

The C50L[®] HuckBolt[®] Fastening System

Strong and dependable lockbolts for heavy-duty,
vibration-intensive applications.





Grade 5 fasteners certified to meet or exceed all ASTM A-325 standards.

For applications ranging from railcar to mining equipment manufacturing, C50L® HuckBolt® fasteners from Alcoa Fastening Systems offers superior vibration resistance and overall durability.

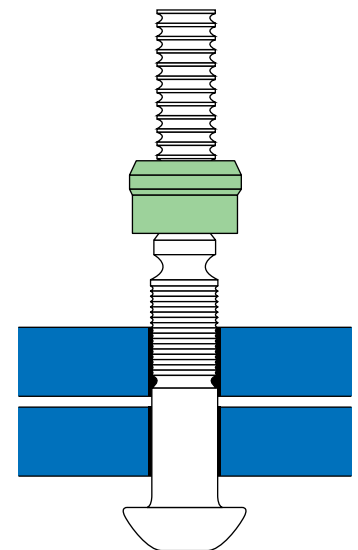
Heavy-duty applications demand tough, reliable fasteners. And extensive testing has demonstrated that C50L HuckBolt fasteners meet or exceed the performance of torqued bolts in both shear and tensile strength (with a longer fatigue life). Value is built in, too. Over the lifetime of your product, the investment you make in the quality of C50L HuckBolt fasteners will pay for itself. While a single nut and bolt may cost less than a C50L fastener, you won't find a more accurate installation today or a more reliable joint long term.

Successful, consistent installations

Unlike threaded fasteners, the C50L HuckBolt fastener gives you consistent installation results with virtually no rework. High costs of

calibrating, maintaining, and replacing tools are eliminated. And unlike welding, installation of the C50L does not require expensive, highly experienced workers.

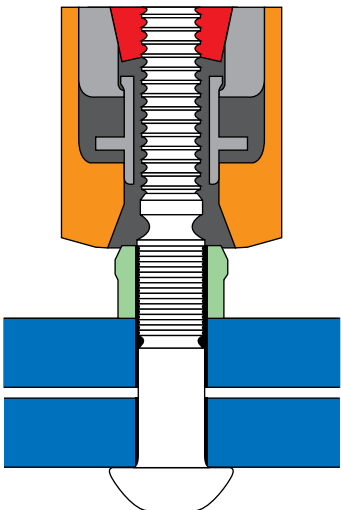
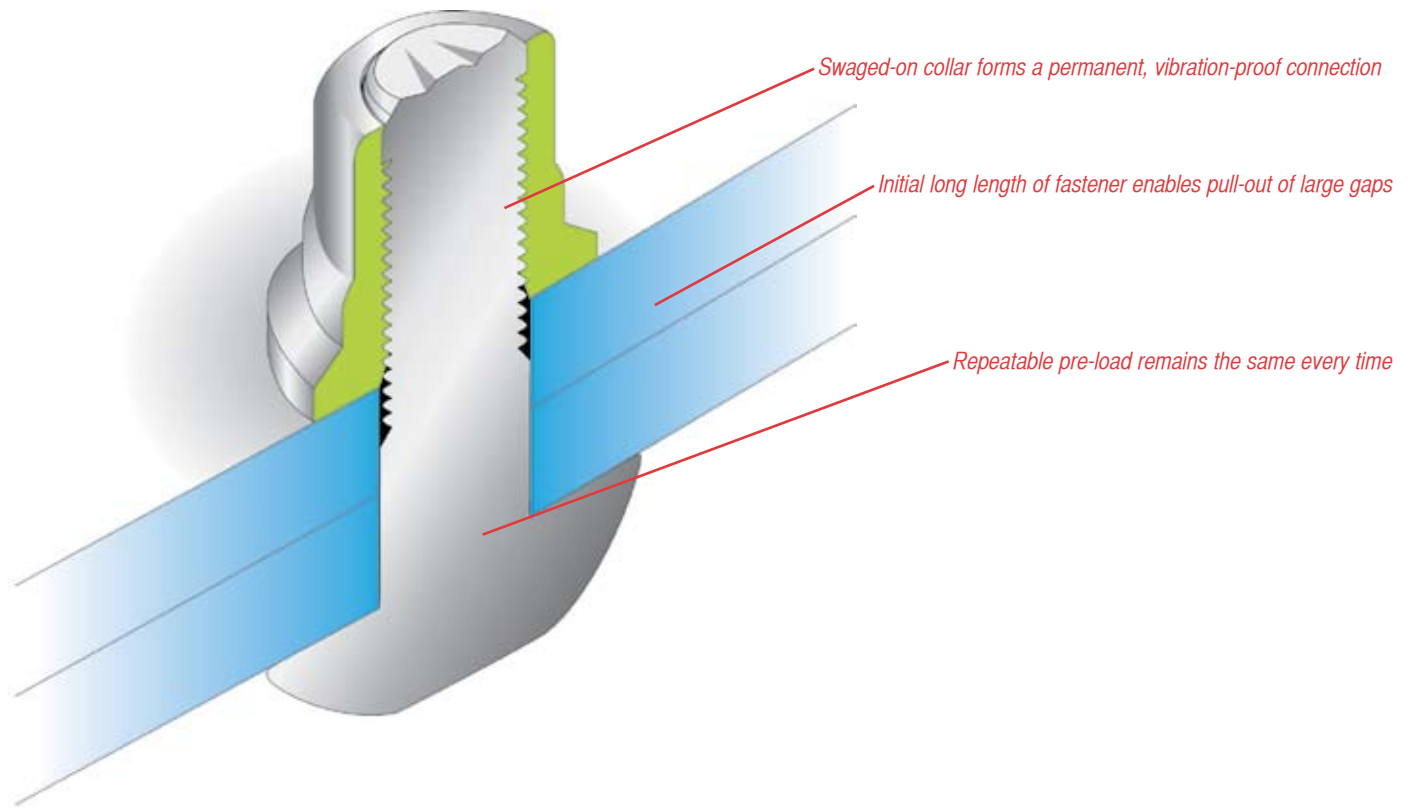
In addition, the C50L HuckBolt fastening system is worker-friendly. It's engineered to be installed without torquing or multiple impacts. Noise level is significantly reduced. And your installation area becomes quieter, less stressful, and more productive. Because the fasteners install without impact, heat, or fumes, you'll enjoy a safer, cleaner work environment. And ultimately, increase productivity and decrease costly employee turnover.



