TOOLS FOR MINIATURE PARTS

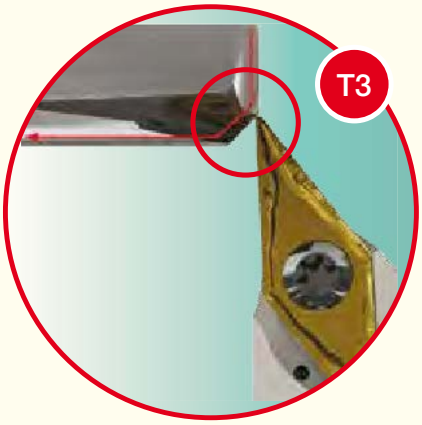
Metric Version Catalog 2015

Member IMC Group

ISCAR

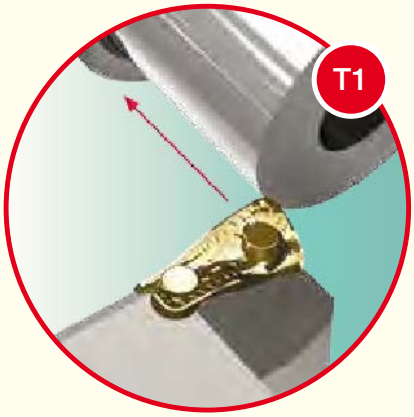
WWW.ISCAR.COM

Small Part Production



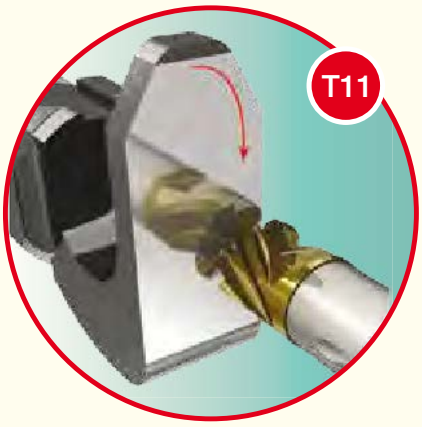
ISOTURN

SVACR 1616M-11
VCET 1103005R-WF



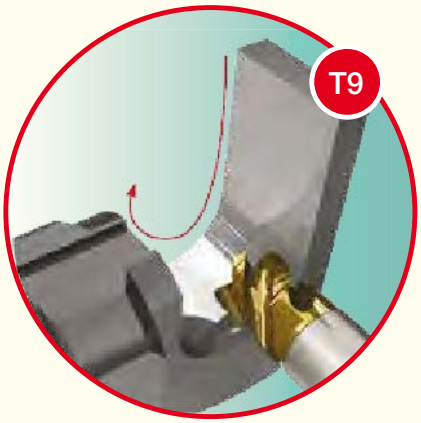
SWISSTURN

SLANR 1616H-11 TANG
LNMX 110408R



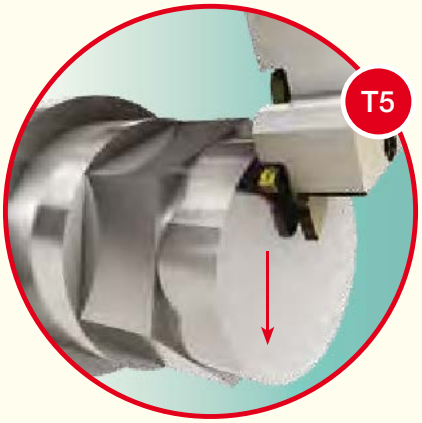
MULTI-MASTER

MM S-A-L075-C10-T06
MM EC100A07R0.5-6T06



MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MM S-A-L075-C10-T06
MM EFS 100B07-4T06



