



# MASTER HARDWARE CATALOG AND TECHNICAL REFERENCE 15

SUPERIOR SOLUTIONS



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 UNMATCHED PERFORMANCE

**n-Struts**<sup>®</sup>  
 FLUID PERFORMANCE EVERYTIME



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# Mechanical Struts (m-Struts®)

**m-Struts**  
UNMATCHED PERFORMANCE



Designed for a long life while maintaining consistent, repeatable loads, Raymond Mechanical Spring Struts are the ideal choice to replace conventional gas springs. They will withstand harsh environments and wide temperature ranges, and offer a variety of loads, strokes and end configurations. The units utilize advanced coiled spring technology, along with engineered components, to provide a low-friction, highly reliable product.

Raymond Mechanical Spring Struts are offered in a full range of standard struts featuring stainless steel springs, and high load struts with carbon steel springs. In addition, our mechanical spring struts and assembly modules can be custom designed to meet the specific needs of many products within a wide range of industries.

## STRUTS FOR MANY INDUSTRIES

- |                |             |
|----------------|-------------|
| Automotive     | Marine      |
| Recreational   | Industrial  |
| Medical        | Nuclear     |
| Pharmaceutical | Chemical    |
| Defense        | Agriculture |
| Construction   |             |

## Mechanical Spring Struts Are The Better Choice

- Long life and consistent loads over time
- Corrosion-resistant stainless steel construction
- Design flexibility to meet individual requirements
- No internal gases or seals – no hazardous material concerns
- Proven for FDA applications
- Robust design
- Various end configurations available
- Operating temperatures up to 400°F
- Extension and dampening units offer additional flexibility

## STRUTS FOR MANY APPLICATIONS

- Food Preparation & Processing
- Heating, Ventilation & Aeration
- Motion Control & Dampening



\*Patents 6,773,002, 7,066,455 and 7,174,804

**Custom Solutions for OEM Applications Available.**

**MAKING LARGE MASSES MANAGEABLE, REPEATEDLY**

# Mechanical Struts

## MECHANICAL STRUTS (m-Struts®) Standard

Mechanical Struts (m-Struts®) offer a seal-less, gas-less, and oil-less solution for strut applications. These struts offer robust performance in extreme temperatures (hot & cold) as well as caustic chemicals (gas & liquid). Consider pairing your Mechanical Strut with a Universal Stop Tube, in order to provide secure locking in the extended position.

Struts are offered in a variety of configurations & materials to suit standard needs, however Associated Spring RAYMOND has engineered solutions far beyond the catalog, including dampening integration. If you have an OEM or aftermarket application for a Mechanical Strut or other complete functional sub-assembly, contact our engineering team for support. Below are our compression struts that when compressed the force increases from the initial force listed in the table to the final force listed in the table.



	Part Number	Stroke (S)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Initial Force		Final Force		Threads (T)
		mm	in	mm	in	mm	in	mm	in	N	lbs	N	lbs	
Stainless Steel Body & Springs	MSBD-051-0076	50.8	2	176.5	7	9.525	0.375	31.75	1.25	35	8	76	17	M6 x 1.0
	MSBD-051-0116	50.8	2	214.4	8.4	9.525	0.375	31.75	1.25	85	19	116	26	M6 x 1.0
	MSBD-051-0173	50.8	2	253.7	10	9.525	0.375	31.75	1.25	133	30	173	39	M6 x 1.0
	MSBD-051-0280	50.8	2	294.9	11.6	9.525	0.375	31.75	1.25	200	45	280	63	M6 x 1.0
	MSBD-076-0102	76.2	3	242.8	9.6	9.525	0.375	31.75	1.25	44	10	102	23	M6 x 1.0
	MSBD-076-0156	76.2	3	261.6	10.3	9.525	0.375	31.75	1.25	67	15	156	35	M6 x 1.0
	MSBD-076-0262	76.2	3	311.4	12.3	9.525	0.375	31.75	1.25	133	30	262	59	M6 x 1.0
	MSBD-127-0133	127.0	5	432.3	17	9.525	0.375	31.75	1.25	80	18	133	30	M6 x 1.0
	MSBD-127-0173	127.0	5	474.2	18.7	9.525	0.375	31.75	1.25	111	25	173	39	M6 x 1.0
	MSBD-127-0222	127.0	5	481.6	19	9.525	0.375	31.75	1.25	133	30	222	50	M6 x 1.0
Stainless Steel Body & High Load Steel Springs	MSBD-127-0271	127.0	5	505.7	19.9	9.525	0.375	31.75	1.25	156	35	271	61	M6 x 1.0
	MSCD-026-1057	25.4	1	189.0	7.4	12.7	0.5	31.75	1.25	782	176	1057	238	M8 x 1.25
	MSCD-026-1240	25.4	1	151.1	6	12.7	0.5	31.75	1.25	369	83	1240	279	M8 x 1.25
	MSCD-033-1069	33.0	1	158.8	6.3	12.7	0.5	31.75	1.25	446	100	1069	240	M8 x 1.25
	MSCD-039-1072	40.6	2	166.4	6.6	12.7	0.5	31.75	1.25	236	53	1072	241	M8 x 1.25
	MSCD-039-1111	38.1	2	201.7	7.9	12.7	0.5	31.75	1.25	622	140	1111	250	M8 x 1.25
	MSCD-041-2354	40.6	2	345.9	13.6	12.7	0.5	31.75	1.25	1075	242	2354	529	M8 x 1.25
	MSCD-043-2187	43.2	2	246.1	9.7	12.7	0.5	31.75	1.25	417	94	2187	492	M8 x 1.25
	MSCD-055-1170	55.9	2	258.8	10.2	12.7	0.5	31.75	1.25	181	41	1170	263	M8 x 1.25
	MSCD-077-1150	78.7	3	384.0	15.1	12.7	0.5	31.75	1.25	355	80	1150	259	M8 x 1.25
	MSCD-078-1111	78.7	3	281.7	11.1	12.7	0.5	31.75	1.25	127	29	1111	250	M8 x 1.25
	MSCD-117-1067	116.8	5	422.1	16.6	12.7	0.5	31.75	1.25	244	55	1067	240	M8 x 1.25

## MECHANICAL STRUTS (m-Struts®) Standard – Gen-II

Mechanical Struts (m-Struts®) offer a seal-less, gas-less, and oil-less solution for strut applications. These struts offer robust performance in extreme temperatures (hot & cold) as well as caustic chemicals (gas & liquid). Consider pairing your Mechanical Strut with a Universal Stop Tube, in order to provide secure locking in the extended position.

Below are our Gen-II compression struts that when compressed, the force increases from the initial force listed in the table to the final force listed in the table. These struts are offered in both cost-effective coated steel (nitride) & full stainless steel construction.



Coated Steel Part Number	Stainless Steel Part Number	Stroke (S)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Initial Force		Final Force		Threads (T)
		mm	in	mm	in	mm	in	mm	in	N	lbs	N	lbs	
MSE-0200-002-01-15	MSE-0200-002-01-15-S	51	2	160	6.299	6	0.236	15	0.591	9	2	27	6	M6 x 1.0
MSE-0200-003-01-18	MSE-0200-003-01-18-S	51	2	170	6.693	8	0.315	18	0.709	13	3	40	9	M6 x 1.0
MSE-0200-008-01-22	MSE-0200-008-01-22-S	51	2	170	6.693	10	0.394	22	0.866	36	8	107	24	M8 x 1.25
MSE-0200-010-01-28	MSE-0200-010-01-28-S	51	2	173	6.811	14	0.551	28	1.102	44	10	133	30	M10 x 1.5
MSE-0400-005-01-15	MSE-0400-005-01-15-S	101	4	312	12.283	6	0.236	15	0.591	22	5	67	15	M6 x 1.0
MSE-0400-007-01-18	MSE-0400-007-01-18-S	101	4	322	12.677	8	0.315	18	0.709	31	7	93	21	M6 x 1.0
MSE-0400-015-01-22	MSE-0400-015-01-22-S	101	4	322	12.677	10	0.394	22	0.866	67	15	200	45	M8 x 1.25
MSE-0400-025-01-28	MSE-0400-025-01-28-S	101	4	326	12.835	14	0.551	28	1.102	111	25	334	75	M10 x 1.5
MSE-0400-030-01-28	MSE-0400-030-01-28-S	101	4	326	12.835	14	0.551	28	1.102	133	30	400	90	M10 x 1.5
MSE-0600-005-01-15	MSE-0600-005-01-15-S	153	6	465	18.307	6	0.236	15	0.591	22	5	67	15	M6 x 1.0
MSE-0600-009-01-18	MSE-0600-009-01-18-S	153	6	475	18.701	8	0.315	18	0.709	40	9	120	27	M6 x 1.0
MSE-0600-017-01-22	MSE-0600-017-01-22-S	153	6	474	18.661	10	0.394	22	0.866	76	17	227	51	M8 x 1.25
MSE-0600-030-01-28	MSE-0600-030-01-28-S	153	6	478	18.819	14	0.551	28	1.102	133	30	400	90	M10 x 1.5
MSE-0600-040-02-28	MSE-0600-040-02-28-S	153	6	478	18.819	14	0.551	28	1.102	178	40	529	119	M10 x 1.5
MSE-0600-060-02-28	MSE-0600-060-02-28-S	153	6	478	18.819	14	0.551	28	1.102	267	60	810	182	M10 x 1.5
MSE-0600-070-02-28	MSE-0600-070-02-28-S	153	6	478	18.819	14	0.551	28	1.102	311	70	943	212	M10 x 1.5
MSE-0600-075-02-28	MSE-0600-075-02-28-S	153	6	630	24.803	14	0.551	28	1.102	334	75	1503	338	M10 x 1.5
MSE-0600-077-02-28	MSE-0600-077-02-28-S	153	6	630	24.803	14	0.551	28	1.102	342	77	1655	372	M10 x 1.5
MSE-0800-006-01-15	MSE-0800-006-01-15-S	203	8	617	24.291	6	0.236	15	0.591	27	6	80	18	M6 x 1.0
MSE-0800-009-01-18	MSE-0800-009-01-18-S	203	8	627	24.685	8	0.315	18	0.709	40	9	120	27	M6 x 1.0
MSE-0800-019-01-22	MSE-0800-019-01-22-S	203	8	627	24.685	10	0.394	22	0.866	85	19	254	57	M8 x 1.25
MSE-0800-032-01-28	MSE-0800-032-01-28-S	203	8	630	24.803	14	0.551	28	1.102	142	32	427	96	M10 x 1.5
MSE-0800-028-02-28	MSE-0800-028-02-28-S	203	8	783	30.827	14	0.551	28	1.102	125	28	1735	390	M10 x 1.5
MSE-1000-007-01-15	MSE-1000-007-01-15-S	254	10	769	30.276	6	0.236	15	0.591	31	7	93	21	M6 x 1.0
MSE-1000-009-01-18	MSE-1000-009-01-18-S	254	10	780	30.709	8	0.315	18	0.709	40	9	120	27	M6 x 1.0
MSE-1000-020-01-22	MSE-1000-020-01-22-S	254	10	779	30.669	10	0.394	22	0.866	89	20	267	60	M8 x 1.25
MSE-1000-035-01-28	MSE-1000-035-01-28-S	254	10	783	30.827	14	0.551	28	1.102	156	35	467	105	M10 x 1.5
MSE-1000-005-01-28	MSE-1000-005-01-28-S	254	10	783	30.827	14	0.551	28	1.102	22	5	1237	278	M10 x 1.5
MSE-1200-007-01-15	MSE-1200-007-01-15-S	305	12	922	36.299	6	0.236	15	0.591	31	7	93	21	M6 x 1.0
MSE-1200-010-01-18	MSE-1200-010-01-18-S	305	12	932	36.693	8	0.315	18	0.709	44	10	133	30	M6 x 1.0
MSE-1200-021-01-22	MSE-1200-021-01-22-S	305	12	932	36.693	10	0.394	22	0.866	93	21	280	63	M8 x 1.25
MSE-1200-035-01-28	MSE-1200-035-01-28-S	305	12	935	36.811	14	0.551	28	1.102	156	35	467	105	M10 x 1.5

# Mechanical Struts

**m-Struts**  
UNMATCHED PERFORMANCE

## MECHANICAL STRUTS (m-Struts®) Traction

Mechanical Struts (m-Struts®) offer a seal-less, gas-less, and oil-less solution for strut applications. These struts offer robust performance in extreme temperatures (hot & cold) as well as caustic chemicals (gas & liquid). Consider pairing your Mechanical Strut with a Universal Stop Tube, in order to provide secure locking in the extended position.

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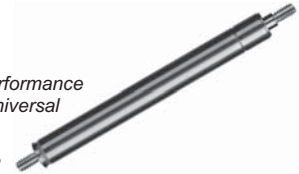


	Part Number	Stroke (S)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Initial Force		Final Force		Threads (T)
		mm	in	mm	in	mm	in	mm	in	N	lbs	N	lbs	
Stainless Steel Body & Springs	MEBD-051-0076	50.8	2	125.7	4.95	9.5	0.375	31.8	1.25	36	8	76	17	M6 x 1.0
	MEBD-051-0116	50.8	2	163.6	6.44	9.5	0.375	31.8	1.25	85	19	116	26	M6 x 1.0
	MEBD-051-0173	50.8	2	202.9	7.99	9.5	0.375	31.8	1.25	133	30	173	39	M6 x 1.0
	MEBD-051-0280	50.8	2	244.1	9.61	9.5	0.375	31.8	1.25	200	45	280	63	M6 x 1.0
	MEBD-076-0102	76.2	3	166.6	6.56	9.5	0.375	31.8	1.25	44	10	102	23	M6 x 1.0
	MEBD-076-0156	76.2	3	185.4	7.3	9.5	0.375	31.8	1.25	67	15	156	35	M6 x 1.0
	MEBD-076-0262	76.2	3	235.2	9.26	9.5	0.375	31.8	1.25	133	30	262	59	M6 x 1.0
	MEBD-127-0133	127	5	305.3	12.02	9.5	0.375	31.8	1.25	80	18	133	30	M6 x 1.0
	MEBD-127-0173	127	5	347.2	13.67	9.5	0.375	31.8	1.25	111	25	173	39	M6 x 1.0
	MEBD-127-0222	127	5	354.6	13.96	9.5	0.375	31.8	1.25	133	30	222	50	M6 x 1.0
MEBD-127-0271	127	5	378.7	14.91	9.5	0.375	31.8	1.25	156	35	271	61	M6 x 1.0	
Stainless Steel Body & High Load Steel Springs	MECD-026-1057	25.4	1	163.6	6.44	12.7	0.5	31.8	1.25	783	176	1059	238	M8 x 1.25
	MECD-026-1240	25.4	1	125.7	4.95	12.7	0.5	31.8	1.25	369	83	1241	279	M8 x 1.25
	MECD-033-1069	33	1.3	125.7	4.95	12.7	0.5	31.8	1.25	445	100	1068	240	M8 x 1.25
	MECD-039-1072	40.6	1.6	125.7	4.95	12.7	0.5	31.8	1.25	236	53	1072	241	M8 x 1.25
	MECD-039-1111	38.1	1.5	163.6	6.44	12.7	0.5	31.8	1.25	623	140	1112	250	M8 x 1.25
	MECD-041-2354	40.6	1.6	305.3	12.02	12.7	0.5	31.8	1.25	1076	242	2353	529	M8 x 1.25
	MECD-043-2187	43.2	1.7	202.9	7.99	12.7	0.5	31.8	1.25	418	94	2189	492	M8 x 1.25
	MECD-055-1170	55.9	2.2	202.9	7.99	12.7	0.5	31.8	1.25	182	41	1170	263	M8 x 1.25
	MECD-077-1150	78.7	3.1	305.3	12.02	12.7	0.5	31.8	1.25	356	80	1152	259	M8 x 1.25
	MECD-078-1111	78.7	3.1	202.9	7.99	12.7	0.5	31.8	1.25	129	29	1112	250	M8 x 1.25
	MECD-117-1067	116.8	4.6	305.3	12.02	12.7	0.5	31.8	1.25	245	55	1068	240	M8 x 1.25

## MECHANICAL STRUTS (m-Struts®) Traction – Gen-II

Mechanical Struts (m-Struts®) offer a seal-less, gas-less, and oil-less solution for strut applications. These struts offer robust performance in extreme temperatures (hot & cold) as well as caustic chemicals (gas & liquid). Consider pairing your Mechanical Strut with a Universal Stop Tube, in order to provide secure locking in the extended position.

Below are our Gen-II traction struts (work in extension) that when extended, the force increases from the initial force listed in the table to the final force listed in the table. Standard models are available in both coated steel (Nitride) & complete stainless steel construction.



Coated Steel Part Number	Stainless Steel Part Number	Stroke (S)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Initial Force		Final Force		Threads (T)
		mm	in	mm	in	mm	in	mm	in	N	lbs	N	lbs	
MSC-0200-002-01-15	MSC-0200-002-01-15-S	50.8	2	109	4.29	6	0.236	15	0.591	9	2	27	6	M6 x 1.0
MSC-0200-003-01-18	MSC-0200-003-01-18-S	50.8	2	119.1	4.69	8	0.315	18	0.709	13	3	40	9	M6 x 1.0
MSC-0200-008-01-22	MSC-0200-008-01-22-S	50.8	2	118.9	4.68	10	0.394	22	0.866	36	8	107	24	M8 x 1.25
MSC-0200-010-01-28	MSC-0200-010-01-28-S	50.8	2	122.4	4.82	14	0.55	28	1.1	44	10	133	30	M10 x 1.5
MSC-0400-005-01-15	MSC-0400-005-01-15-S	101.6	4	210.6	8.29	6	0.236	15	0.591	22	5	67	15	M6 x 1.0
MSC-0400-007-01-18	MSC-0400-007-01-18-S	101.6	4	220.7	8.69	8	0.315	18	0.709	31	7	93	21	M6 x 1.0
MSC-0400-015-01-22	MSC-0400-015-01-22-S	101.6	4	220.5	8.68	10	0.394	22	0.866	67	15	200	45	M8 x 1.25
MSC-0400-025-01-28	MSC-0400-025-01-28-S	101.6	4	224	8.82	14	0.55	28	1.1	111	25	334	75	M10 x 1.5
MSC-0400-030-01-28	MSC-0400-030-01-28-S	101.6	4	224	8.82	14	0.55	28	1.1	133	30	400	90	M10 x 1.5
MSC-0600-005-01-15	MSC-0600-005-01-15-S	152.4	6	312.2	12.29	6	0.236	15	0.591	22	5	67	15	M6 x 1.0
MSC-0600-009-01-18	MSC-0600-009-01-18-S	152.4	6	322.3	12.69	8	0.315	18	0.709	40	9	120	27	M6 x 1.0
MSC-0600-017-01-22	MSC-0600-017-01-22-S	152.4	6	322.1	12.68	10	0.394	22	0.866	76	17	227	51	M8 x 1.25
MSC-0600-030-01-28	MSC-0600-030-01-28-S	152.4	6	325.6	12.82	14	0.55	28	1.1	133	30	400	90	M10 x 1.5
MSC-0600-040-02-28	MSC-0600-040-02-28-S	152.4	6	325.6	12.82	14	0.55	28	1.1	178	40	529	119	M10 x 1.5
MSC-0800-006-01-15	MSC-0800-006-01-15-S	203.2	8	413.8	16.29	6	0.236	15	0.591	27	6	80	18	M6 x 1.0
MSC-0800-009-01-18	MSC-0800-009-01-18-S	203.2	8	423.9	16.69	8	0.315	18	0.709	40	9	120	27	M6 x 1.0
MSC-0800-019-01-22	MSC-0800-019-01-22-S	203.2	8	423.7	16.68	10	0.394	22	0.866	85	19	254	57	M8 x 1.25
MSC-0800-032-01-28	MSC-0800-032-01-28-S	203.2	8	427.2	16.82	14	0.55	28	1.1	142	32	427	96	M10 x 1.5
MSC-1000-007-01-15	MSC-1000-007-01-15-S	254	10	515.4	20.29	6	0.236	15	0.591	31	7	93	21	M6 x 1.0
MSC-1000-009-01-18	MSC-1000-009-01-18-S	254	10	525.5	20.69	8	0.315	18	0.709	40	9	120	27	M6 x 1.0
MSC-1000-020-01-22	MSC-1000-020-01-22-S	254	10	525.3	20.68	10	0.394	22	0.866	89	20	267	60	M8 x 1.25
MSC-1000-035-01-28	MSC-1000-035-01-28-S	254	10	528.8	20.82	14	0.55	28	1.1	156	35	467	105	M10 x 1.5
MSC-1200-007-01-15	MSC-1200-007-01-15-S	304.8	12	617	24.29	6	0.236	15	0.591	31	7	93	21	M6 x 1.0
MSC-1200-010-01-18	MSC-1200-010-01-18-S	304.8	12	627.1	24.69	8	0.315	18	0.709	44	10	133	30	M6 x 1.0
MSC-1200-021-01-22	MSC-1200-021-01-22-S	304.8	12	626.9	24.68	10	0.394	22	0.866	93	21	280	63	M8 x 1.25
MSC-1200-035-01-28	MSC-1200-035-01-28-S	304.8	12	630.4	24.82	14	0.55	28	1.1	156	35	467	105	M10 x 1.5
MSE-1000-035-01-28	MSE-1000-035-01-28-S	254	10	783	30.827	14	0.551	28	1.102	156	35	467	105	M10 x 1.5
MSE-1000-005-01-28	MSE-1000-005-01-28-S	254	10	783	30.827	14	0.551	28	1.102	22	5	1237	278	M10 x 1.5
MSE-1200-007-01-15	MSE-1200-007-01-15-S	305	12	922	36.299	6	0.236	15	0.591	31	7	93	21	M6 x 1.0
MSE-1200-010-01-18	MSE-1200-010-01-18-S	305	12	932	36.693	8	0.315	18	0.709	44	10	133	30	M6 x 1.0
MSE-1200-021-01-22	MSE-1200-021-01-22-S	305	12	932	36.693	10	0.394	22	0.866	93	21	280	63	M8 x 1.25
MSE-1200-035-01-28	MSE-1200-035-01-28-S	305	12	935	36.811	14	0.551	28	1.102	156	35	467	105	M10 x 1.5

# Mechanical Struts

## MECHANICAL STRUTS (m-Struts®) Self-Centering

Mechanical Struts (m-Struts®) offer a seal-less, gas-less, and oil-less solution for strut applications. These struts offer robust performance in extreme temperatures (hot & cold) as well as caustic chemicals (gas & liquid). Consider pairing your Mechanical Strut with a Universal Stop Tube, in order to provide secure locking in the extended position.

Struts are offered in a variety of configurations & materials to suit standard needs, however Associated Spring RAYMOND has engineered solutions far beyond the catalog, including dampening integration. If you have an OEM or aftermarket application for a Mechanical Strut or other complete functional sub-assembly, contact our engineering team for support. Below are our self-centering standard models. These parts return to a neutral position.



	Part Number	Stroke (S)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Initial Force		Final Force		Threads (T)
		mm	in	mm	in	mm	in	mm	in	N	lbs	N	lbs	-
Stainless Steel Body & Springs	MCBD-051-0076	50.8	2	265.4	10.448	9.5	0.375	31.8	1.25	0	0	80	18	M6 x 1.0
	MCBD-051-0116	50.8	2	341	13.424	9.5	0.375	31.8	1.25	0	0	67	15	M6 x 1.0
	MCBD-051-0173	50.8	2	419.8	16.528	9.5	0.375	31.8	1.25	0	0	76	17	M6 x 1.0
	MCBD-051-0280	50.8	2	502.2	19.772	9.5	0.375	31.8	1.25	0	0	160	36	M6 x 1.0
	MCBD-076-0102	76.2	3	372.6	14.670	9.5	0.375	31.8	1.25	0	0	102	23	M6 x 1.0
	MCBD-076-0156	76.2	3	410.1	16.148	9.5	0.375	31.8	1.25	0	0	156	35	M6 x 1.0
	MCBD-076-0262	76.2	3	509.7	20.068	9.5	0.375	31.8	1.25	0	0	258	58	M6 x 1.0
	MCBD-127-0133	127	5	700.7	27.588	9.5	0.375	31.8	1.25	0	0	111	25	M6 x 1.0
	MCBD-127-0173	127	5	784.5	30.888	9.5	0.375	31.8	1.25	0	0	125	28	M6 x 1.0
	MCBD-127-0222	127	5	799.4	31.472	9.5	0.375	31.8	1.25	0	0	182	41	M6 x 1.0
MCBD-127-0271	127	5	847.5	33.365	9.5	0.375	31.8	1.25	0	0	227	51	M6 x 1.0	
Stainless Steel Body & High Load Steel Springs	MCCD-026-1057	25.4	1	315.4	12.418	12.7	0.5	31.8	1.25	0	0	547	123	M8 x 1.25
	MCCD-026-1240	25.4	1	240	9.448	12.7	0.5	31.8	1.25	0	0	1241	279	M8 x 1.25
	MCCD-033-1069	33	1.3	247.6	9.748	12.7	0.5	31.8	1.25	0	0	1068	240	M8 x 1.25
	MCCD-039-1072	40.6	1.6	255.2	10.048	12.7	0.5	31.8	1.25	0	0	1072	241	M8 x 1.25
	MCCD-039-1111	38.1	1.5	328.1	12.918	12.7	0.5	31.8	1.25	0	0	965	217	M8 x 1.25
	MCCD-041-2354	40.6	1.6	614.4	24.188	12.7	0.5	31.8	1.25	0	0	2353	529	M8 x 1.25
	MCCD-043-2187	43.2	1.7	412.2	16.228	12.7	0.5	31.8	1.25	0	0	2189	492	M8 x 1.25
	MCCD-055-1170	55.9	2.2	424.9	16.728	12.7	0.5	31.8	1.25	0	0	1170	263	M8 x 1.25
	MCCD-077-1150	78.7	3.1	652.5	25.688	12.7	0.5	31.8	1.25	0	0	1152	259	M8 x 1.25
	MCCD-078-1111	78.7	3.1	447.7	17.628	12.7	0.5	31.8	1.25	0	0	1112	250	M8 x 1.25
	MCCD-117-1067	116.8	4.6	690.6	27.188	12.7	0.5	31.8	1.25	0	0	1068	240	M8 x 1.25

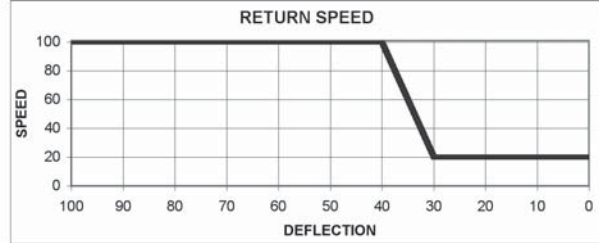
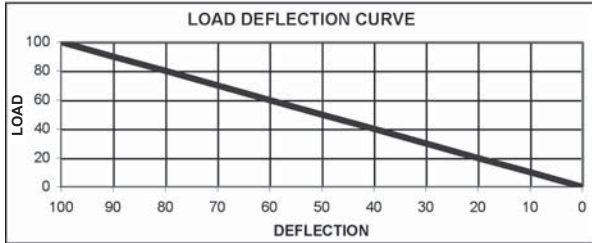


Self-Centering Struts are best for masses that travel “over-center.” This means the center of mass passes over the hinge. For example on a ground access panel if the door opens to 90 degrees the center of mass is directly over the hinge, but at 95 degrees the mass has traveled over-center. The self-centering force helps open the door from ground to 90 degrees, as well as help close the door from the over-center position to 90 degrees.

# Mechanical Spring Struts Capabilities

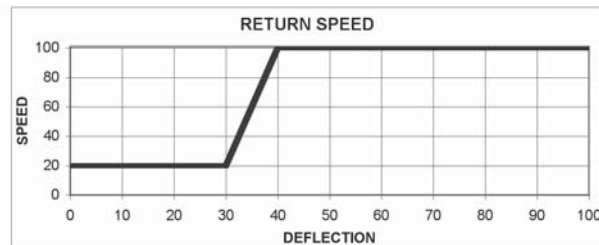
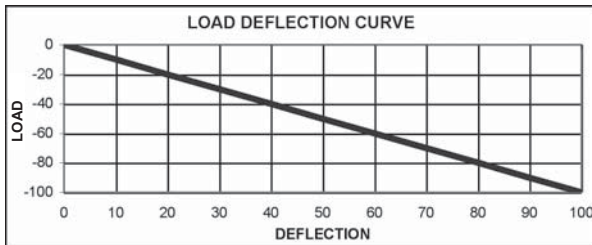
**m-Struts**  
UNMATCHED PERFORMANCE

## Compression Strut



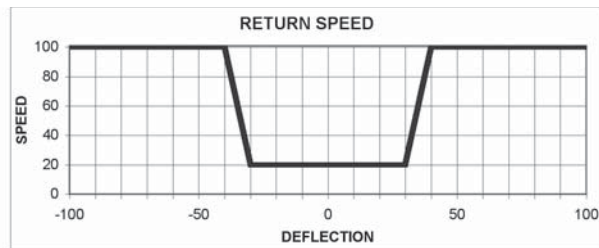
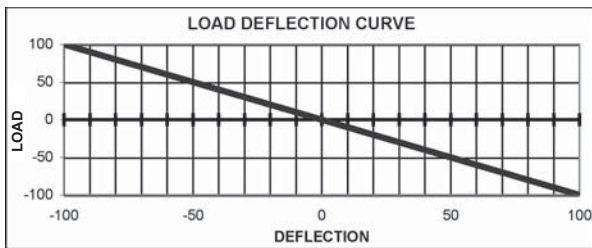
Provides a linear increasing load during compression and fast return speed to original extended position.  
Note: Application & system balance ultimately controls the return speed in both compression and extension.

## Extension Strut



Provides a linear increasing load during extension with an unrestricted return speed to original compressed position.  
Note: Application & system balance ultimately controls the return speed in both compression and extension.

## Self-Centering Strut



Provides a linear increasing loads in both directions from a neutral/centered position with an unrestricted return speed to the neutral/center position.  
Note: Application & system balance ultimately controls the return speed in both compression and extension.

We reserve the right to add, delete or modify components without notification.  
All dimensions are stated in mm. All dimensions are nominal unless tolerance is stated.

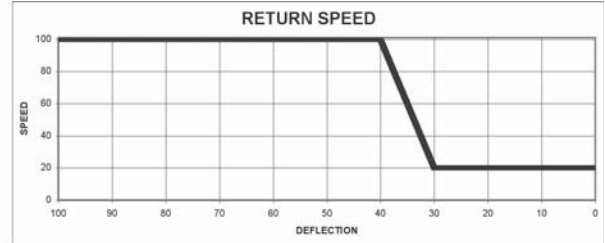
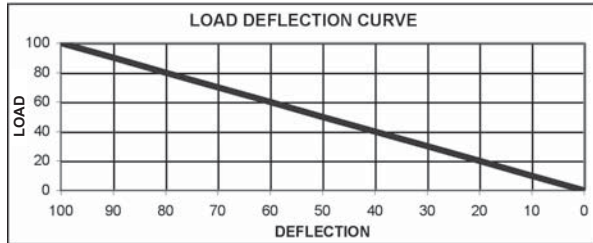
**NOTE: RETURN SPEED GRAPHS ILLUSTRATE "SPEED CONTROLLED" PROFILES. PLEASE SPECIFY WHEN ORDERING**



# Mechanical Spring Struts Capabilities m-Struts<sup>®</sup> UNMATCHED PERFORMANCE

Beyond our standard catalog range, Raymond offers numerous custom m-Struts<sup>®</sup> to fit the end user particular application. The following graphs covering Telescoping, Locking, Over-Center, Dampened and Variable Rate mechanical struts are examples of products developed for specific applications, and showcase the capabilities and versatility presented by this product line.

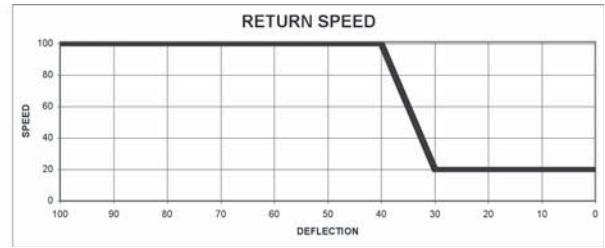
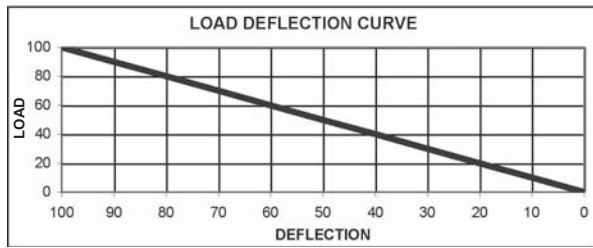
## Telescoping Strut



Provides a linear increasing load during compression and fast return speed to original extended position. Construction allows maximum achievable loads in limited application space.

Note: Application & system balance ultimately controls the return speed in both compression and extension.

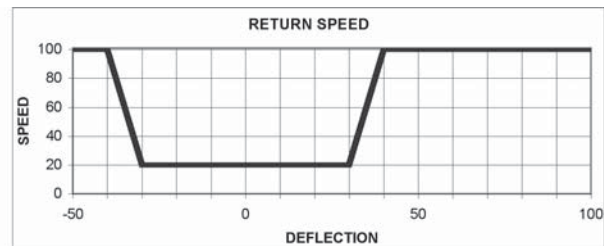
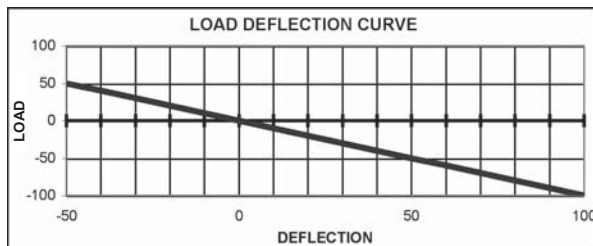
## Locking Strut



Provides a linear increasing load during compression, fast return speed to original extended position and a positive hold open lock.

Note: Application & system balance ultimately controls the return speed in both compression and extension.

## Over-Centering Strut



Provides a linear increasing loads in both directions from a specific neutral position with an unrestricted return speed to the neutral position.

Note: Application & system balance ultimately controls the return speed in both compression and extension.

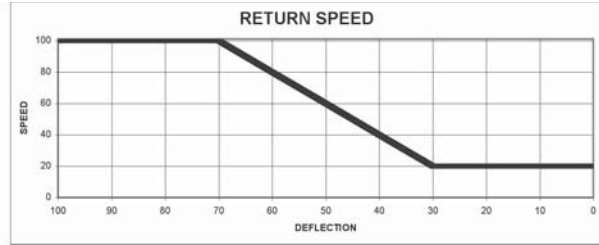
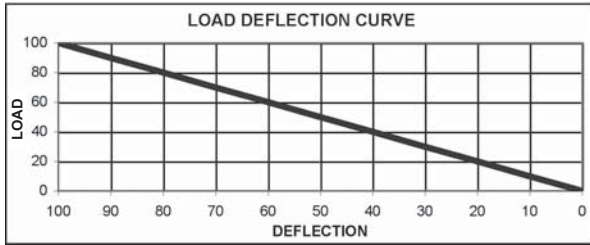
We reserve the right to add, delete or modify components without notification.

All dimensions are stated in mm. All dimensions are nominal unless tolerance is stated.

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# Mechanical Spring Struts Capabilities

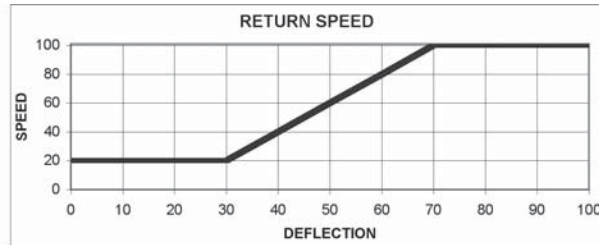
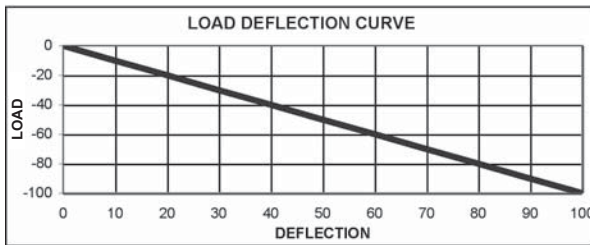
## Spring-Over Damper (Compression)



Provides a linear increasing load during compression and a controlled return speed to original extended position.

Note: Application, system balance and internal dampening mechanism controls the return speed to the extended position.

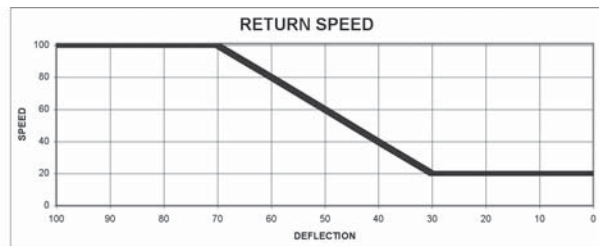
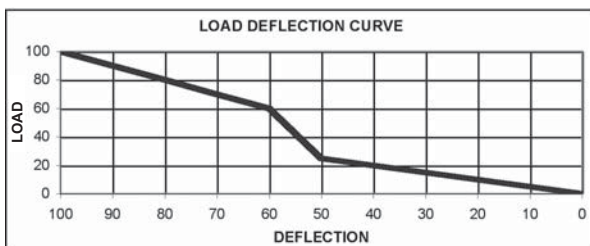
## Spring-Over Damper (Extension)



Provides a linear increasing load during extension and a controlled return speed to original compressed position.

Note: Application, system balance and internal dampening mechanism controls the return speed to the compressed position.

## Variable Rate Compression



Provides a step functioned linear increasing load during compression and a controlled return speed to original extended position.

Note: Application and system balance controls the return speed to the extended position.

We reserve the right to add, delete or modify components without notification.

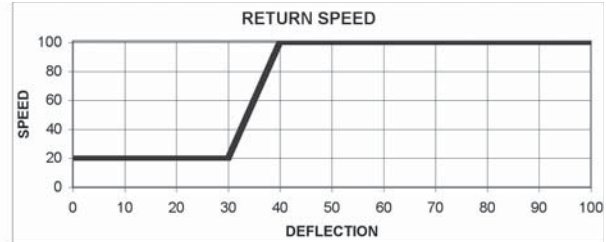
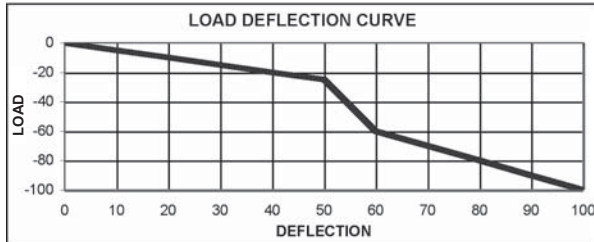
All dimensions are stated in mm. All dimensions are nominal unless tolerance is stated.

**NOTE: RETURN SPEED GRAPHS ILLUSTRATE "SPEED CONTROLLED" PROFILES. PLEASE SPECIFY WHEN ORDERING**

# Mechanical Spring Struts Capabilities

**m-Struts**  
UNMATCHED PERFORMANCE

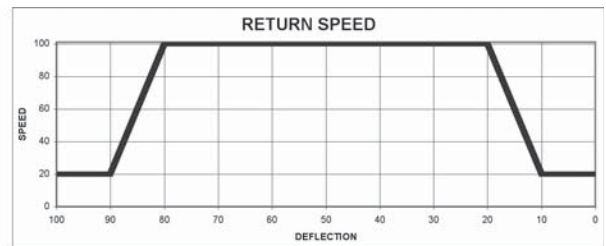
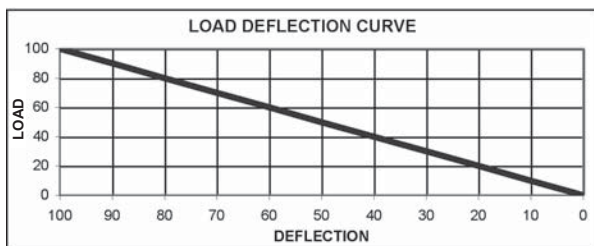
## Variable Rate (Extension)



Provides a step functioned linear increasing load during extension and a controlled return speed to original compressed position.

Note: Application and system balance controls the return speed to the extended position.

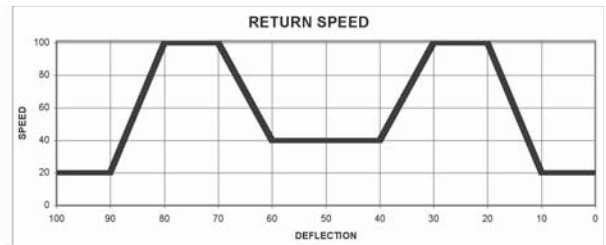
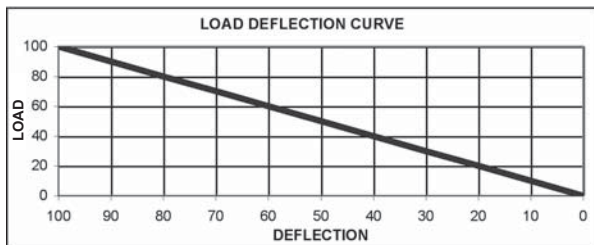
## Speed Controlled Compressions Strut (Single Step Function)



Provides a self contained system with linear increasing load during compression and a controlled return speed to original extended position.

Note: Application, system balance and internal dampening mechanism controls the return speed to the extended position.

## Speed Controlled Compressions Strut (Multiple Step Function)



Provides a self contained system with a step functioned linear increasing load during extension and a controlled return speed to original extended position.

Note: Application, system balance and internal dampening mechanism controls the return speed to the extended position.



We reserve the right to add, delete or modify components without notification.

All dimensions are stated in mm. All dimensions are nominal unless tolerance is stated.

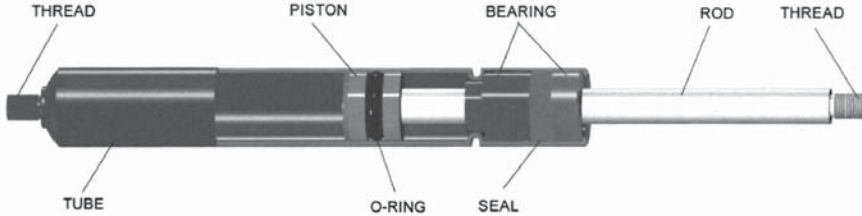
**NOTE: RETURN SPEED GRAPHS ILLUSTRATE "SPEED CONTROLLED" PROFILES. PLEASE SPECIFY WHEN ORDERING**

# Gas Springs

## GSNI

**Standard Gas Struts** are often referred to as Gas Shocks, Gas Pistons, or Gas Springs. They provide a "push" type force in the application. Nitrider® / GSNI models combine cost effective steel construction with optimal nitride coating for added corrosion resistance. These gas springs have all the proven reliability expected from SPD / Associated Spring RAYMOND. Nitrider® models surpass a 144 hour salt spray test. Complete parts are black in appearance! The spring force listed in the data table is for the extended position of the strut; forces will increase slightly as the strut is compressed. End fittings are supplied as indicated in the data table, but Associated Spring RAYMOND offers a complete line of end fittings to suit your application.

Consider our m-Struts® for a more robust solution when gas struts are inadequate.



The GSNI series gas spring

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
GSNI-4900-10-KZZ	50	1.969	-	-	154	6.082	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
GSNI-4900-10											44	10				
GSNI-4900-20											89	20				
GSNI-4900-30											133	30				
GSNI-4900-40											178	40				
GSNI-4900-50	50	1.969	190	7.48	154	6.082	6	0.236	15	0.591	222	50	M6 x 1.0	EF-PS30B1	10	-
GSNI-4900-60											267	60				
GSNI-4900-70											311	70				
GSNI-4900-80											356	80				
GSNI-2900-20-KZZ	50	1.969	-	-	154	6.063	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSNI-2900-20											89	20				
GSNI-2900-30											133	30				
GSNI-2900-40											178	40				
GSNI-2900-50											222	50				
GSNI-2900-60											267	60				
GSNI-2900-70	50	1.969	190	7.48	154	6.082	8	0.315	18	0.709	311	70	M6 x 1.0	EF-PS30B1	10	-
GSNI-2900-80											356	80				
GSNI-2900-90											400	90				
GSNI-2900-100											445	100				
GSNI-2900-110											489	110				
GSNI-2900-120											534	120				
GSNI-9137	55.75	2.19	293.87	11.57	258	10.157	8	0.315	18	0.709	374	84	M6 x 1.0	EF-PS30B1	10	-
GSNI-9049	58.92	2.32	212.85	8.38	177	6.969	6	0.236	15	0.591	85	19	M6 x 1.0	EF-PS90M1	10	SC-1006
GSNI-4160-11											50	11.2				
GSNI-4160-22											100	22.5				
GSNI-4160-33											150	33.7				
GSNI-4160-45											200	45				
GSNI-4160-56											250	56.2				
GSNI-4160-67											300	67.4				
GSNI-4160-78											350	78.7				
GSNI-4160-89											400	89.9				
N08BAC0095	60	2.362	-	-	169	6.654	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSNI-9675	63.5	2.5	195.07	7.68	159	6.26	6	0.236	15	0.591	302	68	M6 x 1.0	EF-PS30B2	10	-
N06VBN0150	73	2.874	-	-	183	7.205	6	0.236	15	0.591	151	34	M6 x 1.0	-	-	-
GSNI-5000-10-KZZ	75	2.953	-	-	218	8.583	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
GSNI-5000-10											44	10				
GSNI-5000-20											89	20				
GSNI-5000-30											133	30				
GSNI-5000-40											178	40				
GSNI-5000-50	75	2.953	254	10	218	8.583	6	0.236	15	0.591	222	50	M6 x 1.0	EF-PS30B1	10	-
GSNI-5000-60											267	60				
GSNI-5000-70											311	70				
GSNI-5000-80											356	80				
GSNI-60049											89	20				
GSNI-7863											267	60				
GSNI-60051	75	2.95	254	10	218	8.583	6	0.236	15	0.591	356	80	M6 x 1.0	EF-PS30B1	10	-
GSNI-60052											445	100				
GSNI-2000-20-KZZ	75	2.953	-	-	218	8.583	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSNI-2000-20											89	20				
GSNI-2000-30											133	30				
GSNI-2000-40											178	40				
GSNI-2000-50	75	2.953	254	10	218	8.583	8	0.315	18	0.709	222	50	M6 x 1.0	EF-PS30B1	10	-
GSNI-2000-60											267	60				
GSNI-2000-70											311	70				
GSNI-2000-80											356	80				

# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSNI-2000-90	75	2.953	254	10	218	8.583	8	0.315	18	0.709	400	90	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2000-100											445	100																		
GSNI-2000-110											489	110																		
GSNI-2000-120											534	120																		
GSNI-2000-150											667	150																		
GSNI-2050-20-KZZ	75	2.953	-	-	231	9.082	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-2050-20	75	2.953	267	10.512	231	9.082	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2050-30											133	30																		
GSNI-2050-40											178	40																		
GSNI-2050-50											222	50																		
GSNI-2050-60											267	60																		
GSNI-2050-70											311	70																		
GSNI-2050-80											356	80																		
GSNI-2050-90											400	90																		
GSNI-2050-100											445	100																		
GSNI-2050-110											489	110																		
GSNI-2050-120											534	120																		
N06DAD0045											80	3.15					-	-	200	7.874	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
N08DAE0095	80	3.15	-	-	209	8.228	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GANI-0818-0315-085	80	3.15	245	9.646	209	8.228	8	0.315	18	0.709	378	85	M6 x 1.0	EF-PS91-BP	10	-														
GSNI-6601	80.01	3.15	243.84	9.6	208	8.189	6	0.236	15	0.591	356	80	M6 x 1.0	EF-PS30B1	10	-														
GSNI-9621	88.9	3.5	296.11	11.658	260	10.236	8	0.315	18	0.709	133	30	M6 x 1.0	EF-PS90M1-BP	10	SC-1006														
GSNI-7258	88.9	3.5	302.26	11.9	266	10.472	8	0.315	18	0.709	534	120	M6 x 1.0	EF-PS122	-	-														
GSNI-7402	88.9	3.5	308.4	12.142	266	10.472	8	0.315	18	0.709	667	150	M6 x 1.0	EF-PS90-BP	10	SC-1006														
GSNI-8086	88.9	3.5	-	-	266	10.482	8	0.315	18	0.709	400	90	M6 x 1.0	-	-	-														
GSNI-4240-11	100	3.937	276	10.866	240	9.449	6	0.236	15	0.591	50	11.2	M6 x 1.0	EF-PS30B1	10	-														
GSNI-4240-22											100	22.5																		
GSNI-4240-33											150	33.7																		
GSNI-4240-45											200	45																		
GSNI-4240-56											250	56.2																		
GSNI-4240-67											300	67.4																		
GSNI-4240-78											350	78.7																		
GSNI-4240-89											400	89.9																		
GSNI-2249-22											100	3.937					285	11.22	249	9.803	8	0.315	18	0.709	100	22.5	M6 x 1.0	EF-PS30B1	10	-
GSNI-2249-33																									150	33.7				
GSNI-2249-56	250	56.2																												
GSNI-2249-89	400	89.9																												
GSNI-2249-118	525	118																												
GSNI-2249-146	649	146																												
GSNI-3249-22	100	3.937	309	12.165	249	9.803	10	0.394	23	0.906	100	22.5	M8 x 1.25	EF-PS100-BP	13	SC-1008														
GSNI-3249-33											150	33.7																		
GSNI-3249-56											250	56.2																		
GSNI-3249-101											449	101																		
GSNI-3249-157											700	157.4																		
GSNI-3249-202											900	202.3																		
GSNI-3249-270											1201	270																		
N14FAK0200	100	3.937	-	-	266	10.472	14	0.551	28	1.102	200	45	M10 x 1.5	-	-	-														
GSNI-60107	101.6	4	310.134	12.21	274	10.787	8	0.315	18	0.709	400	90	M6 x 1.0	EF-PS121	-	-														
GSNI-5100-10-KZZ	102	4.016	-	-	269	10.591	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-														
GSNI-5100-10	102	4.016	305	12.008	269	10.591	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS30B1	10	-														
GSNI-5100-20											89	20																		
GSNI-5100-30											133	30																		
GSNI-5100-40											178	40																		
GSNI-5100-50											222	50																		
GSNI-5100-60											267	60																		
GSNI-5100-90-KZZ											102	4.016					-	-	269	10.591	8	0.315	18	0.709	400	90	M6 x 1.0	-	-	-
GSNI-5100-90	102	4.016	305	12.008	269	10.591	8	0.315	18	0.709	400	90	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2100-20-KZZ	102	4.016	-	-	264	10.394	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-2100-20	102	4.016	300	11.811	264	10.394	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2100-30											133	30																		
GSNI-2100-40											178	40																		
GSNI-2100-50											222	50																		
GSNI-2100-60											267	60																		
GSNI-2100-70											311	70																		
GSNI-2100-80											356	80																		
GSNI-2100-90											400	90																		
GSNI-2100-100											445	100																		
GSNI-2100-110											489	110																		
GSNI-2100-120											534	120																		
GSNI-2100-150											667	150																		
N08EAL0095											102	4.016					-	-	269	10.582	8	0.315	18	0.709	93	21	M6 x 1.0	-	-	-

# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSNI-2112-20	102	4.016	310	12.205	274	10.787	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS91-BP	10	-														
GSNI-2112-30											133	30																		
GSNI-2112-40											178	40																		
GSNI-2112-50											222	50																		
GSNI-2112-60											267	60																		
GSNI-2112-70											311	70																		
GSNI-2112-80											356	80																		
GSNI-2112-90											400	90																		
GSNI-2112-100											445	100																		
GSNI-2112-110											489	110																		
GSNI-2112-120											534	120																		
GSNI-2112-130											578	130																		
GSNI-2112-140											623	140																		
GSNI-2112-150											667	150																		
GSNI-7066	119.88	4.72	325	12.795	289	11.378	8	0.315	18	0.709	512	115	M6 x 1.0	EF-PS30B1	10	-														
N06GAM0045	120	4.724	-	-	280	11.024	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-														
N08GAN0095	120	4.724	-	-	289	11.378	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-9725	129.54	5.1	338.58	13.33	303	11.929	8	0.315	18	0.709	534	120	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2120-20	139.7	5.5	342.9	13.5	307	12.082	8	0.315	18	0.709	93	21	M6x1.0	EF-PS30B1	10	-														
GSNI-2120-30											133	30																		
GSNI-2120-40											178	40																		
GSNI-2120-50											222	50																		
GSNI-2120-60											267	60																		
GSNI-2120-70											311	70																		
GSNI-2120-80											356	80																		
GSNI-2120-90											400	90																		
GSNI-2120-100											445	100																		
GSNI-2120-110											489	110																		
GSNI-2120-120											534	120																		
GSNI-2120-130											578	130																		
GSNI-2120-140											623	140																		
GSNI-2120-150											667	150																		
GSNI-6624	136.65	5.38	355.6	14	320	12.598	6	0.236	15	0.591	107	24	M6 x 1.0	EF-PS30B1	10	-														
N08HA00095	140	5.512	-	-	329	12.953	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-9343	149.35	5.88	460.5	18.13	424	16.693	8	0.315	18	0.709	289	65	M6 x 1.0	EF-PS30B1	10	-														
N10JAR0095	150	5.906	-	-	349	13.74	10	0.394	23	0.906	93	21	M8 x 1.25	-	-	-														
N14JAS0200	150	5.906	-	-	366	14.409	14	0.551	28	1.102	200	45	M10 x 1.5	-	-	-														
GSNI-4340-11	153	6.024	376	14.803	340	13.386	6	0.236	15	0.591	49	11	M6 x 1.0	EF-PS30B1	10	-														
GSNI-4340-22											100	22.5																		
GSNI-4340-33											150	33.7																		
GSNI-4340-45											200	45																		
GSNI-4340-56											250	56.2																		
GSNI-4340-67											300	67.4																		
GSNI-4340-78											350	78.7																		
GSNI-5150-10-KZZ											153	6.024					-	-	345	13.582	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
GSNI-5150-10	153	6.024	380	14.961	345	13.582	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS30B1	10	-														
GSNI-5150-20											89	20																		
GSNI-5150-30											133	30																		
GSNI-5150-40											178	40																		
GSNI-5150-50											222	50																		
GSNI-5150-60											267	60																		
GSNI-5150-80											356	80																		
GSNI-2125-20-KZZ											153	6.024					-	-	345	13.582	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSNI-2125-20	153	6.024	380	14.961	345	13.582	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2125-30											133	30																		
GSNI-2125-40											178	40																		
GSNI-2125-50											222	50																		
GSNI-2125-60											267	60																		
GSNI-2125-70											311	70																		
GSNI-2125-80											356	80																		
GSNI-2125-90											400	90																		
GSNI-2125-100											445	100																		
GSNI-2125-110											489	110																		
GSNI-2125-120											534	120																		
GSNI-2349-22											153	6.024					385	15.157	349	13.74	8	0.315	18	0.709	100	22.5	M6 x 1.0	EF-PS30B1	10	-
GSNI-2349-33																									150	33.7				
GSNI-2349-56																									250	56.2				
GSNI-2349-89	400	89.9																												
GSNI-2349-118	525	118																												
GSNI-2349-146	649	146																												

# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
<b>GSNI-2150-20-KZZ</b>	153	6.024	-	-	351	13.832	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
<b>GSNI-2150-20</b>											89	20				
<b>GSNI-2150-30</b>											133	30				
<b>GSNI-2150-60</b>	153	6.024	387	15.236	351	13.832	8	0.315	18	0.709	267	60	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-2150-90</b>											400	90				
<b>GSNI-2150-120</b>											534	120				
<b>GSNI-2150-150</b>											667	150				
<b>GSNI-7342</b>	165.1	6.5	630.93	24.84	589	23.189	10	0.394	22	0.866	801	180	M6 x 1.0	EF-PS90-BP	10	SC-1006
<b>GSNI-8468</b>	171.45	6.75	431.8	17	396	15.591	6	0.236	15	0.591	267	60	M6 x 1.0	EF-PS90M1	10	SC-1006
<b>GSNI-9470</b>	177.8	7	431.8	17	396	15.591	8	0.315	18	0.709	667	150	M6 x 1.0	EF-PS91-BP	10	-
<b>GSNI-5200-10-KZZ</b>	178	7.008	-	-	396	15.591	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
<b>GSNI-5200-10</b>											44	10				
<b>GSNI-5200-20</b>											89	20				
<b>GSNI-5200-30</b>											133	30				
<b>GSNI-5200-40</b>	178	7.008	432	17.008	396	15.591	6	0.236	15	0.591	178	40	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-5200-50</b>											222	50				
<b>GSNI-5200-60</b>											267	60				
<b>GSNI-5200-75</b>											334	75				
<b>N08LAU0095</b>	178	7.008	432	17.008	394	15.512	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
<b>GSNI-2200-20-KZZ</b>	178	7.008	-	-	396	15.591	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
<b>GSNI-2200-20</b>											89	20				
<b>GSNI-2200-30</b>											133	30				
<b>GSNI-2200-40</b>											178	40				
<b>GSNI-2200-50</b>											222	50				
<b>GSNI-2200-60</b>											267	60				
<b>GSNI-2200-70</b>											311	70				
<b>GSNI-2200-80</b>	178	7.008	430	16.929	396	15.591	8	0.315	18	0.709	356	80	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-5200-90</b>											400	90				
<b>GSNI-2200-90</b>											400	90				
<b>GSNI-2200-100</b>											445	100				
<b>GSNI-2200-110</b>											489	110				
<b>GSNI-2200-120</b>											534	120				
<b>GSNI-2200-150</b>											667	150				
<b>N08MAV0095</b>	180	7.087	-	-	409	16.102	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
<b>GSNI-7340</b>	184.15	7.25	469.9	18.5	434	17.087	8	0.315	18	0.709	667	150	M6 x 1.0	EF-PS122	-	-
<b>GSNI-9765</b>	184.15	7.25	469.9	18.5	434	17.087	8	0.315	18	0.709	667	150	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-6119</b>	196.85	7.75	512.064	20.16	470	18.504	10	0.394	22	0.866	845	190	M6 x 1.0	EF-PS90-BP	10	SC-1006
<b>GSNI-7870</b>	196.85	7.75	512.06	20.16	470	18.504	10	0.394	22	0.866	845	190	M6 x 1.0	EF-PS90-BP	10	SC-1006
<b>GSNI-5250-10-KZZ</b>	197	7.756	-	-	434	17.087	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
<b>GSNI-5250-10</b>											44	10				
<b>GSNI-5250-20</b>											89	20				
<b>GSNI-5250-30</b>											133	30				
<b>GSNI-5250-45</b>	197	7.756	470	18.504	434	17.087	6	0.236	15	0.591	200	45	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-5250-60</b>											267	60				
<b>GSNI-5250-75</b>											334	75				
<b>GSNI-2250-20-KZZ</b>	197	7.756	-	-	434	17.082	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
<b>GSNI-2250-90</b>											400	90				
<b>GSNI-2250-120</b>	197	7.756	470	18.504	434	17.082	8	0.315	18	0.709	534	120	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-2250-150</b>											667	150				
<b>GSNI-4440-11</b>											44	10				
<b>GSNI-4440-22</b>											100	22.5				
<b>GSNI-4440-33</b>	200	7.874	476	18.74	440	17.323	6	0.236	15	0.591	150	33.7	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-4440-56</b>											250	56.2				
<b>GSNI-4440-89</b>											400	89.9				
<b>GSNI-2449-22</b>											100	22.5				
<b>GSNI-2449-33</b>											150	33.7				
<b>GSNI-2449-56</b>	200	7.874	485	19.094	449	17.677	8	0.315	18	0.709	250	56.2	M6 x 1.0	EF-PS30B1	10	-
<b>GSNI-2449-89</b>											400	89.9				
<b>GSNI-2449-118</b>											525	118				
<b>GSNI-2449-135</b>											601	135				
<b>GSNI-3020-157-KFF</b>	200	7.874	486	19.134	452	17.795	10	0.394	22	0.866	698	157	M6 x 1.0	EF-PS91-BP	10	-
<b>GSNI-3020-20-KZZ</b>	200	7.874	-	-	453	17.84	10	0.394	23	0.906	93	21	M8 x 1.25	-	-	-
<b>GSNI-3020-20</b>	200	7.874	513	20.197	453	17.84	10	0.394	23	0.906	93	21	M8 x 1.25	EF-PS100-BP	13	SC-1008
<b>GSNI-1466-45</b>											200	45				
<b>GSNI-1466-112</b>											500	112.4				
<b>GSNI-1466-179</b>	200	7.874	536	21.102	466	18.346	14	0.551	28	1.102	800	179.9	M10 x 1.5	EF-PS140-BP	16	SC-1010
<b>GSNI-1466-269</b>											1200	269.8				
<b>GSNI-1466-359</b>											1600	359.7				
<b>GSNI-1466-449</b>											2000	449.6				
<b>GSNI-1466-562</b>	200	7.874	536	21.102	466	18.346	14	0.551	28	1.102	2500	562.1	M10 x 1.5	EF-PS140-BP	16	SC-1010

# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSNI-7702	200.15	7.88	512.06	20.16	452	17.795	10	0.394	22	0.866	818	184	M8 x 1.25	EF-PS100-BP	13	SC-1008														
GSNI-3020-30	201	7.913	513	20.197	453	17.835	10	0.394	23	0.906	133	30	M8 x 1.25	EF-PS100-BP	13	SC-1008														
GSNI-3020-40											178	40																		
GSNI-3020-50											222	50																		
GSNI-3020-60											267	60																		
GSNI-3020-70											311	70																		
GSNI-3020-80											356	80																		
GSNI-3020-90											400	90																		
GSNI-3020-100											445	100																		
GSNI-3020-110											489	110																		
GSNI-3020-120											534	120																		
GSNI-3020-130											578	130																		
GSNI-3020-140											623	140																		
GSNI-3020-150											667	150																		
GSNI-3020-160											712	160																		
GSNI-3020-170											756	170																		
GSNI-3020-180											801	180																		
GSNI-5300-10-KZZ	203	7.992	-	-	472	18.583	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-														
GSNI-5300-10	203	7.992	508	20	472	18.583	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS30B1	10	-														
GSNI-5300-20											89	20																		
GSNI-5300-30											133	30																		
GSNI-5300-40											178	40																		
GSNI-5300-50											222	50																		
GSNI-5300-60											267	60																		
GSNI-2300-20-KZZ	203	7.992	-	-	472	18.583	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-2300-20	203	7.992	508	20	472	18.583	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2300-30											133	30																		
GSNI-2300-40											178	40																		
GSNI-2300-50											222	50																		
GSNI-2300-60											267	60																		
GSNI-2300-70											311	70																		
GSNI-2300-75											334	75																		
GSNI-2300-80											356	80																		
GSNI-2300-90											400	90																		
GSNI-2300-100											445	100																		
GSNI-2300-110											489	110																		
GSNI-2300-120											534	120																		
GSNI-2300-130											578	130																		
GSNI-2300-150											667	150																		
GSNI-7864											203.2	8					508	20	472	18.583	8	0.315	18	0.709	667	150	M6 x 1.0	EF-PS30B1	10	-
GSNI-7628											206.24	8.12					514.14	20.242	472	18.583	6	0.236	15	0.591	267	60	M6 x 1.0	EF-PS90-BP	10	SC-1006
GSNI-9090	215.9	8.5	584.96	23.03	549	21.614	8	0.315	18	0.709	267	60	M6 x 1.0	EF-PS30B1	10	-														
N08OB0095	220	8.661	-	-	489	19.252	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-9136	236.98	9.33	729.23	28.71	693	27.283	8	0.315	18	0.709	311	70	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2400-20-KZZ	250	9.843	-	-	549	21.614	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-2400-20	250	9.843	585	23.031	549	21.614	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2400-30											133	30																		
GSNI-2400-40											178	40																		
GSNI-2400-50											222	50																		
GSNI-2400-60											267	60																		
GSNI-2400-70											311	70																		
GSNI-2400-80											356	80																		
GSNI-2400-90											400	90																		
GSNI-2400-100											445	100																		
GSNI-2400-110											489	110																		
GSNI-2400-120											534	120																		
GSNI-3549-22											250	9.843					609	23.976	549	21.614	10	0.394	23	0.906	100	22.5	M8 x 1.25	EF-PS100-BP	13	SC-1008
GSNI-3549-33	150	33.7																												
GSNI-3549-56	250	56.2																												
GSNI-3549-101	450	101.2																												
GSNI-3549-157	700	157.4																												
GSNI-3549-202	900	202.3																												
GSNI-3549-269	1200	269.8																												
N14PBD0200	250	9.843	-	-	566	22.283	14	0.551	28	1.102			200	45	M10 x 1.5	-									-	-				
GSNI-7183	266.7	10.5	668.52	26.32	633	24.921	8	0.315	18	0.709	133	30	M6 x 1.0	EF-PS30B1	10	-														
GSNI-6105											245	55																		
GSNI-6711											378	85																		
GSNI-6702											445	100																		
GSNI-6295											275.08	10.83					630.93	24.84	595	23.425	8	0.315	18	0.709	645	145	M6 x 1.0	EF-PS30B1	10	-
GSNI-6687	276.09	10.87	668.52	26.32	633	24.921	8	0.315	18	0.709	334	75	M6 x 1.0	EF-PS30B1	10	-														
GSNI-6209											534	120																		
GSNI-2600-20-KZZ	279	10.984	-	-	632	24.882	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSNI-2600-20	279	10.984	668	26.299	632	24.882	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS90M1-BP	10	SC-1006														
GSNI-2600-30											133	30																		



# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSNI-2600-40	279	10.984	668	26.299	632	24.882	8	0.315	18	0.709	178	40	M6 x 1.0	EF-PS90M1-BP	10	SC-1006														
GSNI-2600-50											222	50																		
GSNI-2600-60											267	60																		
GSNI-2600-70											311	70																		
GSNI-2600-80											356	80																		
GSNI-2600-90											400	90																		
GSNI-2600-100											445	100																		
GSNI-2600-110											489	110																		
GSNI-2600-120											534	120																		
GSNI-2600-150											667	150																		
GSNI-3000-30											279	10.984					668	26.299	632	24.882	10	0.394	22	0.866	133	30	M6 x 1.0	EF-PS90M1-BP	10	SC-1006
GSNI-3000-40																									178	40				
GSNI-3000-50																									222	50				
GSNI-3000-60																									267	60				
GSNI-3000-70																									311	70				
GSNI-3000-80	356	80																												
GSNI-3000-90	400	90																												
GSNI-3000-100	445	100																												
GSNI-3000-110	489	110																												
GSNI-3000-120	534	120																												
GSNI-3000-130	578	130																												
GSNI-3000-140	623	140																												
GSNI-3000-150	667	150																												
GSNI-3025-30	254	10	668	26.299	608	23.94	10	0.394	22	0.866			133	30	M8 x 1.25	EF-PS100-BP									13	SC-1008				
GSNI-3025-40													178	40																
GSNI-3025-50											222	50																		
GSNI-3025-60											267	60																		
GSNI-3025-70											311	70																		
GSNI-3025-80											356	80																		
GSNI-3025-90											400	90																		
GSNI-3025-100											445	100																		
GSNI-3025-110											489	110																		
GSNI-3025-120											534	120																		
GSNI-3025-130											578	130																		
GSNI-3025-140											623	140																		
GSNI-3025-150											667	150																		
GSNI-3025-160											712	160																		
GSNI-3025-170											756	170																		
GSNI-3025-180	801	180																												
GSNI-2800-20	292	11.496	711	27.992	675	26.575	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS30B1	10	-														
GSNI-2800-30											133	30																		
GSNI-2800-40											178	40																		
GSNI-2800-50											222	50																		
GSNI-2800-60											267	60																		
GSNI-2800-70											311	70																		
GSNI-2800-80											356	80																		
GSNI-2800-90											400	90																		
GSNI-2800-100											445	100																		
GSNI-2800-110											489	110																		
GSNI-2800-120											534	120																		
GSNI-2800-130											578	130																		
GSNI-2800-140											623	140																		
GSNI-2800-150											667	150																		
GSNI-3100-20-KZZ											292	11.496					-	-	651	25.63	10	0.394	23	0.906	89	20	M8 x 1.25	-	-	-
GSNI-3100-20	292	11.496	711	27.992	651	25.63	10	0.394	23	0.906	89	20	M8 x 1.25	EF-PS100-BP	13	SC-1008														
GSNI-3100-30											133	30																		
GSNI-3100-40											178	40																		
GSNI-3100-50											222	50																		
GSNI-3100-60											267	60																		
GSNI-3100-70											311	70																		
GSNI-3100-80											356	80																		
GSNI-3100-90											400	90																		
GSNI-3100-100											445	100																		
GSNI-3100-110											489	110																		
GSNI-3100-120											534	120																		
GSNI-3100-130											578	130																		
GSNI-3100-140											623	140																		
GSNI-3100-150											667	150																		
GSNI-3100-160											712	160																		
GSNI-3100-170	756	170																												
GSNI-3100-175	778	175																												
GSNI-3100-180	801	180																												
GSNI-3100-200	890	200																												
GSNI-3100-250	1112	250																												

# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
GSNI-3050-20-KZZ	300	11.811	-	-	649	25.551	10	0.394	22	0.866	93	21	M6 x 1.0	-	-	-
GSNI-3050-20											93	21				
GSNI-3050-30											133	30				
GSNI-3050-40											178	40				
GSNI-3050-50											222	50				
GSNI-3050-60											267	60				
GSNI-3050-70											311	70				
GSNI-3050-80											356	80				
GSNI-3050-90											400	90				
GSNI-3050-100	300	11.811	685	26.969	649	25.551	10	0.394	22	0.866	445	100	M6 x 1.0	EF-PS30B1	10	-
GSNI-3050-110											489	110				
GSNI-3050-120											534	120				
GSNI-3050-130											578	130				
GSNI-3050-140											623	140				
GSNI-3050-150											667	150				
GSNI-3050-160											712	160				
GSNI-3050-170											756	170				
GSNI-3050-180											801	180				
GSNI-1666-45											200	45				
GSNI-1666-111											496	111.6				
GSNI-1666-179											800	179.9				
GSNI-1666-269	300	11.811	736	28.976	666	26.22	14	0.551	28	1.102	1200	269.8	M10 x 1.5	EF-PS140-BP	16	SC-1010
GSNI-1666-359											1600	359.7				
GSNI-1666-449											2000	449.6				
GSNI-1666-562											2500	562.1				
GSNI-3200-20-KZZ	350	13.78	-	-	749	29.488	10	0.394	22	0.866	98	22	M8 x 1.25	-	-	-
GSNI-3200-20											98	22				
GSNI-3200-30											133	30				
GSNI-3200-40											178	40				
GSNI-3200-50											222	50				
GSNI-3200-60											267	60				
GSNI-3200-70											311	70				
GSNI-3200-80											356	80				
GSNI-3200-90											400	90				
GSNI-3200-100	350	13.78	785	30.906	749	29.488	10	0.394	22	0.866	445	100	M6 x 1.0	EF-PS30B1	10	-
GSNI-3200-110											489	110				
GSNI-3200-120											534	120				
GSNI-3200-130											578	130				
GSNI-3200-140											623	140				
GSNI-3200-150											667	150				
GSNI-3200-160											712	160				
GSNI-3200-170											756	170				
GSNI-3200-180											801	180				
N14SBJ0200	350	13.78	-	-	766	30.157	14	0.551	28	1.102	200	45	M10 x 1.5	-	-	-
GSNI-3600-30											133	30				
GSNI-3600-40											178	40				
GSNI-3600-50											222	50				
GSNI-3600-60											267	60				
GSNI-3600-70											311	70				
GSNI-3600-80											356	80				
GSNI-3600-90											400	90				
GSNI-3600-100	386	15.197	922	36.299	862	33.937	10	0.394	22	0.866	445	100	M8 x 1.25	EF-PS100-BP	13	SC-1008
GSNI-3600-110											489	110				
GSNI-3600-120											534	120				
GSNI-3600-130											578	130				
GSNI-3600-140											623	140				
GSNI-3600-150											667	150				
GSNI-3600-160											712	160				
GSNI-3600-170											756	170				
GSNI-3600-180	386	15.197	922	36.299	862	33.937	10	0.394	22	0.866	801	180	M8 x 1.25	EF-PS100-BP	13	SC-1008
GSNI-3610-30											133	30				
GSNI-3610-40											178	40				
GSNI-3610-50											222	50				
GSNI-3610-60											267	60				
GSNI-3610-70											311	70				
GSNI-3610-80	386	15.197	922	36.299	886	34.882	10	0.394	22	0.866	356	80	M6 x 1.0	EF-PS90M1-BP	10	SC-1006
GSNI-3610-90											400	90				
GSNI-3610-100											445	100				
GSNI-3610-110											489	110				
GSNI-3610-120											534	120				
GSNI-3610-130											578	130				

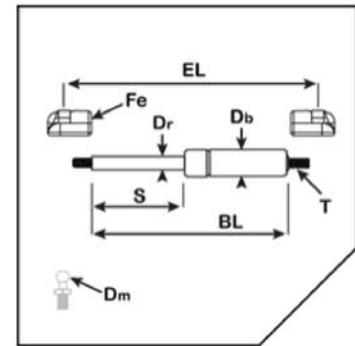
# Gas Springs

## GSNI

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
GSNI-3610-140	386	15.197	922	36.299	886	34.882	10	0.394	22	0.866	623	140	M6 x 1.0	EF-PS90M1-BP	10	SC-1006
GSNI-3610-150											667	150				
GSNI-3610-160											712	160				
GSNI-3610-170											756	170				
GSNI-3610-180											801	180				
GSNI-3849-22	400	15.748	909	35.787	849	33.425	10	0.394	23	0.906	98	22	M8 x 1.25	EF-PS100-BP	13	SC-1008
GSNI-3849-33											150	33.7				
GSNI-3849-56											250	56.2				
GSNI-3849-101											450	101.2				
GSNI-3849-157											700	157.4				
GSNI-3849-202											900	202.3				
GSNI-3849-269											1200	269.8				
GSNI-1866-45	400	15.748	956	37.638	866	34.094	14	0.551	28	1.102	200	45	M10 x 1.5	EF-PS140-BP	16	SC-1010
GSNI-1866-112											500	112.4				
GSNI-1866-179											800	179.9				
GSNI-1866-269											1200	269.8				
GSNI-1866-359											1600	359.7				
GSNI-1866-449											2000	449.6				
GSNI-1866-562											2500	562.1				
GSNI-1066-45	500	19.685	1136	44.724	1066	41.969	14	0.551	28	1.102	200	45	M10 x 1.5	EF-PS140-BP	16	SC-1010
GSNI-1066-112											500	112.4				
GSNI-1066-179											800	179.9				
GSNI-1066-269											1200	269.8				
GSNI-1066-359											1600	359.7				
GSNI-1066-449											2000	449.6				
GSNI-1066-562											2500	562.1				

## Gas Spring Clarifications

Confusion exists regarding dampers, gas struts, gas springs, gas shocks, and many other words used on somewhat interchangeable basis. These terms in fact do distinguish different products. The fact that these products often look similar externally lends to the confusion. Some basic parameters that apply to all of these products are:



### Length:

From center of mounting to center of mounting point for the product. Typically extended or compressed length specified. (EL in diagram corresponds to extended length)

### Stroke:

The amount of travel available in the product. (S in diagram)

### Diameter:

The device may have one or more diameters specified depending on the configuration. (Dr in diagram corresponds to rod diameter, and Db correspond to body diameter).



# Gas Springs

## GSSX

*SPD / Associated Spring RAYMOND GSSX models utilize 316SS construction for maximum corrosion resistance. Surfaces are specially treated for additional hardness. 316SS provide the high cleanliness and corrosion protection required for the marine, medical, and food service industries. Standard struts have dampening on extension only. The spring force listed in the data table is for the extended position of the strut; forces will increase slightly as the strut is compressed. End fittings are supplied as indicated in the data table, but Associated Spring RAYMOND offers a complete line of end fittings to suit your application.*

Consider our m-Struts® for a more robust solution when gas struts are inadequate.



Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSSX-4900-10-KZZ	50	1.969	-	-	154	6.082	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-														
GSSX-4900-10	50	1.969	190	7.48	154	6.082	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-														
GSSX-4900-20											89	20																		
GSSX-4900-30											133	30																		
GSSX-4900-40											178	40																		
GSSX-4900-50											222	50																		
GSSX-4900-60											267	60																		
GSSX-4900-70											311	70																		
GSSX-4900-80											356	80																		
GSSX-2900-20-KZZ	50	1.969	-	-	154	6.063	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2900-20	50	1.969	190	7.48	154	6.082	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS130	10	-														
GSSX-2900-30											133	30																		
GSSX-2900-40											178	40																		
GSSX-2900-50											222	50																		
GSSX-2900-60											267	60																		
GSSX-2900-70											311	70																		
GSSX-2900-80											356	80																		
GSSX-2900-90											400	90																		
GSSX-2900-100											445	100																		
GSSX-2900-110											489	110																		
GSSX-2900-120											534	120																		
GSSX-4160-11											60	2.362					196	7.717	160	6.299	6	0.236	15	0.591	50	11.2	M6 x 1.0	EF-PS130	10	-
GSSX-4160-22	100	22.5																												
GSSX-4160-33	150	33.7																												
GSSX-4160-45	200	45																												
GSSX-4160-56	250	56.2																												
GSSX-4160-67	300	67.4																												
GSSX-4160-78	350	78.7																												
GSSX-4160-89	400	89.9																												
S08BAC0095	60	2.362	-	-	169	6.654	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
S06DAD0045	80	3.15	-	-	200	7.874	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-														
S08DAE0095	80	3.15	-	-	209	8.228	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-5000-10-KZZ	75	2.953	-	-	218	8.583	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-														
GSSX-5000-10	75	2.953	254	10	218	8.583	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-														
GSSX-5000-20											89	20																		
GSSX-5000-30											133	30																		
GSSX-5000-40											178	40																		
GSSX-5000-50											222	50																		
GSSX-5000-60											267	60																		
GSSX-5000-70											311	70																		
GSSX-5000-80											356	80																		
GSSX-2000-20-KZZ	75	2.953	-	-	218	8.583	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2000-20	75	2.953	254	10	218	8.583	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS130	10	-														
GSSX-2000-30											133	30																		
GSSX-2000-40											178	40																		
GSSX-2000-50											222	50																		
GSSX-2000-60											267	60																		
GSSX-2000-70											311	70																		
GSSX-2000-80											356	80																		
GSSX-2000-90											400	90																		
GSSX-2000-100											445	100																		
GSSX-2000-110											489	110																		
GSSX-2000-120											534	120																		
GSSX-2000-150											667	150																		
GSSX-2050-20-KZZ											75	2.953					-	-	231	9.082	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSSX-2050-20											75	2.953					267	10.512	231	9.082	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS130	10	-
GSSX-2050-30																									133	30				
GSSX-2050-40	178	40																												
GSSX-2050-50	222	50																												
GSSX-2050-60	267	60																												
GSSX-2050-70	311	70																												
GSSX-2050-80	356	80																												
GSSX-2050-90	400	90																												
GSSX-2050-100	445	100																												
GSSX-2050-110	489	110																												
GSSX-2050-120	534	120																												

# Gas Springs

## GSSX

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
GSSX-4240-11	100	3.937	276	10.866	240	9.449	6	0.236	15	0.591	50	11.2	M6 x 1.0	EF-PS130	10	-
GSSX-4240-22											100	22.5				
GSSX-4240-33											150	33.7				
GSSX-4240-45											200	45				
GSSX-4240-56											250	56.2				
GSSX-4240-67											300	67.4				
GSSX-4240-78											350	78.7				
GSSX-4240-89											400	89.9				
GSSX-2249-22	100	3.937	285	11.22	249	9.803	8	0.315	18	0.709	100	22.5	M6 x 1.0	EF-PS130	10	-
GSSX-2249-33											150	33.7				
GSSX-2249-56											250	56.2				
GSSX-2249-89											400	89.9				
GSSX-2249-118											525	118				
GSSX-2249-146											649	146				
GSSX-3249-22	100	3.937	309	12.165	249	9.803	10	0.394	22	0.866	100	22.5	M8 x 1.25	EF-PS100SS	13	SC-1008
GSSX-3249-33											150	33.7				
GSSX-3249-56											250	56.2				
GSSX-3249-101											449	101				
GSSX-3249-157											700	157.4				
GSSX-3249-202											900	202.3				
GSSX-3249-270											1201	270				
GSSX-2100-20-KZZ	102	4.016	-	-	264	10.394	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSSX-2100-22	102	4.016	300	11.811	266	10.472	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS130	10	-
GSSX-2100-30											133	30				
GSSX-2100-40											178	40				
GSSX-2100-50											222	50				
GSSX-2100-60											267	60				
GSSX-2100-70											311	70				
GSSX-2100-80											356	80				
GSSX-2100-90											400	90				
GSSX-2100-100											445	100				
GSSX-2100-110											489	110				
GSSX-2100-120											534	120				
GSSX-2100-150											667	150				
GSSX-5100-10-KZZ											102	4.016				
GSSX-5100-10	102	4.016	305	12.008	269	10.591	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-
GSSX-5100-20											89	20				
GSSX-5100-30											133	30				
GSSX-5100-40											178	40				
GSSX-5100-50											222	50				
GSSX-5100-60											267	60				
S08EAL0095	102	4.016	-	-	269	10.582	8	0.315	18	0.709	93	21	M6 x 1.0	-	-	-
GSSX-5100-90-KZZ	102	4.016	-	-	269	10.591	8	0.315	18	0.709	400	90	M6 x 1.0	-	-	-
GSSX-5100-90	102	4.016	305	12.008	269	10.591	8	0.315	18	0.709	400	90	M6 x 1.0	EF-PS130	10	-
S06GAM0045	120	4.724	-	-	280	11.024	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
S08GAN0095	120	4.724	-	-	289	11.378	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
S14FAK0200	100	3.937	-	-	266	10.472	14	0.551	28	1.102	200	45	M10 x 1.5	-	-	-
S08HAO0095	140	5.512	-	-	329	12.953	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSSX-2120-20	140	5.512	-	-	329	12.953	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSSX-2120-30	139.7	5.5	342.9	13.5	307	12.082	8	0.315	18	0.709	93	21	M6x1.0	EF-PS30B1	10	-
GSSX-2120-40											133	30				
GSSX-2120-50											178	40				
GSSX-2120-60											222	50				
GSSX-2120-70											267	60				
GSSX-2120-80											311	70				
GSSX-2120-90											356	80				
GSSX-2120-100											400	90				
GSSX-2120-110											445	100				
GSSX-2120-120											489	110				
GSSX-2120-130											534	120				
GSSX-2120-140											578	130				
GSSX-2120-150											623	140				
GSSX-4340-11	153	6.024	376	14.803	340	13.386	6	0.236	15	0.591	667	150	M6 x 1.0	EF-PS130	10	-
GSSX-4340-22											100	22.5				
GSSX-4340-33											150	33.7				
GSSX-4340-45											200	45				
GSSX-4340-56											250	56.2				
GSSX-4340-67											300	67.4				
GSSX-4340-78											350	78.7				
GSSX-5150-10-KZZ	153	6.024	-	-	345	13.582	6	0.236	15	0.591	44	10	M6 x 1.0	-	-	-
GSSX-5150-10	153	6.024	380	14.961	345	13.582	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-
GSSX-5150-20											89	20				
GSSX-5150-30											133	30				
GSSX-5150-40											178	40				

# Gas Springs

## GSSX

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSSX-5150-50	153	6.024	380	14.961	345	13.582	6	0.236	15	0.591	222	50	M6 x 1.0	EF-PS130	10	-														
GSSX-5150-60											267	60																		
GSSX-5150-80											356	80																		
GSSX-2125-20-KZZ	153	6.024	380	14.961	345	13.582	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2125-20											89	20																		
GSSX-2125-30											133	30																		
GSSX-2125-40											178	40																		
GSSX-2125-50											222	50																		
GSSX-2125-60											267	60																		
GSSX-2125-70											311	70																		
GSSX-2125-80											356	80																		
GSSX-2125-90											400	90																		
GSSX-2125-100											445	100																		
GSSX-2125-110											489	110																		
GSSX-2125-120											534	120																		
GSSX-2349-22											100	22.5																		
GSSX-2349-33											150	33.7																		
GSSX-2349-56											250	56.2																		
GSSX-2349-89	400	89.9																												
GSSX-2349-118	153	6.024	380	14.961	345	13.582	8	0.315	18	0.709	525	118	M6 x 1.0	EF-PS130	10	-														
GSSX-2349-146											649	146																		
GSSX-2150-20-KZZ	140	5.512	385	15.157	351	13.832	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2150-20											89	20																		
GSSX-2150-30											133	30																		
GSSX-2150-60											267	60																		
GSSX-2150-90											400	90																		
GSSX-2150-120											534	120																		
GSSX-2150-150											667	150																		
S08KAT0095											160	6.299					-	-	369	14.528	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
S10JAR0095											150	5.906					-	-	349	13.74	10	0.394	23	0.906	93	21	M8 x 1.25	-	-	-
GSSX-5200-10-KZZ											178	7.008					432	17.008	394	15.512	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-
GSSX-5200-10	44	10																												
GSSX-5200-20	89	20																												
GSSX-5200-30	133	30																												
GSSX-5200-40	178	40																												
GSSX-5200-50	222	50																												
GSSX-5200-60	267	60																												
GSSX-5200-75	334	75																												
S08LAU0095	178	7.008	432	17.008	394	15.512	8	0.315	18	0.709			89	20	M6 x 1.0	-									-	-				
GSSX-5200-90	178	7.008	432	17.008	396	15.582	8	0.315	18	0.709			400	90	M6 x 1.0	EF-PS130									10	-				
GSSX-2200-20-KZZ	178	7.008	430	16.929	396	15.591	8	0.315	18	0.709			89	20	M6 x 1.0	-									-	-				
GSSX-2200-20													89	20																
GSSX-2200-30											133	30																		
GSSX-2200-40											178	40																		
GSSX-2200-50											222	50																		
GSSX-2200-60											267	60																		
GSSX-2200-70											311	70																		
GSSX-2200-80											356	80																		
GSSX-2200-90											400	90																		
GSSX-2200-100											445	100																		
GSSX-2200-110											489	110																		
GSSX-2200-120											534	120																		
GSSX-2200-150											667	150																		
S14JAS0200											150	5.906	-	-			366	14.409	14	0.551	28	1.102	200	45			M10 x 1.5	-	-	-
S08MAV0095											180	7.087	-	-			409	16.102	8	0.315	18	0.709	89	20			M6 x 1.0	-	-	-
GSSX-5250-10-KZZ											197	7.756	470	18.504			434	17.087	6	0.236	15	0.591	44	10			M6 x 1.0	EF-PS130	10	-
GSSX-5250-10																							44	10						
GSSX-5250-20																							89	20						
GSSX-5250-30	133	30																												
GSSX-5250-45	200	45																												
GSSX-5250-60	267	60																												
GSSX-5250-75	334	75																												
GSSX-2250-20-KZZ	197	7.756	470	18.504	434	17.082	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2250-90											400	90																		
GSSX-2250-120											534	120																		
GSSX-2250-150											667	150																		
GSSX-4440-11											44	10																		
GSSX-4440-22	100	22.5																												
GSSX-4440-33	200	7.874	476	18.74	440	17.323	6	0.236	15	0.591	150	33.7	M6 x 1.0	EF-PS130	10	-														
GSSX-4440-56											250	56.2																		
GSSX-4440-89											400	89.9																		

# Gas Springs

## GSSX

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSSX-2449-22	200	7.874	485	19.094	449	17.677	8	0.315	18	0.709	100	22.5	M6 x 1.0	EF-PS130	10	-														
GSSX-2449-33											150	33.7																		
GSSX-2449-56											250	56.2																		
GSSX-2449-89											400	89.9																		
GSSX-2449-118											525	118																		
GSSX-2449-135											601	135																		
GSSX-1466-45	200	7.874	536	21.102	466	18.346	14	0.551	28	1.102	200	45	M10 x 1.5	EF-PS140SS	16	SC-1010														
GSSX-1466-112											500	112.4																		
GSSX-1466-179											800	179.9																		
GSSX-1466-269											1200	269.8																		
GSSX-1466-359											1600	359.7																		
GSSX-1466-449											2000	449.6																		
GSSX-1466-562	2500	562.1																												
GSSX-5300-10-KZZ	203	7.992	-	-	472	18.583	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-														
GSSX-5300-10	203	7.992	508	20	472	18.583	6	0.236	15	0.591	44	10	M6 x 1.0	EF-PS130	10	-														
GSSX-5300-20											89	20																		
GSSX-5300-30											133	30																		
GSSX-5300-40											178	40																		
GSSX-5300-50											222	50																		
GSSX-5300-60											267	60																		
GSSX-2300-20-KZZ	203	7.992	-	-	472	18.583	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2300-20	203	7.992	508	20	472	18.583	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS130	10	-														
GSSX-2300-30											133	30																		
GSSX-2300-40											178	40																		
GSSX-2300-50											222	50																		
GSSX-2300-60											267	60																		
GSSX-2300-70											311	70																		
GSSX-2300-75	334	75																												
GSSX-2300-80	203	7.992	508	20	472	18.583	8	0.315	18	0.709	356	80	M6 x 1.0	EF-PS130	10	-														
GSSX-2300-90											400	90																		
GSSX-2300-100											445	100																		
GSSX-2300-110											489	110																		
GSSX-2300-120											534	120																		
GSSX-2300-130											578	130																		
GSSX-2300-150											667	150																		
GSSX-3020-20-KZZ											200	7.874					-	-	453	17.835	10	0.394	23	0.906	93	21	M8 x 1.25	-	-	-
GSSX-3020-20											200	7.874					513	20.197	453	17.835	10	0.394	23	0.906	93	21	M8 x 1.25	EF-PS100SS	13	SC-1008
GSSX-3020-30																									133	30				
GSSX-3020-40	178	40																												
GSSX-3020-50	222	50																												
GSSX-3020-60	267	60																												
GSSX-3020-70	311	70																												
GSSX-3020-80	356	80																												
GSSX-3020-90	400	90																												
GSSX-3020-100	445	100																												
GSSX-3020-110	489	110																												
GSSX-3020-120	534	120																												
GSSX-3020-130	578	130																												
GSSX-3020-140	623	140																												
GSSX-3020-150	667	150																												
GSSX-3020-160	712	160																												
GSSX-3020-170	756	170																												
GSSX-3020-180	801	180																												
S080BB0095	220	8.661	-	-	489	19.252	8	0.315	18	0.709			89	20	M6 x 1.0	-									-	-				
GSSX-2400-20-KZZ	250	9.843	-	-	549	21.614	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-														
GSSX-2400-20	250	9.843	585	23.031	549	21.614	8	0.315	18	0.709	89	20	M6 x 1.0	EF-PS130	10	-														
GSSX-2400-30											133	30																		
GSSX-2400-40											178	40																		
GSSX-2400-50											222	50																		
GSSX-2400-60											267	60																		
GSSX-2400-70											311	70																		
GSSX-2400-80											356	80																		
GSSX-2400-90											400	90																		
GSSX-2400-100											445	100																		
GSSX-2400-110											489	110																		
GSSX-2400-120											534	120																		
GSSX-3549-22											250	9.843					609	23.976	549	21.614	10	0.394	23	0.906	100	22.5	M8 x 1.25	EF-PS100SS	13	SC-1008
GSSX-3549-33	150	33.7																												
GSSX-3549-56	250	56.2																												
GSSX-3549-101	450	101.2																												
GSSX-3549-157	700	157.4																												
GSSX-3549-202	900	202.3																												
GSSX-3549-269	1200	269.8																												
S14PBD0200	250	9.843	-	-	566	22.283	14	0.551	28	1.102	200	45	M10 x 1.5	-	-	-														

# Gas Springs

## GSSX

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
GSSX-2600-20-KZZ	279	10.984	-	-	632	24.882	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSSX-2600-20											89	20				
GSSX-2600-30											133	30				
GSSX-2600-40											178	40				
GSSX-2600-50											222	50				
GSSX-2600-60											267	60				
GSSX-2600-70	279	10.984	668	26.299	632	24.882	8	0.315	18	0.709	311	70	M6 x 1.0	EF-PS90M1SS	10	SC-1006
GSSX-2600-80											356	80				
GSSX-2600-90											400	90				
GSSX-2600-100											445	100				
GSSX-2600-110											489	110				
GSSX-2600-120											534	120				
GSSX-3000-30											133	30				
GSSX-3000-40											178	40				
GSSX-3000-50											222	50				
GSSX-3000-60											267	60				
GSSX-3000-70											311	70				
GSSX-3000-80											356	80				
GSSX-3000-90	279	10.984	668	26.299	632	24.882	10	0.394	22	0.866	400	90	M6 x 1.0	EF-PS90M1SS	10	SC-1006
GSSX-3000-100											445	100				
GSSX-3000-110											489	110				
GSSX-3000-120											534	120				
GSSX-3000-130											578	130				
GSSX-3000-140											623	140				
GSSX-3000-150											667	150				
GSSX-3025-30											133	30				
GSSX-3025-40											178	40				
GSSX-3025-50											222	50				
GSSX-3025-60											267	60				
GSSX-3025-70											311	70				
GSSX-3025-80											356	80				
GSSX-3025-90											400	90				
GSSX-3025-100	254	10	668	26.299	608	23.94	10	0.394	22	0.866	445	100	M8 x 1.25	EF-PS100SS	13	SC-1008
GSSX-3025-110											489	110				
GSSX-3025-120											534	120				
GSSX-3025-130											578	130				
GSSX-3025-140											623	140				
GSSX-3025-150											667	150				
GSSX-3025-160											712	160				
GSSX-3025-170											756	170				
GSSX-3025-180											801	180				
GSSX-3050-20-KZZ	300	11.811	-	-	649	25.551	10	0.394	22	0.866	93	21	M6 x 1.0	-	-	-
GSSX-3050-20											93	21				
GSSX-3050-30											133	30				
GSSX-3050-40											178	40				
GSSX-3050-50											222	50				
GSSX-3050-60											267	60				
GSSX-3050-70											311	70				
GSSX-3050-80											356	80				
GSSX-3050-90											400	90				
GSSX-3050-100	300	11.811	685	26.969	649	25.551	10	0.394	22	0.866	445	100	M6 x 1.0	EF-PS90M1SS	10	SC-1006
GSSX-3050-110											489	110				
GSSX-3050-120											534	120				
GSSX-3050-130											578	130				
GSSX-3050-140											623	140				
GSSX-3050-150											667	150				
GSSX-3050-160											712	160				
GSSX-3050-170											756	170				
GSSX-3050-180											801	180				
GSSX-1666-45											200	45				
GSSX-1666-111											496	111.6				
GSSX-1666-179											800	179.9				
GSSX-1666-269	300	11.811	736	28.976	666	26.22	14	0.551	28	1.102	1200	269.8	M10 x 1.5	EF-PS140SS	16	SC-1010
GSSX-1666-359											1600	359.7				
GSSX-1666-449											2000	449.6				
GSSX-1666-562											2500	562.1				
GSSX-2800-20-KZZ	292	11.496	-	-	675	26.575	8	0.315	18	0.709	89	20	M6 x 1.0	-	-	-
GSSX-2800-20											89	20				
GSSX-2800-30											133	30				
GSSX-2800-40	292	11.496	711	27.992	675	26.575	8	0.315	18	0.709	178	40	M6 x 1.0	EF-PS130	10	-
GSSX-2800-50											222	50				



# Gas Springs

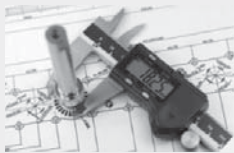
## GSSX

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSSX-2800-60	292	11.496	711	27.992	67	26.575	8	0.315	18	0.709	267	60	M6 x 1.0	EF-PS130	10	-														
GSSX-2800-70											311	70																		
GSSX-2800-80											356	80																		
GSSX-2800-90											400	90																		
GSSX-2800-100											445	100																		
GSSX-2800-110											489	110																		
GSSX-2800-120											534	120																		
GSSX-2800-130											578	130																		
GSSX-2800-140											623	140																		
GSSX-2800-150											667	150																		
GSSX-3100-20-KZZ	292	11.496	-	-	651	25.63	10	0.394	22	0.866	89	20	M8 x 1.25	-	-	-														
GSSX-3100-20	292	11.496	711	27.992	651	25.63	10	0.394	22	0.866	89	20	M8 x 1.25	EF-PS100SS	13	SC-1008														
GSSX-3100-30											133	30																		
GSSX-3100-40											178	40																		
GSSX-3100-50											222	50																		
GSSX-3100-60											267	60																		
GSSX-3100-70											311	70																		
GSSX-3100-80											356	80																		
GSSX-3100-90											400	90																		
GSSX-3100-100											445	100																		
GSSX-3100-110											489	110																		
GSSX-3100-120											534	120																		
GSSX-3100-130											578	130																		
GSSX-3100-140											623	140																		
GSSX-3100-150											667	150																		
GSSX-3100-160											712	160																		
GSSX-3100-170											756	170																		
GSSX-3100-175											778	175																		
GSSX-3100-180											801	180																		
GSSX-3100-200											890	200																		
GSSX-3100-250											1112	250																		
GSSX-3200-20-KZZ	350	13.78	-	-	749	29.488	10	0.394	22	0.866	93	21	M6 x 1.0	-	-	-														
GSSX-3200-20	350	13.78	785	30.906	749	29.488	10	0.394	22	0.866	93	21	M6 x 1.0	EF-PS90M1SS	10	SC-1006														
GSSX-3200-30											133	30																		
GSSX-3200-40											178	40																		
GSSX-3200-50											222	50																		
GSSX-3200-60											267	60																		
GSSX-3200-70											311	70																		
GSSX-3200-80											356	80																		
GSSX-3200-90											400	90																		
GSSX-3200-100											445	100																		
GSSX-3200-110											489	110																		
GSSX-3200-120											534	120																		
GSSX-3200-130											578	130																		
GSSX-3200-140											623	140																		
GSSX-3200-150											667	150																		
GSSX-3200-160											712	160																		
GSSX-3200-170											756	170																		
GSSX-3200-180											801	180																		
S14SBJ0200											200	45																		
GSSX-3849-22											93	21					-	-	766	30.157	14	0.551	28	1.102	200	45	M10 x 1.5	-	-	-
GSSX-3849-33											150	33.7																		
GSSX-3849-56	250	56.2																												
GSSX-3849-101	450	101.2																												
GSSX-3849-157	700	157.4																												
GSSX-3849-202	900	202.3																												
GSSX-3849-269	1200	269.8																												
GSSX-3610-30	386	15.197	922	36.299	886	34.882	10	0.394	22	0.866	133	30	M6 x 1.0	EF-PS90M1SS	10	SC-1006														
GSSX-3610-40											178	40																		
GSSX-3610-50											222	50																		
GSSX-3610-60											267	60																		
GSSX-3610-70											311	70																		
GSSX-3610-80											356	80																		
GSSX-3610-90											400	90																		
GSSX-3610-100											445	100																		
GSSX-3610-110											489	110																		
GSSX-3610-120											534	120																		
GSSX-3610-130											578	130																		
GSSX-3610-140											623	140																		
GSSX-3610-150											667	150																		
GSSX-3610-160											712	160																		
GSSX-3610-170											756	170																		
GSSX-3610-180											801	180																		

# Gas Springs

## GSSX

Part Number	Stroke (S)		Extended Length (EL)		Base Cylinder Length (BL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip														
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs																		
GSSX-3600-30	386	15.197	922	36.299	886	34.882	10	0.394	22	0.866	133	30	M8 x 1.25	EF-PS100SS	13	SC-1008														
GSSX-3600-40											178	40																		
GSSX-3600-50											222	50																		
GSSX-3600-60											267	60																		
GSSX-3600-70											311	70																		
GSSX-3600-80											356	80																		
GSSX-3600-90											400	90																		
GSSX-3600-100											445	100																		
GSSX-3600-110											489	110																		
GSSX-3600-120											534	120																		
GSSX-3600-130											578	130																		
GSSX-3600-140											623	140																		
GSSX-3600-150											667	150																		
GSSX-3600-160											712	160																		
GSSX-3600-170											756	170																		
GSSX-3600-180											801	180																		
GSSX-1866-45											400	15.748					956	37.638	866	34.094	14	0.551	28	1.102	200	45	M10 x 1.5	EF-PS140SS	16	SC-1010
GSSX-1866-112																									500	112.4				
GSSX-1866-179	800	179.9																												
GSSX-1866-269	1200	269.8																												
GSSX-1866-359	1600	359.7																												
GSSX-1866-449	2000	449.6																												
GSSX-1066-45	500	19.685	1136	44.724	1066	41.969	14	0.551	28	1.102	200	45	M10 x 1.5	EF-PS140SS	16	SC-1010														
GSSX-1066-112											500	112.4																		
GSSX-1066-179											800	179.9																		
GSSX-1066-269											1200	269.8																		
GSSX-1066-359											1600	359.7																		
GSSX-1066-449											2000	449.6																		
GSSX-1066-562											2500	562.1																		



Traction Springs (featured on opposite page) pull instead of push like traditional springs/struts. Gas versions as well as mechanical designs (m-Struts®) are available both as standard parts & custom solutions for OEM applications.

Visit [www.asraymond.com](http://www.asraymond.com) to learn more.

# Gas Springs

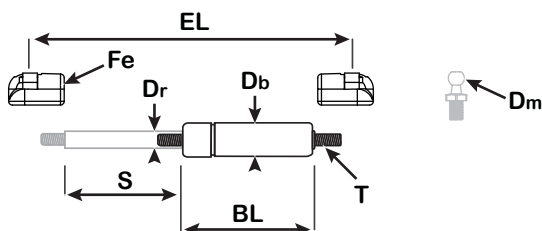
## TSNI

**Traction Gas Struts (or Gas Springs) TSNI models operate in reverse of standard struts. These models operate in extension (tension) rather than compression. Nitride protection affords corrosion protection. Complete parts are black in appearance. End fittings are supplied as indicated in the data table, but SPD / Associated Spring RAYMOND offers a complete line of end fittings to suit your application.**

Consider our m-Struts® for a more robust solution when gas struts are inadequate.



Part Number	Stroke (S)		Base Cylinder Length (BL)		Extended Length (EL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Threads (T)	Included End Fitting (Fe)	Matching Ball Std Size (Dm)	Required Safety Clip
	mm	in	mm	in	mm	in	mm	in	mm	in	N	lbs				
T06YCY0050	20	0.787	120	4.724	-	-	6	0.236	19	0.748	50	11	M6 x 1.0	-	-	-
T08YCY0100	20	0.787	120	4.724	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
TSNI-0050-0150	50	1.969	200	7.874	260	10.236	10	0.394	27	1.063	150	34	M8 x 1.25	EF-PS100BP	13	SC-1008
TSNI-0050-200											200	45				
TSNI-0050-0250											250	56				
TSNI-0050-0300											300	67				
TSNI-0050-0350											350	79				
TSNI-0050-0400											400	90				
T06BAB0050	60	2.362	220	8.661	-	-	6	0.236	19	0.748	50	11	M6 x 1.0	-	-	-
T08BAB0100	60	2.362	220	8.661	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
T08DCX0100	80	3.15	260	10.236	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
T06FAD0050	100	3.937	300	11.811	-	-	6	0.236	19	0.748	50	11	M6 x 1.0	-	-	-
T08FAD0100	100	3.937	300	11.811	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
TSNI-0100-0100	100	3.937	300	11.811	360	14.173	10	0.394	27	1.063	100	22	M8 x 1.25	EF-PS100BP	13	SC-1008
TSNI-0100-0200											200	45				
TSNI-0100-0250											250	56				
TSNI-0100-0300											300	67				
TSNI-0100-0350											350	79				
TSNI-0100-0400											400	90				
T08GCW0100	120	4.724	340	13.386	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
T06JCV0050	150	5.906	420	16.535	-	-	6	0.236	19	0.748	50	11	M6 x 1.0	-	-	-
TSNI-0150-0100	150	5.906	399	15.709	460	18.11	10	0.394	27	1.063	100	22	M8 x 1.25	EF-PS100BP	13	SC-1008
TSNI-0150-0200											200	45				
TSNI-0150-0250											250	56				
TSNI-0150-0300											300	67				
TSNI-0150-0350											350	79				
TSNI-0150-0400											400	90				
T08KCV 0100	160	6.299	420	16.535	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
T08NCR0100	200	7.874	500	19.685	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
TSNI-0200-0100	200	7.874	500	19.685	560	22.047	10	0.394	27	1.063	100	22	M8 x 1.25	EF-PS100BP	13	SC-1008
TSNI-0200-0200											200	45				
TSNI-0200-0250											250	56				
TSNI-0200-0300											300	67				
TSNI-0200-0350											350	79				
TSNI-0200-0400											400	90				
T08PAR0100	250	9.843	599	23.583	-	-	8	0.315	22	0.866	100	22	M6 x 1.0	-	-	-
TSNI-0250-0100	250	9.843	599	23.583	660	25.984	10	0.394	27	1.063	100	22	M8 x 1.25	EF-PS100BP	13	SC-1008
TSNI-0250-0200											200	45	M8 x 1.25			
TSNI-0250-0250											250	56	M8 x 1.25			
TSNI-0250-0300											300	67	M8 x 1.25			
TSNI-0250-0350											350	79	M8 x 1.25			
TSNI-0250-0400											400	90	M8 x 1.25			
TSNI-0250-0450											450	101	M8 x 1.25			
TSNI-0250-0500											500	112	M8 x 1.25			
TSNI-0250-0550											550	124	M8 x 1.25			
TSNI-0250-0600											600	135	M8 x 1.25			
TSNI-0250-0650											650	146	M8 x 1.25			
TSNI-0300-0100	300	11.811	700	27.559	760	29.921	10	0.394	27	1.063	100	22	M8 x 1.25	EF-PS100BP	13	SC-1008
TSNI-0300-0200											200	45	M8 x 1.25			
TSNI-0300-0250											250	56	M8 x 1.25			
TSNI-0300-0300											300	67	M8 x 1.25			
TSNI-0300-0350											350	79	M8 x 1.25			
TSNI-0300-0400											400	90	M8 x 1.25			
T10ICL0150	475	18.701	1635	64.37	-	-	10	0.394	27	1.063	100	22	M10 x 1.5	-	-	-
T10ICL0400	475	18.701	1635	64.37	-	-	10	0.394	27	1.063	400	90	M10 x 1.5	-	-	-

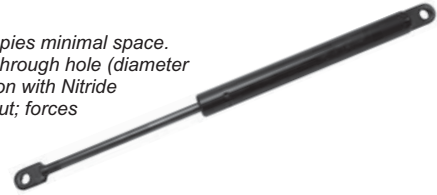


# Gas Springs

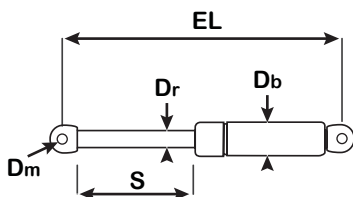
## GSWB

**Welded Blade End Gas Struts** by SPD / Associated Spring RAYMOND offer a rigid mounting system that occupies minimal space. The Blade Ends that are welded on are thinner than typical end fittings that attach via threads. Each end has a through hole (diameter varies as indicated in the table) for a pin or bolt. Welded Blade End Gas Springs are made from steel construction with Nitride protection for corrosion resistance. The spring force listed in the data table is for the extended position of the strut; forces will increase slightly as the strut is compressed.

Consider our m-Struts® for a more robust solution when gas struts are inadequate.



Part Number	Stroke (S)		Extended Length (EL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Eyelet Diameter (Dm)	
	mm	in	mm	in	mm	in	mm	in	N	lbs	mm	in
GSWB-4106-11	20	0.787	106	4.173	6	0.236	15	0.591	50	11	6.1	0.24
GSWB-4106-22									100	22		
GSWB-4106-33									150	34		
GSWB-4106-45									200	45		
GSWB-4106-56									250	56		
GSWB-4106-67									300	67		
GSWB-4106-78									350	79		
GSWB-4146-11	40	1.575	146	5.748	6	0.236	15	0.591	50	11	6.1	0.24
GSWB-4146-22									100	22		
GSWB-4146-33									150	34		
GSWB-4146-45									200	45		
GSWB-4146-56									250	56		
GSWB-4146-67									300	67		
GSWB-4146-78									350	79		
GSWB-4165-11	41	1.614	165	6.496	6	0.236	15	0.591	50	11	6.1	0.24
GSWB-4165-22									100	22		
GSWB-4165-33									150	34		
GSWB-4165-45									200	45		
GSWB-4165-56									250	56		
GSWB-4165-67									300	67		
GSWB-4165-78									350	79		
GSWB-4186-11	60	2.362	186	7.323	6	0.236	15	0.591	50	11	6.1	0.24
GSWB-4186-22									100	22		
GSWB-4186-33									150	34		
GSWB-4186-45									200	45		
GSWB-4186-56									250	56		
GSWB-4186-67									300	67		
GSWB-4186-78									350	79		
GSWB-2206-22	60	2.362	206	8.11	8	0.315	18	0.709	100	22	8.1	0.319
GSWB-2206-33									150	34		
GSWB-2206-45									200	45		
GSWB-2206-56									250	56		
GSWB-2206-67									300	67		
GSWB-2206-78									350	79		
GSWB-2206-89									400	90		
GSWB-2206-101									450	101		
GSWB-2206-112									500	112		
GSWB-2206-123									550	124		
GSWB-2206-134									600	135		
GSWB-2206-146									650	146		
GSWB-2254-22									75	2.953		
GSWB-2254-33	150	34										
GSWB-2254-45	200	45										
GSWB-2254-56	250	56										
GSWB-2254-67	300	67										
GSWB-2254-78	350	79										
GSWB-2254-89	400	90										
GSWB-2254-101	450	101										
GSWB-2254-112	500	112										
GSWB-2254-123	550	124										
GSWB-2254-134	600	135										
GSWB-2254-146	650	146										
GSWB-4226-11	80	3.15	226	8.898	6	0.236	15	0.591			50	11
GSWB-4226-22									100	22		
GSWB-4226-33									150	34		
GSWB-4226-45									200	45		
GSWB-4226-56									250	56		
GSWB-4226-67									300	67		
GSWB-4226-78									350	79		



# Gas Springs

## GSWB

Part Number	Stroke (S)		Extended Length (EL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Eyelet Diameter (Dm)											
	mm	in	mm	in	mm	in	mm	in	N	lbs	mm	in										
GSWB-2246-22	80	3.15	246	9.685	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2246-33									150	34												
GSWB-2246-45									200	45												
GSWB-2246-56									250	56												
GSWB-2246-67									300	67												
GSWB-2246-78									350	79												
GSWB-2246-89									400	90												
GSWB-2246-101									450	101												
GSWB-2246-112									500	112												
GSWB-2246-123									550	124												
GSWB-2246-134									600	135												
GSWB-2246-146									650	146												
GSWB-3286-33									95	3.74			286	11.26	10	0.394	23	0.906	150	34	8.1	0.319
GSWB-3286-45																			200	45		
GSWB-3286-56	250	56																				
GSWB-3286-67	300	67																				
GSWB-3286-78	350	79																				
GSWB-3286-89	400	90																				
GSWB-3286-101	450	101																				
GSWB-3286-112	500	112																				
GSWB-3286-123	550	124																				
GSWB-3286-134	600	135																				
GSWB-3286-146	650	146																				
GSWB-3286-157	700	157																				
GSWB-3286-168	750	169																				
GSWB-3286-179	800	180																				
GSWB-4264-11	100	3.937	264	10.394	6	0.236	15	0.591	50	11	6.1	0.24										
GSWB-4264-22									100	22												
GSWB-4264-33									150	34												
GSWB-4264-45									200	45												
GSWB-4264-56									250	56												
GSWB-4264-67									300	67												
GSWB-4264-78									350	79												
GSWB-2286-22	100	3.937	286	11.26	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2286-33									150	34												
GSWB-2286-45									200	45												
GSWB-2286-56									250	56												
GSWB-2286-67									300	67												
GSWB-2286-78									350	79												
GSWB-2286-89									400	90												
GSWB-2286-101									450	101												
GSWB-2286-112									500	112												
GSWB-2286-123									550	124												
GSWB-2286-134									600	135												
GSWB-2286-146									650	146												
GSWB-4305-11									120	4.724			305	12.008	6	0.236	15	0.591	50	11	6.1	0.24
GSWB-4305-22																			100	22		
GSWB-4305-33	150	34																				
GSWB-4305-45	200	45																				
GSWB-4305-56	250	56																				
GSWB-4305-67	300	67																				
GSWB-4305-78	350	79																				
GSWB-2326-22	120	4.724	326	12.835	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2326-33									150	34												
GSWB-2326-45									200	45												
GSWB-2326-56									250	56												
GSWB-2326-67									300	67												
GSWB-2326-78									350	79												
GSWB-2326-89									400	90												
GSWB-2326-101									450	101												
GSWB-2326-112									500	112												
GSWB-2326-123									550	124												
GSWB-2326-134									600	135												
GSWB-2326-146									650	146												
GSWB-2366-22									140	5.512			366	14.409	8	0.315	18	0.709	100	22	8.1	0.319
GSWB-2366-33																			150	34		
GSWB-2366-45	200	45																				
GSWB-2366-56	250	56																				
GSWB-2366-67	300	67																				
GSWB-2366-78	350	79																				
GSWB-2366-89	400	90																				
GSWB-2366-101	450	101																				
GSWB-2366-112	500	112																				
GSWB-2366-123	550	124																				
GSWB-2366-134	600	135																				
GSWB-2366-146	650	146																				

# Gas Springs

## GSWB

Part Number	Stroke (S)		Extended Length (EL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Eyelet Diameter (Dm)											
	mm	in	mm	in	mm	in	mm	in	N	lbs	mm	in										
GSWB-2246-22	80	3.15	246	9.685	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2246-33									150	34												
GSWB-2246-45									200	45												
GSWB-2246-56									250	56												
GSWB-2246-67									300	67												
GSWB-2246-78									350	79												
GSWB-2246-89									400	90												
GSWB-2246-101									450	101												
GSWB-2246-112									500	112												
GSWB-2246-123									550	124												
GSWB-2246-134									600	135												
GSWB-2246-146									650	146												
GSWB-3286-33									95	3.74			286	11.26	10	0.394	23	0.906	150	34	8.1	0.319
GSWB-3286-45																			200	45		
GSWB-3286-56	250	56																				
GSWB-3286-67	300	67																				
GSWB-3286-78	350	79																				
GSWB-3286-89	400	90																				
GSWB-3286-101	450	101																				
GSWB-3286-112	500	112																				
GSWB-3286-123	550	124																				
GSWB-3286-134	600	135																				
GSWB-3286-146	650	146																				
GSWB-3286-157	700	157																				
GSWB-3286-168	750	169																				
GSWB-3286-179	800	180																				
GSWB-4264-11	100	3.937	264	10.394	6	0.236	15	0.591	50	11	6.1	0.24										
GSWB-4264-22									100	22												
GSWB-4264-33									150	34												
GSWB-4264-45									200	45												
GSWB-4264-56									250	56												
GSWB-4264-67									300	67												
GSWB-4264-78									350	79												
GSWB-2286-22	100	3.937	286	11.26	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2286-33									150	34												
GSWB-2286-45									200	45												
GSWB-2286-56									250	56												
GSWB-2286-67									300	67												
GSWB-2286-78									350	79												
GSWB-2286-89									400	90												
GSWB-2286-101									450	101												
GSWB-2286-112									500	112												
GSWB-2286-123									550	124												
GSWB-2286-134									600	135												
GSWB-2286-146									650	146												
GSWB-4305-11									120	4.724			305	12.008	6	0.236	15	0.591	50	11	6.1	0.24
GSWB-4305-22																			100	22		
GSWB-4305-33	150	34																				
GSWB-4305-45	200	45																				
GSWB-4305-56	250	56																				
GSWB-4305-67	300	67																				
GSWB-4305-78	350	79																				
GSWB-2326-22	120	4.724	326	12.835	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2326-33									150	34												
GSWB-2326-45									200	45												
GSWB-2326-56									250	56												
GSWB-2326-67									300	67												
GSWB-2326-78									350	79												
GSWB-2326-89									400	90												
GSWB-2326-101									450	101												
GSWB-2326-112									500	112												
GSWB-2326-123									550	124												
GSWB-2326-134									600	135												
GSWB-2326-146									650	146												
GSWB-2366-22									140	5.512			366	14.409	8	0.315	18	0.709	100	22	8.1	0.319
GSWB-2366-33																			150	34		
GSWB-2366-45	200	45																				
GSWB-2366-56	250	56																				
GSWB-2366-67	300	67																				
GSWB-2366-78	350	79																				
GSWB-2366-89	400	90																				
GSWB-2366-101	450	101																				
GSWB-2366-112	500	112																				
GSWB-2366-123	550	124																				
GSWB-2366-134	600	135																				
GSWB-2366-146	650	146																				

# Gas Springs

## GSWB

Part Number	Stroke (S)		Extended Length (EL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Eyelet Diameter (Dm)											
	mm	in	mm	in	mm	in	mm	in	N	lbs	mm	in										
GSWB-3486-33	200	7.874	486	19.134	10	0.394	23	0.906	150	34	8.1	0.319										
GSWB-3486-45									200	45												
GSWB-3486-56									250	56												
GSWB-3486-67									300	67												
GSWB-3486-78									350	79												
GSWB-3486-89									400	90												
GSWB-3486-101									450	101												
GSWB-3486-112									500	112												
GSWB-3486-123									550	124												
GSWB-3486-134									600	135												
GSWB-3486-146									650	146												
GSWB-3486-157									700	157												
GSWB-3486-168									750	169												
GSWB-3486-179									800	180												
GSWB-2508-22									213	8.386			508	20	8	0.315	18	0.709	100	22	8.1	0.319
GSWB-2508-33																			150	34		
GSWB-2508-45	200	45																				
GSWB-2508-56	250	56																				
GSWB-2508-67	300	67																				
GSWB-2508-78	350	79																				
GSWB-2508-89	400	90																				
GSWB-2508-101	450	101																				
GSWB-2508-112	500	112																				
GSWB-2508-123	550	124																				
GSWB-2508-134	600	135																				
GSWB-2508-146	650	146																				
GSWB-2526-22	220	8.661	526	20.709	8	0.315	18	0.709			100	22							8.1	0.319		
GSWB-2526-33											150	34										
GSWB-2526-45											200	45										
GSWB-2526-56											250	56										
GSWB-2526-67									300	67												
GSWB-2526-78									350	79												
GSWB-2526-89									400	90												
GSWB-2526-101									450	101												
GSWB-2526-112									500	112												
GSWB-2526-123									550	124												
GSWB-2526-134									600	135												
GSWB-2526-146									650	146												
GSWB-2586-22									250	9.843	586	23.071	8	0.315	18	0.709	100	22			8.1	0.319
GSWB-2586-33																	150	34				
GSWB-2586-45																	200	45				
GSWB-2586-56																	250	56				
GSWB-2586-67	300	67																				
GSWB-2586-78	350	79																				
GSWB-2586-89	400	90																				
GSWB-2586-101	450	101																				
GSWB-2586-112	500	112																				
GSWB-2586-123	550	124																				
GSWB-2586-134	600	135																				
GSWB-2586-146	650	146																				
GSWB-3586-33	250	9.843	586	23.071	10	0.394	23	0.906									150	34	8.1	0.319		
GSWB-3586-45																	200	45				
GSWB-3586-56																	250	56				
GSWB-3586-67																	300	67				
GSWB-3586-78									350	79												
GSWB-3586-89									400	90												
GSWB-3586-101									450	101												
GSWB-3586-112									500	112												
GSWB-3586-123									550	124												
GSWB-3586-134									600	135												
GSWB-3586-146									650	146												
GSWB-3586-157									700	157												
GSWB-3586-168									750	169												
GSWB-3586-179									800	180												

# Gas Springs

## GSWB

Part Number	Stroke (S)		Extended Length (EL)		Rod Diameter (Dr)		Body Diameter (Db)		Force		Eyelet Diameter (Dm)											
	mm	in	mm	in	mm	in	mm	in	N	lbs	mm	in										
GSWB-3486-33	200	7.874	486	19.134	10	0.394	23	0.906	150	34	8.1	0.319										
GSWB-3486-45									200	45												
GSWB-3486-56									250	56												
GSWB-3486-67									300	67												
GSWB-3486-78									350	79												
GSWB-3486-89									400	90												
GSWB-3486-101									450	101												
GSWB-3486-112									500	112												
GSWB-3486-123									550	124												
GSWB-3486-134									600	135												
GSWB-3486-146									650	146												
GSWB-3486-157									700	157												
GSWB-3486-168									750	169												
GSWB-3486-179									800	180												
GSWB-2508-22	213	8.386	508	20	8	0.315	18	0.709	100	22	8.1	0.319										
GSWB-2508-33									150	34												
GSWB-2508-45									200	45												
GSWB-2508-56									250	56												
GSWB-2508-67									300	67												
GSWB-2508-78									350	79												
GSWB-2508-89									400	90												
GSWB-2508-101									450	101												
GSWB-2508-112									500	112												
GSWB-2508-123									550	124												
GSWB-2508-134									600	135												
GSWB-2508-146									650	146												
GSWB-2526-22									220	8.661			526	20.709	8	0.315	18	0.709	100	22	8.1	0.319
GSWB-2526-33																			150	34		
GSWB-2526-45	200	45																				
GSWB-2526-56	250	56																				
GSWB-2526-67	300	67																				
GSWB-2526-78	350	79																				
GSWB-2526-89	400	90																				
GSWB-2526-101	450	101																				
GSWB-2526-112	500	112																				
GSWB-2526-123	550	124																				
GSWB-2526-134	600	135																				
GSWB-2526-146	650	146																				



**Associated Spring**  
**RAYMOND**  
A business of BARNES GROUP INC



Looking for robust connections to struts? Consider SPD rod end bearings. These end fittings offer accommodation for angular misalignment while maintaining solid through-bolting connection.

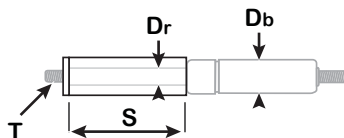


# Universal Stop Tubes

**Universal Stop Tubes** by SPD /Associated Spring RAYMOND fit standard gas struts (gas springs) to lock in the extended position, eliminating the need for a separate support rod. They may also be used with our m-Struts®, without any difficulty. For applications where a positive locking is desired, our Universal Stop Tubes provide the solution, without being cumbersome to close. Universal Stop Tubes are disengaged with a single motion and remain disengaged until the gas strut is closed, allowing for easy closure and low risk of pinching or snagging operators. Stop Tubes are installed between the end fitting and the rod of the strut. Stainless Steel versions are corrosion resistant 316, and steel versions are coated black to match the appearance of gas springs.



316 Stainless Steel	Black Coated Steel	Stroke (S)		Rod Diameter (Dr)		Body Diameter (Db)		Threads (T)
		mm	in	mm	in	mm	in	
MSLK150400X	MSLK150400C	102	4	6	0.24	15	0.59	M6 x 1.00
MSLK150472X	MSLK150472C	120	4.72	6	0.24	15	0.59	M6 x 1.00
MSLK150600X	MSLK150600C	153	6.02	6	0.24	15	0.59	M6 x 1.00
MSLK150700X	MSLK150700C	178	7	6	0.24	15	0.59	M6 x 1.00
MSLK150750X	MSLK150750C	191	7.5	6	0.24	15	0.59	M6 x 1.00
MSLK150787X	MSLK150787C	200	7.87	6	0.24	15	0.59	M6 x 1.00
MSLK150800X	MSLK150800C	203	8	6	0.24	15	0.59	M6 x 1.00
MSLK151000X	MSLK151000C	254	10	6	0.24	15	0.59	M6 x 1.00
MSLK151200X	MSLK151200C	305	12	6	0.24	15	0.59	M6 x 1.00
MSLK180400X	MSLK180400C	102	4	8	0.31	18	0.71	M6 x 1.00
MSLK180472X	MSLK180472C	120	4.72	8	0.31	18	0.71	M6 x 1.00
MSLK180551X	MSLK180551C	140	5.51	8	0.31	18	0.71	M6 x 1.00
MSLK180600X	MSLK180600C	153	6.02	8	0.31	18	0.71	M6 x 1.00
MSLK180630X	MSLK180630C	160	6.3	8	0.31	18	0.71	M6 x 1.00
MSLK180700X	MSLK180700C	178	7	8	0.31	18	0.71	M6 x 1.00
MSLK180709X	MSLK180709C	180	7.09	8	0.31	18	0.71	M6 x 1.00
MSLK180725X	MSLK180725C	184	7.25	8	0.31	18	0.71	M6 x 1.00
MSLK180787X	MSLK180787C	200	7.87	8	0.31	18	0.71	M6 x 1.00
MSLK180800X	MSLK180800C	203	8	8	0.31	18	0.71	M6 x 1.00
MSLK180984X	MSLK180984C	250	9.84	8	0.31	18	0.71	M6 x 1.00
MSLK181000X	MSLK181000C	254	10	8	0.31	18	0.71	M6 x 1.00
MSLK181100X	MSLK181100C	279	11	8	0.31	18	0.71	M6 x 1.00
MSLK181150X	MSLK181150C	292	11.5	8	0.31	18	0.71	M6 x 1.00
MSLK181200X	MSLK181200C	305	12	8	0.31	18	0.71	M6 x 1.00
MSLK220400X	MSLK220400C	102	4	10	0.39	22	0.87	M8 x 1.25
MSLK220591X	MSLK220591C	150	5.91	10	0.39	22	0.87	M8 x 1.25
MSLK220600X	MSLK220600C	153	6.02	10	0.39	22	0.87	M8 x 1.25
MSLK220787X	MSLK220787C	200	7.87	10	0.39	22	0.87	M8 x 1.25
MSLK220800X	MSLK220800C	203	8	10	0.39	22	0.87	M8 x 1.25
MSLK220984X	MSLK220984C	250	9.84	10	0.39	22	0.87	M8 x 1.25
MSLK221000X	MSLK221000C	254	10	10	0.39	22	0.87	M8 x 1.25
MSLK221150X	MSLK221150C	292	11.5	10	0.39	22	0.87	M8 x 1.25
MSLK221181X	MSLK221181C	300	11.81	10	0.39	22	0.87	M8 x 1.25
MSLK221200X	MSLK221200C	305	12	10	0.39	22	0.87	M8 x 1.25
MSLK221378X	MSLK221378C	350	13.78	10	0.39	22	0.87	M8 x 1.25
MSLK221520X	MSLK221520C	386	15.2	10	0.39	22	0.87	M8 x 1.25
MSLK221575X	MSLK221575C	400	15.75	10	0.39	22	0.87	M8 x 1.25
MSLK280400X	MSLK280400C	102	4	14	0.55	28	1.1	M10 x 1.5
MSLK280591X	MSLK280591C	150	5.91	14	0.55	28	1.1	M10 x 1.5
MSLK280600X	MSLK280600C	153	6.02	14	0.55	28	1.1	M10 x 1.5
MSLK280787X	MSLK280787C	200	7.87	14	0.55	28	1.1	M10 x 1.5
MSLK280800X	MSLK280800C	203	8	14	0.55	28	1.1	M10 x 1.5
MSLK280984X	MSLK280984C	250	9.84	14	0.55	28	1.1	M10 x 1.5
MSLK281000X	MSLK281000C	254	10	14	0.55	28	1.1	M10 x 1.5
MSLK281181X	MSLK281181C	300	11.81	14	0.55	28	1.1	M10 x 1.5
MSLK281200X	MSLK281200C	305	12	14	0.55	28	1.1	M10 x 1.5
MSLK281575X	MSLK281575C	400	15.75	14	0.55	28	1.1	M10 x 1.5
MSLK281969X	MSLK281969C	500	19.69	14	0.55	28	1.1	M10 x 1.5



# Dampers

*SPD / Associated Spring RAYMOND dampers are engineered to deliver optimal performance in a variety of applications & environments. Dampers, unlike other struts, do not provide any force, but instead control the motion or speed in an application. A simplistic view of a damper is a gas strut without the compressed nitrogen, that provides the actuation or force. Dampers are offered in a single direction (extension or compression stroke) or bi-directional. Associated Spring RAYMOND stocks a full range of end fittings and mounting hardware to complete your application.*

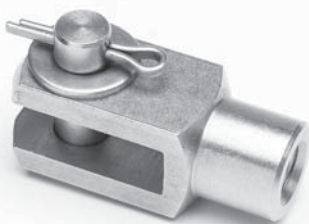


Compression Dampening	Extension Dampening	Dual Direction Dampening	Stroke (S)		Base Cylinder Length		Rod Diameter (Dr)		Body Diameter (Db)		Dampening Rate		Threads (T)
			mm	in	mm	in	mm	in	mm	in	mm/sec (180)	in/sec (40 lbs)	
DA-200A-CC	DA-200A-EC	DA-200A-DC	50.8	2	164	6.47	6	0.236	15	0.591	35.56	1.4	M6 x 1.0
DA-200A-CJ	DA-200A-EJ	DA-200A-DJ	50.8	2	164	6.47	6	0.236	15	0.591	43.18	1.7	M6 x 1.0
DA-200A-CD	DA-200A-ED	DA-200A-DD	50.8	2	164	6.47	6	0.236	15	0.591	58.42	2.3	M6 x 1.0
DA-200A-CN	DA-200A-EN	DA-200A-DN	50.8	2	164	6.47	6	0.236	15	0.591	81.28	3.2	M6 x 1.0
DA-200A-CE	DA-200A-EE	DA-200A-DE	50.8	2	164	6.47	6	0.236	15	0.591	96.52	3.8	M6 x 1.0
DA-300A-CJ	DA-300A-EJ	DA-300A-DJ	76.2	3	218	8.6	6	0.236	15	0.591	35.56	1.4	M6 x 1.0
DA-300A-CD	DA-300A-ED	DA-300A-DD	76.2	3	218	8.6	6	0.236	15	0.591	43.18	1.7	M6 x 1.0
DA-300A-CN	DA-300A-EN	DA-300A-DN	76.2	3	218	8.6	6	0.236	15	0.591	58.42	2.3	M6 x 1.0
DA-300A-CE	DA-300A-EE	DA-300A-DE	76.2	3	218	8.6	6	0.236	15	0.591	81.28	3.2	M6 x 1.0
DA-300A-CJ	DA-300A-EJ	DA-300A-DJ	76.2	3	218	8.6	6	0.236	15	0.591	96.52	3.8	M6 x 1.0
DA-400A-CC	DA-400A-EC	DA-400A-DC	101.6	4	281	11.08	6	0.236	15	0.591	35.56	1.4	M6 x 1.0
DA-400A-CJ	DA-400A-EJ	DA-400A-DJ	101.6	4	281	11.08	6	0.236	15	0.591	43.18	1.7	M6 x 1.0
DA-400A-CD	DA-400A-ED	DA-400A-DD	101.6	4	281	11.08	6	0.236	15	0.591	58.42	2.3	M6 x 1.0
DA-400A-CN	DA-400A-EN	DA-400A-DN	101.6	4	281	11.08	6	0.236	15	0.591	81.28	3.2	M6 x 1.0
DA-400A-CE	DA-400A-EE	DA-400A-DE	101.6	4	281	11.08	6	0.236	15	0.591	96.52	3.8	M6 x 1.0
DA-500A-CC	DA-500A-EC	DA-500A-DC	127	5	345	13.6	6	0.236	15	0.591	35.56	1.4	M6 x 1.0
DA-500A-CJ	DA-500A-EJ	DA-500A-DJ	127	5	345	13.6	6	0.236	15	0.591	43.18	1.7	M6 x 1.0
DA-500A-CD	DA-500A-ED	DA-500A-DD	127	5	345	13.6	6	0.236	15	0.591	58.42	2.3	M6 x 1.0
DA-500A-CN	DA-500A-EN	DA-500A-DN	127	5	345	13.6	6	0.236	15	0.591	81.28	3.2	M6 x 1.0
DA-500A-CE	DA-500A-EE	DA-500A-DE	127	5	345	13.6	6	0.236	15	0.591	96.52	3.8	M6 x 1.0
DA-400V-CJ	DA-400V-EJ	DA-400V-DJ	101.6	4	275	10.83	8	0.315	18	0.709	10.16	0.4	M6 x 1.0
DA-400V-CD	DA-400V-ED	DA-400V-DD	101.6	4	275	10.83	8	0.315	18	0.709	15.24	0.6	M6 x 1.0
DA-400V-CE	DA-400V-EE	DA-400V-DE	101.6	4	275	10.83	8	0.315	18	0.709	20.32	0.8	M6 x 1.0
DA-400V-CF	DA-400V-EF	DA-400V-DF	101.6	4	275	10.83	8	0.315	18	0.709	25.4	1	M6 x 1.0
DA-400V-CS	DA-400V-ES	DA-400V-DS	101.6	4	275	10.83	8	0.315	18	0.709	35.56	1.4	M6 x 1.0
DA-500V-CJ	DA-500V-EJ	DA-500V-DJ	127	5	332	13.07	8	0.315	18	0.709	10.16	0.4	M6 x 1.0
DA-500V-CD	DA-500V-ED	DA-500V-DD	127	5	332	13.07	8	0.315	18	0.709	15.24	0.6	M6 x 1.0
DA-500V-CE	DA-500V-EE	DA-500V-DE	127	5	332	13.07	8	0.315	18	0.709	20.32	0.8	M6 x 1.0
DA-500V-CF	DA-500V-EF	DA-500V-DF	127	5	332	13.07	8	0.315	18	0.709	25.4	1	M6 x 1.0
DA-500V-CS	DA-500V-ES	DA-500V-DS	127	5	332	13.07	8	0.315	18	0.709	35.56	1.4	M6 x 1.0
DA-600V-CJ	DA-600V-EJ	DA-600V-DJ	152.4	6	396	15.59	8	0.315	18	0.709	10.16	0.4	M6 x 1.0
DA-600V-CD	DA-600V-ED	DA-600V-DD	152.4	6	396	15.59	8	0.315	18	0.709	15.24	0.6	M6 x 1.0
DA-600V-CE	DA-600V-EE	DA-600V-DE	152.4	6	396	15.59	8	0.315	18	0.709	20.32	0.8	M6 x 1.0
DA-600V-CF	DA-600V-EF	DA-600V-DF	152.4	6	396	15.59	8	0.315	18	0.709	25.4	1	M6 x 1.0
DA-600V-CS	DA-600V-ES	DA-600V-DS	152.4	6	396	15.59	8	0.315	18	0.709	35.56	1.4	M6 x 1.0
DA-700V-CJ	DA-700V-EJ	DA-700V-DJ	177.8	7	463	18.23	8	0.315	18	0.709	10.16	0.4	M6 x 1.0
DA-700V-CD	DA-700V-ED	DA-700V-DD	177.8	7	463	18.23	8	0.315	18	0.709	15.24	0.6	M6 x 1.0
DA-700V-CE	DA-700V-EE	DA-700V-DE	177.8	7	463	18.23	8	0.315	18	0.709	20.32	0.8	M6 x 1.0
DA-700V-CF	DA-700V-EF	DA-700V-DF	177.8	7	463	18.23	8	0.315	18	0.709	25.4	1	M6 x 1.0
DA-700V-CS	DA-700V-ES	DA-700V-DS	177.8	7	463	18.23	8	0.315	18	0.709	35.56	1.4	M6 x 1.0



## Associated Spring **RAYMOND**

A business of BARNES GROUP INC



Complete your damper application with end fittings & brackets to mount. To select matching end fittings simply match the threads designated in the above table to the end fitting of your choice. Ends will thread on to the dampers. For OEM applications Associated Spring RAYMOND can supply custom dampers with or without ends already installed.

# DAMPERS

## STANDARD DAMPERS

SPD Dampers can be used anywhere a lid or weight must be lowered or moved in a controlled motion at a constant speed. There are three types of dampers: extension, compression, and dual. **Extension Dampers** provide controlled speed while the rod is being extended out of the tube. **Compression Dampers** provide a controlled speed while the rod is being compressed back into the tube. **Dual Dampers** provide controlled speed in both directions.

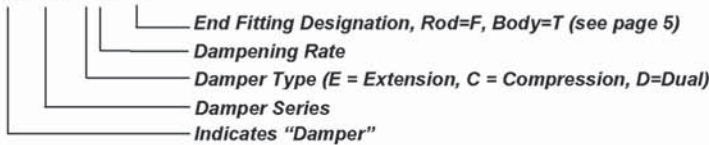


### Standard Damper Line

Damper Series	Rod Dia. (mm)	Tube Dia. (mm)	Nominal Stroke (ins)	Extended Length			
				PS006 6mm Thread	PS120-124 (R,S,T,U,V)	PS30 (A)	PS90 (I)
SPD-DA-200A	6	15	2.00	6.47	7.89	7.89	8.13
SPD-DA-300A	6	15	3.00	8.60	10.02	10.02	10.26
SPD-DA-400A	6	15	4.00	11.08	12.50	12.50	12.74
SPD-DA-500A	6	15	5.00	13.60	15.02	15.02	15.26
SPD-DA-400V	8	18	4.00	10.83	12.24	12.24	12.49
SPD-DA-500V	8	18	5.00	13.07	14.49	14.49	14.73
SPD-DA-600V	8	18	6.00	15.59	17.01	17.01	17.25
SPD-DA-700V	8	18	7.00	18.23	19.65	19.65	19.89

Designation of the Part Numbering System: (example: SPD-DA-200A-CJ-KFT)

SPD-DA-200A-CJ-KFT

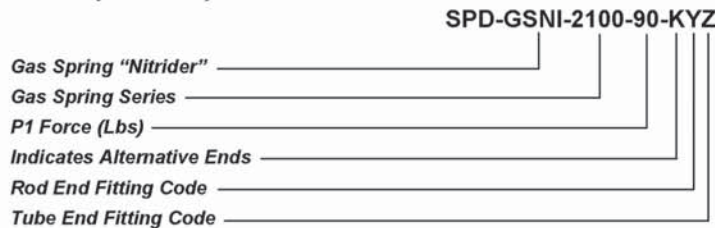


**Please Note:** Not all dampers listed are in stock. Lead times may apply. Dampers come standard with PS006 threaded ends, adding end fittings will change the part number! Please see below and page 5 for instructions and complete details.

Dampening Rate	Shaft Diameter	
	6mm	8mm
Heavy	C	J
Medium Heavy	J	D
Medium	D	E
Medium Light	N	F
Light	E	S

## SPECIFYING OPTIONAL GAS SPRING END FITTINGS

To select end fittings other than those specified as standard and listed in the gas spring part number tables, use the following designation: (see sample part number example below)



Example: To order a SPD-GSNI-2100-90 with an EF-PS91 Rod End Fitting and an EF-PS122 Tube End Fitting the new part number would be: SPD-GSNI-2100-90-KET.

### End Fitting Code List

End Fitting	Designation Code	End Fitting	Designation Code
EF-PS30B1	A	EF-PS90M1-SS	M
EF-PS30G1	B	EF-PS90M1BP	N
EF-PS130	C	EF-PS100	O
EF-PS30B2	D	EF-PS100SS	P
EF-PS91	E	EF-PS100BP	Q
EF-PS91BP	F	EF-PS120	R
EF-12788	G	EF-PS121	S
EF-PS90	H	EF-PS122	T
EF-PS90SS	I	EF-PS123	U
EF-PS90BP	J	EF-PS124	V
EF-PS90M1	L		

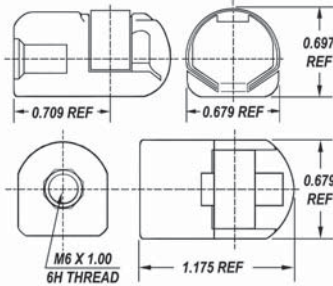
**Note:** When specifying alternative end fittings, ensure that the gas spring threads match the end fitting thread. 6mm X 15mm gas springs, and 8mm X 18mm gas springs have M6 X 1 Threads. 10mm X 22mm gas springs have M8 X 1.25 Threads.

# Gas Spring End Fittings

Part Number	Material	Code
EF-PS30B1	Composite, Nitrided Retainer	A
EF-PS30G1	Gray Composite, Chrome Retainer	B
EF-PS30B1M8*	Composite, Nitrided Retainer	-

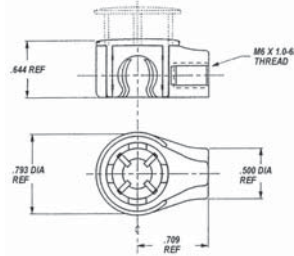
\* For use with 10mm ball stud

\* M8 x 1.75 thread



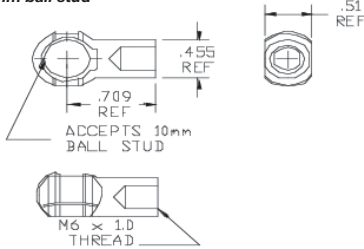
Part Number	Material	Code
EF-PS130	Composite With Snap On Cap	C

\* For use with 10mm ball stud

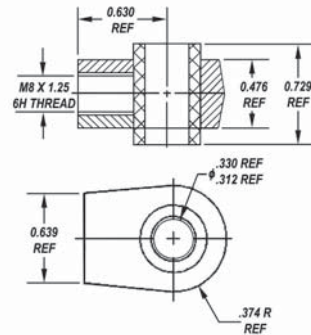


Part Number	Material	Code
EF-PS30B2	Composite With Black Steel Clip	D
EF-PS91	Steel Zinc Plate	E
EF-PS91-BP	Steel Black Nitrided Finish	F
EF-PS30B3	Composite with SST Clip	W

\* For use with 10mm ball stud

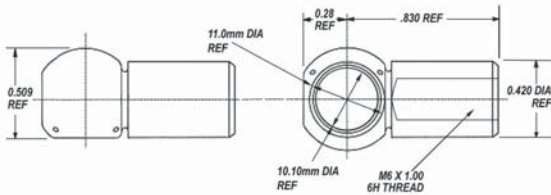


Part Number	Material	Code
EF-12778	Steel Zinc Plate	G



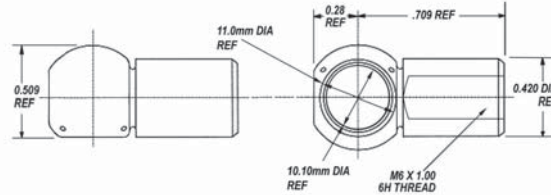
Part Number	Material	Code
EF-PS90	Steel Zinc Plate	H
EF-PS90-SS	Stainless Steel	I
EF-PS90-BP	Steel Black Nitrided Finish	J

\* For use with 10mm ball stud  
\* Must be used with SC-1006 safety clip



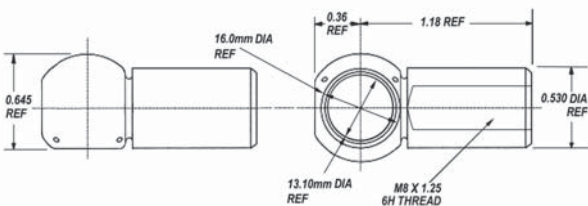
Part Number	Material	Code
EF-PS90M1	Steel Zinc Plate	L
EF-PS90M1-SS	Stainless Steel	M
EF-PS90M1-BP	Steel Black Nitrided Finish	N

\* For use with 10mm ball stud  
\* Must be used with SC-1006 safety clip



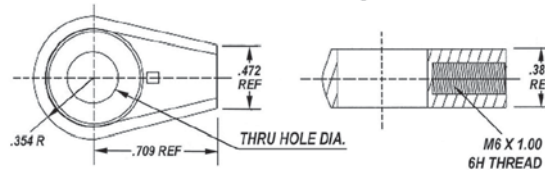
Part Number	Material	Code
EF-PS100	Steel Zinc Plate	O
EF-PS100-SS	Stainless Steel	P
EF-PS100-BP	Steel Black Nitrided Finish	Q

\* For 13mm ball stud  
\* Must be used with SC-1008 safety clip



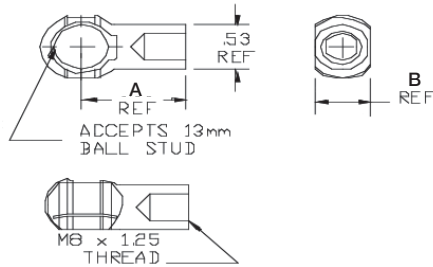
Part Number	Thru Hole Dia.	Material	Code
EF-PS120	.513"	Zinc Alloy	R
EF-PS121	.408"	Zinc Alloy	S
EF-PS122	.328"	Zinc Alloy	T
EF-PS123	.263"	Zinc Alloy	U
EF-PS124	.208"	Zinc Alloy	V

\* For use with stud or thru-bolt mounting

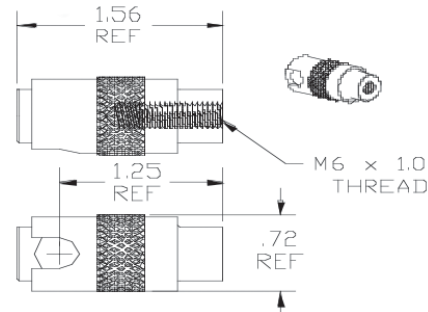


# Gas Spring End Fittings

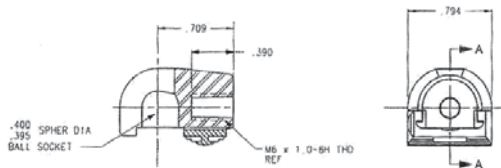
Part Number	Material	A	B
EF-13857	Steel Black Nitride	1.00	0.55
EF-13828	Steel Black Nitride	1.18	0.62



Part Number	Material
EF-13858	Steel Black Nitride

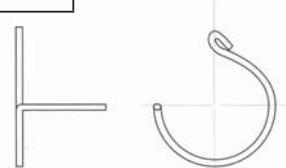


Part Number	Material
EF-13859	Black Nylon

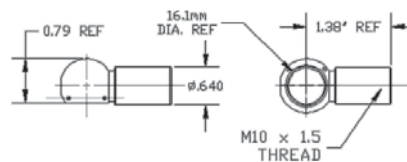


Part Number	Material
SC-1006*	Stainless Steel
SC-1008**	Stainless Steel
SC-1010***	Stainless Steel
SX-1010	316 Stainless Steel

\* Must be used with EF-PS90 and EF-PS90M1 10mm end fitting  
 \*\* Must be used with EF-PS100 13mm end fitting  
 \*\*\* Must be used with EF-PS140 16mm end fitting



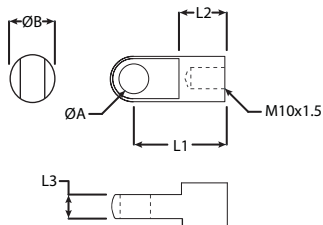
Part Number	Material
EF-PS140	Steel Zinc Plated
EF-PS140-SS	Stainless Steel
EF-PS140-BP	Steel Black Nitrided Finish
EF-PS140-SX	316 Stainless Steel



• For use with 16mm ball stud

## Round Eye

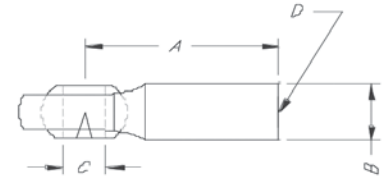
Part Number	Material	ØA	ØA (mm)	ØB	ØB (mm)	L1	L1 (mm)	L2	L2 (mm)	L3	L3 (mm)
EF-13932	316 Stainless	0.320	8.13	0.630	16.00	1.180	29.97	0.800	20.32	0.390	9.91
EF-E058A	Aluminum	0.319	8.10	0.787	20.00	0.984	25.00	0.433	11.00	0.472	12.00
EF-E026A	Aluminum	0.319	8.10	0.787	20.00	1.378	35.00	0.748	19.00	0.394	10.00
EF-E057A	Aluminum	0.398	10.10	0.787	20.00	0.984	25.00	0.433	11.00	0.472	12.00
EF-E015A	Aluminum	0.398	10.10	0.787	20.00	1.378	35.00	0.748	19.00	0.394	10.00
EF-E056A	Aluminum	0.476	12.10	0.787	20.00	1.378	35.00	0.748	19.00	0.394	10.00
EF-E058S	Stainless	0.319	8.10	0.787	20.00	0.984	25.00	0.433	11.00	0.472	12.00
EF-E026S	Stainless	0.319	8.10	0.787	20.00	1.378	35.00	0.748	19.00	0.394	10.00
EF-13982	Stainless	0.320	8.13	0.787	19.99	1.400	35.56	0.750	19.05	0.390	9.91
EF-E057S	Stainless	0.398	10.10	0.787	20.00	0.984	25.00	0.433	11.00	0.472	12.00
EF-E015S	Stainless	0.398	10.10	0.787	20.00	1.378	35.00	0.748	19.00	0.394	10.00
EF-E056S	Stainless	0.476	12.10	0.787	20.00	1.378	35.00	0.748	19.00	0.394	10.00
EF-14002	Zinc Die Cast	0.320	8.13	0.630	16.00	1.180	29.97	0.800	20.32	0.390	9.91



# Gas Spring End Fittings

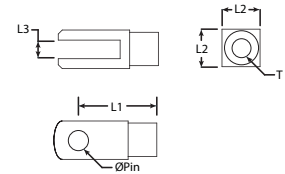
## Rod End Bearings

Steel Zinc Plate	Stainless Steel	A	A (mm)	B	B (mm)	C	C (mm)	D
-	EF-13901	1.300	33.02	0.630	16.00	0.315	8.00	M8 x 1.25
-	EF-13876	1.170	29.72	0.630	16.00	0.315	8.00	M8 x 1.25
FMP0100508RH	FMS0100508RH	1.063	27.00	0.354	9.00	0.197	5.00	M5 x 0.8
FMP0120610RH	FMS0120610RH	1.181	30.00	0.433	11.00	0.236	6.00	M6 x 1.0
FMP0160812RH	FMS0160812RH	1.417	36.00	0.512	13.00	0.315	8.00	M8 x 1.25
FMP0201015RH	FMS0201015RH	1.693	43.00	0.669	17.00	0.394	10.00	M10 x 1.5
FMP0221217RH	FMS0221217RH	1.969	50.00	0.748	19.00	0.472	12.00	M12 x 1.25
FMP0251420RH	FMS0251420RH	2.244	57.00	0.866	22.00	0.551	14.00	M14 x 1.5
FMP0281620RH	FMS0281620RH	2.52	64.00	0.866	22.00	0.63	16.00	M16 x 1.5
FMP0332015RH	FMS0332015RH	3.031	77.00	1.26	32.00	0.787	20.00	M20 x 1.5
FNP0501132RH	FNS0501132RH	1.062	26.97	0.406	10.31	0.190	4.83	10-32
FNP0692528RH	FNS0692528RH	1.312	33.32	0.469	11.91	0.250	6.35	1/4-28
FNP0693124RH	FNS0693124RH	1.375	34.93	0.500	12.7	0.313	7.94	5/16-24
FNP0813824RH	FNS0813824RH	1.625	41.28	0.687	17.45	0.375	9.53	3/8-24
FNP0944420RH	FNS0944420RH	1.812	46.02	0.750	19.05	0.438	11.11	7/16-20
FNP1065020RH	FNS1065020RH	2.125	53.98	0.875	22.23	0.500	12.7	1/2-20
FNP1386218RH	FNS1386218RH	2.500	63.5	1.000	25.4	0.625	15.88	5/8-18
FNP1567516RH	FNS1567516RH	2.875	73.03	1.125	28.58	0.750	19.05	3/4-16



## Clevis End Table

Part Number	Material	øPin	øPin(mm)	L1	L1 (mm)	L2	L2 (mm)	L3	L3 (mm)	T
EF-13532	Steel Zinc Plate	0.312	7.92	0.945	24.00	0.472	11.99	0.236	5.99	M6 x 1.0
EF-13861	Steel Zinc Plate	0.315	8.00	1.260	32.00	0.630	16.00	0.315	8.00	M8 x 1.25
EF-13842	Steel Zinc Plate	0.390	9.91	1.560	39.62	0.780	19.80	0.390	9.90	M10 x 1.5
EF-13867	Stainless Steel	0.390	9.91	1.560	39.62	0.780	19.80	0.390	9.90	M10 x 1.5

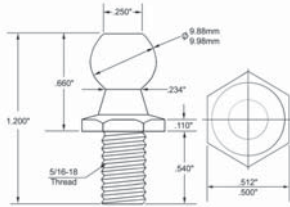


Robust Mounting Solutions are recommended for Industrial Applications. Above are some of the best solutions available off the shelf for Associated Spring RAYMOND. Every application is unique. For assistance with an OEM design please contact Associated Spring RAYMOND engineering at [www.asraymond.com](http://www.asraymond.com)

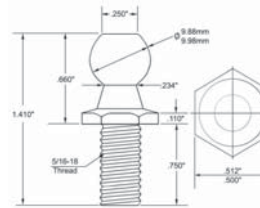
Visit [www.asraymond.com](http://www.asraymond.com) to learn more.

# Gas Spring Mounting Hardware

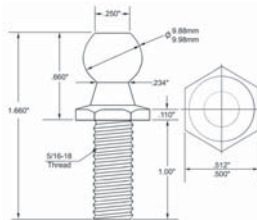
Part Number	Material
BS-1005	Steel Zinc Plate
BS-1005-SS	Stainless Steel
BS-1005-BZ	Black Zinc



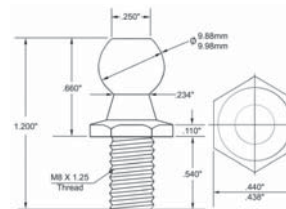
Part Number	Material
BS-1003	Steel Zinc Plate



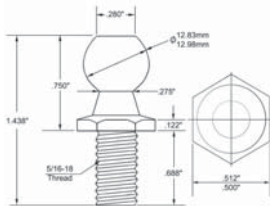
Part Number	Material
BS-1009	Steel Zinc Plate
BS-1009-SS	Stainless Steel



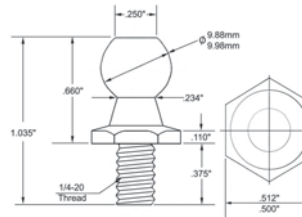
Part Number	Material
BS-1002	Steel Zinc Yellow Plate
BS-1002-SS	Stainless Steel



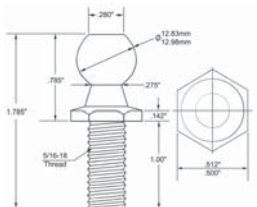
Part Number	Material
BS-1007	Steel Zinc Plate
BS-1007-SS	Stainless Steel
BS-1007-BP	Steel Black Powder Coat



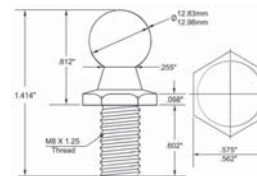
Part Number	Material
BS-11208	Steel Zinc Plate



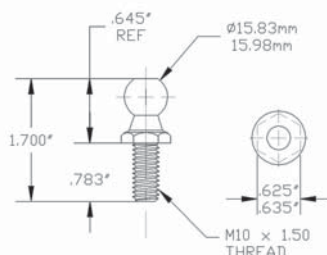
Part Number	Material
BS-1007L	Steel Zinc Plate



Part Number	Material
BS-1007MET	Steel Zinc Dichromate



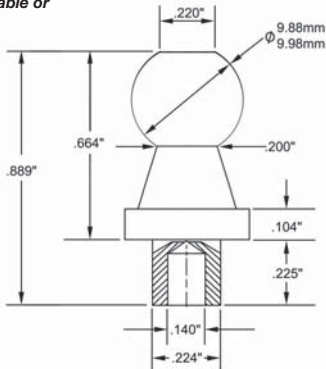
Part Number	Material
BS-1016	Steel Zinc Plate
BS-1016-SS	Stainless Steel
BS-1016-SX	316 Stainless Steel



# Gas Spring Mounting Hardware

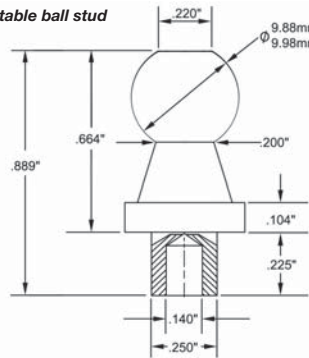
Part Number	Material
BS-1001W	Raw Steel

- Semi-tubular rivetable or weldable ball stud
- 10mm



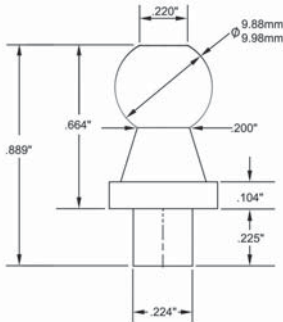
Part Number	Material
BS-1001	Steel Zinc Plate
BS-1001-SS	Stainless Steel

- Semi-tubular rivetable ball stud
- 10mm



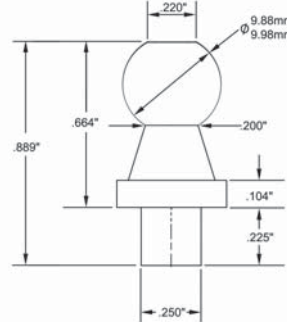
Part Number	Material
BS-1004W	Raw Steel

- Semi-tubular rivetable ball stud
- 10mm



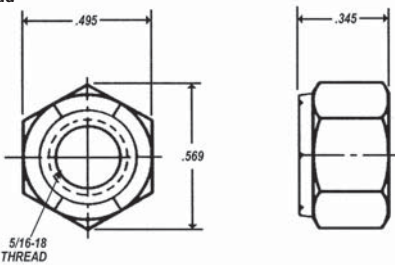
Part Number	Material
BS-1004	Steel Zinc Plate

- Solid rivetable ball stud
- 10mm



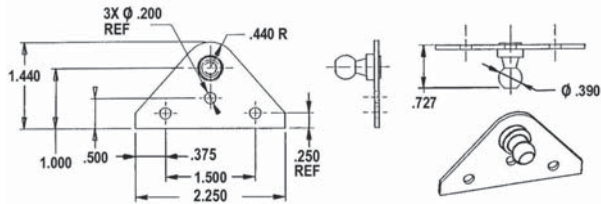
Part Number	Material
NU-1200	Steel Zinc Plate
NU-1200-SS	Stainless Steel
HN-1016-SX*	316 Stainless Steel

- \* M10 x 1.5 thread



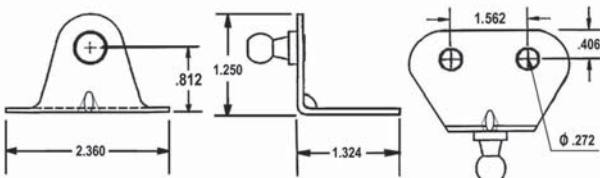
Part Number	Material
BR-1020	Steel Zinc Plate
BR-1020-BP	Black Powder Coat
BRX-1020	All Stainless Steel
BRX-1020-P	Electro Polished Stainless Steel

- 2mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



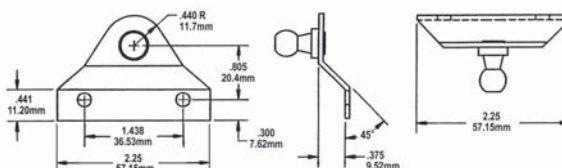
Part Number	Material
BR-1055	Steel Zinc Plate

- 3mm thick material
- .272 Dia. mounting holes
- 10mm ball stud



Part Number	Material
BR-1025	Steel Zinc Plate
BR-1025-BP	Black Powder Coat
BRX-1025	All Stainless Steel
BRX-1025-P	Electro Polished Stainless Steel

- 2.5mm thick material
- 200 Dia. mounting holes
- 10mm ball stud

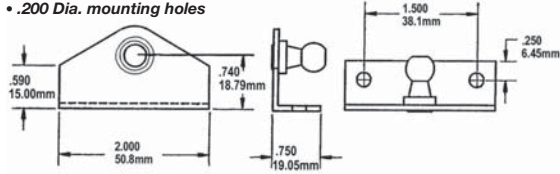




# Gas Spring Mounting Hardware

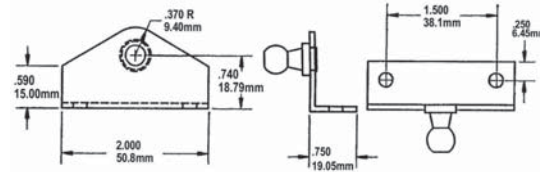
Part Number	Material
BR-1010	Steel Zinc Plate
BR-1010-BP	Black Powder Coat
BRX-1010	All Stainless Steel
BRX-1010-P	Electro Polished Stainless Steel
BRX-14003*	Stainless Steel

- 2mm thick material
- 10mm ball stud
- .200 Dia. mounting holes
- \* 3mm thick material



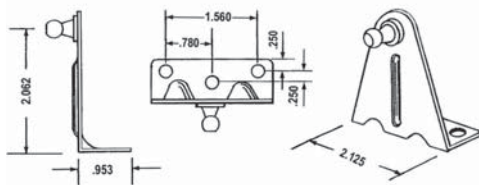
Part Number	Material
BR-1015	Steel Zinc Plate
BR-1015-BP	Black Powder Coat
BRX-1015	All Stainless Steel
BRX-1015-P	Electro Polished Stainless Steel

- 2mm thick material
- 10mm ball stud
- .200 Dia. mounting holes



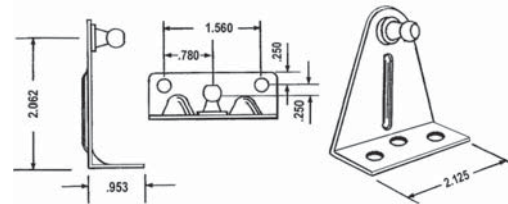
Part Number	Material
BR-1045	Steel Zinc Plate
BR-1045-BP	Black Powder Coat
BRX-1045	All Stainless Steel
BRX-13137	All Stainless Steel (13mm ball stud)
BRX-1045-P	Electro Polished Stainless Steel
BRX-13137-P	Electro Polished Stainless Steel (13mm ball stud)

- 3mm thick material
- 10mm ball stud
- .200 Dia. mounting holes



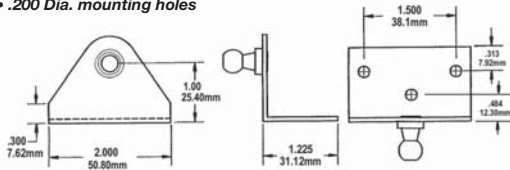
Part Number	Material
BR-1050	Steel Zinc Plate
BR-1050-BP	Black Powder Coat
BRX-1050	All Stainless Steel
BRX-1050-P	Electro Polished Stainless Steel

- 3mm thick material
- 10mm ball stud
- .200 Dia. mounting holes



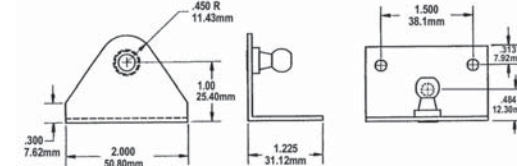
Part Number	Material
BR-1060	Steel Zinc Plate
BR-1060-BP	Black Powder Coat
BRX-1060	All Stainless Steel
BR-1060-A	Aluminum
BRX-1060-P	Electro Polished Stainless Steel
BR-1060-025*	Steel Zinc Plate

- 3mm thick material
- 10mm ball stud
- .200 Dia. mounting holes
- \* .250 dia. mounting holes



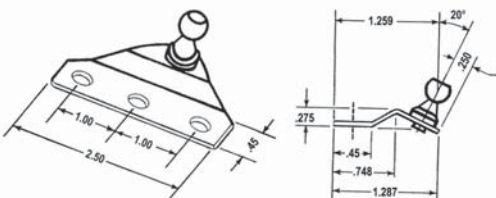
Part Number	Material
BR-1080	Steel Zinc Plate
BR-1080-BP	Black Powder Coat
BRX-1080	All Stainless Steel
BRX-1080-P	Electro Polished Stainless Steel
BR-13442*	Steel Zinc Plate
BR-1080-025**	Steel Zinc Plate

- 3mm thick material
- 10mm ball stud
- .200 Dia. mounting holes
- \* 2x .290 mounting holes
- \*\* .250 dia. mounting holes



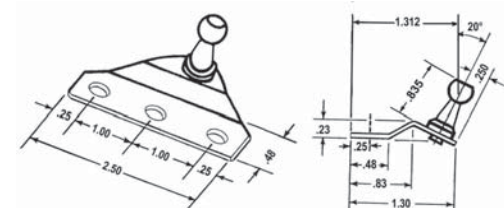
Part Number	Material
BR-1024	Steel Zinc Plate
BRX-1024	Stainless Steel Bracket
BRX-1024-P	Electro Polished Stainless Steel Bracket

- 2mm thick material
- 10mm ball stud
- .200 Dia. mounting holes



Part Number	Material
BR-12600	Steel Zinc Plate

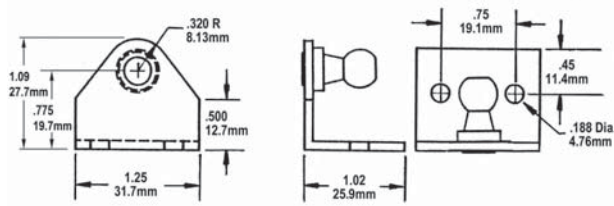
- 2mm thick material
- 10mm long ball stud
- .200 Dia. mounting holes



# Gas Spring Mounting Hardware

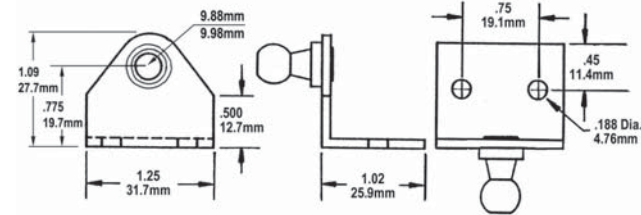
Part Number	Material
BR-1091	Steel Zinc Plate
BR-1091-BP	Black Powder Coat

- 2.5mm thick material
- .188 Dia. mounting holes
- 10mm ball stud



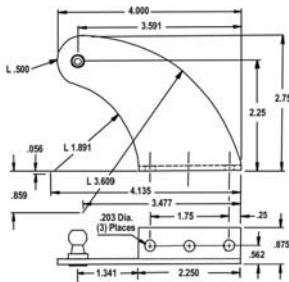
Part Number	Material
BR-1092	Steel Zinc Plate
BRX-1092	Stainless Steel Bracket
BRX-1092-P	Electro Polished Stainless Steel Bracket

- 2.5mm thick material
- .188 Dia. mounting holes
- 10mm ball stud



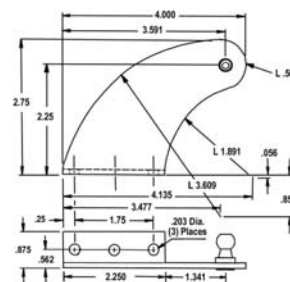
Part Number	Material
BR-1125	Steel Zinc Plate

- 3mm thick material
- .203 Dia. mounting holes
- 10mm ball stud



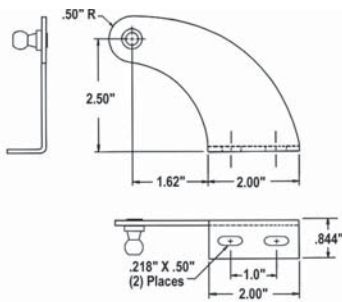
Part Number	Material
BR-1120	Steel Zinc Plate

- 3mm thick material
- .203 Dia. mounting holes
- 10mm ball stud



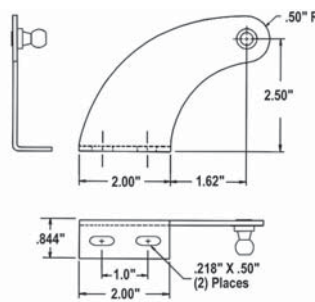
Part Number	Material
BR-1124-BP	Steel Black Powder Coat

- 3mm thick material
- 10mm ball stud



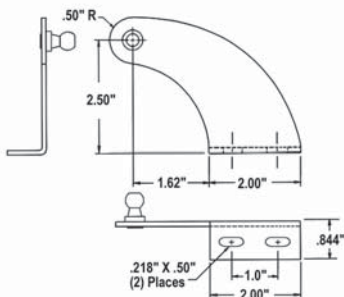
Part Number	Material
BR-1119-BP	Steel Black Powder Coat

- 3mm thick material
- 10mm ball stud



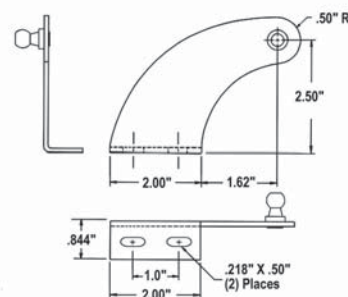
Part Number	Material
BR-1125-BP	Steel Black Powder Coat

- 3mm thick material
- 10mm ball stud



Part Number	Material
BR-1120-BP	Steel Black Powder Coat

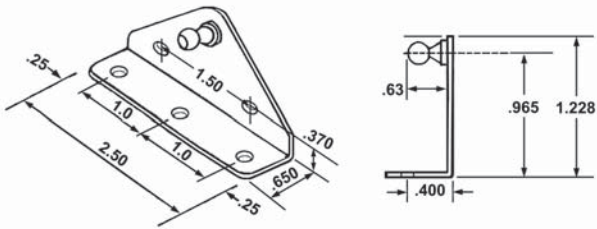
- 3mm thick material
- 10mm ball stud



# Gas Spring Mounting Hardware

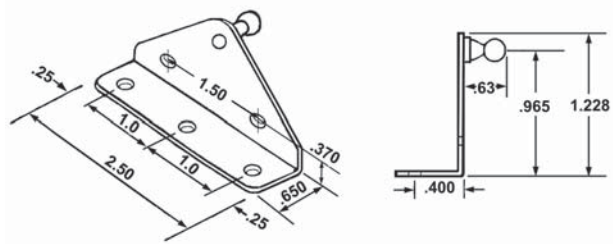
Part Number	Material
BR-12553	Steel Zinc Plate

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



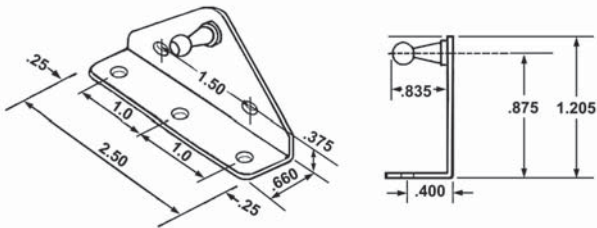
Part Number	Material
BR-10684	Steel Zinc Plate

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



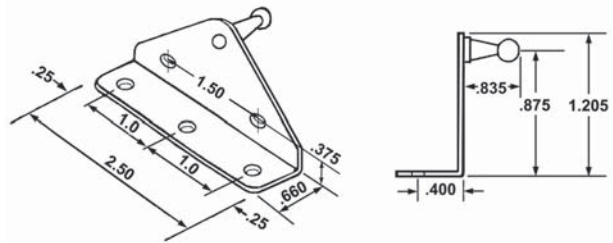
Part Number	Material
BR-12551	Steel Zinc Plate

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm long ball stud



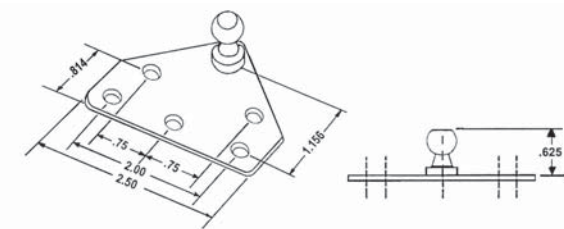
Part Number	Material
BR-12552	Steel Zinc Plate

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm long ball stud



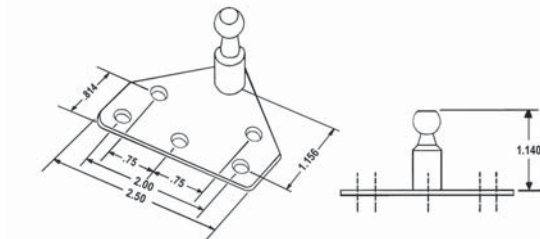
Part Number	Material
BR-10683	Steel Zinc Plate

- 2.5mm thick material
- .200 Dia. mounting Holes
- 10mm ball stud



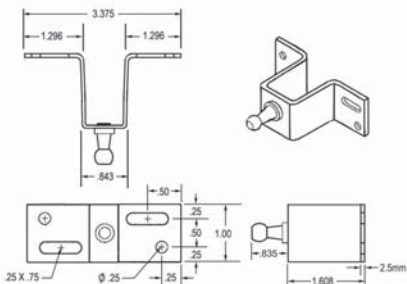
Part Number	Material
BR-10336	Steel Zinc Plate

- 2.5mm thick Material
- .200 Dia. mounting holes
- 10mm extra long ball stud



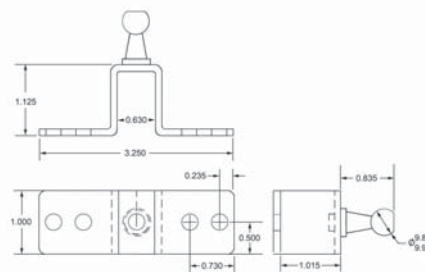
Part Number	Material
BR-12695	Steel Zinc Plate

- 2.5mm thick material
- 10mm long ball stud



Part Number	Material
BR-12938	Steel Zinc Plate

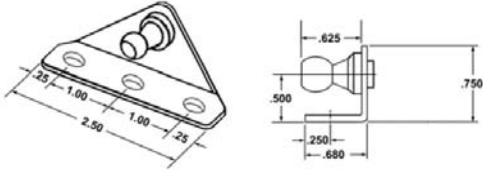
- 3mm thick material
- .250 Dia. mounting holes
- 10mm ball stud



# Gas Spring Mounting Hardware

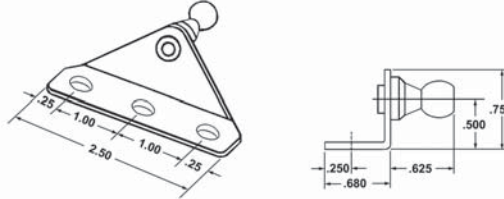
Part Number	Material
BR-1012	Steel Zinc Plate

- 2mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



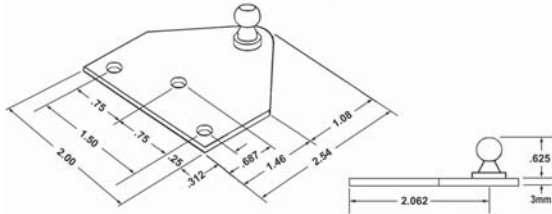
Part Number	Material
BR-12601	Steel Zinc Plate

- 2mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



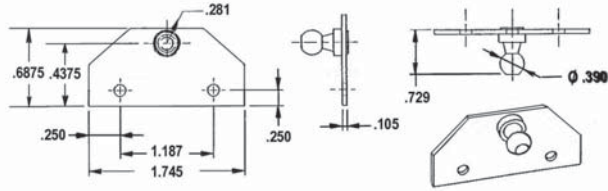
Part Number	Material
BR-12602	Steel Zinc Plate

- 3mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



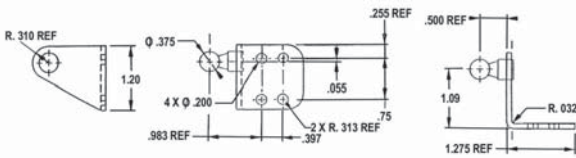
Part Number	Material
BR-1065	Steel Zinc Plate

- 3mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



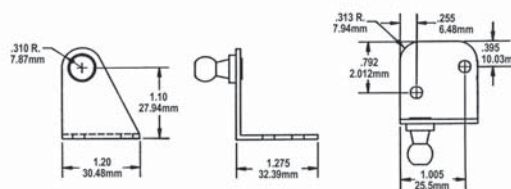
Part Number	Material
BR-1095	Steel Zinc Plate
BR-1095-BP	Black Powder Coat
BRX-1095	All Stainless Steel
BRX-1095-P	Electo Polished Stainless Steel Bracket

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



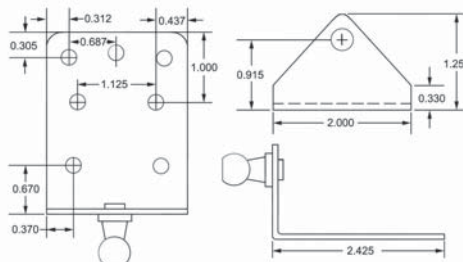
Part Number	Material
BR-1096	Steel Zinc Plate
BR-1096-BP	Black Powder Coat
BRX-1096	All Stainless Steel
BRX-1096-P	Electo Polished Stainless Steel Bracket

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



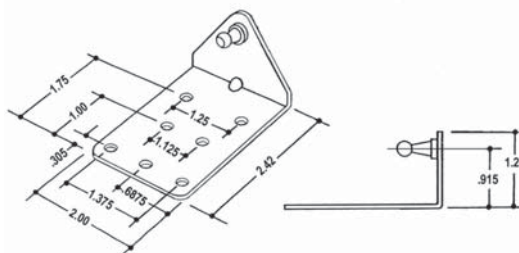
Part Number	Material
BR-1075	Steel Zinc Plate
BR-1075-BP	Black Powder Coat

- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



Part Number	Material
BR-12904	Steel Zinc Plate
BR-12904-BP	Black Powder Coat

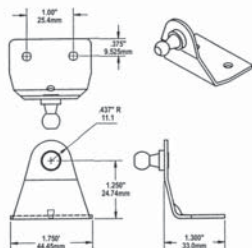
- 2.5mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



# Gas Spring Mounting Hardware

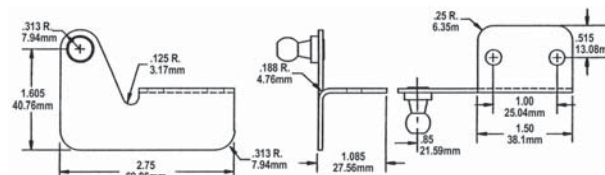
Part Number	Material
BR-1130	Steel Zinc Plate
BR-1130A	Aluminum

- 3mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



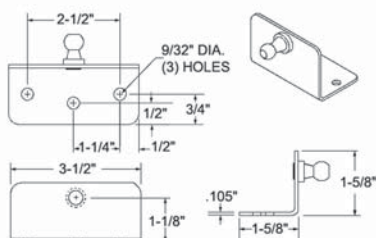
Part Number	Material
BR-1100	Steel Zinc Plate
BR-1100-BP	Black Powder Coat
BRX-1100	All Stainless Steel
BRX-1100-P	Electro Polished Stainless Steel Bracket

- 3mm thick material
- .200 Dia. mounting holes
- 10mm ball stud



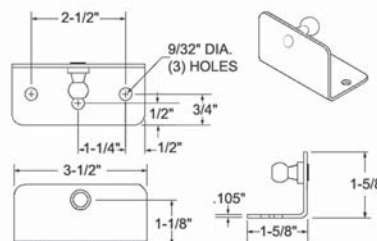
Part Number	Material
BR-11552	Steel Zinc Plate
BRX-11552	All Stainless Steel
BRX-11552-P	Electro Polished Stainless Steel

- 3mm thick material
- .281 Dia. mounting holes
- 13mm ball stud



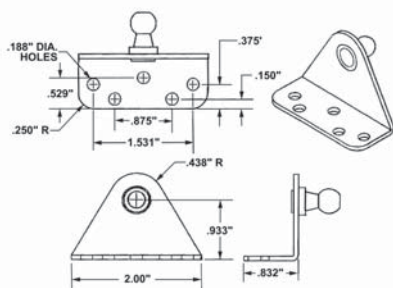
Part Number	Material
BR-11554	Steel Zinc Plate
BRX-11554	All Stainless Steel
BRX-11554-P	Electro Polished Stainless Steel

- 3mm thick material
- .281 Dia. mounting holes
- 13mm ball stud



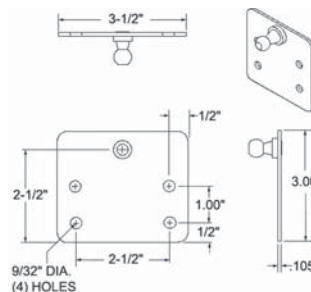
Part Number	Material
BR-1085	Steel Zinc Plate
BRX-1085	All Stainless Steel

- 2mm thick material
- .188 Dia. mounting holes
- 10mm ball stud



Part Number	Material
BR-11553	Steel Zinc Plate
BRX-11553	All Stainless Steel

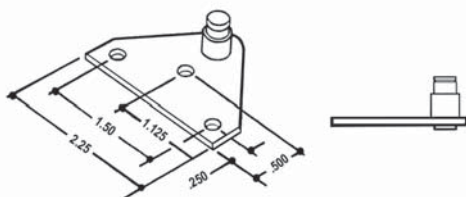
- 3mm thick material
- .281 Dia. mounting holes
- 13mm ball stud



Part Number	Material
BR-1520	Steel Zinc Plate

- 2mm thick material
- .200 Dia. mounting holes

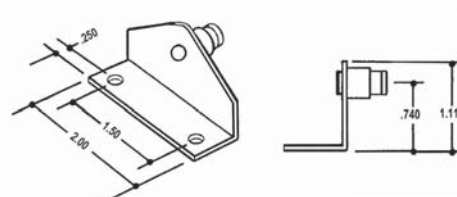
Post diameter is 0.235 for 0.250 diameter blade end fitting.



