EYE BOLTS

IMPORTANT FACTS & TERMS

- Breaking Strength: the load a single eye bolt can lift before failure when the load is applied through the shank of the eye bolt. (lbf)
- Rated Capacity: The MAXIMUM recommended load that should be exerted on an eye bolt.
- Factor of Safety: An industry term denoting a products theoretical reserve capacity, calculated by dividing the Breaking Strength by the Rated Capacity. Generally expressed as a ratio, such as 3:1. Regardless of the Factor of safety value, a load greater than the Rated Capacity should NEVER be applied to an eye bolt.
- Proof Load: the load that can be applied without causing permanent deformation. Calculated as 2 times the Rated Capacity in straight pulls. (lbf)

Quality Checklist

- Forged from bar quality fine grain C1030 / C1035 steel bar.
- Normalized prior to machining.
- Roll threads ¼″ thru 1¼″ / M6 thru M18.
- Cut threads 1½″ thru 2½″ / M20 thru M52.
- Proof tested in accordance with ASTM A489 and Federal Spec. ANSI B18.15.
- ASTM A489 test data available on request (no charge with order).
- Shoulder style eyebolt ¼″ thru 1″ military style collar - MS51937 specification.
- Shoulder pattern eyebolts undercut to ensure eyebolt will thread tight to shoulder.

Proof Tested to Insure Finest Quality

Minimum breaking strengths are based on vertical loading and verified by actual physical testing of samples chosen via random selection from each lot of a size produced. Actual breaking tests are performed on sample specimens.

Eye Bolt Rated Capacity

The rated capacity refers to the load a single eye bolt can lift when the load is applied through the shank of the eye bolt. Breaking strength is up to five times the rated capacity. The rated capacity is drastically reduced when the load is applied to the eye bolt at an angle. Angular lifts should be avoided whenever possible. The load should never be applied at more than a 45° angle from the bolt centerline. Eye bolts should always be installed 90° to the horizontal plane. When more than one eye bolt is used to lift an evenly distributed load the capacity is reduced on each eye bolt, based on the angle of the load.

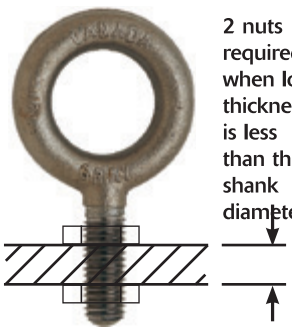
Eye bolt Installation Guidelines ...

Right

1 nut required when load thickness is greater than the shank diameter.

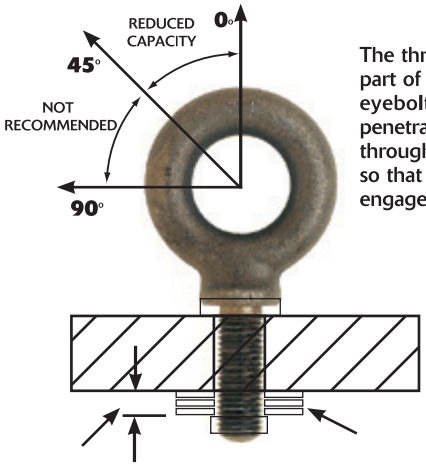
Tighten hex nut securely against load.

Right



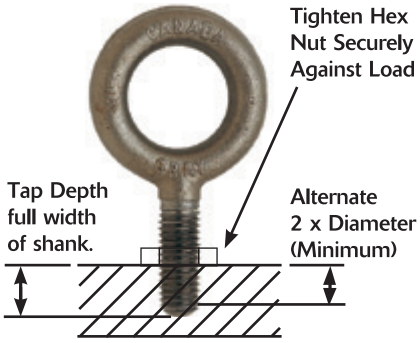
2 nuts required when load thickness is less than the shank diameter.

Tighten hex nut securely against load.

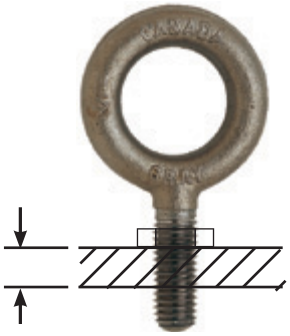


The threaded part of the eyebolt must penetrate through the load so that the nut engages fully.

