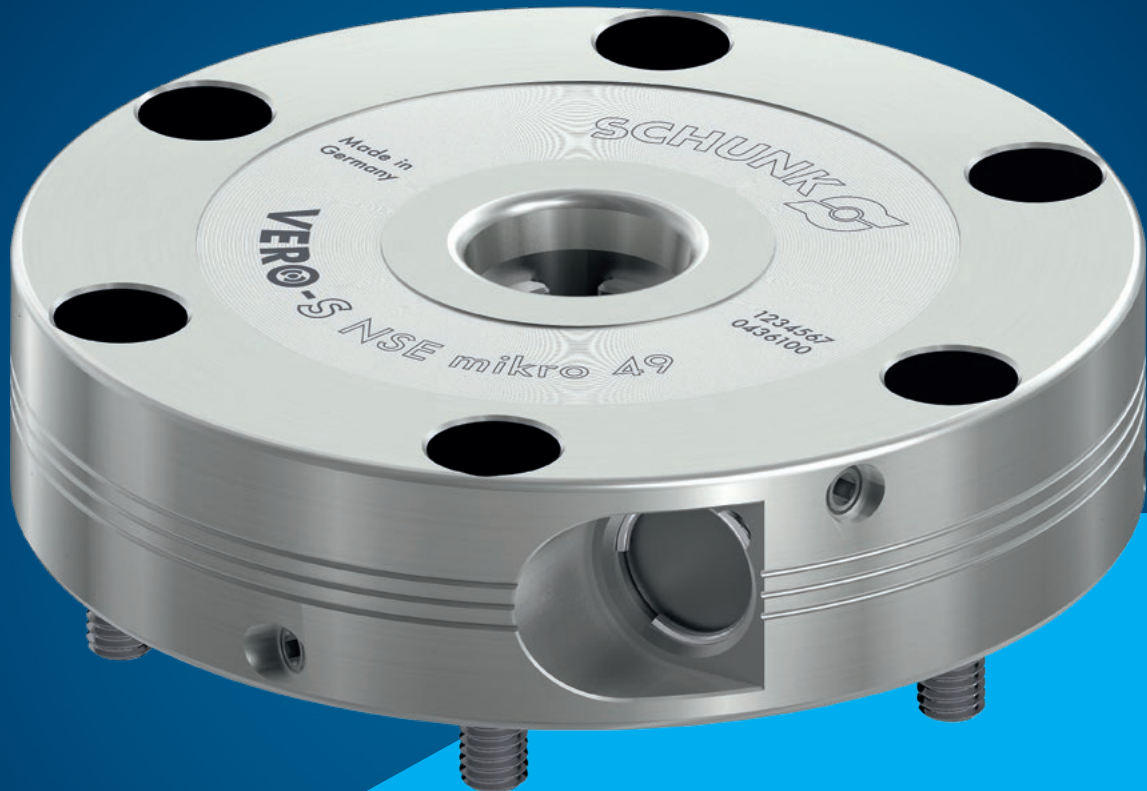


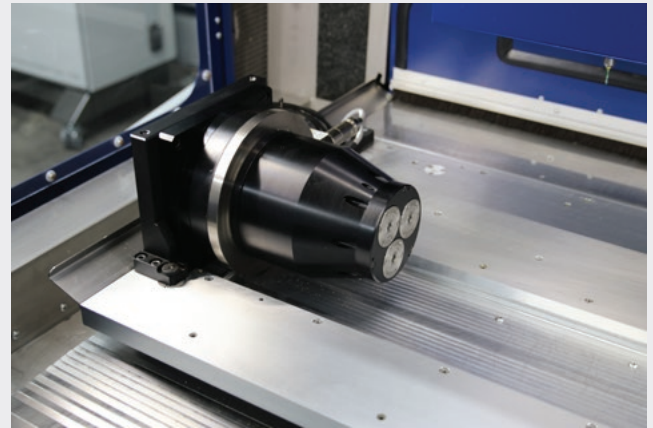


VERO-S NSE mikro 49

**Innovative technology in
confined spaces**

The world's flattest quick-change pallet module, specifically for micro-cutting

The VERO-S NSE mikro 49 micro-clamping module transfers the effect of a rapid part change to a new level with the VERO-S quick-change pallet system. For the first time it is now possible to change even the smallest components at a repeat accuracy of < 0.005 mm in a matter of seconds. At a height of only 12 mm and an outer diameter of 49 mm, it is the world's flattest quick-change pallet module. The modules are suitable for rapid change of workpieces, components, and pallets in very light metal cutting as well as in assembly cells and measuring machines.

