



VERO-S

Systems for standard applications

Superior Clamping and Gripping



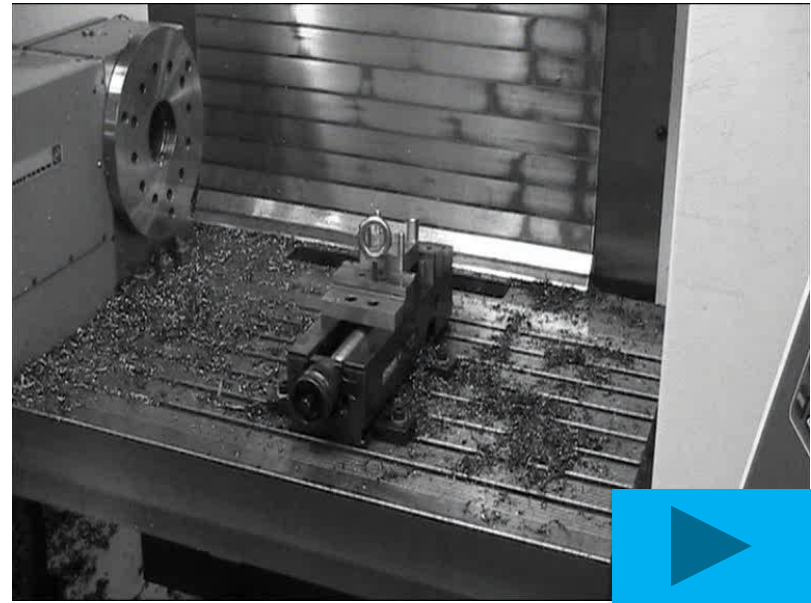
VERO-S overview



VERO-S overview

Description	NSA plus 120	NSA plus 160	NSR mini 100	NSR 160	NSR maxi 220	NSE mikro 49	NSE mini 90	NSE plus 99	NSE plus 138	NSE plus 176
Pull-down force (kN)	3	5	1	4	12	0,15	0,5	4	7,5	9
Pull-down force with Turbo (kN)	9	15	4	15	50	0,4	1,5	15	25	40
Weight (Kg)	2,5	4	0,4	1,6	21	0,2	1	2,5	4,4	7,9
Lifting force (kN)	1	2	-	-	-	-	-	-	-	-
Module height (mm)	59	70	38	62	111	12	20	56	56	60
Clamping Pin type Ø	-	-	mini 10	SPA 40	SPA 80	mikro 10	mini 20	SPA 40	SPA 40	SPA 40
Holding force (kN)	50	75	-	-	-	3(M3) 5(M4)	15(M6) 25(M8)	35(M10) 50(M12) 75(M16)	35(M10) 50(M12) 75(M16)	35(M10) 50(M12) 75(M16)
Automated Machine Loading	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manual Machine Loading	-	-	-	-	-	Yes	Yes	Yes	Yes	Yes

SCHUNK VERO-S vs. conventional Set-up



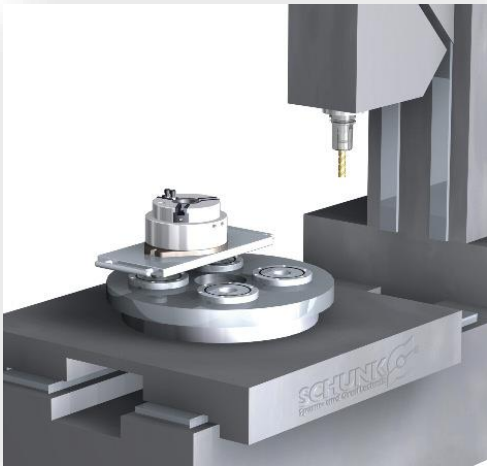
- Quick set-up - allows for rapid change over to a new job
- Available clamping tools can continue to be used after rework
- Zero-points remain constant
- Usage of the pneumatics at the machine (often compressed air gun)
- Easy interruption of a running process
→ serial production for 3rd shift is possible

Comparison of costs „setting up“

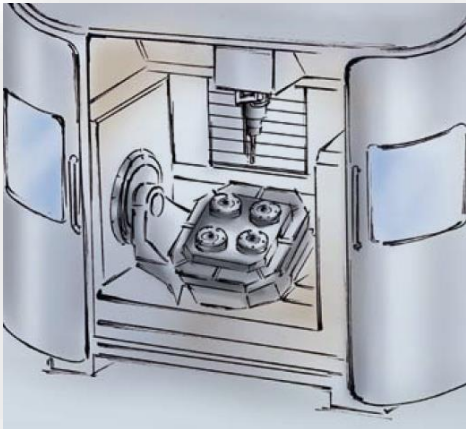
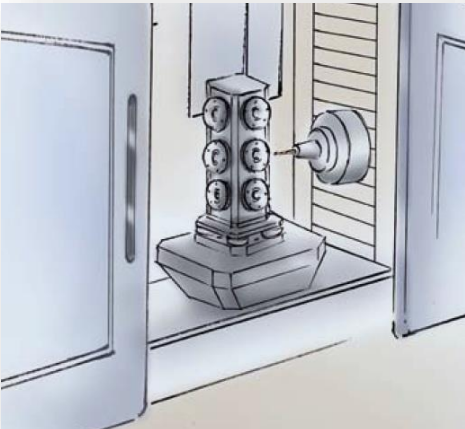
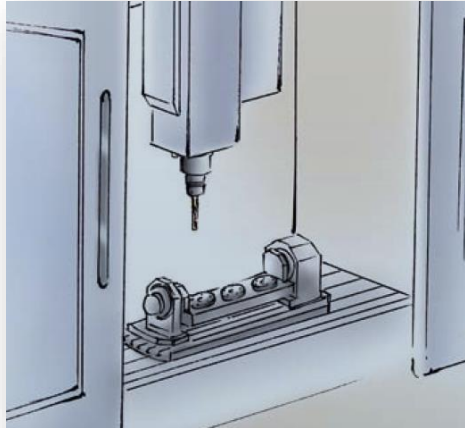
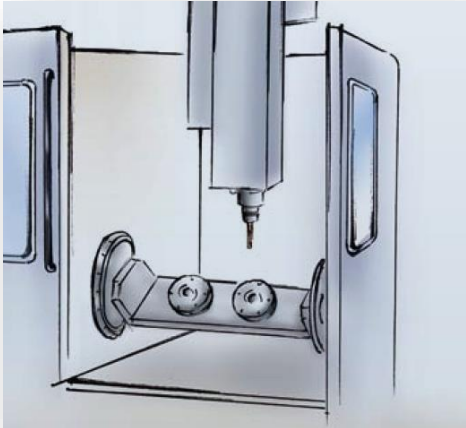
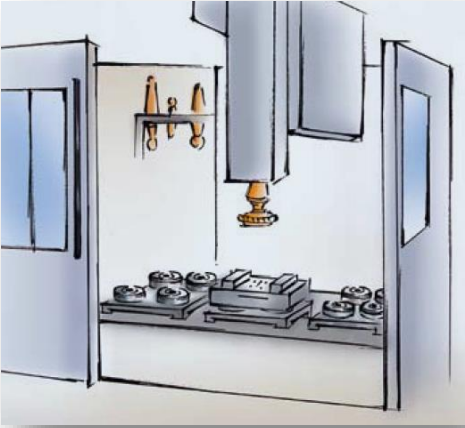


concept

- Devices and clamping fixtures or even workpieces are changed quickly, precisely and safely.
- SCHUNK VERO-S allows for set up to be done outside of the machine while the machine is running so as to maximize cycle time.
- Through a standardized system, the manufacturing resources can be used on different machines with the same accuracy.



