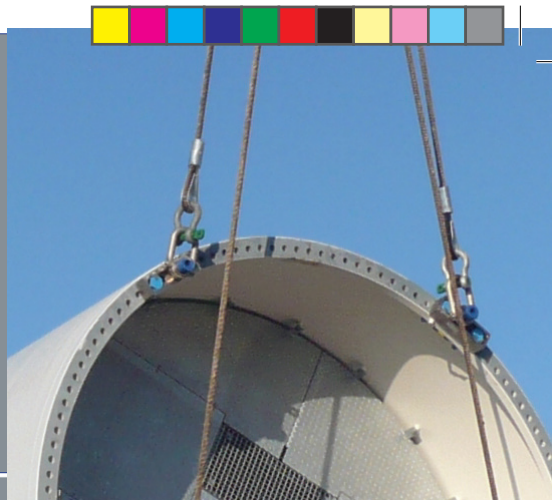


VOLUME 30



ACTEK

MANUFACTURING & ENGINEERING



PRODUCT CATALOG



ACTEK MANUFACTURING & ENGINEERING



**TOP QUALITY.
FAST DELIVERY.
UNBEATABLE PRICES.**

Since our inception in 1989, Actek Manufacturing and Engineering Inc. has established a reputation for providing top-quality products as well as excellent service. Our friendly and knowledgeable personnel are here to assist you with your various needs. Whether you need a quotation, order, technical assistance, or special product designs we will find a solution. The relationships we have built have helped us grow to where we are today. As we continue to grow, so does our commitment to you.

The Actek differences are:

- 1) ISO 9001
- 2) 120,000 square feet warehouse to maintain large Inventory
- 3) 200% Proof-load Test all hoist rings with certificate.
- 4) Each hoist ring is individually serial numbered for better traceability.
- 5) \$2,000,000 Product Liability Insurance

***Your Source for Safe and Easy Lifting Solutions!
Reliable and Quality Bushing Source!***





OUR FACILITY



**SAME DAY SHIPMENTS.
LARGE INVENTORY.**





















We welcome you to visit us anytime.
















Seeing is believing!























HOIST RINGS

STREET PLATE














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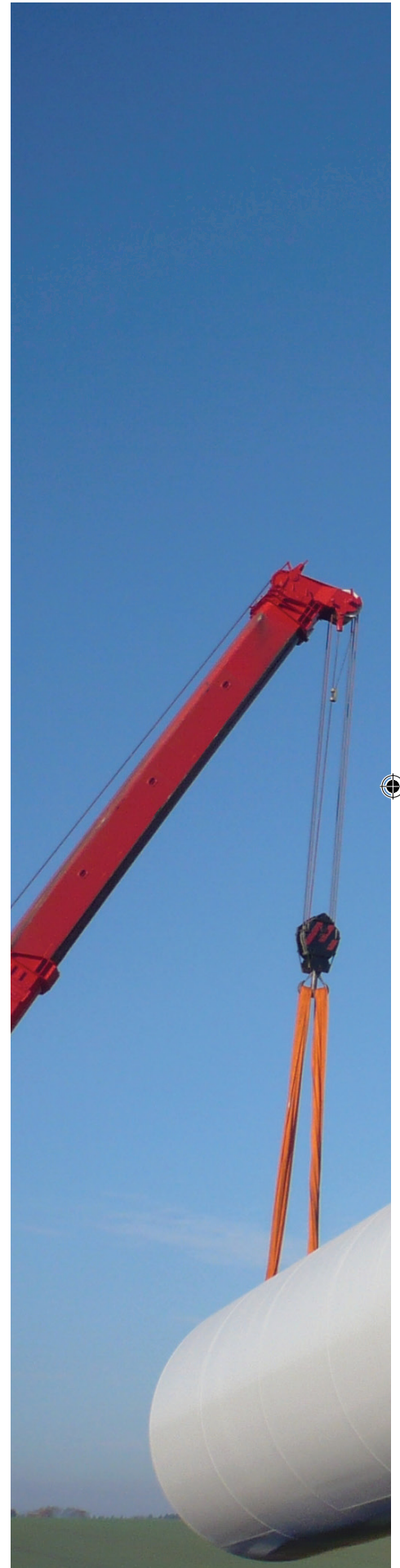
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HOIST RINGS

SAFE AND EASY LIFTING SOLUTIONS

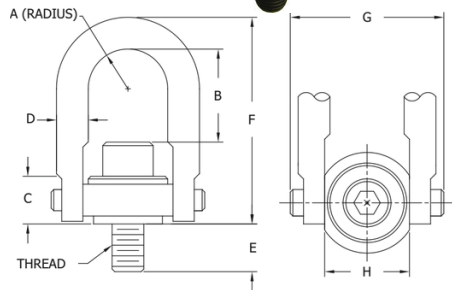






SAFETY SWIVEL HOIST RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 144)**



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or Exceeds the Requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads Available
- Comforms to CE

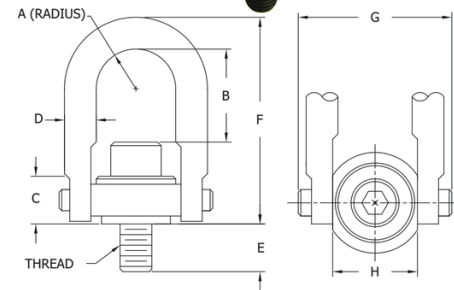
RATED LOADS (LBS)	THREAD SIZE	A	C	D	E	STANDARD U-BAR			LONG U-BAR			G	H	TORQUE (FT-LBS)	WT. (LBS)
						PART NO.	B	F	PART NO.	B	F				
600	1/4-20	0.43	0.71	3/8	0.54	46100	1.27	2.67				1.84	1.00	6	0.3
800	5/16-18	0.43	0.71	3/8	0.29	46102	1.27	2.67				1.84	1.00	7	0.3
800	5/16-18	0.43	0.71	3/8	0.54	46104	1.27	2.67				1.84	1.00	7	0.3
1,000	3/8-16	0.43	0.71	3/8	0.54	46106	1.27	2.67				1.84	1.00	12	0.3
1,250	7/16-14	0.43	0.73	3/8	0.79	46351	1.20	2.67				1.84	1.00	22	0.4
1,500	1/2-13	0.43	0.73	3/8	0.79	46352	1.15	2.67				1.84	1.00	28	0.4
2,000	7/16-14	0.70	0.93	1/2	1.07	46606	1.90	3.77				2.58	1.49	22	1.0
2,500	1/2-13	0.70	0.93	1/2	1.07	46602	1.84	3.77				2.58	1.49	28	1.0
2,000	7/16-14	0.88	1.22	3/4	0.78	46000	2.37	4.78	46638	4.34	6.72	3.52	1.99	22	2.6
2,500	1/2-13	0.88	1.22	3/4	0.78	46008	2.31	4.78	46644	4.25	6.72	3.52	1.99	28	2.6
2,500	1/2-13	0.88	1.22	3/4	1.03	46010	2.31	4.78	46646	4.25	6.72	3.52	1.99	28	2.6
2,500	1/2-13	0.88	1.22	3/4	1.28	46012	2.31	4.78	46648	4.25	6.72	3.52	1.99	28	2.6
2,500	9/16-12	0.88	1.22	3/4	0.78	46007	2.25	4.78	46651	4.19	6.72	3.52	1.99	30	2.6
4,000	5/8-11	0.88	1.22	3/4	0.78	46002	2.18	4.78	46641	4.12	6.72	3.52	1.99	60	2.6
4,000	5/8-11	0.88	1.22	3/4	1.03	46004	2.18	4.78	46640	4.12	6.72	3.52	1.99	60	2.6
4,000	5/8-11	0.88	1.22	3/4	1.28	46006	2.18	4.78	46642	4.12	6.72	3.52	1.99	60	2.6
4,000	5/8-11	0.88	1.22	3/4	1.53	46005	2.18	4.78	46643	4.12	6.72	3.52	1.99	60	2.6
5,000	3/4-10	0.88	1.22	3/4	1.03	46014	2.06	4.78	46650	4.00	6.72	3.52	1.99	100	3.0
5,000	3/4-10	0.88	1.22	3/4	1.53	46018	2.06	4.78	46654	4.00	6.72	3.52	1.99	100	3.0
6,000	7/8-9	0.88	1.24	3/4	1.53	46353	1.94	4.78	41604	3.88	6.72	3.52	1.99	160	3.0
6,500	1-8	0.88	1.24	3/4	1.53	46354	1.71	4.78	41606	3.75	6.72	3.52	1.99	230	3.0
7,000	3/4-10	1.40	1.71	1	1.04	46204	3.06	6.52	46658	4.65	8.11	5.14	3.00	100	7.0
7,000	3/4-10	1.40	1.71	1	1.54	46206	3.06	6.52	46660	4.65	8.11	5.14	3.00	100	7.0
8,000	7/8-9	1.40	1.71	1	1.04	46202	2.93	6.52	46656	4.52	8.11	5.14	3.00	160	7.0
8,000	7/8-9	1.40	1.71	1	1.29	46203	2.93	6.52	46657	4.52	8.11	5.14	3.00	160	7.0
8,000	7/8-9	1.40	1.71	1	1.54	46205	2.93	6.52	46655	4.52	8.11	5.14	3.00	160	7.0
10,000	1-8	1.40	1.71	1	1.29	46210	2.81	6.52	46662	4.40	8.11	5.14	3.00	230	7.5
10,000	1-8	1.40	1.71	1	1.54	46212	2.81	6.52	46664	4.40	8.11	5.14	3.00	230	7.5
10,000	1-8	1.40	1.71	1	2.29	46214	2.81	6.52	46666	4.40	8.11	5.14	3.00	230	7.5
10,000	1 1/8-7	1.40	1.71	1	2.29	46216	2.69	6.52	46668	4.28	8.11	5.14	3.00	230	7.5
10,000	1 1/8-8	1.40	1.71	1	2.29	46217	2.69	6.52	46669	4.28	8.11	5.14	3.00	230	7.5
11,500	1 1/4-7	1.40	1.88	1	2.10	46355	2.44	6.52	41612	4.24	8.11	5.14	3.00	470	8.0
12,000	1 3/8-6	1.40	1.88	1	2.10	46356	2.31	6.52	41614	4.13	8.11	5.14	3.00	470	8.0
12,500	1 1/2-6	1.40	1.88	1	2.10	46357	2.19	6.52	41616	4.00	8.11	5.14	3.00	800	8.0



SAFETY SWIVEL HOIST RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 144)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or Exceeds the Requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads Available
- Comforms to CE

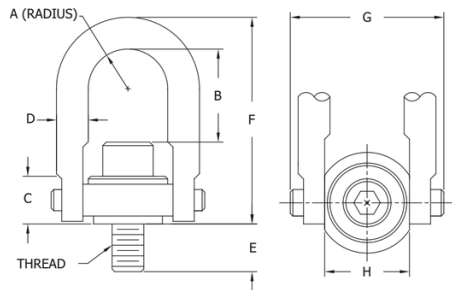


RATED LOADS (LBS)	THREAD SIZE	A	C	D	E	STANDARD U-BAR			LONG U-BAR			G	H	TORQUE (FT-LBS)	WT. (LBS)
						PART NO.	B	F	PART NO.	B	F				
15,000	1 1/4-7	1.75	2.11	1-1/4	1.89	46802	4.12	8.73				6.50	3.76	470	14.0
15,000	1 1/4-8	1.75	2.11	1-1/4	1.89	46805	4.12	8.73				6.50	3.76	470	14.0
15,000	1 3/8-6	1.75	2.11	1-1/4	1.89	46806	4.06	8.73				6.50	3.76	470	14.5
15,000	1 3/8-8	1.75	2.11	1-1/4	1.89	46807	4.06	8.73				6.50	3.76	470	14.5
16,500	1 1/2-6	1.75	2.17	1-1/4	2.80	46359	4.02	8.73				6.50	3.76	800	16.0
17,000	1 5/8-5 1/2	1.75	2.17	1-1/4	2.80	46360	3.90	8.73				6.50	3.76	800	16.0
17,500	1 3/4-5	1.75	2.17	1-1/4	2.80	46361	3.77	8.73				6.50	3.76	800	16.0
18,000	1 7/8-5	1.75	2.17	1-1/4	2.80	46362	3.65	8.73				6.50	3.76	800	16.0
18,500	2-4 1/2	1.75	2.17	1-1/4	2.80	46363	3.52	8.73				6.50	3.76	800	16.0
20,000	1 3/8-6	2.00	2.43	1-1/2	2.50	46702	5.35	10.66				7.46	4.31	540	23.0
24,000	1 1/2-6	2.25	2.81	1-3/4	2.70	46404	6.41	12.47				8.55	4.87	800	34.0
24,000	1 1/2-8	2.25	2.81	1-3/4	2.70	46405	6.41	12.47				8.55	4.87	800	34.0
24,000	1 3/4-5	2.25	2.81	1-3/4	3.20	46408	6.16	12.47				8.55	4.87	800	34.0
24,000	1 3/4-8	2.25	2.81	1-3/4	3.20	46406	6.16	12.47				8.55	4.87	800	34.0
30,000	2-4 1/2	2.25	2.81	1-3/4	3.20	46400	5.91	12.47				8.55	4.87	800	36.0
30,000	2-8	2.25	2.81	1-3/4	3.20	46440	5.91	12.47				8.55	4.87	800	36.0
32,500	2 1/4-4 1/2	2.25	3.03	1-3/4	2.75	46364	5.86	12.47				8.55	4.87	800	40.0
32,500	2 1/4-8	2.25	3.03	1-3/4	2.75	46364-8	5.86	12.47				8.55	4.87	800	40.0
35,000	2 1/2-4	2.25	3.03	1-3/4	3.90	46365	5.63	12.47				8.55	4.87	2100	40.0
35,000	2 1/2-8	2.25	3.03	1-3/4	3.90	46368	5.63	12.47				8.55	4.87	2100	40.0
50,000	2 1/2-8	3.00	4.09	2-1/4	4.00	47002	8.03	16.87				10.67	6.52	2100	88.0
50,000	2 1/2-4	3.00	4.09	2-1/4	4.00	47006	8.03	16.87				10.67	6.52	2100	88.0
55,000	2 3/4-4	3.00	4.34	2-1/4	4.00	46366	6.16	16.87				11.67	6.52	2100	92.0
55,000	2 3/4-8	3.00	4.34	2-1/4	4.00	46366-8	6.16	16.87				11.67	6.52	2100	92.0
60,000	3-4	3.00	4.34	2-1/4	5.00	46367	6.16	16.87				11.67	6.52	4300	92.0
75,000	3-4	3.75	5.27	2-3/4	5.25	47200	8.48	19.50				14.15	8.10	4300	166.0
75,000	3-8	3.75	5.27	2-3/4	5.25	47202	8.48	19.50				14.15	8.10	4300	166.0
80,000	3 1/2-4	3.75	5.27	2-3/4	5.00	46332	7.98	19.50				14.15	8.10	5100	172.0
80,000	3 1/2-8	3.75	5.27	2-3/4	5.00	46334	7.98	19.50				14.15	8.10	5100	172.0
100,000	3 1/2-4	4.00	6.06	3-1/4	7.00	47402	9.28	22.09				15.90	8.60	5100	265.0
100,000	3 1/2-8	4.00	6.06	3-1/4	7.00	47406	9.28	22.09				15.90	8.60	5100	265.0
250,000	6-4	6.00	14.00	5	9.00	47602	14.00	33.00				25.00	13.00	9900	790.0



METRIC SAFETY SWIVEL HOIST RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 144)**



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or Exceeds the Requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads Available
- Comforms to CE

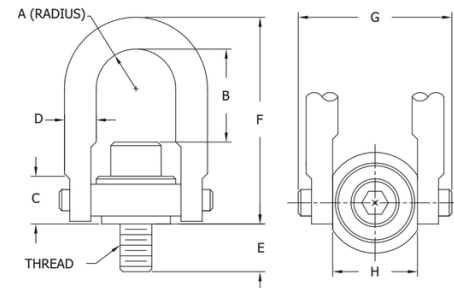
RATED LOADS (KGS)	THREAD SIZE	A	C	D	E	STANDARD U-BAR			LONG U-BAR			G	H	TORQUE N-M	WT. (LBS)
						PART NO.	B	F	PART NO.	B	F				
400	M8x1.25	11	18	10	13	46912	32	68				47	25	9	0.4
400	M8x1.25	11	18	10	18	46913	32	68				47	25	9	0.4
500	M10x1.50	11	18	10	18	46916	30	68				47	25	16	0.4
625	M12x1.75	11	19	10	23	49301	28	68				47	25	37	0.4
1,050	M12x1.75	18	24	13	27	46608	48	96				66	38	37	1.0
1,050	M12x1.75	22	31	19	19	46924	60	121	47124	110	171	89	51	37	2.5
1,050	M14x2.00	22	31	19	29	46928	58	121	47128	108	171	89	51	40	2.5
1,900	M16x2.00	22	31	19	24	46933	56	121	47126	106	171	89	51	80	2.5
1,900	M16x2.00	22	31	19	29	46930	56	121	47130	106	171	89	51	80	2.5
1,900	M18x2.50	22	31	19	29	46934	54	121	47134	104	171	89	51	90	2.5
2,150	M20x2.50	22	31	19	29	46938	52	121	47132	102	171	89	51	135	2.7
2,150	M20x2.50	22	31	19	34	46936	52	121	47136	102	171	89	51	135	2.7
2,650	M22x2.50	22	32	19	39	49302	50	121	49351	100	171	89	51	311	3.0
2,850	M24x3.00	22	32	19	39	49303	48	121	49353	98	171	89	51	311	3.0
3,000	M20x2.50	36	43	25	27	46941	78	166	47140	118	206	131	76	135	6.7
3,000	M20x2.50	36	43	25	32	46942	78	166	47142	118	206	131	76	135	6.7
3,000	M22x2.50	36	43	25	37	46944	76	166	47144	116	206	131	76	135	7.0
4,200	M24x3.00	36	43	25	32	46947	74	166	47146	114	206	131	76	311	7.0
4,200	M24x3.00	36	43	25	37	46948	74	166	47148	114	206	131	76	311	7.0
4,200	M30x3.50	36	43	25	58				46950	108	206	131	76	637	7.0
5,000	M33x3.50	36	48	25	42	49304	65	166	49355	105	206	131	76	637	8.5
5,500	M36x4.00	36	48	25	52	49305	62	166	49357	102	206	131	76	1085	8.5
7,000	M30x3.50	45	54	32	42	46956	106	222				165	95	637	15.0
7,000	M30x3.50	45	54	32	46	46955	106	222				165	95	637	15.0
7,000	M30x3.50	45	54	32	62	46958	106	222				165	95	637	15.0
7,000	M30x3.50	45	54	32	67	46957	106	222				165	95	637	15.0
7,000	M33x3.50	45	54	32	67	46960	103	222				165	95	637	15.0
8,500	M36x4.00	45	55	32	56	49306	100	222				165	95	1085	16.0



METRIC SAFETY SWIVEL HOIST RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 144)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or exceeds the Requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads Available
- Comforms to CE

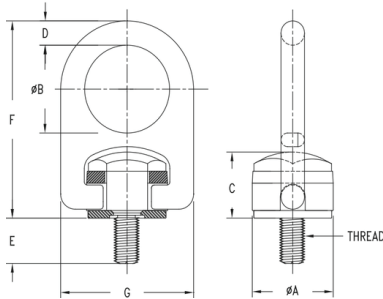


RATED LOADS (KGS)	THREAD SIZE	A	C	D	E	STANDARD U-BAR			LONG U-BAR			G	H	TORQUE N-M	WT. (LBS)
						PART NO.	B	F	PART NO.	B	F				
9,000	M39x4.00	45	55	32	56	49307	97	222				165	95	1085	17.0
9,250	M42x4.50	45	55	32	66	49308	94	222				165	95	1085	18.0
9,500	M45x4.50	45	55	32	66	49309	91	222				165	95	1085	18.0
9,500	M46x5.00	45	55	32	66	49310	90	222				165	95	1085	18.0
10,000	M48x5.00	45	55	32	66	49311	88	222				165	95	1085	18.0
10,000	M33x3.50	50	62	38	58	46961	140	259				189	109	637	23.0
10,000	M33x3.50	50	62	38	68	46962	140	259				189	109	637	23.0
11,000	M36x4.00	57	71	44	58	46963	166	317				217	124	1085	35.0
11,000	M36x4.00	57	71	44	63	46966	166	317				217	124	1085	35.0
11,000	M36x4.00	57	71	44	68	46964	166	317				217	124	1085	35.0
12,500	M42x4.50	57	71	44	68	46965	160	317				217	124	1085	36.0
12,500	M42x4.50	57	71	44	83	46968	160	317				217	124	1085	36.0
13,500	M48x5.00	57	71	44	68	46980	154	317				217	124	1085	38.0
13,500	M48x5.00	57	71	44	83	46970	154	317				217	124	1085	38.0
13,500	M48x5.00	57	71	44	88	46979	154	317				217	124	1085	38.0
14,500	M52x5.00	57	77	44	83	49312	150	317				217	124	1085	42.0
15,500	M56x5.50	57	77	44	83	49313	146	317				217	124	1085	42.0
16,500	M64x6.00	57	77	44	93	49314	138	317				217	124	2847	42.0
22,300	M64x6.00	76	104	57	101	46972	204	428				271	165	2847	86.0
24,500	M72x6.00	76	110	57	100	49315	196	428				296	165	5830	92.0
26,500	M80x6.00	76	110	57	110	49316	188	428				296	165	5830	92.0
31,500	M72x6.00	95	133	70	132	46988	220	495				359	206	5830	165.0
31,500	M80x6.00	95	133	70	132	46989	200	495				359	206	5830	165.0
33,000	M90x6.00	95	133	70	140	49317	200	495				359	206	6914	280.0
33,000	M100x6.00	95	133	70	150	49318	200	495				359	206	6914	280.0
44,600	M90x6.00	102	153	83	177	46990	235	561				404	218	6914	260.0
44,600	M100x6.00	102	153	83	200	46994	235	561				404	218	6914	280.0



FORGED SWIVEL HOIST RING

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 145)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also Available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Meets or Exceeds the Requirements of ASME B30.26.
- Conforms to CE

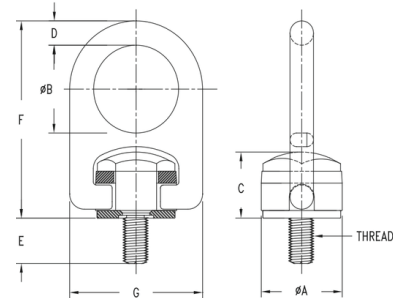
STANDARD											
PART NO.	RATED LOAD (LBS)	THREAD SIZE	A	B	C	D	E	F	G	TORQUE (FT-LBS)	WEIGHT (LBS)
56100	600	1/4-20	1.32	1.40	1.16	0.44	0.50	3.29	2.38	5	1.0
56102	800	5/16-18	1.32	1.40	1.16	0.44	0.50	3.29	2.38	7	1.0
56104	800	5/16-18	1.32	1.40	1.16	0.44	1.00	3.29	2.38	7	1.0
56106	1,000	3/8-16	1.32	1.40	1.16	0.44	0.50	3.29	2.38	12	1.0
56107	1,000	3/8-16	1.32	1.40	1.16	0.44	1.00	3.29	2.38	12	1.0
56008	2,500	1/2-13	2.23	2.40	1.97	0.75	0.75	5.60	4.05	28	4.0
56010	2,500	1/2-13	2.23	2.40	1.97	0.75	1.00	5.60	4.05	28	4.0
56012	2,500	1/2-13	2.23	2.40	1.97	0.75	1.25	5.60	4.05	28	4.0
56002	4,000	5/8-11	2.23	2.40	1.97	0.75	0.75	5.60	4.05	60	4.0
56004	4,000	5/8-11	2.23	2.40	1.97	0.75	1.00	5.60	4.05	60	4.0
56006	4,000	5/8-11	2.23	2.40	1.97	0.75	1.25	5.60	4.05	60	4.0
56014	5,000	3/4-10	2.23	2.40	1.97	0.75	1.00	5.60	4.05	100	4.0
56018	5,000	3/4-10	2.23	2.40	1.97	0.75	1.50	5.60	4.05	100	4.0
56204	7,000	3/4-10	2.95	3.20	2.62	1.00	1.00	7.48	5.40	100	9.0
56203	7,000	3/4-10	2.95	3.20	2.62	1.00	1.25	7.48	5.40	100	9.0
56206	7,000	3/4-10	2.95	3.20	2.62	1.00	1.50	7.48	5.40	100	9.0
56202	8,000	7/8-9	2.95	3.20	2.62	1.00	1.00	7.48	5.40	160	9.0
56205	8,000	7/8-9	2.95	3.20	2.62	1.00	1.25	7.48	5.40	160	9.0
56210	10,000	1-8	2.95	3.20	2.62	1.00	1.25	7.48	5.40	230	9.0
56212	10,000	1-8	2.95	3.20	2.62	1.00	1.50	7.48	5.40	230	9.0
56214	10,000	1-8	2.95	3.20	2.62	1.00	2.25	7.48	5.40	230	9.0
56802	15,000	1 1/4-7	3.73	4.00	3.28	1.25	2.00	9.35	6.75	470	18.0
56804	15,000	1 1/4-7	3.73	4.00	3.28	1.25	2.75	9.35	6.75	470	18.0
56702	20,000	1 3/8-6	3.73	4.00	3.28	1.25	2.75	9.35	6.75	540	19.0
56404	24,000	1 1/2-6	3.73	4.00	3.28	1.25	2.75	9.35	6.75	800	19.0



METRIC FORGED SWIVEL HOIST RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 145)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Meets or Exceeds the Requirements of ASME B30.26.
- Conforms to CE

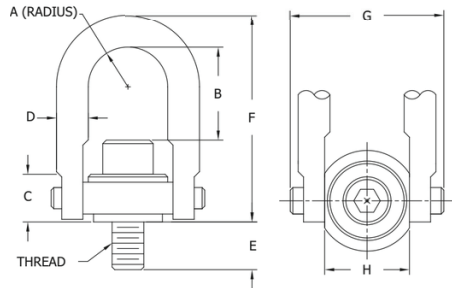


METRIC											
PART NO.	RATED LOAD (KGS)	THREAD SIZE	A	B	C	D	E (MM)	F	G	TORQUE (N-M)	WEIGHT (LBS)
56912	400	M8x1.25	1.32	1.40	1.16	0.44	15	3.29	2.38	9	1.0
56914	400	M8x1.25	1.32	1.40	1.16	0.44	20	3.29	2.38	9	1.0
56916	500	M10x1.50	1.32	1.40	1.16	0.44	15	3.29	2.38	16	1.0
56918	500	M10x1.50	1.32	1.40	1.16	0.44	25	3.29	2.38	16	1.0
56923	1,050	M12x1.75	2.23	2.40	1.97	0.75	20	5.60	4.05	37	4.0
56924	1,050	M12x1.75	2.23	2.40	1.97	0.75	25	5.60	4.05	37	4.0
56926	1,050	M12x1.75	2.23	2.40	1.97	0.75	35	5.60	4.05	37	4.0
56928	1,050	M14x2.00	2.23	2.40	1.97	0.75	30	5.60	4.05	40	4.0
56930	1,900	M16x2.00	2.23	2.40	1.97	0.75	25	5.60	4.05	80	4.0
56932	1,900	M16x2.00	2.23	2.40	1.97	0.75	35	5.60	4.05	80	4.0
56936	2,150	M20x2.50	2.23	2.40	1.97	0.75	25	5.60	4.05	135	4.0
56937	2,150	M20x2.50	2.23	2.40	1.97	0.75	35	5.60	4.05	135	4.0
56938	2,150	M20x2.50	2.23	2.40	1.97	0.75	40	5.60	4.05	135	4.0
56942	3,000	M20x2.50	2.95	3.20	2.62	1.00	30	7.48	5.40	135	9.0
56946	4,200	M24x3.00	2.95	3.20	2.62	1.00	30	7.48	5.40	311	9.0
56948	4,200	M24x3.00	2.95	3.20	2.62	1.00	40	7.48	5.40	311	9.0
56949	4,500	M30x3.50	2.95	3.20	2.62	1.00	40	7.48	5.40	637	9.0
56950	4,500	M30x3.50	2.95	3.20	2.62	1.00	50	7.48	5.40	637	9.0
56956	7,000	M30x3.50	3.73	4.00	3.28	1.25	50	9.35	6.75	637	19.0
56958	7,000	M30x3.50	3.73	4.00	3.28	1.25	65	9.35	6.75	637	19.0
56960	7,000	M33x3.50	3.73	4.00	3.28	1.25	55	9.35	6.75	637	19.0
56966	11,000	M36x4.00	3.73	4.00	3.28	1.25	65	9.35	6.75	1085	20.0
56968	12,500	M42x4.50	3.73	4.00	3.28	1.25	80	9.35	6.75	1085	21.0



STAINLESS STEEL SAFETY HOIST RING

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 146)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: 316 Stainless Steel
- Safety Factor: 5:1
- Liquid Penetrant
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the rated load
- Meets or exceeds the requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads available
- Conforms to CE

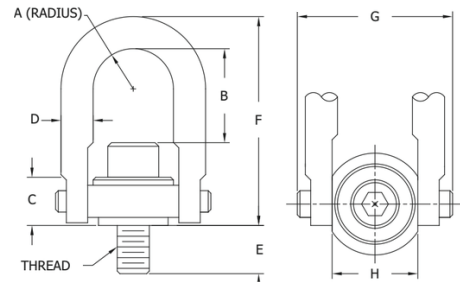
STANDARD															
RATED LOADS (LBS)	THREAD SIZE	A	C	D	E	STANDARD U-BAR			LONG U-BAR			G	H	TORQUE (FT-LBS)	WT. (LBS)
						PART NO.	B	F	PART NO.	B	F				
300	1/4-20	0.43	0.71	3/8	0.54	58100	1.27	2.67				1.84	1.00	3	0.3
400	5/16-18	0.43	0.71	3/8	0.29	58102	1.27	2.57				1.84	1.00	3.5	0.3
400	5/16-18	0.43	0.71	3/8	0.54	58104	1.27	2.67				1.84	1.00	3.5	0.3
500	3/8-16	0.43	0.71	3/8	0.54	58106	1.27	2.67				1.84	1.00	6	0.3
1,250	1/2-13	0.70	0.93	1/2	1.07	58602	1.84	3.77				2.58	1.49	14	1.0
1,250	1/2-13	0.88	1.22	3/4	0.78	58008	2.31	4.78	58644	4.25	6.72	3.52	1.99	14	2.6
1,250	1/2-13	0.88	1.22	3/4	1.03	58010	2.31	4.78	58646	4.25	6.72	3.52	1.99	14	2.6
1,250	1/2-13	0.88	1.22	3/4	1.28	58012	2.31	4.78	58648	4.25	6.72	3.52	1.99	14	2.6
2,000	5/8-11	0.88	1.22	3/4	0.78	58002	2.18	4.78	58641	4.12	6.72	3.52	1.99	30	2.6
2,000	5/8-11	0.88	1.22	3/4	1.03	58004	2.18	4.78	58640	4.12	6.72	3.52	1.99	30	2.6
2,000	5/8-11	0.88	1.22	3/4	1.28	58006	2.18	4.78	58642	4.12	6.72	3.52	1.99	30	2.6
2,500	3/4-10	0.88	1.22	3/4	1.03	58014	2.06	4.78	58650	4.00	6.72	3.52	1.99	50	3.0
2,500	3/4-10	0.88	1.22	3/4	1.53	58018	2.06	4.78	58654	4.00	6.72	3.52	1.99	50	3.0
3,500	3/4-10	1.40	1.71	1	1.04	58204	3.06	6.52	58658	4.65	8.11	5.14	3.00	50	7.0
3,500	3/4-10	1.40	1.71	1	1.54	58206	3.06	6.52	58660	4.65	8.11	5.14	3.00	50	7.0
4,000	7/8-9	1.40	1.71	1	1.04	58202	2.93	6.52	58656	4.52	8.11	5.14	3.00	80	7.0
4,000	7/8-9	1.40	1.71	1	1.29	58203	2.93	6.52	58652	4.52	8.11	5.14	3.00	80	7.0
5,000	1-8	1.40	1.71	1	1.29	58210	2.81	6.52	58662	4.40	8.11	5.14	3.00	115	7.5
5,000	1-8	1.40	1.71	1	1.54	58212	2.81	6.52	58664	4.40	8.11	5.14	3.00	115	7.5
5,000	1-8	1.40	1.71	1	2.29	58214	2.81	6.52	58666	4.40	8.11	5.14	3.00	115	7.5
7,500	1 1/4-7	1.75	2.11	1-1/4	1.89	58802	4.12	8.73				6.50	3.76	235	14.0
12,000	1 1/2-6	2.25	2.81	1-3/4	2.70	58404	6.41	12.47				8.55	4.87	400	34.0
15,000	2-4 1/2	2.25	2.81	1-3/4	2.96	58400	5.91	12.47				8.55	4.87	400	36.0
25,000	2 1/2-8	3.00	4.09	2-1/4	4.00	59002	8.03	16.87				11.67	6.52	1050	88.0
25,000	2 1/2-4	3.00	4.09	2-1/4	4.00	59006	8.03	16.87				11.67	6.52	1050	88.0
37,500	3-4	3.75	5.27	2-3/4	5.00	59200	8.48	19.50				14.15	8.10	2150	166.0
50,000	3 1/2-4	4.00	6.06	3-1/4	7.00	59402	9.28	22.09				15.90	8.60	2550	265.0



METRIC STAINLESS STEEL SAFETY HOIST RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 146)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: 316 Stainless Steel
- Safety Factor: 5:1
- Liquid Penetrant
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the rated load
- Meets or exceeds the requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads available
- Conforms to CE



METRIC															
RATED LOADS (KGS)	THREAD SIZE	A	C	D	E	STANDARD U-BAR			LONG U-BAR			G	H	TORQUE (N-M)	WT. (LBS)
						PART NO.	B	F	PART NO.	B	F				
200	M8x1.25	11	18	10	13	58912	32	68				47	25	4	0.4
250	M10x1.50	11	18	10	18	58916	30	68				47	25	8	0.4
525	M12x1.75	22	30	19	19	58924	60	121	59124	110	171	89	51	18	2.5
950	M16x2.00	22	30	19	29	58930	56	121	59130	106	171	89	51	40	2.5
1,075	M20x2.50	22	30	19	34	58936	52	121	59136	102	171	89	51	68	2.5
1,500	M20x2.50	36	43	25	32	58942	78	166	59142	118	206	131	76	68	7.0
2,100	M24x3.00	36	43	25	37	58948	74	166	59148	114	206	131	76	108	7.0
2,100	M30x3.50	36	43	25	58				58950	108	206	131	76	108	7.0
3,500	M30x3.50	45	54	32	42	58956	106	222				165	95	318	15.0
3,500	M30x3.50	45	54	32	62	58958	106	222				165	95	318	15.0
5,500	M36x4.00	57	71	44	64	58966	166	317				217	124	542	35.0
6,250	M42x4.50	57	71	44	82	58968	160	317				217	124	542	36.0
6,750	M48x5.00	57	71	44	82	58970	154	317				217	124	542	38.0
11,150	M64x6.00	76	103	57	101	58972	204	428				296	165	1423	86.0
15,750	M72x6.00	95	133	70	132	58988	220	495				359	206	2915	165.0
22,300	M90x6.00	102	153	83	177	58990	235	561				404	218	3459	260.0



SAFETY ENGINEERED HOIST RING KITS



Actek Hoist Rings Kits enable you to custom assemble just the right swivel hoist ring for the job. Kits are available in standard and metric sizes. They come complete with U-Bar (body and sub-assembly), screws, bushings, washers and E-rings - enough to configure over 24 different hoist ring sizes and capacities. A handy accessory kit for lifting and moving heavy loads, and a must for your tool crib.

AK46306 HOIST RING KIT (KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 31 LBS)							
SUB. ASSEMBLY	RATED LOAD (LBS)	SCREW	SCREW SIZE	THREAD LENGTH	BUSHING	WASHER	E-RING
46108 3/8" U-BAR	600	46139	1/4"-20 x 1-1/4"	1/2"	46112	46120	46133
	800	46144	5/16"-18 x 1-1/4"	1/2"	46128	46126	46134
	1000	46146	3/8"-16 x 1-1/4"	1/2"	46152	46148	46136
46600 1/2" U-BAR	2,000	46614	7/16"-14 x 2"	1"	46618	46616	46612
	2,500	46636	1/2"-13 x 2"	1"	46628	46626	46036
46020 3/4" U-BAR	4,000	46044	5/8"-11 x 2-1/4"	1"	46028	46026	46034
	5,000	46054	3/4"-10 x 2-1/4"	1"	46074	46068	46038

AK46304 HOIST RING KIT (KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 71.5 LBS)							
SUB. ASSEMBLY	RATED LOAD (LBS)	SCREW	SCREW SIZE	THREAD LENGTH	BUSHING	WASHER	E-RING
46020 3/4" U-BAR	2,500	46050	1/2" - 13 x 2-1/4"	1"	46072	46066	46036
	4,000	46044	5/8" - 11 x 2-1/4"	1"	46028	46026	46034
	5,000	46054	3/4" - 10 x 2-1/4"	1"	46074	46068	46038
46220 1" U-BAR	7,000	46246	3/4" - 10 x 3-1/4"	1-1/2"	46272	46266	46038
	8,000	46270	7/8" - 9 x 3-1/4"	1-1/2"	46228	46226	46234
	10,000	46252	1" - 8 x 3-1/4"	1-1/2"	46274	46268	46238

AK46904 METRIC HOIST RING KIT (KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 71.5 LBS)							
SUB. ASSEMBLY	RATED LOAD (KGS)	SCREW	SCREW SIZE	THREAD LENGTH	BUSHING	WASHER	E-RING
46020 3/4" U-BAR	1,050	49048	M12 x 1.75 x 50	19	49072	49066	46036
	1,900	49056	M16 x 2.00 x 60	29	49028	49026	46034
	2,150	49054	M20 x 2.50 x 65	34	49074	49068	46038
46220 1" U-BAR	3,000	49244	M20 x 2.50 x 75	32	49272	49266	46038
	4,200	49250	M24 x 3.00 x 80	37	49274	49268	46238
	4,200	49242	M30 x 3.50 x 100	58	49228	49226	46834



FORGED SWIVEL HOIST RING KITS

Actek Forged Hoist Rings Kits enable you to custom assemble just the right swivel hoist ring for the job. Kits are available in standard and metric sizes. They come complete with sub-assembly (body and U-bar), screws, bushings, washers and E-rings - enough to configure 20-24 different hoist ring sizes and capacities. A handy accessory kit for lifting and moving heavy loads, and a must for your tool crib.



AK56306 HOIST RING KIT (KIT INCLUDES 4 OF EACH ITEM) 56300-CASE (19 X 14 X 7-3/4) 56301- FOAM INSERT								
U-BAR SIZE	U-BAR	BODY	RATED LOAD (LBS)	SCREW	SCREW SIZE	THREAD LENGTH	WASHER BASE	E-RING
7/16	56122	56130	800	56142	5/16"-18	1/2"	56120-5/16	46134-HD
			1,000	56146	3/8"-16		56120-3/8	46136-HD
			2,500	56050	1/2"-13		56068-1/2	46036-HD
3/4	56022	56030	4,000	56044	5/8"-11	1"	56068-5/8	46034-HD
			5,000	56054	3/4"-10		56068-3/4	46038-HD

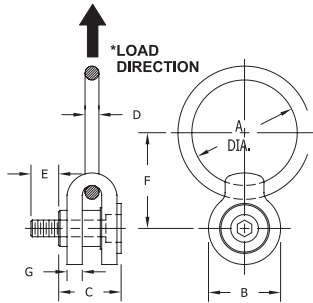
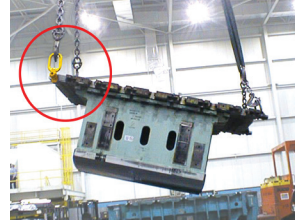
AK56304 HOIST RING KIT (KIT INCLUDES 4 OF EACH ITEM) 56308-CASE (22 X 17 X 8) 56309- FOAM INSERT								
U-BAR SIZE	U-BAR	BODY	RATED LOAD (LBS)	SCREW	SCREW SIZE	THREAD LENGTH	WASHER BASE	E-RING
3/4	56022	56030	2,500	56050	1/2"-13	1"	56068-1/2	46036-HD
			4,000	56044	5/8"-11		56068-5/8	46034-HD
			5,000	56054	3/4"-10		56068-3/4	46038-HD
1	56222	56230	7,000	56245	"	1-1/4"	56268-3/4	"
			8,000	56243	7/8"-9		56268-7/8	46234
			10,000	56250	1"-8		56268-1	46238-HD

AK56904 METRIC HOIST RING KIT (KIT INCLUDES 4 OF EACH ITEM, TOTAL WEIGHT 40 LBS) 56308-CASE (22 X 17 X 8) 56309- FOAM INSERT								
U-BAR SIZE	U-BAR	BODY	RATED LOAD (KGS)	SCREW	SCREW SIZE	THREAD LENGTH	WASHER BASE	E-RING
3/4	56022	56030	1,050	56048	M12 x 1.75	25	56068-M12	46036-HD
			1,900	56056	M16 x 2.00		56068-M16	46034-HD
			2,150	56054	M20 x 2.50		56068-M20	46038-HD
1	56222	56230	3,000	56244	M20 x 2.50	30	56268-M20	"
			4,200	56252	M24 x 3.00		56268-M24	46238-HD
			4,200	56243	M30 x 3.50		56268-M30	46834-HD



SIDE LOAD HOIST RING

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 147)



- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Also Available with Master Links
- Thread: Longer Thread Projection and Fine Threads Available

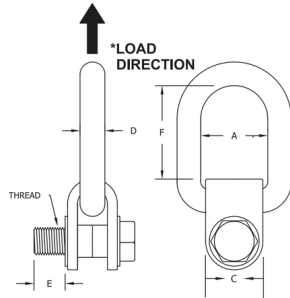
STANDARD											
PART NO.	RATED LOAD (LBS)	THREAD SIZE	A	B	C	D	E	F	G	TORQUE (FT-LBS)	WEIGHT (LBS)
43510	650	5/16-18	2	1-1/2	1-7/16	3/8	9/16	1-15/16	3/8	3.5	0.85
43515	800	3/8-16	2	1-1/2	1-7/16	3/8	5/8	1-15/16	3/8	4.5	0.85
43520	1,800	1/2-13	3	2-3/8	2-1/4	5/8	1	3	1/2	15	3.5
43525	2,500	5/8-11	3	2-3/8	2-1/4	5/8	1-1/4	3	1/2	25	3.5
43530	4,000	3/4-10	4	3-3/4	3-3/8	1	1-1/2	4-1/2	3/4	50	10.5
43535	5,500	7/8-9	4	3-3/4	3-3/8	1	1-7/8	4-1/2	3/4	80	11.0
43540	7,000	1-8	4	3-3/4	3-3/8	1	2	4-1/2	3/4	90	10.5
43545	14,000	1-1/4-7	6	4-5/8	4-5/8	1-3/8	2-1/2	6-1/4	1	150	28.0
43547	14,000	1-1/4-8	6	4-5/8	4-5/8	1-3/8	2-1/2	6-1/4	1	150	28.0
43550	17,000	1-1/2-6	6	4-5/8	4-5/8	1-3/8	2-1/2	6-1/4	1	250	28.0
43552	17,000	1-1/2-8	6	4-5/8	4-5/8	1-3/8	2-1/2	6-1/4	1	250	28.0
43555	29,000	2-4-1/2	5-1/4 x 10-1/2	4-5/8	6-5/8	1-1/2	3-1/8	11-1/8	1	300	42.0
43557	29,000	2-8	5-1/4 x 10-1/2	4-5/8	6-5/8	1-1/2	3-1/8	11-1/8	1	300	42.0

METRIC											
PART NO.	RATED LOAD (KGS)	THREAD SIZE	A	B	C	D	E	F	G	TORQUE (FT-LBS)	WEIGHT (LBS)
43560	325	M8x1.25	2	1-1/2	1-7/16	3/8	16	1-15/16	3/8	3.5	0.85
43565	500	M10x1.50	2	1-1/2	1-7/16	3/8	20	1-15/16	3/8	4.5	0.85
43570	725	M12x1.75	3	2-3/8	2-1/4	5/8	27	3	1/2	15	3.5
43575	1,400	M16x2.00	3	2-3/8	2-1/4	5/8	31	3	1/2	25	3.5
43580	2,290	M20x2.50	4	3-3/4	3-3/8	1	40	4-1/2	3/4	50	10.5
43585	3,050	M24x3.00	4	3-3/4	3-3/8	1	47	4-1/2	3/4	80	11.5
43590	4,850	M30x3.50	6	4-5/8	4-5/8	1-3/8	50	6-1/4	1	150	28.0
43595	7,700	M36x4.00	6	4-5/8	4-5/8	1-3/8	63	6-1/4	1	250	28.0
43600	8,200	M42x4.50	6	4-5/8	4-5/8	1-3/8	84	6-1/4	1	250	28.0
43605	11,300	M48x5.00	6	4-5/8	4-5/8	1-3/8	95	6-1/4	1	300	32.0



LIFTING RING

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 148)**



- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 4:1
- Magnetic Particle Inspected
- Certified Heat Treatment



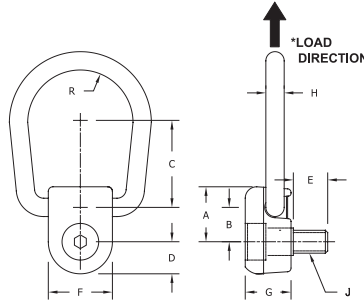
STANDARD											
PART NUMBER		RATED LOAD (LBS)	THREAD SIZE	A	C	D	E	F		TORQUE (FT-LBS)	WEIGHT (LBS)
D-RING	LONG D-RING							D-RING	LONG D-RING		
43700	-	650	5/16-18	1-7/8	1-1/2	5/8	0.75	2.5	-	7	1.7
43705	-	800	3/8-16	1-7/8	1-1/2	5/8	0.75	2.5	-	12	1.8
43710	43711	2,000	1/2-13	1-7/8	1-1/2	5/8	1.25	2.5	3.5	28	2.0
43720	43721	2,500	5/8-11	1-7/8	1-1/2	5/8	1.25	2.5	3.5	60	2.0
43730	43731	5,000	3/4-10	2-1/4	2	3/4	2	3	4	100	3.5
43740	43741	6,500	7/8-9	2-1/4	2	3/4	2	3	4	160	4.0
43750	43751	7,000	1-8	2-1/4	2	3/4	2	3	4	230	4.0
43760	43761	12,000	1-1/4-7	3-1/4	3	1-1/8	2.5	4	5.5	470	11.0
43770	43771	15,000	1-1/2-6	3-1/4	3	1-1/8	3	4	5.5	800	13.0

METRIC											
PART NUMBER		RATED LOAD (KGS)	THREAD SIZE	A	C	D	E	F		TORQUE KGM	WEIGHT (LBS)
D-RING	LONG D-RING							D-RING	LONG D-RING		
43900	-	300	M8x1.25	1-7/8	1-1/2	5/8	25	2.5	-	0.86	1.7
43905	-	400	M10x1.50	1-7/8	1-1/2	5/8	25	2.5	-	1.5	1.8
43910	43911	1,000	M12x1.75	1-7/8	1-1/2	5/8	35	2.5	3.5	3.7	2.0
43920	43921	1,050	M16x2.00	1-7/8	1-1/2	5/8	35	2.5	3.5	8.4	2.0
43930	43931	2,150	M20x2.50	2-1/4	2	3/4	45	3	4	14	3.5
43940	43941	3,000	M24x3.00	2-1/4	2	3/4	50	3	4	31	3.7
43950	43951	5,000	M30x3.50	3-1/4	3	1-1/8	70	4	5.5	60	11.0
43960	43961	7,000	M36x4.00	3-1/4	3	1-1/8	70	4	5.5	100	13.0



FORGED SIDE PULL HOIST RINGS

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 149)



- Swivels 360°
- Material: Alloy Steel
- Finish: Black Oxide
- Safety Factor: 5:1 (Side Pull Direction Only)
- Magnetic Particle Inspected
- Certified Heat Treatment

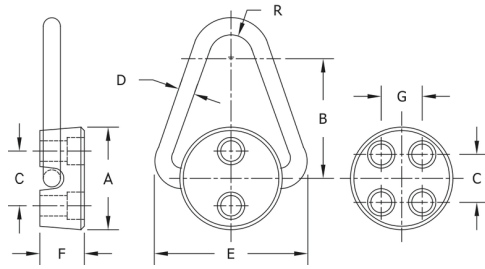
STANDARD													
PART NO.	RATED LOAD (LBS)	THREAD SIZE	A	B	C	D	E	F	G	H	R	TORQUE (FT-LBS)	WEIGHT (LBS)
68210	1,000	3/8-16	1-1/8	5/8	1-1/2	5/8	5/8	1-1/4	7/8	5/16	13/16	7-10	0.7
68220	2,000	1/2-13	1-5/8	7/8	1-7/8	7/8	3/4	1-3/4	1-5/16	7/16	1-1/8	20-25	1.7
68225	2,500	5/8-11	1-5/8	7/8	1-7/8	7/8	7/8	1-3/4	1-5/16	7/16	1-1/8	42-50	1.7
68250	5,000	3/4-10	2-3/16	1-1/8	2-3/4	1	1	2	1-11/16	5/8	1-3/8	70-80	3.5

METRIC													
PART NO.	RATED LOAD (LBS)	THREAD SIZE	A	B	C	D	E	F	G	H	R	TORQUE (FT-LBS)	WEIGHT (LBS)
68310	1,000	M10x1.50	1-1/8	5/8	1-1/2	5/8	5/8	1-1/4	7/8	5/16	13/16	7-10	0.7
68320	2,000	M12x1.75	1-5/8	7/8	1-7/8	7/8	3/4	1-3/4	1-5/16	7/16	1-1/8	20-25	1.7
68325	2,500	M16x2.00	1-5/8	7/8	1-7/8	7/8	7/8	1-3/4	1-5/16	7/16	1-1/8	42-50	1.7
68350	5,000	M20x2.50	2-3/16	1-1/8	2-3/4	1	1	2	1-11/16	5/8	1-3/8	70-80	3.5



FORGED HOIST RINGS

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 150)



- Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide
- Safety Factor: 6:1
- Magnetic Particle Inspected
- Certified Heat Treatment



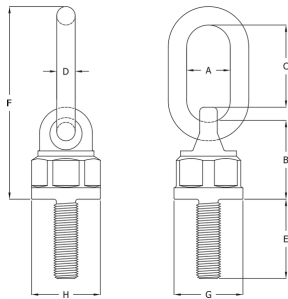
HOIST RING PART NO.	RATED LOAD (LBS)	A	B	C	D	E	F	G	R	TORQUE (FT-LBS)	WEIGHT (LBS)
68060	2,000	1-3/4	2	1	5/16	2-1/2	3/4	---	1/2	4-7	0.55
68070	2,500	2-1/4	2-1/2	1-1/8	3/8	3-3/16	7/8	---	5/8	7-10	1.25
68080	5,000	2-5/8	3	1-1/2	1/2	3-7/8	1-1/8	---	3/4	20-25	2.00
68090	12,000	3-1/8	4	1-5/8	3/4	5	1-3/8	1-1/4	7/8	20-25	4.00
68100	20,000	3-5/8	5	2-1/16	1	6-3/16	1-7/8	1-1/4	1	30-35	7.50

HOIST RING PART NO.	STANDARD SCREW			METRIC SCREW			WEIGHT (LBS)
	PART NO.	THREAD SIZE	SCREW LENGTH	PART NO.	THREAD SIZE	SCREW LENGTH	
68060	46144	5/16-18	1-1/4	49142	M8x1.25	30	0.10
68070	46146	3/8-16	1-1/4	49146	M10x1.50	35	0.10
68080	46048	1/2-13	2	49048	M12x1.75	50	0.20
68090	46052	1/2-13	2-1/2	49048	M12x1.75	50	0.20
68100	46043	5/8-11	3	49056	M16x2.00	60	0.30



ULTRA LIFTING RINGS

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 151)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Safety Factor: 4:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Meets or Exceeds the Requirements of EN1677-4

STANDARD										
PART NO.	RATED LOAD (LBS)	A	B	C	D	E	F	H	THREAD SIZE	WEIGHT (LBS)
44104	800	1-1/8	1-1/2	1-1/4	5/16	1/2	3.45	1.42	5/16-18	0.6
44106	1,000	1-1/8	1-1/2	1-1/4	5/16	1/2	3.45	1.42	3/8-16	0.6
44110	2,000	1-3/8	2-1/2	2-1/4	1/2	3/4	5.83	2.36	7/16-14	2.6
44112	2,500	1-3/8	2-1/2	2-1/4	1/2	3/4	5.83	2.36	1/2-13	2.6
44114	3,000	1-3/8	2-1/2	2-1/4	1/2	7/8	5.83	2.36	9/16-12	2.6
44116	4,000	1-3/8	2-1/2	2-1/4	1/2	1	5.83	2.36	5/8-11	2.6
44120	5,000	1-1/2	3	2-3/4	3/4	1-1/4	7.05	2.76	3/4-10	5.0
44122	8,000	1-1/2	3	2-3/4	3/4	1-1/2	7.05	2.76	7/8-9	5.0
44124	10,000	1-1/2	3	2-3/4	3/4	1-1/2	7.05	2.76	1-8	5.0
44146	11,000	2	3-1/2	3-1/2	7/8	2	8.90	2.90	1-1/4-7	9.0
44150	17,600	2	3-1/2	3-1/2	7/8	2-1/8	8.90	2.90	1-1/2-6	9.0
44160	22,000	2-1/2	4	4-1/2	1	3	9.45	3.67	2-4-1/2	14.0
44163	22,000	2-1/2	4	4-1/2	1	6	9.45	3.67	2-4-1/2	17.0
44166	22,000	2-1/2	4	4-1/2	1	12	9.45	3.67	2-4-1/2	22.0
44162	22,000	2-1/2	4	4-1/2	1	3	9.45	3.67	2-8	14.0
44164	22,000	2-1/2	4	4-1/2	1	6	9.45	3.67	2-8	17.0
44168	22,000	2-1/2	4	4-1/2	1	12	9.45	3.67	2-8	22.0
44170	33,000	2-3/4	5-3/16	5	1-1/4	4	11.18	4.13	2-1/2-4	24.0
44176	33,000	2-3/4	5-3/16	5	1-1/4	8	11.18	4.13	2-1/2-4	30.0
44178	33,000	2-3/4	5-3/16	5	1-1/4	12	11.18	4.13	2-1/2-4	35.0
44172	33,000	2-3/4	5-3/16	5	1-1/4	4	11.18	4.13	2-1/2-8	24.0
44177	33,000	2-3/4	5-3/16	5	1-1/4	8	11.18	4.13	2-1/2-8	30.0
44179	33,000	2-3/4	5-3/16	5	1-1/4	12	11.18	4.13	2-1/2-8	35.0

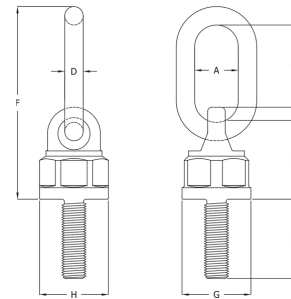
*ADDITIONAL SIZES AVAILABLE UPON REQUEST



METRIC ULTRA LIFTING RINGS

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 151)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Safety Factor: 4:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Meets or Exceeds the Requirements of EN1677-4



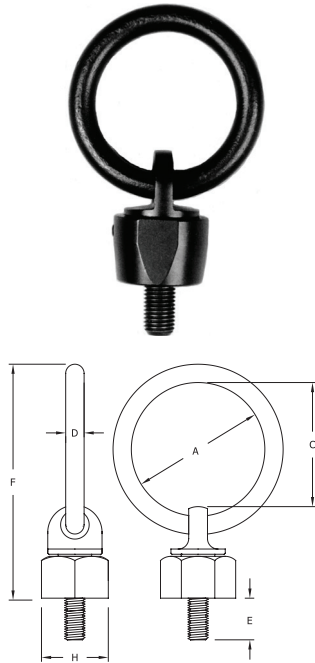
METRIC										
PART NO.	RATED LOAD (KGS)	A	B	C	D	E	F	H	THREAD SIZE	WEIGHT (LBS)
44302	400	1-1/8	1-1/2	1-1/4	5/16	12	3.45	1.42	M8x1.25	0.6
44304	500	1-1/8	1-1/2	1-1/4	5/16	19	3.45	1.42	M10x1.50	0.6
44310	1,050	1-3/8	2-1/2	2-1/4	1/2	20	5.83	2.36	M12x1.75	2.6
44312	1,150	1-3/8	2-1/2	2-1/4	1/2	31	5.83	2.36	M14x2.00	2.6
44314	1,900	1-3/8	2-1/2	2-1/4	1/2	31	5.83	2.36	M16x2.00	2.6
44320	2,150	1-1/2	3	2-3/4	3/4	38	7.05	2.76	M20x2.50	5.0
44322	2,250	1-1/2	3	2-3/4	3/4	38	7.05	2.76	M22x2.50	5.0
44324	4,200	1-1/2	3	2-3/4	3/4	38	7.05	2.76	M24x3.00	5.0
44346	5,000	2	3-1/2	3-1/2	7/8	50	8.90	2.90	M30x3.50	9.0
44348	7,000	2	3-1/2	3-1/2	7/8	50	8.90	2.90	M33x3.50	9.0
44350	8,000	2	3-1/2	3-1/2	7/8	54	8.90	2.90	M36x4.00	9.0
44355	8,000	2	3-1/2	3-1/2	7/8	58	8.90	2.90	M39x4.00	9.0
44360	10,000	2-1/2	4	4-1/2	1	63	9.45	3.67	M42x4.50	13.0
44362	10,000	2-1/2	4	4-1/2	1	152	9.45	3.67	M42x4.50	15.0
44363	10,000	2-1/2	4	4-1/2	1	304	9.45	3.67	M42x4.50	19.0
44367	10,000	2-1/2	4	4-1/2	1	68	9.45	3.67	M45x4.50	14.0
44365	10,000	2-1/2	4	4-1/2	1	68	9.45	3.67	M48x5.00	14.0
44366	10,000	2-1/2	4	4-1/2	1	152	9.45	3.67	M48x5.00	17.0
44364	10,000	2-1/2	4	4-1/2	1	304	9.45	3.67	M48x5.00	21.0
44370	15,000	2-3/4	5-3/16	5	1-1/4	84	11.18	4.13	M56x5.50	22.0
44376	15,000	2-3/4	5-3/16	5	1-1/4	203	11.18	4.13	M56x5.50	27.0
44384	15,000	2-3/4	5-3/16	5	1-1/4	304	11.18	4.13	M56x5.50	31.0
44372	15,000	2-3/4	5-3/16	5	1-1/4	90	11.18	4.13	M60x5.50	23.0
44378	15,000	2-3/4	5-3/16	5	1-1/4	203	11.18	4.13	M60x5.50	28.0
44386	15,000	2-3/4	5-3/16	5	1-1/4	304	11.18	4.13	M60x5.50	33.0
44375	15,000	2-3/4	5-3/16	5	1-1/4	95	11.18	4.13	M64x6.00	24.0
44380	15,000	2-3/4	5-3/16	5	1-1/4	203	11.18	4.13	M64x6.00	30.0
44388	15,000	2-3/4	5-3/16	5	1-1/4	304	11.18	4.13	M64x6.00	35.0

*ADDITIONAL SIZES AVAILABLE UPON REQUEST



THE MOLD HANDLER® DOUBLE SWIVEL EYE BOLTS

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 151)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 4:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°

STANDARD										
PART NO.	RATED LOAD (LBS)	A	B	C	D	E	F	H	THREAD SIZE	WEIGHT (LBS)
42620	800	2	1.48	1.75	3/8	1/2	3.60	1	5/16-18	0.7
42630	1,000	2	1.48	1.75	3/8	5/8	3.60	1	3/8-16	0.7
42640	2,500	3	2.68	2.57	5/8	3/4	5.87	2	1/2-13	3.0
42650	4,000	3	2.68	2.57	5/8	1	5.87	2	5/8-11	3.0
42660	7,000	4	4.25	3.31	1	1-1/4	8.56	3	3/4-10	9.5
42670	10,000	4	4.25	3.31	1	1-1/2	8.56	3	1-8	9.5

METRIC										
PART NO.	RATED LOAD (KGS)	A	B	C	D	E	F	H	THREAD SIZE	WEIGHT (LBS)
42920	400	2	1.48	1.75	3/8	1/2	3.60	1	M8x1.25	0.7
42930	500	2	1.48	1.75	3/8	5/8	3.60	1	M10x1.50	0.7
42940	1,050	3	2.68	2.57	5/8	3/4	5.87	2	M12x1.75	3.0
42950	1,900	3	2.68	2.57	5/8	1	5.87	2	M16x2.00	3.0
42960	2,150	4	4.25	3.31	1	1-1/4	8.56	3	M20x2.50	9.5
42970	4,200	4	4.25	3.31	1	1-1/2	8.56	3	M24x3.00	9.5



SPEED BASE HOIST RINGS

PATENT # 6,161,883, 6,161,884, & 6,578,889

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 152)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or Exceeds the Requirements of ASME B30.26
- Thread: Longer Thread Projection and Fine Threads Available
- No torque wrench required. Just spin the base down flush and tap one of the lugs to tighten.

