

Vacuum Automation

# Schmalz Tooling System SXT

Catalog

[WWW.SCHMALZ.COM/SXT](http://WWW.SCHMALZ.COM/SXT)

# Schmalz: Vacuum Technology for Intelligent Automation and Ergonomic Handling

**1500**  
*employees*  
working hard for our customers.

**20**  
*locations*  
for outstanding customer service worldwide.

**9**  
*percent*  
of our revenue is invested in innovative ideas and new products.

**580**  
*copyrights*  
are proof of our groundbreaking innovations.



## *Schmalz is the Market Leader in Vacuum Automation and Ergonomic Handling Systems.*

The wide range of products in the Vacuum Automation unit includes individual components such as suction cups and vacuum generators, as well as complete gripping systems and clamping solutions for holding workpieces, for example in CNC machining centers. The Handling Systems unit offers innovative handling solutions with vacuum lifters and crane systems for industrial and handicraft applications.

Our products are used in different applications for example in the logistics industry, the automotive industry, the electronics sector and in furniture production.

With comprehensive consulting, a focus on innovation and first-class quality, Schmalz offers its customers long-lasting benefits. Schmalz's intelligent solutions make production and logistics processes more flexible and efficient, while also preparing them for the increasing trend toward digitalization.

### Vacuum Automation



Components



Systems















Clamping solutions






















### Handling Systems










Vacuum lifters and crane systems


	<p><b>Tooling System SXT</b></p> <ul style="list-style-type: none"> <li>• Complex pipe tooling made easy</li> </ul>	<p>Applications · Highlights and Components · Modular System at a Glance · Configuration and Ordering</p>	<p>6</p>
	<p><b>Robot Flanges with Clamping SXT-RF-CL</b></p> <ul style="list-style-type: none"> <li>• Pipe diameter of 40 and 60 mm</li> <li>• Single and double-pipe clamps</li> </ul>	<p>                Flange connection to robot interface with pipe clamps for connecting tooling gripper.         </p>	<p>11</p>
	<p><b>Quick-Change Robot Bayonets SXT-QC-CON</b></p> <ul style="list-style-type: none"> <li>• Manually locked bayonet connection</li> <li>• Pipe diameter of 40 and 60 mm</li> <li>• With or without pneumatic media feed-through</li> </ul>	<p>                Quick change bayonet connection to robot interface for connection of pipe tooling gripper.         </p>	<p>14</p>
	<p><b>Pipes SXT-RT</b></p> <ul style="list-style-type: none"> <li>• Aluminium pipe with large wall thickness (5 to 6 mm)</li> <li>• Diameters of 25 to 60 mm</li> <li>• Max. length 3.000 mm</li> </ul>	<p>                Aluminium pipe with large wall thickness for attaching pipe tooling.         </p>	<p>18</p>
	<p><b>Clamping Pieces SXT-CL</b></p> <ul style="list-style-type: none"> <li>• Double and single-pipe clamps</li> <li>• Cross clamps and parallel clamps</li> </ul>	<p>                Clamps for connecting pipes and vacuum and tooling components.         </p>	<p>22</p>
	<p><b>Clamping Pieces with Extension SXT-CL-EXT</b></p> <ul style="list-style-type: none"> <li>• Single and double sided clamps</li> <li>• With extension 100 to 510 mm</li> <li>• For pipe diameters of 19 to 40 mm</li> <li>• For ball joint connections with 28.5 to 32 mm diameter</li> </ul>	<p>                Swivel arms for connection of holders and vacuum components to the basic pipe structure of gripper tooling.         </p>	<p>27</p>
	<p><b>Truss Connectors (Geared) SXT-TC</b></p> <ul style="list-style-type: none"> <li>• Gearing with 10° pitch</li> <li>• Preassembled assembly</li> </ul>	<p>                Modular pipe clamp system with gearing for flexible connection of holders and vacuum components to pipe tooling grippers.         </p>	<p>33</p>

## Tooling System SXT

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	<p><b>Connections (Geared) SXT-CON-GB</b></p> <ul style="list-style-type: none"> <li>• Gearing with 10° pitch</li> <li>• Male design in gray</li> <li>• Female version in black</li> </ul>	  <p>AUTOMOTIVE METAL</p>	36
		<p>Modular pipe and ball clamp system with gearing for connecting holders and vacuum components to pipe tooling grippers.</p>	
	<p><b>Elbow Connectors (Geared) SXT-ANG</b></p> <ul style="list-style-type: none"> <li>• Gearing with 10° pitch</li> <li>• Male design in gray</li> <li>• Female version in black</li> </ul>	  <p>AUTOMOTIVE METAL</p>	40
		<p>Elbow connectors with gearing for connection of holders and vacuum components to pipe tooling gripper.</p>	
	<p><b>Extensions (Geared) SXT-EXT</b></p> <ul style="list-style-type: none"> <li>• Gearing with 10° pitch</li> <li>• Single and double sided gearing</li> <li>• Extension of 50 to 500 mm</li> </ul>	  <p>AUTOMOTIVE METAL</p>	43
		<p>Extensions with gearing for flexibly connection of holders and vacuum components to pipe tooling gripper.</p>	
<b>Mounting Elements</b>			
	<p><b>Holders for Suction Cups HT-SG</b></p> <ul style="list-style-type: none"> <li>• Mounts for vacuum suction cups with connections for G, NPT and M threads and right-angled adapters</li> </ul>	  <p>AUTOMOTIVE METAL</p>	47
		<p>Tooling holder made of aluminium for holding vacuum suction cups in the automotive industry segment.</p>	
	<p><b>Holders for Suction Cups HT-SG E</b></p> <ul style="list-style-type: none"> <li>• Mounts for vacuum suction cups with connections for G, NPT and M threads and right-angled adapters</li> <li>• Mountings for decentralized vacuum generators</li> </ul>	  <p>AUTOMOTIVE METAL</p>	50
		<p>Tooling holder made of aluminium for holding suction cups and decentralised vacuum generators in the automotive industry segment.</p>	
	<p><b>Holders for Suction Cups HT-SG I</b></p> <ul style="list-style-type: none"> <li>• Mounts for vacuum suction cups with connections for G, NPT and M threads and right-angled adapters</li> <li>• Holders for vacuum nozzles integrated in the holder</li> </ul>	  <p>AUTOMOTIVE METAL</p>	55
		<p>Tooling holder made of aluminium for holding suction cups and vacuum nozzles built into the holder in the automotive industry segment.</p>	
	<p><b>Holders for Spring Plungers HT-FST</b></p> <ul style="list-style-type: none"> <li>• Mounts for spring plungers with mounting threads M18 x 1.5 to M30 x 1.5</li> </ul>	  <p>AUTOMOTIVE METAL</p>	61
		<p>Tooling holder made of aluminium for holding spring plungers in the automotive industry segment.</p>	

			Page
	<p><b>Holders for Sensors HT-SE</b></p> <ul style="list-style-type: none"> <li>Mounts for sensors with diameters of 12 to 30 mm</li> </ul>	 	64
		<p>Tooling holder made of aluminium for holding cylindrical sensors in the automotive industry.</p>	
	<p><b>Spring Plungers FSTI</b></p> <ul style="list-style-type: none"> <li>Connection: G1/4" and G3/8"</li> <li>Stroke: 10 to 50 mm</li> <li>Internal damping spring</li> <li>Integrated vacuum feed</li> </ul>		67
		<p>Spring plunger with internal damping spring and high-quality sliding bearings for handling fragile workpieces.</p>	
	<p><b>Spring Plungers FSTE-HDB</b></p> <ul style="list-style-type: none"> <li>Connection: G1/8" to G1/2"</li> <li>Stroke: 15 to 120 mm</li> <li>Heavy duty, with smooth running anti-rotation guard</li> <li>Integrated vacuum feed</li> </ul>		71
		<p>Spring plunger with special slide bearings and damping spring for height compensation. For highly dynamic applications with short cycles.</p>	

## Contact

	<p><b>Schmalz Worldwide</b></p> <ul style="list-style-type: none"> <li>International sales network</li> </ul>	<p>On-site expertise in more than 80 countries.</p>	75
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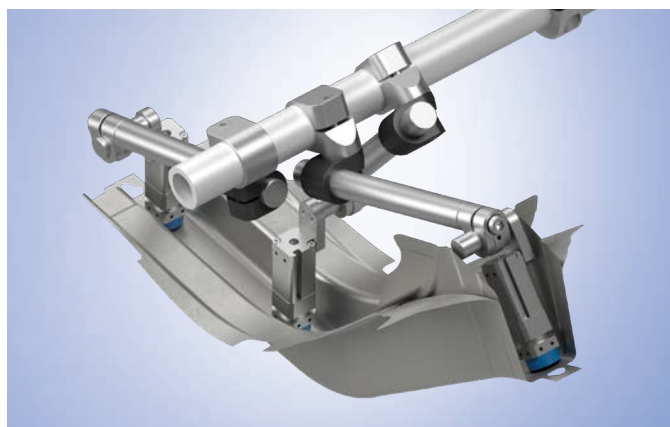




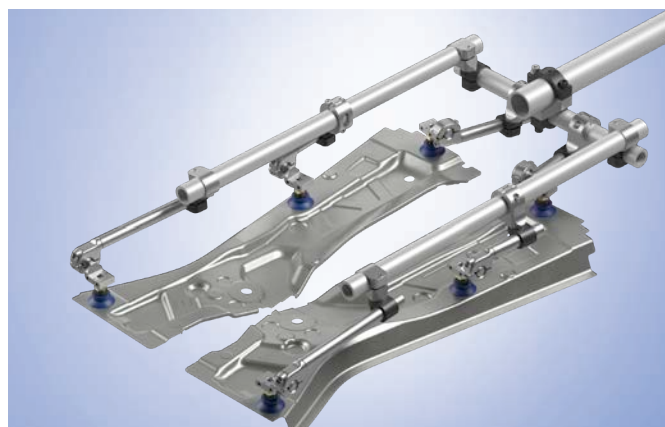
Schmalz Tooling SXT with suction cups SAX for handling formed body parts




Schmalz Tooling SXT with suction cups SAX for handling sheet metal plates



Schmalz Tooling SXT with magnetic grippers SGM-HP for handling structural parts



Schmalz Tooling SXT for simultaneous handling of two symmetrical body parts

 **System for the assembly of flexible  
lightweight tooling for the  
automotive industry**

- Use in highly dynamic processes with maximum output in press shop and car body construction
- Suitable for press automation with multi-stage forming-processes
- Tooling for robots for stacking, loading and unloading-presses and for loading load carriers at the end of the line

# Highlights and Components



**Fast**

**High throughput for your automation**

- Precise, durable components
- Low weight for weight-optimized toolings
- 4 times higher torque due to geared components



**Variable**

**Flexible adaptation to your application**

- More than 2,200 configurable swivel arms
- Easy adaptation to changes and retrofits
- Compatible with conventional tooling systems



**Lean**

**Simple and clearly structured portfolio**

- Few, compact components
- Low storage requirements
- Simple design and fast assembly

## Tooling Components



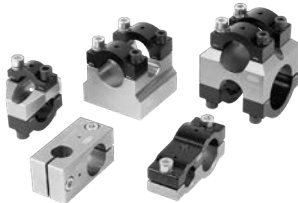
Robot flange with clamps SXT-RF-CL



Quick-change robot bayonet SXT-QC-CON



Tube SXT-RT



Clamp SXT-CL



Clamp with extension SXT-CL-EXT

## Configurable Components



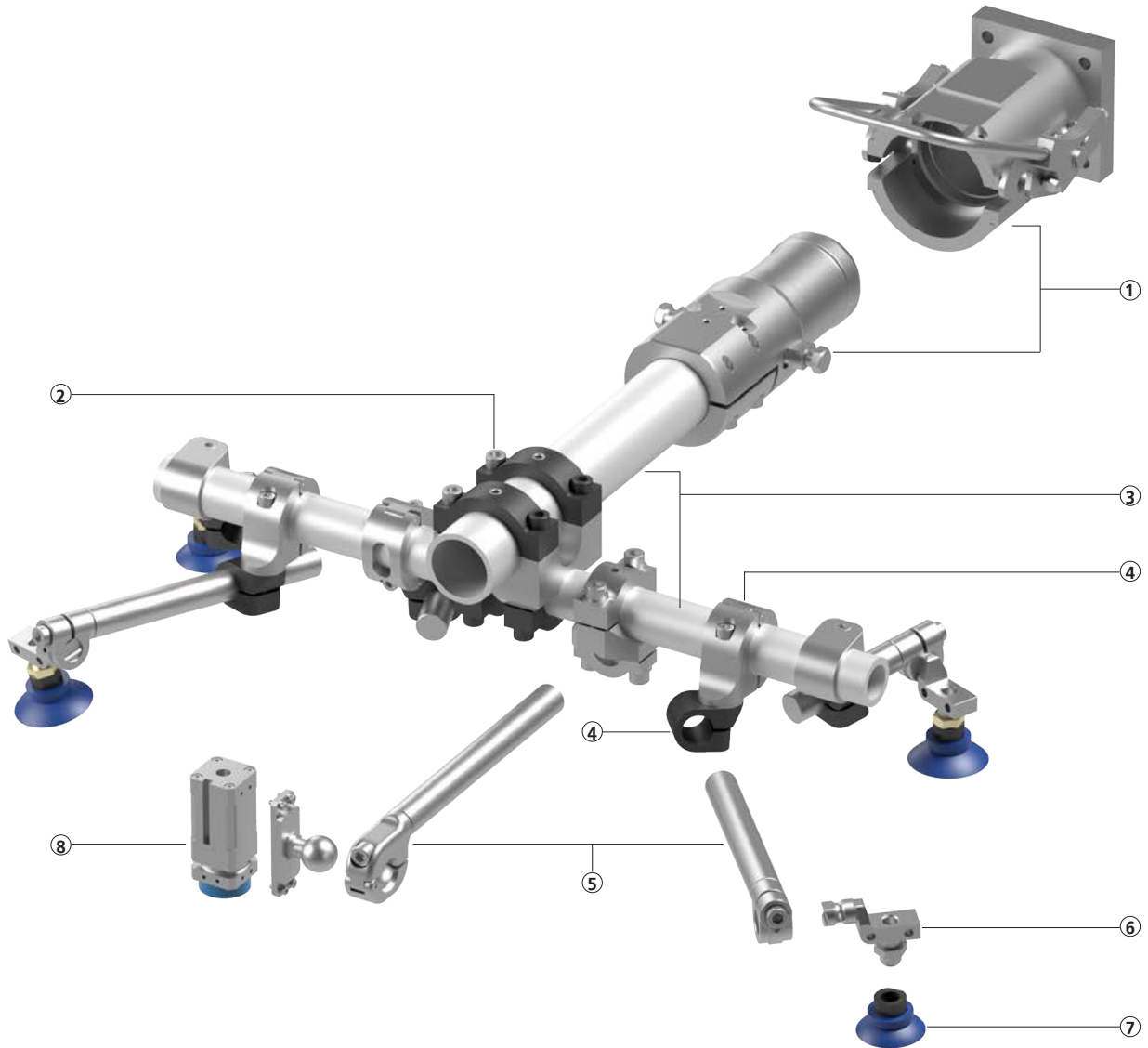
Clamp modular (geared) SXT-CON-GB



Angle modular (geared) SXT-ANG



Extension modular (geared) SXT-EXT



## TOOLING COMPONENTS

- ① **Quick-change robot bayonet SXT-QC-CON**  
With or without compressed air feedthrough
- ② **Clamp SXT-CL**  
Cross clamps and parallel clamps
- ③ **Tube SXT-RT**  
Diameter 25 mm to 60 mm
- ④ **Connection (geared) SXT-CON-GB**  
Gearing with 10° graduation
- ⑤ **Clamp with extension SXT-CL-EXT**  
Extension from 100 mm to 510 mm

## SYSTEM SUPPLEMENT

- ⑥ **Holder system HT**  
For suction cups, spring plungers and sensors
- ⑦ **Suction cups**  
e.g. SAX
- ⑧ **Magnetic grippers**  
e.g. SGM-HP



# Configuration and Ordering

The Schmalz Tooling System SXT offers various configuration options. In addition to the individual components, complete assemblies in customer specific designs are also available.

Order information for individual tooling components can be found in our online shop:  
[WWW.SCHMALZ.COM/SXT](http://WWW.SCHMALZ.COM/SXT)

For customer specific configurations, please contact your system consultant for vacuum automation:  
[WWW.SCHMALZ.COM/SYSTEMBERATER](http://WWW.SCHMALZ.COM/SYSTEMBERATER)

## Configurable Assemblies



Slide-on and clamp-on tube clamps



Slide-on tube clamps



Tube clamps with extension



Clamp-on tube clamp and ball clamp with extension



Clamp-on tube clamp with extension



Slide-on tube clamps with angle



Slide-on tube clamps with angle



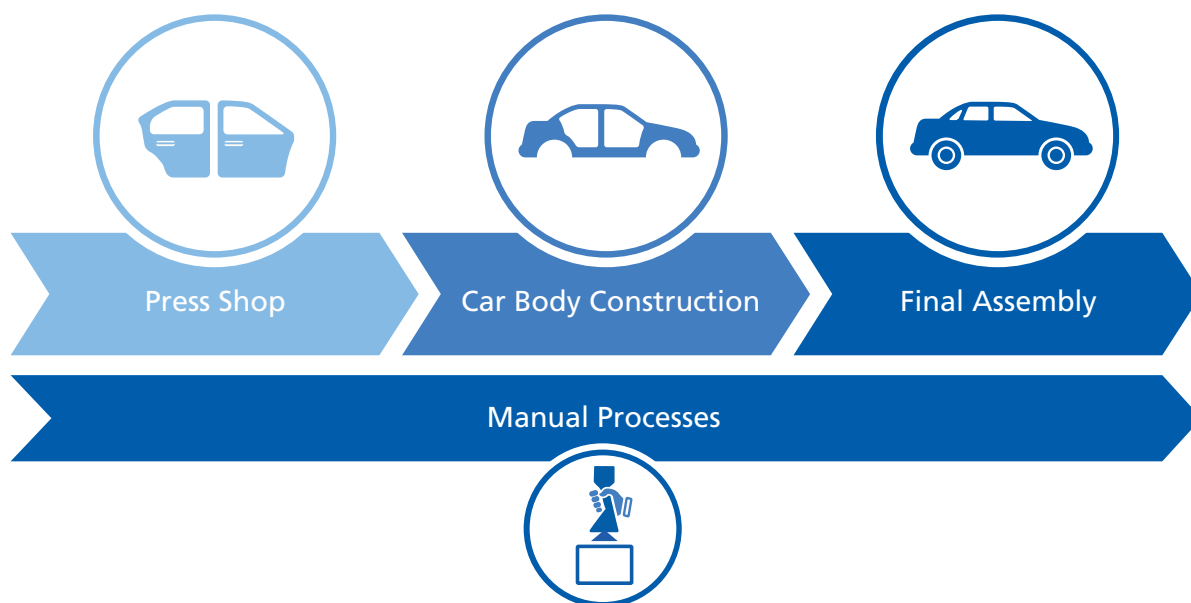
Slide-on tube clamps with extensions and angles

# Vacuum Technology for the Automotive Industry

The automotive industry is one of the most important economical sectors, with a densely networked supplier industry. In general, the sector is divided into vehicle manufacturers, component suppliers and plant manufacturers. Due to the ever growing number of different car models and increased manufacturing capacities with plants in new markets such as China, vehicle manufacturers are increasingly focused on modular platforms and construction kits. These allow attachment parts, assemblies and even

production lines to be reused, thus reducing production costs. Vacuum components from Schmalz are used wherever automated handling of parts is needed. This is particularly true for applications in press shops, car body construction and final assembly. In addition to automation technology, Schmalz also offers ergonomic vacuum lifters and crane systems for the automotive industry. They enable ergonomic and fatigue-free handling of heavy and unwieldy parts.

## PROCESS STEPS AND VACUUM SOLUTIONS IN AUTOMOTIVE PRODUCTION



From Destacking Sheets to Unloading the Press



Forming and Joining Processes in Car Body Construction



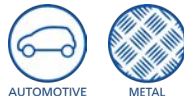
Handling of Components in Final Vehicle Assembly



Crane and Lifting Solutions for Manual Handling in Logistics and Assembly

# Robot Flanges with Clamping SXT-RF-CL

For pipe diameters of 40 and 60 mm



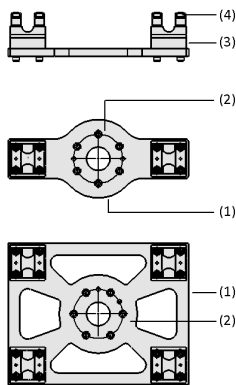
## Suitability for Industry Specific Applications



### Applications

- Flange connection to robot interface with pipe clamps for connecting tooling gripper
- For highly dynamic processes with maximum output in the automotive industry in press shops and car body construction
- Can be used in existing plants thanks to simple integration with the appropriate pipe clamps

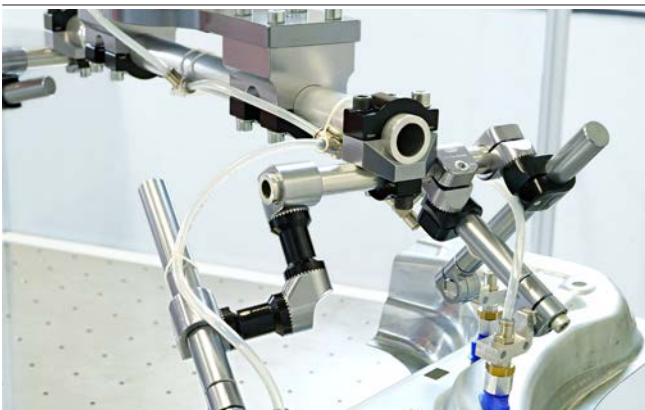
Robot Flanges with Clamping SXT-RF-CL



### Design

- Flange connection to robot interface (2)
- Available in single-pipe and double-pipe versions (1)
- Pipe diameters of 40 and 60 mm
- Pipe clamps (3), for use as an attachable or clampable solution (4)

System Design Robot Flanges with Clamping SXT-RF-CL



### Product Highlights

- Maximum clamping force for highly dynamic processes due to high-strength pipe clamps in lightweight design
- Weight-optimized design for a range of applications
- Compatible with common tooling systems with pipe diameter 40 or 60 mm
- Standardized industrial robot interface according to ISO 9409-1

# Robot Flanges with Clamping SXT-RF-CL

For pipe diameters of 40 and 60 mm

## Designation Code Robot Flanges with Clamping SXT-RF-CL

<b>SXT-RF-CL</b>	-	<b>D</b>	-	<b>125</b>	-	<b>40</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>

### 1 – Abbreviated designation

Code	Type
SXT-RF-CL	Robot flange with clamping

### 2 – Shape

Code	Version
D	Double

### 3 – Flange diameter

Code	Diameter in mm
125	ø 125
160	ø 160

### 4 – Pipe connection

Code	Diameter in mm
40	ø 40
60	ø 60

The robot flanges with clamping SXT-RF-CL are delivered as a ready-to-connect product.