Part Number	Material
BR-1515	Steel Zinc Plate

- 2mm thick material
- .200 Dia. mounting holes

Post diameter is 0.235 for 0.250 diameter blade end fitting.



# Product Engineering Worksheet

Company: \_\_\_\_\_ Address: \_\_\_\_\_

Your name: \_\_\_\_\_

Your title: \_\_\_\_\_ City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

**PLEASE FILL IN ALL FIELDS BELOW**

Requested handle load = \_\_\_\_\_ pounds

Weight of door = \_\_\_\_\_ pounds

Opening angle = \_\_\_\_\_ degrees

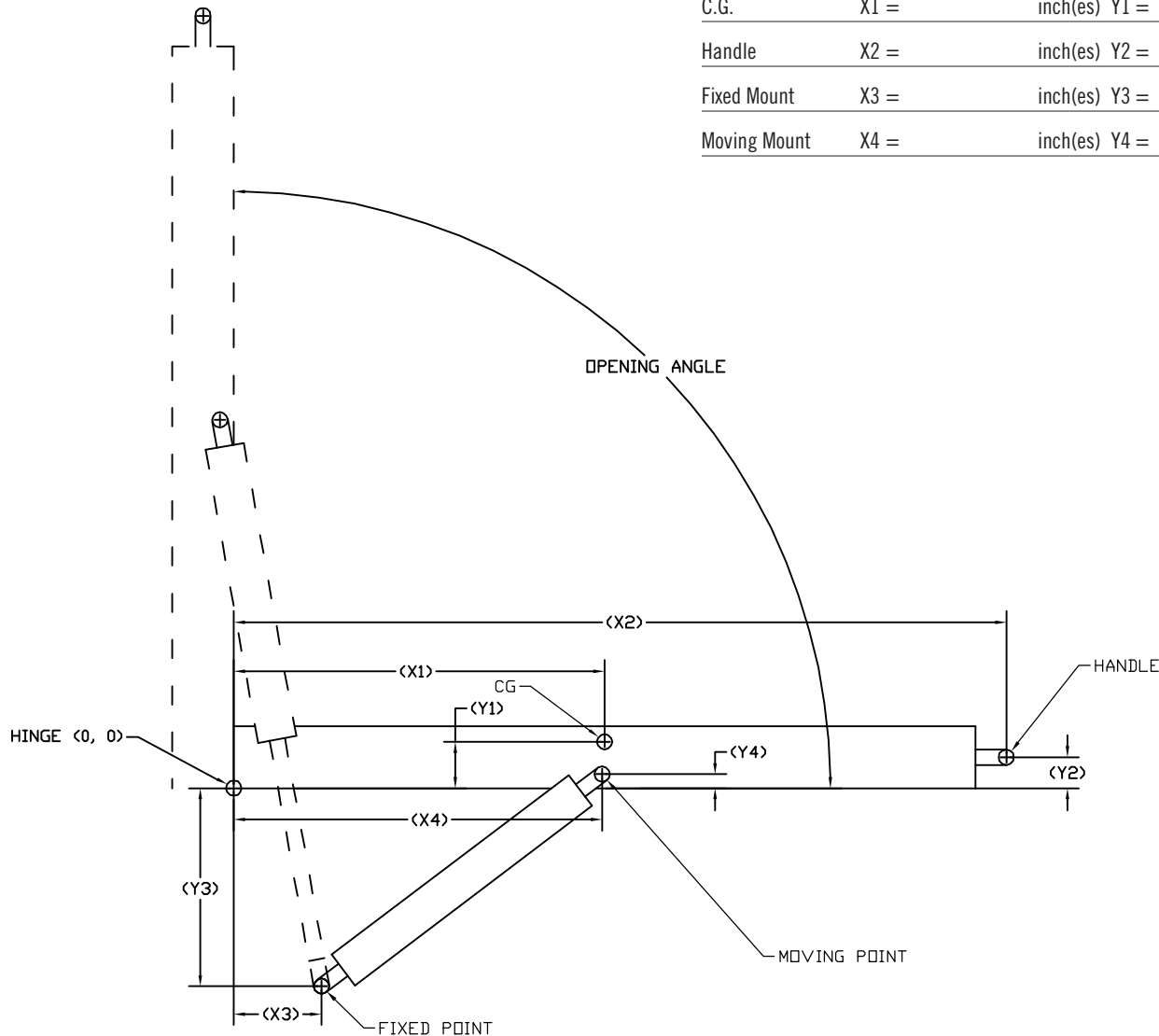
Overall size = \_\_\_\_\_ inch(es) **X** \_\_\_\_\_ inch(es)

C.G. X1 = \_\_\_\_\_ inch(es) Y1 = \_\_\_\_\_ inch(es)

Handle X2 = \_\_\_\_\_ inch(es) Y2 = \_\_\_\_\_ inch(es)

Fixed Mount X3 = \_\_\_\_\_ inch(es) Y3 = \_\_\_\_\_ inch(es)

Moving Mount X4 = \_\_\_\_\_ inch(es) Y4 = \_\_\_\_\_ inch(es)



# MECHANICAL SPRING STRUTS

## m-Struts®

UNMATCHED PERFORMANCE

Associated Spring Raymond now offers a proprietary line of mechanical coil spring struts. We designed our struts to meet demanding, maintenance free applications where conventional gas struts fail. Made of corrosion-resistant stainless steel, and unlike gas and pneumatic models, our struts have no internal gases or seals to fail.

Whether it is resistance against environmental contamination, high temperature (400°F/ 205°C+), high humidity, corrosion, or simply life cycle, our struts offer unmatched performance.

**Two separate lines are currently offered, with various load and stroke options:**

- Standard Mechanical Spring Struts: Stainless steel construction, stainless steel springs, and M6 threaded ends
- High Load Mechanical Spring Struts: Stainless steel construction, carbon steel springs, and M8 threaded ends.
- Under development is a full line of Extension, Dampening and Self-Centering models (available now as custom-built samples).

**All of our models are available with various end configurations.**

Associated Spring Raymond will work with your specifications to custom design and produce the mechanical strut that you need, including the brackets and adjoining hardware.

**Typical Applications:**

- Food Preparation & Processing
- Heating, Ventilation and Aeration
- Motion Control & Dampening
- Clean Room



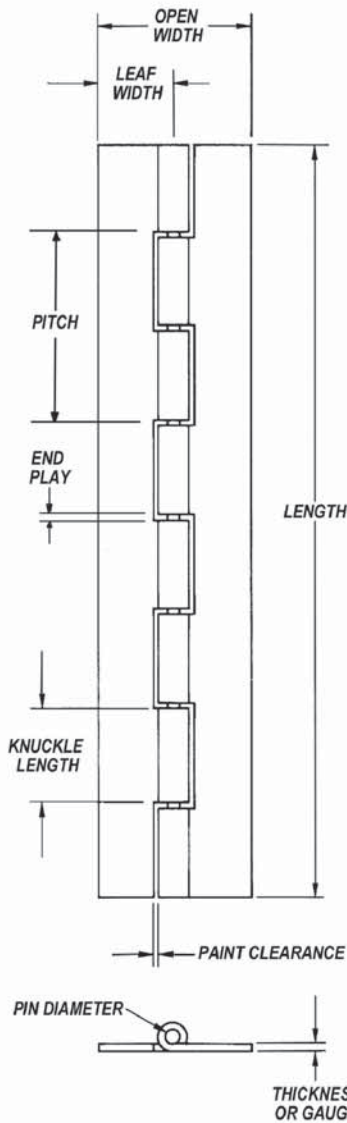
**Typical Industries:**

- Automotive
- Medical, Pharmaceutical and Chemical
- Marine
- Defense
- Nuclear
- Agriculture and Construction



For further information, or should you need application design support, please contact us at [struts@asraymond.com](mailto:struts@asraymond.com), or call us at 1-800-646-6416.

# SPD STANDARD HINGE TERMINOLOGY



**GAUGE**  
The thickness of a hinge leaf.

**LEAF**  
The portion of a hinge extending laterally from the knuckle and which usually revolves around the pin.

**LEAF WIDTH**  
The dimension from the center of the pin to the outer edge of the leaf.

**OPEN WIDTH**  
The overall dimension of the leaves measured perpendicular to, or across, the pin.

**PIN**  
Rod running the length of the hinge. The pin holds the leaves of the hinge together.

**KNUCKLE**  
The hollow circular part at the joint of a hinge through which a pin is passed. The knuckle is often called a loop, joint, node or curl.

**KNUCKLE LENGTH**  
The nominal or typical dimension of the knuckle measured parallel to the pin.

**HINGE LENGTH**  
The length of the leaves measured parallel to the pin.

**PITCH**  
The dimension from a point on the knuckle to the same point on an adjacent knuckle on the same leaf.

**PAINT CLEARANCE**  
The minimum dimension between the outer face of the knuckle and the opposing edge of the cutout over the hinge's entire range of pivotal movement.

**END PLAY**  
The amount of axial movement between the leaves.

**PLAIN OR STANDARD ASSEMBLY**

This is a surface-type hinge. The leaves lie flat in the same plane when in the open position. Unless otherwise indicated, this type of hinge will be furnished.



**SWAGING**

The forming of one or both leaves toward or beyond the center of the pin. Swaging slightly increases leaf width.



**BOTH LEAVES HALF-SWAGED**

Both leaves are swaged approximately one-half the pin diameter with a minimum clearance between leaves when parallel.



**ONE LEAF HALF-SWAGED**

One leaf swaged one half the pin diameter.



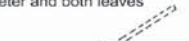
**ONE LEAF FULL-SWAGED**

One leaf swaged equal to the pin diameter and both leaves parallel when in a closed position.



**REVERSED SWAGED**

One leaf swaged to simulate reverse assembly. Leaves will not close to a parallel position.



**OFFSET**

Forming one or both leaves away from the center of the pin. Offsetting slightly decreases leaf width.



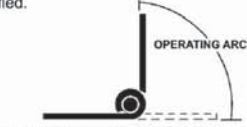
**STOP HINGE**

A hinge manufactured to limit the travel of the leaves to a specified angle.



**INSIDE STOP HINGE**

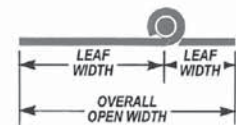
Leaves will open from a closed position, leaves parallel to each other, to a stop angle as specified.



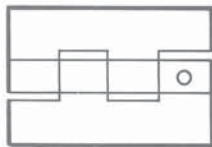
**OUTSIDE STOP HINGE**

Leaves move from an open or flat position and stop at a specified angle.

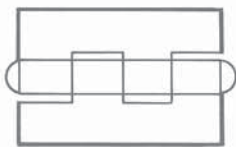
## LEAF OPTIONS



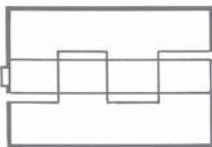
**PIN RETENTION**



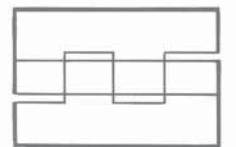
TIGHT PIN - STAKED, FLUSH CUT



TIGHT PIN - SPUN BOTH ENDS



LOOSE PIN - SPUN ONE END ONLY



LOOSE PIN - NOT STAKED, FLUSH CUT

**UNEQUAL LEAVES**

Unequal leaves are available on all hinges. Widths are measured from the pin center line to the leaf's outer edge. For the most economy, unequal open width should be a product of a standard hinge width; however, unequal leaves with nonstandard widths are also available.

**FORMED LEAVES**

Formed hinge leaves can be supplied in a variety of configurations. Dimensions should be taken from the center of the pin to the inside of the form. Unless otherwise indicated, the inside radius is the same as material thickness.



BOTH LEAVES FORMED



ONE LEAF FORMED



# CONTINUOUS HINGES



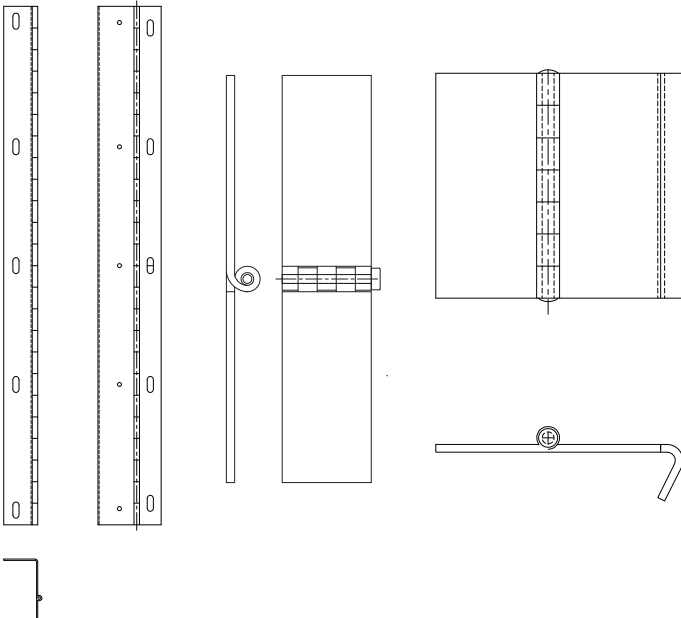
Equal Leaves, Steel Pins, No Holes

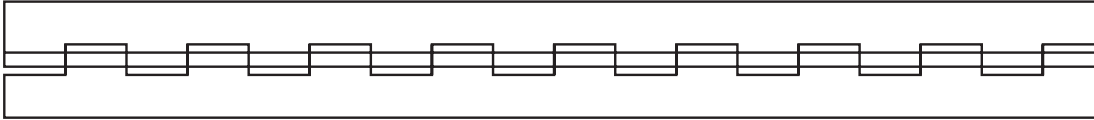
## STEEL CONTINUOUS HINGES / MILL FINISH

When ordering SPD Continuous Hinges, please indicate a suffix of 7 for 72" or a 9 for 96" lengths.

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length
*HICS02750625	0.025	0.75	0.062	0.25
*HICS02100625	0.025	1.00	0.062	0.25
*HICS03750825	0.035	0.75	0.086	0.25
*HICS03190825	0.035	1.06	0.086	0.25
*HICS03120825	0.035	1.25	0.086	0.25
*HICS03150825	0.035	1.50	0.086	0.25
HICS04190950	0.040	1.06	0.093	0.50
HICS04120950	0.040	1.25	0.093	0.50
HICS04150950	0.040	1.50	0.093	0.50
HICS04200950	0.040	2.00	0.093	0.50
HICS05121250	0.050	1.25	0.125	0.50
HICS05151250	0.050	1.50	0.125	0.50
HICS05201250	0.050	2.00	0.125	0.50
HICS06191250	0.060	1.06	0.125	0.50
HICS06121250	0.060	1.25	0.125	0.50
HICS06151250	0.060	1.50	0.125	0.50
HICS06201250	0.060	2.00	0.125	0.50
HICS06251250	0.060	2.50	0.125	0.50
HICS06301250	0.060	3.00	0.125	0.50
HICS06401250	0.060	4.00	0.125	0.50
HICS06121210	0.060	1.25	0.125	1.00
HICS06151210	0.060	1.50	0.125	1.00
HICS06201210	0.060	2.00	0.125	1.00
HICS06251210	0.060	2.50	0.125	1.00
HICS06301210	0.060	3.00	0.125	1.00
HICS06151810	0.060	1.50	0.187	1.00
HICS06201810	0.060	2.00	0.187	1.00
HICS06251810	0.060	2.50	0.187	1.00
HICS06301810	0.060	3.00	0.187	1.00
HICS06151850	0.060	1.50	0.187	0.50
HICS06201850	0.060	2.00	0.187	0.50
HICS06251850	0.060	2.50	0.187	0.50
HICS06301850	0.060	3.00	0.187	0.50
HICS06401850	0.060	4.00	0.187	0.50
HICS07151810	0.075	1.50	0.187	1.00
HICS07201810	0.075	2.00	0.187	1.00
HICS07251810	0.075	2.50	0.187	1.00
HICS07301810	0.075	3.00	0.187	1.00

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length
HICS07401810	0.075	4.00	0.187	1.00
HICS07152510	0.075	1.50	0.250	1.00
HICS07202510	0.075	2.00	0.250	1.00
HICS07252510	0.075	2.50	0.250	1.00
HICS07302510	0.075	3.00	0.250	1.00
HICS07352510	0.075	3.50	0.250	1.00
HICS07402510	0.075	4.00	0.250	1.00
HICS07202520	0.075	2.00	0.250	2.00
HICS07252520	0.075	2.50	0.250	2.00
HICS07302520	0.075	3.00	0.250	2.00
HICS07352520	0.075	3.50	0.250	2.00
HICS07402520	0.075	4.00	0.250	2.00
HICS07502520	0.075	5.00	0.250	2.00
HICS07602520	0.075	6.00	0.250	2.00
HICS09202510	0.090	2.00	0.250	1.00
HICS09302510	0.090	3.00	0.250	1.00
HICS09402510	0.090	4.00	0.250	1.00
HICS09502510	0.090	5.00	0.250	1.00
HICS12202520	0.120	2.00	0.250	2.00
HICS12302520	0.120	3.00	0.250	2.00
HICS12402520	0.120	4.00	0.250	2.00
HICS12203720	0.120	2.00	0.375	2.00
HICS12253720	0.120	2.50	0.375	2.00
HICS12303720	0.120	3.00	0.375	2.00
HICS12353720	0.120	3.50	0.375	2.00
HICS12403720	0.120	4.00	0.375	2.00
HICS12503720	0.120	5.00	0.375	2.00
HICS12603720	0.120	6.00	0.375	2.00
HICS12803720	0.120	8.00	0.375	2.00
HICS18305020	0.180	3.00	0.500	2.00
HICS18405020	0.180	4.00	0.500	2.00
HICS18505020	0.180	5.00	0.500	2.00
HICS18605020	0.180	6.00	0.500	2.00
HICS18705020	0.180	7.00	0.500	2.00
HICS18805020	0.180	8.00	0.500	2.00
HICS25306220	0.250	3.00	0.625	2.00
HICS25406220	0.250	4.00	0.625	2.00
HICS25506220	0.250	5.00	0.625	2.00





Equal Leaves, Stainless Steel Pin, No Holes  
**304 STAINLESS STEEL  
 CONTINUOUS HINGES**

Equal Leaves, Aluminum Pin, No Holes  
**ALUMINUM  
 CONTINUOUS HINGES**

When ordering SPD Continuous Hinges, please indicate a suffix of 7 for 72" and a 9 for 96" lengths

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length
*HICX02750625	0.025	0.75	0.062	0.25
*HICX02100625	0.025	1.00	0.062	0.25
*HICX03190825	0.035	1.06	0.086	0.25
*HICX03120825	0.035	1.25	0.086	0.25
*HICX03150825	0.035	1.50	0.086	0.25
HICX04190950	0.040	1.06	0.093	0.50
HICX04120950	0.040	1.25	0.093	0.50
HICX04150950	0.040	1.50	0.093	0.50
HICX04200950	0.040	2.00	0.093	0.50
HICX05121250	0.050	1.25	0.125	0.50
HICX05151250	0.050	1.50	0.125	0.50
HICX05201250	0.050	2.00	0.125	0.50
HICX06191250	0.060	1.06	0.125	0.50
HICX06121250	0.060	1.25	0.125	0.50
HICX06151250	0.060	1.50	0.125	0.50
HICX06201250	0.060	2.00	0.125	0.50
HICX06251250	0.060	2.50	0.125	0.50
HICX06301250	0.060	3.00	0.125	0.50
HICX06151850	0.060	1.50	0.187	0.50
HICX06201850	0.060	2.00	0.187	0.50
HICX06251850	0.060	2.50	0.187	0.50
HICX06301850	0.060	3.00	0.187	0.50
HICX07201810	0.075	2.00	0.187	1.00
HICX07251810	0.075	2.50	0.187	1.00
HICX07301810	0.075	3.00	0.187	1.00
HICX07401810	0.075	4.00	0.187	1.00
HICX07202510	0.075	2.00	0.250	1.00
HICX07252510	0.075	2.50	0.250	1.00
HICX07302510	0.075	3.00	0.250	1.00
HICX07402510	0.075	4.00	0.250	1.00
HICX09202510	0.090	2.00	0.250	1.00
HICX09302510	0.090	3.00	0.250	1.00
HICX09402510	0.090	4.00	0.250	1.00
HICX12202520	0.120	2.00	0.250	2.00
HICX12302520	0.120	3.00	0.250	2.00
HICX12402520	0.120	4.00	0.250	2.00
HICX12203720	0.120	2.00	0.375	2.00
HICX12303720	0.120	3.00	0.375	2.00
HICX12403720	0.120	4.00	0.375	2.00
HICX12503720	0.120	5.00	0.375	2.00

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length
HICA03750925	0.032	0.75	0.093	0.25
HICA03190925	0.032	1.06	0.093	0.25
HICA03120925	0.032	1.25	0.093	0.25
HICA03150925	0.032	1.50	0.093	0.25
HICA04190950	0.040	1.06	0.093	0.50
HICA04120950	0.040	1.25	0.093	0.50
HICA04150950	0.040	1.50	0.093	0.50
HICA04200950	0.040	2.00	0.093	0.50
HICA05101250	0.050	1.00	0.125	0.50
HICA05151250	0.050	1.50	0.125	0.50
HICA05201250	0.050	2.00	0.125	0.50
HICA05301250	0.050	3.00	0.125	0.50
**HICA12928	0.060	2.50	0.125	0.50
HICA06121250	0.062	1.25	0.125	0.50
HICA06151250	0.062	1.50	0.125	0.50
HICA06201250	0.062	2.00	0.125	0.50
HICA06251250	0.062	2.50	0.125	0.50
HICA06301250	0.062	3.00	0.125	0.50
HICA06401250	0.062	4.00	0.125	0.50
HICA06151850	0.062	1.50	0.187	0.50
HICA06201850	0.062	2.00	0.187	0.50
HICA06251850	0.062	2.50	0.187	0.50
HICA06301850	0.062	3.00	0.187	0.50
HICA07201850	0.075	2.00	0.187	0.50
HICA07251850	0.075	2.50	0.187	0.50
HICA07301850	0.075	3.00	0.187	0.50
HICA07401850	0.075	4.00	0.187	0.50
HICA09202510	0.090	2.00	0.250	1.00
HICA09252510	0.090	2.50	0.250	1.00
HICA09302510	0.090	3.00	0.250	1.00
HICA09402510	0.090	4.00	0.250	1.00
HICA12202520	0.120	2.00	0.250	2.00
HICA12302520	0.120	3.00	0.250	2.00
HICA12402520	0.120	4.00	0.250	2.00
HICA12502520	0.120	5.00	0.250	2.00
HICA12303720	0.120	3.00	0.375	2.00
HICA12403720	0.120	4.00	0.375	2.00
HICA12503720	0.120	5.00	0.375	2.00

Example of SPD Continuous Hinge part number:  
 HICX062012507: (.060 x 2.00 x .125 x .50 x 72")

Continuous hinges can be custom made to your size and specifications as a special order. Please contact us for more details.

\* Indicates pin staked in place.  
 \*\* 55" length

**316 STAINLESS STEEL CONTINUOUS HINGES**

Equal Leaves, 316 Stainless Steel Pin, No Holes 72" long (except where noted.)

"9" at end of part number indicates 96" long.

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length
HICXX041909507	0.040	1.06	0.093	0.50
HICXX041209507	0.040	1.25	0.093	0.50
HICXX041509507	0.040	1.50	0.093	0.50
HICXX042009507	0.040	2.00	0.093	0.50

Pin Supplied, No Holes

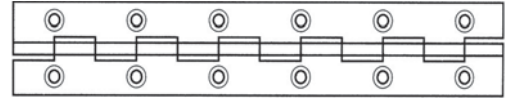
**STAINLESS STEEL Un-Assembled  
 CONTINUOUS HINGES**

One half is 1/4" shorter in length

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length	Length
HICX-12003	.350	1.50	.086	.25	22.25
HICX-12031	.350	1.50	.086	.25	7.25
HICX-13333	.350	1.50	.086	.25	6.25
HICX-11984	.350	1.50	.086	.25	13.25

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length
HICXX061512507	0.060	1.50	0.125	0.50
HICXX061512509	0.060	1.50	0.125	0.50
HICXX062012507	0.060	2.00	0.125	0.50
HICXX062012509	0.060	2.00	0.125	0.50
HICXX062512507	0.060	2.50	0.125	0.50
HICXX063012507	0.060	3.00	0.125	0.50
HICXX063012509	0.060	3.00	0.125	0.50
HICXX123037207	0.120	3.00	0.375	2.00
HICXX123037209	0.120	3.00	0.375	2.00

# CONTINUOUS HINGES WITH HOLES



Equal Leaves – 72" length, both have holes on 2" centers.  
**POLISHED STAINLESS STEEL HINGES WITH  
COINED COUNTERSUNK HOLES**

Top side and knuckles all over polished to a high luster

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length	Screw Size	Length (Inches)
HICX-11803	.040	1.06	.091	.50	#5	72
HICX-11804	.040	1.25	.091	.50	#5	72
HICX-11805	.040	1.50	.091	.50	#6	72
HICX-11806	.040	2.00	.091	.50	#6	72
HICX-11807	.060	1.50	.120	.50	#6	72
HICX-11808	.060	2.00	.120	.50	#6	72

Equal Leaves – 72" length, both have holes on 2" centers.  
**BRIGHT ANNEALED STAINLESS  
STEEL HINGES WITH COINED  
COUNTERSUNK HOLES**

Bright annealed finish, not polished

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length	Screw Size	Length (Inches)
HICX-11800	.040	1.06	.091	.50	#5	72
HICX-1978	.040	1.25	.091	.50	#5	72
HICX-11801	.040	1.50	.091	.50	#6	72
HICX-11802	.040	2.00	.091	.50	#6	72

Equal Leaves  
**STEEL HINGES WITH COINED COUNTERSUNK HOLES**

SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length	Screw Size	Length (Inches)	Finish
HICS-1819	.042	1.06	.091	.50	#4	9	NicklePlate
HICS-1407396	.060	2.00	.120	.50	#6	96	Plain

Equal Leaves  
**PLAIN FINISH STAINLESS STEEL HINGES WITH HOLES**

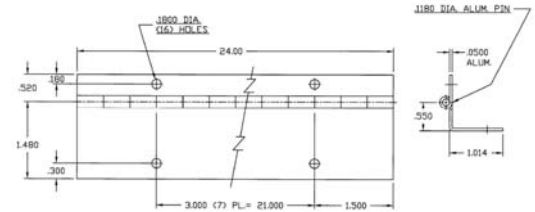
SPD Part #	Gauge	Open Width	Pin Dia.	Knuckle Length	Screw Size	Length (Inches)	Hole Pattern	Hole Style
HICX-10205	.040	1.06	.093	.50	0.156	4	Staggered	Plain
HICX-1941	.040	1.50	.091	.50	0.190	72	Staggered	Plain
HICX-13496**	.060	1.25	.120	.50	#6	3.5	Staggered	Countersunk
HICX-1694	.060	1.50	.120	.50	0.187	6	Staggered	Plain
HICX-12247	.060	2.00	.125	.50	0.281	6.75	Normal	Plain
HICX-12248	.060	2.00	.120	.50	0.281	8	Normal	Plain
HICX-11550**	.060	3.00	.120	.50	0.281	11	Staggered	Plain
HICX-1381413	.060	3.00	.120	.50	#10	13	Staggered	Countersunk
HICX-1381315	.060	3.00	.120	.50	#10	15	Staggered	Countersunk
HICX-12250	.060	3.00	.120	.50	0.281	15.75	Normal	Plain
HICX-12249	.060	2.00	.120	.50	0.281	16	Normal	Plain
HICX-1381221	.060	3.00	.120	.50	#10	21	Staggered	Countersunk
HICX-12251	.060	3.00	.120	.50	0.281	23.5	Normal	Plain
HICX-10520	.060	1.50	.120	.50	#6	72	Normal	Countersunk
HICX-1808	.060	2.50	.120	.50	#6	72	Normal	Countersunk
HICX-1720	.060	3.00	.120	.50	#6	72	Normal	Countersunk

\*\* Polished face

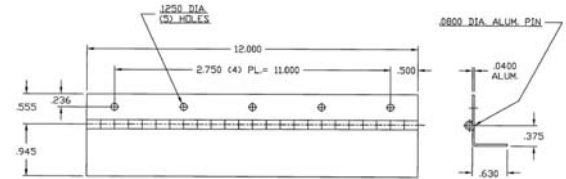
Equal Leaves – Mounting holes are slots perpendicular to length  
**POLISHED STAINLESS STEEL HINGES WITH  
RADIUSED CORNERS AND HOLES**

SPD Part #	Gauge	Open Width	Pin Dia.	Hole	Length	Hole Pattern
HICX-13502	.060	2.00	.120	.187 x .375	15.5	Staggered
HICX-13212	.060	2.00	.120	.187 x .375	20	Staggered
HICX-13213	.060	2.00	.120	.187 x .375	28	Staggered
HICX-13501	.060	2.00	.120	.187 x .375	35	Staggered

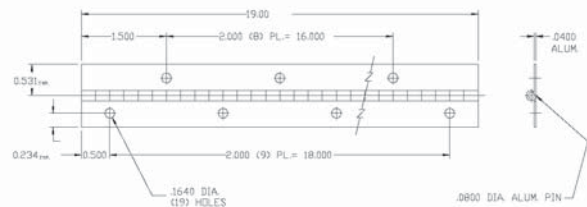
Aluminum  
Plain Finish



Aluminum  
Black Anodized Finish

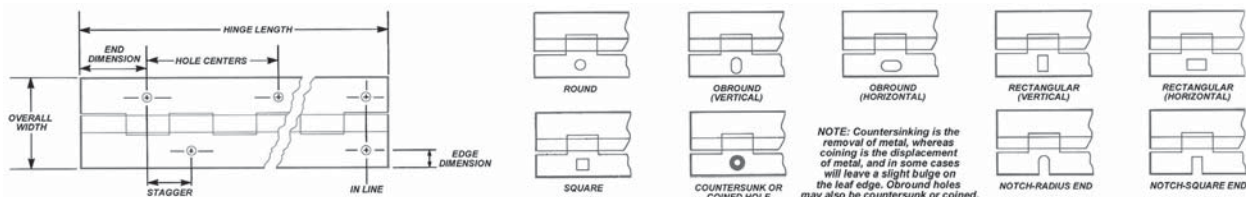


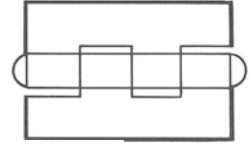
Aluminum  
Satin Black Anodized Finish



## Hinge Piercing Terminology

Many designs and hole sizes are available. When requesting a quotation, include hinge size, hole diameter & type, hole centers, edge dimensions & end dimensions. Ask about our standard hole sizes & patterns.





# BUTT HINGES

Plain Surface Type – No Holes, No Finish, Tight Pin (Spun on both ends)

## STEEL / MILL FINISH

SPD Part #	Gauge	Open Width	Length	Pin Dia.
HIBS03191009	0.035	1.06	1.00	0.091
HIBS03151509	0.035	1.50	1.50	0.091
HIBS05151512	0.050	1.50	1.50	0.125
HIBS06202012	0.060	2.00	2.00	0.125
HIBS07202018	0.075	2.00	2.00	0.187
HIBS07303018	0.075	3.00	3.00	0.187
HIBS07404018	0.075	4.00	4.00	0.187
HIBS09203018	0.090	2.00	3.00	0.187
HIBS09252518	0.090	2.50	2.50	0.187
HIBS09303018	0.090	3.00	3.00	0.187
HIBS09353518	0.090	3.50	3.50	0.187
HIBS09404018	0.090	4.00	4.00	0.187
HIBS12252525	0.120	2.50	2.50	0.250
HIBS12253025	0.120	2.50	3.00	0.250
HIBS12303025	0.120	3.00	3.00	0.250
HIBS12304025	0.120	3.00	4.00	0.250
HIBS12353525	0.120	3.50	3.50	0.250
HIBS12404025	0.120	4.00	4.00	0.250
HIBS12454525	0.120	4.50	4.50	0.250
HIBS12505025	0.120	5.00	5.00	0.250
HIBS18306037	0.180	3.00	6.00	0.375
HIBS18404037	0.180	4.00	4.00	0.375
HIBS18405037	0.180	4.00	5.00	0.375
HIBS18505037	0.180	5.00	5.00	0.375
HIBS18506037	0.180	5.00	6.00	0.375
HIBS18606037	0.180	6.00	6.00	0.375
HIBS18404050	0.180	4.00	4.00	0.500
HIBS18505050	0.180	5.00	5.00	0.500
HIBS18606050	0.180	6.00	6.00	0.500

## 304 STAINLESS STEEL

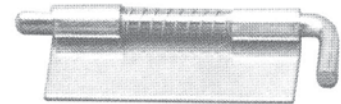
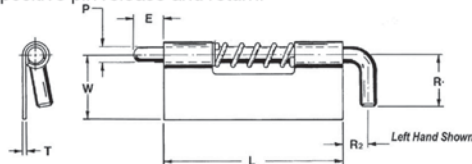
SPD Part #	Gauge	Open Width	Length	Pin Dia.
HIBX05151512	0.050	1.50	1.50	0.125
HIBX06202012	0.060	2.00	2.00	0.125
HIBX07202018	0.075	2.00	2.00	0.187
HIBX07252518	0.075	2.50	2.50	0.187
HIBX07303018	0.075	3.00	3.00	0.187
HIBX07404018	0.075	4.00	4.00	0.187
HIBX09203018	0.090	2.00	3.00	0.187
HIBX09303018	0.090	3.00	3.00	0.187
HIBX09303518	0.090	3.00	3.50	0.187
HIBX09353518	0.090	3.50	3.50	0.187
HIBX12203025	0.120	2.00	3.00	0.250
HIBX12252525	0.120	2.50	2.50	0.250
HIBX12303025	0.120	3.00	3.00	0.250
HIBX12304025	0.120	3.00	4.00	0.250
HIBX12404025	0.120	4.00	4.00	0.250
HIBX12505025	0.120	5.00	5.00	0.250
HIBX12606025	0.120	6.00	6.00	0.250
HIBX18404037	0.180	4.00	4.00	0.375
HIBX18505037	0.180	5.00	5.00	0.375
HIBX18606037	0.180	6.00	6.00	0.375

## 316 STAINLESS STEEL

SPD Part #	Gauge	Open Width	Length	Pin Dia.
HIBXX07202018	0.075	2.00	2.00	0.187
HIBXX09203018	0.089	2.00	3.00	0.187
HIBXX09303018	0.090	3.00	3.00	0.187
HIBXX12203025	0.120	2.00	3.00	0.250
HIBXX12303025	0.120	3.00	3.00	0.250
HIBXX12304025	0.120	3.00	4.00	0.250
HIBXX12404025	0.120	4.00	4.00	0.250
HIBXX18404037	0.180	4.00	4.00	0.375

# SPRING HINGES

SPD spring hinges provide secure and easy access to your application. They are manufactured of high quality steel or stainless steel. The special C-ring provides a positive stop, preventing over-travel as well as providing secure pin retention. The tempered spring is tensioned to offer smooth, positive pin release and return.



• Standard spring hinges are zinc plated steel and come without mounting holes. Mounting holes are available as a special order.

SPD Part #		Dim. P (Inches)	Dim. E (Inches)	Dim. R (Inches)	Dim. R2 (Inches)	Dim. L (Inches)	Dim. W (Inches)	Dim. T (Inches)
Left Hand	Right Hand							
HIL711LS-Z	HIL711RS-Z	0.125	0.187	0.437	0.187	0.875	0.500	0.040
HIL712LS-Z	HIL712RS-Z	0.156	0.250	0.625	0.250	1.375	0.750	0.040
HIL713LS-Z	HIL713RS-Z	0.187	0.375	0.687	0.312	2.000	0.875	0.050
HIL714LS-Z	HIL714RS-Z	0.250	0.500	0.812	0.375	2.750	1.000	0.060

• Standard spring hinges are stainless steel and come without mounting holes. Mounting holes are available as a special order.

SPD Part #		Dim. P (Inches)	Dim. E (Inches)	Dim. R (Inches)	Dim. R2 (Inches)	Dim. L (Inches)	Dim. W (Inches)	Dim. T (Inches)
Left Hand	Right Hand							
HIL711L-X	HIL711R-X	0.125	0.187	0.437	0.187	0.875	0.500	0.040
HIL712L-X	HIL712R-X	0.156	0.250	0.625	0.250	1.375	0.750	0.040
HIL713L-X	HIL713R-X	0.187	0.375	0.687	0.312	2.000	0.875	0.050
HIL714L-X	HIL714R-X	0.250	0.500	0.812	0.375	2.750	1.000	0.060

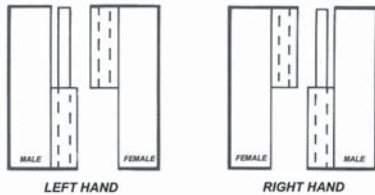
# SLIP & WELD-ON HINGES

Plain Surface Type – No Holes, No Finish  
**SLIP JOINT HINGES**

## STAINLESS STEEL

SPD Part #	Gauge	Open Width	Length	Pin Dia.
HISXL07162018	0.075	1.68	2.00	0.187
HISXL07252518	0.075	2.50	2.50	0.187
HISXL09203018	0.090	2.00	3.00	0.187
HISXL09303025	0.090	3.00	3.00	0.250
HISXL12304025	0.120	3.00	4.00	0.250
HISXL12404025	0.120	4.00	4.00	0.250

SPD Part #	Gauge	Open Width	Length	Pin Dia.
HISXL07162018	0.075	1.68	2.00	0.187
HISXL07252518	0.075	2.50	2.50	0.187
HISXL09203018	0.090	2.00	3.00	0.187
HISXL09303025	0.090	3.00	3.00	0.250
HISXL12304025	0.120	3.00	4.00	0.250
HISXL12404025	0.120	4.00	4.00	0.250

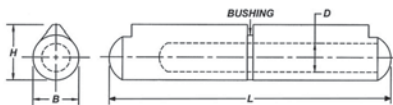


When selecting Slip Joint Hinges, please specify LEFT or RIGHT configuration.

Plain Surface Type – No Holes, No Finish  
**WELD-ON HINGES**

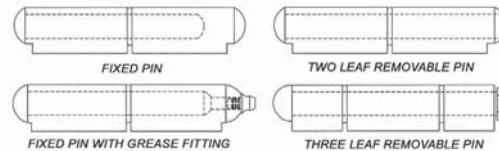
## STEEL BODY, STEEL FIXED PIN

SPD Part #	Length L	Thickness H	Dia. B	Pin Dia. D
HIWS040SF	1.58"	.38"	.315"	.197"
HIWS050SF	1.97"	.38"	.315"	.197"
HIWS060SF	2.36"	.46"	.394"	.236"
HIWS070SF	2.76"	.51"	.450"	.236"
*HIWS080SF	3.15"	.61"	.510"	.315"
*HIWS100SF	3.94"	.77"	.630"	.394"
*HIWS120SF	4.75"	.76"	.630"	.394"
HIWS135SF	5.32"	.90"	.709"	.500"
*HIWS150SF	5.91"	1.00"	.787"	.500"
*HIWS180SF	7.09"	1.00"	.787"	.500"
*HIWS200SF	7.87"	1.13"	.906"	.625"
*HIWS260SF	10.27"	1.46"	1.102"	.750"



## STAINLESS STEEL BODY & SS FIXED PIN

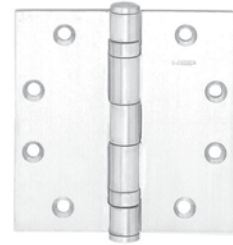
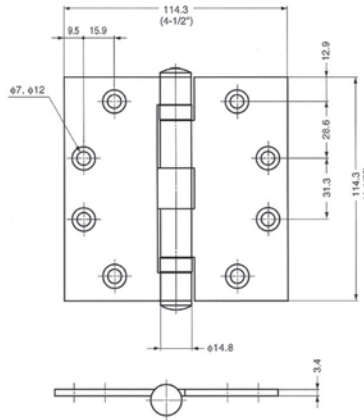
SPD Part #	Length L	Thickness H	Dia. B	Pin Dia. D
HIWX040XF	1.58"	.38"	.315"	.197"
HIWX050XF	1.97"	.38"	.315"	.197"
HIWX060XF	2.36"	.46"	.394"	.236"
HIWX070XF	2.76"	.51"	.450"	.236"
HIWX080XF	3.15"	.61"	.510"	.315"
HIWX100XF	3.94"	.77"	.630"	.394"
HIWX120XF	4.75"	.76"	.630"	.394"
HIWX135XF	5.32"	.90"	.709"	.500"
HIWX150XF	5.91"	1.00"	.787"	.500"
HIWX200XF	7.87"	1.13"	.906"	.625"



# SPECIALTY BUTT HINGES

## STAINLESS STEEL HINGES WITH BALL BEARING RINGS

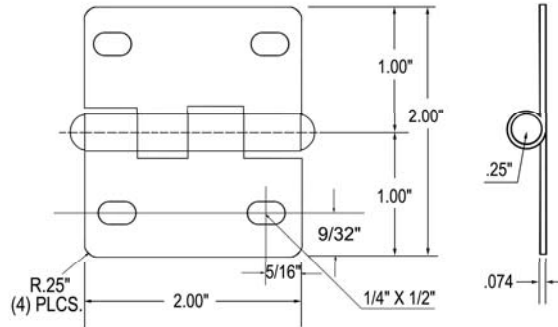
- 304 stainless steel
- Satin finish
- 2 ball bearing rings ensure smooth movement
- Supplied with mounting screws



Part Number	Load Capacity (kg/pair)
HI4545BSS	45 (99lbs)

## EXTRA CORROSION RESISTANT HINGES

- 316 Stainless Steel
- Plain finish



Part Number	Material	Finish
HIBX-12743	316 StainlessSteel	Plain



Associated Spring   
RAYMOND  
A business of BARNES GROUP INC

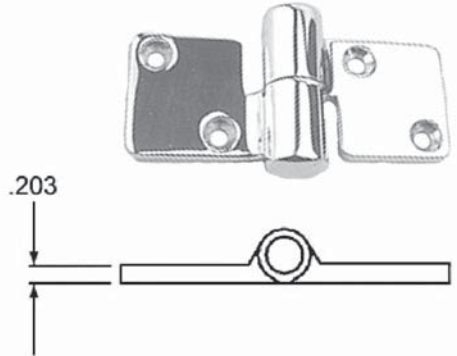
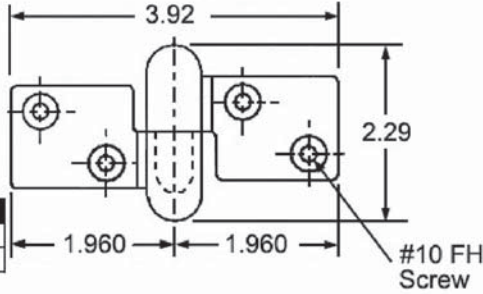
**Get your copy of the  
SPEC<sup>®</sup> catalog,  
full of standard  
springs and  
spring washers!**



# LIFT-OFF HINGES

## LIFT-OFF HINGE

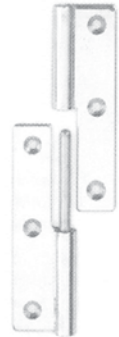
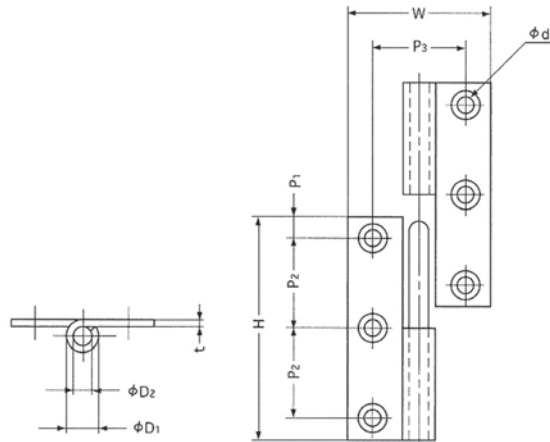
- Investment cast 316 stainless steel
- Polished finish
- Specify left or right hand when ordering
- Left hand shown in photo
- Suffix FM for female lift off half only



Part Number	Description
HI1851-LH	Left Hand
HI1851-RH	Right Hand

## LIFT-OFF HINGE

- 304 stainless steel
- Satin finish
- Mounting screws not included



Part Number		H	W	P1	P2	P3	D1	D2	d	t
Left Hand	Right Hand									
HIKN-50L	HIKN-50R	50	32	5	20	21	7.5	4	3.2	1.5
HIKN-64L	HIKN-64R	64	36	8	24	24	7.5	4	3.2	1.5
HIKN-75L	HIKN-75R	75	38	7.5	30	24	8.5	4	3.2	2



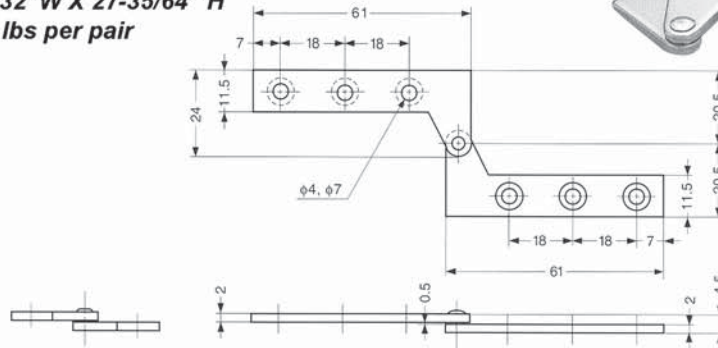




# PIVOT HINGES

## INSET DOOR PIVOT HINGE

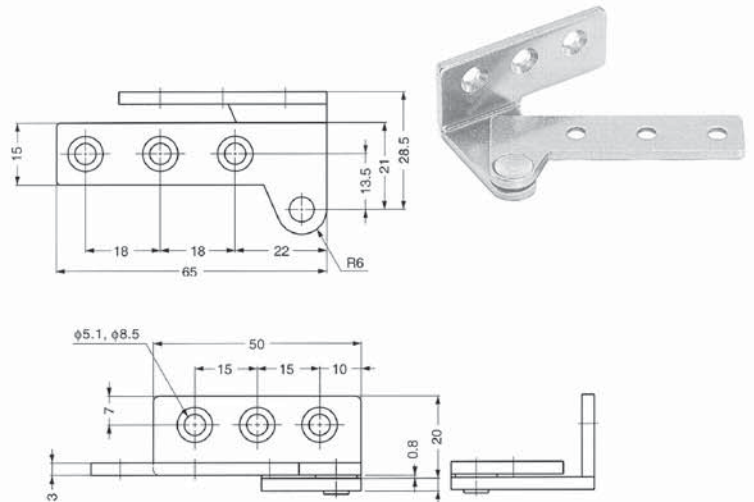
- 430 stainless steel with a satin finish
- Mounting screws not included
- Maximum door size: 17-21/32"W X 27-35/64" H
- Maximum door weight: 5.7 lbs per pair



Part Number	Description
HIPP-L	Left Hand Hinge
HIPP-R	Right Hand Hinge

## OVERLAY DOOR PIVOT HINGE

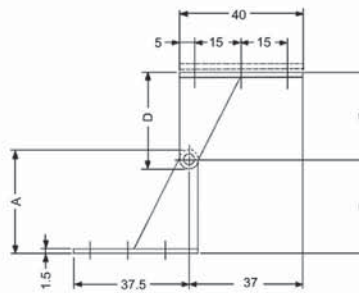
- 430 stainless steel with a satin finish
- Mounting screws not included
- Maximum door size: 17-21/32"W X 27-35/64" H
- Maximum door weight: 5.7 lbs per pair



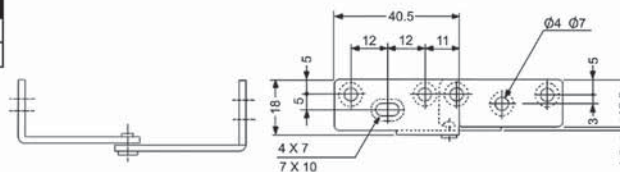
Part Number	Description
HIPP-65L	Left Hand Hinge
HIPP-65R	Right Hand Hinge

## OVERLAY DOOR PIVOT HINGE

- 430 stainless steel with a satin finish
- Mounting screws not included
- Maximum door size: 11-13/16"W X 27-9/16" H
- Maximum door weight: 3.9 lbs per pair



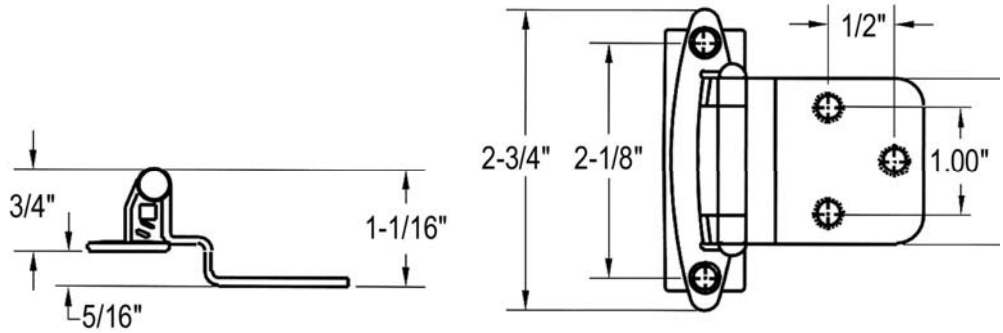
Part Number		A	B	C	D
Left Hand	Right Hand				
HIWP-1L	HIWP-1R	34	28	30.5	31
HIWP-3L	HIWP-3R	28	22	24.5	25



# SEMI-CONCEALED HINGES

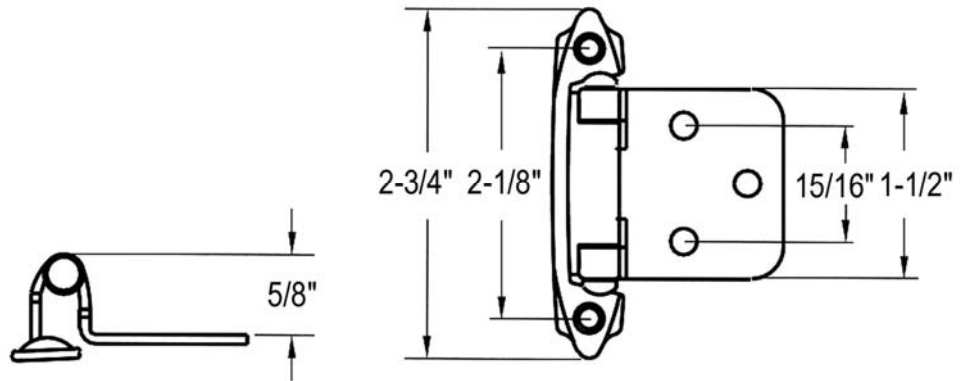
- Semi-concealed hinge
- Steel construction

Part Number	Finish
HI-34900	Antique Brass
HI-34921	Chrome



- Semi-concealed hinge
- Steel construction

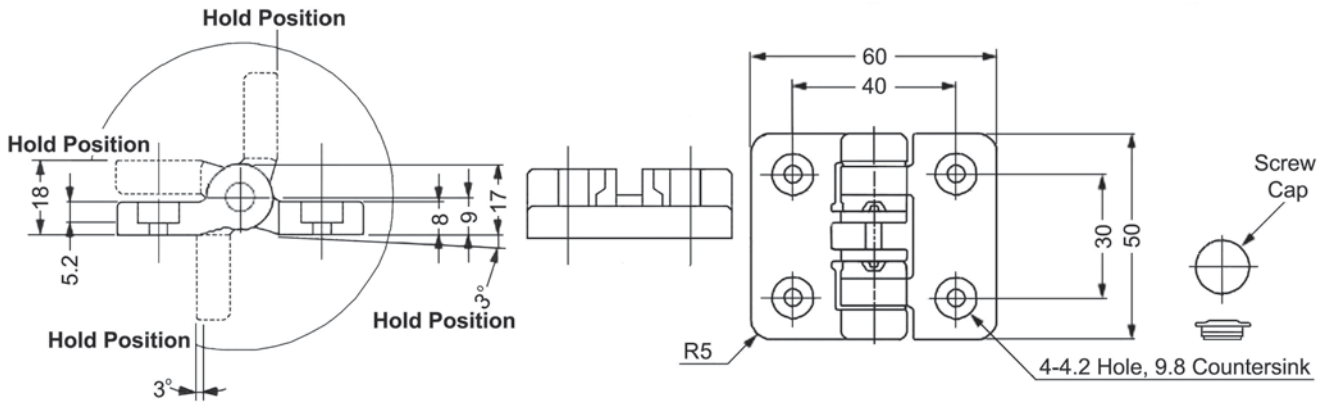
Part Number	Finish
HI-34920	Chrome



# DETENT HINGES

## BUTT HINGE

- Polyacetal leaves
- 303 stainless steel pin
- Hinge holds door at four different 90° angles
- Available in black or ivory finish
- Screw hole cover caps included
- Mounting screws not included
- 4.4 lbs · inch retaining force
- Used for medical equipment, food equipment, etc.,



Part Number	Color
HIYJ-50-B	Black
HIYJ-50-IV	Ivory

# CONCEALED CABINET HINGES

## 14mm OVERLAY STYLE

- 100° opening angle
- Made entirely of 304 stainless steel
- 35mm cup dia. / 11mm bore depth
- For door thickness 15mm~20mm
- Supplied with mounting screws
- Use mounting plate HI304B-P4A32

Hinge side opening clearance chart

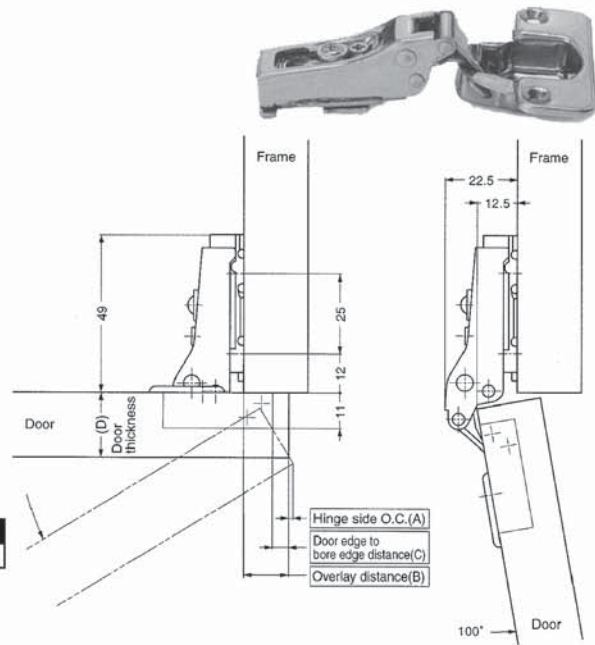
Thickness (D)	Door Edge To Bore Edge Distance C		
	3	4	5
15mm	0.5mm	0.5mm	0.5mm
16mm	0.7mm	0.7mm	0.7mm
17mm	0.8mm	0.8mm	0.8mm
18mm	1.0mm	1.0mm	1.0mm
19mm	1.2mm	1.2mm	1.2mm
20mm	1.4mm	1.4mm <td 1.4mm	

Hinge Side O.C. (A)

Door edge to bore edge distance (c) and overlay distance (B)

Door Edge To Bore Edge Distance (C)	3	4	5
Overlay Distance (B)	12mm	13mm	14mm

Part Number	Type	Finish
HI304B-4614	Free Swing	Polished
HI304B-C4614	Self Closing	Polished



## 19mm OVERLAY STYLE

- 100° opening angle
- Made entirely of 304 stainless steel
- 35mm cup dia. / 11mm bore depth
- For door thickness 15mm~20mm
- Supplied with mounting screws
- Use mounting plate HI304B-P4A32

Hinge side opening clearance chart

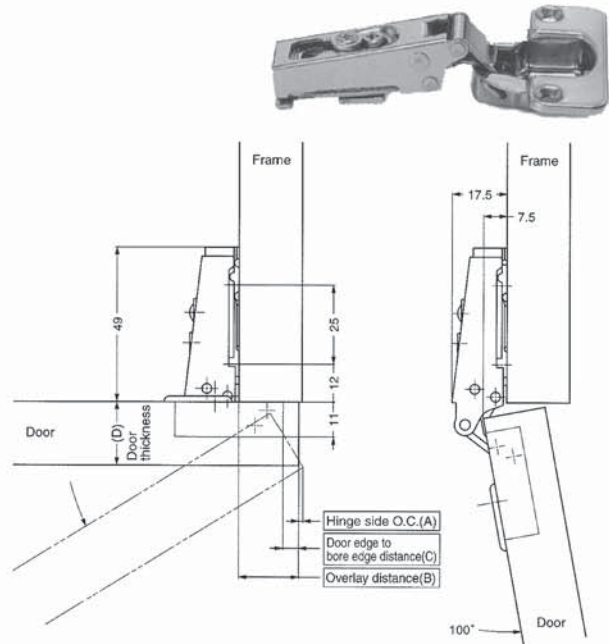
Thickness (D)	Door Edge To Bore Edge Distance C		
	3	4	5
15mm	0.5mm	0.5mm	0.5mm
16mm	0.7mm	0.7mm	0.7mm
17mm	0.8mm	0.8mm	0.8mm
18mm	1.0mm	1.0mm	1.0mm
19mm	1.2mm	1.2mm	1.2mm
20mm	1.4mm	1.4mm	1.4mm

Hinge Side O.C. (A)

Door edge to bore edge distance (c) and overlay distance (B)

Door Edge To Bore Edge Distance (C)	3	4	5
Overlay Distance (B)	17mm	18mm	19mm

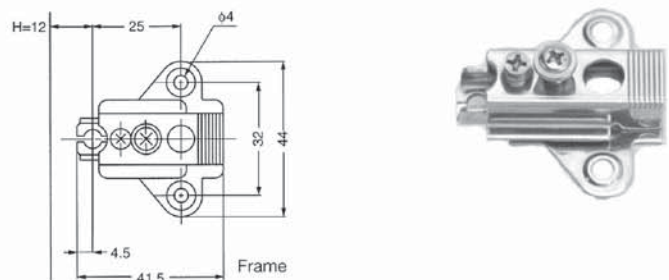
Part Number	Type	Finish
HI304B-4619	Free Swing	Polished
HI304B-C4619	Self Closing	Polished



## CONCEALED HINGE MOUNTING PLATE

- Made entirely of 304 stainless steel
- Works for both hinges listed above

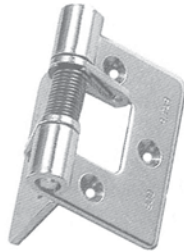
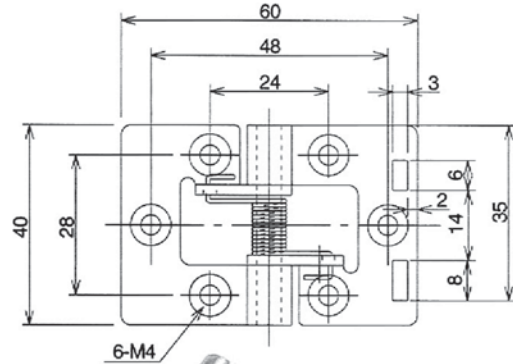
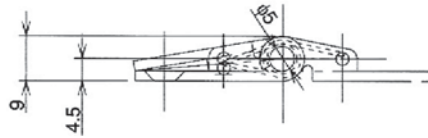
Part Number	HI304B-P4A32
-------------	--------------



# SPRING HINGES

## BUTT HINGE WITH SPRING

- 304 stainless steel
- Polished finish
- Mounting screws not included
- Left hand pictures shown



Part Number	Description
HIBF3L-SO	Left Hand
HIBF3R-SO	Right Hand

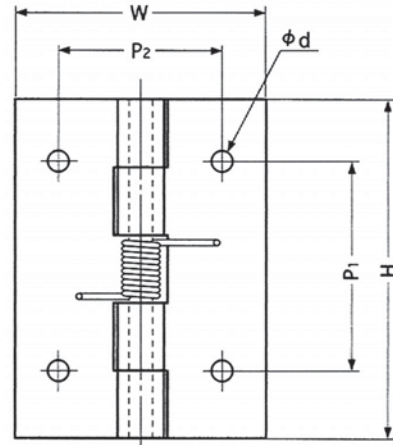
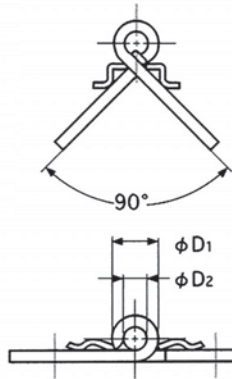
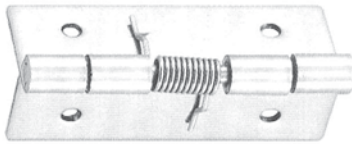
Part Number	Description
HIBF3L-SC	Left Hand
HIBF3R-SC	Right Hand

- Spring holds hinge in open position

- Spring holds hinge in closed position

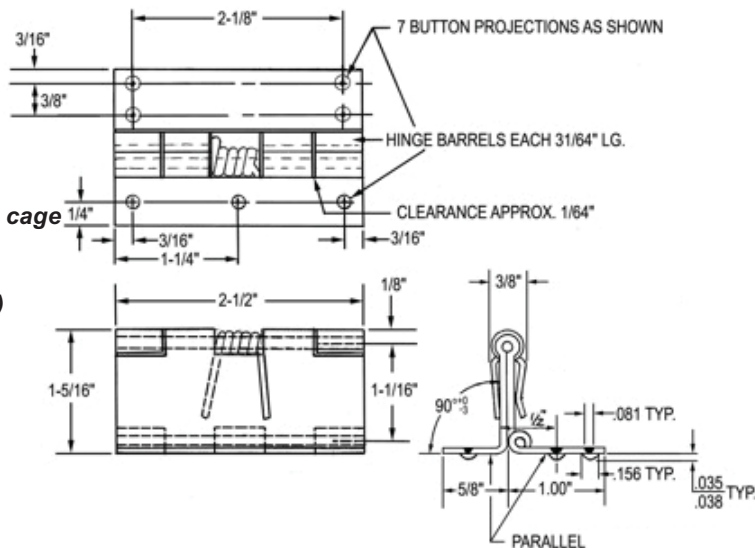
## SPRING HINGE

- 304 stainless steel
- Plain finish
- Spring holds hinge in open position
- Mounting screws not included



Part Number	H	W	P1	P2	D1	D2	d	t	Spring Load
HISH-20SS	.787" (20)	.551" (14)	-	-	2.2	1	-	0.5	1.102 lbs
HISH-25SS	.984" (25)	1.26" (32)	14	20	5.8	3	3.2	1.2	1.212 lbs
HISH-38SS	1.49" (38)	1.26" (32)	26	20	6.5	3	3.2	1.5	2.645 lbs
HISH-51SS	2.00" (51)	1.26" (38)	32	25	6.5	3	3.2	1.5	1.764 lbs

- Double-acting spring hinge
- 16-gauge steel construction



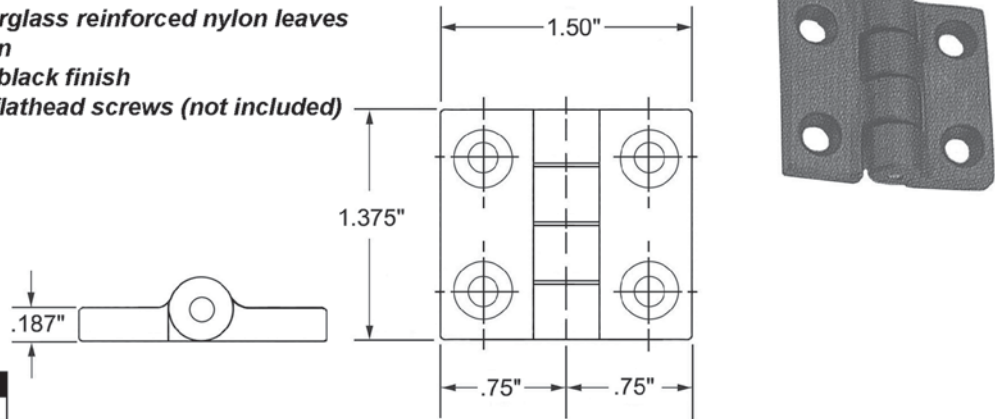
## DS-300 SERIES

- Zinc-plated steel with plastic bearing cage
- Three-member, full-extension slide
- 3/4" of over travel
- 300lb load rating (based on 18" slide)
- Trigger disconnect
- Cushioned stop

# NYLON HINGES

## BUTT HINGE

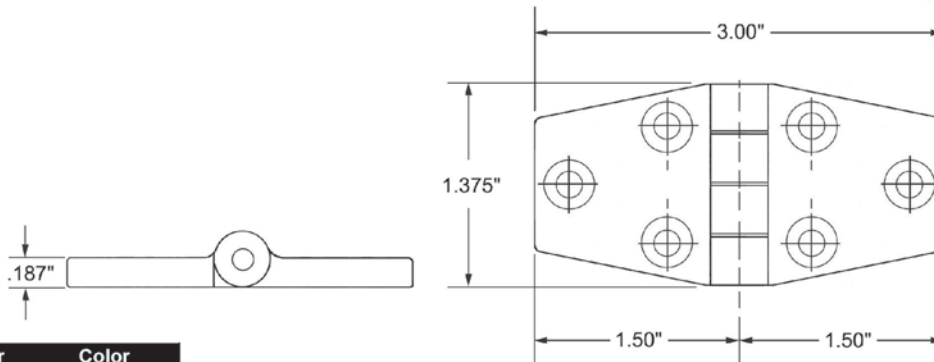
- Injection molded fiberglass reinforced nylon leaves
- 303 stainless steel pin
- Available in white or black finish
- Mounts with four #8 flathead screws (not included)



Part Number	Color
HIB11902-B	Black
HIB11902-W	White

## DOOR HINGE

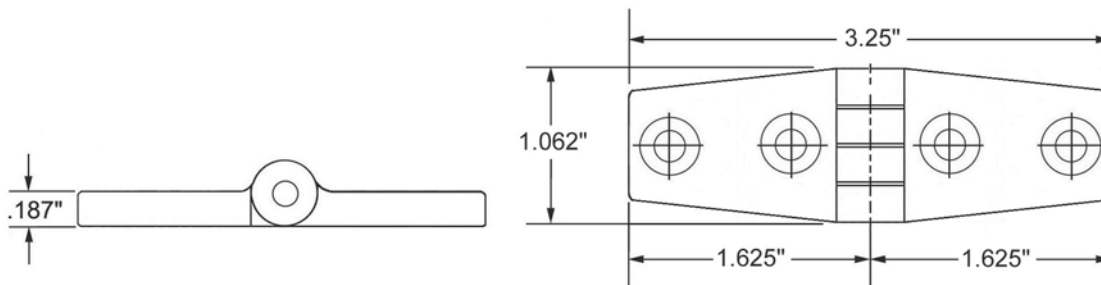
- Injection molded fiberglass reinforced nylon leaves
- 303 stainless steel pin
- Available in white or black finish
- Mounts with six #8 flathead screws (not included)



Part Number	Color
HIB11904-B	Black
HIB11904-W	White

## STRAP HINGE

- Injection molded fiberglass reinforced nylon leaves
- 303 stainless steel pin
- Available in white or black finish
- Mounts with four #8 flathead screws (not included)

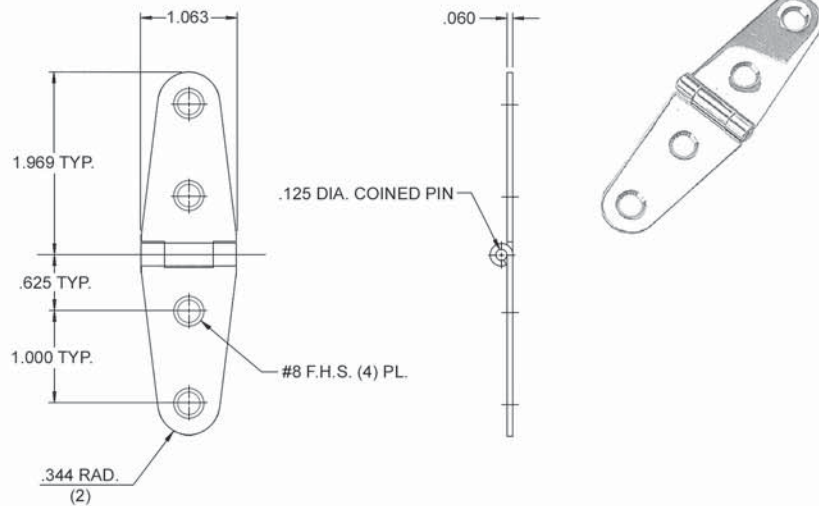


Part Number	Color
HIB13115-B	Black
HIB13115-W	White

# MARINE HINGES

## STRAP HINGE

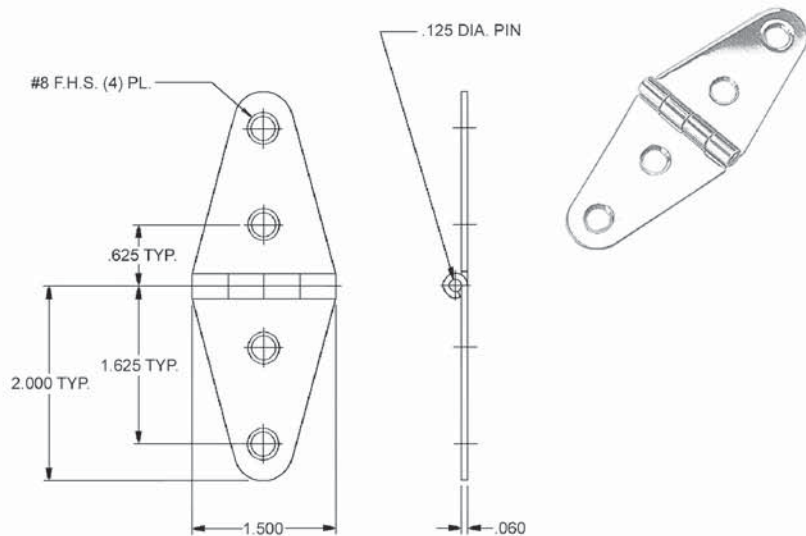
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)



Part Number HI-11546

## STRAP HINGE

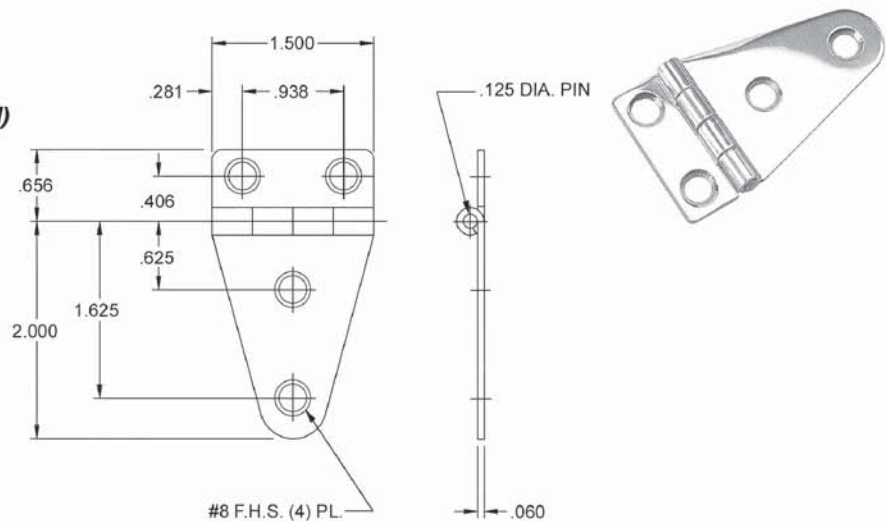
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)



Part Number HI-11906

## SHORT SIDE STRAP HINGE

- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)



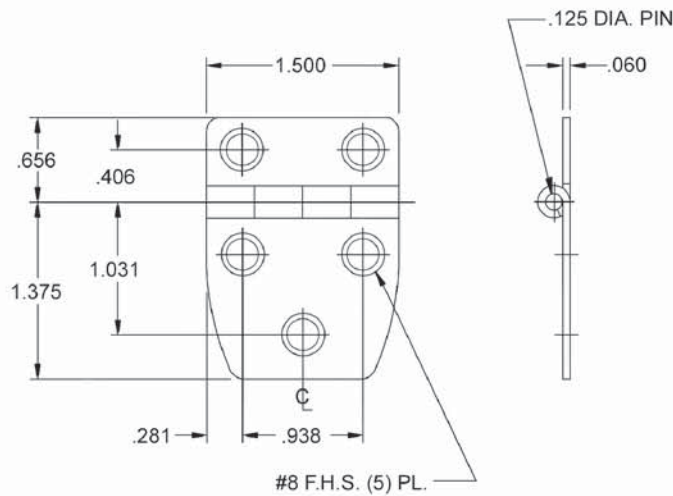
Part Number HI-11908



# MARINE HINGES

## SHORT SIDE HINGE

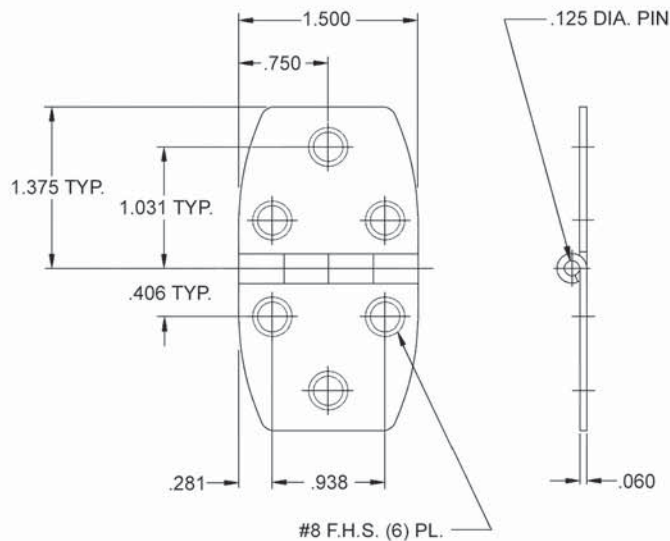
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (5) #8 F.H.S. (not included)



Part Number HI-11907

## DOOR HINGE

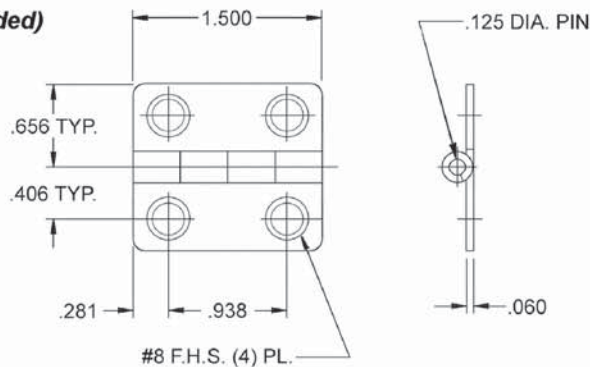
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (6) #8 F.H.S. (not included)



Part Number HI-11909

## BUTT HINGE

- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)

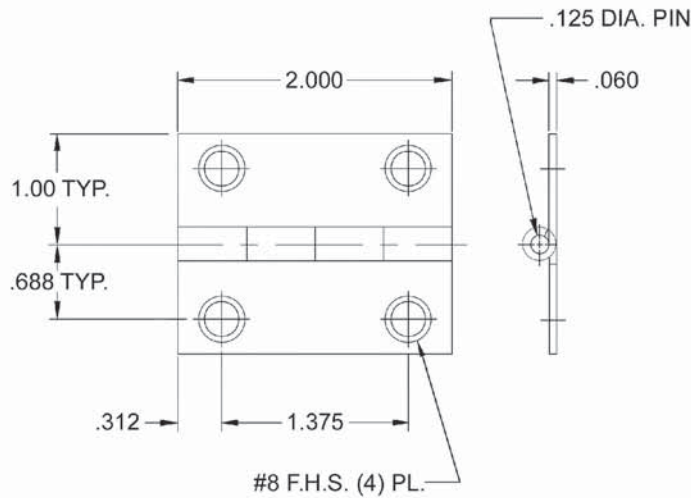


Part Number HI-12949

# MARINE HINGES

## BUTT HINGE

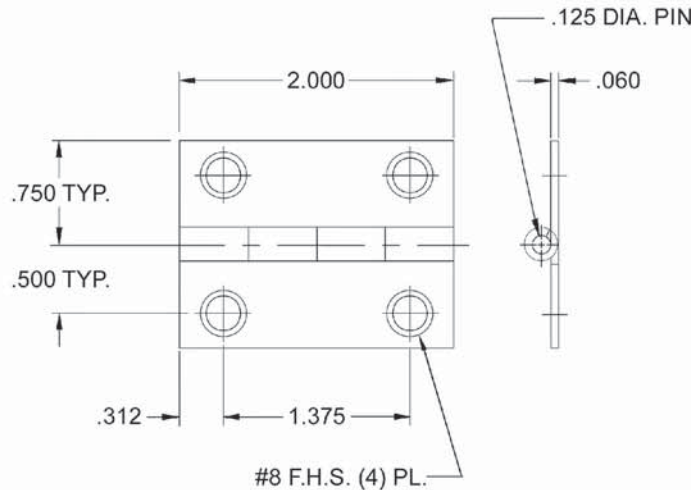
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)



Part Number HI-11910

## BUTT HINGE

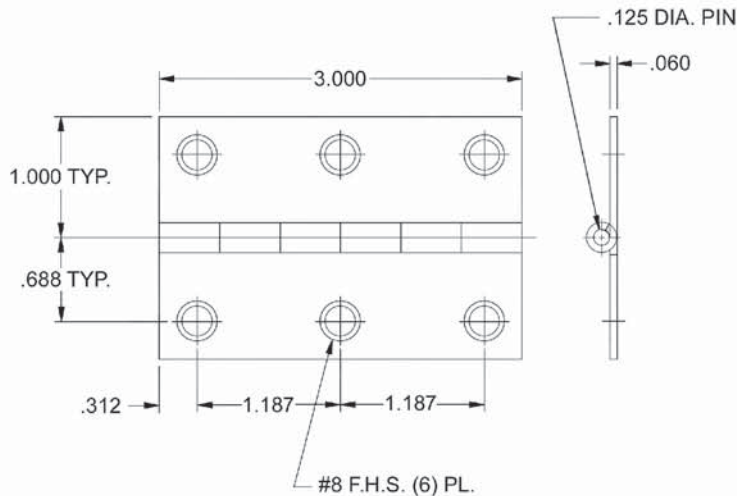
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)



Part Number HI-11911

## BUTT HINGE

- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (6) #8 F.H.S. (not included)

