KVT
SOLUTIONEERING
A BOSSARD COMPANY

HUCK BOBTAIL®

The next generation lock bolts

The center of excellence for high-performance fastening technology

KVT-Fastening is an expert for high-quality fastening applications and offers engineering solutions based on the wide product portfolio of the leading manufacturers in the market.

Mechanical engineering | Automotive | Electrical engineering | Energy | Precision engineering | Fluid power | Transportation | Off-shore and Marine | Medical equipment Aviation and aerospace | Construction industry | Watch manufacturing industry

www.kvt-fastening.com

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High-performance solutions from KVT-Fastening are found wherever absolutely safe and secure connections are essential. These small but extremely resilient components play key roles where it matters most – whether in the electronics and energy sector, the automotive and transportation industries, aviation and aerospace, engineering and construction, precision engineering, or medical equipment.

KVT-Fastening does not just supply standard products and individual components, but also provides close and active customer support in the search for ideal solutions, particularly when specific requirements must be fulfilled. This portfolio is complemented by a range of innovative tools and machines as well as, if needed, the integration into automated serial production workflows.

Ever since 1927, KVT-Fastening has stood for experience, solution-driven know-how, unique expertise in development and consultancy as well as the ultimate in reliability. Since December 2012, KVT-Fastening is a member of the Bossard Group. Bossard is a leading provider of intelligent solutions for industrial fastening technology. The range includes global sales, technical consulting (engineering) and logistics of fastening technology components and bolts. Customers benefit from the extension of competencies in industrial fastening technology and from an optimally enhanced product or service portfolio.

HUCK BobTail® – lock bolts

The HUCK BobTail® lock bolts enable simple connections of extremely high strength to be made. Unlike previous lock bolts, the HUCK BobTail® is designed without a pin-tail, meaning that no uncoated pin-break is needed. Using the newly-developed, compact, semi-automatic setting tools, the lock bolts are set in only two seconds – almost twice as fast as competing products.

Design
Various materials and versions are available

Tools
Assembly tools included in rage

Content

Technical performances, installation recommendations as well as unspecified tolerances regarding the dimensions of the parts have to be requested individual for each application before starting the series production.

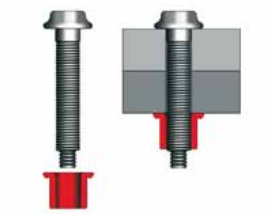
All dimensions are specified in mm.

Technical information

The HUCK BobTail® system includes lock bolts and installation tooling that will deliver you benefits beyond anything.

Key benefits

Installation speed
Speed of fastener installation has to be seen to be believed with the 1/4" diameter BobTail® fastener installing in less than one second. The 16 mm diameter BobTail® fastener installs in two seconds, up to twice as fast as any large diameter lock bolt on the market.
To see installation video visit **www.afshuck.net**.

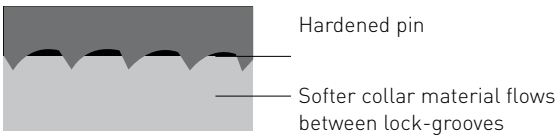


No pin-tail or pin-break
- No material waste
- Low installation noise
- Increased corrosion resistance

Smooth, shock free installation sequence
Eliminates jolts to the operator's arms and hands

Unique helical lock groove (12 mm diameter upwards)
Holds pin and collar in place prior to installation

High fatigue strength thread form
Shallow thread and large root radius increase fatigue strength



Installation indicator on collar for visual inspection (12 mm diameter upwards)
The swage indicators indent when installation is complete

Prior to installation | After installation

Technical information

Combined with all the benefits of using a HUCK® lock bolt

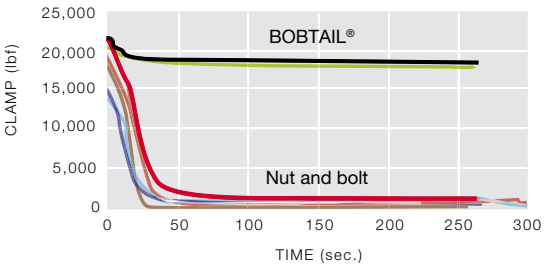
- Permanent, mechanically locked fastener
- Installation process automatically provides fastener values
  - No torque or re-torque required
  - Unlike conventional nuts and bolts, they will not work loose, even during extreme vibration
- Easy visual inspection ensures correct installation

Convert from other HUCK® lock bolts to BobTail®

If you are currently using HUCK® C50L or C6L lock bolts then due to the dimensional and strength similarities it is quick and easy to switch BobTail® to gain the extra benefits listed above*.

