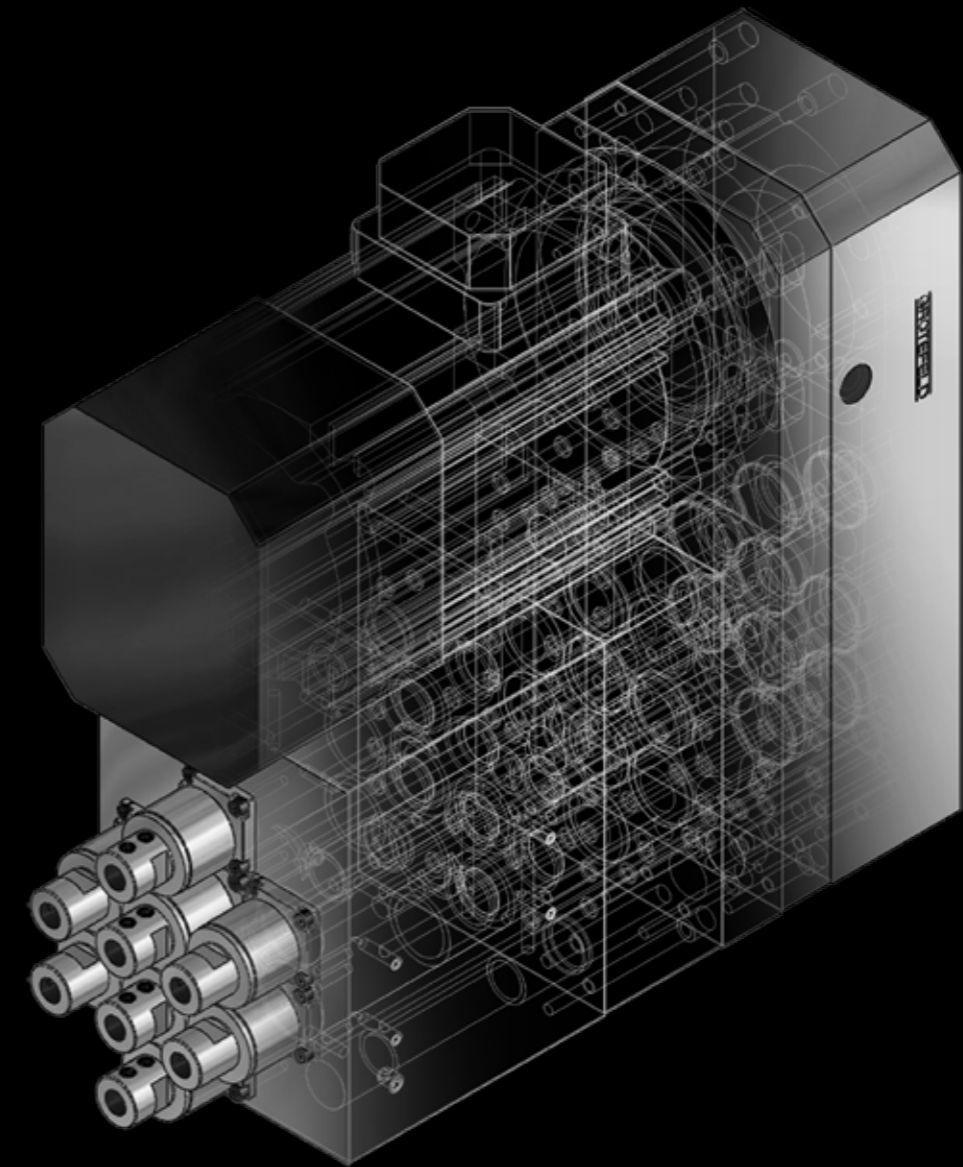


GROTEFELD

The driving force.



GROTEFELD

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Item group 09

drilling gears with preadapted spindles

for the woodworking, plastics processing and aluminium processing industries and for the trades



The driving force.

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Our sortiment contains the following Item groups.:

- 01 drilling units, drilling spindles, driving units, multi spindle drilling gears, sawing-, milling units and milling spindles
- 03 aggregates, tracing units, drive adapter
- 09 drilling gears with preadapted spindles and slewing units

Withins these catalogues you will find our standard program, which will match a couple of demands. It is not a rareness, to have some special demands, which we are able to solve. Just contact us.

Our products correspond to the national and to the CE-regulations 89/392/EWG, enclosure II B, for machines to installed into.

With our products we offer high-tech solutions and we would be proud to come in a business partnership with you.

We pursue our goal, producing high quality machining for the woodworking-, plastic- and aluminium Industry since over 50 years. We started the company in developing and producing complete machines for the woodworking industry.

Also in this time we started with developing and producing angular units for those machines and for CNC routers. Even with direct customers contact, machinery leaders and users all over the world GROTEFELD became a well known status as specialist and partner. GROTEFELD aggregates solve a variety of tasks and applications due to high precision, uncompromisingly quality, great engineering and durability. For every application there is the right aggregate. Economically advantageous use is coupled with a fair price.

This is the catalogue for GROTEFELD angular heads, tracing spindles and adapters. We want to give you a well done, clear and significant working sheet, which is done without unnecessary words and phrases in order to give you technical information.

Dear Reader,

as you know, even the best technology is subject to a constant process of further development and change, but we will keep you up-to-date with the latest state of the art. This catalogue provides an insight into our product range.

This catalogue is intended as a source of ideas, not as a list of article numbers. It is designed to arouse your interest in the wealth of varieties in which our products are available and to give you some idea of just what can be achieved today. Let us advise you. One thing you can be sure of is that we will also find a technically and economically optimum solution for you, too.

For more than 50 years we have carried the GROTEFELD philosophy in our hearts. We live, think and breathe GROTEFELD. And we are proud of the results.

We produce almost everything ourselves with our ultra-modern machinery, for the quality of the end-product is decisive. And that encompasses everything from engineering design (3D-CAD systems) through manufacture (CNC machines) to assembly. Our vertical integration is now over 90%. Only DIN parts, such as screws and bolts, ball bearings and electric motors, are still purchased as merchandise from selected premium suppliers.

Our quality control department is equipped with the very latest measuring instruments and test benches which we have developed ourselves in order to guarantee the outstanding quality of our products.

In addition, we offer a service ensuring that your production process runs smoothly and safeguards your investments.

Our experience forms the basis for your success in the long term. Make use of our capacities!

Best regards,

Carsten Clauder

	DBE1	DBE3
gear	wheels	wheels
Tool receptacle	r.h.	r.h./l.h.
Spindle lines max.	2	2
Spindle distance	min. 25mm	≥ 32mm
Holding stroke	40-100mm	40-100mm
Number of drive motors	any	any
Type	R/B/T/L	R/B/T/L
Horizontal spindle possible	yes	yes
Spindle turning direction	1.000 to 4.725 rpm	1.000 to 8.600 rpm

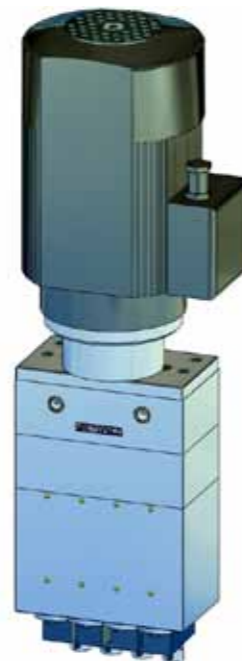
	DBE22	TBE3	TBE20
gear	wheels	toothed belts	toothed belts
Tool receptacle	r.h./l.h.	r.h.	r.h.
Spindle lines max.	any	2	any
Spindle distance	≥ 32mm	≥ 32mm	≥ 32mm
Holding stroke	40-100mm	40-100mm	40-100mm
Number of drive motors	any	any	any
Type	R/B/T/L	R/B/T/L	R/B/T/L
Horizontal spindle possible	yes	yes	yes
Spindle turning direction	1.000 to 8.600 rpm	1.000 to 8.600 1/rpm	1.000 to 8.600 1/rpm

DBE1
Drilling spindle units

The drilling spindle unit series DBE1 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by wheels; all the spindles are turning right. Therefore, these units are also suitable for processing metal materials.

Each single spindles can be submitted 50mm, units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 25mm.

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DBE3
Drilling spindle units

The drilling spindle unit series DBE3 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by wheels.

Each single spindle can be submitted 50mm; units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

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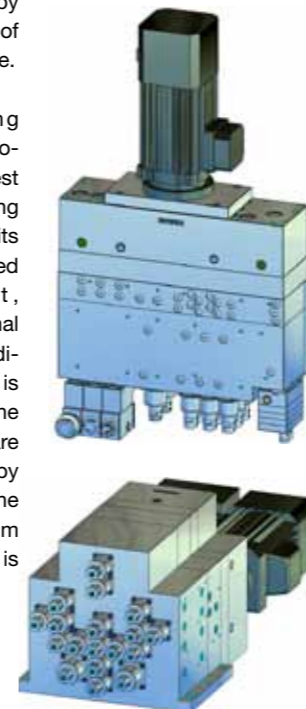
DBE22
Drilling spindle units

The drilling spindle unit series DBE22 are designed for the use in CNC machines and offer the possibility to arrange more than 2 rows in a distance ≥ 32mm. Almost all drill patterns can be realized to customer specification.

The vertical drilling spindles can be combined with horizontal and vertical drilling gears with drilling distances ≥ 16mm. Each single spindle can be submitted 50mm; units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine.

Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm. The units are driven by wheels, the maximum speed is 8600 rpm.

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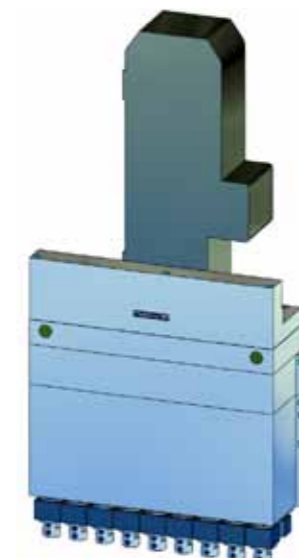


TBE3
Drilling spindle units

The drilling spindle unit series TBE3 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by toothed belts. Each single spindle can be submitted 50mm; units with longer stroke are available on request.

The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

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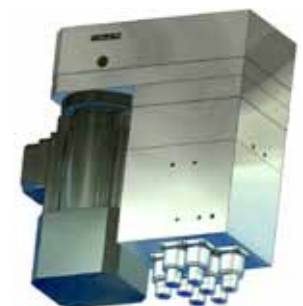
TBE20
Drilling spindle units

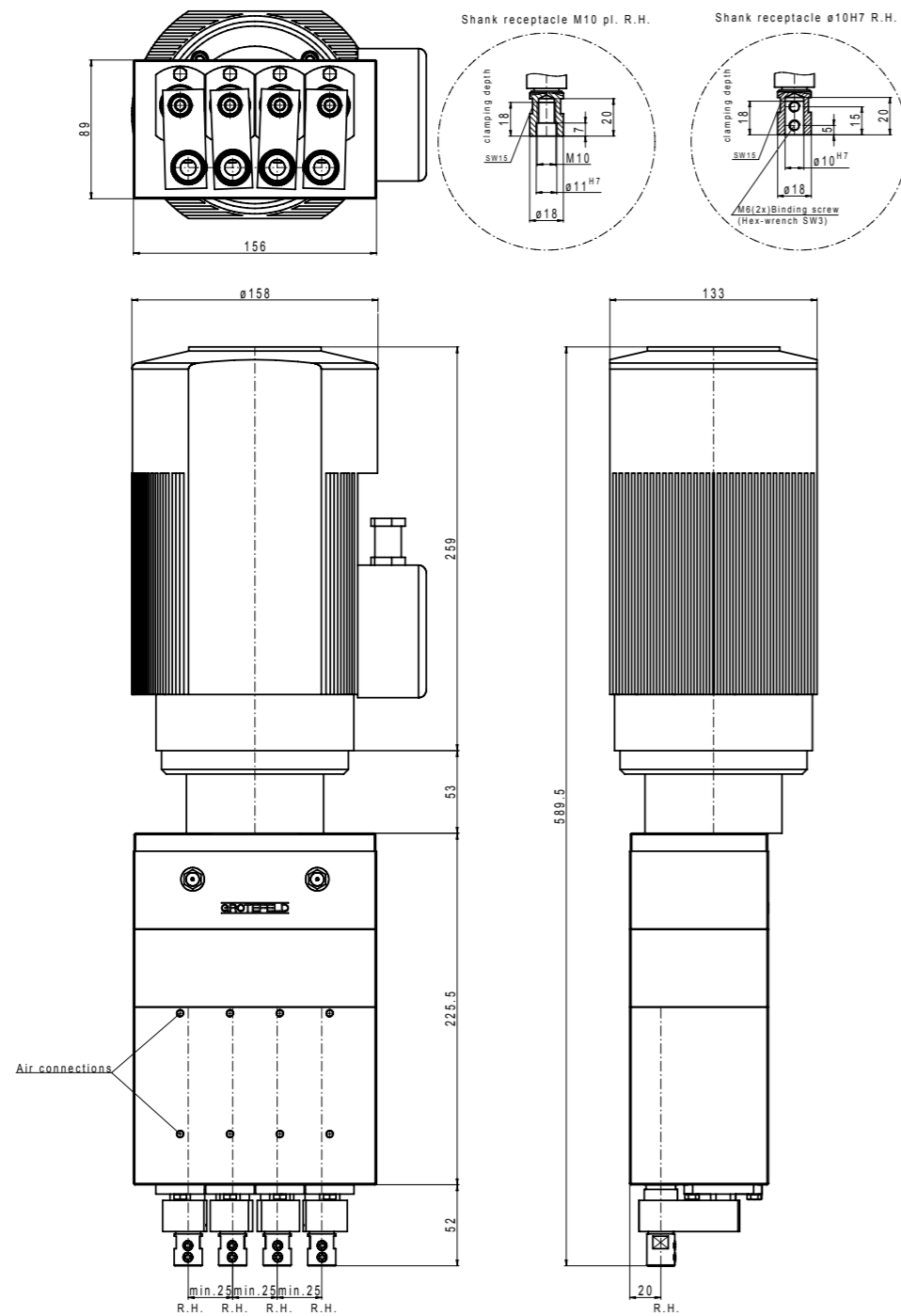
The drilling spindle unit series TBE20 are designed for the use in CNC machines and offer the possibility to arrange more than 2 rows in a distance ≥ 32mm. Almost all drill patterns can be realized to customer specification.

