ■ Second ■ Smooth

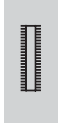


CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3FX10	10	250	25.4	4.8
V3FX12	12	300	30.6	4.7
V3FX14	14	350	34	5.2

- Used for sheet metal work and car bodies

FLAT HANDLE

Cut Available : ■ Bastard ■ Second

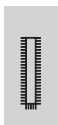


CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3FMR061	6	150	20.6	3.7
V3FMR081	8	200	25.4	4.8
V3FMR101	10	250	30.6	5.6

- JUNIOR
MASTER 1
MASTER 2
- Single cut file with special handle, used by farmers.
 - Used for sharpening agriculture tools and knives of reaping
 - Rectangular file with single cut on all four sides.

BAND BODY FILE

Cut Available : ■ Second



CODE	SIZE				Overall Length (mm)
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)	
V3TP45	4.5	112	8	1.10	133

- Designed for dressing distributor point that are tripped with tungsten, iridium and similar metals, Thin rectangular shape, Chisel tip of file enters slots or gaps easily.

HEAVY TAPER SAW FILE

Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3HTS03	3	75	8.2
V3HTS35	3.5	90	9.0
V3HTS04	4	100	10.0
V3HTS05	5	125	12.0
V3HTS06	6	150	13.5
V3HTS07	7	175	15.5
V3HTS08	8	200	16.5
V3HTS09	9	225	18.5
V3HTS10	10	250	21.6

- For sharpening saws with universal tothing and teeth at 60° angel
- Three Square file with tang, taper towards the tip
- Single cut on all sides, all three edges cut, used for sharpening of saws with an angle of 60° tooth.
- Surfaces and edges single cut

REGULAR TAPER SAW FILE

Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3RTS03	3	75	7.2
V3RTS35	3.5	90	8.2
V3RTS04	4	100	9.0
V3RTS45	4.5	110	10.0
V3RTS05	5	125	10.5
V3RTS06	6	150	12.0
V3RTS07	7	175	14.5
V3RTS08	8	200	15.5
V3RTS09	9	225	16.5
V3RTS10	10	250	19.0
V3RTS12	12	300	21.6

- For sharpening saws with universal tothing and teeth at 60° angel
- Three Square file with tang, taper towards the tip
- Single cut on all sides, all three edges cut, used for sharpening of saws with an angle of 60° tooth.
- Surfaces and edges single cut

SLIM TAPER SAW FILE

Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3STS04	4	100	6.1
V3STS45	4.5	110	7.2
V3STS05	5	125	7.2
V3STS06	6	150	9.0
V3STS07	7	175	10.5
V3STS08	8	200	12.7
V3STS09	9	225	13.5
V3STS10	10	250	15.5

- For sharpening saws with universal tothing and teeth at 60° angel
- Three Square file with tang, taper towards the tip
- Single cut on all sides, all three edges cut, used for sharpening of saws with an angle of 60° tooth.
- Surfaces and edges single cut

EXTRA SLIM TAPER SAW FILE

Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3EST04	4	100	5.0
V3EST45	4.5	110	6.1
V3EST05	5	125	6.1
V3EST06	6	150	7.2
V3EST07	7	175	9.0
V3EST08	8	200	10.5

- For sharpening saws with universal tothing
- Three Square file with tang, taper towards the tip
- Single cut on all sides, all three edges cut, used for Sharpening of saws with an angle of 60° tooth.
- Surfaces and edges single cut
- Extra slim type all three edges cut, used for rasp curved parts of wood, plastic etc.

DOUBLE EXTRA SLIM TAPER SAW FILE Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3DXS04	4	100	4.5
V3DXS05	5	125	5.0
V3DXS06	6	150	6.1
V3DXS07	7	175	7.2
V3DXS08	8	200	8.2

- For sharpening saws with universal toothing
- Three Square file with tang, taper towards the tip
- single cut on all sides, all three edges cut, used for sharpening of saws with an angle of 60° tooth.
- Surfaces and edges single cut
- Extra slim type all three edges cut, used for rasp curved parts of wood, plastic etc.

BAND SAW FILE Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3BND05	5	125	10.5
V3BND06	6	150	12.0
V3BND07	7	175	13.5
V3BND08	8	200	15.5

- For sharpening bandsaws blades
- Three Square file with tang, taper towards the tip
- Single cut on all sides, all three edges cut, used for sharpening of saws with an angle of 60° tooth.
- Surfaces and edges single cut
- Extra slim type all three edges cut, used for rasp curved parts of wood, plastic etc.

CANT SAW FILE Cut Available : ■ Second



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3CNT04	4	100	10.8	4.0
V3CNT06	6	150	14	5.8
V3CNT08	8	200	18.5	7.0
V3CNT10	10	250	22	8.0

- For sharpening bandsaw blade.
- Non equilateral Triangular cross section, single cut on three sides.

DOUBLE EDGE SAW FILE Cut Available : ■ Second



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3DES05	5	125	18	6
V3DES06	6	150	18	6

- Surface and edges single cut
- Tanged file with diamond shaped profile, all sides with single cut.

DOUBLE ENDED SAW FILE

Cut Available : ■ Second



CODE	SIZE		
	Length (inch)	Length (mm)	Width (mm)
V3DES06	6	150	6.1
V3DES07	7	175	6.1
V3DES08	8	200	7.2
V3DES09	9	225	9.0
V3DES10	10	250	10.0

- Used for sharpening of saws with an angle of 60° tooth.
- Three Square file with tang taper towards the tip
- Single cut on all sides, all three edges cut

PIT SAW FILE

Cut Available : ■ Second



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3PTS04	4	100	8.3	4.2
V3PTS45	4.5	110	9.3	4.7
V3PTS05	5	125	10.3	5.2
V3PTS06	6	150	11.3	5.7

- Used for sharpening of saws with an angle of 60° tooth.
- Three Square file with tang taper towards the tip
- Single cut on all sides, all three edges cut

FEATHER EDGE SAW FILE

Cut Available : ■ Second



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3FES05	5	125	27.3	9.6
V3FES06	6	150	27.3	9.6

- Used for sharpening saws.
- Two tanged file with feather edge profile, all sides with single cut.

ROUND CHAINSAW FILE



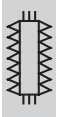
CODE	SIZE			
	Length (inch)	Length (mm)	T	Dia (mm)
V3RCS32	6	150	1/8	3.2
V3RCS35	6	150	9/64	3.5
V3RCS04	6	150	5/32	4
V3RCS45	6	150	11/64	4.5

CODE	SIZE			
	Length (inch)	Length (mm)	T	Dia (mm)
V3RCS48	8	200	3/16	4.8
V3RCS51	8	200	13/64	5.16
V3RCS55	8	200	7/32	5.5
V3RCS06	8	200	15/64	6.0
V3RCS63	8	200	1/4	6.3
V3RCS08	8	200	5/16	8.0
V3RCS96	8	200	3/8	9.6

- For sharpening of the cutting tooth on the saw chain.
- These files are used for sharpening round hooded chain saw teeth.
- They have a safe point and a special tooth construction.
- This gives these files crisp cutting action. They are also supplied in double cut in the 8" size.

FLAT RASP

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3RFL08	8	200	20.6	5.0
V3RFL10	10	250	25.4	6.15
V3RFL12	12	300	30.6	6.6
V3RFL14	14	350	36	7.7

- Work in wood plywood, wall boards and other soft material.
- Rectangular tapered rasp, rasp cut on both sides, both edges with file cut, used for soft material like wood, plastic, casting etc.
- Surface rasp cut one edge single cut.

HALF ROUND RASP

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3RHR04	4	150	12	3.0
V3RHR06	6	200	16.3	5.0
V3RHR08	8	250	20.4	6
V3RHR10	10	300	24.9	7.3
V3RHR12	12	350	29.8	8.9
V3RHR14	14	400	34.8	10.5

- Work in wood plywood, wall boards and other soft material.
- Half round cross section tapered toward the point, rasp cut on both sides, used for soft material like wood, plastic, casting etc.

CABINET RASP

Cut Available : ■ Bastard ■ Second ■ Smooth



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3RCB06	6	150	19.5	3.5
V3RCB08	8	200	23.5	4.5
V3RCB10	10	250	29	6
V3RCB12	12	300	34.5	6.5
V3RCB14	14	350	39	8.5

- Work in wood plywood, wall boards and other soft material.
- Half round rasp tanged, with rasp cut on both sides, flatter and wider than the half round file, used for larger radius.
- Shape thin half round is and surface rasp cut edge single cut.