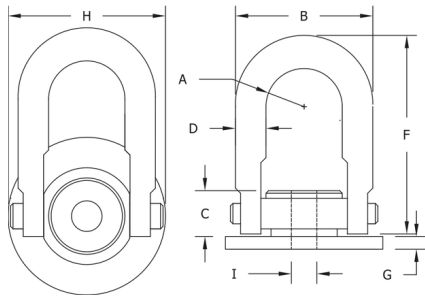


PART NO.	RATED LOAD (LBS)	THREAD SIZE	THREAD PROJ.	U-BAR DIA.	PLATE DIA.
42002	2,500	1/2-13	3/4"	3/4"	3-1/2"
42004	4,000	5/8-11	1"	3/4"	3-1/2"
42006	5,000	3/4-10	1"	3/4"	3-1/2"
42202	7,000	3/4-10	1-1/2"	1"	5-1/2"
42204	8,000	7/8-9	1-1/2"	1"	5-1/2"
42206	10,000	1-8	1-1/2"	1"	5-1/2"
42802	15,000	1-1/4-7	2"	1-1/4"	7"
42704	20,000	1-3/8-6	2"	1-1/4"	7"
42404	20,000	1-1/2-6	3-1/4"	1-1/4"	7"
42400	20,000	2-4-1/2	3-1/4"	1-1/4"	7"



ROUND BASE SWIVEL PIVOT HOIST RING

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 153)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°

STANDARD											
PART NO.	RATED LOAD (LBS)	A	B	C	D	H	F	G	I (SCREW DIA.)	TORQUE (FT-LBS)	WEIGHT (LBS)
44640	1,000	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	3/8	12	3.5
44646	2,500	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	1/2	28	3.5
44642	4,000	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	5/8	60	3.5
44654	5,000	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	3/4	100	3.5
44660	7,000	1.40	4-13/16	1-1/2	1	5	8-7/64	13/32	3/4	100	9.0
44656	8,000	1.40	4-13/16	1-1/2	1	5	8-7/64	13/32	7/8	160	9.0
44666	10,000	1.40	4-13/16	1-1/2	1	5	8-7/64	13/32	1	230	9.0
44670	10,000	1.4	4-13/16	1-1/2	1	5	8-7/64	13/32	1-1/8	230	9.0
44802	15,000	1.75	6	1-7/8	1-1/4	7	8-3/4	1/2	1-1/4	470	17.0
44803	15,000	1.75	6	1-7/8	1-1/4	7	8-3/4	1/2	1-1/2	800	17.0
44704	20,000	2.00	7-11/32	2	1-1/2	7	10-3/16	1/2	1-1/2	800	24.0
44404	24,000	2.25	8	2-3/8	1-3/4	8-1/2	12-1/2	1/2	1-1/2	800	40.0
44406	24,000	2.25	8	2-3/8	1-3/4	8-1/2	12-1/2	1/2	1-3/4	800	40.0
44408	30,000	2.25	8	2-3/8	1-3/4	8-1/2	12-1/2	1/2	2	800	40.0

METRIC											
PART NO.	RATED LOAD (KGS)	A	B	C	D	H	F	G	I (SCREW DIA.)	TORQUE (N-M)	WEIGHT (LBS)
44924	1,050	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	M12	37	3.5
44930	1,900	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	M16	80	3.5
44936	2,150	0.88	3-1/4	1-7/64	3/4	3-1/2	6-3/4	1/4	M20	135	3.5
44942	3,000	1.40	4-13/16	1-1/2	1	5	8-7/64	13/32	M20	135	9.0
44944	4,200	1.40	4-13/16	1-1/2	1	5	8-7/64	13/32	M24	311	9.0
44956	7,000	1.75	6	1-7/8	1-1/4	7	8-3/4	1/2	M30	637	17.0
44960	7,000	1.75	6	1-7/8	1-1/4	7	8-3/4	1/2	M33	937	17.0
44961	7,000	1.75	6	1-7/8	1-1/4	7	8-3/4	1/2	M36	1085	17.0
44962	10,000	2.00	7-11/32	2	1-1/2	7	10-3/16	1/2	M36	1085	24.0
44966	11,000	2.25	8	2-3/8	1-3/4	8-1/2	12-1/2	1/2	M36	1085	40.0
44968	12,500	2.25	8	2-3/8	1-3/4	8-1/2	12-1/2	1/2	M42	1085	40.0
44980	13,500	2.25	8	2-3/8	1-3/4	8-1/2	12-1/2	1/2	M48	1085	40.0

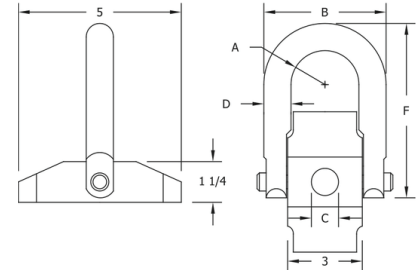
(TO ORDER SPECIAL PLATE FOR WELD-ON APPLICATIONS, ADD "-W" TO PART NUMBER)



PIVOT LIFTING PLATES

**READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 154)**

- 200% Proof-Load Tested with Serial Number for Traceability
- Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Also available: Cadmium Plated, Electroless Nickel Plated, Zinc Plated)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment



PART NO.	RATED LOAD (LBS)	A	B	C (SCREW DIA.)	D	F	TORQUE (FT-LBS)	WEIGHT (LBS)
44410	7,000	1.40	4-13/16	3/4	1	6-1/2	100	6.8
44415	8,000	1.40	4-13/16	7/8	1	6-1/2	160	6.7
44420	10,000	1.40	4-13/16	1	1	6-1/2	230	6.7
44423	10,000	1.40	4-13/16	1-1/8	1	6-1/2	230	6.7
44421	10,000	1.40	4-13/16	1-1/4	1	6-1/2	230	6.7
44419	10,000	1.40	4-13/16	1-1/2	1	6-1/2	230	6.7



REPLACEMENT SCREWS



HOIST RING STANDARD	
PART NO.	SCREW
46100	46139
46102	46142
46104	46144
46106	46146
46606	46614
46602	46636
46000	46076
46638	46076
46008	46048
46644	46048
46010	46050
46646	46050
46012	46052
46648	46052
46007	46039
46651	46039
46002	46056
46641	46056
46004	46044
46640	46044
46006	46046
46642	46046
46005	46045
46643	46045
46014	46054
46650	46054
46018	46058
46654	46058
46204	46244
46658	46244
46206	46246
46660	46246
46202	46242
46656	46242
46203	46243

HOIST RING STANDARD	
PART NO.	SCREW
46657	46243
46205	46270
46655	46270
46210	46250
46662	46250
46212	46252
46664	46252
46214	46254
46666	46254
46216	46280
46668	46280
46217	46260
46669	46260
46802	46842
46805	46845
46806	46871
46807	46865
46702	46752
46404	46444
46405	46415
46408	46449
46406	46447
46400	46450
46440	46412
46431	46471
46435	46451
47002	47052
47006	47056
47008	47059
47010	47049
47200	47252
47202	47251
47402	47452
47406	47456
47602	47652

HOIST RING METRIC	
PART NO.	SCREW
46912	49142
46913	49150
46916	49146
46608	49668
46609	49672
46924	49048
47124	49048
46928	49050
47128	49050
46933	49073
46930	49056
47130	49056
46934	49057
47134	49057
46938	49079
47132	49079
46936	49054
47136	49054
46941	49241
47140	49241
46942	49244
47142	49244
46944	49245
47144	49245
46947	49267

HOIST RING METRIC	
PART NO.	SCREW
47146	49267
46948	49250
47148	49250
46950	49242
46956	49842
46955	49841
46958	49846
46957	49849
46960	49848
46961	49751
46962	49752
46963	49343
46966	49344
46964	49342
46965	49442
46968	49444
46980	49447
46970	49450
46979	49430
46973	49456
46972	49644
46988	49744
46989	49750
46990	49844
46994	49854



REPLACEMENT SCREWS



FORGED SWIVEL STANDARD	
PART NO.	SCREW
56100	56138
56102	56142
56104	56144
56106	56146
56107	56147
56008	56048
56010	56050
56012	56052
56002	56056
56004	56044
56006	56046
56014	56054
56018	56058
56204	56244
56203	56245
56206	56246
56202	56242
56205	56243
56210	56250
56212	56252
56214	56254
56802	56842
56804	56846
56702	56752
56404	56444

FORGED SWIVEL METRIC	
PART NO.	SCREW
56912	54142
56914	54144
56916	54146
56918	54147
56924	54048
56926	54052
56930	54056
56932	54058
56936	54054
56938	54055
56942	54244
56946	54252
56948	54250
56949	54243
56950	54242
56956	54842
56960	54848
56966	54344
56968	54444
56970	54450

STAINLESS STEEL STANDARD	
PART NO.	SCREW
58100	58139
58102	58142
58104	58144
58106	58146
58606	58614
58602	58636
58000	58076
58638	58076
58008	58048
58644	58048
58010	58050
58646	58050
58012	58052
58648	58052
58002	58056
58004	58044
58640	58044
58006	58046
58642	58046
58014	58054
58650	58054
58018	58058
58654	58058
58204	58244
58658	58244
58206	58246
58660	58246
58202	58242
58656	58242
58205	58270
58208	58241
58210	58250
58662	58250
58212	58252
58664	58252
58214	58254
58666	58254
58802	58842
58702	58752
58704	58754
58706	58756
58708	58758
58404	58444
58400	58450
59002	59052
59006	59056
59200	59252
59402	59452
59602	59652

STAINLESS STEEL METRIC	
PART NO.	SCREW
58912	59143
58916	59146
58924	59048
59124	59048
58930	59057
59130	59057
58936	59054
59136	59054
58942	59244
59142	59244
58948	59250
59148	59250
58950	59242
58956	59842
58958	59846
58966	59344
58968	59444
58970	59450
58972	59644
58988	59744
58990	59844



REPLACEMENT SCREWS



SIDE LOAD STANDARD	
PART NO.	SCREW
43510	46143-SL
43515	46155-SL
43520	46052-SL
43525	46045-SL
43530	46262-SL
43535	46277-SL
43540	46254-SL
43545	46846-SL
43547	46875-SL
43550	46444-SL
43552	46489-SL
43555	46463-SL
43557	46491-SL

SIDE LOAD METRIC	
PART NO.	SCREW
43560	49151-SL
43565	49153-SL
43570	49041-SL
43575	49058-SL
43580	49248-SL
43582	49247-SL
43585	49255-SL
43590	49849-SL
43595	49342-SL
43600	49444-SL
43605	49451-SL

SIDE PULL STANDARD	
PART NO.	SCREW
68210	68218
68220	68222
68225	68227
68250	68258

SIDE PULL METRIC	
PART NO.	SCREW
68310	68318
68320	68322
68325	68327
68350	68358

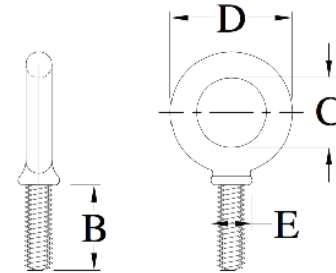


SHOULDER EYE BOLT

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 159)



- Material: C1030
- Heat Treat: Quench & Draw
- Finish: Plain or Black Oxide
- Stainless Steel Available



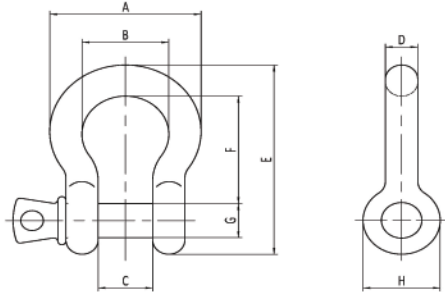
INCH				METRIC				C	D	E
PART NO.	THREAD SIZE	W.L.L. VERT 0 (LBS)	B SHANK LENGTH	PART NO.	THREAD SIZE	W.L.L. VERT 0 (KGS)	B SHANK LENGTH (MM)	I.D. EYE	O.D. EYE	COLLAR DIA.
41401	1/4-20	500	1	41301	M6x1.0	210	25.40	3/4	1-3/16	17/32
41403	5/16-18	900	1-1/8	41303	M7x1.0	370	28.50	7/8	1-7/16	19/32
41405	3/8-16	1,300	1-1/4	41300	M8x1.25	500	31.70	1	1-21/32	11/16
41407	7/16-14	1,800	1-3/8	41302	M10x1.5	740	35.00	1-3/32	1-27/32	25/32
41409	1/2-13	2,400	1-1/2	41304	M12x1.75	1,030	38.00	1-3/16	2-1/16	7/8
41411	9/16-12	3,000	1-5/8	41306	M14x2.0	1,600	41.10	1-9/32	2-9/32	31/32
41413	5/8-11	4,000	1-3/4	41308	M16x2.0	1,600	44.50	1-3/8	2-1/2	1-1/16
41415	3/4-10	5,000	2	41310	M18x2.5	2,140	51.00	1-1/2	2-13/16	1-1/4
41417	7/8-9	7,000	2-1/4	41312	M20x2.5	2,860	57.00	1-11/16	3-1/4	1-7/16
				41314	M22x2.5	2,860	63.50	1-11/16	3-1/4	1-7/16
41419	1-8	9,000	2-1/2	41316	M24x3.0	3,850	63.50	1-13/16	3-9/16	1-9/16
41421	1-1/8-7	12,000	2-3/4	41318	M27x3.0	5,200	70.00	2	4	1-11/16
41423	1-1/4-7	15,000	3	41320	M30x3.5	6,400	76.00	2-3/16	4-7/16	1-7/8
41425	1-3/8-6	15,000	3-1/2	41321	M33x3.5	6,400	89.00	2-1/2	5-3/16	2-3/16
41430	1-1/2-6	21,000	3-1/2	41322	M36x4.0	8,970	89.00	2-1/2	5-3/16	2-3/16
				41324	M42x4.5	11,960	95.00	2-7/8	6-1/16	2-1/2
41431	1-3/4-5	28,000	3-3/4	41326	M45x4.5	12,720	95.00	2-7/8	6-1/16	2-1/2
				41328	M48x5.0	16,400	101.60	3-1/4	6-7/8	2-7/8
41433	2-4-1/2	38,000	4	41330	M52x5.0	17,300	101.60	3-1/4	6-7/8	2-7/8
				41332	M56x5.50	17,300	127.00	4	8-9/16	3-3/4
41434	2-1/2-4	56,000	5	41335	M64x6.0	24,458	127.00	4	8-9/16	3-3/4

- * LONGER SHANK EYE BOLTS AVAILABLE UPON REQUEST
- * STAINLESS STEEL EYE BOLTS AVAILABLE UPON REQUEST ADD "-SS" TO THE PART NO.
- * FINE THREAD EYE BOLTS AVAILABLE UPON REQUEST ADD "-F" TO THE PART NO.
- * 8 THREAD SHOULDER EYE BOLT AVAILABLE UPON REQUEST ADD "-8" TO THE PART NO.

**CAUTION: RATED CAPACITY IS FOR STRAIGHT LIFTS. ANGLE LIFTS SHOULD BE AVOIDED.
LOAD LIMITS ARE REDUCED BY 75% ON ANGLE LIFTS.
THE SHOULDER MUST BE MOUNTED FLUSH TO LIFTING SURFACE**



ALLOY SHACKLE SCREW PIN TYPE



- 200% Proof-Load Tested Upon Request
- Material: Alloy Steel
- Finish: Hot Dipped Galvanized or Self Colored
- Safety Factor: 5:1
- 100% Magnetic Particle Inspected
- Certified Heat Treatment
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or Exceeds the Requirements of ASME B30.26

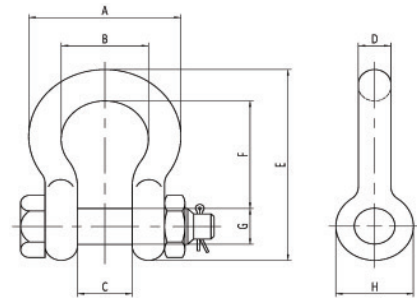
SIZE (INCH)	PART NO.	WORKING LOAD LIMIT (TONS)	A	B	C	D	E	F	G	H	WT. (LBS)
3/8	60002	2	1-13/16	1	21/32	3/8	2-1/2	1-7/16	7/16	1	0.31
1/2	60004	3-1/3	2-1/3	1-1/3	13/16	1/2	3-1/3	1-7/8	5/8	1-3/16	0.63
5/8	60006	5	2-15/16	1-11/16	1-1/16	5/8	4-3/16	2-3/8	3/4	1-1/2	1.40
3/4	60008	7	3-1/2	2	1-1/4	3/4	5	2-13/16	7/8	1-13/16	2.30
7/8	60010	9-1/2	4	2-1/4	1-7/16	7/8	5-13/16	3-5/16	1	2-1/8	3.50
1	60012	12-1/2	4-11/16	2-11/16	1-11/16	1	6-1/2	3-3/4	1-1/8	2-3/8	5.15
1-1/4	60016	18	5-3/4	3-1/4	2-1/32	1-1/4	8-1/4	4-11/16	1-3/8	3	10.50
1-1/2	60020	25	6-7/8	3-7/8	2-3/8	1-1/2	10	5-3/4	1-5/8	3-5/8	17.95

CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. SIDE LOAD LIFTS SHOULD BE AVOIDED.



ALLOY SHACKLE BOLT AND NUT TYPE

- 200% Proof-Load Tested Upon Request
- Material: Alloy Steel
- Finish: Hot Dipped Galvanized or Self Colored
- Safety Factor: 5:1
- 100% Magnetic Particle Inspected
- Certified Heat Treatment
- Fatigue Tested to 20,000 Cycles at 1-1/2x the Rated Load
- Meets or Exceeds the Requirements of ASME B30.26



SIZE (INCH)	PART NO.	WORKING LOAD LIMIT (TONS)	A	B	C	D	E	F	G	H	WT. (LBS)
3/8	60030	2	1-13/16	1	21/32	3/8	2-1/2	1-7/16	7/16	1	0.31
1/2	60032	3-1/3	2-1/3	1-1/3	13/16	1/2	3-1/3	1-7/8	5/8	1-3/16	0.63
5/8	60034	5	2-15/16	1-11/16	1-1/16	5/8	4-3/16	2-3/8	3/4	1-1/2	1.55
3/4	60036	7	3-1/2	2	1-1/4	3/4	5	2-13/16	7/8	1-13/16	2.50
7/8	60038	9-1/2	4	2-1/4	1-7/16	7/8	5-13/16	3-5/16	1	2-1/8	4.05
1	60040	12-1/2	4-11/16	2-11/16	1-11/16	1	6-1/2	3-3/4	1-1/8	2-3/8	5.75
1-1/4	60044	18	5-3/4	3-1/4	2-1/32	1-1/4	8-1/4	4-11/16	1-3/8	3	11.40
1-1/2	60048	25	6-7/8	3-7/8	2-3/8	1-1/2	10	5-3/4	1-5/8	3-5/8	18.55

CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. SIDE LOAD LIFTS SHOULD BE AVOIDED.



STREET PLATE

SAFE AND EASY LIFTING SOLUTIONS

Actek® Mfg. & Eng. Inc. introduced a Street Plate Lifting Ring working in conjunction with the safety engineers of a large public utility company. These patented Street Plate Lifting Rings enable faster and safer handling of heavy steel plates commonly used to cover trenches and excavations in streets and roadways during construction or repair.

Because these rings can swivel 360° and pivot 180°, the rigger can leave the ring on the hook while attaching it onto the steel plate, and the operator can pull at any angle without compromising the strength. Models are available in 5,000, 10,000 and 15,000 pound ranges. They are designed for quick, simple attachment with the star-shaped drive lugs for easy tightening and removal; no tools are required. There are no loose pins or clips to break or fall out.

Furthermore, the Street Plate Lifting System was designed specifically with safety in mind. The Lifting Rings and Nuts are manufactured to work in conjunction with each other to ensure proper usage. Matching the nuts or studs with those from other suppliers is not recommended. Commercially available nuts may not meet the specific tolerances required for lifting heavy load.

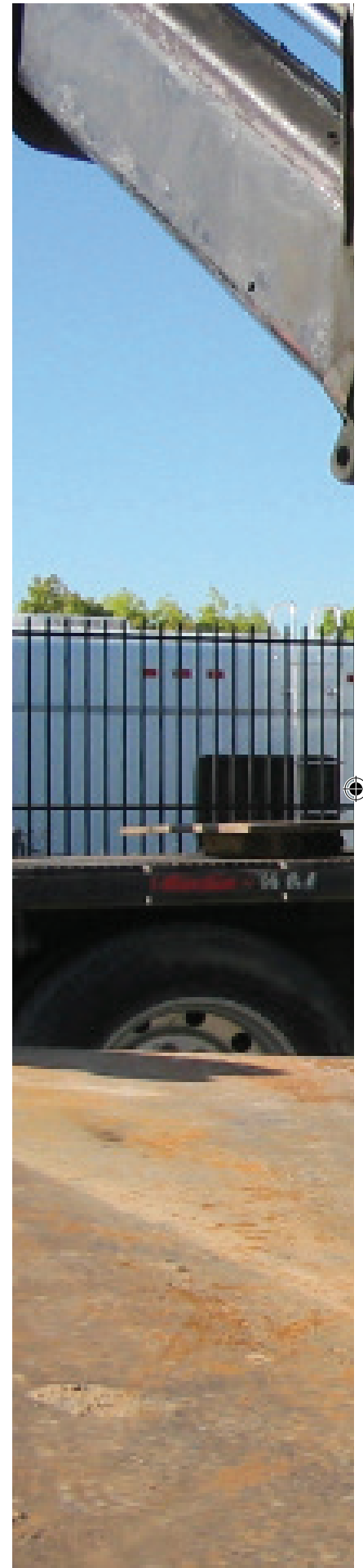
Street plates have limits like any other equipment or tool used in the work place. The recommended steel to use for street plates should be A36, mill certified, structural steel or better and accompanied by a tabulated data, signed and approved by a registered engineer. There are several theories and calculations on steel plates and tabulated data may vary from agencies or companies.

Grade 80, Spectrum 8 is the recommended chain for overhead lifting applications. The chain size should be 3/8" for lifting 1" thick plates or 1/2" for 1-1/2" thick plates. Make

sure the chain is not twisted, knotted or kinked before lifting the load. Slings should not be shortened with knots, bolts or other makeshift devices. Visually examine chains for stretched, gouged, bent or damaged links and components, including, hooks with opened throats, cracks or distortion. If any equipment is damaged, remove from service immediately.

Hands or fingers should not be placed on or around the steel plate, and should not be pushed or guided by employee's hands while loading, unloading or placing the steel plates. The proper way of guiding the steel plate in place is with a device that has a magnet attached to a metal rod and used like a tag line. The steel plates should be straight and true with very little deformity and should be shimmed so the plate will not rock or injure anyone. Placing a cold patch around the edges can eliminate tripping hazards, protect tires from bursting and also aid in keeping the plate in position.

According to Underwriters Laboratories and OSHA, a walking surface should have a Coefficient of Friction (COF) greater than 0.5. Steel plates have a Coefficient of Friction of 0.55 when dry. However, these plates become very slippery when wet, and the COF can drop to less than 0.25. Several California cities and municipalities are requiring some form of friction enhancement on the steel plates as a condition for encroachment permits. The typical requirement is a non-skid surface having a minimum COF equivalent to 0.35. The non-skid plates required by various California cities and municipalities are readily available by most plate rental companies. When ordering them, be sure to ask for a Certificate of Conformity.



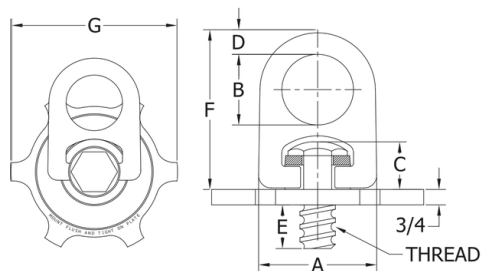




FORGED STREET PLATE LIFTING RING

PATENT # 6,161,883, 6,161,884, & 6,578,889

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 155)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°

PART NO.	RATED LOAD (LBS)	A	B	C	D	E	F	G	THREAD TYPE	THREAD SIZE	WT. (LBS)
38005	5,000	4.05	2.40	1.97	3/4	3/4	5.60	5-1/2	COIL	3/4-4.5	8.0
38015	5,000	4.05	2.40	1.97	3/4	1	5.60	5-1/2	COIL	1-3.5	8.0
38045	5,000	4.05	2.40	1.97	3/4	3/4	5.60	5-1/2	ACME	3/4-5	8.0
38055	5,000	4.05	2.40	1.97	3/4	1	5.60	5-1/2	ACME	1-5	8.0
38025	5,000	4.05	2.40	1.97	3/4	3/4	5.60	5-1/2	UNC	3/4-10	8.0
38035	5,000	4.05	2.40	1.97	3/4	1	5.60	5-1/2	UNC	1-8	8.0
38215	10,000	5.40	3.20	2.62	1	1	7.48	7	COIL	1-1/4-3.5	16.0
38225	10,000	5.40	3.20	2.62	1	1-1/2	7.48	7	COIL	1-1/2-3.5	16.0
38235	10,000	5.40	3.20	2.62	1	1	7.48	7	ACME	1-1/4-5	16.0
38245	10,000	5.40	3.20	2.62	1	1-1/2	7.48	7	ACME	1-1/2-5	16.0
38255	10,000	5.40	3.20	2.62	1	1	7.48	7	UNC	1-1/4-7	16.0
38915	10,000	5.40	3.20	2.62	1	1-1/2	7.48	7	UNC	1-1/2-6	16.0
38865	15,000	6.75	4	3.28	1-1/4	1	9.35	9	COIL	1-1/4-3.5	28.0
38875	15,000	6.75	4	3.28	1-1/4	1-1/2	9.35	9	COIL	1-1/2-3.5	28.0
38885	15,000	6.75	4	3.28	1-1/4	1	9.35	9	ACME	1-1/4-5	28.0
38895	15,000	6.75	4	3.28	1-1/4	1-1/2	9.35	9	ACME	1-1/2-5	28.0
38870	15,000	6.75	4	3.28	1-1/4	1	9.35	9	UNC	1-1/4-7	28.0
38890	15,000	6.75	4	3.28	1-1/4	1-1/2	9.35	9	UNC	1-1/2-6	28.0

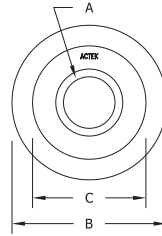
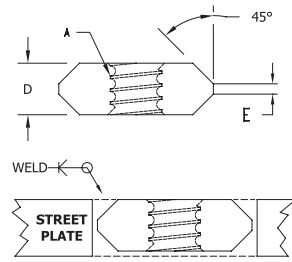
*VARIOUS THREAD LENGTHS & DIAMETERS AVAILABLE



STREET PLATE NUT

PATENT # 6,231,267

SEE WELDING INSTRUCTIONS
(SAFETY INFORMATION PAGE 157)



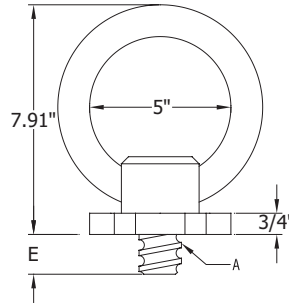
- Material: Alloy Steel
- Finish: Black Oxide
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment

PART NO.	THREAD TYPE	THREAD SIZE (A)	B	C	D	PART NO.	THREAD TYPE	THREAD SIZE (A)	B	C	D
48808	COIL	3/4-4.5	3	2-1/8	3/4	48819	ACME	1-1/4-5	3	2-1/8	7/8
48801	COIL	1-3.5	3	2-1/8	3/4	48820	ACME	1-1/4-5	3	2-1/8	1
48802	COIL	1-3.5	3	2-1/8	7/8	48828	ACME	1-1/2-5	3-1/2	2-3/8	1
48803	COIL	1-3.5	3	2-1/8	1	48824	ACME	1-1/2-5	3-1/2	2-3/8	1-1/2
48812	COIL	1-1/4-3.5	3	2-1/8	3/4	48821	UNC	3/4-10	3	2-1/8	3/4
48815	COIL	1-1/4-3.5	3	2-1/8	7/8	48823	UNC	1-8	3	2-1/8	1
48822	COIL	1-1/4-3.5	3	2-1/8	1	48825	UNC	1-1/4-7	3	2-1/8	1
48816	COIL	1-1/4-3.5	3	2-1/8	1-1/4	48805	UNC	1-1/4-7	3	2-1/8	1-1/2
48817	COIL	1-1/4-3.5	3	2-1/8	1-1/2	48831	UNC	1-1/2-6	3	2-1/8	1
48804	COIL	1-1/2-3.5	3-1/2	2-3/8	1	48826	UNC	1-1/2-6	3-1/2	2-3/8	1
48806	COIL	1-1/2-3.5	3-1/2	2-3/8	1-1/4	48827	UNC	1-1/2-6	3-1/2	2-3/8	1-1/2
48856	COIL	1-1/2-3.5	3-1/2	2-3/8	1-1/2	48829	UNC	2-4-1/2	3-1/2	2-3/8	1-1/2



SUPER EYEBOLT

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 156)

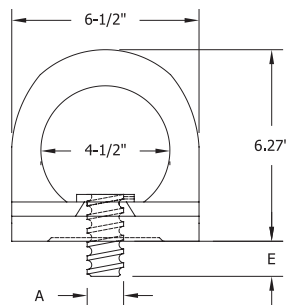


- Material: Alloy Steel
- Finish: Black Oxide or Hot-Dipped Galvanized
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment

THREAD DIAMETER	WORKING LOAD LIMIT (LBS.)	PART NO. COIL	PART NO. UNC	PART NO. ACME	THREAD PROTRUSION
3/4	4,000	48630	48631	48633	3/4"
1	5,000	48640	48641	48643	1"
1-1/4	8,000	48650	48651	48653	1"
1-1/2	10,000	48660	48661	48663	1-1/2"

LOW PROFILE SUPER EYEBOLT

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 156)



- Material: Alloy Steel
- Finish: Black Oxide or Hot-Dipped Galvanized
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment



(A) THREAD DIAMETER	WORKING LOAD LIMIT (LBS.)	PART NO. COIL	PART NO. UNC	PART NO. ACME	(E) THREAD PROTRUSION
1	5,000	48612	48712	48722	1"
1-1/4	8,000	48680	48714	48724	1"
1-1/2	10,000	48685	48716	48726	1-1/2"



STREET PLATE ACCESSORIES

THREAD CLEAN OUT TOOL

Used to clean out dirt or other foreign matter from the thread of nuts.

THREAD DIAMETER	PART NO. COIL	PART NO. ACME	PART NO. UNC
1-1/4	48842	48840	48844
1-1/2	48843	48841	48845

*AVAILABLE IN OTHER THREAD SIZES



NO GO GAGE

Used to determine when these items need to be replaced. Other coil hex nuts that are commercially available do not meet the requirements specified for lifting heavy street or trench plates. The thread on these nuts are out of tolerance, and the material used is not suitable for the critical lifting application required for handling street or trench plates.

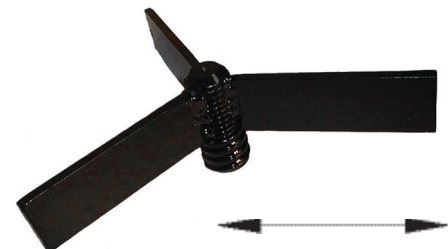
THREAD DIAMETER	PART NO.	THREAD TYPE
3/4	48934	COIL
1	48935	COIL
1-1/4	48936	COIL
1-1/4-7	48939	UNC
1-1/2	48937	COIL



WELDING FIXTURE

Used to hold the nut in place (flush and perpendicular to the street plate surface) to ease in the tacking of the nut. (Please refer to the Welding Instructions on how to properly weld the nut into place.)

THREAD DIAMETER	PART NO. COIL	PART NO. ACME
1-1/4	48960	48961
1-1/4 LONG	48960-L	48961-L
1-1/2	48963	48964
1-1/2 LONG	48963-L	48964-L



Available with either 4-1/2" or 13" legs. (13" referred to as "long")



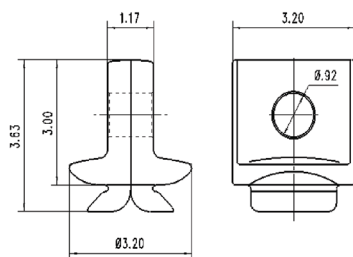
FORGED ALLOY FAST LIFT SYSTEM



- Material: Alloy Steel
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment

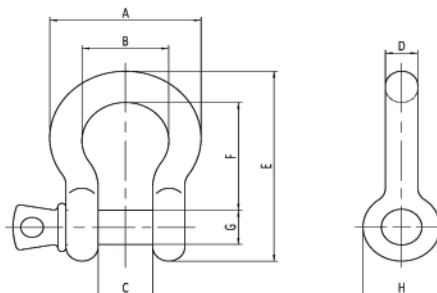
PART NO.	W.L.L.
37930	8,000 lbs

FORGED FAST LIFT CLEVIS



PART NO.	W.L.L.
37940	8,000 lbs

FORGED ALLOY SHACKLE



SIZE (INCH)	PART NO.	WORKING LOAD LIMIT (TONS)	A	B	C	D	E	F	G	H	WT. (LBS)
3/4	60008	7	3-1/2	2	1-1/4	3/4	5	2-13/16	7/8	1-13/16	2.30

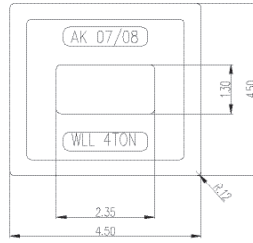
CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. SIDE LOAD LIFTS SHOULD BE AVOIDED.



FORGED ALLOY FAST LIFT SYSTEM

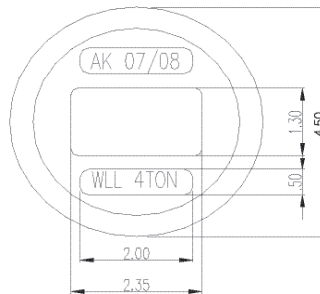
FORGED ALLOY WELD-IN PLATE

- Material: Alloy Steel
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment



PART NO.	W.L.L.
37960	8,000 lbs

- Material: Alloy Steel
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment



PART NO.	W.L.L.
34962	8,000 lbs

WELD-IN CONVERSION NUT



PART NO.
48790



Weld into existing plate and cover to the screw-on Actek street plate lifting system.



PART NO.
38215



CONTINUOUS THREADED ROD

- Material: Heat Treated Alloy Steel
- Finish: Black Oxide
- Hardness RC 38-42
- Tensile Strength: 170,000 PSI
- Yield Strength: 150,000 PSI



DIAMETER	PART NO. COIL	PART NO. ACME	PART NO. UNC
1/2" 13mm	48330	48331	48332
3/4" 19mm	48340	48341	48342
1" 25mm	48350	48351	48352
1-1/4" 32mm	48360	48361	48362
1-1/2" 38mm	48370	48371	48372
2" 50mm	48375	-	48376
2-1/2" 63mm	-	-	48379

*AVAILABLE IN ANY LENGTH UP TO 36"

* SPECIFY PART NUMBER AND LENGTH IN INCHES.

(EX. 1/2" COIL W/12" LENGTH = AK48330-12)

HEAVY-DUTY HEX BOLT



TO ORDER, USE THREADED ROD PART NUMBER "-HB-(LENGTH)"
(EXAMPLE: 1/2" COIL BOLT W/ 12" LENGTH = AK48330-HB-12)

HEAVY-DUTY HEX NUT



DIAMETER	PART NO. COIL	PART NO. ACME	PART NO. UNC
1/2"	48849	48857	46069
3/4"	48847	48858	46067
1"	48833	48859	46261
1-1/4"	48832	48830	46863
1-1/2"	48836	48834	46460
2"	48846		46456



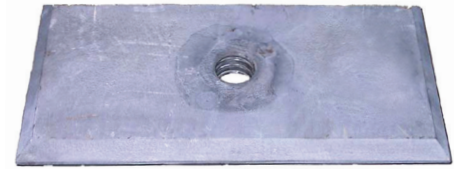
WELDABLE PLATE

WELDED PLATE

- Used to replace the center section of street plates from prior usage. (i.e holes, slots, etc.)
- Eliminates the need to change the entire plate.



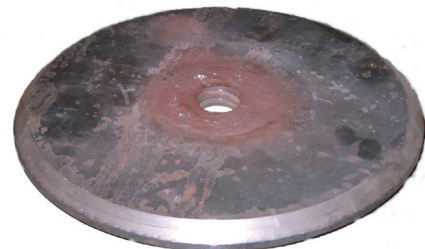
6" X 12" RECTANGULAR PLATE ASSEMBLY	RECTANGULAR PLATE ONLY	NUT ONLY PART NO.	THREAD TYPE	THREAD SIZE
48982A	48982	48822	COIL	1-1/4-3.5
48982B	48982	48803	COIL	1-3.5
48982C	48982	48804	COIL	1-1/2-3.5
48982D	48982	48820	ACME	1-1/4-5



6-1/2" ROUND PLATE ASSEMBLY	6-1/2" ROUND PLATE ONLY	NUT ONLY PART NO.	THREAD TYPE	THREAD SIZE
48980A	48980	48822	COIL	1-1/4-3.5
48980B	48980	48803	COIL	1-3.5
48980C	48980	48804	COIL	1-1/2-3.5
48980D	48980	48820	ACME	1-1/4-5



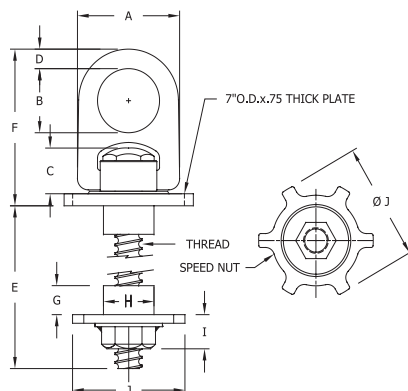
11" ROUND PLATE ASSEMBLY	11" ROUND PLATE ONLY	NUT ONLY PART NO.	THREAD TYPE	THREAD SIZE
48985A	48985	48822	COIL	1-1/4-3.5
48985B	48985	48803	COIL	1-3.5
48985C	48985	48804	COIL	1-1/2-3.5
48985D	48985	48820	ACME	1-1/4-5





PRE-CAST CONCRETE FORGED SWIVEL HOIST RING

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 145)



- Swivels 360° - Pivots 180°
- Material: Alloy steel
- Finish: Black Oxide
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°

PART NO.	RATED LOAD (LBS)	THREAD SIZE	A	B	C	D	F	J	THREAD TYPE	WT. (LBS)
57440	10,000	1	5.40	3.20	2.62	1	7.48	5-1/2	COIL	16.0
57445	10,000	1-1/4	5.40	3.20	2.62	1	7.48	5-1/2	COIL	16.0
57450	15,000	1-1/4	6.75	4	3.28	1-1/4	9.35	7	COIL	28.0
57460	24,000	1-1/2	6.75	4	3.28	1-1/4	9.35	7	COIL	28.0
57470	24,000	2	6.75	4	3.28	1-1/4	9.35	7	COIL	28.0

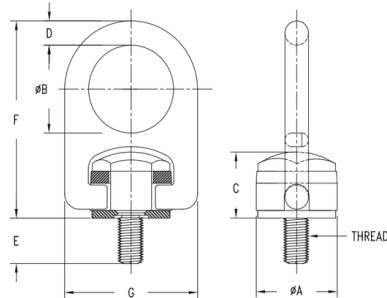
*VARIOUS THREAD LENGTHS AVAILABLE, "E" DIMENSIONS

*VARIOUS LENGTHS, "G", "I", AND DIAMETERS "H" AVAILABLE



FORGED SWIVEL HOIST RING COIL THREAD

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 145)



- 200% Proof-Load Tested with Serial Number for Traceability
- Swivels 360° - Pivots 180°
- Material: Alloy Steel
- Finish: Black Oxide (Cadium, Electroless Nickel, & Galvanized Available)
- Safety Factor: 5:1
- Magnetic Particle Inspected
- Certified Heat Treatment
- Rated at 100% from 0°-90°

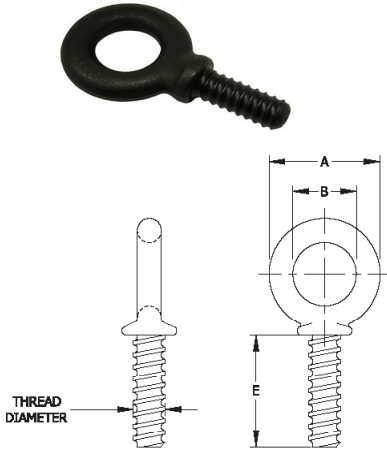
PART NO.	RATED LOAD (LBS)	THREAD SIZE	A	B	C	D	E	F	G	TORQUE (FT-LBS)	WEIGHT (LBS.)
57102	2,500	1/2"-6	2.10	2.40	1.97	0.75	3.00	5.60	4.05	28	3.75
57104	2,500	1/2"-6	2.10	2.40	1.97	0.75	6.00	5.60	4.05	28	3.90
57106	2,500	1/2"-6	2.10	2.40	1.97	0.75	10.00	5.60	4.05	28	4.10
57112	5,000	3/4"-4 1/2	2.10	2.40	1.97	0.75	3.00	5.60	4.05	100	3.95
57114	5,000	3/4"-4 1/2	2.10	2.40	1.97	0.75	6.00	5.60	4.05	100	4.15
57116	5,000	3/4"-4 1/2	2.10	2.40	1.97	0.75	10.00	5.60	4.05	100	4.65
57122	7,000	3/4"-4 1/2	2.80	3.20	2.62	1.00	3.00	7.48	5.40	100	9.20
57124	7,000	3/4"-4 1/2	2.80	3.20	2.62	1.00	6.00	7.48	5.40	100	9.25
57126	7,000	3/4"-4 1/2	2.80	3.20	2.62	1.00	10.00	7.48	5.40	100	9.80
57132	10,000	1"-3 1/2	2.80	3.20	2.62	1.00	3.00	7.48	5.40	230	9.30
57134	10,000	1"-3 1/2	2.80	3.20	2.62	1.00	10.00	7.48	5.40	230	10.60
57136	10,000	1"-3 1/2	2.80	3.20	2.62	1.00	24.00	7.48	5.40	230	13.20
57142	15,000	1 1/4"-3 1/2	3.50	4.00	3.28	1.25	3.00	9.35	6.75	470	17.90
57144	15,000	1 1/4"-3 1/2	3.50	4.00	3.28	1.25	10.00	9.35	6.75	470	19.90
57146	15,000	1 1/4"-3 1/2	3.50	4.00	3.28	1.25	24.00	9.35	6.75	470	23.95
57152	24,000	1 1/2"-3 1/2	3.50	4.00	3.28	1.25	3.00	9.35	6.75	800	18.35
57154	24,000	1 1/2"-3 1/2	3.50	4.00	3.28	1.25	10.00	9.35	6.75	800	21.30
57156	24,000	1 1/2"-3 1/2	3.50	4.00	3.28	1.25	24.00	9.35	6.75	800	27.25

*ALL LENGTH AVAILABLE UPON REQUEST



FORGED ALLOY COIL SHOULDER EYE BOLT

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 158)



- Material: Alloy Steel
- Finish: Hot Dip Galvanized or Black Oxide
- Full Thread

THREAD DIAMETER	THREAD TYPE	PART NO.	WORKING LOAD LIMIT (LBS)	A	B	E
3/4	COIL	48672	5,000	2-7/8	1-1/2	3-1/2
3/4	COIL	48672-6	5,000	2-7/8	1-1/2	6
1	COIL	48674	10,000	3-3/4	2	3-1/2
1	COIL	48674-6	10,000	3-3/4	2	6

CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. ANGLE LIFTS SHOULD BE AVOIDED.

FORGED ALLOY EYE NUT

READ SAFETY PRECAUTION PRIOR TO USE
(SAFETY INFORMATION PAGE 158)



EYE NUT WITH THREADED ROD

THREAD DIAMETER	THREAD TYPE	PART NO.	WORKING LOAD LIMIT (LBS)	A	B	C	D	F	E
1/2-6	COIL	48560	2,500	3.10	0.82	1.80	2-1/2	1-1/2	2-1/2
3/4-4-1/2	COIL	48562	5,000	3.50	1.00	1.85	3	2	3
1-3-1/2	COIL	48564	10,000	4.30	1.33	2.10	3-3/4	2-3/4	3-1/2
1-1/4-3-1/2	COIL	48566	15,000	5.30	1.50	2.80	4-1/2	3-1/8	4
1-1/2-3-1/2	COIL	48568	24,000	6.50	1.90	3.30	5-5/8	3-3/4	6
1/2-13	UNC	48561	2,500	3.10	0.82	1.80	2-1/2	1-1/2	2-1/2
3/4-10	UNC	48563	5,000	3.50	1.00	1.85	3	2	3
1-8	UNC	48565	10,000	4.30	1.33	2.10	3-3/4	2-3/4	3-1/2
1-1/4-7	UNC	48567	15,000	5.30	1.50	2.80	4-1/2	3-1/8	4
1-1/2-6	UNC	48569	24,000	6.50	1.90	3.30	5-5/8	3-3/4	6

*LONGER SHANK AVAILABLE UPON REQUEST

GALVANIZED EYE NUT

THREAD DIAMETER	THREAD TYPE	PART NO.	WORKING LOAD LIMIT (LBS)	A	B	C	D	F
1/2-6	COIL	48570-G	2,500	3.10	0.82	1.80	2-1/2	1-1/2
3/4-4-1/2	COIL	48572-G	5,000	3.50	1.00	1.85	3	2
1-3-1/2	COIL	48574-G	10,000	4.30	1.33	2.10	3-3/4	2-3/4
1-1/4-3-1/2	COIL	48576-G	15,000	5.30	1.50	2.80	4-1/2	3-1/8
1-1/2-3-1/2	COIL	48578-G	24,000	6.50	1.90	3.30	5-5/8	3-3/4
1/2-13	UNC	48580-G	2,500	3.10	0.82	1.80	2-1/2	1-1/2
3/4-10	UNC	48582-G	5,000	3.50	1.00	1.85	3	2
1-8	UNC	48584-G	10,000	4.30	1.33	2.10	3-3/4	2-3/4
1-1/4-7	UNC	48586-G	15,000	5.30	1.50	2.80	4-1/2	3-1/8
1-1/2-6	UNC	48588-G	24,000	6.50	1.90	3.30	5-5/8	3-3/4

*ONLY USE GRADE 8 THREADED ROD OR BETTER

CAUTION: WORKING LOAD LIMIT IS FOR STRAIGHT LIFTS. ANGLE LIFTS SHOULD BE AVOIDED.

- Material: Alloy Steel
- Heat Treated
- Finish: Hot Dip Galvanized or Black Oxide



FORGED ALLOY SHIELD SPREADER PIN

- Material: Heat Treated Alloy Steel
- Finish: Powdercoat
- Hardness: RC 38-42
- Tensile Strength: 170,000 PSI
- Yield Strength: 150,000 PSI



DIAMETER

TENSILE STRENGTH



DIA. x LENGTH	PART NO.
1-1/2 x 10-1/2	80463
1-3/4 x 10-1/2	80465
2 x 10-1/2	80469

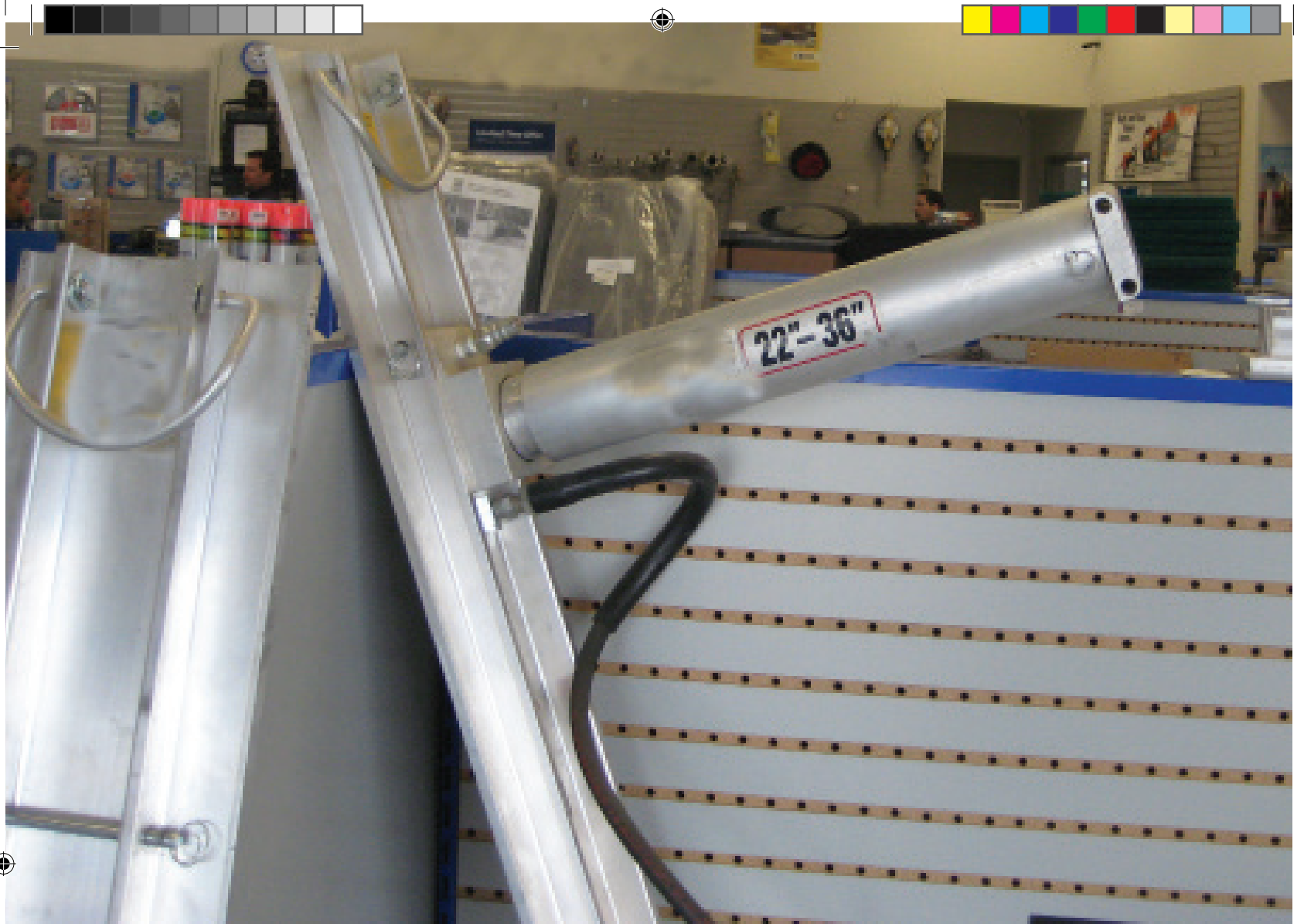
WIRE LOCK PIN

ROUND LOOP

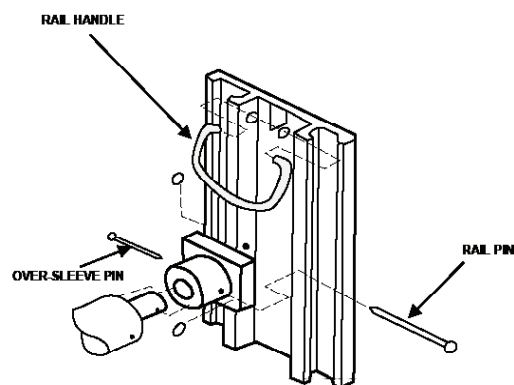
SQUARE LOOP

PART NO.	PART NO.
38120	38121





HYDRAULIC SHORE ACCESSORIES



- Material: Heat Treated Alloy Steel
- Finish: Zinc Plated
- Hardness RC 28-32
- Tensile Strength: 140,000 PSI
- Yield StrengthL 120,000 PSI



FORGED RAIL PIN & WIRE CLIP



PART NO.
38106

INSIDE LOOP



PART NO.
38108

OUTSIDE LOOP

PART NO.

38105



3/8" DIAMETER
3/8" X 4 3/4"

FORGED OVER SLEEVE PIN & WIRE CLIP



PART NO.
38107

INSIDE LOOP



PART NO.
38109

OUTSIDE LOOP

PART NO.

38103



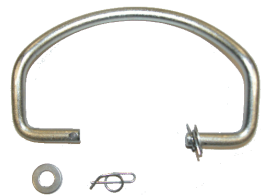
1/4" DIAMETER
1/4" X 3 1/4"

FORGED RAIL HANDLES

PART NO.

38112

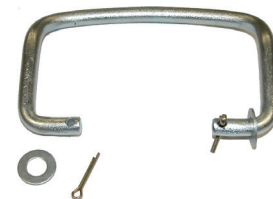
LOOSE FIT



PART NO.

38110

TIGHT FIT



FORGED HANDLE PIN



PART NO.

38119



5/8" X 5 1/8"

LYNCH PIN

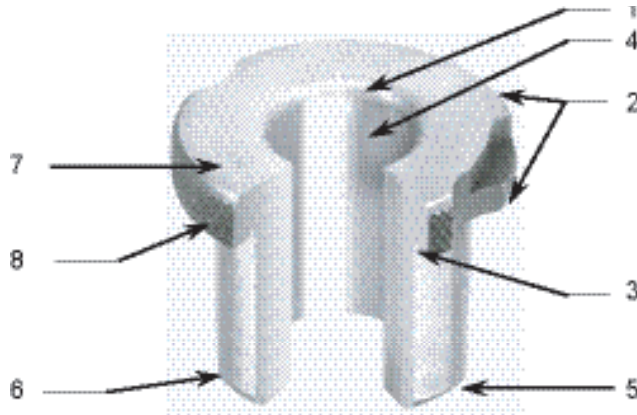
PART NO.

38116





DRILL BUSHINGS



FEATURES:

1. FULL RADIUS ON I.D. FOR PROPER ENTRY ALIGNMENT, PREVENTING WEAR AND BREAKAGE OF TOOL.
2. DOUBLE CHAMFERED HEAD.
3. TWO WAY UNDERCUT ALLOWS BUSHING TO SIT FLUSH ON TOP OF JIG.
4. INTERNALLY GROUND DIAMETERS ENSURE STRAIGHTNESS.
5. 45° LEAD FOR EASY ENTRY INTO JIG.
6. ADDITIONAL CONCENTRIC GROUND LEAD FOR PROPER INITIAL ALIGNMENT AND EASY ENTRY.
7. STAMPED WITH SIZE AND TRADEMARK FOR YOUR PROTECTION.
8. SLIP RENEWABLE BUSHING HEADS KNURLED FOR SPEED IN REMOVAL AND REPLACEMENT.

SUGGESTIONS FOR INSTALLATION:

1. AVOID EXCESSIVE INTERFERENCE FIT.
2. BEFORE INSTALLING LUBRICATE MOUNTING HOLE AND O.D. OF THE BUSHING.
3. INSTALL BUSHINGS WITH AN ARBOR PRESS WHENEVER POSSIBLE.
4. PREPARE MOUNTING HOLES CAREFULLY

TECHNICAL INFORMATION:

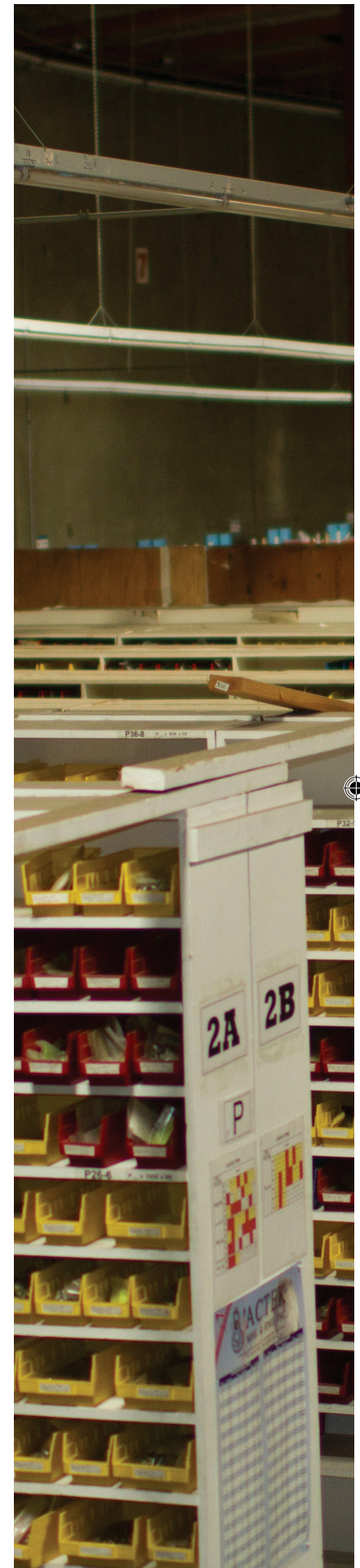
MATERIAL: C1144
 HEAT TREAT: CASE HARDENED
 HARDNESS: ROCKWELL C61-65 IN THE HOLE

CONCENTRICITY

I.D. RANGE OF 1/8" TO 1/2" TIR. IS HELD TO .0003
 I.D. SMALLER THAN 1/8" TIR. IS HELD TO .0005
 I.D. LARGER THAN 1/2" TIR. IS HELD TO .0005

REAMER BUSHINGS TOLERANCE:

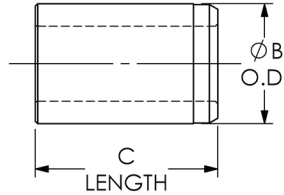
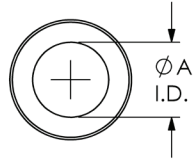
I.D. UP TO 1/4" IS +.0005 TO +.0008
 I.D. 1/4" TO 1" IS +.0006 TO +.0010
 I.D. OVER 1" IS +.0008 TO +.0012







DRILL JIG BUSHING - PRESS FIT (P TYPE)



ORDER:

TYPE I.D. X O.D. X L
P/PU 1/4 1/2 1/2

OR

TYPE ANSI NO. X I.D.
P/PU 32-8 1/4

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#80 (.0135) TO #70 (.0280)	5/32 P=.1578/.1575 PU=.171/.169	1/4	P10-4	1303
		5/16	P10-5	1309
		3/8	P10-6	1311
		x 1/2	P10-8	1314
#69 (.0292) TO 3/64 (.0469)	5/32 P=.1578/.1575 PU=.171/.169	1/4	P10-4	1290
		5/16	P10-5	1293
		3/8	P10-6	1295
		x 1/2	P10-8	1299
#55 (.0520) TO 1/16 (.0625)	5/32 P=.1578/.1575 PU=.171/.169	x 3/4	P10-12	1309
		1/4	P10-4	1266
		5/16	P10-5	1270
		3/8	P10-6	1273
#55 (.0520) TO 1/16 (.0625)	3/16 P=.1891/.1888 PU=.203/.198	1/2	P10-8	1274
		x 3/4	P10-12	1282
		1/4	P12-4	1266
		5/16	P12-5	1270
#52 (.0635) TO #39 (.0995)	3/16 P=.1891/.1888 PU=.203/.198	3/8	P12-6	1273
		1/2	P12-8	1230
		5/8	P12-10	1232
		x 3/4	P12-12	1235
#80 (.0135) TO #70 (.0280)	13/64 P=.2046/.2043 PU=.219/.216	1/4	P13-4	1303
		5/16	P13-5	1309
		3/8	P13-6	1311
		x 1/2	P13-8	1314
#69 (.0292) TO 3/64 (.0469)	13/64 P=.2046/.2043 PU=.219/.216	1/4	P13-4	1290
		5/16	P13-5	1293
		3/8	P13-6	1295
		x 1/2	P13-8	1299
#55 (.0520) TO 1/16 (.0625)	13/64 P=.2046/.2043 PU=.219/.216	x 3/4	P13-12	1309
		1/4	P13-4	1266
		5/16	P13-5	1270
		3/8	P13-6	1273
#52 (.0635) TO #39 (.0995)	13/64 P=.2046/.2043 PU=.219/.216	1/2	P13-8	1274
		x 3/4	P13-12	1282
		x 1	P13-16	1295
		1/4	P13-4	1219
#52 (.0635) TO #39 (.0995)	13/64 P=.2046/.2043 PU=.219/.216	5/16	P13-5	1225
		3/8	P13-6	1228
		1/2	P13-8	1230
		x 3/4	P13-12	1235
#52 (.0635) TO #39 (.0995)	13/64 P=.2046/.2043 PU=.219/.216	x 1	P13-16	1240
		x 1-3/8	P13-22	1271

UNLESS SPECIFIED ON PO, PART MAY HAVE COUNTERBORE PER MANUFACTURER'S DISCRETION PER ASME B94.33-1966.

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#40 (.0980) TO 9/64 (.1406)	1/4 P=.2516/.2513 PU=.265/.260	1/4	P16-4	1215
		5/16	P16-5	1218
		3/8	P16-6	1222
		1/2	P16-8	1225
		5/8	P16-10	1228
		x 3/4	P16-12	1231
		x 1	P16-16	1236
		x 1-3/8	P16-22	1269
		x 1-1/2	P16-24	1274
		x 1-3/4	P16-28	1279
1/8 (.1250) TO #10 (.1935)	5/16 P=.3141/.3138 PU=.327/.322	1/4	P20-4	1210
		5/16	P20-5	1212
		3/8	P20-6	1213
		1/2	P20-8	1214
		5/8	P20-10	1215
		3/4	P20-12	1217
		x 1	P20-16	1219
		x 1-3/8	P20-22	1240
		x 1-1/2	P20-24	1250
		x 1-3/4	P20-28	1259
#10 (.1935) TO #1 (.2280)	3/8 P=.3766/.3763 PU=.390/.385	1/4	P24-4	1205
		5/16	P24-5	1206
		3/8	P24-6	1209
		1/2	P24-8	1210
		5/8	P24-10	1212
		3/4	P24-12	1213
		x 1	P24-16	1218
		1/4	P26-4	1205
		5/16	P26-5	1206
		3/8	P26-6	1209
3/16 (.1875) TO F (.2570)	13/32 P=.4078/.4075 PU=.421/.416	1/2	P26-8	1210
		3/4	P26-12	1213
		x 1	P26-16	1218
		x 1-3/8	P26-22	1225
		x 1-1/2	P26-24	1231
		x 1-3/4	P26-28	1236
		1/4	P28-4	1205
		5/16	P28-5	1206
		3/8	P28-6	1209
		1/2	P28-8	1210
A (.2340) TO L (.2900)	7/16 P=.4392/.4389 PU=.453/.448	5/8	P28-10	1212
		3/4	P28-12	1213
		x 1	P28-16	1218
		1/4	P32-4	1205
		5/16	P32-5	1206
		3/8	P32-6	1209
		1/2	P32-8	1210
		3/4	P32-12	1213
		x 1	P32-16	1218
		x 1-3/8	P32-22	1225
3/16 (.1875) TO 5/16 (.3125)	1/2 P=.5017/.5014 PU=.515/.511	x 1-1/2	P32-24	1231
		x 1-3/4	P32-28	1236
		x 2-1/8	P32-34	1293



DRILL JIG BUSHING - PRESS FIT (P TYPE)

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
M (.2950) TO 11/32 (.3437)	9/16 P=.5642/.5639 PU=.578/.574	1/4	P36-4	1210
		5/16	P36-5	1205
		3/8	P36-6	1207
		1/2	P36-8	1207
		5/8	P36-10	1209
		3/4	P36-12	1210
		1	P36-16	1212
5/16 (.3125) TO 7/16 (.4375)	5/8 P=.6267/.6264 PU=.640/.637	1/4	P40-4	1210
		5/16	P40-5	1205
		3/8	P40-6	1207
		1/2	P40-8	1207
		5/8	P40-10	1209
		3/4	P40-12	1210
		1	P40-16	1212
		1-1/4	P40-20	1224
		1-3/8	P40-22	1224
		1-1/2	P40-24	1226
		1-3/4	P40-28	1231
5/16 (.3125) TO 17/32 (.5312)	3/4 P=.7518/.7515 PU=.765/.761	x 2-1/8	P40-34	1241
		1/4	P48-4	1212
		5/16	P48-5	1206
		3/8	P48-6	1210
		1/2	P48-8	1210
		5/8	P48-10	1212
		3/4	P48-12	1212
		1	P48-16	1214
		1-1/4	P48-20	1225
		1-3/8	P48-22	1225
		1-1/2	P48-24	1228
		1-3/4	P48-28	1232
		2-1/8	P48-34	1242
x 2-1/2	P48-40	1293		
1/2 (.5000) TO 21/32 (.6562)	7/8 P=.8768/.8765 PU=.890/.886	1/4	P56-4	1221
		5/16	P56-5	1219
		3/8	P56-6	1221
		1/2	P56-8	1215
		5/8	P56-10	1217
		3/4	P56-12	1217
		1	P56-16	1219
		1-1/4	P56-20	1224
		1-3/8	P56-22	1224
		1-1/2	P56-24	1228
		1-3/4	P56-28	1233
1/2 (.5000) TO 49/64 (.7656)	1 P=1.0018/1.0015 PU=1.015/1.011	2-1/8	P56-34	1241
		2-1/2	P56-40	1251
		1/2	P64-8	1217
		5/8	P64-10	1217
		3/4	P64-12	1217
		1	P64-16	1220
		1-1/4	P64-20	1224
		1-3/8	P64-22	1224
		1-1/2	P64-24	1230
		1-3/4	P64-28	1235
		2-1/8	P64-34	1241
2-1/2	P64-40	1251		
3	P64-48	1299		

UNLESS SPECIFIED ON PO, PART MAY HAVE COUNTERBORE PER MANUFACTURER'S DISCRETION PER ASME B94.33-1966.

