



ARCONIC

Bobtail[®] The Next Generation HuckBolt[®]

Vibration Resistant
Easy to Install
Mechanically Locked

1/2"-1" (12mm-20mm)



The Huck BobTail® System

Advanced Fasteners and Tooling Delivering Ultimate Strength, Installation Speed and Vibration Resistance

Representing the most advanced fastening technology to date, the BobTail® System (fasteners and tooling) has been developed to deliver the highest level of performance and reliability.

Engineered to meet the unique challenges of a wide range of assembly applications, BobTail offers safe, quiet, swaged-on installation technology in an advanced HuckBolt design.

BobTail is designed to deliver superior joining strength in even the most extreme environments. Available in a wide range of sizes and grades, BobTail also offers quick and easy installation, and up to 10 times the fatigue strength of conventional nuts and bolts. Finally, when you factor in the cost of the fasteners with installation and inspection labor, BobTail often provides an overall lower installed cost.

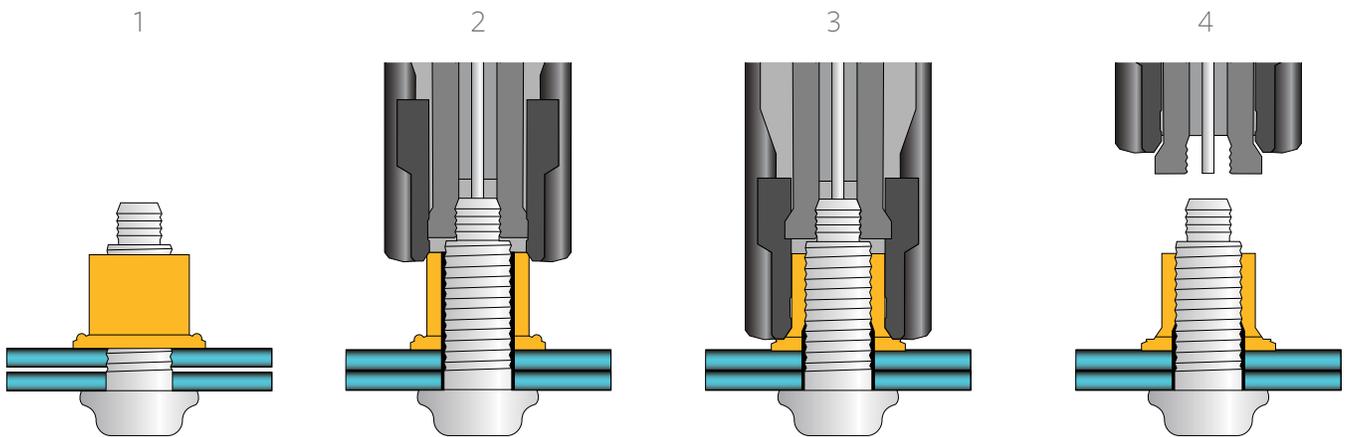


BobTail Benefits

- No pintail
- Unmatched installation speed
- Low overall installed cost
- Superior strength (fatigue)
- Vibration resistance
- Ergonomically designed installation tooling
- Silent installation
- No repetitive stress injuries
- Eliminates need for secondary operations
- No special training or skills required for installation personnel
- Quick visual inspection is all that's needed for a quality-assured joint

Unmatched Speed of Installation

The BobTail System delivers a lightening-quick installation cycle time for greater productivity – as fast as two seconds*. This quick cycle is due, in part, to the short time required to apply the tool to the pin and initiate the installation cycle. Once the operator engages the trigger, the swage and eject sequence is programmed to complete the cycle without any additional worker input.



1
The pin is inserted into the prepared hole, and the collar is spun onto the pin.

2
The installation tool is applied to annular pull grooves. When the tool is activated, a puller in the nose assembly draws the pin into the tool, causing the swaging anvil to press on the collar, drawing up any sheet gap.

