

VOSS

# Pre-assembly devices and tools

Safe and reliable processes for every connection.







## I We are VOSS

### **Fluid management for the automotive and mechanical engineering industries**

As a larger mid-sized corporate group, VOSS develops and produces tube and connection systems for the automotive industry and mechanical engineering. The success of the VOSS Group is based on close customer relationships, dedicated employees, innovative products, and the commitment to long-term top quality for customers with the highest demands.

With strategic corporate development, commercial prudence, and a responsible awareness for people, the environment, and the region, VOSS has developed over more than 90 years of existence into an internationally successful corporate group.



## I Why VOSS pre-assembly devices

Our pre-assembly devices and tools have been specially designed for one-off and for series production and match our entire coupling system right down to the last detail. We offer appropriate solutions for all requirements – safe and

economical pre-assembly for initial production and for maintenance work. From simple manual assembly tools right up to automatic devices with tool recognition, VOSS offers a wide range of tools for tubes diameters between 6 and 114.3 mm.

## Safe and reliable pre-assembly and final assembly processes

Device designation	Type 1 EasyTight	Type 80 N3	Type 81 EasyPress	Type 90 Basic II	Type 90 Comfort	VOSSForm 100	Type 85
One-off assembly	•	•	•	•	•	•	•
Series assembly	•			•	•	•	•
Automatic tool recognition					•		
Reverse stroke optimization				•	•		
Semi-automatic tooling					•	•	
Touch screen					•		
Error detection					•		
Error prevention						•	
Including calibration service					•		
Free parameter definition acc. to customer requirements					•		
"Countdown" workpiece counter				•	•		
Freely programmable workpiece counter					•		
Optional pedal switch				•	•	•	
Tube OD	16–42 mm	6–42 mm	6–42 mm	6–42 mm	6–42 mm	6–42 mm	38–114.3 mm
Handheld device	•		•				
Bench-top device		•		•	•		•
Floor-mounted device						•	
Systems:							
Cutting ring systems	•	•	•	•	•		
BV-10 flared cone system	•	•		•	•		
ZAKO flange system		•		•	•		•
VOSSForm <sup>SO<sub>R</sub></sup> / VOSSForm <sup>SO<sub>R</sub>VA</sup>	•					•	
Electrical connection	18 V battery	–	18 V battery	400 V/16 A	400 V/16 A	400 V/16 A	400 V/16 A
Dimensions (wxhxd) in mm	280x180x60	185x267x590	410x380x90	681x260x520	800x308x615	900x1122x935	800x951x480
Weight	5.2 kg	15 kg	7 kg	66 kg	90 kg	700 kg	160 kg

# 100% fault-free cutting ring assembly: Pre-assembly studs made of high performance steel

Tool service life extended by more than 20 times plus built-in wear indicator



Two versions of the VOSS pre-assembly tools for cutting rings are available: a basic version and a more sophisticated version made of high performance steel.

Normal pre-assembly studs wear faster so that they have to be checked using a gauge after every 50 pre-assembly operations. This is time-consuming, is a potential source of faults and therefore means adhering to a tool test plan.

Our solution: durable tools made of high performance steel. Typical tool wear no longer occurs, there are no test and inspection intervals and the service life is very long – up to 20 times that of conventional tools. When the stud reaches the usable tolerance limits, its front end breaks off, forcing the user to replace it. This ensures fault-free processes in your company.

- Basic version: accuracy has to be checked using a gauge after every 50 pre-assembly processes
- High performance steel version: no inspection/checking required, service life up to 20 times longer, clear indication when service tolerance limit is reached
- Also available as manual pre-assembly studs for use in a vise
- Version for Type 90 Comfort: contains an integrated RFID chip as well
- All tools have the same mounting and can be used in any corresponding pre-assembly device

## VOSS pre-assembly and final assembly devices

For safe and economical assembly



# I Manual pre-assembly studs universal

Always within reach



## Universally applicable for individual assembly of a wide variety of cutting rings in a vise.

Whether on the construction site or during service work: With the manual pre-assembly studs, all types of cutting rings in the Tube OD range from 6–42 mm can be pre-assembled easily and precisely. At the same time, the actual screw connection stud remains protected from wear.

- Suitable for all common cutting rings
- for individual manual pre-assembly work
- wear-resistant

### Systems

- Cutting rings VOSSRing<sup>M</sup>, 2SVA, ES-4, ES-4VA

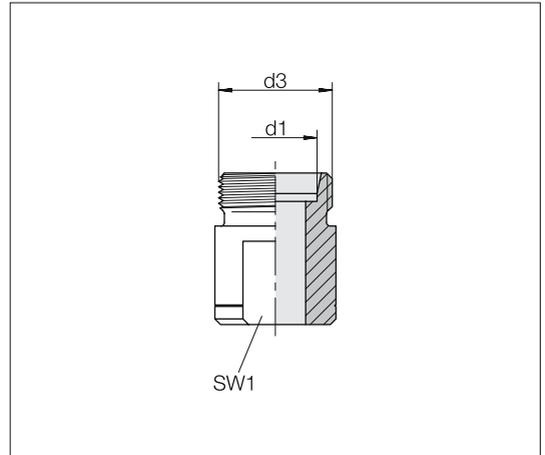
### Compatibility

- Tube OD 6–42 mm

### Applications

- On-site service work requiring a vise

## Overview of all versions and order details



Series	d3	SW1	Order-No.	Designation	Order-No.	Designation
Tube OD				Pre-assembly stud		Pre-assembly stud
d1				<b>Standard</b>		<b>High-performance steel</b>
LL 4	M 8 x 1	7	5993950000	TD-CRPT-LL4-M	5993993000	TD-CRPT-LL4-M-PM
LL 6	M 10 x 1	9	5993952000	TD-CRPT-LL6-M	5993993200	TD-CRPT-LL6-M-PM
LL 8	M 12 x 1	11	5993953000	TD-CRPT-LL8-M	5993993300	TD-CRPT-LL8-M-PM
L 6	M 12 x 1.5	11	5993954000	TD-CRPT-L6-M	5993993400	TD-CRPT-L6-M-PM
L 8	M 14 x 1.5	12	5993955000	TD-CRPT-L8-M	5993993500	TD-CRPT-L8-M-PM
L 10	M 16 x 1.5	14	5993956000	TD-CRPT-L10-M	5993993600	TD-CRPT-L10-M-PM
L 12	M 18 x 1.5	17	5993957000	TD-CRPT-L12-M	5993993700	TD-CRPT-L12-M-PM
L 15	M 22 x 1.5	19	5993958000	TD-CRPT-L15-M	5993993800	TD-CRPT-L15-M-PM
L 18	M 26 x 1.5	24	5993959000	TD-CRPT-L18-M	5993993900	TD-CRPT-L18-M-PM
L 22	M 30 x 2	27	5993960000	TD-CRPT-L22-M	5993994000	TD-CRPT-L22-M-PM
L 28	M 36 x 2	32	5993961000	TD-CRPT-L28-M	5993994100	TD-CRPT-L28-M-PM
L 35	M 45 x 2	41	5993962000	TD-CRPT-L35-M	5993994200	TD-CRPT-L35-M-PM
L 42	M 52 x 2	46	5993963000	TD-CRPT-L42-M	5993994300	TD-CRPT-L42-M-PM
S 6	M 14 x 1.5	12	5993964000	TD-CRPT-S6-M	5993994400	TD-CRPT-S6-M-PM
S 8	M 16 x 1.5	14	5993965000	TD-CRPT-S8-M	5993994500	TD-CRPT-S8-M-PM
S 10	M 18 x 1.5	17	5993966000	TD-CRPT-S10-M	5993994600	TD-CRPT-S10-M-PM
S 12	M 20 x 1.5	17	5993967000	TD-CRPT-S12-M	5993994700	TD-CRPT-S12-M-PM
S 14	M 22 x 1.5	19	5993968000	TD-CRPT-S14-M	5993994800	TD-CRPT-S14-M-PM
S 16	M 24 x 1.5	22	5993969000	TD-CRPT-S16-M	5993994900	TD-CRPT-S16-M-PM
S 20	M 30 x 2	27	5993970000	TD-CRPT-S20-M	5993995000	TD-CRPT-S20-M-PM
S 25	M 36 x 2	32	5993971000	TD-CRPT-S25-M	5993995100	TD-CRPT-S25-M-PM
S 30	M 42 x 2	36	5993972000	TD-CRPT-S30-M	5993995200	TD-CRPT-S30-M-PM
S 38	M 52 x 2	46	5993973000	TD-CRPT-S38-M	5993995300	TD-CRPT-S38-M-PM

# I Manual pre-assembly studs VOSSRing<sup>M</sup>

Always prepared



## For the safe individual assembly of VOSSRing<sup>M</sup> cutting rings in a vise.

If a VOSSRing<sup>M</sup> has to be replaced on-site or during servicing, a manual pre-assembly stud should be used. This allows a connection to be made without subjecting the actual coupling connecting piece to wear.

- Specifically for the VOSSRing<sup>M</sup>
- for individual manual pre-assembly work
- wear-resistant

### Systems

- Cutting ring VOSSRing<sup>M</sup>

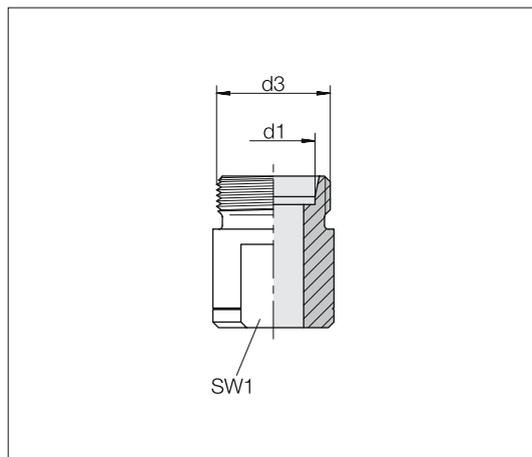
### Compatibility

- Tube OD 6–42 mm

### Applications

- On-site service work requiring a vise

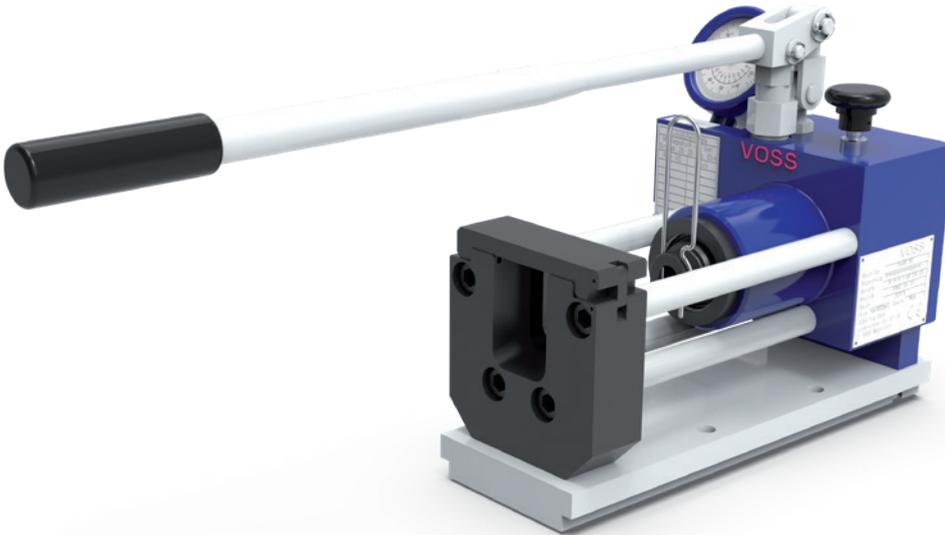
## Overview of all versions and order details



Series Tube OD d1	d3	SW1	Order-No.	Designation Pre-assembly stud <b>High-performance steel</b>
L 6	M 12 x 1.5	10	5993234100	TD-VRPT-L6-M-PM
L 8	M 14 x 1.5	12	5993234200	TD-VRPT-L8-M-PM
L 10	M 16 x 1.5	13	5993234300	TD-VRPT-L10-M-PM
L 12	M 18 x 1.5	14	5993234400	TD-VRPT-L12-M-PM
L 15	M 22 x 1.5	19	5993234500	TD-VRPT-L15-M-PM
L 18	M 26 x 1.5	22	5993234600	TD-VRPT-L18-M-PM
L 22	M 30 x 2	24	5993234700	TD-VRPT-L22-M-PM
L 28	M 36 x 2	30	5993234800	TD-VRPT-L28-M-PM
L 35	M 45 x 2	36	5993234900	TD-VRPT-L35-M-PM
L 42	M 52 x 2	41	5993235000	TD-VRPT-L42-M-PM
S 6	M 14 x 1.5	12	5993235100	TD-VRPT-S6-M-PM
S 8	M 16 x 1.5	13	5993235200	TD-VRPT-S8-M-PM
S 10	M 18 x 1.5	14	5993235300	TD-VRPT-S10-M-PM
S 12	M 20 x 1.5	17	5993235400	TD-VRPT-S12-M-PM
S 14	M 22 x 1.5	19	5993235500	TD-VRPT-S14-M-PM
S 16	M 24 x 1.5	19	5993235600	TD-VRPT-S16-M-PM
S 20	M 30 x 2	24	5993235700	TD-VRPT-S20-M-PM
S 25	M 36 x 2	30	5993235800	TD-VRPT-S25-M-PM
S 30	M 42 x 2	36	5993235900	TD-VRPT-S30-M-PM
S 38	M 52 x 2	41	5993236000	TD-VRPT-S38-M-PM

# VOSS Type 80 N3

The star of the construction site



## Also suitable for 10° flared coupling systems

Lots of tubing at a lot of different, difficult-to-access places? The handy VOSS Type 80 N3 tool takes on any service work challenge. Its extending side surfaces allow it to be securely gripped in a vise or be bolted directly onto the workbench. Tool sets are easily exchanged and the pressure gauge, in conjunction with the settings printed on the device, ensure precision assembly results. This is the portable field service device for pre-assembly work if no electric mains power is available.

