

MECHANICAL SEAL SELECTION GUIDE

AEROSPACE • AGRICULTURE • AUTOMOTIVE • FORESTRY • INDUSTRIAL
MARINE • MINING • OILFIELD • PETRO CHEMICAL • PULP & PAPER



ISO 9001:2000





The Complete Cross Reference for Mechanical Face Seal Replacement

How To Use This Catalogue

- ◆ **Locate the manufacturer of the equipment.**
The manufacturer listings are alphabetical, refer to pages 7 - 13.
- ◆ **Identify the correct replacement seal.**
The seals are arranged by shaft size from smallest to largest.
If you are unable to identify the seal, it will be necessary for you to measure the old seal for correct identification.
- ◆ **Refer to page 2 through 6 to identify the seal.**
You can measure according to the Drawing Codes for the correct dimensions. If you are unable to determine the materials, refer to pages 27 - 31 for assistance.
- ◆ **Using the information you have, turn to the Dimensional Progression Chart on page 14. Locate the correct heading by shaft size.**
Find the matching rotary or head type and cross reference according to the Material Codes located on page 2 to the HTS part Number listed in the far right column of the Dimensional Progression Chart (pages 14 - 25).
- ◆ **If seal identification is doubtful, please contact your local sales office for more information.**

Edmonton, AB: Phone: (780) 438-6055 Fax: (780) 434-5866
Toll Free ☎: 1-800-661-6055

Calgary, AB: Phone: (403) 720-2856 Fax: (403) 279-2662
Toll Free ☎: 1-800-830-7822

Newmarket, ON: Phone: (905) 953-9666 Fax: (905) 953-8739
Toll Free ☎: 1-877-296-9412

Boucherville, QC: Phone: (450) 655-7325 Fax: (450) 655-7359
Toll Free ☎: 1-866-894-7325



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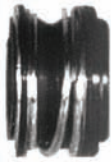
9211 - 41 Avenue NW, Edmonton, AB, Canada T6E 6R5
Bay 3, 5940 - 30 Street SE, Calgary, AB, Canada T2C 1X8
1180 Kerrisdale Blvd., Unit 8, Newmarket, ON, Canada L3Y 8Z9
1450 Rue Nobel, Suite 20, Boucherville, QC, Canada J4B 5H3

Toll Free ☎: 1-800-661-6055
Toll Free Fax: 1-800-465-5866

E-mail: info@hitechseals.com
Web-site: www.hitechseals.com



HEAD TYPES



Type A



Type B



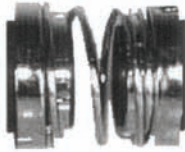
Type C



Type D



Type E



Type K



Type R



Type S



Type T

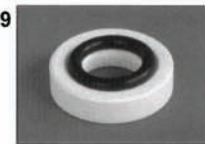
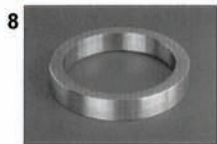
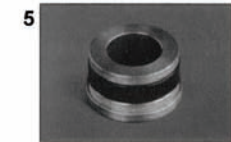
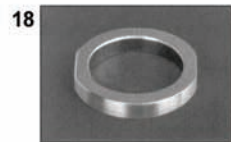
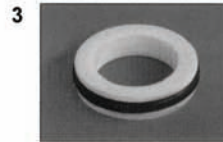
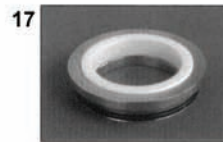
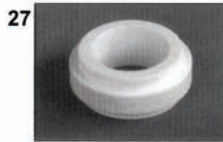
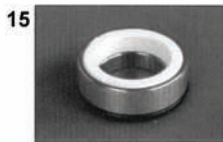
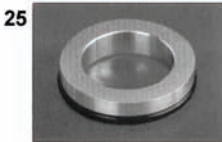
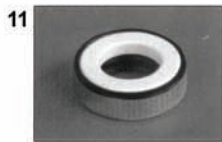
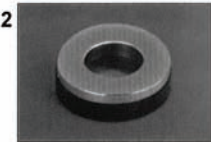
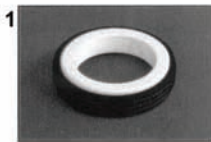


Type U



Type V

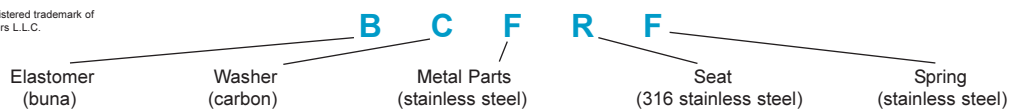
SEAT TYPES



MECHANICAL SEAL MATERIAL CODES

Elastomers	Washers	Metal Parts	Seats	Springs
B. Buna E. EPDM N. Neoprene V. Viton®*	A. Bronze C. Carbon M. Phenolic S. Tool Steel X. Silicon Carbide Z. Tungsten Carbide	D. Brass E. Monel F. Stainless Steel P. Plated Steel R. 316 Stainless Steel	A. Bronze G. Cast Iron J. Ceramic R. 316 Stainless Steel S. Tool Steel X. Silicon Carbide Z. Tungsten Carbide	E. Monel F. Stainless Steel P. Plated Steel R. 316 Stainless Steel

* Viton® is a trademark or registered trademark of DuPont Performance Elastomers L.L.C.



Elastomer Temperature Limits

Buna 225° F

EPR 300° F

Neoprene 175° F

Viton® 400° F

Pressure Limitations

Type A & B Seals

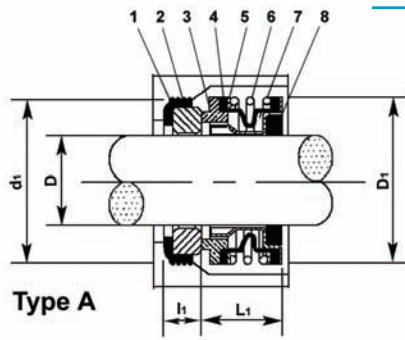
75 P.S.I.

Type C, D & E Seals

200 P.S.I.

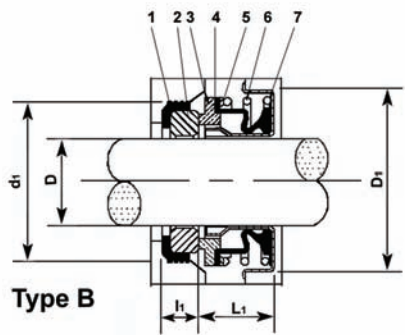


SEAL PARTS IDENTIFICATION



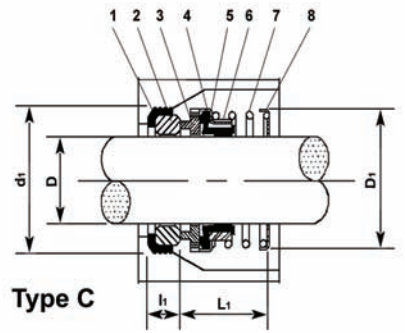
Type A

1. Cup Gasket
2. Stationary Face
3. Rotary Face
4. Bellow
5. Spring Retainer
6. Spring
7. Drive Shell
8. Drive Ring



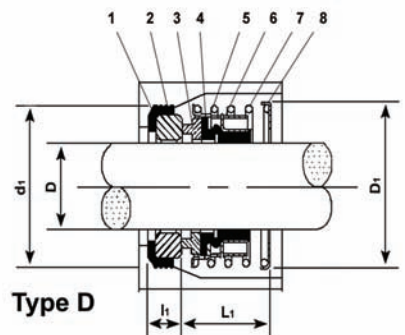
Type B

1. Cup Gasket
2. Stationary Face
3. Rotary Face
4. Bellow
5. Spring Retainer
6. Spring
7. Retainer



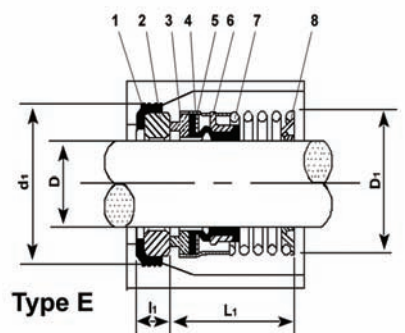
Type C

1. Cup Gasket
2. Stationary Face
3. Rotary Face
4. Bellow
5. Retainer
6. Drive Ring
7. Spring
8. Spring Retainer



Type D

1. Cup Gasket
2. Stationary Face
3. Rotary Face
4. Bellow
5. Retainer
6. Drive Ring
7. Spring
8. Spring Retainer



Type E

1. Cup Gasket
2. Stationary Face
3. Rotary Face
4. Bellow
5. Retainer
6. Drive Ring
7. Spring
8. Spring Retainer

Cup Gasket - Provides secondary sealing around the seat and maintains the position of the seat so that it properly mates with the seal face.

Stationary Face - The mating ring against which the seal face runs. Must be finished in the same manner as the rotary face.

Bellow -
Type A & B: provides a seal at the shaft.
Type C, D & E: provides a seal at the shaft surface and a friction-drive connection between the shaft and seal assembly.

Spring Retainer - Positions and centers the spring, aiding the concentricity between the spring and shaft.

Spring - Provides positive pressure for sealing between the sealing faces.

Drive Ring - Controls fit of the bellow to the shaft for proper friction drive. Type A Drive Ring mates against the shaft for friction drive.

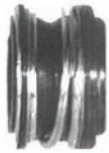




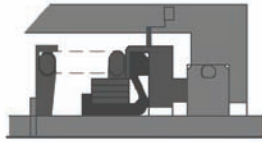




Retainer - Maintains contact with the bellow and provides positive drive to the Rotary Face.

Drawing Codes

D	Shaft Size
D ₁	Seal Head O.D.
d ₁	Counterbore or Seat O.D.
l ₁	Seat Thickness
L ₁	Operating Height



HEAD TYPE REFERENCE PAGE

<u>HEAD TYPE</u>		<u>EQUIVALENT</u>
	 TYPE A	John Crane Type 6 Sealol Type A Pac-Seal Type 16
	 TYPE B	John Crane Type 6A Sealol Type B Pac-Seal Type 68
	 TYPE C	John Crane Type 21 Sealol Type 43 Pac-Seal Type 21
	 TYPE D	John Crane Type 2
	 TYPE E	John Crane Type 1 Sealol Type 43 Pac-Seal Type 51



FAX - BACK - PAGE

SEAL IDENTIFICATION REFERENCE PAGE

FROM:

Company: _____ Contact: _____ Position: _____

Address: _____ City _____ Province _____ Postal Code _____

Phone: (____) _____ Fax: (____) _____ Other: _____

E-mail: _____ Web Site: _____

If you are unable to identify or locate the seal you need in this catalogue, please copy this page, fill in the requested information and fax it to us. If you are still in doubt, send a sample seal along with this sheet.

YOUR SEAL

A. Shaft/Sleeve O.D. _____

B. Counterbore of Stuffing Box _____

C. Bore of Gland for Stationary Seat _____

D. Stationary Thickness _____

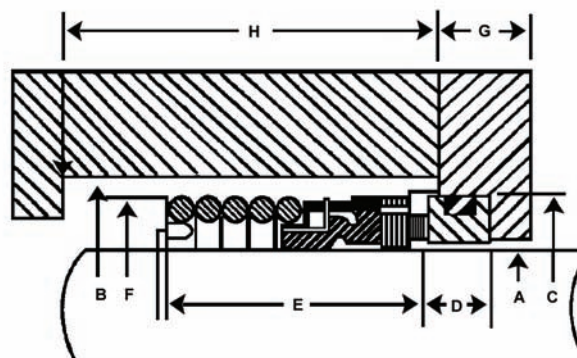
E. Operating Height of Seal _____

F. Seal O.D. _____

To Convert from Packing to Seal

G. Width of Gland _____

H. Stuffing Box Depth _____



EQUIPMENT DATA

1. Pump Mfg. Name _____

2. Model Number _____

3. Seal Part No. _____

SEAL DESIGN

1. Head Type _____

2. Seat Type _____

3. Manufacturer _____

4. Mfg. Part No. _____

SERVICE

1. Product _____

2. Explain if Abrasive _____

3. Percentage of Concentration _____

4. Temperature _____

5. Stuffing Box Pressure _____

6. Shaft Speed _____

FAX TO: HI-TECH SEALS INC. 1-800-465-5866



Pool and Spa Pump Manufacturers Cross Reference Guide With HTS Replacement Part Numbers

Pump Manufacturer	Pump Type	Manufacturer's Number	HTS Part Number	Pump Manufacturer	Pump Type	Manufacturer's Number	HTS Part Number
American Products	Americana	395005	201	Lomart		40-027, 029	163
	Americana II	397012	1000	Muskin		09-2013	142
	Bronze-Bronze	397012	1000			09-2001	163
	Bronze-Noryl	395005	201	Pac-Fab	Challenger	35-4545	200
	Eagle	397012	1000		Dynamite	35-4545	200
	Maxim	397012	1000		Dynamo	35-4545	200
	Power-Glass	397012	1000		Dynatron	35-4545	200
Ultra Flo	397020	1000	Hydropump		35-4001	201	
			Pinnacle	35-4545	200		
Ampro-Diaclear	Dia Cast	AP-504D	163	Polaris	Vac Sweep	P-55	1000
	Dura-Flo	AP-304D	1000				
	Lexan-200 Series	AP-504D	163	Premier	120T Series	31-812	201
	Noryl Turbo	AP-304D	1000		220/225 Series Pre-1988	31-813	1000
	XL600	AP-304D	1000		225/255 Series	31-812	201
			300 Series Pre-1988		31-813	1000	
			300 Series		31-812	201	
Anthony		04380	1000	455/456 Series	31-813	1000	
		04547	100	500 Series	31-813	1000	
Aqua Flo	AC-Series	92500000	309	600 Series	31-813	1000	
	A-Series	92509040	1000	725/756 Series	31-812	201	
	B-Series	92509040	1000	Purex/Hyrotech	AH Series	P28128	372
	C-Series	92500050	1000		Aquatron	P28300	201
	D-Series	92509040	1000		L-Series	P28322	501
	Dominator-High Head	92500050	1000		C-Series	P28300	201
	Dominator-Med. Head	92500050	1000			P28175	360
Flo-Master	91049000	2131			P28280	100	
Tub-Master	91049000	2131			P28323	1000	
Arneson	Pool Sweep		200	Sta-Rite	AJ-Series	U109-93SS	100
Baker-Hydro		35B1178	200		CC/C Series	U109-220	381
Coleco		R32546 w/R86560	501		CF/CFA Series	U109-136SS	1000
Diaclear		36100 w/35101	800		D Series	U109-220	381
Doughboy		306-1006 w/306-1007	200		Dura-Glas	U109-93SS	100
		306-1002 w/306-1005	1000		Dura-Glas II	U109-372SS	201
Flint & Walling		131100	800		Dyna-Glas/Dyna-Max	U109-358SS	201
Hayward	Cast Iron	SP-1250X-Z-2	200		HP-Series	U109-136SS	1000
	Max-Flo	SP-1600-Z-2	201		JS/JT Series	U9-358SS	201
	Power Flo	SP-1500-KA	2131		JW/JWA5 Series	U9-358SS	201
	Power Flo II	SP-1500-KA	2131		JWPA Series	U9-358SS	201
	Super Pump	SP-1600-Z-2	201		LT Series	U109-68SS	163
	Super Pump II	SP-1600-Z-2	201		Max-E-Glas	U109-93SS	100
	Turbo Flo	SP-1500-KA	2131		Max-E-Glas II	U109-372SS	201
		SP-1600-Z-2-A	1521		PLBC Series Pre-1995	U109-93SS	100
Hydra-Bath			1000	Swim-Quip	XL VI/XL VII	AS-201	201
ITT Marlow	2 AF-Series	25353-00	411	Swim-Rite		60-828-813	1000
	3B-Series	27223-00	416-A	Vico			201
	Argonaut	38592-00	201	Waterway			1000
	L-Series	45673-20	514	Wet Institute			1000
	L-Series	45672-20	978				
	Mardur	38592-00	201				
	SCT Series Stainless Steel	46328-00	2161				
Jacuzzi	8M	10-1203-01	877				
	LCM-Series	10-1436-00	200				
	LCU-Series	10-1436-00	200				
	LR-Series	10-1436-00	200				
	Magnum	10-1390-04	201				
	RC-Series	10-1390-04	201				
	Vector	10-1436-00	200				

PUMP MANUFACTURERS CROSS REFERENCE



HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
ACE PUMP			ALLIS CHALMERS (cont)			AQUA-FLO		
100	ACH-25, 33, 50, 75, 100, ACL-75	5/8	2134	52-121-998-801	1-3/8	100		5/8
	ACO & BCH-25, 33, 50, 75		314	08-301-766-066-04	1-1/2	200		5/8
100V	30210F	5/8	316	08-301-766-02-036	1-1/2	642		5/8
102	2C	5/8	320	177994-178243	1-1/2	1000	92509040	5/8
202	BAC-7B/40110	5/8	371	52-104-946-00-801	1-1/2	1021		5/8
1013	BAC-7VT-40150	5/8		52-101-848-082		2131	91049000	5/8
201	ACH-150, 200, 300, 500	3/4	382	52-104-945-06-801	1-1/2	201		3/4
	ACXH-150, BCH-100, 200, 300		758	52-112-870-2-801	1-1/2	309	92500000	7/8
752	3C	3/4	238	52-110-870-811	1-5/8	361		1-1/4
360	BCH-300, 500, 750, 1000	1		52-114-043-805		AQUA MASTER		
1014	GE-7V-42120	1	239	52-118-511-002	1-5/8	601	299122	3/4
				52-118-512-002		972V	261950	3/4
ALLIS CHALMERS			281		1-5/8	ARMSTRONG PUMP		
150	45059207	1/2	609	08-306-539-015-03	1-5/8	1012	816706-001	1/2
118	0618834	5/8		08-303-611-07-001		750	816707-001	3/4
200	52-104-969-00-803	5/8	1019	52-118-510-802	1-5/8	752		3/4
	52-104-969-00-813		205	08-212-616-001	1-3/4	976	825458-001	1-1/4
	52-104-969-00-823			52-114-901-801		977		1-1/4
359	52-104-945-00-804	5/8		52-104-870-802		978	825458001, 975000-958	1-1/4
642	52-105-071-01-801	5/8	317	08-303-611-07-004	1-3/4	979		1-1/4
358	607986	3/4	366	52-110-871-802	1-3/4	461		1-5/8
647	4386862	3/4		52-104-870-802		514		1-5/8
750	0618321	3/4		52-115-315-802		ARNESON POOL SWEEP		
703	4369006	7/8	446	52-115-605-802	1-3/4	200	A8	5/8
235	4367128	1	1055	52-111-322-802	1-3/4	299	A08H	5/8
276	52-105-275-05-808	1	1197	52-117-480-801	1-3/4	AURORA		
277	52-105-275-01-858	1	1674	52-117-036-802	1-3/4	1002	712-0932-753, 712-0902-753	1/2
360	52-104-969-00-806	1	318	52-109-606	1-7/8	129	712-0703-750, 753, 754	.590
	52-104-969-00-816			52-110-280-03-801		138	712-2102-791	.590
357	52-113-094-00-802	1	513	08-301-766-02-065	1-7/8	1675	712-0703-752	.590
754	52-110-870-01-809	1	523	08-301-766-02-065	1-7/8	100	712-1004-749	5/8
791	52-110-870-01-809	1	1608	52-114-713-805	1-7/8	132	712-1003-750	5/8
2163	52-102-530-00-802	1	319	08-212-617-001, 52-115-315-803	2	290	712-1003-753	5/8
204	08-216-526-02-001	1-1/8	477	52-123-692-801	2	359	712-0933-753, 712-0903-753	5/8
348	71725	1-1/8	478	52-110-871-803	2	508	712-0704-753, 754	5/8
355	52-104-946-00-803	1-1/8	1017	52-117-036-803	2	1156	712-0933-749, 712-0903-749	5/8
356	52-104-945-00-806	1-1/8	1020	52-118-510-803	2	112	712-1004-749	3/4
604	4314565	1-1/8	1685	52-116-823-810	2	112V	712-1004-764V	3/4
605	52-104-945-06-803	1-1/8	2133	52-119-056-803	2	358	712-1004-753	3/4
137	52-106-609-03-813	1-1/4	327	52-129-172-801	2-1/8		712-0934-753, 712-0904-753	
	52-106-609-03-817		323	08-216-036-001	2-1/4	373	712-0706-758	3/4
185	52-113-592-01-801	1-1/4	351	08-630-132-009	2-1/4	752	712-0705-755, 712-0706-755	3/4
308	52-106-286-801	1-1/4	1676	52-118-949-802	2-1/4	135	712-0707-752, 753, 754	.787
361	52-105-609-03-813	1-1/4	279		2-1/2	139	712-2106-793, 754	.787
	52-104-609-03-817		349	52-104-870-805	2-1/2	614	712-0707-755	.787
	52-114-605-805		321	08-216-035-001, 52-104-870-801	2-3/4	303	712-0935-749, 712-0905-749	7/8
	52-114-605-807		322	52-109-719-05-802	2-3/4	309	712-0935-753, 712-0905-753	7/8
	52-114-890-807		838	08-210-902-045	2-3/4	1163	712-0708-753, 754	7/8
	52-104-870-00-807		284		3	245	712-0709-753, 754	1
	52-105-382-00-807		324	08-210-902-04-037	3		712-0711-753, 754	
	2-52-024-867-001-8		2141	52-237-805-801	3	248	712-0709-749, 755	1
466	181815	1-1/4	325		3-1/4		712-0711-749, 755	
756		1-1/4	285	08-210-902-03-027	3-5/8	357	712-0936-749, 712-0906-749	1
1018	52-118-510-801, 52-126-211-801	1-1/4	2140	52-115-055-801	5	380	712-0936-753, 712-0906-753	1
2122	52-114-901-807	1-1/4		52-238-383-801		460	712-0709-755	1
177	52-115-605-801	1-3/8	AQUA-CHEM			355	712-0937-749, 712-0907-749	1-1/8
210	52-114-713-1-801	1-3/8	358	925-7520	3/4	355V	712-0907-764V	1-1/8
354	52-111-322-801	1-3/8	177	925-7523	1-3/8			
	52-104-870-806							
	54-104-870							
1667	52-117-036-801	1-3/8						