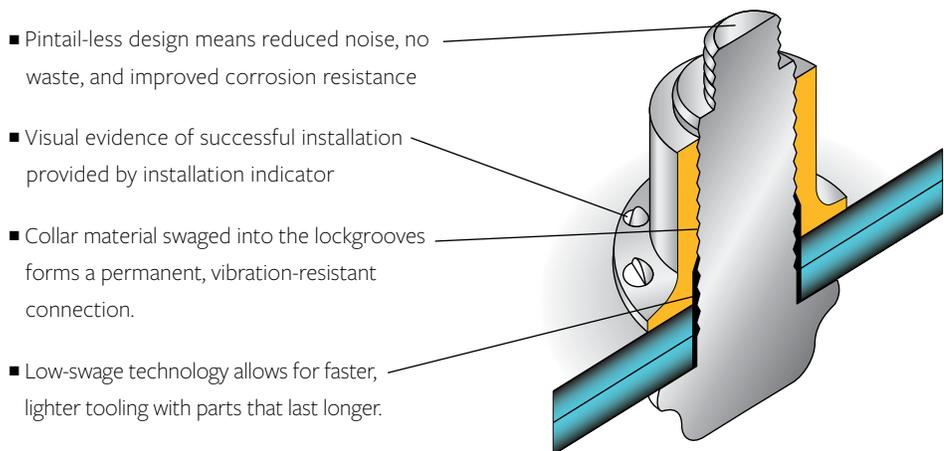
3
At a predetermined force, the anvil begins to swage the collar into the pin's lockgrooves. Continued swaging elongates the collar and pin, developing precise clamp.

4
When swaging of the collar into the pin lockgrooves is complete, the tool ejects the fastener and releases the puller to complete the sequence.

* Based on a typical installation of a 5/8" Grade 8 fastener

Secure, Fast Installation

Combining an advanced fastener design with the latest in easy-to-use, ergonomic installation tooling, the BobTail system delivers a strong connection and sets a new standard for ease of installation.



- Pintail-less design means reduced noise, no waste, and improved corrosion resistance
- Visual evidence of successful installation provided by installation indicator
- Collar material swaged into the lockgrooves forms a permanent, vibration-resistant connection.
- Low-swage technology allows for faster, lighter tooling with parts that last longer.

Quick Visual Inspection



The installation indicator in the collar flange – a proprietary Huck design – indicates the BobTail collar has been fully swaged on.

For Oversized Holes: To optimize clamp, hardened washers such as ASTM F436, DIN 6916 or EN 14399-6 are recommended for use with oversize holes and slots, along with good bolting practice.

BobTail System

Not Just Manufactured. Huck-Engineered

Unlike conventional nuts and bolts, which have gaps on the thread flanks even when tightened, the BobTail system is designed for full metal-to-metal contact around the bolt thread by the collar. An installed BobTail has no gaps and delivers a more secure connection, providing reliability even in the most severe environments.



Installed Gap Comparison

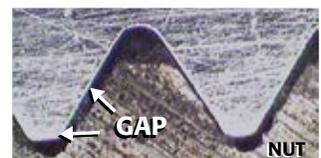
In addition, Huck BobTail lockbolts are not subjected to torsion during installation, so they can safely be taken to higher preload values than conventional bolts, resulting in a much tighter joint.

HuckBolt

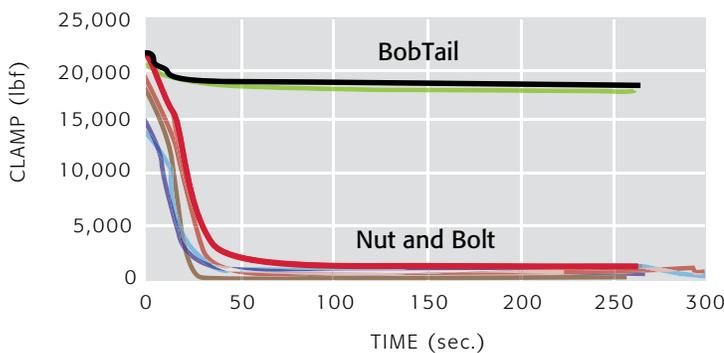


The swaged collar forms over the lock thread, and eliminates the gap.

