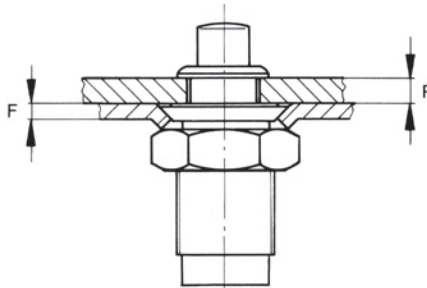


### Particular Features

Max. tensile strength 1.330 N.  
Quick opening and closing by a finger push.  
Easy installation by single hole mounting.

### Selection Instructions


1. Select stud assembly, page K-2 and receptacle, page K-3.
2. Select retaining washer, page K-2 and retaining hexnut, page K-3, if necessary.
3. Select stud length number from Panel thickness P using the table below, insert into stud part number \* (e.g. 15S1-\*-1AD).


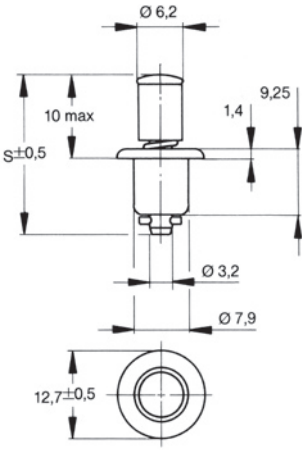


### Stud Length Table

Panel Thickness P	Stud Length No.
0,7 - 2,3	1
2,3 - 3,8	3
3,8 - 5,3	5
5,3 - 6,9	7
6,9 - 8,4	9
8,4 - 9,9	11
9,9 - 11,4	13
11,4 - 13,0	15

Other lengths on request.

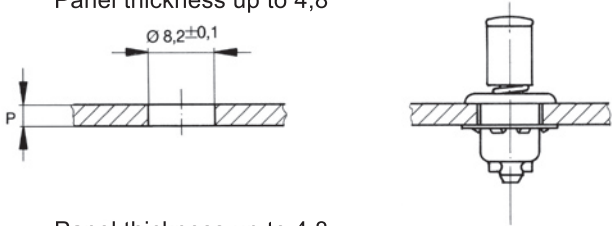
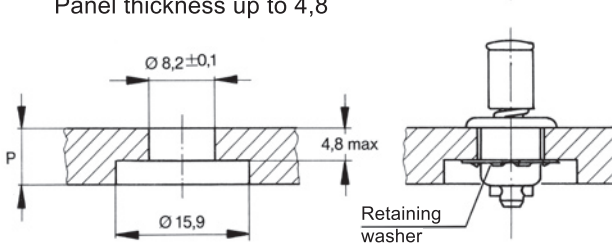
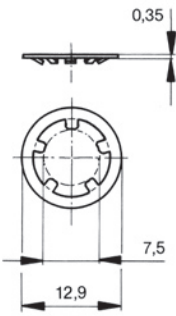
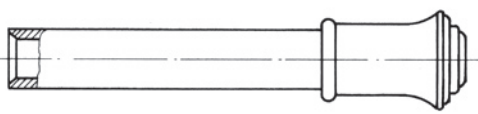
 Preferred dash-lengths


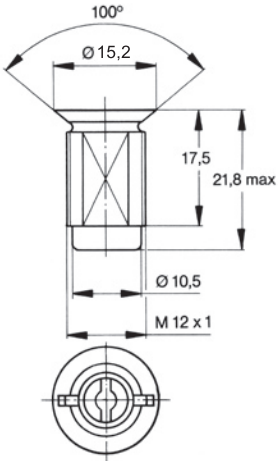
Style	Dimensions	Materials / Finish	°C	Part No.
	 <p>S=22,4 + (0,76 x length no.)</p>	Steel / nickel-plated	230	<b>15S1- *-1AD</b>
		Steel / zinc-plated CrVI-free, transparent passivated		<b>15S1- *-1AJ</b>

\* Length no. from Table, see page K-1.

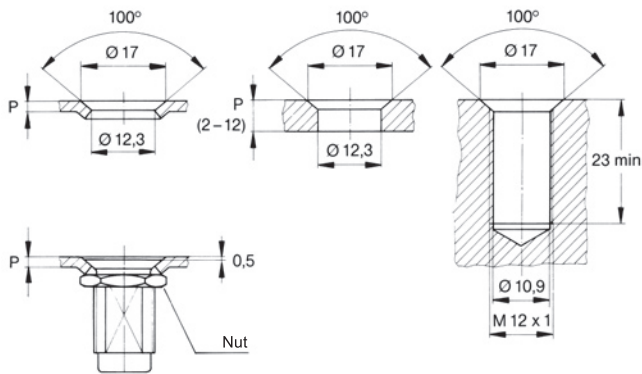
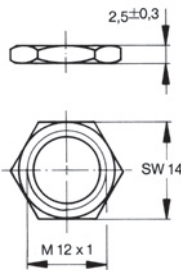
Other lengths and surfaces can be ordered upon request.

## Stud Installation Instructions

Installation Dimensions	Accessories	Materials / Finish	Part No.
<p>Panel thickness up to 4,8</p>  <p>Panel thickness up to 4,8</p> 	Retaining washer	Stainless steel	<b>15S11-1CJ</b>
			
	Installation Tool for 15S11-1CJ retaining washer		<b>T107-1</b>

Style	Dimensions	Materials / Finish	°C	Part No.
		Zinc die casting / zinc-plated CrVI-free, transparent passivated	150	<b>V15R13-1-1AB</b>

### Receptacle Installation Instructions

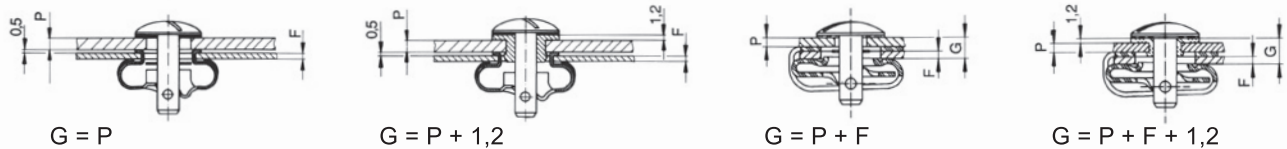
Installation Dimensions	Accessories	Materials / Finish	Part No.
	<p>Hex Nut</p> 	Steel / zinc-plated, CrVI-free, transparent passivated	<b>V15R14-1-1AB</b>

### Particular Features

- Max. tensile strength 900 N.
- Plastic washer stud assembly to protect decorative surfaces.
- Spring loaded receptacle as snap-in and clip-on design.
- Snap-in grommet for quick stud installation without retaining washer.

### Selection Instructions

- Select stud assembly and receptacle, page D-2 to D-4 and D-6.
- Select retaining washer or grommet, page D-5.
- Select stud length number from total thickness G using the formula and table below, insert into stud part number \* (e.g. 50E21-\*AGV).


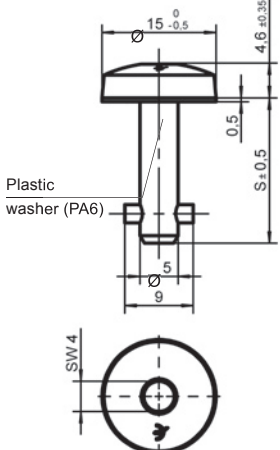

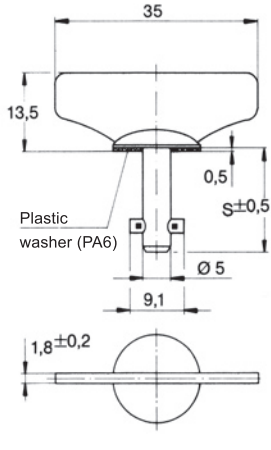

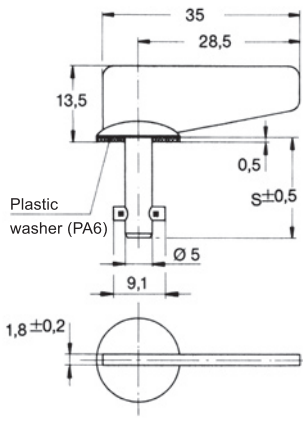


### Stud Length Table


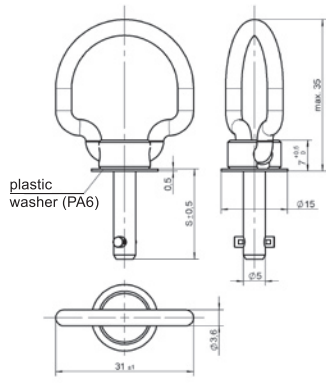

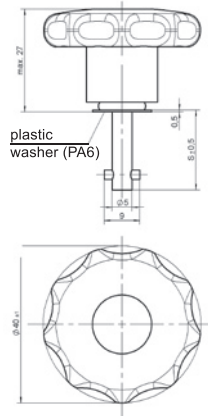

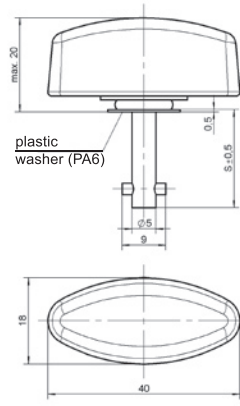
Total Thickness G	Stud Length No. when using Receptacles Type 1 F= 1,0 - 2,1	Total Thickness G	Stud Length No. when using Receptacles Type 1 F= 2,1 - 3,0	Total Thickness G	Stud Length No. when using Receptacles Type 2
0,50 - 1,10	5	0,50 - 1,10	7	2,30 - 2,90	5
1,10 - 1,70	6	1,10 - 1,70	8	2,90 - 3,50	6
1,70 - 2,30	7	1,70 - 2,30	9	3,50 - 4,10	7
2,30 - 2,90	8	2,30 - 2,90	10	4,10 - 4,70	8
2,90 - 3,50	9	2,90 - 3,50	11	4,70 - 5,30	9
3,50 - 4,10	10	3,50 - 4,10	12	5,30 - 5,90	10
4,10 - 4,70	11	4,10 - 4,70	13	5,90 - 6,50	11
4,70 - 5,30	12	4,70 - 5,30	14	6,50 - 7,10	12
5,30 - 5,90	13	5,30 - 5,90	15	7,10 - 7,70	13
5,90 - 6,50	14	5,90 - 6,50	16	7,70 - 8,30	14
6,50 - 7,10	15	6,50 - 7,10	17	8,30 - 8,90	15
7,10 - 7,70	16	7,10 - 7,70	18	8,90 - 9,50	16
7,70 - 8,30	17	7,70 - 8,30	19	9,50 - 10,10	17
8,30 - 8,90	18	8,30 - 8,90	20	10,10 - 10,70	18
8,90 - 9,50	19	8,90 - 9,50	21	10,70 - 11,30	19
9,50 - 10,10	20	9,50 - 10,10	22	11,30 - 11,90	20
10,10 - 10,70	21	10,10 - 10,70	23	11,90 - 12,50	21
10,70 - 11,30	22	10,70 - 11,30	24	12,50 - 13,10	22
11,30 - 11,90	23	11,30 - 11,90	25	13,10 - 13,70	23
11,90 - 12,50	24	11,90 - 12,50	26	13,70 - 14,30	24
12,50 - 13,10	25	12,50 - 13,10	27	14,30 - 14,90	25
13,10 - 13,70	26	13,10 - 13,70	28	14,90 - 15,50	26
13,70 - 14,30	27	13,70 - 14,30	29	15,50 - 16,10	27
14,30 - 14,90	28	14,30 - 14,90	30	16,10 - 16,70	28
14,90 - 15,50	29	14,90 - 15,50	31	16,70 - 17,30	29
15,50 - 16,10	30	15,50 - 16,10	32	17,30 - 17,90	30

Other lengths on request.

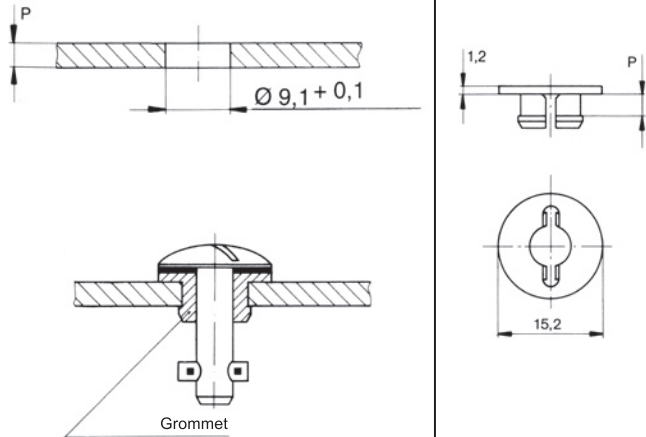
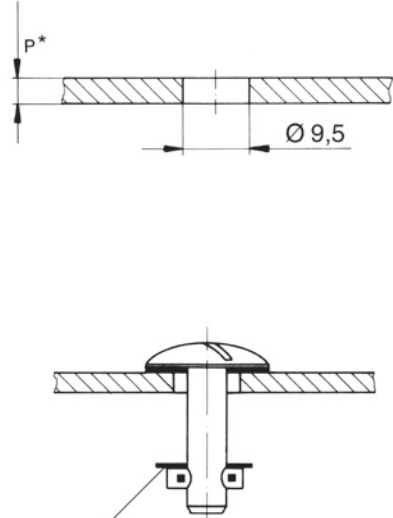
■ Preferred dash-lengths


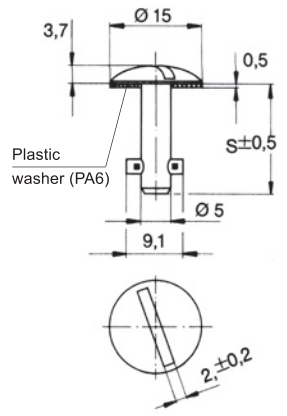

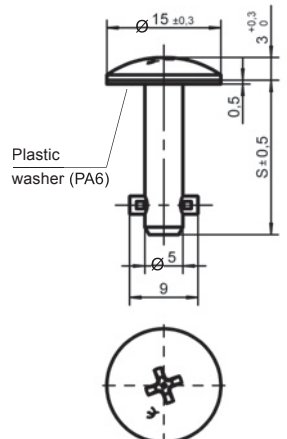

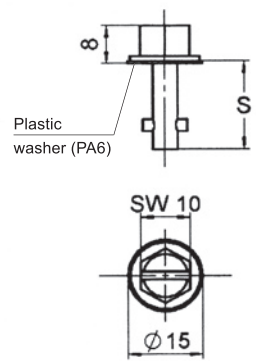
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Hex Recess Head</b></p> 	 <p><math>S = 11,40 + (0,6 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)</p>	80	<b>50E60-*AGV</b>
<p><b>Fixed Wing Head</b></p> 	 <p><math>S = 11,40 + (0,6 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)</p>	80	<b>50E21-*WAGV</b>
<p><b>Offset Fixed Wing Head</b></p> 	 <p><math>S = 11,40 + (0,6 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)</p>	80	<b>50E21-*W0AGV</b>

\* Length no. from Table, see page D-1.

Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Folding Bail Handle</b></p> 	 <p>S = 11,40 + (0,6 x length no.)</p>	Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)	80	<b>50E18-*AGV</b>
<p><b>Star Formed Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated with plastic head and plastic washer (PA6)	- 40 up to + 60	<b>50E80-*AGV</b>
		Stainless steel with plastic head and plastic washer (PA6)	- 40 up to + 60	<b>50E80-*CP</b>
<p><b>Wing Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated with plastic head and plastic washer (PA6)	- 40 up to + 60	<b>50E82-*AGV</b>
		Stainless steel with plastic head and plastic washer (PA6)	- 40 up to + 60	<b>50E82-*CP</b>


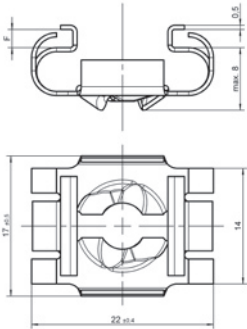

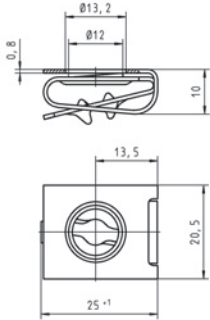
\* Length no. from Table, see page D-1.

Style	Dimensions	Materials / Finish	P	Part No.
<p><b>Snap-In Grommet</b></p>  <p>Grommet</p>	Grommet	Plastic (PA6) / natural colour  Working temperature: -40°C + 120°C	Up to 1,60	<b>50S12-0-1AA</b>
			1,70 - 2,80	<b>50S12-1-1AA</b>
			2,90 - 4,00	<b>50S12-2-1AA</b>
			4,10 - 5,30	<b>50S12-3-1AA</b>
			5,40 - 6,65	<b>50S12-4-1AA</b>
<p><b>Retaining Washer</b></p>  <p>Retaining washer Installation: see page A-6.</p>	Retaining washer	Stainless steel		<b>4002-SW-SS</b>
	Retaining washer	Stainless steel		<b>50E2-3BP</b>
	Retaining washer	Plastic (PA6) / natural colour		<b>50W204-01K</b>
<p>*For P up to 2mm Ø 8 <sup>+0.2</sup> for installation without retaining washer</p>		Working temperature: -40°C + 120°C  <b>ADVANTAGE:</b> Plastic retaining washer to be assembled without tooling		

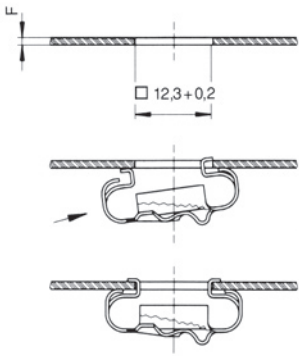
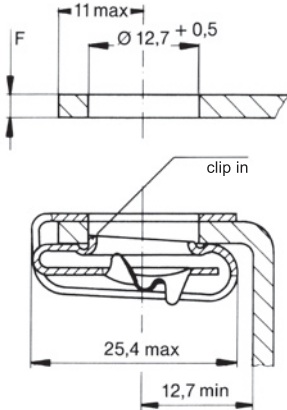
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Head</b></p> 	 <p><math>S = 11,40 + (0,6 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)</p> <p>Stainless steel with plastic washer (PA6)</p>	<p>80</p> <p>80</p>	<p><b>50E21-*AGV</b></p> <p><b>50E21-*S</b></p>
<p><b>Cross Recess Head</b></p> 	 <p><math>S = 11,40 + (0,6 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)</p>	<p>80</p>	<p><b>50E70-*AGV</b></p>
<p><b>Hex Head Slotted Recess</b></p> 	 <p><math>S = 11,40 + (0,6 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic washer (PA6)</p>	<p>80</p>	<p><b>50E90-*AGV</b></p>

\* Length no. from Table, see page D-1.



Style	Dimensions	Materials / Finish	Panel Thickness P	Part No.	Part No.
<b>Type 1 Snap-In</b>  		Spring steel / zinc-flake coated  Spring steel / zinc-flake coated  Max. tensile strength 250 N	F = 1,0 - 2,0	170	<b>50E20-1AK7</b>
			F = 2,1 - 3,0	170	<b>50E20-2AK7</b>
<b>Type 2 Clip-On</b>  		Spring steel / zinc-flake coated	F = 0,8 - 5,6	170	<b>V50R4-2-1AK7</b>

## Receptacle Installation Instructions

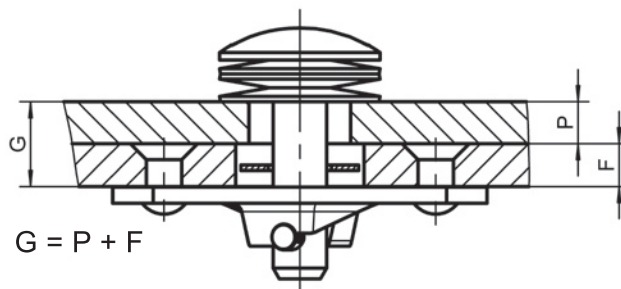
Installation Dimensions	
<b>Snap-In</b>  	<b>Clip-On</b>  

### Particular Features

- Max. tensile strength 3.700 N.
- Small-size fastener for high tensile load.
- Flat receptacle.
- High preload.

### Selection Instructions

1. Select stud assembly and receptacle, page E-2 to E-4 and E-6.
2. Select retaining washer, page E-5.
3. Select stud length number from total thickness G using the formula and table below, insert into stud part number \* (e.g. 50E8-\*AGV).





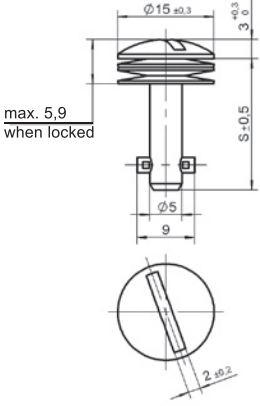

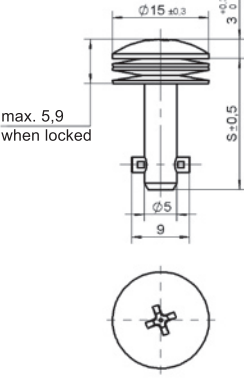

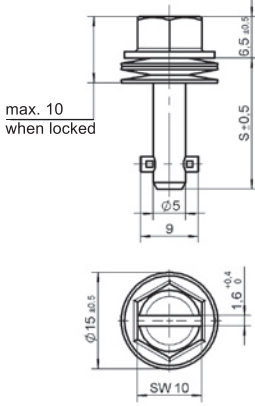
### Stud Length Table

Total Thickness G	Stud Length No.
0,50 - 1,10	2
1,10 - 1,70	3
1,70 - 2,30	4
2,30 - 2,90	5
2,90 - 3,50	6
3,50 - 4,10	7
4,10 - 4,70	8
4,70 - 5,30	9
5,30 - 5,90	10
5,90 - 6,50	11
6,50 - 7,10	12
7,10 - 7,70	13
7,70 - 8,30	14
8,30 - 8,90	15
8,90 - 9,50	16
9,50 - 10,10	17
10,10 - 10,70	18

Total Thickness G	Stud Length No.
10,70 - 11,30	19
11,30 - 11,90	20
11,90 - 12,50	21
12,50 - 13,10	22
13,10 - 13,70	23
13,70 - 14,30	24
14,30 - 14,90	25
14,90 - 15,50	26
15,50 - 16,10	27
16,10 - 16,70	28
16,70 - 17,30	29
17,30 - 17,90	30
17,90 - 18,50	31
18,50 - 19,10	32
19,10 - 19,70	33
19,70 - 20,30	34
20,30 - 20,90	35


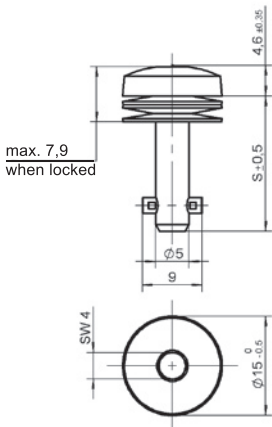

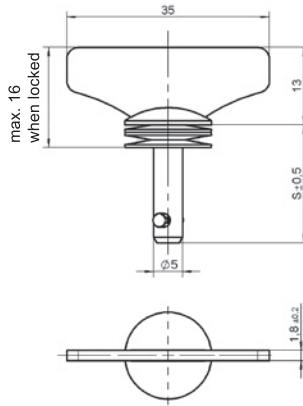

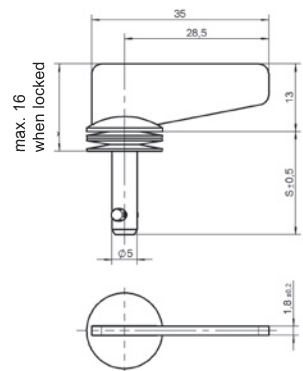
Other lengths on request.