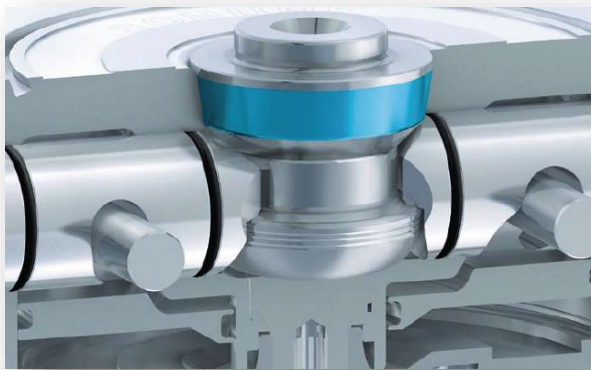
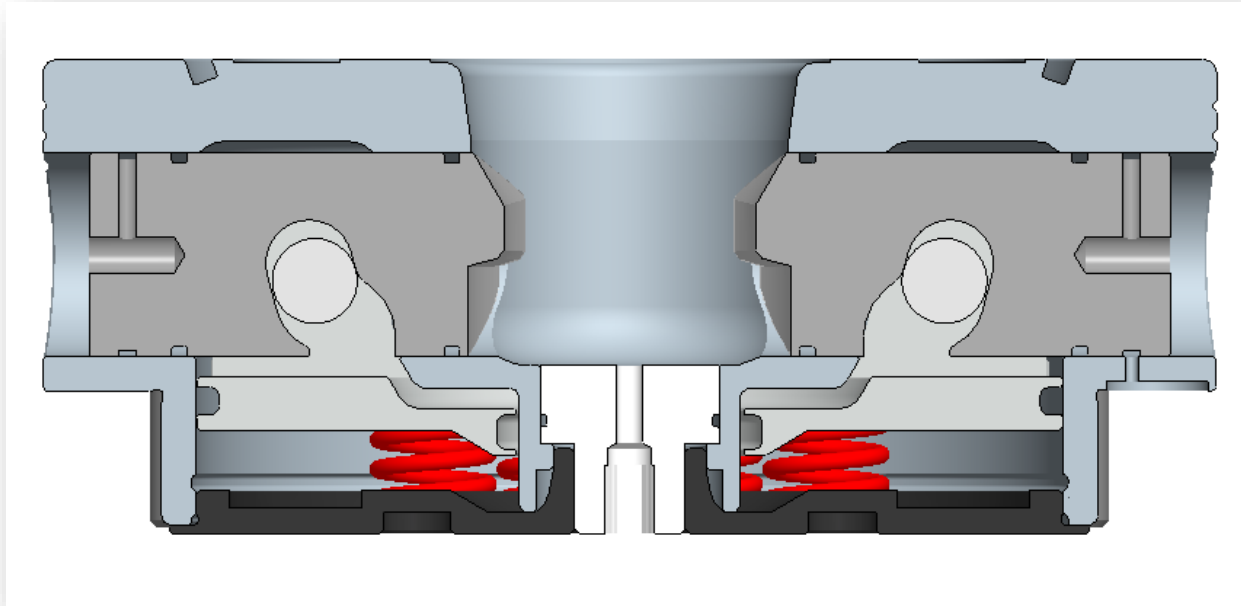
Solutions for your machine



