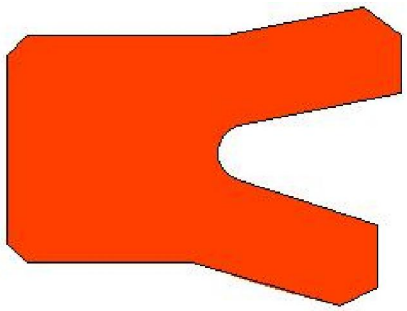
AB Seals
ADVANCED SEALING TECHNOLOGIES

RU/RUN/RUF

Design

The AB Seals RU is a high performance general purpose seal suitable for rod and piston use. Manufactured in Hythane AB Seals RU is engineered to effect a good seal in most industrial cylinder applications. The sealing lips are accurately machine trimmed to ensure good low pressure sealing while the material resists extrusion at high pressures.



Features

- General purpose seal
- Excellent temperature resistance
- Easy to install
- high abrasion resistancu
- long sarvice life

Materials

polyurethane - PUA/PUB /PUAB

Applications

Mobile hydraulics
Agere culture equipment
Machine tools
Injection cylinder
hydraulic presses
lift platefroms

Technical details	**Metric**	**inch**
Operating Conditions		
Maximum speed	1.0m/sec	3.0ft/sec
Temperature Range	-45	-50
Maximum Pressure	400 bar	6,000p.s.i

Maximum extrusion gap:

Figures show the maximum permissible gap all on one side for rod seal using minimum rod Ø and maximum clearance Ø. and for piston seals using the minimum clearance Ø and maximum bore Ø. Refer to housing design section.

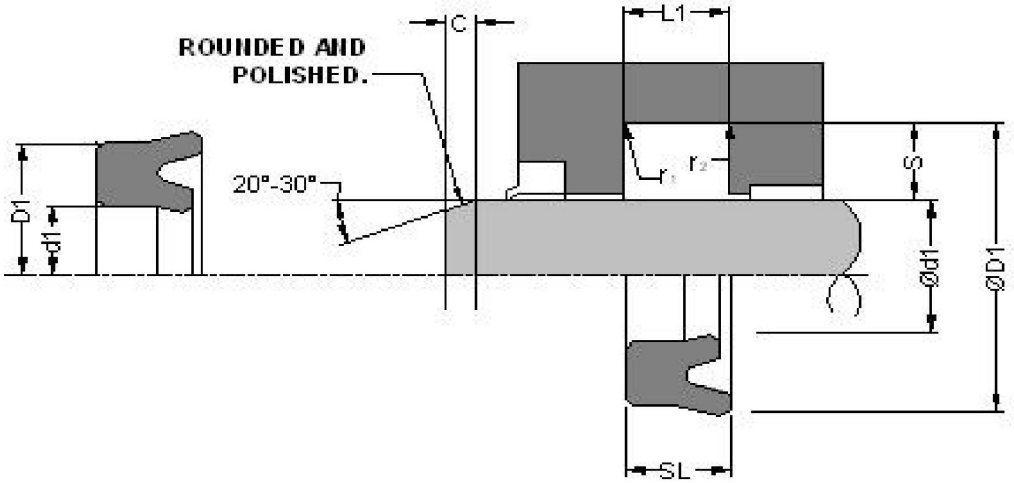
Pressure Bar	160	250	400
Maximum Gap mm.	0.6	0.5	0.4
Pressure p.s.i.	2400	3750	6000
Maximum Gap in.	0.024	0.02	0.016

Surface roughness	umRa	umrt	Uin CLA	UIN RMS
Dynamic Sealing Face-Rod Ød1	0.1<> 0.	4 max	4<>16	5<>18
static sealing face -RodØD1	1.6 max	10 max	63 max	70 max
Dynamic Sealing Face-piston ØD1	0.1<> 0.	4 max	4<>16	5<>18
static sealing face -pistonØd1	1.6 max	10 max	63 max	70 max
static housing faces L1	3.2 max	16 max	125 max	140 max

