

# BÖLLHOFF

## QUICKLOC®

Quick release systems



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## **QUICKLOC®** – Quick releases

Innovative joint solutions play an important role in today's modern industry, which is mainly characterised by the aim to strive for economic efficiency and productivity.

High-maintenance components require easy accessibility, for example, paneling parts call for a design-oriented function element and housings of protective devices for captive fasteners.

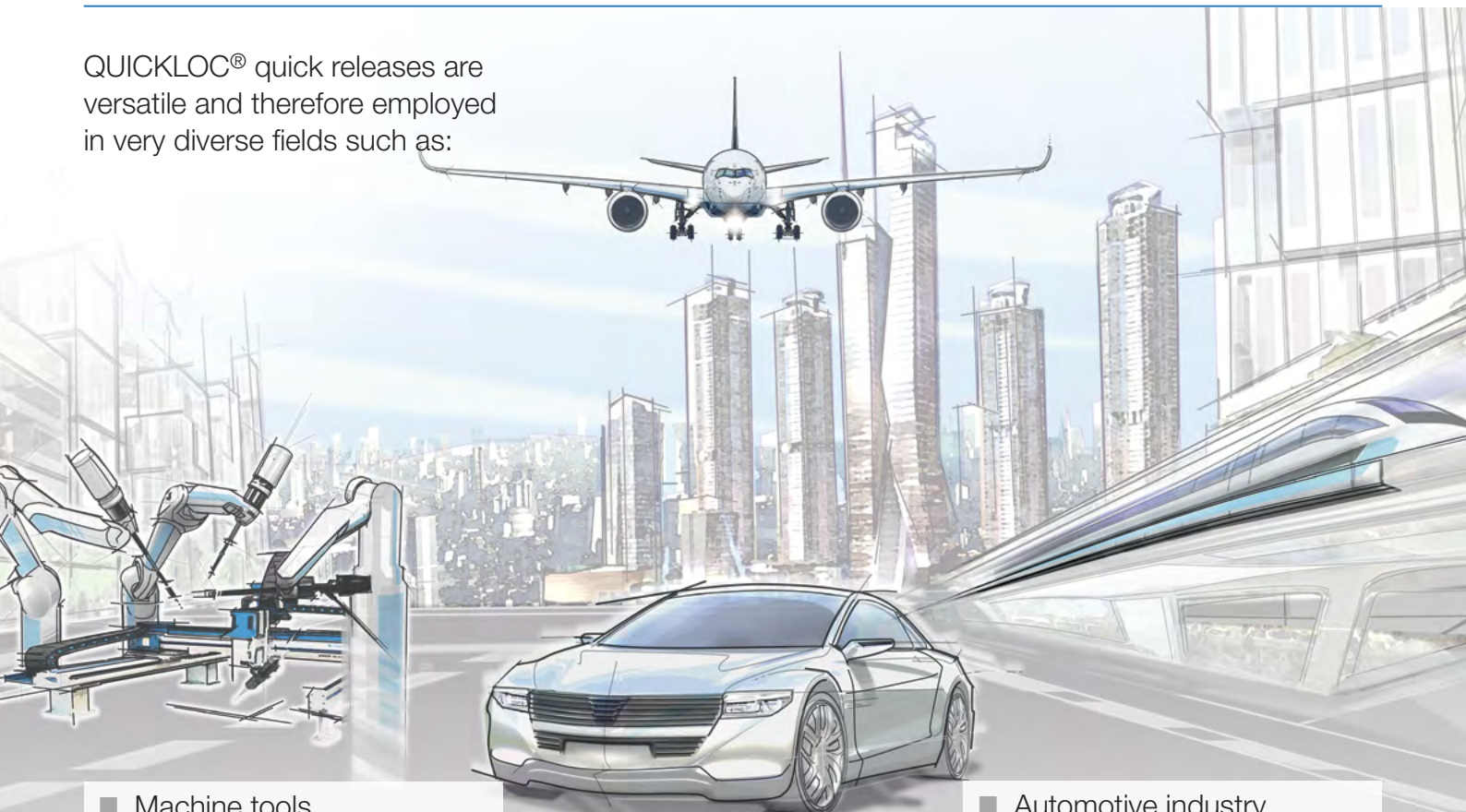
For all these and many more requirements in fastening technology, Böllhoff offers quick releases of high performance reliability under the name of QUICKLOC®.

### The advantages

- Easy installation
- Simple to operate
- Quick opening and closing
- Quick release locked against falling out
- Cost-effective operation
- Vibration-resistant
- Resistant to soiling
- Customer-specific designs can be realised

## **QUICKLOC®** – Applications

QUICKLOC® quick releases are versatile and therefore employed in very diverse fields such as:



- Machine tools
- Mechanical engineering
- Medical engineering
- Solar
- Electrical engineering

- Automotive industry
- Aerospace industry
- Rail cars
- Agricultural machinery
- Construction machinery

## QUICKLOC® Light – Advantages

Our QUICKLOC® Light clamping, rotation and pressure locks create repeatedly releasable joints.

Easy to fit and even easier to operate – the right quick-release system also allows repeated opening and closing. QUICKLOC® is the perfect solution for components that are frequently used or serviced.