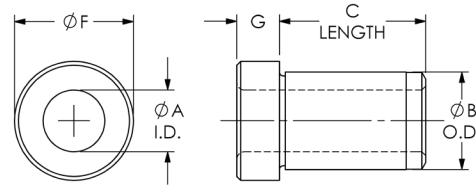
A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.		
49/64 (.7656) TO 27/32 (.8437)	1-1/8 P=1.1270/1.1267 PU=1.140/1.137	1/2	P72-8	1240		
		5/8	P72-10	1236		
		3/4	P72-12	1231		
		1	P72-16	1240		
		1-1/4	P72-20	1248		
		1-3/8	P72-22	1252		
		1-1/2	P72-24	1252		
55/64 (.8594) TO 15/16 (.9375)	1-1/4 P=1.2520/1.2517 PU=1.270/1.265	1-3/4	P72-28	1259		
		5/8	P80-10	1236		
		3/4	P80-12	1231		
		1	P80-16	1240		
		1-1/4	P80-20	1248		
		1-3/8	P80-22	1248		
		1-1/2	P80-24	1252		
		1-3/4	P80-28	1259		
		2	P80-32	1271		
		5/8 (.6250) TO 1-1/32 (1.0312)	1-3/8 P=1.3772/1.3768 PU=1.395/1.390	1/2	P88-8	1241
				5/8	P88-10	1238
3/4	P88-12			1231		
1	P88-16			1241		
1-1/4	P88-20			1249		
1-3/8	P88-22			1249		
1-1/2	P88-24			1253		
1-3/4	P88-28			1261		
2	P88-32			1273		
2-1/8	P88-34			1274		
2-1/2	P88-40			1285		
3	P88-48			1322		
1-1/64 (1.0156) TO 1-1/8 (1.1250)	1-1/2 P=1.5022/1.5018 PU=1.524/1.519			3/4	P96-12	1256
		1	P96-16	1249		
		1-1/4	P96-20	1256		
		1-1/2	P96-24	1263		
		1-3/4	P96-28	1266		
		2	P96-32	1282		
		2-1/4	P96-36	1288		
1 (1.0000) TO 1-25/64 (1.3906)	1-3/4 P=1.7523/1.7519 PU=1.770/1.765	3/4	P112-12	1256		
		1	P112-16	1249		
		1-3/8	P112-22	1256		
		1-1/2	P112-24	1263		
		1-3/4	P112-28	1266		
		2	P112-32	1282		
		2-1/8	P112-34	1282		
		2-1/2	P112-40	1293		
		3	P112-48	1340		
1-3/8 (1.3750) TO 1-49/64 (1.7656)	2-1/4 P=2.2525/2.2521 PU=2.270/2.265	1	P144-16	1267		
		1-3/8	P144-22	1278		
		1-1/2	P144-24	1283		
		1-3/4	P144-28	1287		
		2	P144-32	1304		
		2-1/8	P144-34	1304		
		2-1/2	P144-40	1316		
		3	P144-48	1353		

*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST
TECHNICAL INFORMATION

DRILL BUSHING I.D. TOLERANCE	
I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to .0004
OVER 1/4 to 3/4	+ .0001 to .0005
OVER 3/4 to 1-1/2	+ .0002 to .0006
OVER 1-1/2 to 2-3/4	+ .0003 to .0007



DRILL JIG BUSHING - HEAD PRESS FIT (H TYPE)



ORDER:

<u>TYPE</u>	<u>I.D.</u>	<u>X</u>	<u>O.D.</u>	<u>X</u>	<u>L</u>
H/HU	1/4		1/2		1/2
OR					
<u>TYPE</u>	<u>ANSI NO.</u>	<u>X</u>	<u>I.D.</u>		
H/HU	32-8		1/4		

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#80 (.0135) TO #70 (.0280)	5/32 H=.1578/.1575 HU=.171/.169	1/4	H10-4	1309
		5/16	H10-5	1311
		x 3/8	H10-6	1315
		x 1/2	H10-8	1317
#69 (.0292) TO 3/64 (.0469)	5/32 H=.1578/.1575 HU=.171/.169	1/4	H10-4	1293
		5/16	H10-5	1295
		x 3/8	H10-6	1299
		x 1/2	H10-8	1302
#55 (.0520) TO 1/16 (.0625)	5/32 H=.1578/.1575 HU=.171/.169	x 3/4	H10-12	1314
		1/4	H10-4	1271
		5/16	H10-5	1273
		3/8	H10-6	1274
#80 (.0135) TO #70 (.0280)	13/64 H=.2046/.2043 HU=.219/.216	x 1/2	H10-8	1275
		x 3/4	H10-12	1286
		1/4	H13-4	1309
		5/16	H13-5	1311
#69 (.0292) TO 3/64 (.0469)	13/64 H=.2046/.2043 HU=.219/.216	x 3/8	H13-6	1315
		x 1/2	H13-8	1317
		1/4	H13-4	1293
		5/16	H13-5	1295
#55 (.0520) TO 1/16 (.0625)	13/64 H=.2046/.2043 HU=.219/.216	x 3/8	H13-6	1299
		x 1/2	H13-8	1302
		x 3/4	H13-12	1314
		1/4	H13-4	1271
#52 (.0635) TO #39 (.0995)	13/64 H=.2046/.2043 HU=.219/.216	5/16	H13-5	1273
		3/8	H13-6	1274
		x 1/2	H13-8	1275
		x 3/4	H13-12	1286
#40 (.0980) TO 9/64 (.1406)	1/4 H=.2516/.2513 HU=.265/.260	x 1	H13-16	1300
		1/4	H13-4	1232
		5/16	H13-5	1233
		3/8	H13-6	1236
#10 (.1935) TO 1/8 (.1250)	5/16 H=.3141/.3138 HU=.327/.322	x 1/2	H13-8	1238
		x 3/4	H13-12	1247
		x 1	H16-4	1225
		5/16	H16-5	1228
#10 (.1935) TO 1/8 (.1250)	5/16 H=.3141/.3138 HU=.327/.322	3/8	H16-6	1231
		x 1/2	H16-8	1232
		x 5/8	H16-10	1238
		x 3/4	H16-12	1245
#10 (.1935) TO 1/8 (.1250)	5/16 H=.3141/.3138 HU=.327/.322	x 1	H16-16	1263
		x 1-3/8	H16-22	1299
		x 1-1/2	H16-24	1308
		1/4	H20-4	1215
#10 (.1935) TO 1/8 (.1250)	5/16 H=.3141/.3138 HU=.327/.322	5/16	H20-5	1218
		3/8	H20-6	1221
		1/2	H20-8	1222
		5/8	H20-10	1223
#10 (.1935) TO 1/8 (.1250)	5/16 H=.3141/.3138 HU=.327/.322	3/4	H20-12	1224
		x 1	H20-16	1233
		x 1-3/8	H20-22	1270
		x 1-1/2	H20-24	1283

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#10 (.1935) TO #1 (.2280)	3/8 H=.3766/.3763 HU=.390/.385	1/4	H24-4	1213
		5/16	H24-5	1215
		3/8	H24-6	1217
		1/2	H24-8	1218
		5/8	H24-10	1220
		3/4	H24-12	1221
3/16 (.1875) TO F (.2570)	13/32 H=.4078/.4075 HU=.421/.416	x 1	H24-16	1230
		1/4	H26-4	1213
		5/16	H26-5	1214
		3/8	H26-6	1217
		1/2	H26-8	1218
		3/4	H26-12	1221
A (.2340) TO L (.2900)	7/16 H=.4392/.4389 HU=.453/.448	x 1	H26-16	1230
		x 1-3/8	H26-22	1236
		x 1-1/2	H26-24	1243
		x 1-3/4	H26-28	1250
		1/4	H28-4	1213
		5/16	H28-5	1215
3/16 (.1875) TO O (.3160)	1/2 H=.5017/.5014 HU=.518/.513	3/8	H28-6	1217
		1/2	H28-8	1218
		5/8	H28-10	1220
		3/4	H28-12	1221
		x 1	H28-16	1230
		1/4	H32-4	1213
M (.2950) TO 11/32 (.3437)	9/16 H=.5642/.5639 HU=.580/.575	5/16	H32-5	1214
		3/8	H32-6	1217
		1/2	H32-8	1218
		3/4	H32-12	1221
		x 1	H32-16	1230
		x 1-3/8	H32-22	1236
5/16 (.3125) TO 7/16 (.4375)	5/8 H=.6267/.6264 HU=.643/.638	x 1-1/2	H32-24	1243
		x 1-3/4	H32-28	1250
		1/4	H36-4	1217
		5/16	H36-5	1213
		3/8	H36-6	1215
		1/2	H36-8	1215
5/16 (.3125) TO 7/16 (.4375)	5/8 H=.6267/.6264 HU=.643/.638	5/8	H36-10	1217
		3/4	H36-12	1217
		1	H36-16	1221
		1/4	H40-4	1217
		5/16	H40-5	1213
		3/8	H40-6	1214
5/16 (.3125) TO 7/16 (.4375)	5/8 H=.6267/.6264 HU=.643/.638	1/2	H40-8	1214
		5/8	H40-10	1217
		3/4	H40-12	1217
		1	H40-16	1221
		1-3/8	H40-22	1236
		1-1/2	H40-24	1240
5/16 (.3125) TO 7/16 (.4375)	5/8 H=.6267/.6264 HU=.643/.638	1-3/4	H40-28	1245
		2-1/8	H40-34	1254

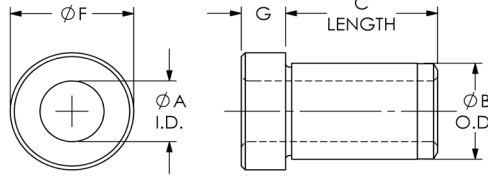
UNLESS SPECIFIED ON PO, PART MAY HAVE COUNTERBORE PER MANUFACTURER'S DISCRETION PER ASME B94.33-1966.



DRILL JIG BUSHING - HEAD PRESS FIT (H TYPE)

ORDER:

TYPE	I.D.	X	O.D.	X	L
H/HU	1/4		1/2		1/2
OR					
TYPE	ANSI NO.	X	I.D.		
H/HU	32-8		1/4		



A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.		
5/16 (.3125) TO 17/32 (.5312)	3/4 H=.7518/.7515 HU=.768/.763	1/4	H48-4	1221		
		5/16	H48-5	1215		
		3/8	H48-6	1217		
		1/2	H48-8	1217		
		5/8	H48-10	1219		
		3/4	H48-12	1221		
		1	H48-16	1225		
		1-1/4	H48-20	1238		
		1-3/8	H48-22	1238		
		1-1/2	H48-24	1241		
		1-3/4	H48-28	1246		
		2-1/8	H48-34	1256		
		1/2 (.5000) TO 21/32 (.6562)	7/8 H=.8768/.8765 HU=.893/.888	1/2	H56-8	1226
				5/8	H56-10	1226
3/4	H56-12			1227		
1	H56-16			1230		
1-1/4	H56-20			1235		
1-3/8	H56-22			1235		
1-1/2	H56-24			1241		
1-3/4	H56-28			1249		
2-1/8	H56-34			1256		
2-1/2	H56-40			1272		
1/2 (.5000) TO 49/64 (.7656)	1 H=1.0018/.10015 HU=1.018/1.013	1/2	H64-8	1228		
		3/4	H64-12	1228		
		1	H64-16	1232		
		1-3/8	H64-22	1236		
		1-1/2	H64-24	1247		
		1-3/4	H64-28	1253		
		2-1/8	H64-34	1266		
		2-1/2	H64-40	1281		
		3	H64-48	1330		
		5/8	H80-10	1253		
55/64 (.8594) TO 15/16 (.9375)	1-1/4 H=1.2520/1.2517 HU=1.270/1.265	3/4	H80-12	1251		
		1	H80-16	1258		
		1-1/4	H80-20	1266		
		1-1/2	H80-24	1274		
		1-3/4	H80-28	1281		
5/8 (.6250) TO 1-1/32 (1.0312)	1-3/8 H=1.3772/1.3768 HU=1.395/1.390	2	H80-32	1292		
		1/2	H88-8	1259		
		3/4	H88-12	1252		
		1	H88-16	1260		
		1-3/8	H88-22	1268		
		1-1/2	H88-24	1275		
		1-3/4	H88-28	1282		
		2-1/8	H88-34	1295		
		2-1/2	H88-40	1310		
		3	H88-48	1346		

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
1 (1.0000) TO 1-25/64 (1.3906)	1-3/4 H=1.7523/1.7519 HU=1.770/1.765	3/4	H112-12	1287
		1	H112-16	1277
		1-3/8	H112-22	1287
		1-1/2	H112-24	1291
		1-3/4	H112-28	1296
		2-1/8	H112-34	1312
		2-1/2	H112-40	1324
1-3/8 (1.3750) TO 1-49/64 (1.7656)	2-1/4 H=2.2525/2.2521 HU=2.270/2.265	3	H112-48	1358
		1	H144-16	1305
		1-3/8	H144-22	1319
		1-1/2	H144-24	1323
		1-3/4	H144-28	1333
		2-1/8	H144-34	1343
		2-1/2	H144-40	1350
3	H144-48	1368		

*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST

TECHNICAL INFORMATION

DRILL BUSHING I.D. TOLERANCE	
I.D. RANGE (Drill Size)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

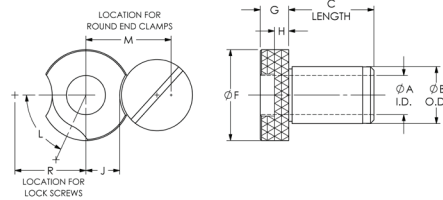
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ANSI HEAD DIMENSIONS

BODY O.D.	F	G	BODY O.D.	F	G
5/32	1/4	3/32	9/16	11/16	3/32
13/64	19/64	3/32	5/8	51/64	7/32
1/4	23/64	3/32	3/4	59/64	7/32
5/16	27/64	1/8	7/8	1-7/64	1/4
3/8	1/2	3/32	1	1-15/64	5/16
13/32	1/2	5/32	1-1/4	1-1/2	1/4
7/16	9/16	3/32	1-3/8	1-39/64	3/8
1/2	39/64	7/32	1-3/4	1-63/64	3/8
			2-1/4	2-31/64	3/8



DRILL JIG BUSHING - SLIP FIXED RENEWABLE (SF TYPE)



ORDER:

TYPE **I.D.** X **O.D.** X **L**
SF **1/4** **1/2** **1/2**

OR

TYPE **ANSI NO.** X **I.D.**
SF **32-8** **1/4**

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#80 (.0135) TO #70 (.0280)	3/16 SF=.1875/.1873	x 1/4	SF12-4	1333
		x 5/16	SF12-5	1335
		x 3/8	SF12-6	1337
		x 1/2	SF12-8	1338
		x 5/8	SF12-10	1348
		x 3/4	SF12-12	1360
#69 (.0292) TO 3/64 (.0469)	3/16 SF=.1875/.1873	1/4	SF12-4	1314
		x 5/16	SF12-5	1316
		x 3/8	SF12-6	1319
		x 1/2	SF12-8	1321
		x 5/8	SF12-10	1325
		x 3/4	SF12-12	1330
#55 (.0520) TO 1/16 (.0625)	3/16 SF=.1875/.1873	1/4	SF12-4	1282
		x 5/16	SF12-5	1284
		x 3/8	SF12-6	1286
		x 1/2	SF12-8	1287
		x 5/8	SF12-10	1291
		x 3/4	SF12-12	1297
#52 (.0635) TO #40 (.0980)	3/16 SF=.1875/.1873	1/4	SF12-4	1241
		x 5/16	SF12-5	1243
		x 3/8	SF12-6	1244
		x 1/2	SF12-8	1247
		x 5/8	SF12-10	1251
		x 3/4	SF12-12	1254
#39 (.0995) TO 9/64 (.1406)	1/4 SF=.2500/.2498	5/16	SF16-4	1236
		x 3/8	SF16-5	1236
		x 1/2	SF16-6	1238
		x 5/8	SF16-8	1241
		x 3/4	SF16-10	1246
		x 1	SF16-12	1250
#80 (.0135) TO #70 (.0280)	5/16 SF=.3125/.3123	x 1/4	SF20-4	1333
		x 5/16	SF20-5	1335
		x 3/8	SF20-6	1337
		x 1/2	SF20-8	1338
		x 3/4	SF20-12	1360
		x 5/16	SF20-5	1316
#69 (.0292) TO 3/64 (.0469)	5/16 SF=.3125/.3123	x 3/8	SF20-6	1319
		x 1/2	SF20-8	1321
		x 3/4	SF20-12	1330
		x 5/16	SF20-5	1284
		x 3/8	SF20-6	1286
		x 1/2	SF20-8	1287
#55 (.0520) TO 1/16 (.0625)	5/16 SF=.3125/.3123	x 3/4	SF20-12	1297
		5/16	SF20-5	1242
		x 3/8	SF20-6	1244
		x 1/2	SF20-8	1247
		x 3/4	SF20-12	1254
		x 1	SF20-16	1272
#52 (.0635) TO #43 (.0890)	5/16 SF=.3125/.3123	5/16	SF20-5	1236
		3/8	SF20-6	1238
		x 1/2	SF20-8	1241
		x 3/4	SF20-12	1250
		x 1	SF20-16	1263
		x 1-3/8	SF20-22	1285

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
1/8 (.1250) TO #10 (.1935)	5/16 SF=.3125/.3123	1/4	SF20-4	1235
		5/16	SF20-5	1235
		3/8	SF20-6	1236
		1/2	SF20-8	1239
		5/8	SF20-10	1243
		x 3/4	SF20-12	1248
#10 (.1935) TO #1 (.2280)	3/8 SF=.3750/.3748	x 1	SF20-16	1261
		x 1-3/8	SF20-22	1284
		1/4	SF24-4	1217
		5/16	SF24-5	1220
		3/8	SF24-6	1222
		1/2	SF24-8	1225
A (.2340) TO L (.2900)	7/16 SF=.4375/.4373	5/8	SF24-10	1226
		3/4	SF24-12	1228
		x 1	SF24-16	1235
		1/4	SF28-4	1217
		5/16	SF28-5	1220
		3/8	SF28-6	1222
#28 (.1405) TO 3/16 (.1875)	1/2 SF=.5000/.4998	1/2	SF28-8	1225
		5/8	SF28-10	1226
		3/4	SF28-12	1228
		x 1	SF28-16	1235
		1/4	SF32-4	1226
		5/16	SF32-5	1226
#12 (.1890) TO 11/32 (.3437)	1/2 SF=.5000/.4998	3/8	SF32-6	1228
		1/2	SF32-8	1230
		x 3/4	SF32-12	1235
		x 1	SF32-16	1243
		x 1-3/8	SF32-22	1252
		x 1-1/2	SF32-24	1257
M (.2950) TO 11/32 (.3437)	9/16 SF=.5625/.5623	x 1-3/4	SF32-28	1264
		1/4	SF32-4	1220
		5/16	SF32-5	1220
		3/8	SF32-6	1222
		1/2	SF32-8	1224
		3/4	SF32-12	1228
		x1	SF32-16	1235
		x 1-3/8	SF32-22	1247
		x 1-1/2	SF32-24	1250
		x 1-3/4	SF32-28	1255
		x 2-1/8	SF32-34	1321
		1/4	SF36-4	1217
		5/16	SF36-5	1220
		3/8	SF36-6	1222
		1/2	SF36-8	1225
		5/8	SF36-10	1226
		3/4	SF36-12	1228
		1	SF36-16	1235

*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST. UNLESS SPECIFIED ON PO, PART MAY HAVE COUNTERBORE PER MANUFACTURER'S DISCRETION PER ASME B94.33-1966.



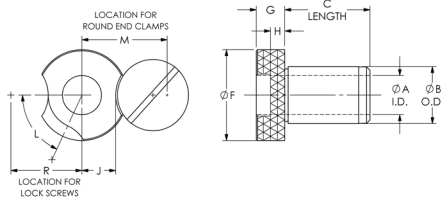
DRILL JIG BUSHING - SLIP FIXED RENEWABLE (SF TYPE)

ORDER:

TYPE I.D. X O.D. X L
SF 1/4 1/2 1/2

OR

TYPE ANSI NO. X I.D.
SF 32-8 1/4



A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
S (.3480) TO 7/16 (.4375)	5/8 SF= .6250/.6248	5/16	SF40-5	1223
		3/8	SF40-6	1223
		1/2	SF40-8	1223
		5/8	SF40-10	1225
		3/4	SF40-12	1226
		1	SF40-16	1229
9/32 (.2813) TO 9/16 (.5625)	3/4 SF= .7500/.7498	1-1/4	SF40-20	1247
		3/8	SF48-6	1222
		1/2	SF48-8	1223
		3/4	SF48-12	1226
		1	SF48-16	1230
		1-3/8	SF48-22	1247
		1-1/2	SF48-24	1251
		1-3/4	SF48-28	1256
		2-1/8	SF48-34	1266
		x 2-1/2	SF48-40	1326
35/64 (.5469) TO 21/32 (.6562)	7/8 SF= .8750/.8748	x 3	SF48-48	1357
		1/2	SF56-8	1235
		5/8	SF56-10	1236
		3/4	SF56-12	1237
		1	SF56-16	1241
		1-1/4	SF56-20	1248
15/32 (.4687) TO 25/32 (.7812)	1 SF=1.0000/.9998	1-1/2	SF56-24	1253
		1/2	SF64-8	1235
		3/4	SF64-12	1236
		1	SF64-16	1241
		1-3/8	SF64-22	1248
		1-1/2	SF64-24	1252
		1-3/4	SF64-28	1261
		2-1/8	SF64-34	1277
23/32 (.7187) TO 1-1/16 (1.0625)	1-3/8 SF=1.3750/1.3747	2-1/2	SF64-40	1334
		3	SF64-48	1359
		1/2	SF88-8	1264
		5/8	SF88-10	1264
		3/4	SF88-12	1264
		1	SF88-16	1275
		1-3/8	SF88-22	1284
		1-1/2	SF88-24	1290
		1-3/4	SF88-28	1298
		2-1/8	SF88-34	1312
31/32 (.9687) TO 1-13/32 (1.4062)	1-3/4 SF=1.7500/1.7497	2-1/2	SF88-40	1344
		3	SF88-48	1366
		3/4	SF112-12	1302
		1	SF112-16	1291
		1-3/8	SF112-22	1302
		1-1/2	SF112-24	1310
		1-3/4	SF112-28	1320
		2-1/8	SF112-34	1333
2-1/2	3 SF112-40	1352	1352	
		3	SF112-48	1367

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
1-11/32 (1.3437) TO 1-7/8 (1.8750)	2-1/4 SF- 2.2500/2.2496	3/4	SF144-12	1339
		1	SF144-16	1328
		1-3/8	SF144-22	1339
		1-1/2	SF144-24	1343
		1-3/4	SF144-28	1345
		2-1/8	SF144-34	1356
		2-1/2	SF144-40	1363
		3	SF144-48	1371

*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST

TECHNICAL INFORMATION

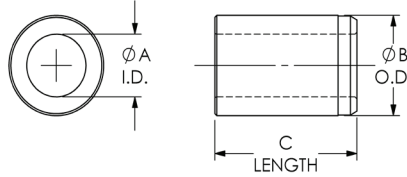
DRILL BUSHING I.D. TOLERANCE	
I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

ANSI HEAD DIMENSIONS

BODY O.D.	F	G	H	J	L	M	R	LOCK SCR.
3/16	5/16	3/16	3/32	3/32	55°		17/64	LS-0
1/4	7/16	1/4	1/8	9/64	30°		23/64	TW-2
5/16	35/64	1/4	1/8	11/64	65°	5/8	1/2	LS-1
3/8	5/8	1/4	1/8	15/64	30°		29/64	TW-2
7/16	5/8	1/4	1/8	15/64	30°		29/64	TW-2
1/2	51/64	1/4	1/8	19/64	65°	3/4	5/8	LS-1
9/16	7/8	1/4	1/8	21/64	30°		37/64	TW-2
5/8	7/8	1/4	1/8	21/64	30°		37/64	TW-2
3/4	1-3/64	1/4	1/8	27/64	50°	7/8	3/4	LS-1
7/8	1-1/4	3/8	3/16	33/64	30°		53/64	TW-7
1	1-27/64	3/8	3/16	19/32	35°	1-7/64	59/64	LS-2
1-3/8	1-51/64	3/8	3/16	25/32	30°	1-19/64	1-7/64	LS-2
1-3/4	2-19/64	3/8	3/16	1	30°	1-41/64	1-25/64	LS-3
2-1/4	2-51/64	3/8	3/16	1-1/4	25°	1-57/64	1-41/64	LS-3



DRILL JIG BUSHING - LINER (L TYPE)



ORDER:

TYPE **I.D.** X **O.D.** X **L**
L/LU **1/4** **1/2** **1/2**
OR
TYPE **ANSI NO.** X **I.D.**
L/LU **32-8** **1/4**

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
3/16 .1876 .1879	5/16 L=.3141/.3138 LU=.327/.322	1/4	L20-4	1210
		5/16	L20-5	1212
		3/8	L20-6	1213
		1/2	L20-8	1214
		5/8	L20-10	1215
		3/4	L20-12	1217
		1/4	L28-4	1205
1/4 .2501 .2504	7/16 L=.4392/.4389 LU=.453/.448	5/16	L28-5	1206
		3/8	L28-6	1209
		1/2	L28-8	1210
		5/8	L28-10	1212
		3/4	L28-12	1213
		1/4	L32-4	1205
		5/16	L32-5	1206
5/16 .3126 .3129	1/2 L=.5017/.5014 LU=.518/.513	3/8	L32-6	1209
		1/2	L32-8	1210
		5/8	L32-10	1212
		3/4	L32-12	1213
		1	L32-16	1218
		1-3/8	L32-22	1225
		1/4	L36-4	1210
5/16 .3126 .3129	9/16 L=.5642/.5639 LU=.580/.575	5/16	L36-5	1205
		3/8	L36-6	1207
		1/2	L36-8	1207
		5/8	L36-10	1209
		3/4	L36-12	1210
		1	L36-16	1212
		1/4	L40-4	1210
3/8 .3751 .3754	5/8 L=.6267/.6264 LU=.643/.638	5/16	L40-5	1205
		3/8	L40-6	1207
		1/2	L40-8	1207
		5/8	L40-10	1209
		3/4	L40-12	1210
		1	L40-16	1212
		1/4	L40-4	1210
7/16 .4377 .4380	5/8 L=.6267/.6264 LU=.643/.638	5/16	L40-5	1205
		3/8	L40-6	1207
		1/2	L40-8	1207
		5/8	L40-10	1209
		3/4	L40-12	1210
		1	L40-16	1212
		5/16	L48-5	1206
1/2 .5002 .5005	3/4 L=.7518/.7515 LU=.768/.763	3/8	L48-6	1210
		1/2	L48-8	1210
		3/4	L48-12	1212
		1	L48-16	1214
		1-3/8	L48-22	1225
		1-1/2	L48-24	1228
		1-3/4	L48-28	1232
9/16 .5627 .5630	7/8 L=.8768/.8765 LU=.893/.888	2-1/8	L48-34	1242
		5/16	L56-5	1219
		3/8	L56-6	1221
		1/2	L56-8	1215
		5/8	L56-10	1217
		3/4	L56-12	1217
		1	L56-16	1219
1-1/4	L56-20	1224		

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
5/8 .6252 .6255	7/8 L=.8768/.8765 LU=.893/.888	5/16	L56-5	1219
		3/8	L56-6	1221
		1/2	L56-8	1215
		5/8	L56-10	1217
		3/4	L56-12	1217
		1	L56-16	1219
		1-1/4	L56-20	1224
3/4 .7503 .7506	1 L=1.008/1.0015 LU=1.018/1.015	1/2	L64-8	1217
		3/4	L64-12	1217
		1	L64-16	1220
		1-3/8	L64-22	1224
		1-1/2	L64-24	1230
		1-3/4	L64-28	1235
		2-1/8	L64-34	1241
7/8 .8754 .8757	1-1/4 L=1.2520/1.2517 LU=1.268/1.263	2-1/2	L64-40	1251
		3	L64-48	1299
		1/2	L80-8	1240
		5/8	L80-10	1236
		3/4	L80-12	1231
		1	L80-16	1240
		1-1/4	L80-20	1248
1 1.0004 1.0007	1-3/8 L=1.3772/1.3768 LU=1.395/1.388	1-1/2	L80-24	1252
		1/2	L88-8	1241
		3/4	L88-12	1231
		1	L88-16	1241
		1-3/8	L88-22	1249
		1-1/2	L88-24	1253
		1-3/4	L88-28	1261
1-3/8 1.3756 1.3760	1-3/4 L=1.7523/1.7519 LU=1.395/1.388	2-1/8	L88-34	1274
		2-1/2	L88-40	1285
		3	L88-48	1322
		3/4	L112-12	1256
		1	L112-16	1249
		1-3/8	L112-22	1256
		1-1/2	L112-24	1263
1-3/4 1.7508 1.7512	2-1/4 L=2.2525/2.2521 LU=2.270/2.265	1-3/4	L112-28	1266
		2-1/8	L112-34	1282
		2-1/2	L112-40	1293
		3	L112-48	1340
		3/4	L144-12	1278
		1	L144-16	1267
		1-3/8	L144-22	1278
2-1/4 2.2510 2.2515	2-3/4 L=2.7526/2.7522 LU=2.770/2.765	1-1/2	L144-24	1283
		1-3/4	L144-28	1287
		2-1/8	L144-34	1304
		2-1/2	L144-40	1316
		3	L144-48	1353
		3/4	L176-12	1288
		1	L176-16	1278
2-1/4 2.2510 2.2515	2-3/4 L=2.7526/2.7522 LU=2.770/2.765	1-3/8	L176-22	1289
		1-1/2	L176-24	1294
		1-3/4	L176-28	1301
		2-1/8	L176-34	1312
		2-1/2	L176-40	1325
		3	L176-48	1355

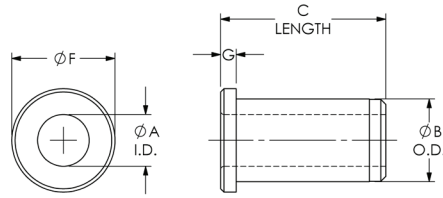
*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST



DRILL JIG BUSHING - HEAD LINER (HL TYPE)

ORDER:

TYPE	I.D.	X	O.D.	X	L
HL	1/4		1/2		1/2
OR					
TYPE	ANSI NO.	X	I.D.		
HL	32-8		1/4		



A ID ID RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
5/16 .3126 .3129	1/2 HL=.5017/.5014 HLU=.518/.513	5/16	HL32-5	1214
		3/8	HL32-6	1217
		1/2	HL-32-8	1217
		3/4	HL32-12	1221
		1	HL32-16	1235
		1-3/8	HL32-22	1249
1/2 .5002 .5005	3/4 HL=.7518/.7515 HLU=.768/.763	5/16	HL48-5	1215
		3/8	HL48-6	1217
		1/2	HL48-8	1217
		3/4	HL48-12	1221
		1	HL48-16	1228
		1-3/8	HL48-22	1236
		1-1/2	HL48-24	1241
		1-3/4	HL48-28	1247
3/4 .7503 .7506	1 HL=1.0018/1.0015 HLU=1.018/1.015	2-1/8	HL48-34	1256
		1/2	HL64-8	1226
		3/4	HL64-12	1230
		1	HL64-16	1233
		1-3/8	HL64-22	1236
		1-1/2	HL64-24	1243
		1-3/4	HL64-28	1251
		2-1/8	HL64-34	1261
		2-1/2	HL64-40	1277
		3	HL64-48	1328
1 1.0004 1.0007	1-3/8 HL=1.3772/1.3768 HLU=1.395/1.390	1/2	HL88-8	1244
		3/4	HL88-12	1236
		1	HL88-16	1244
		1-3/8	HL88-22	1250
		1-1/2	HL88-24	1253
		1-3/4	HL88-28	1261
		2-1/8	HL88-34	1271
		2-1/2	HL88-40	1285
1-3/8 1.3756 1.3760	1-3/4 HL=1.7523/1.7519 HLU=1.770/1.765	3	HL88-48	1346
		3/4	HL112-12	1258
		1	HL112-16	1263
		1-3/8	HL112-22	1270
		1-1/2	HL112-24	1276
		1-3/4	HL112-28	1282
		2-1/8	HL112-34	1295
		2-1/2	HL112-40	1310
3	HL112-48	1361		

A ID ID RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
1-3/4 1.7508 1.7512	2-1/4 HL=2.2525/2.2521 HLU=2.270/2.265	3/4	HL144-12	1291
		1	HL144-16	1284
		1-3/8	HL144-22	1292
		1-1/2	HL144-24	1298
		1-3/4	HL144-28	1305
		2-1/8	HL144-34	1318
2-1/4 2.2510 2.2515	2-3/4 HL=2.7526/2.7522 HLU=2.770/2.765	2-1/2	HL144-40	1331
		3	HL144-48	1364
		3/4	HL176-12	1316
		1	HL176-16	1303
		1-3/8	HL176-22	1318
		1-1/2	HL176-24	1322
		1-3/4	HL176-28	1329
		2-1/8	HL176-34	1341
2-1/2	HL176-40	1349		
3	HL176-48	1370		

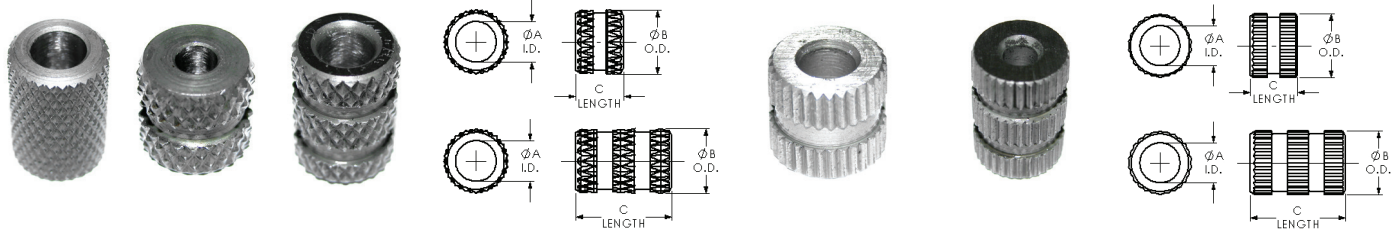
*EXTENDED RANGE SIZES AVAILABLE UPON REQUEST

ANSI HEAD DIMENSIONS

BODY O.D.	F	G
1/2	5/8	3/32
3/4	7/8	3/32
1	1-1/8	1/8
1-3/8	1-1/2	1/8
1-3/4	1-7/8	3/16
2-1/4	2-3/8	3/16
2-3/4	2-7/8	3/16



DRILL JIG BUSHING - DIAMOND GROOVE/SERRATED GROOVE (DGV TYPE)/(SG TYPE)



DIAMOND GROOVE (DGV TYPE)

ALL GROOVES ARE 1/8" WIDE				
A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#55 (.0520) TO #39 (.0995)	13/64 .223/.213	1/4	DGV13-4	1218
		5/16	DGV13-5	1221
		3/8	DGV13-6	1224
		1/2	DGV13-8	1225
#40 (.0980) TO 9/64 (.1406)	1/4 .275/.260	1/4	DGV16-4	1207
		5/16	DGV16-5	1208
		3/8	DGV16-6	1210
		1/2	DGV16-8	1212
1/8 (.1250) TO #10 (.1935)	5/16 .337/.322	x 3/4	DGV16-12	1219
		1/4	DGV20-4	1201
		5/16	DGV20-5	1203
		3/8	DGV20-6	1204
		1/2	DGV20-8	1205
5/32 (.1562) TO F (.2570)	13/32 .431/.416	3/4	DGV20-12	1210
		x 1	DGV20-16	1215
		1/4	DGV26-4	1201
		5/16	DGV26-5	1201
		3/8	DGV26-6	1202
5/32 (.1562) TO O (.3160)	1/2 .525/.510	1/2	DGV26-8	1203
		3/4	DGV26-12	1205
		x 1	DGV26-16	1210
		5/16	DGV32-5	1201
		3/8	DGV32-6	1202
5/16 (.3125) TO 7/16 (.4375)	5/8 .650/.635	1/2	DGV32-8	1203
		3/4	DGV32-12	1205
		x 1	DGV32-16	1210
		3/8	DGV40-6	1201
		1/2	DGV40-8	1201
5/16 (.3125) TO 17/32 (.5312)	3/4 .775/.760	3/4	DGV40-12	1203
		1	DGV40-16	1204
		1-3/8	DGV40-22	1210
		3/8	DGV48-6	1201
		1/2	DGV48-8	1201
1/2 (.5000) TO 21/32 (.6562)	7/8 .900/.885	3/4	DGV48-12	1203
		1	DGV48-16	1204
		1-3/8	DGV48-22	1214
		3/8	DGV56-6	1213
		1/2	DGV56-8	1209
1/2 (.5000) TO 49/64 (.7656)	1 1.035/1.010	3/4	DGV56-12	1210
		1	DGV56-16	1212
		1-3/8	DGV56-22	1214
		1/2	DGV64-8	1210
		3/4	DGV64-12	1210

SERRATED GROOVE (SG TYPE)

ALL GROOVES ARE 1/8" WIDE				
A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#55 (.0520) TO #39 (.0995)	13/64 .223/.213	1/4	SG13-4	1218
		5/16	SG13-5	1221
		3/8	SG13-6	1224
		1/2	SG13-8	1225
#40 (.0980) TO 9/64 (.1406)	1/4	1/4	SG16-4	1207
		5/16	SG16-5	1208
		3/8	SG16-6	1210
		1/2	SG16-8	1212
1/8 (.1250) TO #10 (.1935)	5/16 .337/.322	x 3/4	SG16-12	1219
		1/4	SG20-4	1201
		5/16	SG20-5	1203
		3/8	SG20-6	1204
		1/2	SG20-8	1205
5/32 (.1562) TO F (.2570)	13/32 .431/.416	3/4	SG20-12	1210
		x 1	SG20-16	1215
		1/4	SG26-4	1201
		5/16	SG26-5	1201
		3/8	SG26-6	1202
5/32 (.1562) TO O (.3160)	1/2 .525/.510	1/2	SG26-8	1203
		3/4	SG26-12	1205
		x 1	SG26-16	1210
		5/16	SG32-5	1201
		3/8	SG32-6	1202
5/16 (.3125) TO 7/16 (.4375)	5/8 .650/.635	1/2	SG32-8	1203
		3/4	SG32-12	1205
		x 1	SG32-16	1210
		3/8	SG40-6	1201
		1/2	SG40-8	1201
5/16 (.3125) TO 17/32 (.5312)	3/4 .775/.760	3/4	SG40-12	1203
		1	SG40-16	1204
		1-3/8	SG40-22	1210
		3/8	SG48-6	1201
		1/2	SG48-8	1201
1/2 (.5000) TO 21/32 (.6562)	7/8 .900/.885	3/4	SG48-12	1203
		1	SG48-16	1204
		1-3/8	SG48-22	1214
		3/8	SG56-6	1213
		1/2	SG56-8	1209
1/2 (.5000) TO 49/64 (.7656)	1 1.035/1.010	3/4	SG56-12	1210
		1	SG56-16	1212
		1-3/8	SG56-22	1214
		1/2	SG64-8	1210
		3/4	SG64-12	1210



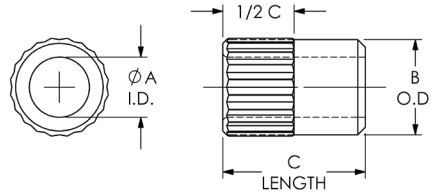
DRILL JIG BUSHING - SERRATED PRESS (SP TYPE)

ORDER:

TYPE I.D. X O.D. X L
 DGV/SG/SP 1/4 1/2 1/2

OR

TYPE ANSI NO. X I.D.
 DGV/SG/SP 32-8 1/4

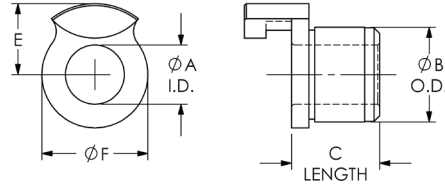


A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.	PRICE CODE NO.
#55 (.0520) TO #39 (.0995)	13/64 .2031/.2029	1/4	SP13-4	1227
		5/16	SP13-5	1234
		3/8	SP13-6	1236
		1/2	SP13-8	1239
#40 (.0980) TO 9/64 (.1406)	1/4 .2500/.2498	1/4	SP16-4	1215
		5/16	SP16-5	1218
		3/8	SP16-6	1222
		1/2	SP16-8	1225
1/8 (.1250) TO #10 (.1935)	5/16 .3125/.3123	5/16	SP20-5	1212
		3/8	SP20-6	1213
		1/2	SP20-8	1214
		3/4	SP20-12	1217
5/32 (.1562) TO F (.2570)	13/32 .4062/.4060	1/4	SP26-4	1205
		5/16	SP26-5	1206
		3/8	SP26-6	1209
		1/2	SP26-8	1210
		3/4	SP26-12	1213
		x 1	SP26-16	1218
5/32 (.1562) TO O (.3160)	1/2 .5000/.4998	5/16	SP32-5	1206
		3/8	SP32-6	1209
		1/2	SP32-8	1210
		3/4	SP32-12	1213
		x 1	SP32-16	1218
5/16 (.3125) TO 7/16 (.4375)	5/8 .6250/.6248	3/8	SP40-6	1207
		1/2	SP40-8	1207
		3/4	SP40-12	1210
		1	SP40-16	1212
5/16 (.3125) TO 17/32 (.5312)	3/4 .7500/.7498	3/8	SP48-6	1210
		1/2	SP48-8	1210
		3/4	SP48-12	1212
		1	SP48-16	1214
1/2 (.5000) TO 21/32 (.6562)	7/8 .8750/.8748	3/8	SP56-6	1221
		1/2	SP56-8	1215
		3/4	SP56-12	1217
		1	SP56-16	1219
1/2 (.5000) TO 49/64 (.7656)	1 1.0000/.9998	1/2	SP64-8	1217
		3/4	SP64-12	1217
		1	SP64-16	1220
		1-3/8	SP64-22	1223

UNLESS SPECIFIED ON PO, PART MAY HAVE COUNTERBORE PER MANUFACTURER'S DISCRETION PER ASME B94.33-1966.



UN-A-LOCK BUSHING (UL TYPE)

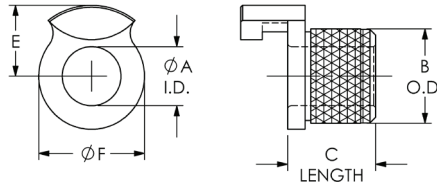


ORDER:

TYPE **I.D.** X **O.D.** X **L**
UL **1/4** X **1/2** X **1/2**
 OR
TYPE **ANSI NO.** X **I.D.**
UL **32-8** X **1/4**

A I.D. NOMINAL ACTUAL	B O.D. NOMINAL D ACTUAL	C LENGTH	ANSI SYMBOL NO.	E	F	PRICE CODE NO.
3/16 .1876 .1879	5/16 .3141/.3138	5/16	UL20-5	1/4	3/8	1268
		3/8	UL20-6			1272
		1/2	UL20-8			1274
		3/4	UL20-12			1278
5/16 .3126 .3129	1/2 .5017/.5014	3/8	UL32-6	3/8	9/16	1245
		1/2	UL32-8			1248
		3/4	UL32-12			1254
1/2 .5002 .5005	3/4 .7518/.7515	1/2	UL48-8	1/2	13/16	1251
		3/4	UL48-12			1262
		1	UL48-16			1268
3/4 .7503 .7506	1 1.0018/1.0015	1/2	UL64-8	21/32	1-1/16	1292
		3/4	UL64-12			1301
		1	UL64-16			1331
1 1.0004 1.0007	1-3/8 1.3772/1.3768	1/2	UL88-8	7/8	1-7/16	1319
		3/4	UL88-12			1335
		1	UL88-16			1352
		1-3/8	UL88-22			1360

UN-A-LOCK BUSHING (ULD TYPE)



ORDER:

TYPE **I.D.** X **O.D.** X **L**
ULD **1/4** X **1/2** X **1/2**
 OR
TYPE **ANSI NO.** X **I.D.**
ULD **32-8** X **1/4**

A I.D. NOMINAL ACTUAL	B O.D. NOMINAL ACTUAL	C LENGTH	ANSI SYMBOL NO.	E	F	PRICE CODE NO.
3/16 .1876 .1879	5/16 .342/.332	5/16	ULD20-5	1/4	3/8	1240
		3/8	ULD20-6			1249
		1/2	ULD20-8			1251
		3/4	ULD20-12			1256
5/16 .3126 .3129	1/2 .533/.523	3/8	ULD32-6	3/8	9/16	1236
		1/2	ULD32-8			1237
		3/4	ULD32-12			1241
1/2 .5002 .5005	3/4 .785/.775	1/2	ULD48-8	1/2	13/16	1259
		3/4	ULD48-12			1270
		1	ULD48-16			1283
3/4 .7503 .7506	1 1.035/1.025	1/2	ULD64-8	21/32	1-1/16	1262
		3/4	ULD64-12			1273
		1	ULD64-16			1285
1 1.0004 1.0007	1-3/8 1.415/1.405	1/2	ULD88-8	7/8	1-7/16	1275
		3/4	ULD88-12			1290
		1	ULD88-16			1304
		1-3/8	ULD88-22			1309

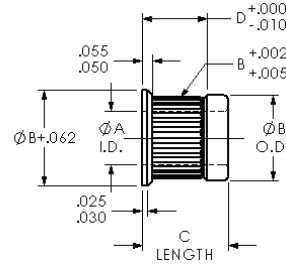


TEMPLATE BUSHING (TB TYPE)

ORDER:

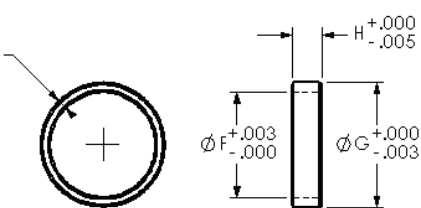
TYPE ANSI NO. X O.D. X LOCK RING NO.
TB-24-6-4 #55 TR-10

LOCK RING NO.
TB-24-6-4 X TR-10 ALUMINUM LOCK RING



A I.D. RANGE	B O.D. BODY	C LENGTH	D GRIP	ANSI SYMBOL NO.	LOCK RING		PRICE CODE NO.			
					PART NO.	TEMPLATE THICKNESS				
#55 (.0520) TO #9 (.1960)	3/8 .374/.373	3/8 .385/.375	1/4	TB-24-6-4	TR-10	1/16	1111			
					TR-20	3/32	1111			
			5/16	TB-24-6-5	TR-30	1/8	1111			
					TR-10	1/8	1111			
#55 (.0520) TO #9 (.1960)	3/8 .374/.373	1/2 .510/.500	5/16	TB-24-8-5	TR-30	3/16	1112			
					TR-10	1/8	1112			
			3/8	TB-24-8-6	TR-30	3/16	1112			
					TR-10	3/16	1112			
			7/16	TB-24-8-7	TR-30	1/4	1112			
					TR-10	1/4	1112			
#9 (.1960) TO O (.3160)	1/2 .499/.498	3/8 .385/.374	1/4	TB-32-6-4	TR-40	1/16	1113			
					TR-50	3/32	1113			
			5/16	TB-32-6-5	TR-60	1/8	1113			
					TR-40	1/8	1113			
			#9 (.1960) TO O (.3160)	1/2 .499/.498	1/2 .510/.500	5/16	TB-32-8-5	TR-60	3/16	1113
								TR-40	1/8	1114
3/8	TB-32-8-6	TR-60				3/16	1114			
		TR-40				3/16	1114			
#9 (.1960) TO O (.3160)	1/2 .499/.498	5/8 .635/.625	1/2	TB-32-8-7	TR-60	1/4	1114			
					TR-40	1/4	1114			
			5/16	TB-32-10-8	TR-60	5/16	1114			
					TR-40	5/16	1115			
5/16 (.3125) TO 1/2 (.5000)	3/4 .749/.748	3/8 .385/.374	1/4	TB-48-6-4	TR-40	5/16	1115			
					TR-60	3/8	1115			
			5/16	TB-48-6-5	TR-70	1/16	1116			
					TR-80	3/32	1116			
			5/16 (.3125) TO 1/2 (.5000)	3/4 .749/.748	1/2 .510/.500	5/16	TB-48-8-5	TR-90	1/8	1116
								TR-70	1/8	1116
3/8	TB-48-8-6	TR-90				3/16	1116			
		TR-70				3/16	1116			
5/16 (.3125) TO 1/2 (.5000)	3/4 .749/.748	5/8 .635/.625	1/2	TB-48-8-7	TR-90	1/4	1117			
					TR-70	1/4	1117			
			5/16	TB-48-10-8	TR-90	5/16	1117			
					TR-70	5/16	1117			

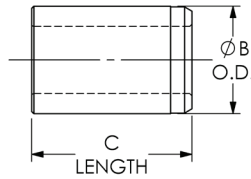
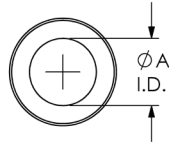
CHAMFER $\frac{.005}{.010}$
 BOTH ENDS
 I.D. & O.D.



PART NO.	F I.D.	G O.D.	H HEIGHT
TR-10			.205
TR-20	3/8	.468	.173
TR-30			.142
TR-40			.205
TR-50	1/2	.593	.173
TR-60			.142
TR-70			.205
TR-80	3/4	.843	.173
TR-90			.142



METRIC DRILL JIG BUSHING - PRESS FIT (PM TYPE)



ORDER:

TYPE I.D. X O.D. X L
PM 22.05 35 20

OR

TYPE ANSI NO. X I.D.
PM 35-20 22.05

A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
.35	4mm	6	PM4-6	1321
TO	4.027	9	PM4-9	1330
1.00	4.019			
1.01	4mm	6	PM4-6	1308
TO	4.027	9	PM4-9	1312
1.80	4.019			
1.81	5mm	6	PM5-6	1226
TO	5.027	9	PM5-9	1236
2.60	5.019			
2.61	6mm	8	PM6-8	1226
TO	6.027	12	PM6-12	1232
3.30	6.019	16	PM6-16	1239
3.31	7mm	8	PM7-8	1216
TO	7.032	12	PM7-12	1221
4.00	7.023	16	PM7-16	1226
4.01	8mm	8	PM8-8	1216
TO	8.032	12	PM8-12	1221
5.00	8.023	16	PM8-16	1226
5.01	10mm	10	PM10-10	1213
TO	10.032	16	PM10-16	1214
6.00	10.023	20	PM10-20	1218
6.01	12mm	10	PM12-10	1213
TO	12.039	16	PM12-16	1214
8.00	12.028	20	PM12-20	1218
8.01	15mm	12	PM15-12	1212
TO	15.039	20	PM15-20	1214
10.00	15.028	25	PM15-25	1216
10.01	18mm	12	PM18-12	1214
TO	18.039	20	PM18-20	1216
12.00	18.028	25	PM18-25	1221
12.01	22mm	16	PM22-16	1225
TO	22.048	28	PM22-28	1227
15.00	22.035	36	PM22-36	1236
15.01	26mm	16	PM26-16	1225
TO	26.048	28	PM26-28	1228
18.00	26.035	36	PM26-36	1239

A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
18.01	30mm	20	PM30-20	1225
TO	30.048	36	PM30-36	1239
22.00	30.035	45	PM30-45	1245
22.01	35mm	20	PM35-20	1240
TO	35.059	36	PM35-36	1266
26.00	35.043	45	PM35-45	1274
26.01	42mm	25	PM42-25	1259
TO	42.059	45	PM42-45	1282
30.00	42.043	56	PM42-56	1307
30.01	48mm	25	PM48-25	1259
TO	48.059	45	PM48-45	1282
35.00	48.043	56	PM48-56	1307
35.01	55mm	30	PM55-30	1292
TO	55.072	56	PM55-56	1334
42.00	55.053	67	PM55-67	1363
42.01	62mm	30	PM62-30	1344
TO	62.072	56	PM62-56	1366
48.00	62.053	67	PM62-67	1371
48.01	70mm	30	PM70-30	1363
TO	70.078	56	PM70-56	1371
55.00	70.059	67	PM70-67	1474
55.01	78mm	35	PM78-35	1457
TO	78.078	67	PM78-67	1490
63.00	78.059	78	PM78-78	1499
63.01	85mm	35	PM85-35	1485
TO	85.093	67	PM85-67	1509
70.00	85.071	78	PM85-78	1513
70.01	95mm	40	PM95-40	1498
TO	95.093	78	PM95-78	1533
78.00	95.071	105	PM95-105	1574
78.01	105mm	40	PM105-40	1505
TO	105.101	78	PM105-78	1542
85.00	105.079	105	PM105-105	1584
85.01	115mm	45	PM115-45	1521
TO	115.101	89	PM115-89	1571
95.00	115.079	112	PM115-112	1607
95.01	125mm	45	PM125-45	1543
TO	125.117	89	PM125-89	1545
105.00	125.092	112	PM125-112	1635



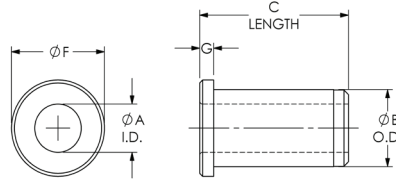
METRIC DRILL JIG BUSHING - HEAD PRESS FIT (HM TYPE)

ORDER:

TYPE I.D. X O.D. X L
HM 22.05 35 20

OR

TYPE ANSI NO. X I.D.
HM 35-20 22.05



A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
.35	4mm	6	HM4-6	1328
TO	4.027	9	HM4-9	1333
1.00	4.019			
1.01	4mm	6	HM4-6	1313
TO	4.027	9	HM4-9	1320
1.80	4.019			
1.81	5mm	6	HM5-6	1241
TO	5.027	9	HM5-9	1247
2.60	5.019			
2.61	6mm	8	HM6-8	1236
TO	6.027	12	HM6-12	1241
3.30	6.019	16	HM6-16	1254
3.31	7mm	8	HM7-8	1225
TO	7.032	12	HM7-12	1230
4.00	7.023	16	HM7-16	1232
4.01	8mm	8	HM8-8	1225
TO	8.032	12	HM8-12	1230
5.00	8.023	16	HM8-16	1232
5.01	10mm	10	HM10-10	1225
TO	10.032	16	HM10-16	1229
6.00	10.023	20	HM10-20	1252
6.01	12mm	10	HM12-10	1225
TO	12.039	16	HM12-16	1229
8.00	12.028	20	HM12-20	1239
8.01	15mm	12	HM15-12	1221
TO	15.039	20	HM15-20	1229
10.00	15.028	25	HM15-25	1230
10.01	18mm	12	HM18-12	1225
TO	18.039	20	HM18-20	1229
12.00	18.028	25	HM18-25	1233
12.01	22mm	16	HM22-16	1236
TO	22.048	28	HM22-28	1245
15.00	22.035	36	HM22-36	1251
15.01	26mm	16	HM26-16	1236
TO	26.048	28	HM26-28	1241
18.00	26.035	36	HM26-36	1256
18.01	30mm	20	HM30-20	1263
TO	30.048	36	HM30-36	1289
22.00	30.035	45	HM30-45	1296
22.01	35mm	20	HM35-20	1264
TO	35.059	36	HM35-36	1290
26.00	35.043	45	HM35-45	1298
26.01	42mm	25	HM42-25	1291
TO	42.059	45	HM42-45	1298
30.00	42.043	56	HM42-56	1343

A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
30.01	48mm	25	HM48-25	1297
TO	48.059	45	HM48-45	1316
35.00	48.043	56	HM48-56	1342
35.01	55mm	30	HM55-30	1336
TO	55.072	56	HM55-56	1362
42.00	55.053	67	HM55-67	1459
42.01	62mm	30	HM62-30	1349
TO	62.072	56	HM62-56	1367
48.00	62.053	67	HM62-67	1458
48.01	70mm	30	HM70-30	1453
TO	70.078	56	HM70-56	1469
55.00	70.059	67	HM70-67	1473
55.01	78mm	35	HM78-35	1465
TO	78.078	67	HM78-67	1486
63.00	78.059	78	HM78-78	1492
63.01	85mm	35	HM85-35	1503
TO	85.093	67	HM85-67	1543
70.00	85.071	78	HM85-78	1553
70.01	95mm	40	HM95-40	1515
TO	95.093	78	HM95-78	1561
78.00	95.071	105	HM95-105	1607
78.01	105mm	40	HM105-40	1529
TO	105.101	78	HM105-78	1573
85.00	105.079	105	HM105-105	1617
85.01	115mm	45	HM115-45	1549
TO	115.101	89	HM115-89	1603
95.00	115.079	112	HM115-112	1643
95.01	125mm	45	HM125-45	1573
TO	125.117	89	HM125-89	1630
105.00	125.092	112	HM125-112	1666

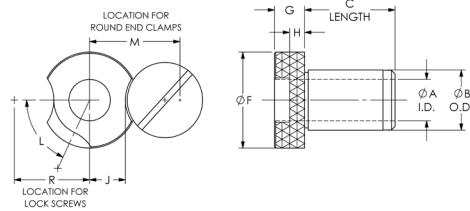
ANSI HEAD DIMENSIONS

BODY O.D. MM	F MM	G MM
4	7	2.0
5	8	
6	9	
7	10	2.5
8	11	
10	13	
12	15	3.0
15	18	
18	22	
22	26	4.0
26	30	
30	34	

BODY O.D. MM	F MM	G MM
35	39	5
42	46	
48	52	
55	59	
62	66	6
70	74	
78	82	
85	90	
95	100	
105	110	
115	120	
125	130	



METRIC DRILL JIG BUSHING - SLIP FIXED (SFM TYPE)



ORDER:

TYPE **I.D.** X **O.D.** X **L**
SFM **22.05** **35** **25**
 OR
TYPE **ANSI NO.** X **I.D.**
SFM **35-25** **22.05**

A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
.35	8mm	10	SFM8-10	1351
TO	8.000	16	SFM8-16	1368
1.00	7.994			
1.01	8mm	10	SFM8-10	1342
TO	8.000	16	SFM8-16	1362
1.80	7.994			
1.81	8mm	10	SFM8-10	1243
TO	8.000	16	SFM8-16	1269
4.00	7.994			
4.01	10mm	12	SFM10-12	1233
TO	10.000	20	SFM10-20	1236
6.00	9.994	25	SFM10-25	1244
6.01	12mm	12	SFM12-12	1231
TO	12.000	20	SFM12-20	1236
8.00	11.992	25	SFM12-25	1244
8.01	15mm	16	SFM15-16	1236
TO	15.000	28	SFM15-28	1244
10.00	14.992	36	SFM15-36	1261
10.01	18mm	16	SFM18-16	1235
TO	18.000	28	SFM18-28	1239
12.00	17.992	36	SFM18-36	1263
12.01	22mm	20	SFM22-20	1251
TO	22.000	36	SFM22-36	1266
15.00	21.991	45	SFM22-45	1276
15.01	26mm	20	SFM26-20	1251
TO	26.000	36	SFM26-36	1265
18.00	25.991	45	SFM26-45	1276
18.01	30mm	25	SFM30-25	1290
TO	30.000	45	SFM30-45	1319
22.00	29.991	56	SFM30-56	1359
22.01	35mm	25	SFM35-25	1290
TO	35.000	45	SFM35-45	1319
26.00	34.989	56	SFM35-56	1359
26.01	42mm	30	SFM42-30	1321
TO	42.000	56	SFM42-56	1363
30.00	41.989	67	SFM42-67	1456
30.01	48mm	30	SFM48-30	1361
TO	48.000	56	SFM48-56	1460
35.00	47.989	67	SFM48-67	1470
35.01	55mm	30	SFM55-30	1354
TO	55.000	56	SFM55-56	1370
42.00	54.987	67	SFM55-67	1472

A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
42.01	62mm	35	SFM62-35	1483
TO	62.000	67	SFM62-67	1517
48.00	61.987	78	SFM62-78	1521
48.01	70mm	35	SFM70-35	1511
TO	70.000	67	SFM70-67	1539
55.00	69.987	78	SFM70-78	1544
55.01	78mm	40	SFM78-40	1526
TO	78.000	78	SFM78-78	1566
62.00	77.987	105	SFM78-105	1608
62.01	85mm	40	SFM85-40	1541
TO	85.000	78	SFM85-78	1592
70.00	84.985	105	SFM85-105	1635
70.01	95mm	45	SFM95-45	1558
TO	95.000	89	SFM95-89	1621
78.00	94.985	112	SFM95-112	1657
78.01	105mm	45	SFM105-45	1579
TO	105.000	89	SFM105-89	1633
85.00	104.985	112	SFM105-112	1666

ANSI HEAD DIMENSIONS

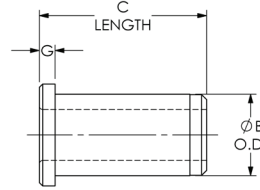
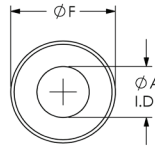
O.D. MM	F MM	G MM	H MM	J MM	L MM	R MM	LOCK SCR.	ROUND CLAMP
8	15	6	3.0	4.5	65°	11.5	LSM-1	RCM-1
10	18			6.0	65°	13.0	LSM-2	RCM-2
12	22	8	4.0	7.5	60°	16.0	LSM 3&4	RCM 3&4
15	26			9.5	50°	18.0		
18	30			11.5	50°	20.0		
22	34	10	5.5	13.0	35°	23.5	LSM 5&6	RCM 5&6
26	39			15.5	35°	26.0		
30	46			19.0	30°	29.5		
35	52			22.0	30°	32.5		
42	59			25.5	30°	36.0		
48	66	12	7.0	28.5	30°	41.0	LSM 7&8	RCM 7&8
55	74			32.5	25°	45.0		
62	82			36.5	25°	49.0		
70	90			40.5	25°	53.0		
78	100			45.5	25°	58.0		
85	110			50.5	20°	63.0		
95	120			55.5	20°	68.0		
105	130	60.5	20°	73.0				



METRIC DRILL JIG BUSHING - HEAD LINER (HLM TYPE)

ORDER:

TYPE I.D. X O.D. X L
HLM 22.05 35 20
OR
TYPE ANSI NO. X I.D.
HLM 35-20 22.05



A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
8mm	12mm	10	HLM12-10-8	1225
8.005	12.039	16	HLM12-16-8	1229
8.014	12.028			
10mm	15mm	12	HLM15-12-10	1221
10.005	15.039	20	HLM15-20-10	1229
10.014	15.028	25	HLM15-25-10	1230
12mm	18mm	12	HLM18-12-12	1225
12.006	18.039	20	HLM18-20-12	1229
12.017	18.028	25	HLM18-25-12	1233
15mm	22mm	16	HLM22-16-15	1236
15.006	22.048	28	HLM22-28-15	1245
15.017	22.035	36	HLM22-36-15	1251
18mm	26mm	16	HLM26-16-18	1236
18.006	26.048	28	HLM26-28-18	1241
18.017	26.035	36	HLM26-36-18	1256
22mm	30mm	20	HIM30-20-22	1263
22.007	30.048	36	HIM30-36-22	1289
22.020	30.035	45	HIM30-45-22	1296
26mm	35mm	20	HLM35-20-26	1264
26.007	35.059	36	HLM35-36-26	1290
26.020	35.043	45	HLM35-45-26	1298
30mm	42mm	25	HLM42-25-30	1291
30.007	42.059	45	HLM42-45-30	1298
30.020	42.043	56	HLM42-56-30	1343
35mm	48mm	25	HLM48-25-35	1291
35.009	48.059	45	HLM48-45-35	1316
35.025	48.043	56	HLM48-56-35	1342
42mm	55mm	30	HLM55-30-42	1336
42.009	55.072	56	HLM55-56-42	1362
42.025	55.053	67	HLM55-67-42	1450
48mm	62mm	30	HLM62-30-48	1349
48.009	62.072	56	HLM62-56-48	1367
48.025	63.053	67	HLM62-67-48	1458
55mm	70mm	30	HLM70-30-55	1453
55.010	70.078	56	HLM70-56-55	1469
55.029	70.059	67	HLM70-67-55	1477

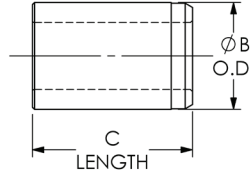
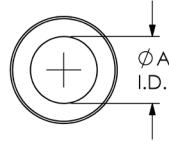
A I.D. RANGE	B O.D. BODY	C LENGTH (MM)	ANSI SYMBOL NO.	PRICE CODE NO.
62mm	78mm	35	HLM78-35-62	1465
62.010	78.078	67	HLM78-67-62	1486
62.029	78.059	78	HLM78-78-62	1492
70mm	85mm	35	HLM85-35-70	1503
70.010	85.093	67	HLM85-67-70	1543
70.029	85.071	78	HLM85-78-70	1553
78mm	95mm	40	HLM95-40-78	1515
78.010	95.093	78	HLM95-78-78	1561
78.029	95.071	105	HLM95-105-78	1607
85mm	105mm	40	HLM105-40-85	1529
85.010	105.101	78	HLM105-78-85	1573
85.029	105.079	105	HLM105-105-85	1617
95mm	115mm	45	HLM115-45-95	1549
95.010	115.101	89	HLM115-89-95	1603
95.029	115.079	112	HLM115-112-95	1643
105mm	125mm	45	HLM125-45-105	1573
105.010	125.117	89	HLM125-89-105	1630
105.029	125.092	112	HLM125-112-105	1666

ANSI HEAD DIMENSIONS

BODY O.D. MM	F MM	G MM	BODY O.D. MM	F MM	G MM
12	15	3	55	59	5
15	18	3	62	66	6
18	22	4	70	74	6
22	26	4	78	82	6
26	30	4	85	90	6
30	34	5	95	100	6
35	39	5	105	110	6
42	46	5	115	120	6
48	52	5	125	130	6



CARBIDE BUSHING - PRESS FIT (PC TYPE)



ORDER:

TYPE **I.D.** X **O.D.** X **L**
PC **1/4** **1/2** **1/2**
OR
TYPE **ANSI NO.** X **I.D.**
PC **32-8** **1/4**

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.
#70 (.0280) TO #56 (.0465)	5/32 .1578/.1575	1/4	PC10-4
		5/16	PC10-5
		3/8	PC10-6
		1/2	PC10-8
3/64 (.0469) TO 1/16 (.0625)	5/32 .1578/.1575	1/4	PC10-4
		5/16	PC10-5
		3/8	PC10-6
#54 (.0550) TO #39 (.0995)	13/64 .2046/.2043	1/4	PC13-4
		5/16	PC13-5
		3/8	PC13-6
#39 (.0995) TO #29 (.1360)	1/4 .2516/.2513	1/2	PC13-8
		5/16	PC16-5
#30 (.1285) TO 3/16 (.1875)	5/16 .3141/.3138	3/8	PC16-6
		1/2	PC16-8
3/16 (.1875) TO 1/4 (.2500)	13/32 .4078/.4075	5/16	PC20-5
		1/2	PC20-8
		3/4	PC20-12
		1	PC20-16
		5/16	PC26-5
7/32 (.2187) TO 5/16 (.3125)	1/2 .5017/.5014	3/8	PC26-6
		1/2	PC26-8
		3/4	PC26-12
		1	PC26-16
5/16 (.3125) TO 27/64 (.4219)	5/8 .6267/.6264	5/16	PC32-5
		3/8	PC32-6
		1/2	PC32-8
		3/4	PC32-12
		1	PC32-16
3/8 (.3750) TO 1/2 (.5000)	3/4 .7518/.7515	1-3/8	PC32-22
		1/2	PC40-8
		3/4	PC40-12
		1	PC40-16
3/8 (.3750) TO 1/2 (.5000)	3/4 .7518/.7515	1	PC40-22
		1/2	PC48-8
		3/4	PC48-12
3/8 (.3750) TO 1/2 (.5000)	3/4 .7518/.7515	1	PC48-16
		1-3/8	PC48-22

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.
1/2 (.5000) TO 5/8 (.6250)	7/8 .8768/.8765	1/2	PC56-8
		3/4	PC56-12
		1	PC56-16
		1-3/8	PC56-22
		1-3/4	PC56-28
1/2 (.5000) TO 3/4 (.7500)	1 1.0018/1.0015	1/2	PC64-8
		3/4	PC64-12
		1	PC64-16
		1-3/8	PC64-22
3/4 (.7500) TO 1 (1.0000)	1-3/8 1.3772/1.3768	1-3/4	PC64-28
		3/4	PC88-12
		1	PC88-16
1 (1.0000) TO 1-3/8 (1.3750)	1-3/4 1.7523/1.7519	1-3/8	PC88-22
		1-3/4	PC88-28
		2-1/8	PC88-34
		2-1/2	PC88-40
		1	PC112-16
1-3/8 (1.3750) TO 1-3/4 (1.7500)	2-1/4 2.2525/2.2521	1-3/8	PC112-22
		1-3/4	PC112-28
		2-1/8	PC112-34
		2-1/2	PC112-40
		3	PC112-48
1-3/8 (1.3750) TO 1-3/4 (1.7500)	2-1/4 2.2525/2.2521	1	PC144-16
		1-3/8	PC144-22
		1-3/4	PC144-28
		2-1/8	PC144-34
		2-1/2	PC144-40
1-3/8 (1.3750) TO 1-3/4 (1.7500)	2-1/4 2.2525/2.2521	3	PC144-48

ALL BUSHINGS HAVE NO COUNTERBORE.
 * PRICE UPON REQUEST.