The units are driven by toothed belts, all the spindles are turning right. The vertical drilling spindles can be combined with horizontal and vertical drilling gears with drilling distances ≥ 16mm. Each single spindle can be submitted 50mm; units with longer stroke are available on request.

The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm. The maximum speed is 8600 rpm.

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Technical features

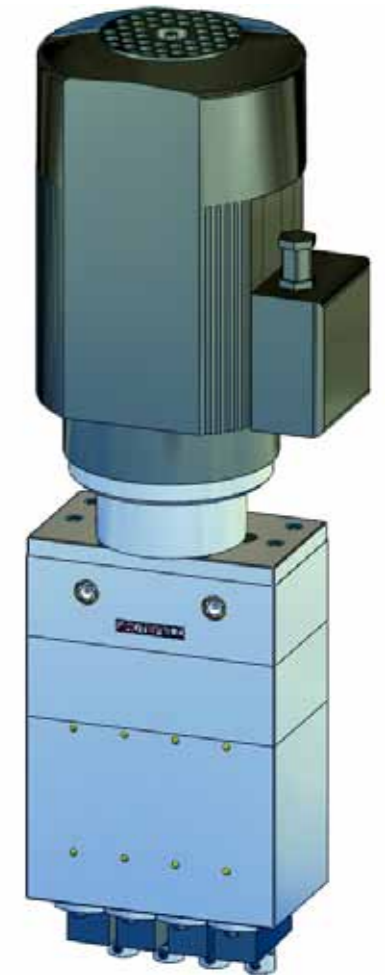
Item Id.	095121
drive turning direction	R.H.
drive speed max.	permanent operation 4.200 rpm at 75Hz
number of spindles	4
spindle position	vertical / in series
tool receptacle	ø10H7
gear ratio	1 : 1,125 - gear driven
turning direction of tool receptacle	R.H.
spindle speed max.	permanent operation 4.725 rpm at 75Hz
drive capacity	2,2 kW
weight	approx. 25,00 kg

Optional accessories:

Open end spanner SW15	Item Id. 131001
Hex-wrench SW3	Item Id. 138030
Lubrication press	Item Id. 980003

The drilling spindle unit series DBE1 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by wheels, all the spindles are turning right. Therefore, these units are also suitable for processing metal materials. Each single spindle can be submitted 50mm, units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 25mm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.



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Magnetic valves

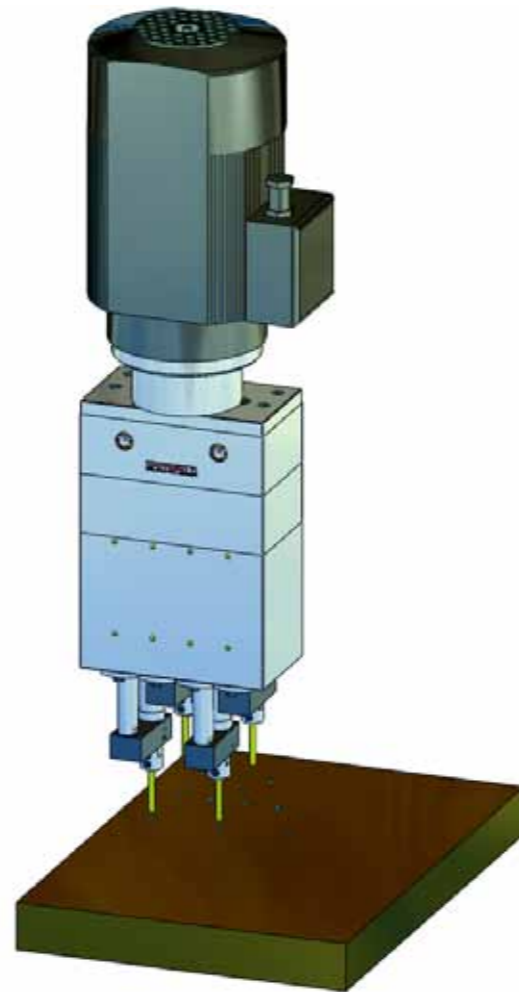
The single row drilling units of the series DBE1 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

Screw mounting surfaces and mounting holes

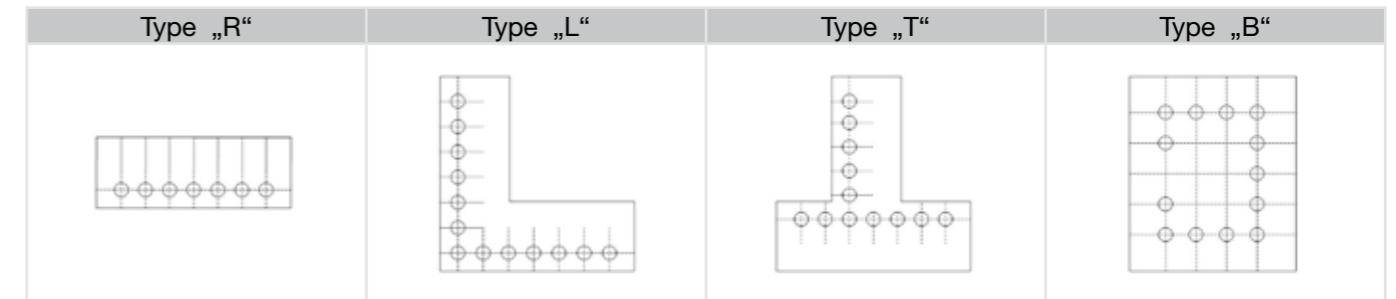
At single row drilling units the spindle side and the ends of the housing are available as mounting surface. You must specify in your order, whether and at which of the available sides you want to have mounting screw holes. For units with other drilling patterns, additional sides are available as mounting surface.

The necessary holes can be mounted on all housing sites which are not provided with air connection holes. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type DBE1 can be formed in various shapes. The standard form is a single row of drilling spindle unit (R-form). The following table below shows possible designs of the series DBE1.



With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.2 kW. The drive power is transmitted through a coupling over a gear drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if no special requests are mentioned.

Spindle types

The following spindles in DBE1 gear units can be used.

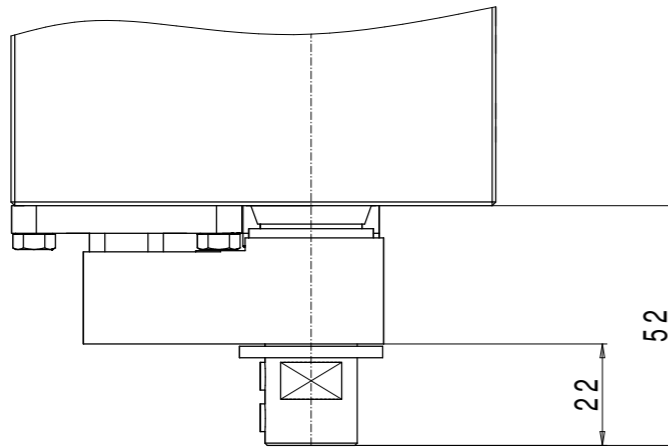
Bezeichnung	Typ	Werkzeugaufnahmen		Drehrichtung	
				Spindel	Werkzeug
Vertical spindle	SPVT	ø10H7	M10 plane	r.h.	r.h.
Horizontal spindle	SPHO	ø10H7	M10 plane	r.h.	r.h. / l.h.
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	ø20x1,5-5,0+M10 plane	r.h.	r.h. / l.h.
Vertical drilling gear	BGVT	ø8H7/ø10H7-A 16,0 mm	M8/M10plane-A 16,0mm	r.h.	r.h. / l.h.

The available spindle types can be combined in any form, taking account the areally conditions of the unit.

Technical features

Item Id.	712101
Shank receptacle	ø10 H7
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Drive capacity	2,2 kW

The drilling receptacle of the series DBE1 is ø10H7. Also available is a receptacle with M10 plane.



Technical features

Item Id.	714101
Shank receptacle	ø10 H7 R.H./L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
gear ratio	1:1
drive capacity	1,7kW

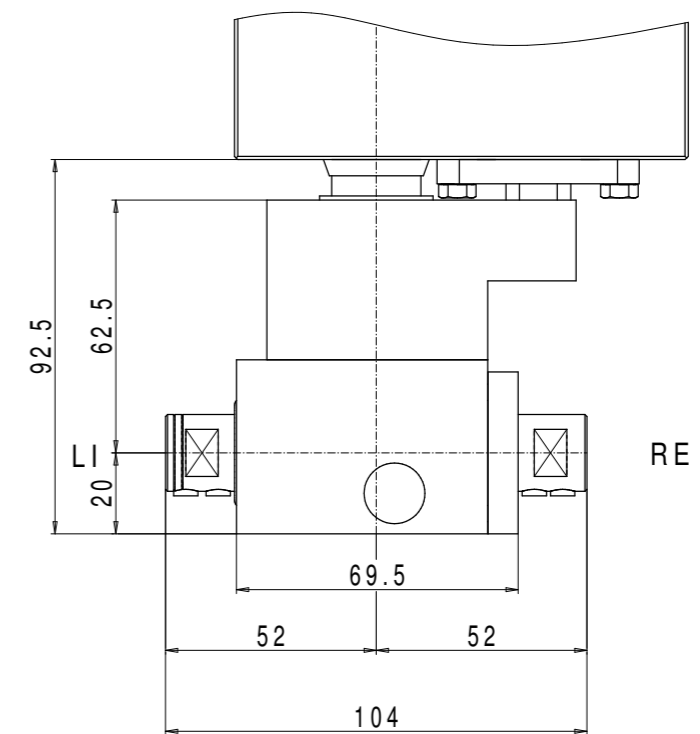
The drilling receptacle of the series DBE1 is ø10H7. Also available is a receptacle with M10 plane.