- operating lever and mounting can be removed to facilitate transportation

<b>Order-No.</b> 5991080400	<b>Designation</b> TD-TYPE80N3
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<b>Dimensions</b>	
Width:	190 mm
Height:	267 mm
Depth:	590 mm
Weight:	15 kg

- Systems**
- Cutting rings VOSSRing<sup>M</sup>, 2SVA, ES-4, ES-4VA: 6–42 mm Tube OD
  - BV-10: 6–42 mm Tube OD
  - ZAKO: up to 38 mm Tube OD

- Applications**
- Mobile device for maintenance and service work, easy assembly, with mounting options

## Optimal accessories for every situation



**Universal tool inserts**

More information: from P. 37



**VOSSRing™ tool inserts**

More information: from P. 39



**Support plate**

More information: P. 41



**Pre-assembly tool BV-10**

More information: from P. 45



**Pre-assembly tool ZAKO**

More information: P. 49



**Cone gauges**

More information: P. 25



**Inspection gauge**

More information: P. 27

# VOSS Type 81 EasyPress

Simple. Fast. Powerful.



**Type 81 EasyPress is the compact, battery-powered pre-assembly device for cutting ring systems with Tube outer diameters from 6 to 42 mm.**

With electronic pressure adjustment, ergonomic design, and a weight of only 7 kg, it enables fast, precise, and safe pre-assembly – even in hard-to-reach installation locations. This significantly minimizes the pressure adjustment and time required for each pre-assembly, which can be completed in seconds.

Equipped with a powerful 18 V Li-ion-battery, the EasyPress can handle up to 200 work cycles per charge, making it ideal for flexible use on the construction site or in the workshop.

<b>Order-No.</b> 7013562500	<b>Designation</b> TD-TYPE81C
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<b>Dimensions</b>	
Width:	410 mm
Height:	380 mm
Depth:	90 mm
Weight:	7 kg

**Device for electrical mains power**  
- 18V 5.0Ah Li-ion battery

**Systems**  
- Cutting rings VOSSRing<sup>M</sup>, 2SVA, ES-4, ES-4VA:  
6–42 mm Tube OD

**Applications**  
- On-site assembly and mobile operations  
- Assembly in hard-to-reach places  
- Industrial maintenance and repair

## Scope of delivery

- 2x 18V 5.0Ah Li-ion battery
- Battery charger (Quick)
- Heavy Duty suitcase
- Shoulder strap



## Optimal accessories for every situation



### Pre-assembly tools

More information:

P. 44



### Machine holder

Order-No.

7014772800



### Table stand

Order-No.

7014523500



### Tripod stand

Order-No.

7014523600

Additional accessories may be necessary for application-specific requirements – we will support you in selecting suitable components.

# I VOSS Type 90 Basic II

Serial reproducibility



## For machine-assisted pre-assembly

One shop floor, but multiple workplaces? The easily transported VOSS Type 90 Basic II ensures reliable series pre-assembly of cutting ring couplings everywhere with reproducible results. The automated pre-assembly process ensures consistently good results and the adjustable working pressure allows the pre-assembly process to be adjusted to match varying assembly parameters. One especially practical feature: system-related setting values are printed directly on the device casing. These can be adjusted individually and are shown clearly on a large display. The built-in count-down workpiece counter makes sure that not a single tube too many or too few is pre-assembled.

- Weighs just 66 kg
- Easy to operate, integrated workpiece counter, easy tool change
- Intelligent controls lead to short cycle times
- Pedal switch available as an option

Other power supply ratings upon request

<b>Order-No.</b> 5992892000	<b>Designation</b> TD-TYPE90B2
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<b>Dimensions</b>	
Width:	681 mm
Height:	260 mm
Depth:	520 mm
Weight:	66 kg
Noise level:	60 dBA

### Device for electrical mains power

- 400 V / 16 A / 50 Hz / 3 Ph

### Systems

- Cutting rings VOSSRing<sup>M</sup>, 2SVA, ES-4, ES-4VA:  
6-42 mm Tube OD
- BV-10 (machine conversion by VOSS service):  
6-42 mm Tube OD
- ZAKO (machine conversion by VOSS service):  
up to 38 mm Tube OD

### Application

- Bench-top device for shop-floor use, larger production runs

## Optimal accessories for every situation



**Universal tool inserts**

More information: from P. 37



**VOSSRing™ tool inserts**

More information: from P. 39



**Support plate**

More information: P. 42



**Pre-assembly tool BV-10**

More information: from P. 45



**Pre-assembly tool ZAKO**

More information: P. 49



**Conversion kit to BV-10 / ZAKO**

Order-No. 7000267300



**Device for reversed cutting ring assembly**

More information: P. 43



**Foot switch**

Order-No. 9799600139



**Tool holder**

Order-No. 5994030300



**Cone gauges**

More information: P. 25



**Inspection gauge**

More information: P. 27

Additional accessories may be necessary for application-specific requirements – we will support you in selecting suitable components.

# VOSS Type 90 Comfort

Maximum process reliability



## Automatic RFID tool recognition prevents errors and lowers production costs.

Pre-assembly work for large series production has its own special requirements. Tools have to be exchanged quickly, cycle times must be extremely short but not a single fault is permitted since this might render an entire lot unusable. The answer to such demands is the VOSS Type 90 Comfort. This device reads the RFID chips integrated in the VOSS tools and then adjusts parameters automatically to suit the tool. In this way, the shortest tooling times possible can be achieved, while effectively preventing operator errors – even when tools have to be exchanged often and fast. Simple, precise, safe and reliable – especially suitable for tight tube bends.

- Automatic pressure settings
- Tool recognition via RFID chip
- Programmable workpiece counter
- Pre-assembly controlled in relation to tool travel
- Touch-panel, intuitive menu guidance
- Including on-site calibration service
- Pedal switch available as an option
- Error detection

<b>Order-No.</b> 5992893000	<b>Designation</b> TD-TYPE90C2
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### Dimensions

Width:	800 mm
Height:	308 mm
Depth:	615 mm
Depth (with conversion kit):	636 mm
Weight:	90 kg
Noise level:	70 dBA

### Device for electrical mains power

- 400 V / 16 A / 50 Hz / 3 Ph

### Systems

- Cutting rings VOSSRing<sup>M</sup>, 2SVA, ES-4, ES-4VA: 6-42 mm Tube OD
- BV-10 (machine conversion by VOSS service): 6-42 mm Tube OD
- ZAKO (machine conversion by VOSS service): up to 38 mm Tube OD

### Application

- For series production on shop floors, offering maximum process safety and reliability

## Optimal accessories for every situation



**Universal tool inserts**

More information: from P. 37



**VOSSRing™ tool inserts**

More information: from P. 39



**Support plate**

More information: P. 42



**Pre-assembly tool BV-10**

More information: from P. 47



**Pre-assembly tool ZAKO**

More information: P. 50



**Conversion kit to BV-10 / ZAKO**

Order-No. 7000268200



**Device for reversed cutting ring assembly**

More information: P. 43



**Foot switch**

Order-No. 9799600139



**Tool holder**

Order-No. 5994030300



**Cone gauges**

More information: P. 25



**Inspection gauge**

More information: P. 27

Additional accessories may be necessary for application-specific requirements – we will support you in selecting suitable components.

# | VOSSForm 100

Fast, perfect tube forming



## Large-series assembly of VOSSForm<sup>SQR</sup> couplings, safe operation thanks to a stop plate

Flaring tubes to obtain the VOSSForm<sup>SQR</sup> contour can be carried out easily and reliably using the VOSSForm 100. The unmistakable markings on both tools minimize assembly errors, and the stop plate for the tube end prevents insertion errors. This ensures that there is always enough tube material for shaping the contour and avoids rejects right from the start. Operating errors are prevented by automatic shaping pressure adjustment and by optical indication of the next operating step. Once the tube has been formed, the device returns to the start position under optical gate control – an ideal solution for fast-cycle mass production. Another feature which helps to achieve this is the design of the VOSSForm 100 as a complete workplace with an integrated magazine for easy-to-change tools and an additional 230 V mains outlet on the back.

- Automatic set-up to match tube size
- Cycle times from 7 (6–10 mm OD) to 15 seconds (25–42 mm OD)
- Optical gate detects end of work step and causes machine to return to start position
- Ergonomical: tool magazine lock with single-handed operation, extremely simple operation thanks to intuitive concept
- Pedal switch available as an option

<b>Order-No.</b>	<b>Designation</b>
5991008000	TD-TYPE100

### Dimensions

Width:	900 mm
Height:	1122 mm
Depth:	935 mm
Weight:	700 kg
Noise level:	< 74 dBA

### Device for electrical mains power

- 400 V / 16 A / 50 Hz / 3 Ph

### Systeme

- VOSSForm<sup>SQR</sup> and VOSSForm<sup>SQR</sup> VA:  
6–42 mm Tube OD

### Applications

- Stationary device, series production, maximum process safety and reliability

## Optimal accessories for every situation



**Clamping jaws**

More information:

P. 52



**Pre-assembly tool steel**

More information:

from P. 53



**Pre-assembly tool stainless steel**

More information:

from P. 55



**VOSS forming oil**

Order-No.

9499300069



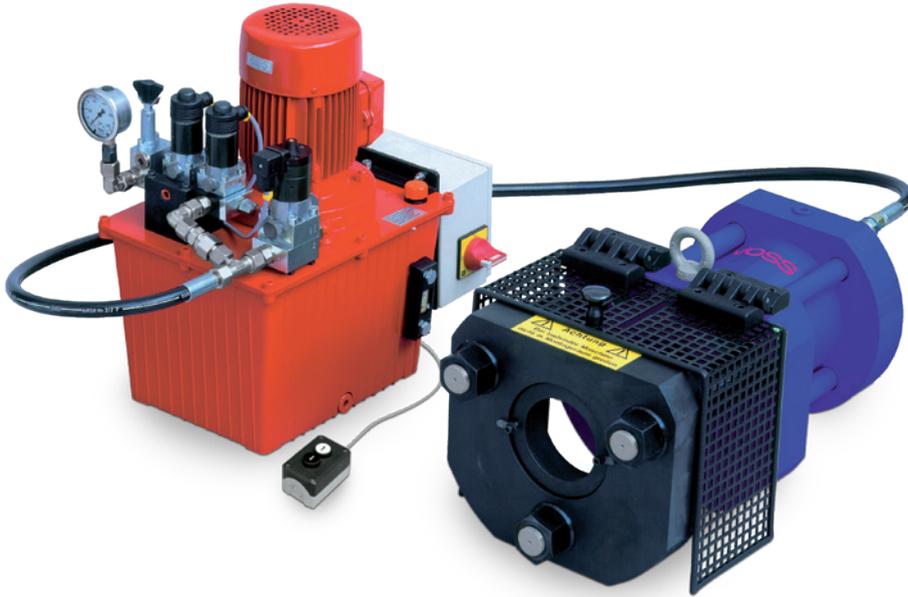
**Foot switch**

Order-No.