Standard Bolt



Regular nuts and bolts have gap, which allows for loosening by vibration.



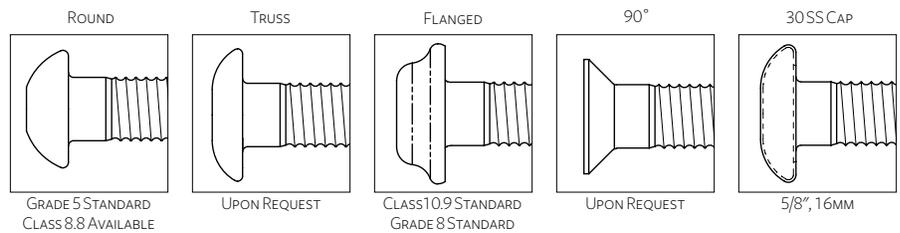
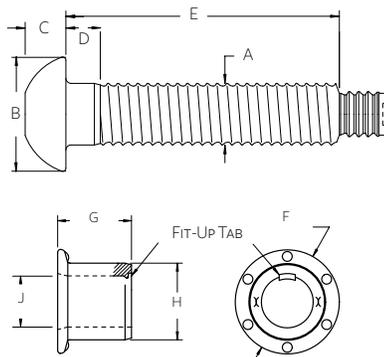
Transverse Vibration Comparison

14mm class 10.9

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.

Data and Dimensions

Head Style Options



Fastener Dimensions

DIAMETER	A	ROUND HEAD		FLANGED HEAD		STAINLESS STEEL CAP		TRUSS/90°/30	
		B	C	B	C	B	C	B	C
1/2"	.500 MAX	.953 - .861	.297 - .335	—	—	—	—	UPON REQUEST	—
5/8"	.625 MAX	1.086 - 1.196	.367 - .432	1.270 - 1.330	.448 - .499	1.270 - 1.330	.300 - .340	UPON REQUEST	—
3/4"	.750 MAX	1.326 - 1.440	.455 - .530	1.520 - 1.600	.550 - .600	—	—	—	—
7/8"	.875 MAX	1.540 - 1.665	.525 - .585	—	—	—	—	—	—
1"	1.000 MAX	1.750 - 2.000	.590 - .650	—	—	—	—	—	—
12MM	12.0 MAX	—	—	24.1 - 25.4	8.9 - 9.6	—	—	—	—
14MM	14.0 MAX	—	—	30.0 MAX	11.5 MAX	—	—	—	—
16MM	16.0 MAX	—	—	32.3 - 33.8	11.4 - 12.2	—	—	—	—
20MM	20.0 MAX	—	—	40.3 - 42.4	15.0 - 16.0	—	—	—	—

Standard Head Style and Strength Levels

DIAMETER	ROUND	FLANGED
1/2"	GRADE 5	GRADE 8
5/8"	GRADE 5	GRADE 8
3/4"	GRADE 5	GRADE 8
7/8"	GRADE 5	GRADE 8 UPON REQUEST
1"	GRADE 8	GRADE 5
12MM	CLASS 8.8 UPON REQUEST	CLASS 10.9
14MM	CLASS 8.8	CLASS 10.9, CLASS 8.8
16MM	CLASS 8.8 UPON REQUEST	CLASS 10.9
20MM	CLASS 8.8 UPON REQUEST	CLASS 10.9

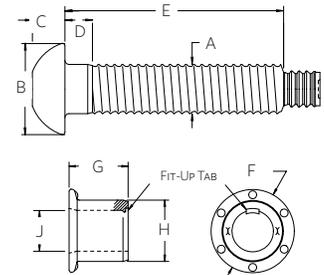


BobTail HuckBolts also available in thread-head configuration for limited clearance applications.