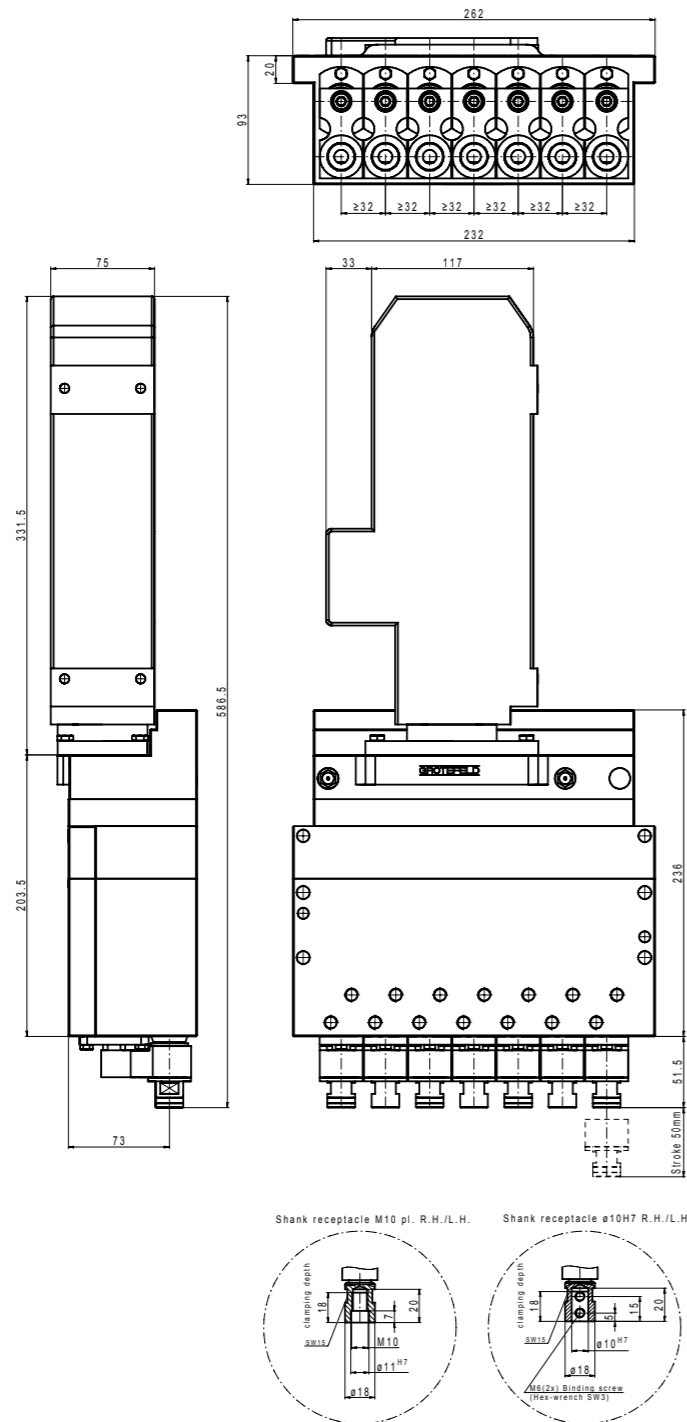
The horizontal spindles (SPHO) are suitable for all controllable drilling spindle units (DBE1) with 32 mm spindle distance or more.

The horizontal drilling spindles can be combined with the Vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.

One of the two shank receptacles turns right, the opposite shank receptacle left.

Spindles for distances ≥ 25 mm on request.





Technical features

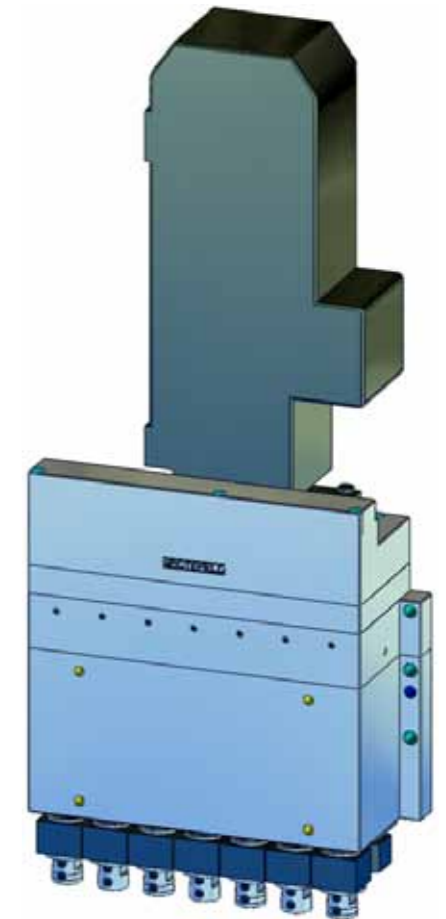
Item Id.	099351	
drive turning direction	R.H.	
drive speed max.	permanent operation	8.550 rpm
number of spindles	7	
spindle position	vertical / in series	
tool receptacle	10H7	
gear ratio	1 : 1 - gear driven	
turning direction of tool receptacle	3x r.h. 4x l.h.	
spindle speed max.	permanent operation	8.550 rpm
drive capacity	1,1 kW	
weight	27,50 kg	

Optional accessories:

Open end spanner SW15	Item Id. 131001
Hex-wrench SW3	Item Id. 138030
Lubrication press	Item Id. 980003

The drilling spindle unit series DBE3 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by wheels. Each single spindle can be submitted 50mm, units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.



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Magnetic valves

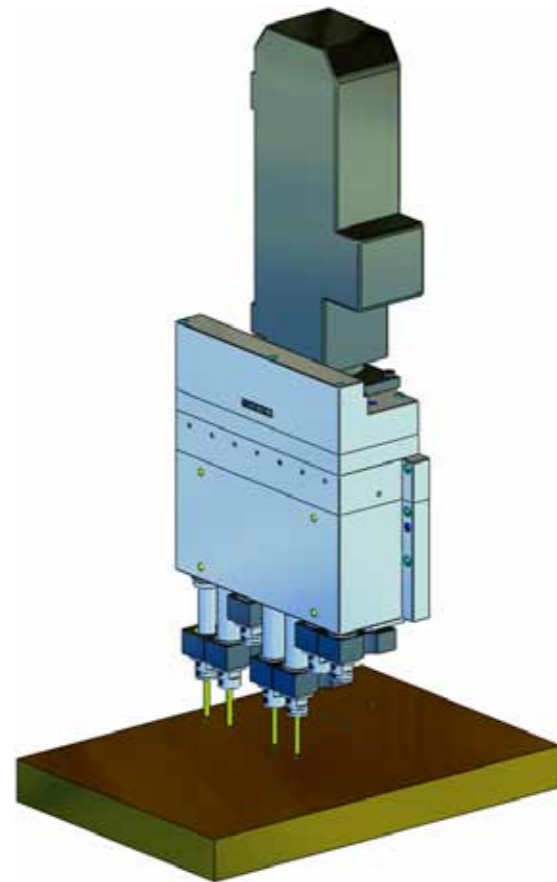
The single row drilling units of the series DBE3 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

Screw mounting surfaces and mounting holes

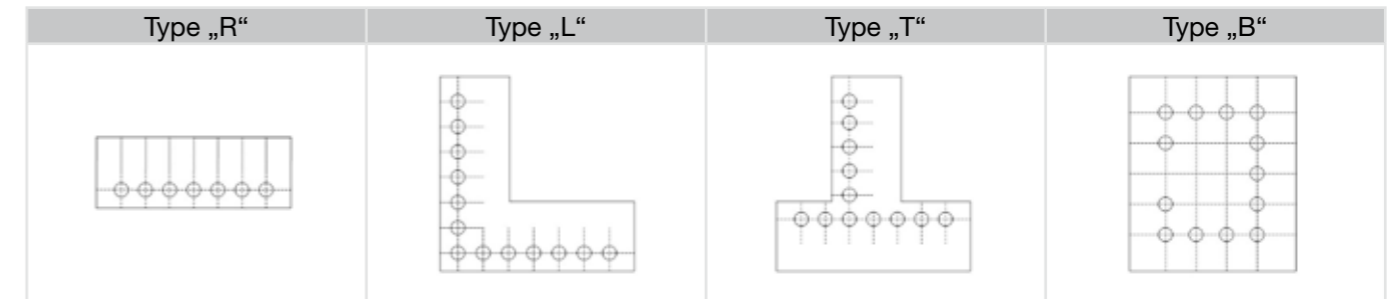
At single row drilling units the spindle side and the ends of the housing are available as mounting surface. You must specify in your order, whether and at which of the available sides you want to have mounting screw holes. For units with other drilling patterns, additional sides are available as mounting surface.

The necessary holes can be mounted on all housing sites which are not provided with air connection holes. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type DBE3 can be formed in various shapes. The standard form is a single row of drilling spindle unit (R-form). The following table below shows possible designs of the series DBE3.



With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

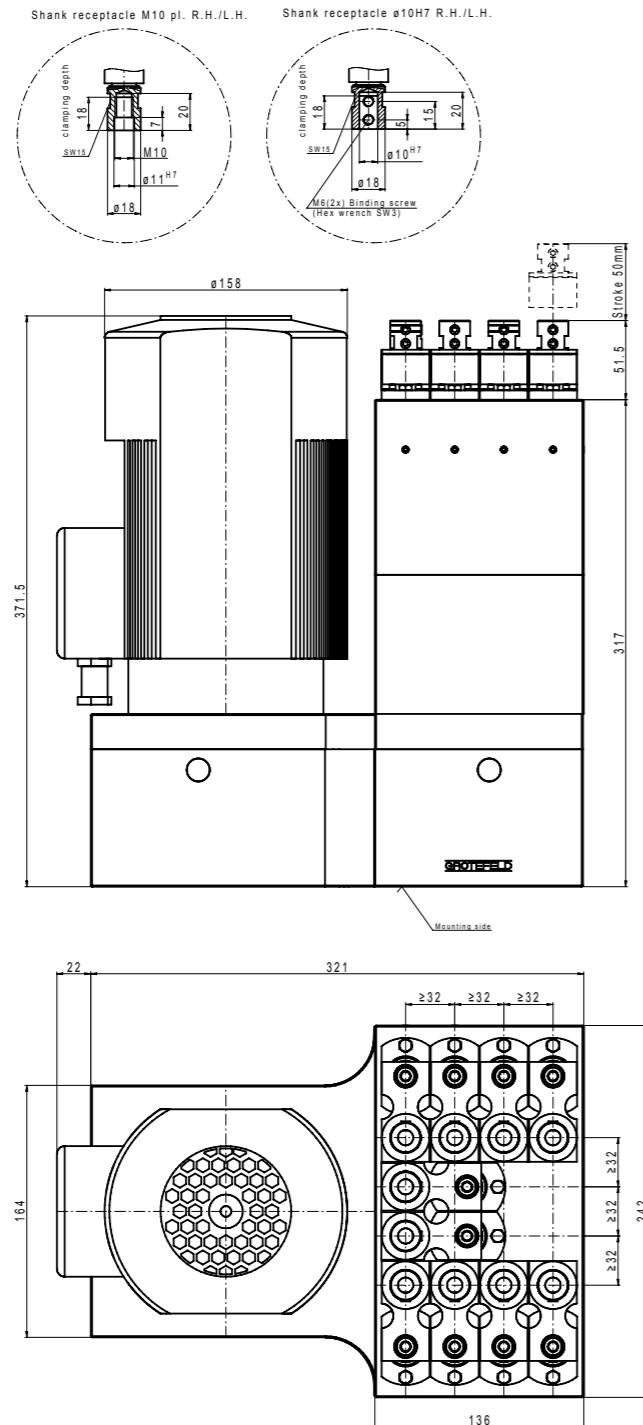
The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a gear drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if no special requests are mentioned.

Spindle types

The following spindles in DBE3 gear units can be used.

Name	Type	Tool receptacle	
Vertical spindle	SPVT	ø10H7	M10 plane
Horizontal spindle	SPHO	ø10H7	M10 plane
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	ø8H7/ø10H7-A ≥ 16,0mm	M8/M10 plane - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.



Technical features

Item Id.	099352
drive turning direction	L.H.
drive speed max.	permanent operation 2.800 rpm
number of spindles	10
spindle position	vertical / Hole pattern
tool receptacle	ø10H7
gear ratio	1 : 2,76 - gear driven
turning direction of tool receptacle	5x r.h. 5x l.h.
spindle speed max.	permanent operation 7.728 rpm
drive capacity	2,2 kW
weight	60,50 kg

Optional accessories:

Open end spanner SW15	Item Id. 131001
Hex-wrench SW3	Item Id. 138030
Lubrication press	Item Id. 980003

The drilling spindle unit series DBE3 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by wheels. Each single spindle can be submitted 50mm, units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.



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Magnetic valves

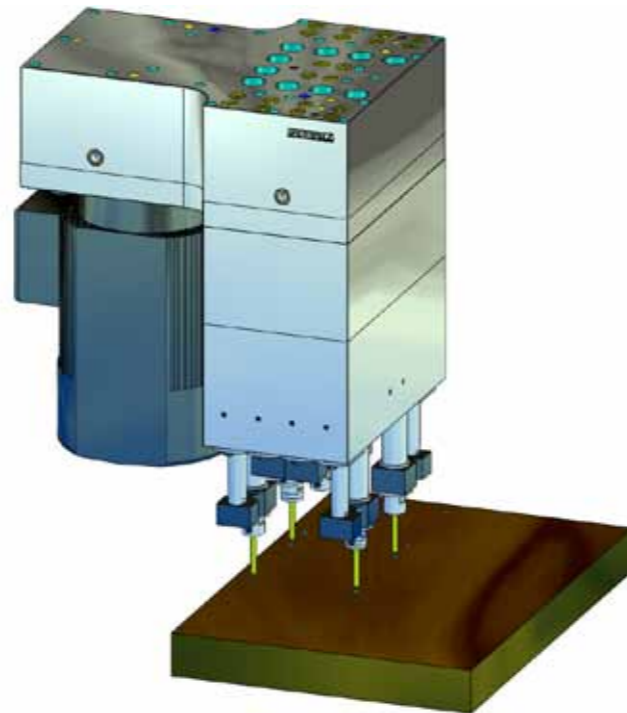
The single row drilling units of the series DBE3 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

Screw mounting surfaces and mounting holes

At single row drilling units the spindle side and the ends of the housing are available as mounting surface. You must specify in your order, whether and at which of the available sides you want to have mounting screw holes. For units with other drilling patterns, additional sides are available as mounting surface.

