REV®

GENERAL CATALOGUE

www.revtool.eu

REV®

KNOW HOW AND DEDICATION

SPECIALISTS IN THE DESIGN AND PRODUCTION OF SLOTTING SOLUTIONS

The REV® system is an effective solution in carrying out broaching, slotting and gearing operations directly on CNC machines, eliminating the need to equip other machines with piece handling or to contact subcontractors.

Some of our strengths:

- The **high-quality** of our products allow to obtain excellent machinings in terms of surface finish and tolerance.
- **Quick delivery times.**
- **Great value for money.**
- **We are completely focused on this kind of products** so all our activity and efforts are devoted to give an excellent service to our customers.
- **Huge field of application**
  Our toolings can be used on different kind of machines. They can find their application both on traditional machines like slotting and shiping machines and on CNC machines as cnc lathes and machining mill centres.
- **Experience and extra services**
  We have a long experience in this field of application and we can suggest our customers the best solution for their specific need. In addition, we can provide also for free programming to carry out the machinings in a very easy and efficient way.

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THE REV® SYSTEM

TOOLS AND INSERTS

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LEGEND

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Clamping screw Length	
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	Mounting
	Symmetry
	Correction
	Number of holes
	Hole diameter
	Hole gauge

MOTORIZED SLOTTER REV®

The REV® MOTORIZED SLOTTER allows to carry out slotting operations on motorized lathes in extremely short times, with an excellent surface finish and within tolerance.

The design of the REV® motorized unit has been developed to obtain maximum rigidity in the cutting phase, a feature that allows a long use, guaranteeing measurement stability in the processes.

PRISMATIC COUPLING
to ensure maximum rigidity

STANDARD 1:1 RATIO
Possibility of a special interface with reducer system

PATENTED SYSTEM
for symmetry and longitudinal corrections directly on the unit. Corrections necessary to eliminate the inevitable errors in the machining.

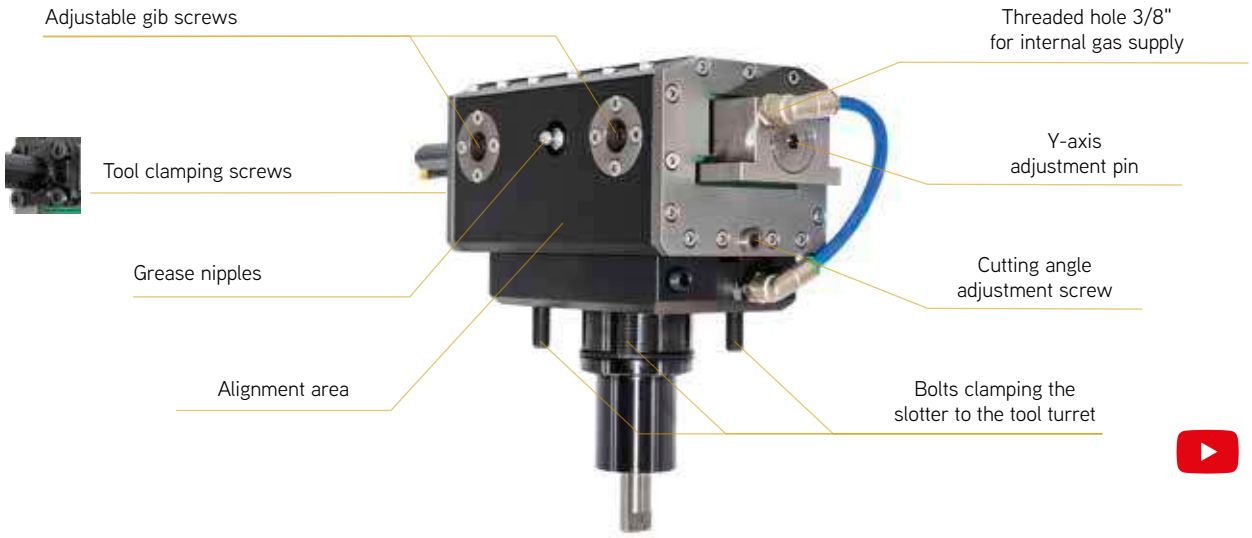
POSSIBILITY OF INTERNAL OR EXTERNAL MACHINING
by inverting the direction of motorized rotation in the turret

INTERNAL LUBRICATION

CHEAP MAINTENANCE
after long time use

QUALIFIED TECHNICAL SUPPORT
for special applications

SUGGESTIONS
USE AND MAINTENANCE



ADJUSTABLE GIB SCREWS

After using the slotter far a long time, it will be necessary to eliminate the potential play createci in the tool. Do this by unscrewing the hexagonal nut, tightening the centre screw and then screwing the hexagonal nut back on. Repeat this operation on ali four gibs al the slotter.

SUGGEST: do not tighten the gibs too much, the risk is stopping the movement of the sled.

Y-AXIS ADJUSTMENT PIN

This is used to corree! any symmetry errors between the hole and the piece currently being processed. After unscrewing the tool clamping screws 1, turn the Y-axis adjustment pin either clockwise or anticlockwise.This will allow you to move the tool along the Y-axis. The adjustment range is +/- 0.5, which is extensive enough to corree! all al the symmetry errors on lathes without a Y-axis.

CUTTING ANGLE ADJUSTMENT SCREW

This screw is used to corree! any conical errors due to mechanical bending. By turning it clockwise or anticlockwise the cutting angle can be changed by about +/- 3°. This range is sufficient enough to corree! any conical errors.

GREASE NIPPLES

These two grease nipples are built into the external structure al the motorised slotter and are used to grease after about 10 hours al use, meaning the effective operating time al the tool (see example al calculation far greasing).

THREADED HOLE 3/8" FOR INTERNAL GAS SUPPLY

All al the tools leature holes far the supply al coolant. The internal supply is recommended more than the external supply and allows the lubricant to be directed to the cutting area.

SUGGEST: the maximum recommended operating pressure for internal lubrication is 10/12 bar.

ALIGNMENT AREA

Useful area for the set-up for the housing on the turret.

FIRST USE

Mount the slotter onta the lathe. Slightly loosen the 8 clamping bolts and align the slotter using a comparator. The latter is to be placed on alignment area 7. When the slotter is perlectly aligned, tighten the 8 clamping bolts and operate the slotter at 150 movements per minute lor about 10 minutes. Grease the moving slide with common oil lor guides. This will solten the gaskets and break in the slotter belare use.

GREASING

To preserve the mechanics, we recommend greasing the slotter every 10 hours al use, meaning actual use (see example al calculation lor greasing). Prelerably use Persian Poligrease EP 1. Suspend greasing when you notice grease coming out al the perimeter area al the moving slide. Example: if 2 minutes are required to produce one piece and 10 seconds are needed to make just the keyway lor a leather key, grease alter about 3600 pieces.

SUGGEST: We recommend using a semi-synthetic, stringy, and adherent grease. Use the cap on the cover to check the grease level. When the grease is visible, you can stop greasing.

MANUTENZIONE

Suggeriamo una manutenzione annuale quando lo strumento è sottoposto ad uso intensivo. La manutenzione richiederà pochi giorni e si eseguirà sostituendo le parti sottoposte ad usura quali cuscinetti, guarnizioni, ecc.

SUGGEST: REV® provide the possibility to make the maintenance himself. REV® can provide a maintenance kit with all the necessary component to make the maintenance of the unit in a very fast and easy way.

INTERNAL/EXTERNAL PROCESSING

This motorised slotter can perform internal or external processing. Simply reverse the motorised rotation direction as follows:

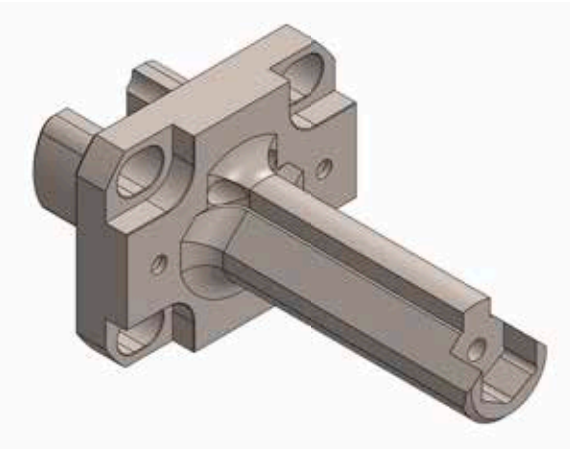
› control M04 = external processing

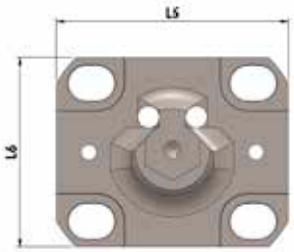
› control M03 = internal processing.

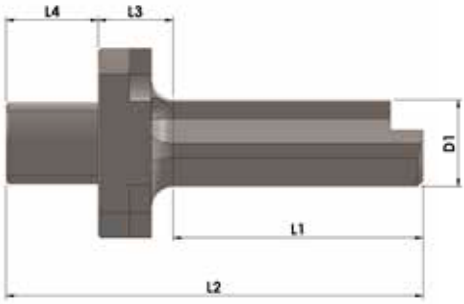
Depending on whether internal or external processing is to be done, the tool musi be fixed with the insert following the cutting direction.

DETACHMENT DURING THE RETURN PHASE

During the return phase, the tool detaches !rom the processed surface by 0.25 mm. This movement is essential to preserve the integrity ol the insert.





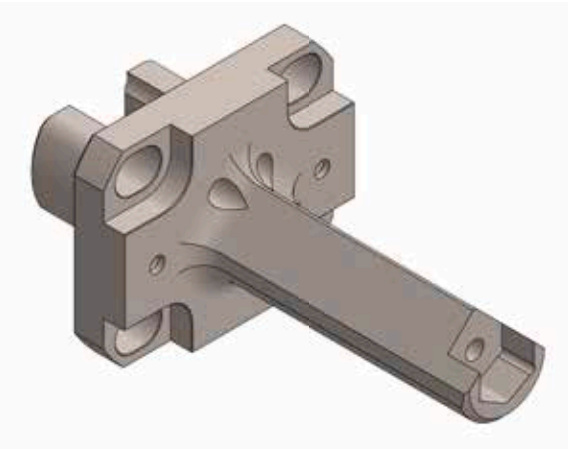


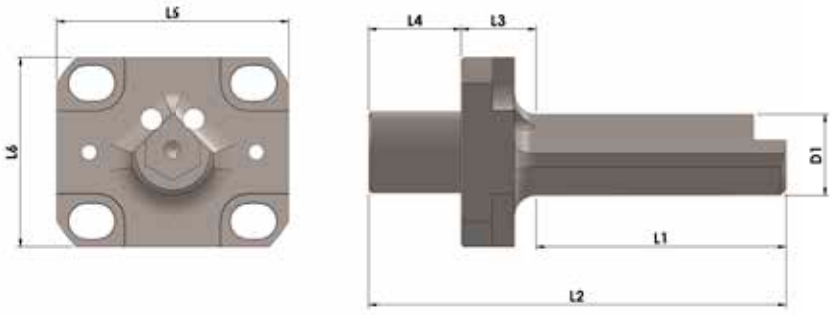
UTM 25	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-2-25	26	43	8	9	27,5	19	6,5	PN-0	T08	VN-1	7	26
UTM-3-25	26	43	8	9	27,5	19	7,8	PN-1	T08	VN-1	8,7	28
UTM-4-25	26	43	8	9	27,5	19	10	PN-1	T08	VN-1	11	34
UTM-5-25	26	43	8	9	27,5	19	12	PN-1	T08	VN-1	13	39
UTM-6-25	26	43	8	9	27,5	19	15	PN-2	T15	VN-2	17,5	48

UTM 35	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-02-35/50/65	25	56	14	17	43	35	6,5	PN-0	T08	VN-1	7	150
UTM-03-35/50/65	30	61	14	17	43	35	7,8	PN-1	T08	VN-1	8,7	160
UTM-04-35/50/65	40	71	14	17	43	35	10	PN-1	T08	VN-1	11	170
UTM-05-35/50/65	46	79	14	20	43	35	12	PN-1	T08	VN-1	13	180
UTM-06-35	46	79	14	20	43	35	16	PN-2	T15	VN-2	17	210
UTM-08-35	46	79	14	20	43	35	20	PN-2	T15	VN-2	21,5	225
UTM-10/12-35	46	79	14	20	43	35	22	PN-3	T20	VN-3	24	235
UTM-14/16-35	46	79	14	20	43	35	25	PN-4	T20	VN-3	27	245

UTM 50	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-06-50/65	56	87	14	17	43	35	16	PN-2	T15	VN-2	17	210
UTM-08-50	56	87	14	17	43	35	20	PN-2	T15	VN-2	21,5	225
UTM-10/12-50	56	87	14	17	43	35	22	PN-3	T20	VN-3	24	235
UTM-14/16-50	56	87	14	17	43	35	25	PN-4	T20	VN-3	27	245

UTM 65	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-08-65	70	101	14	17	43	35	20	PN-2	T15	VN-2	21,5	240
UTM-10/12-65	70	101	14	17	43	35	22	PN-3	T20	VN-3	24	265
UTM-14/16-65	70	101	14	17	43	35	25	PN-4	T20	VN-3	27	285