 Preferred dash-lengths


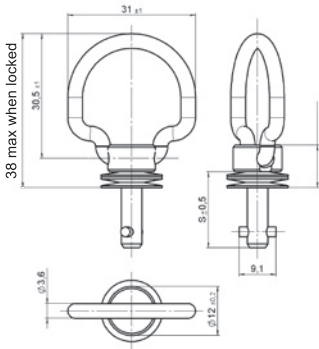

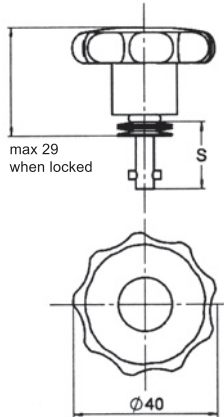

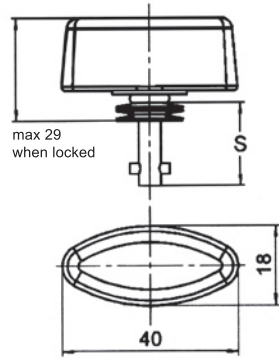

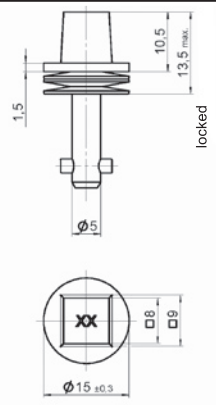
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated</p> <p>Stainless steel <sup>1)</sup></p>	<p>230</p> <p>230</p>	<p><b>50E8-*AGV</b></p> <p><b>50E8-*S</b></p>
<p><b>Cross Recess Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	<p>230</p>	<p><b>50E71-*AGV</b></p>
<p><b>Hex Head Slotted Recess</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	<p>230</p>	<p><b>50E91-*AGV</b></p>

\* Length no. from Table, page E-1.

<sup>1)</sup>Max. tensile strength 2.600 N.

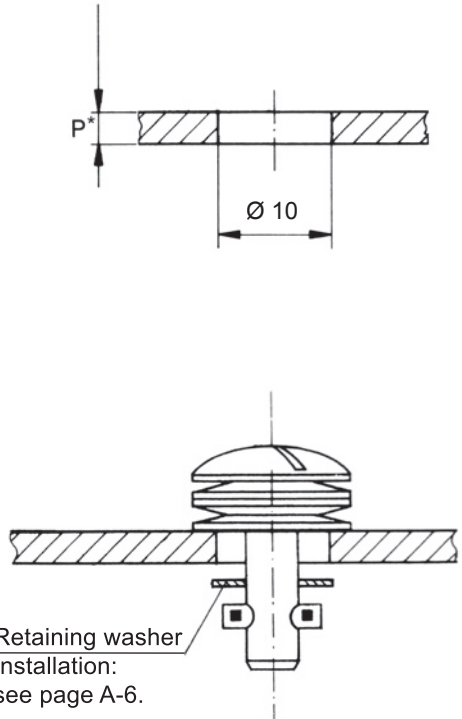
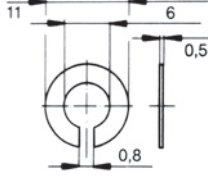
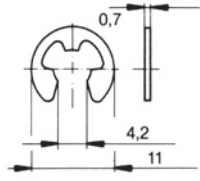
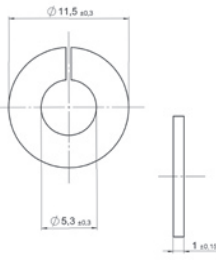
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Hex Recess Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>50E61-*AGV</b>
<p><b>Fixed Wing Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>50E8-*WAGV</b>
<p><b>Offset Fixed Wing Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>50E8-*W0AGV</b>

\* Length no. from Table, page E-1.


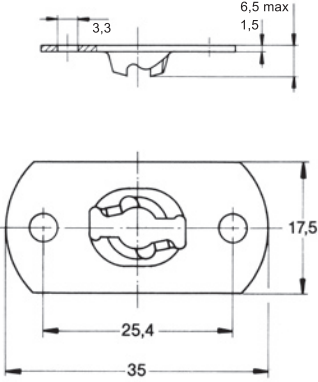
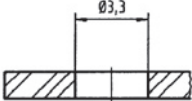
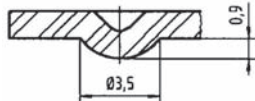
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Folding Bail Handle</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>50E19-*AGV</b>
<p><b>Star Formed Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated with plastic knob  Stainless steel <sup>1)</sup> with plastic knob	-40 up to +60  -40 up to +60	<b>50E81-*AGV</b>  <b>50E81-*CP</b>
<p><b>Wing Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated with plastic knob  Stainless steel <sup>1)</sup> with plastic knob	-40 up to +60  -40 up to +60	<b>50E83-*AGV</b>  <b>50E83-*CP</b>
<p><b>Square Head</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>50E7-*AGV</b>

\* Length no. from Table, page E-1.

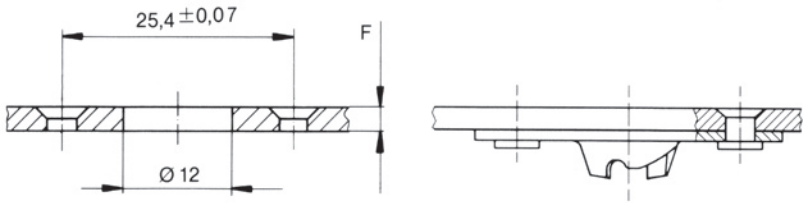
<sup>1)</sup> Max. tensile strength 2.600 N.

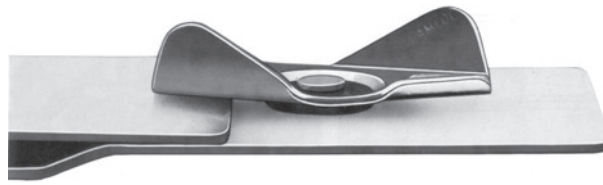
Installation Dimensions	Accessories	Material / Finish	Part No.
 <p>Retaining washer Installation: see page A-6.</p>	<p>Retaining washer (loose)</p>  <p>Retaining washer (fixed)</p>  <p>Retaining washer (loose)</p> 	<p>Stainless steel</p> <p>Stainless steel</p> <p>Plastic (PA6) / natural colour</p> <p>Working temperature: -40°C + 120°C</p> <p>ADVANTAGE: Plastic retaining washer to be assembled without tooling.</p>	<p><b>4002-SW-SS</b></p> <p><b>50E2-3BP</b></p> <p><b>50W204-01K</b></p>

\*For P up to 2 mm  $\varnothing 8^{+0.2}$  for installation without retaining washer

Style	Dimensions	Materials / Finish	°C	Part No.
<b>Rivet- / Screw or Weld Mounting</b>  	  Version A Rivet/Screw Mounting    Version B Welding  	<b>Rivet / Screw Mounting</b>  Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>V50R3-1-1AGV</b>
		Stainless steel	230	<b>V50R3-1-1BP</b>
		<b>Welding</b>  Steel / zinc-plated	230	<b>V50R3-1-2AZ</b>

## Receptacle Installation Instructions

Installation Dimensions
<p align="center"><b>Rivet- / Screw or Weld Mounting</b></p> 

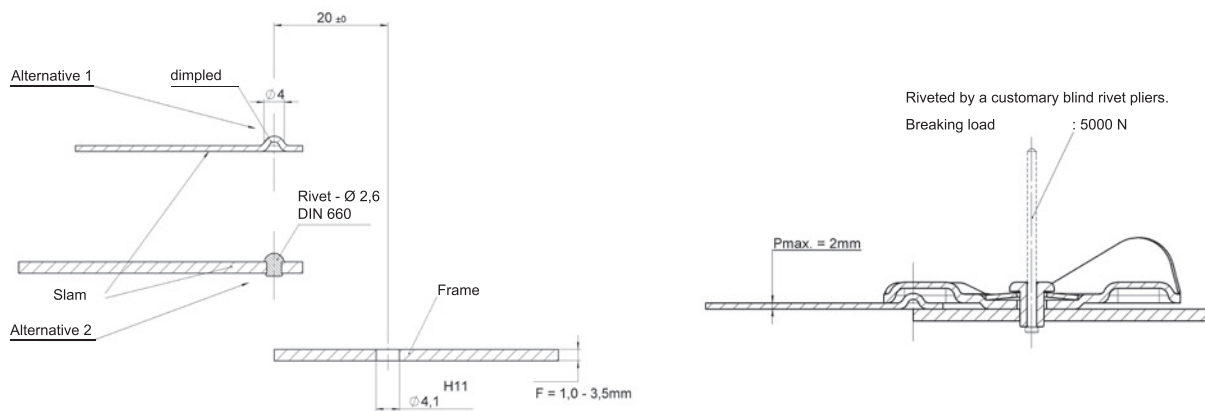


**Particular Features**

- Easy and economic fastener for trap, lid, etc.
- Easy installation by blind riveting.
- Engaged when locked.
- High catch force by spring tension.

Dimensions	Materials / Finish	°C	Part No.
	Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>52E02-*-1AG</b>

**Selection and Installation Instructions**



Part No.	Panel Thickness P	Height H
52E02-01-1AG	0 (flush)	0,7
52E02-02-1AG	1	1,1
52E02-03-1AG	2	1,7



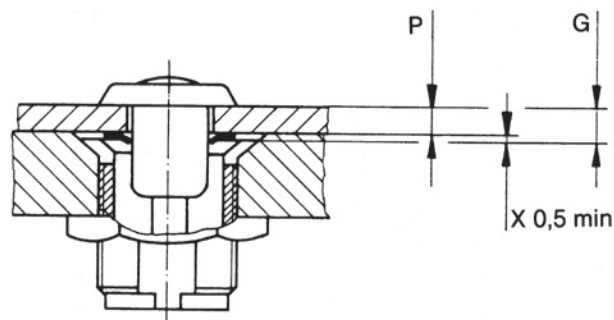
### Particular Features

- Max. tensile strength 700 N.
- Increased grip range.
- Receptacles with external thread for screwing or retaining nut (see page C-3).
- Encapsulated design, splash-proof.

### Selection Instructions


1. Select stud assembly and receptacle, page C-2 and C-3.
2. Select hex nut for receptacle, if necessary, page C-3.
3. Select stud retaining washer, page C-2.
4. Select stud length number from total thickness G using the formula and table below, insert into stud part number \* (e.g. 99S10-\*A1).


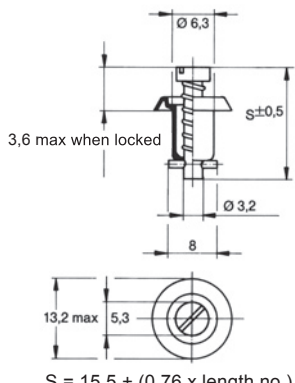
### Determining the stud length number:



Total Thickness G	Stud Length No.
0,5 - 1,5	01
1,5 - 3,0	03
3,0 - 4,5	05
4,5 - 6,0	07
6,0 - 7,5	09
7,5 - 9,0	11
9,0 - 10,5	13
10,5 - 12,0	15
12,0 - 13,5	17
13,5 - 15,0	19

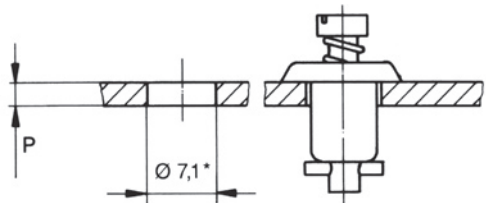
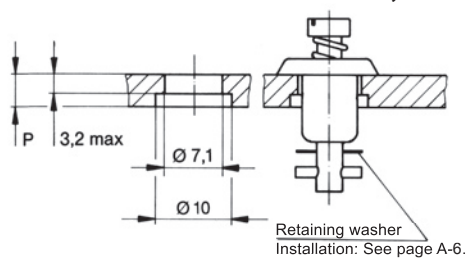
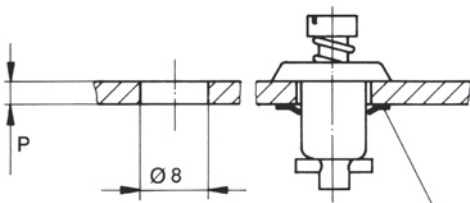
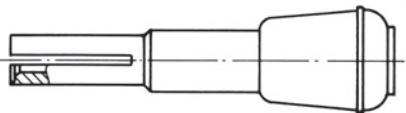
Other lengths on request.


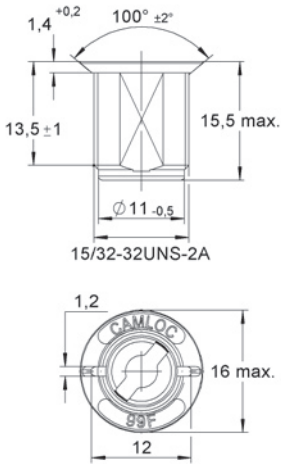

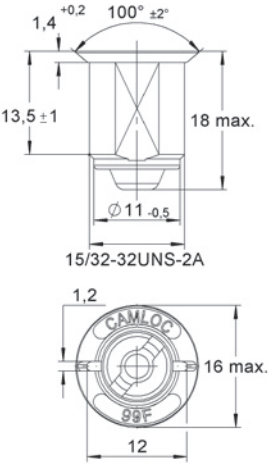
 Preferred dash-lengths

Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Head</b></p> 	 <p>S = 15,5 + (0,76 x length no.)</p>	Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>99S10-*A1</b>

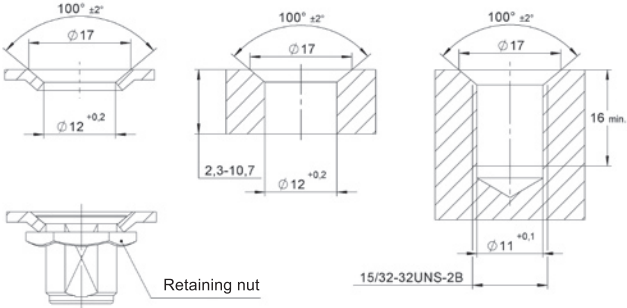
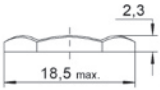
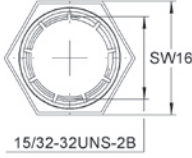
\* Length no. from Table, see page C-1.

## Stud Installation Instructions

Installation Dimensions	Accessories	Materials / Finish	Part No.
<p><b>Panel Thickness P 0,5 - 3,2</b></p>  <p>* For P up to 1,65 m Ø 6,5 for installation without retaining washer</p>	Retainig washer	Stainless steel	<b>2600-SW</b>
<p><b>Panel Thickness P over 3,2</b></p>  <p>Retaining washer Installation: See page A-6.</p>			
<p><b>Panel Thickness P 0,50 - 4,75</b></p>  <p>Retaining washer Installation: See page A-6.</p>	Retaining washer	Steel / zinc-plated, CrVI-free, transparent passivated	<b>99W10-01A1</b>
		Stainless steel	<b>V2600-LW-7</b>
	<b>Mounting tool</b> for Retainig washer V2600-LW-7		<b>T98-1</b>

Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Open</b></p> 		Zinc die casting / zinc-plated, CrVI-free, transparent passivated	150	<b>99R10-01A1</b>
<p><b>Encapsulated</b></p> 		Zinc die casting / zinc-plated, CrVI-free, transparent passivated  Capsule: Stainless steel	150	<b>99E10-01</b>

## Receptacle Installation Instructions

Installation Dimensions	Accessories	Materials / Finish	Part No.
	<p>Retaining nut</p>  	Steel / zinc-plated, CrVI-free, transparent passivated	<b>99N10-01A1</b>
	Tap		<b>15/32-32UNS-2B</b>

## Particular Features

This fastener mounts panels in electrical switch cabinets (e.g. 19"-equipment) to modular bars.

## Selection Instructions

The dimensions of the front panel and the modular bar as well as the colour determine the final design of the fastener.

To enable us to offer you the custom-tailored fastener, we need your drawings with the dimensions and tolerances of:

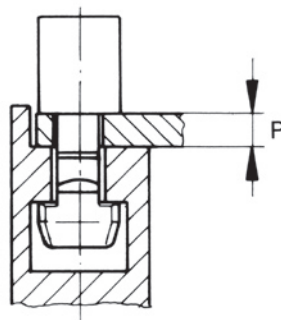
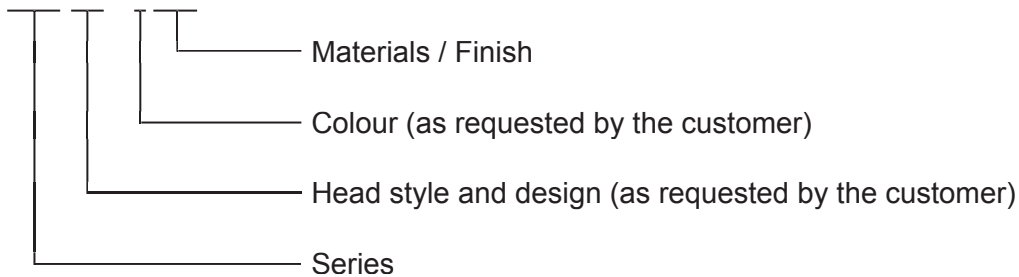
1. the front panel
2. the shape of the modular bar
3. the colour, if necessary


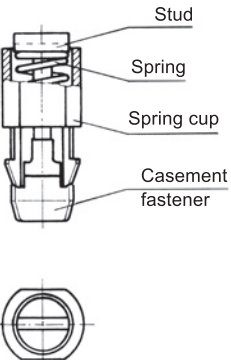

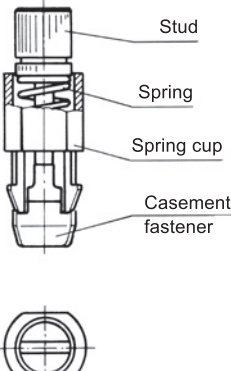
In addition, please send us samples of your modular bar and front panel.

## Part no. example

One-piece fastener

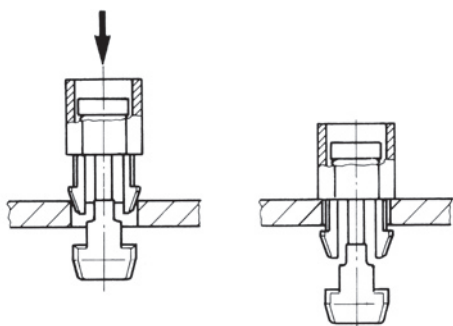
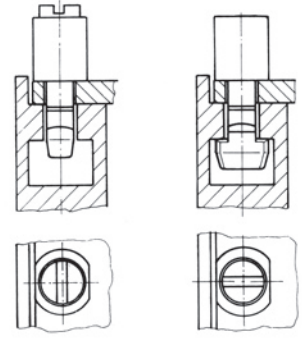
## 713 S\* - \* AE



Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Head</b></p> 		<p>Spring cup: Plastic (POM) Stud: Steel / nickel-plated Spring: Steel / zinc-plated, CrVI-free, clear chromate Casement fastener: Zinc die casting / zinc-plated, CrVI-free, clear chromate</p>	-25 up to +90	<b>713S* - *AE</b>
<p><b>Knurled Head</b></p> 		<p>Spring cup: Plastic (POM) Stud: Steel / nickel-plated Spring: Steel / zinc-plated, CrVI-free, clear chromate Casement fastener: Zinc die casting / zinc-plated, CrVI-free, clear chromate</p>	-25 up to +90	<b>713S* - *AE</b>

\* Design and colour as requested by the customer.

Due to the various front panel thickness, hole shapes and modular bar shapes, it is not possible to offer one standard design. We will individually issue the final part number only after determining the front panel and modular bar dimensions and the colour.

Dimensions	Fastener Position
<p>Installing the Fastener</p>  <p>1. Insert fastener with spring cup into hole. 2. Push stud until snap-in hooks lock in.</p>	<p>Unlocked      Locked</p>  <p>To lock push stud and turn 90°C.</p> <p>The slot indicates the position of the fastener.</p>

### Particular Features

- Max. tensile strength 700 N.
- Easy and economic clip-in installation for stud and receptacle.
- Also suitable for automatic installation.
- Opening by 1/4 turn - closing by a finger push.
- Due to their small size, particularly suited for use in electrical engineering / electronics.

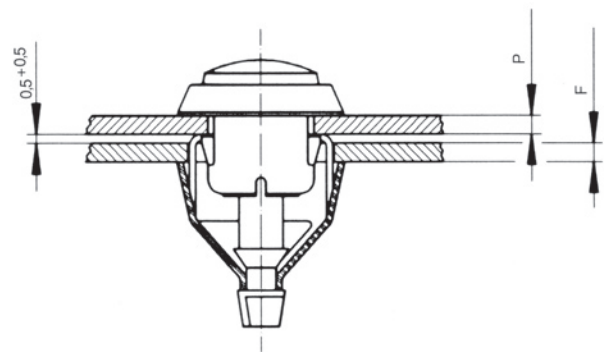
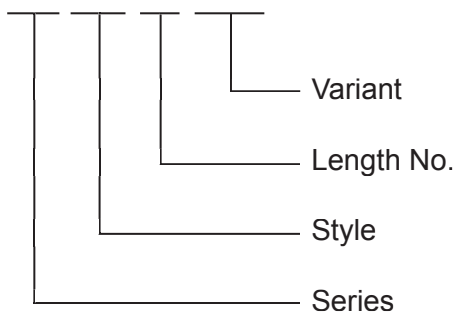
### Selection Instructions

- Select stud assembly according to panel thickness P, page L-2 and spring clip according to frame thickness F, page L-3.
- Select stud length number from panel thickness G using the table below, insert into stud part number \* (e.g. 715S12-\* -1BP).