Modular design

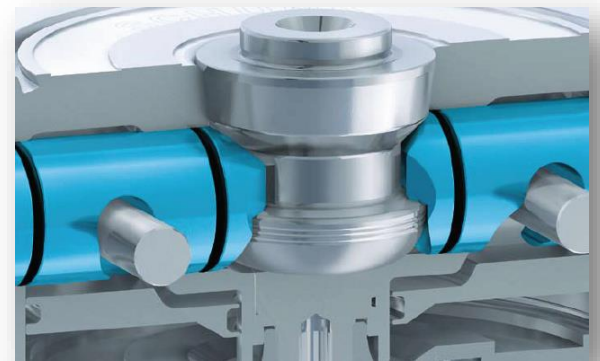


technic VERO-S

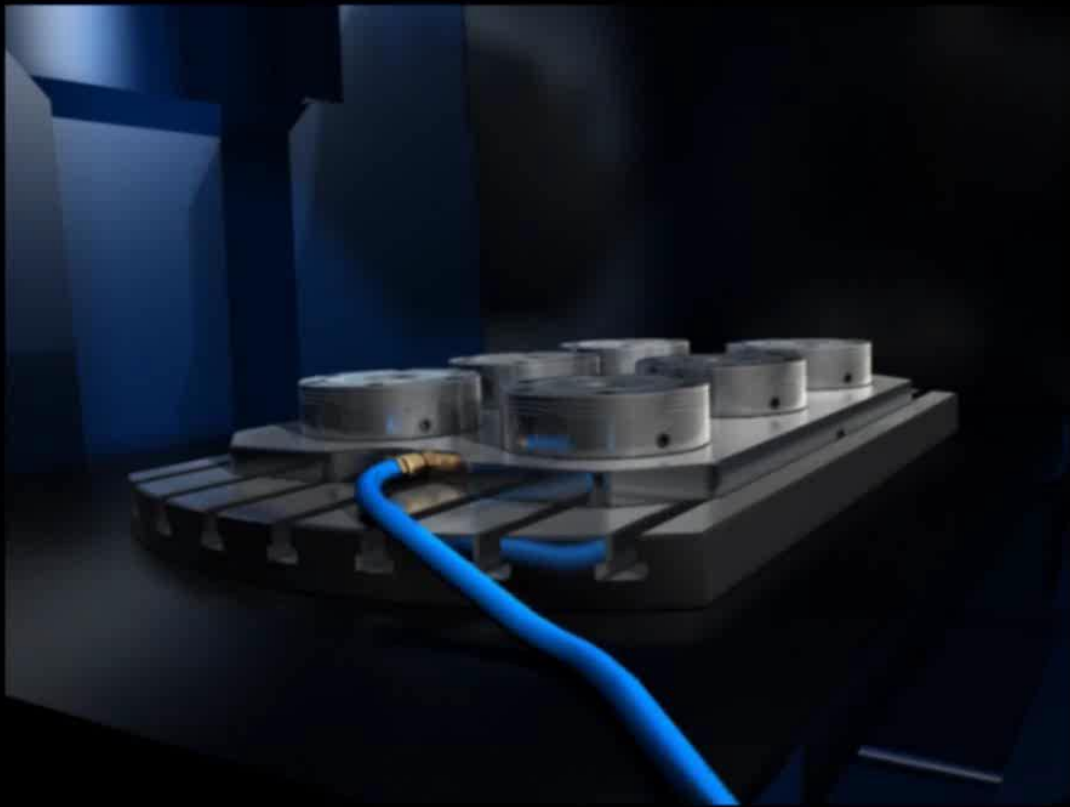


2 main functions
positioning + clamping

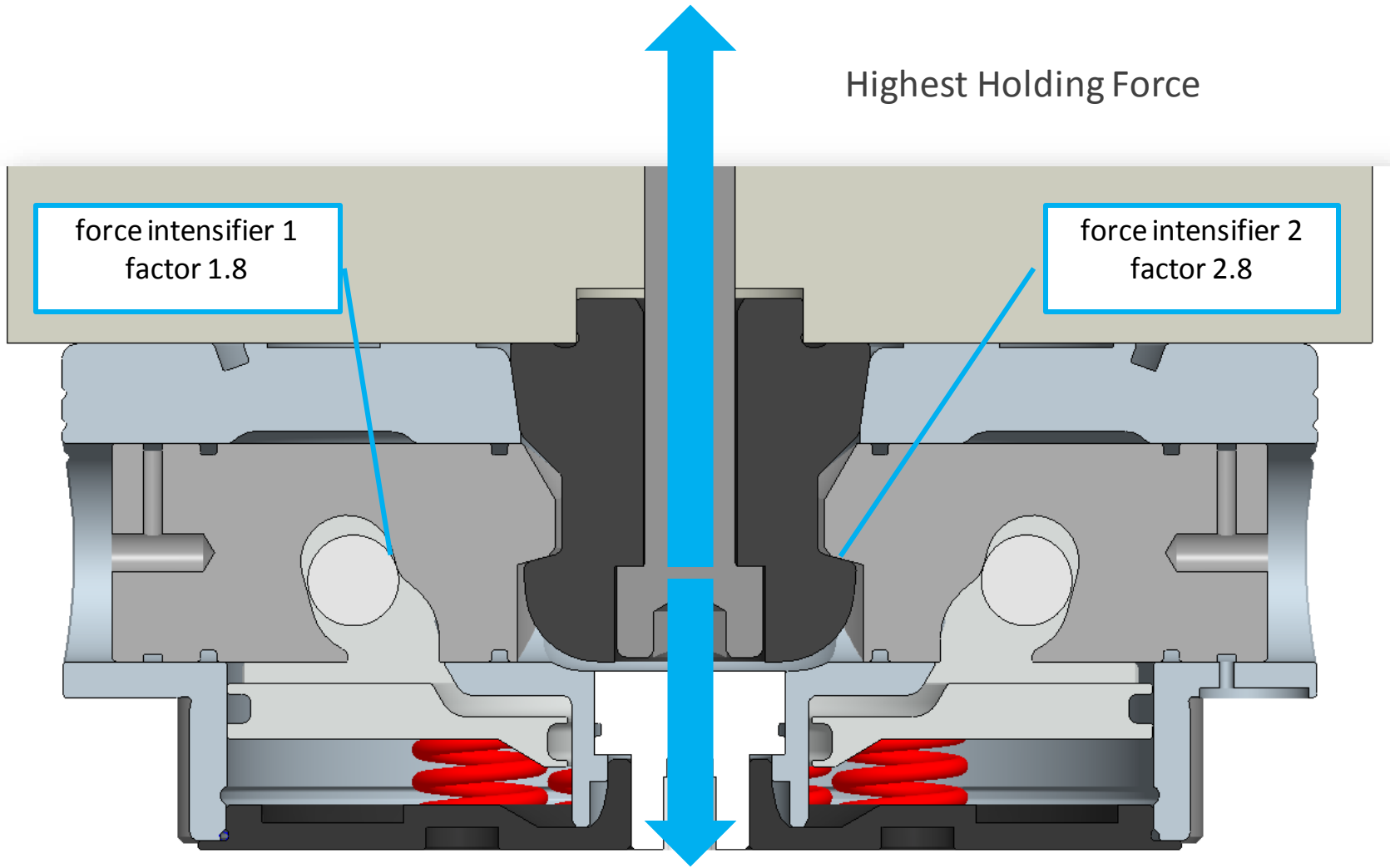
=
Zero point
Quick Change Pallet System



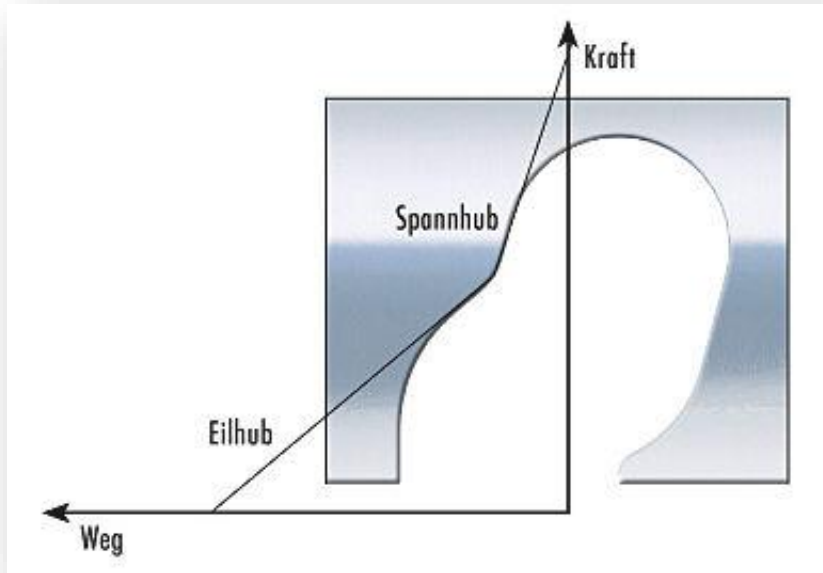
technic VERO-S



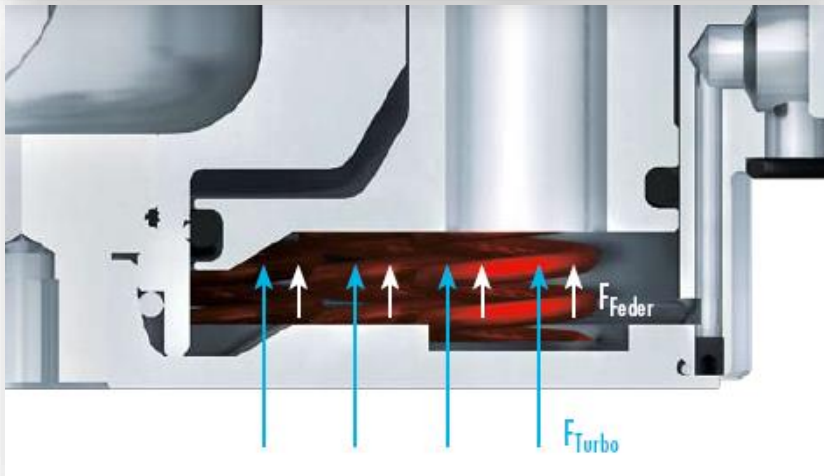
technic VERO-S



features VERO-S



The patented rapid- and power stroke guarantees best transmission ratio for maximum pull-in force in the clamping condition.



The turbo function supports additionally the spring force and allows therefore high pull-in forces.

VERO-S NSE plus 138

Locking via clamping slide

Large contact surfaces between clamping slide and clamping pin assure a low surface pressure. Your advantage: Long life span without wear.

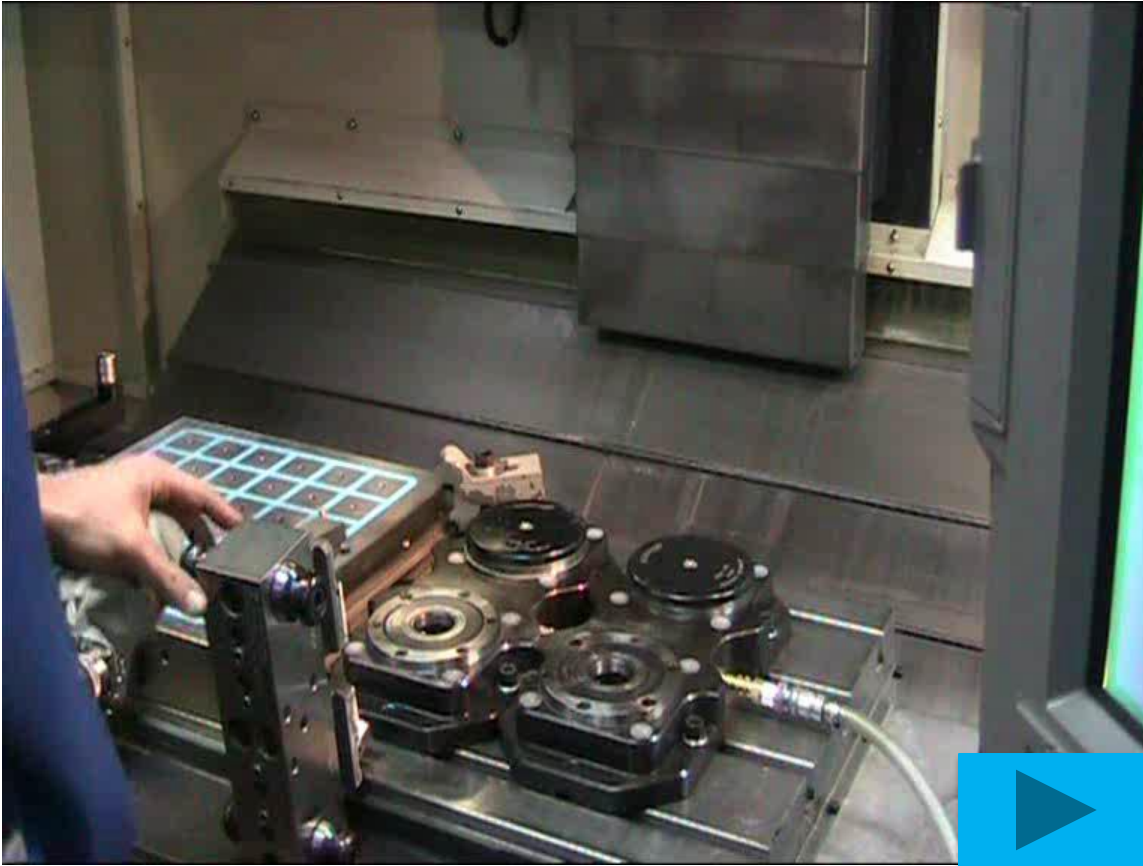


Air purge

The central plug can be supplied with a bore hole for usage of an air-cleaning function.