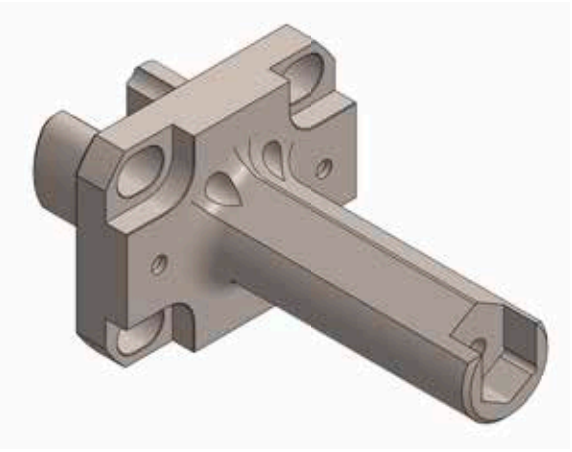


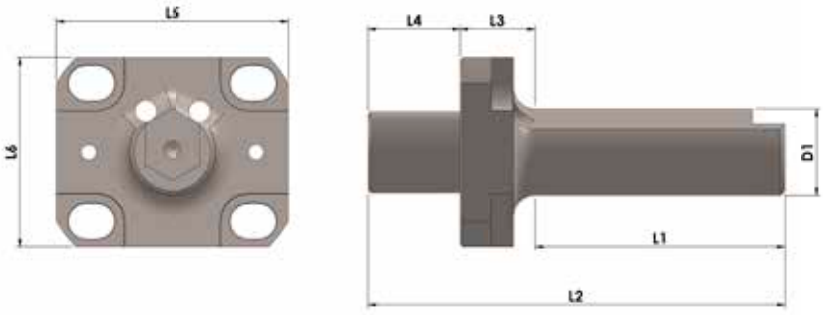
UTM-SQ 25	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-SQ-8/10-25	26	43	8	9	27,5	19	7,5	PN-1	TX-08	VN-1	8	28
UTM-SQ-10/13-25	26	43	8	9	27,5	19	8,6	PN-1	TX-08	VN-1	10	34
UTM-SQ-13/16-25	26	43	8	9	27,5	19	12	PN-2	TX-15	VN-2	13	39

UTM-SQ 35	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-SQ-8/10-35/50/65	30	61	14	20	43	35	7,25	PN-1	T08	VN-1	8	150
UTM-SQ-10/13-35/50/65	35	66	14	20	43	35	8,6	PN-1	T08	VN-1	10	160
UTM-SQ-13/16-35	40	71	14	20	43	35	12	PN-2	T15	VN-2	13	170
UTM-SQ-16/19-35	46	77	14	20	43	35	15	PN-3	T20	VN-3	16	180
UTM-SQ-19/27-35	46	77	14	20	43	35	17,5	PN-3	T20	VN-3	19	210
UTM-SQ-27/37-35	46	77	14	20	43	35	25	PN-4	T-20	VN-3	27	225

UTM-SQ 50	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-SQ-13/16-50/65	50	81	14	20	43	35	12	PN-2	T-15	VN-2	13	170
UTM-SQ-16/19-50/65	52	83	14	20	43	35	15	PN-3	T-20	VN-3	16	210
UTM-SQ-19/27-50	52	83	14	20	43	35	17,5	PN-3	T-20	VN-3	19	225
UTM-SQ-27/37-50	60	91	14	20	43	35	25	PN-4	T-20	VN-3	27	285

UTM-SQ 65	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-SQ-19/27-65	75	106	14	20	43	35	17,5	PN-3	T-20	VN-3	19	290
UTM-SQ-27/37-65	75	106	14	20	43	35	25	PN-4	T-20	VN-3	27	315



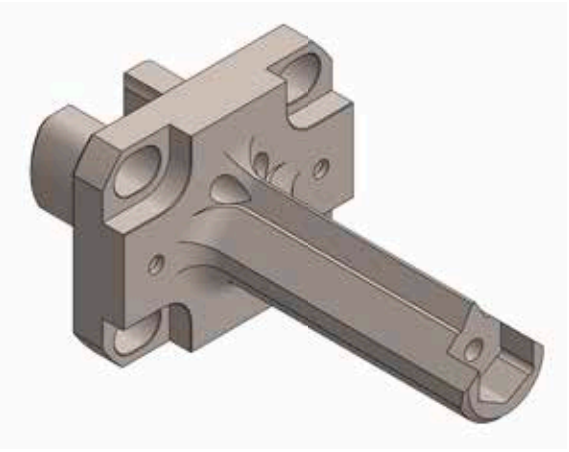


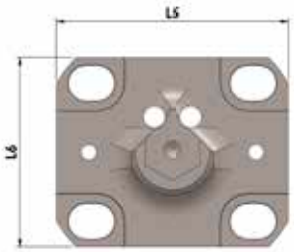
UTM-HEX 25	L1	L2	L3	L4	L5	L6	D1				(mm)	(g)
					(mm)							
UTM-HEX-9/11-25	26	43	8	9	27,5	19	8	PN-1	TX-08	VN-1	8,7	28
UTM-HEX-11/17-25	26	43	8	9	27,5	19	10	PN-1	TX-08	VN-1	11	34
UTM-HEX-17/28-25	26	43	8	9	27,5	9	15	PN-2	TX-15	VN-2	16,5	39

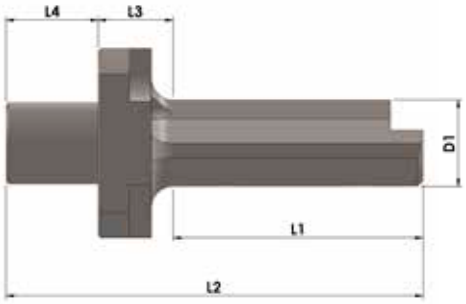
UTM-HEX 35	L1	L2	L3	L4	L5	L6	D1				(mm)	(g)
					(mm)							
UTM-HEX-9/11-35/50/65	30	61	14	17	43	35	8	PN-1	T-08	VN-1	8,7	150
UTM-HEX-11/17-35/50/65	35	66	14	17	43	35	10	PN-1	T-08	VN-1	10	160
UTM-HEX-17/28-35	46	77	14	17	43	35	15	PN-2	T-15	VN-2	16	170
UTM-HEX-28/37-35	46	77	14	17	43	35	25	PN-3	T-20	VN-3	27	180
UTM-HEX-37/45-35	46	77	14	17	43	35	28	PN-4	T-20	VN-3	30	270

UTM-HEX 50	L1	L2	L3	L4	L5	L6	D1				(mm)	(g)
					(mm)							
UTM-HEX-17/28-50/65	60	91	14	17	43	35	15	PN-2	T-15	VN-2	16	210
UTM-HEX-28/37-50	60	91	14	17	43	35	25	PN-3	T-20	VN-3	27	225
UTM-HEX-37/45-50	60	91	14	17	43	35	28	PN-4	T-20	VN-3	30	245

UTM-HEX 65	L1	L2	L3	L4	L5	L6	D1				(mm)	(g)
					(mm)							
UTM-HEX-28/37-65	75	106	14	17	43	35	25	PN-3	T-20	VN-3	27	225
UTM-HEX-37/45-65	75	106	14	17	43	35	28	PN-4	T-20	VN-3	30	275





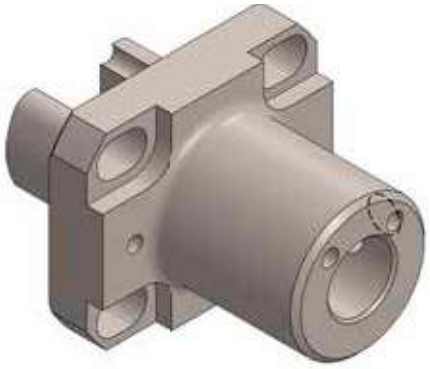


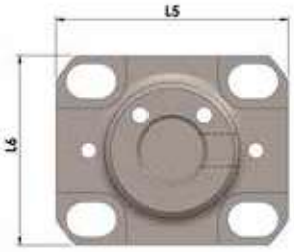
UTM-S 25	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-S-02-25	26	43	8	9	27,5	19	6,5	PN-0	TX-08	VN-1	7	26
UTM-S-03-25	26	43	8	9	27,5	19	7,8	PN-1	TX-08	VN-1	8,7	28
UTM-S-04-25	26	43	8	9	27,5	19	10	PN-1	TX-08	VN-1	11	34
UTM-S-05-25	26	43	8	9	27,5	19	12	PN-1	TX-08	VN-1	13	39
UTM-S-06-25	26	43	8	9	27,5	19	16	PN-2	TX-15	VN-2	17,5	48

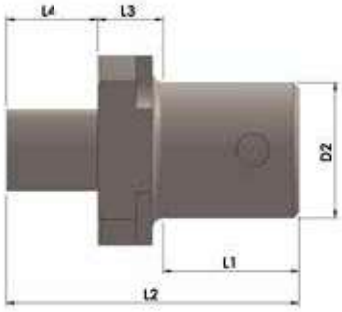
UTM-S 35	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-S-02-35/50/65	25	56	14	17	43	35	6,5	PN-0	T-08	VN-1	7	150
UTM-S-03-35/50/65	30	61	14	17	43	35	8	PN-1	T-08	VN-1	8,7	160
UTM-S-04-35/50/65	40	71	14	17	43	35	10	PN-1	T-08	VN-1	11	170
UTM-S-05-35/50/65	40	71	14	17	43	35	12	PN-1	T-08	VN-1	13	180
UTM-S-06-35	46	77	14	17	43	35	16	PN-2	T-15	VN-2	17	210
UTM-S-08-35	46	77	14	17	43	35	20	PN-2	T-15	VN-2	21,5	225
UTM-S-10-35	46	77	14	17	43	35	22	PN-3	T-20	VN-3	24	235
UTM-S-12-35	46	77	14	17	43	35	25	PN-3	T-20	VN-3	27	245
UTM-S-14/16-35	46	77	14	17	43	35	28	PN-4	T-20	VN-3	30	245

UTM-S 50	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-S-06-50	56	87	14	17	43	35	16	PN-2	T-15	VN-2	17	210
UTM-S-08-50	60	91	14	17	43	35	20	PN-2	T-15	VN-2	21,5	245
UTM-S-10-50	60	91	14	17	43	35	22	PN-3	T-20	VN-3	24	265
UTM-S-12-50	60	91	14	17	43	35	25	PN-3	T-20	VN-3	27	285
UTM-S-14/16-50	60	91	14	17	43	35	28	PN-4	T-20	VN-3	30	310

UTM-S 65	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-S-06-65	60	91	14	17	43	35	16	PN-2	T-15	VN-2	17	210
UTM-S-08-65	70	101	14	17	43	35	20	PN-2	T-15	VN-2	21,5	245
UTM-S-10-65	75	106	14	17	43	35	22	PN-3	T-20	VN-3	24	265
UTM-S-12-65	75	106	14	17	43	35	25	PN-3	T-20	VN-3	27	310
UTM-S-14/16-65	75	106	14	17	43	35	28	PN-4	T-20	VN-3	30	310







UTM-M 25	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-M 25	11	27	5	9	27,5	19	x	x	x	x	x	100

UTM-M 35	L1	L2	L3 (mm)	L4	L5	L6	D1				(mm)	(g)
UTM-M 35/50/65	18	49	10	17	43	35	x	x	x	x	x	150

MAXIMUM THICKNESS ACHIEVABLE ON VARIOUS MATERIALS AND CUTTING

FOR A CORRECT USE OF THE MOTORIZED SLOTTER

	Max thickness with STROKE 35 mm (mm)	Max thickness with STROKE 50 mm (mm)	Max thickness with STROKE 65 mm (mm)	Cutting speed (m/min)	Increment (mm)
ALLUMINIUM	16	16	16	38	0,06 / 0,15
SOFT STEEL	14	14	14	33	0,04 / 0,07
CAST IRON	14	14	12	28	0,04 / 0,07
COMMON STEEL	14	14	12	30	0,03 / 0,05
HARDENED STEEL	12	12	10	25	0,02 / 0,04
STAINLESS STEEL	12	12	10	25	0,02 / 0,04
PLASTIC	18	18	18	40	0,07 / 0,15
BRONZE-BRASS	14	14	14	30	0,03 / 0,06

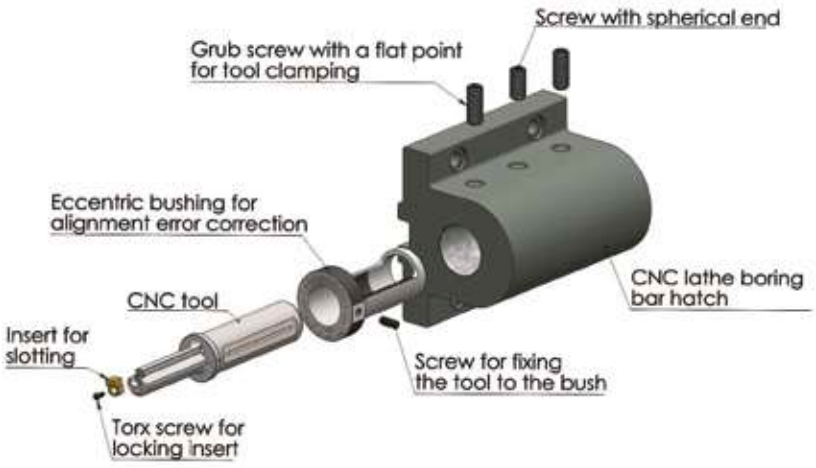
To ensure a long life of the insert and an excellent processing finish, it is advisable to follow the suggested parameters (see parameters table).

For any additional information contact our technical office at **tecnico@revtool.eu**





FOR CNC LATHES



THE MAIN FEATURE OF THE REV® SYSTEM FOR CNC LATHES IS THE ECCENTRIC BUSHING PATENTED BY REV® S.R.L. (Patent no.1.394.481) allowing any lathe without a Y-axis to perform broaching or slotting operations perfectly aligned with the workpiece. It is made with tool steel which is then hardened and graund.

It's always necessary obtain a broaching process perfectly centered with the workpiece.
Almost always this operations have a few hundredths of millimeters of tolerance with the center position. The error may be due to a coupling error or an alignment error of the turret with the center of the spindle.

