

FR



The Aston Seals FR type guide rings have been developed to substitute traditional bronze guides in hydraulic cylinders. They guide the rod or the piston and prevent metallic contact with the cylinder when radial forces act perpendicular to the direction of movement.

Chamfered edges prevent splintering of the material during assembly and make the installation into the groove easier.

The compound used for these guides is a medium viscosity glass fibre reinforced acetal resin characterized by high strength, rigidity, hardness, impact resistance, resilience and excellent stability to high and low temperature.

- Extended service life
- Dimension suitable for both rod and piston
- Excellent wear-resistance
- Simple design of groove and assembly
- Reduce vibrations
- Low friction
- Good resistance to loads
- Good mechanical stability at high temperature
- Easy installation without expensive auxiliaries

MATERIAL



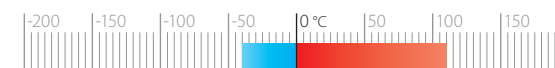
Type
Designation Acetal resin with glass fibre
BEARITE

FIELD OF APPLICATION

Speed
≤ 1 m/s



Temperature
-40°C ÷ +110°C



Fluids

Hydraulic oils (mineral oil based)
For other fluids contact our technical department

SURFACE ROUGHNESS

Dynamic surface
Static surface

$R_a \leq 0.3 \mu\text{m}$ $R_t \leq 2.5 \mu\text{m}$
 $R_a \leq 2 \mu\text{m}$ $R_t \leq 10 \mu\text{m}$

CHOICE OF GUIDE RING WIDTH

A rough estimate of guide width can be calculated with the following formula:

$$h_{mm} \geq \frac{F_N \times k}{p_{N/mm^2} \times d_{mm}}$$

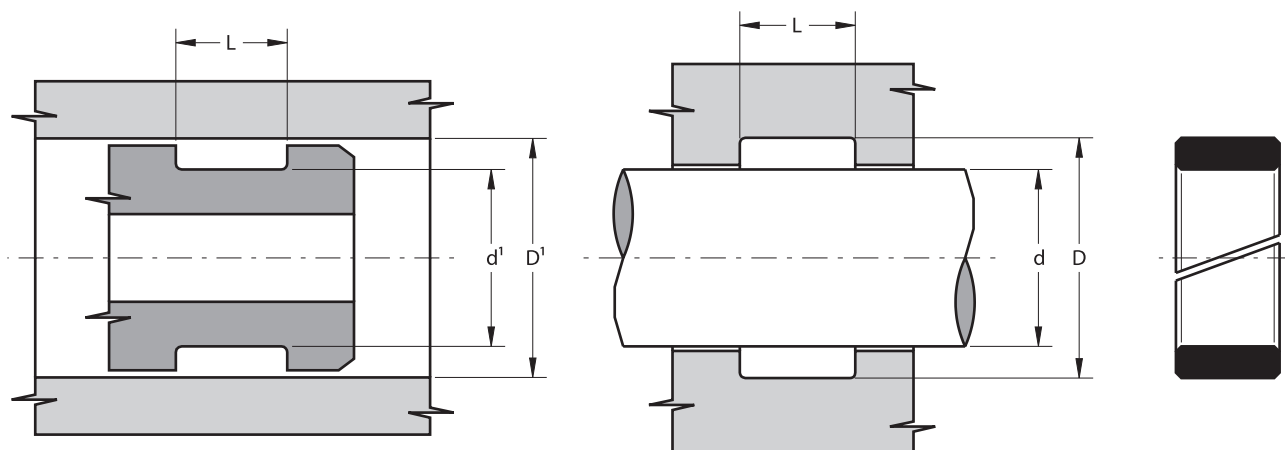
where

- h_{mm} • Guide ring width in mm
- F_N • Radial load in N
- k • Safety factor (generally 2)
- d_{mm} • Bore/rod diameter in mm
- p_{N/mm^2} • Surface pressure N/mm²
40 a 20 °C
30 a 70 °C

Before assembly good cleanliness and lubrication are recommended.