9799600139

# I VOSS Type 85

Optimum results that can be seen – with ZAKO



## No wear and tear; protection against excessive flaring

Type 85 – a compact electro-hydraulic machine is available for pre-assembly mounting of rings for ZAKO flange couplings on tubes with outer diameters up to 114.3 mm. Easy transportation is ensured by the two-part design: separate pre-assembly cylinder plus assembly head, and external hydraulic unit. Another advantage of this construction: the forming process can be visually monitored. The actual ZAKO ring is used directly to flare the tube – there is no “tool” wear as the “tool” is turned into part of the tube coupling by the process. This means that the tube does not have to be flared in advance. As the system is so extremely simple, pre-assembly is very easy and great accuracy is obtained.

- Tool remains in the tube so that there is no tool wear
- Simple operation
- Complete assembly process can be monitored visually

**Order-No.**  
5991085000

**Designation**  
TD-TYPE85-DUHY1

### Dimensions

Width: 340 mm  
Height: 320 mm  
Depth: 650 mm  
Weight: 160 kg

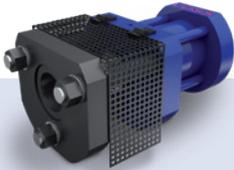
### Systems

- ZAKO: tube OD 38 mm-114.3 mm

### Applications

- Can be transported, one-off and series production

Optimal accessories for every situation



**Pre-assembly cylinder**

Order-No. 5991085100



**Drive unit**

Order-No. 5992361000



**Manual pump**

Order-No. 5992360900



**Pre-assembly device**

More information: P. 51

Additional accessories may be necessary for application-specific requirements – we will support you in selecting suitable components.



## I VOSS testing equipment and tools

Quality straight from the source



# VOSS cone gauges for pre-assembly studs

For checking the 24° cone of a stud



**Hardened pre-assembly studs for cutting ring pre-assembly are wear-resistant, thus achieving consistent pre-assembly results. To maintain these results, the tools must be checked at regular intervals, since they are nevertheless subject to a certain degree of wear.**

In addition to a visual inspection for damage or cracks, the checks must also include verification of the stud dimensions using a gauge. This involves checking the internal conical bore of the pre-assembly stud after every 50 applications.

VOSS taper gauges are available individually or as a complete set containing all sizes of the light-weight and heavy-duty versions in a practical plastic case.

## Systems

- Pre-assembly studs made of hardened steel

Overview of all versions and order details



Series Tube OD	Order-No.	Designation
L 6	5991001000	TD-CG-L/S6
L 8	5991001100	TD-CG-L/S8
L 10	5991001200	TD-CG-L/S10
L 12	5991001300	TD-CG-L/S12
L 15	5991001400	TD-CG-L15
L 18	5991001500	TD-CG-L18
L 22	5991001600	TD-CG-L22
L 28	5991001700	TD-CG-L28
L 35	5991001800	TD-CG-L35
L 42	5991001900	TD-CG-L42
S 6	5991001000	TD-CG-L/S6
S 8	5991001100	TD-CG-L/S8
S 10	5991001200	TD-CG-L/S10
S 12	5991001300	TD-CG-L/S12
S 14	5991002000	TD-CG-S14
S 16	5991002100	TD-CG-S16
S 20	5991002200	TD-CG-S20
S 25	5991002300	TD-CG-S25
S 30	5991002400	TD-CG-S30
S 38	5991002500	TD-CG-S38
Cone gauges complete in handy case	5994090049	TD-CG

# I VOSS inspection gauges

For inspection of cutting ring pre-assemblies



VOSS supplies inspection gauges to check the results of cutting ring pre-assembly and which can be used to evaluate pre-assembly in conjunction with visual inspection of the pushed-up tube material. To establish a permanently leak-tight cutting ring coupling, the pre-assembled end of the tube must have contact in the coupling and the cutting ring must be inserted securely into the 24° conical recess. A closed force transmission path and the resulting safe connection can only be achieved by the interaction of this geometry with a strong ring of raised tube material. The VOSS taper gauge is used as an auxiliary device for evaluating cutting ring pre-assemblies and summarizing the geometry situation in the form of legible values.

## Operating principle:

The results are checked by measuring the pre-assembled tube end. This is done by pushing the tube end into the conical opening of the taper gauge and screwing on the union nut manually, hand-tight, without a spanner. The pointer of the dial will move until the cutting ring cone is in contact with the tapered hole in the gauge. The indicated value must be within specified limits. If the value is below the specified range, the assembly is probably faulty and the cutting ring is too near the end of the tube. If the value is higher than the specified range, it must be assumed that the cutting ring is too far from the end of the tube.

## Systems

- Cutting rings VOSSRing<sup>M</sup>, 2SVA, ES-4, ES-4VA: 6-42 mm Tube OD

## Applications

- Series production of tubings
- Inspection of pre-configured tubings

## Caution!

The inspection gauge does not eliminate the need to visually check for excessive or too little pre-assembly pressures (by checking the height of tube material pushed up by the first cutting ring edge)!

Overview of all versions and order details

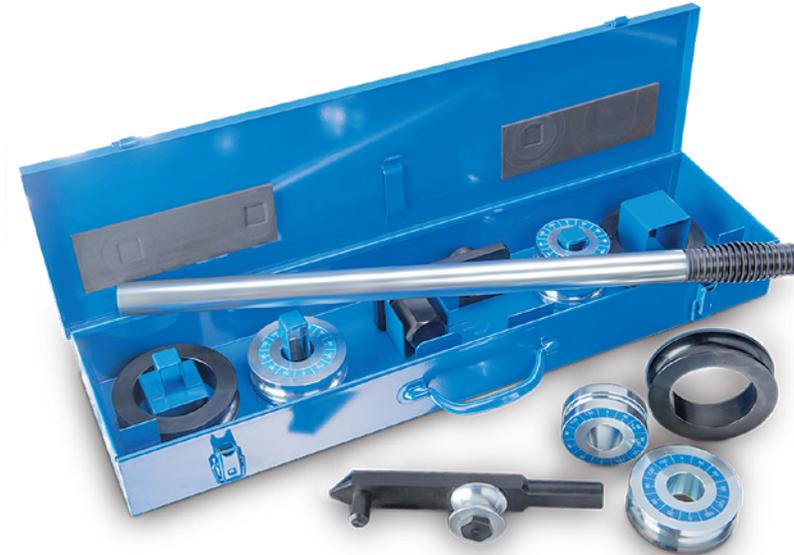


Series Tube OD	Order-No.	Designation
LL 16	5994503649	TD-TGCR-LL16
LL 18	7005991100	TD-TGCR-LL18
L 6	5994502249	TD-TGCR-L6
L 8	5994502349	TD-TGCR-L8
L 10	5994502449	TD-TGCR-L10
L 12	5994502549	TD-TGCR-L12
L 15	5994502649	TD-TGCR-L15
L 18	5994502749	TD-TGCR-L18
L 22	5994502849	TD-TGCR-L22
L 28	5994503749	TD-TGCR-L28
L 35	5994503849	TD-TGCR-L35
L 42	5994503949	TD-TGCR-L42
S 6	5994502949	TD-TGCR-S6
S 8	5994503049	TD-TGCR-S8
S 10	5994503149	TD-TGCR-S10
S 12	5994503249	TD-TGCR-S12
S 14	5994503349	TD-TGCR-S14
S 16	5994503449	TD-TGCR-S16
S 20	5994503549	TD-TGCR-S20
S 25	5994504049	TD-TGCR-S25
S 30	5994504149	TD-TGCR-S30
S 38	5994504249	TD-TGCR-S38



## I VOSS tube bending device

Reliable radii



**Light-weight manual bending device, vise-mounting, for accurate bending of tubes with ODs of 8 mm–22 mm.**

- For tubes with outer diameters of 8, 10, 12, 14, 16, 18, 20 and 22 mm
- Including a sturdy metal case
- Degree graduation marks on the bending templates make accurate bending of tubes easier
- Highly suitable for on-site use as the device can be simply held in a vise.

**Order-No.**  
5994060000

**Designation**  
TD-TBM1

**Dimensions**

Width: 650 mm  
 Height: 190 mm  
 Depth: 75 mm  
 Weight: 14 kg

**Application**

- Transportable, single production on site

# I Saw device

Robust and compact design



**This sturdy and handy saw device is particularly suitable for preparing steel or stainless steel tubes quickly for cutting ring assembly.**

All common tube sizes from 6–42 mm tube outer diameter can be worked with the aid of this device. A guide rail ensures a parallel saw cut.

- Secure vise mounting and firm tube clamping
- Saw blade guide (replaceable when worn)
- Ensures the required perpendicularity for tube ends

**Order-No.**  
5994050000

**Designation**  
TD-AFHS6-42

**Type**  
Device

**Order-No.**  
7005382900

**Designation**  
TD-SPSET-AFHS

**Type**  
Spare parts kit comprising two-part saw blade guide and spacer

## I Manual deburring tool

Deburring tubes professionally and quickly



**The manual deburring tool is ideal for inner and outer deburring of steel or stainless steel tubes. The range of application is from tube inner diameter or tube outer diameter 8–35 mm.**

- Simultaneous machining of the inner and outer surfaces
- Secure grip thanks to knurled outer surface
- Metallic, robust base
- Preset cutting angle for optimal results

**Order-No.**  
5994049900

**Designation**  
TD-MTD-8-35

**Type**  
Tool

# | VOSSLube<sup>MP</sup>

For a safe assembly



## Assembly paste for the correct assembly of stainless steel couplings

It prevents the threads from seizing up, makes assembly easier, and ensures a permanent connection. Ideal for professional use.

**Order-No.**  
7005253600

**Type**  
Montagepaste

**Designation**  
TD-VOSSLUBE-250G

**Quantity:**  
250 g

## Safety is gained and maintained through training.

Assembly training and audits in VOSS quality



The biggest enemy of hydraulic systems is leakage. There are many possible sources of error, but human error is usually the key factor.

Only highly qualified employees can identify and avoid potential errors at an early stage. VOSS offers regular training courses for this purpose. These take place at our premises in Wipperfürth or at our customer sites worldwide.

As part of an assembly audit, we observe your employees at work, analyze processes, inspect assembly stations and equipment, and ultimately develop a customized training program that will increase productivity in the long term. Fewer errors, faster results, lower costs.

- Assembly training courses for employee qualification in theory and practice
- Assembly audits for process reliability: Review of all assembly processes, including inspection of pre-assembly equipment and tools on site



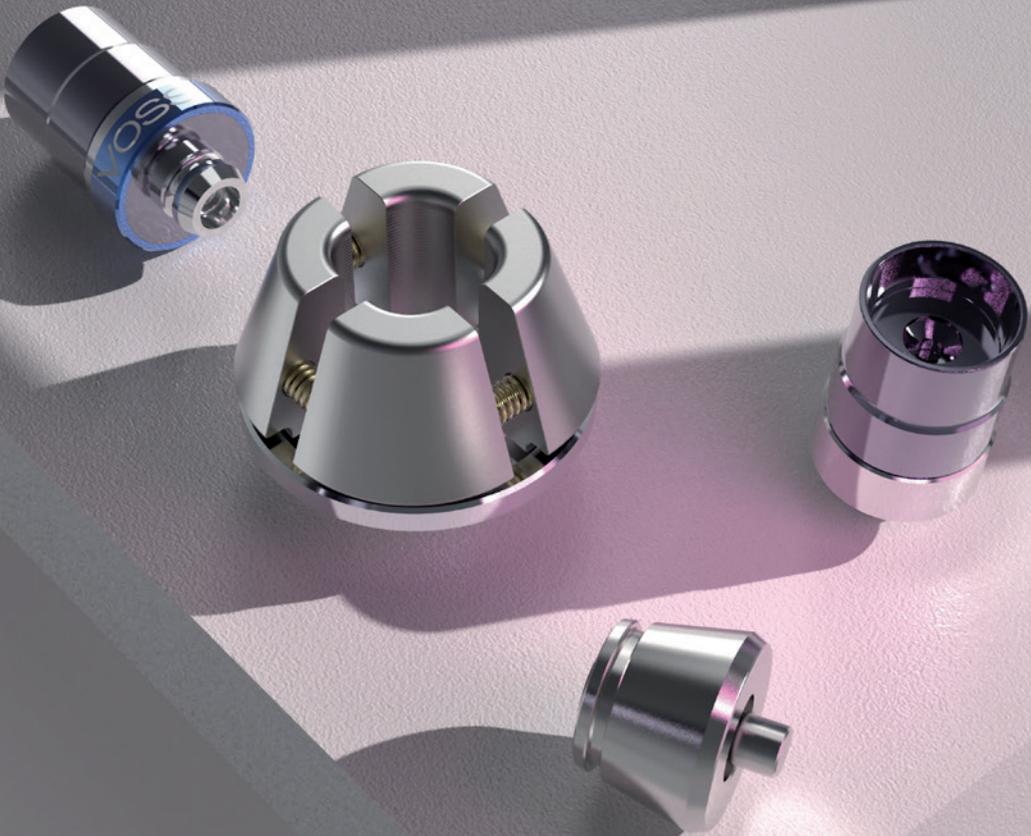
**Request now!**

If required, please send inquiries directly to: [Anfrage@voss.net](mailto:Anfrage@voss.net)