The REV® eccentric bushing provide the possibity to make a centesimal correction of the tool position with a range rotation of 0.5 in Y+ and 0.5 in Y-. This range of adjustment is enough to eliminate any alignment error. A graduated scale is engraved on the front of the bushing, where each notch marks a shift of 0.03 mm. When the first workpiece has been broached and the error is detected, the operator will able to easly apply the correction moving the bushing in one direction or the other, to eliminate it. The eccentric bushing is only required if the CNC lathe does not have the Y axis. If, the lathe is equipped with the Y, the eccentric bushing must not be installed and the CNC functions are used to set up the exact position.

ASSEMBLY ON CNC LATHES

- House the insert in the tool and clamp in on by tightening the Torx screw with the screwdriver.
- House the tool inside the eccentric bushing and align the white notch engraved on the tool collar with O on the front of the bushing; then, tighten the clamping screw positioned radially on the bushing collar, to lock the tool to the bushing.
- Insert the unit composed of bushing and tool inside the lathe's boring bar hatch, tighten the screw with the spherical end inside the centering graove on the tool's flat, being careful not to completely block the tool, and finally tighten the two flat point grub screws.

CHECKS AND ADJUSTMENTS

- When the first key has been processed, one of the ways to check the alignment is to fit a Johansson block, without play, in the keyway realized and, use a gauge to take the measurement between the end of the diameter and the wall of the Johansson block.
- In the example provided in Fig. 1 the measured value 8.50 mm is correct, while in Fig.2 the measured value is 8.35 mm on one side and 8.65 on the other, resulting in an alignment error of 0.15 mm that needs to be corrected.

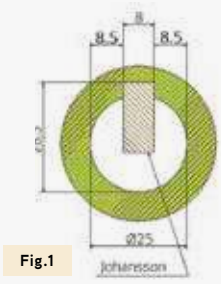


Fig.1

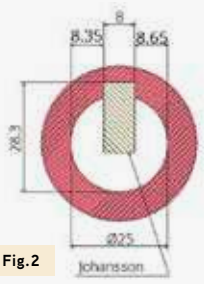


Fig.2

CORRECTING ALIGNMENT ERRORS WITH THE REV® BUSHING

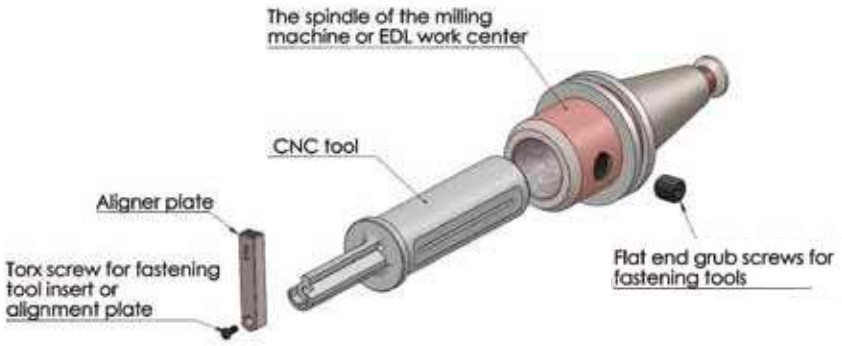
If there is an alignment error that needs to be corrected, perform the following operations:

- Start by loosening the flat point grub screws that hold the tool in the boring bar and the grub screw positioned radially in the collar of the eccentric bushing, turn the eccentric bushing in the apposite direction of the error;
it basically acts as a Y axis, moving the tool in Y+ and Y-.
Each notch engraved on the bushing is equal to 0.03 mm.
- Tighten the clamping grub screw positioned radially on the bushing collar back up, followed by all of the other screws on the boring bar hatch. We advise you to always observe the recommended parameters and suggestions.In the example provided above it would have been necessary to rotate the eccentric bushing by five notches to correct the alignment.

FOR CNC MILLING MACHINES

FOR A CORRECT SET-UP OF THE REV'S HOLDERS ON THE MILLING CENTERS, IT'S SUGGESTED THE USE OF THE ALIGMENT PLATE.

It is a calibrated bar that needs to be assembled in place of the insert, with a centesimal dial gauge sliding along it (or millesimal, if greater precision is required). When the tool has been centred in relation to the reference axes of the workpiece, the cutting tool can be re-assembled and processing can begin.



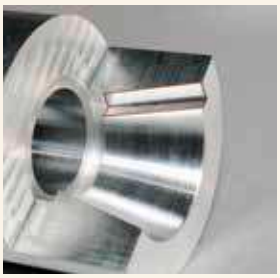
CNC MILLING MACHINE USE

- Assemble the tool directly on a Weldon fitting (we recommend one with an internal coolant).
- Enter in MDI interface and set the machine in the spindle configuration (far example Fanuc M19).
- House the aligner plate in the insert housing and, using a gauge or comparator, slide the axis along the flat surface of the plate until you achieve perfect alignment, parallel to the direction of operation.
- Tighten the bolts on the Weldon fitting so as to clamp the tool on, then remove the aligner plate and house the insert.
- SUGGESTION: Do not refer to the milled surfaces on the tool shank. Fix using the grub screws on the cylindrical part of the shank.

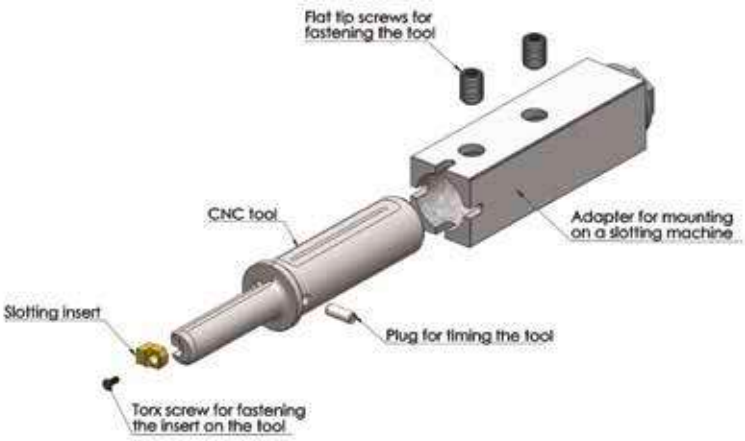
CNC PROGRAMMINGS

The REV® Broaching Tool technicians have developed CNC programmes far tool operation. These are provided free of charge on customer demand through access to the reserved area of our website. They are developed far the most common types of CNC contrai currently available on the market.

Using these programs it is very easy for the operator to process simple keyway and conical internal gears, quickly and efficiently.



FOR SLOTTERS



The REV® System can be used, in addition to CNC machining centres and lathes, also on traditional machines such as slotting and shaping machines, offering great sturdiness and versatile use, unlike tools commonly used on these machines.

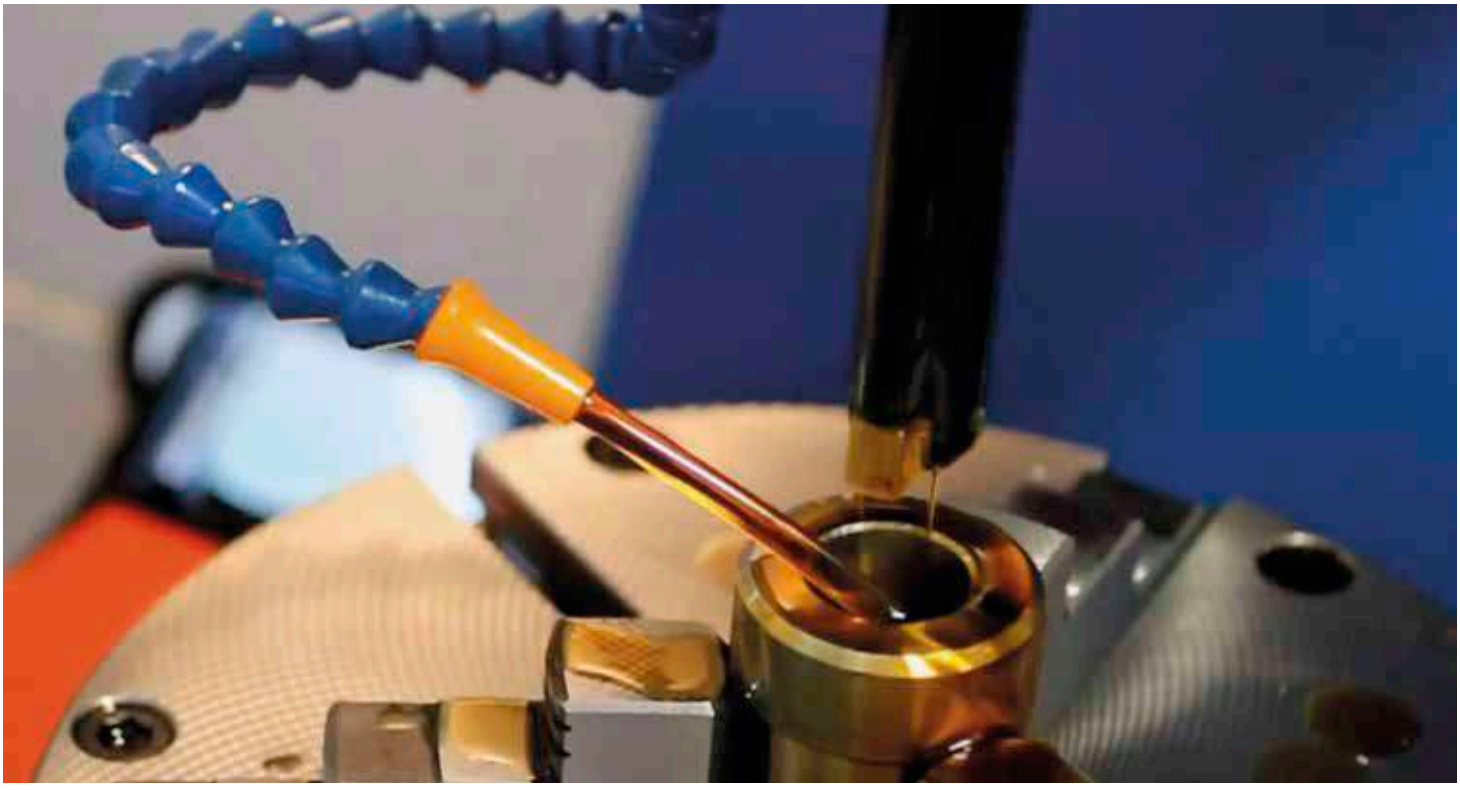
To clamp the tool to slotting and shaping machines, the REV® system offers an adapter (square or prismatic) that makes it possible to process the hole in four positions angled wtih 90°.

The REV® adapter is made with 18NCD5 which, through tempering, reaches a hardness of 58/60 HRC. The toughness and rigidity of this material make it possible to achieve processing with an excellent surface finish. The adapter (square or prismatic) is equipped with two threaded holes where the two M12x8 flat point grub screws are inserted and used to clamp the tool to the inside of the adapter. The timing pin guarantees a perfect position of the tool in relation to the work axis.

The solution with the square or prismatic adapter is only one of the multriples possibilities that REV® is able to provide to use the holders on the slotting machines. REV® technicians are able to adapt the tool to all slotting and shaping machines on the market, providing special solutions of clamping.

ASSEMBLY ON SLOTTERS

- House the insert in the tool and clamp in on by tightening the Torx screw with the screwdriver.
- Put in the tool inside the square or prismatic adapter and fix it using the flat point grub screws.
- Attach the square or prismatic adapter to the slotting or shaping machine.



PROCESSINGS

The processes that can be carried out with the REV® Broaching Tool are, standard single or multiple keyways, on cylindrical or conical holes, with or without a relief groove, with or without chamfering.
With special tools it is also possible realize, square, pentagonal and hexagonal holes and involute splines.

When it is necessary performa large keyways, we suggest to perform the operation in two steps: a roughing phase and a finishing phase. Accordingly, you avoid excessive stress to the tool, and you improve precision and surface finish at the same time.

SPECIAL TOOLS AND INSERTS

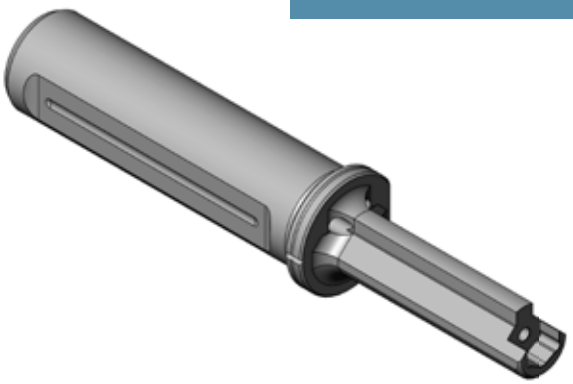
The REV® Broaching Tool production facility is able to manufacture special tools and inserts based on specific customer demands.

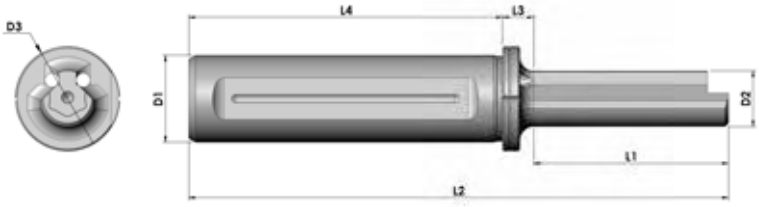
Over 40% of REV® production is special.