Consistent clamp with BobTail®

This chart shows nut and bolt clamp scatter is much wider compared to BobTail®, and that once vibration begins, clamp load quickly decays with conventional nuts and bolts, while it holds constant with the BobTail®.



* Some installation tooling adaptation will be needed

BobTail®

With small diameter

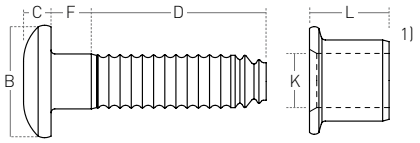
Inch

Head style
Round, truss head

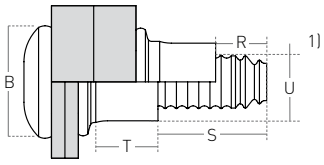
Material
Carbon steel

Additional types on request

Before installation



After installation



Dimensions bolt

Bolt-Ø								
	Grip range selection		6.4 (1/4")		7.9 (5/16")		9.5 (3/8")	
Code number grip range	up	to	D max.	F nominal	D max.	F nominal	D max.	F nominal
1	0.0	4.7	20.7	1.0	-	-	-	-
2	0.0	6.4	22.2	1.6	-	-	-	-
3	1.6	7.9	23.8	3.2	-	-	-	-
4	3.2	9.5	25.4	4.7	29.4	4.7	33.3	4.8
5	4.7	11.1	27.0	6.4	-	-	-	-
6	6.4	12.7	28.6	7.9	32.5	7.9	36.5	7.9
8	9.5	15.9	30.2	11.1	35.7	11.1	39.6	11.1
10	12.7	19.1	31.8	14.3	38.9	14.3	42.8	14.3
12	15.9	22.2	33.3	17.4	42.1	17.4	46.0	17.5
14	19.1	25.4	34.9	20.6	45.2	20.6	49.1	20.6
16	22.2	28.6	36.5	23.8	48.4	23.8	52.3	23.8
18	25.4	31.8	38.1	27.0	51.6	27.0	55.5	27.0
20	28.6	34.9	39.7	30.1	54.8	30.1	58.7	30.2

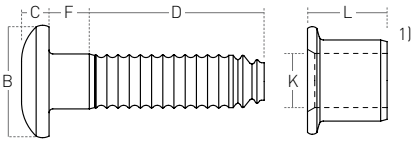
[1] Definition of the order description see page 14/15

BobTail®

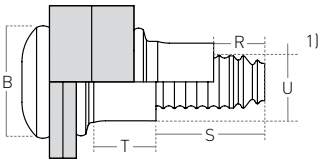
With small diameter

See page 8

Before installation



After installation



Dimensions head and collar

	Head		Collar	
Bolt-Ø	B max.	C max.	K max.	L max.
6.4 (1/4")	13.60	3.60	13.10	9.70
7.9 (5/16")	17.30	4.40	16.30	12.10
9.5 (3/8")	20.83	5.30	19.56	14.35

Installed information and maximal hole table

	Class 5.8 – after installation			Class 8.8 – after installation			Installed dimensions				
Bolt-Ø	Clamp force (kN)	Tensile strength (kN)	Shear strength (kN)	Clamp force (kN)	Tensile strength (kN)	Shear strength (kN)	R min.	S max.	T min.	U max.	Max. hole size
6.4 (1/4")	8.0	13.3	13.6	10.2	16.5	19.1	5.7	13.6	6.6	9.2	7.1
7.9 (5/16")	12.5	20.5	21.0	18.7	26.7	29.8	7.1	15.2	8.3	11.6	9.1
9.5 (3/8")	17.9	28.9	30.4	26.6	41.4	42.7	8.8	16.9	9.9	13.8	10.7