Right

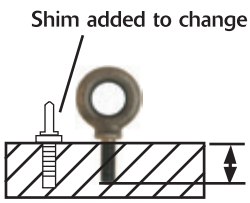


Wrong



One eyebolt diameter or less.

- As shown in the diagram, place washer or spacers between the nut and the load.
- When threading eyebolt into non-chambered hole, a washer should be used.



Minimum tap depth is basic shank length plus one-half the normal eyebolt diameter.

Shoulder & Plain Eye bolts

Material Data:

Grade.....C1030

Mechanical Properties:

Grain Size..... 5 or Finer
Tensile Strength..... 65,000 psi min.
Yield..... 50,000 psi min.
Elongation.....30% min.
Reduction of Area.....60% min.

WARNING

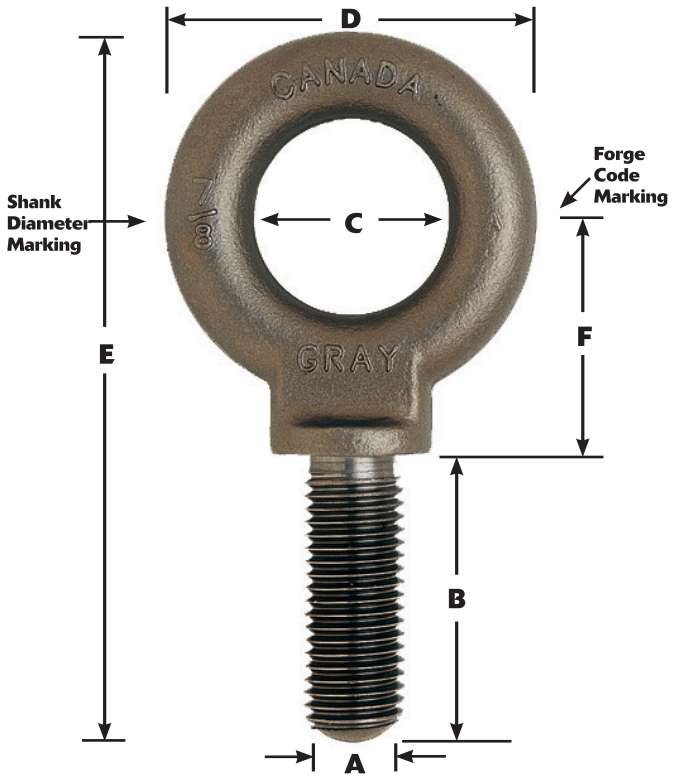
RATED CAPACITY LIMIT IS DRASTICALLY REDUCED WHEN LOADING AT ANY ANGLE. LOADS MAY SLIP OR FALL CAUSING SERIOUS INJURY OR DAMAGE IF PROPER INSTALLATION AND LIFTING PROCEDURES ARE NOT FOLLOWED.

Direction of Pull	Rated Capacity
15 degrees	80% of rated capacity
30 degrees	65% of rated capacity
45 degrees	30% of rated capacity
46+ degrees	Not recommended

ALWAYS USE A SHOULDER EYE BOLT WHEN PERFORMING ANGULAR LIFTS.
ANGULAR LIFTING USING PLAIN PATTERN EYE BOLTS IS NOT RECOMMENDED.

