

TENSION PINS

A tension pin is a slotted cylindrical fastener, heat-treated to achieve optimal toughness, resilience and shear strength. In manufacture, it is formed to a controlled diameter greater than the hole into which it is pressed. The self-locking tension pin is stronger and costs considerably less than mild carbon steel straight pin, taper pins or grooved pins of equivalent sizes.

Being hollow, the tension pin is lighter than a solid pin. Because it is self-locking, it saves the weight of projecting heads, tabs and extra locking parts.

[Click for relevant Pin below](#)

Standard Pins

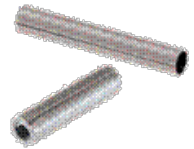
[Metric Tension Pin \(slotted\) DIN7346 / ISO13337 Light Duty](#)
[Metric Tension Pin \(slotted\) DIN1481 / ISO 8752 Heavy Duty](#)
[Metric Coiled Spring Pin DIN8750 / ISO7343 Standard Duty](#)
[Metric Coiled Spring Pin DIN8748 / ISO7344 Heavy Duty](#)

Non-Standard Bushes

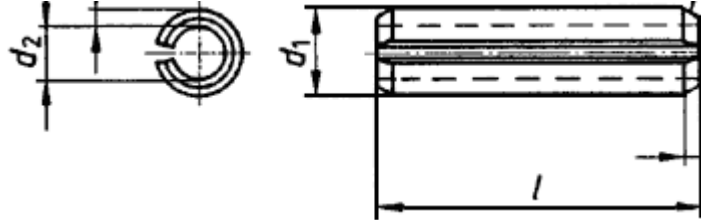
[Inch Tension pin](#)
[Inch Coiled Spring Pin](#)
[Various special configuration Pins](#)

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

[Click for Tension Pin Applications](#)



TENSION PIN – DIN7346 / ISO13337 Light Duty (METRIC)



Standard Lengths: 10mm – 200mm. For customized lengths, please contact our Sales Dept.

Pins with a nominal diameter of 10mm or greater may be delivered with one chamfer.

Materials: Spring Steel / High Carbon Steel
Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS)

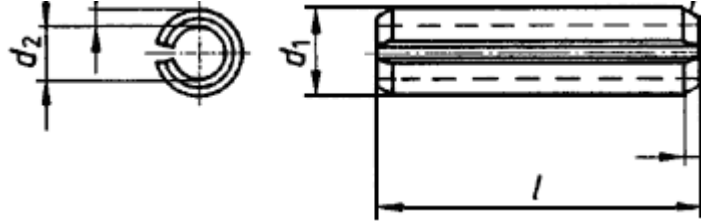
Finish: Oiled (other finishes on request)

