



VERO-S NSE3-PH IOL

**Electromechanical quick-
change pallet system with
innovative drive**

Quick-change pallet module with innovative piezo-hydraulic drive for maximum performance

Engineering skill from SCHUNK – this is what the new electromechanical quick-change pallet module NSE3-PH IOL stands for. To counteract increasing competitive pressure, many companies are obliged to automate their processes and move away from expensive compressed air. The new NSE3-PH 138-IOL module is a key component here. Controlled with 24 V DC, it achieves almost the same pull-down forces as the fluid-operated NSE3 138 within the same installation space. The entire sensor and actuator system is fully integrated in the module, so that no additional interfering contours are created. All process-relevant data can also be transferred to the machine control via an IO-Link interface.



Advantages – Your benefits

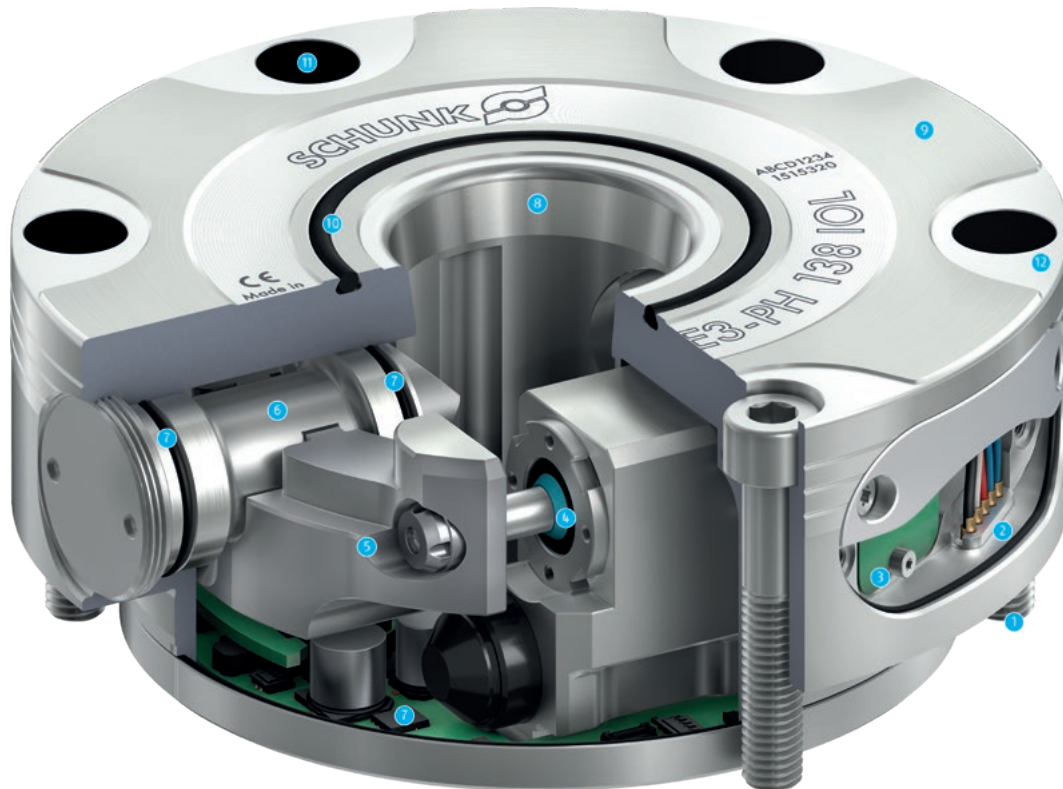
- + No expensive compressed air required**
Considerable cost savings
- + Actuation via piezo-hydraulic drive**
Ensures almost the same pull-down forces in the same installation space as NSE3 clamping modules
- + Integrated sensor system**
No additional interfering contour
- + Control via IO-Link**
For easy integration in commonly used fieldbus systems
- + Wide range of query and transmission options**
Ideally suited for automation applications
- + Maximum process reliability**
Thanks to various query options and transmission of error messages
- + Monitoring of the clamping slide position**
For "open" and "clamped" statuses
- + Integrated monitoring of pallet presence**
Via integrated inductive proximity sensor
- + SCHUNK modular system**
Can be 100% integrated into the huge SCHUNK NSE3 modular system
- + Positioning via short taper**
Very easy joining process at a repeat accuracy of < 0.005 mm
- + 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
- + Optional cone seal**
For protecting the change interface from coolant, dust, and chips