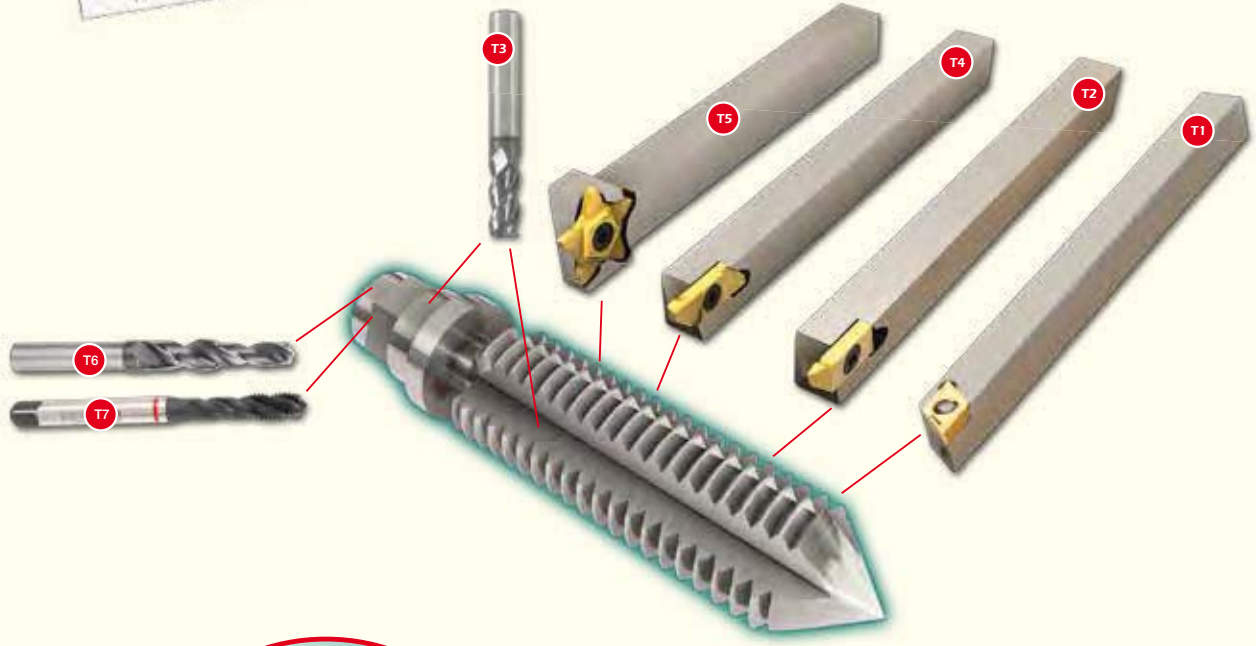
PENTACUT

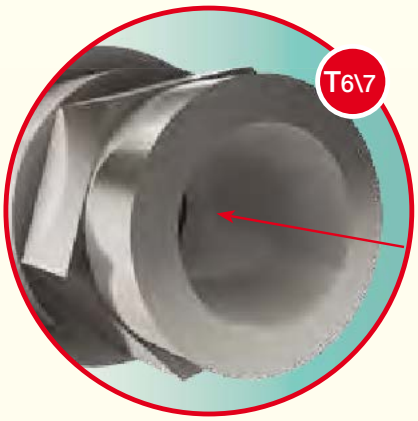
PCHR 16-24
PENTA 24N 15J010

Bone Line Machining Layout

Time Study

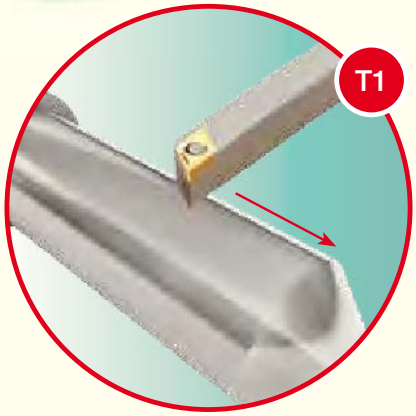
TOOL NO	OPERATION	DIAMETER (mm)	RPM	Vc (m/min) (cutting speed)	fz (mm) (feed per insert/ flute)	z (number of inserts/ flutes)	f (mm) (feed)	Vf (mm/min) (table feed)	DOC (mm) (depth of cut)	ae (mm) (width of cut)
T1	CUT 101	5	2866	45	0.015	1	0.015	43		
T1	CUT 102	5	2866	45	0.015	1	0.015	43		
T2	CUT 103	5	2866	45	1	1	1	2866		
T3	CUT 104	3	2123	20	0.015	4	0.06	127		
T1	CUT 105	5	2866	45	0.015	1	0.015	43		
T3	CUT 106	3	2123	20	0.015	4	0.06	127		
T4	CUT 107	3.5	3640	40	0.015	1	0.015	55		
T5	CUT 201	5	855	15	0.02	1	0.02	19		
T6	CUT 202	1.6	1990	10	0.02	1	0.02	40		
T7	CUT 203	1.55	2055	10	0.02	1	0.02	41		





