



VERO-S NSE-E mini 90-25 IOL

**Electromechanical quick-
change pallet system
activated via IO-Link**

Electromechanically actuated quick-change pallet modules with fully integrated electronics and actuators

With advancing digitalization and the growing demand for automated processes, the intelligent networking of machines is increasingly becoming the focus of modern production concepts. SCHUNK has specifically developed the electromechanical NSE-E mini 90-25 IOL quick-change pallet module for these requirements – and especially for fluid-free actuation. The clamping module has an electro-mechanical drive, and only requires a 24 V electrical power source for control and operation. The entire sensor and actuation technology are fully integrated in the module, so that no additional interfering contours are created. Thanks to the IO-Link control, all important process parameters such as approachable intermediate position, clamping slide positions, and pallet presence can be monitored, controlled, and evaluated.

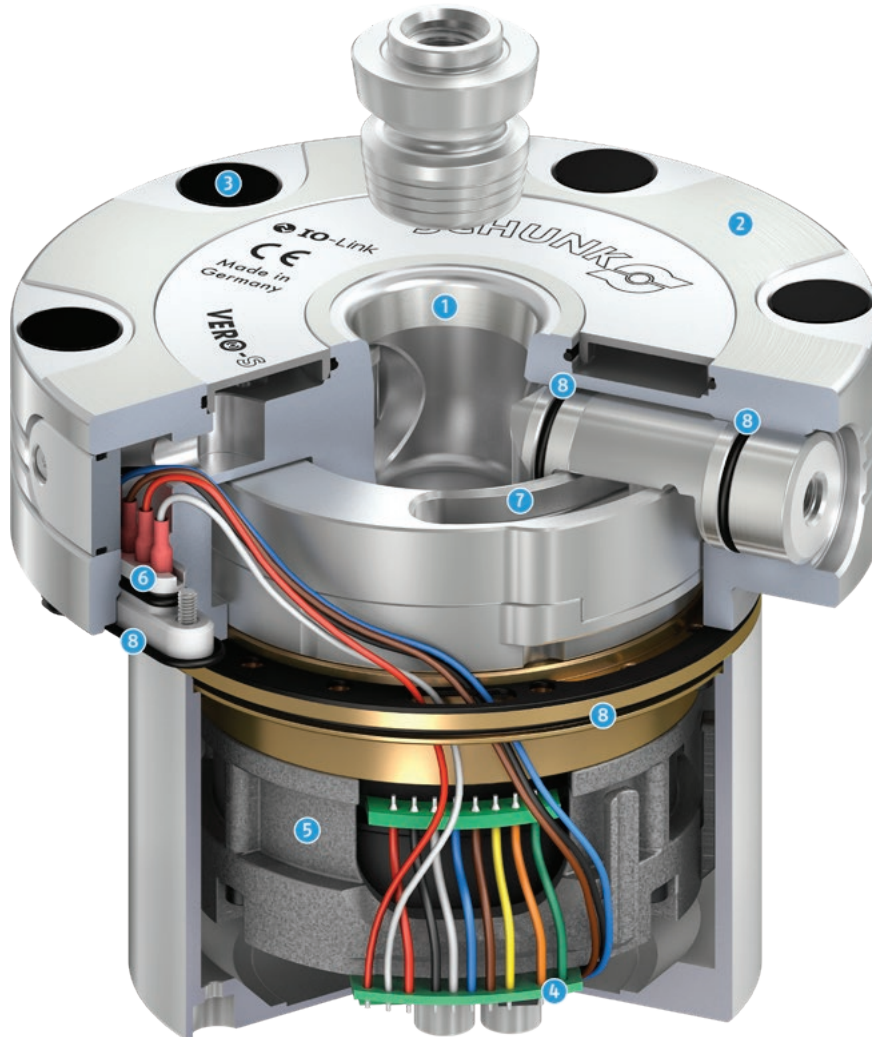


Advantages – Your benefits

- + No expensive compressed air required**
Considerable cost savings
- + Highest flexibility**
Can be used for applications in which neither pneumatics, nor hydraulics are available
- + Actuators and electronics are integrated in the quick-change pallet module**
Signal processing is done exclusively in the clamping device
- + Integrated monitoring of the clamping slide position**
For the statuses "Open," "Intermediate position reached," "Clamped with clamping pin," and "Closed without clamping pin"
- + Integrated monitoring of pallet presence**
Possible via an inductive proximity sensor
- + Wide range of query and transmission options**
Ideally suited for automation applications
- + Signal transmission via IO-Link**
For easy integration in commonly used fieldbus systems
- + Signal transmission via digital inputs and outputs**
For easy integration into existing controllers
- + Motor gearbox combination**
High reduction for increased high pull-down forces
- + Maximum process reliability**
Thanks to various query options and transmission of error messages
