

VINTAGE PARTS MARKETING

PRODUCT LINE:	DSJH
HERITAGE COMPANY:	Byron Jackson
CONFIGURATION:	BB2 - Double Suction, Between Bearings
TYPICAL APPLICATION:	Refinery
VINTAGE:	1978 - 1990
PRODUCT LIFESPAN:	API 610, 6th – 7th edition
SUBJECT:	Engineering Information

The DSJH was the between bearing, double suction API process pump. The between bearing design was new for the 6th edition. API also allowed the overhung, double suction design with customer approval. This is the model DSJA. Technical information for both is included in this section.

NOTE: This information is intended for the use of Flowserve Employees. The information provided is based on standard catalogue / price book information. Details for specific units or serial numbers may be different as a result of non-standard construction, and parts, repairs and upgrades provided by Flowserve or third parties.



DOUBLE SUCTION PROCESS PUMPS — TYPE — DSJH
Double Bearing Construction
Price List —DSJH Product Code 40-23
CHARLOTTE MANUFACTURE

Base list price includes Pump, Spacer Coupling, Byron Jackson Standard Coupling Guard, Fabricated Steel Drain Rim Baseplate and Basic Performance Test (add for Certified Data, NPSH and Witness). Mechanical Seal not included. See notes below.

Material Combination and Metallurgical Classifications

API	S-1	N/A	S-6	C-6
NAME OF PART	CLASS B	CLASS B-1	CLASS B-3	CLASS C (7)
Case and Cover	Cast Steel	Cast Steel	Cast Steel	12% Chrome
Bolting	4140 H.T.	4140 H.T.	4140 H.T.	4140 H.T.
Impeller	Cast Iron	Cast Iron	12% Chrome	12% Chrome
Imp. Wear Rings	Cast Iron	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.
Case Wear Rings	Cast Iron	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.
Shaft	4140 H.	4140 H.T.	4140 H.T.	12% Chrome
Impeller Nut	12% Chrome	12% Chrome	12% Chrome	12% Chrome
Spacer Sleeve	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.
Shaft Sleeve (Packed)	12% Chr. H.T.	12% Chr. H.T.	T.C. 3 over 12% Chr.	T.C. 3 over 12% Chr.
Shaft Sleeve (Mech. Seal)	18-8 S.S.	18-8 S.S.	18-8 S.S.	18-8 S.S.
Gland	L.C.S. Brz. Bush.	L.C.S. Brz. Bush.	L.C.S. Brz. Bush.	L.C.S. Brz. Bush.
Cage Ring	Cast Iron	12% Chrome	12% Chrome	12% Chrome
Throat Bushing	Cast Iron	12% Chrome	12% Chrome	12% Chrome

DSJH — DOUBLE BEARING CONSTRUCTION

PUMP SIZE	CLASS B	CLASS B-1	CLASS B-3	CLASS C	BALL & SLEEVE BEARING ADD	WEIGHTS	
4 x 6 x 10½	\$22,650.00	\$23,150.00	\$23,800.00	\$35,050.00	\$3950.00	2300#	
4 x 6 x 13¼ L	24,000.00	24,500.00	25,650.00	37,750.00		2550	
4 x 6 x 13¼ H	24,650.00	25,150.00	26,272.00	38,200.00		2550	
4 x 6 x 19 (1)	44,400.00	44,500.00	44,500.00	59,500.00		4320	
6 x 8 x 11 LL	23,800.00	24,300.00	25,400.00	43,300.00		2750	
6 x 8 x 11 L	23,800.00	24,300.00	25,400.00	43,300.00		2860	
6 x 8 x 11 H	23,800.00	24,300.00	25,400.00	43,300.00		2860	
6 x 8 x 11 HH	23,900.00	24,400.00	25,500.00	43,700.00		3250	
6 x 8 x 13½ H	38,650.00	39,100.00	39,100.00	47,900.00		4880	
6 x 10 x 19	45,900.00	46,600.00	48,550.00	71,800.00		3600	
8 x 10 x 19	41,350.00	42,000.00	44,100.00	54,400.00	3300		
8 x 10 x 15 L-M (1)	31,900.00	32,750.00	32,750.00	58,300.00	3390		
8 x 10 x 15 H (1)	32,000.00	32,800.00	32,800.00	58,550.00	\$5720.00	6000	
8 x 10 x 18 LL-H (1)	54,600.00	55,250.00	58,300.00	74,600.00		5900	
10 x 12 x 15 L-H (1)	56,350.00	57,750.00	59,950.00	75,000.00		6200	
10 x 14 x 20 L-H	69,750.00	71,500.00	76,150.00	105,000.00		8750	
12 x 16 x 22	78,950.00	80,400.00	86,800.00	122,250.00		9500	
12 x 16 x 23 L-H	83,700.00	85,200.00	92,500.00	126,750.00		CONTACT FACTORY	12500
12 x 16 x 26 L (1)	100,600.00	102,800.00	106,100.00	151,300.00			
16 x 20 x 34 (1)							

- NOTES:** (1.) L.C. steel impellers in Class B, and B-1 for sizes noted.
 2. Basic design on all double bearing units is ball radial, ball thrust, ring oil lubed, packaged stuffingbox.
 3. For pricing on pivot shoe bearing construction, consult Factory.
 4. For deleting baseplate deduct 7½% of Class B price, and for deleting coupling deduct 2½% of Class B price.
 5. For test and design modifications, refer to 1-200-C.
 6. Contact Mechanical Seal Suppliers for seal information. Add 25% to price from seal supplier.
 (7.) Standard Class C Metallurgy for Case, Cover and Impeller is ASTM-A-743 GR CA6NM (13-4 Chr.). ASTM-A-743, GR CA15 (11-13 Chr.) can be supplied for a price extra.
 8. Pricing for all Central Station Power Plant applications must be obtained from Factory. NO EXCEPTIONS.

DOUBLE SUCTION PROCESS PUMPS — TYPE DSJA OVERHUNG CONSTRUCTION

(The overhung construction does not comply with the requirements of API 610, sixth edition; however, this design is still available if the customer so specifies.)

Price List — DSJA Product Code 40-24 CHARLOTTE MANUFACTURE

Base list price includes Pump, Spacer Coupling, Byron Jackson Standard Coupling Guard, Fabricated Steel Drain Rim Baseplate and Basic Performance Test (add for Certified Data, NPSH and witness). Packing or Mechanical Seal not included. See notes below.

Material Combination and Metallurgical Classifications

API	S-1	N/A	S-6	C-6
NAME OF PART	CLASS B	CLASS B-1	CLASS B-3	CLASS C(4)
Case and Cover	Cast Steel	Cast Steel	Cast Steel	12% Chrome
Bolting	4140 H.T.	4140 H.T.	4140 H.T.	4140 H.T.
Impellers	Cast Iron	Cast Iron	12% Chrome	12% Chrome
Imp. Wear Rings	Cast Iron	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.
Case Wear Rings	Cast Iron	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.
Shaft	4140 H.T.	4140 H.T.	4140 H.T.	12% Chrome
Impeller Nut	12% Chrome	12% Chrome	12% Chrome	12% Chrome
Spacer Sleeve	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.	12% Chr. H.T.
Shaft Sleeve (Packed)	12% Chr. H.T.	12% Chr. H.T.	T.C. 3 over 12% Chr.	T.C. 3 over 12% Chr.
Shaft Sleeve (Mech. Seal)	12% Chrome	12% Chrome	12% Chrome	12% Chrome
Gland	LCS Brz. Bush.	LCS Brz. Bush.	LCS Brz. Bush.	LCS Brz. Bush.
Cage Ring	Cast Iron	12% Chrome	12% Chrome	12% Chrome
Throat Bushing	Cast Iron	12% Chrome	12% Chrome	12% Chrome

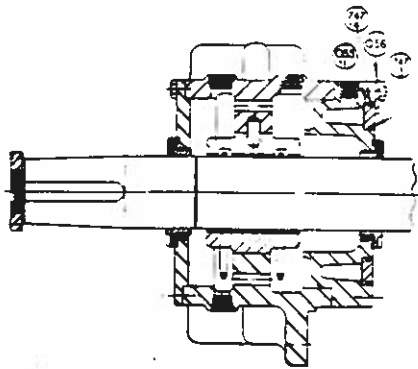
PUMP SIZE	CLASS B	CLASS B-1	CLASS B-3	CLASS C	WEIGHTS
4 x 6 x 10½	\$18,450.00	\$18,850.00	\$19,500.00	REFER TO FACTORY FOR PRICING	1750#
4 x 6 x 13¼ L	20,300.00	20,650.00	21,350.00		2000
4 x 6 x 13¼ H	20,300.00	20,650.00	21,350.00		2000
6 x 8 x 11 LL	22,100.00	22,450.00	23,200.00		2200
6 x 8 x 11 L	22,100.00	22,450.00	23,200.00		2300
6 x 8 x 11 H	22,300.00	22,650.00	23,400.00		2300
6 x 8 x 13½ H	24,850.00	25,350.00	26,750.00		2600
6 x 10 x 18	32,700.00	32,900.00	34,400.00		3500
6 x 10 x 19	35,850.00	36,200.00	37,700.00		3900

- NOTES:**
- (1) For deleting baseplate deduct 7½% of Class B price, and for deleting coupling deduct 2½% of Class B price.
 - (2) Refer to 1-200-C for test and design modifications.
 - (3) See Price Book Page 1-200-M for Mechanical Seal and Packing information.
 - (4) Standard Class C Metallurgy for Case, Cover and Impeller is ASTM-A-743 GR CA6NM (13-4 Chr.). ASTM-A-743 GR CA15 (11-13 Chr.) can be supplied for a price extra.
 - (5) Pricing for all Central Station Power Plant applications must be obtained from Factory. NO EXCEPTIONS.

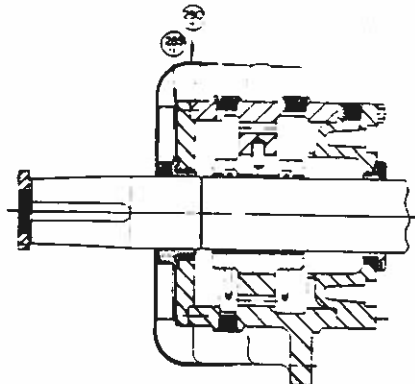
All prices are F.O.B. factory. Add 5% of Class B price for export boxing and documentation and add 10% to weight.

All prices subject to change without notice.