WORKING PARAMETERS AND PERFORMANCES

The cutting speed, the increase for each stroke and the life of the cutting insert depend on the material being processed. In order to determine the approximate piece processing times with REV® tools, we invite our customers to use the PROCESSING TIME CALCULATION PROGRAM on our website **www.revtool.eu**

TOOLS FOR INTERNAL





UT Ø 25 mm - Ø 32 mm standard & long type				(mm)												
	mm	inch		L1	L2	L3	L4	D1 mm	D1 inch	D2	D3				(mm)	(g)
UT-02*	**25**	**1"**	**-**	25	124	9	90	25	1" (25,4)	6	30	PN-0	T08	VN-1	7	382
	25	**1"**	**L**	34,5	133,5	9	90	25	1" (25,4)	6	30	PN-0	T08	VN-1	7	354
	32	**1-1/4"**	**-**	25	134	9	100	32	1-1/4" (31,75)	6	37	PN-0	T08	VN-1	7	600
	32	**1-1/4"**	**L**	34,5	143,5	9	100	32	1-1/4" (31,75)	6	37	PN-0	T08	VN-1	7	654
UT-03*	**25**	**1"**	**-**	30	129	9	90	25	1" (25,4)	8	30	PN-1	T08	VN-1	8,7	368
	25	**1"**	**L**	40	139	9	90	25	1" (25,4)	8	30	PN-1	T08	VN-1	8,7	362
	32	**1-1/4"**	**-**	30	139	9	100	32	1-1/4" (31,75)	8	37	PN-1	T08	VN-1	8,7	673
	32	**1-1/4"**	**L**	40	149	9	100	32	1-1/4" (31,75)	8	37	PN-1	T08	VN-1	8,7	678
UT-04*	**25**	**1"**	**-**	40	139	9	90	25	1" (25,4)	10	30	PN-1	T08	VN-1	11	368
	25	**1"**	**L**	56	155	9	90	25	1" (25,4)	10	30	PN-1	T08	VN-1	11	377
	32	**1-1/4"**	**-**	40	149	9	100	32	1-1/4" (31,75)	10	37	PN-1	T08	VN-1	11	672
	32	**1-1/4"**	**L**	56	165	9	100	32	1-1/4" (31,75)	10	37	PN-1	T08	VN-1	11	684
UT-05*	**25**	**1"**	**-**	46	145	9	90	25	1" (25,4)	12	30	PN-1	T08	VN-1	13	382
	25	**1"**	**L**	66	165	9	90	25	1" (25,4)	12	30	PN-1	T08	VN-1	13	408
	32	**1-1/4"**	**-**	46	155	9	100	32	1-1/4" (31,75)	12	37	PN-1	T08	VN-1	13	698
	32	**1-1/4"**	**L**	66	175	9	100	32	1-1/4" (31,75)	12	37	PN-1	T08	VN-1	13	711
UT-06*	**25**	**1"**	**-**	56	155	9	90	25	1" (25,4)	16	30	PN-2	T15	VN-2	17	428
	25	**1"**	**L**	81	180	9	90	25	1" (25,4)	16	30	PN-2	T15	VN-2	17	453
	32	**1-1/4"**	**-**	56	165	9	100	32	1-1/4" (31,75)	16	37	PN-2	T15	VN-2	17	725
	32	**1-1/4"**	**L**	81	190	9	100	32	1-1/4" (31,75)	16	37	PN-2	T15	VN-2	17	765
UT-08*	**25**	**1"**	**-**	68	167	9	90	25	1" (25,4)	20	30	PN-2	T15	VN-2	21,5	488
	25	**1"**	**L**	100	199	9	90	25	1" (25,4)	20	30	PN-2	T15	VN-2	21,5	574
	32	**1-1/4"**	**-**	68	177	9	100	32	1-1/4" (31,75)	20	37	PN-2	T15	VN-2	21,5	820
	32	**1-1/4"**	**L**	100	209	9	100	32	1-1/4" (31,75)	20	37	PN-2	T15	VN-2	21,5	868
UT-10*	**25**	**1"**	**-**	86	185	9	90	25	1" (25,4)	25	32	PN-3	T20	VN-3	28	647
	25	**1"**	**L**	126	225	9	90	25	1" (25,4)	25	32	PN-3	T20	VN-3	28	797
	32	**1-1/4"**	**-**	86	195	9	100	32	1-1/4" (31,75)	25	37	PN-3	T20	VN-3	28	935
	32	**1-1/4"**	**L**	126	235	9	100	32	1-1/4" (31,75)	25	37	PN-3	T20	VN-3	28	1097
UT-12	**25**	**1"**	**-**	104	203	9	90	25	1" (25,4)	30	35	PN-3	T20	VN-3	32	824
	25	**1"**	**L**	161	260	9	90	25	1" (25,4)	30	35	PN-3	T20	VN-3	32	1131
	32	**1-1/4"**	**-**	104	213	9	100	32	1-1/4" (31,75)	30	37	PN-3	T20	VN-3	32	1157
	32	**1-1/4"**	**L**	161	270	9	100	32	1-1/4" (31,75)	30	37	PN-3	T20	VN-3	32	1407
UT-14/16	**25**	**1"**	**-**	126	225	9	90	25	1" (25,4)	35	37	PN-4	T20	VN-3	37	1211
	25	**1"**	**L**	180	279	9	90	25	1" (25,4)	35	37	PN-4	T20	VN-3	37	1548
	32	**1-1/4"**	**-**	126	235	9	100	32	1-1/4" (31,75)	35	37	PN-4	T20	VN-3	37	1490
	32	**1-1/4"**	**L**	180	289	9	100	32	1-1/4" (31,75)	35	37	PN-4	T20	VN-3	37	1748
UT-18/25	**32**	**1-1/4"**	**-**	140	249	9	100	32	1-1/4" (31,75)	40	45	PN-5	BRUG.5	VN-4	45	1903
	32	**1-1/4"**	**L**	200	309	9	100	32	1-1/4" (31,75)	40	45	PN-5	BRUG.5	VN-4	45	2189

*On these tools there is a 4mm hole for forced coolant adduction.

THE REV® TOOLS ARE MADE WITH HARDENED STEEL FOR TOOLS WITH AN ADDITIONAL TERMICAL TREATMENT APPLIED.

Additionally, an additional induction hardening is added on the surface rear the seat of the insert to reach an hardness of 58/60 HRC. This will make the tool resistant to compression and will guarantee long life.

All tools are equipped with forced coolant supply holes, which, in addition to lubricating and cooling the insert, are important for chip evacuation on the slotting operations with blind holes.

The REV® tool is available in various lengths and shank sizes.

- Standard-length tool available with Ø 25 mm or Ø 32 mm or Ø 1" or Ø 1-1/4"
- Long tool available with Ø 25 mm or Ø 32 mm or Ø 1" or Ø 1-1/4"
- Standard-length tool available with Ø 16 mm or Ø 20 mm
- Short-length tool available with Ø 16 mm or Ø 20 mm
- Short-length tool available with Ø 25 mm.

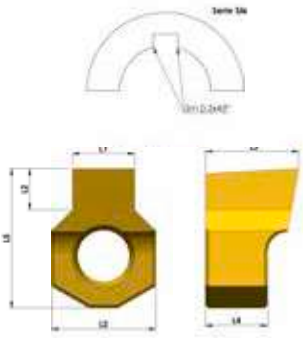
None of the thousands of REV® system users have reported breakage or abnormal wear problems attributable to CNC broaching. From internal tests conducted by REV®, the cutting force required to machine, for example, a 20 mm wide keyway is comparable to the cutting force required to drill a common 14 mm diameter hole.

UT **Ø 16 mm - Ø 20 mm** **standard & short type**	(mm)											
	L1	L2	L3	L4	D1	D2	D3				(mm)	(g)
UT-02-16	25	74	9	40	16	6,5	24	PN-0	T08	VN-1	7,5	0,088
UT-02-16-S	17,5	66,5	9	40	16	6,5	24	PN-0	T08	VN-1	7,5	0,085
UT-03-16	30	79	9	40	16	7,8	24	PN-1	T08	VN-1	8,9	0,1
UT-03-16-S	21	70	9	40	16	7,8	24	PN-1	T08	VN-1	8,9	0,09
UT-04-16	40	89	9	40	16	10	24	PN-1	T08	VN-1	11	0,108
UT-04-16-S	28	77	9	40	16	10	24	PN-1	T08	VN-1	11	0,1
UT-05-16	46	95	9	40	16	12	24	PN-1	T08	VN-1	13	0,11
UT-05-16-S	33	82	9	40	16	12	24	PN-1	T08	VN-1	13	0,1
UT-06-16	56	105	9	40	16	16	24	PN-2	T15	VN-2	17,5	0,158
UT-06-16-S	39	88	9	40	16	16	24	PN-2	T15	VN-2	17,5	0,145
UT-02-20	25	84	9	50	20	6,5	24	PN-0	T08	VN-1	7,5	0,145
UT-02-20-S	17,5	76,5	9	50	20	6,5	24	PN-0	T08	VN-1	7,5	0,14
UT-03-20	30	89	9	50	20	7,8	24	PN-1	T08	VN-1	8,9	0,15
UT-03-20-S	21	80	9	50	20	7,8	24	PN-1	T08	VN-1	8,9	0,145
UT-04-20	40	99	9	50	20	10	24	PN-1	T08	VN-1	11	0,165
UT-04-20-S	28	87	9	50	20	10	24	PN-1	T08	VN-1	11	0,154
UT-05-20	46	105	9	50	20	12	24	PN-1	T08	VN-1	13	0,175
UT-05-20-S	33	92	9	50	20	12	24	PN-1	T08	VN-1	13	0,158
UT-06-20	56	115	9	50	20	16	24	PN-2	T15	VN-2	17,5	0,214
UT-06-20-S	39	98	9	50	20	16	24	PN-2	T15	VN-2	17,5	0,202
UT-08-20	68	127	9	50	16	20	24	PN-2	T15	VN-2	22	0,28
UT-08-20-S	48	107	9	50	20	20	24	PN-2	T15	VN-2	22	0,225

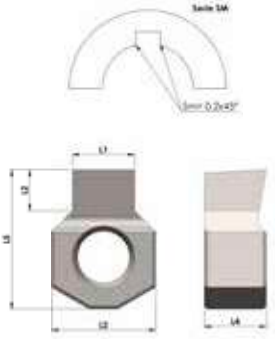
UT **Ø 25 mm** **standard & short type**	(mm)											
	L1	L2	L3	L4	D1	D2	D3				(mm)	(g)
UT-02-25-GC	25	89	9	55	25	6,5	30	PN-0	T08	VN-1	7,5	0,344
UT-02-25-GC-L	34,5	98,5	9	55	25	6,5	30	PN-0	T08	VN-1	7,5	0,396
UT-03-25-GC	30	94	9	55	25	7,8	30	PN-1	T08	VN-1	8,9	0,299
UT-03-25-GC-L	40	104	9	55	25	7,8	30	PN-1	T08	VN-1	8,9	0,334
UT-04-25-GC	40	104	9	55	25	10	30	PN-1	T08	VN-1	11	0,316
UT-04-25-GC-L	56	120	9	55	25	10	30	PN-1	T08	VN-1	11	0,35
UT-05-25-GC	46	110	9	55	25	12	30	PN-1	T08	VN-1	13	0,345
UT-05-25-GC-L	66	130	9	55	25	12	30	PN-1	T08	VN-1	13	0,399
UT-06-25-GC	56	120	9	55	25	16	30	PN-2	T15	VN-2	17,5	0,305
UT-06-25-GC-L	81	145	9	55	25	16	30	PN-2	T15	VN-2	17,5	0,348
UT-08-25-GC	68	132	9	55	25	20	30	PN-2	T15	VN-2	22	0,443
UT-08-25-GC-L	100	164	9	55	25	20	30	PN-2	T15	VN-2	22	0,488

INSERTS (mm)

SINTERED ALLOY



HARD METAL (HM)



To order the carbide insert, add the suffix "HM" to the end of the code.

IN (mm)			L1	L2	L3	L4	L5	L6		
IN-02	P9	HM	1,994	5	6,5	5	6	1,3	UT-02	RF-0
IN-02	P9-SM	HM	1,994	5	6,5	5	6	1,09	UT-02	RF-0
IN-02	H7	HM	2,010	5	6,5	5	6	1,3	UT-02	RF-0
IN-02	H7-SM	HM	2,010	5	6,5	5	6	1,09	UT-02	RF-0
IN-02	D10	HM	2,060	5	6,5	5	6	1,3	UT-02	RF-0
IN-02	C11	HM	2,120	5	6,5	5	6	1,3	UT-02	RF-0
IN-03	P9	HM	2,994	6,08	6,5	5	7,5	2	UT-03	RF-1
IN-03	P9-SM	HM	2,994	6,08	6,5	5	7,5	1,42	UT-03	RF-1
IN-03	H7	HM	3,010	6,08	6,5	5	7,5	2	UT-03	RF-1
IN-03	H7-SM	HM	3,010	6,08	6,5	5	7,5	1,42	UT-03	RF-1
IN-03	D10	HM	3,06	6,08	6,5	5	7,5	2	UT-03	RF-1
IN-03	C11	HM	3,120	6,08	6,5	5	7,5	2	UT-03	RF-1
IN-04	P9	HM	3,988	6,08	7	5	8	2,6	UT-04	RF-1
IN-04	P9-SM	HM	3,988	6,08	7	5	8	2,07	UT-04	RF-1
IN-04	H7	HM	4,012	6,08	7	5	8	2,6	UT-04	RF-1
IN-04	H7-SM	HM	4,012	6,08	7	5	8	2,07	UT-04	RF-1
IN-04	D10	HM	4,078	6,08	7	5	8	2,6	UT-04	RF-1
IN-04	C11	HM	4,145	6,08	7	5	8	2,6	UT-04	RF-1
IN-05	P9	HM	4,988	6,08	7	5	8	3	UT-05	RF-1
IN-05	P9-SM	HM	4,988	6,08	7	5	8	2,74	UT-05	RF-1
IN-05	H7	HM	5,012	6,08	7	5	8	3	UT-05	RF-1
IN-05	H7-SM	HM	5,012	6,08	7	5	8	2,74	UT-05	RF-1
IN-05	D10	HM	5,078	6,08	7	5	8	3	UT-05	RF-1
IN-05	C11	HM	5,145	6,08	7	5	8	3	UT-05	RF-1
IN-06	P9	HM	5,988	10,08	9	6	13,5	4	UT-06	RF-2
IN-06	P9-SM	HM	5,988	10,08	9	6	13,5	3	UT-06	RF-2
IN-06	H7	HM	6,012	10,08	9	6	13,5	4	UT-06	RF-2
IN-06	H7-SM	HM	6,012	10,08	9	6	13,5	3	UT-06	RF-2
IN-06	D10	HM	6,078	10,08	9	6	13,5	4	UT-06	RF-2
IN-06	C11	HM	6,145	10,08	9	6	13,5	4	UT-06	RF-2
IN-08	P9	HM	7,985	10,08	9	6	13,5	4,5	UT-08	RF-2
IN-08	P9-SM	HM	7,985	10,08	9	6	13,5	3,78	UT-08	RF-2
IN-08	H7	HM	8,015	10,08	9	6	13,5	4,5	UT-08	RF-2
IN-08	H7-SM	HM	8,015	10,08	9	6	13,5	3,78	UT-08	RF-2
IN-08	D10	HM	8,098	10,08	9	6	13,5	4,5	UT-08	RF-2
IN-08	C11	HM	8,170	10,08	9	6	13,5	4,5	UT-08	RF-2
IN-10	P9	HM	9,985	13,1	14	10	18,5	6	UT-10	RF-3
IN-10	P9-SM	HM	9,985	13,1	14	10	18,5	3,88	UT-10	RF-3
IN-10	H7	HM	10,015	13,1	14	10	18,5	6	UT-10	RF-3
IN-10	H7-SM	HM	10,015	13,1	14	10	18,5	3,88	UT-10	RF-3
IN-10	D10	HM	10,098	13,1	14	10	18,5	6	UT-10	RF-3
IN-10	C11	HM	10,170	13,1	14	10	18,5	6	UT-10	RF-3

THE BROACHING AND SLOTTING INSERTS REV® ARE ALL COMPLETELY INTERNALLY PRODUCED, STARTING FROM THE RAW MATERIAL.

