



AUTOMATIC
MULTISPINDLE
ATTACHMENTS



Exploiting the special skills acquired in the planning and design of multispindle automatics for some of the most important manufacturer in Europe and worldwide, **AUTOR engineering** operates in the field of design and manufacturing of multispindle accessories and auxiliary equipment.

AUTOR engineering, beside boasting many years of experience in this field, takes advantage of the most updated technologies and informatics instruments, both in the design stage, and in the assembling of its products.

Present directly on the market for more than ten years, **AUTOR engineering** continuously renews its wide range of equipment from the most common appliances, such as pick-up spindles, polygon milling attachments, thread chasing attachments, frontal milling attachments, operating units with spindle stop, CNC slides, etc., to a number of attachments for special machinings. Most of its products are patented.

The **AUTOR engineering's** attachments have been developed to be used on most of the multispindle automatics manufactured by the main companies.

DMG MORI

INDEX

MORI-SAY



TORNOS



- **ISOTURN: CNC COMBINED SLIDE**
- **PRECITURN: CNC COMBINED SLIDE**



ISOTURN:CNC COMBINED SLIDE

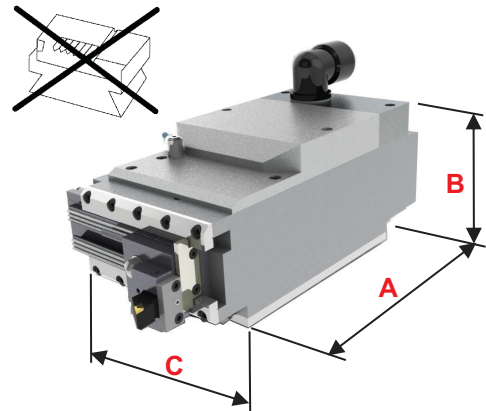
Attachment for multispindle automatics allows to work complex profile parts using standard tools instead of shaped tools. It also allows easy machining of hard materials (automotive parts, electronic injection, etc.).

The movements of the X and Z axis use powerful motorization, ball screw and oversized prismatic guide.

The complete programmability of feed speeds and pass depths give high quality of surface finishing.

It's possible to implement the option "Chip Breaker" specifically developed for Autor's CNC devices.

Special versions with increased strokes on request



CNC unit features	
CNC type	NUM FLEXIUM
Screen	10" TOUCH
N.Controlled axis	2
Programming language	ISO
Resolution	1 µm

Slide drive features	
Nominal torque	2.6 Nm
Max axial force	2940 N
Max linear speed	12 m/min
Max axis X stroke	35 mm
Max axis Z stroke	50 mm
Weight	25 kg
A	320 mm
B	136 mm
C	170 mm

Main features	
	High quality execution in a short working time of: - External and internal threads - Cylindrical, conical and special threads - Worms
	A recognition system of the main spindles allows to detect and correct position errors of the single main spindles.

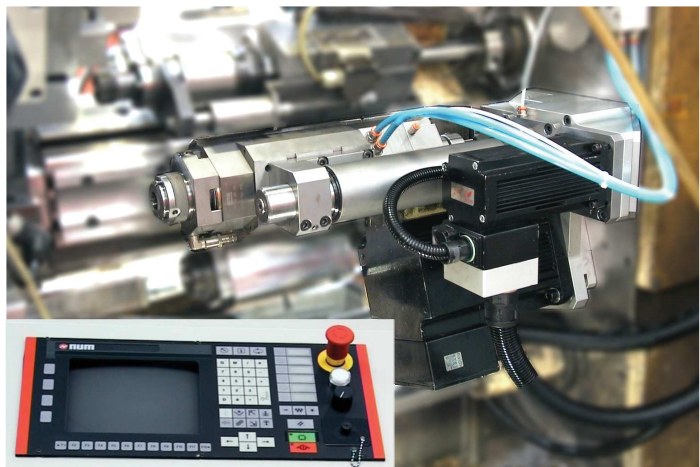
WORKING WITH DOUBLE TOOL

Right and left machining	External roughing out and finishing	External turning and internal chasing	External turning and external chasing	External and internal turning



PICK UP SPINDLE WITH THREE AXES CNC

This attachment for multispindle automatics is integrated with a CNC on three interpolated axes, which - exploiting the advantages normally offered by a CNC machine - allows the performance of a number of machining operations, impossible to be done by traditional mechanically driven pick up spindles.



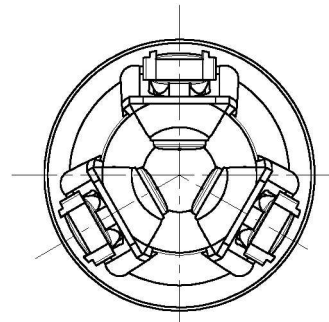
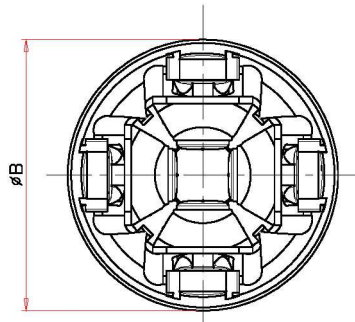
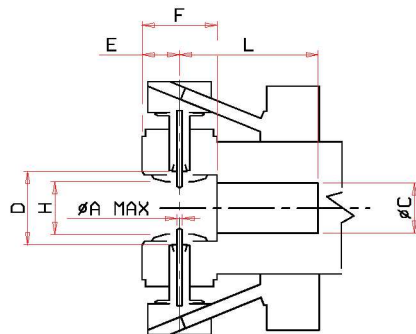
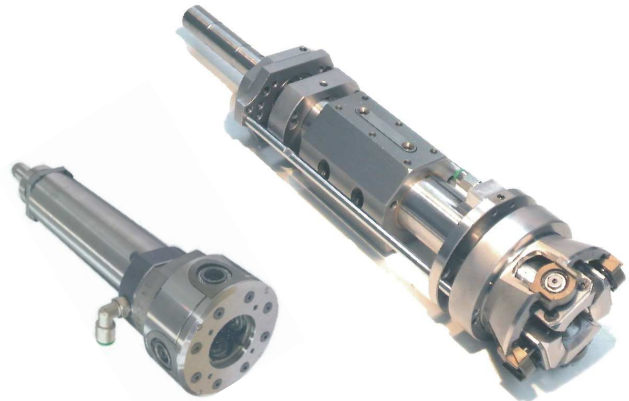
Advantages of the CNC pick up spindle
Setting of different pick up spindle rotating speeds in relation to the different machining requirements; speeds can exceed the maximum rotation speed of the main spindle
Synchronization of the pick-up with the main spindle whether in speed or in phase for clamping profiled pieces during the cutting off
Stop of the spindle during the ejection phase of the piece for every kind of components
Execution of threadings on parts clamped on pick-up
Elimination of cam motion drives of the radial and longitudinal slide
Pick-up spindle transformation into C axis to perform oriented workings on the piece, such as-for example-radial holes or grooves
Iso standard program, NUM 1040 CN

- **FRONTAL ROTATING CROSS DRILLING ATTACHMENT**
- **FRONTAL MILLING ATTACHMENT**
- **THREAD CHASING ATTACHMENT**
- **POLYGONS MILLING ATTACHMENT**
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- **TOOLHOLDER AND TURRET**
- **MODULAR SYSTEM**



FRONTAL ROTATING CROSS DRILLING ATTACHMENT

Attachment for multispindle automatics used to make multiple radial drillings on rotating pieces.



