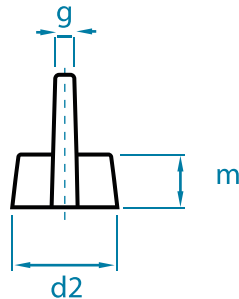
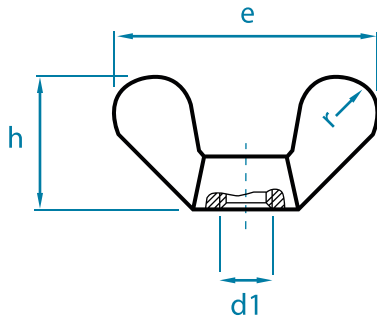



# WING NUTS

## DIN 315 | CAST VERSION



METRIC d1	UNC/BSW d1	DIMENSIONS						
		e	h	d2	g	m	r	
M 4	5/32"	19,0	9,5	7,0	1,5	3,9	3	500
M 5	3/16"	25,0	12,0	9,5	1,9	5,3	4	500
M 6	1/4"	31,5	16,0	11,5	1,9	6,5	5	200
M 8	5/16"	37,5	19,0	14,5	2,4	8,3	6	100
M 10	3/8"	49,5	24,0	18,5	4,0	10,0	8	100
M 12	1/2"	63,5	32,3	21,5	4,5	12,0	10	50
M 14	9/16"	63,5	32,3	21,5	4,5	12,0	10	50
M 16	5/8"	71,5	36,3	27,5	6,0	15,0	11	20
M 18	-	71,5	36,3	27,5	6,0	15,0	11	20
M 20	3/4"	88,0	45,3	33,5	6,5	18,5	14	10
M 22	7/8"	88,0	45,3	33,5	6,5	18,5	14	10
M 24	1"	108,0	55,0	42,5	9,0	22,5	18	5

- » Radiuses as per DIN 315, ergonomically formed, no sharp edges
- » Complete range M4 – M24 available while stocks last
- » On request: specialist threads, specialist parts on the basis of DIN 315 e.g. with eye
- » RoHS-compliant galvanisation (chromium VI - free)
- » See also "Specialist wing nuts"

PACKAGING: Standard or according to customer specification

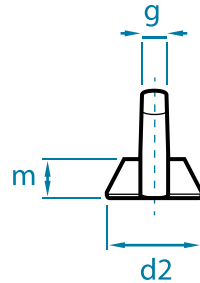
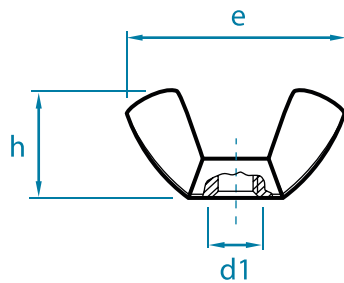
MATERIAL: Malleable cast iron EN-GJMB-350-10 as per DIN EN 1562 bright, galvanised as per DIN EN ISO 4042, brass (MS) 2.0401 as per DIN CEN/TS 13388 bright, nickel-plated as per DIN EN ISO 4042, aluminium (AL); stainless steel A2, A4, pickled, passivated


TOLERANCE: Metric thread 6 H (bright 6 G) as per DIN EN ISO 965-1

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# WING NUTS

## AMERICAN FORM | COLD-FORMED



METRIC d1	ZOLL d1	DIMENSIONS								
		e	h	d	g	m	Stahl	A2	A4	Brass
M 3	1/8"	18,5	8,8	7,8	2,0	3,0	500	100	100	500
M 4	5/32"	18,5	8,8	7,8	2,0	3,0	500	100	100	500
M 5	3/16"	22,0	10,5	9,5	2,6	4,0	500	100	100	500
M 6	1/4"	26,8	12,9	11,9	3,0	4,9	500	100	100	500
M 8	5/16"	30,3	14,8	13,5	3,3	5,4	200	100	100	100
M 10	3/8"	35,3	17,3	15,3	4,0	6,3	100	100	100	100
M 12	1/2"	47,5	22,5	20,5	5,0	7,9	50	50	50	50
M 14	9/16"	65,0	30,8	25,0	6,5	10,6	50	50	50	50
M 16	5/8"	65,0	30,8	25,0	6,5	10,6	50	20	20	-
M 20	3/4"	66,5	31,2	29,3	7,2	12,2	50	20	20	-

- » Metric thread from M3 to M20 available while stocks last
- » On request: inch thread, specialist parts on the basis of the American form, e.g. with eye

PACKAGING:	Standard or according to customer specification
MATERIAL:	Steel bright, galvanised, nickel-plated as per DIN EN ISO 4042, brass bright, nickel-plated as per DIN EN ISO 4042 stainless steel A2 or A4, pickled, passivated
TOLERANCE:	Metric thread 7 H (bright 7 G) as per DIN EN ISO 965-1

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# SPECIALIST WING NUTS

## PRODUCT EXAMPLES IN BRASS

### Waler wing nuts

cast design

M8, M10, M12

Surface finish bright or nickel-plated



### Wing nuts with only one wing

cast design

M8

Surface finish bright or nickel-plated



### Scythe nuts

cast design

M10



- » According to BTS company standard
- » As complete specialist part as per drawing / sample
- » On request: complete planning and design of new parts

STANDARD FINISHES: Bright, galvanised, nickel-plated as per DIN EN ISO 4042

Further materials, finishes and specialist packaging on request.

# SPECIALIST WING NUTS

## EXAMPLE PRODUCTS IN MALLEABLE CAST IRON EN-GJMB-350-10 AS PER DIN EN 1562

Modell „S“ – 40 mm wing breadth
M5 or M6
Surface finish as requested



Modell „SO“ – 60 mm wing breadth
M5, M6 or M8
Surface finish as requested



Hex wing nuts
M6 / spanner width 11 mm
M6, M8 or M10 / spanner width 13 mm
Thread cast in one piece from wing to hexagon
Surface finish as requested



## PRODUCT EXAMPLES IN STEEL SHEET

Steel sheet wing nuts, galvanised
Flat form
M4, M5, M6 or M8



Steel sheet wing nuts, galvanised
High form
M5, M6 or M8

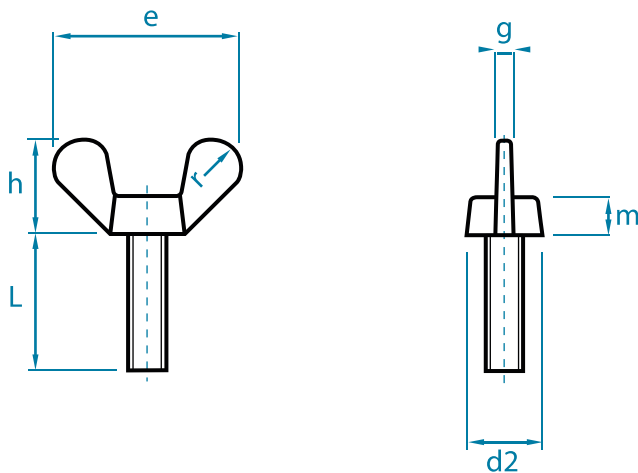


- » According to BTS company standard
- » As complete specialist part as per drawing / sample
- » On request: complete planning and design of new parts

Minimum volumes are required, depending on article or surface finish.

# WING SCREWS

## DIN 316 | MALLEABLE CAST IRON HEAD WITH STEEL SHANK



DIMENSIONS								
HEAD		M4	M5	M6	M8	M10	M12	M16
	d2	7,0	9,5	11,5	14,5	18,5	21,5	27,5
	e	20,0	25,0	31,5	37,0	49,5	63,5	71,5
	g	1,5	1,9	1,9	2,4	4,0	4,5	6,0
	h	9,5	12,0	16,0	19,0	24,0	32,3	36,3
	m	3,9	5,3	6,5	8,3	10,0	12,0	15,0
	r	3	4	5	6	8	10,0	11,0
LENGHT								
	8	200	200	200	-	-	-	-
	10	200	200	200	100	-	-	-
	12	200	200	100	100	-	-	-
	16	200	200	100	100	50	20	-
	20	200	200	100	100	50	20	-
	25	200	200	100	100	50	20	-
	30	200	100	100	100	50	20	10
	35	200	100	100	100	50	20	-
	40	100	100	100	50	50	20	10
	45	-	100	100	50	50	20	-
	50	-	100	100	50	20	20	10
	60	-	100	100	50	20	20	10
	70	-	-	100	50	20	20	-
	80	-	-	100	50	20	20	-

- » Radiuses as per DIN 316, i.e. ergonomic wings, no sharp edges
- » Complete range M4x8 – M16x60 available while stocks last
- » On request: specialist lengths up to 300 mm, with partial thread, with special thread ends or with disc
- » See also separate product sheet "Specialist wing screws"

