VERO-S
modular system for manual workpiece direct clamping
WDM-5X

Assembly and Operating Manual

Superior Clamping and Gripping

SCHUNK®

Imprint

Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

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Dear Customer,

thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management

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Please read the operating manual in full and keep it close to the product.

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1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

This manual is an integral part of the product and must be kept accessible for the personnel at all times.

Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

Illustrations in this manual are provided for basic understanding and may differ from the actual product design.

In addition to these instructions, the documents listed under ▶ 1.1.2 [🗋 5] are applicable.

1.1.1 Presentation of Warning Labels

To make risks clear, the following signal words and symbols are used for safety notes.

⚠ DANGER

Danger for persons!

Non-observance will inevitably cause irreversible injury or death.

⚠ WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.

⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

CAUTION

Material damage!

Information about avoiding material damage.

1.1.2 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *

The documents labeled with an asterisk (*) can be downloaded from **schunk.com**.

1.2 Warranty

The warranty is valid for:

- 24 months from delivery date from the production facility or
- 500,000 cycles* for VERO-S clamping systems WDM -5X for use as intended under the following conditions:
  - Observance of the applicable documents
  - Observance of the ambient conditions and operating conditions
  - Observance of the specified care and maintenance instructions

Parts touching the workpiece and wear parts are not included in the warranty.

* A cycle consists of a complete clamping process ("Open" and "Close").

1.3 Scope of delivery

- **Direct workpiece clamping modules**
  - Basic module WDM-5X_ BM 80-75
  - Basic module WDM-5X_BM 80-100
  - Basic module WDM-5X_BM 80-125
  - Basic module WDM-5X_BM 80-150
  - Basic module WDM-5X_BM 80-175
  - Basic module WDM-5X_BDM 80-125
  - Basic height extension WDM-5X-BP 235-235-50
  - Basic height extension WDM-5X-BP 270-250-36
  - Add-on module WDM-5X-SM 80-75
  - Add-on module WDM-5X-SM 80-100
  - Add-on module WDM-5X-SM 80-125
  - Add-on module WDM-5X-SDM 80-125
  - Reduction adapter SBA-VL-P 50-M16
  - Reduction adapter SBA-VL-PA 50-M16
  - Reduction adapter SBA-VL 25-M12
  - Height-adjustable adapter SBA-HE 50-75
  - Plane grip adapter SBA-VLK 75-M10
  - Collet chuck adapter SBA-SEZ ER50-100
- **Assembly and Operating Manual** (ID 1404624)

- **Accessory kit**
  - *WDM-5X_BM 80-75:* 2 mounting screws M12x35
  - *WDM-5X_BM 50-100:* 2 mounting screws M12x35
  - *WDM-5X_BM 80-125:* 2 mounting screws M12x45
  - *WDM-5X_BM 80-150:* 2 mounting screws M12x45
  - *WDM-5X_BM 80-175:* 2 mounting screws M12x35
  - *WDM-5X_BDM 80-125:* 2 mounting screws M12x35
  - *WDM-5X-BP 235-235-50:* (without accessory kit)
  - *WDM-5X-BP 270-250-36:* (without accessory kit)
  - *WDM-5X-SM 80-75:* (without accessory kit)
  - *WDM-5X-SM 80-100:* (without accessory kit)
  - *WDM-5X-SM 80-125:* (without accessory kit)
  - *WDM-5X-SDM 80-125:* (without accessory kit)
  - *SBA-VL-P 50-M16:* (without accessory kit)
  - *SBA-VL-PA 50-M16:* (without accessory kit)
  - *SBA-VL 25-M12:* 1 clamping pin SBA 16, 1 mounting screw M12x75
  - *SBA-VL 50-M12:* 1 clamping pin SBA 16, 1 mounting screw M12x100
  - *SBA-HE 25-75:* 1 clamping pin SBA 20
  - *SBA-VLK 75-M10:* (without accessory kit)
  - *SBA-SEZ ER50-100:* clamping pin SBA 20

1.3.1 Accessories

(see catalog or data sheets when ordering separately)

Clamping pin type SBA 40, SBB 40, SBC 40
swing bolt PDSC M16
fitting screw PSC Ø 12 and PSC Ø 16
clamping pin type SPA 40, SPB 40, SPC 40, SPG 40
positioning arbor
Allen wrench
torque wrench

2 Basic safety notes

2.1 Intended use

The clamping systems VERO-S WDM 80 are intended for clamping workpieces and devices on machine tools and other suitable technical devices. This is implemented via modular components that can be combined for workpiece direct clamping, taking into account the defined technical data.

- The clamping systems may only be used on the basis of their technical data, ▶ 3 [🗋 15].
- The clamping systems are intended for industrial applications.
- Appropriate use of the product includes compliance with all instructions in this manual.

2.2 Not intended use

The VERO-S WDM 80 clamping system is not being used as intended if, for example:

- it is used as a pressing tool, a toolholder, a load-handling device or as lifting equipment.
- It is used for turning applications without consulting SCHUNK.
- It is used in working environments that are not permissible.
- People work on machines or technical equipment that do not comply with the EC Machinery Directive 2006/42/EC, disregarding the applicable safety regulations.
- The technical data specified by the manufacturer are exceeded during usage.

2.3 Constructional changes

Implementation of structural changes

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

- Structural changes should only be made with the written approval of SCHUNK.

2.4 Spare parts

Use of unauthorized spare parts

Using unauthorized spare parts can endanger personnel and damage the product or cause it to malfunction.

- Use only original spare parts or spares authorized by SCHUNK.

2.5 Environmental and operating conditions

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▶ 3 [🗋 15].
- Make sure that the product is a sufficient size for the application.
- Make sure that the contact surfaces of the interface are always clean.
- Make absolutely sure that no chips of any kind can enter the interface and that the interface does not fill with cooling emulsion, which is particularly possible with vertical positioning of the clamping pin axis. The best way to ensure both of these is to use the SDE protection covers. If the interface should fill with cooling emulsion, initiate the unlocking process and dry out the interface in actuated state.
- Only use high-quality cooling emulsions with anti-corrosive additives during processing.

2.6 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

Trained electrician	Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.
Qualified personnel	Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.
Instructed person	Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.
Service personnel of the manufacturer	Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.7 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff against danger which may interfere with their health or safety at work.

- When working on and with the product, observe the occupational health and safety regulations and wear the required personal protective equipment.
- Observe the valid safety and accident prevention regulations.
- Wear protective gloves to guard against sharp edges and corners or rough surfaces.
- Wear heat-resistant protective gloves when handling hot surfaces.
- Wear protective gloves and safety goggles when handling hazardous substances.
- Wear close-fitting protective clothing and also wear long hair in a hairnet when dealing with moving components.

2.8 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

Maintenance specifications

Follow the maintenance and care instructions. These instructions are based on a normal working environment. If the product is to be operated in an environment with abrasive dusts or corrosive or aggressive fumes or fluids, prior approval must be obtained from SCHUNK.

Safety during assembly and servicing

During assembly, connection, adjustment, commissioning and testing, make sure that no accidental operation of the system by the fitter or other persons is possible.

2.8.1 Holding force and screw strength

The holding force of the System is essentially limited by the strength of the screwed connections with which the clamping pin is connected to the pallet or device. On this basis fastening screws of the property class 12.9 are to be used only.

Only original SCHUNK Clamping-Pins are to be used.

When the clamping pin is used in the customer’s own assembly device, the customer is to provide for a sufficiently dimensioned tap and satisfactory strength of the fastening material.

2.9 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

2.10 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.11 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or proper disposal.

2.12 Fundamental dangers

General

- Observe safety distances.
- Never deactivate safety devices.
- Before commissioning the product, take appropriate protective measures to secure the danger zone.
- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- If the energy supply is connected, do not move any parts by hand.
- Do not reach into the open mechanism or movement area of the product during operation.

2.12.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Have all work carried out by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention rules.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

- Stand clear of suspended loads and do not step into their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.

2.12.2 Protection during commissioning and operation

Falling or violently ejected components

Falling and violently ejected components can cause serious injuries and even death.

- Take appropriate protective measures to secure the danger zone.
- Never step into the danger zone during operation.

2.12.3 Protection against dangerous movements

Unexpected movements

Residual energy in the system may cause serious injuries while working with the product.

- Perform maintenance, conversion and attachment work outside of the danger zone defined by the movement range.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted. Limit/prevent accidental access for people in this area due through technical safety measures. The protective cover and protective fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

2.12.4 Notes on particular risks

⚠ WARNING

Risk of injury due to falling parts when setting up, fitting and transporting workpiece/workpiece exchange modules.

Parts that have not been properly secured can come loose and fall off.

- Use suitable lifting equipment and means of transport.
- When fitting the clamping structure, do not enter the danger zone.
- Wear personal protective equipment.

⚠ WARNING

Risk of injury due to falling device, pallet or workpiece if the clamping pin or the change interfaces on the workpiece direct clamping modules are loosened erroneously or as a result of negligence.

- During operation, incorrect or negligent loosening of the clamping pin must be prevented using suitable countermeasures (disconnecting the power supply after locking, use of check valves or safety switches).
- The machines and equipment must fulfill the minimum requirements of the EC Machinery Directive 2006/42/EC; specifically, they must have effective technical measures to protect against potential mechanical hazards.
- Wear personal protective equipment.

⚠ WARNING

Risk of injury to the operating personnel when transporting the workpiece tool changing modules or if the clamping structure, the device or the workpiece falls down.

- Use a crane or a transport truck when transporting.
- During horizontal or overhead applications, the device or pallet must be secured before loosening to prevent it from falling.

⚠ CAUTION

There is a risk of limbs being crushed by moving parts during manual loading and unloading and the clamping procedure.

- Do not reach into the clamping pin holder.
- Use loading devices.
- Wear protective gloves.