### Advantages QUICKLOC® Light

#### Efficiency

- Quarter-turn assembly and disassembly
- Counterclockwise and clockwise opening
- Easy closing by turning or axial pressure

#### Reliable

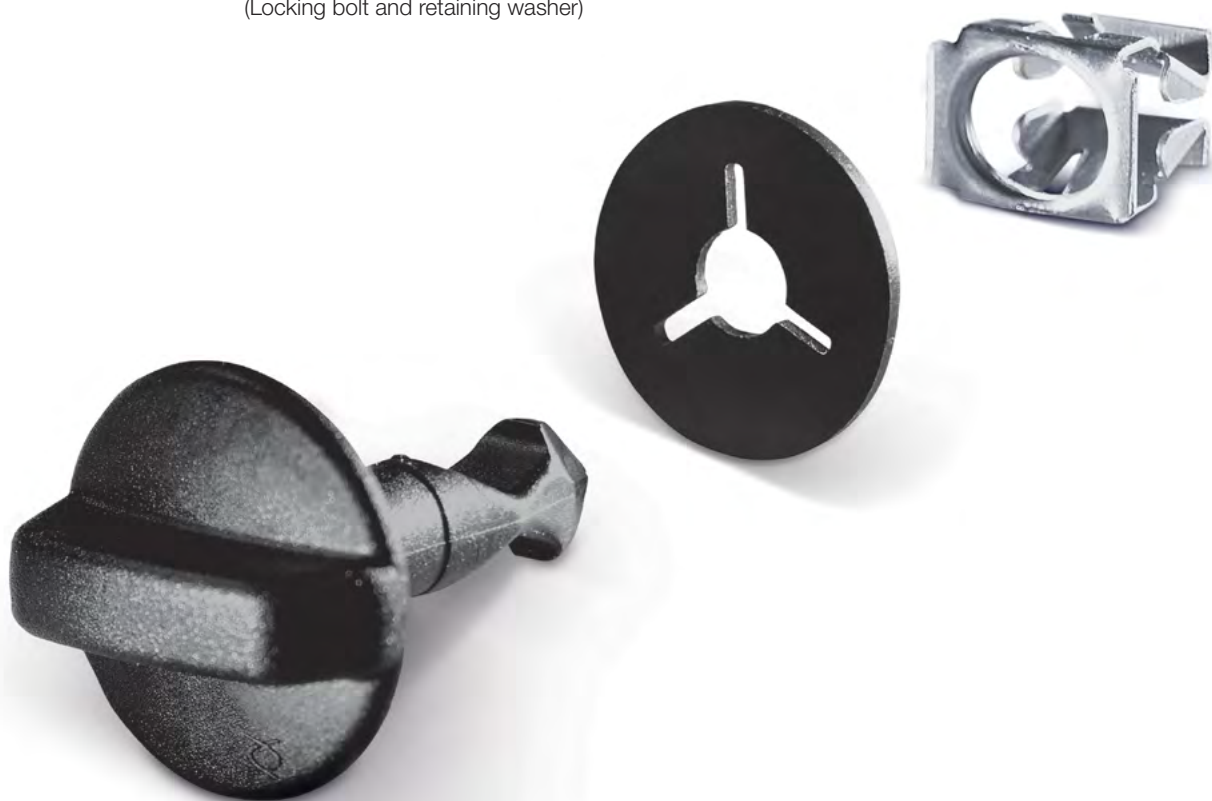
- Quick release locked against falling out  
(as required by Machinery Directive 2006/42/EC)
- Tensile load up to 600 N

#### Insulation

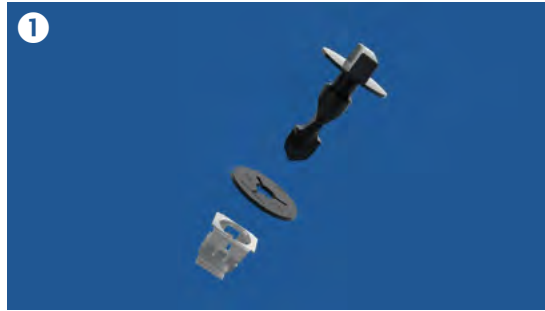
- Corrosion-free
- Electric insulation

#### Savings

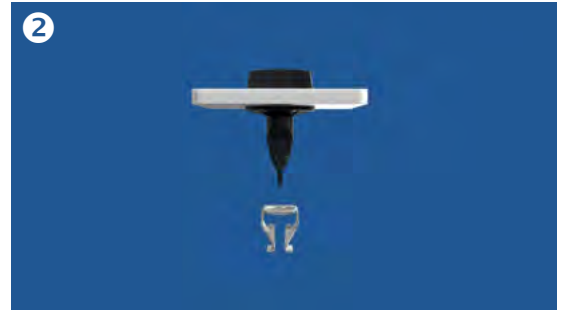
- Reduced weight due to full-plastic solution  
(Locking bolt and retaining washer)



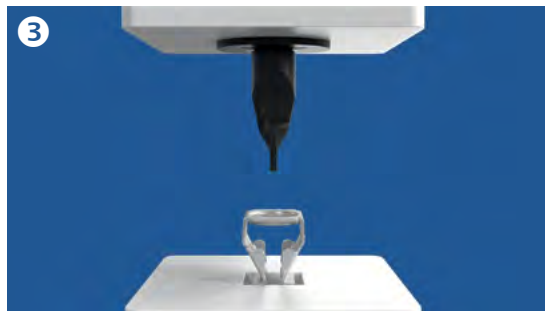
**QUICKLOC® Light** – Installation process



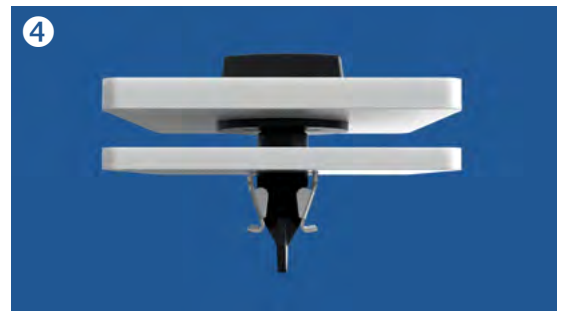
QUICKLOC® Light – three-piece system.