When ordering: Please state: Nominal Diameter + Length + DIN-number

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

Diameter Nominal mm	Before Insertion			Chamfer Length		Wall Thickness mm	Recommended Hole Size		Double Shear kN Min. Carbon Steel only
	O.D. d1		I.D. d2 mm	Min. mm	Max. mm		Min. mm	Max. mm	
	Min. mm	Max. mm							
2.0	2.30	2.40	1.90	0.20	0.40	0.20	2.00	2.10	1.50
2.5	2.80	2.90	2.30	0.25	0.45	0.25	2.50	2.60	2.40
3.0	3.30	3.50	2.70	0.25	0.45	0.30	3.00	3.10	3.50
3.5	3.80	4.00	3.10	0.30	0.50	0.35	3.50	3.65	4.60
4.0	4.40	4.60	3.40	0.50	0.70	0.50	4.00	4.15	8.00
4.5	4.90	5.10	3.90	0.50	0.70	0.50	4.50	4.65	8.80
5.0	5.40	5.60	4.40	0.50	0.70	0.50	5.00	5.15	10.40
6.0	6.40	6.70	4.90	0.70	0.90	0.75	6.00	6.15	18.00
8.0	8.50	8.80	7.00	1.50	1.80	0.75	8.00	8.25	24.00
10.0	10.50	10.80	8.50	2.00	2.40	1.00	10.00	10.25	40.00
12.0	12.50	12.80	10.50	2.00	2.40	1.00	12.00	12.30	48.00
13.0	13.50	13.80	11.00	2.00	2.40	1.20	13.00	13.18	66.00
14.0	14.50	14.80	11.50	2.00	2.40	1.50	14.00	14.18	84.00
16.0	16.50	16.80	13.50	2.00	2.40	1.50	16.00	16.18	98.00
18.0	18.50	18.90	15.00	2.00	2.40	1.70	18.00	18.18	126.00
20.0	20.50	20.90	16.50	2.00	2.40	2.00	20.00	20.21	158.00
21.0	21.50	21.90	17.50	2.00	2.40	2.00	21.00	21.21	168.00
25.0	25.50	25.90	21.50	3.00	3.40	2.00	25.00	25.21	202.00
28.0	28.50	28.90	23.50	3.00	3.40	2.50	28.00	28.21	280.00
30.0	30.50	30.90	25.50	3.00	3.40	2.50	30.00	30.21	302.00
35.0	35.50	35.90	28.50	3.00	3.60	3.50	35.00	35.25	490.00
40.0	40.50	40.90	32.50	4.00	4.60	4.00	40.00	40.25	634.00
45.0	45.50	45.90	37.50	4.00	4.60	4.00	45.00	45.25	720.00
50.0	50.50	50.90	40.50	4.00	4.60	5.00	50.00	50.25	1000.00

TENSION PIN – DIN1481 / ISO8752 Heavy Duty (METRIC)



Standard Lengths: 10mm – 200mm. For customized lengths, please contact our Sales Dept.

Pins with a nominal diameter of 10mm or greater may be delivered with one chamfer.

Materials: Spring Steel / High Carbon Steel
Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS)

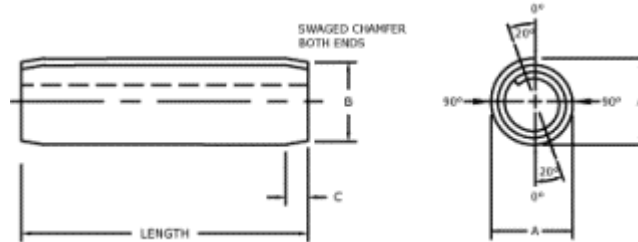
Finish: Oiled (other finishes on request)

