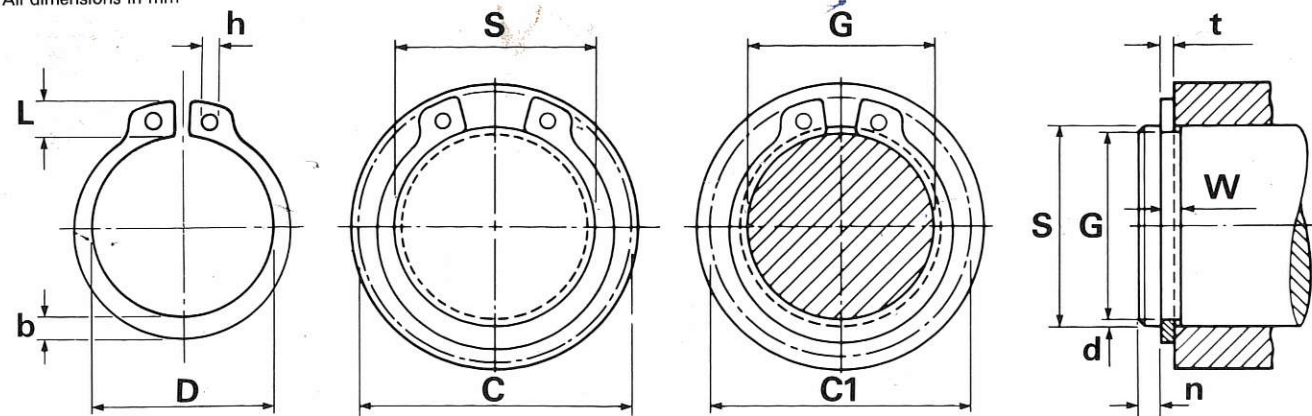


STANDARD EXTERNAL CIRCLIPS EUROPEAN SPECIFICATIONS

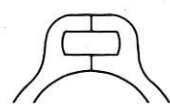
D1400 INCORPORATING DIN 471



All dimensions in mm



Lug for sizes 3 to 9 mm



Alternative lug for sizes 4-8 mm



Most sizes over 185 mm are without lugs



Beam configuration on some larger sizes

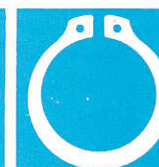
† Beryllium copper

‡ Thrust load calculations see pages 9 & 10

SIZE CODE	Shaft		Groove (G)				Circlip (F)							Wt. (kg/k)	Tc† (N)	Tg† (N)					
	S	G	Tol.	W	Tol.	n (min)	d ~	t	Tol.	D	Tol.	C	C1				L (max)	b ~	h (min)		
0030	3	2.8	+0.00 -0.04	0.50			0.3	0.10	0.40			2.7		7.0	6.6	1.9	0.8	1.0	0.02	660	110
0040	4	3.8	+0.00 -0.04	0.50			0.3	0.10	0.40	+0.00		3.7	+0.04	8.6	8.2	2.2	0.9	1.0	0.03	1600	150
0050	5	4.8	+0.00 -0.048	0.70			0.3	0.10	0.60	-0.05		4.7	-0.15	10.3	9.8	2.5	1.1	1.0	0.08	2900	190
0060	6	5.7		0.80			0.5	0.15	0.70			5.6		11.7	11.1	2.7	1.3	1.2	0.13	4100	340
0070	7	6.7		0.90			0.5	0.15	0.80			6.5		13.5	12.9	3.1	1.4	1.2	0.18	5500	400
0080	8	7.6	+0.00 -0.06	0.90			0.6	0.20	0.80			7.4	+0.06 -0.18	14.7	14.0	3.2	1.5	1.2	0.20	6200	600
0090	9	8.6		1.10			0.6	0.20	1.00			8.4		16.0	15.2	3.3	1.7	1.2	0.32	8800	680
0100	10	9.6		1.10			0.6	0.20	1.00			9.3		17.0	16.2	3.3	1.8	1.5	0.40	9700	750
0110	11	10.5		1.10			0.8	0.25	1.00			10.2		18.0	17.1	3.3	1.8	1.5	0.41	10700	1040
0120	12	11.5		1.10			0.8	0.25	1.00			11.0		19.0	18.1	3.3	1.8	1.7	0.45	11700	1130
0130	13	12.4		1.10			0.9	0.30	1.00			11.9	+0.10 -0.36	20.2	19.2	3.4	2.0	1.7	0.52	12700	1470
0140	14	13.4		1.10			0.9	0.30	1.00			12.9		21.4	20.4	3.5	2.1	1.7	0.56	13600	1580
0150	15	14.3	+0.00	1.10			1.1	0.35	1.00			13.8		22.6	21.5	3.6	2.2	1.7	0.62	14600	1980
0160	16	15.2	-0.11	1.10			1.2	0.40	1.00			14.7		23.8	22.6	3.7	2.2	1.7	0.69	15600	2410
0170	17	16.2	-0.11	1.10			1.2	0.40	1.00			15.7		25.0	23.8	3.8	2.3	1.7	0.77	16600	2560
0180	18	17.0		1.30			1.5	0.50	1.20			16.5		26.2	24.8	3.9	2.4	2.0	0.99	21000	3390
0190	19	18.0		1.30			1.5	0.50	1.20			17.5		27.2	25.8	3.9	2.5	2.0	1.10	22200	3580
0200	20	19.0		1.30			1.5	0.50	1.20			18.5		28.4	27.0	4.0	2.6	2.0	1.18	23400	3770
0210	21	20.0	+0.00	1.30			1.5	0.50	1.20			19.5	+0.13 -0.42	29.6	28.2	4.1	2.7	2.0	1.26	24500	3960
0220	22	21.0	-0.13	1.30			1.5	0.50	1.20			20.5		30.8	29.4	4.2	2.8	2.0	1.39	25700	4150
0230	23	22.0		1.30			1.5	0.50	1.20	+0.00		21.5		32.0	30.6	4.3	2.9	2.0	1.54	26900	4340
0240	24	22.9		1.30			1.7	0.55	1.20	-0.06		22.2		33.2	31.7	4.4	3.0	2.0	1.52	28000	4980
