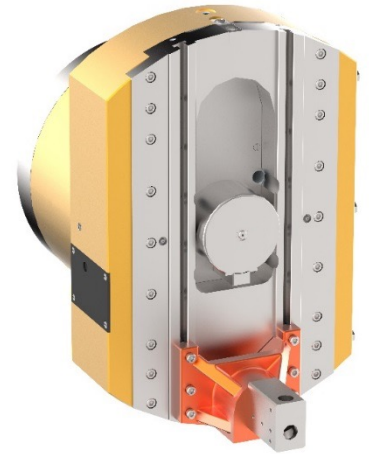
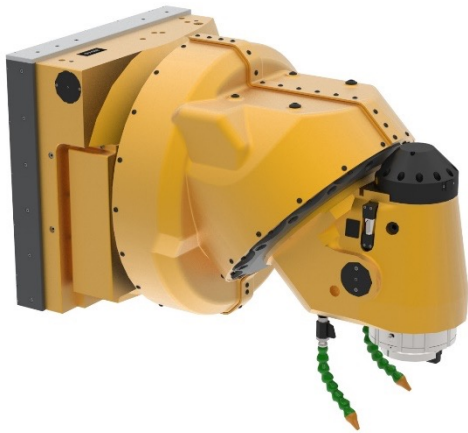


Special accessories: milling heads, facing heads and other attachments



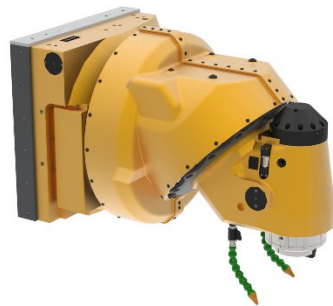
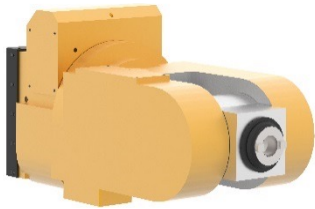
Milling machine manufacturer

TOS VARNSDORF a.s.

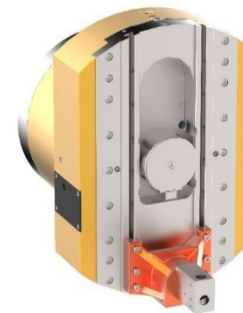


Special accessories: milling heads, facing heads and other attachments

- [Milling heads](#)



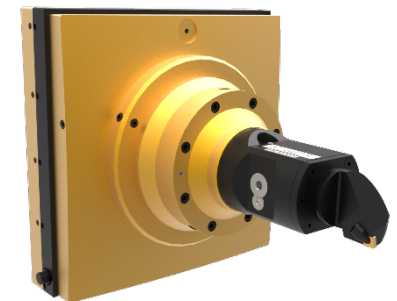
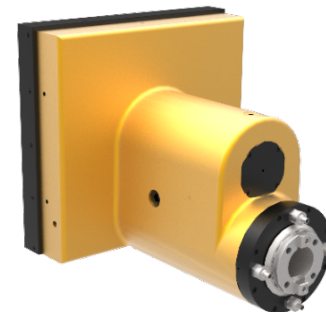
- [Facing heads](#)



- [Milling attachments](#)



- [Spindle attachments and turning attachments](#)



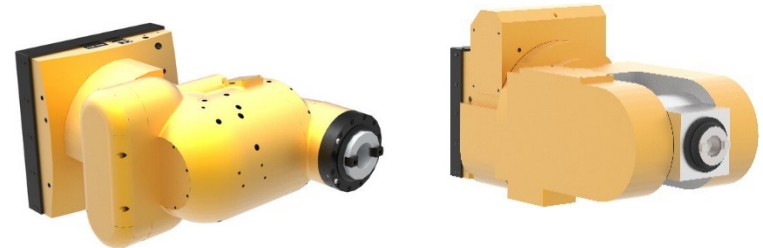
Special accessories: Milling heads

Basic sorting of milling heads:

- [Hand-adjustable heads](#)



- [Automatically positioning – Continuously controlled heads](#)



- [Automatically positioning heads](#)



Assortment of milling heads and milling attachments

	<u>HPR 50</u>	<u>HUR 50</u>	<u>HPI 50</u>	<u>HUI 50</u>	<u>HUIL 50</u>	<u>HUIT 50</u>	<u>HUF 50</u>	<u>HUFT 50</u>	<u>HOI 50</u>	<u>HOIL 50</u>	<u>HOIT 50</u>	<u>HPFL 50</u>	<u>HV/V</u>	<u>FP / UFP</u>
WH(Q) 10 CNC	✓													✓
WH(Q) 105 CNC	✓	✓												
WHN 110 (Q,MC)	✓	✓												
WHN 130 (Q,MC)	✓	✓		✓						✓				
WHN(Q) 13/15 CNC	✓	✓		✓	✓		✓			✓				✓
WHR 13 Q	✓	✓		✓	✓		✓			✓		✓		✓
MAXIMA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
WRD 13 (Q)	✓	✓		✓	✓		✓			✓		✓		✓
WRD 130/150 (Q)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
WRD 170 (Q)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
WRD 180 H	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
GRATA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
WHT 110 (C)	✓	✓		✓	✓					✓		✓		
WHT 130 (C)	✓	✓		✓	✓	✓	✓	✓		✓		✓		
WVM 2600/3600 T						✓		✓	✓					

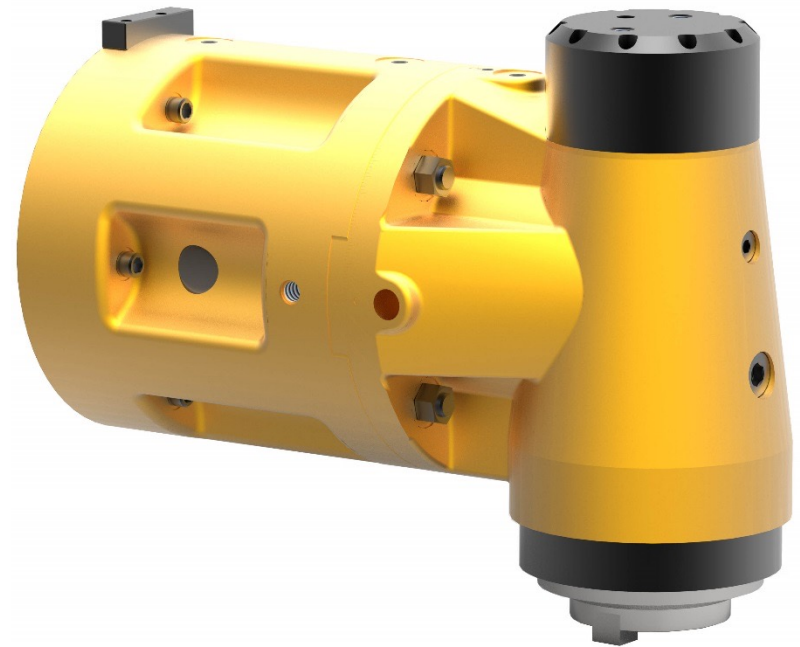
Milling heads: Hand-adjustable heads HPR 50

Vertical manual milling head HPR 50:

The HPR 50 vertical milling head has been designed as a special technological accessory for the horizontal milling and boring machines, floor type horizontal boring mills and machining centres.

Basic technical description:

The HPR 50 vertical milling head consists of two compact parts that may be swiveled against each other so as the requested angular position of the head's spindle may be set. Setting up of the head's tilting angle, when unclamped, may be aided by a socket grip. The clamping screws along the circumference of the joint plane clamp the head. The tilting angle is read out of a vernier equipped scale engraved on the outer circumference of the joint plane. To obtain a more precise setting of position of the head spindle, it is necessary to use measuring fixtures.



Milling heads: Hand-adjustable heads HPR 50

Fastening of milling head on the milling machine:

- **Manual fastening of the head**

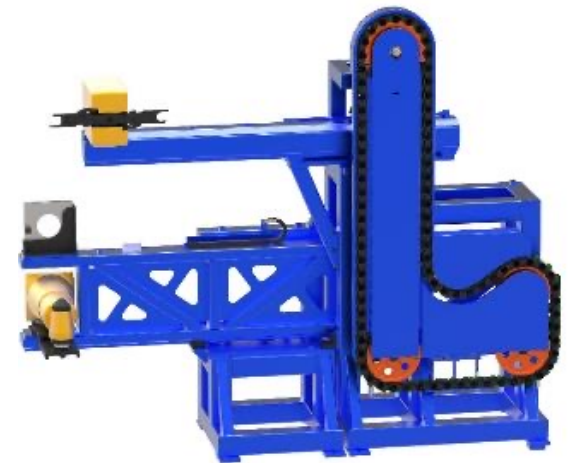
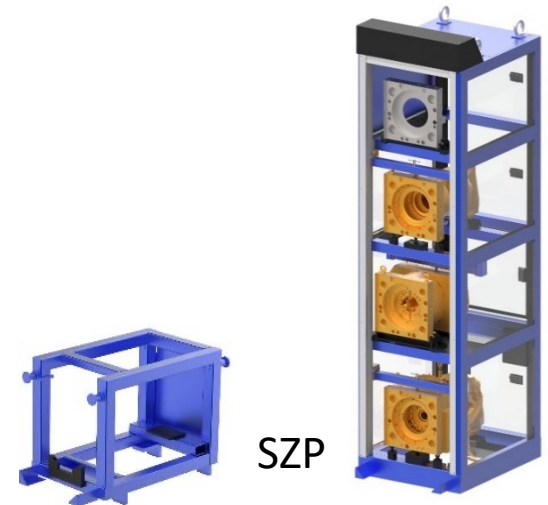
Manual fastening of the head on the machines WH(Q) 10 CNC, WH(Q) 105 CNC, WHN 110/130 (Q, MC), WHN(Q) 13/15 CNC, WHR 13 (Q), MAXIMA, WHT 110 (C) and WHT 130 (C) is carried out by means of a lifting device. If the head is removed from the machine, a cover plate must be mounted on the headstock face to protect its attachment elements from dirt and damage.

- **Half-automatic fastening of the head**

Half-automatic fastening of the head on the headstock of WHN(Q) 13/15 CNC, WHR 13 (Q) WHN 130 (Q, MC) and MAXIMA machines is done from an auxiliary rack (SZP) using mounting screws and other handling means and accessories. If the head is stored in the magazine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.

- **Automatic fastening of the head**

Fastening of the head on the machines WRD 13, WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA and also WHN(Q) 13/15 CNC, WHR 13 (Q), WHN 130 (Q, MC), GRATA, WHT 110 (C) and WHT 130 (C) is also carried out automatically. The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



Milling heads: Hand-adjustable heads HPR 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	R.P.M.	3 000*
Power transmitted max.	kW	25*
Spindle torque max.	Nm	1 200*
Transmission ratio		1:1
Swiveling range	Deg	±180°
Distance of the spindle axis from the machine quill face	mm	according to design **
Required pressure for release of the tool	MPa	8
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Total weight	kg	ca 200

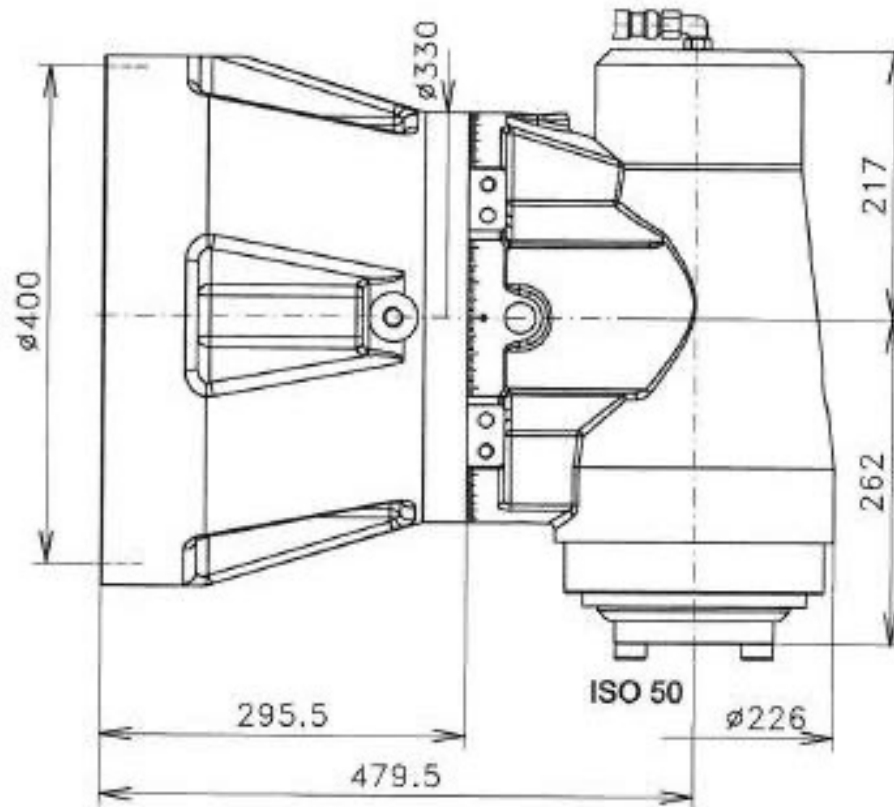
	HPR 50
WH(Q) 10 CNC	✓
WH(Q) 105 CNC	✓
WHN 110 (Q,MC)	✓
WHN 130 (Q,MC)	✓
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

Milling heads: Hand-adjustable heads HPR 50

General design and arrangement:



Milling heads: Hand-adjustable heads HUR 50

The head HUR 50 hand universal milling head:

The head HUR 50 hand universal milling head has been designed as a special technological accessory for the horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

The HUR 50 hand universal milling head consists of three compactly connected basic parts with the possibility of their mutual turning in order to achieve the needed general position of the head work spindle. The angles of turning in both parting planes of the head are set by means of a socket handle after unfixing the individual rotary adjustable parts of the head. The adjustable parts of the head are mutually strengthened by tightening of bolts along the circumference of the parting planes. The head can be set in 8 basic positions, using an arresting element ($4 \times 90^\circ$ in vertical plane and $2 \times 180^\circ$ in angular plane). The angles of setting can be read on peripheral scales equipped with vernier of 0.1° increment. To obtain a more precise setting of position of the head spindle, it is necessary to use measuring fixtures. A design of the attaching head flange can be conform to a design of the centering flange on the machine spindle, to a need of variable total head radius and eventually to a method of the head setting.



Milling heads: Hand-adjustable heads HUR 50

Fastening of milling head on the milling machine:

- **Manual fastening of the head**

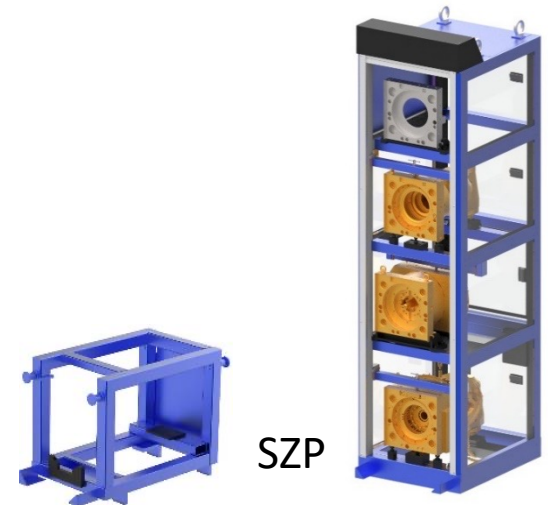
Manual fastening of the head on the machines WH(Q) 10 CNC, WH(Q) 105 CNC, WHN 110/130 (Q, MC), WHN(Q) 13/15 CNC, WHR 13 (Q), MAXIMA, WHT 110 (C) and WHT 130 (C) is carried out by means of a lifting device. If the head is removed from the machine, a cover plate must be mounted on the headstock face to protect its attachment elements from dirt and damage.

- **Half-automatic fastening of the head**

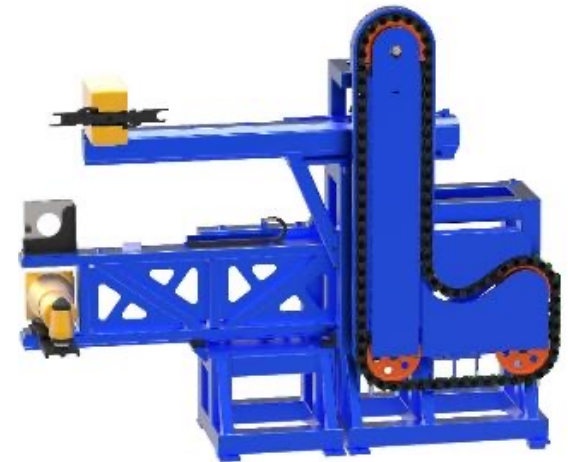
Half-automatic fastening of the head on the headstock of WHN(Q) 13/15 CNC, WHR 13 (Q) WHN 130 (Q, MC) and MAXIMA machines is done from an auxiliary rack (SZP) using mounting screws and other handling means and accessories. If the head is stored in the magazine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.

- **Automatic fastening of the head**

Fastening of the head on the machines WRD 13, WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA and also WHN(Q) 13/15 CNC, WHR 13 (Q), WHN 130 (Q, MC), GRATA, WHT 110 (C) and WHT 130 (C) is also carried out automatically. The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



SZP



ACSA

Milling heads: Hand-adjustable heads HUR 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 000*
Power transmitted max.	kW	20*
Spindle torque max.	Nm	1 000*
Transmission ratio		1:1
Swiveling range	Deg	2x ±180°
Distance of the spindle axis from the machine quill face	mm	according to design **
Required pressure for release of the tool	MPa	8
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Total weight	kg	ca 330

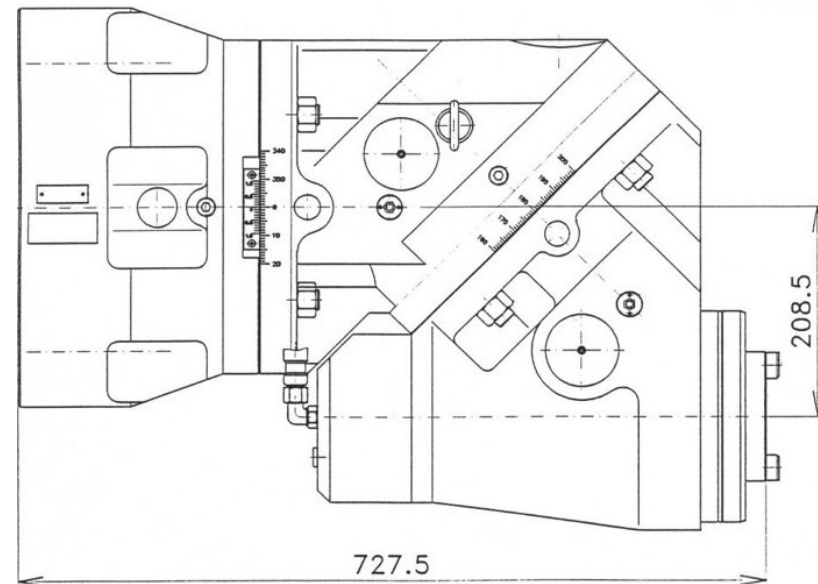
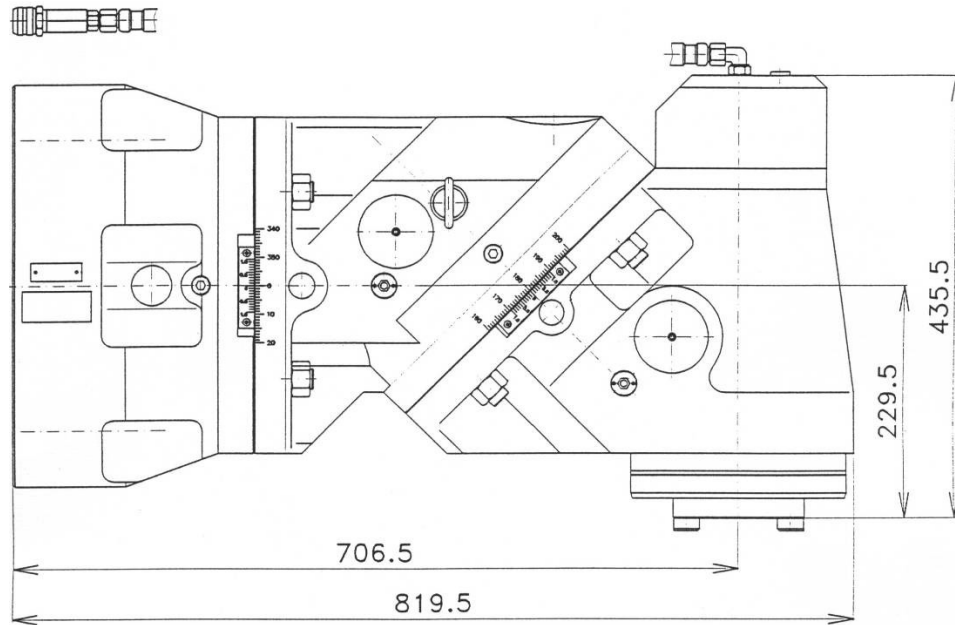
* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

	HUR 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	✓
WHN 110 (Q,MC)	✓
WHN 130 (Q,MC)	✓
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

Milling heads: Hand-adjustable heads HUR 50

General design and arrangement:



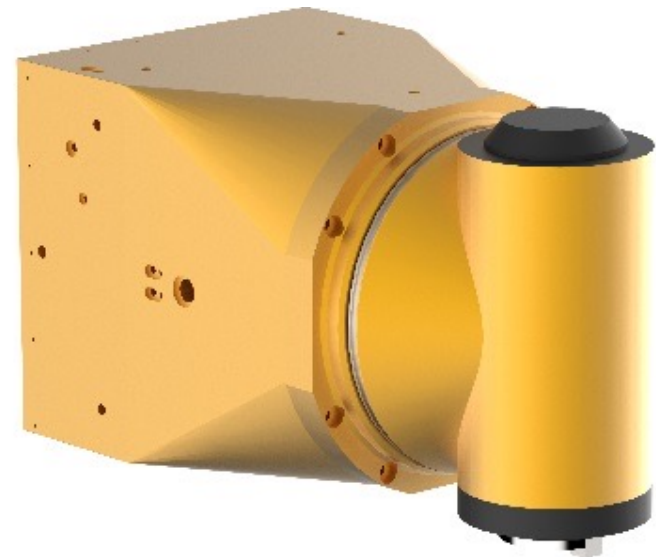
Milling heads: Automatically positioning heads HPI 50

The 1-axes vertical milling head HPI 50:

The 1-axes vertical milling head driven by the spindle of the machine HPI 50 has been designed as a special technological accessory for table type milling machines and floor type milling machines.