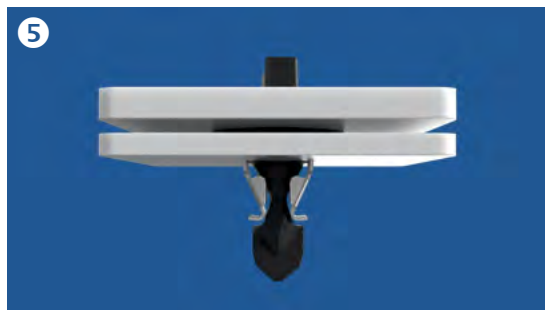
Insertion of the locking bolt into the bore hole; optional locking with a retaining washer.



Clipping the receptacle into a square or rectangular hole.



To lock the joint, the locking bolt is screwed into the receptacle under light pressure and locks in due to the fittingly shaped curve geometry. Thanks to its geometry, it is then held in place without clearance.



When the joint is opened by a clockwise or counter-clockwise quarter turn, the elastic part of the receptacle is stretched and the locking bolt released.

Watch an online video about the functional principle of QUICKLOC® Light.

 <https://www.boellhoff.com/videos/quickloc-light>



# QUICKLOC® Light – Function

## Overall function

QUICKLOC® Light quick releases are based on three component parts:

- **Lock top (bolt)**
- **Lock bottom (receptacle)**
- **Retaining washer (locking device)**

### Lock bottom – receptacle

The first step is to choose the receptacle because it affects the grip length.

### Grip length

The following parameters are added to determine the grip length:

$$\text{grip length}_{\text{min}} = \text{over height}^* + \text{retaining washer (thickness)}^{**} + 0.7 \text{ mm} + \text{possible cover spacing}$$

Grip lengths vary depending on the receptacle. A + 1.5 mm tolerance can be added to the indicated nominal dimension. Within this tolerance, a noise-free fit of the cover in the housing is guaranteed.

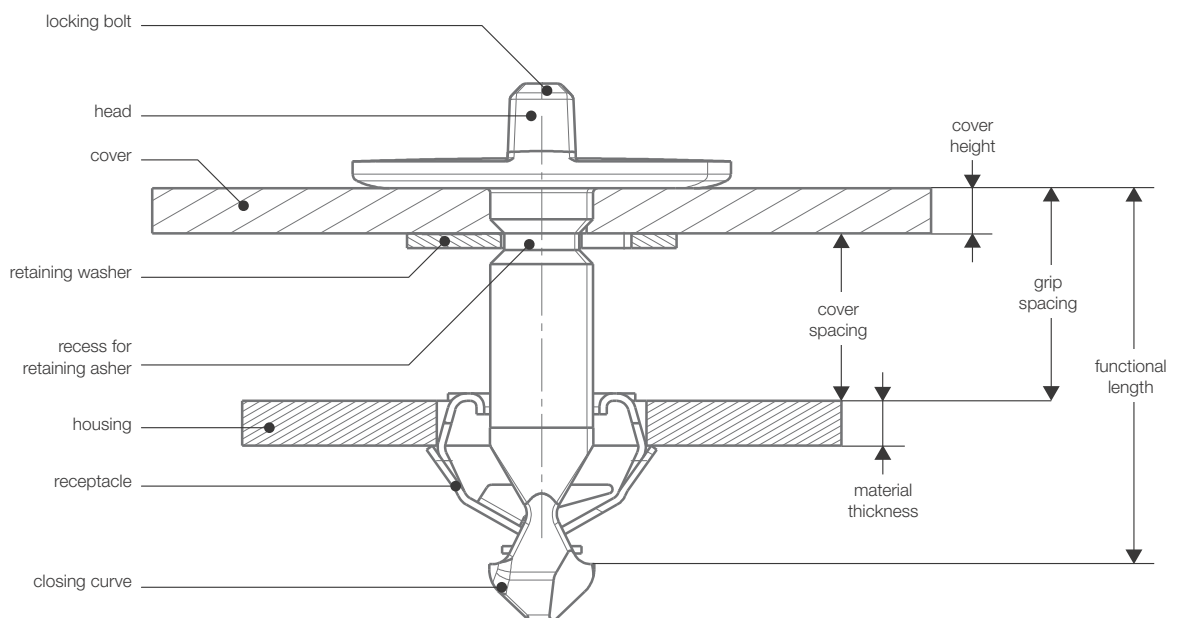
### Functional length

Measurable dimension on the bolt. The dimension results from the above-named lengths. It helps to distinguish the bolts.

### Retaining washer

The retaining washer captively holds the locking bolt to the cover. The maximum cover height describes the position of the retaining washer on the bolt. Thinner covers allow movement.

To achieve self-insertion when pressing the cover, the actual cover height must be the maximum cover height.



\* The cover height must fit precisely.

\*\* With a given cover spacing, the thickness of the retaining washer is already included in the cover spacing.

# QUICKLOC® Light – Design

## QUICKLOC® Light – Standard design

Different designs of QUICKLOC® Light locking bolts and lock bottoms are always on stock or can be produced with short lead times. Please see pages 8 to 9 for the design range. Please do not hesitate to ask.

