

# Quick-Change Pallet System

## VERO-S NSE-M plus 138

### Assembly and Operating Manual

Translation of original operating manual

## Imprint

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### 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

Tel. +49-7572-7614-1300

Fax +49-7572-7614-1039

cmm@de.schunk.com



**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 the safe, correct use of the product.

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

Personnel must have read and understood this manual before beginning any work. The observance of all safety notes in this manual is a prerequisite to ensure safe work processes.

The illustrations are intended to provide a basic understanding and may deviate from the actual version.

Besides this manual, other documents which apply are those listed under ▶ 1.1.2 [ 6 ]

### 1.1.1 Illustration of safety notes

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



#### **⚠ DANGER**

Denotes a hazard with a high degree of risk that, if not avoided, will result in death or serious injury.



#### **⚠ WARNING**

Denotes a hazard with a medium degree of risk that, if not avoided, could result in death or serious injury.



#### **⚠ CAUTION**

Denotes a hazard with a low degree of risk that, if not avoided, could result in a minor or moderate injury.

#### **CAUTION**

Information about avoiding material damage.

### 1.1.2 Applicable documents

- General Terms and Conditions \*
- Catalog data sheet for the attached product \*
- Technical data sheet for optional attachments \*
- Approval drawings

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

### 1.2 Warranty

The warranty for standard products is 24 months from the date of delivery from the factory, or 50,000 cycles\* for manually operated clamping devices and 500,000 cycles\* for power operated clamping devices. For special clamping devices, it is 12 months from the date of delivery from the factory, assuming appropriate use in accordance with the following conditions:

- Observe the applicable documents, ▶ 1.1.2 [ 6 ]
- Observance of the ambient conditions and operating conditions
- Observe the care and maintenance instructions

Parts touching the workpiece and wearing parts are not covered by the warranty.

\* One cycle comprises one complete clamping procedure ("opening" and "closing").

### 1.3 Scope of delivery

The scope of delivery includes

- Quick-change pallet system in the version ordered
- Accessory kit

### 1.4 Accessories

(see catalog or data sheets when ordering separately)

- Clamping pallets Type PAL
- Clamping pins (in particular SPA 40, SPB 40, SPC 40)
- Dome-shaped centering bushing Type ZKA
- Protection cover SDE
- Fitting bolt PBN
- Indexing pins IXB V1

## 2 Basic safety notes

Improper handling, assembly and maintenance of this product may result in risk to persons and equipment if this operating manual is not observed.

### 2.1 Appropriate use

- This product and the compatible add-on components are intended for positioning and clamping workpieces or clamping pallets on machine tools.
- The product may only be used within the scope of its technical data.
- The product is intended for industrial and commercial use.
- Appropriate use of the product includes compliance with all instructions in this manual.
- Clamping of pallets and workpieces with temperatures between 0°C and 100°C, with clamping devices for higher temperatures (HT variant) up to 200°C.

### 2.2 Inappropriate use

The product is not being used appropriately if:

- the product is used as a pressing tool, a toolholder, a load-handling device or as lifting equipment.
- the technical data specified are exceeded during usage.
- the clamping pin or clamping ring is not mounted properly.
- the product is used for turning applications over 100 RPM without consulting SCHUNK.
- the product is not fully covered by the pallet, the fixture or the workpiece.
- the product is brought into contact with aggressive media, especially acids.
- the product is used in abrasive blasting processes, especially sandblasting.

## 2.3 Structural changes

### Implementation of structural changes

Modifications, changes or reworking, e.g. additional threads, holes, or safety devices, can damage the product or impair its functionality or safety.

- 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.

- Only use original spare parts and spares authorized by SCHUNK.

## 2.5 Ambient conditions 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 in the service life of the product.

- Ensure that the product is only used within its technical data.
- Ensure that the product is of a sufficient size for the application.
- Ensure that the contact surfaces of the interface and recesses towards the locating surfaces above the mounting points are kept clean at all times.  
Prevent chips from entering the interface and cooling emulsion from filling the interface.
- Only use cooling emulsions with anti-corrosive additives when machining.
- When using the cone seal, protect it from direct high-pressure spraying with cooling emulsion.

## 2.6 Material limitations

The product is made of steel alloys, elastomers and aluminum alloys. In addition, Branotect anti-rust oil and Renolit HLT2 are incorporated into the product as auxiliary and operating materials.

## 2.7 Personnel qualification

### Inadequate qualification of personnel

Any work on the product by inadequately qualified personnel can lead to serious injuries and considerable material damage.

- All work must be performed by appropriately qualified personnel.
- Personnel must have read and understood the complete manual before beginning any work on the product.
- Observe country-specific accident prevention regulations and the general safety notes.

The following personnel qualifications are required for the various activities on the product:

<b>Qualified electrician</b>	Qualified electricians have the professional training, knowledge, and experience to work on electrical systems, to recognize and avoid potential dangers, and know the relevant standards and regulations.
<b>Specialist personnel</b>	Specialist personnel have the specialized training, knowledge, and experience to perform the tasks entrusted to them, to recognize and avoid potential dangers, and know the relevant standards and regulations.
<b>Instructed person</b>	Instructed persons have been instructed by the operator regarding the tasks entrusted to them and the potential dangers of inappropriate behavior.
<b>Manufacturer's service personnel</b>	The manufacturer's service personnel have the specialized training, knowledge, and experience to perform the work entrusted to them and to recognize and avoid potential dangers.

## 2.8 Personal protective equipment

### Use of personal protective equipment

Personal protective equipment serves to protect staff in the event of a danger that may interfere with their health or safety at work.

## 2.9 Transport

### Handling during transport

Incorrect handling during transport can make the product unsafe and risks the danger of serious injuries and considerable material damage.

- During transport and handling, secure the product to prevent it from falling.

## 2.10 Protection during handling and assembly

### Incorrect handling and assembly

Incorrect handling and assembly can make the product unsafe and can risk the danger of serious injuries and considerable material damage.

- All work must only be performed by appropriately qualified personnel.
- Secure the system against accidental operation during all work.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

## 2.11 Protection during commissioning and operation

### Falling or violently ejected components

Falling and ejected components can lead to serious injury or death.

- Take suitable protective measures to secure the danger zone.