Available accessories: pipes SXT-RT

## Ordering Data Robot Flanges with Clamping SXT-RF-CL

Type	Part no.
SXT-RF-CL-125-40	10.07.13.00002
SXT-RF-CL-125-60	10.07.13.00004
SXT-RF-CL-160-40	10.07.13.00003
SXT-RF-CL-160-60	10.07.13.00005
SXT-RF-CL-D-125-40	10.07.13.00006
SXT-RF-CL-D-125-60	10.07.13.00008
SXT-RF-CL-D-160-40	10.07.13.00007
SXT-RF-CL-D-160-60	10.07.13.00009

## Ordering Data Accessories Robot Flanges with Clamping SXT-RF-CL

Type	Accessories	Part no.
SXT-RF-CL 40	Pipe (crossbeam)	SXT-RT 40x150...3000 10.07.13.00145
SXT-RF-CL 60	Pipe (crossbeam)	SXT-RT 60x150...3000 10.07.13.00147

## Technical Data Robot Flanges with Clamping SXT-RF-CL

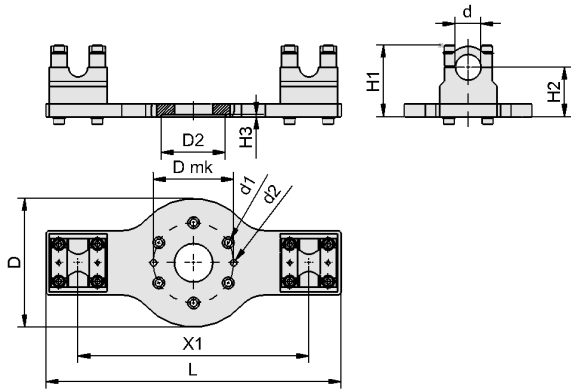
Type	Weight [kg]	Material
SXT-RF-CL-125-40	5.5	Aluminum
SXT-RF-CL-125-60	6.2	Aluminum
SXT-RF-CL-160-40	5.5	Aluminum
SXT-RF-CL-160-60	6.2	Aluminum
SXT-RF-CL-D-125-40	11.4	Aluminum
SXT-RF-CL-D-125-60	12.8	Aluminum
SXT-RF-CL-D-160-40	11.4	Aluminum
SXT-RF-CL-D-160-60	12.8	Aluminum

# Robot Flanges with Clamping SXT-RF-CL

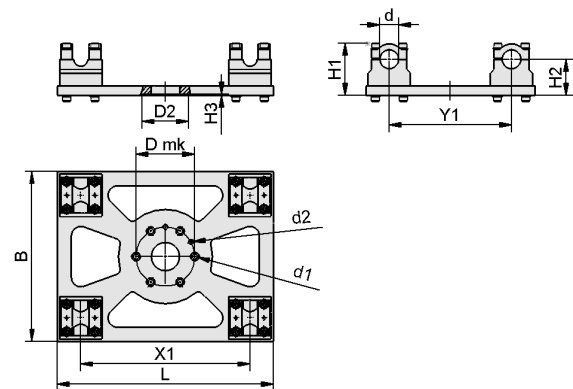
For pipe diameters of 40 and 60 mm



## Design Data Robot Flanges with Clamping SXT-RF-CL



SXT-RF-CL



SXT-RF-CL D



## Design Data Robot Flanges with Clamping SXT-RF-CL

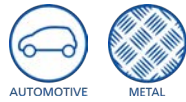
Type	B [mm]	D [mm]	D2 [mm]	Dmk [mm]	d [mm]	d1 [mm]	d2 [mm]	H1 [mm]	H2 [mm]	H3 [mm]	L [mm]	X1 [mm]	Y1 [mm]
SXT-RF-CL-125-40	-	200	100	125	40	12	10	111	77	3	460	360	-
SXT-RF-CL-125-60	-	200	100	125	60	12	10	135	93	3	460	360	-
SXT-RF-CL-160-40	-	200	100	160	40	12	10	111	77	3	460	360	-
SXT-RF-CL-160-60	-	200	100	160	60	12	10	135	93	3	460	360	-
SXT-RF-CL-D-125-40	360	-	100	125	40	12	10	111	77	3	460	360	260
SXT-RF-CL-D-125-60	360	-	100	125	60	12	10	135	93	3	460	360	260
SXT-RF-CL-D-160-40	360	-	100	160	40	12	10	111	77	3	460	360	260
SXT-RF-CL-D-160-60	360	-	100	160	60	12	10	135	93	3	460	360	260



# Quick-Change Robot Bayonets SXT-QC-CON



For pipe diameters of 40 and 60 mm



## Suitability for Industry Specific Applications

### Applications

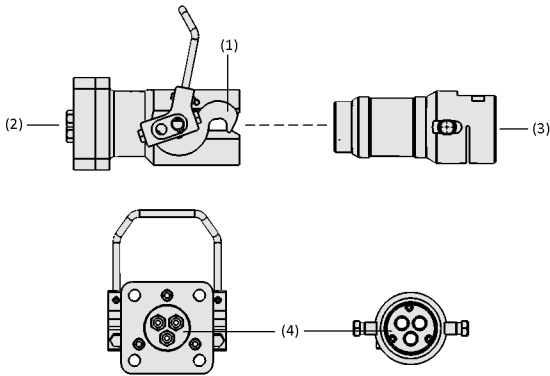
- Quick change bayonet connection to robot interface for connection of pipe tooling gripper
- For highly dynamic processes with maximum output in the automotive industry in press shops and car body construction
- Can be used in existing plants thanks to simple integration with the appropriate pipe clamps



Quick-Change Robot Bayonets SXT-QC-CON

### Design

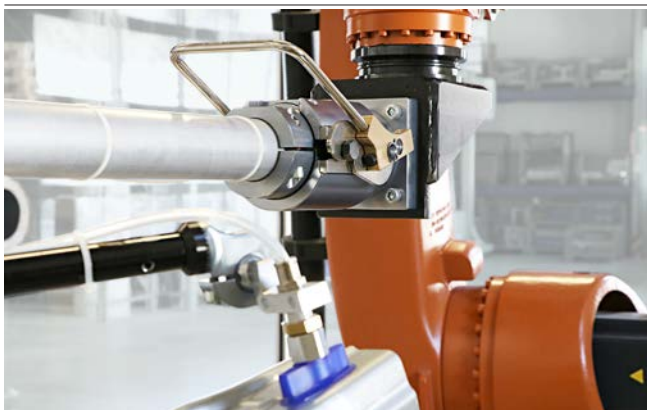
- Manually locked / unlocked bayonet connection (1)
- Flange (2) for connection to the robot interface
- Connection for tooling (3) with a pipe diameter of 40 and 60 mm
- With 3, 6 or without pneumatic media feed-through (4)



System Design Quick-Change Robot Bayonets SXT-QC-CON

### Product Highlights

- High-strength bayonet connection for highly dynamic processes
- Compatible with common tooling systems with pipe diameter 40 or 60 mm
- Flexible, space-saving solution for various applications with pneumatic media feed-through



Quick-change robot bayonet SXT-QC-CON used for handling a formed sheet metal part

# Quick-Change Robot Bayonets SXT-QC-CON

For pipe diameters of 40 and 60 mm



## Designation Code Quick-Change Robot Bayonets SXT-QC-CON

<b>SXT-QC-CON</b>	–	<b>40</b>	–	<b>F6</b>
1		2		3

### 1 – Abbreviated designation

Code	Type
SXT-QC-CON	Robot quick-change bayonet

### 2 – Connection

Code	Diameter in mm
40	ø 40
60	ø 60

### 3 – Shape

Code	Version
F	Female
F2	Female, 2 pneumatic connections
F3	Female, 3 pneumatic connections
F6	Female, 6 pneumatic connections
M	Male
MB	Male, extended pipe clamp
M2	Male, 2 pneumatic connections
M3	Male, 3 pneumatic connections
M6	Male, 6 pneumatic connections

The robot quick-change bayonets SXT-QC-CON are delivered as a ready-to-connect product. The following ordering steps are necessary to obtain a complete quick-change system:

- Robot quick-change bayonet of type SXT-QC-CON M (tooling connection)
  - Robot quick-change bayonet of type SXT-QC-CON F (robot connection)
- Important: Pipe diameter and number of pneumatic feed-throughs must match.

Available accessories: plug-in screw unions STV-GE



## Ordering Data Quick-Change Robot Bayonets SXT-QC-CON

Type	Part no.
SXT-QC-CON-40-F	10.07.13.00012
SXT-QC-CON-40-F3	10.07.13.00013
SXT-QC-CON-60-F	10.07.13.00014
SXT-QC-CON-60-F2	10.07.13.00171
SXT-QC-CON-60-F3	10.07.13.00015
SXT-QC-CON-60-F6	10.07.13.00016
SXT-QC-CON-40-M	10.07.13.00017
SXT-QC-CON-40-M3	10.07.13.00018
SXT-QC-CON-60-M	10.07.13.00019
SXT-QC-CON-60-MB	10.07.13.00020
SXT-QC-CON-60-M2	10.07.13.00170
SXT-QC-CON-60-M3	10.07.13.00021
SXT-QC-CON-60-M6	10.07.13.00022



# Quick-Change Robot Bayonets SXT-QC-CON

For pipe diameters of 40 and 60 mm



## Ordering Data Accessories Quick-Change Robot Bayonets SXT-QC-CON

Type	Accessories		Part no.
SXT-QC-CON-40-F	-	-	-
SXT-QC-CON-40-F3	Plug union, straight	STV-GE G1/8-AG 8	10.08.02.00206
SXT-QC-CON-60-F	-	-	-
SXT-QC-CON-60-F2	Plug union, straight	STV-GE G3/8-AG 12	10.08.02.00209
SXT-QC-CON-60-F3	Plug union, straight	STV-GE G1/4-AG 10	10.08.02.00251
SXT-QC-CON-60-F6	-	-	-
SXT-QC-CON-40-M	-	-	-
SXT-QC-CON-40-M3	Plug union, straight	STV-GE G1/8-AG 8	10.08.02.00206
SXT-QC-CON-60-M	-	-	-
SXT-QC-CON-60-MB	-	-	-
SXT-QC-CON-60-M2	Plug union, straight	STV-GE G3/8-AG 12	10.08.02.00209
SXT-QC-CON-60-M3	Plug union, straight	STV-GE G3/8-AG 8	10.08.02.00237
SXT-QC-CON-60-M6	Plug union, straight	STV-GE G1/8-AG 8	10.08.02.00206



## Technical Data Quick-Change Robot Bayonets SXT-QC-CON

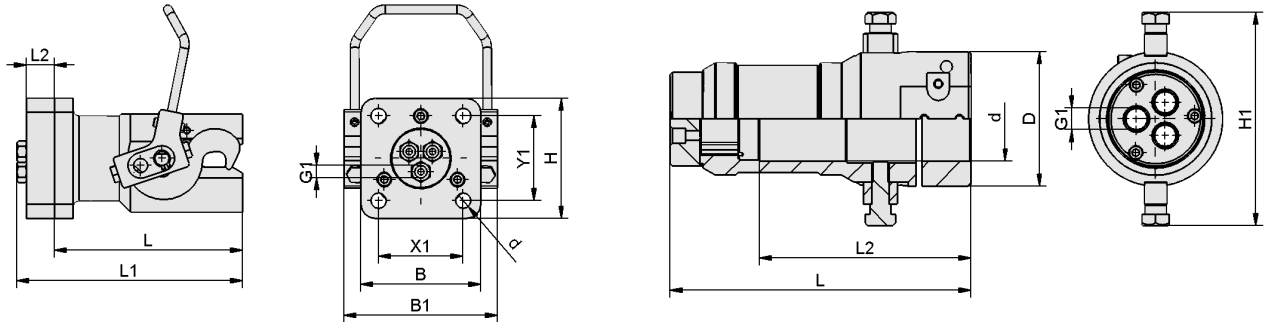
Type	Number of connections	Weight [kg]	Material
SXT-QC-CON-40-F	-	1.3	Aluminum
SXT-QC-CON-40-F3	3	1.7	Aluminum
SXT-QC-CON-60-F	-	4.2	Aluminum
SXT-QC-CON-60-F2	2	4.9	Aluminum
SXT-QC-CON-60-F3	3	4.9	Aluminum
SXT-QC-CON-60-F6	6	4.9	Aluminum
SXT-QC-CON-40-M	-	0.5	Aluminum
SXT-QC-CON-40-M3	3	0.5	Aluminum
SXT-QC-CON-60-M	-	1.6	Aluminum
SXT-QC-CON-60-MB	-	1.9	Aluminum
SXT-QC-CON-60-M2	2	1.8	Aluminum
SXT-QC-CON-60-M3	3	1.8	Aluminum
SXT-QC-CON-60-M6	6	1.8	Aluminum

# Quick-Change Robot Bayonets SXT-QC-CON

For pipe diameters of 40 and 60 mm



## Design Data Quick-Change Robot Bayonets SXT-QC-CON



SXT-QC-CON F

SXT-QC-CON M

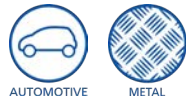


## Design Data Quick-Change Robot Bayonets SXT-QC-CON

Type	B [mm]	B1 [mm]	D [mm]	d [mm]	G1	H [mm]	H1 [mm]	L [mm]	L1 [mm]	L2 [mm]	X1 [mm]	Y1 [mm]
SXT-QC-CON-40-F	85	109	-	11	-	85	-	133.0	-	-	60	60
SXT-QC-CON-40-F3	85	109	-	11	G1/8"-F	85	-	133.0	160	20	60	60
SXT-QC-CON-60-F	120	165	-	11	-	120	-	189.0	-	-	90	90
SXT-QC-CON-60-F2	120	165	-	11	G3/8"-F	120	-	189.0	211	15	90	90
SXT-QC-CON-60-F3	120	165	-	11	G1/4"-F	120	-	189.0	211	15	90	90
SXT-QC-CON-60-F6	120	165	-	11	G1/8"-F	120	-	189.0	211	15	90	90
SXT-QC-CON-40-M	-	-	68.3	40	-	-	97	135.5	-	111	-	-
SXT-QC-CON-40-M3	-	-	68.3	40	G1/8"-F	-	97	156.5	-	111	-	-
SXT-QC-CON-60-M	-	-	95.0	60	-	-	151	192.3	-	150	-	-
SXT-QC-CON-60-MB	-	-	95.0	60	-	-	151	232.3	-	191	-	-
SXT-QC-CON-60-M2	-	-	95.0	60	G3/8"-F	-	151	213.3	-	150	-	-
SXT-QC-CON-60-M3	-	-	95.0	60	G3/8"-F	-	151	213.3	-	150	-	-
SXT-QC-CON-60-M6	-	-	95.0	60	G1/8"-F	-	151	213.3	-	150	-	-

## Pipes SXT-RT

Pipe diameter of 25, 40 and 60 mm



### Suitability for Industry Specific Applications

#### Applications

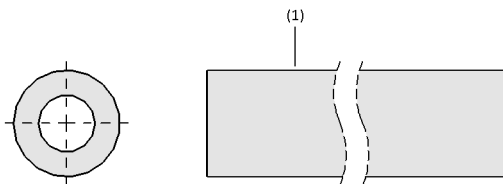
- Aluminium pipe with large wall thickness for attaching pipe tooling
- For highly dynamic processes with maximum output in the automotive industry in press shops and car body construction
- Can be used in existing plants thanks to simple integration with the appropriate tube clamps



Pipes SXT-RT

#### Design

- Aluminium pipe with large wall thickness (1)



System Design Pipes SXT-RT

#### Product Highlights

- High-strength pipe components in lightweight design
- Maximum clamping force for highly dynamic processes
- Compatible with common tooling systems with pipe diameter 25, 40 or 60 mm



Pipe SXT-RT for assembling a complete tooling for handling formed car body parts



# Pipes SXT-RT

Pipe diameter of 25, 40 and 60 mm



## Designation Code Pipes SXT-RT

<b>SXT-RT</b>	–	<b>SL</b>	–	<b>40</b>	–	<b>150...3000</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>

### 1 – Abbreviated designation

Code	Type
SXT-RT	Pipes

### 2 – Shape

Code	Version
SL	Slot for hose lines

### 3 – Outside diameter

Code	Diameter in mm
25	ø 25
40	ø 40
60	ø 60

### 4 – Variable length

Code	Length in mm
150...3000	150 bis 3,000
300...3000	300 bis 3,000
450...3000	450 bis 3,000

The pipes SXT-RT are delivered in the required length.



## Ordering Data Pipes SXT-RT

Type	Part no.
SXT-RT 25x150...3000	10.07.13.00146
SXT-RT 40x150...3000	10.07.13.00145
SXT-RT 60x150...3000	10.07.13.00147
SXT-RT SL 40x300...3000	10.07.13.00148
SXT-RT SL 60x450...3000	10.07.13.00149



## Technical Data Pipes SXT-RT

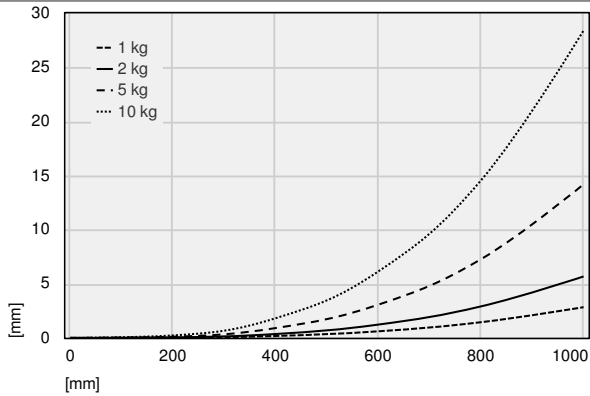
Type	Moment of area Ix [cm <sup>4</sup> ]	Moment of area Iy [cm <sup>4</sup> ]	Weight [kg/m]	Material	Resistance moment Wx [cm <sup>3</sup> ]	Resistance moment Wy [cm <sup>3</sup> ]
SXT-RT 25x150...3000	16,690	16,690	0.9	Aluminum	1,335	1,335
SXT-RT 40x150...3000	95,492	95,492	1.5	Aluminum	4,775	4,775
SXT-RT 60x150...3000	329,376	329,376	2.3	Aluminum	10,979	10,979
SXT-RT SL 40x300...3000	95,492	95,492	1.5	Aluminum	4,775	4,775
SXT-RT SL 60x450...3000	329,376	329,376	2.3	Aluminum	10,979	10,979

# Pipes SXT-RT

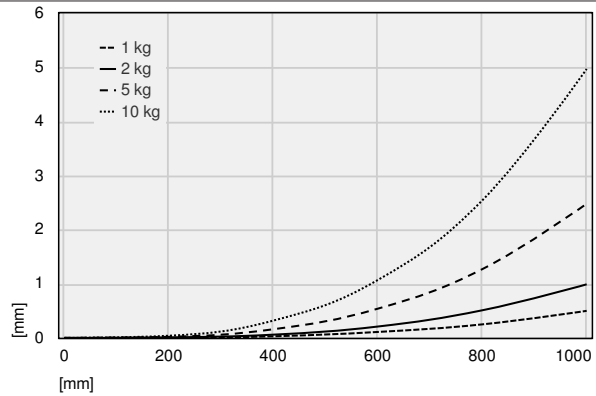
Pipe diameter of 25, 40 and 60 mm



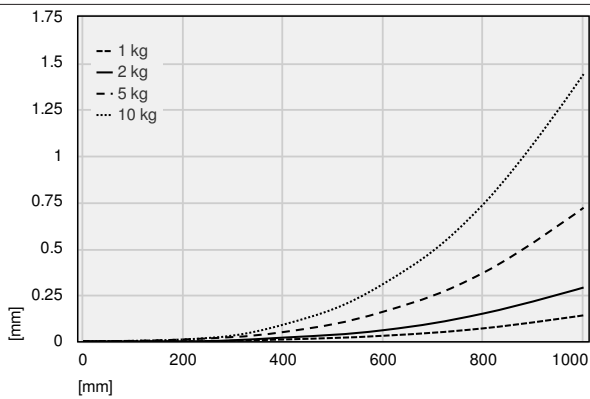
## Performance Data Pipes SXT-RT



Deflection pipes 25 x 5 mm



Deflection pipes 40 x 6 mm



Deflection pipes 60 x 5 mm



## Deflection pipes 25 x 5 mm

	0	200	400	600	800	1000
1 kg	0.00	0.02	0.18	0.61	1.45	2.84
2 kg	0.00	0.05	0.36	1.23	2.91	5.68
5 kg	0.00	0.11	0.91	3.07	7.27	14.20
10 kg	0.00	0.23	1.82	6.14	14.55	28.41



## Deflection pipes 40 x 6 mm

	0	200	400	600	800	1000
1 kg	0.00	0.00	0.03	0.11	0.25	0.50
2 kg	0.00	0.01	0.06	0.21	0.51	0.99
5 kg	0.00	0.02	0.16	0.54	1.27	2.48
10 kg	0.00	0.04	0.32	1.07	2.54	4.97

## Pipes SXT-RT

Pipe diameter of 25, 40 and 60 mm

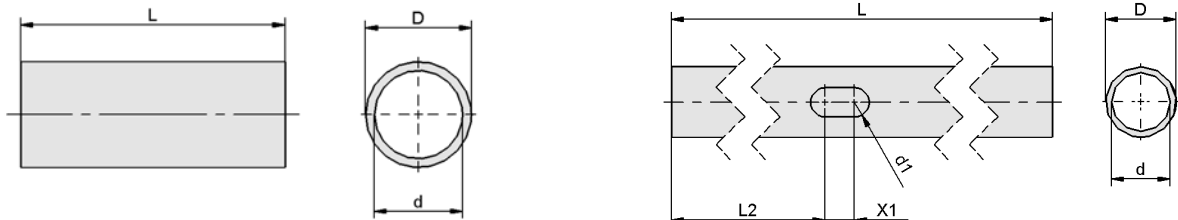


### Deflection pipes 60 x 5 mm

	0	200	400	600	800	1000
1 kg	0.00	0.00	0.01	0.03	0.07	0.14
2 kg	0.00	0.00	0.02	0.06	0.15	0.29
5 kg	0.00	0.01	0.05	0.16	0.37	0.72
10 kg	0.00	0.01	0.09	0.31	0.74	1.44



### Design Data Pipes SXT-RT



SXT-RT

SXT-RT SL

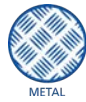


### Design Data Pipes SXT-RT

Type	D [mm]	d [mm]	d1 [mm]	L [mm]	L2 [mm]	X1 [mm]
SXT-RT 25x150...3000	25	15	-	150.0 ... 3000.0	-	-
SXT-RT 40x150...3000	40	28	-	150.0 ... 3000.0	-	-
SXT-RT 60x150...3000	60	50	-	150.0 ... 3000.0	-	-
SXT-RT SL 40x300...3000	40	28	12	300.0 ... 3000.0	150	25
SXT-RT SL 60x450...3000	60	50	25	450.0 ... 3000.0	250	25

# Clamping Pieces SXT-CL

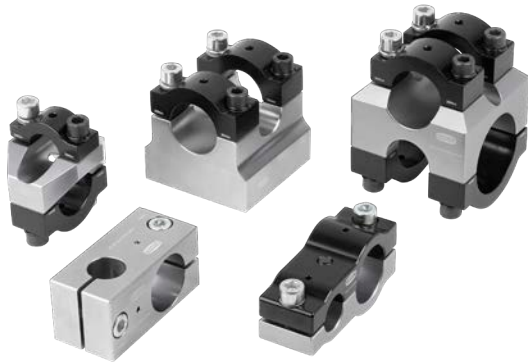
Pipe clamps and adapters for various diameters



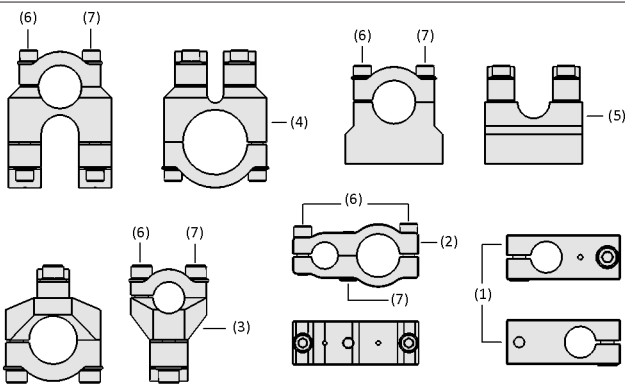
## Suitability for Industry Specific Applications

### Applications

- Clamps for connecting pipes and vacuum and tooling components for a flexible, modular and light-weight system
- Suitable for common tooling and quick-change systems for press shops and car body construction
- For highly dynamic processes with maximum output in the automotive industry



Clamping Pieces SXT-CL



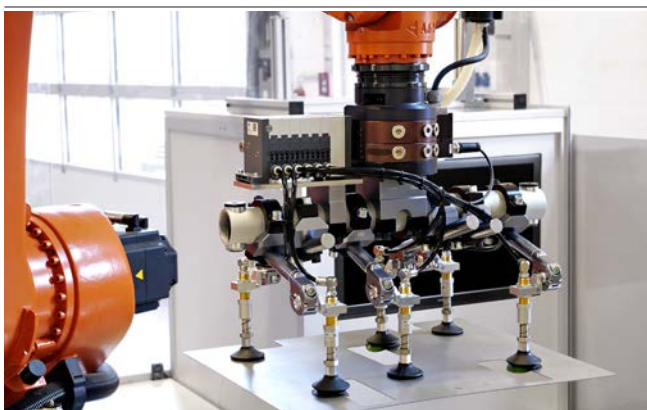
System Design Clamping Pieces SXT-CL

### Design

- Crosswise (3, 4) and parallel clamps (1, 2) for connecting pipes
- Can be used as slide-on (silver clamping screws) and clip-on (silver and black clamping screws) versions (6, 7)
- For pipe diameters of 25, 40 and 60 mm (1-5) and with adapters of diameters 25.4, 38.1 and 63.5 mm (3)

### Product Highlights

- Durable and high-strength parallel and cross pipe clamps for highly dynamic processes
- Simple design and fast assembly due to clear portfolio
- Compatible with common tooling systems, including pipes in inch sizes



Clamping pieces SXT-CL for assembling a complete tooling for handling formed sheet metal parts

# Clamping Pieces SXT-CL

Pipe clamps and adapters for various diameters



## Designation Code Clamping Pieces SXT-CL

<b>SXT-CL</b>	–	<b>DX</b>	–	<b>FIX</b>	–	<b>40</b>		<b>60</b>		<b>1IN</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>		<b>5</b>		<b>6</b>

### 1 – Abbreviated designation

Code	Type
SXT-CL	Clamping pieces

### 2 – Shape

Code	Clamp design
DX	Double crosswise
P	Parallel
X	Crosswise

### 3 – Shape

Code	Version
FIX	Rigid
MOD	Modular

### 4 – Connection 1

Code	Diameter in mm
25	ø 25
40	ø 40
60	ø 60

### 5 – Connection 2

Code	Diameter in mm
25	ø 25
25.4	ø 25,4
38.1	ø 38,1
40	ø 40
60	ø 60
63.5	ø 63,5

### 6 – Pipe connection 2

Code	Diameter in inch
1IN	1.0
1.5IN	1.5
2.5IN	2.5

The clamps SXT-CL are delivered as a ready-to-connect product.

