

Alcoa
Fastening
Systems



Huck C6L[®] / C120L[®]

The Original
Vibration-Resistant
LockBolt.





Huck C6L®. The classic 6-groove locking fastener built with staying power.

A result of Huck International innovation a half-century ago, the versatile Alcoa Fastening Systems C6L® Lock Bolt remains the number one fastening system for applications that require a strong, vibration-resistant seal today.

C6L's exclusive locking groove design ensures a permanent fit that resists loosening. That means it's ideal for applications from general manufacturing to such high-vibration applications as HVAC, trailer and container assembly, rotary and rotating equipment, shopping carts, railroad and transit cars, geodesic structures, and many others.

In addition to offering superior fastening performance, the C6L system reduces labor and installation costs, along with rework and warranty expenses. For example, using the C6L eliminates the need to hire certified welders or specially trained employees, because workers can be instructed to install these foolproof fasteners in a matter of minutes. The C6L is simply stronger, easier to install, and more durable than welding, adhesives, or conventional threaded fastening systems.

Designed for consistent installation, easy inspection.

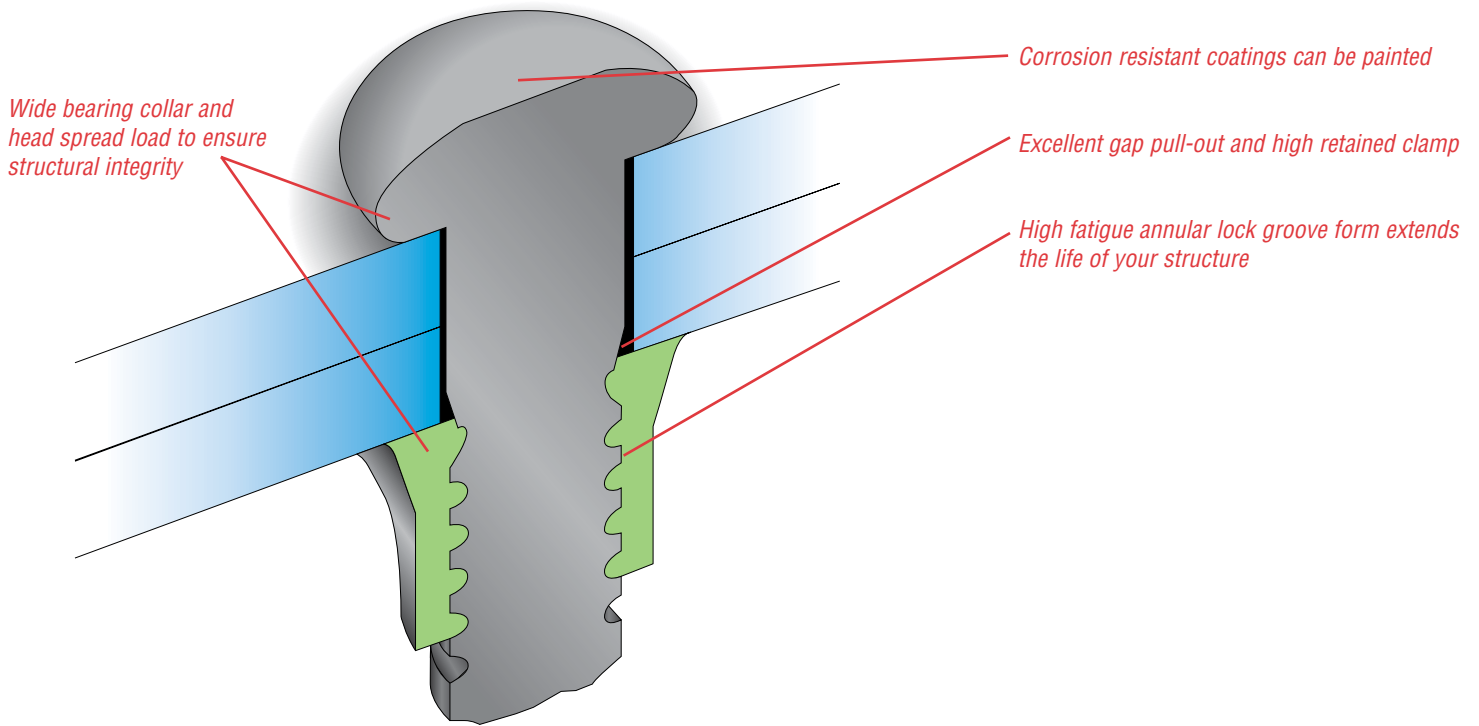
The C6L's unique design virtually eliminates installation errors caused by operator or tool variables. The C6L ensures that once the collar swage is complete, the pintail breaks off and the fastener is tightly installed. No rework required. And you can count on consistent, high-uniform clamp force with every C6L installation, time after time.