PUMP MANUFACTURERS CROSS REFERENCE

HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
AURORA (cont)			BELL & GOSSETT			BERKELEY (cont)		
356	712-0937-753, 712-0907-753, 755	1-1/8	392	Kit #7, 189102, 118681, 186681	1/2	2032	S-20782	1
1168	712-0454-749	1-1/8	393		1/2	2035	S-20763	1
136	712-0713-753, 754	1.181	400	PZ-3118, PZ-4118, 118680	1/2	204	S-7216	1-1/8
1179	712-0713-749, 755	1.181	400A	118619 (Ceramic Seat for 392, 401)	1/2	355	S-32690	1-1/8
5213	712-0713-753, 754	1.181	401A	Kit #3, 186681, 118681	1/2	384	S-20768, S-20995	1-1/8
306	712-0713-753, 754	1-3/16	401	Head Assembly for 401A	1/2	604	S-16812	1-1/8
310	712-0305-753, 754	1-3/16		PZ-3118, PZ-4118, 118680, 118614		605	S-20783	1-1/8
137	712-0306-755	1-1/4	985	Kit #20	1/2	1169	S-20766	1-1/8
185	712-0938-753, 712-0908-753	1-1/4	118	186879	5/8	1175	S-20767	1-1/8
246	712-0715-753, 754	1-1/4	399	PWZZ-3118, P-18008-0601	3/4	137	S-20769, S-15368	1-1/4
249	712-0715-749, 755	1-1/4	437	186499, 186433	3/4	185	S-32014	1-1/4
383	712-0908-749, 712-0938-749	1-1/4		Kit #2 (Ceramic Seat)		361	S-5648	1-1/4
177	712-0939-753, 712-0909-753	1-3/8	443	186499, 186433	3/4	381	S-5649, S-20785	1-1/4
186	712-0939-749, 712-0909-749	1-3/8		Kit #2 (316ss Seat)		383	S-20786	1-1/4
382	712-0940-753, 712-0910-753	1-1/2	235	180011	1	1181	S-20772	1-1/4
	712-0718-754		311	Kit #1, 186682	1	1182	S-20770	1-1/4
382V	712-0910-764	1-1/2	397		1	1185	S-20771	1-1/4
553	712-0940-749, 712-0910-749	1-1/2	398	PW1Z-4118	1	2041	S-20784	1-1/4
659	712-0940-749, 712-0910-749	1-1/2	438	Kit #11, 186682	1	2122	S-32013	1-1/4
758	712-0910-755	1-1/2	348	PHD118A	1-1/8	258	S-20773, S-20775	1-1/2
758V	712-0910-764V	1-1/2	384		1-1/8	258V	S-15538	1-1/2
664	712-0310-753, 754	1-9/16	185	186877	1-1/4	305	S-5650	1-1/2
	712-0719-753, 754		368	Kit #4, 10, 186862, 186860	1-1/4	374	S-15385	1-1/2
238	712-0941-753, 712-0911-753	1-5/8	402	Kit #1, 186862, 186860	1-1/4	374V	S-15538	1-1/2
239	712-0941-749, 712-0911-749	1-5/8	416	18689	1-1/4	1190	S-20774	1-1/2
436	712-1042-749	1-3/4	439	Kit #1, w/ 316ss Seat	1-1/4	821	S-16656	1-5/8
446	712-0942-753, 712-0912-753	1-3/4	597	Kit #4, 10, w/316ss Seat	1-1/4	205	S-7277, S-20777	1-3/4
	712-1012-753, 755		976	Kit #1, 186862, 186860	1-1/4	237	S-16768	1-3/4
448	712-0942-749, 712-0912-749	1-3/4	977	Kit #1, w/ 316ss Seat	1-1/4	288	S-16768, w/ 316ss Seat	1-3/4
1042	712-1012-749	1-3/4	978	Kit #4, 10, 186860, 186862, 186692	1-1/4	366		1-3/4
340	712-0943-753, 712-0913-753	1-7/8	979	Kit #4, 10 w/ 316ss Seat	1-1/4	446	S-32015	1-3/4
593	712-0943-749, 712-0913-749	1-7/8	186	P-77084, 186827	1-3/8	1196	S-20776	1-3/4
267	712-0944-753, 712-0914-753	2	224		1-1/2	2142	S-32692	1-3/4
332	712-1044-749	2	461	Kit #8, w/ 316ss Seat	1-5/8	340	S-32693, S-32694	1-7/8
477	OJ6M	2	514	Kit #8, 186543, 186544	1-5/8	523	S-15213	1-7/8
842	712-0944-749, 712-0914-749	2	237	186826	1-3/4	593	S-20787, S-20993	1-7/8
	712-1014-749, 712-1044-749		288	P-77033, 186826	1-3/4	828	S-22310	1-7/8
336	712-0945-749, 712-0915-749	2-1/8	594	P-81905	2-3/8	2069	S-20778	1-7/8
338	712-0945-753, 712-0915-753	2-1/8	834	186828	2-3/8	2072	S-20884	1-7/8
846	712-0946-753, 712-0916-753	2-1/4	BERKELEY			479	S-13481	2
941	712-0946-749, 712-0916-749	2-1/4	200	S8019, S-20790	5/8	327	S-17274	2-1/8
268	712-0947-753, 712-0917-753	2-3/8	202	S-5645, S-16488, S-20990	5/8	353	S-16076	2-1/8
492	712-0947-753, 712-0917-749	2-3/8		S-5053, S-20996		537	S-15894	2-1/8
	712-1017-749, 712-1047-749		202V	S-18150	5/8	2084	S-15950	2-1/8
269	712-0948-753, 712-0918-753	2-1/2	516	S-20788, S-20994, S-20789	5/8	2159	S-16076	2-1/8
	712-1048-753, 712-1018-753		103	S-20780	3/4	848	S-11802	2-1/4
853	712-0948-749, 712-0918-749	2-1/2	201	S-5646, S-21961, S-20791, S-20792	3/4	463	S-30320	2-1/2
483	712-0950-749, 712-0920-749	2-3/4	201V	S-18662	3/4	835	S-18337	2-1/2
836	712-0950-753, 712-0920-753	2-3/4	440	S-20997	3/4	BLACKMER		
3282	712-0949-749	2-5/8	750	S-5647	3/4	144	333005, 333015	7/8
	712-0919-749		752	S-20780	3/4	303	333030	7/8
	712-1019-749		851	S-20794, S-21961	3/4	2156	331825	1-7/16
270	712-0951-753, 712-0921-753	2-7/8	902	S-6405	3/4	3236	331825	1-7/16
839	712-0951-749, 712-0921-749	2-7/8	921	S-20793, S-32280	3/4	BYRON JACKSON		
841	712-0471-755	2-7/8	972	S-20791, S-20794	3/4	200		5/8
465	712-0952-749, 712-0922-749	3	972V	S-18662	3/4	512		3/4
761	712-0952-753, 712-0922-753	3	236	S-20764, S-20765	1	426	D-30904	7/8
272		3-3/4	360	S-8742, S-9583	1	775	D-30903	7/8
			460	S-20781	1	789	D-30433	1
			754	S-14867	1			

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HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
BYRON JACKSON			CRANE-DEMING (cont)			FAIRBANKS MORSE		
1022	D-30434	1	446	0030888	1-3/4	511	82277-60, 82716	3/8
987		1	449	30904, 40650999	1-3/4	504	82492	1/2
467		1-3/8	858	0078877, 0078882	1-3/4	506	91352	1/2
382		1-1/2	2144	0045936	1-3/4	500	82467, 91339, 40092269	9/16
CRANE-DEMING			312	0046390	1-7/8	102	82698	5/8
106	0058216	1/2	340	0046389	1-7/8	200	82480-75, 82723	5/8
1002	0058125	1/2	336	425650999	2-1/8	359		5/8
200	0000015	5/8	353		2-1/8	501	S-625, 82635-60, 82702-75	5/8
226	0006875, 0020444	5/8	2126	0045937	2-1/8	507	82480-60, 82764-60	5/8
359	0034427	5/8	1678	0030892	2-1/4	508	82480-75	5/8
493	0006876, 0006841	5/8	CREPACO			116	82459-60	3/4
501	4910, 4911, 4912, 4913	5/8	790	100-A-426	7/8	201		3/4
	4963, 4966, 4967		397	549-S-6407F	1	750	40088878	3/4
201	0000059	3/4	397V	549-S-6408F	1	877	HYDE-2, 82738-60	3/4
207	0006878	3/4	108	02-9119-A	1-1/4	188	HYD1Q1	7/8
750		3/4	154	549-S-6407	1-1/4	229	WESTCO BR545	7/8
208	0006880	7/8	326	1-S-1924	1-1/4	235	CND-1726D, 1726C	1
428	0030894	7/8	3222	01-52311-A	1-1/4	987	ND-1726A, 1726B1	1
687	0030877	7/8		100-A-639		204	HYD1Q2	1-1/8
703	0030876	7/8	DEAN BROTHER			356	HYD1AC	1-1/8
790	0006899	7/8	1000V	6960440	5/8	1103	HYD1S2	1-1/8
878	0030895	7/8	235V	SK1382 for PH201	1	185	HYD1AC2	1-1/4
892	0030894	7/8	1030	6764554, 6765583	1	381	WESTCO 2G	1-1/4
141	0004113	1	1031	6764540, 6765965	1-3/4	510	HYD1E2	1-1/4
235	0030878	1	858V	SK1382 for PH231	1-3/4	890	HYD1AD2	1-1/4
357	0030879	1	DUNHAM BUSH			354	HYD1Q3	1-3/8
429	0030896	1	106	996 (new)	1/2	1104	HYD1S3	1-3/8
430	0030897	1	632	996 (old)	1/2	305	ND-2502-A1	1-1/2
460		1	118		5/8	515	HYD1A2	1-1/2
879	0030896	1	487		5/8	899	HYD1AA1	1-1/2
891	0030897	1	508	614	5/8	915	HYD1AA2	1-1/2
2145	0065187	1	633	472	5/8	514	ND1246-A4	1-5/8
384	0029177	1-1/8	159	GA-1781-1	1	446	HYD1AC3	1-3/4
608	4012	1-1/8	236		1	449	HYD1AD7	1-3/4
185	0030880	1-1/4	499	GA-1781-4	1	519	HYD1T2	1-3/4
381	0030880	1-1/4	982	860	1	917	HYD1A4	1-3/4
383		1-1/4	983	861	1-1/8	1070	HYD1AA3	1-3/4
426	0006903	1-1/4	756	3179	1-1/4	513	HYD1Q4	1-7/8
756	0030881	1-1/4	DURIRON (DURCO)			523	HYD1Q4, HYD1E4	1-7/8
756V	0084881	1-1/4	584		1-1/8	554	HYD1AAY	1-7/8
883	0030898	1-1/4	885		1-1/8	898	HYD1AA4	1-7/8
890	0030899	1-1/4	886		1-1/8	1105	HYD1S4	1-7/8
1184	0078876, 0078879	1-1/4	918		1-1/8	2146	HYD1S16	1-7/8
186	0030882	1-3/8	523		1-7/8	888	HYD1AA5	2
209	006905	1-3/8	586		1-7/8	1685	HYD1BG2	2
334	0036636	1-7/16	742		1-7/8	2143	HYD1AD8	2
382		1-1/2	743		1-7/8	327	HYD1Q5	2-1/8
431	0030900	1-1/2	DURO			338	HYD1AC4	2-1/8
432	0030901	1-1/2	102	B-170	5/8	353	HYD1E4	2-1/8
541	0030900	1-1/2	451	B2883	5/8	887	HYD1AD3	2-1/8
659	0030885	1-1/2	452	5486	5/8	1102	HYD1S5	2-1/8
659V	0084885	1-1/2	508	5485	5/8	1107	HYD1S	2-1/8
758	0030884	1-1/2	DURO			3584	HYD1AD9	2-1/4
884	0030901	1-1/2	102	B-170	5/8	853	HYD1BX3	2-1/2
238	0030886	1-5/8	451	B2883	5/8	916	HYD1AA6	2-1/2
239	8030887	1-5/8	452	5486	5/8	1613	HYD1AD10	2-1/2
514	0030889	1-5/8	508	5485	5/8	2147	HYD1S17	2-1/2
213	0006906	1-3/4	DURO			328	HYD1Q6	2-5/8
237		1-3/4	DURO			542	HYD1Q6	2-5/8
446	0030888	1-3/4	DURO			1106	HYD1S6	2-5/8
DURO			DURO			2148	HYD1AD11	2-3/4



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HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
FAIRBANKS MORSE (cont)			GORMAN RUPP (cont)			GOULDS (cont)		
329	HYD1Q7	2-7/8	786	S-321	1-1/4	374		1-1/2
893	HYD1S7	3	794	GS-1250	1-1/4	691		1-1/2
897	HYD1AA7	3	981	S-321 A	1-1/4	899	776A908-2	1-1/2
			1047	25271-192	1-1/4	238	10K-16	1-5/8
			1184	25271-095	1-1/4	238V	10K-26	1-5/8
GARDNER-DENVER			371	S-283, S-317, S-774	1-1/2	239	10K-20	1-5/8
373	60AY-10	3/4	374	S-239	1-1/2	858	3196MT - 3735/36M	1-3/4
441	60BN-1	3/4	534	SO1934	1-1/2	859	3196MT - 3735/36M	1-3/4
236	60AY-2, 60AY-16, 60AY-18	1	659V	25271-903	1-1/2	1078	3316-3405M	1-3/4
370	60BT-1	1	758	S-1150	1-1/2	1684	3316, 3405 Group M	1-3/4
384	60AY-11, 60AY-13	1-1/8	1500	GS-1500	1-1/2	554		1-7/8
605	60BC-10	1-1/8	2127	25271-207	1-1/2	707		2-1/16
137	60AY-14	1-1/4	3143	12364A	1-1/2			
383	60BC-3	1-1/4	1683	25271-064	1-5/8	HONDA		
186	60BC-14	1-3/8	436	25271-947	1-3/4	6201	78130-YB0-003	5/8
354	60AY-14	1-3/8	446	S-32015	1-3/4	6202	78130-YE5-003	18mm
371	60BC-1, 6, 7, 11, 18	1-1/2	3145	12590	1-7/8	6203	78130-YB4-003	3/4
374	60AY-21	1-1/2	GOULDS			6204	78130-YB4-901	3/4
382	60BC-1, 6, 7, 11, 18	1-1/2	1002	074207-0050	1/2	6205	78130-YB7-003	3/4
461	60BC-2, 5	1-5/8	451	10K-5	5/8	6206	78115-YB8-003	3/4
513	60AY-20	1-7/8	493	10K-3	5/8	6207	78012-YE0-000	3/4
593	60BC-9, 12	1-7/8	518	10K-6	5/8	6208	78130-YE6-003	20mm
351	60AY-15	2-1/4	600		5/8	6209	78115-YB1-003	25mm
			680	10K-10	5/8	6210	78115-YB2-003	30mm
			680V	10K-24	5/8	HYDROMATIC PUMP		
			700	10K-7	5/8	1621	5484-000-1	1/2
			701	10K-2, 72598-3062	5/8	100	10674-000-1	5/8
			702	10K-1, 70470-5062, 10K-6	5/8	200	83-002-1	5/8
				72598-1062, 20-83-1100		359	01556-000-1	5/8
			957	10K-10	5/8	447	7548-000-1	5/8
			1000V	696-0442	5/8	516	83R-003-1	5/8
			1155	10K-46	5/8	201	17048-0-1	3/4
			1155V	10K-24	5/8	358	100-000-1	3/4
			750	10K-4	3/4	750	100, 100-000-1	3/4
			303	70470-4087	7/8	1622	4917/8	3/4
			428V	10K-38	7/8	235	300-000-1	1
			3603	10K-40	7/8	185	4916-000-1	1-1/4
			703	10K-8	7/8	758	920-001-1	1-1/2
			236	69127-2100	1	884		1-1/2
			557	91666-1000	1	1087	8073-000-1	2-1/4
			688	3755 Group S	1	1088	3718-000-1	3
			754	70783-1100	1	INGERSOLL RAND		
			1023	10K-12	1	164	W-49869	1/2
			1165	91670-1000	1	200	CPM-6252C1, CPM-6258C1	5/8
			710	70783-3106	1-1/16	359	6251C1	5/8
			355	10K-9	1-1/8	507V	CPM-625271, CPM-625871	5/8
			588	76407-1112, 10K-9	1-1/8	600	CPM-10015	5/8
			604	10K-21	1-1/8	616	CPM-10029	5/8
			185	10K-13	1-1/4	633	CPM-625171	5/8
			185V	10K-19, 10K-25	1-1/4	201	CPM-6252C1	3/4
			361		1-1/4	201V	CPM-10606A	3/4
			3351	10K-27	1-1/4	601	CPM-10034	3/4
			2128	3316-3405 Group S	1-1/4	606	CPM-10035	3/4
			2129	3316-3405 Group S	1-1/4	760	CPM-10600A	3/4
			354	3345, 3320	1-3/8	767	1802ATY210RM075	3/4
			677		1-3/8	851	CPM-10607A	3/4
			864	3196ST	1-3/8	303	W-1148, W-20168	7/8
			865	3196ST	1-3/8	602	CPM-10052	7/8
			705	70783-3143	1-7/16	603	CPM-10053	7/8
			305	70783-1150	1-1/2			

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HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
INGERSOLL RAND (cont)			INGERSOLL RAND (cont)			JACUZZI BROS. (cont)		
987	W-11856	1	727	CPM-177S429X4	1.771	204	10-505	1-1/8
344	CPM-10026	1-1/8	728	CPM-117S429X3	1.771	185	10-0369-29	1-1/4
521	W-31826	1-1/8	586	CPM-10158, CPM-10370B	1-7/8	361	10-1434-02	1-1/4
529	CPM-112171	1-1/8	829	CPM-10219A	1-7/8	2122	10-0369-03	1-1/4
604	CPM-10054	1-1/8	829V	CPM-10225A	1-7/8	209	10-315, 10-328	1-3/8
605	CPM-10055	1-1/8	831	CPM-10219B	1-7/8	758	10-1348-07	1-1/2
607	CPM-10043	1-1/8	831V	CPM-10225B	1-7/8	205	10-330, 10-370, 10-1402-00	1-3/4
608	CPM-10044, CPM-10087	1-1/8	946	CPM-10222A	1-7/8	213	10-323	1-3/4
619	CPM-10217A	1-1/8	949	CPM-10222B	1-7/8	2142	10-0307-00	1-3/4
619V	CPM-10223A	1-1/8	1653	CPM-10278	1-7/8	267	10-1403-09	2
636	CPM-10217B	1-1/8	1654	CPM-10370A	1-7/8	848		2-1/4
636V	CPM-10223B	1-1/8	1656	CPM-10371A	1-7/8	874	10-0365-07, 10-1404-00, 10-365	
801	CPM-1121C1	1-1/8	1657	CPM-10371B	1-7/8	269	10-1405-07	2-1/2
945	CPM-10220A	1-1/8	1659	CPM-10372A	1-7/8	836	10-1406-06	2-3/4
948	CPM-10220B	1-1/8	1660	CPM-10372B	1-7/8	761	10-1407-05	3
1636	CPM-10465A	1-1/8	1662	CPM-10467A	1-7/8	MARLOW		
1637	CPM-10465B	1-1/8	1663	CPM-10467B	1-7/8	151	42513-00	5/8
1638	CPM-10470A	1-1/8	1664	CPM-10472A	1-7/8	409	23732-00	5/8
1639	CPM-10470B	1-1/8	1665	CPM-10472B	1-7/8	411	25353-00, 26467-00, 23736-00	5/8
310	CPM-118S429X5	1-3/16	342	CPM-10130, CPM-200S429X1	2		26661-00, 26469-00, 31389-00	
343	CPM-118S429X2	1-3/16	477	CPM-200S429X2	2	411P	27678-00, 29-163-00, 29163Z	5/8
723	CPM-118S429X4	1-3/16	479	CPM-10133	2	411V	27678-20	5/8
724	CPM-118S429X3	1-3/16	2079	CPM-200S429X7	2	414	254712, 25471-00	5/8
185	CPM-10601A, CPM-10608A	1-1/4	611	CPM-10047	2-1/8	2161	42966-00, 46328-00	5/8
185V	CPM-10631A	1-1/4	1612	CPM-10048	2-1/8	201	38592-00	3/4
416	W-32652	1-1/4	1666	CPM-10351	2-1/8	201V	42799-00	3/4
618	1802ATY21ORM125	1-1/4	276	CPM-10469A	2-3/8	6203	45793-20	3/4
756	W-44104	1-1/4	350	CPM-10159, CPM-10469B	2-3/8	412	20124-00	3/4
354	CPM-137S429X5	1-3/8	2098V	CPM-10718B	2-3/8	419	25354-00, 26470-00, 26471-00	3/4
467	W-28861, W-21642	1-3/8	279	CPM-10134	2-1/2	405	26473-00	1
677	CPM-137S429X2	1-3/8	349	CPM-250S429X2	2-1/2	413	25355-00, 20760-00	1
725	CPM-137S429X4	1-3/8	321	CPM-10355	2-3/4	416	27452-00, 27453-00	1-1/4
726	CPM-137S429X3	1-3/8	JABSCO			416A	27224-00, 27223-00, 27225-00	1-1/4
224	CPM-10129	1-1/2	475		3	923	27452-00	1-1/4
258	CPM-10367B, CPM-10368B	1-1/2	325	CPM-325S429X2	3-1/4	978	45672-00	1-1/4
305	CPM-10132	1-1/2	642	1/2" Motor Pump	5/8	979		1-1/4
371	CPM-10650, W-27658	1-1/2	2160	96080-6040	5/8	404	25356-00, 26477-00	1-3/8
395	CPM-10367A, CPM-10368A	1-1/2	132V	96080-6510	5/8	929	25481-00	1-3/8
620	CPM-10218A, CPM-10221A	1-1/2	944	96080-6280	3/4	514	45673-20	1-5/8
629	CPM-10218B, CPM-102218	1-1/2	JACUZZI BROS.			1595	28146-20	1-5/8
1644	CPM-10369A	1-1/2	944V	96080-6290	3/4	434	25357-00	1-3/4
1645	CPM-10369B	1-1/2	382	3200, 3200-01, 3200-21	1-1/2	446	25357-00	1-3/4
1647	CPM-10466A, CPM-10471A	1-1/2	162	10-563, 10-1207	1/2	267	25358-00	2
1648	CPM-10466B, CPM-10471B	1-1/2	420	10-49	1/2	435	25358-00	2
1651	CPM-10473A	1-1/2	631	10-564	1/2	478		2
1652	CPM-10473B	1-1/2	1002	10-1201-37, 10-1201-29, 10-1201-11	1/2	MONARCH		
1690	CPM-10224A	1-1/2	102	10-502	5/8	200	240160	5/8
1691	CPM-10224B	1-1/2	200	10-467, 10-1463-00	5/8	200V	240316	5/8
1692	CPM-10224C	1-1/2	290	10-1202, 10-1203	5/8	201	240170	3/4
238	CPM-10602A, CPM-10609A	1-5/8	359	10-478, 10-506	5/8	201V	240344, 2403/MS44	3/4
238V		1-5/8	516	10-1436-00	5/8	851	240260	3/4
239	CPM-10605A, CPM-10612A	1-5/8	201	10-477, 10-486, 10-120, 10-1390-04	3/4	703	240030	7/8
346	CPM-10028	1-5/8	358	10-479	3/4	177	240100	1-3/8
484	X33548P1	1-5/8	683	10-100	3/4	185	240080	1-1/4
609	CPM-10045	1-5/8	750	10-503	3/4	185V	240359	1-1/4
610	CPM-10046	1-5/8	851	10-1390-04	3/4	756	240070	1-1/4
818	CPM-10602A	1-5/8	877	10-1203-19, 10-1203-01, 10-1203-27	3/4	758	240090	1-1/2
366	CPM-10347	1-3/4		10-1203-35, 10-1213-17, 10-1213-25				
674	CPM-10024	1-3/4	235	10-504, 10-1299-06	1			
719	CPM-117S429X2	1.771						
722	CPM-177S429X5	1.771						



