

Balls & Seats and Cartridges

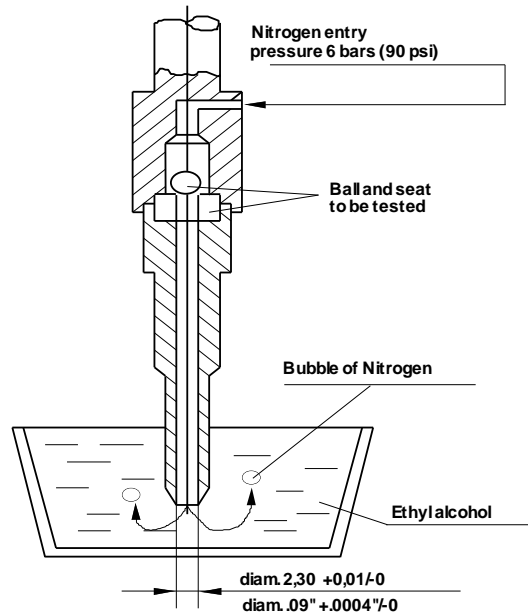
Ceramaret manufactures Balls & Seats for applications such as HPLC pumps, high and low pressure pumps, flow meters, milk homogenizing equipments, pipettes. Ruby ball and Sapphire seat, Alumina ball and seat, Zirconia ball and Sapphire seat are examples of the many material combinations available. All these materials are chemically inert and resistant to most solvents.

Balls & Seats are also offered assembled as check valve cartridges with stainless steel or ceramic housing. A range of standard cartridges is available. Balls & Seats can also be assembled on custom-made housings in any material (stainless steel, hastelloy, etc.) All assemblies are tested the same way as the balls & seats and are either available in the 0 to 3 or the 0 to 12 bubbles per minute qualities.



Ceramaret's Balls & Seats are made with extreme care to insure a perfect quality of this very important part. The seating area of the ball is finely polished to insure a perfect fit between the ball and the seat, thus a leak free adjustment.

Tightness is measured under a pressure of 6 bars of Nitrogen with a dedicated device shown on the picture below:

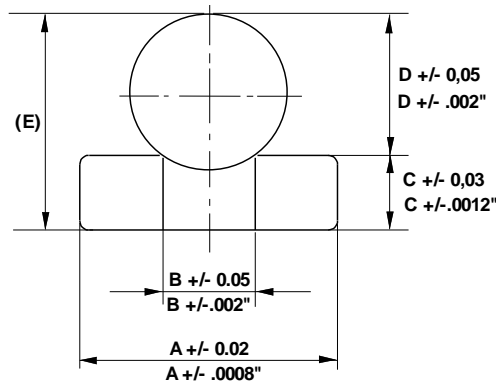


Quality is defined in two categories:

- 1) **0 to 12 bubble per minute maximum:** Parts are sample tested by AQL = 0,65%
- 2) **0 to 3 bubble per minute maximum:** Parts are 100% tested and balls and seats are packed in matched pairs.

Both testing and packing are carried out in a very clean environment, over-pressured.

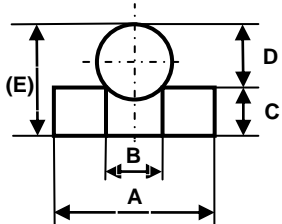
Dimensions of standard Balls & Seats are given on the next page and defined by the sketch below.



Specifications subject to change without prior notice

Standard Balls & Seat

(does not guarantee availability from stock)



P/N 3x xxx 00A meet 12 bubbles / minute of leakage maximum under 6 bar of nitrogen

P/N 3x xxx 03A meet 3 bubbles / minute of leakage maximum under 6 bars of nitrogen