### Manual loading

- If the clamping device is closed, the clamping pallet rests on the clamping slides after loading. When the clamping device is opened, the clamping pallet falls down. This poses a risk of crushing.

## 2.12 Notes on safe operation

### Incorrect manner of working by personnel

An incorrect manner of working can make the product unsafe and risks serious injuries and considerable material damage.

- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. Products for special ambient conditions are excluded here.
- Do not expose the product to any media that lead to swelling or corroding of seals.
- Rectify malfunctions as soon as they occur.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention, and environmental protection regulations for the application field of the product.
- The machine spindle must not be started until the clamping pressure in the clamping device has built up.
- Unclamping may only occur once the machine spindle has come to a standstill.

## 2.13 Disposal

### Handling of disposal

Incorrect handling of disposal can make the product unsafe and lead to risks of environmental harm.

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

## 2.14 Fundamental dangers

### General

- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- Do not reach into the open mechanism or movement area of the product during operation.

## 2.15 Protection against dangerous movements

### Safe condition

Quick-change pallet system with or without chuck jaws clamped and without energy.

### Unexpected movements

If the system still retains residual energy, serious injuries can be caused while working on the product.

- Establish a safe state, switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.

## 2.16 Notes on particular risks



### **⚠ WARNING**

**Risk of injury due to falling device, pallet or workpiece if the clamping pin or clamping ring is loosened erroneously or as a result of negligence.**

- During operation, unintentional loosening of the clamping pin or clamping ring must be prevented by suitable countermeasures (implementation of the safety functions according to the risk assessment of the integrator).
- Wear personal protective equipment.



**⚠ WARNING**

**Risk of injury during commissioning due to a falling unlocked device, pallet or workpiece.**

- During loading, check that the coupling elements, devices, pallets or workpieces are positioned so they are aligned to each other.
- Clamping pallets with torque pin must be fed to the module in the correct orientation before locking.
- For modules with media transfer units, ensure the loading weight on the change interface is sufficient to ensure the surface of the interface is level with the module.



**⚠ WARNING**

**Risk of injury when the clamping pin or clamping ring axis is in a horizontal position or during overhead applications due to the device or pallet falling down.**

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



**⚠ WARNING**

**The quick-change pallet system clamps using spring force. Risk of injury due to parts automatically moving to their end positions following actuation of an >>emergency stop<< or after switching off or failure of the power supply.**

- Wait for the system to come to a complete standstill in safe state.
- Do not reach into the clamping module.



**⚠ CAUTION**

**Risk of injury due to contamination (e.g. coolant or splashing water) in the blow-out and air purge connections of the clamping module or in the change interface.**

- Clean the quick-change pallet system before loading.
- Wear personal protective equipment (safety goggles).



**⚠ CAUTION**

**Risk of injury from pressurized media transfer unit interfaces. The actuated clamping device on top of these may move unexpectedly as a result.**

- Do not control the media transfer units until the device is clamped on the quick-change pallet systems.
- Take suitable protective measures to secure the danger zone.

### 3 Technical data

Repeat accuracy [mm]	< 0.005
Pull down force [kN]	2.5
Operating torque [Nm]	15
Operating temperature [°C]	+5 to +60
Installation position	Horizontal or vertical <b>no overhead application!</b>

Designation Variant	ID	Holding force* (M10 / M12 / M16) [kN]
NSE-M plus 138	0471140	35 / 50 / 75
NSE-M plus 138-V1	0471141	35 / 50 / 75

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

#### 3.1 Suitability for welding applications

The clamping device can be used for welding applications with a **welding current of up to 525 A**. The welding current is allowed to flow through the clamping device.

#### **CAUTION**

**In welding applications, special care must be taken to ensure that the operating temperature of the clamping device is not exceeded due to heat conduction in the workpiece.**

#### **CAUTION**

**The contact surfaces of the workpiece and the clamping bolt must always be kept clean to ensure the best possible contact with the clamping device.**

**If the quick-change pallet system is to be used outside the specified welding currents, please contact your SCHUNK contact person.**

## 4 Assembly

The item numbers to the corresponding individual parts refer to the drawing in chapter 11.

**Access to the drive piston (item 4) on the side must be ensured during the assembly of the manually actuated quick change pallet system, in particular in the event of clamped clamping pallets. Check whether the drive piston is easy to access in order to open or close the clamping module prior to the installation.**

Wear protective equipment (protective gloves and safety shoes).



### ⚠ WARNING

**Risk of injury due to falling down of the Quick Change Pallet System during transport**

Transport carefully.

Use a crane and/or a trolley for transport



### ⚠ CAUTION

**Risk of injury due to squeezing**

Install the Quick Change Pallet System carefully.

Don't get your limbs in a gap between moving parts or clamping fixture of the machine.

