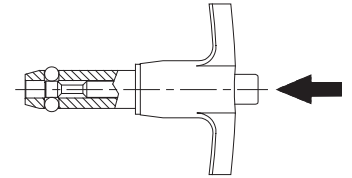


## TECHNICAL INFORMATION



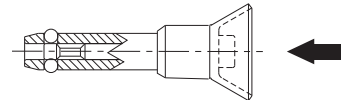
### BALL LOCK PINS

Precision alignment pin with a ground shank. This popular single-acting type is positive locking until released by pushing the button, which moves the center spindle forward to allow the locking balls to retract into a radial groove. Widest range of types and sizes, in steel or stainless steel. Choice of four handle styles: T, L, Button, and Ring. Standard shank diameters from 3/16 to 1" (5 to 20mm in metric). Any grip length up to 6" (150mm in metric) is available as standard, at no extra charge. Available from stock in many standard grip lengths, or quickly made to order in custom lengths and diameters.



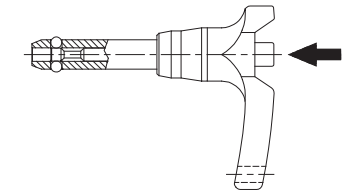
### MARINE BALL LOCK PINS

Similar to our standard single-acting Ball Lock Pins in stainless steel, except this type has its handle and button made of 300-series stainless steel. Choice of three handle styles: Button, Recessed Button and Ring. Shank diameters from 3/16 to 1/2", each available in a choice of several standard grip lengths.



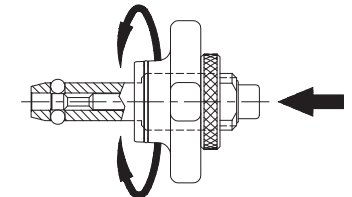
### HEAVY-DUTY BALL LOCK PINS

Similar to our standard single-acting Ball Lock Pins, except with a heavier handle for rough service. Available only in stainless steel. Handles are made of solid stainless steel for maximum impact strength and are specially shaped to prevent accidentally pressing the release button. Choice of four handle styles: T, L, Button, and Ring. Shank diameters from 3/16 to 1/2" (5 to 12mm in metric), each in a choice of several standard grip lengths.



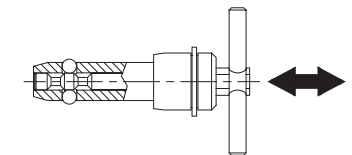
### ADJUSTABLE BALL LOCK PINS

These Ball Lock Pins have an adjustable grip length. They can be used for clamping, or simply to provide a variable grip length. The threaded handle turns to provide a 1/2" clamping range or adjustment range. Available in steel or stainless steel. Choice of three handle styles: Knob, T, and L. Standard shank diameters from 1/4 to 1" (6 to 20mm in metric), each in a choice of many standard grip lengths. Other grip lengths are available as specials (extra charge and longer delivery time).



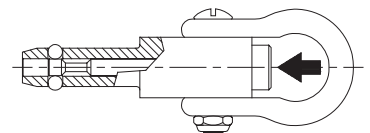
### DOUBLE-ACTING BALL LOCK PINS

Similar to a single-acting pin, except the center spindle has two grooves instead of one, to release the ball by either pushing or pulling. Pushing on the handle releases the balls and inserts the pin in one motion. Pulling on the handle releases the balls and removes the pin in one motion. Available in steel or stainless steel. Choice of three handle styles: T, L, and Ring. Standard shank diameters from 3/16 to 1" (5 to 20mm in metric). Any grip length up to 6" (150mm in metric) is available as a standard, at no extra charge. Available from stock in some standard grip lengths, or quickly made to order in custom lengths and diameters.



### LIFTING PINS

A single-acting ball lock pin with a solid, one-piece body and four balls for high tension loads. Positive locking until released by pushing the button. Sturdy forged shackle for heavy lifting.