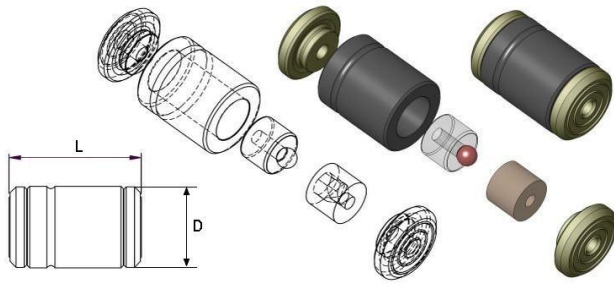
Ball diam. mm in	A mm in	B mm in	C mm in	D mm in	E mm in	P/N	Ball material	Seat material	3 bubble available
0,794 : 0313	2,959 : .1165	0,622 : .0245	1,803 : .0710	0,63 : .0248	2,43 : .0957	3100403A	Ruby	Sapphire	Yes*
0,794 : 0313	2,934 : .01155	0,56 : .0220	1,65 : .0650	0,66 : .0260	2,31 : .0909	3302500A	Ruby	Zirconia	No
1,19 : .0468	4,00 : .1575	0,70 : .02755	3,00 : .1181	1,00 : .0393	4,00 : .1575	3104700A	Ruby	Sapphire	Yes
1,50 : .0591	2,35 : .0925	1,08 : .0425	1,27 : .0500	1,21 : .0476	2,48 : .0976	3105600A	Ruby	Sapphire	Yes
1,588 : 1/16	2,35 : .0925	1,08 : .0425	1,27 : .0500	1,31 : .0516	2,58 : .1016	3101100A	Ruby	Sapphire	Yes
1,588 : 1/16	2,35 : .0925	1,08 : .0425	1,27 : .0500	1,31 : .0516	2,58 : .1016	3201100A	Alumina	Alumina	Yes
1,588 : 1/16	2,35 : .0925	1,08 : .0425	1,27 : .0500	1,31 : .0516	2,58 : .1016	3302400A	Zirconia	Sapphire	No
1,588 : 1/16	2,35 : .0925	1,08 : .0425	1,27 : .0500	1,31 : .0516	2,58 : .1016	3301103A	Zirconia	Alumina	Yes*
1,588 : 1/16	4,00 : .1575	1,08 : .0425	3,00 : .1181	1,31 : .0516	4,31 : .1697	3101803A	Ruby	Sapphire	Yes*
1,588 : 1/16	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,21 : .0476	4,21 : .1657	3100900A	Ruby	Sapphire	No
1,588 : 1/16	2,35 : .0925	1,08 : .0425	0,510 : .0201			3102400A	Ruby	Sapphire	No
1,588 : 1/16	2,35 : .0925	1,08 : .0425	0,65 : .0256			3102600A	Ruby	Sapphire	No
1,588 : 1/16	4,57 : .1799	1,08 : .0425	1,57 : .0618	1,31 : .0516	2,88 : .1134	3102703A	Ruby	Sapphire	Yes*
1,588 : 1/16	4,57 : .1799	1,08 : .0425	1,57 : .0618	1,31 : .0516	2,88 : .1134	3202703A	Alumina	Alumina	Yes*
1,588 : 1/16	4,57 : .1799	1,08 : .0425	1,57 : .0618	1,31 : .0516	2,88 : .1134	3302703A	Zirconia	Sapphire	Yes*
1,588 : 1/16	4,57 : .1799	1,08 : .0425	1,57 : .0618	1,15 : .0453	2,72 : .1071	3102903A	Ruby	Sapphire	Yes*
1,588 : 1/16	4,57 : .1799	1,08 : .0425	1,57 : .0618	1,15 : .0453	2,72 : .1071	3202903A	Alumina	Alumina	Yes*
1,75 : 1/16	4,00 : .1575	0,80 : .0315	3,00 : .1181	1,56 : .0614	4,56 : .1795	3104800A	Ruby	Sapphire	No
1,75 : .0689	4,00 : .1575	1,20 : .0472	1,57 : .0618	1,44 : .0567	3,01 : .1185	3207100A	Zirconia	Zirconia	Yes
1,75 : .0689	4,00 : .1575	1,20 : .0472	1,70 : .0669	1,44 : .0567	3,14 : .1236	3105403A	Ruby	Sapphire	Yes*
1,75 : .0689	4,00 : .1575	1,20 : .0472	1,70 : .0669	1,45 : .0570	3,15 : .1240	3303403A	Zirconia	Alumina	Yes*
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,44 : .0567	4,44 : .1748	3100600A	Ruby	Sapphire	Yes
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,02 : .1189	1,44 : .0567	4,46 : .1755	3100603B	Ruby	Sapphire	Yes*
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,44 : .0567	4,44 : .1748	3200600A	Alumina	Alumina	Yes
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,44 : .0567	4,44 : .1748	3203300A	Zirconia	Zirconia	No
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,44 : .0567	4,44 : .1748	3300603A	Zirconia	Alumina	Yes*
