



ARCONIC

DIBt APPROVAL NEWSLETTER



Deutsches
Institut
für
Bautechnik

DIBt

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It's Official: Huck BobTail Offers Maintenance Free Joints

The Huck BobTail 12,14,16, 20mm and 1 inch diameters, after lengthy and vigorous independent testing, has gained the prestigious Allgemeine bauaufsichtliche Zulassungen (German national technical approval) from the world renowned DIBt (Deutsches Institut für Bautechnik) for use in both static and dynamic applications in civil engineering.



Futhermore, the approval concludes that retorque/retension of an installed Huck BobTail LockBolt is not possible and also not necessary and connections do not require maintenance regarding preload.

Thus joints fastened together by BobTail large diameter LockBolts, within the range specified, are maintenance free.

About DIBt

DIBt is the German approval body for non-regulated construction products and types of construction. As a provider of services and public functions, DIBt fulfils a large range of technical and regulatory tasks in the field of construction, including:

- Granting national technical approvals (allgemeine bauaufsichtliche Zulassungen, abZ) for unregulated construction products and types of construction within the framework of the Building Codes of the German federal states (Länder)
- Issuing European Technical Assessments (ETAs) for non-standardised construction products and kits under the Construction Products Regulation
- Keeping a register of energy performance certificates and inspection reports for air-conditioning systems in accordance with the Energy Saving Ordinance (EnEV 2013) and electronically verifying these documents on the basis of a random selection
- EnEV-Registrierstelle (German)
- Preparing the Construction Products Lists (Bauregellisten) A and B as well as List C and publishing them
- Preparing notifications for the introduction of Technical Building Rules (Technische Baubestimmungen)
- Promoting research in the field of construction
- Recognising testing laboratories, inspection and certification bodies (PÜZ-Stellen) for tasks at national level and monitoring these bodies
- Notifying independent third party bodies – also called notified bodies – in accordance with the Construction Products Regulation
- Acting as Joint Market Surveillance Authority within the framework of the market surveillance of harmonised construction products
- Granting structural design approvals (Typenprüfung) for construction works or parts thereof intended for multiple use (use of the same design in several locations)
- Actively contributing to the development of technical rules (especially standards) at national, European and international level
- Contributing to the work of national, European and international groups and committees

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DIBt

Procuring the Huck BobTail DIBt Approval

A copy of the controlled approval document in German can be purchased directly from the DIBt official website (www.dibt.de).

Registration is necessary to ensure the purchaser is kept up to date with any changes to the approval. After entering the website use the search function to find Z-14.4-591.

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the website
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function to find
Z-14.4-591

Huck BobTail DIBt Approval

APPROVAL NUMBER Z-14.4-591

Valid from 1 July 2015 to 4 November 2021
(First approval 2011)

The testing and validation of test results are carried out independently of each other and the DIBt, to ensure the impartiality and integrity of the approval process.

The results of the testing have been calculated to meet the needs of both DIN EN 1993 (EURO Code 3 – Design of Steel Structures)



DIN EN 1993

(EURO Code 3 – Design of Steel Structures)

- Characteristic value of shear resistance (F_v, R_k)
- Characteristic value of tension resistance (F_t, R_k)
- Characteristic preload (F_p, C^*)

Mechanical Values of the Huck BobTail LockBolt

Nominal Diameter	F _{v,Rk} [KN]	F _{t,Rk} [KN]	F _{p,C} [KN]	A _s [mm ²]
M12	74,6	89,8	64,7	92,5
M14	98,0	118,4	88,3	126,1
M16	127,5	151,9	114,5	163,5
M20	204,6	233,5	179,3	256,2
1" (dia 25,4)	347,0	374,3	293,1	418,7

F_{v,Rk} Characteristic value of shear resistance

F_{t,Rk} Characteristic value of tension resistance

F_{p,C} Characteristic preload

A_s Tensile stress area

Service and Maintenance

As it's such an important part of the approval, the following text is exact wording taken from the Approval Document:

SECTION 5 OF DIBt APPROVAL

Provision for service and maintenance

Accordingly executed connections with LockBolts (e.g. direct contact of structural parts, no unsuitable coating) **do not require maintenance regarding preload**. Possible incorrect installed or damaged LockBolts shall be replaced.

Additional Information

Additional rules/guidelines are included in the approval pertinent to use in wind energy plants.

As expected the approval documents illustrates the need for trained staff to use Huck tooling to install the fasteners, and lists checks post installation and corrective methods if the fastener is not installed properly.



BobTail Removal

A quick change of nose assembly from the installation nose to the cutter nose enables removal of BobTail fasteners using the same tooling system without any damage to the materials being joined.

Part Numbers

Due to the verification of conformity requirement, the products included in the approval have specific part numbers. This ensures that when the products are ordered they meet the DIBt approval standard.