PUMP MANUFACTURERS CROSS REFERENCE

HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
PACIFIC PUMPING CO. (PACO)			PEERLESS (cont)			ROPER PUMP (cont)		
200	SL-7101, SL-7741, K102-1	5/8	254	2675344, 2655131	1-1/8	208	G14-324	7/8
508	SL-7100	5/8	604	2658071	1-1/8	208V	G14-507	7/8
516	14010242	5/8	605	2655131	1-1/8	617	G14-227	7/8
628	14008630, K100-7, K102-7	5/8	255	2675345, 2690421-03	1-3/16	687V	G14-475	7/8
2149	14032688	5/8	306	2655886	1-3/16	703	G14-78	7/8
201	14017122	3/4	185	2664892, 2664893	1-1/4	935	G14-78	7/8
750	75BF2C1	3/4	256	2675347, 2664893	1-1/4	936	G14-119	7/8
752	SL-7104	3/4	264	2675318	1-1/4	141	G3-38	1
768	14032689	3/4	361	2657093, 2663048	1-1/4	235	G14-338X	1
703	SL-7098	7/8	1109	2687626, 2687165	1-1/4	236	G14-343	1
235	SL-7735	1	257	2675350	1-3/8	252V	G14-172	1
380	SL-7087	1	354	2655089, 2663075	1-3/8	397	G14-320	1
460	SL-7106	1	677	2663368, 2675349	1-3/8	397V	G14-51	1
754	14007521	1	258	2675351, 2691073	1-1/2	499	G14-338	1
791	14009760	1	259	2675352	1-1/2	937	G14-250, G14-120	1
204	SL-7770	1-1/8	305	2675108, 2663008	1-1/2	127	G14-288	1-1/16
137	SL-8102	1-1/4	382	2656981, 2675353	1-1/2	796	G14-489	1-1/16
137V	14008732, K600-6	1-1/4	1110	2687166	1-1/2	796V	G14-504	1-1/16
361	14007083, 14007099	1-1/4	205	2663044	1-3/4	2155	G4-101	1-1/16
598	K105-7	1-1/4	262	2675354, 2675355	1-3/4	2155V	G4-140	1-1/16
756	SL-7094	1-1/4	436	2675319, 2693598	1-3/4	348	G14-489, G14-278, G4-334	1-1/8
1109	14032691	1-1/4	825	2675356	1-3/4	348V	G3-10	1-1/8
2122	14032698	1-1/4	586	2676205	1-7/8	529	G4-313	1-1/8
305	SL-8223	1-1/2	332	2675320, 2693599	2	154	G14-429	1-1/4
371	SL-7107	1-1/2	327	Model 6A-16	2-1/8	383	G14-229	1-1/4
758	SL-7107	1-1/2	353	Model 6A-16	2-1/8	416	G14-121, G14-122	1-1/4
205	SL-7090	1-3/4	1676	2692217	2-1/4	756	G14-229	1-1/4
262	14008148	1-3/4	492	2693666	2-3/8	756V	G4-1	1-1/4
366	SL-8398	1-3/4	483	2693601	2-3/4	3222	G14-543	1-1/4
2150	14032700	1-3/4	321	2693601	2-3/4	172	G14-512	1-3/8
2151	14032693, K303-7	1-3/4	475	6" 6TU16	3	172V	G14-510	1-3/8
3558	14032355, 14011050	1-3/4	ROBBINS & MEYERS (MOYNO)			186	G14-248	1-3/8
477		2	1025	32-05969	3/8	186V	G14-492	1-3/8
479	K602-1	2	631	32-04215	1/2	467	G14-579	1-3/8
323	14007709, 14001709	2-1/4	1002	32-04215-000	1/2	467V	G4-9	1-3/8
351	14017123	2-1/4	1002V	32-06037-000	1/2	2156	G4-112	1-7/16
3581	14032526	2-1/4	200	POD-3054	5/8	2156V	G4-142	1-7/16
3584	14032526	2-1/4	359	32-02424	5/8	371	G14-230	1-1/2
PEERLESS			1119	32-02423	5/8	371V	G14-175, G14-475	1-1/2
162	2665554	1/2	201	POD-1625, 32-01625	3/4	939	G14-123, G14-124, G14-430	1-1/2
100	2665171	5/8	358	32-03945-000	3/4	939V	G3-19, G14-511	1-1/2
102	2680496	5/8	851	48-65C	3/4	819	G4-43	1-1/2
200	2658090	5/8	360	EC-67	1	819V	G4-45	1-1/2
263	2675336	5/8	380	32-01750-000	1	3240	G14-123	1-1/2
300	2655294-V12271, 1181377-2665624	5/8	548	32-01750	1	332	G4-42	2
508	2666910	5/8	ROPER PUMP			543	G3-14	2-1/8
628	2692269	5/8	190	G4-57	1/2	543V	G4-41	2-1/8
265	2675337	3/4	400	G14-222, G14-262, G14-263	1/2	3261	G3-14	2-1/8
301	2655293, RP-118138, 26650131	3/4	400V	G14-32	1/2	3261V	G4-41	2-1/8
750	2655888, 2663017	3/4	633	G14-225	5/8	849V	G14-421	2-1/4
188	2663072, 2657110	7/8	732	G4-102	5/8	942	G14-125	2-1/4
229	2675338	7/8	933	G14-116	5/8	1676	G14-233	2-1/4
250	2675339, 2690421-01	7/8	112V	G14-471	3/4	1676V	G14-33	2-1/4
303	26552239, 2664873	7/8	112	G14-226	3/4	STA-RITE		
251	2675340, 2656324	1	157	G14-428	3/4	1615	U109-173	3/8
252	2675341, 2664873	1	3599	G3-30	3/4	117	U109-95	7/16
380	2613910, 2663369	1	157V	G14-506	3/4	142		1/2
754	2655887	1	564	G14-117	3/4	162	U109-103	1/2
204	2663077	1-1/8	752	G14-261, G14-266	3/4	163	U109-84	1/2
253	2675343, 2664886, 2675317	1-1/8				100	U109-6, U9-48, U109-83SS, U109-93SS	5/8

PUMP MANUFACTURERS CROSS REFERENCE



HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size	HTS No.	Manufacturers Seal Part No.	Shaft Size
STA-RITE (cont)			TACO (cont)			WORTHINGTON (cont)		
118	U109-87, U9-102, U109-118	5/8	816	950-671	1-1/2	355V	PO-2889 w/ PO-2893	1-1/8
493	U9-1	5/8	1110	950-665	1-1/2	356V	PO-2889 w/ PO-2897	1-1/8
1000	U109-106SS, U109-136SS	5/8	3144	950-668	1-1/2	529	PO-2885 w/ PO-2893	1-1/8
128	U9-99	3/4	544	950-673	1-5/8	801	PO-2885 w/ PO-2897	1-1/8
201	U9-122, U109-372SS	3/4	340	951-2968RP	1-7/8	866	PO-2869 w/ PO-2897	1-1/8
750	U9-43	3/4	477	872-024	2	867	PO-2869 w/ PO-2893	1-1/8
1622	U109-394SS	3/4	479	950-672	2	394	31448	1-1/4
687	U9-18, 20, 22, 25, 29, 32	7/8	843	950-666	2	177V	PO-2890 w/ PO-2898	1-3/8
	U109-21, U109-30		1145	950-669	2	210V	PO-2890 w/ PO-2894	1-3/8
774	U109-170	7/8	1676	950-674RP	2-1/4	396	51671	1-3/8
380	U9-39, U109-47	1	WAUKESHA MOTORS			547	PO-2866 w/ PO-2894	1-3/8
127	U109-31	1-1/16	642	102320 & 20B	5/8	561	26457, 50498	1-3/8
866	U109-96, U109-96SS, U109-305	1-1/8	201	152243-B	3/4	805	PO-2886 w/ PO-2898	1-3/8
866V	U109-307	1-1/8	647	120828	3/4	864	PO-2870 w/ PO-2898	1-3/8
546	U109-329	1-1/4	752		3/4	865	PO-2870 w/ PO-2894	1-3/8
546V	U109-330	1-1/4	974	810350	3/4	258	51612 w/ 53130	1-1/2
804	U109-220	1-1/4	685	108025	7/8	395	51708 w/ 53130	1-1/2
858	U109-251	1-3/4	380		1	458	51613 w/ 53132	1-5/8
858V	U109-306	1-3/4	1619	117177G-J	1	436	PO-2887 w/ PO-2895	1-3/4
1617	U109-252	2-1/8	604	157475, 157475K, 157475E	1-1/8	455	51673	1-3/4
838	U109-302	2-3/4	185	178033	1-1/4	550	PO-2887 w/ PO-2899	1-3/4
TACO			WORTHINGTON			555	26458, 50499	1-3/4
160	120-125, 120-029, 110-275	3/8	558		9/16	858	PO-2871 w/ PO-2899	1-3/4
106	131-031	1/2	928	55954	9/16	859	PO-2871 w/ PO-2895	1-3/4
163	106-031	1/2	200	43008	5/8	513	31449	1-7/8
1002	121-008	1/2	200V	55016	5/8	1108		1-7/8
200	172-009, 172-017	5/8	359	50675	5/8	456	51614 w/ 53133	2
200V	172-006	5/8	507		5/8	477	31450	2
359	121-009, 122-009	5/8	528	PO-2098	5/8	576	SEL-105	2
633	170-102RP, 1600-170RP	5/8	626	PO-2099	5/8	582	SEL-157	2
732	170-102	5/8	933	55955	5/8	457	51175	2-1/8
752	142-043	3/4	951	PO-2752	5/8	556	26459, 50500	2-1/8
360	170-021, 170-095	1	157		3/4	570	VR-4292B	2-1/8
754	900-012	1	201		3/4	854	PO-2888 w/ PO-2900	2-1/8
204	900-215	1-1/8	373	26493	3/4	855	PO-2888 w/ PO-2896	2-1/8
384	900-024	1-1/8	564	24439	3/4	856	PO-2872 w/ PO-2900	2-1/8
529	950-664	1-1/8	578		7/8	857	PO-2872 w/ PO-2896	2-1/8
3148	950-667	1-1/8	936	24440	7/8	475	55426 w/ 55425	3
264	840-011	1-1/4	560	26456, 31446	15/16	330		3-1/4
258	862-029	1-1/2	370		1	480	32665	3-1/4
3151	900-089	1-1/2	282	51610, 53129	1-1/8			
374	862-172	1-1/2						



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.375 Shaft (3/8")								
A	.875	.625	---	---	---	BMF-F		377
A	.875	.625	1	.875	.218	BMFJF		511
A	.875	.656	1	1.000	.312	BMFJF		1614
A	.875	.625	3	.875	.312	BMFRF		3102
B	1.125	.375	1	.875	.312	BMFJF		1071
B	1.125	.375	1	1.000	.203	BMFJF		1615
B	1.125	.375	1	.875	.240	BMFJF		671
B	1.125	.375	8	M.O.S.	.240	BMFRF	A	718
B	1.125	.375	9	M.O.S.	.190	BMFJF	A	1616
B	1.125	.375	---	---	---	BMF-F		3103
C	.812	.588	1	1.000	.192	BCFJF		1025
C	.812	.812	1	.875	.312	BCFJF		1065
C	.812	.812	3	.875	.312	BCFRF		3201
C	.812	.812	---	---	---	BMF-F		3202
F	.906	.438	1	1.000	.375	BMDJ		160
.437 Shaft (7/16")								
C	.875	1.250	1	1.000	.312	NCFJF		117
C	.875	.718	1	1.175	.240	BCFJF		174
C	.875	.750	1	1.000	.312	BCFJF		244
C	.875	.750	1	1.181	.285	NCFJF		1133
C	.875	.750	---	---	---	BCF-F		3203
C	.875	.750	---	---	---	NCF-F		3204
.500 Shaft (1/2")								
A	1.062	.656	1	1.000	.312	BMFJF		162
A	1.062	.656	---	---	---	BMF-F		298
A	1.062	.656	1	1.000	.290	BMFRF		506
B	1.125	.537	1	1.000	.218	BMFJF		142
B	1.125	.537	8	M.O.S.	.062	BMFRF	A	149
B	1.125	.537	---	---	---	BMF-F		150
B	1.125	.537	1	1.000	.312	BMFJF		163
B	1.125	.537	9	M.O.S.	.312	BMFRF	A	164
B	1.125	.537	1	1.000	.290	BMFRF		788
B	1.125	.537	1	.875	.165	BMFRF		1098
C	.906	.812	1	1.000	.290	BCFRF		106
C	.906	.831	1	1.000	.312	BCFJF		168
C	.906	.718	2	1.375	.187	BMFRF		221
C	.906	.718	18	.875	.125	BCFJF		392
C	.906	.718	---	---	---	BCF-F		400
---	---	---	18	.875	.125	B--J-		400A
C	.906	.831	1	1.000	.290	BCFRF		666
C	.906	.831	---	---	---	BCF-F		930
C	.906	.812	1	.938	.250	BCFRF		984
C	.906	.718	1	1.125	.230	BCFJF		985
C	.906	.812	1	1.000	.312	BCFJF		1002
C	.906	.812	1	.938	.225	BCFJF		1012
C	.906	.718	1	1.000	.218	BCFJF		1043
C	.906	.812	---	---	---	BCF-F		1050
C	.906	.718	1	1.062	.312	BCFJF		1120
D	1.125	.812	3	1.500	.296	BMFRF		190
D	1.125	.812	---	---	---	BMF-F		401
D	1.125	.812	18	.875	.125	BMFJF		401A
D	1.125	.812	1	1.000	.312	BMFJF		631
D	1.125	.812	1	1.000	.290	BMFRF		632
K	.906	1.125	1	1.000	.312	BCFJF		3501

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.500 Shaft (1/2") continued								
K	.906	1.125	1	1.000	.290	BCFRF		3502
K	.906	1.438	1	1.000	.312	BCFJF		3503
K	.906	1.438	1	1.000	.290	BCFRF		3504
K	.906	1.125	---	---	---	BCF-F		3505
K	.906	1.438	---	---	---	BCF-F		3506
.562 Shaft (9/16")								
C	1.062	.812	2	1.031	.312	NCFAF		500
C	1.062	.812	1	1.000	.290	NCFRF		558
C	1.062	.812	---	---	---	NCF-F		928
K	1.062	1.187	---	---	---	NCF-F		1607
.590 Shaft (19/32" or 15mm)								
C	1.062	.875	1	1.250	.406	BCFJF	★	129
C	1.062	1.156	5	1.093	.406	BCFRF	★	138
C	1.062	.875	1	1.250	.406	BCFRF	★	1675
C	1.062	.875	---	---	---	BCF-F		3205
.625 Shaft (5/8")								
A	1.218	.718	1	1.187	.343	BMFJF		100
A	1.218	.812	1	1.250	.406	BMFRF		153
A	1.218	.812	1	1.187	.343	BMFJF		166
A	1.218	.718	8	M.O.S.	.125	BMFRF	A	198
A	1.218	.718	1	1.250	.406	BMFJF		200
A	1.218	.718	---	---	---	BCF-F		218
A	1.218	.718	3	1.207	.250	BCFRF		232
A	1.218	.718	P.I.	.815	.312	BMFRF	D	293
A	1.218	.718	---	---	---	BMF-F		299
A	1.218	.718	1	1.250	.406	BMFJF		300
A	1.218	.718	1	1.250	.250	BMFJF		372
A	1.218	.812	1	1.250	.406	BMFJF		425
A	1.218	.718	1	1.312	.250	BMFJF		442
A	1.218	.812	1	1.250	.406	BMFJF		501
A	1.218	.718	1	1.250	.406	BMFRF		507
A	1.218	.718	1	1.250	.406	BCFJF		516
A	1.218	.718	1	1.187	.288	BCFRF		518
A	1.218	.718	1	1.250	.406	BCFRF		524
A	1.218	.718	1	1.375	.562	BMFJF		528
A	1.218	.718	3	1.250	.406	BMFRF		628
A	1.218	.718	3	1.250	.406	BMFJF		637
A	1.218	.718	1	1.187	.288	BCFJF		680
A	1.218	.718	1	1.187	.288	BMFRF		701
A	1.218	.718	1	1.187	.288	BMFJF		702
A	1.218	.718	3	1.187	.343	BMFJF		711
A	1.218	.718	1	1.187	.343	BMFJF		896
A	1.218	.812	1	1.250	.406	BMFJF		909
A	1.218	.718	1	1.141	.312	BMFRF		920
A	1.218	.812	1	1.250	.406	BCFJF		952
A	1.218	.812	1	1.187	.343	BCFJF		953
A	1.218	.812	1	1.250	.375	BCFRF		954
A	1.218	.812	1	1.187	.281	BCFRF		955
A	1.218	.718	1	1.187	.343	BCFJF		957
A	1.218	.718	1	1.187	.343	BMFRF		1150
A	1.218	.718	1	1.250	.406	BMFJF	C	2131
A	1.218	.718	1	1.312	.343	BMFJF		4705
B	1.437	.615	1	1.093	.218	BMFRF		113
B	1.437	.615	1	1.375	.288	BMFRF		151