### Part no. example

Stud, slotted recess head

### 715 S12 -07 -3BP


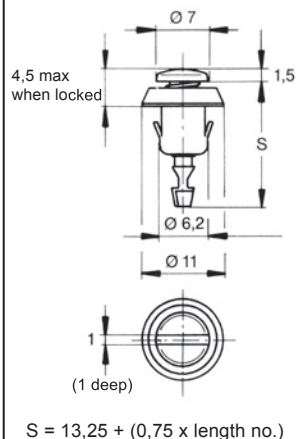

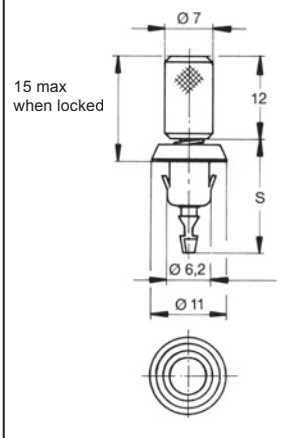


## Stud Length Table

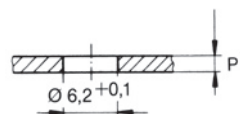
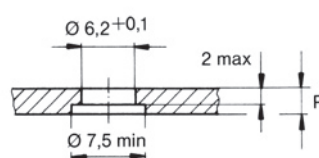
Panel Thickness P	Slotted Recess Head Stud Length No.	Knurled Head Stud Length No.	Panel Thickness P	Slotted Recess Head Stud Length No.	Knurled Head Stud Length No.
0,50 - 1,25	5	5	6,50 - 7,25	13	-
1,25 - 2,00	6	6	7,25 - 8,00	14	-
2,00 - 2,75	7	7	8,00 - 8,75	15	-
2,75 - 3,50	8	8	8,75 - 9,50	16	-
3,50 - 4,25	9	9	9,50 - 10,25	17	-
4,25 - 5,00	10	10	10,25 - 11,00	18	-
5,00 - 5,75	11	-	11,00 - 11,75	19	-
5,75 - 6,50	12	-	11,75 - 12,50	20	-


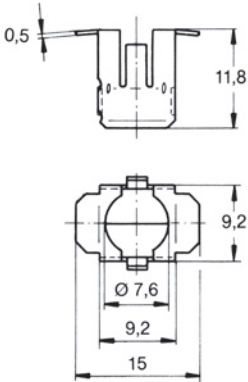
Other lengths on request.

 Preferred dash-lengths

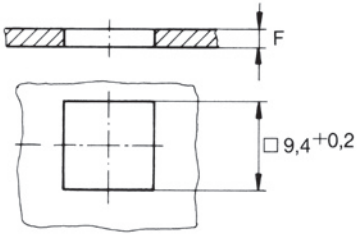
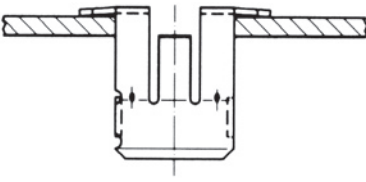
Style	Dimensions	Materials / Finish	Panel Thickness P	°C	Part No.
<p><b>Slotted Recess Head</b></p> 	 <p>S = 13,25 + (0,75 x length no.)</p>	Stainless steel Spring cup: Plastic (POM) / black	0,5 - 1,0 1,0 - 1,5 1,5 - 2,0	-40 up to +100	715S12- *-1BP 715S12- *-2BP 715S12- *-3BP
<p><b>Knurled Head</b></p> 	 <p>S = 13,25 + (0,75 x length no.)</p>	Stainless steel Spring cup: Plastic (POM) / black	0,5 - 1,0 1,0 - 1,5 1,5 - 2,0	-40 up to +100	715S13- *-1BP 715S13- *-2BP 715S13- *-3BP

## Stud Installation Instructions

Installation Dimensions	
Panel up to 2 mm	
Panel over 2 mm	

Style	Dimensions	Materials / Finish	Frame Thickness F	°C	Part No.
<b>Receptacle</b>  		Stainless steel	0,5 - 1,0	-40 up to +100	<b>715R02-1BP</b>
			1,0 - 1,5	(See stud assembly)	<b>715R02-2BP</b>
			1,5 - 2,0		<b>715R02-3BP</b>
			2,0 - 2,5		<b>715R02-4BP</b>

## Installation Instructions

Installation Dimensions	
	



### Particular Features

- Max. tensile strength 1.400 N.
- Easy and economic clip-in installation for stud and receptacle.
- Also suitable for automatic installation.
- Opening by 1/4 turn - closing by a finger push.

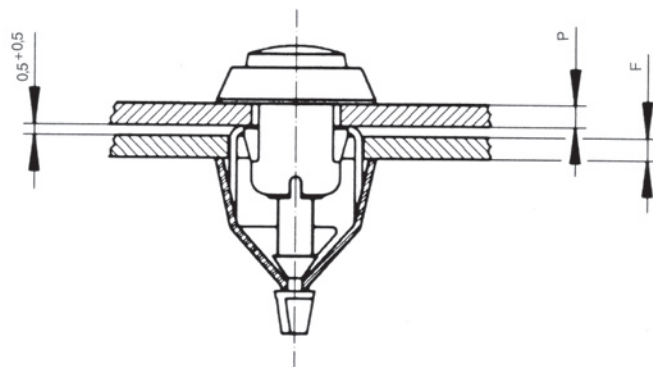
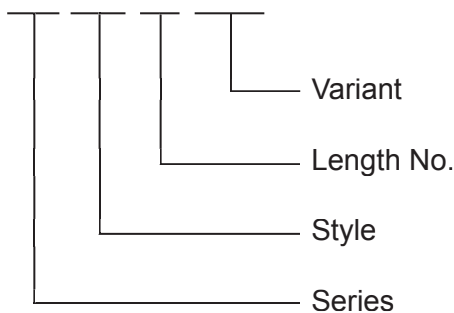
### Selection Instructions

- Select stud assembly according to panel thickness P, page M-2 and spring clip according to frame thickness F, page M-3.
- Select stud length number from panel thickness P using table below, insert into stud part number \* (e.g. 716S12-\* -1BP).

### Part no. example

Stud, slotted recess head

**716 S12 -03 -2BP**


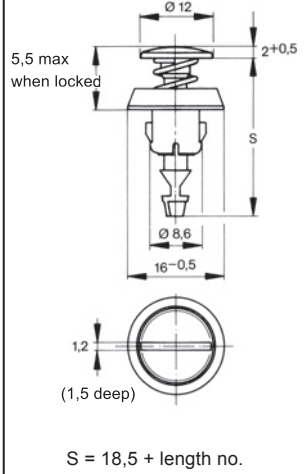

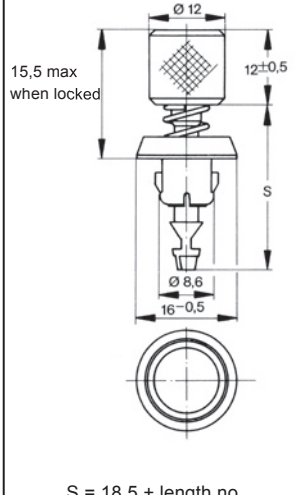


### Stud Length Table

Panel Thickness P	Stud Length No.
1,0 - 2,0	2
2,0 - 3,0	3
3,0 - 4,0	4
4,0 - 5,0	5
5,0 - 6,0	6
6,0 - 7,0	7
7,0 - 8,0	8
8,0 - 9,0	9
9,0 - 10,0	10

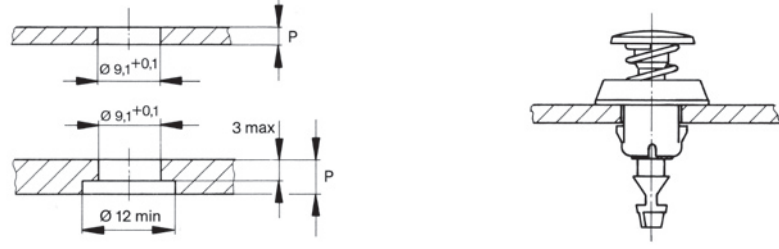
Other lengths on request.


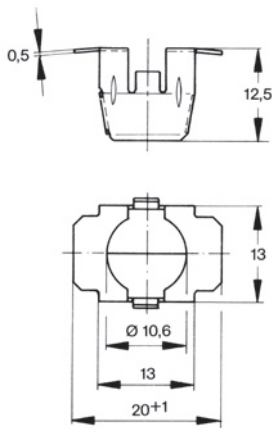
 Preferred dash-lengths

Style	Dimensions	Materials / Finish	Frame Thickness F	°C	Part No.
<b>Slotted Recess Head</b>  	 <p>S = 18,5 + length no.</p>	Stainless steel Spring cup: Plastic (POM)/black	0,5 - 1,0	-40 up to +100	<b>716S12- *-1BP</b>
			1,0 - 1,5		<b>716S12- *-2BP</b>
			1,5 - 2,0		<b>716S12- *-3BP</b>
			2,0 - 2,5		<b>716S12- *-4BP</b>
			2,5 - 3,0		<b>716S12- *-5BP</b>
<b>Knurled Head</b>  	 <p>S = 18,5 + length no.</p>	Stainless steel Spring cup: Plastic (POM)/black	0,5 - 1,0	-40 up to +100	<b>716S13- *-1BP</b>
			1,0 - 1,5		<b>716S13- *-2BP</b>
			1,5 - 2,0		<b>716S13- *-3BP</b>
			2,0 - 2,5		<b>716S13- *-4BP</b>
			2,5 - 3,0		<b>716S13- *-5BP</b>

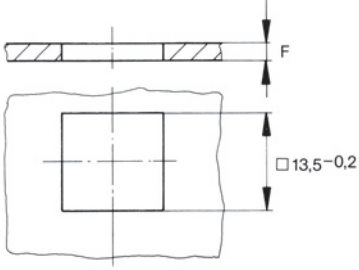
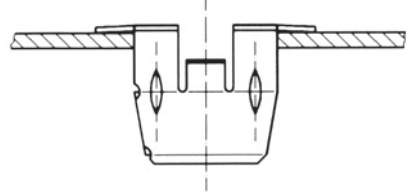
\* Length no. from Table, page M-1.

## Stud Installation Instructions

Installation Dimensions	
Panel up to 3 mm	
Panel over 3 mm	

Style	Dimensions	Materials / Finish	Frame Thickness F	°C	Part No.
<b>Spring Clip</b>  		Stainless steel	1,0 - 1,5	-40 up to +100  (See stud assembly)	<b>720R01-1B</b>
			1,5 - 2,0		<b>720R01-2B</b>
			2,0 - 2,5		<b>720R01-3B</b>
			2,5 - 3,0		<b>720R01-4B</b>

## Installation Instructions

Installation Dimensions	
	

### Particular Features

- Max. tensile strength 3.000 N.
- Robust design - high strength.
- Stud assembly with protective, compensating and retaining washers.
- Rivet and screw mounting spring clip.
- Opening by 1/4 turn - closing by a finger push.

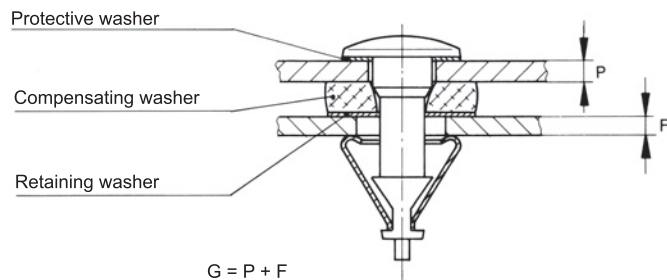
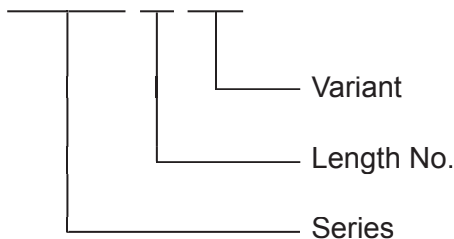
### Selection Instructions

1. Select stud assembly and spring clip, page N-2 and N-3.
2. Select compensating and retaining washers, page N-2.
3. Select stud length number from grip range G using the table below, insert into stud part number \* (e.g. 717S01-\* -1AGV).

### Part no. example

Spring clip, rivet / screw mounting

### 717 S01 -2 -1AF


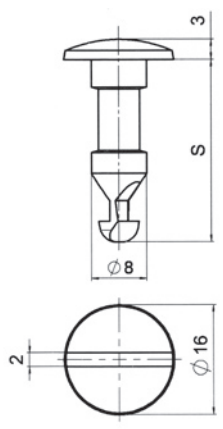

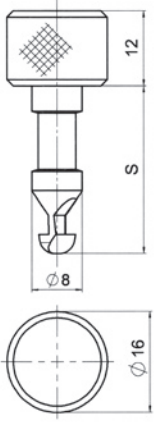


## Stud Length Table

Griprange G	Stud Length No.
1,0 - 3,0	1
3,0 - 5,0	2
5,0 - 7,0	3
7,0 - 9,0	4
9,0 - 11,0	5
11,0 - 13,0	6

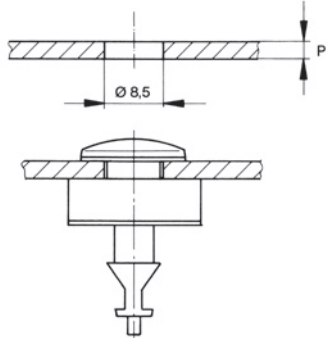
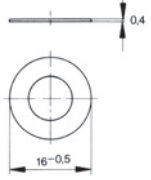
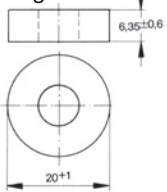

Other lengths on request.


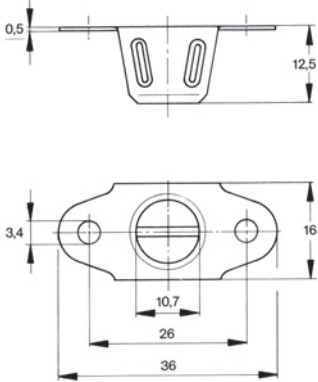
 Preferred dash-lengths

Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Head</b></p> 	 <p>S = 20,5 + (2 x length no.)</p>	Steel/ zinc-plated CrVI-free, transparent passivated	-40 up to +100	<b>717S01- *-1AGV</b>
<p><b>Knurled Head</b></p> 	 <p>S = 20,5 + (2 x length no.)</p>	Steel/ zinc-plated CrVI-free, transparent passivated	-40 up to +100	<b>717S01- *-2AGV</b>

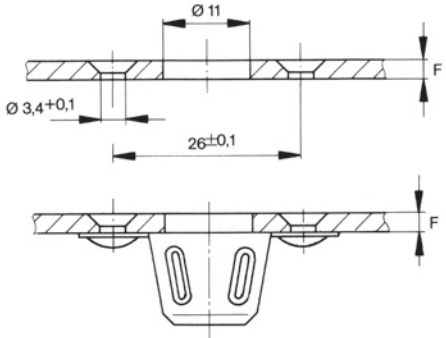
\* Length no. from Table, see page N-1.

## Stud Installation Instructions

Style	Dimensions	Materials / Finish	°C	Part No.
	<p>Protective washer</p> 	Plastic (PA6) / natural colour	-40 up to +100	<b>717W02-1K</b>
	<p>Compensating washer</p> 	Plastic (PU-foam) / anthracite	-40 up to +100	<b>717W03-1K</b>
	<p>Retaining washer</p> 	Plastic (PA6) / natural colour	-40 up to +100	<b>717W01-1K</b>

Style	Dimensions	Materials / Finish	°C	Part No.
<b>Rivet / Screw Mounting</b>  		Steel / zinc flake coated	-40 up to 100	<b>717R01-1AK7</b>

## Installation Instructions

Installation Dimensions


## Particular Features

Max. tensile strength 10.000 N.

Fastener for maximum tensile strength and preload.

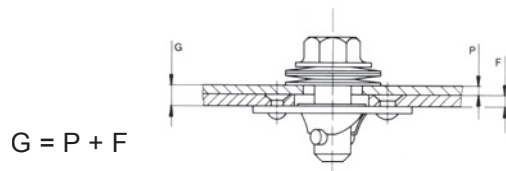
Preferred applications:

Commercial vehicles, coaches, agricultural machinery, chemical engineering, heating systems etc.

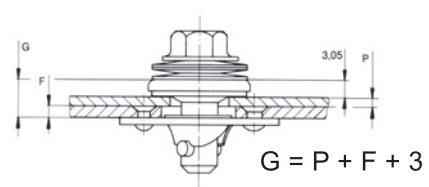
1. Select stud assembly and receptacle, pages H-2, H-3 and H-5.
2. Sealed: Also select rubber gasket and buffer plate, page H-4.
3. Select retaining washer, page H-4.
4. Select stud length number from total thickness G using the formula and table below, insert into stud part number \* (e.g. 991S01-\*AGV).

## Determining the stud length number when using:

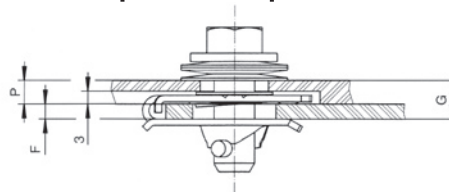
### Rivet, Screw and Weld Mounting Receptacle



### Sealed Stud Assemblies



### Clip-On Receptacle




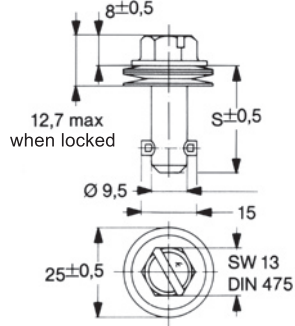

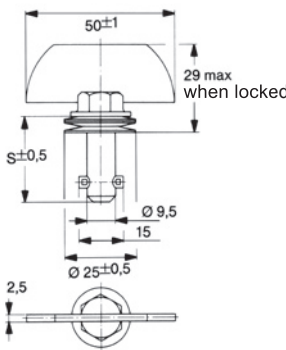

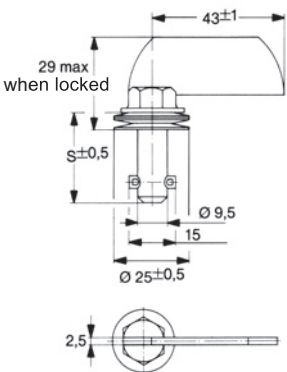

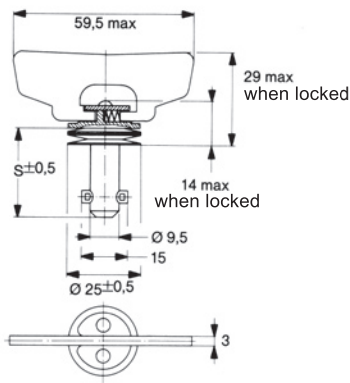
$G = P + F$   
 $P_{min.} = 4$   
 $F = 1,5 - 3,5$

## Stud Length Table

Total Thickness G	Stud Length No.	Total Thickness G	Stud Length No.	Total Thickness G	Stud Length No.
0,90 - 1,65	1	13,85 - 14,60	18	26,80 - 27,55	35
1,65 - 2,40	2	14,60 - 15,35	19	27,55 - 28,30	36
2,40 - 3,15	3	15,35 - 16,15	20	28,30 - 29,10	37
3,15 - 3,95	4	16,15 - 16,90	21	29,10 - 29,85	38
3,95 - 4,70	5	16,90 - 17,65	22	29,85 - 30,60	39
4,70 - 5,45	6	17,65 - 18,40	23	30,60 - 31,35	40
5,45 - 6,20	7	18,40 - 19,20	24	31,35 - 32,15	41
6,20 - 7,00	8	19,20 - 19,95	25	32,15 - 32,90	42
7,00 - 7,75	9	19,95 - 20,70	26	32,90 - 33,65	43
7,75 - 8,50	10	20,70 - 21,45	27	33,65 - 34,40	44
8,50 - 9,25	11	21,45 - 22,25	28	34,40 - 35,20	45
9,25 - 10,05	12	22,25 - 23,00	29	35,20 - 35,95	46
10,05 - 10,80	13	23,00 - 23,75	30	35,95 - 36,70	47
10,80 - 11,55	14	23,75 - 24,50	31	36,70 - 37,45	48
11,55 - 12,30	15	24,50 - 25,25	32	37,45 - 38,25	49
12,30 - 13,10	16	25,25 - 26,05	33	38,25 - 39,00	50
13,10 - 13,85	17	26,05 - 26,80	34		

Other lengths on request.


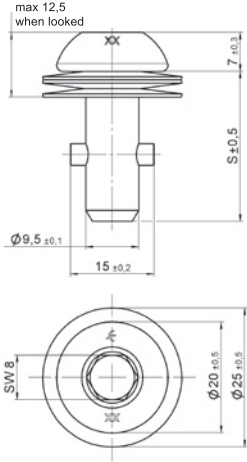

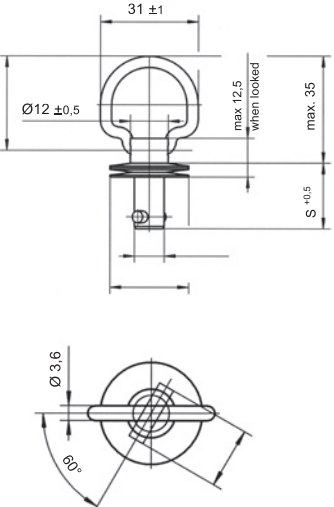
■ Preferred dash-lengths

Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Hex Head Slotted Recess</b></p> 	 <p><math>S = 16,26 + (0,76 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated</p> <p>Stainless steel <sup>1)</sup></p>	<p>230</p> <p>230</p>	<p><b>991S01- *-1AGV</b></p> <p><b>991S01- *-1BP</b></p>
<p><b>Fixed Wing Head</b></p> 	 <p><math>S = 16,26 + (0,76 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	230	<b>991S02- *-1AGV</b>
<p><b>Offset Fixed Wing Head</b></p> 	 <p><math>S = 16,26 + (0,76 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	230	<b>991S03- *-1AGV</b>
<p><b>180° Folding Wing Head</b></p> 	 <p><math>S = 16,26 + (0,76 \times \text{length no.})</math></p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	230	<b>991S05- *-1AGV</b>

\* Length no. from Table, see page H-1.