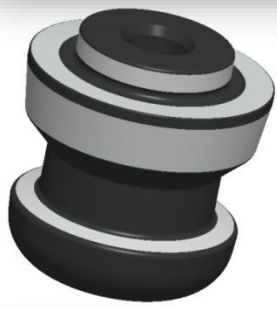


Accuracy VERO-S

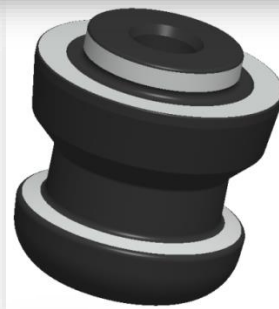


- sealed system allows cleaning with air pressure
- easy cleaning of flat surfaces
- easily positioned due to the taper interface
- accuracy by large flat surfaces and taper centering

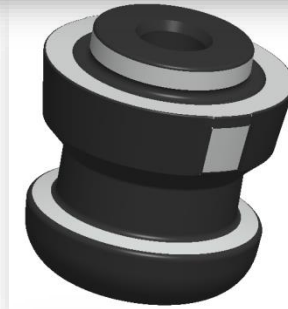
Configuration of clamping pins



Typ A fixed



Typ C with centering play

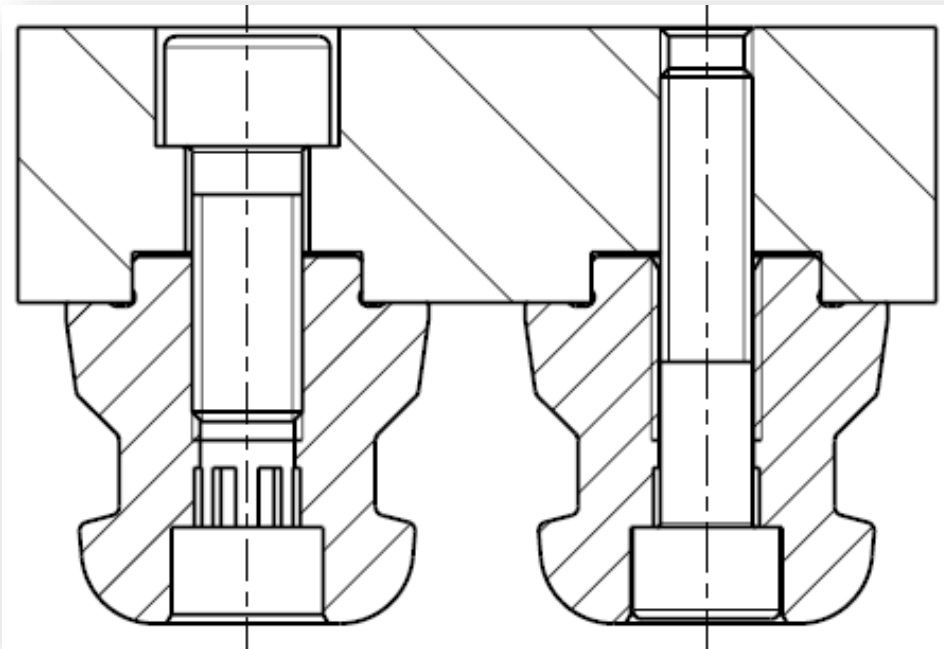


Typ B positioned

Screw varieties – clamping pins

Screwing above

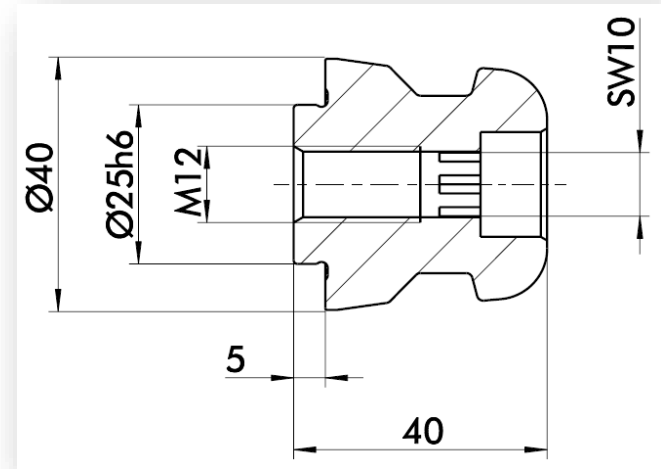
- M12 (standard)
- M16 (heavy duty cutting)



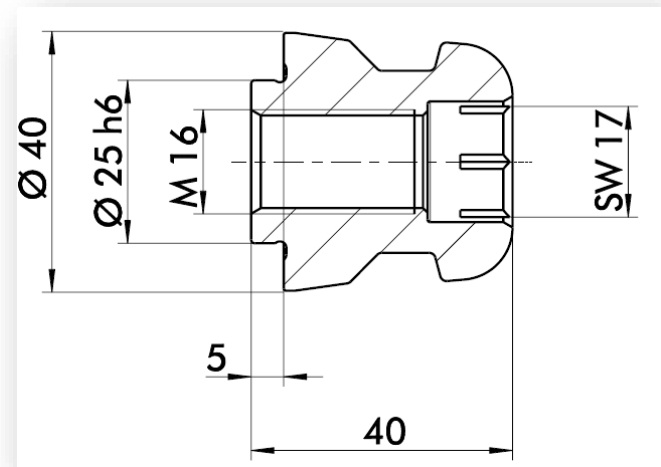
Screwing under

- M10 (standard)
- M12 (heavy duty cutting)

standard



Heavy duty cutting



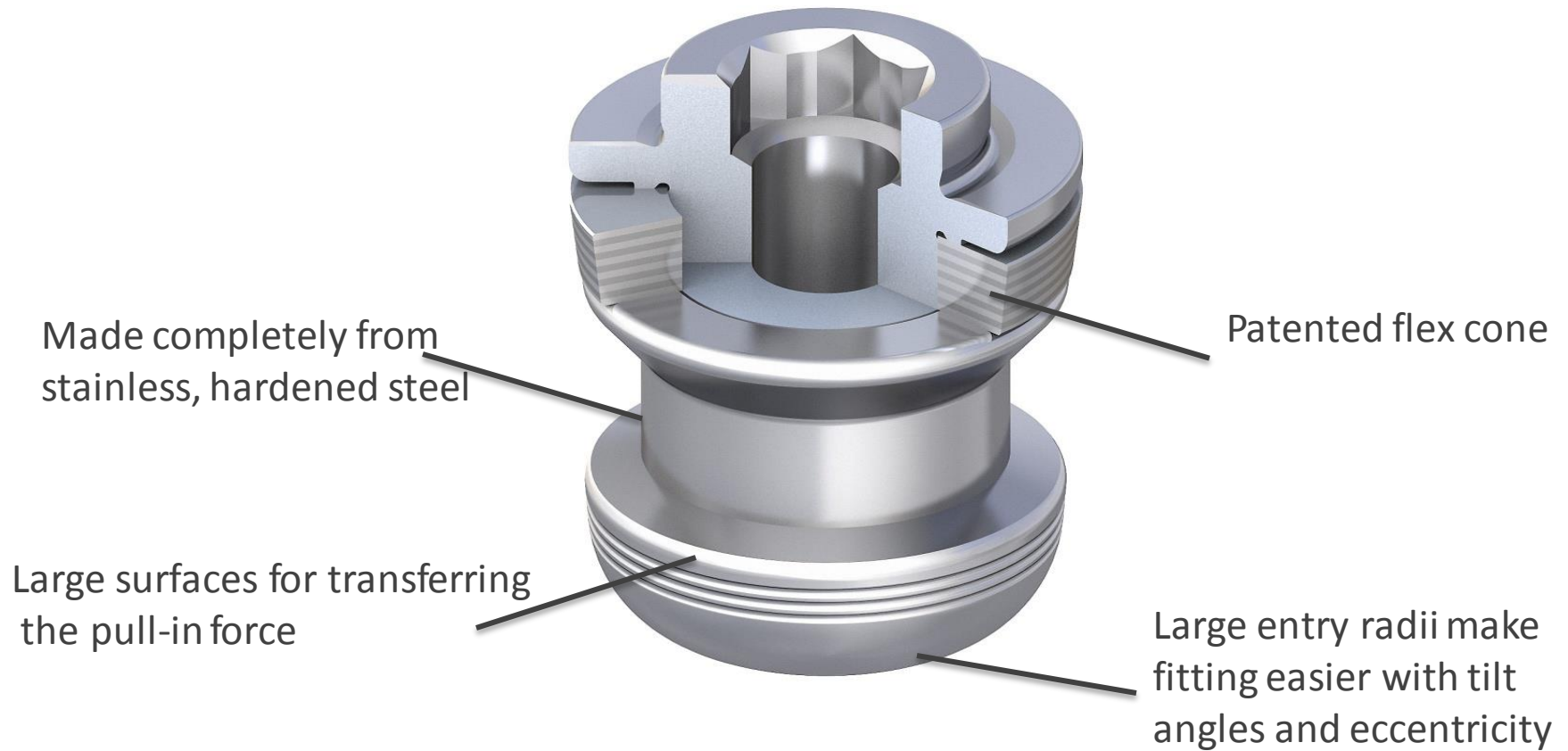
VERO-S SPG 40

Clamping pin for challenging positioning tasks

- long-term high precision
- compatible with all VERO-S NSE plus quick-change pallet modules
- no redundancy due to patented flex cone
- designed completely in stainless steel
- permanently high repeat accuracy $< 0,002$ mm
- all thermal changes balanced without moving the zero point
- optimal precision through completely scope-free positioning
- system zero point remains in the system center