chamafers & Radii

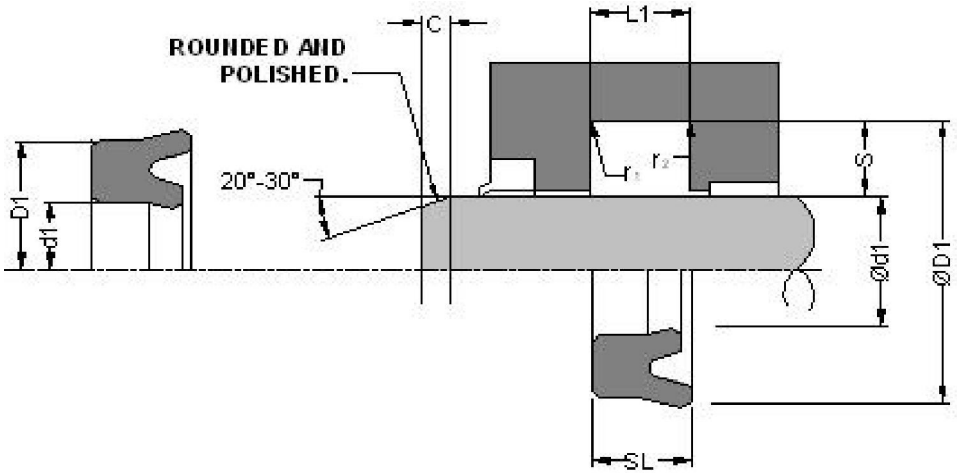
Grove section < 5mm	4	5	7.5	10	12.5	15	20
Min chamfer C mm	3	3.5	5	6.5	7	8	10
max Fillet Rad r1 mm	0.2	0.4	0.8	0.8	1.2	1.6	1.6
max Fillet Rad r2 mm	0.4	0.8	1.2	1.2	1.6	2.4	2.4
Grove section < 5in	0.125	0.187	0.25	0.312	0.375	0.5	
Min chamfer C in	0.093	0.093	0.125	0.156	0.187	0.187	
max Fillet Rad r1 in	0.008	0.008	0.016	0.032	0.032	0.032	
max Fillet Rad r2 in	0.016	0.016	0.032	0.047	0.047	0.047	