- + SCHUNK modular system**
Can be 100% integrated into the extensive SCHUNK NSE mini modular system
- + The modules are corrosion-free and completely sealed**
Long life time and maximum process reliability
- + Form-fit, self-retained locking**
The full pull-down force is maintained even in the event of a power failure

Function NSE-E mini 90-25 IOL

The clamping procedure is carried out by an electric motor, which transmits the force to a drive ring via a gear. A special contour in the drive ring converts the force from the motor into a maximum pull-down force on the clamping pin. To actuate the quick-change pallet module, only a 24 V DC power supply and an IO-Link connection are required. Alternatively, actuation via digital inputs and outputs is also possible. In addition to the clamping commands, an adjustable intermediate position can be approached.



- ❶ **High-precision short taper centering**
Ensures μ -precise connection
- ❷ **Large flat surface**
For best support and highest rigidity
- ❸ **Cover plugs for mounting screws**
Therefore no accumulation of coolant or chips possible
- ❹ **Integrated electronics and sensor system**
Signal processing is done exclusively in the clamping device
- ❺ **Motor gearbox combination**
High reduction for increased high pull-down forces
- ❻ **Control via IO-Link or alternatively via digital inputs and outputs**
For easy integration in commonly used fieldbus systems or existing controllers
- ❼ **Patented dual stroke system**
The patented dual stroke system between drive ring and clamping slide enables extremely high pull-down forces
- ❽ **Completely sealed system**
Therefore absolutely maintenance-free

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.



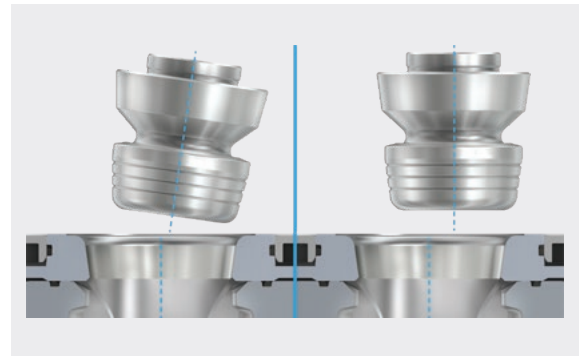
Locking via clamping slides

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



Easy joining

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.



Electrical connection of the quick-change pallet system

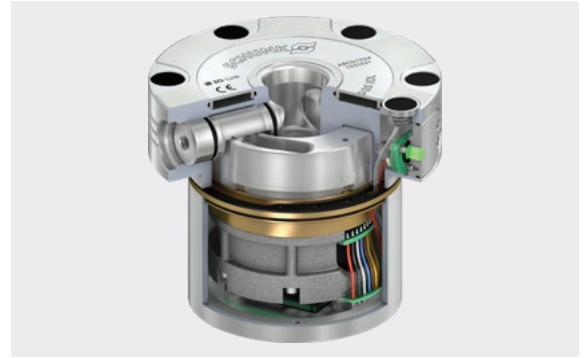
Depending on the module version, it is controlled via an IO-Link spring contact interface or an M12 plug connector.