Size	Gr.0	Gr.1	Gr.2
Max speed [min ⁻¹]	3500	3000	2500
Max drilling stroke	5	6.8	9
Drive ratio tool/spindle	3.2:1	2:1	2.23:1
Ratio axial stroke/radial stroke	1.7:1	2.5:1	2.5:1
Max collet capacity ØA	2.5	3	5.5
External head diameter ØB	81.5 (86.5)	111 (119)	129 (135)
Internal diameter ØC	13.5	22	29
D	27	32	43.4
E	18	16.5	18
F	30.5	33	41
Max external part H	27	23	31.5
L	20	61	80
Drill	Left hand cut	Left hand cut	Left hand cut

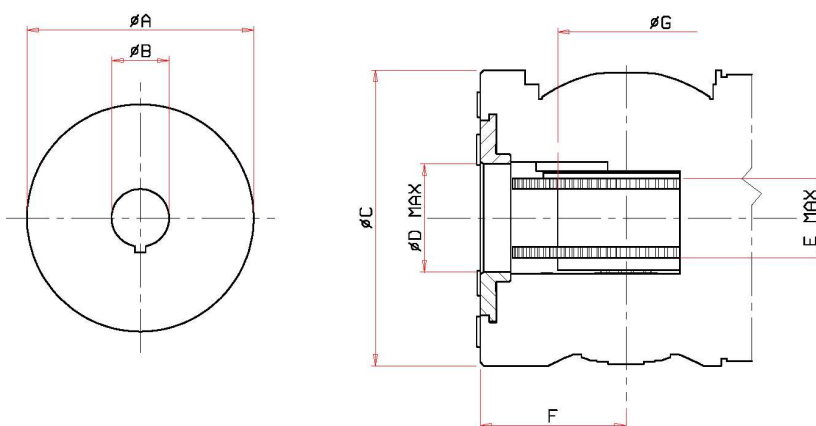
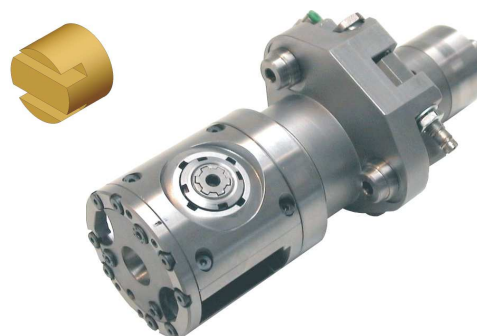


FRONTAL MILLING ATTACHMENT

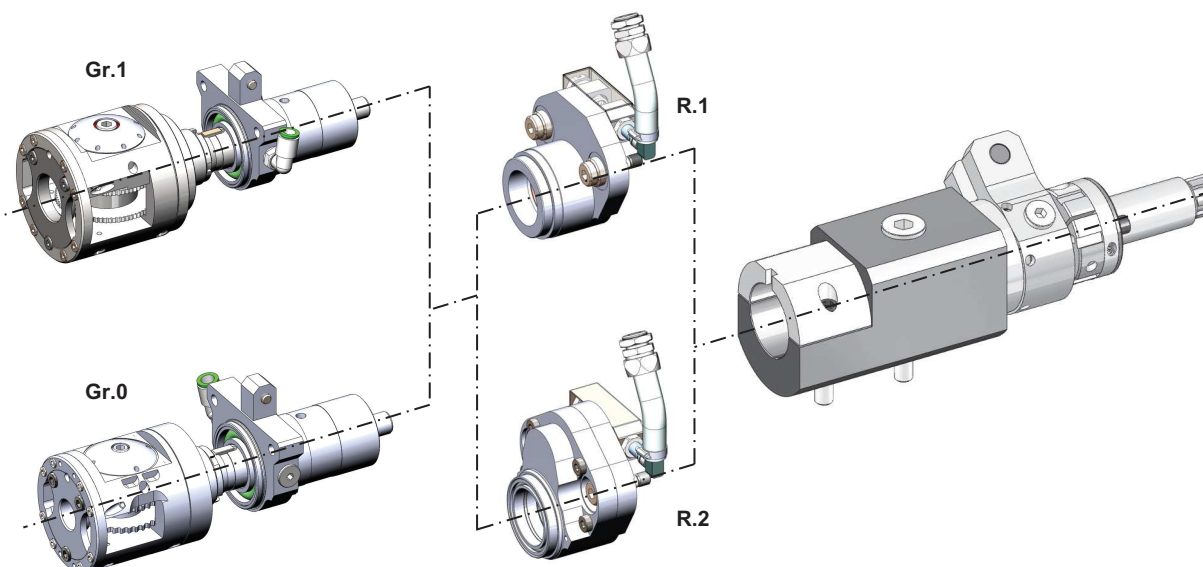
Attachment for multispindle automatics used for frontal milling on pieces being machined on the main spindle.

Specific versions of this device allow to perform milling operations on rotating pieces without stopping the main spindle, or even on non rotating pieces.

The milling machinings can have different angular orientations with respect to the piece in process, and therefore with respect to previous machining.



Size	Head dia. ØC	ØD	Milling tools set width E	Spacer dia. ØG	ØA	Øi	Distance F	Ratio	Max speed [min ⁻¹]
Gr.0 compact	69	18	16	25	50	13	37	R.1 = 0.72 R.2 = 0.38	5000
Gr.1 compact	82	30	22	38	63	16	40.5	R.1 = 0.77 R.2 = 0.4	3500 3000



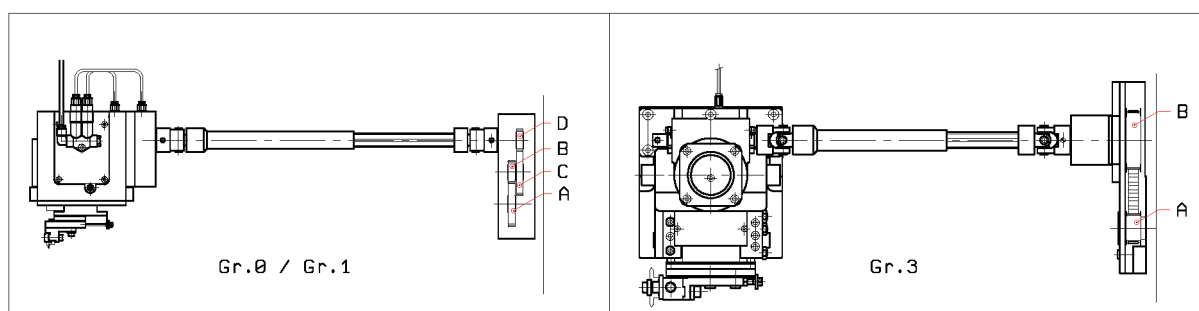
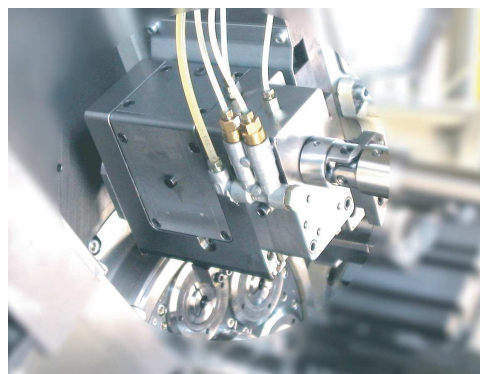