PACKAGING: Standard or according to customer specification

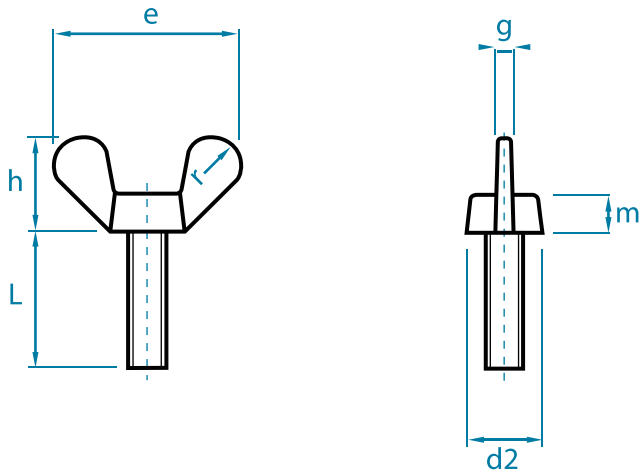
MATERIAL: Malleable cast iron head, EN-GJMB-350-10 as per DIN EN 1562, steel shank min. quality 4.6, bright, galvanised, nickel-plated as per DIN EN ISO 4042  
On request: stainless steel A2 or A4, surface pickled, passivated


TOLERANCE: Metric thread 6 H (bright 6 g) as per DIN EN ISO 965-1

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# WING SCREWS

## DIN 316 | CAST BRASS VERSION



DIMENSIONS							
HEAD		M4	M5	M6	M8	M10	M12
	d2	8,0	8,5	10,0	11,5	15,5	18,5
	e	20,0	25,0	31,5	37,0	49,5	63,5
	g	1,5	1,9	1,9	2,4	4,0	4,5
	h	9,5	12,0	16,0	19,0	24,0	32,3
	m	3,9	5,3	6,5	8,3	10,0	12,0
LENGTH							
							
	8	200	200	200	-	-	-
	10	200	200	200	100	-	-
	12	200	200	100	100	-	-
	16	200	200	100	100	50	-
	20	200	200	100	100	50	20
	25	200	200	100	100	50	20
	30	-	100	100	100	50	20
	35	-	-	100	100	50	20
	40	-	-	100	50	50	20
	45	-	-	100	50	50	-
	50	-	-	100	50	20	20
	60	-	-	-	50	20	20

- » Radiuses as per DIN 316, i.e. ergonomic wings, no sharp edges
- » Complete range M4x8 – M12x60 available while stocks last
- » One-piece cast model

PACKAGING: Standard or according to customer specification

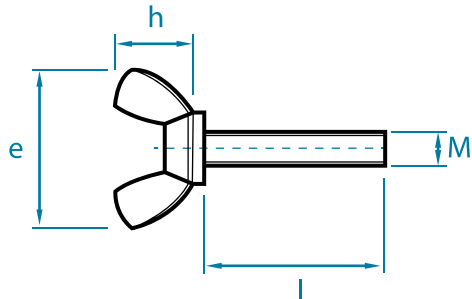
MATERIAL: Brass (MS) 2.0401 as per DIN CEN/TS 13388 bright, nickel-plated as per DIN EN ISO 4042  
On request: stainless steel A2 or A4, surface pickled, passivated

TOLERANCE:: Metric thread 6 H (bright 6 g) as per DIN EN ISO 965-1


All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# WING SCREWS

## AMERICAN FORM | COLD-FORMED



DIMENSIONS

HEAD		M3	M4	M5	M6	M8	M10	M12
LENGTH	$e$	18,5	22,0	22,0	26,8	30,3	35,3	47,5
	$h$	8,8	10,5	10,5	12,9	14,8	17,3	22,5
	$d$	7,8	9,5	9,5	11,9	13,5	15,3	20,5
								
	10	100	100	100	100	100	-	-
	12	100	100	100	100	100	-	-
	15	100	100	100	100	100	50	-
	20	100	100	100	100	100	50	20
	25	100	100	100	100	100	50	20
	30	100	100	100	100	100	50	20
	35	-	100	100	100	100	50	20
	40	-	100	100	100	50	50	20
	45	-	-	-	100	50	50	20
	50	-	-	-	100	50	20	20
	60	-	-	-	-	50	20	20

- » From M3x6 – M12x60 available while stocks last
- » On request: special lengths and individual thread ends
- » With flange beneath wing head, also available without flange on request

PACKAGING: Standard or according to customer specification

MATERIAL: Steel bright, galvanised, nickel-plated as per DIN EN ISO 4042, further finishes on request, stainless steel A2 or A4, pickled, passivated

TOLERANCE: Metric thread 6 H (bright 6 g) as per DIN EN ISO 965-1

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# SPECIALIST WING SCREWS

## PRODUCT EXAMPLES ON THE BASIS OF DIN 316

Special lengths up to 300 mm, with partial or full thread

With set screw 8.8, 10.9 and 12.9



Screws with fixed or captive washer,

Partial thread, with or without eye



Thread end with tip, pin, rivet pin or similar as per EN ISO 4753



Thread recess



## PRODUCT EXAMPLES WITH SPECIALIST WING FORMS

Wing screws with extra-large wings



Wing screws with hex and adapter



## PRODUCT EXAMPLES IN BRASS

Waler wing screws

M10 x 25

Bright or nickel-plated




- » According to BTS company standard
- » As complete specialist part as per drawing / sample
- » On request: complete planning and design of new parts


Minimum volumes are required, depending on article or surface finish.




# HOOKS AND EYES

Suspension eyes	AO 700	AO 701	AO 702
Height approx. mm	28	35	54
Eye Ø approx. mm	10	14	28
Thread	M 6	M 6 / M 8	M 6 / M 8 / M 10
	100 Pcs	50 Pcs	50 Pcs



Suspension hooks	AH 710	AH 711	
Height approx. mm	28	34	
Eye Ø approx. mm	10	13	
Thread	M 6 / M 8	M 6 / M 8	
	100 Pcs	100 Pcs	



Mounting eyes	BO 716	BO 718	
Height x width approx. mm	40 x 18	45 x 24	
Eye Ø approx. mm	9	12	
Thread	M 6 / M 8	M 6 / M 8 / M 10 / M 12	
	100 Pcs	50 Pcs	



Staples	25 mm	30 mm	14x68 mm
Malleable cast iron EN-GJMB-350-10 as per DIN EN 1562			
Centre distance	50,8 mm	56,4 mm	54,3 mm
Clear span	25,5 mm	31,0 mm	30,2 mm
Full height	13,8 mm	13,9 mm	14,2 mm



Single hooks	Base plate approx 50x14 mm
Centre distance	38 mm



Double hooks	Base plate approx. 45x14 mm
Centre distance	20 mm



**MATERIAL:** Malleable cast iron EN-GJMB-350-10 as per DIN EN 1562  
**SURFACE FINISH:** Steel bright, galvanised, nickel-plated as per DIN EN ISO 4042, further finishes on request  
**TOLERANCE:** Metric thread 6 H (bright 6 G) as per DIN EN ISO 965-1

Minimum volumes are required, depending on article or surface finish.

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# HAMMER-HEAD BOLTS

## ONE-PIECE MODEL FOR PROFILES WITH STRAIGHT FLANGES

Type
20/12
28/15
38/17
41/22

- » As standard for profiles: 20/12 and 28/15 with and without square, 38/17 with square, 41/22 without square
- » On request as complete special part, according to customer drawing or sample, also for other profile sizes



# HAMMER-HEAD BOLTS

## ONE-PIECE MODEL FOR C-PROFILES

Type
40/22
50/30
72/48

- » As standard for profiles: 40/22, 50/30, 72/48
- » As complete special part, according to customer drawing or sample, also for other profile sizes



MATERIAL: Steel 4.6 or 8.8 galvanised as per DIN EN ISO 4042 or hot-dip galvanised, stainless steel A2 or A4

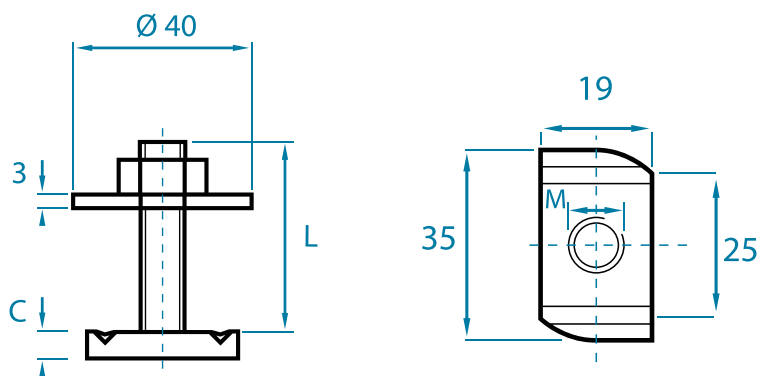
PACKAGING: Standard or according to customer specification

Optionally with or without hex nut as per DIN 934 and washer.