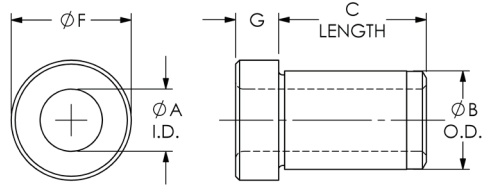
CARBIDE BUSHING - PRESS FIT (HC TYPE)

ORDER:

TYPE I.D. X O.D. X L
HC 1/4 1/2 1/2

OR

TYPE ANSI NO. X I.D.
HC 32-8 1/4



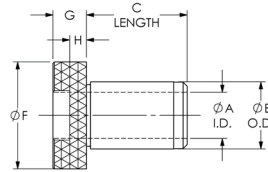
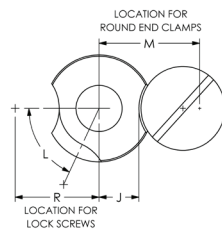
A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.
#70 (.0280) TO #56 (.0465)	5/32 .1578/.1575	5/16	HC10-5
		3/8	HC10-6
		1/2	HC10-8
3/64 (.0469) TO 1/16 (.0625)	5/32 .1578/.1575	5/16	HC10-5
		3/8	HC10-6
		1/2	HC10-8
#54 (.0550) TO #39 (.0995)	13/64 .2046/.2043	5/16	HC13-5
		3/8	HC13-6
		1/2	HC13-8
#39 (.0995) TO #29 (.1360)	1/4 .2516/.2513	5/16	HC16-5
		3/8	HC16-6
		1/2	HC16-8
#30 (.1285) TO 3/16 (.1875)	5/16 .3141/.3138	5/16	HC20-5
		3/8	HC20-6
		1/2	HC20-8
		3/4	HC20-12
3/16 (.1875) TO 1/4 (.2500)	13/32 .4078/.4075	5/16	HC26-5
		3/8	HC26-6
		1/2	HC26-8
		3/4	HC26-12
7/32 (.2187) TO 5/16 (.3125)	1/2 .5017/.5014	1	HC26-16
		5/16	HC32-5
		3/8	HC32-6
		1/2	HC32-8
		3/4	HC32-12
5/16 (.3125) TO 27/64 (.4219)	5/8 .6267/.6264	1	HC32-16
		1-3/8	HC32-22
		1/2	HC40-8
		3/4	HC40-12
		1	HC40-16
3/8 (.3750) TO 1/2 (.5000)	3/4 .7518/.7515	1-3/8	HC40-22
		1/2	HC48-8
		3/4	HC48-12
		1	HC48-16
		1-3/8	HC48-22

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.
1/2 (.5000) TO 5/8 (.6250)	7/8 .8768/.8765	1/2	HC56-8
		3/4	HC56-12
		1	HC56-16
		1-3/8	HC56-22
		1-3/4	HC56-28
1/2 (.5000) TO 3/4 (.7500)	1 1.0018/.10015	1/2	HC64-8
		3/4	HC64-12
		1	HC64-16
		1-3/8	HC64-22
3/4 (.7500) TO 1 (1.0000)	1-3/8 1.3772/1.3768	1-3/4	HC64-28
		3/4	HC88-12
		1	HC88-16
		1-3/8	HC88-22
		1-3/4	HC88-28
1 (1.0000) TO 1-3/8 (1.3750)	1-3/4 1.7523/1.7519	2-1/8	HC88-34
		2-1/2	HC88-40
		1	HC112-16
		1-3/8	HC112-22
		1-3/4	HC112-28
1-3/8 (1.3750) TO 1-3/4 (1.7500)	2-1/4 2.2525/2.2521	2	HC112-32
		2-1/8	HC112-34
		2-1/2	HC112-40
		3	HC112-48
		1	HC144-16
		1-3/8	HC144-22
		1-3/4	HC144-28
		2-1/8	HC144-34
		2-1/2	HC144-40
		3	HC144-48

*CARBIDE BUSHINGS WITH STEEL HEAD.
 *HEAD DIMENSIONS MAY BE DIFFERENT FROM ANSI STANDARDS.
 *ALL BUSHINGS HAVE NO COUNTERBORE.
 *PRICE UPON REQUEST.



CARBIDE DRILL JIG BUSHING- SLIP FIXED (SFC TYPE)



ORDER:

TYPE **I.D.** X **O.D.** X **L**
SFC **1/4** X **1/2** X **1/2**

OR

TYPE **ANSI NO.** X **I.D.**
SFC **32-8** X **1/4**

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.
#55 (.0520) TO #43 (.0890)	5/16 .3125/.3123	5/16	SFC20-5
		1/2	SFC20-8
		3/4	SFC20-12
		1	SFC20-16
#42 (.0935) TO 5/32 (.1562)	5/16 .3125/.3123	5/16	SFC20-5
		1/2	SFC20-8
		3/4	SFC20-12
		1	SFC20-16
9/64 (.1406) TO 3/16 (.1875)	1/2 .5000/.4998	5/16	SFC32-5
		1/2	SFC32-8
		3/4	SFC32-12
		1	SFC32-16
		1-3/8	SFC32-22
#12 (.1890) TO 11/32 (.3437)	1/2 .5000/.4998	5/16	SFC32-5
		1/2	SFC32-8
		3/4	SFC32-12
		1	SFC32-16
		1-3/8	SFC32-22
9/32 (.2812) TO 17/32 (.5312)	3/4 .7500/.7498	1/2	SFC48-8
		3/4	SFC48-12
		1	SFC48-16
		1-3/8	SFC48-22
15/32 (.4687) TO 25/32 (.7812)	1 1.0000/.9998	1/2	SFC64-8
		3/4	SFC64-12
		1	SFC64-16
		1-3/8	SFC64-22
		1-3/4	SFC64-28
		2-1/8	SFC64-34
		2-1/2	SFC64-40

A I.D. RANGE	B O.D. BODY	C LENGTH	ANSI SYMBOL NO.
23/32 (.7187) TO 1-1/32 (1.0312)	1-3/8 1.3750/1.3747	3/4	SFC88-12
		1	SFC88-16
		1-3/8	SFC88-22
		1-3/4	SFC88-28
		2-1/8	SFC88-34
31/32 (.9687) TO 1-13/32 (1.4062)	1-3/4 1.7500/1.7497	2-1/2	SFC88-40
		1	SFC112-16
		1-3/8	SFC112-22
		1-3/4	SFC112-28
		2-1/8	SFC112-34
1-11/32 (1.3438) TO 1-25/32 (1.7812)	2-1/4 2.2500/2.2496	2-1/2	SFC112-40
		3	SFC112-48
		1	SFC144-16
		1-3/8	SFC144-22
		1-3/4	SFC144-28
		2-1/8	SFC144-34
		2-1/2	SFC144-40
		3	SFC144-48

*CARBIDE BUSHINGS WITH STEEL HEAD.

*HEAD DIMENSIONS MAY BE DIFFERENT FROM ANSI STANDARDS.

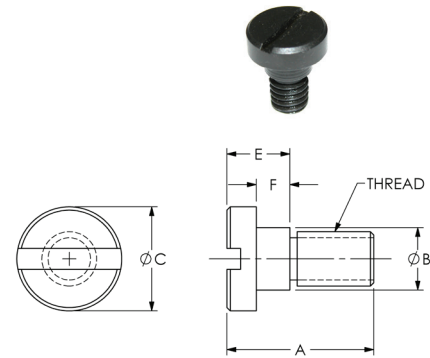
*ALL BUSHINGS HAVE NO COUNTERBORE.

*PRICE UPON REQUEST.



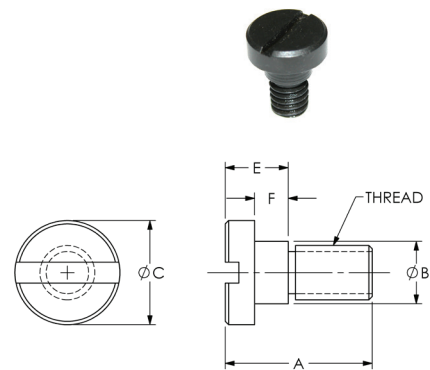
LOCKING ACCESSORIES FOR RENEWABLE BUSHING LOCK SCREW- SLOTTED TYPE

PART NO.	A	B	C	E	F	THREAD
LS-0	7/16	3/16	5/16	3/16	.100-.094	8-32
LS-1	5/8	3/8	5/8	1/4	.138-.132	5/16-18
LS-2	7/8	3/8	5/8	3/8	.200-.194	5/16-18
LS-3	1	7/16	3/4	3/8	.200-.194	3/8-16
LS-4	1-1/16	7/16	3/4	7/16	.231-.225	3/8-16
LS-5	1-1/8	7/16	3/4	1/2	.263-.257	3/8-16



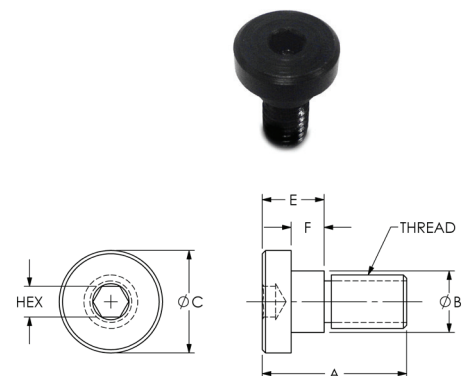
TW SERIES

PART NO.	A	B	C	E	F	THREAD
TW-1	7/16	3/16	5/16	3/16	3/32	8-32
TW-2	1/2	1/4	3/8	1/4	1/8	10-32
TW-3	11/16	1/4	7/16	3/8	3/16	10-32
TW-4	7/8	3/8	9/16	1/2	1/4	5/16-18
TW-5	1	3/8	5/8	5/8	5/16	5/16-18
TW-7	3/4	3/8	5/8	3/8	3/16	5/16-18



HEX LOCK SCREWS

PART NO.	A	B	C	E	F	THREAD	HEX
HLS-0	7/16	3/16	5/16	3/16	.100-.094	8-32	3/32
HLS-1	5/8	3/8	5/8	1/4	.138-.132	5/16-18	3/16
HLS-2	7/8	3/8	5/8	3/8	.200-.194	5/16-18	3/16
HLS-3	1	7/16	3/4	3/8	.200-.194	3/8-16	7/32
HLS-4	1-1/16	7/16	3/4	7/16	.231-.225	3/8-16	7/32
HLS-5	1-1/8	7/16	3/4	1/2	.263-.257	3/8-16	7/32

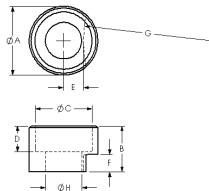




LOCKING ACCESSORIES FOR RENEWABLE BUSHING

ROUND CLAMPS

FOR TYPE "S/F/SF" RENEWABLE BUSHINGS
IN A.N.S.I., CARBIDE, AND EXTENDED RANGE

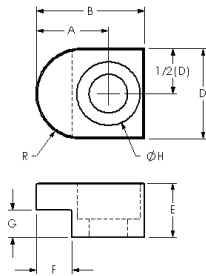


PART NO.	A	B	C	D	E	F	G	H	LOCK SCREW
RC-01	5/8	5/16	5/16 SHS	5/32	.109	.1250	17/32	21/64	LS-1
RC-02	5/8	7/16	5/16 SHS	7/32	.125	.1875	29/32		LS-2
RC-03	3/4	1/2	3/8 SHS	9/32	.156	.1875	1-13/32	25/64	LS-3
RC-04*	3/4	17/32	3/8 SHS	1/4	.156	.2187	2-1/2		LS-4
RC-05*	3/4	9/16	3/8 SHS	1/4	.156	.2500	2-1/2		LS-5

*FOR USE WITH EXTENDED RANGE RENEWABLE BUSHINGS ONLY

ROUND END CLAMPS

FOR ALL A.N.S.I., CARBIDE, AND EXTENDED
RANGE RENEWABLE BUSHINGS



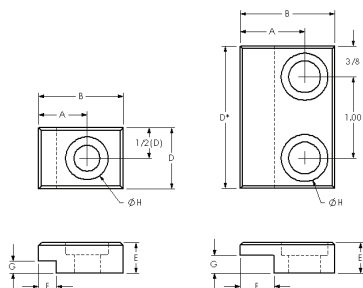
FOR FLUSH MOUNTING OF LINERS									
PART NO.	A	B	D	E	F	G	H		R
							MOUNTING SCREW SIZE		
RK-01	7/16	3/4	5/8	5/16	3/16	1/8	1/4 SOC. HD. SCR.		5/16
RK-02	1/2	3/4	5/8	3/8	1/4	3/16	1/4 SOC. HD. SCR.		5/16
RK-03	5/8	1	3/4	3/8	5/16	3/16	5/16 SOC. HD. SCR.		3/8
RK-04	11/16	1-1/8	3/4	3/8	5/16	7/32	3/8 SOC. HD. SCR.		3/8
RK-05	11/16	1-1/8	3/4	1/2	5/16	1/4	3/8 SOC. HD. SCR.		3/8

FOR PROJECTED MOUNTING OF SHOULDER LINERS									
PART NO.	A	B	D	E	F	G	H		R
							MOUNTING SCREW SIZE		
RK-10	7/16	3/4	5/8	3/8	3/16	7/32	1/4 SOC. HD. SCR.		5/16
RK-11	7/16	3/4	5/8	3/8	3/16	1/4	1/4 SOC. HD. SCR.		5/16
RK-12	1/2	3/4	5/8	1/2	1/4	5/16	1/4 SOC. HD. SCR.		5/16
RK-13	1/2	3/4	5/8	1/2	1/4	3/8	1/4 SOC. HD. SCR.		5/16
RK-14	5/8	1	3/4	1/2	5/16	3/8	3/8 SOC. HD. SCR.		3/8
RK-15*	11/16	1-1/8	3/4	5/8	5/16	13/32	3/8 SOC. HD. SCR.		3/8
RK-16*	11/16	1-1/8	3/4	5/8	5/16	7/16	3/8 SOC. HD. SCR.		3/8
RK-17*	11/16	1-1/8	3/4	3/4	5/16	15/32	3/8 SOC. HD. SCR.		3/8

*FOR USE WITH EXTENDED RANGE RENEWABLE BUSHINGS ONLY

FLAT CLAMPS

FOR TYPE "FX,FM" RENEWABLE BUSHINGS
IN A.N.S.I., AND EXTENDED RANGE



FOR FLUSH MOUNTING OF LINERS								
PART NO.	A	B	D	E	F	G	H	
							MOUNTING SCREW SIZE	
FC-01	1/2	7/8	5/8	5/16	3/16	1/8	1/4 SOC. HD. SCR.	
FC-02	5/8	1	1	3/8	1/4	3/16	5/16 SOC. HD. SCR.	
FC-03	5/8	1-1/8	1	3/8	5/16	3/16	5/16 SOC. HD. SCR.	
FC-04*	51/64	1-11/64	1-1/4	3/8	27/64	7/32	3/8 SOC. HD. SCR.	
FC-05*	51/64	1-11/64	1-3/4	3/8	27/64	7/32	3/8 SOC. HD. SCR.	
FC-06*	51/64	1-11/64	1-1/4	1/2	27/64	1/4	3/8 SOC. HD. SCR.	
FC-07*	51/64	1-11/64	1-3/4	1/2	27/64	1/4	3/8 SOC. HD. SCR.	

FOR PROJECTED MOUNTING OF SHOULDER LINERS								
PART NO.	A	B	D	E	F	G	H	
							MOUNTING SCREW SIZE	
FC-10	1/2	7/8	5/8	3/8	3/16	7/32	1/4 SOC. HD. SCR.	
FC-11	1/2	7/8	5/8	3/8	3/16	1/4	1/4 SOC. HD. SCR.	
FC-12	5/8	1	1	1/2	1/4	5/16	5/16 SOC. HD. SCR.	
FC-13	5/8	1	1	1/2	1/4	3/8	5/16 SOC. HD. SCR.	
FC-14	5/8	1-1/8	1-1/4	1/2	5/16	3/8	3/8 SOC. HD. SCR.	
FC-15	5/8	1-1/8	1-3/4	1/2	5/16	3/8	3/8 SOC. HD. SCR.	
FC-16*	51/64	1-11/64	1-1/4	5/8	27/64	13/32	3/8 SOC. HD. SCR.	
FC-17*	51/64	1-11/64	1-3/4	5/8	27/64	13/32	3/8 SOC. HD. SCR.	
FC-18*	51/64	1-11/64	1-1/4	5/8	27/64	7/16	3/8 SOC. HD. SCR.	
FC-19*	51/64	1-11/64	1-3/4	5/8	27/64	7/16	3/8 SOC. HD. SCR.	
FC-20*	51/64	1-11/64	1-1/4	3/4	27/64	15/32	3/8 SOC. HD. SCR.	
FC-21*	51/64	1-11/64	1-3/4	3/4	27/64	15/32	3/8 SOC. HD. SCR.	

*FOR USE WITH EXTENDED RANGE RENEWABLE BUSHINGS ONLY

* IF D=1 3/4, CLAMP HAS 2 HOLES, OTHERWISE CLAMP ONLY HAS ONE HOLE.



STANDARD DRILL CHART

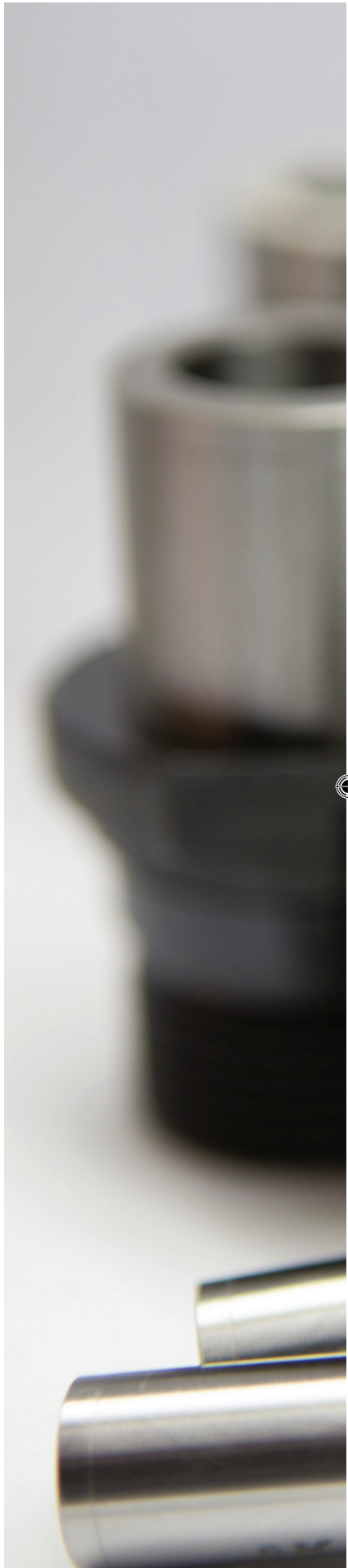
STANDARD SIZES

MILLIMETER SIZES

SIZE	DECIMAL	SIZE	DECIMAL	SIZE	DECIMAL	SIZE	DECIMAL	SIZE	DECIMAL	SIZE	DECIMAL
#80	0.0135	1/8	0.1250	P	0.3230	0.35	0.0138	3.50	0.1378	8.25	0.3248
#79	0.0145	#30	0.1285	21/64	0.3281	0.40	0.0157	3.60	0.1417	8.30	0.3268
1/64	0.0156	#29	0.1360	Q	0.3320	0.45	0.0177	3.70	0.1457	8.40	0.3307
#78	0.0160	#28	0.1405	R	0.3390	0.50	0.0197	3.75	0.1477	8.50	0.3346
#77	0.0180	9/64	0.1406	11/32	0.3437	0.55	0.0217	3.80	0.1496	8.60	0.3386
#76	0.0200	#27	0.1440	S	0.3480	0.60	0.0236	3.90	0.1535	8.70	0.3425
#75	0.0210	#26	0.1470	T	0.3580	0.65	0.0256	4.00	0.1575	8.75	0.3445
#74	0.0225	#25	0.1495	23/64	0.3594	0.70	0.0276	4.10	0.1614	8.80	0.3465
#73	0.0240	#24	0.1520	U	0.3680	0.75	0.0295	4.20	0.1654	8.90	0.3504
#72	0.0250	#23	0.1540	3/8	0.3750	0.80	0.0315	4.25	0.1674	9.00	0.3543
#71	0.0260	5/32	0.1562	V	0.3770	0.85	0.0335	4.30	0.1693	9.10	0.3583
#70	0.0280	#22	0.1570	W	0.3860	0.90	0.0354	4.40	0.1732	9.20	0.3622
#69	0.0292	#21	0.1590	25/64	0.3906	0.95	0.0374	4.50	0.1771	9.25	0.3642
#68	0.0310	#20	0.1610	X	0.3970	1.00	0.0394	4.60	0.1811	9.30	0.3661
1/32	0.0312	#19	0.1660	Y	0.4040	1.05	0.0413	4.70	0.1850	9.40	0.3701
#67	0.0320	#18	0.1695	13/32	0.4062	1.10	0.0433	4.75	0.1870	9.50	0.3740
#66	0.0330	11/64	0.1719	Z	0.4130	1.15	0.0453	4.80	0.1890	9.60	0.3780
#65	0.0350	#17	0.1730	27/64	0.4219	1.20	0.0472	4.90	0.1929	9.70	0.3819
#64	0.0360	#16	0.1770	7/16	0.4375	1.25	0.0492	5.00	0.1968	9.75	0.3839
#63	0.0370	#15	0.1800	29/64	0.4531	1.30	0.0512	5.10	0.2008	9.80	0.3858
#62	0.0380	#14	0.1820	15/32	0.4687	1.35	0.0531	5.20	0.2047	9.90	0.3898
#61	0.0390	#13	0.1850	31/64	0.4844	1.40	0.0551	5.25	0.2067	10.00	0.3937
#60	0.0400	3/16	0.1875	1/2	0.5000	1.45	0.0571	5.30	0.2087	10.50	0.4134
#59	0.0410	#12	0.1890	33/64	0.5156	1.50	0.0591	5.40	0.2126	11.00	0.4330
#58	0.0420	#11	0.1910	17/32	0.5312	1.55	0.0610	5.50	0.2165	11.50	0.4528
#57	0.0430	#10	0.1935	35/64	0.5469	1.60	0.0629	5.60	0.2205	12.00	0.4724
#56	0.0465	#9	0.1960	9/16	0.5625	1.65	0.0650	5.70	0.2244	12.50	0.4921
3/64	0.0469	#8	0.1990	37/64	0.5781	1.70	0.0669	5.75	0.2264	13.00	0.5119
#55	0.0520	#7	0.2010	19/32	0.5937	1.75	0.0689	5.80	0.2283	13.50	0.5315
#54	0.0550	13/64	0.2031	39/64	0.6094	1.80	0.0709	5.90	0.2323	14.00	0.5512
#53	0.0595	#6	0.2040	5/8	0.6250	1.85	0.0728	6.00	0.2362	14.50	0.5709
1/16	0.0625	#5	0.2055	41/64	0.6406	1.90	0.0748	6.10	0.2401	15.00	0.5906
#52	0.0635	#4	0.2090	21/32	0.6562	1.95	0.0768	6.20	0.2441	15.50	0.6102
#51	0.0670	#3	0.2130	43/64	0.6719	2.00	0.0787	6.25	0.2461	16.00	0.6299
#50	0.0700	7/32	0.2187	11/16	0.6875	2.05	0.0807	6.30	0.2480	16.50	0.6496
#49	0.0730	#2	0.2210	45/64	0.7031	2.10	0.0827	6.40	0.2520	17.00	0.6693
#48	0.0760	#1	0.2280	23/32	0.7187	2.15	0.0846	6.50	0.2559	17.50	0.6890
5/64	0.0781	A	0.2340	47/64	0.7344	2.20	0.0866	6.60	0.2598	18.00	0.7087
#47	0.0785	15/64	0.2344	3/4	0.7500	2.25	0.0886	6.70	0.2638	18.50	0.7283
#46	0.0810	B	0.2380	49/64	0.7656	2.30	0.0905	6.75	0.2658	19.00	0.7480
#45	0.0820	C	0.2420	25/32	0.7812	2.35	0.0925	6.80	0.2677	19.50	0.7677
#44	0.0860	D	0.2460	51/64	0.7969	2.40	0.0945	6.90	0.2716	20.00	0.7874
#43	0.0890	1/4	0.2500	13/16	0.8125	2.45	0.0965	7.00	0.2756	20.50	0.8071
#42	0.0935	F	0.2570	53/64	0.8281	2.50	0.0984	7.10	0.2795	21.00	0.8268
3/32	0.0937	G	0.2610	27/32	0.8437	2.55	0.1004	7.20	0.2835	21.50	0.8465
#41	0.0960	17/64	0.2656	55/64	0.8594	2.60	0.1024	7.25	0.2855	22.00	0.8661
#40	0.0980	H	0.2660	7/8	0.8750	2.65	0.1043	7.30	0.2874	22.50	0.8858
#39	0.0995	I	0.2720	57/64	0.8906	2.70	0.1063	7.40	0.2913	23.00	0.9055
#38	0.1015	J	0.2770	29/32	0.9062	2.75	0.1083	7.50	0.2953	23.50	0.9252
#37	0.1040	K	0.2811	59/64	0.9219	2.80	0.1102	7.60	0.2992	24.00	0.9449
#36	0.1065	9/32	0.2812	15/16	0.9375	2.90	0.1142	7.70	0.3031	24.50	0.9646
7/64	0.1094	L	0.2900	61/64	0.9531	3.00	0.1181	7.75	0.3051	25.00	0.9843
#35	0.1100	M	0.2950	31/32	0.9687	3.10	0.1220	7.80	0.3071		
#34	0.1110	19/64	0.2969	63/64	0.9844	3.20	0.1260	7.90	0.3110		
#33	0.1130	N	0.3020	1	1.000	3.25	0.1280	8.00	0.3150		
#32	0.1160	5/16	0.3125			3.30	0.1299	8.10	0.3189		
#31	0.1200	O	0.3160			3.40	0.1339	8.20	0.3228		



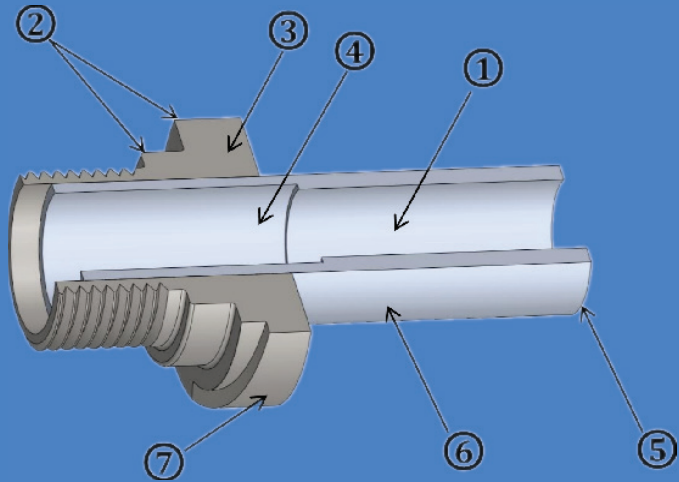
AIR FEED BUSHINGS







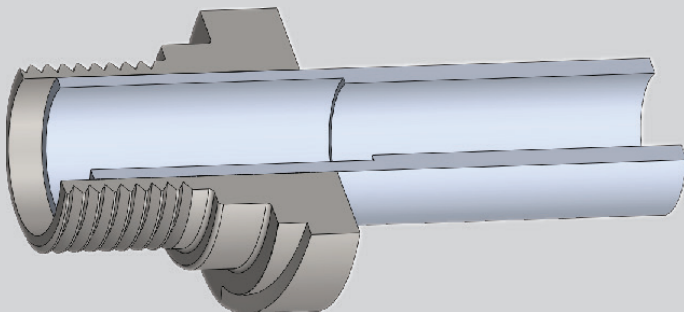
AIR FEED BUSHINGS



1. Drill guide hole finished to ANSI specifications or customer's exact dimensional requirements
2. Square shoulder and concentric alignment diameter accurately line up drill bushing tip with axis of tool
3. Collar and threads heat treated to produce strength and provide wear resistance. Shank hardened for maximum wear resistance
4. Counterbored chip clearance hole prevents jam up of chips. Chips work back in to the nose piece and out slots in sides of nose piece
5. Marked with part number and drill size for easy identification and simplicity in reordering
6. Precision ground shank, with entering bevel for easy insertion in lock liner bushing.
7. Air Feed flanges provide a quick positive shake proof lock of the drill bushing tip. A 30° turn locks or unlocks

** Coolant holes provide positive flow for chip removal and cooler drilled parts. (Coolant holes are available upon request.)

DESIGN FEATURES



All Air Feed Bushing tips are constructed with a two piece method consisting of a collar and a pressed in shank. The Collar contains the screw threads, alignment diameter and the lock flange. The shank contains the A, B and C dimensions listed in the chart. Maximum and minimum drill sizes (A) for drill bushing tips are shown in the heading of the chart. Collars or shanks can be ordered separately for replacement purposes. See Below

ORDERING INFORMATION

DRILL BUSHINGS TIP:

Specify each part number; add drill size as a suffix to the part number. Drill size should be specified as a decimal size to four places. Example: A-22110 x .2500

Note: There is an extra charge for all drill bushing tips specified to have smaller than the minimum drill size. Standard drill bushing tips are those with standard drill sizes and with sizes falling between the maximum and minimum sizes show in A. An extra charge will be added for each special dimension (such as shank O.D./length), which may be specified.

SHANK ONLY:

To order bushings without the threaded collars, the letter "A" is omitted. Example: 22110 x .2500

COLLAR ONLY:

Specify Collar Part number shown directly below collar drawing: Example: 22000

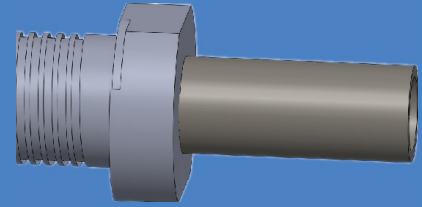
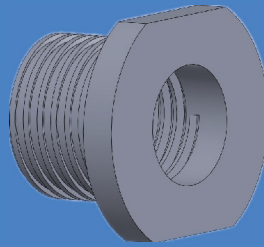
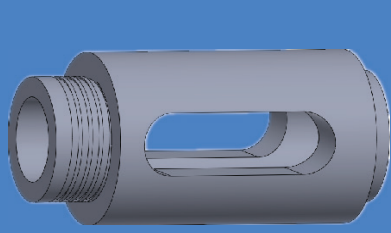
ALL OTHER ITEMS: Specify part number

ACCESSORIES: The accessories listed are designed to work with tips appearing in the same vertical column in which the accessory part numbers are above.





MOUNTING DATA



NOSE PIECE:

Automatic mechanical or air feed drills, tapper and back spotfacers are equipped with either a short or a long nose piece depending upon the length of the cutting tool holding device. Ex: drill chuck, tap chuck, morse taper adapter, etc.

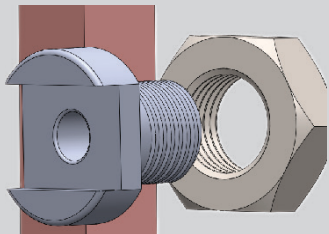
REDUCER BUSHINGS:

Reducer bushings are occasionally used to reduce the thread size in a specific nose piece to adapt it to accommodate smaller thread drill bushing tips.

AIR FEED TIPS:

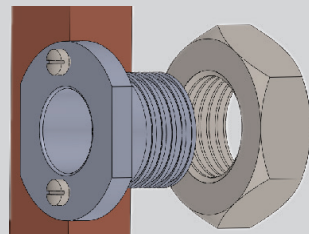
Close fit between mating the shank of tip and the hole in the lock liner bushing holds tool alignment to produce straight close-tolerance holes.

MOUNTING OPTIONS



HELIX LOCK LINER WITH LOCK NUT OR LOCK RING

Compact one-piece design provides superior strength and allows closer hole spacing than conventional lock liners with lock screws.



LOCK LINER WITH LOCK NUT OR LOCK RING

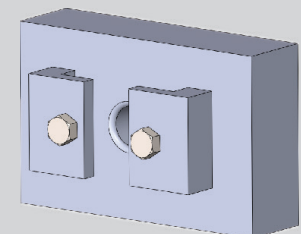
This is a conventional method for mounting automatic, mechanical or air feed drills, tappers and back spotfacers to a jig face or fixture. A hole is bored in the jig to accommodate the lock liner bushing. The lock nuts hold the lock liner in position in the jig.



LINER BUSHING AND NUTS

Direct Jig Mounting with Air Feed Clamps

An alternate mounting method for holes so closely spaced that a lock liner bushings cannot be used has lock screws mounted directly in the jig. The shank of the drill bushing tip fits directly into the bored hole in the jig. Hardened headless liner bushing are available to press into the bored hole to provide a wearing surface and prolong the useful life of the jig.



LOCKING STRIP MOUNTING WITH NUTS

A second mounting option for closely spaced holes employs a lock strip along each side of the row of holes in the jig. The flanges on the drill bushing tip lock under the extended edges of the lock strips when the tip is turned 30° to the left. Headless liner bushings pressed into the bored holes in the jig are recommended to forestall wear in the bored holes

TOLL FREE: (800)752-7229 TEL: (626)581-3424 FAX: (626)581-3423 WWW.ACTEKMFG.COM

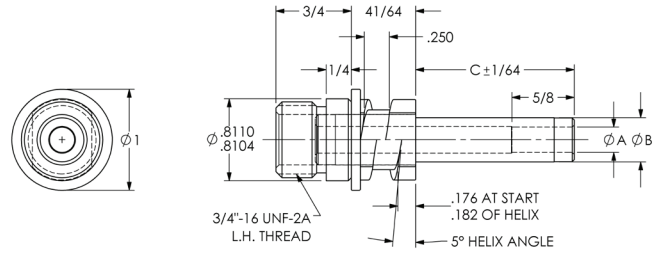




AIR FEED BUSHINGS

COLLAR 21000 SERIES

CONTINUOUS HELIX



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

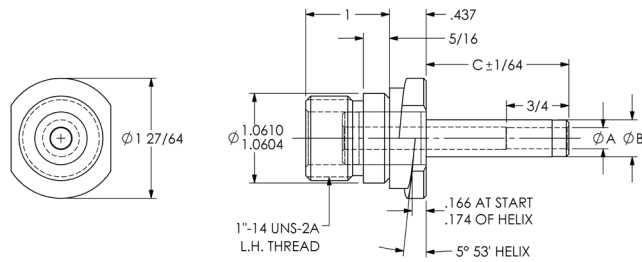
AIR FEED ACCESSORIES

SCREWS & NUTS	HELIX	LOCK LINERS
 TYPE AFC	 TYPE HKLL	 TYPE A
 TYPE LN	 TYPE HKLL-1	 TYPE AFL
 TYPE LR	 TYPE HKLP	 TYPE AFD
 TYPE AFLS	 TYPE HKLP-1	 TYPE L

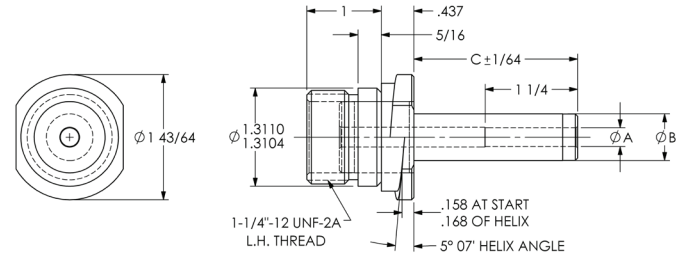
21000					
A	MAXIMUM MINIMUM	1/4 3/32	5/16 3/32	3/8 3/32	
B	NOMINAL ACTUAL	3/8	7/16	1/2	
		.3748	.4373	.4998	
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	.3745	.4370	.4995	
		3/8	A-21101	A-21202	A-21301
		1/2	A-21102	A-21203	A-21302
		5/8	A-21103	A-21204	A-21303
		3/4	A-21104	A-21205	A-21304
		7/8	A-21105	A-21206	A-21305
		1	A-21106	A-21207	A-21306
		1-1/16	A-21107	A-21208	A-21307
		1-1/8	A-21108	A-21209	A-21308
		1-3/16			
		1-1/4	A-21110	A-21210	A-21310
		1-3/8	A-21111	A-21211	A-21311
		1-7/16			
		1-1/2	A-21113	A-21213	A-21313
		1-5/8	A-21114	A-21214	A-21314
		1-3/4	A-21115	A-21215	A-21315
		1-7/8	A-21116	A-21216	A-21316
		1-15/16			
		2	A-21118	A-21218	A-21318
		2-1/8	A-21119	A-21219	A-21319
		2-1/4	A-21120	A-21220	A-21320
		2-3/8	A-21121	A-21221	A-21321
		2-1/2	A-21122	A-21222	A-21322
		2-5/8			
2-3/4	A-21124	A-21224	A-21324		
3	A-21125	A-21225	A-21325		
3-1/4	A-21126	A-21226	A-21326		
3-1/2					
3-3/4					
4					
5			A-21330		
6	A-21131				
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	
	TYPE LN	LN-14441		LN-14442	
	TYPE LR	LR-52101	LR-52103	LR-52103	
	TYPE AFLS	16531	16531	16531	
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L	
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L	
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L	
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L	
	TYPE A	A-16520		A-16521	
	TYPE AFL	AFL-16520		AFL-16521	
TYPE AFD	AFD-375		AFD-500		
TYPE L	19936	19937	19938		



COLLAR 22000 SERIES



COLLAR 23000 SERIES



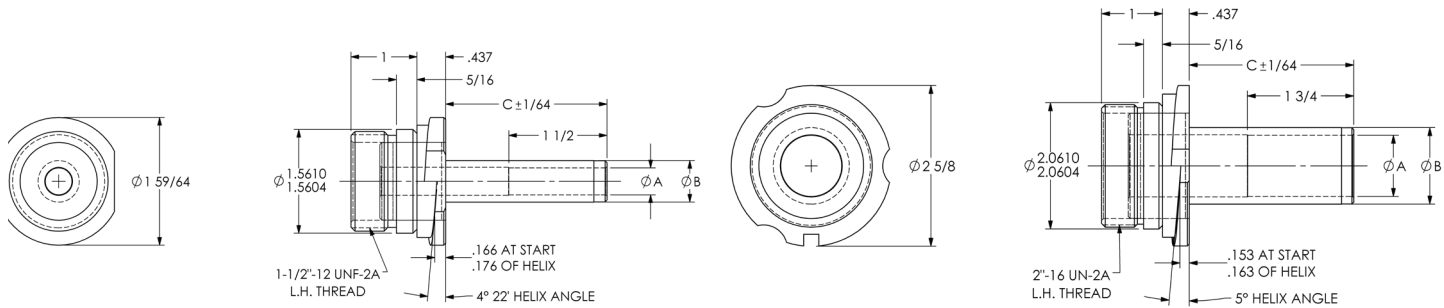
22000					EXT.		23000					EXT.
9/32 3/16	11/32 3/16	13/32 3/16	15/32 3/16	15/32 3/16	15/32 3/16	15/32 3/16	17/32 1/4	19/32 1/4	21/32 1/4	23/32 1/4	23/32 1/4	23/32 1/4
7/16	1/2	9/16	5/8	3/4	13/16	7/8	3/4	13/16	7/8	1	1-1/8	1-1/4
.4373	.4998	.5623	.6248	.7498	.8123	.8748	.7498	.8123	.8748	.9998	1.1248	1.2498
.4370	.4995	.5620	.6245	.7495	.8120	.8745	.7495	.8120	.8745	.9995	1.1245	1.2495
A-22101			A-22401		A-22601							
A-22102	A-22202		A-22402		A-22602							
A-22103	A-22203	A-22303	A-22403		A-22603							
A-22104	A-22204	A-22304	A-22404	A-22504	A-22604	A-22704	A-23104	A-23204	A-23304			
A-22105	A-22205	A-22305	A-22405	A-22505	A-22605	A-22705	A-23105	A-23205	A-23305			
A-22106	A-22206	A-22306	A-22406	A-22506	A-22606	A-22706	A-23106	A-23206	A-23306	A-23406	A-23506	A-23606
A-22108	A-22208	A-22308	A-22408	A-22508	A-22608	A-22708	A-23108	A-23208	A-23308	A-23408	A-23508	A-23608
A-22110	A-22210	A-22310	A-22410	A-22510	A-22610	A-22710	A-23110	A-23210	A-23310	A-23410	A-23510	A-23610
A-22111	A-22211	A-22311	A-22411	A-22511	A-22611	A-22711	A-23111	A-23211	A-23311	A-23411	A-23511	A-23611
A-22113	A-22213	A-22313	A-22413	A-22513	A-22613	A-22713	A-23113	A-23213	A-23313	A-23413	A-23513	A-23613
A-22114	A-22214	A-22314	A-22414	A-22514	A-22614	A-22714	A-23114	A-23214	A-23314	A-23414	A-23514	A-23614
A-22115	A-22215	A-22315	A-22415	A-22515	A-22615	A-22715	A-23115	A-23215	A-23315	A-23415	A-23515	A-23615
A-22116	A-22216	A-22316	A-22416	A-22516	A-22616	A-22716	A-23116	A-23216	A-23316	A-23416	A-23516	A-23616
A-22118	A-22218	A-22318	A-22418	A-22518	A-22618	A-22718	A-23118	A-23218	A-23318	A-23418	A-23518	A-23618
A-22119	A-22219	A-22319	A-22419	A-22519	A-22619	A-22719	A-23119	A-23219	A-23319	A-23419	A-23519	A-23619
A-22120	A-22220	A-22320	A-22420	A-22520	A-22620	A-22720	A-23120	A-23220	A-23320	A-23420	A-23520	A-23620
A-22121	A-22221	A-22321	A-22421	A-22521	A-22621	A-22721	A-23121	A-23221	A-23321	A-23421	A-23521	A-23621
A-22122	A-22222	A-22322	A-22422	A-22522	A-22622	A-22722	A-23122	A-23222	A-23322	A-23422	A-23522	A-23622
A-22124	A-22224	A-22324	A-22424	A-22524	A-22624	A-22724	A-23124	A-23224	A-23324	A-23424	A-23524	A-23624
A-22125	A-22225	A-22325	A-22425	A-22525	A-22625	A-22725	A-23125	A-23225	A-23325	A-23425	A-23525	A-23625
A-22126	A-22226	A-22326	A-22426	A-22526	A-22626	A-22726	A-23126	A-23226	A-23326	A-23426	A-23526	A-23626
A-22127	A-22227	A-22327	A-22427	A-22527	A-22627	A-22727	A-23127	A-23227	A-23327	A-23427	A-23527	A-23627
A-22128	A-22228	A-22328	A-22428	A-22528	A-22628	A-22728	A-23128	A-23228	A-23328	A-23428	A-23528	A-23628
A-22129	A-22229	A-22329	A-22429	A-22529	A-22629	A-22729	A-23129	A-23229	A-23329	A-23429	A-23529	A-23629
A-22130	A-22230	A-22330	A-22430	A-22530	A-22630	A-22730	A-23130	A-23230	A-23330	A-23430	A-23530	A-23630
A-22131	A-22231	A-22331	A-22431	A-22531	A-22631	A-22731	A-23131	A-23231	A-23331	A-23431	A-23531	A-23631
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2
			LN-14443			LN-14445			LN-14445			LN-14446
LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52107	LR-52108	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446 Matches A-16524 and AFL16524	LR-52112 16532
16532	16532	16532	16532	16532	16532	16532	16532	16532	16532	16532		1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		1- 1/4 x L
			A-16522						A-16523			
			AFL-16522						AFL-16523			
				AFD-750								
19937	19938	19939	19940	19941	19943	19944	19942	19943	19944	19945	19946	19952

CONTINUOUS HELIX



COLLAR 24000 SERIES

COLLAR 25000 SERIES



CONTINUOUS HELIX

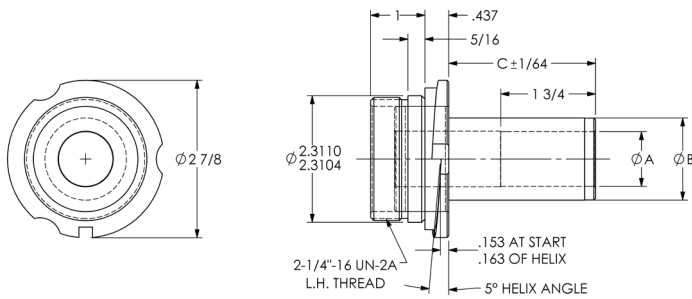
LENGTH SHANK EXTENDS FROM COLLAR - INCHES

AIR FEED ACCESSORIES

		24000							25000					
A	MAXIMUM	13/32	17/32	21/32	25/32	29/32	15/16	15/16	1-1/32	1-5/32	1-9/32	1-15/32	1-15/32	
	MINIMUM	5/16	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8	3/8	
B	NOMINAL	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	1-1/4	1-3/8	1-1/2	1-3/4	2	
	ACTUAL	.6248	.7498	.8748	.9998	1.1248	1.2498	1.4998	1.2498	1.3748	1.4998	1.7498	1.9998	
		.6245	.7495	.8745	.9995	1.1245	1.2495	1.4995	1.2495	1.3745	1.4995	1.7495	1.9995	
	C	3/8												
	1/2													
	5/8	A-24103												
	3/4	A-24104	A-24304											
	7/8	A-24105	A-24305	A-24405										
	1	A-24106	A-24306	A-24406	A-24506	A-24606		A-24806						
	1-1/16													
	1-1/8	A-24108	A-24308	A-24408	A-24508	A-24608								
	1-3/16													
	1-1/4	A-24110	A-24310	A-24410	A-24510	A-24610	A-24710		A-25110					
	1-3/8	A-24111	A-24311	A-24411	A-24511	A-24611	A-24711	A-24811	A-25111	A-25211				
	1-7/16													
	1-1/2	A-24113	A-24313	A-24413	A-24513	A-24613	A-24713	A-24813	A-25113	A-25213	A-25313			
	1-5/8	A-24114	A-24314	A-24414	A-24514	A-24614	A-24714	A-24814	A-25114	A-25214	A-25314			
	1-3/4	A-24115	A-24315	A-24415	A-24515	A-24615	A-24715	A-24815	A-25115	A-25215	A-25315	A-25415		
	1-7/8	A-24116	A-24316	A-24416	A-24516	A-24616	A-24716	A-24816	A-25116	A-25216	A-25316	A-25416		
	1-15/16					A-16505		A-16506						
	2	A-24118	A-24318	A-24418	A-24518	A-24618	A-24718	A-24818	A-25118	A-25218	A-25318	A-25418	A-25518	
	2-1/8	A-24119	A-24319	A-24419	A-24519	A-24619	A-24719	A-24819	A-25119	A-25219	A-25319	A-25419	A-25519	
	2-1/4	A-24120	A-24320	A-24420	A-24520	A-24620	A-24720	A-24820	A-25120	A-25220	A-25320	A-25420	A-25520	
	2-3/8	A-24121	A-24321	A-24421	A-24521	A-24621	A-24721	A-24821	A-25121	A-25221	A-25321	A-25421	A-25521	
	2-1/2	A-24122	A-24322	A-24422	A-24522	A-24622	A-24722	A-24822	A-25122	A-25222	A-25322	A-25422	A-25522	
	2-5/8												A-16513	
	2-3/4	A-24124	A-24324	A-24424	A-24524	A-24624	A-24724	A-24824	A-25124	A-25224	A-25324	A-25424	A-25524	
	3	A-24125	A-24325	A-24425	A-24525	A-24625	A-24725	A-24825	A-25125	A-25225	A-25325	A-25425	A-25525	
	3-1/4	A-24126	A-24326	A-24426	A-24526	A-24626	A-24726	A-24826	A-25126	A-25226	A-25326	A-25426	A-25526	
	3-1/2	A-24127	A-24327	A-24427	A-24527	A-24627	A-24727	A-24827	A-25127	A-25227	A-25327	A-25427	A-25527	
	3-3/4	A-24128	A-24328	A-24428	A-24528	A-24628	A-24728	A-24828	A-25128	A-25228	A-25328	A-25428	A-25528	
	4	A-24129	A-24329	A-24429	A-24529	A-24629	A-24729	A-24829	A-25129	A-25229	A-25329	A-25429	A-25529	
	5	A-24130	A-24330	A-24430	A-24530	A-24630	A-24730	A-24830	A-25130	A-25230	A-25330	A-25430	A-25530	
	6	A-24131	A-24331	A-24431	A-24531	A-24631	A-24731	A-24831	A-25131	A-25231	A-25331	A-25431	A-25531	
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	
	TYPE LN					LN-14446		LN-14447					LN-14448	
	TYPE LR	LR-52105	LR-52107	LR-52109	LR-52109	LR-52110	LR-52112	LR-52118	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121	
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	16530	
	TYPE HKLL	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLL-1	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLP	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLP-1	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE A					A-16525		A-16526					A-16533	
	TYPE AFL					AFL-16525		AFL-16526						
TYPE AFD														
TYPE L	19947	19949	19950	19951	19946	19952	19955		19953	19954	19955	19956	19957	



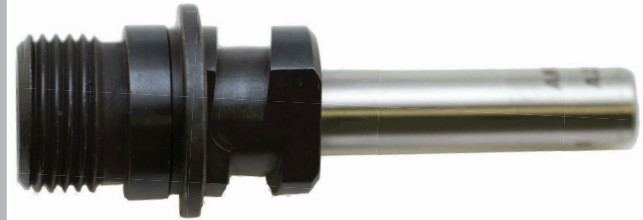
COLLAR 26000 SERIES



26000						
A	MAXIMUM MINIMUM	1-7/32 3/8	1-3/8 3/8	1-1/2 3/8	1-11/16 3/8	
B	NOMINAL ACTUAL	1-1/2	1-3/4	2	2-1/4	
		1.4998	1.7498	1.9998	2.2498	
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8				
		1/2				
		5/8				
		3/4				
		7/8				
		1				
		1-1/16				
		1-1/8				
		1-3/16				
		1-1/4	A-26210	A-26310	A-26410	A-26510
		1-3/8	A-26211	A-26311	A-26411	A-26511
		1-7/16	A-26212	A-26312	A-26412	A-26512
		1-1/2	A-26213	A-26313	A-26413	A-26513
		1-5/8	A-26214	A-26314	A-26414	A-26514
		1-3/4	A-26215	A-26315	A-26415	A-26515
		1-7/8	A-26216	A-26316	A-26416	A-26516
		1-15/16	A-26217	A-26317	A-26417	A-26517
		2	A-26218	A-26318	A-26418	A-26518
		2-1/8	A-26219	A-26319	A-26419	A-26519
		2-1/4	A-26220	A-26320	A-26420	A-26520
2-3/8	A-26221	A-26321	A-26421	A-26521		
2-1/2	A-26222	A-26322	A-26422	A-26522		
2-5/8	A-26223	A-26323	A-26423	A-26523		
2-3/4	A-26224	A-26324	A-26424	A-26524		
3	A-26225	A-26325	A-26425	A-26525		
3-1/4	A-26226	A-26326	A-26426	A-26526		
3-1/2	A-26227	A-26327	A-26427	A-26527		
3-3/4	A-26228	A-26328	A-26428	A-26528		
4	A-26229	A-26329	A-26429	A-26529		
5	A-26230	A-26330	A-26430	A-26530		
6	A-26231	A-26331	A-26431	A-26531		
AIR FEED ACCESSORIES	TYPE AFC	AFC-3	AFC-3	AFC-3	AFC-3	
	TYPE LN					
	TYPE LR	LR-52121	LR-52121	LR-52121	LR-52121	
	TYPE AFLS	16530	16530	16530	16530	
	TYPE HKLL	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L	
	TYPE HKLL-1	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L	
	TYPE HKLP	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L	
	TYPE HKLP-1	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L	
	TYPE A					
	TYPE AFL					
TYPE AFD						
TYPE L	19955	19956	19957	19958		

AIR FEED BUSHINGS

CONTINUOUS HELIX EXTENDED RANGE



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+0.001 to +0.004
OVER 1/4 to 3/4	+0.001 to +0.005
OVER 3/4 to 1-1/2	+0.002 to +0.006
OVER 1-1/2 to 2-3/4	+0.003 to +0.007

AIR FEED ACCESSORIES

SCREWS & NUTS



TYPE AFC

HELIX



TYPE HKLL

LOCK LINERS



TYPE A



TYPE LN



TYPE HKLL-1



TYPE AFL



TYPE LR



TYPE HKLP



TYPE AFD
LINER BUSHING



TYPE AFLS



TYPE HKLP-1



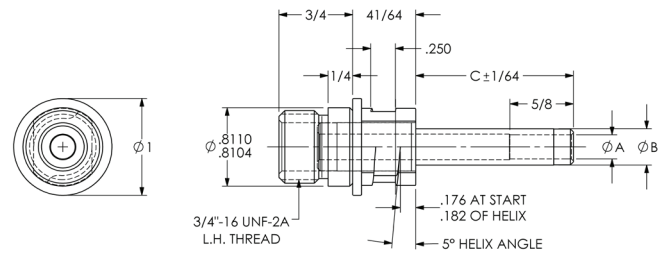
TYPE L



AIR FEED BUSHINGS

COLLAR 21000-H SERIES

HALTED HELIX



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+.0001 to +.0004
OVER 1/4 to 3/4	+.0001 to +.0005
OVER 3/4 to 1-1/2	+.0002 to +.0006
OVER 1-1/2 to 2-3/4	+.0003 to +.0007

AIR FEED ACCESSORIES

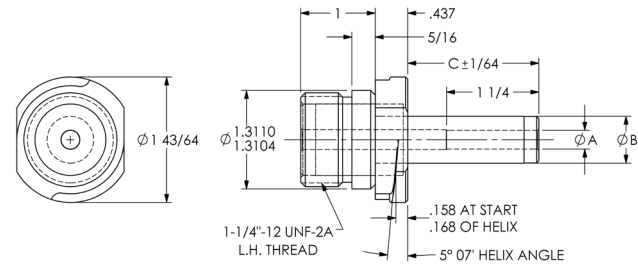
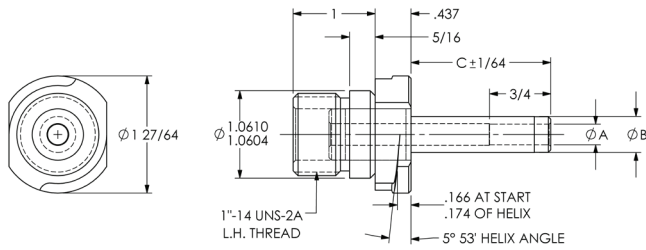
SCREWS & NUTS	HELIX	LOCK LINERS
 TYPE AFC	 TYPE HKLL	 TYPE A
 TYPE LN	 TYPE HKLL-1	 TYPE AFL
 TYPE LR	 TYPE HKLP	 TYPE AFD
 TYPE AFLS	 TYPE HKLP-1	 TYPE L

21000-H					
A	MAXIMUM	1/4	5/16	3/8	
	MINIMUM	3/32	3/32	3/32	
B	NOMINAL ACTUAL	3/8	7/16	1/2	
		.3748	.4373	.4998	
		.3745	.4370	.4995	
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8	A-21101-H	A-21301-H	
		1/2	A-21102-H	A-21202-H	A-21302-H
		5/8	A-21103-H	A-21203-H	A-21303-H
		3/4	A-21104-H	A-21204-H	A-21304-H
		7/8	A-21105-H	A-21205-H	A-21305-H
		1	A-21106-H	A-21206-H	A-21306-H
		1-1/16	A-16500-H		A-16501-H
		1-1/8	A-21108-H	A-21208-H	A-21308-H
		1-3/16			
		1-1/4	A-21110-H	A-21210-H	A-21310-H
		1-3/8	A-21111-H	A-21211-H	A-21311-H
		1-7/16			
		1-1/2	A-21113-H	A-21213-H	A-21313-H
		1-5/8	A-21114-H	A-21214-H	A-21314-H
		1-3/4	A-21115-H	A-21215-H	A-21315-H
		1-7/8	A-21116-H	A-21216-H	A-21316-H
		1-15/16			
		2	A-21118-H	A-21218-H	A-21318-H
		2-1/8	A-21119-H	A-21219-H	A-21319-H
		2-1/4	A-21120-H	A-21220-H	A-21320-H
		2-3/8	A-21121-H	A-21221-H	A-21321-H
		2-1/2	A-21122-H	A-21222-H	A-21322-H
		2-5/8			
		2-3/4	A-21124-H	A-21224-H	A-21324-H
3	A-21125-H	A-21225-H	A-21325-H		
3-1/4	A-21126-H	A-21226-H	A-21326-H		
3-1/2					
3-3/4					
4					
5			A-21330-H		
6	A-21131-H				
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	
	TYPE LN	LN-14441		LN-14442	
	TYPE LR	LR-52101	LR-52103	LR-52103	
	TYPE AFLS	16531	16531	16531	
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L	
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L	
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L	
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L	
	TYPE A	A-16520		A-16521	
	TYPE AFL	AFL-16520		AFL-16521	
TYPE AFD	AFD-375		AFD-500		
TYPE L	19936	19937	19938		