1

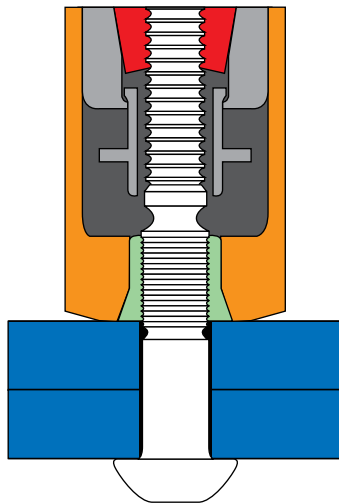
The pin is inserted into the prepared hole and the smooth bore collar is placed on the pin

C50L[®] HuckBolt[®]



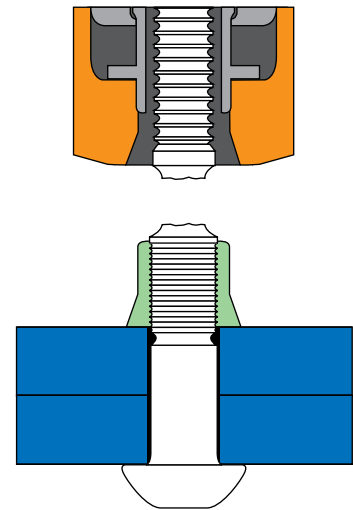
2

The installation tool is applied to the pintail. When the tool is activated, the jaws in the nose assembly pull on the pintail and the nose anvil pushes on the collar to remove any gap.



3

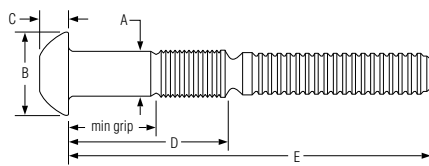
The nose anvil starts to swage the collar into the lockgrooves on the pin. Continued swaging causes the collar to lengthen and develop clamp.