The necessary holes can be mounted on all housing sites which are not provided with air connection holes. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type DBE3 can be formed in various shapes. The standard form is a single row of Drilling spindle unit (R-form). The following table below shows possible designs of the series DBE3.

Type „R“	Type „L“	Type „T“	Type „B“

With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

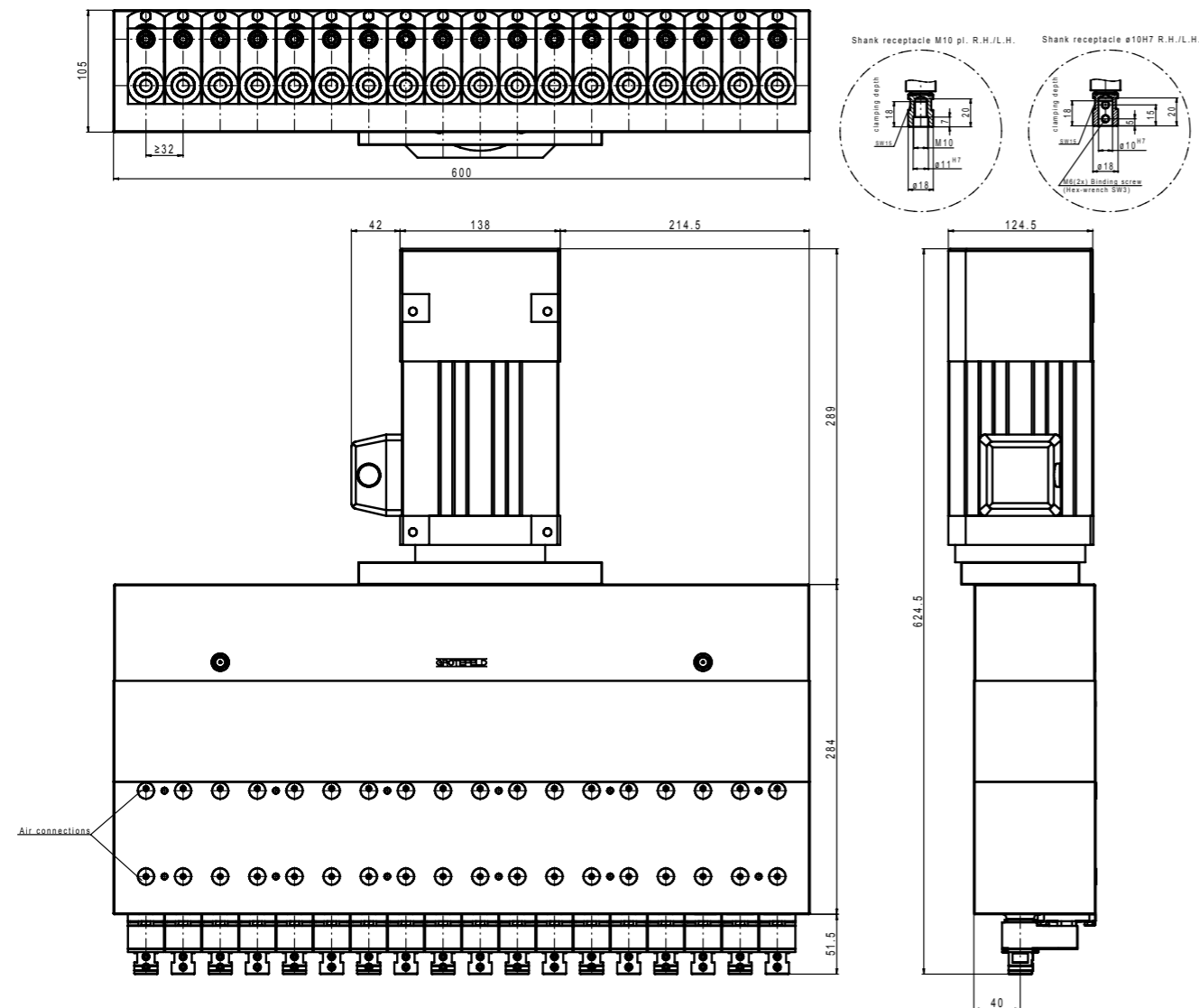
The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a gear drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if no special requests are mentioned.

Spindle types

The following spindles in DBE3 gear units can be used.

Name	Type	Tool receptacle	
Vertical spindle	SPVT	ø10H7	M10 plane
Horizontal spindle	SPHO	ø10H7	M10 plane
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	ø8H7/ø10H7-A ≥ 16,0mm	M8/M10 plane - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.



Technical features

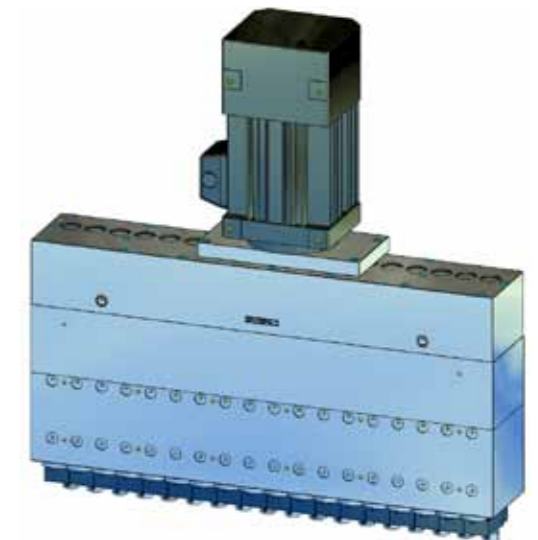
Item Id.	099353
drive turning direction	R.H.
drive speed max.	permanent operation 8.750 rpm
number of spindles	18
spindle position	vertical / in series
tool receptacle	ø10H7
gear ratio	1 : 1 - gear driven
turning direction of tool receptacle	9x r.h. 9x l.h.
spindle speed max.	permanent operation 8.750 rpm
drive capacity	2,8 kW
weight	70,60 kg

Optional accessories:

Open end spanner SW15	Item Id. 131001
Hex-wrench SW3	Item Id. 138030
Lubrication press	Item Id. 980003

The drilling spindle unit series DBE3 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by wheels. Each single spindle can be submitted 50mm, units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.



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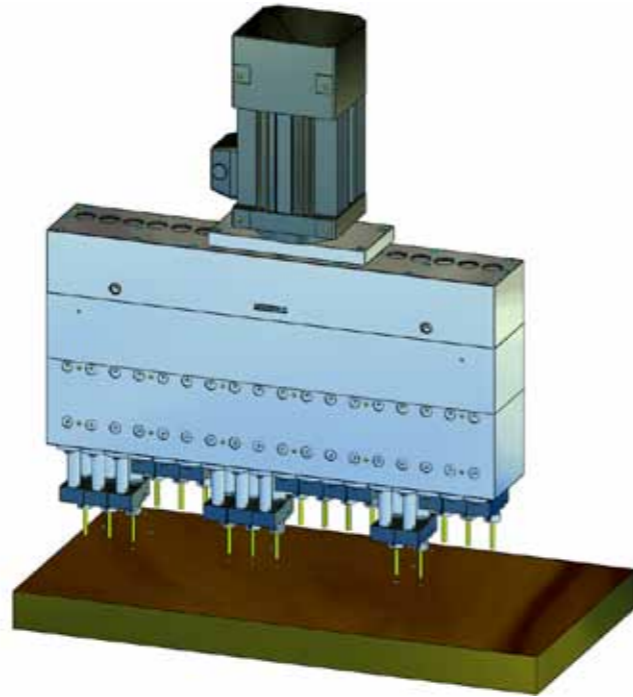
Magnetic valves

The single row drilling units of the series DBE3 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder. The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

Screw mounting surfaces and mounting holes

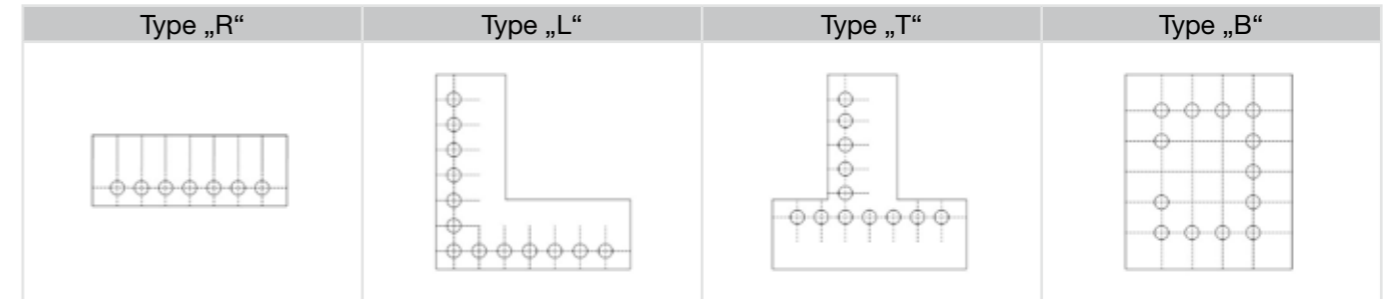
At single row drilling units the screw-spindle side and the ends of the housing are available as mounting surface. You must specify in your order, whether and at which of the available sides you want to have mounting screw holes. For units with other drilling patterns, additional sides are available as mounting surface.

The necessary holes can be mounted on all housing sites which are not provided with air connection holes. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type DBE3 can be formed in various shapes. The standard form is a single row of drilling spindle unit (R-form). The following table below shows possible designs of the series DBE3.



With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a gear drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if you no special requests are mentioned.

Spindle types

The following spindles in DBE3 gear units can be used.

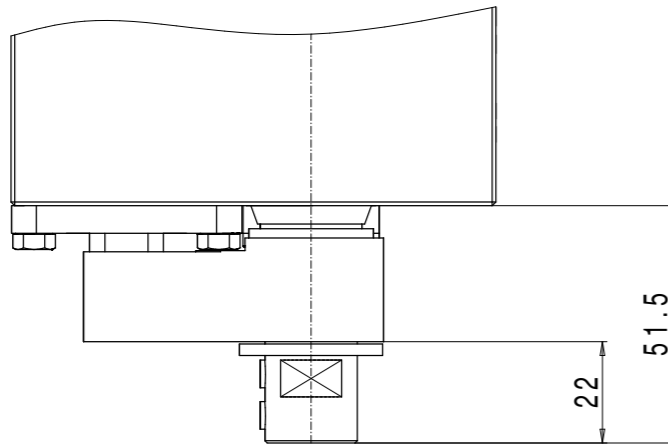
Name	Type	Tool receptacle	
Vertical spindle	SPVT	ø10H7	M10 plane
Horizontal spindle	SPHO	ø10H7	M10 plane
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	ø8H7/ø10H7-A ≥ 16,0mm	M8/M10 plane - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.

Technical features

Item Id.	714062 (right) 714063 (left)
Shank receptacle	ø10 H7
Support stroke	50mm, or as required
Spindle speed	permanent operation 8.750 rpm
Drive capacity	2,2kW

The drilling receptacle of the series DBE3 is ø10H7. Also available is a receptacle with M10 plane.



Technical features

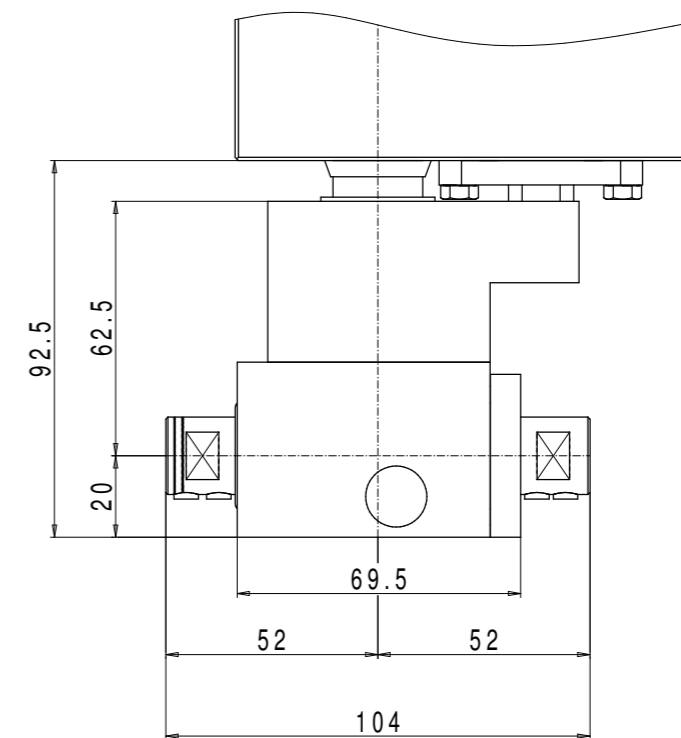
Item Id.	714079 (left) EP- ----- (right)
Shank receptacle	ø10 H7 R.H./L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 8.750 rpm
gear ratio	1:1
drive capacity	1,7kW

The drilling receptacle of the series DBE3 is ø10H7. Also available is a receptacle with M10 plane.