COLLAR 22000-H SERIES

COLLAR 23000-H SERIES



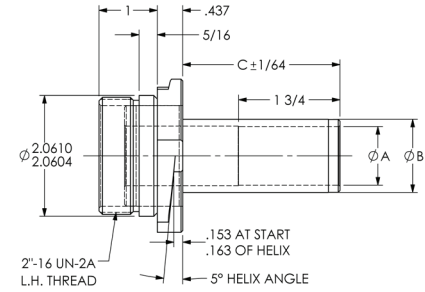
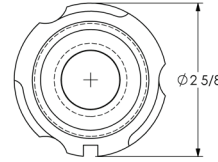
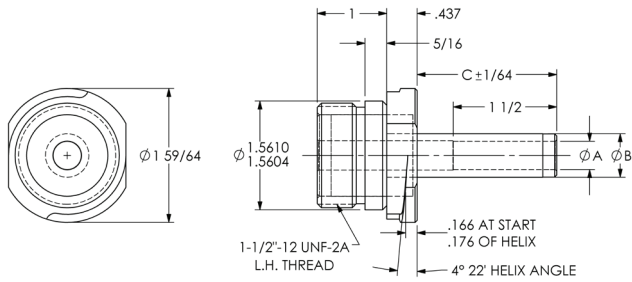
22000-H							EXT.	23000-H					EXT.
9/32 3/16	11/32 3/16	13/32 3/16	15/32 3/16	15/32 3/16	15/32 3/16	15/32 3/16		17/32 1/4	19/32 1/4	21/32 1/4	23/32 1/4	23/32 1/4	23/32 1/4
7/16	1/2	9/16	5/8	3/4	13/16	7/8		3/4	13/16	7/8	1	1-1/8	1-1/4
.4373	.4998	.5623	.6248	.7498	.8123	.8748		.7498	.8123	.8748	.9998	1.1248	1.2498
.4370	.4995	.5620	.6245	.7495	.8120	.8745		.7495	.8120	.8745	.9995	1.1245	1.2495
A-22101-H			A-22401-H		A-22601-H								
A-22102-H	A-22202-H		A-22402-H		A-22602-H								
A-22103-H	A-22203-H	A-22303-H	A-22403-H		A-22603-H								
A-22104-H	A-22204-H	A-22304-H	A-22404-H	A-22504-H	A-22604-H	A-22704-H	A-23104-H	A-23204-H	A-23304-H				
A-22105-H	A-22205-H	A-22305-H	A-22405-H	A-22505-H	A-22605-H	A-22705-H	A-23105-H	A-23205-H	A-23305-H				
A-22106-H	A-22206-H	A-22306-H	A-22406-H	A-22506-H	A-22606-H	A-22706-H	A-23106-H	A-23206-H	A-23306-H	A-23406-H	A-23506-H	A-23606-H	
A-22108-H	A-22208-H	A-22308-H	A-22408-H	A-22508-H	A-22608-H	A-22708-H	A-23108-H	A-23208-H	A-23308-H	A-23408-H	A-23508-H	A-23608-H	
			A-16502-H		A-22609-H								
A-22110-H	A-22210-H	A-22310-H	A-22410-H	A-22510-H	A-22610-H	A-22710-H	A-23110-H	A-23210-H	A-23310-H	A-23410-H	A-23510-H	A-23610-H	
A-22111-H	A-22211-H	A-22311-H	A-22411-H	A-22511-H	A-22611-H	A-22711-H	A-23111-H	A-23211-H	A-23311-H	A-23411-H	A-23511-H	A-23611-H	
									A-16503-H				
A-22113-H	A-22213-H	A-22313-H	A-22413-H	A-22513-H	A-22613-H	A-22713-H	A-23113-H	A-23213-H	A-23313-H	A-23413-H	A-23513-H	A-23613-H	
A-22114-H	A-22214-H	A-22314-H	A-22414-H	A-22514-H	A-22614-H	A-22714-H	A-23114-H	A-23214-H	A-23314-H	A-23414-H	A-23514-H	A-23614-H	
A-22115-H	A-22215-H	A-22315-H	A-22415-H	A-22515-H	A-22615-H	A-22715-H	A-23115-H	A-23215-H	A-23315-H	A-23415-H	A-23515-H	A-23615-H	
A-22116-H	A-22216-H	A-22316-H	A-22416-H	A-22516-H	A-22616-H	A-22716-H	A-23116-H	A-23216-H	A-23316-H	A-23416-H	A-23516-H	A-23616-H	
											A-16504-H		
A-22118-H	A-22218-H	A-22318-H	A-22418-H	A-22518-H	A-22618-H	A-22718-H	A-23118-H	A-23218-H	A-23318-H	A-23418-H	A-23518-H	A-23618-H	
A-22119-H	A-22219-H	A-22319-H	A-22419-H	A-22519-H	A-22619-H	A-22719-H	A-23119-H	A-23219-H	A-23319-H	A-23419-H	A-23519-H	A-23619-H	
A-22120-H	A-22220-H	A-22320-H	A-22420-H	A-22520-H	A-22620-H	A-22720-H	A-23120-H	A-23220-H	A-23320-H	A-23420-H	A-23520-H	A-23620-H	
A-22121-H	A-22221-H	A-22321-H	A-22421-H	A-22521-H	A-22621-H	A-22721-H	A-23121-H	A-23221-H	A-23321-H	A-23421-H	A-23521-H	A-23621-H	
A-22122-H	A-22222-H	A-22322-H	A-22422-H	A-22522-H	A-22622-H	A-22722-H	A-23122-H	A-23222-H	A-23322-H	A-23422-H	A-23522-H	A-23622-H	
A-22124-H	A-22224-H	A-22324-H	A-22424-H	A-22524-H	A-22624-H	A-22724-H	A-23124-H	A-23224-H	A-23324-H	A-23424-H	A-23524-H	A-23624-H	
A-22125-H	A-22225-H	A-22325-H	A-22425-H	A-22525-H	A-22625-H	A-22725-H	A-23125-H	A-23225-H	A-23325-H	A-23425-H	A-23525-H	A-23625-H	
A-22126-H	A-22226-H	A-22326-H	A-22426-H	A-22526-H	A-22626-H	A-22726-H	A-23126-H	A-23226-H	A-23326-H	A-23426-H	A-23526-H	A-23626-H	
A-22127-H	A-22227-H	A-22327-H	A-22427-H	A-22527-H	A-22627-H	A-22727-H	A-23127-H	A-23227-H	A-23327-H	A-23427-H	A-23527-H	A-23627-H	
A-22128-H	A-22228-H	A-22328-H	A-22428-H	A-22528-H	A-22628-H	A-22728-H	A-23128-H	A-23228-H	A-23328-H	A-23428-H	A-23528-H	A-23628-H	
A-22129-H	A-22229-H	A-22329-H	A-22429-H	A-22529-H	A-22629-H	A-22729-H	A-23129-H	A-23229-H	A-23329-H	A-23429-H	A-23529-H	A-23629-H	
A-22130-H	A-22230-H	A-22330-H	A-22430-H	A-22530-H	A-22630-H	A-22730-H	A-23130-H	A-23230-H	A-23330-H	A-23430-H	A-23530-H	A-23630-H	
A-22131-H	A-22231-H	A-22331-H	A-22431-H	A-22531-H	A-22631-H	A-22731-H	A-23131-H	A-23231-H	A-23331-H	A-23431-H	A-23531-H	A-23631-H	
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2
			LN-14443				LN-14445			LN-14445			LN-14446
LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52107	LR-52108	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446 Matches A-16524 and AFL16524	LR-52112	16532
16532	16532	16532	16532	16532	16532	16532	16532	16532	16532	16532			1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L			1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L			1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L			1- 1/4 x L
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	**LR52110 and LR52112 Matches 1-1/8 x L		1- 1/4 x L
			A-16522						A-16523				
			AFL-16522						AFL-16523				
				AFD-750									
19937	19938	19939	19940	19941	19943	19944	19942	19943	19944	19945	19946	19952	

HALTED HELIX



COLLAR 24000-H SERIES

COLLAR 25000-H SERIES

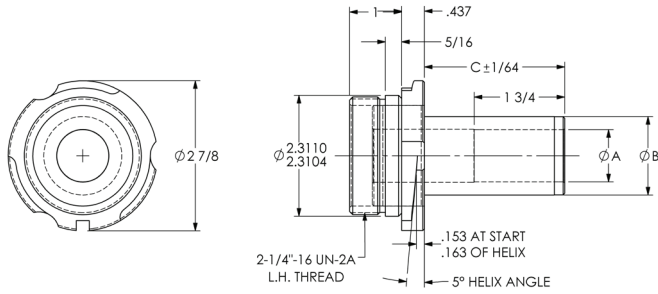


HALTED HELIX

		24000-H							25000-H					
A	MAXIMUM	13/32	17/32	21/32	25/32	29/32	15/16	15/16	1-1/32	1-5/32	1-9/32	1-15/32	1-15/32	
	MINIMUM	5/16	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8	3/8	
B	NOMINAL ACTUAL	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	1-1/4	1-3/8	1-1/2	1-3/4	2	
		.6248	.7498	.8748	.9998	1.1248	1.2498	1.4998	1.2498	1.3748	1.4998	1.7498	1.9998	
		.6245	.7495	.8745	.9995	1.1245	1.2495	1.4995	1.2495	1.3745	1.4995	1.7495	1.9995	
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8												
		1/2												
		5/8	A-24103-H											
		3/4	A-24104-H	A-24304-H										
		7/8	A-24105-H	A-24305-H	A-24405-H									
		1	A-24106-H	A-24306-H	A-24406-H	A-24506-H	A-24606-H		A-24806-H					
		1-1/16												
		1-1/8	A-24108-H	A-24308-H	A-24408-H	A-24508-H	A-24608-H							
		1-3/16												
		1-1/4	A-24110-H	A-24310-H	A-24410-H	A-24510-H	A-24610-H	A-24710-H		A-25110-H				
		1-3/8	A-24111-H	A-24311-H	A-24411-H	A-24511-H	A-24611-H	A-24711-H	A-24811-H	A-25111-H	A-25211-H			
		1-7/16												
		1-1/2	A-24113-H	A-24313-H	A-24413-H	A-24513-H	A-24613-H	A-24713-H	A-24813-H	A-25113-H	A-25213-H	A-25313-H		
		1-5/8	A-24114-H	A-24314-H	A-24414-H	A-24514-H	A-24614-H	A-24714-H	A-24814-H	A-25114-H	A-25214-H	A-25314-H		
		1-3/4	A-24115-H	A-24315-H	A-24415-H	A-24515-H	A-24615-H	A-24715-H	A-24815-H	A-25115-H	A-25215-H	A-25315-H	A-25415-H	
		1-7/8	A-24116-H	A-24316-H	A-24416-H	A-24516-H	A-24616-H	A-24716-H	A-24816-H	A-25116-H	A-25216-H	A-25316-H	A-25416-H	
		1-15/16					A-16505-H		A-16506-H					
		2	A-24118-H	A-24318-H	A-24418-H	A-24518-H	A-24618-H	A-24718-H	A-24818-H	A-25118-H	A-25218-H	A-25318-H	A-25418-H	A-25518-H
		2-1/8	A-24119-H	A-24319-H	A-24419-H	A-24519-H	A-24619-H	A-24719-H	A-24819-H	A-25119-H	A-25219-H	A-25319-H	A-25419-H	A-25519-H
		2-1/4	A-24120-H	A-24320-H	A-24420-H	A-24520-H	A-24620-H	A-24720-H	A-24820-H	A-25120-H	A-25220-H	A-25320-H	A-25420-H	A-25520-H
		2-3/8	A-24121-H	A-24321-H	A-24421-H	A-24521-H	A-24621-H	A-24721-H	A-24821-H	A-25121-H	A-25221-H	A-25321-H	A-25421-H	A-25521-H
		2-1/2	A-24122-H	A-24322-H	A-24422-H	A-24522-H	A-24622-H	A-24722-H	A-24822-H	A-25122-H	A-25222-H	A-25322-H	A-25422-H	A-25522-H
		2-5/8												A-16513-H
		2-3/4	A-24124-H	A-24324-H	A-24424-H	A-24524-H	A-24624-H	A-24724-H	A-24824-H	A-25124-H	A-25224-H	A-25324-H	A-25424-H	A-25524-H
		3	A-24125-H	A-24325-H	A-24425-H	A-24525-H	A-24625-H	A-24725-H	A-24825-H	A-25125-H	A-25225-H	A-25325-H	A-25425-H	A-25525-H
		3-1/4	A-24126-H	A-24326-H	A-24426-H	A-24526-H	A-24626-H	A-24726-H	A-24826-H	A-25126-H	A-25226-H	A-25326-H	A-25426-H	A-25526-H
3-1/2	A-24127-H	A-24327-H	A-24427-H	A-24527-H	A-24627-H	A-24727-H	A-24827-H	A-25127-H	A-25227-H	A-25327-H	A-25427-H	A-25527-H		
3-3/4	A-24128-H	A-24328-H	A-24428-H	A-24528-H	A-24628-H	A-24728-H	A-24828-H	A-25128-H	A-25228-H	A-25328-H	A-25428-H	A-25528-H		
4	A-24129-H	A-24329-H	A-24429-H	A-24529-H	A-24629-H	A-24729-H	A-24829-H	A-25129-H	A-25229-H	A-25329-H	A-25429-H	A-25529-H		
5	A-24130-H	A-24330-H	A-24430-H	A-24530-H	A-24630-H	A-24730-H	A-24830-H	A-25130-H	A-25230-H	A-25330-H	A-25430-H	A-25530-H		
6	A-24131-H	A-24331-H	A-24431-H	A-24531-H	A-24631-H	A-24731-H	A-24831-H	A-25131-H	A-25231-H	A-25331-H	A-25431-H	A-25531-H		
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	AFC-3	
	TYPE LN					LN-14446		LN-14447					LN-14448	
	TYPE LR	LR-52105	LR-52107	LR-52109	LR-52109	LR-52110	LR-52112	LR-52118	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121	
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	16530	
	TYPE HKLL	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLL-1	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLP	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLP-1	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE A					A-16525		A-16526					A-16533	
	TYPE AFL					AFL-16525		AFL-16526						
	TYPE AFD													
TYPE L	19947	19949	19950	19951	19946	19952	19955	19953	19954	19955	19956	19957		



COLLAR 26000-H SERIES



26000-H					
A	MAXIMUM	1-7/32	1-3/8	1-1/2	1-11/16
	MINIMUM	3/8	3/8	3/8	3/8
B	NOMINAL ACTUAL	1-1/2	1-3/4	2	2-1/4
		1.4998	1.7498	1.9998	2.2498
		1.4995	1.7495	1.9995	2.2495
C	3/8				
	1/2				
	5/8				
	3/4				
	7/8				
	1				
	1-1/16				
	1-1/8				
	1-3/16				
	1-1/4	A-26210-H	A-26310-H	A-26410-H	A-26510-H
	1-3/8	A-26211-H	A-26311-H	A-26411-H	A-26511-H
	1-7/16	A-26212-H	A-26312-H	A-26412-H	A-26512-H
	1-1/2	A-26213-H	A-26313-H	A-26413-H	A-26513-H
	1-5/8	A-26214-H	A-26314-H	A-26414-H	A-26514-H
	1-3/4	A-26215-H	A-26315-H	A-26415-H	A-26515-H
	1-7/8	A-26216-H	A-26316-H	A-26416-H	A-26516-H
	1-15/16	A-26217-H	A-26317-H	A-26417-H	A-26517-H
	2	A-26218-H	A-26318-H	A-26418-H	A-26518-H
	2-1/8	A-26219-H	A-26319-H	A-26419-H	A-26519-H
	2-1/4	A-26220-H	A-26320-H	A-26420-H	A-26520-H
	2-3/8	A-26221-H	A-26321-H	A-26421-H	A-26521-H
	2-1/2	A-26222-H	A-26322-H	A-26422-H	A-26522-H
	2-5/8	A-26223-H	A-26323-H	A-26423-H	A-26523-H
	2-3/4	A-26224-H	A-26324-H	A-26424-H	A-26524-H
	3	A-26225-H	A-26325-H	A-26425-H	A-26525-H
	3-1/4	A-26226-H	A-26326-H	A-26426-H	A-26526-H
	3-1/2	A-26227-H	A-26327-H	A-26427-H	A-26527-H
	3-3/4	A-26228-H	A-26328-H	A-26428-H	A-26528-H
4	A-26229-H	A-26329-H	A-26429-H	A-26529-H	
5	A-26230-H	A-26330-H	A-26430-H	A-26530-H	
6	A-26231-H	A-26331-H	A-26431-H	A-26531-H	
AIR FEED ACCESSORIES	TYPE AFC	AFC-3	AFC-3	AFC-3	AFC-3
	TYPE LN				
	TYPE LR	LR-52121	LR-52121	LR-52121	LR-52121
	TYPE AFLS	16530	16530	16530	16530
	TYPE HKLL	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
	TYPE HKLL-1	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
	TYPE HKLP	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
	TYPE HKLP-1	1-1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
	TYPE A				
	TYPE AFL				
	TYPE AFD				
	TYPE L	19955	19956	19957	19958

AIR FEED BUSHINGS

HALTED HELIX
EXTENDED RANGE



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+0.001 to +0.004
OVER 1/4 to 3/4	+0.001 to +0.005
OVER 3/4 to 1-1/2	+0.002 to +0.006
OVER 1-1/2 to 2-3/4	+0.003 to +0.007

AIR FEED ACCESSORIES

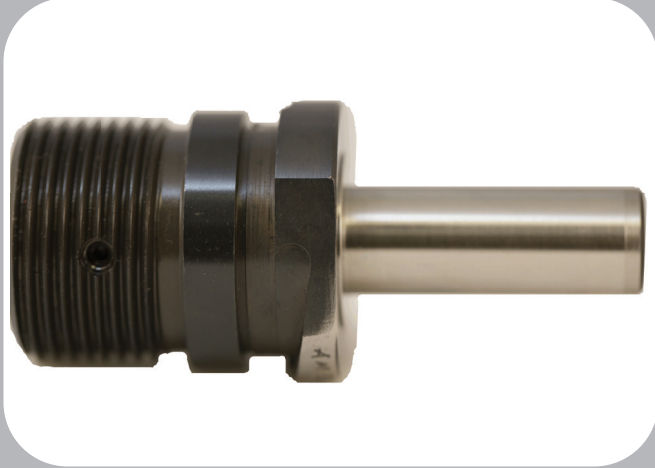
SCREWS & NUTS	HELIX	LOCK LINERS
 TYPE AFC	 TYPE HKLL	 TYPE A
 TYPE LN	 TYPE HKLL-1	 TYPE AFL
 TYPE LR	 TYPE HKLP	 TYPE AFD
 TYPE AFLS	 TYPE HKLP-1	 TYPE L



TELESCOPING BUSHING

COLLAR 31000 SERIES

ULTRA TOUGH TYPE I



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

AIR FEED ACCESSORIES

SCREWS & NUTS



TYPE AFC



TYPE LN



TYPE LR



TYPE AFLS

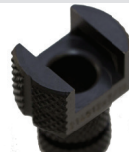
HELIX



TYPE HKLL



TYPE HKLL-1



TYPE HKLP



TYPE HKLP-1

LOCK LINERS



TYPE A



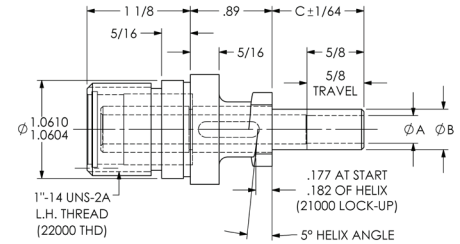
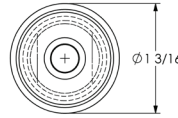
TYPE AFL



TYPE AFD
LINER BUSHING



TYPE L

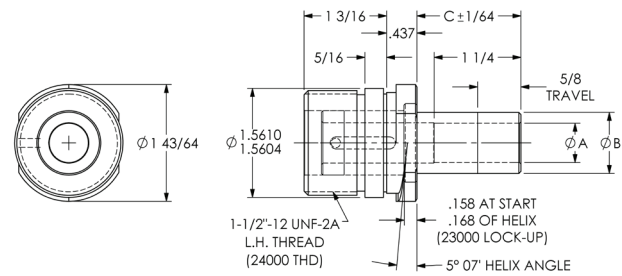
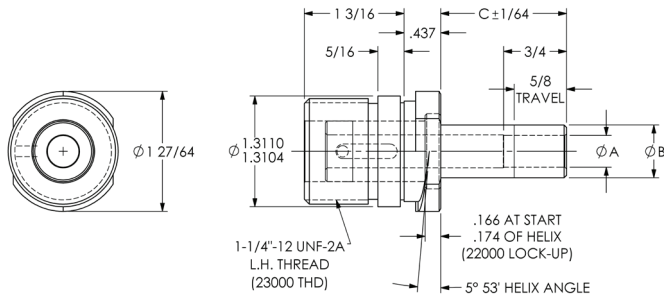


31000				
A	MAXIMUM	1/8	3/16	1/4
DRILL	MINIMUM	3/32	3/32	3/32
SIZE				
B	NOMINAL	3/8	7/16	1/2
SHANK	ACTUAL	.3748	.4373	.4998
O.D.		.3745	.4370	.4995
C		3/8		
		1/2		
		5/8	AM-31103	AM-31203
		3/4	AM-31104	AM-31204
		7/8	AM-31105	AM-31205
		1	AM-31106	AM-31206
		1-1/16	AM-31107	AM-31207
		1-1/8	AM-31108	AM-31208
		1-3/16	AM-31109	AM-31209
		1-1/4	AM-31110	AM-31210
		1-3/8	AM-31111	AM-31211
		1-7/16	AM-31112	AM-31212
		1-1/2	AM-31113	AM-31213
		1-5/8	AM-31114	AM-31214
		1-3/4	AM-31115	AM-31215
		1-7/8	AM-31116	AM-31216
		1-15/16	AM-31117	AM-31217
		2	AM-31118	AM-31218
		2-1/8	AM-31119	AM-31219
		2-1/4	AM-31120	AM-31220
		2-3/8	AM-31121	AM-31221
		2-1/2	AM-31122	AM-31222
		2-5/8	AM-31123	AM-31223
		2-3/4	AM-31124	AM-31224
		3	AM-31125	AM-31225
		3-1/4	AM-31126	AM-31226
		3-1/2	AM-31127	AM-31227
		3-3/4	AM-31128	AM-31228
		4	AM-31129	AM-31229
		5	AM-31130	AM-31230
		6	AM-31131	AM-31231
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2
	TYPE LN	LN-14441		LN-14442
	TYPE LR	LR-52101	LR-52103	LR-52103
	TYPE AFLS	16531	16531	16531
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L
	TYPE A	A-16520		A-16521
	TYPE AFL	AFL-16520		AFL-16521
	TYPE AFD	AFD-375		AFD-500
TYPE L	19936	19937	19938	



COLLAR 32000 SERIES

COLLAR 33000 SERIES



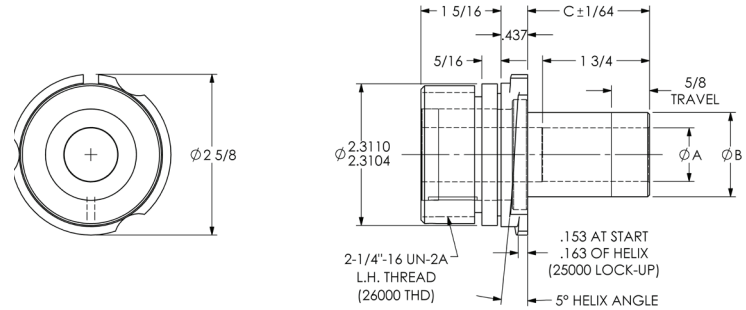
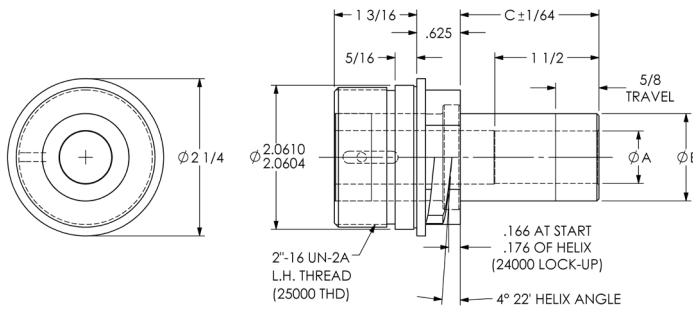
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1/4 3/16	5/16 1/4	3/8 1/4	7/16 1/4	15/32 1/4	17/32 1/4	9/16 1/4	9/16 1/4	9/16 1/4	9/16 1/4
7/16	1/2	9/16	5/8	3/4	3/4	13/16	7/8	1	1-1/8
.4373	.4998	.5623	.6248	.7498	.7498	.8123	.8748	.9998	1.1248
.4370	.4995	.5620	.6245	.7495	.7495	.8120	.8745	.9995	1.1245
AM-32103	AM-32203	AM-32303	AM-32403	AM-32503	AM-33103	AM-33203	AM-33303	AM-33403	AM-33503
AM-32104	AM-32204	AM-32304	AM-32404	AM-32504	AM-33104	AM-33204	AM-33304	AM-33404	AM-33504
AM-32105	AM-32205	AM-32305	AM-32405	AM-32505	AM-33105	AM-33205	AM-33305	AM-33405	AM-33505
AM-32106	AM-32206	AM-32306	AM-32406	AM-32506	AM-33106	AM-33206	AM-33306	AM-33406	AM-33506
AM-32107	AM-32207	AM-32307	AM-32407	AM-32507	AM-33107	AM-33207	AM-33307	AM-33407	AM-33507
AM-32108	AM-32208	AM-32308	AM-32408	AM-32508	AM-33108	AM-33208	AM-33308	AM-33408	AM-33508
AM-32109	AM-32209	AM-32309	AM-32409	AM-32509	AM-33109	AM-33209	AM-33309	AM-33409	AM-33509
AM-32110	AM-32210	AM-32310	AM-32410	AM-32510	AM-33110	AM-33210	AM-33310	AM-33410	AM-33510
AM-32111	AM-32211	AM-32311	AM-32411	AM-32511	AM-33111	AM-33211	AM-33311	AM-33411	AM-33511
AM-32112	AM-32212	AM-32312	AM-32412	AM-32512	AM-33112	AM-33212	AM-33312	AM-33412	AM-33512
AM-32113	AM-32213	AM-32313	AM-32413	AM-32513	AM-33113	AM-33213	AM-33313	AM-33413	AM-33513
AM-32114	AM-32214	AM-32314	AM-32414	AM-32514	AM-33114	AM-33214	AM-33314	AM-33414	AM-33514
AM-32115	AM-32215	AM-32315	AM-32415	AM-32515	AM-33115	AM-33215	AM-33315	AM-33415	AM-33515
AM-32116	AM-32216	AM-32316	AM-32416	AM-32516	AM-33116	AM-33216	AM-33316	AM-33416	AM-33516
AM-32117	AM-32217	AM-32317	AM-32417	AM-32517	AM-33117	AM-33217	AM-33317	AM-33417	AM-33517
AM-32118	AM-32218	AM-32318	AM-32418	AM-32518	AM-33118	AM-33218	AM-33318	AM-33418	AM-33518
AM-32119	AM-32219	AM-32319	AM-32419	AM-32519	AM-33119	AM-33219	AM-33319	AM-33419	AM-33519
AM-32120	AM-32220	AM-32320	AM-32420	AM-32520	AM-33120	AM-33220	AM-33320	AM-33420	AM-33520
AM-32121	AM-32221	AM-32321	AM-32421	AM-32521	AM-33121	AM-33221	AM-33321	AM-33421	AM-33521
AM-32122	AM-32222	AM-32322	AM-32422	AM-32522	AM-33122	AM-33222	AM-33322	AM-33422	AM-33522
AM-32123	AM-32223	AM-32323	AM-32423	AM-32523	AM-33123	AM-33223	AM-33323	AM-33423	AM-33523
AM-32124	AM-32224	AM-32324	AM-32424	AM-32524	AM-33124	AM-33224	AM-33324	AM-33424	AM-33524
AM-32125	AM-32225	AM-32325	AM-32425	AM-32525	AM-33125	AM-33225	AM-33325	AM-33425	AM-33525
AM-32126	AM-32226	AM-32326	AM-32426	AM-32526	AM-33126	AM-33226	AM-33326	AM-33426	AM-33526
AM-32127	AM-32227	AM-32327	AM-32427	AM-32527	AM-33127	AM-33227	AM-33327	AM-33427	AM-33527
AM-32128	AM-32228	AM-32328	AM-32428	AM-32528	AM-33128	AM-33228	AM-33328	AM-33428	AM-33528
AM-32129	AM-32229	AM-32329	AM-32429	AM-32529	AM-33129	AM-33229	AM-33329	AM-33429	AM-33529
AM-32130	AM-32230	AM-32330	AM-32430	AM-32530	AM-33130	AM-33230	AM-33330	AM-33430	AM-33530
AM-32131	AM-32231	AM-32331	AM-32431	AM-32531	AM-33131	AM-33231	AM-33331	AM-33431	AM-33531
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2
	LN-14442		LN-14443				LN-14445		
LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446 Matches A-16524 and AFL16524
16532	16532	16532	16532	16532	16532	16532	16532	16532	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	**LR52110 and LR52112 Matches 1-1/8 x L
			A-16522				A-16523		
			AFL-16522				AFL-16523		
				AFD-750					
19937	19938	19939	19940	19941	19942	19943	19944	19945	19946

ULTRA TOUGH TYPE I



COLLAR 34000 SERIES

COLLAR 35000 SERIES



ULTRA TOUGH TYPE I

		34000						35000					
A	DRILL SIZE	MAXIMUM	7/16	17/32	21/32	25/32	25/32	25/32	25/32	1-1/32	1-5/32	1-3/16	1-3/16
		MINIMUM	5/16	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8
B	SHANK O.D.	NOMINAL	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/4	1-1/4	1-3/8	1-1/2	1-3/4
		ACTUAL	.6248	.7498	.8748	.9998	1.1248	1.2498	1.2498	1.2498	1.3748	1.4998	1.7498
			.6245	.7495	.8745	.9995	1.1245	1.2495	1.2495	1.2495	1.3745	1.4995	1.7495
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES												
		3/8											
		1/2											
		5/8	AM-34103	AM-34303	AM-34403	AM-34503	AM-34603	AM-34703					
		3/4	AM-34104	AM-34304	AM-34404	AM-34504	AM-34604	AM-34704					
		7/8	AM-34105	AM-34305	AM-34405	AM-34505	AM-34605	AM-34705					
		1	AM-34106	AM-34306	AM-34406	AM-34506	AM-34606	AM-34706					
		1-1/16	AM-34107	AM-34307	AM-34407	AM-34507	AM-34607	AM-34707					
		1-1/8	AM-34108	AM-34308	AM-34408	AM-34508	AM-34608	AM-34708					
		1-3/16	AM-34109	AM-34309	AM-34409	AM-34509	AM-34609	AM-34709					
		1-1/4	AM-34110	AM-34310	AM-34410	AM-34510	AM-34610	AM-34710	AM-35110	AM-35210	AM-35310	AM-35410	
		1-3/8	AM-34111	AM-34311	AM-34411	AM-34511	AM-34611	AM-34711	AM-35111	AM-35211	AM-35311	AM-35411	
		1-7/16	AM-34112	AM-34312	AM-34412	AM-34512	AM-34612	AM-34712	AM-35112	AM-35212	AM-35312	AM-35412	
		1-1/2	AM-34113	AM-34313	AM-34413	AM-34513	AM-34613	AM-34713	AM-35113	AM-35213	AM-35313	AM-35413	
		1-5/8	AM-34114	AM-34314	AM-34414	AM-34514	AM-34614	AM-34714	AM-35114	AM-35214	AM-35314	AM-35414	
		1-3/4	AM-34115	AM-34315	AM-34415	AM-34515	AM-34615	AM-34715	AM-35115	AM-35215	AM-35315	AM-35415	
		1-7/8	AM-34116	AM-34316	AM-34416	AM-34516	AM-34616	AM-34716	AM-35116	AM-35216	AM-35316	AM-35416	
		1-15/16	AM-34117	AM-34317	AM-34417	AM-34517	AM-34617	AM-34717	AM-35117	AM-35217	AM-35317	AM-35417	
		2	AM-34118	AM-34318	AM-34418	AM-34518	AM-34618	AM-34718	AM-35118	AM-35218	AM-35318	AM-35418	
		2-1/8	AM-34119	AM-34319	AM-34419	AM-34519	AM-34619	AM-34719	AM-35119	AM-35219	AM-35319	AM-35419	
		2-1/4	AM-34120	AM-34320	AM-34420	AM-34520	AM-34620	AM-34720	AM-35120	AM-35220	AM-35320	AM-35420	
		2-3/8	AM-34121	AM-34321	AM-34421	AM-34521	AM-34621	AM-34721	AM-35121	AM-35221	AM-35321	AM-35421	
		2-1/2	AM-34122	AM-34322	AM-34422	AM-34522	AM-34622	AM-34722	AM-35122	AM-35222	AM-35322	AM-35422	
		2-5/8	AM-34123	AM-34323	AM-34423	AM-34523	AM-34623	AM-34723	AM-35123	AM-35223	AM-35323	AM-35423	
		2-3/4	AM-34124	AM-34324	AM-34424	AM-34524	AM-34624	AM-34724	AM-35124	AM-35224	AM-35324	AM-35424	
		3	AM-34125	AM-34325	AM-34425	AM-34525	AM-34625	AM-34725	AM-35125	AM-35225	AM-35325	AM-35425	
		3-1/4	AM-34126	AM-34326	AM-34426	AM-34526	AM-34626	AM-34726	AM-35126	AM-35226	AM-35326	AM-35426	
		3-1/2	AM-34127	AM-34327	AM-34427	AM-34527	AM-34627	AM-34727	AM-35127	AM-35227	AM-35327	AM-35427	
		3-3/4	AM-34128	AM-34328	AM-34428	AM-34528	AM-34628	AM-34728	AM-35128	AM-35228	AM-35328	AM-35428	
		4	AM-34129	AM-34329	AM-34429	AM-34529	AM-34629	AM-34729	AM-35129	AM-35229	AM-35329	AM-35429	
		5	AM-34130	AM-34330	AM-34430	AM-34530	AM-34630	AM-34730	AM-35130	AM-35230	AM-35330	AM-35430	
		6	AM-34131	AM-34331	AM-34431	AM-34531	AM-34631	AM-34731	AM-35131	AM-35231	AM-35331	AM-35431	
AIR FEED ACCESSORIES	TYPE AFC		AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	
	TYPE LN							LN-14446					
	TYPE LR		LR-52105	LR-52107	LR-52109	LR-52109	LR-52110	LR-52112	LR-52121	LR-52121	LR-52121	LR-52121	
	TYPE AFLS		16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	
	TYPE HKLL		5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1- 1/4 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	
	TYPE HKLL-1		5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1- 1/4 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	
	TYPE HKLP		5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1- 1/4 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	
	TYPE HKLP-1		5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1- 1/4 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	
	TYPE A							A-16525					
	TYPE AFL							AFL-16525					
TYPE AFD													
TYPE L		19947	19949	19950	19951	19946	19952	19953	19954	19955	19956		



TELESCOPING BUSHING

COLLAR 51000 SERIES

ULTRA TOUGH TYPE II

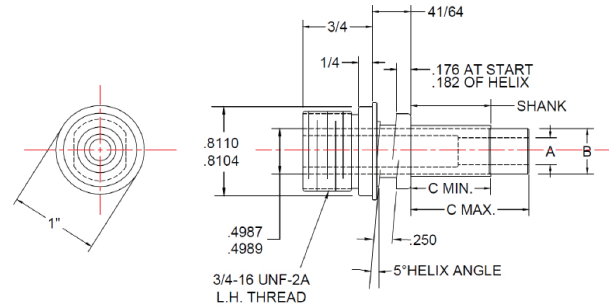


BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

AIR FEED ACCESSORIES

SCREWS & NUTS	HELIX	LOCK LINERS
 TYPE AFC	 TYPE HKLL	 TYPE A
 TYPE LN	 TYPE HKLL-1	 TYPE AFL
 TYPE LR	 TYPE HKLP	 TYPE AFD
 TYPE AFLS	 TYPE HKLP-1	 TYPE L

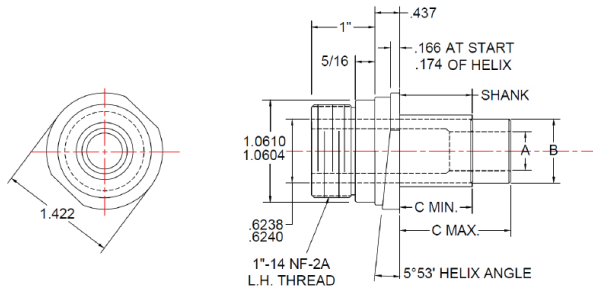


51000				
A DRILL SIZE	MAXIMUM MINIMUM	#29 3/32	3/16 3/32	15/64 3/32
B	SHANK O.D.	3/8	7/16	1/2
		.3748	.4373	.4998
C MIN LENGTH	C MAX LENGTH	.3745	.4370	.4995
5/8	1	AM-51106	AM-51206	AM-51306
7/8	1-1/2	AM-51113	AM-51213	AM-51313
1-3/8	2	AM-51118	AM-51218	AM-51318
1-7/8	2-1/2	AM-51122	AM-51222	AM-51322
2-1/4	3	AM-51125	AM-51225	AM-51325
2-3/4	3-1/2	AM-51127	AM-51227	AM-51327
3-1/4	4	AM-51129	AM-51229	AM-51329
3-3/4	4-1/2	AM-51129B	AM-51229B	AM-51329B
4-1/4	5	AM-51130	AM-51230	AM-51330
4-3/4	5-1/2	AM-51130B	AM-51230B	AM-51330B
5-1/4	6	AM-51131	AM-51231	AM-51331
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2
	TYPE LN	LN-14441		LN-14442
	TYPE LR	LR-52101	LR-52103	LR-52103
	TYPE AFLS	16531	16531	16531
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L
	TYPE A	A-16520		A-16521
	TYPE AFL	AFL-16520		AFL-16521
TYPE AFD	AFD-375		AFD-500	
TYPE L	19936	19937	19938	

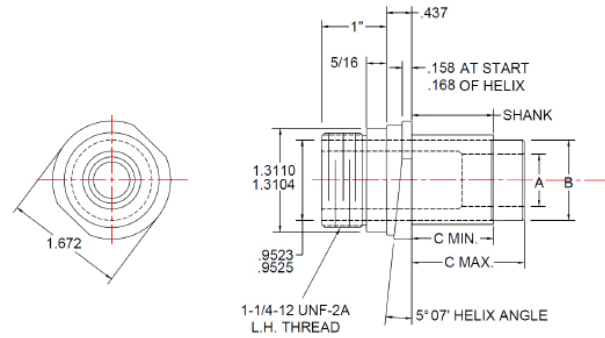
ULTRA TOUGH TYPE II



COLLAR 52000 SERIES



COLLAR 53000 SERIES

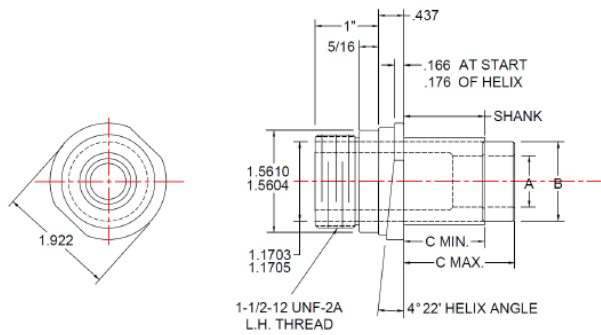


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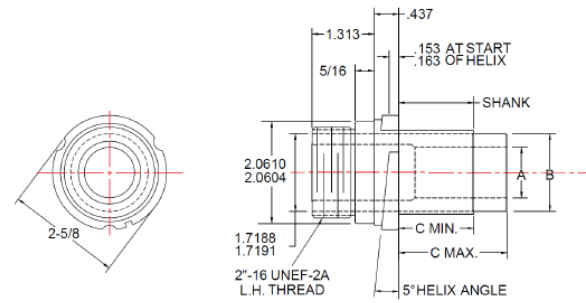
		52000				53000						
A DRILL SIZE	MAXIMUM MINIMUM	"O" 3/16	3/8 3/16	27/64 3/16	27/64 3/16	27/64 3/16	7/16 3/16	15/32 3/16	1/2 3/16	19/32 3/16	23/32 3/16	13/16 3/16
B	SHANK O.D	5/8	3/4	13/16	7/8	5/8	3/4	13/16	7/8	1	1-1/8	1-1/4
		.6248	.7498	.8123	.8748	.6248	.7498	.8123	.8748	.9998	1.1248	1.2498
C MIN LENGTH	C MAX LENGTH	.6245	.7495	.8120	.8745	.6245	.7495	.8120	.8745	.9995	1.1245	1.2495
5/8	1	AM-52406	AM-52506	AM-52606	AM-52706	AM-53006	AM-53106	AM-53206	AM-53306	AM-53406	AM-53506	AM-53606
7/8	1-1/2	AM-52413	AM-52513	AM-52613	AM-52713	AM-53013	AM-53113	AM-53213	AM-53313	AM-53413	AM-53513	AM-53613
1-3/8	2	AM-52418	AM-52518	AM-52618	AM-52718	AM-53018	AM-53118	AM-53218	AM-53318	AM-53418	AM-53518	AM-53618
1-7/8	2-1/2	AM-52422	AM-52522	AM-52622	AM-52722	AM-53022	AM-53122	AM-53222	AM-53322	AM-53422	AM-53522	AM-53622
2-1/4	3	AM-52425	AM-52525	AM-52625	AM-52725	AM-53025	AM-53125	AM-53225	AM-53325	AM-53425	AM-53525	AM-53625
2-3/4	3-1/2	AM-52427	AM-52527	AM-52627	AM-52727	AM-53027	AM-53127	AM-53227	AM-53327	AM-53427	AM-53527	AM-53627
3-1/4	4	AM-52429	AM-52529	AM-52629	AM-52729	AM-53029	AM-53129	AM-53229	AM-53329	AM-53429	AM-53529	AM-53629
3-3/4	4-1/2	AM-52429B	AM-52529B	AM-52629B	AM-52729B	AM-53029B	AM-53129B	AM-53229B	AM-53329B	AM-53429B	AM-53529B	AM-53629B
4-1/4	5	AM-52430	AM-52530	AM-52630	AM-52730	AM-53030	AM-53130	AM-53230	AM-53330	AM-53430	AM-53530	AM-53630
4-3/4	5-1/2	AM-52430B	AM-52530B	AM-52630B	AM-52730B	AM-53030B	AM-53130B	AM-53230B	AM-53330B	AM-53430B	AM-53530B	AM-53630B
5-1/4	6	AM-52431	AM-52531	AM-52631	AM-52731	AM-53031	AM-53131	AM-53231	AM-53331	AM-53431	AM-53531	AM-53631
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2
	TYPE LN	LN-14443							LN-14445		LN-14446	
	TYPE LR	LR-52105	LR-52107	LR-52107	LR-52108	LR-52105	LR-52107	LR-52107	LR-52109	LR-52112	LR-52110	LR-52112
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16532	16532	16532	16532
	TYPE HKLL	5/8 x L	3/4 x L	13/16 x L	7/8 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L
	TYPE HKLL-1	5/8 x L	3/4 x L	13/16 x L	7/8 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L
	TYPE HKLP	5/8 x L	3/4 x L	13/16 x L	7/8 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L
	TYPE HKLP-1	5/8 x L	3/4 x L	13/16 x L	7/8 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L
	TYPE A	A-16522								A-16523		A-16524
	TYPE AFL	AFL-16522								AFL-16523		AFL-16524
	TYPE AFD		AFD-750									
TYPE L		19940	19941	19943	19944	19940	19942	19943	19944	19945	19946	19952



COLLAR 54000 SERIES



COLLAR 55000 SERIES



54000						55000					
7/16 5/16	19/32 5/16	23/32 5/16	13/16 5/16	29/32 5/16	1-1/16 5/16	13/16 3/8	29/32 3/8	1-1/16 3/8	1-1/4 3/8	1-13/32 3/8	1-7/16 3/8
13/16	1	1-1/8	1-1/4	1-3/8	1-1/2	1-1/4	1-3/8	1-1/2	1-3/4	2	2-1/4
.8123	.9998	1.12498	1.2498	1.3748	1.4998	1.2498	1.3748	1.4998	1.7498	1.9998	2.2498
.8120	.9995	1.12495	1.2495	1.3745	1.4995	1.2495	1.3745	1.4995	1.7495	1.9995	2.2495
AM-54206	AM-54506	AM-54606	AM-54706	AM-54906	AM-54806	AM-55106	AM-55206	AM-55306	AM-55406	AM-55506	AM-55606
AM-54213	AM-54513	AM-54613	AM-54713	AM-54913	AM-54813	AM-55113	AM-55213	AM-55313	AM-55413	AM-55513	AM-55613
AM-54218	AM-54518	AM-54618	AM-54718	AM-54918	AM-54818	AM-55118	AM-55218	AM-55318	AM-55418	AM-55518	AM-55618
AM-54222	AM-54522	AM-54622	AM-54722	AM-54922	AM-54822	AM-55122	AM-55222	AM-55322	AM-55422	AM-55522	AM-55622
AM-54225	AM-54525	AM-54625	AM-54725	AM-54925	AM-54825	AM-55125	AM-55225	AM-55325	AM-55425	AM-55525	AM-55625
AM-54227	AM-54527	AM-54627	AM-54727	AM-54927	AM-54827	AM-55127	AM-55227	AM-55327	AM-55427	AM-55527	AM-55627
AM-54229	AM-54529	AM-54629	AM-54729	AM-54929	AM-54829	AM-55129	AM-55229	AM-55329	AM-55429	AM-55529	AM-55629
AM-5429B	AM-54529B	AM-54629B	AM-54729B	AM-54929B	AM-54829B	AM-55129B	AM-55229B	AM-55329B	AM-55429B	AM-55529B	AM-55629B
AM-54230	AM-54530	AM-54630	AM-54730	AM-54930	AM-54830	AM-55130	AM-55230	AM-55330	AM-55430	AM-55530	AM-55630
AM-54230B	AM-54530B	AM-54630B	AM-54730B	AM-54930B	AM-54830B	AM-55130B	AM-55230B	AM-55330B	AM-55430B	AM-55530B	AM-55630B
AM-54231	AM-54531	AM-54631	AM-54731	AM-54931	AM-54831	AM-55131	AM-55231	AM-55331	AM-55431	AM-55531	AM-55631
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	AFC-3	AFC-3
		LN-14446			LN-14447					LN-14448	
LR-52109	LR-52109	LR-52110	LR-52112	LR-52116	LR-52118	LR-52109	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121
16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	16530	16530
13/16 x L	1 x L	1-1/8 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
13/16 x L	1 x L	1-1/8 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
13/16 x L	1 x L	1-1/8 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
13/16 x L	1 x L	1-1/8 x L	1- 1/4 x L	1-3/8 x L	1-1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1-3/4 x L	2 x L	2-1/4 x L
		A-16525			A-16526					A-16533	
		AFL-16525			AFL-16526					AFL-16533	
19943	19945	19946	19952	19954	19955	19952	19954	19955	19956	19957	19958

ULTRA TOUGH TYPE II



TELESCOPING BUSHING

COLLAR 91000 SERIES

ULTRA TOUGH TYPE III



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+.0001 to +.0004
OVER 1/4 to 3/4	+.0001 to +.0005
OVER 3/4 to 1-1/2	+.0002 to +.0006
OVER 1-1/2 to 2-3/4	+.0003 to +.0007

AIR FEED ACCESSORIES

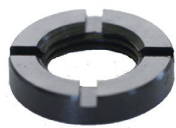
SCREWS & NUTS



TYPE AFC



TYPE LN

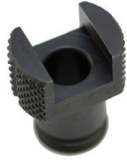


TYPE LR



TYPE AFLS

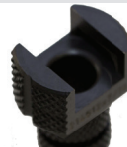
HELIX



TYPE HKLL



TYPE HKLL-1



TYPE HKLP



TYPE HKLP-1

LOCK LINERS



TYPE A



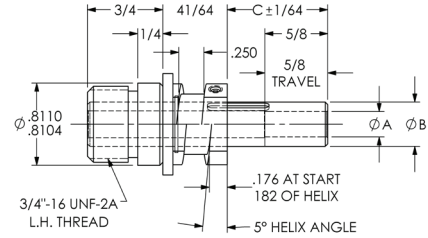
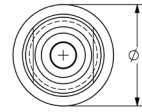
TYPE AFL



TYPE AFD
LINER BUSHING



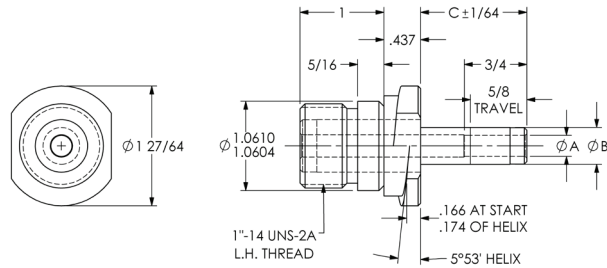
TYPE L



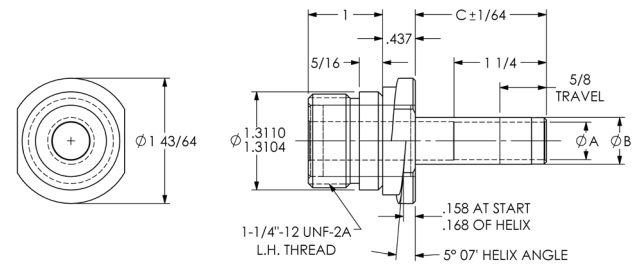
91000				
A DRILL SIZE	MAXIMUM MINIMUM	1/4 3/32	5/16 3/32	3/8 3/32
B SHANK O.D.	NOMINAL	3/8	7/16	1/2
	ACTUAL	.3748 .3745	.4373 .4370	.4998 .4995
C LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8			
	1/2	AM-91102	AM-91202	AM-91302
	5/8	AM-91103	AM-91203	AM-91303
	3/4	AM-91104	AM-91204	AM-91304
	7/8	AM-91105	AM-91205	AM-91305
	1	AM-91106	AM-91206	AM-91306
	1-1/16	AM-91107	AM-91207	AM-91307
	1-1/8	AM-91108	AM-91208	AM-91308
	1-3/16	AM-91109	AM-91209	AM-91309
	1-1/4	AM-91110	AM-91210	AM-91310
	1-3/8	AM-91111	AM-91211	AM-91311
	1-7/16	AM-91112	AM-91212	AM-91312
	1-1/2	AM-91113	AM-91213	AM-91313
	1-5/8	AM-91114	AM-91214	AM-91314
	1-3/4	AM-91115	AM-91215	AM-91315
	1-7/8	AM-91116	AM-91216	AM-91316
	1-15/16	AM-91117	AM-91217	AM-91317
	2	AM-91118	AM-91218	AM-91318
	2-1/8	AM-91119	AM-91219	AM-91319
	2-1/4	AM-91120	AM-91220	AM-91320
	2-3/8	AM-91121	AM-91221	AM-91321
	2-1/2	AM-91122	AM-91222	AM-91322
	2-5/8	AM-91123	AM-91223	AM-91323
	2-3/4	AM-91124	AM-91224	AM-91324
3	AM-91125	AM-91225	AM-91325	
3-1/4	AM-91126	AM-91226	AM-91326	
3-1/2	AM-91127	AM-91227	AM-91327	
3-3/4	AM-91128	AM-91228	AM-91328	
4	AM-91129	AM-91229	AM-91329	
5	AM-91130	AM-91230	AM-91330	
6	AM-91131	AM-91231	AM-91331	
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2
	TYPE LN	LN-14441		LN-14442
	TYPE LR	LR-52101	LR-52103	LR-52103
	TYPE AFLS	16531	16531	16531
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L
	TYPE A	A-16520		A-16521
	TYPE AFL	AFL-16520		AFL-16521
TYPE AFD	AFD-375		AFD-500	
TYPE L	19936	19937	19938	



COLLAR 92000 SERIES



COLLAR 93000 SERIES



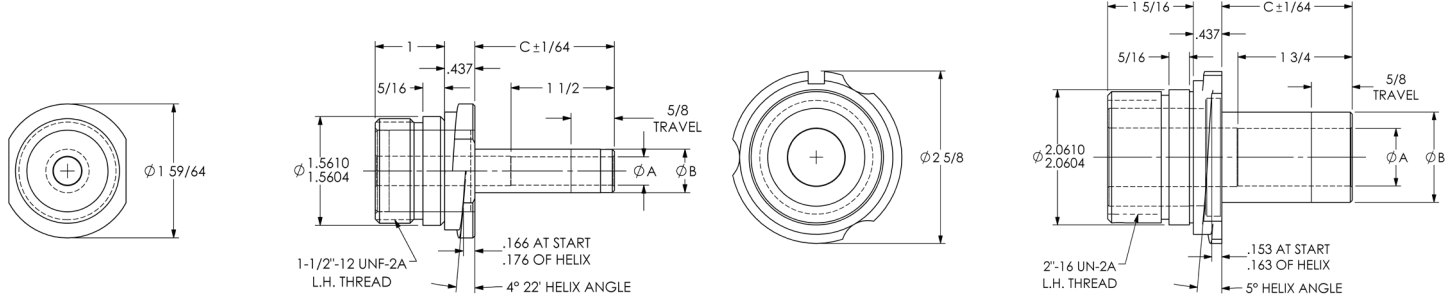
92000					93000				
9/32 3/16	11/32 3/16	13/32 3/16	15/32 3/16	1/2 3/16	17/32 1/4	19/32 1/4	21/32 1/4	23/32 1/4	25/32 1/4
7/16	1/2	9/16	5/8	3/4	3/4	13/16	7/8	1	1-1/8
.4373	.4998	.5623	.6248	.7498	.7498	.8123	.8748	.9998	1.1248
.4370	.4995	.5620	.6245	.7495	.7495	.8120	.8745	.9995	1.1245
AM-92102	AM-92202	AM-92302	AM-92402	AM-92502	AM-93102	AM-93202	AM-93302	AM-93402	AM-93502
AM-92103	AM-92203	AM-92303	AM-92403	AM-92503	AM-93103	AM-93203	AM-93303	AM-93403	AM-93503
AM-92104	AM-92204	AM-92304	AM-92404	AM-92504	AM-93104	AM-93204	AM-93304	AM-93404	AM-93504
AM-92105	AM-92205	AM-92305	AM-92405	AM-92505	AM-93105	AM-93205	AM-93305	AM-93405	AM-93505
AM-92106	AM-92206	AM-92306	AM-92406	AM-92506	AM-93106	AM-93206	AM-93306	AM-93406	AM-93506
AM-92107	AM-92207	AM-92307	AM-92407	AM-92507	AM-93107	AM-93207	AM-93307	AM-93407	AM-93507
AM-92108	AM-92208	AM-92308	AM-92408	AM-92508	AM-93108	AM-93208	AM-93308	AM-93408	AM-93508
AM-92109	AM-92209	AM-92309	AM-92409	AM-92509	AM-93109	AM-93209	AM-93309	AM-93409	AM-93509
AM-92110	AM-92210	AM-92310	AM-92410	AM-92510	AM-93110	AM-93210	AM-93310	AM-93410	AM-93510
AM-92111	AM-92211	AM-92311	AM-92411	AM-92511	AM-93111	AM-93211	AM-93311	AM-93411	AM-93511
AM-92112	AM-92212	AM-92312	AM-92412	AM-92512	AM-93112	AM-93212	AM-93312	AM-93412	AM-93512
AM-92113	AM-92213	AM-92313	AM-92413	AM-92513	AM-93113	AM-93213	AM-93313	AM-93413	AM-93513
AM-92114	AM-92214	AM-92314	AM-92414	AM-92514	AM-93114	AM-93214	AM-93314	AM-93414	AM-93514
AM-92115	AM-92215	AM-92315	AM-92415	AM-92515	AM-93115	AM-93215	AM-93315	AM-93415	AM-93515
AM-92116	AM-92216	AM-92316	AM-92416	AM-92516	AM-93116	AM-93216	AM-93316	AM-93416	AM-93516
AM-92117	AM-92217	AM-92317	AM-92417	AM-92517	AM-93117	AM-93217	AM-93317	AM-93417	AM-93517
AM-92118	AM-92218	AM-92318	AM-92418	AM-92518	AM-93118	AM-93218	AM-93318	AM-93418	AM-93518
AM-92119	AM-92219	AM-92319	AM-92419	AM-92519	AM-93119	AM-93219	AM-93319	AM-93419	AM-93519
AM-92120	AM-92220	AM-92320	AM-92420	AM-92520	AM-93120	AM-93220	AM-93320	AM-93420	AM-93520
AM-92121	AM-92221	AM-92321	AM-92421	AM-92521	AM-93121	AM-93221	AM-93321	AM-93421	AM-93521
AM-92122	AM-92222	AM-92322	AM-92422	AM-92522	AM-93122	AM-93222	AM-93322	AM-93422	AM-93522
AM-92123	AM-92223	AM-92323	AM-92423	AM-92523	AM-93123	AM-93223	AM-93323	AM-93423	AM-93523
AM-92124	AM-92224	AM-92324	AM-92424	AM-92524	AM-93124	AM-93224	AM-93324	AM-93424	AM-93524
AM-92125	AM-92225	AM-92325	AM-92425	AM-92525	AM-93125	AM-93225	AM-93325	AM-93425	AM-93525
AM-92126	AM-92226	AM-92326	AM-92426	AM-92526	AM-93126	AM-93226	AM-93326	AM-93426	AM-93526
AM-92127	AM-92227	AM-92327	AM-92427	AM-92527	AM-93127	AM-93227	AM-93327	AM-93427	AM-93527
AM-92128	AM-92228	AM-92328	AM-92428	AM-92528	AM-93128	AM-93228	AM-93328	AM-93428	AM-93528
AM-92129	AM-92229	AM-92329	AM-92429	AM-92529	AM-93129	AM-93229	AM-93329	AM-93429	AM-93529
AM-92130	AM-92230	AM-92330	AM-92430	AM-92530	AM-93130	AM-93230	AM-93330	AM-93430	AM-93530
AM-92131	AM-92231	AM-92331	AM-92431	AM-92531	AM-93131	AM-93231	AM-93331	AM-93431	AM-93531
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2
			LN-14443				LN-14445		
LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446 Matches A-16524 and AFL16524
16532	16532	16532	16532	16532	16532	16532	16532	16532	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	**LR52110 and LR52112 Matches 1-1/8 x L
			A-16522				A-16523		
			AFL-16522				AFL-16523		
				AFD-750					
19937	19938	19939	19940	19941	19942	19943	19944	19945	19946

ULTRA TOUGH TYPE III



COLLAR 94000 SERIES

COLLAR 95000 SERIES



ULTRA TOUGH TYPE III

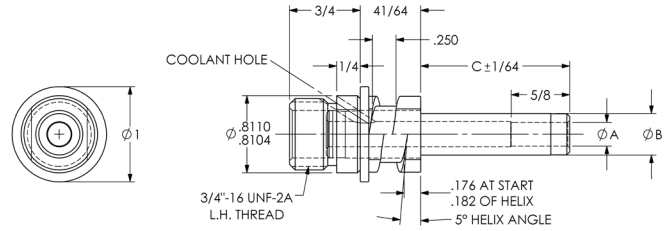
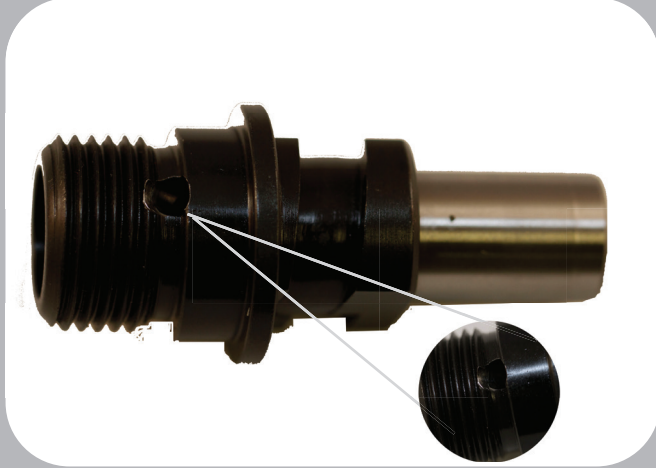
		94000							95000			
A DRILL SIZE	MAXIMUM	13/32	17/32	9/16	21/32	25/32	29/32	15/16	1-1/32	1-5/32	1-9/32	1-15/32
	MINIMUM	5/16	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8
B SHANK O.D.	NOMINAL	5/8	3/4	13/16	7/8	1	1-1/8	1-1/4	1-1/4	1-3/8	1-1/2	1-3/4
	ACTUAL	.6248	.7498	.8123	.8748	.9998	1.1248	1.2498	1.2498	1.3748	1.4998	1.7498
		.6245	.7495	.8120	.8745	.9995	1.1245	1.2495	1.2495	1.3745	1.4995	1.7495
C LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8											
	1/2	AM-94102	AM-94302	AM-94202	AM-94402	AM-94502	AM-94602	AM-94702	AM-95102	AM-95202	AM-95302	AM-95402
	5/8	AM-94103	AM-94303	AM-94203	AM-94403	AM-94503	AM-94603	AM-94703	AM-95103	AM-95203	AM-95303	AM-95403
	3/4	AM-94104	AM-94304	AM-94204	AM-94404	AM-94504	AM-94604	AM-94704	AM-95104	AM-95204	AM-95304	AM-95404
	7/8	AM-94105	AM-94305	AM-94205	AM-94405	AM-94505	AM-94605	AM-94705	AM-95105	AM-95205	AM-95305	AM-95405
	1	AM-94106	AM-94306	AM-94206	AM-94406	AM-94506	AM-94606	AM-94706	AM-95106	AM-95206	AM-95306	AM-95406
	1-1/16	AM-94107	AM-94307	AM-94207	AM-94407	AM-94507	AM-94607	AM-94707	AM-95107	AM-95207	AM-95307	AM-95407
	1-1/8	AM-94108	AM-94308	AM-94208	AM-94408	AM-94508	AM-94608	AM-94708	AM-95108	AM-95208	AM-95308	AM-95408
	1-3/16	AM-94109	AM-94309	AM-94209	AM-94409	AM-94509	AM-94609	AM-94709	AM-95109	AM-95209	AM-95309	AM-95409
	1-1/4	AM-94110	AM-94310	AM-94210	AM-94410	AM-94510	AM-94610	AM-94710	AM-95110	AM-95210	AM-95310	AM-95410
	1-3/8	AM-94111	AM-94311	AM-94211	AM-94411	AM-94511	AM-94611	AM-94711	AM-95111	AM-95211	AM-95311	AM-95411
	1-7/16	AM-94112	AM-94312	AM-94212	AM-94412	AM-94512	AM-94612	AM-94712	AM-95112	AM-95212	AM-95312	AM-95412
	1-1/2	AM-94113	AM-94313	AM-94213	AM-94413	AM-94513	AM-94613	AM-94713	AM-95113	AM-95213	AM-95313	AM-95413
	1-5/8	AM-94114	AM-94314	AM-94214	AM-94414	AM-94514	AM-94614	AM-94714	AM-95114	AM-95214	AM-95314	AM-95414
	1-3/4	AM-94115	AM-94315	AM-94215	AM-94415	AM-94515	AM-94615	AM-94715	AM-95115	AM-95215	AM-95315	AM-95415
	1-7/8	AM-94116	AM-94316	AM-94216	AM-94416	AM-94516	AM-94616	AM-94716	AM-95116	AM-95216	AM-95316	AM-95416
	1-15/16	AM-94117	AM-94317	AM-94217	AM-94417	AM-94517	AM-94617	AM-94717	AM-95117	AM-95217	AM-95317	AM-95417
	2	AM-94118	AM-94318	AM-94218	AM-94418	AM-94518	AM-94618	AM-94718	AM-95118	AM-95218	AM-95318	AM-95418
	2-1/8	AM-94119	AM-94319	AM-94219	AM-94419	AM-94519	AM-94619	AM-94719	AM-95119	AM-95219	AM-95319	AM-95419
	2-1/4	AM-94120	AM-94320	AM-94220	AM-94420	AM-94520	AM-94620	AM-94720	AM-95120	AM-95220	AM-95320	AM-95420
	2-3/8	AM-94121	AM-94321	AM-94221	AM-94421	AM-94521	AM-94621	AM-94721	AM-95121	AM-95221	AM-95321	AM-95421
	2-1/2	AM-94122	AM-94322	AM-94222	AM-94422	AM-94522	AM-94622	AM-94722	AM-95122	AM-95222	AM-95322	AM-95422
2-5/8	AM-94123	AM-94323	AM-94223	AM-94423	AM-94523	AM-94623	AM-94723	AM-95123	AM-95223	AM-95323	AM-95423	
2-3/4	AM-94124	AM-94324	AM-94224	AM-94424	AM-94524	AM-94624	AM-94724	AM-95124	AM-95224	AM-95324	AM-95424	
3	AM-94125	AM-94325	AM-94225	AM-94425	AM-94525	AM-94625	AM-94725	AM-95125	AM-95225	AM-95325	AM-95425	
3-1/4	AM-94126	AM-94326	AM-94226	AM-94426	AM-94526	AM-94626	AM-94726	AM-95126	AM-95226	AM-95326	AM-95426	
3-1/2	AM-94127	AM-94327	AM-94227	AM-94427	AM-94527	AM-94627	AM-94727	AM-95127	AM-95227	AM-95327	AM-95427	
3-3/4	AM-94128	AM-94328	AM-94228	AM-94428	AM-94528	AM-94628	AM-94728	AM-95128	AM-95228	AM-95328	AM-95428	
4	AM-94129	AM-94329	AM-94229	AM-94429	AM-94529	AM-94629	AM-94729	AM-95129	AM-95229	AM-95329	AM-95429	
5	AM-94130	AM-94330	AM-94230	AM-94430	AM-94530	AM-94630	AM-94730	AM-95130	AM-95230	AM-95330	AM-95430	
6	AM-94131	AM-94331	AM-94231	AM-94431	AM-94531	AM-94631	AM-94731	AM-95131	AM-95231	AM-95331	AM-95431	
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3
	TYPE LN					LN-14446		LN-14447				
	TYPE LR	LR-52105	LR-52107	LR-52109	LR-52109	LR-52109	LR-52110	LR-52112	LR-52121	LR-52121	LR-52121	LR-52121
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16530	16530	16530	16530
	TYPE HKLL	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L
	TYPE HKLL-1	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L
	TYPE HKLP	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L
	TYPE HKLP-1	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L
	TYPE A						A-16525					
	TYPE AFL						AFL-16525					
TYPE AFD												
TYPE L	19947	19949	19943	19950	19951	19946	19952	19953	19954	19955	19956	