VERO-S SPG 40

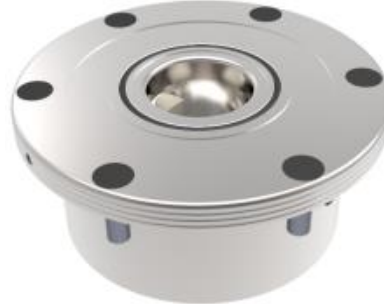


VERO-S clamping modules

NSE plus 138



NSE-T plus 138



NSA plus



NSE plus 99



NSE plus 176



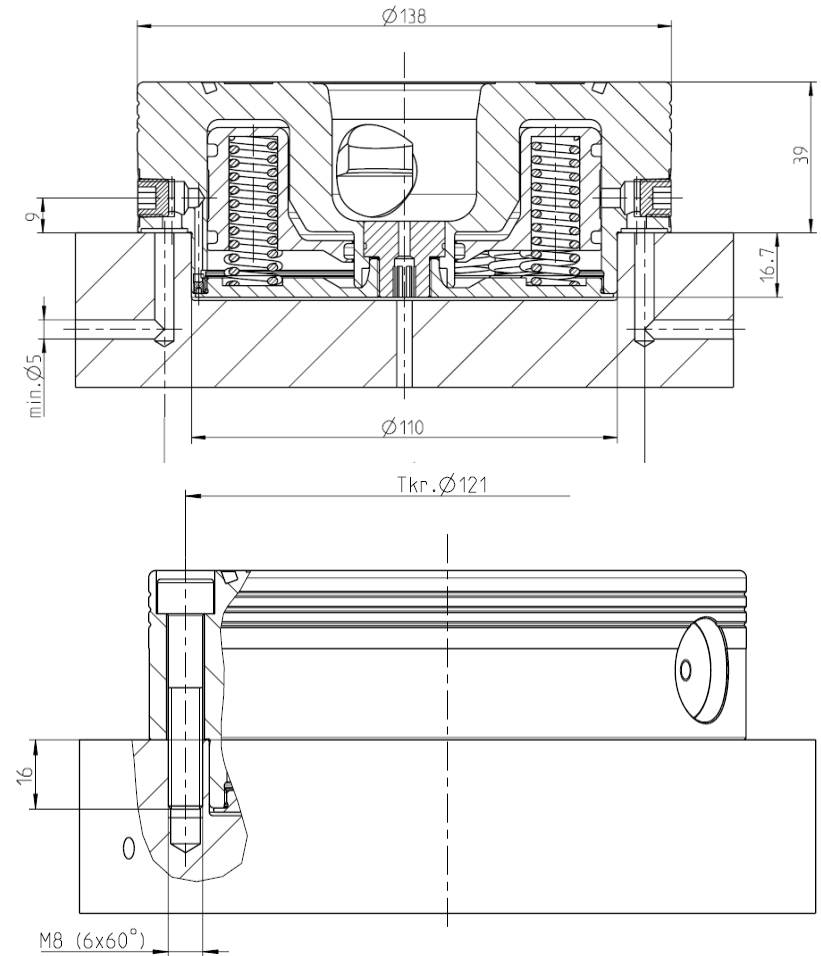
NSE plus 100-75



Installation of VERO-S module

Partial installation NSE 138

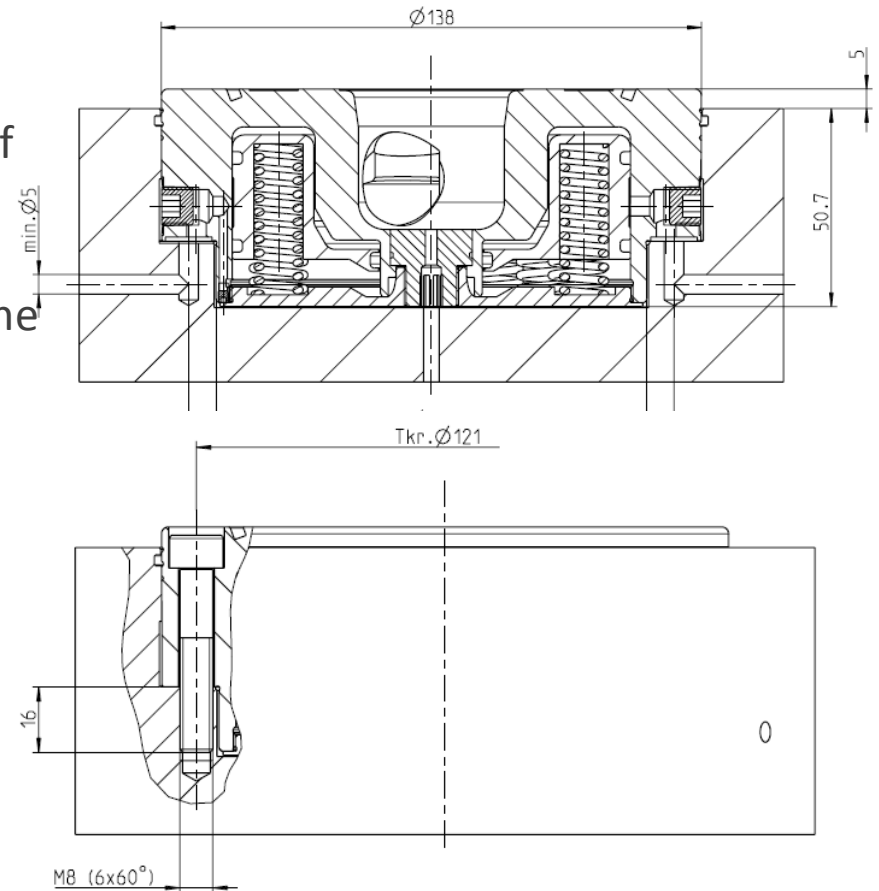
- air supply can be connected on the side of the unit or under the shoulder
- simple adjustment of the highs by grinding of the device plate
- storage room for chips between the modules



Installation of VERO-S module

Fully integration NSE 138

- air supply is connected over the shoulder
- internal plane surfaces define height identity of the modules
- application for direct mounting into the machine table