When ordering: Please state: Nominal Diameter + Length + DIN-number

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Diameter Nominal mm	Before Insertion			Chamfer Length		Wall Thickness mm	Recommended Hole Size		Double Shear kN Min. Carbon Steel only
	O.D. d1		I.D. d2 mm	Min. mm	Max. mm		Min. mm	Max. mm	
	Min. mm	Max. mm							
1.0	1.20	1.30	0.80	0.15	0.35	0.20	1.00	1.10	0.70
1.5	1.70	1.80	1.10	0.25	0.45	0.30	1.50	1.60	1.58
2.0	2.30	2.40	1.50	0.35	0.55	0.40	2.00	2.10	2.82
2.5	2.80	2.90	1.80	0.40	0.60	0.50	2.50	2.60	4.38
3.0	3.30	3.50	2.10	0.50	0.70	0.60	3.00	3.10	6.32
3.5	3.80	4.00	2.30	0.60	0.80	0.75	3.50	3.65	9.06
4.0	4.40	4.60	2.80	0.65	0.85	0.80	4.00	4.15	11.24
4.5	4.90	5.10	2.90	0.80	1.00	1.00	4.50	4.65	15.36
5.0	5.40	5.60	3.40	0.90	1.10	1.00	5.00	5.15	17.54
6.0	6.40	6.70	4.00	1.20	1.40	1.20	6.00	6.15	26.04
8.0	8.50	8.80	5.50	2.00	2.40	1.50	8.00	8.25	42.76
10.0	10.50	10.80	6.50	2.00	2.40	2.00	10.00	10.25	70.16
12.0	12.50	12.80	7.50	2.00	2.40	2.50	12.00	12.30	104.10
13.0	13.50	13.80	8.50	2.00	2.40	2.50	13.00	13.30	115.10
14.0	14.50	14.80	8.50	2.00	2.40	3.00	14.00	14.30	144.70
16.0	16.50	16.80	10.50	2.00	2.40	3.00	16.00	16.30	171.00
18.0	18.50	18.90	11.50	2.00	2.40	3.50	18.00	18.30	222.50
20.0	20.50	20.90	12.50	3.00	3.40	4.00	20.00	20.30	280.60
21.0	21.50	21.90	13.50	3.00	3.40	4.00	21.00	21.30	298.20
25.0	25.50	25.90	15.50	3.00	3.40	5.00	25.00	25.30	438.50
28.0	28.50	28.90	17.50	3.00	3.40	5.50	28.00	28.30	542.60
30.0	30.50	30.90	18.50	3.00	3.40	6.00	30.00	30.30	631.40
32.0	32.50	32.90	20.50	3.00	3.60	6.00	32.00	32.30	684.00
35.0	35.50	35.90	21.50	3.00	3.60	7.00	35.00	35.30	859.00
38.0	38.50	38.90	23.50	4.00	4.60	7.50	38.00	38.30	1003.00
40.0	40.50	40.90	25.50	4.00	4.60	7.50	40.00	40.30	1068.00
45.0	45.50	45.90	28.50	4.00	4.60	8.50	45.00	45.30	1360.00
50.0	50.50	50.90	31.50	4.00	4.60	9.50	50.00	50.30	1685.00

COILED SPRING PIN – DIN8750 / ISO7343 Standard Duty & DIN8748 / ISO7344 Heavy Duty (METRIC)



Standard Lengths: 10mm – 200mm. For customized lengths, please contact our Sales Dept.

Materials: Spring Steel / High Carbon Steel
Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS)

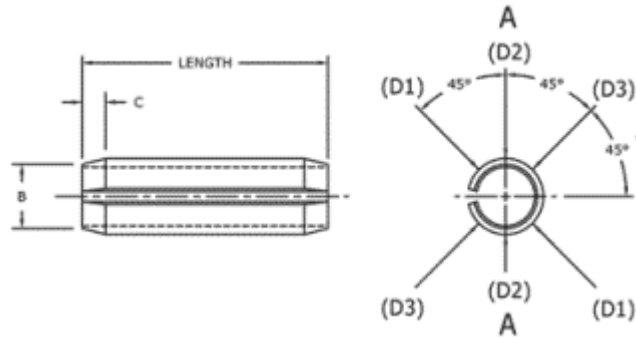
Finish: Oiled (other finishes on request)

When ordering: Please state: Nominal Diameter + Length + DIN-number

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Diameter Nominal mm	Diameter A				Chamfer		Recommended Hole Size		Minimum Double Shear in kN			
	Standard Duty		Heavy Duty		Diameter B	Length C			Standard Duty		Heavy Duty	
	Min. mm	Max. mm	Min. mm	Max. mm	Max. mm	Min. mm	Min. mm	Max. mm	Carbon steel & 420SS	302/304SS	Carbon steel & 420SS	302/304SS
1	1.05	1.15	N/A	N/A	0.95	0.3	1.0	1.04	0.60	0.45	N/A	N/A
1.5	1.62	1.73	1.61	1.71	1.40	0.5	1.5	1.60	1.45	1.05	1.90	1.45
2	2.13	2.25	2.11	2.21	1.90	0.7	2.0	2.10	2.50	1.90	3.50	2.50
2.5	2.65	2.78	2.62	2.73	2.40	0.7	2.5	2.60	3.90	2.90	5.50	3.80
3	3.15	3.30	3.12	3.25	2.90	0.9	3.0	3.10	5.50	4.20	7.60	5.70
3.5	3.67	3.84	3.64	3.79	3.40	1.0	3.5	3.62	7.50	5.70	10.00	7.60
4	4.20	4.40	4.15	4.30	3.90	1.1	4.0	4.12	9.60	7.60	13.50	10.00
5	5.25	5.50	5.15	5.35	4.85	1.3	5.0	5.12	15.00	11.50	20.00	15.50
6	6.25	6.50	6.18	6.40	5.85	1.5	6.0	6.12	22.00	16.80	30.00	23.00
8	8.30	8.63	8.25	8.55	7.80	2.0	8.0	8.15	39.00	30.00	53.00	41.00
10	10.35	10.80	10.30	10.65	9.75	2.5	10.0	10.15	62.00	48.00	84.00	64.00
12	12.40	12.85	12.30	12.75	11.70	3.0	12.0	12.20	89.00	67.00	120.00	91.00
16	16.45	17.00	16.40	16.90	15.60	4.0	16.0	16.30	155.00	N/A	210.00	N/A