Tolerance	Ød1	ØD1	L1 mm	L1 in
Rod	f9	js11	0.25	0.01
Piston	js11	H9	0.25	0.01

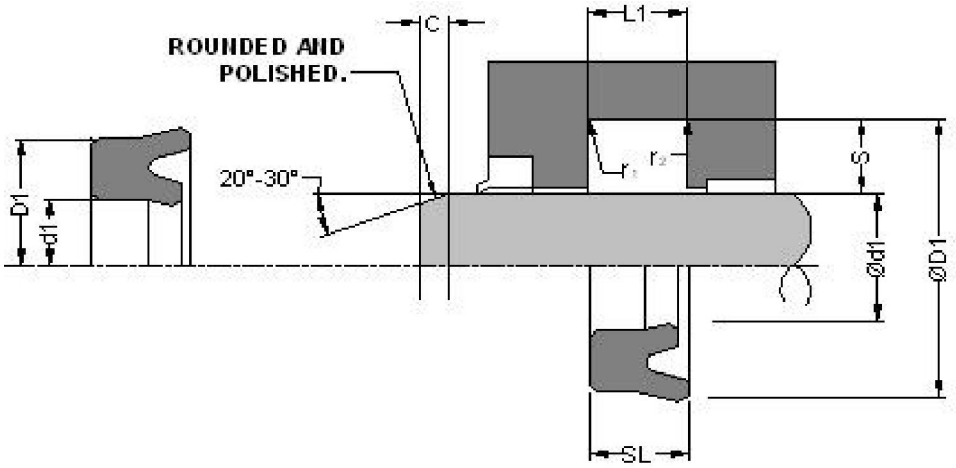


METRIC

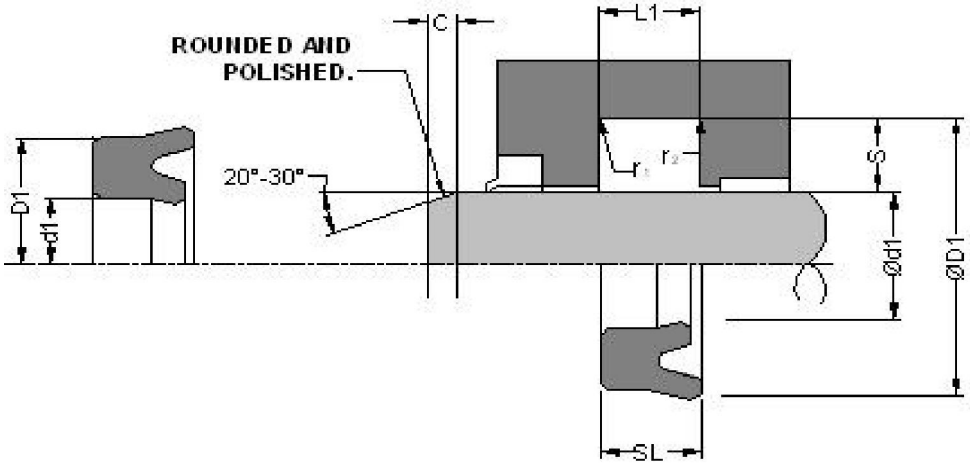
Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
4.5	-0.01 -0.04	12.5	0.06 -0.06	4.4	5	RU-4.5x12.5x5	14	-0.016 -0.059	24	0.07 -0.07	8	9	RU-14x24x9
5	-0.01 -0.04	12	0.06 -0.06	5.5	6.5	RU-5x12x6.5	15	-0.016 -0.059	25	0.07 -0.07	8	9	RU-15x25x9
6	-0.01 -0.04	13	0.06 -0.06	8	9	RU-6x13x9	16	-0.016 -0.059	24	0.07 -0.07	4.4	5	RU-16x24x5
10	-0.013 -0.039	18	0.06 -0.06	6	6.6	RU-10x18x6.6	16	-0.016 -0.059	24	0.07 -0.07	5	5.7	RU-16x24x5.7
10	-0.013 -0.039	20	0.07 -0.07	8	9	RU-10x20x9	16	-0.016 -0.059	26	0.07 -0.07	8	9	RU-16x26x9
12	-0.016 -0.059	18	0.06 -0.06	6	7	RU-12x18x7	18	-0.016 -0.059	26	0.07 -0.07	4.4	5	RU-18x26x5
12	-0.016 -0.059	20	0.07 -0.07	4.4	5	RU-12x20x5	18	-0.016 -0.059	26	0.07 -0.07	5	5.7	RU-18x26x5.7
12	-0.016 -0.059	25	0.07 -0.07	8	9	RU-12x25x9	18	-0.016 -0.059	28	0.07 -0.07	7.3	8	RU-18x28x8
14	-0.016 -0.059	22	0.07 -0.07	4.4	5	RU-14x22x5	18	-0.016 -0.059	28	0.07 -0.07	8	9	RU-18x28x9
14	-0.016 -0.059	22	0.07 -0.07	5	5.7	RU-14x22x5.7	20	-0.02 -0.072	28	0.07 -0.07	4.4	5	RU-20x28x5



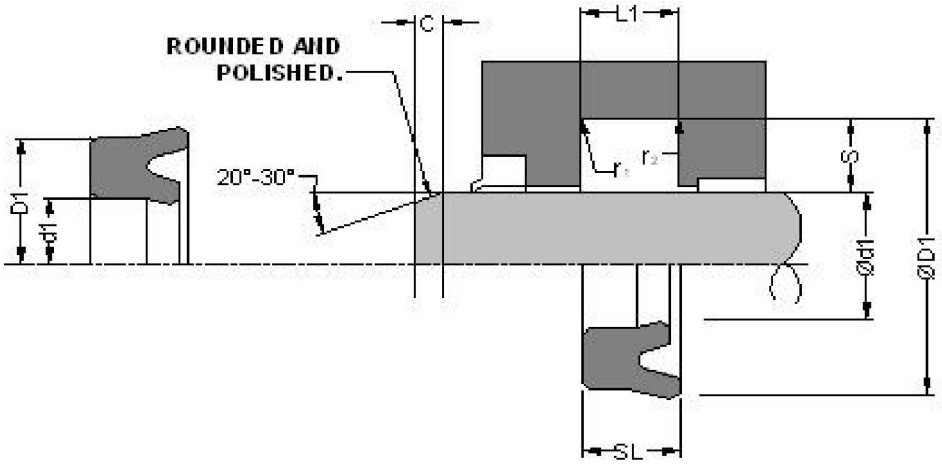
Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
20	-0.02 -0.072	28	0.07 -0.07	5	5.7	RU-20x28x5.7	28	-0.02 -0.072	35.5	0.08 -0.08	5	5.7	RU-28x35.5x5.7
20	-0.02 -0.072	30	0.07 -0.07	8	9	RU-20x30x9	28	-0.02 -0.072	36	0.08 -0.08	6.5	7.1	RU-28x36x7.1
20	-0.02 -0.072	40	0.08 -0.08	12	13	RU-20x40x13	28	-0.02 -0.072	38	0.08 -0.08	5.6	6.3	RU-28x38x6.3
22	-0.02 -0.072	30	0.07 -0.07	4.4	5	RU-22x30x5	28	-0.02 -0.072	40	0.08 -0.08	10	11	RU-28x40x11
22	-0.02 -0.072	35	0.08 -0.08	10	11	RU-22x35x11	28	-0.02 -0.072	43	0.08 -0.08	10	11	RU-28x43x11
22	-0.02 -0.072	40	0.08 -0.08	10	11	RU-22x40x11	30	-0.02 -0.072	37	0.08 -0.08	6	7	RU- 30x37x7
22.4	-0.02 -0.072	30	0.07 -0.07	5	5.7	RU-22.4x30x5.7	30	-0.02 -0.072	40	0.08 -0.08	5.6	6.3	RU-30x40x6.3
22.4	-0.02 -0.072	32.4	0.08 -0.08	8	9	RU-22.4x32.4x9	30	-0.02 -0.072	40	0.08 -0.08	6	7	RU- 30x40x7
23.5	-0.02 -0.072	31.5	0.08 -0.08	5	5.7	RU-23.5x31.5x5.	30	-0.02 -0.072	40	0.08 -0.08	8	9	RU- 30x40x9
25	-0.02 -0.072	33	0.08 -0.08	4.4	5	RU-25x33x5	30	-0.02 -0.072	40	0.08 -0.08	10	11	RU-30x40x11
25	-0.02 -0.072	33	0.08 -0.08	5	5.7	RU-25x33x5.7	30	-0.02 -0.072	45	0.08 -0.08	10	11	RU-30x45x11
25	-0.02 -0.072	35	0.08 -0.08	8	9	RU-25x35x9	31.5	-0.025 -0.087	41.5	0.08 -0.08	6	7	RU-31.5x41.5x7
25	-0.02 -0.072	35	0.08 -0.08	10	11	RU-25x35x11	32	-0.025 -0.087	42	0.08 -0.08	5.6	6.3	RU-32x42x6.3
25	-0.02 -0.072	38	0.08 -0.08	8	9	RU- 25x38x9	32	-0.025 -0.087	42	0.08 -0.08	6	7	RU- 32x42x7
25	-0.02 -0.072	38	0.08 -0.08	10	11	RU-25x38x11	32	-0.025 -0.087	42	0.08 -0.08	10	11	RU-32x42x11
25	-0.02 -0.072	40	0.08 -0.08	10	11	RU-25x40x11	32	-0.025 -0.087	47	0.08 -0.08	10	11	RU-32x47x11
26	-0.02 -0.072	40	0.08 -0.08	9	10	RU-26x40x10	35	-0.025 -0.087	45	0.08 -0.08	6	7	RU- 35x45x7