NOTE: A Mounts on Shaft C Mounts in Plastic D Press in Seat ★ Tapered Spring

DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE



SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.625 Shaft (5/8") continued								
B	1.437	.615	1	1.250	.283	BMFJF		200A
B	1.437	.615	11	M.O.S.	.375	BMFJ/FF	A	202
B	1.437	.615	1	1.312	.250	BMFJF		233
B	1.437	.615	11	M.O.S.	.375	BMFJ/FF	A	260
B	1.437	.615	9	M.O.S.	.187	BMFRF	A	409
B	1.437	.615	11	M.O.S.	.485	BMFJ/FF	A	411
B	1.437	.615	11	M.O.S.	.485	B/VMFJ/FF	A	411P
B	1.437	.615	11	M.O.S.	.485	VCFJ/FF	A	411V
B	1.437	.615	11	M.O.S.	.328	BMFRF	A	414
B	1.437	.615	9	M.O.S.	.215	BCFJF	A	447
B	1.437	.615	9	M.O.S.	.215	VCFJF	A	447V
B	1.437	.615	9	M.O.S.	.320	BMFRF	A	451
B	1.437	.615	9	M.O.S.	.312	BMFJF	A	452
B	1.437	.615	9	M.O.S.	.215	BCFRF	A	453
B	1.437	.615	1	1.187	.288	BCFRF		522
B	1.437	.615	1	1.187	.343	BMFJF		600
B	1.437	.615	1	1.187	.288	BMFRF		616
B	1.437	.615	---	---	---	BMF-F		642
B	1.437	.615	1	1.187	.288	BMFJF		700
B	1.437	.615	3	1.250	.406	BMFRF		712
B	1.437	.615	3	1.250	.406	BMFJF		715
B	1.437	.615	3	1.187	.288	BMFJF		716
B	1.437	.615	3	1.187	.343	BMFJF		717
B	1.437	.615	---	---	---	BCF-F		882
B	1.437	.615	1	1.250	.406	BCFJF		961
B	1.437	.615	1	1.187	.343	BCFJF		963
B	1.437	.615	1	1.250	.406	BCFRF		964
B	1.437	.615	1	1.250	.406	BMFJF		1000
B	1.437	.615	1	1.375	.406	BMFRF		1005A
B	1.437	.615	11	M.O.S.	.375	VCFJF	A	1013
B	1.437	.615	9	M.O.S.	.215	BMFJF	A	1021
B	1.437	.615	1	1.093	.406	V/BCFJF		1089
B	1.437	.615	1	1.187	.343	BMFRF		1129
B	1.437	.615	3	1.250	.343	BMFRF		1151
B	1.437	.615	1	1.250	.406	BMFRF		1152
B	1.437	.615	1	1.375	.406	BMFJF		2161
C	1.062	.875	3	1.000	.470	BCFAF		104
C	1.062	.812	1	1.187	.343	BCFJF		118
C	1.062	.718	1	1.250	.406	BMFJF		132
C	1.062	.875	3	1.125	.500	BCFRF		222
C	1.062	.875	1	1.250	.406	BCFJF		290
C	1.062	.875	1	1.250	.406	BCFJF		359
C	1.062	.875	1	1.187	.288	BCFRF		493
C	1.062	.875	3	1.187	.343	BCFJF		536
C	1.062	.875	3	1.250	.406	BCFJF		552
C	1.187	.875	1	1.375	.406	VCFJF		626
C	1.062	.875	1	1.250	.406	BCFRF		633
C	1.062	.875	3	1.250	.406	BCFRF		732
C	1.062	.875	1	1.187	.288	BCFJF		733
C	1.062	.812	1	1.156	.312	BCFJF		800
C	1.062	.765	1	1.250	.406	NCFJF	★	810
C	1.062	.812	1	1.250	.406	BCFJF		850
C	1.062	.812	1	1.187	.312	BCFRF		900
C	1.062	.750	1	1.250	.406	BCFJF		924
C	1.062	.875	---	---	---	BCF-F		933
C	1.062	.875	3	1.375	.406	BCFRF		951

NOTE: A Mounts on Shaft ★ Tapered Spring

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.625 Shaft (5/8") continued								
C	1.062	.875	1	1.250	.406	BCFJF		980
C	1.062	.765	1	1.187	.288	NCFJF	★	989
C	1.062	.765	3	1.312	.375	NCFRF	★	990
C	1.062	.765	1	1.187	.343	BCFJF	★	1016
C	1.062	.906	1	1.141	.312	BCFRF		1027
C	1.062	.718	3	1.250	.406	VCFJF		1045
C	1.062	.875	3	1.250	.406	BCFJF		1066
C	1.062	.875	1	1.250	.406	NCFJF		1079
C	1.062	.875	1	1.250	.406	NCFRF		1080
C	1.062	.937	1	1.250	.406	V/BCFJF	★	1085
C	1.062	.937	1	1.250	.406	VCFJF	★	1085V
C	1.062	.718	1	1.187	.343	VCFJF		1091
C	1.062	.968	1	1.250	.406	BCFJF		1119
C	1.062	.847	1	1.187	.343	VCFZF		1121
C	1.062	.875	1	1.187	.343	BCFRF		1154
C	1.062	.875	1	1.187	.288	BCFJF		1155
C	1.062	.875	1	1.250	.406	BCFRF		1156
C	1.062	.875	1	1.312	.250	BCFJF		1505
C	1.062	.937	1	1.250	.406	BCFJF	★	1618
C	1.062	.609	3	1.250	.406	BCFRF		1625
C	1.062	.609	3	1.250	.406	VCFRF		1626
C	1.062	.937	3	1.250	.406	BCFRF	★	2149
C	1.062	.718	1	1.250	.406	BCFJF		2160
D	1.312	.875	1	1.250	.406	BCFRF		102
D	1.312	.875	---	---	---	BCF-F		109
D	1.312	.875	1	1.187	.288	BCFRF		226
D	1.312	.875	1	1.187	.343	BCFRF		263
D	1.312	.875	1	1.250	.406	BCFJF		508
D	1.312	.875	1	1.187	.288	BCFJF		531
D	1.312	.875	3	1.250	.406	BCFRF		734
D	1.312	.875	3	1.250	.406	BCFJF		735
D	1.312	.875	3	1.187	.288	BCFJF		736
D	1.312	.875	3	1.187	.343	BCFJF		737
D	1.312	.875	1	1.141	.312	BCFRF		922
D	1.312	.875	2	1.250	.343	BCFRF		1157
D	1.312	.875	1	1.250	.406	BCFJF		2000
D	1.312	.875	1	1.250	.406	BCFRF		2001
D	1.312	.875	3	1.250	.406	BCFJF		2002
D	1.312	.875	3	1.250	.406	BCFRF		2003
D	1.312	.875	1	1.187	.343	BCFJF		2004
D	1.312	.875	1	1.187	.343	BCFRF		2005
D	1.312	.875	3	1.187	.343	BCFJF		2006
D	1.312	.875	1	1.187	.288	BCFRF		2007
D	1.312	.875	1	1.187	.343	BCFJF		2119
E	1.093	1.312	1	1.250	.406	BCFJF		274
E	1.093	1.312	1	1.187	.343	BCFJF		485
E	1.093	1.312	1	1.187	.288	BCFRF		486
E	1.093	1.312	1	1.250	.406	BCFRF		487
E	1.093	1.312	3	1.250	.406	BCFRF		738
E	1.093	1.312	3	1.250	.406	BCFJF		739
E	1.093	1.312	3	1.187	.288	BCFJF		740
E	1.093	1.312	3	1.187	.343	BCFJF		748
E	1.093	.968	1	1.250	.406	BCFJF		1096
E	1.093	1.312	2	1.250	.343	BCFRF		1158
E	1.093	1.312	1	1.187	.343	BCFRF		1689
E	1.093	1.312	1	1.250	.406	BCRJR		2016



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.625 Shaft (5/8")								
E	1.093	1.312	1	1.250	.406	BCRRR		2017
E	1.093	1.312	3	1.250	.406	BCRJR		2018
E	1.093	1.312	3	1.250	.406	BCRRR		2019
E	1.093	1.312	1	1.187	.343	BCRJR		2020
E	1.093	1.312	1	1.187	.343	BCRRR		2021
E	1.093	1.312	3	1.187	.343	BCRJR		2022
E	1.093	1.312	3	1.187	.288	BCRRR		2023
K	1.062	1.187	---	---	---	BCF-F		678
K	1.062	1.187	---	---	---	NCF-F		863
K	1.062	1.187	1	1.250	.406	BCFJF		3510
K	1.062	1.187	1	1.250	.406	BCFRF		3511
K	1.062	1.187	3	1.250	.406	BCFJF		3512
K	1.062	1.187	3	1.250	.406	BCFRF		3513
K	1.062	1.625	1	1.250	.406	BCFJF		3520
S	1.312	1.395	8	1.187	.125	NAPSP		795
T	1.093	1.625	1	1.250	.406	BCRJR		3701
T	1.093	1.625	1	1.250	.406	BCRRR		3702
T	1.093	1.625	3	1.250	.406	BCRJR		3703
T	1.093	1.625	3	1.250	.406	BCRRR		3704
T	1.093	1.625	3	1.187	.406	BCRJR		3705
.750 Shaft (3/4")								
A	1.343	.718	1	1.437	.406	BMFJF		101
A	1.343	.718	8	M.O.S.	.125	BMFRF		199
A	1.343	.718	1	1.375	.406	BMFJF		201
A	1.343	.718	1	1.312	.375	BMFRF		231
A	1.343	.978	1	1.375	.281	BMFJF		301
A	1.343	.718	1	1.312	.250	BMFJF		315
A	1.343	.718	3	1.375	.375	BCFRF		412
A	1.343	.718	15	1.375	.375	BCFJ/FF		415
A	1.343	.718	15	1.375	.375	BMFJ/FF		419
A	1.343	.812	1	1.375	.375	BCFRF		494
A	1.343	.718	1	1.375	.375	BMFRF		512
A	1.343	.812	3	1.375	.406	BMFRF		596
A	1.343	.718	3	1.250	.343	BMFRF		689
A	1.343	.718	1	1.437	.406	BMFJF		699
A	1.343	.718	3	1.375	.406	BMFJF		760
A	1.343	.718	3	1.375	.406	BMFRF		762
A	1.343	.812	1	1.375	.281	BCFJF		764
A	1.343	.718	1	1.375	.406	BCFJF		851
A	1.343	.658	1	1.375	.406	BMFJF		908
A	1.343	.718	1	1.375	.406	BMFRF		921
A	1.343	.718	1	1.437	.406	BCFJF		968
A	1.343	.718	1	1.375	.406	BCFRF		973
A	1.343	.718	---	---	---	BCF-F		974
A	1.343	.718	---	---	---	BMF-F		1522
A	1.343	.718	1	1.500	.250	BMFJF		1525
A	1.343	.718	1	1.437	.406	BMFRF		2118
B	1.575	.615	3	1.207	.250	BMFRF		369
B	1.575	.615	11	M.O.S.	.437	BMFJF		440
B	1.575	.615	9	M.O.S.	.375	BMFRF		441
B	1.575	.615	1	1.375	.406	BMFJF		601
B	1.575	.615	1	1.375	.406	BMFRF		606
B	1.575	.615	---	---	---	BMF-F		647
B	1.575	.615	3	1.375	.406	BMFJF		765
B	1.575	.615	3	1.375	.406	BMFRF		766
B	1.575	.615	9	M.O.S.	.281	BMFRF		902
B	1.575	.615	---	---	---	BCF-F		1024

NOTE: ★ Tapered Spring B Spring Holder Included

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.750 Shaft (3/4") continued								
C	1.187	.875	1	1.375	.406	BCFRF		112
C	1.187	.875	3	1.312	.375	BCFRF		116
C	1.187	.875	3	1.250	.343	BCFRF		121
C	1.187	.843	1	1.375	.406	BCFJF	★	128
C	1.187	.875	---	---	---	BCF-F		157
C	1.187	1.312	1	1.375	.406	BCFJF		275
C	1.187	.875	1	1.375	.406	BCFJF		358
C	1.187	.875	2	1.375	.406	BCFRF		362
C	1.187	1.312	1	1.375	.406	BCFRF		373
C	1.187	.875	2	1.312	.406	BCFAF		502
C	1.187	1.312	---	---	---	BCF-F		564
C	1.187	1.312	2	1.375	.406	BCFRF		565
C	1.187	.875	3	1.312	.406	BCFRF		649
C	1.187	.875	1	1.500	.250	BCFJF		683
C	1.187	.875	3	1.375	.406	BCFJF		767
C	1.187	.875	3	1.375	.406	BCFRF		768
C	1.187	1.312	3	1.375	.406	BCFJF		771
C	1.187	1.312	3	1.375	.406	BCFRF		773
C	1.187	.844	1	1.375	.406	BCFJF		812
C	1.187	.875	1	1.625	.437	NCFRF		820
C	1.187	.812	1	1.375	.406	BCFJF		877
C	1.187	.718	1	1.375	.281	BCFJF		944
C	1.187	.718	1	1.375	.406	VCFRF		1092
C	1.187	.718	1	1.375	.406	VCFJF		1093
C	1.187	.718	1	1.375	.406	BCFRF		1113
C	1.187	.718	1	1.375	.406	BCFJF		1125
C	1.187	.875	1	1.375	.406	BCFRF		1160
C	1.187	.875	1	1.375	.281	BCFJF		1510
C	1.187	.875	1	1.312	.406	BCFJF		1514
C	1.187	1.312	1	1.375	.406	BCFJF		3430
D	1.437	.875	2	1.375	.406	BCFRF		103
D	1.437	.875	3	1.312	.375	BCFRF		207
D	1.437	.875	3	1.375	.406	BCFRF		265
D	1.437	.875	---	---	---	BCF-F		399
D	1.437	.875	1	1.275	.290	BCFJF		437
D	1.437	.875	1	1.275	.290	BCFRF		443
D	1.437	.875	1	1.437	.406	BCFRF		444
D	1.437	.875	1	1.375	.406	BCFJF		750
D	1.437	.875	1	1.375	.406	BCFRF		752
D	1.437	.875	3	1.375	.406	BCFJF		769
D	1.437	.875	17	1.187	.375	BCFRF		905
D	1.437	1.000	1	1.437	.406	BCFRF		1026
D	1.437	.906	1	1.375	.406	NCFJF	B	1130
D	1.437	.875	1	1.437	.406	BCFJF		1161
D	1.437	.875	1	1.375	.281	BCFJF		1162
D	1.437	.875	1	1.375	.406	BCFJF		2008
D	1.437	.875	1	1.375	.406	BCFRF		2009
D	1.437	.875	3	1.375	.406	BCFJF		2010
D	1.437	.875	3	1.375	.406	BCFRF		2011
E	1.218	1.312	1	1.375	.406	BCRJR		2012
E	1.218	1.312	1	1.375	.406	BCRRR		2013
E	1.218	1.312	3	1.375	.406	BCRJR		2014
E	1.218	1.312	3	1.375	.406	BCRRR		2015
K	1.187	1.625	---	---	---	BCF-F		145
K	1.187	1.156	1	1.375/1.500	.281/.250	BCFJF		175
K	1.187	1.700	1	1.375	.406	BCFJF		1604
K	1.187	1.187	---	---	---	BCF-F		3599

DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE



SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.750 Shaft (3/4") continued								
R	1.437	1.625	1	1.375	.406	BCFRF		651
S	1.625	1.953	8	1.500	.250			792
.787 Shaft (20mm)								
C	1.307	.937	1	1.500	.406	BMFJF		135
C	1.307	1.218	17	1.296	.468	BMFRF		139
C	1.307	.937	1	1.500	.406	BMFRF		614
C	1.307	.937	---	---	---	BMF-F		5201
C	1.307	1.218	---	---	---	BMF-F		5202
.875 Shaft (7/8")								
C	1.281	.937	3	1.625	.406	BCFRF		144
C	1.281	.937	---	---	---	BCF-F		208
C	1.281	.844	1	1.500	.406	BCFJF		287
C	1.281	.937	1	1.562	.406	BCFRF		294
C	1.281	.937	1	1.500	.406	BCFJF		309
C	1.281	.937	3	1.500	.406	BCFRF		617
C	1.281	.937	1	1.500	.406	BCFRF		687
C	1.281	.937	3	1.500	.406	BCFJF		774
C	1.281	1.375	3	1.625	.406	BCFJF		997
C	1.281	1.375	3	1.625	.406	BCFRF		998
C	1.281	.812	3	1.875	.390	BCFJF		1116
C	1.281	.937	1	1.562	.406	BCFJF		1163
C	1.281	.937	1	1.437	.265	BCFJF		2166
C	1.281	.812	1	1.437	.265	BCFJF		2167
C	1.281	.937	3	1.437	.265	BCFRF		2168
C	1.281	.812	3	1.437	.265	BCFRF		2169
D	1.562	.937	3	1.500	.406	BCFRF		250
D	1.562	.937	1	1.500	.406	BCFRF		303
D	1.562	.937	---	---	---	BCF-F		578
D	1.562	.937	1	1.562	.406	BCFJF		602
D	1.562	.937	1	1.562	.406	BCFRF		603
D	1.562	.937	1	1.500	.406	BCFJF		703
D	1.562	.937	3	1.500	.406	BCFJF		775
D	1.562	.921	1	1.437	.265	BCFJF		790
D	1.562	.875	3	1.490	.406	NCFRF		1127
D	1.562	.937	3	1.437	.265	BCFRF		1681
D	1.562	.937	1	1.500	.406	BCFJF		2024
D	1.562	.937	1	1.500	.406	BCFRF		2025
D	1.562	.937	3	1.500	.406	BCFJF		2026
D	1.562	.937	3	1.500	.406	BCFRF		2027
E	1.343	1.375	1	1.500	.406	BCRJR		188
E	1.343	1.375	3	1.500	.406	BCRRR		229
E	1.343	1.375	3	1.500	.406	BCRJR		776
E	1.343	1.375	1	1.500	.406	BCRRR		935
E	1.343	1.375	---	---	---	BCR-R		936
E	1.343	1.375	1	1.500	.406	BCRJR		2028
E	1.343	1.375	1	1.500	.406	BCRRR		2029
E	1.343	1.375	3	1.500	.406	BCRJR		2030
E	1.343	1.375	3	1.500	.406	BCRRR		2031
K	1.281	1.250	---	---	---	BCF-F		197
K	1.281	1.250	1	1.500	.406	BCFRF		878
K	1.281	1.250	1	1.500	.406	BCFJF		892
K	1.281	1.250	1	1.500	.406	VCFJF		892V
K	1.281	1.250	3	1.500	.406	BCFRF		3521
K	1.281	1.250	3	1.500	.406	BCFJF		3522
R	1.562	1.625	---	---	---	BCF-F		140
R	1.562	1.625	1	1.500	.406	BCFJF		428
R	1.562	1.625	1	1.500	.406	BCFRF		685

NOTE: ★ Tapered Spring B Spring Holder Included

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
.875 Shaft (7/8") continued								
R	1.562	1.625	3	1.500	.406	BCFJF		3601
R	1.562	1.625	3	1.500	.406	BCFRF		3602
R	1.562	1.625	1	1.500	.406	VZVFZ		3603
.937 Shaft (15/16")								
U	1.437	1.656	1	1.562	.406	BCRRR		560
U	1.437	1.656	3	1.562	.406	VCRRR		560V
U	1.437	1.656	3	1.562	.406	BCRJR		824
U	1.437	1.656	3	1.562	.406	BCRRR		845
.984 Shaft (25mm)								
C	1.553	.867	1	1.720	.335	BCFJF		20052
C	1.553	.867	1	1.732	.335	BCFJF		5205
C	1.553	.867	1	1.732	.335	VCFJF		5206
C	1.553	1.000	1	1.625	.437	BCFJF		5207
C	1.553	.867	3	1.625	.437	BCFJF		5208
C	1.553	.867	---	---	---	BCF-F		5209
K	1.553	1.875	1	1.720	.335	BCFJF		5501
1.000 Shaft (1")								
A	1.688	.812	1	1.625	.437	BMFJF		360
A	1.688	.812	1	1.625	.437	BMFRF		370
A	1.688	.812	15	1.625	.625	BMFJF		405
A	1.688	.812	3	1.625	.437	BMFJF		777
A	1.688	.812	3	1.625	.437	BMFRF		778
A	1.688	.812	---	---	---	BMF-F		975
A	1.688	.812	3	1.625	.437	VCFJF		1014
A	1.688	.812	3	2.000	.406	BCFJF		1086
A	1.688	.812	1	1.625	.437	BCFJF		1115
A	1.688	.812	1	1.625	.437	BCFRF		1164
C	1.688	1.000	1	1.625	.437	BCFJF		235
C	1.688	1.000	1	1.625	.437	BCFJF	★	245
C	1.688	1.000	1	1.625	.437	BCFRF	★	248
C	1.688	1.000	18	1.700	.370	BCFRF	★	311
C	1.688	1.000	1	1.625	.437	BCFRF		357
C	1.688	1.000	---	---	---	BCF-F	★	397
C	1.688	1.000	15	1.625	.625	BCFJF		413
C	1.688	1.000	3	1.625	.437	BCFRF		499
C	1.688	1.625	1	1.625	.437	BCFJF	B	539
C	1.688	1.000	3	1.625	.437	BCFJF		548
C	1.688	1.625	1	1.625	.437	BCFRF		779
C	1.688	.938	1	1.625	.437	BCFJF		813
C	1.688	1.562	1	1.625	.437	BCFRF		982
C	1.688	1.056	1	1.625	.437	BCFJF		1023
C	1.688	.750	1	1.625	.437	BCFJF	B	1048
C	1.688	.750	3	1.625	.437	BCFJF		1049
C	1.688	1.000	3	1.812	.687	BCFRF		1072
C	1.688	.812	1	1.625	.437	VCFJF		1094
C	1.688	.812	--	---	---	BCF-F		1095
C	1.688	.812	3	2.380	.406	BCFJF		1117
C	1.688	.843	1	1.625	.406	BCFRF		1123
C	1.688	1.000	3	1.437	.437	BCFJF		2145
C	1.687	1.000	1	1.750	.437	BCFRF		2163
C	1.687	1.000	1	1.750	.437	BCFJF		3440
D	1.750	1.000	3	1.625	.437	NCFRF		159
D	1.750	1.062	1	1.750	.437	BCFRF	B	227
D	1.750	1.062	3	1.625	.437	BCFRF	B	252
D	1.750	1.062	1	1.625	.437	BCFJF	B	380
D	1.750	1.062	---	---	---	BCF-F	B	398
D	1.750	1.062	18	1.700	.370	BCFJF		438