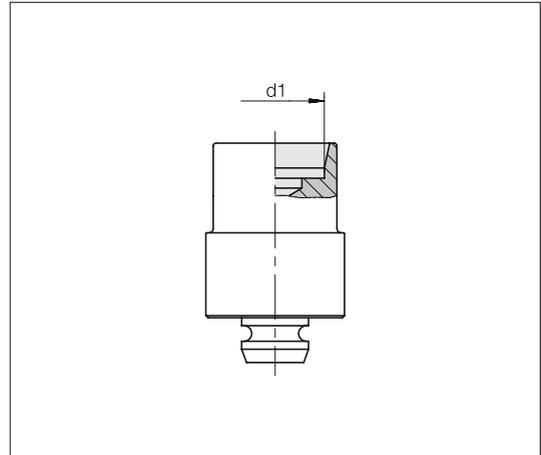
# VOSS pre- and final assembly tools and forming tools

Reliability right down to the last detail



## Pre-assembly stud Universal

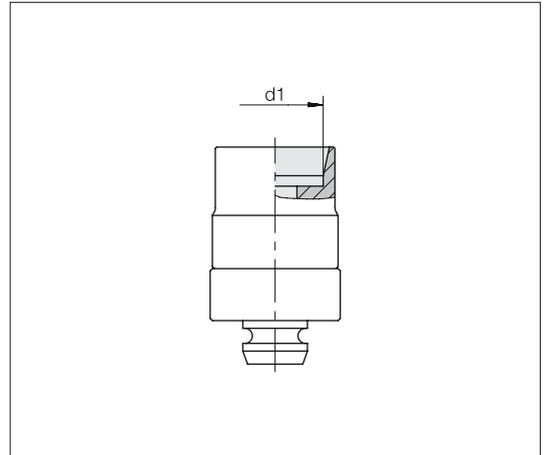
Compatible with  
Type 80 N3 and Type 90 Basic II



Series	Order-No.	Designation	Order-No.	Designation
Tube OD		Pre-assembly stud		Pre-assembly stud
d1		<b>Standard</b>		<b>High-performance steel</b>
L 6	5991207300	TD-CRPT-L6-MT	5993861400	TD-CRPT-L6-MT-PM
L 8	5991208300	TD-CRPT-L8-MT	5993861600	TD-CRPT-L8-MT-PM
L 10	5991209300	TD-CRPT-L10-MT	5993861800	TD-CRPT-L10-MT-PM
L 12	5991210300	TD-CRPT-L12-MT	5993862000	TD-CRPT-L12-MT-PM
L 15	5991211300	TD-CRPT-L15-MT	5993862300	TD-CRPT-L15-MT-PM
L 18	5991212300	TD-CRPT-L18-MT	5993862500	TD-CRPT-L18-MT-PM
L 22	5991213300	TD-CRPT-L22-MT	5993862700	TD-CRPT-L22-MT-PM
L 28	5991214300	TD-CRPT-L28-MT	5993862900	TD-CRPT-L28-MT-PM
L 35	5991215300	TD-CRPT-L35-MT	5993863100	TD-CRPT-L35-MT-PM
L 42	5991216300	TD-CRPT-L42-MT	5993863300	TD-CRPT-L42-MT-PM
S 6	5991217300	TD-CRPT-S6-MT	5993861500	TD-CRPT-S6-MT-PM
S 8	5991218300	TD-CRPT-S8-MT	5993861700	TD-CRPT-S8-MT-PM
S 10	5991219300	TD-CRPT-S10-MT	5993861900	TD-CRPT-S10-MT-PM
S 12	5991220300	TD-CRPT-S12-MT	5993862100	TD-CRPT-S12-MT-PM
S 14	5991221300	TD-CRPT-S14-MT	5993862200	TD-CRPT-S14-MT-PM
S 16	5991222300	TD-CRPT-S16-MT	5993862400	TD-CRPT-S16-MT-PM
S 20	5991223300	TD-CRPT-S20-MT	5993862600	TD-CRPT-S20-MT-PM
S 25	5991224300	TD-CRPT-S25-MT	5993862800	TD-CRPT-S25-MT-PM
S 30	5991225300	TD-CRPT-S30-MT	5993863000	TD-CRPT-S30-MT-PM
S 38	5991226300	TD-CRPT-S38-MT	5993863200	TD-CRPT-S38-MT-PM

## Pre-assembly stud Universal

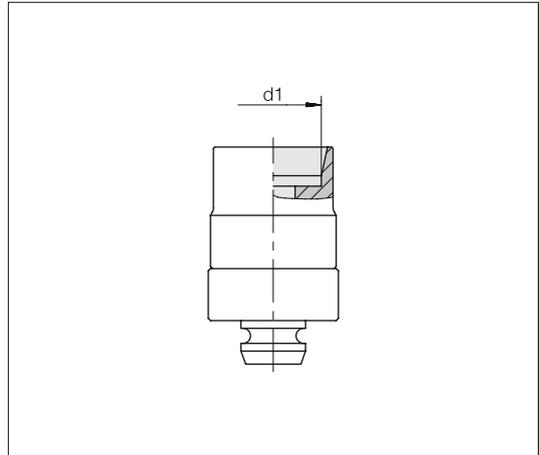
Compatible with  
Type 90 Comfort



Series Tube OD d1	Order-No.	Designation Pre-assembly stud <b>Standard with RFID (Type 90 Comfort)</b>	Order-No.	Designation Pre-assembly stud <b>High-performance steel with RFID (Type 90 Comfort)</b>
L 6	5993975449	TD-CRPT-L6-LG45,5-MT-RFID	5993974149	TD-CRPT-L6-LG45,5-MT-PM-RFID
L 8	5993975549	TD-CRPT-L8-LG45,5-MT-RFID	5993974249	TD-CRPT-L8-LG45,5-MT-PM-RFID
L 10	5993975649	TD-CRPT-L10-LG45,5-MT-RFID	5993974349	TD-CRPT-L10-LG45,5-MT-PM-RFID
L 12	5993975749	TD-CRPT-L12-LG45,5-MT-RFID	5993974449	TD-CRPT-L12-LG45,5-MT-PM-RFID
L 15	5993975849	TD-CRPT-L15-LG43,5-MT-RFID	5993879549	TD-CRPT-L15-LG43-MT-PM-RFID
L 18	5993851800	TD-CRPT-L18-MT-RFID	5993871800	TD-CRPT-L18-MT-PM-RFID
L 22	5993852000	TD-CRPT-L22-MT-RFID	5993872000	TD-CRPT-L22-MT-PM-RFID
L 28	5993975949	TD-CRPT-L28-LG41-MT-RFID	5993879649	TD-CRPT-L28-LG41-MT-PM-RFID
L 35	5993852400	TD-CRPT-L35-MT-RFID	5993872400	TD-CRPT-L35-MT-PM-RFID
L 42	5993976049	TD-CRPT-L42-LG36-MT-RFID	5993974549	TD-CRPT-L42-LG36-MT-PM-RFID
S 6	5993878849	TD-CRPT-S6-LG43,5-MT-RFID	5993976149	TD-CRPT-S6-LG43,5-MT-PM-RFID
S 8	5993878949	TD-CRPT-S8-LG43,5-MT-RFID	5993975049	TD-CRPT-S8-LG43,5-MT-PM-RFID
S 10	5993879049	TD-CRPT-S10-LG43,5-MT-RFID	5993975149	TD-CRPT-S10-LG43,5-MT-PM-RFID
S 12	5993879149	TD-CRPT-S12-LG43,5-MT-RFID	5993975249	TD-CRPT-S12-LG43,5-MT-PM-RFID
S 14	5993851500	TD-CRPT-S14-MT-RFID	5993871500	TD-CRPT-S14-MT-PM-RFID
S 16	5993851700	TD-CRPT-S16-MT-RFID	5993871700	TD-CRPT-S16-MT-PM-RFID
S 20	5993851900	TD-CRPT-S20-MT-RFID	5993871900	TD-CRPT-S20-MT-PM-RFID
S 25	5993852100	TD-CRPT-S25-MT-RFID	5993872100	TD-CRPT-S25-MT-PM-RFID
S 30	5993879249	TD-CRPT-S30-LG31-MT-RFID	5993975349	TD-CRPT-S30-LG31-MT-PM-RFID
S 38	5993852500	TD-CRPT-S38-MT-RFID	5993872500	TD-CRPT-S38-MT-PM-RFID

## Pre-assembly stud VOSSRing<sup>M</sup>

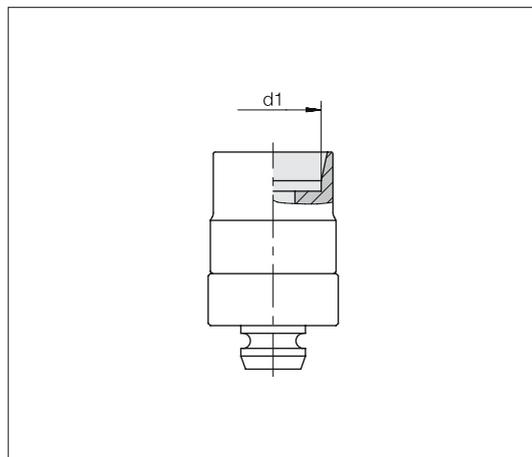
Compatible with  
Type 80 N3 and Type 90 Basic II



Series Tube OD d1	Order-No.	Designation Pre-assembly stud <b>High-performance steel</b>
L 6	5993230300	TD-VRPT-L6-MT-PM
L 8	5993230400	TD-VRPT-L8-MT-PM
L 10	5993230500	TD-VRPT-L10-MT-PM
L 12	5993230600	TD-VRPT-L12-MT-PM
L 15	5993230700	TD-VRPT-L15-MT-PM
L 18	5993230800	TD-VRPT-L18-MT-PM
L 22	5993230900	TD-VRPT-L22-MT-PM
L 28	5993231000	TD-VRPT-L28-MT-PM
L 35	5993231100	TD-VRPT-L35-MT-PM
L 42	5993231200	TD-VRPT-L42-MT-PM
S 6	5993231300	TD-VRPT-S6-MT-PM
S 8	5993231400	TD-VRPT-S8-MT-PM
S 10	5993231500	TD-VRPT-S10-MT-PM
S 12	5993231600	TD-VRPT-S12-MT-PM
S 14	5993231700	TD-VRPT-S14-MT-PM
S 16	5993231800	TD-VRPT-S16-MT-PM
S 20	5993231900	TD-VRPT-S20-MT-PM
S 25	5993232000	TD-VRPT-S25-MT-PM
S 30	5993232100	TD-VRPT-S30-MT-PM
S 38	5993232200	TD-VRPT-S38-MT-PM