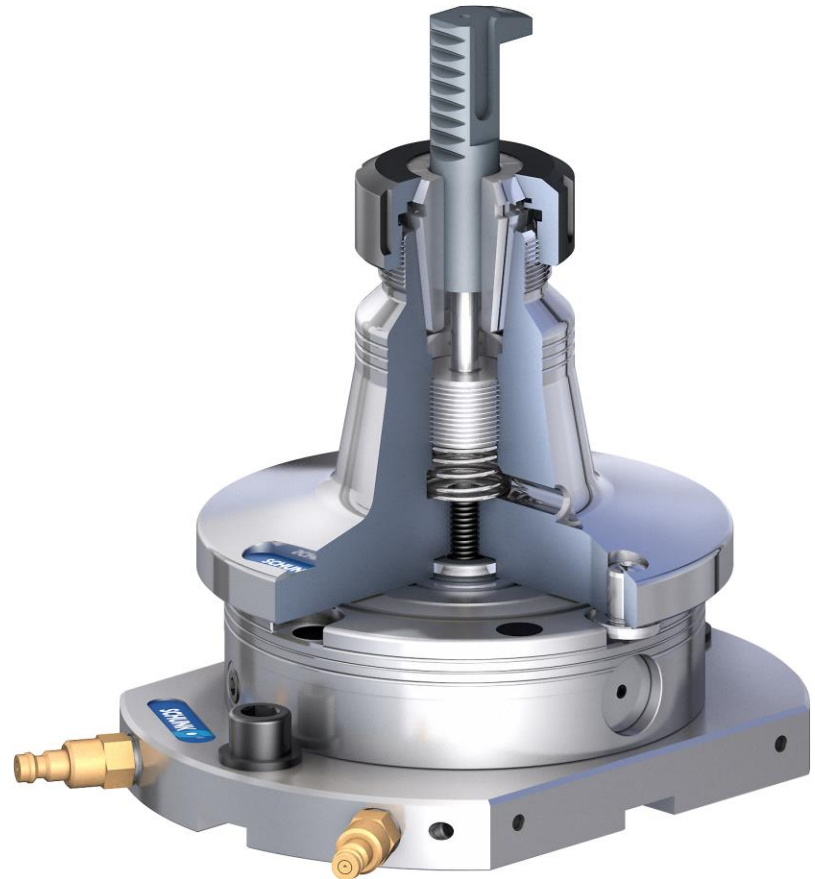
VERO-S SEZ ER / VERO-S SEZ ER mini

For parts with cylindrical shank

- optimal accessibility
- maximum flexibility

Technical details

- sizes $\varnothing 150$ mm; height 120 mm
- weight 4,5 ..5,3 kg
- clamping range $\varnothing 2..20$ mm
- max. clamping depth 96 mm



Mounting of VERO-S module over base plate



Partial integrated VERO-S module



Fully integrated VERO-S Module



Fully integrated VERO-S module into the table



applications

specifications:

- ground plate on a 5-axis Mill
- standard interface for existing fixture

solution:

- ground plate with 2 NSE 138 modules
- rework of existing fixtures



applications

specification:

- ground plate on a 5-axis-machine
- different devices can be used on 3 machines
- special machines can be easily converted to a production work during 3rd shift and then back again

solution:

- ground plate with 3 NSE 138 modules for standard machining on all 5-axis.



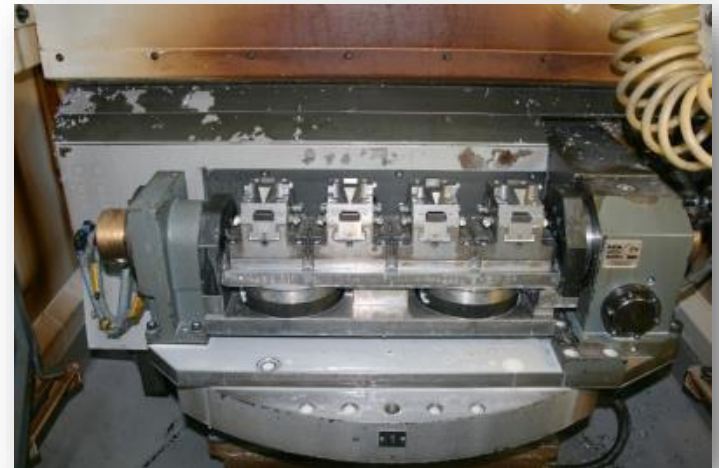
applications

specification:

- fully automated 4-axis machine needs to be set-up in the shortest time

solution:

- central base plate with 2 NSE 138 modules
- external set-up of the KSP 100



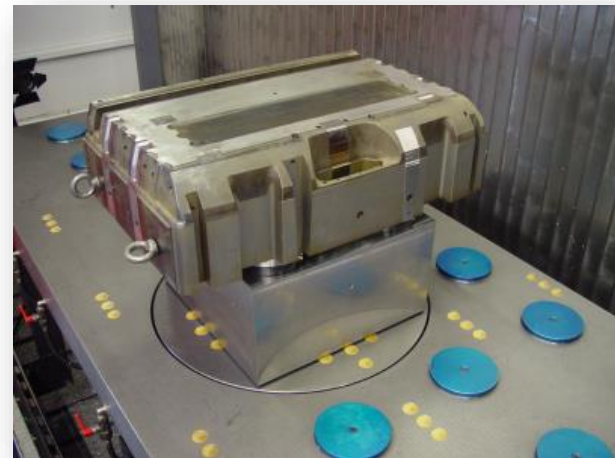
applications

specification:

- highest flexibility on the Travelling Column Milling machine for job order production
- raiser plate for greater accessibility

solution:

- complete Turn-key Solution of a machine table with NSE plus 168 modules
- raiser plate with integrated modules



applications

specification:

- clamping system for work pieces on different machines
- rework after customer tests

solution:

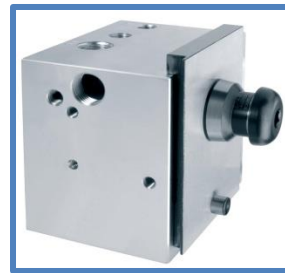
- integration NSE 138 on the machine table
- clamping pin direct in the work piece



applications

specification:

- large quantity of 3 sided work pieces to be machine on a small fixture
- parts are to be loaded, quickly accurately and clamped automatically



solution:

- NSE 90 with turbo effect
- each module can be unlocked individually
- work piece clamping on a tombstone



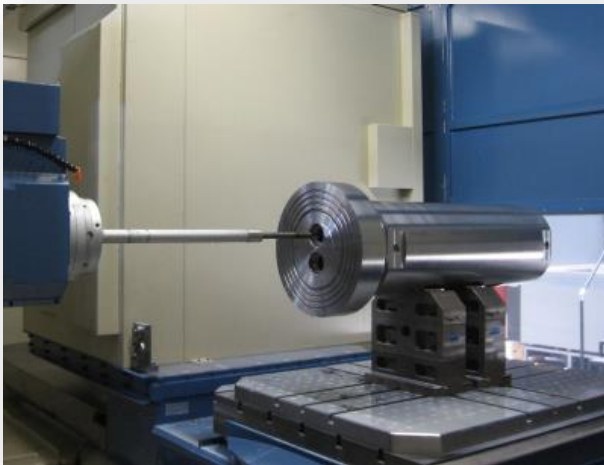
applications

specification:

- clamping of big work pieces for 4 or 5 axis machining

solution:

- modules in a base plate on a standard plattform and a raiser plate with integrated zero point clamping system



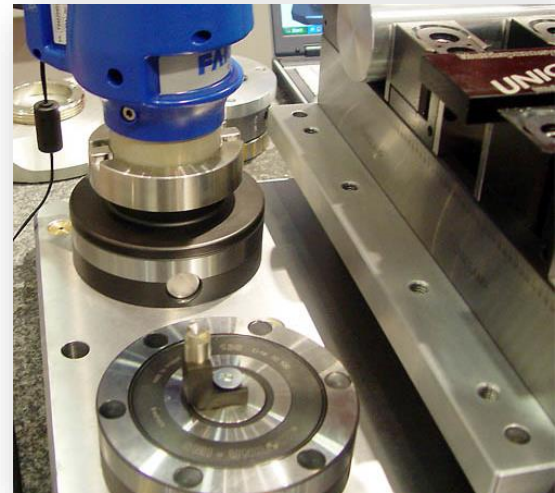
applicatons

specification:

- mobile use of a 3-axis measurement arm
- secure positioning on site

solution:

- NSE 138 positioned at needed locations



applications

specification:

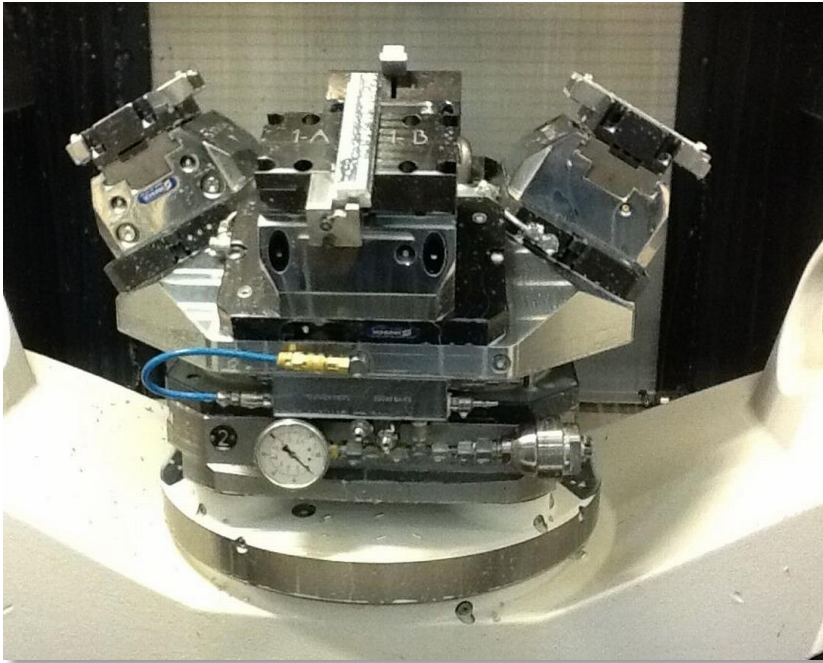
- ground support for assembling the inboard flaps for an aircraft
- solution for different sizes with minimal set-up costs

solution:

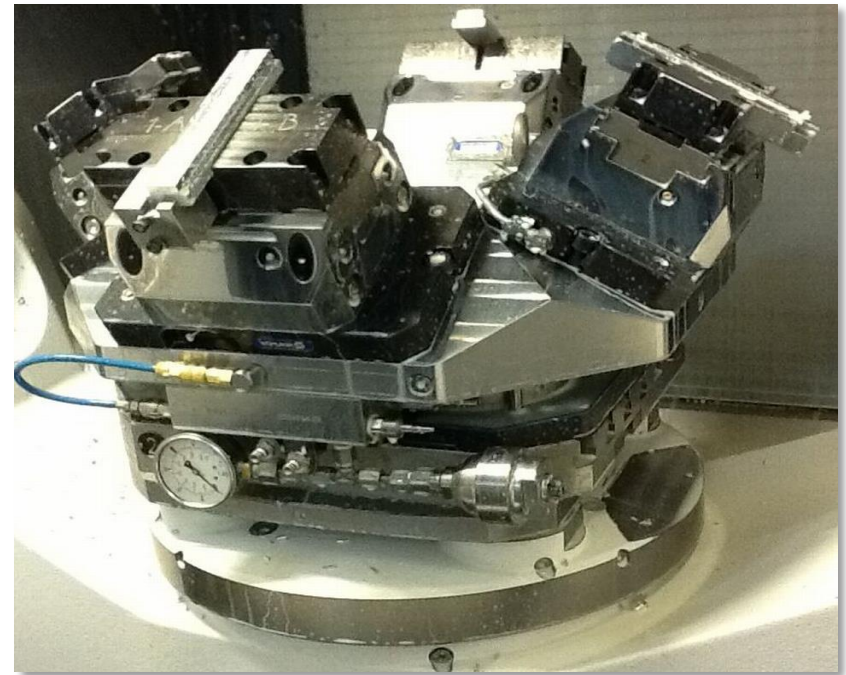
- mounting of a turning table with 2x8 modules of NSE 138
- both sides can be used for assembly



applications



2 x NSL plus 400
Media feed-through
Special pyramid 500 x 500 45°
4 x TANDEM KSP plus 160 Z incl.
Safety basic point



applications



VERO-S NSL plus 200 with clamped KSX 125 – manual vise for 5-axis machining



Storage area - VERO-S clamping devices

applications



SCHUNK modular design: VERO-S NSL
plus 600 + module height extension
quader + KONTEC KSG



applications



VERO-S Tombstone

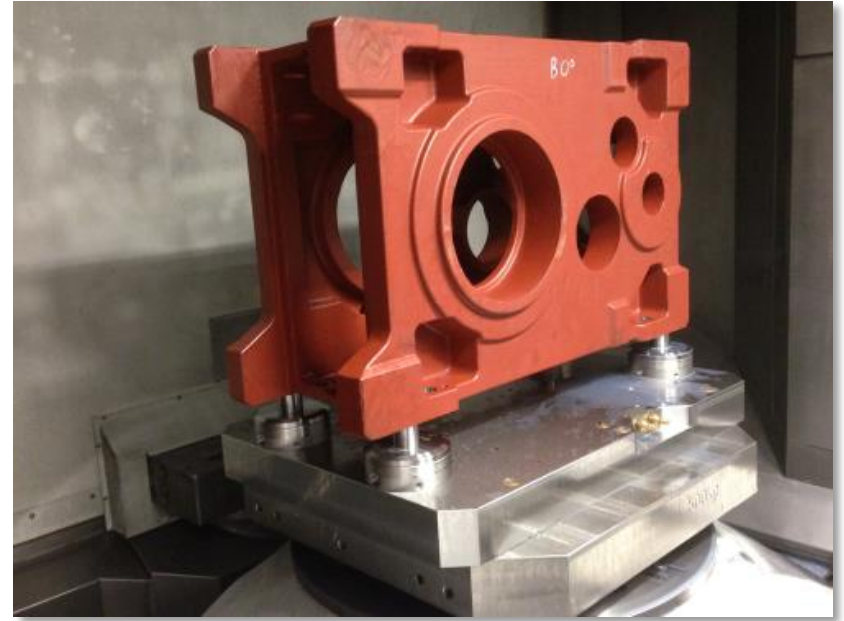
Tombstone with 40 VERO-S NSE-T plus 138 modules and a weight of approx. 3 tons