Available accessories: pipes SXT-RT



## Ordering Data Clamping Pieces SXT-CL

Type	Part no.
SXT-CL-40	10.07.13.00010
SXT-CL-60	10.07.13.00011
SXT-CL-DX-MOD-40-40	10.07.13.00122
SXT-CL-DX-MOD-40-60	10.07.13.00123
SXT-CL-DX-MOD-60-60	10.07.13.00124
SXT-CL-P-25-25	10.07.13.00109
SXT-CL-P-25-40	10.07.13.00110
SXT-CL-P-40-40	10.07.13.00111
SXT-CL-X-FIX-25-25	10.07.13.00125
SXT-CL-X-FIX-25-40	10.07.13.00126
SXT-CL-X-FIX-40-40	10.07.13.00127
SXT-CL-X-FIX-40-60	10.07.13.00128
SXT-CL-X-MOD-25-25	10.07.13.00023
SXT-CL-X-MOD-25-40	10.07.13.00024
SXT-CL-X-MOD-25-60	10.07.13.00025
SXT-CL-X-MOD-40-40	10.07.13.00026
SXT-CL-X-MOD-40-60	10.07.13.00027
SXT-CL-X-MOD-60-60	10.07.13.00028
SXT-CL-X-MOD-25-25.4-1IN	10.07.13.00150
SXT-CL-X-MOD-25-38.1-1.5IN	10.07.13.00029
SXT-CL-X-MOD-25-2.5IN	10.07.13.00030
SXT-CL-X-MOD-40-1.5IN	10.07.13.00031
SXT-CL-X-MOD-40-63.5-2.5IN	10.07.13.00032



# Clamping Pieces SXT-CL

Pipe clamps and adapters for various diameters



## Ordering Data Accessories Clamping Pieces SXT-CL

Type		SXT-RT 25x150...3000	SXT-RT 40x150...3000	SXT-RT 60x150...3000
SXT-CL-40	Pipe (crossbeam)	-	10.07.13.00145	-
SXT-CL-60	Pipe (crossbeam)	-	-	10.07.13.00147
SXT-CL-DX-MOD-40-40	Pipe (crossbeam)	-	10.07.13.00145	-
SXT-CL-DX-MOD-40-60	Pipe (crossbeam)	-	10.07.13.00145	10.07.13.00147
SXT-CL-DX-MOD-60-60	Pipe (crossbeam)	-	-	10.07.13.00147
SXT-CL-P-25-25	Pipe (crossbeam)	10.07.13.00146	-	-
SXT-CL-P-25-40	Pipe (crossbeam)	10.07.13.00146	10.07.13.00145	-
SXT-CL-P-40-40	Pipe (crossbeam)	-	10.07.13.00145	-
SXT-CL-X-FIX-25-25	Pipe (crossbeam)	10.07.13.00146	-	-
SXT-CL-X-FIX-25-40	Pipe (crossbeam)	10.07.13.00146	10.07.13.00145	-
SXT-CL-X-FIX-40-40	Pipe (crossbeam)	-	10.07.13.00145	-
SXT-CL-X-FIX-40-60	Pipe (crossbeam)	-	10.07.13.00145	10.07.13.00147
SXT-CL-X-MOD-25-25	Pipe (crossbeam)	10.07.13.00146	-	-
SXT-CL-X-MOD-25-40	Pipe (crossbeam)	10.07.13.00146	10.07.13.00145	-
SXT-CL-X-MOD-25-60	Pipe (crossbeam)	10.07.13.00146	-	10.07.13.00147
SXT-CL-X-MOD-40-40	Pipe (crossbeam)	-	10.07.13.00145	-
SXT-CL-X-MOD-40-60	Pipe (crossbeam)	-	10.07.13.00145	10.07.13.00147
SXT-CL-X-MOD-60-60	Pipe (crossbeam)	-	-	10.07.13.00147
SXT-CL-X-MOD-25-25.4-1IN	Pipe (crossbeam)	10.07.13.00146	-	-
SXT-CL-X-MOD-25-38.1-1.5IN	Pipe (crossbeam)	10.07.13.00146	-	-
SXT-CL-X-MOD-25-2.5IN	Pipe (crossbeam)	10.07.13.00146	-	-
SXT-CL-X-MOD-40-1.5IN	Pipe (crossbeam)	-	10.07.13.00145	-
SXT-CL-X-MOD-40-63.5-2.5IN	Pipe (crossbeam)	-	10.07.13.00145	-



## Technical Data Clamping Pieces SXT-CL

Type	Weight [g]	Material
SXT-CL-40	1,230	Aluminum
SXT-CL-60	1,590	Aluminum
SXT-CL-DX-MOD-40-40	970	Aluminum
SXT-CL-DX-MOD-40-60	1,285	Aluminum
SXT-CL-DX-MOD-60-60	1,380	Aluminum
SXT-CL-P-25-25	355	Aluminum
SXT-CL-P-25-40	390	Aluminum
SXT-CL-P-40-40	445	Aluminum
SXT-CL-X-FIX-25-25	215	Aluminum
SXT-CL-X-FIX-25-40	415	Aluminum
SXT-CL-X-FIX-40-40	450	Aluminum
SXT-CL-X-FIX-40-60	1,125	Aluminum
SXT-CL-X-MOD-25-25	315	Aluminum
SXT-CL-X-MOD-25-40	415	Aluminum
SXT-CL-X-MOD-25-60	580	Aluminum
SXT-CL-X-MOD-25-2.5IN	545	Aluminum
SXT-CL-X-MOD-40-40	550	Aluminum
SXT-CL-X-MOD-40-60	640	Aluminum
SXT-CL-X-MOD-60-60	920	Aluminum
SXT-CL-X-MOD-25-25.4-1IN	315	Aluminum
SXT-CL-X-MOD-25-38.1-1.5IN	430	Aluminum
SXT-CL-X-MOD-40-1.5IN	570	Aluminum
SXT-CL-X-MOD-40-63.5-2.5IN	655	Aluminum

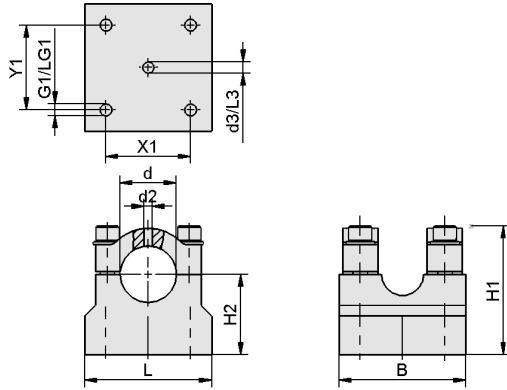


# Clamping Pieces SXT-CL

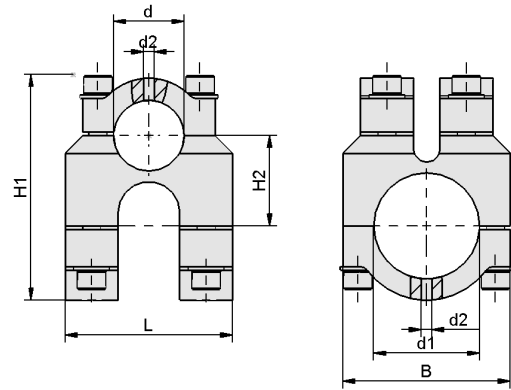
Pipe clamps and adapters for various diameters



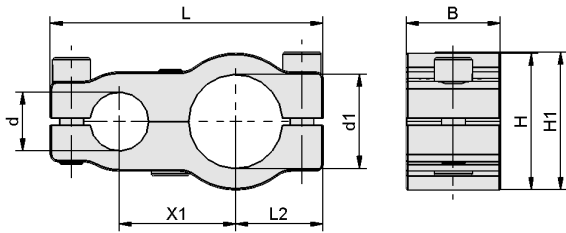
## Design Data Clamping Pieces SXT-CL



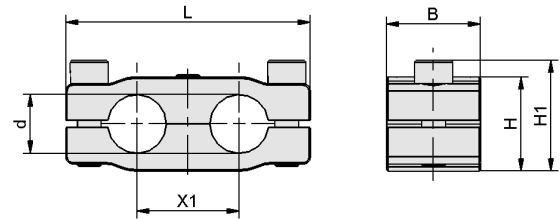
SXT-CL



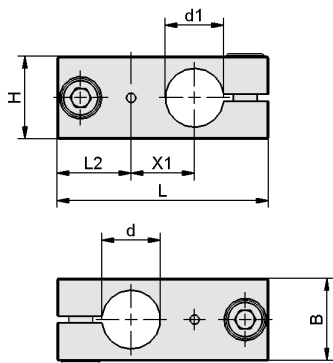
SXT-CL DX



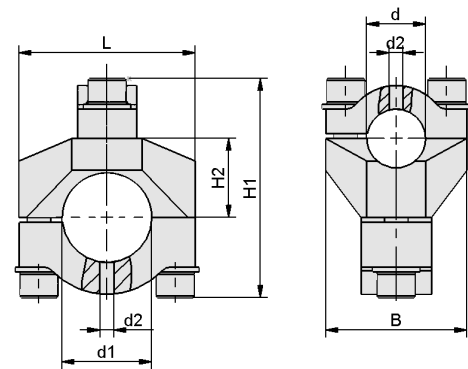
SXT-CL P 25 40



SXT-CL P



SXT-CL X FIX



SXT-CL X MOD

# Clamping Pieces SXT-CL

Pipe clamps and adapters for various diameters

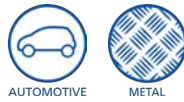


## Design Data Clamping Pieces SXT-CL

Type	B [mm]	d [mm]	d1 [mm]	d2 [mm]	d3 [mm]	G1	H [mm]	H1 [mm]	H2 [mm]	L [mm]	L2 [mm]	L3 [mm]	LG1 [mm]	X1 [mm]	Y1 [mm]
SXT-CL-40	90	40	-	6	8	M10-F	-	91	57.0	90	-	15	24	60	60
SXT-CL-60	90	60	-	6	8	M10-F	-	115	73.0	90	-	15	24	60	60
SXT-CL-DX-MOD-40-40	75	40	40	6	-	-	-	109	41.0	75	-	-	-	-	-
SXT-CL-DX-MOD-40-60	95	40	60	6	-	-	-	127	51.0	95	-	-	-	-	-
SXT-CL-DX-MOD-60-60	95	60	60	6	-	-	-	145	61.0	95	-	-	-	-	-
SXT-CL-P-25-25	40	25	25	-	-	-	40	47	-	104	30.3	-	-	44	-
SXT-CL-P-25-40	40	25	40	-	-	-	58	59	-	116	37.2	-	-	50	-
SXT-CL-P-40-40	40	40	40	-	-	-	58	59	-	130	37.3	-	-	56	-
SXT-CL-X-FIX-25-25	35	25	25	-	-	-	35	-	-	90	31.5	-	-	27	-
SXT-CL-X-FIX-25-40	48	25	40	-	-	-	48	-	-	102	30.0	-	-	35	-
SXT-CL-X-FIX-40-40	48	40	40	-	-	-	48	-	-	115	36.5	-	-	42	-
SXT-CL-X-FIX-40-60	70	40	60	-	-	-	70	-	-	140	36.5	-	-	54	-
SXT-CL-X-MOD-25-25	60	25	25	6	-	-	-	78	26.0	60	-	-	-	-	-
SXT-CL-X-MOD-25-40	60	25	40	6	-	-	-	93	33.5	75	-	-	-	-	-
SXT-CL-X-MOD-25-60	60	25	60	6	-	-	-	113	45.5	95	-	-	-	-	-
SXT-CL-X-MOD-40-40	75	40	40	6	-	-	-	109	41.0	75	-	-	-	-	-
SXT-CL-X-MOD-40-60	75	40	60	6	-	-	-	127	51.0	95	-	-	-	-	-
SXT-CL-X-MOD-60-60	95	60	60	6	-	-	-	145	61.0	95	-	-	-	-	-
SXT-CL-X-MOD-25-25.4-1IN	60	25	26	6	-	-	-	78	26.0	60	-	-	-	-	-
SXT-CL-X-MOD-25-38.1-1.5IN	60	25	39	6	-	-	-	93	33.5	75	-	-	-	-	-
SXT-CL-X-MOD-25-2.5IN	60	25	-	6	-	-	-	119	48.0	95	-	-	-	-	-
SXT-CL-X-MOD-40-1.5IN	75	40	-	6	-	-	-	109	41.0	75	-	-	-	-	-
SXT-CL-X-MOD-40-63.5-2.5IN	75	40	64	6	-	-	-	134	55.0	95	-	-	-	-	-

# Clamping Pieces with Extension SXT-CL-EXT

Pipe clamps 19, 25 and 40 mm, ball clamps 28.5 and 32 mm



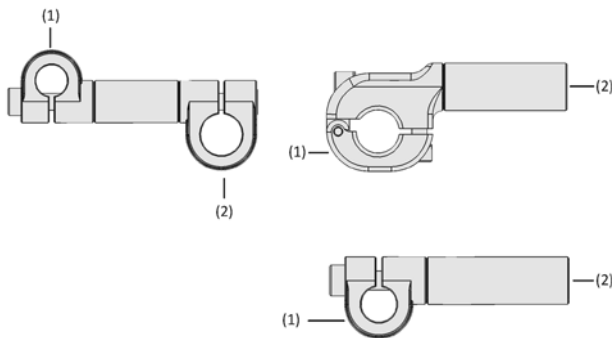
## Suitability for Industry Specific Applications

### Applications

- Swivel arms for connection of holders and vacuum components to the basic pipe structure of gripper tooling for a flexibly adjustable, modular lightweight system
- Wide range of uses for numerous applications
- Suitable for all common tooling and quick-change systems for press shops and car body construction
- For highly dynamic processes with maximum output in the automotive industry



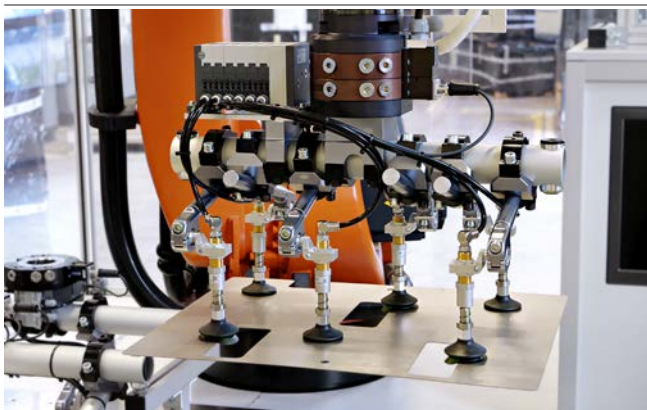
Clamping Pieces with Extension SXT-CL-EXT



### Design

- Connection to holder system: Terminal for ball (A3:  $\varnothing$  28.5 mm; A5:  $\varnothing$  32 mm) or "Apple-Core" pin (A2:  $\varnothing$  19 mm) (1)
- Pipe tooling connection: pipe clamp 25 or 40 mm (2)
- Single-ended pipe clamp: tube extension with a 25 mm diameter (2)

System Design Clamping Pieces with Extension SXT-CL-EXT



Clamping pieces with extension SXT-CL-EXT in combination with suction cups for handling sheet metal parts

### Product Highlights

- High-strength swivel arms with pipe and ball clamps on one or both sides for highly dynamic processes
- Holder connection for standardized ball or stud shape enables a wide range of applications
- Compatible with common tooling systems with pipe diameter 25 mm or via pipe clamp

# Clamping Pieces with Extension SXT-CL-EXT

Pipe clamps 19, 25 and 40 mm, ball clamps 28.5 and 32 mm



## Designation Code Clamping Pieces with Extension SXT-CL-EXT

<b>SXT-CL-EXT</b>	–	<b>D25</b>	–	<b>100</b>	–	<b>F25</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>

### 1 – Abbreviated designation

Code	Type
SXT-CL-EXT	Swivel arm with extension

### 2 – Connection 1

Code	Clamp diameter in mm
A2	ø 19, pin
A3	ø 28.5, ball
A5	ø 32, ball
D25	ø 25
D40	ø 40

### 3 – Length

Code	Length in mm
100...510	100.5 bis 510.1

### 4 – Connection 2

Code	Diameter in mm
F25	ø 25, clamp
F40	ø 40, clamp
M25	ø 25, pipe

Clamps with extension SXT-CL-EXT are delivered as a ready-to-connect product.



## Ordering Data Clamping Pieces with Extension SXT-CL-EXT

Type	Part no.
SXT-CL-EXT-A2-100-F25	10.07.13.00074
SXT-CL-EXT-A2-125-F25	10.07.13.00075
SXT-CL-EXT-A2-150-F25	10.07.13.00076
SXT-CL-EXT-A2-175-F25	10.07.13.00077
SXT-CL-EXT-A2-200-F25	10.07.13.00078
SXT-CL-EXT-A2-225-F25	10.07.13.00079
SXT-CL-EXT-A2-250-F25	10.07.13.00080
SXT-CL-EXT-A2-100-F40	10.07.13.00081
SXT-CL-EXT-A2-125-F40	10.07.13.00082
SXT-CL-EXT-A2-150-F40	10.07.13.00083
SXT-CL-EXT-A2-175-F40	10.07.13.00084
SXT-CL-EXT-A2-200-F40	10.07.13.00085
SXT-CL-EXT-A2-225-F40	10.07.13.00086
SXT-CL-EXT-A2-250-F40	10.07.13.00087
SXT-CL-EXT-A2-100-M25	10.07.13.00055
SXT-CL-EXT-A2-150-M25	10.07.13.00129
SXT-CL-EXT-A2-200-M25	10.07.13.00056
SXT-CL-EXT-A2-250-M25	10.07.13.00130
SXT-CL-EXT-A2-300-M25	10.07.13.00057
SXT-CL-EXT-A2-400-M25	10.07.13.00131
SXT-CL-EXT-A2-500-M25	10.07.13.00132
SXT-CL-EXT-A3-110-M25	10.07.13.00064
SXT-CL-EXT-A3-160-M25	10.07.13.00141
SXT-CL-EXT-A3-210-M25	10.07.13.00065
SXT-CL-EXT-A3-260-M25	10.07.13.00142
SXT-CL-EXT-A3-310-M25	10.07.13.00066
SXT-CL-EXT-A3-410-M25	10.07.13.00067
SXT-CL-EXT-A3-510-M25	10.07.13.00068
SXT-CL-EXT-A5-110-M25	10.07.13.00069
SXT-CL-EXT-A5-160-M25	10.07.13.00143
SXT-CL-EXT-A5-210-M25	10.07.13.00070
SXT-CL-EXT-A5-260-M25	10.07.13.00144
SXT-CL-EXT-A5-310-M25	10.07.13.00071
SXT-CL-EXT-A5-410-M25	10.07.13.00072
SXT-CL-EXT-A5-510-M25	10.07.13.00073



## Clamping Pieces with Extension SXT-CL-EXT

Pipe clamps 19, 25 and 40 mm, ball clamps 28.5 and 32 mm

Type	Part no.
SXT-CL-EXT-D25-100-M25	10.07.13.00058
SXT-CL-EXT-D25-150-M25	10.07.13.00133
SXT-CL-EXT-D25-200-M25	10.07.13.00059
SXT-CL-EXT-D25-250-M25	10.07.13.00134
SXT-CL-EXT-D25-300-M25	10.07.13.00060
SXT-CL-EXT-D25-400-M25	10.07.13.00135
SXT-CL-EXT-D25-500-M25	10.07.13.00136
SXT-CL-EXT-D40-100-M25	10.07.13.00061
SXT-CL-EXT-D40-150-M25	10.07.13.00137
SXT-CL-EXT-D40-200-M25	10.07.13.00062
SXT-CL-EXT-D40-250-M25	10.07.13.00138
SXT-CL-EXT-D40-300-M25	10.07.13.00063
SXT-CL-EXT-D40-400-M25	10.07.13.00139
SXT-CL-EXT-D40-500-M25	10.07.13.00140
SXT-CL-EXT-D25-100-F25	10.07.13.00088
SXT-CL-EXT-D25-125-F25	10.07.13.00089
SXT-CL-EXT-D25-150-F25	10.07.13.00090
SXT-CL-EXT-D25-175-F25	10.07.13.00091
SXT-CL-EXT-D25-200-F25	10.07.13.00092
SXT-CL-EXT-D25-225-F25	10.07.13.00093
SXT-CL-EXT-D25-250-F25	10.07.13.00094
SXT-CL-EXT-D25-100-F40	10.07.13.00095
SXT-CL-EXT-D25-125-F40	10.07.13.00096
SXT-CL-EXT-D25-150-F40	10.07.13.00097
SXT-CL-EXT-D25-175-F40	10.07.13.00098
SXT-CL-EXT-D25-200-F40	10.07.13.00099
SXT-CL-EXT-D25-225-F40	10.07.13.00100
SXT-CL-EXT-D25-250-F40	10.07.13.00101
SXT-CL-EXT-D40-100-F40	10.07.13.00102
SXT-CL-EXT-D40-125-F40	10.07.13.00103
SXT-CL-EXT-D40-150-F40	10.07.13.00104
SXT-CL-EXT-D40-175-F40	10.07.13.00105
SXT-CL-EXT-D40-200-F40	10.07.13.00106
SXT-CL-EXT-D40-225-F40	10.07.13.00107
SXT-CL-EXT-D40-250-F40	10.07.13.00108



### Technical Data Clamping Pieces with Extension SXT-CL-EXT

Type	Weight [g]	Material
SXT-CL-EXT-A2-100-F25	275	Aluminum
SXT-CL-EXT-A2-125-F25	305	Aluminum
SXT-CL-EXT-A2-150-F25	340	Aluminum
SXT-CL-EXT-A2-175-F25	375	Aluminum
SXT-CL-EXT-A2-200-F25	405	Aluminum
SXT-CL-EXT-A2-225-F25	440	Aluminum
SXT-CL-EXT-A2-250-F25	470	Aluminum
SXT-CL-EXT-A2-100-F40	285	Aluminum
SXT-CL-EXT-A2-125-F40	320	Aluminum
SXT-CL-EXT-A2-150-F40	350	Aluminum
SXT-CL-EXT-A2-175-F40	385	Aluminum
SXT-CL-EXT-A2-200-F40	420	Aluminum
SXT-CL-EXT-A2-225-F40	450	Aluminum
SXT-CL-EXT-A2-250-F40	480	Aluminum
SXT-CL-EXT-A2-100-M25	195	Aluminum