ROUND RASP

Cut Available : ■ Bastard ■ Second ■ Smooth

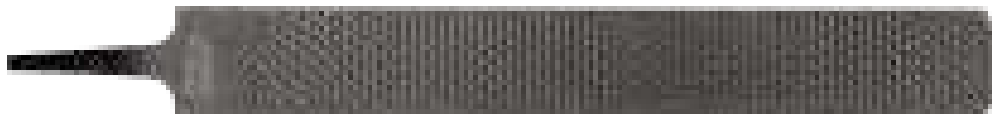
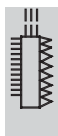


CODE	SIZE		
	Length (inch)	Length (mm)	Thick (mm)
V3RRD06	6	150	6.30
V3RRD08	8	200	8
V3RRD10	10	250	10
V3RRD12	12	300	12
V3RRD14	14	250	16

- Work in wood plywood, wall boards and other soft material.
- Round rasp tapered toward the point, spiral rasp cut, used for rasp holes and round notches on wood and plastic.
- Shape round tapered towards the trip.

HORSE RASP

Cut Available : ■ Bastard



TANGED

CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3HOR12	12	300	39.8	8.8
V3HOR14	14	350	42.0	5.5

PLAIN

CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3HOR12	12	300	35.7	7.7
V3HOR14	14	350	39.8	8.8

- These files are Rectangular shaped, rasp cut on one side, file cut on opposite side, used for sharpening of the hoofs of the horse.
- Available in with and without tang.

SHOE RASP

Cut Available : ■ Bastard



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3SH008	8	200	19.8	5.9
V3SH010	10	250	24.6	7.3

- Use by shoemakers, shoe repairers, home owners, garage men, farmers and mechanics
- This versatile tool is really four files in one - with a file section and a rasp section on the flat side; and a file section and a rasp section on the half round side.

CARPENTER OWN MASTER

Cut Available : ■ Bastard

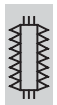


CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3SH008	8	200	19.8	5.9
V3SH010	10	250	24.6	7.3

This versatile tool is really four files in one - with a file section and a rasp section on the flat side; and a file section and a rasp section on the half round side. Use by shoemakers, shoe repairers, home owners, garage men, farmers and mechanics

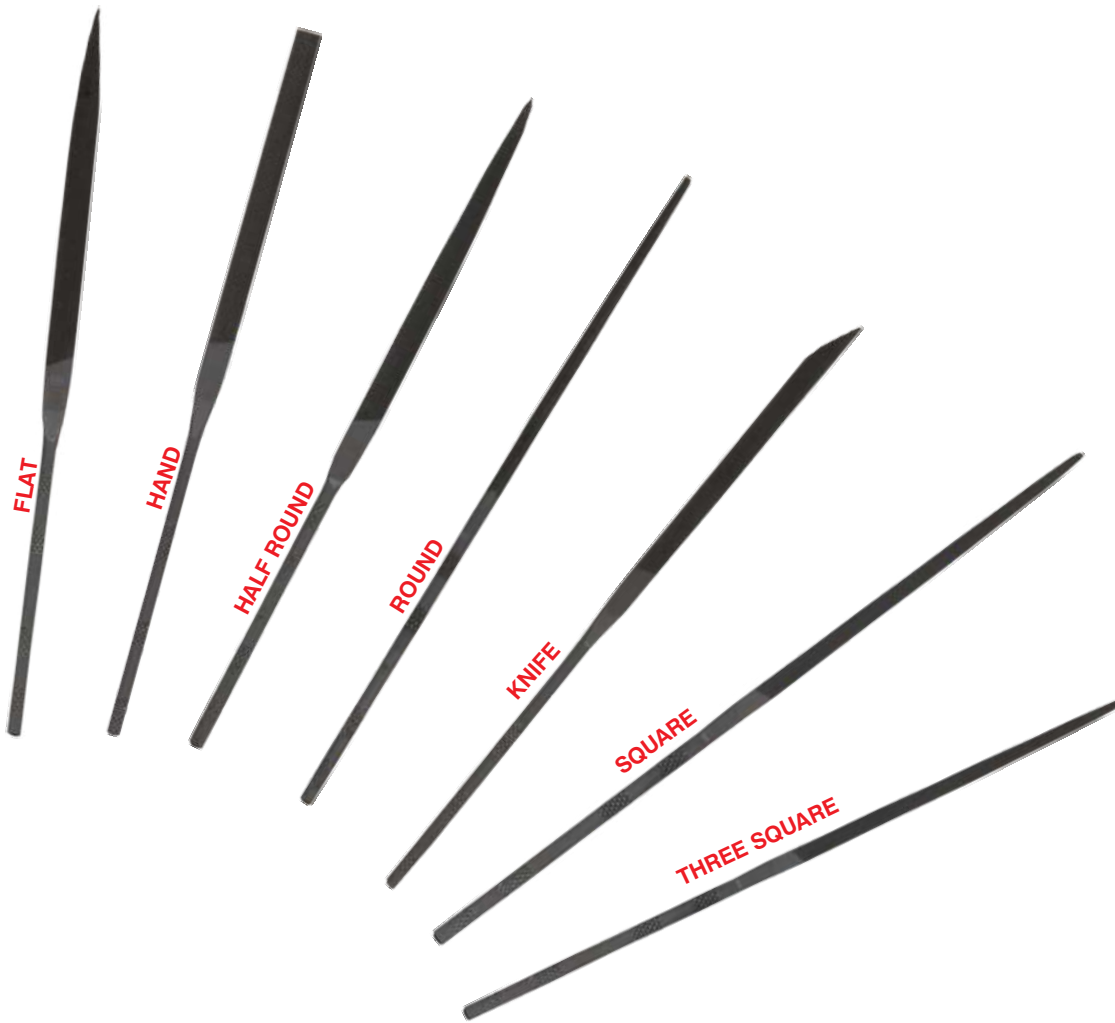
FAMILY OWN JUNIOR

Cut Available : ■ Bastard



CODE	SIZE			
	Length (inch)	Length (mm)	Width (mm)	Thick (mm)
V3SH008	8	200	19.8	5.9
V3SH010	10	250	24.6	7.3

This versatile tool is really four files in one - with a file section and a rasp section on the flat side; and a file section and a rasp section on the half round side. Use by shoemakers, shoe repairers, home owners, garage men, farmers and mechanics



- For fine filing & polishing jobs.
- Used by engravers, Precision Engineers, Instrument makers, watch makers and gold smiths.
- Jewellery makers and maintenance.
- Shape : Edges and surface as per shape.
- Surface double cut, edges single cut.
- Set of 12 nos. files contain to file each of flat, half round, round, three square, square & knife.

SIZE	140/160 MM	
CUT	0	2
NUMBER OF CUTS PER C.M.	20	31

V3

HIGH PERFORMANCE FILE & TOOLS



DIAMOND FILE

SIZE	140/160 MM	
CUT	0	2
NUMBER OF CUTS PER C.M.	ROUGH	MEDIUM

- Used for finishing of material where the hardness make conventional files ineffective.
- Used by die and mould makers and special manufacturing application on materials such as hardand steel, ceramics, glass, graphite.
- Shape : Set of 6 - Flat, half round, square, knife, & three square.
- The files are covered with diamond grit () and are supplied in individual plastic box.
- Single Pack.

V3

HIGH PERFORMANCE FILE & TOOLS



PHA01

PHA02

PHA02

PHA03

PHA03



PHA04

PHA05

PHA06

PHA06

PHA07



PHA08

PHA09

PHA10

WHA01

WHA02



WHA03

WHA04

WHA05

WHA06

HANDLES & PACKAGING

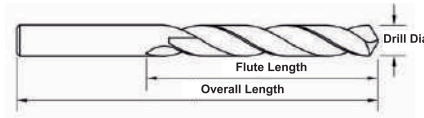
HSS TOOL BITS

NORMAL SIZE		V100 (M2)	V400 (T 42)	V500 (T 42 CRYO)	V600 (T 42- TINCOATED)	PKT. QTY
MM	INCH	SQ. Price Each Rs.	SQ. Price Each Rs.	SQ. Price Each Rs.	SQ. Price Each Rs.	SQ. Price Each Rs.
5X100	3/16"X4"	✓	✓	✓	✓	10
6X75	1/4"X3"	✓	✓	✓	✓	10
6X100	1/4"X4"	✓	✓	✓	✓	10
6X150	1/4"X6"	✓	✓	✓	✓	10
6X200	1/4"X8"	✓	✓	✓	✓	10
8X75	5/16"X3"	✓	✓	✓	✓	10
8X100	5/16"X4"	✓	✓	✓	✓	10
8X150	5/16"X6"	✓	✓	✓	✓	10
8X200	5/16"X8"	✓	✓	✓	✓	10
10X75	3/8"X3"	✓	✓	✓	✓	10
10X100	3/8"X4"	✓	✓	✓	✓	10
10X150	3/8"X6"	✓	✓	✓	✓	10
10X200	3/8"X8"	✓	✓	✓	✓	10
12X75	1/2"X3"	✓	✓	✓	✓	10
12X100	1/2"X4"	✓	✓	✓	✓	10
12X150	1/2"X6"	✓	✓	✓	✓	10
12X200	1/2"X8"	✓	✓	✓	✓	10
16X100	5/8"X4"	✓	✓	✓	✓	1
16X150	5/8"X6"	✓	✓	✓	✓	1
16X200	5/8"X8"	✓	✓	✓	✓	1
19X150	3/4"X6"	✓	✓	✓	✓	1
19X200	3/4"X8"	✓	✓	✓	✓	1
25X150	1"X6"	✓	✓	✓	✓	1
25X200	1"X8"	✓	✓	✓	✓	1

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As per the customer requirement other grade M35 & M42 will be made available against order.