COOLANT BUSHING

COLLAR 11000 SERIES

CROSS HOLE



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

AIR FEED ACCESSORIES

SCREWS & NUTS	HELIX	LOCK LINERS
 TYPE AFC	 TYPE HKLL	 TYPE A
 TYPE LN	 TYPE HKLL-1	 TYPE AFL
 TYPE LR	 TYPE HKLP	 TYPE AFD
 TYPE AFLS	 TYPE HKLP-1	 TYPE L

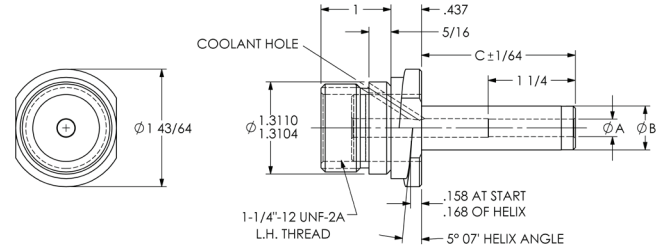
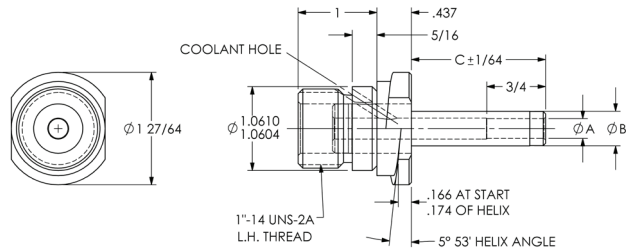
11000				
A DRILL SIZE	MAXIMUM MINIMUM	1/4 3/32	5/16 3/32	3/8 3/32
B SHANK O.D	NOMINAL ACTUAL	3/8	7/16	1/2
		.3748 .3745	.4373 .4370	.4998 .4995
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8	A-11101	A-11301
		1/2	A-11102	A-11302
		5/8	A-11103	A-11303
		3/4	A-11104	A-11304
		7/8	A-11105	A-11305
		1	A-11106	A-11306
		1-1/16	A-11107	A-11307
		1-1/8	A-11108	A-11308
		1-3/16		
		1-1/4	A-11110	A-11310
		1-3/8	A-11111	A-11311
		1-7/16		
		1-1/2	A-11113	A-11313
		1-5/8	A-11114	A-11314
		1-3/4	A-11115	A-11315
		1-7/8	A-11116	A-11316
		1-15/16		
		2	A-11118	A-11318
		2-1/8	A-11119	A-11319
		2-1/4	A-11120	A-11320
		2-3/8	A-11121	A-11321
		2-1/2	A-11122	A-11322
		2-5/8		
		2-3/4	A-11124	A-11324
		3	A-11125	A-11325
		3-1/4	A-11126	A-11326
3-1/2				
3-3/4				
4				
5				
6	A-11131		A-11330	
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2
	TYPE LN	LN-14441		LN-14442
	TYPE LR	LR-52101	LR-52103	LR-52103
	TYPE AFLS	16531	16531	16531
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L
	TYPE A	A-16520		A-16521
	TYPE AFL	AFL-16520		AFL-16521
	TYPE AFD	AFD-375		AFD-500
TYPE L	19936	19937	19938	

CROSS HOLE



COLLAR 12000 SERIES

COLLAR 13000 SERIES



CROSS HOLE

		12000						13000				
A	MAXIMUM MINIMUM	9/32 3/16	11/32 3/16	13/32 3/16	15/32 3/16	15/32 3/16	17/32 1/4	19/32 1/4	21/32 1/4	23/32 1/4	23/32 1/4	
B	NOMINAL ACTUAL	7/16	1/2	9/16	5/8	3/4	3/4	13/16	7/8	1	1-1/8	
		.4373 .4370	.4998 .4995	.5623 .5620	.6248 .6245	.7498 .7495	.7498 .7495	.8123 .8120	.8748 .8745	.9998 .9995	1.1248 1.1245	
C	3/8	A-12101				A-12401						
	1/2	A-12102	A-12202			A-12402						
	5/8	A-12103	A-12203	A-12303		A-12403		A-13103	A-13203	A-13303		
	3/4	A-12104	A-12204	A-12304	A-12404	A-12504	A-13104	A-13204	A-13304			
	7/8	A-12105	A-12205	A-12305	A-12405	A-12505	A-13105	A-13205	A-13305			
	1	A-12106	A-12206	A-12306	A-12406	A-12506	A-13106	A-13206	A-13306		A-13506	
	1-1/16											
	1-1/8	A-12108	A-12208	A-12308	A-12408	A-12508	A-13108	A-13208	A-13308	A-13408	A-13508	
	1-3/16				A-12409		A-13109					
	1-1/4	A-12110	A-12210	A-12310	A-12410	A-12510	A-13110	A-13210	A-13310	A-13410	A-13510	
	1-3/8	A-12111	A-12211	A-12311	A-12411	A-12511	A-13111	A-13211	A-13311	A-13411	A-13511	
	1-7/16								A-13312			
	1-1/2	A-12113	A-12213	A-12313	A-12413	A-12513	A-13113	A-13213	A-13313	A-13413	A-13513	
	1-5/8	A-12114	A-12214	A-12314	A-12414	A-12514	A-13114	A-13214	A-13314	A-13414	A-13514	
	1-3/4	A-12115	A-12215	A-12315	A-12415	A-12515	A-13115	A-13215	A-13315	A-13415	A-13515	
	1-7/8	A-12116	A-12216	A-12316	A-12416	A-12516	A-13116	A-13216	A-13316	A-13416	A-13516	
	1-15/16											
	2	A-12118	A-12218	A-12318	A-12418	A-12518	A-13118	A-13218	A-13318	A-13418	A-13518	
	2-1/8	A-12119	A-12219	A-12319	A-12419	A-12519	A-13119	A-13219	A-13319	A-13419	A-13519	
	2-1/4	A-12120	A-12220	A-12320	A-12420	A-12520	A-13120	A-13220	A-13320	A-13420	A-13520	
2-3/8	A-12121	A-12221	A-12321	A-12421	A-12521	A-13121	A-13221	A-13321	A-13421	A-13521		
2-1/2	A-12122	A-12222	A-12322	A-12422	A-12522	A-13122	A-13222	A-13322	A-13422	A-13522		
2-5/8												
2-3/4	A-12124	A-12224	A-12324	A-12424	A-12524	A-13124	A-13224	A-13324	A-13424	A-13524		
3	A-12125	A-12225	A-12325	A-12425	A-12525	A-13125	A-13225	A-13325	A-13425	A-13525		
3-1/4	A-12126	A-12226	A-12326	A-12426	A-12526	A-13126	A-13226	A-13326	A-13426	A-13526		
3-1/2	A-12127	A-12227	A-12327	A-12427	A-12527	A-13127	A-13227	A-13327	A-13427	A-13527		
3-3/4	A-12128	A-12228	A-12328	A-12428	A-12528	A-13128	A-13228	A-13328	A-13428	A-13528		
4	A-12129	A-12229	A-12329	A-12429	A-12529	A-13129	A-13229	A-13329	A-13429	A-13529		
5	A-12130	A-12230	A-12330	A-12430	A-12530	A-13130	A-13230	A-13330	A-13430	A-13530		
6	A-12131	A-12231	A-12331	A-12431	A-12531	A-13131	A-13231	A-13331	A-13431	A-13531		
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	
	TYPE LN				LN-14443				LN-14445			
	TYPE LR	LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446 Matches A-16524 and AFL16524	
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16532	16532		
	TYPE HKLL	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE HKLL-1	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE HKLP	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE HKLP-1	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE A				A-16522				A-16523		**LR52110 and LR52112 Matches 1-1/8 x L	
	TYPE AFL				AFL-16522				AFL-16523			
TYPE AFD					AFD-750							
TYPE L	19937	19938	19939	19940	19941	19942	19943	19944	19945	19946		

ACTEK MANUFACTURING & ENGINEERING

COLLAR 14000 SERIES

COLLAR 15000 SERIES

14000							15000				
13/32 5/16	17/32 5/16	21/32 5/16	25/32 5/16	29/32 5/16	15/16 5/16	15/16 5/16	1-1/32 3/8	1-5/32 3/8	1-9/32 3/8	1-15/32 3/8	1-15/32 3/8
5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	1-1/4	1-3/8	1-1/2	1-3/4	2
.6248	.7498	.8748	.9998	1.1248	1.2498	1.4998	1.2498	1.3748	1.4998	1.7498	1.9998
.6245	.7495	.8745	.9995	1.1245	1.2495	1.4995	1.2495	1.3745	1.4995	1.7495	1.9995
A-14103											
A-14104	A-14304										
A-14105	A-14305	A-14405									
A-14106	A-14306	A-14406	A-14506	A-14606		A-14806					
A-14108	A-14308	A-14408	A-14508	A-14608							
A-14110	A-14310	A-14410	A-14510	A-14610	A-14710		A-15110				
A-14111	A-14311	A-14411	A-14511	A-14611	A-14711	A-14811	A-15111	A-15211			
A-14113	A-14313	A-14413	A-14513	A-14613	A-14713	A-14813	A-15113	A-15213	A-15313		
A-14114	A-14314	A-14414	A-14514	A-14614	A-14714	A-14814	A-15114	A-15214	A-15314		
A-14115	A-14315	A-14415	A-14515	A-14615	A-14715	A-14815	A-15115	A-15215	A-15315	A-15415	
A-14116	A-14316	A-14416	A-14516	A-14616	A-14716	A-14816	A-15116	A-15216	A-15316	A-15416	
A-14118	A-14318	A-14418	A-14518	A-14618	A-14718	A-14818	A-15118	A-15218	A-15318	A-15418	A-15518
A-14119	A-14319	A-14419	A-14519	A-14619	A-14719	A-14819	A-15119	A-15219	A-15319	A-15419	A-15519
A-14120	A-14320	A-14420	A-14520	A-14620	A-14720	A-14820	A-15120	A-15220	A-15320	A-15420	A-15520
A-14121	A-14321	A-14421	A-14521	A-14621	A-14721	A-14821	A-15121	A-15221	A-15321	A-15421	A-15521
A-14122	A-14322	A-14422	A-14522	A-14622	A-14722	A-14822	A-15122	A-15222	A-15322	A-15422	A-15522
A-14124	A-14324	A-14424	A-14524	A-14624	A-14724	A-14824	A-15124	A-15224	A-15324	A-15424	A-15524
A-14125	A-14325	A-14425	A-14525	A-14625	A-14725	A-14825	A-15125	A-15225	A-15325	A-15425	A-15525
A-14126	A-14326	A-14426	A-14526	A-14626	A-14726	A-14826	A-15126	A-15226	A-15326	A-15426	A-15526
A-14127	A-14327	A-14427	A-14527	A-14627	A-14727	A-14827	A-15127	A-15227	A-15327	A-15427	A-15527
A-14128	A-14328	A-14428	A-14528	A-14628	A-14728	A-14828	A-15128	A-15228	A-15328	A-15428	A-15528
A-14129	A-14329	A-14429	A-14529	A-14629	A-14729	A-14829	A-15129	A-15229	A-15329	A-15429	A-15529
A-14130	A-14330	A-14430	A-14530	A-14630	A-14730	A-14830	A-15130	A-15230	A-15330	A-15430	A-15530
A-14131	A-14331	A-14431	A-14531	A-14631	A-14731	A-14831	A-15131	A-15231	A-15331	A-15431	A-15531
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	AFC-3
				LN-14446		LN-14447					LN-14448
LR-52105	LR-52107	LR-52109	LR-52109	LR-52110	LR-52112	LR-52118	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121
16532	16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	16530
5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 x L
5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 x L
5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 x L
5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 x L
				A-16525		A-16526					A-16533
				AFL-16525		AFL-16526					
19947	19949	19950	19951	19946	19952	19955	19953	19954	19955	19956	19957

CROSS HOLE

TOLL FREE: (800)752-7229 TEL: (626)581-3424 FAX: (626)581-3423 WWW.ACTEKMFG.COM

99

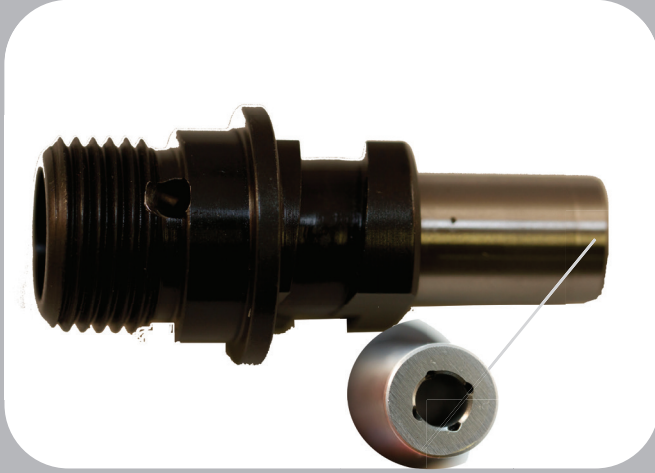
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COOLANT BUSHING

INTERNAL DIRECTED
EXIT END



BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

AIR FEED ACCESSORIES

SCREWS & NUTS



TYPE AFC



TYPE LN

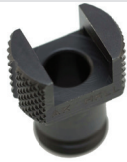


TYPE LR



TYPE AFLS

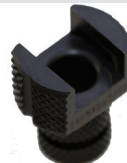
HELIX



TYPE HKLL



TYPE HKLL-1



TYPE HKLP



TYPE HKLP-1

LOCK LINERS



TYPE A



TYPE AFL

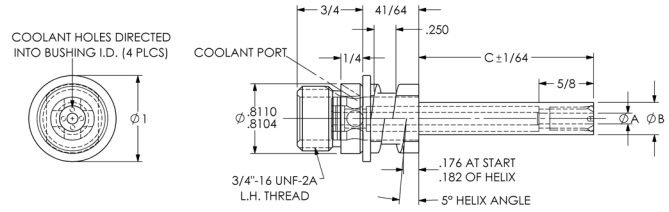


TYPE AFD
LINER BUSHING



TYPE L

COLLAR 41000 SERIES

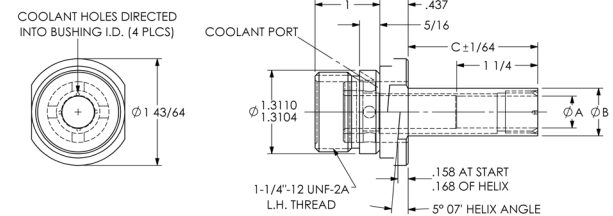
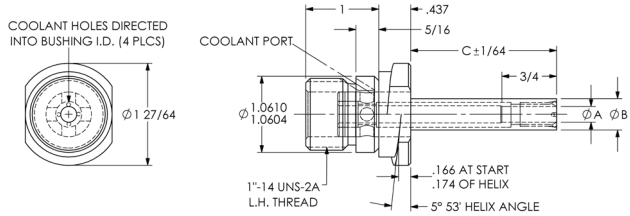


41000				
A	MAXIMUM			
DRILL	MINIMUM	5/32	7/32	9/32
SIZE		3/32	3/32	3/32
B	NOMINAL ACTUAL	3/8	7/16	1/2
		.3748	.4373	.4998
		.3745	.4370	.4995
C	3/8			
	1/2			
	5/8	A-41103	A-41203	A-41303
	3/4	A-41104	A-41204	A-41304
	7/8	A-41105	A-41205	A-41305
	1	A-41106	A-41206	A-41306
	1-1/16	A-41107	A-41207	A-41307
	1-1/8	A-41108	A-41208	A-41308
	1-3/16	A-41109	A-41209	A-41309
	1-1/4	A-41110	A-41210	A-41310
	1-3/8	A-41111	A-41211	A-41311
	1-7/16	A-41112	A-41212	A-41312
	1-1/2	A-41113	A-41213	A-41313
	1-5/8	A-41114	A-41214	A-41314
	1-3/4	A-41115	A-41215	A-41315
	1-7/8	A-41116	A-41216	A-41316
	1-15/16	A-41117	A-41217	A-41317
	2	A-41118	A-41218	A-41318
	2-1/8	A-41119	A-41219	A-41319
	2-1/4	A-41120	A-41220	A-41320
	2-3/8	A-41121	A-41221	A-41321
	2-1/2	A-41122	A-41222	A-41322
	2-5/8	A-41123	A-41223	A-41323
	2-3/4	A-41124	A-41224	A-41324
3	A-41125	A-41225	A-41325	
3-1/4	A-41126	A-41226	A-41326	
3-1/2	A-41127	A-41227	A-41327	
3-3/4	A-41128	A-41228	A-41328	
4	A-41129	A-41229	A-41329	
5	A-41130	A-41230	A-41330	
6	A-41131	A-41231	A-41331	
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2
	TYPE LN	LN-14441		LN-14442
	TYPE LR	LR-52101	LR-52103	LR-52103
	TYPE AFLS	16531	16531	16531
	TYPE HKLL	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLL-1	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP	3/8 x L	7/16 x L	1/2 x L
	TYPE HKLP-1	3/8 x L	7/16 x L	1/2 x L
	TYPE A	A-16520		A-16521
	TYPE AFL	AFL-16520		AFL-16521
	TYPE AFD	AFD-375		AFD-500
TYPE L	19936	19937	19938	



COLLAR 42000 SERIES

COLLAR 43000 SERIES



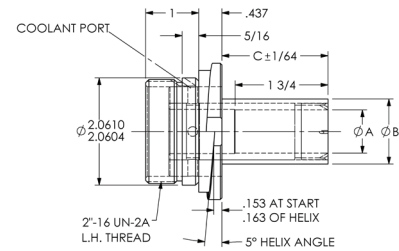
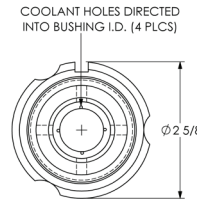
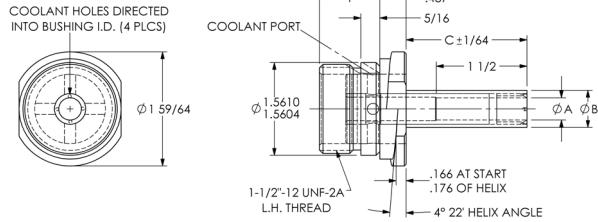
42000					43000				
7/32 3/16	9/32 1/4	11/32 1/4	23/64 1/4	23/64 1/4	1/2 1/4	9/16 1/4	5/8 1/4	21/32 1/4	21/32 1/4
7/16	1/2	9/16	5/8	3/4	3/4	13/16	7/8	1	1-1/8
.4373	.4998	.5623	.6248	.7498	.7498	.8123	.8748	.9998	1.1248
.4370	.4995	.5620	.6245	.7495	.7495	.8120	.8745	.9995	1.1245
A-42103	A-42203	A-42303	A-42403	A-42503	A-43103	A-43203	A-43303	A-43403	A-43503
A-42104	A-42204	A-42304	A-42404	A-42504	A-43104	A-43204	A-43304	A-43404	A-43504
A-42105	A-42205	A-42305	A-42405	A-42505	A-43105	A-43205	A-43305	A-43405	A-43505
A-42106	A-42206	A-42306	A-42406	A-42506	A-43106	A-43206	A-43306	A-43406	A-43506
A-42107	A-42207	A-42307	A-42407	A-42507	A-43107	A-43207	A-43307	A-43407	A-43507
A-42108	A-42208	A-42308	A-42408	A-42508	A-43108	A-43208	A-43308	A-43408	A-43508
A-42109	A-42209	A-42309	A-42409	A-42509	A-43109	A-43209	A-43309	A-43409	A-43509
A-42110	A-42210	A-42310	A-42410	A-42510	A-43110	A-43210	A-43310	A-43410	A-43510
A-42111	A-42211	A-42311	A-42411	A-42511	A-43111	A-43211	A-43311	A-43411	A-43511
A-42112	A-42212	A-42312	A-42412	A-42512	A-43112	A-43212	A-43312	A-43412	A-43512
A-42113	A-42213	A-42313	A-42413	A-42513	A-43113	A-43213	A-43313	A-43413	A-43513
A-42114	A-42214	A-42314	A-42414	A-42514	A-43114	A-43214	A-43314	A-43414	A-43514
A-42115	A-42215	A-42315	A-42415	A-42515	A-43115	A-43215	A-43315	A-43415	A-43515
A-42116	A-42216	A-42316	A-42416	A-42516	A-43116	A-43216	A-43316	A-43416	A-43516
A-42117	A-42217	A-42317	A-42417	A-42517	A-43117	A-43217	A-43317	A-43417	A-43517
A-42118	A-42218	A-42318	A-42418	A-42518	A-43118	A-43218	A-43318	A-43418	A-43518
A-42119	A-42219	A-42319	A-42419	A-42519	A-43119	A-43219	A-43319	A-43419	A-43519
A-42120	A-42220	A-42320	A-42420	A-42520	A-43120	A-43220	A-43320	A-43420	A-43520
A-42121	A-42221	A-42321	A-42421	A-42521	A-43121	A-43221	A-43321	A-43421	A-43521
A-42122	A-42222	A-42322	A-42422	A-42522	A-43122	A-43222	A-43322	A-43422	A-43522
A-42123	A-42223	A-42323	A-42423	A-42523	A-43123	A-43223	A-43323	A-43423	A-43523
A-42124	A-42224	A-42324	A-42424	A-42524	A-43124	A-43224	A-43324	A-43424	A-43524
A-42125	A-42225	A-42325	A-42425	A-42525	A-43125	A-43225	A-43325	A-43425	A-43525
A-42126	A-42226	A-42326	A-42426	A-42526	A-43126	A-43226	A-43326	A-43426	A-43526
A-42127	A-42227	A-42327	A-42427	A-42527	A-43127	A-43227	A-43327	A-43427	A-43527
A-42128	A-42228	A-42328	A-42428	A-42528	A-43128	A-43228	A-43328	A-43428	A-43528
A-42129	A-42229	A-42329	A-42429	A-42529	A-43129	A-43229	A-43329	A-43429	A-43529
A-42130	A-42230	A-42330	A-42430	A-42530	A-43130	A-43230	A-43330	A-43430	A-43530
A-42131	A-42231	A-42331	A-42431	A-42531	A-43131	A-43231	A-43331	A-43431	A-43531
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2
			LN-14443				LN-14445		
LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446 Matches A-16524 and AFL16524
16532	16532	16532	16532	16532	16532	16532	16532	16532	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	
7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	**LR52110 and LR52112 Matches 1-1/8 x L
			A-16522				A-16523		
			AFL-16522				AFL-16523		
				AFD-750					
19937	19938	19939	19940	19941	19942	19943	19944	19945	19946

INTERNAL DIRECTED EXIT END



COLLAR 44000 SERIES

COLLAR 45000 SERIES



INTERNAL DIRECTED EXIT END

		44000							45000					
A	DRILL SIZE	MAXIMUM	3/8	1/2	5/8	3/4	7/8	7/8	7/8	53/64	61/64	1-5/64	1-21/64	1-21/64
B	SHANK O.D.	NOMINAL	5/16	5/16	5/16	5/16	5/16	5/16	3/8	3/8	3/8	3/8	3/8	3/8
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	ACTUAL	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2	1-1/4	1-3/8	1-1/2	1-3/4	2
	3/8													
	1/2													
	5/8	A-44103	A-44303	A-44403	A-44503	A-44603	A-44703	A-44803						
	3/4	A-44104	A-44304	A-44404	A-44504	A-44604	A-44704	A-44804						
	7/8	A-44105	A-44305	A-44405	A-44505	A-44605	A-44705	A-44805						
	1	A-44106	A-44306	A-44406	A-44506	A-44606	A-44706	A-44806						
	1-1/16	A-44107	A-44307	A-44407	A-44507	A-44607	A-44707	A-44807						
	1-1/8	A-44108	A-44308	A-44408	A-44508	A-44608	A-44708	A-44808						
	1-3/16	A-44109	A-44309	A-44409	A-44509	A-44609	A-44709	A-44809						
	1-1/4	A-44110	A-44310	A-44410	A-44510	A-44610	A-44710	A-44810	A-45110	A-45210	A-45310	A-45410	A-45510	
	1-3/8	A-44111	A-44311	A-44411	A-44511	A-44611	A-44711	A-44811	A-45111	A-45211	A-45311	A-45411	A-45511	
	1-7/16	A-44112	A-44312	A-44412	A-44512	A-44612	A-44712	A-44812	A-45112	A-45212	A-45312	A-45412	A-45512	
	1-1/2	A-44113	A-44313	A-44413	A-44513	A-44613	A-44713	A-44813	A-45113	A-45213	A-45313	A-45413	A-45513	
	1-5/8	A-44114	A-44314	A-44414	A-44514	A-44614	A-44714	A-44814	A-45114	A-45214	A-45314	A-45414	A-45514	
	1-3/4	A-44115	A-44315	A-44415	A-44515	A-44615	A-44715	A-44815	A-45115	A-45215	A-45315	A-45415	A-45515	
	1-7/8	A-44116	A-44316	A-44416	A-44516	A-44616	A-44716	A-44816	A-45116	A-45216	A-45316	A-45416	A-45516	
	1-15/16	A-44117	A-44317	A-44417	A-44517	A-44617	A-44717	A-44817	A-45117	A-45217	A-45317	A-45417	A-45517	
	2	A-44118	A-44318	A-44418	A-44518	A-44618	A-44718	A-44818	A-45118	A-45218	A-45318	A-45418	A-45518	
	2-1/8	A-44119	A-44319	A-44419	A-44519	A-44619	A-44719	A-44819	A-45119	A-45219	A-45319	A-45419	A-45519	
	2-1/4	A-44120	A-44320	A-44420	A-44520	A-44620	A-44720	A-44820	A-45120	A-45220	A-45320	A-45420	A-45520	
	2-3/8	A-44121	A-44321	A-44421	A-44521	A-44621	A-44721	A-44821	A-45121	A-45221	A-45321	A-45421	A-45521	
	2-1/2	A-44122	A-44322	A-44422	A-44522	A-44622	A-44722	A-44822	A-45122	A-45222	A-45322	A-45422	A-45522	
	2-5/8	A-44123	A-44323	A-44423	A-44523	A-44623	A-44723	A-44823	A-45123	A-45223	A-45323	A-45423	A-45523	
	2-3/4	A-44124	A-44324	A-44424	A-44524	A-44624	A-44724	A-44824	A-45124	A-45224	A-45324	A-45424	A-45524	
	3	A-44125	A-44325	A-44425	A-44525	A-44625	A-44725	A-44825	A-45125	A-45225	A-45325	A-45425	A-45525	
	3-1/4	A-44126	A-44326	A-44426	A-44526	A-44626	A-44726	A-44826	A-45126	A-45226	A-45326	A-45426	A-45526	
	3-1/2	A-44127	A-44327	A-44427	A-44527	A-44627	A-44727	A-44827	A-45127	A-45227	A-45327	A-45427	A-45527	
	3-3/4	A-44128	A-44328	A-44428	A-44528	A-44628	A-44728	A-44828	A-45128	A-45228	A-45328	A-45428	A-45528	
	4	A-44129	A-44329	A-44429	A-44529	A-44629	A-44729	A-44829	A-45129	A-45229	A-45329	A-45429	A-45529	
	5	A-44130	A-44330	A-44430	A-44530	A-44630	A-44730	A-44830	A-45130	A-45230	A-45330	A-45430	A-45530	
	6	A-44131	A-44331	A-44431	A-44531	A-44631	A-44731	A-44831	A-45131	A-45231	A-45331	A-45431	A-45531	
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	AFC-3
	TYPE LN					LN-14446		LN-14447						LN-14448
	TYPE LR	LR-52105	LR-52107	LR-52109	LR-52109	LR-52110	LR-52112	LR-52118	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	16530	16530
	TYPE HKLL	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLL-1	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLP	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE HKLP-1	5/8 x L	3/4 x L	7/8 x L	1 x L	1-1/8 x L	1-1/4 x L	1-1/2 x L	1-1/4 x L	1-3/8 x L	1-1/2 x L	1-3/4 x L	2 X L	
	TYPE A					A-16525		A-16526						A-16533
	TYPE AFL					AFL-16525		AFL-16526						
TYPE AFD														
TYPE L		19947	19949	19950	19951	19946	19952	19955	19953	19954	19955	19956	19957	



CARBIDE INSERTS

COLLAR AC-21000 SERIES

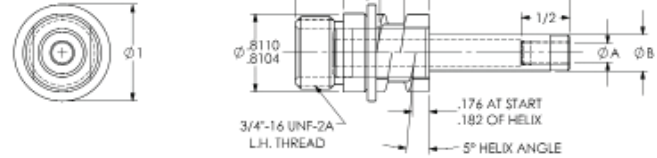


BUSHING TOLERANCE

I.D. RANGE (DRILL SIZE)	STANDARD TOLERANCE (ADD TO NOMINAL I.D.)
#80 to 1/4	+ .0001 to + .0004
OVER 1/4 to 3/4	+ .0001 to + .0005
OVER 3/4 to 1-1/2	+ .0002 to + .0006
OVER 1-1/2 to 2-3/4	+ .0003 to + .0007

AIR FEED ACCESSORIES

SCREWS & NUTS	HELIX	LOCK LINERS
 TYPE AFC	 TYPE HKLL	 TYPE A
 TYPE LN	 TYPE HKLL-1	 TYPE AFL
 TYPE LR	 TYPE HKLP	 TYPE AFD
 TYPE AFLS	 TYPE HKLP-1	 TYPE L



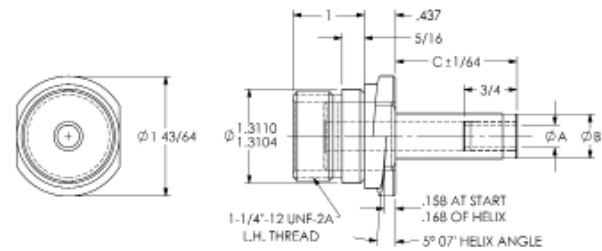
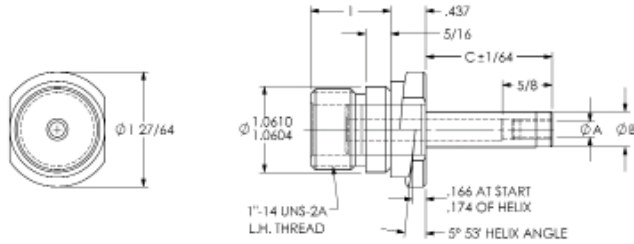
AC-21000				
A	DRILL SIZE	MAXIMUM	3/16	9/32
		MINIMUM	1/16	1/16
B	SHANK O.D.	NOMINAL	3/8	7/16
		ACTUAL	.3748	.4373
			.3745	.4370
C	LENGTH SHANK EXTENDS FROM COLLAR - INCHES	3/8	AC-21101	AC-21301
		1/2	AC-21102	AC-21302
		5/8	AC-21103	AC-21303
		3/4	AC-21104	AC-21304
		7/8	AC-21105	AC-21305
		1	AC-21106	AC-21306
		1-1/16	AC-21107	AC-21307
		1-1/8	AC-21108	AC-21308
		1-3/16		
		1-1/4	AC-21110	AC-21310
		1-3/8	AC-21111	AC-21311
		1-7/16		
		1-1/2	AC-21113	AC-21313
		1-5/8	AC-21114	AC-21314
		1-3/4	AC-21115	AC-21315
		1-7/8	AC-21116	AC-21316
		1-15/16		
		2	AC-21118	AC-21318
		2-1/8	AC-21119	AC-21319
		2-1/4	AC-21120	AC-21320
		2-3/8	AC-21121	AC-21321
		2-1/2	AC-21122	AC-21322
		2-5/8		
		2-3/4	AC-21124	AC-21324
		3	AC-21125	AC-21325
		3-1/4	AC-21126	AC-21326
		3-1/2		
3-3/4				
4				
5		AC-21330		
6	AC-21131			
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	
	TYPE LN	LN-14441	LN-14442	
	TYPE LR	LR-52101	LR-52103	
	TYPE AFLS	16531	16531	
	TYPE HKLL	3/8 x L	7/16 x L	
	TYPE HKLL-1	3/8 x L	7/16 x L	
	TYPE HKLP	3/8 x L	7/16 x L	
	TYPE HKLP-1	3/8 x L	7/16 x L	
	TYPE A	A-16520	A-16521	
	TYPE AFL	AFL-16520	AFL-16521	
	TYPE AFD	AFD-375	AFD-500	
TYPE L	19936	19937		

CARBIDE INSERTS



COLLAR AC-22000 SERIES

COLLAR AC-23000 SERIES



CARBIDE INSERTS

LENGTH SHANK EXTENDS FROM COLLAR - INCHES

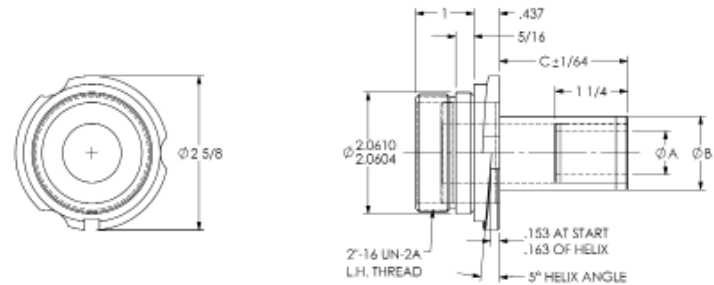
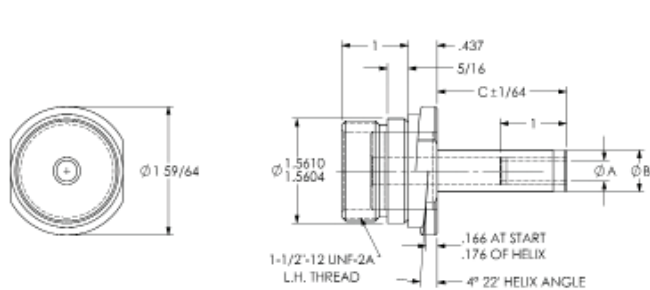
AIR FEED ACCESSORIES

		AC-22000				AC-23000							
A	DRILL SIZE	MAXIMUM											
B	NOMINAL	7/32	9/32	5/16	3/8	7/16	15/32	17/32	19/32	21/32	23/32	3/4	
	ACTUAL	1/8	1/8	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4	1/4	
C	3/8	AC-22101			AC-22401								
	1/2	AC-22102	AC-22202		AC-22402								
	5/8	AC-22103	AC-22203	AC-22303	AC-22403								
	3/4	AC-22104	AC-22204	AC-22304	AC-22404	AC-22504	AC-23004	AC-23104	AC-23204	AC-23304			
	7/8	AC-22105	AC-22205	AC-22305	AC-22405	AC-22505	AC-23005	AC-23105	AC-23205	AC-23305			
	1	AC-22106	AC-22206	AC-22306	AC-22406	AC-22506	AC-23006	AC-23106	AC-23206	AC-23306	AC-23406	AC-23506	
	1-1/16												
	1-1/8	AC-22108	AC-22208	AC-22308	AC-22408	AC-22508	AC-23008	AC-23108	AC-23208	AC-23308	AC-23408	AC-23508	
	1-3/16				AC-22409								
	1-1/4	AC-22110	AC-22210	AC-22310	AC-22410	AC-22510	AC-23010	AC-23110	AC-23210	AC-23310	AC-23410	AC-23510	
	1-3/8	AC-22111	AC-22211	AC-22311	AC-22411	AC-22511	AC-23011	AC-23111	AC-23211	AC-23311	AC-23411	AC-23511	
	1-7/16									AC-23312			
	1-1/2	AC-22113	AC-22213	AC-22313	AC-22413	AC-22513	AC-23013	AC-23113	AC-23213	AC-23313	AC-23413	AC-23513	
	1-5/8	AC-22114	AC-22214	AC-22314	AC-22414	AC-22514	AC-23014	AC-23114	AC-23214	AC-23314	AC-23414	AC-23514	
	1-3/4	AC-22115	AC-22215	AC-22315	AC-22415	AC-22515	AC-23015	AC-23115	AC-23215	AC-23315	AC-23415	AC-23515	
	1-7/8	AC-22116	AC-22216	AC-22316	AC-22416	AC-22516	AC-23016	AC-23116	AC-23216	AC-23316	AC-23416	AC-23516	
	1-15/16												AC-23517
	2	AC-22118	AC-22218	AC-22318	AC-22418	AC-22518	AC-23018	AC-23118	AC-23218	AC-23318	AC-23418	AC-23518	
	2-1/8	AC-22119	AC-22219	AC-22319	AC-22419	AC-22519	AC-23019	AC-23119	AC-23219	AC-23319	AC-23419	AC-23519	
	2-1/4	AC-22120	AC-22220	AC-22320	AC-22420	AC-22520	AC-23020	AC-23120	AC-23220	AC-23320	AC-23420	AC-23520	
	2-3/8	AC-22121	AC-22221	AC-22321	AC-22421	AC-22521	AC-23021	AC-23121	AC-23221	AC-23321	AC-23421	AC-23521	
	2-1/2	AC-22122	AC-22222	AC-22322	AC-22422	AC-22522	AC-23022	AC-23122	AC-23222	AC-23322	AC-23422	AC-23522	
	2-5/8												
	2-3/4	AC-22124	AC-22224	AC-22324	AC-22424	AC-22524	AC-23024	AC-23124	AC-23224	AC-23324	AC-23424	AC-23524	
3	AC-22125	AC-22225	AC-22325	AC-22425	AC-22525	AC-23025	AC-23125	AC-23225	AC-23325	AC-23425	AC-23525		
3-1/4	AC-22126	AC-22226	AC-22326	AC-22426	AC-22526	AC-23026	AC-23126	AC-23226	AC-23326	AC-23426	AC-23526		
3-1/2	AC-22127	AC-22227	AC-22327	AC-22427	AC-22527	AC-23027	AC-23127	AC-23227	AC-23327	AC-23427	AC-23527		
3-3/4	AC-22128	AC-22228	AC-22328	AC-22428	AC-22528	AC-23028	AC-23128	AC-23228	AC-23328	AC-23428	AC-23528		
4	AC-22129	AC-22229	AC-22329	AC-22429	AC-22529	AC-23029	AC-23129	AC-23229	AC-23329	AC-23429	AC-23529		
5	AC-22130	AC-22230	AC-22330	AC-22430	AC-22530	AC-23030	AC-23130	AC-23230	AC-23330	AC-23430	AC-23530		
6	AC-22131	AC-22231	AC-22331	AC-22431	AC-22531	AC-23031	AC-23131	AC-23231	AC-23331	AC-23431	AC-23531		
AIR FEED ACCESSORIES	TYPE AFC	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	
	TYPE LN				LN-14443						LN-14445		
	TYPE LR	LR-52103	LR-52103	LR-52104	LR-52105	LR-52107	LR-52105	LR-52107	LR-52107	LR-52109	LR-52112	**LN-14446	Matches A-16524 and AFL16524
	TYPE AFLS	16532	16532	16532	16532	16532	16532	16532	16532	16532	16532		
	TYPE HKLL	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE HKLL-1	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE HKLP	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L		
	TYPE HKLP-1	7/16 x L	1/2 x L	9/16 x L	5/8 x L	3/4 x L	5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	**LR52110 and LR52112	Matches 1-1/8 x L
	TYPE A				A-16522					A-16523			
	TYPE AFL				AFL-16522					AFL-16523			
TYPE AFD					AFD-750								
TYPE L	19937	19938	19939	19940	19941	19940	19942	19943	19944	19945	19946		



COLLAR AC-24000 SERIES

COLLAR AC-25000 SERIES



AC-24000									AC-25000				
15/32 5/16	17/32 5/16	19/32 5/16	21/32 5/16	25/32 5/16	29/32 5/16	15/16 5/16	15/16 5/16	1-1/16 5/16	1-1/21 3/8	1-5/32 3/8	1-9/32 3/8	1-15/32 3/8	1-1/2 3/8
.6248	.7498	.8123	.8748	.9998	1.1248	1.2498	1.3748	1.4998	1.2498	1.3748	1.4998	1.7498	1.9998
.6245	.7495	.8120	.8745	.9995	1.1245	1.2495	1.3745	1.4995	1.2495	1.3745	1.4995	1.7495	1.9995
AC-24103													
AC-24104	AC-24304	AC-24204											
AC-24105	AC-24305	AC-24205	AC-24405										
AC-24106	AC-24306	AC-24206	AC-24406	AC-24506	AC-24606		AC-24906	AC-24806					
AC-24108	AC-24308	AC-24208 AC-24209	AC-24408	AC-24508	AC-24608		AC-24908						
AC-24110	AC-24310	AC-24210	AC-24410	AC-24510	AC-24610	AC-24710			AC-25110				
AC-24111	AC-24311	AC-24211	AC-24411	AC-24511	AC-24611	AC-24711	AC-24911	AC-24811	AC-25111	AC-25211			
AC-24113	AC-24313	AC-24213	AC-24413	AC-24513	AC-24613	AC-24713	AC-24913	AC-24813	AC-25113	AC-25213	AC-25313		
AC-24114	AC-24314	AC-24214	AC-24414	AC-24514	AC-24614	AC-24714	AC-24914	AC-24814	AC-25114	AC-25214	AC-25314		
AC-24115	AC-24315	AC-24215	AC-24415	AC-24515	AC-24615	AC-24715	AC-24915	AC-24815	AC-25115	AC-25215	AC-25315	AC-25415	
AC-24116	AC-24316	AC-24216	AC-24416	AC-24516	AC-24616	AC-24716	AC-24916	AC-24816	AC-25116	AC-25216	AC-25316	AC-25416	
AC-24118	AC-24318	AC-24218	AC-24418	AC-24518	AC-24618	AC-24718	AC-24918	AC-24818	AC-25118	AC-25218	AC-25318	AC-25418	AC-25518
AC-24119	AC-24319	AC-24219	AC-24419	AC-24519	AC-24619	AC-24719	AC-24919	AC-24819	AC-25119	AC-25219	AC-25319	AC-25419	
AC-24120	AC-24320	AC-24220	AC-24420	AC-24520	AC-24620	AC-24720	AC-24920	AC-24820	AC-25120	AC-25220	AC-25320	AC-25420	
AC-24121	AC-24321	AC-24221	AC-24421	AC-24521	AC-24621	AC-24721	AC-24921	AC-24821	AC-25121	AC-25221	AC-25321	AC-25421	
AC-24122	AC-24322	AC-24222	AC-24422	AC-24522	AC-24622	AC-24722	AC-24922	AC-24822	AC-25122	AC-25222	AC-25322	AC-25422	
AC-24124	AC-24324	AC-24224	AC-24424	AC-24524	AC-24624	AC-24724	AC-24924	AC-24824	AC-25124	AC-25224	AC-25324	AC-25424	AC-25524
AC-24125	AC-24325	AC-24225	AC-24425	AC-24525	AC-24625	AC-24725	AC-24925	AC-24825	AC-25125	AC-25225	AC-25325	AC-25425	AC-25525
AC-24126	AC-24326	AC-24226	AC-24426	AC-24526	AC-24626	AC-24726	AC-24926	AC-24826	AC-25126	AC-25226	AC-25326	AC-25426	AC-25526
AC-24127	AC-24327	AC-24227	AC-24427	AC-24527	AC-24627	AC-24727	AC-24927	AC-24827	AC-25127	AC-25227	AC-25327	AC-25427	AC-25527
AC-24128	AC-24328	AC-24228	AC-24428	AC-24528	AC-24628	AC-24728	AC-24928	AC-24828	AC-25128	AC-25228	AC-25328	AC-25428	AC-25528
AC-24129	AC-24329	AC-24229	AC-24429	AC-24529	AC-24629	AC-24729	AC-24929	AC-24829	AC-25129	AC-25229	AC-25329	AC-25429	AC-25529
AC-24130	AC-24330	AC-24230	AC-24430	AC-24530	AC-24630	AC-24730	AC-24930	AC-24830	AC-25130	AC-25230	AC-25330	AC-25430	AC-25530
AC-24131	AC-24331	AC-24231	AC-24431	AC-24531	AC-24631	AC-24731	AC-24931	AC-24831	AC-25131	AC-25231	AC-25331	AC-25431	AC-25531
AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-2	AFC-3	AFC-3	AFC-3	AFC-3	AFC-3
													LN-14448
LN-14446													
LR-52105	LR-52107	LR-52109	LR-52109	LR-52109	LR-52110	LR-52112	LR-52116	LR-52118	LR-52121	LR-52121	LR-52121	LR-52121	LR-52121
16532	16532	16532	16532	16532	16532	16532	16532	16532	16530	16530	16530	16530	16530
5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L	2 x L
5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L	2 x L
5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L	2 x L
5/8 x L	3/4 x L	13/16 x L	7/8 x L	1 x L	1- 1/8 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 1/4 x L	1- 3/8 x L	1- 1/2 x L	1- 3/4 x L	2 x L
					A-16525								A-16533
					AFL-16525								AFL-16526
19947	19949	19943	19950	19951	19946	19952	19955	19955	19953	19954	19955	19956	19957

CARBIDE INSERTS



AIR FEED ACCESSORIES

HELICAL LOCK LINER FOR METAL AND PLASTIC

ACCESSORIES



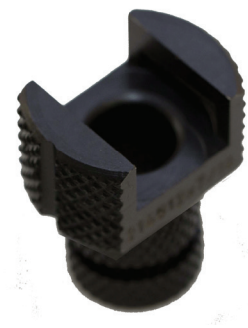
HKLL-1



HKLL



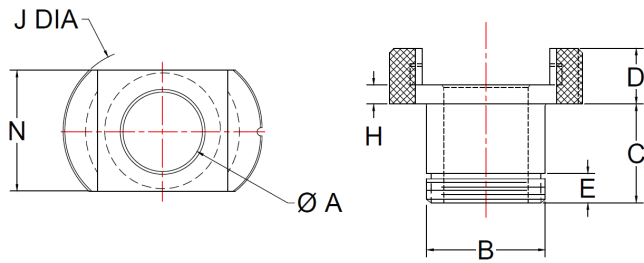
HKLP-1



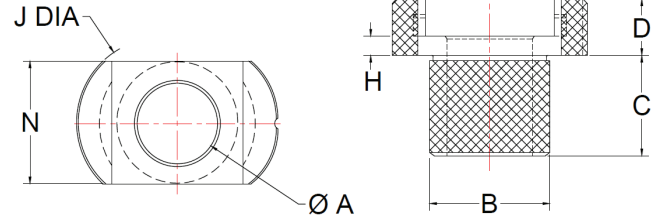
HKLP

PART NO.	A LINER I.D.	B O.D. +.0005 -.0000	C	D	E	J DIA.	N	H	L.H. THREAD	LOCK RING	DRILL SIZE MIN	DRILL SIZE MAX
213208-3/8**	.3752/.3756	.4990	1/2	39/64	1/4	1-1/8	.505	1/4	1/2-20	LR-52101	3/32	1/4
213212-3/8**	.3752/.3756	.4990	3/4	39/64	5/16	1-1/8	.505	1/4	1/2-20	LR-52101	3/32	1/4
214808-7/16**	.4377/.4381	.7490	1/2	39/64	1/4	1-1/8	.755	1/4	3/4-16	LR-52103	3/32	5/16
214812-7/16**	.4377/.4381	.7490	3/4	39/64	5/16	1-1/8	.755	1/4	3/4-16	LR-52103	3/32	5/16
214808-1/2**	.5002/.5006	.7490	1/2	39/64	1/4	1-1/8	.755	1/4	3/4-16	LR-52103	3/32	3/8
214812-1/2**	.5002/.5006	.7490	3/4	39/64	5/16	1-1/8	.755	1/4	3/4-16	LR-52103	3/32	3/8
214816-1/2**	.5002/.5006	.7490	1	39/64	5/16	1-1/8	.755	1/4	3/4-16	LR-52103	3/32	3/8
224808-7/16**	.4377/.4381	.7490	1/2	39/64	1/4	1-13/16	.755	1/4	3/4-16	LR-52103	3/16	9/32
224812-7/16**	.4377/.4381	.7490	3/4	39/64	5/16	1-13/16	.755	1/4	3/4-16	LR-52103	3/16	9/32
224808-1/2**	.5002/.5006	.7490	1/2	39/64	1/4	1-13/16	.755	1/4	3/4-16	LR-52103	3/16	11/32
224812-1/2**	.5002/.5006	.7490	3/4	39/64	5/16	1-13/16	.755	1/4	3/4-16	LR-52103	3/16	11/32
225210-9/16	.5627/.5631	.8117	5/8	39/64	5/16	1-13/16	.816	1/4	13/16-16	LR-52104	3/16	13/32
225612-1/2	.5002/.5006	.8740	3/4	39/64	5/16	1-13/16	.880	1/4	7/8-14	LR-52105	3/16	11/32
225610-5/8	.6252/.6256	.8740	5/8	39/64	5/16	1-13/16	.880	1/4	7/8-14	LR-52105	3/16	15/32
225612-5/8	.6252/.6256	.8740	3/4	39/64	5/16	1-13/16	.880	1/4	7/8-14	LR-52105	3/16	15/32
226410-3/4	.7503/.7507	.9990	5/8	39/64	5/16	1-13/16	1.005	1/4	1-14	LR-52107	3/16	15/32
226412-3/4	.7503/.7507	.9990	3/4	39/64	5/16	1-13/16	1.005	1/4	1-14	LR-52107	3/16	15/32
226416-3/4	.7503/.7507	.9990	1	39/64	5/16	1-13/16	1.005	1/4	1-14	LR-52107	3/16	15/32
226416-13/16	.8127/.8131	.9990	1	39/64	5/16	1-13/16	1.005	1/4	1-14	LR-52107	3/16	15/32
227216-7/8	.8753/.8757	1.1240	1	39/64	5/16	1-13/16	1.130	1/4	1-1/8-16	LR-52108	3/16	15/32
235610-5/8	.6252/.6256	.8740	5/8	5/8	5/16	2-1/8	1.005	1/4	7/8-14	LR-52105	1/4	17/32
235616-5/8	.6252/.6256	.8740	1	5/8	5/16	2-1/8	1.005	1/4	7/8-14	LR-52105	1/4	17/32
236410-3/4	.7503/.7507	.9990	5/8	5/8	5/16	2-1/8	1.005	1/4	1-14	LR-52107	1/4	17/32
236416-3/4	.7503/.7507	.9990	1	5/8	5/16	2-1/8	1.005	1/4	1-14	LR-52107	1/4	17/32
236410-13/16	.8128/.8132	.9990	5/8	5/8	5/16	2-1/8	1.005	1/4	1-14	LR-52107	1/4	19/32
236416-13/16	.8128/.8132	.9990	1	5/8	5/16	2-1/8	1.005	1/4	1-14	LR-52107	1/4	19/32
238016-7/8	.8753/.8757	1.2490	1	5/8	5/16	2-1/8	1.255	1/4	1-1/4-12	LR-52109	1/4	21/32

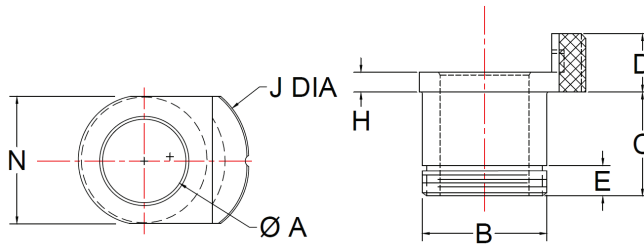
** NO DOWEL PIN HOLE



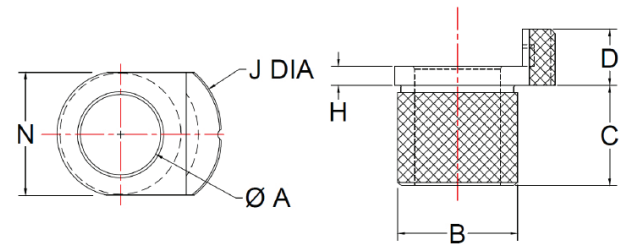
HKLL



HKLP



HKLL-1



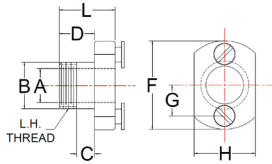
HKLP-1

ACCESSORIES

PART NO.	A LINER I.D.	B O.D. +.0005 -.0000	C	D	E	J DIA.	N	H	L.H. THREAD	LOCK RING	DRILL SIZE MIN	DRILL SIZE MAX
238816-1-1/8	1.1254/1.1257	1.3740	1	5/8	5/16	2-1/8	1.380	1/4	1-3/8-16	LR-52110	1/4	23/32
238820-1-1/8	1.1254/1.1257	1.3740	1-1/4	5/8	5/16	2-1/8	1.380	1/4	1-3/8-16	LR-52110	1/4	23/32
239616-1	1.0004/1.0007	1.4990	1	5/8	5/16	2-1/8	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
239616-1-1/4	1.2505/1.2509	1.4990	1	5/8	5/16	2-1/8	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
239620-1-1/4	1.2505/1.2509	1.4990	1-1/4	5/8	5/16	2-1/8	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
239624-1	1.0004/1.0007	1.4990	1-1/2	5/8	5/16	2-1/8	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
239624-1-1/8	1.1254/1.1257	1.4990	1-1/2	5/8	5/16	2-1/8	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
239628-1-1/4	1.2505/1.2509	1.4990	1-3/4	5/8	5/16	2-1/8	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
245616-5/8	.6252/.6256	.8740	1	5/8	5/16	2-7/16	.880	1/4	7/8-14	LR-52105	5/16	13/32
245624-5/8	.6252/.6256	.8740	1-1/2	5/8	5/16	2-7/16	.880	1/4	7/8-14	LR-52105	5/16	13/32
246416-3/4	.7503/.7507	.9990	1	5/8	5/16	2-7/16	1.005	1/4	1-14	LR-52107	5/16	17/32
246424-3/4	.7503/.7507	.9990	1-1/2	5/8	5/16	2-7/16	1.005	1/4	1-14	LR-52107	5/16	17/32
248016-13/16	.8128/.8132	1.2490	1	5/8	5/16	2-7/16	1.255	1/4	1-1/4-12	LR-52109	5/16	19/32
248024-13/16	.8128/.8132	1.2490	1-1/2	5/8	5/16	2-7/16	1.255	1/4	1-1/4-12	LR-52109	5/16	19/32
248016-7/8	.8753/.8757	1.2490	1	5/8	5/16	2-7/16	1.255	1/4	1-1/4-12	LR-52109	5/16	21/32
248024-7/8	.8753/.8757	1.2490	1-1/2	5/8	5/16	2-7/16	1.255	1/4	1-1/4-12	LR-52109	5/16	21/32
248016-1	1.0004/1.0007	1.2490	1	5/8	5/16	2-7/16	1.255	1/4	1-1/4-12	LR-52109	5/16	25/32
248024-1	1.0004/1.0007	1.2490	1-1/2	5/8	5/16	2-7/16	1.255	1/4	1-1/4-12	LR-52109	5/16	25/32
248816-1-1/8	1.1254/1.1257	1.3740	1	5/8	5/16	2-7/16	1.380	1/4	1-3/8-16	LR-52110	5/16	29/32
248824-1-1/8	1.1254/1.1257	1.3740	1-1/2	5/8	5/16	2-7/16	1.380	1/4	1-3/8-16	LR-52110	5/16	29/32
249616-1-1/4	1.2505/1.2509	1.4990	1	5/8	5/16	2-7/16	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
249620-1-1/4	1.2505/1.2509	1.4990	1-1/4	5/8	5/16	2-7/16	1.505	1/4	1-1/2-16	LR-52112	1/4	23/32
249624-1-1/4	1.2505/1.2509	1.4990	1-1/2	5/8	5/16	2-7/16	1.505	1/4	1-1/2-16	LR-52112	5/16	15/16
2411216-1-3/8	1.3756/1.3760	1.7490	1	5/8	5/16	2-7/16	1.755	1/4	1-3/4-16	LR-52116	5/16	15/16
2411224-1-3/8	1.3756/1.3760	1.7490	1-1/2	5/8	5/16	2-7/16	1.755	1/4	1-3/4-16	LR-52116	5/16	15/16
2412816-1-1/2	1.5006/1.5010	1.9990	1	5/8	5/16	2-7/16	2.005	1/4	2-16	LR-52118	5/16	15/16
2412824-1-1/2	1.5006/1.5010	1.9990	1-1/2	5/8	5/16	2-7/16	2.005	1/4	2-16	LR-52118	5/16	15/16



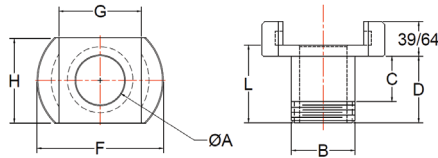
AIR FEED LOCK LINERS



ACCESSORIES

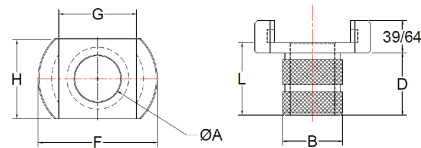
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A-16520	.3750 .3756	.4995 .4989	7/16	3/4	1-3/4	5/8	3/4	1-1/16	1/2-20	TLN-14441	A-16500
A-16521	.5000 .5006	.7595 .7489	7/16	3/4	1-3/4	5/8	1	1-1/16	3/4-16	TLN-14442	A-16501
A-16522	.6250 .6256	.8745 .8739	7/16	3/4	2-7/16	59/64	1-1/8	1-3/16	7/8-14	TLN-14443	A-16502
A-16523	.8750 .8756	1.2495 1.2485	9/16	1	2-11/16	1-3/64	1-1/2	1-7/16	1-1/4-12	TLN-14445	A-16503
A-16524	1.1250 1.1260	1.4990 1.4980	27/32	1-1/2	2-11/16	1-3/64	1-3/4	1-15/16	1-1/2-12	TLN-14446	A-16504
A-16525	1.1250 1.1260	1.4990 1.4980	27/32	1-1/2	3	1-11/64	1-3/4	1-15/16	1-1/2-12	TLN-14446	A-16505
A-16526	1.5000 1.5010	1.9990 1.9980	27/32	1-1/2	3	1-11/64	2-1/2	1-15/16	2-16	TLN-14447	A-16506
A-16533	2.0000 2.0015	2.4990 2.4980	1-3/8	2	3-3/4	1-9/16	-	2-5/8	2-1/2-16	TLN-14448	A-16513

AIR FEED LOCK LINERS



PART NO.	A	B	C	D	F	G	H	L	L.H. THREAD	LOCK NUT NO.	MATCHING TIP
AFL-16520	.3750 .3755	.4995 .4990	7/16	3/4	1-1/8	.625	3/4	1	1/2-20	TLN-14441	A-21106
AFL-16521	.5000 .5005	.7495 .7490	7/16	3/4	1-3/16	.625	7/8	1	3/4-16	TLN-14442	A-21306
AFL-16522	.6250 .6255	.8745 .8740	7/16	3/4	1-13/16	1.218	1-1/8	1	7/8-14	TLN-14443	A-22406
AFL-16523	.8750 .8756	1.2495 1.2490	9/16	1	2-1/8	1.468	1-3/8	1-1/4	1-1/4-12	TLN-14445	A-23310
AFL-16524	1.1252 1.1258	1.4990 1.4985	27/32	1-1/2	2-1/8	1.468	1-5/8	1-3/4	1-1/2-12	TLN-14446	A-23515
AFL-16525	1.1252 1.1258	1.4990 1.4985	27/32	1-1/2	2-7/16	1.718	1-5/8	1-3/4	1-1/2-12	TLN-14446	A-24615
AFL-16526	1.5002 1.5008	1.9990 1.9985	27/32	1-1/2	2-7/16	1.718	2-1/8	1-3/4	2-16	TLN-14447	A-24815

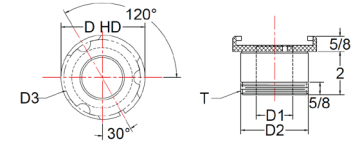
AIR FEED LOCK LINERS FOR PLASTIC TOOLING



PART NO.	A	B	D	F	G	H	L	MATCHING TIP
AFD-375	.3750 .3755	3/4	7/8	1-3/16	.625	7/8	1-1/8	A-21108
AFD-500	.5000 .5005	3/4	7/8	1-3/16	.625	7/8	1-1/8	A-21308
AFD-750	.7500 .7505	1-1/8	7/8	1-13/16	1.218	1-1/8	1-1/8	A-22508



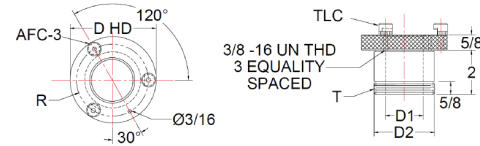
EXTENDED RANGE LOCK LINER



ACCESSORIES

PART NO.	D HD DIA	D1 I.D.	D2 O.D.	T LH THRD	D3	ADAPTER TIP SERIES	LOCK RING
A-26160	3.5	1.50	2.499	2-1/2-16	2.920	261XX	LR-52121
A-26360	3.5	1.75	2.499	2-1/2-16	2.920	263XX	LR-52121
A-26560	3.5	2.00	2.499	2-1/2-16	2.920	265XX	LR-52121
A-27160	4.0	2.00	2.999	3-16	3.420	271XX	LR-52122
A-27360	4.0	2.37	2.999	3-16	3.420	273XX	LR-52122
A-27560	4.0	2.50	2.999	3-16	3.420	275XX	LR-52122
A-28160	4.5	2.50	3.499	3-1/2-16	3.920	281XX	LR-52123
A-28360	4.5	2.75	3.499	3-1/2-16	3.920	283XX	LR-52123
A-28560	4.5	3.00	3.499	3-1/2-16	3.920	285XX	LR-52123
A-29160	5.0	3.00	3.999	4-16	4.420	291XX	LR-52124
A-29360	5.0	3.25	3.999	4-16	4.420	293XX	LR-52124
A-29560	5.0	3.50	3.999	4-16	4.420	295XX	LR-52124
A-30160	5.5	3.50	4.499	4-1/2-16	4.920	301XX	LR-52125
A-30360	5.5	3.75	4.499	4-1/2-16	4.920	303XX	LR-52125
A-30560	5.5	4.00	4.499	4-1/2-16	4.920	305XX	LR-52125

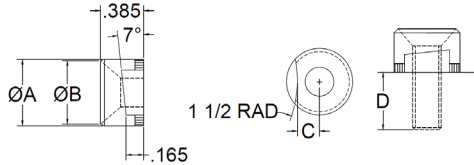
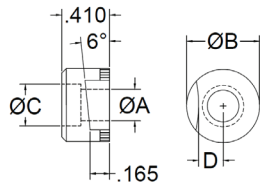
EXTENDED RANGE LOCK LINER