DB12112 (pin) DB12012 (collar)	12mm
DB12114 (pin) DB12014 (collar)	14mm
DB12116 (pin) DB12016 (collar)	16mm
DB12120 (pin) DB12020 (collar)	20mm
DB12126 (pin) DB12026 (collar)	25.4mm/1inch

Example of Co-ordination Drawing shown below:

UNCONTROLLED DOCUMENT

IDENTIFICATION
 HUCK MARK, CLASS 10.9 MARK, & GRIP NUMBER 20 IS EXAMPLE

PIN: DB12112-(GRIP NUMBER) (FINISH CODE)
 Example: DB12112-20J45

COLLAR FIT-UP TAB

IDENTIFICATION
 (6) EQUALLY SPACED BUMPS AND 2 HUCK MARKS AS SHOWN

DETAIL 'A'
 MINIMUM OF 1 BUMP CREASE ON COLLAR FLANGE INDICATES FULL SWAGE.

NOTE: ONLY 14.1 MIN. SWAGE LENGTH REQUIRED TO MEET MIN. VALUES.

APPROVED FINISH CODES

PIN	COLLAR
J45	J46
J57	J58

MINIMUM INSTALLED VALUES

CLAMP: 64.9
 TENSILE: 87.7
 SHEAR: 65.4

MAXIMUM HOLE SIZE
 ø13.5

PIN PART NUMBER	GRIP NUMBER	"A"	"B"	GRIP RANGE	COLLAR PART NUMBER
DB12112	10	3.8	34.2	5-15	DB12012
DB12112	15	3.8	39.2	10-20	DB12012
DB12112	20	3.8	44.2	15-25	DB12012
DB12112	25	3.8	49.2	20-30	DB12012
DB12112	30	3.8	54.2	25-35	DB12012
DB12112	35	3.8	59.2	30-40	DB12012
DB12112	40	3.8	64.2	35-45	DB12012
DB12112	45	3.8	69.2	40-50	DB12012
DB12112	50	3.8	74.2	45-55	DB12012
DB12112	55	3.8	79.2	50-60	DB12012
DB12112	60	3.8	84.2	55-65	DB12012
DB12112	65	3.8	89.2	60-70	DB12012
DB12112	70	3.8	94.2	65-75	DB12012
DB12112	75	3.8	99.2	70-80	DB12012
DB12112	80	9.5	104.2	75-85	DB12012

INSTALLED FASTENER

Q2	J57 and J58 Finish Codes Added	GPJ	9/02/12
01	FIRST ISSUE	GPJ	4/08/11
ISS	DESCRIPTION	DRAWN	CHECKED

COORDINATION DRAWING FOR DIBt APPROVED PARTS:
 DB12112 PIN & DB12012 COLLAR
 ø12.0 B0BTAIL GRADE 10.9

MATERIAL:
 PIN: MEDIUM CARBON STEEL
 COLLAR: LOW CARBON STEEL

SCALE:
 1x

Aisco Fastening Systems Ltd
 Unit C
 Starford Park 7
 Telford
 TF3 3BP
 United Kingdom

Tel: +44 (0) 1952 290011
 Fax: +44 (0) 1952 290459
 Drawing Number: 12655-3

ALL DIMENSIONS IN MILLIMETRES

Drawing shown above is for illustrative purposes only and is not the current drawing

Delivery sheets will be marked with conformity mark Ü (Ü-mark) in accordance with the decrees on conformity marking of Germany.

Procuring the Huck Magna-Lok and Magna-Bulb DIBt Approval

The Huck Magna-Lok 1/4", 3/8" and 1/2" and Magna-Bulb 1/4" blind rivets are now certified and approved under the DIBt accreditation.

These blind rivets can be used in civil engineering and are installed using suitable tools as discussed on the next page. Applications include steel structural elements.

Both the Magna-Lok and the Magna-Bulb have similar features such as high strength and vibration resistant performance and can both be used in numerous metals.

What sets them apart, is during installation. During installation of the Magna-Bulb the sleeve is compressed, causing it to fold outwards to form a bulb on the blind side. This helps to spread the load over more surface

area, providing a stronger, longer lasting connection. When a Magna-Lok is installed, the mandrel is drawn in and fills the diameter of the hole. The pin locks in the sleeve then breaks off. Magna-Lok also has a wider grip range to accommodate large variations in joint thickness. A simple, visual inspection ensures that both fasteners are installed correctly.

Again, a copy of the controlled approval document in German can be purchased directly from the DIBt official website (www.dibt.de).

Registration is necessary to ensure the purchaser is kept up to date with any changes to the approval. After entering the website use the search function to find Z-14.4-406.