HSS MICRO DRILLS



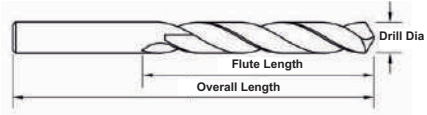
HSS PARALLEL SHANK JOBBER DRILL (GROUND FLUTE) To IS:5101 / DIN:338 / BS:328

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Size - Diameter			Length - mm		Pack QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
0.2			3	19	10
0.25			3	19	10
0.3			3	19	10
0.32			4	19	10
0.34		80	4	19	10
0.35			4	19	10
0.37		79	4	19	10
0.38			4	19	10
0.4	1/64		5	20	10
0.41		78	5	20	10
0.42			5	20	10
0.45			5	20	10
0.46		77	5	20	10
0.48			5	20	10
0.5			6	22	10
0.51		76	6	22	10
0.52			6	22	10
0.53		75	6	22	10
0.55			7	24	10
0.57		74	7	24	10
0.58			7	24	10
0.6			7	24	10
0.61		73	8	26	10
0.62			8	26	10
0.64		72	8	26	10

Size - Diameter			Length - mm		Pack QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
0.65			8	26	10
0.66		71	8	26	10
0.68			9	28	10
0.7			9	28	10
0.71		70	9	28	10
0.72			9	28	10
0.74		69	9	28	10
0.75			9	28	10
0.76			10	30	10
0.79	1/32	68	10	30	10
0.8			10	30	10
0.81		67	10	30	10
0.82			10	30	10
0.84		66	10	30	10
0.85			10	32	10
0.88			11	32	10
0.89		65	11	32	10
0.9			11	32	10
0.91		64	11	32	10
0.92			11	32	10
0.94		63	11	32	10
0.95			11	32	10
0.97		62	12	34	10
0.98			12	34	10
0.99		61	12	34	10

HSS DRILLS

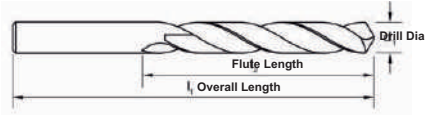


HSS M2 STRAIGHT SHANK JOBBER DRILL (GROUND FLUTE) To IS:5101 / DIN:338 / BS:328

Size - Diameter			Length - mm		Pack. QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
1.00			12	34	10
1.02		60			10
1.04		59	12	34	10
1.07		58			10
1.09		57			10
1.10			14	36	10
1.18		56			10
1.19	3/64				10
1.20			16	38	10
1.30			16	38	10
1.32		55			10
1.40		54	18	40	10
1.50			18	40	10
1.51		53			10
1.59	1/16				10
1.60			20	43	10
1.61		52			10
1.70		51	20	43	10
1.78		50			10
1.80			22	46	10
1.85		49	22	46	10
1.90			22	46	10
1.93		48			10
1.98	5/64		24	49	10
1.99		47	24	49	10
2.00			24	49	10
2.06		46	24	49	10
2.08		45	24	49	10
2.10			24	49	10
2.18		44	27	53	10
2.20			27	53	10
2.26		43	27	53	10
2.30			27	53	10
2.37		42	30	57	10
2.38	3/32		30	57	10
2.40			30	57	10
2.44		41	30	57	10
2.49		40	30	57	10
2.50			30	57	10

Size - Diameter			Length - mm		Pack. QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
2.53			39	57	10
2.58			38	57	10
2.60			30	57	10
2.64			37	57	10
2.70			33	61	10
2.71			36	61	10
2.78	7/64		33	61	10
2.79			35	61	10
2.80			33	61	10
2.82			34	61	10
2.87			33	61	10
2.90			33	61	10
2.95			32	61	10
3.00			36	65	10
3.05			31	65	10
3.10			36	65	10
3.17	1/8		36	65	10
3.20			36	65	10
3.26			30	65	10
3.30			36	65	10
3.40			39	70	10
3.45			29	70	10
3.50			39	70	10
3.57	9/64		39	70	10
3.60			39	70	10
3.66			27	70	10
3.70			39	70	10
3.73			26	70	10
3.80			25	75	10
3.86			24	75	10
3.90			43	75	10
3.91			23	75	10
3.97	5/32		43	75	10
3.99			22	75	10
4.00			43	75	10
4.04			21	75	10
4.09			20	75	10
4.10			43	75	10
4.20			43	75	10

HSS DRILLS

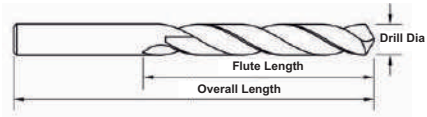


HSS STRAIGHT SHANK JOBBER DRILL (GROUND FLUTE) To IS:5101 / DIN:338 / BS:328

Size - Diameter			Length - mm		Pack. QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
4.22		19	43	75	10
4.30		18	47	80	10
4.37	11/64		47	80	10
4.39		17	47	80	10
4.40			47	80	10
4.50		16	47	80	10
4.57		15	47	80	10
4.60			47	80	10
4.62		14	47	80	10
4.70		13	47	80	10
4.76	3/16		52	86	10
4.80		12	52	86	10
4.85		11	52	86	10
4.90			52	86	10
4.92		10	52	86	10
4.98		9	52	86	10
5.00			52	86	10
5.06		8	52	86	10
5.10			52	86	10
5.11		7	52	86	10
5.16	13/64		52	86	10
5.18		6	52	86	10
5.20			52	86	10
5.22		5	52	86	10
5.30			52	86	10
5.31		4	57	93	10
5.40			57	93	10
5.41		3	57	93	10
5.50			57	93	10
5.56	7/32		57	93	10
5.60			57	93	10
5.61		2	57	93	10
5.70			57	93	10
5.79		1	57	93	10
5.80			57	93	10
5.90			57	93	10
5.94		A	57	93	10
5.95	15/64		57	93	10
6.00			57	93	10

Size - Diameter			Length - mm		Pack. QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
6.04		B	63	101	10
6.10			63	101	10
6.15		C	63	101	10
6.20			63	101	10
6.25		D	63	101	10
6.30			63	101	10
6.35	1/4	E	63	101	10
6.40			63	101	10
6.50			63	101	10
6.53		F	63	101	10
6.60			63	101	10
6.63		G	63	101	10
6.70			63	101	10
6.75	17/64	H	69	109	10
6.80			69	109	10
6.90		I	69	109	10
7.00			69	109	10
7.03		J	69	109	10
7.10			69	109	10
7.14	9/32	K	69	109	10
7.20			69	109	10
7.30			69	109	10
7.37		L	69	109	10
7.40			69	109	10
7.49		M	69	109	10
7.50			69	109	10
7.54	19/64		75	117	10
7.60			75	117	10
7.67		N	75	117	10
7.70			75	117	10
7.80			75	117	10
7.90			75	117	10
7.94	5/16		75	117	10
8.00			75	117	10
8.03		O	75	117	10
8.10			75	117	10
8.20		P	75	117	10
8.30			75	117	10
8.33	21/64		75	117	10

HSS DRILLS

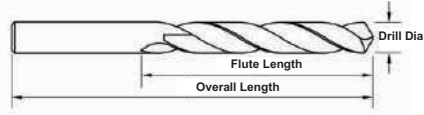


HSS STRAIGHT SHANK JOBBER DRILL (GROUND FLUTE) To IS:5101 / DIN:338 / BS:328

Size - Diameter			Length - mm		Pack. QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
8.40			75	117	10
8.43		Q	75	117	10
8.50			75	117	10
8.60			81	125	10
8.61		R	81	125	10
8.70			81	125	10
8.73	11/32		81	125	10
8.80			81	125	10
8.84		S	81	125	10
8.90			81	125	10
9.00			81	125	10
9.09		T	81	125	10
9.10			81	125	10
9.13	23/64		81	125	10
9.20			81	125	10
9.30			81	125	10
9.34		U	81	125	10
9.40			81	125	10
9.50			81	125	10
9.52	3/8		87	133	10
9.58		V	87	133	10
9.60			87	133	10
9.70			87	133	10
9.80		W	87	133	10
9.90			87	133	10
9.92	25/64		87	133	10
10.00			87	133	10
10.08		X	87	133	5
10.10			87	133	5
10.20			87	133	5
10.26		Y	87	133	5
10.30			87	133	5
10.32	13/32		87	133	5