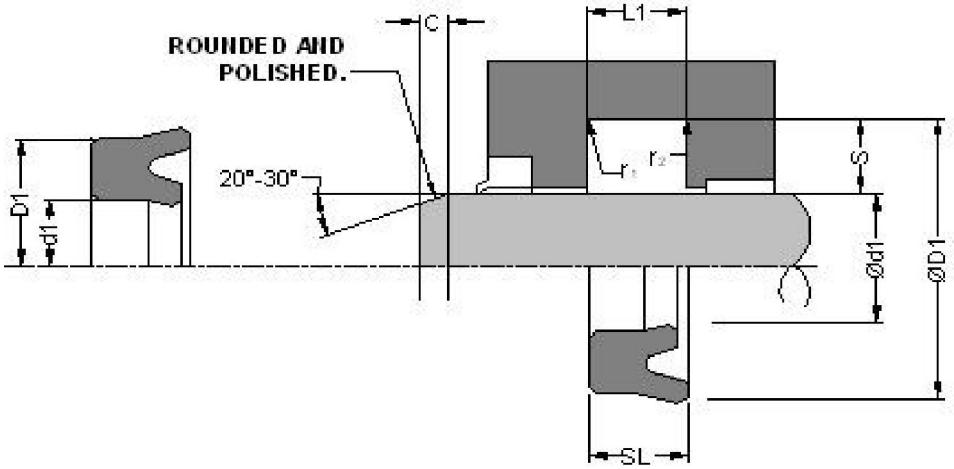
Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
35	-0.025 -0.087	45	0.08 -0.08	7	8	RU- 35x45x8	45	-0.025 -0.087	55	0.1 -0.1	6	7	RU- 45x55x7
35	-0.025 -0.087	48	0.08 -0.08	10	11	RU-35x48x11	45	-0.025 -0.087	55	0.1 -0.1	10	11	RU- 45x55x11
35	-0.025 -0.087	50	0.08 -0.08	10	11	RU-35x50x11	45	-0.025 -0.087	56	0.1 -0.1	7	8	RU- 45x56x8
35.5	-0.025 -0.087	45	0.08 -0.08	6	7	RU- 35.5x45x7	45	-0.025 -0.087	60	0.1 -0.1	10	11	RU- 45x60x11
35.5	-0.025 -0.087	50.5	0.08 -0.08	10	11	RU- 35.5x50.5x11	45	-0.025 -0.087	65	0.1 -0.1	10	11	RU- 45x65x11
36	-0.025 -0.087	46	0.08 -0.08	5.6	6.3	RU- 36x46x6.3	46	-0.025 -0.087	56	0.1 -0.1	6	7	RU- 46x56x7
38	-0.025 -0.087	48	0.08 -0.08	6	7	RU- 38x48x7	48	-0.025 -0.087	63	0.1 -0.1	10	11	RU- 48x63x11
38	-0.025 -0.087	50	0.08 -0.08	9	10	RU- 38x50x10	50	-0.025 -0.087	60	0.1 -0.1	5.6	6.3	RU- 50x60x6.3
38	-0.025 -0.087	55	0.1 -0.1	9.7	11	RU-38x55x11	50	-0.025 -0.087	60	0.1 -0.1	6	7	RU- 50x60x7
38	-0.025 -0.087	58	0.1 -0.1	9.7	11	RU-38x58x11	50	-0.025 -0.087	60	0.1 -0.1	10	11	RU- 50x60x11
40	-0.025 -0.087	50	0.08 -0.08	5.6	6.3	RU- 40x50x6.3	50	-0.025 -0.087	65	0.1 -0.1	10	11	RU- 50x65x11
40	-0.025 -0.087	50	0.08 -0.08	6	7	RU- 40x50x7	50	-0.025 -0.087	70	0.1 -0.1	12	13	RU- 50x70x13
40	-0.025 -0.087	50	0.08 -0.08	10	11	RU-40x50x11	52	-0.03 -0.104	62	0.1 -0.1	10	11	RU- 52x62x11
40	-0.025 -0.087	55	0.1 -0.1	9.9	11	RU-40x55x11	53	-0.03 -0.104	63	0.1 -0.1	6	7	RU- 53x63x7
40	-0.025 -0.087	55	0.1 -0.1	10	11	RU-40x55x11	55	-0.03 -0.104	65	0.1 -0.1	6	7	RU- 55x65x7
40	-0.025 -0.087	60	0.1 -0.1	12	13	RU-40x60x13	55	-0.03 -0.104	75	0.1 -0.1	12	13	RU- 55x75x13
45	-0.025 -0.087	55	0.1 -0.1	5.6	6.3	RU- 45x55x6.3	56	-0.03 -0.104	66	0.1 -0.1	6	7	RU- 56x66x7



