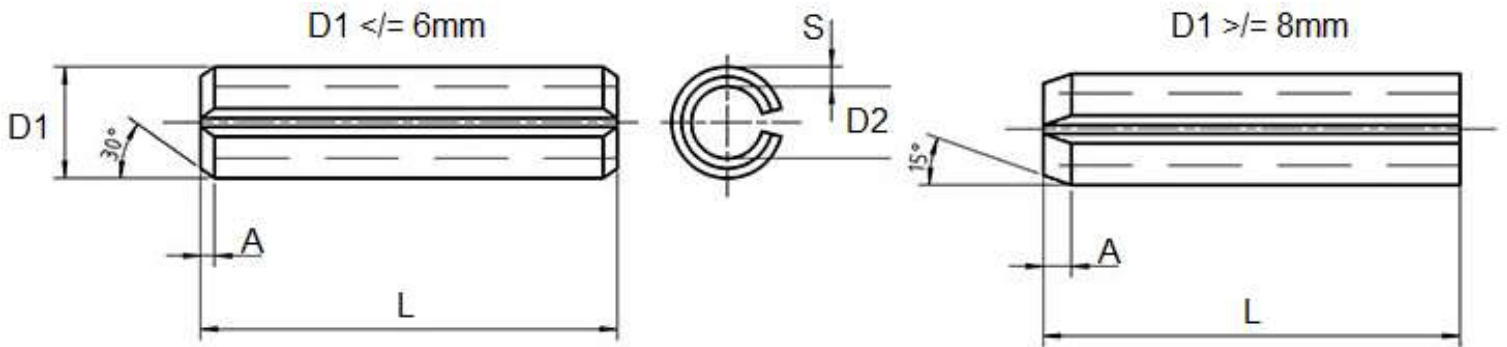


## Metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type

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**Dimensions of Metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type**

Dimension		1	1.5	2	2.5	3	3.5	4	4.5	5	6	8	10	12	13
A		0.15	0.25	0.35	0.4	0.5	0.6	0.65	0.8	0.9	1.2	2	2	2	2
D1	min.	1.2	1.7	2.3	2.8	3.3	3.8	4.4	4.9	5.4	6.4	8.5	10.5	12.5	13.5
	max.	1.3	1.8	2.4	2.9	3.5	4	4.6	5.1	5.6	6.7	8.8	10.8	12.8	13.8
D2	approx.	0.8	1.1	1.5	1.8	2.1	2.3	2.8	2.9	3.4	3.9	5.5	6.5	7.5	8.5
S		0.2	0.3	0.4	0.5	0.6	0.75	0.8	1	1	1.25	1.5	2	2.5	2.5
shear kN	shear force	0.35	0.79	1.41	2.19	3.16	4.53	5.62	7.68	8.77	13	21.4	35.1	52.1	57.6
	double shear	0.7	1.58	2.82	4.38	6.32	9.06	11.2	15.4	17.5	26	42.8	70.2	104	115
l	tolerance	weight kg/1000pcs													
4		0.02	0.03	0.06	0.1	0.14	0.2	0.24							
5	0.5	0.02	0.04	0.08	0.12	0.17	0.25	0.3	0.4	0.47					
6	0	0.02	0.05	0.09	0.14	0.2	0.3	0.36	0.48	0.57					
8		0.03	0.07	0.12	0.19	0.27	0.39	0.48	0.64	0.75					
10		0.04	0.09	0.15	0.24	0.34	0.49	0.6	0.79	0.94	1.38	2.24	3.69	5.55	6.18
12		0.05	0.1	0.18	0.28	0.41	0.59	0.72	0.92	1.13	1.66	2.66	4.43	6.66	7.42
14		0.05	0.12	0.21	0.33	0.48	0.69	0.84	1.11	1.32	1.94	3.13	5.17	7.78	8.66