The above data are maximum values, they may be maintained for short periods and can not be used at the same time simultaneously.

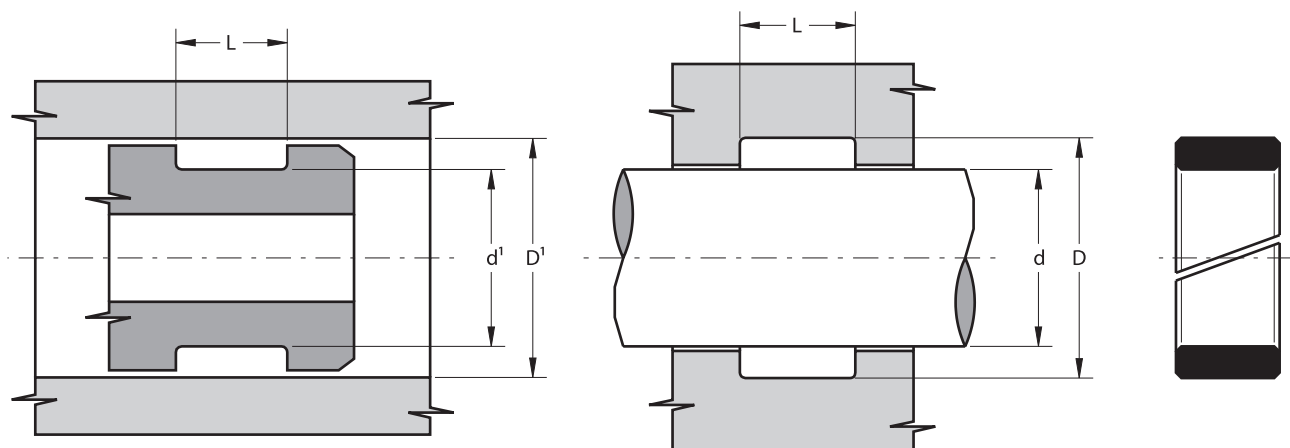
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Part.	$d_1^{+0.05}$ d_{f7}	D_1^{H8} $D_{+0.05}$	$L_{+0.25}$
FR 15 18 5.7	15	18	5.7
FR 16 19 5.5	16	19	5.5
FR 16 19 6.3	16	19	6.3
FR 16 19 1.4	16	19.1	4.0
FR 18 21.1 3.9	18	21.1	3.9
FR 20 25 5.6	20	25	5.6
FR 20 25 9.7	20	25	9.7
FR 21.9 25 4	21.9	25	4.0
FR 22 25 6	22	25	6.0
FR 25 30 5.6	25	30	5.6
FR 25 30 9.7	25	30	9.7
FR 27 32 4.2	27	32	4.2
FR 27 32 5.6	27	32	5.6
FR 27 32 9.7	27	32	9.7
FR 27.3 32 9.82	27.3	32	9.82
FR 30 35 5.6	30	35	5.6
FR 30 35 9.7	30	35	9.7
FR 30 35 19.4	30	35	19.4
FR 32 37 5.6	32	37	5.6
FR 32 37 9.7	32	37	9.7
FR 32 37 15	32	37	15.0
FR 33 38 5.6	33	38	5.6
FR 35 40 4.5	35	40	4.5
FR 35 40 5.6	35	40	5.6

Part.	$d_1^{+0.05}$ d_{f7}	D_1^{H8} $D_{+0.05}$	$L_{+0.25}$
FR 35 40 6.3	35	40	6.3
FR 35 40 9.7	35	40	9.7
FR 36 41 5.6	36	41	5.6
FR 38 43 9.7	38	43	9.7
FR 40 45 5.6	40	45	5.6
FR 40 45 9.7	40	45	9.7
FR 40 45 15	40	45	15.0
FR 43 48 9.7	43	48	9.7
FR 43.7 50 7.2	43.7	50	7.2
FR 45 50 5.6	45	50	5.6
FR 45 50 6.3	45	50	6.3
FR 45 50 8.1	45	50	8.1
FR 45 50 9.7	45	50	9.7
FR 45 50 15	45	50	15.0
FR 45 50 19.4	45	50	19.4
FR 45.4 50 6.7	45.4	50	6.7
FR 46 50 9.7	46	50	9.7
FR 46 50 10.2	46	50	10.2
FR 50 55 5.6	50	55	5.6
FR 50 55 9.7	50	55	9.7
FR 50 55 15	50	55	15.0
FR 50 55 20	50	55	20.0
FR 55 60 5.6	55	60	5.6
FR 55 60 9.7	55	60	9.7