## Clamping Pieces with Extension SXT-CL-EXT

Pipe clamps 19, 25 and 40 mm, ball clamps 28.5 and 32 mm

Type	Weight [g]	Material
SXT-CL-EXT-A2-150-M25	260	Aluminum
SXT-CL-EXT-A2-200-M25	325	Aluminum
SXT-CL-EXT-A2-250-M25	390	Aluminum
SXT-CL-EXT-A2-300-M25	455	Aluminum
SXT-CL-EXT-A2-400-M25	590	Aluminum
SXT-CL-EXT-A2-500-M25	720	Aluminum
SXT-CL-EXT-A3-110-M25	265	Aluminum
SXT-CL-EXT-A3-160-M25	335	Aluminum
SXT-CL-EXT-A3-210-M25	400	Aluminum
SXT-CL-EXT-A3-260-M25	475	Aluminum
SXT-CL-EXT-A3-310-M25	540	Aluminum
SXT-CL-EXT-A3-410-M25	665	Aluminum
SXT-CL-EXT-A3-510-M25	805	Aluminum
SXT-CL-EXT-A5-110-M25	265	Aluminum
SXT-CL-EXT-A5-160-M25	330	Aluminum
SXT-CL-EXT-A5-210-M25	395	Aluminum
SXT-CL-EXT-A5-260-M25	460	Aluminum
SXT-CL-EXT-A5-310-M25	530	Aluminum
SXT-CL-EXT-A5-410-M25	660	Aluminum
SXT-CL-EXT-A5-510-M25	795	Aluminum
SXT-CL-EXT-D25-100-F25	290	Aluminum
SXT-CL-EXT-D25-125-F25	325	Aluminum
SXT-CL-EXT-D25-150-F25	355	Aluminum
SXT-CL-EXT-D25-175-F25	390	Aluminum
SXT-CL-EXT-D25-200-F25	425	Aluminum
SXT-CL-EXT-D25-225-F25	455	Aluminum
SXT-CL-EXT-D25-250-F25	485	Aluminum
SXT-CL-EXT-D25-100-F40	305	Aluminum
SXT-CL-EXT-D25-125-F40	335	Aluminum
SXT-CL-EXT-D25-150-F40	370	Aluminum
SXT-CL-EXT-D25-175-F40	405	Aluminum
SXT-CL-EXT-D25-200-F40	435	Aluminum
SXT-CL-EXT-D25-225-F40	470	Aluminum
SXT-CL-EXT-D25-250-F40	500	Aluminum
SXT-CL-EXT-D25-100-M25	210	Aluminum
SXT-CL-EXT-D25-150-M25	275	Aluminum
SXT-CL-EXT-D25-200-M25	340	Aluminum
SXT-CL-EXT-D25-250-M25	410	Aluminum
SXT-CL-EXT-D25-300-M25	475	Aluminum
SXT-CL-EXT-D25-400-M25	605	Aluminum
SXT-CL-EXT-D25-500-M25	740	Aluminum
SXT-CL-EXT-D40-100-F40	315	Aluminum
SXT-CL-EXT-D40-125-F40	350	Aluminum
SXT-CL-EXT-D40-150-F40	380	Aluminum
SXT-CL-EXT-D40-175-F40	415	Aluminum
SXT-CL-EXT-D40-200-F40	450	Aluminum
SXT-CL-EXT-D40-225-F40	480	Aluminum
SXT-CL-EXT-D40-250-F40	510	Aluminum
SXT-CL-EXT-D40-100-M25	225	Aluminum
SXT-CL-EXT-D40-150-M25	290	Aluminum
SXT-CL-EXT-D40-200-M25	355	Aluminum
SXT-CL-EXT-D40-250-M25	420	Aluminum
SXT-CL-EXT-D40-300-M25	490	Aluminum
SXT-CL-EXT-D40-400-M25	620	Aluminum
SXT-CL-EXT-D40-500-M25	750	Aluminum

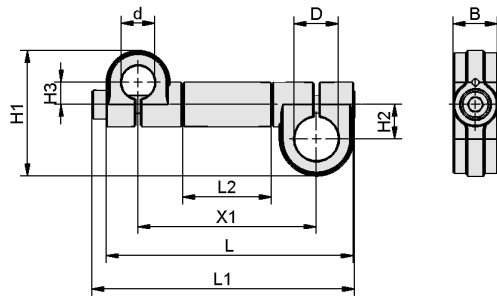


# Clamping Pieces with Extension SXT-CL-EXT

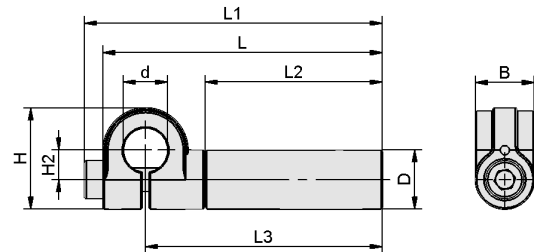
Pipe clamps 19, 25 and 40 mm, ball clamps 28.5 and 32 mm



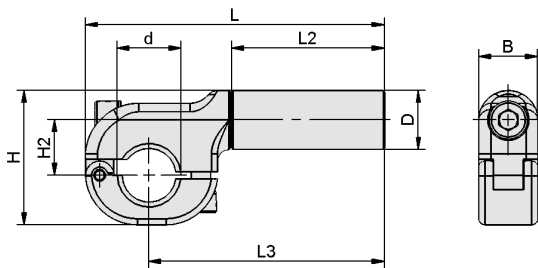
## Design Data Clamping Pieces with Extension SXT-CL-EXT



SXT-CL-EXT F



SXT-CL-EXT M



SXT-CL-EXT...



## Design Data Clamping Pieces with Extension SXT-CL-EXT

Type	B [mm]	D [mm]	d [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	X1 [mm]
SXT-CL-EXT-A2-100-F25	25	-	19	-	71	19.5	13	140.5	149	50	-	101
SXT-CL-EXT-A2-125-F25	25	-	19	-	71	19.5	13	165.5	174	75	-	126
SXT-CL-EXT-A2-150-F25	25	-	19	-	71	19.5	13	190.5	199	100	-	151
SXT-CL-EXT-A2-175-F25	25	-	19	-	71	19.5	13	215.5	224	125	-	176
SXT-CL-EXT-A2-200-F25	25	-	19	-	71	19.5	13	240.5	249	150	-	201
SXT-CL-EXT-A2-225-F25	25	-	19	-	71	19.5	13	265.5	274	175	-	226
SXT-CL-EXT-A2-250-F25	25	-	19	-	71	19.5	13	290.5	299	200	-	251
SXT-CL-EXT-A2-100-F40	25	-	19	-	83	25.5	13	146.5	155	50	-	101
SXT-CL-EXT-A2-125-F40	25	-	19	-	83	25.5	13	171.5	180	75	-	126
SXT-CL-EXT-A2-150-F40	25	-	19	-	83	25.5	13	196.5	205	100	-	151
SXT-CL-EXT-A2-175-F40	25	-	19	-	83	25.5	13	221.5	230	125	-	176
SXT-CL-EXT-A2-200-F40	25	-	19	-	83	25.5	13	246.5	255	150	-	201
SXT-CL-EXT-A2-225-F40	25	-	19	-	83	25.5	13	271.5	280	175	-	226
SXT-CL-EXT-A2-250-F40	25	-	19	-	83	25.5	13	296.5	305	200	-	251
SXT-CL-EXT-A2-100-M25	25	25	19	43.0	-	12.5	-	118.5	127	75	101	-

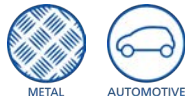
# Clamping Pieces with Extension SXT-CL-EXT

Pipe clamps 19, 25 and 40 mm, ball clamps 28.5 and 32 mm

Type	B [mm]	D [mm]	d [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	X1 [mm]
SXT-CL-EXT-A2-150-M25	25	25	19	43.0	-	12.5	-	168.5	177	125	151	-
SXT-CL-EXT-A2-200-M25	25	25	19	43.0	-	12.5	-	218.5	227	175	201	-
SXT-CL-EXT-A2-250-M25	25	25	19	43.0	-	12.5	-	268.5	277	225	251	-
SXT-CL-EXT-A2-300-M25	25	25	19	43.0	-	12.5	-	318.5	327	275	301	-
SXT-CL-EXT-A2-400-M25	25	25	19	43.0	-	12.5	-	418.5	427	375	401	-
SXT-CL-EXT-A2-500-M25	25	25	19	43.0	-	12.5	-	518.5	527	475	501	-
SXT-CL-EXT-A3-110-M25	25	25	29	57.0	-	23.5	-	137.1	-	75	111	-
SXT-CL-EXT-A3-160-M25	25	25	29	57.0	-	23.5	-	187.1	-	125	161	-
SXT-CL-EXT-A3-210-M25	25	25	29	57.0	-	23.5	-	237.1	-	175	211	-
SXT-CL-EXT-A3-260-M25	25	25	29	57.0	-	23.5	-	287.1	-	225	261	-
SXT-CL-EXT-A3-310-M25	25	25	29	57.0	-	23.5	-	337.1	-	275	311	-
SXT-CL-EXT-A3-410-M25	25	25	29	57.0	-	23.5	-	437.1	-	375	411	-
SXT-CL-EXT-A3-510-M25	25	25	29	57.0	-	23.5	-	537.1	-	475	511	-
SXT-CL-EXT-A5-110-M25	25	25	32	57.0	-	23.5	-	137.1	-	75	111	-
SXT-CL-EXT-A5-160-M25	25	25	32	57.0	-	23.5	-	187.1	-	125	161	-
SXT-CL-EXT-A5-210-M25	25	25	32	57.0	-	23.5	-	237.1	-	175	211	-
SXT-CL-EXT-A5-260-M25	25	25	32	57.0	-	23.5	-	287.1	-	225	261	-
SXT-CL-EXT-A5-310-M25	25	25	32	57.0	-	23.5	-	337.1	-	275	311	-
SXT-CL-EXT-A5-410-M25	25	25	32	57.0	-	23.5	-	437.1	-	375	411	-
SXT-CL-EXT-A5-510-M25	25	25	32	57.0	-	23.5	-	537.1	-	475	511	-
SXT-CL-EXT-D25-100-F25	25	-	25	-	81	19.5	20	143.5	144	50	-	101
SXT-CL-EXT-D25-125-F25	25	-	25	-	81	19.5	20	168.5	169	75	-	126
SXT-CL-EXT-D25-150-F25	25	-	25	-	81	19.5	20	193.5	194	100	-	151
SXT-CL-EXT-D25-175-F25	25	-	25	-	81	19.5	20	218.5	219	125	-	176
SXT-CL-EXT-D25-200-F25	25	-	25	-	81	19.5	20	243.5	244	150	-	201
SXT-CL-EXT-D25-225-F25	25	-	25	-	81	19.5	20	268.5	269	175	-	226
SXT-CL-EXT-D25-250-F25	25	-	25	-	81	19.5	20	293.5	294	200	-	251
SXT-CL-EXT-D25-100-F40	25	-	25	-	93	25.5	20	149.5	150	50	-	101
SXT-CL-EXT-D25-125-F40	25	-	25	-	93	25.5	20	174.5	175	75	-	126
SXT-CL-EXT-D25-150-F40	25	-	25	-	93	25.5	20	199.5	200	100	-	151
SXT-CL-EXT-D25-175-F40	25	-	25	-	93	25.5	20	224.5	225	125	-	176
SXT-CL-EXT-D25-200-F40	25	-	25	-	93	25.5	20	249.5	250	150	-	201
SXT-CL-EXT-D25-225-F40	25	-	25	-	93	25.5	20	274.5	275	175	-	226
SXT-CL-EXT-D25-250-F40	25	-	25	-	93	25.5	20	299.5	300	200	-	251
SXT-CL-EXT-D25-100-M25	25	25	25	53.0	-	19.5	-	121.5	122	75	101	-
SXT-CL-EXT-D25-150-M25	25	25	25	53.0	-	19.5	-	171.5	172	125	151	-
SXT-CL-EXT-D25-200-M25	25	25	25	53.0	-	19.5	-	221.5	222	175	201	-
SXT-CL-EXT-D25-250-M25	25	25	25	53.0	-	19.5	-	271.5	272	225	251	-
SXT-CL-EXT-D25-300-M25	25	25	25	53.0	-	19.5	-	321.5	322	275	301	-
SXT-CL-EXT-D25-400-M25	25	25	25	53.0	-	19.5	-	421.5	422	375	401	-
SXT-CL-EXT-D25-500-M25	25	25	25	53.0	-	19.5	-	521.5	522	475	501	-
SXT-CL-EXT-D40-100-F40	25	-	40	-	105	25.5	26	155.5	156	50	-	101
SXT-CL-EXT-D40-125-F40	25	-	40	-	105	25.5	26	180.5	181	75	-	126
SXT-CL-EXT-D40-150-F40	25	-	40	-	105	25.5	26	205.5	206	100	-	151
SXT-CL-EXT-D40-175-F40	25	-	40	-	105	25.5	26	230.5	231	125	-	176
SXT-CL-EXT-D40-200-F40	25	-	40	-	105	25.5	26	255.5	256	150	-	201
SXT-CL-EXT-D40-225-F40	25	-	40	-	105	25.5	26	280.5	281	175	-	226
SXT-CL-EXT-D40-250-F40	25	-	40	-	105	25.5	26	305.5	306	200	-	251
SXT-CL-EXT-D40-100-M25	25	25	40	65.0	-	25.5	-	127.5	128	75	101	-
SXT-CL-EXT-D40-150-M25	25	25	40	65.0	-	25.5	-	177.5	178	125	151	-
SXT-CL-EXT-D40-200-M25	25	25	40	65.0	-	25.5	-	227.5	228	175	201	-
SXT-CL-EXT-D40-250-M25	25	25	40	65.0	-	25.5	-	277.5	278	225	251	-
SXT-CL-EXT-D40-300-M25	25	25	40	65.0	-	25.5	-	327.5	328	275	301	-
SXT-CL-EXT-D40-400-M25	25	25	40	65.0	-	25.5	-	427.5	428	375	401	-
SXT-CL-EXT-D40-500-M25	25	25	40	65.0	-	25.5	-	527.5	528	475	501	-

# Truss Connectors (Geared) SXT-TC

Truss connector made of tube clamps 25 and 40 mm



## Suitability for Industry Specific Applications

### Applications

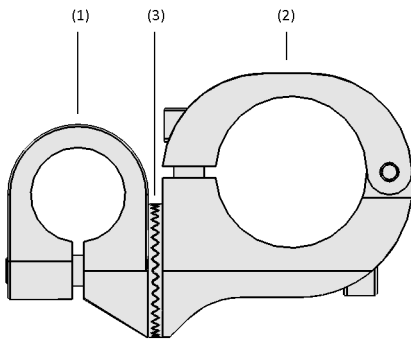
- Modular pipe clamp assembly with gearing for connecting holders and vacuum components to pipe tooling grippers for flexibly adjustable lightweight construction
- Wide range of uses for numerous applications with a minimum number of different components with gearing
- Suitable for all common tooling and quick-change systems for press shops and car body construction



Truss Connectors (Geared) SXT-TC

### Design

- Finished assembly of pipe clamps 25 and 40 mm (1), pipe clamps 25 and 40 mm (2)
- Gearing with 10° pitch (3)
- Male version in grey, attachable or clampable
- Female version in black, attachable



System Design Truss Connectors (Geared) SXT-TC



Truss connector (geared) SXT-TC in combination with holder HT-SG and suction cup SAX when handling an automotive part

### Product Highlights

- High-strength tube clamp assembly with gearing for highly dynamic processes due to positive locking between the components
- Simple design and fast assembly due to clear portfolio
- Flexible angle adjustment with 10° pitch enables a wide range of applications

# Truss Connectors (Geared) SXT-TC

Truss connector made of tube clamps 25 and 40 mm



## Designation Code Truss Connectors (Geared) SXT-TC

<b>SXT-TC</b>	-	<b>F4</b>	-	<b>0</b>	-	<b>C4</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>

### 1 – Abbreviated designation

Code	Type
SXT-TC	Connections (toothed), pre-configured

### 2 – Connection 1

Code	Diameter
F2	ø 25 mm, female
F4	ø 40 mm, female

### 3 – Adjustment angle

Code	Angle
0	Straight connection (without extension)

### 4 – Connection 2

Code	Clamp diameter in mm
C4	ø 40, male, clampable
M2	ø 25, male
M4	ø 40, male

The truss connectors (geared) SXT-TC are delivered assembled.

Available spare parts: Mounting set SXT - consisting of screws, washers and springs



## Ordering Data Truss Connectors (Geared) SXT-TC

Type	Part no.
SXT-TC-F2-0-C4	10.07.13.00156
SXT-TC-F2-0-M2	10.07.13.00157
SXT-TC-F2-0-M4	10.07.13.00155
SXT-TC-F4-0-C4	10.07.13.00169
SXT-TC-F4-0-M4	10.07.13.00168
SXT-TC-F2-0-C1.5IN	10.07.13.00214



## Ordering Data Spare Parts Truss Connectors (Geared) SXT-TC

Type	Spare Parts	Part no.
SXT-TC-F2-0-C4	Assembly set SXT	10.07.13.00182
SXT-TC-F2-0-M2	Assembly set SXT	10.07.13.00179
SXT-TC-F2-0-M4	Assembly set SXT	10.07.13.00181
SXT-TC-F4-0-C4	Assembly set SXT	10.07.13.00183
SXT-TC-F4-0-M4	Assembly set SXT	10.07.13.00182
SXT-TC-F2-0-C1.5IN	-	-



## Technical Data Truss Connectors (Geared) SXT-TC

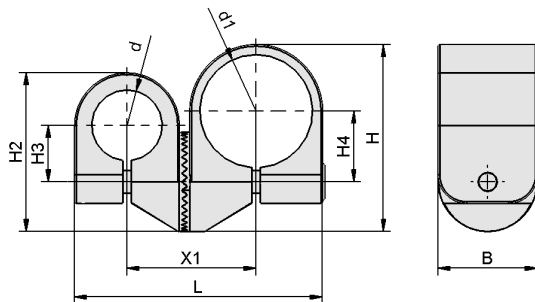
Type	Weight [g]
SXT-TC-F2-0-C4	334
SXT-TC-F2-0-M2	236
SXT-TC-F2-0-M4	242
SXT-TC-F4-0-C4	348
SXT-TC-F4-0-M4	256
SXT-TC-F2-0-C1.5IN	344

## Truss Connectors (Geared) SXT-TC

Truss connector made of tube clamps 25 and 40 mm



### Design Data Truss Connectors (Geared) SXT-TC



SXT-TC

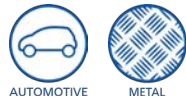


### Design Data Truss Connectors (Geared) SXT-TC

Type	B [mm]	d [mm]	d1 [mm]	H [mm]	H2 [mm]	H3 [mm]	H4 [mm]	L [mm]	X1 [mm]
SXT-TC-F2-0-C4	35	25	40	69.5	56.0	20	26	106.8	46
SXT-TC-F2-0-M2	35	25	25	56.0	56.0	20	20	77.3	41
SXT-TC-F2-0-M4	35	25	40	66.0	56.0	20	25	87.8	46
SXT-TC-F4-0-C4	35	40	40	69.5	66.0	25	26	116.8	61
SXT-TC-F4-0-M4	35	40	40	66.0	66.0	25	25	97.8	51
SXT-TC-F2-0-C1.5IN	35	25	40	69.5	56.0	20	26	106.8	56

## Connections (Geared) SXT-CON-GB

Pipe clamps 25, 38.1 and 40 mm, ball clamps 28.5 and 32 mm



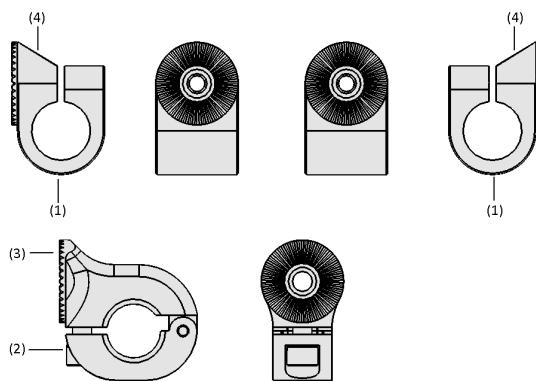
### Suitability for Industry Specific Applications

#### Applications

- Modular pipe and ball clamp system with gearing for connecting holders and vacuum components to pipe tooling grippers for flexibly adjustable lightweight system
- Wide range of uses for numerous applications with a minimum number of different components with gearing
- Suitable for all common tooling and quick-change systems for press shops and car body construction



Connections (Geared) SXT-CON-GB



#### Design

- Pipe clamps 25, 38.1 and 40 mm (1), ball clamps 28.5 and 32 mm (2)
- Gearing with 10° pitch (3)
- Male design in gray
- Female design in black

System Design Connections (Geared) SXT-CON-GB



Connection (geared) SXT-CON-GB when handling a formed sheet metal part

#### Product Highlights

- High-strength pipe clamps with gearings for highly dynamic processes due to positive locking between the components
- Simple design and fast assembly due to clear portfolio
- Flexible angle adjustment with 10° pitch enables a wide range of applications

## Connections (Geared) SXT-CON-GB

Pipe clamps 25, 38.1 and 40 mm, ball clamps 28.5 and 32 mm



### Designation Code Connections (Geared) SXT-CON-GB

<b>SXT-CON-GB</b>	–	<b>F-D25</b>
1		2

#### 1 – Abbreviated designation

Code	Type
SXT-CON-GB	Connections (toothed)

#### 2 – Connection 1

Code	Diameter
F-D25	ø 25 mm, female
F-D40	ø 40 mm, female
F-1IN	ø 1 inch, female
M-A3	ø 28.5, ball, male
M-A5	ø 32, ball, male
M-D25	ø 25 mm, male
M-D40	ø 40 mm, male
MO-D40	ø 40 mm, male, clampable
MO-1.5IN	ø 1,5 inch, male, clampable

#### Selection Matrix Mounting Set SXT

Components 1	Components 2	Screw length	Mounting set
SXT-CON-GB-M-A3 / SXT-CON-GB-M-A5	SXT-CON-GB-F-D25	M8x80	10.07.13.00181
	SXT-CON-GB-F-1IN	M8x80	10.07.13.00181
	SXT-CON-GB-F-D40	M8x90	10.07.13.00182
	SXT-EXT- ...	M8x60	10.07.13.00177
	SXT-ANG-GB2-F	M8x55	10.07.13.00176
SXT-CON-GB-M-D25	SXT-CON-GB-F-D25	M8x70	10.07.13.00179
	SXT-CON-GB-F-1IN	M8x70	10.07.13.00179
	SXT-CON-GB-F-D40	M8x80	10.07.13.00181
	SXT-EXT- ...	M8x50	10.07.13.00175
	SXT-ANG-GB2-F	M8x50	10.07.13.00175
SXT-CON-GB-M-D40	SXT-CON-GB-F-D25	M8x80	10.07.13.00181
	SXT-CON-GB-F-1IN	M8x80	10.07.13.00181
	SXT-CON-GB-F-D40	M8x90	10.07.13.00182
	SXT-EXT- ...	M8x60	10.07.13.00177
	SXT-ANG-GB2-F	M8x60	10.07.13.00177
SXT-CON-GB-MO-1,5IN / SXT-CON-GB-MO-D40	SXT-CON-GB-F-D25	M8x90	10.07.13.00182
	SXT-CON-GB-F-1IN	M8x90	10.07.13.00182
	SXT-CON-GB-F-D40	M8x100	10.07.13.00183
	SXT-EXT- ...	M8x70	10.07.13.00179
	SXT-ANG-GB2-F	M8x65	10.07.13.00178
SXT-ANG-GB2-M	SXT-CON-GB-F-D25	M8x45	10.07.13.00174
	SXT-CON-GB-F-1IN	M8x45	10.07.13.00174
	SXT-CON-GB-F-D40	M8x55	10.07.13.00176
	SXT-EXT- ...	M8x30	10.07.13.00173
	SXT-ANG-GB2-F	M8x25	10.07.13.00172

The connections (geared) SXT-CON-GB are delivered as individual parts.