A quick visual inspection, along with an occasional dimensional check, is all that's required to make sure the C6L is installed accurately.

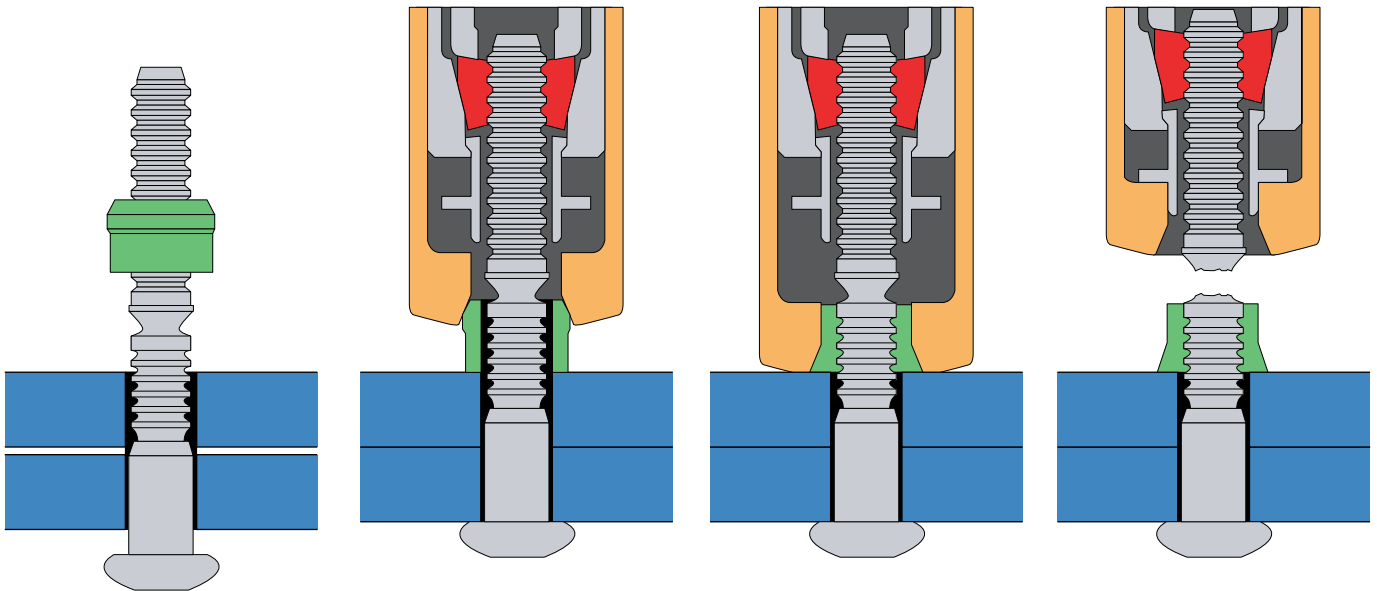
Strong support.

Alcoa Fastening Systems' skilled and knowledgeable technicians – your Huck System Specialists – are ready and waiting with valuable consultation, evaluation, installation assistance, and in-depth staff training capabilities. No other fastening company can match this level of premium, value-added support.