3 Technical data

Installation position	any
Operating temperature	+15°C – +60°C
Required level of cleanliness in accordance with DIN EN 60529	IP 30

Designation	WDM-5X-BM 80-75	WDM-5X-BM 80-100	WDM-5X-BM 80-125	WDM-5X-BM 80-150
ID	1398160	1398161	1398162	1398163
Height	75 mm	100 mm	125 mm	150 mm
Holding force *	35 kN (M10) / 50 kN (M12) / 75 kN (M16)			
Pull down force	25 kN			
Actuation torque	15 Nm			
Weight	3.55 kg	4.45 kg	6.65 kg	7.60 kg

Designation	WDM-5X-BM 80-175	WDM-5X-BDM 80-125	WDM-5X-SM 80-75	WDM-5X-SM 80-100
ID	1398164	1398171	1398181	1398182
Height	175 mm	125 mm	75 mm	100 mm
Holding force *	35 kN (M10) / 50 kN (M12) / 75 kN (M16)			
Pull down force	25 kN			
Actuation torque	15 Nm			
Weight	8.45 kg	5.00 kg	2.85 kg	3.65 kg

Designation	WDM-5X-SM 80-125	WDM-5X-SDM 80-125
ID	1398183	1398184
Height	125 mm	125 mm
Holding force *	35 kN (M10) / 50 kN (M12) / 75 kN (M16)	
Pull down force	25 kN	
Actuation torque	15 Nm	
Weight	4.70 kg	4.50 kg

* Holding force when fastening the clamping pin with cylindrical screw - DIN EN ISO 4762 / 12.9

4 Screw tightening torques

Screw tightening torques to mount the base module WDP-5X-BM 99-60 or the raster module WDP-5X-BMR 99-60 on the machine table (screw quality 10.9)

Screw size	M10	M12	M16
Maximum admissible torques M_A (Nm)	52	92	224

5 Assembly

5.1 Pre-assembly measures

⚠ CAUTION

Danger of injury due to sharp edges and rough or slippery surfaces

- Wear personal protective equipment, particularly protective gloves.

Check that the delivery is complete and that there is no transport damage.

Assembly, dismantling and modification work on the workpiece direct clamping module may only be carried out by specialist personnel.

Disconnect the power supply lines and ensure that there is no residual energy in the system before performing assembly, modification, maintenance, or adjustment work.

Until the workpiece direct clamping module is assembled, access to the side attachment screw of the clamping units must be ensured, particularly when the clamping pallets are clamped.

Before installing, check whether the drive pistons and the attachment screw can be easily reached for opening and for clamping and loosening the interface connection on the workpiece direct clamping systems respectively.

⚠ WARNING

Risk of injury due to falling when transporting the workpiece tool changing modules.

- Transport with care.

⚠ CAUTION

Risk of injury due to crushing.

- Carefully install the workpiece direct clamping systems.
- Ensure that limbs do not enter into the gaps between the adaptable workpiece direct clamping modules or the base module and machine.
- Wear protective gloves.

5.2 General assembly notes

If several mounting pillars with VERO-S NSE plus clamping systems are mounted linked together, the interface position deviation does not exceed ±0.015 mm.

Due to redundancy between several quick-change pallet systems VERO-S NSE plus, the clamping pins or the clamping pin extensions with positioning accuracy in one direction (SPB 40 / SPB-VLK50) must be used for clamping systems that are more than 160 mm apart or that do not show a positioning tolerance of ± 0.01 mm. For the clamping areas that are not intended for aligning the device, workpiece or pallet, clamping pins or clamping pin extensions with centering clearance (SPC 40 / SPC-VLK50) can be used. ▸ 5.3 [🗋 18]

5.3 Clamping pins SPA 40, SPB 40, SPC 40, SPG 40

The VERO-S clamping pins SPA 40, SPB 40, SPC 40 and SPG 40 are compatible with the direct clamping module.

These clamping pins are suitable for use on clamping structures with precisely aligned height supports on the workpiece or the clamping pallet.

If you want to compensate for variable height distances on the workpiece or the clamping pallet, you can use the height-adjustable adapter SBA-HE 50-75 with manual clamping device.

CAUTION

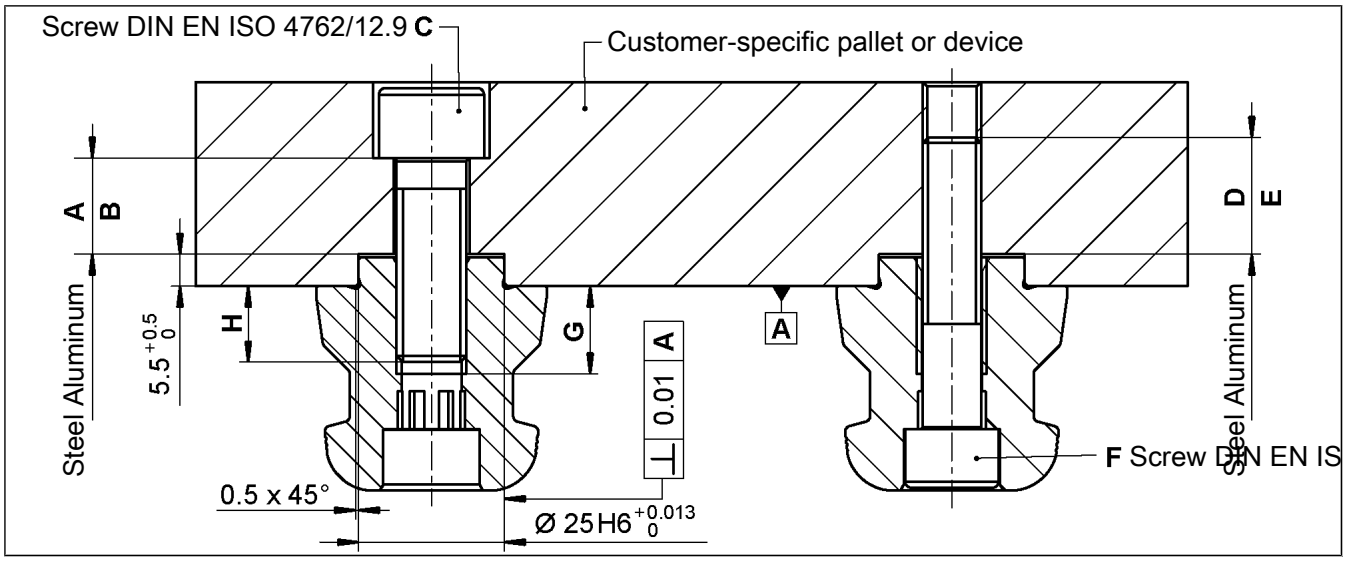
Notes on clamping pins and mounting screws

The holding force of the quick-change pallet system is limited essentially by the tightness of the screw connection which connects the clamping pin to the pallet or the device.

- This is why only screws of strength class 12.9 may be used.
- Only original SCHUNK clamping pins may be used.
- If the clamping pins are to be used in customer-owned devices, the customer must provide sufficiently dimensioned threaded holes or a sufficiently thick mounting material.

5.3.1 Standard clamping pins

The clamping pins can be attached to the workpiece or pallet in two different ways; the mounting variants are however numbered in the preferred order.



Clamping pin installation

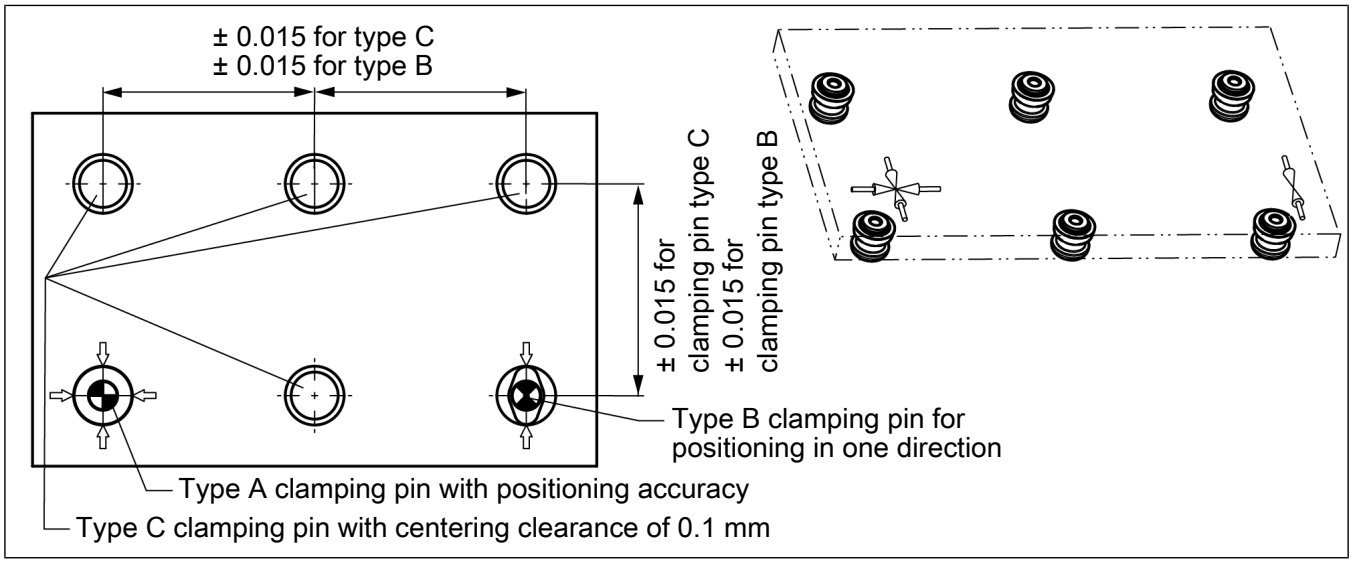
Tolerances and installation conditions

Type	ID	A	B	C	D	E	F	G*	H
SPA 40 RF	0471151	> 12	> 17	M12	> 15	> 20	M10	15	> 12
SPB 40 RF	0471152	> 12	> 17	M12	> 15	> 20	M10	15	> 12
SPC 40 RF	0471153	> 12	> 17	M12	> 15	> 20	M10	15	> 12
SPG 40 RF	0471154	> 12	> 17	M12	> 15	> 20	M10	25	> 22
SPA 40-16 RF	0471064	> 13	> 18	M16	> 18	> 24	M12	20	> 16
SPB 40-16 RF	0471065	> 13	> 18	M16	> 18	> 24	M12	20	> 16
SPC 40-16 RF	0471066	> 13	> 18	M16	> 18	> 24	M12	20	> 16

* The length of the screwed-in thread must not exceed the dimension "G" under any circumstances!