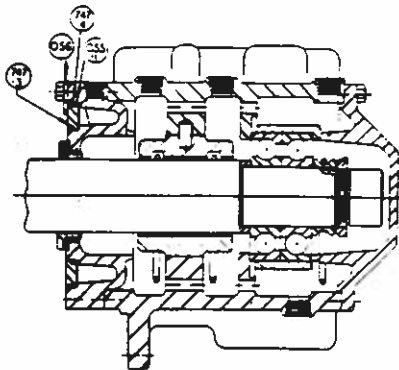
DOUBLE SUCTION PROCESS PUMPS—TYPE DSJH
Optional Bearing Construction



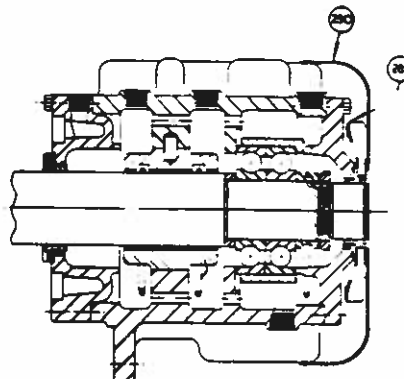
TYPICAL WATER COOLED BEARING
RADIAL END



TYPICAL FAN COOLED BEARING
RADIAL END



TYPICAL WATER COOLED BEARING
THRUST END

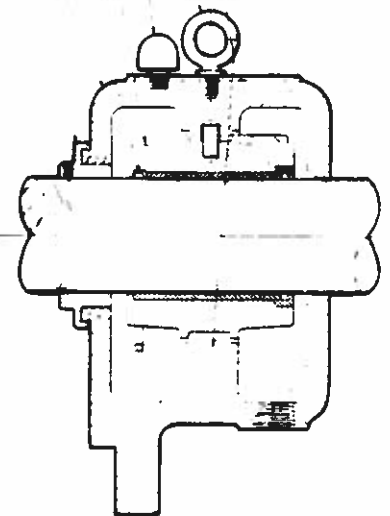
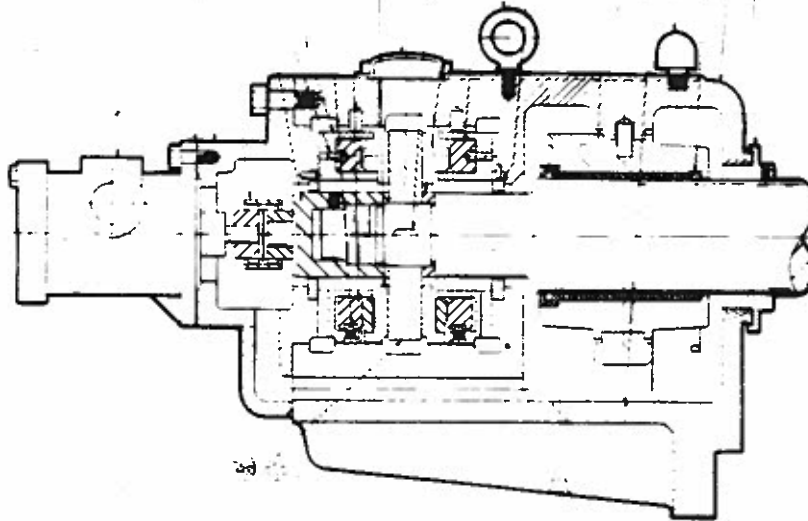


TYPICAL FAN COOLED BEARING
THRUST END

Ref. No.	NAME OF PART
055-1	Bracket, Water Jacket Enclosure
056	Retaining Ring—Water Jacket Enclosure
289	Fan—Thrust End
289-1	Fan—Radial End
290	Fan Housing—Thrust End
290-1	Fan Housing—Radial End
747-3	O-Ring—Bracket Closure I.D.
747-4	O-Ring—Bracket Closure O.D.

**SLEEVE RADIAL
BALL THRUST**

Drawing 1F-8225



Ref. No.	NAME OF PART	Qty.	Ref. No.	NAME OF PART	Qty.	Ref. No.	NAME OF PART	Qty.
241	Deflector	2	294	Vent	2	653-2	Leveling Plate Screw	12
249	Oil Pump Drive	1	295	Eye Bolt	2	553-1	Housing Rivet	12
257	Shaft Locating Ring	1	310	O. Ring	2	656	Oil Seal	2
287	Housing - Radial Brg. - Upper	1	651	O. Pump	1	658	Thrust Disc	1
287-1	Housing - Radial Brg. - Lower	1	651-1	O. Pump Cdg. Assem.	1	659	Thrust Shoe & Button	12
288	Housing - Thrust Brg. - Upper	1	651-2	O. Pump Bracket	1	662	Thermometer	2
288-1	Housing - Thrust Brg. - Lower	1	652	Housing Ring	2	676-5	Key - Thrust	1
291	Bearing Shell - In Halves	2	653	Leveling Plate	2	746-5	Gasket - O. Pump Bracket	1
293	Oil Sight Cover	1	553-1	Recker Plate	12	746-8	Gasket - Cover	1

**SLEEVE RADIAL
PIVOT SHOE THRUST**

Drawing 1E-2421

DOUBLE SUCTION PROCESS PUMPS – TYPE DSJA

Technical Data

PUMP SIZE	SIZE BRACKET	MINIMUM CASE THICKNESS	RETIRING THICKNESS	NOMINAL IMPELLER WEAR RING DIAMETER	API-WR CLEARANCE	MAXIMUM BHP 3550 RPM	SHAFT DEFLECTION	WR ² LB-FT ² IMPELLER	MAXIMUM PARTICLE SIZE
4 x 6 x 10½	11	0.68	0.25	6.62	0.018	350	.004	3.43	0.37
4 x 6 x 13¼L	11	0.68	0.31	7.12	0.019	350	.0058	7.21	0.37
4 x 6 x 13¼H	11	0.68	0.31	7.12	0.019	350	.0058	8.15	0.37
6 x 8 x 11LL	11	0.68	0.25	7.12	0.019	350	.006	4.40	0.37
6 x 8 x 11L	11	0.68	0.25	7.12	0.019	350	.006	4.40	0.37
6 x 8 x 11H	11	0.68	0.25	7.12	0.019	350	.006	3.56	0.50
6 x 8 x 11HH	11	0.68	0.25	7.12	0.019	350	.006	3.56	0.50
6 x 8 x 13H	14	0.68	0.31	7.12	0.019	350	.0077	8.41	0.62
6 x 10 x 18	14	0.68	0.37	9.0	0.021	500*	.0036	28.82	0.75
6 x 10 x 19	14	0.68	0.43	9.0	0.021	500*	.0052	38.88	0.87

NOTES:

1. SUCTION AND DISCHARGE FLANGES COMPLY WITH ANSI B16.5.
2. STANDARD HYDROTEST IS 1000 PSI.
3. CASE THICKNESS MINUS RETIRING THICKNESS EQUALS CORROSION ALLOWANCE.
4. MAXIMUM WORKING TEMPERATURE 750°F.
5. WR² VALUE IS FOR WET IMPELLER.
- *6. MAXIMUM BHP @ 1750 RPM.
7. SHAFT DEFLECTION is at closed valve and SP. GR. 1.0.
For reduced impeller dia. deflection is reduced by $-\left(\frac{D^2}{D^2}\right)^2 \times \text{SP. GR.}$



DOUBLE SUCTION PROCESS PUMPS — TYPE DSJA
Technical Data

TABULATION SHOWING PROCESS PUMPS 11 AND 14 BEARING BRACKET

COMPONENT	BEARING BRACKET SIZE	
	11	14
Thrust Bearing: △△ Duplex (Std.)	ND 30311-DT	ND 30314-DT
Radial Bearing: △ Single Row (Std.) △△ Double Row	ND 3212-LR ND 5212	ND 3215-LR ND 5215
Shaft Diameter at: Coupling Thrust Bearing Radial Bearing Between Bearings Under Sleeve Impeller	1.875 2.165 2.362 2.68 2.125 1.875	2.625 2.756 2.953 3.37 2.937 2.625
Coupling Keyway Impeller Keyway	1/2 x 1/4 3/8 x 3/8	5/8 x 5/8 3/8 x 3/8
Distance Between: Bearings Bearing to Imp. C (SJA)	6.87 11.00	8.00 12.25
Bracket Fill Size Bracket Drain Size Bracket Oil Capacity Lubricator Standard Bracket Closure Bracket Weight — Assembled Oil Type Packing Size Number of Rings	0.87 1/2 NPT 1000 cc Trico 4 oz. Labyrinth 150 lbs. SAE 10 Wt. 2 1/2 x 3 1/2 OD 6	0.87 1/2 NPT 1750 cc Trico 4 oz. Labyrinth 270 lbs. SAE 10 Wt. 3 3/8 x 4 3/8 OD 6

All dimensions are in inches unless specified.
*Bearings may be interchanged with the following manufacturers: MRC, SKF, and FAFNER.

MANUF.	11		14	
	RADIAL	THRUST	RADIAL	THRUST
△ MRC	212 S	7311 P DU	215 S	7314 P DU
SKF	6212 C3	7311 BG	6215 C3	7314 BG
FAFNER	P212 K	7311 SU	P215 K	7314 SU
△△ MRC	5212 K	7311 P DU	5215 K	7314 P DU
SKF	5212	7311 BG	5215	7314 BG
FAFNER	5212 K	7311 SU	5215 K	7314 SU

DOUBLE SUCTION PROCESS PUMPS – TYPE DSJA
Technical Data

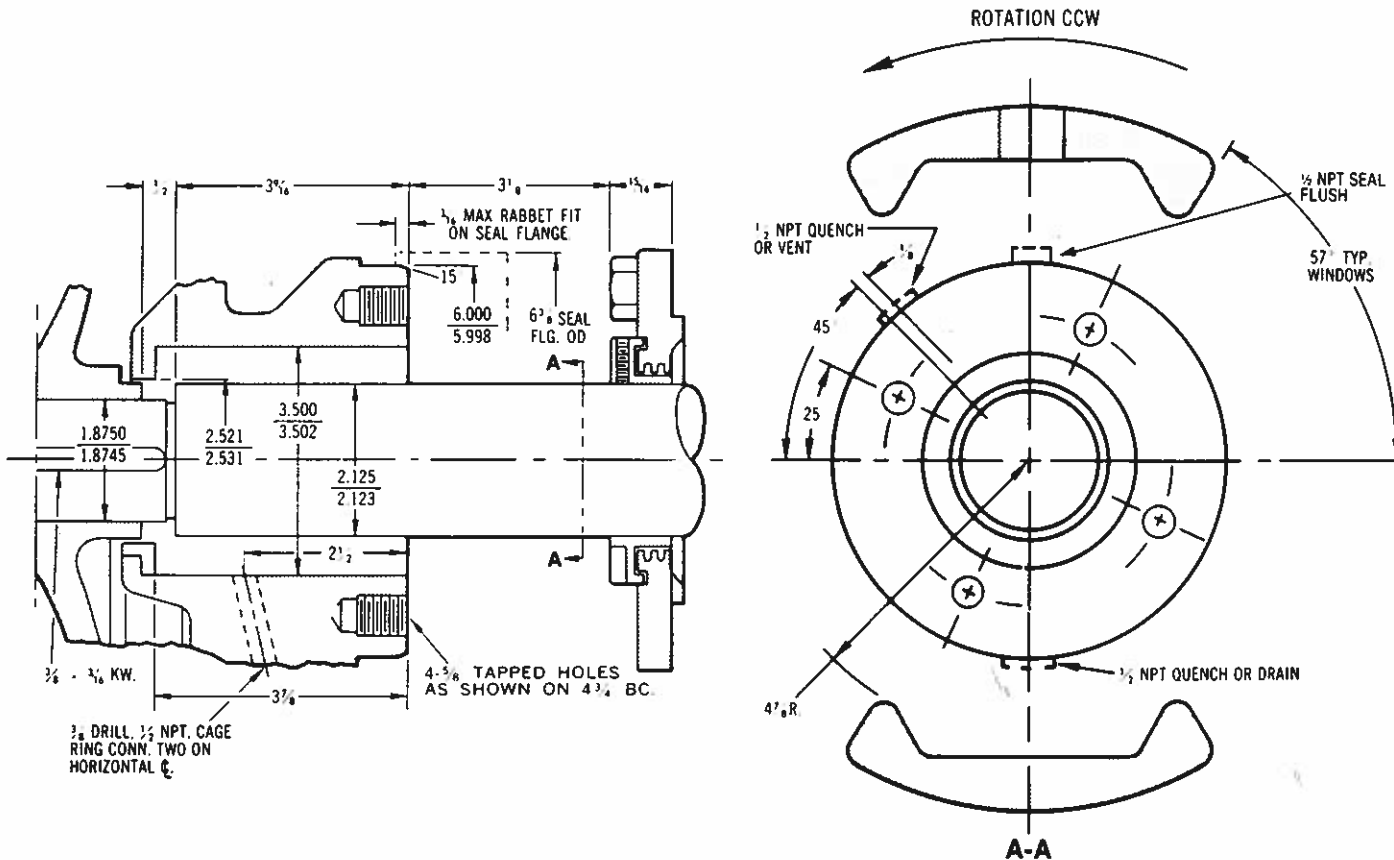
Tabulation Showing Process Pumps Using SJA-11 Bearing Bracket

BRACKET APPLIES TO PUMP SIZES

DSJA PROCESS PUMPS					
4x6x10½	DSJA	4x6x13¼	DSJA	6x8x11	DSJA

STUFFINGBOX DATA

No dimensional changes without review and approval of factory engineering.