Part.	$d_1^{+0.05}$ d_{f7}	D_1^{H8} $D_{+0.05}$	$L_{+0.25}$
FR 55 60 15	55	60	15.0
FR 56 60 10.2	56	60	10.2
FR 57.18 62.18 19.8	57.18	62.18	19.8
FR 58 63 5.6	58	63	5.6
FR 58 63 9.7	58	63	9.7
FR 58 63 15	58	63	15.0
FR 59 63 10	59	63	10.0
FR 60 65 5.6	60	65	5.6
FR 60 65 9.7	60	65	9.7
FR 60 65 15	60	65	15.0
FR 60 65 19.4	60	65	19.4
FR 60 65 20	60	65	20.0
FR 65 70 5.6	65	70	5.6
FR 65 70 9.7	65	70	9.7
FR 66 70 10.2	66	70	10.2
FR 67 72 5.6	67	72	5.6
FR 70 75 5.6	70	75	5.6
FR 70 75 9.7	70	75	9.7
FR 70 75 15	70	75	15.0
FR 71.2 76.2 20	71.2	76.2	20.0
FR 72 77 15	72	77	15.0
FR 75 80 5.6	75	80	5.6
FR 75 80 9.7	75	80	9.7
FR 75 80 19.4	75	80	19.4

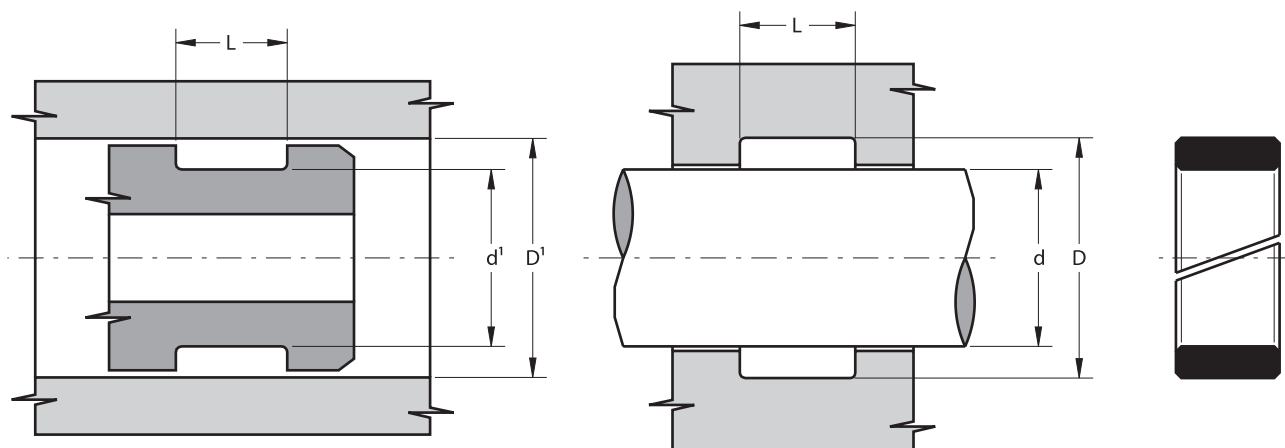


Part.	$d_1^{+0.05/-0.05}$ d_{f7}	$D_1^{H8/D+0.05}$	$L^{+0.25}$
FR 75 80 20	75	80	20.0
FR 76 80 10	76	80	10.0
FR 80 85 5.6	80	85	5.6
FR 80 85 9.7	80	85	9.7
FR 80 85 15	80	85	15.0
FR 85 90 5.6	85	90	5.6
FR 85 90 9.7	85	90	9.7
FR 88.9 93.9 19.8	88.9	93.9	19.8
FR 90 95 5.6	90	95	5.6
FR 90 95 9.7	90	95	9.7
FR 90 95 19.4	90	95	19.4
FR 92 97 9.7	92	97	9.7
FR 95 100 5.6	95	100	5.6
FR 95 100 9.7	95	100	9.7
FR 95 100 15	95	100	15.0
FR 96 100 10	96	100	10.0
FR 99 104 9.7	99	104	9.7
FR 100 105 5.6	100	105	5.6
FR 100 105 9.7	100	105	9.7
FR 103 108 20	103	108	20.0
FR 105 110 5.6	105	110	5.6
FR 105 110 9.7	105	110	9.7
FR 105 110 15	105	110	15.0
FR 105 110 19.4	105	110	19.4

Part.	$d_1^{+0.05/-0.05}$ d_{f7}	$D_1^{H8/D+0.05}$	$L^{+0.25}$
FR 110 115 9.7	110	115	9.7
FR 115 120 9.7	115	120	9.7
FR 115 120 15	115	120	15.0
FR 120 125 5.6	120	125	5.6
FR 120 125 9.7	120	125	9.7
FR 122 127 9.7	122	127	9.7