THREAD CHASING ATTACHMENT

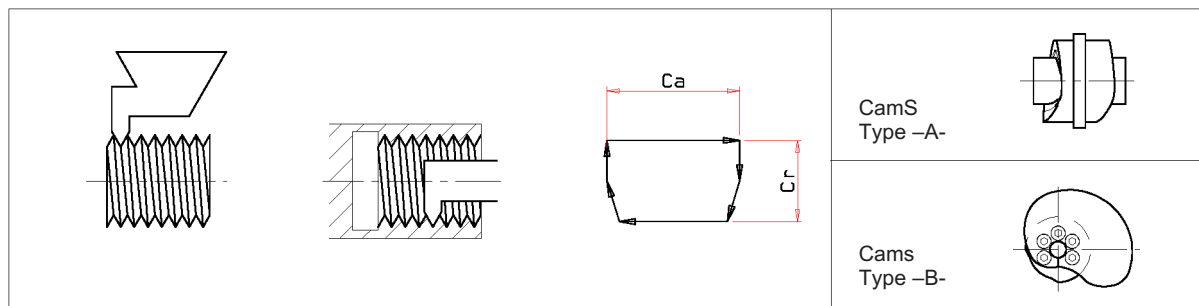
Attachment for multispindle automatics with mechanic motion used for threading pieces on diameters which usually can't be reached by a normal die.

This attachment is a valid alternative to thread rolling and to milling devices.

With suitable variants, internal threads can be obtained in addition to external.



Size	Axial stroke Ca –max-	Radial stroke Cr –max-	Cams type	Chasing frequency max	Ratio
Gr.0	16	1.5	-A-	750	1/1 – 1/16
Gr.1	22	2	-A-	700	1/1 – 1/16
Gr.3	35	2	-B-	250	1/6 – 1/28



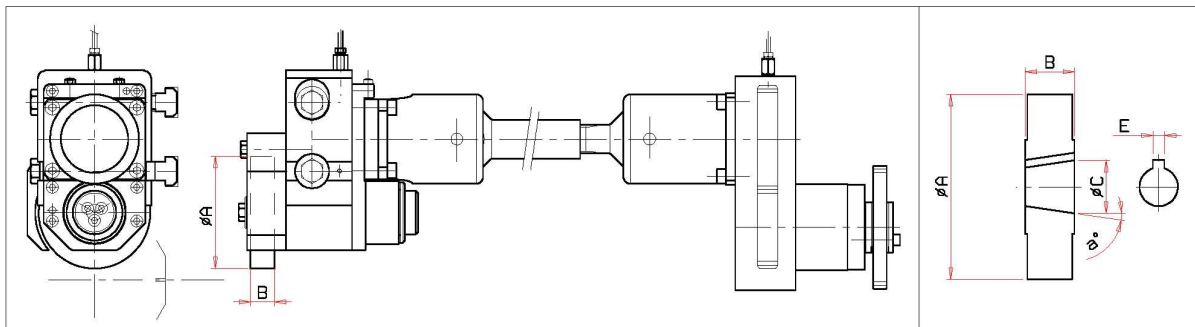
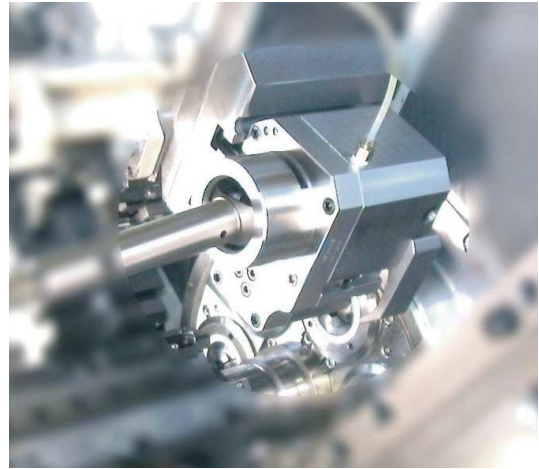


POLYGONS MILLING ATTACHMENT

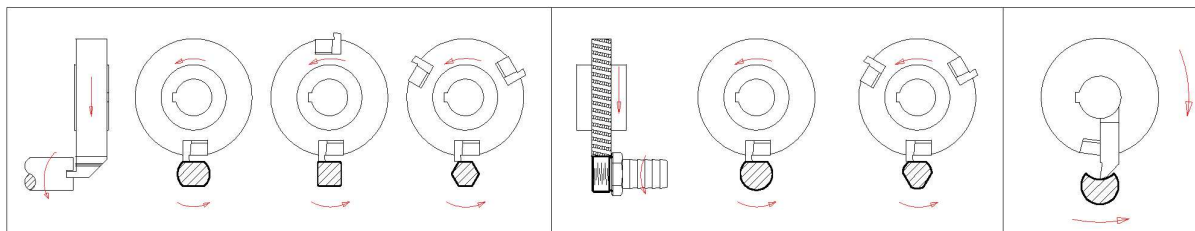
Attachment for multispindle automatics used for milling polygons and threads, and for round slots on brass spheres.

This attachment is normally used on materials like aluminum and brass.

The polygon milling attachment has a patented protection system of the cardan joint to avoid the throwing out of joint parts after accidental or overload breaking.



Size	ØA	B	ØC	E	a°
Gr.0	70	15	15	4	8°16'33"
Gr.1	86	21	24.69	6	8°16'33"
Gr.3	98	21	26	6	8°32'



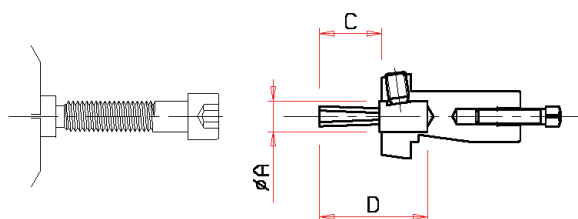


BROACHING ATTACHMENT

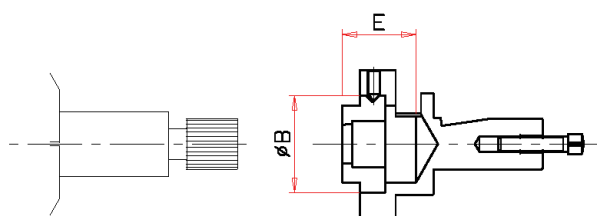
Attachment for multispindle automatics used for broaching internal and external polygons, provided that they can be reached frontally.

Tool rotation is synchronous with the rotating piece, while the feeding is provided by a cam.

Different angular orientations of the broach with respect to the machined piece are possible.