0250	25	23.9		1.30			1.7	0.55	1.20			23.2		34.2	32.7	4.4	3.0	2.0	1.70	29200	5180
0260	26	24.9	+0.00	1.30			1.7	0.55	1.20			24.2		35.5	33.9	4.5	3.1	2.0	1.75	30400	5390
0270	27	25.6	-0.21	1.30			2.1	0.70	1.20	+0.14 -0.00		24.9	+0.21 -0.42	36.7	34.8	4.6	3.1	2.0	1.89	31600	7130
0280	28	26.6		1.60			2.1	0.70	1.50			25.9		37.9	36.0	4.7	3.2	2.0	2.47	40900	7390
0290	29	27.6		1.60			2.1	0.70	1.50			26.9		39.1	37.2	4.8	3.4	2.0	2.75	42400	7650
0300	30	28.6		1.60			2.1	0.70	1.50			27.9		40.5	38.6	5.0	3.5	2.0	2.93	43800	7920
0320	32	30.3		1.60			2.6	0.85	1.50			29.6		43.0	40.7	5.2	3.6	2.5	3.02	46700	10300
0330	33	31.3		1.60			2.6	0.85	1.50			30.5		44.0	41.7	5.2	3.7	2.5	3.30	48200	10600
0340	34	32.3		1.60			2.6	0.85	1.50			31.5	+0.25 -0.50	45.4	43.1	5.4	3.8	2.5	3.72	49700	10900
0350	35	33.0		1.60			3.0	1.00	1.50			32.2		46.8	44.2	5.6	3.9	2.5	3.78	51100	13200
0360	36	34.0		1.85			3.0	1.00	1.75			33.2		47.8	45.2	5.6	4.0	2.5	4.55	51400	13600
0380	38	36.0		1.85			3.0	1.00	1.75			35.2		50.2	47.6	5.8	4.2	2.5	5.08	54800	14300
0400	40	37.5	+0.00	1.85			3.8	1.25	1.75			36.5		52.6	49.5	6.0	5.0	2.5	5.54	56600	18800
0420	42	39.5	-0.25	1.85			3.8	1.25	1.75			38.5		55.7	52.5	6.5	5.0	2.5	5.99	59500	19800
0450	45	42.5		1.85			3.8	1.25	1.75			41.5		59.1	55.9	6.7	5.0	2.5	6.75	63700	21200
0460	46	43.5		1.85			3.8	1.25	1.75			42.5		60.1	56.9	6.7	5.0	2.5	7.24	65100	21700
0470	47	44.5		1.85			3.8	1.25	1.75			43.5	+0.39 -0.90	61.3	58.1	6.8	5.0	2.5	7.30	66500	22100
0480	48	45.5		1.85			3.8	1.25	1.75			44.5		62.5	59.3	6.9	5.0	2.5	7.51	67900	22600
0500	50	47.0		2.15			4.5	1.50	2.00			45.8		64.5	60.8	6.9	5.5	2.5	9.88	80900	28300
0520	52	49.0		2.15			4.5	1.50	2.00			47.8		66.7	63.0	7.0	5.5	2.5	9.53	84100	29400
0540	54	51.0		2.15			4.5	1.50	2.00			49.8		69.0	65.2	7.1	5.5	2.5	10.30	87400	30500
0550	55	52.0		2.15			4.5	1.50	2.00			50.8		70.2	66.4	7.2	5.5	2.5	10.41	89000	31100
0560	56	53.0	+0.00	2.15			4.5	1.50	2.00	+0.00		51.8	+0.46 -1.10	71.6	67.6	7.3	5.5	2.5	10.50	90600	31700
0580	58	55.0	-0.30	2.15			4.5	1.50	2.00			53.8		73.6	69.6	7.3	5.6	2.5	12.47	93800	32800
0600	60	57.0		2.15			4.5	1.50	2.00			55.8		75.6	71.8	7.4	5.8	2.5	13.69	97100	33900
0620	62	59.0		2.15			4.5	1.50	2.00			57.8		77.8	74.0	7.5	6.0	2.5	12.36	100000	35100
0630	63	60.0		2.15			4.5	1.50	2.00			58.8		79.0	75.2	7.6	6.2	2.5	13.10	102000	35600
0650	65	62.0		2.65			4.5	1.50	2.50			60.8		81.4	77.6	7.8	6.3	3.0	20.44	131000	36800