The horizontal spindles (SPHO) are suitable for all controllable drilling spindle units (DBE3) with 32 mm spindle distance or more.

The horizontal drilling spindles can be combined with the Vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.

One of the two shank receptacles turns right, the opposite shank receptacle left.



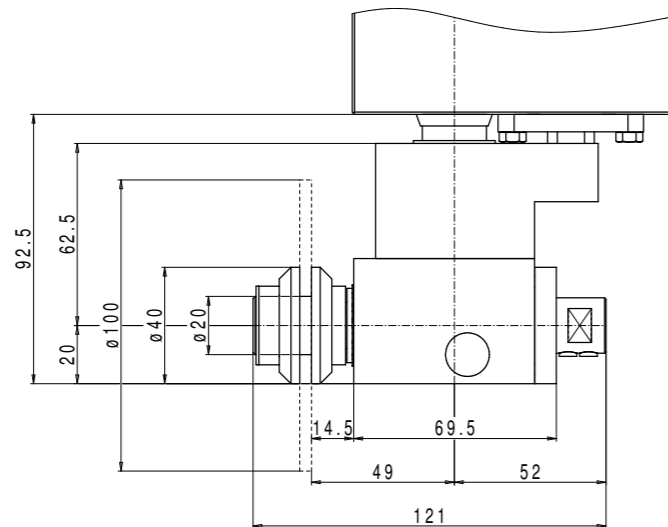
Technical features

Item Id.	EP- ----- (right)
	EP- ----- (left)
Sawing receptacle	ø20 – clamping area 1,5 – 5,0mm
Diameter saw blade	max. ø100
Shank receptacle	ø10 H7 L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Gear ratio	1:1
Drive capacity	1,7kW

The drilling receptacle of the series DBE3 is ø10H7. Also available is a receptacle with M10 plane.

The horizontal spindles (SPNS) are suitable for all controllable drilling spindle units (DBE3) with a 32 mm spindle distance. The sawing receptacle turns equal to the drive turning direction and the shank receptacle opposite.

The horizontal drilling spindles can be combined with the Vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.



Technical features

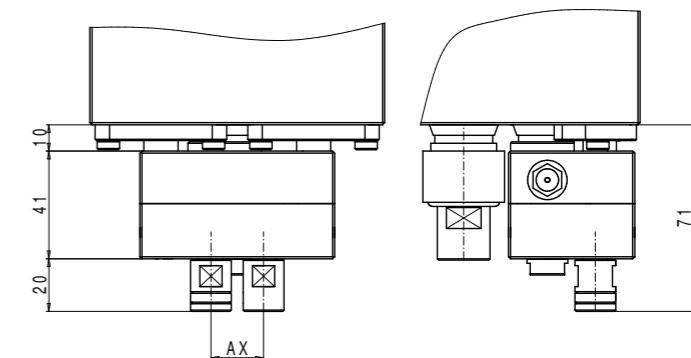
Item Id.	EP- ----- (right)
	EP- ----- (left)
Shank receptacle	ø8H7/ø10 H7 R.H. / L.H.
Drill distance AX	min. 16mm
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Gear ratio	1:1
Drive capacity	2,2kW

The vertical drilling units (BGVT) are suitable for all controllable drilling spindle units of the series DBE3.

With the vertical gearbox BGVT drilling distances $\geq 16.0\text{mm}$ are possible. It is also possible to make units with special hole patterns.

Corresponding to the desired number of spindles and the drilling pattern there are different dimensions of the gear unit BGVT. If more complex hole patterns have to be realized, it must be checked if the use of several smaller gearboxes makes sense. In addition, the construction of a special housing designed for your demands may optimize the application.

The article number EP ---- does not specify the exact placement of the vertical drilling unit. It is necessary that you specify in addition to an order next to the item number, the hole pattern. Corresponding to your order you will receive within our order confirmation a final article-number, that is extended by the information referring to the unit you ordered. This article-number then applies for this specific configuration and can be used for all further orders without any additional information.



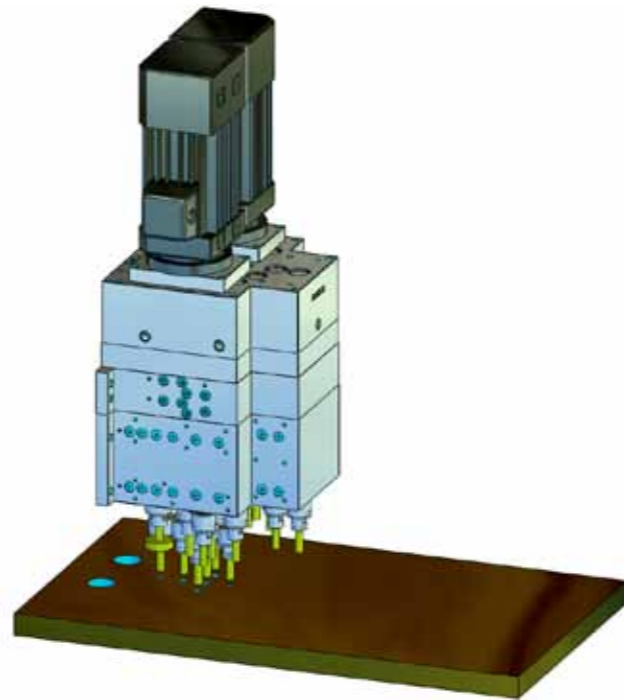
Magnetic valves

The single row drilling units of the series DBE22 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

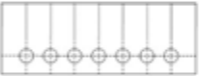
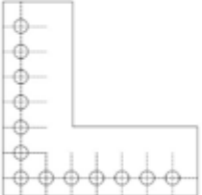
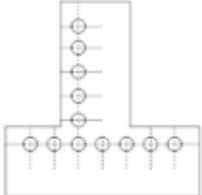
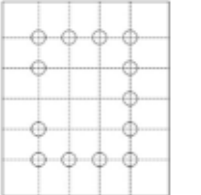
Screw mounting surfaces and mounting holes

At gear units of the series DBE22 screw holes can be installed on all housing sides which are not provided with air connections. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type DBE22 can be formed in various shapes. The standard form is a single row of Drilling spindle unit (R-form). The following table below shows possible designs of the series DBE22.

Type „R“	Type „L“	Type „T“	Type „B“
			

With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

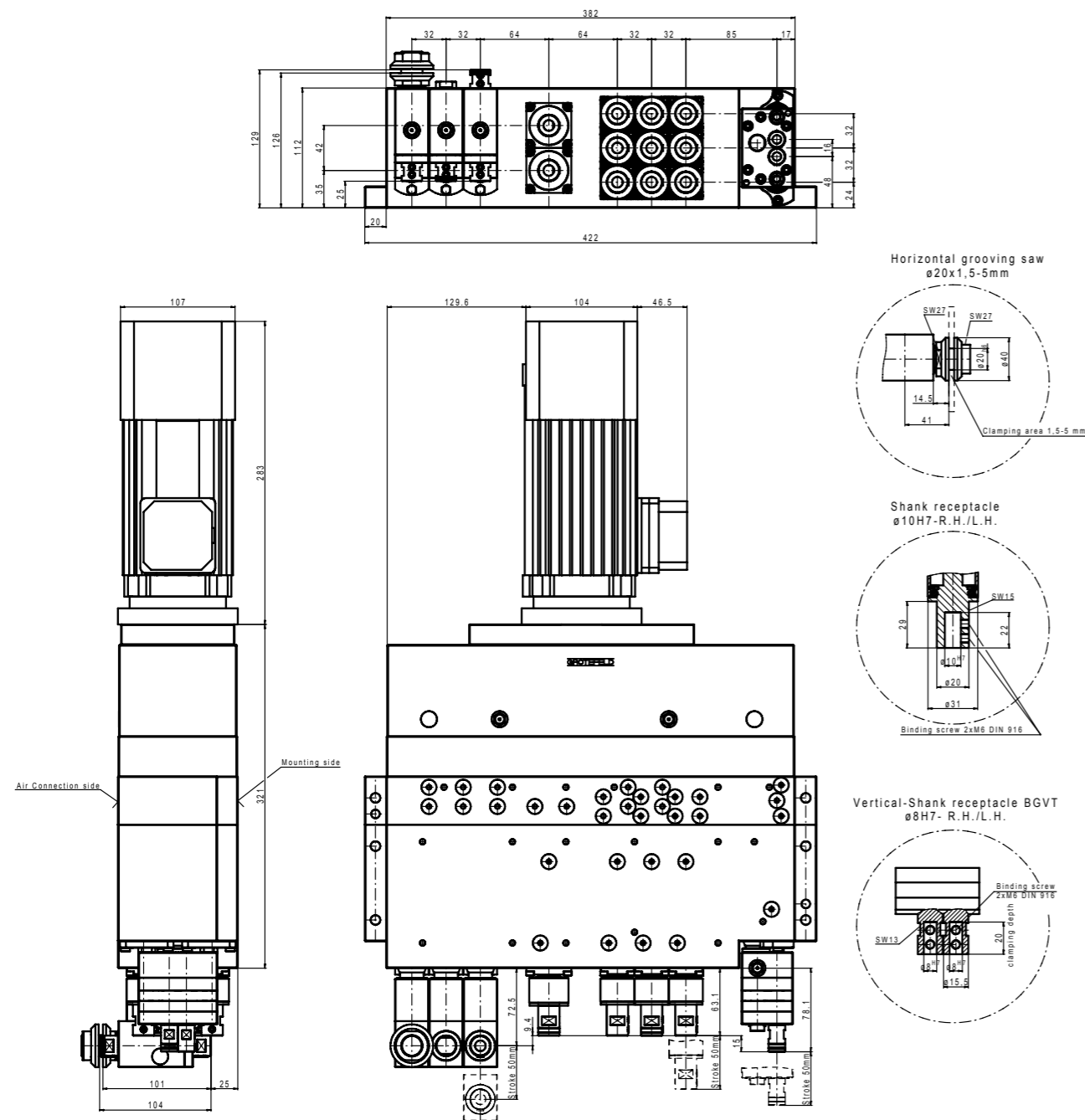
The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a gear drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if you no special requests are mentioned.

Spindle types

The following spindles in DBE22 gear units can be used.

Name	Type	Tool receptacle	
Vertical spindle	SPVT	ø10H7	M10 plane
Horizontal spindle	SPHO	ø10H7	M10 plane
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	ø8H7/ø10H7-A ≥ 16,0mm	M8/M10 plane - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.



Technical features

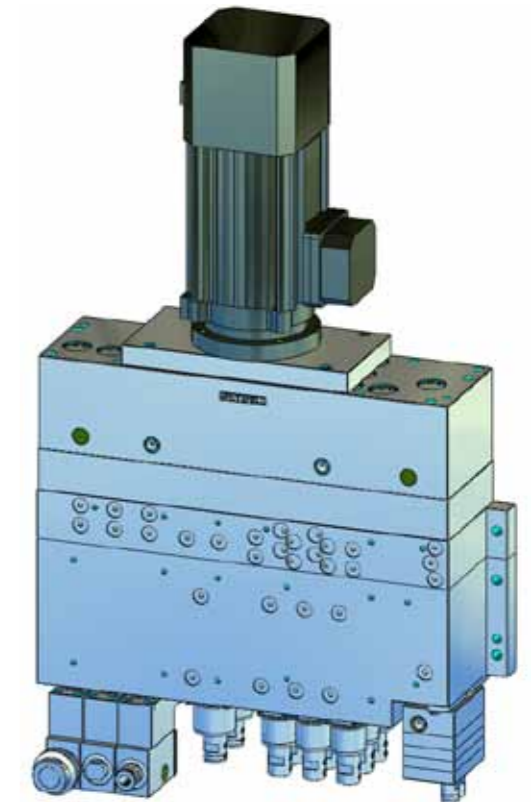
Item Id.	095421
drive turning direction	R.H.
drive speed max.	permanent operation 8.600 rpm
number of spindles	11x vertical 3x horizontal 1x BGVT
spindle position	Hole pattern
tool receptacle	ø10H7 / ø8H7
gear ratio	1 : 1 - gear driven
turning direction of tool receptacle	R.H. / L.H.
spindle speed max.	permanent operation 8.600 rpm
drive capacity	1,5 kW
weight	52,0 kg

Optional accessories:

Open end spanner SW15	Item Id. 131001
Hex-wrench SW3	Item Id. 138030
Lubrication press	Item Id. 980003

The drilling spindle unit series DBE22 are designed for the use in CNC machines and offer the possibility to arrange more than 2 rows in a distance ≥ 32 mm. Almost all drill patterns can be realized to customer specification. The vertical drilling spindles can be combined with horizontal and vertical drilling gears with drilling distances ≥ 16 mm. Each single spindle can be submitted 50mm; units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm. The units are driven by wheels, the maximum speed is 8600 rpm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.



