



## Circlips E-type E型卡簧

- DIN6799
- Imperial size standard



### Product introduction

Also known as E-style rings, these rings have three prongs that make contact with the shaft and provide a wider shoulder than other external rings for a larger retaining surface. Use a side-mount retaining ring tool (sold separately) to push them into the groove from the side of the shaft. Ring OD is measured with the ring uninstalled.

### Features

Circlips have been designed to fix seals or scraper rings on the cylinder rod. The advantages of the circlip are reduction of material waste and the number of components.

### Product application:

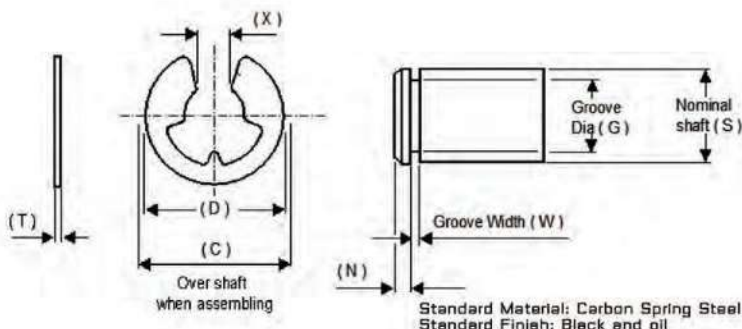
- Mechanical engineering
- Automotive engineering
- Gear systems
- Electrical engineering
- Precision mechanics





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Standard Material: Carbon Spring Steel  
Standard Finish: Black and oil

Part no	Shaft			Circlip Dimensions								Groove Dimensions						
	Nom	Min	Max	Thk	Tolerance	(D)	(C)	(X)	Tolerance	Fr KN	(N)	Tolerance	(W)	(N)	Fr KN			
ETC0008	1.2	1.0	1.4	0.20	+0.02	-0.02	1.95	2.25	0.58	+0.04	-0.04	0.1	0.8	+0.00	0.04	0.24	0.4	0.03
ETC0012	1.7	1.4	2.0	0.30	+0.02	-0.02	2.9	3.25	1.01	+0.04	-0.04	0.1	1.2	+0.00	0.06	0.34	0.6	0.04
ETC0015	2.3	2.0	2.5	0.40	+0.02	-0.02	3.85	4.25	1.28	+0.04	-0.04	0.2	1.5	+0.00	0.06	0.44	0.8	0.07
ETC0019	2.8	2.5	3.0	0.50	+0.02	-0.02	4.4	4.8	1.61	+0.04	-0.04	0.4	1.9	+0.00	0.06	0.54	1.0	0.10
ETC0023	3.5	3.0	4.0	0.60	+0.02	-0.02	5.9	6.3	1.94	+0.04	-0.04	0.5	2.3	+0.00	0.06	0.64	1.0	0.15
ETC0032	4.5	4.0	5.0	0.60	+0.02	-0.02	6.8	7.3	2.7	+0.04	-0.04	0.7	3.2	+0.00	0.075	0.64	1.0	0.22
ETC0040	6.0	5.0	7.0	0.70	+0.02	-0.02	8.8	9.3	3.34	+0.05	-0.05	1.0	4.0	+0.00	0.075	0.74	1.2	0.25
ETC0050	7.0	6.0	8.0	0.70	+0.02	-0.02	10.75	11.3	4.11	+0.05	-0.05	1.2	5.0	+0.00	0.075	0.74	1.2	0.90
ETC0060	8.0	7.0	9.0	0.70	+0.02	-0.02	11.75	12.3	5.26	+0.05	-0.05	1.4	6.0	+0.00	0.075	0.74	1.2	1.10
ETC0070	9.5	8.0	11.0	0.90	+0.02	-0.02	13.8	14.3	5.84	+0.05	-0.05	1.8	7.0	+0.00	0.09	0.94	1.5	1.25
ETC0080	10.5	9.0	12.0	1.00	+0.03	-0.03	15.6	16.3	6.52	+0.06	-0.06	2.5	8.0	+0.00	0.09	1.05	1.8	1.42
ETC0090	12.0	10.0	14.0	1.10	+0.03	-0.03	18.2	18.8	7.63	+0.06	-0.06	3.0	9.0	+0.00	0.09	1.15	2.0	1.60
ETC0100	13.0	11.0	15.0	1.20	+0.03	-0.03	19.65	20.4	8.32	+0.06	-0.06	3.5	10.0	+0.00	0.09	1.25	2.0	1.70
ETC0120	15.5	13.0	18.0	1.30	+0.03	-0.03	22.65	23.4	10.45	+0.07	-0.07	4.7	12.0	+0.00	0.11	1.35	2.5	3.10
ETC0150	20.0	16.0	24.0	1.50	+0.03	-0.03	28.6	29.4	12.61	+0.07	-0.07	7.8	15.0	+0.00	0.11	1.55	3.0	7.00
ETC0190	25.5	20.0	31.0	1.75	+0.03	-0.03	36.7	37.6	15.92	+0.07	-0.07	11.0	19.0	+0.00	0.13	1.8	3.5	10.00
ETC0240	31.5	25.0	38.0	2.00	+0.03	-0.03	43.65	44.6	21.88	0.08	0.08	###	24.0	+0.00	0.13	2.05	4.0	13.00