SOLIDDRILL

SCDT 025-009-060-M3
TPG M-3X0.5-H

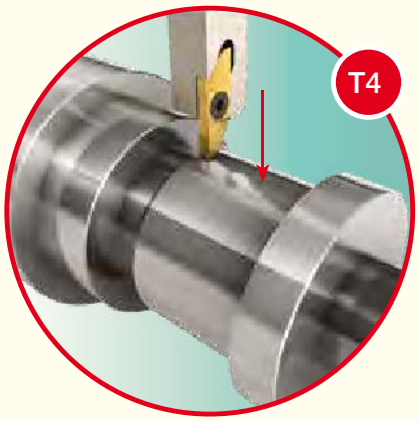


SWISSTURN

PDACR 1616M-11S
DCET 11T3005R-WF

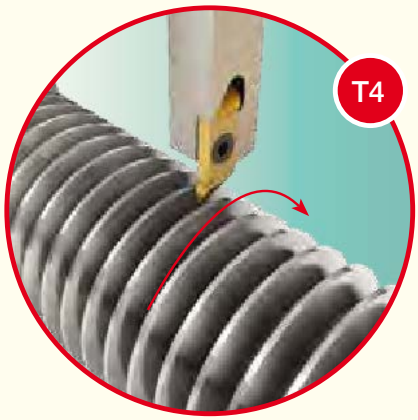
Bone Line Machining Layout

SOLIDMILL
SOLID CARBIDE LINE
ECO30B10-4C03

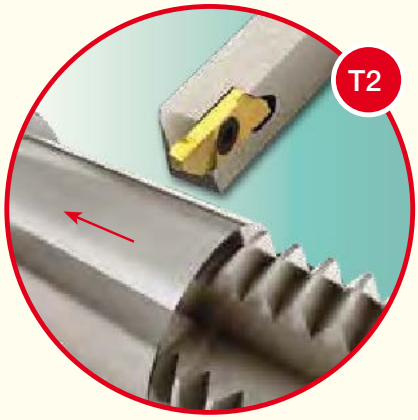


SWISSCUT
SCHR 16-22BF
SCIR 22-150NP...

SOLIDMILL
SOLID CARBIDE LINE
ECO30B10-4C03



SWISSCUT
SCHR 16-22BF
SCIR 22-MTR...



SWISSCUT
SCHR 16-22BF
SCIR 22-AR...

Grooving and turning

CUTGRIP

GEHSR\L-SL Tools with Side Clamping Mechanism

ISCAR is introducing the new **GEHSR/L-SL** tool family for Swiss-type and screw machines. These new tools with a unique clamping mechanism can solve the main problems related to insert clamping and replacement on Swiss-type and screw machines. They are an improved style of the current **GEHSR/L** screw-clamped tools.

MINICUT
MINI FACE LINE

Face Grooving and Turning Family for Dmin 8 mm

ISCAR's family for face grooving and turning in a diameter range of 8 to 17 mm for up to 5.5mm grooving depth, covers the range between ISCAR's **PICCO** and **CHAMGROOVE** tools.

Tool Features

- Can also be used for rotating applications.
- Internal coolant hole, directed to the cutting edge.
- Can be used for grooving in deep holes.
- Uninterrupted chip flow on the insert rake.

MIFR 8-2.20-0.20

MITR 8-MT1-0.05

MIGR 8-1.60-0.80

MIFR 8-1.60-0.80

MIUR 8-1.00-0 .50

MIGR 8-2.00-0.10

Grooving and turning

SWISSCUT INNOVAL LINE

Upgraded SWISSCUT Line

A compact tool design for Swiss-type automatics and CNC lathes, providing reduced setup time and easy indexing without having to remove the toolholder from the machine.

- The same tool and insert can be used in both front and back clamping
- Insert indexing without removing the screw ISCAR is upgrading the **SWISSCUT** line. The new inserts feature an innovative oval-shaped hole that enables 2 important improvements.
  The new clamping design uses a special screw that can be accessed and operated from both tool sides.
  In the upgraded line the insert can be indexed without the need to fully remove the screw. Therefore, there is no risk of falling parts and indexing is easier and faster.