After entering the website use the search function to find Z-14.4-406

Huck Magna-Lok and Magna-Bulb DIBt Approval

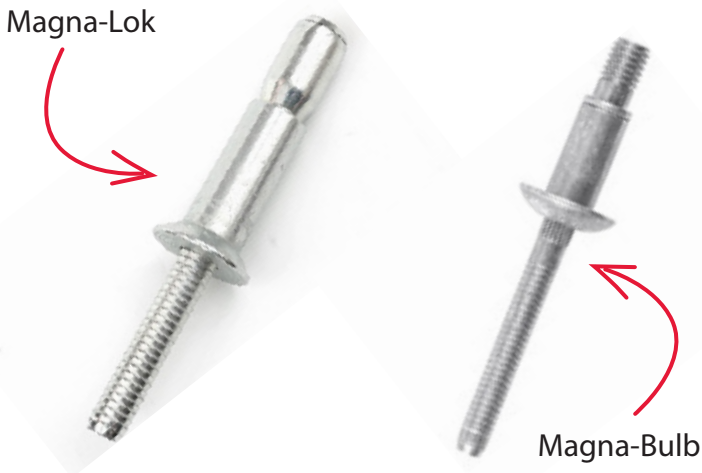
APPROVAL NUMBER Z-14.4-406

Valid from 30 November 2018 to 30 November 2020

The testing and validation of test results are carried out independently of each other and the DIBt, to ensure the impartiality and integrity of the approval process.

The results of the testing have been calculated to meet the needs of both DIN EN 1993 (EURO Code 3 – Design of Steel Structures)

Magna-Lok



Magna-Bulb

DIN EN 1993

(EURO Code 3 – Design of Steel Structures)

- Characteristic value of shear resistance (F_v, R_k)
- Characteristic value of tension resistance (F_t, R_k)

Mechanical Values of the Huck Magna-Lok and Magna-Bulb

Fastener Type	Rivet Type	Diameter [mm]	Fv,Rk [KN]	Ft,Rk [KN]*	Head Style
Magna-Lok	MGLP-R8	6,4	12,1	5,74	Protruding
Magna-Lok	MGLP-R12	9,5	27,2	15,32	Protruding
Magna-Lok	MGLP-R16	12,7	46,7 / 39,7 ¹⁾	20,85	Protruding
Magna-Lok	MGL100-R8	6,4	11,0	5,93	Countersunk
Magna-Lok	MGL100-R12	9,5	27,0	15,32	Countersunk
Magna-Lok	MGL100-R16	12,7	46,7 / 39,7 ¹⁾	20,85	Countersunk
Magna-Bulb	MBP-R8	6,4	12,0	8,97	Protruding

Fv,Rk Characteristic value of shear resistance

Ft,Rk Characteristic value of tension

¹⁾ A characteristic shear load-bearing capacity reduced to 85% applies for thickness of structural element $t < 88.00$ mm
 * The values shown are for "Dicke Bauteil II" of 5mm

Service and Maintenance

Once installed, the Magna-Lok and Magna-Bulb create a permanent lock making these structural fasteners. The unique locking design creates an internal lock during installation that virtually eliminates pin pushout by mechanically locking the pin to the sleeve. So Magna-Lok and Magna-Bulb fasteners lock flush into place reliably. Permanently.



Pneumatic

Additional Information

Magna-Lok and Magna-Bulb can be installed using conventional Huck pneumatic and hydraulic tooling.

Both types of tools allow for fast installation and no special training or skill are required for operators.

Neither require a special nose-piece insert in order to be properly installed; the locking mechanism has been engineered into the fastener eliminating tooling and operator error.

A simple, visual inspection ensures the blind rivet is installed properly, 100% of the time.



Hydraulic

Example of Co-ordination Drawings shown below:

Magna-Lok

Magna-Bulb

UNCONTROLLED DOCUMENT

INDEX 9129-C1

MECHANICAL PROPERTIES (LBS MIN):
 TENSILE: 1850 MIN/2200 TYP.
 SHEAR: 2500 MIN/2750 TYP.
 PIN RETENTION: 300 MIN/400 TYP.
 HOLE SIZE: .261/.272
 FINISH:
 SLEEVE: ZINC PLATE WITH CLEAR CHROMATE. CADMIUM PLATE AVAILABLE.
 PIN: ZINC PLATE CLEAR CHROMATE
 REFERENCE INSTALLED PIN POSITION: FLUSH +0.020

(1) DESIGN OF PIN TO SLEEVE RETENTION METHOD IS MANUFACTURER'S OPTION.

