

## METAL C-RING VACUUM SEALS FOR AGS

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Collider Accelerator Department  
**Brookhaven National Laboratory**

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METAL C-RING VACUUM SEALS FOR AGS

1. General Notes

This note is intended to be used as a guide when designing with metal C-ring vacuum seals. It lists the nominal seal diameter, along with the corresponding Parker number and the P.S.I. manufacturer's part number. The sizes were deliberately restricted to a preferred size list so that perhaps one day a small inventory of the various sizes could be maintained. However, just about any size is available and the manufacturer should be consulted on special sizes.

The list also includes a tooling column. It shows which sizes are available without paying an additional tooling charge.

The C-rings are available from:

Pressure Science Incorporated  
11642 Old Baltimore Pike  
Beltsville, Maryland 20705  
c/o Mr. J. Lynch, Sales Manager  
(301) 474-4010

## 2. Groove Dimensions

### "O" RING GROOVE WIDTHS AND DEPTHS FOR VACUUM USE

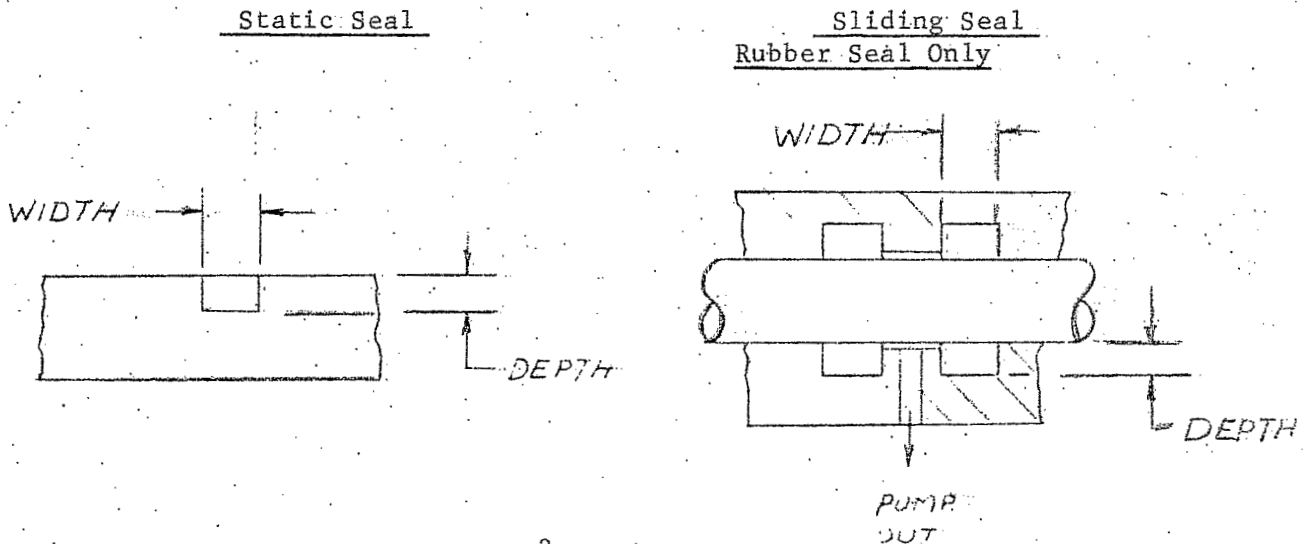
Static Seals			Sliding Seals		
Nom. Dia.	Cross Section Dia. (D)	Groove(.75D) Depth	Groove(1.2D) Width	Groove(.8D) Depth	Groove(1.15D) Width
	.040	.030	.048 1/16*	.032	.046
	.050	.038	.060 3/32*	.040	.058
	.060	.045	.072 3/32*	.048	.069
1/16	.070	.053	.084 3/32*	.056	.081
3/32	.103	.077	.124 5/32*	.082	.118
1/8	.139	.104	.167 3/16*	.111	.160
3/16	.210	.156	9/32	.168	.242
1/4	.275	.206	11/32	.220	.316

\*Make groove width to fractional dimensions where space permits.

The same groove dimensions (above, except for sliding seals) are used for both the rubber O-rings and the metal C-rings.

NOTE 1 - Groove widths are minimum figures. When designing grooves in flanges, the inner diameter of the "O" ring groove should be made slightly larger than the actual inner diameter of the "O" ring. In general, this works out to be the nominal inside diameter of the "O" ring.

NOTE 2 - For rotating and sliding seals 1-1/2 O.D. and larger, use .85D for groove depth; (rubber seals only).