Shoulder Pattern

Forged - Carbon Steel - Self Colored



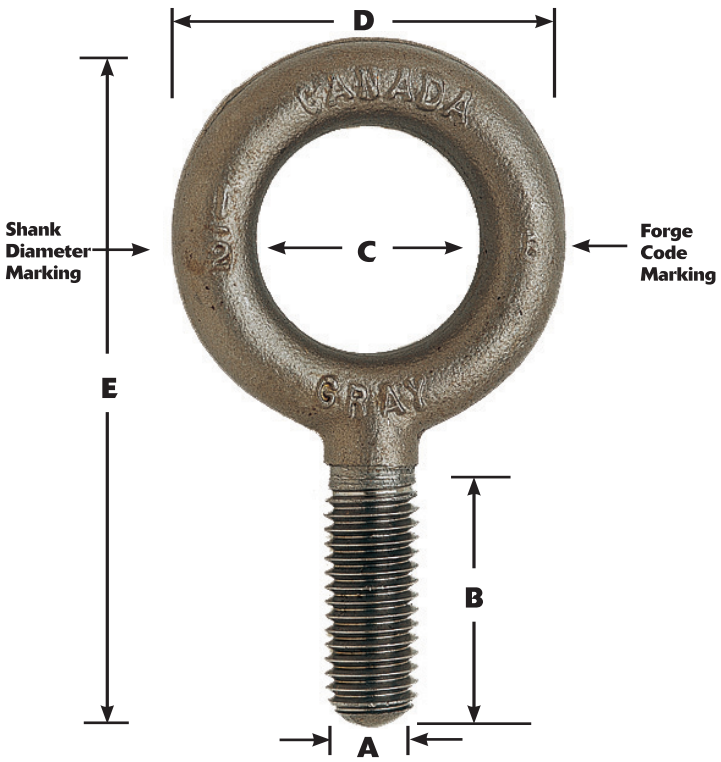
Part No.	Thread Size UNC-2A A	Shank Length B	I.D. Eye C	O.D. Eye D	Overall Length E	Center of Eye to Shdr. F	Approx. Weight per Piece	Rated Capacity lbs.
BS08	1/4-20	1	3/4	1 3/16	2 3/8	3/4	0.04	650
BS10	5/16-18	1 1/8	7/8	1 7/16	2 13/16	15/16	0.09	1,200
BS12	3/8-16	1 1/4	1	1 11/16	3 9/32	1 1/8	0.17	1,550
BS14	7/16-14	1 3/8	1 1/16	1 13/16	3 9/16	1 1/4	0.24	2,000
BS16	1/2-13	1 1/2	1 3/16	2 1/8	3 31/32	1 3/8	0.38	2,600
BS18	9/16-12	1 5/8	1 1/4	2 5/16	4 1/2	1 9/16	0.51	3,200
BS20	5/8-11	1 3/4	1 3/8	2 9/16	4 3/4	1 21/32	0.71	5,200
BS24	3/4-10	2	1 1/2	2 13/16	5 1/4	1 13/16	0.99	7,200
BS28	7/8-9	2 1/4	1 11/16	3 3/16	5 31/32	2 1/8	1.48	10,600
BS32	1-8	2 1/2	1 13/16	3 9/16	6 5/8	2 5/16	2.20	13,300
BS36	1 1/8-7	2 3/4	2	4 1/16	7 21/32	2 11/16	3.20	17,000
BS40	1 1/4-7	3	2 3/16	4 7/16	8 7/32	2 15/16	4.40	21,000
BS48	1 1/2-6	3 1/2	2 1/2	5 3/16	9 15/32	3 5/16	7.40	24,000
BS56	1 3/4-5	3 3/4	2 7/8	6	10 13/16	4	11.80	32,000
BS64	2-4 1/2	4	3 3/8	6 7/8	11 7/8	4 3/8	17.20	40,000

Dimensions in Inches
Weights in Pounds

Note: Rated capacity is for 0° vertical pulls. Never apply loads greater than Rated Capacity to any eye bolt.
Proof tested in accordance with ASTM A489 and Federal Spec. ANSI B18.15.
Traceability and Mechanical test values are available with each shipment upon request.

Plain Pattern

Forged - Carbon Steel - Self Colored



WARNING

ALWAYS USE A SHOULDER EYE BOLT WHEN PERFORMING ANGULAR LIFTS.
LOADS MAY SLIP OR FALL CAUSING SERIOUS INJURY OR DAMAGE IF PROPER INSTALLATION AND LIFTING PROCEDURES ARE NOT FOLLOWED.