Internal broach holder



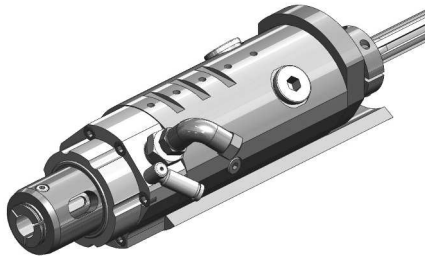
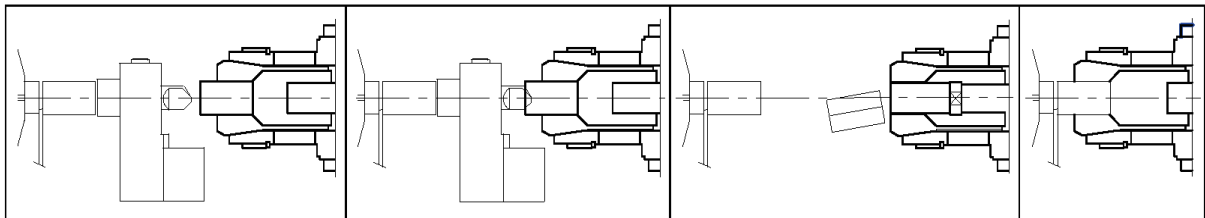
External broach holder

Grandezza	ØA	ØB	C	D	E
Gr.0	12	38	24.5	42	17
Gr.1	12	38	24.5	42	17
Gr.3	16	38	35	65	17



PICK-UP SPINDLE

Attachment for multispindle automatics used to pick up pieces rotating on the main spindle, to support the part during the cutting off, and for back machining.

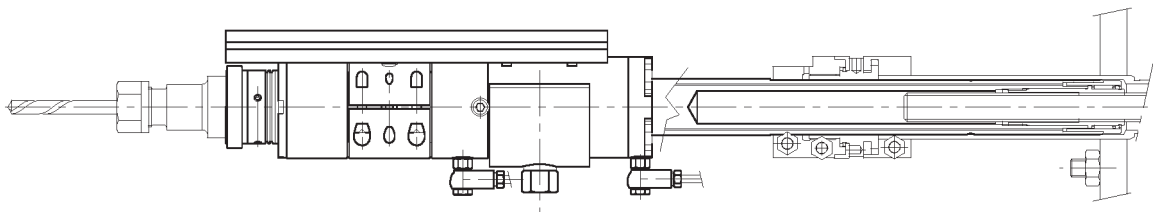


Ø Max (collet capacity) [mm]	Max speed [min ⁻¹]
Ø16	9000
Ø24.5	6000
Ø32	5500
Ø35	5000
Ø42	4000
Ø48	3000
Ø57.8	2500
Ø67	2000
Ø100	1500



HIGH PRESSURE FRONTAL SPINDLE

Attachment for multispindle automatics used to do frontal drilling on rotating piece.
This spindle can be attached at the high pressure system of the lathe and could be custom with different type of tool holder (ex. Cone ISO, HSK...)

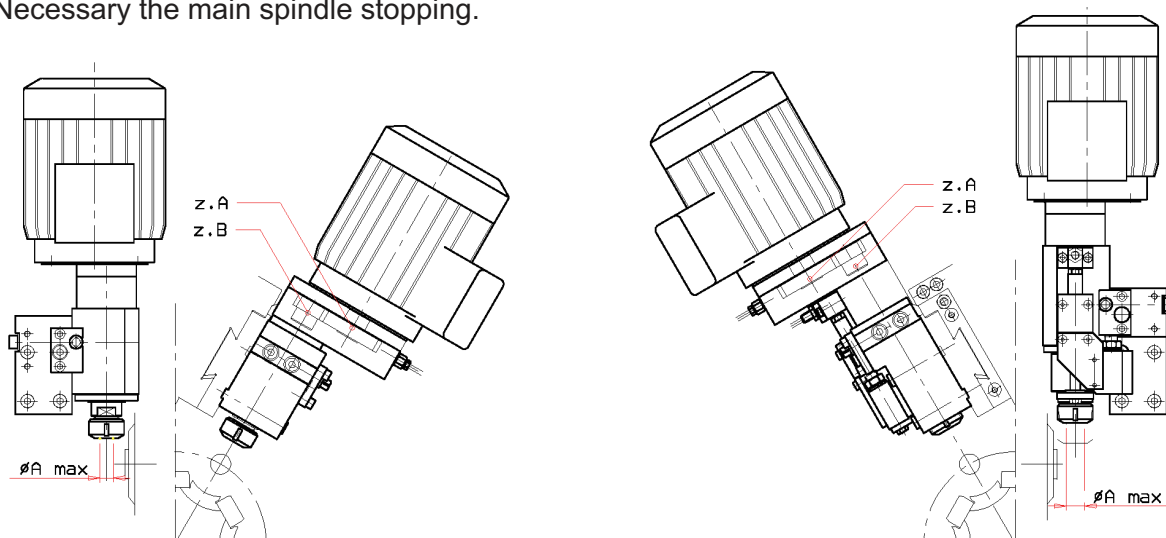




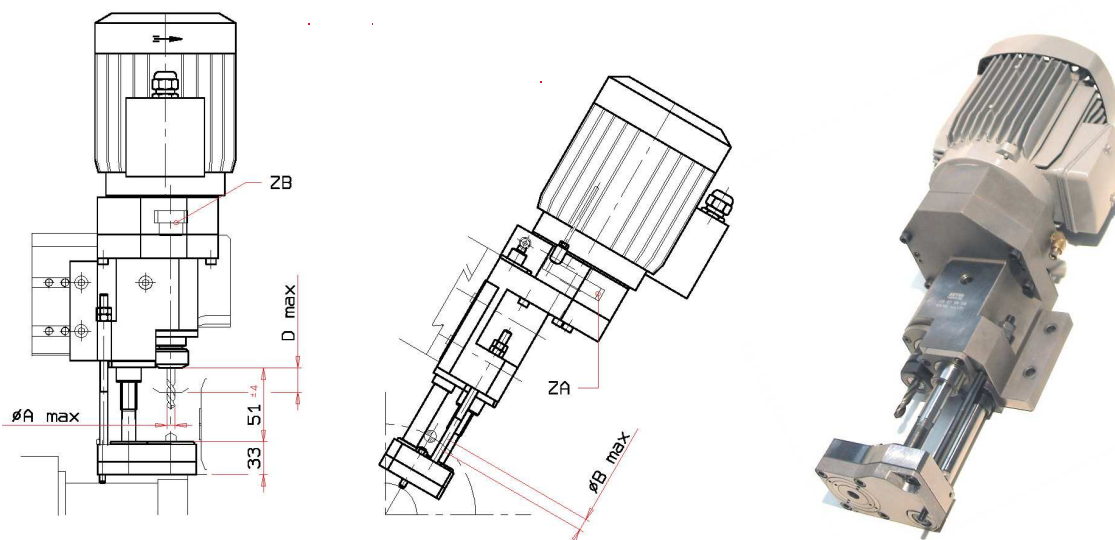
CROSS DRILLING OR CROSS DRILLING AND CHAMFERING ATTACHMENTS

Attachments for multispindle automatics, fitted on the cross slides, for simple radial drillings or with opposite chamferings.

Necessary the main spindle stopping.