Inch Data and Dimensions

Collar Dimensions

DIAMETER	F	G	H		J
			GRADE 5	GRADE 8	
1/2"	1.010 - 1.080	0.728 - 0.748	0.749 - 0.759	0.762 - 0.772	0.506 - 0.518
5/8"	1.270 - 1.330	0.912 - 0.932	0.935 - 0.945	0.953 - 0.963	0.633 - 0.645
3/4"	1.520 - 1.600	1.095 - 1.115	1.132 - 1.142	1.145 - 1.155	0.760 - 0.774
7/8"	1.775 - 1.865	1.280 - 1.300	1.310 - 1.325	—	0.885 - 0.900
1"	1.930 - 2.010	1.460 - 1.490	1.500 - 1.515	1.525 - 1.540	1.010 - 1.030

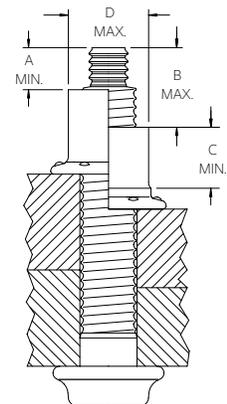


Grip Tables

GRIP	GRIP RANGE	1/2"		5/8"		3/4"		7/8"		1"	
		D	E	D	E	D	E	D	E	D	E
4	.25-.62	0.150	1.440	0.150	1.601	0.160	1.850	0.250	2.056	0.250	2.260
8	.50-.87	0.150	1.690	0.150	1.851	0.160	2.100	0.250	2.306	0.250	2.510
12	.75-1.12	0.150	1.940	0.150	2.101	0.160	2.350	0.250	2.556	0.250	2.760
16	1.00-1.37	0.150	2.190	0.150	2.351	0.160	2.600	0.250	2.806	0.250	3.010
20	1.25-1.62	0.150	2.440	0.150	2.601	0.160	2.850	0.250	3.056	0.250	3.260
24	1.50-1.87	0.150	2.690	0.150	2.851	0.160	3.100	0.250	3.306	0.250	3.510
28	1.75-2.12	0.150	2.940	0.150	3.101	0.160	3.350	0.250	3.556	0.250	3.760
32	2.00-2.37	0.150	3.190	0.150	3.351	0.160	3.600	0.500	3.806	0.500	4.010
36	2.25-2.62	0.150	3.440	0.150	3.601	0.160	3.850	0.500	4.056	0.500	4.260
40	2.50-2.87	0.150	3.690	0.150	3.851	0.375	4.100	0.500	4.306	0.500	4.510
44	2.75-3.12	0.150	3.940	0.375	4.101	0.375	4.350	0.500	4.556	0.500	4.760
48	3.00-3.37	0.375	4.190	0.375	4.351	0.375	4.600	0.500	4.806	0.500	5.010
52	3.25-3.62	0.375	4.440	—	—	0.375	4.850	0.500	5.056	0.500	5.260
56	3.50-3.87	0.375	4.690	—	—	0.375	5.100	0.500	5.306	0.500	5.510
60	3.75-4.12	0.375	4.940	—	—	0.375	5.350	0.500	5.556	0.500	5.760
64	4.00-4.37	—	—	—	—	0.375	5.600	0.500	5.806	0.500	6.010
68	4.25-4.62	—	—	—	—	0.375	5.850	0.500	6.056	0.500	6.260
72	4.50-4.87	—	—	—	—	0.375	6.100	0.500	6.306	0.500	6.510

Installed Fastener Values - lbf (KN)

DIAMETER	CLAMP		TENSILE		SHEAR	
	GRADE 5	GRADE 8	GRADE 5	GRADE 8	GRADE 5	GRADE 8
1/2"	12,050 (53.6)	15,800 (70.3)	17,050 (75.8)	21,300 (94.7)	14,000 (62.3)	16,400 (72.9)
5/8"	19,200 (85.4)	26,000 (115.6)	27,100 (120.5)	36,600 (162.8)	22,500 (100.1)	26,000 (115.6)
3/4"	28,400 (126.3)	37,200 (165.5)	40,100 (178.4)	50,100 (222.8)	32,400 (144.1)	38,000 (169.0)
7/8"	39,250 (174.6)	-	55,450 (246.6)	-	43,400 (193.0)	-
1"	51,500 (229.1)	64,000 (284.7)	72,700 (323.4)	90,900 (404.3)	56,500 (251.3)	68,000 (302.5)