Dmin. 4 mm

Front Clamping

Back Clamping

SWISSTURN

ISCAR features a variety of ISO standard inserts, with small shank sizes. Also available are many standard geometry inserts with precision ground cutting edges and small radii for manufacturing small and thin parts. Toolholders with a unique clamping device for solving the main problems related to insert clampingandreplacement on Swiss-type machines.

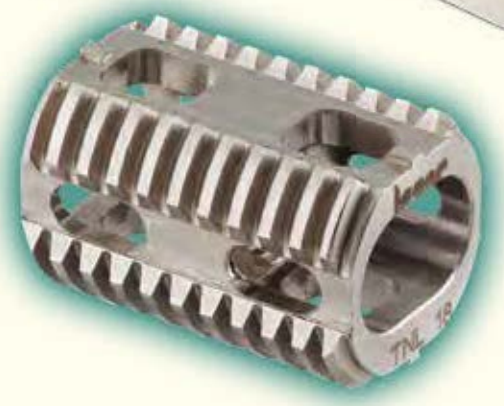
Parting

PENTACUT
PARTING GROOVING LINE

The **PENTACUT** insert has 5 cutting edges, useful for multifunction applications including grooving, parting, recessing and chamfering. This cost-effective insert is designed to perform shallow grooving operations and parting of small solid bars up to 12.5 mm in diameter. Each cutting edge on the pentagonal shaped insert is equipped with a unique J-type positive chipformer that provides excellent chip control in grooving, parting and recessing (light side turning) applications.

DO-GRIP

ISCAR's short head, small shank holders (8-12mm)use **DO-GRIP**'s economical, double-ended twistedinserts inwidths of 1-3 mm.
These inserts, featuring advanced PVD coatings, are capable of parting small diameter and thin walled parts while saving workpiece material. The new shank design features a very short clamping head and a slanted screw for convenient indexing - essential features for operating in the very limited space of Swiss-type automatic and small CNC machines.



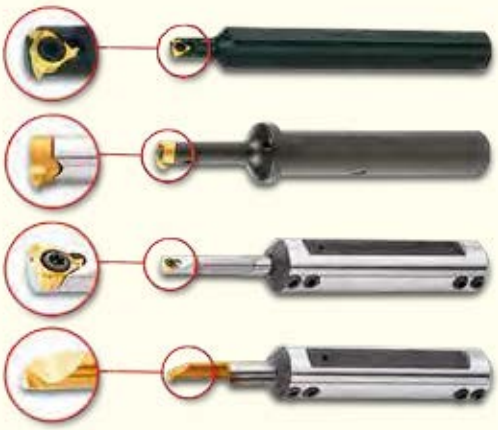
Threading

ISCARTHREAD

ISCAR offers a wide range of threading standards for both external and internal operations. The smallest triangular laydown insert is the 06IRM which can be used for internal threading in minimum bore size of 7 mm.Other ISCAR threading systems include:

- PICCOCUT – solid carbide bars for minimum bore diameters of 4 mm.
- MINICHAM – miniature inserts for minimum bore diameters of 6 mm.
- CUT-GRIP and CHAMGROOVE – for a variety of innovative internal andexternal threading applications.

Dmin. 4mm



PENTACUT

THREADING LINE

- Multi-corner, five cutting edges, which provide an advantageous price per cutting edge
- Combination of very rigid clamping system and a strong insert design enables machining at very high machining parameters
- Can be used for threading between walls to enable complete part production on bar feeder machines
- Inserts feature chipformers, providing short and easily exposed chips,excellent accuracy and surface quality

Dmin. 16mm

Whirling Head

Whirling tools are provided on request. Attached is a list of available whirling tools according to the machine model being used.

The customer should specify his specific thread profile and the required number of inserts in the cutter (or leave this decision to ISCAR designers).

The inserts are made from PVD coated grade IC908.

Grooving and Parting

CUTGRIP

PENTACUT

JET LINE

Grooving and Parting Tools for High Pressure Coolant

As in the ISO turning line, **JETCUT** groove-turn and parting tools also feature coolant outlets near the cutting zone and thus the coolant jet increases the amount of coolant that reaches directly to the cutting edge and chips.
In grooving and parting operations, applying high pressure coolant provides excellent chip breaking results on all materials.