The following ordering steps are necessary to obtain a complete assembly:

- M component (grey) of the connections SXT-CON-GB, angle pieces SXT-ANG or extensions SXT-EXT
- F component (black) of the connections SXT-CON-GB, angle pieces SXT-ANG or extensions SXT-EXT
- Mounting set SXT - consisting of screws, washers and springs



## Connections (Geared) SXT-CON-GB

Pipe clamps 25, 38.1 and 40 mm, ball clamps 28.5 and 32 mm



### Ordering Data Connections (Geared) SXT-CON-GB

Type	Part no.
SXT-CON-GB-F-D25	10.07.13.00114
SXT-CON-GB-F-D40	10.07.13.00115
SXT-CON-GB-F-1IN	10.07.13.00191
SXT-CON-GB-M-A3	10.07.13.00118
SXT-CON-GB-M-A5	10.07.13.00119
SXT-CON-GB-M-D25	10.07.13.00112
SXT-CON-GB-M-D40	10.07.13.00113
SXT-CON-GB-MO-D40	10.07.13.00116
SXT-CON-GB-MO-1.5IN	10.07.13.00117



### Technical Data Connections (Geared) SXT-CON-GB

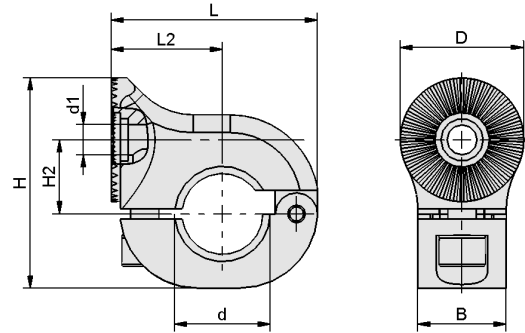
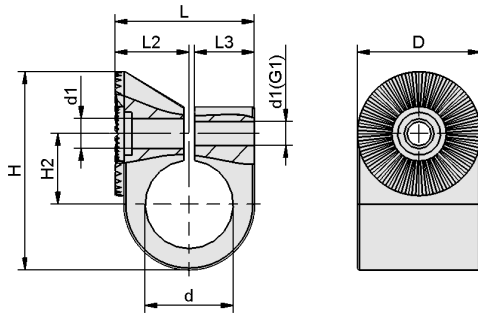
Type	Weight [g]	Material
SXT-CON-GB-F-D25	100	Aluminum
SXT-CON-GB-F-D40	105	Aluminum
SXT-CON-GB-F-1IN	100	Aluminum
SXT-CON-GB-M-A3	125	Aluminum
SXT-CON-GB-M-A5	170	Aluminum
SXT-CON-GB-M-D25	100	Aluminum
SXT-CON-GB-M-D40	105	Aluminum
SXT-CON-GB-MO-D40	195	Aluminum
SXT-CON-GB-MO-1.5IN	205	Aluminum

## Connections (Geared) SXT-CON-GB

Pipe clamps 25, 38.1 and 40 mm, ball clamps 28.5 and 32 mm



### Design Data Connections (Geared) SXT-CON-GB



SXT-CON-GB D

SXT-CON-GB A / MO

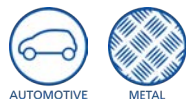


### Design Data Connections (Geared) SXT-CON-GB

Type	B [mm]	D [mm]	d [mm]	d1 [mm]	G1	H [mm]	H2 [mm]	L [mm]	L2 [mm]	L3 [mm]
SXT-CON-GB-F-D25	-	35	25	9	M8-F	56.0	20	39.5	21	17
SXT-CON-GB-F-D40	-	35	40	9	M8-F	66.0	25	49.5	26	22
SXT-CON-GB-F-1IN	-	35	26	9	M8-F	56.0	20	39.5	21	17
SXT-CON-GB-M-A3	25	35	29	9	-	59.5	21	58.5	32	-
SXT-CON-GB-M-A5	25	35	32	9	-	59.5	21	58.5	32	-
SXT-CON-GB-M-D25	-	35	25	9	-	56.0	20	39.5	21	17
SXT-CON-GB-M-D40	-	35	40	9	-	66.0	25	49.5	26	22
SXT-CON-GB-MO-D40	35	35	40	9	-	69.5	26	68.5	37	-
SXT-CON-GB-MO-1.5IN	35	35	39	9	-	69.5	26	68.5	37	-

# Elbow Connectors (Geared) SXT-ANG

Gearing with 10° pitch



## Suitability for Industry Specific Applications

### Applications

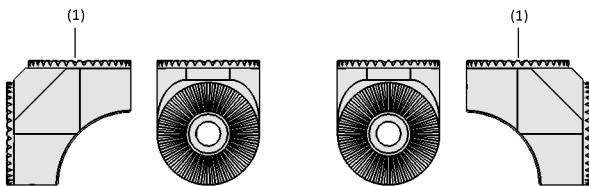
- Elbow connectors with gearing for connection of holders and vacuum components to pipe tooling gripper for flexibly adjustable, modular lightweight system
- Wide range of uses for numerous applications with a minimum number of different components with gearing
- Suitable for all common tooling and quick-change systems for press shops and car body construction



Elbow Connectors (Geared) SXT-ANG

### Design

- Elbow connector with gearing in 10° pitch
- Male design in gray (1)
- Female design in black (2)



System Design Elbow Connectors (Geared) SXT-ANG



Elbow connector (geared) SXT-ANG when handling a formed sheet metal part

### Product Highlights

- High-strength angle pieces with gearings for highly dynamic processes due to positive locking between the components
- Simple design and fast assembly due to clear portfolio
- Flexible angle adjustment with 10° pitch enables a wide range of applications

# Elbow Connectors (Geared) SXT-ANG

Gearing with 10° pitch



## Designation Code Elbow Connectors (Geared) SXT-ANG

<b>SXT-ANG</b>	–	<b>GB2</b>	–	<b>F</b>
<b>1</b>		<b>2</b>		<b>3</b>

### 1 – Abbreviated designation

Code	Type
SXT-ANG	Angle connectors (toothed)

### 2 – Shape

Code	Version
GB2	Toothed on both sides

### 3 – Shape

Code	Version
F	Female
M	Male

### Selection Matrix Mounting Set SXT

Components 1	Components 2	Screw length	Mounting set
SXT-CON-GB-M-A3 / SXT-CON-GB-M-A5	SXT-CON-GB-F-D25	M8x80	10.07.13.00181
	SXT-CON-GB-F-11N	M8x80	10.07.13.00181
	SXT-CON-GB-F-D40	M8x90	10.07.13.00182
	SXT-EXT- ...	M8x60	10.07.13.00177
SXT-CON-GB-M-D25	SXT-ANG-GB2-F	M8x55	10.07.13.00176
	SXT-CON-GB-F-D25	M8x70	10.07.13.00179
	SXT-CON-GB-F-11N	M8x70	10.07.13.00179
	SXT-CON-GB-F-D40	M8x80	10.07.13.00181
	SXT-EXT- ...	M8x50	10.07.13.00175
SXT-CON-GB-M-D40	SXT-ANG-GB2-F	M8x50	10.07.13.00175
	SXT-CON-GB-F-D25	M8x80	10.07.13.00181
	SXT-CON-GB-F-11N	M8x80	10.07.13.00181
	SXT-CON-GB-F-D40	M8x90	10.07.13.00182
	SXT-EXT- ...	M8x60	10.07.13.00177
SXT-CON-GB-MO-1,5IN / SXT-CON-GB-MO-D40	SXT-ANG-GB2-F	M8x60	10.07.13.00177
	SXT-CON-GB-F-D25	M8x90	10.07.13.00182
	SXT-CON-GB-F-11N	M8x90	10.07.13.00182
	SXT-CON-GB-F-D40	M8x100	10.07.13.00183
	SXT-EXT- ...	M8x70	10.07.13.00179
SXT-ANG-GB2-M	SXT-ANG-GB2-F	M8x65	10.07.13.00178
	SXT-CON-GB-F-D25	M8x45	10.07.13.00174
	SXT-CON-GB-F-11N	M8x45	10.07.13.00174
	SXT-CON-GB-F-D40	M8x55	10.07.13.00176
	SXT-EXT- ...	M8x30	10.07.13.00173
	SXT-ANG-GB2-F	M8x25	10.07.13.00172

The angle pieces (geared) SXT-ANG are delivered as individual parts.

The following ordering steps are necessary to obtain a complete assembly:

- M-component (grey) of the connections SXT-CON-GB, angle pieces SXT-ANG or extensions SXT-EXT
- F-component (black) of the connections SXT-CON-GB, angle pieces SXT-ANG or extensions SXT-EXT
- Mounting set SXT - consisting of screws, washers and springs



## Ordering Data Elbow Connectors (Geared) SXT-ANG

Type	Part no.
SXT-ANG-GB2-F	10.07.13.00121
SXT-ANG-GB2-M	10.07.13.00120

# Elbow Connectors (Geared) SXT-ANG

Gearing with 10° pitch

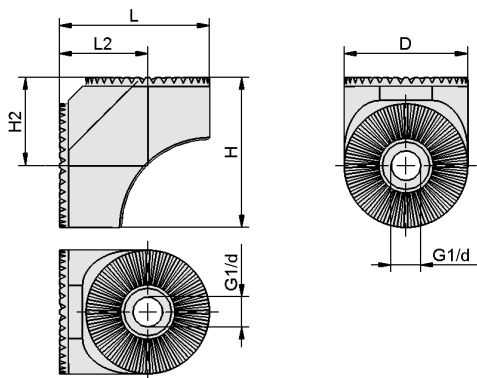


## Technical Data Elbow Connectors (Geared) SXT-ANG

Type	Weight [g]	Material
SXT-ANG-GB2-F	95	Aluminum
SXT-ANG-GB2-M	85	Aluminum



## Design Data Elbow Connectors (Geared) SXT-ANG



SXT-ANG

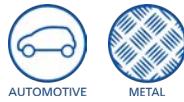


## Design Data Elbow Connectors (Geared) SXT-ANG

Type	D [mm]	d [mm]	G1	H [mm]	H2 [mm]	L [mm]	L2 [mm]
SXT-ANG-GB2-F	35	-	M8-F	42.5	25	42.5	25
SXT-ANG-GB2-M	35	9	-	42.5	25	42.5	25

# Extensions (Geared) SXT-EXT

Length of 50 to 500 mm



## Suitability for Industry Specific Applications

### Applications

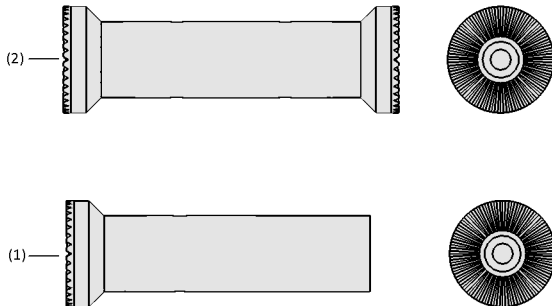
- Extensions with gearing for connection of holders and vacuum components to pipe tooling gripper in a flexible, modular and lightweight system
- Wide range of uses for numerous applications with a minimum number of different components with gearing
- Suitable for all common tooling and quick-change systems for press shops and car body construction



Extensions (Geared) SXT-EXT

### Design

- Extension with one-sided (pipe end 25 mm) (1) and two-sided gearing (2)
- Gearing with 10° pitch
- Male and female design in gray or black



System Design Extensions (Geared) SXT-EXT

### Product Highlights

- Durable, lightweight extensions with gearing (positive locking) optimized for highly dynamic processes with maximum output
- Slim portfolio enables easy assembly of a wide variety of modules
- Compatible with common tooling systems and flexible thanks to angle adjustment with 10° pitch



Extensions (geared) SXT-EXT for the construction of a tooling for handling an automotive part

# Extensions (Geared) SXT-EXT

Length of 50 to 500 mm



## Designation Code Extensions (Geared) SXT-EXT

<b>SXT-EXT</b>	–	<b>GB</b>	–	<b>50</b>
1		2		3

### 1 – Abbreviated designation

Code	Type
SXT-EXT	Extensions (toothed)

### 2 – Shape

Code	Version
GB	Toothed on one side
GB2	Toothed on both sides

### 3 – Length

Code	Length in mm
50...500	50.8 to 500.8

### Selection Matrix Mounting Set SXT

Components 1	Components 2	Screw length	Mounting set
SXT-CON-GB-M-A3 / SXT-CON-GB-M-A5	SXT-CON-GB-F-D25	M8x80	10.07.13.00181
	SXT-CON-GB-F-1IN	M8x80	10.07.13.00181
	SXT-CON-GB-F-D40	M8x90	10.07.13.00182
	SXT-EXT- ...	M8x60	10.07.13.00177
	SXT-ANG-GB2-F	M8x55	10.07.13.00176
SXT-CON-GB-M-D25	SXT-CON-GB-F-D25	M8x70	10.07.13.00179
	SXT-CON-GB-F-1IN	M8x70	10.07.13.00179
	SXT-CON-GB-F-D40	M8x80	10.07.13.00181
	SXT-EXT- ...	M8x50	10.07.13.00175
	SXT-ANG-GB2-F	M8x50	10.07.13.00175
SXT-CON-GB-M-D40	SXT-CON-GB-F-D25	M8x80	10.07.13.00181
	SXT-CON-GB-F-1IN	M8x80	10.07.13.00181
	SXT-CON-GB-F-D40	M8x90	10.07.13.00182
	SXT-EXT- ...	M8x60	10.07.13.00177
	SXT-ANG-GB2-F	M8x60	10.07.13.00177
SXT-CON-GB-MO-1,5IN / SXT-CON-GB-MO-D40	SXT-CON-GB-F-D25	M8x90	10.07.13.00182
	SXT-CON-GB-F-1IN	M8x90	10.07.13.00182
	SXT-CON-GB-F-D40	M8x100	10.07.13.00183
	SXT-EXT- ...	M8x70	10.07.13.00179
	SXT-ANG-GB2-F	M8x65	10.07.13.00178
SXT-ANG-GB2-M	SXT-CON-GB-F-D25	M8x45	10.07.13.00174
	SXT-CON-GB-F-1IN	M8x45	10.07.13.00174
	SXT-CON-GB-F-D40	M8x55	10.07.13.00176
	SXT-EXT- ...	M8x30	10.07.13.00173
	SXT-ANG-GB2-F	M8x25	10.07.13.00172

The extensions (geared) SXT-EXT are delivered as individual parts.

The following ordering steps are necessary to obtain a complete assembly:

- M-component (grey) of the connections SXT-CON-GB, angle pieces SXT-ANG or extensions SXT-EXT
- F-component (black) of the connections SXT-CON-GB, angle pieces SXT-ANG or extensions SXT-EXT
- Mounting set SXT - consisting of screws, washers and springs





## Extensions (Geared) SXT-EXT

Length of 50 to 500 mm



### Ordering Data Extensions (Geared) SXT-EXT

Type	Part no.
SXT-EXT-GB-100	10.07.13.00048
SXT-EXT-GB-150	10.07.13.00049
SXT-EXT-GB-200	10.07.13.00050
SXT-EXT-GB-250	10.07.13.00051
SXT-EXT-GB-300	10.07.13.00052
SXT-EXT-GB-400	10.07.13.00053
SXT-EXT-GB-500	10.07.13.00054
SXT-EXT-GB2-50	10.07.13.00034
SXT-EXT-GB2-75	10.07.13.00035
SXT-EXT-GB2-100	10.07.13.00036
SXT-EXT-GB2-110	10.07.13.00037
SXT-EXT-GB2-120	10.07.13.00038
SXT-EXT-GB2-130	10.07.13.00039
SXT-EXT-GB2-140	10.07.13.00040
SXT-EXT-GB2-150	10.07.13.00041
SXT-EXT-GB2-160	10.07.13.00042
SXT-EXT-GB2-170	10.07.13.00043
SXT-EXT-GB2-180	10.07.13.00044
SXT-EXT-GB2-190	10.07.13.00045
SXT-EXT-GB2-200	10.07.13.00046
SXT-EXT-GB2-500	10.07.13.00047



### Technical Data Extensions (Geared) SXT-EXT

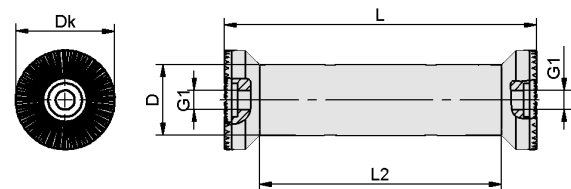
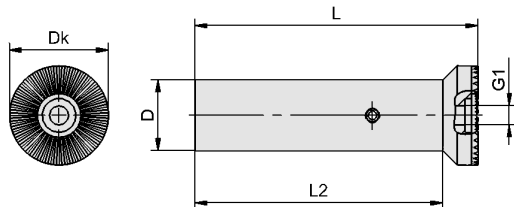
Type	Weight [g]	Material
SXT-EXT-GB-100	115	Aluminum
SXT-EXT-GB-150	155	Aluminum
SXT-EXT-GB-200	200	Aluminum
SXT-EXT-GB-250	240	Aluminum
SXT-EXT-GB-300	285	Aluminum
SXT-EXT-GB-400	370	Aluminum
SXT-EXT-GB-500	455	Aluminum
SXT-EXT-GB2-50	80	Aluminum
SXT-EXT-GB2-75	110	Aluminum
SXT-EXT-GB2-100	140	Aluminum
SXT-EXT-GB2-110	150	Aluminum
SXT-EXT-GB2-120	160	Aluminum
SXT-EXT-GB2-130	170	Aluminum
SXT-EXT-GB2-140	175	Aluminum
SXT-EXT-GB2-150	185	Aluminum
SXT-EXT-GB2-160	195	Aluminum
SXT-EXT-GB2-170	205	Aluminum
SXT-EXT-GB2-180	210	Aluminum
SXT-EXT-GB2-190	220	Aluminum
SXT-EXT-GB2-200	225	Aluminum
SXT-EXT-GB2-500	485	Aluminum

## Extensions (Geared) SXT-EXT

Length of 50 to 500 mm



### Design Data Extensions (Geared) SXT-EXT



SXT-EXT GB

SXT-EXT GB2

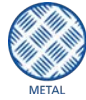


### Design Data Extensions (Geared) SXT-EXT

Type	D [mm]	Dk [mm]	G1	L [mm]	L2 [mm]
SXT-EXT-GB-100	25	35	M8-F	100.4	88
SXT-EXT-GB-150	25	35	M8-F	150.4	138
SXT-EXT-GB-200	25	35	M8-F	200.4	188
SXT-EXT-GB-250	25	35	M8-F	250.4	238
SXT-EXT-GB-300	25	35	M8-F	300.4	288
SXT-EXT-GB-400	25	35	M8-F	400.4	388
SXT-EXT-GB-500	25	35	M8-F	500.4	488
SXT-EXT-GB2-50	25	35	M8-F	50.8	31
SXT-EXT-GB2-75	25	35	M8-F	75.8	56
SXT-EXT-GB2-100	25	35	M8-F	100.8	81
SXT-EXT-GB2-110	25	35	M8-F	110.8	86
SXT-EXT-GB2-120	25	35	M8-F	120.8	96
SXT-EXT-GB2-130	25	35	M8-F	130.8	106
SXT-EXT-GB2-140	25	35	M8-F	140.8	116
SXT-EXT-GB2-150	25	35	M8-F	150.8	126
SXT-EXT-GB2-160	25	35	M8-F	160.8	136
SXT-EXT-GB2-170	25	35	M8-F	170.8	146
SXT-EXT-GB2-180	25	35	M8-F	180.8	156
SXT-EXT-GB2-190	25	35	M8-F	190.8	166
SXT-EXT-GB2-200	25	35	M8-F	200.8	176
SXT-EXT-GB2-500	25	35	M8-F	500.8	476

# Holders for Suction Cups HT-SG

Suction cup connection for G-, NPT-, M-threads and rectangular adapters



## Suitability for Industry Specific Applications

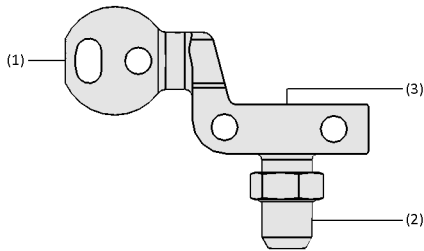
### Applications

- Holder for mounting vacuum suction cups on tooling beams
- For vacuum suction cups with connectors for G, NPT and M threads and right-angled adapters



Holders for Suction Cups HT-SG

### Design



- Version HT-SG (slim design)
- Connection for tooling beams: Ball (A3:  $\varnothing$  28.5 mm; A5:  $\varnothing$  32 mm) or "Apple-Core" cylinder (A2:  $\varnothing$  19 mm) (1)
- Connection for vacuum suction cups (2), vacuum connection (3)

System Design Holders for Suction Cups HT-SG



Holder for suction cup HT-SG in combination with bell-shaped suction cup SAX for handling sheet metal parts

### Product Highlights

- Flexible use on tooling traverses, fast exchange and short set-up times
- Thanks to lightweight aluminium construction suitable for dynamic processes and high throughputs
- Versatile use for vacuum suction cups with various G, NPT, M threads and rectangular adapters (quick-change system)
- Customer-specific configuration, e.g. with vacuum sensors and suction cups

# Holders for Suction Cups HT-SG

Suction cup connection for G-, NPT-, M-threads and rectangular adapters

## Designation Code Holders for Suction Cups HT-SG

<b>HT-SG</b>	-	<b>A2</b>	-	<b>46</b>	-	<b>RA</b>
1		2		3		4

### 1 – Abbreviated designation

Code	Type
HT-SG	Holder for suction cup

### 2 – Tooling connection

Code	Connection in mm
A2	ø 19, pin
A3	ø 28.5, ball
A5	ø 32, ball

### 3 – Width

Code	Width in mm
22	22
46	46

### 4 – Suction cup connection

Code	Anschluss
G1/4-AG	G1/4-AG (AG = male (M))
G3/8-AG	G3/8-AG
NPT1/4-AG	NPT1/4-AG
NPT3/8-AG	NPT3/8-AG
RA	Right-angled adapter

The holders for suction cups HT-SG are delivered as a ready-to-connect product.