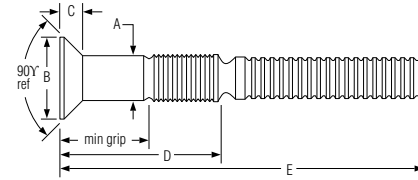
4

When swaging of the collar into the lockgrooves is complete, the pintail separates from the pin which completes the installation cycle.

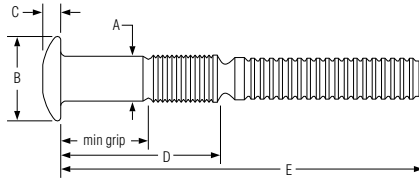
C50L[®] Huckbolt[®]



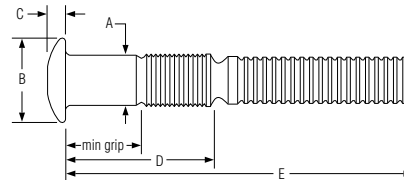
Round Head – C50LR



90° Flush Head – C50L90



Truss Head – C50LT



Large Truss Head – C50L30

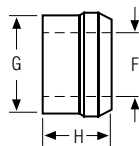
Fastener Dimensions

Dia.		Round Head			Truss Head C50LT		Large Truss Head C50L30		90° Flush Head	
		A	B	C	B	C	B	C	B	C
1/2	(16)	0.515 - 0.493	59/64	5/16	59/64	15/64	1-3/32	17/64	29/32	1/4
5/8	(20)	0.642 - 0.617	1-9/64	25/64	1-9/64	19/64	1-3/8	21/64	1-5/32	5/16
3/4	(24)	0.768 - 0.741	1-3/8	15/32	1-3/8	23/64			1-3/8	3/8
7/8	(28)	0.895 - 0.866	1-19/32	35/64	1-19/32	13/32			1-19/32	7/16

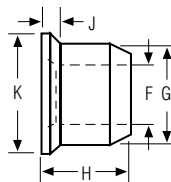
Collar Dimensions

Collar	Diameter	F	G	H	J	K
LC	1/2	0.515 - 0.540	0.800 - 0.765	0.645 - 0.610		
	5/8	0.650 - 0.665	1.010 - 0.970	0.875 - 0.845 ³		
	3/4	0.775 - 0.790	1.180 - 1.165	0.960 - 0.930		
	7/8	0.910 - 0.935	1.375 - 1.345	1.113 - 1.083		
3LC ¹	1/2	0.515 - 0.535	0.807 - 0.793	0.746 - 0.716	0.156 - 0.094	1.031 - 0.969
	5/8	0.650 - 0.665	1.010 - 0.970	0.959 - 0.929	0.187 - 0.125	1.281 - 1.218
	3/4	0.775 - 0.790	1.200 - 1.170	1.147 - 1.117	0.218 - 0.156	1.531 - 1.468
	7/8	0.910 - 0.930	1.375 - 1.360	1.330 - 1.300	0.250 - 0.187	1.625 - 1.562
8LC ²	1/2	0.515 - 0.535	0.800 - 0.775	0.500 - 0.470		
	5/8	0.650 - 0.665	1.010 - 0.970	0.700 - 0.670		
	3/4	0.775 - 0.790	1.180 - 1.165	0.745 - 0.715		
	7/8	0.910 - 0.930	1.375 - 1.360	0.863 - 0.833		

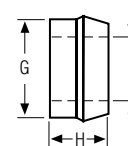
Standard Collar - LC



Flanged Collar - 3LC



Low Profile Collar - 8LC



¹ When using 3LC collars, include J dimension in grip dimension to determine grip number.

² Optional collar at reduced clamping force and tensile strength. Contact AFS for data. When using 8LC collars, subtract J dimension from grip dimension to determine grip number.

³ H length for 20 (5/8) diameter in F, I or 2CU material is 805 - 770.

C50L[®] Huckbolt[®]

Grip Data and Dimensions

Grip is the actual thickness of material to be fastened. Grip includes 'C' dimension on 90° flush head and 60° watertight fasteners. Grips listed are not necessarily available in every head style. Contact AFS for grips not shown.