- ❶ **Version IO-Link**
Serves as an interface for IO-Link communication and power supply.
- ❷ **Version DIC12**
Serves as a communication interface, either via IO-Link or digital inputs and outputs, as well as the power supply.



Fully integrated electronics and actuators

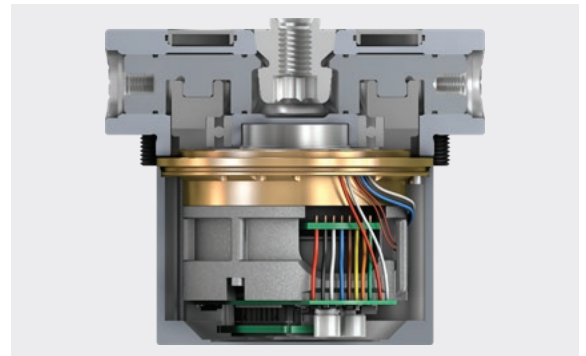
The entire electronics and actuator technology are fully integrated in the clamping device. This means that functions and processes run exclusively inside the module – without external components, without additional cabling, and without interfering contours.



Accessible intermediate position

The intermediate position is a defined position between the module statuses "Open" and "Clamped with clamping pin". This position can be set individually via IO-Link. The intermediate position serves as a pre-position in which the clamping slides already engage over the clamping pin, without any pull-down force being built up yet.

Advantage: When joining components, for example in automated handling processes, possible mechanical overdetermination is reliably avoided.



Monitoring of the clamping slide position

Four clamping statuses "Open," "Intermediate position reached," "Clamped with clamping pin," and "Closed without clamping pin" can be queried via integrated position sensors.



Integrated monitoring of pallet presence

The presence of the pallet or clamping device can be detected via a proximity sensor integrated as standard.

- 1 Proximity sensor for pallet presence monitoring



Module status display via LED

A side-mounted LED serves as a status display for the module. This is used to visually display the individual module statuses.

1 LED status display



Made of stainless steel – long service life

All functional components are made of hardened stainless steel.



Electromechanical quick-change pallet module

Electrical connection via spring contact interface

Integrated monitoring of the clamping slide positions and pallet presence as well as the option of a reachable intermediate position via IO-Link