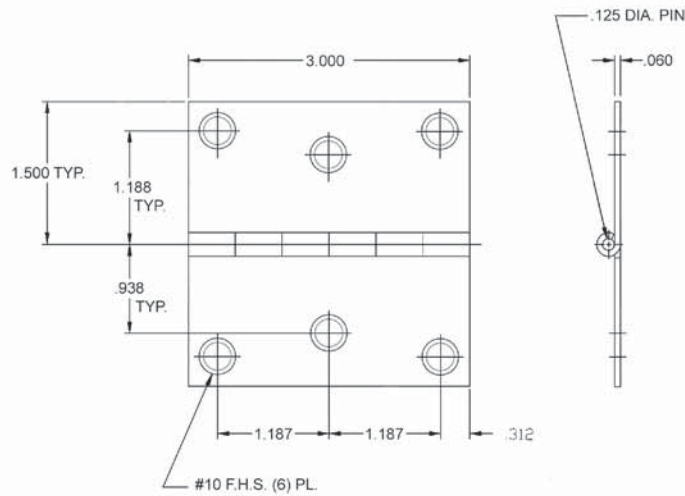


Part Number HI-11917

# MARINE HINGES

## BUTT HINGE

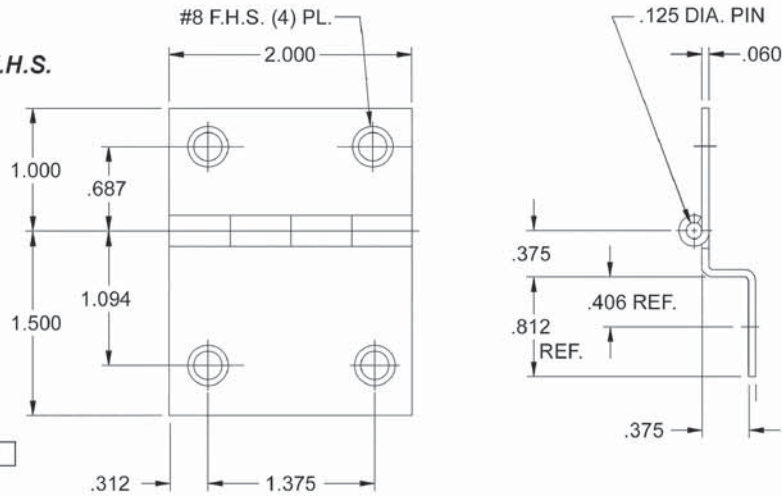
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (6) #8 F.H.S. (not included)



Part Number **HI-11918**

## OFFSET BUTT HINGE

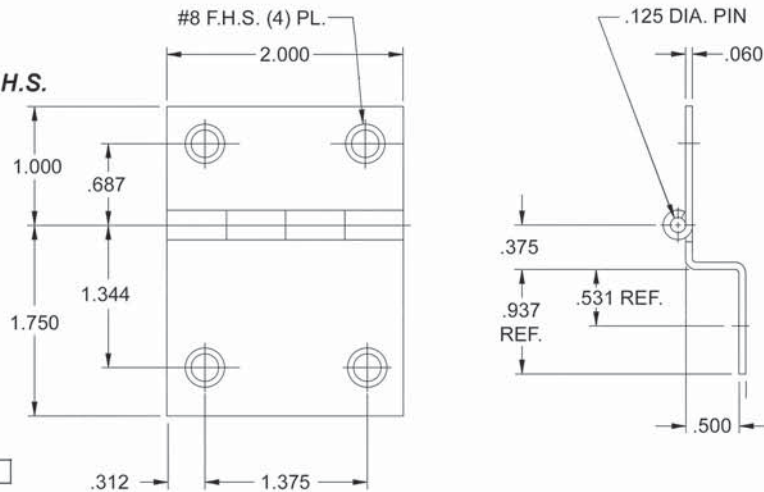
- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)



Part Number **HI-11912**

## OFFSET BUTT HINGE

- 304 stainless steel
- Polished finish
- Pin staked in place
- Mounts with (4) #8 F.H.S. (not included)

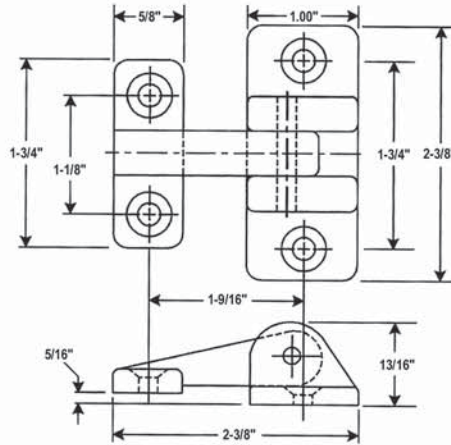


Part Number **HI-11916**

# DIE-CAST HINGES

## ECONOMY DIE-CAST HINGE

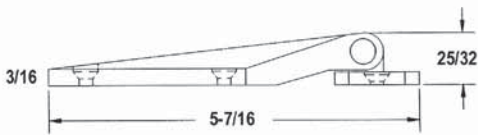
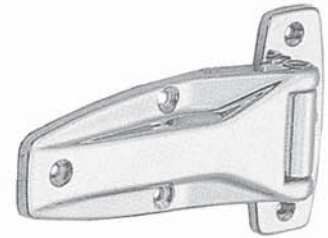
- Can be used on access doors for utility & service bodies
- Bright chrome finish
- Supplied with stainless steel pin
- 5/16" offset
- Uses (4) #10 F.H.S. (not supplied)



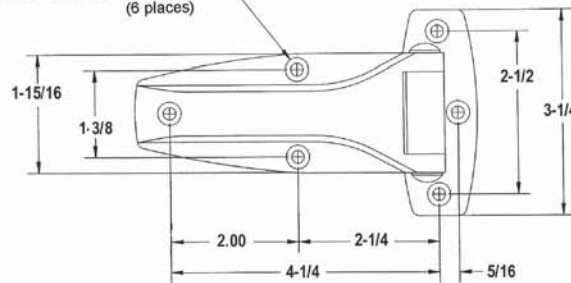
Part Number **HI101-C**

## FLUSH STRAP HINGE

- Can be used on cabinets, service vehicles & utility trucks
- Bright chrome finish
- Supplied with stainless steel pin
- Nylon bushings for smooth operation
- Uses six #10 F.H.S. (not supplied)
- Non-handed for left hand or right hand applications



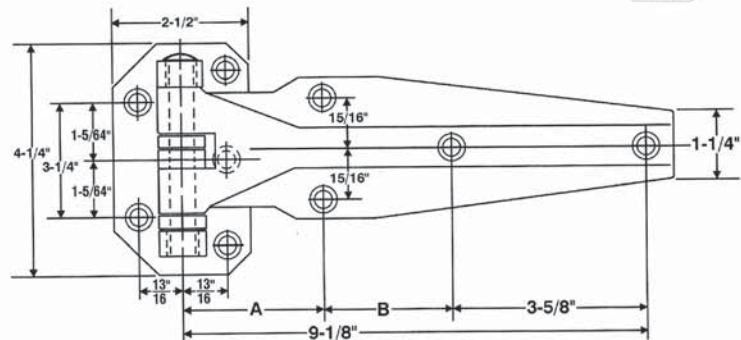
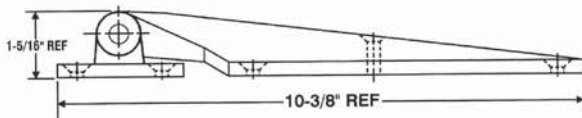
Countersink for #10 Flat Head Screw (6 places)



Part Number **HIZ1956**

## FLUSH STRAP HINGE

- Can be used on refrigerator, vent & cabinet doors
- Bright chrome finish
- Supplied with stainless steel removable pin for right hand or left hand applications
- Nylon bushings and thrust bearings provide smooth operation
- Available with two different hole patterns
- Uses (8) #10 F.H.S. (not supplied)

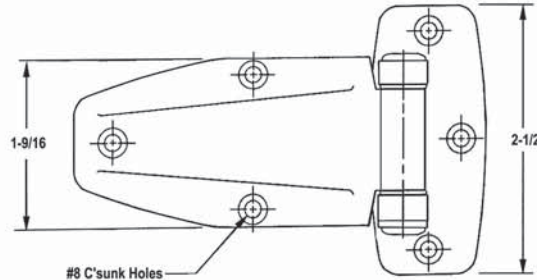
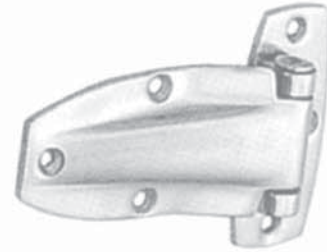


Part Number	Hole Pattern	
	A	B
HIZ109	2-5/8"	2-3/8"
HIZ109-001	3-3/4"	1-1/4"

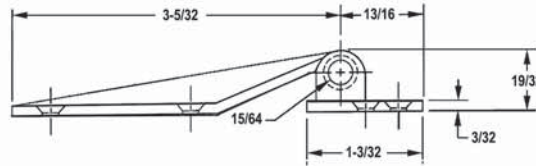
# STAINLESS STEEL STRAP HINGES

## FLUSH MINI STRAP HINGE

- Can be used on access doors for utility & service bodies as well as recreational & emergency vehicles
- Polished finish
- Supplied with fixed stainless steel pin
- Strap revolves on nylon bearings for smooth operation
- Uses (6) #8 flat head fasteners (not supplied)
- Non-handed for left hand or right hand applications

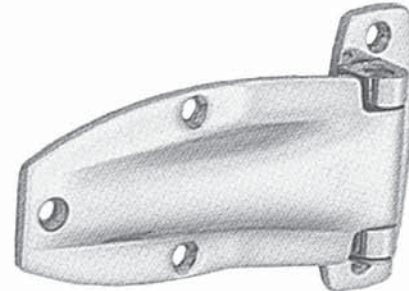


Part Number **HIZ1955**

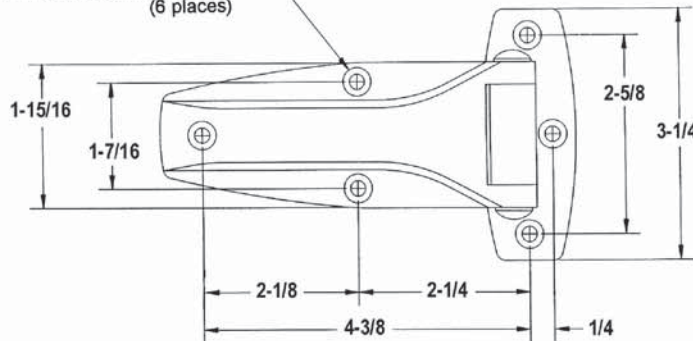


## FLUSH STRAP HINGE

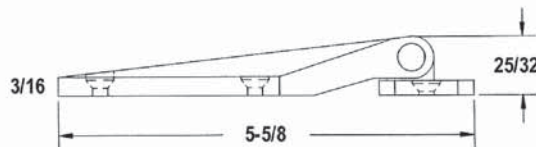
- Can be used on access doors for utility & service bodies as well as recreational & emergency vehicles
- Polished finish
- Supplied with fixed stainless steel pin
- Strap revolves on nylon bearings for smooth operation
- Uses (6) #10 flat head fasteners (not supplied)
- Non-handed for left hand or right hand applications



Countersink for #10 Flat Head Screw  
 (6 places)



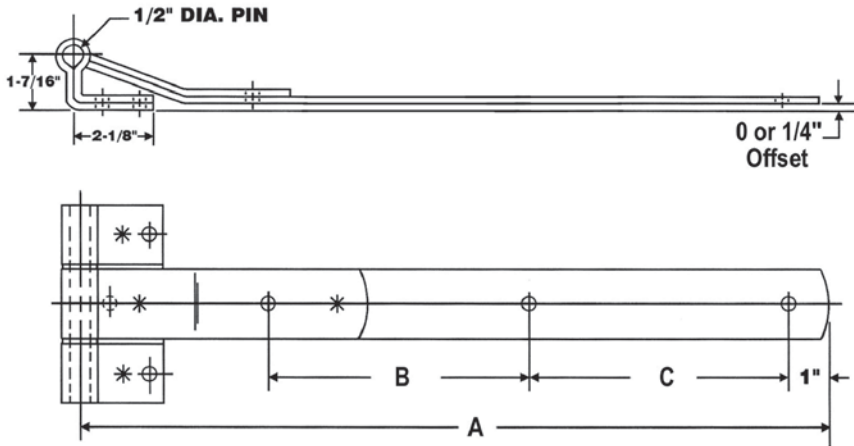
Part Number **HIZ1957**



# REAR DOOR STRAP HINGES

## REAR DOOR HINGE

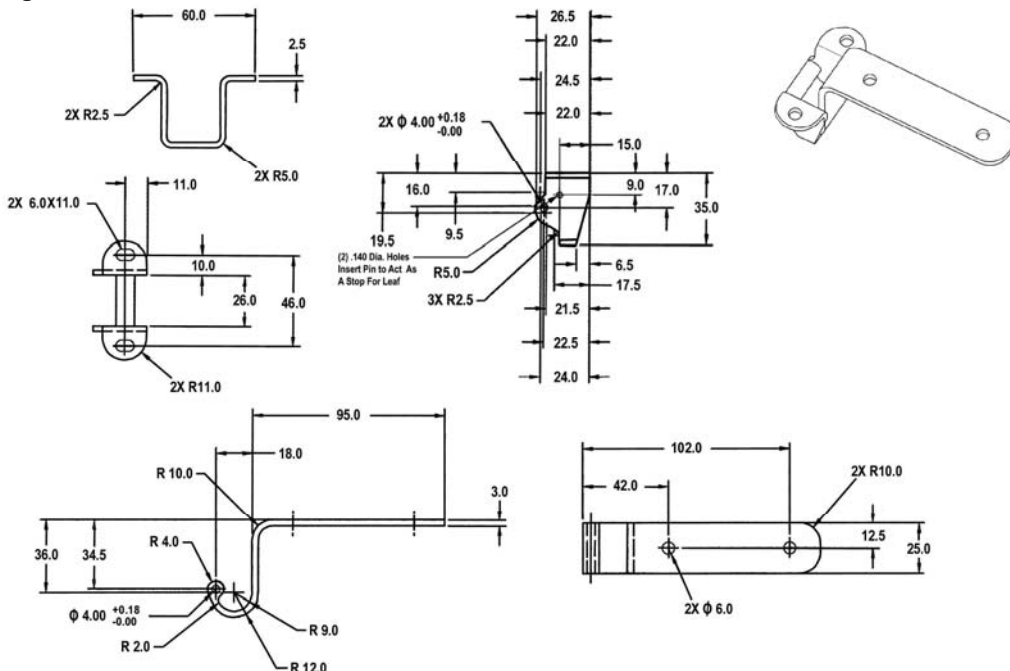
- 270° opening design allows doors to swing parallel to the side of the body
- Non-removable pin for maximum security
- Non-handed for both left and right hand applications
- 8 gauge zinc plated steel strap and bracket
- 1/2" diameter steel pin
- Mounting holes drilled for 1/4" fasteners (not included)



Part Number	Offset	A	B	C
HIZ4022	Flush	12.00"	-	6-1/4"

## OFFSET STRAP HINGE

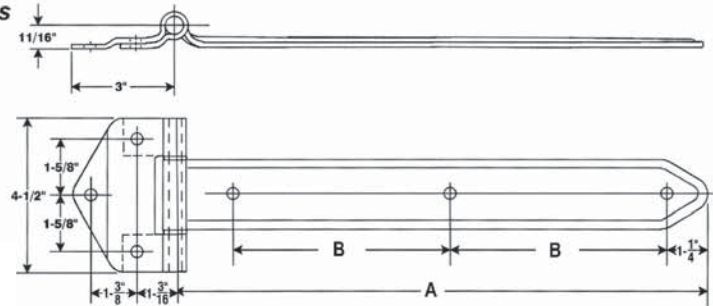
- 90 degree opening design
- Aluminum
- Non-handed design



# EMBOSSED STRAP HINGES

## FLUSH STRAP HINGES

- Hinge has wide bracket with three mounting holes
- Available in 8 gauge zinc plated steel, 10 gauge stainless steel, or .160" thick aluminum
- 1/2" diameter non-removable pin for greater security
- Embossed for greater strength
- 11/32" diameter mounting holes
- HIZ2000-Z shim available for 1/8" offset applications



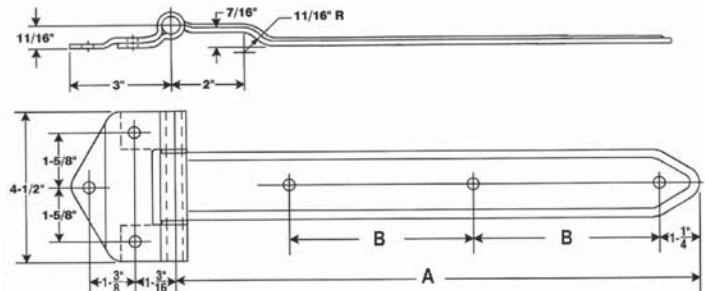
Part Number	Material	Finish	A	B
HIZ2008-Z	Steel	Zinc Plate	8.00"	2-7/16"
HIZ2008-SS	Stainless Steel	Plain	8.00"	2-7/16"
HIZ2012-Z	Steel	Zinc Plate	12.00"	4-7/16"
HIZ2012-SS	Stainless Steel	Plain	12.00"	4-7/16"
HIZ2016-Z	Steel	Zinc Plate	16.00"	6-7/16"
HIZ2016-SS	Stainless Steel	Plain	16.00"	6-7/16"



Part Number HIZ2000-Z

## OVER THE SEAL HINGES

- Hinge designed to bridge molding or door seal
- Has wide bracket with three mounting holes
- Available in 8 gauge zinc plated steel, 10 gauge stainless steel, or .160" thick aluminum
- 1/2" diameter non-removable pin for greater security
- Embossed for greater strength
- 11/32" diameter mounting holes
- HIZ2108 has two holes on strap, HIZ2112 & HIZ2116 have three holes
- HIZ2000-Z shim available for 1/8" offset applications



Part Number	Material	Finish	A	B
HIZ2108-Z	Steel	Zinc Plate	8.00"	3-5/16"
HIZ2108-SS	Stainless Steel	Plain	8.00"	3-5/16"
HIZ2112-Z	Steel	Zinc Plate	12.00"	3-5/8"
HIZ2112-SS	Stainless Steel	Plain	12.00"	3-5/8"
HIZ2116-Z	Steel	Zinc Plate	16.00"	5-5/8"
HIZ2116-SS	Stainless Steel	Plain	16.00"	5-5/8"

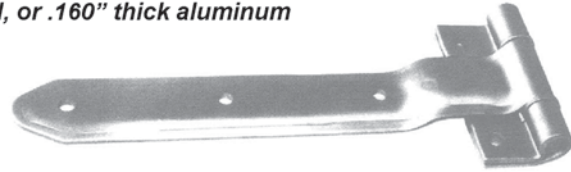


Part Number HIZ2000-Z

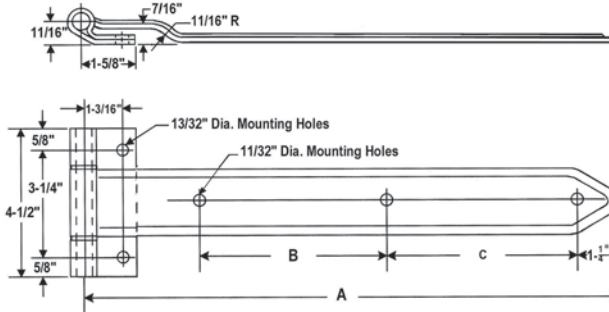
# REVERSE BRACKET STRAP HINGES

## SQUARE CORNER HINGE WITH REVERSE BRACKET

- Hinge has reverse bracket to allow door to swing 270°
- Available in 8 gauge zinc plated steel, 10 gauge stainless steel, or .160" thick aluminum
- 1/2" diameter non-removable pin for greater security
- Embossed for greater strength
- 11/32" diameter mounting holes
- HIZ2001-Z shim available for 1/8" offset applications



Part Number **HIZ2001-Z**

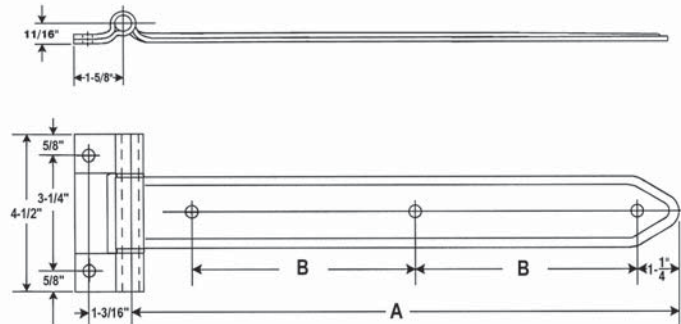


Part Number	Material	Finish	A	B	
HIZ2208-Z	Steel	Zinc Plate	8.00"	-	3-5/16"
HIZ2208-SS	Stainless Steel	Plain	8.00"	-	3-5/16"
HIZ2212-Z	Steel	Zinc Plate	12.00"	3-5/8"	3-5/8"
HIZ2212-SS	Stainless Steel	Plain	12.00"	3-5/8"	3-5/8"
HIZ2216-Z	Steel	Zinc Plate	16.00"	5-5/8"	5-5/8"
HIZ2216-SS	Stainless Steel	Plain	16.00"	5-5/8"	5-5/8"

# NARROW BRACKET STRAP HINGES

## FLUSH STRAP HINGES

- Hinge has narrow bracket with two mounting holes
- Available in 8 gauge zinc plated steel, 10 gauge stainless steel, or .160" thick aluminum
- 1/2" diameter non-removable pin for greater security
- Embossed for greater strength
- 11/32" diameter mounting holes
- HIZ2001-Z shim available for 1/8" offset applications



Part Number	Material	Finish	A	B
HIZ2408-Z	Steel	Zinc Plate	8.00"	2-7/16"
HIZ2108-SS	Stainless Steel	Plain	8.00"	2-7/16"
HIZ2412-Z	Steel	Zinc Plate	12.00"	4-7/16"
HIZ2412-SS	Stainless Steel	Plain	12.00"	4-7/16"
HIZ2416-Z	Steel	Zinc Plate	16.00"	6-7/16"
HIZ2416-SS	Stainless Steel	Plain	16.00"	6-7/16"



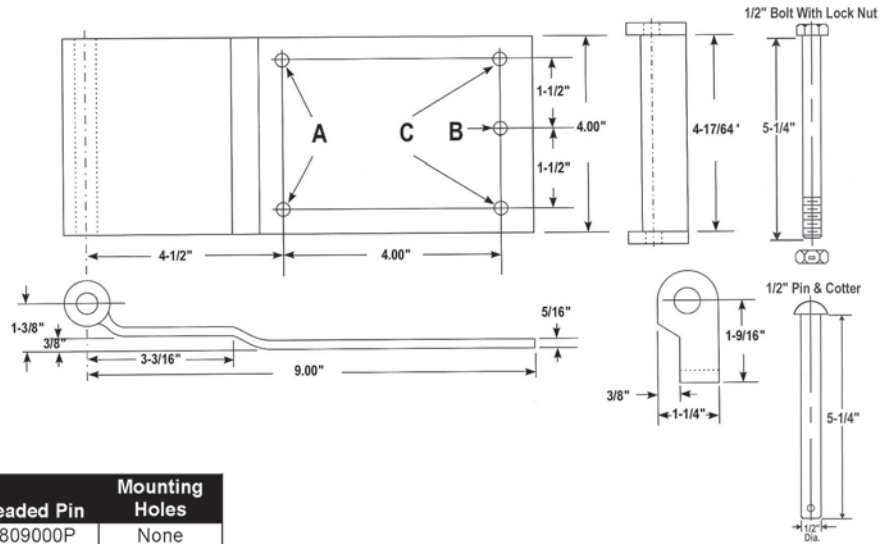
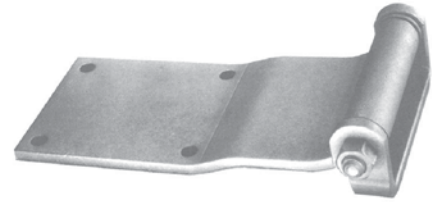
Part Number **HIZ2001-Z**



# HEAVY DUTY TRAILER HINGES

## ALL STEEL HEAVY DUTY HINGES

- Can be used on trailer & container doors
- 5/16" thick steel strap
- 5/16" X 1-1/4" X 4-17/64" steel bracket
- Pin available as either a 1/2-20 X 5-1/4" bolt & nut or 1/2" X 5-1/4" headed pin with cotter
- Zinc plated finish

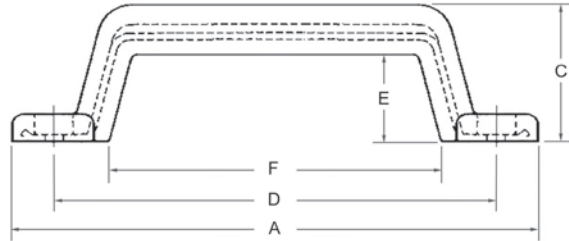


Part Number		Mounting Holes
1/2-20 Bolt	1/2 Headed Pin	
HIZ1809000B	HIZ1809000P	None
HIZ1809003B	HIZ1809003P	A & B
HIZ1809004B	HIZ1809004P	A & C
HIZ1809005B	HIZ1809005P	A & B & C

# MOLDED GRAB HANDLES

## STEEL CORE MOLDED GRAB HANDLE

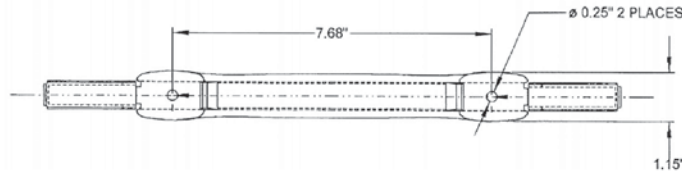
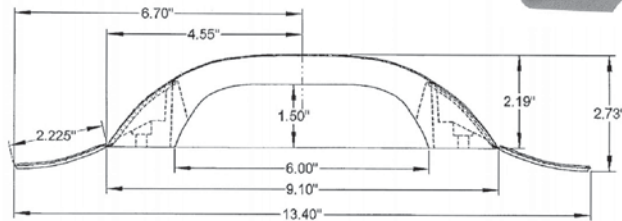
- Molded thermoplastic elastomer surrounding a steel core
- Semi-rigid surface with no hard edges
- Black textured finish
- Mounts with countersunk screw through steel core
- Comes with plugs to conceal mounting holes



Part Number	A	B	C	D	E	F	H
HA900404	7.27"	1.12"	1.97"	6.20"	1.25"	4.28"	.316"
HA900405	10.90"	1.12"	2.17"	9.80"	1.37"	7.62"	.316"

## SNAP COVER GRAB HANDLE

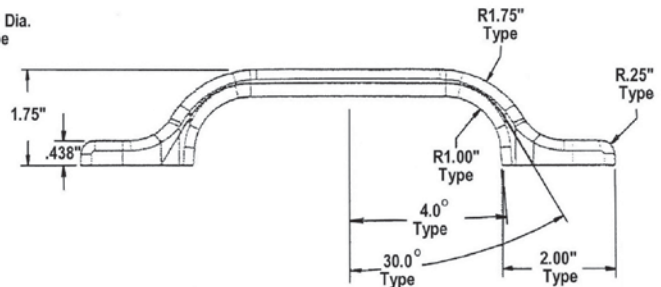
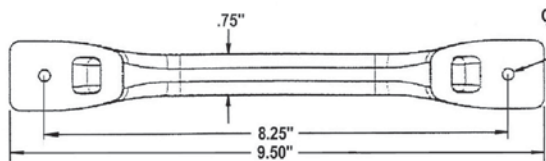
- Made of high strength plastic
- Hard grip handle with integrated hinged snap cover to conceal mounting holes
- Available in white or black



Part Number	Color
HA11722-B	Black
HA11722-W	White

## PLASTIC GRAB HANDLE

- Hard grip handle with thru-hole mounting
- Plastic fastener cover caps available (sold separately)
- Available in black or white

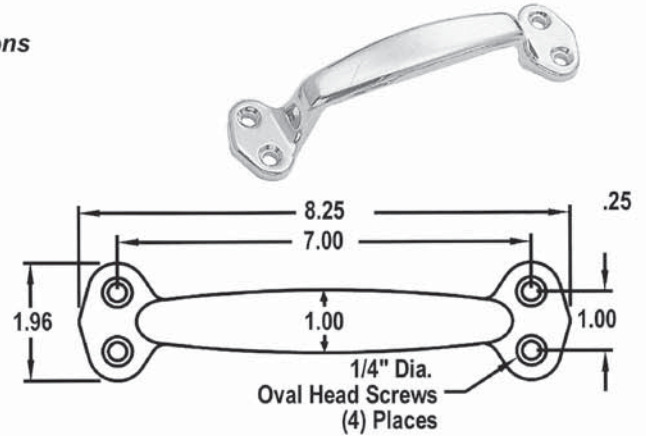
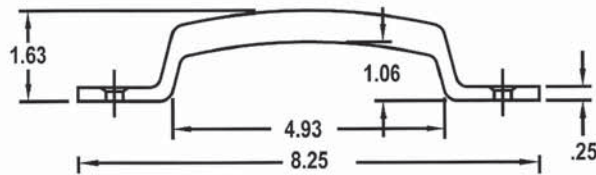


Part Number	Color	Description
HA900401-B	Black	Handle
HA900401-W	White	Handle
HA900401C-B	Black	Screw Cap
HA900401C-W	White	Screw Cap

# GRAB HANDLES

## HEAVY DUTY GRAB HANDLE

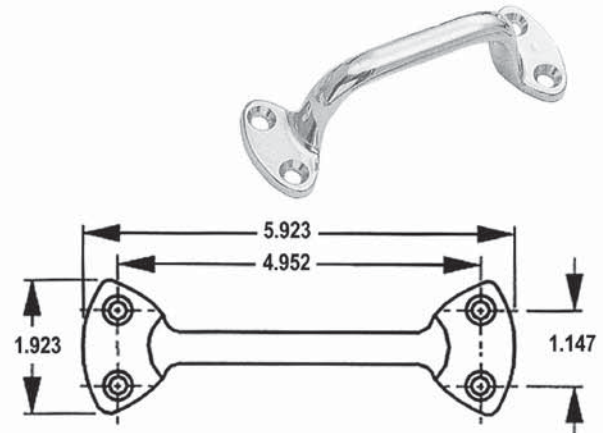
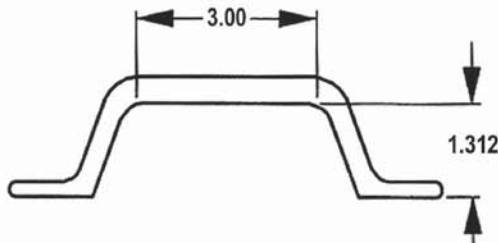
- Available in solid zinc die-cast or formed steel versions
- Die-cast handle has bright chrome finish
- Formed steel handle has zinc plated finish
- Mounting screws not included



Part Number	Material	Finish
HA2399E-C	Zinc Die Cast	Chrome
HA11391	Formed Steel	Zinc

## MARINE GRAB HANDLE

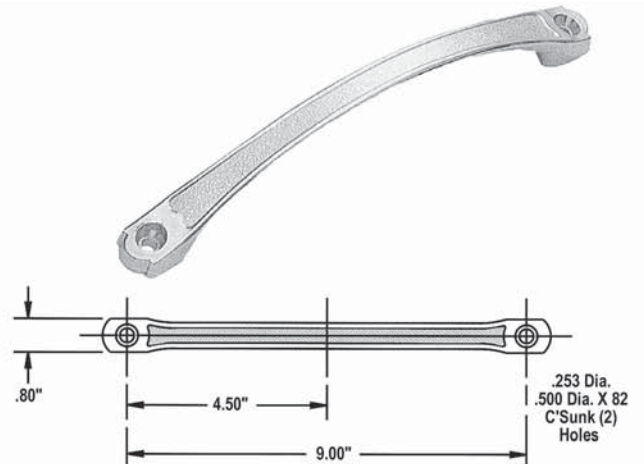
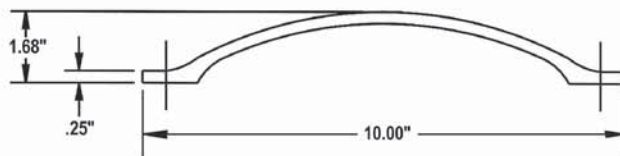
- Bright chrome finish
- Four mounting holes
- Mounting screws not included



Part Number	Material	Finish
HA11385	Zinc Diecast	Chrome
HA-12473	Zinc Diecast	Black Powder Coat

## RV GRAB HANDLE

- Zinc die-cast construction
- Bright chrome plating
- Can be used on interior or exterior applications such as emergency or recreational vehicles

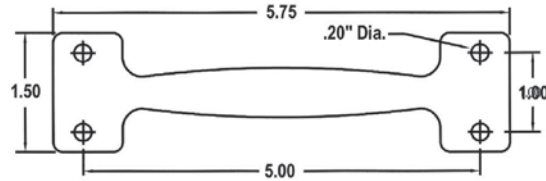
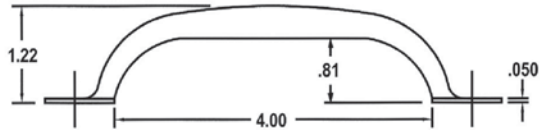


Part Number	Finish
HA11392	Chrome

# GRAB HANDLES

## STAMPED STEEL GRAB HANDLE

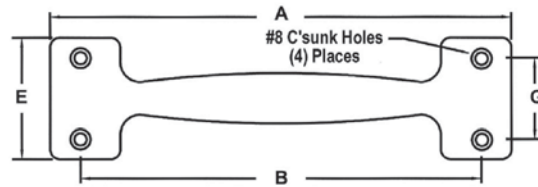
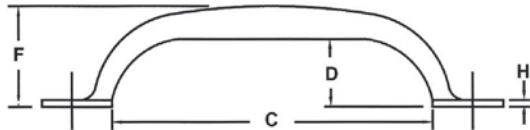
- Made of stamped formed steel
- Available with or without mounting holes
- Available plain or zinc plated
- Mounting screws not supplied



Part Number	Material	Finish	Holes
HA11384	Steel	Zinc	No
HA11384-H	Steel	Zinc	Yes
HA11384-P	Steel	Plain	No

## FORMED STEEL GRAB HANDLE

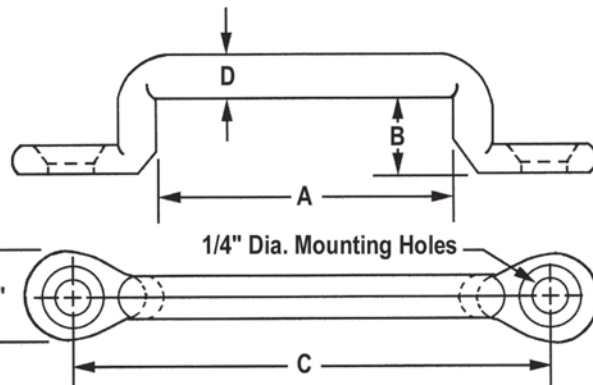
- Made from stamped formed steel
- Mounting screws not supplied



Part Number	Material	Finish	A	B	C	D	E	F	G	H
HA11394	Steel	Zinc Plate	5.00	4.25	3.50	.81	1.25	1.12	.562	.165
HA12160	Steel	Zinc Plate	6.50	5.562	4.37	1.06	1.812	1.438	.953	.182

## FOOTMAN LOOPS

- Use as small handle or tie-down
- Mounts with #10 screws (not supplied)

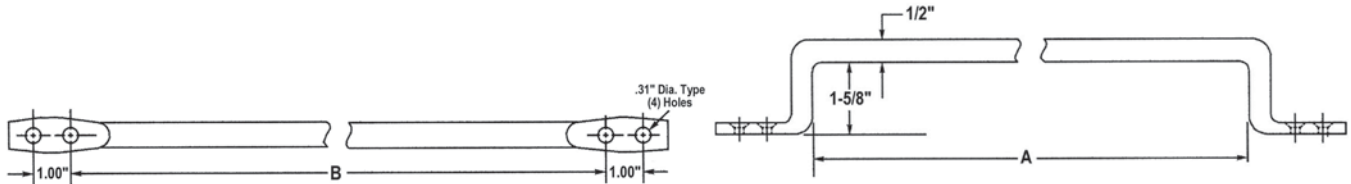


Part Number	Material	A	B	C	D
HA44-Z	Steel Zinc Plate	1-1/8"	1/4"	2-1/8"	1/4"
HA46-Z	Steel Zinc Plate	1-3/8"	1/4"	2-1/4"	1/4"
HA48-Z	Steel Zinc Plate	1-5/8"	5/16"	2-5/8"	1/4"
HA49-Z	Steel Zinc Plate	1-5/8"	7/16"	2-5/8"	1/4"
HA50-SS	Stainless Steel	1-1/4"	1/4"	2-5/8"	1/4"
HA52-Z	Steel Zinc Plate	2-1/8"	5/16"	3-1/8"	9/32"

# ASSIST HANDLES

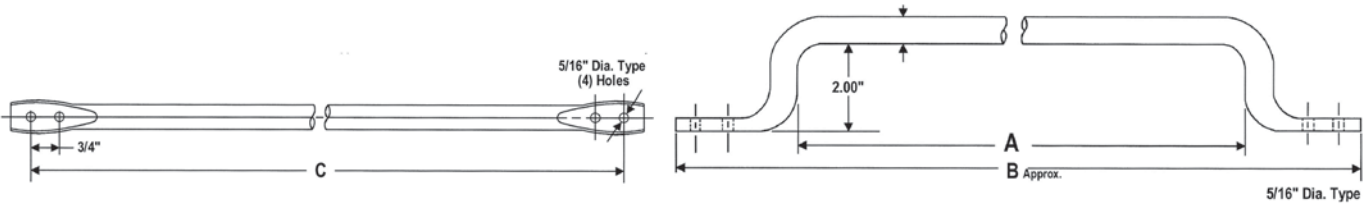
- 1/2" diameter rod
- 1/4" drilled countersunk holes
- Available in steel or aluminum

Part Number	Material	Finish	A	B
HA516	Plain Aluminum		7.75"	10.12"
HA516-001	Plain Aluminum, Plain Holes		13.00"	15.25"



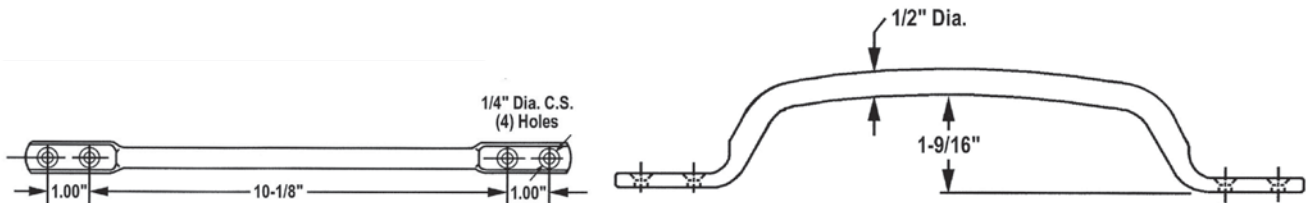
- 5/8" diameter rod
- 5/16" diameter drilled holes
- Available in steel or aluminum

Part Number		A	B	C
Chrome	Aluminum			
HA612-C	HA612-AL	12.00"	17.75"	16.25"
HA618-C	HA618-AL	18.00"	23.68"	22.75"
HA624-C	HA624-AL	24.00"	29.75"	28.75"
HA636-C	-	36.50"	41.68"	40.75"



- 1/2" diameter rod
- 1/4" drilled countersunk holes
- Available in steel and aluminum

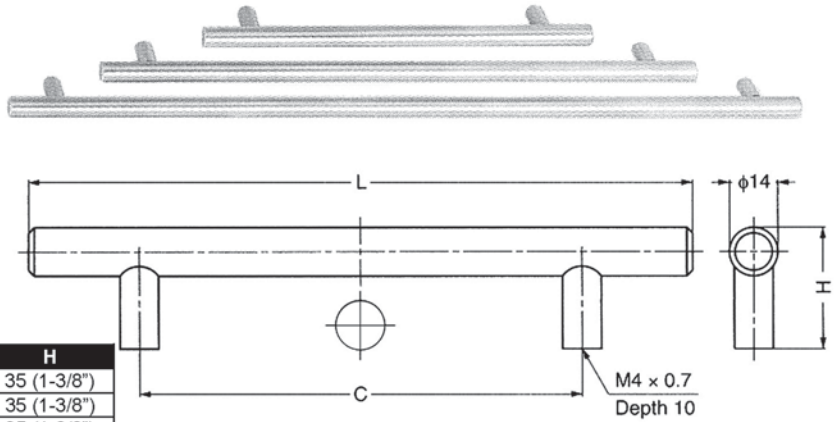
Part Number	Material	Finish
HA817-C	Steel	Chrome
HA816-AL	Aluminum	None



# PULL HANDLES

## PULL HANDLE

- 304 stainless steel
- Satin finish
- NSF approved
- Supplied with M4 X 25 screws

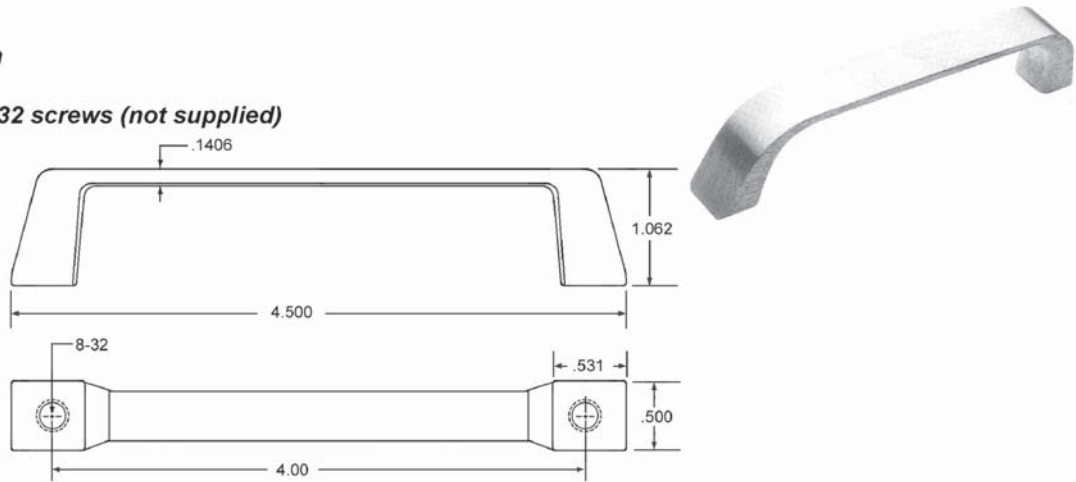


Part Number	L	C	H
HA-2647	192 (7-9/16")	128 (5-1/32")	35 (1-3/8")
HA-2650	256 (10-5/64")	192 (7-9/16")	35 (1-3/8")
HA-2653	406 (15-63/64")	342 (13-15/32")	35 (1-3/8")
HA-2655	556 (21-57/64")	492 (19-3/8")	35 (1-3/8")
HA-2656	656 (25-53/64")	592 (23-5/16")	35 (1-3/8")
HA-2658	1220 (48-1/32")	1156 (45-33/64")	35 (1-3/8")
HA-2659	1456 (57-21/64")	1392 (54-13/16")	35 (1-3/8")

# DRAWER PULLS

## 4" DRAWER PULL

- Extruded aluminum
- Brushed finish
- Holes tapped for 8-32 screws (not supplied)



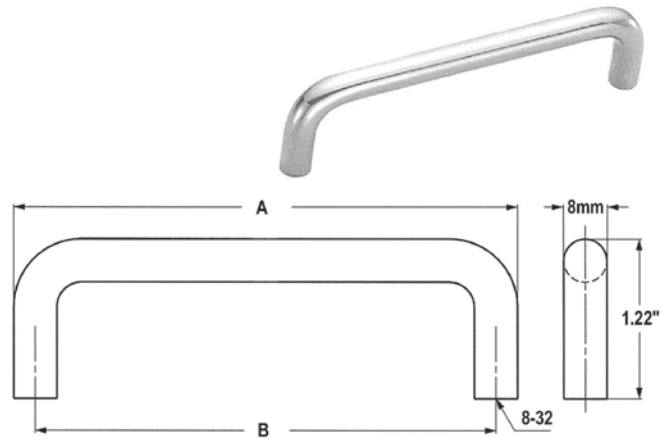
Part Number	Material
HA11377	Aluminum

# WIRE PULLS

## STEEL PULLS

- Steel material
- 8mm diameter
- Holes tapped for 8-32 screws (not supplied)
- Available in three sizes and finishes

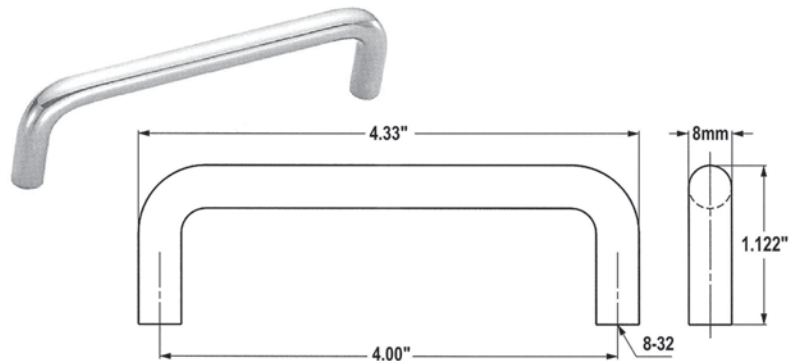
Part Number	A	B	Finish
HA11414-PB	3.31"	3.00"	Polished Brass
HA11414-PC	3.31"	3.00"	Polished Chrome
HA11414-SC	3.31"	3.00"	Satin Chrome
HA11415-PB	3.81"	3.50"	Polished Brass
HA11415-PC	3.81"	3.50"	Polished Chrome
HA11415-SC	3.81"	3.50"	Satin Chrome
HA11379-PB	4.33"	4.00"	Polished Brass
HA11379-PC	4.33"	4.00"	Polished Chrome
HA11379-SC	4.33"	4.00"	Satin Chrome



## 4" WIRE PULL

- 8mm diameter wire
- Holes tapped for 8-32 screws (not supplied)

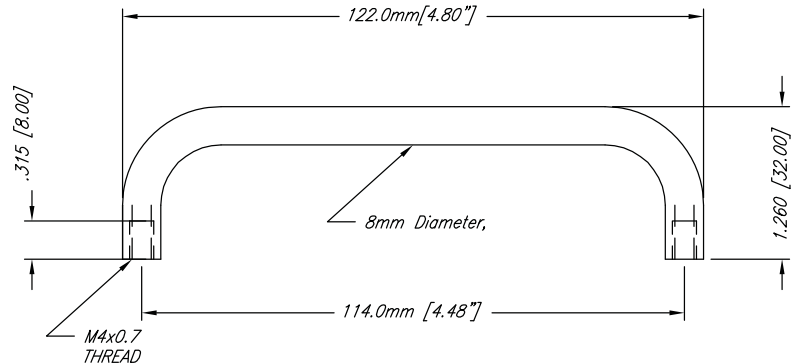
Part Number	Material	Finish
HA11378-PB	Aluminum	Polished Brass
HA11378-AL	Aluminum	Clear Anodize
HA11378-SS	Stainless Steel	Plain



## 114mm Wire Pull

- 8mm diameter wire
- Holes tapped for M4x0.7 screws (not supplied)

Part Number	Material	Finish
HA-13970	Steel	Zinc Plate

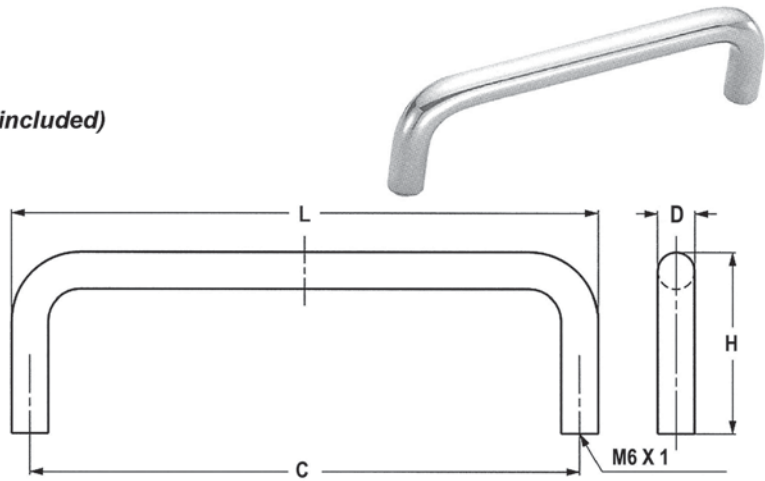


# WIRE PULLS

## STAINLESS STEEL WIRE PULL

- Investment cast stainless steel
- Polished finish
- Holes tapped for M6 X 1.0 screws (not included)

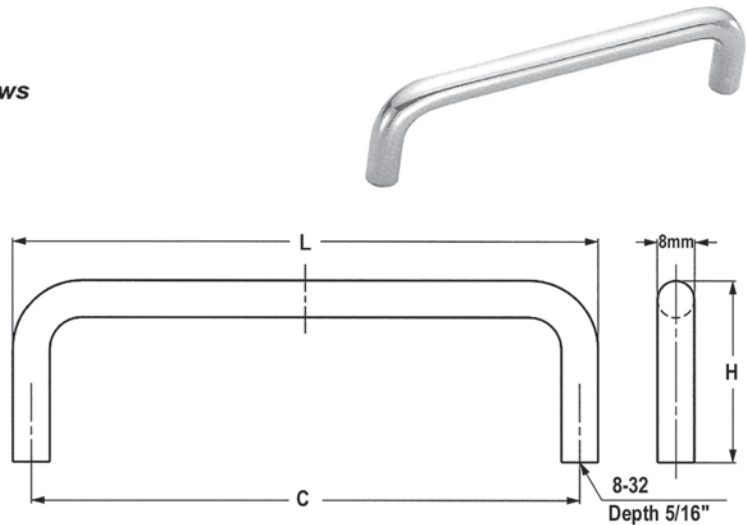
Part Number	C	L	H	D
HA11388	3.94"	4.25"	1.22"	9mm
HA11387	4.33"	4.65"	1.57"	10mm
HA11386	4.73"	5.04"	1.57"	10mm



## 316 STAINLESS STEEL WIRE PULL

- 316 stainless steel wire, satin finish
- Supplied with 8-32 X 1 stainless steel screws
- NSF approved parts

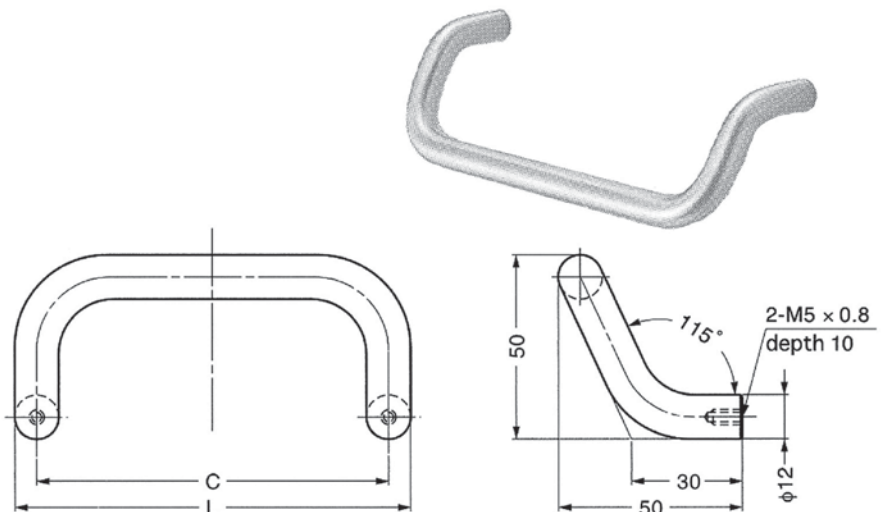
Part Number	C	L	H
HASWP-630S	3.00"	3.31"	1.34"
HASWP-635S	3.50"	3.81"	1.34"
HASWP-640S	4.00"	4.31"	1.34"
HASWP-696S	96mm	4.09"	1.34"



## OFFSET WIRE PULL

- 303 stainless steel
- Satin finish
- Supplied with mounting screws

Part Number	L	C
HALF-1296	108 (4-1/4")	96 (3-25/32")
HALF-12128	140 (5-1/2")	128 (5-1/32")
HALF-12160	172 (6-25/32")	160 (6-19/64")

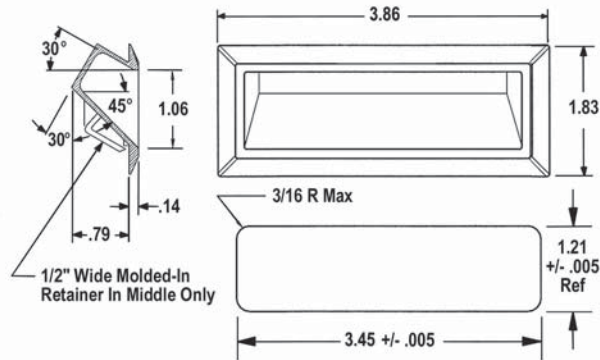
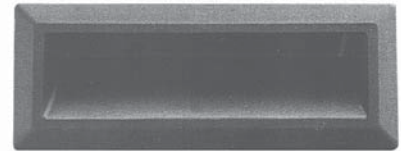




# PLASTIC RECESSED PULLS

## SNAP-IN RECESSED PULL

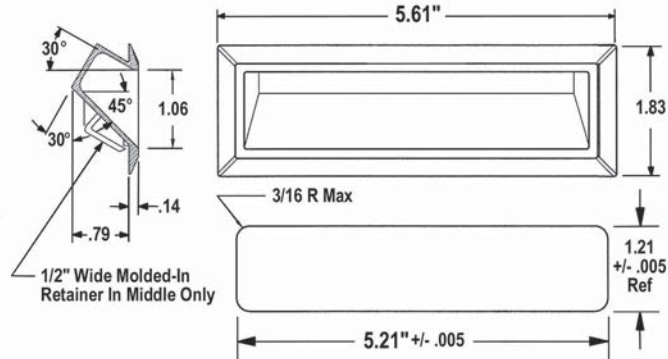
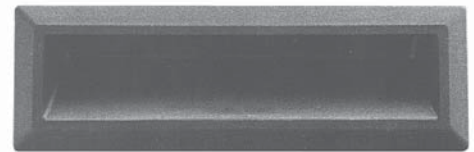
- Made from strong ABS plastic
- Pull simply snaps into application cutout
- UL94-HB rated
- Panel thickness range of .030 to .060
- 100 lb. maximum load pulling
- 350 lb. maximum load lifting
- Black is stock, gray is special order



Part Number	Color	A	B
HA11811-B	Black	3.86"	3.45"
HA11811-G	Gray	3.86"	3.45"

## SNAP-IN RECESSED PULL

- Made from strong ABS plastic
- Pull simply snaps into application cutout
- UL94-HB rated
- Panel thickness range of .030 to .060
- 100 lb. maximum load pulling
- 350 lb. maximum load lifting
- Black is stock, gray is special order

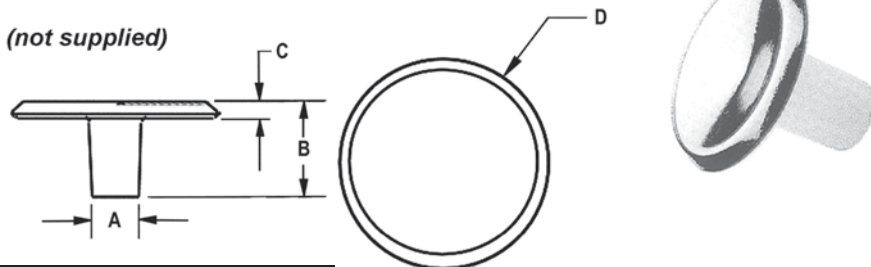


Part Number	Color	A	B
HA11937-B	Black	5.61"	5.21"
HA11937-G	Gray	5.61"	5.21"

# PULL KNOBS

## ROUND CONCAVE KNOB

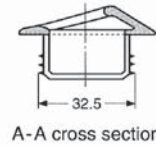
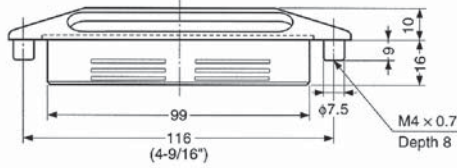
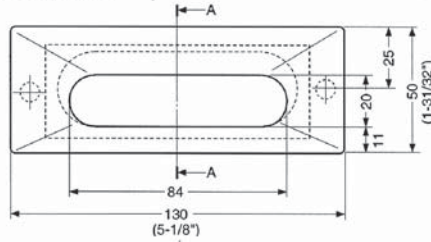
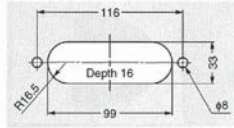
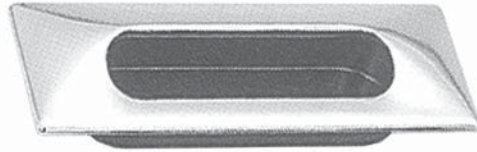
- Zinc die-cast material
- Holes tapped for 8-32 screws (not supplied)
- Available in two finishes



Part Number	Finish	A	B	C	D
HA11389-PC	Polished Chrome	.236"	.714"	.133"	1.00"
HA11390-PC	Polished Chrome	.293"	.75"	.133"	1.25"

# RECESSED PULLS

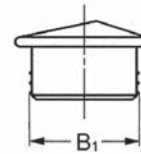
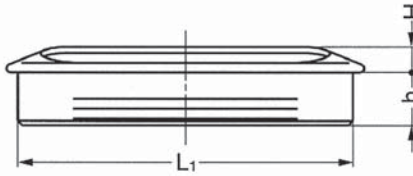
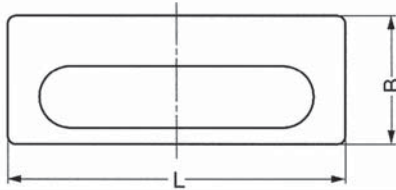
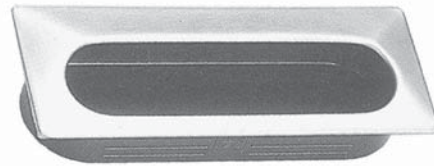
- Zinc alloy face plate with black plastic body
- Blind mounts using two female studs
- Can be used for sheet metal applications using spacers
- Supplied with mounting screws and spacers



A-A cross section

Part Number	Finish
HAUTZ130-CR	Chrome

- Stainless steel face plate with black plastic housing
- Satin finish
- Ribbed surface holds pull in place without the need for fasteners
- 4-1/8" size also available in polished brass finish
- Stainless steel pulls are NSF approved



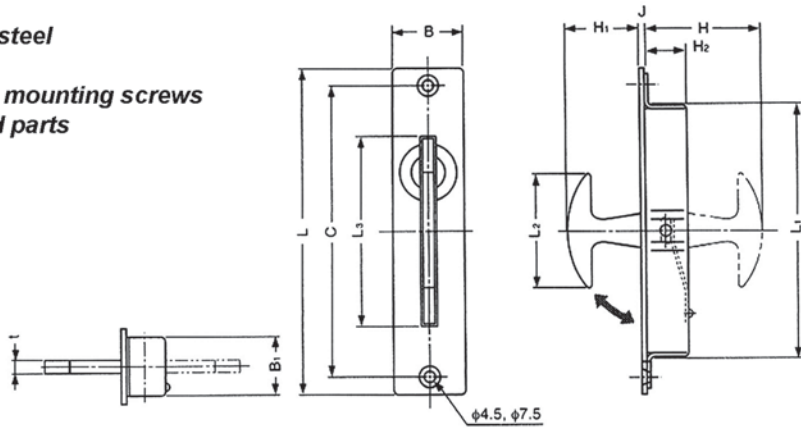
Part Number	L	L1	H	h	B	B1
HAUT-75S	2-61/64"	71mm	7.0mm	15.5mm	36mm	30.8mm
HAUT-105S	4-1/8"	99mm	7.5mm	15.5mm	40mm	32.5mm
HAUT-140S	5-33/64"	134mm	7.5mm	15.5mm	47mm	40.5mm
*HAUT-105PB	4-1/8"	99mm	7.5mm	15.5mm	40mm	32.5mm

\* Polished Brass Finish

# RECESSED HATCH PULLS

## T-HANDLE HATCH PULL

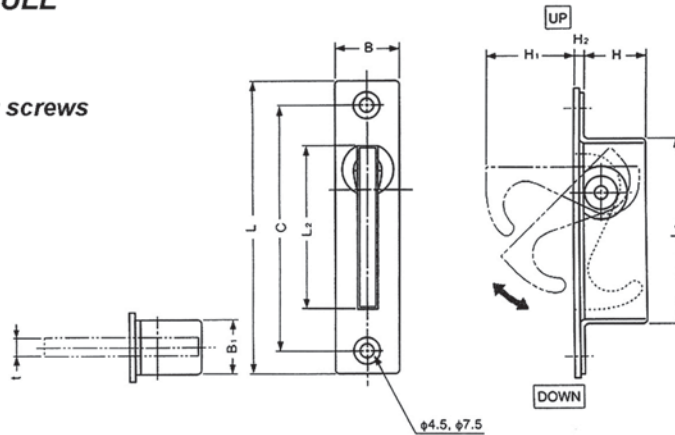
- 304 stainless steel
- Satin finish
- Supplied with mounting screws
- NSF approved parts



Part Number	L	L1	L2	L3	H	H1	H2	J	B	B1	t	C	Screw
HAST-90	90 (3-35/64")	66.2	30.2	57	35.5	23.2	10.5	2.2	22	18.5	3.8	80	M3.5 X 22
HAST-115	115 (4-17/32")	86.2	40	67	42	26	13	2.5	25	20	4	102	M3.5 X 25

## HOOK STYLE HATCH PULL

- 304 stainless steel
- Satin finish
- Supplied with mounting screws
- NSF approved parts

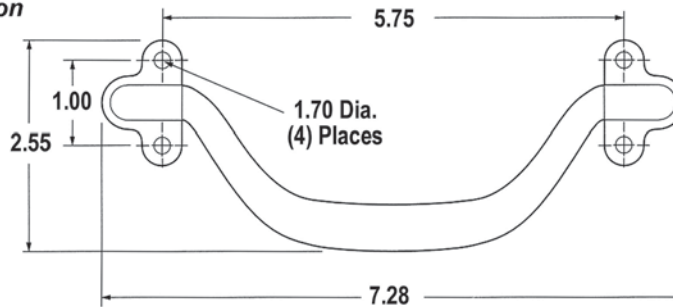


Part Number	L	L1	L2	H	H1	H2	B	B1	t	C	Screw
HAST-80	80 (3-9/64")	50	44	18	25	2	18	15	5	68	M3.5 X 16
HAST-100	100 (3-15/16")	63	54	21	32	2	20	15	5	85	M3.5 X 20

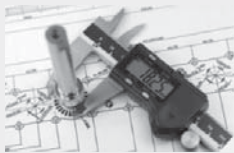
# CHEST HANDLES

## ECONOMY CHEST HANDLE

- 180° free swing
- Formed steel construction
- Zinc plated finish



Part Number	Finish
HA501-ZE	Steel Zinc Plate



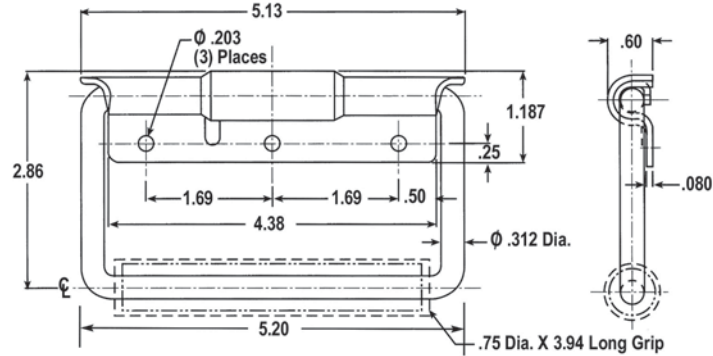
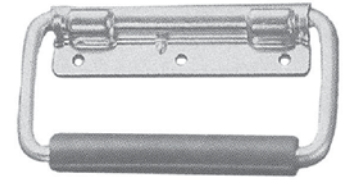
Custom solution Wireforms & Stampings, easily designed for Handles & Pulls, are available for OEM applications.

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 for application and industry examples.

# CHEST HANDLES

## WIDE GRIP CHEST HANDLE

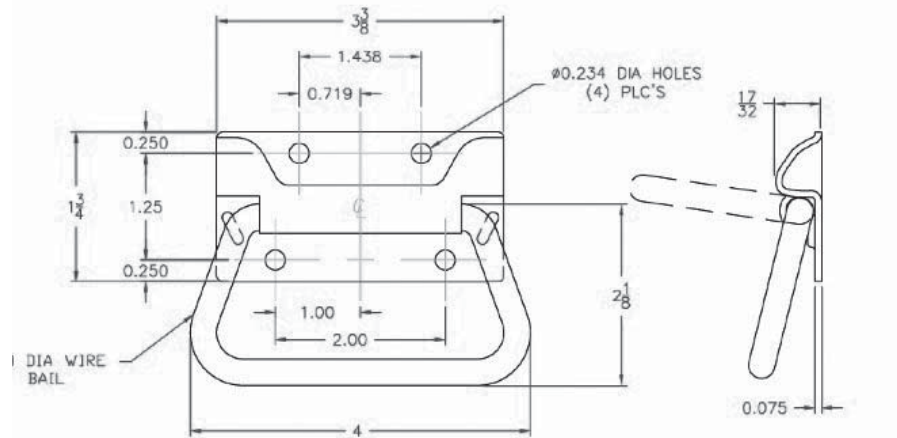
- 90° stop with return spring
- Neoprene grip on bail
- Small plate takes up less mounting surface
- Zinc plating standard, other finishes available as a special order



Part Number	Material
HA11944-ZE	Steel Zinc Plate

## Flared Grip Chest Handle

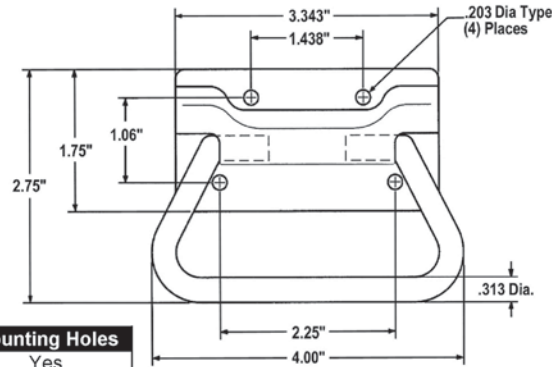
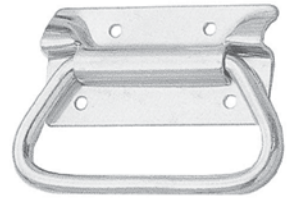
- Steel construction
- Narrow plate (takes up less mounting surface)



Part Number	Finish
HA-13614	Black Powder Coat

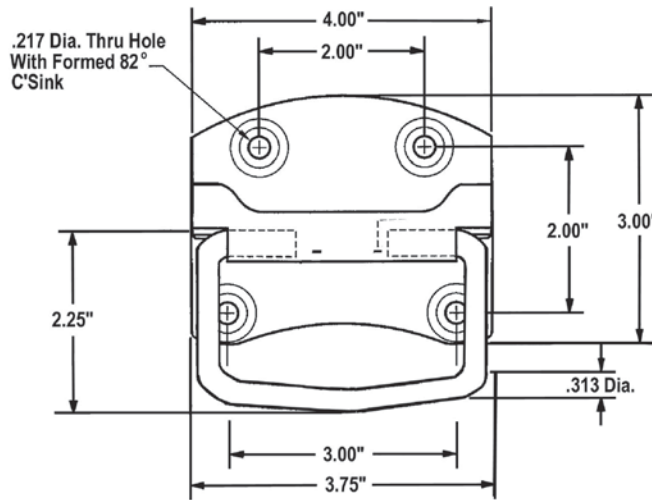
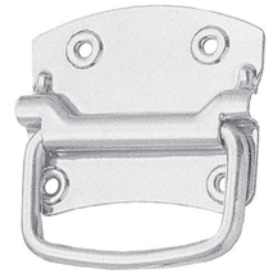
# CHEST HANDLES

- 90° stop, no return spring
- Will support up to 400 lbs.
- Available with or without mounting holes



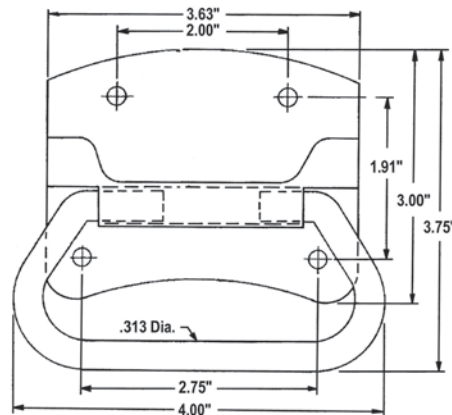
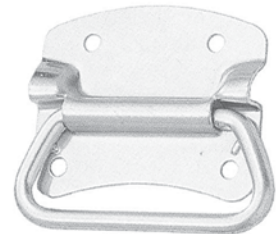
Part Number	Material	Mounting Holes
HA11397	Steel Zinc Plate	Yes
HA11797	Plain Steel	No

- 90° stop, no return spring
- Formed countersunk holes



Part Number	Material
HA11396	Steel Zinc Plate

- 90° stop, no return spring
- Available in different finishes

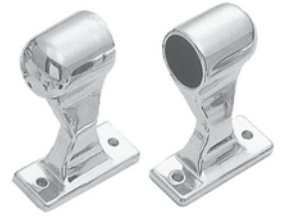


Part Number	Material
HA11395	Steel Zinc Plate

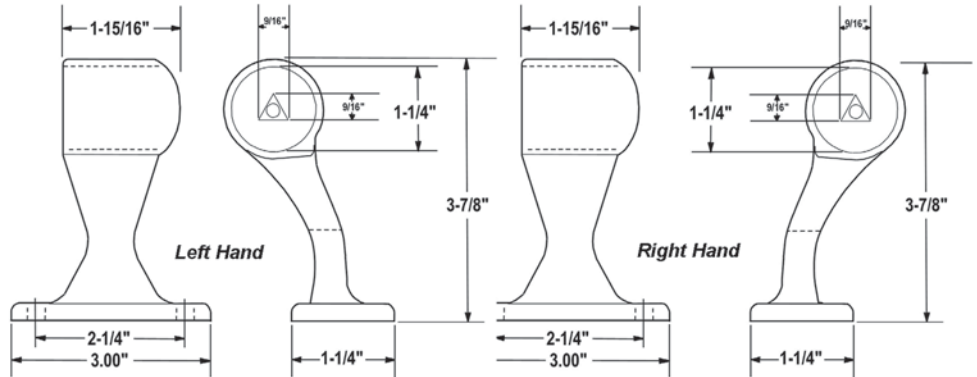
# STANCHIONS

## OFFSET END STANCHIONS

- Zinc die-cast construction, bright chrome plating
- 30° offset in both left & right hand
- Accepts 1-1/4" diameter tube
- HA12228-LH & RH have a set screw hole tapped on top to help secure grab rail
- GA11898 molded rubber gasket available (sold separately)

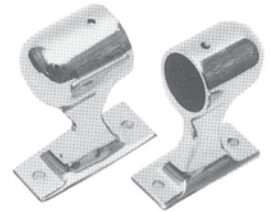


Part Number	Description
HA11411-LH	Left Hand
HA11411-RH	Right Hand

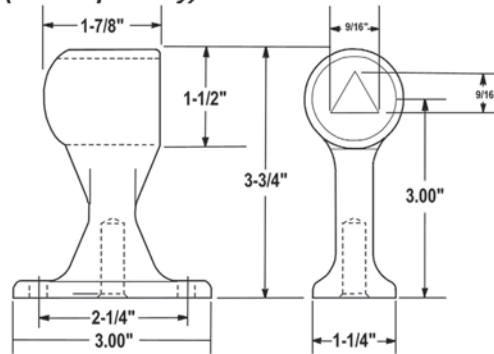


## STRAIGHT END STANCHION

- Zinc die-cast construction, bright chrome plating
- Accepts 1-1/4" diameter tube
- HA12227 has a set screw hole tapped on top to help secure grab rail
- GA11898 molded rubber gasket available (sold separately)



Part Number	Description
HA11401	Non-Handed

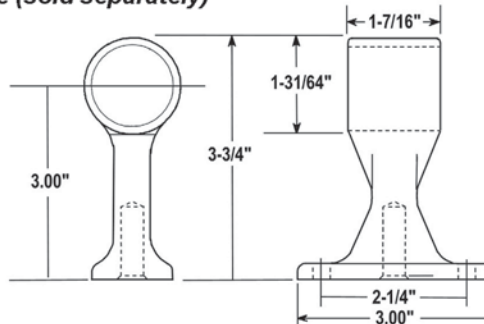


## STRAIGHT CENTER STANCHION

- Zinc die-cast construction, bright chrome plating
- Accepts 1-1/4" diameter tube
- GA11898 molded rubber gasket available (sold separately)



Part Number	Description
HA11402	Thru-Hole



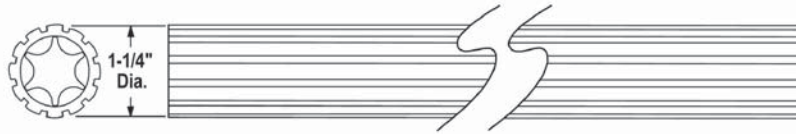
# STANCHIONS

## STANCHION GRAB RAIL

- Fluted extruded aluminum construction
- Hollow center fits triangular plug in stanchions for secure fit
- Available in four standard lengths



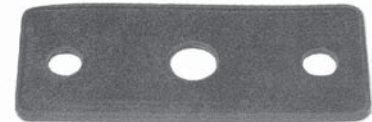
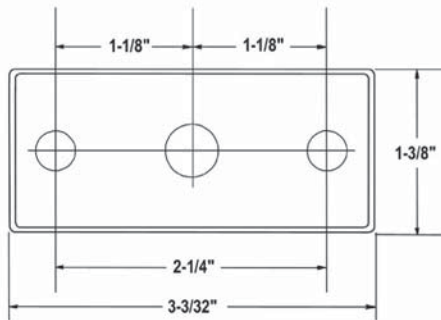
Part Number	Description
HA11636-24	24" Length
HA11636-36	36" Length
HA11636-48	48" Length
HA11636-72	72" Length
HA11636-120	120" Length



## STANCHION GASKET

- Black molded rubber

**Part Number** GA-11898



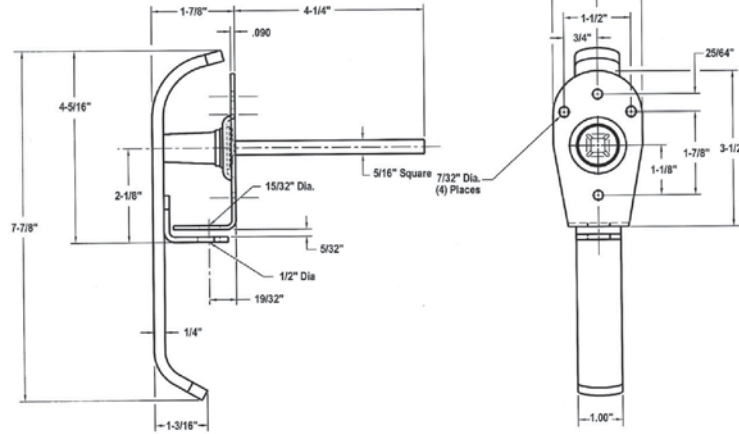
Kits for OEM Build of Materials are available to simplify your production process. Whether the strut, end fittings, & brackets is all you need, or a substantially more complex kit for an entire toolbox, Associated Spring RAYMOND is prepared to service OEMs.

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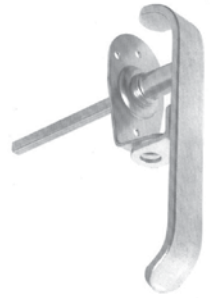


# PADLOCKING HANDLES

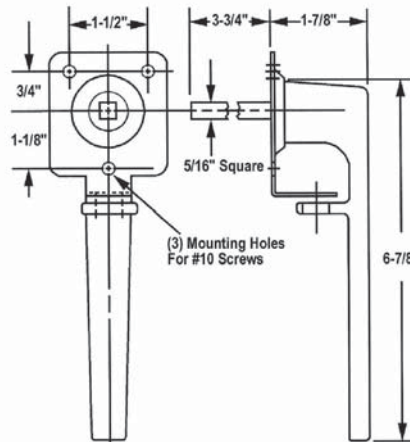
- Polished stainless steel handle & escutcheon plate
- 5/16" steel square shank
- Available with mounting studs as a special order
- GA11983 neoprene gasket available



Part Number	Material
HA12130	Stainless Steel



- Zinc plated and powder coated ductile iron handle
- Zinc plated steel escutcheon plate
- 3/8" diameter padlock hole

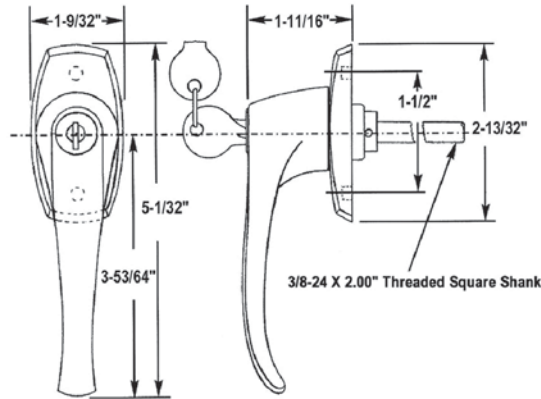


Part Number	Material
HA370	Ductile Iron



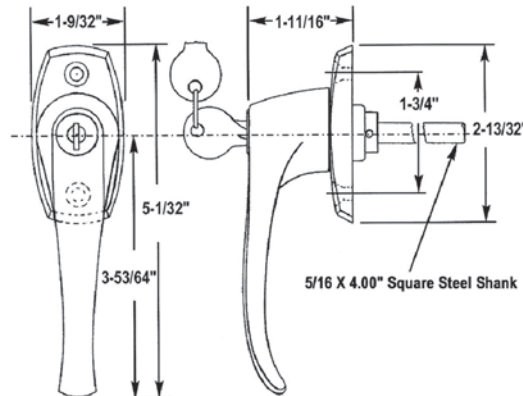
# ACTIVATING HANDLES

- Zinc die-cast handle with satin chrome finish
- 3/8-24" X 2.00" long square threaded steel shank
- Shank will accept any 5/16" square cam
- Supplied with 2 keys
- Blind mounting holes tapped for 8-32 threads
- GA10174 neoprene gasket available for escutcheon plate



Part Number	Rotation
AHL1006	90 Degree CW
AHL1007	90 Degree CCW

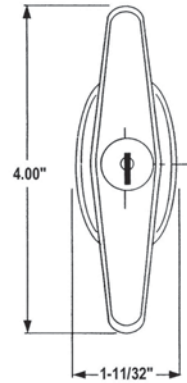
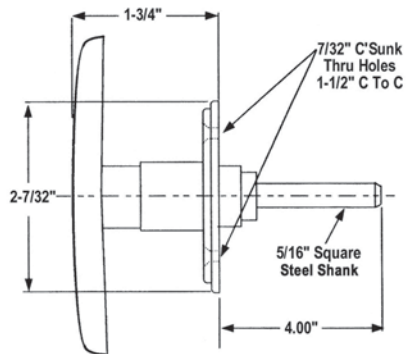
- Zinc die-cast handle with bright chrome finish
- 5/16" X 4.00" square steel shank
- Shank will accept any 5/16" square cam
- Supplied with 2 keys
- Escutcheon plate countersunk for #10 oval head screws
- GA10174 neoprene gasket available for escutcheon plate



Part Number	Rotation
AHL1008	90 Degree CW
AHL1009	90 Degree CCW

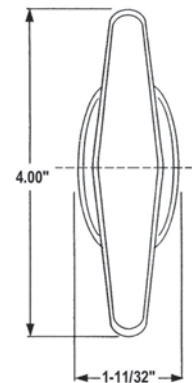
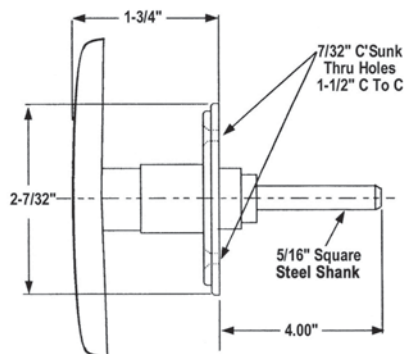
# ACTIVATING HANDLES

- Zinc die-cast construction
- 5/16" X 4" steel square shank
- Available in two finishes
- Supplied with 2 keys



Part Number	Finish	Rotation
AHT1001	Black	90 Degree CW
AHT1002	Bright Chrome	90 Degree CW

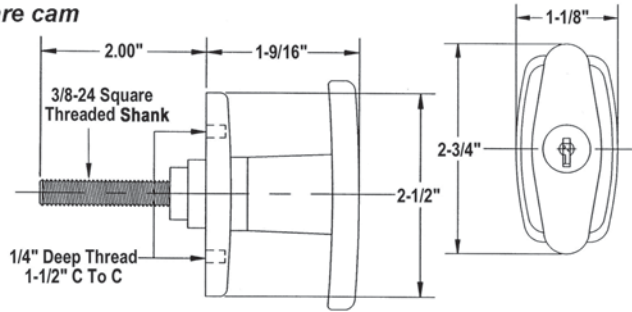
- Non-locking handle
- Zinc die-cast construction
- 5/16" X 4" steel square shank
- Bright chrome finish



Part Number	Rotation
AHT1003	90 Degree CW
AHT1004	360 Degree

# ACTIVATING HANDLES

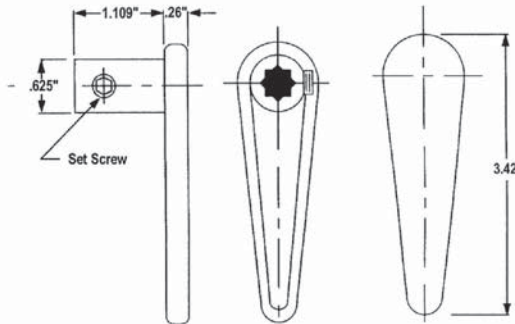
- Zinc die-cast handle with satin chrome finish
- 3/8-24 threaded steel square shank
- Shank will accept any 5/16" square cam
- Supplied with 2 keys



Part Number	Rotation
AHT11980	90 Degree CW
AHT11997	90 Degree CCW

## INSIDE HANDLE

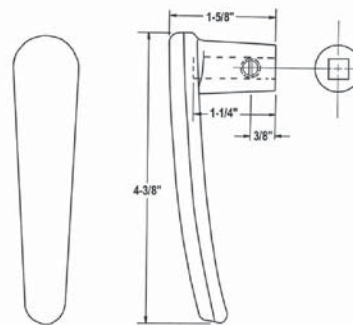
- Zinc die cast handle, bright chrome finish
- Drilled & tapped for 5/16-18 set screw



Part Number	AHL7003
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## INSIDE HANDLE

- Zinc die cast handle, bright chrome finish
- Drilled & tapped for 5/16-18 set screw

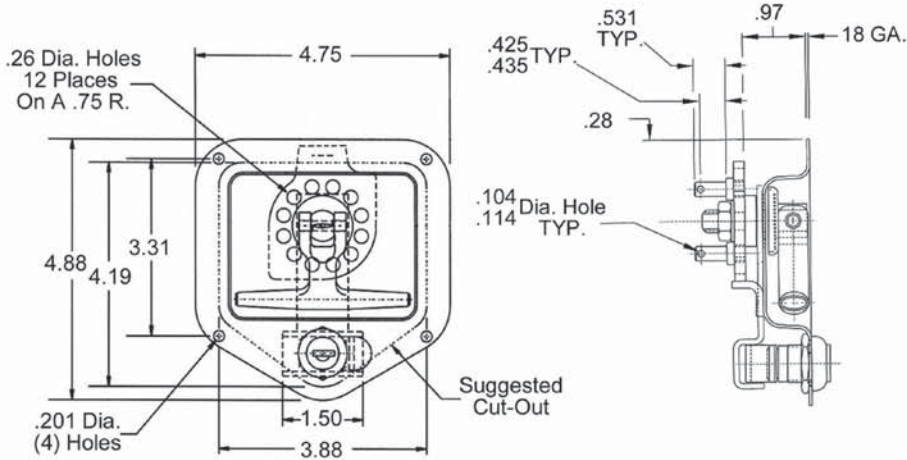


Part Number	AHL8002
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# RECESSED T-HANDLES

## TWO POINT KEY-LOCKING STEEL RECESSED T-HANDLE

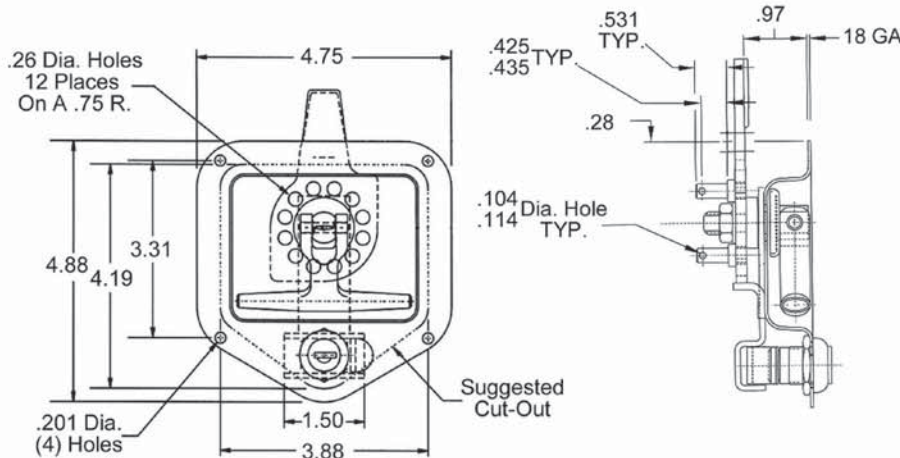
- Polished stainless steel pan
- Four mounting holes
- Cam supplied with two pins for attaching rods
- Use (2) RD-11680 rod guides and (2) RD-6011 series rods (page ) to make up a 2-point lock kit
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)



Part Number	Material
RT10181-2	Stainless Steel

## THREE POINT KEY-LOCKING STEEL RECESSED T-HANDLE

- Polished stainless steel pan
- Four mounting holes
- Cam supplied with two pins for attaching rods
- Use (2) RD-11680 rod guides and (2) RD-6011 series rods (page ) to make up a 3-point lock kit
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)

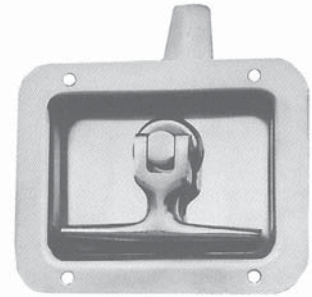
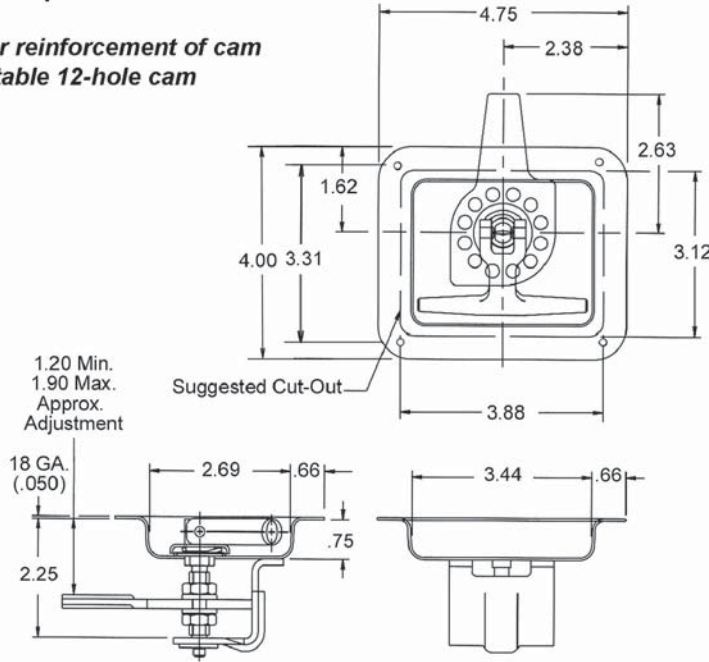


Part Number	Material
RT10182-3	Stainless Steel

# RECESSED T-HANDLES

## SINGLE POINT NON-LOCKING STAINLESS STEEL RECESSED T-HANDLE

- Polished stainless steel pan
- 4 mounting holes
- Riveted Z-bracket for reinforcement of cam
- Supplied with adjustable 12-hole cam



Part Number	Material	Finish
RT11441	Stainless Steel	Polished



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## Corrosion a Concern?