Basic technical description:

The head consists of two compactly connected basic parts enabling their mutual rotation to reach required general position of working spindle of the head. Moveable part of the head is in dividing area equipped with exact toothed Hirth rim, which division is in accordance with basic positioning increment in which are fixed the moveable parts of the head. Positioning of rotation part is ensured by mechanical drive from the machine spindle and gives the possibility for positioning $\pm 185^\circ$. The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains , the sensors for measuring the position and the mechanism for clamping and releasing of the tool and also fixing and releasing in both dividing areas.

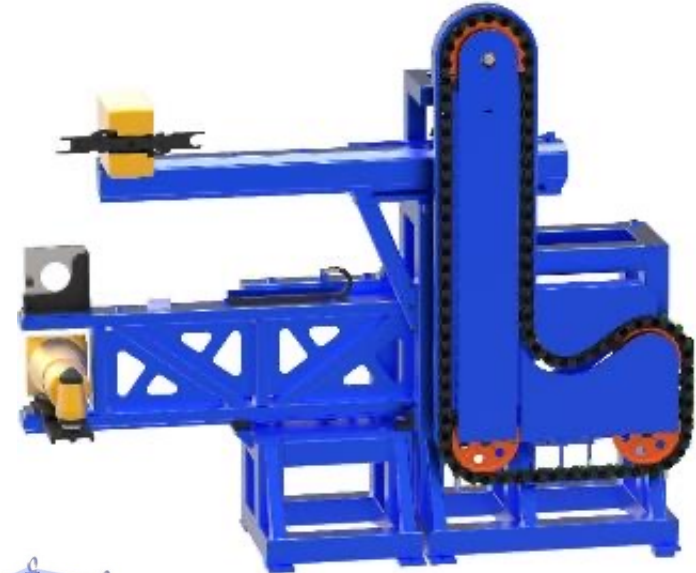


Milling heads: Automatically positioning heads HPI 50

Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

Fastening of the head on the machines GRATA, WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA is carried out automatically. The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



ACSA



SZP



Milling heads: Automatically positioning heads HPI 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG +
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 500*
Power transmitted max.	kW	37*
Spindle torque max.	Nm	1 200*
Basic increment of positioning	Deg	1°
Transmission ratio		1:1
Rotation range	Deg	±185°
Accuracy of positioning	Deg	±3''
Distance of the spindle axis from the machine quill face	mm	according to design **
Maximum speed of head rotation	1/min	5,5
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	5,5
Total weight	kg	ca 600

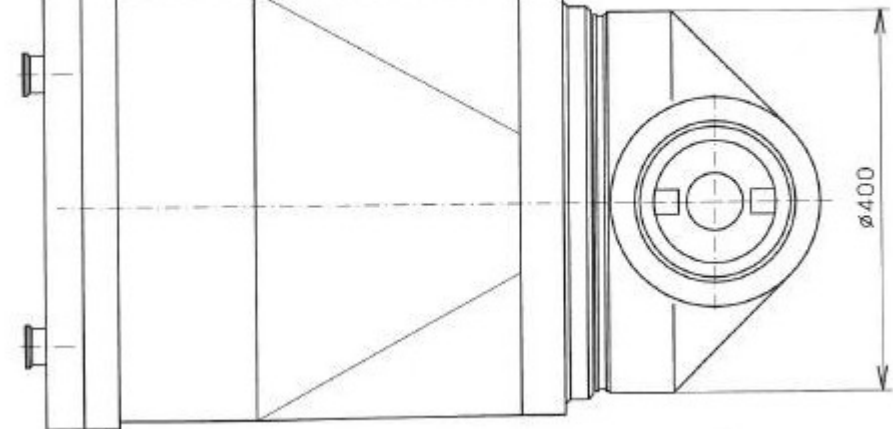
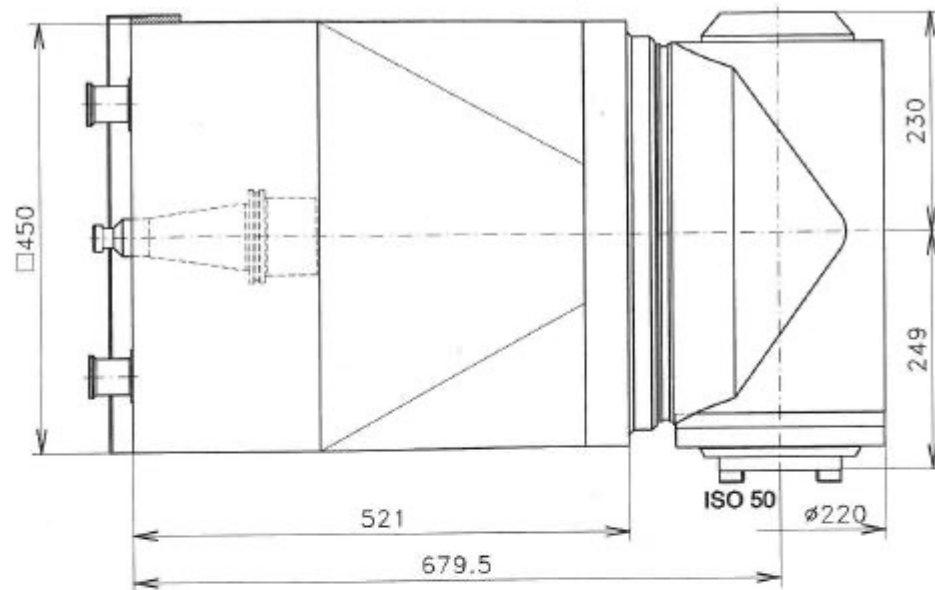
	HPI 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 Q	
MAXIMA	✓
WRD 13 (Q)	
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	
WHT 130 (C)	
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

Milling heads: Automatically positioning heads HPI 50

General design and arrangement:



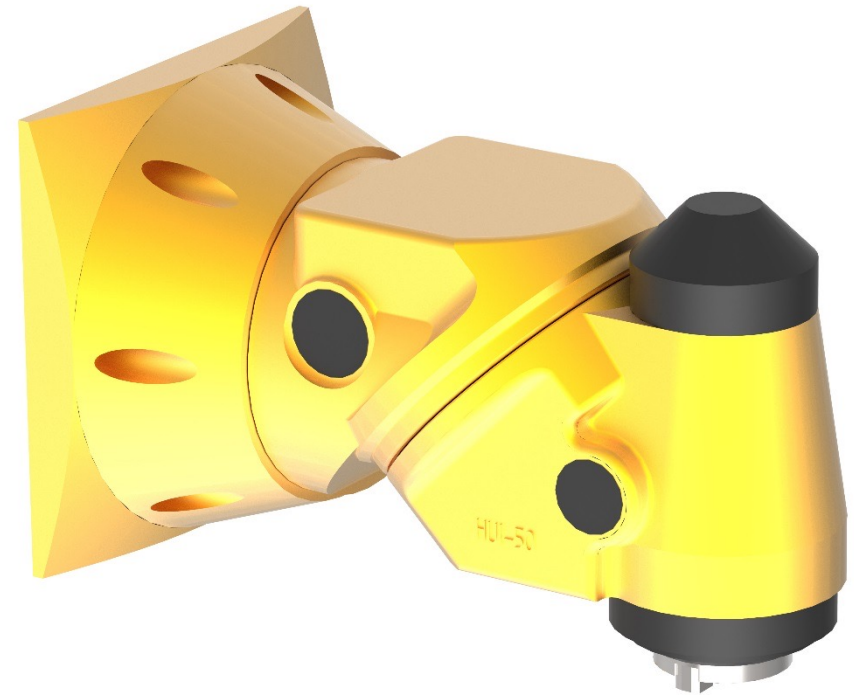
Milling heads: Automatically positioning heads HUI 50

The HUI 50 automatically indexing universal milling head:

The HUI 50 automatically indexing universal milling head has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

Automatically indexing universal milling head HUI 50 consists of three compact sections that may be swiveled against each other so as the required angular position of the head's spindle may be set. The joint planes of both the swiveling sections of the head are provided with highly precise Hirth-toothed rims. The pitch of the teeth corresponds with the basic positioning increment into which the sections are being clamped. The angular positioning of the head is controlled through the machine spindle CNC controlled rotation.



Milling heads: Automatically positioning heads HUI 50

Fastening of milling head on the milling machine:

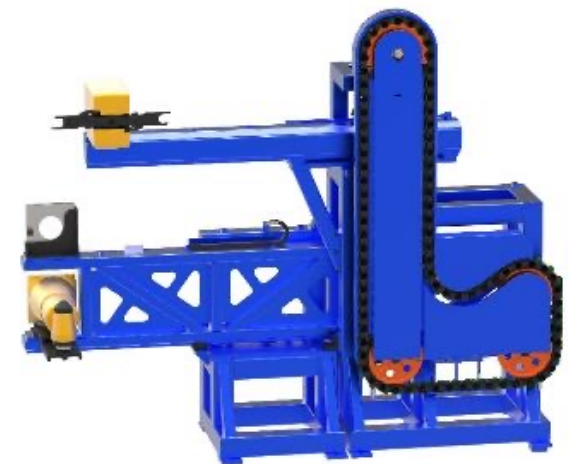
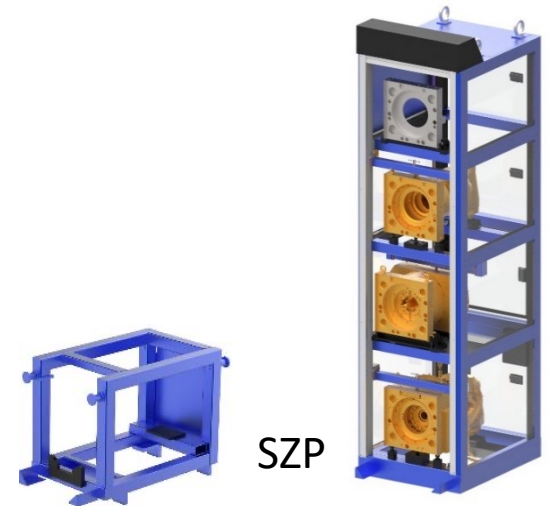
- **Half-automatic fastening of the head**

Half-automatic fastening of the head to the headstock of WHN(Q) 13/15 CNC, WHN 130 (Q, MC) machines is done from an auxiliary rack (SZP) using mounting screws and other handling means and accessories. If the head is stored in the magazine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.

- **Automatic fastening of the head**

Fastening of the head on the machines WHN 130 (Q, MC), WHN(Q) 13/15 CNC, WHR 13 (Q), WRD 13 (Q), WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA, WHT 110 (C) and WHT 130 (C) is also carried out automatically. The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



ACSA

Milling heads: Automatically positioning heads HUI 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 000*
Power transmitted max.	kW	32*
Spindle torque max.	Nm	1 000*
Basic positioning increment of both the swiveling sections	Deg	2,5°
Transmission ratio		1:1
Swiveling range (in both planes)	Deg	2 x 360°
Distance of the spindle axis from the machine quill face	mm	according to design **
Required pressure for release of the tool	MPa	8
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Total weight	kg	440

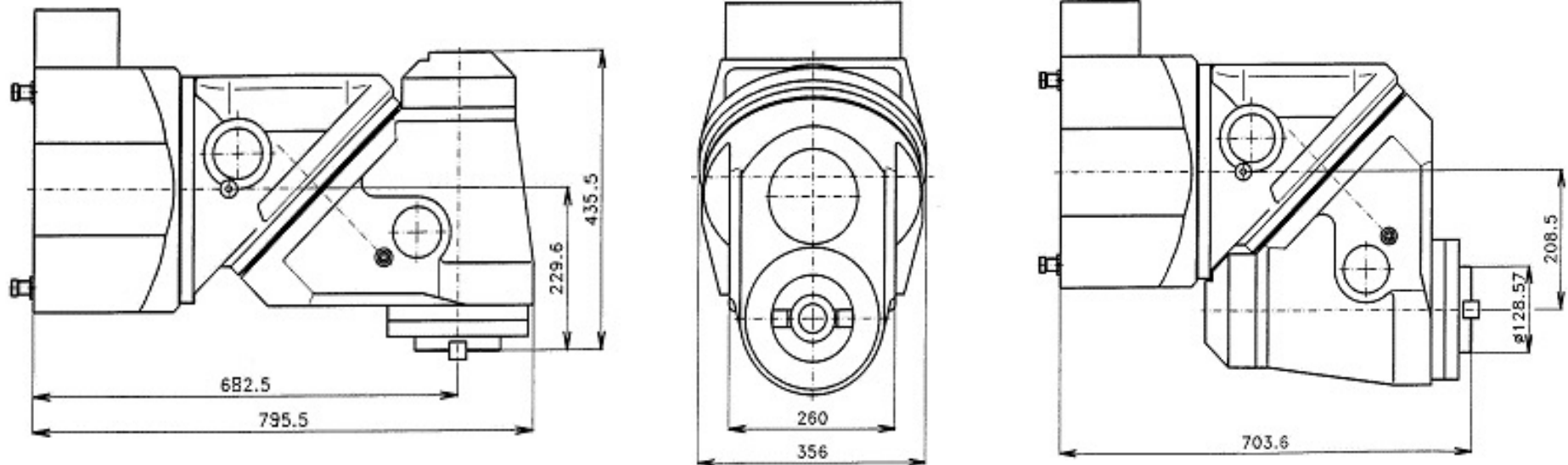
	HUI 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	✓
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

Milling heads: Automatically positioning heads HUI 50

General design and arrangement:



Milling heads: Automatically positioning heads HUIL 50

The HUIL 50 automatically indexing universal light milling head:

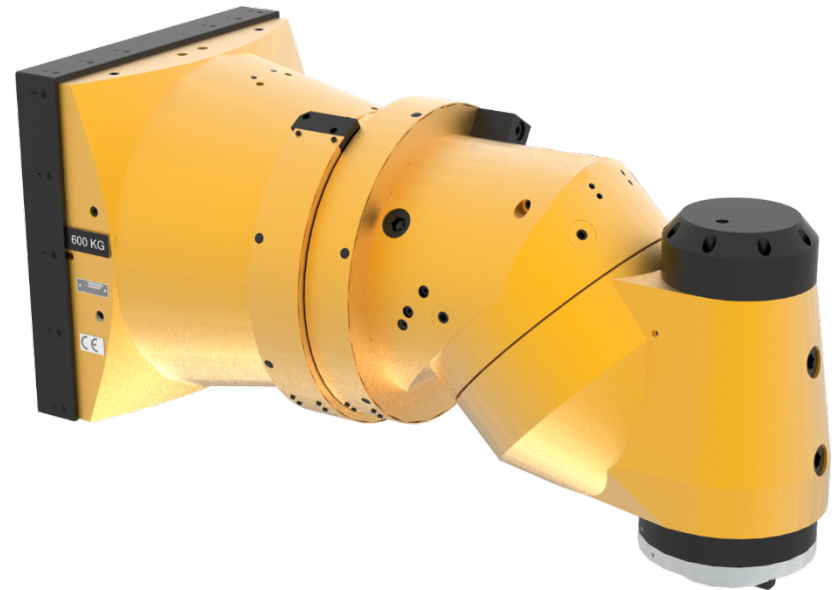
The HUIL 50 automatically indexing universal light milling head has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

Automatically indexing universal light milling head HUIL 50 consists of three compact sections that may be swiveled against each other so as the required angular position of the head's spindle may be set. The joint planes of both the swiveling sections of the head are provided with highly precise Hirth-toothed rims. The pitch of the teeth corresponds with the basic positioning increment into which the sections are being clamped. The angular positioning of the head is controlled through the machine spindle.

The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains, the sensors for measuring the position and the mechanism for clamping and releasing of the tool.

The milling head is equipped with cooling channels which ensure uniform cooling of the head.



Milling heads: Automatically positioning heads HUIL 50

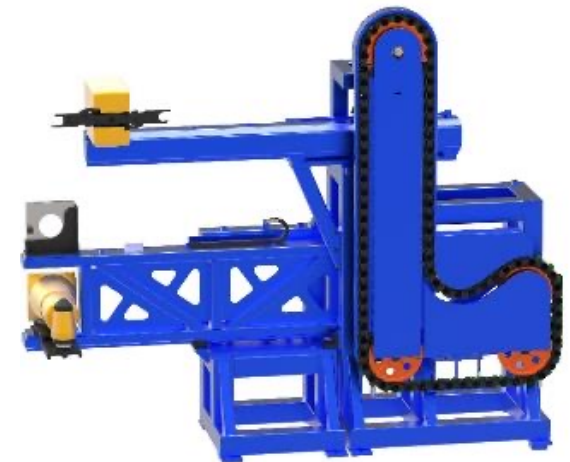
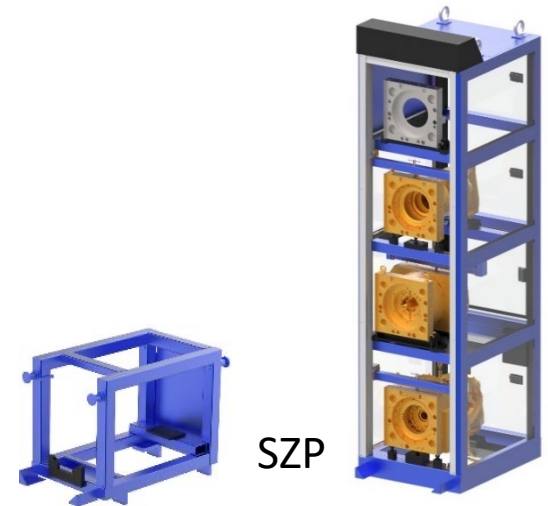
Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

Fastening of the head on the machines WHN(Q) 13/15 CNC, WHR 13 (Q), WRD 13 (Q), WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA, WHT 110 (C) and WHT 130 (C) is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



ACSA

Milling heads: Automatically positioning heads HUIL 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	5 000***
Power transmitted max.	kW	25*
Spindle torque max.	Nm	1 000*
Basic positioning increment of both the swiveling sections	Deg	1°
Transmission ratio		1:1
Rotation range – A axis	Deg	±180°
Rotation range – C axis	Deg	±180°
Accuracy of positioning of A and C axes	Deg	±3''
Distance of the spindle axis from the machine quill face	mm	according to design **
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	8
Total weight	kg	600

	HUIL 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

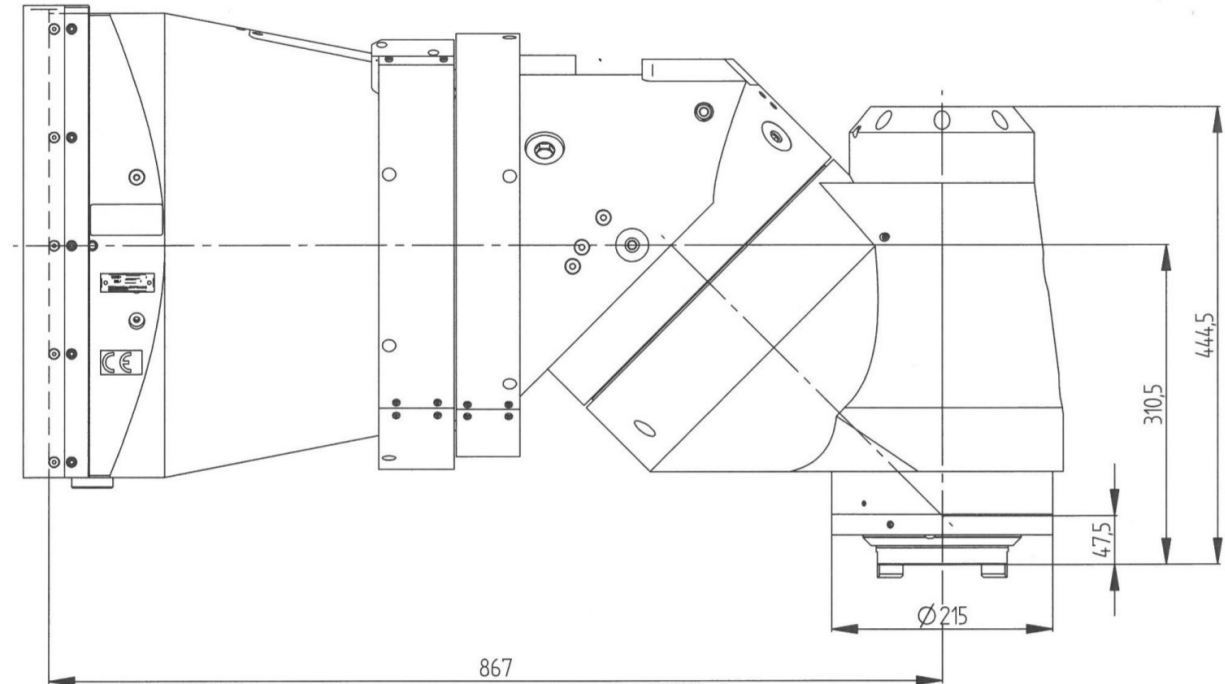
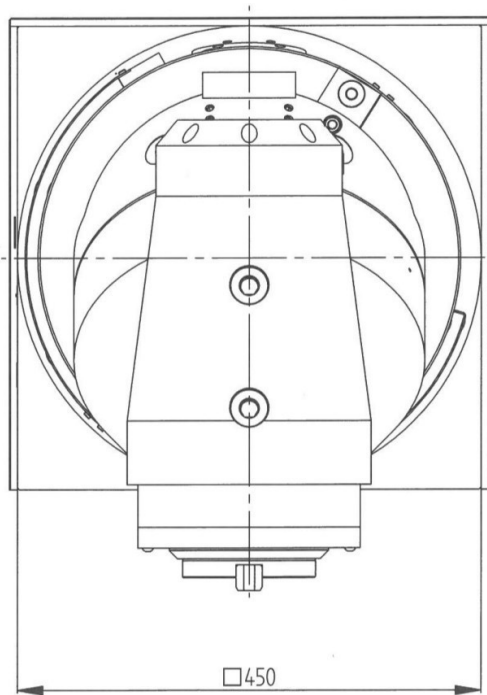
* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

