



HOWMET
AEROSPACE

C6L[®]

The Original
Vibration-Resistant
HuckBolt[®]



Huck® C6L®

The Classic 6-Groove Locking Fastener Built With Staying Power

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

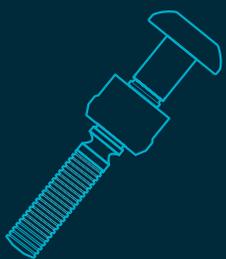
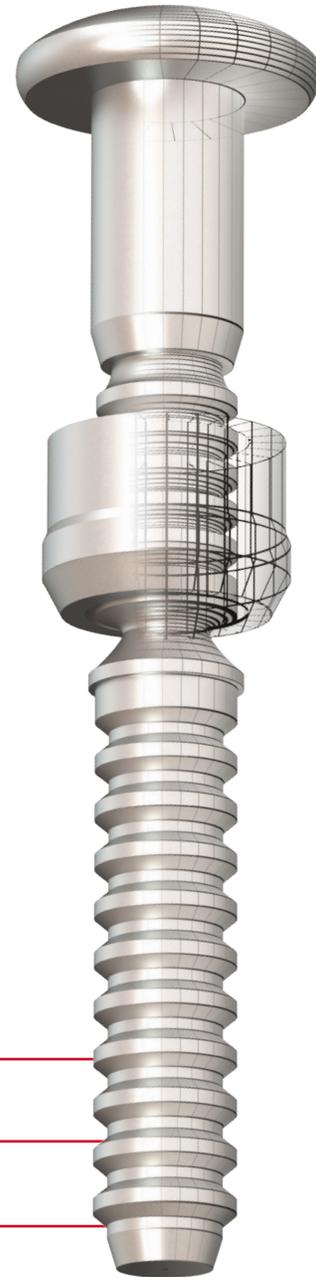
C6L's exclusive locking groove design ensures a permanent fit that resists loosening. That means it's ideal for applications from general manufacturing to such high-vibration applications as HVAC, trailer and container assembly, rotary and rotating equipment, shopping carts, railroad and transit cars, 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. 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. The C6L is available in Grade 2, Grade 5, and Grade 8.

Available Sizes 3/16", 1/4", 5/16", 3/8"

Materials Steel, Aluminum, Stainless Steel

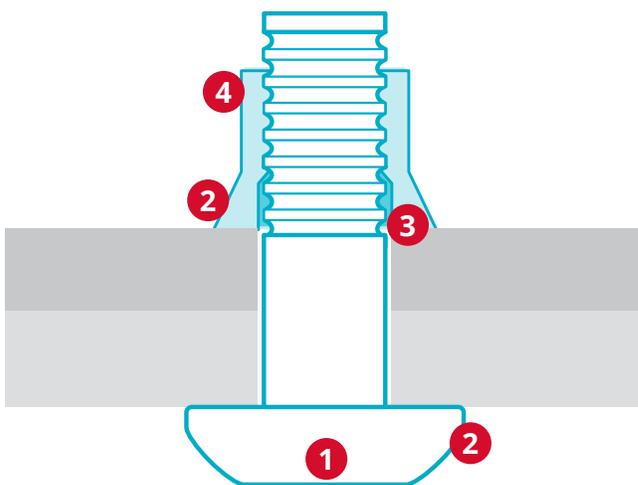
Headstyles Round, Truss, Flush, 98T



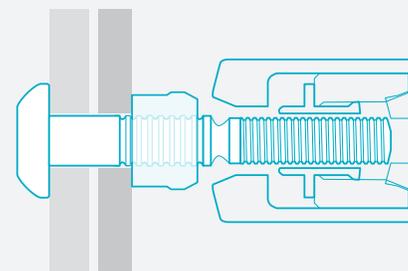
- ✓ Superior vibration resistance
- ✓ High shear and tensile strength, and fatigue life
- ✓ Heavy-duty applications
- ✓ High uniform clamp force

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. You can count on consistent, highly-uniform clamp force with every C6L installation, time after time.