### 4.1 General assembly notes

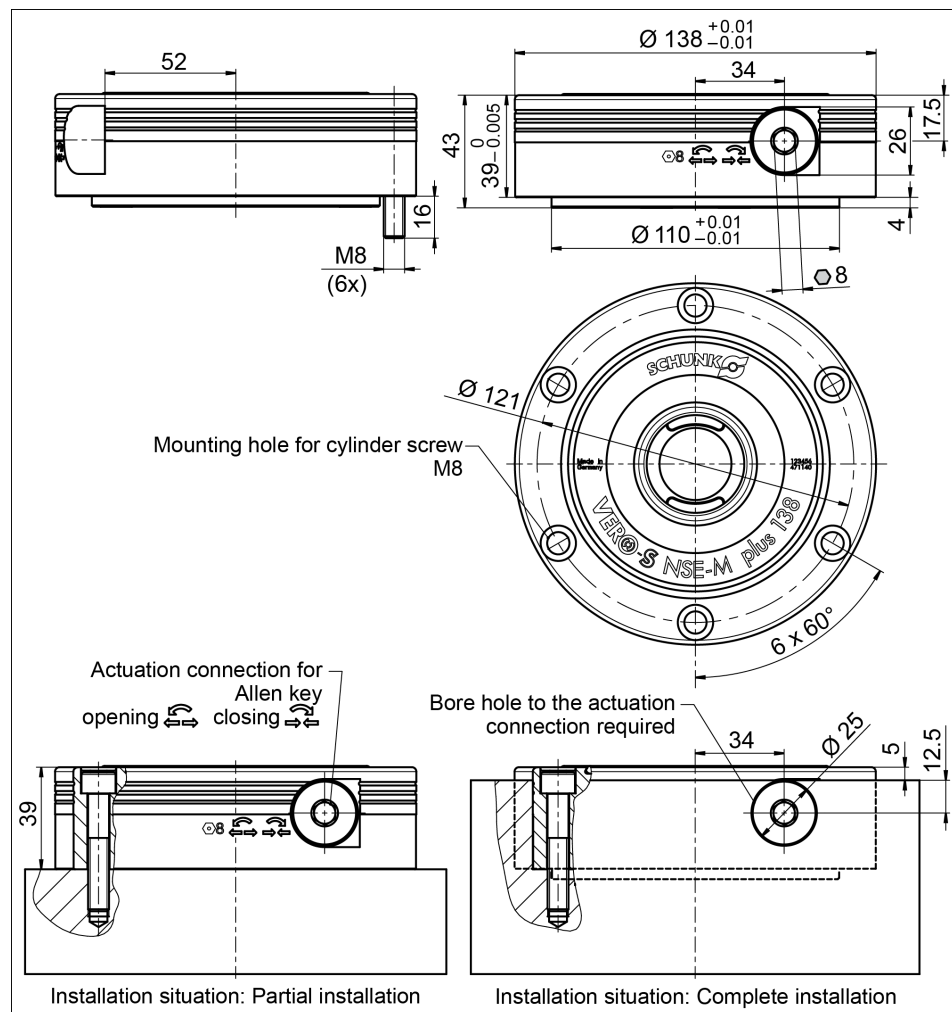
If several clamping units are to be mounted in serial connection, please make sure that the evenness and deviation in height of the supporting surfaces from module to module keeps within 0.01 mm (relating to a depth gauge of 200 mm). The deviation of the interface position should not exceed  $\pm 0.015$  mm.

Due to the redundancy, clamping systems that are lying further than 160 mm apart from each other or whose positioning tolerance is not within  $\pm 0.01$  mm should use clamping pins with positioning accuracy in one direction (SPB 40). For clamping positions which are not used for alignment of the devices or pallets, clamping pins with centric scope (SPC 40) can be used (see also chapter 6.4).

### 4.2 Mounting and actuation

**If you wish to install the unit yourself, please request our drawing.**

## 4.2.1 NSE-M plus 138



### Dimensions and assembly

The NSE-M plus 138 is fastened in the installation area with six screws M8.

Positioning of the module can be done via two different centering diameters of the installation area:

Ø 138H6 (upper area)

Ø 110H6 (bottom area) depending on the installation version.

The clamping system is suitable for partial or complete installation

### Partial installation should be preferred.

An access bore to the actuation connection must be provided in the installation space for the complete installation.

Make sure the hexagon socket of the actuating piston is easy to access at all times. An access bore of sufficient size ensures that the access to the hexagon socket is well visible.

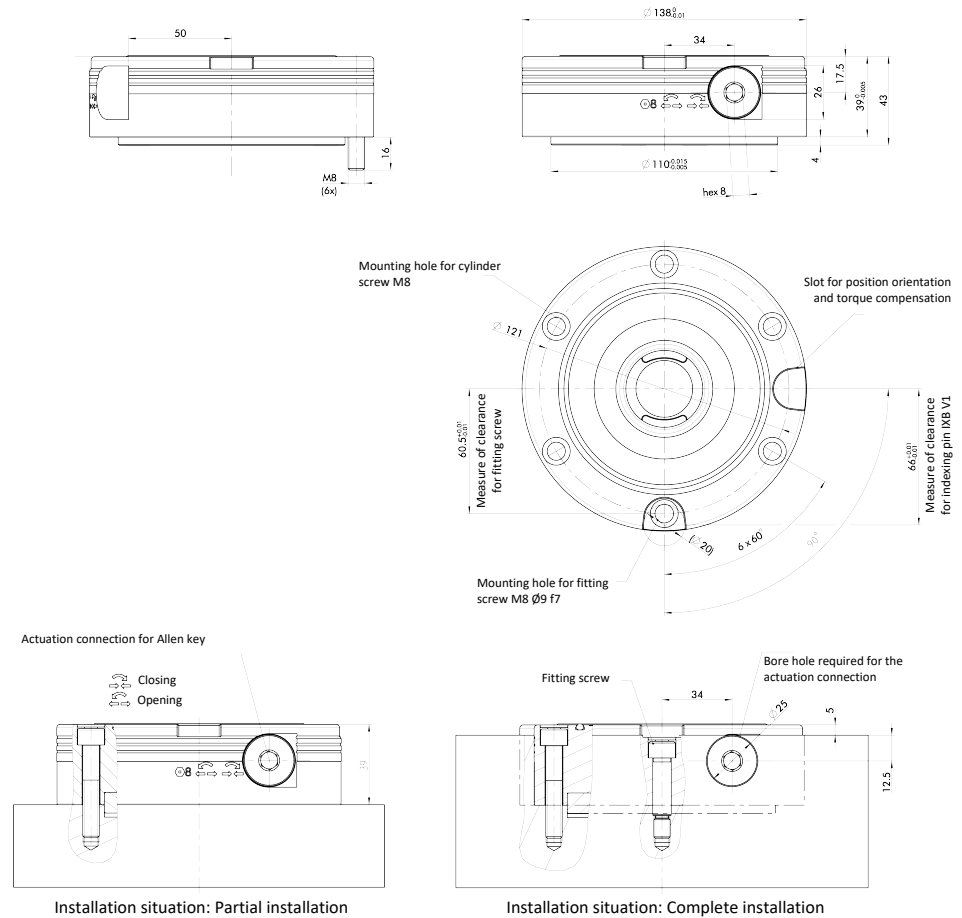
If any chips are in the access bore or hexagon socket, they have to be removed prior to actuation.

The clamping system is driven manually by rotating the drive piston (item 4). The drive piston is laterally in the base body (item 1).

The drive piston (item 4) is actuated with a hexagon screwdriver (angled pin wrench). Symbols, engraved on the base body, indicate the direction of rotation for locking or unlocking the clamping area.

No air supply is required for the operation of the clamping system. The openings on the base side therefore do not have to be sealed.

### 4.2.2 NSE-M plus 138-V1



The NSE-M plus 138-V1 is fastened in the installation area with six screws M8.