Hole Data

DIAMETER	MAX HOLE
1/2"	9/16"
5/8"	11/16"
3/4"	13/16"
7/8"	15/16"
1"	1 - 1/8"

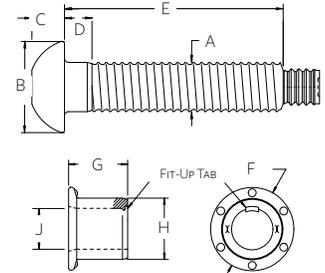
Inspection Data

DIAMETER	A MIN	B MAX	C MIN	D MAX
1/2"	.428"	.933"	.568"	.726"
5/8"	.428"	.959"	.710"	.908"
3/4"	.535"	1.098"	.852"	1.090"
7/8"	.600"	1.192"	.990"	1.261"
1"	.685"	1.308"	1.150"	1.452"

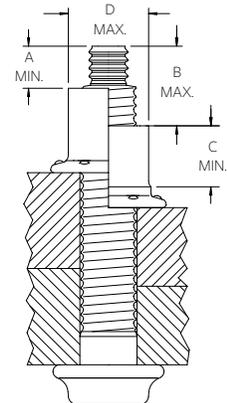
Should "A" or "B" dimensions exceed the given values, the fastener is out-of-grip. A "C" dimension less than the given value indicates an incomplete swage. A "D" dimension greater than the given values indicates an incorrect or worn anvil on the installation tool.

Metric Data and Dimensions

Collar Dimensions				
DIAMETER	F	G	H	J
12MM (10.9)	24.1-25.4	17.3-17.7	18.3-18.5	12.1-12.3
14MM (8.8)	28.2-29.6	20.5-21.0	20.9-21.1	14.0-14.3
14MM (10.9)	28.2-29.6	20.5-21.0	21.1-21.5	14.0-14.4
16MM (10.9)	32.3-33.8	23.1-23.7	24.1-24.5	16.0-16.4
20MM (10.9)	40.3-42.1	29.0-29.6	30.2-30.6	20.1-20.5



Grip Tables									
GRIP	GRIP RANGE	12MM		14MM		16MM		20MM	
		D	E	D	E	D	E	D	E
10	5-15	3.8	34.2	3.8	37.1	3.8	40.1	3.8	45.9
15	10-20	3.8	39.2	3.8	42.1	3.8	45.1	3.8	50.9
20	15-25	3.8	44.2	3.8	47.1	3.8	50.1	3.8	55.1
25	20-30	3.8	49.2	3.8	52.1	3.8	55.1	3.8	60.9
30	25-35	3.8	54.2	3.8	57.1	3.8	60.1	3.8	65.9
35	30-40	3.8	59.2	3.8	62.1	3.8	65.1	3.8	70.9
40	35-45	3.8	64.2	3.8	67.1	3.8	70.1	3.8	75.9
45	40-50	3.8	69.2	3.8	72.1	3.8	75.1	3.8	80.9
50	45-55	3.8	74.2	3.8	77.1	9.5	80.1	3.8	85.9
55	50-60	3.8	79.2	3.8	82.1	9.5	85.1	3.8	90.9
60	55-65	3.8	84.2	3.8	87.1	9.5	90.1	3.8	95.9
65	60-70	3.8	89.2	3.8	92.1	9.5	95.1	9.5	100.9
70	65-75	3.8	94.2	3.8	97.1	9.5	100.1	9.5	105.9
75	70-80	3.8	99.2	9.5	102.1	9.5	105.1	9.5	110.9
80	75-85	9.5	104.2	9.5	107.1	9.5	110.1	9.5	115.9
85	80-90	—	—	—	—	9.5	115.1	9.5	120.9
90	85-95	—	—	—	—	9.5	120.1	9.5	125.9
95	90-100	—	—	—	—	9.5	125.1	9.5	130.9
100	95-105	—	—	—	—	9.5	130.1	9.5	135.9
105	100-110	—	—	—	—	9.5	135.1	9.5	140.9
110	105-115	—	—	—	—	9.5	140.1	9.5	145.9
115	110-120	—	—	—	—	9.5	145.1	9.5	150.9
120	115-125	—	—	—	—	9.5	150.1	9.5	155.9
125	120-130	—	—	—	—	—	—	9.5	160.9
130	125-135	—	—	—	—	—	—	9.5	165.9
135	130-140	—	—	—	—	—	—	9.5	170.9