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Dimension		1	1.5	2	2.5	3	3.5	4	4.5	5	6	8	10	12	13
L	tol.	weight kg/1000pcs													
16		0.06	0.14	0.24	0.38	0.54	0.79	0.96	1.27	1.51	2.21	3.58	5.9	8.89	9.9
18		0.07	0.15	0.28	0.42	0.61	0.89	1.07	1.43	1.7	2.49	4.03	6.64	10	11.1
20		0.08	0.17	0.31	0.47	0.68	0.99	1.19	1.59	1.88	2.77	4.48	7.38	11.1	12.4
22				0.34	0.52	0.75	1.08	1.31	1.75	2.07	3.04	4.92	8.12	12.2	13.6
24	1			0.37	0.57	0.81	1.18	1.43	1.9	2.26	3.32	5.37	8.86	13.3	14.8
26	0			0.97	0.61	0.88	1.28	1.55	2.06	2.45	3.6	5.82	9.59	14.4	16.1
28				0.43	0.66	0.95	1.38	1.67	2.22	2.64	3.87	6.26	10.3	15.6	17.3
30				0.46	0.71	1.02	1.48	1.79	2.38	2.83	4.15	6.71	11.1	16.7	18.5
32						1.09	1.58	1.91	2.54	3.02	4.43	7.16	11.8	17.8	19.8
36						1.22	1.77	2.18	2.86	3.39	4.98	8.06	13.3	20	22.3
40						1.36	1.97	2.39	3.17	3.77	5.54	8.95	14.8	22.2	24.7
45								2.68	3.57	4.24	6.23	10.1	16.6	25	27.8
50								2.98	3.96	4.71	6.92	11.2	18.4	27.8	30.9
55										5.18	7.61	12.3	20.3	30.5	34
60										5.65	8.3	13.4	22.1	33.3	37.1
65										6.12	8.99	14.5	24	36.1	40.2
70										6.59	9.69	15.7	25.8	38.9	43.3
75										7.06	10.4	16.8	27.7	41.7	46.4
80										7.54	11.1	18	29.5	44.4	49.5
85	1.5										11.8	19	31.4	47.2	52.5
90	0										12.5	20.1	33.2	50	55.6
95											13.1	21.3	35	52.8	58.7
100											13.8	22.4	36.9	55.5	61.8
120												26.8	44.3	66.6	74.2
140													51.7	77.8	86.5
160													59	88.9	98.9
180														100	111

Metric DIN 1481 straight slotted spring pins also known as roll pins are hollow and split along the full length of the pin. They are used to align and secure components relative to one another. The resting diameter of the pin is larger the hole diameter into which it is to be inserted. When inserted into the hole the pin compresses to fit the smaller diameter. As the pin tries to expand to the original diameter the force against the hole's wall tightens the fit. This creates the holding power against shock and vibration. At least one end of the pin is chamfered to make insertion of the pin easier. Aspen Fasteners offers one of the most complete ranges of metric pins and other inch and metric industrial fasteners for immediate delivery from stock. The following sizes of metric DIN 1481 grooved pins full length groove are available for immediate shipping from stock: Diameters ranging from M1 to M10 up to 120mm long in 301 stainless steel. View parts by clicking on the following link: [DIN 1481 straight slotted spring pins](#)

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DIN (**D**eutsches Institut für **N**ormung - German Institute for Standardization) standards are issued for a variety of components including industrial fasteners as Metric DIN 1473 grooved pins full length groove. The DIN standards remain common in Germany, Europe and globally even though the transition to ISO standards is taking place. DIN standards continue to be used for parts which do not have ISO equivalents or for which there is no need for standardization. In this case the ISO equivalency is ISO 8752

**1) Mechanical properties of stainless steel for metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type**

Stainless steels can be divided into three groups of steel - austenitic, ferritic and martensitic. Austenitic steel is by far the most common type (>90% of commercial fasteners). The steel groups and strength classes are designated by a four-digit sequence of letters and numbers (eg A2-70) as shown in the following table. DIN EN ISO 3506 governs screws and nuts made from stainless steel.