*** Machine has to be equipped with milling head cooling circuit. Without cooling, the speed is reduced to 3000 rpm.

Milling heads: Automatically positioning heads HUIL 50

General design and arrangement:



Milling heads: Automatically positioning heads HUIT 50

The HUIT 50 automatically indexing universal heavy milling head:

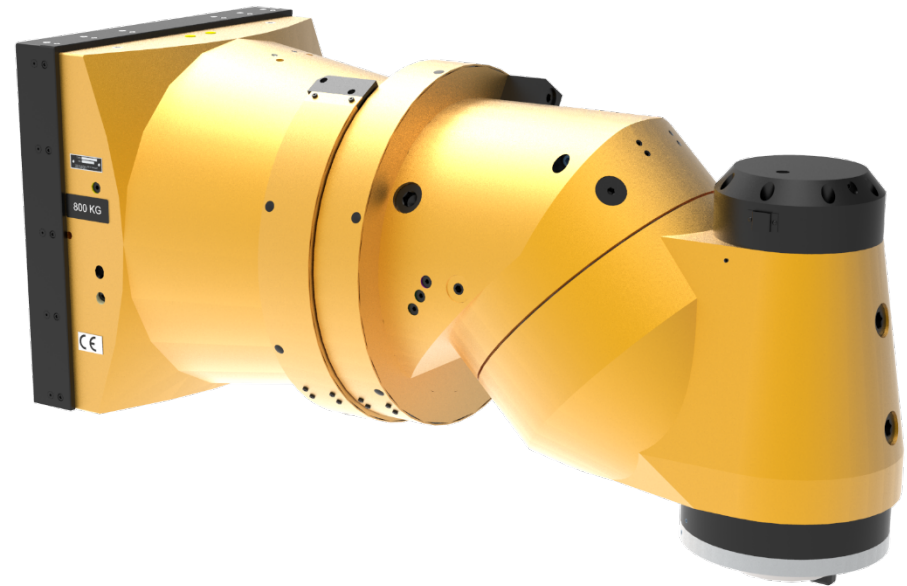
The HUIT 50 automatically indexing universal heavy milling head has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

Automatically indexing universal heavy milling head HUIT 50 consists of three compact sections that may be swiveled against each other so as the required angular position of the head's spindle may be set. The joint planes of both the swiveling sections of the head are provided with highly precise Hirth-toothed rims. The pitch of the teeth corresponds with the basic positioning increment into which the sections are being clamped. The angular positioning of the head is controlled through the machine spindle.

The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains, the sensors for measuring the position and the mechanism for clamping and releasing of the tool.

The milling head is equipped with cooling channels which ensure uniform cooling of the head.

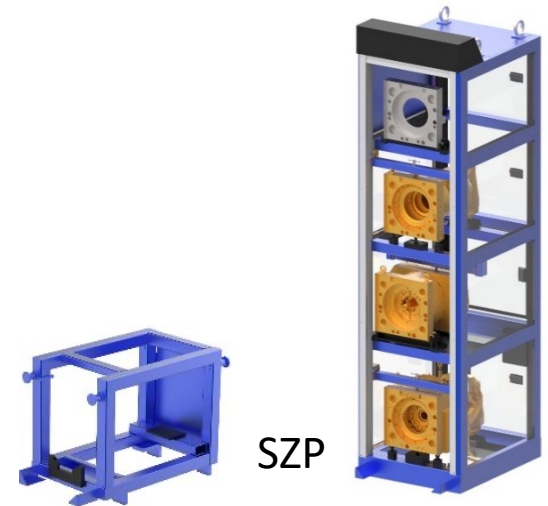


Milling heads: Automatically positioning heads HUIT 50

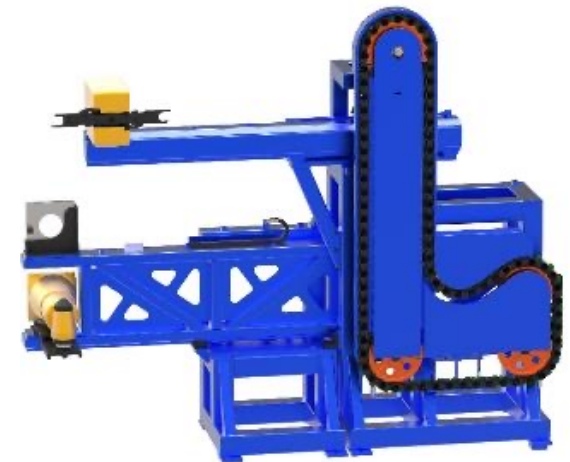
Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

Fastening of the head on the machines WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA and WHT 130 (C) is also carried out automatically. The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



SZP



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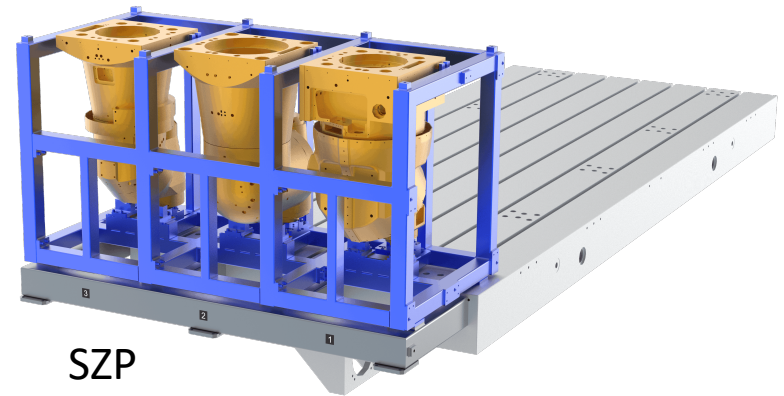
Milling heads: Automatically positioning heads HUIT 50

Fastening of milling head on the milling machine:

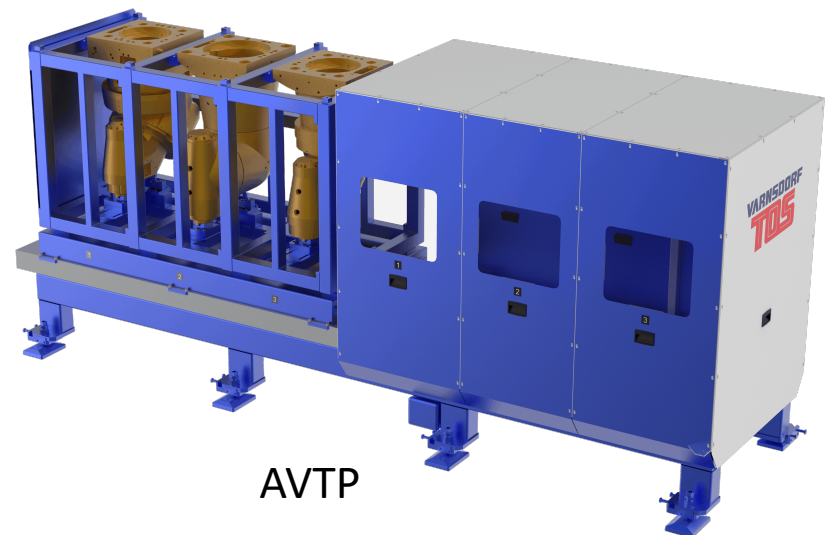
- **Automatic fastening of the head**

Fastening of the head on portal machine WVM 2600/3600 T is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



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Milling heads: Automatically positioning heads HUIT 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 000*
Power transmitted max.	kW	35*
Spindle torque max.	Nm	1 400***
Basic positioning increment of both the swiveling sections	Deg	1°
Transmission ratio		1:1
Rotation range – A axis	Deg	±180°
Rotation range – C axis	Deg	±180°
Accuracy of positioning of A and C axes	Deg	±3''
Distance of the spindle axis from the machine quill face	mm	according to design **
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	8
Total weight	kg	710

	HUIT 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 Q	
MAXIMA	✓
WRD 13 (Q)	
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	
WHT 130 (C)	✓
WVM 2600/3600 T	✓

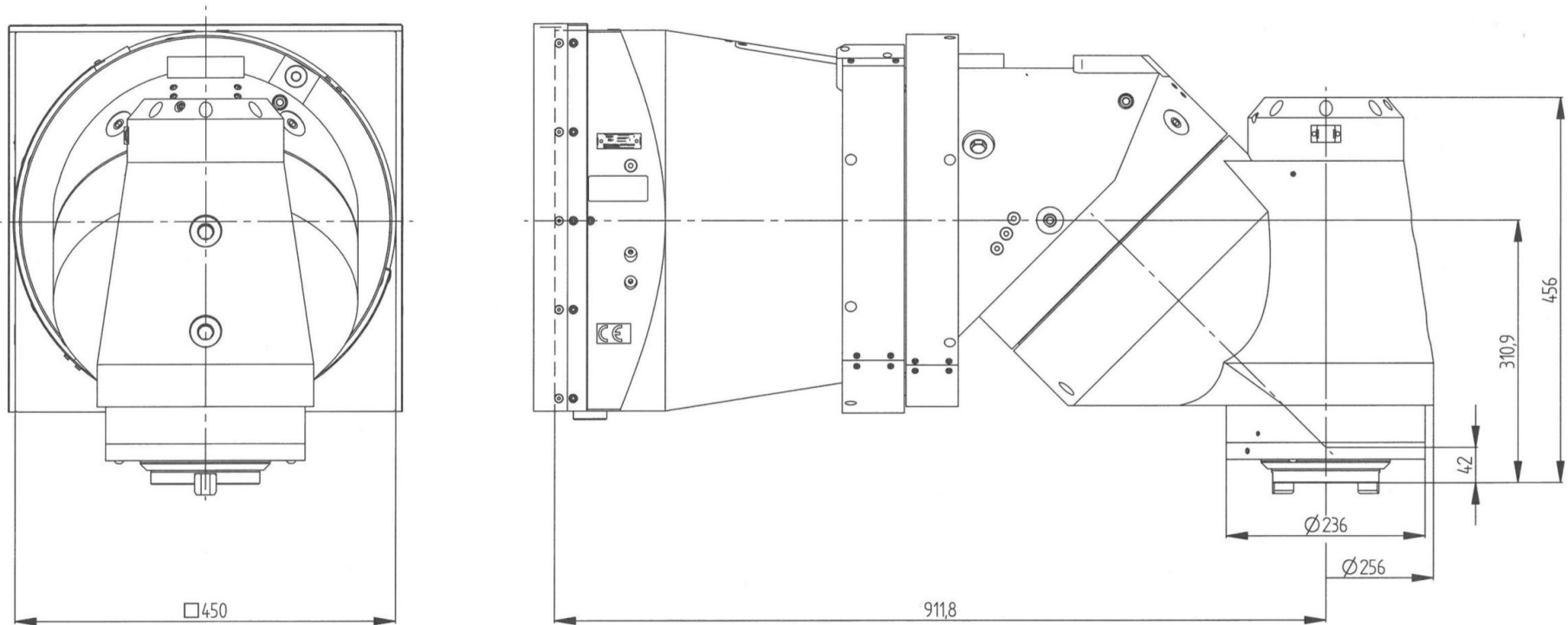
* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

*** 20% of machining time (at permanent operation 1100 Nm)

Milling heads: Automatically positioning heads HUIT 50

General design and arrangement:



Milling heads: Automatically positioning heads HUF 50

HUF 50 universal milling head continuously positioned:

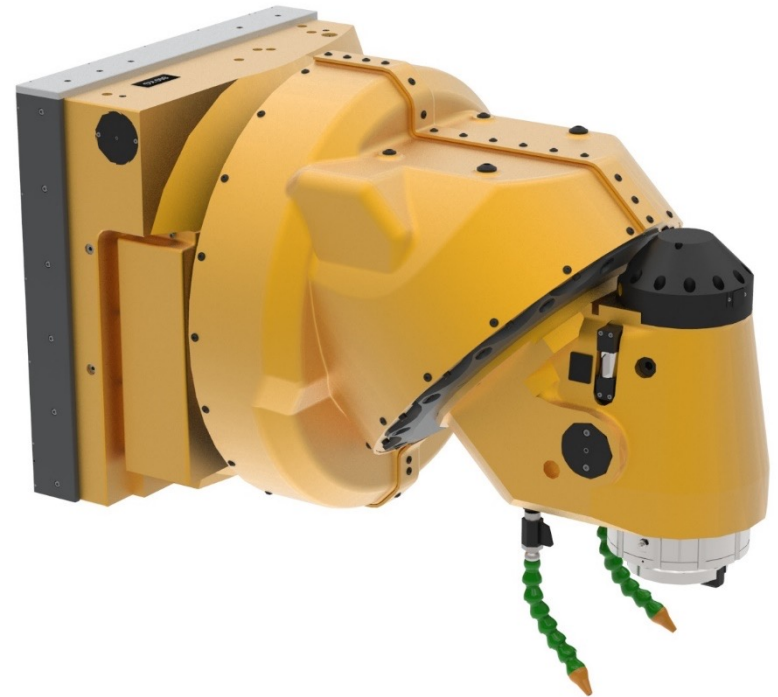
The HUF 50 universal milling head continuously positioned designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

Universal milling head continuously positioned HUF 50 consists of three compact sections that may be swiveled against each other so as the required angular position of the head's spindle may be set.

The joint planes of both the swiveling sections of the head are provided with highly precise Hirth-toothed rims. The pitch of the teeth corresponds with the basic positioning increment into which the sections are being clamped.

The angular positioning of the head is controlled through the machine spindle CNC controlled rotation. Continuous positioning is provided by servo motors which allow the rotation of Hirth-toothed rims and the subsequent step of $0,001^\circ$ in both axes A and C.



Milling heads: Automatically positioning heads HUF 50

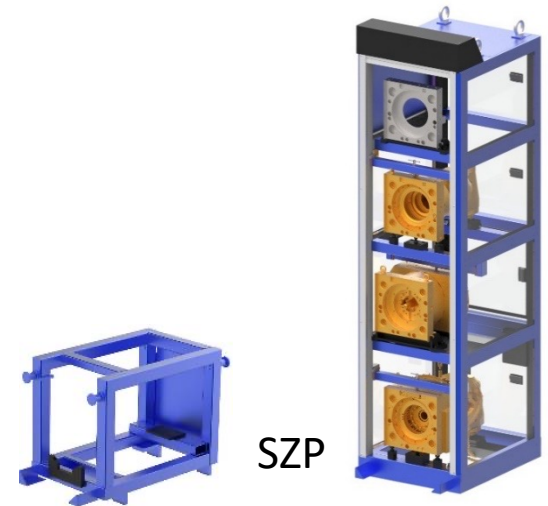
Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

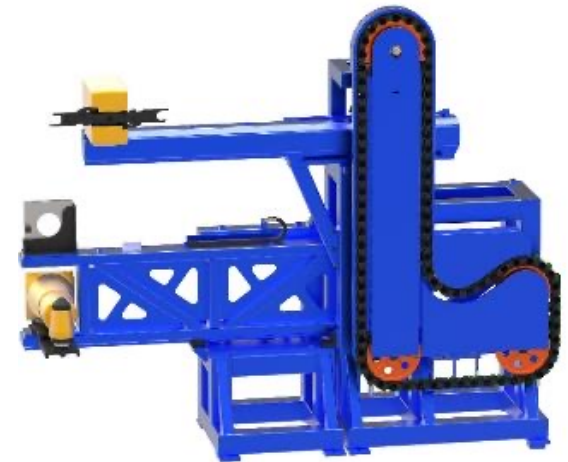
Fastening of the head on the machines WHN(Q) 13/15 CNC, WHR 13 (Q), WRD 13 (Q), WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA and WHT 130 (C) is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



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Milling heads: Automatically positioning heads HUF 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 000*
Power transmitted max.	kW	32*
Spindle torque max.	Nm	1 000*
Basic positioning increment of both the swiveling sections	Deg	0,001°
Transmission ratio		1:1
Swiveling range axis A	Deg	±180°
Swiveling range axis C	Deg	±180°
Accuracy of positioning of A and C axes	Deg	±0,004°
Distance of the spindle axis from the machine quill face	mm	according to design **
Required pressure for release of the tool	MPa	8
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Total weight	kg	610

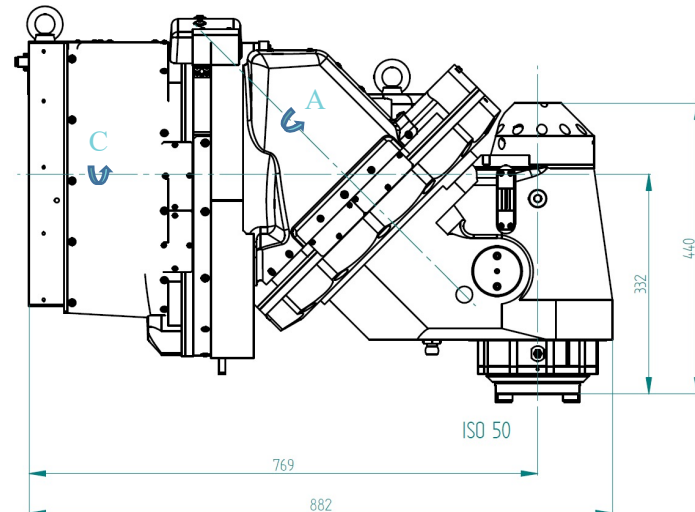
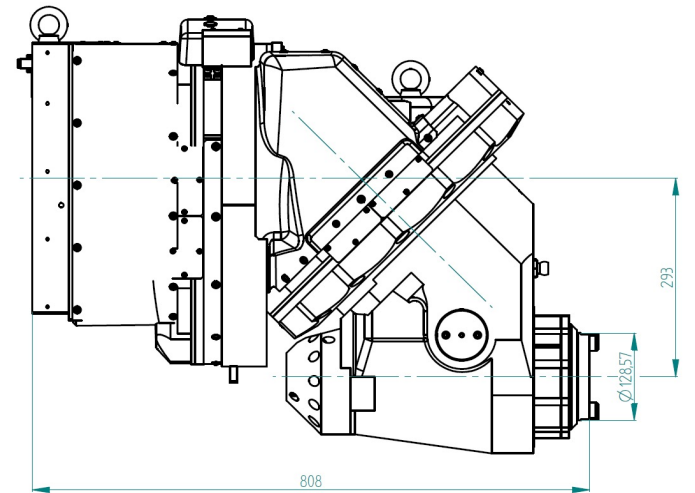
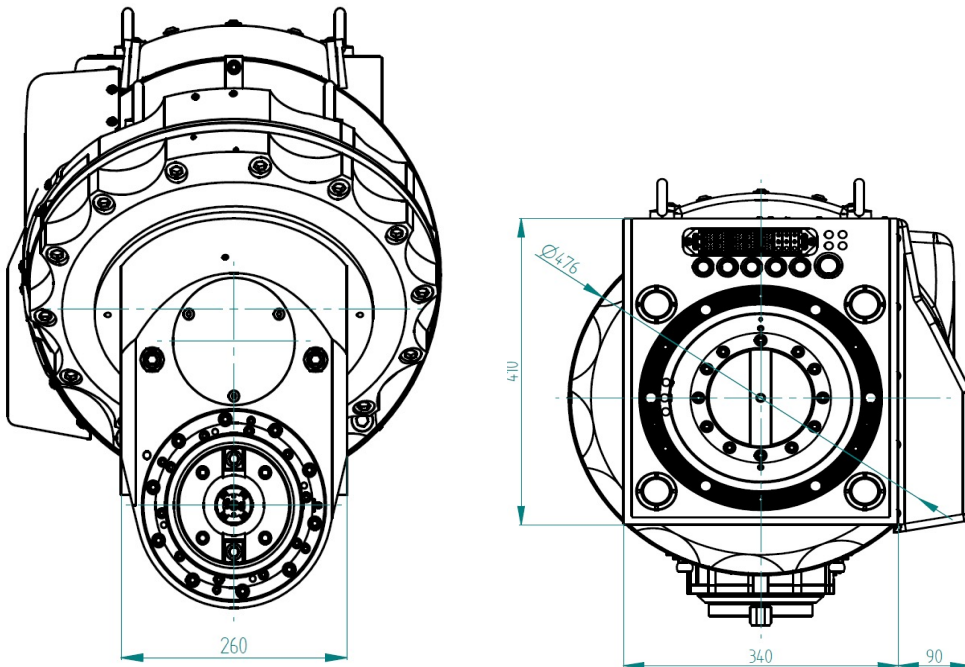
	HUF 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	
WHT 130 (C)	✓
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

Milling heads: Automatically positioning heads HUF 50

General design and arrangement:



Milling heads: Automatically positioning heads HUFT 50

Heavy universal milling head continuously positioned HUFT 50:

The HUFT 50 heavy universal milling head continuously positioned designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

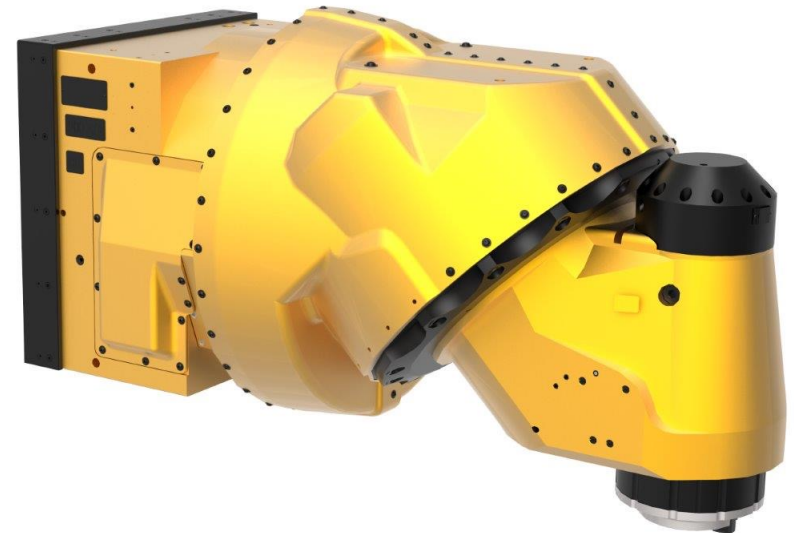
Basic technical description:

Heavy universal milling head continuously positioned HUFT 50 consists of three compact sections that may be swiveled against each other so as the required angular position of the head's spindle may be set.