## Ordering Data Holders for Suction Cups HT-SG

Type	Part no.
HT-SG A2 22 G1/4-AG	10.07.06.00445
HT-SG A2 22 G3/8-AG	10.07.06.00450
HT-SG A2 22 NPT1/4-AG	10.07.06.00448
HT-SG A2 22 NPT3/8-AG	10.07.06.00453
HT-SG A3 22 G1/4-AG	10.07.06.00342
HT-SG A3 22 G3/8-AG	10.07.06.00344
HT-SG A3 22 NPT1/4-AG	10.07.06.00446
HT-SG A3 22 NPT3/8-AG	10.07.06.00451
HT-SG A5 22 G1/4-AG	10.07.06.00444
HT-SG A5 22 G3/8-AG	10.07.06.00449
HT-SG A5 22 NPT1/4-AG	10.07.06.00447
HT-SG A5 22 NPT3/8-AG	10.07.06.00452
HT-SG 46 RA	10.07.06.00336

## Technical Data Holders for Suction Cups HT-SG

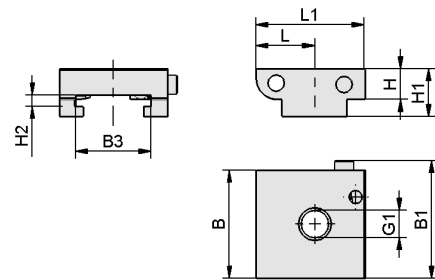
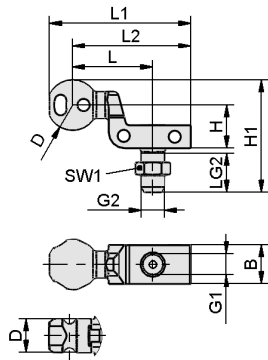
Type	Weight [g]
HT-SG A2 22 G1/4-AG	62
HT-SG A2 22 G3/8-AG	70
HT-SG A2 22 NPT1/4-AG	54
HT-SG A2 22 NPT3/8-AG	59
HT-SG A3 22 G1/4-AG	76
HT-SG A3 22 G3/8-AG	84
HT-SG A3 22 NPT1/4-AG	70
HT-SG A3 22 NPT3/8-AG	73
HT-SG A5 22 G1/4-AG	88
HT-SG A5 22 G3/8-AG	98
HT-SG A5 22 NPT1/4-AG	81
HT-SG A5 22 NPT3/8-AG	84
HT-SG 46 RA	66

# Holders for Suction Cups HT-SG

Suction cup connection for G-, NPT-, M-threads and rectangular adapters



## Design Data Holders for Suction Cups HT-SG



HT-SG AG

HT-SG RA

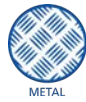


## Design Data Holders for Suction Cups HT-SG

Type	B [mm]	B1 [mm]	B3 [mm]	D [mm]	G1	G2	H [mm]	H1 [mm]	H2 [mm]	L [mm]	L1 [mm]	L2 [mm]	LG2 [mm]	SW1 [mm]
HT-SG A2 22 G1/4-AG	22	-	-	19	G1/4"-F	G1/4"-M	25	59	-	40	73	61	22	17
HT-SG A2 22 G3/8-AG	22	-	-	19	G1/4"-F	G3/8"-M	25	59	-	40	73	61	22	22
HT-SG A2 22 NPT1/4-AG	22	-	-	19	G1/4"-F	NPT1/4-M	25	52	-	40	73	61	15	-
HT-SG A2 22 NPT3/8-AG	22	-	-	19	G1/4"-F	NPT3/8-M	25	52	-	40	73	61	15	-
HT-SG A3 22 G1/4-AG	22	-	-	29	G1/4"-F	G1/4"-M	25	64	-	46	80	67	22	17
HT-SG A3 22 G3/8-AG	22	-	-	29	G1/4"-F	G3/8"-M	25	64	-	46	80	67	22	22
HT-SG A3 22 NPT3/8-AG	22	-	-	29	G1/4"-F	NPT3/8-M	25	57	-	46	80	67	15	-
HT-SG A3 22 NPT1/4-AG	22	-	-	29	G1/4"-F	NPT1/4-M	25	57	-	46	80	67	15	-
HT-SG A5 22 G1/4-AG	22	-	-	32	G1/4"-F	G1/4"-M	25	66	-	46	82	67	22	17
HT-SG A5 22 G3/8-AG	22	-	-	32	G1/4"-F	G3/8"-M	25	66	-	46	82	67	22	22
HT-SG A5 22 NPT1/4-AG	22	-	-	32	G1/4"-F	NPT1/4-M	25	59	-	46	82	67	15	-
HT-SG A5 22 NPT3/8-AG	22	-	-	32	G1/4"-F	NPT3/8-M	25	59	-	46	82	67	15	-
HT-SG 46 RA	46	50	32	-	G1/4"-F	-	13	21	5	25	47	-	-	-

# Holders for Suction Cups HT-SG E

Suction cup connection for G-, NPT-, M-threads and rectangular adapters



## Suitability for Industry Specific Applications

### Applications

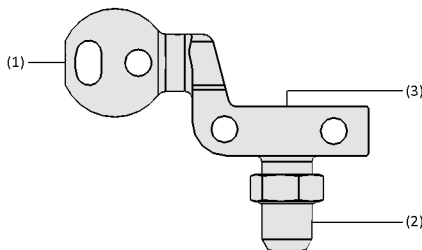
- Holder for mounting suction cups on tooling beams
- For vacuum suction cups with connectors for G, NPT and M threads and right-angled adapters
- For decentralised vacuum generators with high blow-off capacity, therefore ideal for use in press shop applications
- Suitable for use in existing systems with decentralized vacuum generators of the type SEAC due to the uncomplicated integration of the holder



Holders for Suction Cups HT-SG E

### Design

- Version HT-SG...E (external vacuum generation)
- Connection for tooling beams: Ball (A3:  $\varnothing$  28.5 mm; A5:  $\varnothing$  32 mm) or "Apple-Core" cylinder (A2:  $\varnothing$  19 mm) (1)
- Connection for vacuum suction cups (2), vacuum switches and decentralized vacuum generator of type SEAC (3)
- Optional: Connection for external vacuum generator (3) instead of vacuum generator type SEAC



System Design Holders for Suction Cups HT-SG E



Holder for suction cup HT-SG E with vacuum switch VSi when handling a moulded car body part

### Product Highlights

- Flexible use on tooling traverses, fast exchange and short set-up times
- Thanks to lightweight aluminium construction suitable for dynamic processes and high throughputs
- Versatile use for vacuum suction cups with various G, NPT, M threads and rectangular adapters (quick-change system)
- Customer-specific configuration, including decentralized vacuum generators, sensors and suction cups

# Holders for Suction Cups HT-SG E

Suction cup connection for G-, NPT-, M-threads and rectangular adapters



## Designation Code Holders for Suction Cups HT-SG E

<b>HT-SG</b>	-	<b>A2</b>	-	<b>E</b>	-	<b>35</b>	<b>G1/4-AG</b>
1		2		3		4	5

### 1 – Abbreviated designation

Code	Type
HT-SG	Holder for suction cup, external vacuum generation

### 2 – Tooling connection

Code	Connection in mm
A2	ø 19, pin
A3	ø 28.5, ball
A5	ø 32, ball

### 3 – Shape

Code	Version
E	Ejector connection

### 4 – Width

Code	Width in mm
35	35
46	46

### 5 – Suction cup connection

Code	Connection
G1/4-AG	G1/4-AG (AG = male (M))
G1/4-IG	G1/4-IG (IG = female (F))
G3/8-AG	G3/8-AG
M10-IG	M10-IG
M14x1.5-IG	M14x1.5-IG
M16x1.5-IG	M16x1.5-IG
NPT1/4-AG	NPT1/4-AG
NPT3/8-AG	NPT3/8-AG
RA	Right-angled adapter

The holders for suction cups HT-SG E are delivered as a ready-to-connect product.

Available accessories: Mounting kit



## Ordering Data Holders for Suction Cups HT-SG E

Type	Part no.
HT-SG A2 E 35 G1/4-AG	10.07.06.00435
HT-SG A2 E 35 G1/4-IG	10.07.06.00456
HT-SG A2 E 35 G3/8-AG	10.07.06.00441
HT-SG A2 E 35 M10-IG	10.07.06.00459
HT-SG A2 E 35 M14x1.5-IG	10.07.06.00462
HT-SG A2 E 35 M16x1.5-IG	10.07.06.00465
HT-SG A2 E 35 NPT1/4-AG	10.07.06.00438
HT-SG A2 E 35 NPT3/8-AG	10.07.06.00443
HT-SG A2 E 46 RA	10.07.06.00431
HT-SG A3 E 35 G1/4-AG	10.07.06.00338
HT-SG A3 E 35 G1/4-IG	10.07.06.00454
HT-SG A3 E 35 G3/8-AG	10.07.06.00340
HT-SG A3 E 35 M10-IG	10.07.06.00457
HT-SG A3 E 35 M14x1.5-IG	10.07.06.00460
HT-SG A3 E 35 M16x1.5-IG	10.07.06.00463
HT-SG A3 E 35 NPT1/4-AG	10.07.06.00436
HT-SG A3 E 35 NPT3/8-AG	10.07.06.00439
HT-SG A3 E 46 RA	10.07.06.00332
HT-SG A5 E 35 G1/4-AG	10.07.06.00434
HT-SG A5 E 35 G1/4-IG	10.07.06.00455
HT-SG A5 E 35 G3/8-AG	10.07.06.00440
HT-SG A5 E 35 M10-IG	10.07.06.00458
HT-SG A5 E 35 M14x1.5-IG	10.07.06.00461
HT-SG A5 E 35 M16x1.5-IG	10.07.06.00464
HT-SG A5 E 35 NPT3/8-AG	10.07.06.00442
HT-SG A5 E 35 NPT1/4-AG	10.07.06.00437
HT-SG A5 E 46 RA	10.07.06.00430



# Holders for Suction Cups HT-SG E

Suction cup connection for G-, NPT-, M-threads and rectangular adapters



## Ordering Data Accessories Holders for Suction Cups HT-SG E

Accessories		Part no.
Mounting set	SET HT-SG..E VSi-HD M4x12	10.07.06.00642
Mounting set	SET HT-SG..E VSi-HD M4x30	10.07.06.00640



## Technical Data Holders for Suction Cups HT-SG E

Type	Weight [g]
HT-SG A2 E 35 G1/4-AG	83
HT-SG A2 E 35 G1/4-IG	82
HT-SG A2 E 35 G3/8-AG	93
HT-SG A2 E 35 NPT1/4-AG	77
HT-SG A2 E 35 NPT3/8-AG	80
HT-SG A2 E 35 M10-IG	83
HT-SG A2 E 35 M14x1.5-IG	81
HT-SG A2 E 35 M16x1.5-IG	80
HT-SG A2 E 46 RA	94
HT-SG A3 E 35 G1/4-AG	97
HT-SG A3 E 35 G1/4-IG	95
HT-SG A3 E 35 G3/8-AG	105
HT-SG A3 E 35 NPT1/4-AG	90
HT-SG A3 E 35 NPT3/8-AG	94
HT-SG A3 E 35 M10-IG	97
HT-SG A3 E 35 M14x1.5-IG	95
HT-SG A3 E 35 M16x1.5-IG	93
HT-SG A3 E 46 RA	108
HT-SG A5 E 35 G1/4-AG	108
HT-SG A5 E 35 G1/4-IG	107
HT-SG A5 E 35 G3/8-AG	118
HT-SG A5 E 35 NPT1/4-AG	102
HT-SG A5 E 35 NPT3/8-AG	105
HT-SG A5 E 35 M10-IG	108
HT-SG A5 E 35 M14x1.5-IG	107
HT-SG A5 E 35 M16x1.5-IG	105
HT-SG A5 E 46 RA	126

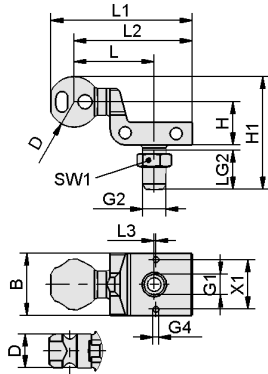


# Holders for Suction Cups HT-SG E

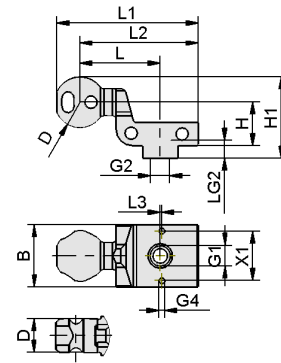
Suction cup connection for G-, NPT-, M-threads and rectangular adapters



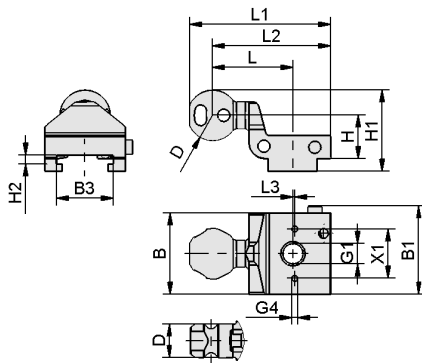
## Design Data Holders for Suction Cups HT-SG E



HT-SG E AG



HT-SG E IG



HT-SG E RA



## Design Data Holders for Suction Cups HT-SG E

Type	B	B1	B3	D	G1	G2	G4	H	H1	H2	L	L1	L2	L3	LG2	SW1	X1
	[mm]	[mm]	[mm]	[mm]				[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
HT-SG A2 E 35 G1/4-AG	35	-	-	19.0	G1/4"-F	G1/4"-M	M4-F	24.5	59	-	39.3	73	61	1	22	17	28
HT-SG A2 E 35 G1/4-IG	35	-	-	19.0	G1/4"-F	G1/4"-F	M4-F	24.5	42	-	39.3	73	61	1	21	-	28
HT-SG A2 E 35 G3/8-AG	35	-	-	19.0	G1/4"-F	G3/8"-M	M4-F	24.5	59	-	39.3	73	61	1	22	22	28
HT-SG A2 E 35 NPT1/4-AG	35	-	-	19.0	G1/4"-F	NPT1/4-M	M4-F	24.5	52	-	39.3	73	61	1	15	-	28
HT-SG A2 E 35 NPT3/8-AG	35	-	-	19.0	G1/4"-F	NPT3/8-M	M4-F	24.5	52	-	39.3	73	61	1	15	-	28
HT-SG A2 E 35 M10-IG	35	-	-	19.0	G1/4"-F	M10-F	M4-F	24.5	42	-	39.3	73	61	1	9	-	28
HT-SG A2 E 35 M16x1.5-IG	35	-	-	19.0	G1/4"-F	M16x1.5-F	M4-F	24.5	42	-	39.3	73	61	1	10	-	28

# Holders for Suction Cups HT-SG E

Suction cup connection for G-, NPT-, M-threads and rectangular adapters

Type	B [mm]	B1 [mm]	B3 [mm]	D [mm]	G1	G2	G4	H [mm]	H1 [mm]	H2 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	LG2 [mm]	SW1 [mm]	X1 [mm]
HT-SG A2 E 35 M14x1.5-IG	35	-	-	19.0	G1/4"-F	M14x1.5-F	M4-F	24.5	42	-	39.3	73	61	1	10	-	28
HT-SG A2 E 46 RA	46	50	32	19.0	G1/4"-F	-	M4-F	24.5	42	4.8	39.3	73	61	1	-	-	28
HT-SG A3 E 35 G1/4-AG	35	-	-	28.5	G1/4"-F	G1/4"-M	M4-F	24.5	64	-	45.5	80	67	1	22	17	28
HT-SG A3 E 35 G1/4-IG	35	-	-	28.5	G1/4"-F	G1/4"-F	M4-F	24.5	46	-	45.5	80	67	1	21	-	28
HT-SG A3 E 35 G3/8-AG	35	-	-	28.5	G1/4"-F	G3/8"-M	M4-F	24.5	64	-	45.5	80	67	1	22	22	28
HT-SG A3 E 35 NPT1/4-AG	35	-	-	28.5	G1/4"-F	NPT1/4"-M	M4-F	24.5	57	-	45.5	80	67	1	15	-	28
HT-SG A3 E 35 NPT3/8-AG	35	-	-	28.5	G1/4"-F	NPT3/8"-M	M4-F	24.5	57	-	45.5	80	67	1	15	-	28
HT-SG A3 E 35 M10-IG	35	-	-	28.5	G1/4"-F	M10-F	M4-F	24.5	46	-	45.5	80	67	1	9	-	28
HT-SG A3 E 35 M14x1.5-IG	35	-	-	28.5	G1/4"-F	M14x1.5-F	M4-F	24.5	46	-	45.5	80	67	1	10	-	28
HT-SG A3 E 35 M16x1.5-IG	35	-	-	28.5	G1/4"-F	M16x1.5-F	M4-F	24.5	46	-	45.5	80	67	1	10	-	28
HT-SG A3 E 46 RA	46	50	32	28.5	G1/4"-F	-	M4-F	24.5	46	4.8	45.5	80	67	1	-	-	28
HT-SG A5 E 35 G1/4-AG	35	-	-	32.0	G1/4"-F	G1/4"-M	M4-F	24.5	66	-	45.5	82	67	1	22	17	28
HT-SG A5 E 35 G1/4-IG	35	-	-	32.0	G1/4"-F	G1/4"-F	M4-F	24.5	48	-	45.5	82	67	1	21	-	28
HT-SG A5 E 35 G3/8-AG	35	-	-	32.0	G1/4"-F	G3/8"-M	M4-F	24.5	66	-	45.5	82	67	1	22	22	28
HT-SG A5 E 35 M10-IG	35	-	-	32.0	G1/4"-F	M10-F	M4-F	24.5	48	-	45.5	82	67	1	9	-	28
HT-SG A5 E 35 M14x1.5-IG	35	-	-	32.0	G1/4"-F	M14x1.5-F	M4-F	24.5	48	-	45.5	82	67	1	10	-	28
HT-SG A5 E 35 M16x1.5-IG	35	-	-	32.0	G1/4"-F	M16x1.5-F	M4-F	24.5	48	-	45.5	82	67	1	10	-	28
HT-SG A5 E 35 NPT1/4-AG	35	-	-	32.0	G1/4"-F	NPT1/4"-M	M4-F	24.5	59	-	45.5	82	67	1	15	-	28
HT-SG A5 E 35 NPT3/8-AG	35	-	-	32.0	G1/4"-F	NPT3/8"-M	M4-F	24.5	59	-	45.5	82	67	1	15	-	28
HT-SG A5 E 46 RA	46	50	32	32.0	G1/4"-F	-	M4-F	24.5	48	4.8	45.5	82	67	1	-	-	28

# Holders for Suction Cups HT-SG I

Suction cup connection for G-, NPT-, M-threads and rectangular adapters



## Suitability for Industry Specific Applications

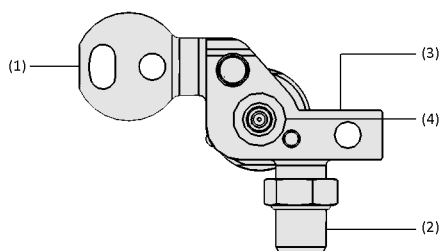


Holders for Suction Cups HT-SG I

## Applications

- Holder for mounting suction cups on tooling beams
- For vacuum suction cups with connectors for G, NPT and M threads and right-angled adapters
- For vacuum nozzles built into the holder
- Suitable for situations with restricted space, as no additional components required for vacuum generation

## Design



- Version HT-SG...I (integrated vacuum generation)
- Connection for tooling beams: Ball (A3:  $\varnothing$  28.5 mm; A5:  $\varnothing$  32 mm) or "Apple-Core" cylinder (A2:  $\varnothing$  19 mm) (1)
- Connection for vacuum suction cup (2), vacuum switch (3) and integrated vacuum nozzle (4)

System Design Holders for Suction Cups HT-SG I



Holder for suction cup HT-SG I with vacuum switch VSi and bell-shaped suction cup SAX for handling sheet metal parts

## Product Highlights

- Flexible use on tooling traverses, fast exchange and short set-up times
- Thanks to lightweight aluminium construction suitable for dynamic processes and high throughputs
- Versatile use for vacuum suction cups with various G, NPT, M threads and rectangular adapters (quick-change system)
- Customer-specific and quickly configurable, e.g. with decentralized vacuum sensors and suction cups

# Holders for Suction Cups HT-SG I

Suction cup connection for G-, NPT-, M-threads and rectangular adapters

## Designation Code Holders for Suction Cups HT-SG I

<b>HT-SG</b> 1	-	<b>A3</b> 2	-	<b>I</b> 3	-	<b>10</b> 4	-	<b>46</b> 5
<b>G3/8-AG</b> 6	-	<b>AV</b> 7	-	<b>VS</b> 8				

### 1 – Abbreviated designation

Code	Type
HT-SG	Holder for suction cup, integrated vacuum generation

### 2 – Tooling connection

Code	Connection in mm
A2	ø 19, pin
A3	ø 28.5, ball
A5	ø 32, ball

### 3 – Shape

Code	Version
I	Integrated ejector

### 4 – Nozzle size

Code	Diameter in mm
10	ø 1

### 5 – Width

Code	Width in mm
31	31
46	46

### 6 – Suction cup connection

Code	Connection
G3/8-AG	G3/8-AG (AG = male (M))
NPT3/8-AG	NPT3/8-AG
RA	Right-angled adapter

### 7 – Blow off function

Code	Version
AB	Active blow off
AV	Atmospheric ventilation

### 8 – Vacuum monitoring

Code	Version
VS	With digital vacuum switch

The holders for suction cups HT-SG I are delivered as a ready-to-connect product.

Available accessories: push-in fittings STV-GE

## Ordering Data Holders for Suction Cups HT-SG I

Type	Part no.
HT-SG A2   10 31 G3/8-AG AB	10.07.06.00497
HT-SG A2   10 31 G3/8-AG AB VS	10.07.06.00542
HT-SG A2   10 31 G3/8-AG AV	10.07.06.00589
HT-SG A2   10 31 G3/8-AG AV VS	10.07.06.00590
HT-SG A2   10 31 NPT3/8-AG AB	10.07.06.00500
HT-SG A2   10 31 NPT3/8-AG AB VS	10.07.06.00548
HT-SG A2   10 31 NPT3/8-AG AV	10.07.06.00591
HT-SG A2   10 31 NPT3/8-AG AV VS	10.07.06.00592
HT-SG A2   10 46 RA AB	10.07.06.00487
HT-SG A2   10 46 RA AB VS	10.07.06.00534
HT-SG A2   10 46 RA AV	10.07.06.00587
HT-SG A2   10 46 RA AV VS	10.07.06.00588
HT-SG A3   10 31 G3/8-AG AB	10.07.06.00356
HT-SG A3   10 31 G3/8-AG AB VS	10.07.06.00540
HT-SG A3   10 31 G3/8-AG AV	10.07.06.00595
HT-SG A3   10 31 G3/8-AG AV VS	10.07.06.00596
HT-SG A3   10 31 NPT3/8-AG AB	10.07.06.00498
HT-SG A3   10 31 NPT3/8-AG AB VS	10.07.06.00546
HT-SG A3   10 31 NPT3/8-AG AV	10.07.06.00597
HT-SG A3   10 31 NPT3/8-AG AV VS	10.07.06.00598
HT-SG A3   10 46 RA AB	10.07.06.00354
HT-SG A3   10 46 RA AB VS	10.07.06.00531

# Holders for Suction Cups HT-SG I

Suction cup connection for G-, NPT-, M-threads and rectangular adapters

Type	Part no.
HT-SG A3 I 10 46 RA AV	10.07.06.00593
HT-SG A3 I 10 46 RA AV VS	10.07.06.00594
HT-SG A5 I 10 31 G3/8-AG AB	10.07.06.00496
HT-SG A5 I 10 31 G3/8-AG AB VS	10.07.06.00541
HT-SG A5 I 10 31 G3/8-AG AV	10.07.06.00601
HT-SG A5 I 10 31 G3/8-AG AV VS	10.07.06.00602
HT-SG A5 I 10 31 NPT3/8-AG AB	10.07.06.00499
HT-SG A5 I 10 31 NPT3/8-AG AB VS	10.07.06.00547
HT-SG A5 I 10 31 NPT3/8-AG AV	10.07.06.00603
HT-SG A5 I 10 31 NPT3/8-AG AV VS	10.07.06.00604
HT-SG A5 I 10 46 RA AB	10.07.06.00486
HT-SG A5 I 10 46 RA AB VS	10.07.06.00533
HT-SG A5 I 10 46 RA AV	10.07.06.00599
HT-SG A5 I 10 46 RA AV VS	10.07.06.00600



## Ordering Data Accessories Holders for Suction Cups HT-SG I

Accessories		Part no.
Plug union, straight	STV-GE G1/8-AG 6	10.08.02.00204
Plug union, elbow	STV-W G1/8-AG 6	10.08.02.00288



## Technical Data Holders for Suction Cups HT-SG I

Type	Weight [g]
HT-SG A2 I 10 31 G3/8-AG AB	150
HT-SG A2 I 10 31 G3/8-AG AB VS	232
HT-SG A2 I 10 31 G3/8-AG AV	144
HT-SG A2 I 10 31 G3/8-AG AV VS	226
HT-SG A2 I 10 31 NPT3/8-AG AB	136
HT-SG A2 I 10 31 NPT3/8-AG AB VS	219
HT-SG A2 I 10 31 NPT3/8-AG AV	130
HT-SG A2 I 10 31 NPT3/8-AG AV VS	213
HT-SG A2 I 10 46 RA AB	150
HT-SG A2 I 10 46 RA AB VS	232
HT-SG A2 I 10 46 RA AV	144
HT-SG A2 I 10 46 RA AV VS	226
HT-SG A3 I 10 31 G3/8-AG AB	163
HT-SG A3 I 10 31 G3/8-AG AB VS	245
HT-SG A3 I 10 31 G3/8-AG AV	157
HT-SG A3 I 10 31 G3/8-AG AV VS	239
HT-SG A3 I 10 31 NPT3/8-AG AB	150
HT-SG A3 I 10 31 NPT3/8-AG AB VS	232
HT-SG A3 I 10 31 NPT3/8-AG AV	144
HT-SG A3 I 10 31 NPT3/8-AG AV VS	226
HT-SG A3 I 10 46 RA AB	164
HT-SG A3 I 10 46 RA AB VS	246
HT-SG A3 I 10 46 RA AV	158
HT-SG A3 I 10 46 RA AV VS	240
HT-SG A5 I 10 31 G3/8-AG AB	181
HT-SG A5 I 10 31 G3/8-AG AB VS	263
HT-SG A5 I 10 31 G3/8-AG AV	175
HT-SG A5 I 10 31 G3/8-AG AV VS	257