Huck C6L[®] /C120L[®]

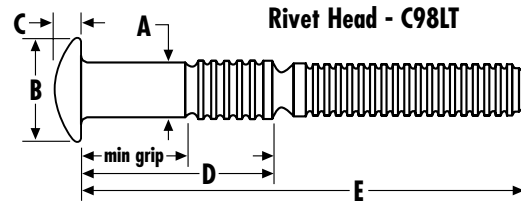
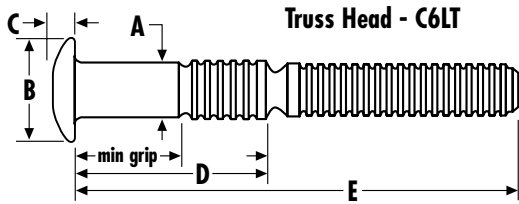
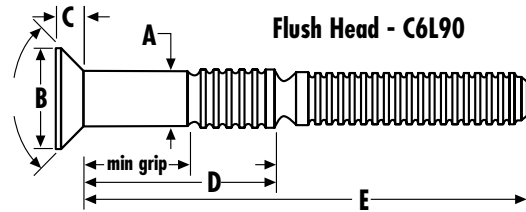
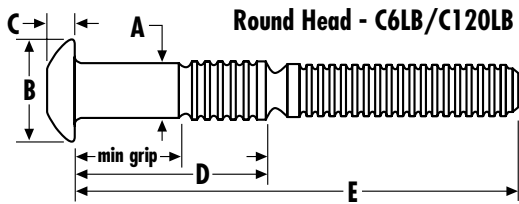


Installation Sequence



- 1**
The pin is inserted into the prepared hole and the smooth bore collar is placed on the pin.
- 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.

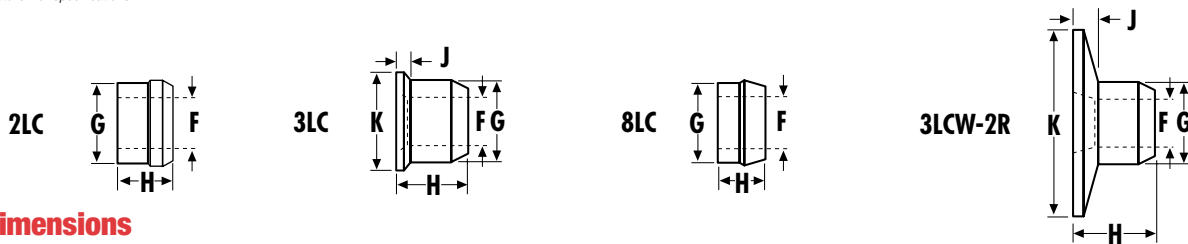
Huck C6L®/C120L®



Pin Dimensions

| Diameter | A | Round Head (B) | | Truss Head (T) | | Flush Head (90) | | Rivet Head (C98LT) | |
|-----------|-------------|----------------|-------------|----------------|-------------|-----------------|-------------|--------------------|------|
| | | B | C | B | C | B | C | B | C |
| 6 (3/16) | .190 - .195 | .360 - .390 | .113 - .125 | .406 - .469 | .078 - .088 | * | * | .469 | .094 |
| 8 (1/4) | .254 - .259 | .475 - .525 | .136 - .152 | .531 - .594 | .103 - .115 | .437 - .473 | .104 - .113 | | |
| 10 (5/16) | .317 - .322 | .556 - .694 | .181 - .201 | .703 - .797 | .127 - .141 | * | * | | |
| 12 (3/8) | .380 - .385 | .713 - .787 | .223 - .248 | .828 - .922 | .186 - .202 | * | * | | |