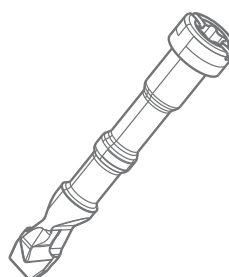
### Catalogue of requirements

- Desired function
  - Hand- or tool-operated
  - Closing by application of pressure or turning
- Colour design
- Loss protection
- Installation conditions
- Size and direction of required tolerances
- Size and direction of required forces

The individual elements of the lock are systematically combined to allow perfect suitability for the intended function.

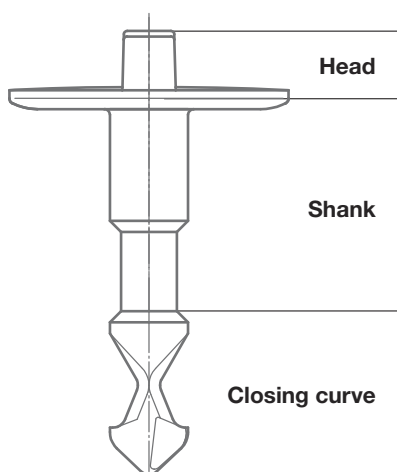
## QUICKLOC® Light – Special design

Feel free to contact us for customised quick releases.



## Locking bolts

QUICKLOC® Light locking bolts are injection moulded bolts made of polyamide 6.6 GF. They consist of head, shank and closing curve:



- Bolt drive
- Hand operation (no tool)
  - Tool operation (e.g. head shapes with cross recess or internal serration)
- Adjustable to different material thicknesses of the top (cover)  
Option: Recess for retaining washer
- Different closing curves to choose from to define the screwing-in behaviour



# QUICKLOC® Light – Design

Convincing variety illustrated with the example of the locking bolt – head shapes

We group head shapes according to the mode of operation:

■ Hand-operated

■ Tool-operated (e.g. slot, internal serration)



## Locking bolts – closing curves

Thanks to different curve geometries on the locking bolt, the joint can be perfectly adapted to the intended mode of operation. Description of available closing curves and functions:



### Closing curve 7/2:

- Small space requirement in “depth”
- Open/close counterclockwise and clockwise
- Closing: turning under axial pressure



### Closing curve 7/3:

- Closing by pressure on bolt or cover
- Locking bolt automatically slides into locking position



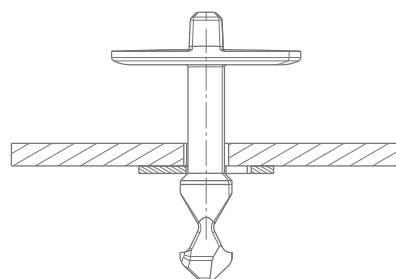
### Closing curve 7/5:

- Closing by pressure on bolt or cover
- Blade for easier fit into receptacle

## Retaining washer

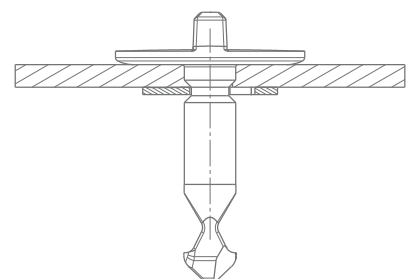
A retaining washer is always used as locking device. It is simply pushed on the locking bolt from below. Whether the retaining washer is clamped in place on the bolt shank or movable, depends on the bolt shank diameter.

### Type 1



- No recess on the bolt for the retaining washer.
  - The washer can axially move on the locking bolt and serves as locking device.
- Advantage: The bolt can be pushed back when it is swung in. There is no collision.

### Type 2



- A recess on the locking bolt guides the washer.
- The bolt does not move under axial pressure.
- For a self-insertion closing curve the cover thickness must be matched precisely.
- Cover height = max. cover height



## Lock bottoms – receptacles

Receptacles are available for different material thicknesses. They can be delivered with square or rectangular shape. There are the following advantages:

### ■ Square design:

For hand-operated locking bolts, the orientation can be turned 90° when the joint is closed.