<sup>1)</sup> Max. tensile strength 7.000 N.




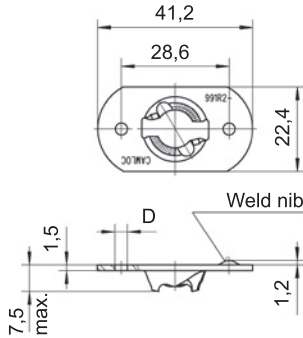

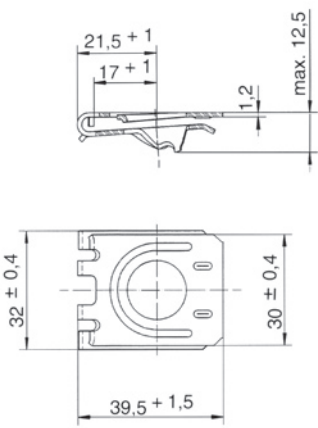
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Hex Recess Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	<p>230</p>	<p><b>991S30-*AGV</b></p>
<p><b>Folding Bail Handle</b></p> 	 <p>S = 15,03 + (0,76 X length no.)</p>	<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	<p>230</p>	<p><b>991S2991-*AGV</b></p>

\* Length no. from Table, see page H-1.

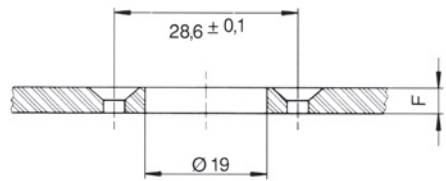
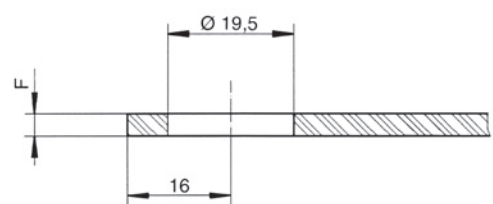
Installation Dimensions	Accessories	Material / Finish	Part No.
	Retaining washer 	Stainless steel	<b>991W04-1BP</b>
	Slotted retaining washer 	Stainless steel	<b>991W02-1BP</b>

**Sealed Stud Assemblies**


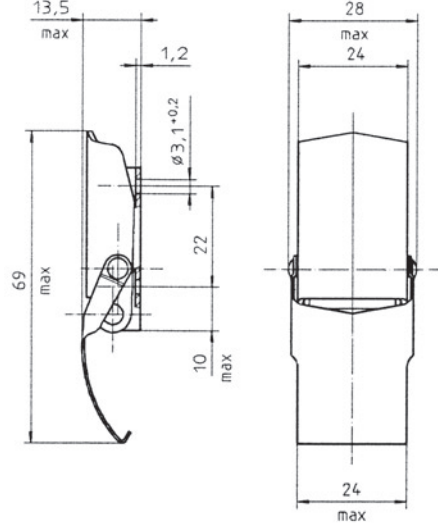

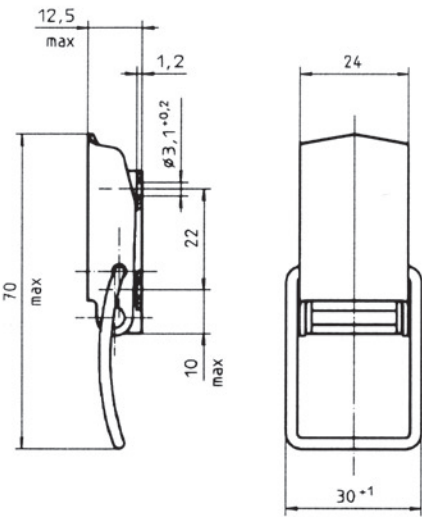
Installation Dimensions	Accessories	Material / Finish	Part No.
	Buffer plate 	Stainless steel	<b>991W03-1BP</b>
	Rubber gasket 	NBR black (100°C max.)	<b>991S17-1K</b>

Style	Dimensions	Materials / Finish	Mounting Ø	°C	Part No.
<b>Rivet / Screw Mounting</b>  		<b>Rivet / Screw Mounting</b> Steel / zinc-plated, CrVI-free, transparent passivated	3,3	230	<b>991R2-1AGV</b>
		Steel / zinc-plated, CrVI-free, transparent passivated	4,1	230	<b>991R2-3AGV</b>
		Stainless steel	3,3	230	<b>991R2-1BP</b>
		Stainless steel	4,1	230	<b>991R2-3BP</b>
		<b>Welding</b> Steel / zinc-plated	-	230	<b>991R2-2AZ</b>
<b>Clip-On</b>  		Steel / zinc-plated, zinc flake coated  Frame thickness F= 1,5mm - 3,5mm		230	<b>991R6-1AK7</b>

## Receptacle Installation Instructions

Installation Dimensions	
<b>Rivet / Screw or Welding Mounting</b>  	<b>Clip-On</b>  


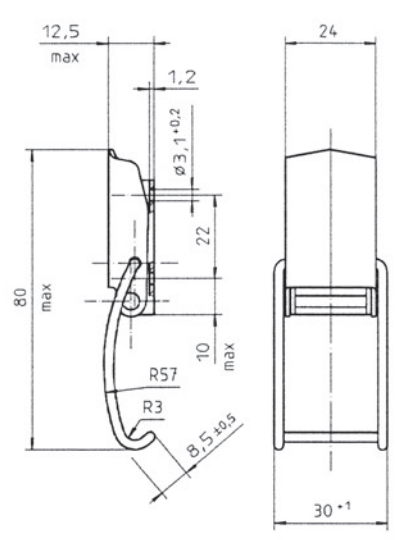

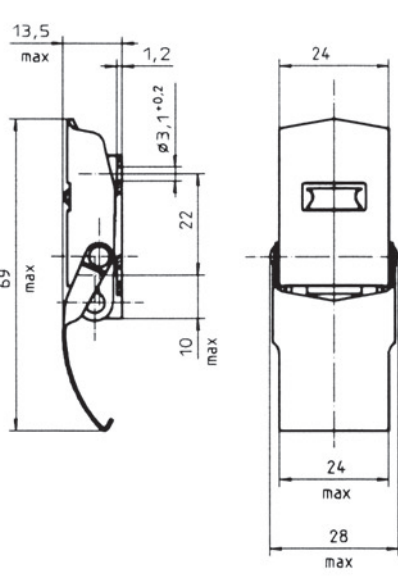
Max. tensile strength 1.500 N  
Available with secondary lock  
Three different drawhook types available

Style	Dimensions	Materials / Finish	D	Part No.
<b>With drawhook</b>  		Steel / zinc-plated, CrVI-free, transparent passivated <sup>1)</sup>	3,1	<b>1429L02-1-1AG</b>
		Stainless steel <sup>2)</sup>	3,1	<b>1429L02-1-1BP</b>
<b>With clip</b>  		Steel / zinc-plated, CrVI-free, transparent passivated <sup>1)</sup>	3,1	<b>1429L02-2-1AG</b>
		Stainless steel <sup>3)</sup>	3,1	<b>1429L02-2-1BP</b>

<sup>1)</sup> Max. tensile strength: 450 N with 1429L8-1AG strike

<sup>2)</sup> Max. tensile strength: 300 N with 1429L8-1BP strike


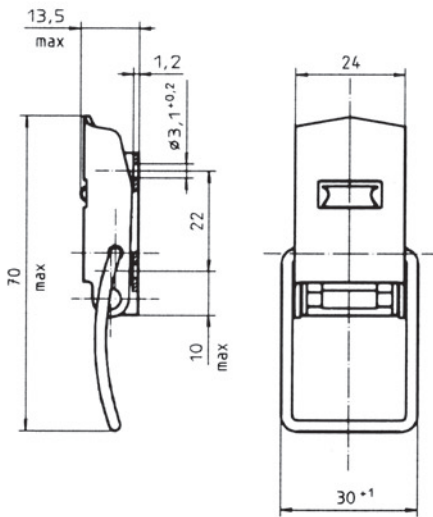

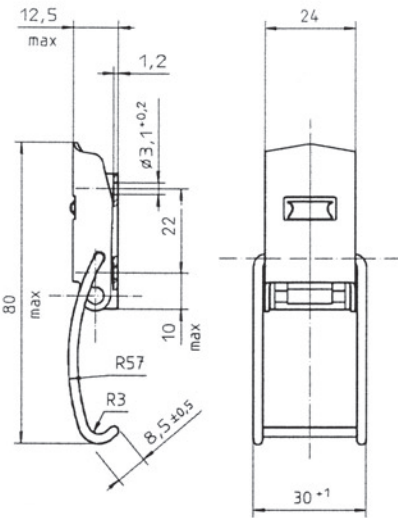
<sup>3)</sup> Max. tensile strength: 1.500 N with 1429L9-1AG / -1BP strike

Style	Dimensions	Materials / Finish	D	Part No.
<b>With bent clip</b>  		Steel / zinc-plated, CrVI-free, transparent passivated <sup>1)</sup>	3,1	<b>1429L02-3-1AG</b>
		Stainless steel <sup>1)</sup>	3,1	<b>1429L02-3-1BP</b>
<b>With drawhook and secondary lock</b>  		Steel / zinc-plated, CrVI-free, transparent passivated <sup>2)</sup>	3,1	<b>1429L02-1X1AG</b>
		Stainless steel <sup>3)</sup>	3,1	<b>1429L02-1X1BP</b>

<sup>1)</sup> Max. tensile strength: 1.100 N with 1429L9-1AG / -1BP strike  
or in conjunction with adapted component contour


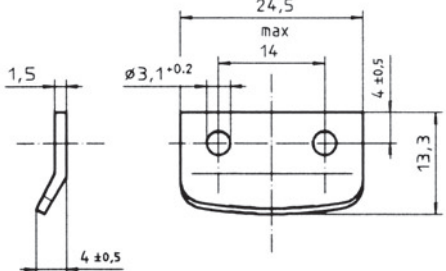

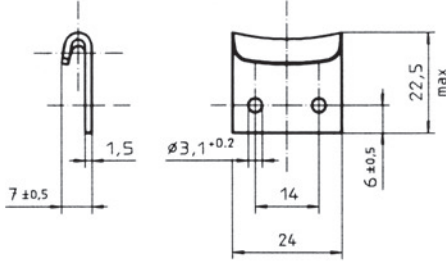
<sup>2)</sup> Max. tensile strength: 450 N with 1429L8-1AG strike

<sup>3)</sup> Max. tensile strength: 300 N with 1429L8-1BP strike

Style	Dimensions	Materials / Finish	D	Part No.
<b>With clip and secondary lock</b>  		Steel / zinc-plated, CrVI-free, transparent passivated <sup>1)</sup>	3,1	<b>1429L02-2X1AG</b>
		Stainless steel <sup>1)</sup>	3,1	<b>1429L02-2X1BP</b>
<b>With bent clip and secondary lock</b>  		Steel / zinc-plated, CrVI-free, transparent passivated <sup>2)</sup>	3,1	<b>1429L02-3X1AG</b>
		Stainless steel <sup>2)</sup>	3,1	<b>1429L02-3X1BP</b>

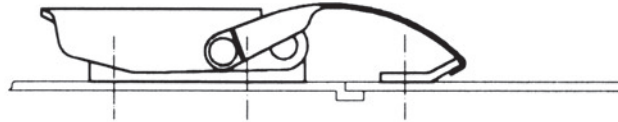
<sup>1)</sup> Max. tensile strength: max. 1.500 N with 1429L9-1AG / -1BP strike

<sup>2)</sup> Max. tensile strength: max. 1.100 N with 1429L9-1AG / -BP strike  
or in conjunction with adapted component contour

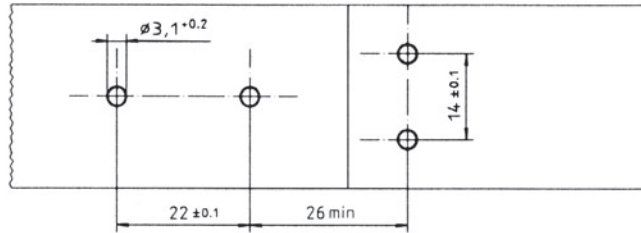
Style	Dimensions	Materials / Finish	D	Part No.
<b>For drawhook</b>  		Steel / zinc-plated, CrVI-free, transparent passivated	3,1	<b>1429L8-1AG</b>
		Stainless steel	3,1	<b>1429L8-1BP</b>
<b>For clip</b>  		Steel / zinc-plated, CrVI-free, transparent passivated	3,1	<b>1429L9-1AG</b>
		Stainless steel	3,1	<b>1429L9-1BP</b>

Dimensions

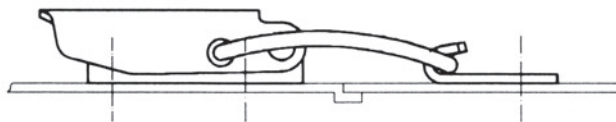
**Drawhook tension latch / drawhook strike**



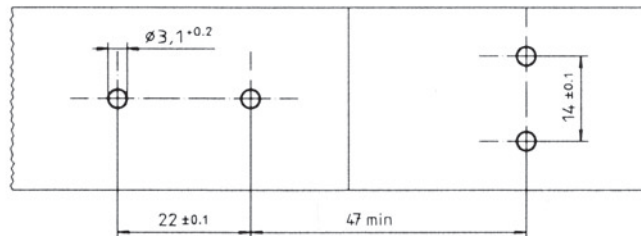
1429L02-1-<sup>\*</sup>  
1429L8-<sup>\*</sup>



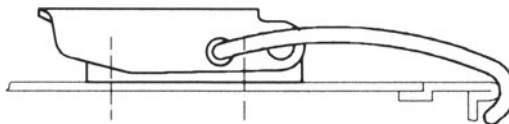
**Clip tension latch / clip strike**



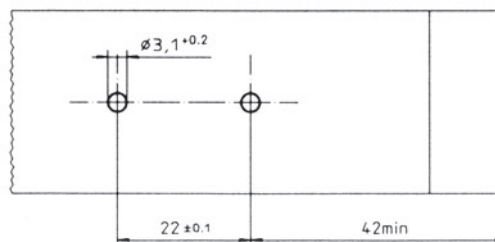
1429L02-2-<sup>\*</sup>  
1429L9-<sup>\*</sup>



**Bent clip tension latch / adapted component contour**



1429L02-3-<sup>\*</sup>  
(1429L9-<sup>\*</sup>)





## Particular Features

Max. tensile strength 1.330 N.

Small-size fastener for high tensile load.

Wide variety of conventional stud assembly and receptacle designs.

2600 Series: Fillister head; 2700 Series: Flush head.

## Selection Instructions

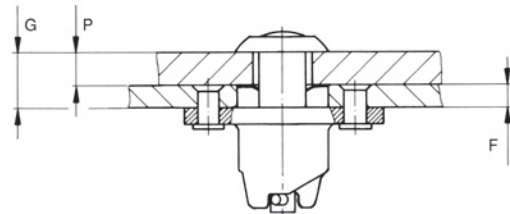
1. Select stud assembly and receptacle, page F-3 up to F-5, F-7 up to F-10.
2. Select stud accessories (retaining washer, gasket), page F-6 and F-7.
3. Select hex nut for receptacle, if necessary, page F-10.
4. Select stud length number from total thickness G using the formula and table on page F-2 insert into stud part number \* (e.g. V26S01-\*AGV).

## Determining the stud length number when using receptacle:

### Type 1 + 3\*

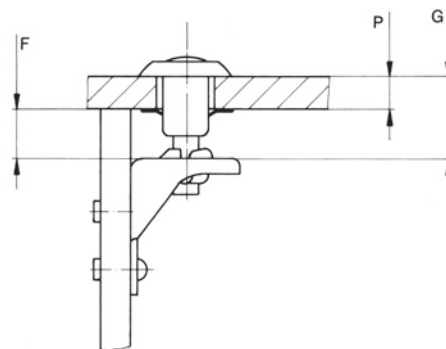
$$G = P + F$$

\* For Type 3: G = 9,9 mm min.



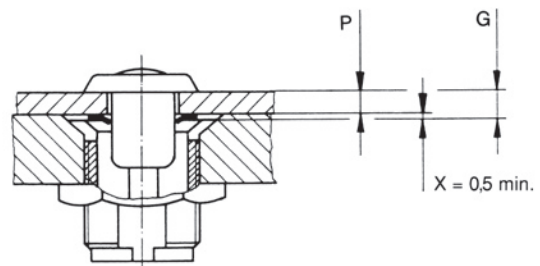
### Type 2

$$G = P + F \text{ (0,75 min.)}$$



### Type 4


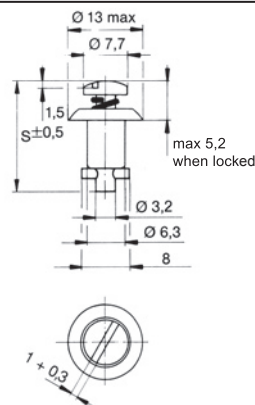

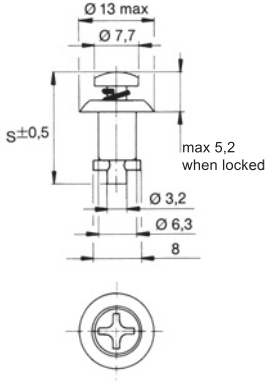

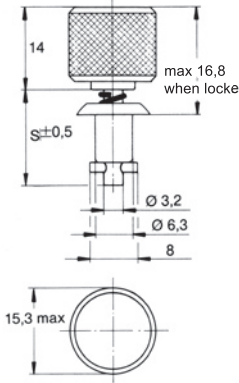

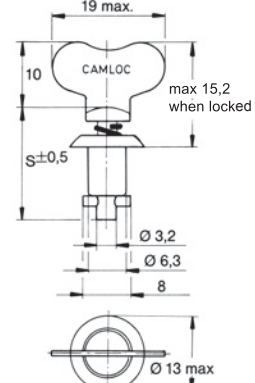
$$G = P + X \text{ (0,5 min.)}$$



Total Thickness G	Stud Length No. When Using <b>Type 1</b> Receptacles	Total Thickness G	Stud Length No. When Using <b>Type 2 + 4</b> Receptacles	Total Thickness G	Stud Length No. When Using <b>Type 3</b> Receptacles
0,75 - 1,50	1	0,75 - 1,50	2	9,90 - 10,65	1
1,50 - 2,30	2	1,50 - 2,30	3	10,65 - 11,40	2
2,30 - 3,05	3	2,30 - 3,05	4	11,40 - 12,20	3
3,05 - 3,80	4	3,05 - 3,80	5	12,20 - 12,95	4
3,80 - 4,60	5	3,80 - 4,60	6	12,95 - 13,70	5
4,60 - 5,35	6	4,60 - 5,35	7	13,70 - 14,50	6
5,35 - 6,10	7	5,35 - 6,10	8	14,50 - 15,25	7
6,10 - 6,85	8	6,10 - 6,85	9	15,25 - 16,00	8
6,85 - 7,60	9	6,85 - 7,60	10	16,00 - 16,75	9
7,60 - 8,40	10	7,60 - 8,40	11	16,75 - 17,50	10
8,40 - 9,15	11	8,40 - 9,15	12	17,50 - 18,30	11
9,15 - 9,90	12	9,15 - 9,90	13	18,30 - 19,05	12
9,90 - 10,65	13	9,90 - 10,65	14	19,05 - 19,80	13
10,65 - 11,40	14	10,65 - 11,40	15	19,80 - 20,60	14
11,40 - 12,20	15	11,40 - 12,20	16	20,60 - 21,35	15
12,20 - 12,95	16	12,20 - 12,95	17	21,35 - 22,10	16
12,95 - 13,70	17	12,95 - 13,70	18	22,10 - 22,85	17
13,70 - 14,50	18	13,70 - 14,50	19	22,85 - 23,60	18
14,50 - 15,25	19	14,50 - 15,25	20	23,60 - 24,40	19
15,25 - 16,00	20	15,25 - 16,00	21	24,40 - 25,15	20
16,00 - 16,75	21	16,00 - 16,75	22	25,15 - 25,90	21
16,75 - 17,50	22	16,75 - 17,50	23	25,90 - 26,65	22
17,50 - 18,30	23	17,50 - 18,30	24	26,65 - 27,40	23
18,30 - 19,05	24	18,30 - 19,05	25	27,40 - 28,20	24
19,05 - 19,80	25	19,05 - 19,80	26	28,20 - 28,95	25
19,80 - 20,60	26	19,80 - 20,60	27	28,95 - 29,70	26
20,60 - 21,35	27	20,60 - 21,35	28	29,70 - 30,50	27
21,35 - 22,10	28	21,35 - 22,10	29	30,50 - 31,25	28
22,10 - 22,85	29	22,10 - 22,85	30	31,25 - 32,00	29
22,85 - 23,60	30	22,85 - 23,60	31	32,00 - 32,75	30
23,60 - 24,40	31	23,60 - 24,40	32	32,75 - 33,50	31
24,40 - 25,15	32	24,40 - 25,15	33	33,50 - 34,30	32
25,15 - 25,90	33	25,15 - 25,90	34	34,30 - 35,05	33
25,90 - 26,65	34	25,90 - 26,65	35	35,05 - 35,80	34
26,65 - 27,40	35	26,65 - 27,40	36	35,80 - 36,60	35
27,40 - 28,20	36	27,40 - 28,20	37	36,60 - 37,35	36
28,20 - 28,95	37	28,20 - 28,95	38	37,35 - 38,10	37
28,95 - 29,70	38	28,95 - 29,70	39	38,10 - 38,85	38
29,70 - 30,50	39	29,70 - 30,50	40	38,85 - 39,60	39
30,50 - 31,25	40	29,70 - 30,50	40	39,60 - 40,40	40


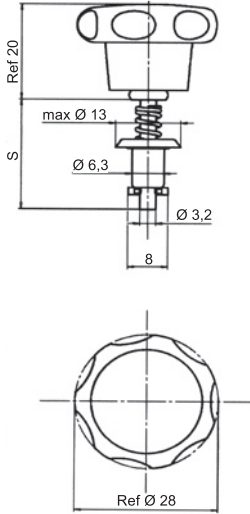

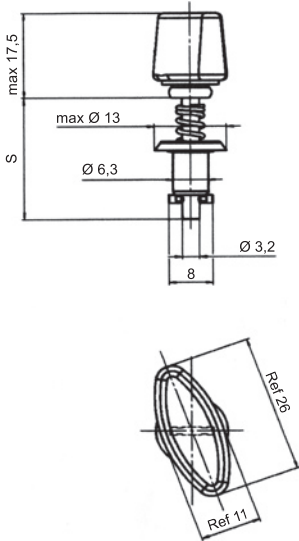

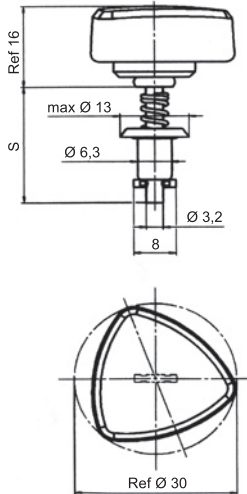
Other lengths on request.

