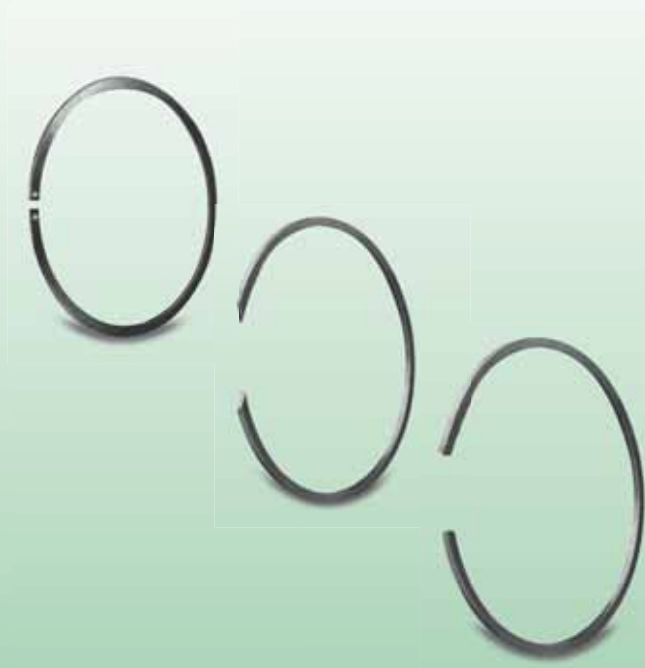
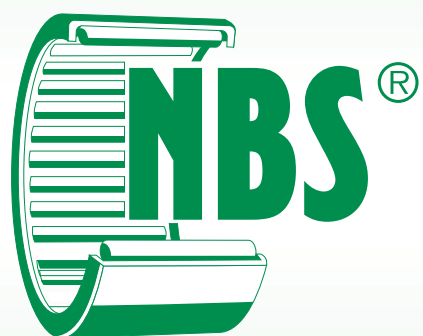


ANELLI ELASTICI

ELASTIC RINGS





Gli anelli elastici per alberi (AE) e per fori (AF) hanno come scopo principale di evitare qualsiasi tipo di spostamento assiale degli anelli dei cuscinetti o delle gabbie a rullini. Sono costruiti in acciaio e garantiscono il minimo ingombro radiale. Si consiglia inoltre di montare una piccola ralla tra gli anelli, in quanto questo evita qualsiasi tipo di strisciamento sul fianco delle gabbie. Inoltre si raccomanda di attenersi ai valori indicati nelle tabelle per ciò che riguarda il numero di giri massimo ammissibile, onde evitare che gli anelli elastici possano uscire dalla sede di alloggiamento. Gli anelli per alberi (AES) hanno le medesime caratteristiche degli anelli sopraindicati, solo che presentano una maggiore altezza radiale, garantendo un maggior precarico. E' consigliato l'utilizzo di apposite pinze essendo stati previsti dei fori per facilitarne il montaggio. Sono particolarmente adatti per la sicurezza assiale dei cuscinetti a rullini e rulli cilindrici.

Elastic rings for shafts (AE) and for bores (AF) have as their first aim, the target of avoiding any axial movement of bearing rings or of needle roller cages.

They are made of steel and assure lowest radial dimension.

A good expedient is to assemble a small thrust bearing between the rings, as this avoids any kinds of sliding on side cages.

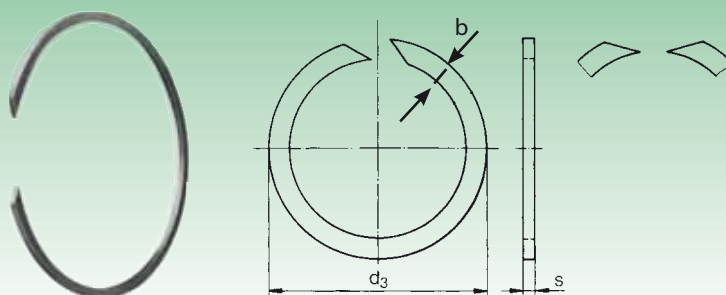
For maximum allowed revolutions, please check tables: respect them means avoiding that the elastic rings come out from their housing.

(AES) rings for shafts are the same as above, but their radial height is bigger: this guarantees a greater pre-loading.

Seen that mounting bores are present on the rings we suggest to use pliers, during assembling operations.