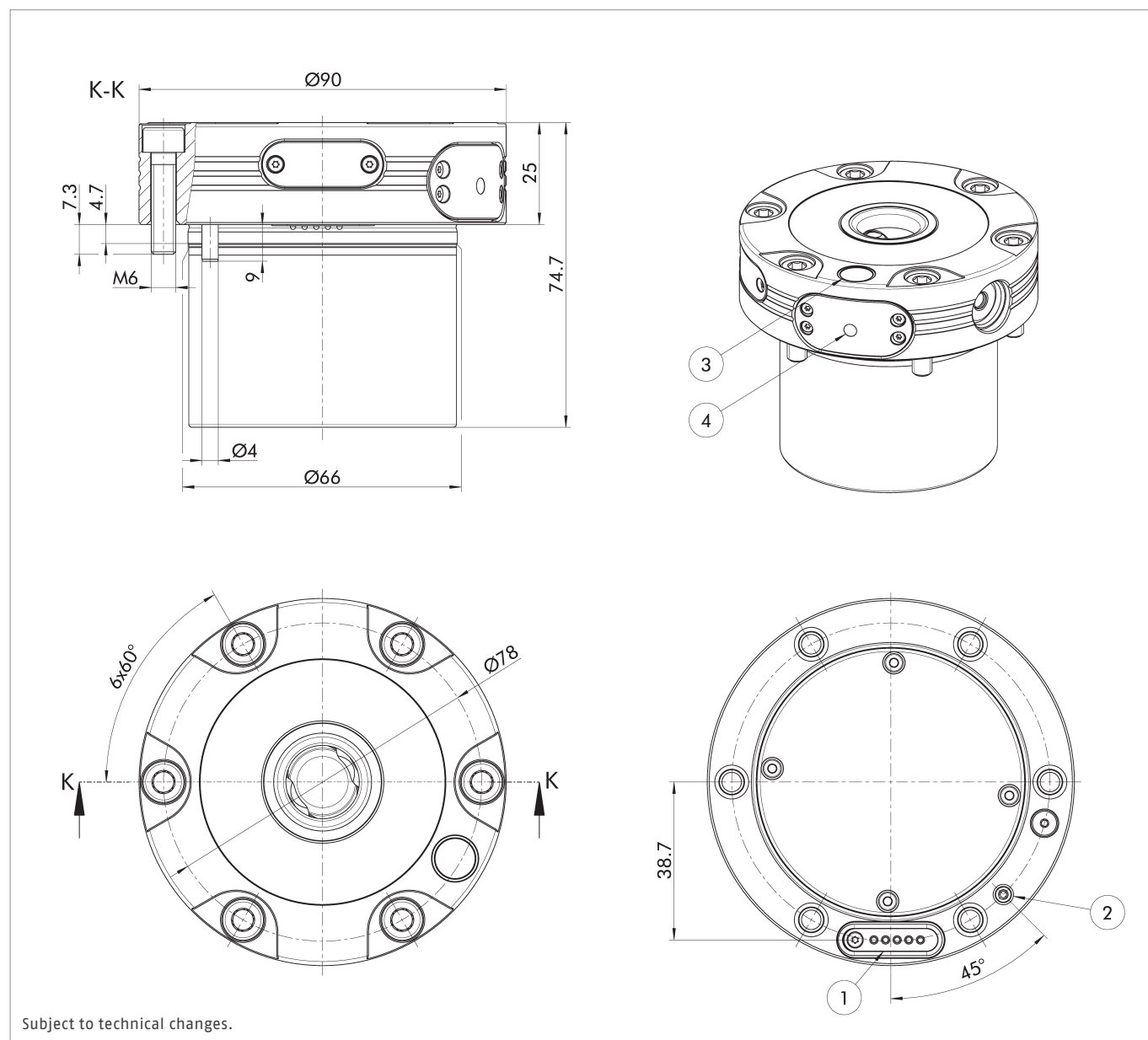
Scope of delivery

Clamping module, mounting screws, O-rings, cover plugs, operating manual; without clamping pins, without electrical fixed contact interface

Technical data

Description	ID	Pull-down force	Operating voltage	Average current consumption	Max. current consumption*	Cycle time	Weight
		[kN]	[V DC]	[mA]	[mA]	[s]	[kg]
NSE-E mini 90-25 IOL	1521521	3	24	600	3000	3	1.6

* Maximum current peak over 100 ms when opening the module.



- ① IO-Link interface via spring contacts
- ② Positioning pin for correct module alignment

- ③ Proximity sensor for pallet presence monitoring
- ④ Clamping status display via LED

Electromechanical quick-change pallet module

With anti-rotation protection V1

Electrical connection via spring contact interface

Integrated monitoring of the clamping slide positions and pallet presence as well as the option of a reachable intermediate position via IO-Link