■ Preferred dash-lengths


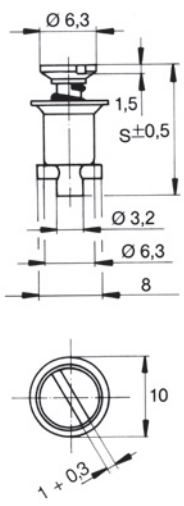

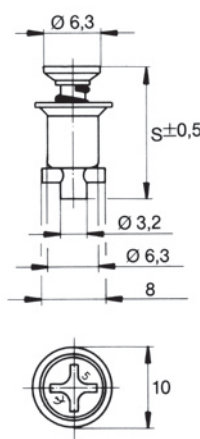
Style	Dimensions	Materials / Finish	°C	Part No.
<b>Slotted Recess Fillister Head</b>  		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>V26S01-*AGV</b>
		Steel / chrome-plated	230	<b>26S38-*</b>
		Stainless steel <sup>1)</sup>	230	<b>2600-*S</b>
		Steel / nickel-plated	230	<b>26S42-*</b>
<b>Cross Recess Fillister Head (Phillips Gr.2)</b>  		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>V26S02-*AGV</b>
		Steel / nickel-plated	230	<b>26S39-*</b>
		Stainless steel <sup>1)</sup>	230	<b>26S51-*</b>
<b>Knurled Head</b>  		Steel / chrome-plated	230	<b>26S34-*</b>
<b>Fixed Wing Head</b>  		Steel / zinc-plated, CrVI-free, transparent passivated	230	<b>V26S04-*AGV</b>
		Stainless steel <sup>1)</sup>	230	<b>2600-*SW</b>

\* Length no. from Table, page F-2.

<sup>1)</sup> Max. Tensile strength 1.000 N.

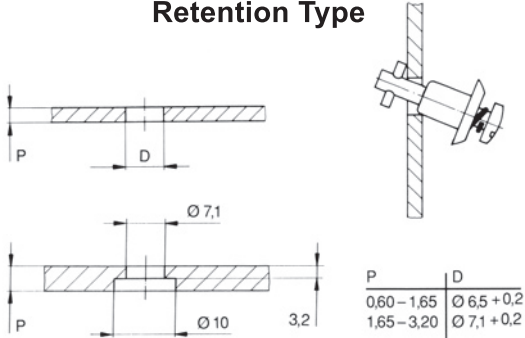
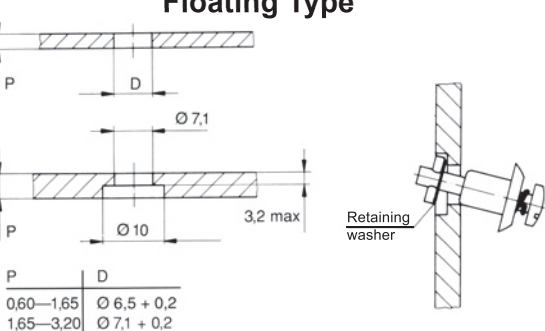
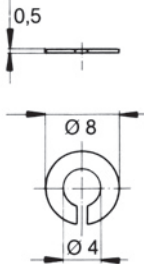
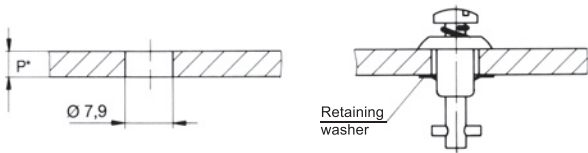
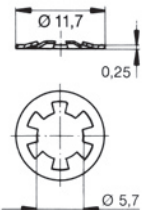
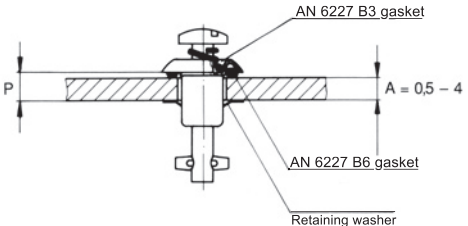

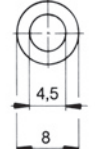
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Star Formed Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic knob (PA6)</p> <p>Note: Not to be used with encapsulated receptacles</p>	-40 up to +60	<b>V26S06- *AGV</b>
<p><b>Wing Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic knob (PA6)</p> <p>Note: Not to be used with encapsulated receptacles</p>	-40 up to +60	<b>V26S07- *AGV</b>
<p><b>Triangular Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated with plastic knob (PA6)</p> <p>Note: Not to be used with encapsulated receptacles</p>	-40 up to +60	<b>V26S08- *AGV</b>

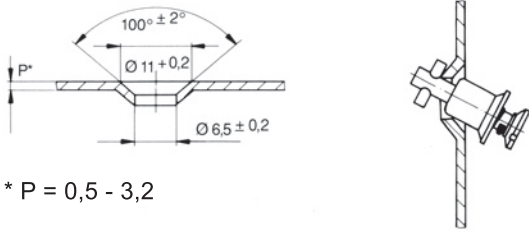
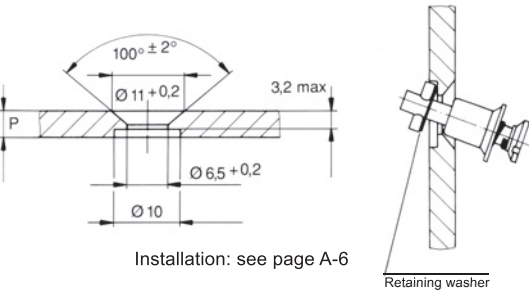
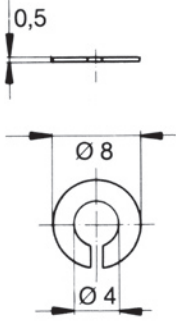
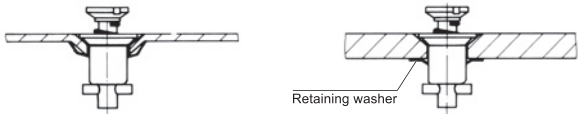
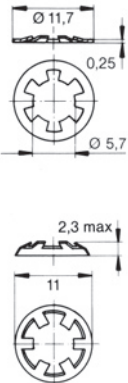

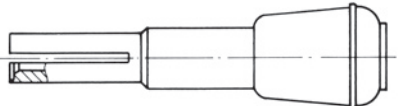
\* Length no. from Table, page F-2.


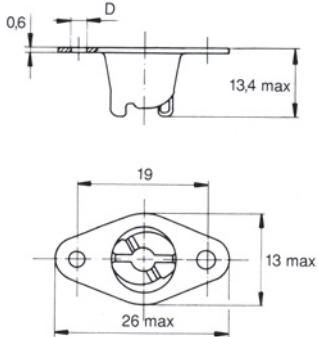

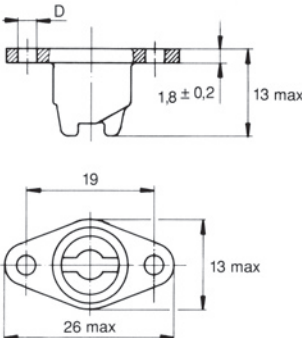

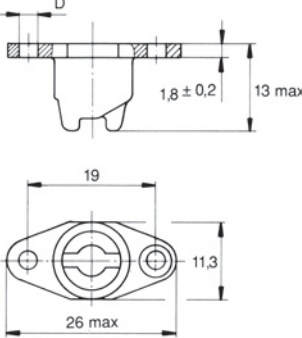

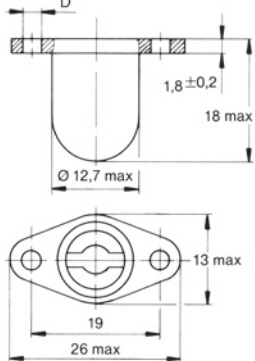
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Flush Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated</p> <p>Stainless steel <sup>1)</sup></p>	<p>230</p> <p>230</p>	<p><b>V27S01-*AGV</b></p> <p><b>2700-*S</b></p>
<p><b>Cross Recess Flush Head</b></p> 		<p>Steel / zinc-plated, CrVI-free, transparent passivated</p>	<p>230</p>	<p><b>V27S02-*AGV</b></p>

\* Length no. from Table, page F-2.

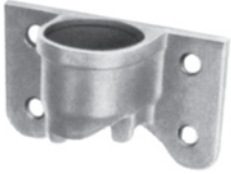
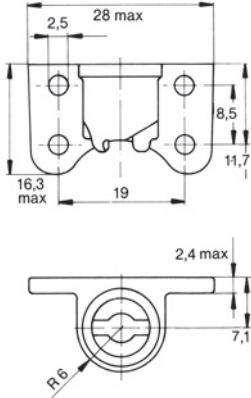

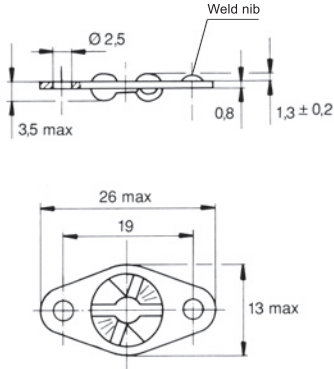
<sup>1)</sup>Max. Tensile strength 1.000 N.


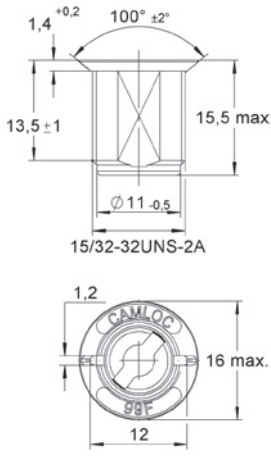

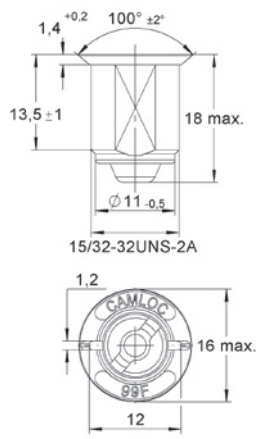
Installation Dimensions	Accessories	Material / Finish	Part No.						
<p><b>Stud Without Retaining Washer, Retention Type</b></p>  <table border="1" data-bbox="598 622 762 696"> <tr> <td>P</td> <td>D</td> </tr> <tr> <td>0,60–1,65</td> <td>Ø 6,5 +0,2</td> </tr> <tr> <td>1,65–3,20</td> <td>Ø 7,1 +0,2</td> </tr> </table> <p>4P3-1 installation pliers, see page F-7.</p>	P	D	0,60–1,65	Ø 6,5 +0,2	1,65–3,20	Ø 7,1 +0,2	-	<p>Note: Dash "4" stud and smaller are self-captivating</p>	-
P	D								
0,60–1,65	Ø 6,5 +0,2								
1,65–3,20	Ø 7,1 +0,2								
<p><b>Stud Without Retaining Washer, Floating Type</b></p>  <table border="1" data-bbox="236 1070 416 1137"> <tr> <td>P</td> <td>D</td> </tr> <tr> <td>0,60–1,65</td> <td>Ø 6,5 +0,2</td> </tr> <tr> <td>1,65–3,20</td> <td>Ø 7,1 +0,2</td> </tr> </table> <p>4P3-1 installation pliers, see page F-7.</p>	P	D	0,60–1,65	Ø 6,5 +0,2	1,65–3,20	Ø 7,1 +0,2	Retaining washer	<p>Stainless steel</p> <p>Note: Retaining rings are required for stud length dash numbers "5" and up</p> 	<b>2600-SW</b>
P	D								
0,60–1,65	Ø 6,5 +0,2								
1,65–3,20	Ø 7,1 +0,2								
<p><b>Stud With Retaining Washer, Fixed Spring Cup</b></p>  <p>4P3-1 installation pliers, see page F-7.</p>	Retaining washer	<p>Stainless steel</p> <p>Not for chrome-plated parts</p> 	<b>V2600-LW-7</b>						
<p><b>Sealed</b></p>  <p><math>P = A + 0,75</math></p> <p>T98-1 installation tool, page F-6. Installation see page A-6.</p> <p>4P3-1 installation pliers, see page F-7.</p>	Gaskets	<p>Rubber (100°C)</p> <p>Rubber (100°C)</p>  	<p><b>AN6227-B6</b></p> <p><b>AN6227-B3</b></p>						

Installation Dimensions	Accessories	Material / Finish	Part No.
<p><b>Stud Without Retaining Washer, Retention Type</b></p>  <p>* P = 0,5 - 3,2</p> <p>Installation tool see below</p>	-	<p>-</p> <p>Note: Dash "4" stud and smaller are self-captivating</p>	-
<p><b>Stud Without Retaining Washer, Floating Type</b></p>  <p>Installation: see page A-6</p> <p>Installation tool see below</p>	<p>Retaining washer</p> 	<p>Stainless steel</p> <p>Note: Retaining rings are required for stud length dash numbers "5" and up</p>	<b>2600-SW</b>
<p><b>Stud Without Retaining Washer, Fixed Spring Cup</b></p>  <p>Installation: see page A-6</p> <p>Installation tool see below</p>	<p>Retaining washer</p> 	<p>Stainless steel</p> <p>Steel / nickel-plated</p>	<p><b>V2600-LW-7</b></p> <p><b>V27W01-1AN</b></p>
	<p><b>Stud Installation pliers</b></p>		<b>4P3-1</b>
	<p><b>V2600-LW-7 retaining washer installation tool</b></p>		<b>T98-1</b>

Style	Dimensions	Materials / Finish	D	°C	Part No.
<p><b>Type 1 Swage</b></p> 		Steel / zinc-plated, CrVI-free, transparent passivated	2,6	230	<b>V26R6-1AGV</b>
<p><b>Type 1 Cast</b></p> 		<p>Hard bronze / zinc-plated, CrVI-free, transparent passivated</p> <p>Hard bronze / zinc-plated, CrVI-free, transparent passivated</p> <p>Stainless steel</p>	<p>2,5</p> <p>3,3</p> <p>2,5</p>	<p>230</p> <p>230</p> <p>230</p>	<p><b>V212-12-1FGV</b></p> <p><b>V212-12-2FGV</b></p> <p><b>212-12S</b></p>
<p><b>Type 1 Narrow Width</b></p> 		Hard bronze / zinc-plated, CrVI-free, transparent passivated	2,5	230	<b>V212-12N-1FGV</b>
<p><b>Type 1 Encapsulated</b></p> 		<p>Hard bronze / zinc-plated, CrVI-free, transparent passivated</p> <p>Capsule: Steel / zinc-plated, CrVI-free, transparent passivated</p> <p>Stainless steel</p>	<p>2,5</p> <p>2,5</p>	<p>150</p> <p>150</p>	<p><b>26R16-1FGV</b></p> <p><b>26R18-1-1AA</b></p>

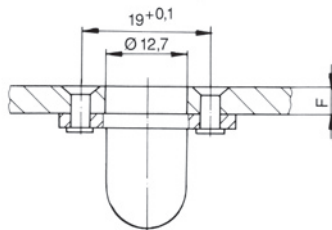


Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Type 2 Side Mounting</b></p> 		Aluminium / anodized	175	<b>26R1-1</b>
<p><b>Type 3 Rivet / Screw or Weld Mounting</b></p> 		<p><b>Rivet / Screw Mounting</b> Steel / zinc-plated, CrVI-free, transparent passivated</p> <p>Stainless steel</p> <p><b>Welding</b> Stainless steel</p>	<p>230</p> <p>230</p> <p>230</p>	<p><b>V312-12AGV</b></p> <p><b>312-12S</b></p> <p><b>312-12WS</b></p>

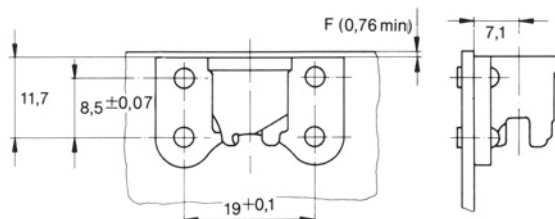
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Type 4 Single Hole Mounting</b></p> 		<p>Zinc die cast / zinc-plated, CrVI-free, clear chromate</p>	<p>150</p>	<p><b>99R10-01A1</b></p>
<p><b>Type 4 Single Hole Mounting Encapsulated</b></p> 		<p>Zinc die cast / zinc-plated, CrVI-free, clear chromate</p> <p>Capsule: Stainless steel</p>	<p>150</p>	<p><b>99E10-01</b></p>

Installation Dimensions

**Type 1 + 3 Receptacles Hole Pattern**

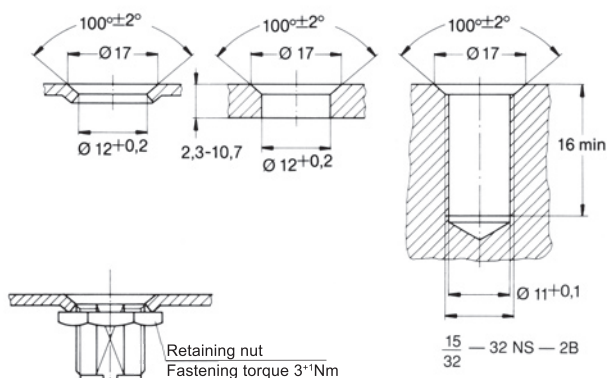


**Type 2 Receptacles Hole Pattern (Side Mounting)**



Installation Dimensions

**Installation Options Type 4 Receptacle**

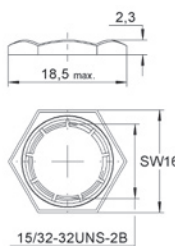


Retaining nut  
Fastening torque 3\*1Nm

15/32 — 32 NS — 2B

Accessories

Retaining nut



Tap

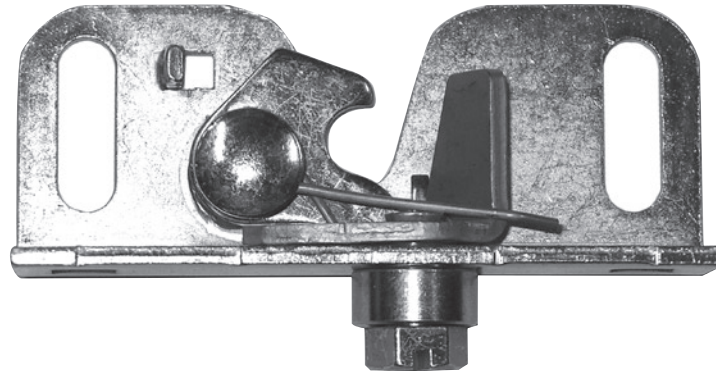
Materials /  
Finish

Steel / zinc-plated,  
CrVI-free,  
clear chromate

Part No.