## Pre-assembly stud VOSSRing<sup>M</sup>

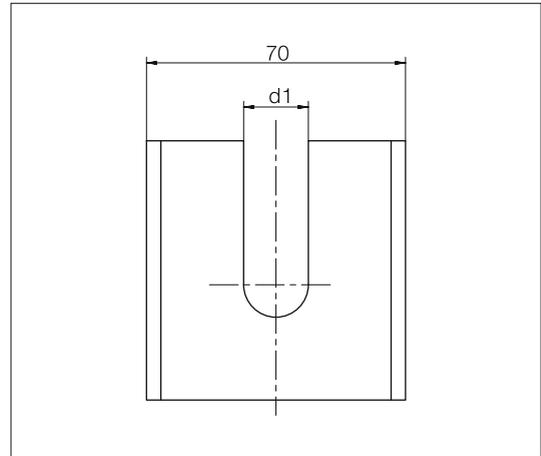
Compatible with  
Type 90 Comfort



Series Tube OD d1	Order-No.	Designation Pre-assembly stud <b>High-performance steel with RFID</b>
L 6	5993230349	TD-VRPT-L6-MT-PM-RFID
L 8	5993230449	TD-VRPT-L8-MT-PM-RFID
L 10	5993230549	TD-VRPT-L10-MT-PM-RFID
L 12	5993230649	TD-VRPT-L12-MT-PM-RFID
L 15	5993230749	TD-VRPT-L15-MT-PM-RFID
L 18	5993230849	TD-VRPT-L18-MT-PM-RFID
L 22	5993230949	TD-VRPT-L22-MT-PM-RFID
L 28	5993231049	TD-VRPT-L28-MT-PM-RFID
L 35	5993231149	TD-VRPT-L35-MT-PM-RFID
L 42	5993231249	TD-VRPT-L42-MT-PM-RFID
S 6	5993231349	TD-VRPT-S6-MT-PM-RFID
S 8	5993231449	TD-VRPT-S8-MT-PM-RFID
S 10	5993231549	TD-VRPT-S10-MT-PM-RFID
S 12	5993231649	TD-VRPT-S12-MT-PM-RFID
S 14	5993231749	TD-VRPT-S14-MT-PM-RFID
S 16	5993231849	TD-VRPT-S16-MT-PM-RFID
S 20	5993231949	TD-VRPT-S20-MT-PM-RFID
S 25	5993232049	TD-VRPT-S25-MT-PM-RFID
S 30	5993232149	TD-VRPT-S30-MT-PM-RFID
S 38	5993232249	TD-VRPT-S38-MT-PM-RFID

## I Support plate

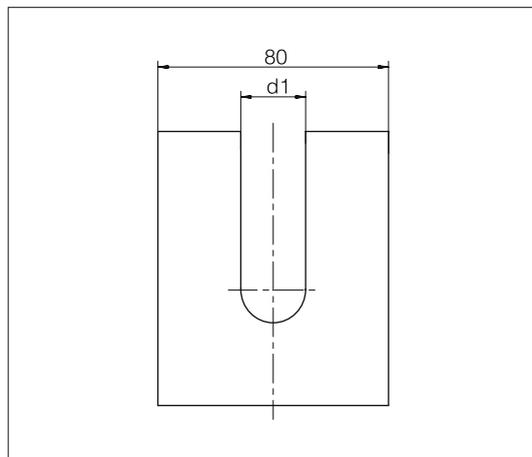
Compatible with  
Type 80 N3



Series Tube OD d1	Order-No.	Designation <b>Support plate</b>
LL 6	5991327100	TD-CRCB-L/S6-TYPE80
LL 8	5991328100	TD-CRCB-L/S8-TYPE80
L 6	5991327100	TD-CRCB-L/S6-TYPE80
L 8	5991328100	TD-CRCB-L/S8-TYPE80
L 10	5991329100	TD-CRCB-L/S10-TYPE80
L 12	5991330100	TD-CRCB-L/S12-TYPE80
L 15	5991331100	TD-CRCB-L15-TYPE80
L 18	5991332100	TD-CRCB-L18-TYPE80
L 22	5991333100	TD-CRCB-L22-TYPE80
L 28	5991334100	TD-CRCB-L28-TYPE80
L 35	5991335100	TD-CRCB-L35-TYPE80
L 42	5991336100	TD-CRCB-L42-TYPE80
S 6	5991327100	TD-CRCB-L/S6-TYPE80
S 8	5991328100	TD-CRCB-L/S8-TYPE80
S 10	5991329100	TD-CRCB-L/S10-TYPE80
S 12	5991330100	TD-CRCB-L/S12-TYPE80
S 14	5991337100	TD-CRCB-S14-TYPE80
S 16	5991338100	TD-CRCB-S16-TYPE80
S 20	5991339100	TD-CRCB-S20-TYPE80
S 25	5991340100	TD-CRCB-S25-TYPE80
S 30	5991341100	TD-CRCB-S30-TYPE80
S 38	5991342100	TD-CRCB-S38-TYPE80

## I Support plate

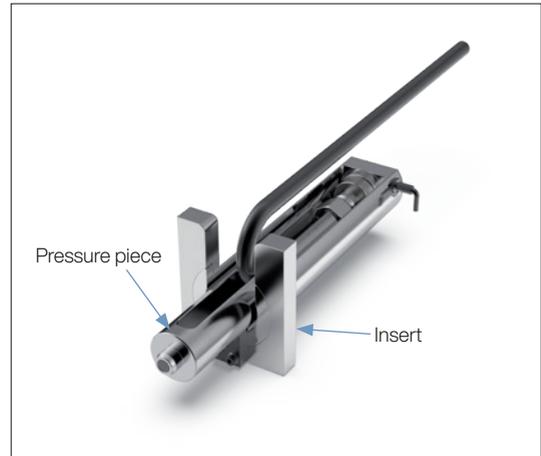
Compatible with  
Type 90 Basic II and Type 90 Comfort



Series Tube OD d1	Order-No.	Designation <b>Support plate</b>
LL 6	5991327300	TD-CRCB-L/S6
LL 8	5991328300	TD-CRCB-L/S8
L 6	5991327300	TD-CRCB-L/S6
L 8	5991328300	TD-CRCB-L/S8
L 10	5991329300	TD-CRCB-L/S10
L 12	5991330300	TD-CRCB-L/S12
L 15	5991331300	TD-CRCB-L15
L 18	5991332300	TD-CRCB-L18
L 22	5991333300	TD-CRCB-L22
L 28	5991334300	TD-CRCB-L28
L 35	5991335300	TD-CRCB-L35
L 42	5991336300	TD-CRCB-L42
S 6	5991327300	TD-CRCB-L/S6
S 8	5991328300	TD-CRCB-L/S8
S 10	5991329300	TD-CRCB-L/S10
S 12	5991330300	TD-CRCB-L/S12
S 14	5991337300	TD-CRCB-S14
S 16	5991338300	TD-CRCB-S16
S 20	5991339300	TD-CRCB-S20
S 25	5991340300	TD-CRCB-S25
S 30	5991341300	TD-CRCB-S30
S 38	5991342300	TD-CRCB-S38

## Device for reversed cutting ring assembly

Compatible with  
Type 90 Basic II and Type 90 Comfort



Type/size	Order-No.	Designation
Insert		
L/S 6 to L 18	7005412200	TD-CRARPAC-6-18-TYPE90
Pressure piece for type 90 Basic II		
L/S 6	7005410200	TD-CRTP-L/S6-TYPE90
L/S 8	7005410100	TD-CRTP-L/S8-TYPE90
L/S 10	7005410000	TD-CRTP-L/S10-TYPE90
L/S 12	7005409900	TD-CRTP-L/S12-TYPE90
S 14	7005409800	TD-CRTP-S14-TYPE90
L 15	7005409700	TD-CRTP-L15-TYPE90
S 16	7005409600	TD-CRTP-S16-TYPE90
L 18	7005409500	TD-CRTP-L18-TYPE90
Pressure piece for Type 90 Comfort with RFID		
L 6	7005411400	TD-CRTP-L6-RFID-TYPE90C2
S 6	7005411300	TD-CRTP-S6-RFID-TYPE90C2
L 8	7005411200	TD-CRTP-L8-RFID-TYPE90C2
S 8	7005411100	TD-CRTP-S8-RFID-TYPE90C2
L 10	7005411000	TD-CRTP-L10-RFID-TYPE90C2
S 10	7005409900	TD-CRTP-S10-RFID-TYPE90C2
L 12	7005408800	TD-CRTP-L12-RFID-TYPE90C2
S 12	7005407700	TD-CRTP-S12-RFID-TYPE90C2
S 14	7005406600	TD-CRTP-S14-RFID-TYPE90C2
L 15	7005405500	TD-CRTP-L15-RFID-TYPE90C2
S 16	7005404400	TD-CRTP-S16-RFID-TYPE90C2
L 18	7005403300	TD-CRTP-L18-RFID-TYPE90C2

## Pre-assembly tools for cutting ring assemblies Universal

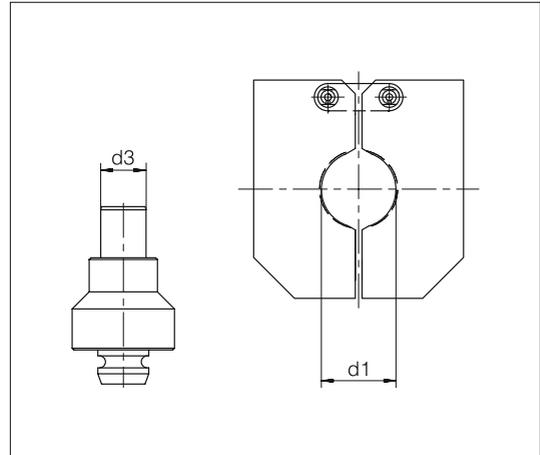
Compatible with  
Type 81 EasyPress



Series Tube OD	Order-No.	Designation
L 6	7013497300	TD-CRPT-L6-TYPE81
L 8	7013497500	TD-CRPT-L8-TYPE81
L 10	7013497700	TD-CRPT-L10-TYPE81
L 12	7013497900	TD-CRPT-L12-TYPE81
L 15	7013498200	TD-CRPT-L15-TYPE81
L 18	7013498400	TD-CRPT-L18-TYPE81
L 22	7013498600	TD-CRPT-L22-TYPE81
L 28	7013498800	TD-CRPT-L28-TYPE81
L 35	7013499000	TD-CRPT-L35-TYPE81
L 42	7013499200	TD-CRPT-L42-TYPE81
S 6	7013497400	TD-CRPT-S6-TYPE81
S 8	7013497600	TD-CRPT-S8-TYPE81
S 10	7013497800	TD-CRPT-S10-TYPE81
S 12	7013498000	TD-CRPT-S12-TYPE81
S 14	7013498100	TD-CRPT-S14-TYPE81
S 16	7013498300	TD-CRPT-S16-TYPE81
S 20	7013498500	TD-CRPT-S20-TYPE81
S 25	7013498700	TD-CRPT-S25-TYPE81
S 30	7013498900	TD-CRPT-S30-TYPE81
S 38	7013499100	TD-CRPT-S38-TYPE81

## Pre-assembly tools BV-10 flared cone assembly

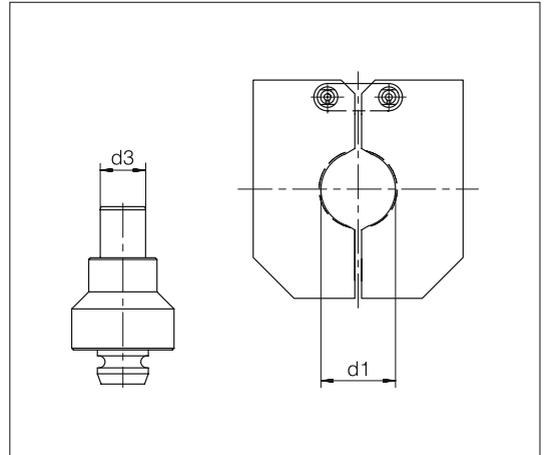
Compatible with  
Type 80 N3 and Type 90 Basic II