The joint planes of both the swiveling sections of the head are provided with highly precise Hirth-toothed rims. The pitch of the teeth corresponds with the basic positioning increment into which the sections are being clamped.

The angular positioning of the head is controlled through the machine spindle CNC controlled rotation. Continuous positioning is provided by servo motors which allow the rotation of Hirth-toothed rims and the subsequent step of $0,001^\circ$ in both axes A and C.

The milling head is equipped with cooling channels which ensure uniform cooling of the head.



Milling heads: Automatically positioning heads HUFT 50

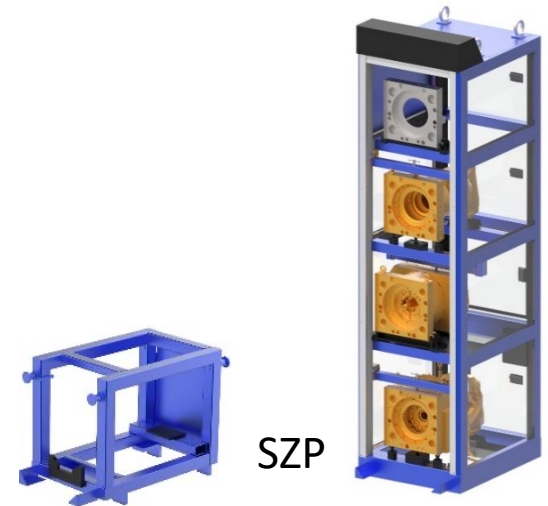
Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

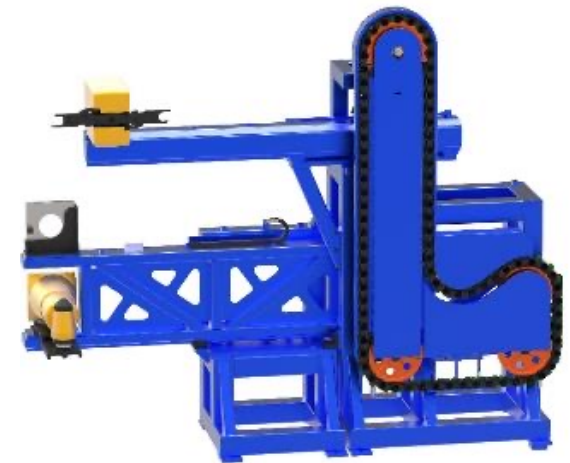
Fastening of the head on the machines WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA and WHT 130 (C) is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



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Milling heads: Automatically positioning heads HUFT 50

Fastening of milling head on the milling machine:

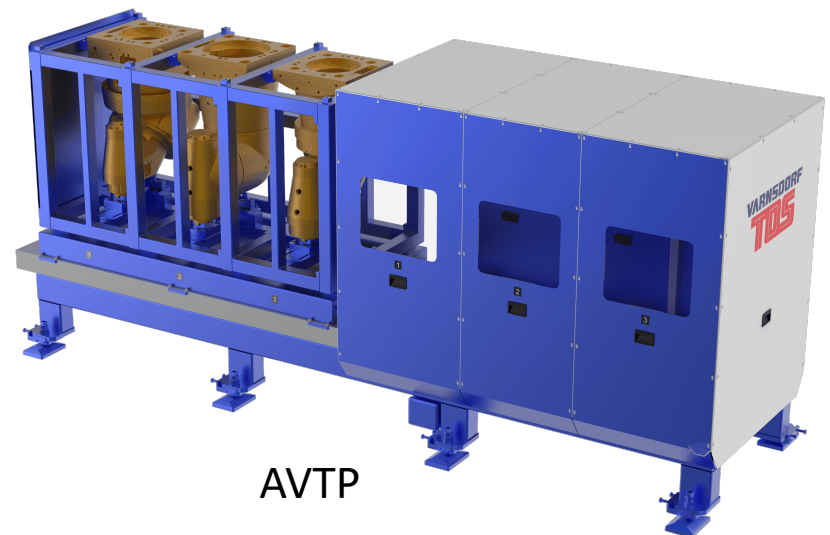
- **Automatic fastening of the head**

Fastening of the head on portal machine WVM 2600/3600 T is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



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Milling heads: Automatically positioning heads HUFT 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 000*
Power transmitted max.	kW	35*
Spindle torque max.	Nm	1 400***
Basic positioning increment of both the swiveling sections	Deg	0,001°
Transmission ratio		1:1
Swiveling range axis A	Deg	±180°
Swiveling range axis C	Deg	±180°
Accuracy of positioning of A and C axes	Deg	±3''
Distance of the spindle axis from the machine quill face	mm	according to design **
Clamping force	kN	20
Required pressure for release of the tool	MPa	8
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Total weight	kg	850

	HUFT 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 Q	
MAXIMA	✓
WRD 13 (Q)	
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	
WHT 130 (C)	✓
WVM 2600/3600 T	✓

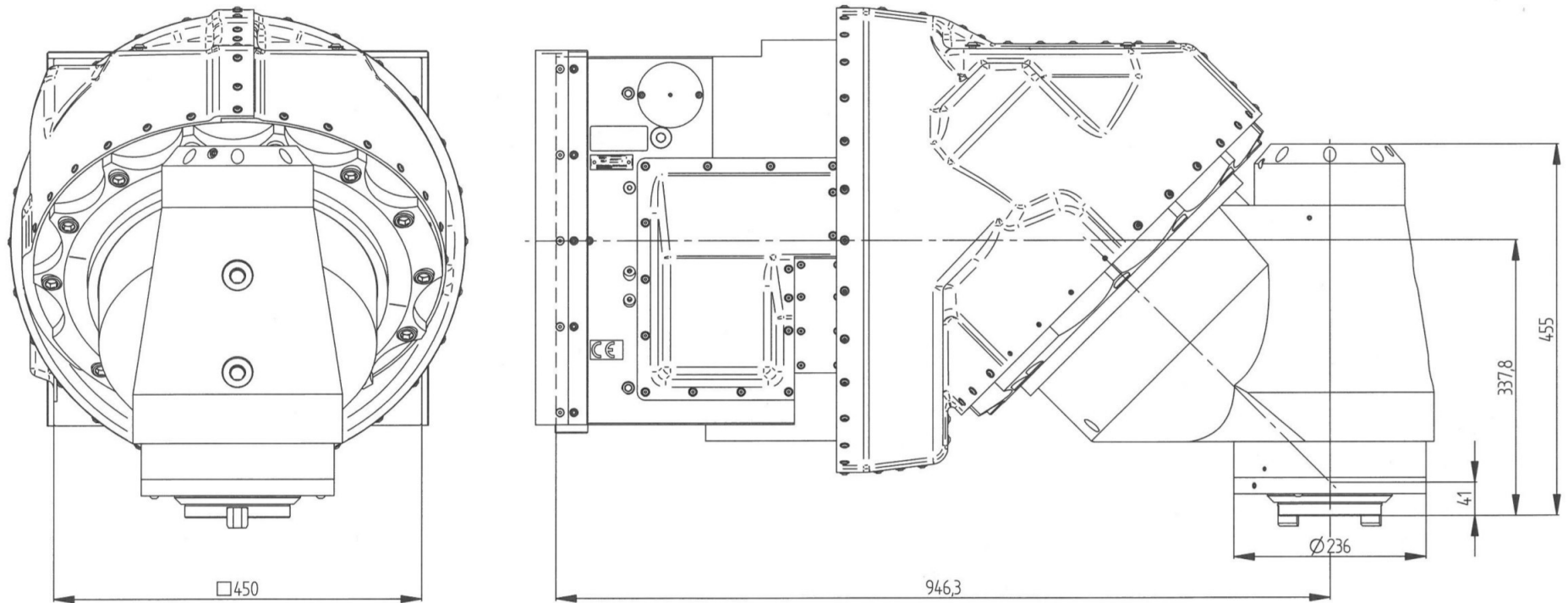
* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

*** 20% of machining time (at permanent operation 1100 Nm)

Milling heads: Automatically positioning heads HUFT 50

General design and arrangement:



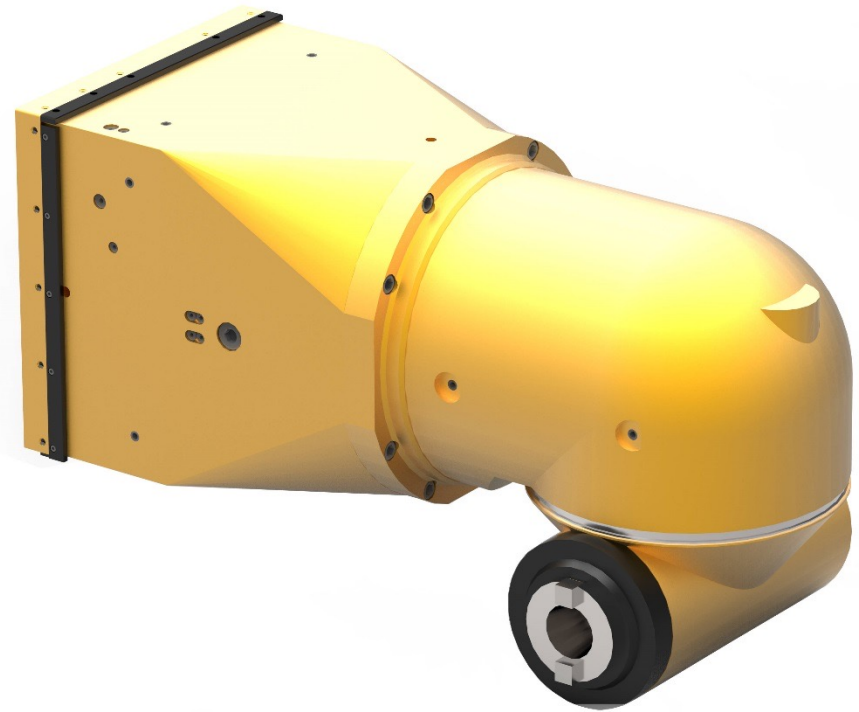
Milling heads: Automatically positioning heads HOI 50

2- Axes milling head orthogonal automatically indexed:

The milling head with 2 axes driven by the spindle of the machine HOI 50 has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

The head consists of three compactly connected basic parts enabling their mutual rotation in the axes A and C to reach necessary general position of working spindle of the head. Moveable parts of the head are in both dividing areas equipped with exact toothed Hirth rim, which division is in accordance with basic positioning increment in which are fixed the moveable parts of the head. Positioning of rotation parts is ensured by mechanical drive from the machine spindle and gives the possibility for positioning ± 185 degree for axis C and ± 120 in axis A. The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains, the sensors for measuring the position and the mechanism for clamping and releasing of the tool and also fixing and releasing in both dividing areas.



Milling heads: Automatically positioning heads HOI 50

Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

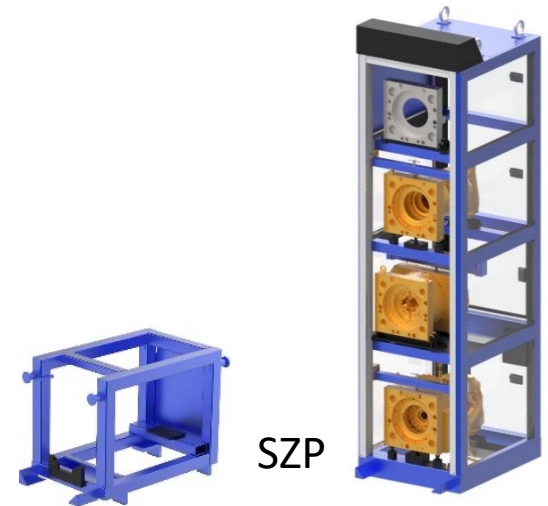
Fastening of the head on the machines WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA is carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

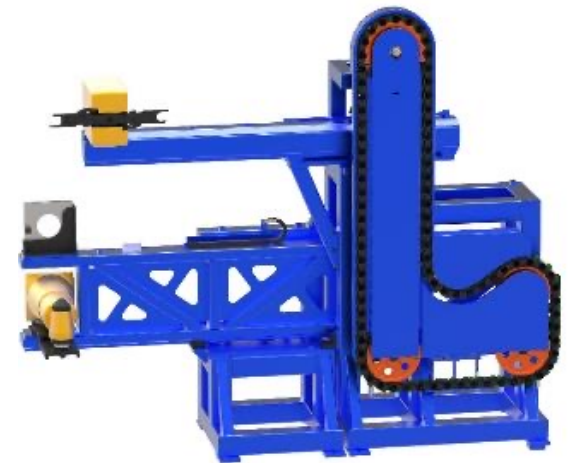
The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).

- **Permanent fastening of the head**

Fastening of the head on the GRATA machines and is permanent (integrated).



SZP



ACSA

Milling heads: Automatically positioning heads HOI 50

Fastening of milling head on the milling machine:

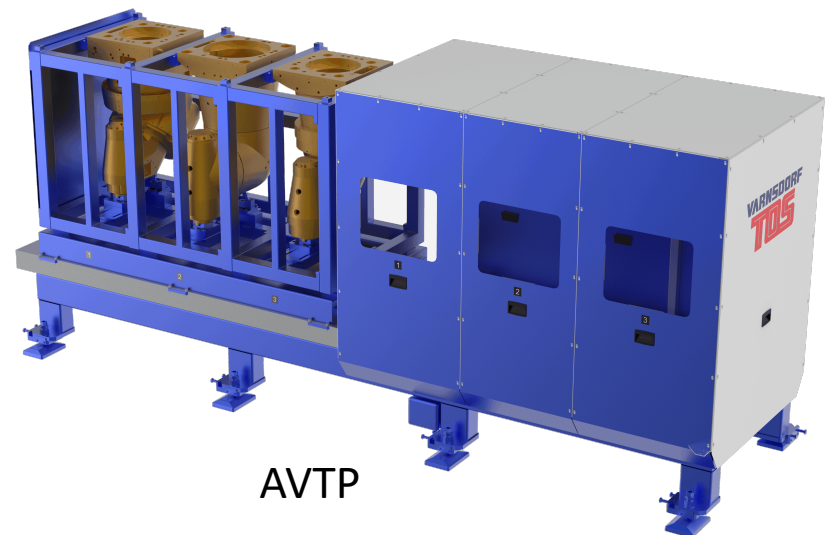
- **Automatic fastening of the head**

Fastening of the head on portal machine WVM 2600/3600 T is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use. The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



SZP



AVTP

Milling heads: Automatically positioning heads HOI 50

Basic technical parameters:

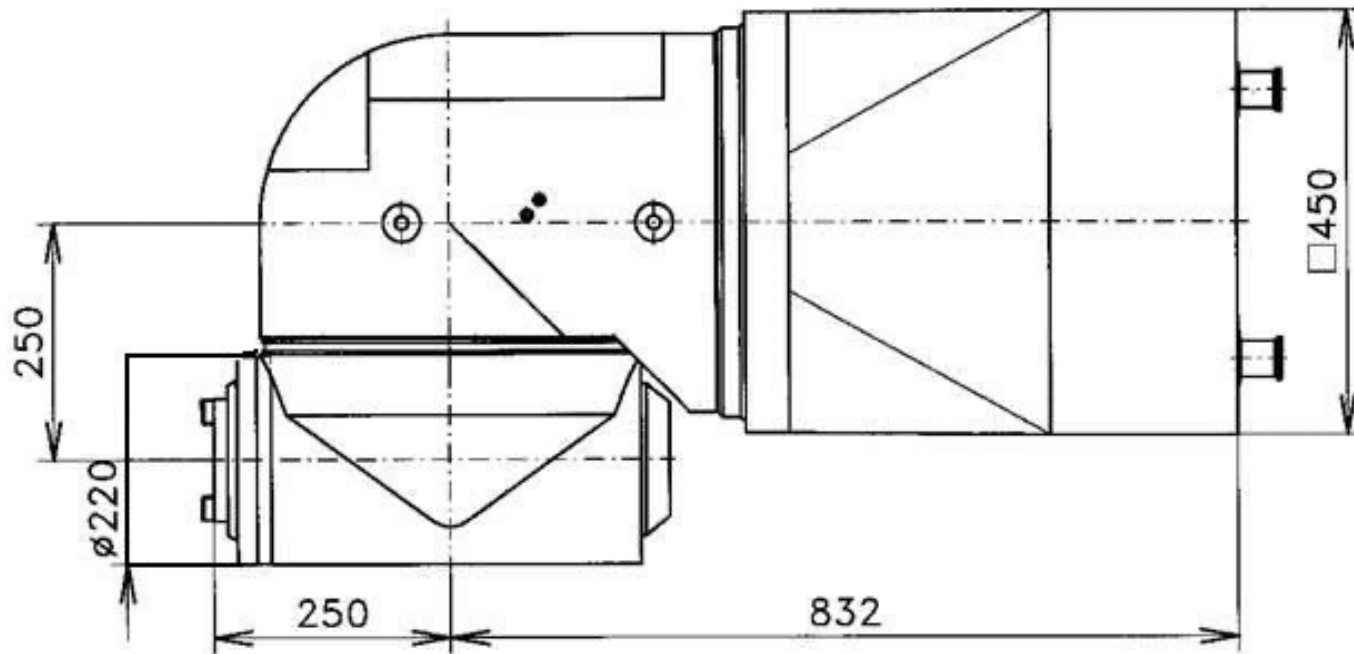
Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 500*
Power transmitted max.	kW	37*
Spindle torque max.	Nm	1 200*
Basic increment of positioning in both dividing areas	Deg	1°
Transmission ratio		1:1
Rotation range - A	Deg	±120°
Rotation range - C	Deg	±185°
Accuracy of positioning of A and C axis	Deg	±3''
Maximum speed of head rotation in axes A and C	1/min	5,5
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	5,5
Total weight of head for floor type of machines	kg	1 100

	HOI 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 Q	
MAXIMA	✓
WRD 13 (Q)	
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	
WHT 130 (C)	
WVM 2600/3600 T	✓

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

Milling heads: Automatically positioning heads HOI 50

General design and arrangement:



Milling heads: Automatically positioning heads HOIL 50

2- Axes milling head orthogonal automatically indexed light HOIL 50:

2-axes milling head orthogonal automatically light positioned driven by the spindle of the machine HOIL 50 has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

The head consists of three compactly connected basic parts enabling their mutual rotation in the axes A and C to reach necessary general position of working spindle of the head. Moveable parts of the head are in both dividing areas equipped with exact toothed Hirth rim, which division is in accordance with basic positioning increment in which are fixed the moveable parts of the head. Positioning of rotation parts is ensured by mechanical drive from the machine spindle and gives the possibility for positioning ± 185 degree for axis C and ± 100 in axis A. The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains, the sensors for measuring the position and the mechanism for clamping and releasing of the tool and also fixing and releasing in both dividing areas.