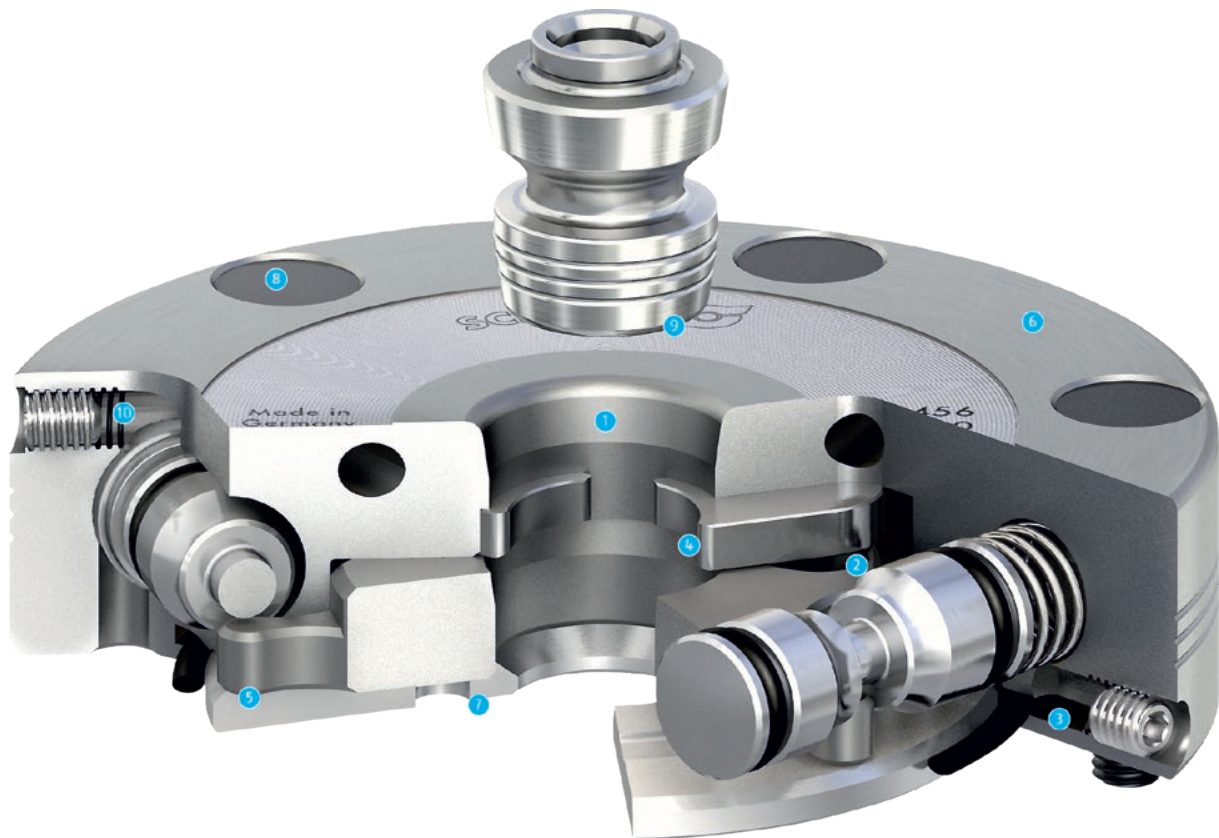


Advantages – Your benefits

- + Minimum height**
Expands your machine's workspace
- + All pneumatic modules can be operated at a system pressure of 6 bar**
Additional pressure intensifiers are not required
- + Positioning via short taper**
Very easy joining process at a repeat accuracy of < 0.005 mm
- + Patented dual stroke system**
Therefore extremely rigid clamping without vibrations
- + Form-fit, self-retained locking**
Full pull-down force is maintained even in the event of a pressure drop
- + Corrosion-free stainless steel design**
Long life time and maximum process reliability
- + Turbo integrated by default**
Pull-down force increased up to 260% to make the most of the machine's performance, hence high efficiency
- + One consistent clamping pin size for all NSE mikro modules**
No danger of confusion or incorrect operation
- + Integrated slide monitoring**
Can also be used in automated applications