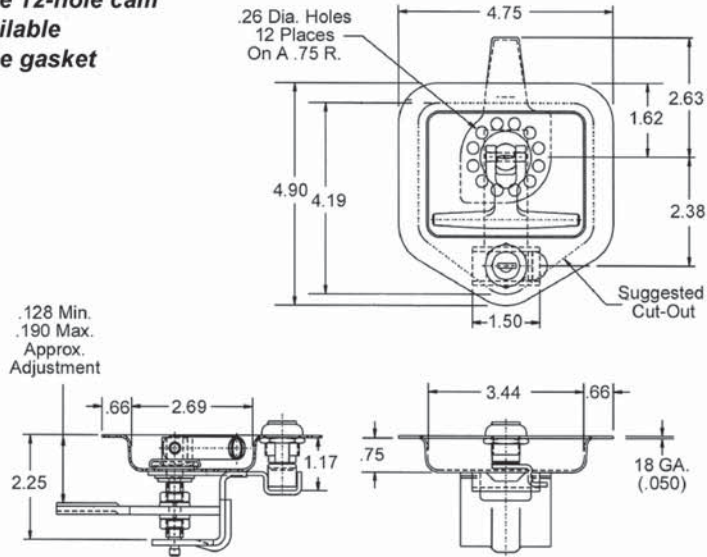
316SS Solutions Are Possible for OEM Applications.

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# RECESSED T-HANDLES

## SINGLE POINT KEY-LOCKING STEEL RECESSED T-HANDLE

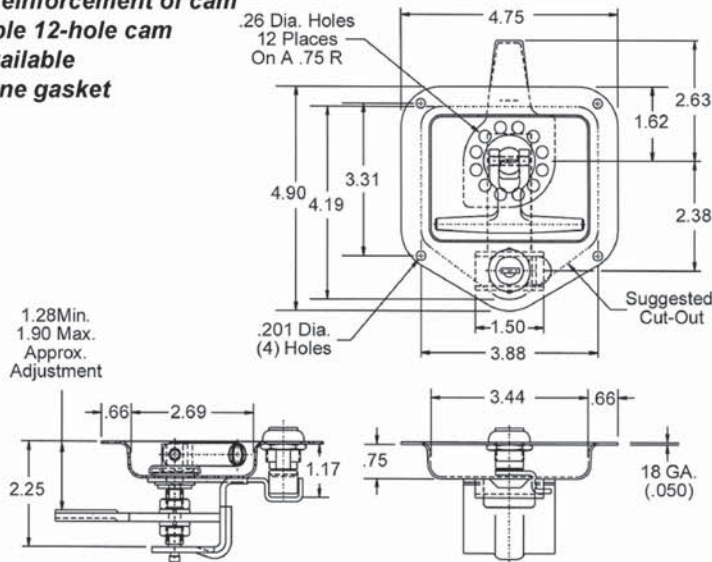
- Galvanized steel pan
- No mounting holes
- Riveted Z-bracket for reinforcement of cam
- Supplied with adjustable 12-hole cam
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)



Part Number	Material	Finish
RT11438	Steel	Galvanized

## SINGLE POINT KEY-LOCKING STEEL RECESSED T-HANDLE

- Polished stainless steel pan
- 4 mounting holes or mounting studs available
- Riveted Z-bracket for reinforcement of cam
- Supplied with adjustable 12-hole cam
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)

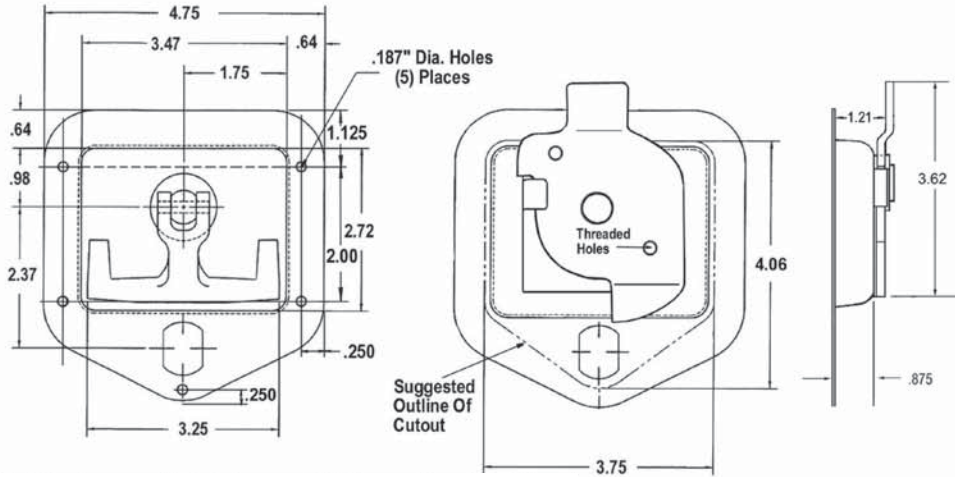


Part Number	Material	Finish	Mounting
RT11439	Stainless Steel	Polished	Holes
RT12755	Stainless Steel	Polished	1/4-20 Studs

# RECESSED T-HANDLES

## LOCKING STEEL RECESSED T-HANDLE

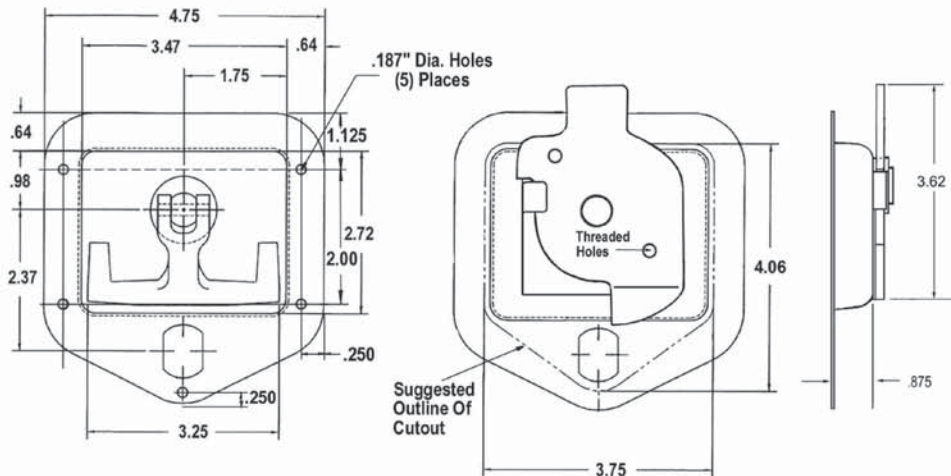
- Galvanized steel or polished stainless steel pan
- Offset Cam with (2) 1/4-20 tapped holes
- Lock must be ordered separately
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)



Part Number	Material	Finish	Mounting Holes
RT-12203	Stainless Steel	Polished	Yes

## LOCKING STAINLESS STEEL RECESSED T-HANDLE

- Galvanized steel or polished stainless steel pan
- Straight cam has (2) 1/4-20 tapped holes for converting to a 3-point lock
- Lock must be ordered separately
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)



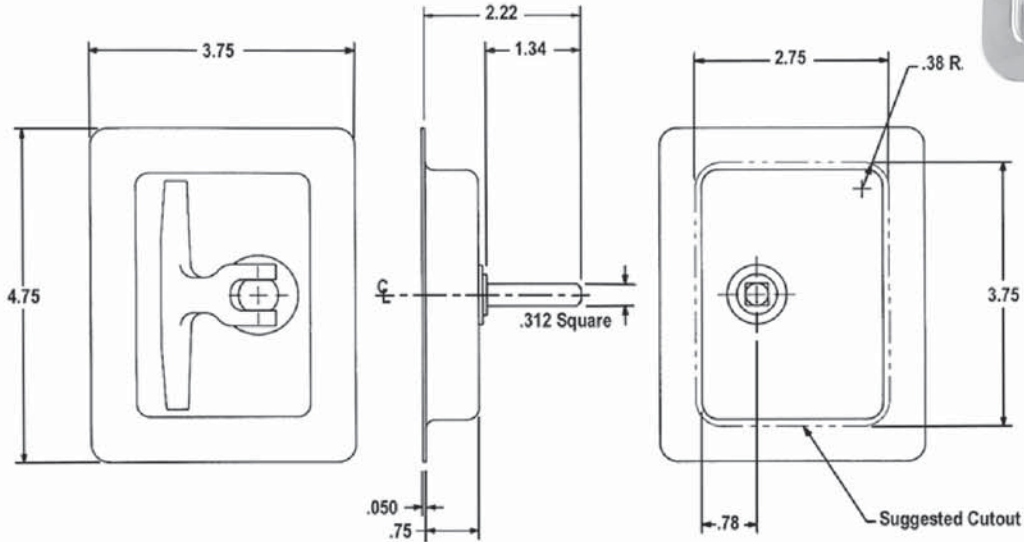
Part Number	Material	Finish	Mounting Holes
RT-12674	Stainless Steel	Polished	Yes



# RECESSED T-HANDLES

## SINGLE POINT NON-LOCKING RECESSED T-HANDLE

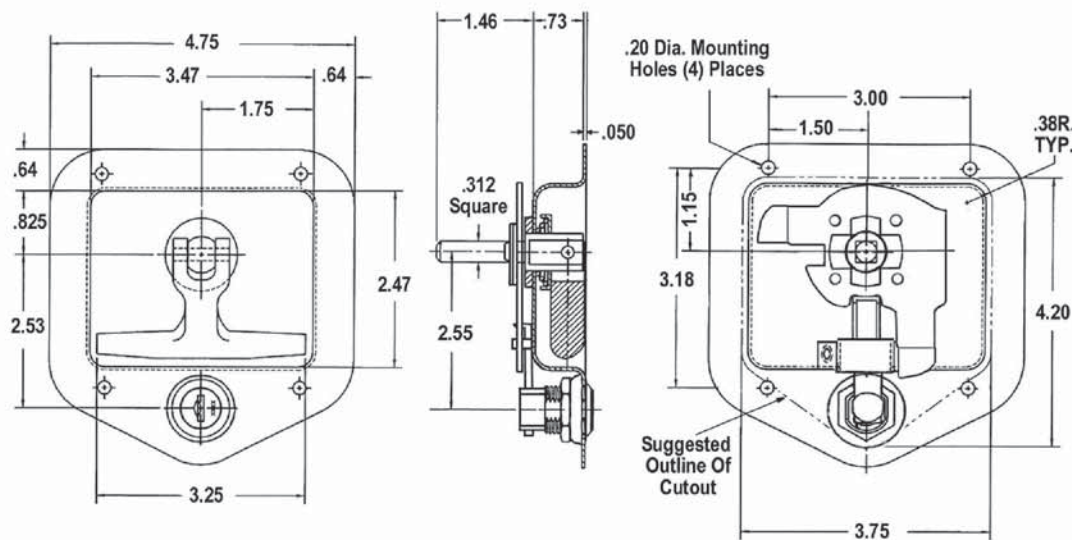
- Galvanized steel or polished stainless steel pan
- 5/16" square shank will accept any standard cam (see page 83)



Part Number	Material	Finish	Mounting Holes
RT12059	Stainless Steel	Polished	Yes

## SINGLE POINT LOCKING RECESSED T-HANDLE

- Galvanized steel or polished stainless steel pan
- 5/16" square shank will accept any standard cam (see page 83)
- Different key codes available
- Uses GA10163 neoprene gasket (see page 97)

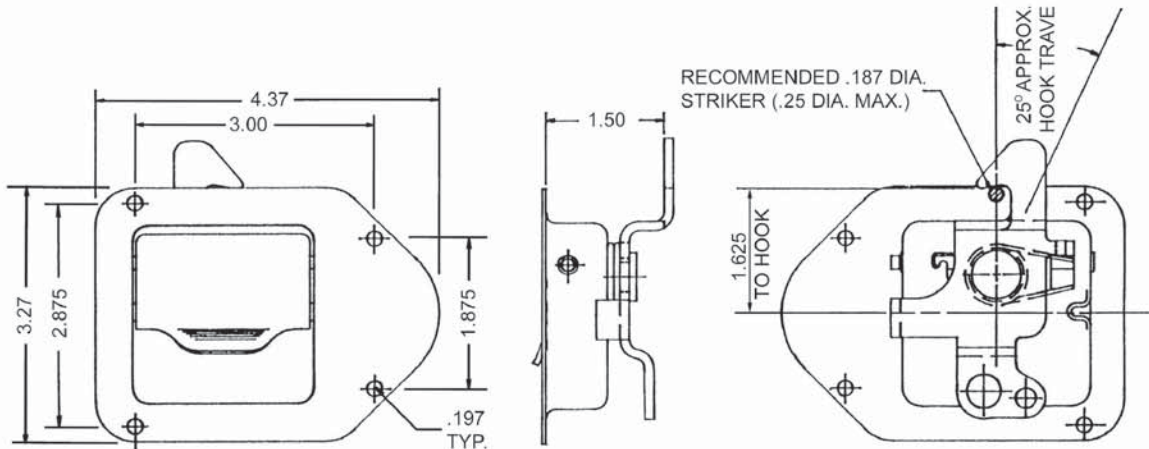
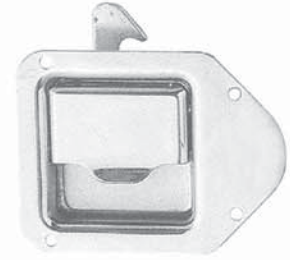


Part Number	Material	Finish	Mounting Holes
RT11880	Steel	Galvanized	Yes
RT12060	Stainless Steel	Polished	Yes

# PADDLE LATCHES

## NON-LOCKING TOOLBOX PADDLE LATCH

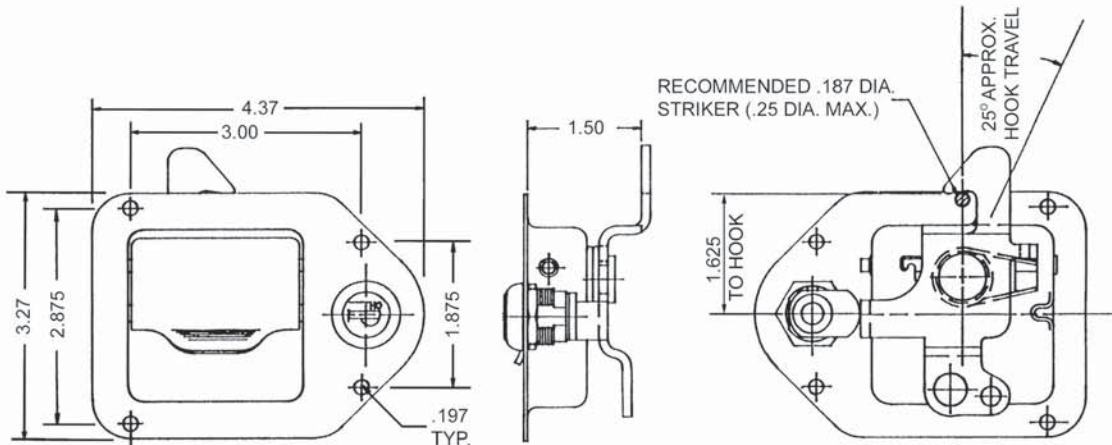
- Polished stainless steel pan
- 4 mounting holes
- Available with steel galvanized pan
- Use RD-11798 rod guide & RD-11860 rod to make 2-point lock system (see page 103)
- Uses GA11982 neoprene gasket (see page 97)



Part Number	Material	Finish
PL11436	Stainless Steel	Polished

## LOCKING TOOLBOX PADDLE LATCH

- Polished stainless steel pan
- 4 mounting holes
- Available with steel galvanized pan
- Use RD-11798 rod guide & RD-11860 rod to make 2-point lock system (see page 103)
- Different key codes available
- Uses GA11982 neoprene gasket (see page 97)



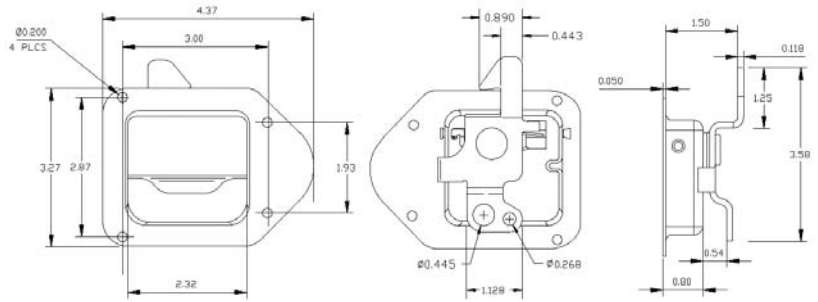
Part Number	Material	Finish
PL11437	Stainless Steel	Polished

# PADDLE LATCHES

## NON-LOCKING TOOLBOX PADDLE LATCH

- Polished stainless steel pan & handle
- Rod guide included (1/4" dia. rod)

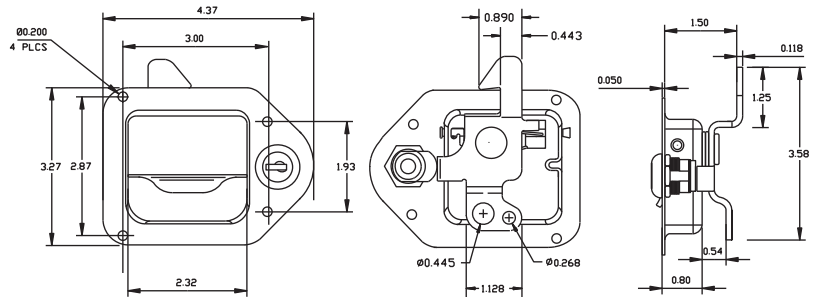
Part Number PL-11436LS



## LOCKING TOOLBOX PADDLE LATCH

- Polished stainless steel pan & handle
- Rod guide included (1/4" dia. rod)
- 2 keys included, different key codes available

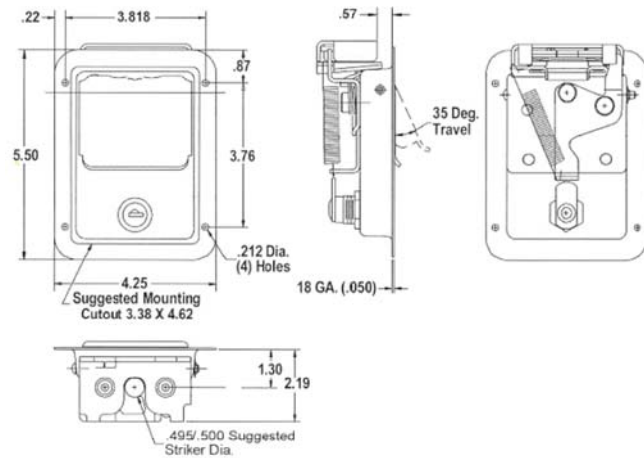
Part Number PL-11437



## LOCKING TOOLBOX PADDLE LATCH

- Polished stainless steel pan & handle
- 2 keys included, different key codes available

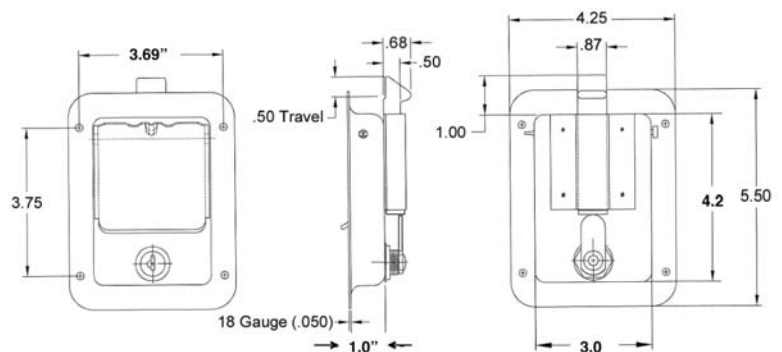
Part Number PL-12262



## LOCKING TOOLBOX PADDLE LATCH

- Polished stainless steel pan & handle
- 60 deg tapered end bolt
- 2 keys included, different key codes available

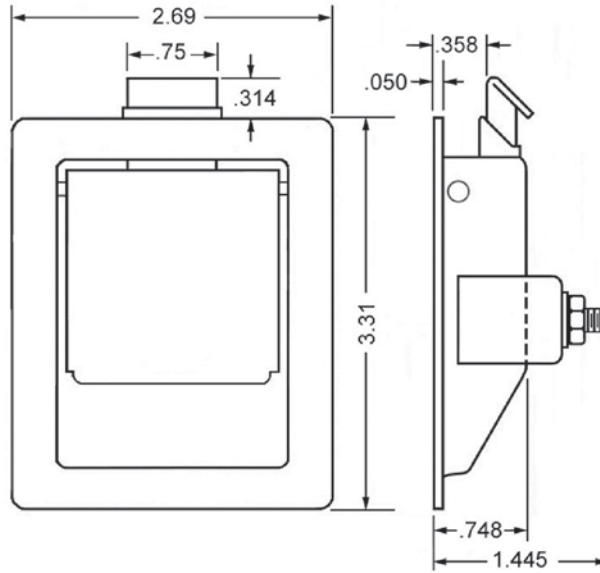
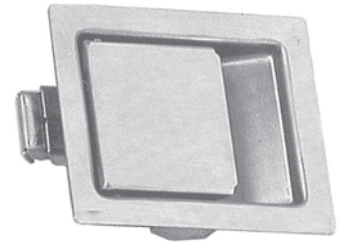
Part Number PL-5130



# PADDLE LATCHES

## NON-LOCKING MINI PADDLE LATCH

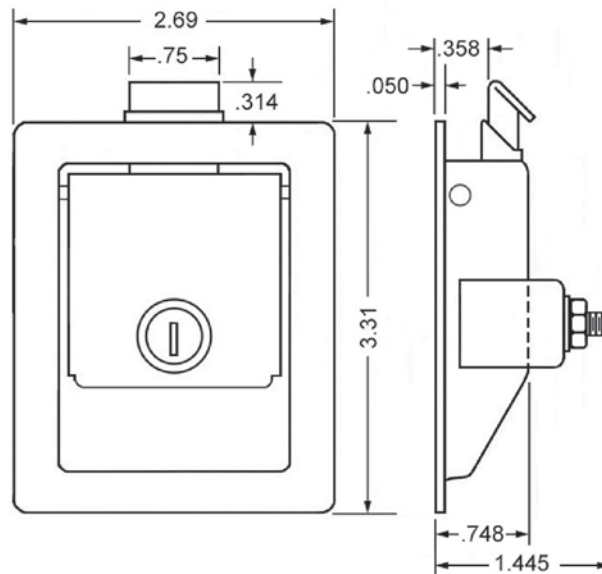
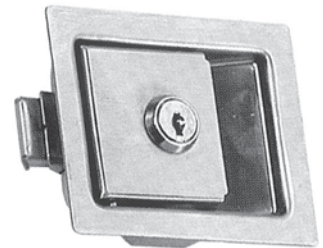
- *Stainless steel*
- *Satin finish*
- *Supplied with mounting bracket & hex nut*



**Part Number** PL13281

## LOCKING MINI PADDLE LATCH

- *Stainless steel*
- *Satin finish*
- *Supplied with mounting bracket & hex nut*

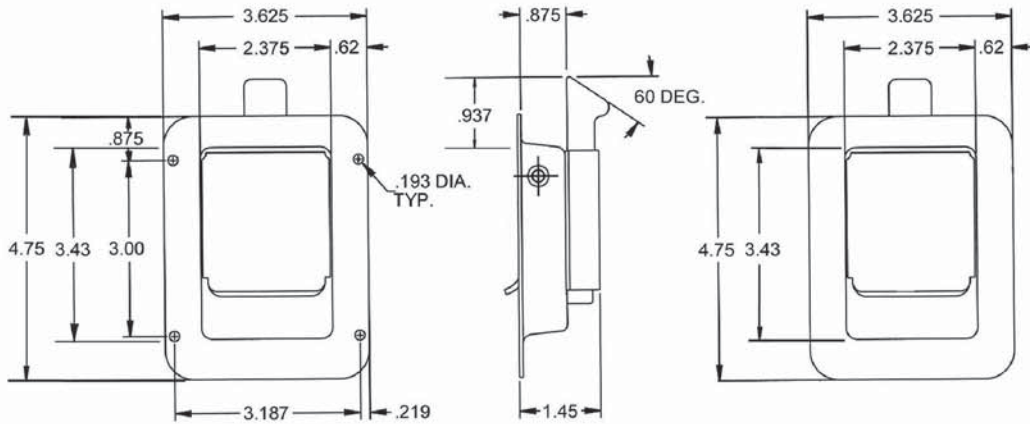
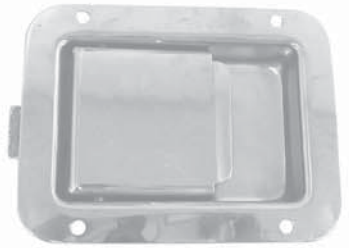


**Part Number** PL13282

# PADDLE LATCHES

## NON-LOCKING JUNIOR PADDLE LATCH

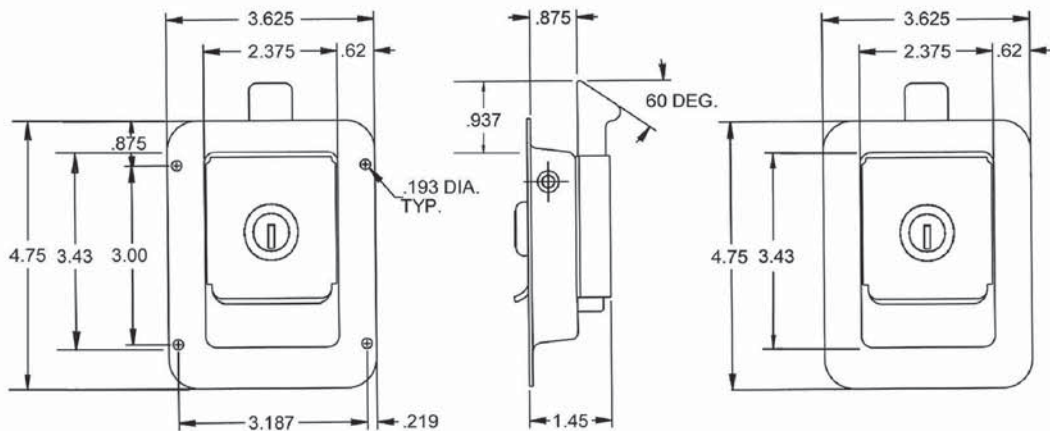
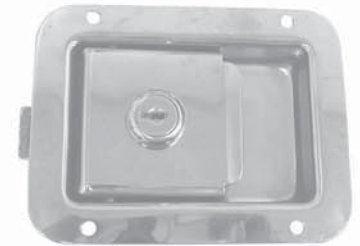
- Available in steel & stainless steel versions
- Supplied with 60° tapered bolt
- Uses GA11935 molded rubber gasket (see page 97)



Part Number	Material	Finish	Mounting Holes
PL5200	Steel	Galvanized	No
PL5220	Stainless Steel	Polished	Yes

## LOCKING JUNIOR PADDLE LATCH

- Available in steel & stainless steel versions
- Different key codes available
- Supplied with 60° tapered bolt
- Uses GA11935 molded rubber gasket (see page 97)

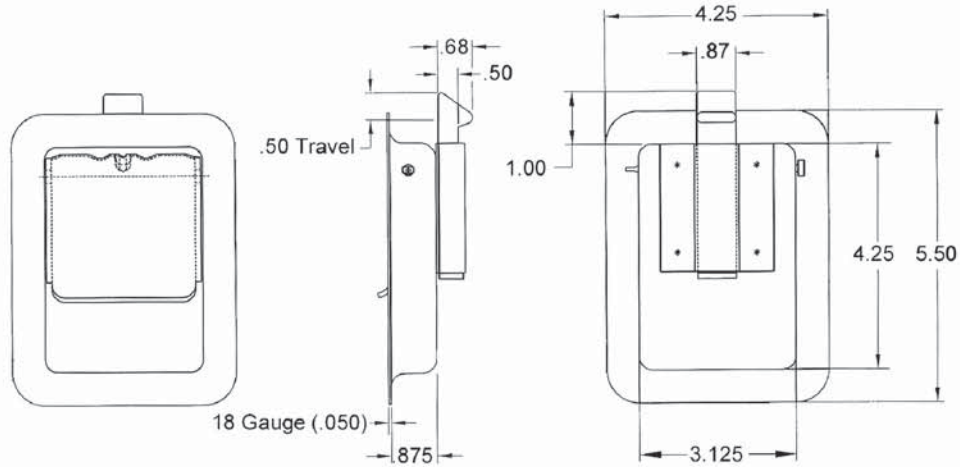


Part Number	Material	Finish	Mounting Holes
PL5210	Steel	Galvanized	No
PL5230	Stainless Steel	Polished	Yes

# PADDLE LATCHES

## NON-LOCKING STANDARD SIZE PADDLE LATCH

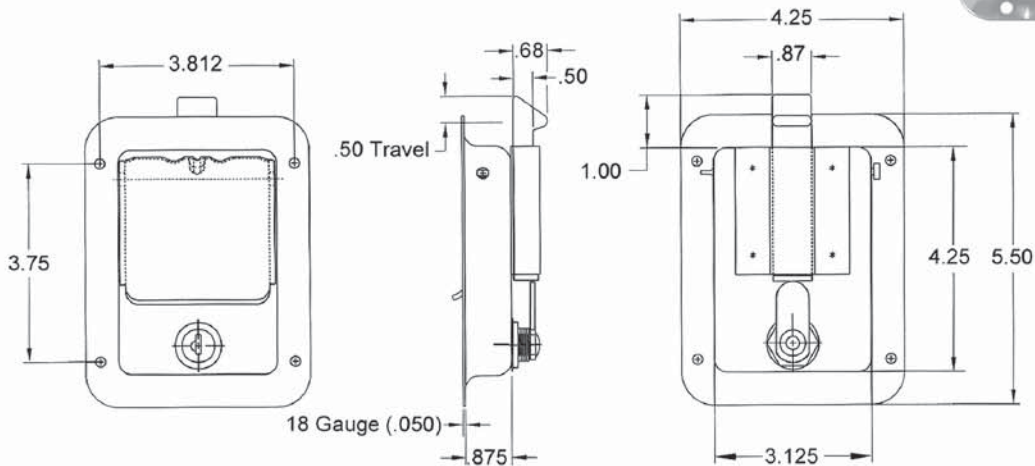
- Available in steel & stainless steel versions
- Supplied with 60° tapered bolt
- Uses GA11958 or GA-12254 gasket (see page 97)



Part Number	Material	Finish	Mounting Holes
PL5100	Steel	Galvanized	No
PL5120	Stainless Steel	Polished	Yes

## LOCKING STANDARD SIZE PADDLE LATCH

- Available in steel & stainless steel versions
- Different key codes available
- Supplied with 60° tapered bolt
- Uses GA11958 or GA-12254 gasket (see page 97)

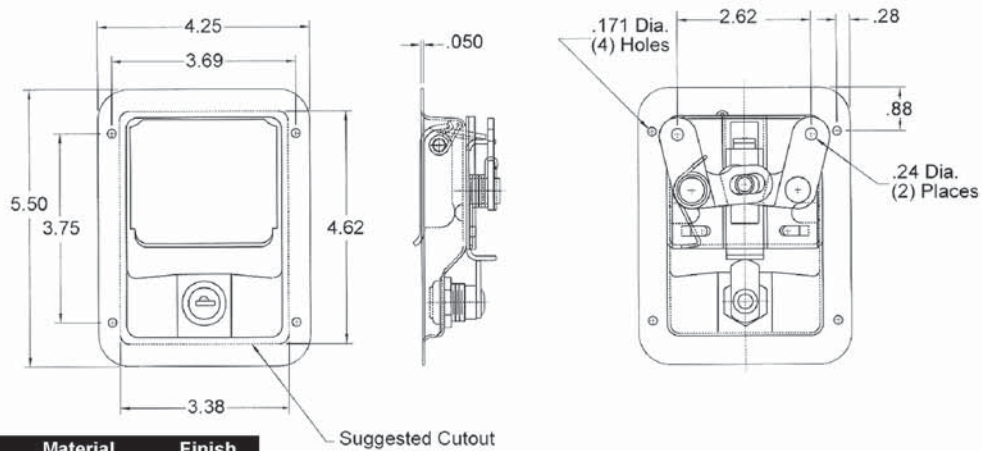


Part Number	Material	Finish	Mounting Holes
PL5110	Steel	Galvanized	No
PL5112	Steel	Galvanized	Yes
PL5130	Stainless Steel	Polished	Yes

# PADDLE LATCHES

## TWO POINT PADDLE LATCH

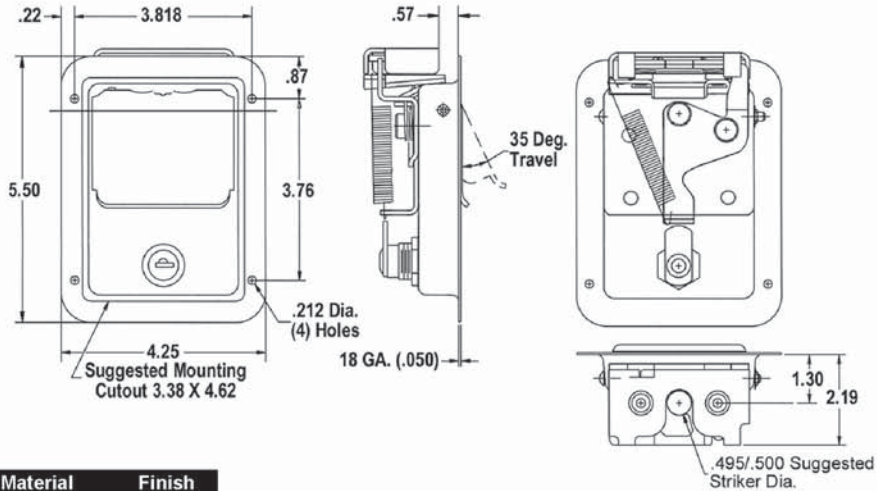
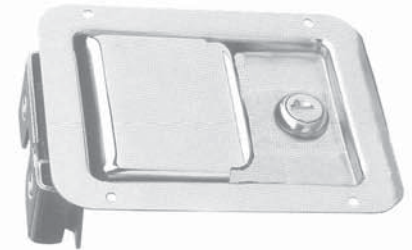
- Polished stainless steel pan
- 4 mounting holes
- Two point spring loaded lever
- Can be used with rods or cables
- Different key codes available
- Available with a zinc plated steel pan as a special order
- Uses GA11958 or GA-12254 gasket (see page 97)



Part Number	Material	Finish
PL22600-AH	Stainless Steel	Polished

## ROTARY PADDLE LATCH

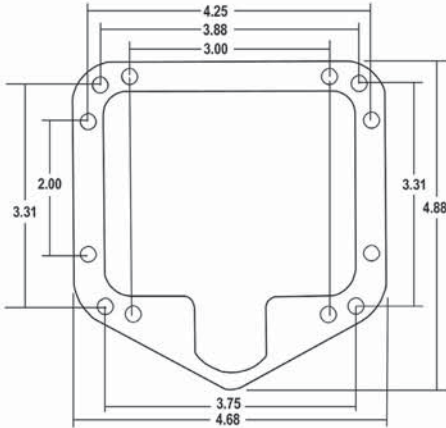
- Polished stainless steel pan
- 4 mounting holes
- Two stage rotary latch
- Non-handed for right or left hand applications
- Tested at 900 lbs. max. load rating
- Different key codes available
- Uses GA11958 or GA-12254 gasket (see page 97)



Part Number	Material	Finish
PL12262	Stainless Steel	Polished

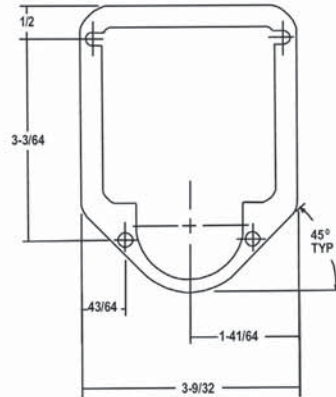
# GASKETS

- Closed cell neoprene gasket
- .060 Thick



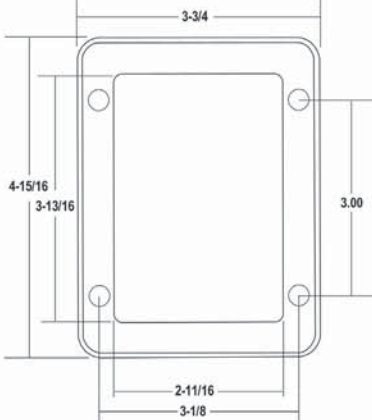
Part Number GA10163

- Closed cell neoprene gasket
- .060 Thick



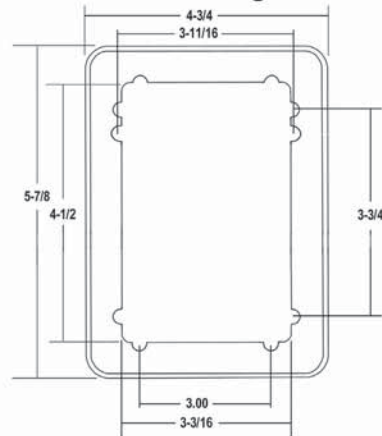
Part Number GA11982

- Black molded rubber
- .060 thick, with .11" thick flange



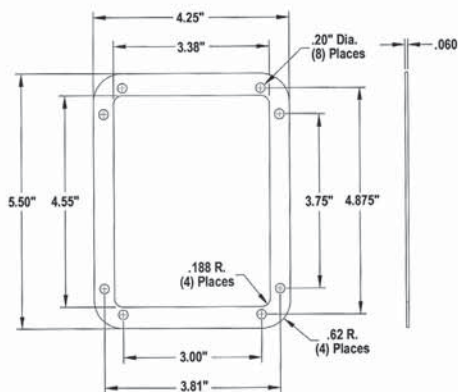
Part Number GA11935

- Black molded rubber
- .060 thick with .11" thick flange



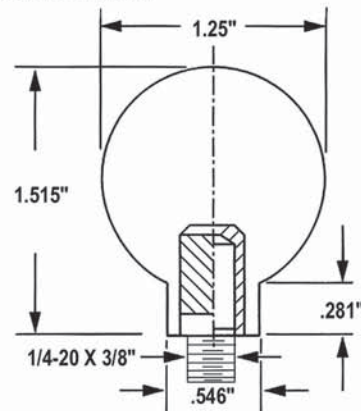
Part Number GA11958

- Cellulose fiber
- .060 thick



Part Number GA12254

- Black plastic knob
- Steel threaded shaft



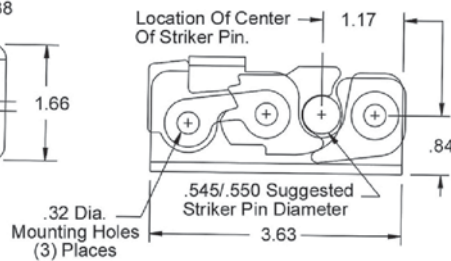
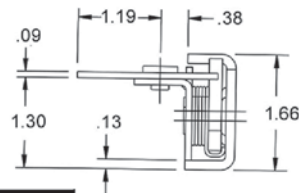
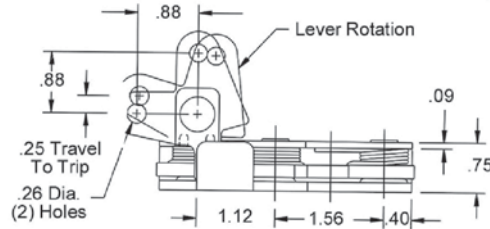
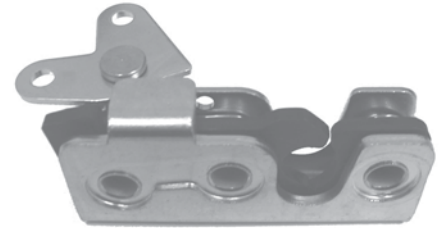
Part Number PL11953



# ROTARY LATCHES

## SAFETY ROTARY LATCH

- Two stage latching positions (primary & secondary)
- Double actuator lever
- Latch meets FMVSS206 requirements
- Use RL10136 or RL10137 strike pins for FMVSS206 applications (see page 101)
- Left hand diagram shown



Part Number	Hand	Material
RL13400-L	Left	Steel Zinc Plate
RL13400-R	Right	Steel Zinc Plate

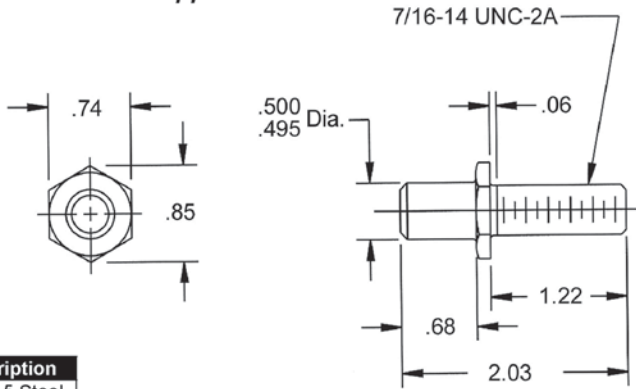


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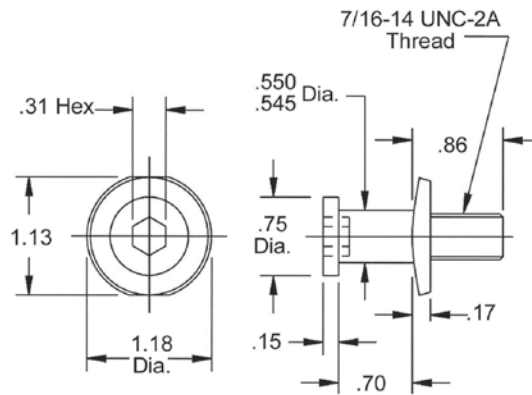
# ROTARY STRIKE PINS

- *Not intended for FMVSS206 applications*



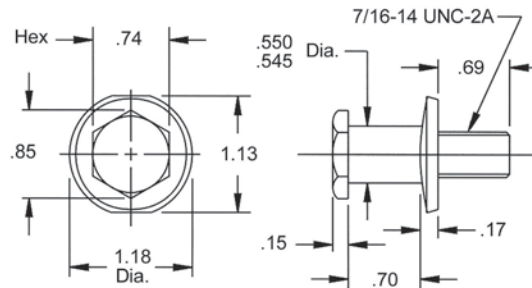
Part Number	Description
RL10134	Grade 5 Steel

- *For FMVSS206 applications*



Part Number	Description
RL10136	Grade 8 Steel

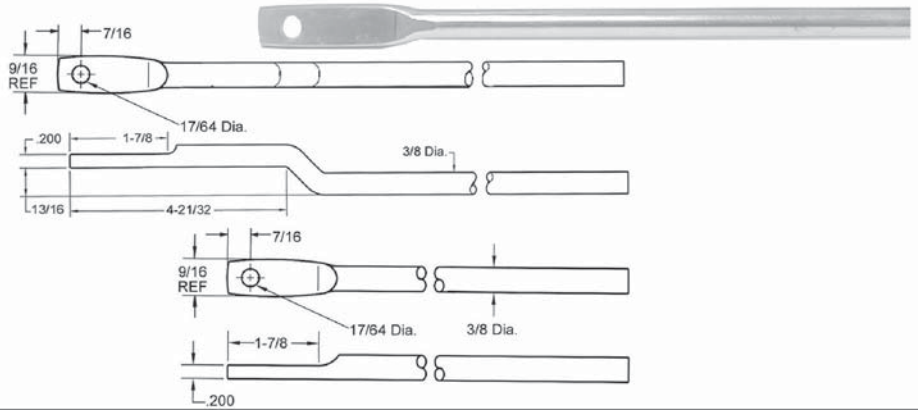
- *For FMVSS206 applications*
- *Suggested installation torque 45-50 ft lbs*



Part Number	Description
RL10137	Grade 8 Steel

# RODS & ROD GUIDES

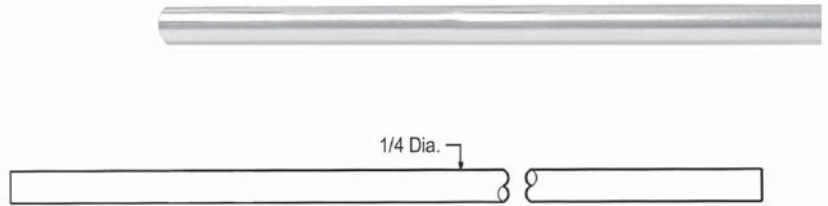
- Steel zinc plate with round holes
- For use with deadbolt lock kits



Part Number	Rod Style	Length
RD-6011-210-36	Flat	36.00"
RD-6011-230-48	Flat	48.00"
RD-6011-223-36	Offset	36.00"
RD-6011-233-48	Offset	48.00"

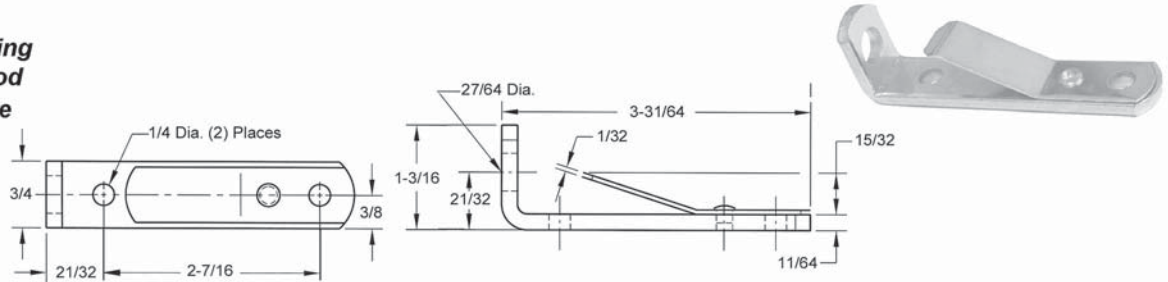
- Steel zinc plate
- Used with RD-11798 to make 2-point toolbox paddle latch system
- 1/4" diameter rod

Part Number	Rod Style	Length
RD-11860	Flat	36.00"
RD-11861	Flat	48.00"



## ROD GUIDE

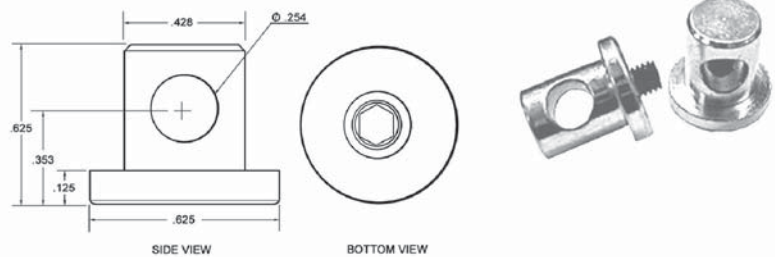
- Anti-rattle spring
- For 3/8" dia. rod
- Steel zinc plate



Part Number RD-11680

## ROD GUIDE

- For use with PL11437 toolbox paddle latches
- Includes set screw to secure 1/4" dia. rod
- Steel zinc plate



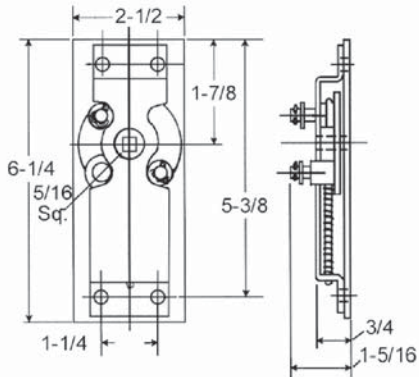
Part Number RD-11798

# CENTER CASE LOCKS

- 2-point deadbolt
- Steel zinc plate



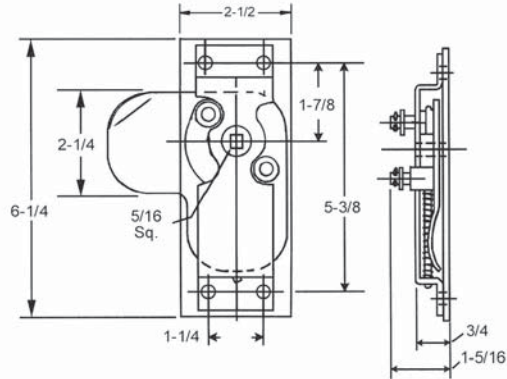
Part Number	Description
MP-6011-DB	Dead Bolt Action
MP-6011-SL	Slam Latch Action



- 3-point deadbolt
- Inside safety override handle
- Steel zinc plate



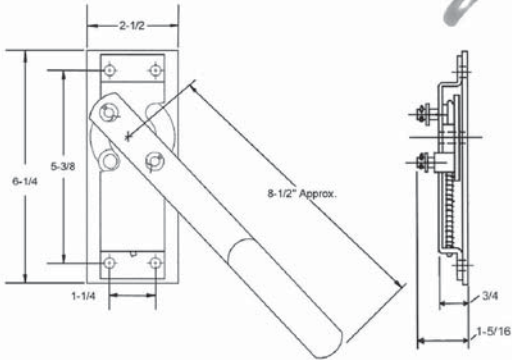
Part Number MP-6013-C



- 2-point with inside safety override handle
- Steel zinc plate



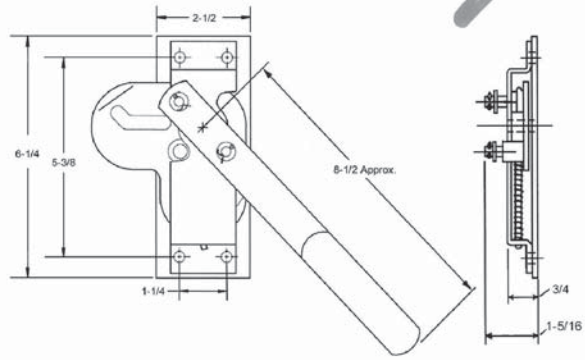
Part Number	Description
MP-6011-DB-S	Dead Bolt Action
MP-6011-SL-S	Slam Latch Action



- 3-point deadbolt
- Inside safety override handle
- Steel zinc plate

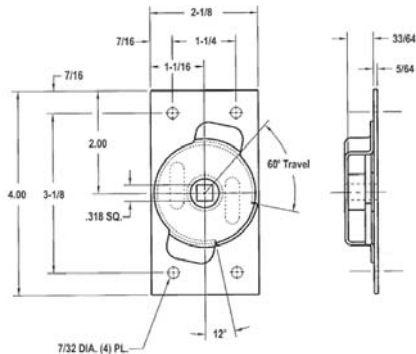


Part Number MP-6013-CS



- 2-point center slam latch
- Steel zinc plate

Part Number MP-12476



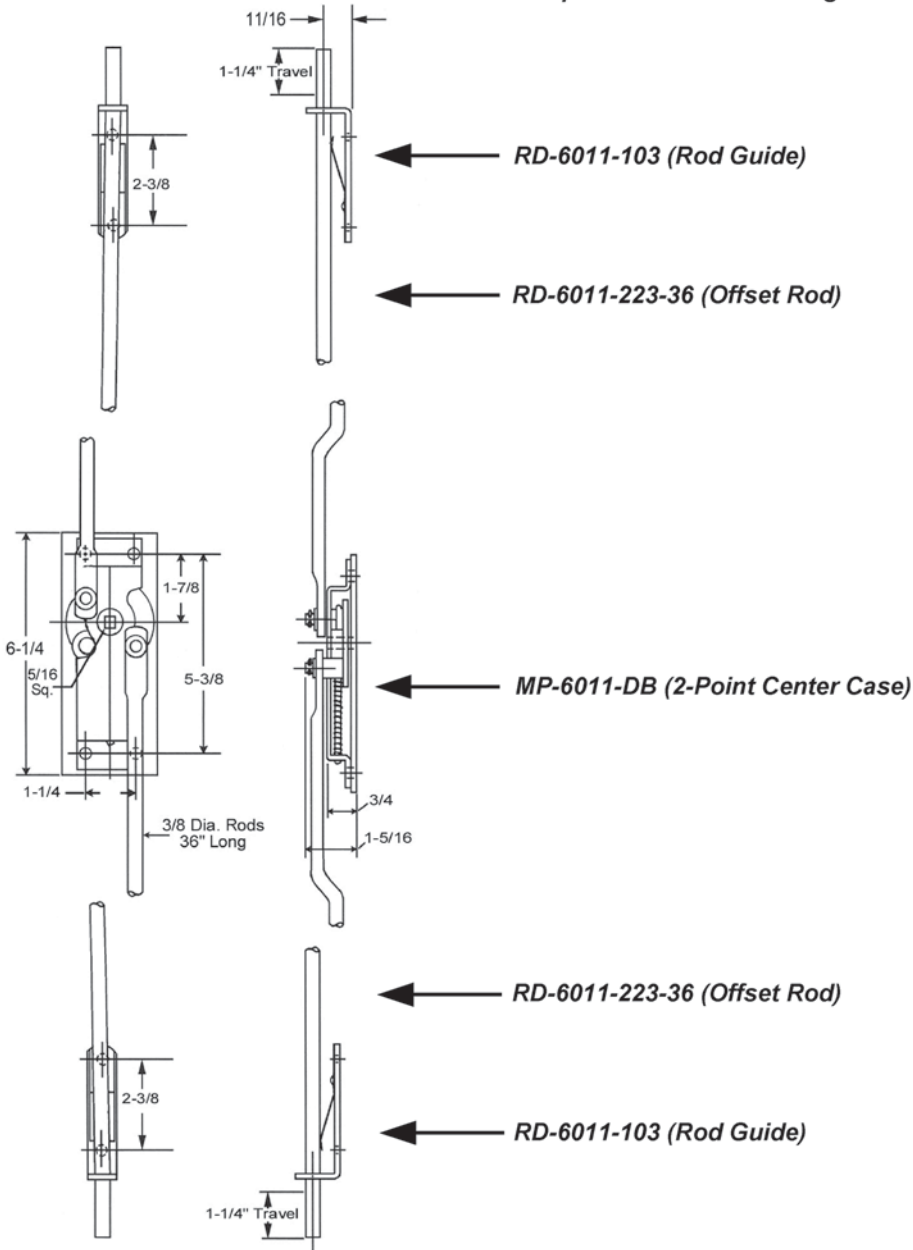
# DEAD BOLT LOCK KITS

## TWO POINT DEAD BOLT LOCK KIT

- All steel construction, zinc plated
- Furnished with (2) 3/8" X 36" offset rods
- Available with 48" long rods as a special order
- Lock kit is reversible, can be used in right or left hand applications
- Available with safety center case & inside handle as a special order, add (-S) to end of part number (will override outside locking handle)

Part Number	Description
MP-6011001	Standard 2-Point Dead Bolt

Lock Kit Composed Of The Following Parts:

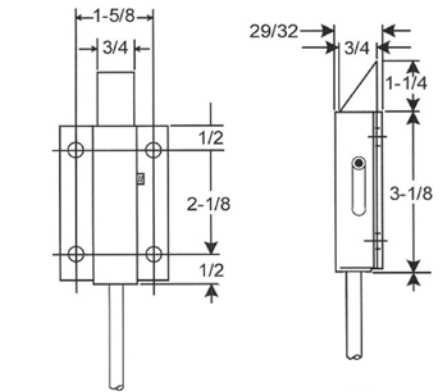


# DEAD BOLT LOCK KITS

## TWO POINT DEAD BOLT LOCK KIT

- All steel construction, zinc plated
- Furnished with (2) 3/8" X 36" rods & (2) 60° end bolts
- Available with 48" long rods as a special order
- Lock kit is reversible, can be used in right or left hand applications
- Available with safety center case & inside handle as a special order, add (-s) to end of part number (will override outside locking handle)

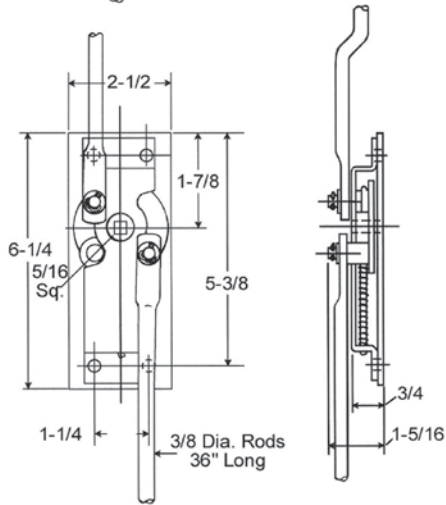
Part Number	Description
MP-6011002	2-Point With Flush End Bolts



Lock Kit Composed Of The Following Parts:

← LA-6011-162 (Flush End Bolt)

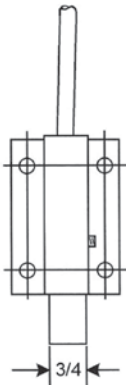
← RD-6011-223-36 (Offset Rod)



← MP-6011-DB (2-Point Center Case)

← RD-6011-223-36 (Offset Rod)

← LA-6011-162 (Flush End Bolt)

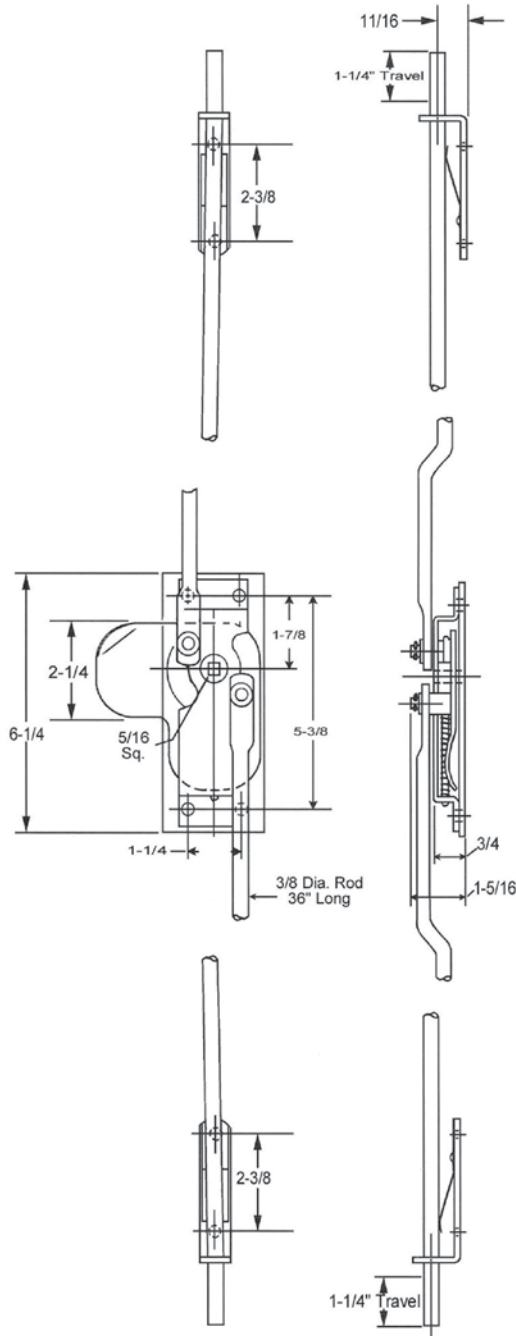


# DEAD BOLT LOCK KITS

## THREE POINT DEAD BOLT LOCK KIT

- All steel construction, zinc plated
- Furnished with (2) 3/8" X 36" offset rods
- Available with 48" long rods as a special order
- Lock kit is reversible, can be used in right or left hand applications
- Available with safety center case & inside handle as a special order, add (-S) to end of part number (will override outside locking handle)

Part Number	Description
MP-6013001	Standard 3-Point Dead Bolt



Lock Kit Composed Of The Following Parts:

← RD-6011-103 (Rod Guide)

← RD-6011-223-36 (Offset Rod)

← MP-6013-C (3-Point Center Case)

← RD-6011-223-36 (Offset Rod)

← RD-6011-103 (Rod Guide)

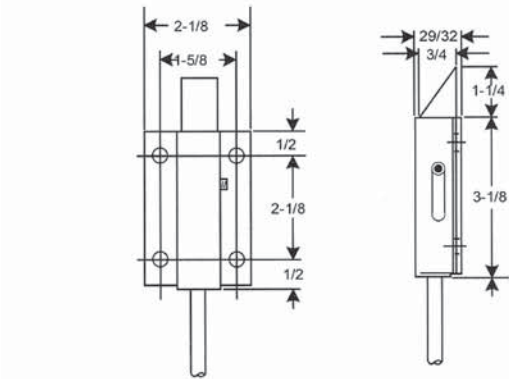


# DEAD BOLT LOCK KITS

## THREE POINT DEAD BOLT LOCK KIT

- All steel construction, zinc plated
- Furnished with (2) 3/8" X 36" rods & (2) 60° end bolts
- Available with 48" long rods as a special order
- Lock kit is reversible, can be used in right or left hand applications
- Available with safety center case & inside handle as a special order, add (-S) to end of part number (will override outside locking handle)

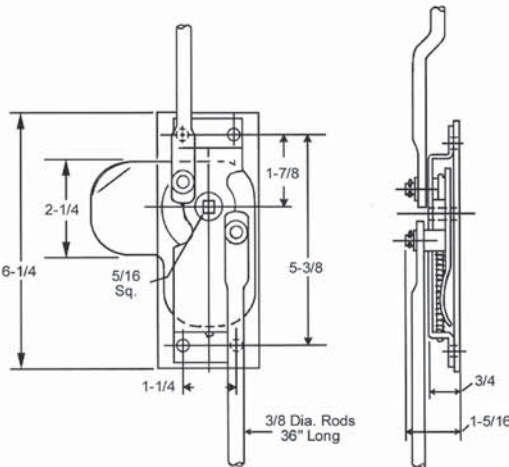
Part Number	Description
MP-6013002	2-Point With Flush End Bolts



Lock Kit Composed Of The Following Parts:

← LA-6011-162 (Flush End Bolt)

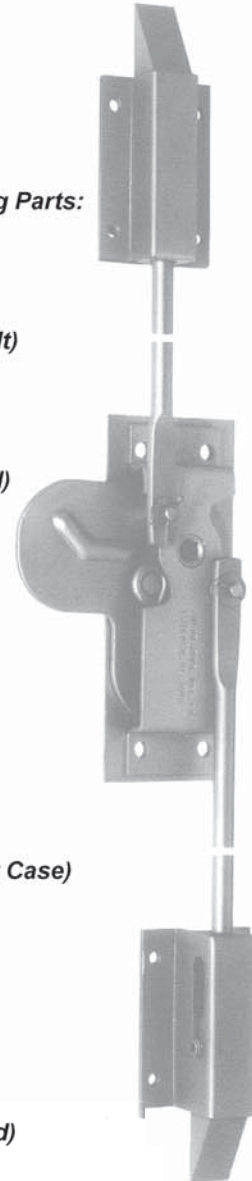
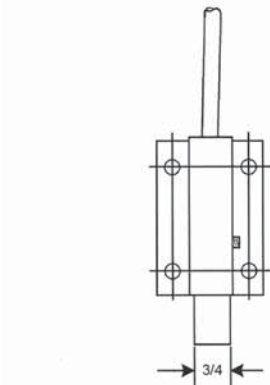
← RD-6011-223-36 (Offset Rod)



← MP-6013-C (3-Point Center Case)

← RD-6011-223-36 (Offset Rod)

← LA-6011-162 (Flush End Bolt)





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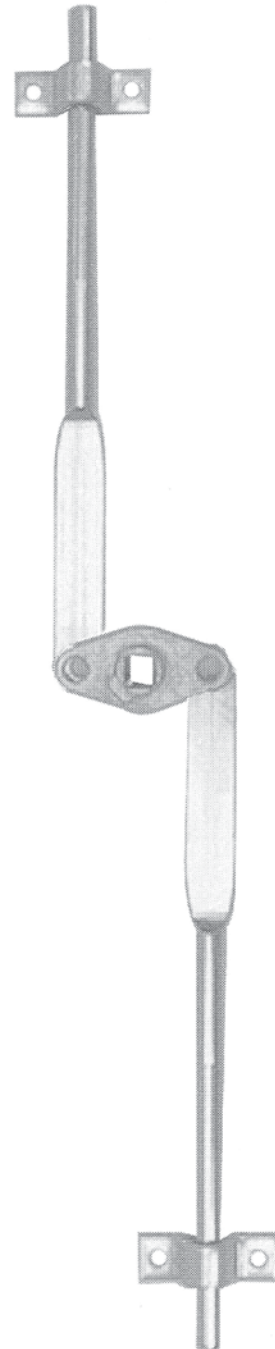
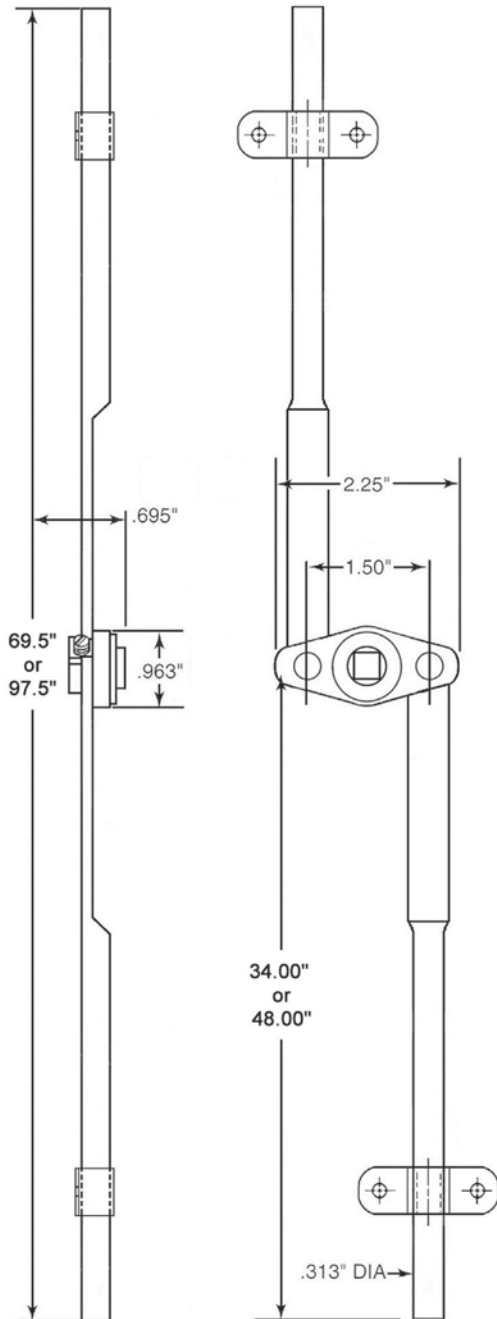
111

# SWIVEL LATCH KITS

## TWO POINT SWIVEL LATCH KIT

- All steel construction, zinc plated
- Available with 5/16" X 34" or 48" long rods
- Comes complete with (2) rod guides, (2) rods, & center swivel mechanism
- Will accept any 5/16" square shank activating or padlocking handle

Part Number	Description
MP-13127-34	69.5" Long 2-Point Lock (34" Rods)
MP-13127-48	97.5" Long 2-Point Lock (48" Rods)

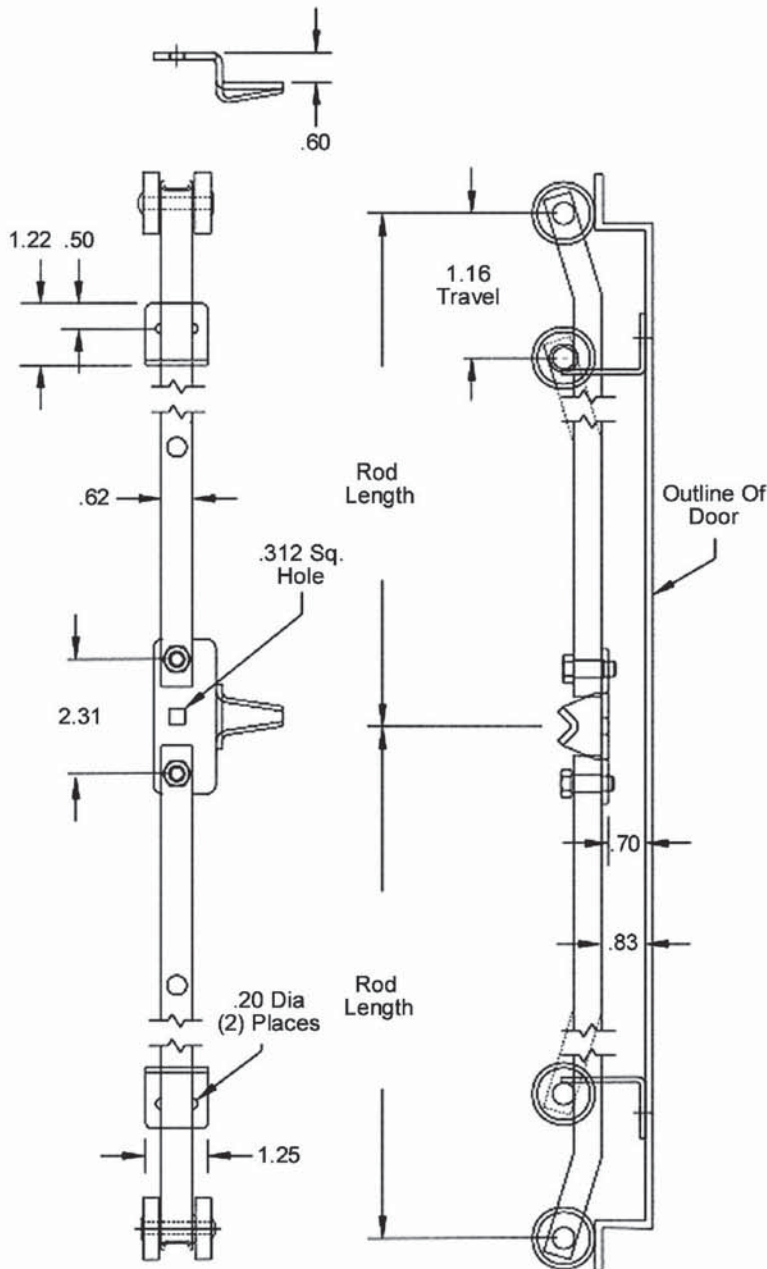


# ROLLER LOCK KITS

## THREE POINT ROLLER LOCK KIT

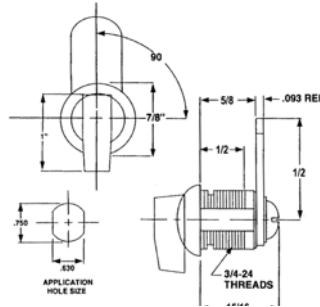
- All steel construction, zinc plated
- Rods are 16 gauge steel channels with nylon rollers
- Provides smooth hand operated gasket take up action
- Lock kit is reversible, can be used in right or left hand applications
- Widely used on NEMA type enclosures and industrial heating & cooling access doors
- Will accept any 5/16" square shank activating or padlocking handle

Part Number	Description
MP-3700-35	72" Long 3-Point Lock (36" Rods)
MP-3700-48	96" Long 3-Point Lock (48" Rods)



# CAM LOCKS

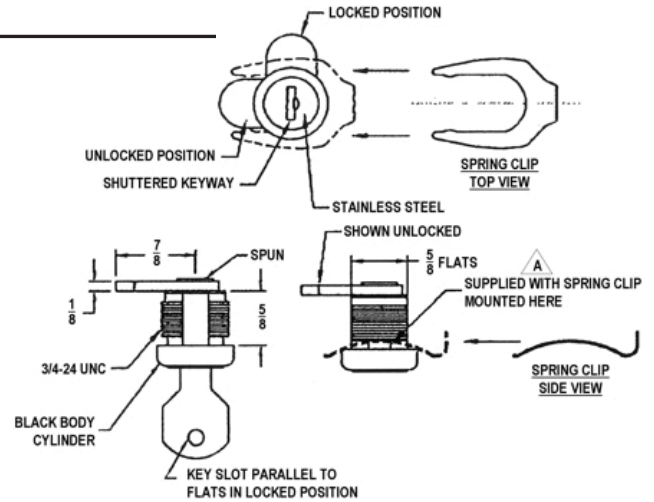
- Chrome-plated housing
- Ball & spring detent mechanism
- Cam included
- Mounting nut included



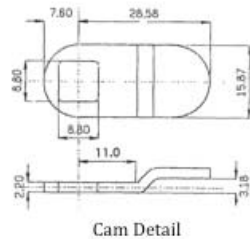
Part Number **LO-12373**

- Key is removed in locked & un-locked positions
- Cam is included, riveted to lock
- Black body
- Shuttered keyway
- Supplied with two keys
- Multiple key codes available

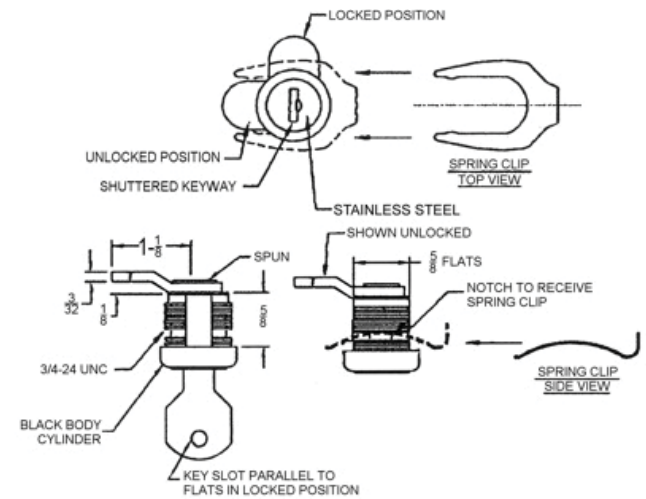
Part Number **LO-13279**



- Key is removed in locked & un-locked positions
- Cam is included, riveted to lock
- Black body
- Shuttered keyway
- Supplied with two keys
- Multiple key codes available

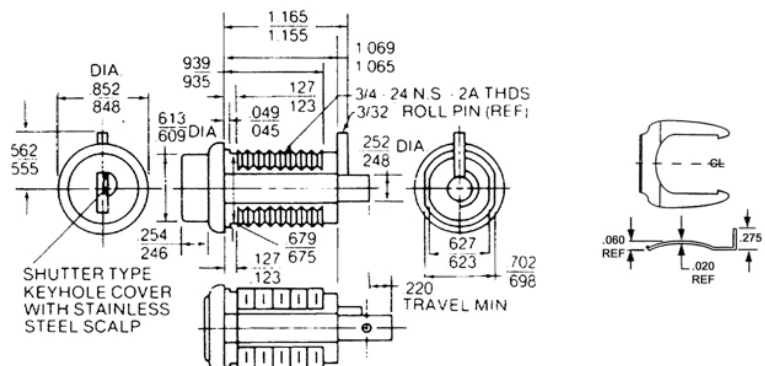


Part Number **LO-13372**



- Push lock
- Mounting clip supplied
- Stainless steel bezel

Part Number	<b>LOKT-13267</b>
Dimension "B"	7/8"
Dimension "T"	3/4"
Dimension "L"	13/16"



# CAM LOCKS

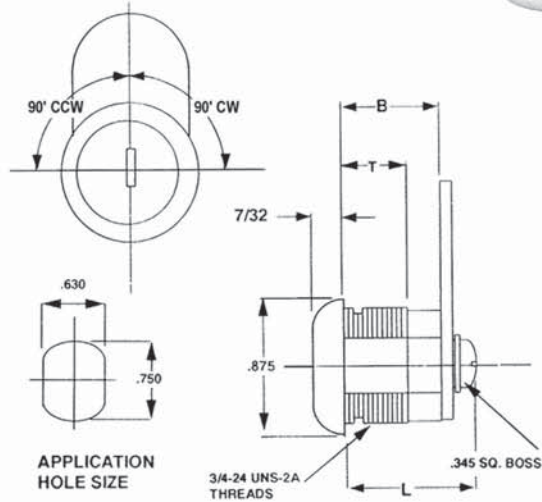
## STAINLESS STEEL CAPPED CAM LOCKS

- 90° clockwise rotation standard
- 5-disc tumbler mechanism
- Die cast plug and shell
- Stainless steel cap bezel
- Supplied with two keys
- CH751, AH01, ES202, & ES203 standard key codes
- Other key codes available as a special order
- Comes with mounting nut standard (may be mounted with optional speed clip #LO126)
- Cams sold separately (see page 121)



### How To Order

Basic Part Number → LO84N-CH751  
 Mounting Nut → ↑ Key Code



Part Number	LO83N	LO84N	LO85N	LO86N	LO87N
Dimension "B"	7/16"	5/8"	7/8"	1-1/8"	1-3/8"
Dimension "T"	1/4"	1/2"	3/4"	1"	1-1/4"
Dimension "L"	-	15/16"	1-3/16"	1-7/16"	1-11/16"

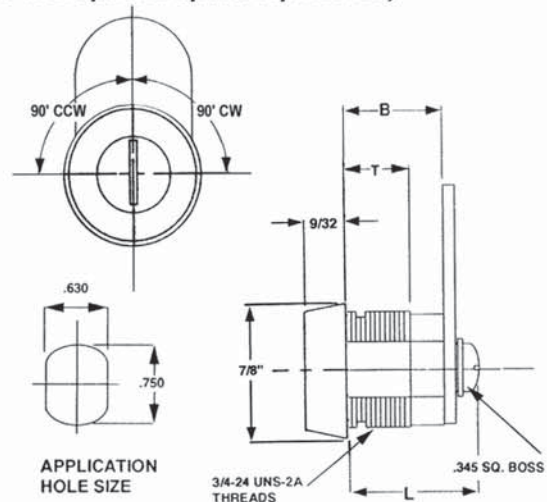
## CORROSION RESISTANT CAM LOCKS

- 90° clockwise rotation standard
- 5-disc tumbler mechanism
- Over 480 hours of salt spray protection
- Internal O-ring prevents water penetration
- Die cast plug and shell
- Stainless steel capped bezel & shuttered keyway
- Supplied with two double bitted keys
- J201, J202, J203, J204, & J236 standard key codes
- Other key codes available as a special order
- Comes with mounting nut standard (may be mounted with optional speed clip #LO126)
- Cams sold separately (see page 121)



### How To Order

Basic Part Number → LO94N-J236  
 Mounting Nut → ↑ Key Code

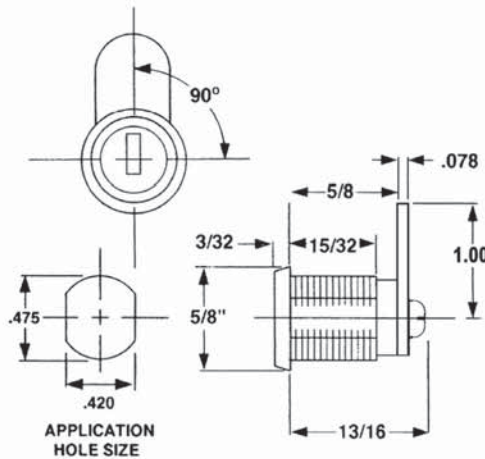


Part Number	LO94N	LO95N	LO96N
Dimension "B"	5/8"	7/8"	1-1/8"
Dimension "T"	7/16"	21/32"	29/32"
Dimension "L"	29/32"	1-1/8"	1-13/32"

# MICRO CAM LOCK

## STANDARD CAM LOCK

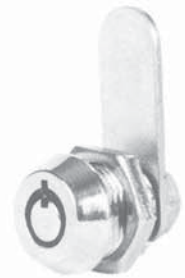
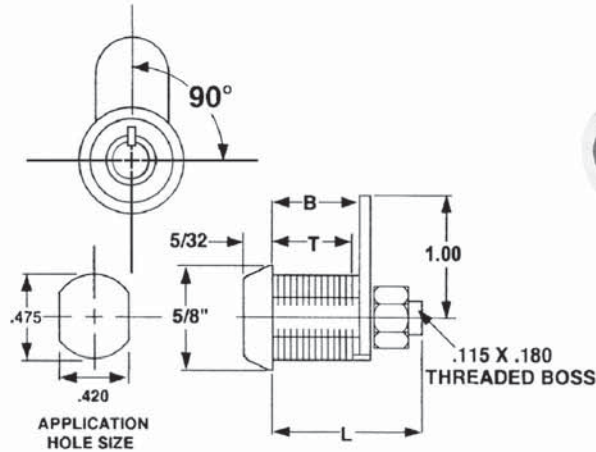
- 90° clockwise rotation standard
- 4-disc tumbler mechanism
- Die cast plug and shell
- Supplied with two keys
- Standard key code #134
- Supplied with 1" straight cam
- Comes with mounting nut standard



Part Number LOMC100

## TUBULAR CAM LOCK

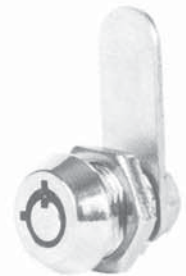
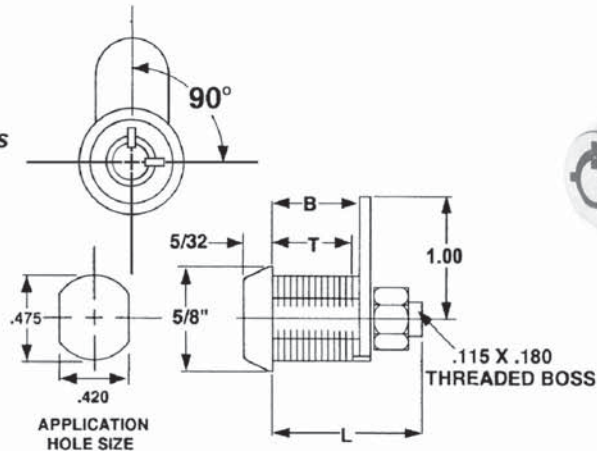
- 90° clockwise rotation standard
- 4 pin tumbler mechanism
- Die cast plug and shell
- Chrome plated
- Key removable in locked position only
- Supplied with two keys
- Standard key code #12
- Supplied with 1" straight cam
- Comes with mounting nut standard



Part Number	LOMC200	LOMC201	LOMC202
Dimension "B"	13/32"	11/32"	27/32"
Dimension "T"	1/2"	7/16"	15/16"
Dimension "L"	5/8"	9/16"	1-1/16"

## TUBULAR CAM LOCK

- 90° clockwise rotation standard
- 4 pin tumbler mechanism
- Die cast plug and shell
- Chrome plated
- Key removable in locked & unlocked positions
- Supplied with two keys
- Standard key code #12
- Supplied with 1" straight cam
- Comes with mounting nut standard

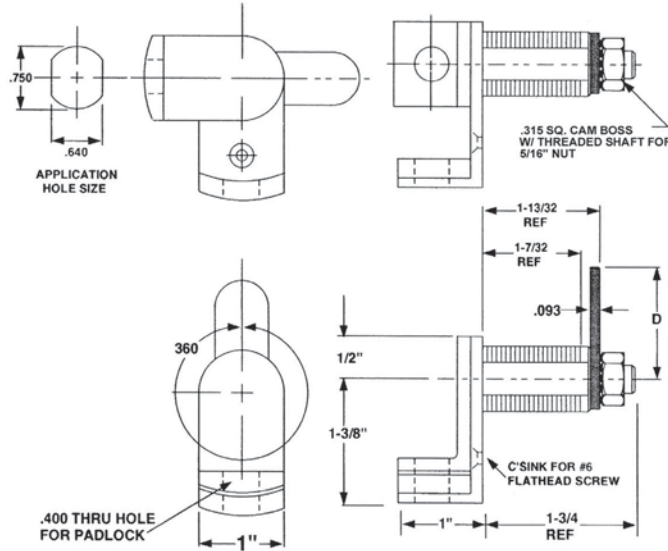


Part Number	LOMC210	LOMC211	LOMC212
Dimension "B"	13/32"	11/32"	27/32"
Dimension "T"	1/2"	7/16"	15/16"
Dimension "L"	5/8"	9/16"	1-1/16"

# CAM LOCKS

## PAD-LOCKABLE CAM LOCK

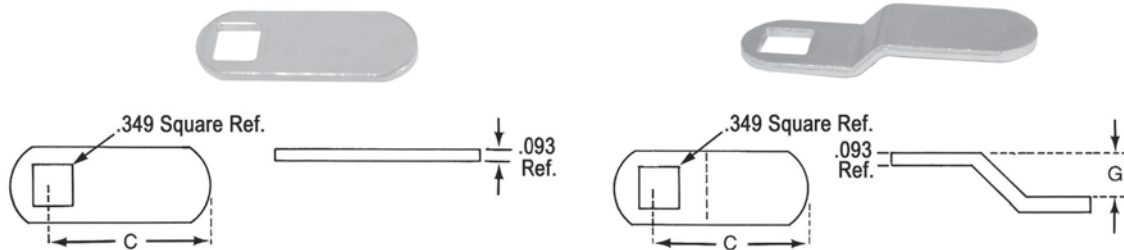
- Zinc die cast housing & cylinder
- Bright chrome finish
- For use on wooden or metal lockers
- Comes with mounting nut
- Cams sold separately (see below)



Part Number LO11640

## STANDARD CAMS

- Steel zinc plate
- For use with LO63N, LO74N, LO84N, LO94N, & LO657N series locks
- Can be used with LOTL, LOSL, & LOHL series quarter turn latches also



Flat Cams

Part Number	Dimension "C"
LOSC-01	5/8"
LOSC-02	3/4"
LOSC-03	7/8"
LOSC-04	1"
LOSC-05	1-1/8"
LOSC-06	1-1/4"
LOSC-07	1-3/8"
LOSC-08	1-1/2"
LOSC-10	1-3/4"
LOSC-12	2"
LOSC-14	2-1/2"

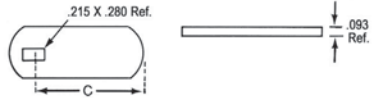
Offset Cams

Part Number	Dimension "C"	Dimension "G"	Part Number	Dimension "C"	Dimension "G"
LOOC-100	7/8"	3/8"	LOOC-160	1-1/2"	1/4"
LOOC-105	1"	1/16"	LOOC-165	1-1/2"	3/16"
LOOC-110	1"	1/8"	LOOC-170	1-5/8"	1/4"
LOOC-115	1"	1/4"	LOOC-175	1-5/8"	3/16"
LOOC-120	1-1/8"	1/8"	LOOC-180	1-3/4"	1/8"
LOOC-125	1-1/8"	1/4"	LOOC-185	1-3/4"	3/16"
LOOC-130	1-1/8"	5/16"	LOOC-190	1-3/4"	3/8"
LOOC-135	1-1/8"	3/8"	LOOC-195	1-7/8"	1/2"
LOOC-140	1-1/4"	1/4"	LOOC-200	1-7/8"	3/4"
LOOC-145	1-1/4"	3/16"	LOOC-205	2"	1/8"
LOOC-150	1-3/8"	3/8"	LOOC-210	2"	3/16"
LOOC-155	1-1/2"	1/8"	LOOC-215	2"	1/2"

# CAM LOCKS

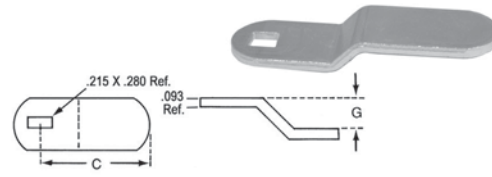
## TUBULAR CAMS

- Steel zinc plate
- For use with LO196 & LO296 series cam locks only



**Flat Cams**

Part Number	Dimension "C"
LOSC-300	7/8"
LOSC-305	1"
LOSC-310	1-1/8"
LOSC-315	1-1/4"
LOSC-320	1-3/8"
LOSC-325	1-1/2"
LOSC-330	1-3/4"
LOSC-335	2"
LOSC-340	2-1/4"

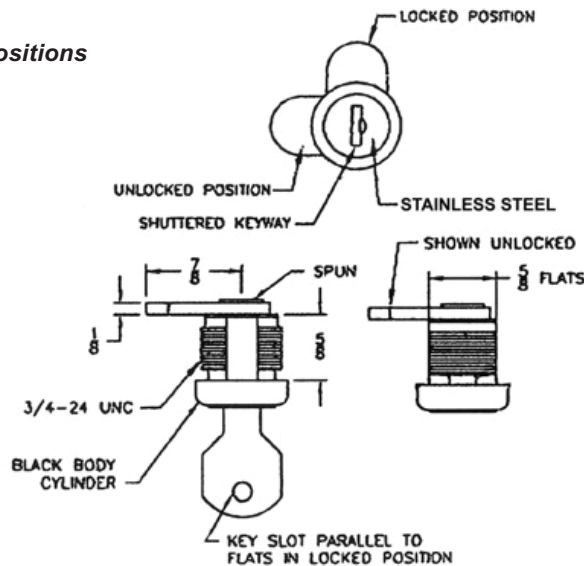


**Offset Cams**

Part Number	Dimension "C"	Dimension "G"
LOOC-400	1"	1/8"
LOOC-405	1"	1/4"
LOOC-415	1-1/8"	1/4"
LOOC-420	1-1/8"	1/2"
LOOC-425	1-1/4"	1/8"
LOOC-430	1-1/4"	1/4"
LOOC-435	1-1/4"	1/2"
LOOC-440	1-1/2"	1/8"
LOOC-445	1-1/2"	1/4"

## STANDARD CAM LOCK

- Key is removed in locked & un-locked positions
- 7/8" cam is included, riveted to lock
- Black body
- Shuttered keyway
- Supplied with two keys
- Multiple key codes available
- Includes mounting nut

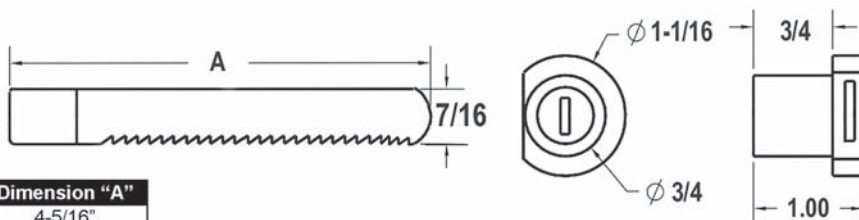


Part Number **LO-13377**

# SPECIALTY LOCKS

## SHOWCASE LOCK

- Zinc die cast housing & cylinder
- Chrome plated
- Key removable in locked position only
- Supplied with two keys
- Accepts up to 1/4" thick glass



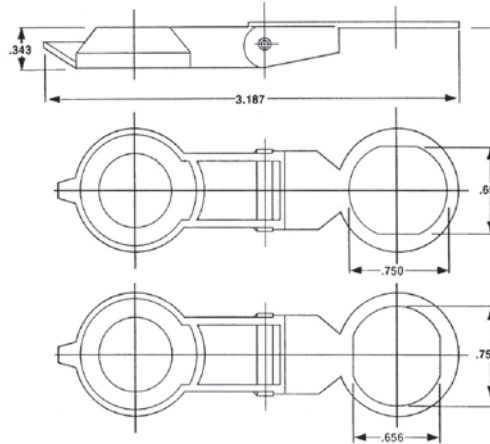
Part Number	Dimension "A"
LO11656	4-5/16"
LO11670	5-5/16"



# CAM LOCK ACCESSORIES

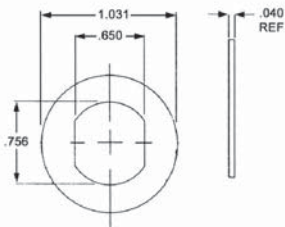
## WEATHER CAP

- Zinc die construction
- Zinc plated finish
- Spring loaded lid
- Stainless steel spring & pin

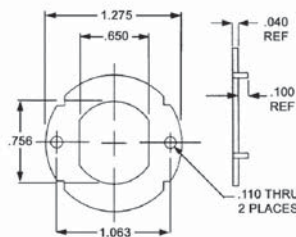


Part Number	Description
LO10186	Vertical Mounting
LO10191	Horizontal Mounting

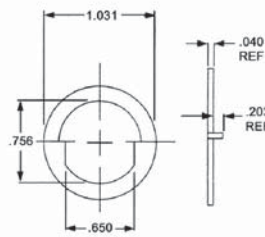
## MISCELLANEOUS COMPONENT PARTS



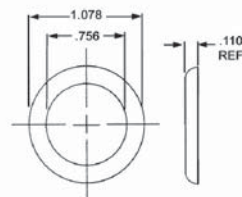
**LO119**  
Flat Washer



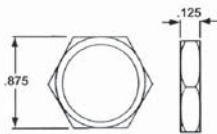
**LO117**  
4-Prong Spur Washer



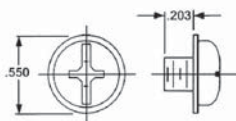
**LO118**  
2-Spur Prong Washer



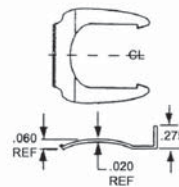
**LO121**  
Escutcheon Ring



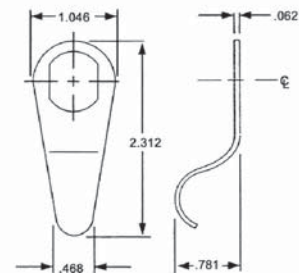
**LO125**  
3/8-24 Cylinder Nut



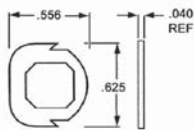
**LO127**  
Sem Screw



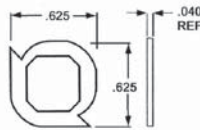
**LO126**  
Speed Clip



**LO116**  
Stainless Steel Finger Pull



**LO123**  
90 Degree Stop Cam

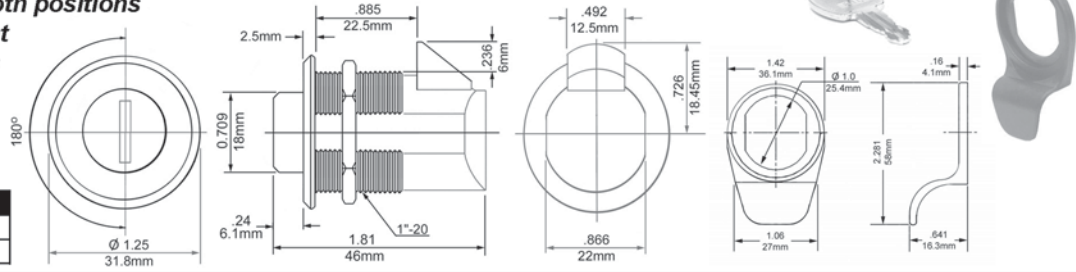


**LO124**  
180 Degree Stop Cam

# COMPARTMENT LATCHES

## PUSH BUTTON KEY LATCH

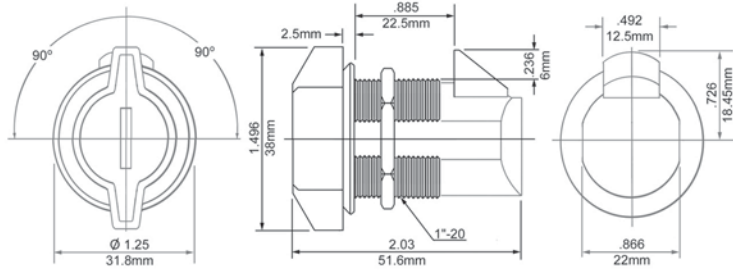
- Black plastic housing & cylinder
- Stainless steel bezel
- Shuttered keyway
- Key removable in both positions
- Black plastic hex nut
- 2 double bitted keys
- Finger pull sold separately



Part Number	Description
LA-13359	Latch
LA-13360	Finger Pull

## LOCKING GLOVE BOX LATCH

- Black plastic housing & cylinder
- Stainless steel bezel
- Shuttered keyway
- Key removable in both positions
- Black plastic hex nut
- 2 double bitted keys



Part Number	Description
LA-13287	Latch

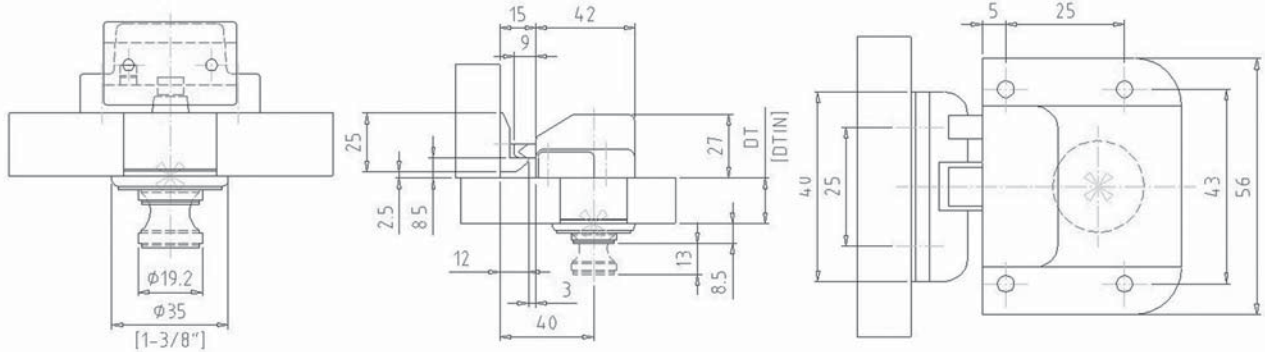


**Commercial Vehicle Body Fitting Needs?**  
Associated Spring RAYMOND has complete panel counter-balance and hardware options. Corrosion resistant solutions can be engineered where not available as standard items.