Positioning of the module can be done via two different centering diameters of the installation area:

Ø 138H6 (upper area)

Ø 110H6 (bottom area) depending on the installation version.

The exact positional orientation is achieved using a fitting screw with a fitting diameter of  $\varnothing 9 \text{ f7} \times 5 \text{ mm}$ . Precise alignment and positioning of the quick-change pallet system requires high-precision positioning of the opposite fitting hole  $\varnothing 9 \text{ H7}$  in the fastening point.

The clamping system is suitable for partial or complete installation

**Partial installation should be preferred.**

An access bore to the actuation connection must be provided in the installation space for the complete installation.

Make sure the hexagon socket of the actuating piston is easy to access at all times. An access bore of sufficient size ensures that the access to the hexagon socket is well visible.

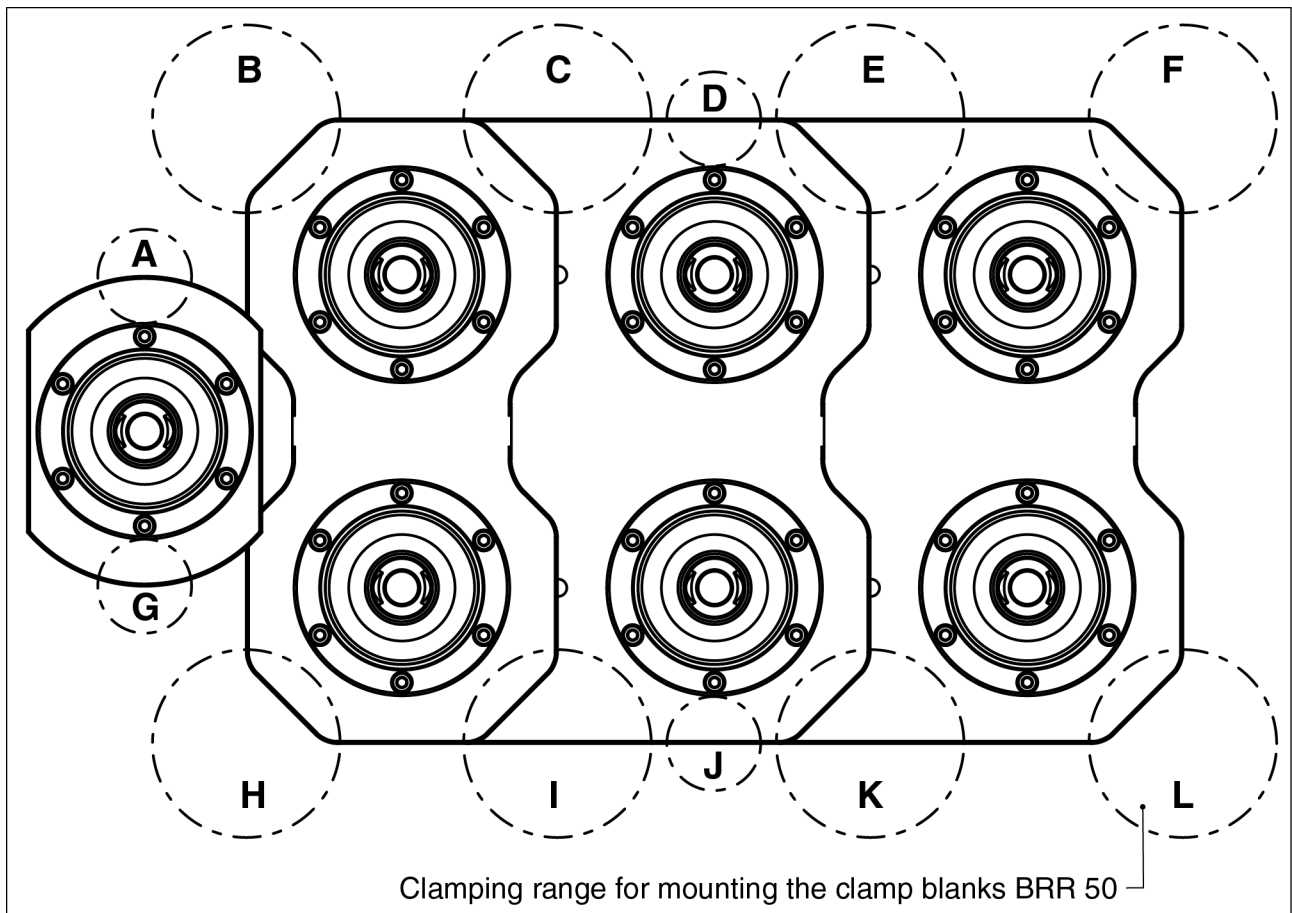
If any chips are in the access bore or hexagon socket, they have to be removed prior to actuation.

The clamping system is driven manually by rotating the drive piston (item 4). The drive piston is laterally in the base body (item 1).

The drive piston (item 4) is actuated with a hexagon screwdriver (angled pin wrench). Symbols, engraved on the base body, indicate the direction of rotation for locking or unlocking the clamping area.

No air supply is required for the operation of the clamping system. The openings on the base side therefore do not have to be sealed.

### 4.3 Clamping station (optional)



Clamping station

Clamping range			
1-fold	2-fold	4-fold	6-fold
A, G	B, C, H, I	B, E, H, K	B, D, F, H, J, L

Modules for stationary use can be optionally equipped with manually actuated quick change pallet modules. The quick change pallet modules can be arranged and distributed as desired. The arrangement of conventional modules for stationary use is illustrated in fig. "Clamping station".

Reliable access to the actuating piston must be ensured by the arrangement of the modules, which applies in particular to adapted clamping pallets.

**NOTE**

The evenness in height of the modules on the clamping station is only guaranteed when clamped.

The clamping station is mounted using the BRR 50 cylindrical clamp blanks. See the clamping diagram for the arrangement of the BRR 50 cylindrical clamp blanks.

For questions on clamping stations for manually actuated Quick-Change Pallet Modules, contact our technical customer service

## 4.4 Clamping pins SPA 40, SPB 40, SPC 40, SPG 40

### CAUTION

#### Notes on clamping pins and mounting screws

The holding force of the quick-change pallet system is essentially limited by the tightness of the screw connection connecting 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.