TENSION PIN – Heavy Duty (INCH)



Standard Lengths: 1/16 Inches – 4 Inches. For customized lengths, please contact our Sales Dept.

Materials: Spring Steel / High Carbon Steel
Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS)

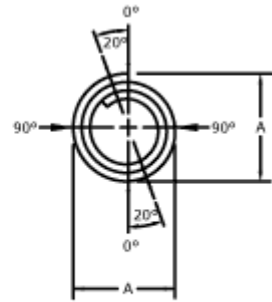
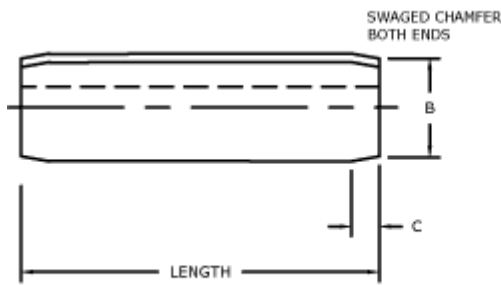
Finish: Oiled (other finishes on request)

When ordering: Please state: Nominal Diameter + Length

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A		B		C		Wall Thickness	Recommended Hole Size		Minimum Double Shear in Lbs		
Diameter Nominal	Diameter D1 + D2 + D3		Max.	Chamfer Length			Min.	Max.	Carbon steel & 420SS	302/304SS	
	Min.	Max.		Min.	Max.						
1/16	.062	.066	.069	.059	.007	.028	.012	.062	.065	430	250
5/64	.078	.083	.086	.075	.008	.032	.018	.078	.081	800	460
3/32	.094	.099	.103	.091	.008	.038	.022	.094	.097	1,150	670
1/8	.125	.131	.135	.122	.008	.044	.028	.125	.129	1,875	1,090
5/32	.156	.162	.167	.151	.010	.048	.032	.156	.160	2,750	1,600
3/16	.187	.194	.199	.182	.011	.055	.040	.187	.192	4,150	2,425
7/32	.219	.226	.232	.214	.011	.065	.048	.219	.224	5,850	3,400
1/4	.250	.258	.264	.245	.012	.065	.048	.250	.256	7,050	4,100
5/16	.312	.321	.330	.306	.014	.080	.062	.312	.318	10,800	6,300
3/8	.375	.385	.395	.368	.016	.095	.077	.375	.382	16,300	9,500
7/16	.437	.448	.459	.430	.017	.095	.077	.437	.445	19,800	11,500
1/2	.500	.513	.524	.485	.025	.110	.094	.500	.510	27,100	15,800
5/8	.625	.640	.653	.608	.030	.125	.125	.625	.636	46,000	18,800
3/4	.750	.769	.784	.730	.030	.150	.150	.750	.764	66,000	23,200

COILED SPRING PIN Standard Duty & Heavy Duty (INCH)



Standard Lengths: 1/16 Inches – 4 Inches. For customized lengths, please contact our Sales Dept.