Series	d3	Order-No.	Designation	Order-No.	Designation
Tube OD			<b>Pre-assembly stud</b>		<b>Clamping jaws</b>
d1 x s					
L 6 x 1	2,9	5993020100	TD-BV10PT-L6x1-MT	5993000000	TD-BV10CJ-L/S6
L 8 x 1	4,9	5993020200	TD-BV10PT-L8x1-MT	5993001000	TD-BV10CJ-L/S8
L 10 x 1	6,3	5993020300	TD-BV10PT-L10x1-MT	5993002000	TD-BV10CJ-L/S10
L 10 x 1,5	5,5	5993020400	TD-BV10PT-L/S10x1,5-MT	5993002000	TD-BV10CJ-L/S10
L 12 x 1	8,0	5993020500	TD-BV10PT-L12x1-MT	5993003000	TD-BV10CJ-L/S12
L 12 x 1,5	7,5	5993020600	TD-BV10PT-L/S12x1,5-MT	5993003000	TD-BV10CJ-L/S12
L 15 x 1,5	10,2	5993020700	TD-BV10PT-L15x1,5-MT	5993004000	TD-BV10CJ-L15
L 15 x 2	9,1	5993020800	TD-BV10PT-L15x2-MT	5993004000	TD-BV10CJ-L15
L 18 x 1,5	13,0	5993020900	TD-BV10PT-L18x1,5-MT	5993005000	TD-BV10CJ-L18
L 18 x 2	12,0	5993021000	TD-BV10PT-L18x2-MT	5993005000	TD-BV10CJ-L18
L 22 x 1,5	16,2	5993021100	TD-BV10PT-L22x1,5/22x2-MT	5993006000	TD-BV10CJ-L22
L 22 x 2	16,2	5993021100	TD-BV10PT-L22x1,5/22x2-MT	5993006000	TD-BV10CJ-L22
L 28 x 2	21,0	5993021200	TD-BV10PT-L28x2/28x2,5-MT	5993007000	TD-BV10CJ-L28
L 28 x 2,5	21,0	5993021200	TD-BV10PT-L28x2/28x2,5-MT	5993007000	TD-BV10CJ-L28
L 28 x 3	19,5	5993021300	TD-BV10PT-L28x3-MT	5993007000	TD-BV10CJ-L28
L 35 x 2	28,5	5993021400	TD-BV10PT-L35x2-MT	5993008000	TD-BV10CJ-L35
L 35 x 3	26,5	5993021500	TD-BV10PT-L35x3/35x3,5-MT	5993008000	TD-BV10CJ-L35
L 35 x 3,5	26,5	5993021500	TD-BV10PT-L35x3/35x3,5-MT	5993008000	TD-BV10CJ-L35
L 42 x 3	33,5	5993021700	TD-BV10PT-L42x3-MT	5993009000	TD-BV10CJ-L42

## Pre-assembly tools for BV-10 flared cone assembly

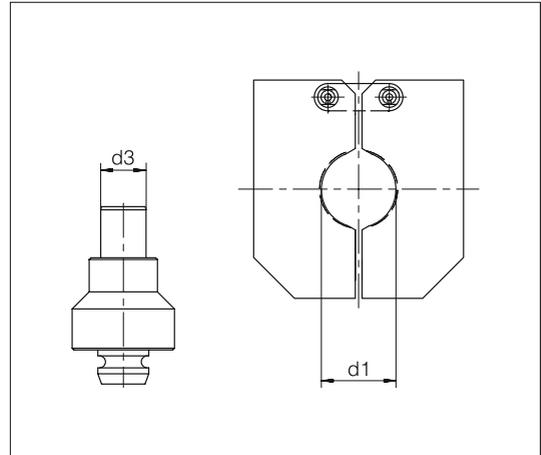
Compatible with  
Type 80 N3 and Type 90 Basic II



Series Tube OD d1 x s	d3	Order-No.	Designation <b>Pre-assembly stud</b>	Order-No.	Designation <b>Clamping jaws</b>
S 8 x 1,5	4	5993021800	TD-BV10PT-S8x1,5-MT	5993001000	TD-BV10CJ-L/S8
S 8 x 2	3	5993021900	TD-BV10PT-S8x2-MT	5993001000	TD-BV10CJ-L/S8
S 10 x 1,5	5,5	5993020400	TD-BV10PT-L/S10x1,5-MT	5993002000	TD-BV10CJ-L/S10
S 10 x 2	4,5	5993022000	TD-BV10PT-S10x2/12x3-MT	5993002000	TD-BV10CJ-L/S10
S 12 x 1,5	7,5	5993020600	TD-BV10PT-L/S12x1,5-MT	5993003000	TD-BV10CJ-L/S12
S 12 x 2	6,5	5993022100	TD-BV10PT-S12x2-MT	5993003000	TD-BV10CJ-L/S12
S 12 x 3	4,5	5993022000	TD-BV10PT-S10x2/12x3-MT	5993003000	TD-BV10CJ-L/S12
S 14 x 2	8,5	5993022200	TD-BV10PT-S14x2/16x3-MT	5993014000	TD-BV10CJ-S14
S 14 x 3	6	5993022300	TD-BV10PT-S14x3-MT	5993014000	TD-BV10CJ-S14
S 16 x 2	10,5	5993022400	TD-BV10PT-S16x2-MT	5993015000	TD-BV10CJ-S16
S 16 x 2,5	9,5	5993022500	TD-BV10PT-S16x2,5-MT	5993015000	TD-BV10CJ-S16
S 16 x 3	8,5	5993022200	TD-BV10PT-S14x2/16x3-MT	5993015000	TD-BV10CJ-S16
S 20 x 2	13,5	5993022600	TD-BV10PT-S20x2/20x2,5-MT	5993016000	TD-BV10CJ-S20
S 20 x 2,5	13,5	5993022600	TD-BV10PT-S20x2/20x2,5-MT	5993016000	TD-BV10CJ-S20
S 20 x 3	12,5	5993022700	TD-BV10PT-S20x3-MT	5993016000	TD-BV10CJ-S20
S 20 x 3,5	11	5993022800	TD-BV10PT-S20x3,5-MT	5993016000	TD-BV10CJ-S20
S 20 x 4	10	5993023900	TD-BV10PT-S20x4-MT	5993016000	TD-BV10CJ-S20
S 25 x 2,5	18	5993023000	TD-BV10PT-S25x2,5-MT	5993017000	TD-BV10CJ-S25
S 25 x 3	17	5993023100	TD-BV10PT-S25x3/30x5-MT	5993017000	TD-BV10CJ-S25
S 25 x 4	15	5993023200	TD-BV10PT-S25x4-MT	5993017000	TD-BV10CJ-S25
S 30 x 3	22	5993023300	TD-BV10PT-S30x3-MT	5993018000	TD-BV10CJ-S30
S 30 x 4	20	5993023400	TD-BV10PT-S30x4-MT	5993018000	TD-BV10CJ-S30
S 30 x 5	17	5993023100	TD-BV10PT-S25x3/30x5-MT	5993018000	TD-BV10CJ-S30
S 38 x 3	30	5993023500	TD-BV10PT-S38x3-MT	5993019000	TD-BV10CJ-S38
S 38 x 4	27	5993023600	TD-BV10PT-S38x4-MT	5993019000	TD-BV10CJ-S38
S 38 x 5	26	5993023700	TD-BV10PT-S38x5-MT	5993019000	TD-BV10CJ-S38
S 38 x 6	23	5993023800	TD-BV10PT-S38x6-MT	5993019000	TD-BV10CJ-S38

## Pre-assembly tools BV-10 flared cone assembly

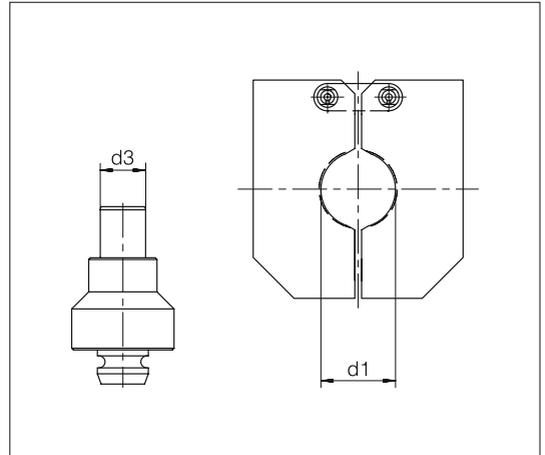
Compatible with  
Type 90 Comfort



Series Tube OD d1 x s	Order-No.	Designation <b>Flared Pre-assembly stud with RFID tool recognition</b>	Order-No.	Designation <b>Clamping jaws</b>
L 6 x 1	5993852700	TD-BV10PT-L6x1-MT-RFID	5993000000	TD-BV10CJ-L/S6
L 8 x 1	5993852800	TD-BV10PT-L8x1-MT-RFID	5993001000	TD-BV10CJ-L/S8
L 10 x 1	5993853100	TD-BV10PT-L10x1-MT-RFID	5993002000	TD-BV10CJ-L/S10
L 10 x 1,5	5993853200	TD-BV10PT-L10x1,5-MT-RFID	5993002000	TD-BV10CJ-L/S10
L 12 x 1	5993853500	TD-BV10PT-L12x1-MT-RFID	5993003000	TD-BV10CJ-L/S12
L 12 x 1,5	5993853600	TD-BV10PT-L12x1,5-MT-RFID	5993003000	TD-BV10CJ-L/S12
L 15 x 1,5	5993854200	TD-BV10PT-L15x1,5-MT-RFID	5993004000	TD-BV10CJ-L15
L 15 x 2	5993854300	TD-BV10PT-L15x2-MT-RFID	5993004000	TD-BV10CJ-L15
L 18 x 1,5	5993854700	TD-BV10PT-L18x1,5-MT-RFID	5993005000	TD-BV10CJ-L18
L 18 x 2	5993854800	TD-BV10PT-L18x2-MT-RFID	5993005000	TD-BV10CJ-L18
L 22 x 1,5	5993855400	TD-BV10PT-L22x1,5-MT-RFID	5993006000	TD-BV10CJ-L22
L 22 x 2	5993855500	TD-BV10PT-L22x2-MT-RFID	5993006000	TD-BV10CJ-L22
L 28 x 2 / 28x2,5	5993855900	TD-BV10PT-L28x2/28x2,5-MT-RFID	5993007000	TD-BV10CJ-L28
L 28 x 3	5993856000	TD-BV10PT-L28x3-MT-RFID	5993007000	TD-BV10CJ-L28
L 35 x 2	5993856400	TD-BV10PT-L35x2-MT-RFID	5993008000	TD-BV10CJ-L35
L 35 x 3	5993856500	TD-BV10PT-L35x3-MT-RFID	5993008000	TD-BV10CJ-L35
L 42 x 3	5993857000	TD-BV10PT-L42x3-MT-RFID	5993009000	TD-BV10CJ-L42

## Pre-assembly tools for BV-10 flared cone assembly

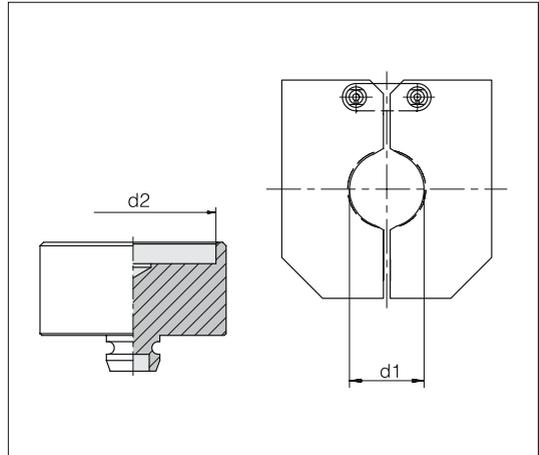
Compatible with  
Type 90 Comfort



Series Tube OD d1 x s	Order-No.	Designation <b>Flared Pre-assembly stud with RFID tool recognition</b>	Order-No.	Designation <b>Clamping jaws</b>
S 8 x 1,5	5993852900	TD-BV10PT-S8x1,5-MT-RFID	5993001000	TD-BV10CJ-L/S8
S 8 x 2	5993853000	TD-BV10PT-S8x2-MT-RFID	5993001000	TD-BV10CJ-L/S8
S 10 x 1,5	5993853300	TD-BV10PT-S10x1,5-MT-RFID	5993002000	TD-BV10CJ-L/S10
S 10 x 2	5993853400	TD-BV10PT-S10x2-MT-RFID	5993002000	TD-BV10CJ-L/S10
S 12 x 1,5	5993853700	TD-BV10PT-S12x1,5-MT-RFID	5993003000	TD-BV10CJ-L/S12
S 12 x 2	5993853800	TD-BV10PT-S12x2-MT-RFID	5993003000	TD-BV10CJ-L/S12
S 12 x 3	5993853900	TD-BV10PT-S12x3-MT-RFID	5993003000	TD-BV10CJ-L/S12
S 14 x 2	5993854000	TD-BV10PT-S14x2-MT-RFID	5993014000	TD-BV10CJ-S14
S 14 x 3	5993854100	TD-BV10PT-S14x3-MT-RFID	5993014000	TD-BV10CJ-S14
S 16 x 2	5993854400	TD-BV10PT-S16x2-MT-RFID	5993015000	TD-BV10CJ-S16
S 16 x 2,5	5993854500	TD-BV10PT-S16x2,5-MT-RFID	5993015000	TD-BV10CJ-S16
S 16 x 3	5993854600	TD-BV10PT-S16x3-MT-RFID	5993015000	TD-BV10CJ-S16
S 20 x 2	5993854900	TD-BV10PT-S20x2-MT-RFID	5993016000	TD-BV10CJ-S20
S 20 x 2,5	5993855000	TD-BV10PT-S20x2,5-MT-RFID	5993016000	TD-BV10CJ-S20
S 20 x 3	5993855100	TD-BV10PT-S20x3-MT-RFID	5993016000	TD-BV10CJ-S20
S 20 x 3,5	5993855200	TD-BV10PT-S20x3,5-MT-RFID	5993016000	TD-BV10CJ-S20
S 20 x 4	5993855300	TD-BV10PT-S20x4-MT-RFID	5993016000	TD-BV10CJ-S20
S 25 x 2,5	5993855600	TD-BV10PT-S25x2,5-MT-RFID	5993017000	TD-BV10CJ-S25
S 25 x 3	5993855700	TD-BV10PT-S25x3-MT-RFID	5993017000	TD-BV10CJ-S25
S 25 x 4	5993855800	TD-BV10PT-S25x4-MT-RFID	5993017000	TD-BV10CJ-S25
S 30 x 3	5993856100	TD-BV10PT-S30x3-MT-RFID	5993018000	TD-BV10CJ-S30
S 30 x 4	5993856200	TD-BV10PT-S30x4-MT-RFID	5993018000	TD-BV10CJ-S30
S 30 x 5	5993856300	TD-BV10PT-S30x5-MT-RFID	5993018000	TD-BV10CJ-S30
S 38 x 3	5993856600	TD-BV10PT-S38x3-MT-RFID	5993019000	TD-BV10CJ-S38
S 38 x 4	5993856700	TD-BV10PT-S38x4-MT-RFID	5993019000	TD-BV10CJ-S38
S 38 x 5	5993856800	TD-BV10PT-S38x5-MT-RFID	5993019000	TD-BV10CJ-S38
S 38 x 6	5993856900	TD-BV10PT-S38x6-MT-RFID	5993019000	TD-BV10CJ-S38