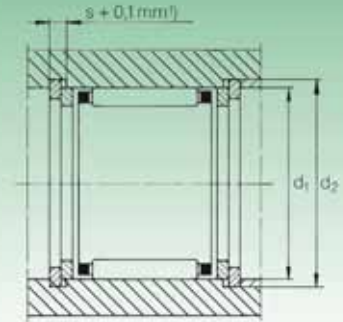
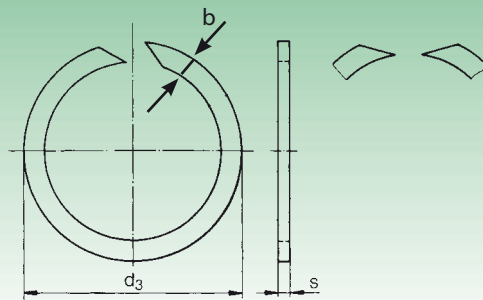
These elastic rings are particularly suitable for needle roller bearings and cylindrical rollers axial safety.

Tipo-Type	Sigla INA equivalent	Caratteristiche-Characteristics
AF	BR	Per fori <i>For bores</i>
AE	WR	Per alberi (esecuzione normale) <i>For shafts (normal execution)</i>
AES	WRE	Per alberi (esecuzione rinforzata) <i>For shafts (reinforced execution)</i>



Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d_1	Anello Ring d_3 min.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d_2 h 11
AF 7	0.09	7	7.5	1.00	0.8	7.4
AF 8	0.10	8	8.5	1.00	0.8	8.4
AF 9	0.13	9	9.5	1.10	0.8	9.4
AF 10	0.15	10	10.6	1.20	0.8	10.5
AF 11	0.21	11	11.6	1.30	1	11.5
AF 12	0.25	12	12.7	1.30	1	12.5
AF 13	0.28	13	13.8	1.30	1	13.6
AF 14	0.31	14	14.8	1.30	1	14.6
AF 15	0.34	15	15.8	1.30	1	15.6
AF 16	0.53	16	16.8	1.75	1.2	16.6
AF 17	0.55	17	17.8	1.75	1.2	17.6
AF 18	0.68	18	18.9	1.75	1.2	18.6
AF 19	0.72	19	19.9	1.75	1.2	19.6
AF 20	0.76	20	21	1.75	1.2	20.6
AF 21	0.79	21	22	1.75	1.2	21.6
AF 22	0.81	22	23	1.75	1.2	22.6
AF 23	0.88	23	24	1.75	1.2	23.6
AF 24	0.90	24	25.2	1.75	1.2	24.8
AF 25	0.91	25	26.2	1.75	1.2	25.8
AF 26	0.98	26	27.2	1.75	1.2	26.8
AF 27	1.11	27	28.2	1.75	1.2	27.8
AF 28	1.13	28	29.2	1.75	1.2	28.8
AF 29	1.15	29	30.2	1.75	1.2	29.8
AF 30	2.00	30	31.4	2.30	1.5	31
AF 31	2.03	31	32.4	2.30	1.5	32
AF 32	2.11	32	33.4	2.30	1.5	33
AF 33	2.26	33	34.4	2.30	1.5	34
AF 34	2.34	34	35.4	2.30	1.5	35
AF 35	2.36	35	36.4	2.30	1.5	36
AF 37	2.53	37	38.8	2.30	1.5	38.2
AF 38	2.61	38	39.8	2.30	1.5	39.2
AF 39	2.67	39	40.8	2.30	1.5	40.2
AF 40	2.80	40	41.8	2.30	1.5	41.2
AF 42	2.92	42	43.8	2.30	1.5	43.2
AF 43	3.03	43	44.8	2.30	1.5	44.2
AF 44	3.11	44	45.8	2.30	1.5	45.2
AF 45	3.25	45	46.8	2.30	1.5	46.2
AF 46	3.28	46	47.8	2.30	1.5	47.2
AF 47	3.29	47	48.8	2.30	1.5	48.2