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# HAMMER-HEAD BOLTS

## TWO-PIECE MODEL FOR STRUT MOUNTING RAILS



### DIMENSIONS /

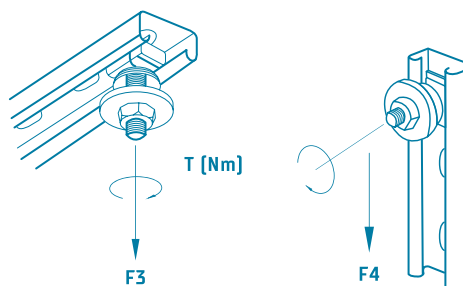
		M 8	M 10	M 12
	C	6 mm	8 mm	9 mm
LENGTH [L]	20	50	-	-
	30	50	50	50
	40	50	50	50
	50	50	50	-
	60	50	50	50
	80	50	50	50
	90	-	50	-
	100	-	50	50

### Load values for hammer-head bolts

The following load values apply for BTS hammer-head bolts in steel and stainless steel for strut mounting rails in combination with a threaded rod of strength class 4.6

[A4-50] exposed to static load. The maximum load value of the mounting rail used is to be observed. BTS provides no guarantee for the load value of the mounting rail.

Dimension	F3 [kN]	F4 [kN]	T [Nm]
M 6	5	1	3,5
M 8	6	2,4	8,4
M 10	7	3,5	17
M 12	7	4	29
M 16	12	4	71



» Pre-mounted with U washer and hex nut DIN 934

» On request: hot-dip galvanised top screws, individual tothing and tooth distance, special thicknesses, special lengths

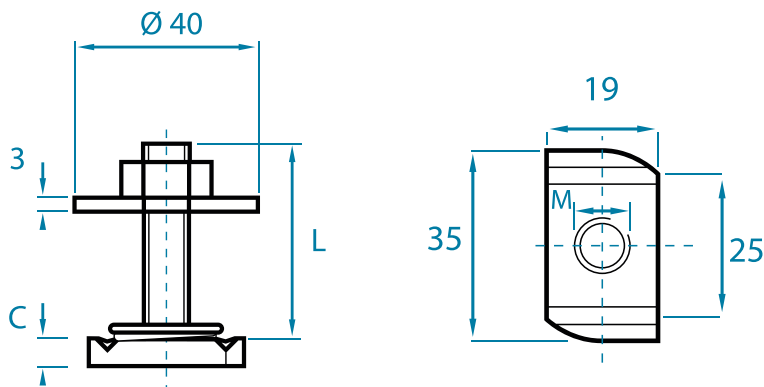
» Complete special part, also for other profile sizes

**MATERIAL:** Steel, minimum hardness 130 HB galvanised as per DIN EN ISO 4042, stainless steel A4, further finishes on request

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# TOPSCREWS

## TWO-PIECE MODEL FOR STRUT MOUNTING RAILS

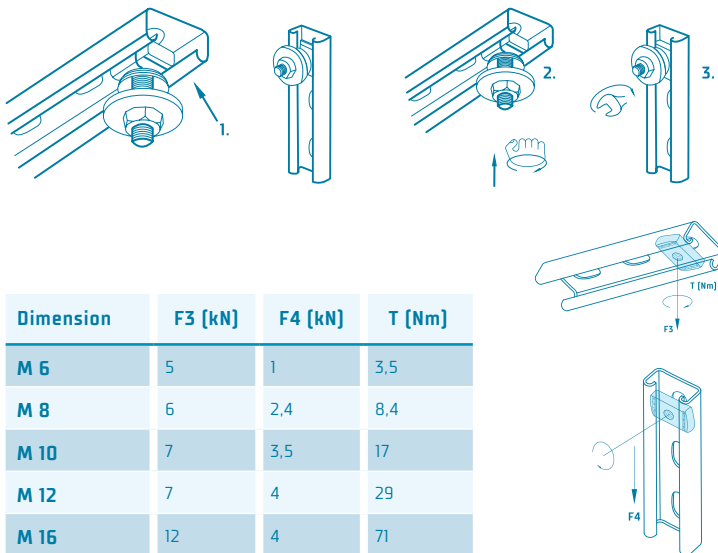


### DIMENSIONS /

LENGTH		M 8	M 10	M 12
	C	6 mm	8 mm	9 mm
	30	50	50	50
	40	50	50	50
	50	50	50	-
	60	50	50	-

### Product benefits:

1. Time savings via pre-assembled system in various lengths
2. Clamps in the mounting rail, making it ideal for vertical installations
3. Easily moved within the rail
4. No jamming of the spring in perforated mounting rails
5. Just one system for all strut mounting rails



### Mounting:

1. Guide top screw through the opening in the profile.
2. Press against top screw whilst simultaneously rotating by 90°.
3. Finally, tighten hex nut.

### Load values

The following load values apply for BTS top screws in steel and stainless steel for strut mounting rails in combination with a threaded rod of strength class 4.6 exposed to static load. The maximum load value of the mounting rail used is to be observed. BTS provides no guarantee for the load value of the mounting rail.

» Pre-mounted with U washer and hex nut DIN 934

» On request: hot-dip galvanised top screws, individual tothing and tooth distance, special thicknesses, special lengths

» Complete special part, also for other profile sizes

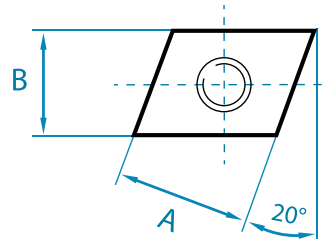
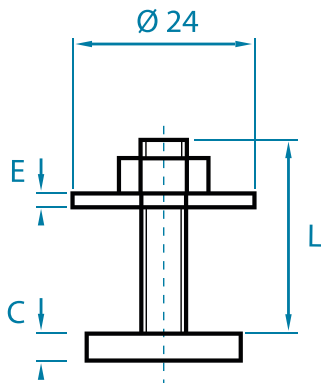
See data sheet for head dimensions, toothed channel nuts for strut mounting rails.


**MATERIAL:** Steel, minimum hardness 130 HB galvanised as per DIN EN ISO 4042, stainless steel A4, further finishes on request.

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# HAMMER-HEAD BOLTS

FOR PROFILES WITH STRAIGHT FLANGES TYPE 27/18 & 28/30



DIMENSIONS M8xL	A	B	C	D	E	
M8x30	21	16	5	24	2	50
M8x40	21	16	5	24	2	50
M8x50	21	16	5	24	2	50
M8x80	21	16	5	24	2	50

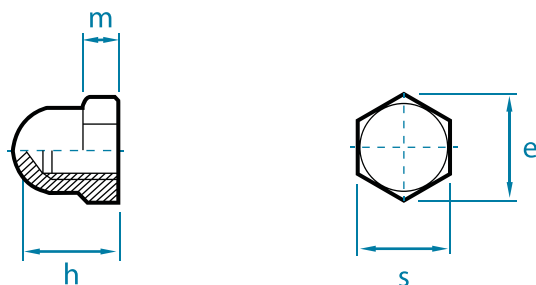
- » Fully mounted with Din 9021 U washer and Din 934 hex nut
- » On request: special parts, also for other profile sizes


MATERIAL: Steel, galvanised, nickel-plated as per DIN EN ISO 4042, further finishes on request

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# CAP NUTS

## DIN 1587



DIMENSIONS					
	e	h	m	s	
<b>M 3*</b>	6,0	6	3,2	5,5	1000
<b>M 4</b>	7,6	8	3,2	7	1000
<b>M 5</b>	8,7	10	4,0	8	1000
<b>M 6</b>	11,0	12	5,0	10	1000
<b>M 8</b>	14,3	15	6,5	13	500
<b>M 10</b>	17,7	18	8,0	17	250
<b>M 12</b>	20,0	22	10,0	19	250
<b>M 14</b>	23,3	25	11,0	22	100
<b>M 16</b>	26,7	28	13,0	24	50
<b>M 18</b>	30,1	32	15,0	27	50
<b>M 20</b>	33,5	34	16,0	30	25
<b>M 24</b>	39,9	42	19,0	36	25

\* M 3 is not included in DIN 1587

**PACKAGING:** Standard or according to customer specification

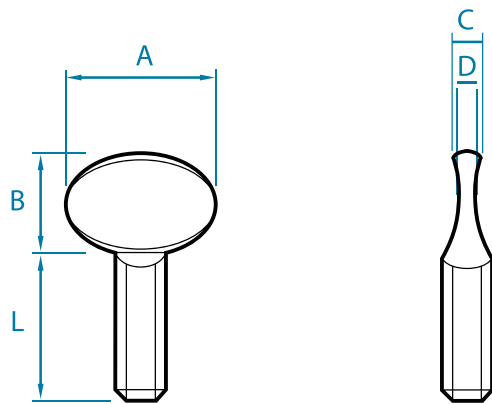
**MATERIAL:** Steel bright, galvanised, nickel-plated, brass bright, nickel-plated as per DIN EN ISO 4042, further finishes on request, stainless steel A2 or A4


**TOLERANCE:** Metric thread 6 H (bright 6 G) as per DIN EN ISO 965-1

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# THUMB SCREWS

## CAST



DIMENSIONS					
HEAD		M5	M6	M8	M10
	A	20,5	23,5	27,5	36,0
	B	15,5	16,0	19,0	25,0
	C	3,5	4,5	4,5	6,5
	D	2,0	2,5	2,5	3,0
LENGTH					
	8	-	-	-	-
	10	200	200	-	-
	12	200	200	100	-
	16	200	100	100	-
	20	200	100	100	50
	25	-	100	100	50
	30	-	100	100	50
	35	-	-	-	-
	40	-	-	50	50
	50	-	-	50	20
	60	-	-	-	-