Part No.	Thread Size UNC-2A A	Shank Length B	I.D. Eye C	O.D. Eye D	Overall Length E	Approx. Weight per Piece	Rated Capacity lbs.
BP08	1/4-20	1	3/4	1 3/16	2 7/32	0.04	650
BP10	5/16-18	1 1/8	7/8	1 7/16	2 19/32	0.09	1,200
BP12	3/8-16	1 1/4	1	1 11/16	3	0.14	1,550
BP14	7/16-14	1 3/8	1 3/32	1 13/16	3 7/32	0.19	2,000
BP16	1/2-13	1 1/2	1 3/16	2 1/8	3 21/32	0.31	2,600
BP18	9/16-12	1 5/8	1 1/4	2 5/16	4	0.41	3,200
BP20	5/8-11	1 3/4	1 3/8	2 9/16	4 1/2	0.59	5,200
BP24	3/4-10	2	1 1/2	2 13/16	4 7/8	0.88	7,200
BP28	7/8-9	2 1/4	1 11/16	3 3/16	5 1/2	1.40	10,600
BP32	1-8	2 1/2	1 13/16	3 9/16	6 1/8	2.00	13,300
BP36	1 1/8-7	2 3/4	2	4 1/16	6 7/8	2.80	17,000
BP40	1 1/4-7	3	2 3/16	4 7/16	8	4.00	21,000
BP48	1 1/2-6	3 1/2	2 1/2	5 3/16	8 3/4	7.40	24,000
BP56	1 3/4-5	3 3/4	2 7/8	6	9 13/16	11.80	32,000
BP64	2-4 1/2	4	3 3/8	6 7/8	11	17.40	40,000

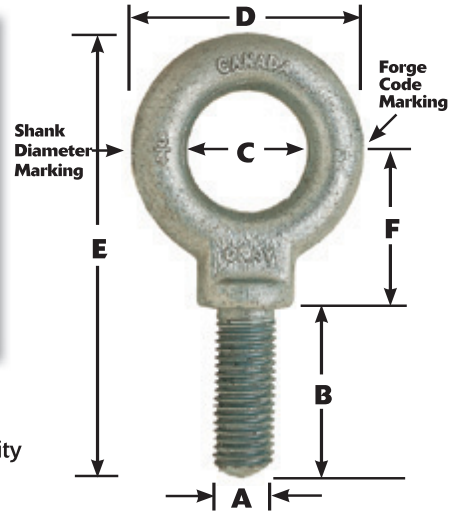
Dimensions in Inches
Weights in Pounds

Note: Rated capacity is for 0° vertical pulls. Never apply loads greater than Rated Capacity to any eye bolt.
Proof tested in accordance with ASTM A489 and Federal Spec. ANSI B18.15.
Traceability and Mechanical test values are available with each shipment upon request.

Shoulder Pattern
Forged - Carbon Steel - Galvanized

Galvanized Eye bolts

Part No.	Thread Size UNC-2A A	Shank Length B	I.D. Eye C	O.D. Eye D	Overall Length E	Center of Eye to Shdr. F	Approx. Weight per Piece	Rated Capacity lbs.
88708	1/4-20	1	3/4	1 3/16	2 3/8	3/4	0.04	650
88710	5/16-18	1 1/8	7/8	1 7/16	2 13/16	15/16	0.09	1,200
88712	3/8-16	1 1/4	1	1 11/16	3 9/32	1 1/8	0.17	1,550
88714	7/16-14	1 3/8	1 1/16	1 13/16	3 9/16	1 1/4	0.24	2,000
88716	1/2-13	1 1/2	1 3/16	2 1/8	3 31/32	1 3/8	0.38	2,600
88718	9/16-12	1 5/8	1 1/4	2 5/16	4 1/2	1 9/16	0.51	3,200
88720	5/8-11	1 3/4	1 3/8	2 9/16	4 3/4	1 21/32	0.71	5,200
88724	3/4-10	2	1 1/2	2 13/16	5 1/4	1 13/16	0.99	7,200
88728	7/8-9	2 1/4	1 11/16	3 3/16	5 31/32	2 1/8	1.48	10,600
88740	1 1/4-7	3	2 3/16	4 7/16	8 7/32	2 15/16	4.40	21,000