Milling heads: Automatically positioning heads HOIL 50

Fastening of milling head on the milling machine:

- **Half-automatic fastening of the head**

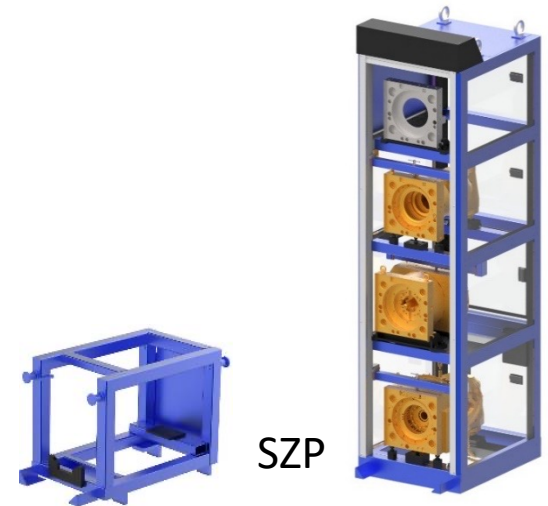
Half-automatic fastening of the head on the headstock of WHN(Q) 13/15 CNC, WHN 130 (Q, MC) machines is done from an auxiliary rack (SZP) using mounting screws and other handling means and accessories. If the head is stored in the magazine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.

- **Automatic fastening of the head**

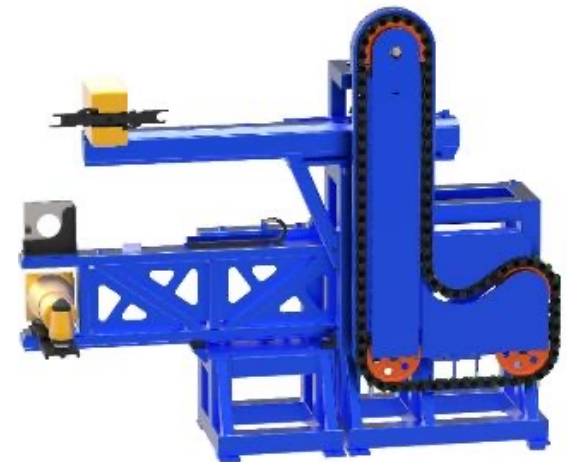
Fastening of the head on the machines WHN 130 (Q, MC), WHN(Q) 13/15 CNC, WHR 13 (Q), WRD 13 (Q), WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA, WHT 110 (C) and WHT 130 (C) is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



SZP



ACSA

Milling heads: Automatically positioning heads HOIL 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	3 500*
Power transmitted max.	kW	25*
Spindle torque max.	Nm	1 000*
Basic increment of positioning in both dividing	Deg	1°
Transmission ratio		1:1
Rotation range - A	Deg	±100°
Rotation range - C	Deg	±185°
Accuracy of positioning of A and C axes	Deg	±3''
Maximum speed of head rotation in axes A and C	1/min	5
Distance of the spindle axis from the machine quill face	mm	according to design **
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	5,5
Total weight of head for floor type of machines	kg	450

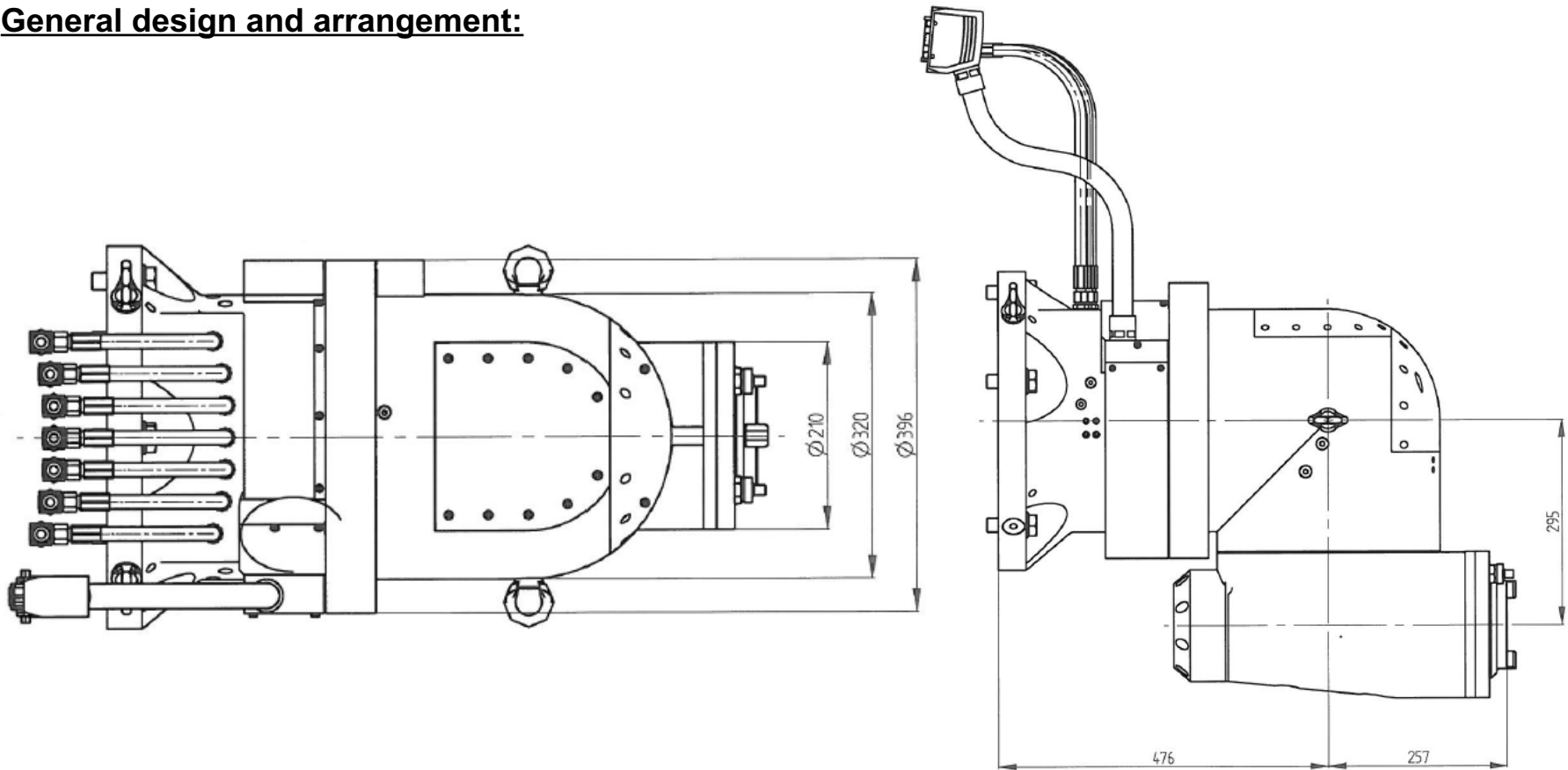
	HOIL 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	✓
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

** Specific dimensions depend on machine type and technology requirements. Consult with the manufacturer.

Milling heads: Automatically positioning heads HOIL 50

General design and arrangement:



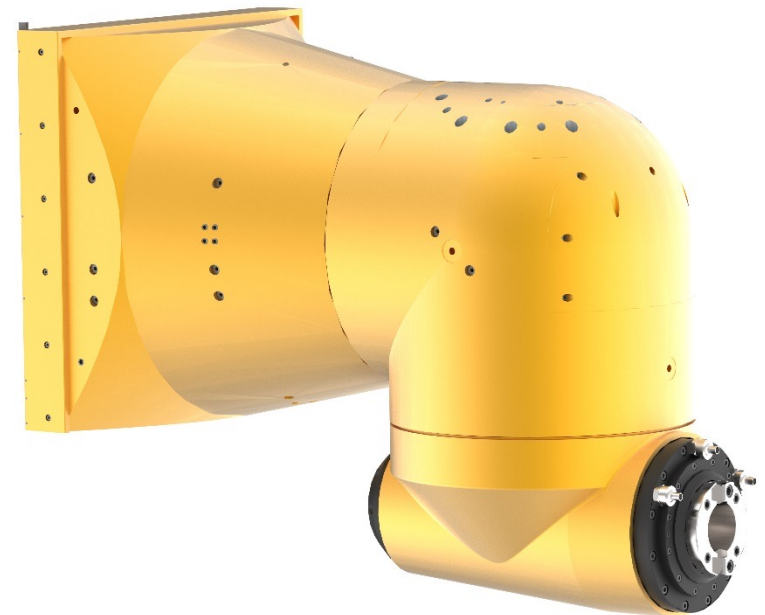
Milling heads: Automatically positioning heads HOIT 50

2- Axes heavy milling head orthogonal automatically indexed:

The milling head with 2 axes driven by the spindle of the machine HOIT 50 has been designed as a special technological accessory for floor type milling machines.

Basic technical description:

The head consists of three compactly connected basic parts enabling their mutual rotation in the axes A and C to reach necessary general position of working spindle of the head. Moveable parts of the head are in both dividing areas equipped with exact toothed Hirth rim, which division is in accordance with basic positioning increment in which are fixed the moveable parts of the head. Positioning of rotation parts is ensured by mechanical drive from the machine spindle and gives the possibility for positioning ± 185 degree for axis C and ± 100 in axis A. The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains, the sensors for measuring the position and the mechanism for clamping and releasing of the tool and also fixing and releasing in both dividing areas.



Milling heads: Automatically positioning heads HOIT 50

Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

Fastening of the head on the RAM of machines WRD 170 and WRD 180 H is fully automatic. The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



SZP



Milling heads: Automatically positioning heads HOIT 50

Basic technical parameters:

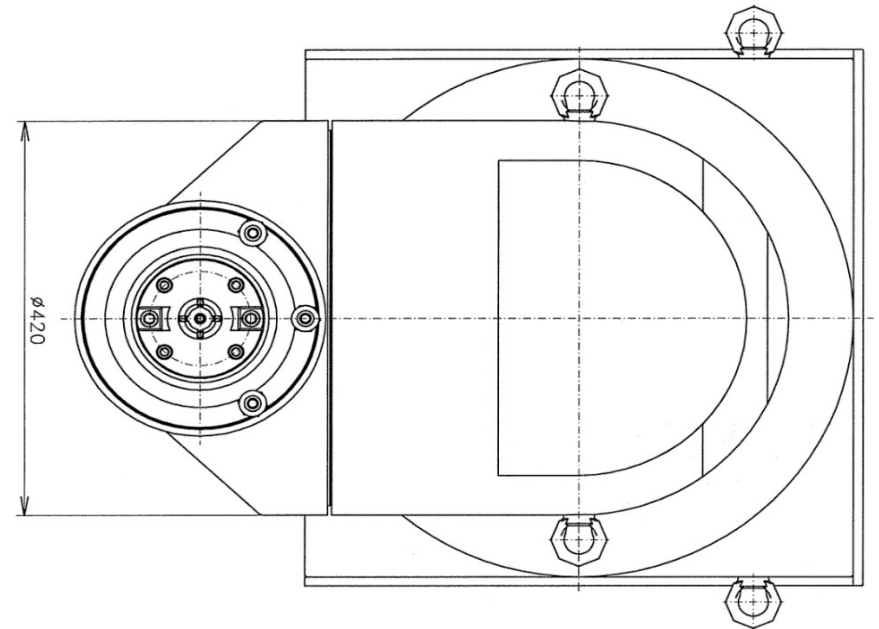
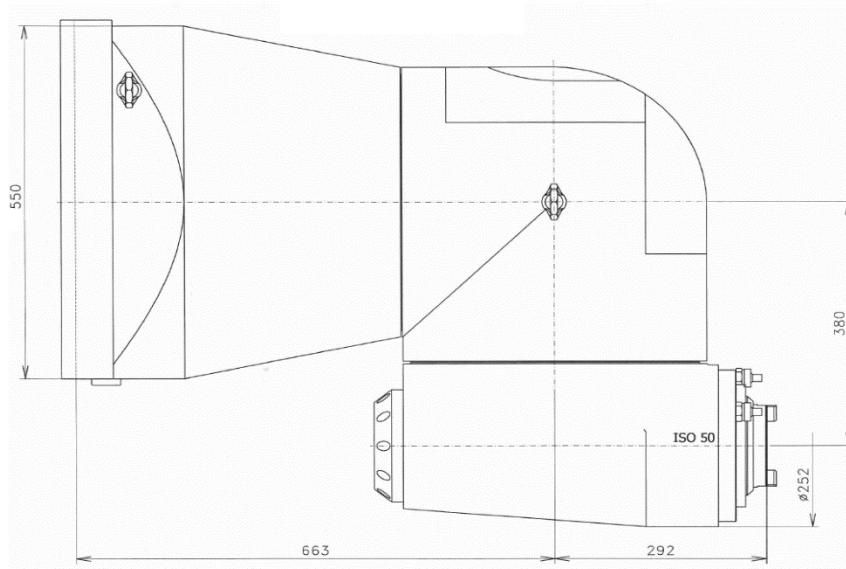
Spindle taper		ISO 50 / ISO 50 BIG+
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Spindle speed max.	1/min	2 000*
Power transmitted max.	kW	50*
Spindle torque max.	Nm	2 500
Basic increment of positioning in both dividing areas	Deg	1°
Transmission ratio		1:1
Rotation range - A	Deg	±100°
Rotation range - C	Deg	±185°
Accuracy of positioning of A and C axes	Deg	±3"
Maximum speed of head rotation in axes A and C	1/min	5,5
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	5,5
Total weight of head for floor type of machines	kg	1 100

	HOIT 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 Q	
MAXIMA	
WRD 13 (Q)	
WRD 130/150 (Q)	
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	
WHT 110 (C)	
WHT 130 (C)	
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

Milling heads: Automatically positioning heads HOIT 50

General design and arrangement:



Milling heads: Continuously controlled heads HPFL 50

Right-angle continuously controlled milling head light HPFL 50:

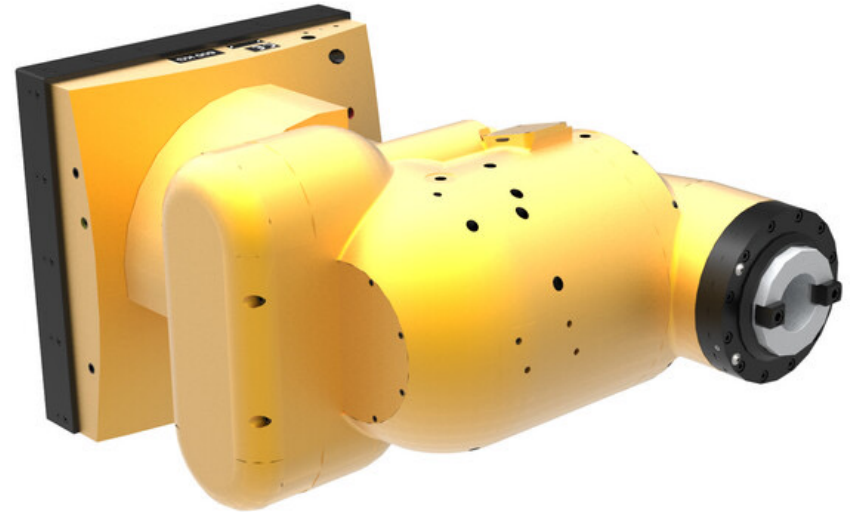
Right-angle continuously controlled light milling head is driven by the spindle of the machine and has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

The head consists of three compactly connected basic parts, where the two parts are firmly connected and one part is rotatable in the A axis. The movement of this part is provided from the independent servo-drives, which enable the continuous positioning in the full rotation range as well as the smooth movement of axis A during machining.

The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains the servodrives for control of movement of axis A, the sensor for measuring the position and the mechanism for clamping and releasing of the tool.

The milling head is equipped with cooling channels which ensure uniform cooling of the head.



Milling heads: Continuously controlled heads HPFL 50

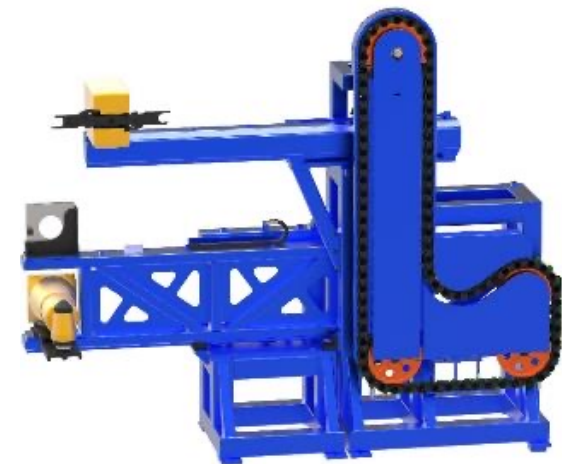
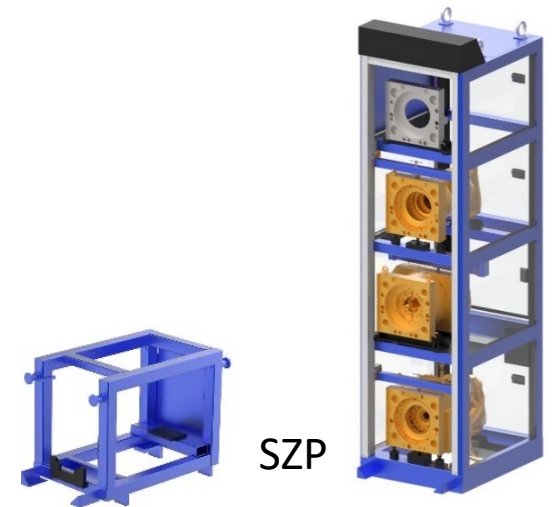
Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

Fastening of the head on headstock of the WHR 13 (Q), MAXIMA, WRD 13 (Q), WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, GRATA, WHT 110 (C) and WHT 130 (C) machines is fully automatic.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



ACSA

Milling heads: Continuously controlled heads HPFL 50

Basic technical parameters:

Spindle taper		ISO 50 / ISO 50 BIG +
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Max. spindle speed	rpm	3 000*
Power transmitted max.	kW	20*
Spindle torque max.	Nm	1 000*
Basic increment of positioning	Deg	0,001°
Transmission ratio		1:1
Operating torque in A axis	Nm	3 000
Rotation range in A axis	Deg	±110°
Max. speed of head rotation in A axis	rpm	5
Distance of the spindle axis from the machine quill face	mm	according to design **
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	8
Total head weight (including flange)	kg	550**

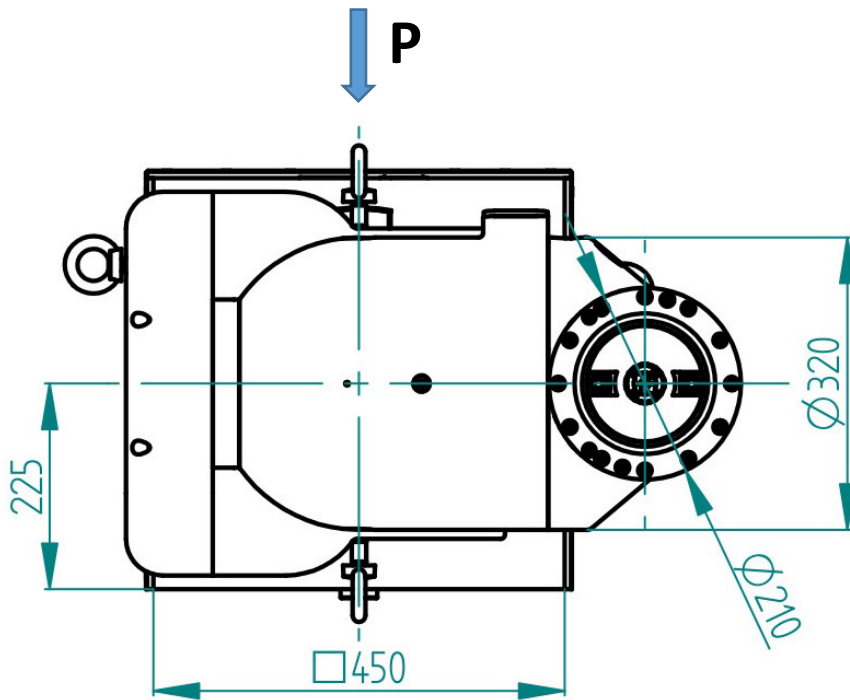
	HPFL 50
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 (Q)	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

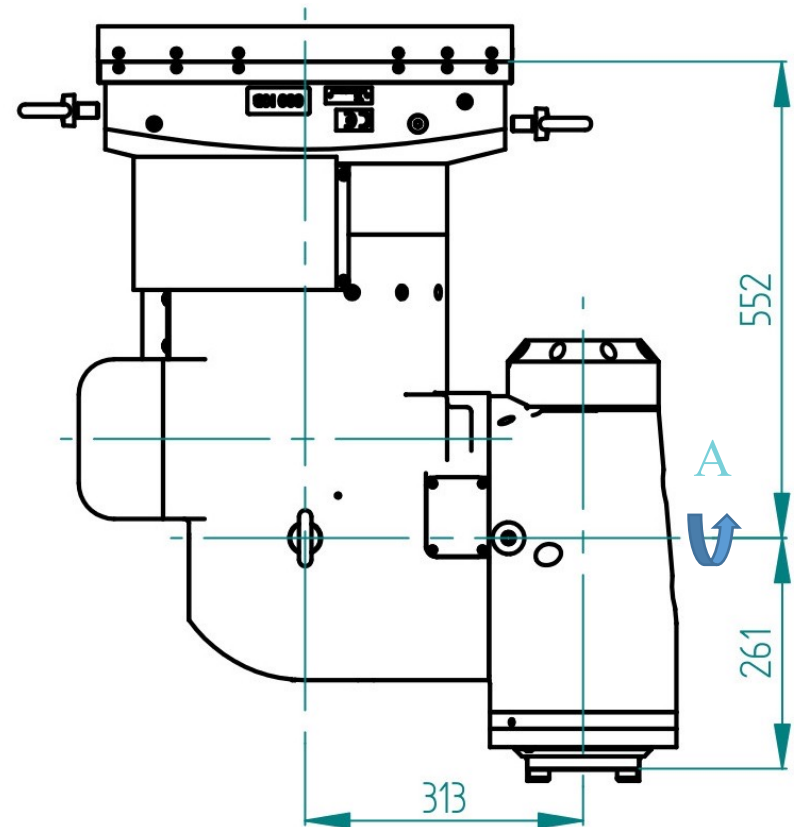
** Specific dimensions or weight depend on machine type and technology requirements. Consult with the manufacturer.