PACKAGING: Standard or according to customer specification

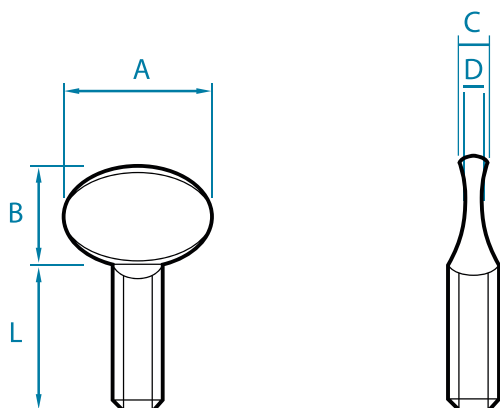
MATERIAL: Malleable cast iron, EN-GJMB-350-10 as per DIN EN 1562, bright, galvanised, nickel-plated as per DIN EN ISO 4042, further finishes on request

TOLERANCE: Metric thread 6 H (bright 6 g) as per DIN EN ISO 965-1

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# THUMB SCREWS

## COLD FORMED



DIMENSIONS						
HEAD		M4	M5	M6	M8	M10
	A	11,2	14,0	16,5	22,0	26,0
	B	7,7	10,8	14,0	17,0	19,0
	C	2,6	3,1	4,1	4,7	6,0
LENGTH	D	1,3	1,5	1,8	2,2	2,8
	8	-	200	200	-	-
	10	200	200	200	100	-
	12	200	200	200	100	-
	15	200	200	100	100	-
	20	200	200	100	100	50
	25	200	200	100	100	50
	30	200	200	100	100	50
	35	-	-	100	100	50
	40	-	-	100	50	50
	50	-	-	100	50	20
	60	-	-	-	50	20

**PACKAGING:** Standard or according to customer specification

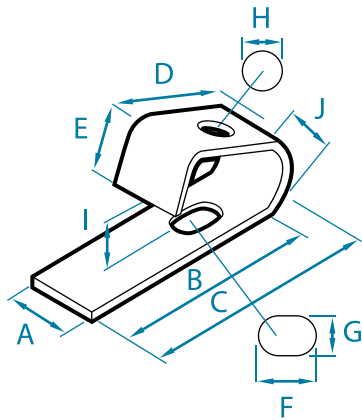
**MATERIAL:** Steel bright, galvanised, nickel-plated as per DIN EN ISO 4042, further finishes on request

**TOLERANCE:** Metric thread 7 H (bright 7 g) as per DIN EN ISO 965-1

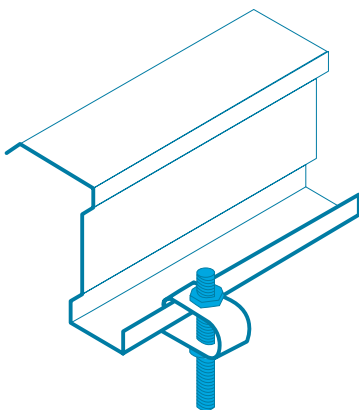
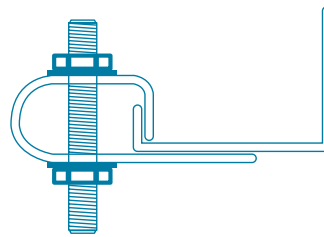
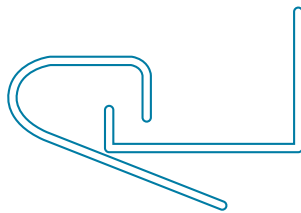
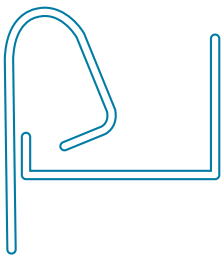
All of the dimensions stated above are approximate and may deviate both upwards and downwards.



# PURLIN CLIPS



A	B	C	D	E	F	G	H	I	J	THICKNESS
25	77	85,5	49	22	17,5	12	11	≈17	23	3



The purlin clip enables the suspension of Z-shaped purlins.

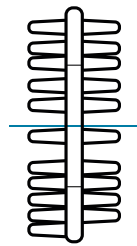
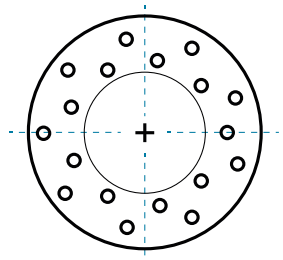
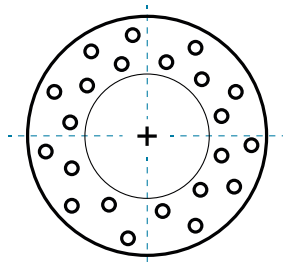
PACKAGING: 100 Pcs/box

MATERIAL: Steel, galvanised as per DIN EN ISO 4042

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# TOOTHED PLATE CONNECTOR EN 912 (DIN 1052)

## TYPE C 11 SINGLE-SIDED AND C 10 DOUBLE-SIDED



### C 11 single-sided

Diameter approx. mm	50	65	80	95	115
Quantity per bundle	50	50	25	25	25
Weight approx. kg/100 pcs	4,600	8,400	13,000	15,500	21,500
for bolts	M 12	M 16	M 20	M 24	M 24

### C 10 double-sided

Diameter approx. mm	50	65	80	95	115
Quantity per bundle	50	50	25	25	25
Weight approx. kg/100 pcs	4,440	8,250	10,520	13,400	17,600

- » Complete formation of the pin as per DIN 1052, only possible due to natural sand production
- » Final inspection for cracking and missing pins when bundling
- » Precise formation of the inner bore = savings of time and labour when fastening the plate dowel at the assembly site
- » With certificate of compliance 2.1 as per EN 10204 – where required
- » Made in Germany.
- » The CE declaration of performance is available for downloading on our website.

MATERIAL:

Temperguss EN-GJMB-350-10 nach DIN EN 1562

SURFACE FINISH:

Bright, galvanised as per DIN EN ISO 4042, hot-dip galvanised, further finishes on request

All of the dimensions stated above are approximate and may deviate both upwards and downwards.



# DECLARATION OF PERFORMANCE

CE-HV-92  
Issue 1504

1. **Product type:** Toothed plated Connector with teeth (double-sided)
2. **Identification:** C10
3. **Purpose:** For timber products intended for load bearing
4. **Manufacturer:** BTS Befestigungselemente-Technik GmbH, Max-Planck-Str. 1, 54439 Saarburg
5. **Authorised representative:** N/A
6. **Rating system:** 2+

7./8. **Technical specifications & notified offices:**

	Name	No.	Rating system	Reference document	EAD (ETAG) No. / EN Standard
Technical rating	BTS GmbH Saarburg	-	2+	BTS ITT Report Type C10	EN 14545:2008
In-house production inspection	Karlsruhe Institute of Technology	0769	2+	0769-CPR-6154/01	-

9. **Declared performance:**

Key characteristics	Performance					Technical specification
Designation	Toothed Plate Connector C10					
Dimensions						
Diameter – dc (mm)	50	65	80	95	115	EN 912
Mechanical strength and rigidity						
Characteristic load capacity – R c,k (kN)	8,81	13,19	17,99	23,33	31,02	EN 14545 section 6.1.3; EN 13271
Slip modulus – K ser (kN/mm2)	7,86	10,29	12,65	15,04	18,18	EN 14545 section 6.1.3; EN 13271
Material	Malleable cast iron EN-GJMB-350-10					DIN-EN 1562
Corrosion protection	Galvanised – Fe/Zn12/B					DIN-EN-ISO 2081

10. The performance of the product as per numbers 1 and 2 corresponds to the declared performance as per number 9. The manufacturer as per number 4 is solely responsible for the drafting of this declaration of performance

Signed for the manufacturer and on behalf of the manufacturer by:

Uwe Krüger  
Managing Director

Michael Wirtz  
Managing Director

Saarburg, 17/04/2015

All of the dimensions stated above are approximate and may deviate both upwards and downwards.