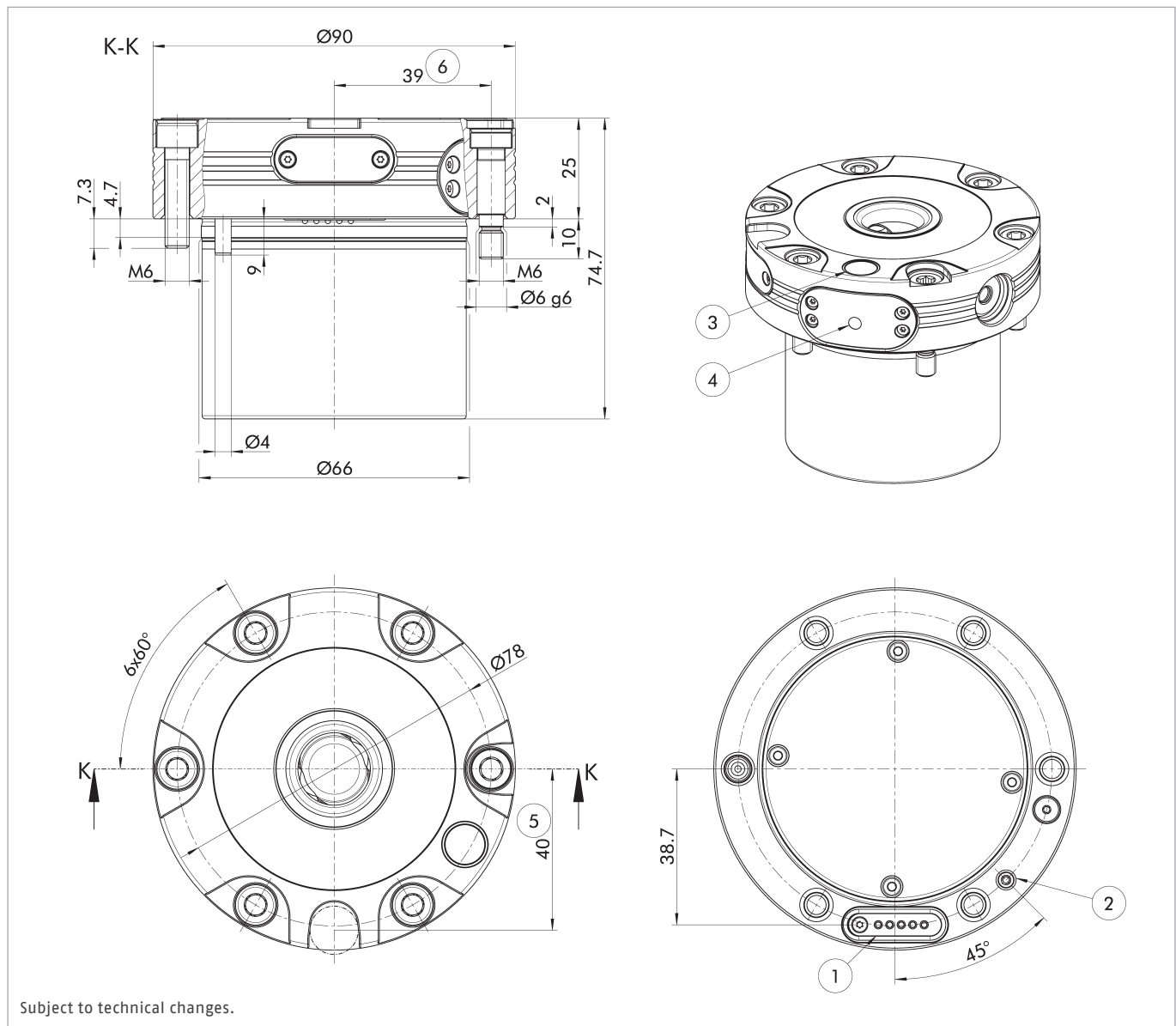
Scope of delivery

Clamping module, mounting screws, fitting screw, O-rings, cover plugs, operating manual; without clamping pins, without indexing pin, without electrical fixed contact interface

Technical data

Description	ID	Pull-down force	Operating voltage	Average current consumption	Max. current consumption*	Cycle time	Weight
		[kN]	[V DC]	[mA]	[mA]	[s]	[kg]
NSE-E mini 90-25-V1 IOL	1521522	3	24	600	3000	3	1.6

* Maximum current peak over 100 ms when opening the module.



Subject to technical changes.