[1] Definition of the order description see page 14/15

BobTail®

With large diameter

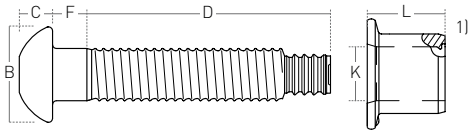
Inch

Head style
Round

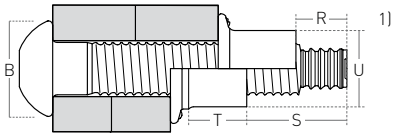
Material
Carbon steel

Additional types on request

Before installation



After installation



Dimensions bolt

Bolt-Ø												
	Grip range selection		12.7 (1/2")		15.9 (5/8")		19.1 (3/4")		22.2 (7/8")		25.4 (1")	
Code number grip range	up	to	D max.	F nominal	D max.	F nominal	D max.	F nominal	D max.	F nominal	D max.	F nominal
4	6.4	15.7	48.3	3.8	52.6	3.8	61.8	4.1	68.7	6.4	76.2	6.4
8	12.7	22.1	54.6	3.8	58.9	3.8	68.1	4.1	75.1	6.4	82.6	6.4
12	19.1	28.4	61.0	3.8	65.3	3.8	74.5	4.1	81.4	6.4	88.9	6.4
16	25.4	34.8	67.3	3.8	71.6	3.8	80.8	4.1	87.8	6.4	95.3	6.4
20	31.8	41.1	73.7	3.8	78.0	3.8	87.2	4.1	94.1	6.4	101.6	6.4
24	38.1	47.5	80.0	3.8	84.3	3.8	93.5	4.1	100.5	6.4	108.0	6.4
28	44.5	53.8	86.4	3.8	90.7	3.8	99.9	4.1	106.8	6.4	114.3	6.4
32	50.8	60.2	92.7	3.8	97.0	3.8	106.2	4.1	113.2	12.7	120.7	12.7
36	57.2	66.5	99.1	3.8	103.4	3.8	112.6	4.1	119.5	12.7	127.0	12.7
40	63.5	72.9	105.4	3.8	109.7	3.8	118.9	9.5	125.9	12.7	133.4	12.7
44	69.9	79.2	111.8	3.8	116.1	9.5	125.3	9.5	132.2	12.7	139.7	12.7
48	76.2	85.6	118.1	9.5	122.4	9.5	131.6	9.5	138.6	12.7	146.1	12.7
52	82.6	91.9	124.5	9.5	-	-	138.0	9.5	144.9	12.7	152.4	12.7
56	88.9	98.3	130.8	9.5	-	-	144.3	9.5	151.3	12.7	158.8	12.7
60	95.3	104.6	137.2	9.5	-	-	150.7	9.5	157.6	12.7	165.1	12.7
64	101.6	111.0	-	-	-	-	157.0	9.5	164.0	12.5	171.5	12.7
68	108.0	117.3	-	-	-	-	163.4	9.5	170.3	12.7	177.8	12.7
72	114.3	123.7	-	-	-	-	169.7	9.5	176.7	12.7	184.2	12.7

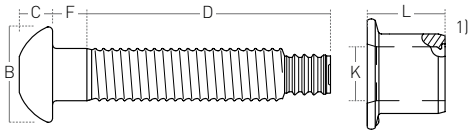
[1] Definition of the order description see page 14/15

BobTail®

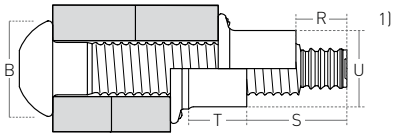
With large diameter

See page 10

Before installation



After installation



Dimensions head and collar

	Head		Collar	
Bolt-Ø	B max.	C max.	K max.	L max.
12.7 (1/2")	24.2	8.5	13.2	19.0
15.9 (5/8")	30.4	11.0	16.4	23.7
19.1 (3/4")	36.6	13.5	19.7	28.3
22.2 (7/8")	42.3	14.9	22.9	33.0
25.4 (1")	50.8	16.5	26.2	37.8

Installed information and maximal hole table

	Class 10.9 – after installation			Installed dimensions				
Bolt-Ø	Clamp force (kN)	Tensile strength (kN)	Shear strength (kN)	R min.	S max.	T min.	U max.	Max. hole size
12.7 (1/2")	53.6	75.8	62.3	10.9	23.7	14.4	18.4	14.3
15.9 (5/8")	85.4	120.5	100.1	10.9	24.4	18.0	23.1	17.5
19.1 (3/4")	126.3	178.4	144.1	13.6	27.9	21.6	27.7	20.6
22.2 (7/8")	174.6	246.7	193.1	15.2	30.3	25.1	32.0	23.8
25.4 (1")	229.1	323.4	251.3	17.4	33.2	29.2	36.9	28.6