Function NSE mikro 49

The clamping procedure of the module is carried out by an integrated spring assembly. A drive ring and a patented drive kinematics convert the spring force into a maximum pull-down force on the clamping pin. Clamping is carried out by three clamping slides and is self-retaining. In addition, the pull-down force can be increased by use of an integrated turbo function. The module is opened pneumatically with a system pressure of 6 bar.



- 1 **High-precision short taper centering**
Ensures μ -precise connection
- 2 **Patented dual stroke system**
The patented dual stroke system between drive ring and clamping slide enables extremely high pull-down forces
- 3 **Turbo function**
For amplification of the pull-down force
- 4 **Large contact surfaces**
For transmitting the pull-down and holding forces
- 5 **Patented drive concept**
Allows for an extremely flat design (12 mm)
- 6 **Large flat surface**
For best support and highest rigidity
- 7 **Monitoring of the clamping slide position**
Via dynamic pressure possible
- 8 **Cover plugs for mounting screws**
Therefore no accumulation of coolant or chips possible
- 9 **Insertion radii on the clamping pin**
For fast and safe connecting even in the event of tilt angle and eccentricity
- 10 **Pneumatic system**
Actuation with 6 bar

Centering via short taper

The precise short taper centering combined with the form-fit and self-retaining locking characterizes the SCHUNK quick-change pallet system.



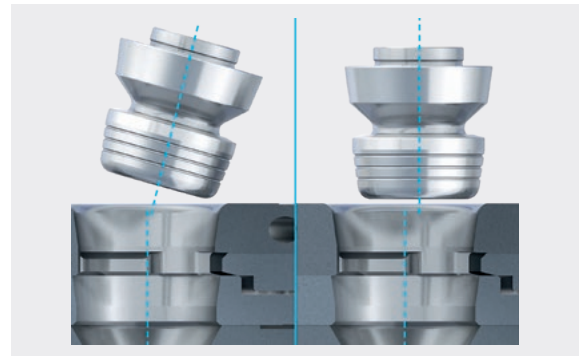
Locking via clamping slides

Large contact surfaces between clamping slides and clamping pin ensure a low surface pressure, resulting in a long service life.



Easy joining – more user-friendly

Insertion radii on the clamping pin enable quick and safe joining even at a tilt angle and in case of eccentricity. Benefit: More user friendly for manual and automatic loading.



Integrated turbo function

In order to raise the pull-in force, the quick-change pallet module is additionally pressurized with compressed air during clamping. Due to the turbo function the pull-down force increases by the factor of 2.6 (max. 400 N) compared to clamping merely based on spring force. With turbo function active, higher cutting parameters in the machining process are facilitated.

- ❶ **Spring force**
Stainless, fatigue-resistant pressure springs.
- ❷ **Additional force**
Resulting from the turbo function.



Air purge connection

For a blow-out function, the base plate under the clamping pin opening can be provided with a bore.



Made of stainless steel – long service life

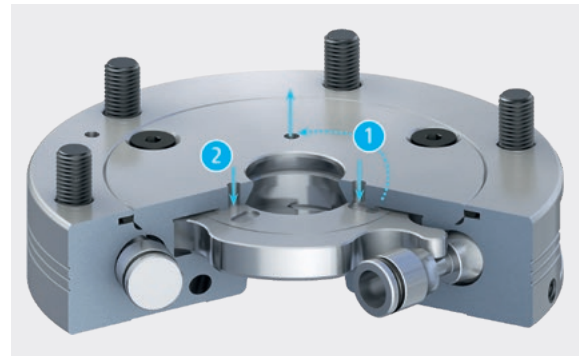
All functional components are made of hardened stainless steel.



Monitoring of the clamping slide position

The open and closed positions of the clamping slide can be monitored via dynamic pressure.