- ① IO-Link interface via spring contacts
- ② Positioning pin for correct module alignment
- ③ Proximity sensor for pallet presence monitoring
- ④ Clamping status display via LED
- ⑤ Clearance 40 ± 0.01 mm for IXB V1 mini in the clamping pallet
- ⑥ Clearance 39 ± 0.01 mm for fitting screw PSC mini V1 (ID 1522432) in the clamping station

Electromechanical quick-change pallet module

Electrical connection via M12 plug connector

Integrated monitoring of the clamping slide positions and pallet presence as well as the option of a reachable intermediate position via IO-Link or digital inputs and outputs

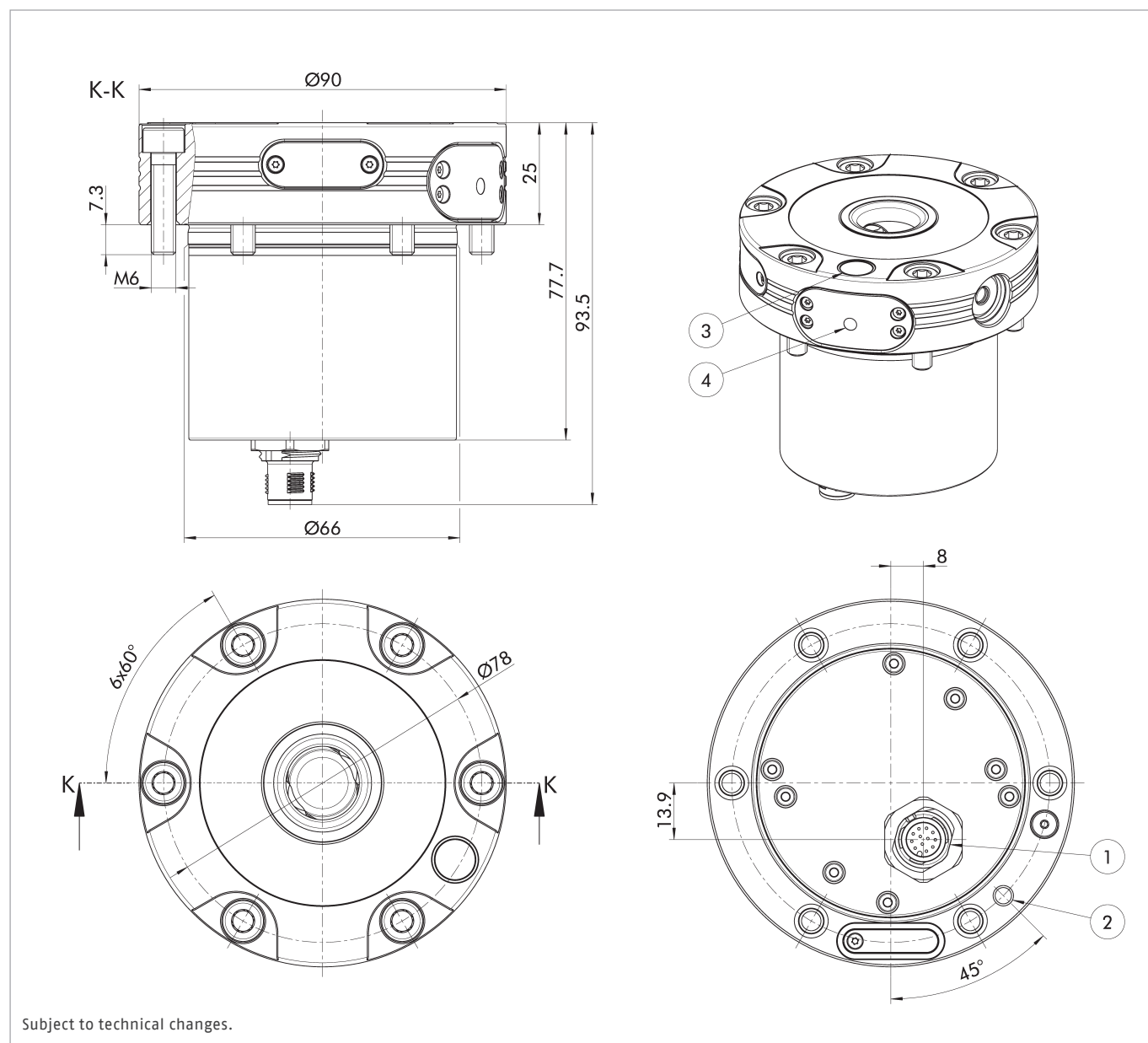
Scope of delivery

Clamping module, mounting screws, O-rings, cover plugs, operating manual; without clamping pins, without electrical plug connection

Technical data

Description	ID	Pull-down force	Operating voltage	Average current consumption	Max. current consumption*	Cycle time	Weight
		[kN]	[V DC]	[mA]	[mA]	[s]	[kg]
NSE-E mini 90-25 DIC12	1547865	3	24	600	3000	3	1.6

* Maximum current peak over 100 ms when opening the module.



- ① Electrical interface via M12 plug connector, 12-pin
- ② Positioning pin for correct module alignment

- ③ Proximity sensor for pallet presence monitoring
- ④ Clamping status display via LED

Electromechanical quick-change pallet module

With anti-rotation protection V1

Electrical connection via M12 plug connector

Integrated monitoring of the clamping slide positions and pallet presence as well as the option of a reachable intermediate position via IO-Link or digital inputs and outputs