# DECLARATION OF PERFORMANCE

CE-HV-92  
Issue 1504

1. **Product type:** Toothed plated Connector with teeth (single-sided)
2. **Identification:** C11
3. **Purpose:** For timber products intended for load bearing
4. **Manufacturer:** BTS Befestigungselemente-Technik GmbH, Max-Planck-Str. 1, 54439 Saarburg
5. **Authorised representative:** N/A
6. **Rating system:** 2+

7./8. **Technical specifications & notified offices:**

	Name	No.	Rating system	Reference document	EAD (ETAG) No. / EN Standard
Technical rating	BTS GmbH Saarburg	-	2+	BTS ITT Report Type C10	EN 14545:2008
In-house production inspection	Karlsruhe Institute of Technology	0769	2+	0769-CPR-6154/01	-

9. **Declared performance:**

Key characteristics	Performance					Technical specification
Designation	Toothed Plate Connector C11					
Dimensions						
Diameter – dc [mm]	50	65	80	95	115	EN 912
Mechanical strength and rigidity						
Characteristic load capacity – R c,k [kN]	9,01	13,22	17,93	23,10	30,86	EN 14545 section 6.1.3; EN 13271
Slip modulus – K ser [kN/mm2]	7,98	10,30	12,62	14,94	18,13	EN 14545 section 6.1.3; EN 13271
Material	Malleable cast iron EN-GJMB-350-10					DIN-EN 1562
Corrosion protection	Galvanised – Fe/Zn12/B					DIN-EN-ISO 2081

10. The performance of the product as per numbers 1 and 2 corresponds to the declared performance as per number 9. The manufacturer as per number 4 is solely responsible for the drafting of this declaration of performance

Signed for the manufacturer and on behalf of the manufacturer by:

Uwe Krüger  
Managing Director

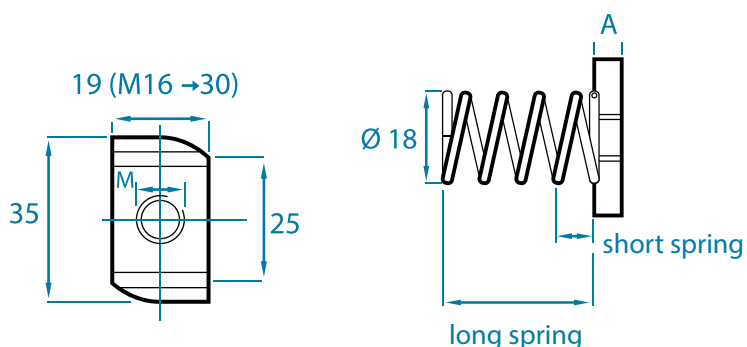
Michael Wirtz  
Managing Director

Saarburg, 17/04/2015

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# CHANNEL NUTS

## TOOTHED FOR STRUT MOUNTING RAILS



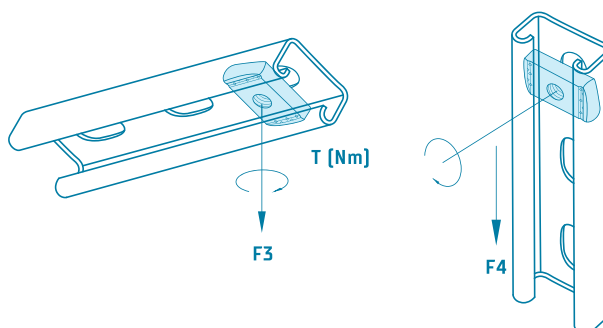
	without spring		short spring		long spring		top nut	
	A		A		A		A	
<b>M 6</b>	6	100 / 400	6	100 / 400	6	100 / 400	6	100 / 400
<b>M 8</b>	6	100 / 400	6	100 / 400	6	100 / 400	6	100 / 400
<b>M 10</b>	8	100 / 400	8	100 / 400	8	100 / 400	8	100 / 400
<b>M 12</b>	9	100 / 400	8	100 / 400	9	100 / 400	9	100 / 400
<b>M 16</b>	10	100 / 400	-	-	-	-	-	-

### Load values Channel nuts

The following load values apply for BTS channel nuts in steel and stainless steel for strut mounting rails in combination with a threaded rod of strength class 4.6

exposed to static load. The maximum load value of the mounting rail used is to be observed. BTS provides no guarantee for the load value of the mounting rail.

Dimension	F3 [kN]	F4 [kN]	T [Nm]
<b>M 6</b>	5	1	3,5
<b>M 8</b>	6	2,4	8,4
<b>M 10</b>	7	3,5	17
<b>M 12</b>	7	4	29
<b>M 16</b>	12	4	71



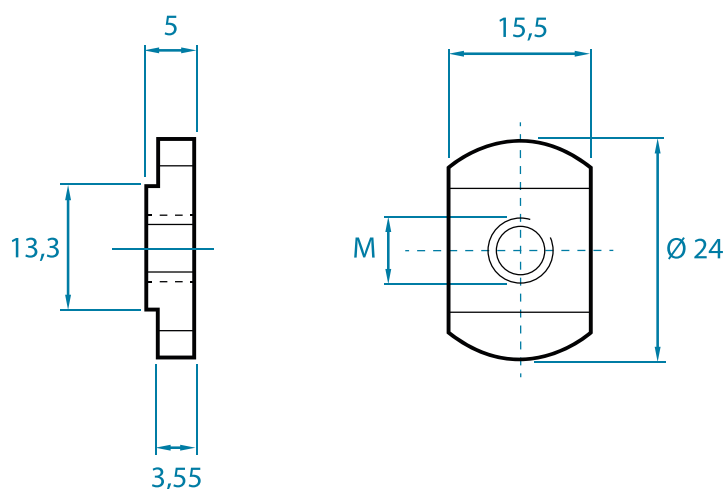
- » On request: hot-dip galvanised channel nuts with oversize, individual toothing and tooth distance, special thicknesses
- » As complete special part, also for other profile sizes

**MATERIAL:** Steel, minimum hardness 130 HB galvanised as per DIN EN ISO 4042, hot-dip galvanised, stainless steel A4, further finishes on request.

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# CHANNEL NUTS

## FOR PROFILE RAILS WITH STRAIGHT FLANGES



Channel nuts without spring

	Length	Breite	
M 6, 8, 10	24,0 mm	15,5 mm	100 / 1800

**MATERIAL:** Steel, min. hardness 130 HB, galvanised as per DIN EN ISO 4042, further finishes on request

### Mounting Channel Nuts DIN 3015

**LIGHT SERIES:** For the securing of pipe and hose clamps in mounting rails M6, 1/4", M8, 5/16"



**HEAVY SERIES:** For the securing of pipe and hose clamps in mounting rails GMV10 + 12, M10, M12

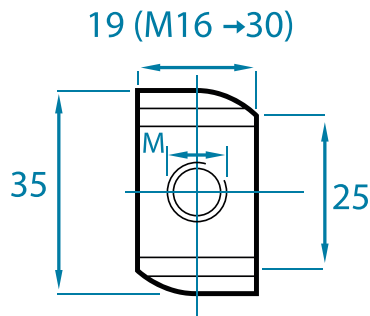


**MATERIAL:** Malleable cast iron, EN-GJMB-350-10 as per DIN EN 1562, bright, galvanised, nickel-plated as per DIN EN ISO 4042, on request stainless steel A2, A4, pickled, passivated

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

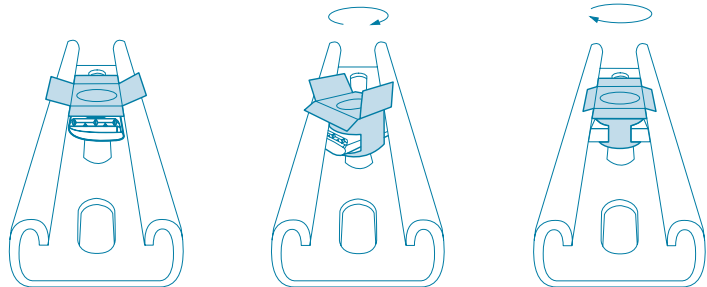
# CHANNEL NUTS

## WITH FIXING AID TOOTHED FOR STRUT MOUNTING RAILS



Channel nut with fixing aid

	Thickness [mm]	
M6	6	100 / 400
M8	6	100 / 400
M10	8	100 / 400
M12	9	100 / 400



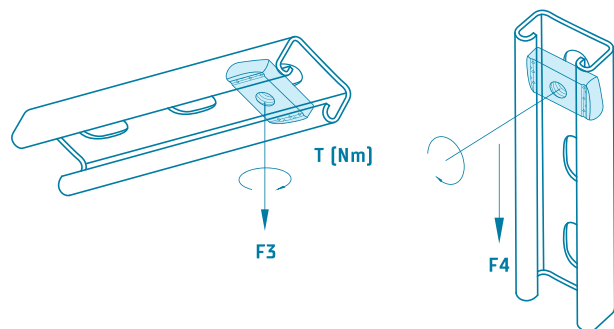
### Load values Channel nuts

The following load values apply for BTS channel nuts in steel and stainless steel for strut mounting rails in combination with a threaded rod of strength class 4.6 exposed to static load.

Dimension	F3 [kN]	F4 [kN]	T [Nm]
M 6	5	1	3,5
M 8	6	2,4	8,4
M 10	7	3,5	17
M 12	7	4	29
M 16	12	4	71

### “Fixing at the flick of a wrist”

The maximum load value of the mounting rail used is to be observed. BTS provides no guarantee for the load value of the mounting rail



- » One type for all strut rails
- » Simple and fast mounting with one hand
- » Holds after rotation in the rail, ideal for vertically-installed rails
- » Remains easy to move after mounting
- » No jamming of the spring in perforated rails
- » On request: hot-dip galvanised channel nuts with oversize, individual toothing /tooth spacing, special thicknesses, plastic in RAL colour on customer request  
Complete special part, also for other profile sizes

**MATERIAL:** Steel channel nut, min hardness 130 HB galvanised as per DIN EN ISO 4042, polypropylene (plastic) fixing aid, grey colour as per RAL7040 stainless steel A4, further finishes on request

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# SPECIAL ITEMS

## Semi-circular washer

Malleable cast iron EN-6JMB-350-10

23 x 26 x 7 mm

With hole 12 mm



## Star grip nut

Malleable cast iron EN-6JMB-350-10

With thread M10



## Flag holders/ jointing sleeves

Malleable cast iron EN-6JMB-350-10 with or without lug



## Holder for window shutter

Grey cast iron



- » According to BTS company standard
- » As complete specialist part as per drawing or sample
- » On request: complete planning and design of new parts

**SURFACE FINISH:** For malleable cast iron parts bright, galvanised, nickel-plated as per DIN EN ISO 4042, further finishes on request, see respective comments for other materials.