The clamping pins can be attached to the workpiece or pallet in two different ways. Preference should be given to the left mounting option in the illustration "Mounting the clamping pins". With this variant, if there is a module failure then the device or pallet can be removed after disassembling the clamping pins. The mounting screw is supplied for the right mounting option as shown in the illustration.

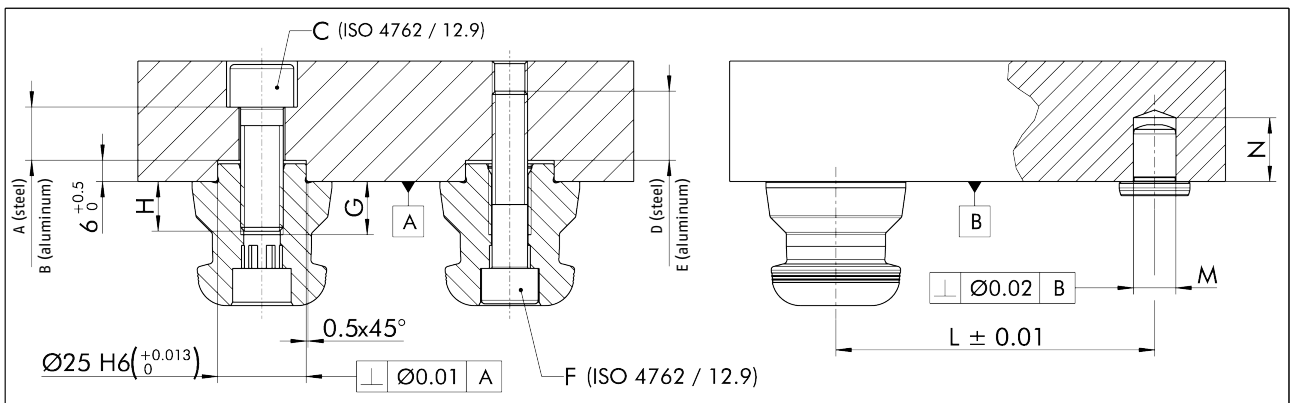
If clamping pins are used outside of SCHUNK pallets, for example in customer-specific devices or workpieces, the outer diameter of the part to be clamped must be large enough to completely cover the inner support area of the quick-change pallet system and the outer support areas of the system must be at least partially covered.

#### Note

It must be ensured that the customer's device or the workpiece is covered in a width direction that fully covers the outer support area of the quick-change pallet system on both sides.

Size	min. outer diameter on the support of the workpiece
NSE-M plus 138	115 mm

Size	Indexing pin	Indexing pin ID number	L [mm]	M [mm]	N [mm]
NSE-M plus 138-V1	IXB V1	0471980	66	Ø12 H7	>16