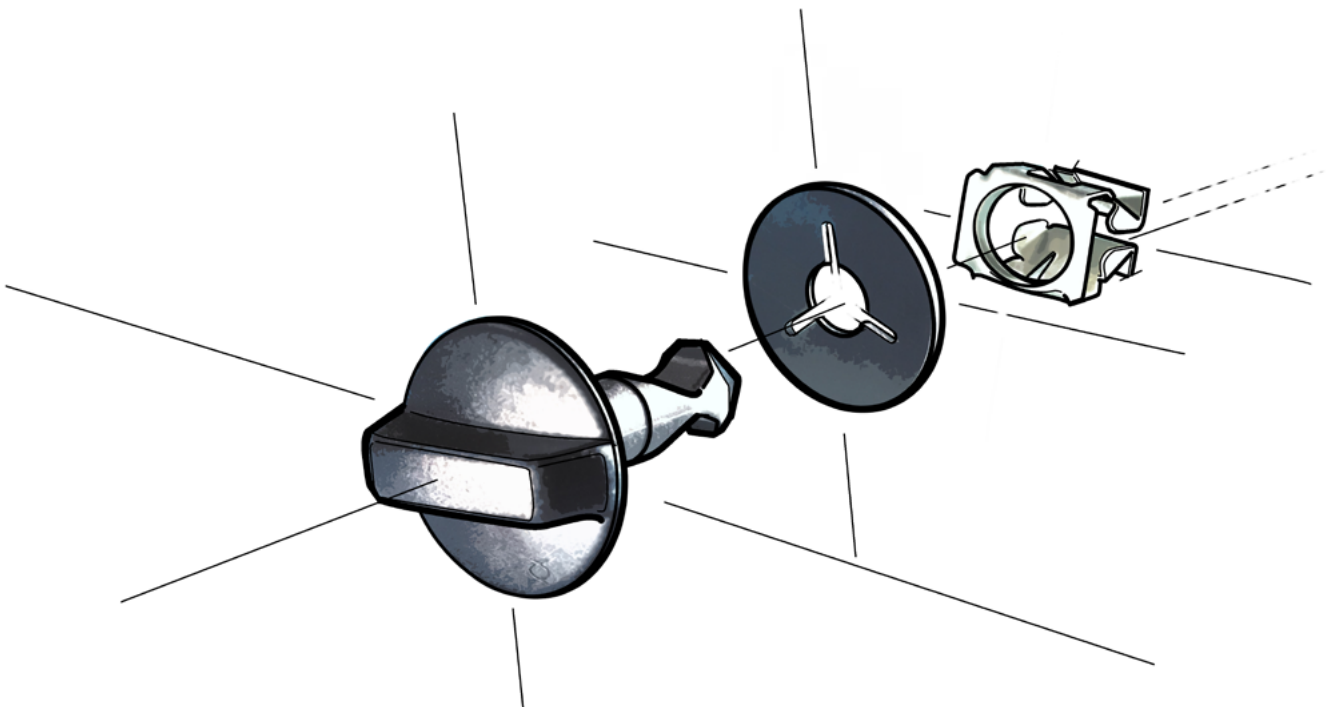


### ■ Rectangular design:

The hand-operated locking bolt can only be installed in one position. For a receptacle with slotted hole, longitudinal tolerance compensation can be realised.



Since the shank length of the locking bolt depends on the receptacle, the receptacle must be chosen first.



**QUICKLOC® Light** – Technical data and item numbers

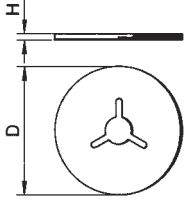
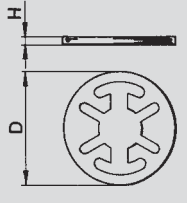
## Locking bolts

Grip length receptacle size 1* [mm]	Grip length receptacle size 2* [mm]	Functional length [mm]	Max. cover height [mm]	Head shape	Hand operation	Head Ø [mm]	Head height [mm]	Closing curve	Shank Ø [mm]	Colour	Item number
2.6	1.6	13.5	2	cross recess	no	11	3.8	7/4	7	white	0660 134 5218
3.4	2.4	14.3	1.7	cross recess	no	16	2.3	7/5	5	black	0661 160 5322
3.9	2.9	14.8	2.2	handle	yes	25	7	7/3	5	black	0660 106 5317
4.4	3.4	15.3	0.9	handle	yes	17	9	7/5	7	silver	0660 000 0004
4.4	3.4	15.3	2.7	handle	yes	17	7	7/2	5	black	0660 107 5318
4.4	3.4	15.3	2.7	handle	yes	17	7	7/3	5	black	0660 107 5320
4.4	3.4	15.3	2.7	handle	yes	25	7	7/2	5	black	0660 106 5318
4.4	3.4	15.3	2.7	slot	no	13	5	7/3	5	black	0660 151 5319
4.4	3.4	15.3	2.7	slot	no	13	5	7/5	5	black	0661 151 5323
4.4	3.4	15.3	2.7	raised head	no	19	3	7/2	5	black	0660 152 5318
4.9	3.9	15.8	3.2	handle	yes	25.3	12.2	7/2	5	green	0660 000 0021
4.9	3.9	15.8	3.2	handle	yes	25.3	12.2	7/3	5	black	0660 000 0019
4.9	3.9	15.8	3.2	handle	yes	25.3	12.2	7/5	5	grey	0660 000 0020
4.9	3.9	15.8	3.2	TORX	no	14.2	5	7/3	5	black	0660 157 5320
5.1	4.1	16	3.4	handle	yes	19	12	7/3	5	black	0660 110 5320
5.3	4.3	16.2	3.6	raised head	no	25	3	7/3	5	black	0660 000 0001
5.7	4.7	16.6	4	handle	yes	25	7	7/2	5	black	0660 106 5319
5.7	4.7	16.6	4	handle	yes	25	7	7/3	5	black	0660 106 5321
5.7	4.7	16.6	4	handle	yes	25	12.2	7/3	5	black	0660 106 5320
6.3	5.3	17.2	4.6	handle	yes	19	12.5	7/2	5	white	0660 000 0023
8.2	7.2	19.1	2.2	slot	no	11	3.8	7/3	7	grey	0660 134 5923
8.2	7.2	19.1	6.5	raised head	no	19	3	7/3	5	black	0660 152 5323
9.6	8.6	20.5	7.9	handle	yes	17	7	7/1	5	black	0660 107 5323
9.6	8.6	20.5	7.9	raised head	no	19	3.5	7/2	5	black	0660 152 5324
14.1	13.1	25	12.4	handle	yes	25	7	7/3	5	black	0660 106 5329
14.8	13.8	25.7	13.1	handle	yes	19	12	7/3	5	black	0660 000 0022
16.8	15.8	27.7	15.1	coin slot	no	16	3.5	7/3	5	black	0660 000 0016
18.2	17.2	29.1	–	coin slot	no	16	4	7/3	7	black	0660 140 5333
19.1	18.1	30	2.6	cross recess	no	16	4.7	7/5	7	black	0661 145 5338
28.4	27.4	41.5	28.9	handle	yes	19	14.3	7/3	5	black	0660 000 0024
30.1	29.1	41	18.5	raised head	no	19	3	7/3	7	white	0660 152 5245
33.3	32.3	44.2	28.4	slot	no	11	3.8	7/2	7	black	0660 153 5347