applications

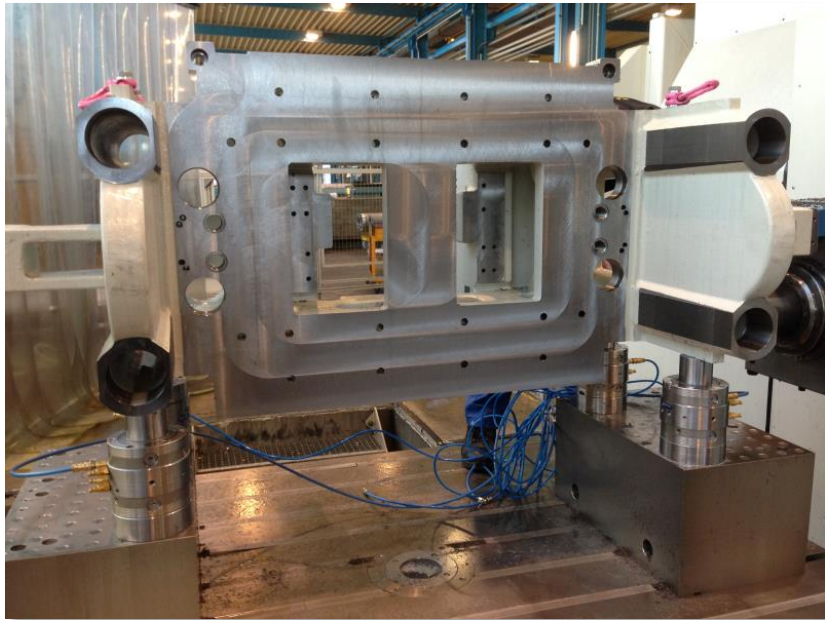


applications



VERO-S direct clamping

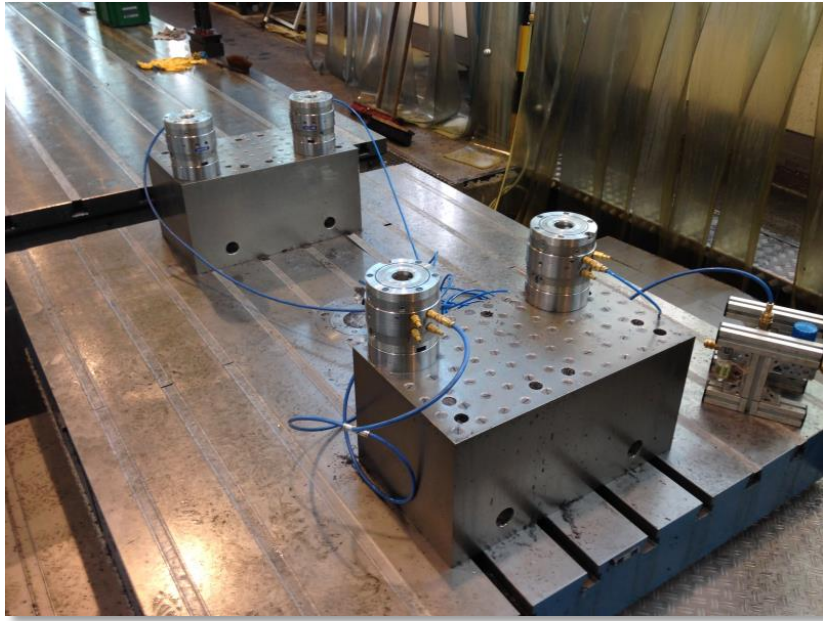
applications



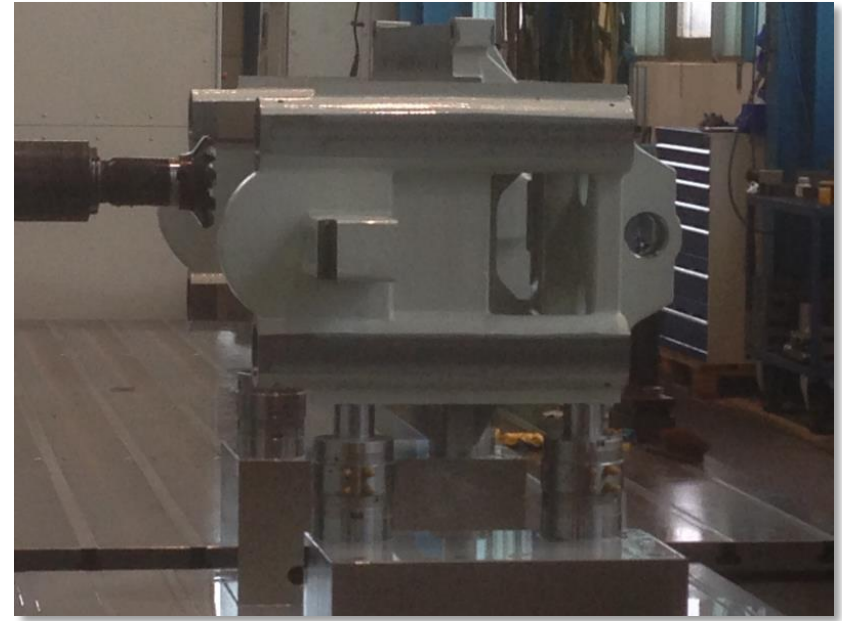
VERO-S workpiece direct clamping



applications



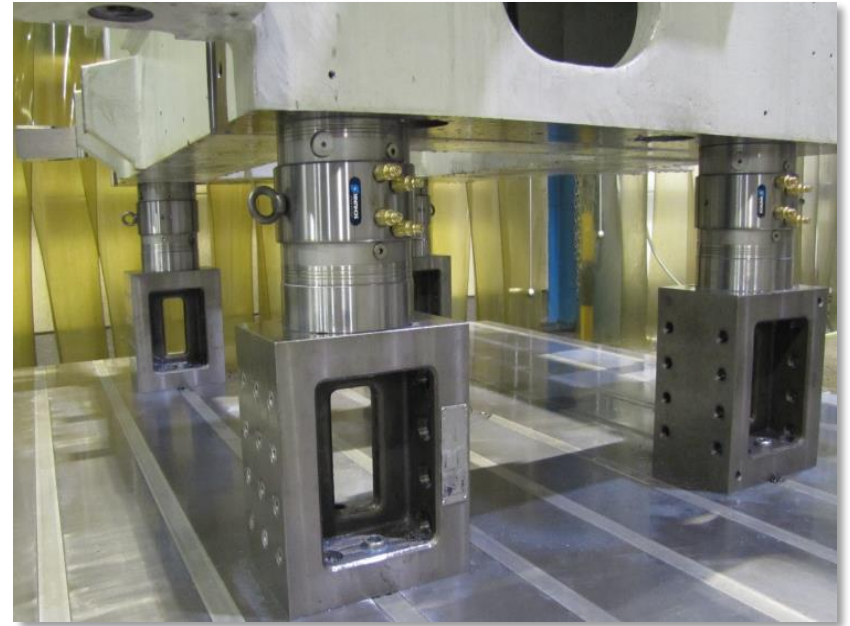
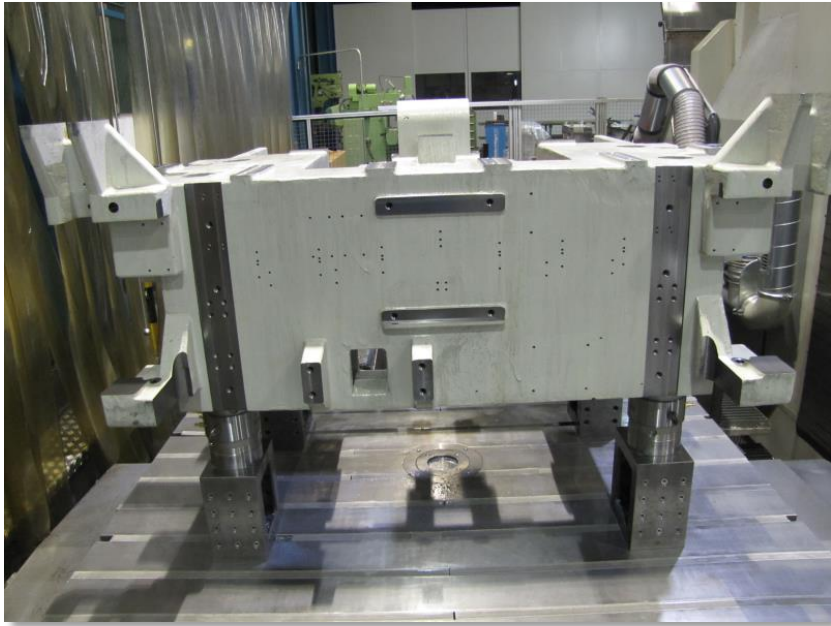
VERO-S workpiece direct clamping



applications



applications



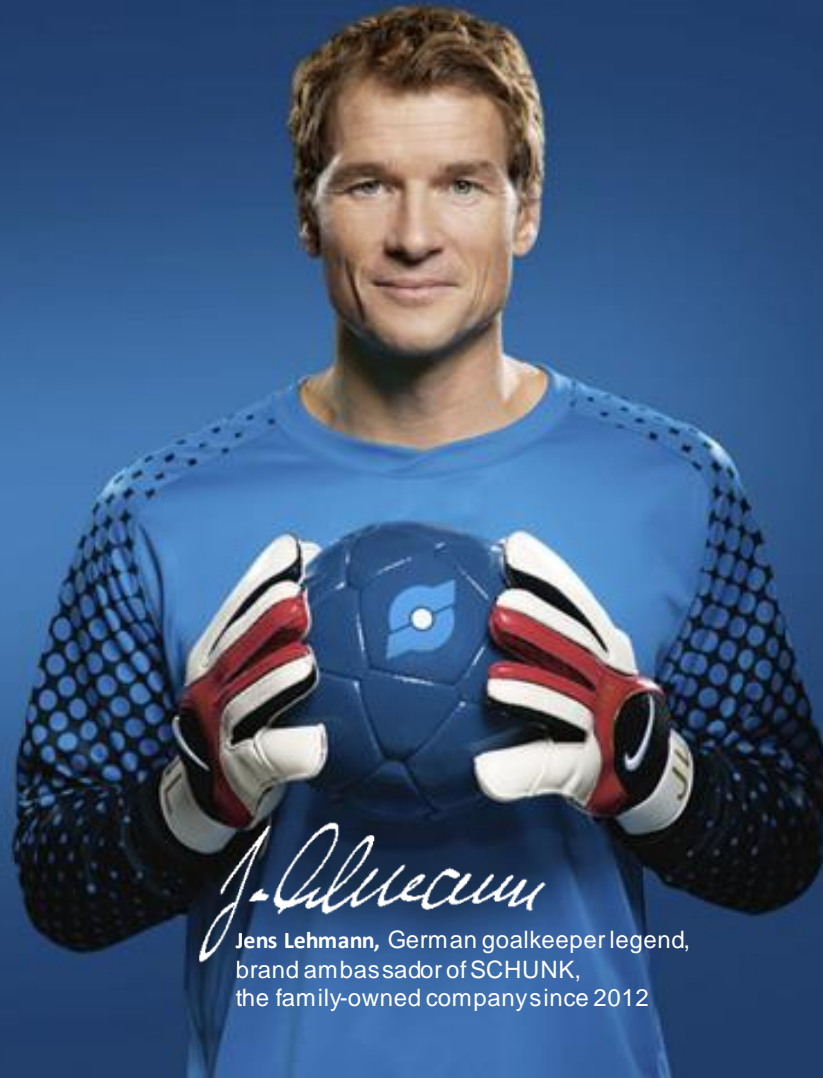
applications



applications



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J. Lehmann

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