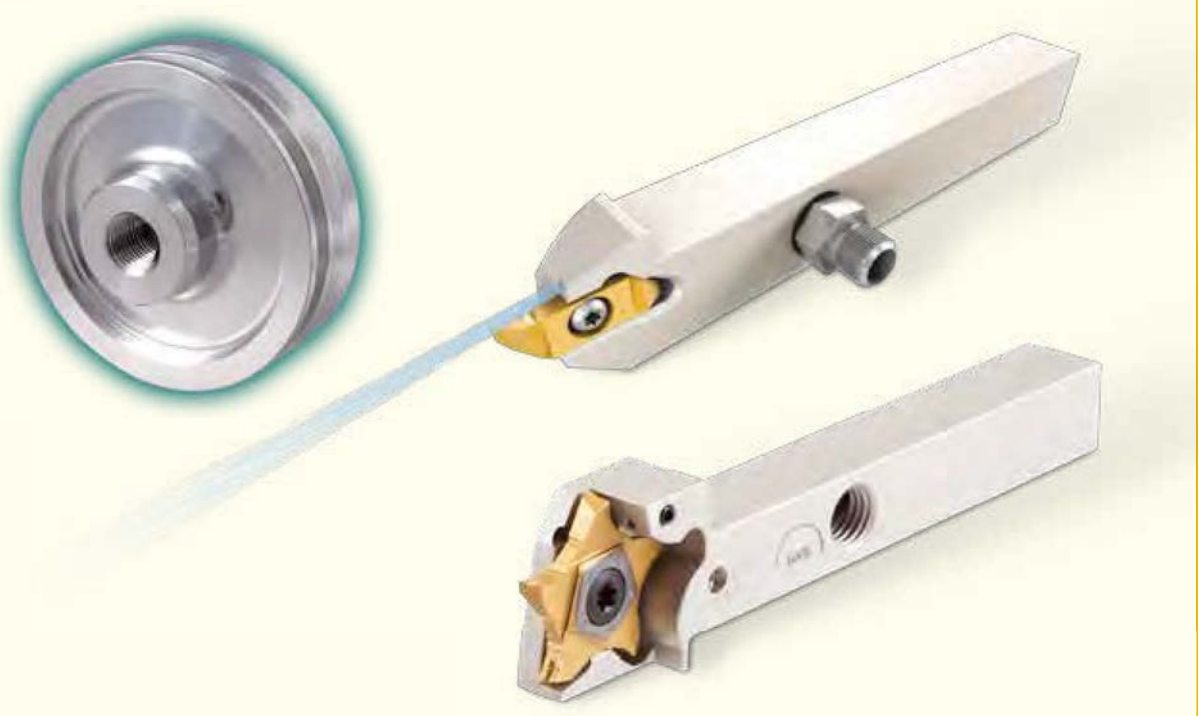
JETCUT

SWISSCUT

INNOVAL LINE

Grooving and Parting Tools for High Pressure Coolant

Following the very successful launch of the **SWISSCUT INNOVAL** line and the smooth transition from the old line, ISCAR is expanding the product range: Tools with high pressure coolant channels **(JETCUT)** pinpointed directly to the cutting edge.
The tools can handle pressure up to 340 bars. They will be available in 10 to 16mm shank sizes.



Turning and Threading

DECAIQTHREAD
ECO THREAD

New Tangentially Clamped Threading Inserts, Featuring 10 Cutting Edges.

This unique (patented) geometry is a 16 mm round insert with 5 double-sided corners, providing 10 cutting edges. The new geometry provides the most economical price per threading corner (when compared with the popular 3 corner laydown inserts).

ISOTURN

Boring Bars with Coolant Channel and New Small Size Inserts for Miniature

The boring tools for small diameters are available with steel and solid carbide shank options. These new tools carry new positive inserts.

JETCUT

SWISSTURN Toolholders

The new tools were designed for Swiss-type automatics and CNC machines. They include tools for ISO standard screw-clamped and lever-lock rhombic 80° (C-type), 55° (D-type) and 35° (V-type) inserts, all with 7° positive flank relief inclination.