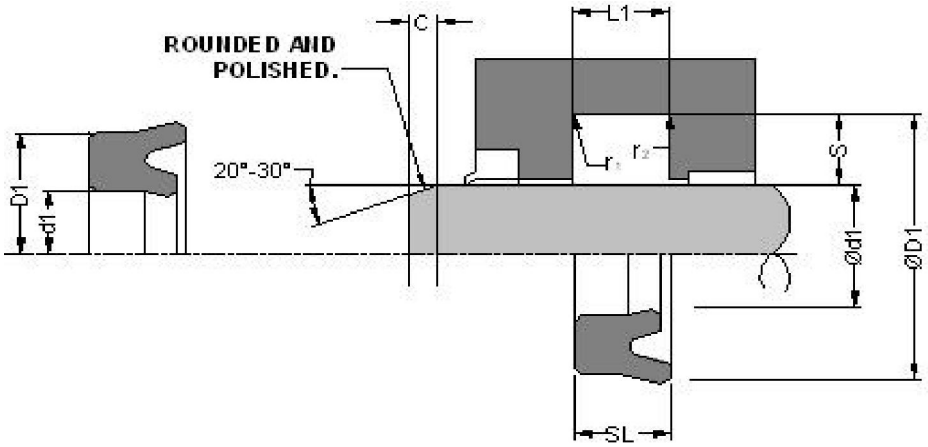
Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
56	-0.03 -0.104	71	0.1 -0.1	8.4	9.5	RU-56x71x9.5	70	-0.03 -0.104	92	0.11 -0.11	12	13	RU-70x92x13
56	-0.03 -0.104	76	0.1 -0.1	12	13	RU-56x76x13	71	-0.03 -0.104	80	0.1 -0.1	6	7	RU-71x80x7
60	-0.03 -0.104	70	0.1 -0.1	6	7	RU- 60x70x7	75	-0.03 -0.104	85	0.11 -0.11	6	7	RU- 75x85x7
60	-0.03 -0.104	70	0.1 -0.1	10	11	RU-60x70x11	75	-0.03 -0.104	85	0.11 -0.11	11.8	13	RU-75x85x13
60	-0.03 -0.104	71	0.1 -0.1	7	8	RU- 60x71x8	75	-0.03 -0.104	95	0.11 -0.11	12	13	RU-75x95x13
60	-0.03 -0.104	76	0.1 -0.1	12	13	RU-60x76x13	75	-0.03 -0.104	100	0.11 -0.11	22	24	RU-75x100x24
60	-0.03 -0.104	80	0.1 -0.1	12	13	RU-60x80x13	80	-0.03 -0.104	90	0.11 -0.11	6	7	RU- 80x90x7
63	-0.03 -0.104	73	0.1 -0.1	6	7	RU- 63x73x7	80	-0.03 -0.104	90	0.11 -0.11	8	8.7	RU-80x90x8.7
63	-0.03 -0.104	73	0.1 -0.1	11.8	13	RU-63x73x13	80	-0.03 -0.104	90	0.11 -0.11	11.8	13	RU-80x90x13
63	-0.03 -0.104	78	0.1 -0.1	8.4	9.5	RU-63x78x9.5	80	-0.03 -0.104	95	0.11 -0.11	8.4	9.5	RU-80x95x9.5
65	-0.03 -0.104	75	0.1 -0.1	6	7	RU- 65x75x7	80	-0.03 -0.104	100	0.11 -0.11	12	13	RU-80x100x13
65	-0.03 -0.104	80	0.1 -0.1	8.4	9.5	RU-65x80x9.5	85	-0.036 -0.123	100	0.11 -0.11	8.4	9.5	RU-85x100x9.5
65	-0.03 -0.104	85	0.1 -0.1	12	13	RU-65x85x13	85	-0.036 -0.123	100	0.11 -0.11	8.9	10	RU-85x100x10
70	-0.03 -0.104	80	0.1 -0.1	6	7	RU- 70x80x7	85	-0.036 -0.123	105	0.11 -0.11	12	13	RU-85x105x13
70	-0.03 -0.104	80	0.1 -0.1	11.8	13	RU-70x80x13	90	-0.036 -0.123	100	0.11 -0.11	11.8	13	RU-90x100x13
70	-0.03 -0.104	85	0.11 -0.11	8.4	9.5	RU-70x85x9.5	90	-0.036 -0.123	105	0.11 -0.11	8.4	9.5	RU-90x105x9.5
70	-0.03 -0.104	90	0.11 -0.11	12	13	RU-70x90x13	90	-0.036 -0.123	105	0.11 -0.11	8.9	10	RU-90x105x10



Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
90	-0.036 -0.123	110	0.11 -0.11	12	13	RU-90x110x13	125	-0.043 -0.143	145	0.13 -0.13	15	17	RU-125x145x17
95	-0.036 -0.123	110	0.11 -0.11	8.9	10	RU-95x110x10	130	-0.043 -0.143	150	0.13 -0.13	15	17	RU-130x150x17
95	-0.036 -0.123	115	0.11 -0.11	12	13	RU-95x115x13	136	-0.043 -0.143	150	0.13 -0.13	8.5	9.5	RU-136x150x9.
100	-0.036 -0.123	115	0.11 -0.11	8.9	10	RU-100x115x10	140	-0.043 -0.143	154	0.13 -0.13	9	10	RU-140x154x10
100	-0.036 -0.123	120	0.11 -0.11	11	12.5	RU-100x120x12.	140	-0.043 -0.143	155	0.13 -0.13	8.9	10	RU-140x155x10
100	-0.036 -0.123	120	0.11 -0.11	12	13	RU-100x120x13	140	-0.043 -0.143	160	0.13 -0.13	15	17	RU-140x160x17
105	-0.036 -0.123	125	0.13 -0.13	11.4	12.5	RU-105x125x12.	145	-0.043 -0.143	160	0.13 -0.13	8.9	10	RU-145x160x10
105	-0.036 -0.123	125	0.13 -0.13	15	17	RU-105x125x17	145	-0.043 -0.143	165	0.13 -0.13	15	17	RU-145x165x17
110	-0.036 -0.123	130	0.13 -0.13	11	12.5	RU-110x130x12.	150	-0.043 -0.143	165	0.13 -0.13	8.9	10	RU-150x165x10
110	-0.036 -0.123	130	0.13 -0.13	15	17	RU-110x130x17	150	-0.043 -0.143	170	0.13 -0.13	15	17	RU-150x170x17
112	-0.036 -0.123	125	0.13 -0.13	8.9	10	RU-112x125x10	155	-0.043 -0.143	170	0.13 -0.13	8.9	10	RU-155x170x10
115	-0.036 -0.123	130	0.13 -0.13	8.9	10	RU-115x130x10	155	-0.043 -0.143	180	0.13 -0.13	15	17	RU-155x180x17
115	-0.036 -0.123	135	0.13 -0.13	15	17	RU-115x135x17	160	-0.043 -0.143	175	0.13 -0.13	9	10	RU-160x175x10
120	-0.036 -0.123	140	0.13 -0.13	14.5	16	RU-120x140x16	160	-0.043 -0.143	185	0.15 -0.15	15	17	RU-160x185x17
120	-0.036 -0.123	140	0.13 -0.13	15	17	RU-120x140x17	165	-0.043 -0.143	180	0.13 -0.13	9	10	RU-165x180x10
125	-0.043 -0.143	140	0.13 -0.13	8.9	10	RU-125x140x10	165	-0.043 -0.143	183	0.15 -0.15	10	11	RU-165x183x11
125	-0.043 -0.143	145	0.13 -0.13	11.4	12.5	RU-125x145x12.	165	-0.043 -0.143	190	0.15 -0.15	15	17	RU-165x190x17