\* Possible tolerance: +1.5 mm

**QUICKLOC® Light** – Technical data and item numbers

Retaining washer

Retaining washer type	Dimensions [mm]		Material	Surface	Item number
	D	H			
	18.0	1.0	plastic: polyamide 6 black		0680 108 5310
	20.0	1.0	plastic: polyamide 6 black		0680 110 5310
	16.0	0.35	stainless steel	bright	0680 206 0005

Receptacle

Retaining washer type	Dimensions (Y x Z) [mm]	Material	Surface finish	Size	Holding material	Item number
	9 x 9 max. thickness 2 hole geometry $9.2 \pm 0.1 \times 9.2 \pm 0.1$	steel	Delta Seal silver	1	metal	0670 509 1100
		steel	Delta Seal black	1	metal	0670 509 1200
	9.4 x 9.4 max. thickness 3.2 hole geometry $9.4 + 0.1 \times 9.4 + 0.1$	steel	Delta Seal black	1	plastic	0670 507 1200
		stainless steel	–	–	plastic	on request
	11 x 14 max. thickness 3 hole geometry $11 + 0.2 \times 14 \pm 0.2$	steel	zinc flake coating silver	2	metal	0670 510 1100
		steel	Delta Seal black	2	metal	0670 510 1200
	12 x 16 max. thickness 3 hole geometry $12 + 0.2 \times 16.2 + 0.2$	steel	Delta Seal black	2	plastic	0670 513 1200
	14 x 16 R max. thickness 3 hole geometry $14 - 0.2 \times 16.2 + 0.4$	steel	Delta Seal black	2	plastic	0670 526 1200

## QUICKLOC® Solid – Advantages

QUICKLOC® Solid is widely used where rapid assembly and disassembly is required.

Simplicity of use makes it ideal when service requirements involve the removal and re-installation of panels and guards. Less than half a rotational turn releases and reengages the fastener.

### Advantages QUICKLOC® Solid

#### Efficiency

- Half-turn assembly and disassembly
- Easy closing by turning

#### Reliable

- Positive secure locking
- Consistent clamp force
- Stud can be captivated to the panel
- Robust full-metal solution
- High-strength system
- Electric conductivity
- Tensile load up to 2,000 N

#### Savings

- Quick release locked against falling out
- Compensates for panel tolerance



**QUICKLOC® Solid** – Installation process



QUICKLOC® Solid – three-piece system.



The receptacle is slipped on to the component to be fastened.



Insertion of the stud into the bore hole and locking with a retainer.



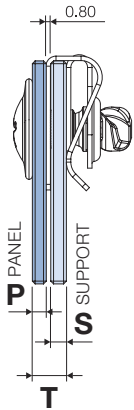
Insertion of the stud into the receptacle. Half a turn is necessary for locking of the joint. Turning it back will release the joint.

Watch an online video about the functional principle of QUICKLOC® Solid.

 <https://www.boellhoff.com/videos/quickloc-solid>



**QUICKLOC® Solid – Function**



**Overall function**

QUICKLOC® Solid is based on three component parts:

- **Lock top (stud)**
- **Lock bottom (receptacle)**
- **Retaining washer (retainer)**

**Grip length**

The first step is to determinate the grip range and the possibility to fix the QUICKLOC® Solid with a receptacle.

The total grip "T" is the sum of:

$$T = P + S + \text{Receptacle thickness}$$

P = Panel thickness  
S = Support thickness

**Stud**

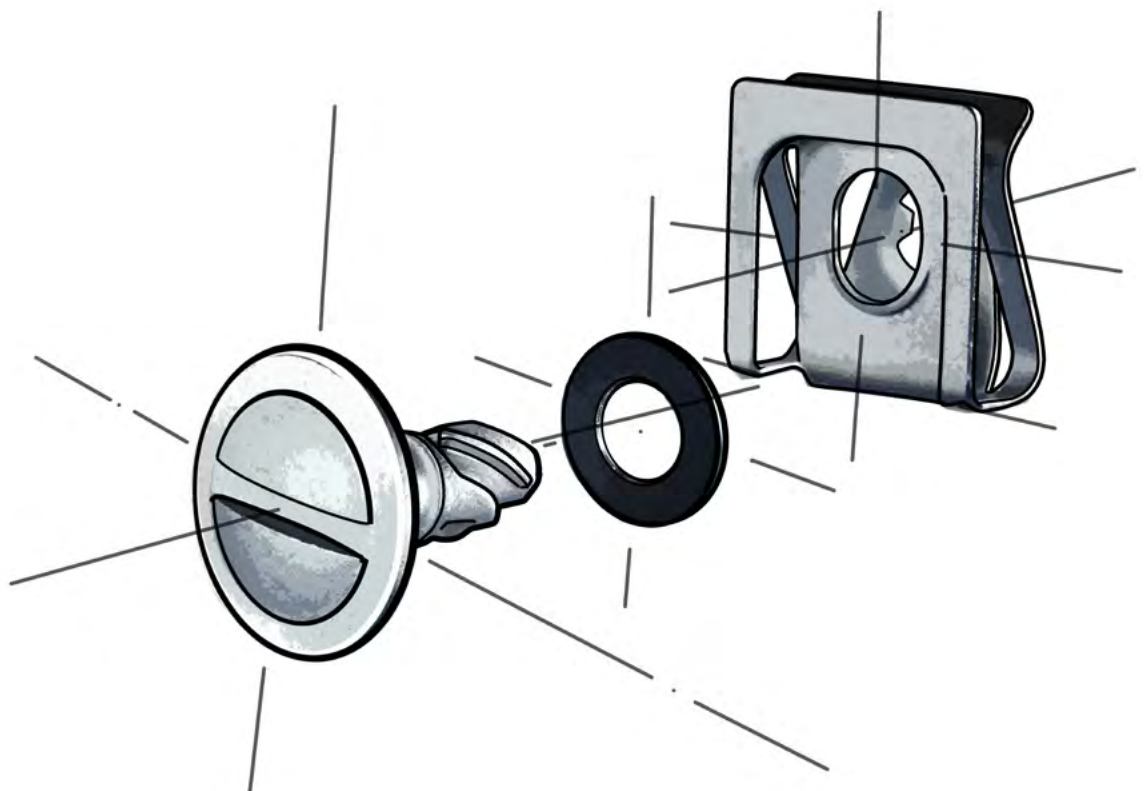
It is necessary to check the dimension of the stud and which type of head is required. This decision determines how to close and open the stud.