Should "A" or "B" dimensions exceed the given values, the fastener is out-of-grip. A "C" dimension less than the given value indicates an incomplete swage. A "D" dimension greater than the given values indicates an incorrect or worn anvil on the installation tool.

Installed Fastener Values - lbf (KN)			
DIAMETER	CLAMP	TENSILE	SHEAR
12MM (10.9)	14,600 (64.9)	19,700 (87.6)	14,700 (65.4)
14MM (8.8)	15,000 (66.7)	21,500 (95.6)	18,500 (82.3)
14MM (10.9)	19,500 (86.7)	27,000 (120.1)	21,100 (93.8)
16MM (10.9)	26,000 (115.6)	36,600 (163.0)	26,000 (115.6)
20MM (10.9)	40,700 (181.0)	57,300 (254.9)	41,000 (182.4)

Inspection Data				
DIAMETER	A MIN	B MAX	C MIN	D MAX
12MM	10.9MM	24.0MM	14.1MM	17.3MM
14MM	10.9MM	24.4MM	15.8MM	20.2MM
16MM	10.9MM	24.8MM	18.0MM	23.1MM
20MM	13.9MM	28.5MM	22.6MM	28.8MM

Hole Data	
DIAMETER	MAX HOLE
12MM	13.5MM (17/32")
14MM	15.5MM (39/64")
16MM	17.5MM (11/16")
20MM	22MM (7/8")

BobTail Installation Tooling

Our Proprietary Design Means Easier, Quicker installation

Lightweight, Technologically Advanced Tooling

Newly designed BobTail tooling makes the installation process quicker and easier by reducing the force required to install each fastener. More compact and lighter weight than previous Huck lockbolt production tooling, BobTail installation tools also offer greater operator flexibility as well as extended reach into difficult areas.

For tight, space-constrained applications, SWAGEFORWARD® BobTail tools allow the operator to position his or her hand at a safe distance from the working structure during installation.

Cost-Efficient Operation

Smooth-operating BobTail installation tooling directly contributes to longer tool and component life, while allowing extended tool maintenance cycles. As a result, costs for parts and overall support are reduced, while system uptime is increased.

Cost-Efficient Operation

The BobTail fastener is installed without a pin-break, contributing to the dramatic reduction of noise on the shop floor, and subsequently, improved worker hearing safety. Instances of foreign object damage (FOD) and loose pintail injuries are eliminated. Because BobTail tooling features a smooth, shock-free installation sequence, repetitive stress injuries are eliminated, and overall safety is increased.



Model SF20
SWAGEFORWARD®



Model SF46

Metric Data and Dimensions

Tooling Selection (Inches)			
DIAMETER	*TOOL	INSTALLATION	CUTTER
1/2"	SF20	99-7882	99-7882CX
5/8"	SF20	99-7881	99-7881CX
3/4"	SF32	99-7894	99-7893CX
7/8"	SF46	99-7863	99-7863CX
1"	SF46	99-7867	99-7867CX

Tooling Selection (Metric)			
Diameter	*Tool	Installation	Cutter
12mm	SF20	99-7880	99-7880CX
14mm	SF20	99-7884	99-7884CX
16mm	SF20	99-7881	99-7881CX
20mm	SF32	99-7893	99-7893CX