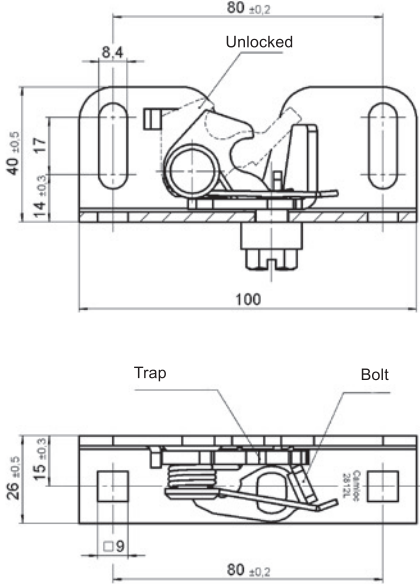
**99N10-01A1**

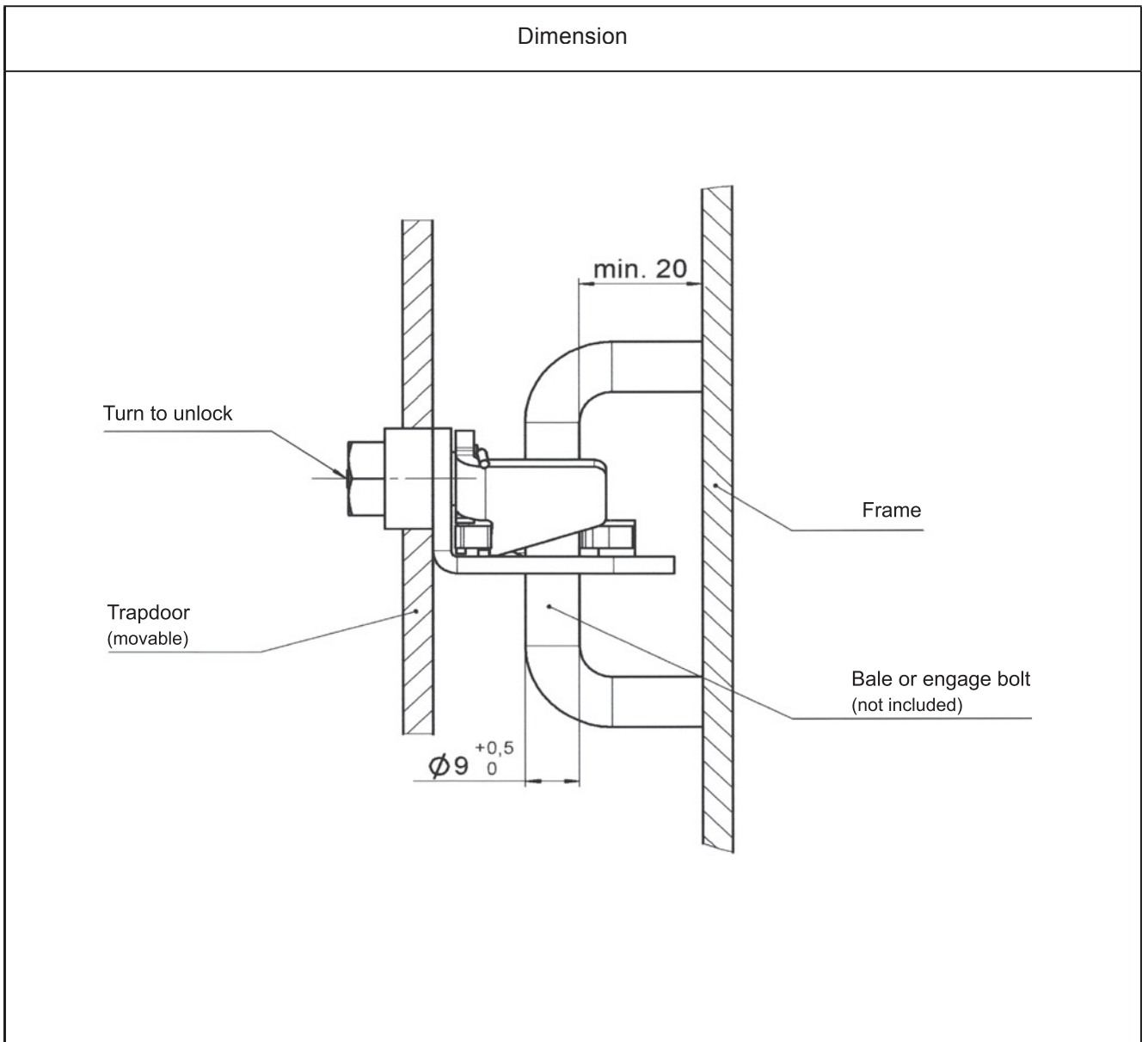
**15/32-32UNS-  
2B**

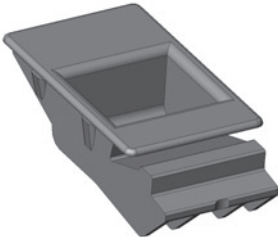
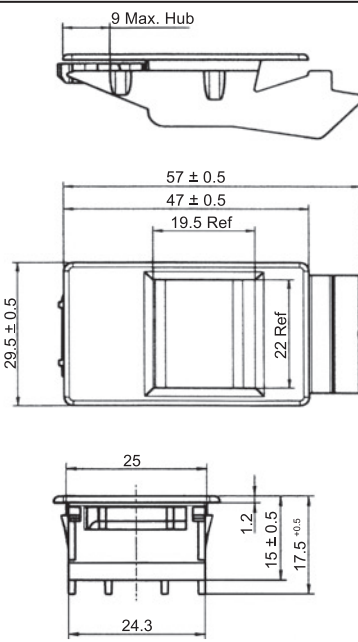


**Particular Features**

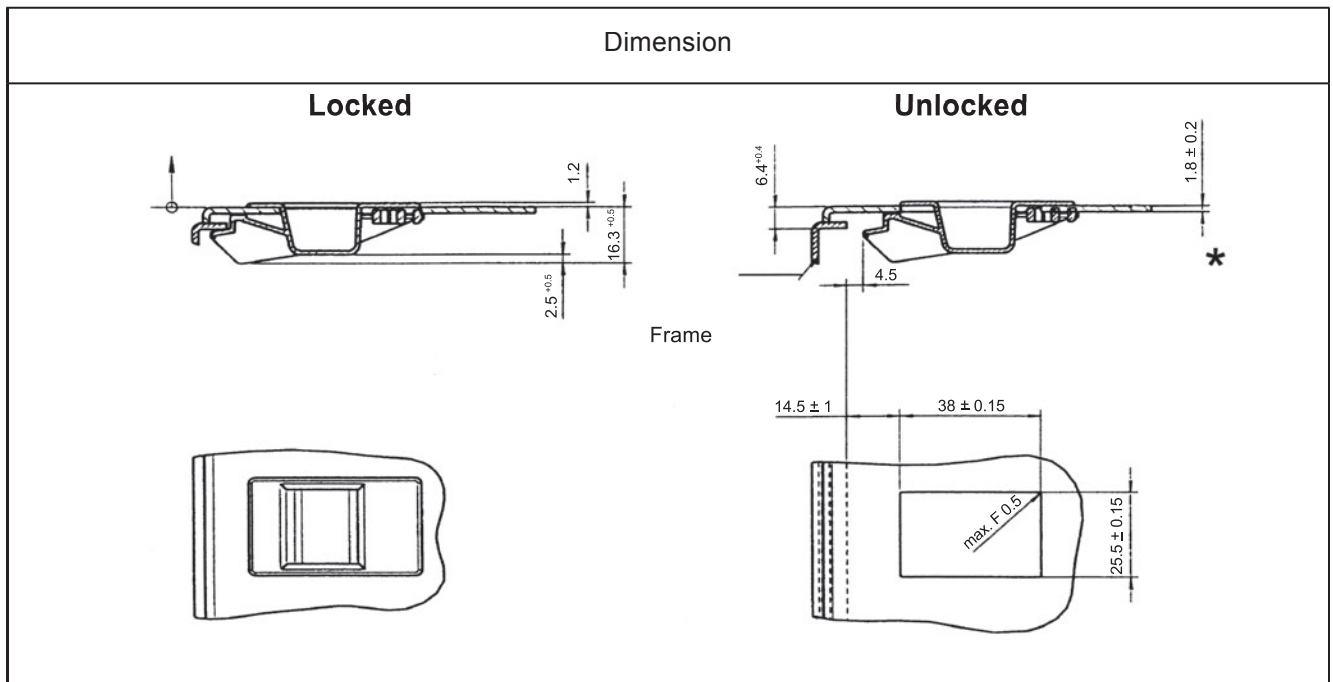
- Robust slam latch, self locking
- Max. locking force: 230 N
- Max. tension strength: 2.400 N
- Max. torque: 40 Nm

Dimensions	Materials / Finish	°C	Part No.
	<p>Steel / zinc-plated and yellow chromate Bolt: zinc flake coated</p>	<p>230</p>	<p><b>2812L03-1AF</b></p>



Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slam latch</b></p> 		Plastic (POM) black	-10 up to +60	<b>2939L01-01-1K</b>

## Installation Instructions



\* Other panel thicknesses upon request.

### Particular Features

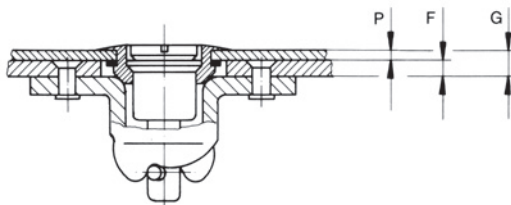
Max. tensile strength 4.700 N.  
 Small-size fastener for high tensile load.  
 Wide variety of conventional stud assembly and receptacle design.  
 Floating receptacles available.

### Selection Instructions

1. Select stud assembly, page G-4 and G-5, grommet and snap-on retaining ring, page G-7 and receptacle, page G-8 and G-9.
2. Select retaining washer, page G-6, for studs from length no. 16.
3. Select stud length number from total thickness G using the formula and the table on page G-2 and G-3 insert into stud part number \* (e.g. 4002-\*D).

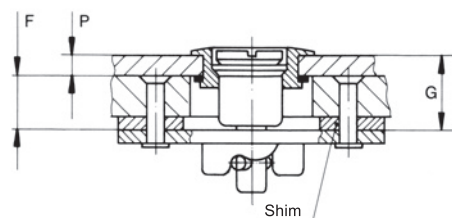
### Determining the stud length number when using receptacle:

**Type 1 + 2**



$$G = P + F$$

**Type 3**



$$G = P + F (8,9 \text{ min.})$$

**For Using the Following Grommet and Receptacles:**

**Flush Mounting Grommets**

**4002-G-1    4002-H-2  
4002-GS    4002-HS**

Total Thickness G	Stud Length No. When Using Type 1 Receptacles	Total Thickness G	Stud Length No. When Using Type 2 Receptacles	Total Thickness G	Stud Length No. When Using Type 3 Receptacles	Total Thickness G	Stud Length No. When Using Type 4 Receptacles
0,50 - 1,30	-	0,50 - 1,30	-	8,90 - 9,65	2	0,50 - 1,30	2
1,30 - 2,05	-	1,30 - 2,05	2	9,65 - 10,40	3	1,30 - 2,05	3
2,05 - 2,80	2	2,05 - 2,80	3	10,40 - 11,20	4	2,05 - 2,80	4
2,80 - 3,55	3	2,80 - 3,55	4	11,20 - 11,95	5	2,80 - 3,55	5
3,55 - 4,30	4	3,55 - 4,30	5	11,95 - 12,70	6	3,55 - 4,30	6
4,30 - 5,10	5	4,30 - 5,10	6	12,70 - 13,50	7	4,30 - 5,10	7
5,10 - 5,85	6	5,10 - 5,85	7	13,50 - 14,20	8	5,10 - 5,85	8
5,85 - 6,60	7	5,85 - 6,60	8	14,20 - 15,00	9	5,85 - 6,60	9
6,60 - 7,30	8	6,60 - 7,30	9	15,00 - 15,75	10	6,60 - 7,30	10
7,30 - 8,15	9	7,30 - 8,15	10	15,75 - 16,50	11	7,30 - 8,15	11
8,15 - 8,90	10	8,15 - 8,90	11	16,50 - 17,30	12	8,15 - 8,90	12
8,90 - 9,65	11	8,90 - 9,65	12	17,30 - 18,00	13	8,90 - 9,65	13
9,65 - 10,40	12	9,65 - 10,40	13	18,00 - 18,80	14	9,65 - 10,40	14
10,40 - 11,20	13	10,40 - 11,20	14	18,80 - 19,55	15	10,40 - 11,20	15
11,20 - 11,95	14	11,20 - 11,95	15	19,55 - 20,30	16	11,20 - 11,95	16
11,95 - 12,70	15	11,95 - 12,70	16	20,30 - 21,10	17	11,95 - 12,70	17
12,70 - 13,50	16	12,70 - 13,50	17	21,10 - 21,85	18	12,70 - 13,50	18
13,50 - 14,20	17	13,50 - 14,20	18	21,85 - 22,60	19	13,50 - 14,20	19
14,20 - 15,00	18	14,20 - 15,00	19	22,60 - 23,40	20	14,20 - 15,00	20
15,00 - 15,75	19	15,00 - 15,75	20	23,40 - 24,15	21	15,00 - 15,75	21
15,75 - 16,50	20	15,75 - 16,50	21	24,15 - 24,90	22	15,75 - 16,50	22
16,50 - 17,30	21	16,50 - 17,30	22	24,90 - 25,65	23	16,50 - 17,30	23
17,30 - 18,00	22	17,30 - 18,00	23	25,65 - 26,40	24	17,30 - 18,00	24
18,00 - 18,80	23	18,00 - 18,80	24	26,40 - 27,20	25	18,00 - 18,80	25
18,80 - 19,55	24	18,80 - 19,55	25	27,20 - 27,95	26	18,80 - 19,55	26
19,55 - 20,30	25	19,55 - 20,30	26	27,95 - 28,70	27	19,55 - 20,30	27
20,30 - 21,10	26	20,30 - 21,10	27	28,70 - 29,50	28	20,30 - 21,10	28
21,10 - 21,85	27	21,10 - 21,85	28	29,50 - 30,20	29	21,10 - 21,85	29
21,85 - 22,60	28	21,85 - 22,60	29	30,20 - 31,00	30	21,85 - 22,60	30
22,60 - 23,40	29	22,60 - 23,40	30	31,00 - 31,75	31	22,60 - 23,40	31
23,40 - 24,15	30	23,40 - 24,15	31	31,75 - 32,50	32	23,40 - 24,15	32
24,15 - 24,90	31	24,15 - 24,90	32	32,50 - 33,30	33	24,15 - 24,90	33
24,90 - 25,65	32	24,90 - 25,65	33	33,30 - 34,05	34	24,90 - 25,65	34
25,65 - 26,40	33	25,65 - 26,40	34	34,05 - 34,80	35	25,65 - 26,40	35
26,40 - 27,20	34	26,40 - 27,20	35				
27,20 - 27,95	35	26,40 - 27,20	35				

Other lengths on request.

 Preferred dash-lengths




**For Using the Following Grommet and Receptacles:**


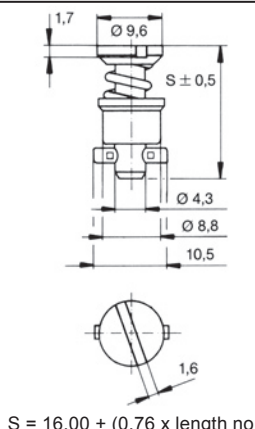

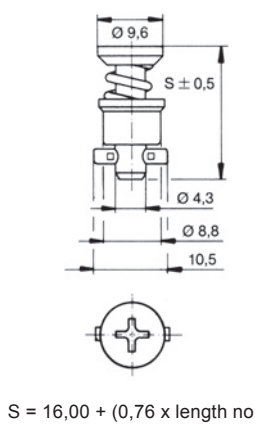

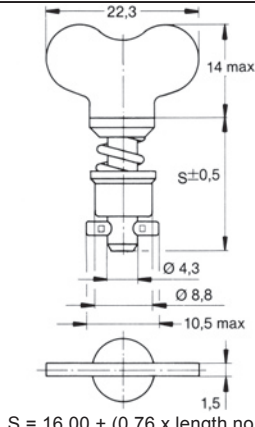

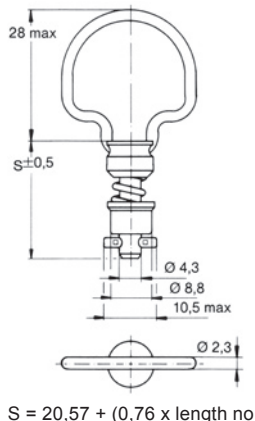
**Plus Flush Mounting Grommets**

**4002-N-3    4002-O-1  
4002-NS    4002-OS**

Total Thickness G	Stud Length No. When Using Type 1 Receptacles	Total Thickness G	Stud Length No. When Using Type 2 Receptacles	Total Thickness G	Stud Length No. When Using Type 3 Receptacles	Total Thickness G	Stud Length No. When Using Type 4 Receptacles
0,50 - 1,30	1	0,50 - 1,30	2	8,90 - 9,65	3	0,50 - 1,30	3
1,30 - 2,05	2	1,30 - 2,05	3	9,65 - 10,40	4	1,30 - 2,05	4
2,05 - 2,80	3	2,05 - 2,80	4	10,40 - 11,20	5	2,05 - 2,80	5
2,80 - 3,55	4	2,80 - 3,55	5	11,20 - 11,95	6	2,80 - 3,55	6
3,55 - 4,30	5	3,55 - 4,30	6	11,95 - 12,70	7	3,55 - 4,30	7
4,30 - 5,10	6	4,30 - 5,10	7	12,70 - 13,50	8	4,30 - 5,10	8
5,10 - 5,85	7	5,10 - 5,85	8	13,50 - 14,20	9	5,10 - 5,85	9
5,85 - 6,60	8	5,85 - 6,60	9	14,20 - 15,00	10	5,85 - 6,60	10
6,60 - 7,30	9	6,60 - 7,30	10	15,00 - 15,75	11	6,60 - 7,30	11
7,30 - 8,15	10	7,30 - 8,15	11	15,75 - 16,50	12	7,30 - 8,15	12
8,15 - 8,90	11	8,15 - 8,90	12	16,50 - 17,30	13	8,15 - 8,90	13
8,90 - 9,65	12	8,90 - 9,65	13	17,30 - 18,00	14	8,90 - 9,65	14
9,65 - 10,40	13	9,65 - 10,40	14	18,00 - 18,80	15	9,65 - 10,40	15
10,40 - 11,20	14	10,40 - 11,20	15	18,80 - 19,55	16	10,40 - 11,20	16
11,20 - 11,95	15	11,20 - 11,95	16	19,55 - 20,30	17	11,20 - 11,95	17
11,95 - 12,70	16	11,95 - 12,70	17	20,30 - 21,10	18	11,95 - 12,70	18
12,70 - 13,50	17	12,70 - 13,50	18	21,10 - 21,85	19	12,70 - 13,50	19
13,50 - 14,20	18	13,50 - 14,20	19	21,85 - 22,60	20	13,50 - 14,20	20
14,20 - 15,00	19	14,20 - 15,00	20	22,60 - 23,40	21	14,20 - 15,00	21
15,00 - 15,75	20	15,00 - 15,75	21	23,40 - 24,15	22	15,00 - 15,75	22
15,75 - 16,50	21	15,75 - 16,50	22	24,15 - 24,90	23	15,75 - 16,50	23
16,50 - 17,30	22	16,50 - 17,30	23	24,90 - 25,65	24	16,50 - 17,30	24
17,30 - 18,00	23	17,30 - 18,00	24	25,65 - 26,40	25	17,30 - 18,00	25
18,00 - 18,80	24	18,00 - 18,80	25	26,40 - 27,20	26	18,00 - 18,80	26
18,80 - 19,55	25	18,80 - 19,55	26	27,20 - 27,95	27	18,80 - 19,55	27
19,55 - 20,30	26	19,55 - 20,30	27	27,95 - 28,70	28	19,55 - 20,30	28
20,30 - 21,10	27	20,30 - 21,10	28	28,70 - 29,50	29	20,30 - 21,10	29
21,10 - 21,85	28	21,10 - 21,85	29	29,50 - 30,20	30	21,10 - 21,85	30
21,85 - 22,60	29	21,85 - 22,60	30	30,20 - 31,00	31	21,85 - 22,60	31
22,60 - 23,40	30	22,60 - 23,40	31	31,00 - 31,75	32	22,60 - 23,40	32
23,40 - 24,15	31	23,40 - 24,15	32	31,75 - 32,50	33	23,40 - 24,15	33
24,15 - 24,90	32	24,15 - 24,90	33	32,50 - 33,30	34	24,15 - 24,90	34
24,90 - 25,65	33	24,90 - 25,65	34	33,30 - 34,05	35	24,90 - 25,65	35
25,65 - 26,40	34	25,65 - 26,40	35				
26,40 - 27,20	35	26,40 - 27,20	35				

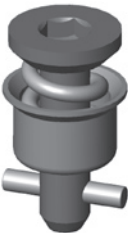
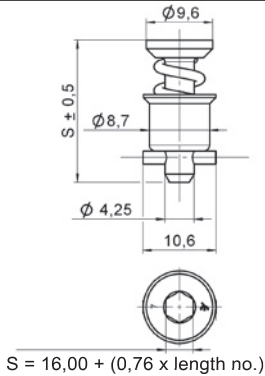

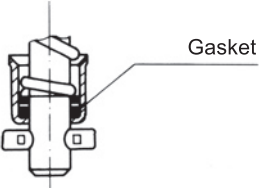

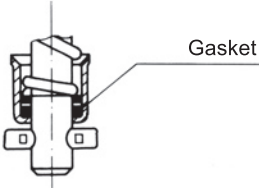
Other lengths on request.

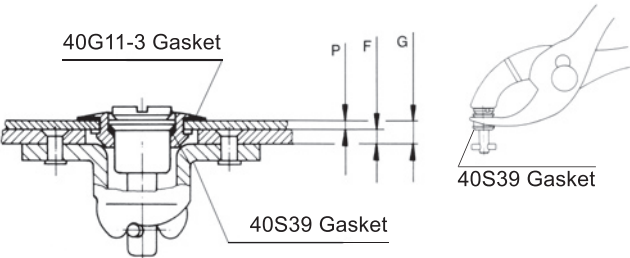
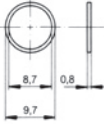
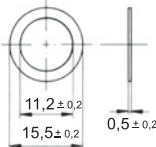
 Preferred dash-lengths

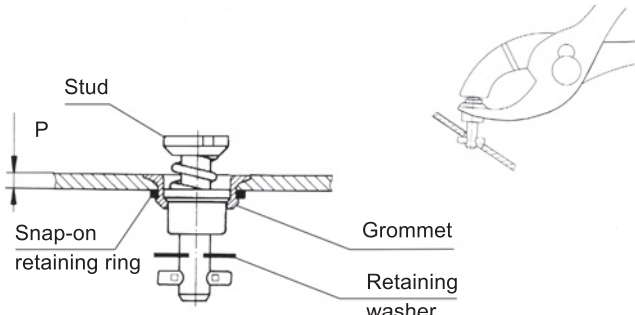
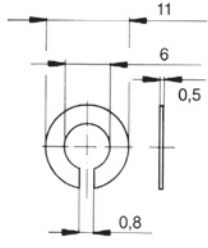
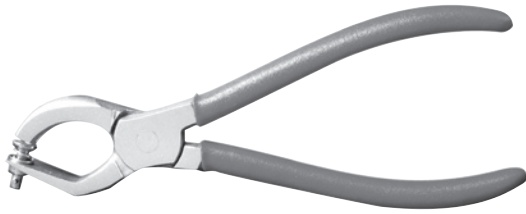
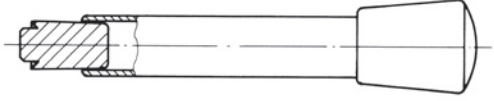
Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Slotted Recess Head</b></p> 	 <p>S = 16,00 + (0,76 x length no.)</p>	<p>Steel / zinc-plated, yellow chromate</p> <p>Stainless steel <sup>1)</sup></p>	<p>230</p> <p>290</p>	<p><b>4002-*D</b></p> <p><b>4002-*S</b></p>
<p><b>Cross Recess Head</b></p> 	 <p>S = 16,00 + (0,76 x length no.)</p>	<p>Steel / zinc-plated, yellow chromate</p>	<p>230</p>	<p><b>40S5-*D</b></p>
<p><b>Fixed Wing Head</b></p> 	 <p>S = 16,00 + (0,76 x length no.)</p>	<p>Steel / zinc-plated, yellow chromate</p> <p>Stainless steel <sup>1)</sup></p>	<p>230</p> <p>290</p>	<p><b>4002-*WB</b></p> <p><b>4002-*SW</b></p>
<p><b>180° Folding Bail Handle</b></p> 	 <p>S = 20,57 + (0,76 x length no.)</p>	<p>Steel / zinc-plated, yellow chromate</p>	<p>230</p>	<p><b>40S47-*C</b></p>


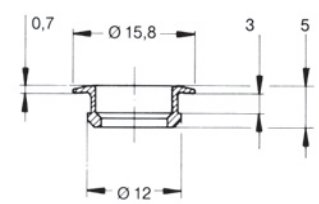

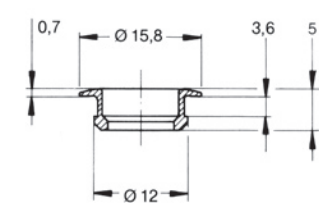

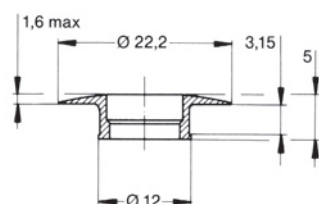

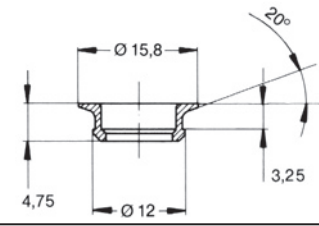

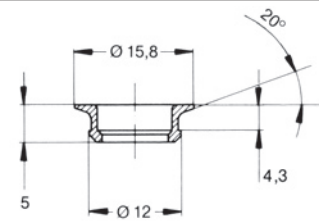
\* Length no. from Table, page G-2 and G-3

<sup>1)</sup> Max. tensile strength 3.300 N.