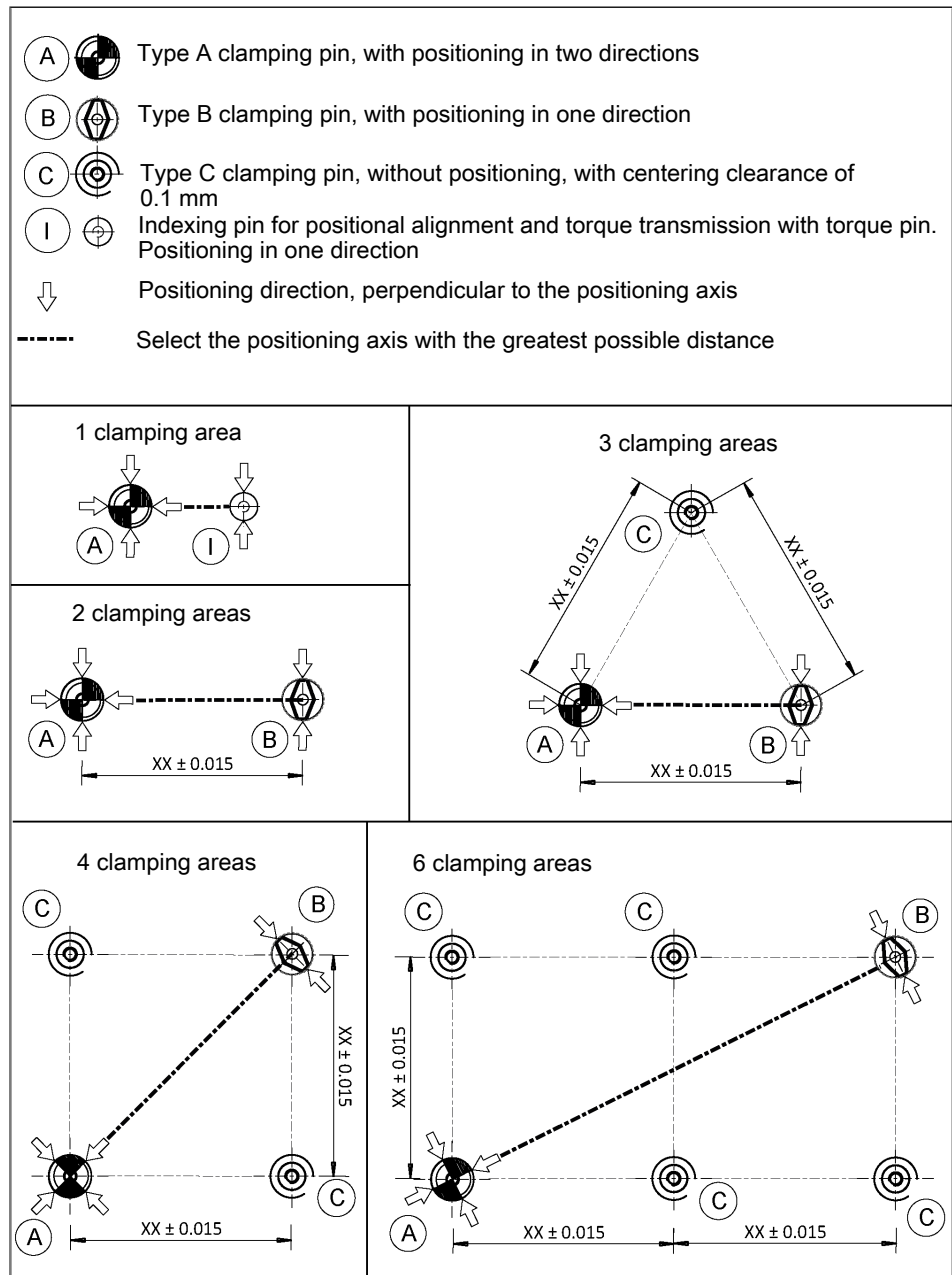
Mounting the clamping and indexing pins

### Tolerances and installation conditions

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

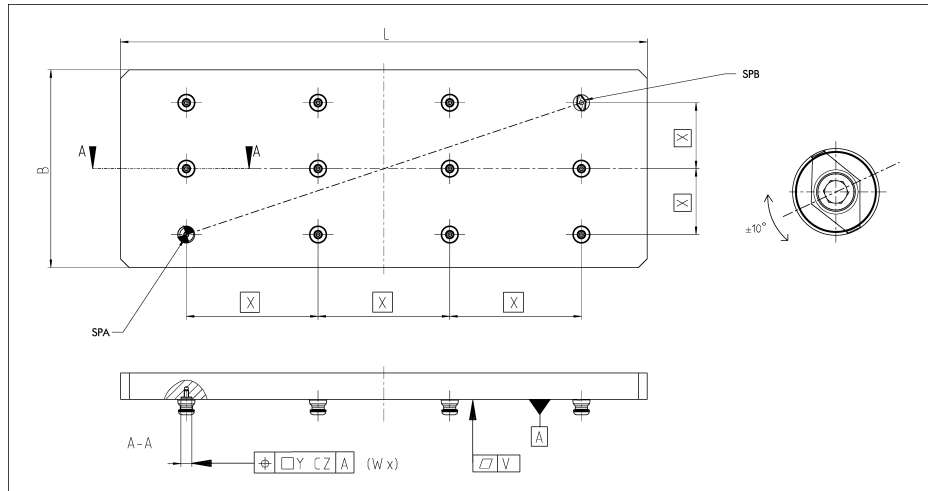
### Usage/arrangement of the different types of clamping pins



When positioning the clamping pins, deviating from the previous arrangement examples, the position tolerances given in the following illustration must be observed.

Furthermore, the customer workpiece or the clamping pallet must always have the described flatness.

The clamping pin type B may deviate in its twisting position by max. +/-10°.



X = gauge of the clamping pins is variable

W = number of clamping areas

Plate size [mm]	Position when using clamping pin type A, B and C [mm]	Recommended flatness for optimal results [mm]	Prescribed flatness to ensure the function [mm]
L x B	Y	V	V
0 – 600	0.03	0.02	0.05
600 – 1200	0.04	0.04	0.08
1200 – 1800	0.05	0.05	0.10

#### 4.4.1 Information to clamping pin SPG 40

The SPG 40 can be used at a clamping area instead of the SPA 40. If there are several clamping areas and a position tolerance of >0.05 mm, only the clamping area with the SPA 40 clamping pin type may be replaced with the SPG 40. If the position tolerance between the clamping areas is <0.05 mm, all clamping pin types may be replaced with the SPG 40.

The repeat accuracy increases to < 0.002 mm when using the SPG 40. When connecting the screws from above, a 10 mm longer M12 screw of strength class 12.9 must be used according to the mounting option on the left in the illustration.

#### 4.5 Screw tightening torques

##### Tightening torques for mounting the clamping pins

(Screw quality 12.9)

Screw size	M6	M8	M10	M12	M14	M16
Tightening torque (Nm)	15	32	62	108	170	262

##### Tightening torques for mounting the clamping modules

(Screw quality 10.9)

Screw size	M4	M5	M6	M8	M10	M12	M14
Tightening torque (Nm)	4.2	7.5	13	28	50	88	120

## 5 Function

The item numbers to the corresponding individual parts refer to the drawing in chapter 11.

The clamping system has a release mechanism with manual actuation.

The actuating piston, which is actuated with a hexagon screwdriver (angled pin wrench), can be accessed on the side of the base body of the quick change pallet module.

A cam on the drive piston transfers the rotary movement to the drive ring, which guides the clamping slides into the clamping area. The clamping function is purely manual. No compressed air is required. This makes the clamping system extremely flexible and allows it to be used wherever no pressure medium is available.

### 5.1 Unlocking the clamping system

1. The manually actuated clamping system is unlocked by rotary movement at the drive piston (item 4) which can be accessed from the side. Insert the hexagon screwdriver in the hexagon socket of the drive piston and turn it counter-clockwise.
2. The clamping slides (item 3) move outwards until the final position of the rotary movement is reached.
3. The clamping pin is unlocked.  
The clamping pins are available as separate accessories in four versions (see chapter 6.4). They are mounted on customized pallets or devices.
4. The pallet can be removed.

### 5.2 Locking the clamping system

1. The pallet can be inserted in the clamping system as soon as the clamping slides are unlocked and the rotary movement at the drive piston has reached the back stop.
2. Insert the pallet in the clamping system.
3. Insert the hexagon screwdriver in the hexagon socket of the drive piston and turn it clockwise. After a few degrees of rotation the unlocking position is leaved and the module closes automatically.
4. The clamping slides are guided inwards by spring by means of cams at the drive ring. When locking, the pallet is pulled onto the contact surface of the clamping module and the clamping pin is clamped in the clamping module in a self-locking and form-fitting manner.

The clamping pin is centered at the taper bore of the clamping module, which is why the angular alignment of the clamping system can be selected as desired.

## 6 Maintenance and care

The Quick Change Pallet System is designed for minimum-maintenance operation, so that opening and disassembly of the clamping modules is only necessary in exceptional cases.

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

- Clean all parts thoroughly and check for damage and wear. Damaged and worn parts must be replaced.
- Grease the sliding surfaces of the guide curves in the drive piston with LINOMAX plus.
- Grease the sliding surfaces of all movable components with Renolit HLT 2.

**Replace damaged parts only with original SCHUNK replacement parts!**

A repeated functional check is to be conducted before the start-up.