METAL VACUUM SEAL

## C - RING

Nominal I.D.	Replaces Parker No.	Tool- ing	P.S.I. Part No.
1/4	-	Yes	10354-0932
5/16	-	"	10354-1132
3/8	2-110	"	10354-1332
7/16	2-111	"	10354-1532
1/2	2-112	"	" -1732
9/16	2-113	"	" -1932
5/8	2-114	"	" -2132
11/16	2-115	"	" -2332
3/4	2-116	"	" -2532
13/16	2-117	"	" -2732
7/8	2-118	"	" -2932
15/16	2-119	"	" -3132
1	2-120	"	" -0017
1-1/8	2-122	"	" -0019
1-1/4	2-124	"	1.280/093/15/P/180 Indium

METAL VACUUM SEAL

C - RING

Nominal I.D.	Replaces Park No.	Tooling	P.S.I. Part No.
1-1/8	2-216	Yes	1.155/125/15/P/180 Indium
1-1/4	2-218	"	1.280/125/15/P/180 "
1-3/8	2-220		1.405/ " "
1-1/2	2-222		1.530/ " "
1-3/4	2-224		1.780/ " "
1-7/8	2-225		1.905/ " "
2	2-226		2.030/ " "
2-1/4	2-228	Yes	2.280/125/15/P/180 Indium
2-1/2	2-230	"	2.530/ " "
2-3/4	2-232		2.780/ " "
3	2-234		3.030/ " "
3-1/8	2-235	Yes	3.155/ " "
3-1/4	2-236		3.280/ " "
3-1/2	2-238	Yes	3.530/125/15/P/180 Indium
3-5/8	2-239	"	3.655/125/15/p/180 "

METAL VACUUM SEAL

"C" RING

Nominal I.D.	Replaces Parker No.	Tooling	P.S.I. Part No.
2-1/4	2-331	Yes	2.280/187/25/P/180 Indium
2-1/2	2-333		2.530/187/25/P/180 "
2-5/8	2-334	Yes	2.655/ " "
2-3/4	2-335		2.780/ " "
3	2-337		3.030/ " "
3-1/8	2-338	Yes	3.155 " "
3-1/4	2-339	Yes	3.280/ " "
3-1/2	2-341		3.530/ " "
3-3/4	2-343		3.780/ " "
4	2-345		4.030/ " "
4-1/8	2-346	Yes	4.155/ " "
4-1/4	2-347	Yes	4.280/ " "
4-1/2	2-349	Yes	4.530/ " "
4-3/4	2-351		4.780/ " "
5	2-353	Yes	5.030/ " "
5-1/4	2-355		5.280/ " "
5-1/2	2-357		5.530/ " "
5-3/4	2-359		5.780/ " "
6	2-361		6.030/ " "
6-1/4	2-362	Yes	6.280/ " "
6-1/2	2-363	Yes	6.530/ " "
9	2-373	Yes	9.030/187/25/p/180 "
9-1/4	2-374		9.280/187/25/p/180 "
Oval 6.8x35.8x3/16	-	Yes	

METAL VACUUM SEALS

C - RING

Nominal I.D.	Replaces Parker No.	Tooling	P.S.I. Part No.
6	2-437		6.030/225/25/P/180 Indium
6-1/4	2-438		6.280/ "
6-1/2	2-439	Yes	6.530/ "
6-3/4	2-440		6.780/ "
7	2-441		7.030/ "
7-1/4	2-442	Yes	7.230/ "
7-3/8	-	"	7.405/ "
7-1/2	2-443		7.530/ "
8	2-445		8.030/ "
8-1/2	2-446		8.530/ "
9	2-447		9.030/ "
9-1/2	2-448		9.530/ "
10	2-449		10.030/ "
10-1/2	2-450		10.530/ "
11	2-451		11.030/ "
11-1/2	2-452	Yes	11.530/ "
12	2-453		12.030/ "
12-1/2	2-454	Yes	12.530/ "
Oval 3-7/8x7-1/2x1/4	-	"	A-0358



METAL VACUUM SEAL

## C - RING

Nominal I.D.	Replaces Parker No.	Tool ing	P.S.I. Part No.
4-1/2	D16-126-3 (PS 630298)	Yes	4.530/145/20/P/180 In.
8-1/2 <sup>(1)</sup>	D11-1517-3A (PS 648741)	Yes	8.530/145/20/P/180 In.
8-1/2 <sup>(2)</sup>	D16-225-3 (PS 649149)	Yes	8.530/145/20/P/180 In.
Oval 3.355 x 12.350 <sup>(3)</sup>	D11M-2621-3 ( )	Yes	D-1928
Oval 6.8 x 35.8 x 3/16 <sup>(4)</sup>			
(1)	*Uses retainer Drawing no. D05-M-1009-3A		
(2)	" " " " D05-M-1010-3A		
(1)	* " " " " D05-M-1011-3A		
(2)	" " " " D05-M-1012-3A		
(3)	" " (supplied by P.S.I.)		
(4)	" " Drawing No. D05-M-1043-4		

METAL VACUUM SEALS

## C- RING

Nominal I.D.	Replaces CVC No.	Tooling	P.S.I. Part No. (P.S.I.)
2-1/2	265056-2	Yes	10354-0041
4	265056-3	"	0378
6	265056-4	"	0379
7-1/2	265056-6	"	0381

6. AGS CONVERSION SEALS

Nominal Size	Where Used	Part Number
1. 7/8 I.D. x 3/32	Pick-up electrode Feed-thru	(PSI) 10354-0014
2. 4-5/8 O.D. x 3/16	Pump Flange Used with retainer PSI No. D-2021-1	(PSI) 4.625/187/20/P/O-IP
3. 8-5/8 O.D. x 3/16	Main Chamber Seal Used with retainer PSI No. C-2020-2	(PSI) 8.625/187/20/P/O-IP
4. 4-1/8x7-1/4x3/16 (Oval)	Closed Magnet Chamber used with retainer BNL CD05-M-667-2	(BNL) CD05-M-689-2

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