NOTES:

PART NUMBER	GRIP RANGE		"L" MAX.	"F" MAX.	WEIGHT PER 1,000 PCS.	
	MIN.	MAX.			SHIPPING	INSTALLED
MGLP-R8-6	.080	.375	.560	.999	18.7 LBS.	10.0 LBS.
-7	.080	.437	.620	1.061	19.5 LBS.	10.8 LBS.
-7X	.110	.450	.622	1.061	19.76 LBS.	11.18 LBS.
-10	.350	.625	.810	1.249	22.3 LBS.	13.7 LBS.
-E	.080	.625	.810	1.434	23.13 LBS.	14.53 LBS.
-14	.580	.875	1.060	1.499	25.72 LBS.	17.02 LBS.
-18	.830	1.125	1.310	1.799	29.44 LBS.	20.79 LBS.
-22	1.080	1.375	1.560	1.999	33.26 LBS.	24.56 LBS.
-24	1.205	1.500	1.685	2.124	35.83 LBS.	26.09 LBS.

COORDINATION DRAWING FOR:
1/4" MAGNA-LOK, STEEL

Alcoa Fastening Systems

Industrial Products
8001 Imperial Drive (P.O. Box 8117)
Waco, TX 76714-8117
800-388-4823 / 254-776-2000

INDEX 9129-C1

UNCONTROLLED DOCUMENT

INDEX 9464-C

IDENTIFICATION:
M ()
GRIP NUMBER

PIN PUSHOUT: 300 LBS.TYP.
 HOLE SIZE: .261/.272
 FINISH:
 SLEEVE - ZINC PLATE WITH GOLD CHROMATE.
 PIN - ZINC PLATE CLEAR CHROMATE
 INSTALLED PIN POSITION: FLUSH TO .030 BELOW

2. DIMENSIONS ARE IN INCHES.
 1. DIMENSIONING SYMBOLS: DIM IN () = REF.
 T.I. = THEORETICAL INTERSECTION.

NOTES:

PART NUMBER	GRIP RANGE		MECHANICAL PROPERTIES TYP.		"A" MAX.
	INCHES	MILLIMETERS	TENSILE	SHEAR	
MBP-R8-M2	.060 - .138	1.5 - 3.5	2600	.795	
-M3	.110 - .189	2.8 - 4.8	2700	.882	
-M4	.150 - .229	3.8 - 5.8	2760	.962	
-M5	.189 - .268	4.8 - 6.8	3000	.934	
-M6	.229 - .308	5.8 - 7.8	3200	.969	
-M7	.268 - .346	6.8 - 8.8	3600	1.008	
-M8	.308 - .387	7.8 - 9.8	3600	1.048	
-M9	.346 - .425	8.8 - 10.8	3600	1.087	
-M10	.387 - .466	9.8 - 11.8	3600	1.121	
-M11	.425 - .504	10.8 - 12.8	3600	1.166	
-M12	.466 - .545	11.8 - 13.8	3600	1.206	
-M13	.504 - .583	12.8 - 14.8	3600	1.245	
-M18	.701 - .780	17.8 - 19.8	3600	1.441	
-M19	.741 - .820	18.8 - 20.8	3600	1.452	
-M32	1.252 - 1.331	31.8 - 33.8	3600	1.994	

COORDINATION DRAWING FOR:
1/4" MAGNA-BULB STEEL METRIC GRIP RANGE

Alcoa Fastening Systems

Industrial Products
8001 Imperial Drive (P.O. Box 8117)
Waco, TX 76714-8117
800-388-4823 / 254-776-2000

INDEX 9464-C

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Coatings

BobTail

Standard coating on the approved BobTail are J45 (Pin) /J46 (Collar) which is equivalent to C4 (typical environments Industrial and Coastal, Chemical Processing Plants) in ISO 12944 -

<http://www.international-pc.com/markets/infrastructure/Documents/iso-12944.pdf>

Whilst Arconic do not offer a specific corrosion guarantee for each of these coatings, we are able to show through extensive testing that the following figures can be expected, providing the fastener is installed correctly.

All testing was carried out by an independent 3rd party testing facility at Institut für Korrosionsschutz (Institute for Corrosion Protection) Dresden. Both are Silver-Grey in appearance.

J45 / J46

- Corrosion resistant to 720hrs ISO9227 NSS (ISO12944 – C4) Installed
- 1440hrs Uninstalled, performance as stated by platers

J57 / J58

- Corrosion resistant to 1440hrs ISO9227 NSS (ISO12944 – C5 M High) Installed
- 2000hrs Uninstalled, performance as stated by platers

Magna-Lok

- Sleeve: Zinc electro plate with clear chromate
- Pin: Zinc electro plate with clear chromate

All 72 hour finishes

Magna-Bulb

- Sleeve: Zinc electro plate with clear chromate
- Pin: Zinc electro plate with clear chromate

All 72 hour finishes

Next Steps

- To develop a more resistant coating for Magna-Lok and Magna-Bulb
- To obtain approval extension for BobTail for up to M36
- To obtain approval for excentric loaded application



Contact

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