[1] Definition of the order description see page 14/15

BobTail®

With large diameter

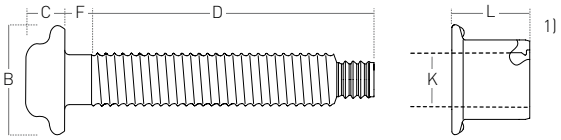
Metric

Head style
Flanged

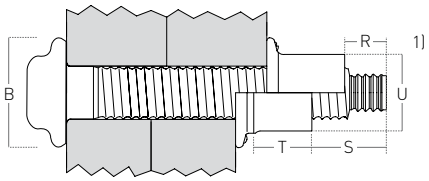
Material
Carbon steel

Additional types on request

Before installation



After installation



Dimensions bolt

Bolt-Ø										
	Grip range selection		12		14		16		20	
Code number grip range	up	to	D max.	F nominal	D max.	F nominal	D max.	F nominal	D max.	F nominal
10	5	15	46.1	3.8	49	3.8	52	3.8	60.7	3.8
15	10	20	51.1	3.8	54	3.8	57	3.8	65.7	3.8
20	15	25	56.1	3.8	59	3.8	62	3.8	70.7	3.8
25	20	30	61.1	3.8	64	3.8	67	3.8	75.7	3.8
30	25	35	66.1	3.8	69	3.8	72	3.8	80.7	3.8
35	30	40	71.1	3.8	74	3.8	77	3.8	85.7	3.8
40	35	45	76.1	3.8	79	3.8	82	3.8	90.7	3.8
45	40	50	81.1	3.8	84	3.8	87	3.8	95.7	3.8
50	45	55	86.1	3.8	89	3.8	92	9.5	100.7	3.8
55	50	60	91.1	3.8	94	3.8	97	9.5	105.7	3.8
60	55	65	96.1	3.8	99	3.8	102	9.5	110.7	3.8
65	60	70	101.1	3.8	104	3.8	107	9.5	115.7	9.5
70	65	75	106.1	3.8	109	3.8	112	9.5	120.7	9.5
75	70	80	111.1	3.8	114	9.5	117	9.5	125.7	9.5
80	75	85	116.1	9.5	119	9.5	122	9.5	130.7	9.5

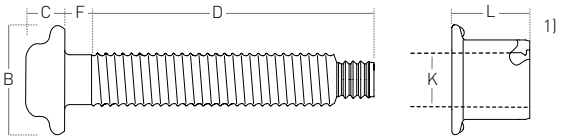
[1] Definition of the order description see page 14/15

BobTail®

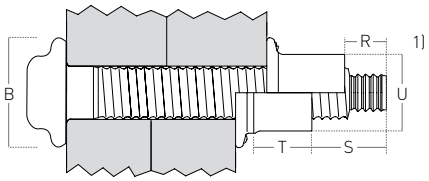
With large diameter

See page 12

Before installation



After installation



Dimensions head and collar

	Head		Collar	
Bolt-Ø	B max.	C max.	K max.	L max.
12	25.4	9.6	12.3	17.9
14	30.0	11.5	14.4	21.5
16	33.8	12.2	16.4	23.7
20	42.4	16.0	20.5	29.6

Installed information and maximal hole table

	Class 10.9 – after installation			Installed dimensions				
Bolt-Ø	Clamp force (kN)	Tensile strength (kN)	Shear strength (kN)	R min.	S max.	T min.	U max.	Max. hole size
12	64.9	87.7	65.4	11.1	23.7	13.1	17.3	13.5
14	87.0	120.0	94.0	11.2	24.6	15.5	20.2	15.5
16	116.0	163.0	122.0	11.2	23.3	17.4	23.1	17.5
20	181.0	255.0	191.0	14.0	26.7	21.8	28.8	22.0

[1] Definition of the order description see page 14/15

Definition of the order description

The order description consists of the blue highlighted details. The grip range code you can find on page 8 – 11.