Milling heads: Continuously controlled heads HPFL 50

General design and arrangement:



View P



Milling heads: Continuously controlled heads HV/V

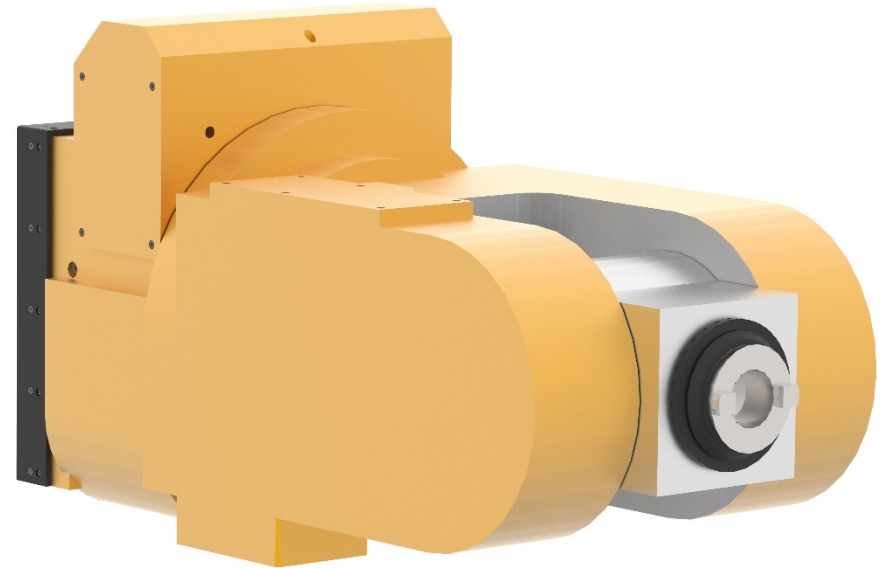
The fork type milling head 1 or 2 axes HV/V :

The fork type continuous milling head with 1 or 2 axes driven by the spindle of the machine HV/V has been designed as a special technological accessory for horizontal boring mills, floor type milling machines and machine centres as well.

Basic technical description:

The head consists of three compactly connected basic parts enabling their mutual rotation in the axes A and C. The mutual movement of these parts is provided from the independent servo-drives, which enable the continuous positioning in the full rotation range as well as the smooth movement of both axes during machining.

The body of the head itself contains the complete mechanisms of the drive (by means of tooth wheels) and mounting of the head spindle (in the precise spindle bearings). Further to this it contains the servodrives for control of movement of both axes A and C, the sensors for measuring the position and the mechanism for clamping and releasing of the tool.



Milling heads: Continuously controlled heads HV/V

Fastening of milling head on the milling machine:

- **Automatic fastening of the head**

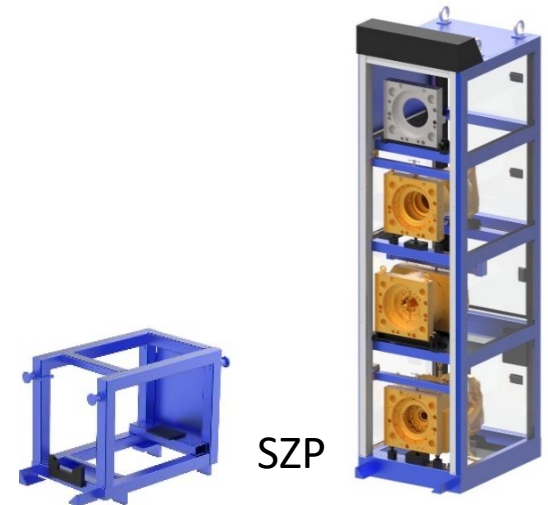
Fastening of the head on the RAM of machines GRATA, WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA is fully automatic.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

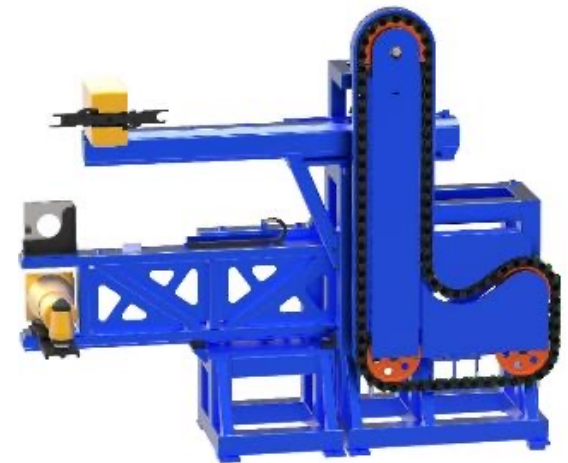
The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).

- **Permanent fastening of the head**

Fastening of the head on the GRATA machines is permanent (integrated).



SZP



ACSA

Milling heads: Continuously controlled heads HV/V

Basic technical parameters:

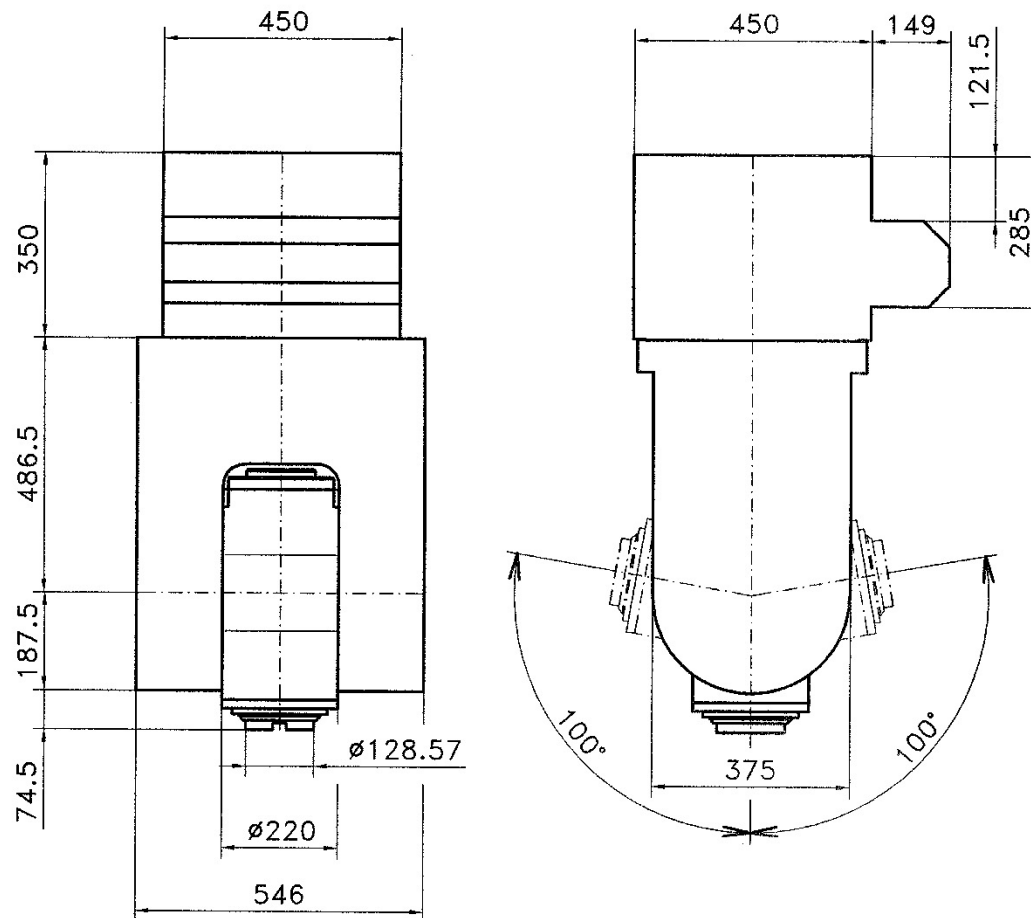
Spindle taper		ISO 50 / ISO 50 BIG +
Taper standards available		DIN 69871/A (without tool cooling kit) DIN 69871/AD (with tool cooling kit) BT 50 MAS 403 CAT ANSI/ASME B5.50
Max. spindle speed	1/min	3 500*
Power transmitted max.	kW	22*
Spindle torque max.	Nm	500*
Transmission ratio	Deg	0,001°
Basic increment of positioning		1:1
Clamping torque of A and C axes	Nm	3 000
Operating torque of A and C axes	Nm	800
Rotation range in A axis	Deg	±100°
Rotation range in C axis	Deg	±190°
Accuracy of positioning of A and C axes	Deg	±5''
Max. speed of head rotation in axes A and C	1/min	5,1
Coolant supply through the tool axis	MPa	1 - 7
Coolant supply via the external nozzle	MPa	0,3
Clamping force	kN	20
Required pressure for release of the tool	MPa	8
Total weight (incl. flange)	kg	800

	HV/V
WH(Q) 10 CNC	
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	
WHR 13 Q	
MAXIMA	✓
WRD 13 (Q)	
WRD 130/150 (Q)	✓
WRD 170 (Q)	✓
WRD 180 H	✓
GRATA	✓
WHT 110 (C)	
WHT 130 (C)	
WVM 2600/3600 T	

* Parameters of the milling head clamped on the machine correspond to the main motor power of the machine. Max. parameters of the milling head – see the table.

Milling heads: Continuously controlled heads HV/V

General design and arrangement:



Special accessories: Milling attachments

Basic sorting of milling attachments:

- [Orthogonal FP 50](#)



- [Universal UFP 50](#)



Milling attachment: Orthogonal FP 50

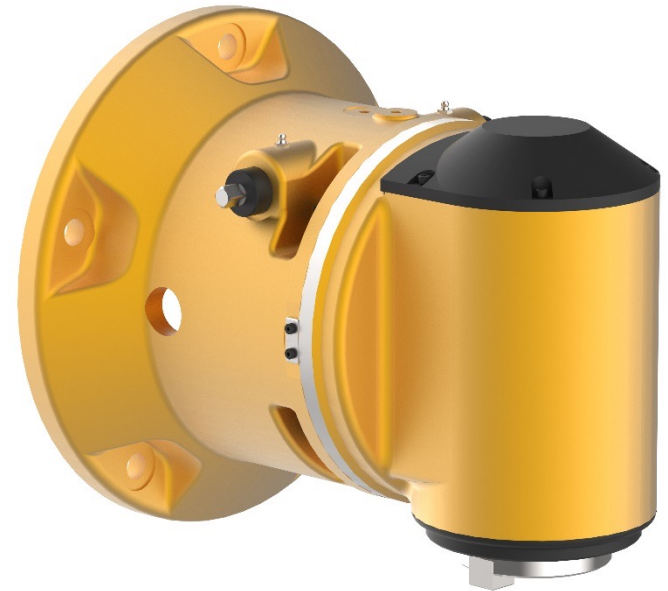
Orthogonal milling attachment FP 50:

The FP 50 orthogonal milling head broadens the operational capabilities of the WH(Q) 10 CNC, WHN(Q) 13 CNC, WHR 13 (Q) and WRD 13 (Q) machines.

Basic technical description:

Orthogonal milling head is fixed to the machine headstock face through bolts. The head's tilt angle settings may be read out of the engraved circumferential scale divided by 1° and the settings are done by means of hand crank.

Tools are clamped into the working spindle taper manually.



Milling attachment: Orthogonal FP 50

Fastening of milling head on the milling machine:

- **Manual fastening of the head**

Manual fastening of the head on the machines WH(Q) 10 CNC, WHN(Q) 13 CNC, WHR 13 (Q) and WRD 13 (Q) is carried out by means of a lifting device. If the head is removed from the machine, a cover plate must be mounted on the headstock face to protect its attachment elements from dirt and damage.

- **Half-automatic fastening of the head**

Half-automatic fastening of the head on the headstock of WH(Q) 10 CNC, WHN(Q) 13 CNC, WHR 13 (Q) and WRD 13 (Q) machines is done from an auxiliary rack (SZP) using mounting screws and other handling means and accessories.

If the head is stored in the magazine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.



SZP



Milling attachment: Orthogonal FP 50

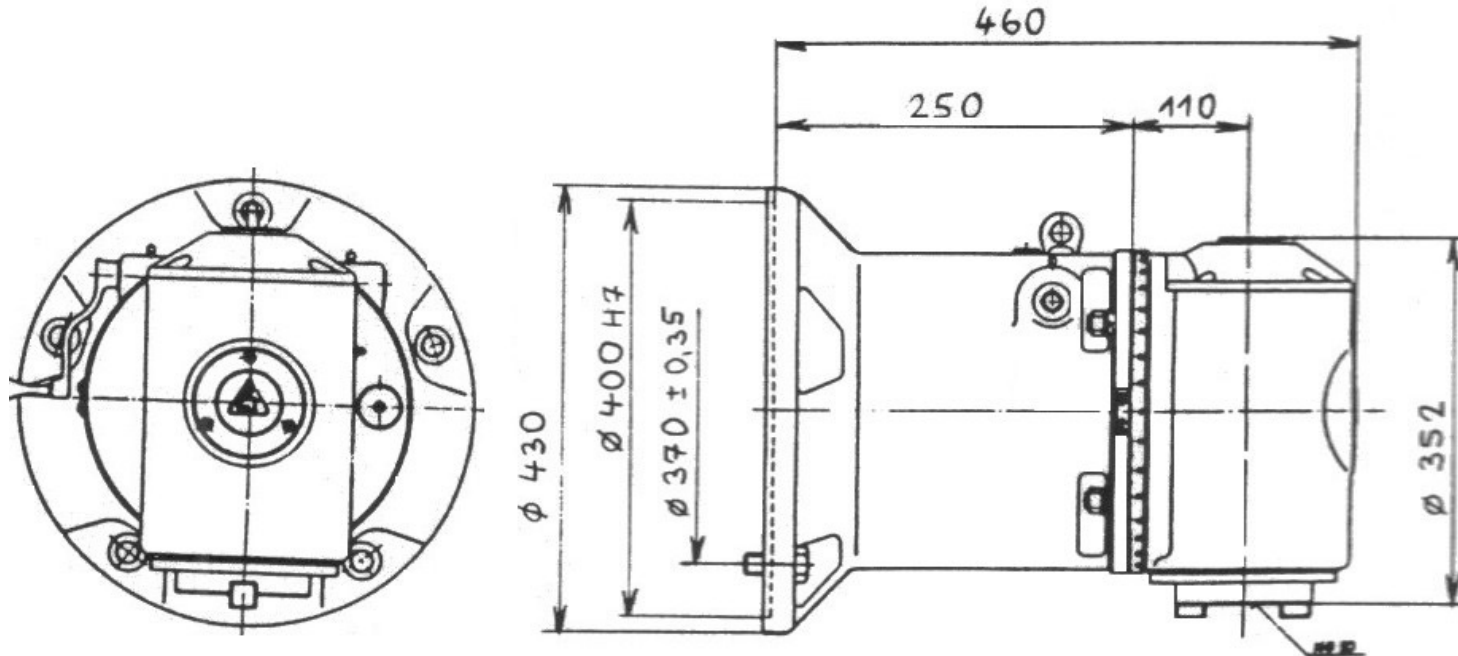
Basic technical parameters:

Spindle taper		ISO 50
Tilt angle max.		360°
Ratio of machine spindle speed and head spindles speed		1:1
Max. permitted speed of milling head spindle at torque 180 Nm	1/min	600
Max. torque at speed 100 rpm	kW	10
Max. power of head spindle	Nm	1 000
Centering dia of the milling head	mm	400 H7
Weight of the device	kg	cca 140

	FP 50
WH(Q) 10 CNC	✓
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	
WRD 13 (Q)	✓
WRD 130/150 (Q)	
WRD 170 (Q)	
WRD 180 H	
GRATA	
WHT 110 (C)	
WHT 130 (C)	
WVM 2600/3600 T	

Milling attachment: Orthogonal FP 50

General design and arrangement:



Milling attachment: Universal UFP 50

Universal milling attachment UFP 50:

Universal milling head UFP 50 broadens the operational capabilities of WH(Q) 10 CNC, WHN(Q) 13 CNC, WHR 13 (Q) and WRD 13 (Q) machines.

Basic technical description:

Universal milling head is fixed to the machine headstock face by means of flange through bolts. Working spindle of universal milling head is manually (hand crank) adjustable in two basic planes: vertical (axis C) and swivel (axis A). Required angle can be read from scales with 1 deg division, which are marked on respective parts of milling head. Working spindle of milling head is non-travelling. Tools are clamped into the working spindle taper manually.



Milling attachment: Universal UFP 50

Fastening of milling head on the milling machine:

- **Manual fastening of the head**

Manual fastening of the head on the machines WH(Q) 10 CNC, WHN(Q) 13 CNC, WHR 13 (Q) and WRD 13 (Q) is carried out by means of a lifting device. If the head is removed from the machine, a cover plate must be mounted on the headstock face to protect its attachment elements from dirt and damage.

- **Half-automatic fastening of the head**

Half-automatic fastening of the head on the headstock of WH(Q) 10 CNC, WHN(Q) 13 CNC, WHR 13 (Q) and WRD 13 (Q) machines is done from an auxiliary rack (SZP) using mounting screws and other handling means and accessories.

If the head is stored in the magazine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.



SZP



Milling attachment: Universal UFP 50

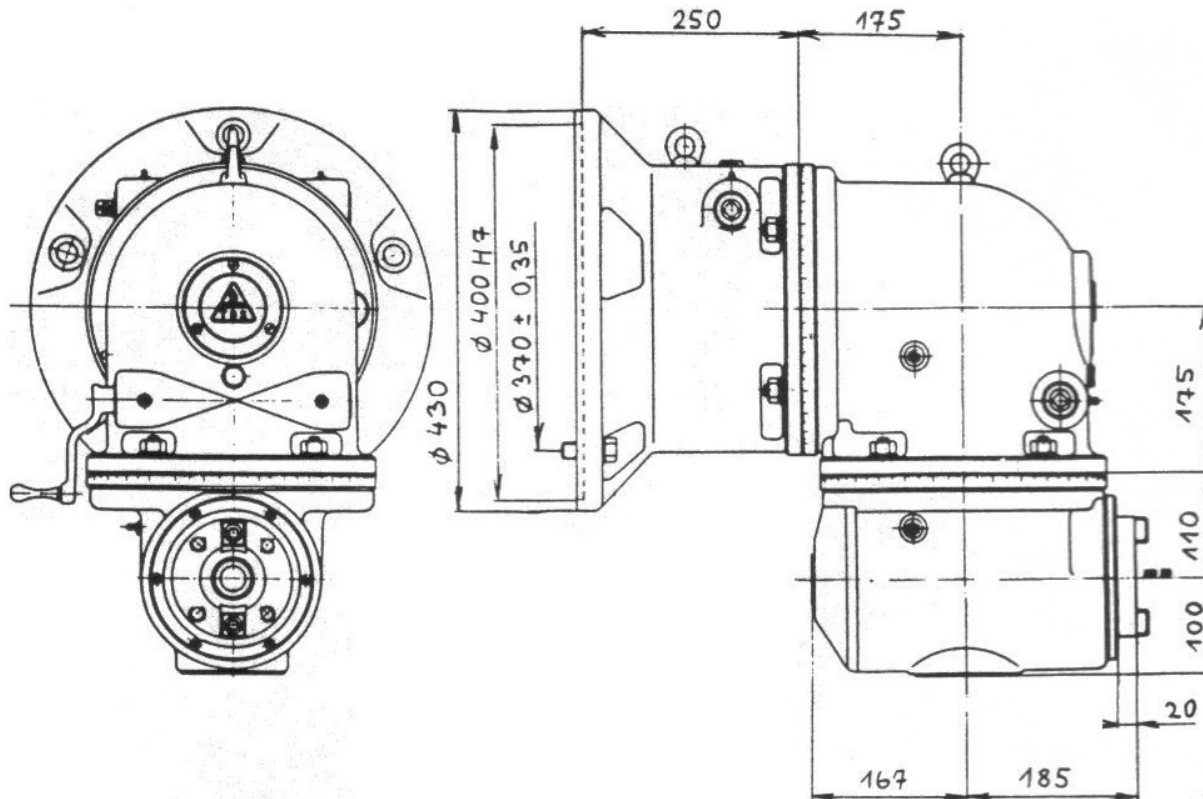
Basic technical parameters:

Spindle taper		ISO 50
Tilt angle max.		2 x 360°
Ratio of machine spindle speed and head spindles speed		1:1
Max. permitted speed of milling head spindle at torque 180 Nm	1/min	600
Max. torque at speed 100 rpm	kW	10
Max. power of head spindle	Nm	1 000
Centering dia of the milling head	mm	400 H7
Weight of the device	kg	cca 200

	UFP 50
WH(Q) 10 CNC	✓
WH(Q) 105 CNC	
WHN 110 (Q,MC)	
WHN 130 (Q,MC)	
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	
WRD 13 (Q)	✓
WRD 130/150 (Q)	
WRD 170 (Q)	
WRD 180 H	
GRATA	
WHT 110 (C)	
WHT 130 (C)	
WVM 2600/3600 T	

Milling attachment: Universal UFP 50

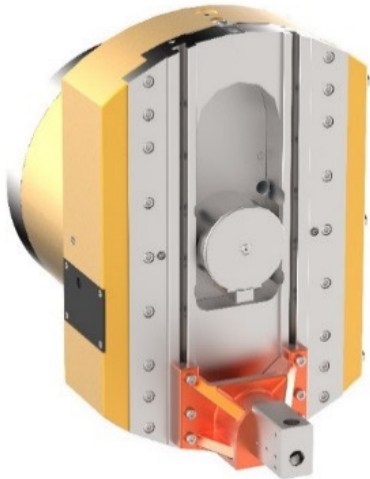
General design and arrangement:



Special accessories: Facing heads

Basic sorting of facing heads:

- [Facing head LD 650](#)

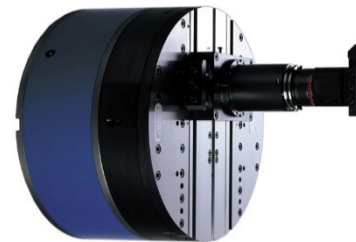
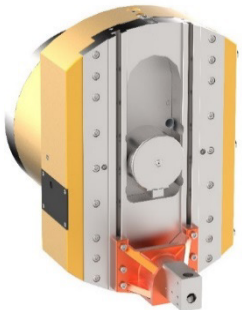


- [Facing head D'Andrea](#)



Assortment of facing heads

	LD 650	D'Andrea U-Tronic
WH(Q) 10 CNC	✓	
WH(Q) 105 CNC	✓	✓
WHN 110 (Q,MC)	✓	✓
WHN 130 (Q,MC)	✓	✓
WHN(Q) 13/15 CNC	✓	✓
WHR 13 Q	✓	✓
MAXIMA	✓	✓
WRD 13 (Q)	✓	✓
WRD 130/150 (Q)	✓	✓
WRD 170 (Q)		✓
WRD 180 H		✓
GRATA		✓
WHT 110 (C)	✓	✓
WHT 130 (C)	✓	✓



Facing head: LD 650

Facing head LD 650:

Facing head LD 650 is intended as special technological accessories for the horizontal boring mills, floor type milling machines and machine centres.