Part no	Shaft			Tol	D	C	A	Tol	Groove Dimensions				
	s Inch	Tol	Inch						Inch	Dia G	Tol Inch	W Inch	N Inch
1500/X004	0.040	+0.010/ -0.00	0.010	+0.001	0.079	0.090	0.025		0.026		0.012	0.014	5
1500/X006	0.062		0.010	-0.001	0.140	0.150	0.051	+0.001	0.052		0.012	0.010	6
1500/006	0.062		0.010		0.156	0.165	0.051	-0.003	0.052		0.012	0.010	6
1500/Y006	0.062	+0.030	0.020		0.187	0.200	0.051		0.052		0.023	0.010	6
1500/X009	0.094	-0.000	0.015		0.230	0.245	0.069	+0.002/ -0.002	0.074		0.018	0.020	17
1500/0009	0.094		0.015		0.187	0.200	0.073		0.074		0.018	0.020	17
1500/X011	0.110		0.015		0.375	0.390	0.076		0.079	+0.002	0.018	0.030	32
1500/0012	0.125		0.015		0.230	0.240	0.094		0.095		0.018	0.030	35
1500/X014	0.140	+0.040	0.015		0.203	0.214	0.100		0.102	-	0.018	0.038	50
1500/Y014	0.140	-0.000	0.015		0.250	0.265	0.108		0.110	0.000	0.018	0.030	39
1500/0014	0.140		0.025		0.270	0.285	0.102	+0.001	0.105		0.029	0.034	46
1500/0015	0.156	+0.050	0.025		0.282	0.295	0.114	-0.003	0.116		0.029	0.040	58
1500/X017	0.172	-0.000	0.025		0.312	0.325	0.125		0.127		0.029	0.044	72
1500/X018	0.188	+0.0600	0.025	+0.002	0.375	0.390	0.122		0.125		0.029	0.062	110
1500/0018	0.188	-0.000	0.025	-0.002	0.335	0.350	0.145		0.147		0.029	0.040	72
1500/X021	0.219		0.025		0.437	0.450	0.185		0.188		0.029	0.030	63
1500/0025	0.250		0.025		0.527	0.540	0.207		0.210		0.029	0.040	93
1500/X031	0.312	+0.100	0.025		0.500	0.520	0.243		0.250		0.029	0.062	180
1500/0037	0.375	-0.000	0.035		0.660	0.680	0.300	+0.002	0.303		0.039	0.072	252
1500/0043	0.438		0.035		0.687	0.710	0.337	-0.004	0.343		0.039	0.094	388
1500/X043	0.438		0.035		0.600	0.620	0.375		0.380	+0.003	0.039	0.058	237
1500/0050	0.500		0.042		0.800	0.820	0.392		0.396	-0.000	0.046	0.104	485
1500/0062	0.625		0.042		0.940	0.960	0.480		0.485		0.046	0.140	816
1500/X074	0.744	+0.120	0.050		1.000	1.020	0.616	+0.003	0.625		0.056	0.118	1190
1500/0075	0.750	-0.000	0.050		1.120	1.140	0.574		0.580		0.056	0.170	1630
1500/0087	0.875		0.050		1.300	1.320	0.668	-0.004	0.675		0.056	0.200	1370
1500/X098	0.984		0.050		1.500	1.530	0.822		0.835		0.056	0.148	1210
1500/X118	1.188	+0.200	0.062	+0.003	1.626	1.670	1.066	+0.006	1.079	+0.005	0.068	0.108	1860
1500/X137	1.375	-0.000	0.062	-0.003	1.875	1.920	1.213	-0.010	1.230	-0.000	0.068	0.144	1860