- 1 **Deaeration**
The compressed air can escape via the slot and a flat area in the cover.
- 2 **Dynamic pressure**
The compressed air cannot escape, because the slot is not located above the bore.



Arrangement of clamping pins type A, B, and C

The clamping pin is used for clamping and positioning the workpieces or devices to be converted. Basically, there are three different types of clamping pins:

- 1 **Type A**
Fixed
- 2 **Type B**
Positioned – diamond shaped
- 3 **Type C**
With a centering play



Clamping station

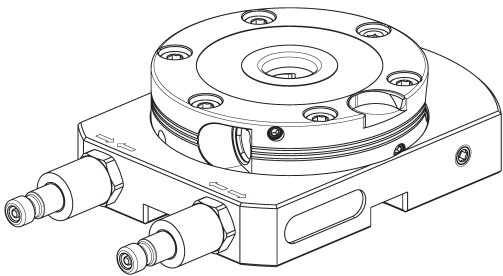
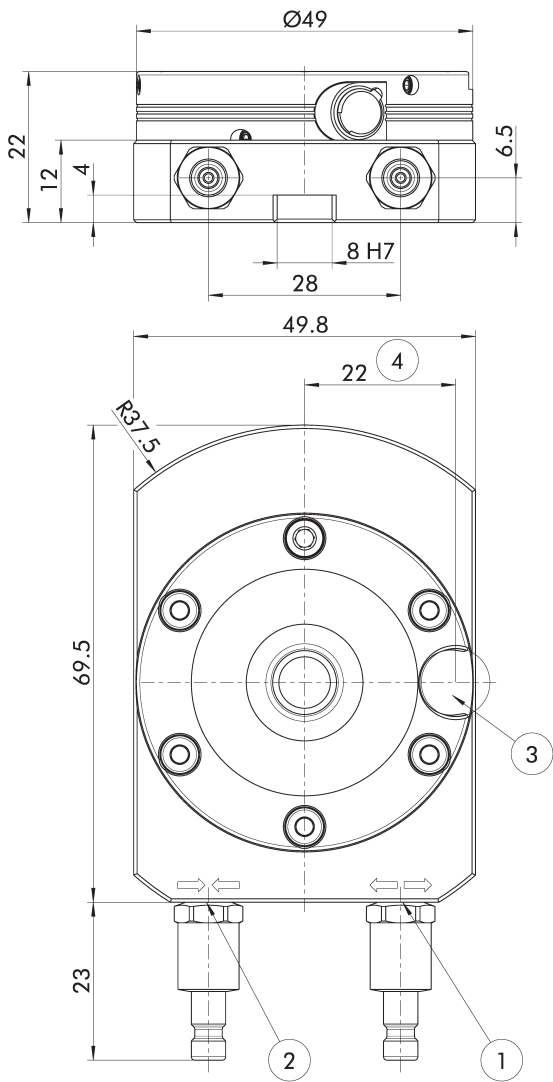
1-way clamping station with anti-rotation protection V10 and turbo function

Scope of delivery

Clamping station, cylindrical clamps, operating manual; without clamping pins, without indexing pins

Technical data

Description	ID	Pull-down force [kN]	Pull-down force with turbo [kN]	Unlocking pressure [bar]	Weight [kg]
NSL mikro 50-V10	0436210	0.15	0.4	6	0.4



Subject to technical changes.

- ① Air connection M6 module open
- ② Air connection M6 turbo function
- ③ Fitting groove for positional alignment of the clamping pallet
- ④ Measure of clearance 22 ±0.01 mm for IXB V10 mikro in the clamping pallet