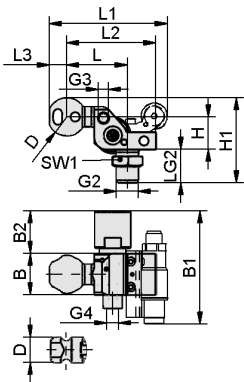
# Holders for Suction Cups HT-SG I

Suction cup connection for G-, NPT-, M-threads and rectangular adapters

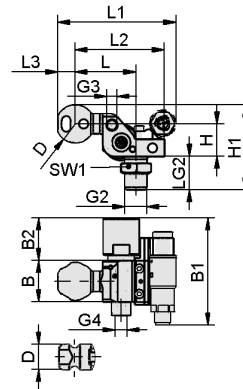
Type	Weight [g]
HT-SG A5 I 10 31 NPT3/8-AG AB	167
HT-SG A5 I 10 31 NPT3/8-AG AB VS	249
HT-SG A5 I 10 31 NPT3/8-AG AV	161
HT-SG A5 I 10 31 NPT3/8-AG AV VS	243
HT-SG A5 I 10 46 RA AB	181
HT-SG A5 I 10 46 RA AB VS	263
HT-SG A5 I 10 46 RA AV	175
HT-SG A5 I 10 46 RA AV VS	257



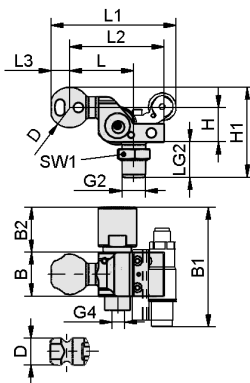
## Design Data Holders for Suction Cups HT-SG I



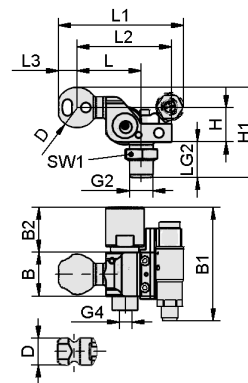
HT-SG I AG AB



HT-SG I AG AB VS



HT-SG I AG AV

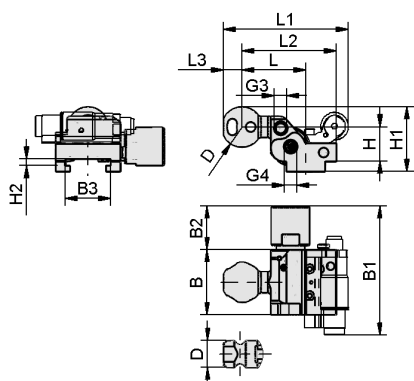


HT-SG I AG AV VS

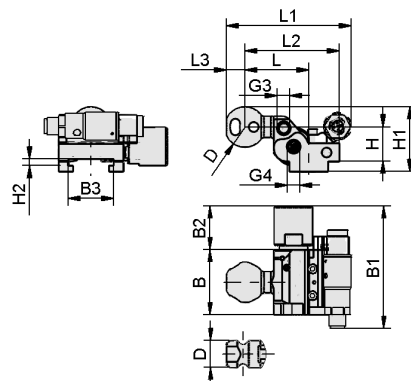


# Holders for Suction Cups HT-SG I

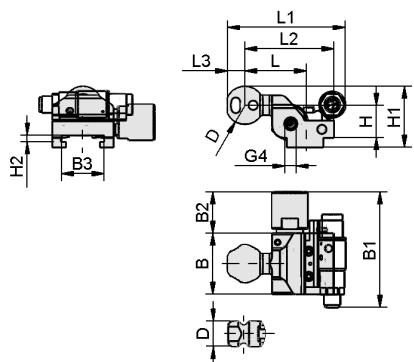
Suction cup connection for G-, NPT-, M-threads and rectangular adapters



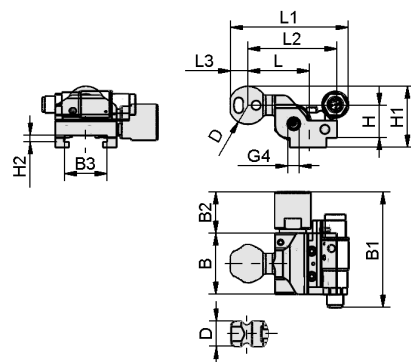
HT-SG I RA AB



HT-SG I RA AB VS



HT-SG I RA AV



HT-SG I RA AV VS



## Design Data Holders for Suction Cups HT-SG I

Type	B [mm]	B1 [mm]	B2 [mm]	B3 [mm]	D [mm]	G2	G3	G4	H [mm]	H1 [mm]	H2 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	LG2 [mm]	SW1 [mm]
HT-SG A2 I 10 31 G3/8-AG AB	31	73	32	-	19.0	G3/8-AG	G1/8"-F	G1/8"-F	24.5	59.0	-	39.3	72.5	60.8	12	22	22
HT-SG A2 I 10 31 G3/8-AG AB VS	31	81	32	-	19.0	G3/8-AG	G1/8"-F	G1/8"-F	24.5	59.9	-	39.3	81.1	60.8	12	22	22
HT-SG A2 I 10 31 G3/8-AG AV	31	73	32	-	19.0	G3/8-AG	-	G1/8"-F	24.5	59.0	-	39.3	72.5	60.8	12	22	22
HT-SG A2 I 10 31 G3/8-AG AV VS	31	81	32	-	19.0	G3/8-AG	-	G1/8"-F	24.5	59.9	-	39.3	82.6	60.8	12	22	22
HT-SG A2 I 10 31 NPT3/8-AG AB	31	73	32	-	19.0	NPT3/8-AG	G1/8"-F	G1/8"-F	24.5	52.0	-	39.3	72.5	60.8	12	15	-
HT-SG A2 I 10 31 NPT3/8-AG AB VS	31	81	32	-	19.0	NPT3/8-AG	G1/8"-F	G1/8"-F	24.5	52.9	-	39.3	81.1	60.8	12	15	-
HT-SG A2 I 10 31 NPT3/8-AG AV	31	73	32	-	19.0	NPT3/8-AG	-	G1/8"-F	24.5	52.0	-	39.3	72.5	60.8	12	15	-
HT-SG A2 I 10 31 NPT3/8-AG AV VS	31	81	32	-	19.0	NPT3/8-AG	-	G1/8"-F	24.5	52.9	-	39.3	82.6	60.8	12	15	-
HT-SG A2 I 10 46 RA AB	46	77	31	32	19.0	-	G1/8"-F	G1/8"-F	24.5	41.2	4.8	39.3	72.5	60.8	12	-	-



# Holders for Suction Cups HT-SG I

Suction cup connection for G-, NPT-, M-threads and rectangular adapters

Type	B [mm]	B1 [mm]	B2 [mm]	B3 [mm]	D [mm]	G2	G3	G4	H [mm]	H1 [mm]	H2 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	LG2 [mm]	SW1 [mm]
HT-SG A2 I 10 46 RA AB VS	46	87	31	32	19.0	-	G1/8"-F	G1/8"-F	24.5	42.1	4.8	39.3	81.1	60.8	12	-	-
HT-SG A2 I 10 46 RA AV	46	77	31	32	19.0	-	-	G1/8"-F	24.5	41.2	4.8	40.3	72.5	60.8	12	-	-
HT-SG A2 I 10 46 RA AV VS	46	87	31	32	19.0	-	-	G1/8"-F	24.5	42.1	4.8	40.3	81.1	60.8	12	-	-
HT-SG A3 I 10 31 G3/8-AG AB	31	73	32	-	28.5	G3/8-AG	G1/8"-F	G1/8"-F	24.5	63.8	-	45.5	80.0	67.0	13	22	22
HT-SG A3 I 10 31 G3/8-AG AB VS	31	81	32	-	28.5	G3/8-AG	G1/8"-F	G1/8"-F	24.5	63.8	-	45.5	88.6	67.0	13	22	22
HT-SG A3 I 10 31 G3/8-AG AV	31	73	32	-	28.5	G3/8-AG	-	G1/8"-F	24.5	63.8	-	45.5	80.0	67.0	13	22	22
HT-SG A3 I 10 31 G3/8-AG AV VS	31	81	32	-	28.5	G3/8-AG	-	G1/8"-F	24.5	63.8	-	45.5	90.1	67.0	13	22	22
HT-SG A3 I 10 31 NPT3/8-AG AB	31	73	32	-	28.5	NPT3/8-AG	G1/8"-F	G1/8"-F	24.5	56.8	-	45.5	80.0	67.0	13	15	-
HT-SG A3 I 10 31 NPT3/8-AG AB VS	31	81	32	-	28.5	NPT3/8-AG	G1/8"-F	G1/8"-F	24.5	56.8	-	45.5	88.6	67.0	13	15	-
HT-SG A3 I 10 31 NPT3/8-AG AV	31	73	32	-	28.5	NPT3/8-AG	-	G1/8"-F	24.5	56.8	-	45.5	80.0	67.0	13	15	-
HT-SG A3 I 10 31 NPT3/8-AG AV VS	31	81	32	-	28.5	NPT3/8-AG	-	G1/8"-F	24.5	56.8	-	45.5	90.1	67.0	13	15	-
HT-SG A3 I 10 46 RA AB	46	77	31	32	28.5	-	G1/8"-F	G1/8"-F	24.5	46.0	4.8	45.5	80.0	67.0	13	-	-
HT-SG A3 I 10 46 RA AB VS	46	87	31	32	28.5	-	G1/8"-F	G1/8"-F	24.5	46.0	4.8	45.5	88.6	67.0	13	-	-
HT-SG A3 I 10 46 RA AV	46	77	31	32	28.5	-	-	G1/8"-F	24.5	46.0	4.8	46.5	80.0	67.0	13	-	-
HT-SG A3 I 10 46 RA AV VS	46	87	31	32	28.5	-	-	G1/8"-F	24.5	46.0	4.8	46.5	88.6	67.0	13	-	-
HT-SG A5 I 10 31 G3/8-AG AB	31	73	32	-	32.0	G3/8-AG	G1/8"-F	G1/8"-F	24.5	65.5	-	45.5	82.0	67.0	15	22	22
HT-SG A5 I 10 31 G3/8-AG AB VS	31	81	32	-	32.0	G3/8-AG	G1/8"-F	G1/8"-F	24.5	65.5	-	45.5	90.6	67.0	15	22	22
HT-SG A5 I 10 31 G3/8-AG AV	31	73	32	-	32.0	G3/8-AG	-	G1/8"-F	24.5	65.5	-	45.5	82.0	67.0	15	22	22
HT-SG A5 I 10 31 G3/8-AG AV VS	31	81	32	-	32.0	G3/8-AG	-	G1/8"-F	24.5	65.5	-	45.5	92.1	67.0	15	22	22
HT-SG A5 I 10 31 NPT3/8-AG AB	31	73	32	-	32.0	NPT3/8-AG	G1/8"-F	G1/8"-F	24.5	58.5	-	45.5	82.0	67.0	15	15	-
HT-SG A5 I 10 31 NPT3/8-AG AB VS	31	81	32	-	32.0	NPT3/8-AG	G1/8"-F	G1/8"-F	24.5	58.5	-	45.5	90.6	67.0	15	15	-
HT-SG A5 I 10 31 NPT3/8-AG AV	31	73	32	-	32.0	NPT3/8-AG	-	G1/8"-F	24.5	58.5	-	45.5	82.0	67.0	15	15	-
HT-SG A5 I 10 31 NPT3/8-AG AV VS	31	81	32	-	32.0	NPT3/8-AG	-	G1/8"-F	24.5	58.5	-	45.5	92.1	67.0	15	15	-
HT-SG A5 I 10 46 RA AB	46	77	31	32	32.0	-	G1/8"-F	G1/8"-F	24.5	47.7	4.8	45.5	82.0	67.0	15	-	-
HT-SG A5 I 10 46 RA AB VS	46	87	31	32	32.0	-	G1/8"-F	G1/8"-F	24.5	47.7	4.8	45.5	90.6	67.0	15	-	-
HT-SG A5 I 10 46 RA AV	46	77	31	32	32.0	-	-	G1/8"-F	24.5	47.7	4.8	46.5	82.0	67.0	15	-	-
HT-SG A5 I 10 46 RA AV VS	46	87	31	32	32.0	-	-	G1/8"-F	24.5	47.7	4.8	46.5	90.6	67.0	15	-	-

# Holders for Spring Plungers HT-FST

Mountings for spring plungers from M18x1.5 to M30x1.5



## Suitability for Industry Specific Applications

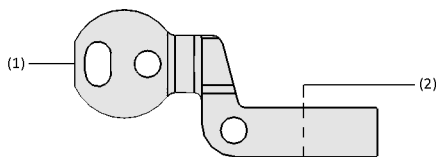
### Applications

- Holder for mounting spring plungers on tooling beams
- For spring plungers with mounting threads from M18 x 1.5 to M30 x 1.5



Holders for Spring Plungers HT-FST

### Design



- Connection for tooling beams: Ball (A3:  $\varnothing$  28.5 mm; A5:  $\varnothing$  32 mm) or "Apple-Core" cylinder (A2:  $\varnothing$  19 mm) (1)
- Connection for spring plunger (2)

System Design Holders for Spring Plungers HT-FST



Holder for spring plunger HT-FST in combination with spring plunger FSTE-HDB for handling sheet metal parts

### Product Highlights

- Flexible use on tooling traverses, fast exchange and short set-up times
- Thanks to lightweight aluminium construction suitable for dynamic processes and high throughputs
- Versatile use for spring plungers with mounting threads from M18 x 1.5 to M30 x 1.5
- Can be configured to customer specifications, e.g. with spring plungers and vacuum suction cups

# Holders for Spring Plungers HT-FST

Mountings for spring plungers from M18x1.5 to M30x1.5

## Designation Code Holders for Spring Plungers HT-FST

<b>HT-FST</b>	-	<b>A5</b>	-	<b>35</b>	-	<b>M18x1.5</b>
1		2		3		4

### 1 – Abbreviated designation

Code	Type
HT-FST	Holder for spring plunger

### 2 – Tooling connection

Code	Connection in mm
A2	ø 19, pin
A3	ø 28.5, ball
A5	ø 32, ball

### 3 – Width

Code	Width in mm
35	35
42	42

### 4 – Connection

Code	Anschluss
M18x1.5	M18x1.5
M20x1.5	M20x1.5
M30x1.5	M30x1.5

The holders for spring plungers HT-FST are delivered as a ready-to-connect product.

## Ordering Data Holders for Spring Plungers HT-FST

Type	Part no.
HT-FST A2 35 M18x1.5	10.07.06.00477
HT-FST A2 35 M20x1.5	10.07.06.00480
HT-FST A2 42 M30x1.5	10.07.06.00474
HT-FST A3 35 M18x1.5	10.07.06.00475
HT-FST A3 35 M20x1.5	10.07.06.00478
HT-FST A3 42 M30x1.5	10.07.06.00472
HT-FST A5 35 M18x1.5	10.07.06.00476
HT-FST A5 35 M20x1.5	10.07.06.00479
HT-FST A5 42 M30x1.5	10.07.06.00473

## Technical Data Holders for Spring Plungers HT-FST

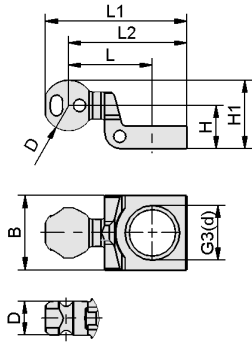
Type	Weight [g]
HT-FST A2 35 M18x1.5	71
HT-FST A2 35 M20x1.5	69
HT-FST A2 42 M30x1.5	69
HT-FST A3 35 M18x1.5	84
HT-FST A3 35 M20x1.5	82
HT-FST A3 42 M30x1.5	83
HT-FST A5 35 M18x1.5	96
HT-FST A5 35 M20x1.5	94
HT-FST A5 42 M30x1.5	94

# Holders for Spring Plungers HT-FST

Mountings for spring plungers from M18x1.5 to M30x1.5



## Design Data Holders for Spring Plungers HT-FST



HT-FST

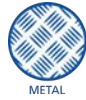


## Design Data Holders for Spring Plungers HT-FST

Type	B [mm]	D [mm]	G3	H [mm]	H1 [mm]	L [mm]	L1 [mm]	L2 [mm]
HT-FST A2 35 M18x1.5	35	19.0	M18x1.5-M	24.5	34	41.3	73	61
HT-FST A2 35 M20x1.5	35	19.0	M20x1.5-F	24.5	34	41.3	73	61
HT-FST A2 42 M30x1.5	42	19.0	M30x1.5-F	24.5	34	41.3	73	61
HT-FST A3 35 M18x1.5	35	28.5	M18x1.5-M	24.5	39	47.5	80	67
HT-FST A3 35 M20x1.5	35	28.5	M20x1.5-F	24.5	39	47.5	80	67
HT-FST A3 42 M30x1.5	42	28.5	M30x1.5-F	24.5	39	47.5	80	67
HT-FST A5 35 M18x1.5	35	32.0	M18x1.5-M	24.5	41	47.5	82	67
HT-FST A5 35 M20x1.5	35	32.0	M20x1.5-F	24.5	41	47.5	82	67
HT-FST A5 42 M30x1.5	42	32.0	M30x1.5-F	24.5	41	47.5	82	67

# Holders for Sensors HT-SE

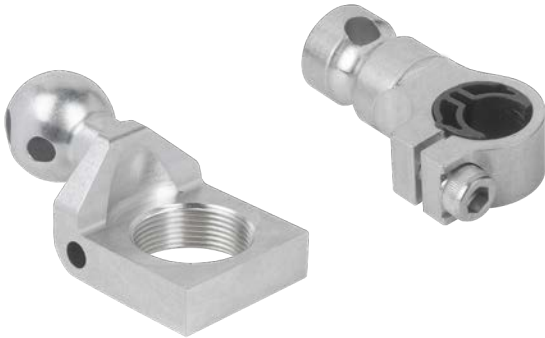
Sensor connection from 12 to 30 mm



## Suitability for Industry Specific Applications

### Applications

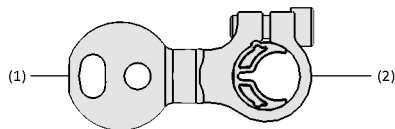
- Holder for mounting cylindrical sensors on tooling beams
- For sensors with diameters of 12 to 30 mm



Holders for Sensors HT-SE

### Design

- Connection for tooling beams: Ball (A3:  $\varnothing$  28.5 mm; A5:  $\varnothing$  32 mm) or "Apple-Core" cylinder (A2:  $\varnothing$  19 mm) (1)
- Connection for cylindrical sensors (2)



System Design Holders for Sensors HT-SE

### Product Highlights

- Flexible use on tooling traverses, fast exchange and short set-up times
- Thanks to lightweight aluminium construction suitable for dynamic processes and high throughputs
- Very versatile, as it is suitable for cylindrical sensors from 12 to 30 mm



Holder for sensors HT-SE for mounting a sensor

# Holders for Sensors HT-SE

Sensor connection from 12 to 30 mm



## Designation Code Holders for Sensors HT-SE

<b>HT-SE</b>	–	<b>A2</b>	–	<b>42</b>	–	<b>30.1</b>
1		2		3		4

### 1 – Abbreviated designation

Code	Type
HT-SE	Holder for sensors
HT-SE-U	Holder for sensors, universal

### 2 – Tooling connection

Code	Connection in mm
A2	ø 19, pin
A3	ø 28.5, ball
A5	ø 32, ball

### 3 – Width

Code	Width in mm
25	25
42	42

### 4 – Connection

Code	Connection
30.1	30.1 mm
12/18	Variable, 12 or 18 mm
M18x1	M18x1

The holders for sensors HT-SE are delivered as a ready-to-connect product.



## Ordering Data Holders for Sensors HT-SE

Type	Part no.
HT-SE A2 25 M18x1	10.07.06.00471
HT-SE A2 42 30.1	10.07.06.00468
HT-SE A3 25 M18x1	10.07.06.00469
HT-SE A3 42 30.1	10.07.06.00466
HT-SE A5 25 M18x1	10.07.06.00470
HT-SE A5 42 30.1	10.07.06.00467
HT-SE-U A2 12/18	10.07.06.00482
HT-SE-U A3 12/18	10.07.06.00352
HT-SE-U A5 12/18	10.07.06.00481



## Technical Data Holders for Sensors HT-SE

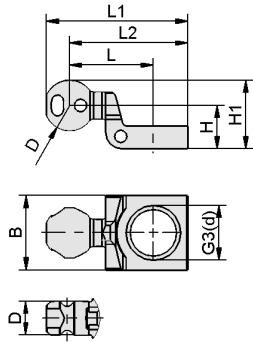
Type	Weight [g]
HT-SE A2 25 M18x1	53
HT-SE A2 42 30.1	64
HT-SE A3 25 M18x1	67
HT-SE A3 42 30.1	78
HT-SE A5 25 M18x1	78
HT-SE A5 42 30.1	89
HT-SE-U A2 12/18	37
HT-SE-U A3 12/18	52
HT-SE-U A5 12/18	63

# Holders for Sensors HT-SE

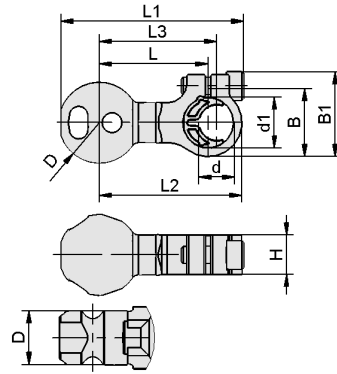
Sensor connection from 12 to 30 mm



## Design Data Holders for Sensors HT-SE



HT-SE



HT-SE U



## Design Data Holders for Sensors HT-SE

Type	B [mm]	B1 [mm]	D [mm]	d [mm]	d1 [mm]	G3	H [mm]	H1 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]
HT-SE A2 25 M18x1	25	-	19.0	-	-	M18x1-F	24.5	34	41.3	73	61	-
HT-SE A2 42 30.1	42	-	19.0	31	-	-	24.5	34	41.3	73	61	-
HT-SE A3 25 M18x1	25	-	28.5	-	-	M18x1-F	24.5	39	47.5	80	67	-
HT-SE A3 42 30.1	42	-	28.5	31	-	-	24.5	39	47.5	80	67	-
HT-SE A5 25 M18x1	25	-	32.0	-	-	M18x1-F	24.5	41	47.5	82	67	-
HT-SE A5 42 30.1	42	-	32.0	31	-	-	24.5	41	47.5	82	67	-
HT-SE-U A2 12/18	24	30	19.0	12	18	-	14.0	-	34.0	55	46	38
HT-SE-U A3 12/18	24	30	28.5	12	18	-	14.0	-	38.5	65	51	42
HT-SE-U A5 12/18	24	30	32.0	12	18	-	14.0	-	38.5	67	51	42

# Spring Plungers FSTI

Stroke from 10 mm to 50 mm



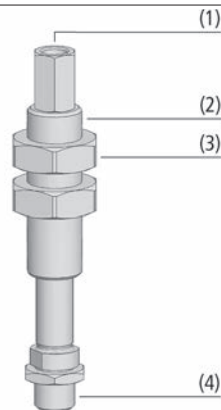
## Suitability for Industry Specific Applications



### Applications

- Spring plunger with internal damping spring for handling of workpieces with differing heights, such as curved metal sheets, etc.
- Handling of sensitive workpieces (such as sheets of glass) without additional control functions to prevent damage, since the plunger ensures soft placement
- Particularly suitable for handling tasks in the automotive sector

Spring Plungers FSTI



### Design

- Spring plunger consisting of high strength steel rod, guide sleeve with integrated sliding bearing (2) and internal damping spring
- Connection thread for suction cup male (4); connection thread for vacuum supply (1) either female or male
- Two lock nuts (3) for attachment
- Burnished surface; on the version with anti-rotation function, the plunger rod is coated for optimum sliding behaviour
- Plunger rod with integrated vacuum feed
- Anti-rotation guard due to flat side on the rod and a correspondingly shaped guide sleeve

System Design Spring Plungers FSTI



Mounting example Spring Plungers FSTI

### Product Highlights

- High-quality, maintenance-free slide bearings and excellent guidance
- Internal damping spring for gentle placement on sensitive workpieces, protected against dirt and mechanical influences
- Minimal, lightweight design optimized for the smallest space and highest dynamics
- Optionally in non-rotating version for oval suction cups



Stroke from 10 mm to 50 mm



## Designation Code Spring Plungers FSTI

<b>FSTI</b>	-	<b>G1/4-AG</b>	-	<b>G1/8-AG</b>	-	<b>10</b>	-	<b>VG</b>
1		2		3		4		5

## 1 – Abbreviated designation

Code	Version
FSTI	FSTI

## 2 – Suction cup connection

Code	Connection
G1/4-AG	G1/4-AG (AG = male (M))
G3/8-AG	G3/8-AG

## 3 – Vacuum connection

Code	Connection
G1/8-AG	G1/8-AG (AG = male (M))
G1/8-IG	G1/8-IG (IG = female (F))

## 4 – Plunger stroke

Code	Plunger stroke in mm
10...50	10 to 50

## 5 – Product addition

Code	Type
VG	With anti-rotation guard

The spring plunger FSTI is delivered as a ready-to-connect product.