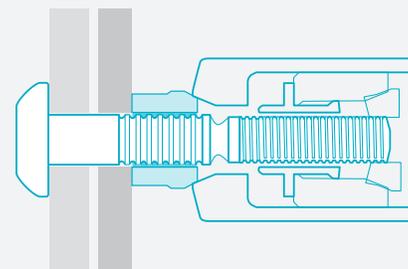
Secure, Fast Installation



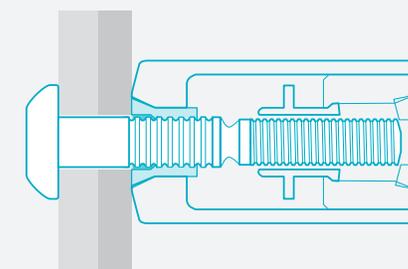
- 1 Wide bearing collar and head spread load to ensure structural integrity.
- 2 Initial long length of fastener enables pull-out of large gaps.
- 3 Excellent gap pull-out and high retained clamp.
- 4 High-fatigue, annular lock groove form extends the life of your structure.



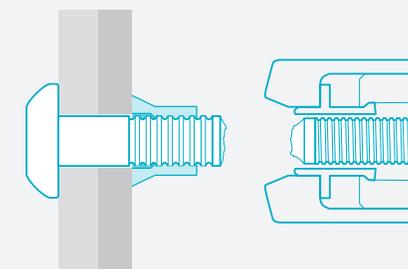
- 1 Insert pin into the prepared hole and the smooth bore collar is placed on the pin.



- 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.

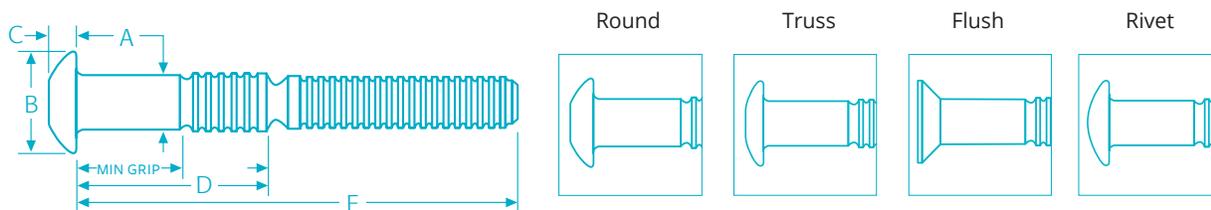


- 3 The nose anvil starts to swage the collar into the lockgrooves on the pin. Continued swaging causes the collar to lengthen and develop clamp.



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

Data and Dimensions

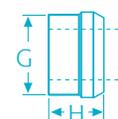


Fastener Dimensions

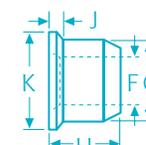
DIA.	A	ROUND HEAD		TRUSS HEAD		FLUSH HEAD		RIVET HEAD	
		B	C	B	C	B	C	B	C
6 (3/16")	.190 - .195	.360 - .390	.113 - .125	.406 - .469	.078 - .088	.325-.358	.075-.087	.446-.492	.090-.106
8 (1/4")	.254 - .259	.475 - .525	.136 - .152	.531 - .594	.103 - .115	.435-.475	.100-.115	-	-
10 (5/16")	.317 - .322	.594 - .656	.181 - .201	.703 - .797	.127 - .141	-	-	-	-
12 (3/8")	.380 - .385	.713 - .787	.223 - .248	.828 - .922	.186 - .202	-	-	-	-

Collar Dimensions

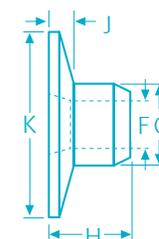
COLLAR TYPE	PART NUMBER	COLLAR DIA.	F DIA.	G DIA.	H LENGTH	J (1, 2) DIMENSION	K DIA.
Standard	2LC-R, 2LC-F	6 (3/16")	.187 - .196	.304 - .311	.220 - .260	-	-
	2LC-2CU	8 (1/4")	.256 - .265	.402 - .409	.290 - .320	-	-
	LC-I	8 (1/4")	.256-.265	.402 - .409	.315-.335	-	-
		12 (3/8")	.370-.385	.590-.610	.450-.465	-	-
	2LC-R	10 (5/16")	.304-.312	.485 - .494	.350 - .380	-	-
2LC-R, 2LC-2CU	12 (3/8")	.375 - .385	.590 - .600	.430 - .460	-	-	
Flange	3LC-2R, 3LC-F ¹ 3LC-I, 3LC-2CU ¹	6	.187 - .196	.304 - .311	.250 - .280	.031 - .062	.359 - .391
		8	.256 - .267	.402 - .409	.349 - .379	.047 - .078	.484 - .516
		10	.304 - .312	.498 - .507	.394 - .426	.062 - .094	.609 - .641
		12	.378 - .390	.599 - .610	.502 - .532	.062 - .125	.719 - .781
Wide Flange	3LCW-2R8 ¹	8	.256-.267	.400 - .409	.410 - .480	.105 - .156	.853 - 1.022
	3LCW-2R10 ¹	10	.304 - .312	.498 - .507	.474 - .506	.144-.176	.984 - 1.016
	3LCW-2R12	12	.378-.390	.598-.606	.600-.615	.175-.195	1.169-1.231