ØA max [mm]	Motor power [kW]	Motor speed [min ⁻¹]	Ratio zA/zB	Tool speed [min ⁻¹]
13	0,75	2780	0,79÷2,05	2200÷5700



ØA max [mm]	Drilling stroke D max [mm]	ØB max [mm]	Motor power [kW]	Motor speed [min ⁻¹]	Ratio zA/zB	Tool speed [min ⁻¹]	Counter tool speed [min ⁻¹]
13	24	12	0,75	2780	0,79÷2,05	2200÷5700	2080÷5385

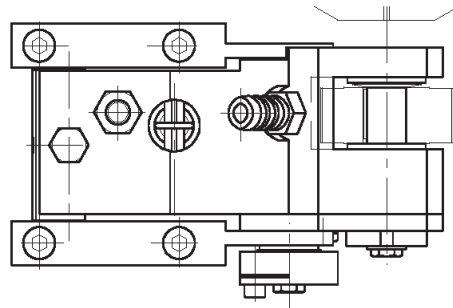
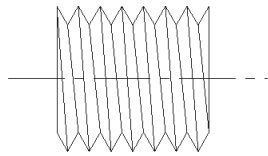
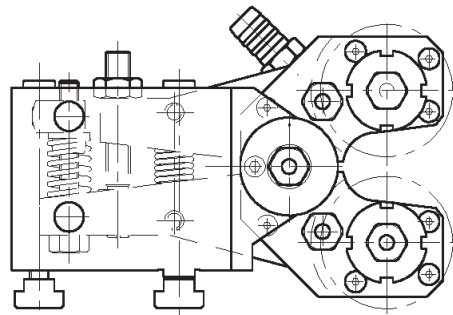
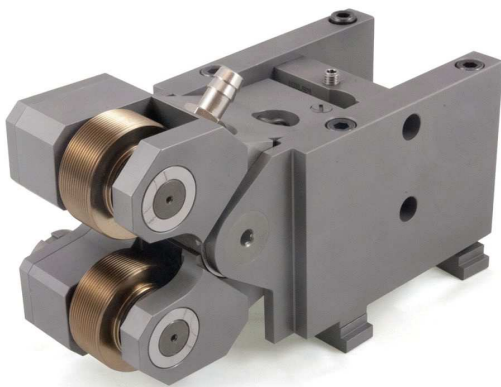


ROLLING ATTACHMENT FOR THREAD

Attachment for multispindle automatics fitted on the cross slides; it is used to thread by rolling.

During the working stroke the rolls act tangentially on piece. The plastic deformation of the materials, obtained by compression, improves the endurance and the surface finishing.

The rolling speed is the same of the main spindle.



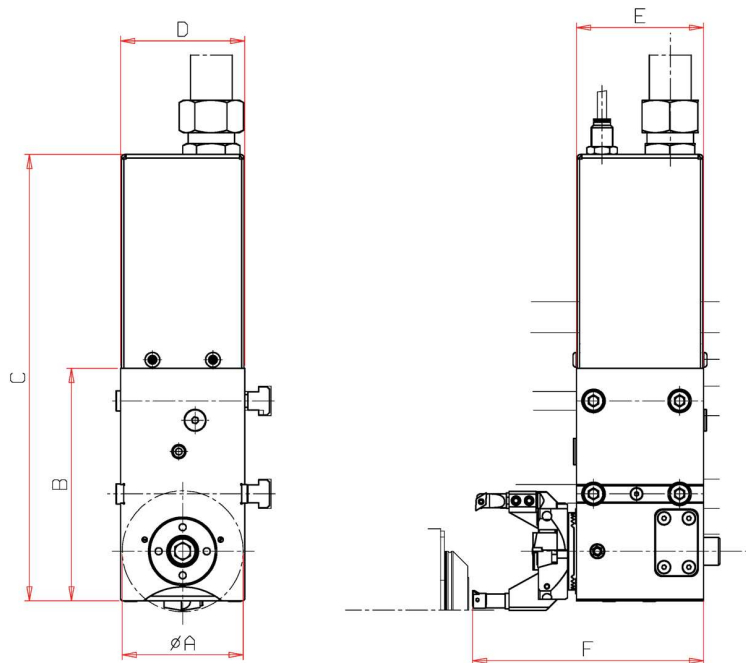
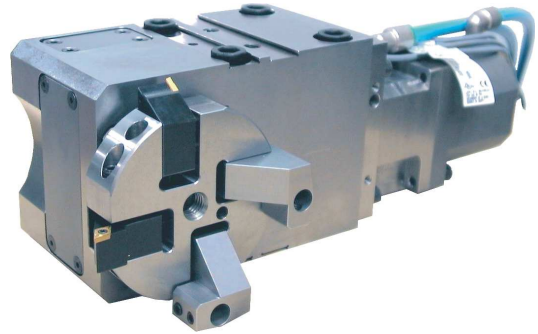
Size	Min thread		Max thread	
	metrico	gas	metrico	gas
Gr.1	M 4 x 0.7	R 1/8"	M 22 x 2	R 1/2"
Gr.3	M 6	R 1/8"	M 30 x 2	R 7/8"
Gr.4	M 10	R 1/8"	M 36 x 2	R 1"



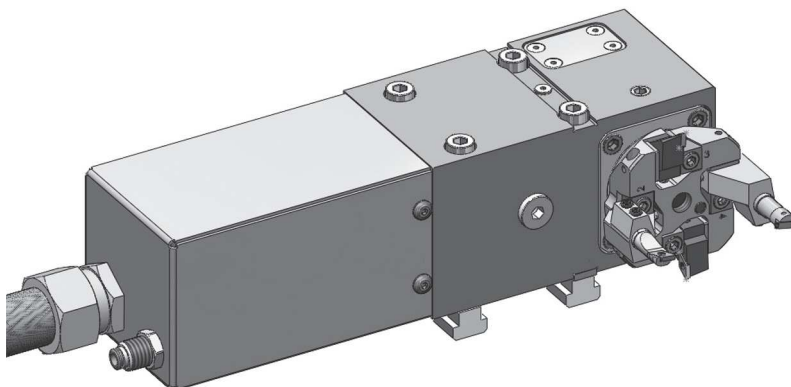
4 POSITION TOOLHOLDER TURRET

Accessory used on CNC multispindle automatics or mechanical lathes fitted with radial and axial slides managed by computerised numeric control.

Four different types of tools can be used on the tool-holder, to perform different types of machining; if necessary, four identical tools can be fitted on the turret: their alternate use prevents excessive wearing.



Size	ØA	B	C	D	E	F
Gr.2	78	150	288	80	82	107
Gr.3	96	150	268	100	82	102.5

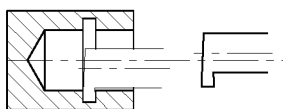
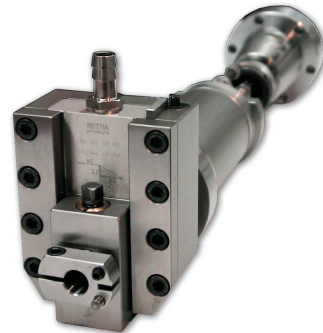




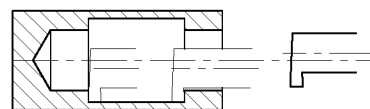
RECESSING HEAD

Attachment for multispindle automatics used for recessing, boring or facing the internal of a bore.

Trough a specific version it's possible long turning in recessing.