Tolerances: Dimension D $\pm 1/32$, Dimension E + 3/16, -1/16

Grip No.	Grip Range			1/2" Diameter (-16)		5/8" Diameter (-20)		3/4" Diameter (-24)		7/8" Diameter (-28)	
	min	-	max	D	E	D	E	D	E	D	E
4	1/4	-	1/2	1.213	3 11/64	1.433	3 21/32	1.518	4 5/32		
8	1/2	-	3/4	1.463	3 27/64	1.683	3 29/32	1.768	4 13/32	1.921	4 11/16
12	3/4	-	1	1.713	3 43/64	1.933	4 5/32	2.018	4 21/32	2.171	4 15/16
16	1	-	1 1/4	1.963	3 59/64	2.183	4 13/32	2.268	4 29/32	2.421	5 3/16
20	1 1/4	-	1 1/2	2.213	4 11/64	2.433	4 21/32	2.518	5 5/32	2.671	5 7/16
24	1 1/2	-	1 3/4	2.463	4 27/64	2.683	4 29/32	2.768	5 13/32	2.921	5 11/16
28	1 3/4	-	2	2.713	4 43/64	2.933	5 5/32	3.018	5 21/32	3.171	5 15/16
32	2	-	2 1/4	2.963	4 59/64	3.183	5 13/32	3.268	5 29/32	3.421	6 3/16
36	2 1/4	-	2 1/2	3.213	5 11/64	3.433	5 21/32	3.518	6 5/32	3.671	6 7/16
40	2 1/2	-	2 3/4	3.463	5 27/64	3.683	5 29/32	3.768	6 13/32	3.921	6 11/16
44	2 3/4	-	3	3.713	5 43/64	3.933	6 5/32	4.018	6 21/32	4.171	6 15/16
48	3	-	3 1/4	3.963	5 59/64	4.183	6 13/32	4.268	6 29/32	4.421	7 3/16
52	3 1/4	-	3 1/2	4.213	6 11/64	4.433	6 21/32	4.518	7 5/32	4.671	7 7/16
56	3 1/2	-	3 3/4	4.463	6 27/64	4.683	6 29/32	4.768	7 13/32	4.921	7 11/16
60	3 3/4	-	4	4.713	6 43/64	4.933	7 5/32	5.018	7 21/32	5.171	7 15/16
64	4	-	4 1/4	4.963	6 59/64	5.183	7 13/32	5.268	7 29/32	5.421	8 3/16
68	4 1/4	-	4 1/2	5.213	7 11/64	5.433	7 21/32	5.518	8 5/32	5.671	8 7/16
72	4 1/2	-	4 3/4	5.463	7 27/64	5.683	7 29/32	5.768	8 13/32	5.921	8 11/16
76	4 3/4	-	5	5.713	7 43/64	5.933	8 5/32	6.018	8 21/32		
80	5	-	5 1/4	5.963	7 59/64						
84	5 1/4	-	5 1/2								
88	5 1/2	-	5 3/4								
92	5 3/4	-	6								

Installed Fastener Values¹

Dia.	Carbon Steel Pins LC-2R or 3LC-2R Collars			2024 Aluminum Pins LC-F or 3LC-F Collars			6061 Aluminum Pins LC-1 or 3LC-1 Collars			CRES Pins LC-2CU or 3LC-2CU Collars		
	Shear	Clamp	Tensile	Shear	Clamp	Tensile	Shear	Clamp	Tensile	Shear	Clamp	Tensile
1/2	14400	12050	17050	7300	5900	7850	5300	4400	4900	13900	12050	17050
5/8	22500	19200	27100	11400	9200	12300	8300	6900	7670	21000	19200	27100
3/4	32400	28400	40100	16400	13300	17700	11900	9950	11040	30300	28400	40100
7/8	43400	39250	55450									

¹ Minimum values, in pounds, of installed fasteners. Round head, in carbon steel equivalent to ASTM A325 high strength bolts.

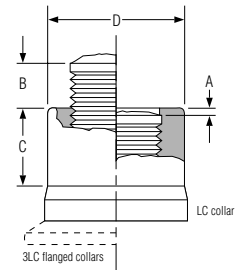
C50L® Huckbolt®

Inspection Data

A properly installed C50L fastener will incorporate the dimensional characteristics tabulated below. Should the dimensions 'A' or 'B' exceed the indicated values, the fastener is being used out-of-grip. A 'C' dimension less than the values specified is an indication of incomplete swage. A 'D' dimension exceeding the tabulated values is an indication of an incorrect or worn anvil on the installation tool. The 'A' dimension can be increased to 1/8 and still meet all published values, provided there is no requirement to meet ASTM specifications pertaining to locking grooves (threads) in the shear plane.