Basic technical description:

The facing head consists of the basic cylindrical body with a hole in its axis through which the machine spindle may pass and a crosswise traveling slide.

The slide (U-axis) is backlash free driven by the spindle travel with the transmission rate is 1 : 1.

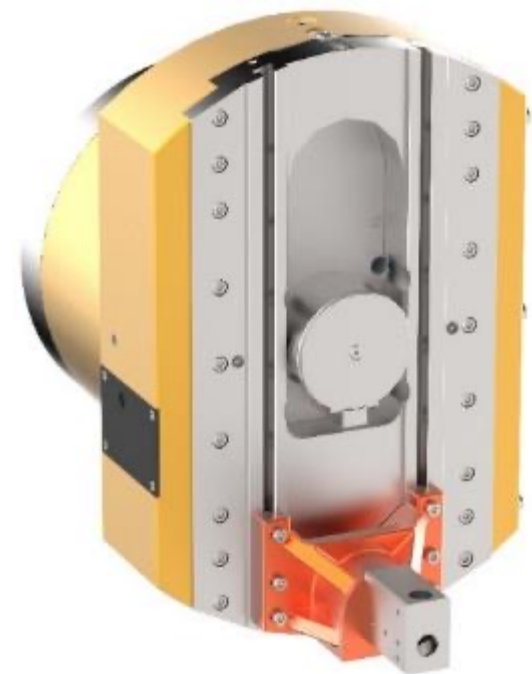
All the slide-driving mechanisms are inside the facing head's body except for the rack, which is clamped in the spindle taper.

Standardly the slider with clamping "T" grooves enables the attachment of a knife holder for clamping lathe \varnothing 25 mm.

The slide is possible to equip with other tool holders such as tool holder **Capto**, which allow clamping of a wide range of tools from companies using this system.

[Set of tool holders Capto](#) – sizes **C5, C6, C8**

At the basic position of the slide, removed output mechanism of the drive mechanism and removed blade holder, the machine spindle can be used for machining.



Facing head: LD 650

Fastening of facing head on the machine:

- **Manual and half-automatic fastening**

Manual fastening of on the machines WH(Q) 10 CNC, WH(Q) 105 CNC, WHN 110 (Q,MC), WHN 130 (Q,MC), WHN(Q) 13/15 CNC, MAXIMA, W HR 13 (Q), WRD 13 (Q), WRD 130/150(Q), WHT 110 (C) and WHT 130 (C) is carried out by means of a lifting device.

For application of the facing head, there is also a variant for semi-automatic attaching mode using an auxiliary rack (SZP), where after the automatic entering of the machine hollow spindle into the facing head centering hole, the facing head is manually fastened with 4 screws.

If the facing head is removed from the machine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.



SZP



Facing head: LD 650

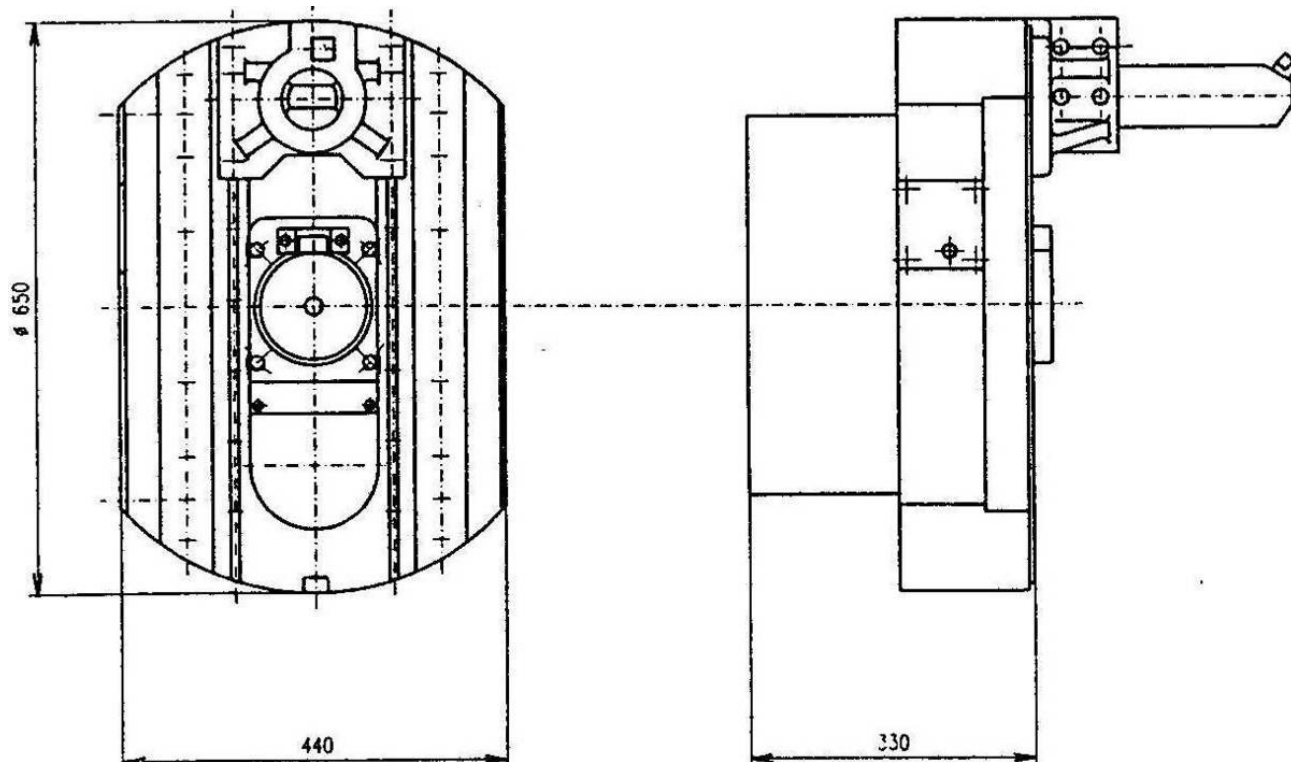
Basic technical parameters:

Facing head diameter	mm	650
Slide travel (U axis)	mm	170
Facing head speed max.	1/min	150
Spindle speed max. with facing head on	1/min	200
Max. využitelný krouticí moment	Nm	3 322
Feed range of facing head slide	mm/min	1 – 1 000
Rapid traverse of the slide	mm/min	1 000
Dimension/pitch of the clamping T-slots	mm	12 H11 / 180
Max. diameter of face turning	mm	1 000
Boring diameter range	mm	300 – 1 000
Cylindrical surface machining accuracy		IT 7
Total weight	kg	200

	LD 650
WH(Q) 10 CNC	✓
WH(Q) 105 CNC	✓
WHN 110 (Q,MC)	✓
WHN 130 (Q,MC)	✓
WHN(Q) 13/15 CNC	✓
WHR 13 Q	✓
MAXIMA	✓
WRD 13 (Q)	✓
WRD 130/150 (Q)	✓
WRD 170 (Q)	
WRD 180 H	
GRATA	
WHT 110 (C)	✓
WHT 130 (C)	✓
WVM 2600/3600 T	

Facing head: LD 650

General design and arrangement:



Set of tool holders Capto

Set of tool holders Capto:

Set of tool holders with Capto clamping system is designed as a special technological accessory for the LD 650 facing head produced by TOS Varnsdorf a.s. Thanks to the Capto clamping system, a variety of modern and highly productive tools from companies using this clamping system (eg Sandvik or Walter) can be clamped onto these holders.

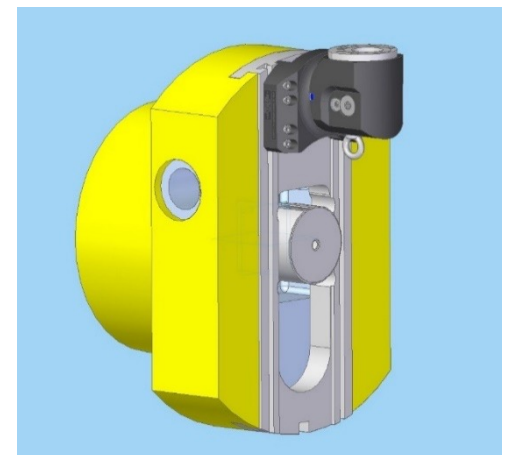
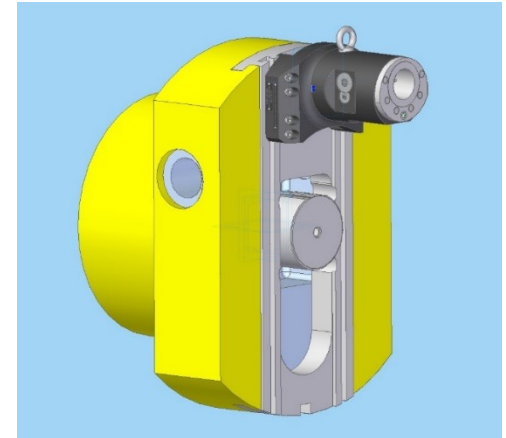
Basic technical description:

On standard console of facing head LD 650 can be used clamping system **Capto** with **C5** clamping cavity.

For bigger sizes of clamping cavity, the LD 650 facing head can be equipped with a special console with **Capto C6** or **C8**.

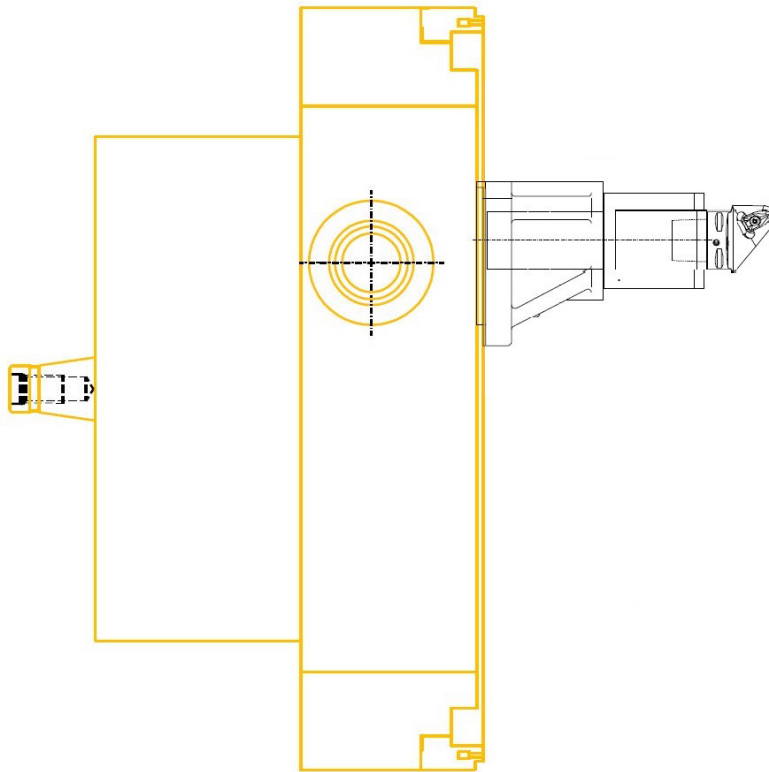
The tool holder can be set up in two different ways
- axially or radially (see diagram).

Optional tool holders of different lengths can also be produced on request according to the customer's technological needs.

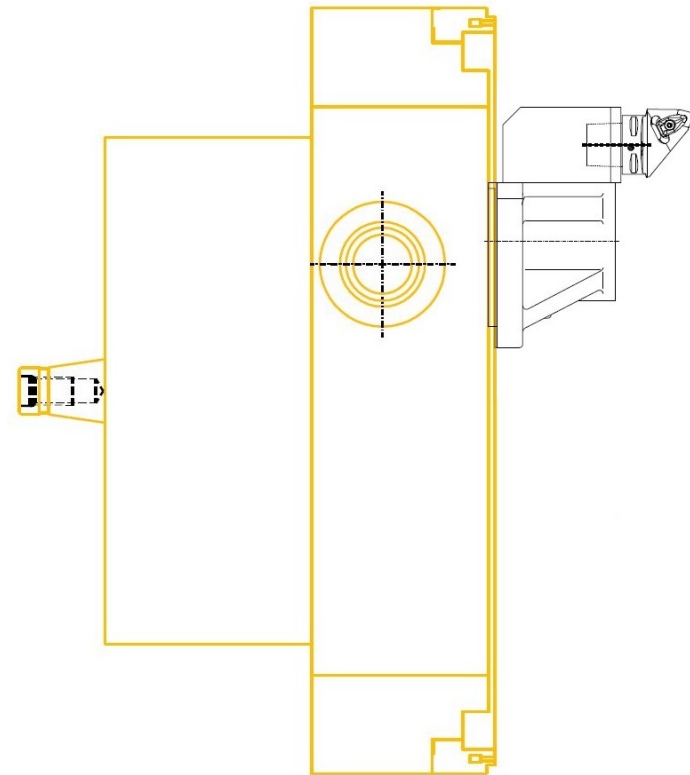


Set of tool holders Capto

Set-up scheme - Capto C5:



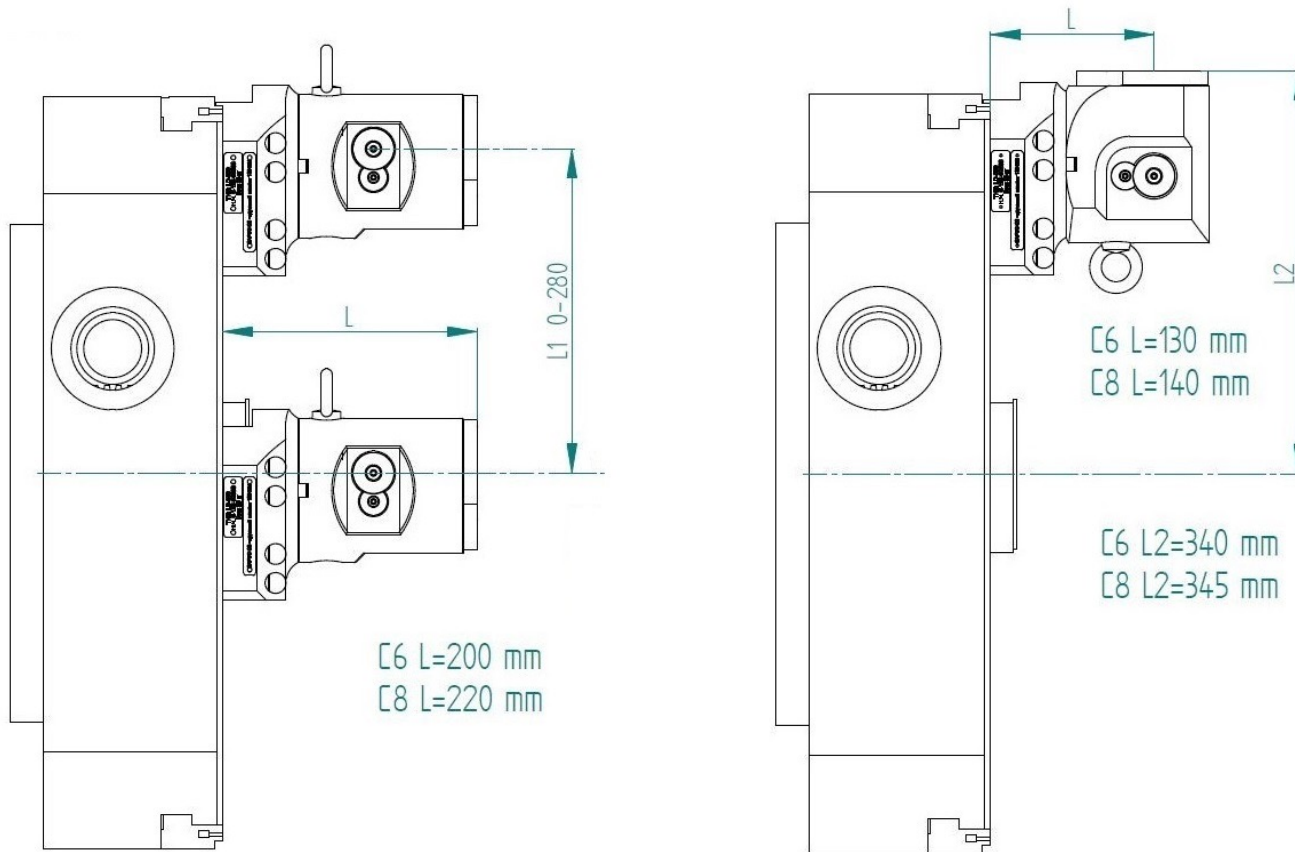
Axial design



Radial design

Set of tool holders Capto

Set-up scheme – Capto C6 , C8:

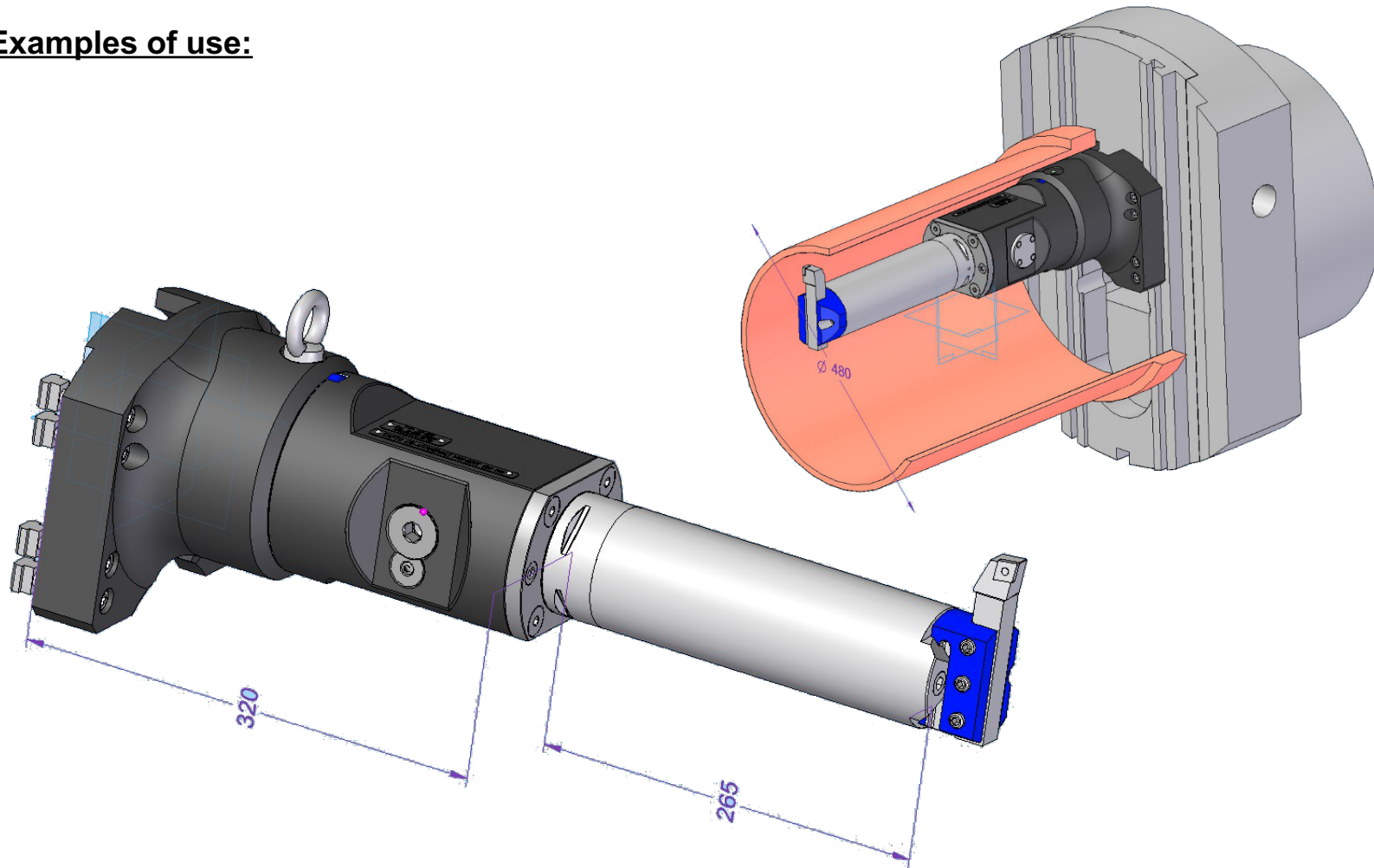


Axial design

Radial design

Set of tool holders Capto

Examples of use:



Facing head: D'Andrea U-Tronic

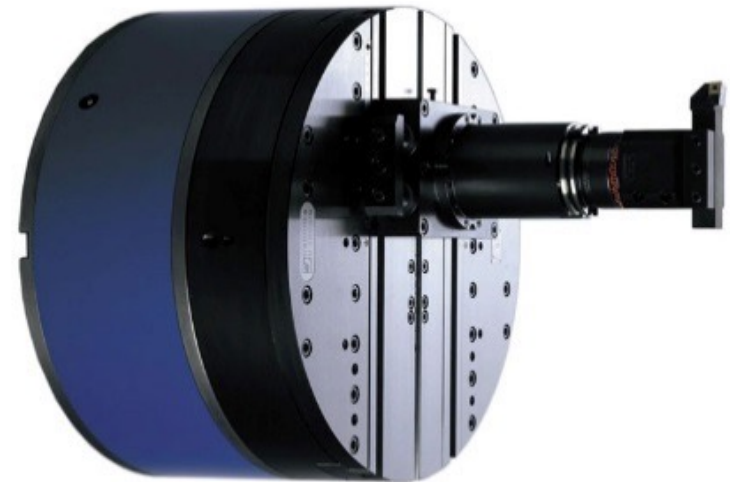
Facing head D'Andrea U-Tronic:

D'Andrea U-Tronic facing head has been designed as a special technological accessory for the horizontal boring mills, floor type milling machine and machine centres.