Usage/arrangement of the different types of clamping pins

(Workpiece: pallet with 6 clamping areas)



Tightening torques for mounting VERO-S clamping pins type SPA / SPB / SPC

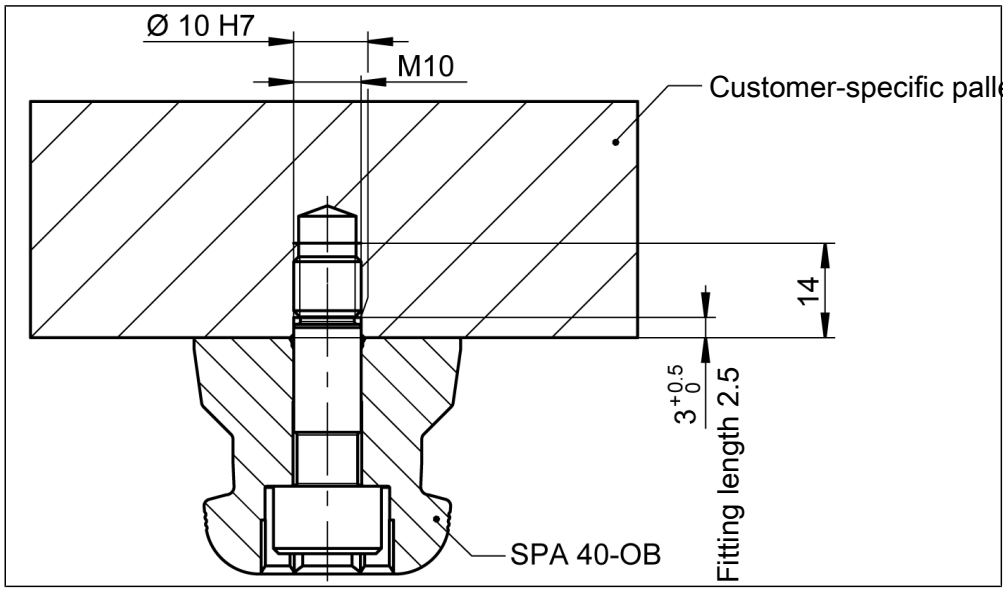
(Screw quality 12.9)

Screw size	M10	M12	M14	M16
Maximum admissible torque (Nm)	62	108	170	262

5.3.1.1 Clamping pin without collar SPA 40-OB, SPB 40-OB

The clamping pins without collar only require a slim fitting bore Ø 10 H7 in the installation space.

For the SPC 40-OB design, fit seating is not required.



Clamping pin installation SPA 40-OB

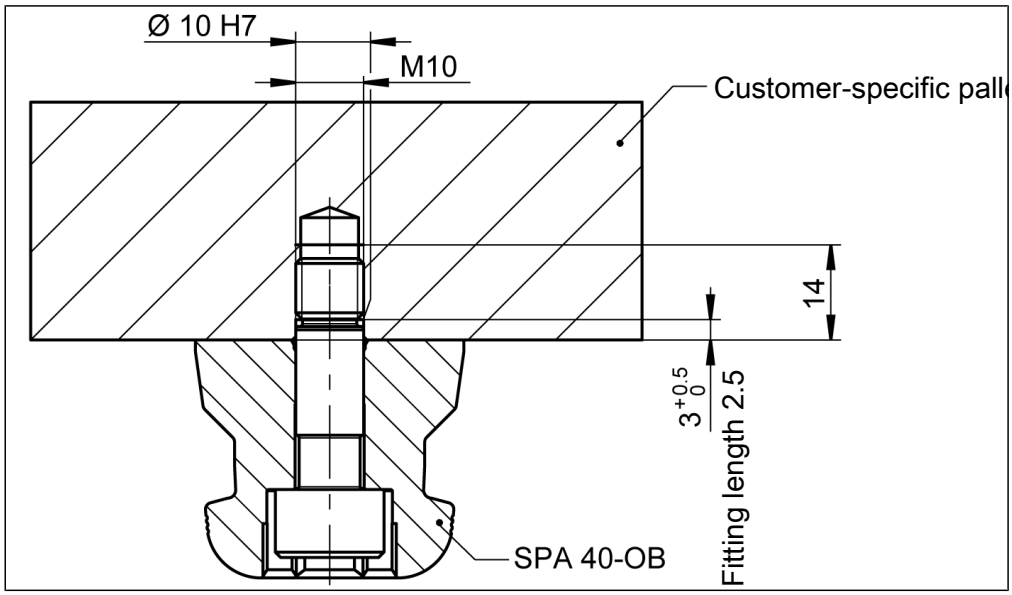
These clamping pins are designed for reduced machining forces due to their shortened thread length. The functionality and the selection for installation are described in the chapter "Clamping pins SPA 40, SPB 40, SPC 40, SPG 40" ▶ 5.3 [🗋 18].

Type	ID
SPA 40-OB	0471631
SPB 40-OB	1316935

5.3.2 Clamping pin without collar SPA 40-OB, SPB 40-OB

The clamping pins without collar only require a slim fitting bore Ø 12 H7 or Ø 16 H7 in the installation space.

For the SPC 40-OB design, fit seating is not required.



Clamping pin installation SPA 40-OB

These clamping pins are designed for reduced machining forces due to their shortened thread length. The functionality and the selection for installation are described in the chapter "Clamping pins SPA 40, SPB 40, SPC 40, SPG 40" ▶ 5.3 [🗋 18].

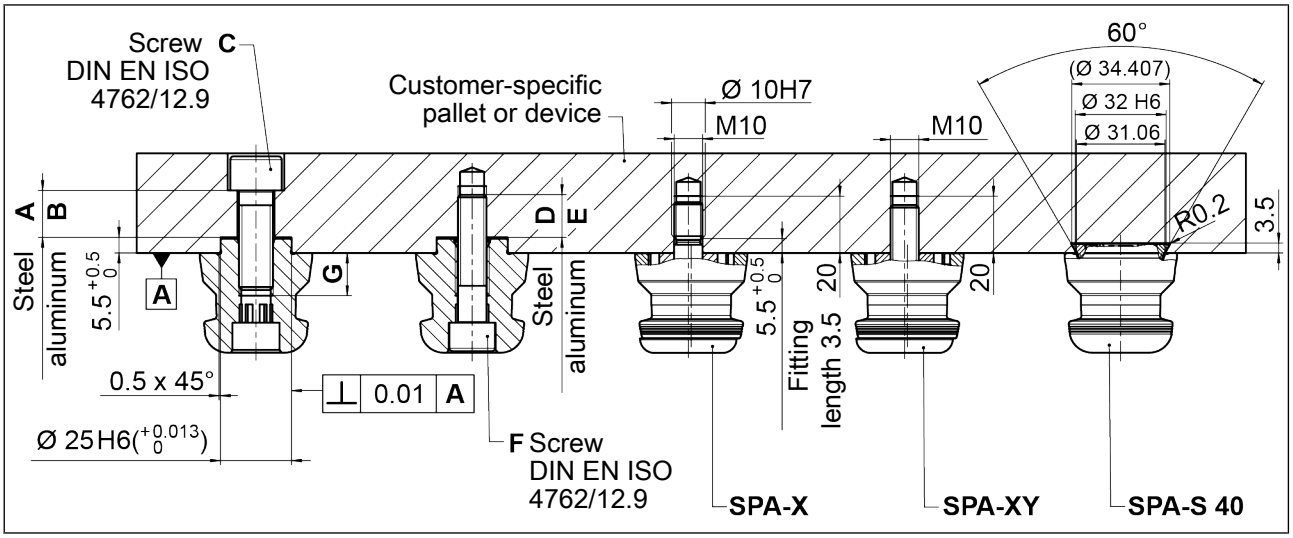
Type	ID
SBA-OB 40-12G6	1398355
SPB-OB 40-12G6	1398356
SBC-OB 40-12G6	1398357
SBA-OB 40-16G6	1398359
SBB-OB 40-16G6	1398360
SBC-OB 40-16G6	1398361

5.3.3 Clamping pins with position balancing SPD-B, SPD-C

The clamping pins have a movable clamping element, which can be used to compensate for flexible bore hole fluctuations.

Clamping pin SPA-X performs the function of a sword bolt and allows a position balancing in the longitudinal direction of ±1 mm. For use of the SPA-X, a fitting seating in the installation space is required.

The clamping pin SPA-XY can be used to compensate for concentric positioning tolerances. These clamping pins can be combined with all other VERO-S clamping pins in a workpiece interface. Using these clamping pins ensures smooth operation of workpiece clamping.



Type	ID
SPA-X	0471155
SPA-XY	0471156

6 Functional description

The clamping systems of the modular system WDM-5X can be combined with individual clamping pillars using change interfaces similar to a quick-change pallet system, and can be joined using the manual connecting devices of the system components. This enables a clamping device setup for 5-sided machining of a workpiece to be joined together on several clamping pillars.