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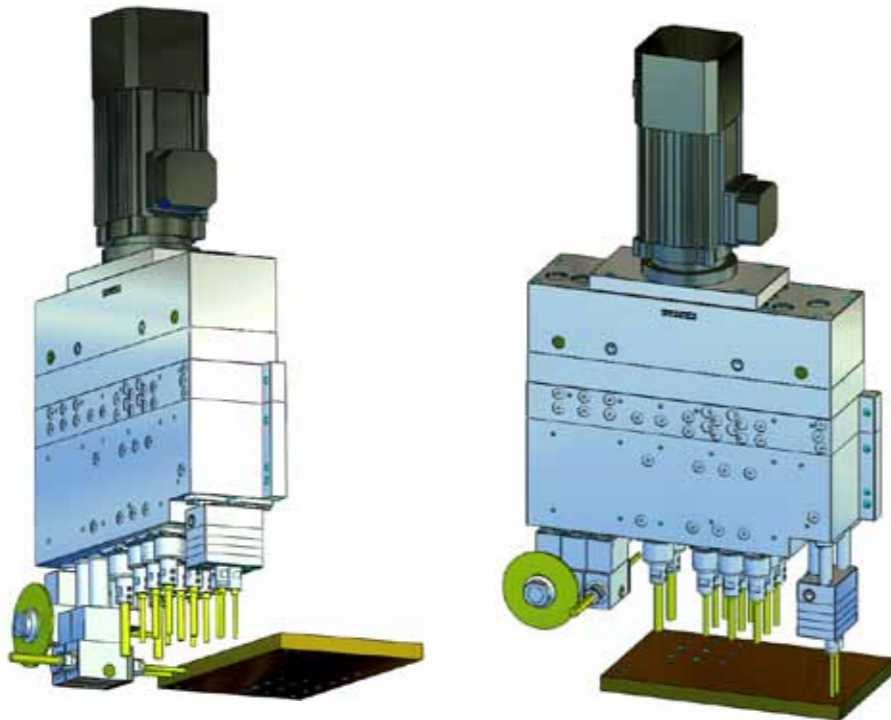
Magnetic valves

The single row drilling units of the series DBE22 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

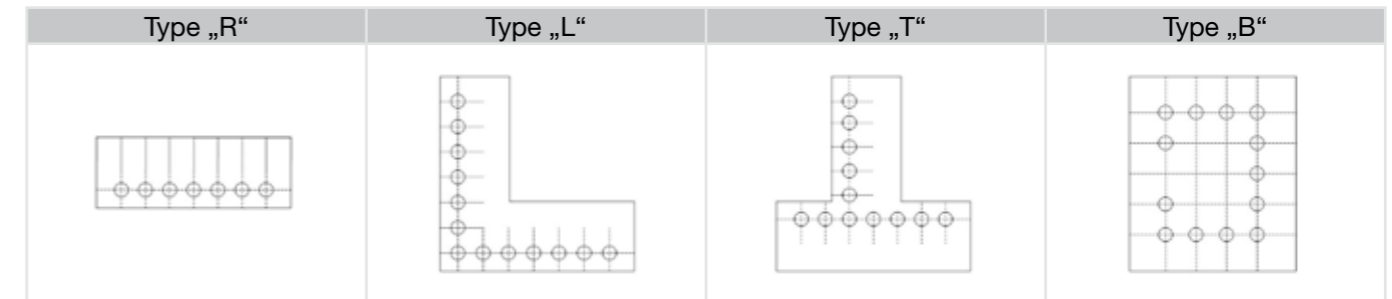
Screw mounting surfaces and mounting holes

At gear units of the series DBE22 screw holes can be installed on all housing sides which are not provided with air connections. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type DBE22 can be formed in various shapes. The standard form is a single row of Drilling spindle unit (R-form). The following table below shows possible designs of the series DBE22.



With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

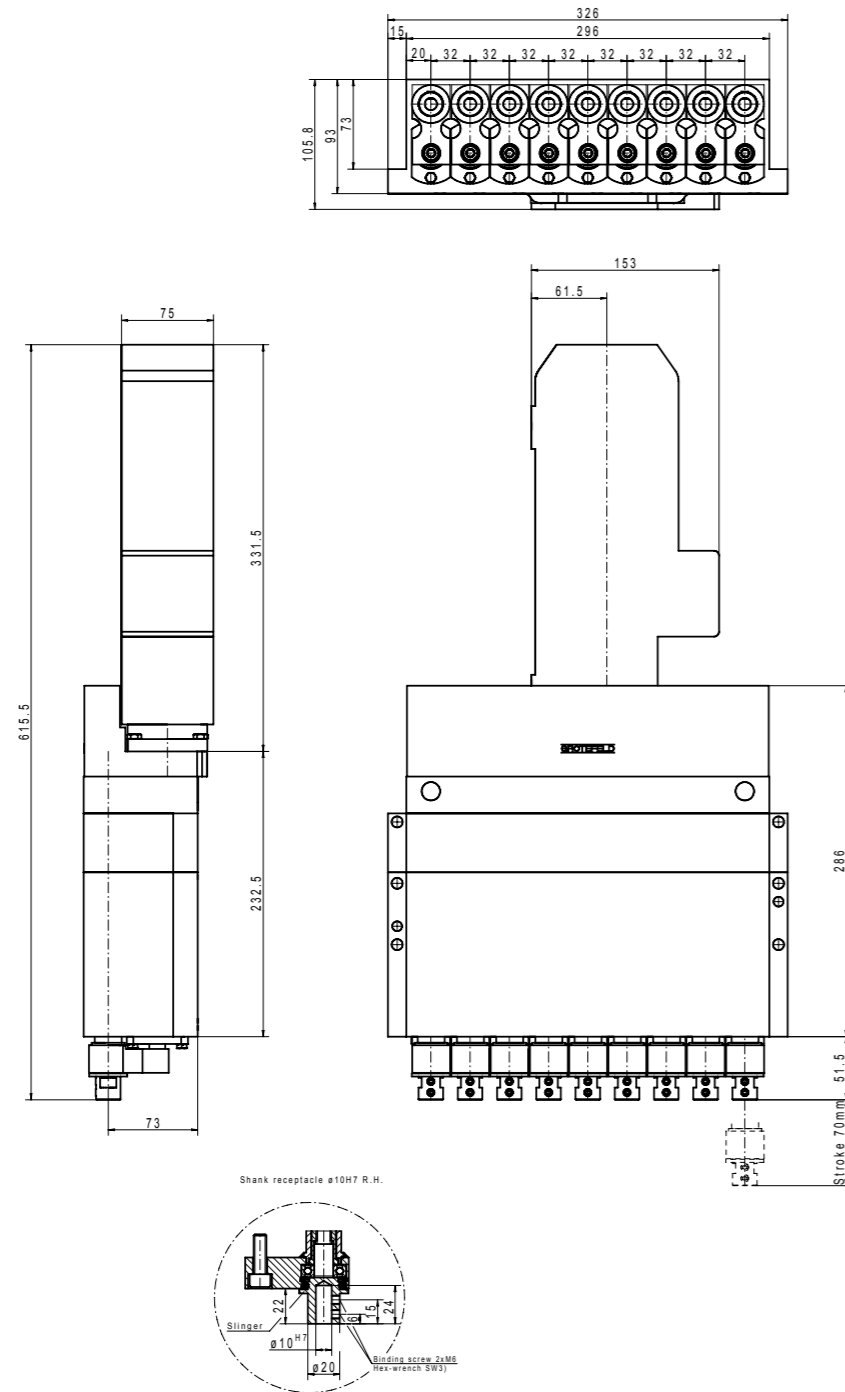
The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a gear drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if no special requests are mentioned.

Spindle types

The following spindles in DBE22 gear units can be used.

Name	Type	Tool receptacle	
Vertical spindle	SPVT	ø10H7	M10 plane
Horizontal spindle	SPHO	ø10H7	M10 plane
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	ø8H7/ø10H7-A ≥ 16,0mm	M8/M10 plane - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.



Technical features

Item Id.	099346
drive turning direction	R.H.
drive speed max.	permanent operation 8.540 rpm
number of spindles	9
spindle position	vertical / in series
feed	70 mm stroke
tool receptacle	ø10H7
gear ratio	1 : 1 - Belt drive
turning direction of tool receptacle	9x r.h.
spindle speed max.	permanent operation 8.540 rpm
drive capacity	1,1 kW
weight	33,00 kg

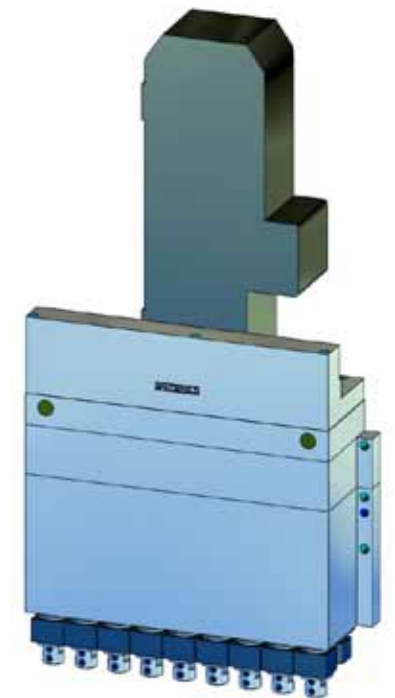
Optional accessories:

Open end spanner SW15
Hex-wrench SW3

Item Id. 131001
Item Id. 138030

The drilling spindle unit series TBE3 are designed for the use in CNC machines and have been proved for many years in practical use. The units are driven by toothed belts, all the spindles are turning right. Each single spindles can be submitted 50mm, units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.



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Magnetic valves

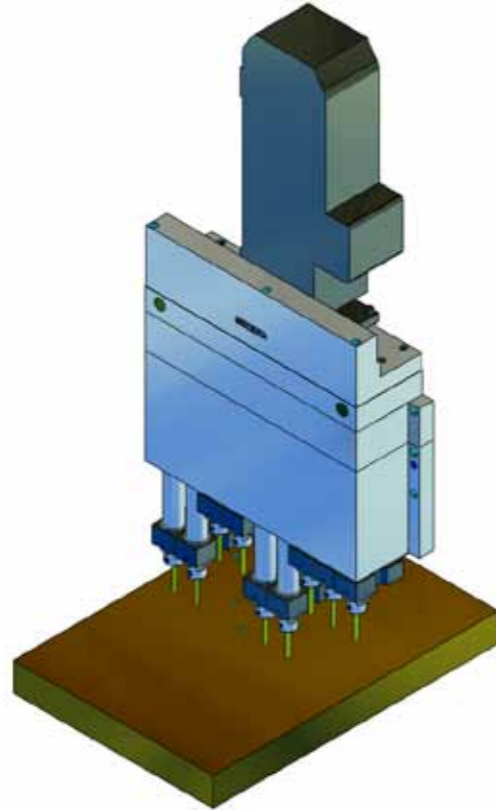
The single row drilling units of the series TBE3 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

Screw mounting surfaces and mounting holes

At single row drilling units the spindle side and the ends of the housing are available as mounting surface. You must specify in your order, whether and at which of the available sides you want to have mounting screw holes. For units with other drilling patterns, additional sides are available as mounting surface.

The necessary holes can be mounted on all housing sites which are not provided with air connection holes. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type TBE3 can be formed in various shapes. The standard form is a single row of drilling spindle unit (R-form). The following table below shows possible designs of the series TBE3.

Type „R“	Type „L“	Type „T“	Type „B“

With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a toothed belt drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if no special requests are mentioned.

Spindle types

The following spindles in TBE3 gear units can be used.

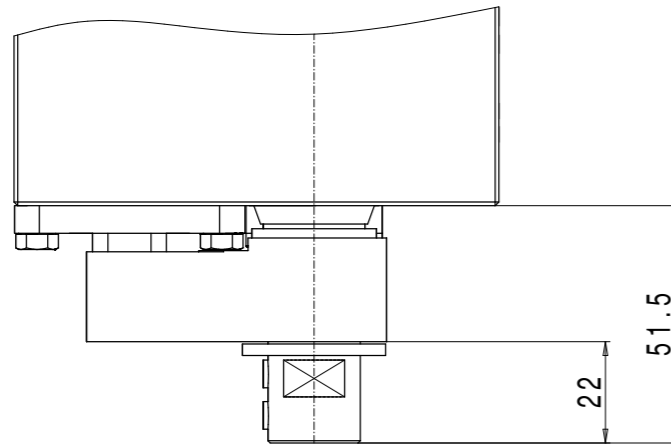
Name	Type	Tool receptacle	
Vertical spindle	SPVT	Ø 10H7	M10 plane
Horizontal spindle	SPHO	Ø 10H7	M10 plane
Grooving saws	SPNS	Ø 20x1,5-5,0+ Ø 10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	Ø 8H7/ Ø 10H7-A ≥ 16,0mm	M8/M10 plan - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.