Visit [www.asraymond.com](http://www.asraymond.com) for additional capability information.

# PUSH KNOB LATCHES

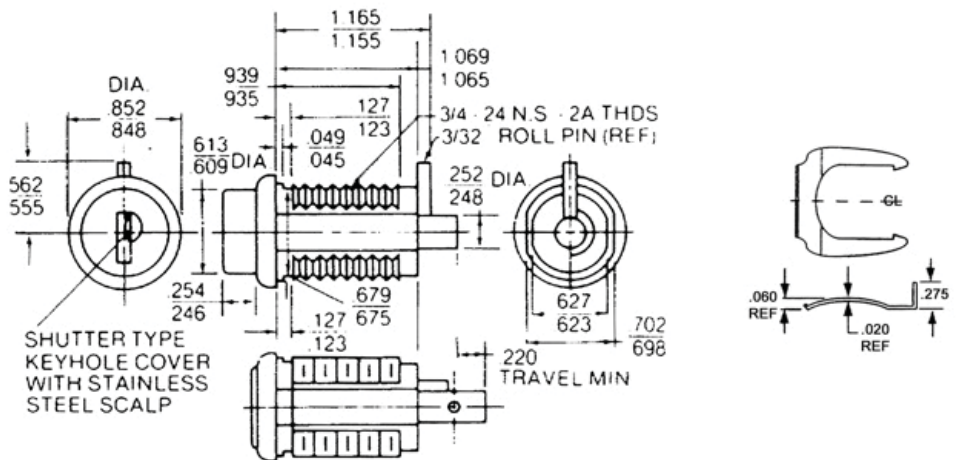
- Non-Locking
- White polyamide latch body
- Brass push knob
- Zinc die cast push button base
- 44 lb holding force
- Push knob and latch body sold separately
- For door thicknesses 3/4"~1-3/16"
- Supplied with mounting screws



Component	Part Number	Finish
Push Knob	LATLP-BB-SB	Satin Brass
	LATLP-BB-PB	Polished Brass
	LATLP-BB-SN	Satin Nickel
	LATLP-BB-CR	Chrome
Latch Body	LATLP-LBM-WHT	White

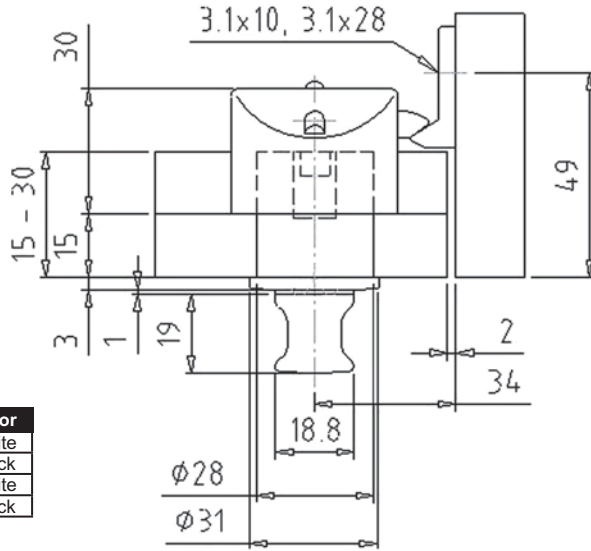
- Push lock
- Mounting clip supplied
- Stainless steel bezel

Part Number LOKT-13267



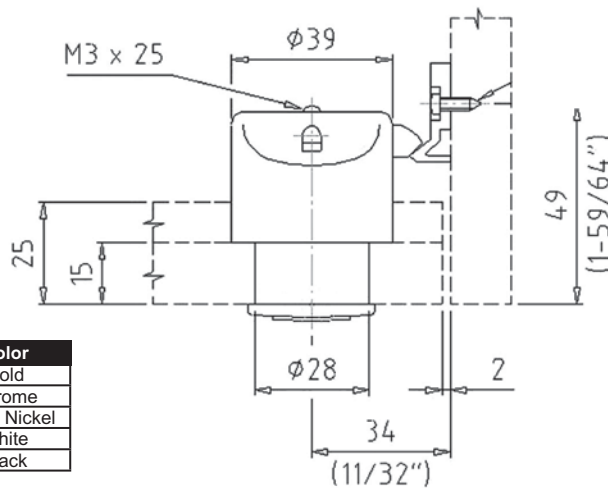
# PUSH KNOB LATCHES

- Non-Locking
- Available in matte black & matte white ABS plastic
- Non-handed
- 22 lb holding force
- Push knob and latch body sold separately
- For door thicknesses 19/32"~1-3/16"
- Supplied with mounting screws



Component	Part Number	Color
Push Knob	LAPKL07-W	White
	LAPKL07-B	Black
Latch Body	LAPKL-S/WHT	White
	LAPKL-S/BLK	Black

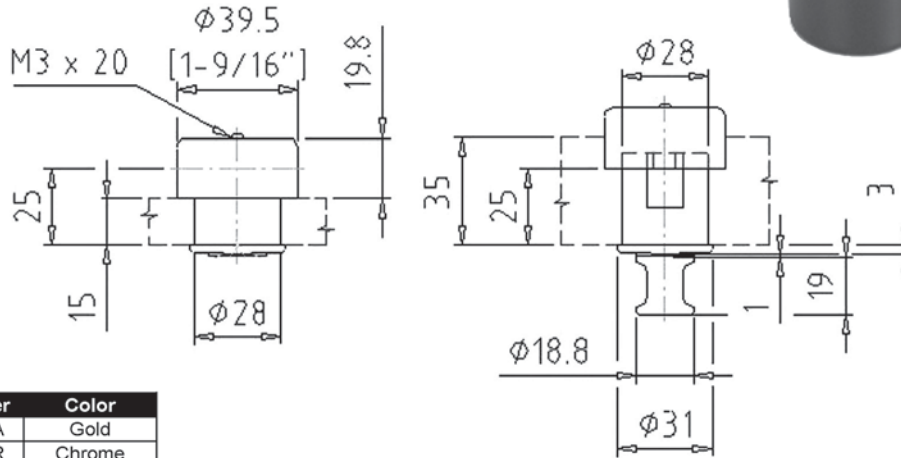
- Non-Locking
- Available in matte black & matte white ABS plastic latch body
- Zinc die cast push knob
- Non-handed
- 22 lb holding force
- Push knob and latch body sold separately
- For door thicknesses 19/32"~1-3/16"
- Supplied with mounting screws



Component	Part Number	Color
Push Knob	LAPKL08-GA	Gold
	LAPKL08-CR	Chrome
	LAPKL08-BN	Black Nickel
Latch Body	LAPKL-S/WHT	White
	LAPKL-S/BLK	Black

# PUSH KNOBS

- *Non-latching*
- *Matte black ABS plastic body*
- *Zinc die cast knob*
- *Non-handed*
- *For door thicknesses 19/32"~1-3/16"*



Component	Part Number	Color
Push Knob	LAPK03-GA	Gold
	LAPK03-CR	Chrome
	LAPK03-BN	Black Nickel

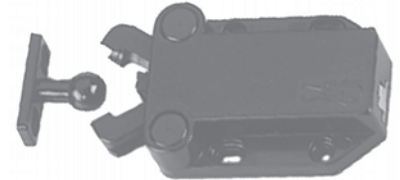
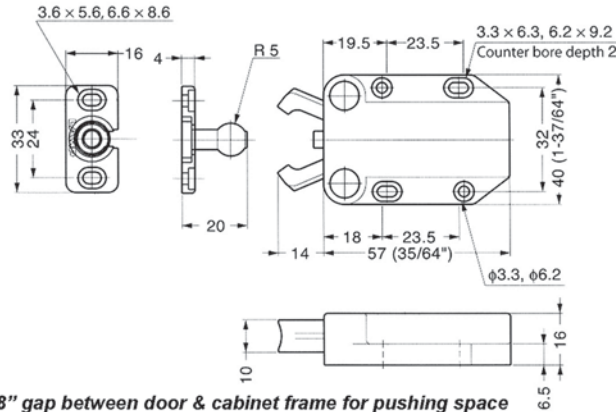


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# TOUCH LATCHES

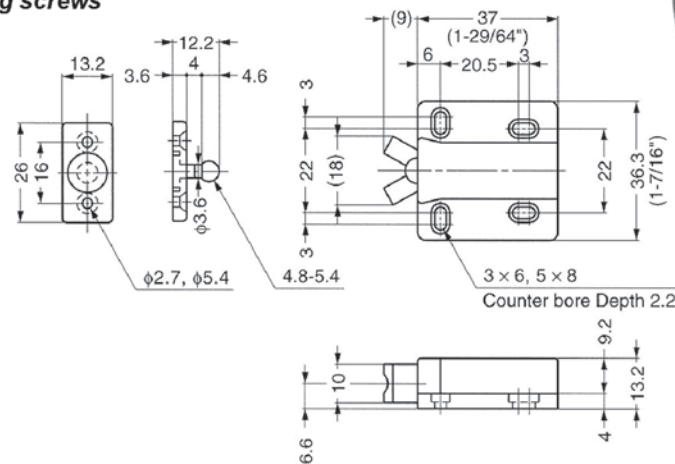
- Non-magnetic for greater range of use
- ABS plastic construction available in three colors
- Supplied with mounting screws
- 8.8 lb retaining force



Part Number	Color
LAMC-37B	Black
LAMC-37BR	Brown
LAMC-37W	White

\* For overlay doors allow 1/8" gap between door & cabinet frame for pushing space

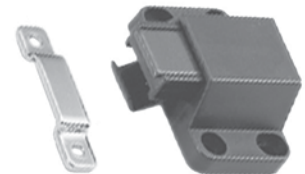
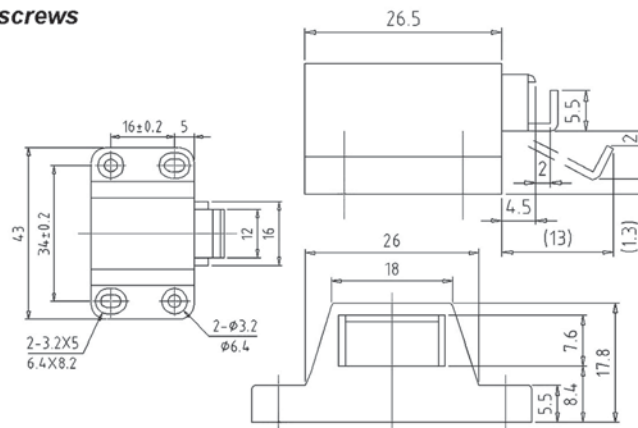
- Non-magnetic for greater range of use
- ABS plastic construction available in three colors
- Supplied with mounting screws
- 6.6 lb retaining force



Part Number	Color
LAMC-28B	Black

\* For overlay doors allow 1/8" gap between door & cabinet frame for pushing space

- Non-magnetic for greater range of use
- ABS plastic housing, polyacetal slide, steel arm & strike
- Available in two colors
- Supplied with mounting screws
- 22 lb retaining force



Part Number	Color
LAPR-21PBK	Black
LAPR-21PBR	Brown



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RAYMOND  
A business of BARNES GROUP INC



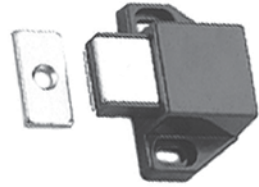
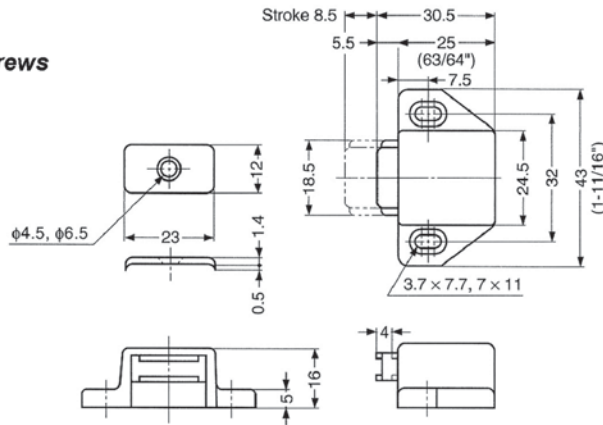
A full line of Raymond® gas springs for tool & die or OEM applications is available from Associated Spring RAYMOND. When mechanical die springs won't meet the needs of the application, Raymond® gas springs are readily available.

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# MAGNETIC TOUCH LATCHES

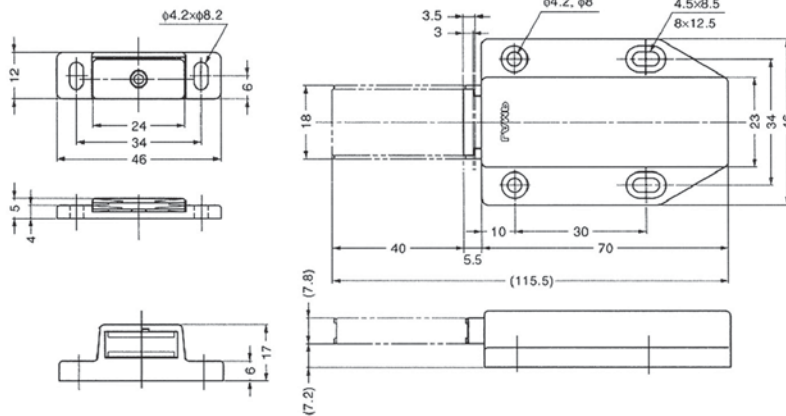
- One touch opening and closing
- ABS plastic body available in white or brown
- Steel latch & strike plate
- 2.6 lb magnetic force
- Supplied with mounting screws



Part Number	Color
LAML30S-BR	Brown
LAML30S-W	White

\* For overlay doors allow 5/32" gap between door & cabinet frame for pushing space

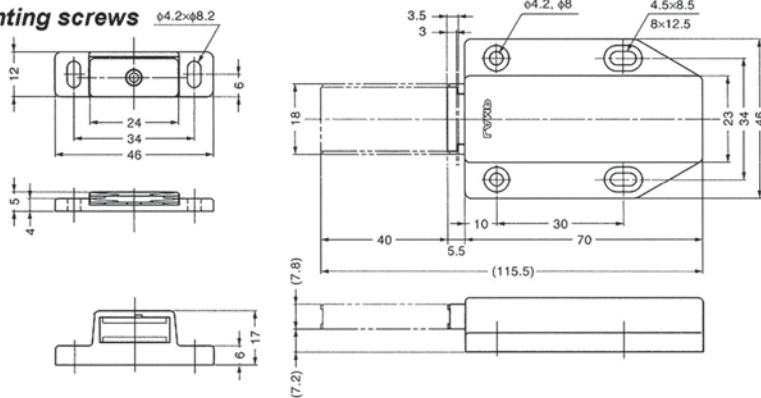
- ABS plastic body available in white, brown, & black
- Steel latch & strike plate
- 3.5 lb magnetic force
- Supplied with mounting screws



Part Number	Color
LAML80-B	Black
LAML80-BR	Brown
LAML80-W	White

\* For overlay doors allow 9/64" gap between door & cabinet frame for pushing space

- ABS plastic body available in white or brown
- Steel latch & strike plate
- Longer push-open stroke
- 5.2 lb magnetic force
- Supplied with mounting screws



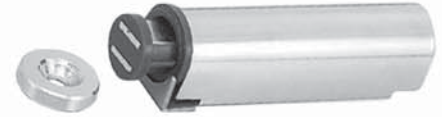
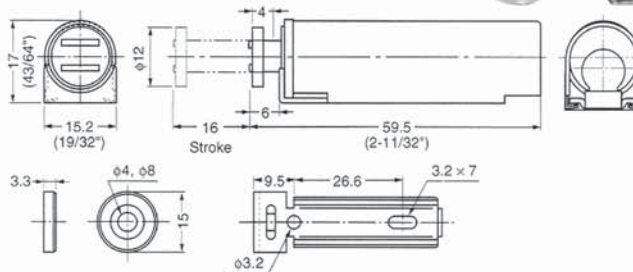
Part Number	Color
LAML120-BR	Brown
LAML120-W	White

\* For overlay doors allow 9/64" gap between door & cabinet frame for pushing space



# MAGNETIC CATCHES

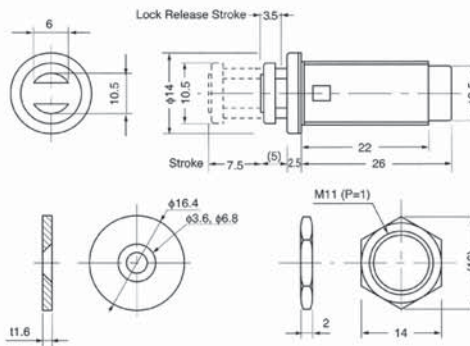
- One touch opening and closing
- Brown ABS plastic body with stainless steel cover
- Steel latch & strike plate
- 2.6 lb magnetic force
- Supplied with mounting screws



Part Number CASML

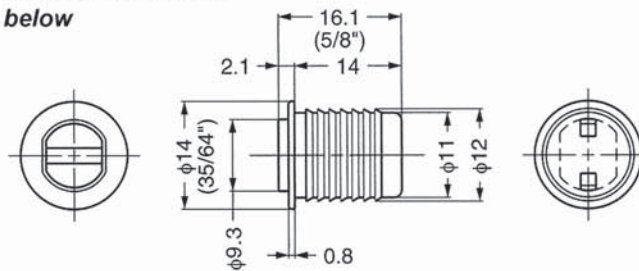
\* For overlay doors allow 5/32" gap between door & cabinet frame for pushing space

- One touch opening and closing
- Black ABS plastic body
- Steel yoke, strike plate & nut
- 2.9 lb magnetic force
- For recessed mounting



Part Number CAPM-4NHB

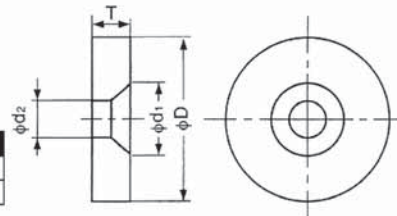
- Polypropylene body available in black or white
- Strike sold separately, see below
- 5.5 lb magnetic force
- For mortise applications



Part Number	Color
CAIS-4B	Black
CAIS-4W	White

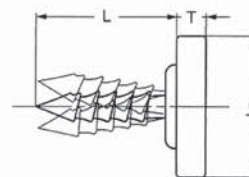
- Chrome or nickel plated steel
- Mounting screw not included

Part Number	Finish	T	D	d1	d2
CAW4	Gold Chromate	2.5 (3/32")	12 (15/32")	6	3
CAW12	Nickel	3.0 (1/8")	15 (19/32")	8	4



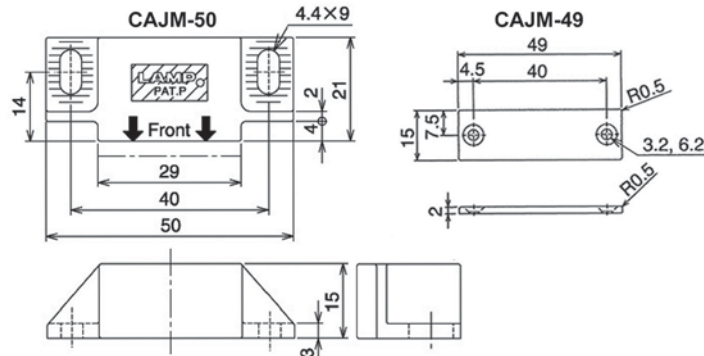
- Nickel plated steel

Part Number	Finish	T	D	L
CAZ4	Nickel	2.5 (3/32")	12 (15/32")	12 (15/32")



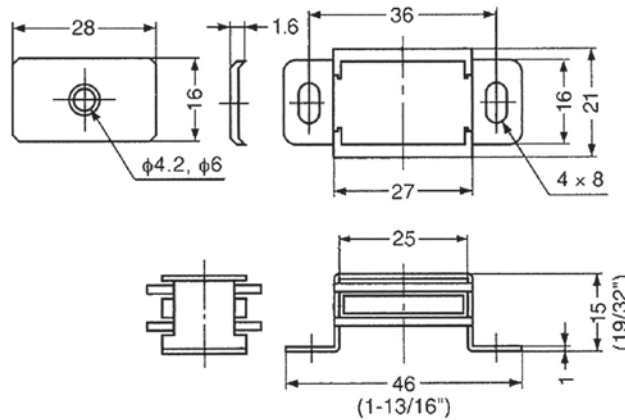
# MAGNETIC CATCHES

- Hermetically sealed for clean rooms or moisture environments
- White polyacetal body with neodymium magnet
- 316 stainless steel strike plate sold separately
- 9.9 lb magnetic force
- Mounting screws not included



Part Number	Description
CAJM-50	Magnetic Catch
CAJM-49	Strike Plate

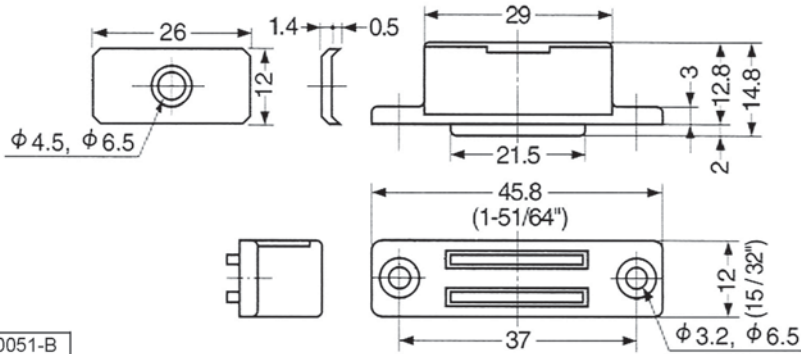
- Aluminum body, alumite finish
- Ferrite magnet, steel strike plate
- 3.3 lb magnetic force
- Supplied with mounting screws



Part Number	Description
CASUPER-88	

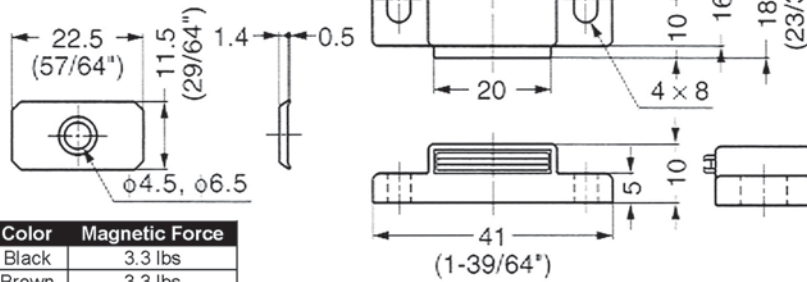
# MAGNETIC CATCHES

- Black ABS plastic body, ferrite magnet
- Steel latch & strike plate
- 9.9 lb magnetic force
- For mortise applications
- Mounting screws not included



Part Number CAMC0051-B

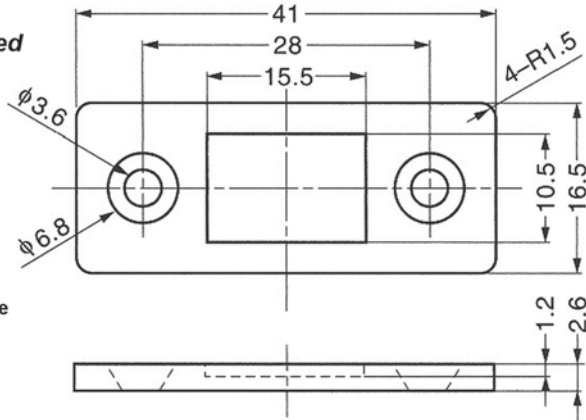
- Polypropylene body available in black, brown, or white
- Steel latch & strike plate
- Available in two magnetic forces
- Mounting screws not included



Part Number	Color	Magnetic Force
CAMC0097-B	Black	3.3 lbs
CAMC0097-BR	Brown	3.3 lbs
CAMC0097-W	White	3.3 lbs
CAMC0097-B1	Black	7.7 lbs
CAMC0097-BR1	Brown	7.7 lbs
CAMC0097-W1	White	7.7 lbs

# MAGNETIC CATCHES

- Ultra Thin
- Steel base & yoke with nickel finish
- Neodymium magnet
- 8.0 lb magnetic force
- Mounting screws not included



NOTE: Suitable for temperature Applications to -212°F

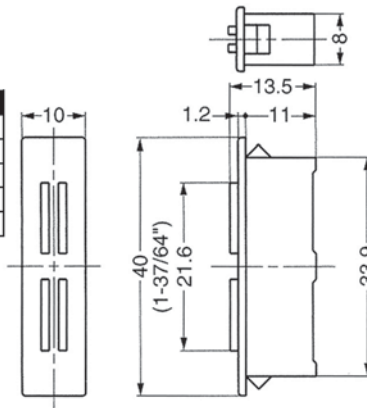
To avoid breakage, the strike plate should not hit the magnet

Part Number CAMC-159

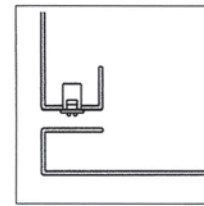
- ABS plastic body available in black or white
- Snaps into sheet metal application, (no mounting screws needed)
- Steel yoke. & neodymium magnet
- 9.9 lb magnetic force



Door Thickness	A	B
0.8 (.032")	1-11/32"	21/64"
1.0 (.040")	1-11/32"	21/64"
1.2 (.048")	1-23/64"	21/64"
1.6 (.062")	1-3/8"	21/64"
2.0 (.078")	1-7/16"	21/64"



Bore dimensions



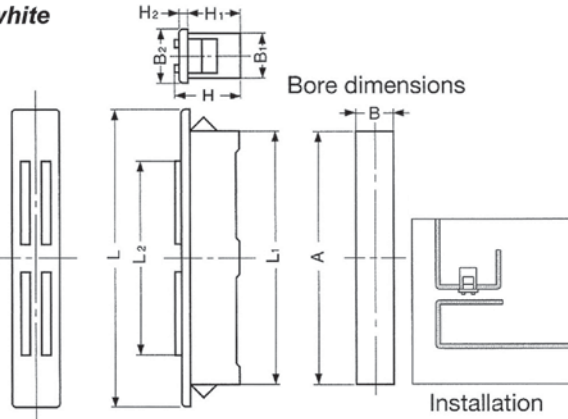
Installation

Part Number	Color
CAFP-5B	Black
CAFP-5W	White

# MAGNETIC CATCHES

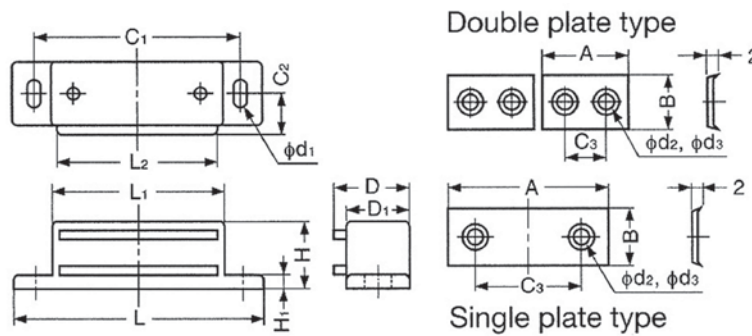
- **ABS plastic body available in black or white**
- **Snaps into sheet metal application**
- **No mounting screws needed**
- **Steel yoke & magnet**

Door Thickness	CAFS-5		CAFS-10	
	A	B	A	B
0.8 (.032")	1-11/32"	21/64"	2-5/32"	21/64"
1.0 (.040")	1-11/32"	21/64"	2-5/32"	21/64"
1.2 (.048")	1-23/64"	21/64"	2-3/16"	21/64"
1.6 (.062")	1-3/8"	21/64"	2-13/64"	21/64"
2.0 (.078")	1-7/16"	21/64"	2-7/32"	21/64"



Part Number	Color	Magnetic Force	L	L1	L2	B2	B1	H	H1	H2
CAFS-5B	Black	4.8 lbs	40	1-11/32"	21.6	10	8	17/32"	11.2	1.2
CAFS-5W	White	4.8 lbs	40	1-11/32"	21.6	10	8	17/32"	11.2	1.2
CAFS-10B	Black	9.9 lbs	64	2-9/64"	43.0	8	8	35/64"	11.2	1.5
CAFS-10W	White	9.9 lbs	64	2-9/64"	43.0	8	8	35/64"	11.2	1.5

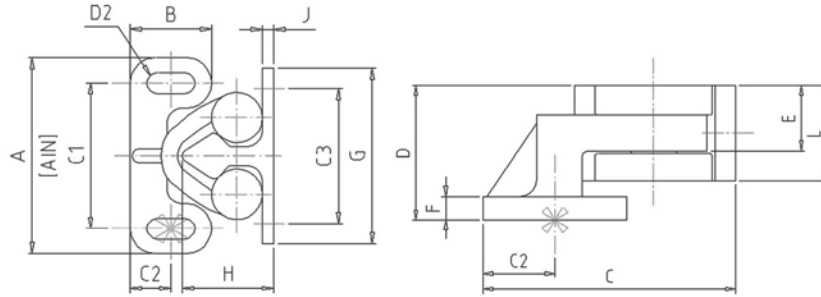
- **White polyamide body**
- **Steel yoke & magnet**
- **Supplied with mounting screws**



Part Number	Magnetic Force	L	L1	L2	D	D1	H	H1	C1	C2	d1	A	B	C3	d2	d3
CAKP-50S	5.2 lbs	1-63/64"	33	30	17	15	15/32"	3.0	42	10.0	3.2 X 6.2	1-3/16"	29/64"	20	4.2	6.7
CAKP-55S	6.1 lbs	2-23/64"	42	38	18	15	5/8"	3.2	50	10.5	3.2 X 6.0	1-1/2"	35/64"	25	4.3	6.4
CAKP-55W	6.1 lbs	2-23/64"	42	38	18	15	5/8"	3.2	50	10.5	3.2 X 6.0	25/32"	35/64"	10	4.3	6.4

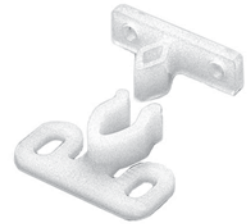
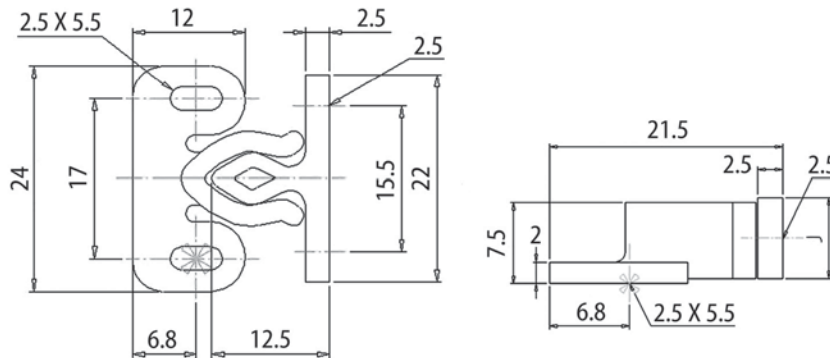
# KNUCKLE CATCHES

- Polyacetal catch & strike
- Polyethylene rollers
- Tested to 300,000 cycles
- Mounting screws not included



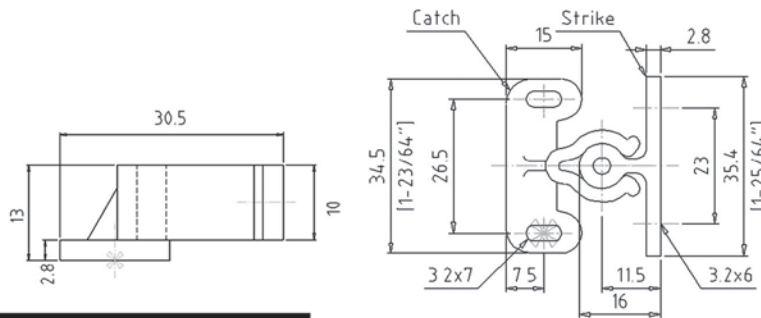
Part Number	Push In Force	Pulling Force	Color	A	B	C	D	E	F	C1	C2	G	H	I	J	C3	d	d1
CA6900W	2.4 lbs	3.5 lbs	White	29	12	21.2	11.3	8	2	21.5	6	26	13.5	7.5	1.7	20	3.1 X 7	3
CA6901WHT	4.8 lbs	7.0 lbs	White	31.3	14	27.2	12.6	9	2.3	24.4	7.5	32	16.5	9	2	23.6	3.1 X 7	3.1
CA6901BR	4.8 lbs	7.0 lbs	Brown	31	14	27.2	12.6	9	2.3	24.4	7.5	32	16.5	9	2	23.6	3.1 X 7	3.1
CA11831	2.4 lbs	3.5 lbs	Snow White	31	13	24.0	11.3	8.6	1.6	23	6.6	31	15.5	8.9	1.6	21	3.1 X 7	3.1

- Polyacetal catch, polyamide strike
- Mounting screws not included



Part Number	Push In Force	Pulling Force
CAD-CATCH	6.8 lbs	5.9 lbs

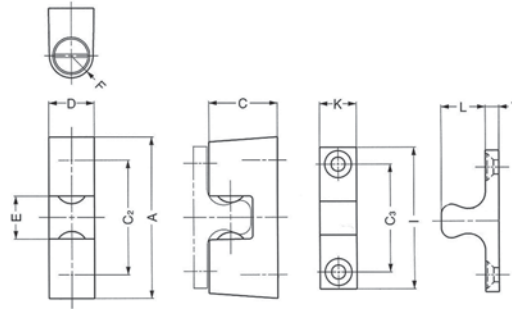
- Polyacetal catch, polyamide strike
- Mounting screw not included



Part Number	Push In Force	Pulling Force	Color
CAK-CATCH	11.4 lbs	15.4 lbs	White

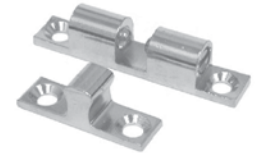
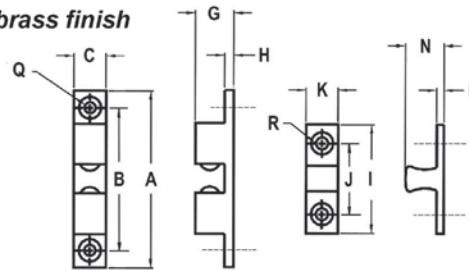
# DOUBLE BALL CATCHES

- Zinc alloy with chrome plating
- 2 spring loaded ball bearings
- Blind mount for cleaner appearance
- Adjust tension by turning set screws
- Mounting screws not included



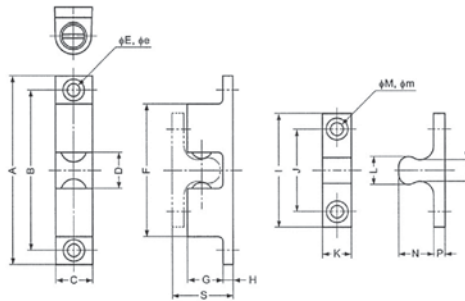
Part Number	A	C2	C	D	E	F	G	H	I	C3	K	L	N	C1	T	X	Y	Q
CABCU-40	28.5 (1-1/8")	20	12.5	8.3 (21/64")	6.5	R4	M3	5	24	16	8	9	5	3	3	3.2	6.2	15.7
CABCU-70	48 (1-57/64")	34	20.5	13.5 (17/32")	12.7	R6.5	M5	6	42	32	11	13	10	7.3	4	8.2	8.2	24.9

- Zinc alloy
- Available in chrome, bright brass, & antique brass finish
- 2 spring loaded ball bearings
- Adjust tension by turning set screws
- Mounting screws not included



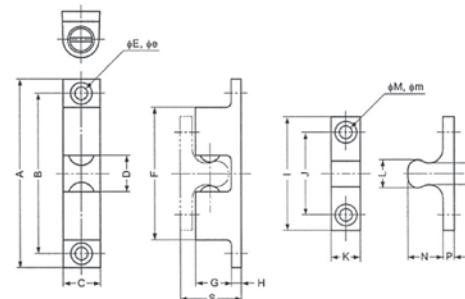
Bright Chrome	Bright Brass	Antique Brass	A	B	C	G	H	I	J	K	N	P	Q	R
-	CA13540	-	2.250"	1.625"	.438"	.500"	.094"	1.250"	1.000"	.438"	.438"	.063"	.125"	.125"
CA11400-44	CA11400-44BR	CA11400-44ABR	1.702"	1.378"	.317"	.372"	.070"	1.036"	.687"	.319"	.356"	.060"	.146"	.146"
CA11400-49	CA11400-49BR	CA11400-49ABR	1.938"	1.609"	.359"	.444"	.072"	1.134"	.781"	.341"	.436"	.060"	.146"	.146"
CA11400-69	CA11400-69BR	CA11400-69ABR	2.728"	2.234"	.493"	.594"	.105"	1.667"	1.171"	.474"	.591"	.098"	.171"	.171"

- Zinc alloy with chrome plating
- 2 spring loaded ball bearings
- Adjust tension by turning set screws
- Mounting screws not included



Part Number	A	B	C	D	E	e	F	G	H	I	J	K	L	M	m	N	P	Q	S
CABCT-40	42.5	35	8	6.3	3.2	6.2	26.9	7.5	2.5	25	16	7.5	5	3.2	6.2	8.5	2.5	3.2	13.8 (35/64")
CABCT-50	50	40	10	8.4	4.2	8.2	30	9.5	3	30	20	9	6.8	4.2	8.2	9.5	3	4.7	15.3 (19/32")
CABCT-70	70	60	13.5	13	4.2	8.2	48.5	13	4	42	30	10.5	10	4.2	8.2	13	4	8	21.2 (27/32")

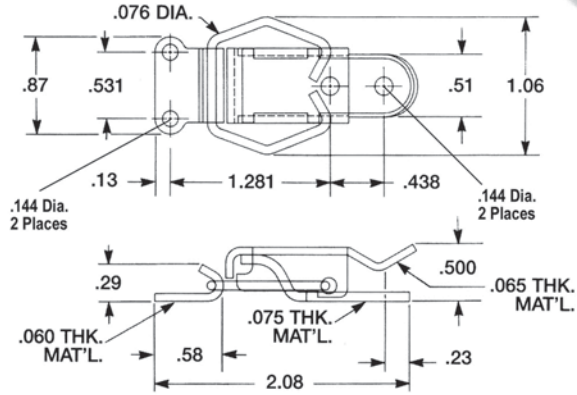
- 316 stainless steel
- Polished finish
- 2 spring loaded ball bearings
- Adjust tension by turning set screws
- Mounting screws not included



Part Number	A	B	C	D	E	e	F	G	H	I	J	K	L	M	m	N	P	Q	S
CABCTS-40	43	35	8	5.9	3.2	6.2	28.4	10	2.5	25	16	7.5	4.5	3.2	6.2	8.5	2.5	2.7	13.5
CABCTS-50	50	40	10	7.5	4.2	8.2	31.5	12.2	2.9	30	20	9	6	4.2	8.2	10.3	2.9	3.8	15.9
CABCTS-70	70	60	13	13	4.2	8.2	51	17	4	42	30	10.5	10	4.2	8.2	15	4	8	23

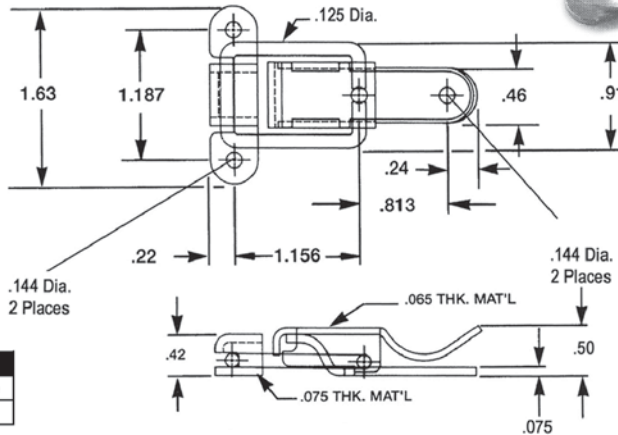
# STRAIGHT LOOP CATCHES

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch & strike plate sold separately
- Other hole sizes & finishes available as a special order



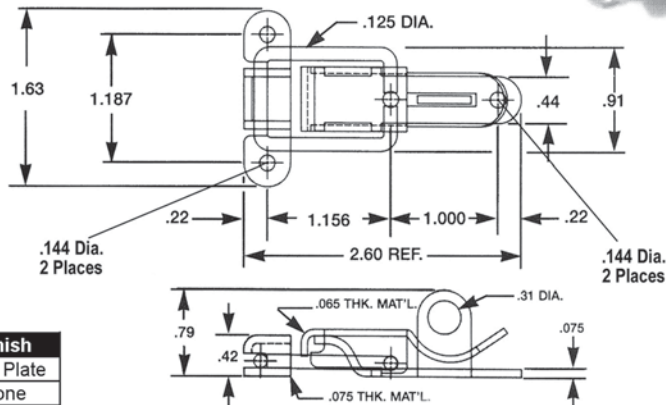
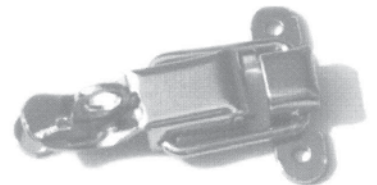
Catch	Strike	Material	Finish
CAC201ZE	CAS200ZE	Steel	Zinc Plate
CAC201X	CAS200X	Stainless Steel	None

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch & strike plate sold separately
- Other hole sizes & finishes available as a special order



Catch	Strike	Material	Finish
CAC224ZE	CAS224ZE	Steel	Zinc Plate
CAC224X	CAS224X	Stainless Steel	None

- Pad locking eye for extra security
- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch & strike plate sold separately
- Other hole sizes & finishes available as a special order

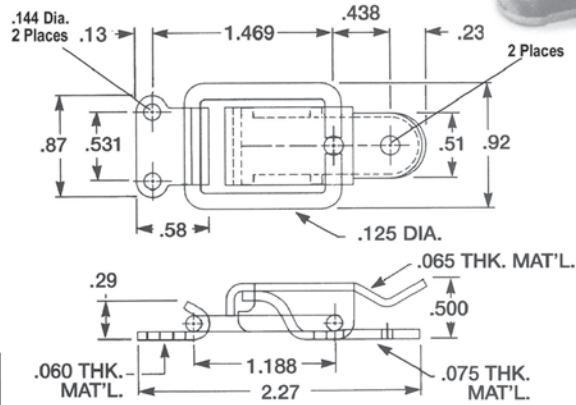


Catch	Strike	Material	Finish
CAC227ZE	CAS224ZE	Steel	Zinc Plate
CAC227X	CAS224X	Stainless Steel	None



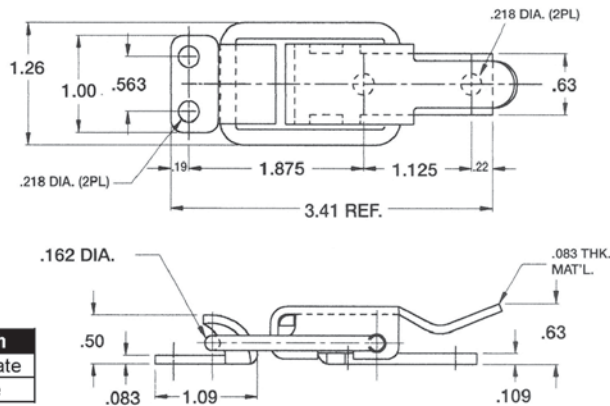
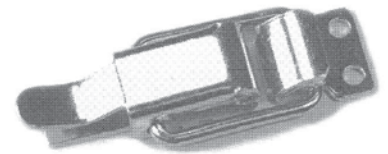
# STRAIGHT LOOP CATCHES

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch & strike plate sold separately
- Other hole sizes & finishes available as a special order



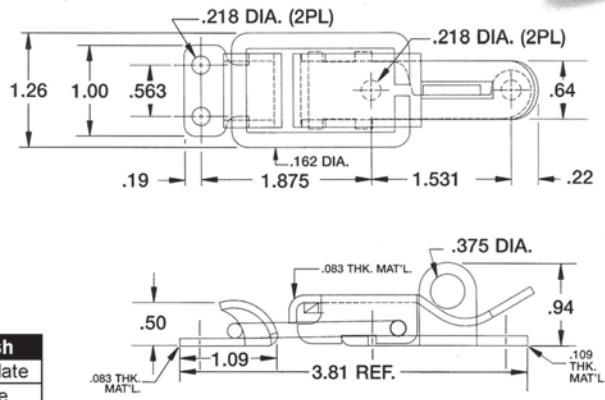
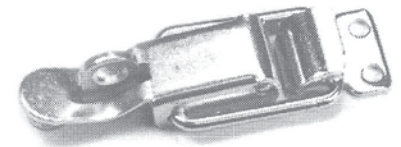
Catch	Strike	Material	Finish
CAC204ZE	CAS200ZE	Steel	Zinc Plate
CAC204X	CAS200X	Stainless Steel	None

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch & strike plate sold separately
- Other hole sizes & finishes available as a special order



Catch	Strike	Material	Finish
CAC205ZE	CAS205ZE	Steel	Zinc Plate
CAC205X	CAS205X	Stainless Steel	None

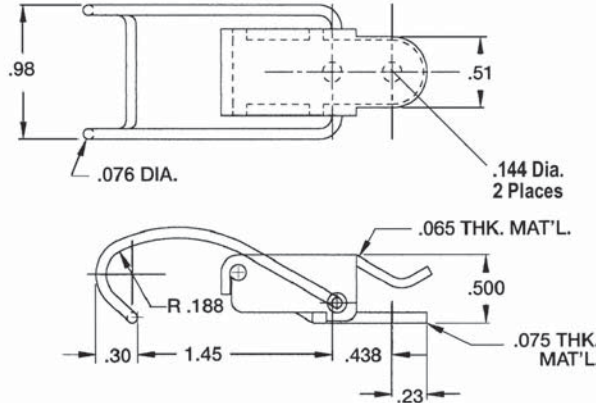
- Pad locking eye for extra security
- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch & strike plate sold separately
- Other hole sizes & finishes available as a special order



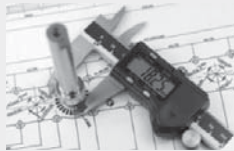
Catch	Strike	Material	Finish
CAC207ZE	CAS205ZE	Steel	Zinc Plate
CAC207X	CAS205X	Stainless Steel	None

# HOOKED LOOP CATCHES

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & cover flange
- Catch is designed to engage molded lip or flange
- Other hole sizes & finishes available as a special order



Catch	Material	Finish
CAC255ZE	Steel	Zinc Plate
CAC255X	Stainless Steel	None

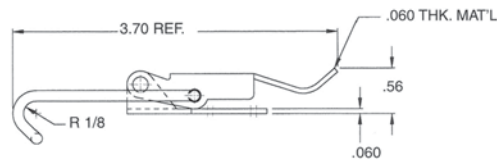
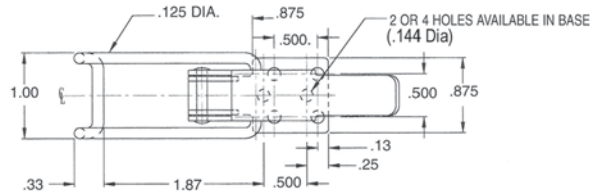


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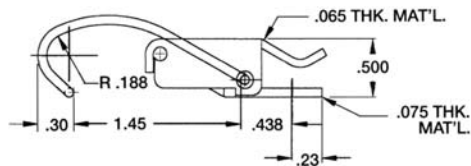
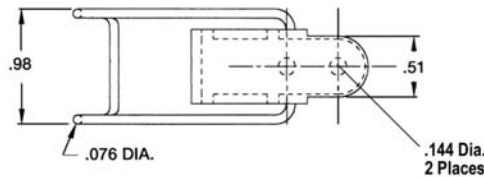
# HOOKED LOOP CATCHES

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & cover flange
- Catch is designed to engage molded lip or flange
- Other hole sizes & finishes available as a special order



Catch	Material	Finish
CAC225ZE	Steel	Zinc Plate
CAC225X	Stainless Steel	None

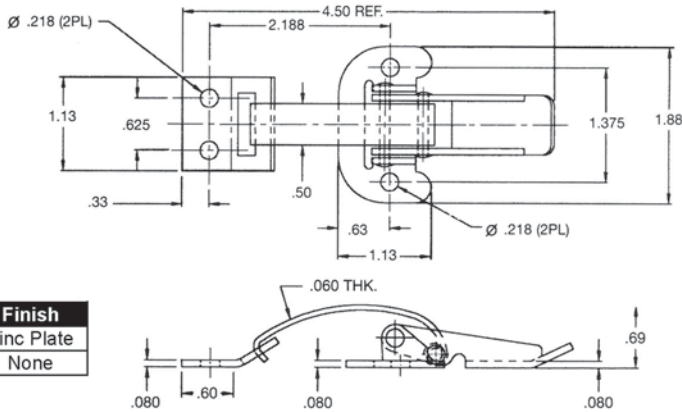
- Dimensions shown are as mounted
- Adjust tensions by varying mounting distance between catch & cover flange
- Catch is designed to engage molded lip or flange
- Other hole sizes & finishes available as a special order



Catch	Material	Finish
CAC-255-ZE	Steel	Zinc Plate

# SPRING HOOK CATCHES

- Dimensions shown are as mounted
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Other hole sizes & finishes available as a special order
- Available with 6.00" radius base as a special order



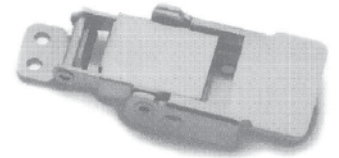
Catch	Strike	Material	Finish
CAC801ZE	CAS801ZE	Steel	Zinc Plate
CAC801X	CAS801X	Stainless Steel	None



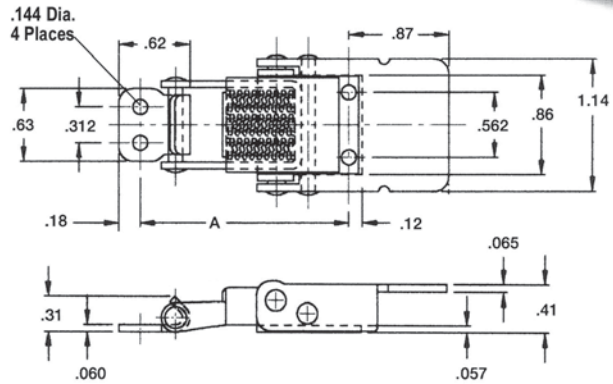
**Looking for CAD files for Associated Spring RAYMOND products?** Most products have CAD files available online at [www.asraymond.com](http://www.asraymond.com). Additional files are available through Associated Spring RAYMOND engineering.

# COMPRESSION SPRING CATCHES

- Dimensions shown are as mounted
- 3 internal compression springs
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Other hole sizes & finishes available as a special order

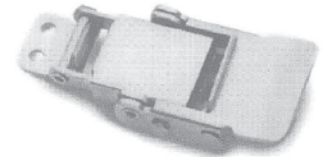


Dimension "A"	Spring Tension
1.812"	30 lbs
1.875"	50 lbs
1.937"	70 lbs

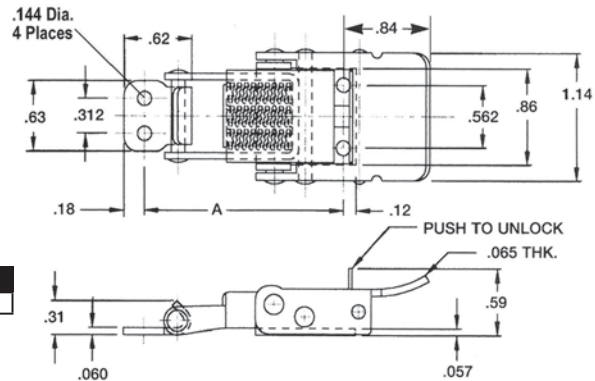


Catch	Strike	Material	Finish
CAC833142X	CAS83314X	Stainless Steel	None

- Dimensions shown are as mounted
- 3 internal compression springs
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Comes with secondary latch for added security
- Other hole sizes & finishes available as a special order

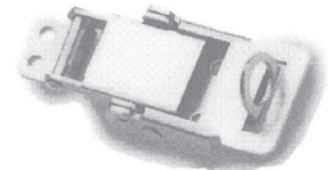


Dimension "A"	Spring Tension
1.812"	30 lbs
1.875"	50 lbs
1.937"	70 lbs

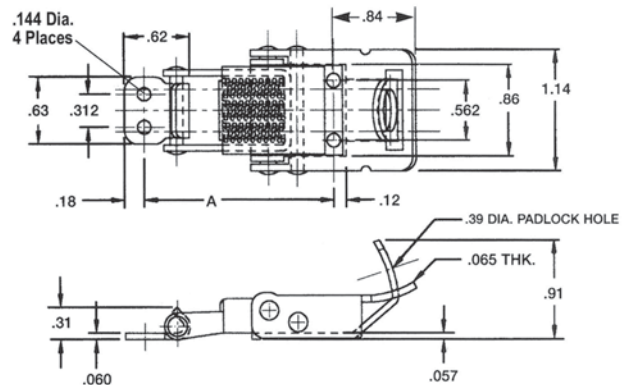


Catch	Strike	Material	Finish
CAC8331442LALBX	CAS83314X	Stainless Steel	None

- Dimensions shown are as mounted
- 3 internal compression springs
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Pad locking eye for added security
- Other hole sizes & finishes available as a special order



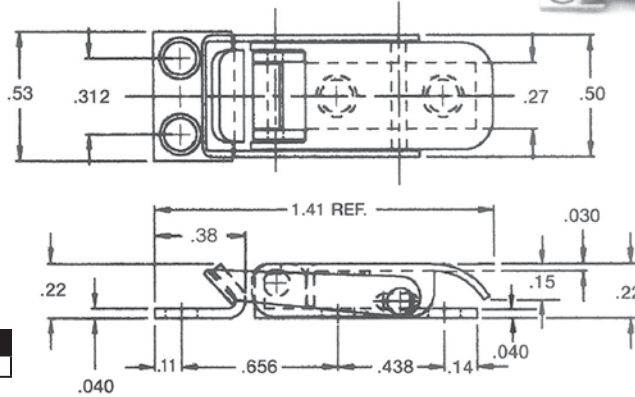
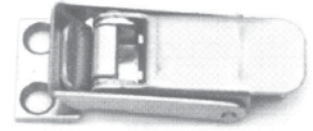
Dimension "A"	Spring Tension
1.812"	30 lbs
1.875"	50 lbs
1.937"	70 lbs



Catch	Strike	Material	Finish
CAC8331442LKX	CAS83314X	Stainless Steel	None

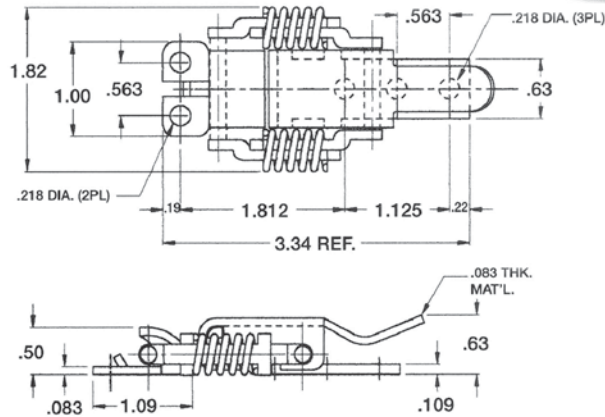
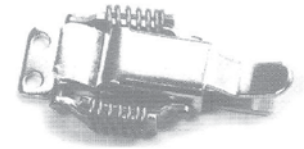
# COMPRESSION SPRING CATCHES

- Dimensions shown are as mounted
- 3 internal compression springs
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Catch preloaded to 18 lbs



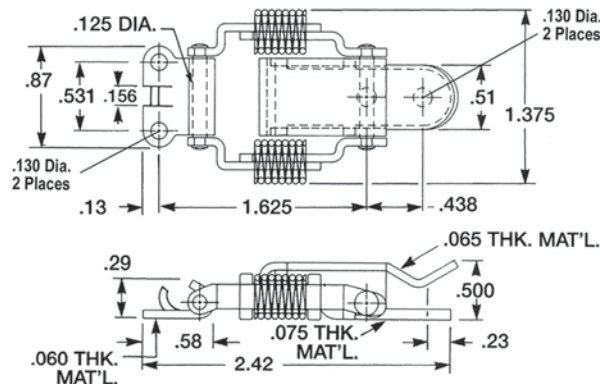
Catch	Strike	Material	Finish
CAC3402X	CAS340X	Stainless Steel	None

- Dimensions shown are as mounted
- 2 external compression springs
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Catch preloaded to 70 lbs



Catch	Strike	Material	Finish
CAC20649ZE	CAS2065025ZE	Steel	Zinc Plate

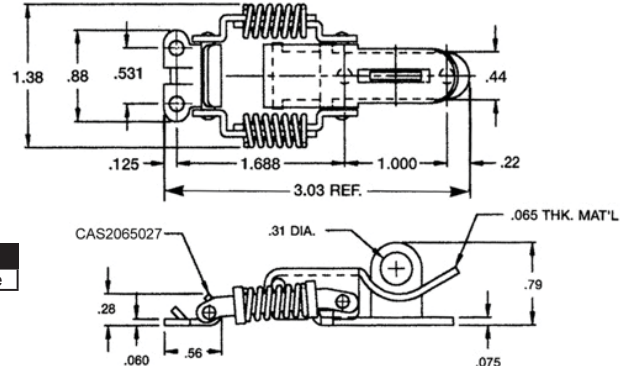
- Dimensions shown are as mounted
- 2 external compression springs
- Adjust tension by varying mounting distance between catch & strike
- Catch and strike plate sold separately
- Catch preloaded to 30 lbs



Catch	Strike	Material	Finish
CAC20648ZE	CAS2065027ZE	Steel	Zinc Plate

# COMPRESSION SPRING CATCHES

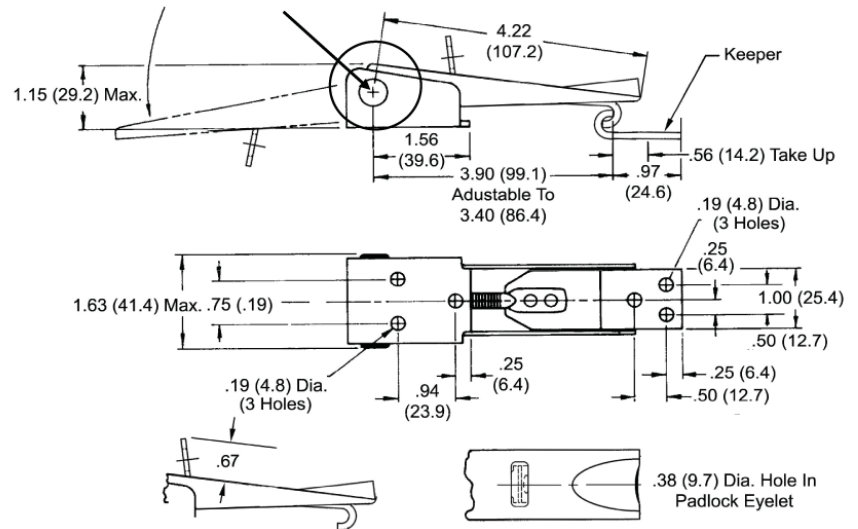
- Dimensions shown are as mounted
- 2 external compression springs
- Pad locking eye for added security
- Catch and strike sold separately
- Adjust tension by varying mounting distance between catch & strike



Catch	Strike	Material	Finish
CAC22720648ZE	CAS2065027ZE	Steel	Zinc Plate

# ADJUSTABLE CATCHES

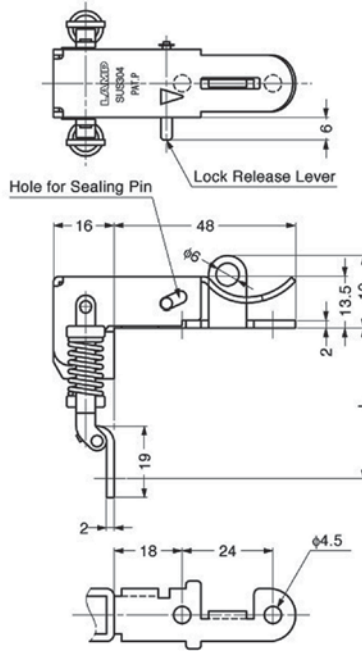
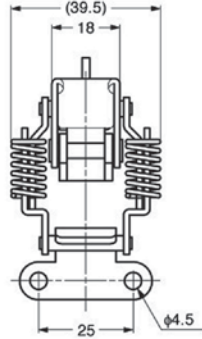
- Features 1/2" of adjustment
- Turn Claw to adjust latching length
- Catch & strike plate sold as one unit



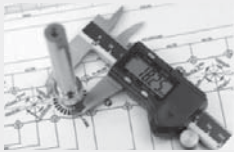
Part Number	Finish
LA-10339	Stainless Steel

# CORNER CATCHES

- 304 stainless steel
- Polished finish
- Pad locking eye for added security
- Supplied with strike plate
- Available without compression springs

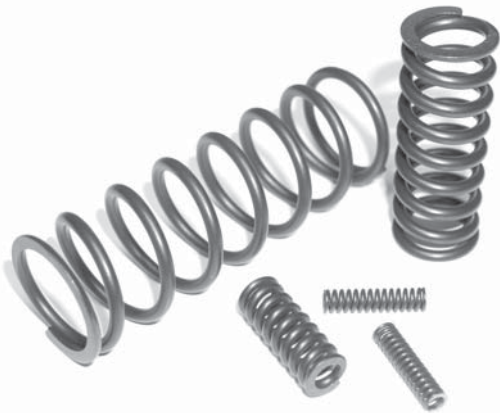


Part Number	Description
CASTF-C64B	No Compression Springs



Associated Spring  
**RAYMOND**

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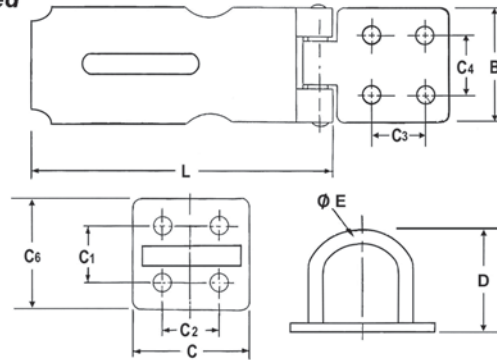
**Looking for standard springs?** Associated Spring RAYMOND has a full line of standard springs. Standard parts in prototype quantities are even available online.

Visit [www.asraymond.com](http://www.asraymond.com) for to learn more or request a paper catalog.



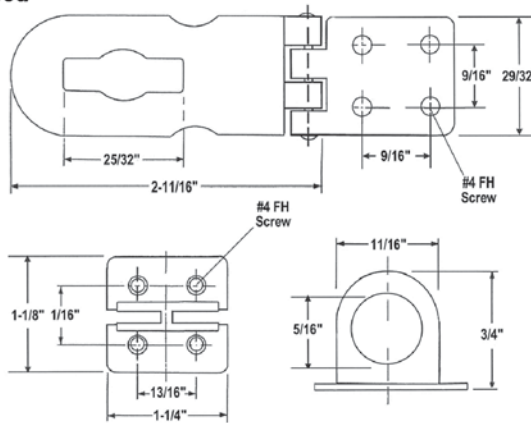
# HASPS

- Zinc plated steel
- Solid wire fixed staple
- Mounting screws not included



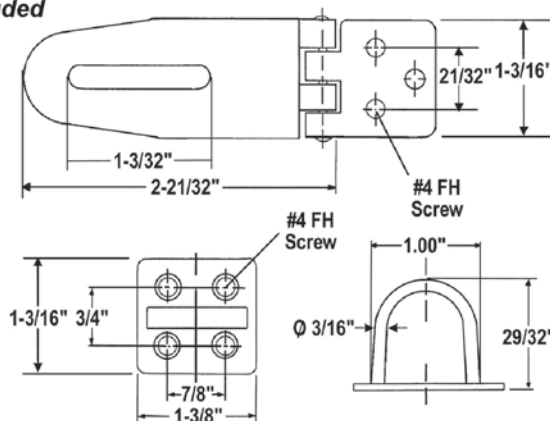
Part Number	L	B	C	C6	C1	C2	C3	C4	D	E
LA11410-2.5	2-1/2"	7/8"	59/64"	55/64"	17/32"	9/16"	9/32"	17/32"	39/64"	1/8"
LA11410-3.5	3-1/2"	1-1/4"	1-7/16"	1-7/32"	25/32"	1.00"	5/8"	23/32"	53/64"	3/16"
LA11410-4	4.00"	1-11/32"	1-7/16"	1-7/32"	25/32"	1.00"	19/32"	47/64"	53/64"	3/16"

- 304 stainless steel
- Electro-polished finish
- Stamped fixed staple
- Mounting screws not included



Part Number LA11423

- 304 stainless steel
- Electro-polished finish
- Solid wire fixed staple
- Mounting screws not included



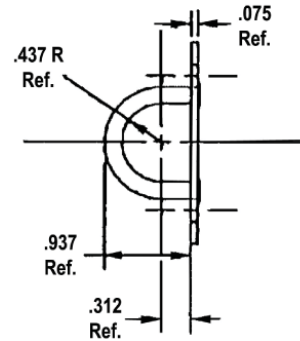
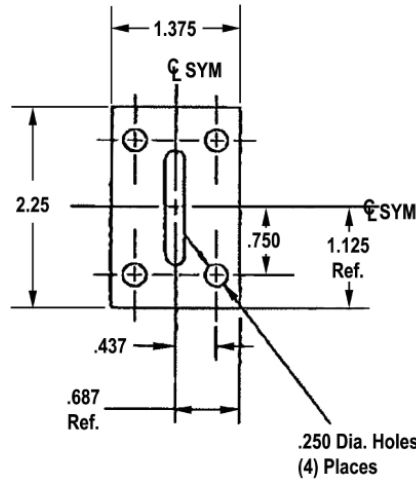
Part Number LA11424

# HASPS

## Face Mount Hasp Staple

- Hasp only
- Mounting screws not included

Part Number	Finish
LA-12500	Zinc Plate

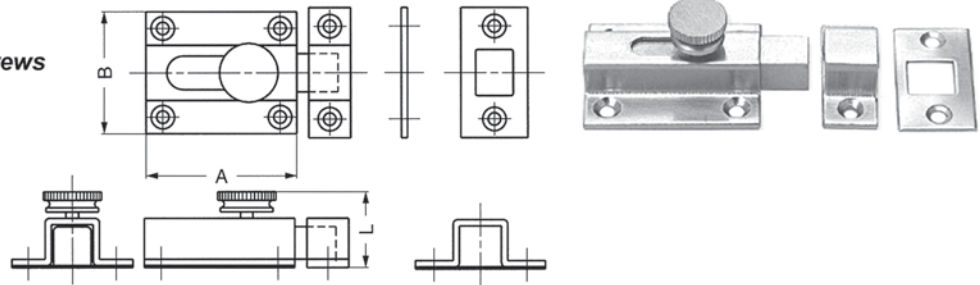


**Color coordination a problem for your OEM application with the standard part offering?**  
 OEM-specific finishes are possible, even if just to match in color.

Visit [www.asraymond.com](http://www.asraymond.com) to learn more about finishes and materials.

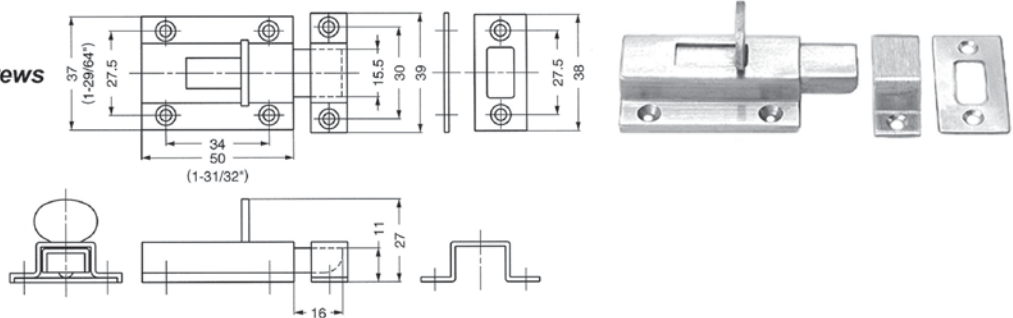
# SLIDE BAR LATCHES

- Solid brass
- Satin nickel finish
- Supplied with mounting screws



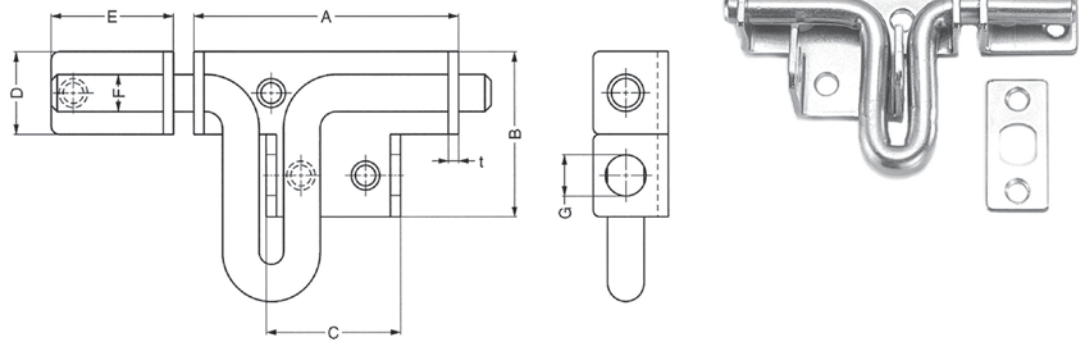
Part Number	A	B	L
LASBL-35	36 (1-27/64")	29 (1-9/64")	18 (45/64")
LASBL-45	45 (1-25/32")	30 (1-3/16")	18.5 (23/32")

- 304 stainless steel
- Satin finish
- Supplied with mounting screws



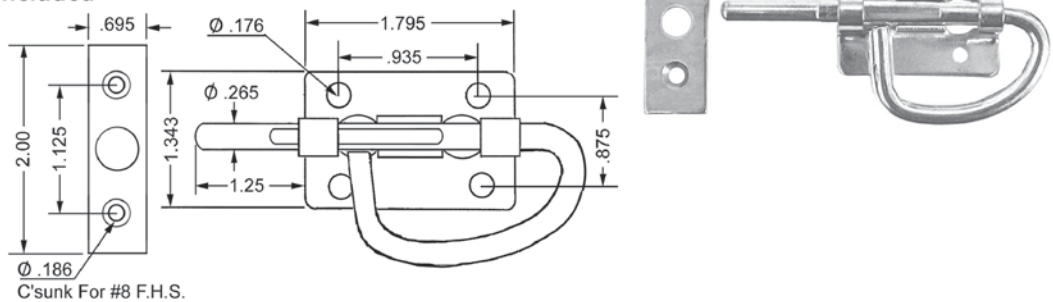
Part Number LAKR-50

- 304 stainless steel
- Mirror finish
- Supplied with mounting screws & nuts



Part Number	A	B	C	D	E	F	G	t
LASSG-45	45 (1-25/32")	28 (1-3/32")	25	14	21 (53/64")	6	7	2.0
LASSG-65	65 (2-9/16")	40 (1-37/64")	33	20	30 (1-3/16")	9	10	2.5
LASSG-85	85 (3-11/32")	46 (1-13/16")	42	26	35 (1-3/8")	12	10	3.0

- Steel construction
- Bright brass finish
- Mounting screws not included



Part Number LA11408

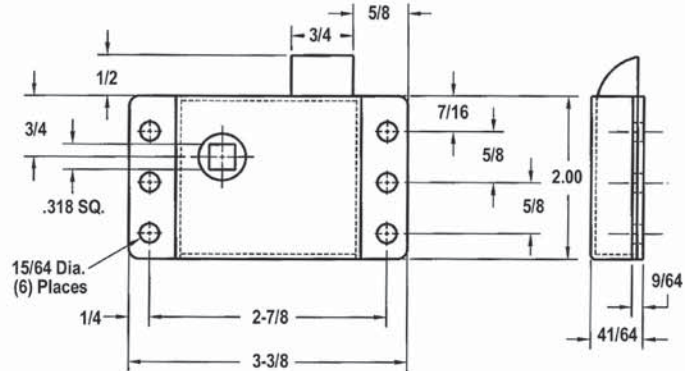
C'sunk For #8 F.H.S.