The following Seals are available for standard pumps. Contact Seal Supplier for correct application, pressure, temperature limits and materials.

Drawing 1B-3576

MANUFACTURER	BALANCED		BELLOWS		TANDEM	
	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE
BORG-WARNER	U, UZ, QB	2500	BR, BRL BX	2750/ 2375	QB/Q	2500/2250
JOHN CRANE	IB, 8BI, 9B	2½	15	2½	9BT/9	2½/2¾
DURASEAL	PT, PTO, PO-D	2.500	NOT AVAILABLE		PT/PRO PTO/PRO	2.500/2.250
SEALOL	NOT AVAILABLE		605BK	2.375	NOT AVAILABLE	

DOUBLE SUCTION PROCESS PUMPS — TYPE DSJA

Technical Data

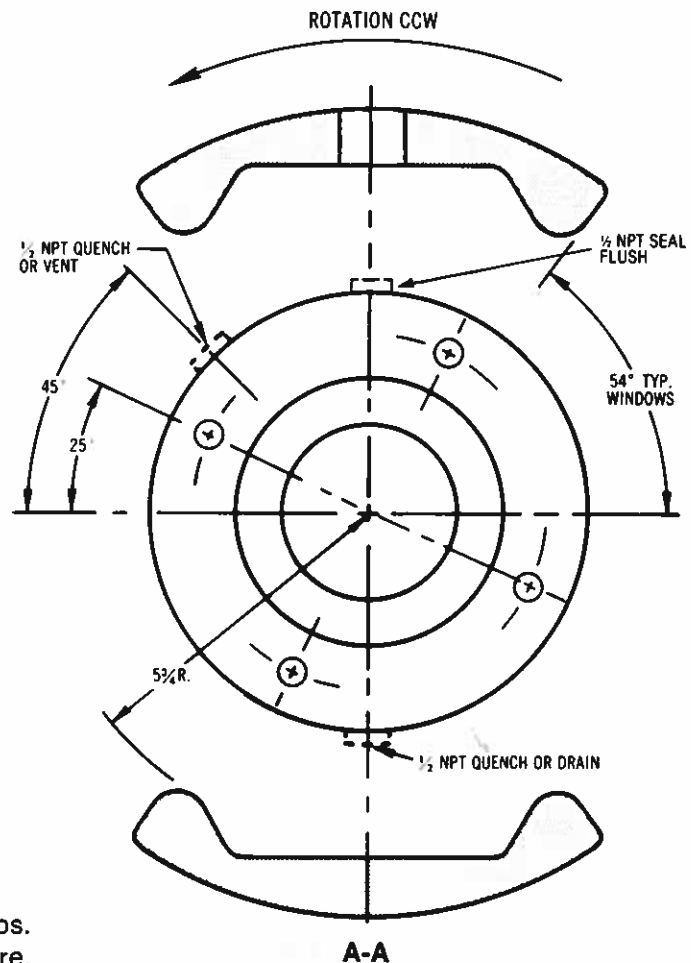
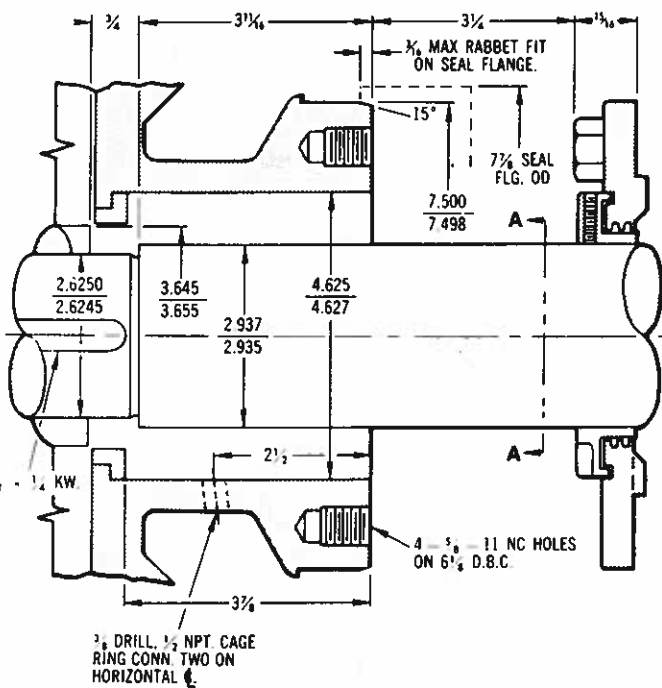
Tabulation Showing Process Pumps Using SJA-14 Bearing Bracket

BRACKET APPLIES TO PUMP SIZES

DSJA PROCESS PUMPS			
6x8x13½	DSJA	6x10x19	DSJA
6x10x18	DSJA		

STUFFINGBOX DATA

No dimensional changes without review and approval of factory engineering.



The following Seals are available for standard pumps. Contact Seal Supplier for correct application, pressure, temperature limits and materials.

Drawing 1B-3577

MANUFACTURER	BALANCED		BELLOWS		TANDEM	
	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE
BORG-WARNER	U, QB	3375	BR, BRL BX	3750	QB/Q	3375/3125
JOHN CRANE	1B, 8B1, 9B	3 3/8	15	3 1/8	9B/9	3 3/8 / 3 1/8
DURASEAL	PT, PTO, PO-D	3.500	NOT AVAILABLE		PT/PTO PTO/PTO	3.500/3.250
SEALOL	NOT AVAILABLE		605BK	3.375	NOT AVAILABLE	



DOUBLE SUCTION PROCESS PUMPS - TYPE DSJH

Technical Data

PUMP SIZE	BEARING SIZE	MINIMUM CASE THICKNESS	RETRING THICKNESS	NOMINAL WEAR RING DIA.		WEAR RING CLEARANCE		MAXIMUM BHP @ 3550 RPM	SHAFT DEFLECTION	WR LB-FT ² IMPELLER	MAXIMUM PARTICLE SIZE
				C.C.W./RAD.	C.W./THRUST	C.C.W./RAD.	C.W./THRUST				
4 x 6 x 10½	2 1/8	.69	.48	6.750	6.625	.018/.025	.018/.025	550	.0017	2.92	.25
4 x 6 x 13¼ L	2 1/8	.75	.53	7.250	7.125	.019/.026	.019/.026	550	.0020	6.97	.25
4 x 6 x 13¼ H	2 1/8	.75	.53	7.250	7.125	.019/.026	.019/.026	550	.0024	7.25	.25
6 x 8 x 11 LL	2 1/8	.87	.61	7.250	7.125	.019/.026	.019/.026	550	.0039	2.76	.25
6 x 8 x 11 L	2 1/8	.87	.61	7.250	7.125	.019/.026	.019/.026	550	.0052	3.80	.25
6 x 8 x 11 H	2 1/8	.87	.61	7.250	7.125	.019/.026	.019/.026	550	.0052	3.59	.38
6 x 8 x 11 HH	2 1/8	.87	.61	7.250	7.125	.019/.026	.019/.026	550	.0058	3.59	.38
6 x 8 x 13½ H	2 1/8	.69	.48	7.250	7.125	.019/.026	.019/.026	550	.0034	7.75	.50
6 x 10 x 19	2 1/2	.69	.48	9.000	8.875	.021/.028	.021/.028	900	.0037	32.1	.75
8 x 10 x 13	2 1/2	.62	.44	9.000	8.875	.021/.028	.021/.028	900	.0100	13.8	.75
8 x 10 x 15 L	2 1/2	.62	.44	7.625	7.500	.021/.028	.021/.028	900	.0028	10.2	.50
8 x 10 x 15 M	2 1/2	.62	.44	7.625	7.500	.021/.028	.021/.028	900	.0042	15.6	.75
8 x 10 x 15 H	2 1/2	.62	.44	9.000	8.875	.021/.028	.021/.028	900	.0051	13.5	.75
8 x 10 x 18 LL	3	.75	.53	9.000	8.875	.021/.028	.021/.028	1500	.0061	48.6	.50
8 x 10 x 18 H	3	.75	.53	9.000	8.875	.021/.028	.021/.028	1500	.0045	38.4	.38
10 x 12 x 15 L	3 3/8	.75	.53	10.000	9.875	.021/.028	.021/.028	2000	.0097	30.7	1.00
10 x 12 x 15 H	3 3/8	.75	.53	10.000	9.875	.021/.028	.021/.028	2000	.0103	33.6	.50
10 x 14 x 20 L	3 3/8	.75	.53	12.625	12.500	.024/.031	.024/.031	1000 *	.0076	85.1	.75
10 x 14 x 20 H	3 3/8	.75	.53	12.625	12.500	.024/.031	.024/.031	1000 *	.0093	30.4	1.00
12 x 16 x 22	3 3/8	.87	.61	14.000	13.875	.025/.032	.025/.032	1000 *	.0097	146	1.00
12 x 16 x 23 L	3 3/8	.87	.61	12.625	12.500	.024/.031	.024/.031	1000 *	.0084	163	1.00
12 x 16 x 23 H	3 3/8	.87	.61	14.000	13.875	.025/.032	.025/.032	1000 *	.0118	195	1.00

* RPM - 1770

NOTES:

1. SUCTION AND DISCHARGE FLANGES COMPLY WITH ANSI B16.5
2. STANDARD HYDROTEST IS 1000 PSI.
3. CASE THICKNESS MINUS RETRING THICKNESS EQUALS CORROSION ALLOWANCE.
4. MAXIMUM WORKING TEMPERATURE 750°F.
5. WR2 VALUE IS FOR WET IMPELLER.
- *6. MAXIMUM BHP @ 1750 RPM.
7. SHAFT DEFLECTION is at closed valve and SP. GR. 1.0.

For reduced impeller dia. deflection is reduced by = $\left(\frac{D_2}{D_1}\right)^2 \times SP. GR.$



DOUBLE SUCTION PROCESS PUMPS – TYPE DSJH

TECHNICAL DATA – BALL & BALL

COMPONENTS	PUMP SIZE			
	6 x 8 x 13½ H 4 x 6 x 10½ 4 x 6 x 13¼ L, H 6 x 8 x 11 LL, L 6 x 8 x 11 H, HH	6 x 10 x 19 8 x 10 x 13 8 x 10 x 15 L, M, H	8 x 10 x 18 LL, H	10 x 12 x 15 L, H 10 x 14 x 20 L, H 12 x 16 x 22 12 x 16 x 23 L, H
Thrust Bearing: Duplex	7311	7311	7314	7314
Radial Bearing Single Row (Std)	213-S	213-S	6217	6217
Shaft Diameter at:				
Coupling	2.13	2.50	3.00	3.31
Thrust Bearing	2.17	2.17	2.75	2.75
Radial Bearing	2.13	2.56	3.00	3.31
Under Shaft Sleeve	2.19	2.63	3.13	3.38
Impeller	2.38	2.75	3.25	3.75
Coupling Keyway	1/2 x 1/4	5/8 x 5/16	5/8 x 5/16	7/8 x 7/16
Impeller Keyway	1/2 x 1/4	1/2 x 1/4	3/4 x 3/8	5/8 x 5/16
Distance between Bearings	33.75	39.5	43.48	48.75
Bracket Fill Size	3/4 NPT	3/4 NPT	3/4 NPT	3/4 NPT
Bracket Drain Size	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT
Bracket Oil Capacity	.45 Qt. Per Brg. .9 Qt. Total	.45 Qt. Per Brg. .9 Qt. Total	.9 Qt. Per Brg. 1.8 Qt. Total	.9 Qt. Per Brg. 1.8 Qt. Total
Lubricator Standard	Trico 4 oz.	Trico 4 oz.	Trico 4 oz.	Trico 4 oz.
Bracket Closure	Labyrinth	Labyrinth	Labyrinth	Labyrinth
Oil Type	SAE 10 wt.	SAE 10 wt.	SAE 10 wt.	SAE 10 wt.
Packing Size	3 x 4 OD	3½ x 4½ OD	3¾ x 5 OD	4 x 5¼ OD
Number of Rings	6	6	6	6

All dimensions are in inches unless specified.