Small diameter BobTail® pin up to 9.5 mm, inch

Head style		Material		Bolt-Ø		Grip range	Finish	
Round		Carbon steel grade 5.8	R			Code on page 8/9		
Truss head	98T	Carbon steel grade 8.8	BR	6.4 (1/4")	8		Zinc electroplate	GA
				7.9 (5/16")	10		Zinc electroplate	GA
				9.5 (3/8")	12		Zinc electroplate	GA

Example for an order description

BT-R8-4GA – is a BobTail® lock bolt fastener, round head, carbon steel grade 5.8, 6.4 mm (1/4") bolt-Ø, grip 4 (3.2 - 9.5 mm), zinc electroplate

Large diameter BobTail® pin 12.7 to 25.4 mm, inch

Head style		Material		Bolt-Ø		Grip range	Finish	
Round	R	Carbon steel grade 8.8	BR	12.7 (1/2")	16	Code on page 10/11	Zinc electroplate	GA
				15.9 (5/8")	20		Zinc electroplate	GA
				19.1 (3/4")	24		Zinc electroplate	GA
				22.2 (7/8")	28		Zinc electroplate	GA
				25.4 (1")	32		Zinc electroplate	GA

Example for an order description

BTR-BR16-4GA – is a BobTail® lock bolt fastener, round head, carbon steel grade 8.8, 12.7 mm (1/2") bolt-Ø, grip 4 (6.4 - 15.7 mm), zinc electroplate

BobTail® collar 6.4 to 25.4 mm, inch

Grade		Material		Collar-Ø		Finish			
for pin 5.8		Low carbon steel	R						
for pin 8.8	5	Low carbon steel	R	6.4 (1/4")	8	Zinc electroplate	GAH		
				7.9 (5/16")	10	Zinc electroplate	GAH		
				9.5 (3/8")	12	Zinc electroplate	GAH		
				12.7 (1/2")	16	Zinc electroplate	GAT	Zinc + black	BL
				15.9 (5/8")	20	Zinc electroplate	GAT	Zinc + black	BL
				19.1 (3/4")	24	Zinc electroplate	GAT	Zinc + black	BL
				22.2 (7/8")	28	Zinc electroplate	GAT	Zinc + black	BL
				25.4 (1")	32	Zinc electroplate	GAT	Zinc + black	BL

Example for an order description

BTC-R8 GAH – is a standard BobTail® collar, low carbon steel, 6.4 mm collar-Ø, zinc electroplate

Definition of the order description

The order description consists of the blue highlighted details. The grip range code you can find on page 12/13.

Large diameter BobTail® pin 12 to 20 mm, metric

Head style	Material		Bolt-Ø		Grip range	Finish	
Flanged	Carbon steel grade 10.9	DT	12	12	Code on page 12/13	Mechanical zinc	G
			14	14			
			16	16			
			20	20			

Example for an order description

MBT-DT12-10G – is a BobTail® lock bolt fastener, flanged head, carbon steel grade 10.9, 12 mm bolt-Ø, grip 10 (5 - 15 mm), mechanical zinc

BobTail® collar 12 to 20 mm, metric

Material		Collar-Ø		Finish	
Low carbon steel	R	12	12	Zinc + black	BL
		14	14	Zinc + black	BL
		16	16	Zinc + black	BL
		20	20	Zinc + black	BL

Example for an order description

MBTC-R16BL – is a standard BobTail® collar, low carbon steel, 16 mm collar-Ø, zinc + black

HUCK® tooling systems

Depending on the environmental conditions there are many different types of installation systems (for the BobTail®, dependent of fastener diameter, application type and application access). Some of the most popular tools are shown below but this is just part of our BobTail® tooling range. Discuss your requirements with our dedicated KVT team to find the optimum solution to suit your need.

To install BobTail® the basic tooling requirement is:

- **Installation tool** – Either pneumatic or hydraulic
- **Nose assembly** – To match with the fastener and tool
- **Powerig®** – To supply power to hydraulic tools
- **Additional hose set** – Sometimes required to connect hydraulic tools to the Powerig®

244BT/256BT

Pneumatic

The 244BT (4.8 – 6.4 mm) & 256BT (7.9 – 9.5 mm Ø) pneumatic tools are specifically designed for installation of BobTail®.

2480L

Hydraulic

Hydraulic compact installation tool; high speed & high durability. Ideal for high volume production to install BobTail® with diameter 4.8 – 6.4 mm as well as other small diameter lock bolts and structural blind rivets.

2503

Hydraulic

Hydraulic installation with extra long stroke. Ideal for installing BobTail® with 7.9 – 9.5 mm Ø. Will also install other lock bolts & structural blind rivets.

2620-PT/2620

Hydraulic

Hydraulic installation tool, installs BobTail® with 12 and 12.7 mm Ø.

2628/3585PT

Hydraulic

Hydraulic installation tool. Installs BobTail® with 12.7, 15.9, 16 and 19.1 mm Ø.

