

TENSION BUSHES

Solving problems related to static and dynamic bearing loads of machine parts is the forte of tension bushes.

Tension bushes, manufactured from rolled spring steel and through hardened offer a cost effective solution to protecting machine parts that are subjected to harsh and abrasive low lubrication environments.

They provide the ideal bearing surface for parts subjected to high load, low speed rotational or oscillating motions.

Used extensively in the manufacture of agricultural and construction equipment to protect pivot housings. Ideal for using in the ends of hydraulic ram arms for protection against rotational wear.

Click for relevant Bush below

[Standard bushes](#)

Metric Internal tension bush with Straight Slot

[Non-standard bushes](#)

Inch Internal Tension Bush with Straight Slot

Internal Tension Bush with Arrow Slot

Internal Tension Bush with Wavy Slot

Internal Tension Bush – scrolled for easy lubrication

External Tension Bush with Straight Slot

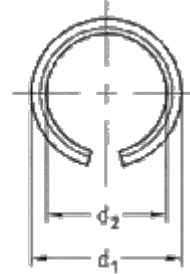
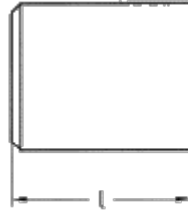
Various special configuration Tension Bushes



[Click for Installation/Removal of Tension Bushes](#)

[Click for Tension Bush Applications](#)

INTERNAL TENSION BUSH – DIN1498 (METRIC)



Materials: CK67 Spring Steel DIN 17222 (AISI 1070-1095)
 Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS) non-standard, please contact our Sales Dept.
 Heat treatment: Hardened and tempered

Finish: Oiled (other finishes on request)

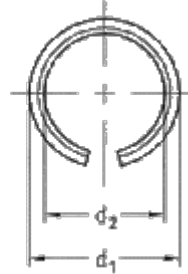
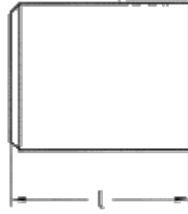
When ordering: Please state: **O.D + I.D. + required Length** (ie: 14-10-50)

All data is correct to the best of our knowledge, however Headland cannot be held responsible for any errors or omissions.

Nominal O.D. d1 mm	Nominal I.D. d2 mm	Lengths L mm	Wall thickness mm	Tolerance		O.D. before insertion mm	I.D.			Ext. chamfer (tolerance) mm	Int. chamfer (tolerance) mm
				hole size			after insertion				
				Min. mm	Max. mm		Min. I.D. mm	Max. I.D. mm	for Length mm		
14	10	10-50	2	14	14.027	14.5	+0.040	+0.098	10-50	1.5 (±0.2)	1 (±0.2)
16	10	10-50	3	16	16.027	16.5				1.5 (±0.2)	1 (±0.2)
16	10	10-50	2	16	16.027	16.5				1.5 (±0.2)	1 (±0.2)
18	12	10-50	3	18	18.027	18.5				1.5 (±0.2)	1 (±0.2)
18	14	10-50	2	18	18.027	18.5				1.5 (±0.2)	1 (±0.2)
20	14	10-50	3	20	20.033	20.5				1.5 (±0.2)	1 (±0.2)
20	16	10-50	2	20	20.033	20.5				1.5 (±0.2)	1 (±0.2)
22	16	10-50	3	22	22.033	22.5				1.5 (±0.2)	1 (±0.2)
24	18	10-50	3	24	24.033	24.5				1.5 (±0.2)	1 (±0.2)
26	20	10-100	3	26	26.033	26.5				+0.065	+0.149 +0.195
28	20	10-100	4	28	28.033	28.5	2 (±0.5)	1 (±0.2)			
28	22	10-100	3	28	28.033	28.5	2 (±0.5)	1 (±0.2)			
30	25	10-100	2.5	30	30.033	30.5	2 (±0.5)	1 (±0.2)			
32	25	10-100	3.5	32	32.039	32.5	2 (±0.5)	1 (±0.2)			
32	26	10-100	3	32	32.039	32.5	2 (±0.5)	1 (±0.2)			
35	25	10-100	5	35	35.039	35.5	2 (±0.5)	1 (±0.2)			
35	27	10-100	4	35	35.039	35.5	2 (±0.5)	1 (±0.2)			
35	28	10-100	3.5	35	35.039	35.5	2 (±0.5)	1 (±0.2)			
36	30	10-100	3	36	36.039	36.5	2 (±0.5)	1 (±0.2)			
38	30	10-100	4	38	38.039	38.5	+0.080 +0.080	+0.180 +0.240	10-50 50-100	2 (±0.5)	2 (±0.5)
40	30	10-100	5	40	40.039	40.5				2 (±0.5)	2 (±0.5)
40	32	10-100	4	40	40.039	40.5				2 (±0.5)	2 (±0.5)
42	33	10-100	4.5	42	42.039	42.5				2 (±0.5)	2 (±0.5)
42	35	10-100	3.5	42	42.039	42.5				2 (±0.5)	2 (±0.5)
45	35	10-100	5	45	45.039	45.5				2 (±0.5)	2 (±0.5)
45	36	10-100	4.5	45	45.039	45.5				2 (±0.5)	2 (±0.5)
50	40	10-100	5	50	50.039	50.5				2.5 (±0.5)	2 (±0.5)
50	42	10-100	4	50	50.039	50.8				2.5 (±0.5)	2 (±0.5)
54	45	10-100	4.5	54	54.046	54.8				2.5 (±0.5)	2 (±0.5)
55	45	10-100	5	55	55.046	55.8	2.5 (±0.5)	2 (±0.5)			
58	50	10-100	4	58	58.046	58.8	2.5 (±0.5)	2 (±0.5)			
60	50	10-100	5	60	60.046	60.8	2.5 (±0.5)	2 (±0.5)			
65	55	10-200	5	65	65.046	65.8	2.5 (±0.5)	2 (±0.5)			