Technical data

Description	Anti-rotation protection	Self-locking	Integrated sensor system	Communication	Interface	Power supply
						[V DC]
NSE3-PH 138 IOL		●	●	IO-Link	Control via IO-Link	24
NSE3-PH 138-V1 IOL	●	●	●	IO-Link	Control via IO-Link	24

Function NSE3-PH IOL

The clamping procedure of the module takes place using a floating piston. A piezoelectric element pumps hydraulic oil into the corresponding piston chamber and compresses it during actuation, thereby generating an axial piston movement. The pull-down kinematics on the clamping slide convert this movement into a maximum pull-down force on the clamping pin. To actuate the module, only a voltage of 24 V is required. The software can be used to set the "open" and "locked" clamping slide positions, and to detect the presence of pallets, and it sends this information to the machine control.



- 1 **Integrated electronics and actuators**
Signal processing is done exclusively in the clamping device
- 2 **Control via IO-Link**
For easy integration in commonly used fieldbus systems
- 3 **Monitoring of the clamping slide positions**
For "open" and "clamped" statuses
- 4 **Piezo-hydraulic drive**
Ensures almost the same pull-down forces in the same installation space as NSE3 clamping modules
- 5 **Floating piston**
Highest pull-down forces due to direct contact between the clamping slides and the clamping pins
- 6 **Clamping pin with proven SCHUNK pull-down kinematics**
For best transmission ratios and high pull-down forces
- 7 **Completely sealed system**
Therefore absolutely maintenance-free
- 8 **High-precision short taper centering**
Ensures μ -precise connection
- 9 **Large contact surfaces**
For best support and highest rigidity
- 10 **Flat seal to protect the interface during machining**
Dampens the placement of the workpiece or clamping pallet
- 11 **Cover plugs for mounting screws**
Therefore no accumulation of coolant or chips possible
- 12 **Lower-lying countersunk screws**
For easy cleaning of the flat surface

Electromechanical quick-change pallet module

Piezo-hydraulically actuated quick-change pallet module via IOL-Link.

Integrated monitoring of clamping slide positions, pallet presence and the pressure in the turbo chamber via IOL-Link