Clamping station

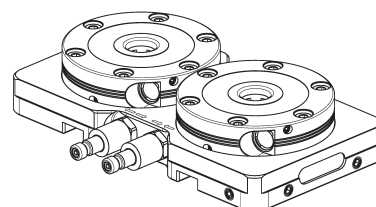
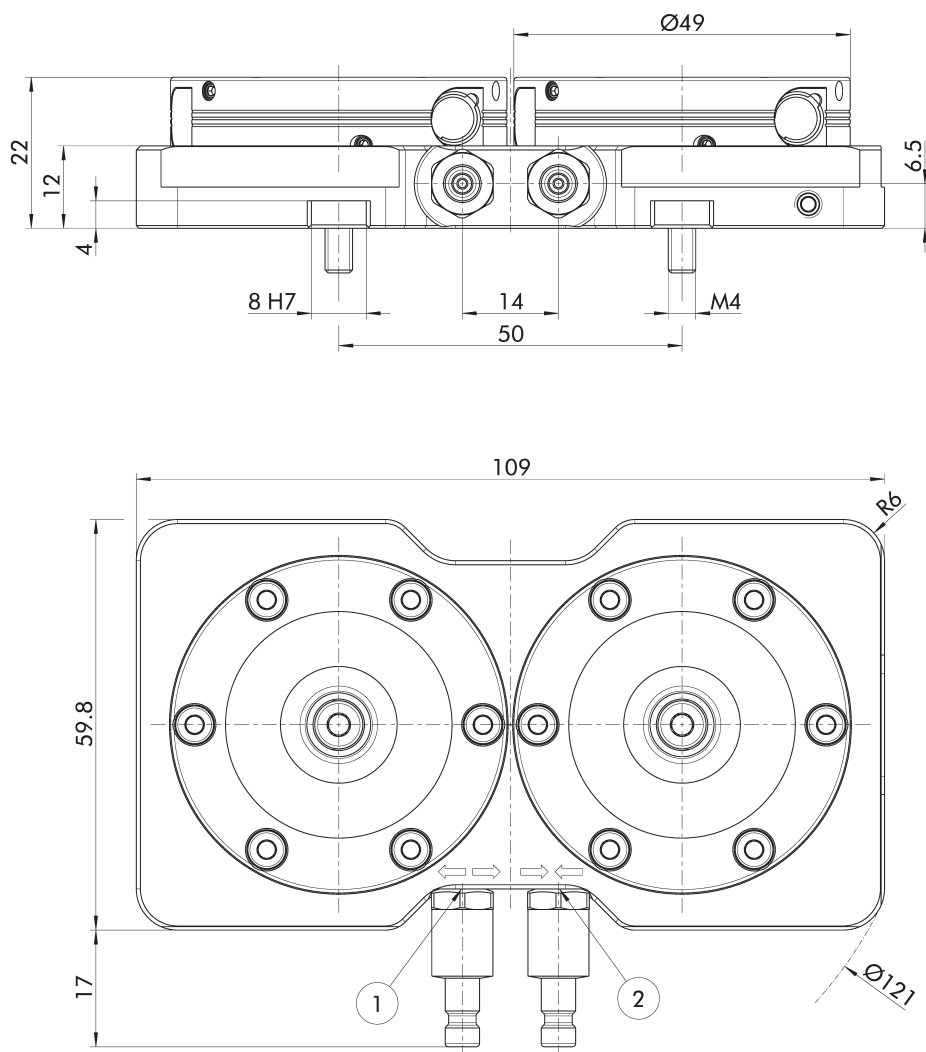
2-way clamping station with turbo function

Scope of delivery

Clamping station, cylindrical clamps, operating manual; without clamping pins

Technical data

Description	ID	Pull-down force [kN]	Pull-down force with turbo [kN]	Unlocking pressure [bar]	Weight [kg]
NSL mikro 50-2	0436220	0.3	0.8	6	0.8



Subject to technical changes.