HUCK® tooling systems

BTT Serie

Hydraulic

The compact inline design of the BTT tools is configured for where reduced centre edge distance is required for 12, 14, 16, 20, 12.7, 15.9, 19.1, 22.2 and 25.4 mm Ø.

Swageforward® Werkzeugserie

Hydraulic

Hydraulic tooling. Ideal for use when application space is limited. Installs 9.5 mm and 12 – 25.4 mm Ø BobTail® lock bolts.

HK32-002 Powerig®

Compact portable Powering®. Can be used with all hydraulic installation tools.

BobTail® collar cutter

A quick change of nose assembly from the installation nose to the cutter nose enables removal of BobTail® fasteners using the same tooling system. BobTail® cutter nose assemblies available in sizes 6.4, 9.5, 12, 12.7, 14, 15.9, 16, 19.1, 20, 22.2 and 25.4 mm Ø.

Aftermarket solution

The BobTail® can be installed outside the factory environment utilising the following:

- **Required nose assembly and collar cutter**
- **BTT35LS** – BobTail® tool
- **Additional hose sets**

To provide hydraulic power:

- **HP690** – hand pump or
  911D – Hydraulic Diesel Powerig®

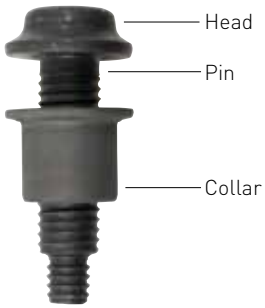
Installation gauges

Easy to use ring gauge used to ensure each installation is correct.

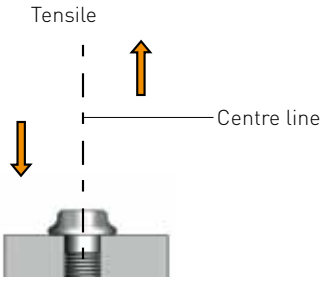
How Bobtail® works

Functionality

Clamp force or pre-load: In the initial stages of the installation process, the tool engages and pulls on the tail of the fastener. The joint is pulled together before the anvil portion of the nose assembly is forced down the collar. This progressively locks (swages) it into the grooves of the harder pin. The pin and swaged collar combine to form the installed fastener.
The squeezing action reduces the diameter of the collar, increasing its length. This in turn stretches the pin, generating a clamp force over the joint.

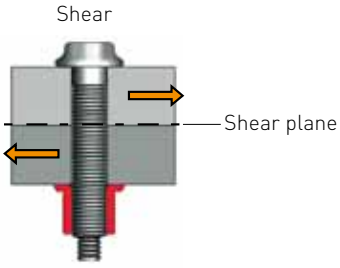


Shear strength of BobTail® fasteners vary according to the material strength and minimal diameter of the fastener. By increasing the diameter or the grade of material, the shear strength of the fastener can be increased.



BobTail® after installation

The tensile strength of BobTail® fasteners is dependent on the shear resistance of the collar material and the number of grooves it fills.



BobTail® after installation

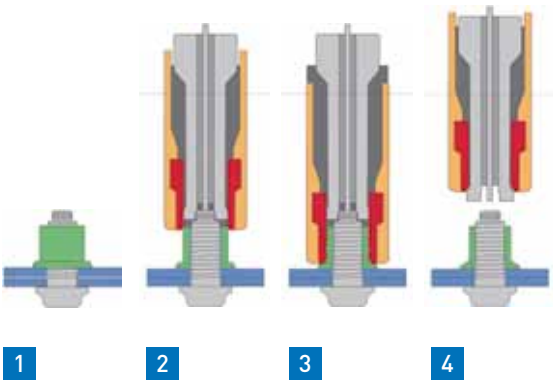
Installation Sequence

1.
– Pin placed into prepared hole
– Collar spun onto pin

2.
– Tool is applied to the annular pull grooves and activated
– Pullers in nose assembly draw the pin into the tool
– Anvil pushes collar against joint
– Initial clamp generated

3.
– Tool swages collar, increasing clamp

4.
– Swaging of collar complete
– Tool ejects the fastener and releases the puller, Installation complete