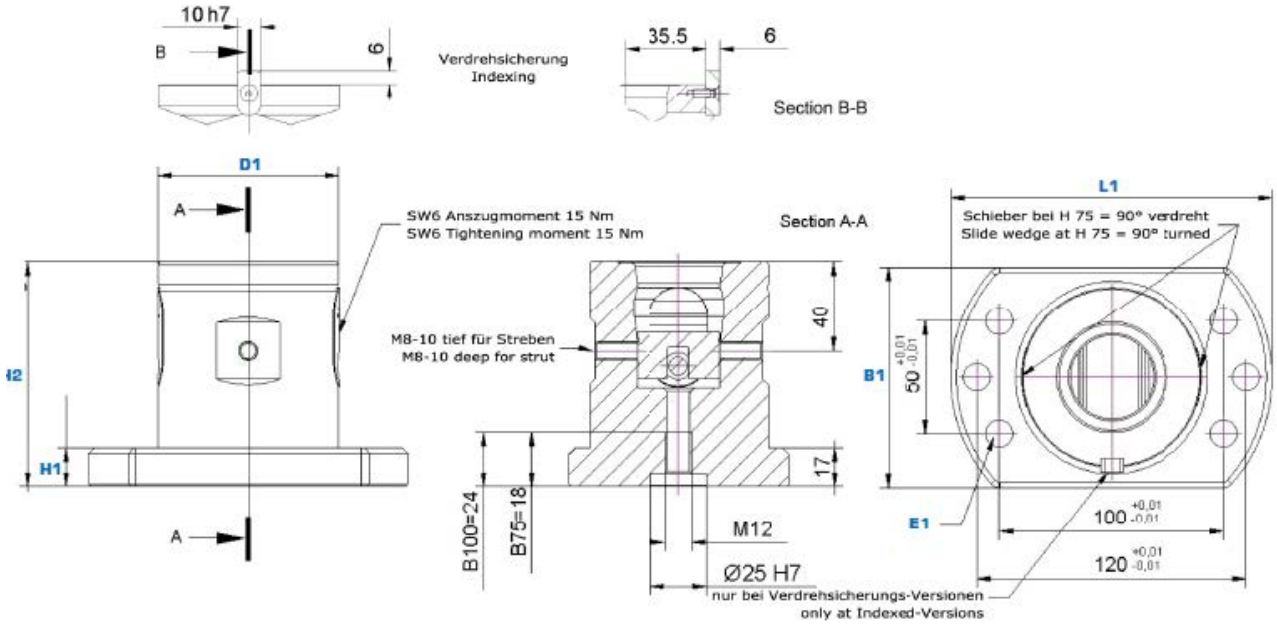
The clamping systems adapted on the clamping pillars can be actuated manually.
The basic and add-on modules are available in different heights. This enables them to be mounted with appropriate system combinations in increments of 25 mm.

6.1 WDM-5X basic module

The WDB-5X basic module is first mounted onto the machine table of the grid plate or a clamping station and either serves directly as a clamping system for workpiece direct clamping, or as a base for other elements of the modular system.

6.1.1 WDM-5X-BM 80-75 and WDM-5X-BM 80-100

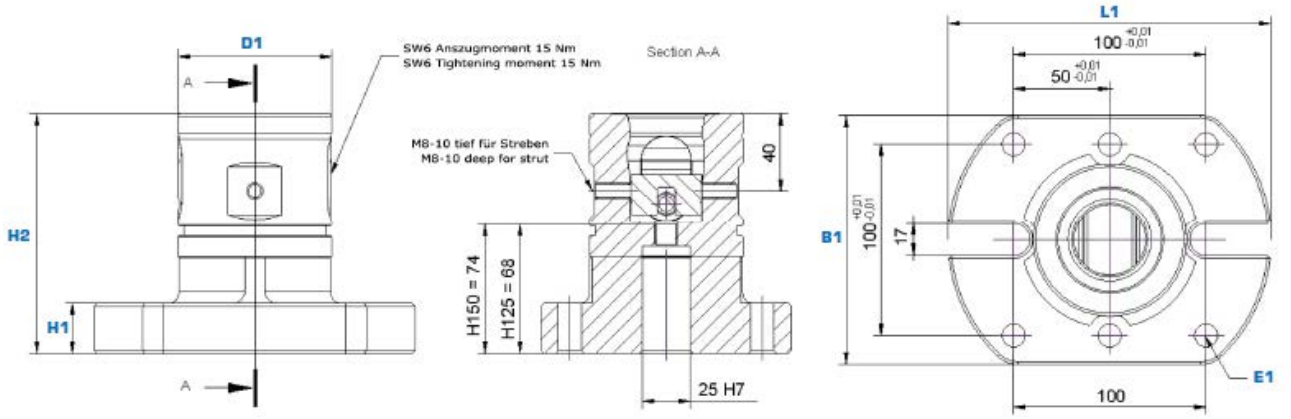
These modules can be mounted on 50 / 40 / M12 grids as well as on VERO-S quick-change pallet modules using size 40 clamping pins. On request, units with a special torque pin are also available.



ID number	L1	B1	H1	H2	D1	Torque pin	E1	Weight
1398160	Ø 143	98	17	75	80	-	6x12H7	3.55
1398161	Ø 143	98	17	100	80	-	6x12H7	4.45

6.1.2 WDM-5X-BM 80-125, WDM-5X-BM 80-150, WDM-5X-BM 80-175

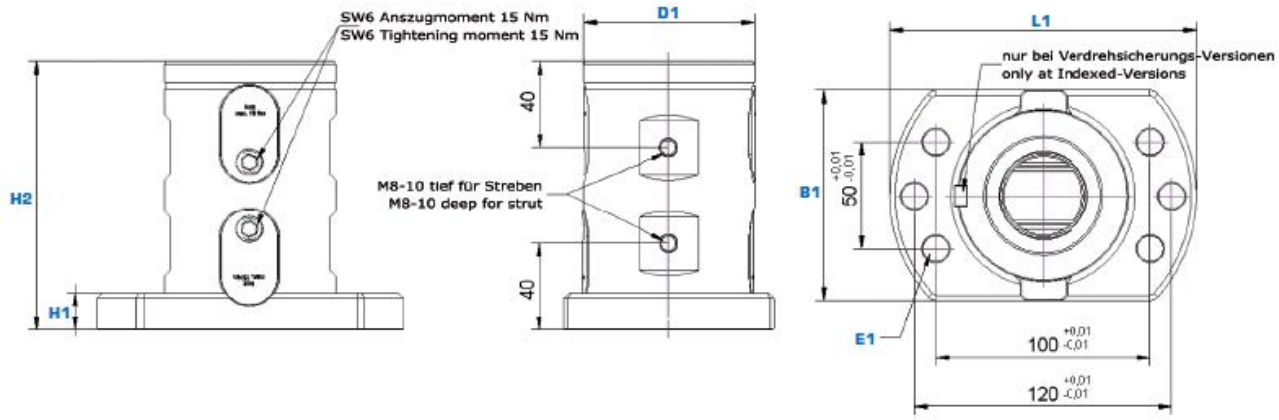
These modules can be assembled on 50 / 100 / M12-M16 grids, as well as on T-slot tables. The large base feet support flexible assembly.



ID number	L1	B1	H1	H2	D1	Torque pin	E1	Weight
1398162	Ø 168	130	26	125	80	-	6x12H7	6.65
1398163	Ø 168	130	26	150	80	-	6x12H7	7.60
1398164	Ø 168	130	26	175	80	-	6x12H7	7.45

6.1.3 WDM-5X-BDM 80-125

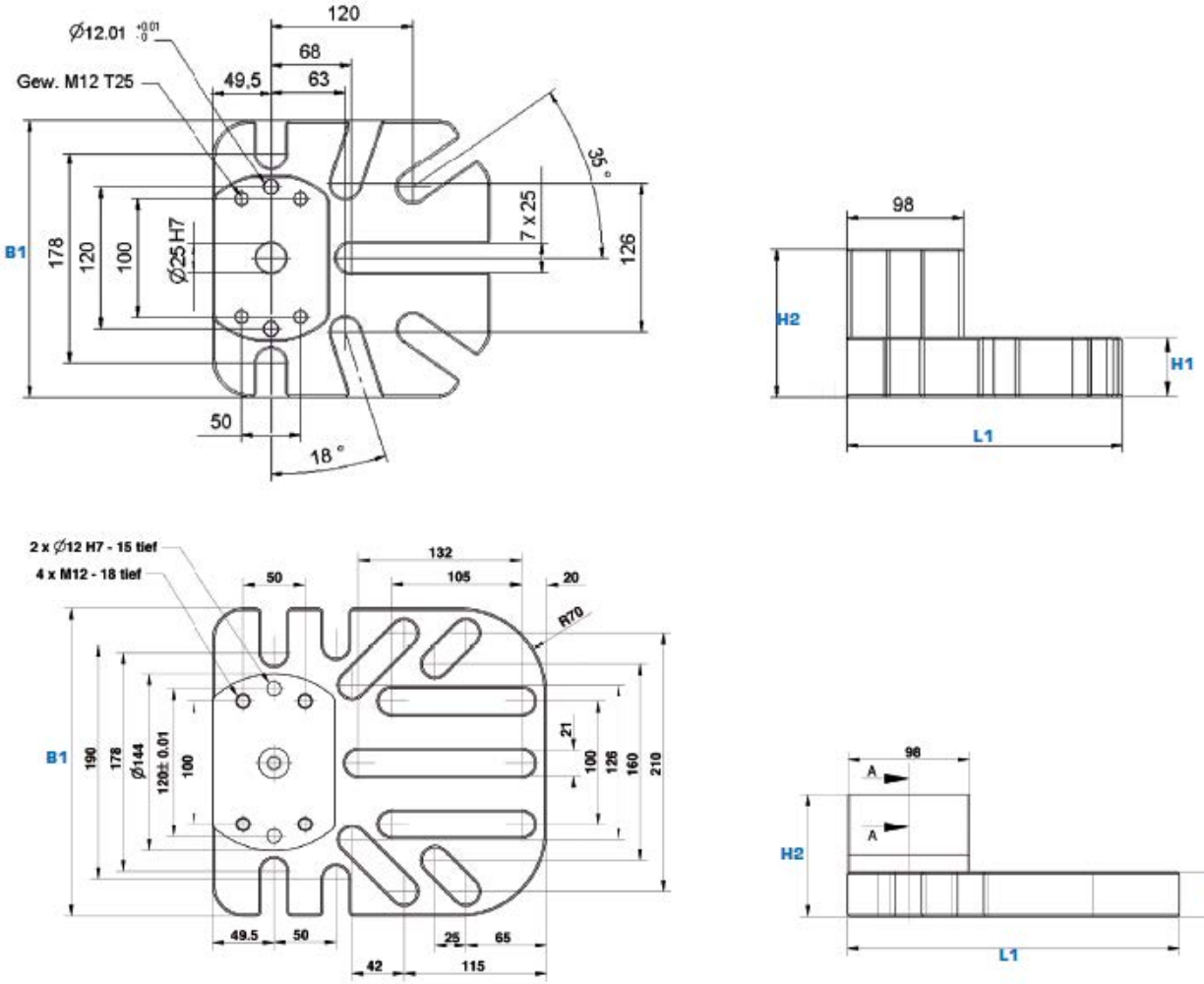
This module with double clamping has two clamping areas for mounting a size 40 clamping pin from above and from below.