2LC-R



3LC-2R



3LCW-2R

Installed Fastener Values - Ibf

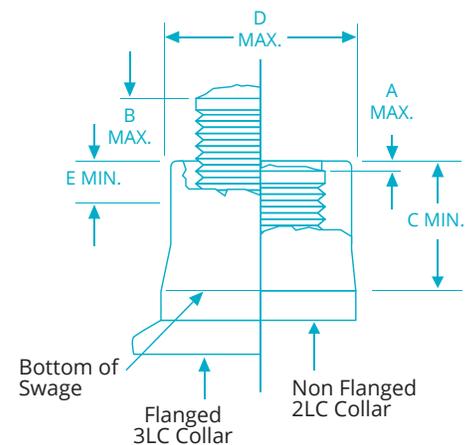
DIA.	CARBON STEEL (R) PINS			2024 ALUMINUM (C) PINS			6061 ALUMINUM (F) PINS			STAINLESS STEEL (U) PINS		
	GRADE 2 COLLAR VALUES 2LC-R OR 3LC-2R (GRADE 5 VALUES)			2LC-F OR 3LC-F COLLARS			LC-I OR 3LC-I COLLARS			2LC-2CU OR 3LC-2CU COLLARS		
	SHEAR	CLAMP	TENSILE	SHEAR	CLAMP	TENSILE	SHEAR	CLAMP	TENSILE	SHEAR	CLAMP	TENSILE
6	1725 (2430)	1025 (1200)	1400 (2200)	1050	550	1000	775	350	530	2000	1025	1455
8	3050 (4300)	1805 (2300)	2550 (3800)	1875	950	1800	1375	620	975	3550	1805	2750
10	4725 (6700)	2810 (4200)	3910 (6300)	2925	1500	2850	2125	965	1550	5525	2810	4250
12	6825 (9600)	4020 (5980)	5625 (9300)	4200	2200	4200	3050	1380	2400	7950	4020	6100

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

Grip Tables**

GRIP	GRIP RANGE	3/16" (6)		1/4" (8)	
		D	E	D	E
2	.063 - .188	.394	1.404	.485	1.520
3	.125 - .250	.457	1.466	.548	1.583
4	.188 - .313	.519	1.529	.610	1.645
5	.250 - .375	.582	1.591	.673	1.708
6	.313 - .438	.644	1.654	.735	1.770
7	.375 - .500	.707	1.716	.798	1.833
8	.438 - .563	.769	1.779	.860	1.895
9	.500 - .625	.832	1.841	.923	1.958
10	.563 - .688	.894	1.904	.985	2.020
11	.625 - .750	.957	1.966	1.048	2.083
12	.688 - .813	1.019	2.029	1.110	2.145
13	.750 - .875	1.082	2.091	1.173	2.208
14	.813 - .938	1.144	2.154	1.235	2.270
15	.875 - 1.000	1.207	2.216	1.298	2.333
16	.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	1.937-2.063	-	-	2.368	3.395
37	-	-	-	2.637	3.708

GRIP	GRIP RANGE	5/16" (10)		3/8" (12)	
		D	E	D	E
4	.125 - .375	.749	1.906	.809	2.125
6	.250 - .500	.874	2.032	.934	2.250
8	.375 - .625	1.000	2.156	1.059	2.375
10	.500 - .750	1.124	2.281	1.184	2.500
12	.625 - .875	1.249	2.406	1.309	2.625
14	.750 - 1.000	1.374	2.531	1.434	2.750
16	.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	3.032	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