Technical features

Item Id.	714026 (right)
Shank receptacle	ø10 H7
Support stroke	50mm, or as required
Spindle speed	permanent operation 8.750 rpm
Drive capacity	2,2kW

The drilling receptacle of the series TBE3 is ø10H7. Also available is a receptacle with M10 plane.



Technical features

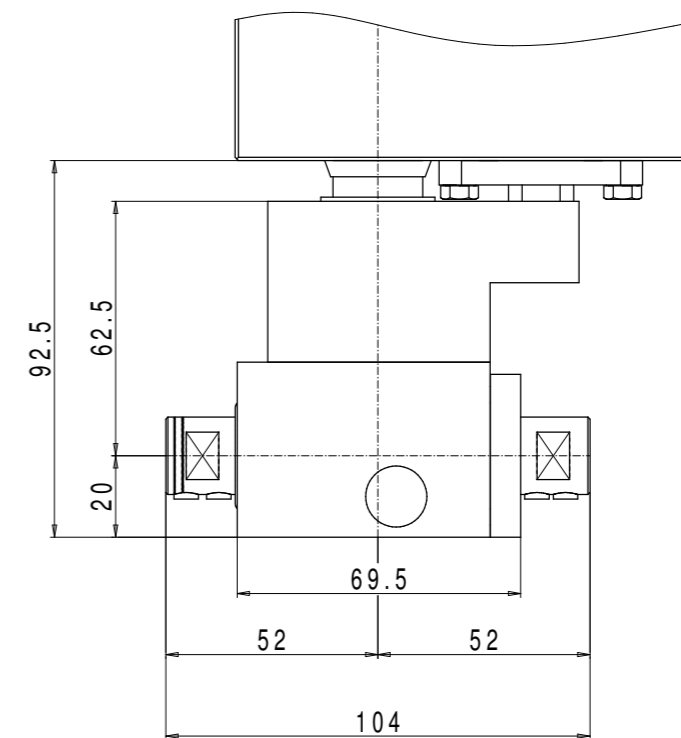
Item Id.	EP- ----- (Rechts)
Shank receptacle	ø10 H7 R.H./L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 8.750 rpm
gear ratio	1:1
drive capacity	1,7kW

The drilling receptacle of the series TBE3 is ø10H7. Also available is a receptacle with M10 plane.

The horizontal spindles (SPHO) are suitable for all controllable drilling spindle units (TBE3) with 32 mm spindle distance or more.

The horizontal drilling spindles can be combined with the Vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.

One of the two shank receptacles turns right, the opposite shank receptacle left.



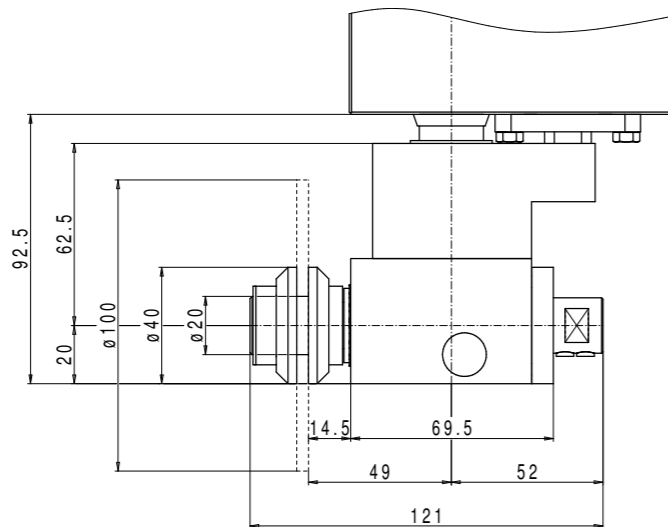
Technical features

Item Id.	EP- ----- (right)
Sawing receptacle	ø20 – clamping area 1,5 – 5,0mm
Diameter saw blade	max. ø100
Shank receptacle	ø10H7 L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Gear ratio	1:1
Drive capacity	1,7kW

The drilling receptacle of the series TBE3 is ø10H7. Also available is a receptacle with M10 plane.

The horizontal spindles (SPNS) are suitable for all controllable drilling spindle units (TBE3) with a 32 mm spindle distance. The sawing receptacle turns right and the opposite shank receptacle left.

The horizontal drilling spindles can be combined with the Vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.



Technical features

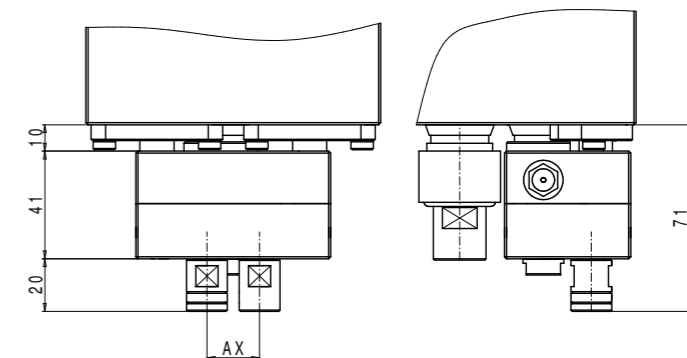
Item Id.	EP- ----- (right)
Shank receptacle	ø8H7/ø10H7 R.H. / L.H.
Drill distance AX	min. 16mm
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Gear ratio	1:1
Drive capacity	2,2kW

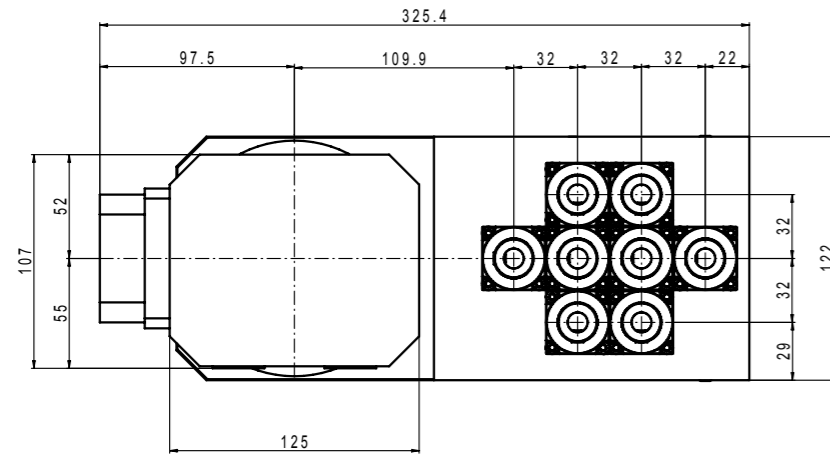
The vertical drilling units (BGVT) are suitable for all controllable drilling spindle units of the series TBE3.

With the vertical gearbox BGVT drilling distances ≥ 16.0 mm are possible. It is also possible to make units with special hole patterns.

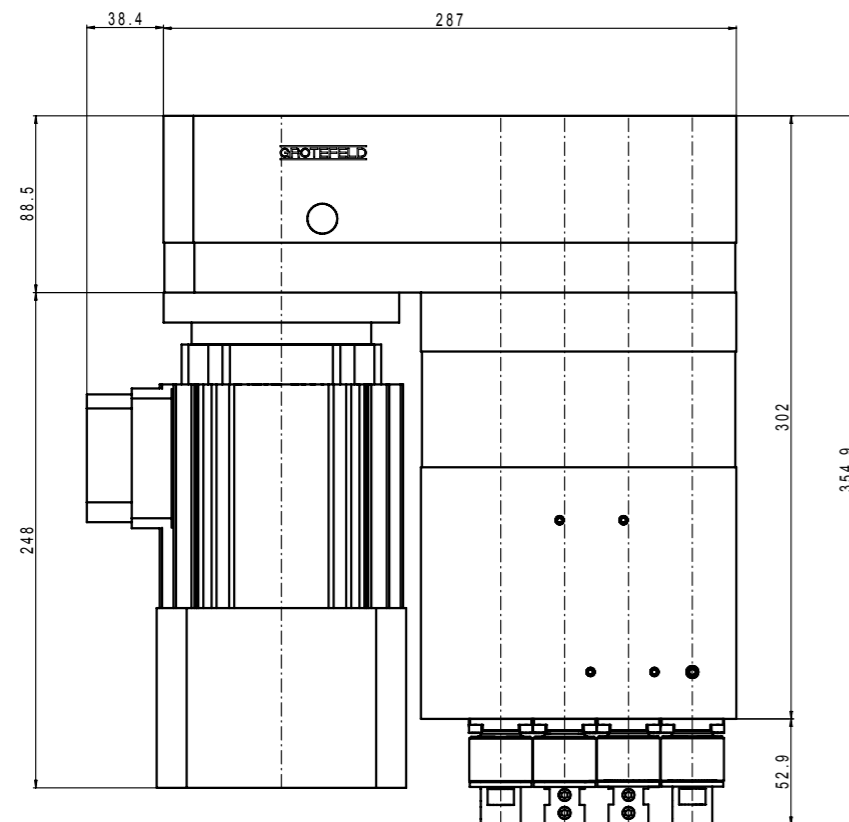
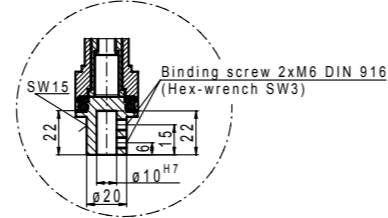
Corresponding to the desired number of spindles and the drilling pattern there are different dimensions of the gear unit BGVT. If more complex hole patterns have to be realized, it must be checked if the use of several smaller gearboxes makes sense. In addition, the construction of a special housing designed for your demands may optimize the application.

The article number EP ----- does not specify the exact placement of the vertical drilling unit. It is necessary that you specify in addition to an order next to the item number, the hole pattern. Corresponding to your order you will receive within our order confirmation a final article-number. That was extended by the information referring to the unit you ordered. This article-number then applies for this specific configuration and can be used for all further orders without any additional information.





Vertical-Skank receptacle
 $\varnothing 10H7-RE$



Technical features

Item Id.	099419
drive turning direction	L.H.
drive speed max.	permanent operation 8.550 rpm
number of spindles	08x vertikal
spindle position	Hole pattern
tool receptacle	$\varnothing 10H7$
gear ratio	1,038 : 1 / 1:1 - Belt drive
turning direction of tool receptacle	R.H.
spindle speed max.	permanent operation 8.550 rpm / 8.878 rpm
drive capacity	1,2 kW
weight	32,0 kg

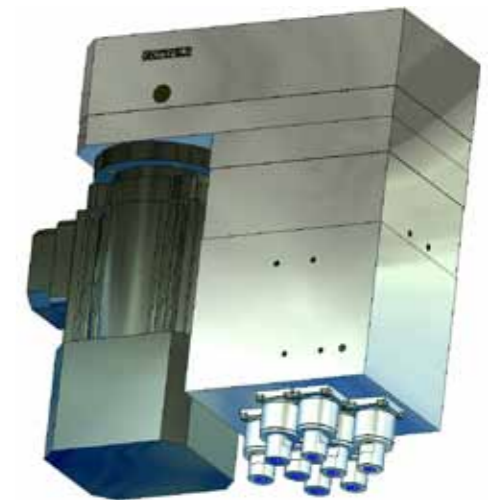
Optional accessories:

Open end spanner SW15	Item Id. 131001
Hex-wrench SW3	Item Id. 138030

The drilling spindle unit series TBE20 are designed for the use in CNC machines and offer the possibility to arrange more than 2 rows in a distance ≥ 32 mm. Almost all drill patterns can be realized to customer specification. The units are driven by toothed belts, all the spindles are turning right. The vertical drilling spindles can be combined with horizontal and vertical drilling gears with drilling distances ≥ 16 mm. Each single spindle can be submitted 50mm; units with longer stroke are available on request. The drilling feed itself must be provided by the feed of the machine. Depending on customer request the drilling spindle units are formed different, the minimal spindle distance is 32mm.

In the development was considered that a modular system was created which allows the flexible combination of different cases with the available spindle types. Moreover, by the design concept an easy, cost-effective maintenance and repair is ensured.

