



Product Engineering

EXTERNAL SNAP RINGS HEAVY

BOM TITLE: RING EXTERNAL SNAP
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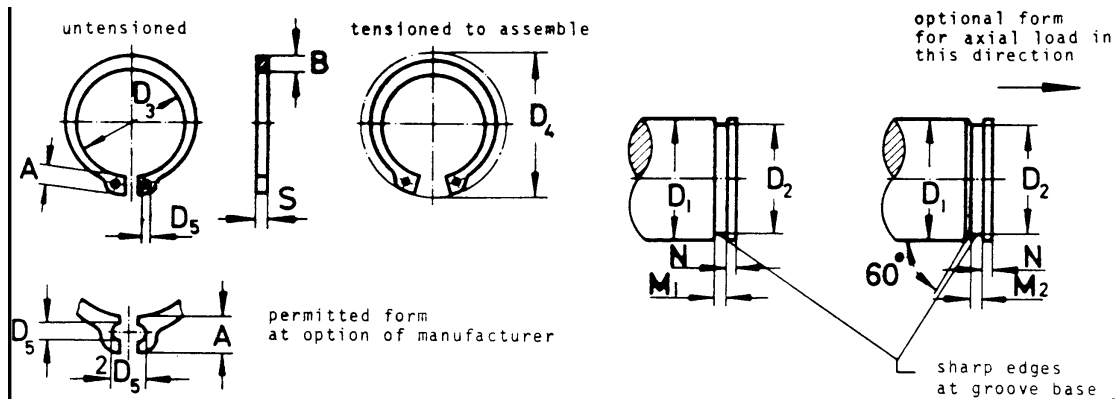
Metric Standard

6JM

Date: 2017-06-01

Writer: Mike Wagner

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For Regular External Snap Rings see [5JM](#)
Dimensions are in Millimeters

Projection: Iso Method E
Conforms to DIN 471

Table 1: External Snap Ring Dimensions

Part Number	Ring Dimensions									Groove Dimensions				Load Bearing Capacity		
	D ₁	S		A	B /	D ₃		D ₄	D ₅	D ₂		M	N	Ring F _R kN	Groove F _N kN	Axial Force kp
		Max	Min			Max	Min			Max	Min					
6JM15	15	1.50	1.44	4.8	2.4	13.90	13.44	25.1	2.0	14.3	14.19	1.60	1.1	15.5	2.66	400
6JM16	16	1.50	1.44	5.0	2.5	14.80	14.34	26.5	2.0	15.2	15.09	1.60	1.2	16.6	3.26	490
6JM17	17	1.50	1.44	5.0	2.6	15.80	15.34	27.5	2.0	16.2	16.09	1.60	1.2	18.0	3.46	520
6JM18	18	1.50	1.44	5.1	2.7	16.60	16.14	28.7	2.0	17.0	16.89	1.60	1.5	26.6	4.58	690
6JM20	20	1.75	1.69	5.5	3.0	18.63	18.08	31.6	2.0	19.0	18.87	1.85	1.5	36.3	5.06	770
6JM22	22	1.75	1.69	6.0	3.1	20.63	20.08	34.6	2.0	21.0	20.87	1.85	1.5	36.0	5.65	845
6JM24	24	1.75	1.69	6.3	3.2	22.41	21.78	37.3	2.0	22.9	22.69	1.85	1.7	34.2	6.75	1010
6JM25	25	2.00	1.93	6.4	3.4	23.41	22.78	38.5	2.0	23.9	23.69	2.15	1.7	45.0	7.05	1060
6JM28	28	2.00	1.93	6.5	3.5	26.11	25.48	41.7	2.0	26.6	26.39	2.15	2.1	57.0	10.00	1500
6JM30	30	2.00	1.93	6.5	4.1	28.11	27.48	43.7	2.0	28.6	28.39	2.15	2.1	57.0	10.70	1620
6JM32	32	2.00	1.93	6.5	4.1	29.81	29.18	45.7	2.5	30.3	30.05	2.15	2.6	55.5	13.80	2100
6JM34	34	2.50	2.43	6.6	4.2	31.75	31.00	47.9	2.5	32.3	32.05	2.65	2.6	87.0	14.70	2220
6JM35	35	2.50	2.43	6.7	4.2	32.45	31.70	49.1	2.5	33.0	32.75	2.65	3.0	86.0	17.80	2670
6JM38	38	2.50	2.43	6.8	4.3	35.45	34.70	52.3	2.5	36.0	35.75	2.65	3.0	101.0	19.30	2910
6JM40	40	2.50	2.43	7.0	4.4	36.89	35.60	54.7	2.5	37.5	37.25	2.65	3.8	104.0	25.30	3810
6JM42	42	2.50	2.43	7.2	4.5	38.89	37.60	57.2	2.5	39.5	39.25	2.65	3.8	102.0	26.70	4000
6JM45	45	2.50	2.43	7.5	4.7	41.89	40.60	60.8	2.5	42.5	42.25	2.65	3.8	100.0	28.60	4300
6JM48	48	2.50	2.43	7.8	5.0	44.89	43.60	64.4	2.5	45.5	45.25	2.65	3.8	101.0	30.70	4600
6JM50	50	3.00	2.92	8.0	5.1	46.19	44.90	66.8	2.5	47.0	46.75	3.15	4.5	165.0	38.00	5700
6JM52	52	3.00	2.92	8.2	5.2	48.19	46.90	69.3	2.5	49.0	48.75	3.15	4.5	165.0	39.70	5950
6JM55	55	3.00	2.92	8.5	5.4	51.26	49.70	72.9	2.5	52.0	51.70	3.15	4.5	161.0	42.00	6300
6JM58	58	3.00	2.92	8.8	5.6	54.26	52.70	76.5	2.5	55.0	54.70	3.15	4.5	160.0	44.30	6650
6JM60	60	3.00	2.92	9.0	5.8	56.26	54.70	78.9	2.5	57.0	56.70	3.15	4.5	156.0	46.00	6900
6JM65	65	4.00	3.90	9.3	6.3	61.26	59.70	84.6	3.0	62.0	61.70	4.15	4.5	346.0	49.80	7500