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material	Notes	HTS
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK	Code		Part No.
1.000 Shaft (1") continued								
D	1.750	1.062	1	1.625	.437	BCFRF	B	460
D	1.750	1.062	3	1.625	.437	BCFJF	B	789
D	1.750	1.062	3	1.875	.375	BCFJF	B	987
D	1.750	1.062	1	1.625	.437	BCFJF	B	1046
D	1.750	1.000	3	1.625	.437	BCFJF		1138
D	1.750	1.000	3	1.625	.312	BCFRF		1630
D	1.750	1.062	1	1.625	.437	BCFRF		2032
D	1.750	1.062	3	1.625	.437	BCFJF		2033
D	1.750	1.062	3	1.625	.437	BCFRF		2034
D	1.750	1.062	1	1.750	.437	BCFJF		2164
E	1.500	1.562	1	1.625	.437	BCFRF		236
E	1.500	1.187	3	1.625	.437	BCFRF		251
E	1.500	1.562	3	1.625	.437	BCFJF		557
E	1.500	1.562	3	1.625	.406	NCFRF		695
E	1.500	1.562	1	1.625	.437	BCFJF		754
E	1.500	1.562	3	1.625	.437	BCFRF		791
E	1.500	1.562	1	1.500	.375	BCRJR		912
E	1.500	1.562	---	---	---	BCF-F		937
E	1.500	1.562	3	1.625	.437	VCRRR		1030
E	1.500	1.562	3	1.625	.437	BCRJR		1165
E	1.500	1.562	3	1.625	.437	BCRRR		1166
E	1.500	1.562	1	1.625	.437	BCRJR		2035
E	1.500	1.562	1	1.625	.437	BCRRR		2036
K	1.688	1.625	1	1.625	.437	BCFJF		879
K	1.688	1.625	1	1.625	.437	BCFRF		891
K	1.688	1.625	---	---	---	BCF-F		3524
K	1.688	1.500	---	---	---	BCF-F		3525
K	1.688	2.312	---	---	---	BCF-F		3526
R	1.750	1.875	---	---	---	BCF-F		141
R	1.750	1.875	1	1.625	.437	BCFJF		429
R	1.750	1.875	1	1.625	.437	BCFRF		430
R	1.750	1.875	3	1.625	.437	BCFJF		1022
S	1.904	1.906	8	1.750	.250	NAPSP		793
T	1.500	2.312	1	1.625	.437	BCRJR		276
T	1.500	2.312	1	1.625	.437	BCRRR		277
T	1.500	2.312	3	1.625	.437	BCRJR		688
T	1.500	2.312	3	1.625	.312	NCFRF		1631
T	1.500	2.312	3	1.625	.437	BCRRR		3707
T	1.500	2.312	---	---	---	BCR-R		3708
1.062 Shaft (1-1/16")								
C	1.812	1.062	3	1.750	.437	BCFRF		2155
C	1.812	1.062	3	1.750	.437	BCFJF		3210
C	1.812	1.062	---	---	---	BCF-F		3211
D	1.875	1.062	1	1.750	.437	BCFRF		127
D	1.875	1.062	3	1.750	.437	BCFRF		796
D	1.875	1.062	3	1.750	.437	BCFJF		797
D	1.875	1.062	---	---	---	BCF-F		3301
E	1.625	1.593	1	1.750	.437	BCRRR		498
E	1.625	1.593	1	1.750	.437	BCRJR		710
E	1.625	1.593	3	1.750	.437	BCRJR		798
E	1.625	1.593	3	1.750	.437	BCRRR		799
E	1.625	1.593	---	---	---	BCR-R		3402
1.125 Shaft (1-1/8")								
C	1.812	1.062	---	---	---	BCF-F		348
C	1.812	1.062	1	1.750	.437	BCFRF		355

SEAL HEAD			SEAT			Material	Notes	HTS
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK	Code		Part No.
1.125 Shaft (1-1/8") continued								
C	1.812	1.062	1	1.750	.437	BCFJF		356
C	1.812	1.062	3	1.750	.437	BCFRF		529
C	1.812	1.062	25	1.750	.427	BCFRF		549
C	1.812	1.062	3	1.750	.437	BCFRF	★	588
C	1.812	1.406	1	1.750	.437	BCFJF	★	627
C	1.812	1.062	3	1.750	.437	BCFJF		801
C	1.812	1.000	1	1.750	.437	BCFJF		814
C	1.812	1.562	1	1.750	.437	BCFRF		983
C	1.812	1.062	1	1.750	.437	BCFJF	B	1052
C	1.812	1.500	1	1.937	.437	BCFJF		1122
C	1.812	1.062	1	1.750	.437	BCFRF	★	1167
C	1.812	1.062	1	1.750	.437	BCFJF	★	1682
C	1.812	1.062	3	1.750	.437	BCFZF		3148
C	1.812	1.625	3	2.000	.437	BCFJF		3461
D	1.875	1.062	3	1.750	.437	BCFRF		254
D	1.875	1.062	1	1.875	.475	BCFRF		521
D	1.875	1.062	1	1.750	.437	BCFJF		604
D	1.875	1.062	1	1.750	.437	BCFRF		605
D	1.875	1.062	3	1.750	.437	BCFJF		802
D	1.875	1.062	1	1.750	.437	NCFJF		1131
E	1.625	1.625	1	1.750	.437	BCFJF		204
E	1.625	1.187	3	1.750	.437	BCFRF		253
E	1.625	1.625	1	1.750	.437	BCFRF		384
E	1.625	1.625	3	1.750	.437	BCFJF		584
E	1.625	1.625	1	1.687	.437	BCFJF		607
E	1.625	1.625	1	1.687	.437	BCFRF		608
E	1.625	2.000	3	1.812	.437	BCFJF	F	619
E	1.625	2.000	3	1.812	.437	BCFRF	F	636
E	1.625	1.625	3	1.750	.437	BCRJR	E	866
E	1.625	1.625	3	1.750	.437	BCRRR	E	867
E	1.625	1.625	1	1.750	.437	BCRRR		885
E	1.625	2.000	3	1.812	.437	BCRJR	F	945
E	1.625	2.000	3	1.812	.437	BCRRR	F	948
E	1.625	1.625	1	1.875	.475	BCRRR		1067
E	1.625	1.625	1	1.750	.437	BCRRR		1168
E	1.625	1.625	1	1.750	.437	BCRJR		1169
E	1.625	1.625	1	1.687	.437	BCRJR		1170
E	1.625	1.625	1	1.687	.437	BCRRR		1171
E	1.625	1.625	3	1.812	.437	BCRJR		1172
E	1.625	1.625	3	1.812	.437	BCRRR		1173
E	1.625	1.625	1	1.750	.437	BCRJR		1174
E	1.625	1.625	1	1.750	.437	BCRRR		1175
E	1.625	1.625	3	1.812	.437	B/VCFJF		1636
E	1.625	1.625	3	1.812	.437	B/VCFRF		1637
E	1.625	1.625	3	1.812	.437	B/VCRJR		1638
E	1.625	1.625	3	1.812	.437	B/VCRRR		1639
E	1.625	1.625	---	---	---	BCR-R		2103
K	1.812	1.625	---	---	---	BCF-F		215
K	1.812	1.625	1	1.750	.437	BCFJF		1176
K	1.812	1.625	1	1.750	.437	BCFRF		1177
K	1.812	1.625	3	1.750	.437	BCFJF		3530
K	1.812	1.625	3	1.750	.437	BCFRF		3531
R	1.875	1.875	1	1.750	.437	BCFRF		654
R	1.875	1.875	1	1.750	.437	BCFJF		676
R	1.875	1.875	---	---	---	BCF-F		3605

NOTE: ★ Tapered Spring B Spring Holder Included E Lock Collar Included F Long Nose Carbon

DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE



SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
1.125 Shaft (1-1/8") continued								
R	1.875	1.875	3	1.750	.437	BCFRF		3606
R	1.875	1.875	3	1.750	.437	BCFJF		3607
T	1.625	2.375	---	---	---	BCR-R		3711
T	1.625	2.375	3	1.750	.437	BCRJR		886
T	1.625	2.375	3	1.750	.437	BCRRR		918
T	1.625	2.375	3	1.812	.437	BCRJR		1178
T/U	1.625	1.812	1	1.750	.437	BCRJR		545
U	1.625	1.687	3	1.750	.437	BCRRR		282
U	1.625	1.687	---	---	---	BCR-R		3712
V	1.625	1.500	25	1.765	.375	BCFRF		1103
1.181 Shaft (30mm)								
C	1.937	1.062	---	---	---	BCF-F		5211
C	1.937	1.062	1	1.875	.437	BCFJF		5212
C	1.937	1.062	1	1.875	.437	BCFRF		5213
D	2.000	1.062	---	---	---	BCF-F		5301
D	2.000	1.062	1	1.875	.437	BCFJF	B	136
D	2.000	1.062	1	1.875	.437	BCFRF	B	1179
1.187 Shaft (1-3/16")								
C	1.937	1.000	---	---	---	BCF-F		3218
C	1.937	1.000	1	1.875	.437	NCFJF		297
C	1.937	1.000	3	1.875	.437	NCFRF		589
C	1.937	1.062	1	1.875	.437	BCFRF		2162
D	2.000	1.000	1	1.875	.437	BCFJF		3353
D	2.000	1.000	1	1.875	.437	BCFRF		3354
D	2.000	1.000	3	1.875	.437	BCFJF		3355
D	2.000	1.000	3	1.875	.437	BCFRF		3356
D	2.000	1.000	---	---	---	BCF-F		3357
E	1.812	1.187	---	---	---	BCR-R		3411
E	1.812	1.187	3	1.875	.437	BCFRF		255
E	1.812	1.187	1	1.875	.437	BCFJF		306
E	1.812	1.625	1	1.875	.437	BCRJR		310
E	1.812	1.625	1	1.875	.437	BCRRR		343
E	1.812	1.625	3	1.875	.437	BCRJR		345
E	1.812	1.187	1	1.875	.437	BCFRF		1180
K	1.937	1.625	---	---	---	BCF-F		3535
K	1.937	1.625	1	1.875	.437	BCFJF		3536
K	1.937	1.625	1	1.875	.437	BCFRF		3537
K	1.937	1.625	3	1.875	.437	BCFJF		3538
K	1.937	1.625	3	1.875	.437	BCFRF		3539
T	1.812	2.375	1	1.875	.437	BCRJR		723
T	1.812	2.375	1	1.875	.437	BCRRR		724
T	1.812	2.375	---	---	---	BCR-R		3715
T	1.812	2.375	3	1.875	.437	BCRJR		3716
T	1.812	2.375	3	1.875	.437	BCRRR		3717
1.250 Shaft (1-1/4")								
C	1.937	1.062	---	---	---	BCF-F		154
C	1.937	1.062	1	1.875	.437	BCFJF		185
C	1.937	1.062	1	1.875	.437	BCFJF	★	246
C	1.937	1.062	1	1.875	.437	BCFRF	★	249
C	1.937	1.062	1	1.768	.367	BCFJF	★	368
C	1.937	1.062	1	2.000	.437	BCFJF		466
C	1.937	1.062	3	1.875	.437	BCFRF	★	525
C	1.937	1.062	1	1.768	.367	BCFRF	★	597
C	1.937	1.062	3	1.875	.437	BCFRF		598
C	1.937	1.062	3	1.875	.437	BCFJF		618
C	1.937	1.062	1	1.875	.437	BCFRF		756

NOTE: ★ Tapered Spring B Spring Holder Included

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
1.250 Shaft (1-1/4") continued								
C	1.937	1.062	1	2.000	.437	BCFJF		815
C	1.937	1.250	15	2.250	.625	BCFJF	★	923
C	1.937	1.062	1	1.768	.367	BCFJF	★	978
C	1.937	1.062	1	1.750	.367	BCFRF	★	979
C	1.937	1.062	3	2.000	.437	BCFRF		1018
C	1.937	1.062	3	1.875	.437	B/CFRF		1053
C	1.937	1.062	1	1.875	.437	NCFJF		1081
C	1.937	1.062	1	1.875	.437	NCFRF		1082
C	1.937	1.625	1	1.875	.437	NCFJF		1083
C	1.937	1.625	1	1.875	.437	NCFRF		1084
C	1.937	1.625	3	1.875	.437	BCFRF		1109
C	1.937	1.625	1	1.875	.437	BCFJF		2122
C	1.937	1.625	1	1.875	.437	BCFRF		2123
C	1.937	1.625	3	1.875	.437	BCFJF		3221
C	1.937	1.625	---	---	---	BCF-F		3222
D	2.000	1.000	3	1.937	.437	BCFRF		326
D	2.000	1.062	1	1.875	.437	BCFJF	B	381
D	2.000	1.062	1	1.875	.437	BCFRF	B	383
D	2.000	1.062	1	1.768	.367	BCFJF	B	402
D	2.000	1.062	---	---	---	BCF-F	B	416
D	2.000	1.062	15	2.250	.625	BCFJF	B	416A
D	2.000	1.062	18	1.687	.367	BCFRF		439
D	2.000	1.062	1	1.875	.437	BCFJF		472
D	2.000	1.062	1	2.000	.437	BCFJF		510
D	2.000	1.062	3	1.875	.437	BCFRF	B	517
D	2.000	1.062	1	1.875	.437	BCFJF	B	786
D	2.000	1.062	3	1.875	.437	BCFJF	B	804
D	2.000	1.062	1	1.768	.367	BCFJF	B	976
D	2.000	1.062	1	1.768	.367	BCFRF	B	977
D	2.000	1.062	3	1.875	.437	BCFRF	B	981
D	2.000	1.031	3	2.125	.375	BMFJF	B	995
D	2.000	1.062	3	1.875	.437	VCFRF	B	1047
D	2.000	1.031	1	1.875	.437	BCFJF		1090
D	2.000	1.031	3	1.875	.437	NCFRF	B	1128
D	2.000	1.062	1	1.875	.437	BCFRF	B	1136
D	2.000	1.000	3	1.875	.375	NCFRF	B	1632
D	2.000	1.062	1	1.875	.437	BCFJF		2041
D	2.000	1.062	1	1.875	.437	BCFRF		2042
D	2.000	1.062	3	1.875	.437	BCFJF		2043
D	2.000	1.062	3	1.875	.437	BCFRF		2044
D	2.000	1.062	1	1.875	.437	BZFRF		3351
E	1.812	1.542	1	1.875	.437	NCFRF		108
E	1.812	1.625	1	1.875	.437	BCFRF		137
E	1.812	1.187	3	1.875	.437	BCFRF		256
E	1.812	1.625	3	1.875	.437	BCRRR		264
E	1.812	1.625	1	1.875	.437	BCRJR		361
E	1.812	1.625	3	1.875	.437	BCRJR		546
E	1.812	1.625	---	---	---	BCR-R		1015
E	1.812	1.625	1	1.875	.437	BCRRR		1181
E	1.812	1.625	1	1.875	.437	BCRJR		1182
E	1.812	1.625	3	1.875	.437	BCRRR		1183
E	1.812	1.625	3	1.875	.437	BCRJR		1184
E	1.812	1.542	1	1.875	.437	NCFJF		1185
E	1.812	1.625	1	2.000	.437	BCFRF		1186
E	1.812	2.281	3	1.875	.437	BCRJR		2128
E	1.812	1.625	3	1.875	.437	BCRRR		2129



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material	Notes	HTS
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK	Code		Part No.
1.250 Shaft (1-1/4") continued								
E	1.812	1.625	3	2.000	.437	BCRJR		3415
K	1.937	1.625	---	---	---	BCF-F		169
K	1.937	1.625	3	1.875	.437	BCFRF		228
K	1.937	1.625	1	1.875	.437	BCFJF		883
K	1.937	1.625	1	1.875	.437	BCFRF		890
K	1.937	2.000	3	2.125	.375	BCFRF		1623
K	1.937	1.625	3	2.000	.375	BCFRF		3541
K	1.937	1.625	3	1.875	.437	BCFJF		3542
R	2.000	1.875	1	1.875	.437	BCFJF		426
S	2.296	2.218	8	2.125	.281	NAPSP		794
T	1.812	2.375	---	---	---	BCR-R		3721
T	1.812	2.375	3	1.875	.437	NCFRF		308
T	1.812	2.375	1	1.875	.437	BCRJR		1187
U	1.812	1.625	3	1.875	.437	BCRRR		394
U	1.812	2.406	1	1.875	.437	BCRJR		681
1.375 Shaft (1-3/8") continued								
C	2.062	1.125	---	---	---	BCF-F		172
C	2.062	1.125	1	2.000	.437	BCFJF		177
C	2.062	1.125	1	2.000	.437	BCFRF		210
C	2.062	1.187	3	2.125	.375	BCFJF		291
C	2.062	1.125	2	2.125	.437	BCFRF		467
C	2.062	1.125	3	2.000	.437	BCFRF		547
C	2.062	1.125	3	2.000	.437	BCFJF		805
C	2.062	1.125	1	2.000	.437	BCFRF	★	919
C	2.062	.900	17	2.000	.500	BCFJ/FF		929
C	2.062	1.156	3	2.125	.406	VCFRF		1062
C	2.062	1.687	1	2.000	.437	BCFRF		1667
C	2.062	1.687	1	2.000	.437	BCFJF		2134
C	2.062	1.125	3	2.000	.437	BCFZF		3146
D	2.187	1.125	1	2.000	.437	BCFRF		186
D	2.187	1.125	---	---	---	BCF-F		376
D	2.187	1.093	17	2.000	.500	BCFJ/FF		404
D	2.187	1.125	1	2.000	.437	BCFJF		491
D	2.187	1.125	3	2.000	.437	BCFJF		806
D	2.187	1.125	3	2.000	.437	BCFRF		807
D	2.187	1.093	1	2.000	.437	NCFJF		1132
D	2.187	1.125	1	2.000	.437	BCFJF		2045
D	2.187	1.125	1	2.000	.437	BCFRF		2046
D	2.187	1.125	3	2.000	.437	BCFJF		2047
D	2.187	1.125	3	2.000	.437	BCFRF		2048
E	1.875	1.187	3	2.000	.437	BCFRF		257
E	1.875	1.687	1	2.000	.437	BCFJF		354
E	1.875	1.687	1	2.000	.437	BCFRF		677
E	1.875	1.687	3	2.000	.437	BCFJF		808
E	1.875	1.687	3	2.000	.437	BCFRF		809
E	1.875	2.000	3	2.000	.437	BCRJR	E	864
E	1.875	2.00	3	2.000	.437	BCRRR	E	865
E	1.875	1.687	1	2.000	.437	BCRJR		2049
E	1.875	1.687	1	2.000	.437	BCRRR		2050
E	1.875	1.687	---	---	---	BCR-R		2104
K	2.062	1.625	---	---	---	BCF-F		209
K	2.062	1.625	1	2.000	.437	BCFJF		495
K	2.062	1.625	1	2.000	.437	BCFRF		540
R	2.187	2.187	1	2.000	.437	BCFJF		178
T	1.875	2.437	1	2.000	.437	BCRJR		690
T	1.875	2.437	1	2.000	.437	BCRJR		725

SEAL HEAD			SEAT			Material	Notes	HTS
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK	Code		Part No.
1.375 Shaft (1-3/8") continued								
T	1.875	2.437	1	2.000	.437	BCRRR		726
T/U	1.875	2.687	1	2.000	.437	BCRJR		396
U	1.875	2.125	3	2.000	.500	BCRRR		561
V	1.937	1.937	25	2.140	.437	BCFRF		1104
1.437 Shaft (1-7/16") continued								
C	2.125	1.125	3	2.250	.625	BCFRF		2156
C	2.125	1.125	---	---	---	BCF-F		3231
C	2.125	1.125	1	2.125	.437	BCFJF		3232
C	2.125	1.516	3	2.312	.360	BCFRF		3233
C	2.125	1.125	3	2.125	.437	BCFRF		3234
C	2.125	1.125	3	2.125	.437	BCFJF		3235
C	2.125	1.125	1	2.250	.437	BCFRF		3236
E	1.937	1.625	2	2.062	.437	BCRRR		334
E	1.937	1.688	3	2.062	.437	BCRJR		705
E	1.937	1.516	3	2.312	.360	NCRRR		943
E	1.937	1.250	3	2.250	.375	BCRRR		1634
E	1.937	1.250	3	2.250	.375	BCRJR		1635
K	2.125	1.738	---	---	---	BCF-F		862
T	1.937	2.125	3	2.187	.375	NCFRF		1633
T	1.937	2.125	3	2.250	.375	BCRRR		3723
1.500 Shaft (1-1/2")								
C	2.187	1.437	3	2.125	.437	NCFRF		192
C	2.187	1.125	1	2.156	.437	BCFRF	★	247
C	2.187	1.187	1	2.250	.437	BCFJF		292
C	2.187	1.125	1	2.250	.437	BCFJF		320
C	2.187	1.125	1	2.125	.437	BCFJF	★	347
C	2.187	1.125	1	2.125	.437	BCFRF	★	378
C	2.187	1.125	3	2.125	.437	BCFRF	B	553
C	2.187	1.125	1	2.125	.437	BCFRF	B	659
C	2.187	1.125	1	2.156	.437	BCFJF	★	682
C	2.187	1.125	1	2.125	.437	BCFJF	B	758
C	2.187	1.125	3	2.125	.437	BCFJF		816
C	2.187	1.125	3	2.312	.437	BCFJF	B	926
C	2.187	1.687	3	2.125	.437	BCFRF	B	1110
C	2.187	1.125	1	2.250	.437	BCFJF		1189
C	2.187	1.125	---	---	---	BCF-F		2105
C	2.187	1.687	3	2.125	.437	BCFZF	B	3144
C	2.187	1.688	---	---	---	BCF-F		3240
D	2.312	1.125	1	2.156	.437	BCFJF		283
D	2.312	1.125	1	2.125	.437	BCFRF	B	371
D	2.312	1.125	1	2.125	.437	BCFJF	B	382
D	2.312	1.125	3	2.125	.437	BCFRF	B	534
D	2.312	1.000	3	2.187	.437	NCFRF		599
D	2.312	1.125	3	2.125	.437	BCFJF	B	817
D	2.312	1.125	---	---	---	BCF-F	B	939
D	2.312	1.125	1	2.125	.437	BCFJF		2051
D	2.312	1.125	1	2.125	.437	BCFRF		2052
D	2.312	1.125	3	2.125	.437	BCFJF		2053
D	2.312	1.125	3	2.125	.437	BCFRF		2054
D	2.312	1.125	3	2.125	.437	VCFRF	B	2127
D	2.312	1.125	15	2.375	.437	VZVFZ		3143
E	2.000	1.688	3	2.125	.437	NCFRF		224
E	2.000	1.688	3	2.125	.437	BCRRR		258
E	2.000	1.187	3	2.125	.437	BCRRR		259
E	2.000	1.688	1	2.125	.437	BCRJR		305
E	2.000	1.688	3	2.000	.437	BCRJR		314