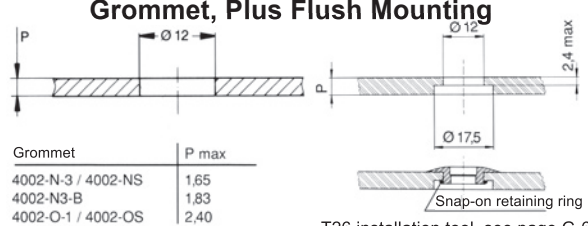
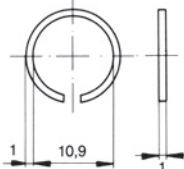
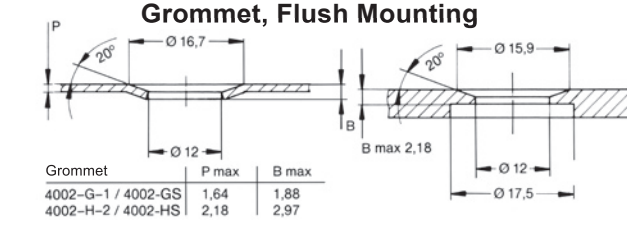
Style	Dimensions	Materials / Finish	°C	Part No.
<b>Hex Recess Head</b> 	 <p>S = 16,00 + (0,76 x length no.)</p>	Steel / zinc-plated, yellow chromate	230	<b>40E28- *-1AF</b>
<b>Sealed Slotted Recess Head</b> 	 <p>Additional required gasket see page G-4.</p>	Steel / zinc-plated, yellow chromate  Gasket: Velumoid	100	<b>40S37-*E</b>
<b>Sealed Cross Recess Head</b> 	 <p>Additional required gasket see page G-4.</p>	Steel / zinc-plated, yellow chromate  Gasket: Velumoid	100	<b>40S37-*AE</b>


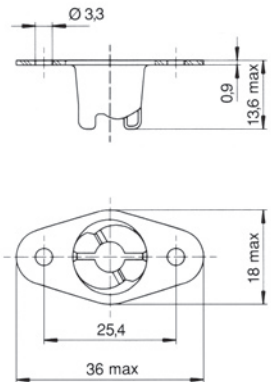

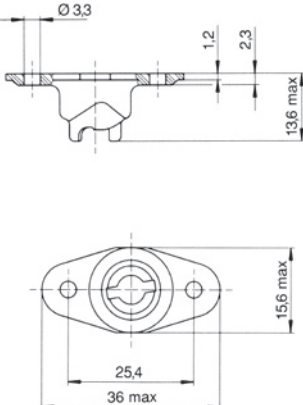

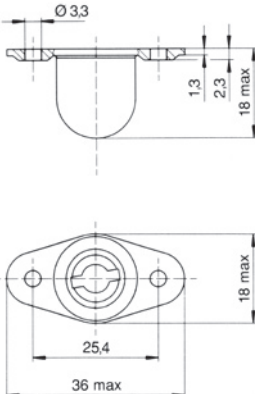

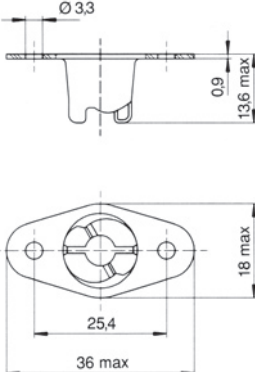
Installation Dimensions	Accessories	Materials / Finish	Part No.
<p><b>Gasket to be ordered in addition to the sealed stud assembly</b></p> 	<p>Gasket</p>  <p>Gasket</p> 	<p>Plastic / (PA6)</p> <p>EPDM black</p>	<p><b>40S39</b></p> <p><b>V40G110-1K</b></p>


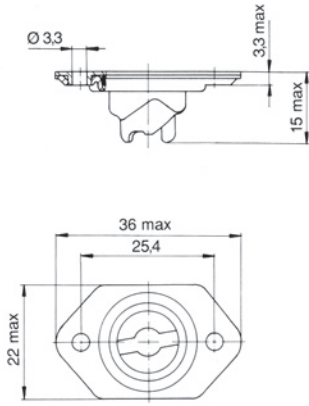

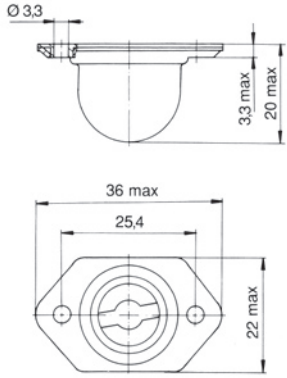

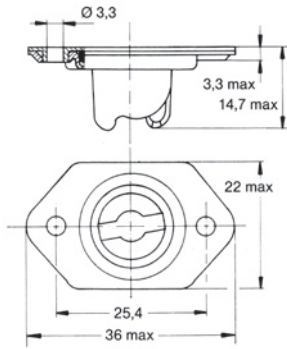

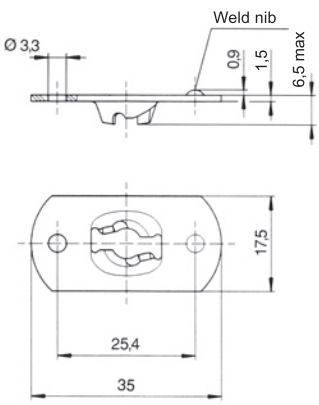
Installation Dimensions	Accessories	Materials / Finish	Part No.
 <p>4P3-1 installation pliers, see below</p>	<p>Retaining washer</p>  <p>From stud length no. 16</p>	<p>Stainless steel</p>	<p><b>4002-SW-SS</b></p>
	<p><b>Stud installation pliers</b></p>	<p><b>4P3-1</b></p>	
	<p><b>R4G-2+ and V40G26-1N snap-on retaining ring installation tool</b></p>	<p><b>T26</b></p>	

Style	Dimensions	Materials / Finish	°C	Part No.
<b>Plus Flush Mounting For Panel Thickness up to 1,65</b>  		Steel / zinc-plated, yellow chromate	230	<b>4002-N-3</b>
		Stainless steel	230	<b>4002-NS</b>
<b>Plus Flush Mounting For Panel Thickness from 1,65 to 2,40</b>  		Steel / zinc-plated, yellow chromate	230	<b>4002-O-1</b>
		Stainless steel	230	<b>4002-OS</b>
<b>Plus Flush Mounting For Panel Thickness from 1,27 to 1,83</b>  		Steel / zinc-plated, yellow chromate	230	<b>4002-N3-B</b>
<b>Flush Mounting For Panel Thickness up to 1,65</b>  		Steel / zinc-plated, yellow chromate	230	<b>4002-G-1</b>
		Stainless steel	230	<b>4002-GS</b>
<b>Flush Mounting For Panel Thickness from 1,65 to 2,18</b>  		Steel / zinc-plated, yellow chromate	230	<b>4002-H-2</b>
		Stainless steel	230	<b>4002-HS</b>

Grommets for thicker panels upon request.

Installation Dimensions	Accessories	Materials / Finish	Part No.									
<p><b>Grommet, Plus Flush Mounting</b></p>  <table border="1"> <thead> <tr> <th>Grommet</th> <th>P max</th> </tr> </thead> <tbody> <tr> <td>4002-N-3 / 4002-NS</td> <td>1,65</td> </tr> <tr> <td>4002-N3-B</td> <td>1,83</td> </tr> <tr> <td>4002-O-1 / 4002-OS</td> <td>2,40</td> </tr> </tbody> </table> <p>T26 installation tool, see page G-6.</p>	Grommet	P max	4002-N-3 / 4002-NS	1,65	4002-N3-B	1,83	4002-O-1 / 4002-OS	2,40	<p>Snap-on retaining ring</p> 	Steel / zinc-plated, yellow chromate	<b>R4G-2</b>	
Grommet	P max											
4002-N-3 / 4002-NS	1,65											
4002-N3-B	1,83											
4002-O-1 / 4002-OS	2,40											
<p><b>Grommet, Flush Mounting</b></p>  <table border="1"> <thead> <tr> <th>Grommet</th> <th>P max</th> <th>B max</th> </tr> </thead> <tbody> <tr> <td>4002-G-1 / 4002-GS</td> <td>1,64</td> <td>1,88</td> </tr> <tr> <td>4002-H-2 / 4002-HS</td> <td>2,18</td> <td>2,97</td> </tr> </tbody> </table> <p>T26 installation tool, see page G-6.</p>	Grommet	P max	B max	4002-G-1 / 4002-GS	1,64	1,88	4002-H-2 / 4002-HS	2,18	2,97			
Grommet	P max	B max										
4002-G-1 / 4002-GS	1,64	1,88										
4002-H-2 / 4002-HS	2,18	2,97										

Style	Dimensions	Materials / Finish	°C	Part No.
<p><b>Type 1 Cast</b></p> 		<p>Hard bronze / zinc-plated, yellow chromate</p> <p>Stainless steel</p>	<p>230</p> <p>230</p>	<p><b>214-16G</b></p> <p><b>214-16S</b></p>
<p><b>Type 1 Cast Narrow Width</b></p> 		<p>Hard bronze / zinc-plated, yellow chromate</p>	<p>230</p>	<p><b>214-16GN</b></p>
<p><b>Type 1 Cast Encapsulated</b></p> 		<p>Hard bronze / zinc-plated, yellow chromate</p> <p>Capsule: Brass / zinc-plated, yellow chromate</p>	<p>150</p>	<p><b>40R12-1A</b></p>
<p><b>Type 1 Swage</b></p> 		<p>Stainless steel</p>	<p>230</p>	<p><b>40R17-1</b></p>

Style	Dimensions	Materials / Finish	°C	Part No.
<b>Type 2 Float up to 0,75 mm* (Cast Receptacle)</b>  		Hard bronze / zinc-plated, yellow chromate	230	<b>244-16G</b>
		Cage: Steel / zinc-plated, yellow chromate  Stainless steel	230	<b>244-16S</b>
<b>Type 2 Float up to 0,75 mm* Encapsulated</b>  		Hard bronze / zinc-plated, yellow chromate  Capsule: Steel / zinc-plated, yellow chromate	230	<b>244-16GC</b>
<b>Type 2 Float up to 0,75 mm (Swage Receptacle)</b>  		Stainless steel	230	<b>40R18-1</b>
<b>Type 3 Flat Rivet / Screw or Weld Mounting</b>  		<b>Rivet / Screw Mounting</b> Hard bronze / zinc-plated, CrVI-free chromate	230	<b>V50R3-1-1AGV</b>
		Stainless steel	230	<b>V50R3-1-1BP</b>
		<b>Welding</b> Steel / zinc-plated, CrVI-free	230	<b>V50R3-1-2AZ</b>

\* 1,6 mm float upon request.

Installation Dimensions

**Type 1, 2 and 3**  
**Receptacles Hole Pattern**





**Particular Features:**

- Used for the cabinets that require better sealing under vibration conditions
- Lock has 6 mm compression ratio
- Lock also provides noise isolation
- Different driver alternatives are available
- Standard cams without stopper are applied to these locks

**Application:**

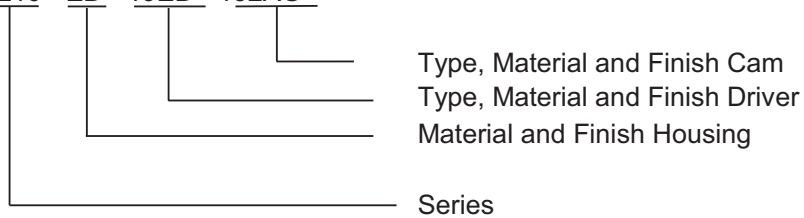
Electric panels, machinery covers, railway applications, construction equipment


**Selection Instructions:**

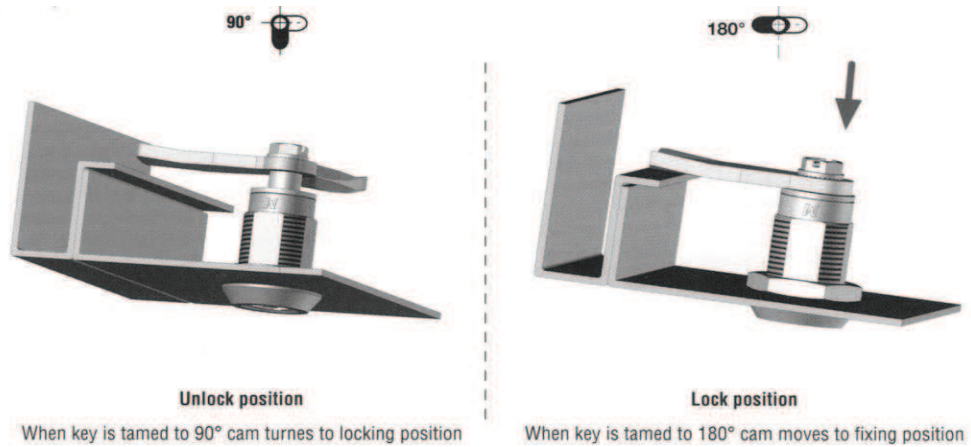
1. Select drive and cam from page 47

**Part Number Example**

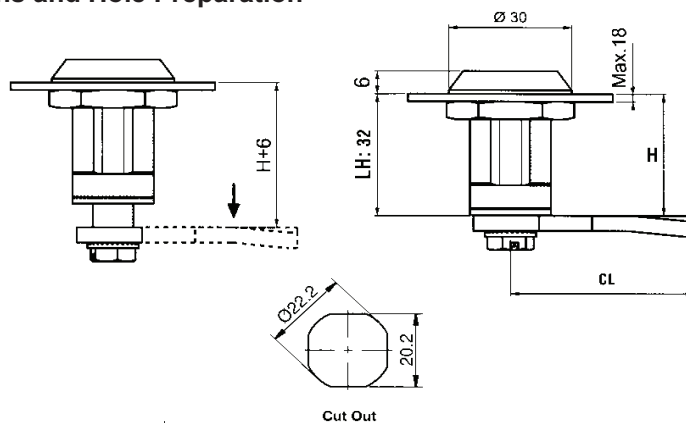
CL10 - ED - 19ED - 132AG



Version	Materials / Finish	Part-No.
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free)	CL10-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free)	CL10-EH-*













### Dimensions and Hole Preparation

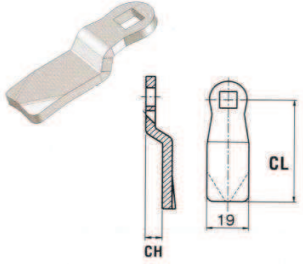


CL and H according to Cam,  
see page 47

\* drive selected from page 47

## Drivers

<b>3mm Double Bit</b> 	<b>5mm Double Bit</b> 	<b>Slot 2X4</b> 	<b>8mm Square</b> 
<b>Material / Finish Part-No.</b> Zamak® Chrome 01ED Zamak® Black 01EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 02ED Zamak® Black 02EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 03ED Zamak® Black 03EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 07ED Zamak® Black 07EH
<b>Railway</b> 	<b>7mm Triangular</b> 	<b>8mm Triangular</b> 	<b>8mm Inner Hexagon</b> 
<b>Material / Finish Part-No.</b> Zamak® Chrome 08ED Zamak® Black 08EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 10ED Zamak® Black 10EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 11ED Zamak® Black 11EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 13ED Zamak® Black 13EH
<b>8mm Hexagon with security pin</b> 	<b>Tubular Key</b> 		
<b>Material / Finish Part-No.</b> Zamak® Chrome 18ED Zamak® Black 18EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 19ED Zamak® Black 19EH		

<b>Cams</b>	H	CH	CL	Materials / Finish	Part-No.
	32	0	29	Steel / Zinc plated	130AG
	32	0	38	Steel / Zinc plated	131AG
	32	0	45	Steel / Zinc plated	108AG
	32	0	51	Steel / Zinc plated	133AG
	32	0	66	Steel / Zinc plated	132AG
	35	3	38	Steel / Zinc plated	134AG
	35	3	45	Steel / Zinc plated	110AG
	35	3	51	Steel / Zinc plated	135AG
	38	6	37	Steel / Zinc plated	136AG
	38	6	45	Steel / Zinc plated	112AG
	39	7	44	Steel / Zinc plated	137AG
	39	7	49	Steel / Zinc plated	138AG
	42	10	48	Steel / Zinc plated	139AG
	44	12	45	Steel / Zinc plated	115 AG

**Particular Features:**

Used for the cabinets that require better sealing under vibration conditions

Lock has 6 mm compression ratio

Provides widegrip range with adjustable screw

Lock also provides noise isolation

Different driver alternatives are available

3 different cam alternatives are available

**Application:**

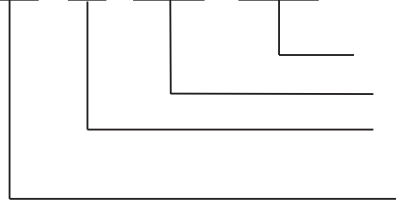
Electric panels, machinery covers, railway applications, construction equipment

**Selection Instructions:**

1. Select drive and cam from page 50


**Part Number Example**

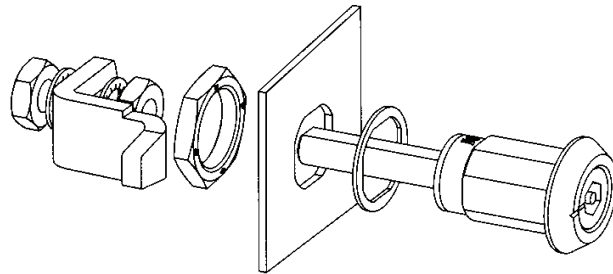
CL20 - ED - 20ED - 197AG



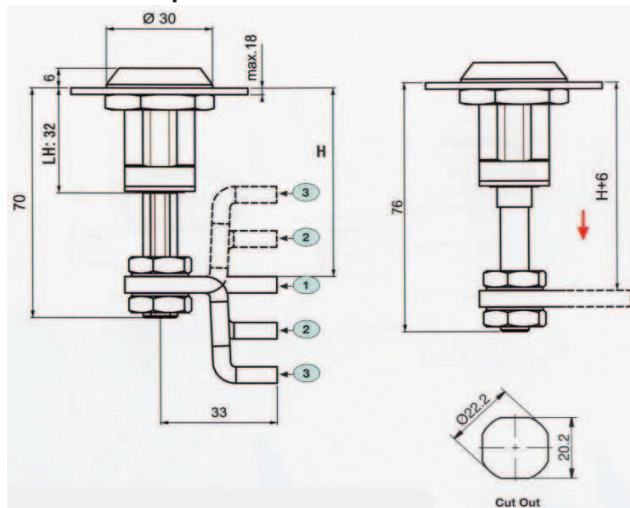
Type, Material and Finish Cam  
Type, Material and Finish Driver  
Material and Finish Housing  
Series



Version	Materials / Finish	Part-No.
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free)	CL20-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free)	CL20-EH-*





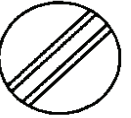
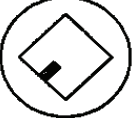






### Dimensions and Hole Preparation







CL and H according to Cam,  
see page 47

\* drive selected from page 50

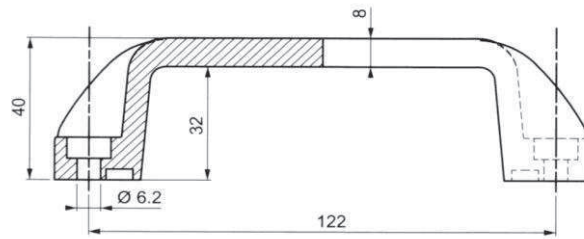
## Drivers

<b>3mm Double Bit</b> 	<b>5mm Double Bit</b> 	<b>Slot 2X4</b> 	<b>8mm Square</b> 
<b>Material / Finish Part-No.</b> Zamak® Chrome 01ED Zamak® Black 01EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 02ED Zamak® Black 02EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 03ED Zamak® Black 03EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 07ED Zamak® Black 07EH
<b>Railway</b> 	<b>7mm Triangular</b> 	<b>8mm Triangular</b> 	<b>8mm Inner Hexagon</b> 
<b>Material / Finish Part-No.</b> Zamak® Chrome 08ED Zamak® Black 08EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 10ED Zamak® Black 10EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 11ED Zamak® Black 11EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 13ED Zamak® Black 13EH
<b>8mm Hexagon with security pin</b> 	<b>Tubular Key</b> 		
<b>Material / Finish Part-No.</b> Zamak® Chrome 18ED Zamak® Black 18EH	<b>Material / Finish Part-No.</b> Zamak® Chrome 19ED Zamak® Black 19EH		