Available in both sintered alloys made from micro-powders and carbide. Sintered steel inserts, after a special heat treatment, reach hardnesses of 70/71 HRC while maintaining an extremely high toughness. Carbide inserts are made with a grade of powder that provides toughness to the material. Toughness is essential in slotting operations to withstand the high pressures generated during cutting. All inserts also a surface coating treatment with anti-wear and anti-seize properties to improve their wear resistance.

REV® inserts are sharpened using precise tapering methods, achieving the correct geometries for maximum cutting performance and to eliminate possible collision problems that would hinder the cutting phase. The geometry of REV® inserts allows for a high number of resharpenings.

All these features ensure that REV® inserts have optimal durability. Inserts with the suffix "SM" perform a 0.2x45° chamfer at the intersection between the hole and the side of the broached slot, leaving the hole free of burrs.

For all standard REV® inserts in the SM version, the chamfer has been calculated considering the diameters and radius depths regulated in UNI 6604. Anything that differs from the standard dimensions in the table will be considered special.

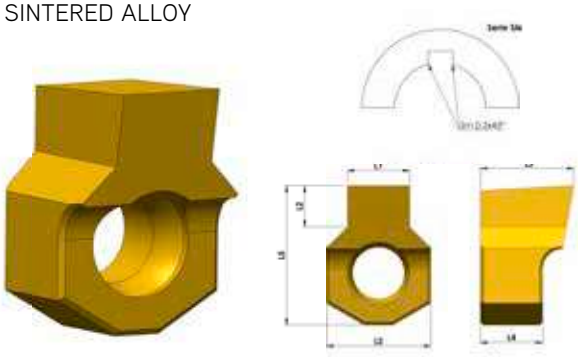
REV® can supply special inserts for specific tolerances, sizes, and geometries very quickly.

IN (mm)			L1	L2	L3 (mm)	L4	L5	L6		
IN-12	P9	HM	11,982	13,1	14	10	18,5	6,5	UT-12	RF-3
IN-12	P9-SM	HM	11,982	13,1	14	10	18,5	3,89	UT-12	RF-3
IN-12	H7	HM	12,018	13,1	14	10	18,5	6,5	UT-12	RF-3
IN-12	H7-SM	HM	12,018	13,1	14	10	18,5	3,89	UT-12	RF-3
IN-12	D10	HM	12,12	13,1	14	10	18,5	6,5	UT-12	RF-3
IN-12	C11	HM	12,205	13,1	14	10	18,5	6,5	UT-12	RF-3
IN-14	P9	HM	13,982	18	14	10	22	7	UT-14/16	RF-4
IN-14	P9-SM	HM	13,982	18	14	10	22	4,71	UT-14/16	RF-4
IN-14	H7	HM	14,018	18	14	10	22	7	UT-14/16	RF-4
IN-14	H7-SM	HM	14,018	18	14	10	22	4,71	UT-14/16	RF-4
IN-14	D10	HM	14,120	18	14	10	22	7	UT-14/16	RF-4
IN-14	C11	HM	14,205	18	14	10	22	7	UT-14/16	RF-4
IN-16	P9	HM	15,982	18	14	10	22	8	UT-14/16	RF-4
IN-16	P9-SM	HM	15,982	18	14	10	22	5,53	UT-14/16	RF-4
IN-16	H7	HM	16,018	18	14	10	22	8	UT-14/16	RF-4
IN-16	H7-SM	HM	16,018	18	14	10	22	5,53	UT-14/16	RF-4
IN-16	D10	HM	16,120	18	14	10	22	8	UT-14/16	RF-4
IN-16	C11	HM	16,205	18	14	10	22	8	UT-14/16	RF-4
IN-18	P9**	HM	17,982	26	18	10	30	9	UT-18/25	RF-5
IN-18	P9-SM**	HM	17,982	26	18	10	30	5,67	UT-18/25	RF-5
IN-18	H7**	HM	18,018	26	18	10	30	9	UT-18/25	RF-5
IN-18	H7-SM**	HM	18,018	26	18	10	30	5,67	UT-18/25	RF-5
IN-18	D10**	HM	18,120	26	18	10	30	9	UT-18/25	RF-5
IN-18	C11**	HM	18,205	26	18	10	30	9	UT-18/25	RF-5
IN-20	P9**	HM	19,978	26	18	10	30	10	UT-18/25	RF-5
IN-20	P9-SM**	HM	19,978	26	18	10	30	6,29	UT-18/25	RF-5
IN-20	H7**	HM	20,021	26	18	10	30	10	UT-18/25	RF-5
IN-20	H7-SM**	HM	20,021	26	18	10	30	6,29	UT-18/25	RF-5
IN-20	D10**	HM	20,149	26	18	10	30	10	UT-18/25	RF-5
IN-20	C11**	HM	20,240	26	18	10	30	10	UT-18/25	RF-5
IN-22	P9**	HM	21,978	26	18	10	30	11	UT-18/25	RF-5
IN-22	P9-SM**	HM	21,978	26	18	10	30	6,79	UT-18/25	RF-5
IN-22	H7**	HM	22,021	26	18	10	30	11	UT-18/25	RF-5
IN-22	H7-SM**	HM	22,021	26	18	10	30	6,79	UT-18/25	RF-5
IN-22	D10**	HM	22,149	26	18	10	30	11	UT-18/25	RF-5
IN-22	C11**	HM	22,240	26	18	10	30	11	UT-18/25	RF-5
IN-25	P9**	HM	24,978	26	18	10	30	12	UT-18/25	RF-5
IN-25	P9-SM**	HM	24,978	26	18	10	30	7,02	UT-18/25	RF-5
IN-25	H7**	HM	25,021	26	18	10	30	12	UT-18/25	RF-5
IN-25	H7-SM**	HM	25,021	26	18	10	30	7,02	UT-18/25	RF-5
IN-25	D10**	HM	25,149	26	18	10	30	12	UT-18/25	RF-5
IN-25	C11**	HM	25,240	26	18	10	30	12	UT-18/25	RF-5

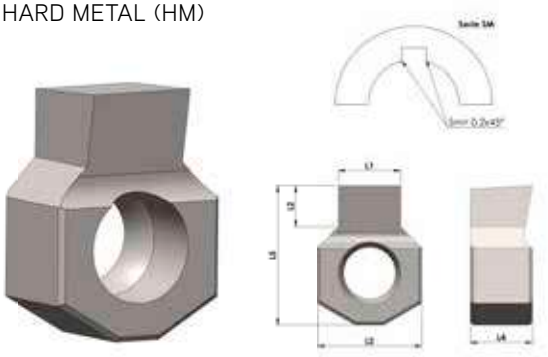
** For these insert sizes we recommend machining in two steps: roughing and finishing.

INSERTS (inches)

SINTERED ALLOY



HARD METAL (HM)



To order the carbide insert, add the suffix "HM" to the end of the code.

IN" (inches)		(mm)	(inches)							
		L1	L1	L2	L3	L4	L5	L6		
IN-3/32"-P9	**HM**	2,375	0,0935	0,1968	0,2362	0,1968	0,2559	0,0551	UT-02	RF-0
IN-3/32"-H7	**HM**	2,391	0,0941	0,1968	0,2362	0,1968	0,2559	0,0551	UT-02	RF-0
IN-3/32"-D10	**HM**	2,441	0,0961	0,1968	0,2362	0,1968	0,2559	0,0551	UT-02	RF-0
IN-3/32"-C11	**HM**	2,501	0,0984	0,1968	0,2362	0,1968	0,2559	0,0551	UT-02	RF-0
IN-1/8"-P9	**HM**	3,1630	0,1241	0,2393	0,2559	0,1968	0,2952	0,0905	UT-03	RF-1
IN-1/8"-H7	**HM**	3,1870	0,1254	0,2393	0,2559	0,1968	0,2952	0,0905	UT-03	RF-1
IN-1/8"-D10	**HM**	3,2530	0,1280	0,2393	0,2559	0,1968	0,2952	0,0905	UT-03	RF-1
IN-1/8"-C11	**HM**	3,3200	0,1307	0,2393	0,2559	0,1968	0,2952	0,0905	UT-03	RF-1
IN-5/32"-P9	**HM**	3,969	0,1556	0,2393	0,2755	0,1968	0,3149	0,1141	UT-04	RF-1
IN-5/32"-H7	**HM**	3,981	0,1567	0,2393	0,2755	0,1968	0,3149	0,1141	UT-04	RF-1
IN-5/32"-D10	**HM**	4,047	0,1593	0,2393	0,2755	0,1968	0,3149	0,1141	UT-04	RF-1
IN-5/32"-C11	**HM**	4,114	0,1619	0,2393	0,2755	0,1968	0,3149	0,1141	UT-04	RF-1
IN-3/16"-P9	**HM**	4,7510	0,1871	0,2393	0,2755	0,1968	0,3149	0,1299	UT-05	RF-1
IN-3/16"-H7	**HM**	4,774	0,1879	0,2393	0,2755	0,1968	0,3149	0,1299	UT-05	RF-1
IN-3/16"-D10	**HM**	4,84	0,1905	0,2393	0,2755	0,1968	0,3149	0,1299	UT-05	RF-1
IN-3/16"-C11	**HM**	4,908	0,1932	0,2393	0,2755	0,1968	0,3149	0,1299	UT-05	RF-1
IN-1/4"-P9	**HM**	6,335	0,2494	0,3968	0,3543	0,2362	0,5314	0,1587	UT-06	RF-2
IN-1/4"-H7	**HM**	6,365	0,2505	0,3968	0,3543	0,2362	0,5314	0,1587	UT-06	RF-2
IN-1/4"-D10	**HM**	6,448	0,2538	0,3968	0,3543	0,2362	0,5314	0,1587	UT-06	RF-2
IN-1/4"-C11	**HM**	6,520	0,2566	0,3968	0,3543	0,2362	0,5314	0,1587	UT-06	RF-2
IN-9/32"-P9	**HM**	7,129	0,2806	0,3968	0,3543	0,2362	0,5314	0,1692	UT-08	RF-2
IN-9/32"-H7	**HM**	7,159	0,2818	0,3968	0,3543	0,2362	0,5314	0,1692	UT-08	RF-2
IN-9/32"-D10	**HM**	7,242	0,2851	0,3968	0,3543	0,2362	0,5314	0,1692	UT-08	RF-2
IN-9/32"-C11	**HM**	7,314	0,2879	0,3968	0,3543	0,2362	0,5314	0,1692	UT-08	RF-2
IN-5/16"-P9	**HM**	7,922	0,3119	0,3968	0,3543	0,2362	0,5314	0,1875	UT-08	RF-2
IN-5/16"-H7	**HM**	7,952	0,313	0,3968	0,3543	0,2362	0,5314	0,1875	UT-08	RF-2