Minimum volumes are required, depending on article or surface finish.


All of the dimensions stated above are approximate and may deviate both upwards and downwards.



# KEYS

## Mandril key, three-edged and square

Dimensions: 4,0mm 5,0mm 6,0mm 6,5mm 7,0mm 7,5mm  
Dimensions: 8,0mm 8,5mm 9,0mm 10,0mm 11,0mm 12,0mm

 4,0 – 8,5 100 Pcs 9,0 – 12,0 50 Pcs

## Square socket key, length approx. 110 mm, conus approx. 7-9mm

 50 Pcs

## Water tap key, square socket 5.3 x 5.3 mm for size 5

 100 Pcs

## Angle key with hole, conus approx. 6-9mm, square socket: 8mm

 50 Pcs

## Angle key without hole, conus approx. 6-9mm, square socket: 8mm

 50 Pcs



### MATERIAL:

Malleable cast iron EN-GJMB-350-10 as per DIN EN 1562

### SURFACE FINISH:

Steel bright, galvanised, nickel-plated as per DIN EN ISO 4042,  
further finishes on request

Minimum volumes are required, depending on article or surface finish.

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# BEAM CLAMPS

For securing to beams without drilling or welding for: sprinkler systems, heating, ventilation and air-conditioning systems, acoustics systems, electrical, piping and sanitation fittings, engineering and steel structures.

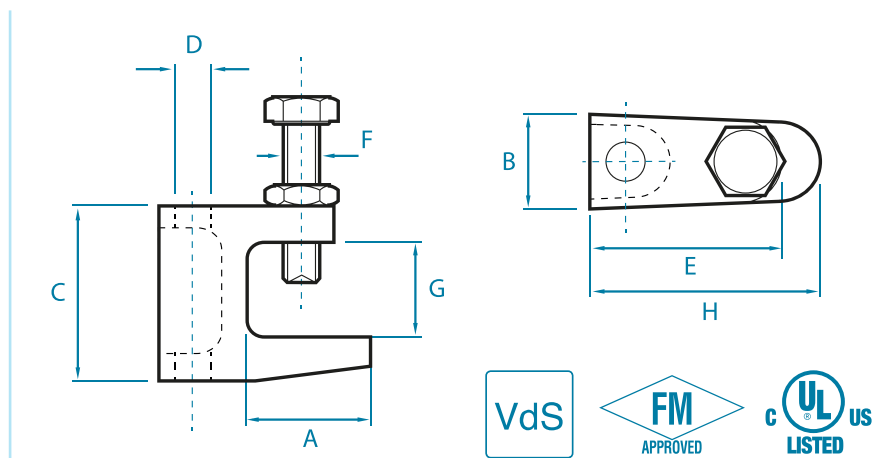


Fig. shows TK12

The raised marking serves as anti-twist protection when tightening the retaining screw and is protected by internationally registered design DM/0081575!

Model	A (approx. mm)	B (approx. mm)	C (approx. mm)	D	E (approx. mm)	F (approx. mm)	G (approx. mm)	H (approx. mm)	Weight (approx. g)	Rated load (N)	Certificates
TKN 8	21	19	35	M8 / ø 9	35	M8	18	38	85	1200	VdS, UL
	21	19	35	M6 / ø 7	35	M8	18	38	85	1200	UL
TK 10	29	21	45	M8 / ø 9	41	M10	23	50	145	2500	VdS, UL
	29	21	45	M6 / ø 7	41	M10	23	50	145	2500	UL
TKN 10	23	21	42	M10 / ø 11	41	M10	20	44	143	2500	VdS, UL, FM
TK 12	32	23,5	54	M12 / ø 13	48	M10	26	58	216	3500	VdS, UL, FM
TK 16	26	29,5	58	M10, M12, M16 / ø 11, ø 13, ø 17	55	M12	28	58	335	5500	VdS, UL, FM
TKC	44	55	78	ø 13	55	M12	45	71,5	551	3500	-

- » Where possible, VdS, FM and UL certified
- » Full range for M6 – M16 threaded rods from stock
- » Inch thread on request
- » Clamping widths from 18 – 45 mm
- » Please also note "Product benefits" information sheet

PACKAGING: 50 pcs in box or according to customer specification

MATERIAL: Malleable cast iron body, general tolerances as per DIN EN ISO 8062-3 CT8

SCOPE OF SUPPLY: Mounted with DIN 933 8.8 hex bolt, end with cup point (CP) as per EN ISO 4753 and DIN 439 lock nut

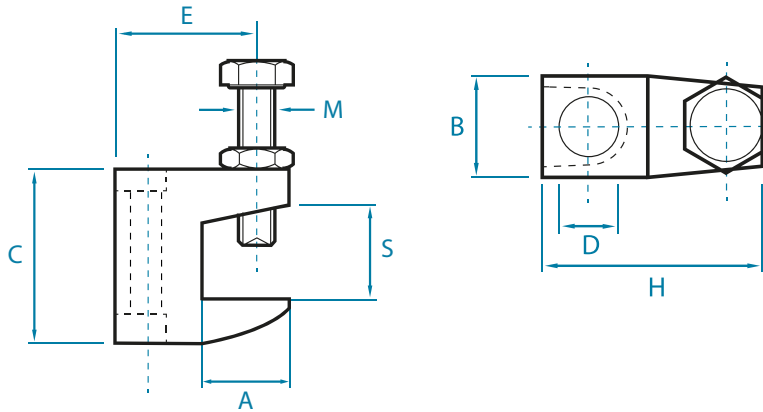
SURFACE FINISH: Galvanised as per DIN EN ISO 4042, on request hot-dip galvanised as per DIN EN ISO 1461, or also coated with zinc flake (e.g. Geomet)

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# BEAM CLAMPS

## STAINLESS STEEL

For securing to beams in the following areas: sprinkler systems, heating, ventilation and air-conditioning systems, acoustics systems, electrical, piping and sanitation fittings, engineering and steel structures.



Rated load [N]	For threaded rods	Dimensions [mm]							
		S	A	B	C	D	E	H	
1000	M8	0-16	21,5	21,0	38,0	9,0	34,0	41,5	50
1000	M10	0-16	21,5	21,0	38,0	11,0	34,0	41,5	50
1300	M12	0-16	21,5	21,0	38,0	13,0	34,0	41,5	50

- » With DIN 933 M10x40 retaining screw with cup point (CP) and DIN 439 hex nut
- » Marking "9mm", "11mm" or "13mm" and material

MATERIAL: Stainless steel A2 [1.4301] or A4 [1.4401]

SCOPE OF SUPPLY: Mounted with DIN 933 hex bolt, end with cup point (CP) as per EN ISO 4753 and DIN 439 lock nut

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# BEAM CLAMPS

## PRODUCT BENEFITS

### Product benefits of certified beam clamps:

- » Enable use in certified fixed sprinkler systems
- » Load values assured by independent institutes
- » Cup point end to prevent sideways movement from the T-beam
- » In the case of beam clamps with through bores a simple height adjustment can also be undertaken following mounting
- » Pre-assembly with threaded rod and lock nut possible

### Further product benefits of BTS beam clamps:

- » Malleable cast iron body, made in Germany
- » Prior to processing, inspection of all cast parts for visible bubbles
- » Retaining screws and lock nuts of all beam clamps can be tightened using just one open-ended wrench
- » Type TK and TKN are certified for both "tensile direction against the retaining screw" and "tensile direction against support" mounting
- » Additional UL certificate for type TK and TKN for use in electrical installations
- » Elevated marking to prevent twisting of the beam clamps during tightening of the retaining screw (internationally registered design DM/0081 575)
- » Complete warehouse programme for threaded rods from M6 to M16
- » Clamping widths from 18-45 mm available in stock
- » Galvanised and hot-dip galvanised as standard