Size - Diameter			Length - mm		Pack. QTY.
MM	INCH	DG/LG	FLUTE	OVERALL	
10.40			87	133	5
10.49		Z	87	133	5
10.50			87	133	5
10.60			87	133	5
10.70			94	142	5
10.72	27/64		94	142	5
10.80			94	142	5
10.90			94	142	5
11.00			94	142	5
11.10			94	142	5
11.11	7/16		94	142	5
11.20			94	142	5
11.30			94	142	5
11.40			94	142	5
11.50			94	142	5
11.51	29/64		94	142	5
11.60			94	142	5
11.70			94	142	5
11.80			94	142	5
11.90			101	151	5
11.91	15/32		101	151	5
12.00			101	151	5
12.10			101	151	5
12.20			101	151	5
12.30	31/64		101	151	5
12.40			101	151	5
12.50			101	151	5
12.60			101	151	5
12.70	1/2		101	151	5
12.80			101	151	5
12.90			101	151	5
13.00			101	151	5

HSS DRILLS

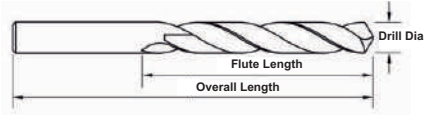


HSS STRAIGHT SHANK STUB DRILLS (GROUND FLUTE) ToIS:5100/DIN:1897/BS:328

Size - Diameter			Length - mm	Pack. QTY.
MM	INCH	FLUTE		
1.00	3/64	6	26	10
1.19		8	30	10
1.20		8	30	10
1.50		9	32	10
1.59	1/16	10	34	10
1.80		11	36	10
1.98	5/64	12	38	10
2.00		12	38	10
2.20		13	40	10
2.38	3/32	14	43	10
2.50		14	43	10
2.78	7/64	16	46	10
2.80		16	46	10
3.00		16	46	10
3.17	1/8	18	49	10
3.20		18	49	10
3.50		20	52	10
3.57	9/64	20	52	10
3.80		22	55	10
3.97	5/32	22	55	10
4.00		22	55	10
4.20		22	55	10
4.37	11/64	24	58	10
4.50		24	58	10
4.76	3/16	26	62	10
4.80		26	62	10
5.00		26	62	10
5.16	13/64	26	62	10
5.20		26	62	10
5.50		28	66	10
5.56	7/32	28	66	10
5.80		28	66	10
5.95	15/64	28	66	10
6.00		28	66	10
6.20		31	70	10
6.35	1/4	31	70	10
6.50		31	70	10
6.75	17/64	34	74	10
6.80		34	74	10

Size - Diameter			Length - mm	Pack. QTY.
MM	INCH	FLUTE		
7.00		34	74	10
7.14	9/32	34	74	10
7.20		34	74	10
7.50		34	74	10
7.54	19/64	37	79	10
7.80		37	79	10
7.94	5/16	37	79	10
8.00		37	79	10
8.20		37	79	10
8.33	21/64	37	79	10
8.50		37	79	10
8.73	11/32	40	84	10
8.80		40	84	10
9.00		40	84	10
9.13	23/64	40	84	10
9.20		40	84	10
9.50		40	84	10
9.52	3/8	43	89	10
9.80		43	89	10
9.92	25/64	43	89	10
10.00		43	89	10
10.20		43	89	5
10.32	13/32	43	89	5
10.50		43	89	5
10.72	27/64	47	95	5
10.80		47	95	5
11.00		47	95	5
11.11	7/16	47	95	5
11.20		47	95	5
11.50		47	95	5
11.51	29/64	47	95	5
11.80		47	95	5
11.91	15/32	51	102	5
12.00		51	102	5
12.20		51	102	5
12.30	31/64	51	102	5
12.50		51	102	5
12.70	1/2	51	102	5
12.80		51	102	5
13.00		51	102	5

HSS DRILLS

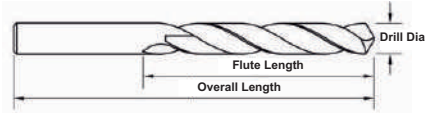


HSS STRAIGHT SHANK LONG SERIES DRILLS ToIS:5102/DIN:340/BS:328/I.S.O.

Size - Diameter			Length - mm	Pack. QTY.
MM	INCH	FLUTE	OVERALL	
1.00		33	56	10
1.10		37	60	10
1.19	3/64	41	65	10
1.20		41	65	10
1.30		41	65	10
1.40		45	70	10
1.50		45	70	10
1.59	1/16	50	76	10
1.60		50	76	10
1.70		50	76	10
1.80		53	80	10
1.90		53	80	10
1.98	5/64	56	85	10
2.00		56	85	10
2.10		56	85	10
2.20		59	90	10
2.30		59	90	10
2.38	3/32	62	95	10
2.40		62	95	10
2.50		62	95	10
2.60		62	95	10
2.70		66	100	10
2.78	7/64	66	100	10
2.80		66	100	10
2.90		66	100	10
3.00		66	100	10
3.10		69	106	10
3.17	1/8	69	106	10
3.20		69	106	10
3.30		69	106	10
3.40		73	112	10
3.50		73	112	10
3.57	9/64	73	112	10
3.60		73	112	10
3.70		73	112	10
3.80		78	119	10
3.90		78	119	10
3.97	5/32	78	119	10
4.00		78	119	10

Size - Diameter			Length - mm	Pack. QTY.
MM	INCH	FLUTE	OVERALL	
4.10		78	119	10
4.20		78	119	10
4.30		82	126	10
4.37	11/64	82	126	10
4.40		82	126	10
4.50		82	126	10
4.60		82	126	10
4.70		82	126	10
4.76	3/16	87	132	10
4.80		87	132	10
4.90		87	132	10
5.00		87	132	10
5.10		87	132	10
5.16	13/64	87	132	10
5.20		87	132	10
5.30		87	132	10
5.40		91	139	10
5.50		91	139	10
5.56	7/32	91	139	10
5.60		91	139	10
5.70		91	139	10
5.80		91	139	10
5.90		91	139	10
5.95	15/64	91	139	10
6.00		91	139	10
6.10		97	148	10
6.20		97	148	10
6.30		97	148	10
6.35	1/4	97	148	10
6.40		97	148	10
6.50		97	148	10
6.60		97	148	10
6.70		97	148	10
6.75	17/64	102	156	10
6.80		102	156	10
6.90		102	156	10
7.00		102	156	10
7.10	9/32	102	156	10
7.14		102	156	10

HSS DRILLS



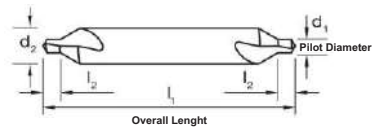
HSS STRAIGHT SHANK LONG SERIES DRILLS ToIS:5102/DIN:340/BS:328/I.S.O.

Size - Diameter			Length - mm	Price Each
MM	INCH	FLUTE	OVERALL	
7.20		102	156	10
7.30		102	156	10
7.40		102	156	10
7.50		102	156	10
7.54	19/64	109	165	10
7.60		109	165	10
7.70		109	165	10
7.80		109	165	10
7.90		109	165	10
7.94	5/16	109	165	10
8.00		109	165	10
8.10		109	165	10
8.20		109	165	10
8.30		109	165	10
8.33	21/64	109	165	10
8.40		109	165	10
8.50		109	165	10
8.60		115	175	10
8.70		115	175	10
8.73	11/32	115	175	10
8.80		115	175	10
9.00		115	175	10
9.13	23/64	115	175	10
9.20		115	175	10

Size - Diameter			Length - mm	Price Each
MM	INCH	FLUTE	OVERALL	
9.50		115	175	10
9.52	3/8	121	184	10
9.80		121	184	10
9.92	25/64	121	184	10
10.00		121	184	10
10.20		121	184	5
10.3	13/32	121	184	5
10.50		121	184	5
10.72	27/64	128	195	5
10.80		128	195	5
11.00		128	195	5
11.11	7/16	128	195	5
11.20		128	195	5
11.50		128	195	5
11.51	29/64	128	195	5
11.80		128	195	5
11.91	15/32	134	205	5
12.00		134	205	5
12.20		134	205	5
12.30	31/64	134	205	5
12.50		134	205	5
12.70	1/2	134	205	5
12.80		134	205	5
13.00		134	205	5