① Air connection M6 opening modules

② Air connection M6 turbo function

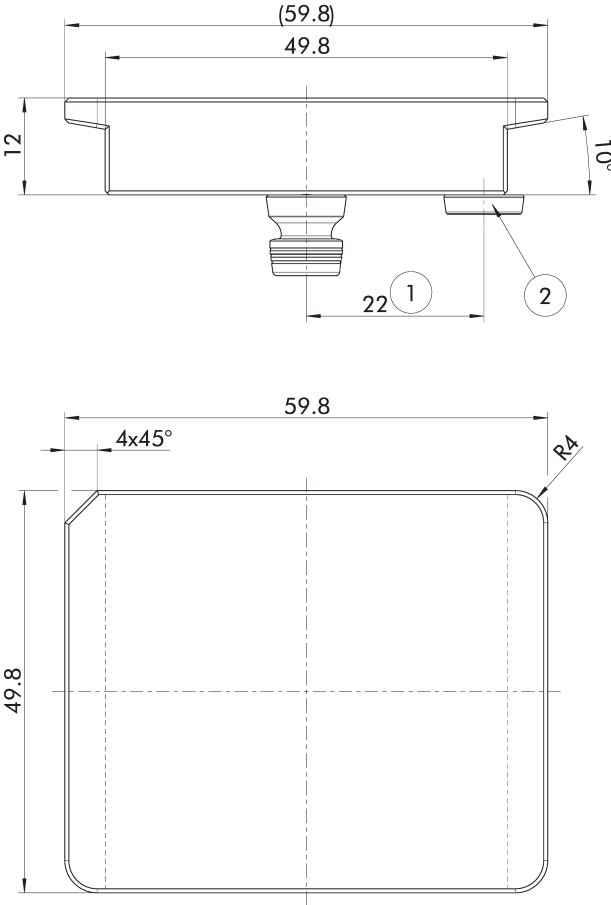
Clamping pallet

Scope of delivery

Clamping pallets, clamping pins, indexing pins

Technical data

Description	ID	Material	Plane parallelism [mm]	Weight [kg]
PAL S mikro 60 x 50-V10	1358960	Steel	0.02	0.25



Subject to technical changes.