**Retainer**

The retainer captively holds the locking stud to the cover. To install the retainer it is necessary to apply pressure after the stud installation. The pressure can also be applied by hand.

**Receptacle**

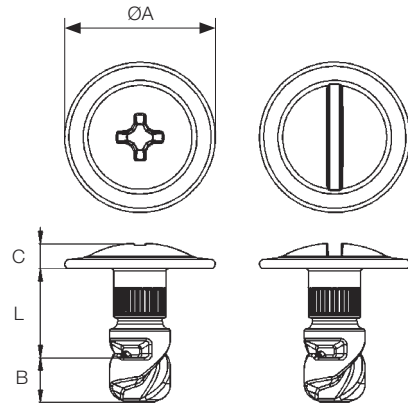
The standard receptacle is a slip on type and needs to be installed on the edge of the support/customer part. The required bore hole dimensions in the support are determined by the selected stud.



**QUICKLOC® Solid – Design**

**QUICKLOC® Solid – Standard design**

Slotted head designs of QUICKLOC® Solid locking studs and receptacles are always on stock or can be produced with short lead times. Please see the following pages for different ranges of head an length available.



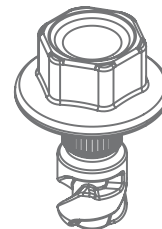
Stud dimension				Recommended panel hole size	
Stud Ø	Ø A	B	C	Stud Ø	Hole Ø
5	13	3.5	2.0	5	5.0/5.2
7	18	5.0	3.0	7	7.0/7.2
8	20	5.0	3.5	8	8.0/8.2
9	22	7.0	4.0	9	9.0/9.2

**Requirements**

- Desired function
  - Hand- or tool-operated
- Resistance to corrosion
- Installation conditions
- Total grip range to clamp
- $T = P + S + \text{receptacle thickness (0.7/0.8/1.0)}$

**QUICKLOC® Solid – Special design**

Feel free to contact us for customised quick releases.



**Stud**

QUICKLOC® Solid studs are made of steel. Different types of heads are available:

- Slot (tool-operated)
- Cross recess (tool-operated)
- Wing (manual)

**Retainer**

QUICKLOC® Solid retainers are injection moulded parts made of polypropylene. The retainer is available in various dimensions.

**Receptacle**

QUICKLOC® Solid receptacles are made of spring steel.

The receptacles are available for different support thicknesses and studs.



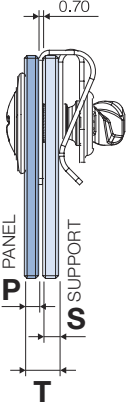
**QUICKLOC® Solid** – Technical data and item numbers

Table for stud length calculator

The utile length of the stud is linked to the grip range (T).

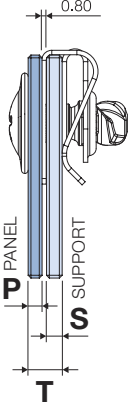
**Stud length selector**

$T = P + S + 0.7$



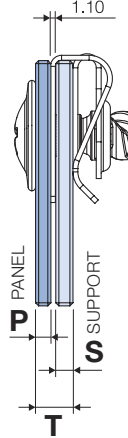
Ø 5	
T [mm]	L [mm]
3.5 – 4.4	10
4.5 – 5.4	11
5.5 – 6.4	12
6.5 – 7.4	13
7.5 – 8.4	14
8.5 – 9.4	15
9.5 – 10.4	16
10.5 – 11.4	17
11.5 – 12.4	18
12.5 – 13.4	19
13.5 – 14.4	20
14.5 – 15.4	21
15.5 – 16.4	22
16.5 – 17.4	23
17.5 – 18.4	24
18.5 – 19.4	25

$T = P + S + 0.8$



Ø 7-8	
T [mm]	L [mm]
3.5 – 4.4	11
4.5 – 5.4	12
5.5 – 6.4	13
6.5 – 7.4	14
7.5 – 8.4	15
8.5 – 9.4	16
9.5 – 10.4	17
10.5 – 11.4	18
11.5 – 12.4	19
12.5 – 13.4	20
13.5 – 14.4	21
14.5 – 15.4	22
15.5 – 16.4	23
16.5 – 17.4	24
17.5 – 18.4	25