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Table 1: External Snap Ring Dimensions (Continued)

Part Number	Ring Dimensions								Groove Dimensions				Load Bearing Capacity			
	D ₁	S		A	B ^I	D ₃		D ₄	D ₅	D ₂		M	N	Ring F _R kN	Groove F _N kN	Axial Force kp
		Max	Min	Max		Max	Min		Min	Max	Min		Min			
				Min												
6JM70	70	4	3.9	9.5	6.6	65.96	64.4	90.0	3.0	67.0	66.70	4.15	4.5	343.0	53.8	8050
6JM75	75	4	3.9	9.7	7.0	70.96	69.4	95.4	3.0	72.0	71.70	4.15	4.5	333.0	57.6	8600
6JM80	80	4	3.9	9.8	7.4	74.96	73.4	100.6	3.0	76.5	76.20	4.15	5.3	328.0	71.6	10700
6JM85	85	4	3.9	10.0	7.8	79.96	78.4	106.0	3.5	81.5	81.15	4.15	5.3	383.0	76.2	11400
6JM90	90	4	3.9	10.2	8.2	85.04	83.2	111.5	3.5	86.5	86.15	4.15	5.3	386.0	80.8	12100
6JM100	100	4	3.9	10.5	9.0	95.04	93.2	122.1	3.5	96.5	96.15	4.15	5.3	368.0	90.0	13500
Notes: 1. Dimension B shall not exceed dimension A																

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Part Number Formula

The one, two or three digits after “M” equals the nominal shaft diameter.

Example: 6JM35 represents a 35 millimeter shaft diameter (D₁)

General

Only the specified dimensions of the rings must be met, further details are at the option of the manufacturer. For assembling use pliers especially designed for these rings. If centrifugal forces counteract against the tensions of the rings, the closer ISO tolerances H11 shall be used for all groove diameters D₂.

Load Bearing Capacity

The load bearing capacity may be determined by the groove or the retaining ring, whichever has the lower value will be the deciding factor. The values are listed in Table 2 in DIN 471. The axial force values are only approximate and serve the purpose of evaluating the use of the rings. They apply to the fatigue stress without safety factor or to the tensile strength with a safety factor of 3-4. The values are valid for a shaft material with a yield strength of more than 30 kp/mm² and are based on the assumption of sharp edges at the groove base and at the base of the part pressing against the ring. The groove shoulders must be at right angles to the axis of the shaft.

Material

The material shall be carbon steel C67S or C75S as in DIN EN 10132-4 or MS313, MS314, or MS315(1060-1090) and shall be heat treated to meet the following hardness specifications:

For shaft diameters D₁:

up to 48 mm: HRC = 47-54 or HV = 470-580
over 48 to 200 mm: HRC = 44-51 or HV = 435-530

Defects

Snap rings shall be free from burrs, seams, laps, loose scale, irregular surfaces, etc. which affect serviceability.

Protective Treatment

This part shall be coated per Bobcat Engineering Standard [MS300](#).