Dimensions in Inches
Weights in Pounds

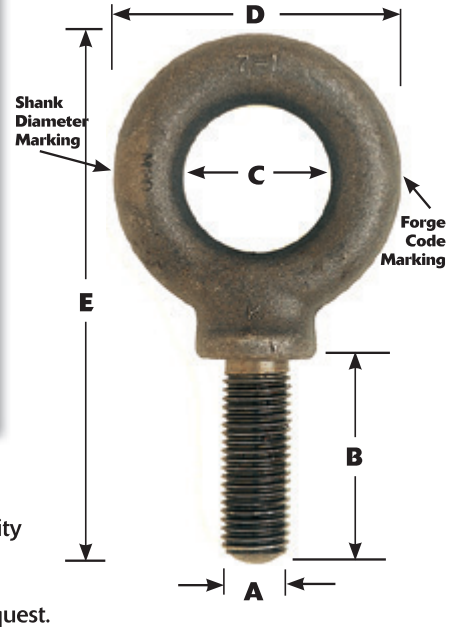
Note: Rated capacity is for 0° vertical pulls. Never apply loads greater than Rated Capacity to any eye bolt.
Proof tested in accordance with ASTM A489 and Federal Spec. ANSI B18.15.
Traceability and Mechanical test values are available with each shipment upon request.

Refer to page 275 for user warnings and guidance on angular lifts.

Metric Eye bolts

Shoulder Pattern
Forged - Carbon Steel - Self Colored

Part No.	Thread Size ISO-Course-6G A	Shank Length B	I.D. Eye C	O.D. Eye D	Overall Length E	Approx. Weight per Piece	Rated Capacity kgs / lbs.
BS6M	M6x1.0	25.4	19	30	60.3	0.06	210 / 462
BS7M	M7x1.0	28.5	22	36.5	71.4	0.10	370 / 814
BS8M	M8x1.25	31.7	25	43	82.5	0.17	500 / 1,110
BS10M	M10x1.5	35.0	27	46	90.5	0.24	740 / 1,628
BS12M	M12x1.75	38.0	30	54	100.8	0.36	1,030 / 2,266
BS14M	M14x2.0	44.5	35	65	120.7	0.48	1,600 / 3,520
BS16M	M16x2.0	44.5	35	65	120.7	0.69	1,600 / 3,520
BS18M	M18x2.5	51.0	38	71.5	133.3	1.10	2,140 / 4,708
BS20M	M20x2.5	57.0	41	81	152.4	1.51	2,860 / 6,292
BS24M	M24x3.0	63.5	44	90.4	168.3	2.36	3,850 / 8,470
BS27M	M27x3.0	70.0	51	103	191.3	3.41	5,200 / 11,440
BS30M	M30x3.5	76.0	55	112.7	208.8	4.68	6,400 / 14,080
BS36M	M36x4.0	89.0	63	131.8	240.5	7.77	8,970 / 19,734
BS42M	M42x4.5	95.0	73	152.4	274.7	11.10	11,960 / 26,312
BS45M	M45x4.5	95.0	73	152.4	274.7	11.35	12,720 / 27,984
BS48M	M48x5.0	101.6	82	174.6	301.6	15.90	16,400 / 36,080
BS52M	M52x5.0	101.6	82	174.6	301.6	16.70	17,300 / 38,060