RECESSING OPERATION



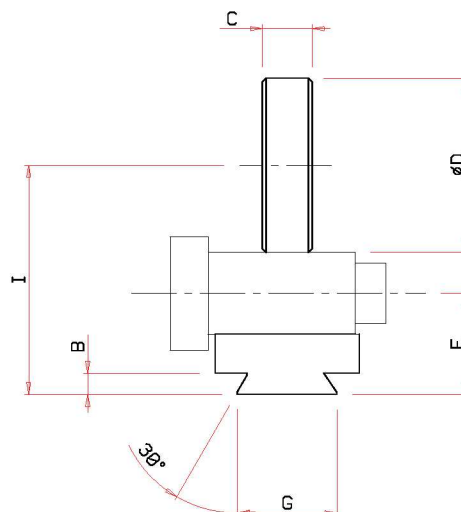
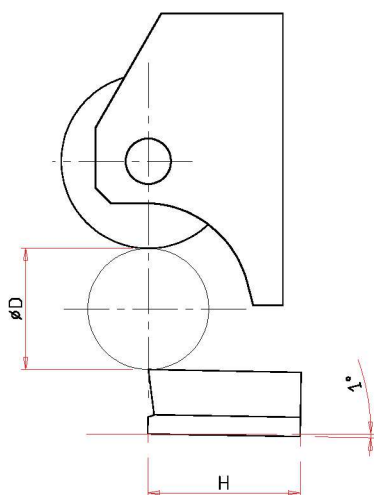
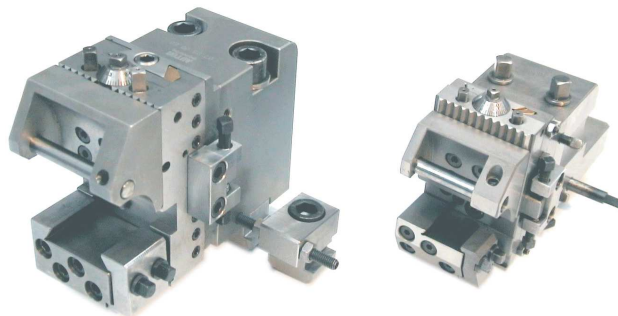
LONG TURNING RECESSING OPERATION



SHAVING ATTACHMENT

Attachment for multispindle automatics used for the machining of cylindrical or profiled surfaces of pieces rotating on the main spindle.

This tool allows to obtain high precision diametral turnings, with the very tight tolerances usually required for further machining (e.g. rolling threads).



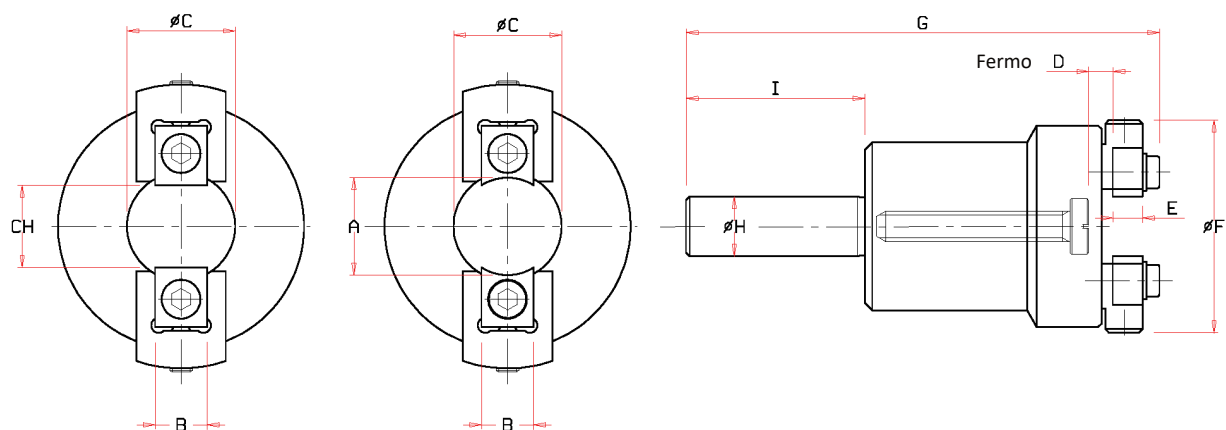
Size	ØD		B	C	ØD	E		G	H	I	
	Min	Max	Max	Max	Max	Min	Max	Max	Max	Min	Max
Gr.1	3	26	3	26	23	16.5	20.5	23	23	29.5	44.5
Gr.2	2	32	8.5	38	24	29	31	40	31	44.5	55
Gr.4	13	48	10	46	36	41	42.5	50	39.5	70.5	84.5



SYNCHRONOUS FRONTAL MARKER

Attachment used to mark pieces while being machined on the automatics.

Allows to engrave - by appropriate punch marks or symbols either on round or on plane surfaces.



Model Code.	ØA max	CH max	B	C	D max	E	F	G	H	I
36.07.15.00	18	16	12	20	36	8	57	111	16	32
36.07.05.00	28	24	14	29	55	8	78	149	20	40
36.07.16.00	42	37	20	44	60	10	99	198	25	70