NOTE: ★ Tapered Spring B Spring Holder Included E Lock Collar Included

DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE



SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
1.500 Shaft (1-1/2") continued								
E	2.000	1.688	3	2.000	.437	BCRRR		316
E	2.000	1.688	1	2.125	.437	BCRRR	B	374
E	2.000	1.688	3	2.125	.437	BCRJR		395
E	2.000	1.688	3	2.250	.437	BCRJR		515
E	2.000	2.062	3	2.312	.437	BCRJR	F	620
E	2.000	2.062	3	2.312	.437	BCRRR	F	629
E	2.000	1.562	3	2.125	.437	BCRJR		899
E	2.000	1.688	1	2.125	.437	BCRJR		1190
E	2.000	1.688	1	2.125	.437	BCRRR		1191
E	2.000	1.688	3	2.125	.437	BCRRR		1192
E	2.000	1.688	3	2.125	.437	VCRJR		1644
E	2.000	1.688	3	2.125	.437	VCRRR		1645
E	2.000	1.688	3	2.312	.437	B/VCRJR		1647
E	2.000	1.688	3	2.312	.437	B/VCRRR		1648
E	2.000	1.688	3	2.312	.437	VCRJR		1651
E	2.000	1.688	3	2.312	.437	VCRRR		1652
E	2.000	2.062	3	2.312	.437	VCRJR		1690
E	2.000	2.062	3	2.312	.437	VCRRR		1691
E	2.000	2.062	3	2.312	.437	VCRZR		1692
E	2.000	1.688	---	---	---	BCR-R		2106
E	2.000	1.688	1	2.250	.437	BCRJR		2117
E	2.000	1.688	1	2.156	.437	BCRRR		2137
E	2.000	1.688	3	2.125	.437	BCRZR		3151
K	2.187	1.625	---	---	---	BCF-F		216
K	2.187	1.625	1	2.125	.437	BCFJF		541
K	2.187	1.625	1	2.125	.437	BCFRF		884
K	2.187	1.625	3	2.125	.437	BCFJF		3547
K	2.187	1.625	3	2.125	.437	BCFRF		3548
R	2.312	1.875	1	2.125	.437	BCFJF		431
R	2.312	1.875	1	2.125	.437	BCFRF		432
R	2.312	1.875	---	---	---	BCF-F		3611
R	2.312	1.875	3	2.125	.437	BCFJF		3612
R	2.312	1.875	3	2.125	.437	BCFRF		3613
S	2.460	2.062	8	2.378	.280	NAPSP		1500
T	2.000	2.437	1	2.125	.437	BCRJR		868
T	2.000	2.437	---	---	---	BCR-R		3731
T	2.000	2.437	1	2.125	.437	BCRRR		3732
T	2.000	2.437	3	2.125	.437	BCRJR		3733
T	2.000	2.437	3	2.125	.437	BCRRR		3734
U	2.000	2.062	3	2.000	.437	BCRJR		915
1.562 Shaft (1-9/16") continued								
E	2.250	1.688	3	2.375	.500	BCRJR		664
E	2.250	1.688	3	2.375	.500	BCRRR		1193
E	2.250	1.688	1	2.375	.500	BCRRR		1194
E	2.250	1.688	1	2.375	.500	BCRJR		3421
E	2.250	1.688	---	---	---	BCR-R		3422
1.625 Shaft (1-5/8") continued								
C	2.300	1.375	1	2.375	.500	BCFJF		238
C	2.300	1.375	1	2.375	.500	BCFRF		239
C	2.300	1.375	3	2.437	.500	NCFRF		331
C	2.300	1.375	3	2.375	.500	BCFRF		544
C	2.300	1.375	3	2.375	.500	BCFJF		818
C	2.300	1.375	3	2.625	.500	BCFRF		1019
C	2.300	1.375	15	2.500	.500	BCFRF		1595
C	2.300	1.375	---	---	---	BCF-F		2107
D	2.718	1.375	1	2.375	.500	BCFRF		461

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
1.625 Shaft (1-5/8") continued								
D	2.718	1.375	1	2.375	.500	BCFJF		514
D	2.718	1.375	3	2.375	.500	BCFRF		819
D	2.718	1.375	3	2.375	.500	BCFJF		821
D	2.718	1.375	3	2.375	.500	BCFRF		1697
D	2.718	1.375	3	2.375	.500	BCFJF		1698
D	2.718	1.375	1	2.375	.500	BCFJF		2055
D	2.718	1.375	1	2.375	.500	BCFRF		2056
E	2.250	2.000	1	2.312	.500	BCRJR		346
E	2.250	2.000	1	2.312	.500	BCRRR		484
E	2.250	2.000	3	2.375	.500	BCRJR		595
E	2.250	2.000	1	2.312	.500	BCRJR		609
E	2.250	2.000	1	2.312	.500	BCRRR		610
E	2.250	2.000	1	2.375	.500	BCRRR		744
E	2.250	2.000	1	2.375	.500	BCRJR		745
E	2.250	2.000	1	2.375	.500	BCRRR		746
E	2.250	2.000	1	2.375	.500	BCRJR		747
E	2.250	2.000	3	2.375	.500	BCRRR		822
E	2.250	2.000	3	2.375	.500	BCRJR		1683
E	2.250	2.000	3	2.375	.500	BCRRR		1699
E	2.250	2.000	1	2.375	.500	BCRJR		2057
E	2.250	2.000	1	2.375	.500	BCRRR		2058
K	2.300	2.125	1	2.375	.500	BCFJF		1195
K	2.300	2.125	---	---	---	BCF-F		3551
K	2.300	2.875	---	---	---	BCF-F		3552
R	2.718	2.125	---	---	---	BCF-F		3617
R	2.718	2.125	3	2.375	.500	BCFRF		281
T	2.250	2.875	1	2.375	.500	BCRJR		692
T	2.250	2.875	---	---	---	BCR-R		3737
U	2.250	2.093	3	2.375	.500	BCRRR		458
1.750 Shaft (1-3/4") continued								
C	2.625	1.375	3	2.625	.500	BCFJF		387
C	2.625	1.046	17	2.500	.750	BCFJ/FF		434
C	2.625	1.375	3	2.500	.500	BCFRF		436
C	2.625	1.375	1	2.500	.500	BCFJF		446
C	2.625	1.375	1	2.500	.500	BCFRF		448
C	2.625	1.375	3	2.500	.500	BCFJF		550
C	2.625	1.125	---	---	---	BCF-F		1055
C	2.625	1.125	3	2.500	.500	B/VCFRF		1056
C	2.625	1.125	1	2.500	.500	BCFRF		1068
C	2.625	2.000	1	2.500	.500	BCFRF		1674
C	2.625	1.375	---	---	---	BCF-F		2108
C	2.625	2.000	1	2.500	.500	BCFJF		2135
C	2.625	2.000	1	2.500	.500	BCFRF		2142
C	2.625	2.000	3	2.500	.500	BCFJF		2150
C	2.625	2.000	3	2.500	.500	BCFRF		2151
C	2.625	1.375	3	2.500	.500	BCFZF		3152
C	2.625	2.000	---	---	---	BCF-F		3249
D	2.750	1.375	---	---	---	BCF-F		147
D	2.750	1.375	1	2.500	.500	BCFJF		237
D	2.750	1.375	1	2.500	.500	BCFRF		288
D	2.750	1.375	3	2.500	.500	BCFRF		825
D	2.750	1.375	3	2.500	.500	BCFJF		826
D	2.750	1.375	1	2.500	.500	BCFJF		2059
D	2.750	1.375	1	2.500	.500	BCFRF		2060
D	2.750	1.375	3	2.500	.500	BCFJF		2061
D	2.750	1.375	3	2.500	.500	BCFRF		2062

NOTE: B Spring Holder Included F Long Nose Carbon



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material	Notes	HTS
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK	Code		Part No.
1.750 Shaft (1-3/4") continued								
E	2.375	2.000	1	2.500	.500	BCFJF		205
E	2.375	2.000	3	2.500	.500	BCFRF		262
E	2.375	2.000	1	2.500	.500	BCFJF		317
E	2.375	2.000	1	2.500	.500	BCFRF		366
E	2.375	2.000	3	2.500	.500	BCFJF		535
E	2.375	2.000	3	2.500	.500	BCRJR	E	858
E	2.375	2.000	3	2.500	.500	BCRRR	E	859
E	2.375	2.000	3	2.500	.500	VCRRR		1031
E	2.375	2.000	1	2.500	.500	BCRRR		1032
E	2.375	2.000	3	2.500	.500	BCRRR		1033
E	2.375	2.000	27	3.000	1.000	BCRJR		1078
E	2.375	2.000	1	2.500	.500	BCRJR		1196
E	2.375	2.000	3	2.312	.500	BCRJR		1684
E	2.375	2.000	---	---	---	BCR-R		2109
E	2.375	2.000	3	2.625	.500	BCRJR		2130
E	2.375	2.000	3	2.312	.500	BCRRR		3427
E	2.375	2.000	3	2.625	.500	BCRRR		3428
K	2.625	2.125	1	2.500	.500	BCFJF		449
K	2.625	2.125	1	2.500	.500	BCFRF		1197
K	2.625	2.125	3	2.625	.500	BCFJF		3532
K	2.625	2.125	---	---	---	BCF-F		3556
K	2.625	2.125	3	2.500	.500	BCFJF		3557
K	2.625	2.125	3	2.500	.500	BCFRF		3558
R	2.750	2.125	---	---	---	BCF-F		213
R	2.750	2.125	1	2.500	.500	BCFRF		217
R	2.750	2.125	1	2.500	.500	BCFJF		3621
R	2.750	2.125	3	2.500	.500	BCFRF		3622
R	2.750	2.125	3	2.500	.500	BCFJF		3623
T	2.375	2.875	1	2.500	.500	BCRJR		674
T	2.375	2.875	1	2.500	.500	BCRRR		675
T	2.375	2.875	3	2.500	.500	BCRJR		2144
T	2.375	2.875	3	2.500	.500	BCRRR		3741
T	2.375	2.875	---	---	---	BCR-R		3742
T/U	2.375	3.125	1	2.500	.500	BCRJR		455
T/U	2.375	3.125	1	2.500	.500	BCRRR		3743
T/U	2.375	3.125	3	2.500	.500	BCRRR		3744
T/U	2.375	3.125	3	2.500	.500	BCRJR		3745
U	2.375	2.500	3	2.500	.500	BCRJR		519
U	2.375	2.500	3	2.500	.500	BCRRR		555
U	2.375	2.437	3	2.500	.500	BCRJR		917
U	2.375	2.500	1	2.500	.500	BCRJR		1042
U	2.375	2.250	3	2.375	.500	BCRJR		1070
U	2.375	2.500	3	2.500	.500	BCRRR		1199
U	2.375	2.000	3	2.500	.500	BCRRR		2157
U	2.375	2.000	3	2.500	.500	BCRJR		2170
U	2.375	2.500	---	---	---	BCR-R		3746
1.771 Shaft (45mm)								
E	2.500	2.125	---	---	---	BCR-R		3429
E	2.500	2.125	1	2.625	.500	BCRRR		719
E	2.500	2.125	1	2.625	.500	BCRJR		722
T	2.500	3.000	1	2.625	.500	BCRJR		727
T	2.500	3.000	1	2.625	.500	BCRRR		728
1.875 Shaft (1-7/8")								
C	2.750	1.500	3	2.625	.500	BCFRF		312
C	2.750	1.500	1	2.625	.500	BCFJF		340
C	2.750	1.500	3	2.625	.500	BCFRF		827

SEAL HEAD			SEAT			Material	Notes	HTS
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK	Code		Part No.
1.875 Shaft (1-7/8") continued								
C	2.750	1.500	1	2.625	.500	BCFRF		1608
C	2.750	1.500	3	2.625	.500	BCFJF		2114
C	2.750	1.500	3	2.625	.500	BCFZF		3153
C	2.750	1.500	---	---	---	BCF-F		3251
D	2.875	1.500	---	---	---	BCF-F		223
D	2.875	1.500	3	2.625	.500	BCFRF		593
D	2.875	1.500	1	2.625	.500	BCFJF		828
D	2.875	1.500	1	2.625	.500	BCFRF		1097
D	2.875	1.500	3	2.625	.500	BCFJF		1620
D	2.875	1.500	3	2.625	.500	VZFZF		3145
E	2.500	2.125	1	2.625	.500	BCFRF		513
E	2.500	2.125	1	2.625	.500	BCFJF		523
E	2.500	2.125	3	2.625	.500	BCFRF		586
E	2.500	2.437	3	2.687	.500	BCFJF	F	829
E	2.500	2.437	3	2.687	.500	BCFRF	F	831
E	2.500	2.437	3	2.687	.500	BCRJR	F	946
E	2.500	2.437	3	2.687	.500	BCRRR	F	949
E	2.500	2.125	3	2.625	.500	BCFJF		1654
E	2.500	2.125	3	2.625	.500	BCRJR		1656
E	2.500	2.125	3	2.625	.500	BCRRR		1657
E	2.500	2.125	3	2.625	.500	VCRJR		1659
E	2.500	2.125	3	2.625	.500	VCRRR		1660
E	2.500	2.125	3	2.687	.500	B/VCFJF		1662
E	2.500	2.125	3	2.687	.500	B/VCFRF		1663
E	2.500	2.125	3	2.687	.500	B/VCRJR		1664
E	2.500	2.125	3	2.687	.500	B/VCRRR		1665
E	2.500	2.125	1	2.625	.500	BCRJR		2069
E	2.500	2.125	1	2.625	.500	BCRRR		2070
E	2.500	2.125	3	2.625	.500	BCRJR		2071
E	2.500	2.125	3	2.625	.500	BCRRR		2072
E	2.500	2.125	---	---	---	BCR-R		2110
K	2.750	3.000	1	2.625	.500	BCFJF		318
K	2.750	3.000	1	2.625	.500	BCFRF		1693
K	2.750	3.000	---	---	---	BCF-F		3561
K	2.750	3.000	3	2.625	.500	BCFJF		3562
K	2.750	3.000	3	2.625	.500	BCFRF		3563
R	2.875	3.000	---	---	---	BCF-F		3625
T	2.500	3.000	---	---	---	BCR-R		3749
T	2.500	3.000	1	2.625	.500	BCRJR		742
T	2.500	3.000	1	2.625	.500	BCRRR		743
T	2.500	3.000	3	2.687	.500	VCRJR		1653
T	2.500	3.000	3	2.625	.500	BCRJR		3750
T	2.500	3.000	3	2.625	.500	BCRRR		3751
U	2.500	2.437	1	2.625	.500	BCRJR		538
U	2.500	2.437	3	2.500	.500	BCRRR		554
U	2.500	2.437	3	2.500	.500	BCRJR		898
U	2.500	2.437	---	---	---	BCR-R		3752
V	2.500	2.000	25	2.640	.406	BCFRF		1105
V	2.500	2.000	1	2.625	.500	BCFRF		1108
V	2.500	2.000	3	2.625	.437	BCFJF		2146
2.000 Shaft (2")								
C	2.875	1.500	1	2.750	.500	BCFJF		267
C	2.875	1.500	3	2.750	.500	BCFRF		332
C	2.875	1.218	17	2.750	.750	BCFRF		435
C	2.875	1.500	3	2.750	.500	BCFJF		532
C	2.875	1.231	2	3.060	.250	NCFRF		576

NOTE: E Lock Collar Included F Long Nose Carbon



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
2.000 Shaft (2") continued								
C	2.875	1.062	3	3.000	.500	BCFRF		582
C	2.875	1.500	1	2.750	.500	BCFRF		842
C	2.875	2.125	1	2.750	.500	BCFRF		1017
C	2.875	1.500	3	3.000	.500	BCFRF		1020
C	2.875	1.250	1	2.750	.500	BCFRF		1028
C	2.875	1.500	3	2.750	.500	VCFRF		1145
C	2.875	1.500	---	---	---	BCF-F		2111
C	2.875	2.125	1	2.750	.500	BCFJF		2133
C	2.875	1.250	1	2.750	.500	BCFJF		2139
C	2.875	2.125	3	2.625	.500	BCFJF		3213
C	2.875	2.125	3	2.625	.500	BCFRF		3214
C	2.875	2.125	3	2.812	.500	BCFJF		3215
C	2.875	2.125	3	2.812	.500	BCFRF		3216
D	3.000	1.500	3	2.750	.500	NCFRF		193
D	3.000	1.500	---	---	---	BCF-F		196
D	3.000	1.125	3	2.812	.500	NCFRF		333
D	3.000	1.500	1	2.750	.500	BCFJF		445
D	3.000	1.500	1	2.750	.500	BCFRF		462
D	3.000	1.500	3	2.750	.500	BCFRF		832
D	3.000	1.500	3	2.750	.500	BCFJF		833
D	3.000	1.500	1	2.625	.500	BCFRF		876
D	3.000	1.500	1	2.750	.500	BCFJF		2073
D	3.000	1.500	1	2.750	.500	BCFRF		2074
D	3.000	1.500	3	2.750	.500	BCFJF		2075
D	3.000	1.500	3	2.750	.500	BCFRF		2076
E	2.625	2.125	1	2.687	.500	BCRJR		319
E	2.625	2.125	3	2.750	.500	NCRRR		342
E	2.625	2.125	3	2.750	.500	BCRRR		477
E	2.625	2.125	1	2.687	.500	BCRRR		478
E	2.625	2.125	1	2.750	.500	BCRJR		479
E	2.625	2.125	3	2.750	.500	BCRJR		530
E	2.625	2.125	1	2.750	.500	BCRRR		843
E	2.625	2.125	1	2.625	.500	BCRRR		1609
E	2.625	2.125	3	2.750	.500	BCRJR		1685
E	2.625	2.125	1	2.750	.500	BCRJR		2077
E	2.625	2.125	1	2.750	.500	BCRRR		2078
E	2.625	2.125	3	2.750	.500	BCRRR	E	2079
E	2.625	2.125	---	---	---	BCR-R		2112
K	2.875	2.125	3	2.750	.500	BCFRF		1040
K	2.875	2.125	1	2.750	.500	BCFJF		2143
K	2.875	2.125	---	---	---	BCF-F		3565
K	2.875	2.125	3	2.750	.500	BCFJF		3566
K	2.875	2.125	1	2.750	.500	BCFRF		3567
R	3.000	2.125	1	2.750	.500	BCFRF		658
R	3.000	2.125	1	2.750	.500	BCFJF		1610
R	3.000	2.125	---	---	---	BCF-F		3631
R	3.000	2.125	3	2.750	.500	BCFJF		3632
R	3.000	2.125	3	2.750	.500	BCFRF		3633
U	2.625	2.500	3	2.750	.500	BCRRR		385A
U	2.625	2.500	3	2.812	.500	BCRRR		386
U	2.625	2.218	3	2.750	.500	BCRRR		456
U	2.625	2.437	3	2.750	.500	BCRJR		888
2.062 Shaft (2-1/16")								
E	2.812	2.375	3	2.875	.562	BCRRR		707
E	2.812	2.375	3	2.875	.562	BCRJR		1611

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
2.062 Shaft (2-1/16")								
E	2.812	2.375	---	---	---	BCR-R		3461
2.125 Shaft (2-1/8")								
C	3.000	1.688	2	3.000	.562	BCFRF		336
C	3.000	1.688	3	3.000	.562	BCFJF		338
C	3.000	1.688	1	3.000	.562	BCFRF		543
C	3.000	2.693	3	2.844	.468	NCFRF		570
C	3.000	1.688	1	3.000	.562	BCFJF		844
C	3.000	1.688	3	2.875	.562	BCFJF		854
C	3.000	1.688	3	2.875	.562	BCFRF		855
C	3.000	1.688	3	3.000	.562	B/VCFRF		1057
C	3.000	1.688	---	---	---	BCF-F		3261
D	3.250	1.688	---	---	---	BCF-F		3321
D	3.250	1.688	1	3.000	.562	BCFJF		1686
D	3.250	1.688	1	3.000	.562	BCFRF		1687
D	3.250	1.688	3	3.000	.562	BCFJF		2093
D	3.250	1.688	3	3.000	.562	BCFRF		2102
D	3.250	1.688	2	3.000	.562	BCFRF		2125
E	2.812	2.375	3	3.000	.562	BCRJR		327
E	2.812	2.375	2	3.000	.562	BCRRR		353
E	2.812	2.375	1	3.000	.562	BCRJR		537
E	2.812	2.375	3	2.812	.437	BCRJR		611
E	2.812	2.375	3	2.875	.562	BCRJR	E	856
E	2.812	2.375	3	2.875	.562	BCRRR	E	857
E	2.812	2.250	3	2.812	.437	BCRRR		1612
E	2.812	2.375	3	3.000	.562	BCRJR		1617
E	2.812	2.375	3	3.000	.562	BCRRR		1666
E	2.812	2.375	1	3.000	.562	BCRJR		2084
E	2.812	2.375	1	3.000	.562	BCRRR		2085
E	2.812	2.375	3	3.000	.562	BCRRR		2086
E	2.812	2.375	1	3.000	.562	BCRRR		2159
E	2.812	2.375	---	---	---	BCR-R		3431
K	3.000	2.125	1	3.000	.562	BCFJF		887
K	3.000	2.125	---	---	---	BCF-F		3569
K	3.000	2.125	1	3.000	.562	BCFRF		3570
K	3.000	2.125	3	3.000	.562	BCFJF		3571
K	3.000	2.125	3	3.000	.562	BCFRF		3572
R	3.250	2.125	---	---	---	BCF-F		3637
T	2.812	3.375	3	3.000	.562	BCRJR		2126
T	2.812	3.375	---	---	---	BCR-R		3755
T	2.812	3.375	3	3.000	.562	BCRRR		3756
T/U	2.812	3.656	1	3.000	.562	BCRJR		457
U	2.812	2.812	2	3.000	.562	BCRRR		556
V	2.750	2.562	25	3.140	.562	BCFRF		1102
V	2.750	1.625	25	3.187	.875	BCFRF		1107
2.250 Shaft (2-1/4")								
C	3.125	1.437	1	3.125	.562	BCFJF		1087
C	3.125	1.688	3	3.125	.562	BCFRF		1676
C	3.125	1.688	3	3.125	.562	BCFJF		1678
C	3.125	1.688	1	3.125	.562	BCFJF		1679
C	3.125	1.688	1	3.125	.562	BCFRF		1680
C	3.125	1.688	---	---	---	BCF-F		3264
D	3.375	1.688	3	3.125	.562	BCFJF		846
D	3.375	1.688	3	3.125	.562	BCFRF		847
D	3.375	1.688	1	3.125	.562	BCFJF		874
D	3.375	1.688	1	3.125	.562	BCFRF		941