Dimensions in Millimetres

Note: Rated capacity is for 0° vertical pulls. Never apply loads greater than Rated Capacity to any eye bolt.
Proof tested in accordance with ASTM A489 and Federal Spec. ANSI B18.15.
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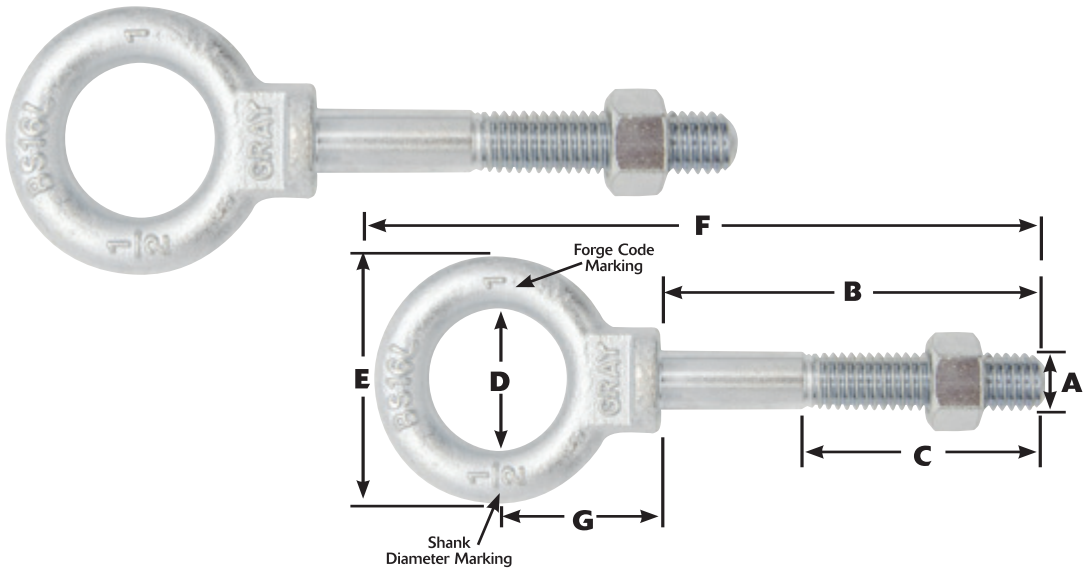

Shoulder Pattern Long Shanks

Part No.	Thread Size UNC-2A A	Shank Length B	Thread Length C	I.D. Eye D	O.D. Eye E	Overall Length F	Center of Eye to Shdr. G	Approx. Weight per Piece lbs.	Working Load Limit lbs.
BS08L	1/4-20	2	1.5	3/4	1 3/16	3 3/8	3/4	0.07	650
BS08XL	1/4-20	4	2.0	3/4	1 3/16	5 3/8	3/4	0.10	650
BS10L	5/16-18	2.25	1.5	7/8	1 7/16	3 13/16	15/16	0.13	1,200
BS10XL	5/16-18	4.25	2.5	7/8	1 7/16	5 13/16	15/16	0.17	1,200
BS12L	3/8-16	2.50	1.5	1	1 11/16	4 21/32	1 1/8	0.22	1,550
BS12XL	3/8-16	4.50	2.0	1	1 11/16	6 1/32	1 1/8	0.28	1,550
BS16L	1/2-13	3.25	2.0	1 3/16	2 1/8	5 23/32	1 3/8	0.53	2,600
BS16XL	1/2-13	6	3.0	1 3/16	2 1/8	8 15/32	1 3/8	0.67	2,600
BS20L	5/8-11	4	3.0	1 3/8	2 9/16	7	1 21/32	0.96	5,200
BS20XL	5/8-11	6	3.0	1 3/8	2 9/16	9	1 21/32	1.14	5,200
BS24L	3/4-10	4.50	3.0	1 1/2	2 13/16	7 3/4	1 13/16	1.45	7,200
BS24XL	3/4-10	6	3.0	1 1/2	2 13/16	9 1/4	1 13/16	1.63	7,200

Dimensions in Inches

Note: Rated capacity is for 0° vertical pulls. Never apply loads greater than Rated Capacity to any eye bolt.
Proof tested in accordance with ASTM A489 and Federal Spec. ANSI B18.15.
Traceability and Mechanical test values are available with each shipment upon request.

FEATURES

- Forged.
- Carbon Steel.
- Zinc Plated.
- Includes Assembled Galvanized Hex Nut.

WARNING

RATED CAPACITY LIMIT IS DRASTICALLY REDUCED WHEN LOADING AT ANY ANGLE. LOADS MAY SLIP OR FALL CAUSING SERIOUS INJURY OR DAMAGE IF PROPER INSTALLATION AND LIFTING PROCEDURES ARE NOT FOLLOWED.

Direction of Pull	Rated Capacity
15 degrees	80% of working load limit
30 degrees	65% of working load limit
45 degrees	30% of working load limit
46+ degrees	Not recommended

ALWAYS USE A SHOULDER EYE BOLT WHEN PERFORMING ANGULAR LIFTS.