DOUBLE SUCTION PROCESS PUMPS – TYPE DSJH

TECHNICAL DATA – BALL & SLEEVE

COMPONENTS	PUMP SIZE			
	4 x 6 x 10½ 4 x 6 x 13¼ L, H 6 x 8 x 11 LL, L 6 x 8 x 11 H, HH 6 x 8 x 13½ H	6 x 10 x 19 8 x 10 x 13 8 x 10 x 15	8 x 10 x 18 LL, H	10 x 12 x 15 L, H 10 x 14 x 20 L, H 12 x 16 x 22 12 x 16 x 23 L, H
Thrust Bearing: Duplex	7311	7311	7314	7314
Radial Bearings Bore	2.17	2.50	3.00	3.31
Shaft Diameter at:				
Coupling	2.13	2.50	3.00	3.31
Thrust Bearing	2.17	2.17	2.75	2.75
Radial Bearing	2.17	2.50	3.00	3.31
Under Sleeve	2.19	2.63	3.13	3.38
Impeller	2.38	2.75	3.25	3.75
Coupling Keyway	1/2 x 1/4	5/8 x 5/16	5/8 x 5/16	7/8 x 7/16
Impeller Keyway	1/2 x 1/4	1/2 x 1/4	3/4 x 3/8	5/8 x 5/16
Distance between Bearings (Center to Center)	35.31	41.0	45.75	51.50
Bracket Fill Size	3/4 NPT	3/4 NPT	3/4 NPT	3/4 NPT
Bracket Drain Size	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT
Bracket Oil Capacity	.5 Qt. - Radial Brg. 1.1 Qt. - Thrust Brg. 1.6 Qt. - Total	.5 Qt. - Radial Brg. 1.1 Qt. - Thrust Brg. 1.6 Qt. - Total	.9 Qt. - Radial Brg. 1.3 Qt. - Thrust Brg. 2.2 Qt. - Total	.9 Qt. - Radial Brg. 1.3 Qt. - Thrust Brg. 2.2 Qt. - Total
Lubricator Standard	Trico 4 oz.	Trico 4 oz.	Trico 4 oz.	Trico 4 oz.
Bracket Closure	Labyrinth	Labyrinth	Labyrinth	Labyrinth
Oil Type	SAE 10 wt.	SAE 10 wt.	SAE 10 wt.	SAE 10 wt.
Packing Size	3 x 4 OD	3½ x 4½ OD	3¾ x 5 OD	4 x 5¼ OD
Number of Rings	6	6	6	6

All dimensions are in inches unless specified.

DOUBLE SUCTION PROCESS PUMPS — TYPE DSJH

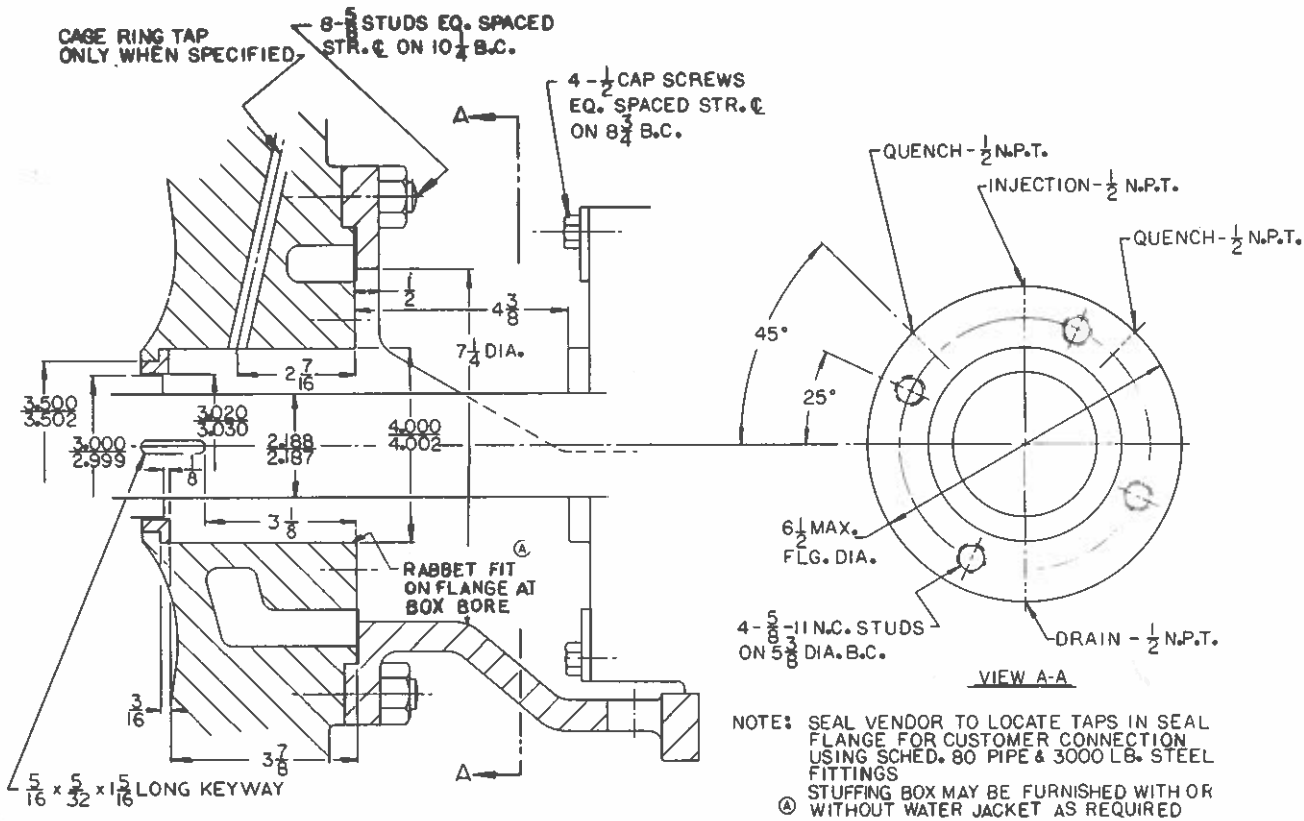
Technical Data

APPLIES TO PUMP SIZES

DSJH PROCESS PUMPS	
4x6x10½	4x6x13¼
6x8x11	6x8x13½

STUFFINGBOX DATA

No dimensional changes without review and approval of Factory Engineering.



DRAWING 1B-3897

The following Seals are available for standard pumps. Contact Seal Supplier for correct application, pressure temperature limits and materials.

MANUFACTURER	BALANCED		BELLOWS		TANDEM	
	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE
BORG-WARNER	U, D	2875	BRL	3000	GU	2875/2875
	QB	2750	BXRH	2500	QB/QB	3000/2750
JOHN CRANE	8B-1, 9B	2.875	15W	3.000	8B-1/8B-1	3.000/2.750
DURASEAL	PT, PTO	2.750	PBR, PBS	2.500	PT/PTO	3.000/2.750

DOUBLE SUCTION PROCESS PUMPS—TYPE DSJH

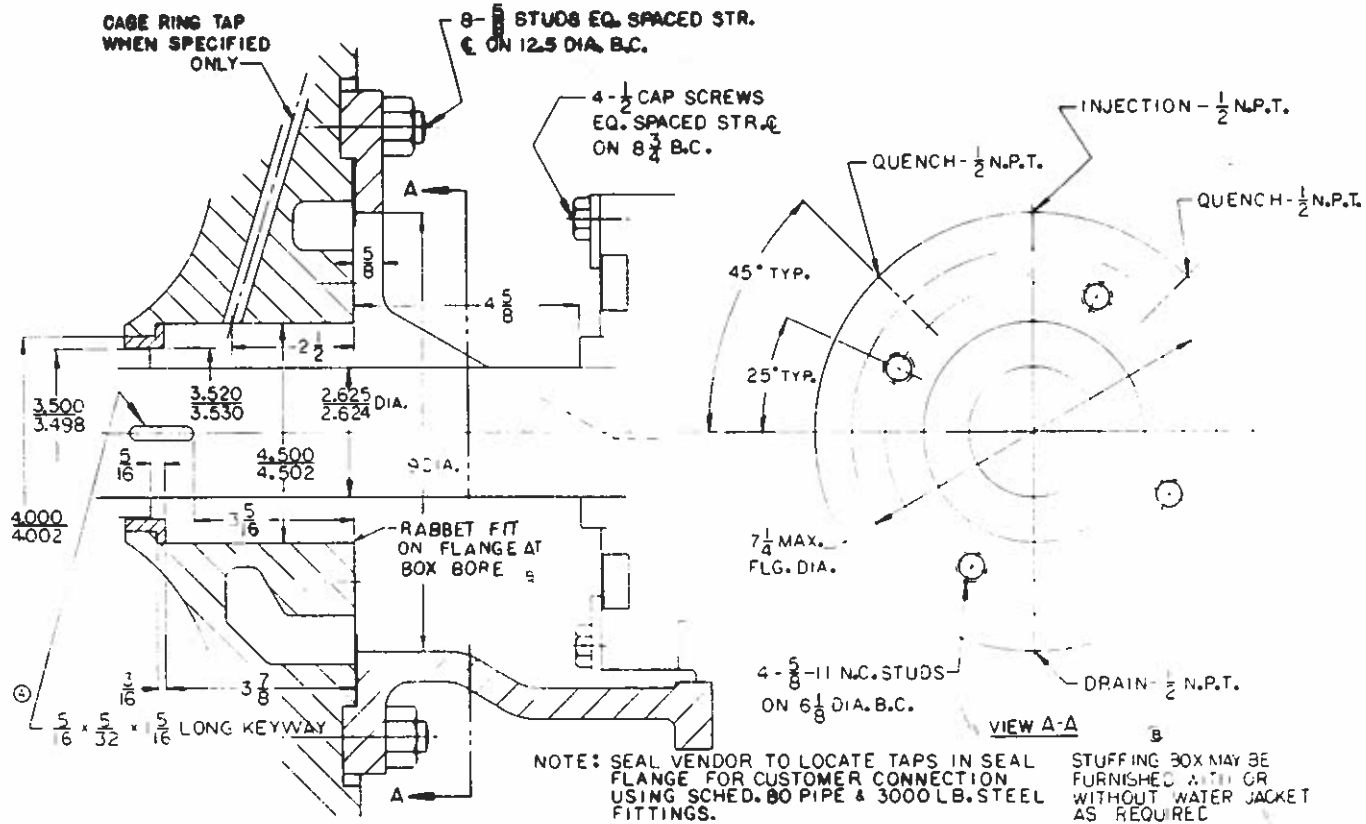
Technical Data

APPLIES TO PUMP SIZES

DSJH PROCESS PUMPS	
6x10x19	8x10x13
8x10x15	

STUFFINGBOX DATA

No dimensional changes without review and approval of Factory Engineering.



DRAWING 1B-3843

The following Seals are available for standard pumps. Contact Seal Supplier for correct application, pressure, temperature limits and materials.