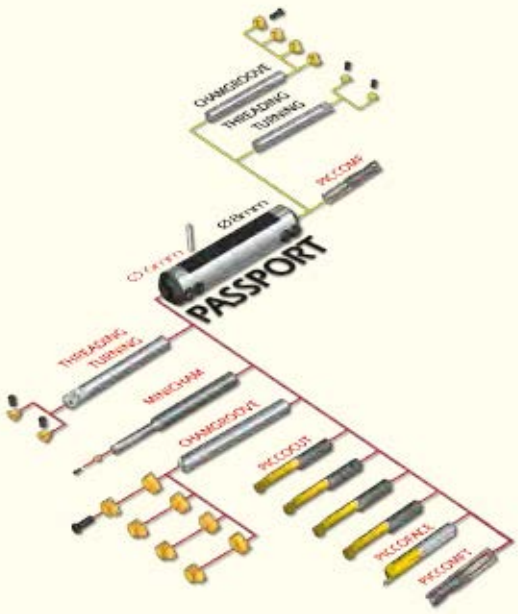
Versatile System

PASSPORT

The PASSPORT is a single holder-bar that is capable of clamping a variety of solid carbide shanks – the VISAS – that carry various inserts.The holder-bar accommodates 2 different diameters, one on each end, as well as both right- and left-hand shanks. This system allows the user to adjust the shank's extension for maximum rigidity. The PASSPORT system is designed for boring, grooving, profiling, back turning, threading and undercutting.
This system provides endless economical tooling combinations.

One Economical Holder for Many Applications

Boring • Grooving
Profiling • Back-Turning
Threading • Undercutting



PICCOACE

High Precision Holders for PICCO Inserts

The growing demands for high accuracy and flexibility in clamping orientation have led **ISCAR** to develop a new advanced line of **PICCO** holders.The **PICCOACE** features a unique patented clamping system which sets new standards for three highly important properties: accuracy, rigidity and flexibility of clamping orientation.

No Setup Time

Versatile System

The new **PICCO MF/MFT** was designed in particular for use on Swiss-type and all other machines that produce miniature parts. This family of tools provides a unique cutting geometry and machining abilities that combine the work of a few tools into one.

PICCO MF/MFT is a part of the versatile **PASSPORT** system.

PICCOMFT

The Drilling, Turning, Boring and Threading Combination Tool

Dmin. 4 mm

PICCOMF

The Drilling, Turning and Boring Combination Tool

Dmin. 3 mm

CHAMGROOVE

The same shank can carry either right- or left-hand inserts for turning, threading and grooving in bores as small as 8 mm. This system features easy mounting and indexing. **CHAMGROOVE** is a part of the versatile **PASSPORT** system.

Dmin. 4 mm

MINICHAM

Applications inside bores as small as 4 mm can now be performed by using **ISCAR**'s **MINICHAM**.
This system features secure, self-clamping
inserts with no spare parts.
The unique cartridge is used for mounting and indexing the inserts.
ISCAR's **MINICHAM**, a part of the versatile **PASSPORT** system, has eliminated many of the problems associated with very small inserts.

Dmin. 4 mm

DR-MF

ISCAR introduces the **DR-MF**, a multifunction tool. The new tool can be used for manufacturing small sized components.
It reduces production time and the number of tools needed.

Milling Innovations

SOLIDMILL
PREMIUM LINE

Micrograin solid carbide endmills with extended tool life are a part of the **ISCARMILL** family. These endmills have an improved design and are available with the most advanced TiCN or TiAlN PVD coatings, in a range of 2-20 mm. Ball nose endmills are available in a of diameter range 3-20 mm.

Dmin. 4 mm

MULTI-MASTER
INDEXABLE SOLID CARBIDE LINE

MULTI-MASTER is a family of tools with shanks and interchangeable heads for a variety of milling applications including ball nose, straight shoulder and slitting and slotting applications. This system features **ISCAR**'s unique threaded carbide heads for superior performance, short indexing time and improved economy.

As there is no setup time for head replacement.

Dmin. 6-8 mm

Hole Making

SUMOCHAM FLAT HEAD

Flat SUMOCHAM Drilling Heads

ISCAR is extending the application range of thesuccessful SUMOCHAM drilling line by addingflat face drilling heads.

The new flat face drilling heads are designated FCP, designed for drilling steel components (ISO P/K material group).

SOLIDDRILL

The unique requirements of the mass production industries make specially tailored drills essential for optimal performance. ISCAR's trained design engineers ensure that customers have the finest multifunction drilling tools for their required profiles.

Dmin. 0.8 mm

Hole Making

SUMOCHAMIQ
CHAMDRILL LINE

HCP-IQ SUMOCHAM Drilling Heads

ISCAR is expanding the **SUMOCHAM** drilling head options, by introducing a revolutionary drilling head geometry that features concave cutting edges which substantially enhance the self-centering capability of the drill.