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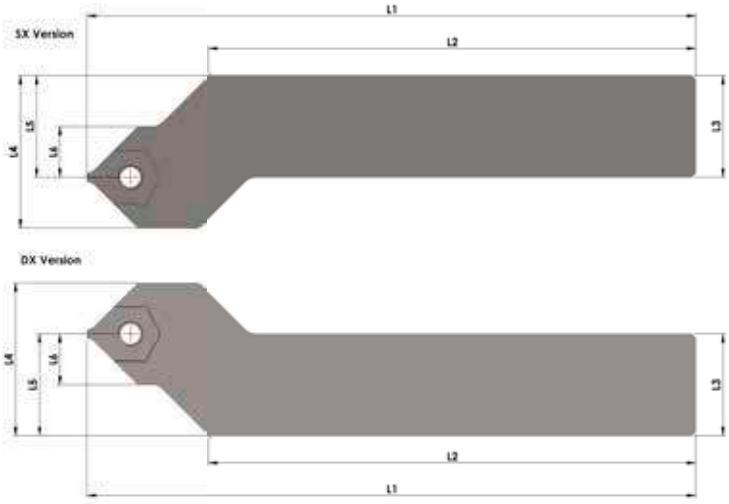
IN" (inches)		(mm)	(inches)							
		L1	L1	L2	L3	L4	L5	L6		
IN-5/16"-D10	**HM**	8,036	0,3163	0,3968	0,3543	0,2362	0,5314	0,1875	UT-08	RF-2
IN-5/16"-C11	**HM**	8,108	0,3191	0,3968	0,3543	0,2362	0,5314	0,1875	UT-08	RF-2
IN-3/8"-P9	**HM**	9,511	0,3744	0,5157	0,5511	0,3937	0,7283	0,2500	UT-10	RF-3
IN-3/8"-H7	**HM**	9,540	0,3755	0,5157	0,5511	0,3937	0,7283	0,250	UT-10	RF-3
IN-3/8"-D10	**HM**	9,623	0,3788	0,5157	0,5511	0,3937	0,7283	0,250	UT-10	RF-3
IN-3/8"-C11	**HM**	9,695	0,3816	0,5157	0,5511	0,3937	0,7283	0,250	UT-10	RF-3
IN-7/16"-P9	**HM**	11,094	0,4367	0,5157	0,5511	0,3937	0,7283	0,250	UT-12	RF-3
IN-7/16"-H7	**HM**	11,13	0,4382	0,5157	0,5511	0,3937	0,7283	0,250	UT-12	RF-3
IN-7/16"-D10	**HM**	11,232	0,4422	0,5157	0,5511	0,3937	0,7283	0,250	UT-12	RF-3
IN-7/16"-C11	**HM**	11,318	0,4455	0,5157	0,5511	0,3937	0,7283	0,250	UT-12	RF-3
IN-1/2"-P9	**HM**	12,682	0,4992	0,5157	0,5511	0,3937	0,7283	0,300	UT-12	RF-3
IN-1/2"-H7	**HM**	12,718	0,5007	0,5157	0,5511	0,3937	0,7283	0,300	UT-12	RF-3
IN-1/2"-D10	**HM**	12,8200	0,5047	0,5157	0,5511	0,3937	0,7283	0,300	UT-12	RF-3
IN-1/2"-C11	**HM**	12,9050	0,508	0,5157	0,5511	0,3937	0,7283	0,300	UT-12	RF-3
IN-9/16"-P9	**HM**	14,27	0,5617	0,7086	0,5511	0,3937	0,8661	0,275	UT-14/16	RF-4
IN-9/16"-H7	**HM**	14,306	0,5632	0,7086	0,5511	0,3937	0,8661	0,275	UT-14/16	RF-4
IN-9/16"-D10	**HM**	14,408	0,5672	0,7086	0,5511	0,3937	0,8661	0,275	UT-14/16	RF-4
IN-9/16"-C11	**HM**	14,492	0,5705	0,7086	0,5511	0,3937	0,8661	0,275	UT-14/16	RF-4
IN-5/8"-P9	**HM**	15,8570	0,6242	0,7086	0,5511	0,3937	0,8661	0,312	UT-14/16	RF-4
IN-5/8"-H7	**HM**	15,8930	0,6257	0,7086	0,5511	0,3937	0,8661	0,312	UT-14/16	RF-4
IN-5/8"-D10	**HM**	15,9950	0,6297	0,7086	0,5511	0,3937	0,8661	0,312	UT-14/16	RF-4
IN-5/8"-C11	**HM**	16,080	0,633	0,7086	0,5511	0,3937	0,8661	0,312	UT-14/16	RF-4
IN-3/4"-P9**	**HM**	19,028	0,7491	1,024	0,7086	0,3937	1,181	0,393	UT-18/25	RF-5
IN-3/4"-H7**	**HM**	19,071	0,7508	1,024	0,7086	0,3937	1,181	0,393	UT-18/25	RF-5
IN-3/4"-D10**	**HM**	19,199	0,7558	1,024	0,7086	0.3937	1,181	0,393	UT-18/25	RF-5
IN-3/4"-C11**	**HM**	19,290	0,7594	1,024	0,7086	0,3937	1,181	0,393	UT-18/25	RF-5

** For these insert sizes we recommend machining in two steps: roughing and finishing.

TOOLS FOR EXTERNAL



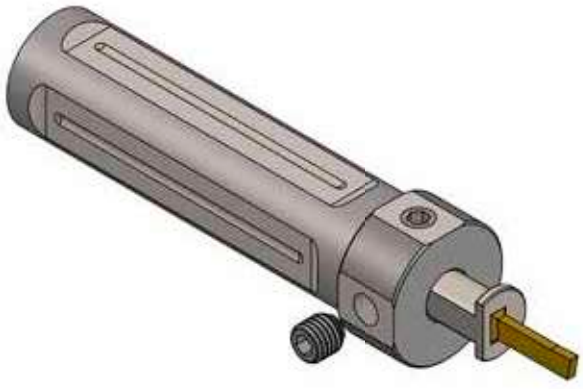
THE UTE SERIES WAS DEVELOPED TO OPTIMIZE THE EXTERNAL BROACHING OPERATIONS ON THE LATHES.

In addition to the two types of tools for external machining available in the catalogue, the REV® production facility is able to build special tools for external machining based on specific customer demands.

Almost always the UTE is used to produce external splines. For this reason is necessary a customized inserts for the application necessary.

UTE	L1	L2	L3	L4	L5	L6
			(mm)			
UTE-20-DX	150	110	20x20	32,5	20	12,5
UTE-20-SX	150	110	20x20	32,5	20	12,5
UTE-25-DX	150	110	25x25	37,5	25	12,5
UTE-25-SX	150	110	25x25	37,5	25	12,5

MINITOOLS



Keyway

Square profile

Hexagon profile

Double square profile

Special profile

Spline profile

THE MINITOOL SERIES WAS DEVELOPED BASED ON THE NEED TO SATISFY DEMANDS LINKED TO MACHINING SMALL WORKPIECES.

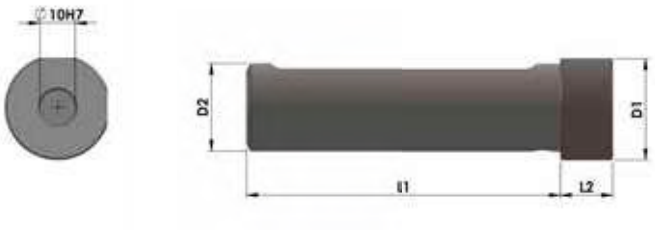
Integral inserts were used to satisfy these demands, as these types of inserts make it possible to achieve extremely small cutting profiles, with very different geometries. In order to ensure high tool rigidity and achieve tools that are very precise for the operation that needs to be performed, the integral inserts are always designed ad hoc based on specific customer demands.

To ensure the best delivery, the REV® production facility always has a stock of semi-finished MINITOOL inserts and has developed specific programmes for its CNC grinding machines, to produce the necessary inserts accordingly with the customer needs, in a very short time.

MINITOOL series inserts can fit UT-1/8 insert-carrier (available in different diameters). The UT-1/8 adapter can be used with eccentric bushing, the same way as the other holders with round shank, therefore, can correct any alignment errors on CNC lathes that are not equipped with a Y axis.

Alternatively, MINITOOL inserts can be locked into the machine tool-carrier with a simple clamping gripper (for ex. an ER gripper). In this case it is preferable for the machine to be equipped with a Y axis.

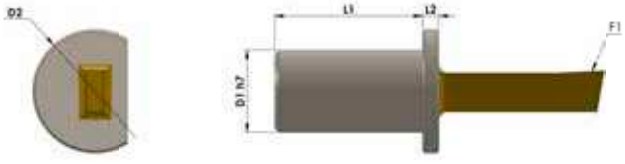
UT-1/8



UT-1/8	L1	L2 (mm)	D1	D2
UT-1/8-19,05	90	15	30	19,05
UT-1/8-20	90	15	30	20
UT-1/8-25	90	15	30	25
UT-1/8-32	100	15	38	32

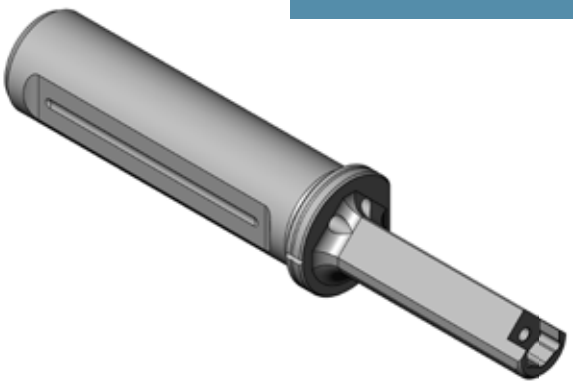
MINITOOL INTEGRAL INSERT

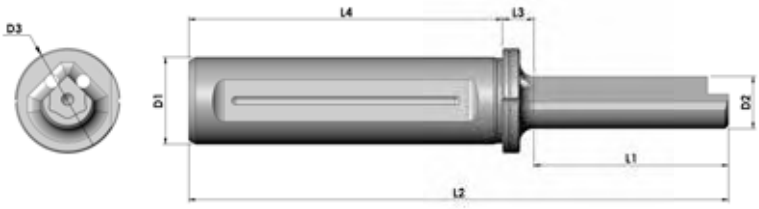
Integral inserts in the MINITOOL line feature a flat side on the collar, with a diameter of 15 mm, allowing the operator to check the correct position of the insert in very short of time, through the use of common comparators or gauges. They can be manufactured in two possible alloys: sintered steel or, alternatively, widia. The life of the inserts is very long and they can be re-sharpened many times before having to replace them. The type of sharpening and coating are assessed based on the material that needs to be machined.



IN-1/8	L1	L2 (mm)	F1	D1	D2
IN-1/8	18	2		10 H7	15

FOR SQUARE





THIS SERIES OF REV® TOOLS WAS DEVELOPED TO REALIZE INTERNAL SQUARES.

It offers the following advantages: absolute concentricity, the possibility of correcting the required measurement, machining speed, extreme economising. Every insert size in this line is able to execute various square sizes, which makes using REV® tools for squares very economically convenient.

To realize internal square holes is necessary realize a pre-hole with a diameter based on the following formula:

PRE-HOLE DIAMETER (DP) = SQUARE THICKNESS X 1,050

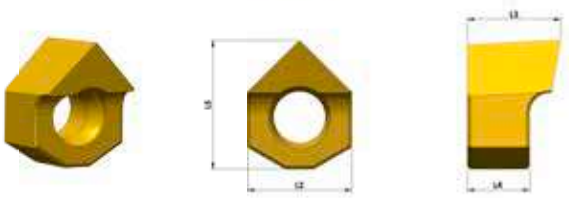
For example, for a square with a width of 10 mm the diameter of the pre-hole will be:

10 mm x 1,050 = 10,50 mm

Following the formula with a bigger pre-hole, at the end of the machining, a turning mark will remain on the sides of the profile. This will not cause any problems on the mechanical application, as the mechanical function is provided by the vertexes. The final result will be purely aesthetic.

UT-SQ	(mm)											
	L1	L2	L3	L4	D1	D2	D3				(mm)	(g)
UT-SQ-8/10-25	30	129	9	90	25	7,25	30	PN-1	T08	VN-1	8	368
UT-SQ-8/10-32	30	139	9	100	32	7,25	38	PN-1	T08	VN-1	8	673
UT-SQ-10/13-25	40	139	9	90	25	8,60	30	PN-1	T08	VN-1	10	368
UT-SQ-10/13-32	40	149	9	100	32	8,60	38	PN-1	T08	VN-1	10	672
UT-SQ-13/16-25	50	149	9	90	25	12	30	PN-2	T15	VN-2	13	428
UT-SQ-13/16-32	50	159	9	100	32	12	38	PN-2	T15	VN-2	13	725
UT-SQ-16/19-25	52	151	9	90	25	15	30	PN-3	T20	VN-3	16	647
UT-SQ-16/19-32	52	161	9	100	32	15	38	PN-3	T20	VN-3	16	935
UT-SQ-19/27-25	86	185	9	90	25	18,50	30	PN-3	T20	VN-3	19	824
UT-SQ-19/27-32	86	195	9	100	32	18,50	38	PN-3	T20	VN-3	19	1,157
UT-SQ-27/37-25	100	199	9	90	25	25	30	PN-4	T20	VN-3	27	1,39
UT-SQ-27/37-32	100	209	9	100	32	25	38	PN-4	T20	VN-3	27	1,49
UT-SQ-37/50-32	140	249	9	100	32	35	45	PN-5	BRUG-5	VN-4	37	1,903

SINTERED ALLOY

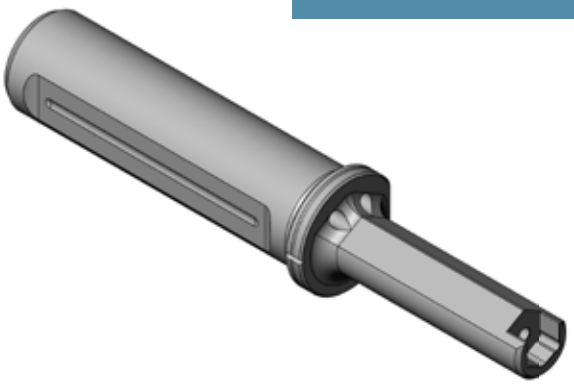


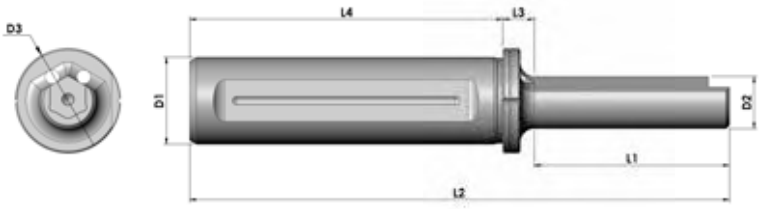
HARD METAL (HM)

To order the carbide insert, add the suffix "HM" to the end of the code.