ID number	L1	B1	H1	H2	D1	Torque pin	E1	Weight
1398171	Ø 143	98	17	125	80	-	6x12H7	5.00

6.2 WDM-5X Basic height extension

Basic mounting points or basic height extensions provide a stable substructure for the assembly of the basic module. They can be mounted onto all machine tables, even those with large hole patterns, without the use of clamping blanks.

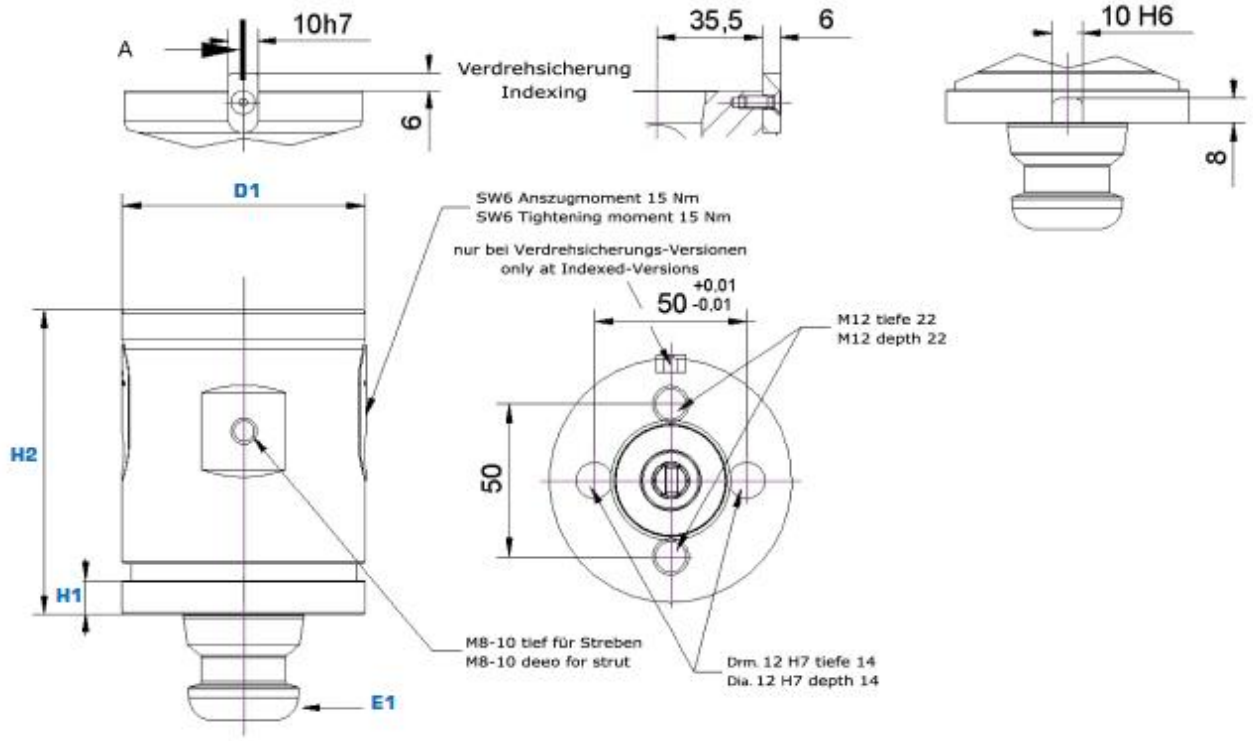


ID number	L1	B1	H1	H2	E1	Weight
1398172	235	235	50	50	max. M24	15.30
1398173	270	250	36	50	max. M21	14.20

6.3 WDM-5X Add-on module

6.3.1 WDM-5X-SM 80-75

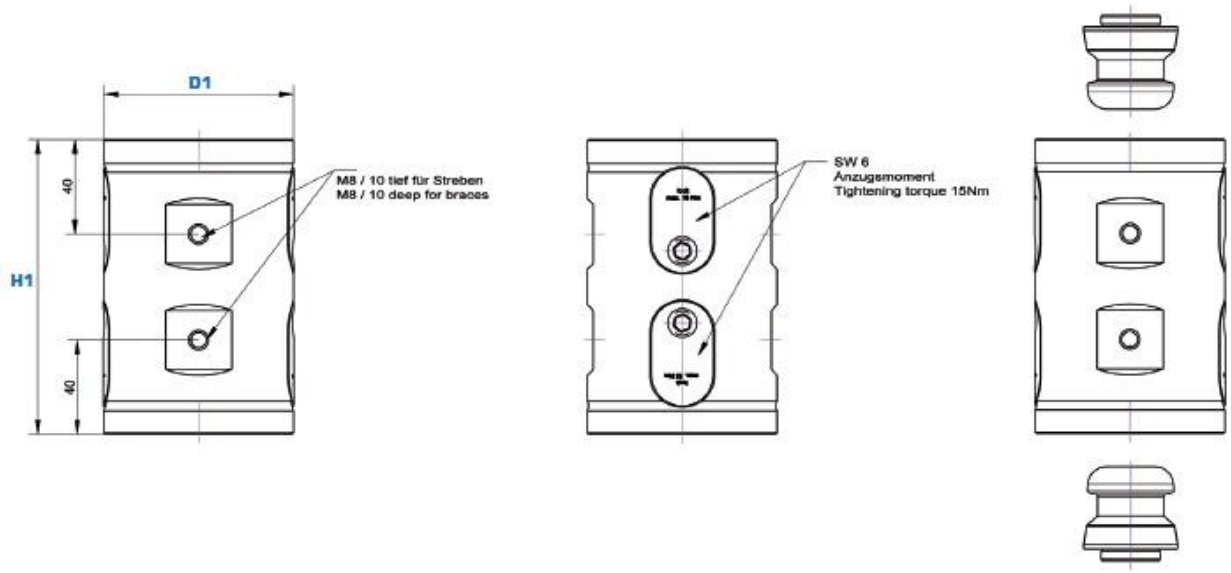
This module is used to raise the height of the basic module. This makes it easier to clamp hard-to-reach workpieces in different heights.



ID number	H1	H2	D1	Torque pin	E1	Weight
1398181	11	75	80	-	SBA 16	2.85
1398182	11	100	80	-	SBA 16	3.65
1398183	11	125	80	-	SBA 16	4.70

6.3.2 WDM-5X-SDM 80-125 (double clamping module)

This add-on module can be used as a connection for various 5X elements. It also serves as a basic module for assembly on machine tables/grid plates.

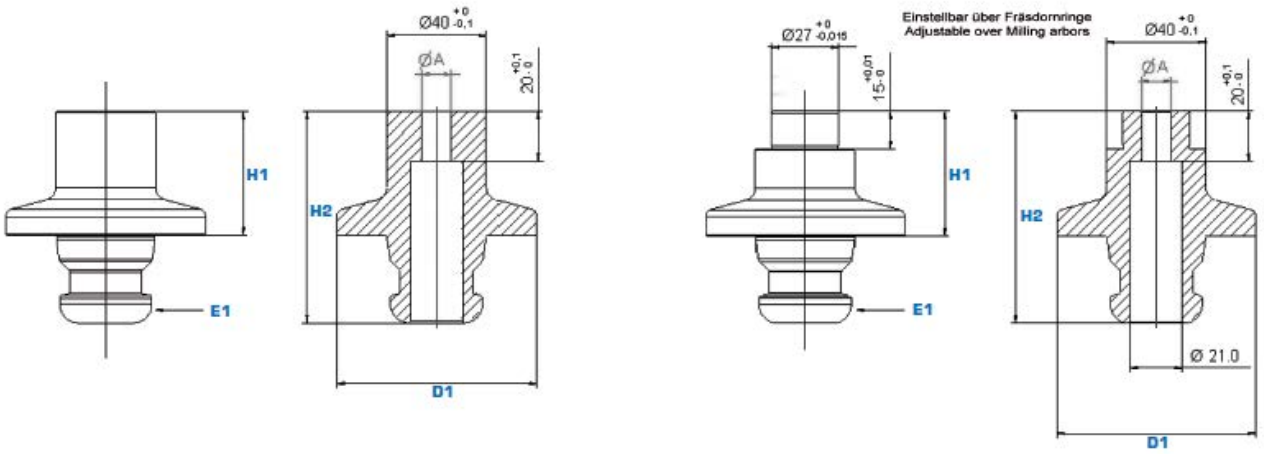


ID number	H1	D1	Torque pin	E1	Weight
1398181	125	80	-	2 x SBA 16	4.5

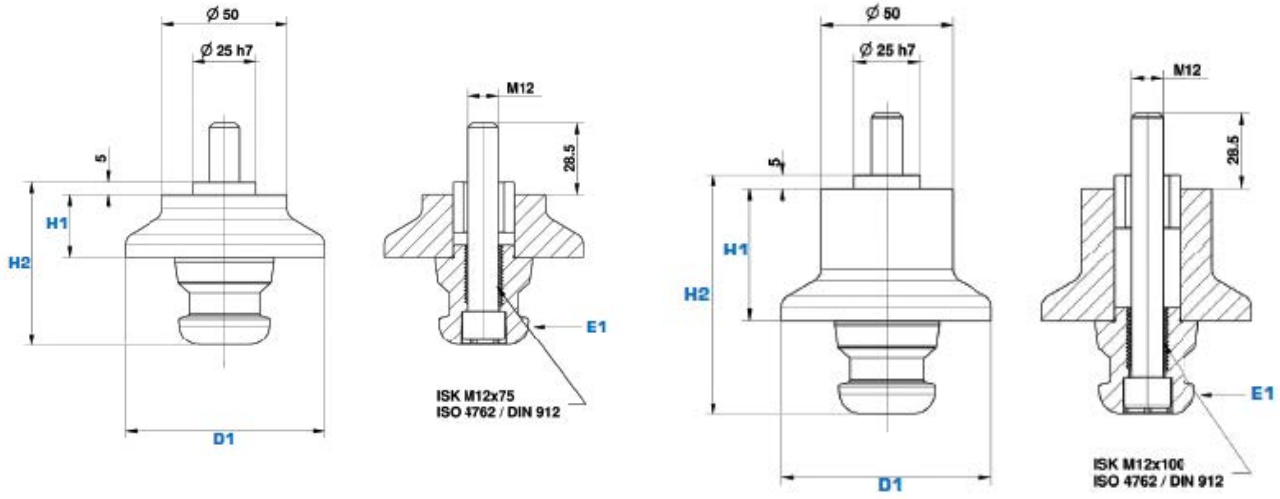
6.4 WDM-5X Reduction adapter

6.4.1 Reduction adapter SBA-VL

The reduction adapters implement optimum workpiece accessibility at the machining area. This makes it possible to clamp small bearing surfaces. The soft versions enable machining for any application. The adapters can be positioned using fitting screws or centering collars.