Basic technical description:

U-TRONIC are medium and large sized CN heads that are connected to the U axis

of the CNC in the tooling machine for outer facing, inner facing, back-facing, cylindrical and conical boring and threading, concave and convex radius machining through the interpolation with the other axes of the tooling machine. They can be applied manually or automatically and with pallet systems on boring machines, machining centres and special machines. They are constructed in 6 standard models from $\varnothing 360$ to $\varnothing 1000$ mm. All these include an internal passage for coolant. Special versions of U-TRONIC up to 1600 in diameter, with two slides or with counterweights for self-balancing, may be supplied if required. Fixed tool holders may be applied to the slide, with either manual or automatic tool changers.



Note. For customer request it's possible to deliver other type of facing head D'Andrea (TA-Center, TA-Tronic)

Facing head: D'Andrea U-Tronic

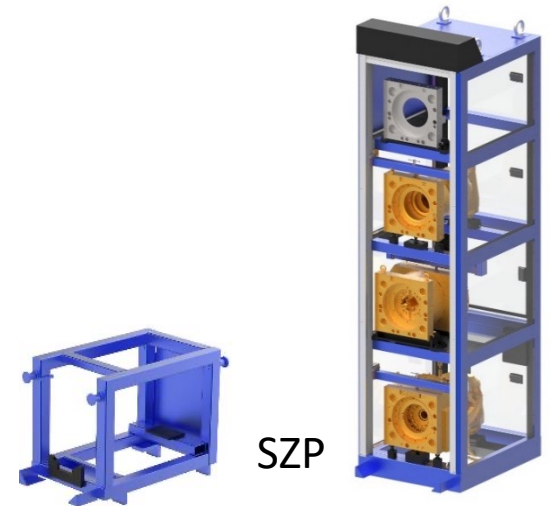
Fastening of facing head on the milling machine:

- **Manual and half-automatic fastening**

Manual fastening of the head on the machines WH(Q) 105 CNC, WHN 110/130 (Q, MC), WHN(Q) 13/15 CNC, WHR 13 (Q), MAXIMA is carried out by means of a lifting device.

For application of the facing head, there is also a variant for semi-automatic attaching mode using an auxiliary rack (SZP), where after the automatic entering of the machine hollow spindle into the facing head centering hole, the facing head is manually fastened with screws.

If the facing head is removed from the machine, a cover plate must be mounted on the headstock face to protect its clamping elements from dirt and damage.

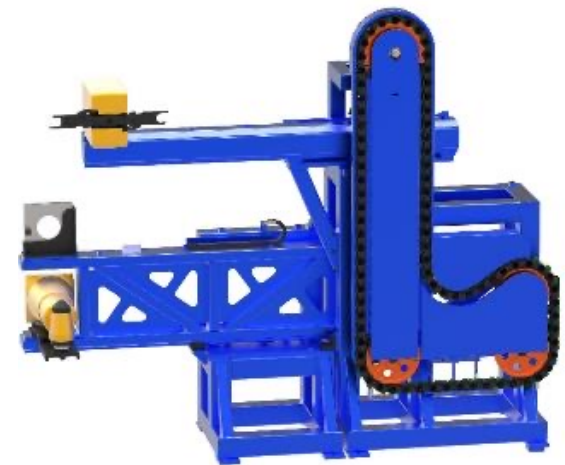


- **Automatic fastening**

Fastening of the facing head on the machines WHN(Q) 13 / 15 CNC, WHN 130 (Q, MC), WRD 13 (Q), WHR 13 (Q), WRD 130/150 (Q), WRD 170 (Q), WRD 180 H, MAXIMA, GRATA, WHT 110 (C), and WHT 130 (C) is also carried out automatically.

The machines must then be equipped with a device for automatic fastening / removal of the head on / from the machine, which consists mainly of a technological accessories magazine (ACSA / SZP) designed according to the specific purpose of use and a cover plate of the headstock face, which serves to protect its clamping and attachment elements from dirt and damage when the head is stored in the magazine.

The headstock of the machine must always be equipped with an adaptation for automatic exchange of special accessories (UPPT).



ACSA

Facing head: D'Andrea U-Tronic

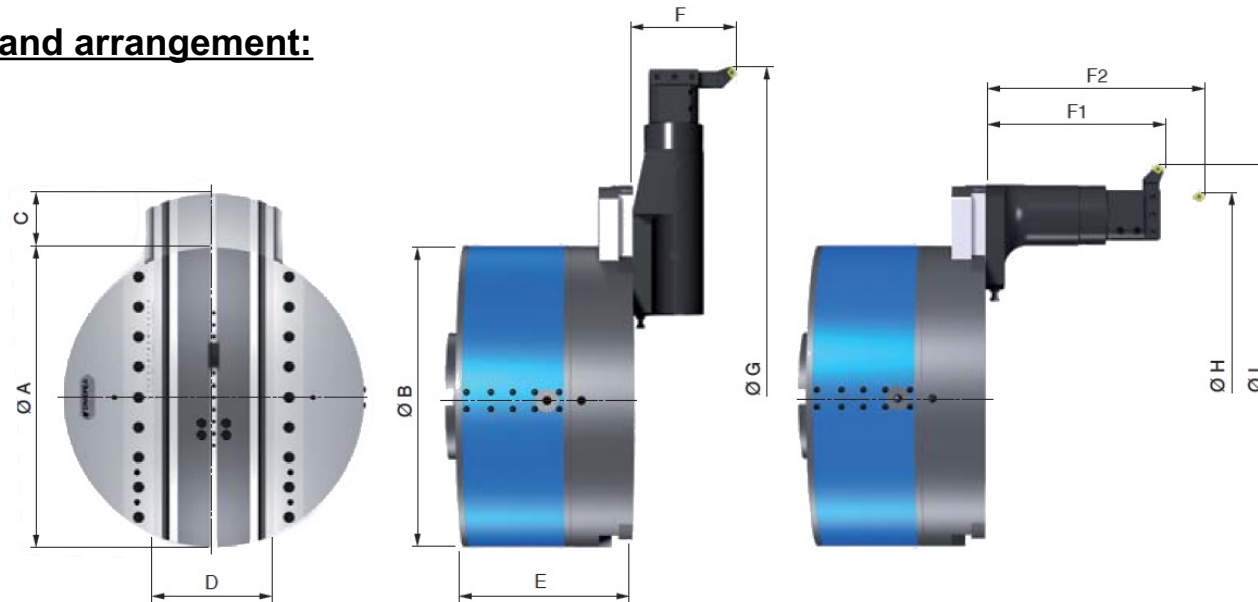
Basic technical parameters:

		UT 3-360 S	UT 5-500 S	UT 5-630 S	UT 5-800 S	UT 8-800 S	UT 8-1000 S
Facing head speed max.	RPM	500	315	250	200		160
Total weight	Kg	130	230	310	530	1 000	1 200
Radial force	N	4 000	5 000			10 000	
Torque	Nm	4 000	8 000			10 000	
Boring accuracy		H7					
Rapid traverse	mm/min	400				500	

D'Andrea U-Tronic	UT3-360S	UT5-500S	UT5-630S	UT5-800S	UT8-800S	UT8-1000S
WHQ 105 CNC	✓					
WHN 110 CNC	✓	✓	✓			
WHN 130 CNC	✓	✓	✓			
WHQ 13/15 CNC	✓	✓	✓			
WHR 13 (Q)	✓	✓	✓			
WRD 13 (Q)	✓	✓	✓			
WRD 130/150 (Q)	✓	✓	✓	✓		
MAXIMA	✓	✓	✓	✓		
WRD 170 (Q)	✓	✓	✓	✓	✓	✓
WRD 180 H	✓	✓	✓	✓	✓	✓
GRATA	✓					
WHT 110 (C)	✓					
WHT 130 (C)	✓	✓	✓			

Facing head: D'Andrea U-Tronic

General design and arrangement:



		UT 3-360 s	UT 5-500 S	UT 5-630 S	UT 5-800 S	UT 8-800 S	UT 8-1000 S
Ø A	mm	360	500	630	800		1 000
Ø B	mm			500		800	
C - Slide travel (U axis)	mm	120	160	200	250	280	350
D	mm	154,6	199,6		230	250	260
E	mm	235	278,5	282	370	410	415
Ø G X F	mm	800 X 140	1 000 X 150	1 250 x 150	1 400 X 150	1 600 x 160	2 000 X 160
Ø H X F2	mm	400 X 400	560 X 540	700 x 540	830 X 540	850 X 860	1 050 X 860
Ø I X F1	mm	670 X 240	850 X 295	1 050 x 295	1 300 x 295	1 250 X 370	1 600 X 370

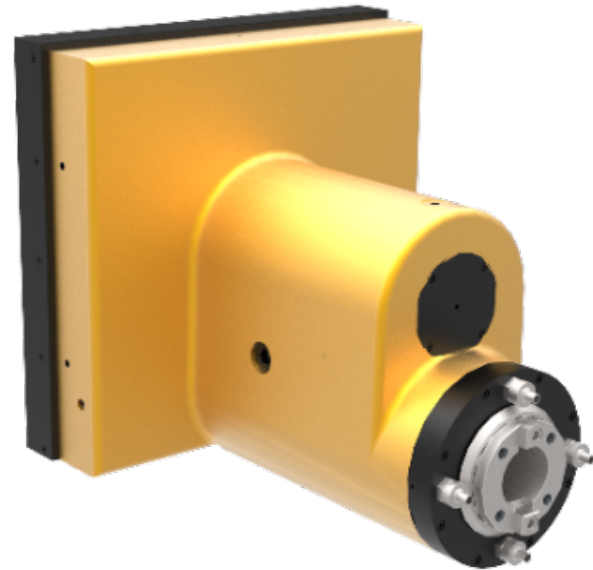
Spindle attachment: VNK 560, VND 800

Spindle attachments:

The spindle attachment replaces the working spindle of the GRATA and WVM 2600/3600 T machines.

The body of the attachment contains complete mechanisms of driving and housing the working spindle (in precise spindle bearings). Lubrication of the attachment bearing is performed as a permanent grease. The attachment prolongs the reach of the quill traverse.

Depending on the technological needs, it is possible to choose either the short design VNK 560 or the long design VND 800.

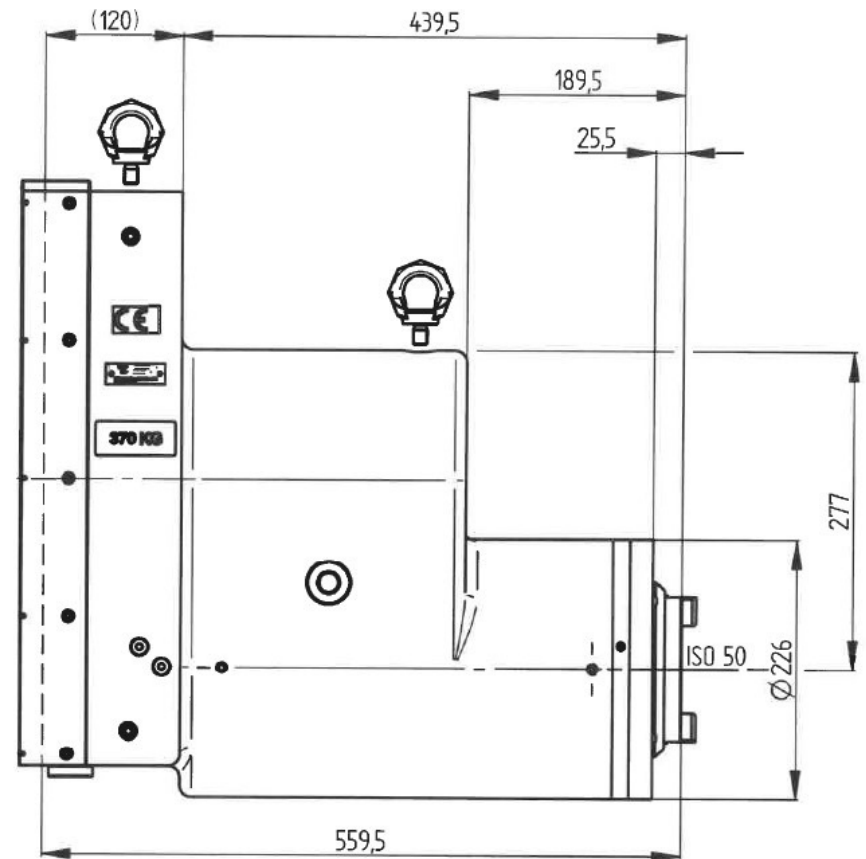
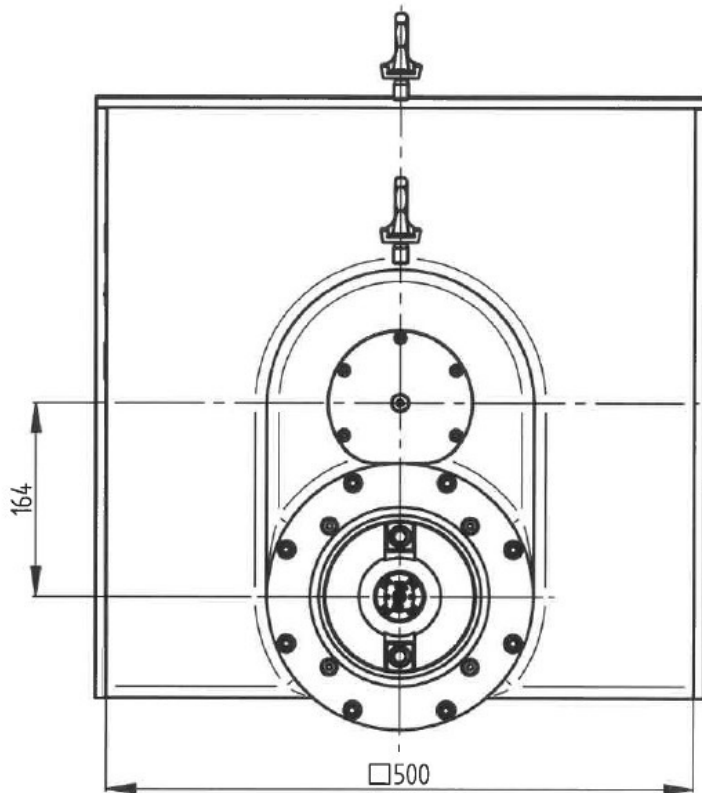


Basic technical parameters :

Spindle taper		ISO 50	
Max. speed	1/min	5 000	
Max. transmitted power	kW	37	
Max. torque	Nm	1 200	
Coolant supply via the external nozzle	MPa	0,3	
Coolant supply through the tool axis	MPa	1 -7	
Tool clamping force	kN	20	
Pressure required to release the tool	MPa	5,5	
Total length	mm	560	800
Total weight	kg	360	420

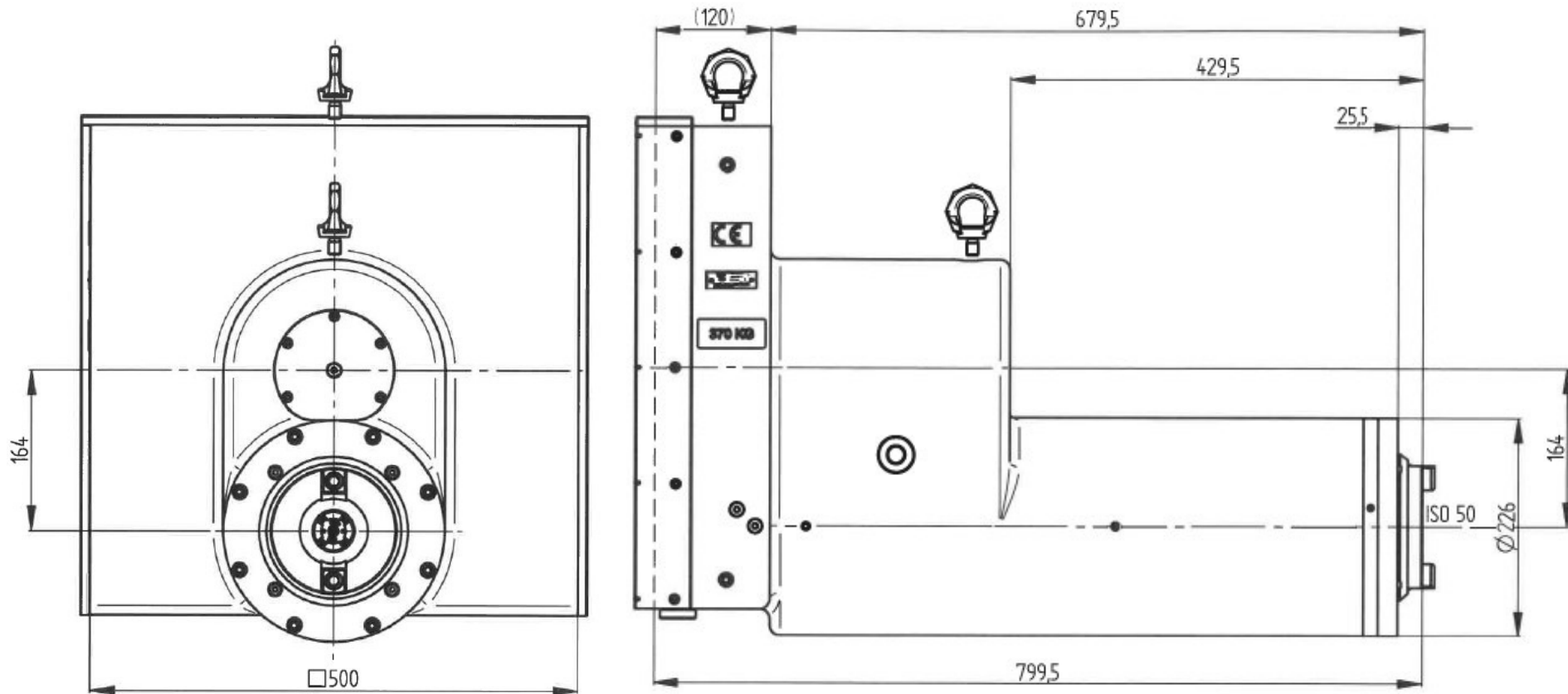
Spindle attachment: VNK 560, VND 800

General design and arrangement VNK 560:



Spindle attachment: VNK 560, VND 800

General design and arrangement VND 800:



Turning attachments

Turning attachments

For machining centers, it is possible to equip the machine with a carousel table and turning attachment, which makes it possible to perform lathe operations.

Application Example:

Turning attachments for WHT 110/130 (C)

- Tool clamping using the Capto C8
- Adapted for cooling trough spindle axis
- Attachment to the machine is performed automatically using the ACSA system or SZP

Note: : This attachment is particularly suitable for turning the vertical circumferential surface.
Partially allows turning of the horizontal surface.

At the customer's request, other variants of turning attachments can be supplied as required by the technology.



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