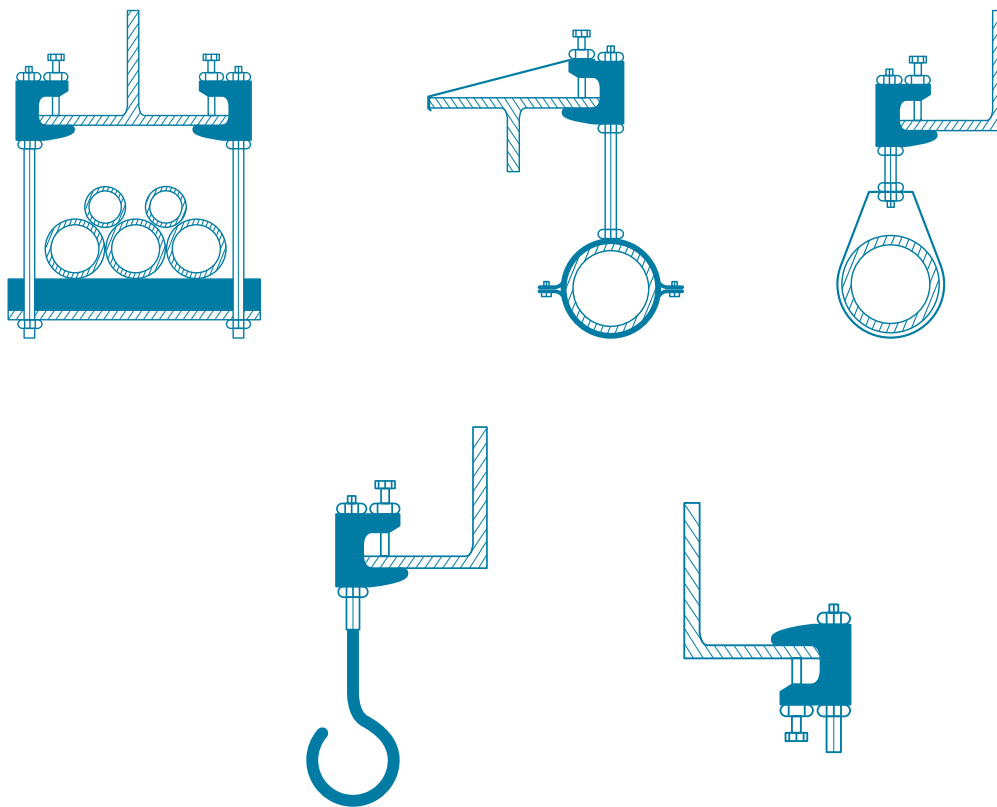
### On request:

- » 3.1 Certification of German origin for cast
- » Tipped end
- » Beam clamps with inch thread
- » Special finishes and special packaging

Also available in A4 [see separate product sheet]

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# BEAM CLAMPS




Our type TK and TKN beam clamps can be mounted with the tensile direction against the retaining screw or against the support. Please see our mounting instructions for further information.

## SECURING STRAPS

The use of securing straps for beam clamps is compulsory for > DN65 pipes under VDS regulations. All beam clamps can be secured with a securing strap against sideways slipping from the beam. Responsible authority regulations are to be observed.



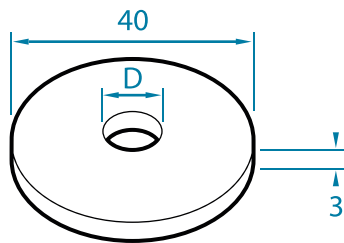
Fits	Length (mm)	Breite (mm)	Dicke (mm)	Loch-ø (mm)	
TKN 8, TK 10, TKN 10, TK 12	350	25	3	10,5 / 12,5	12
TK 16	400	40	3	12,5 / 17,0	12

MATERIAL: Steel

SURFACE FINISH: galvanised as per DIN EN ISO 4042

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# U WASHERS



Diameter D
8,4
10,5
13

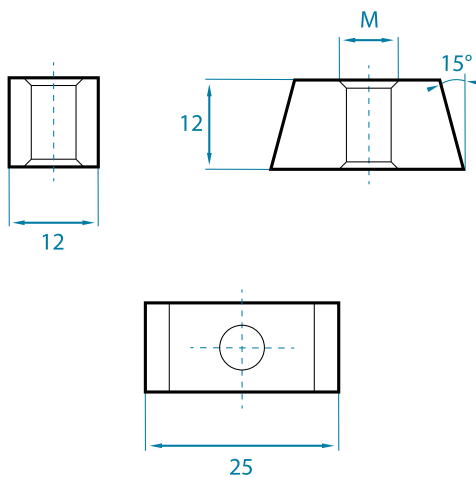


» Ideal dimensions for use in connection with strut rail system

PACKAGING: 100 pcs/box

MATERIAL: Steel, minimum hardness 130 HB galvanised as per DIN EN ISO 4042, stainless steel A4, further dimensions and finishes on request.

# SLIDING BLOCKS FOR CEILING SUSPENSION ON COMPOSITE PROFILES WITH 15° V-SHAPED GROOVE



Thread M
M 4
M 5
M 6
M 8
M 10

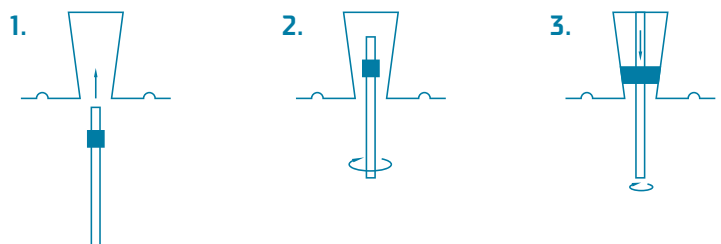


PACKAGING: 100 pcs/box

MATERIAL: Steel, min. hardness 130 HB, galvanised as per DIN EN ISO 4042, further finishes on request

## Application:

1. Rotate sliding block on threaded rod.
2. Guide sliding block through the opening in the profile.
3. Rotate threaded rod with sliding block 90°, then pull downwards before rotating upwards until locking. The conical form then lies flat with the angle of the profile. All of the dimensions stated above are approximate and may deviate both upwards and downwards.



All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# BEAM CLAMPS

## WITH ZINC FLAKE COATING



Fig. shows models TKN8, TKN10, TK12  
with Geomet 500B coating.

Zinc flake coatings are used in all areas of application for the corrosion protection of fastening elements and all kinds of metal parts.

### DETAILS OF THE SURFACE

- » High mechanical and chemical resistance with low coat thickness thanks to a combination of the barrier effect of the flake structure, controlled cathodic protection of the zinc and passivation of the zinc and aluminium.
- » Fulfils worldwide automobile industry specifications:  
Salt spray test in accordance with DIN EN ISO 9227 NSS/ASTM B117
- » No hydrogen embrittlement
- » Chromium VI-free
- » Fulfils REACH requirements
- » Standard coating as per DIN EN ISO 10683 f/ZnL/nc/x/x/960h/x, 8-10µm, >36g/m<sup>2</sup>, e.g. Geomet 500B

### Advantages of the beam clamps:

- » **Highly corrosion-resistant**
- » **Economical alternative to hot-dip galvanised beam clamps, thanks to improved production characteristics.**
- » **Small volumes can also be supplied with TKN8 Ø9, TKN10 Ø11 and TK12 Ø13mm.**
- » **Accurate fit, free-moving.**
- » **Attractive appearance.**

All of the dimensions stated above are approximate and may deviate both upwards and downwards.

# SIMPLEX TIMBER CONNECTORS

NEW TO THE RANGE  
EXPECTED AVAILABILITY  
FROM MARCH 2019

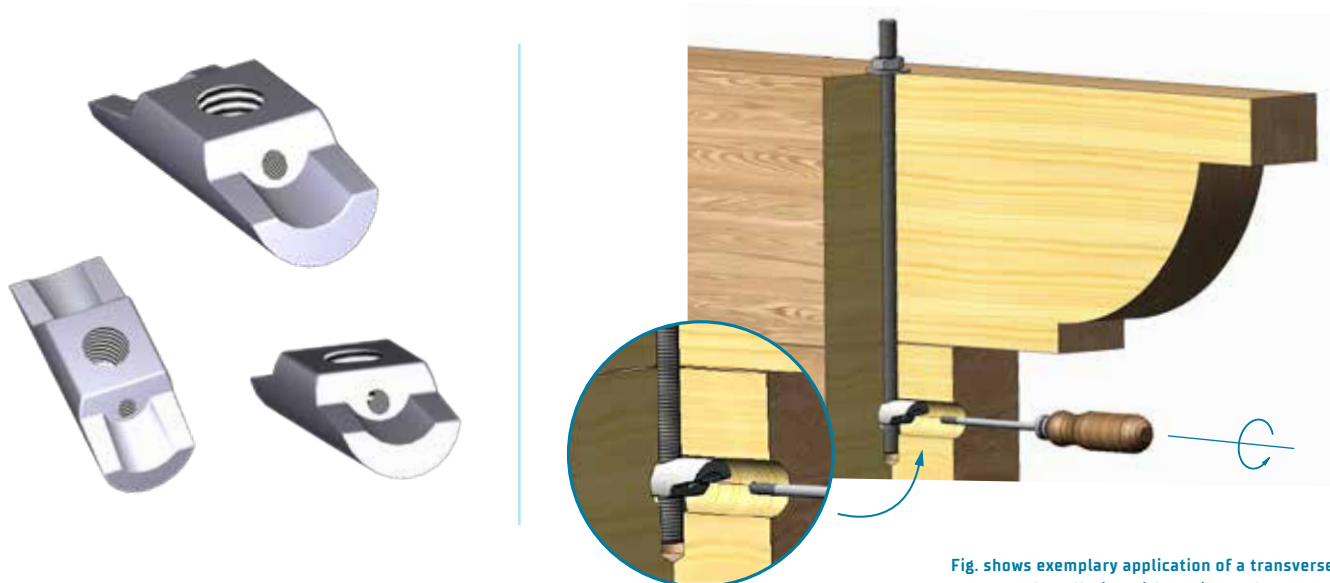




Fig. shows exemplary application of a transverse structure. Installation with setting tool.