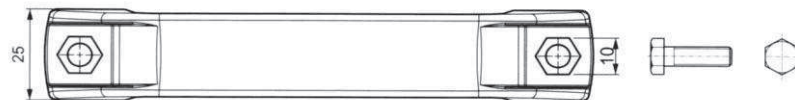
<b>Cams</b>	<b>H</b>		<b>CH</b>	<b>CL</b>	<b>Materials / Finish</b>	<b>Part-No.</b>
	<b>Grip min</b>	<b>Grip max</b>				
<b>1</b> 	32	58	0	33	Steel / Zinc plated	195AG
<b>2</b> 	24	72	14	33	Steel / Zinc plated	196AG
<b>3</b> 	10	85	27,5	33	Steel / Zinc plated	197AG

Version	Materials / Finish	Part-No.
	Polyamid black DIN-EN ISO 1043-1 PA6 GFR30 Version T1 for hex-head screws	D10-T1
	Polyamid black DIN-EN ISO 1043-1 PA6 GFR30 Version T2 for counter sunk screws	D10-T2

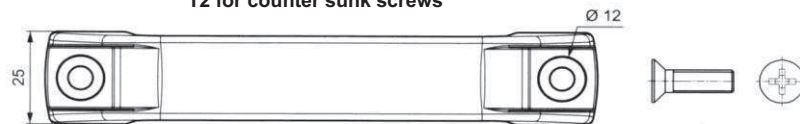
### Dimensions and Hole Preparation




T1 for hex-head screws

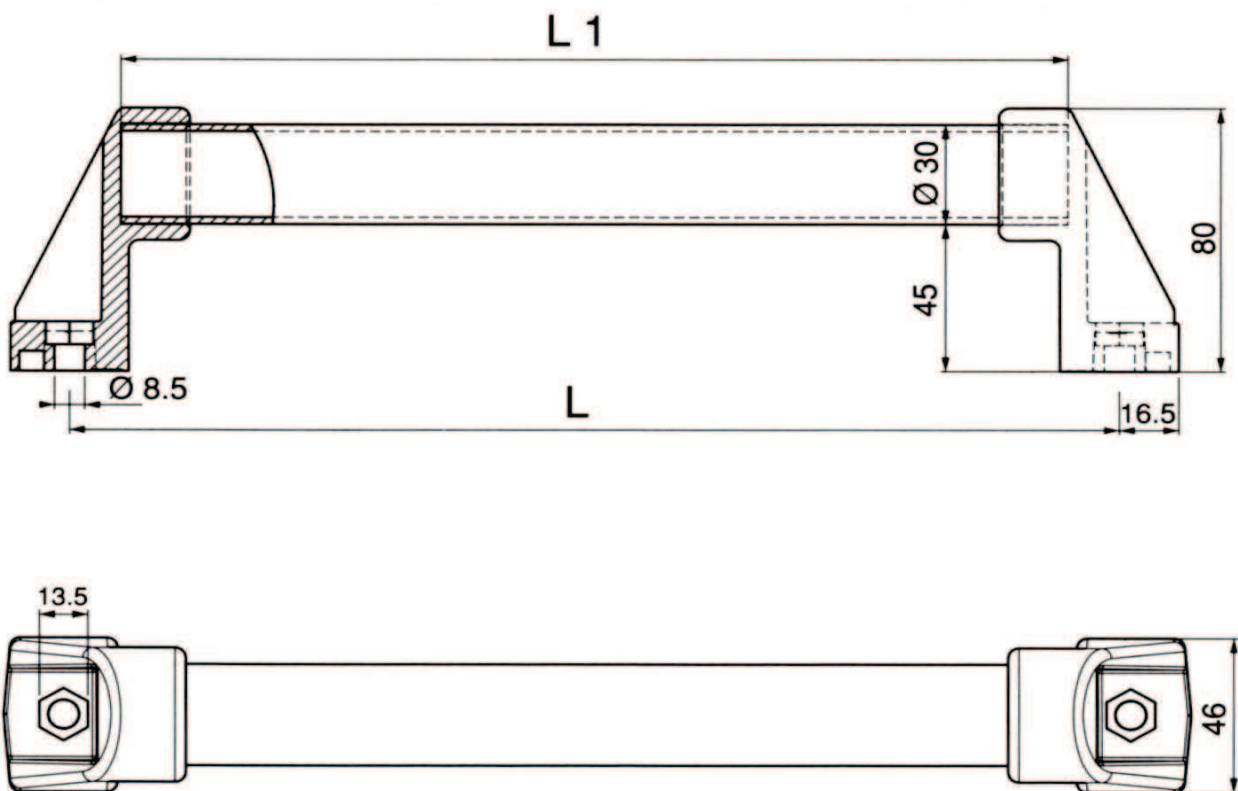


T2 for counter sunk screws



Version	Materials / Finish	Part-No.
	Polyamid black	
	length 300 mm	D30-300
	length 400 mm	D30-400
	length 500 mm	D30-500
	length 600 mm	D30-600
	length 700 mm	D30-700
	length 800 mm	D30-800
	length 1.000 mm	D30-1000

### Hole Preparation / Dimensions





**Particular Features:**

Especially useful for sound-proof or isolated doors  
Lock supplied with suitable housing as standard  
IP65 is optional

**Application:**

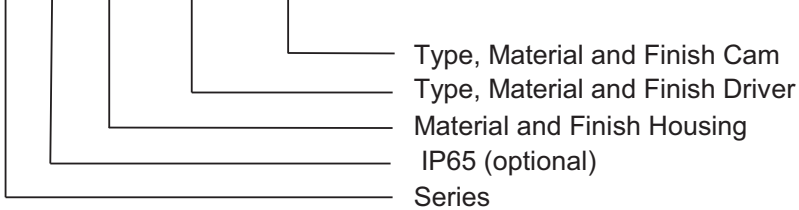
Isolated covers

**Selection Instructions:**

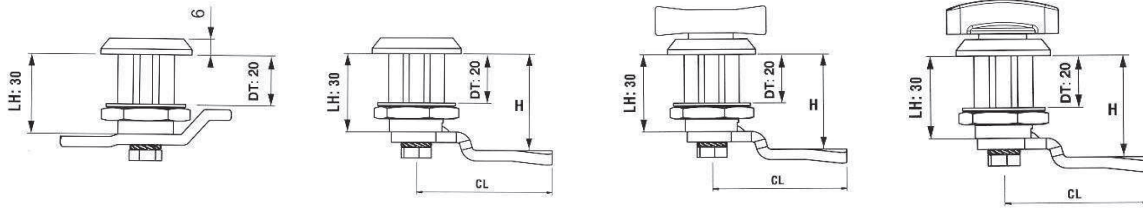
1. Select housing from page 10 to 13
2. Select drive or knob from page 14
3. Select cam from page 15 or 16
4. Select IP65 if requested by adding "-I" to the part-no.

**Part Number Example**

L20A(I) - ED - 03ED - 33AG



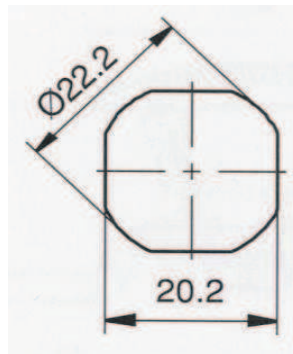
## Housing Door Thicknes 20 mm



CL and H according to the selected cam, see page 15 and 16

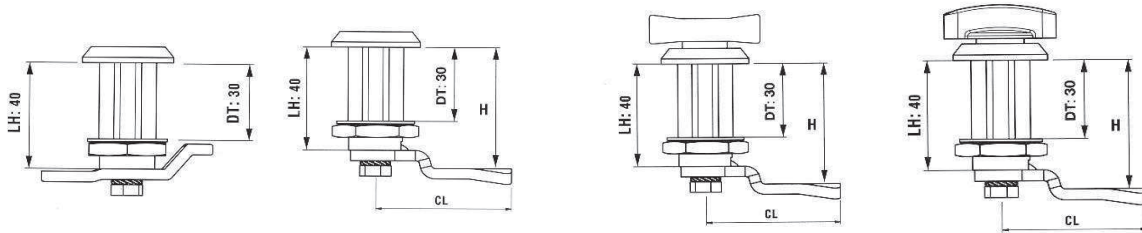
Version	Materials / Finish	Part-No.
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free)	L20A-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free) IP65	L20AI-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free)	L20A-EH-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free) IP65	L20AI-EH-*

### Hole Preparation





\* Order examples for complete part numbers see page 17

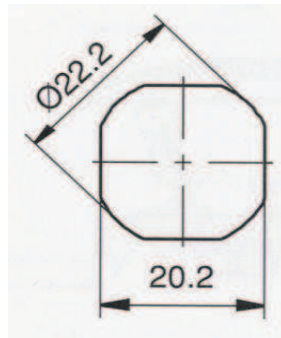
**Housing Door Thicknes 30 mm**



CL and H according to the selected cam, see page 15 and 16

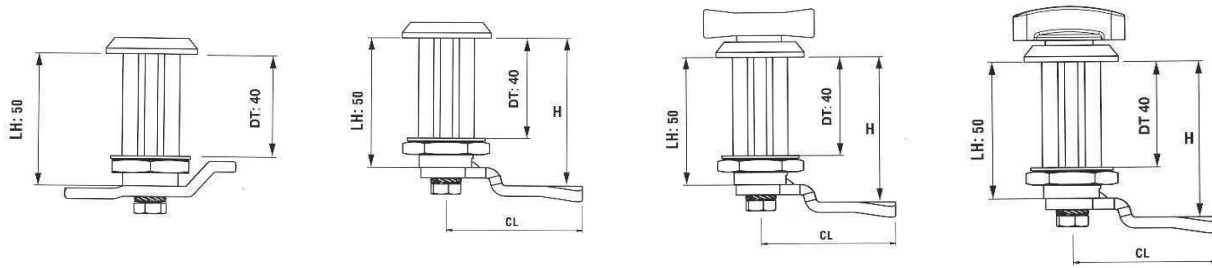
Version	Materials / Finish	Part-No.
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free)	L20B-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free) IP65	L20BI-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free)	L20B-EH-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free) IP65	L20BI-EH-*

**Hole Preparation**





\* Order examples for complete part numbers see page 17

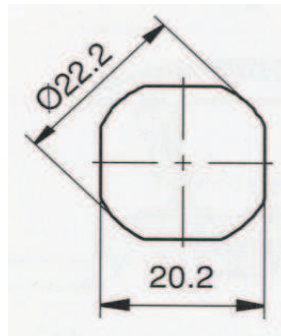
**Housing Door Thicknes 40 mm**



CL and H according to the selected cam, see page 15 and 16

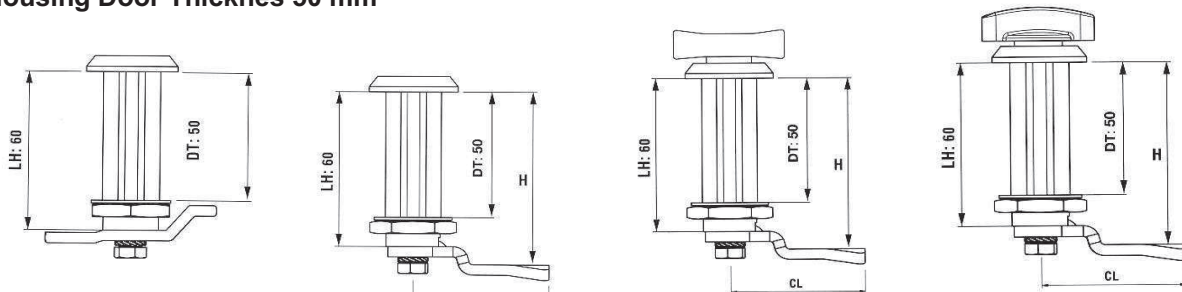
Version	Materials / Finish	Part-No.
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free)	L20C-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free) IP65	L20CI-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free)	L20C-EH-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free) IP65	L20CI-EH-*

**Hole Preparation**





\* Order examples for complete part numbers see page 17

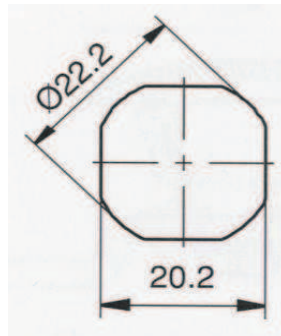
## Housing Door Thicknes 50 mm



CL and H according to the selected cam, see page 15 and 16





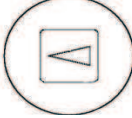
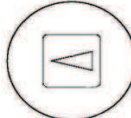












Version	Materials / Finish	Part-No.
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free)	L20D-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 chrome plated (CrVI-free) IP65	L20DI-ED-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free)	L20D-EH-*
	Zamak® DIN-EN1774-ZnAl4Cu1 black coated (CrVI-free) IP65	L20DI-EH-*

## Hole Preparation

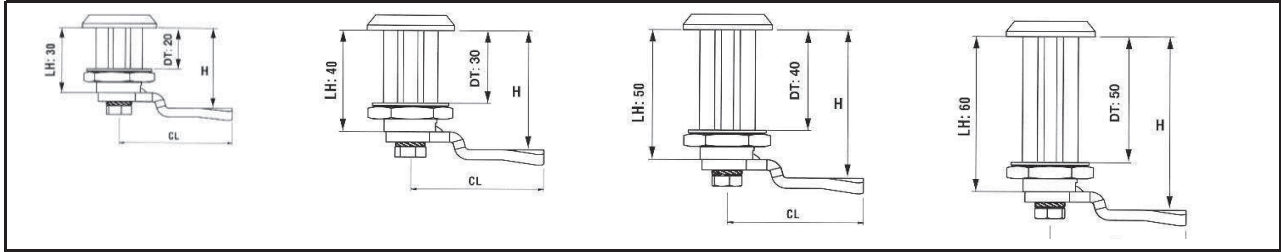


\* Order examples for complete part numbers see page 17

**Drivers**

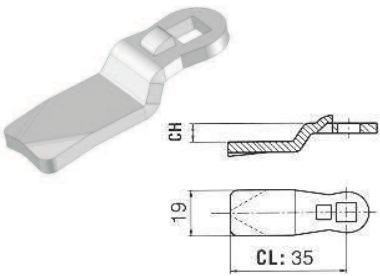
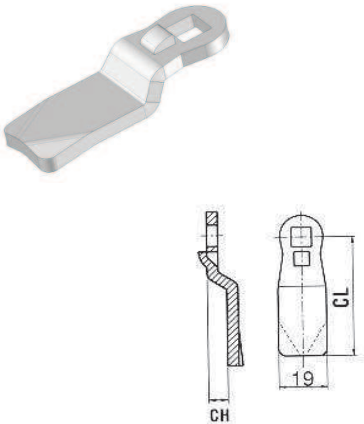
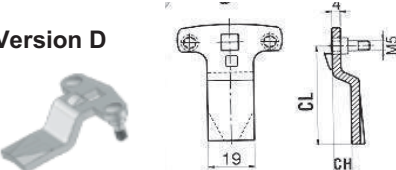
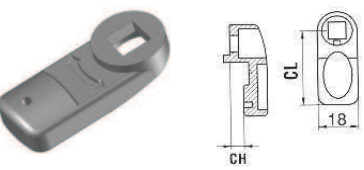
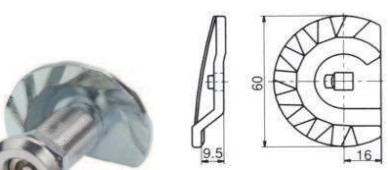
<b>3mm Double Bit</b> 		<b>5mm Double Bit</b> 		<b>Slot 2X4</b> 		<b>Slot</b> 	
<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>
Zamak® Chrome	01ED	Zamak® Chrome	02ED	Zamak® Chrome	03ED	Zamak® Chrome	04ED
Zamak® Black	01EH	Zamak® Black	02EH	Zamak® Black	03EH	Zamak® Black	04EH
Polyamid Black	02K	Polyamid Black	02K	Polyamid Black	03K		
<b>6mm Square</b> 		<b>7mm Square</b> 		<b>8mm Square</b> 		<b>Railway</b> 	
<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>
Zamak® Chrome	05ED	Zamak® Chrome	06ED	Zamak® Chrome	07ED	Zamak® Chrome	08ED
Zamak® Black	05EH	Zamak® Black	06EH	Zamak® Black	07EH	Zamak® Black	08EH
Polyamid Black	05K	Polyamid Black	06K	Polyamid Black	07K		
<b>8mm Square Slot</b> 		<b>7mm Triangular</b> 		<b>8mm Triangular</b> 		<b>9mm Triangular</b> 	
<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>
Zamak® Chrome	09ED	Zamak® Chrome	10ED	Zamak® Chrome	11ED	Zamak® Chrome	12ED
Zamak® Black	09EH	Zamak® Black	10EH	Zamak® Black	11EH	Zamak® Black	12EH
		Polyamid Black	10K	Polyamid Black	11K	Polyamid Black	12K
<b>8mm Inner Hexagon</b> 		<b>10mm Inner Hexagon</b> 		<b>6mm Inner Square</b> 		<b>Torx T30</b> 	
<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>
Zamak® Chrome	13ED	Zamak® Chrome	14ED	Zamak® Chrome	15ED	Zamak® Chrome	16ED
Zamak® Black	13EH	Zamak® Black	14EH	Zamak® Black	15EH	Zamak® Black	16EH
<b>Knob Type X</b> 		<b>Knob Type Y</b> 					
<b>Material / Finish</b>	<b>Part-No.</b>	<b>Material / Finish</b>	<b>Part-No.</b>				
Zamak® Chrome	18ED	Zamak® Chrome	19ED				
Zamak® Black	18EH	Zamak® Black	19EH				
Polyamid Black	18K	Polyamid Black	19K				

## Cams with Stopper



	LH30	LH40	LH50	LH60	CH	CL	Materials / Finish	Part-No.
	H	H	H	H				
<b>Version A</b>    	16	26	36	46	-14	45	Steel / Zinc plated	01AG
	18	28	38	48	-12	45	Steel / Zinc plated	02AG
	20	30	40	50	-10	45	Steel / Zinc plated	03AG
	22	32	42	52	-8	45	Steel / Zinc plated	04AG
	24	34	44	54	-6	45	Steel / Zinc plated	05AG
	26	36	46	56	-4	45	Steel / Zinc plated	06AG
	28	38	48	58	-2	45	Steel / Zinc plated	07AG
	30	40	50	60	0	45	Steel / Zinc plated Stainless Steel	08AG 08BP
	32	42	52	62	2	45	Stainless Steel	09BP
	33	43	53	63	3	45	Steel / Zinc plated Stainless Steel	10AG 10BP
	34	44	54	64	4	45	Steel / Zinc plated Stainless Steel	11AG 11BP
	36	46	56	66	6	45	Steel / Zinc plated Stainless Steel	12AG 12BP
	38	48	58	68	8	45	Steel / Zinc plated Stainless Steel	13AG 13BP
	40	50	60	70	10	45	Steel / Zinc plated Stainless Steel	14AG 14BP
	42	52	62	72	12	45	Steel / Zinc plated Stainless Steel	15AG 15BP
	44	54	64	74	14	45	Steel / Zinc plated	16AG
	46	56	66	76	16	45	Steel / Zinc plated	17AG
	48	58	68	78	18	45	Steel / Zinc plated Stainless Steel	18AG 18BP
	50	60	70	80	20	45	Steel / Zinc plated	19AG
	52	62	72	82	22	45	Steel / Zinc plated	20AG
	54	64	74	84	24	45	Steel / Zinc plated	21AG

**Cams with Stopper**

	LH30	LH40	LH50	LH60	CH	CL	Materials / Finish	Part-No.	
	H	H	H	H					
<b>Version B</b> 	28	38	48	58	-2	35	Steel / Zinc plated	22AG	
	30	40	50	60	0	35	Steel / Zinc plated	23AG	
	32	42	52	62	2	35	Steel / Zinc plated	24AG	
	34	44	54	64	4	35	Steel / Zinc plated	25AG	
	36	46	56	66	6	35	Steel / Zinc plated	26AG	
	37	47	57	67	7	35	Steel / Zinc plated	27AG	
	40	50	60	70	10	35	Steel / Zinc plated	28AG	
	56	66	76	86	26	35	Steel / Zinc plated	29AG	
<b>Version C</b> 	30	40	50	60	0	29	Steel / Zinc plated	30AG	
	30	40	50	60	0	38	Steel / Zinc plated	31AG	
	30	40	50	60	0	66	Steel / Zinc plated	32AG	
								Stainless Steel	32BP
	30	40	50	60	0	51	Steel / Zinc plated	33AG	
	33	43	53	63	3	38	Steel / Zinc plated	34AG	
	33	43	53	63	3	51	Steel / Zinc plated	35AG	
	36	46	56	66	6	37	Steel / Zinc plated	36AG	
	37	47	57	67	7	44	Steel / Zinc plated	37AG	
	37	47	57	67	7	49	Steel / Zinc plated	38AG	
								Stainless Steel	38BP
	40	50	60	70	10	48	Steel / Zinc plated	39AG	
59	69	79	89	29	45	Steel / Zinc plated	40AG		
<b>Version D</b> 	30	40	50	60	0	51	Steel / Zinc plated	50AG	
	37	47	57	67	7	49	Steel / Zinc plated	51AG	
	42	52	62	72	12	46	Steel / Zinc plated	52AG	
<b>Version E</b> 	26	36	46	56	-4	45	Polyamid Black	60K	
	30	40	50	60	0	25	Polyamid Black	61K	
	30	40	50	60	0	35	Polyamid Black	62K	
	34	44	54	64	4	45	Polyamid Black	63K	
	36	46	56	66	6	35	Polyamid Black	64K	
<b>Version F (Multi Cam)</b> 	20,5 to 30,0	30,5 to 40,0	40,5 to 50,0	50,5 to 60,0	-9,5 to 0,0	(30)	Steel / Zinc plated	99AG	



## Order example

Spring, Nut, Adapter and Screw are always part of the set, please order like the following examples



Housing in Zamak® black, door thickness 30mm  
selected from page 11

L20B-EH-

Drive 8mm square, Zamak® chrome,  
selected from page 14

07ED-

Cam Version A, steel zinc plated, CH = 14mm  
selected from page 15

16AG

### Complete part number

**L20B-EH-07ED-16AG**



Housing in Zamak®, chrom plated,  
door thickness 50mm, IP65, selected from page 13

L20DI-ED-

Drive Knob Type X, zamac black,  
selected from page 14

18EH-

Cam Version A, steel zinc plated, CH = 8mm  
selected from page 15

13AG

### Complete part number

**L20DI-ED-18EH-13AG**