MANUFACTURER	BALANCED		BELLONS		TANDEM	
	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE
BORG-WARNER	UK D	3250	BRL BXRH	3500 3000	GU QB/QB	3437/3250 3375/3125
JOHN CRANE	8B-1 9B	3 250	15W	3 125	8B-1/8B-1	3 375/3 125
DURASEAL	PT. PTO	3 125	NOT AVAILABLE		PT/PTO	3 375/3 125

DOUBLE SUCTION PROCESS PUMPS—TYPE DSJH

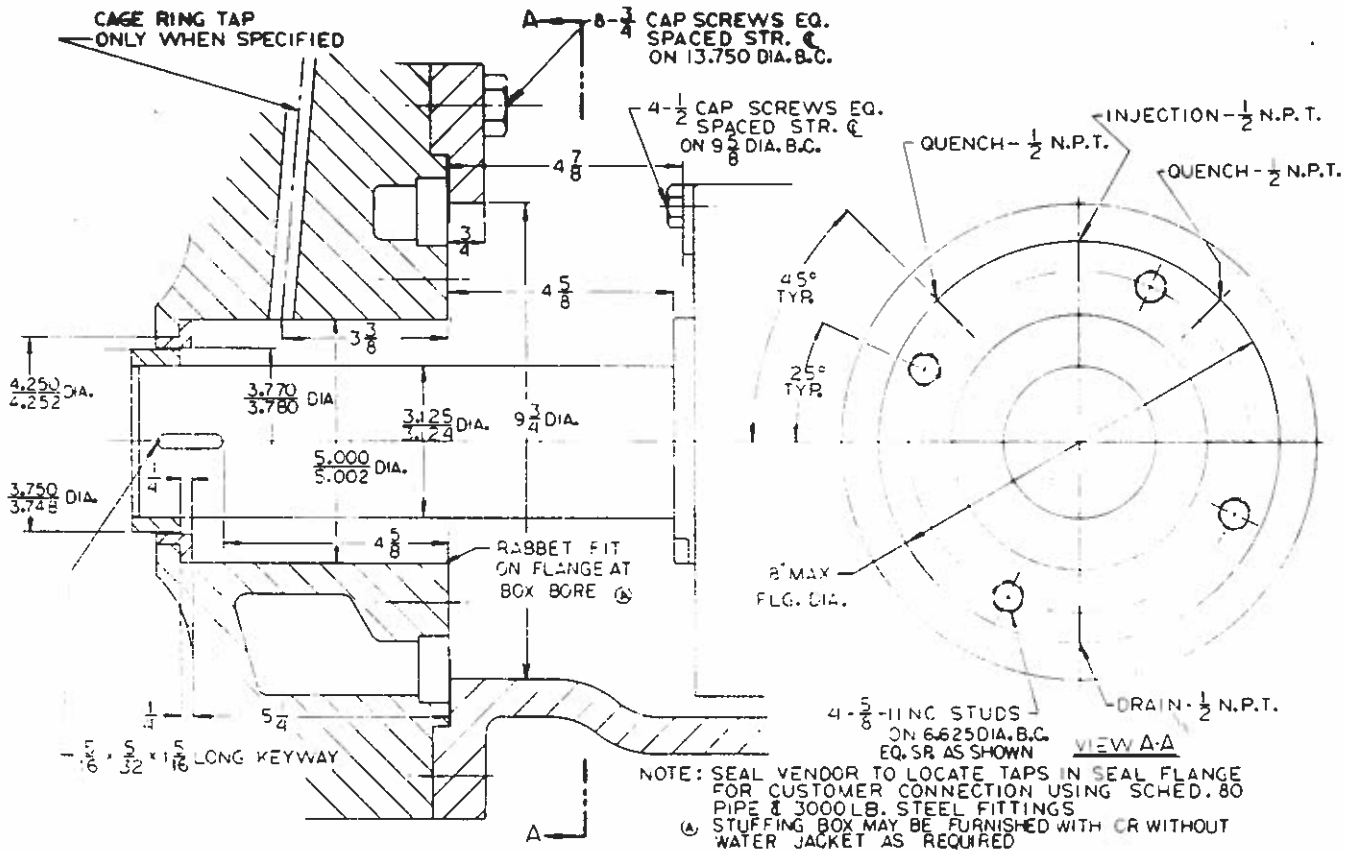
Technical Data

APPLIES TO PUMP SIZES

DSJH PROCESS PUMPS	
8x10x18	4x6x19
6x8x19	

STUFFINGBOX DATA

No dimensional changes without review and approval of Factory Engineering.



DRAWING 1B-3902

The following Seals are available for standard pumps. Contact Seal Supplier for correct application, pressure, temperature limits and materials.

MANUFACTURER	BALANCED		BELLOWS		TANDEM	
	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE
BORG-WARNER	UK, D	3625	BRL BXRH	4000 3500	GU QB/QB	3625/3625 3875/3625
JOHN CRANE	8B-1, 9B	3.625	15W	3.625	8B-1/8B-1	3.875/3.625
DURASEAL	PT, PTO	3.625	NOT AVAILABLE		PT/PTO	3.875/3.625

DOUBLE SUCTION PROCESS PUMPS—TYPE DSJH

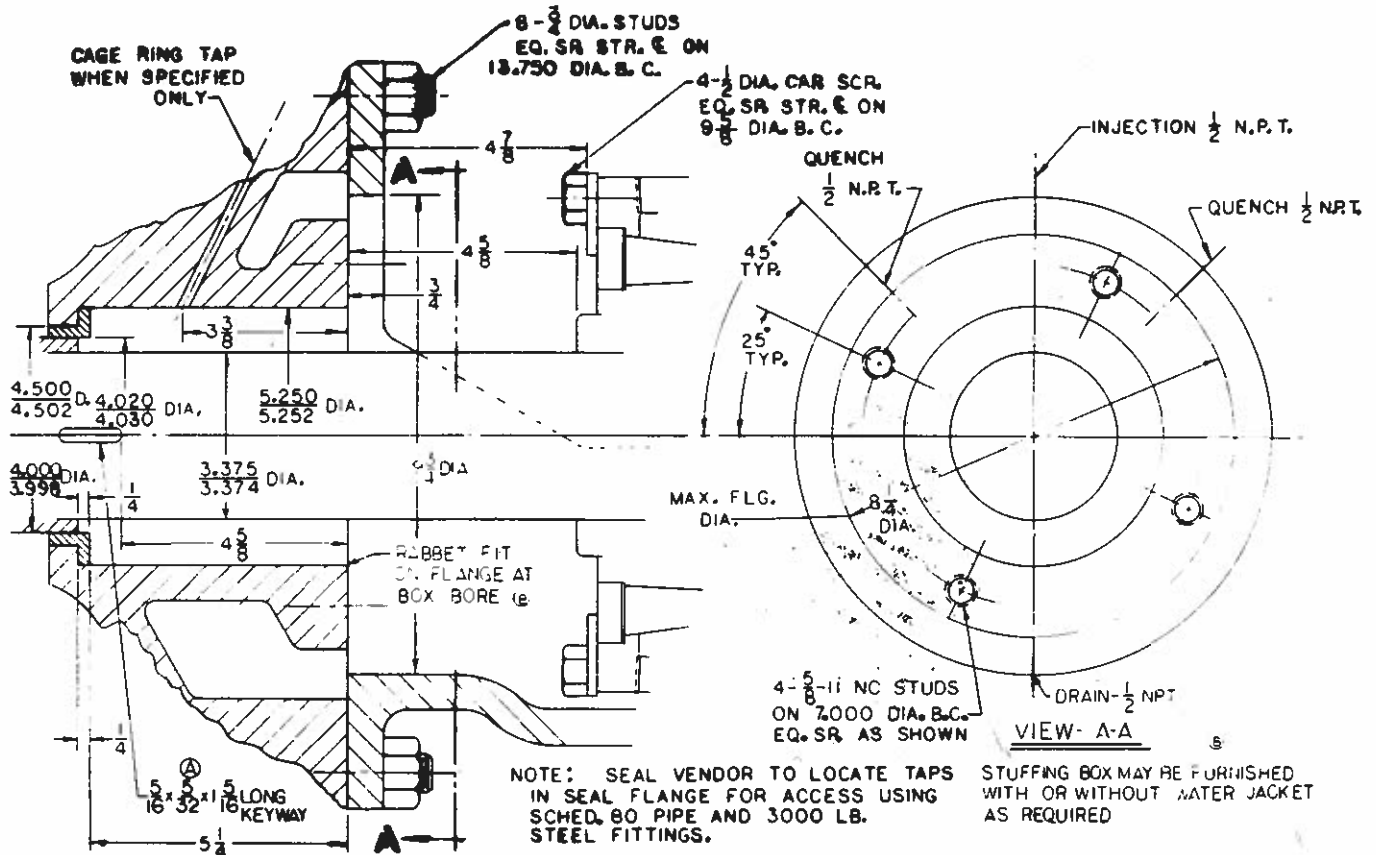
Technical Data

APPLIES TO PUMP SIZES

DSJH PROCESS PUMPS	
10x12x15	10x14x20
12x16x22	12x16x23

STUFFINGBOX DATA

No dimensional changes without review and approval of Factory Engineering.



DRAWING 1B-3842

The following Seals are available for standard pumps. Contact Seal Supplier for correct application, pressure, temperature limits and materials.

MANUFACTURER	BALANCED		BELLOWS		TANDEM	
	TYPE	SIZE	TYPE	SIZE	TYPE	SIZE
BORG-WARNER	UK, D	4000	BRL BXRH	4250 3750	GU QB/QB	4000/4000 4125/3875
JOHN CRANE	8B-1, 9B	4 000	15W	4 000	8B-1/8B-1	4 125/3 875
DURASEAL	PT, PTO	3 875	NOT AVAILABLE		PT/PTO	4 125/3 875

VINTAGE PARTS MARKETING

PRODUCT LINE:	DSJH
HERITAGE COMPANY:	Byron Jackson
CONFIGURATION:	BB2 - Double Suction, Between Bearings
TYPICAL APPLICATION:	Refinery
VINTAGE:	1978 - 1990
PRODUCT LIFESPAN:	API 610, 6th – 7th edition
SUBJECT:	Other – pre-eng, BOM, interchangeability

The DSJH was the between bearing, double suction API process pump. The between bearing design was new for the 6th edition. API also allowed the overhung, double suction design with customer approval. This is the model DSJA. Technical information for both is included in this section.

NOTE: This information is intended for the use of Flowserve Employees. The information provided is based on standard catalogue / price book information. Details for specific units or serial numbers may be different as a result of non-standard construction, and parts, repairs and upgrades provided by Flowserve or third parties.