IN-SQ		(mm)	(inch)	(mm)					
				L2	L3	L4	L5		
IN-SQ-8/10	HM	8mm/10mm	0,314/0,393	6	7	5	7	UT-SQ-8/10	RF-1
IN-SQ-10/13	HM	10mm/13mm	0,393/0,511	6	7	5	7,5	UT-SQ-10/13	RF-1
IN-SQ-13/16	HM	13mm/16mm	0,511/0,629	10	8	6	12	UT-SQ-13/16	RF-2
IN-SQ-16/19	HM	16mm/19mm	0,629/0,748	10	8	6	12,5	UT-SQ-16/19	RF-2
IN-SQ-19/27	HM	19mm/27mm	0,748/1,062	13	14	10	17	UT-SQ-19/27	RF-3
IN-SQ-27/37	HM	27mm/37mm	1,062/1,456	18	14	10	22	UT-SQ-27/37	RF-4
IN-SQ-37/50	HM	37mm/50mm	1,456/1,968	26	18	10	30	UT-SQ-37/50	RF-5

FOR HEXAGON





THIS SERIES OF RE® TOOLS WAS DEVELOPED TO PRODUCE INTERNAL HEXAGONS.

It offers the following advantages: absolute concentricity, the possibility of correcting the required measurement, machining speed, extreme economising. Every insert size in this line is able to execute various hexagon sizes, which makes using REV® tools for hexagons very economically convenient.

To realize internal square holes is necessary realize a pre-hole with a diameter based on the following formula:

PRE-HOLE DIAMETER (DP) = HEXAGON THICKNESS X 1,020

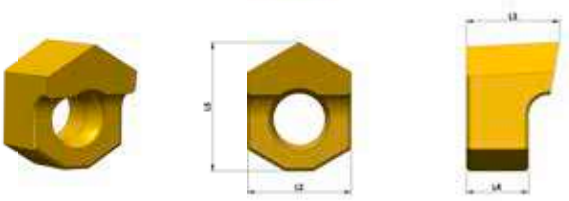
For example, for a hexagon with a thickness of 10 mm the diameter of the pre-hole will be:

10 mm x 1,020 = 10,20 mm

Following the formula with a bigger pre-hole, at the end of the machining, a turning mark will remain on the sides of the profile. This will not cause any problems on the mechanical application, as the mechanical function is provided by the vertexes. The final result will be purely aesthetic.

UT-HEX	(mm)											
	L1	L2	L3	L4	D1	D2	D3				(mm)	(g)
UT-HEX-9/11-25	30	129	9	90	25	8	30	PN-1	T08	VN-1	9	388
UT-HEX-9/11-32	30	139	9	100	32	8	38	PN-1	T08	VN-1	9	673
UT-HEX-11/17-25	40	139	9	90	25	10	30	PN-1	T08	VN-1	11	368
UT-HEX-11/17-32	40	149	9	100	32	10	38	PN-1	T08	VN-1	11	672
UT-HEX-17/28-25	56	155	9	90	25	15	30	PN-2	T15	VN-2	17	647
UT-HEX-17/28-32	56	165	9	100	32	15	38	PN-2	T15	VN-2	17	935
UT-HEX-28/37-25	86	185	9	90	25	25	30	PN-3	T20	VN-3	28	1,390
UT-HEX-28/37-32	86	195	9	100	32	25	38	PN-3	T20	VN-3	28	1,157
UT-HEX-37/45-25	126	225	9	90	25	35	45	PN-4	T20	VN-3	37	1,490
UT-HEX-37/45-32	126	235	9	100	32	35	45	PN-4	T20	VN-3	37	1,850
UT-HEX-45/70-32	140	249	9	100	32	40	45	PN-5	BRUG5	VN-4	45	1,950

SINTERED ALLOY

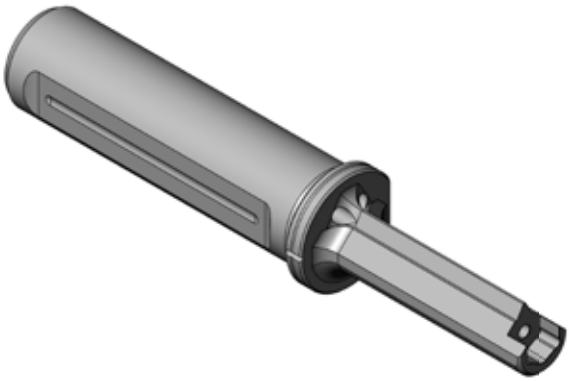


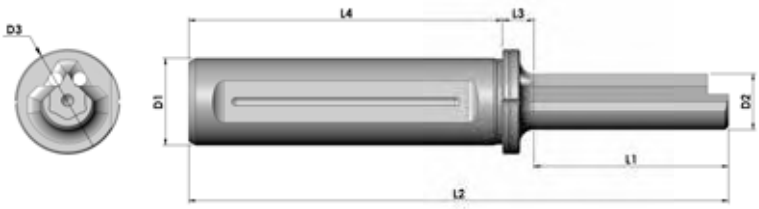
HARD METAL (HM)

To order the carbide insert, add the suffix "HM" to the end of the code.

IN-HEX		(mm)	(inch)	(mm)					
				L2	L3	L4	L5		
IN-HEX-9/11	HM	9mm/11mm	0,354/0,433	6	7	5	7,5	UT-HEX-9/11	RF-1
IN-HEX-11/17	HM	11mm/17mm	0,433/0,669	6	7	5	8	UT-HEX-11/17	RF-1
IN-HEX-17/28	HM	17mm/28mm	0,669/1,102	10	9	6	13,5	UT-HEX-17/28	RF-2
IN-HEX-28/37	HM	28mm/37mm	1,102/1,456	13	14	10	18,5	UT-HEX-28/37	RF-3
IN-HEX-37/45	HM	37mm/45mm	1,456/1,771	18	14	10	22	UT-HEX-37/45	RF-4
IN-HEX-45/70	HM	45mm/70mm	1,771/2,755	26	16	10	30	UT-HEX-45/70	RF-5

FOR SPLINE PROFILES





THE UTS TOOL LINE WAS DESIGNED TO PRODUCE EXTERNAL AND INTERNAL SPLINES.

The choice of tool is determined by the starting hole of the workpiece to be machined. We recommend tool with a diameter (D2) as close as possible near to the starting diameter as shown in the table.

It is also possible to make special tools with special diameters and sizes based on specific customer needs.

Inserts used on the UTS tool line for spline profiles are all considered special: they are not in stock; they are manufactured specifically for the customer based on the type of machining required.

UTS	L1	L2	L3	L4	D1	D2	D3				(mm)	(g)
	(mm)											
UTS-02-25	25	124	9	90	25	6,5	30	PN-0	T08	VN-1	7	382
UTS-02-32	25	134	9	100	32	6,5	37	PN-0	T08	VN-1	7	600
UTS-03-25	30	129	9	90	25	8	30	PN-1	T08	VN-1	8,5	368
UTS-03-32	30	139	9	100	32	8	37	PN-1	T08	VN-1	8,5	673
UTS-04-25	40	139	9	90	25	10	30	PN-1	T08	VN-1	10,5	368
UTS-04-32	40	149	9	100	32	10	37	PN-1	T08	VN-1	10,5	672
UTS-05-25	46	145	9	90	25	12	30	PN-1	T08	VN-1	12,5	382
UTS-05-32	46	155	9	100	32	12	37	PN-1	T08	VN-1	12,5	698
UTS-06-25	56	155	9	90	25	16	30	PN-2	T15	VN-2	16,5	428
UTS-06-32	56	165	9	100	32	16	37	PN-2	T15	VN-2	16,5	725
UTS-08-25	68	162	9	90	25	20	30	PN-2	T15	VN-2	21	488
UTS-08-32	68	172	9	100	32	20	37	PN-2	T15	VN-2	21	820
UTS-10-25	86	185	9	90	25	25	30	PN-3	T20	VN-3	28	647
UTS-10-32	86	195	9	100	32	25	37	PN-3	T20	VN-3	28	935
UTS-12-25	102	203	9	90	25	30	30	PN-3	T20	VN-3	33	824
UTS-12-32	102	213	9	100	32	30	37	PN-3	T20	VN-3	33	1157
UTS-14/16-25	126	221	9	90	25	35	37	PN-4	T20	VN-3	38	1211
UTS-14/16-32	126	231	9	100	32	35	37	PN-4	T20	VN-3	38	1490
UTS-18/25-32	140	249	9	100	32	40	45	PN-5	BRUG.5	VN-4	42	1903

FOR MOTORISED SLOTTERS

Keyway

Square profile

Hexagon profile

Double square profile

Special profile

Spline profile

THE TOOLS ILLUSTRATED CAN BE PROVIDED FOR A CORRECT USE OF THE REV® INSERTS FOR USE ON MOTORISED SLOTTING MACHINE FOR CNC LATHES.

With all these tools will be possibleuse the stnadard inserts for keyways, for hexagon profiles, for square profiles and also special inserts for spline profiles.

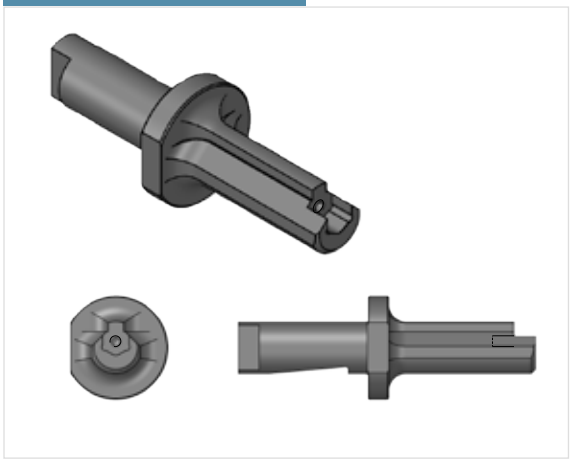
The holders will be realized accordingly with the requests accordingly with the motorised slotter required and the application necessary to perform.

The pictures below are provided as example and illustrates one of the many possible shapes that the tool legs can have.

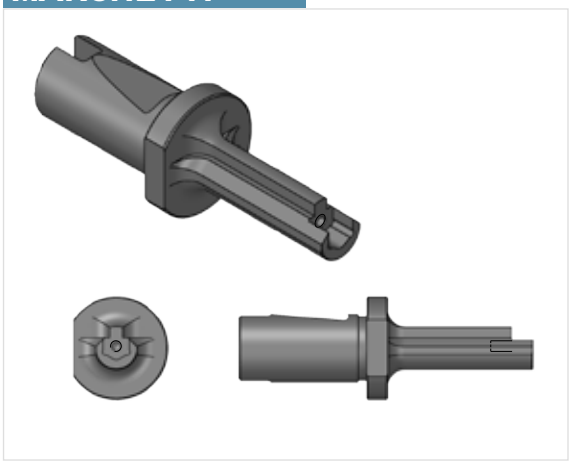
EXAMPLES OF TOOLS FOR MOTORISED SLOTTERS
AVAILABLE ON REQUEST

BENZ & EWS

PINTO



MARCHETTI



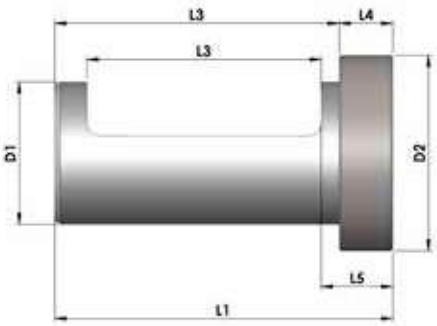
WTO

BUSHINGS FOR LATHES

THE ECCENTRIC BUSHING FOR THE REV® BROACHING TOOL IS AN ESSENTIAL ACCESSORY FOR ANY LATHE THAT IS NOT EQUIPPED WITH A Y AXIS.

In fact, this bushing can be used to correct any alignment error that may occur during broaching and slotting. It is made with tool steel which is hardened and ground. Its range of operation is between **0.5 mm Y+** a **0.5 mm Y-**.

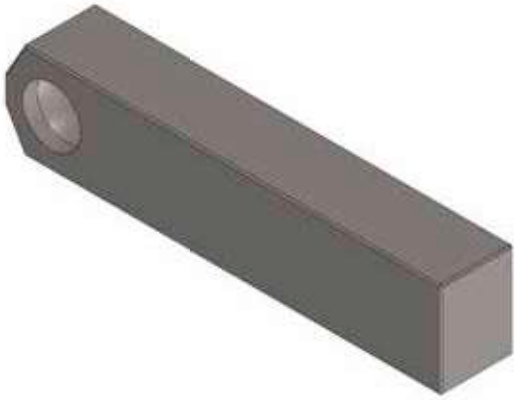
The eccentric bushing is manufactured in various sizes for use on all types of machines available on the market.