# CAB LATCHES

## CAB LATCH

- Steel zinc plated construction
- Will accept any 5/16" square shank handle
- Specify left or right hand when ordering (left hand shown)

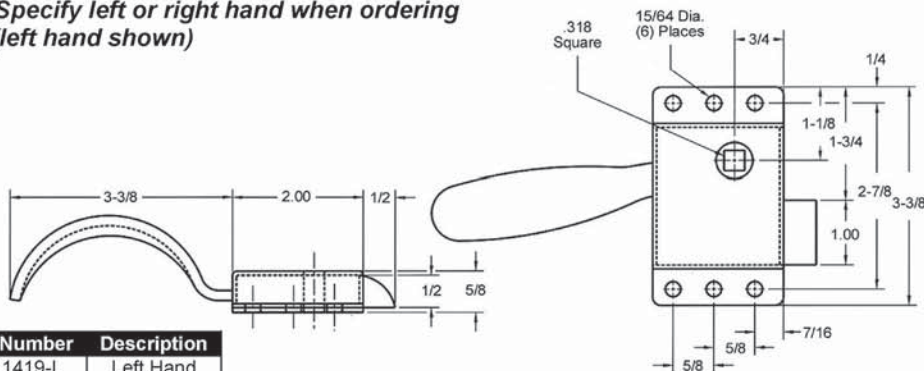


Part Number	Description
LA12285-L	Left Hand
LA12285-R	Right Hand



## CAB LATCH WITH INSIDE HANDLE

- Steel zinc plated construction
- Will accept any 5/16" square shank handle
- Specify left or right hand when ordering (left hand shown)

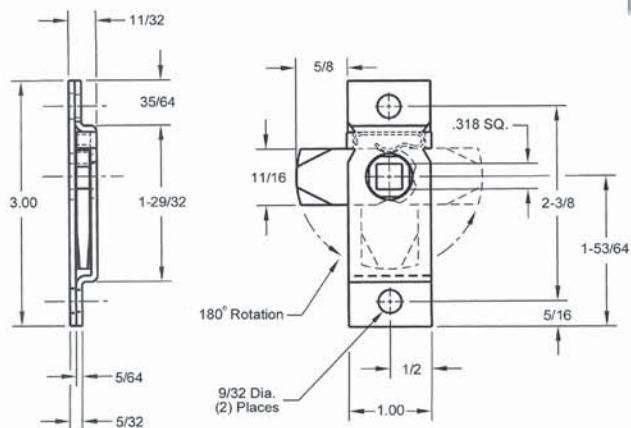


Part Number	Description
LA11419-L	Left Hand
LA11419-R	Right Hand



## COMPARTMENT LATCH

- Steel zinc plated construction
- Non-handed universal cam for right or left hand applications
- Will accept 5/16" square shank

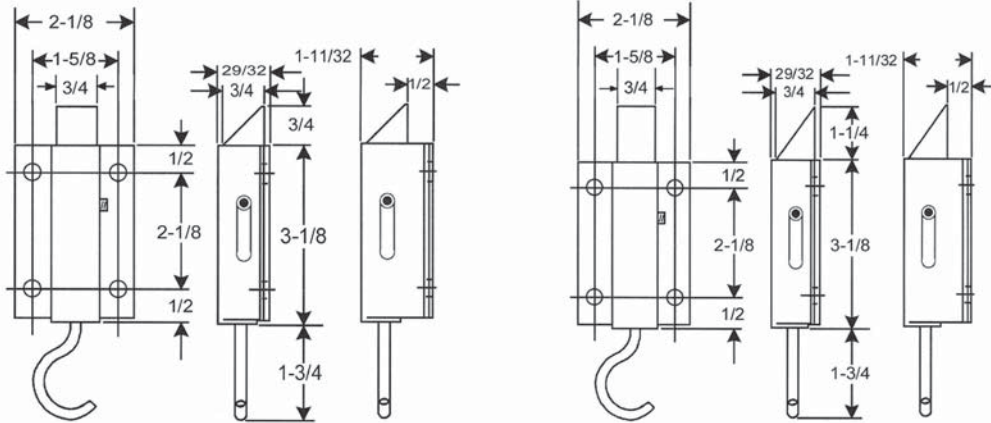
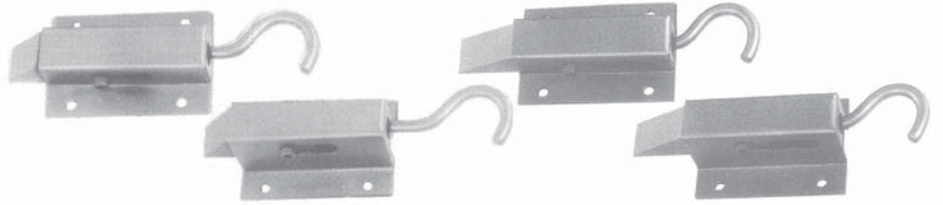


Part Number	Description
LA11422	



# SPRING LOADED SLAM BOLTS

- All steel case
- Reversible powdered steel bolt
- All parts are zinc plated
- Mounts with 1/4" fasteners (not included)



Part Number	Offset	Taper
LA6011-050	Flush	45°
LA6011-051	1/2"	45°
LA6011-052	Flush	60°
LA6011-053	1/2"	60°



## Associated Spring **RAYMOND**

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Spring Washers available for all sorts of applications. Even Metric Bolting Spring Washers are standard off-the-shelf for Associated Spring RAYMOND.

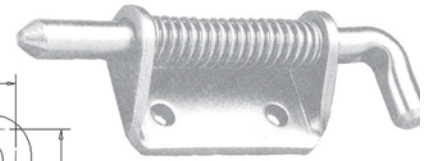
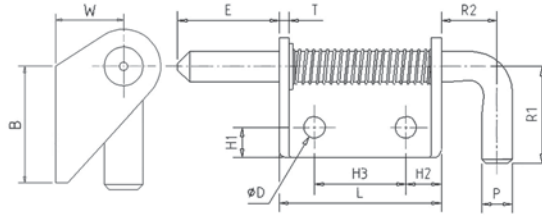
Visit [www.asraymond.com](http://www.asraymond.com) to see a full standard selection, order samples, or order a SPEC® catalog.



# SPRING BOLT LATCHES

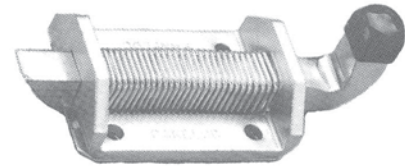
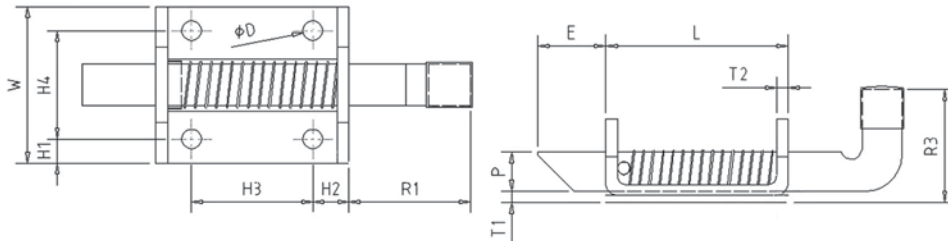
- Available in steel & stainless steel
- Right hand or left hand configurations available
- Catch and strike plate sold separately
- For complete part numbers, add the following:

Left hand steel zinc plate: -LS-Z  
Left hand stainless steel: -L-X  
Right hand steel zinc plate: -RS-Z  
Right hand stainless steel: -R-X



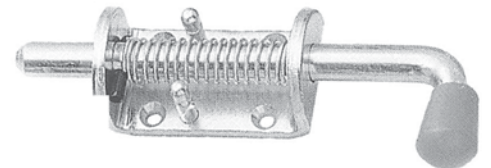
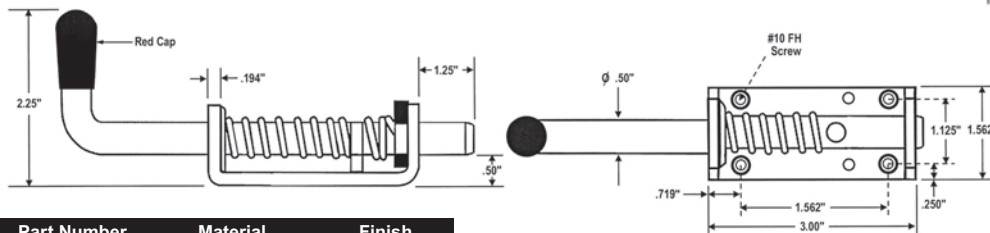
Part Number	P	E	R1	R2	L	W	B	T	H1	H2	H3	D
LA719	.375	1.25	1.187	.687	2.00	.656	1.12	.120	.375	.437	1.125	.265
LA720	.500	1.50	1.218	1.00	3.00	.750	1.25	.194	.500	.625	1.750	.328

- Available in steel & stainless steel
- Includes cover plate for spring
- Non-handed, can be used for right hand or left hand applications



Part Number	P	E	R1	R3	L	W	T1	T2	H1	H2	H3	H4	D	Material
LA709-ZN	.500	.750	1.25	1.375	2.875	2.00	.150	.194	.312	.468	1.932	1.375	.265	Zinc Plated Steel
LA709-SS	.500	.750	1.25	1.375	2.875	2.00	.150	.194	.312	.468	1.932	1.375	.265	Stainless Steel
LA13107-ZN	.375	.562	.812	1.00	1.50	1.25	.115	.090	.187	.359	.782	.876	.171	Zinc Plated Steel
LA13107-SS	.375	.562	.812	1.00	1.50	1.25	.115	.090	.187	.359	.782	.876	.171	Stainless Steel

- Available in steel, stainless steel, & aluminum configurations
- Includes red cap on handle
- Non-handed, can be used for right hand or left hand applications

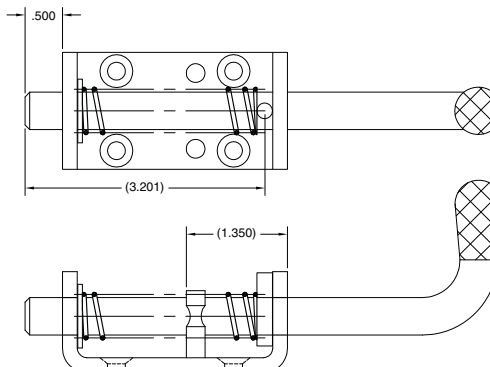


Part Number	Material	Finish
LA-11627	Steel	Zinc Plated
LA-11627-SS	Stainless Steel	Polished
LA-11627-U*	Steel	Zinc Plated

\* Supplied unassembled

## REVERSE ACTION

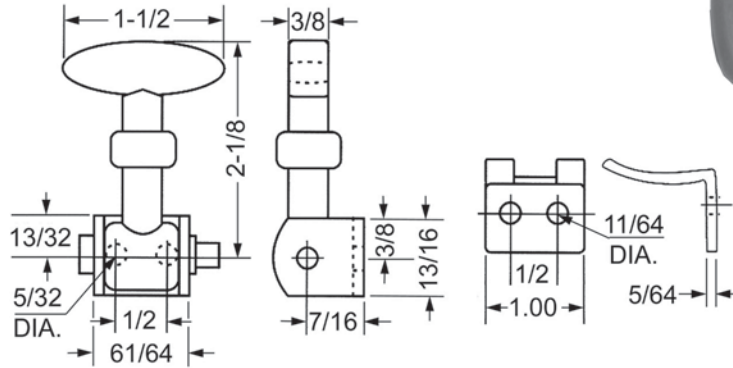
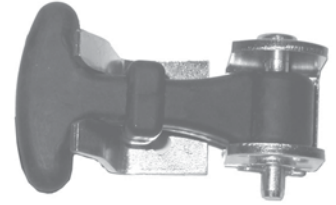
- Available in steel, stainless steel, & aluminum configurations
- Includes red cap on handle
- Non-handed, can be used for right hand or left hand applications



Part Number	Finish
LA-14079	Zinc Plate

# FLEXIBLE RUBBER LATCHES

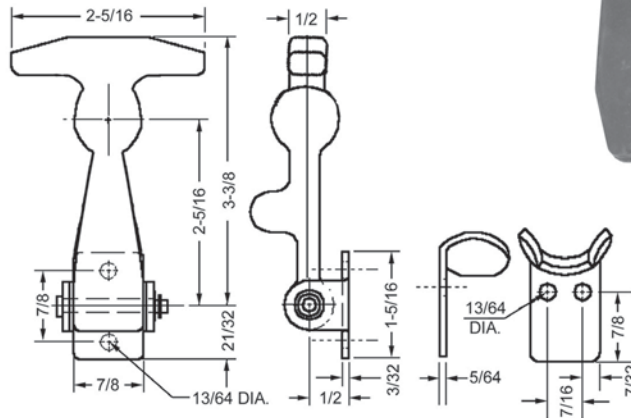
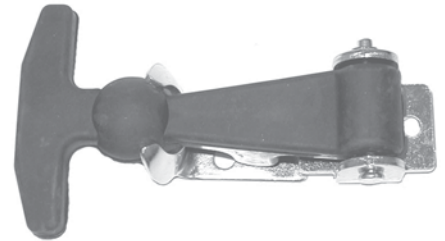
- Black rubber latch
- Zinc plated steel or stainless steel brackets and keeper
- Rubber latch will not mar finishes



Part Number	Material
DH-191	Steel
DH-191-SS	Stainless Steel

All dimensions shown are nominal

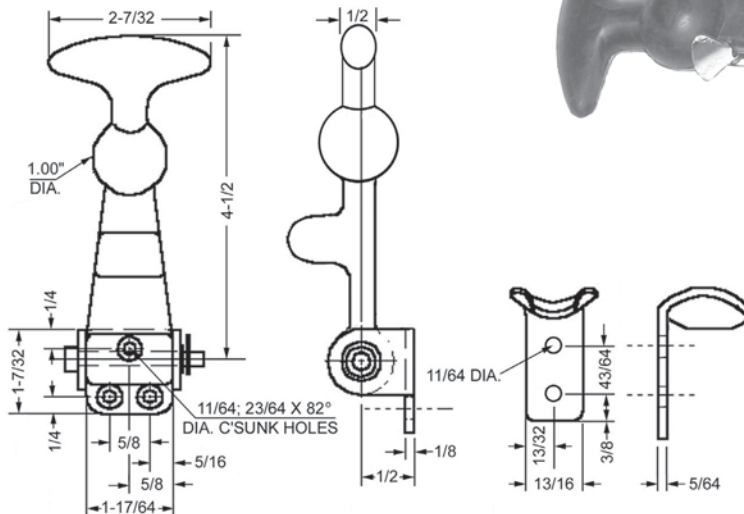
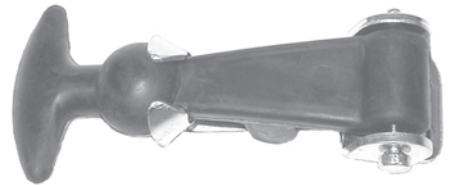
- Black rubber latch
- Zinc plated steel bracket and keeper
- Rubber latch will not mar finishes



Part Number	Material
DH-11417	Steel

All dimensions shown are nominal

- Black rubber latch
- Zinc plated steel or stainless steel brackets and keeper
- Rubber latch will not mar finishes



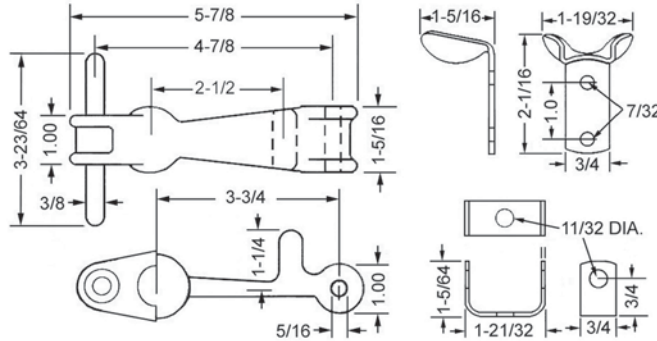
Part Number	Material
DH-11418	Steel
DH-11418-SS	Stainless Steel

All dimensions shown are nominal



# FLEXIBLE RUBBER LATCHES

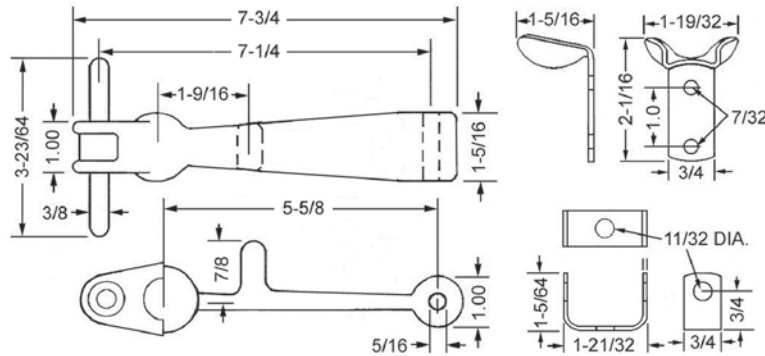
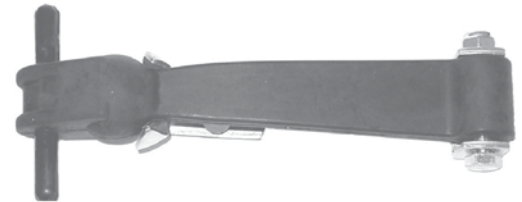
- **Black rubber latch**
- **Zinc plated steel bracket and keeper**
- **Assembles with 1/4 bolt & lock nut**
- **Rubber latch will not mar finishes**



Part Number	Material
DH-11420	Steel

All dimensions shown are nominal

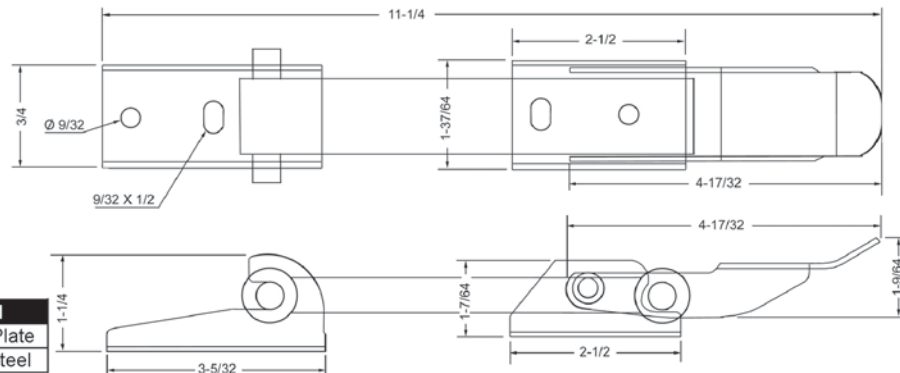
- **Black rubber latch**
- **Zinc plated steel bracket and keeper**
- **Assembles with 1/4 bolt & lock nut**
- **Rubber latch will not mar finishes**



Part Number	Material
DH-11421	Steel

All dimensions shown are nominal

- **Black rubber latch**
- **Available with zinc plated steel bracket & keeper or polished stainless steel bracket & keeper**
- **Rubber latch will not mar finishes**

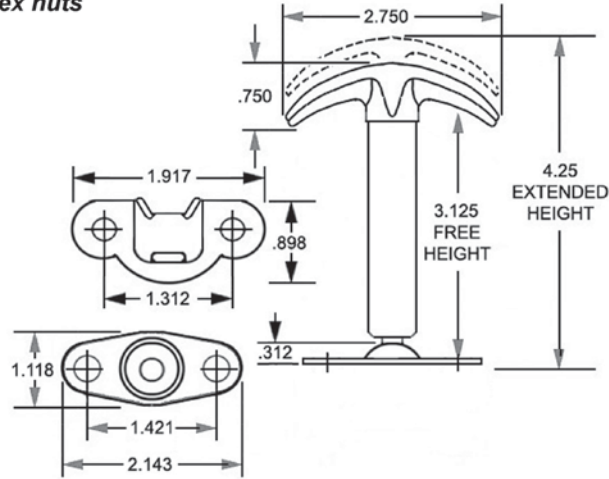


Part Number	Material
DH-13143-ZN	Steel Zinc Plate
DH-13143-SS	Stainless Steel

All dimensions shown are nominal

# HOOD LATCHES

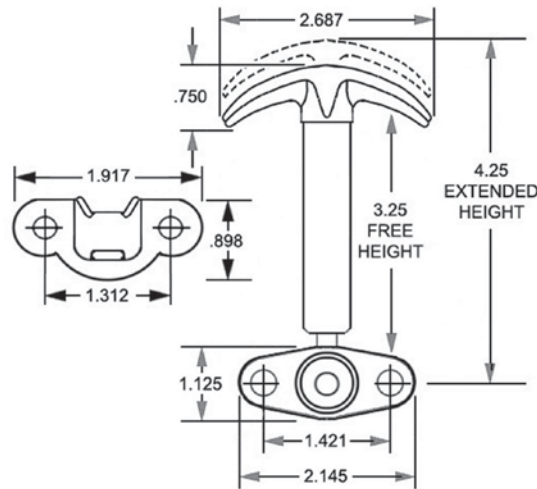
- Chrome plated steel
- Spring loaded
- Includes mounting screws & hex nuts



**Part Number** LA183

All dimensions shown are nominal

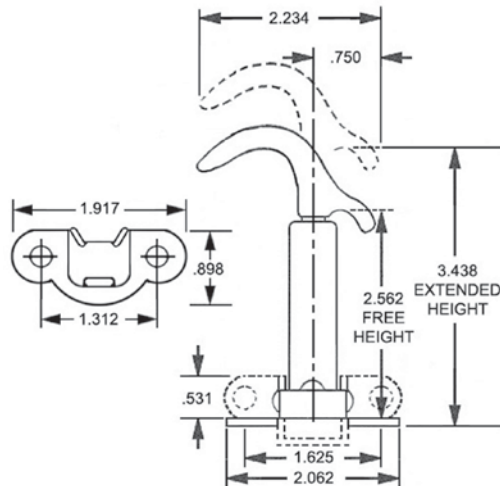
- Black enamel steel
- Spring loaded
- Includes hex nuts



**Part Number** LA184

All dimensions shown are nominal

- Black enamel steel
- Spring loaded



**Part Number** LA187

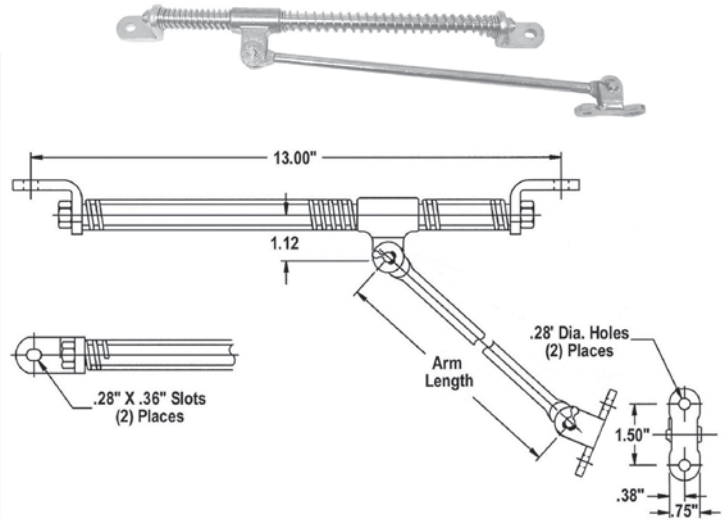
All dimensions shown are nominal

# DOOR CHECKS

## STANDARD DOOR CHECKS

Large holdback spring permits the pivot on the door bracket to pass over the center and holds the door open at 90°. A slight push releases the door to close it automatically.

Part Number	Material	Arm Length	Spring Tension
DC-L2395AA7	Steel Zinc Plate	7"	12 lb.
DC-L2395AA7SS	Stainless Steel	7"	
DC-L2395AA8	Steel Zinc Plate	8"	
DC-L2395AA8SS	Stainless Steel	8"	30 lb.
DC-L2395AA11	Steel Zinc Plate	11"	
DC-L2395AA11SS	Stainless Steel	11"	
DC-M2395AA7	Steel Zinc Plate	7"	50 lb.
DC-M2395AA7SS	Stainless Steel	7"	
DC-M2395AA8	Steel Zinc Plate	8"	
DC-M2395AA8SS	Stainless Steel	8"	50 lb.
DC-M2395AA11	Steel Zinc Plate	11"	
DC-M2395AA11SS	Stainless Steel	11"	
DC-H2395AA7	Steel Zinc Plate	7"	50 lb.
DC-H2395AA7SS	Stainless Steel	7"	
DC-H2395AA8	Steel Zinc Plate	8"	
DC-H2395AA8SS	Stainless Steel	8"	50 lb.
DC-H2395AA11	Steel Zinc Plate	11"	
DC-H2395AA11SS	Stainless Steel	11"	



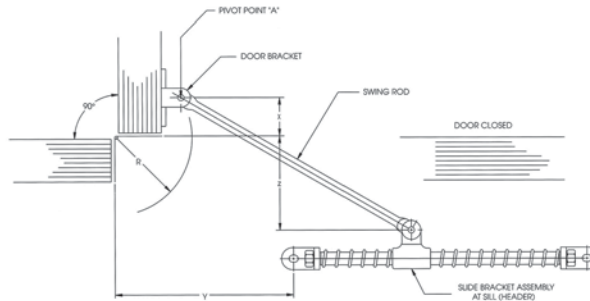
## DOOR CHECK INSTALLATION INSTRUCTIONS

With compartment door held at 90° position, mount door bracket as close to hinge centerline (X) as possible so that radius (R) swung about hinge center through pivot (A) is as short as possible. (Increasing (R) will increase slide travel causing an increase in spring pressure. Reducing (R) will have the inverse effect.)

Keeping door at 90°, mount slide rod assembly as far away from horizontal hinge center point (Y) as possible maintaining spring in at rest position. Slide rod assembly should be mounted as close as possible to vertical hinge centerline (Z) still allowing clearance for swing rod & door bracket when door is closed.

After mounting, open & close door to check clearance and spring pressure. When mounted properly, door should open with some resistance through approximately 30°-45° of travel, then travel on its own until the slide rod assembly contacts the bumper spring stopping the door in the fully open position. The same spring pressure should be present when closing the door.

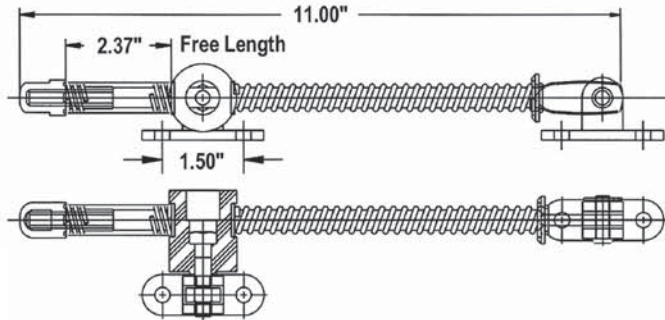
To increase spring tension, place door in 90° position (spring at rest). Move bracket (A) away from centerline, increase (R). To decrease spring tension move door bracket (A) toward hinge centerline, decrease (R). Please note that maintaining (Z) dimension and adjusting (R) dimension will change (Y) dimension maintaining the door at a 90° open position.



# DOOR CHECKS

## EASY DOOR CHECK

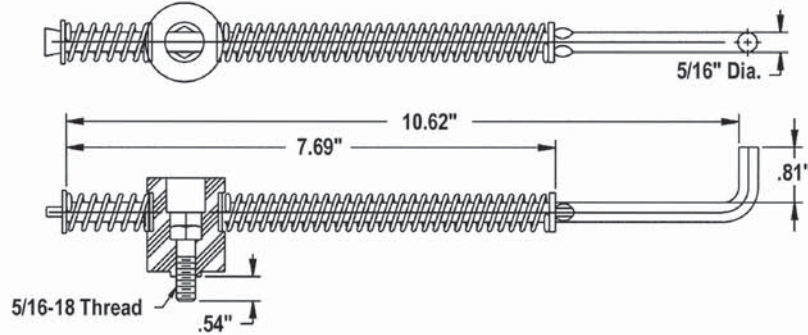
- *Stainless steel rod*
- *Black nylon bushing*
- *Available in two different spring tensions*



Part Number	Spring Tension
DC-M11433	30 lb.

## ECONOMY EASY DOOR CHECK

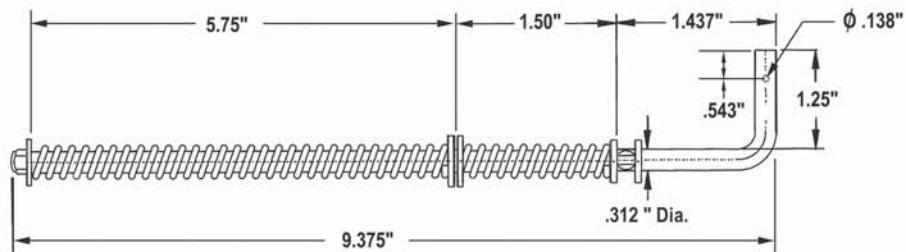
- *Steel zinc plate rod*
- *Black nylon center bushing*
- *15 lb. spring tension*



Part Number	DC-12226
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## ECONOMY DOOR CHECK

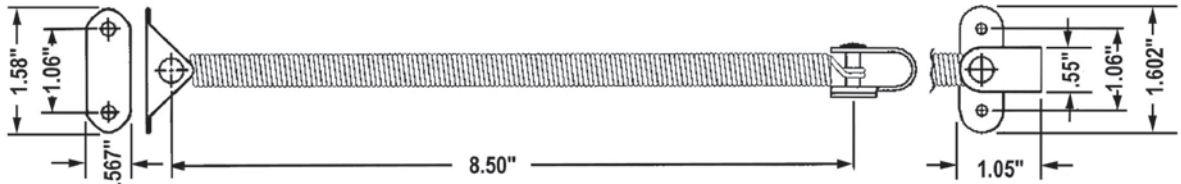
- *Steel zinc plate*
- *37 lb. spring tension*



Part Number	DC-12426
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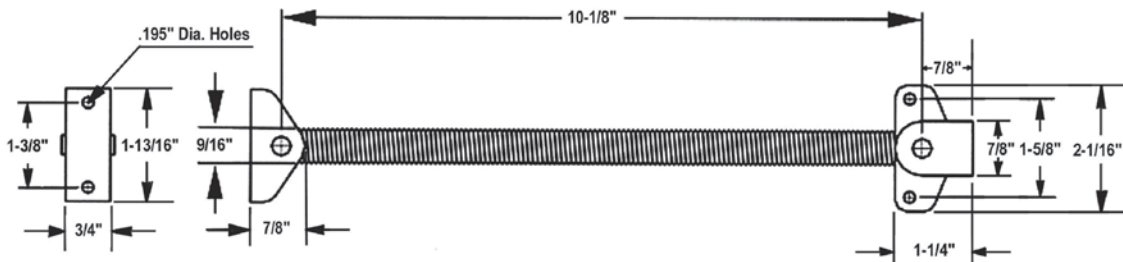
# HATCH HOLDERS

- *Stainless steel brackets & spring*
- *Inside safety cable prevents over extending spring*
- *Spring pops into place to hold lid open*
- *10 lb. Load capacity*



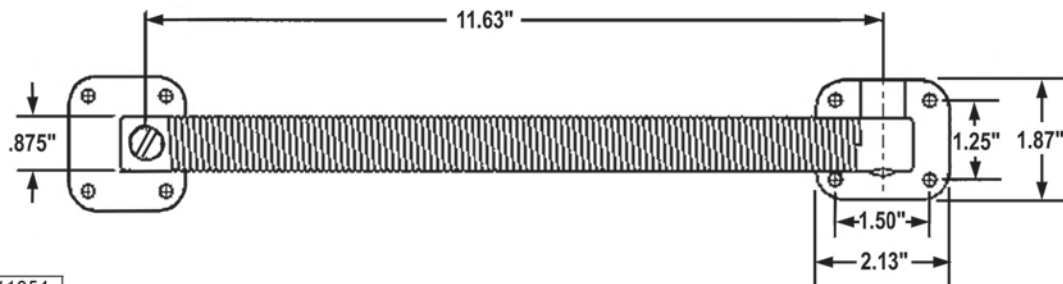
Part Number DH-11720

- *Stainless steel brackets & spring*
- *Inside safety cable prevents over extending spring*
- *Spring pops into place to hold lid open*
- *45 lb. Load capacity*



Part Number DH-12026

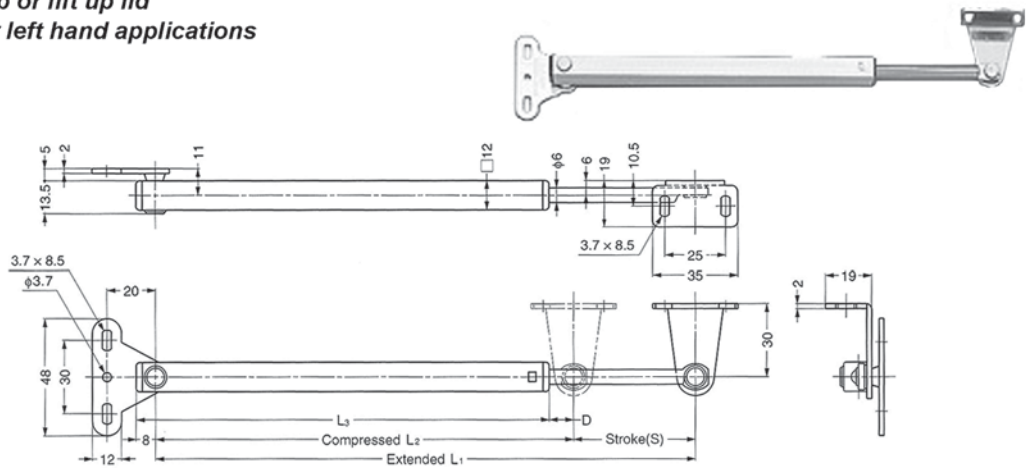
- *Stainless steel spring*
- *Black anodized aluminum brackets*
- *Inside safety cable prevents over extending spring*
- *Spring pops into place to hold lid open*
- *100 lb. Load capacity*



Part Number DH-11854

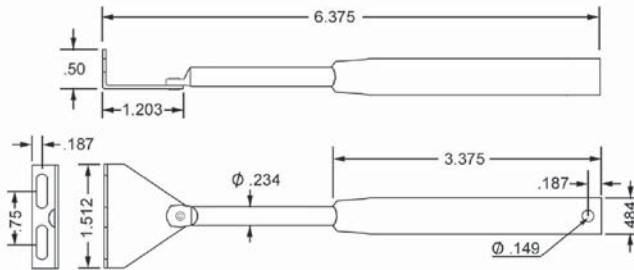
# SPRING LOADED STAYS

- For upward opening flap or lift up lid
- Non-handed for right or left hand applications
- 304 stainless steel
- Satin finish



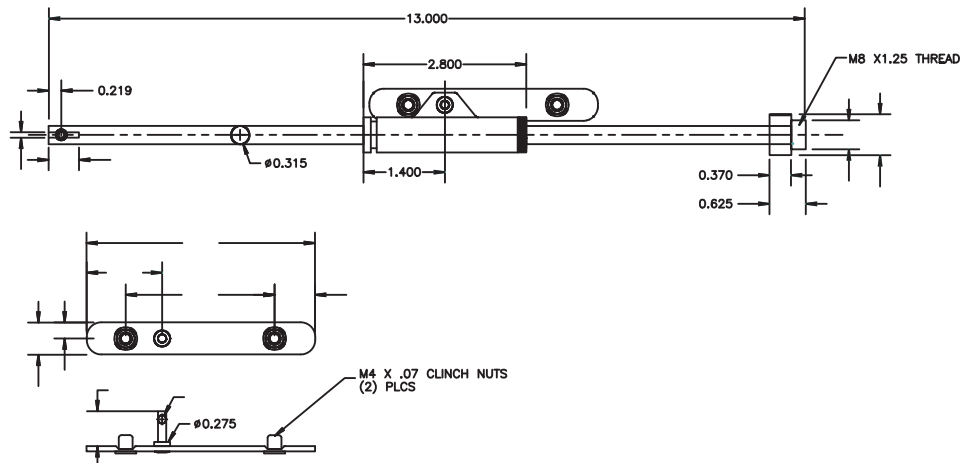
Part Number	L1	L2	L3	S	D	Ext'd Force	Comp'd Force
STLK-222	222 (8-47/64")	172 (6-25/32")	170 (6-11/16")	50 (1-31/32")	10 (25/64")	3.2 (kg·f)	7.0 (kg·f)
STLK-335	335 (13-3/16")	250 (9-27/32")	238 (9-3/8")	85 (3-11/32")	20 (25/32")	3.8 (kg·f)	8.5 (kg·f)
STLK-380	380 (14-31/32")	280 (11-1/32")	269 (10-19/32")	100 (3-15/16")	19 (3/4")	3.6 (kg·f)	8.5 (kg·f)

- For upward opening lids
- Spring loaded
- Steel with an antique brass finish



Part Number **DH11217**

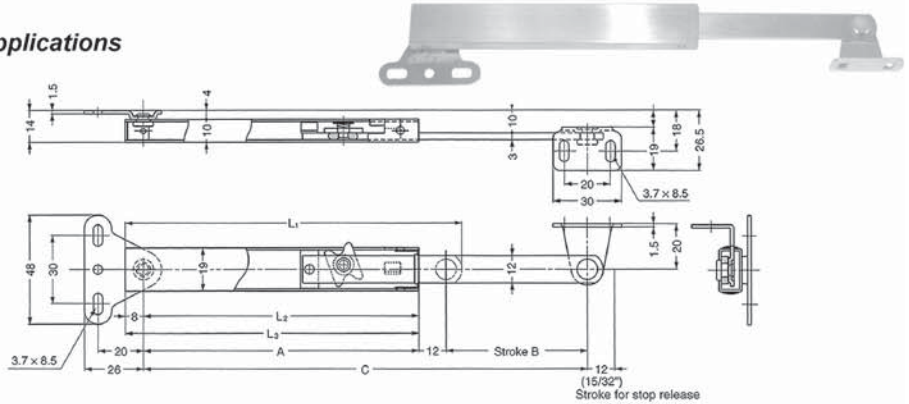
- Sliding bar stay
- Nickel-plated rod, bracket, & pin



Part Number **ST-12413**

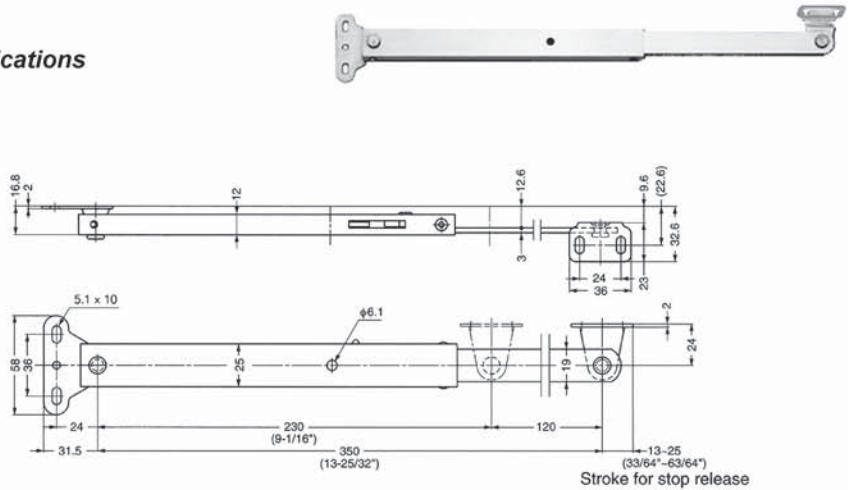
# TELESCOPIC PROPS

- For upward opening lid or flap
- Positive stop to keep lid open
- Non-handed for right or left hand applications
- 304 stainless steel
- Satin finish
- 33 lb. load capacity



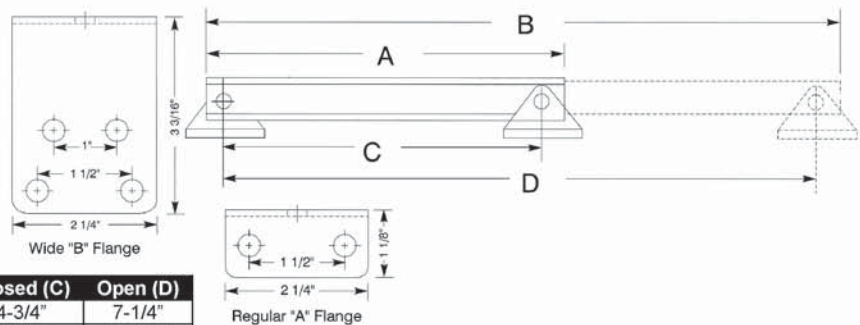
Part Number	L1	L2	L3	A	B	C	Door Height
STL-195	148 (5-53/64")	121	129	133 (5-15/64")	62	195 (7-43/64")	250~350 (9-27/32" ~ 13-25/32")
STL-270	185 (7-9/32")	158	166	170 (6-11/16")	100	270 (10-5/8")	320~500 (12-19/32" ~ 19-11/16")

- For upward opening lid or flap
- Positive stop to keep lid open
- Non-handed for right or left hand applications
- 304 stainless steel
- Satin finish
- 66 lb. load capacity



Part Number	STLB-350
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- Constructed of 16 gauge zinc plated steel
- Latches open automatically
- Releases with a slight lift of the lid
- Rated up to 500 lbs. depending upon application
- Available with wide flange (B) as a special order



Part Number	Closed (A)	Open (B)	Closed (C)	Open (D)
DH-706AA	6.00"	8-1/2"	4-3/4"	7-1/4"
DH-708AA	8.00"	12-1/2"	6-3/4"	11-1/4"
DH-710AA	10.00"	16-1/2"	8-3/4"	15-1/4"
DH-712AA	12.00"	20-1/2"	10-3/4"	19-1/4"
DH-716AA	16.00"	28-1/2"	14-3/4"	27-1/4"



Associated Spring  
RAYMOND   
A business of BARNES GROUP INC



**Custom Stay Solutions Available for OEM Applications.** Robust Systems, Corrosion Resistant, Color Coded, Retained Locking Pins, and many other possible configurations are available.

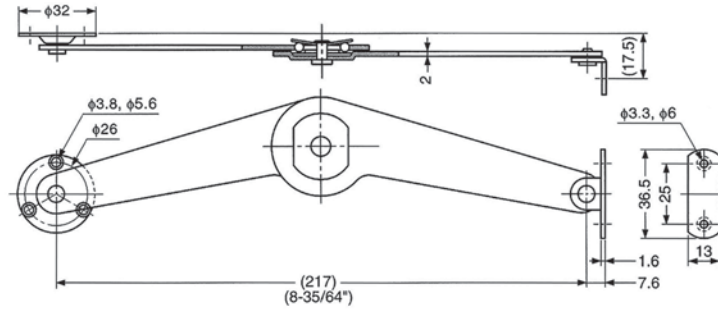
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Visit [www.asraymond.com](http://www.asraymond.com) to learn more about Associated Spring RAYMOND capabilities.



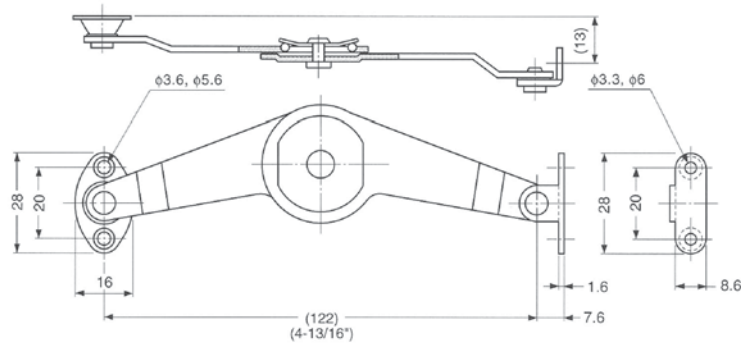
# LOCKING LID STAYS

- Locks in open position
- Chrome plated steel
- Nylon washer
- Left hand shown



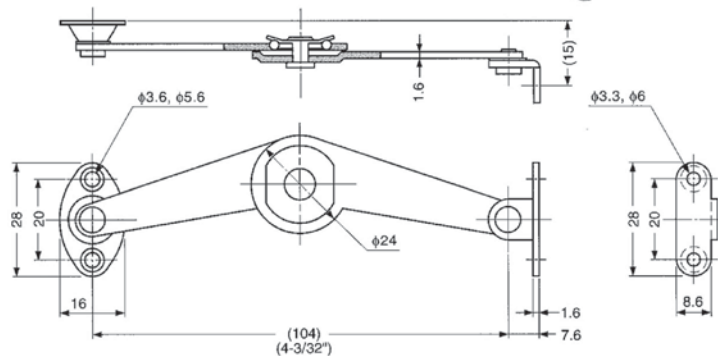
Part Number	Description
STS20L	Left Hand
STS20R	Right Hand

- Locks in open position
- Chrome plated steel
- Nylon washer
- Left hand shown



Part Number	Description
STS21L	Left Hand
STS21R	Right Hand

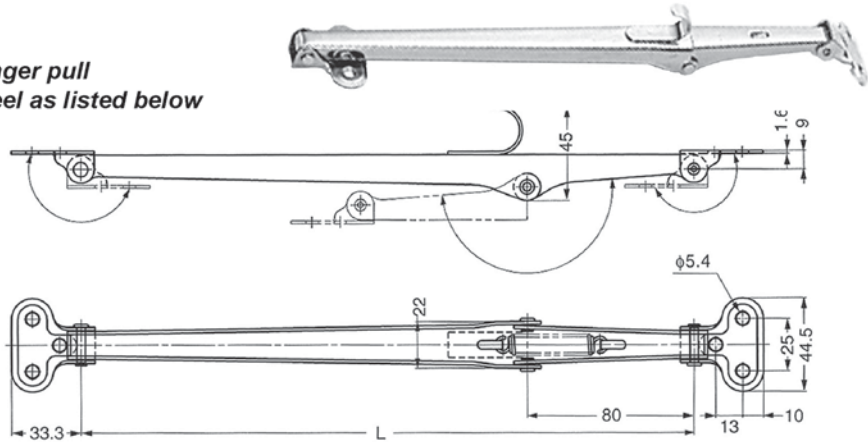
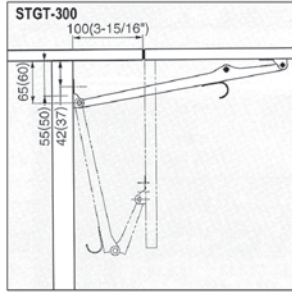
- Locks in open position
- Chrome plated steel
- Nylon washer
- Left hand shown



Part Number	Description
STS23L	Left Hand
STS23R	Right Hand

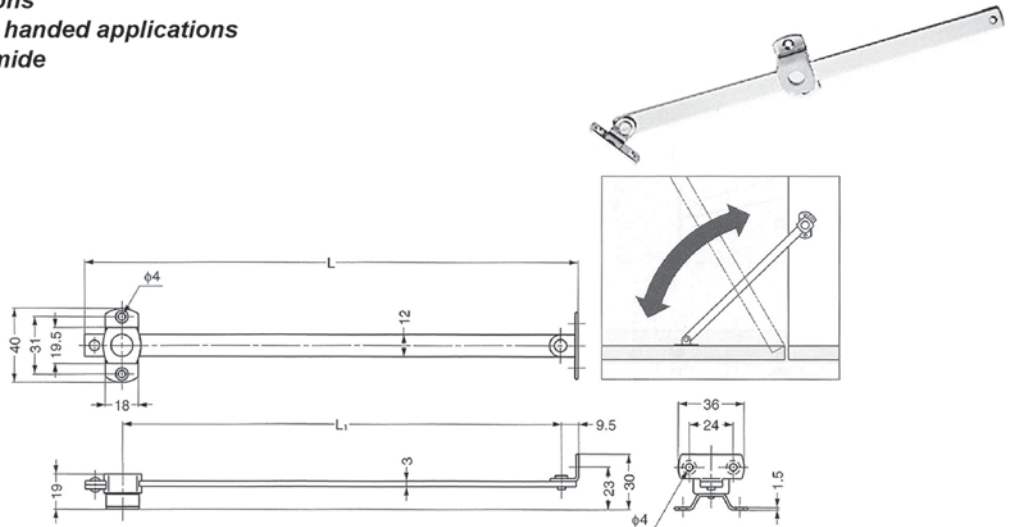
# DROP DOWN STAYS

- For fold down leaf or upward opening flap
- Spring loaded
- Snaps into open position
- Disengages by pulling down on finger pull
- Chrome plated steel or stainless steel as listed below



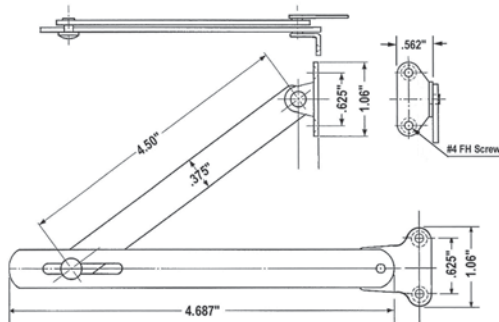
Part Number	L	Material	(1) Stay	(2) Stay
STGT-250	9-27/32"	Steel	6.6 lbs.	13.2 lbs.
STGT-300	11-37/64"	Steel	6.6 lbs.	13.2 lbs.
STGTS-300	11-37/64"	304 SS	6.6 lbs.	13.2 lbs.

- For drop down lid applications
- Non-handed for right or left handed applications
- 304 stainless steel & polyamide



Part Number	L	L1
STHS-180	210 (8-17/64")	180 (7-3/32")
STHS-210	240 (9-29/64")	210 (8-17/64")
STHS-240	270 (10-5/8")	240 (9-29/64")

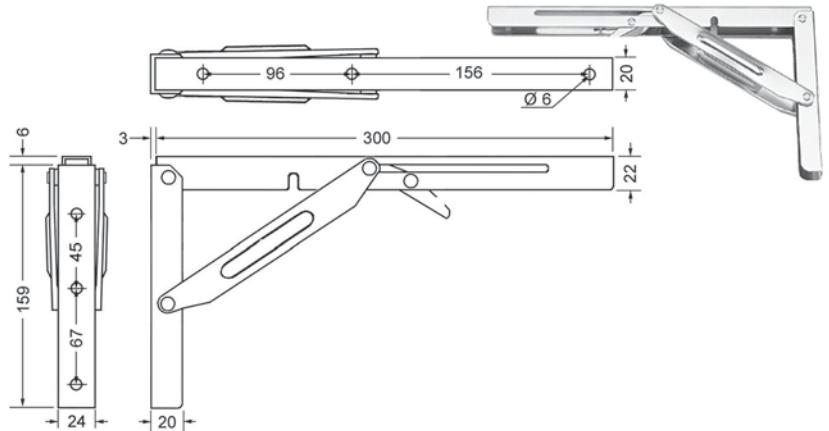
- For drop down lid applications
- Nickel plated steel



**Part Number** ST11425

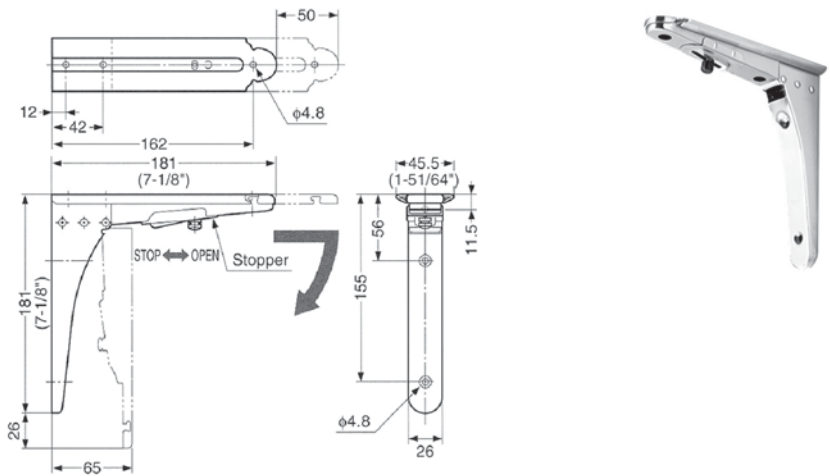
# FOLDING & COLLAPSIBLE BRACKETS

- 304 stainless steel
- Electro-polished finish
- NSF approved
- Can be mounted vertically or horizontally
- 330 lb. load capacity horizontal mounting
- 880 lb. Load capacity vertical mounting
- Horizontal view shown



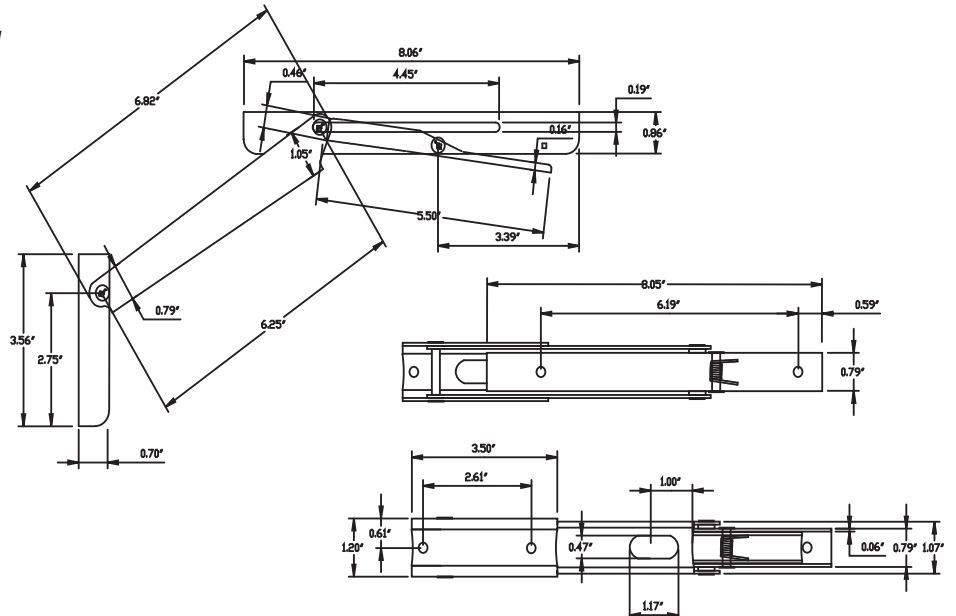
Part Number **STEB-303EP**

- 304 stainless steel body
- Satin finish
- Nickel plated brass knob
- 88 lb. Load capacity
- Supplies with mounting screws



Part Number **BOS-180**

- Folding bracket
- Electro-polished stainless steel

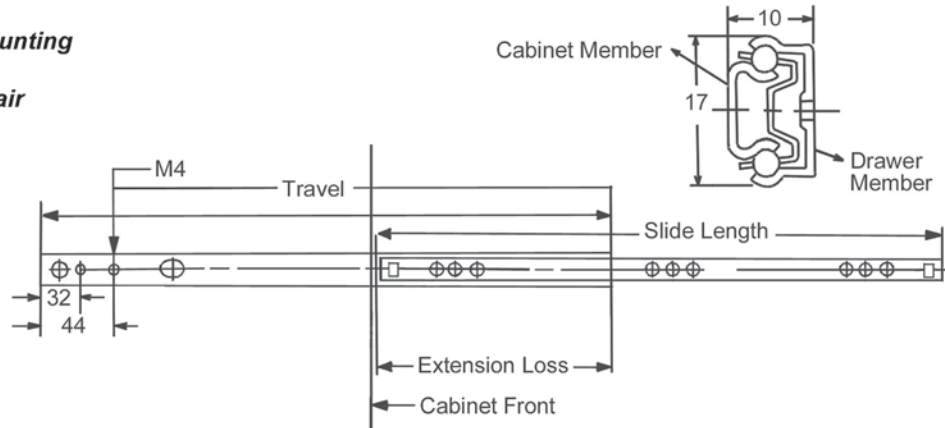


Part Number **ST-20010**

# DRAWER SLIDES

## DS-030 SERIES

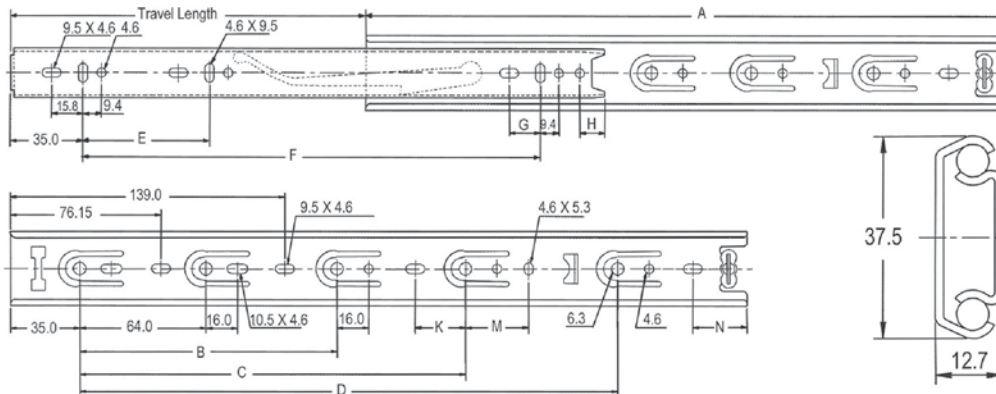
- All components made from galvanized steel
- Two member, 3/4 extension slide
- Features 32mm hole system
- Non-Handed
- 17mm groove side mounting
- Two way travel
- 22 lb load rating per pair



Part Number	Slide Length	Travel Length	Extension Loss
DS-030-214	214mm (8.43")	140mm (5.51")	74mm (2.92")
DS-030-246	246mm (9.69")	169mm (6.65")	77mm (3.04")
DS-030-310	310mm (12.20")	210mm (8.27")	100mm (3.93")

## DS-075 SERIES

- Zinc plated steel runners & balls
- Two member, 3/4 extension slide
- 75 lb load rating (based on 18" slide)
- Features trigger disconnect
- Hold in detent & positive stop
- Non-Handed
- Mounting screws not included



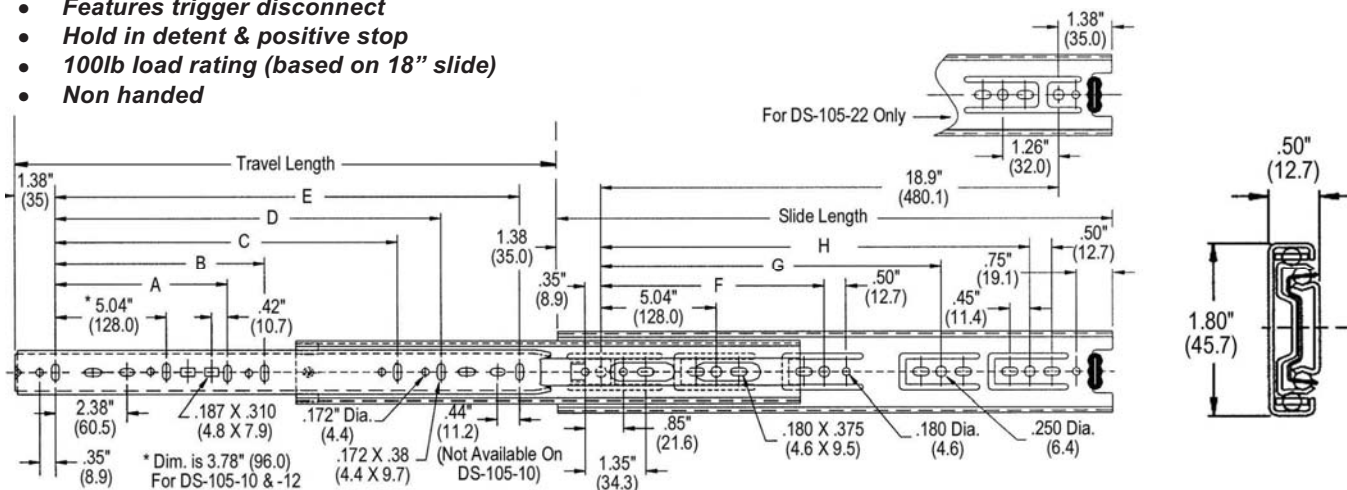
Part Number	Slide Length	Travel Length	A	B	C	D	E	F	G	H	K	M	N	Load Rating
DS-075-12	304.8 (12")	225.0 (8.85")	304.8	224.0	-	-	96.0	-	-	-	-	-	-	(96 lbs)
DS-075-14	355.6 (14")	250.0 (9.85")	355.6	256.0	-	-	96.0	256.0	-	-	-	-	-	(89 lbs)
DS-075-16	406.4 (16")	295.0 (11.61")	406.4	224.0	288.0	-	160.0	320.0	-	-	-	-	33.4	(82 lbs)
DS-075-18	457.2 (18")	335.0 (13.19")	457.2	224.0	352.0	-	160.0	352.0	-	-	25.4	32.15	-	(75 lbs)
DS-075-20	508.0 (20")	375.0 (14.76")	508.0	224.0	352.0	416.0	192.0	416.0	15.8	-	25.4	32.15	-	(68 lbs)
DS-075-22	558.8 (22")	420.0 (16.53")	558.8	224.0	352.0	416.0	224.0	480.0	15.8	-	-	32.15	57.8	(61 lbs)
DS-075-24	609.6 (24")	455.0 (17.91")	609.6	224.0	352.0	480.0	256.0	512.0	15.8	-	25.4	32.15	44.8	(54 lbs)
DS-075-26	660.4 (26")	495.0 (19.49")	660.4	224.0	352.0	544.0	256.0	576.0	15.8	-	25.4	32.15	31.8	(47 lbs)
DS-075-28	711.2 (28")	530.0 (20.87")	711.2	224.0	352.0	544.0	256.0	608.0	15.8	17.0	25.4	32.15	82.2	(40 lbs)

\*Load ratings listed are approximate, weights will vary depending on application.

# DRAWER SLIDES

## DS-105 Series

- Zinc-plated steel
- Features trigger disconnect
- Hold in detent & positive stop
- 100lb load rating (based on 18" slide)
- Non handed

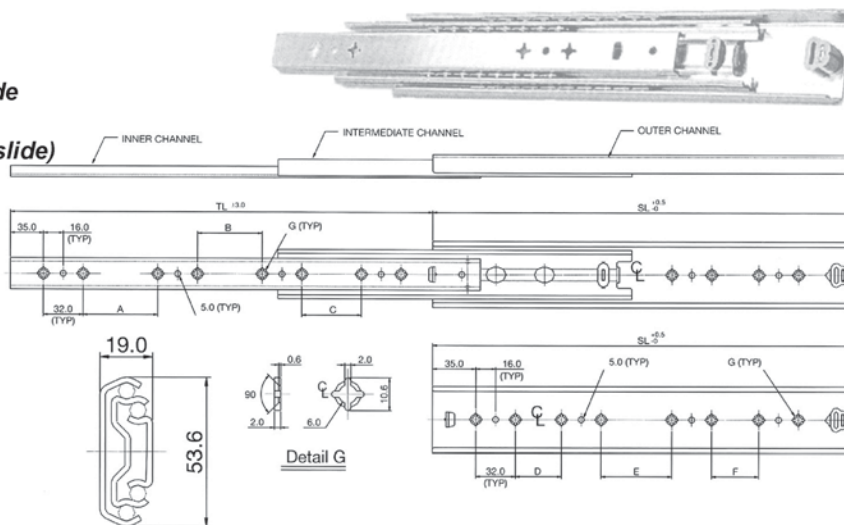


Part Number	Slide Length	Travel Length	A	B	C	D	E	F	G	H	Load Rating kg/lbs (Pair)
DS-105-10	9.84" (250)	9.57" (243)	-	-	-	-	7.55"	-	-	-	58 (128 lbs)
DS-105-12	11.81" (300)	12.00" (305)	-	-	-	-	9.52"	8.82"	-	-	55 (121 lbs)
DS-105-14	13.78" (350)	14.00" (355)	-	-	-	-	11.49"	8.82"	-	-	52 (114 lbs)
DS-105-16	15.75" (400)	16.00" (406)	-	-	-	-	13.46"	8.82"	12.60"	-	49 (107 lbs)
DS-105-18	17.72" (450)	18.00" (457)	-	-	12.60"	-	15.43"	8.82"	13.86"	-	45 (100 lbs)
DS-105-20	19.69" (500)	20.00" (508)	-	-	12.60"	-	17.40"	8.82"	16.38"	-	42 (93 lbs)
DS-105-22	21.65" (550)	22.00" (559)	-	-	12.60"	16.38"	19.37"	8.82"	13.86"	-	39 (86 lbs)
DS-105-24	23.62" (600)	24.00" (610)	8.82"	-	16.38"	-	21.34"	8.82"	13.86"	18.90"	36 (79 lbs)
DS-105-26	25.59" (650)	26.00" (660)	8.82"	-	16.38"	21.42"	23.31"	8.82"	13.86"	21.42"	33 (72 lbs)
DS-105-28	27.56" (700)	28.00" (711)	8.82"	11.34"	16.38"	21.42"	25.28"	8.82"	13.86"	21.42"	30 (65 lbs)

\* Load ratings listed are approximate, weights will vary depending on application.

## DS-250 SERIES

- Zinc plated steel
- Three member, full extension slide
- Approx. 1.00" of over-travel
- 250 lb load rating (based on 18" slide)
- Hold in detent & positive stop
- Mounting screws not included



Part Number	Slide Length	Travel Length	A mm	B mm	C mm	D mm	E mm	F mm	Load Rating Kg/lbs (Pair)
DS-250-12	300 (11.81")	328 (12.91")	128.0	-	-	128.0	-	-	123 (271 lbs)
DS-250-14	350 (13.78")	377 (14.84")	192.0	-	-	192.0	-	-	120 (264 lbs)
DS-250-16	400 (15.74")	426 (16.77")	96.0	96.0	-	96.0	96.0	-	116 (257 lbs)
DS-250-18	450 (17.71")	475 (18.70")	128.0	128.0	-	128.0	128.0	-	113 (250 lbs)
DS-250-20	500 (19.68")	525 (20.66")	160.0	128.0	-	160.0	128.0	-	110 (243 lbs)
DS-250-22	550 (21.65")	574 (22.60")	160.0	192.0	-	160.0	192.0	-	107 (236 lbs)
DS-250-24	600 (23.62")	623 (24.52")	224.0	192.0	-	224.0	192.0	-	104 (229 lbs)
DS-250-26	650 (25.59")	672 (26.46")	224.0	224.0	-	224.0	224.0	-	101 (222 lbs)
DS-250-28	700 (27.55")	721 (28.38")	256.0	256.0	-	256.0	256.0	-	98 (215 lbs)
DS-250-30	750 (29.52")	771 (30.35")	192.0	192.0	128.0	192.0	192.0	192.0	94 (208 lbs)
DS-250-36	800 (31.49")	820 (32.28")	192.0	192.0	192.0	192.0	192.0	192.0	84 (187 lbs)

\* Load ratings listed are approximate, weights will vary depending on application.

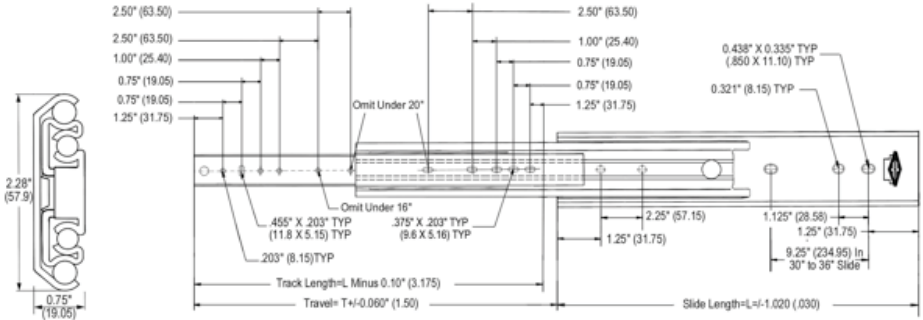


# DRAWER SLIDES

## DS-305 SERIES

- Zinc-plated steel with plastic bearing cage
- Three-member, full-extension slide
- 3/4" of over travel
- 300lb load rating (based on 18" slide)
- Trigger disconnect
- Cushioned stop

Part Number	Slide Length	Travel Length
DS-305-10	254.0 ( 10 " )	273.1 ( 10.75 " )
DS-305-12	304.8 ( 12 " )	323.9 ( 12.75 " )
DS-305-14	355.6 ( 14 " )	374.7 ( 14.75 " )
DS-305-16	406.4 ( 16 " )	425.5 ( 16.75 " )
DS-305-18	457.2 ( 18 " )	476.3 ( 18.75 " )
DS-305-20	508.0 ( 20 " )	527.1 ( 20.75 " )
DS-305-22	558.8 ( 22 " )	577.9 ( 22.75 " )
DS-305-24	609.6 ( 24 " )	628.7 ( 24.75 " )
DS-305-26	660.4 ( 26 " )	679.5 ( 26.75 " )
DS-305-28	711.2 ( 28 " )	730.3 ( 28.75 " )
DS-305-30	762.0 ( 30 " )	781.1 ( 30.75 " )
DS-305-32	812.8 ( 32 " )	831.9 ( 32.75 " )
DS-305-34	863.6 ( 34 " )	882.7 ( 34.75 " )
DS-305-36	914.4 ( 36 " )	933.5 ( 36.75 " )
DS-305-48	1219.2 ( 48 " )	1238.3 ( 48.75 " )
DS-305-60	1524.0 ( 60 " )	1543.1 ( 60.75 " )



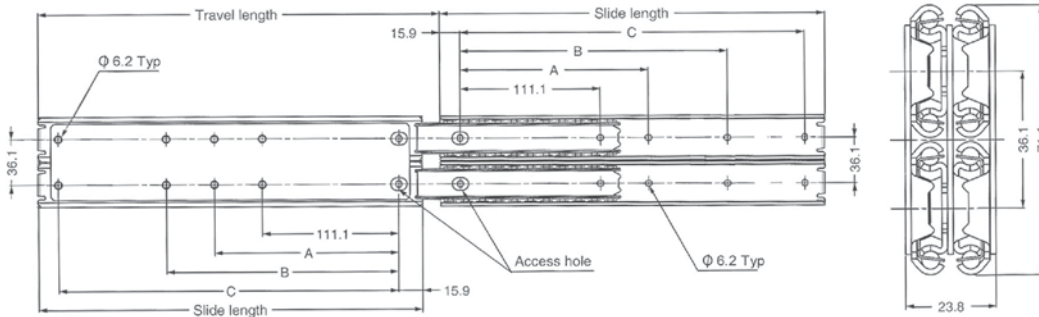
**Associated Spring RAYMOND has custom drawer slides for OEM applications.** Whether corrosion, capacity, or other concern we can engineer a solution for production environments.

Visit [www.asraymond.com](http://www.asraymond.com) for application and industry examples.

# DRAWER SLIDES

## DS-700 Series

- All components made of zinc plated steel
- Three member, full extension slide
- 500 lb load rating (based on 18" slide)
- Non-Handed
- Mounting screws not included

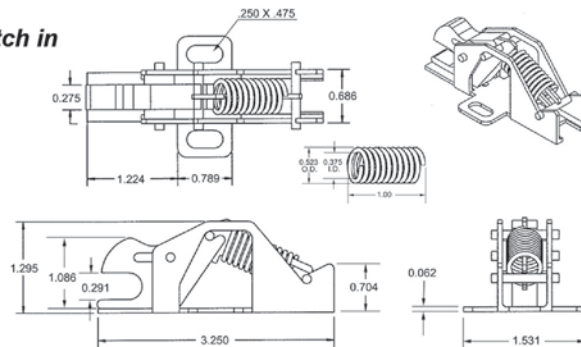


Part Number	Slide Length	Travel Length	A	B	C	Load Rating kg/lbs (Pair)
DS-700-12	304.8 (12")	327.0 (12.87")	-	149.2	273.0	245 (540 lbs)
DS-700-14	355.6 (14")	377.8 (14.87")	-	200.0	323.8	241 (531 lbs)
DS-700-16	406.4 (16")	428.6 (16.87")	-	250.8	374.6	233 (513 lbs)
DS-700-18	457.2 (18")	479.4 (18.87")	212.7	301.6	425.4	225 (496 lbs)
DS-700-20	508.0 (20")	530.2 (20.87")	238.1	352.4	476.2	217 (478 lbs)
DS-700-22	558.8 (22")	581.0 (22.87")	263.5	403.2	527.0	206 (454 lbs)
DS-700-24	609.6 (24")	631.8 (24.87")	288.9	454.0	577.8	194 (428 lbs)
DS-700-26	660.4 (26")	682.6 (26.87")	314.3	504.8	628.6	180 (397 lbs)
DS-700-28	711.2 (28")	733.4 (28.87")	339.7	555.6	679.4	164 (361 lbs)

\*Load ratings listed are approximate, weights will vary depending on application.

## DRAWER LATCH

- Zinc plated steel body
- Plastic latch hook
- Mounts behind drawer to latch in place when closed



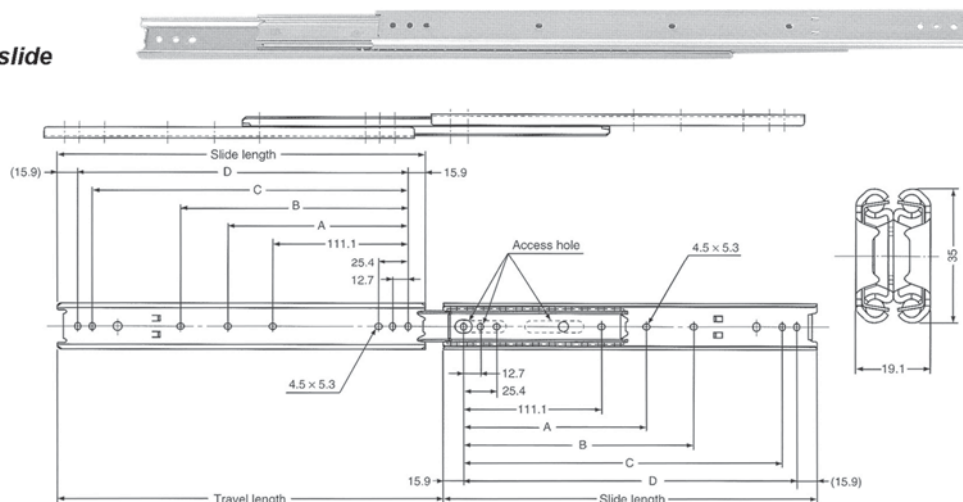
Part Number LA-12895



# DRAWER SLIDES

## DS-SSR6 SERIES

- 304 stainless steel
- Three member, full extension slide
- Features positive out stop
- Non-Handed
- Use M4 bind or truss head screws (not included)



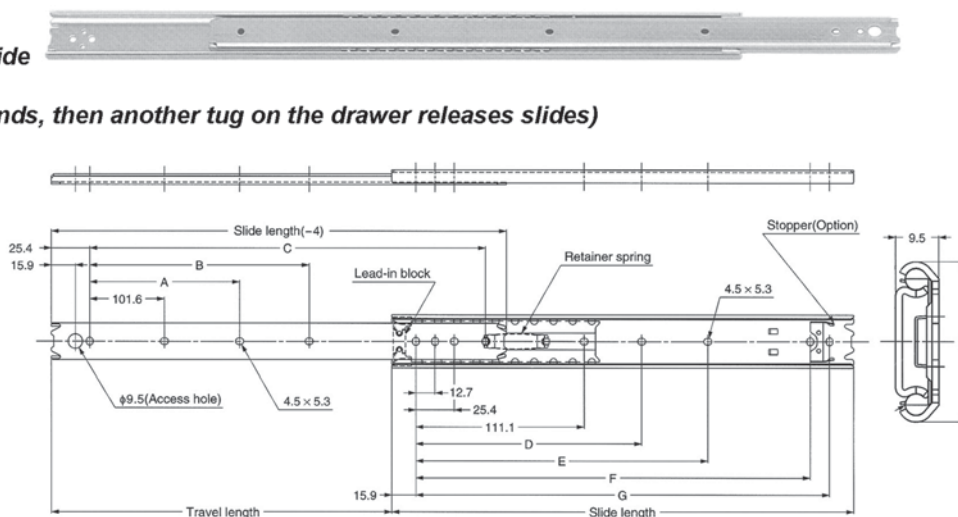
Part Number	Slide Length	Travel Length	A	B	C	D	Load Rating kg/lbs (Pair)
DS-SSR6-12	304.8 (12")	319.0 (12-9/16")	-	149.2	260.3	273.0	80 (176 lbs)
DS-SSR6-14	355.6 (14")	369.8 (14-9/16")	-	200.0	311.3	323.8	77 (169 lbs)
DS-SSR6-16	406.4 (16")	420.6 (16-9/16")	-	250.8	361.9	374.6	73 (160 lbs)
DS-SSR6-18	457.2 (18")	471.4 (18-9/16")	212.7	301.6	412.7	425.4	68 (149 lbs)
DS-SSR6-20	508.0 (20")	522.2 (20-9/16")	238.1	352.4	463.5	476.2	65 (143 lbs)
DS-SSR6-22	558.8 (22")	573.0 (22-9/16")	263.5	403.2	514.3	527.0	59 (129 lbs)
DS-SSR6-24	609.6 (24")	623.8 (24-9/16")	288.9	454.0	565.1	577.8	52 (114 lbs)
DS-SSR6-26	660.4 (26")	674.6 (26-9/16")	314.3	504.8	615.9	628.6	48 (105 lbs)
DS-SSR6-28	711.2 (28")	725.4 (28-9/16")	339.7	555.6	666.7	679.4	41 ( 90 lbs)

\* load ratings listed are approximate, weights will vary depending on application.

# DRAWER SLIDES

## DS-SSR1 SERIES

- 304 stainless steel
- Two member, 3/4 extension slide
- Features front disconnect
- Friction brake stop (slide extends, then another tug on the drawer releases slides)
- Non-Handed
- Use M4 bind or truss head screws (not included)



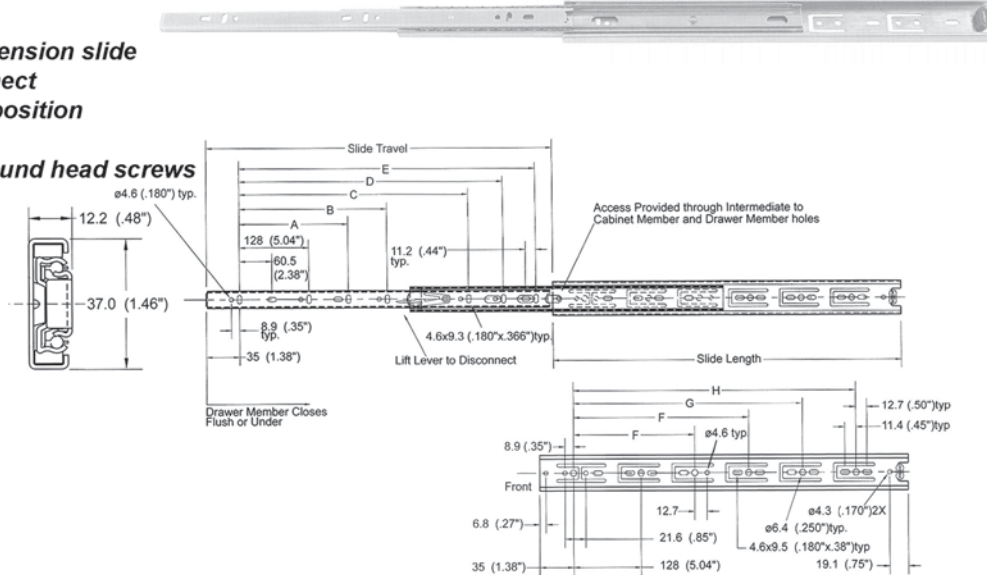
Part Number	Slide Length	Travel Length	A	B	C	D	E	F	G	Load Rating kg/lbs (Pair)
DS-SSR1-12	304.8 (12")	228.6 ( 9")	-	152.4	254.0	-	149.2	260.3	273.0	49 (107 lbs)
DS-SSR1-14	355.6 (14")	279.4 (11)	-	203.2	304.8	-	200.0	311.1	323.8	47 (103 lbs)
DS-SSR1-16	406.4 (16")	304.8 (12")	-	254.0	355.6	-	250.8	361.9	374.6	43 ( 94 lbs)
DS-SSR1-18	457.2 (18")	330.2 (13")	203.2	304.8	406.4	212.7	301.6	412.7	425.4	41 ( 90 lbs)
DS-SSR1-20	508.0 (20")	381.0 (15")	228.6	355.6	457.2	238.1	352.4	463.5	476.2	37 ( 81 lbs)
DS-SSR1-22	558.8 (22")	406.4 (16")	254.0	406.4	508.0	263.5	403.2	514.3	527.0	34 ( 74 lbs)
DS-SSR1-24	609.6 (24")	431.8 (17")	279.4	257.2	558.8	288.9	454.0	565.1	577.8	30 ( 66 lbs)
DS-SSR1-26	660.4 (26")	482.6 (19")	304.8	508.0	609.6	314.3	504.8	615.9	628.6	27 ( 59 lbs)
DS-SSR1-28	711.2 (28")	508.0 (20")	330.2	558.8	660.4	339.7	555.6	666.7	679.4	25 ( 55 lbs)

\* Load ratings listed are approximate, weights will vary depending on application.

# DRAWER SLIDES

## DS-ESR-3813 SERIES

- 304 stainless steel
- Three member, full extension slide
- Features front disconnect
- Positive stop in open position
- Hold-in detent
- Use M4 or #8 pan or round head screws (not included)

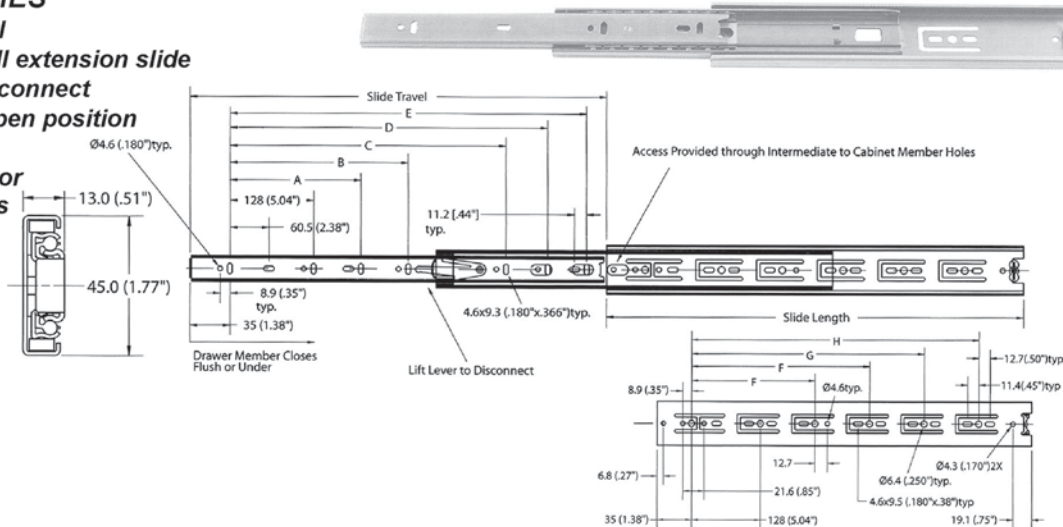


Part Number	Slide Length	Travel Length	A	B	C	D	E	F	G	H	Load Rating kg/lbs (Pair)
DS-ESR-3813-10	250 (9.84")	243 (9.57")	-	-	-	-	192	-	-	-	42 (92 lbs)
DS-ESR-3813-12	300 (11.81")	305 (12.00")	-	-	-	-	242	224	-	-	40 (88 lbs)
DS-ESR-3813-14	350 (13.78")	355 (14.00")	-	-	-	-	292	224	-	-	38 (84 lbs)
DS-ESR-3813-16	400 (15.75")	406 (16.00")	-	-	-	-	342	224	320	-	36 (79 lbs)
DS-ESR-3813-18	450 (17.72")	457 (18.00")	-	-	320	-	392	224	352	-	34 (75 lbs)
DS-ESR-3813-20	500 (19.69")	508 (20.00")	-	-	320	-	442	224	416	-	33 (73 lbs)
DS-ESR-3813-22	550 (21.65")	559 (22.00")	-	-	320	416	492	224	352	448	31 (68 lbs)
DS-ESR-3813-24	600 (23.62")	610 (24.00")	-	-	416	-	542	224	352	480	29 (64 lbs)

\* Load ratings listed are approximate, weights will vary depending on application.

## DS-ESR-4513 SERIES

- 304 stainless steel
- Three member, full extension slide
- Features front disconnect
- Positive stop in open position
- Hold-in detent
- Use M4 or #8 pan or round head screws (not included)



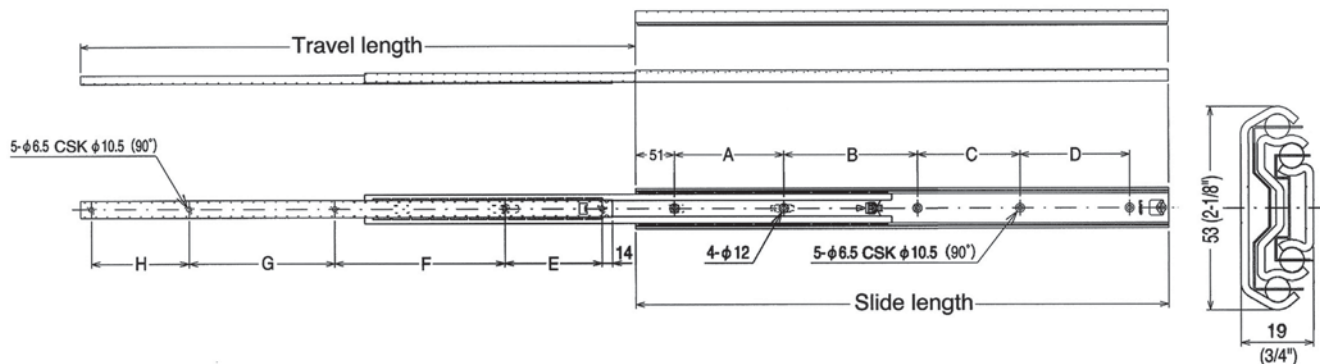
Part Number	Slide Length	Travel Length	A	B	C	D	E	F	G	H	Load Rating kg/lbs (Pair)
DS-ESR-4513-10	250 (9.84")	243 (9.57")	-	-	-	-	192	-	-	-	52 (115 lbs)
DS-ESR-4513-12	300 (11.81")	305 (12.00")	-	-	-	-	242	224	-	-	50 (111 lbs)
DS-ESR-4513-14	350 (13.78")	355 (14.00")	-	-	-	-	292	224	-	-	49 (108 lbs)
DS-ESR-4513-16	400 (15.75")	406 (16.00")	-	-	-	-	342	224	320	-	47 (104 lbs)
DS-ESR-4513-18	450 (17.72")	457 (18.00")	-	-	320	-	392	224	352	-	46 (100 lbs)
DS-ESR-4513-20	500 (19.69")	508 (20.00")	-	-	320	-	442	224	416	-	44 (97 lbs)
DS-ESR-4513-22	550 (21.65")	559 (22.00")	-	-	320	416	492	224	352	448	43 (95 lbs)
DS-ESR-4513-24	600 (23.62")	610 (24.00")	224	-	416	-	542	224	352	480	42 (92 lbs)
DS-ESR-4513-26	650 (25.59")	660 (26.00")	224	-	416	544	592	224	352	544	41 (90 lbs)
DS-ESR-4513-28	700 (27.56")	711 (28.00")	224	288	416	544	642	224	352	544	40 (87 lbs)

\* Load ratings listed are approximate, weights will vary depending on application.