# BALL LOCK PINS

1

## STRENGTH DATA (INCH)

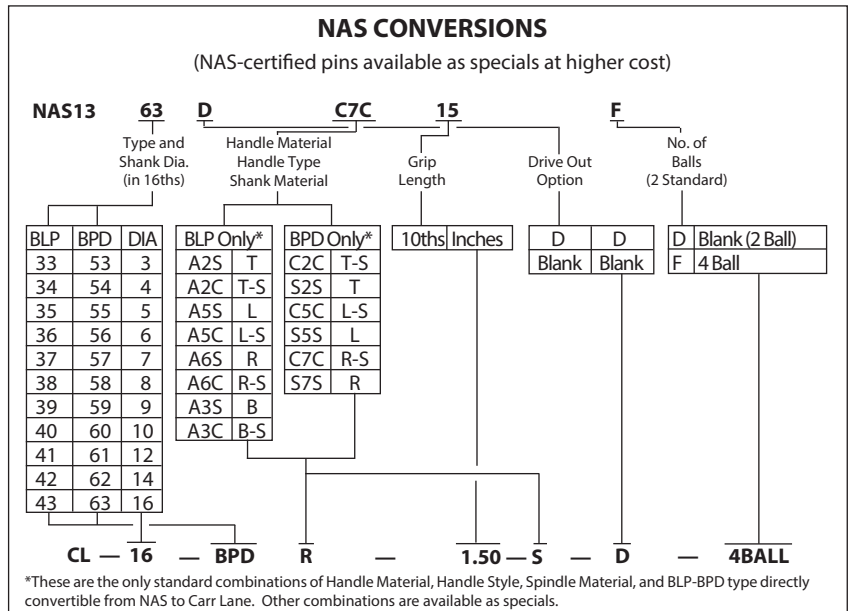
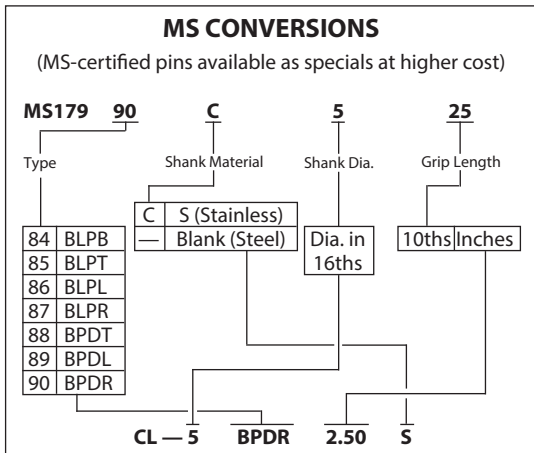
| NOM. DIA   | ALLOWABLE HOLE DIA |       | BLP, BPD, ABP APPROXIMATE PULL OUT STRENGTH (LBS) | BLP, BPD, ABP, LFP CALCULATED DOUBLE SHEAR STRENGTH (LBS)*** |           | DEP CALCULATED DOUBLE SHEAR STRENGTH (LBS)*** |           | BLP, BPD APPROX. WEIGHT (OUNCES) |         | DEP INSERTION/REMOVAL FORCE (LBS) |     |
|------------|--------------------|-------|---|--|-----------|---|-----------|----------------------------------|---------|-----------------------------------|-----|
|            | MAX                | MIN   |   | STEEL  | STAINLESS | STEEL   | STAINLESS | HANDLE                           | PER IN. | MAX                               | MIN |
| 3/16 (#10) | .194               | .190  | 200   | 2,100  | 2,300     | 2,200   | 2,000     | 1.25                             | .15     | 7                                 | 2   |
| 1/4        | .254               | .250  | 230   | 4,000  | 4,500     | 4,200   | 2,200     | 1.75                             | .25     | 7                                 | 2   |
| 5/16       | .317               | .313  | 510   | 6,000  | 7,100     | 6,700   | 3,500     | 2.00                             | .40     | 14                                | 6   |
| 3/8        | .379               | .375  | 575   | 9,200  | 10,200    | 9,700   | 5,000     | 2.40                             | .50     | 14                                | 6   |
| 7/16       | .443               | .438  | 710   | 12,300   | 13,600    | 13,200  | 7,000     | 2.90                             | .62     | 17                                | 8   |
| 1/2        | .505               | .500  | 1160  | 16,000   | 18,000    | 17,500  | 9,200     | 3.40                             | .80     | 22                                | 10  |
| 9/16       | .568               | .563  | 1420  | 20,500   | 23,000    | 22,000  | 11,500    | 3.65                             | 1.20    | 22                                | 10  |
| 5/8        | .630               | .625  | 2070  | 25,500   | 28,700    | 27,500  | 13,500    | 4.00                             | 1.35    | 30                                | 15  |
| 3/4        | .757               | .750  | 2970  | 36,700   | 41,000    | 39,500  | 20,500    | 4.25                             | 2.30    | 30                                | 15  |
| 7/8        | .882               | .875  | 3900  | 50,000   | 56,200    | 50,000  | 28,500    | 8.31                             | 2.73    | 35                                | 20  |
| 1          | 1.010              | 1.000 | 5400  | 65,500   | 73,500    | 70,700  | 37,200    | 9.00                             | 3.47    | 40                                | 20  |