PART NO.	D HD DIA	D1 I.D.	D2 O.D.	T LH THRD	R LOCK SCREW LOCATION	AFC NO.	ADAPTER TIP SERIES	LOCK RING
A-26160-S	4-1/8	1.50	2.499	2-1/2-16	1.688	-3	261XX	LR-52121
A-26360-S	4-1/8	1.75	2.499	2-1/2-16	1.688	-3	263XX	LR-52121
A-26560-S	4-1/8	2.00	2.499	2-1/2-16	1.688	-3	265XX	LR-52121
A-27160-S	4-5/8	2.00	2.999	3-16	1.938	-6	271XX	LR-52122
A-27360-S	4-5/8	2.37	2.999	3-16	1.938	-6	273XX	LR-52122
A-27560-S	4-5/8	2.50	2.999	3-16	1.938	-6	275XX	LR-52122
A-28160-S	5-1/8	2.50	3.499	3-1/2-16	2.187	-6	281XX	LR-52123
A-28360-S	5-1/8	2.75	3.499	3-1/2-16	2.187	-6	283XX	LR-52123
A-28560-S	5-1/8	3.00	3.499	3-1/2-16	2.187	-6	285XX	LR-52123
A-29160-S	5-5/8	3.00	3.999	4-16	2.438	-7	291XX	LR-52124
A-29360-S	5-5/8	3.25	3.999	4-16	2.438	-7	293XX	LR-52124
A-29560-S	5-5/8	3.50	3.999	4-16	2.438	-7	295XX	LR-52124
A-30160-S	6-1/8	3.50	4.499	4-1/2-16	2.678	-7	301XX	LR-52125
A-30360-S	6-1/8	3.75	4.499	4-1/2-16	2.678	-7	303XX	LR-52125
A-30560-S	6-1/8	4.00	4.499	4-1/2-16	2.678	-7	305XX	LR-52125



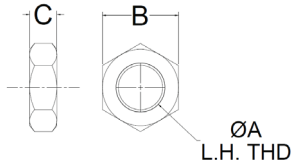
AIR FEED CLAMPS



PART NO	AIR FEED PART NO.	A I.D.	B O.D.	C	D	BUTTON HEAD SOCKET SCREW
AFC-2	TLC-2	21/64	5/8	29/64	.188	5/16-18 x 5/8
AFC-3	TLC-3	25/64	3/4	33/64	.219	3/8-16 x 3/4
PART NO	MOUNTING SCREW DIA	A DIA	B DIA	C	D	FLAT HEAD SCREW
AFL-9	5/16	5/8	19/32	3/16	-	NOT FURNISHED
AFL-11					19/32	5/16-18 X 1
AFL-13					1-3/32	5/16-18 x 1-1/2 W/ JAM NUT
AFL-14					1-19/32	5/16-18 x 2 W/ JAM NUT
AFL-10	3/8	3/4	23/32	7/32	-	NOT FURNISHED
AFL-12					19/32	3/8-16 x 1

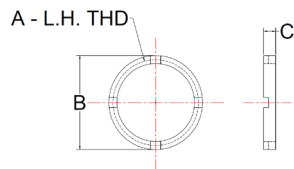
ACCESSORIES

LOCK NUT



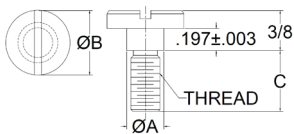
PART NO.	A THREAD SIZE	B O.D.	C LENGTH
TLN-14441	1/2-20	3/4	1/4
TLN-14442	3/4-16	1	1/4
TLN-14443	7/8-14	1-1/4	1/4
TLN-14445	1-1/4-12	1-3/4	3/8
TLN-14446	1-1/2-12	2	1/2
TLN-14447	2-16	2-1/2	1/2
TLN-14448	2-1/2-16	3	1/2

LOCK RING



PART NO	A	B	C
LR-52101	1/2-20	3/4	1/4
LR-52103	3/4-16	1	1/4
LR-52104	13/16-16	1-3/16	1/4
LR-52105	7/8-14	1-1/4	1/4
LR-52107	1-14	1-3/8	1/4
LR-52108	1-1/8-16	1-1/2	1/4
LR-52109	1-1/4-12	1-3/4	5/16
LR-52110	1-3/8-16	1-3/4	5/16
LR-52111	1-1/2-12	1-3/4	5/16
LR-52112	1-1/2-16	1-3/4	1/4
LR-52116	1-3/4-16	2-3/8	1/4
LR-52117	1-7/8-16	2-3/8	1/4
LR-52118	2-16	2-1/2	1/4
LR-52121	2-1/2-16	3	5/16
LR-52122	3-16	3-1/2	3/8
LR-52123	3-1/2-16	4	3/8
LR-52124	4-16	4-1/2	7/16
LR-52125	4-1/2-16	5	7/16

LOCK SCREW

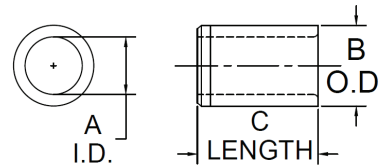


PART NO	A	B	C	THREAD
16530	7/16	3/4	5/8	3/8-16
16531	3/8	5/8	5/16	5/16-18
16532			7/16	



LINER BUSHING

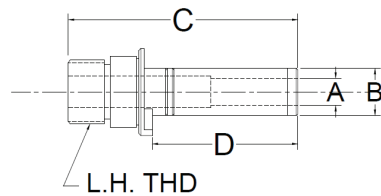
PART NO	ANSI SYMBOL	A I.D.	B O.D.	C LENGTH
19936	L40-16	3/8	5/8	1
19937	L48-16	7/16	3/4	1
19938	L48-16	1/2	3/4	1
19939	L56-16	9/16	7/8	1
19940	L56-16	5/8	7/8	1
19941	L64-16	3/4	1	1
19942	L64-22	3/4	1	1-3/8
19943	L88-22	13/16	1-3/8	1-3/8
19944	L88-22	7/8	1-3/8	1-3/8
19945	L88-22	1	1-3/8	1-3/8
19946	L112-28	1-1/8	1-3/4	1-3/4
19947	L56-28	5/8	7/8	1-3/4
19949	L64-28	3/4	1	1-3/4
19950	L88-28	7/8	1-3/8	1-3/4
19951	L88-28	1	1-3/8	1-3/4
19952	L112-28	1-1/4	1-3/4	1-3/4
19953	L112-40	1-1/4	1-3/4	2-1/2
19954	L112-40	1-3/8	1-3/4	2-1/2
19955	L144-40	1-1/2	2-1/4	2-1/2
19956	L144-40	1-3/4	2-1/4	2-1/2



ACCESSORIES

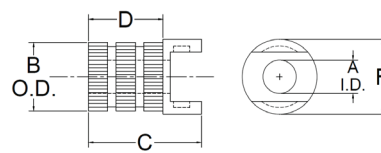
ADAPTER TIPS

PART NO	A I.D. +.0003 -.0000	B O.D. +.0000 -.0002	C LENGTH	D	L.H. THREAD
AT-1	.191 - .205	.3437	2-7/16	1-9/16	3/4-16
AT-2	.191 - .285	.4375	2-7/16	1-9/16	3/4-16
AT-3	.281 - .413	.5627	2-7/16	1-9/16	3/4-16
AT-4	.281 - .625	.7503	2-7/16	1-9/16	1-14



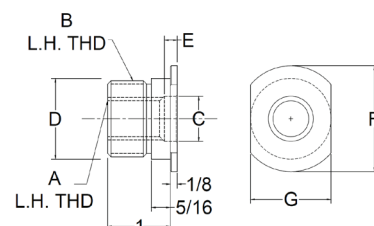
TIP LOCK LINERS

PART NO	A I.D. +.0003 -.0000	B O.D.	C LENGTH	D	F
LL-1	.3440	9/16	1-3/8	7/8	11/16
LL-2	.4377	11/16	1-3/8	7/8	13/16
LL-3	.5627	13/16	1-3/8	7/8	15/16
LL-4	.7500	1	1-3/8	7/8	1-1/8



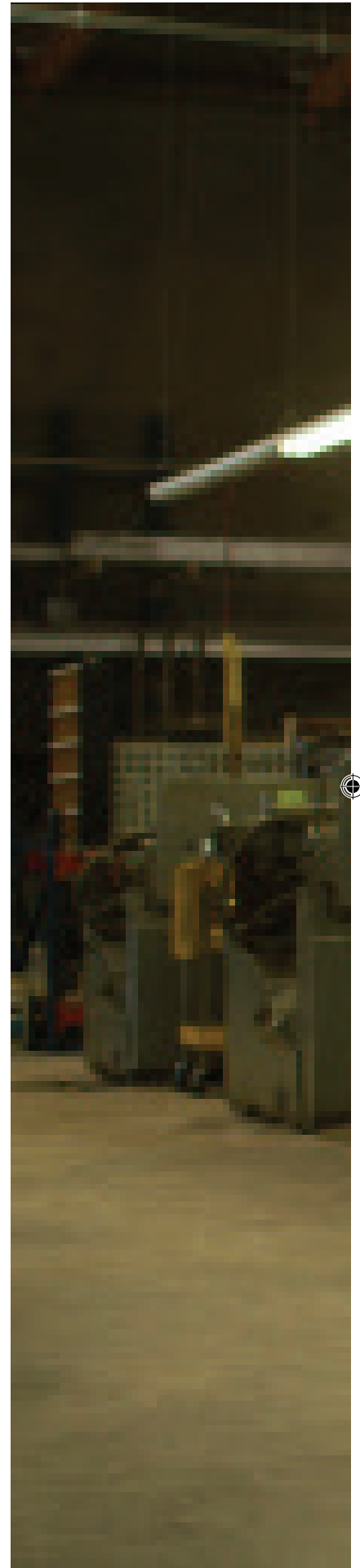
REDUCER BUSHING

PART NO	A INSIDE THREAD	B OUTSIDE THREAD	C +.001 -.000	D +.0000 -.0006	E	F	G
TLR-17952	3/4-16	1-14	.8125	1.0610	9/32	1-3/8	1-1/16
TLR-25018	3/4-16	1-1/4-12	.8125	1.3110	9/32	1-5/8	1-5/16
TLR-25583	1-14	1-1/4-12	1.0625	1.3110	11/32	1-5/8	1-5/16
TLR-25582	3/4-16	1-1/2-12	.8125	1.5610	9/32	1-15/16	1-9/16
TLR-20132	1-14	1-1/2-12	1.0625	1.5610	11/32	1-15/16	1-9/16
TLR-20017	1-1/4-12	1-1/2-12	1.3125	1.5610	11/32	1-15/16	1-9/16
TLR-27910	1-1/2-12	2-16	1.5625	2.0610	11/32	2-1/2	2-1/16





TOOLING COMPONENTS

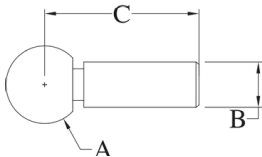
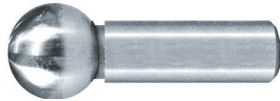




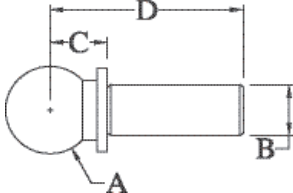
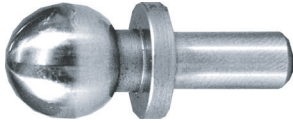


TOOLING BALL

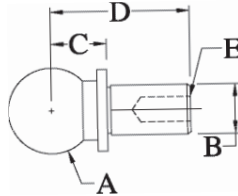
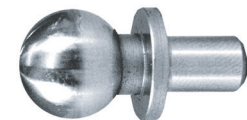
MATERIAL: C1144, HEAT TREATED RC 54-56 FOR GAGING, INSPECTION AND MEASURING BALL AND SHANK ARE CONCENTRIC WITHIN .0002 T.I.R



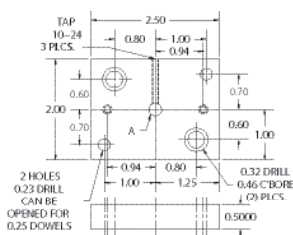
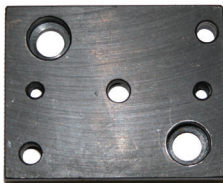
ONE PIECE CONSTRUCTION



ONE PIECE CONSTRUCTION



ONE PIECE CONSTRUCTION



2 HOLES 0.23 DRILL CAN BE OPENED FOR 0.25 DOWELS

STANDARD TOOLING BALL

SLIP FIT PART NO. SHANK +.0000/- .0004	PRESS FIT PART NO. SHANK +.0003/- .0000	A BALL +.0002/- .0002	B	C
83105	83106	.2500	.1250	.563
83110	83111	.3750	.1875	.750
83115	83116	.5000	.2500	.940
83120	83121	.5000	.2500	1.500
83122	83123	.5000	.3125	1.500
83130	83131	.5000	.3750	1.500

SHOULDER TOOLING BALL

SLIP FIT PART NO. SHANK +.0000/- .0004	PRESS FIT PART NO. SHANK +.0003/- .0000	A BALL +.0002/- .0002	B	C +.0002/- .0002	D
83505	83506	.2500	.1250	.2000	.56
83510	83511	.3750	.1875	.3000	.75
83515	83516	.5000	.2500	.4000	.94
83520	83521	.5000	.2500	.5000	1.38
83522	83523	.5000	.2500	.5000	1.50
83524	83525	.5000	.3125	.5000	1.50
83526	83527	.5000	.3750	.5000	1.50
83530	83531	.7500	.3750	.5000	1.25

TOOLMAKER'S CONSTRUCTION BALL

PART NO.	A BALL +.0002/- .0002	B SHANK +.0000/- .0004	C +.0002/- .0002	D	E TAP SIZE
83575	.5000	.2500	.3125	.63	#6-32
83577	.5000	.2500	.3125	.63	
83576	.5000	.2500	.5000	.94	#6-32
83579	.5000	.3125	.5000	.94	#6-32

METRIC SHOULDER TOOLING BALL

PART NO.	A BALL +.0002/- .0002	B SHANK +.0000/- .0004	C +.0002/- .0002	D	E TAP SIZE
83582	6mm	3mm	6mm	12mm	
83584	12mm	6mm	12mm	22mm	
83580	12mm	6mm	12mm	24mm	M3.5
83583	12mm	6mm	12mm	24mm	#6-32

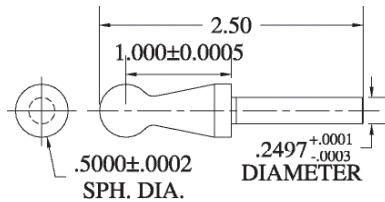
CONSTRUCTION TOOLING BALL PAD

PART NO.	A
85160	.2500



TOOLING BALL

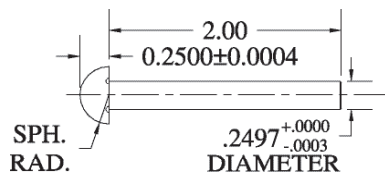
PART NO.
83590



MATERIAL: C1144, HEAT TREATED RC 54-56, PRECISION GROUND FOR GAGING, INSPECTION AND MEASURING BALL AND SHANK ARE CONCENTRIC WITHIN .0002 T.I.R. STAINLESS STEEL TOOLING BALL AVAILABLE UPON REQUEST.

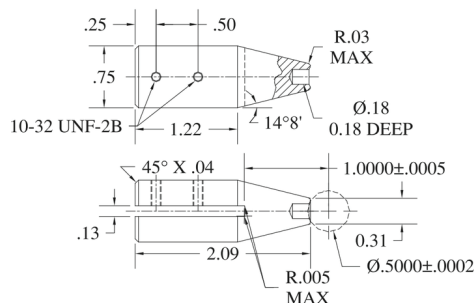


PART NO.
83592



TOOLING BALL ADAPTER

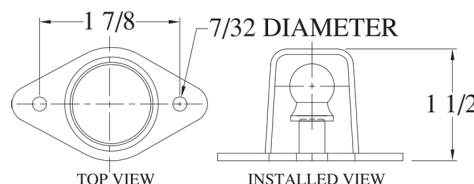
PART NO.
83596



MATERIAL: AISI 01, HEAT TREATED RC 45-50



CONSTRUCTION TOOLING BALL COVER



MATERIAL: ALUMINUM OR INDUSTRIAL GRADE P.E. PROTECTS A CONSTRUCTION BALL FROM DAMAGE AFTER INSTALLATION



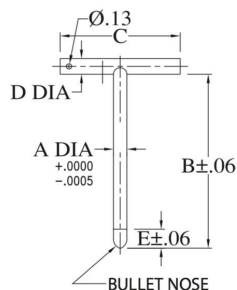
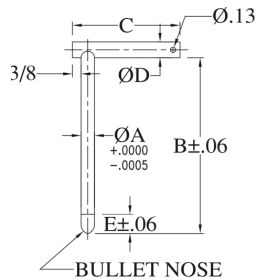
PART NO.
83598



L PINS & T PINS

MATERIAL: PRECISION GROUND, 1144 STEEL, CASE HARDENED, **FINISH:** BLACK OXIDE FOR LOCATING & ALIGNING HOLES, EASILY REMOVABLE. METRIC AVAILABLE.

L PINS



L PIN PART NO.	T PIN PART NO.	A		B	C	D	E
		NOMINAL	ACTUAL				
84510	84710	1/8	.1250	2-1/2	1-1/2	1/4	1/4
84511	84712	5/32	.1562	3-1/2	2-1/2	5/16	1/4
84512	84713	3/16	.1875	2			
84515	84715			3			
84517	84716			4			
84520	84720			6			
84525	84725			3			
84527	84727	#11	.1910	4			
84530	84730			6			
84535	84735	#9	.1960	3			
84537	84737	#2	.2210	3	2-1/2	3/8	3/8
84538	84739	1/4	.2500	2			
84540	84740			3			
84541	84742			4			
84545	84745			6			
84550	84750	F	.2570	3			
84554	84751			4			
84551	84752			2	2-1/2	7/16	1/2
84552	84753			3			
84555	84755	5/16	.3125	3-1/2			
84556	84756			4			
84560	84760			6			
84562	84762	3/8	.3750	3	2-1/2	1/2	1/2
84565	84765			4			
84567	84767			5			
84570	84770			6			
84575	84775	7/16	.4375	4	3-1/2	9/16	5/8
84580	84780			6			
84586	84782			3			
84585	84785	1/2	.5000	4			
84590	84790			6			
84595	84795	9/16	.5625	4			
84600	84800			6			
84605	84805	5/8	.6250	6	7/8	3/4	
84610	84810	3/4	.7500	6			

* TO ORDER L-PIN OR T-PIN WITH A CABLE ASSEMBLY, ADD "-C" TO PIN PART NO.

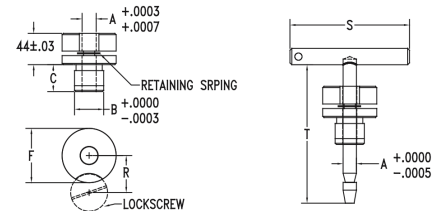
* SPECIAL SIZES QUOTED UPON REQUEST.



LOCKING PIN ASSEMBLY

MATERIAL: C1144 STEEL, CASE HARDENED, **FINISH:** BLACK OXIDE
A CAPTIVE LOCATING PIN WHICH REPLACES CONVENTIONAL L OR T PINS. METRIC AVAILABLE.

PART NO. L-PIN ASSY.	PART NO. T-PIN ASSY.	A		T	PART NO. BUSHING	F	S	C	R
		NOMINAL	ACTUAL						
39001	39002	3/16	.1865	1-1/2	39001-B	13/16	2-1/2	0.31	.62
39003	39004			2				0.31	
39005	39006			3				0.31	
39007	39008	1/4	.2490	2	39007-B		2-1/2	0.31	
39009	39010			3				0.31	
39011	39012			4				0.31	
39013	39014	5/16	.3115	2	39013-B	3	0.31	.75	
39015	39018			3-1/2	39015-B		0.37		
39017	39020						6		0.37
39019	39022	3/8	.3740	2	39019-B	3-1/2	0.31		
39021	39024			4	0.50				
39023	39026			6	0.50				
39025	39028	1/2	.4990	2	39025-B	1-1/16	3-1/2	0.50	
39029	39030			4	0.75				
39031	39032			6	0.75				



* LOCKING PIN ONLY ADD "-P" THE END OF THE ASSY PART NO.

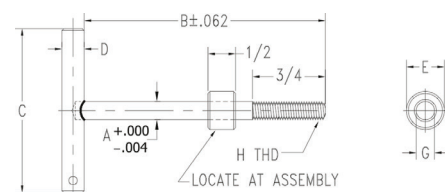
* LS-1 LOCK SCREW AVAILABLE UPON REQUEST

CLAMPING PINS

MATERIAL: C1144 STEEL, CASE HARDENED, **FINISH:** BLACK OXIDE
USE TO CLAMP MATERIALS OF VARIOUS THICKNESS BY ADJUSTING BUSHING OR WELDING BUSHING IN PLACE TO SUIT THE APPLICATION

PART NO.	A		B	H	C	D	E	G
	NOMINAL	ACTUAL						
39040	#10	.193	3	#10-24	1-1/2	1/4	3/8	.195
39042				#10-32				
39044	1/4	.250	4	1/4-20	2-1/2	3/8	1/2	.252
39046	5/16	.312		5/16-18	3	7/16	9/16	.315
39048	3/8	.375	4-1/2	3/8-16	3-1/2	1/2	5/8	.378
39050	1/2	.500	5	1/2-13		5/8	3/4	.503

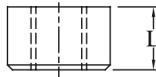
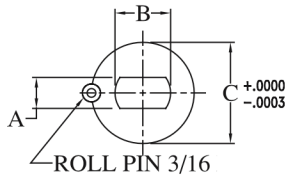
* CLAMPING PIN ONLY ADD "-P" TO PART NO.





SLOTTED HOLE LOCATOR BUSHING

MATERIAL: TOOL STEEL, HEAT TREATED RC 58-62, FINISH: BLACK OXIDE
FOR USE WITH DOWELS, L PINS, T PINS, OR ANY KIND OF PINS TO ALIGN TWO HOLES WITHOUT BINDING



PRESS FIT TYPE FOR METAL TOOLING

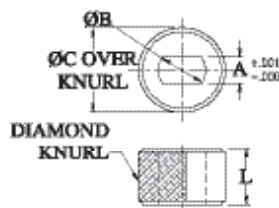
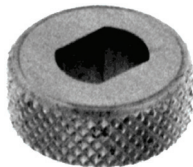
PART NO.	PIN DIA.	A	B	C	L
72942	3/16	.1876/.1882	.312	.7504	.400
72943	1/4	.2501/.2507	.375	.7504	.400
72944	1/4	.2501/.2507	.375	1.0004	.400
72945	5/16	.3126/.3132	.437	1.0004	.400
72946	3/8	.3751/.3757	.500	1.0004	.400
72948	1/2	.5001/.5007	.625	1.0004	.400
72950	1/2	.5001/.5007	.625	1.0004	.900
72954	5/8	.6251/.6257	.750	1.2504	.900
72956	3/4	.7501/.7510	.812	1.5004	1.000
72964	7/8	.8751/.8760	1.000	1.5004	1.000
72968	1	1.0001/1.0010	1.062	1.5004	1.000

* CARBIDE AND STAINLESS STEEL MATERIAL UPON REQUEST

METRIC PRESS FIT TYPE FOR METAL TOOLING

PART NO.	PIN DIA.	A	B	C	L
72920	6mm	.2363/.2373	.354	.7878	.354
72922	8mm	.3151/.3161	.433	.9453	.354
72924	10mm	.3938/.3948	.512	.9453	.354
72926	12mm	.4725/.4735	.591	.9453	.551
72928	16mm	.6300/.6310	.709	1.1815	.472
72930	20mm	.7875/.7885	.866	1.4177	.748
72932	25mm	.9844/.9854	1.063	1.5752	.748

* CARBIDE AND STAINLESS STEEL MATERIAL UPON REQUEST



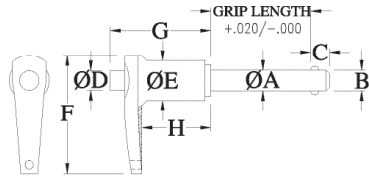
KNURL TYPE FOR PLASTIC TOOLING

PART NO.	PIN DIA.	A	B	C	L
72873	3/16	.188	.312	.565	1/2
72874	1/4	.250	.375	.640	1/2
72875	5/16	.313	.437	.765	1/2
72876	3/8	.375	.500	.890	1/2
72878	1/2	.500	.625	1.015	1/2
72888	1/2	.500	.625	1.015	1

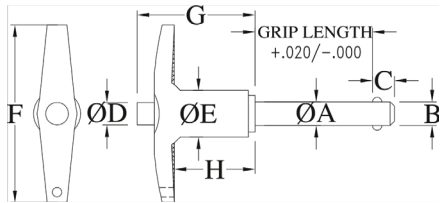


BALL LOCK PIN

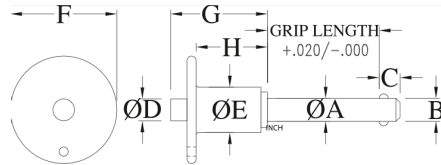
**L HANDLE BALL LOCK PIN
(TYPE LH)**



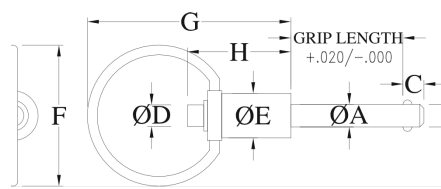
**T HANDLE BALL LOCK PIN
(TYPE TH)**



**BUTTON HANDLE BALL LOCK PIN
(TYPE BH)**



**RING HANDLE BALL LOCK PIN
(TYPE RH)**



PART	MATERIAL
BODY	4130 ALLOY STEEL
BODY	CRES. 17-4PH
BUTTON	ALUM ALLOY 2024
T & L HANDLE	ALUM. CASTING
BUTTON HANDLE	ALUM. 2024
RING HANDLE	CRES. 17-4PH

*STAINLESS STEEL AVAILABLE UPON REQUEST

ORDERING EXAMPLE:

PART NO.	TO ORDER, SPECIFY IN SEQUENCE	QTY.		DIA.	LENGTH	TYPE
	TYPICAL ORDERING EXAMPLE	25	AK	-3/16	2-1/2	-LH

INCH

NOM. PIN DIA.	A		B	C	D	E	F	G	H
	MIN.	MAX.	+/- .005	+ .000/- .040					
3/16	.1870	.1885	.220	.260	1/4	1/2	1-3/4	1-1/4	3/4
1/4	.2470	.2485	.289	.290	1/4	1/2	1-3/4	1-1/4	3/4
5/16	.3095	.3110	.375	.330	1/4	1/2	1-3/4	1-1/4	3/4
3/8	.3720	.3735	.440	.365	5/16	19/32	2	1-7/16	15/16
7/16	.4345	.4360	.509	.380	5/16	19/32	2	1-7/16	15/16
1/2	.4970	.4985	.594	.460	15/32	3/4	2-1/4	1-5/8	1
5/8	.6220	.6235	.750	.580	9/16	15/16	2-1/2	1-31/32	1-3/16
3/4	.7470	.7485	.887	.670	5/8	15/16	2-1/2	1-31/32	1-3/16
1	.9970	.9985	1.209	.890	3/4	1-1/4	3-1/4	2-1/4	1-11/32

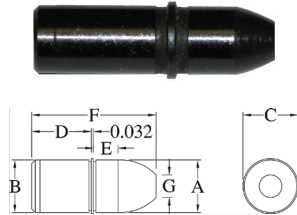
METRIC

NOM. PIN DIA.	A		B	C	D	E	F	G	H
	MIN.	MAX.	+/- .25	+/- 1.0	MM	MM	MM	MM	MM
5	4.92	4.96	5.54	6	6.5	10.8	28.0	34.1	20.8
6	5.92	5.96	6.99	7	6.5	10.8	28.0	34.1	20.8
8	7.92	7.96	9.42	8	6.5	10.8	28.0	34.1	21.6
10	9.92	9.96	11.86	9	7.7	14.2	28.0	38.0	25.2
12	11.92	11.96	14.45	10	11.0	17.2	35.2	47.2	30.5
16	15.92	15.96	19.00	14	12.4	23.9	41.9	61.6	42.6
20	19.92	19.96	24.08	17	14.6	23.9	41.9	61.6	46.4
25	24.92	24.96	30.94	22	19.2	30	45.0	72.4	54.0



BULLET NOSE DOWELS PINS AND LINERS

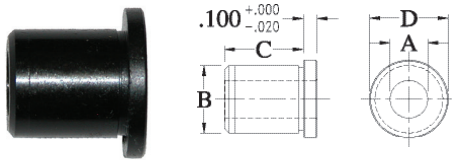
MATERIAL: 1144 STEEL, HEAT TREATED RC 50-62, FINISH: BLACK OXIDE
PRECISION LOCATING PIN WITH MATCHING LINER BUSHING ALIGN TWO PIECES OF A FIXTURE



BULLET NOSE DOWELS

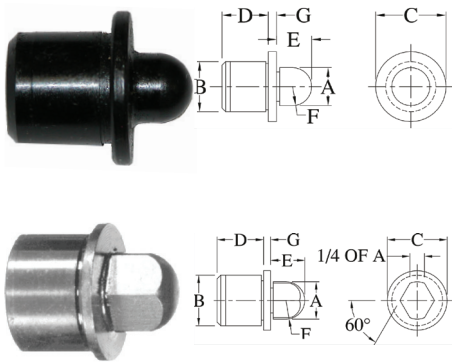
DOWEL PART NO.	+0.0000 -.0005 A	+0.0000 -.0003 B	C	D	E	F	G	USE WITH LINER PART NO.
69130	.2499	.2516	.280	1/2	.125	.907	1/8	69180
69135	.3124	.3141	.344	1/2	.157	.939	5/32	69185
69140	.3749	.3766	.407	1/2	.187	1.032	3/16	69190
69145	.4999	.5017	.532	1/2	.187	1.094	1/4	69195

LINERS FOR BULLET NOSE DOWELS



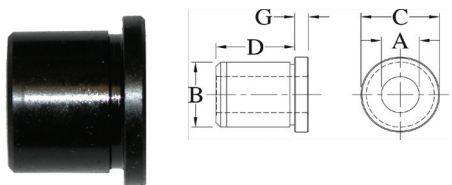
LINER PART NO.	+0.0004 -.0000 A	+0.0000 -.0003 B	C	D
69180	.2501	.5017	3/8	.625
69185	.3126	.5017	3/8	.625
69190	.3751	.6267	1/2	.750
69195	.5001	.7518	5/8	.875

ROUND AND RELIEVED NOSE PINS



ROUND PIN PART NO.	RELIEVED PIN PART NO.	+0.0000 -.0003 A	+0.0000 -.0003 B	C	D	E	F	G	USE WITH LINER PART NO.
69105	69106	.2499	.4078	9/16	3/8	7/32	1/8	1/16	69155
69110	69111	.3124	.5017	5/8	3/8	9/32	5/32	1/16	69160
69115	69116	.3748	.6267	3/4	1/2	5/16	3/16	1/16	69165
69120	69121	.4998	.7518	7/8	1/2	13/32	1/4	1/16	69170
69123	69124	.7498	1.0018	1-1/8	3/4	9/16	3/8	1/8	69173
69125	69126	.9998	1.3771	1-1/2	3/4	3/4	1/2	1/8	69175

LINERS FOR ROUND AND RELIEVED NOSE PINS



LINER PART NO.	+0.0004 -.0000 A	+0.0000 -.0003 B	C	D	G
69155	.2501	.4078	9/16	7/16	1/16
69160	.3126	.5017	5/8	7/16	1/16
69165	.3751	.6267	3/4	7/16	1/16
69170	.5001	.7518	7/8	1/2	1/16
69173	.7502	1.0018	1-1/8	1/2	1/8
69175	1.0002	1.3771	1-1/2	11/16	1/8

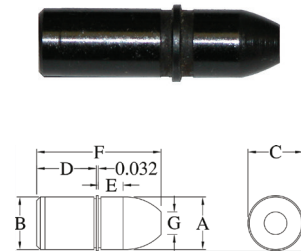


METRIC BULLET NOSE DOWELS PINS AND LINERS

MATERIAL: 1144 STEEL, HEAT TREATED RC 50-62, FINISH: BLACK OXIDE
 PRECISION LOCATING PIN WITH MATCHING LINER BUSHING ALIGN TWO PIECES OF A FIXTURE

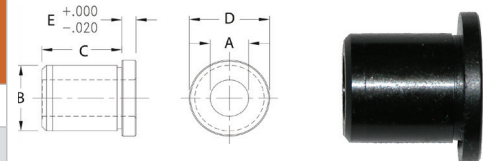
METRIC BULLET NOSE DOWELS

DOWEL PART NO.	A +.0000/-0.0005 HEAD DIA		B +.0000/-0.0003 SHANK DIA		C DIA	D	E	F	G DIA	USE WITH LINER PART NO.
	NOMINAL	ACTUAL	NOMINAL	ACTUAL						
69002	6mm	0.2361	6mm	0.2378	0.276	0.47	.125	0.86	0.12	69010
69004	8mm	0.3149	8mm	0.3166	0.354	0.47	.157	0.91	0.16	69012
69006	10mm	0.3936	10mm	0.3953	0.433	0.47	.187	0.98	0.20	69014
69008	12mm	0.4723	12mm	0.4740	0.512	0.47	.187	1.06	0.24	69016



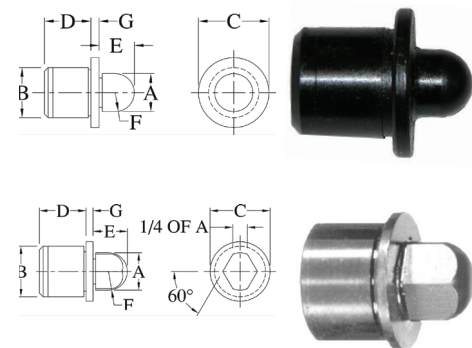
METRIC LINERS FOR BULLET NOSE DOWELS

LINER PART NO.	A +.0004/-0.0000 DIA		B +.0000/-0.0003 DIA		C	D DIA	E
	NOMINAL	ACTUAL	NOMINAL	ACTUAL			
69010	6mm	0.2363	10mm	0.3954	0.276	0.512	0.118
69012	8mm	0.3151	12mm	0.4741	0.276	0.591	0.118
69014	10mm	0.3938	15mm	0.5924	0.354	0.709	0.118
69016	12mm	0.4725	18mm	0.7105	0.472	0.866	0.157



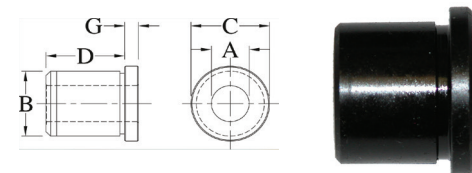
METRIC ROUND AND RELIEVED NOSE PINS

ROUND PIN PART NO.	RELIEVED PIN PART NO.	A +.0000/-0.0003		B +.0000/-0.0003		C DIA	D	E	G	USE WITH LINER PART NO.
		NOMINAL	ACTUAL	NOMINAL	ACTUAL					
69017	69018	6mm	0.2361	10mm	0.3953	0.512	0.35	0.24	0.079	69026
69019	69020	8mm	0.3149	12mm	0.4741	0.591	0.35	0.28	0.079	69028
69021	69022	10mm	0.3935	15mm	0.5924	0.709	0.43	0.35	0.079	69030
69023	69024	12mm	0.4722	18mm	0.7105	0.866	0.43	0.39	0.079	69032



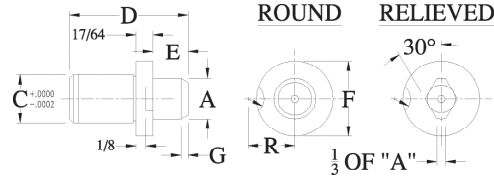
METRIC LINERS FOR ROUND AND RELIEVED NOSE PINS

LINER PART NO.	A +.0004/-0.0000		B +.0000/-0.0003		C DIA	D	G
	NOMINAL	ACTUAL	NOMINAL	ACTUAL			
69026	6mm	0.2363	10mm	0.3953	0.512	0.31	0.079
69028	8mm	0.3151	12mm	0.4741	0.591	0.31	0.079
69030	10mm	0.3938	15mm	0.5924	0.709	0.39	0.079
69032	12mm	0.4725	18mm	0.7105	0.866	0.39	0.079





ROUND & RELIEVED LOCATING PINS



MATERIAL: C1144 STEEL,
HEAT TREATED CASE HARDENED
FINISH: PRECISION GROUND

PART NO.		A	C	D	E	F	R	G	LINER PART NO.
ROUND	RELIEVED	+0.0000/-0.0002	+0.0000/-0.0002						
28101	27301	0.1245	5/16	1-3/16	7/16	5/8	33/64	1/32	L32-8
28102	27302	0.1401	5/16	1-3/16	7/16	5/8	33/64	1/32	
28103	27303	0.1558	5/16	1-3/16	7/16	5/8	33/64	3/64	
28104	27304	0.1714	5/16	1-3/16	7/16	5/8	33/64	3/64	
28105	27305	0.1870	5/16	1-3/16	7/16	5/8	33/64	1/16	
28106	27306	0.2026	5/16	1-3/16	7/16	5/8	33/64	1/16	
28107	27307	0.2183	5/16	1-3/16	7/16	5/8	33/64	5/64	
28108	27308	0.2339	5/16	1-3/16	7/16	5/8	33/64	3/32	
28109	27309	0.2495	5/16	1-3/16	7/16	5/8	33/64	3/32	
28110	27310	0.2651	5/16	1-3/16	7/16	5/8	33/64	3/32	
28111	27311	0.2808	5/16	1-3/16	7/16	5/8	33/64	3/32	
28112	27312	0.2964	5/16	1-3/16	7/16	5/8	33/64	3/32	
28113	27313	0.3120	5/16	1-3/16	7/16	5/8	33/64	3/32	
28114	27314	0.3115	1/2	1-1/2	1/2	7/8	41/64	1/8	L48-12
28115	27315	0.3271	1/2	1-1/2	1/2	7/8	41/64	1/8	
28116	27316	0.3428	1/2	1-1/2	1/2	7/8	41/64	1/8	
28117	27317	0.3584	1/2	1-1/2	1/2	7/8	41/64	1/8	
28118	27318	0.3740	1/2	1-1/2	1/2	7/8	41/64	1/8	
28119	27319	0.3896	1/2	1-1/2	1/2	7/8	41/64	1/8	
28120	27320	0.4053	1/2	1-1/2	1/2	7/8	41/64	1/8	
28121	27321	0.4209	1/2	1-1/2	1/2	7/8	41/64	1/8	
28122	27322	0.4365	1/2	1-1/2	1/2	7/8	41/64	1/8	
28123	27323	0.4521	1/2	1-1/2	1/2	7/8	41/64	1/8	
28124	27324	0.4678	1/2	1-1/2	1/2	7/8	41/64	1/8	
28125	27325	0.4834	1/2	1-1/2	1/2	7/8	41/64	1/8	
28126	27326	0.4990	1/2	1-1/2	1/2	7/8	41/64	1/8	
28127	27327	0.4980	3/4	1-15/16	11/16	1-1/8	49/64	3/16	L64-16
28128	27328	0.5293	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28129	27329	0.5605	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28130	27330	0.5918	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28131	27331	0.6230	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28132	27332	0.6543	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28133	27333	0.6855	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28134	27334	0.7168	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28135	27335	0.7480	3/4	1-15/16	11/16	1-1/8	49/64	3/16	
28136	27336	0.8730	1	2-5/8	1	1-1/2	61/64	9/32	L88-22
28137	27337	0.9980	1	2-5/8	1	1-1/2	61/64	9/32	

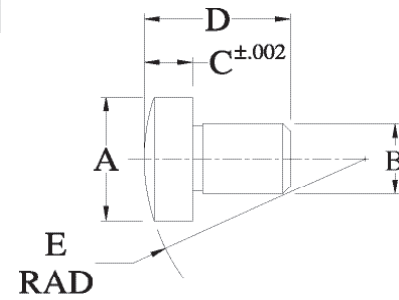
* LOCK SCREW PART NO. "LS-1" AVAILABLE UPON REQUEST



SPHERICAL RADIUS LOCATOR BUTTONS

MATERIAL: 1144 STEEL
HEAT TREATED
FINISH: BLACK OXIDE

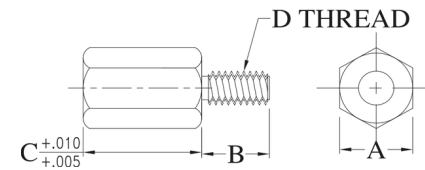
PART NO.	B +.0015/+.0010	A	C	D	E
50000	3/16	5/16	.1250	3/8	1/2
50005	1/4	3/8	.1875	1/2	5/8
50010	3/8	1/2	.1875	9/16	3/4
50015			.2500	5/8	
50020			.3750	3/4	
50025			.5000	7/8	



SCREW REST BUTTONS

MATERIAL: 1144 STEEL
CASE HARDENED
FINISH: BLACK OXIDE

PART NO.	A	B	C	D
50500	3/8	3/8	1/4	1/4-20
50505			3/8	
50510			1/2	
50515			3/4	
50520			1	
50525	1/2	1/2	1/4	3/8-16
50530			3/8	
50535			1/2	
50540			3/4	
50545	5/8	5/8	1	1/2-13
50550			1/4	
50555			3/8	
50560			1/2	
50565			5/8	
50570	5/8	5/8	3/4	1/2-13
50575			1	

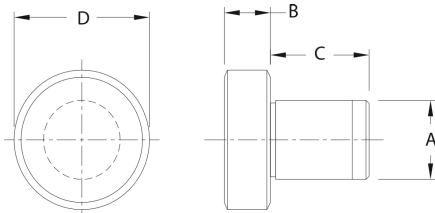


BUTTON LEFT UNGROUND, WITH .005 TO .010 EXTRA STOCK, FOR GRINDING AFTER INSTALLATION



ROUND REST BUTTONS PRESS FIT

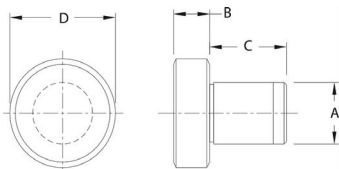
MATERIAL: 1144 STEEL
HEAT TREATED: RC40-45
FINISH: BLACK OXIDE
 USED FOR PRESS FIT INSTALLATION, PRECISION GROUND



PART NO.	A DIA.		B	C	D
	NOMINAL	ACTUAL			
50100	3/16	.1885	.250	3/8	3/8
50105		.1885	.375		
50110		.1885	.500		
50115	1/4	.2510	.250	1/2	1/2
50120		.2510	.375		
50125		.2510	.500		
50130	5/16	.3135	.250	1/2	9/16
50135		.3135	.375		
50140		.3135	.500		
50145	3/8	.3760	.250	5/8	5/8
50150		.3760	.375		
50155		.3760	.500		
50160		.3760	.625		
50161		.3760	.750		
50165	1/2	.5010	.375	5/8	7/8
50170		.5010	.500		
50175		.5010	.625		
50180		.5010	.750		
50185	5/8	.6260	.375	3/4	1
50190		.6260	.500		
50195		.6260	.625		
50200		.6260	.750		
50210	3/4	.7515	.500	7/8	1-1/4
50215		.7515	.625		

METRIC ROUND REST BUTTONS PRESS FIT

MATERIAL: 1144 STEEL
HEAT TREATED: RC40-45
FINISH: BLACK OXIDE
 USED FOR PRESS FIT INSTALLATION, PRECISION GROUND



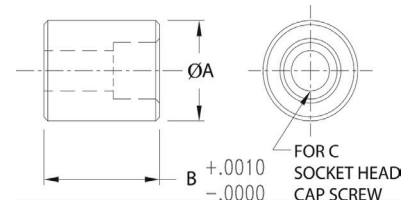
PART NO.	A DIA.		B		C	D
	NOMINAL	ACTUAL	NOMINAL	ACTUAL		
50102	6mm	0.2372	5mm	0.1969	0.31	0.39
50104			10mm	0.3937		
50112	8mm	0.3160	5mm	0.1969	0.39	0.63
50114			10mm	0.3937		
50116			15mm	0.5906		
50118			20mm	0.7874		
50122	10mm	0.3947	10mm	0.3937	0.47	0.79
50124			15mm	0.5906		
50126			20mm	0.7874		



JIG REST BUTTONS

PART NO.	A DIA	B		C SCREW		
		NOMINAL	ACTUAL			
51222	1/2	3/8	0.3750	#10		
51223		1/2	0.5000			
51225	5/8	1/4	0.2500	#10		
51230		3/8	0.3750			
51235		1/2	0.5000			
51240		5/8	0.6250			
51245		3/4	0.7500			
51255		1	1.0000			
51275		7/8	3/8		0.3750	1/4
51280	1/2		0.5000			
51285	5/8		0.6250			
51290	3/4		0.7500			
51300	1		1.0000			
51340	1-1/4		1/2	0.5000	3/8	
51335			3/4	0.7500		
51345		1	1.0000			
51350		1 1/2	1.5000			
51355		2	2.0000			

MATERIAL: 1144 STEEL
CASE HARDENED
FINISH: BLACK OXIDE
 EXCELLENT AS WORKPIECE
 SUPPORT AND A JIG FOOT

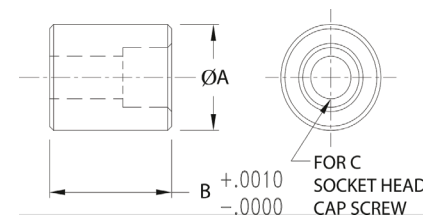


*PRECISION REST BUTTON MOUNTED WITH A SOCKET HEAD CAP SCREW.

METRIC JIG REST BUTTONS

PART NO.	A DIA	B		C SCREW
		NOMINAL	ACTUAL	
51400	0.63	10mm	0.3937	M5
51405		15mm	0.5906	
51410	0.79	10mm	0.3937	M6
51415		15mm	0.5906	
51420		20mm	0.7874	
51425		25mm	0.9843	
51430	0.98	15mm	0.5906	M8
51435		20mm	0.7874	
51440		25mm	0.9843	
51445	1.26	20mm	0.7874	M10
51450		25mm	0.9843	
51455		30mm	1.1811	
51460		50mm	1.9685	

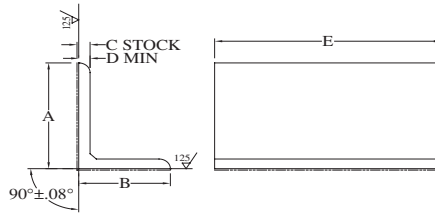
MATERIAL: 1144 STEEL
CASE HARDENED
FINISH: BLACK OXIDE
 EXCELLENT AS WORKPIECE
 SUPPORT AND A JIG FOOT



*PRECISION REST BUTTON MOUNTED WITH A SOCKET HEAD CAP SCREW.



ANGLE BRACKETS



MATERIAL: STEEL ASTM A36 WITH
FINISH: BLACK OXIDE

PRECISION SETUP, MACHINED
FLAT AND PERPENDICULAR

PART NO.	A	B	D1 MIN.	E	C STOCK
16101	1	1	11/64	1	3/16
16102	1-1/2	1-1/2		1-1/2	
16103	1-1/2	1-1/2		2	
16104	1-1/2	1-1/2		3	
16105	1-1/2	1-1/2		4	
16106	1-1/2	1-1/2		5	
16107	1-1/2	1-1/2		6	
16108	2	2		7/32	
16109	2	2	2		
16110	2	2	3		
16111	2	2	4		
16112	2	2	5		
16113	2	2	6		
16114	2-1/2	2	1-1/2		
16115	2	2	5/16		2
16116	2	2		3	
16117	2	2		4	
16118	2	2		5	
16119	2	2		6	
16120	3	2		2	
16121	3	2		3	
16122	3	2		4	
16123	3	2		5	
16124	3	2		6	
16125	3	3	2		
16126	3	3	3		
16127	3	3	4		
16128	3	3	5		
16129	3	3	6		
16130	4	4	4		

PART NO.	A	B	D1 MIN.	E	C STOCK		
16131	3	3	7/16	2	1/2		
16132	3	3		3			
16133	3	3		4			
16134	4	3		2			
16135	4	3		3			
16136	4	4		3			
16137	4	4		4			
16138	4	4		5			
16139	4	4		6			
16140	6	4		3			
16141	6	4		4			
16142	6	4		5			
16143	6	4		6			
16144	6	6		3			
16145	6	6	4				
16146	6	6	5				
16147	6	6	6				
16148	3	3	1/2	3	9/16		
16149	4	4		3			
16150	4	4		4			
16151	6	4		4			
16152	6	6		4			
16153	6	4		5/8		6	11/16
16154	6	6				6	

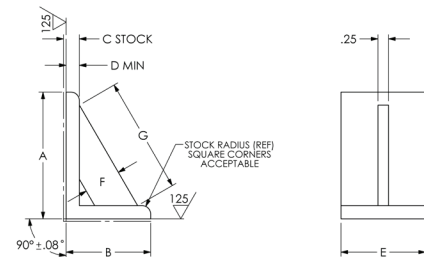
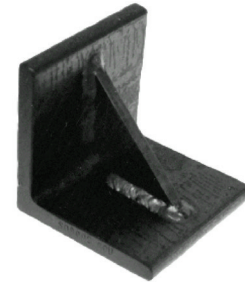
*ALUMINUM (6061 T6) AVAILABLE ADD "-A" TO PART NO.
*SPECIAL SIZES QUOTED UPON REQUEST



GUSSETED ANGLE BRACKET

PART NO.	A	B	C	D MIN.	E	F	G
15031	3	2	3/8	5/16	2	.88	2-3/4
15032	3	2			3	.88	
15033	3	3			2	1.00	
15034	3	3			3	1.00	3-7/16
15035	3	3			4	1.00	
15036	4	4			3	1.00	
15037	4	4			4	1.00	4-13/16
15038	4	4			5	1.00	
15039	3	3	1/2	7/16	2	1.00	3-1/4
15310	3	3			3	1.00	
15311	3	3			4	1.00	
15312	4	3			2	1.25	3-7/8
15313	4	3			3	1.25	
15314	4	4			3	1.00	4-5/8
15315	4	4			4	1.00	
15316	4	4			5	1.00	
15317	6	4			4	1.50	6-1/4
15318	6	4			5	1.50	
15319	6	4			6	1.50	
15320	6	6			4	1.50	7-7/16
15321	6	6	5	1.50			
15322	6	6	6	1.50			

MATERIAL: STEEL ASTM A36
FINISH: BLACK OXIDE
 PRECISION SETUP, MACHINED
 FLAT AND PERPENDICULAR

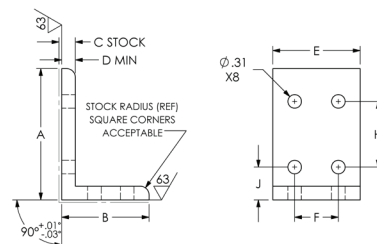
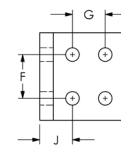


*ALUMINUM (6061 T6) AVAILABLE ADD "-A" TO PART NO.
 *SPECIAL SIZES QUOTED UPON REQUEST

ANGLE BRACKETS WITH LOCATING HOLES

PART NO.	A	B	C MIN.	D MIN.	E	F +.002/ -.002	G +.002/ -.002	H/J +.002/ -.002		
15201	2	2	1/4	7/32	2	1.000	0.750	.750/.750		
15202	3	2			3	1.500/.750				
15203	2	2	3/8	5/16	4	3.000	1.250	.750/.750		
15204	3	3			3	2.000		1.250/1.125		
15205	4	4			4	2.000	2.000/1.000			
15206	4	4			4	3.000	2.000/1.125			
15207	6	4			4	3.000	1.500	3.500/1.500		
15208	6	6			3.500	3.500/1.500				
15209	6	4			1/2	7/16	6	5.000	1.500	3.500/1.500
15210	6	6							3.500	3.500/1.500

MATERIAL: STEEL A36
FINISH: BLACK OXIDE
 PRECISION SETUP, MACHINED
 FLAT AND PERPENDICULAR

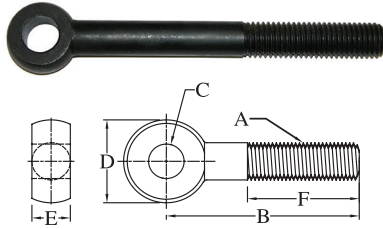


*ALUMINUM (6061 T6) AVAILABLE ADD "-A" TO PART NO.
 *SPECIAL SIZES QUOTED UPON REQUEST



EYEBOLT

MATERIAL: MEDIUM CARBON ALLOY
HEAT TREATED 125,000 P.S.I.
FINISH: BLACK OXIDE



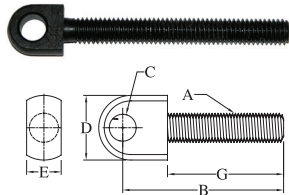
INCH

PART NO.	A	B	F	C	D	E
31600	1/4-20	2	3/4	3/16	1/2	1/4
31602		3	1-1/4			
31604	5/16-18	3	1-1/2	1/4	5/8	5/16
31606		4	2			
31612	3/8-16	3	1-1/2	5/16	3/4	3/8
31616		3	1-1/2			
31617		3-3/4	2			
31618		5	2-1/2			
31624	1/2-13	3-3/4	1-1/2	3/8	1	1/2
31626		5	2			
31628	5/8-11	4-1/2	2	5/8	1-1/4	5/8
31630		6	2-1/2			
31632	3/4-10	4-1/2	2	3/4	1-1/2	3/4
31634		6	2-1/2			

PART NO.	A	B	F	C	D	E
31640	M6	50	40	6mm	12	6mm
31642		75	66			
31644	M8	75	65	8mm	16	8mm
31646		100	90			
31648	M10	75	60	10mm	20	10mm
31650		100	85			
31652		125	110			
31654	M12	100	85	12mm	24	12mm
31656		125	110			
31658	M16	115	95	16mm	32	16mm
31660		150	130			
31662	M20	150	125	20mm	40	20mm

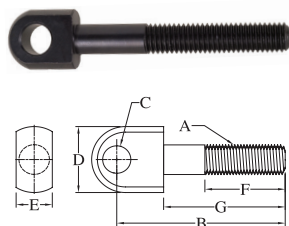
* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

JIG LATCH EYEBOLT



PART NO.	A	B	G	C	D	E
31700	1/4-20	2-5/8	2-5/16	.257	1/2	1/4
31720	5/16-18	3-3/16	2-13/16	.323	5/8	5/16
31740	3/8-16	3-3/4	3-5/16	.386	3/4	3/8
31760	1/2-13	4-7/8	4-5/16	.515	1	1/2

SWING BOLT



PART NO.	A	B	G	F	C	D	E
31800	1/4-20	1-1/2	1-3/16	3/4	1/4	1/2	5/16
31820	5/16-18	2	1-5/8	1	5/16	5/8	3/8
31840	3/8-16	2-1/2	2	1-3/8	3/8	3/4	1/2
31860	1/2-13	3-1/8	2-1/2	1-3/4	1/2	1	5/8
31870		4-1/8	3-1/2	2-1/4			
31880	5/8-11	3-1/2	2-3/4	1-3/4	5/8	1-1/4	3/4
31890		4-3/4	4	2-1/2			
31900	3/4-10	4-1/2	3-5/8	2	3/4	1-1/2	7/8

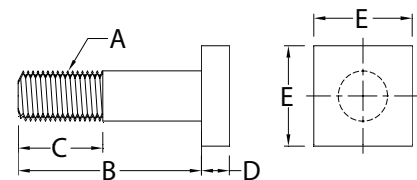


HEAVY DUTY ALLOY STEEL & STAINLESS STEEL BOLT

T-BOLTS

B LENGTH UNDER HEAD	C THD. LENGTH		PART NO.					
	3/8,1/2	7/8	A=3/8-16 D=1/4 E=11/16	A=1/2-13 D=5/16 E=7/8	A=5/8-11 D=13/32 E=1-1/8	A=3/4-10 D=17/32 E=1-5/16	A=7/8-9 D=5/8 E=1-1/2	A=1-8 D=11/16 E=1-11/16
1-1/2	1		33203	33402	33501	33601		
2	1-1/2		33205	33404*	33503*	33602		
2-1/2	2		33207	33406*	33504*	33603*		
3	2		33209	33408*	33506*	33604*		
3-1/2	2		33210	33409	33507	33605*		
4	2	3,4	33211	33410*	33508*	33606*	33805	33830
4-1/2	2	4	33212	33411	33509	33607		33835
5	2	4	33213	33412*	33510*	33608*		33840
5-1/2	2			33413	33511	33609		
6	2	3-1/2,4	33214	33414*	33512*	33610*	33810	33845
7	2	4	33215	33415	33513	33611		33850
8	2	4		33416*	33514*	33612*	33815	33855
9	2	4			33515	33613		33860
10	2	4		33418	33516	33614		33870
12	2	4		33419	33517	33701		33880

MATERIAL: ALLOY STEEL
FINISH: BLACK OXIDE
THREAD CLASS: 2A UNC

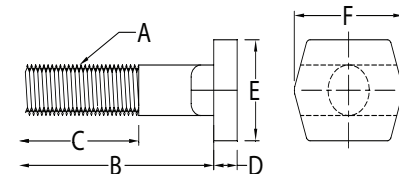


* STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

T- SLOT BOLTS

B LENGTH	C		PART NO.					
	THREAD		A=3/8-16 D=3/16 E=11/16	A=1/2-13 D=5/16 E=7/8	A=5/8-11 D=3/8 E=1-1/8	A=3/4-10 D=7/16 E=1-5/16	A=7/8-9 D=9/16 E=1-1/2	A=1-8 D=1/2 E=1-11/16
	LENGTH		F=13/16	F=1-1/4	F=1-1/2	F=1-3/4	F=1-3/4	F=2-1/4
1-1/2	1		33230	33260	33288			
2	1-1/2		33232	33262	33290	33316		
2-1/2	2		33234	33264	33292	33318		
3	2		33236	33266	33294	33320	33340	33364
3-1/2	2		33238	33268	33296	33322	33342	
4	2		33240	33270	33298		33344	33366
4-1/2	2		33242	33272	33300	33324	33346	
5	2		33244	33274	33302	33326	33348	33368
5-1/2	2		33246	33276	33304	33328	33350	
6	2		33248	33278	33306	33330	33352	33372
7	2		33250	33280	33308	33332	33354	33374
8	2		33252	33282	33310	33334	33356	33376
9	2			33284	33312	33336	33357	33378
10	2			33286	33314	33338	33358	33380
12	2			33287	33315	33339	33359	33382
14	2						33360	33384
16	2						33361	33386
18	2						33362	33388

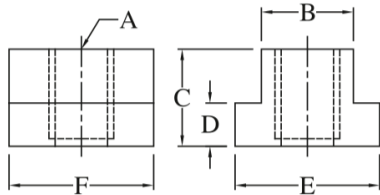
MATERIAL: ALLOY STEEL
FINISH: BLACK OXIDE
THREAD CLASS: 2A UNC





T-SLOT NUTS

MATERIAL: 1018
CASE HARDENED
FINISH: BLACK OXIDE



THE LAST THREAD IS INCOMPLETE ON T-SLOT NUTS TO PREVENT THE STUD FROM TURNING THROUGH THE BOTTOM OF THE NUT

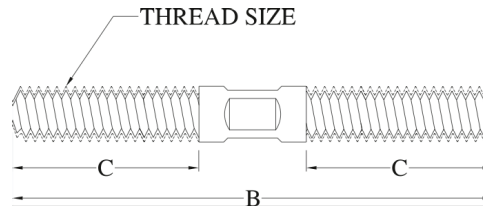
PART NO.	A THREAD	B TABLE SLOT		C	D	E	F
		INCH	METRIC				
30902	1/4-20	5/16	8mm	1/4	3/16	9/16	9/16
30912	1/4-20	3/8	10mm	3/8	15/64	9/16	9/16
30906	5/16-18	3/8	10mm	3/8	1/4	5/8	7/8
30908	5/16-18	7/16	12mm	1/2	7/32	11/16	7/8
30915	5/16-18	1/2	13mm	1/2	9/32	7/8	7/8
30903	3/8-16	7/16	12mm	1/2	7/32	11/16	7/8
30904	3/8-16	1/2	12mm	1/2	9/32	7/8	7/8
30934	3/8-16	9/16	15mm	5/8	11/32	7/8	1-1/8
30936	7/16-14	1/2	13mm	1/2	9/32	7/8	7/8
30938	7/16-14	1/2	13mm	3/8	7/32	3/4	7/8
30907	1/2-13	9/16	15mm	5/8	11/32	7/8	1-1/8
30910	1/2-13	5/8	16mm	5/8	11/32	1	1-1/8
30926	1/2-13	5/8	16mm	3/4	3/8	1-1/8	1-1/8
30913	1/2-13	11/16	18mm	3/4	7/16	1-1/8	1-1/4
30930	1/2-13	3/4	20mm	3/4	15/32	1-1/4	1-1/4
30914	5/8-11	11/16	18mm	3/4	7/16	1-1/8	1-1/4
30916	5/8-11	3/4	20mm	3/4	15/32	1-1/4	1-1/4
30918	5/8-11	13/16	21mm	1	9/16	1-1/4	1-1/2
30920	3/4-10	13/16	21mm	1	9/16	1-1/4	1-1/2
30924	3/4-10	7/8	23mm	1	9/16	1-1/2	1-1/2
30927	3/4-10	1	26mm	1	5/8	1-5/8	1-3/4
30940	3/4-10	1	26mm	1-1/2	3/4	1-3/4	1-3/4
30929	3/4-10	1-1/16	27mm	1-1/8	11/16	1-5/8	2
30942	7/8-9	1	26mm	1	5/8	1-5/8	1-3/4
30944	7/8-9	1-1/16	27mm	1-1/8	11/16	1-5/8	2
30946	7/8-9	1-1/8	28mm	1-1/2	3/4	1-3/4	2
30948	7/8-9	1-5/16	34mm	1-1/4	15/16	2	2
30950	1-8	1-1/16	27mm	1-1/8	11/16	1-5/8	2
30952	1-8	1-1/8	32mm	1-1/2	3/4	1-3/4	2
30954	1-8	1-1/4	32mm	1-1/4	7/8	2	2
30956	1-8	1-5/16	34mm	1-1/4	15/16	2	2
30958	1-1/4-7	1-3/8	36mm	1-3/4	1-1/8	2-1/2	2-1/2

PART NO.	A THREAD	B TABLE SLOT		C	D	E	F
		METRIC	INCH				
30970	M6x1.0	8	5/16	10	6	14	19
30972	M6x1.0	10	7/16	11	6	16	22
30974	M8x1.25	10	7/16	11	6	16	22
30976	M10x1.5	12	1/2	13	7	19	22
30978	M10x1.5	14	9/16	16	9	22	29
30980	M12x1.75	14	9/16	16	9	22	29
30982	M12x1.75	16	5/8	16	9	25	29
30984	M12x1.75	17	11/16	19	11	29	32
30986	M16x2.0	18	3/4	19	11	29	32
30988	M16x2.0	21	13/16	25	14	32	38
30990	M20x2.5	22	7/8	25	14	35	38
30992	M24x3.0	27	1-1/16	29	18	41	51
30994	M24x3.0	33	1-5/16	32	24	51	51



DRIVER STUDS

MATERIAL: MEDIUM CARBON STEEL
FINISH: BLACK OXIDE
TENSILE STRENGTH: 125,000 P.S.I. MIN.
MOST STUDS HAVE WRENCH FLATS



INCH

B (LENGTH)	PART NO.		PART NO.		PART NO.		PART NO.		PART NO.		PART NO.	
	1/4-20	C	5/16-18	C	3/8-16	C	1/2-13	C	5/8-11	C	3/4-10	C
1-1/2	30003	1/2	30103	1/2	30203	1/2	30303	1/2	30403	1/2		
2	30004	3/4	30104	3/4	30204	3/4	30304	3/4	30404	3/4		
2-1/2	30005	1	30105	1	30205	1	30305	1	30405	1		
3	30006	1	30106	1-1/8	30206	1	30306	1	30406	1	30506	1
3-1/2	30007	1	30107	1-1/8	30207	1-1/4	30307	1-1/4	30407	1-1/4	30507	1-1/4
4	30008	1	30108	1-1/8	30208	1-1/4	30308	1-1/2	30408	1-1/2	30508	1-1/2
4-1/2	30009	1	30109	1-1/8	30209	1-1/4	30309	1-1/2	30409	1-3/4	30509	1-3/4
5	30010	1	30110	1-1/8	30210	1-1/4	30310	1-1/2	30410	1-3/4	30510	2
5-1/2	30011	1	30111	1-1/8	30211	1-1/4	30311	1-1/2	30411	1-3/4	30511	2
6	30012	1	30112	1-1/8	30212	1-1/4	30312	1-1/2	30412	1-3/4	30512	2
6-1/2	30013	1	30113	1-1/8	30213	1-1/4	30313	1-1/2	30413	1-3/4	30513	2
7	30014	1	30114	1-1/8	30214	1-1/4	30314	1-1/2	30414	1-3/4	30514	2
7-1/2	30015	1	30115	1-1/8	30215	1-1/4	30315	1-1/2	30415	1-3/4	30515	2
8	30016	1	30116	1-1/8	30216	1-1/4	30316	1-1/2	30416	1-3/4	30516	2
9							30318	1-1/2	30418	1-3/4	30518	2
10							30320	1-1/2	30420	1-3/4	30520	2
12							30322	1-1/2	30424	1-3/4	30524	2

* OTHER LENGTHS AND SIZES, 303 STAINLESS, AVAILABLE UPON REQUEST

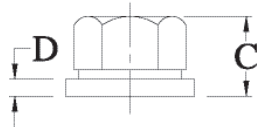
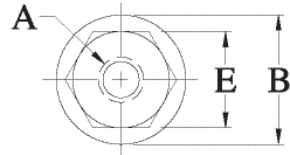
METRIC

B (LENGTH)	PART NO.		PART NO.		PART NO.		PART NO.		PART NO.		PART NO.	
	M6X1.0	C	M8X1.25	C	M10X1.5	C	M12X1.75	C	M16X2.0	C	M20X2.5	C
50	30030	20	30130	20	30230	20	30330	20				
65	30032	20	30132	20	30232	20	30332	20				
80	30034	27	30134	27	30234	27	30334	27	30434	21	30534	27
95	30036	27	30136	31	30236	31	30336	31	30436	31	30536	31
110	30038	31	30138	31	30238	35	30338	39	30438	47	30538	47
125					30239	35	30339	39				
140	30040	35	30140	35	30240	35	30340	39	30440	47	30540	55
150	30042	35	30142	35	30242	35	30342	39	30442	47	30542	55
175	30044	35	30144	35	30244	35	30344	39	30444	47	30544	55
200	30046	35	30146	35	30246	35	30346	39	30446	47	30546	55
250									30448	47	30548	55
300									30450	47	30550	55



FLANGE NUTS

MATERIAL: 12L14 STEEL
CASE HARDENED
FINISH: BLACK OXIDE



UNC & UNF FLANGE NUTS

PART NO.	UNC THRD A	PART NO.	UNF THRD A	B	C	D	E
37101	1/4-20	37151	1/4-28	5/8	5/16	3/32	1/2
37103	5/16-18	37153	5/16-24	3/4	3/8	1/8	9/16
37105	3/8-16	37155	3/8-24	7/8	1/2	1/8	11/16
37107	7/16-14	37157	7/16-20	1	9/16	5/32	3/4
37109	1/2-13	37159	1/2-20	1-1/8	11/16	3/16	7/8
37111	5/8-11	37161	5/8-18	1-3/8	13/16	3/16	1-1/16
37113	3/4-10	37163	3/4-16	1-5/8	1	1/4	1-1/4
37115	7/8-9	37165	7/8-14	1-3/4	1-1/8	1/4	1-7/16
37117	1-8	37167	1-14	2	1-1/4	1/4	1-5/8
37119	1-1/4-7			2-1/2	1-1/4	1/4	1-13/16

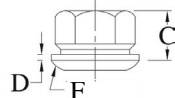
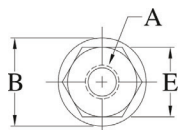
* 303 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

METRIC FLANGE NUTS

PART NO.	THREAD A	B	C	D	E
37201	M6x1.0	16	8	2	10
37203	M8x1.25	19	10	2.5	13
37205	M10x1.5	22	13	3	17
37207	M12x1.75	27	17	4	19
37209	M16x2.0	33	21	5	24
37211	M20x2.5	40	25	6	30
37213	M24x3.0	49	32	7	36

SPHERICAL FLANGE NUTS

MATERIAL: 12L14 STEEL
FINISH: BLACK OXIDE
 WHEN USED WITH SPHERICAL WASHERS, FLANGE NUTS WILL EQUALIZE THREAD LOADS.