Materials: Spring Steel / High Carbon Steel
Stainless Steel (Chrome AISI 420 & Nickel AISI 302/304SS)

Finish: Oiled (other finishes on request)

When ordering: Please state: Nominal Diameter + Length + Duty

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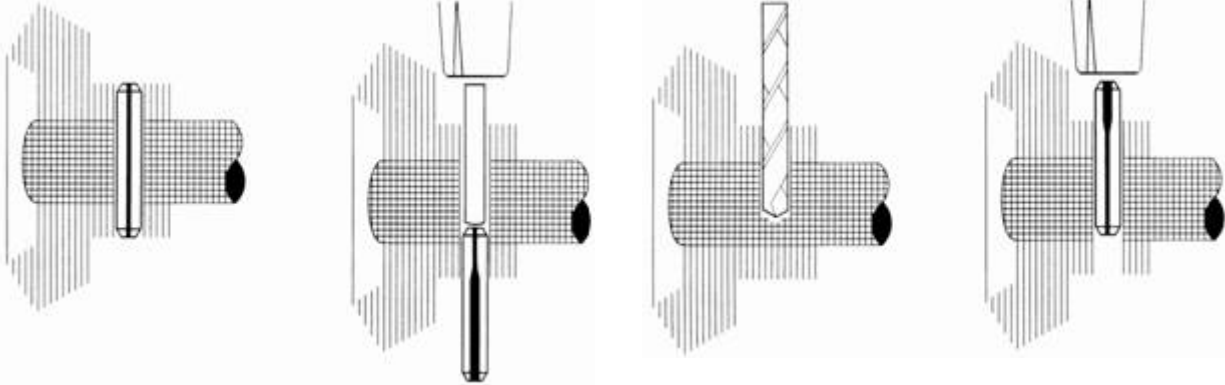
Diameter Nominal		Diameter A				Chamfer		Recommended Hole Size		Minimum Double Shear in Lbs			
		Standard Duty		Heavy Duty		Nominal				Standard Duty		Heavy Duty	
		Min.	Max.	Min.	Max.	Max. B	Ref. C			Carbon Steel & 420SS	302/304SS	Carbon Steel & 420SS	302/304SS
1/16	.062	.067	.072	.066	.070	.059	.028	.061	.065	330	265	475	360
5/64	.078	.083	.088	.082	.086	.075	.032	.077	.081	550	425	800	575
3/32	.094	.099	.105	.098	.103	.091	.038	.093	.097	775	600	1,150	825
1/8	.125	.131	.138	.130	.136	.121	.044	.124	.129	1,400	1,100	2,000	1,700
5/32	.156	.163	.171	.161	.168	.152	.048	.155	.160	2,200	1,700	3,100	2,400
3/16	.187	.196	.205	.194	.202	.182	.055	.185	.192	3,150	2,400	4,500	3,500
7/32	.219	.228	.238	.226	.235	.214	.065	.217	.224	4,200	3,300	5,900	4,600
1/4	.250	.260	.271	.258	.268	.243	.065	.247	.256	5,500	4,300	7,800	6,200
5/16	.312	.324	.337	.322	.334	.304	.080	.308	.318	8,700	6,700	12,000	9,300
3/8	.375	.388	.403	.386	.400	.366	.095	.370	.383	12,600	9,600	18,000	14,000
1/2	.500	.516	.535	.514	.532	.488	.110	.493	.510	25,500	17,500	32,000	25,000

INSTALLATION / REMOVAL OF TENSION PINS

Tension pins employ a chamfered end to facilitate line-up and insertion. Typical insertion techniques are tapping with a hammer or pressing in using air or hydraulic press.

Compressed as it is driven into a hole, the pin exerts continuous spring pressure against the sides of the hole, positively preventing loosening by vibration. Pin dimensions, outside diameters in their free state and elastic limits are engineered so that this self-locking action is achieved in holes drilled to normal production tolerances. No reaming operations are needed to ensure a tight fit. No secondary operations are required to keep the pin in position.

Removing the pin, simply tap out with hammer and drift.



Drill hole

Press or tap in place

Inserted pin

Tap out with hammer or drift

TENSION PINS – Examples of Applications