Material:

Spring steel S60C / 65Mn / SK5

Stainless steel SUS304 / 316 / 301 / 420

Surface treatment: Zinc / Black / Phosphating / Mechanical galvanizing

## Types and characteristics of stainless steel

### Type/Feature

#### sus302

The benchmark type of 18Cr-8Ni steel. SUS303 and SUS304 are stainless steels modified from SUS302. By adding nickel (Ni), corrosion resistance and mechanical properties are excellent.

#### sus303

Adding sulfur and phosphorus to SUS302 improves the machinability of stainless steel. But the corrosion resistance is slightly worse. Added molybdenum for improved corrosion.

#### sus304/304L

SUS304 is an improved version of SUS302, with less carbon content, and excellent corrosion resistance and weldability. The most standard steel in austenitic stainless steel. SUS304L has a lower carbon content than SUS304, which improves intergranular corrosion resistance and weldability.

#### sus310s

By adding nickel and chromium, it has excellent corrosion resistance and acid resistance, as excellent temperature characteristics, and can be used as a heat-resistant steel. Cold-rolled work suppresses work hardenability and weakens magnetic properties. It can be used as low work hardened steel and non-magnetic steel.

#### sus316/316L

By adding molybdenum (Mo), SUS316 has excellent corrosion resistance (pitting corrosion) and acid resistance. At the same time, it has high temperature strength and can be used as a heat-resistant steel. SUS316L has a lower carbon content than SUS316, which improves intergranular corrosion resistance and weldability.

#### sus430

The standard type of 18Cr steel has good cold workability and corrosion resistance. Due to its low price, it is widely used in various applications.

#### sus434

Copper is added to SUS430, and the work-hardening stainless steel is suppressed by cold rolling.

#### sus410

Representative martensitic stainless steel. Excellent mechanical properties and corrosion resistance after heat treatment.

#### sus403

A stainless steel that reduces the composition range of silicon and chromium. Improves corrosion resistance, and improves toughness after heat treatment. For valves, pump shafts, props, nuts, steam turbine blades, jet engine parts, etc.

#### sus416

By adding sulfur and phosphorus, the machinability of 13Cr steel is improved. Corrosion resistance is slightly worse than the reference type.

#### sus431

The addition of nickel improves the toughness, and the addition of chromium the corrosion resistance. Among martensite that can be heat-treated, the corrosion resistance is the best. Used in paper machines, marine shafts and aircraft parts.

#### sus440C

It has the highest hardness and excellent wear resistance is stainless steel, and is used for concave molds and ball bearings.

#### sus6311

It belongs to precipitation hardening stainless steel and has particularly good heat resistance. It is used for thin plates and wire springs.