① Measure of clearance 22 ± 0.01 mm for IXB V10 mikro in the clamping pallet

② IXB V10 mikro indexing pin for position orientation on the NSE mikro 49-13-V10

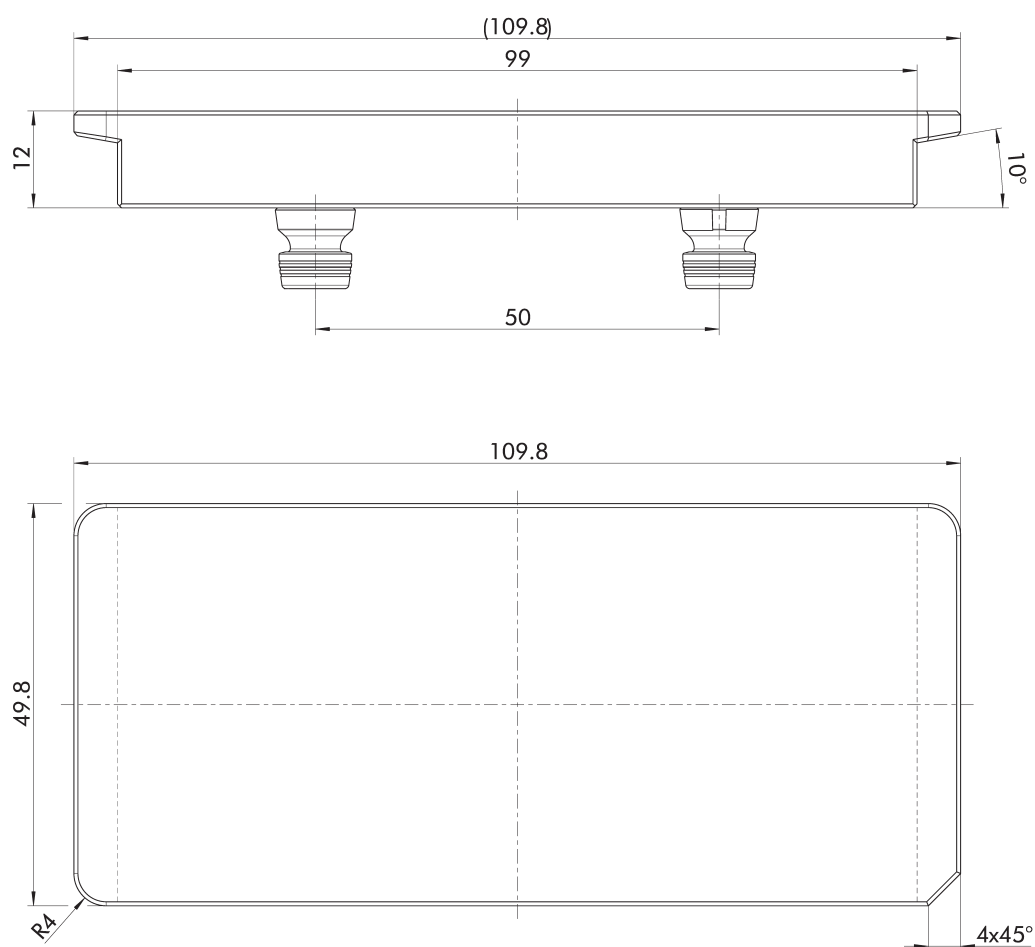
Clamping pallet

Scope of delivery

Clamping pallet, clamping pins

Technical data

Description	ID	Material	Plane parallelism [mm]	Weight [kg]
PAL S mikro 110 x 50	1358961	Steel	0.02	0.5



Subject to technical changes.

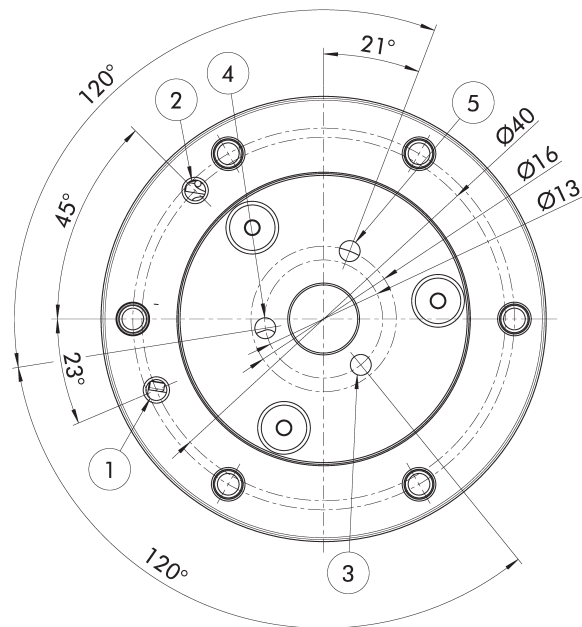
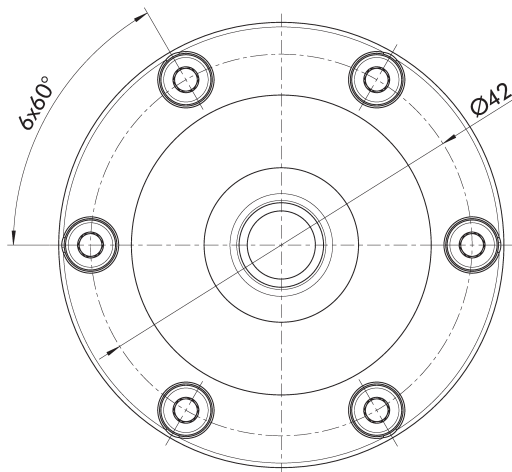
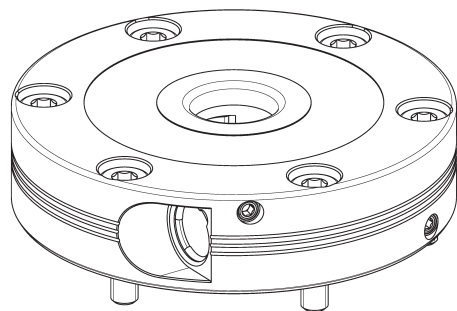
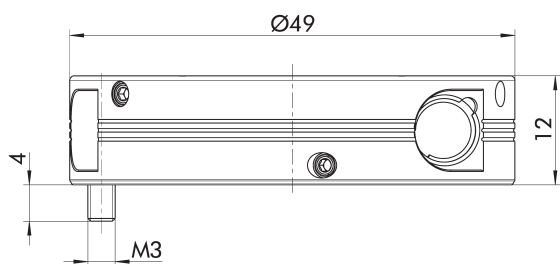
Quick-change pallet module

Scope of delivery

Clamping module, mounting screws, O-rings, cover caps, operating manual; without clamping pins

Technical data

Description	ID	Pull-down force [kN]	Pull-down force with turbo [kN]	Unlocking pressure [bar]	Repeat accuracy [mm]	Weight [kg]
NSE mikro 49	0436100	0.15	0.4	6	< 0.005	0.2



Subject to technical changes.