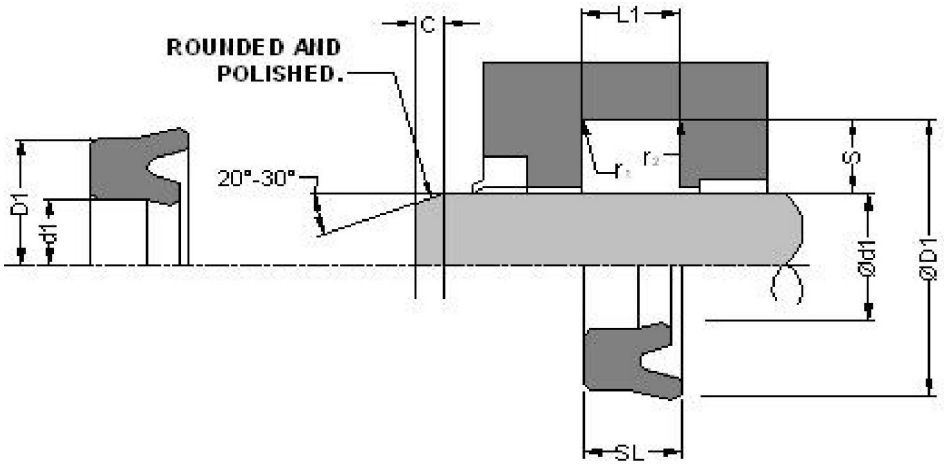


Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
170	-0.043 -0.143	195	0.15 -0.15	15	17	RU-170x195x17	230	-0.05 -0.165	250	0.15 -0.15	12	13	RU-230x250x13
175	-0.043 -0.143	190	0.15 -0.15	8.9	10	RU-175x190x10	240	-0.05 -0.165	260	0.16 -0.16	12	13	RU-240x260x13
175	-0.043 -0.143	200	0.15 -0.15	15	17	RU-175x200x17	240	-0.05 -0.165	265	0.16 -0.16	18	20	RU-240x265x20
180	-0.043 -0.143	200	0.15 -0.15	12	13	RU-180x200x13	250	-0.05 -0.165	275	0.16 -0.16	18	20	RU-250x275x20
180	-0.043 -0.143	205	0.15 -0.15	15	17	RU-180x205x17	260	-0.056 -0.186	290	0.16 -0.16	18	20	RU-260x290x20
190	-0.05 -0.165	210	0.15 -0.15	12	13	RU-190x210x13	265	-0.056 -0.186	295	0.16 -0.16	18	20	RU-265x295x20
190	-0.05 -0.165	215	0.15 -0.15	15	17	RU-190x215x17	270	-0.056 -0.186	300	0.16 -0.16	18	20	RU-270x300x20
200	-0.05 -0.165	220	0.15 -0.15	12	13	RU-200x220x13	280	-0.056 -0.186	310	0.16 -0.16	18	20	RU-280x310x20
200	-0.05 -0.165	225	0.15 -0.15	15	17	RU-200x225x17	290	-0.056 -0.186	320	0.18 -0.18	18	20	RU-290x320x20
210	-0.05 -0.165	235	0.15 -0.15	18	20	RU-210x235x20	300	-0.056 -0.186	330	0.18 -0.18	18	20	RU-300x330x20
220	-0.05 -0.165	240	0.15 -0.15	12	13	RU-220x240x13	375	-0.062 -0.202	405	0.18 -0.18	22	24	RU-375x405x24
220	-0.05 -0.165	250	0.15 -0.15	17	19.2	RU-220x250x19.	400	-0.062 -0.202	425	0.18 -0.18	25	27	RU-400x425x27