FR 122 127 19.4	122	127	19.4
FR 125 130 9.7	125	130	9.7
FR 125 130 15	125	130	15.0
FR 130 135 9.7	130	135	9.7
FR 135 140 9.7	135	140	9.7
FR 135 140 15	135	140	15.0
FR 145 150 9.7	145	150	9.7
FR 145 150 19.4	145	150	19.4
FR 145 150 20	145	150	20.0
FR 155 160 15	155	160	15.0
FR 170 175 25	170	175	25.0
FR 175 180 9.7	175	180	9.7
FR 175 180 15	175	180	15.0
FR 175 180 25	175	180	25.0
FR 176 180 25	176	180	25.0
FR 195 200 15	195	200	15.0
FR 200 205 15	200	205	15.0
FR 200 205 25	200	205	25.0

Part.	$d_1^{+0.05/-0.05}$ d_{f7}	$D_1^{H8/D+0.05}$	$L^{+0.25}$
FR 215 220 20	215	220	20.0
FR 225 230 15	225	230	15.0
FR 225 230 25	225	230	25.0
FR 230 235 15	230	235	15.0
FR 230 235 25	230	235	25.0
FR 235 240 15	235	240	15.0
FR 235 240 25	235	240	25.0
FR 240 245 15	240	245	15.0
FR 240 245 25	240	245	25.0
FR 245 250 15	245	250	15.0
FR 245 250 25	245	250	25.0
FR 250 255 15	250	255	15.0
FR 260 265 15	260	265	15.0
FR 265 270 15	265	270	15.0
FR 270 275 15	270	275	15.0
FR 275 280 15	275	280	15.0
FR 280 285 15	280	285	15.0
FR 282 287 15	282	287	15.0
FR 285 290 15	285	290	15.0
FR 290 295 15	290	295	15.0
FR 295 300 15	295	300	15.0
FR 300 305 15	300	305	15.0
FR 305 310 15	305	310	15.0
FR 310 315 15	310	315	15.0

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Part.	$d' \begin{smallmatrix} -0.05 \\ f7 \end{smallmatrix}$	$D' \begin{smallmatrix} H8 \\ +0.05 \end{smallmatrix}$	$L \begin{smallmatrix} +0.25 \end{smallmatrix}$
FR 315 320 15	315	320	15.0
FR 320 325 15	320	325	15.0
FR 325 330 15	325	330	15.0
FR 330 335 15	330	335	15.0
FR 332 337 15	332	337	15.0
FR 335 340 15	335	340	15.0