Tooling Weight and Dimensions (Inches)				
MODEL	WEIGHT	LENGTH	HEIGHT	WIDTH
SF20	12.7 LBS	5.52	8.48	2.88
SF32	12.5 LBS	5.58	9.03	3.40
SF46	22.3 LBS	7.33	9.455	4.00

Collar Cutter Feature

While BobTail fasteners install permanently, BobTail installation tooling features a collar cutter nosepiece that makes fastener removal easier than ever.



Nose Assembly Clearance Dimensions

INSTALL	FIG	A	B	C
99-7830	A	5.73	2.21	1.31
99-7831	A	6.29	4.28	1.75
99-7832	A	7.59	N/A	2.19
99-7834	A	5.73	2.77	1.61
99-7835	A	5.73	2.43	1.43
99-7836	A	7.58	N/A	2.19
99-7863	C	1.48	2.44	N/A
99-7867	C	1.70	2.75	N/A
99-7880	C	1.01	1.31	N/A
99-7881	C	1.06	1.75	N/A
99-7882	C	1.01	1.43	N/A
99-7884	C	1.01	1.61	N/A
99-7893	C	1.57	2.19	N/A
99-7894	C	1.21	2.19	N/A

CUTTER	FIG	A	B	C
99-7830CX	A	5.72	3.20	1.44
99-7831CX	A	6.23	4.12	1.75
99-7832CX	A	7.89	4.24	2.18
99-7834CX	A	5.72	3.61	1.75
99-7835CX	A	5.72	3.62	1.56
99-7863CX	C	1.69	2.75	N/A
99-7867CX	C	1.69	2.75	N/A
99-7880CX	C	2.32	1.31	N/A
99-7881CX	C	2.51	1.75	N/A
99-7882CX	C	2.41	1.43	N/A
99-7884CX	C	2.51	1.69	N/A
99-7894CX	C	1.69	2.19	N/A

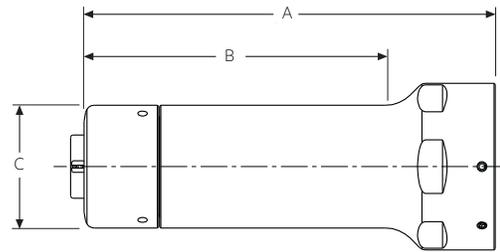


Fig. A

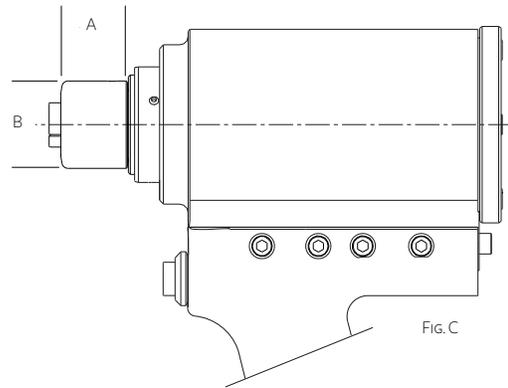


Fig. C

The standard BobTail installation system includes a Powerig® hydraulic power unit, hydraulic hoses, fittings, and a BobTail installation tool.



Powerig
Model 918



Powerig
Model 940

Huck Powerig® Hydraulic Units

MODEL 918	MODEL 940	MODEL 969 NOT SHOWN
HIGH-PRODUCTION APPLICATIONS	PORTABLE; PRODUCTION AND REPAIR	PORTABLE; REPAIR
OPERATES UP TO 2 TOOLS; 2 GPM FLOW RATE	70 IN 3/MIN FLOW RATE	6 CUBIC IN/MIN.
ELECTRICALLY POWERED; 220, 440, OR 550 VOLTS, 3 PHASE	ELECTRICALLY POWERED; 115 OR 220 VOLTS, SINGLE PHASE	6.2 BAR/90 PSI AIR
WEIGHS 708 LBS, OPERATIONAL	WEIGHS 75 LBS	WEIGHS 18.4 LBS
44" L x 25" W x 30" H	12.5" L x 10.5" W x 18" H	9.5" L x 5" W x 10.4" H



Ordering Information

Follow the form below to construct a part number for ordering BobTail pins and their respective collars.
Refer to the Grip Tables (pages 6-7) for grip numbers.