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,30 : .051	4,30 : .169	3200603B	Alumina	Alumina	Yes*
1,75 : .0689	4,00 : .1575	1,20 : .0472	3,00 : .1181	1,30 : .051	4,30 : .169	3300603B	Ruby	Alumina	Yes*
2,50 : .0984	5,00 : .1968	1,70 : .0669	2,40 : .0944	2,00 : .0787	4,40 : .1732	3105800A	Ruby	Sapphire	No
3,00 : .1181	4,57 : .1799	2,30 : .0906	1,57 : .0618	2,33 : .0917	3,90 : .1535	3100800A	Ruby	Sapphire	Yes
3,00 : .1181	4,57 : .1799	2,30 : .0906	1,57 : .0618	2,33 : .0917	3,90 : .1535	3200800A	Alumina	Alumina	Yes
3,00 : .1181	4,57 : .1799	2,30 : .0906	1,57 : .0618	2,33 : .0917	3,90 : .1535	3304200A	Ruby	Alumina	No
3,00 : .1181	4,57 : .1799	2,30 : .0906	1,57 : .0618	2,33 : .0917	3,90 : .1535	3300803A	Zirconia	Alumina	Yes*
3,00 : .1181	4,571 : .1787	2,30 : .0906	1,533 : .0601	2,33 : .0917	3,863 : .092	3105903A	Ruby	Sapphire	Yes*
3,00 : .1181	4,98 : .1960	2,00 : .0787	2,53 : .0996	2,34 : .0921	4,87 : .1917	3208803A	Zirconia	Zirconia	Yes*
3,00 : .1181	5,97 : .2323	2,30 : .0906	2,40 : .0944	2,33 : .0917	4,73 : .1862	3105700A	Ruby	Sapphire	No
3,175 : 1/8	6,00 : .2362	2,00 : .0787	2,00 : .0787	2,60 : .1024	4,60 : .1811	3100100A	Ruby	Sapphire	Yes
3,175 : 1/8	4,57 : .1799	2,15 : .0846	1,57 : .0618	2,55 : .1004	4,12 : .1622	3100300A	Ruby	Sapphire	Yes
3,175 : 1/8	4,57 : .1799	2,03 : .0799	1,57 : .0618	2,68 : .1055	4,25 : .1673	3101000A	Ruby	Sapphire	Yes
3,175 : 1/8	4,57 : .1799	2,03 : .0799	1,57 : .0618	2,68 : .1055	4,25 : .1673	3201000A	Alumina	Alumina	Yes
3,175 : 1/8	4,57 : .1799	2,03 : .0799	1,57 : .0618	2,68 : .1055	4,25 : .1673	3302000A	Zirconia	Sapphire	Yes
3,175 : 1/8	4,57 : .1799	2,03 : .0799	1,57 : .0618	2,68 : .1055	4,25 : .1673	3302103A	Zirconia	Alumina	Yes*
3,175 : 1/8	4,57 : .1799	2,03 : .0799	0,65 : .0256			3101700A	Ruby	Sapphire	No
4,763 : 3/16	7,00 : .2756	2,90 : .1142	3,00 : .1181	3,90 : .1535	6,90 : .2717	3201900A	Alumina	Alumina	Yes
4,763 : 3/16	6,25 : .2461	2,54 : .1000	2,28 : .0898	4,22 : .1661	6,50 : .2559	3101200A	Ruby	Sapphire	Yes
4,763 : 3/16	6,25 : .2461	2,54 : .1000	2,28 : .0898	4,22 : .1661	6,50 : .2559	3201200A	Alumina	Alumina	Yes
4,763 : 3/16	6,25 : .2461	2,54 : .1000	2,23 : .0878	4,22 : .1661	6,45 : .2539	3103400A	Ruby	Sapphire	No
4,763 : 3/16	6,25 : .2461	2,54 : .1000	2,28 : .0898	4,22 : .1661	6,50 : .2559	3301203A	Zirconia	Alumina	Yes*
4,763 : 3/16	7,00 : .2756	3,50 : .1378	3,00 : .1181	3,75 : .1476	6,75 : .2658	3304103A	Ruby	Alumina	Yes*
4,763 : 3/16	7,00 : .2756	3,80 : .1496	2,98 : .1173	3,72 : .1465	6,70 : .2638	3302300A	Ruby	Zirconia	No
4,763 : 3/16	9,97 : .3925	3,00 : .1181	4,00 : .1575			3300100A	Ruby	Alumina	No
6,35 : 1/4	7,00 : .2756	3,80 : .1496	2,98 : .1173	5,69 : .2240	8,67 : .3413	3206600A	Alumina	Zirconia	No
7,500 : .2953	10,00 : .3937	5,00 : .1969	5,00 : .1969	6,00 : .2362	11,00 : .4331	3104900A	Ruby	Sapphire	No