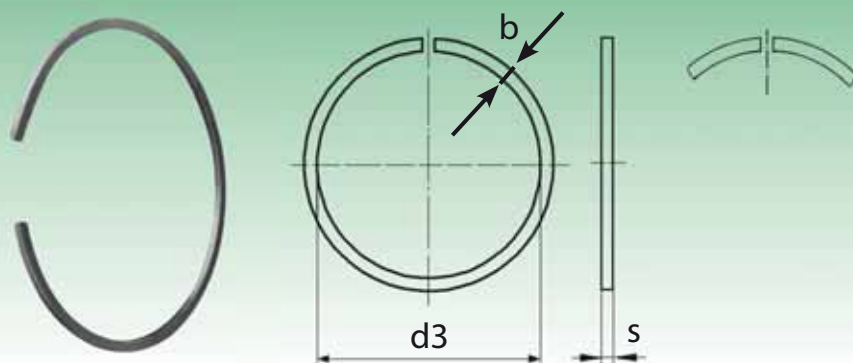
Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d_1	Anello Ring d_3 min.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d_2 h 11
AF 48	3.45	48	49.8	2.3	1.5	49.2
AF 50	3.57	50	51.8	2.3	1.5	51.2
AF 52	3.58	52	54.3	2.3	1.5	53.5
AF 53	3.82	53	55.3	2.3	1.5	54.5
AF 55	3.93	55	57.3	2.3	1.5	56.5
AF 57	4.12	57	59.3	2.3	1.5	58.5
AF 58	4.13	58	60.3	2.3	1.5	59.5
AF 60	4.28	60	62.3	2.3	1.5	61.5
AF 62	4.42	62	64.3	2.3	1.5	63.5
AF 63	4.50	63	65.3	2.3	1.5	64.5
AF 65	4.72	65	67.3	2.3	1.5	66.5
AF 68	4.90	68	70.3	2.3	1.5	69.5
AF 70	4.93	70	72.3	2.3	1.5	71.5
AF 72	8.49	72	74.6	2.8	2	73.8
AF 73	8.52	73	75.6	2.8	2	74.8
AF 74	8.60	74	76.6	2.8	2	75.8
AF 76	8.89	76	78.6	2.8	2	77.8
AF 78	9.05	78	80.6	2.8	2	79.8
AF 79	9.07	79	81.6	2.8	2	80.8
AF 80	9.22	80	82.6	2.8	2	81.8
AF 81	9.31	81	83.6	2.8	2	82.8
AF 82	9.45	82	84.6	2.8	2	83.8
AF 83	9.63	83	85.6	2.8	2	84.8
AF 86	9.91	86	88.6	2.8	2	87.8
AF 88	15.40	88	91	2.8	2.5	90
AF 90	15.60	90	93	3.4	2.5	92
AF 92	16.60	92	95	3.4	2.5	94
AF 93	16.80	93	96	3.4	2.5	95
AF 95	16.90	95	98	3.4	2.5	97
AF 97	17.10	97	100	3.4	2.5	99
AF 98	17.50	98	101	3.4	2.5	100
AF 100	17.90	100	103.3	3.4	2.5	102.3
AF 102	18.40	102	105.3	3.4	2.5	104.3
AF 103	18.50	103	106.3	3.4	2.5	105.3
AF 105	18.70	105	108.3	3.4	2.5	107.3
AF 107	19.10	107	110.3	3.4	2.5	109.3
AF 108	19.30	108	111.3	3.4	2.5	110.3
AF 110	19.80	110	113.4	3.4	2.5	112.3
AF 112	20.30	112	115.4	3.4	2.5	114.3