DOUBLE SUCTION PROCESS PUMPS — TYPE DSJA
PARTS PRICE LIST — PRODUCT CODE 40-24

ITEM NO.	PART NAME	MATERIAL	4 x 6 x 10%	4 x 6 x 13%	6 x 8 x 11	6 x 8 x 13%	6 x 10 x 10	6 x 10 x 19
1	Case	Low Carbon Steel	\$9713.00	\$12452.00	\$12397.00	\$13343.00	\$14012.00	\$14575.00
51	Pump Cover	Low Carbon Steel	5166.00	6067.00	6394.00	7152.00	8089.00	8411.00
55	Stuff. box - Water Jacket Closure	Cast Iron	180.00	180.00	180.00	266.00	266.00	266.00
55-1	Bracket - Water Jacket Closure	Cast Iron	254.00	254.00	254.00	310.00	310.00	310.00
56	Retaining Ring-Wtr Jckt Closure	Cast Iron	163.00	163.00	163.00	149.00	149.00	149.00
57	Locking Lug - Retaining Ring	Steel	11.00	11.00	11.00	11.00	11.00	11.00
111	Packing Gland	Steel-Brz Bushed	747.00	747.00	747.00	657.00	657.00	657.00
167	Shaft	4140 H.T.	707.00	707.00	707.00	895.00	909.00	909.00
176	Impeller	Cast Iron	1899.00	2510.00	2126.00	3276.00	3900.00	3970.00
		12% Chrome	3196.00	4616.00	2973.00	5045.00	6584.00	7192.00
201	Wear Ring - Impeller Eye	Cast Iron	180.00	132.00	132.00	132.00	217.00	217.00
202	Wear Ring - Impeller Hub	12% Chrome H.T.	213.00	225.00	225.00	225.00	352.00	352.00
205	Wear Ring - Case	Cast Iron	132.00	132.00	132.00	132.00	298.00	497.00
		12% Chrome H.T.	225.00	291.00	291.00	291.00	497.00	612.00
207	Wear Ring - Cover	Cast Iron	132.00	132.00	132.00	132.00	298.00	497.00
		12% Chrome H.T.	225.00	291.00	291.00	291.00	497.00	612.00
217	Shaft Sleeve	12% Chrome H.T.	850.00	850.00	850.00	1000.00	1000.00	1000.00
		12% Chr.—H.D. Faced	1460.00	1460.00	1460.00	1550.00	1550.00	1550.00
225	Spacer Sleeve	12% Chrome H.T.	286.00	286.00	286.00	442.00	592.00	592.00
		12% Chr.—H.D. Faced	497.00	497.00	497.00	718.00	902.00	902.00
230	Throat Bushing	Cast Iron	134.00	134.00	134.00	151.00	151.00	151.00
		12% Chrome H.T.	142.00	142.00	142.00	166.00	166.00	166.00
236	Cage Ring	12% Chrome	334.00	334.00	334.00	341.00	341.00	341.00
241	Deflector-Inboard	Bronze	132.00	132.00	132.00	160.00	160.00	160.00
241-1	Deflector-Outboard	Bronze	152.00	152.00	152.00	160.00	160.00	160.00
246	Nut-Impeller	12% Chrome H.T.	412.00	412.00	412.00	472.00	472.00	472.00
249	Locknut-Thrust Bearing	Steel	11.00	11.00	11.00	15.00	15.00	15.00
280	Bearing Cover - Inboard	Cast Iron	129.00	129.00	129.00	135.00	135.00	135.00
		Steel	461.00	461.00	461.00	536.00	536.00	536.00
281	Bearing Cover - Outboard	Cast Iron	176.00	176.00	176.00	155.00	155.00	155.00
		Steel	538.00	538.00	538.00	639.00	639.00	639.00
289	Fan	Aluminum	255.00	255.00	255.00	337.00	337.00	337.00
290	Fan Housing	Steel	485.00	485.00	485.00	524.00	524.00	524.00
310	Oil Ring	Bronze	84.00	84.00	84.00	120.00	120.00	120.00
314	Bearing Bracket	Cast Iron	1955.00	1955.00	1955.00	2075.00	2075.00	2075.00
		Steel	3556.00	3556.00	3556.00	4459.00	4459.00	4459.00
319	Oil Ring Retainer	Steel	6.00	6.00	6.00	6.00	6.00	6.00
334	Snap Ring	Steel	11.00	11.00	11.00	13.00	13.00	13.00
654	Ball Bearing - Thrust	Ball	151.00	151.00	151.00	583.00	583.00	583.00
655	Ball Bearing - Radial	Ball	S 53.00	53.00	53.00	93.00	93.00	93.00
		Ball	D 108.00	108.00	108.00	174.00	174.00	174.00
676	Key - Impeller	Stainless Steel	7.00	7.00	7.00	10.00	10.00	10.00
676-1	Key - Coupling	Steel	6.00	6.00	6.00	8.00	9.00	9.00
676-2	Key-Shaft Sleeve	Stainless Steel	4.00	4.00	4.00	6.00	6.00	6.00
690	Lockwasher-Bearing	Steel	4.00	4.00	4.00	6.00	6.00	6.00
742	Packing	Durametallic or Equiv.	100.00	100.00	100.00	118.00	118.00	118.00
744	Gasket—Case-to-Cover	Flexitallic	28.00	28.00	28.00	27.00	62.00	124.00
744-1	Gasket—Shaft Sleeve	18-8	44.00	44.00	44.00	51.00	51.00	51.00
744-2	Gasket—Cover, Inboard	Anchor 502 or Equivalent	13.00	13.00	13.00	13.00	13.00	13.00
744-3	Gasket—Cover, Coupling End	Anchor 502 or Equivalent	13.00	13.00	13.00	13.00	13.00	13.00
747	O-Ring - Cover Closure I D	Nitrile	11.00	11.00	11.00	12.80	12.80	12.80
747-1	O-Ring - Cover Closure O D	Nitrile	14.80	14.80	14.80	14.80	14.80	14.80
747-2	O-Ring - Bracket Closure I D	Nitrile	11.00	11.00	11.00	11.00	11.00	11.00
747-3	O-Ring—Bracket Closure O D	Nitrile	14.80	14.80	14.80	16.60	16.60	16.60
804	Oil Filler Cup		11.00	11.00	11.00	15.00	15.00	15.00

Price shown above are for those Drawing numbers listed as Standard.

All Prices are F.O.B. Factory. For Export Shipment, see Page 1-100-4.

All prices subject to change without notice.



DOUBLE SUCTION PROCESS PUMPS — TYPE DSJH

PARTS PRICE LIST — PRODUCT CODE 40-23

PUMP SIZE	1 CASE	51 COVER-CW	51 COVER-CCW	176 IMPELLER		201 WEAR RING -IMPELLER-CW		201-1 WEAR RING -IMPELLER-CCW	
	CAST STEEL	CAST STEEL	CAST STEEL	CAST IRON	12% CHROME	CAST IRON	12% CHR. H.T.	CAST IRON	12% CHR. H.T.
4 x 6 x 10½				\$2017.00	\$3287.00	\$180.00	\$213.00	\$186.00	\$187.00
4 x 6 x 13¼ L, H				2490.00	4504.00	132.00	225.00	161.00	166.00
6 x 8 x 11 LL,L,H,HH	CONTACT FACTORY	CONTACT FACTORY	CONTACT FACTORY	2154.00	3888.00	132.00	225.00	161.00	166.00
6 x 8 x 13½ H				2512.00	4890.00	132.00	225.00	161.00	166.00
6 x 10 x 19				3491.00	6773.00	270.00	313.00	270.00	305.00
8 x 10 x 13				6562.00*	6914.00	270.00	313.00	270.00	305.00
8 x 10 x 15 L				4809.00*	4944.00	226.00	392.00	214.00	234.00
8 x 10 x 15 M				5384.00*	5490.00	226.00	392.00	214.00	234.00
8 x 10 x 15 H				5609.00*	5714.00	270.00	313.00	270.00	305.00
8 x 10 x 18 LL, H				9426.00*	9695.00	270.00	313.00	270.00	305.00
10 x 12 x 15 L				7190.00*	7412.00	216.00	248.00	232.00	529.00
10 x 12 x 15 H				6867.00*	7089.00	216.00	248.00	232.00	529.00
10 x 14 x 20 L	13,308.00*	13,516.00	375.00	410.00	309.00	334.00			
10 x 14 x 20 H	12,341.00*	12,622.00	375.00	410.00	309.00	334.00			
12 x 16 x 22			16,265.00*	16,568.00	428.00	469.00	329.00	363.00	
12 x 16 x 23 L			18,783.00*	19,086.00	375.00	410.00	309.00	334.00	
12 x 16 x 23 H			21,401.00*	21,704.00	428.00	469.00	329.00	363.00	

* INDICATES CAST STEEL IMPELLER WHICH IS NORMALLY SUPPLIED.

PUMP SIZE	205 WEAR RING COVER — CW		205-1 WEAR RING COVER — CCW		676 KEY — IMPELLER	676-1 KEY — COUPLING	744 GASKET CASE TO COVER	
	CAST IRON	12% CHR. H.T.	CAST IRON	12% CHR. H.T.	18-8	1020	CW	CCW
							FLEXITALLIC OR 18-8 ASBESTOS CORE	
4 x 6 x 10½	\$187.00	\$235.00	\$196.00	\$260.00	\$10.00	\$7.00	\$28.00	\$28.00
4 x 6 x 13¼ L	132.00	291.00	217.00	345.00	10.00	7.00	27.00	27.00
4 x 6 x 13¼ H	132.00	291.00	217.00	345.00	10.00	7.00	27.00	27.00
6 x 8 x 11 LL,L,H,HH	132.00	291.00	217.00	345.00	10.00	7.00	28.00	28.00
6 x 8 x 13½ H	132.00	291.00	217.00	345.00	10.00	7.00	27.00	27.00
6 x 10 x 19	281.00	356.00	285.00	352.00	10.00	9.00	124.00	124.00
8 x 10 x 13	281.00	356.00	285.00	352.00	10.00	9.00	27.00	27.00
8 x 10 x 15 L	267.00	449.00	267.00	621.00	10.00	9.00	40.00	40.00
8 x 10 x 15 M	267.00	449.00	267.00	621.00	10.00	9.00	40.00	40.00
8 x 10 x 15 H	281.00	356.00	285.00	352.00	10.00	9.00	40.00	40.00
8 x 10 x 18 LL, H	281.00	356.00	285.00	352.00	11.00	10.00	124.00	124.00
10 x 12 x 15 L	263.00	550.00	261.00	576.00	12.00	11.00	40.00	40.00
10 x 12 x 15 H	263.00	550.00	261.00	576.00	12.00	11.00	40.00	40.00
10 x 14 x 20 L	337.00	493.00	332.00	482.00	12.00	11.00	130.00	130.00
10 x 14 x 20 H	337.00	493.00	332.00	482.00	12.00	11.00	130.00	130.00
12 x 16 x 22	334.00	562.00	624.00	718.00	12.00	11.00	172.00	172.00
12 x 16 x 23 L	337.00	493.00	332.00	482.00	12.00	11.00	172.00	172.00
12 x 16 x 23 H	334.00	562.00	624.00	718.00	12.00	11.00	172.00	172.00

Prices shown above are for those Drawing Numbers listed as Standard.

All Prices are F.O.B. Factory. For Export Shipment, see Page 1-100-4.

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DOUBLE SUCTION PROCESS PUMPS — TYPE DSJH

PARTS PRICE LIST — PRODUCT CODE 40-23

Pumps Used On Bearing Sizes

BEARING SIZE			
2 1/2"	2 1/2"	3"	3 3/4"
4 x 6 x 10 1/2	6 x 10 x 19	8 x 10 x 18 LL, H	10 x 12 x 15 L, H
4 x 6 x 13 1/4 L, H	8 x 10 x 13		10 x 14 x 20 L, H
6 x 8 x 11 LL, L, H, HH	8 x 10 x 15 L, M, H		12 x 16 x 22
6 x 8 x 13 1/2 H			12 x 16 x 23 L, H

List Price of Pump Parts Arranged According to Bearing Sizes for Pumps Listed Above.