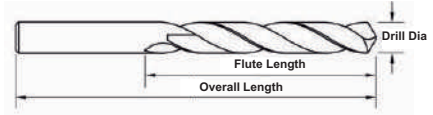


HSS CENTRE DRILL



Type A & R IS : 6710-1977			Type B IS : 6709 - 1977				B.S. 328 (PART 2) 1950		
Pilot Dia	Body Dia	OAL	Pilot Dia	Body Dia	OAL	Size B.S. No.	Pilot Dia	Body Dia	OAL
1.00	3.15	31.5	1.00	4.00	35.5	BS1	3/64"	1/8"	1.1/2"
1.25	3.15	31.5	1.25	5.00	40	BS2	1/16"	3/16"	1.3/4"
1.60	4.00	35	1.60	6.30	45	BS3	3/32"	1/4"	2"
2.00	5.00	40	2.00	8.00	50	BS4	1/8"	5/16"	2.1/4"
2.50	6.30	45	2.50	10.00	56	BS5	3/16"	7/16"	2.1/2"
3.15	8.00	46	3.15	11.20	60	BS6	1/4"	5/8"	3"
4.00	10.00	56	4.00	14.00	67	BS7	5/16"	3/4"	3.1/2"
5.00	12.50	63	5.00	18.00	75				
6.30	16.00	71	6.30	20.00	80				
8.00	20.00	80							

HSS DRILLS



HSS PARALLEL SHANK - EXTRA LONG SERIES TO OUR STANDARD

Sizes		Prise Rs./Each							
MM	INCH	OAL MM	150	175	200	225	250	300	350
		FL MM	100	120	150	175	200	250	300
3	1/8	-	✓	✓	✓	✓	✓	✓	-
3.5		-	✓	✓	✓	✓	✓	✓	-
4	5/32	-	✓	✓	✓	✓	✓	✓	✓
4.5		-	✓	✓	✓	✓	✓	✓	✓
5	3/16	-	✓	✓	✓	✓	✓	✓	✓
5.5	7/32	-	✓	✓	✓	✓	✓	✓	✓
6	1/4	-	✓	✓	✓	✓	✓	✓	✓
6.5		-	-	-	✓	-	✓	✓	✓
7		-	-	-	✓	-	✓	✓	✓
7.5	9/32	-	-	-	✓	-	✓	✓	✓
8	5/16	-	-	-	✓	-	✓	✓	✓
8.5	11/32	-	-	-	✓	-	✓	✓	✓
9		-	-	-	✓	-	✓	✓	✓
9.5	3/8	-	-	-	✓	-	✓	✓	✓
10		-	-	-	✓	-	✓	✓	✓
10.5	13/32	-	-	-	✓	-	✓	✓	✓
11	7/16	-	-	-	-	-	✓	✓	✓
11.5		-	-	-	-	-	✓	✓	✓
12	15/32	-	-	-	-	-	✓	✓	✓
12.5	1/2	-	-	-	-	-	✓	✓	✓

MASONRY DRILLS - CARBIDE TIPPED (GROUND FLUTED & BRIGHT PLATED)

Sizes		FLUTE LENGTH	OVERALL	Paked
MM	INCH			Qty. LENGTH
3	1/8	40	76	10
4	5/32	45	85	10
5	3/16	45	90	10
5.5	7/32	45	90	10
6	15/64	60	110	10
6.5	1/4	60	110	10
7	9/32	60	110	10
8	5/16	80	120	10
9	11/32	80	120	10
10	3/8	80	120	10
11	7/16	115	160	5
12	15/32	115	160	5
13	1/2	115	160	5



Feature :

- Heavy duty Drill bit with Unique Head Geometry and Centring Point
- Precision-ground Flute
- Precision-ground drill Tap
- Optimised cutting angle
- Helical flute for quick removal of chips and dust
- Premium carbide for extremely tough materials

HSS END MILLS

HSS PARALLEL SHANK END MILLS

IS 6353 - 1991 & BS - 122 (PART-1) 1953

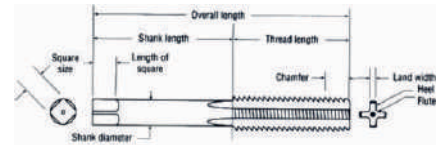
DIA		SHANK DIA	CEL	OAL
MM	INCH			
3	1/8	4	8	40
4	5/32	4	11	43
5	3/16	5	13	47
6	1/4	6	13	57
7		8	16	60
8	5/16	8	19	63
9	3/8	10	19	69
10		10	22	72
11	7/16	12	22	79
12	1/2	12	26	83
13		12	26	83
14	9/16	12	26	83
15		16	26	83
16	5/8	16	32	92
17		16	32	92
18		16	32	92
19	3/4	16	32	92
20	13/16	20	38	104
21		20	38	104
22	7/8	20	38	104
23		20	38	104
24		20	38	104
25		25	45	121
26		25	45	121
27		25	45	121
28	1.1/8	25	45	121
29		25	45	121
30		25	45	121
32		25	63	140
33	1.1/4	25	63	140
34		25	63	140
35	1.3/8	25	63	140
36		32	70	160
37		32	70	160
38	1.1/2	32	70	160
39		32	70	160
40		32	70	160

HSS PARALLEL SHANK SLOT MILL

IS 6353 - 1991 & BS - 122 (PART-1) 1953

DIA		SHANK DIA	CEL	OAL
MM	INCH			
3	1/8	4	7	39
4	5/32	4	7	39
5	3/16	6	8	49
6	1/4	6	8	52
7		8	10	54
8	5/16	8	11	55
9	3/8	8	11	61
10		10	13	63
11		10	13	70
12	1/2	12	16	73
14	9/16	12	16	73
15	5/8	12	16	73
16		16	19	73
18		16	19	79
20	3/4	20	22	88
21	13/16	21	22	88
22	7/8	20	22	88
23		20	22	102
24		25	25	102
25	1	25	26	102
26		25	26	102
28		25	26	102
30	1.1/4	25	26	102
32	1.3/8	25	32	112
35		32	32	112
36		32	32	112
38	1.1/2	32	36	112
40		32	38	130

HSS TAPS

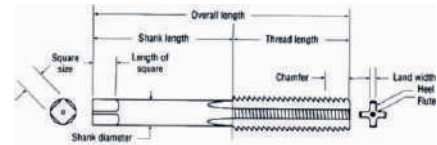


COARSE PITCH

HSSGROUND THREAD HAND TAPS-COARCE PITCH					IS 6175-PART 1,2 & 3 - 1992	
Size	SHANK DIA	Drill Size	TL	OAL	SQUARE	
					SIZE(a)	Length
M3X0.5	3.15	2.5	11	48	2.50	5.00
M4X0.7	4.00	3.3	13	53	3.15	6.00
M5X0.8	5.00	4.2	16	58	4.00	7.00
M6X1.0	6.30	5	19	66	5.00	8.00
M8X1.25	8.00	6.75	22	72	6.30	9.00
M10X1.5	10.00	8.5	24	80	8.00	11.00
M12X1.75	9.00	10.2	29	89	7.10	10.00
M14X2.0	11.20	12	30	95	9.00	12.00
M16X2.0	12.50	14	32	102	10.00	13.00
M18X2.5	14.00	15.5	37	112	11.20	14.00
M20X2.5	14.00	17.5	37	112	11.20	14.00
M22X2.5	16.00	19.5	38	118	12.50	16.00
M24X3.0	18.00	21	45	130	14.00	18.00
M27X3.0	20.00	24	45	135	16.00	20.00
M30X3.5	20.00	26.5	48	138	16.00	20.00
M33X3.5	22.40	29.5	51	151	18.00	22.00
M36X4.0	25.00	32	57	162	20.00	24.00
M39X4.0	28.00	35	60	170	22.40	26.00
M42X4.5	28.00	37.5	60	170	22.40	26.00
M45X4.5	31.50	40.5	67	187	25.00	28.00
M48X5.0	31.50	43	67	187	25.00	28.00
M52X5.0	35.50	47	70	200	28.00	31.00
M56X5.5	35.50	50.5	70	200	28.00	31.00
M60X5.5	40.00	54.5	76	221	31.50	34.00

HSSGROUND THREAD LONG SHANK MACHINE TAPS						
Size	SHANK DIA	Drill Size	TL	OAL	SQUARE	
					SIZE(a)	Length
M3X0.5	2.24	2.51	11	66	1.80	4.00
M4X0.7	3.15	3.32	13	73	2.50	5.00
M5X0.8	4.00	4.22	16	79	3.10	6.00
M6X1.0	4.50	5.03	19	89	3.55	6.00
M8X1.25	6.30	6.78	22	97	5.00	8.00
M10X1.5	8.00	8.54	24	108	6.30	9.00
M12X1.75	9.00	10.3	29	119	7.10	10.00
M14X2.0	11.20	12.05	30	127	9.00	12.00
M16X2.0	12.50	14.05	32	137	10.00	13.00
M18X2.5	14.00	15.56	37	149	11.20	14.00
M20X2.5	14.00	17.56	37	149	11.20	14.00
M22X2.5	16.00	19.65	38	158	12.50	16.00
M24X3.0	18.00	21.08	45	172	14.00	18.00