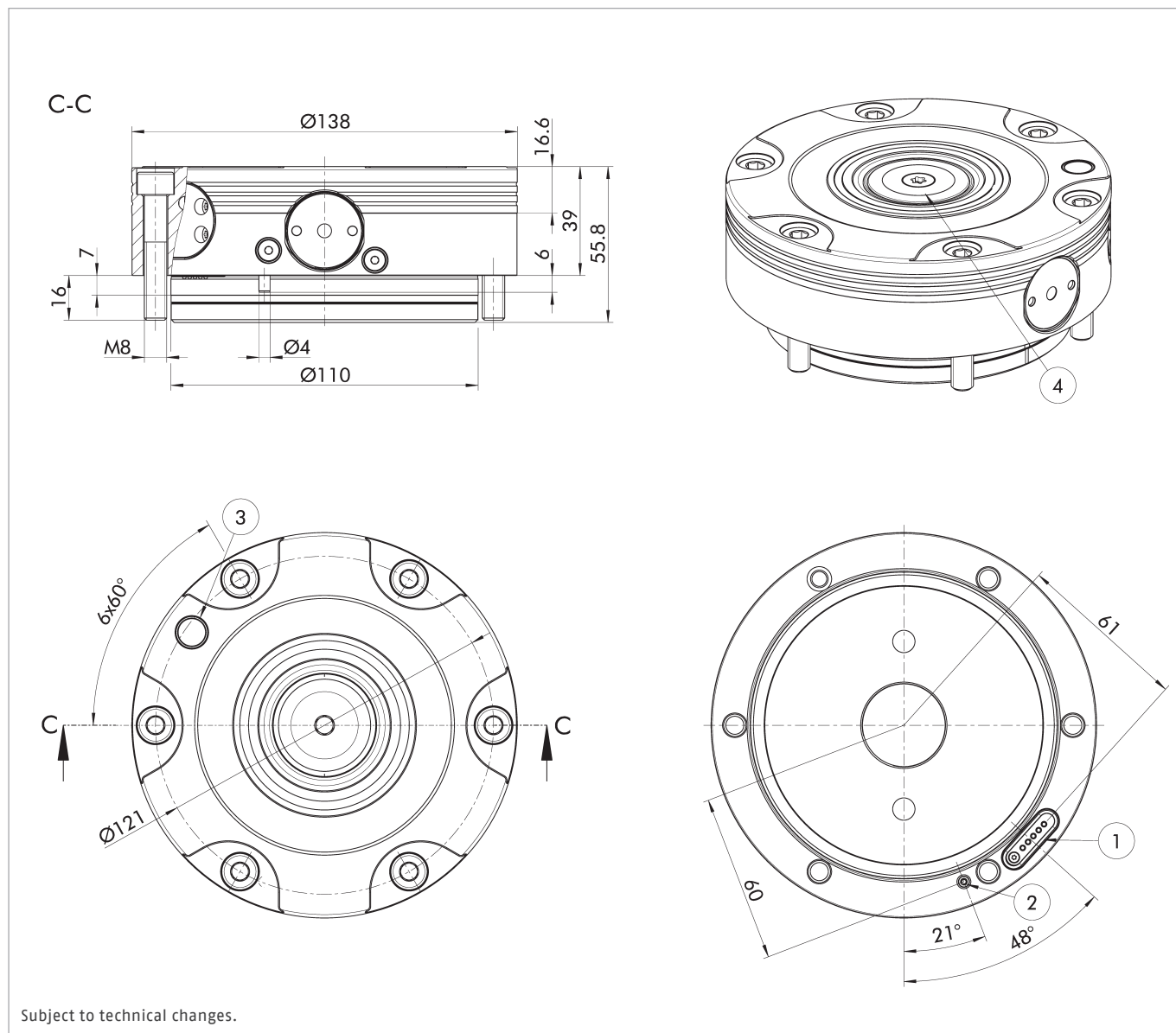
Scope of delivery

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

Technical data

Description	ID	Cone seal	Pull-down force	Operating voltage	Max. current consumption*	Cycle time	Weight
			[kN]	[V DC]	[mA]	[s]	[kg]
NSE3-PH 138 IOL	1515320		20	24	2000	10	4.5
NSE3-PH 138-K IOL	1580206	●	20	24	2000	10	4.6

The cycle time corresponds to the time of an opening and a clamping procedure.