- ① Hose-free direct connection module open

② Hose-free direct connection turbo function

③ Hose-free direct connection for monitoring module open
- ④ Hose-free direct connection for monitoring of the turbo function

⑤ Air bleeder hole for monitoring

Quick-change pallet module

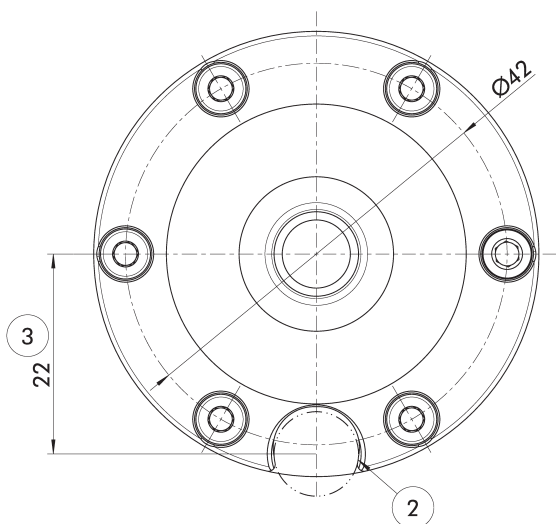
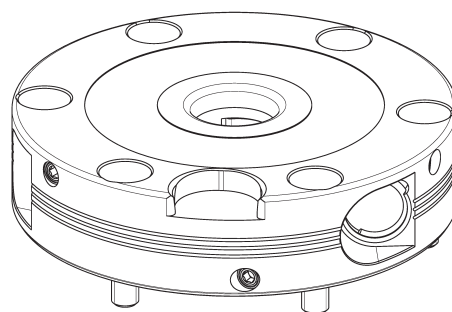
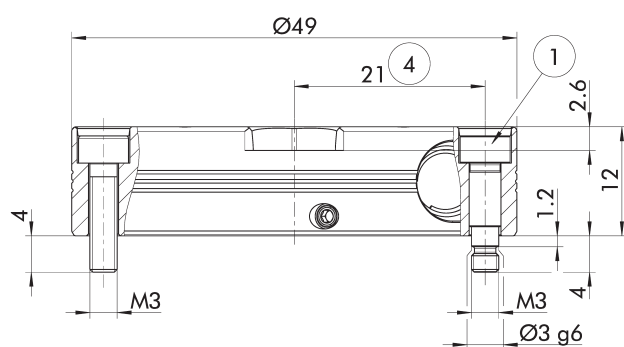
With anti-rotation protection V10

Scope of delivery

Clamping module, mounting screws, fitting screws, O-rings, cover caps, operating manual; without clamping pins, without indexing pins

Technical data

Description	ID	Pull-down force [kN]	Pull-down force with turbo [kN]	Unlocking pressure [bar]	Repeat accuracy [mm]	Weight [kg]
NSE mikro 49-V10	0436105	0.15	0.4	6	< 0.005	0.2



Subject to technical changes.

- ① Fitting screw for positional orientation
- ② Fitting groove for orientation of the pallet position
- ③ Measure of clearance 22 ± 0.01 mm for IXB V10 mikro in the clamping pallet
- ④ Clearance 21 ± 0.01 mm for fitting screw PSC mikro V10 (ID 0436921) in the clamping station

Accessories

Clamping pins SPx mikro

Standard clamping pins for form-fit connection of workpieces or devices with the NSE mikro clamping modules.



Suitable for	Description	ID
NSL mikro 50-V10		
NSL mikro 50-2		
NSE mikro 49		
NSE mikro 49-V10	SPA mikro 10	0436610
NSL mikro 50-2		
NSE mikro 49		
NSE mikro 49-V10	SPB mikro 10	0436620
NSE mikro 49		
NSE mikro 49-V10	SPC mikro 10	0436630

Indexing pin

Used as an anti-rotation protection for VERO-S modules with anti-rotation protection V10.



Suitable for	Description	ID
NSL mikro 50-V10		
NSE mikro 49-V10	IXB V10 mikro	0436930



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

Lothringer Str. 23
D-88512 Mengen
Tel. +49-7572-7614-1300
Fax +49-7572-7614-1039
CMM@de.schunk.com
schunk.com