Dimensioni di montaggio
Mounting dimension

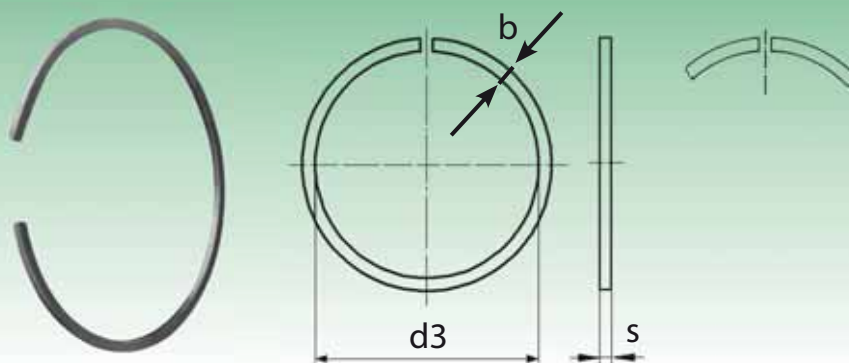
Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d ₁	Anello Ring d ₃ min.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d ₂ h 11
AF 113	20.50	113	116.4	3.4	2.5	115.3
AF 115	20.60	115	118.4	3.4	2.5	117.3
AF 117	20.80	117	120.4	3.4	2.5	119.3
AF 118	21.10	118	121.4	3.4	2.5	120.3
AF 120	21.40	120	123.6	3.4	2.5	122.3
AF 123	22.00	123	126.6	3.4	2.5	125.3
AF 125	22.50	125	128.6	3.4	2.5	127.3
AF 127	23.00	127	130.6	3.4	2.5	129.3
AF 130	23.40	130	133.7	3.4	2.5	132.3
AF 133	24.40	133	136.7	3.4	2.5	135.3
AF 135	25.00	135	138.7	3.4	2.5	137.3
AF 137	25.30	137	140.7	3.4	2.5	139.3
AF 140	29.30	140	144.1	4.0	2.5	142.6
AF 143	30.10	143	147.1	4.0	2.5	145.6
AF 150	31.90	150	154.2	4.0	2.5	152.6
AF 153	32.60	153	157.2	4.0	2.5	155.6
AF 160	34.40	160	164.3	4.0	2.5	162.6
AF 163	34.60	163	167.3	4.0	2.5	165.6
AF 165	34.90	165	169.3	4.0	2.5	167.6
AF 170	36.20	170	174.4	4.0	2.5	172.6
AF 173	37.10	173	177.4	4.0	2.5	175.6
AF 175	37.30	175	179.4	4.0	2.5	177.6

Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d ₁	Anello Ring d ₃ min.	Larghezza Width b -0.1	Spessore Thickness s -0.1	Gola Groove d ₂ h 11
AF 180	38.30	180	184.5	4.0	2.5	182.6
AF 183	41.00	183	187.5	4.0	2.5	185.6
AF 190	61.30	190	194.9	5.0	3	193
AF 195	61.60	195	199.9	5.0	3	198
AF 200	64.50	200	205	5.0	3	203
AF 205	66.40	205	210	5.0	3	208
AF 220	72.40	220	225.2	5.0	3	223
AF 230	75.20	230	235.3	5.0	3	233
AF 250	84.20	250	255.5	5.0	3	253
AF 270	174.0	270	277.7	7.5	4	275
AF 280	184.0	280	287.8	7.5	4	285
AF 300	196.0	300	307.9	7.5	4	305
AF 320	203.0	320	328.2	7.5	4	325
AF 325	206.0	325	333.2	7.5	4	330
AF 355	231.0	355	363.4	7.5	4	360
AF 375	240.0	375	383.6	7.5	4	380
AF 385	248.0	385	393.7	7.5	4	390
AF 395	257.0	395	403.8	7.5	4	400
AF 400	260.0	400	408.9	7.5	4	405
AF 420	277.0	420	429.1	7.5	4	425
AF 440	294.0	440	449.3	7.5	4	445



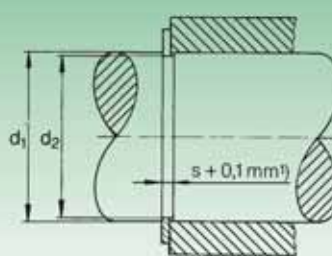
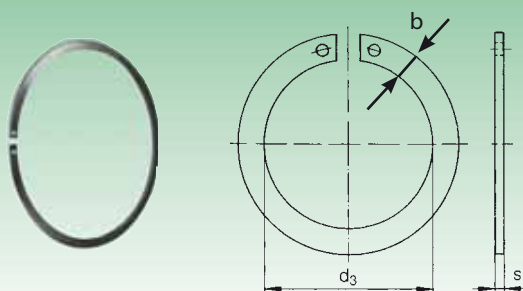
Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d_1	Anello Ring d_3 max.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d_2 h 11
AE 4	0.02	4	3.7	0.80	0.5	3.8
AE 5	0.05	5	4.7	1.00	0.5	4.8
AE 6	0.09	6	5.6	1.10	0.7	5.7
AE 7	0.12	7	6.5	1.20	0.7	6.7
AE 8	0.20	8	7.4	1.30	1	7.6
AE 9	0.24	9	8.4	1.30	1	8.6
AE 10	0.25	10	9.4	1.30	1	9.6
AE 11	0.29	11	10.2	1.30	1	10.5
AE 12	0.30	12	11.2	1.30	1	11.5
AE 14	0.50	14	13.1	1.50	1.2	13.5
AE 15	0.66	15	14	1.75	1.2	14.4
AE 16	0.69	16	15	1.75	1.2	15.4
AE 17	0.72	17	16	1.75	1.2	16.4
AE 18	0.75	18	17	1.75	1.2	17.4
AE 19	0.80	19	17.9	1.75	1.2	18.4
AE 20	0.84	20	18.7	1.75	1.2	19.2
AE 21	0.87	21	19.7	1.75	1.2	20.2
AE 22	0.91	22	20.7	1.75	1.2	21.2
AE 24	0.99	24	22.5	1.75	1.2	23
AE 25	1.00	25	23.5	1.75	1.2	24
AE 26	1.10	26	24.5	1.75	1.2	25
AE 28	2.11	28	26.5	2.30	1.5	27
AE 29	2.20	29	27.5	2.30	1.5	28
AE 30	2.33	30	28.5	2.30	1.5	29
AE 32	2.41	32	30.2	2.30	1.5	30.8
AE 35	2.51	35	33.2	2.30	1.5	33.8
AE 37	2.72	37	35.2	2.30	1.5	35.8
AE 38	2.83	38	36.2	2.30	1.5	36.8
AE 40	2.91	40	37.8	2.30	1.5	38.5

Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d_1	Anello Ring d_3 max.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d_2 h 11
AE 90	16.00	90	87	3.40	2.5	88
AE 95	18.20	95	92	3.40	2.5	93
AE 100	18.90	100	97	3.40	2.5	98
AE 105	20.70	105	101.7	3.40	2.5	102.7
AE 110	20.90	110	106.6	3.40	2.5	107.7
AE 115	22.10	115	111.6	3.40	2.5	112.7
AE 120	24.10	120	116.5	3.40	2.5	117.7
AE 125	25.10	125	121.4	3.40	2.5	122.7
AE 130	26.60	130	126.3	3.40	2.5	127.7
AE 135	30.20	135	131	4.00	2.5	132.4
AE 140	31.10	140	135.9	4.00	2.5	137.4
AE 145	32.60	145	140.9	4.00	2.5	142.4
AE 150	32.80	150	145.8	4.00	2.5	147.4
AE 155	34.70	155	150.8	4.00	2.5	152.4
AE 160	36.60	160	155.7	4.00	2.5	157.4
AE 165	37.40	165	160.7	4.00	2.5	162.4
AE 170	38.50	170	165.6	4.00	2.5	167.4
AE 175	39.40	175	170.6	4.00	2.5	172.4
AE 180	61.20	180	175.2	5.00	3	177
AE 185	63.90	185	180.1	5.00	3	182
AE 190	65.90	190	185.1	5.00	3	187
AE 195	67.50	195	190.1	5.00	3	192
AE 200	68.40	200	195	5.00	3	197
AE 210	72.00	210	204.9	5.00	3	207
AE 220	76.30	220	214.8	5.00	3	217
AE 225	78.00	225	219.8	5.00	3	222
AE 230	79.80	230	224.7	5.00	3	227
AE 240	81.70	240	234.6	5.00	3	237
AE 260	179.0	260	252.4	7.50	4	255



Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d_1	Anello Ring d_3 max.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d_2 h 11
AE 42	3.10	42	39.8	2,30	1.5	40.5
AE 43	3.25	43	40.8	2,30	1.5	41.5
AE 44	3.32	44	41.8	2,30	1.5	42.5
AE 45	3.39	45	42.8	2,30	1.5	43.5
AE 47	3.48	47	44.8	2,30	1.5	45.5
AE 50	3.73	50	47.8	2,30	1.5	48.5
AE 52	3.92	52	49.8	2,30	1.5	50.5
AE 55	4.11	55	52.6	2,30	1.5	53.5
AE 58	4.40	58	55.6	2,30	1.5	56.5
AE 60	4.55	60	57.6	2,30	1.5	58.5
AE 62	4.57	62	59.6	2,30	1.5	60.5
AE 63	4.58	63	60.6	2,30	1.5	61.5
AE 65	4.64	65	62.6	2,30	1.5	63.5
AE 68	8.59	68	65.4	2,80	2	66.2
AE 70	8.71	70	67.4	2,80	2	68.2
AE 72	8.80	72	69.4	2,80	2	70.2
AE 73	8.90	73	70.4	2,80	2	71.2
AE 75	9.32	75	72.4	2,80	2	73.2
AE 80	9.67	80	77.4	2,80	2	78.2
AE 85	16.00	85	82	3,40	2.5	83

Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d_1	Anello Ring d_3 max.	Larghezza Width b -0,1	Spessore Thickness s -0,1	Gola Groove d_2 h 11
AE 265	185.2	265	257.4	7,50	4	260
AE 270	197.7	270	262.3	7,50	4	265
AE 280	198.7	280	272.2	7,50	4	275
AE 285	199.5	285	277.2	7,50	4	280
AE 290	205.3	290	282.1	7,50	4	285
AE 300	214.2	300	292.1	7,50	4	295
AE 305	219.4	305	297.1	7,50	4	300
AE 310	223.1	310	302	7,50	4	305
AE 320	225.3	320	311.9	7,50	4	315
AE 330	228.6	330	321.7	7,50	4	325
AE 340	239.3	340	331.6	7,50	4	335
AE 350	251.2	350	341.5	7,50	4	345
AE 360	253.1	360	351.4	7,50	4	355
AE 370	259.2	370	361.4	7,50	4	365
AE 380	268.0	380	371.2	7,50	4	375
AE 390	273.9	390	381.2	7,50	4	385
AE 400	281.1	400	391.2	7,50	4	395
AE 420	540.0	420	410	12,0	4.5	414
AE 460	590.0	460	449.5	12,0	4.5	454



Dimensioni di montaggio
Mounting dimension

Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d ₁	Anello Ring d ₂ max.	Larghezza Width b -0,2	Spessore Thickness s -0,2	Gola Groove d ₃ h 11
AES 42	5.70	42	39.3	3.6	1.5	39.8
AES 47	6.35	47	44.3	3.6	1.5	44.8
AES 55	7.36	55	51.8	3.6	1.5	52.8
AES 62	8.26	62	58.8	3.6	1.5	59.8
AES 68	16.25	68	64.6	4.8	2	65.8
AES 75	17.88	75	71.6	4.8	2	72.8
AES 80	19.05	80	76.6	4.8	2	77.8
AES 90	32.47	90	86.3	5.8	2.5	87.8
AES 95	34.23	95	91.3	5.8	2.5	92.8
AES 100	36.08	100	95.9	5.8	2.5	97.4
AES 110	39.33	110	105.4	5.8	2.5	107.1
AES 115	41.09	115	110.4	5.8	2.5	112.1
AES 125	58.32	125	120.1	7.5	2.5	122.1
AES 130	60.50	130	124.9	7.5	2.5	127.1
AES 140	64.91	140	134.8	7.5	2.5	137
AES 145	67.18	145	139.8	7.5	2.5	142
AES 150	69.28	150	144.4	7.5	2.5	147
AES 160	73.70	160	154.1	7.5	2.5	157
AES 170	77.92	170	163.4	7.5	2.5	167
AES 180	131.09	180	173	9.8	3	176

Sigla Designation	Peso per 1.000 pz. (kg.) Weight for 1.000 pcs (kg.)	Dimensioni (mm) Dimensions (mm)				
		Foro Hole d ₁	Anello Ring d ₂ max.	Larghezza Width b -0,2	Spessore Thickness s -0,2	Gola Groove d ₃ h 11
AES 190	138.23	190	183	9.8	3	186
AES 200	145.00	200	192.5	9.8	3	196
AES 210	151.78	210	202	9.8	3	206
AES 220	158.91	220	212	9.8	3	216
AES 225	200.88	225	217	12.0	3	221
AES 230	205.24	230	222	12.0	3	226
AES 240	213.54	240	231.5	12.0	3	236
AES 260	359.35	260	249.5	14.0	4	254
AES 270	372.25	270	259	14.0	4	264
AES 280	385.84	280	269	14.0	4	274
AES 290	399.43	290	279	14.0	4	284
AES 300	412.33	300	288.5	14.0	4	294
AES 310	495.52	310	298	16.2	4	304
AES 320	511.24	320	308	16.2	4	314
AES 340	541.89	340	327.5	16.2	4	334
AES 360	572.55	360	347	16.2	4	354
AES 380	600.85	380	365	16.2	4	374
AES 400	650.00	400	385	16.2	4	394
AES 420	930.00	420	405	20.0	4.5	413
AES 460	1 011.0	460	442	20.0	4.5	453