- » Available in all popular dimensions and acc. to fire resistance class F30B
- » All Simplex connectors with M5 cross-thread to mount with a setting tool
- » Made in Europe

Simplex-Connectors are used to secure position of specifically designed pegs. They are the perfect solution for lengthwise and transverse connections in timber structures, especially in challenging structures and for increased fire safety requirements.

- » Perfect for use against shear forces, especially combined with BTS Plate Connectors type C10 and C11 acc. to EN912. Compared to structures with mortise and tenon joints this method is easier and cheaper.
- » The timber connection parts can be built-in completely concealed.
- » Types S3 can be used acc. to the standards of fire resistance class F30B after a prior verification by the user.

Simplex Timber Connectors			
Type	Thread	Dimensions [LxW in mm]	
S1	M12	54 x 22	200
S2	M16	72 x 28	100
S3	M20	92 x 38	50

Simplex Timber Connectors acc. to F30B			
Type	Thread	Dimensions [LxW in mm]	
S3	M12	92 x 38	50
S3	M16	92 x 38	50
S3	M20	92 x 38	50

MATERIAL:

Malleable cast iron EN-GJMW-400-5 acc. to DIN EN 1562.

SURFACE FINISH:

Galvanised A2K acc. to DIN EN ISO 4042, further finishes on request.

MARKING:

All types with marking S1, S2, S3 and manufacturer code.

All of the dimensions stated above are approximate and may deviate both upwards and downwards. Subject to prior sale.



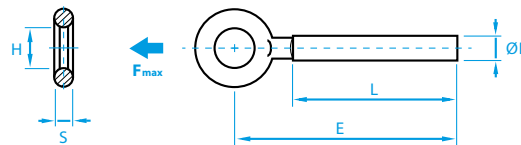
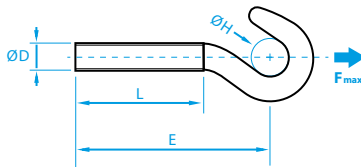
# HOOK BOLTS WITH SHAPED HOOK


# EYEBOLTS WITH CONTINUOUS RING


NEW TO  
THE RANGE  
NOW AVAILABLE



- » **Area of application:** Suspension of heavy loads, use in turnbuckles acc. to DIN1480 or in anchors
- » **Heavy type:** Loads see last column
- » **All dimensions are available at short notice**
- » **Also available with left-hand thread and in stainl. steel A2/A4**
- » **On request:** Threads from M16-M33, strength class 8.8, BSW-thread
- » **Made in Europe**



ØD	L [mm]	E [mm]	ØH [mm]		*F max [N]
M 5	40	53,6	7,5	1.500	380
M 5	48	63	7,5	1.250	380
M 6	40	55,5	9,5	1.000	600
M 6	50	65,5	9,5	750	600
M 6	55	70,5	9,5	750	600
M 8	52	75,5	11,0	400	1.100
M 8	60	83,5	11,0	350	1.100
M 10	60	87,5	14,0	200	1.500
M 10	73	100,5	14,0	200	1.500
M 12	66	101,5	18,0	125	2.750
M 12	90	125,5	18,0	75	2.750
M 14	82	120,5	17,0	75	3.850

ØD	L [mm]	E [mm]	H [mm]			*F max [N]
			Min	Max		
M 5	40	52,7	8,05	8,55	1.750	1.200
M 5	48	57,7	8,05	8,55	1.500	1.200
M 6	40	54,6	9,75	10,25	1.100	1.850
M 6	50	64,6	9,75	10,25	900	1.850
M 6	55	69,6	9,75	10,25	750	1.850
M 8	52	67,4	10,75	11,25	500	3.600
M 8	60	75,4	11,55	12,05	500	3.600
M 10	60	80,6	14,25	14,75	275	5.400
M 10	73	93,6	14,25	14,75	225	5.400
M 10	93	113,6	14,25	14,75	175	5.400
M 12	66	89,5	16,75	17,25	150	8.100
M 12	72	95,5	16,75	17,25	150	8.100
M 12	90	113,5	16,75	17,25	125	8.100
M 14	85	109,4	17,75	18,25	100	11.400
M 16	95	122,1	22,70	23,30	50	15.400

MATERIAL:

Steel, zinc plated A2K acc. to DIN EN ISO 4042- stainless steel A2 or A4

TOLERANCES:

Metric thread 6h acc. to DIN EN ISO 965-1  
Length "L": +2x pitches

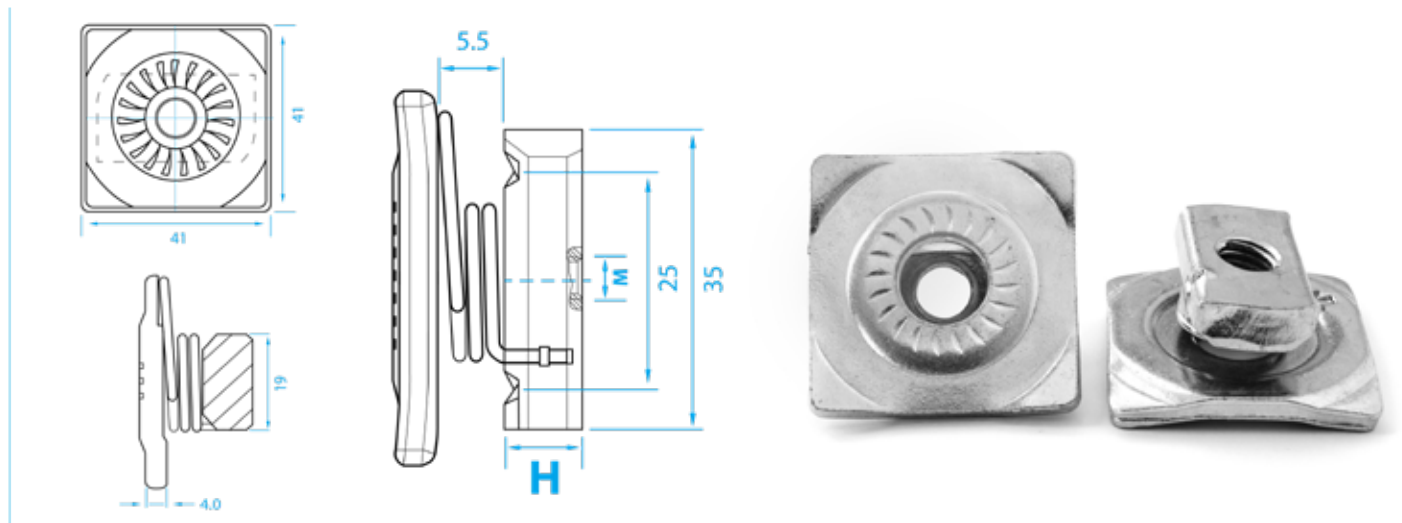
LOAD VALUES "Fmax":

Nominal static load in direction of the arrow, safety factor 3.

All of the dimensions stated above are approximate and may deviate both upwards and downwards. Subject to prior sale.

# COMBO CHANNEL NUTS

## WITH PREINSTALLED SQUARE WASHER AND SPRING FOR STRUT CHANNELS



Combo Channel Nuts

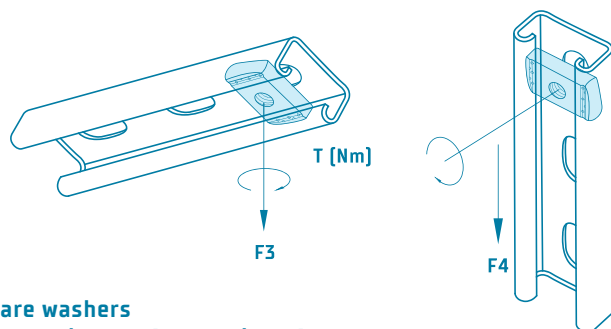
M	H [mm]	
M6	6	100
M8	6	100
M10	8	100
M12	9	100

### Load values Channel nuts

The following load values apply for BTS channel nuts in steel and stainless steel for strut mounting rails in combination with a threaded rod of strength class 4.6 exposed to static load.

The maximum load value of the mounting rail used is to be observed. BTS provides no guarantee for the load value of the mounting rail

Dimension	F3 [kN]	F4 [kN]	T [Nm]
M 6	5	1	3,5
M 8	6	2,4	8,4
M 10	7	3,5	17
M 12	7	4	29



- » Combines the functions of spring channel nuts and square washers
- » Square Washer with tothing for a conditional protection against self-loosening of the bolt
- » No jamming in perforated channels thanks to the spring on the top
- » All parts made of steel – robust product
- » One type for all strut channels
- » Ideal for vertically installed channels – holds in the rail after rotation
- » Remains easy to move after mounting
- » On request: Hot dip galvanized channel nuts, stainless steel A4, individual tothing / tooth spacing, special thicknesses, complete special part – also for other profile sizes

**MATERIAL:** Steel channel nut and square washer, min. hardness 130 HB, galvanised

All of the dimensions stated above are approximate and may deviate both upwards and downwards. Subject to prior sale.