Dia.	Pin Part No.	Collar Type LC*	Collar Type 3LC*	Collar Type 2LR	A max	B max	C min	D max
1/2	C50L()-()16	LC-2R16G	3LC-2R16G		1/16	3/8	13/32	.733
5/8	C50L()-()20	LC-2R20G	3LC-2R20G		1/16	3/8	5/8	.916
3/4	C50L()-()24	LC-2R24G	3LC-2R24G		1/16	3/8	21/32	1.110
7/8	C50L()-()28	LC-2R28G	3LC-2R28G		1/16	3/8	3/4	1.282

* Manufacturer's Option: 'G' or 'GA', unless specified



Hole Data

Dia.	Maximum Hole
1/2	9/16
5/8	11/16
3/4	13/16
7/8	15/16

ORDERING INFORMATION

C50L Pins

Follow the form below to construct a part number for ordering C50L pins. Refer to the Grip Data chart for grip numbers.

C50L (HEAD STYLE) - (MATERIAL) (DIAMETER) (GRIP NUMBER)

Example: **C50LR-BR16-4** is a C50L HUCKBOLT fastener, Round Head, Carbon Steel, 1/2" Diameter, Grip 4

Head Style	Material	Diameter	Grip
Round R	Carbon Steel BR	1/2 16	Refer to Grip Data Chart
Truss T	2024 Aluminum C	5/8 20	
Large Truss 30	6061 Aluminum F	3/4 24	
90° Flush 90	CRES ¹ U	7/8 28	
		1 32	
		1 1/8 36	
		1 3/8 44	

¹ CRES fasteners are available in 16 through 24 diameters and through 36 grips only

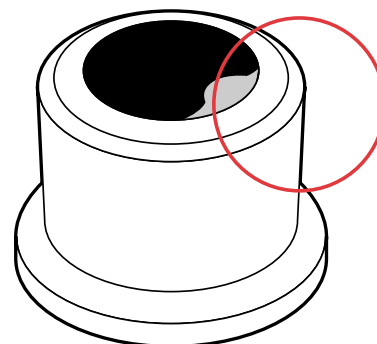
C50L Collars

Follow the form below to construct a part number for ordering collars for C50L pins.

(COLLAR STYLE) - (MATERIAL) (DIAMETER) (FINISH) (OPTIONS)

Example: **LC-2R16G** is a Standard Collar, Low Carbon Steel, 1/2" Diameter, Zinc Finish

Collar Style	Diameter
Standard LC	1/2 16
Flanged 3LC	5/8 20
Low Profile 8LC	3/4 24
	7/8 28
Material	Finishes
Low Carbon Steel	Zinc G
Zinc Plated 2R	
6061 Aluminum Aged F	
6061 Aluminum I	
Stainless Steel 2CU	
Options	
Tab-Lok L	



TAB-LOK™

The Tab-Lok feature makes sure the collar stays on the pin, before installation, in overhead and down slanted pin placements. To order Tab-Lok collars refer to adjacent charts.

C50L[®] Huckbolt[®]

C50L Pneudraulic Tools & Nose Assemblies

		Hydraulic Tools				
Tool Model	507	2620	2620PT	2624	2628	2630
Nose Assembly	1/2"	99-5000	99-5002	99-5021	99-5021	
	5/8"			99-5008	99-5008	
	3/4"				99-5010	
	7/8"					99-5014



Model 2620/2620-PT Hydraulic Tool

Weight:	9.88 lbs
Length:	10.1"
Height:	7.0"
Width:	2.82"



Model 2628

Weight:	17.0 lbs.
Length:	8.12"
Height:	7.74"
Width:	3.86"



Model 2624

Weight:	14.0 lbs.
Length:	7.365"
Height:	7.729"
Width:	3.484"



Model 2630

Weight:	25.0 lbs
Length:	7.90"
Height:	8.65"
Width:	4.44"