INCH

Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
0.5	-6E-04 -0.002	0.75	0.003 -0.003	0.25	0.275	RU-181	2	-0.0012 -0.0041	2.375	0.004 -0.004	0.25	0.275	RU-198
0.5	-6E-04 -0.002	0.875	0.003 -0.003	0.197	0.218	RU-182	2	-0.0012 -0.0041	2.375	0.004 -0.004	0.312	0.344	RU-199
0.5	-6E-04 -0.002	1	0.003 -0.003	0.25	0.275	RU-183	2	-0.0012 -0.0041	2.5	0.004 -0.004	0.375	0.413	RU-200
0.63	-6E-04 -0.002	1	0.003 -0.003	0.19	0.218	RU-184	2	-0.0012 -0.0041	2.625	0.004 -0.004	0.5	0.55	RU-201
0.63	-6E-04 -0.002	1.125	0.003 -0.003	0.25	0.275	RU-185	2	-0.0012 -0.0041	2.625	0.004 -0.004	0.562	0.619	RU-202
0.75	-8E-04 -0.003	1.25	0.003 -0.003	0.25	0.275	RU-186	2.125	-0.0012 -0.0041	2.5	0.004 -0.004	0.25	0.275	RU-203
0.88	-8E-04 -0.003	1.375	0.003 -0.003	0.25	0.275	RU-187	2.125	-0.0012 -0.0041	2.625	0.004 -0.004	0.375	0.413	RU-204
1	-8E-04 -0.003	1.5	0.003 -0.003	0.25	0.275	RU-188	2.25	-0.0012 -0.0041	2.75	0.004 -0.004	0.375	0.413	RU-205
1.25	-0.001 -0.003	1.75	0.003 -0.003	0.25	0.275	RU-189	2.375	-0.0012 -0.0041	3	0.004 -0.004	0.312	0.344	RU-206
1.25	-0.001 -0.003	1.75	0.003 -0.003	0.375	0.413	RU-190	2.5	-0.0012 -0.0041	3	0.004 -0.004	0.375	0.413	RU-207
1.38	-0.001 -0.003	1.75	0.003 -0.003	0.375	0.413	RU-191	2.5	-0.0012 -0.0041	3.125	0.004 -0.004	0.312	0.344	RU-208
1.38	-0.001 -0.003	2	0.004 -0.004	0.266	0.312	RU-192	2.625	-0.0012 -0.0041	3.125	0.004 -0.004	0.375	0.413	RU-209
1.5	-0.001 -0.003	2	0.004 -0.004	0.258	0.275	RU-193	2.75	-0.0012 -0.0041	3.375	0.004 -0.004	0.562	0.413	RU-210
1.75	-0.001 -0.003	2.25	0.004 -0.004	0.25	0.275	RU-194	2.875	-0.0012 -0.0041	3.5	0.004 -0.004	0.325	0.619	RU-211
1.75	-0.001 -0.003	2.25	0.004 -0.004	0.375	0.413	RU-195	3	-0.0012 -0.0041	3.625	0.004 -0.004	0.562	0.36	RU-212
1.75	-0.001 -0.003	2.375	0.004 -0.004	0.266	0.312	RU-196	3.75	-0.0014 -0.0048	4.5	0.004 -0.004	0.375	0.619	RU-213
1.75	-0.001 -0.003	2.375	0.004 -0.004	0.562	0.619	RU-197	4	-0.0014 -0.0048	4.5	0.004 -0.004	0.511	0.413	RU-214



Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.	Ød1	TOL f9	ØD1	TOL JS11	SL	L1 0.25	PART NO.
4	-0.001 -0.005	4.75	0.004 -0.004	0.375	0.562	RU-215	5	-0.0017 -0.0056	6	0.005 -0.005	0.75	0.539	RU-220
4	-0.001 -0.005	4.75	0.005 -0.005	0.536	0.413	RU-216	5.5	-0.0017 -0.0056	6.25	0.005 -0.005	0.375	0.825	RU-221
4.5	-0.001 -0.005	5	0.005 -0.005	0.375	0.6	RU-217	5.75	-0.0017 -0.0056	6.5	0.005 -0.005	0.375	0.413	RU-222
4.75	-0.002 -0.006	5.5	0.005 -0.005	0.36	0.413	RU-218	7	-0.0017 -0.0056	7.5	0.005 -0.005	0.25	0.413	RU-223
5	-0.002 -0.006	5.75	0.005 -0.005	0.482	0.437	RU-219	7.75	-0.0017 -0.0056	8.75	0.005 -0.005	0.5	0.275	RU-224