70	60	10-200	5	70	70.046	70.8				2.5 (±0.5)	3 (±1.0)
75	65	10-200	5	75	75.046	75.8	+0.100	+0.290	10-50	2.5 (±0.5)	3 (±1.0)
80	70	10-200	5	80	80.046	80.8	+0.100	+0.400	50-100	2.5 (±0.5)	3 (±1.0)
85	70	10-200	7.5	85	85.054	85.8	+0.100	+0.560	100-200	2.5 (±0.5)	3 (±1.0)
90	75	10-200	7.5	90	90.054	90.8				2.5 (±0.5)	3 (±1.0)
90	80	40-200	5	90	90.054	90.8				3 (±1.0)	3 (±1.0)
95	80	40-200	7.5	95	95.054	95.8				3 (±1.0)	3 (±1.0)
100	85	40-200	7.5	100	100.054	100.8				3 (±1.0)	3 (±1.0)
100	90	40-200	5	100	100.054	100.8				3 (±1.0)	3 (±1.0)
105	90	40-200	7.5	105	105.054	105.8	+0.120	+0.340	40-50	3 (±1.0)	3 (±1.0)
105	95	40-200	5	105	105.054	105.8	+0.120	+0.470	50-100	3 (±1.0)	3 (±1.0)
110	95	40-200	7.5	110	110.054	110.8	+0.120	+0.660	100-200	3 (±1.0)	3 (±1.0)
110	100	40-200	5	110	110.054	111				3 (±1.0)	3 (±1.0)
115	100	40-200	7.5	115	115.054	116				3 (±1.0)	3 (±1.0)
120	105	40-200	7.5	120	120.054	121				3 (±1.0)	3 (±1.0)
125	110	40-200	7.5	125	125.063	126	+0.120	+0.470	40-100	3 (±1.0)	3 (±1.0)
130	115	40-200	7.5	130	130.063	131	+0.120	+0.660	100-200	3 (±1.0)	3 (±1.0)
135	120	40-200	7.5	135	135.063	136				3 (±1.0)	3 (±1.0)
140	125	40-200	7.5	140	140.063	141				4 (±1.0)	4 (±1.0)
145	130	40-200	7.5	145	145.063	146				4 (±1.0)	4 (±1.0)
150	135	40-200	7.5	150	150.063	151				4 (±1.0)	4 (±1.0)
155	140	40-200	7.5	155	155.063	156				4 (±1.0)	4 (±1.0)
160	145	40-200	7.5	160	160.063	161	+0.145	+0.545	40-100	4 (±1.0)	4 (±1.0)
165	150	40-200	7.5	165	165.063	166	+0.145	+0.775	100-200	4 (±1.0)	5 (±1.0)
175	155	40-200	10	175	175.063	176				4 (±1.0)	5 (±1.0)
180	160	40-200	10	180	180.063	181				4 (±1.0)	5 (±1.0)
185	165	40-200	10	185	185.072	186				4 (±1.0)	5 (±1.0)
190	170	40-200	10	190	190.072	191				4 (±1.0)	5 (±1.0)
200	180	40-200	10	200	200.072	201				4 (±1.0)	5 (±1.0)