Inspection Data

NOMINAL SIZE	A MAX	B MAX	C MIN	D MAX	E MIN	MAX. HOLE SIZE	
						2LC COLLAR	3LC COLLAR
Straight Bore Anvil Tooling							
6 (3/16")	.078	.125	.172	.276	-	.219	.234
8 (1/4")	.078	.156	.250	.364	-	.281	.312
10 (5/16")	.140	.219	.281	.454	-	.359	.390
12 (3/8")	.125	.281	.344	.552	-	.421	.468
Tapered Bore Anvil Tooling (99-3003 and 99-3006)							
6 (3/16")	.040	.125	.180	.276	.115	.218	.234
8 (1/4")	.030	.156	.230	.364	.085	.281	.312

**All grips calculated using a 2LC collar

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. "E" is the minimum length from the top of the collar to measure "D" diameter for tapered bore anvils.

Ordering Information

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

Pins (Grade 2 Steel, Aluminum, Stainless Steel)

C6L — (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

HEAD STYLE	PREFIX	MATERIAL	CODE	DIA.	CODE	GRIP	FINISH	SUFFIX
Round	C6LB	Grade 2 Carbon Steel	R	3/16"	6	Refer to Grip Tables on page 5	Zinc	G
Truss	C6LT	2024 Aluminum Alloy	C	1/4"	8			
Flush	C6L90	6061 Aluminum Alloy	F	5/16"	10			
Rivet	C98LT	Stainless Steel	U	3/8"	12			

Collars (Grade 2 Steel, Aluminum, Stainless Steel)

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

Example: 2LC-R8GL is a Standard C6L HuckBolt Collar, Carbon Steel, 1/4" Diameter, Zinc Finish with Tab-Lok

HEAD STYLE	PREFIX	MATERIAL	CODE	DIA.	CODE	FINISH	SUFFIX	OPTIONS	CODE
Standard	2LC	Carbon Steel	2R/R	3/16"	6	Zinc	G	Tab Lok	L
Flange	3LC	6061 Alum Alloy Heat Treated	F	1/4"	8				
Wide Flange	3LCW	6061 Aluminum Alloy	I	5/16"	10				
		Stainless Steel	2CU	3/8"	12				

Pins (Grade 5)

C120L (HEAD 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

HEAD STYLE	PREFIX	MATERIAL	CODE	DIA.	CODE	GRIP	FINISH	SUFFIX
Round	C120LB	Grade 5 Carbon Steel	R	3/16"	6	Refer to Grip Table on page 5	Zinc	G
Truss	C120LT			1/4"	8			
Flush	C120L90			5/16"	10			
				3/8"	12			

Collars (Grade 5)

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

Example: 2LC120-R8GL is a Standard C120L HuckBolt Collar, Carbon Steel, 1/4 Diameter, Zinc Finish with Tab-Lok

GRADE 5	PREFIX	MATERIAL	CODE	DIA.	CODE	FINISH	SUFFIX	OPTIONS	CODE
Standard	2LC120	Carbon Steel	2R/R	3/16"	6	Zinc	G	Tab Lok	L
Flange	3LC120			1/4"	8				
				5/16"	10				
				3/8"	12				

Tab-Lok™

The optional Tab-Lok feature makes sure the collar stays on the pin, before installation, in overhead and down slanted pin placements.