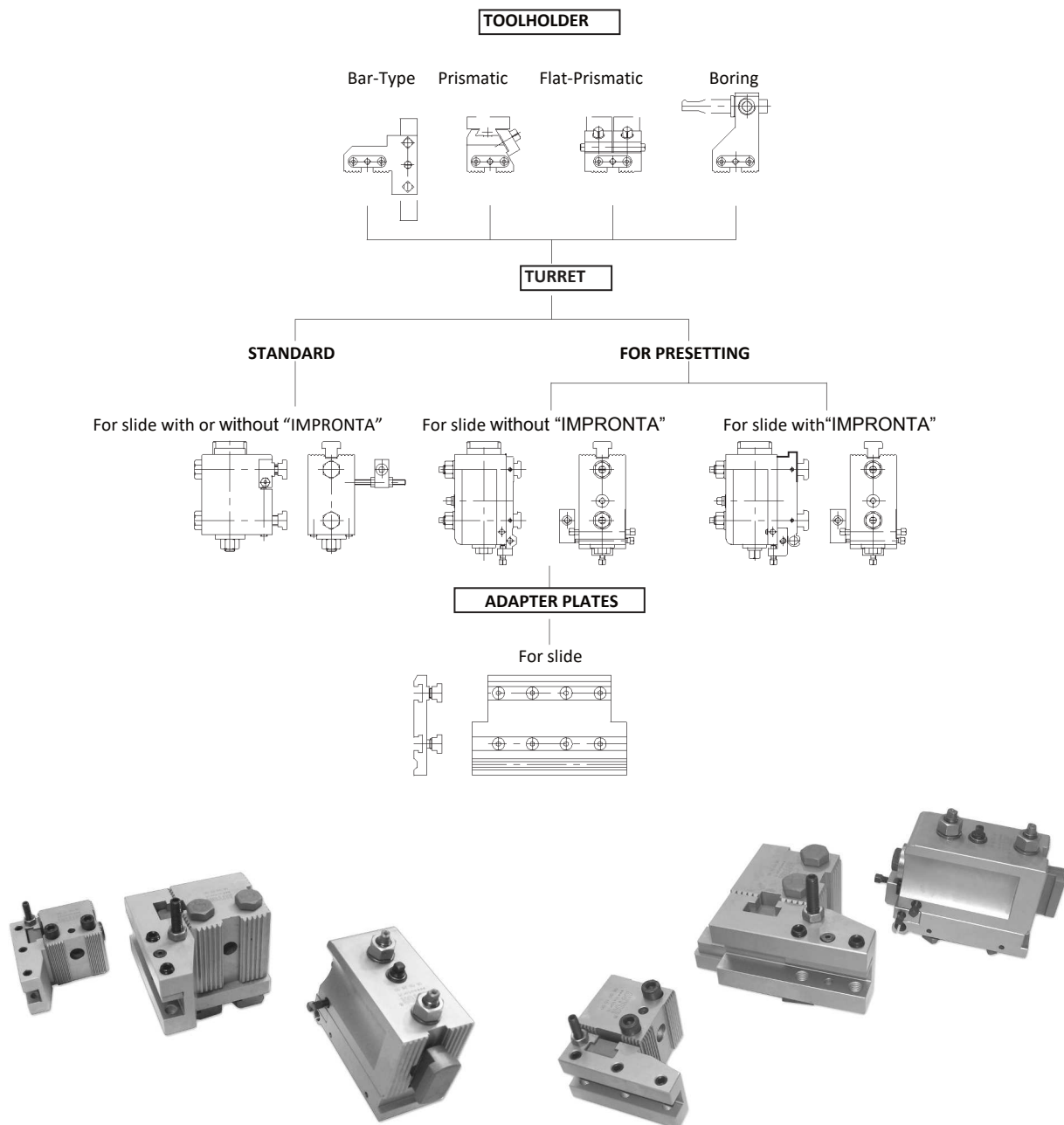


TOOLHOLDER AND TURRET

Radial tool holders for multispindle automatics for prismatic and rod tools.

The modular tool holders could be fitted on:

- turret S.S.T. (Super Setting Tool), completely presetting out of the machine; there is an interface plate for the cross slides missing of precision imprints.
- easy turret partially presettable (tool holder preset).





MODULAR SYSTEM

Modular System for multispindle lathes that allows the installation of more than one standard device using just one adjustment designed for the machine.

Using this system it is possible to change the frontal attachment immediately.

It is possible to mount the following tools just by removing a flange fixed with 2 screws:

- Fixed frontal spindle
- Fast drilling spindle
- Frontal rotating milling attachment
- Frontal eccentric drilling head
- U axis

With this system, it is possible to use all the attachments also on other types and brand of machines thanks to the designed modular adjustment.

Main Features

- Fast tool set up
- Preset option
- Use of many attachments on different type of machines



U AXIS



SYNCHRONOUS
BROACHING
ATTACHMENT



DRILLING
SPINDLE



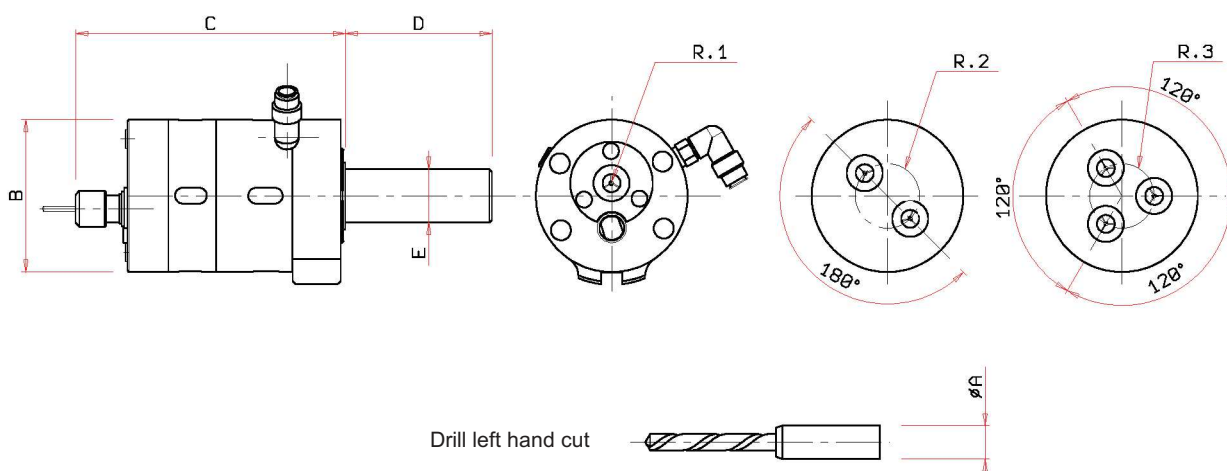
FIXED
SPINDLE

- **ROTATING UNIT FOR ECCENTRIC DRILLING**
- **ROTATING UNIT FOR MULTIPLE LONGITUDINAL MILLING**
- **ECCENTRIC TURNING ATTACHMENT**
- **PHASE CHANGER**
- **LONGITUDINAL PROFILES GENERATOR**



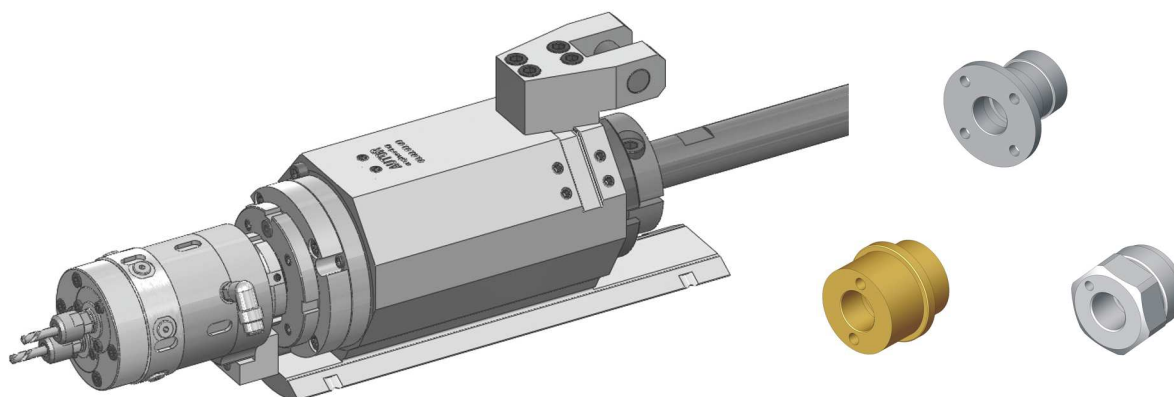
ROTATING UNIT FOR ECCENTRIC DRILLING

Attachment for multispindle automatics used to machine single or multiple frontal eccentric drillings on pieces being operated on the main spindle.



Size	ØA max	ØB	C	D	ØE*	R1		R2		R3		Max speed	Ratio tools/spindle
						min	max	min	max	min	max		
Gr.1	5	59	100	40	20	0	13.8	8.5	13.8	9.9	13.8	3000	3.4:1
Gr.2	10	82	130	40	20	0	21.25	13.25	21.25	-	-	2200	3.6:1