ITEM NO.	NAME OF PART	MATERIAL	BEARING SIZE				
			2 1/2"	2 1/2"	3"	3 3/4"	
55	W.J. Enclosure—Stuff Box	C.W	Steel	\$432.00	\$344.00	\$560.00	\$590.00
		C.C.W	Steel	432.00	344.00	560.00	590.00
55-1	W.J. Enclosure—Brg. Brkt	Radial	Steel	150.00	150.00	312.00	312.00
		Thrust	Steel	150.00	150.00	312.00	312.00
56	Retaining Ring—Inbd. Brg. Cover	Steel	190.00	190.00	164.00	164.00	
56-1	Retaining Ring—Split Ring	Steel	150.00				
111	Packing Gland—Split	Steel	998.00	1031.00	1183.00	1252.00	
167	Shaft	B & B	4140 H.T	2640.00	2041.00	2923.00	3005.00
		B & S	4140 H.T	2034.00	2858.00	3367.00	3301.00
217	Shaft Sleeve—Packing Only	12% Chrome H.T	936.00	864.00	1030.00	1170.00	
225	Spacer Sleeve	12% Chrome H.T	362.00	244.00	330.00	341.00	
230	Throat Bushing	Cast Iron	140.00	141.00	145.00	154.00	
236	Cage Ring	12% Chrome	154.00	165.00	165.00	164.00	
239	Adaptor—Brg. Bracket	Radial	Low Carbon Steel	1602.00	2025.00	3296.00	3296.00
		Thrust	Low Carbon Steel	1602.00	2025.00	3296.00	3296.00
241	Deflector—Coupling End	Bronze	360.00	270.00	280.00	444.00	
241-1	Deflector—Inboard	Radial	Bronze	330.00	300.00	287.00	336.00
		Thrust	Bronze	330.00	300.00	287.00	336.00
246	Impeller Nut	12% Chrome	630.00	628.00	652.00	681.00	
249	Locknut—Thrust Bearing	Steel	11.00	11.00	15.00	15.00	
251	Coupling Nut	Steel	311.00	340.00	360.00	360.00	
252	Split Ring—Thrust Bearing	Steel	152.00				
257	Ring—Shaft Locating	Steel		106.00	116.00	116.00	
277	Bearing Hsg.—B & B	Thrust	Low Carbon Steel	2187.00	2187.00	2944.00	2944.00
		Radial	Low Carbon Steel	2187.00	2187.00	2944.00	2944.00
279	Bearing Cover—Thrust End	Steel	762.00	762.00	974.00	974.00	
280	Brg. Cover—Inboard	Thrust	Steel	947.00	947.00	1457.00	1457.00
		Radial	Steel	947.00	947.00	1457.00	1457.00
281	Brg. Cover—Cplg. End	B & B	Steel	568.00	568.00	745.00	745.00
		B & S	Steel	729.00	729.00	957.00	957.00
287	Bearing Hsg.—B & S—Thrust	Low Carbon Steel	3787.00	3787.00	4768.00	4768.00	
288	Bearing Hsg.—B & S—Radial	Low Carbon Steel	3520.00	3520.00	4768.00	4768.00	
289	Fan—Thrust End	Aluminum	255.00	255.00	337.00	337.00	
289-1	Fan—Radial End	Aluminum	381.00	381.00	304.00	320.00	
290	Fan Housing—Thrust End	Steel	463.00	463.00	543.00	543.00	
290-1	Fan Housing—Radial End	Steel	347.00	347.00	522.00	522.00	
300	Sleeve Bearing	Thrust End	Cast Iron/Babbitt	1722.00	1722.00	1894.00	2084.00
		Radial End	Cast Iron/Babbitt	1722.00	1722.00	1894.00	2084.00
310	Oil Ring	Bronze	75.00	75.00	93.00	93.00	
313	Outer Race Stop—B & S	Cast Iron	270.00	270.00	290.00	290.00	
319	Retainer—Oil Ring—Thrust End	Steel	146.00	146.00	147.00	147.00	
319-1	Retainer—Oil Ring—Radial—B & B	Steel		268.00	203.00	204.00	
334	Snap Ring—Radial Bearing	Steel	11.00	11.00	15.00	15.00	
346	Sleeve—Radial Bearing	Steel	1208.00				
654	Ball Bearing—Thrust	Ball—Duplex	150.00	150.00	582.00	582.00	
655	Ball Bearing—Radial	Ball	70.00	70.00	128.00	128.00	
673	Lockwasher—Thrust Bearing	Steel	4.00	4.00	6.00	6.00	
676-2	Key—Shaft Sleeve	Stainless Steel	6.00	6.00	8.00	8.00	
742	Packing	Durametallic or Equiv	128.00	140.00	158.00	172.00	
744-1	Gasket—Bearing Cover	Garloc 7021	44.00	44.00	44.00	44.00	
747	O-Ring—Shaft Sleeve	Nitrile	4.00	4.00	4.00	4.00	
747-1	O-Ring—Cover Closure—S.D.	Nitrile	11.00	11.00	12.00	14.00	
747-2	O-Ring—Cover Closure—L.D.	Nitrile	14.80	14.00	16.60	16.60	
747-3	O-Ring—Bracket Closure—S.D.	Nitrile	7.40	7.40	11.00	11.00	
747-4	O-Ring—Bracket Closure—L.D.	Nitrile	11.00	11.00	14.80	14.80	

Price is for one piece only. Add for the appropriate quantity of pieces required for both the thrust and radial ends of the pump.

Prices shown above are for those Drawing numbers listed as Standard.
All prices are F.O.B. Factory. For Export Shipment, see Page 1-100-4.

All prices subject to change without notice.



DOUBLE SUCTION PROCESS PUMPS — TYPE DSJA

Chart showing Interchangeability of Parts

PUMP SIZE	1 CASE	51 COVER STUFFING BOX	176 IMPELLER	201 WEAR RING-EYE IMPELLER	202 WEAR RING-HUB IMPELLER	205 WEAR RING CASE	207 WEAR RING COVER	167 SHAFT	217 SHAFT SLEEVE	225 SPACER SLEEVE	230 THROAT BUSHING	236 CAGE RING	111 PACKING GLAND	241 DEFLECT'R INBOARD
4 x 6 x 10 1/2	408375	312504	220491 *	606274 *	606274 *	614930	614930							
6 x 8 x 11 LL	408125	312506	218493 *					312239 *	130747 *	644362 *	644319 *	630644 *	131539 *	135205 *
6 x 8 x 11 L			218489 *											
6 x 8 x 11 H			218490 *											
6 x 8 x 11 HH			218490 *											
4 x 6 x 13 1/4 L	408312	312508	220459 *	614930 *	614930 *	614932 *	614932 *							
4 x 6 x 13 1/4 H			220399 *											
6 x 8 x 13 1/2 H	408127	312514	213619					408773 *		644999				
6 x 10 x 18	508473	312510	218896	113684 *	113684 *	109738	109738	408803 *	130659 *	644666	636630 *	638642 *	218965 *	135272 *
6 x 10 x 19	508474	312512	214431			113683 *	113683 *							

PUMP SIZE	241-1 DEFLECT'R OUTBOARD	280 BEARING COVER INBOARD	281 BEARING COVER OUTBOARD	314 BEARING BRACKET	655 BALL BEARING RADIAL	654 BALL BEARING THRUST	249 LOCKNUT THRUST BEARING	690 LOCKWASHER THRUST BEARING	310 OIL RING	56 RET RING WATER JACKET ENCL-SEAL	56 RET RING WATER JKT ENCL-PACK	289 FAN	290 FAN COVER	246 IMPELLER NUT	57 LOCK NUT RET RING PACKING
4 x 6 x 10 1/2	135204 *	221915 *	221916 *	509248 *	1T-5549 ND *	30311-DT ND (T) 1T-5573	LE25003A13	LE27001A11	636046 *	131029 *	130842 *	222198 *	222303 *	648729 *	
6 x 8 x 11 LL					3212 LR (S)										
6 x 8 x 11 L					5212 ND (D)										
6 x 8 x 11 H					5212 ND (D)										
4 x 6 x 13 1/4 L					1T-5560										
4 x 6 x 13 1/4 H					1T-5560										
6 x 8 x 13 1/2 H	135271 *	221996 *	221997 *	509263 *	ND. 3215 LR (S) * 1T-5552	30314-DT ND (T) 1T-5574	LE25003A11	LE27001A15	636673 *	130675 *	130676 *	222199 *	222304 *	648727 *	644994 *
6 x 10 x 18															
6 x 10 x 19															

PUMP SIZE	744 GASKET CASE TO COVER	744-1 GASKET SHAFT SLEEVE	744-2 GASKET COVER INBOARD	744-3 GASKET COVER OUTBOARD	747 O'RING COVER CLOSURE ID.	747-1 O'RING COVER CLOSURE OD.	747-2 O'RING BRCKT. CLOSURE ID.	747-3 O'RING BRCKT. CLOSURE OD.	55 STUFFING BOX WATER JACKET ENCLOSURE	55-1 BRACKET WATER JACKET ENCLOSURE	334 SPIR. O-LOX	319 RETAINER OIL RING
4 x 6 x 10 1/2	632505 *	644312 *	135699 *	135698 *	568-258 *	568-267 *	568-259 *	568-268 *	130840 *	135208 *	RS-236	648780 *
6 x 8 x 11 LL											LE15001A56	
6 x 8 x 11 L											LE15001A56	
6 x 8 x 11 H											LE15001A56	
6 x 8 x 11 HH											LE15001A56	
4 x 6 x 13 1/4 L											LE15001A56	
4 x 6 x 13 1/4 H	LE15001A56											
6 x 8 x 13 1/2 H	632508 *	638041 *	135701 *	135700 *	568-264 *	568-273 *	568-262 *	568-275 *	130674 *	135273 *	RS-295	
6 x 10 x 18											LE15001A68 *	
6 x 10 x 19	638076 *											

* STOCK AT SERVICE CENTERS

NOTE: BEARING CONSTRUCTION
 (S) = SINGLE ROW RADIAL BEARING (STANDARD)
 (D) = DOUBLE ROW RADIAL BEARING (OPTIONAL)
 (T) = DUPLEX THRUST BEARING (STANDARD)



DOUBLE SUCTION PROCESS PUMPS—TYPE DSJH

Chart showing Interchangeability of Parts—Ball and Ball

PUMP SIZE	1 CASE	176 IMPELLER	51 COVER CW	51-1 COVER CCW	WEAR RING IMPELLER		WEAR RING COVER		744 GASKET: CASE TO COVER	167 SHAFT	225 SPACER SLEEVE	246 IMPELLER NUT	230 THROAT BUSHING	239 ADAPTOR BRACKET	277 BEARING HOUSING RADIAL AND THRUST	279 BEARING COVER THRUST
					201 CW	201-1 CCW	205 CW	205-1 CCW								
4x6x10½	409365	223675 *	409367	409369	606274 *	137744	636314	137745	632505 *	SEAL 313389	650198 *	137653	650197	313360	409349 *	313377 (FAN COOLED)
4x6x13¼ L	409575	224135 *	409577	409579					632508 *							
4x6x13¼ H		224136 *								PACKING 313747	650198 *	137653	650197	313360	409349 *	313377 (FAN COOLED)
6x8x11 LL		224243 *							632505 *							
6x8x11 L	409635	224242 *	409637	409639	614930 *	138207	614932 *	138208	632505 *	SEAL 313393	650198 *	137653	650197	313360	409349 *	313377 (FAN COOLED)
6x8x11 H		224244 *							632508 *							
6x8x11 HH	409645	224267 *	409596	409598					632508 *	SEAL 313393	650198 *	137653	650197	313360	409349 *	313377 (FAN COOLED)
6x8x13½ H	409594	224013	409488	409489	137708 *	137706 *	137709	137707	638076 *							
6x10x19	409475	223642	409334	409336	137708 *	137706 *	137709	137707	632508 *	SEAL 313740 PACKING 313748	137657	137661	137660	409348	409349 *	313378 (WATER OR AIR COOLED)
8x10x13	409332	224250 *	409568	409570	137760 *	137762 *	137763	137761	632511 *							
8x10x15 L	409566	224251 *	409568	409570	137708 *	137706 *	137709	137707	632511 *	SEAL 313740 PACKING 313741	650681	138240	650649	409348	409349 *	313378 (WATER OR AIR COOLED)
8x10x15 M		224248 *							638076 *							
8x10x15 H	409572	224248 *	409568	409570	137708 *	137706 *	137709	137707	638076 *	SEAL 313740 PACKING 313741	650681	138240	650649	409348	409349 *	313378 (WATER OR AIR COOLED)
8x10x18 LL	409558	224130	409560	409562					638076 *							
8x10x18 H	409800	224131	409560	409562					638076 *	SEAL 409626	650172	137612	650171	409353	409344 *	313368 (FAN COOLED)
10x12x15 L	409351	223658	409338	409340	137755	137754	137738	137739	632511 *							
10x12x15 H		224266							632511 *	SEAL 409626	650172	137612	650171	409353	409344 *	313368 (FAN COOLED)
10x14x20 L	409320	223640	409322	409324	137626	137624	137627	137625	645663							
10x14x20 H		223833							645663	PACKING 409627	650172	137612	650171	409353	409344 *	313367 (WATER OR AIR COOLED)
12x16x22	409602	224161	409603	409604	137766	137764	137767	137765	644531 *							
12x16x23 L	409590	224056	409621	409622	137626	137624	137627	137625	644531 *	PACKING 409627	650172	137612	650171	409353	409344 *	313367 (WATER OR AIR COOLED)
12x16x23 H	409511	224052	409524	409526	137766	137764	137767	137765	644531 *							