Pins BT (HEAD STYLE) - (MATERIAL) (DIAMETER) - (GRIP NUMBER) (FINISH)

Example: BTR-BR20-8 is a BobTail Pin, Round Head, Grade 5 Carbon Steel, 5/8" Diameter, Grip 8, Oil Finish

Collars BT (TYPE) - (MATERIAL) (DIAMETER) (FINISH)

Example: BTC5-R20UA is a BobTail Collar, Grade 5 Carbon Steel, 5/8" Diameter, Zinc Plated

Inch Series

BOLT HEAD STYLE	PREFIX	BOLT MATERIAL	CODE
GRADE 5			
ROUND	BTR	MEDIUM CARBON STEEL	BR
TRUSS	BT30		
90° FLUSH	BT90		
GRADE 8			
FLANGED	BT	ALLOY STEEL	DT

DIAMETER	CODE
1/2"	16
5/8"	20
3/4"	24
7/8"	28
1"	32

GRIP
REFER TO GRIP TABLES ON PAGES 6-7

FINISH	SUFFIX
ZINC PLATE, CLEAR CHROMATE .0003"	G
ZINC PLATE, CLEAR CHROMATE .0004"	GA
GEOMET - 1 COAT	NP
GEOMET - 2 COAT	D1
OIL FINISH	NO SUFFIX

Metric Series

BOLT HEAD STYLE	PREFIX	BOLT MATERIAL	CODE
CLASS 8.8			
ROUND	MBTR	MEDIUM CARBON STEEL	BR
FLANGED	MBT		
CLASS 10.9			
FLANGED	MBT	ALLOY STEEL	DT

DIAMETER	CODE
12MM	12
14MM	14
16MM	16
20MM	20

GRIP
REFER TO GRIP TABLES ON PAGES 6-7

FINISH	SUFFIX
ZINC PLATE, CLEAR CHROMATE .0003"	G
ZINC PLATE, CLEAR CHROMATE .0004"	GA
GEOMET - 1 COAT	NP
GEOMET - 2 COAT	D1
OIL FINISH	NO SUFFIX

Collars

BOLT HEAD STYLE	PREFIX	MATERIAL	CODE
GRADE 5	BTC5-	LOW CARBON STEEL	R
GRADE 8	BTC8-	LOW CARBON STEEL	R
CLASS 8.8	MBTC-	LOW CARBON STEEL	BR
CLASS 10.9	MBTC-	LOW CARBON STEEL	R

DIAMETER	CODE
1/2"	16
5/8"	20
3/4"	24
7/8"	28
1"	32
12MM	12
14MM	14
16MM	16
20MM	20

FINISH	Suffix
ZINC PLATE	UA
ZINC PLATE	BL
ZINC PLATE	UA
ZINC PLATE	BL

Arconic Fastening Systems



Arconic Inc. (NYSE: ARNC) creates breakthrough products that shape industries, providing solutions to complex engineering challenges to transform the way we fly, drive, build, and power. Combining ingenuity and advanced manufacturing, we deliver products that meet the challenges and demands faced by our customers.

Arconic Fastening Systems, formerly Alcoa Fastening Systems & Rings, is a global leader in fastening technology. Offering the greatest breadth and depth of fastening system solutions in the industry, Arconic continues to reflect the same commitment to product quality and support that customers have come to expect. To serve its growing market, Arconic Fastening Systems maintains corporate offices worldwide. In addition, Arconic distributors are located in many key industrial centers throughout the world, providing a ready supply of fasteners, installation tools, tool parts, and application assistance.

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