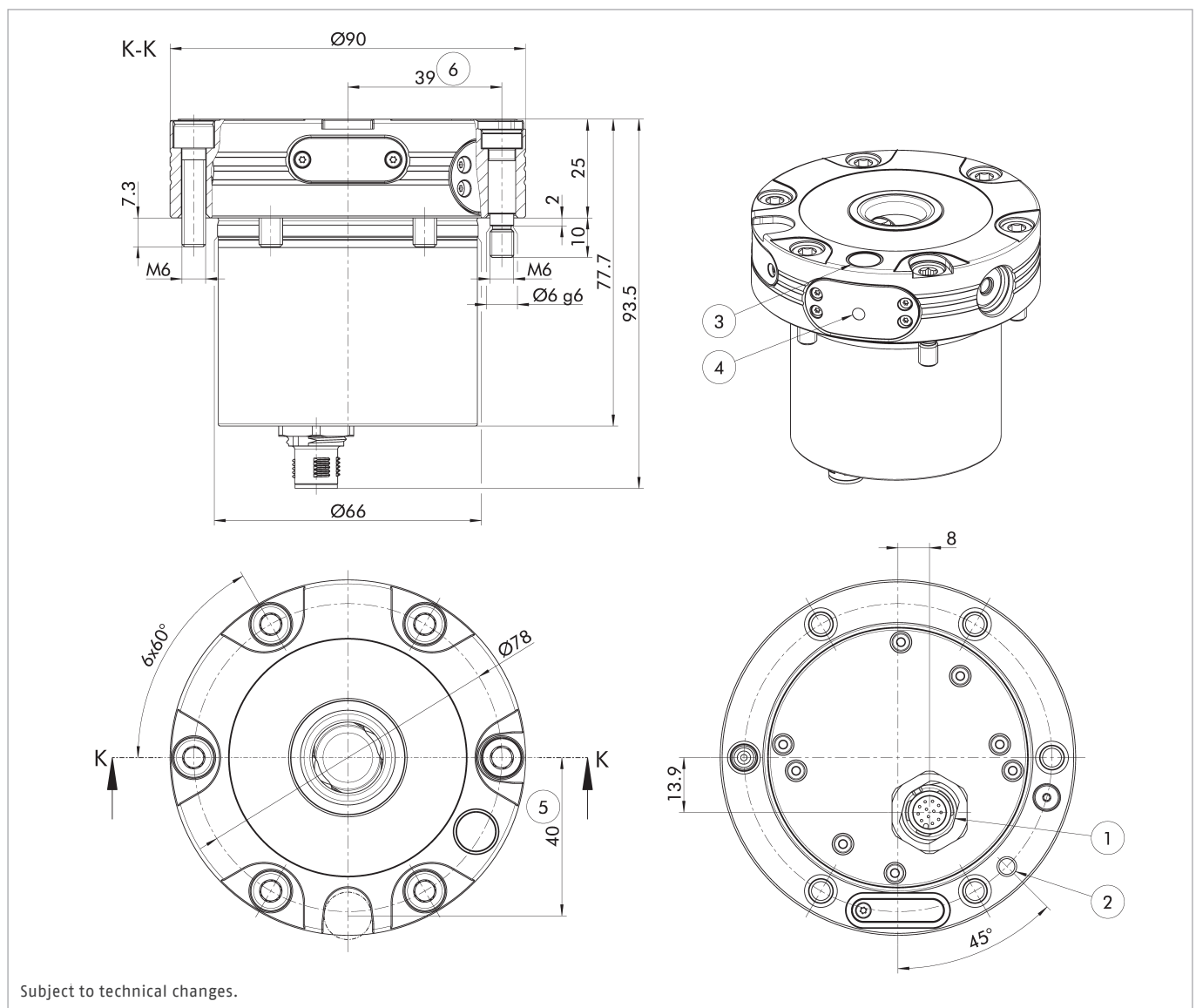
Scope of delivery

Clamping module, mounting screws, fitting screw, O-rings, cover plugs, operating manual; without clamping pins, without indexing pin, without electrical plug connection

Technical data

Description	ID	Pull-down force	Operating voltage	Average current consumption	Max. current consumption*	Cycle time	Weight
		[kN]	[V DC]	[mA]	[mA]	[s]	[kg]
NSE-E mini 90-25-V1 DIC12	1547866	3	24	600	3000	3	1.6

* Maximum current peak over 100 ms when opening the module.



- ① Electrical interface via M12 plug connector, 12-pin
- ② Positioning pin for correct module alignment
- ③ Proximity sensor for pallet presence monitoring
- ④ Clamping status display via LED
- ⑤ Clearance 40 ± 0.01 mm for IXB V1 mini in the clamping pallet
- ⑥ Clearance 39 ± 0.01 mm for fitting screw PSC mini V1 (ID 1522432) in the clamping station

Accessories

Clamping pins SPx mini

Clamping pin for positive connection with NSE mini clamping modules.



Suitable for	Description	ID
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SPA mini 20	0435610
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SPB mini 20	0435620
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SPC mini 20	0435630

Clamping pin extension

For lifting the workpiece from the machine table, and for improving the accessibility of the machine spindle.



Suitable for	Description	ID
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SP-VL mini 30-6-SPA	0435640
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SP-VL mini 60-6-SPA	0435650

Indexing pin

Used as an anti-rotation protection for VERO-S modules with anti-rotation protection V1.



Suitable for	Description	ID
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25-V1 DIC12	IXB V1 mini	0435930

Electrical fixed contact interface

Electrical fixed contact interface without pre-assembled cable as a counterpart for the spring contact on the adapter plate side.



Suitable for	Description	ID
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL	SFC-5P-0C	1521278

Protection covers

Used to close the changing interface and to cover the contact surface.



Suitable for	Description	ID
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SDE mini 90	0435670

Protection covers

For closing the changing interface.



Suitable for	Description	ID
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	SDE mini 20	0435660

Cover caps

Used to cover the mounting screws and to avoid the accumulation of chips.



Suitable for	Description	ID
NSE-E mini 90-25		
NSE-E mini 90-25-V1 IOL		
NSE-E mini 90-25 DIC12		
NSE-E mini 90-25-V1 DIC12	ADK M6-SW5	9985503



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