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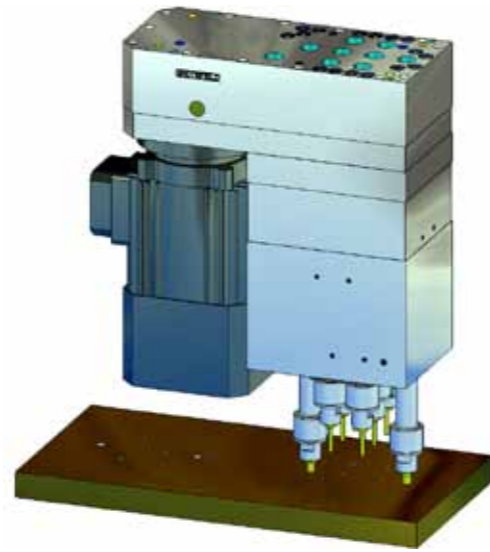
Magnetic valves

The single row drilling units of the series TBE20 can be added with magnetic valves. The magnetic valves are mounted on the back plate at each cylinder.

The plates are connected by air ducts. The advantage is that the main air must be supplied only once.

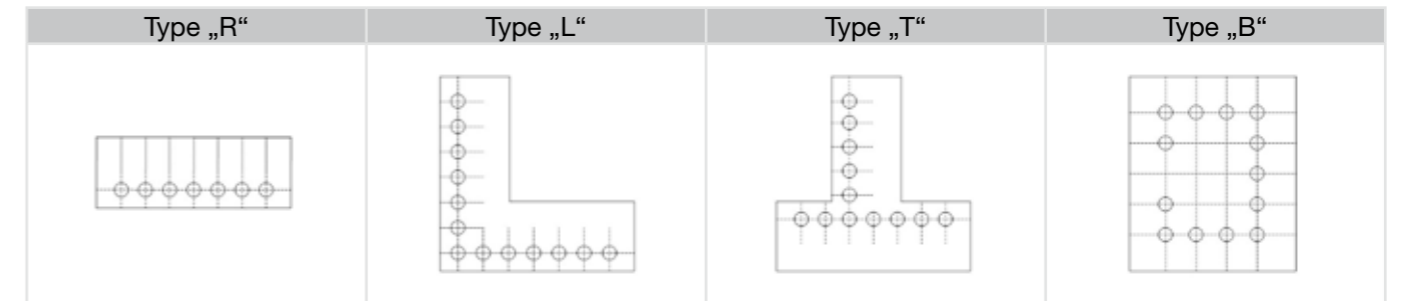
Screw mounting surfaces and mounting holes

At gear units of the series TBE20 screw holes can be installed on all housing sides which are not provided with air connections. When we are configuring your controlled drilling units, you get a quotation and drawings with relevant proposals.



Spindle assembly and housing designs

Depending on customer requirements, the housing of the controllable drilling spindle units type TBE20 can be formed in various shapes. The standard form is a single row of Drilling spindle unit (R-form). The following table below shows possible designs of the series TBE20.



With the controllable drilling spindle units many customer specific drilling patterns and spindle combinations can be realized. Here only the housings are dimensionally modified according to the specifications in its outside dimensions. In any case, the height measurements and the internal structure of the housing are GROTEFELD standard.

The request for larger than 50 mm strokes changes also the outside measurements. Please ask for suitable units.

Drive

The drive consists of one or if necessary more three-phase a.c. flatmotors with a maximum of 2.8 kW. The drive power is transmitted through a coupling over a toothed belt drive to the spindles. The required drive power is part of the configuration of the drilling unit calculated by us and proposed to you. The location of the drive motors are defined by us according to technical conditions, if you no special requests are mentioned.

Spindle types

The following spindles in TBE20 gear units can be used.

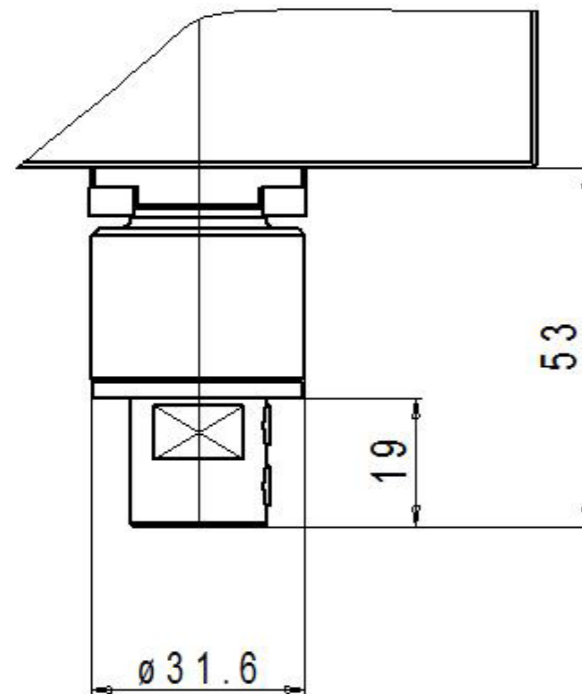
Name	Type	Tool receptacle	
Vertical spindle	SPVT	ø10H7	M10 plane
Horizontal spindle	SPHO	ø10H7	M10 plane
Grooving saws	SPNS	ø20x1,5-5,0+ø10H7	Ø 20x1,5-5,0+M10 plane
Vertical drilling gear	BGVT	ø8H7/ø10H7-A ≥ 16,0mm	M8/M10 plane - A ≥ 16,0 mm

The available spindle types can be combined in any form, taking account the areally conditions of the unit.

Technical features

Item Id.	714052 (right)
Shank receptacle	ø10 H7
Support stroke	50mm, or as required
Spindle speed	permanent operation 8.750 rpm
Drive capacity	2,2kW

The drilling receptacle of the series TBE20 is ø10H7. Also available is a receptacle with M10 plane.



Technical features

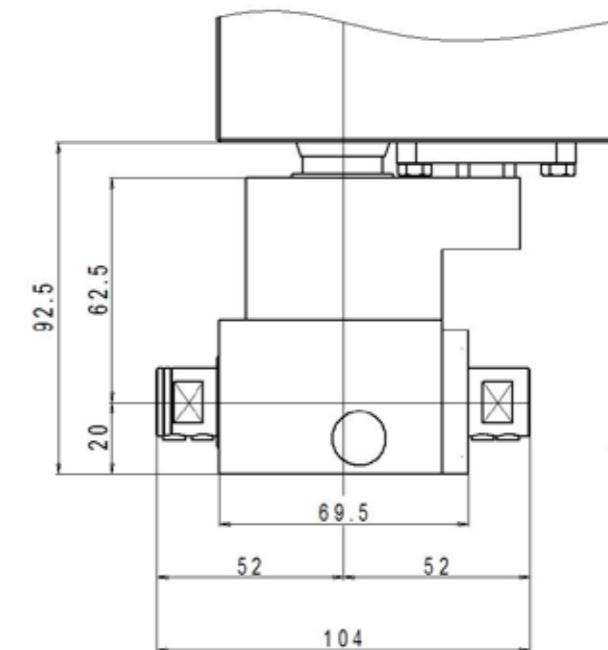
Item Id.	EP- ----- (right)
Shank receptacle	ø10 H7 R.H./L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 8.750 rpm
Gear ratio	1:1
Drive capacity	1,7kW

The drilling receptacle of the series TBE20 is ø10H7. Also available is a receptacle with M10 plane.

The horizontal spindles (SPHO) are suitable for all controllable drilling spindle units (TBE20) with 32 mm spindle distance or more.

The horizontal drilling spindles can be combined with the Vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.

One of the two shank receptacles turns right. The opposite shank receptacle left.



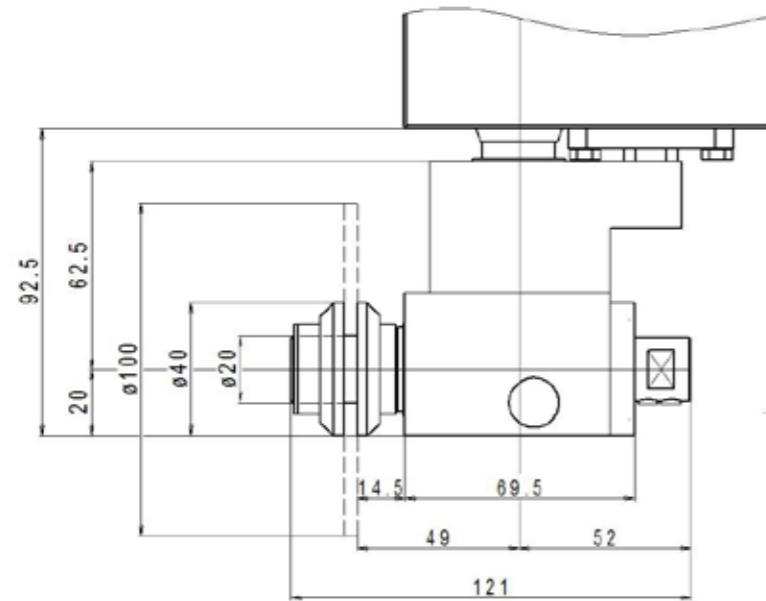
Technical features

Item Id.	EP- ----- (right)
Sawing receptacle	ø20 – clamping area 1,5 – 5,0mm
Diameter saw blade	max. ø100
Shank receptacle	ø10 H7 L.H.
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Gear ratio	1:1
Drive capacity	1,7kW

The drilling receptacle of the series TBE20 is ø10H7. Also available is a receptacle with M10 plane.

The horizontal spindles (SPNS) are suitable for all controllable drilling spindle units (TBE20) with a 32 mm spindle distance. The sawing receptacle turns right and the opposite shank receptacle left.

The horizontal drilling spindles can be combined with the vertical spindles. In cases with special hole patterns it must be considered, that there is no conflict between the spindles.



Technical features

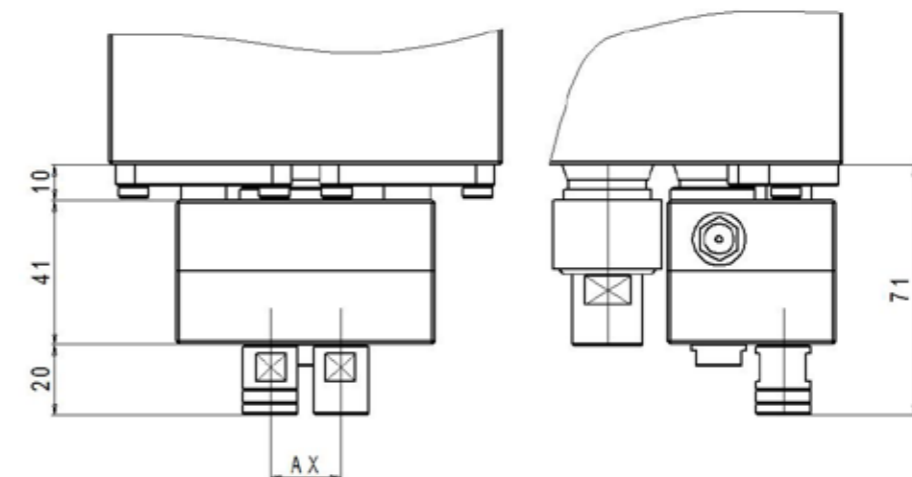
Item Id.	EP- ----- (right)
Shank receptacle	ø8H7/ø10 H7 R.H. / L.H.
Drill distance AX	min. 16mm
Support stroke	50mm, or as required
Spindle speed	permanent operation 5.000 rpm
Gear ratio	1:1
Drive capacity	2,2kW

The vertical drilling units (BGVT) are suitable for all controllable drilling spindle units of the series TBE20.

With the vertical gearbox BGVT drilling distances $\geq 16.0\text{mm}$ are possible. It is also possible to make units with special hole patterns.

Corresponding to the desired number of spindles and the drilling pattern there are different dimensions of the gear unit BGVT. If more complex hole patterns have to be realized, it must be checked if the use of several smaller gearboxes makes sense. In addition, the construction of a special housing designed for your demands may optimize the application.

The article number EP - does not specify the exact placement of the vertical drilling unit. It is necessary that you specify in addition to an order next to the item number, the hole pattern. Corresponding to your order you will receive within our order confirmation a final article-number. That was extended by the information referring to the unit you ordered. This article-number then applies for this specific configuration and can be used for all further orders without any additional information.



Lubrication

The controllable GROTEFELD-spindle units are filled with high-quality, special „Long Life“ greases in the factory and run correspondingly. Therefore, there is no further lubrication necessary when starting work at the customer. After approximately 200 working hours a lubrication of the wheel drive according to our instructions of lubrication and maintenance is necessary. It has to be observed that grease prescribed by GROTEFELD is used.

Law of machine protection, Security measures

The controllable GROTEFELD-spindle units as well as the accessories correspond at the current state of the art and to the German prescriptions of Security (UVV, VDE, etc.) as well as the CE regulations.

When installing appliances supplied by GROTEFELD into existing machines and machine lines the valid prescriptions of security have to be observed by our customers.

Corresponding to the individual location and purpose the valid, country-specific prescriptions of security are to be observed by our customer and - if necessary - executed with regard to the covering of rotating respectively sliding machine elements. The same applies with regard to the aspiration of occurring dusts when sawing, drilling or milling.

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