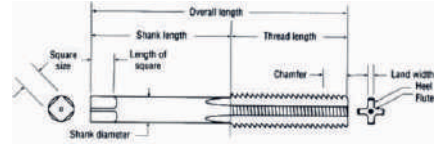
HSS TAPS



FINE TAP

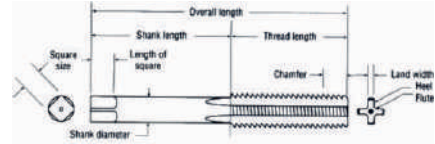
HSS GROUND THREAD HAND TAPS-FINE PITCH					IS 6175-PART 1,2 & 3 - 1992	
Size	SHANK DIA	Drill Size	TL	OAL	SQUARE	
					SIZE(a)	Length
M3X0.35	3.15	2.66	11	48	2.50	5.00
M4X0.5	4.00	3.51	13	53	3.15	6.00
M5X0.5	5.00	4.51	17	58	4.00	7.00
M6X0.75	6.30	5.27	19	66	5.00	8.00
M8X0.75/1.0	8.00	7.27/7.03	16/19	66/69	6.30	9.00
M10X0.75/1.0/1.25	10.00	9.27/9.03/8.78	17/20/20	73/76/76	8.00	11.00
M12X1.0/1.25/1.50	9.00	11.03/10.78/10.54	20/24/29	80/84/89	7.10	10.00
M14X1.0/1.25	11.20	13.03/12.78	22/25	87/90	9.00	12.00
M16X1.0	12.50	15.03	22	92	10.00	13.00
M18X1.0/1.5	14.00	17.03/16.54	22/29	97/104	11.20	14.00
M20X2.0	14.00	18.05	37	112	11.20	14.00
M22X2.0	16.00	20.05	33	118	12.50	16.00
M24X1.0/1.5/2	18.00	23.03/22.54/22.05	29/35/35	114/120/120	14.00	18.00
M25X1.5	18.00	23.54	35	120	14.00	18.00
M26X1.5/2.0	18.00	24.54	35	120	14.00	18.00
M27X1.5/2.0	20.00	25.54/25.05	37	127	16.00	20.00
M30X1.0/1.5	20.00	29.03/28.54	30/37	120/127	16.00	20.00
M30X2.0/3.0	20.00	28.05/27.08	37/48	127/148	16.00	20.00
M32X1.5	22.40	30.54	37	137	18.00	20.00
M32X2.0	22.40	30.05	37	137	18.00	20.00
M33X1.5/2.0/3	22.40	31.54/31.05/30.08	37/37/51	137/137/151	18.00	20.00
M35X1.5	25.00	33.54	39	144	20.00	24.00
M36X1.5/2.0/3.0	25.00	34.54/34.05/33.08	39/39/57	144/144/162	20.00	24.00
M42X1.5/2/3	28.00	40.5/40/39	39/39/60	149/149/170	22.40	26.00
M45X1.5/2.0/3.0	31.50	43.5/42.75	45/45/67	165/165/187	25.00	28.00
M48X1.5/2.0/3.0	31.50	46.5/46/45	45/45/67	165/165/187	25.00	28.00
M52X1.5/2.0/3.0	35.50	50.5/50/49	45/45/70	175/175/200	28.00	31.00
M56X1.5/2.0/3.0	35.50	54.5/54/52	45/45/70	175/175/200	28.00	31.00
M60X1.5/2.0/3.0	40.00	58.5/58/57	48/48/64	193/193/209	31.50	34.00

HSS TAPS



HSS MACHINE TAP FINE PITCH						
Size	SHANK DIA	Drill Size	TL	OAL	SQUARE	
					SIZE(a)	Length
M3X0.35	2.24	2.66	11	66	1.80	4.00
M4X0.5	3.15	3.51	13	73	2.50	5.00
M5X0.5	4.00	4.51	16	79	3.15	6.00
M6X0.75	4.50	5.25	19	89	3.55	6.00
M8X0.75/1.0	6.30	7.27/7.03	16/19	91/97	5.00	8.00
M10X0.75/1.0/1.25	8.00	9.27/9.03/8.78	17/20/20	104/108/108	6.30	9.00
M12X1.0/1.25/1.50	9.00	11.03/10.78/1.54	20/24/29	110/119/119	7.10	10.00
M14X1.0/1.25	11.20	13.03/12.78	22/25	124/127	9.00	12.00
M16X1.0	12.50	15.03	22	127	10.00	13.00
M18X1.0/1.5	14.00	17.03/16.54	22/29	135/142	11.20	14.00
M20X2.0	14.00	18.05	37	149	11.20	14.00
M22X2.0	16.00	20.05	38	158	12.50	16.00
M24X1.0	18.00	22.54	35	172	14.00	18.00
M24X1.5	18.00	22.54	35	172	14.00	18.00
M24X2.0	18.00	22.05	35	172	14.00	18.00

HSS TAPS

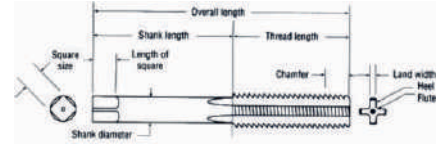


BS 949(PART 1) 1992
ISO 529 1993

BSW/UNC

SizeXTPI	SHANK DIA	Drill Size	TL	OAL	SQUARE	
					SIZE(a)	Length
NO.5X40	3.15	2.65	11	48	2.50	5.00
NO.6X32	3.55	2.85	13	50	2.80	5.00
NO.8X32	4.55	3.50	13	53	3.55	6.00
NO.10X24	5.00	3.90	16	58	4.00	7.00
NO.12X24	5.60	4.50	17	62	4.50	7.00
1/8X40	3.15	2.60	11	48	2.50	5.00
3/16X24	5.00	3.60	16	58	4.00	7.00
1/4X20	6.30	5.10	19	66	5.00	8.00
5/16X18	8.00	6.60	22	72	6.30	9.00
3/8X16	10.00	8.00	24	80	8.00	11.00
7/16X14	8.00	9.40	25	85	6.30	9.00
1/2X12/13	9.00	10.90/10.67	29	89	7.10	10.00
9/16X12	11.20	12.20	30	95	9.00	12.00
5/8X11	12.50	13.50	32	102	10.00	13.00
11/16X11	14.00	15.00	37	112	11.20	14.00
3/4X10	14.00	16.50	37	112	11.20	14.00
7/8X9	16.00	19.50	38	118	12.50	16.00
1X8	18.00	22.25	45	130	14.00	18.00
1.1/8X7	20.00	25.00	48	138	16.00	20.00
1.1/4X7	22.00	28.00	51	151	18.00	22.00
1.3/8X6	25.00	30.75	57	162	20.00	24.00
1.1/2X6	28.00	34.00	60	170	22.40	26.00

HSS TAPS



BS 949(PART 1) 1992
ISO 529 1993

BSF/UNF

SizeXTPI	SHANK DIA	Drill Size	TL	OAL	SQUARE	
					SIZE(a)	Length
NO.5X44	3.15	2.7	11	48	2.50	5.00
NO.6X40	3.55	2.95	13	50	2.00	5.00
NO.8X36	4.50	3.5	13	53	3.55	6.00
NO.10X32	5.00	4.1	16	58	4.00	7.00
NO.12X28	5.60	4.7	17	62	4.50	7.00
3/16X32	5.00	4.00	16	58	4.00	7.00
1/4X26/28	6.30	5.40/5.52	19	66	5.00	8.00
5/16X22/24	8.00	6.83/6.96	22	72	6.30	9.00
3/8X20/24	10.00	8.30/8.55	24	80	8.00	11.00
7/16X15/20	8.00	9.76/9.8	25	85	6.30	9.00
1/2X16/20	9.00	11.18/11.53	29	89	7.10	10.00
9/16X16/18	11.20	12.76/1.99	30	95	9.00	12.00
5/8X14/18	12.50	14.13/14.58	32	102	10.00	13.00
11/16X14	14.00	15.75	37	112	11.20	14.00
3/4X12/16	14.00	17.02/17.59	37	112	11.20	14.00
7/8X11/14	16.00	20.00/20.56	38	118	12.50	16.00
1X10/12	18.00	23.00	45	130	14.00	18.00
1.1/8X9/12	20.00	26.00	48	138	16.00	20.00
1.1/4X9/12	22.40	29.00	57	151	18.00	22.00
1.3/8X8/12	25.00	32.00	57	162	20.00	24.00
1.1/2X8/12	28.00	35.00	60	170	22.40	26.00