$T = P + S + 1.0$



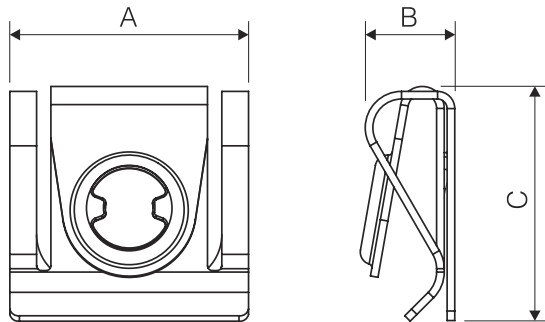
Ø 9	
T [mm]	L [mm]
4.0 – 4.9	12
5.0 – 5.9	13
6.0 – 6.9	14
7.0 – 7.9	15
8.0 – 8.9	16
9.0 – 9.9	17
10.0 – 10.9	18
11.0 – 11.9	19
12.0 – 12.9	20
13.0 – 13.9	21
14.0 – 14.9	22
15.0 – 15.9	23
16.0 – 16.9	24
17.0 – 17.9	25

**Stud item numbers**

Head shape	Size of stud diameter [mm]	L (util length) [mm]	Grip range [mm]	Item number
slotted head	5	10	3.5-4.4	85200051012
slotted head	5	12	5.5-6.4	85200051212
slotted head	5	14	7.5-8.4	85200051412
slotted head	5	16	9.5-10.4	85200051612
slotted head	5	18	11.5-12.4	85200051812
slotted head	7	11	3.5-4.4	85200071112
slotted head	7	13	5.5-6.4	85200071312
slotted head	7	15	7.5-8.4	85200071512
slotted head	7	17	9.5-10.4	85200071712
slotted head	8	12	4.5-5.4	85200081212
slotted head	8	14	6.5-7.4	85200081412
slotted head	8	16	8.5-9.4	85200081612
slotted head	8	18	10.5-11.4	85200081812
slotted head	9	13	5.0-5.9	85200091312
slotted head	9	15	7.0-7.9	85200091512
slotted head	9	17	9.0-9.9	85200091712
slotted head	9	20	12.0-12.9	85200092012

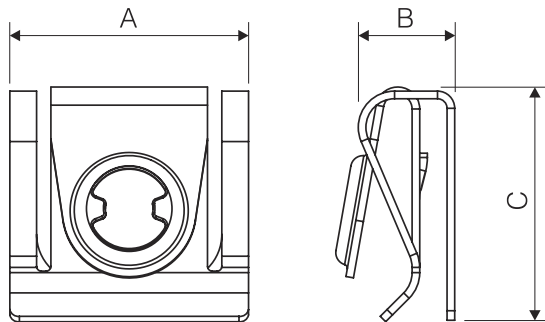
**QUICKLOC® Solid** – Technical data and item numbers

Standard receptacle dimensions



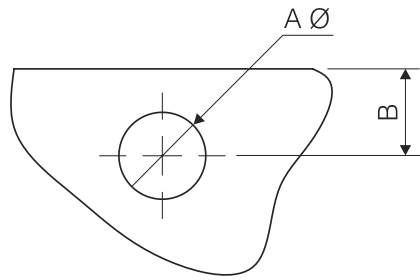
**Design 1: Support thickness 0.5–3.0 mm**

Stud Ø	A	B	C	Item number
5	19	8.0	23.0	85245053015
7	25	9.5	24.5	85245073015
8	25	9.5	24.5	85245083015
9	30	11.0	29.5	85245093015



**Design 2: Support thickness 3.0–5.5 mm**

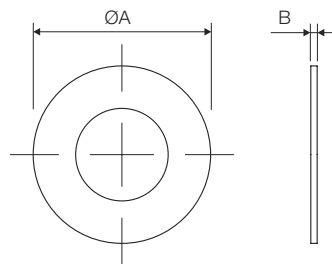
Stud Ø	A	B	C	Item number
5	19	8.0	23.0	85245055515
7	25	10.0	24.5	85245075515
8	25	10.0	24.5	85245085515
9	30	10.5	29.5	85245095515



**Support preparation**

Stud Ø	A Ø	B
5	8.5/8.7	10.8/11.0
7	11.0/11.2	10.5/11.0
8	11.0/11.2	10.5/11.0
9	14.0/14.2	12.5/13.0

**Standard retainer dimensions**



**Plastic retainer**

Stud Ø	A Ø	B	Material	Item number
5	10	0.5	PP black	85257051051
7	14	0.5	PP black	85257071451
8	14	0.5	PP black	85257081451
9	16	0.5	PP black	85257091651

## 360° Joining Technology – and what that means for you:

### Innovation and development partner

- Modern methods, organisational forms and processes
- Trend analyses
- Research cooperations
- Open innovation
- In-house research and development
- Application engineering and consulting
- Customer-specific development parts
- Manufacture of samples and prototypes
- Value analyses

### Logistics and quality partner

- Supply chain solutions
- Quality management according to IATF 16949
- Quality management according to EN 9100
- Distinctive quality and environmental awareness
  - accreditation of the in-house laboratory according to DIN EN ISO/IEC 17025
  - certification according to DIN EN ISO 14001
- Regular audits through customers

### Procurement and assembly partner

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- Twelve modern production facilities worldwide
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  - injection moulding
  - turning
  - cold working
  - wire winding
  - mechanical and plant engineering
- Acceleration of your assembly processes
- Wide range of manual and automated assembly solutions

### Distributor and service partner

- Efficient consulting, assistance and service
- Expert specialists on site
- Proximity to customers thanks to global presence
- After sales service
- Expert seminars, training sessions and workshops
- Online seminars
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**joint success story.**

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