Further designs

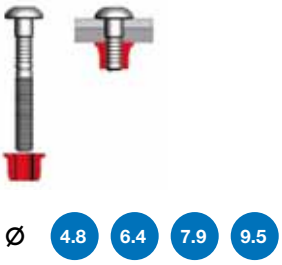
HUCK® lock bolts

Key benefits

- Permanent, mechanically locked fastener
- Installation process automatically provides fastener values
- No torque or re-torque required
- Unlike conventional nuts and bolts, they will not work loose, even during extreme vibration
- Rapid installation with Quick and easy visual inspection
- Excellent gap closure capability
- Can be installed onto angled surfaces (5° maximium)
- Tamperproof
- Various tools are available

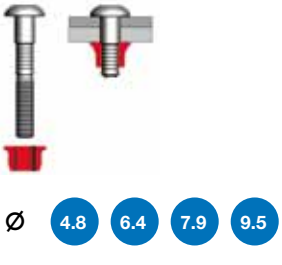
C6L® – The original HUCK® design

- 5.8 grade small diameter Lockbolt
- Made to British Standard B7805: Part 1: 1997: A mark of quality, safety and performance
- Wide flange collar available: Enables installation into non metallic materials
- Pin head style: Brazier, truss, countersunk, specific headstyle for palisade fencing
- Collar style: Standard, flanged, wide flanged and low profile
- Materials: Steel, stainless steel, aluminum



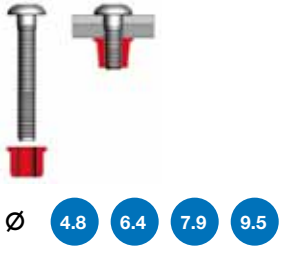
C120L®

- 8.8 grade small diameter Lockbolt
- High tensile strength version of C6L
- Pin head style: Brazier, truss, countersunk
- Collar style: Standard, flanged
- Material: Steel



Magna-Grip®

- Huge grip range: Accommodates wide variations in joint thickness – 14.3/23.9 mm. Based on Ø 6.4 mm. Two different grip lengths available. One pin and one collar cover a wide variety of applications: Reducing the risk of incorrect fastener installation. Wide grip range minimises fastener inventory.
- Flush pinbreak: No catching on clothes, skin or goods
- Pin head style: Button, truss, countersunk, rivet, broad truss
- Collar style: Standard flange, medium flange, wide flange
- Materials: Steel, aluminum



Further designs

HUCK® lock bolts

C50L®

- 8.8 grade large diameter Lockbolt
- Made to British Standard B7805: Part 2: 1997: A mark of quality, safety and performance
- High tensile friction grip fastener
- Pin head style: Round, truss, countersunk, thread head
- Collar style: Standard, flanged, low profile
- Materials: Steel, stainless steel, aluminum

Ø 12.7 15.9 19.1 22.2 25.4 28.6 31.8 34.9

Hucktainer®

Designed specifically for joining composite board in trailer applications.

- Will not crush or damage the composite board
- Integral seal around pin head prevents moisture ingress
- Low profile on both sides when installed: No catching on clothes, skin or goods. Not as grip sensitive as some competitor products
- Pin head style: Standard low profile, encapsulated in plastic
- Sleeve style: Wide bearing, medium bearing, clearance
- Material: Steel

Ø 9.5

KVT-Fastening – Fastening technology


Blind rivet nuts


Blind rivet technology


Thread inserts


Self-clinching fasteners


Stud welding systems [1]


Lock nuts


Bonding fasteners


Access solutions


Quick fastening elements and clips


Quick release pins and spring plungers


Adhesives and sealants [1]


Construction fasteners [2]


Special processes [2]


Plugs


Pressure intensifiers [3]


Installation technology


Quick connectors [4]

Fastening, sealing and flow control solutions for complex applications

The extensive KVT-Fastening portfolio offers optimal solutions for your most challenging applications. The products included in this catalog represent only a selection from our entire product portfolio. Upon request, we will be pleased to provide additional information or an individual consultation to you.

Intelligent logistic systems

Bossard SmartBin and SmartLabel are intelligent logistics systems which monitor stock with total reliability and ensure stock replenishment automatically.
An online system transmits the data to our server, and this – if necessary – triggers an order. These systems ensure quick and easy availability of C-parts while production is running.


Logistic systems

Competent analysis for efficient solutions

KVT-Fastening's highly qualified experts analyze the given task at hand.
Based on this sound understanding of the project, they then develop ideal solutions that are economical, efficient, and safe.


Solutioneering

For more information about our range of products and order at our E-shop, please visit www.kvt-fastening.com

[1] Not available in Germany. [2] Only available in Switzerland. [3] Not available in Switzerland. [4] Not available in Austria.

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