### General operating conditions

- Make sure that the bearing surface of the interface is always clean.
- Please arrange the necessary, so that chips of any type can't get into the interface. Moreover, please avoid that coolant emulsion fills up in the interface, especially if the axis of the clamping pin is vertically aligned. Both can be avoided by using a protection cover SDE 138.  
If the interface should nevertheless fill with coolant emulsion, start locking and dry the interface during actuation.
- For operation, only high-quality coolant emulsions with rust-protection additions should be used.
- Regularly inspect the units (at least every 2 weeks or after 1000 clamping cycles). Perfect operation is given whenever the clamping slides move smoothly without increased application of force when actuated by means of the piston. Safe operation also includes the self-locking of the clamping area.
- Regularly inspect the system visually and control proper function. In case of visible damages or signs of malfunction, please stop the operation immediately. The system should not be started up again, before all the damages are repaired. I.e. by exchanging the damaged unit.

## 7 Storage

When storing the product for a longer period of time, observe the following points:

- Clean the product and lubricate it lightly.
- Store the product in a suitable transport container.
- Only store the product in dry rooms.
- Protect the product from major temperature fluctuations.

**NOTE:** Before recommissioning, clean the product and all attachments, check for damage, functionality and leaks.

## 8 Trouble shooting

### The clamping area does not unlock perfectly

Possible cause	Corrective action
The module is not lubricated sufficiently	Disassemble the module, clean and lubricate it (▶ 6 [📄 24])
The clamping slides or movement mechanism is damaged	Disassemble the module and replace damaged and worn parts with original SCHUNK spare parts (▶ 6 [📄 24])
Excess tensile load on clamping slides	Reduce the load

### The clamping area unlocks automatically

Possible cause	Corrective action
The actuating piston or movement mechanism is damaged	Disassemble the module and replace damaged and worn parts with original SCHUNK spare parts (▶ 6 [📄 24])

## 9 Part list

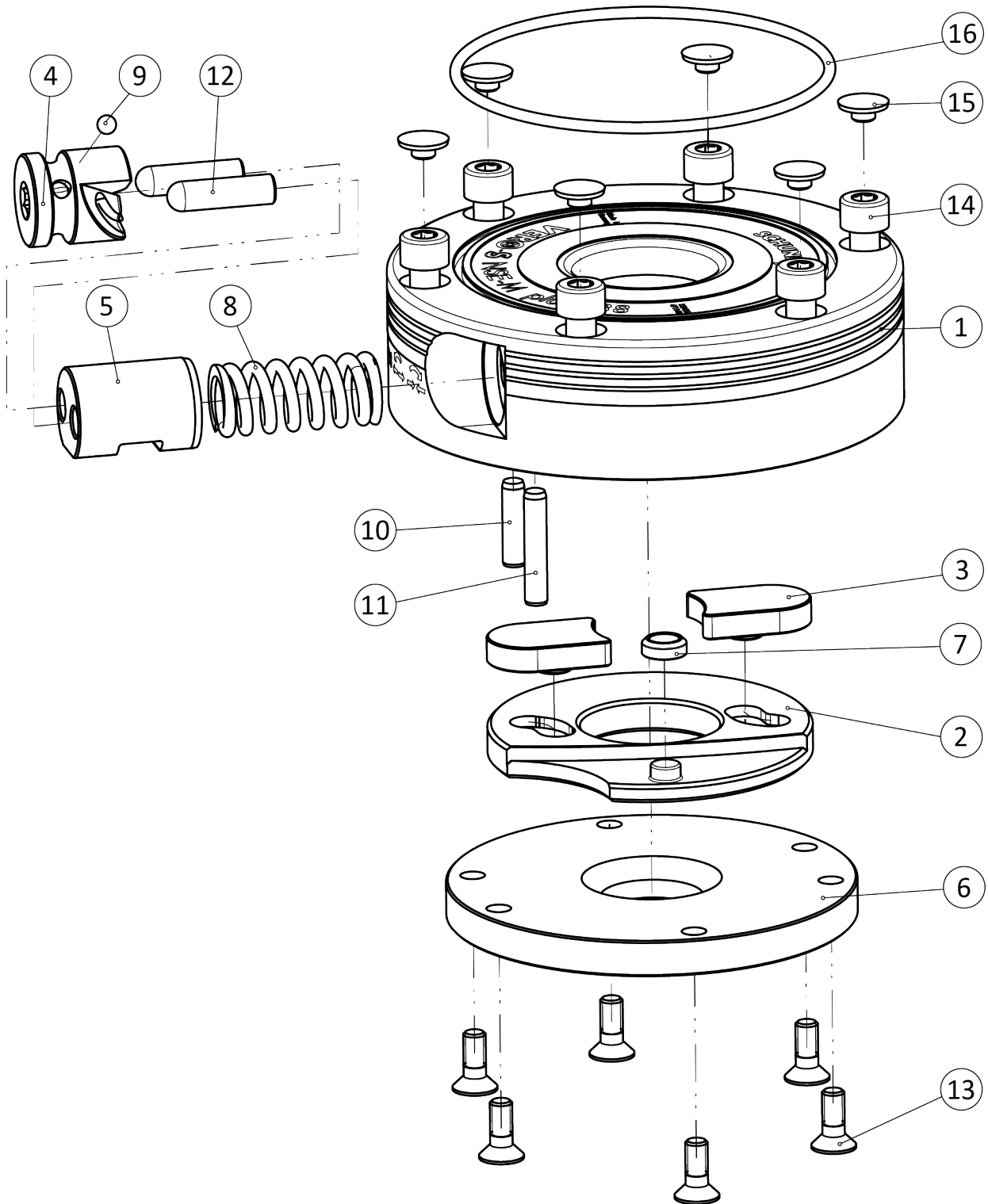
**NSE-M plus 138** (ID number 0471140)