## Pre-assembly tools for ZAKO ring assembly

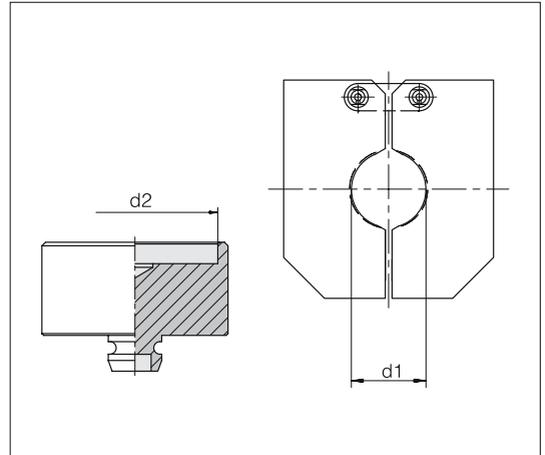
Compatible with  
Type 80 N3 and Type 90 Basic II



Flange size	d2	Order-No.	Designation <b>Pre-assembly stud</b>	Tube OD d1	Order-No.	Designation <b>Clamping jaws</b>
1/2"	30,3	5993065300	TD-ZAKOPP-1/2-MT	16	5993015000	TD-BV10CJ-S16
3/4"	38,3	5993066300	TD-ZAKOPP-3/4-MT	20	5993016000	TD-BV10CJ-S20
3/4"	38,3	5993066300	TD-ZAKOPP-3/4-MT	25	5993017000	TD-BV10CJ-S25
1"	38,3	5993066300	TD-ZAKOPP-3/4-MT	25	5993017000	TD-BV10CJ-S25
1"	46,3	5993067300	TD-ZAKOPP-1-MT	30	5993018000	TD-BV10CJ-S30
1"	46,3	5993067300	TD-ZAKOPP-1-MT	38	5993019000	TD-BV10CJ-S38
1 1/4"	46,3	5993067300	TD-ZAKOPP-1-MT	30	5993018000	TD-BV10CJ-S30
1 1/4"	52,3	5993068400	TD-ZAKOPP-1 1/4-MT	38	5993019000	TD-BV10CJ-S38
1 1/4"	52,3	5993068400	TD-ZAKOPP-1 1/4-MT	42	5993009000	TD-BV10CJ-S42

## Pre-assembly tools for ZAKO ring assembly

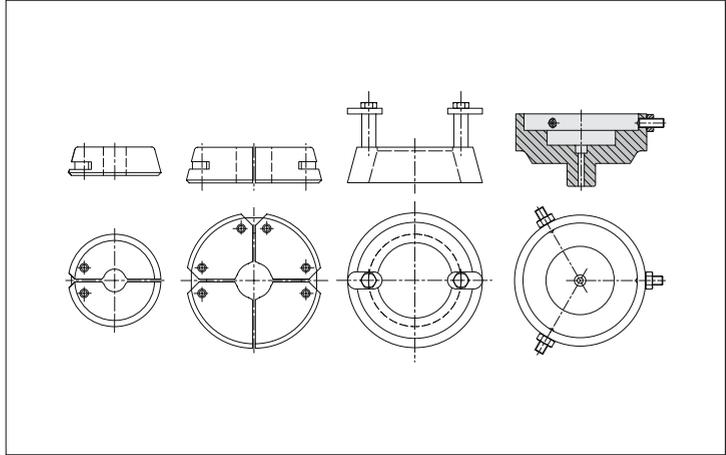
Compatible with  
Type 90 Comfort



Tube OD d1 x s	Order-No.	Designation <b>Pre-assembly stud with RFID tool recognition</b>	Order-No.	Designation <b>Clamping jaws</b>
16 x 2	5993877200	TD-ZAKOPP-1/2-MT-16x2-RFID	5993015000	TD-BV10CJ-S16
16 x 2,5	5993877300	TD-ZAKOPP-1/2-MT-16x2,5-RFID	5993015000	TD-BV10CJ-S16
16 x 3	5993877400	TD-ZAKOPP-1/2-MT-16x3-RFID	5993015000	TD-BV10CJ-S16
20 x 2,5	5993877500	TD-ZAKOPP-3/4-MT-20x2,5-RFID	5993016000	TD-BV10CJ-S20
20 x 3	5993877600	TD-ZAKOPP-3/4-MT-20x3-RFID	5993016000	TD-BV10CJ-S20
20 x 3,5	5993877700	TD-ZAKOPP-3/4-MT-20x3,5-RFID	5993016000	TD-BV10CJ-S20
25 x 3	5993877800	TD-ZAKOPP-3/4-MT-25x3-RFID	5993017000	TD-BV10CJ-S25
25 x 4	5993877900	TD-ZAKOPP-3/4-MT-25x4-RFID	5993017000	TD-BV10CJ-S25
30 x 4	5993878000	TD-ZAKOPP-1-MT-30x4-RFID	5993018000	TD-BV10CJ-S30
30 x 5	5993878100	TD-ZAKOPP-1-MT-30x5-RFID	5993018000	TD-BV10CJ-S30
38 x 5	5993878200	TD-ZAKOPP-1-MT-38x5-RFID	5993019000	TD-BV10CJ-S38
38 x 4	5993878300	TD-ZAKOPP-11/4-MT-38x4-RFID	5993019000	TD-BV10CJ-S38
38 x 5	5993878400	TD-ZAKOPP-11/4-MT-38x5-RFID	5993019000	TD-BV10CJ-S38
38 x 6	5993878500	TD-ZAKOPP-11/4-MT-38x6-RFID	5993019000	TD-BV10CJ-S38
42 x 2	5993878600	TD-ZAKOPP-11/4-MT-42x2-RFID	5993009000	TD-BV10CJ-S42

## Pre-assembly tools for ZAKO ring assembly

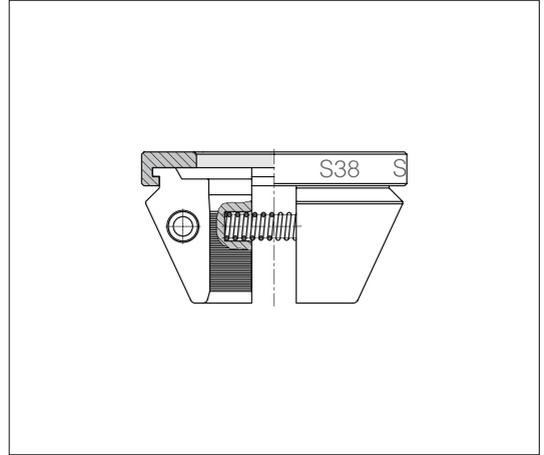
Compatible with  
Type 85



Tube OD	Order-No.	Designation <b>Clamping jaws</b>	Order-No.	Designation <b>Clamping jaws</b>	Order-No.	Designation <b>Spacer ring</b>	Order-No.	Designation <b>Pressure plate</b>
38	5514940049	TD-ZAKOCJ-38-TYPE85			5514978100	TD-ZAKOSR-TYPE85	5993802749	TD-ZAKOPP-38-TYPE85
50	5514940149	TD-ZAKOCJ-50-TYPE85			5514978100	TD-ZAKOSR-TYPE85	5993801849	TD-ZAKOPP-48,3/50-TYPE85
60	5514940249	TD-ZAKOCJ-60-TYPE85			5514978100	TD-ZAKOSR-TYPE85	5993801949	TD-ZAKOPP-60-TYPE85
65	5514940349	TD-ZAKOCJ-65-TYPE85			5514978100	TD-ZAKOSR-TYPE85	5993802049	TD-ZAKOPP-65-TYPE85
75			5514940949	TD-ZAKOCJ-75-TYPE85			5993802149	TD-ZAKOPP-75-TYPE85
80			5514940449	TD-ZAKOCJ-80-TYPE85			5993802249	TD-ZAKOPP-76,1/80-TYPE85
88			5514940549	TD-ZAKOCJ-88-TYPE85			5993802349	TD-ZAKOPP-88-TYPE85
1016			5514940649	TD-ZAKOCJ-1016-TYPE85			5993802449	TD-ZAKOPP-88,9/1016-TYPE85
114,3			5514940749	TD-ZAKOCJ-114,3-TYPE85			5993802549	TD-ZAKOPP-114,3-TYPE85

## Clamping jaws VOSSForm<sup>SQR</sup> (Steel & stainless steel)

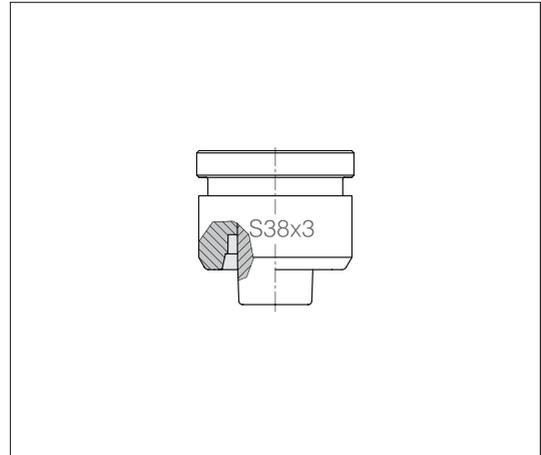
Compatible with  
Type 100 and Type 100 Compact



Tube OD	Order-No.	Designation
L/S 6	5993090149	TD-SQRCJ-L/S6
L/S 8	5993092949	TD-SQRCJ-L/S8
L/S 10	5993093649	TD-SQRCJ-L/S10
L/S 12	5993094349	TD-SQRCJ-L/S12
L 15	5993096049	TD-SQRCJ-L15
L 18	5993096749	TD-SQRCJ-L18
L 22	5993097449	TD-SQRCJ-L22
L 28	5993098149	TD-SQRCJ-L28
L 35	5993098849	TD-SQRCJ-L35
L 42	5993092249	TD-SQRCJ-L42
S 14	5993099549	TD-SQRCJ-S14
S 16	5993090849	TD-SQRCJ-S16
S 20	5993091549	TD-SQRCJ-S20
S 25	5993100349	TD-SQRCJ-S25
S 30	5993101049	TD-SQRCJ-S30
S 38	5993101749	TD-SQRCJ-S38

## Forming head VOSSForm<sup>SQR</sup> (Steel)

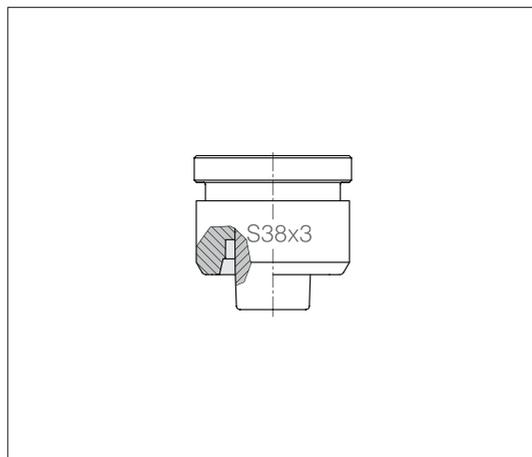
Compatible with  
Type 100 and Type 100 Compact