B.A TAPS

B.A NO	DRILL SIZE	TL	OAL	STRAIGHT FLUTE	SPIRAL POINT
0	5.10	19	66	✓	✓
1	4.49	17	62	✓	✓
2	3.97	16	58	✓	✓
3	3.44	13	53	✓	✓
4	3.01	13	50	✓	✓
5	2.67	11	48	✓	✓
6	2.32	9.5	44.5	✓	✓
8	1.81	9.5	44.5	✓	✓
10	1.39	8	41	✓	✓
11	1.22	8	41	✓	✓
12	1.05	7	40	✓	✓

BSP(P), BSPT

Size	DRILL SIZE	TL	OAL	BSP(P)	BSPT
1/8	8.86	3/4	2.1/8	✓	✓
1/4	11.87	1.1/16	2.7/16	✓	✓
3/8	15.38	1.1/16	2.9/16	✓	✓
1/2	19.21	1.3/8	3.1/8	✓	✓
5/8	21.17	1.3/8	3.3/16	✓	✓
3/4	24.7	1.3/8	3.1/4	✓	✓
7/8	28.46	1.9/16	3.1/2	✓	✓
1	31.03	1.3/4	3.3/4	✓	✓

SOLID CARBIDE TOOLS

SC END MILL 2/4 FLUTE

DIA	SH.DIA	FL	OAL
1.0	3.0	5	40
2.0	3.0	10	50
3.0	3.0	15	50
4.0	4.0	15	50
5.0	5.0	20	55
6.0	6.0	20	60
7.0	7.0	25	65
8.0	8.0	25	65
9.0	9.0	30	75
10.0	10.0	30	75
11.0	11.0	35	75
12.0	12.0	35	75
14.0	14.0	40	90
16.0	16.0	40	90
18.0	18.0	40	100
20.0	20.0	40	100
22.0	22.0	40	100
24.0	24.0	40	100
25.0	25.0	40	100

SC LONG & EXTRA LONG END MILL 4 FLUTE

DIA	SH.DIA	FL	OAL
3.0	3.0	20	60
3.0	3.0	25	75
3.0	3.0	30	100
4.0	4.0	20	60
4.0	4.0	25	75
4.0	4.0	40	100
5.0	5.0	20	60
5.0	5.0	25	75
5.0	5.0	40	100
6.0	6.0	35	75
6.0	6.0	40	100
6.0	6.0	50	150
8.0	8.0	35	75
8.0	8.0	40	100
8.0	8.0	75	150
10.0	10.0	40	80
10.0	10.0	40	100
10.0	10.0	75	150
10.0	10.0	75	200
12.0	12.0	50	100
12.0	12.0	75	150
12.0	12.0	75	200
14.0	14.0	40	100
14.0	14.0	75	150
14.0	14.0	75	200
16.0	16.0	75	150
16.0	16.0	75	200
18.0	18.0	75	150
18.0	18.0	75	200
20.0	20.0	75	150
20.0	20.0	75	200
25.0	25.0	75	150
25.0	25.0	75	200

VX1

VX3



VX1 Series 45 HRC TIALN Coated 10% Cobalt (K20UF) Grain Size~0.6-0.8- (µm)

VX2 Series 55 HRC ALCRONA Coated 10% Cobalt (K20-30) Grain Size~0.5-0.6- (µm)

VX3 VX3 Series 65 HRC TISINOS Coated 12% Cobalt (K44-K44UF) Grain Size 0.4 to 0.5 (µm)

SOLID CARBIDE TOOLS

SC BALL NOSE END MILL 2/4 FLUTE

DIA	SH.DIA	FL	OAL
1.0	1.0	5	40
2.0	3.0	10	50
3.0	3.0	10	50
4.0	4.0	15	50
5.0	5.0	20	55
6.0	6.0	20	60
7.0	7.0	25	65
8.0	8.0	25	65
9.0	9.0	30	75
10.0	10.0	30	75
11.0	11.0	35	75
12.0	12.0	35	75
14.0	14.0	40	90
16.0	16.0	40	90
18.0	18.0	40	100
20.0	20.0	40	100
22.0	22.0	40	100
24.0	24.0	40	100
25.0	25.0	40	100

SC LONG & EXTRA LONG BALL NOSE END MILL 2/4 FLUTE

DIA	SH.DIA	FL	OAL
3.0	3.0	20	60
3.0	3.0	25	75
3.0	3.0	30	100
4.0	4.0	20	60
4.0	4.0	25	75
4.0	4.0	40	100
5.0	5.0	20	60
5.0	5.0	25	75
5.0	5.0	40	100
6.0	6.0	30	75
6.0	6.0	40	100
6.0	6.0	50	150
8.0	8.0	35	75
8.0	8.0	40	100
8.0	8.0	75	150
10.0	10.0	40	80
10.0	10.0	40	100
10.0	10.0	75	150
10.0	10.0	75	200
12.0	12.0	50	100
12.0	12.0	75	150
12.0	12.0	75	200
14.0	14.0	40	100
14.0	14.0	75	150
14.0	14.0	75	200
16.0	16.0	75	150
16.0	16.0	75	200
18.0	18.0	75	150
18.0	18.0	75	100
20.0	20.0	75	150
20.0	20.0	75	200
25.0	25.0	75	150
25.0	25.0	75	200

VX1



BALL NOSE

VX3



VX1 Series 45 HRC TIALN Coated 10% Cobalt (K20UF) Grain Size~0.6-0.8- (µm)

VX2 Series 55 HRC ALCRONA Coated 10% Cobalt (K20-30) Grain Size~0.5-0.6- (µm)

VX3 Series 65 HRC TISINOS Coated 12% Cobalt (K44-K44UF) Grain Size 0.4 to 0.5 (µm)

SOLID CARBIDE TOOLS

SC CARBIDE JOBBER DRILLS

DIA	SH.DIA	FL	OAL
0.5	3	5	50
1	1	12	50
1.5	1.5	18	50
2.0	3.0	24	49
2.5	3.0	30	57
3.0	3.0	33	61
3.5	3.5	39	70
4.0	4.0	43	75
4.5	4.5	47	80
5.0	5.0	52	86
5.5	5.5	57	93
6.0	6.0	57	93
6.5	6.5	63	101
7.0	7.0	69	109
7.5	7.5	69	109
8.0	8.0	75	117
8.5	8.5	75	117
9.0	9.0	81	125
9.5	9.5	81	125
10.0	10.0	87	133
10.5	10.5	87	133
11.0	11.0	94	142
12.0	12.0	101	151
13.0	13.0	101	151
14.0	14.0	108	160
15.0	15.0	114	169
16.0	16.0	120	178
18.0	18.0	130	191
20.0	20.0	140	205

SOLID CARBIDE STUB DRILL

DIA	SH.DIA	FL	OAL
0.5	1	4	25
1	1	6	38
1.5	1.5	15	40
2.0	3.0	12	38
2.5	3.0	14	43
3.0	3.0	16	46
3.5	3.5	20	52
4.0	4.0	22	55
4.5	4.5	24	58
5.0	5.0	26	62
5.5	5.5	28	66
6.0	6.0	28	66
6.5	6.5	31	70
7.0	7.0	34	74
7.5	7.5	34	74
8.0	8.0	37	79
8.5	8.5	37	79
9.0	9.0	40	84
9.5	9.5	40	84
10.0	10.0	43	89
10.5	10.5	43	89
11.0	11.0	47	95
11.5	11.5	47	95
12.0	12.0	51	102
12.5	12.5	51	102
13.0	13.0	51	103
14.0	14.0	54	107
14.5	14.5	54	107
15.0	15.0	56	107
16.0	16.0	58	110
18.0	18.0	60	110
20.0	20.0	60	110
22.0	22.0	60	110
24.0	24.0	60	110
25.0	25.0	60	110

VX1 **VX3**



On request availability

- * Step Drill and special Drill as per Drawing
- * Drill for aluminum application

SOLID CARBIDE TOOLS

SOLID CARBIDE REAMER

DIA	SH.DIA	FL	OAL
3.0	3.0	16	65
4.0	4.0	19	65
5.0	5.0	25	80
6.0	6.0	25	80
8.0	8.0	40	100
10.0	10.0	40	100
12.0	12.0	40	100
14.0	14.0	50	100
16.0	16.0	50	160

VX1



SOLID CARBIDE ROUGHING END MILL

DIA	SH.DIA	FL	OAL
6.0	6.0	16	63
7.0	7.0	16	63
8.0	8.0	16	63
10.0	10.0	40	90
12.0	12.0	40	90
12.0	12.0	100	150
12.0	12.0	100	200
14.0	14.0	40	90
16.0	16.0	100	150
16.0	16.0	100	200
20.0	20.0	100	150
20.0	20.0	100	200
25.0	25.0	100	150
25.0	25.0	100	200
32.0	32.0	100	150
32.0	32.0	100	200