INTERNAL TENSION BUSH (INCH)



Materials: CK67 Spring Steel DIN 17222 (AISI 1070-1095)
 Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS) non-standard, please contact our Sales Dept.
 Heat treatment: Hardened and tempered.

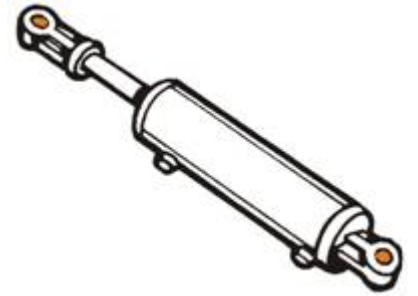
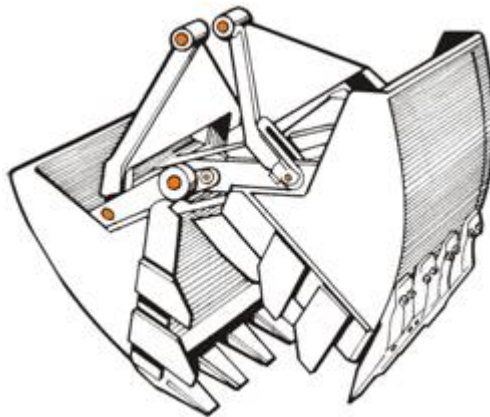
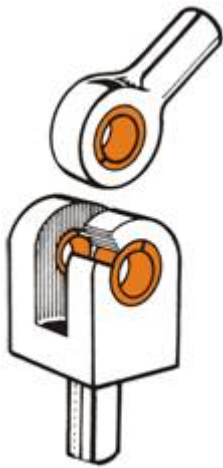
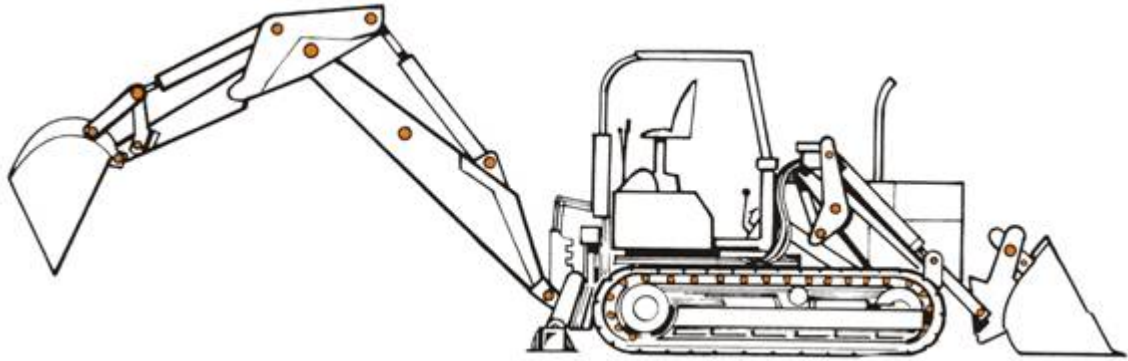
Finish: Oiled (other finishes on request)

When ordering: Please state: **O.D. + I.D. + required Length** (ie: 3/4 - 1/2 - 1)

All data is correct to the best of our knowledge, however Headland cannot be held responsible for any errors or omissions.