Specifications subject to change without prior notice

* 12 bubbles / minute not available

Standard Check Valve Cartridges (does not guarantee availability from stock)

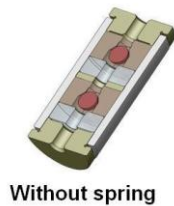
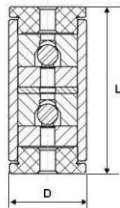
Single standard cartridges



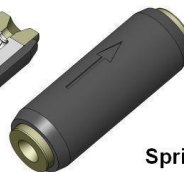
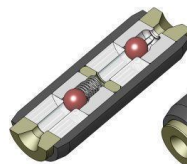
(Part below might not be as shown)

Ball diam.		D		L		Ball material	Seat material	Seal material	Reference
m	in	mm	in	mm	in				
1,75	.0689	6,80	.2677	11,25	.4429	Ruby	Sapphire	Peek	3501800A
1,75	.0689	6,90	.2716	11,25	.4429	Ruby	Sapphire	Peek	3501203A
1,75	.0689	6,90	.2716	11,25	.4429	Alumina	Alumina	Peek	3501200B
1,75	.0689	7,90	.3110	11,25	.4429	Alumina	Alumina	Peek	3602703A
3,00	.1181	8,00	.3150	11,00	.4331	Ruby	Sapphire	Kel-F	3501000A
3,175	1/8	8,00	.3150	11,00	.4331	Ruby	Sapphire	Kel-F	3500500A
4,763	3/16	10,00	.3937	15,00	.5905	Alumina	Alumina	Peek	3501403A
4,763	3/16	10,00	.3937	15,50	.6102	Ruby	Sapphire	Kel-F	3500700A

Double standard metal cartridges



Without spring



Spring loaded

Ball diam.		D		L		Ball material	Seat material	Seal material	Reference
m	in	mm	in	mm	in				
1,588	1/16	6,00	.2362	12,86	.5630	Ruby	Sapphire	Peek	3502703A
1,75	.0689	5,50	.2165	15,72	.6186	Ruby	Sapphire	Kel-F	3502801A*
3,175	1/8	8,00	.3150	17,00	.6693	Ruby	Sapphire	Kel-F	3500400A
4,763	3/16	10,00	.3937	25,00	.9842	Ruby	Sapphire	Kel-F	3500600A

* Spring loaded

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