By eliminating the need for a pilot hole, the new drilling heads shorten machining cycle time and the number of tools required for the drilling operation.This can provide a substantial cost reduction.

SOLIDH-REAM
INDEXH-REAM
BAYOT-REAM

Solid carbide reamers for standard H7 reaming in the range of 3 to 40 mm are available in cylindrical or Morse cone shanks, with straight or helical flutes. Also available is an interchangeable, shell reaming head system with a unique quick-change mechanism, in IC08 submicron grade or IC908 PVD coating for high speed machining.

Dmin. 3 mm

Deep Drilling

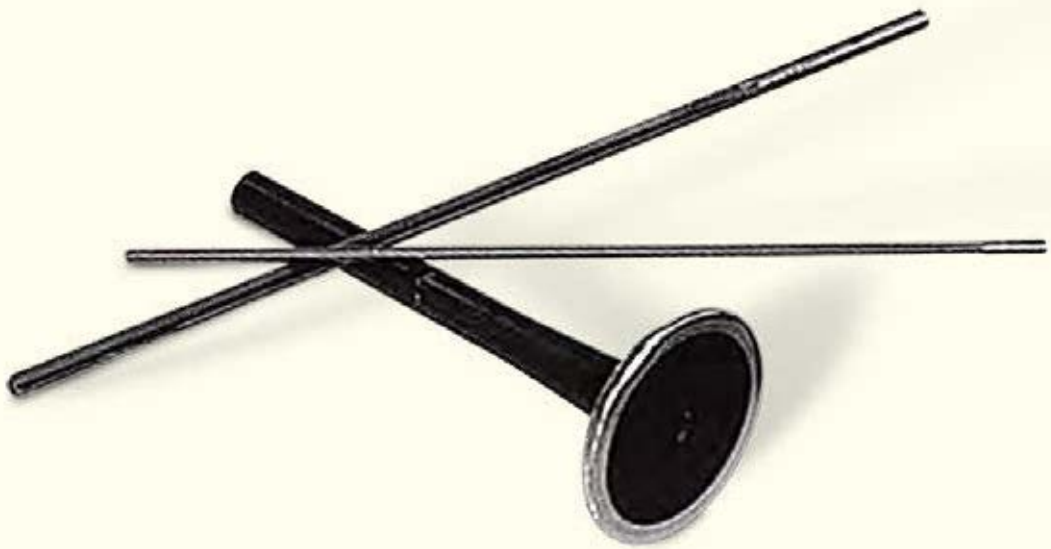
GUNDRILLS

ISCAR's gundrill consists of a single piece carbide head, a streamlined shank and a driver through which coolant flows to the working end where

it is most needed Chips are evacuated along the V-shaped external flute. Features:

- Drilling precision of IT7 to IT9 tolerances can be reached
- High precision hole center alignment
- Surface roughness of 0.4 to 1.6 µm is easily obtained
- Reboring operations are often unnecessary

Dmin. 1 mm



External Turning

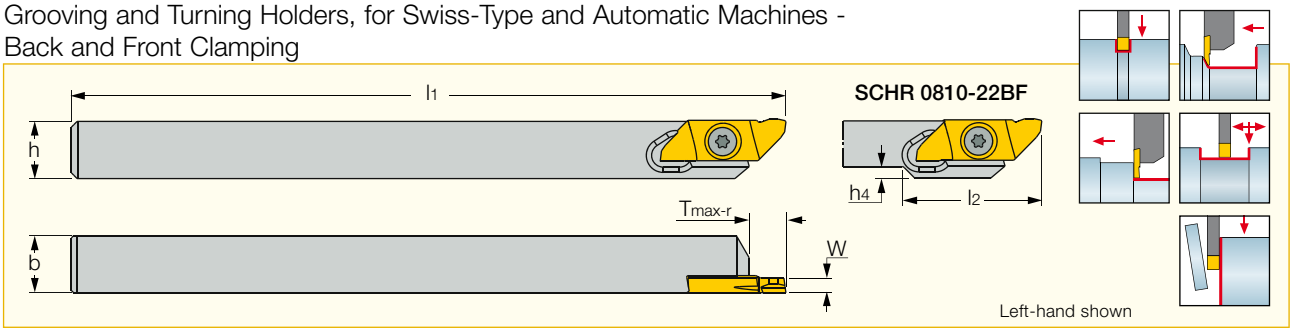
Member IMC Group


SWISSCUT
INNOVAL LINE

SWISSCUT
INNOVAL LINE

SCHR/L-BF

Grooving and Turning Holders, for Swiss-Type and Automatic Machines - Back and Front Clamping