## Ordering Data Spring Plungers FSTI

Type*				Plunger stroke in mm: **		
				10	25	50
FSTI	G1/8-AG	G1/4-AG	-	10.01.02.00864	10.01.02.00868	10.01.02.00992
FSTI	G1/8-AG	G1/4-AG	VG	10.01.02.00865	10.01.02.00869	10.01.02.00993
FSTI	G1/8-IG	G1/4-AG	-	10.01.02.00866	10.01.02.00870	10.01.02.00994
FSTI	G1/8-IG	G1/4-AG	VG	10.01.02.00867	10.01.02.00871	10.01.02.00995
FSTI	G1/8-AG	G3/8-AG	-	10.01.02.00755	10.01.02.00843	10.01.02.00996
FSTI	G1/8-AG	G3/8-AG	VG	10.01.02.00860	10.01.02.00862	10.01.02.00997
FSTI	G1/8-IG	G3/8-AG	-	10.01.02.00851	10.01.02.00850	10.01.02.00998
FSTI	G1/8-IG	G3/8-AG	VG	10.01.02.00861	10.01.02.00863	10.01.02.00999

\*VG = Version with anti-rotation guard for repeatably accurate positioning of suction cups

\*\*Recommendation: To raise the lifetime in continuous operation, prevent the maximal slide stroke

Stroke from 10 mm to 50 mm



## Technical Data Spring Plungers FSTI

Type	Spring rate [N/mm]	Spring pretension [N/mm]	Spring force center [N]*	Vertical load [N]**	Horizontal load [N]***	Weight [g]	Operating temperature [°C]
FSTI G1/4-AG G1/8-AG 10	0.097	7.08	7.57	1,000	700	150	0 ... 80 °C
FSTI G1/4-AG G1/8-AG 10 VG	0.097	7.08	7.57	1,000	500	150	0 ... 80 °C
FSTI G1/4-AG G1/8-IG 10	0.097	7.08	7.57	1,000	700	150	0 ... 80 °C
FSTI G1/4-AG G1/8-IG 10 VG	0.097	7.08	7.57	1,000	500	150	0 ... 80 °C
FSTI G1/4-AG G1/8-AG 25	0.097	5.63	6.84	1,000	700	180	0 ... 80 °C
FSTI G1/4-AG G1/8-AG 25 VG	0.097	5.63	6.84	1,000	500	180	0 ... 80 °C
FSTI G1/4-AG G1/8-IG 25	0.097	5.63	6.84	1,000	700	180	0 ... 80 °C
FSTI G1/4-AG G1/8-IG 25 VG	0.097	5.63	6.84	1,000	500	180	0 ... 80 °C
FSTI G1/4-AG G1/8-AG 50	0.097	2.30	4.70	1,000	700	230	0 ... 80 °C
FSTI G1/4-AG G1/8-AG 50 VG	0.097	2.30	4.70	1,000	500	230	0 ... 80 °C
FSTI G1/4-AG G1/8-IG 50	0.097	2.30	4.70	1,000	700	230	0 ... 80 °C
FSTI G1/4-AG G1/8-IG 50 VG	0.097	2.30	4.70	1,000	500	230	0 ... 80 °C
FSTI G3/8-AG G1/8-AG 10	0.097	7.08	7.57	1,000	700	150	0 ... 80 °C
FSTI G3/8-AG G1/8-AG 10 VG	0.097	7.08	7.57	1,000	500	150	0 ... 80 °C
FSTI G3/8-AG G1/8-IG 10	0.097	7.08	7.57	1,000	700	150	0 ... 80 °C
FSTI G3/8-AG G1/8-IG 10 VG	0.097	7.08	7.57	1,000	500	150	0 ... 80 °C
FSTI G3/8-AG G1/8-AG 25	0.097	5.63	6.84	1,000	700	180	0 ... 80 °C
FSTI G3/8-AG G1/8-AG 25 VG	0.097	5.63	6.84	1,000	500	180	0 ... 80 °C
FSTI G3/8-AG G1/8-IG 25	0.097	5.63	6.84	1,000	700	180	0 ... 80 °C
FSTI G3/8-AG G1/8-IG 25 VG	0.097	5.63	6.84	1,000	500	180	0 ... 80 °C
FSTI G3/8-AG G1/8-IG 50	0.097	2.30	4.70	1,000	700	230	0 ... 80 °C
FSTI G3/8-AG G1/8-IG 50 VG	0.097	2.30	4.70	1,000	500	230	0 ... 80 °C
FSTI G3/8-AG G1/8-AG 50	0.097	2.30	4.70	1,000	700	230	0 ... 80 °C
FSTI G3/8-AG G1/8-AG 50 VG	0.097	2.30	4.70	1,000	500	230	0 ... 80 °C

\*Referred to 50 % of operating stroke

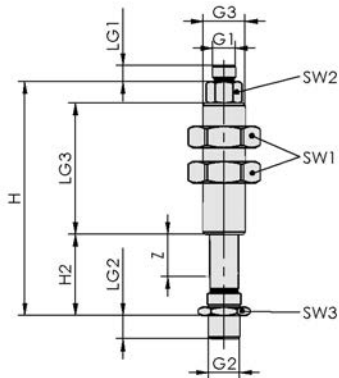
\*\*Maximum static loading

\*\*\*The specification of the horizontal load refers to the lower edge of the plunger with extended spring. It is a maximum static stress and it impairs the spring compression and extension in horizontal position.

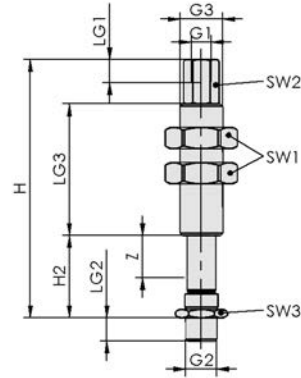
Stroke from 10 mm to 50 mm



## Design Data Spring Plungers FSTI



FSTI AG/AG (VG)



FSTI AG/IG (VG)



## Design Data Spring Plungers FSTI

Type	G1	G2	G3	H [mm]	H2 [mm]	LG1 [mm]	LG2 [mm]	LG3 [mm]	SW1 [mm]	SW2 [mm]	SW3 [mm]	Z (Stroke) [mm]
FSTI G1/4-AG G1/8-AG 10	G1/8"-M	G1/4"-M	M18x1.5-M	71.0	21.0	6.5	10	41	27	13	17	10
FSTI G1/4-AG G1/8-AG 10 VG	G1/8"-M	G1/4"-M	M18x1.5-M	71.0	21.0	6.5	10	41	27	13	17	10
FSTI G1/4-AG G1/8-IG 10	G1/8"-F	G1/4"-M	M18x1.5-M	82.5	19.5	12.0	10	41	27	13	17	10
FSTI G1/4-AG G1/8-IG 10 VG	G1/8"-F	G1/4"-M	M18x1.5-M	79.5	19.5	12.0	10	41	27	13	17	10
FSTI G1/4-AG G1/8-AG 25	G1/8"-M	G1/4"-M	M18x1.5-M	101.0	36.0	6.5	10	56	27	13	17	25
FSTI G1/4-AG G1/8-AG 25 VG	G1/8"-M	G1/4"-M	M18x1.5-M	101.0	36.0	6.5	10	56	27	13	17	25
FSTI G1/4-AG G1/8-IG 25	G1/8"-F	G1/4"-M	M18x1.5-M	109.5	34.5	12.0	10	56	27	13	17	25
FSTI G1/4-AG G1/8-IG 25 VG	G1/8"-F	G1/4"-M	M18x1.5-M	109.5	34.5	12.0	10	56	27	13	17	25
FSTI G1/4-AG G1/8-AG 50	G1/8"-M	G1/4"-M	M18x1.5-M	163.0	59.0	6.5	8	91	27	13	17	50
FSTI G1/4-AG G1/8-AG 50 VG	G1/8"-M	G1/4"-M	M18x1.5-M	163.0	59.0	6.5	8	91	27	13	17	50
FSTI G1/4-AG G1/8-IG 50	G1/8"-F	G1/4"-M	M18x1.5-M	173.0	59.0	12.0	8	91	27	13	17	50
FSTI G1/4-AG G1/8-IG 50 VG	G1/8"-F	G1/4"-M	M18x1.5-M	173.0	59.0	12.0	8	91	27	13	17	50
FSTI G3/8-AG G1/8-AG 10	G1/8"-M	G3/8"-M	M18x1.5-M	72.0	22.0	6.5	9	41	27	13	19	10
FSTI G3/8-AG G1/8-AG 10 VG	G1/8"-M	G3/8"-M	M18x1.5-M	72.0	22.0	6.5	9	41	27	13	19	10
FSTI G3/8-AG G1/8-IG 10	G1/8"-F	G3/8"-M	M18x1.5-M	82.5	22.5	12.0	9	41	27	13	19	10
FSTI G3/8-AG G1/8-IG 10 VG	G1/8"-F	G3/8"-M	M18x1.5-M	82.5	22.5	12.0	9	41	27	13	19	10
FSTI G3/8-AG G1/8-AG 25	G1/8"-M	G3/8"-M	M18x1.5-M	102.0	37.0	6.5	9	56	27	13	19	25
FSTI G3/8-AG G1/8-AG 25 VG	G1/8"-M	G3/8"-M	M18x1.5-M	102.0	37.0	6.5	9	56	27	13	19	25
FSTI G3/8-AG G1/8-IG 25	G1/8"-F	G3/8"-M	M18x1.5-M	112.5	37.5	12.0	9	56	27	13	19	25
FSTI G3/8-AG G1/8-IG 25 VG	G1/8"-F	G3/8"-M	M18x1.5-M	112.5	37.5	12.0	9	56	27	13	19	25
FSTI G3/8-AG G1/8-AG 50	G1/8"-M	G3/8"-M	M18x1.5-M	163.0	54.0	6.5	8	91	27	13	19	50
FSTI G3/8-AG G1/8-AG 50 VG	G1/8"-M	G3/8"-M	M18x1.5-M	163.0	54.0	6.5	8	91	27	13	19	50
FSTI G3/8-AG G1/8-IG 50	G1/8"-F	G3/8"-M	M18x1.5-M	173.0	54.0	12.0	8	91	27	13	19	50
FSTI G3/8-AG G1/8-IG 50 VG	G1/8"-F	G3/8"-M	M18x1.5-M	173.0	54.0	12.0	8	91	27	13	19	50

Stroke from 15 mm to 120 mm



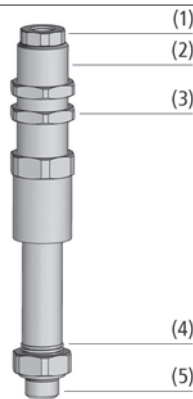
## Suitability for Industry Specific Applications



### Applications

- Spring plunger with special sliding bearings and one damping spring for handling of workpieces with differing heights, such as curved metal sheets, etc.
- Handling of easily damaged workpieces (such as sheets of glass) without additional control functions to prevent damage, since the plunger ensures soft placement
- For handling tasks with very dynamic motion and short cycle times
- Extra smooth running, anti-rotation design for process secured operation even under harsh and difficult conditions

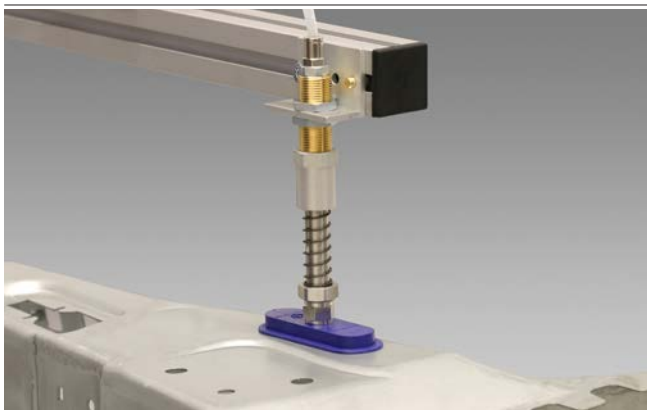
Spring Plungers FSTE-HDB



### Design

- Spring plunger consisting of high strength stainless steel rod, brass sleeve with integrated bearing (2) and damping spring (4)
- Plunger rod with integrated vacuum feed, always female connection thread (1)
- Ball bearing anti-rotation guard
- Always male connection thread for suction cup (5)
- Long external mounting thread with lock nuts (3)
- Block guard for damping spring

System Design Spring Plungers FSTE-HDB



Spring plunger FSTE-HDB handling sheet metals

### Product Highlights

- Maintenance-free and durable thanks to high-quality slide bearings; enables minimum cycle times
- Very smooth-running, non-rotating version for oval suction cups in demanding applications
- Long external thread opens up a large, flexible adjustment range
- Durable damping springs thanks to block protection

Stroke from 15 mm to 120 mm



## Designation Code Spring Plungers FSTE-HDB

<b>FSTE</b>	–	<b>HDB</b>	–	<b>G1/4-AG</b>	–	<b>25</b>	–	<b>VG-AB</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>		<b>5</b>

**1** – Abbreviated designation

Code	Version
FSTE	FSTE

**2** – Variant

Code	Type
HDB	Heavy Duty Ball (ball bearing-mounted anti-rotation guard)

**3** – Suction cup connection

Code	Connection
G1/8-AG	G1/8-AG (AG = male (M))
G1/4-AG	G1/4-AG
G3/8-AG	G3/8-AG
G1/2-AG	G1/2-AG

**4** – Plunger stroke

Code	Plunger stroke in mm
15...120	15 to 120

**5** – Product addition

Code	Type
VG-AB	Anti-rotation guard, anti block

Spring plunger FSTE-HDB is delivered as a ready-to-connect product.



## Ordering Data Spring Plungers FSTE-HDB

Type*		Plunger stroke in mm:				
		15	25	45	80	120
FSTE-HDB	G1/8-AG	10.01.02.01437	10.01.02.01438	10.01.02.01439	-	-
FSTE-HDB	G1/4-AG	-	10.01.02.01427	10.01.02.01382	10.01.02.01377	10.01.02.01527
FSTE-HDB	G3/8-AG	-	10.01.02.01436	10.01.02.01422	10.01.02.01423	10.01.02.01530
FSTE-HDB	G1/2-AG	-	10.01.02.01440	-	10.01.02.01441	-

\*Recommendation: To raise the lifetime in continuous operation, prevent the maximal slide stroke



## Technical Data Spring Plungers FSTE-HDB

Type	Spring rate [N/mm]	Spring pretension [N]	Spring force center [N]*	Vertical load [N]**	Horizontal load [N]***	Weight [g]	Operating temperature [°C]
FSTE-HDB G1/8-AG 15 VG-AB	0.211	3.8	5.42	3,700	385	130	0 ... 80 °C
FSTE-HDB G1/8-AG 25 VG-AB	0.143	3.7	5.51	3,700	283	137	0 ... 80 °C
FSTE-HDB G1/8-AG 45 VG-AB	0.097	3.6	5.77	3,700	173	149	0 ... 80 °C
FSTE-HDB G1/4-AG 25 VG-AB	0.711	3.1	11.95	2,400	747	235	0 ... 80 °C
FSTE-HDB G1/4-AG 45 VG-AB	0.453	3.5	13.71	2,400	466	253	0 ... 80 °C
FSTE-HDB G1/4-AG 80 VG-AB	0.417	12.4	29.06	2,400	340	298	0 ... 80 °C
FSTE-HDB G3/8-AG 25 VG-AB	0.711	3.1	11.95	2,400	747	240	0 ... 80 °C
FSTE-HDB G3/8-AG 45 VG-AB	0.453	3.5	13.71	2,400	466	256	0 ... 80 °C
FSTE-HDB G3/8-AG 80 VG-AB	0.417	12.4	29.06	2,400	340	304	0 ... 80 °C
FSTE-HDB G1/2-AG 25 VG-AB	3.828	4.6	52.50	4,900	1,870	590	0 ... 80 °C
FSTE-HDB G1/2-AG 80 VG-AB	1.072	21.5	64.50	4,900	800	725	0 ... 80 °C
FSTE-HDB G1/4-AG 120 VG-AB	0.232	10.4	24.29	2,400	290	345	0 ... 80 °C
FSTE-HDB G3/8-AG 120 VG-AB	0.232	10.4	24.29	2,400	290	350	0 ... 80 °C

\*Referred to 50 % of operating stroke

\*\*Maximum static loading

\*\*\*The specification of the horizontal load refers to the lower edge of the plunger with extended spring. It is a maximum static stress and it impairs the spring compression and extension in horizontal position.

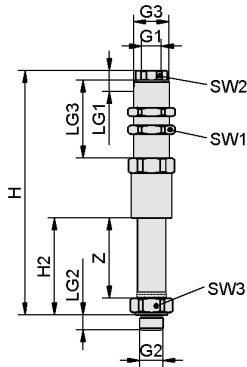


# Spring Plungers FSTE-HDB

Stroke from 15 mm to 120 mm



## Design Data Spring Plungers FSTE-HDB



FSTE-HDB



## Design Data Spring Plungers FSTE-HDB

Type	G1	G2	G3	H [mm]	H2 [mm]	LG1 [mm]	LG2 [mm]	LG3 [mm]	SW1 [mm]	SW2 [mm]	SW3 [mm]	Z (Stroke) [mm]
FSTE-HDB G1/8-AG 15 VG-AB	G1/8"-F	G1/8"-M	M16x1-M	93	23	7	8.5	34	22	12	19	15
FSTE-HDB G1/8-AG 25 VG-AB	G1/8"-F	G1/8"-M	M16x1-M	106	33	7	8.5	34	22	12	19	25
FSTE-HDB G1/8-AG 45 VG-AB	G1/8"-F	G1/8"-M	M16x1-M	131	53	7	8.5	34	22	12	19	45
FSTE-HDB G3/8-AG 25 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	119	36	12	8.0	44	24	17	22	25
FSTE-HDB G3/8-AG 45 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	139	56	12	8.0	44	24	17	22	45
FSTE-HDB G3/8-AG 80 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	189	91	12	8.0	44	24	17	22	80
FSTE-HDB G1/4-AG 25 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	119	35	12	8.5	44	24	17	22	25
FSTE-HDB G1/4-AG 45 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	139	55	12	8.5	44	24	17	22	45
FSTE-HDB G1/4-AG 80 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	189	90	12	8.5	44	24	17	22	80
FSTE-HDB G1/2-AG 25 VG-AB	G3/8"-F	G1/2"-M	M30x1.5-M	137	37	16	10.5	50	36	24	32	25
FSTE-HDB G1/2-AG 80 VG-AB	G3/8"-F	G1/2"-M	M30x1.5-M	217	92	16	10.5	50	36	24	32	80
FSTE-HDB G1/4-AG 120 VG-AB	G1/8"-F	G1/4"-M	M20x1.5-M	239	130	12	8.5	44	24	17	22	120
FSTE-HDB G3/8-AG 120 VG-AB	G1/8"-F	G3/8"-M	M20x1.5-M	239	131	12	8.0	44	24	17	22	120

# General Terms and Conditions of Sale and Delivery

VACUUM AUTOMATION  
TOOLING CATALOG

As of: 08/2020

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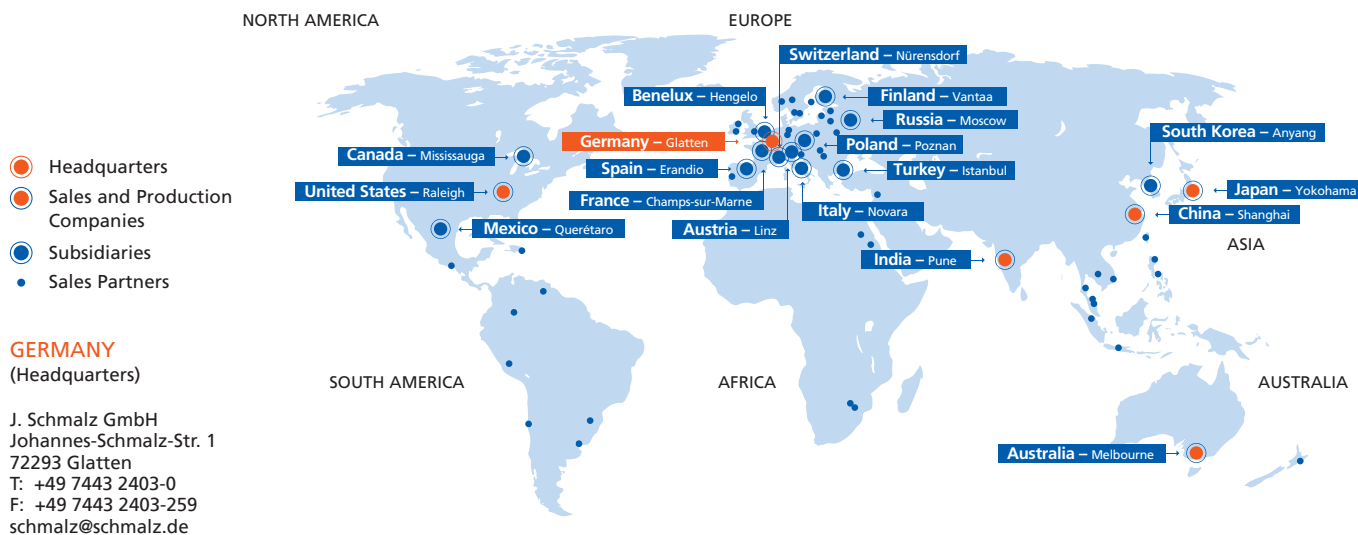
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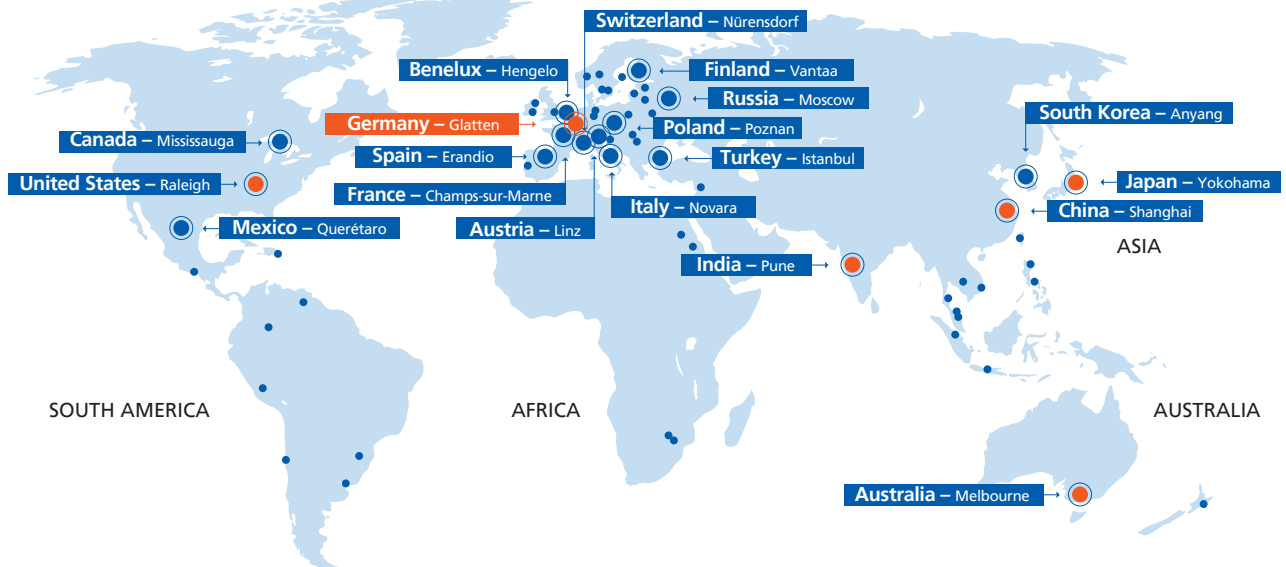
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