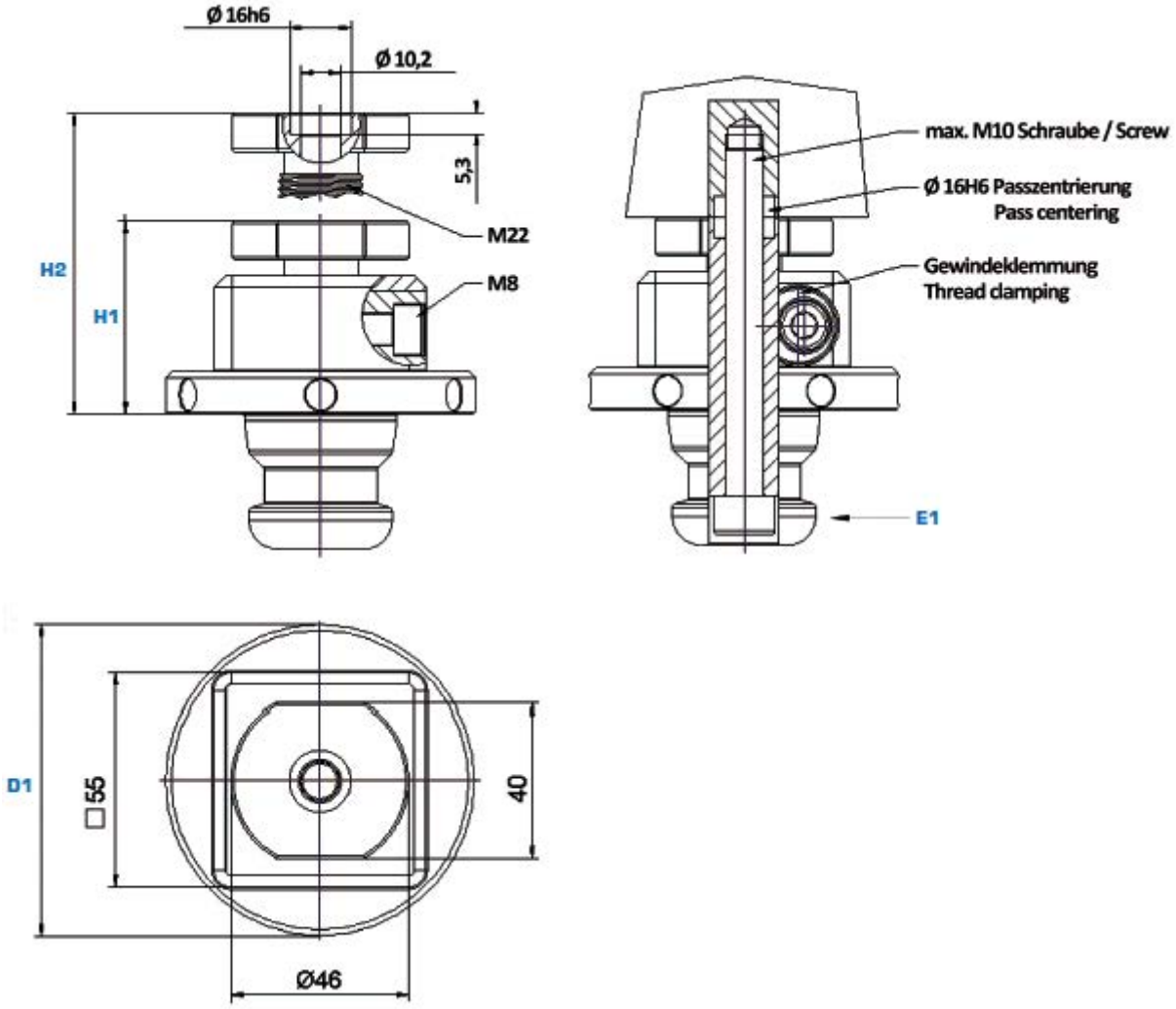
ID number	H1	D1	Version	Adjustable	E1	Weight
1398227	50	80/40	hard	-	SBA / Ø 16H6	1.00
1398228	50	80/27	hard	Arbor/ring Ø 2716	SBA / Ø 16H6	1.00



ID number	H1	H2	D1	Version	E1	Weight
1398229	25	60	80/50	soft	SBA 16 / M12x75	1.20
1398230	50	60	80/50	soft	SBA 16 / M12x100	1.50

6.4.2 Height-adjustable adapter SBA-HE

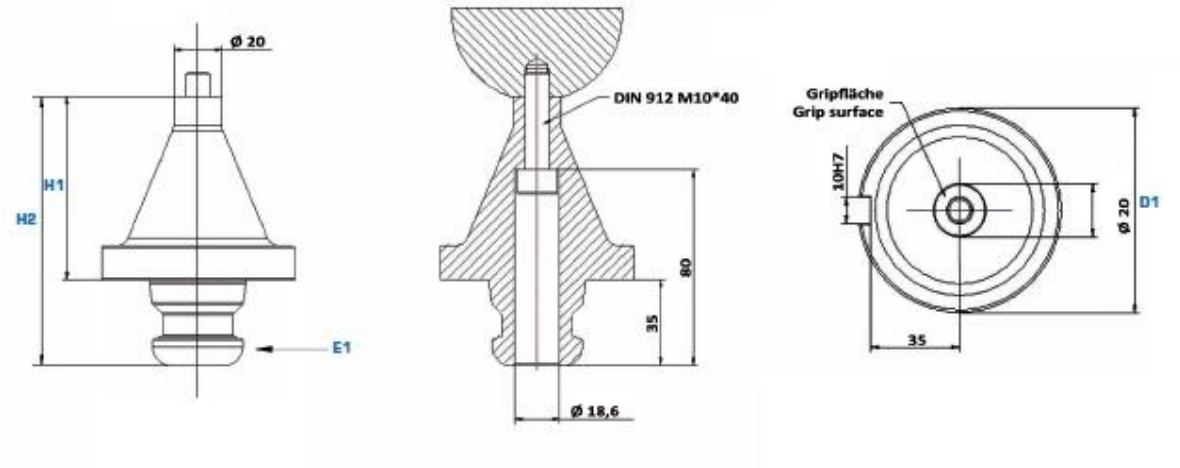
This adapter compensates for different heights during workpiece clamping. Only one adapter is required to enable heights between 50 mm and 75 mm.



ID number	H1	H2	D1	Indexing	E1	Weight
1398307	50	75	80	-	SBA M20	1.45

6.4.3 Plane grip adapter SBA-VLK

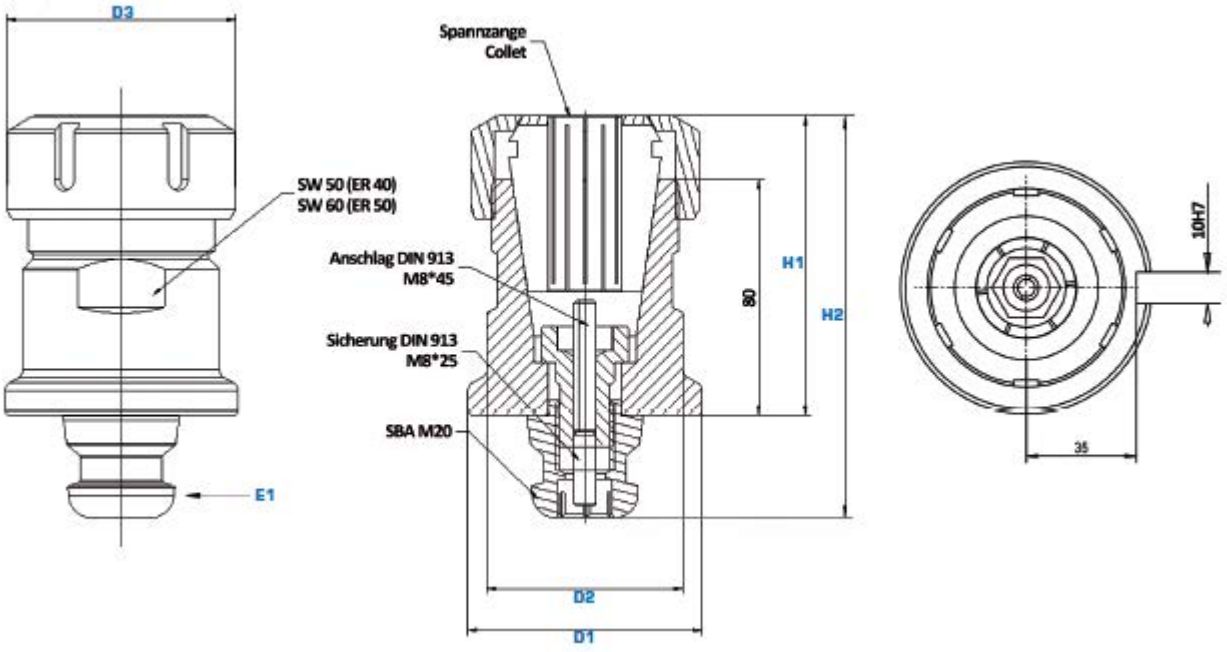
The plane grip adapter with star-shaped gripping surface supports milling of small components from all directions. Mounting is performed using an M10 mounting thread via the clamping pin.