Hydraulic POWERIG Model 918



Hydraulic POWERIG Model 940

Huck POWERIG Hydraulic Units

Model 918	Model 940	Model 913H (not shown)	Model 956 (not shown)
High-production applications	Portable; production and repair	Portable; production and repair	Portable; production and repair
Operates up to 2 tools; 2 gpm flow rate	70 in ³ /min flow rate	Gasoline powered	6-7 Bar Compressed Air
Electrically powered; 220, 440, or 550 volts, 3 phase	Electrically powered; 115 or 220 volts, single phase	—	—
Weighs 708 lbs, operational	Weighs 75 lbs	Weighs 175 lbs	Weighs 39.5 lbs
44"L x 25"W x 30"H	12.5"L x 10.5"W x 18"H	24"L x 21"W x 27"H	15"L x 9"W x 16.5"H



For the Long Haul®

The Benefits of Huck Fastening Systems

Huck fastening systems deliver a number of important benefits, making them the worldwide leader.

- *Easy to use – consistent accuracy with little operator training required*
- *High productivity – reducing installation time by 25% to 50%*
- *Reduced QC procedures – a visual inspection is sufficient to verify a correct installation*
- *High clamp performance – typically much higher than with conventional fasteners*
- *Durability – extremely high clamp force retention, with 10% to 20% greater fatigue life than conventional threaded fasteners*

Alcoa Fastening Systems Commercial Products: A Global Organization

Alcoa Fastening Systems (AFS) maintains company offices in the United States and Canada, with offices in many other countries. Authorized AFS fastener distributors are also

located in many of the world's industrial centers, where they provide a ready source of AFS fasteners, installation tools, tool parts, and application assistance.

Americas

Headquarters
8001 Imperial Drive
Waco, TX 76712, USA
P.O. Box 8117
Waco, TX 76714-8117, USA
Tel: 800 388 4825
Fax: 800 798 4825

Indianapolis Distribution
5436 West 78th Street
Indianapolis, IN 46268, USA
Tel: 800 732 3470 ext 1
Fax: 800 573 2645

Kingston Operations
1 Corporate Drive
Kingston, NY 12401, USA
Tel: 800 278 4825
Fax: 845 334 7333

Latin America Sales
Avenida Parque Lira
79-402 Tacubaya
MEXICO C P 11850
Tel: 52 55 5515 1776
Fax: 52 55 5277 7564

Mississauga Distribution
6150 Kennedy Road, Unit 10
Mississauga, Ontario L5T-2J4
CANADA
Tel: 905 564 4825
Fax: 905 564 1963

Stoughton Operations
44 Campanelli Parkway
Stoughton, MA 02072, USA
Tel: 800 732 3470 ext 2
Fax: 800 644 2177

Waco Operations
8001 Imperial Drive
Waco, TX 76712, USA
P.O. Box 8117
Waco, TX 76714-8117, USA
Tel: 800 388 4825
Fax: 800 798 4825

International Locations

Melbourne Operations
20 Stamford Road
Oakleigh, Victoria, 3166
AUSTRALIA
Tel: 61 3 9567 3377
Fax: 61 3 9563 1980

Shanghai Sales
28 Jiatai Road
Waigaoqiao Free Trade Zone
Shanghai 200131, P.R. CHINA
Tel: 8621 5868 2980
Fax: 8621 5868 1859

Singapore Sales
8 Shenton Way #14-04
Temasek Tower
SINGAPORE 068811
Tel: 65 6224 8933 ext 3
Fax: 65 6224 7071

Telford Operations
Unit C, Stafford Park 7
Telford, Shropshire TF3, 3BQ
UNITED KINGDOM
Tel: 44 1952 290011
Fax: 44 1952 290459

Your Authorized Distributor

For The Long Haul, The Future of Fastening Technology, The Future of Assembly Technology, The Future of Tooling Technology, and Tools of Productivity are service marks of Alcoa Fastening System. AFS provides technical assistance regarding the use and application of both fasteners and tooling.

NOTICE: The information contained in this publication is only for general guidance with regard to properties of the products shown and/or the means for selecting such products, and is not intended to create any warranty, express, implied, or statutory; all warranties are contained only in AFS's written quotations, acknowledgements, and/or purchase orders. It is recommended that the user secure specific, up-to-date data and information regarding each application and/or use of such products.

B-AFS105 0405-10M

© 2005 Alcoa Fastening Systems

E-mail: AFS-Info@Alcoa.com • www.alcoafasteningssystems.com

Alcoa Fastening Systems



One Great ConnectionSM