**NSE-M plus 138-V1** (ID number 0471141)

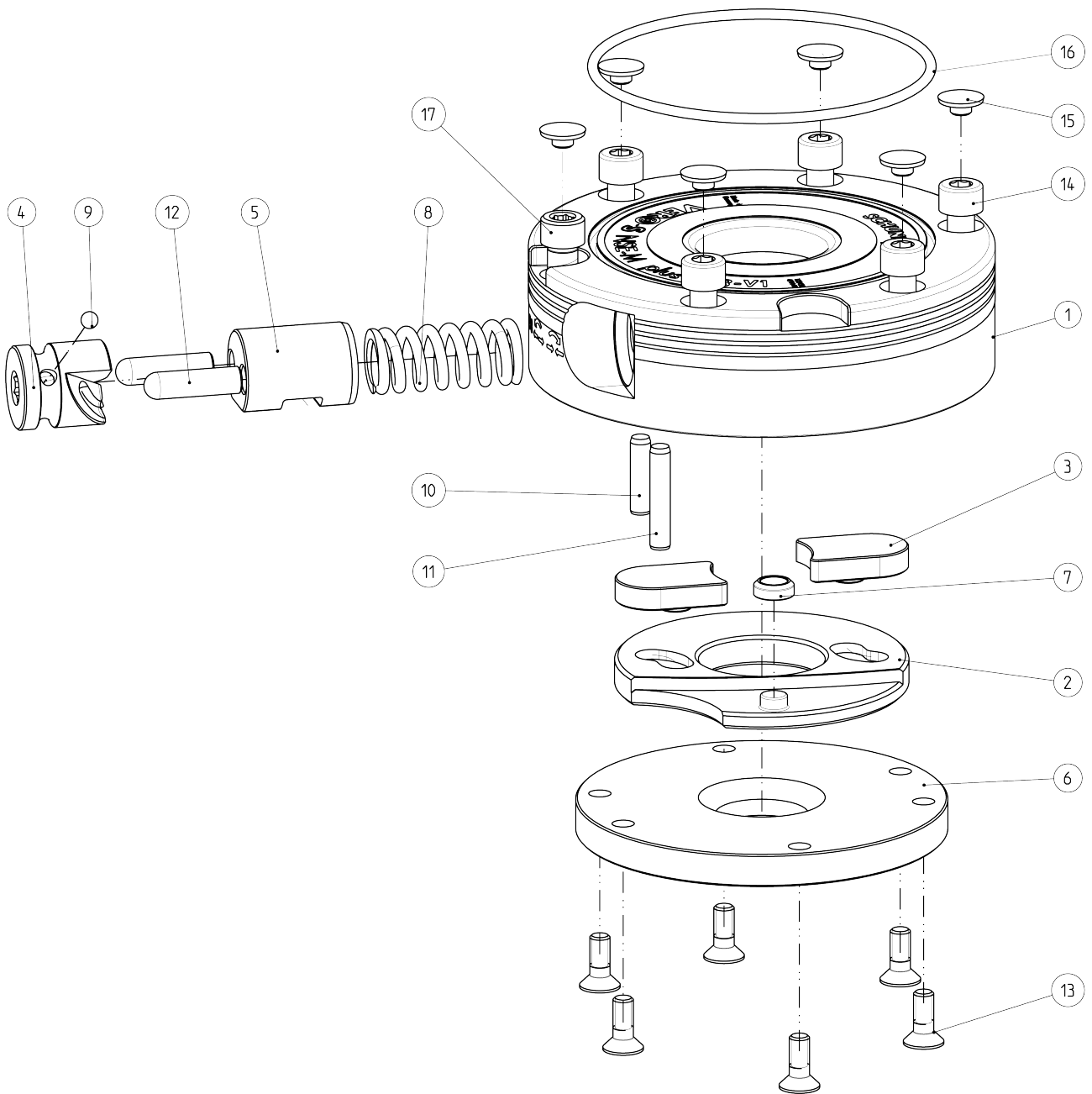
Item	Designation	Quantity	Note
1	Base body	1	
2	Drive ring	1	
3	Clamping bar	2	
4	Drive piston	1	
5	Actuation piston	1	
6	Cover	1	
7	Bearing shell	1	
8	Compression spring	1	
9	Steel ball $\varnothing$ 5	1	
10	Cylindrical pin $\varnothing$ 6 x 24	1	
11	Cylindrical pin $\varnothing$ 6 x 30	1	
12	Cylindrical pin $\varnothing$ 8 x 25	2	
13	Countersunk screw M6 x 16	6	
14	Cylindrical screw M8 x 45	5	V1
	Cylindrical screw M8 x 45	6	
15	Protective caps	6	
16	O-ring $\varnothing$ 82 x 3	1	
17	Fitting screw	1	V1

# 10 Assembly drawing

## NSE-M plus 138



### NSE-M plus 138-V1



## 11 Manufacturer certificate

Manufacturer / Distributor:	H.-D. SCHUNK GmbH & Co. Spanntechnik KG Lothringer Str. 23 D-88512 Mengen
Product:	Quick-change pallet system
Designation:	VERO-S
Type designation:	NSE-M

**Heinz-Dieter SCHUNK GmbH & Co. Spanntechnik KG** certifies that the above-mentioned products, when used as intended and in compliance with the operating manual and the warnings on the product, are safe according to the national regulations and:

- a **risk assessment** has been carried out in accordance with ISO 12100:2010.
- an **operating manual** for the assembly instructions has been created in accordance with the contents of the Machinery Directive 2006/42/EC Annex I No. 1.7.4.2. and the contents of the provisions of Annex VI of the Machinery Directive 2006/42/EC.
- **Markings** have been made in accordance with EN 1550:1997+A1:2008 Section 6.3.1, VDMA 34192:2019 Section 6.3 or ISO 16156:2004 Section 6.3. The requirements of Annex I No. 1.7.3. of the Machinery Directive 2006/42/EC have been complied with.
- the relevant basic and proven safety principles of the Annexes of **ISO 13849-2:2012**, taking into account the requirements of the documentation have been observed for the component. The parameters, limitations, ambient conditions, characteristic values, etc. for proper operation are defined in the operating manual.
- an  $MTT\bar{F}_D$  value of 150 years can be estimated for mechanical components using the informative procedure in Table C.1 of ISO 13849-1:2015.
- the **fault exclusion** against the fault "Breakage during operation" in compliance with the parameters, limitations, ambient conditions, characteristic values and maintenance intervals, etc., specified in the operating manual.

### Harmonized Standards applied:

- **ISO 12100:2010** Safety of machinery – General principles for design – Risk assessment and risk reduction

### Other related technical Standards and specifications:

- **VDMA 34192:2019** Safety requirements for clamping devices for use on machines

Mengen, 25th of April 2023

*Signature: see original declaration*

*Signature: see original declaration*

p.p. Philipp Schröder  
Head of Development standard products

p.p. Alexander Koch  
Head of Engineering Design special products





H.-D. SCHUNK GmbH & Co.  
Spanntechnik KG

Lothringer Str. 23  
D-88512 Mengen  
Tel. +49-7572-7614-0  
info@de.schunk.com  
schunk.com

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