ID number	H1	H2	D1	Torque pin	E1	Weight
1398308	75	110	80/20	10h7	SBA M20	1.30

6.4.4 Collet chuck adapter SBA-SEZ

Adapter for clamping shafts and round workpieces in collet chucks of size ER50.



ID number	H1	H2	D1	D2	D3	Torque pin	E1	Weight
1398309	approx. 100	approx. 135	80	87	78	10h7	SBA M20	2.00

7 Operation

⚠ WARNING

Risk of injury due to loss of pallets or workpieces in the case of incorrect actuation and by means of turning application.

- The danger zone must be surrounded by a protective enclosure during operation.
- Do not use the clamping systems on lathes.
- The clamping systems are only permitted for stationary applications with low turning and rotational motion of the clamping structure.

⚠ WARNING

Risk of injury due to falling parts during transport of the quick-change pallet system, when the axis of the clamping pin is in a horizontal position, or in the case of overhead application

- Use a crane for transportation.
- In the case of overhead application, or if the system is in a horizontal position, secure the pallets or workpieces so that they do not fall when the change modules are released.

⚠ CAUTION

There is a risk of limbs being crushed by moving parts during manual loading and unloading and the clamping procedure.

- Do not reach into the clamping pin holder.
- Use loading devices.
- Wear protective gloves.

CAUTION

For manual loading and unloading of workpieces using a crane, there is a danger of damage to the clamping systems by tilting.

Do not tilt the workpiece clamping structures when loading and unloading manually.

8 Maintenance and care

The clamping systems for workpiece direct clamping VERO-S WDM-5X are designed for low-maintenance operation, meaning it is only necessary to open and disassemble the clamping systems and clamping modules under exceptional circumstances.

If it is necessary to disassemble the quick-change pallet system, this may only be performed by trained specialist personnel.

- Clean all the parts thoroughly and check for damage and wear. Damaged and worn parts must be replaced.
- Grease the sliding surfaces of all the other movable components with Renolit HLT 2.

Replace damaged parts with original SCHUNK spare parts only.
A functional check must be conducted before commissioning.

General operating conditions

- Make sure that the contact surfaces of the interface are always clean.
- Always ensure that no chips of any kind enter the interface of the change components.
- Only use high-quality cooling emulsions with anti-corrosive additives during processing.
- Check the clamping systems at regular intervals (at least every two weeks or after 100 clamping operations). Perfect operation is achieved whenever the clamping slides move smoothly without increased application of force when actuated by means of the clamping screw.
- Carry out regular visual / functional checks. In case of visible damage or signs of malfunction on the clamping systems, shut it down immediately. The system may only be commissioned again once the faults have been removed. For example, by replacing the damaged units.

9 Trouble shooting

The chuck jaws on the modules no longer clamp properly

Possible cause	Solution(s)
Clamping screw stiff	Replace clamping screw (spare part scope of delivery)
Drive hexagon socket on the clamping screw defective	Replace clamping screw (spare part scope of delivery)
Flat work surface between the modules not achieved	Clean component at the contact surfaces. Assess sealing elements and replace if necessary

The clamping area does not unlock properly

Possible cause	Solution(s)
The module is not lubricated sufficiently	Disassemble, clean and relubricate the module (▶ 8 [🗋 34])
The clamping slide or movement mechanism is damaged	Disassemble the module, replace damaged and worn parts with original SCHUNK spare parts (▶ 8 [🗋 34])
A component is broken (e.g. due to overloading)	Replace the module or send it to SCHUNK for repair
Excess tensile load on clamping pins	Reduce support weight
Lock the clamping pin	Be aware of the direction of rotation for unlocking on the manual direct clamping module
Clamping module not completely opened	Actuate manually in the direction of the "UNLOCK" marking on the drive until you reach the end position

10 Parts lists

10.1 Basic modules

WDM-5X-BM 80-75 (ID 1398160)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	2

WDM-5X-BM 80-100 (ID 1398161)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	2

WDM-5X-BM 80-125 (ID 1398162)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	2

WDM-5X-BM 80-150 (ID 1398163)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	2

WDM-5X-BM 80-175 (ID 1398164)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	2

WDM-5X-BDM 80-125 (ID 1398171)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	2

10.2 Basic height extension

WDM-5X-BP 235-235-50 (ID 1398172)

Item	Designation	Quantity
1	Base body	1

WDM-5X-BP 270-250-36 (ID 1398173)

Item	Designation	Quantity
1	Base body	1

10.3 Add-on modules

WDM-5X-SM 80-75 (ID 1398181)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	1
10	Clamping pin SBA	1

WDM-5X-SM 80-100 (ID 1398182)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	1
10	Clamping pin SBA	1

WDM-5X-SM 80-125 (ID 1398183)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2
9	Screw DIN EN 4762	1
10	Clamping pin SBA	1

WDM-5X-SDM 80-125 (ID 1398184)

Item	Designation	Quantity
1	Base body	1
2	Right chuck jaw	1
3	Left chuck jaw	1
4	Compensation part	1
5	Spindle	1
6	Needle roller	2
8	Set-screw	2

10.4 Reduction adapter

SBA-VL-P 50-M16 (ID 1398227)

Item	Designation	Quantity
1	Base body	1

SBA-VL-PA 50-M16 (ID 1398228)

Item	Designation	Quantity
1	Base body	1

SBA-VL 25-M12 (ID 1398229)

Item	Designation	Quantity
1	Base body	1
2	Screw DIN EN 4762	1
3	Clamping pin SBA	1

SBA-VL 50-M12 (ID 1398230)

Item	Designation	Quantity
1	Base body	1
2	Screw DIN EN 4762	1
3	Clamping pin SBA	1

SBA-HE 50-75 (ID 1398307)

Item	Designation	Quantity
1	Base body	1
2	Thread clamp, right	1
3	Thread clamp, left	1
4	Compensation spindle	1
5	Screw DIN EN 4762	1
6	Screw DIN EN 4762	1

SBA-VLK 75-M10 (ID 1398308)

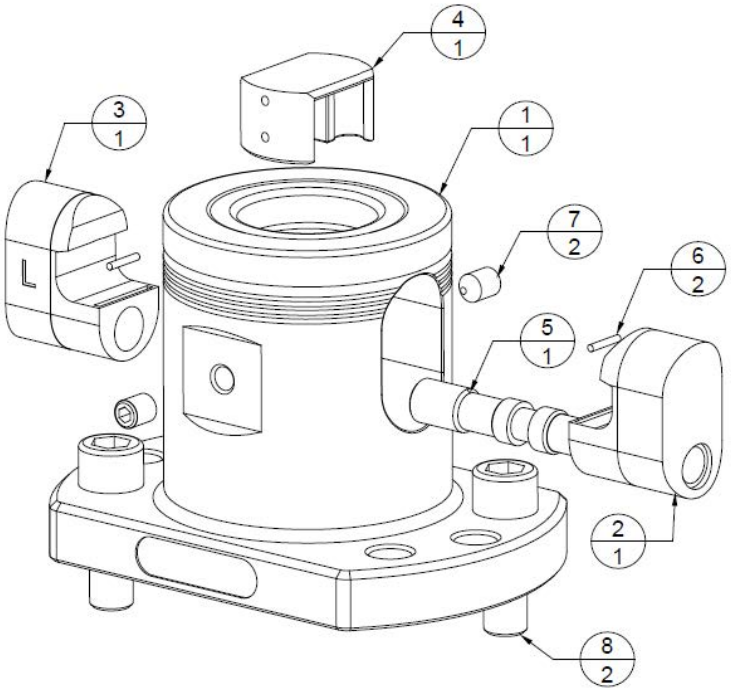
Item	Designation	Quantity
1	Base body	1

SBA-SEZ ER50-100 (ID 1398309)

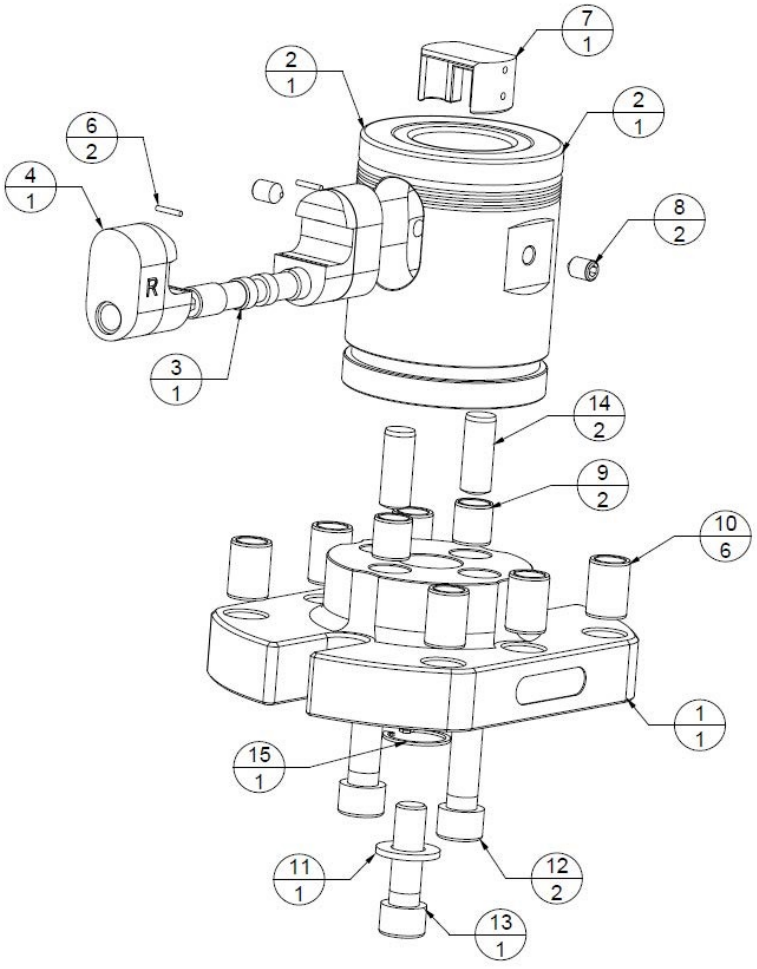
Item	Designation	Quantity
1	Base body	1
2	Clamping pin SBA M20	1
3	Set-screw	1
4	Set-screw	1
5	Special screw	1
6	Cap nut	1