Nominal O.D. d1	Nominal I.D. d2	Lengths L	Wall thickness	Recommended hole size		O.D. before insertion (+0.02)	I.D. after insertion		Length of External chamfer	
				Min.	Max.		Min. I.D.	Max. I.D.	Min.	Max.
3/4	1/2	1/2 - 1 1/2	1/8	0.7500	0.7511	0.770	0.503	0.507	0.060	0.090
1	3/4	1/2 - 1 1/2	1/8	1.0000	1.0013	1.020	0.753	0.757	0.080	0.120
1 1/8	3/4	3/4 - 2	3/16	1.1250	1.1263	1.145	0.753	0.757	0.080	0.120
1 1/4	1	1/2 - 2	1/8	1.2500	1.2513	1.270	1.003	1.007	0.080	0.120
1 3/8	1	3/4 - 2	3/16	1.3750	1.3765	1.395	1.128	1.132	0.080	0.120
1 3/8	1 1/8	3/4 - 2	1/8	1.3750	1.3765	1.395	1.128	1.132	0.080	0.120
1 1/2	1 1/8	3/4 - 2	3/16	1.5000	1.5015	1.520	1.253	1.257	0.080	0.120
1 1/2	1 1/4	3/4 - 1 1/2	1/8	1.5000	1.5015	1.520	1.253	1.257	0.080	0.120
1 1/2	1 1/4	2 - 3	1/8	1.5000	1.5015	1.520	1.253	1.257	0.080	0.120
1 1/2	1	1 - 1 1/2	1/4	1.5000	1.5015	1.520	1.253	1.257	0.080	0.120
1 1/2	1	2 - 3	1/4	1.5000	1.5015	1.520	1.253	1.257	0.080	0.120
1 5/8	1 1/4	3/4 - 2	3/16	1.6250	1.6265	1.645	1.253	1.257	0.080	0.120
1 3/4	1 3/8	3/4 - 2	3/16	1.7500	1.7515	1.770	1.503	1.507	0.080	0.120
1 3/4	1 1/2	3/4 - 1 1/2	1/8	1.7500	1.7515	1.770	1.503	1.507	0.080	0.120
1 3/4	1 1/2	2 - 3	1/8	1.7500	1.7515	1.770	1.503	1.507	0.080	0.120
1 7/8	1 1/2	3/4 - 2	3/16	1.8750	1.8765	1.895	1.503	1.507	0.080	0.120
2	1 5/8	1 - 2 1/2	3/16	2.0000	2.0013	2.020	1.750	1.757	0.080	0.120
2	1 3/4	1 - 2 1/2	1/8	2.0000	2.0013	2.020	1.750	1.757	0.080	0.120
2	1 1/2	1 - 1 1/2	1/4	2.0000	2.0013	2.020	1.750	1.757	0.080	0.120
2	1 1/2	2 - 3	1/4	2.0000	2.0013	2.020	1.750	1.757	0.080	0.120
2 1/4	2	1 - 3	1/8	2.2500	2.2513	2.270	2.003	2.007	0.080	0.120
2 1/4	1 3/4	1 - 2 1/2	1/4	2.2500	2.2513	2.270	2.003	2.007	0.080	0.120
2 3/8	2	3/4 - 2	3/16	2.3750	2.3768	2.406	2.004	2.012	0.100	0.150
2 1/2	2 1/4	1 1/4 - 3	1/8	2.5000	2.5013	2.520	2.250	2.266	0.080	0.120
2 1/2	2	1 - 1 1/2	1/4	2.5000	2.5013	2.520	2.250	2.266	0.080	0.120
2 1/2	2	2 - 3	1/4	2.5000	2.5013	2.520	2.250	2.266	0.080	0.120
2 3/4	2 1/2	1 - 3	1/8	2.7500	2.7513	2.770	2.504	2.516	0.080	0.120
3	2 1/2	1 - 1 1/2	1/4	3.0000	3.0018	3.032	2.504	2.512	0.100	0.150
3	2 1/2	2 - 3	1/4	3.0000	3.0018	3.032	2.504	2.516	0.100	0.150
3 1/2	3	1 - 1 1/2	1/4	3.5000	3.5021	3.532	3.005	3.013	0.100	0.150
3 1/2	3	2 - 3	1/4	3.5000	3.5021	3.532	3.005	3.019	0.100	0.150

TENSION BUSHES – Examples of Application



INSTALLATION / REMOVAL OF TENSION BUSH

Due to the inherent elastic qualities, full length slit and chamfered end, tension bushes are easy to install with minimal tools. A Wide range of sizes can be installed using only a hammer and drift or hydraulic hand press.

Because their design permits compression and expansion they can be installed without causing damage to the surface of the bore or shaft to which they are fitted.