Installation Tooling

Installation Tools

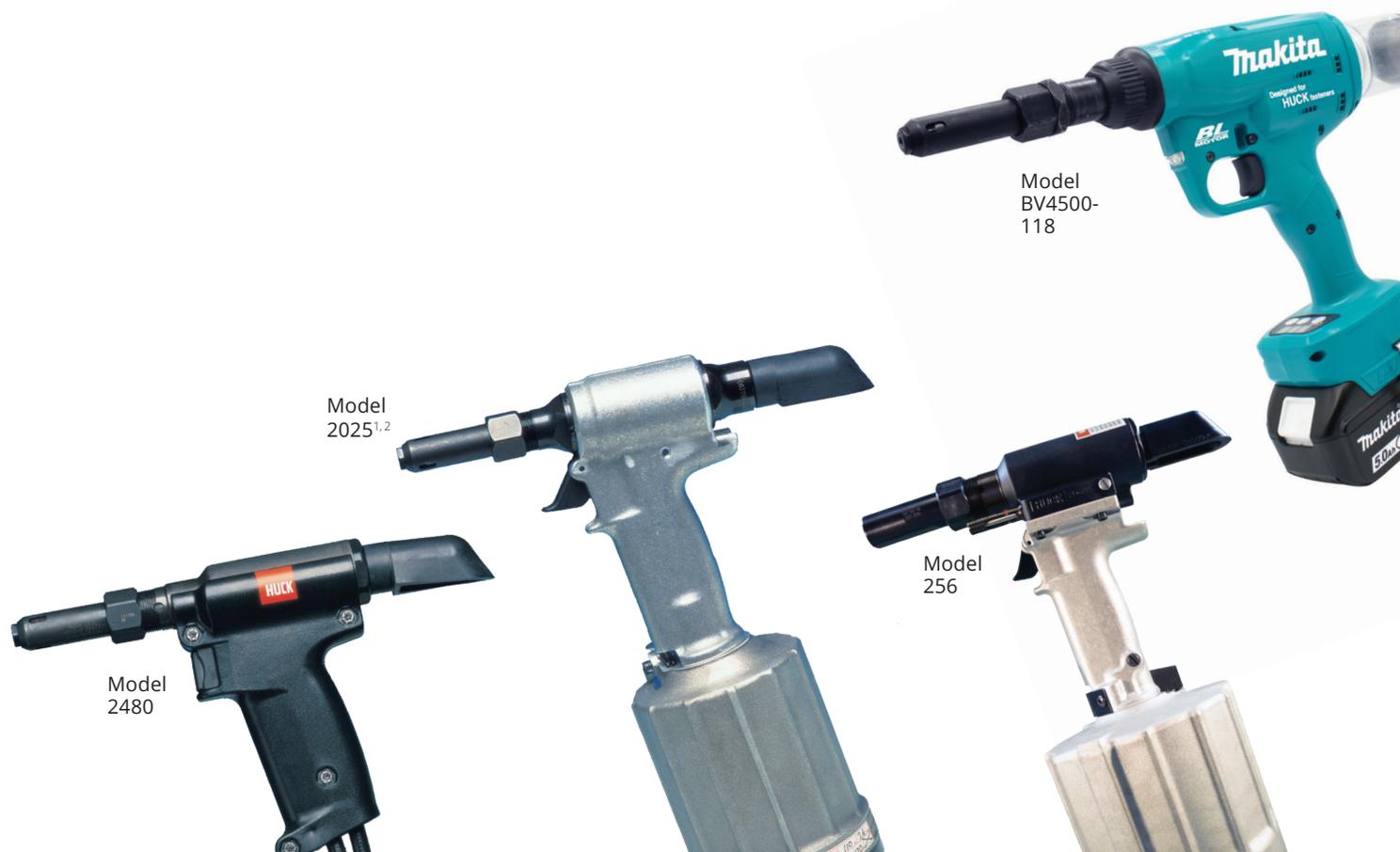
SIZE	BATTERY TOOLS	PNEUDRAULIC TOOLS			HYDRAULIC TOOLS	
	TOOL MODEL					
	BV4500-118	244X	256	2025 ^{1,2}	2480	2581
	NOSE ASSEMBLY					
3/16"	99-2555	99-2555	99-2558	99-3003 ^{1,2}	99-2555 99-3003 ¹	99-2558
1/4"	99-3417	99-3417	99-2564	99-3006 ^{1,2}	99-3006 ¹ 99-3417	99-2564
5/16"	-	-	99-99-245	-	-	99-99-245
3/8"	-	-	99-100-245	-	-	99-100-245

Tooling Weight and Dimensions

MODEL	TYPE	WEIGHT	LENGTH	HEIGHT	WIDTH
BV4500-118	Battery	5 lbs	9.06"	9.42"	3.15"
244X	Pneudraulic	5.75 lbs	6.9"	13.1"	4.7"
256	Pneudraulic	11.1 lbs	7.8"	14.9"	6.1"
2025 ^{1,2}	Pneudraulic	5.75 lbs	8.4"	12.5"	4.4"
2480	Hydraulic	2.2 lbs	8.6"	6.5"	1.9"
2581	Hydraulic	5.5 lbs	8.4"	7.1"	2.1"

¹ Note: When using tapered bore anvils, use visual inspection data for tapered bore anvil tooling.

² Model 2025 is not recommended for high volume installation of stainless steel fasteners.





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Industrial Division Brands



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