NOTE: E Lock Collar Included



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
2.250 Shaft (2-1/4") continued								
D	3.375	1.688	---	---	---	BCF-F		942
D	3.375	1.688	1	3.125	.562	BCFJF		2087
D	3.375	1.688	1	3.125	.562	BCFRF		2088
D	3.375	1.688	3	3.125	.562	BCFJF		2089
D	3.375	1.688	3	3.125	.562	BCFRF		2090
E	2.938	2.375	1	3.125	.562	BCFJF		323
E	2.938	2.375	1	3.125	.562	BCFRF		351
E	2.938	2.375	3	3.125	.562	BCFJF		848
E	2.938	2.375	3	3.125	.562	BCFRF		849
E	2.938	2.375	3	3.125	.562	BCRJR		1688
E	2.938	2.375	1	3.125	.562	BCRJR		2091
E	2.938	2.375	1	3.125	.562	BCRRR		2092
E	2.938	2.375	3	3.125	.562	BCRRR		2094
E	2.938	2.375	---	---	---	BCR-R		2113
K	3.125	2.375	3	3.125	.562	BCRJR		3581
K	3.125	2.375	1	3.125	.562	BCRJR		3582
K	3.125	2.375	1	3.125	.562	BCRRR		3583
K	3.125	2.375	3	3.125	.562	BCRRR		3584
K	3.125	2.375	---	---	---	BCF-F		3585
R	3.375	2.375	---	---	---	BCF-F		3641
R	3.375	2.375	3	3.125	.562	NCFRF		1073
T	2.938	3.375	---	---	---	BCR-R		3761
T	2.938	3.375	3	3.125	.562	BCRJR		2132
2.375 Shaft (2-3/8")								
C	3.219	1.813	3	3.250	.562	BCFJF		268
C	3.219	1.813	3	3.250	.562	BCFRF		492
C	3.219	1.813	1	3.250	.562	BCFJF		3271
C	3.219	1.813	1	3.250	.562	BCFRF		3272
C	3.219	1.813	---	---	---	BCF-F		3273
D	3.500	1.813	3	3.250	.562	BCFRF		594
D	3.500	1.813	3	3.250	.562	BCFJF		834
D	3.500	1.813	---	---	---	BCF-F		3331
E	3.062	2.500	3	3.250	.562	BCRJR		278
E	3.062	2.500	3	3.250	.562	BCRRR		350
E	3.062	2.500	3	3.250	.562	BCRJR		2097
E	3.062	2.500	3	3.250	.562	BCRRR		2098
E	3.062	2.500	---	---	---	BCR-R		3441
K	3.219	2.125	---	---	---	BCF-F		3586
K	3.219	2.125	3	3.250	.562	BCFRF		1041
K	3.219	2.125	3	3.250	.562	BCFJF		1694
R	3.500	2.125	---	---	---	BCF-F		3645
T	3.062	2.625	---	---	---	BCR-R		3762
2.500 Shaft (2-1/2")								
C	3.344	1.813	3	3.375	.562	BCFJF		269
C	3.344	1.250	3	3.375	.562	NCFRF		335
C	3.344	1.813	3	3.375	.562	BCFRF	E	853
C	3.344	1.813	3	3.375	.562	B/VCFRF		1058
C	3.344	1.813	1	3.375	.562	BCFJF		2120
C	3.344	1.813	---	---	---	BCF-F		3275
D	3.625	1.813	3	3.375	.562	BCFRF		463
D	3.625	1.813	3	3.250	.437	BCFJF		468
D	3.625	1.813	3	3.250	.437	BCFRF		469
D	3.625	1.813	3	3.375	.562	BCFJF		835
D	3.625	1.813	1	3.250	.437	BCFRF		3335
D	3.625	1.813	1	3.375	.562	BCFJF		3336
D	3.625	1.813	---	---	---	BCF-F		3337

NOTE: E Lock Collar Included

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
2.500 Shaft (2-1/2") continued								
E	3.187	2.500	3	3.375	.562	BCRJR		279
E	3.187	2.500	3	3.375	.562	BCRRR		349
E	3.187	2.500	3	3.375	.562	BCRJR		916
E	3.187	2.500	3	3.375	.562	BCRRR		2101
E	3.187	2.500	3	3.375	.562	BZRZR		3414
E	3.187	2.500	---	---	---	BCR-R		3444
K	3.344	2.125	3	3.375	.562	BCFJF		1613
K	3.344	2.125	3	3.375	.562	BCFRF		1695
K	3.344	2.125	1	3.375	.562	BCFJF		2158
K	3.344	2.125	---	---	---	BCF-F		3587
K	3.344	2.375	3	3.500	.562	BCFJF		3527
R	3.625	2.187	3	3.375	.531	NCFRF		889
R	3.625	2.187	---	---	---	BCF-F		3646
2.625 Shaft (2-5/8") continued								
C	3.250	2.732	3	3.336	.531	NCFRF		571
C	3.250	1.937	---	---	---	BCF-F		3280
C	3.250	2.750	---	---	---	BCF-F		3281
C	3.250	1.937	3	3.375	.625	BCFRF		3282
C	3.250	1.937	3	3.375	.625	BCFJF		3283
C	3.250	1.937	1	3.375	.625	BCFJF		3284
C	3.250	1.937	1	3.375	.625	BCFRF		3285
C	3.250	2.750	3	3.375	.625	BCFRF		3286
C	3.250	2.750	3	3.375	.625	BCFJF		3287
C	3.250	2.750	1	3.375	.625	BCFRF		3288
C	3.250	2.750	1	3.375	.625	BCFJF		3289
E	3.375	2.750	3	3.375	.625	BCRJR		328
E	3.375	2.750	3	3.375	.625	BCRRR	E	542
E	3.375	2.750	1	3.375	.625	BCRRR	E	3447
E	3.375	2.750	---	---	---	BCR-R		3448
K	3.250	2.500	---	---	---	BCF-F		3588
K	3.250	3.375	---	---	---	BCF-F		3589
K	3.250	2.500	3	3.375	.625	BCFRF		3590
K	3.250	2.500	3	3.375	.625	BCFJF		3591
K	3.250	2.500	1	3.375	.625	BCFRF		3592
K	3.250	2.500	1	3.375	.625	BCFJF		3593
K	3.250	3.375	3	3.375	.625	BCFRF		3594
K	3.250	3.375	3	3.375	.625	BCFJF		3595
K	3.250	3.375	1	3.375	.625	BCFRF		3596
K	3.250	3.375	1	3.375	.625	BCFJF		3597
T	3.375	3.375	1	3.375	.625	BCRJR		3767
T	3.375	3.375	3	3.375	.625	BCRJR		3768
T	3.375	3.375	3	3.375	.625	BCRRR		3781
V	3.375	2.562	25	3.643	.562	BCFRF		1106
2.750 Shaft (2-3/4")								
C	3.750	1.937	3	3.500	.625	BCFRF		483
C	3.750	1.937	3	3.500	.625	BCFJF		836
C	3.750	1.937	3	3.500	.625	NCFRF		2124
C	3.750	1.937	3	3.500	.625	BCFRF	E	2152
C	3.750	1.125	3	3.500	.625	BCFJF		2154
C	3.750	1.937	---	---	---	BCF-F		3290
C	3.750	1.937	1	3.500	.625	BCFJF		3291
C	3.750	2.750	3	3.500	.625	BCRRR		3276
C	3.750	2.750	3	3.500	.625	BCRJR		3277
D	4.000	1.937	---	---	---	BCF-F		3341
D	4.000	1.937	3	3.500	.625	BCFRF		464
D	4.000	1.937	3	3.500	.625	BCFJF		837



DIMENSIONAL PROGRESSION CHART BY SHAFT SIZE

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
2.750 Shaft (2-3/4") continued								
E	3.500	2.750	3	3.500	.625	BCRRR		321
E	3.500	2.750	3	3.500	.625	BCRJR		838
E	3.500	2.750	1	3.500	.625	BCRJR		3450
E	3.500	2.750	3	3.750	.625	BCRJR		3449
K	3.750	3.750	3	3.500	.625	BCFRF		322
K	3.750	1.875	3	3.500	.625	BCFJF		2148
K	3.750	2.500	3	3.500	.625	BCFJF		3598
2.875 Shaft (2-7/8")								
C	3.718	2.062	3	3.750	.625	BCFJF		270
C	3.718	2.062	3	3.750	.625	BCFRF		839
C	3.718	1.312	3	3.750	.625	NCFRF		1074
C	3.718	2.062	---	---	---	BCF-F		3292
C	3.718	2.062	1	3.750	.625	BCFJF		3293
C	3.718	2.875	3	3.750	.625	BCFJF		3294
C	3.718	2.875	3	3.750	.625	BCFRF		3295
C	3.718	2.875	1	3.750	.625	BCFJF		3296
E	3.625	2.875	3	3.750	.625	BCRJR		329
E	3.625	2.875	3	3.750	.625	BCRRR		841
E	3.625	2.875	1	3.750	.625	BCRJR		3451
E	3.625	2.875	---	---	---	BCR-R		3452
K	3.718	2.750	3	3.750	.625	BCFJF		3514
K	3.718	2.750	3	3.750	.625	BCFRF		3515
K	3.718	2.750	1	3.750	.625	BCFJF		3516
K	3.718	2.750	---	---	---	BCF-F		3517
K	3.718	3.875	---	---	---	BCF-F		3518
T	3.625	3.875	---	---	---	BCR-R		3769
T	3.625	3.875	3	3.750	.625	BCFJF		3770
T	3.625	3.875	3	3.750	.625	BCFRF		3771
T	3.625	3.875	1	3.750	.625	BCFJF		3772
3.000 Shaft (3")								
C	4.000	2.750	3	3.875	.625	B/VCFRF		1059
C	4.000	1.312	3	3.875	.625	BCFJF		1088
C	4.000	2.062	3	3.875	.625	BCFJF		1696
C	4.000	2.062	3	3.875	.625	BCFRF		2115
C	4.000	2.062	3	3.875	.625	BCFJF		2116
C	4.000	1.125	3	3.875	.625	BCFJF		2153
C	4.000	2.062	1	3.875	.625	BCFJF		3298
C	4.000	2.750	---	---	---	BCF-F		3299
D	4.250	2.062	---	---	---	BCF-F		3345
D	4.250	2.062	3	3.875	.625	BCFRF		465
D	4.250	2.062	3	3.875	.625	BCFJF		761
D	4.250	2.062	1	3.875	.625	BCFJF		3346
E	3.750	2.813	3	3.875	.625	BCRJR		324
E	3.750	2.813	3	3.875	.625	BCRRR		475
E	3.750	2.813	3	3.875	.625	B/VCRRR		1060
E	3.750	2.813	1	3.875	.625	BCRJR		3455
E	3.750	2.813	---	---	---	BCR-R		3456
K	4.000	2.500	3	3.875	.625	BCFRF		2141
K	4.000	2.750	---	---	---	BCF-F		3507
K	4.000	2.750	3	3.875	.625	BCFRF		3508
K	4.000	2.750	3	3.875	.625	BCFJF		3509
K	4.000	2.750	1	3.875	.625	BCFJF		3519
R	4.250	2.750	3	3.875	.625	BCFRF		284

SEAL HEAD			SEAT			Material Code	Notes	HTS Part No.
TYPE	O.D.	OP. HT.	TYPE	O.D.	THICK			
3.000 Shaft (3") continued								
R	4.250	2.750	3	3.875	.625	BCFJF		3651
R	4.250	2.750	1	3.875	.625	BCFJF		3652
R	4.250	2.750	---	---	---	BCF-F		3653
T	3.750	2.750	3	3.875	.625	BCRRR		3775
T	3.750	2.750	3	3.875	.625	BCRJR		3776
T	3.750	2.750	1	3.875	.625	BCRJR		3777
T	3.750	2.750	---	---	---	BCR-R		3778
U	3.750	3.375	3	3.875	.625	BCRJR		897
V	3.750	2.750	25	4.250	.625	BCFRF		893
3.250 Shaft (3-1/4")								
E	4.125	3.125	3	4.125	.781	BCRJR	E	330
E	4.125	3.125	3	4.125	.781	BCRRR		3459
U	4.125	3.032	3	4.125	.781	BCRRR		325

NOTES

- A Mounts on Shaft
- B Spring Holder Included
- C Mounts in Plastic
- D Press In
- E Lock Collar Included
- F Long Nose Carbon
- ★ Tapered Spring

Tungsten Carbide and Silicon Carbide Seal Faces are available off the shelf for most popular types and sizes.

If in doubt of correct seal identification please submit sample and all available pump nameplate data. Include the type and temperature of fluid being pumped.

We have many seals that are not listed in these pages. If you have need of something different or special, please call us with your requirements.



DIMENSIONAL CONVERSIONS

fraction	inch	mm	fraction	inch	mm	fraction	inch	mm	fraction	inch	mm	fraction	inch	mm
0.000394	0.0100		1/2	0.500000	12.7000	1-7/32	1.218750	30.9563	2-5/32	2.156250	54.7688		3.100000	78.7400
0.000787	0.0200			0.511811	13.0000		1.220473	31.0000		2.165354	55.0000		3.110236	79.0000
0.001181	0.0300		33/64	0.515625	13.0969	1-1/4	1.250000	31.7500	2-3/16	2.187500	55.5625	3-1/8	3.125000	79.3750
0.001575	0.0400		17/32	0.531250	13.4938		1.259843	32.0000		2.200000	55.8800		3.149606	80.0000
0.001969	0.0500		35/64	0.546875	13.8906	1-9/32	1.281250	32.5438		2.204724	56.0000		3.150000	80.0100
0.002362	0.0600			0.550000	13.9700		1.299213	33.0000	2-7/32	2.218750	56.3563	3-5/32	3.156250	80.1688
0.002756	0.0700			0.551181	14.0000		1.300000	33.0200		2.244095	57.0000	3-3/16	3.187500	80.9625
0.003150	0.0800		9/16	0.562500	14.2875	1-5/16	1.312500	33.3375	2-1/4	2.250000	57.1500		3.188976	81.0000
0.003543	0.0900		37/64	0.578125	14.6844		1.338583	34.0000	2-9/32	2.281250	57.9438		3.200000	81.2800
0.003937	0.1000			0.590551	15.0000	1-11/32	1.343750	34.1313		2.283465	58.0000	3-7/32	3.218750	81.7563
1/128	0.007813	0.1984	19/32	0.593750	15.0813		1.350000	34.2900		2.300000	58.4200		3.228347	82.0000
0.011811	0.3000			0.600000	15.2400	1-3/8	1.375000	34.9250	2-5/16	2.312500	58.7375	3-1/4	3.250000	82.5500
1/64	0.015625	0.3969	39/64	0.609375	15.4781		1.377953	35.0000		2.322835	59.0000		3.267717	83.0000
0.015748	0.4000		5/8	0.625000	15.8750		1.400000	35.5600	2-11/32	2.343750	59.5313	3-9/32	3.281250	83.3438
0.019685	0.5000			0.629921	16.0000	1-13/32	1.406250	35.7188		2.350000	59.6900		3.300000	83.8200
0.023622	0.6000		41/64	0.640625	16.2719		1.417323	36.0000		2.362205	60.0000		3.307087	84.0000
0.027559	0.7000			0.650000	16.5100	1-7/16	1.437500	36.5125	2-3/8	2.375000	60.3250	3-5/16	3.312500	84.1375
1/32	0.031250	0.7938	21/32	0.656250	16.6688		1.450000	36.8300		2.400000	60.9600	3-11/32	3.343750	84.9313
0.031496	0.8000			0.669292	17.0000		1.456693	37.0000		2.401575	61.0000		3.346457	85.0000
0.035433	0.9000		43/64	0.671875	17.0656	1-15/32	1.468750	37.3063	2-13/32	2.406250	61.1188		3.350000	85.0900
0.039370	1.0000		11/16	0.687500	17.4625		1.496063	38.0000	2-7/16	2.437500	61.9125	3-3/8	3.375000	85.7250
3/64	0.046875	1.1906		0.700000	17.7800	1-1/2	1.500000	38.1000		2.440945	62.0000		3.385827	86.0000
0.050000	1.2700		48/64	0.703125	17.8594	1-17/32	1.531250	38.8938		2.450000	62.2300		3.400000	86.3600
1/16	0.062500	1.5875		0.708662	18.0000		1.535433	39.0000	2-15/32	2.468750	62.7063	3-13/32	3.406250	86.5188
5/64	0.078125	1.9844	23/32	0.718750	18.2563		1.550000	39.3700		2.480315	63.0000		3.425197	87.0000
0.078740	2.0000		47/64	0.734375	18.6531	1-9/16	1.562500	39.6875	2-1/2	2.500000	63.5000	3-7/16	3.437500	87.3125
3/32	0.093750	2.3813		0.748032	19.0000		1.574803	40.0000		2.519685	64.0000		3.450000	87.6300
0.100000	2.5400		3/4	0.750000	19.0500	1-19/32	1.593750	40.4813	2-17/32	2.531250	64.2938		3.464567	88.0000
7/64	0.109375	2.7781	49/64	0.765625	19.4469		1.600000	40.6400		2.550000	64.7700	3-15/32	3.468750	88.1063
0.118110	3.0000		25/32	0.781250	19.8438		1.614173	41.0000		2.559055	65.0000	3-1/2	3.500000	88.9000
1/8	0.125000	3.1750		0.787402	20.0000	1-5/8	1.625000	41.2750	2-9/16	2.562500	65.0875		3.503937	89.0000
9/64	0.140625	3.5719	51/64	0.796875	20.2406		1.650000	41.9100	2-19/32	2.593750	65.8813	3-17/32	3.531250	89.6938
0.150000	3.8100			0.800000	20.3200		1.653543	42.0000		2.598425	66.0000		3.543307	90.0000
5/32	0.156250	3.9688	13/16	0.812500	20.6375	1-21/32	1.656250	42.0688		2.600000	66.0400		3.550000	90.1700
0.157480	4.0000			0.826772	21.0000	1-11/16	1.687500	42.8625	2-5/8	2.625000	66.6750	3-9/16	3.562500	90.4875
11/64	0.171875	4.3656	53/64	0.828125	21.0344		1.692913	43.0000		2.637795	67.0000		3.582677	91.0000
3/16	0.187500	4.7625	27/32	0.843750	21.4313		1.700000	43.1800		2.650000	67.3100	3-19/32	3.593750	91.2813
0.196850	5.0000			0.850000	21.5900	1-23/32	1.718750	43.6563	2-21/32	2.656250	67.4688		3.600000	91.4400
0.200000	5.0800		55/64	0.859375	21.8281		1.732283	44.0000		2.677165	68.0000		3.622047	92.0000
13/64	0.203125	5.1594		0.866142	22.0000	1-3/4	1.750000	44.4500	2-11/16	2.687500	68.2625	3-5/8	3.625000	92.0750
7/32	0.218750	5.5563	7/8	0.875000	22.2250		1.771653	45.0000		2.700000	68.5800		3.650000	92.7100
15/64	0.234375	5.9531	57/64	0.890625	22.6219	1-25/32	1.781250	45.2438		2.716535	69.0000	3-21/32	3.656250	92.8688
0.236220	6.0000			0.900000	22.8600		1.800000	45.7200	2-23/32	2.718750	69.0563		3.661417	93.0000
1/4	0.250000	6.3500		0.905512	23.0000		1.811024	46.0000	2-3/4	2.750000	69.8500	3-11/16	3.687500	93.6625
17/64	0.265625	6.7469	29/32	0.906250	23.0188	1-13/16	1.812500	46.0375		2.755906	70.0000		3.700000	93.9800
0.275591	7.0000		59/64	0.921875	23.4156	1-27/32	1.843750	46.8313	2-25/32	2.781250	70.6438		3.700787	94.0000
9/32	0.281250	7.1438	15/16	0.937500	23.8125		1.850000	46.9900		2.795276	71.0000	3-23/32	3.718750	94.4563
19/64	0.296875	7.5406		0.944882	24.0000		1.850394	47.0000		2.800000	71.1200		3.740158	95.0000
0.300000	7.6200			0.950000	24.1300	1-7/8	1.875000	47.6250	2-13/16	2.812500	71.4375	3-3/4	3.750000	95.2500
5/16	0.312500	7.9375	61/64	0.953125	24.2094		1.889764	48.0000		2.834646	72.0000		3.779528	96.0000
0.314961	8.0000		31/32	0.968750	24.6063		1.900000	48.2600	2-27/32	2.843750	72.2313	3-25/32	3.781250	96.0438
21/64	0.328125	8.3344		0.984252	25.0000	1-29/32	1.906250	48.4188		2.850000	72.3900		3.800000	96.5200
11/32	0.343750	8.7313	63/64	0.984375	25.0031		1.929134	49.0000		2.874016	73.0000	3-13/16	3.812500	96.8375
0.350000	8.8900		1	1.000000	25.4000	1-15/16	1.937500	49.2125	2-7/8	2.875000	73.0250		3.818898	97.0000
0.354331	9.0000			1.023622	26.0000		1.950000	49.5300		2.900000	73.6600	3-27/32	3.843750	97.6313
23/64	0.359375	9.1281	1-1/32	1.031250	26.1938		1.968504	50.0000	2-29/32	2.906250	73.8188		3.850000	97.7900
3/8	0.375000	9.5250		1.050000	26.6700	1-31/32	1.968750	50.0063		2.913386	74.0000		3.858268	98.0000
25/64	0.390625	9.9219	1-1/16	1.062500	26.9875	2	2.000000	50.8000	2-15/16	2.937500	74.6125	3-7/8	3.875000	98.4250
0.393701	10.0000			1.062993	27.0000		2.007874	51.0000		2.950000	74.9300		3.897638	99.0000
0.400000	10.1600		1-3/32	1.093750	27.7813	2-1/32	2.031250	51.5938		2.952756	75.0000		3.900000	99.0600
13/32	0.406250	10.3188		1.100000	27.9400		2.047244	52.0000	2-31/32	2.968750	75.4063	3-29/32	3.906250	99.2188
27/64	0.421875	10.7156		1.102363	28.0000		2.050000	52.0700		2.992126	76.0000		3.937008	100.0000
0.433071	11.0000		1-1/8	1.125000	28.5750	2-1/16	2.062500	52.3875	3	3.000000	76.2000	3-15/16	3.937500	100.0125
7/16	0.437500	11.1125		1.141733	29.0000		2.086614	53.0000	3-1/32	3.031250	76.9938		3.950000	100.3300
0.450000	11.4300			1.150000	29.2100	2-3/32	2.093750	53.1813		3.031496	77.0000	3-31/32	3.968750	100.8063
29/64	0.453125	11.5094	1-5/32	1.156250	29.3688		2.100000	53.3400		3.050000	77.4700		3.976378	101.0000
15/32	0.468750	11.9063		1.181102	30.0000	2-1/8	2.125000	53.9750	3-1/16	3.062500	77.7875	4	4.000000	101.6000
0.472441	12.0000		1-3/16	1.187500	30.1625		2.125984	54.0000		3.070866	78.0000			
31/64	0.484375	12.3031		1.200000	30.4800		2.150000	54.6100	3-3/32	3.093750	78.5813			