## STRENGTH DATA (METRIC)

| NOM. DIA | ALLOWABLE HOLE DIA |      | BLP, BPD, ABP APPROXIMATE PULL OUT STRENGTH (LBS) | BLP, BPD, ABP, LFP CALCULATED DOUBLE SHEAR STRENGTH (LBS)*** |           | DEP CALCULATED DOUBLE SHEAR STRENGTH (LBS)*** |           | BLP, BPD APPROX. WEIGHT (OUNCES) |         | DEP INSERTION/REMOVAL FORCE (LBS) |     |
|----------|--------------------|------|---|--|-----------|---|-----------|----------------------------------|---------|-----------------------------------|-----|
|          | MAX                | MIN  |   | STEEL  | STAINLESS | STEEL   | STAINLESS | HANDLE                           | PER IN. | MAX                               | MIN |
| 5mm      | .201               | .197 | 230   | 2,600  | 3,000     | 2,500   | 1,400     | 1.25                             | .15     | 7                                 | 2   |
| 6mm      | .240               | .236 | 230   | 4,000  | 4,400     | 4,000   | 2,100     | 1.75                             | .25     | 7                                 | 2   |
| 8mm      | .319               | .315 | 510   | 7,000  | 8,000     | 7,200   | 3,700     | 2.00                             | .40     | 14                                | 6   |
| 10mm     | .398               | .394 | 710   | 11,000   | 12,500    | 11,400  | 5,800     | 2.40                             | .50     | 14                                | 6   |
| 12mm     | .477               | .472 | 1160  | 16,000   | 18,000    | 16,500  | 8,500     | 3.40                             | .80     | 22                                | 10  |
| 16mm     | .635               | .630 | 2070  | 29,000   | 32,500    | 29,500  | 15,400    | 4.00                             | 1.35    | 30                                | 15  |
| 20mm     | .794               | .787 | 2970  | 45,200   | 50,900    | 46,100  | 21,600    | 4.25                             | 2.30    | 30                                | 15  |

\*\*Pins with grip lengths over 8" (special) are not heat treated, in order to maintain straightness. Double shear strength will be reduced approximately 20-50%. Steel pins over 8" long will have a black oxide finish instead of plating. Pins in larger diameters than listed here are available as specials (may be made from alternate steels).

\*\*\*2:1 Safety factor

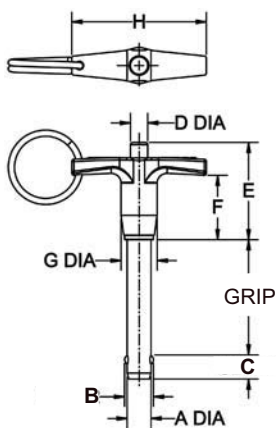


# BALL LOCK PINS

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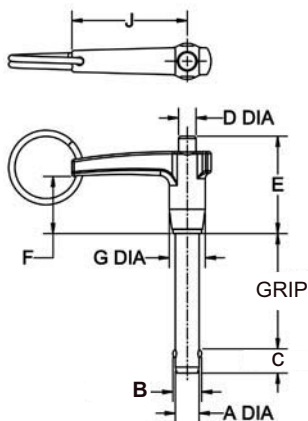
T Handle