Steel group	Steel grade	Strength class	Screws, Nuts and Bolts			
			Tensile strength N/mm <sup>2</sup>	Tensile strength PSI	Dia range	Nut Load N/mm <sup>2</sup>
Austenitic	A2 and A4	50	500	70,000	<=M39	500
		70	700	100,000	<=M20	700
		80	800	118,000	<=M20	800

The tensile stress is calculated with reference to the tensile stress area (see DIN EN ISO 3506-1979). Nuts to be paired with same grade of stainless steel screws

Steel group	Property Strength class	Made From	Characteristics
Austenitic	50	A1, A2	Soft; cold worked, turned and soft pressed fasteners
	70	A2, A4	Cold worked, normal strength formed fasteners
	80	A2, A4	Extreme cold worked, high strength, special applications

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2) Chemical composition of stainless steel metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type

Grade	USA Grade	Material designation	Material no.	C %	Si ≤ %	Mn ≤ %	Cr %	Mo %	Ni %
<b>A 2</b>	<b>304</b>	X 5Cr Ni 1810	1.4301	≤ 0.07	1.0	2.0	17.5 to 19.5	-	8.0 to 10.5
		X 2 Cr Ni 1811	1.4306	≤ 0.03	1.0	2.0	18.0 to 20.0	-	10 to 12.0
		X 8 Cr Ni 19/10	1.4303	≤ 0.07	1.0	2.0	17.0 to 19.0	-	11.0 to 13.0
<b>A 4</b>	<b>316</b>	X 5 Cr Ni Mo 1712	1.4401	≤ 0.07	1.0	2.0	16.5 to 18.5	2.0 to 2.5	10.0 to 13.0
		X 2 Cr Ni Mo 1712	1.4404	≤ 0.03	1.0	2.0	16.5 to 18.5	2.0 to 2.5	10 to 13

3) Chemical composition of steel metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type

PROPERTY CLASS	MATERIAL AND TREATMENT	CHEMICAL COMPOSITION LIMITS %				TEMPERING TEMP °C MIN.
		C		P	S	
		min.	max.	max.	max.	
4.6, 4.8, 5.8, 6.8	Low or medium carbon steel	-	0.55	0.05	0.06	-
8.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
9.8	Medium carbon steel quenched, tempered	0.25	0.55	0.04	0.05	425
10.9	Medium carbon steel additives e.g. boron, Mn, Cr or Alloy steel - quenched, tempered	0.20	0.55	0.04	0.05	425
12.9	Alloy steel - quenched, tempered	0.20	0.50	0.035	0.035	380

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**4) Mechanical properties of steel for metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type**

MECHANICAL PROPERTY		PROPERTY CLASS									
		4.8	5.6	5.8	6.8	8.8		9.8	10.9	12.9	
						Up to M 16	Over M 16				
Tensile Strength (Rm, N/mm <sup>2</sup> )	nom.	400	500		600	800		900	1000	1200	
	min.	420	500	520	600	800	830	900	1040	1220	
Vickers Hardness	min.	130	155	160	190	250	255	290	320	385	
	max.	250				320	336	360	380	435	
Brinell Hardness	min.	124	147	152	181	319	242	266	295	353	
	max.	238				385	319	342	363	412	
Rockwell Hardness	min. HR	71	79	82	89	-					
	HRC	-	-	-	-	20	23	28	32	39	
	HR	95				99	-				
	max. HRC	-	-	-	-	32	34	37	39	44	
Yield Stress ReL. N/mm <sup>2</sup>	nom.	320	300	400	480	-					
	min.	340	300	420	480	-					
Stress at permanent set limit N/mm <sup>2</sup>	nom.	-				640		720	900	1080	
	min.	-				640	660	720	940	1100	

**Disclaimer**

Dimensional data and technical information for Metric DIN 1481 Slotted Spring Pins / Roll Pins – Heavy Type was obtained from publicly available sources and not acquired through standards agencies. It has been completed and compiled for reference purposes only; where discrepancies are found they are subject to change without notice. Aspen Fasteners makes no warranties or representations regarding the accuracy and validity of the compiled information and data. Contact the relevant standards authorities for accurate and detailed information.

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