* Contact manufacturer for specifications



Collar Dimensions

| Collar Type | Part Number | Collar Diameter | F Diameter | G Diameter | H Length | J (1, 2) Dimension | K Diameter |
|-------------|-----------------------------|-----------------|---------------|---------------|---------------|--------------------|---------------|
| Standard | 2LC-R, 2LC-F, | 6 (3/16) | 0.187 - 0.196 | 0.304 - 0.311 | 0.220 - 0.260 | | |
| | LC-I, 2LC-2CU | 8 (1/4) | 0.256 - 0.265 | 0.402 - 0.409 | 0.290 - 0.320 | | |
| | | 10 (5/16) | 0.304 - 0.310 | 0.485 - 0.494 | 0.350 - 0.380 | | |
| | | 12 (3/8) | 0.375 - 0.385 | 0.590 - 0.600 | 0.430 - 0.460 | | |
| Flange | 3LC-2R, 3LC-F, ¹ | 6 | 0.187 - 0.196 | 0.304 - 0.311 | 0.250 - 0.280 | 0.031 - 0.062 | 0.359 - 0.391 |
| | 3LC-I, 3LC-2CU ¹ | 8 | 0.256 - 0.267 | 0.402 - 0.409 | 0.349 - 0.379 | 0.047 - 0.078 | 0.484 - 0.516 |
| | | 10 | 0.304 - 0.312 | 0.498 - 0.507 | 0.394 - 0.426 | 0.062 - 0.094 | 0.609 - 0.641 |
| | | 12 | 0.378 - 0.390 | 0.599 - 0.610 | 0.502 - 0.532 | 0.062 - 0.125 | 0.719 - 0.781 |
| Low Profile | 8LC-2R, 8LC-F, ² | 6 | 0.187 - 0.196 | 0.304 - 0.311 | 0.132 - 0.162 | 0.094 | |
| | 8LC-I, 8LC-2CU ² | 8 | 0.256 - 0.265 | 0.402 - 0.409 | 0.172 - 0.202 | 0.125 | |
| | | 12 | 0.375 - 0.385 | 0.590 - 0.600 | 0.303 - 0.373 | 0.156 | |
| Wide Flange | 3LCW-2R8 ¹ | 8 | 0.253 - 0.272 | 0.400 - 0.409 | 0.410 - 0.480 | 0.105 - 0.156 | 0.853 - 1.022 |
| | 3LCW-2R10 ¹ | 10 | 0.304 - 0.312 | 0.498 - 0.507 | 0.474 - 0.506 | 0.144 - 0.196 | 0.984 - 1.016 |

¹ When using 3LC Collars, add "J" dimension to thickness of material being fastened to determine grip number.

² When using 8LC collars, subtract "J" dimension from thickness of material being fastened to determine grip number.

C6L HUCKBOLT® Fastener Values³ – Grade 2

| Dia. | Carbon Steel (R) Pins 2LC-R or 3LC-2R Collars (Grade 5*) | | | 2024 Aluminum (C) Pins 2LC-F or 3LC-F Collars | | | 6061 Aluminum (F) Pins LC-I or 3LC-I Collars | | | Stainless Steel (U) Pins 2LC-2CU or 3LC-2CU Collars | | |
|------|---|-------------|-------------|--|-------|---------|---|-------|---------|--|-------|---------|
| | Shear | Clamp | Tensile | Shear | Clamp | Tensile | Shear | Clamp | Tensile | Shear | Clamp | Tensile |
| 6 | 1725 (2430) | 1025 (1200) | 1650 (2200) | 1050 | 550 | 1000 | 775 | 350 | 530 | 2000 | 1025 | 1455 |
| 8 | 3050 (4300) | 1805 (2300) | 3000 (3700) | 1875 | 950 | 1800 | 1375 | 620 | 975 | 3550 | 1805 | 2750 |
| 10 | 4725 (6700) | 2810 (4200) | 4600 (6000) | 2925 | 1500 | 2850 | 2125 | 965 | 1550 | 5525 | 2810 | 4250 |
| 12 | 6825 (9600) | 4020 (5980) | 6500 (9300) | 4200 | 2200 | 4200 | 3050 | 1380 | 2400 | 7950 | 4020 | 6100 |

³ Minimum values, in pounds, of installed fasteners

* (2LC120-R or 3LC120-R Collars Grade 5 C120L HUCKBOLTS®)

Meets requirements of MIL-P-23469 except in 2024 Aluminum. Plated pins may result in reduced tensile values up to 15%. Use collars and pins together as shown in "values" tables, or contact Huck.