Tube OD	Order-No.	Designation
L/S 6 x 1	5993290690	TD-SQRFH-L/S6x1
L/S 6 x 1,5	5993290691	TD-SQRFH-L/S6x1,5
L/S 6 x 2	5993290692	TD-SQRFH-L/S6x2
L/S 8 x 1	5993293490	TD-SQRFH-L/S8x1
L/S 8 x 1,5	5993293491	TD-SQRFH-L/S8x1,5
L/S 8 x 2	5993293492	TD-SQRFH-L/S8x2
L/S 8 x 2,5	5993293493	TD-SQRFH-L/S8x2,5
L 10 x 1	5993294190	TD-SQRFH-L10x1
L 10 x 1,5	5993294191	TD-SQRFH-L10x1,5
L 10 x 2	5993294192	TD-SQRFH-L10x2
L 12 x 1	5993294890	TD-SQRFH-L12x1
L 12 x 1,5	5993294891	TD-SQRFH-L12x1,5
L 12 x 2	5993294892	TD-SQRFH-L12x2
L 15 x 1,5	5993296591	TD-SQRFH-L15x1,5
L 15 x 2	5993296592	TD-SQRFH-L15x2
L 15 x 2,5	5993296593	TD-SQRFH-L15x2,5
L 18 x 1,5	5993297291	TD-SQRFH-L18x1,5
L 18 x 2	5993297292	TD-SQRFH-L18x2
L 18 x 2,5	5993297293	TD-SQRFH-L18x2,5
L 18 x 3	5993297294	TD-SQRFH-L18x3
L 22 x 1,5	5993297991	TD-SQRFH-L22x1,5
L 22 x 2	5993297992	TD-SQRFH-L22x2
L 22 x 2,5	5993297993	TD-SQRFH-L22x2,5
L 22 x 3	5993297994	TD-SQRFH-L22x3
L 28 x 2	5993298692	TD-SQRFH-L28x2
L 28 x 2,5	5993298693	TD-SQRFH-L28x2,5
L 28 x 3	5993298694	TD-SQRFH-L28x3
L 35 x 2	5993299392	TD-SQRFH-L35x2
L 35 x 2,5	5993299393	TD-SQRFH-L35x2,5
L 35 x 3	5993299394	TD-SQRFH-L35x3
L 35 x 4	5993299396	TD-SQRFH-L35x4
L 42 x 2	5993292792	TD-SQRFH-L42x2
L 42 x 2,5	5993292793	TD-SQRFH-L42x2,5
L 42 x 3	5993292794	TD-SQRFH-L42x3
L 42 x 4	5993292796	TD-SQRFH-L42x4

## Forming head VOSSForm<sup>SQR</sup> (Steel)

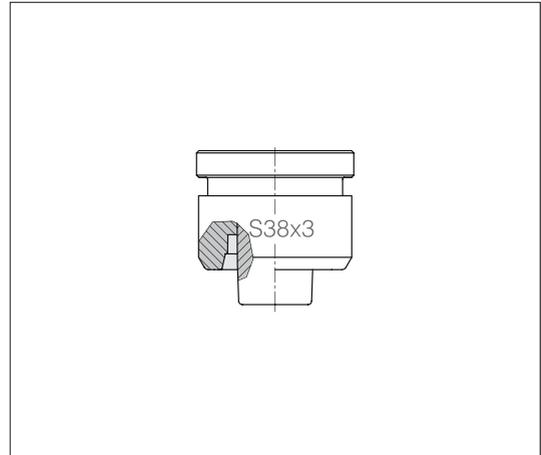
Compatible with  
Type 100 and Type 100 Compact



Tube OD	Order-No.	Designation
S 10 x 1,5	5993295391	TD-SQRFH-S10x1,5
S 10 x 2	5993295392	TD-SQRFH-S10x2
S 10 x 2,5	5993295393	TD-SQRFH-S10x2,5
S 12 x 1,5	5993295891	TD-SQRFH-S12x1,5
S 12 x 2	5993295892	TD-SQRFH-S12x2
S 12 x 2,5	5993295893	TD-SQRFH-S12x2,5
S 12 x 3	5993295894	TD-SQRFH-S12x3
S 14 x 1,5	5993300191	TD-SQRFH-S14x1,5
S 14 x 2	5993300192	TD-SQRFH-S14x2
S 14 x 2,5	5993300193	TD-SQRFH-S14x2,5
S 14 x 3	5993300194	TD-SQRFH-S14x3
S 16 x 1,5	5993291391	TD-SQRFH-S16x1,5
S 16 x 2	5993291392	TD-SQRFH-S16x2
S 16 x 2,5	5993291393	TD-SQRFH-S16x2,5
S 16 x 3	5993291394	TD-SQRFH-S16x3
S 16 x 4	5993291396	TD-SQRFH-S16x4
S 20 x 2	5993292092	TD-SQRFH-S20x2
S 20 x 2,5	5993292093	TD-SQRFH-S20x2,5
S 20 x 3	5993292094	TD-SQRFH-S20x3
S 20 x 3,5	5993292095	TD-SQRFH-S20x3,5
S 20 x 4	5993292096	TD-SQRFH-S20x4
S 25 x 2	5993300892	TD-SQRFH-S25x2
S 25 x 2,5	5993300893	TD-SQRFH-S25x2,5
S 25 x 3	5993300894	TD-SQRFH-S25x3
S 25 x 4	5993300896	TD-SQRFH-S25x4
S 30 x 2	5993301592	TD-SQRFH-S30x2
S 30 x 2,5	5993301593	TD-SQRFH-S30x2,5
S 30 x 3	5993301594	TD-SQRFH-S30x3
S 30 x 4	5993301596	TD-SQRFH-S30x4
S 30 x 5	5993301597	TD-SQRFH-S30x5
S 30 x 6	5993301598	TD-SQRFH-S30x6
S 38 x 2,5	5993302293	TD-SQRFH-S38x2,5
S 38 x 3	5993302294	TD-SQRFH-S38x3
S 38 x 4	5993302296	TD-SQRFH-S38x4
S 38 x 5	5993302297	TD-SQRFH-S38x5
S 38 x 6	5993302298	TD-SQRFH-S38x6
S 38 x 7	5993302299	TD-SQRFH-S38x7

## Forming head VOSSForm<sup>SQR</sup> (stainless steel)

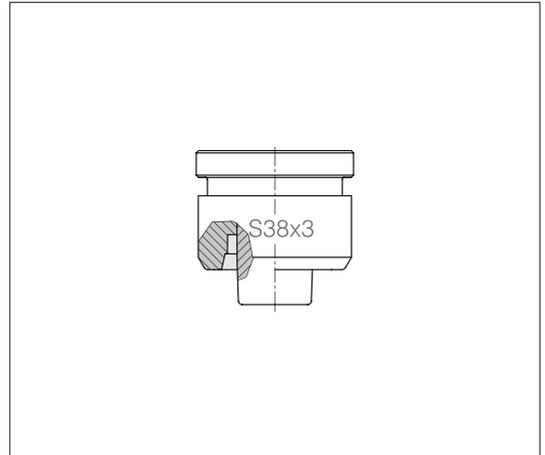
Compatible with  
Type 100 and Type 100 Compact



Tube OD	Order-No.	Designation
L/S 6 x 1	5993145000	TD-SQRFH-L/S6x1-SST
L/S 6 x 1,5	5993145100	TD-SQRFH-L/S6x1,5-SST
L/S 6 x 2	5993145200	TD-SQRFH-L/S6x2-SST
L/S 8 x 1	5993145300	TD-SQRFH-L/S8x1-SST
L/S 8 x 1,5	5993145400	TD-SQRFH-L/S8x1,5-SST
L/S 8 x 2	5993145500	TD-SQRFH-L/S8x2-SST
L/S 8 x 2,5	5993145600	TD-SQRFH-L/S8x2,5-SST
L 10 x 1	5993145700	TD-SQRFH-L10x1-SST
L 10 x 1,5	5993145800	TD-SQRFH-L10x1,5-SST
L 10 x 2	5993145900	TD-SQRFH-L10x2-SST
L 12 x 1	5993146000	TD-SQRFH-L12x1-SST
L 12 x 1,5	5993146100	TD-SQRFH-L12x1,5-SST
L 12 x 2	5993146200	TD-SQRFH-L12x2-SST
L 15 x 1,5	5993146300	TD-SQRFH-L15x1,5-SST
L 15 x 2	5993146400	TD-SQRFH-L15x2-SST
L 15 x 2,5	5993146500	TD-SQRFH-L15x2,5-SST
L 18 x 1,5	5993146600	TD-SQRFH-L18x1,5-SST
L 18 x 2	5993146700	TD-SQRFH-L18x2-SST
L 18 x 2,5	5993146800	TD-SQRFH-L18x2,5-SST
L 18 x 3	5993146900	TD-SQRFH-L18x3-SST
L 22 x 1,5	5993147000	TD-SQRFH-L22x1,5-SST
L 22 x 2	5993147100	TD-SQRFH-L22x2-SST
L 28 x 2	5993147200	TD-SQRFH-L28x2-SST
L 28 x 2,5	5993147300	D-SQRFH-L28x2,5-SST
L 28 x 3	5993147400	TD-SQRFH-L28x3-SST
L 35 x 2	5993147500	TD-SQRFH-L35x2-SST
L 35 x 2,5	5993147600	TD-SQRFH-L35x2,5-SST
L 35 x 3	5993147700	TD-SQRFH-L35x3-SST
L 42 x 2	5993147800	TD-SQRFH-L42x2-SST
L 42 x 3	5993147900	TD-SQRFH-L42x3-SST

## Forming head VOSSForm<sup>SQR</sup> (stainless steel)

Compatible with  
Type 100 and Type 100 Compact



Tube OD	Order-No.	Designation
S 10 x 1,5	5993148000	TD-SQRFH-S10x1,5-SST
S 10 x 2	5993148100	TD-SQRFH-S10x2-SST
S 10 x 2,5	5993148200	TD-SQRFH-S10x2,5-SST
S 12 x 1,5	5993148300	TD-SQRFH-S12x1,5-SST
S 12 x 2	5993148400	TD-SQRFH-S12x2-SST
S 12 x 2,5	5993148500	TD-SQRFH-S12x2,5-SST
S 12 x 3	5993148600	TD-SQRFH-S12x3-SST
S 14 x 1,5	5993148700	TD-SQRFH-S14x1,5-SST
S 14 x 2	5993148800	TD-SQRFH-S14x2-SST
S 14 x 2,5	5993148900	TD-SQRFH-S14x2,5-SST
S 14 x 3	5993149000	TD-SQRFH-S14x3-SST
S 16 x 1,5	5993149100	TD-SQRFH-S16x1,5-SST
S 16 x 2	5993149200	TD-SQRFH-S16x2-SST
S 16 x 2,5	5993149300	TD-SQRFH-S16x2,5-SST
S 16 x 3	5993149400	TD-SQRFH-S16x3-SST
S 20 x 2	5993149500	TD-SQRFH-S20x2-SST
S 20 x 2,5	5993149600	TD-SQRFH-S20x2,5-SST
S 20 x 3	5993149700	TD-SQRFH-S20x3-SST
S 25 x 1,5	7007658900	TD-SQRFH-S25x1,5-SST
S 25 x 2	5993149800	TD-SQRFH-S25x2-SST
S 25 x 2,5	5993149900	TD-SQRFH-S25x2,5-SST
S 25 x 3	5993150000	TD-SQRFH-S25x3-SST
S 25 x 4	5993150100	TD-SQRFH-S25x4-SST
S 30 x 2,5	5993150200	TD-SQRFH-S30x2,5-SST
S 30 x 3	5993150300	TD-SQRFH-S30x3-SST
S 30 x 4	5993150400	TD-SQRFH-S30x4-SST
S 30 x 5	700770100	TD-SQRFH-S30x5-SST
S 38 x 3	5993150500	TD-SQRFH-S38x3-SST
S 38 x 4	5993150600	TD-SQRFH-S38x4-SST
S 38 x 5	5993150700	TD-SQRFH-S38x5-SST

# VOSS

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