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

- ③ Proximity sensor for pallet presence monitoring
- ④ Optional: Cone seal

Electromechanical quick-change pallet module

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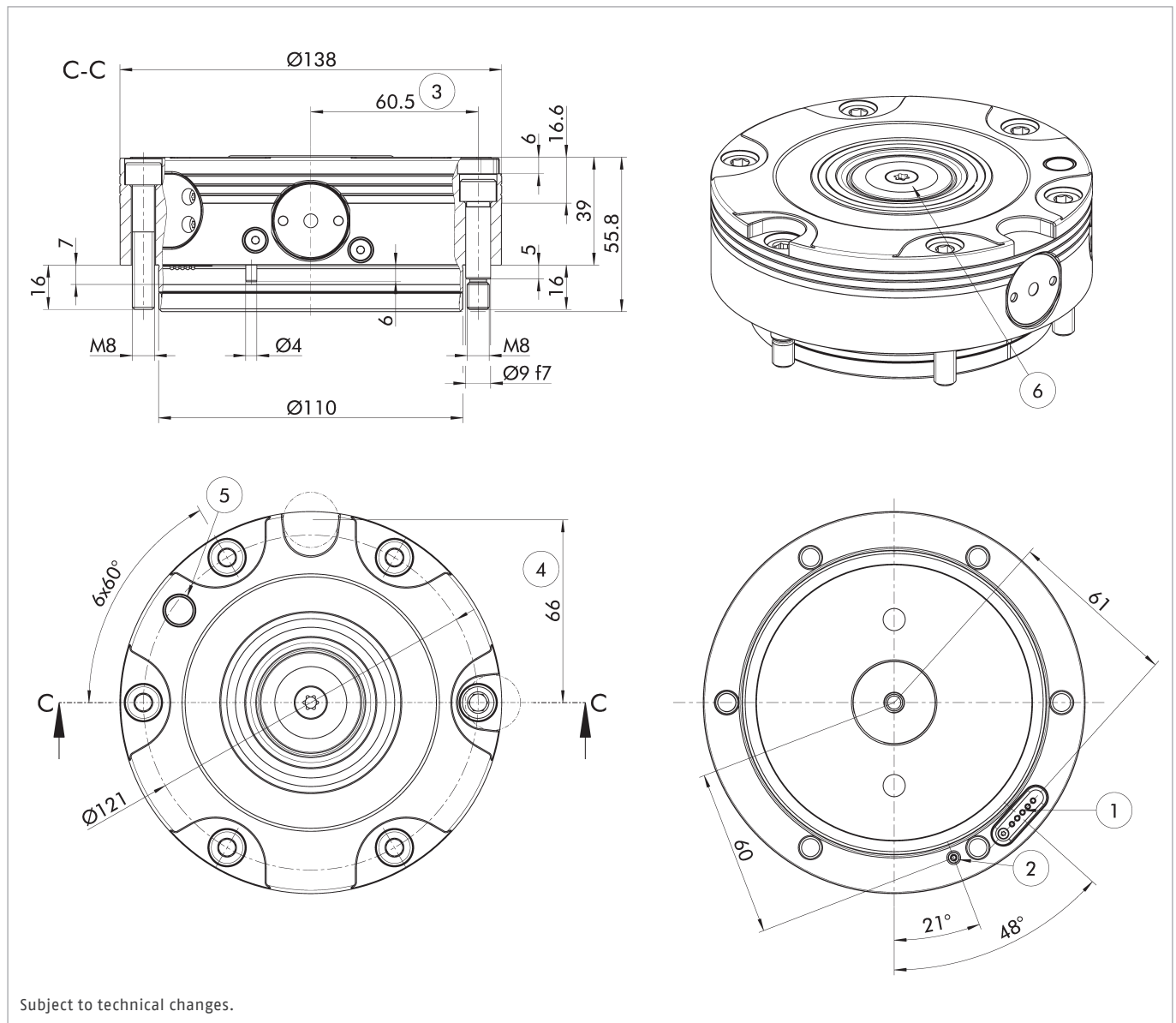
Scope of delivery

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	Cone seal	Pull-down force	Operating voltage	Max. current consumption*	Cycle time	Weight
			[kN]	[V DC]	[mA]	[s]	[kg]
NSE3-PH 138-V1 IOL	1515321		20	24	2000	10	4.5
NSE3-PH 138-V1-K IOL	1580207	●	20	24	2000	10	4.6

The cycle time corresponds to the time of an opening and a clamping procedure.



- ① IOL-Link interface via spring contacts
- ② Positioning pin for correct module alignment
- ③ Clearance 60.5 ±0.01 mm for fitting screw
- ④ Clearance 66 ±0.01 mm for indexing pin IXB V1
- ⑤ Proximity sensor for pallet presence monitoring
- ⑥ Optional: Cone seal

Accessories

Clamping pins SPx

Clamping pin for positive connection with NSE3 clamping modules.



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPA 40	0471151
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPB 40	0471152
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPC 40	0471153

Clamping pins SPx

Standard clamping pins with M16 thread for form-fit connection of workpieces or devices with NSE3 clamping modules.



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPA 40-16	0471064
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPB 40-16	0471065
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPC 40-16	0471066

Compensation pins

Clamping pin for compensating fluctuations of the bore hole gauges.
SPA-X 40 = compensation in one direction of ± 1 mm.
SPA-XY 40 = compensation in all directions of ± 1 mm.



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPA-X 40	0471155
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPA-XY 40	0471156

Accuracy pin

Clamping pins with patented flex taper with a repeat accuracy of less than 0.002 mm.



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPG 40	0471154

Dove tail pins

Clamping pins with a mounting depth of 3.5 mm



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPA-S 40	1310630
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPB-S 40	1323856
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPC-S 40	1323857

Heavy duty pins

Clamping pins with integrated mounting threads for high holding forces.



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPA-F 40	0471171
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SPC-F 40	0471172

Indexing pin

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



Suitable for	Description	ID
NSE3-PH 138-V1 IOL	IXB V1	0471980
NSE3-PH 138-V1 IOL	IXB V1-K	0432371

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
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	SFC-5P-OC	1521278

Cover caps

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



Suitable for	Description	ID
NSE3-PH 138 IOL		
NSE3-PH 138-V1 IOL	ADK-1 M8-SW6	9988527



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