VX1



SOLID CARBIDE TOOL

SOLID CARBIDE THROUGH COOLANT DRILL

DIA	SH.DIA	FL	OAL
6.0	6.0	44	82
6.0	6.0	53	91
7.0	8.0	53	91
7.5	8.0	53	91
8.0	8.0	53	91
8.5	10.0	61	103
9.0	10.0	61	103
9.5	10.0	61	103
10.0	10.0	61	103
10.2	12.0	71	118
12.0	12.0	71	118
14.0	14.0	77	124
15.0	15.0	77	133
16.0	16.0	83	133

VX3



SOLID CARBIDE CENTRE DRILL

PILOT DIA	BODY DIA	OAL
2.0	5.0	50
2.5	6.3	50
3.15	8.0	65
4.0	10.0	65
5.0	12.5	65
6.3	16.0	75
8.0	20.0	80

VX1



SOLID CARBIDE N.C SPOTTING DRILLS

DIA	SH.DIA	FL	OAL
5.0	5.0	14	65
6.0	6.0	16	65
8.0	8.0	20	80
10.0	10.0	25	80
12.0	12.0	30	100
16.0	16.0	37	110
20.0	20.0	45	130
25.0	25.0	50	130



HARDNESS COMPRASION

BRINELL HARDNESS (HB)	VICKERS HARDNESS (HV)	ROCKWELL HARNESS (HRc)
111	117	-
116	122	-
121	127	-
126	132	-
131	137	-
137	143	-
143	150	-
149	156	-
156	163	-
163	171	-
167	175	-
170	178	-
174	182	-
179	188	-
183	192	-
187	196	-
192	202	-
197	207	-
201	212	-
207	218	-
212	222	-
217	228	-
223	234	-
229	241	20.5
235	247	21.7
241	253	22.8
248	261	24.2

BRINELL HARDNESS (HB)	VICKERS HARDNESS (HV)	ROCKWELL HARNESS (HRc)
255	269	25.4
262	276	26.6
267	284	27.6
277	292	28.8
285	301	29.9
293	309	30.9
302	319	32.1
311	328	33.1
321	339	34.3
331	350	35.5
341	360	36.6
352	372	37.9
363	383	39.1
375	396	40.4
388	410	41.8
401	425	43.1
415	440	44.5
429	455	45.7
444	472	47.1
461	491	48.5
477	508	49.6
495	528	51.0
514	547	52.1
534	569	53.5
565	591	54.7
578	615	56.0

BRINELL HARDNESS (HB)	VICKERS HARDNESS (HV)	ROCKWELL HARNESS (HRc)
601	640	57.3
627	667	58.7
630	670	58.8
638	680	59.2
647	690	59.7
653	697	60.0
656	700	60.1
670	720	61.0
682	737	61.7
684	740	61.8
698	760	62.5
710	780	63.3
712	782	63.5
722	800	64.0
733	800	66.4
745	820	64.7
757	840	65.3
767	860	65.9
-	900	67.0
-	920	67.5
-	940	68.0
-	970	68.6
-	1000	69.1
-	1050	69.8
-	1100	70.4
-	1200	71.5

FILES STEELS - CHEMICAL COMPOSITION

GRADE	Chemical Composition %					
	C	Cr.	Mn.	Si.	S.	P
	Carbon	Chromium	Mangeneses	Silicon	Sulpher	Phosphorous
FILES	1.33	0.53	0.38	0.22	0.029	0.016

HIGH SPEED STEELS - CHEMICAL COMPOSITION

HSS GRADE	Chemical Composition %					
	C	Cr.	Mo.	W	Co.	V
	Carbon	Chromium	Molybdenum	Tungsten	Cobalt	Vanadium
M2	0.9	4.2	5	6.4	-	1.8
M7	1.02	3.8	8.6	1.8	-	1.9
M35	0.93	4.2	5	6.4	4.8	1.8
M42	1.08	3.8	9.4	1.5	8	1.2
T42	1.25	4	3.6	1.5	10	3.2
ASP2017	0.8	4.2	3	3	8	1
ASP2030	1.28	4.2	5	6.4	8.5	3.1
AST2060	2.3	4.2	7	6.5	10.5	6.5

SUGGESTED PARAMETERS - SPEED & FEED DATA

Cutting Speed. (Vc) = $\pi \times D \times S / 1000$
 Spindle Speed (s) = $Vc \times 1000 / \pi D$
 Feed (F) = S x f x N
 Feed Per Tooth (f) = F / S x N

Vc = Cutting Speed (v)
 π = The Cricular Constant (3.14)
 D = Diameter (min-1)
 S = Spindle Speed (-1)
 F = Feed (mm/min-1)
 f = Feed Per Tooth(mm/Tooth)
 N = Number of Flutes

Application : Side - Milling

Work Material	Carboon Steels < 28HRC		Allowy Steels 28 to 45 HRC		Prehardened Steels HPM, NAK < 45 HRC		Hardened Steels > 52HRC		Copper	
Cutting Speed	50-80m/min		50-70m/min		40-60m/min		20-40m/min		60-68m/min	
Dia	Side Milling		Side Milling		Side Milling		Side Milling		Side Milling	
	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed	Spindle Speed	Feed
	min-1	mm/min	min-1	mm/min	min-1	mm/min	min-1	mm/min	min-1	mm/min
1	20700 - 6400	320 - 100	19100 - 4800	230 - 60	15900 - 4000	200 - 55	9,500	120	22300 - 8000	410 - 150
1.5	13800 - 4200	320 - 100	12700 - 3200	230 - 60	10600 - 2700	200 - 55	6,400	120	14900 - 5300	450 - 150
2	10300 - 3200	320 - 100	9500 - 2400	260 - 70	8000 - 2000	230 - 60	4,800	120	11100 - 4000	500 - 190
2.5	8300 - 2500	380 - 180	7600 - 1900	270 - 70	6400 - 1600	240 - 60	3,800	120	8900 - 3200	540 - 200
3	6900 - 2100	420 - 130	6400 - 1600	290 - 75	5300 - 1300	260 - 70	3,200	120	7400 - 2700	560 - 210
3.5	5900 - 1800	450 - 140	5500 - 1400	290 - 75	4500 - 1100	260 - 70	2,700	130	6400 - 2300	570 - 210
4	5200 - 1600	530 - 160	4800 - 1200	320 - 90	4000 - 1000	290 - 80	2,400	160	5600 - 2000	660 - 240
4.5	4600 - 1400	540 - 140	4200 - 1100	360 - 90	3500 - 900	320 - 85	2,100	160	5000 - 1800	680 - 240
5	4100 - 1300	560 - 170	3800 - 1000	390 - 100	3200 - 800	360 - 90	1,900	160	4500 - 1600	700 - 240
5.5	3800 - 1200	560 - 170	3500 - 1000	410 - 100	2900 - 500	370 - 90	1,700	160	4100 - 1400	700 - 240
6	3400 - 1100	580 - 190	3200 - 800	440 - 110	2700 - 700	410 - 100	1,600	170	3700 - 1300	700 - 240
8	2600 - 800	540 - 150	2400 - 600	410 - 100	2000 - 500	370 - 90	1,200	170	2800 - 1000	610 - 220
10	2100 - 600	510 - 150	1900 - 500	390 - 100	1600 - 400	360 - 85	1,000	170	2200 - 800	560 - 200
12	1700 - 500	460 - 140	1600 - 400	370 - 90	1300 - 300	340 - 80	800	170	1900 - 700	540 - 200
Depth of Cut	Side Milling 2D $\phi 1 \sim 2.5 = 0.07D$ $\phi 3 \sim 6 = 0.15D$ $\phi 8 \sim 12 = 0.2D$		Side Milling 5D $\phi 1 \sim 2.5 = 0.03D$ $\phi 3 \sim 6 = 0.906D$ $\phi 8 \sim 12 = 0.08D$		Side Milling 2D ~ 5D 0.02D ~ 0.06D		Side Milling 2D ~ 5D 0.2D ~ 0.06D		Side Milling 2D ~ 5D 0.2D ~ 0.06D	

Use cutting fluid with smoke retardant.

Recommend to use oil mist coolant for machining hardened steels

Available only for Side Cutting

Adjust both spindle speed and feed of the same rate.

- VX1** Series 45 HRC TIALN Coated 10% Cobalt (K20UF) Grain Size~0.6-0.8- (µm)
- VX2** Series 55 HRC ALCRONA Coated 10% Cobalt (K20-30) Grain Size~0.5-0.6- (µm)
- VX3** Series 65 HRC TISINOS Coated 12% Cobalt (K44-K44UF) Grain Size 0.4 to 0.5 (µm)



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V3 TOOLS

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