Designation	h	b	l_1	h_4	l_2	T_{max-r} (1)	W min	W max
SCHR/L 0810-22BF	8.0	10.0	125.00	2.0	24.0	8.00	0.50	2.50
SCHR/L 10-22BF	10.0	10.0	125.00	-	-	8.00	0.50	2.50
SCHR/L 12-22BF	12.0	12.0	125.00	-	-	8.00	0.50	2.50
SCHR/L 16-22BF	16.0	16.0	125.00	-	-	8.00	0.50	2.50

(1) See insert dimensions

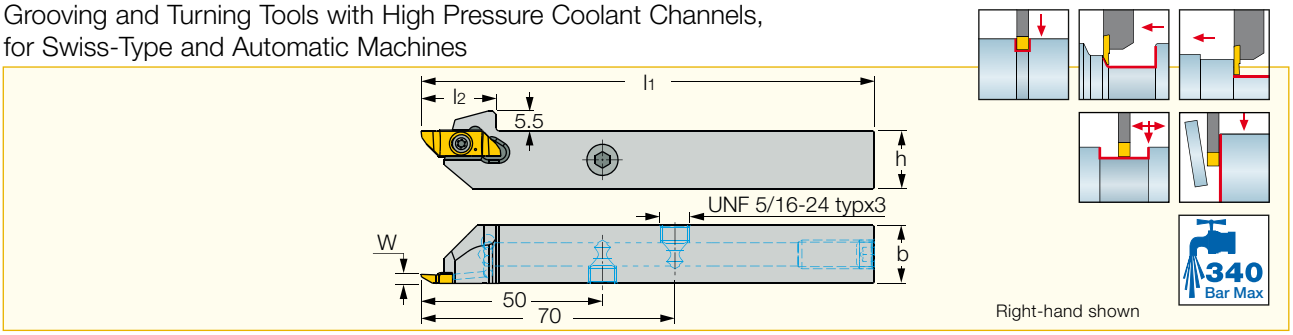
For inserts, see pages: SCIR-22-MTR-ISO (A10) • SCIR/L-22-AR/AL (A8) • SCIR/L-22-BR/BL (A8) • SCIR/L-22-ER/EL (A9) • SCIR/L-22-MTR/MTL (A115) • SCIR/L-22-N/L/R (A10) • SCIR/L-22-NP (A11).

Spare Parts

Designation	Clamp Screw	Key
SCHR/L-BF	SR M4X0.7-19425	T-8/5

SCHR/L-BF-JHP

Grooving and Turning Tools with High Pressure Coolant Channels, for Swiss-Type and Automatic Machines



Designation	h	b	l_1	l_2	W min	W max	T_{max-r} (1)
SCHR/L 10-22BF-JHP	10.0	10.0	125.00	20.7	0.50	2.50	8.00
SCHR/L 12-22BF-JHP	12.0	12.0	125.00	20.7	0.50	2.50	8.00
SCHR/L 16-22BF-JHP	16.0	16.0	125.00	20.7	0.50	2.50	8.00

• Note: Coolnat ports of the left-hand tools are in the same position as those of the right-hand tools.

(1) See insert dimensions

For inserts, see pages: SCIR-22-MTR-ISO (A10) • SCIR/L-22-AR/AL (A8) • SCIR/L-22-BR/BL (A8) • SCIR/L-22-ER/EL (A9) • SCIR/L-22-MTR/MTL (A115) • SCIR/L-22-N/L/R (A10) • SCIR/L-22-NP (A11)

Spare Parts

Designation	Clamp Screw	Key	Plug	Key 1
SCHR/L-BF-JHP	SR M4X0.7-19425	HW 5/32"	SR 5/16UNF TL360	T-8/5

Flow Rate vs. Pressure

Designation	70 Bar Flow Rate (liters/min)	100 Bar Flow Rate (liters/min)	140 Bar Flow Rate (liters/min)
SCHR/L 10-22BF-JHP	1-3	2-4	3-5
SCHR/L 12-22BF-JHP	3-5	4-6	5-7
SCHR/L 16-22BF-JHP	6-8	7-9	8-10

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