Huck C6L®/C120L®

Grip Data and Dimensions : 6 (3/16"), 8 (1/4")

| Grip No. | Grip Range Min - Max | 6 (3/16") Diameter | | 8 (1/4") Diameter | |
|----------|----------------------|--------------------|-------|-------------------|-------|
| | | D | E | D | E |
| 2 | 0.063 - 0.188 | 0.394 | 1.404 | 0.485 | 1.520 |
| 3 | 0.125 - 0.250 | 0.457 | 1.466 | 0.548 | 1.583 |
| 4 | 0.188 - 0.313 | 0.519 | 1.529 | 0.610 | 1.645 |
| 5 | 0.250 - 0.375 | 0.582 | 1.591 | 0.673 | 1.708 |
| 6 | 0.313 - 0.438 | 0.644 | 1.654 | 0.735 | 1.770 |
| 7 | 0.375 - 0.500 | 0.707 | 1.716 | 0.798 | 1.833 |
| 8 | 0.438 - 0.563 | 0.769 | 1.779 | 0.860 | 1.895 |
| 9 | 0.500 - 0.625 | 0.832 | 1.841 | 0.923 | 1.958 |
| 10 | 0.563 - 0.688 | 0.894 | 1.904 | 0.985 | 2.020 |
| 11 | 0.625 - 0.750 | 0.957 | 1.966 | 1.048 | 2.083 |
| 12 | 0.688 - 0.813 | 1.019 | 2.029 | 1.110 | 2.145 |
| 13 | 0.750 - 0.875 | 1.082 | 2.091 | 1.173 | 2.208 |
| 14 | 0.813 - 0.938 | 1.144 | 2.154 | 1.235 | 2.270 |
| 15 | 0.875 - 1.000 | 1.207 | 2.216 | 1.298 | 2.333 |
| 16 | 0.938 - 1.063 | 1.269 | 2.279 | 1.360 | 2.395 |
| 17 | 1.000 - 1.125 | 1.332 | 2.341 | 1.423 | 2.458 |
| 18 | 1.063 - 1.188 | 1.394 | 2.404 | 1.458 | 2.520 |
| 19 | 1.125 - 1.250 | 1.457 | 2.466 | 1.548 | 2.583 |
| 20 | 1.188 - 1.313 | 1.519 | 2.529 | 1.610 | 2.645 |
| 21 | 1.250 - 1.375 | 1.582 | 2.591 | 1.673 | 2.708 |
| 22 | 1.313 - 1.438 | 1.644 | 2.654 | 1.735 | 2.770 |
| 23 | 1.375 - 1.500 | 1.707 | 2.716 | 1.798 | 2.833 |
| 24 | 1.438 - 1.563 | | | 1.866 | 2.895 |
| 25 | 1.500 - 1.625 | | | 1.923 | 2.958 |
| 26 | 1.563 - 1.688 | | | 1.985 | 3.020 |
| 27 | 1.625 - 1.750 | | | 2.048 | 3.083 |
| 28 | 1.688 - 1.813 | | | 2.110 | 3.145 |
| 29 | 1.750 - 1.875 | | | 2.173 | 3.208 |
| 30 | 1.813 - 1.938 | | | 2.235 | 3.270 |
| 31 | 1.875 - 2.000 | | | 2.298 | 3.333 |
| 32 | 1.938 - 2.063 | | | 2.368 | 3.395 |
| 37 | | | | 2.637 | 3.708 |