UNC SPHERICAL FLANGE NUTS

PART NO.	THREAD A	B	C	D	E	F (RAD)
37280	1/4-20	5/8	5/16	3/32	1/2	3/4
37282	5/16-18	3/4	3/8	1/8	9/16	1-1/4
37284	3/8-16	7/8	1/2	1/8	11/16	1-1/4
37286	7/16-14	1	9/16	5/32	3/4	1-1/2
37288	1/2-13	1-1/4	11/16	3/16	7/8	1-1/2
37290	5/8-11	1-1/4	13/16	3/16	1-1/16	1-3/4
37292	3/4-10	1-5/8	1	1/4	1-1/4	2-1/4
37294	7/8-9	1-7/8	1-1/8	1/4	1-7/16	2-1/4
37296	1-8	2-1/4	1-1/4	1/4	1-5/8	2-3/4
37298	1-1/4-7	2-1/2	1-1/4	1/4	1-13/16	3

* 416 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

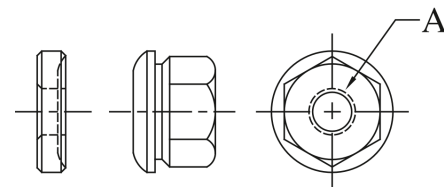


SPHERICAL FLANGE NUT ASSEMBLIES

PART NO.	UNC THRD A	TOTAL DEGREE OF ROTATION
37220	1/4-20	5
37222	5/16-18	5
37224	3/8-16	3
37226	7/16-14	4
37228	1/2-13	2
37230	5/8-11	2
37232	3/4-10	3
37234	7/8-9	3
37236	1-8	3
37238	1-1/4-7	3

* 416 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

MATERIAL: 12L14 STEEL
CASE HARDENED
FINISH: BLACK OXIDE

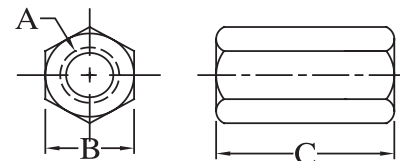


COUPLING (EXTENSION) NUTS

UNC COUPLING UNITS

PART NO.	THREAD A	B	C
47650	1/4-20	1/2	5/8
47652	5/16-18	9/16	7/8
47654	3/8-16	11/16	1
47656	7/16-14	3/4	1-1/4
47658	1/2-13	7/8	1-1/4
47660	5/8-11	1-1/16	1-5/8
47662	3/4-10	1-1/4	1-7/8
47664	7/8-9	1-7/16	2-1/4
47666	1-8	1-5/8	2-1/2

MATERIAL: 1117 STEEL
CASE HARDENED
FINISH: BLACK OXIDE



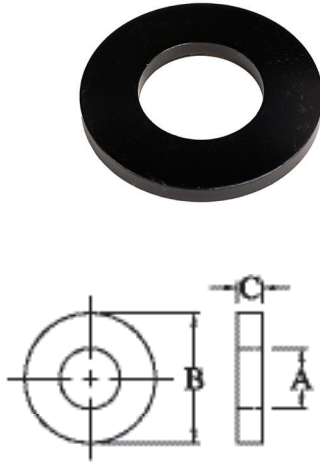
METRIC COUPLING UNITS

PART NO.	THREAD A	B	C
47670	M6x1.0	13	16
47672	M8x1.25	14	19
47674	M10x1.5	16	24
47676	M12x1.75	22	32
47678	M16x2.0	27	40
47680	M20x2.5	32	51
47682	M24x3.0	38	64



HARDENED FLAT WASHERS

MATERIAL: C1010 STEEL
CASE HARDENED
FINISH: BLACK OXIDE



INCH

PART NO.	STUD SIZE	A	B	C	WEIGHTS (LBS/100)
45445	3/16	13/64	1/2	3/32	0.5
45450	1/4	9/32	5/8	1/8	1
45455	5/16	11/32	3/4	1/8	2
45465	3/8	13/32	7/8	1/8	2
45472	7/16	15/32	1	1/8	3
45475	1/2	17/32	1-1/8	1/8	3
45485	5/8	21/32	1-3/8	1/8	4
45495	3/4	25/32	1-5/8	5/32	8
45505	7/8	29/32	1-3/4	5/32	8
45515	1	1-1/32	2	3/16	12
45525	1-1/8	1-5/32	2-1/4	7/32	19
45530	1-1/4	1-9/32	2-1/2	9/32	28
45535	#4	1/8	5/16	5/64	0.5
45540	#6	5/32	3/8	5/64	0.5
45545	#8	3/16	7/16	5/64	0.5

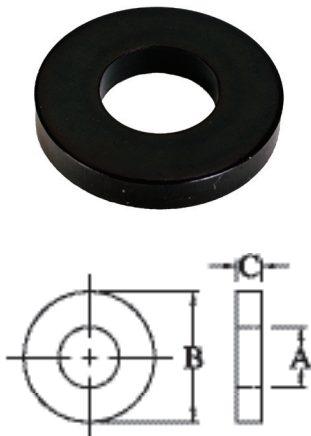
* 303 STAINLESS STEEL AVAILABLE ADD "-SS" TO PART NO.

METRIC

PART NO.	STUD SIZE	A MM	B MM	C MM	WEIGHTS (LBS/100)
45410	M6	7	16	3	1
45412	M8	9	19	3	2
45414	M10	11	25	3	3
45416	M12	13	28	3	3
45418	M16	17	35	3	4
45420	M20	22	44	5	8
45422	M24	26	51	4	12

HEAVY DUTY HARDENED FLAT WASHERS

MATERIAL: C1010
CASE HARDENED
FINISH: BLACK OXIDE



INCH

PART NO.	STUD SIZE	A	B	C	WEIGHTS (LBS/100)
45452	1/4	9/32	5/8	3/16	2
45460	5/16	11/32	3/4	3/16	2
45470	3/8	13/32	7/8	3/16	3
45477	7/16	15/32	1	3/16	4
45480	1/2	17/32	1-1/8	3/16	4
45490	5/8	21/32	1-3/8	3/16	6
45500	3/4	25/32	1-5/8	1/4	11
45510	7/8	29/32	1-3/4	1/4	11
45520	1	1-1/32	2	9/32	18

METRIC

PART NO.	STUD SIZE	A MM	B MM	C MM	WEIGHTS (LBS/100)
45430	M6	7	16	5	2
45432	M8	9	19	5	2
45434	M10	11	22	5	3
45436	M12	13	28	5	4
45438	M16	17	35	5	6
45440	M20	22	44	6	12
45442	M24	26	51	7	18



SPHERICAL WASHERS

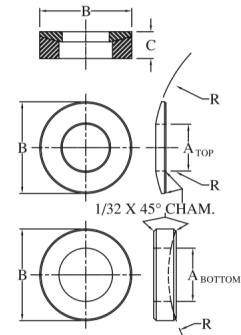
ASSEMBLIES

PART NO.		STUD SIZE	A		B	C	R
STEEL	STAINLESS		TOP	BOTTOM			
45150	45251	1/4 & M6	9/32	5/16	5/8	3/16	3/4
45152	45253	5/16 & M8	11/32	3/8	3/4	1/4	1
45154	45255	3/8 & M10	13/32	7/16	7/8	1/4	1-1/4
45156	45257	3/8 & M10	13/32	7/16	1	5/16	1-1/4
45160	45261	5/8 & M16	21/32	11/16	1-3/8	5/16	1-3/4
45162	45263	3/4 & M18	25/32	7/8	1-5/8	3/8	2-1/4
45164	45265	7/8 & M22	15/16	1	1-3/4	3/8	2-1/2
45166	45267	1 & M24	1-1/16	1-1/8	2	1/2	2-3/4
45168	45269	1-1/8	1-3/16	1-1/4	2-1/4	1/2	3
45170	45271	1-1/4 & M30	1-5/16	1-3/8	2-1/2	1/2	3
45172	45273	1-1/2 & M36	1-9/16	1-5/8	2-7/8	1/2	3

COMPENSATES FOR SLIGHT MISALIGNMENT BETWEEN THE WORK PIECE AND STRAP CLAMP. REDUCES STRESS ON THREADS.

MATERIAL: 12L14 STEEL
CASE HARDENED
FINISH: BLACK OXIDE

MATERIAL: 303 STAINLESS STEEL



HEX NUT

MATERIAL: ALLOY, GRADE 8, CASE HARDENED
STAINLESS STEEL AVAILABLE



PART NO.	THREAD SIZE	PART NO.	THREAD SIZE	PART NO.	THREAD SIZE	PART NO.	THREAD SIZE
AK46137	1/4-20	AK46863	1-1/4-7	AK49130	6mmx1.00	AK46976	33mmx3.50
AK46175	5/16-18	AK46864	1-3/8-6	AK49141	8mmx1.25	AK49349	36mmx4.00
AK46166	3/8-16	AK46460	1-1/2-6	AK49149	10mmx1.50	AK49340	39mmx4.00
AK46615	7/16-14	AK46760	1-3/4-5	AK49046	12mmx1.75	AK49441	42mmx4.50
AK46069	1/2-13	AK46456	2-4-1/2	AK49064	14mmx2.00	AK49449	45mmx4.50
AK46037	9/16-12	AK47068	2-1/4-4-1/2	AK49065	16mmx2.00	AK49460	48mmx5.00
AK46075	5/8-11	AK47051	2-1/2-4	AK49084	18mmx2.50	AK49459	56mmx5.50
AK46067	3/4-10	AK47069	2-3/4-4	AK49053	20mmx2.50	AK49922	64mmx6.00
AK46290	7/8-9	AK47254	3-4	AK49246	22mmx2.50	AK49924	72mmx6.00
AK46261	1-8	AK47258	3-1/4-4	AK49271	24mmx3.00	AK49749	80mmx6.00
AK46862	1-1/8-7	AK47453	3-1/2-4	AK49269	30mmx3.50	AK49856	90mmx6.00



SOCKET HEAD CAP SCREW

MATERIAL: ALLOY HEAT TREAT RC 38-43, STAINLESS STEEL AVAILABLE

PART NO.	LENGTH
1/4-20 UNF	
1/4-28 UNF	3/16" KEY
AK36200	1
AK36201	1-1/4
AK36202	1-1/2
AK36203	1-3/4
AK36204	2
AK36205	2-1/4
AK36206	2-1/2
AK36207	3
AK36208	3-1/2
AK36209	4
AK36210	5

5/16-18 UNC	
PART NO.	LENGTH
5/16-24 UNF	1/4" KEY
AK36217	1
AK36218	1-1/4
AK36219	1-1/2
AK36220	1-3/4
AK36221	2
AK36222	2-1/4
AK36223	2-1/2
AK36224	3
AK36225	3-1/2
AK36226	4
AK36227	5
AK36228	6
AK36229	8

3/8-16 UNC	
PART NO.	LENGTH
3/8-24 UNF	5/16" KEY
AK36234	1
AK36235	1-1/4
AK36236	1-1/2
AK36237	1-3/4
AK36238	2
AK36239	2-1/4
AK36240	2-1/2
AK36241	3
AK36242	3-1/2
AK36243	4
AK36244	5
AK36245	6
AK36246	8

7/16-14 UNC	
PART NO.	LENGTH
7/16-20 UNF	3/8" KEY
AK36253	1
AK36254	1-1/4
AK36255	1-1/2
AK36256	2
AK36257	2-1/4
AK36258	2-1/2
AK36259	3
AK36260	3-1/2
AK36261	4
AK36262	5
AK36263	6

PART NO.	LENGTH
1/2-13 UNC	
1/2-20 UNF	3/8" KEY
AK36264	1
AK36270	1-1/4
AK36271	1-1/2
AK36272	1-3/4
AK36273	2
AK36274	2-1/4
AK36275	2-1/2
AK36276	2-3/4
AK36277	3
AK36278	3-1/2
AK36279	4
AK36280	4-1/2
AK36281	5
AK36282	5-1/2
AK36283	6
AK36284	6-1/2
AK36285	7
AK36286	8
AK36287	9
AK36288	10

5/8-11 UNC	
PART NO.	LENGTH
5/8-18 UNF	1/2" KEY
AK36294	2
AK36295	2-1/4
AK36296	2-1/2
AK36297	2-3/4
AK36298	3
AK36299	3-1/4
AK36402	3-1/2
AK36403	4
AK36404	4-1/2
AK36405	5
AK36406	5-1/2
AK36407	6
AK36408	6-1/2
AK36409	7
AK36410	8
AK36411	10
AK36412	12

3/4-10 UNC	
PART NO.	LENGTH
3/4-16 UNF	5/8" KEY
AK36417	2
AK36418	2-1/2
AK36419	3
AK36420	3-1/2
AK36421	4
AK36422	4-1/2
AK36424	5
AK36425	5-1/2
AK36426	6
AK36427	7
AK36428	8
AK36429	10
AK36430	12

PART NO.	LENGTH
7/8-9 UNC	
7/8-14 UNF	3/4" KEY
AK36435	2
AK36436	2-1/2
AK36437	3
AK36438	3-1/4
AK36439	3-1/2
AK36440	4
AK36441	4-1/2
AK36442	5
AK36443	5-1/2
AK36444	6
AK36445	6-1/2
AK36446	7
AK36447	8

1-8 UNC	
PART NO.	LENGTH
1-12 UNF	3/4" KEY
AK36253	1
AK36254	1-1/4
AK36255	1-1/2
AK36256	2
AK36257	2-1/4
AK36258	2-1/2
AK36259	3
AK36260	3-1/2
AK36261	4
AK36262	5
AK36263	6
AK36264	7
AK36265	8
AK36266	10
AK36267	12
AK36268	16

1-1/8-7 UNC	
PART NO.	LENGTH
1-1/8-12 UNF	7/8" KEY
AK36469	3-1/2
AK36470	4
AK36471	5
AK36472	6
AK36473	8
AK36474	10
AK36475	12

1-1/4-7 UNC	
PART NO.	LENGTH
1-1/4-12 UNF	7/8" KEY
AK36480	4
AK36481	4-1/2
AK36482	5
AK36483	5-1/2
AK36484	6
AK36485	8
AK36486	10
AK36487	12
AK36488	14
AK36489	16
AK36490	18
AK36491	20

PART NO.	LENGTH
1-3/8-6 UNC	
1-3/8-12 UNF	1" KEY
AK36501	3
AK36502	4
AK36503	5
AK36504	6
AK36505	8
AK36506	10
AK36507	12
AK36508	14
AK36509	16

1-1/2-6 UNC	
PART NO.	LENGTH
1-1/2-12 UNF	1" KEY
AK36514	5
AK36515	5-1/2
AK36516	6
AK36517	8
AK36518	10
AK36519	12
AK36520	14
AK36521	16
AK36522	20

1-3/4-5 UNC	
PART NO.	LENGTH
1-3/4-12 UNF	1-1/4" KEY
AK36527	6
AK36528	8
AK36529	10

2-4-1/2 UNC	
PART NO.	LENGTH
2-12 UNF	1-1/2" KEY
AK36535	5
AK36536	6
AK36537	8
AK36538	10
AK36539	12
AK36540	14

2-1/2-4 UNC	
PART NO.	LENGTH
2-1/2-8 8THD	1-3/4" KEY
AK36545	8
AK36546	10
AK36547	12
AK36548	16
AK36549	20

2-3/4-4 UNC	
PART NO.	LENGTH
2-3/4-8 8 THD	2" KEY
AK36555	8
AK36556	10
AK36557	12
AK36558	16
AK36559	20

3-4 UNC	
PART NO.	LENGTH
3-8 8THD	2-1/4" KEY
AK36565	10
AK36566	12
AK36567	16
AK36568	20



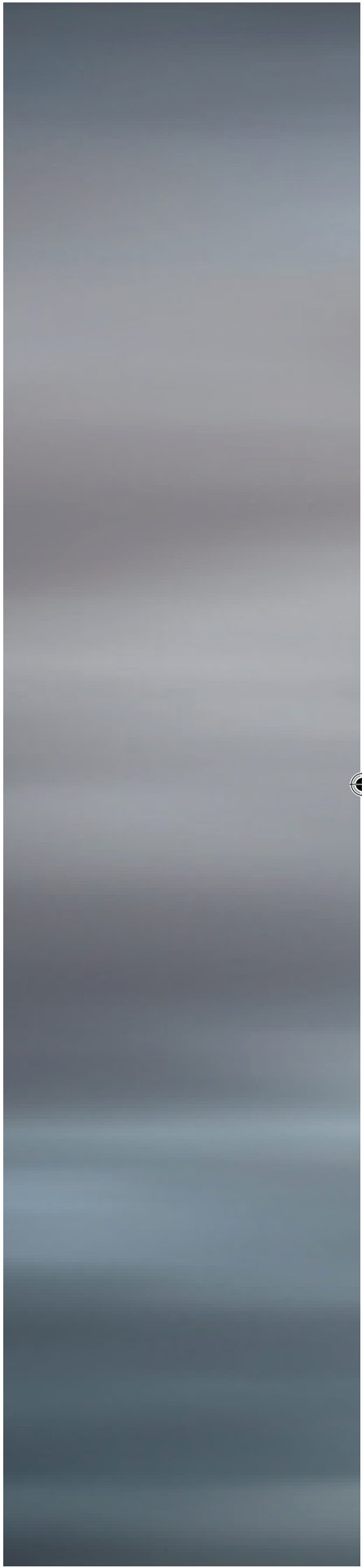
METRIC SOCKET HEAD CAP SCREW

MATERIAL: ALLOY
HEAT TREAT RC 38-43
STAINLESS STEEL AVAILABLE

PART NO.	LENGTH	PART NO.	LENGTH	PART NO.	LENGTH	PART NO.	LENGTH
M6 x 1.0 5mm KEY		M12 X 1.75 10mm KEY		M20 X 2.50 17mm KEY		M36 X 4.0 27mm KEY	
AK36604	20	AK36638	20	AK36675	40	AK36712	100
AK36605	25	AK36639	25	AK36676	50	AK36713	110
AK36606	30	AK36640	30	AK36677	60	AK36714	120
AK36607	35	AK36641	35	AK36678	70	AK36715	130
AK36608	40	AK36642	40	AK36679	80	AK36716	135
AK36609	45	AK36643	45	AK36680	100	AK36717	140
AK36610	50	AK36644	50			AK36718	160
		AK36645	55	M24 X 3.0 19mm KEY		M42 X 4.5 32mm KEY	
M8 x 1.25 6mm KEY		AK36646	60	AK36685	40	AK36725	120
AK36614	20	AK36648	80	AK36686	50	AK36726	140
AK36615	25	M14 X 2.0 12mm KEY		AK36687	60	AK36727	160
AK36616	30	AK36654	25	AK36688	70	AK36728	180
AK36617	35	AK36655	30	AK36689	75	AK36729	200
AK36618	40	AK36656	40	AK36690	80		
AK36619	45	AK36657	50	AK36691	100	M48 X 5.0 36mm KEY	
AK36620	50	AK36658	60	M30 X 3.5 22mm KEY		AK36735	140
M10 x 1.5 8mm KEY		M16 X 2.0 14mm KEY		AK36696	50	AK36736	150
AK36625	20	AK36664	25	AK36697	60	AK36737	155
AK36626	25	AK36665	30	AK36698	70	AK36738	160
AK36627	30	AK36666	40	AK36699	80	AK36739	180
AK36628	35	AK36667	50	AK36702	90	AK36740	200
AK36629	40	AK36668	60	AK36703	95	M64 X 6.0 46mm KEY	
AK36630	45	AK36669	70	AK36704	100	AK36748	200
AK36631	50	AK36670	80	AK36705	110	AK36750	300
AK36632	60			AK36706	120		



SAFETY INFORMATION







DO'S & DON'TS OF INSTALLING & USING HOIST RINGS

DO:

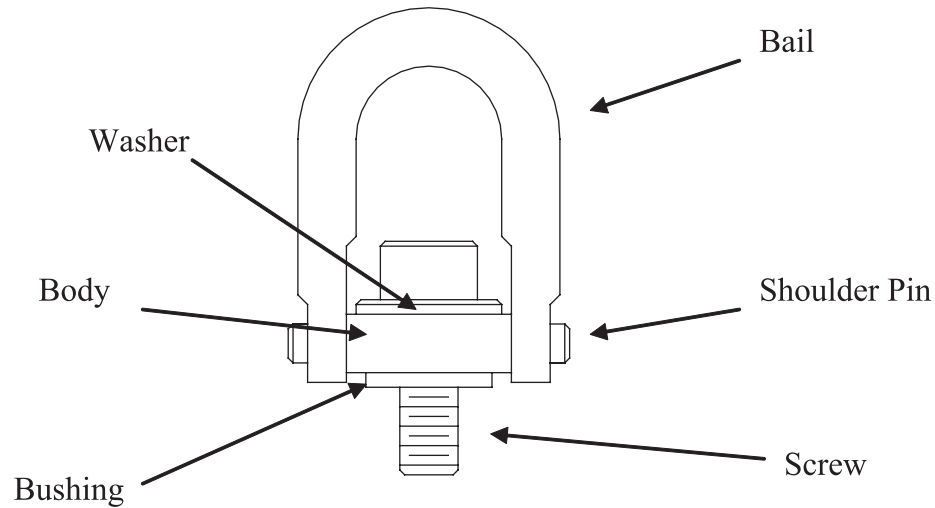
- **ALWAYS READ SAFETY PRECAUTION PAGE PRIOR TO USE OR INSTALLATION.**
(Safety Precaution included with every hoist ring.)
- **ALWAYS INSPECT THE HOIST RING BEFORE EACH USE.**
- Regularly inspect all hoist ring parts.
- Always tighten the screw to the recommended torque value.
- Always make sure that the hoist ring is free to pivot and swivel in all directions.
- Always choose a hoist ring with the proper load rating. See the "Actual Load" equation on the back page to help you choose the appropriate hoist ring.
- Always make sure that the bushing of the hoist ring sits flush against the object being lifted.
- Install hoist rings in materials that have a tensile strength of at least 80,000 psi.
- Always make sure the thread engagement is at least 1.5 times the diameter of the hoist ring screw.
- When installing a hoist ring in a through-hole with a nut and washer, make sure to use a Grade 8 nut that has full thread engagement.
- Consider periodic load-testing as an extra precaution.

DON'T:

- **NEVER EXCEED RATED LOAD.**
- **NEVER APPLY SHOCK LOAD.**
- Never use a hoist ring that you believe is damaged.
- Never use a hoist ring that has damaged threads on the screw.
- Never use a hoist ring in an application where it does not pivot and swivel in every direction freely.
- Never use a hoist ring that is not tightened to the recommended torque.
- Never replace the components of the hoist ring with anything other than parts recommended by Actek.
- Never use a hook larger than the diameter of the hoist ring opening.
- Never shim or use washers between the hoist ring and surface of object being lifted.



HOIST RING INSPECTION & MAINTENANCE

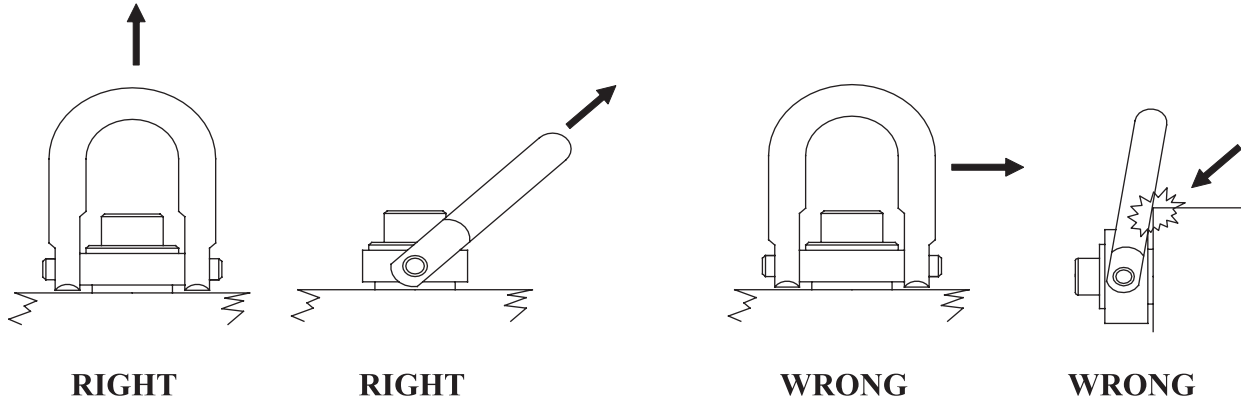


ALWAYS INSPECT THE HOIST RING BEFORE EACH USE. MAKE SURE:

- The screw is tightened to the recommended torque.
 - If the screw is not tightened, the threads may be stripped on a vertical lift.
- The bushing of the hoist ring sits flush against the object being lifted.
 - This ensures that the recommended torque puts the proper preload onto the hoist ring allowing the hoist ring to reach its full 5:1 safety factor.
- The hoist ring is free to swivel and pivot in every direction.
 - If the hoist ring binds up in any direction, it should be removed from service.
- There are no signs of corrosion.
 - This can cause deterioration to the hoist ring material allowing for fatigue or cracking to take place. Corrosion can also prevent the hoist ring from pivoting and swiveling freely.
- There are no signs of wear or cracks, especially on the screw, shoulder pins, and bail.
 - Damage or wear on the screw head, shoulder pins, or bail may be an indication that the hoist ring is coming into contact with something during use. This should be avoided as such contact can cause binding and shock loads which exceed the rating of the hoist ring.
- The shoulder pins are secure and do not rotate or come loose.
 - This can be checked by using pliers to rotate the shoulder pins by hand. If the shoulder pin does rotate, it is no longer securely in place and could come loose causing the hoist ring to break.



HOIST RING INSPECTION & MAINTENANCE



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example and chart below.

L = Load experienced by hoist ring

N = Number of hoist rings = 4

W = Total weight = 2,000 Lbs.

A = Lifting angle

$$L = \frac{W}{N \sin A}$$

If A = 60:

If A = 20:

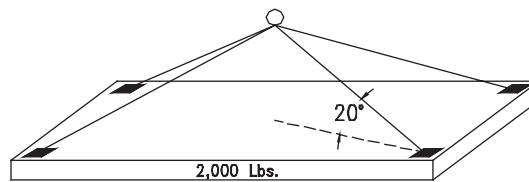
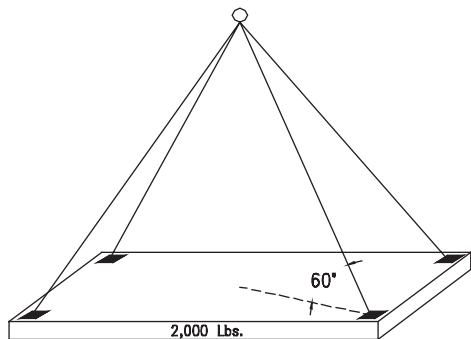
$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

Lifting Angle (Degrees)	Number of Hoist Rings	Weight of Load (Pounds)	Actual Applied Load on Hoist Ring (Pounds)
90	4	2,000	500
80	4	2,000	510
70	4	2,000	535
60	4	2,000	580
50	4	2,000	655
40	4	2,000	780
30	4	2,000	1,000
20	4	2,000	1,465

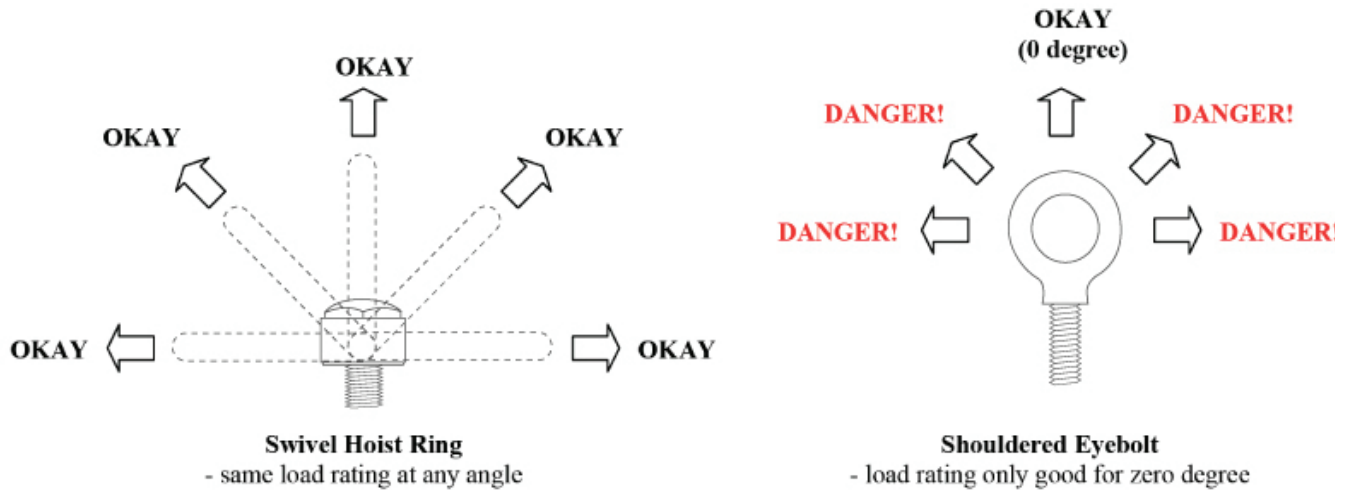
GOOD

BAD





SWIVEL HOIST RINGS VS. SHOULDERED EYEBOLT



Eyebolts have been around for over 100 years and have been doing a good job when used properly. Properly, meaning the direction of the load must be at zero degree. If the load shifts or the direction of loading on the eyebolt is as much as 10 degrees off the zero line of force, the result is a bent eyebolt.

When you bend the eyebolt, it is broken!

You can't see the break most of the time. If you examine the bent area using x-ray, you will find the damage. This will lead to **failure if the eyebolt** is used any longer.

Swivel Hoist Rings are designed for lifting at any angle because they can swivel 360° and pivot 180°. Therefore, the rated load remains the same, regardless of the angle of force. As a result, you **increase safety and peace of mind.**



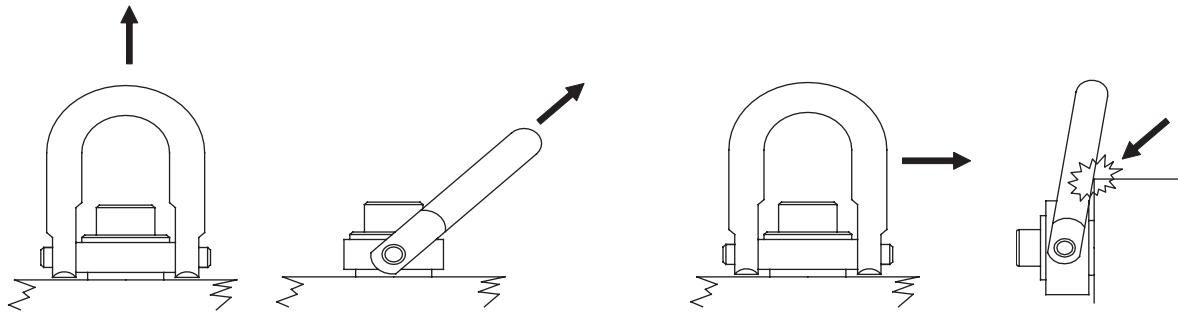
SAFETY ENGINEERED SWIVEL HOIST RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



RIGHT

RIGHT

WRONG

WRONG

Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

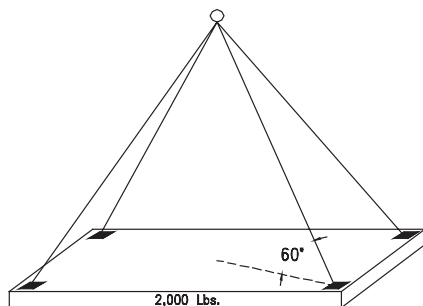
L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

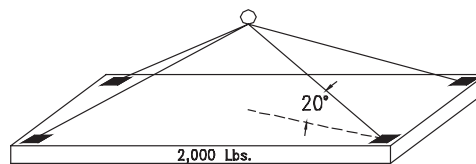
GOOD



If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

BAD





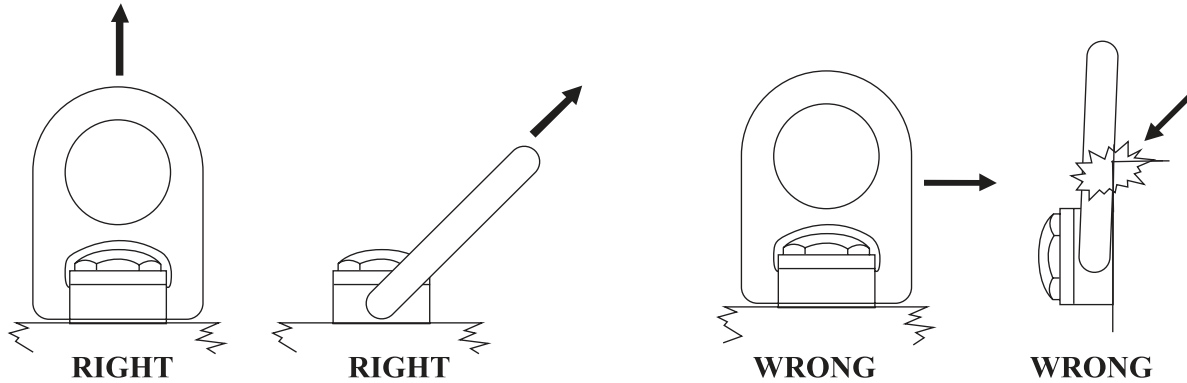
FORGED SWIVEL HOIST RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

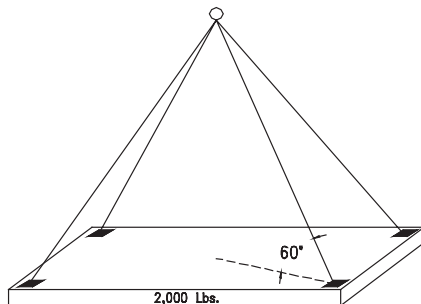
L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

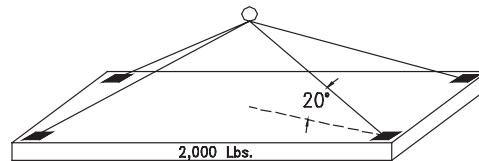
GOOD



If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

BAD





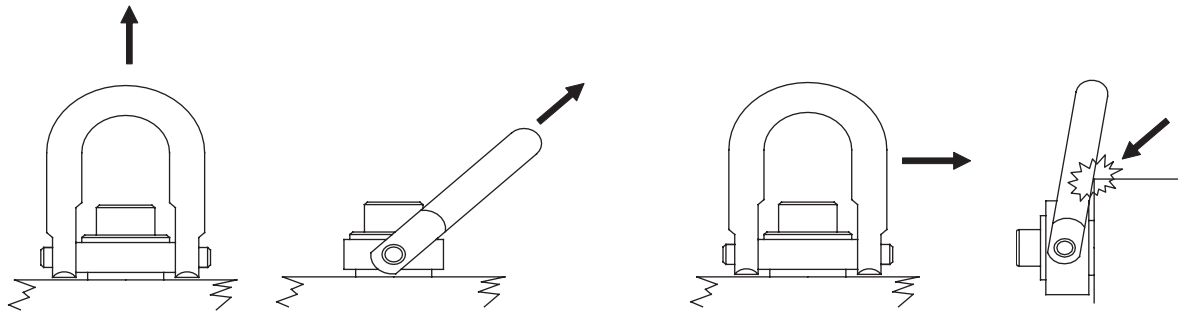
STAINLESS STEEL SWIVEL HOIST RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



RIGHT

RIGHT

WRONG

WRONG

Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

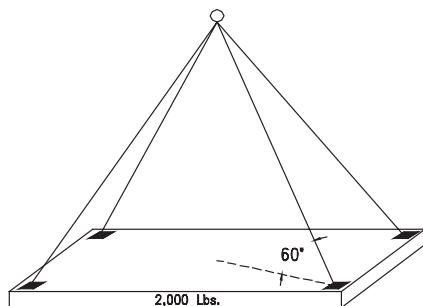
L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

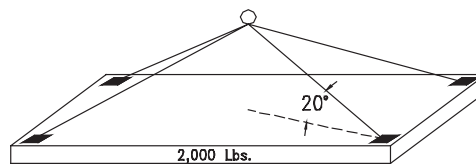
GOOD



If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

BAD





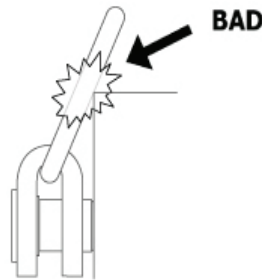
SIDE LOAD HOIST RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

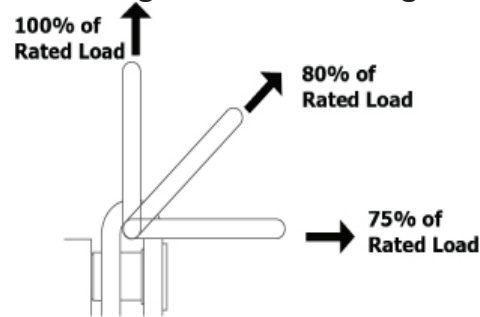
As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



Rated load will be reduced based on different angles of the loading



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

$$L = \frac{W}{N \sin A}$$

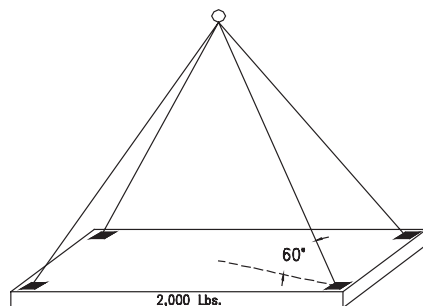
If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

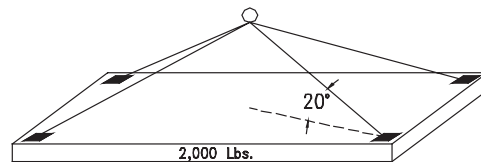
If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

GOOD



BAD





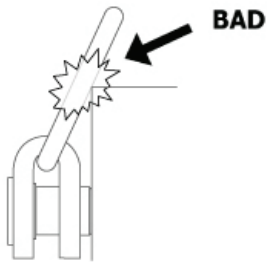
LIFTING RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

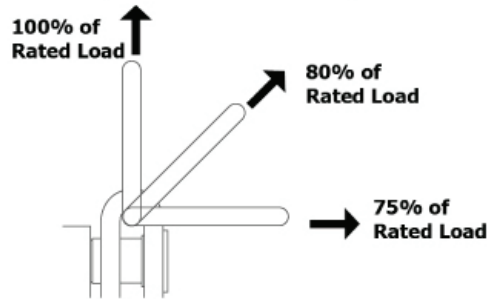
As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



Rated load will be reduced based on different angles of the loading



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

$$L = \frac{W}{N \sin A}$$

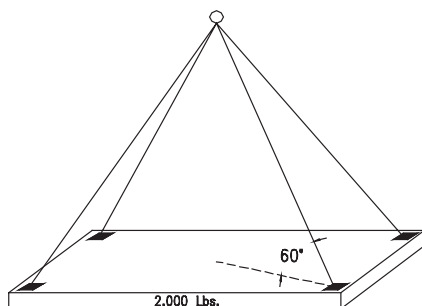
If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

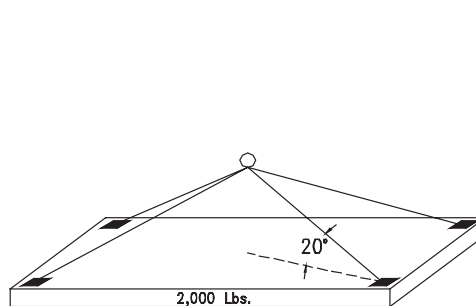
If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

GOOD



BAD





SIDE PULL HOIST RING SAFETY PRECAUTION

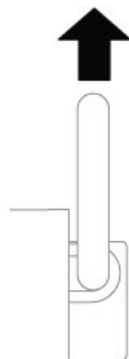
WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

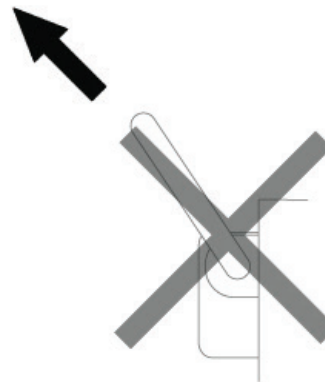
- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

CAUTION: Rated capacity is for straight lifts. Angle lifts should be avoided. Load limits are reduced by as much as 75% on angle lifts!

RIGHT



WRONG



Make sure the hoist ring pivots and rotates in all directions freely.

BAD





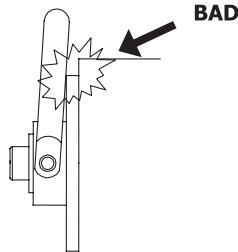
FORGED HOIST RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY.** This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS.** Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

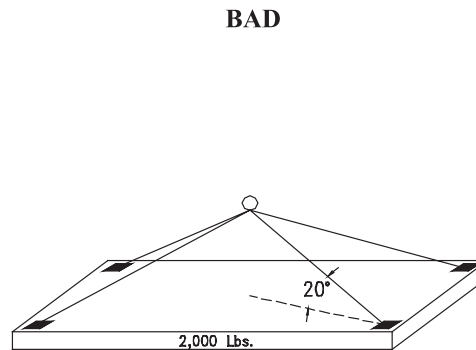
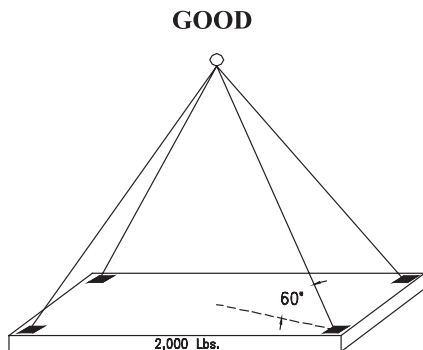
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$





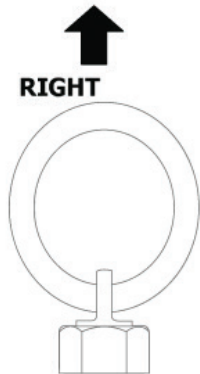
MOLD HANDLER/ULTRA LIFTING RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



WRONG



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

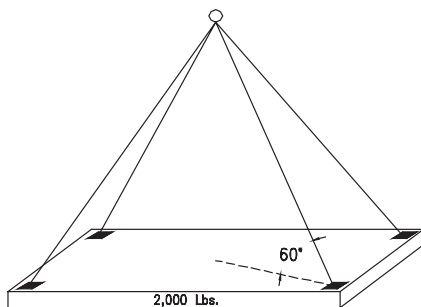
L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

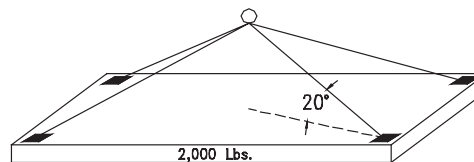
GOOD



If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

BAD





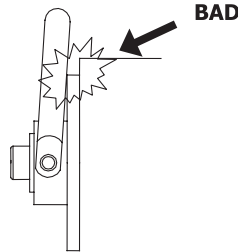
SPEED BASE HOIST RINGS SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

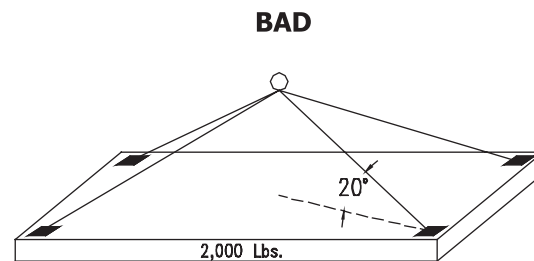
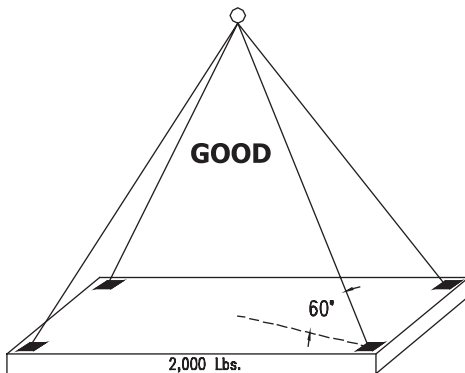
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$





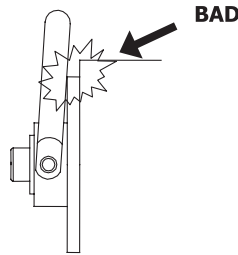
ROUND BASE SWIVEL & PIVOT HOIST RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots and rotates in all directions freely.



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

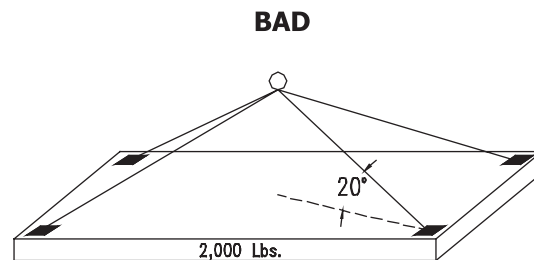
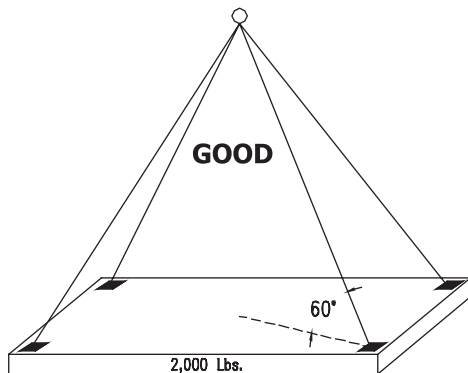
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$





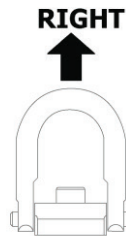
PIVOT LIFTING PLATE SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Tighten mounting screws to torque recommended. Periodically check torque because screws could loosen in extended service.
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

Make sure the hoist ring pivots freely.



Important: The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example below.

L = Load N = Number of hoist rings = 4 W = Total weight = 2,000 Lbs. A = Lifting angle

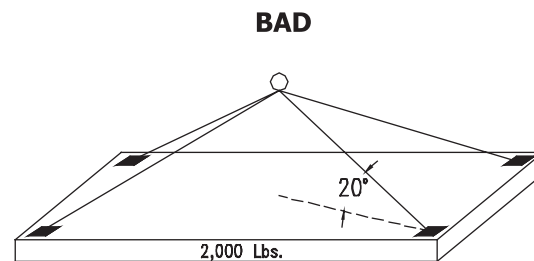
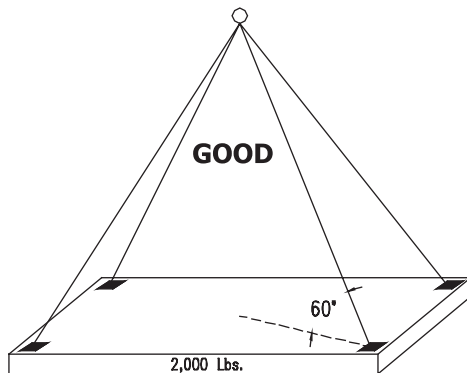
$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$





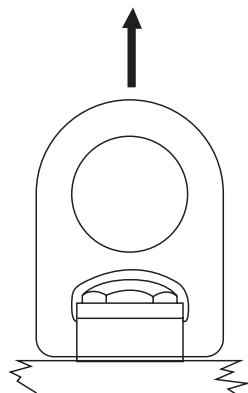
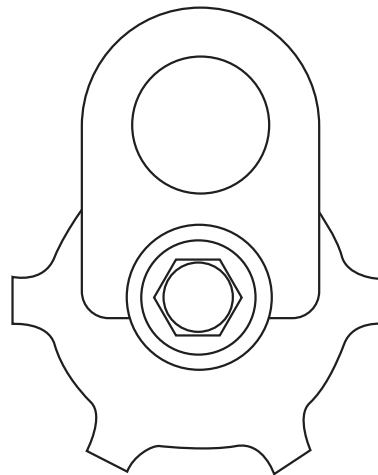
STREET PLATE LIFTING RING SAFETY PRECAUTION

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

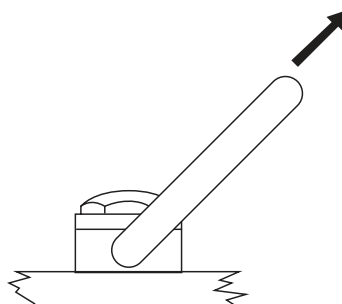
As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Mount flush and tight on plate. **DO NOT LEAVE GAP/SPACE BETWEEN BASE AND MOUNTING SURFACE**
- Tensile strength of parent material should be above 80,000 PSI to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
- **DO NOT APPLY SHOCK LOADS**. Always lift gradually. Repeat magnaflux testing if shock loading ever occurs.

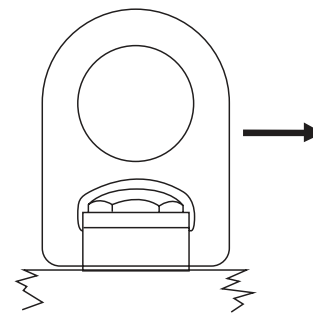
NOTE: Actek Street Plate Lifting Ring base must be mounted flush and tight to the lifting surface. Lugs are used for tightening and loosening with hammer or steel bar.



RIGHT



RIGHT



WRONG



SUPER EYEBOLT SAFETY PRECAUTIONS

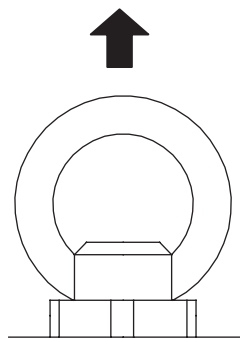
WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

As with all mechanical devices, regular inspection for wear and strict adherence to use instruction is necessary to prevent misuse failure.

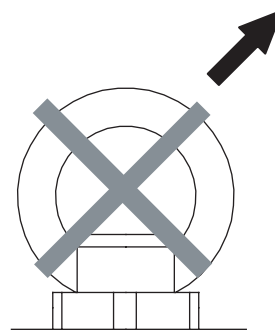
- Despite the 5:1 safety factor, **NEVER EXCEED THE RATED LOAD CAPACITY**. This safety margin is needed in case of misuse, which could drastically lower load capacity.
- Mount flush and tight on plate. **DO NOT LEAVE GAP/SPACE BETWEEN BASE AND MOUNTING SURFACE**.
- Tensile strength of parent material should be above 58,000 PSI to achieve full load rating.
- AVOID SHOCK LOADS. Lift gradually.

CAUTION: Rated capacity is for straight lifts. Angle lifts should be avoided. Load limits are reduced by as much as 80% on angle lifts

RIGHT



WRONG



CAUTION: HOIST RING MUST BE FIRMLY SECURED TO OBJECT BEING LIFTED



WELDING INSTRUCTIONS

WELDING INSTRUCTIONS FOR STREET PLATE NUT AISI 4130 STEEL TO STREET PLATE A36 STEEL

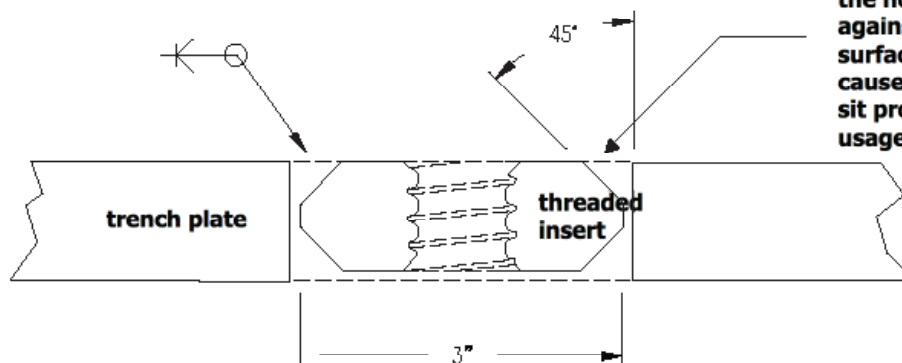
MATERIAL SPECIFICATIONS

- Threaded 3" insert made from AISI 4130 steel, quenched and tempered.
- Threads are COIL 1 1/4"-3.5 pitch or ACME 1 1/4", 5 pitch.

WELDING PROCEDURES

- Street plate nut should have 1/8" clearance to trench plate and inserts beveled.
- Beveling steel plate is optional.
- Old, worn or damaged nuts are allowed to be replaced if all previous weld metal is removed.
- Welding surface shall be clean and rust free.
- Actek welding fixture will ensure threaded insert nut to be flush and square with the top surface of the steel plate.
- Preheat both parts in a 3" area to 450° F and maintain 450° F heat while welding.
- **USE E7018 ELECTRODES OR GMAW E70S-6 OR LINCOLN L-56 WELD WIRE AT .035 DIAMETER.**
- Back-gouge root to sound metal and remove slag or flux after each pass.
- Weld one side and turn the steel plate over and weld the other side.
- Grind final weld on top surface flush.
- **ALLOW SLOW COOLING TO PREVENT CRACKED WELD.**

***NOTE:** After the nut has been welded to the plate, surfaces of the weld must be ground to the same surface level as the trench plate. This procedure allows the hoist ring to sit flush against the trench plate surface. Not doing so will cause the hoist ring not to sit properly and will lead to usage failure.

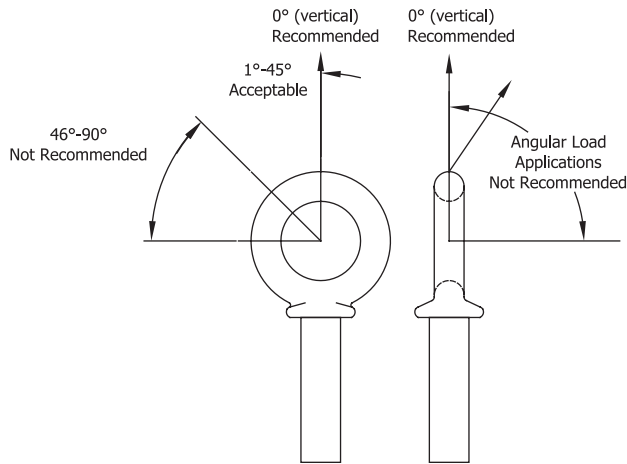




SHOULDER EYEBOLT SAFETY PRECAUTIONS

WARNING: PRIOR TO USING ANY HOIST RING, PLEASE READ THE FOLLOWING FOR PROPER INSTALLATION AND USAGE.

- DO NOT work, stand or crawl around the load of the Eyebolt. Ensure a safe distance from the load.
- DO NOT use wrenches, crowbars, etc. to tighten Eyebolts. Hand tightening is recommended.
- DO NOT use a single Eyebolt to lift a load that can rotate. Safety Swivel Hoist Rings are recommended for such loads.
- DO NOT force hooks or any other fittings into the eye; they must fit freely.
- DO NOT exceed the Rated Capacity.
- DO NOT SHOCK LOAD EYEBOLTS. Gradually increase lifting of the load to minimize load-shock.
- DO NOT weld Eyebolts, or perform any weld-repair on Eyebolts.
- DO NOT machine Eyebolts on the shank or shoulder to achieve proper seating.
- DO NOT expose Eyebolts to extreme environmental conditions, as they may adversely affect the Rated Capacity.



SHOULDER EYEBOLT RATED CAPACITIES			
SIZE	0° LBS.	45° LBS.	46° +
1/4	500	125	SAFETY SWIVEL HOIST RINGS RECOMMENDED
5/16	900	225	
3/8	1,300	325	
7/16	1,800	450	
1/2	2,400	600	
7/16	3,000	800	
5/8	4,000	1,000	
3/4	5,000	1,250	
7/8	7,000	1,750	
1	9,000	2,250	
1 1/8	12,000	3,000	
1 1/4	15,000	3,750	
1 1/2	21,000	5,250	
1 3/4	28,000	7,000	
2	38,000	9,500	
2 1/2	56,000	14,000	

NOTE: PLAIN EYEBOLT ANGULAR RATED CAPACITIES ARE SIGNIFICANTLY LOWER THAN SHOULDER EYEBOLT RATED CAPACITIES; THEREFORE, ANGULAR LIFTING IS NOT RECOMMENDED.

Rated Capacity Guidelines

- The minimum threaded shank length of Eyebolts must be one thread diameter to attain the rated capacity.
- No greater load should be applied to an Eyebolt than the Rated Capacity listed.
- Angular lifts significantly reduce Shoulder Eyebolt Rated Capacities. Shoulder Eyebolts should not be used for angular lifts greater than 45°; Safety Swivel Hoist Rings are recommended for such applications.
- Plain Eyebolts are not recommended for angular load applications. Safety Swivel Hoist Rings are recommended for such applications.



LIFTING DEVICE SAFETY INFORMATION

Actek® Mfg. & Eng., Inc. products are intended for use only by trained, qualified and experienced personnel. Misuse of any Actek® product or lack of supervision and inspection can lead to serious accidents including death. Actek® Mfg. & Eng., Inc. has always stressed that safety is of utmost importance.

Prior to any use of Actek® product, evaluation of the product application, safety precautions, safe working load, and control of all field conditions is mandatory. Prevent applications that exceed the safe working load or any other product misuse. Actek® cautions you that all safety factors shown are approximate. Safe working loads should never be exceeded under any circumstances.

If you have any questions about the proper use or installation of any Actek® product, please contact our office directly.

1110 Fullerton Road, City of Industry, CA 91748 • (800) 752-7229

Safety Notes

Actek® Mfg. & Eng. Inc. ensures that all materials used on all our products meets or exceeds the safety requirements for lifting. The safe working loads listed are based upon a new or in "as new" condition product. A safe working load is considered to be the greatest load that should be applied to an item at any time.

Inspection & Maintenance

In order to ensure the safest lifting, all for safety purposes, Actek® products must be properly used and maintained in the proper manner. Hoist rings may be subject to wear, corrosion, deformation, overloading, and other limiting factors which may affect the safe working load. Prior to use, the product should be regularly inspected to determine if it may be used or whether it should be removed from service. It is the responsibility of the user to inspect all lifting units for signs of wear and to discard any parts showing visible signs of wear. Every user should establish a safety inspection program for routine visual inspection of all products to determine whether signs of wear (e.g. cracks, corrosion, deformation) are present. The product inspection schedule should be established based upon factors such as frequency of use, period of use and environment. In addition to the regular safety inspection, the following safety directives must be followed:

- Prior to use, always inspect hoist rings for possible wear or damage.
- Never use hoist rings that show any sign of wear or damage.
- Never use hoist rings if bail is bent or elongated.
- Prior to use, threads must be clean, undamaged, and must fit properly.
- Always install hoist rings using the listed torque value. Periodically check torque because screws could loosen during extended service.
- Bent bolts should be discarded or replaced never straightened; failing to do so may lead to serious injuries or death.
- Never use washers or any spacers between bushing and mounting surface.
- Always make sure the hoist ring pivots and rotates in all directions freely.
- Never use hoist ring near or around corrosive material.
- If hoist ring is exposed to extreme temperatures (hot or cold), please contact our engineering department for suggestions/consultation.
- Safe working loads should never be exceeded under any circumstances.

If there are questions regarding the replacement or repair of worn Actek products, please contact our engineering division.



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