SEAL MATERIAL RECOMMENDATION CHART

Liquid	B	B	N	N	V	V	V	E
	C	C	C	C	C	C	C	C
	F	F	F	F	F	F	F	F
	J	R	J	R	J	R	J	R
	F	F	F	F	F	F	F	F
Carbon (continued)								
Monoxide							A	
Tetrachloride (anhydrous)					A			
Caustic								
Sodium Chloride	A	A			A	A	A	
Soda (sodium hydroxide)			A					
Chlorobenzene					A		A	
Chlorobromethane					A		A	
Chloroform					A		A	
Chloronaphthalene					A		A	
Chlorophenol					A		A	
Chlorotoluene					A			
Cocoa Butter	A	A			A	A	A	
Copper								
Carbonate					A		A	
Cyanide					A		A	
Nitrate			A		A		A	
Sulfate	A	A	A		A		A	
Creosote					A		A	
Cumene					A		A	
DDT Solutions								
Kerosene Solvent	A				A	A	A	
Toluene Solvent					A		A	
De-Butanizer Reflux	A	A			A	A	A	
De-Ethanizer Charge	A	A			A	A	A	
De-Propanizer Reflux	A	A			A	A	A	
Diamylamine	A							
Dibutyl Sebacate					A			
Dichlorobenzene					A		A	
Dichlorobutane					A		A	
Diesel Fuel	A	A			A	A	A	
Diethyl Benzene					A			
Diethylene Glycol	A	A	A	A	A	A	A	
Diethyl Amine	A							
Diethyl Phthalate							A	
Diphenyl Oxide					A		A	
Dish Water	A	A	A	A	A	A	A	A
Dow Corning Silicone					A		A	
Dowtherm "A"					A		A	
Ethane	A	A			A	A	A	
Ethanol (alcohol, ethyl)	A	A	A	A				
Ethyl								
Alcohol	A	A	A	A	A		A	
Benzene					A	A	A	
Benzoate					A		A	
Chloride					A		A	
Chlorocarbonate					A		A	
Formate					A		A	
Mercaptan					A		A	
Silicate					A		A	
Ethylene		A			A	A	A	
Ethylene Chloride or Di-Chlori	A				A			
Ethylene Glycol	A	A			A	A	A	

Liquid	B	B	N	N	V	V	V	E
	C	C	C	C	C	C	C	C
	F	F	F	F	F	F	F	F
	J	R	J	R	J	R	J	R
	F	F	F	F	F	F	F	F
Ferric								
Chloride							A	
Sulfate							A	
Formaldehyde - Formailin	A						A	A
Freon & Refrigeration Oil								
Freon 11							A	A
Freon 12	A	A					A	A
Freon 22							C	C
Freon 113	A	A	A	A				
Freon 114	A	A	A	A			A	A
Freon Liquid			A	A				
Fruit Juices	A	A	A	A	A	A	A	A
Gas Oil	A	A	A	A	A	A	A	A
Gasoline								
Aromatic							A	A
Auto Grades	A	A					A	A
Hi-test w/ Mercaptan & H2S							A	A
Glaubers Salt (sulfate solution)	A	A					A	A
Glucose	A	A	A	A	A	A	A	A
Glue	A	A	A	A	A	A	A	A
Glue Sizing	A	A	A	A	A	A	A	A
Glycerol (glycerine)	A	A	A	A	A	A	A	A
Grape Juice	A	A	A	A	A	A	A	A
Grease	A	A					A	A
Green Liquor							A	A
Hepthane	A	A					A	A
Hexane	A	A					A	A
Hydrogen Peroxide							A	A
Hydrogen Sulfide							A	C
Insecticides								
Aromatic							A	A
Non-aromatic	A	A					A	A
Iodine								
ISO								
Butane	A	A	A	A	A			A
Butyl Alcohol	A	A	A	A	A	A	A	A
Butylene	A	A					A	A
Butylene Glycol	A	A					A	A
Octane							A	A
Pentane	A	A					A	A
Propanol							A	A
Propyl-Alcohol	A	A	A	A	A	A	A	A
Propyl-Amine	A	A					A	A
Jet Fuel (JP)								
JP-3	A	A					A	A
JP-4	A	A					A	A
JP-5	A	A					A	A
JP-6	A	A					A	A
JPX	A	A					A	A
Kerosene	A	A						
Ketchup			A					
Lard	A	A	A	A	A	A	A	A
Lead Acetate								A

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SEAL MATERIAL RECOMMENDATION CHART

Liquid	B	B	N	N	V	V	V	E
	C	C	C	C	C	C	C	C
	F	F	F	F	F	F	F	F
	J	R	J	R	J	R	J	R
	F	F	F	F	F	F	F	F
Lead Nitrate	A		A					A
Liquid Petroleum Gas (LPG)	A	A			A	A	A	A
Lime Water	A	A	A	A	A	A	A	A
Lithium Bromide Brine	A	A			A	A	A	
Magnesium								
Hydroxide	A	A	A	A	A	A	A	A
Sulfate (epsom salts)	A	A	A	A	A	A	A	A
Maleic Anhydride					A			
Mayonnaise	A				A		A	
Mercury	A	A	A	A	A	A	A	
Mercury Salts	A	A	A	A	A	A	A	A
Methanol	A	A	A	A				A
Methyl								
Alcohol	A	A	A	A				A
Bromide					A			A
Chloride (dry)					A		A	
Dichloride					A	A		
Ethyl Ketone								A
Formate				A				
Milk	A		A		A		A	A
Milk of Lime					A		A	
MIL								
F-25558 (RJ-1)	A		A		A		A	
L-7808	A				A		A	
H-5605 (J43)	A		A		A		A	
H-5606 (HFA)	A		A		A		A	
O-8515			A		A		A	
O-8200 (HYDR)			A		A		A	
Mineral Spirits	A	A	A	A	A	A	A	
Mine Water					A	A	A	
Molasses	A	A	A	A	A	A	A	
Monochlorobenzene					A		A	
Monoethanolamine								A
Naphtha	A	A			A	A	A	
Naphtha Crude	A				A		A	
Naphthalene					A	A	A	
Nickel								
Chloride					A			
Sulfate	A		A		A			A
Nitro								
Benzene					A		A	
Ethane				A				A
Propane								A
Nitrogen Gas	A	A	A	A	A	A	A	A
Octyl Alcohol					A		A	
Oil								
w/ Ammonia		A		A				
Animal, bone	A	A	A	A	A	A	A	
Animal, cod	A	A	A	A	A	A	A	
Animal, menhaden	A	A			A	A	A	
Animal, neatsfoot	A	A	A	A	A	A	A	A
Animal, sperm	A	A	A	A	A	A	A	A
Animal, whale	A	A	A	A	A	A	A	A

Liquid	B	B	N	N	V	V	V	E
	C	C	C	C	C	C	C	C
	F	F	F	F	F	F	F	F
	J	R	J	R	J	R	J	R
	F	F	F	F	F	F	F	F
Oil (continued)								
Bunker C Fuel	C	C			A	A	A	
Creosote, sweet					A	A	A	
Crude, cold sweet	A				A	A	A	
Diesel	A	A			A	A	A	
Essential	A	A	A	A	A	A	A	A
Fuel #1	A	A	C	C	A	A	A	
Fuel #2	A	A	C	C	A	A	A	
Fuel #3	A	A	C	C	A	A	A	
Fuel #5A	A	A	C	C	A	A	A	
Fuel #5B	A	A	C	C	A	A	A	
Fuel #6	C	C			A	A	A	
Insulating	A				A	A	A	
Kerosene	A	A	C	C	A	A	A	
Linseed (raw)	A	A	C	C	A	A	A	
Lubricating #8	A	A	C	C	A	A	A	
Fed. Spec. #10	A	A	C	C	A	A	A	
Fed. Spec. #20	A	A	C	C	A	A	A	
Fed. Spec. #30	A	A	C	C	A	A	A	
Fed. Spec. #9110	A	A	C	C	A	A	A	
Fed. Spec. #9170	A	A	C	C	A	A	A	
Fed. Spec. #9250	A	A	C	C	A	A	A	
Fed. Spec. #9370	A	A	C	C	A	A	A	
Fed. Spec. # 9500	A	A	C	C	A	A	A	
Mineral SAE 10	A	A	C	C	A	A	A	
SAE 20 to 70	A	A	C	C	A	A	A	
Mineral SAE 90	A	A	C	C	A	A	A	
SAE 140	A	A	C	C	A	A	A	
SAE 250	A	A	C	C	A	A	A	
Federal Spec. #1	A	A	C	C	A	A	A	
Federal Spec. #2	A	A	C	C	A	A	A	
Navy Spec. Navy 11	A	A	C	C	A	A	A	
Pine	A	A			A	A	A	
Quenching	A	A	C	C	A	A	A	
Rich	A	A			A	A	A	
Turbine Lube	A	A	C	C	A	A	A	
Vegetable, Castor	A	A	C	C	A	A	A	A
Vegetable, China Wood	A	A	C	C	A	A	A	
Vegetable, Coconut	A	A	C	C	A	A	A	A
Vegetable, Corn	A	A	C	C	A	A	A	
Vegetable, Linseed (raw)	A	A	C	C	A	A	A	
Vegetable, Olive	A	A	C	C	A	A	A	C
Vegetable, Palm	A	A	C	C	A	A	A	C
Vegetable, Peanut	A	A	C	C	A	A	A	
Vegetable, Rape Seed	A	A	C	C	A	A	A	A
Vegetable, Sesame	A	A			A	A	A	
Vegetable, Soy Bean	A	A	C	C	A	A	A	
Olefin (crude)					A			
Oleums					A			
Oxygen (liquid)		C			A		A	
Paraffin (liquid)	A	A			A		A	
Pectin Liquor	A				A		A	
Penicillin (liquid)					A		A	

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SEAL MATERIAL RECOMMENDATION CHART

Liquid	B	B	N	N	V	V	V	E
	C	C	C	C	C	C	C	C
	F	F	F	F	F	F	F	F
	J	R	J	R	J	R	Z	J
	F	F	F	F	F	F	F	F
Pentane	A	A	A	A	A	A	A	
Perchlorethylene	A	A			A	A	A	
Petrolatum	A	A	C	C	A	A	A	
Petroleum Ether	A	A	C	C	A	A	A	
Phenol (carbolic acid)								C
Phosphoric Acid			C		C			
Phosphoric Trichloride (dry)	C						C	
Photographic Developers					A		A	
Phthalic Anhydride	C	C						
Poly Glycols	A	A	A	A	A	A	A	A
Potash Alum	A				A		A	
Potassium								
Bicarbonate	A							
Bichromate (aqueous)	A							
Bromide	A				A		A	
Carbonate (aqueous)	A	A	A	A	A	A	A	
Chlorate	A	A	A	A	A	A	A	
Carbonate (aqueous)	A	A	A	A	A	A	A	A
Cyanides	A	A	A	A	A	A	A	A
Dichromate	A	A	A	A	A	A	A	A
Hydroxide (<50%)	C		C					A
Hydroxide (>50%)	C		C					A
Nitrate (aqueous)	A		A		A		A	A
Persulfate					A		A	
Sulfate	A	A	A	A	A	A	A	A
Propane	A				A		A	
Propylene					A	A	A	
Propylene Glycol					A	A	A	
Raffinate	A							
Rosin	A	A						
Sal Ammonia (ammonium chl)	A	A	A	A	A	A	A	A
Salt Cake (sodium sulfate)	A	A	A	A	A	A	A	A
Salt Water, Sea Water	A	A	A	A	A	A	A	A
Sewage	A				A		A	A
Silicone Oils & Grease	A	A	A	A				A
Silver Nitrate (10%)					A	A		A
Skydrol 500 & 7000								A
Soap								
Liquors	A		C		A		A	A
Solutions	A		C		A		A	A
Soda Ash (cold)	A	A	A	A	A	A	A	A
Sodium Acetate								
Anhydrous	C	C	C	C				A
Aluminate	A	A			A	A	A	
Benzoate					C			
Bicarbonate (aqueous)	A	A	A	A	A	A	A	A
Bisulfate	A		A		A		A	A
Bisulfite	A		A		A		A	A
Borate (borox solution)	C	C			A	A	A	A
Carbonate (aqueous)	C	C	C	C	C	C	C	C
Chlorate					A		A	
Chloride Solution	A	A	A	A	A	A	A	A
Cyanide (aqueous)	A		A		A		A	A

Liquid	B	B	N	N	V	V	V	E
	C	C	C	C	C	C	C	C
	F	F	F	F	F	F	F	F
	J	R	J	R	J	R	Z	J
	F	F	F	F	F	F	F	F
Sodium Acetate (continued)								
Ferricyanide					A			
Hydrosulfite	C		A		A		A	A
Hydroxide (<50% @ 150° F)		A		A				A
Hypochlorite 20%	C				A			C
Iodide					A			
Metaphosphate	A				A		A	A
Metasilicate	A	A	A	A	A	A	A	A
Nitrate (aqueous)								A
Perborate	C	C	C	C	A	A	A	A
Peroxide Solution	C		C		A		A	A
Phosphate (aqueous)	A	A	C	C	A	A	A	A
Plumbite (aqueous)					A		A	
Silicate (aqueous)	A	A	A	A	A	A	A	A
Sulfate (aqueous)			C	C	A	A	A	C
Sulfide	A	A	A	A	A	A	A	A
Tetraborate	C	C			A	A	A	A
Thiosulfate	C				A		A	A
Solvasol 1, 2, 3	A	A	C	C	A	A	A	
Solvasol 73, 74	C	C	C	C	A	A	A	
Starch	A	A	A	A	A	A	A	A
Steam								A
Stoddard Solvent	A	A	C	C	A	A	A	
Sugar (aqueous)	A	A	C	C	A	A	A	A
Sulfur Chloride								
Dioxide (dry)					A	A	A	A
Dioxide (wet)			C	C	A	A	A	
Dioxide & Water			C	C	A	A	A	A
Trioxide (dry)					A	A		C
Trioxide (wet)					A	A		C
Sulphonated								
Fatty Alcohol	A	A			A	A	A	
Vegetable Oils	A	A			A	A	A	
Syrup (sucrose solution)	A		C		A		A	A
Tall Oil	C							
Tallow	A	A	A	A	A	A	A	C
Tanning Liquors	A	A	C	C	A	A	A	A
Tar & Ammonia (in water)	C	C			C	C	C	
Tar								
Pine	C	C	A	A				A
Bituminous	C	C			A	A	A	
Tetrachlorethane					A		C	
Tetrachloethylene					A		C	
Tetra Ethyl Lead	C		C		A		A	
Therminol					A	A	A	
Titanium Tetrachloride	C				A			
Toluene (toluol)					A	A	A	
Tomato Pulp	A	C			A	C	A	
Toxaphene					A			
Trichlorethane								
(Dry)					C		C	
(Wet)					C			

A. Acceptable C. Use with Caution Blank. Not recommended

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SEAL TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	REMEDY
1. Cracked or broken stationary seat (ceramic).	Seal ran dry and heated up. When liquid reached seal faces, it was cooler, causing thermal cracks.	Insure that seal chamber is full of liquid before starting pump. On high temperature application insure proper flushing at seal faces.
2. Grooved or scored stationary seat (metal).	Too much spring tension from rotary is exerting excessive pressure, forcing seal ring to groove seat.	Change spring to shorter operating height or remove excessive shims if possible.
3. Stationary seat (metal) welded to seal ring (carbon or metal).	Seal ran dry or ran at excessive temperature for long period, sufficient to bond materials with extreme heat.	Insure that seal chamber is full of liquid before starting pump and during operation.
4. Carbon washer scored and grooved.	Dirty system.	Have system cleaned and install filter or separator.
5. Buna bellows hard and brittle, rapid carbon wear.	Temperature too high.	Use Viton® elastomers, stainless steel, tungsten carbide, or silicon carbide seal rings and/or seats.
6. Short seal life in treated systems.	Treatment level and temperature higher than anticipated.	Advise HTS of pump temperature and PPM Treatment Level, for alternate seal replacement.
7. Carbon washer worn unevenly.	Seal improperly installed.	Check installation instructions for proper seal assembly.
8. Bellows fractured (minute crazing or splitting).	Intermittent use in critical applications or material incompatibility.	Consult HTS for suitable bellows for application.
9. Bellows soft and sticky; appears to be dissolving.	Bellows not compatible with material being pumped.	Consult HTS for recommendation advising pumpage and temperatures.
10. Retainer drive tabs badly worn or broken.	Vibration or coupling misalignment. Periodic loss of lubrication at seal faces.	Realign pump and motor. Insure proper flushing at seal faces.
11. Flexible bellows broken.	Coupling misalignment.	Realign pump and motor.
12. Seal wears out shaft.	Check bearings for shaft end play. Check bearings for shaft radial movement. Check shaft straightness.	Replace bearings. Replace shaft.

Buna-N is the standard elastomer for bellows, cups and O-rings. Viton® Neoprene and EPDM are available for services where Buna-N is not compatible with the fluids or temperatures encountered.

Seal heads are normally stocked in 304 or 316 stainless steel. Monel and other special metals can be supplied for use where standard stainless is incompatible with the fluids being handled.

Seats are available in Ceramic, 316 stainless steel, Tungsten Carbide, and Silicon Carbide.



INSTALLATION INSTRUCTIONS FOR HTS REPLACEMENT SEAL ASSEMBLIES

1. Disassemble pump cavity to expose defective seal. Assembly of new seal requires precaution.
2. Carefully remove old seal head and seat, taking care to *not* scratch shaft or seat counterbore.
Note how old seal is assembled to be sure replacement seal is installed in identical manner.
3. Clean shaft and counterbore surfaces using fine emery cloth or equivalent. Remove rust, burrs, and wipe clean.
4. Shaft, seat counterbore and rubber members of seal should be lubricated with a light oil. Check seal mating faces to be sure that they are free of any dirt, grit, grease or oil.
Note: Never use grease or heavy oil for installation lubricant. Any oil or grease on seal faces may cause the seal to leak.
5. Press seal seat firmly into counterbore to be sure it is bottomed square. O-Ring type stationary seats may be lapped on one side only. The unlapped side must fit into the counterbore with the lapped side exposed to mate with the rotary seal ring.
Caution: Lapped and polished faces of new seats are easily scratched and damaged.
6. Slide seal head along shaft, making sure that the spring is correctly engaged into seal head.

IMPORTANT

It is the buyers and users obligation to read the HTS warranty and the HTS Statement of Policy regarding the use of HTS mechanical seals.

1. Part numbers and brand names are used for identification purposes only.
2. Materials used in construction of the HTS standard product line shown in this catalog are intended for regular and usual standard applications that are compatible with said materials.
3. Spring operating heights shown in the dimensional progression chart are average heights and may vary from a minimum to a maximum range depending on spring used and application of use. It is the users final responsibility to match correct spring tension, load, etc. to the application.

WARRANTY

HTS warrants that the materials and workmanship of our products will provide satisfactory service only if the buyer has selected the correct materials and the end user makes a proper installation. As it is beyond our means to assure the correct selection of material or correct installation, we assume no responsibility for any damage after our products have been out into service. HTS warrants this product to be free from defects in workmanship and material for a period of one year from date of purchase. HTS makes no other warranty, express or implied, and specifically **no warranty of merchantability or fitness for a particular purpose.** Any of our products found to be defective prior to being used will be replaced at no charge, or the purchase price refunded at our option. This shall be our maximum liability. HTS liability on any claim for loss or damage arising out of the sale, resale, or use of any of its products shall in no event exceed the selling price of the product which gave rise to claim. **In no event will HTS be liable for consequential or special damages.** The sale of HTS products under any other warranty or guarantee, express or implied, is not authorized by Hi-Tech Seals Inc.



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