BLPT



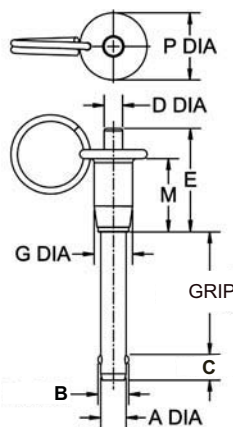
L Handle



BLPL



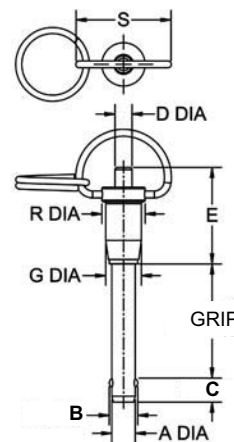
Button Handle



BLPB



Ring Handle



BLPR

INCH

| PART NO.        | A DIA      |             | B<br>±.012 | C<br>±.010 | D DIA | E    | F    | G DIA | H    | J    | K DIA | L    | M    | N DIA | P DIA | R DIA | S    |
|-----------------|------------|-------------|------------|------------|-------|------|------|-------|------|------|-------|------|------|-------|-------|-------|------|
|                 | NOMINAL    | ACTUAL      |            |            |       |      |      |       |      |      |       |      |      |       |       |       |      |
| CL-3-BLPx-x.xx  | 3/16 (#10) | .1885/.1870 | .219       | .245       | .22   | 1.26 | .78  | .47   | 1.75 | 1.50 | .22   | 1.26 | .89  | .47   | .82   | .57   | 1.13 |
| CL-4-BLPx-x.xx  | 1/4        | .2485/.2470 | .290       | .275       |       |      |      |       |      |      |       |      |      |       |       |       |      |
| CL-5-BLPx-x.xx  | 5/16       | .3110/.3095 | .375       | .315       |       |      |      |       |      |      |       |      |      |       |       |       |      |
| CL-6-BLPx-x.xx  | 3/8        | .3735/.3720 | .438       | .350       | .27   | 1.47 | .94  | .59   | 2.00 | 1.62 | .27   | 1.47 | 1.02 | .59   | 1.00  | .69   | 1.13 |
| CL-7-BLPx-x.xx  | 7/16       | .4360/.4345 | .508       | .365       |       |      |      |       |      |      |       |      |      |       |       |       |      |
| CL-8-BLPx-x.xx  | 1/2        | .4985/.4970 | .592       | .445       | .39   | 1.61 | 1.06 | .75   | 2.25 | 1.88 | .39   | 1.61 | 1.08 | .75   | 1.31  | .82   | 1.33 |
| CL-9-BLPx-x.xx  | 9/16       | .5610/.5595 | .666       | .495       |       |      |      |       |      |      |       |      |      |       |       |       |      |
| CL-10-BLPx-x.xx | 5/8        | .6235/.6220 | .750       | .565       | .50   | 1.81 | 1.06 | .93   | 3.00 | 2.50 | .50   | 1.81 | 1.25 | .93   | 1.56  | 1.01  | 1.33 |
| CL-12-BLPx-x.xx | 3/4        | .7485/.7470 | .886       | .655       |       |      |      |       |      |      |       |      |      |       |       |       |      |
| CL-14-BLPx-x.xx | 7/8        | .8735/.8720 | 1.044      | .745       | .71   | 2.07 | 1.25 | 1.30  | 3.50 | 2.90 | .71   | 2.07 | 1.49 | 1.30  | 2.16  | 1.41  | 1.90 |
| CL-16-BLPx-x.xx | 1          | .9985/.9970 | 1.217      | .875       |       |      |      |       |      |      |       |      |      |       |       |       |      |

METRIC

| BASIC PART NO. | A DIA (mm) | A DIA ACTUAL (mm) | B ±.304 (mm) | C ±.254 (mm) | D DIA (mm) | E (mm) | F (mm) | G DIA (mm) | H (mm) |
|----------------|------------|-------------------|--------------|--------------|------------|--------|--------|------------|--------|
| CLM-5-BLPx-xx  | 5          | 4.96 / 4.92       | 5.38         | 6.22         | 5.5        | 32     | 20     | 12         | 44.5   |
| CLM-6-BLPx-xx  | 6          | 5.96 / 5.92       | 7.06         | 6.99         | 5.5        | 32     | 20     | 12         | 44.5   |
| CLM-8-BLPx-xx  | 8          | 7.96 / 7.92       | 9.42         | 8.00         | 5.5        | 32     | 20     | 12         | 44.5   |
| CLM-10-BLPx-xx | 10         | 9.96 / 9.92       | 11.91        | 8.89         | 7          | 37.5   | 24     | 15         | 51     |
| CLM-12-BLPx-xx | 12         | 11.96 / 11.92     | 14.40        | 11.30        | 7          | 37.5   | 24     | 15         | 51     |
| CLM-16-BLPx-xx | 16         | 15.96 / 15.92     | 19.00        | 14.35        | 12.5       | 46     | 27     | 23.5       | 76     |
| CLM-20-BLPx-xx | 20         | 19.96 / 19.92     | 24.08        | 20.19        | 12.5       | 46     | 27     | 23.5       | 76     |