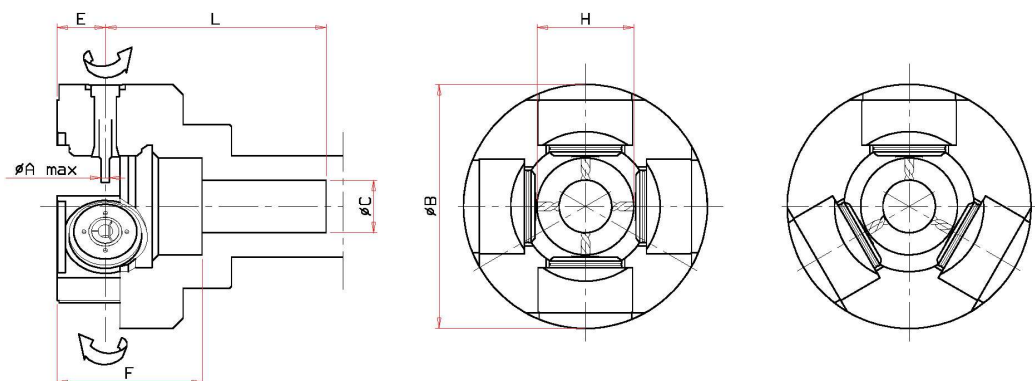
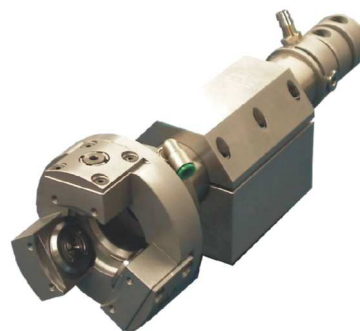
*Availability of different kinds of



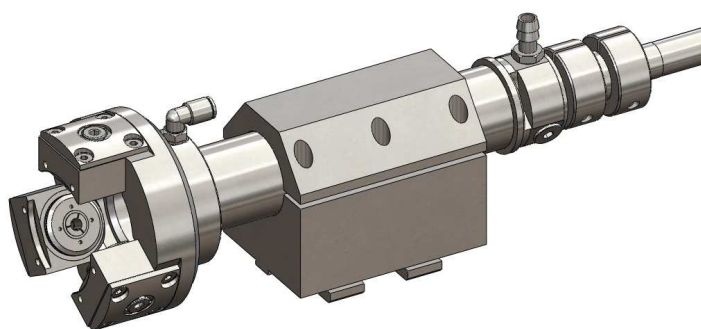


ROTATING UNIT FOR MULTIPLE LONGITUDINAL MILLING

Attachment for multispindle automatics used for machining of multiple longitudinal millings on rotating pieces.



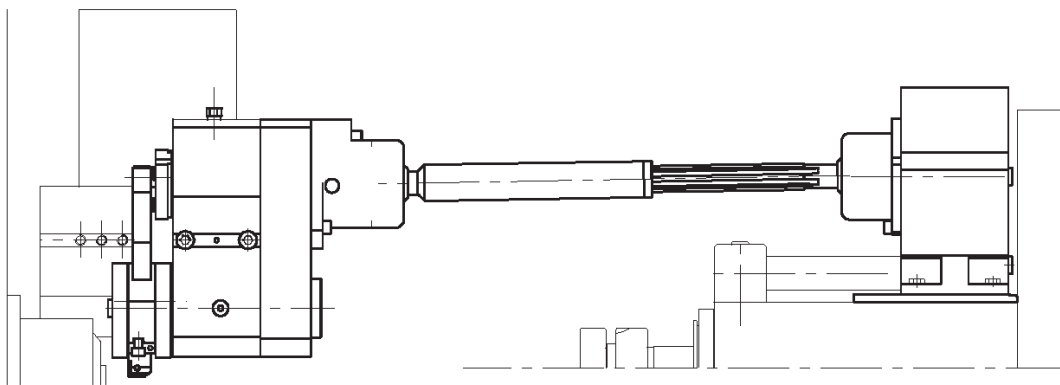
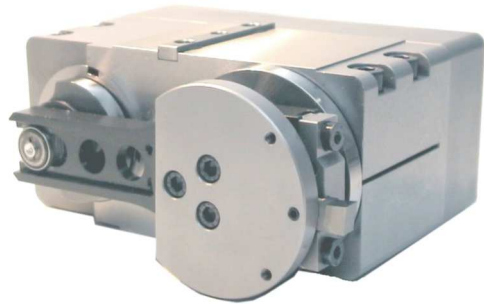
Size	Gr.1	Gr.2
Max speed [min ⁻¹]	3000	2500
Drive ratio tool/spindle	2.25:1	2.8:1
Max collet capacity ØA	7	7
External head diameter ØB	100	116
Internal diameter ØC	17	25
E	23.5	23
F	69.5	69
H	31.5	47
L	102	105
Internal coolant	Si	Si



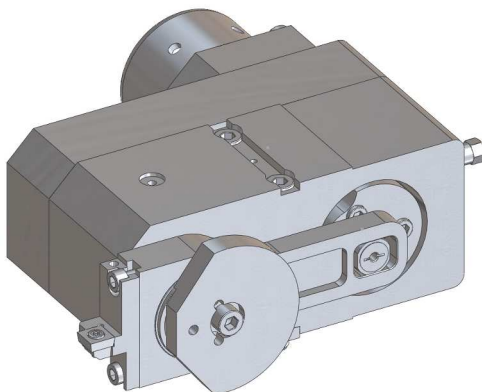


ECCENTRIC TURNING ATTACHMENT

Attachment for multispindle automatics used to turn eccentric diameters with respect to the axis of the main spindle on rotating pieces.



Working diagram			
0°	90°	180°	270°



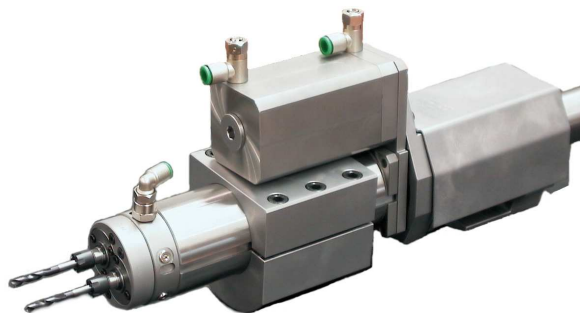


PHASE CHANGER

The coupling of a rotating attachment with a phase changer device allows, in addition to the standard workings, a further range of supplementary workings at different orientations.



Examples		
Attachment type	"Standard" working	"Supplementary" working
Frontal milling attachment		
Frontal rotating cross drilling attachment		
Polygons milling attachment		
Rotating unit for eccentric drilling		
Rotating unit for multiple longitudinal milling		

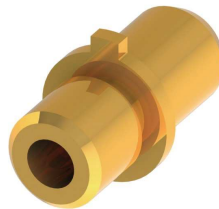
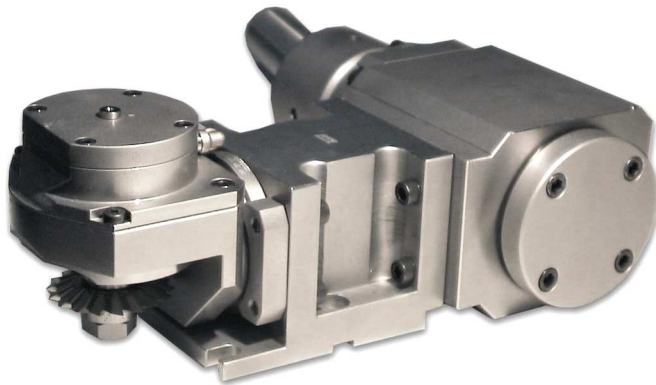




LONGITUDINAL PROFILES GENERATOR

This attachment, for multispindle automatics, produces longitudinal profiles on rotating pieces on the main spindle.

It is fitted on the cross slides.





NOTE

[illegible]



NOTE

This image shows a blank sheet of white paper with ten horizontal dashed lines, evenly spaced from top to bottom. These lines are typically used as guides for handwriting practice in primary school education. There are no margins, text, or other markings on the page.



NOTE

[illegible]





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