Standard material - carbon spring steel. Standard finish - phosphate and oil.

D1400 (continued)



SIZE CODE	Shaft		Groove (G)				Circlip (F)							Wt. (kg/k)	Tc† (N)	Tg† (N)					
	S	G	Tol.	W	Tol.	n (min)	d ~	t	Tol.	D	Tol.	C	C1				L (max)	b ~	h (min)		
0670	67	64.0		2.65			4.5	1.50	2.50			62.5		83.6	79.8	7.9	6.4	3.0	20.43	135000	37900
0680	68	65.0		2.65			4.5	1.50	2.50			63.5		84.4	81.0	8.0	6.5	3.0	19.55	138000	38500
0700	70	67.0		2.65			4.5	1.50	2.50			65.5		87.0	83.2	8.1	6.6	3.0	22.13	142000	39600
0720	72	69.0	+0.00	2.65	+0.14		4.5	1.50	2.50	+0.00		67.5	+0.46	89.2	85.4	8.2	6.8	3.0	21.60	146000	40700
0750	75	72.0	-0.30	2.65	-0.00		4.5	1.50	2.50	-0.07		70.5	-1.10	92.7	88.8	8.4	7.0	3.0	24.65	152000	42400
0770	77	74.0		2.65			4.5	1.50	2.50			72.5		94.9	91.0	8.5	7.2	3.0	24.26	156000	43500
0780	78	75.0		2.65			4.5	1.50	2.50			73.5		96.1	92.2	8.6	7.3	3.0	28.10	158000	44100
0800	80	76.5		2.65			5.3	1.75	2.50			74.5		98.1	93.7	8.6	7.4	3.0	26.68	162000	52800
0820	82	78.5		2.65			5.3	1.75	2.50			76.5		100.3	95.9	8.7	7.6	3.0	28.35	166000	54100
0850	85	81.5		3.15			5.3	1.75	3.00			79.5		103.3	98.9	8.7	7.8	3.5	35.40	206000	56100
0880	88	84.5		3.15			5.3	1.75	3.00	+0.00		82.5		106.5	102.0	8.8	8.0	3.5	39.85	214000	58100
0900	90	86.5	+0.00	3.15			5.3	1.75	3.00	-0.08		84.5		108.5	104.0	8.8	8.2	3.5	38.89	218000	59400
0950	95	91.5	+0.35	3.15			5.3	1.75	3.00			89.5		114.8	111.0	9.4	8.6	3.5	42.39	231000	