Grip Data and Dimensions : 10 (5/16"), 12 (3/8")

| Grip No. | Grip Range Min - Max | 10 (5/16") Diameter | | 12 (3/8") Diameter | |
|----------|----------------------|---------------------|-------|--------------------|-------|
| | | D | E | D | E |
| 4 | 0.125 - 0.375 | 0.749 | 1.906 | 0.809 | 2.125 |
| 6 | 0.250 - 0.500 | 0.874 | 2.031 | 0.934 | 2.250 |
| 8 | 0.375 - 0.625 | 1.000 | 2.156 | 1.059 | 2.375 |
| 10 | 0.500 - 0.750 | 1.124 | 2.281 | 1.184 | 2.500 |
| 12 | 0.625 - 0.875 | 1.249 | 2.406 | 1.309 | 2.625 |
| 14 | 0.750 - 1.000 | 1.374 | 2.531 | 1.434 | 2.750 |
| 16 | 0.875 - 1.125 | 1.500 | 2.656 | 1.559 | 2.875 |
| 18 | 1.000 - 1.250 | 1.624 | 2.781 | 1.684 | 3.000 |
| 20 | 1.125 - 1.375 | 1.749 | 2.906 | 1.809 | 3.125 |
| 22 | 1.250 - 1.500 | 1.874 | 3.031 | 1.934 | 3.250 |
| 24 | 1.375 - 1.625 | 2.000 | 3.156 | 2.059 | 3.375 |
| 26 | 1.500 - 1.750 | 2.124 | 3.281 | 2.184 | 3.500 |
| 28 | 1.625 - 1.875 | 2.249 | 3.406 | 2.309 | 3.625 |
| 30 | 1.750 - 2.000 | 2.374 | 3.531 | 2.434 | 3.750 |
| 32 | 1.875 - 2.125 | 2.500 | 3.656 | 2.559 | 3.875 |

Ordering Information

C6L HUCKBOLT Pins (Grade 2)

Follow the form below to construct a part number for ordering C6L pins. Refer to the Grip Data chart for grip numbers.

C6L (STYLE)- (MATERIAL) (DIAMETER)-(GRIP NUMBER) (FINISH)

Example: **C6LT-R8-4G** is a C6L Huckbolt Pin, Truss Head, Carbon Steel, 1/4 Diameter, Grip 4, Zinc Finish

| Style | Material | Diameter | Finish |
|-------------------------|--------------------------|----------------|---------------|
| Round Head C6LB | Carbon Steel R | 3/16 6 | Zinc G |
| Truss Head C6LT | 2024 Alum Alloy C | 1/4 8 | |
| Flush Head C6L90 | 6061 Alum Alloy F | 5/16 10 | |
| Rivet Head C98LT | Stainless Steel U | 3/8 12 | |

C6L Huckbolt Collars (Grade 2)

Follow the form below to construct a part number for ordering C6L collars.

(TYPE) – (MATERIAL) (DIAMETER) (FINISH)

Example: **2LC-R8G** is a Standard C6L Huckbolt Collar, Carbon Steel, 1/4 Diameter, Zinc Finish

| Type | Material | Diameter | Finish |
|-------------------------|----------------------------|----------------|---------------|
| Standard 2LC | Carbon Steel 2R/R | 3/16 6 | Zinc G |
| Flange 3LC | 6061 Alum Alloy | 1/4 8 | |
| Wide Flange 3LCW | Heat Treated I | 5/16 10 | |
| | 6061 Alum Alloy F | 3/8 12 | |
| | Stainless Steel 2CU | | |

C120L Huckbolt Pins (Grade 5)

Follow the form below to construct a part number for ordering C120L pins. Refer to the Grip Data chart for grip numbers.

C120L (STYLE)- (MATERIAL) (DIAMETER) – (GRIP NUMBER) (FINISH)

Example: **C120LT-R8-4G** is a C120L Huckbolt Pin, Truss Head, Carbon Steel, 1/4 Diameter, Grip 4, Zinc Finish

| Style | Material | Diameter | Finish |
|--------------------------|-----------------------|----------------|---------------|
| Round Head C120B | Carbon Steel R | 3/16 6 | Zinc G |
| Truss Head C120T | | 1/4 8 | |
| Flush Head C12090 | | 5/16 10 | |
| | | 3/8 12 | |

C120L Huckbolt Collars (Grade 5)

Follow the form below to construct a part number for ordering C120L collars.