# DRAWER SLIDES

## DS-5302 SERIES

- 304 stainless steel
- Three member, full extension slide
- Features front disconnect
- Positive stop in open position
- Hold-in detent



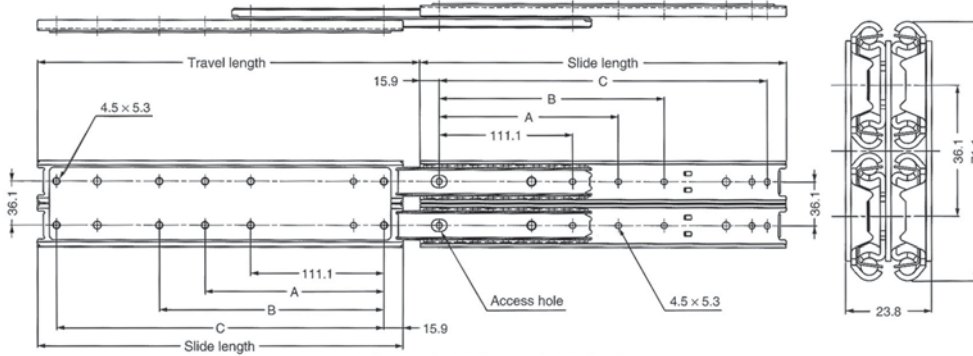
Part Number	Slide Length	Travel Length	A	B	C	D	E	F	G	H	Load Rating kg/lbs (Pair)
DS-5302-12	300 (11.81")	337 (13.26")	82	80	-	-	128	128	-	-	130 (258 lbs)
DS-5302-14	350 (13.78")	386 (15.19")	144	96	-	-	160	160	-	-	119 (260 lbs)
DS-5302-16	400 (15.75")	435 (17.12")	144	80	80	-	96	96	160	-	108 (236 lbs)
DS-5302-18	450 (17.72")	484 (19.06")	80	192	80	-	128	160	128	-	98 (215 lbs)
DS-5302-20	500 (19.69")	534 (21.02")	112	160	112	-	160	160	128	-	92 (201 lbs)
DS-5302-22	550 (21.65")	584 (22.99")	112	176	160	-	192	128	192	-	86 (188 lbs)
DS-5302-24	600 (23.62")	632 (24.88")	112	224	160	-	208	128	208	-	81 (177 lbs)
DS-5302-26	650 (25.59")	681 (26.81")	112	160	144	128	128	192	160	142	76 (166 lbs)
DS-5302-28	700 (27.56")	730 (28.74")	144	160	144	144	128	208	208	128	71 (155 lbs)
DS-5302-30	750 (29.52")	780 (30.71")	176	160	160	150	192	160	174	192	68 (149 lbs)
DS-5302-32	800 (31.49")	829 (32.63")	192	192	192	112	224	160	164	224	64 (140 lbs)

\* Load ratings listed are approximate, weights will vary depending on application.

# DRAWER SLIDES

## DS-SSR10 SERIES

- 304 stainless steel
- Three member, full extension slide
- Features positive out stop
- Non-Handed
- Use M4 bind or truss head screws (not included)



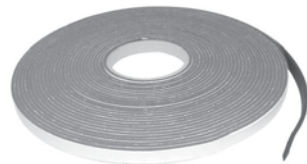
Part Number	Slide Length	Travel Length	A	B	C	Load Rating kg/lbs (Pair)
DS-SSR10-12	304.8 (12")	319.0 (12-9/16")	-	149.2	273.0	272 (599 lbs)
DS-SSR10-14	355.6 (14")	369.8 (14-9/16")	-	200.0	323.8	268 (590 lbs)
DS-SSR10-16	406.4 (16")	420.6 (16-9/16")	-	250.8	371.6	259 (570 lbs)
DS-SSR10-18	457.2 (18")	471.4 (18-9/16")	212.7	301.6	425.4	250 (550 lbs)
DS-SSR10-20	508.0 (20")	522.2 (20-9/16")	238.1	352.4	476.2	241 (530 lbs)
DS-SSR10-22	558.8 (22")	573.0 (22-9/16")	263.5	403.2	527.0	229 (504 lbs)
DS-SSR10-24	609.6 (24")	623.8 (24-9/16")	288.9	454.0	577.8	216 (475 lbs)
DS-SSR10-26	660.4 (26")	674.6 (26-9/16")	314.3	504.8	628.6	200 (440 lbs)
DS-SSR10-28	711.2 (28")	725.4 (28-9/16")	339.7	555.6	679.4	182 (400 lbs)

\* Load ratings are approximate, weights will vary depending on application.

# WEATHERSTRIPPING

- Closed cell neoprene/EPDM/SBR blend with PSA on one side.
- Operating temperature range of -70/+225°F.
- 30-50 durometer, and a tensile strength of 16-20 psi.
- Weatherstripping is UL94 approved.

(UL94 is a testing procedure for the flammability of parts and is not intended herein to reflect hazards presented by this or any other material under actual fire conditions.)

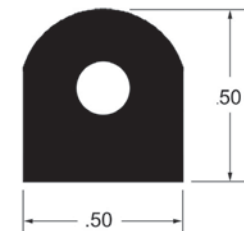


Part Number	Thickness	Width
WS-125025	1/8"	1/4"
WS-125050	1/8"	1/2"
WS-125075	1/8"	3/4"
WS-125100	1/8"	1.0"
WS-187050	3/16"	1/2"
WS-187062	3/16"	5/8"
WS-187075	3/16"	3/4"
WS-187100	3/16"	1.0"

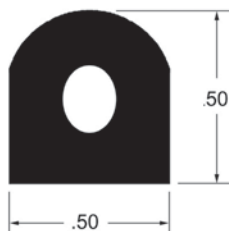
Part Number	Thickness	Width
WS-250050	1/4"	1/2"
WS-250062	1/4"	5/8"
WS-250075	1/4"	3/4"
WS-250100	1/4"	1.0"
WS-312050	5/16"	1/2"
WS-312075	5/16"	3/4"
WS-312100	5/16"	1.0"
WS-375050	3/8"	1/2"
WS-375062	3/8"	5/8"
WS-375075	3/8"	3/4"
WS-375100	3/8"	1.0"

- All weatherstrip is supplied in 50' rolls
- Other sizes are available as a special order
- Minimum order quantities apply to special sizes

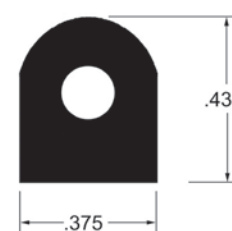
Automotive weather seals are a medium density (45-50 durometer shore 00) EPDM extrusion with an acrylic pressure sensitive adhesive on the bottom edge.



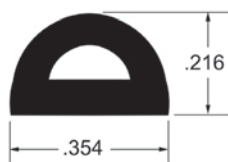
Part Number	Length
WS101	250'



Part Number	Length
WS104	100'



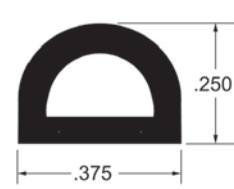
Part Number	Length
WS105	100'



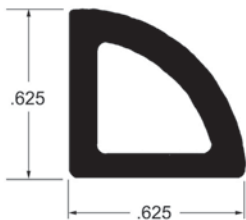
Part Number	Length
WS1085	100'



Part Number	Length
WS109	500'



Part Number	Length
WS1153	100'



Part Number	Length
WS2123	500'



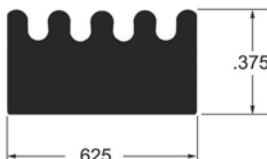
Part Number	Length
WS1750	250'



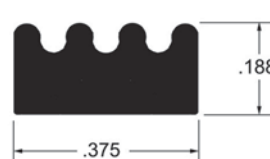
Part Number	Length
WS1705	1000'



Part Number	Length
WS5036	100'



Part Number	Length
WS103	1000'



Part Number	Length
WS113	100'

# EDGE TRIM WITH BULB SEAL

- Embossed vinyl edge trim with flexible segmented steel core
- Sponge rubber bulb seal



## MINI EDGE TRIM WITH BULB SEAL

- For 1/32" edges
- Grips edges from .010" - .050"
- Available with either 3/8" or 5/8" dia. bulb

Grips edges from  
.010" to .050" thick



### Bulb Locations

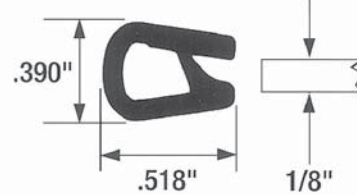


Part Number	Bulb Size	Bulb Location	Coil Length	Standard Carton
ET-75001969	5/8"	C	200'	1-200' Coil

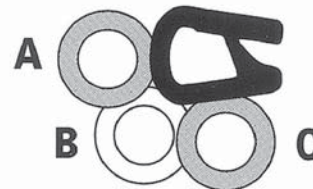
## PINCH TOP SINGLE LIP EDGE TRIM WITH BULB SEAL

- For 1/8" edges
- Grips edges from .060" - .170"
- Available with either 3/8" or 5/8" dia. bulb

Grips edges from  
.060" to .170" thick



### Bulb Locations



Part Number	Bulb Size	Bulb Location	Coil Length	Standard Carton
ET-75001828	3/8"	A	25'	10-25' Coils
ET-75001830	3/8"	C	25'	10-25' Coils
ET-75001831	5/8"	A	25'	10-25' Coils
ET-75001832	5/8"	B	25'	10-25' Coils
ET-75001833	5/8"	C	25'	10-25' Coils

# EDGE TRIM WITH BULB SEAL

- Embossed vinyl edge trim with flexible segmented steel core
- Sponge rubber bulb seal

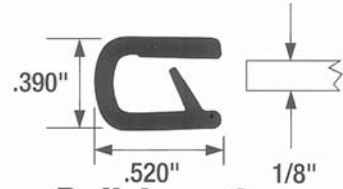


## SINGLE LIP EDGE TRIM WITH BULB SEAL

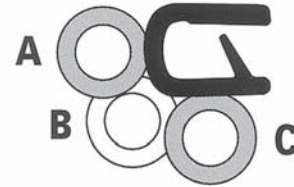
- For 1/8" edges
- Grips edges from .090" - .190"
- Available with either 3/8" or 5/8" dia. bulb

Part Number	Bulb Size	Bulb Location	Coil Length	Standard Carton
ET-75001824	3/8"	C	25'	10-25' Coils
ET-75001825	5/8"	A	25'	10-25' Coils
ET-75001827	5/8"	C	25'	10-25' Coils

Grips edges from  
 .090" to .190" thick



**Bulb Locations**



## DOUBLE LIP EDGE TRIM WITH BULB SEAL

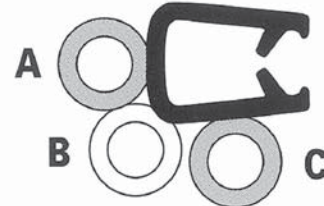
- For 1/4" edges
- Grips edges from .135" - .250"
- Available with either 3/8" or 5/8" dia. bulb

Part Number	Bulb Size	Bulb Location	Coil Length	Standard Carton
ET-75001977	3/8"	B	200'	1-200' Coil

Grips edges from  
 .135" to .250" thick

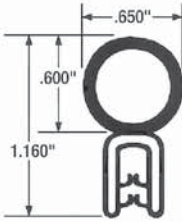


**Bulb Locations**



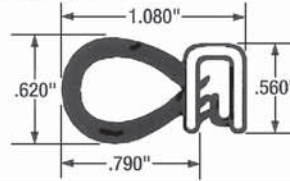
# PUSH-ON TRIM SEALS

- Dual durometer sponge & solid rubber extrusion
- Flexible wire core



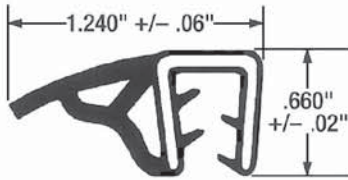
Part Number	Flange Thickness	Carton Quantity
ET-75001359	.040" to .070"	10-25' Coils
ET-75001753		1-250' Coil
ET-75001360	.065" to .095"	10-25' Coils
ET-75001479		2250' Pallet
ET-75001361	.090" to .120"	10-25 Coils
ET-75001766		2000' Pallet

- Dual durometer sponge & solid rubber extrusion
- Flexible wire core



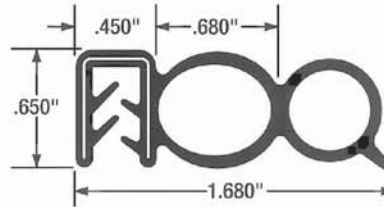
Part Number	Flange Thickness	Carton Quantity
ET-75001362	.040" to .070"	10-25 Coils
ET-75001899		1-250' Coil
ET-75001473		2250' Pallet
ET-75001363	.065" to .095"	10-25 Coils
ET-75000720		2250 Pallet
ET-75001364	.090" to .120"	10-25 Coils
ET-75001367		2250' Pallet
ET-75002022	.150" to .180"	1-250' Coil
ET-75001483		2250' Pallet

- Dual durometer sponge & solid rubber extrusion
- Flexible wire core



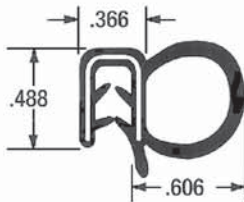
Part Number	Flange Thickness	Carton Quantity
ET-75000892	.125" to .250"	10-25 Coils
ET-75001754		1-250' Coil

- Dual durometer sponge & solid rubber extrusion
- Flexible wire core



Part Number	Flange Thickness	Carton Quantity
ET-75001887	.100" to .167"	3-300' Coils

- Dual durometer EPDM rubber extrusion
- Flexible segmented steel core



Part Number	Flange Thickness	Carton Quantity
ET-75001994	.039" to .110"	3-82' Coils

- Dual durometer EPDM rubber extrusion
- Flexible segmented steel core



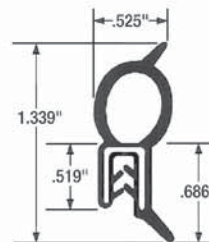
Part Number	Flange Thickness	Carton Quantity
ET-75001618	.110" to .130"	7-25' Coils
ET-75001580		2000' Pallet

- Dual durometer EPDM rubber extrusion
- Flexible segmented steel core



Part Number	Flange Thickness	Carton Quantity
ET-75000614	.071" to .111"	2-82' Coils

- Dual durometer EPDM rubber extrusion
- Flexible segmented steel core

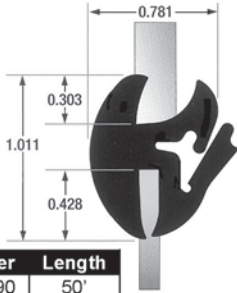


Part Number	Flange Thickness	Carton Quantity
ET-75001609	.060" to .079"	3-82' Coils



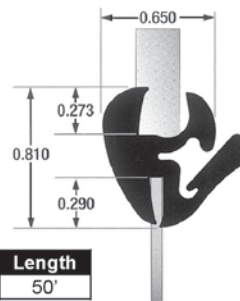
# WINDOW SELF SEALING WEATHERSTRIP

- EPDM antioxidizing black rubber
- Integrated locking strip (1 PC)
- For 1/4" glass & 1/8" body panel



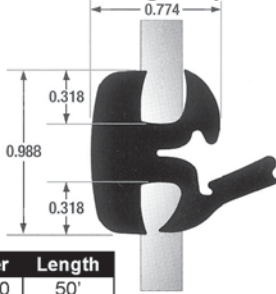
Part Number	Length
ET-75000690	50'

- EPDM antioxidizing black rubber
- Integrated locking strip (1 PC)
- For 1/4" glass & 1/16" body panel



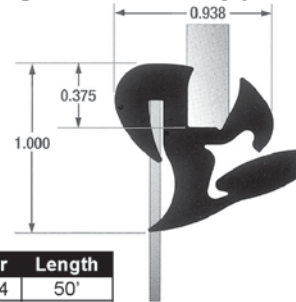
Part Number	Length
ET-75000692	50'

- EPDM antioxidizing black rubber
- Integrated locking strip (1 PC)
- For divider for 1/4" glass panels



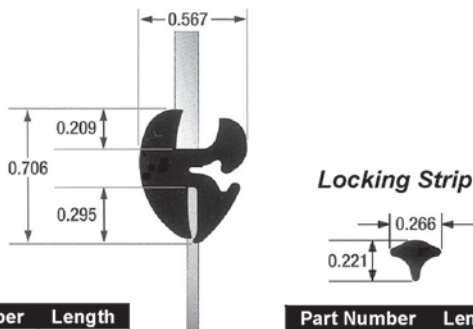
Part Number	Length
ET-75000600	50'

- EPDM antioxidizing black rubber
- Integrated locking strip (1 PC)
- For 1/4" glass & 1/16" body panel



Part Number	Length
ET-75000534	50'

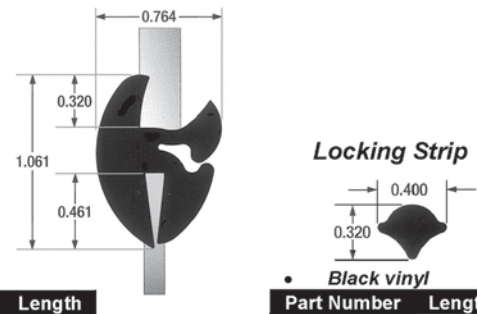
- EPDM antioxidizing black rubber
- For 1/8" glass & 1/16" body panel



Part Number	Length
ET-75000477	50'

Part Number	Length
ET-75000607	200'

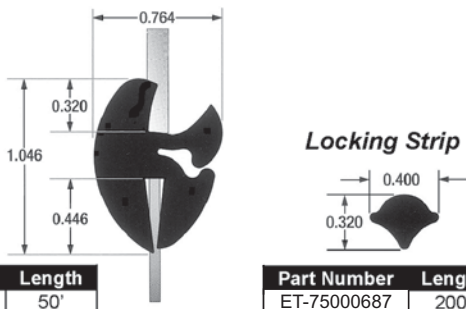
- EPDM antioxidizing black rubber
- For 1/4" glass & 1/8" body panel



Part Number	Length
ET-75000428	50'

Part Number	Length
ET-75000687	200'

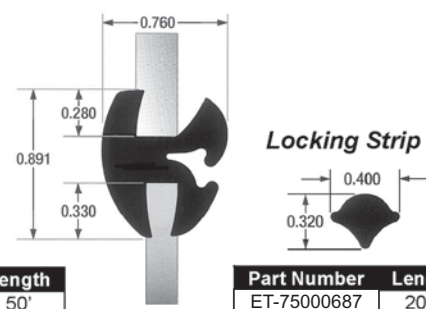
- EPDM antioxidizing black rubber
- For 1/8" glass & 1/6" body panel



Part Number	Length
ET-7500158	50'

Part Number	Length
ET-75000687	200'

- EPDM antioxidizing black rubber
- For 1/4" glass & 3/16" body panel



Part Number	Length
ET-75000463	50'

Part Number	Length
ET-75000687	200'

- ET-75001840, ET-75000630 & ET-75000607 Locking strips are interchangeable

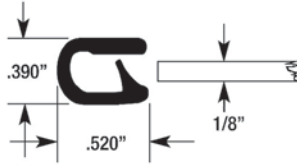
# METAL CORE EDGE TRIMS

- Environmentally safe embossed PVC extrusion
- .018" thick #2 temper segmented steel core
- 2200 P.S.I. minimum tensile strength
- Passes federal flammability spec. FMVSS-302



## STANDARD SINGLE LIP TRIM

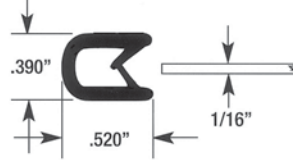
- For 1/8" to 3/16" edges
- Grips edges from .090" to .190"



Part Number	Description	Ft/Carton
ET-75000328	White Basketweave	400
ET-75000329	Black Basketweave	400
ET-75000330	White Sof-Tone	400
ET-75000331	White Sof-Tone	100
ET-75000334	Black Sof-Tone	400
ET-75000708	Black Sof-Tone	100
ET-75000332	Safety Orange	100
ET-75000333	Safety Yellow	100

## STANDARD DOUBLE LIP TRIM

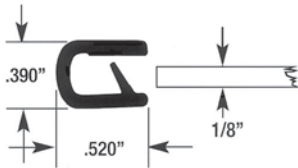
- For 1/32" to 1/8" edges
- Grips edges from .032" to .125"



Part Number	Description	Ft/Carton
ET-75000315	Black Basketweave	400
ET-75000316	Black Sof-Tone	400
ET-75000317	Black Sof-Tone	100
ET-75000321	Gray Sof Tone	100
ET-75000323	Off-White Sof-Tone	100
ET-75001007	White Sof-Tone	100
ET-75001565	White Sof-Tone	400
ET-75001842	Black Granular	100

## SPECIAL SINGLE LIP TRIM

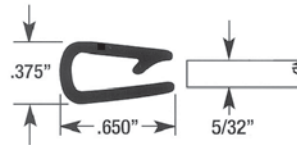
- For 1/8" to 3/16" edges
- Grips edges from .090" to .180"



Part Number	Description	Ft/Carton
ET-75000721	Black Sof-Tone	400
ET-75000722	White Sof-Tone	400
ET-75001638	Black Granular	400

## LONG LEG SINGLE LIP TRIM

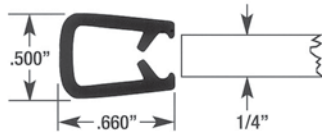
- For 1/8" to 3/16" edges
- Grips edges from .085" to .210"



Part Number	Description	Ft/Carton
ET-75000339	Black Sof-Tone	400
ET-75001843	Black Granular	400

## "Q" TRIM

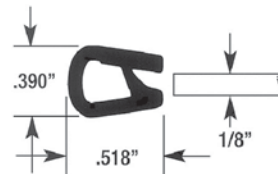
- For 3/16" to 1/4" edges
- Grips edges from .135" to .250"



Part Number	Description	Ft/Carton
ET-75000343	Black Sof-Tone	250
ET-75000344	White Sof-Tone	250
ET-75001841	Black Granular	250

## PINCH TOP SINGLE LIP TRIM

- For 1/8" edges
- Grips edges from .060" to .170"



Part Number	Description	Ft/Carton
ET-75000336	Black Basketweave	400
ET-75000337	White Sof-Tone	400
ET-75000338	Black Sof-Tone	400
ET-75001844	Black Granular	400

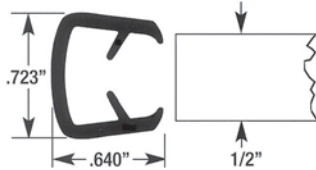
# METAL CORE EDGE TRIMS



- Environmentally safe embossed PVC extrusion
- .018" thick #2 temper segmented steel core
- 2200 P.S.I. minimum tensile strength
- Passes federal flammability spec. FMVSS-302

## 1/2" DOUBLE LIP TRIM

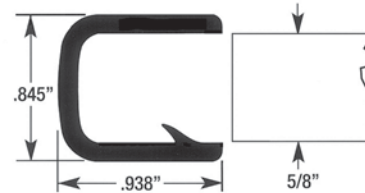
- For 3/8" to 1/2" edges
- Grips edges from .250" to .500"



Part Number	Description	Ft/Carton
ET-75000349	Black Sof-Tone	150
ET-75001628	White Sof-Tone	150

## 5/8" SINGLE LIP TRIM

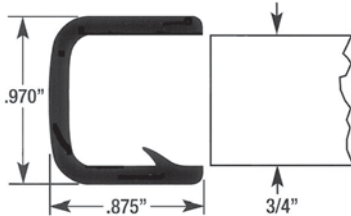
- For 1/2" to 5/8" edges
- Grips edges from .520" to .625"



Part Number	Description	Ft/Carton
ET-75001837	Black Sof-Tone	100

## 3/4" SINGLE LIP TRIM

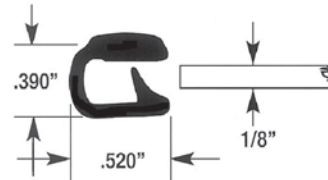
- For 5/8" to 3/4" edges
- Grips edges from .670" to .750"



Part Number	Description	Ft/Carton
ET-75001838	Black Sof-Tone	100

## DECORATIVE SINGLE LIP TRIM

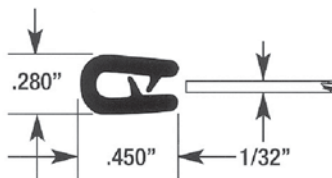
- For 1/8" to 3/16" edges
- Grips edges from .090" to .190"



Part Number	Description	Ft/Carton
ET-75000361	Black Sof-Tone Chrome Pad	300
ET-75001002	Black Sof-Tone Chrome Pad	100

## MINITRIM

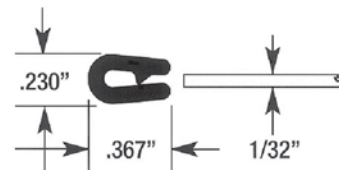
- For 1/32" edges
- Grips edges from .010" to .050"



Part Number	Description	Ft/Carton
ET-75000341	Black Sof-Tone	500
ET-75000342	White Sof-Tone	500
ET-75001637	Black Granular	500

## MINI MINITRIM

- For 1/32" edges
- Grips edges from .010" to .030"



Part Number	Description	Ft/Carton
ET-75001581	Black Sof-Tone	400

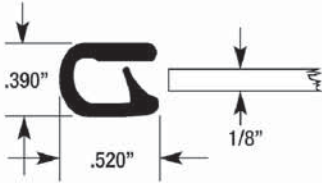
# ALUMINUM CORE EDGE TRIMS



- Environmentally safe embossed PVC extrusion
- .024" thick 50-52 Rockwell 38 segmented aluminum core
- 2200 P.S.I. minimum tensile strength
- Passes federal flammability spec. FMVSS-302

## STANDARD SINGLE LIP TRIM

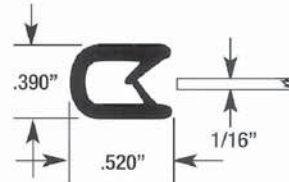
- For 1/8" to 3/16" edges
- Grips edges from .090" to .190"



Part Number	Description	Ft/Carton
ET-75000346	White Sof-Tone	400
ET-75000348	Black Sof-Tone	400
ET-75001234	White Sof-Tone	100
ET-75001309	Black Sof-Tone	100

## STANDRAD DOUBLE LIP TRIM

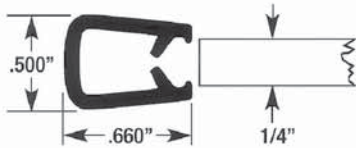
- For 1/32" to 1/8" edges
- Grips edges from .032" to .125"



Part Number	Description	Ft/Carton
ET-75001584	Black Sof-Tone	400
ET-75001622	White Sof-Tone	400

## "Q" TRIM

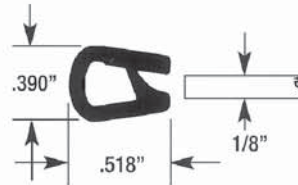
- For 3/16" to 1/4" edges
- Grips edges from .135" to .250"



Part Number	Description	Ft/Carton
ET-75001583	Black Sof-Tone	250
ET-75001621	White Sof-Tone	250

## PINCH TOP SINGLE LIP TRIM

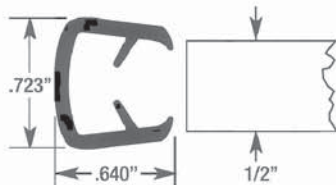
- For 1/8" edges
- Grips edges from .060" to .170"



Part Number	Description	Ft/Carton
ET-75001585	Black Sof-Tone	400
ET-75001623	White Sof-Tone	400

## 1/2" DOUBLE LIP TRIM

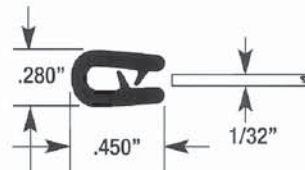
- For 3/8" to 1/2" edges
- Grips edges from .250" to .500"



Part Number	Description	Ft/Carton
ET-75001582	Black Sof-Tone	150
ET-75001620	White Sof-Tone	150

## MINITRIM

- For 1/32" edges
- Grips edges from .010" to .050"



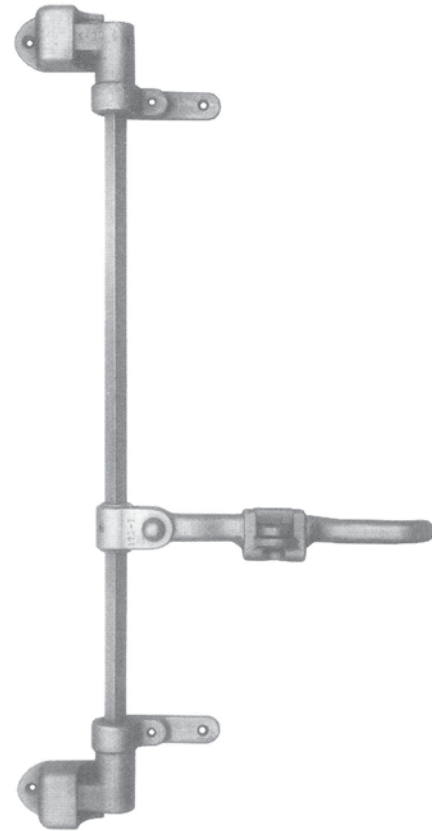
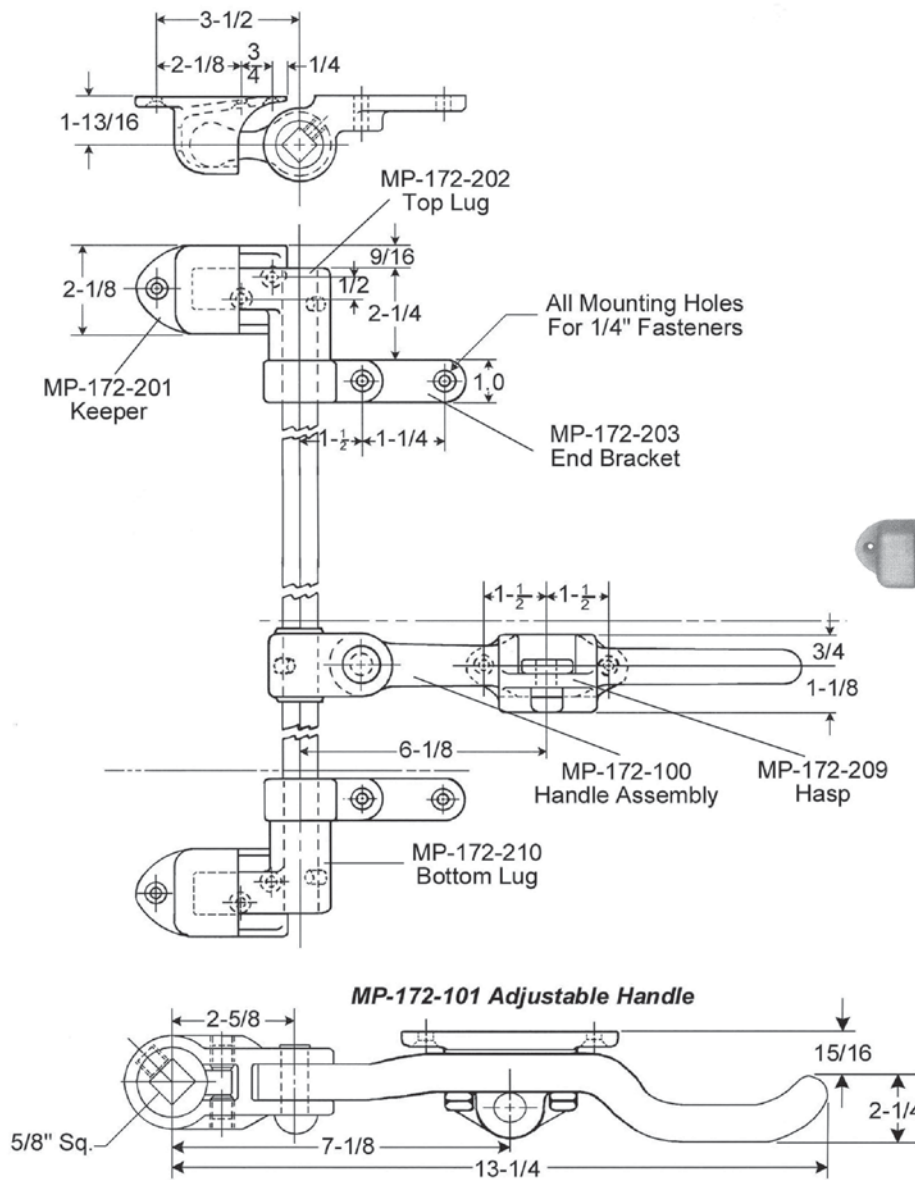
Part Number	Description	Ft/Carton
ET-75001586	Black Sof-Tone	500
ET-75001624	White Sof-Tone	500

# HOLDTITE DOOR LOCKS

## TWO POINT CAM LOCK

- Used on single doors, double doors, or end gates
- Ideal for refrigerated or van bodies
- Reversible for right or left hand applications
- Rugged lock with ample leverage to clamp door tight or break frost seal
- Comes standard with long lugs and adjustable handle
- Other variations available, call us for details
- 5/8" X 96" square rod sold separately, order part # RD-17296

Part Number	Material
MP-172-008	Ductile Iron, Zinc Plated & Gray Powder Coated
MP-172-008-SS	304 Stainless Steel, Polished



### Component Parts:

- MP-172-101 Handle Assembly
- MP-172-201 Keeper
- MP-172-213 Top Long Lug
- MP-172-214 Bottom Long Lug
- MP-172-203 Bracket
- MP-172-205 Bottom Center Bracket
- MP-172-209 Hasp
- MP-175 Center Support Bearing

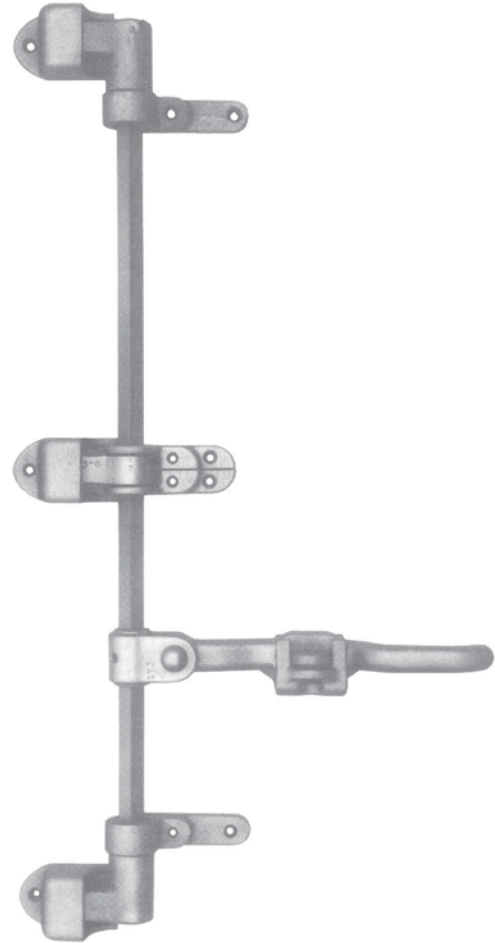
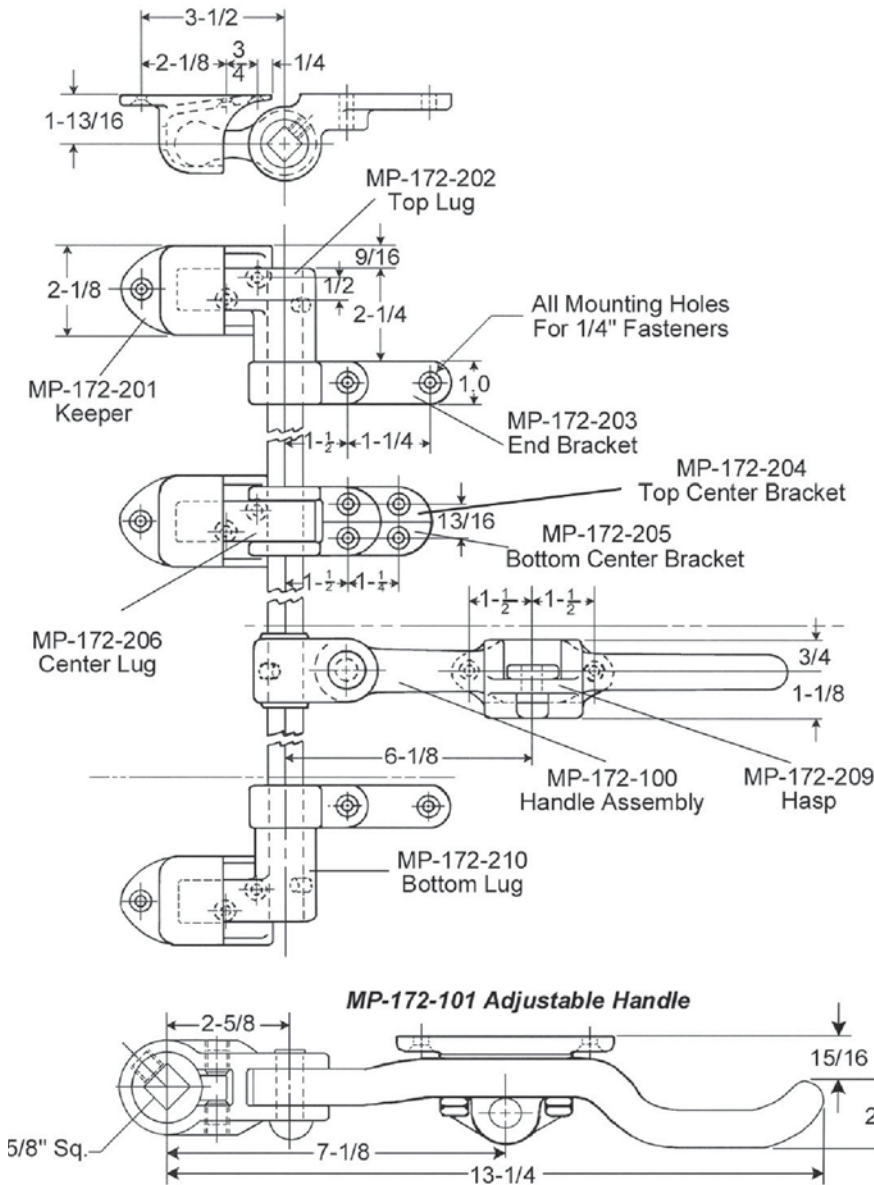
\* For Stainless Steel add -SS to end of part number.

# HOLDTITE DOOR LOCKS

## THREE POINT CAM LOCK

- Used on single doors, double doors, or end gates
- Ideal for refrigerated or van bodies
- Reversible for right or left hand applications
- Rugged lock with ample leverage to clamp door tight or break frost seal
- Comes standard with long lugs and adjustable handle
- Other variations available, call us for details
- 5/8" X 96" square rod sold separately, order part # RD-17296

Part Number	Material
MP-173-008	Ductile Iron, Zinc Plated & Gray Powder Coated
MP-173-008-SS	304 Stainless Steel, Polished



**Component Parts:**

- MP-172-101 Handle Assembly
- MP-172-201 Keeper
- MP-172-213 Top Long Lug
- MP-172-214 Bottom Long Lug
- MP-172-203 Bracket
- MP-172-204 Top Center Bracket
- MP-172-205 Bottom Center Bracket
- MP-172-206 Center Lug
- MP-172-209 Hasp
- MP-175 Center Support Bearing

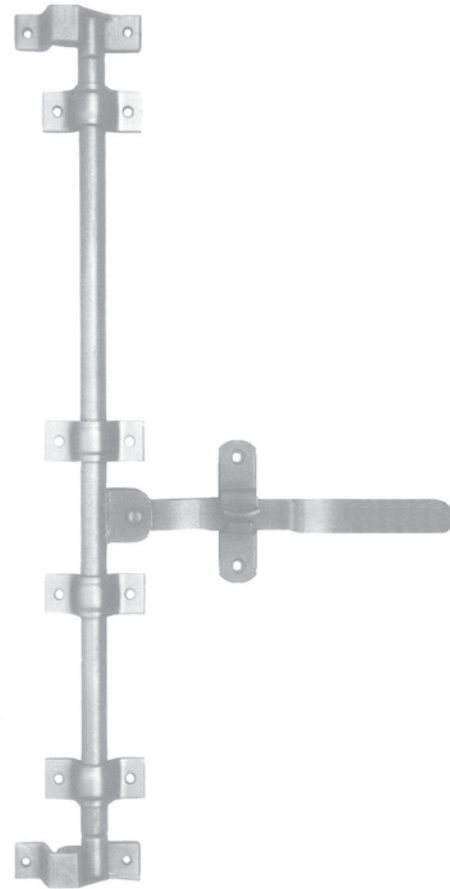
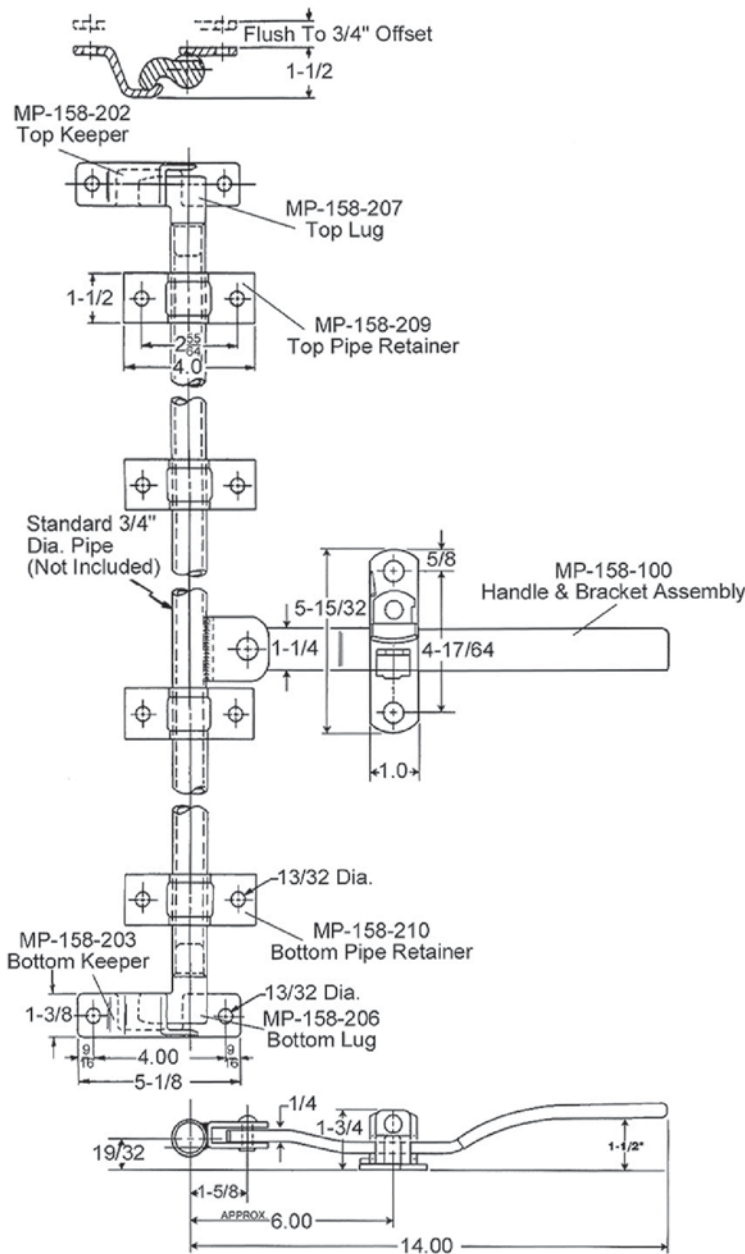
\* For Stainless Steel add -SS to end of part number.

# CAM ACTION DOOR LOCK

## CAM TYPE LOCK

- Cam type lock with narrow keepers allow minimum extension from body
- All steel handle & hasp allow builder to simply weld handle lug to pipe
- MP-158 standard with narrow hasp & handle less vinyl grip
- Universal for right or left hand applications
- Mounted with 3/4" Dia. pipe (not supplied)

Part Number	Material
MP-158	Steel Zinc Plate
MP-158-SS	304 Stainless Steel, Polished



### Component Parts:

- MP-158-202 Top Keeper
- MP-158-203 Bottom Keeper
- MP-258-206 Bottom Lug
- MP-258-207 Top Lug
- MP-158-209 Top Pipe Retainer
- MP-158-210 Bottom Pipe Retainer
- MP-158-100 Handle Assembly
- MP-158-102 Hasp

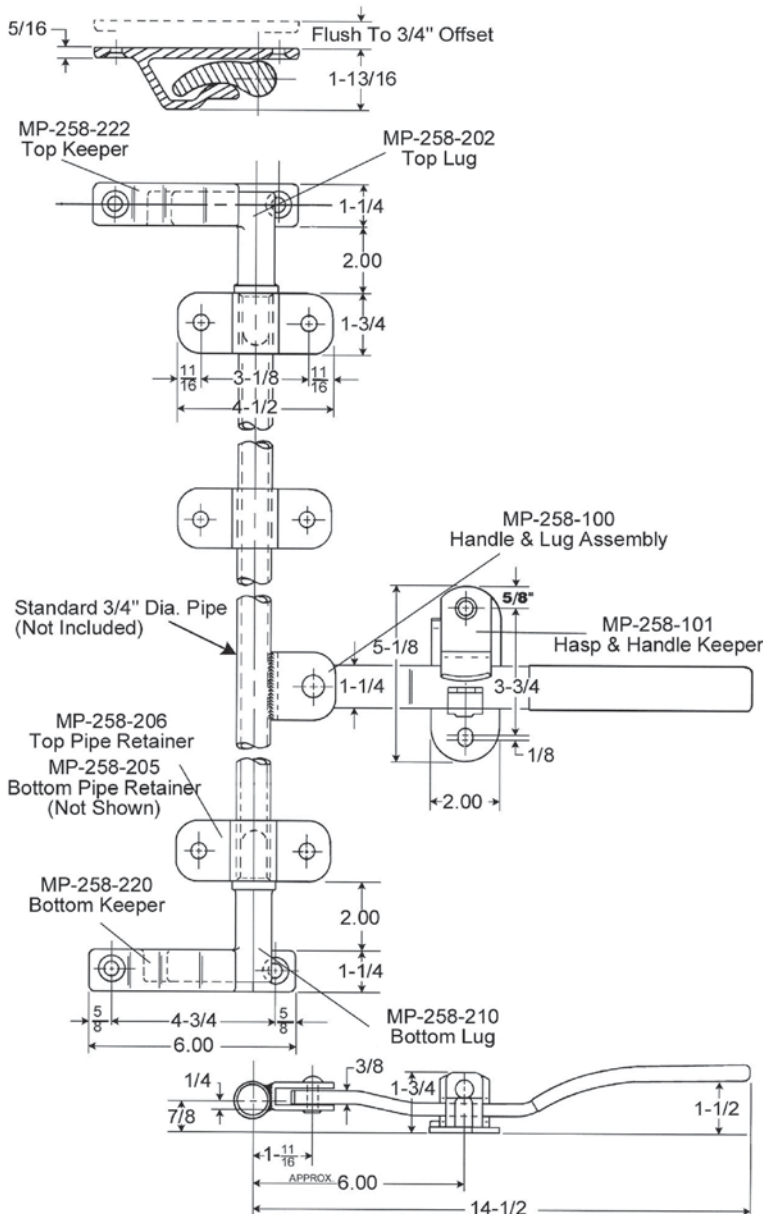
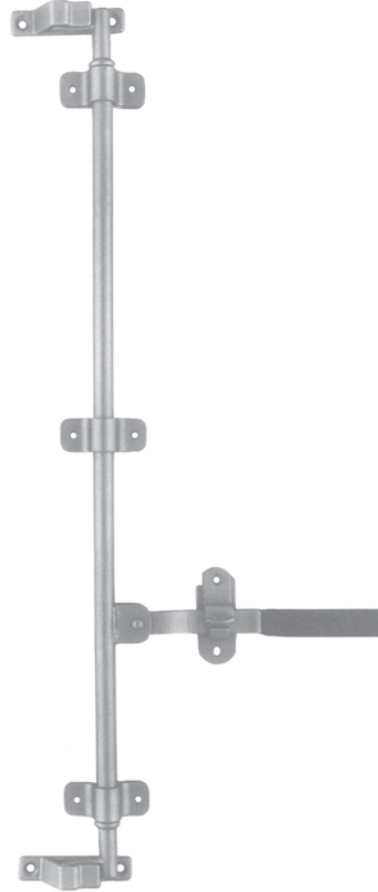
\* For Stainless Steel add -SS to end of part number.

# HEAVY DUTY CAM ACTION DOOR LOCK

## CAM ACTION LOCK

- For flush to 3/4" offset doors
- Handle has permanently affixed vinyl grip and is riveted to lug for security
- Features narrow 1-1/4" wide keepers for side or rear door applications
- All mounting holes are for 3/8" fasteners (not included)
- Universal for right or left hand applications
- Other variations available, call us for details
- Mounted with 3/4" Dia. pipe (not supplied)

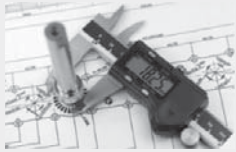
Part Number	Material
MP-258-002	Lugs & Keeper, Hot Dipped Galv. Hasp, Handle, Pipe Retainers, Zinc Plated



**Component Parts:**

- MP-258-100 Handle & Lug Assembly
- MP-258-101 Hasp & Handle Keeper
- MP-258-103 Safety Hasp & Inside Handle
- MP-258-202 Top Lug
- MP-258-210 Bottom Lug
- MP-258-222 Top Narrow Keeper
- MP-258-220 Bottom Narrow Keeper
- MP-258-206 Top Pipe Lock Retainer
- MP-258-205 Bottom Pipe Lock Retainer





**Strut not the exact right size to replace your current application's mounting points?** Our rod end extensions extend the overall length of struts while maintaining the stroke. This gives a much larger set of options right off the shelf without custom making parts.

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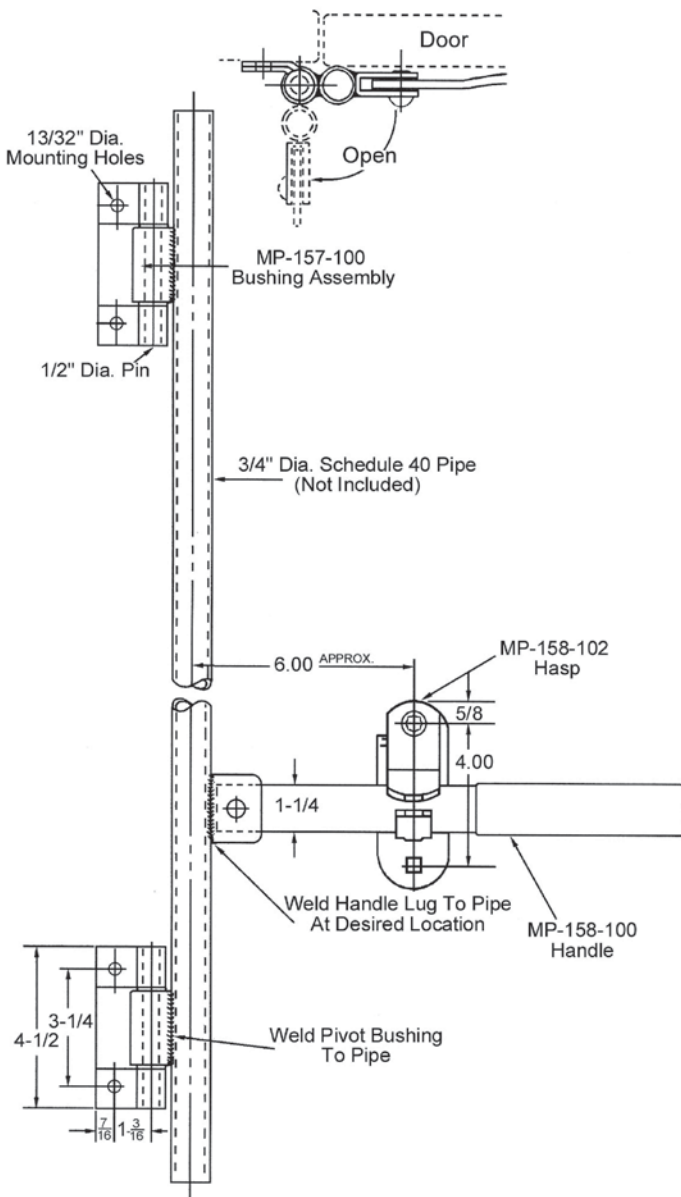
**Visit [www.asraymond.com](http://www.asraymond.com) for to learn more.**

# ECONOMY CAM ACTION DOOR LOCK

## SIDE DOOR CAM ACTION LOCK

- For flush to 3/4" offset doors
- Handle has permanently affixed vinyl grip and is riveted to lug for security
- Features narrow 1-1/4" wide keepers for side or rear door applications
- Universal for right or left hand applications
- Other variations available, call us for details
- Mounted with 3/4" Dia. pipe (not supplied)

Part Number	Material
MP-157	Steel Zinc Plate
MP-157-SS	304 Stainless Steel, Polished



**Component Parts:**

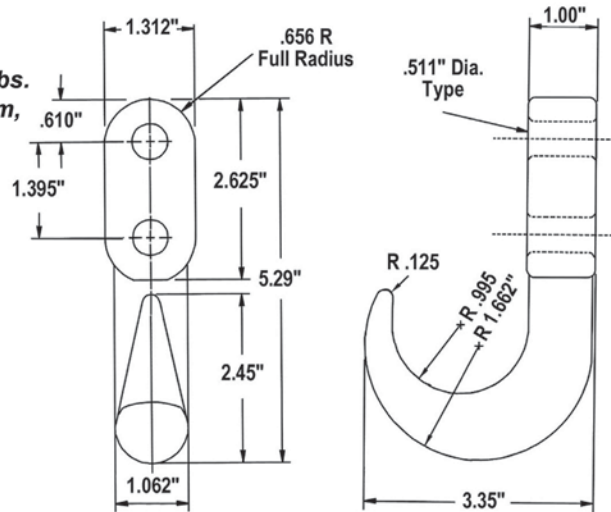
- MP-157-100 Bushing Assembly**
- MP-158-100 Handle Assembly**
- MP-158-102 Hasp & Handle Keeper**

*\* For Stainless Steel add -SS to end of part number.*

# HOOKS

## MINI TOW HOOK

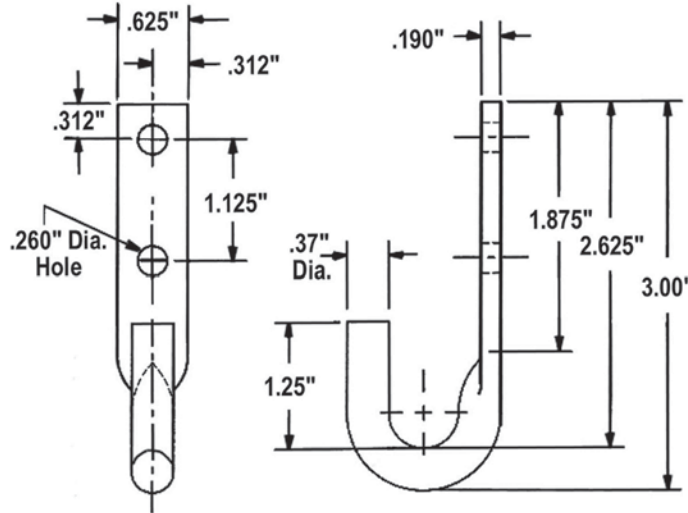
- Light duty tow hook
- Drop Forged
- Maximum working of load 10,000 lbs.
- Chrome finish is a non-stocked item, lead times may apply



Part Number	Finish
TH2799B	Black
TH2799C	Chrome

## SMALL ROPE HOOK

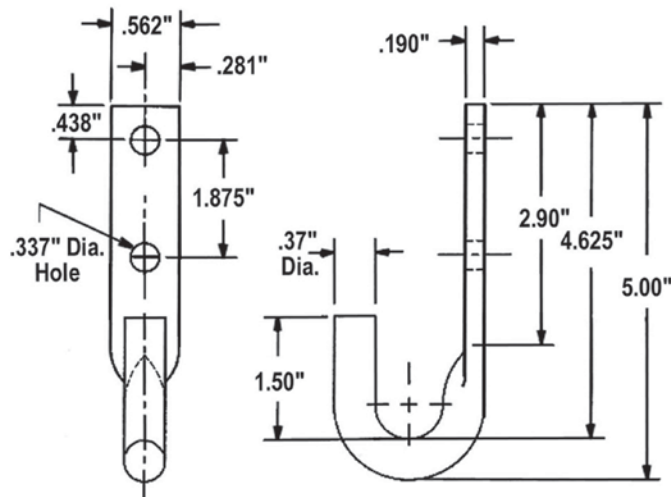
- Made from carbon steel
- Solid one piece construction



Part Number	Material
HO11431	Steel Zinc Plate

## LARGE ROPE HOOK

- Made from carbon steel
- Solid one piece construction

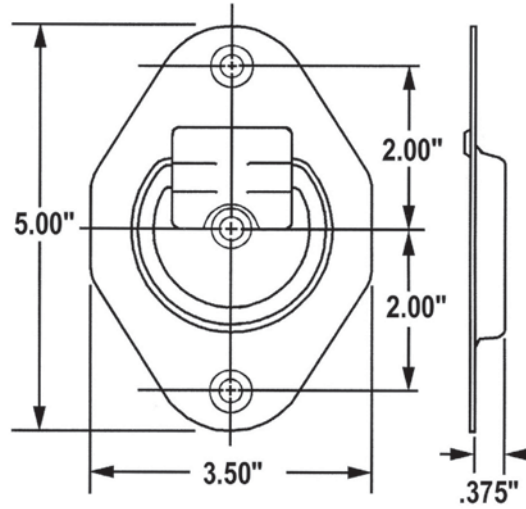


Part Number	Material
HO11430	Steel Zinc Plate

# ROPE RINGS

## RECESSED ROPE RING

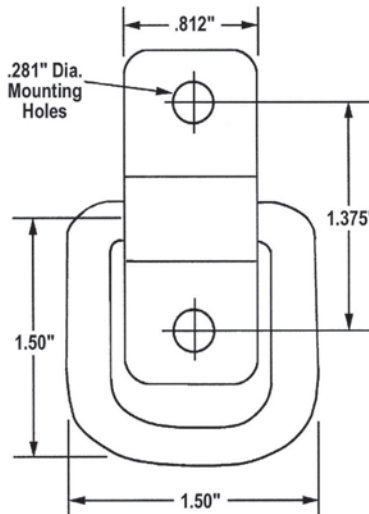
- For use with 3/8" plywood
- Made from 14 gauge steel
- Pan is recessed 3/8" to allow mounting direct to truck or trailer body cross members
- Supplied with three mounting holes for 1/4" FH screws



Part Number	Material
TD11428	Steel Zinc Plate

## ECONOMY ROPE RING

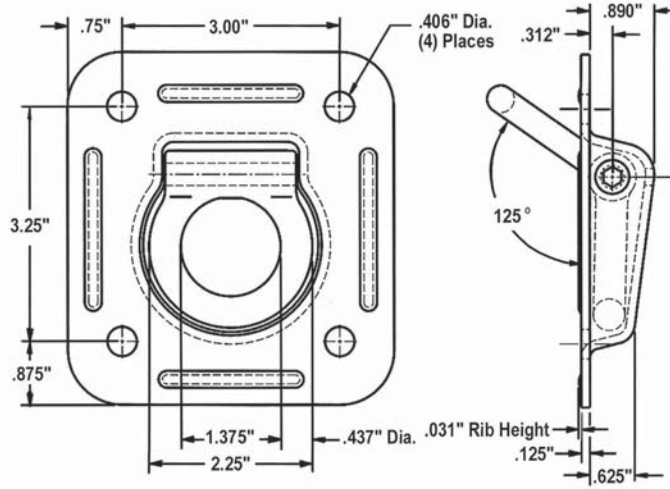
- Surface mount rope ring & mounting strap
- 10 gauge steel bracket
- .225" dia. steel "D" ring



Part Number	Description
TD700	Steel Zinc Plate

# ROPE RINGS

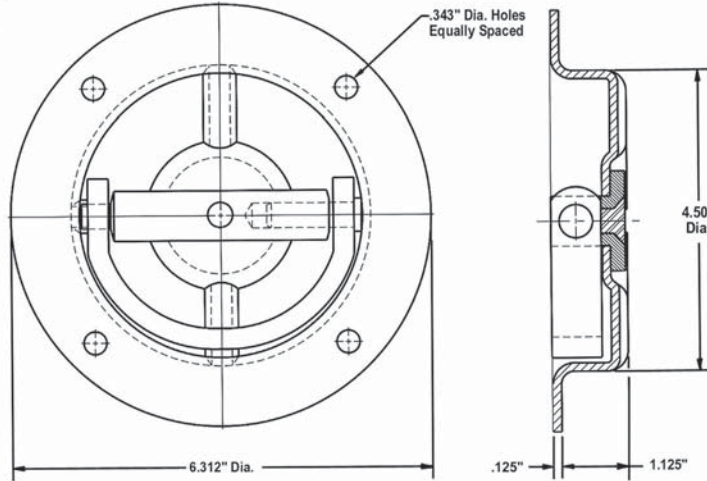
- Compact heavy duty design
- 5000 lb. load capacity
- Made from 11 gauge steel



Part Number	Material
TD11427	Steel Zinc Plate

## HEAVY DUTY ROPE RING

- Large diameter pan
- 6000 lb. load capacity
- Ring swivels 360°
- Made from 11 gage steel
- Pan recessed 1"



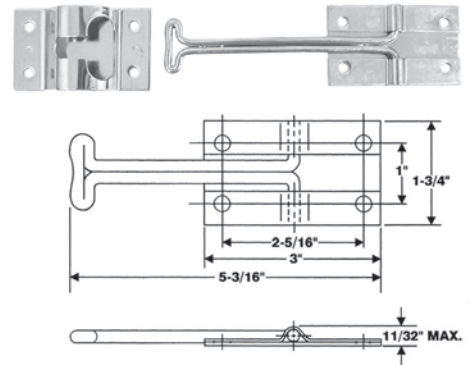
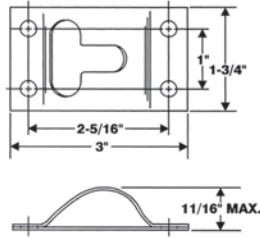
Part Number	Material
TD11966	Steel Zinc Plate



# DOOR HOLDERS

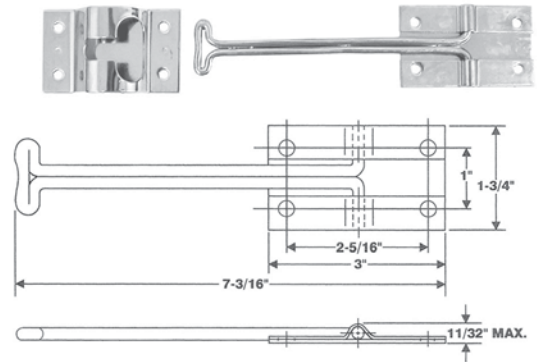
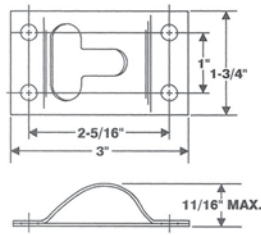
## HOLD TITE DOOR HOLDERS

Part Number	Description	Material	Finish
DH-8-ZP	Hook & Keeper	Steel	Zinc Plate
DH-8-SS	Hook & Keeper	Stainless Steel	-



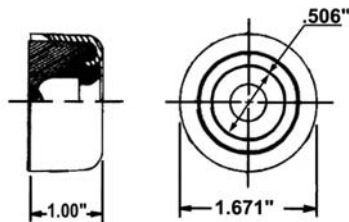
## HOLD TITE DOOR HOLDERS

Part Number	Description	Material	Finish
DH-9-ZP	Hook & Keeper	Steel	Zinc Plate
DH-9-SS	Hook & Keeper	Stainless Steel	-



# RUBBER DOOR HOLDERS

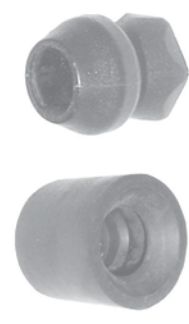
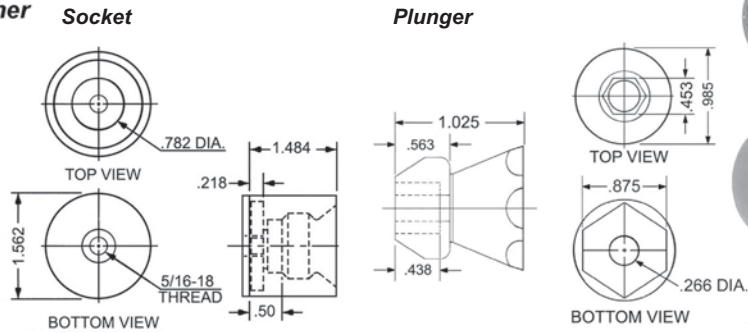
Part Number	DH-68
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# RUBBER DOOR HOLDERS

## DOOR HOLD BACK

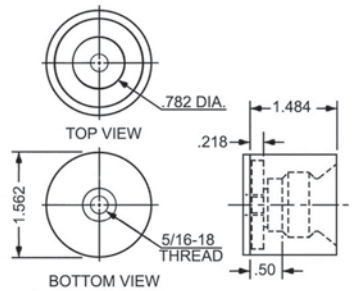
- Rubber socket with metal washer
- Black polymer plunger



Part Number	Description
DH-12105	Socket & Plunger Kit
DH-12105-M	Plunger Only
DH-12025-F	Socket Only

## DOOR HOLDER SOCKET

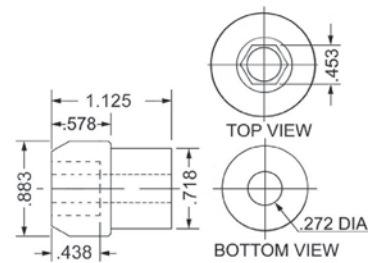
- Black rubber with steel washer



Part Number	DH12025-F
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## DOOR PLUNGER

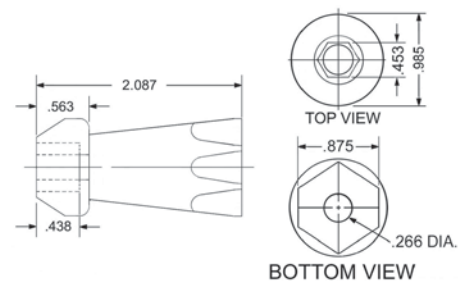
- Black Polymer



Part Number	DH12986
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## DOOR PLUNGER

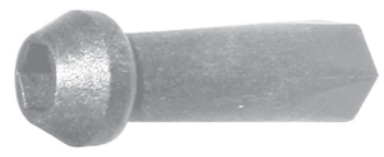
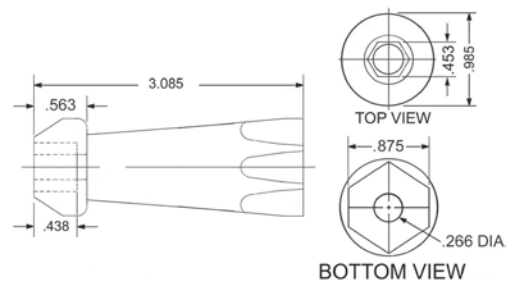
- Black Polymer



Part Number	DH12987
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## DOOR PLUNGER

- Black Polymer



Part Number	DH12988
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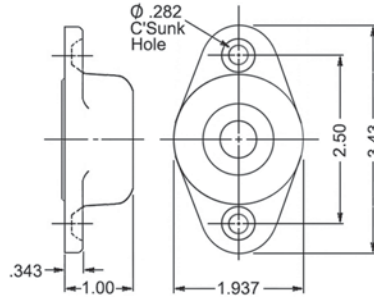


# SILENT DOOR HOLDERS

## DOOR SOCKET

- Rubber socket with steel housing
- Available in zinc plated steel or aluminum

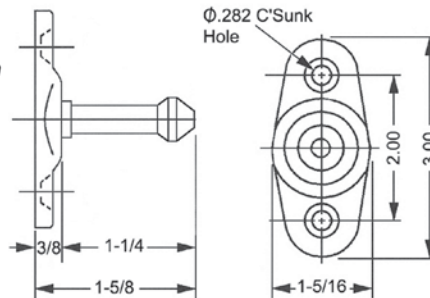
Part Number	Material
DH-66-ZP	Steel Zinc Plate
DH-66-A	Aluminum



## DOOR PLUNGER

- Available in zinc plated steel or aluminum

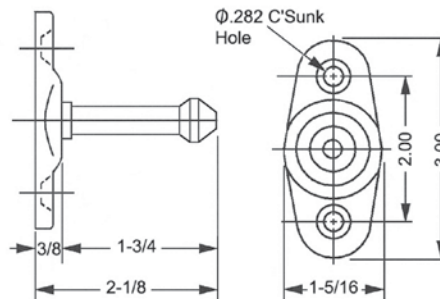
Part Number	Material
DH-61-ZP	Steel Zinc Plate
DH-61-A	Aluminum



## DOOR PLUNGER

- Available in zinc plated steel or aluminum

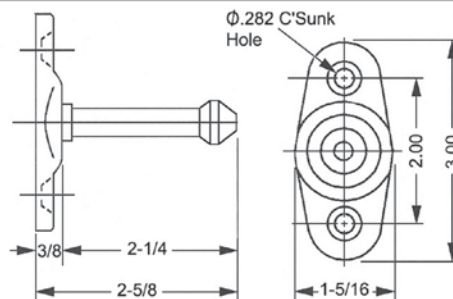
Part Number	Material
DH-62-ZP	Steel Zinc Plate
DH-62-A	Aluminum



## DOOR PLUNGER

- Available in zinc plated steel or aluminum

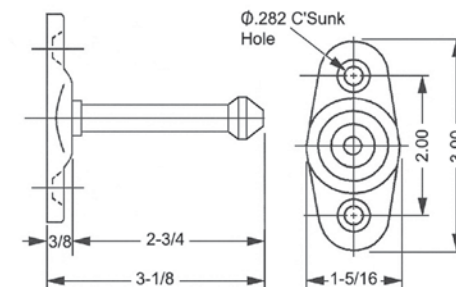
Part Number	Material
DH-63-ZP	Steel Zinc Plate
DH-63-A	Aluminum



## DOOR PLUNGER

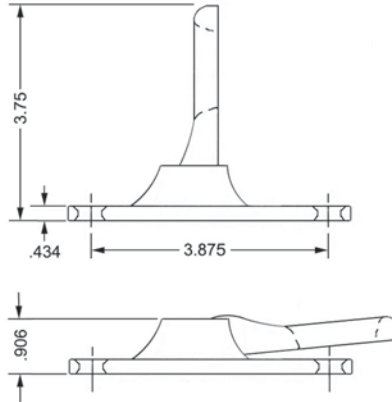
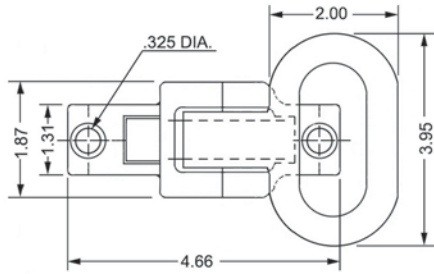
- Available in zinc plated steel or aluminum

Part Number	Material
DH-64-ZP	Steel Zinc Plate
DH-64-A	Aluminum



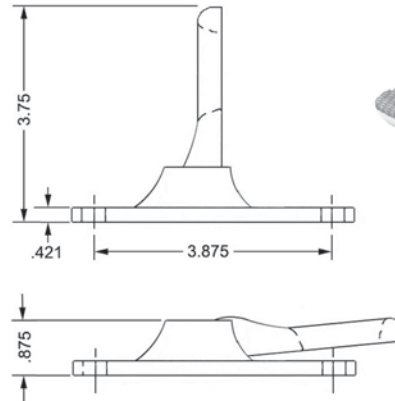
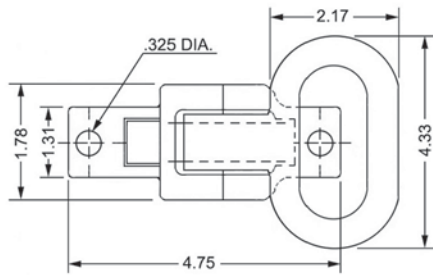
# FOLDING ASSIST

- *Designed for use on trucks, truck bodies, buses, and trailers*
- *Spring holds assist in open or closed position without rattling*



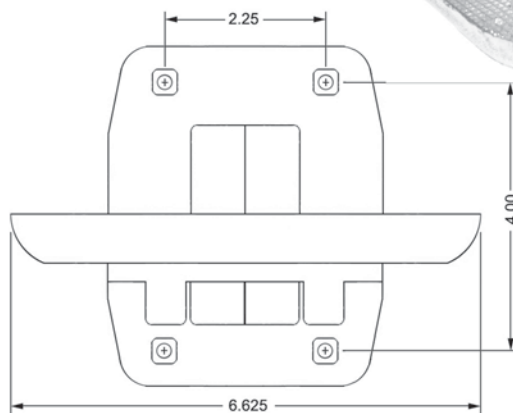
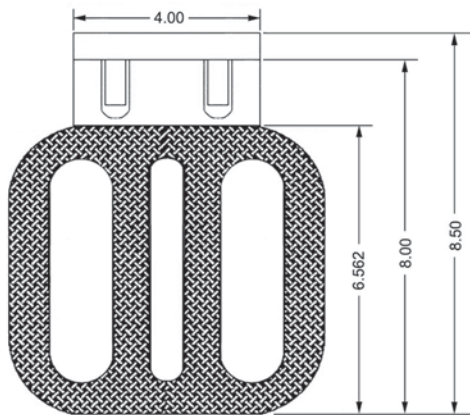
Part Number	Material	Finish
FS900	Malleable Iron	Zinc Plate

- *Designed for use on trucks, truck bodies, buses, and trailers*
- *Spring holds assist in open or closed position without rattling*



Part Number	Material	Finish
FS900X	Stainless Steel	Polished

- *Conforms to NFPA 1901 and FHA, 49CFR specifications*
- *Tested to withstand over 2000 lbs. static load*
- *42 square inches of step pad area*
- *Supplied with molded rubber mounting gasket*
- *Springs hold assist firmly in open or closed position without rattling*
- *Assist will not rust or corrode*



Part Number	Material	Finish
FS11931	Die-Cast Aluminum	Chrome Plate

# ROLL-UP DOOR HARDWARE

Associated Spring Raymond, a Division of Barnes Group now offers genuine roll-up door hardware and accessories. Whether you are looking for a replacement hinge or a complete operator assembly, we have the parts you need and the quality you demand. Our extensive inventory includes drop-in hardware replacements for many of the door systems in the market.

We can supply as little as one piece of hardware or custom tailor a stocking program to meet your needs, whether you are a small repair shop or a large retail supplier of replacement hardware. Contact your Associated Spring Raymond representative today for more details. In addition to the hardware shown, we can also supply custom engineered solutions to meet your design needs. We have a large inventory of truck hardware that includes seals, locks, handles and other miscellaneous items.

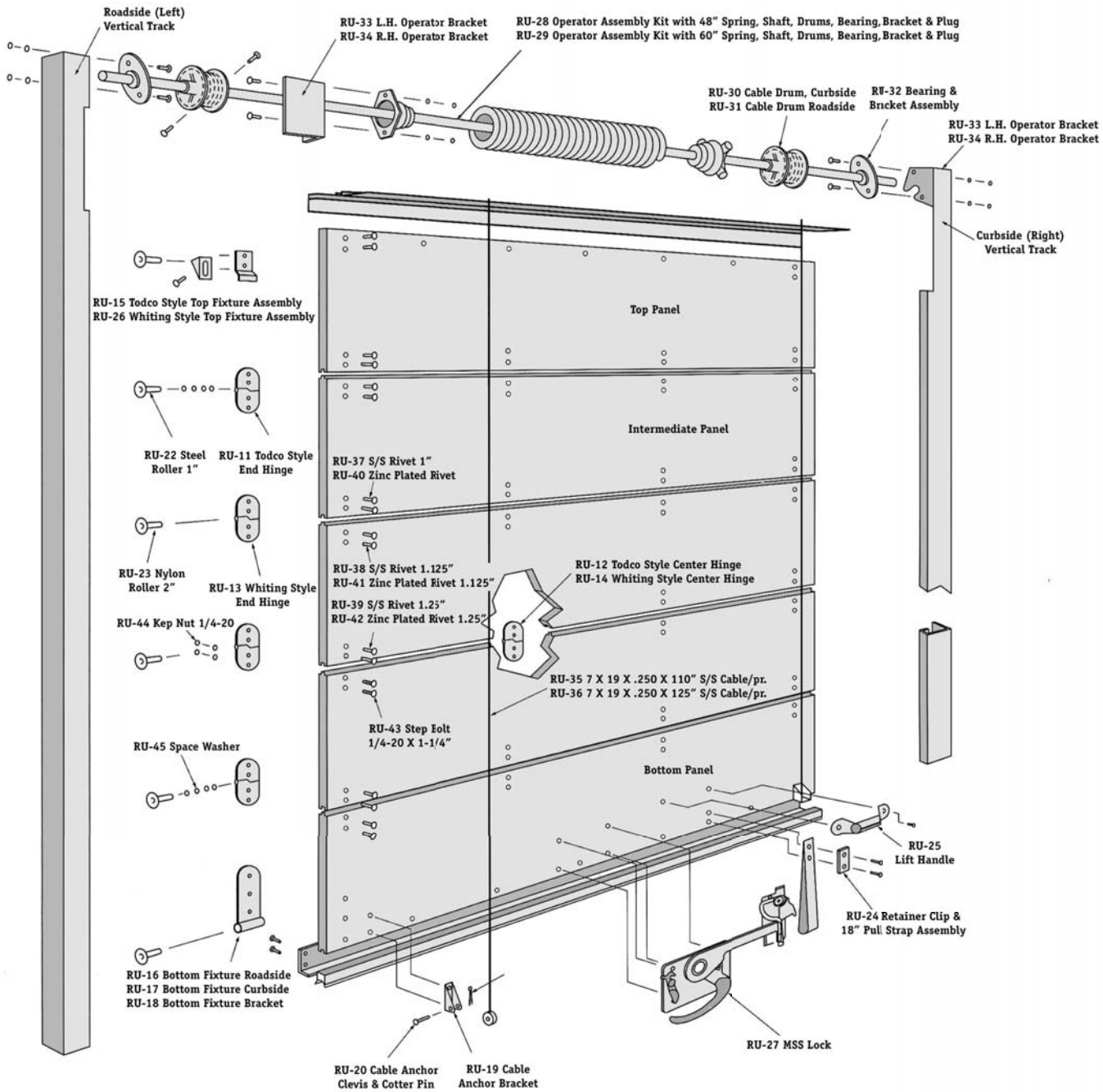
## Roll-Up Door Cross Reference Chart

Cross reference chart available with other manufacturers' descriptions and part numbers. Please contact Associated Spring Raymond's engineering team.

PART NUMBER	DESCRIPTION
RU-11	End Hinge
RU-12	Todco Style Center Hinge
RU-13	End Hinge
RU-14	W Style Center Hinge
RU-15	Top Fixture Assembly
RU-16	Bottom Fixture - Roadside
RU-17	Bottom Fixture - Curbside
RU-18	Bottom Fixture - Bracket
RU-19	Cable Anchor Bracket
RU-20	Cable Anchor Cotter & Clevis Pin
RU-22	1.00" Steel Roller
RU-23	2.00" Nylon Roller
RU-24	18" Pull Strap Assembly
RU-25	Lift Handle
RU-26	Top Fixture Assembly
RU-27	MSS Lock Assembly
RU-28	Operator Assembly With 48" Spring
RU-29	Operator Assembly With 60" Spring
RU-30	Cable Drum - Curbside
RU-31	Cable Drum - Roadside
RU-32	Bearing & Bracket Assembly
RU-33	Left Hand Operator Bracket
RU-34	Right hand Operator Bracket
*RU-35	7 X 19 X .250 X 110" SS Cable Pair
*RU-36	7 X 19 X .250 X 125" SS Cable Pair
RU-37	1.00" SS Tubular Rivet
RU-38	1.125" SS Tubular Rivet
RU-39	1.25" SS Tubular Rivet
RU-40	1.00" Steel Zinc Plate Tubular Rivet
RU-41	1.125" Steel Zinc Plate Tubular Rivet
RU-42	1.25" Steel Zinc Plate Tubular Rivet
RU-43	1/4-20 X 1-1/4" Step Bolt
RU-44	1/4-20 Self Locking "Kep" Nut
RU-45	Space Washer

\* Please note that RU-35 and RU-36 stainless steel cables are sold by the pair and not each.\*

# ROLL-UP DOOR HARDWARE



\*Door panels are available in various sizes, materials and finishes. Please contact our Engineering Team for further information.



# Associated Spring **RAYMOND**

 A business of BARNES GROUP INC

**Raymond**<sup>®</sup> **SPEC**<sup>®</sup> CloverDome  
Stock Precision Engineered Components

**m-Struts**<sup>®</sup> *e-Struts*<sup>™</sup> **SPD** **n-Struts**<sup>®</sup>  
UNMATCHED PERFORMANCE HIGH POWERED PERFORMANCE FLUID PERFORMANCE EVERYTIME

## **Associated Spring RAYMOND seeks to exceed customer expectations.**



Innovative engineered products delivered when and where customers want them is the Associated Spring RAYMOND way.

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Individualized Solutions and Service, Provided Just-In-Time

## TERMS OF SALE

1. With respect to goods purchased by Buyer from Seller ("Goods"), no contract exists until Buyer places order for delivery and such order is accepted by Seller's acknowledging receipt of the order, by Seller's commencement of work on the Goods ordered, or by Seller's shipment of the Goods, whichever occurs first. Any acceptance will be limited to the express terms contained on the face hereof. Additional or different terms in Buyer's form or any attempt by Buyer to vary in any degree any of the terms of this quotation shall be deemed material and are objected to and rejected, but this shall not prevent the formation of a contract between Buyer and Seller unless such variances are in the terms of the description, quantity, price or delivery schedule of the goods, and the order shall be deemed accepted by Seller without said additional or different terms.

2. All agreements are contingent upon strikes, accidents and other reasons for delay beyond Seller's control

3. Where a separate charge is made for specially designed tools and dies, Seller will maintain such tools and dies without further cost to Buyer for the life of such tool or die so long as the part remains active and the design is not changed and Seller will not use such tools and dies for others without Buyer's permission, but Buyer acquires no right to remove any such tools or dies from Seller's factory.

4. Seller warrants to Buyer that the Goods purchased by Buyer from Seller shall be free from defects in material and workmanship. This warranty is the only warranty applicable to the Goods. THERE ARE NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED.

5. All Goods shall be inspected by Buyer when received and Seller shall not be liable for any defect unless notified in writing within 60 days after delivery.

6. Seller's liability for breach of warranty shall be limited solely and exclusively to repairing or replacing, at Seller's option, the defective Goods. In no event shall the liability of Seller for breach of any contractual provision relating to the Goods exceed the purchase price of the Goods quoted herein. In no event shall Seller be liable for any special, incidental or consequential damages arising out of Buyer's use or sale of the Goods or Seller's breach of any contractual provisions relating to the Goods, including but not limited to any loss of profits or production by Buyer. Any action resulting from any breach by Seller must be commenced within one year after the cause of action accrued.

7. Except to the extent caused by Seller's breach of warranty, Buyer shall indemnify and hold harmless Seller, its employees, officers and directors, and their respective successors and assigns, (collectively, "Indemnities") from and against any and all liability, damages, claims, causes of action, losses, costs and expenses (including attorneys' fees) of any kind

(collectively, "Damages") arising out of injuries to any person (including death) or damage to any property caused by or related to the Goods or any negligent act or omission of Buyer, its employees or agents. Buyer shall indemnify and hold harmless each of the Indemnities from and against any and all Damages, royalties and license fees arising from or for infringement of any patent by reason of any sale or use of the Goods or the manufacture of the Goods to Buyer's specifications or sample. Upon the tendering of any of the foregoing suits or claims to Buyer, Buyer shall defend the same at Buyer's expense. The foregoing obligations of Buyer shall apply whether Seller or Buyer defends such suits or claim.

8. Seller reserves the right to over and under ship by not more than 10% of specified quantity.

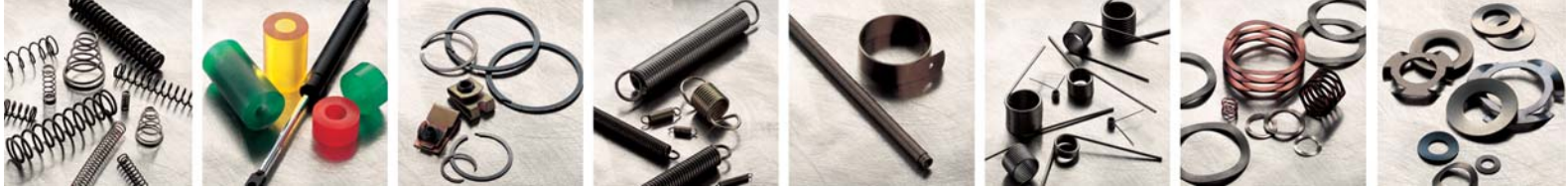
9. Small quantities are considered prototype quantities and cannot be returned since the cost of re-inspecting and handling them is generally higher than the value of the parts. Larger quantities may not be returnable depending on the ability to re-sell these parts within a reasonable time period. Special runs are not returnable. All returns must be authorized and an Authorization Number is required. Please contact our Customer Service at [springsales@asraymond.com](mailto:springsales@asraymond.com) or by phone at 419-891-9292. Unauthorized returns will be returned at customer's expense. All authorized returns must be in their original packaging and labeling to insure lot control integrity. Parts cannot be altered or used in any fashion. Parts from separate lots cannot be mixed. A restocking fee will be charged to authorized returns. Additional charges may be required for re-inspection, cleaning and repackaging. Credit for damaged parts will not be issued. All returns will be shipped to the authorized return center pre-paid by sender. Actual credit issued will be for the quantity of acceptable parts at the original piece price, less the restocking charge, less the original freight and any other charges that are necessary to return the parts to a saleable condition.

10. Your credit or debit card will not be charged until your item(s) is shipped, at which time we will email you tracking information.

Before your item(s) is shipped, your debit or credit card statement may show what looks like a deduction from your account. Please note, these funds have not been deducted but are being reserved within your account to ensure your order can be processed. This is known as an "authorization hold" and typically lasts from 3-7 days, depending upon the policy of your bank

Latest Information Available at [www.asraymond.com](http://www.asraymond.com)

# Associated Spring-Raymond



## United States

### OHIO

370 W. Dussel Drive - Suite A  
Maumee, OH 43537  
Phone: 419.891.9292  
Fax: 419.891.9192

### CALIFORNIA

6180 Valley View Avenue  
Buena Park, CA 90620  
Phone: 714.523.5125  
Fax: 714.523.5120

## Canada

Associated Spring Raymond  
Toll Free: 1.800.263.4256  
Phone: 814.664.7153  
Fax: 419.891.5979

**For the center nearest you, call toll free:**  
**In the continental U.S.: 1.800.872.7732**  
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**On the Internet**  
**[www.asraymond.com](http://www.asraymond.com)**

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