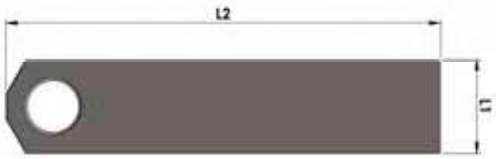


B (mm)	L1	L2	L3	L4 (mm)	L5	D1	D2	D3	(g)
B-32	85	70	58	15	20	32 H7	48	25	300
B-40	95	80	66	15	20	40 H7	55	32	400
B-50	115	100	75	15	20	50 H7	65	32	1000
B-60	115	100	75	15	20	60 H7	80	32	1600
B-32 VDI	65	50	38	15	20	32 H7	48	25	280
B-40 VDI	80	65	51	15	20	40 H7	55	32	360
B-50 VDI	95	80	55	15	20	50 H7	65	32	850
B-60 VDI	105	80	65	15	20	60 H7	80	32	1500

B (inches)	L1	L2	L3	L4 (inches)	L5	D1	D2	D3	(g)
B-1-1/4"	3,346	2,756	2,283	0,591	0,787	1,250	2,165	0,984	300
B-1-1/2"	3,740	3,150	2,598	0,591	0,787	1,500	2,165	1,260	329
B-2"	4,528	3,937	2,953	0,591	0,787	2,000	2,559	1,260	978
B-1-1/4"-VDI	2,559	1,969	1,496	0,591	0,787	1,250	2,165	0,984	267
B-1-1/2"-VDI	3,150	2,559	2,008	0,591	0,787	1,500	2,165	1,260	329
B-2"-VDI	3,740	3,150	2,165	0,591	0,787	2,000	2,559	1,260	871

ALIGNERS FOR MILLING MACHINES



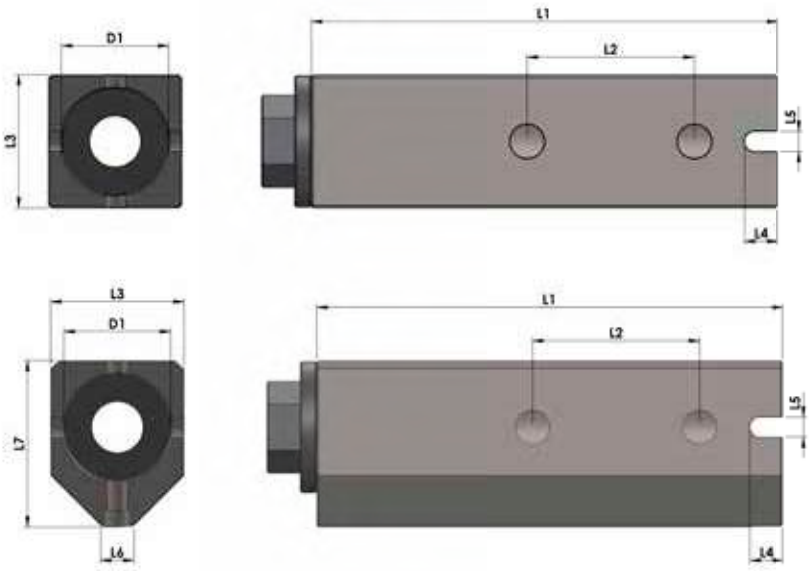


ALIGNERS ARE USED ON MACHINING CENTRES TO ACHIEVE CORRECT TOOL ASSEMBLY.

It's necessary use the aligner on the tool in the set-up phase to find and save the correct position of the holder on the spindle of the machine.

PN	(mm) L1	L2	L3	
PN-0	5	50	6	UT-02
PN-1	6,08	50	8	UT-03/UT-04/UT-05
PN-2	10,08	50	8	UT-06/UT-08
PN-3	13,1	60	10	UT-10/UT-12
PN-4	18	70	10	UT-14/16
PN-5	26	70	10	UT-18/25

ADAPTERS FOR SLOTTERS



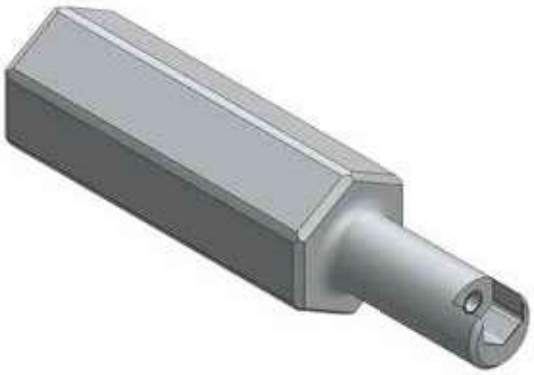
THE REV® ADAPTER IS THE NECESSARY ACCESSORY FOR A FAST AND HELPFUL USE OF THE REV® HOLDERS. IT IS AVAILABLE IN SQUARE OR PRISMATIC VERSION. .

The timing pin (provided with each tool) guarantees a perfect position of the tool in relation to the work axis. Both the square and prismatic adapters are available in two measurements: with a hole diameter of 25 mm and another measuring 32 mm.

The use of the adapter provide a fast tool change and provide to the user a precise positioning of the holder with the center of the spindle.

B (mm)	L1	L2	L3	L4	L5	L6	L7	D1	(g)
				(mm)					
AD-35	140	40	35	10	6	/	/	25	500
AD-40	140	50	40	10	6	/	/	32	600
AD-50	170	50	50	10	6	/	/	32	2200
ADP-35	140	40	35	10	6	10	41,5	25	600
ADP-40	140	50	40	10	6	10	50	32	700

RE-SHARPENERS FOR INSERTS



USING THE RE-SHARPENER IT WILL BE POSSIBLE TO REGRIND THE INSERTS WITH A COMMON GRINDER WHEEL.

When the operator find the first manufacturing defects, it is necessary to proceed with the resharpening of the insert (before chipping occurs).

To proceed with the resharpening operation the operator must fix the insert on the resharpener and remove the worn material keeping the original inclination. It is important to remember that only the cutting surface must be grinded.

The re-sharpening has a comfortable grip and ensures that the insert protrudes from the rod making sharpening easier.

This accessory is available in 6 types:
RF-0 to resharpen the 2 mm inserts,
RF-1 to resharpen the 3-4-5 mm inserts,
RF-2 to resharpen the 6-8 mm inserts,
RF-3 to resharpen the 10-12 mm inserts,
RF-4 to resharpen the 14-16 mm inserts,
RF-5 to resharpen the 18-25 mm inserts.

RF	L1	L2	L3
	(mm)		
RF-0	150	50	10
RF-1	150	50	12
RF-2	150	50	15
RF-3	150	50	20
RF-4	150	50	25
RF-5	150	50	32

SCREWS WITH SPHERICAL ENDS

THE BORING BAR HATCH CLAMPING SCREWS WITH SPHERICAL ENDS ARE REQUIRED TO FIX THE REV® BROACHING TOOL AND ECCENTRIC BUSHING PERFECTLY TO THE CNC LATHE.

Whenever it is necessary to correct any keyway alignment error, these screws hold the tool in the work position, making it much easier to adjust the eccentric bushing.

Six categories of them are kept in stock, from the smallest size called BU-1, which is equivalent to M6x15, to the largest one called BU-6, equivalent to M16x30. The hardness of the spring varies in relation to screw size.

Before making a purchase it is necessary to check exactly which type of screw is suitable for the boring bar provided with the machine tool.

BU (mm)		(mm)
BU-1	6MA	15
BU-2	8MA	20
BU-3	10MA	20
BU-4	12MA	25
BU-5	14MA	25
BU-6	16MA	30

BU (inches)		(inch)
BU-7	UNC 5/16"-18	37/64"
BU-8	UNC 3/8"-16	5/8"
BU-9	UNC 1/2"-13	3/4"
BU-10	UNC 5/8"-11	36/64"

SCREWS

FOR FIXING INSERTS

THE CLAMPING SCREWS ARE REQUIRED TO FIX THE INSERTS ONTO THE REV® BROACHING TOOL HOLDER AND ARE ALL MADE WITH QUENCHED AND TEMPERED STEEL, WHICH IS THEN TEMPERED AND BURNISHED.

They are available in three torx sizes and one Allen size (VN-4) M8x16.

VN (mm)		(mm)
VN-1	TORX	M2,5X8
VN-2	TORX	M4X10
VN-3	TORX	M6X15
VN-4	TCEI	M8x16

SCREWDRIVERS

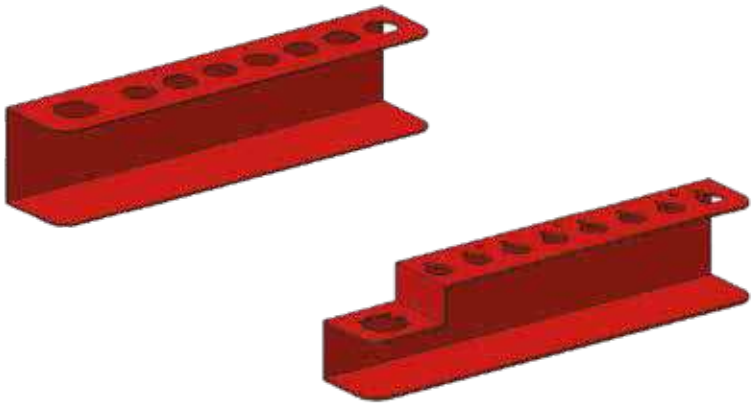
FOR FIXING INSERTS

THE SCREWDRIVERS ARE USED FOR THE FIXING OF THE INSERT ONTO THE TOOL.

They are available in three torx sizes and one Allen size 5 mm.

RF		HEX
T08	TORX	8
T15	TORX	15
T20	TORX	20
HEXAGONAL WRENCH 5 mm	HEX WRENCH FOR TCEI SCREW	5

TOOL CARRIER BASES

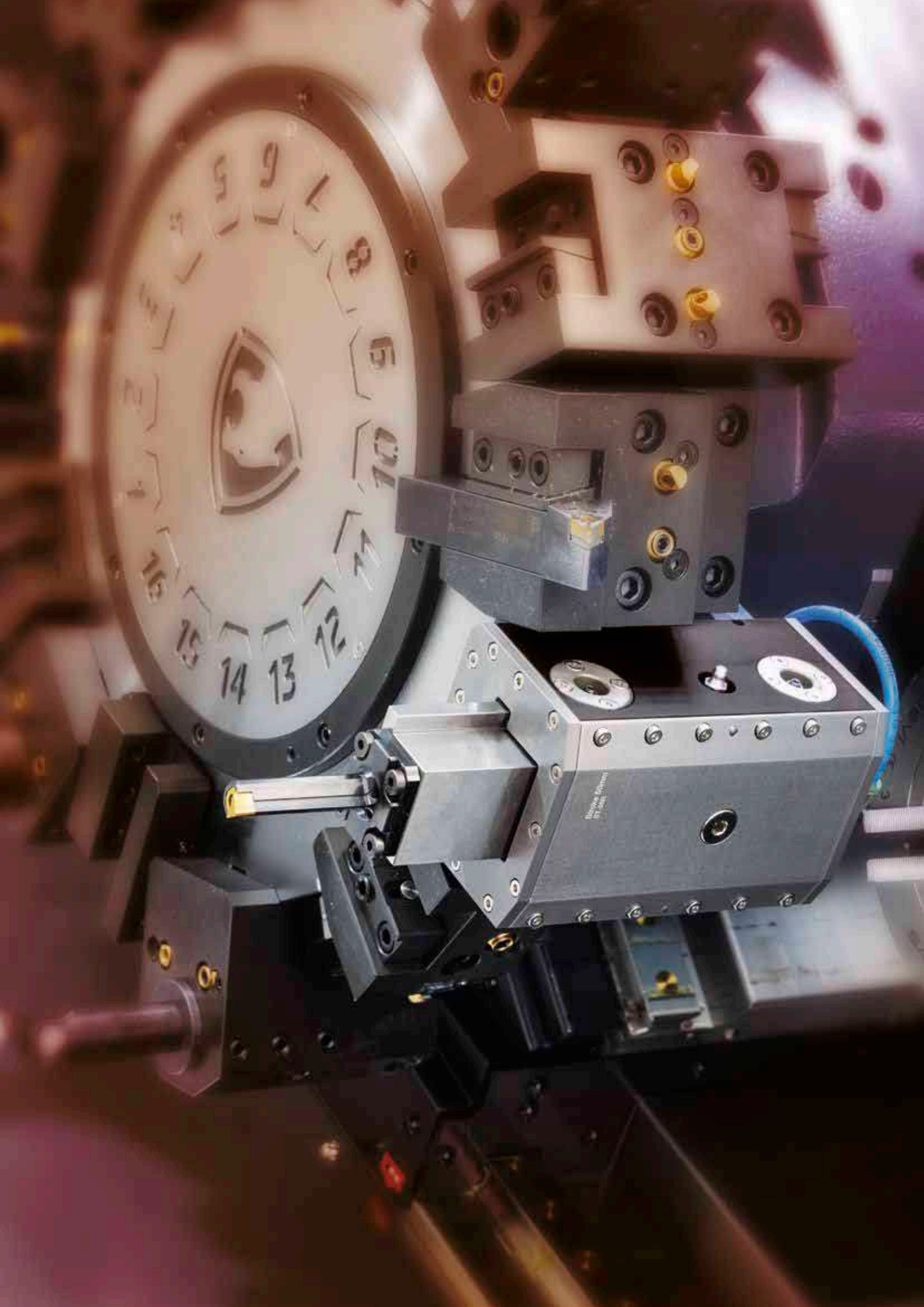


TO BETTER ORGANIZE THE WORK IN THE WORKSHOP, REV® IS ABLE TO PROVIDE THE TOOL-CARRIER BASES MADE FOR THE REV® HOLDERS.

The tool-carrier bases come in two sub-categories:

- the bases identified by the prefix ST-CNC which are used to organise tools for CNC lathes or CNC machining centres and also have a hole to fit the eccentric bushing (see image on left hand side),
- the bases identified by prefix ST-SLO which are used for slotting machines tools and also have a hole to house the square or prismatic adapter (see image on right hand side).

ST-CNC ST-SLO	N°	mm	
ST-CNC-1	7	25	B-32
ST-CNC-2	7	32	B-40
ST-CNC-3	7	32	B-50
ST-CNC-4	7	32	B-60
ST-CNC-5	7	25	B-1"1/4
ST-CNC-6	7	32	B-1"1/2
ST-CNC-7	7	32	B-2"
ST-SLO-1	6	25	AD-35 O ADP-35
ST-SLO-2	8	25	AD-35 O ADP-35
ST-SLO-3	6	32	AD-40 O ADP-40
ST-SLO-4	8	32	AD-40 O ADP-40
ST-SLO-5	8	32	AD-50



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