(TYPE) - (MATERIAL) (DIAMETER) (FINISH)

Example: **2LC120-R8G** is a Standard C120L Huckbolt collar, Carbon Steel, 1/4 Diameter, Zinc Finish

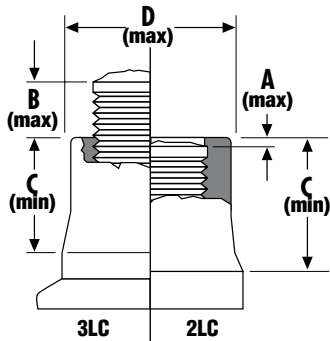
| Type | Material | Diameter | Finish |
|------------------------|--------------------------|----------------|---------------|
| Standard 2LC120 | Carbon Steel 2R/R | 3/16 6 | Zinc G |
| Flange 3LC120 | | 1/4 8 | |
| | | 5/16 10 | |
| | | 3/8 12 | |

Huck C6L® /C120L®

Inspection Data

A properly installed HUCKBOLT® Fastener will possess the dimensional characteristics shown in the chart. 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 specified values is an indication of an incorrect or worn anvil on the installed tool.

A HUCKBOLT pin installed in a properly prepared hole with the recommended tool will always possess at least the minimum guaranteed strength characteristics when these dimensional limits are met. Should the fastener fail to meet the specified dimensional criteria, it may still perform correctly, but in such a case, the manufacturer should be contacted.



| Nominal Size | A (max) | B (max) | C (min) | D (max) |
|--------------|---------|---------|---------|---------|
| 6 (3/16) | .078 | .125 | .172 | .276 |
| 8 (1/4) | .078 | .156 | .250 | .364 |
| 10 (5/16) | .140 | .219 | .281 | .454 |
| 12 (3/8) | .125 | .218 | .344 | .552 |

Installation Tools

| Tool Model | Size | Air Driven Tools | | | Hydraulic Tools | |
|---------------|-------|------------------|------------|---------|-----------------|------------|
| | | 245/255* | 246/256 | 2025 | 2480 | 2580 |
| Nose Assembly | 3/16" | | | 99-3003 | 99-3003 | |
| | 1/4" | | | 99-3006 | 99-3006 | |
| | 5/16" | 99-99-245 | 99-99-245 | | | 99-99-245 |
| | 3/8" | 99-100-245 | 99-100-245 | | | 99-100-245 |

* Note: Aluminum Only

Air Driven Tools



| Model | 245 | 255 |
|---------|----------|----------|
| Weight: | 8.8 lbs. | 8.8 lbs. |
| Length: | 7.9" | 7.1" |
| Height: | 15.0" | 14.9" |
| Width: | 4.6" | 4.6" |



| Model | 2025 |
|---------|-----------|
| Weight: | 5.75 lbs. |
| Length: | 8.4" |
| Height: | 12.5" |
| Width: | 4.4" |



| Model | 246 | 256 |
|---------|-----------|-----------|
| Weight: | 11.1 lbs. | 11.1 lbs. |
| Length: | 8.8" | 7.8" |
| Height: | 15.1" | 14.9" |
| Width: | 6.1" | 6.1" |

Hydraulic Tools



| Model | 2480 |
|---------|----------|
| Weight: | 2.2 lbs. |
| Length: | 8.6" |
| Height: | 6.5" |
| Width: | 1.9" |



| Model | 2580 |
|---------|----------|
| Weight: | 6.6 lbs. |
| Length: | 8.4" |
| Height: | 6.5" |
| Width: | 2.2" |



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
- Consistent 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

Industrial Fastener Division

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Waco, TX 76712, USA
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Waco, TX 76714-8117, USA
Tel: 800 388 4825
Fax: 800 798 4825

Installation Tool Division

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Kingston, NY 12401, USA
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Fax: 845 334 7333

Indianapolis Distribution

5436 West 78th Street
Indianapolis, IN 46268, USA
Tel: 800 826 2884
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79-402 Tacubaya
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Fax: 905 564 1963

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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.

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One Great ConnectionSM