11 Assembly Drawings

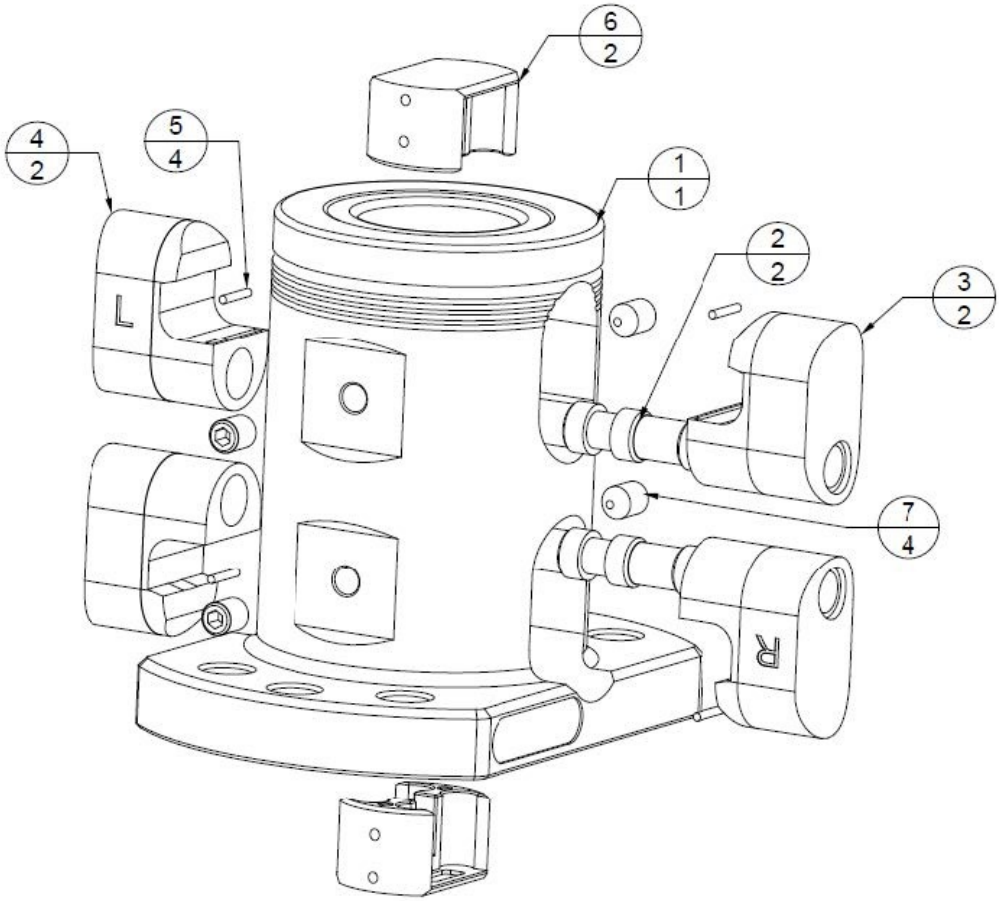
Basic module type A

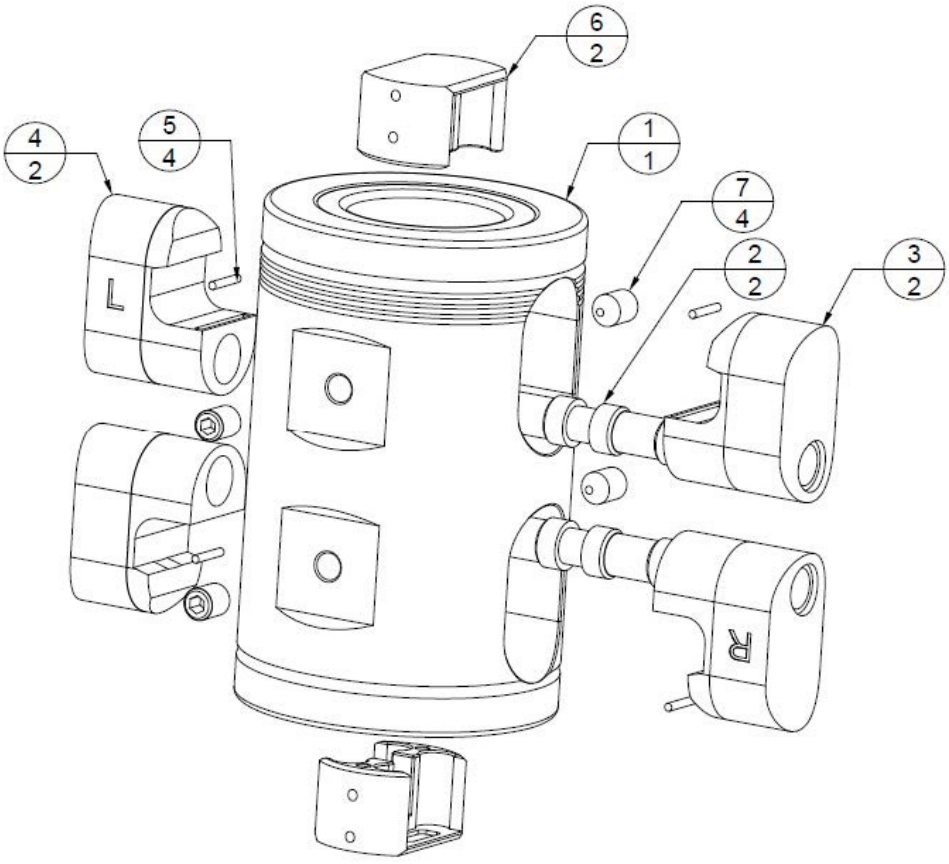


Basic module type B

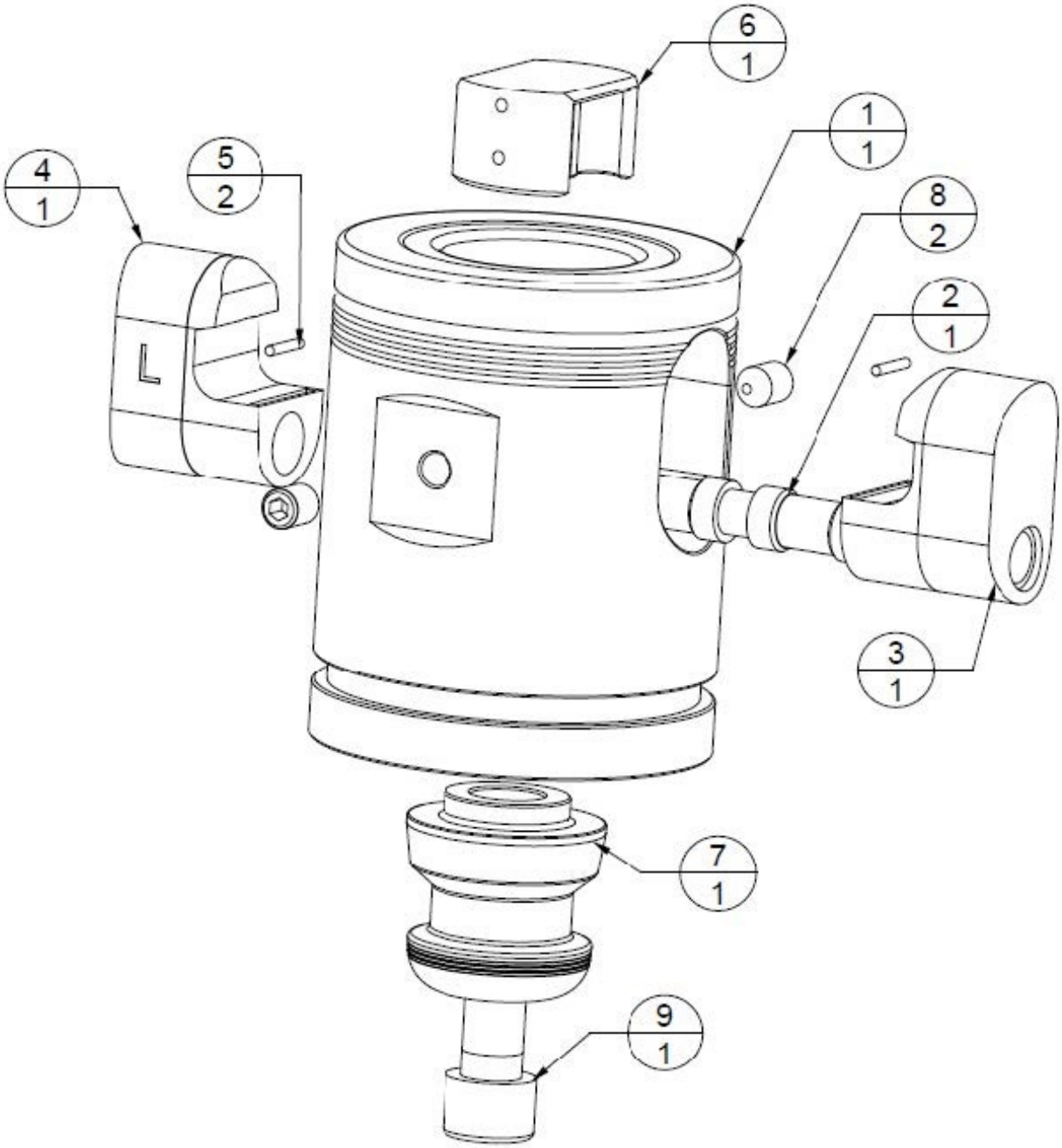


Double clamping module





Add-on module



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