PUMP SIZE	280 BEARING COVER INBOARD	281 BEARING COVER COUPLING	241 DE-FLECTOR COUPLING END	241-1 DE-FLECTOR INBOARD	319 RETAINER THRUST END	319-1 RETAINER RADIAL END	654 BALL BEARING THRUST	655 BALL BEARING RADIAL	249 LOCKNUT THRUST BEARING	673 LOCK WASHER THRUST	310 OIL RING	257 SHAFT LOCATING RING	334 SNAP RING RADIAL BEARING	251 COUPLING NUT	56 RETAINING RING	747 SHAFT SLEEVE O-RING
4x6x13¼ L																
4x6x13¼ H																
6x8x11 LL																
6x8x11 L																
6x8x11 H																
6x8x11 HH																
6x8x13½ H																
6x10x19																
8x10x13																
8x10x15 L	137670 *	137662 *	137670 *	137662 *	137659	X	1T-5573 MRC 7311DU OR EQUAL	1T-5550 MRC 213-S OR EQUAL	LE25003A13 *	LE27001A11 *	636047 *	X	LE25002 A60 SPIROLOX SERIES RS-255 STL	601902 *	137651	568-231
8x10x15 M																
8x10x15 H	313353	313366	137670 *	137662 *	137659	X	1T-5573 MRC 7311DU OR EQUAL	1T-5550 MRC 213-S OR EQUAL	LE25003A13 *	LE27001A11 *	636047 *	X	LE25002 A60 SPIROLOX SERIES RS-255 STL	601902 *	137651	568-231
8x10x18 LL																
8x10x18 H																
10x12x15 L																
10x12x15 H																
10x14x20 L																
10x14x20 H																
12x16x22																
12x16x23 L																
12x16x23 H																

PUMP SIZE	O-RING STUFFING BOX ENCLOSURE		O-RING BEARING COVER ENCLOSURE		55 STUFFING BOX ENCLOSURE	55-1 BEARING COVER ENCLOSURE	111 PACKING GLAND	217 SHAFT SLEEVE	236 CAGE RING	289 FAN THRUST END	289-1 FAN RADIAL END	290 FAN HOUSING THRUST	290-1 FAN HOUSING RADIAL	256 RING SPLIT THRUST	56-1 RETAINING LOCK RING THRUST	346 SLEEVE BEARING RADIAL
	747-1 SD	747-2 LD	747-3 SD	747-4 LD												
4x6x10½	568-260 *	568-267 *	568-250 *	568-262 *	137652	137649 *	224240	224261	637244	222198	223670	223672	223683	650191	650192	137648
4x6x13¼ L																
4x6x13¼ H																
6x8x11 LL																
6x8x11 L																
6x8x11 H																
6x8x11 HH																
6x8x13½ H																
6x10x19																
8x10x13																
8x10x15 L	568-263	568-272	568-250 *	568-262 *	137656 *	137649 *	224260	224262	138287	223659	223659	223659	650191	650192	137648	
8x10x15 M																
8x10x15 H	568-266	568-275 *	568-258 *	568-267 *	137628	130840 *	224215	224216	138266	222199	223651	223661	223660	650191	650192	137648
8x10x18 LL																
8x10x18 H																
10x12x15 L																
10x12x15 H																
10x14x20 L																
10x14x20 H																
12x16x22																
12x16x23 L																
12x16x23 H																



DOUBLE SUCTION PROCESS PUMPS—TYPE DSJH
Chart showing Interchangeability of Parts—Ball and Sleeve

PUMP SIZE	1 CASE	178 IMPELLER	51 COVER CW	51-1 COVER CCW	WEAR RING IMPELLER		WEAR RING COVER		744 GASKET CASE TO COVER	167 SHAFT	225 SPACER SLEEVE	248 IMPELLER NUT	230 THROAT BUSHING	239 BRACKET	287 BEARING HOUSING RADIAL
					201 CW	201-1 CCW	205 CW	205-1 CCW							
4x6x10½	409365	223675*	409367	409369	606274*	137744	636314	137745	632505*	SEAL 313746	650198	137653	650197	313360	
4x6x13¼ L	409575	224135*	409577	409579					632508*						
4x6x13¼ H		224136*								PACKING 313745					
6x8x11 LL		224243*							632505*						
6x8x11 L	409635	224242*	409637	409639	614930*	138207	614932*	138208	632505*	SEAL 313743					409361
6x8x11 H		224244*							632508*						
6x8x11 HH	409645									PACKING 313742					
6x8x13½ H	409594	224267*	409596	409598					632508*						
6x10x19	409475	224013	409488	409489	137708*	137706*	137709*	137707	638076*	SEAL 313743					
8x10x13	409332	223642	409334	409336					632508*						
8x10x15 L	409566	224250*								PACKING 313742					
8x10x15 M		224251*	409568	409570	137760*	137762*	137763*	137761	632511*						
8x10x15 H	409572	224248*								SEAL 313763 PACKING 313764	650681	138240	650649		
8x10x18 LL	409558	224130	409560	409562	137708*	137706*	137709*	137707	638076*						
8x10x18 H	409600	224131								PACKING 409632					
10x12x15 L	409351	223658	409338	409340	137755	137754	137738	137739	632511*						
10x12x15 H		224266								SEAL 409632	650172	137612	650171	409353	
10x14x20 L	409320	223640	409322	409324	137626	137624	137627	137625	645663						
10x14x20 H		223833								PACKING 409633					509797
12x16x22	409602	224161	409603	409604	137766	137764	137767	137765	644531*						
12x16x23 L	409590	224056	409621	409622	137626	137624	137627	137625							
12x16x23 H	409511	224052	409524	409526	137766	137764	137767	137765							

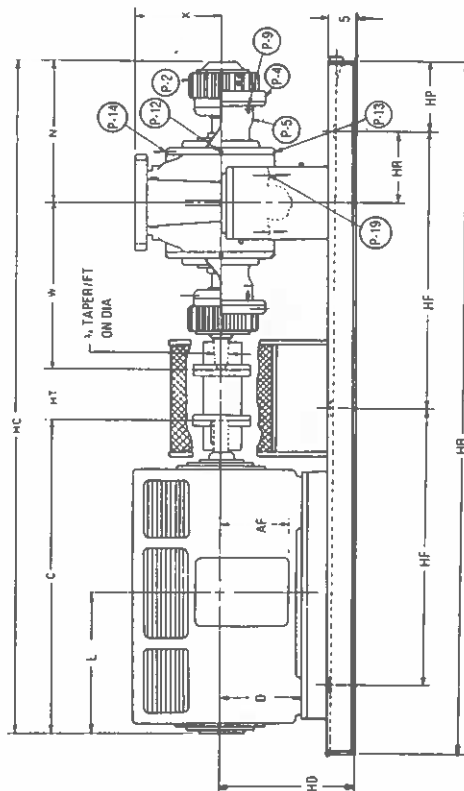
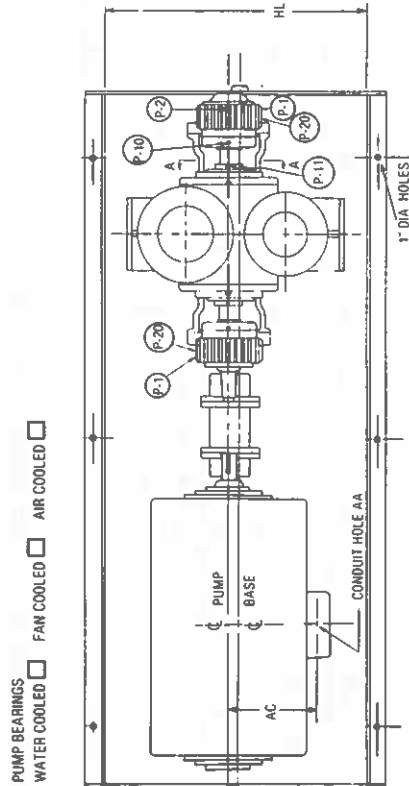
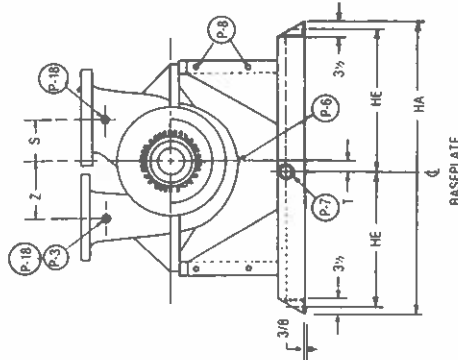
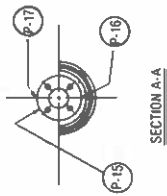
PUMP SIZE	288 BEARING HOUSING THRUST	279 BEARING COVER THRUST	280 BEARING COVER INBOARD	281 BEARING COVER COUPLING	241 DE-FLECTOR COUPLING END	241-1 DE-FLECTOR INBOARD	319 RETAINER THRUST	654 BALL BEARING THRUST	300 SLEEVE BEARING	249 LOCKNUT THRUST BEARING	673 LOCK WASHER THRUST	310 OIL RING	257 SHAFT LOCATING RING	251 COUPLING NUT	056 RETAINING RING
4x6x10½	509778	313377* (FAN COOLED)	313376*	223684*	136962*	137663*	137658	1T-5573 MRC 311 DU OR EQUAL	223678	LE25003A13*	LE27001A11*	636047	X	601902*	
4x6x13¼ L															
4x6x13¼ H															
6x8x11 LL															
6x8x11 L															
6x8x11 H															
6x8x11 HH															
6x8x13½ H															
6x10x19															
8x10x13															
8x10x15 L	509812	313378* WATER OR AIR COOLED	313376*	223684*	137670*	137662*	137658	MRC 314 PDU OR EQUAL	223677	LE25003A16*	LE27001A14*	636051	629051*	645106*	137651*
8x10x15 M															
8x10x15 H															
8x10x18 LL															
8x10x18 H															
10x12x15 L															
10x12x15 H															
10x14x20 L															
10x14x20 H															
12x16x22															
12x16x23 L															
12x16x23 H															

PUMP SIZE	747 SHAFT SLEEVE O-RING	O-RING STUFFING BOX ENCLOSURE		O-RING BEARING COVER ENCLOSURE		55 STUFFING BOX ENCLOSURE	55-1 BEARING COVER ENCLOSURE	111 PACKING GLAND	217 SHAFT SLEEVE	236 CAGE RING	288 FAN THRUST END	288-1 FAN RADIAL END	290 FAN HOUSING THRUST	290-1 FAN HOUSING RADIAL														
		747-1 SO	747-2 LD	747-3 SO	747-4 LD																							
4x6x10½	568-228	568-260	568-267*			137652		224240	224261	637244*		223670																
4x6x13¼ L																												
4x6x13¼ H																												
6x8x11 LL																												
6x8x11 L																												
6x8x11 H																												
6x8x11 HH																												
6x8x13½ H																												
6x10x19															568-231*	568-263	568-272	568-250	568-262	137656	137649*	224260*	224262*	138287*		223659*	223672*	223683*
8x10x13																												
8x10x15 L																												
8x10x15 M																												
8x10x15 H																												
8x10x18 LL	568-235*	568-266				138213		224215	224216	138266		223666																
8x10x18 H																												
10x12x15 L																												
10x12x15 H																												
10x14x20 L																												
10x14x20 H															568-237*	568-268	568-275	568-258	568-267*	137628	130840*	224181	224180	138238	222199*	223651	223661*	223660*
12x16x22																												
12x16x23 L																												
12x16x23 H																												

DOUBLE SUCTION PROCESS PUMP - TYPE DSJH OUTLINE DIMENSIONS

ITEM	SIZE	DESCRIPTION	YES	NO	PLUG BOTH ENDS
P-1	4 OZ.	OILER	X		X
P-2	3/4 P.T.	OIL FILLER CAP	X		X
P-3	1/2 P.T.	SEAL RECIRCULATION CASE TAP	X		
P-4	1/2 P.T.	OIL DRAIN	X		X
P-5	3/4 P.T.	BRACKET DRAIN	X		X
P-6	3/4 P.T.	CASE DRAIN	X		X
P-7	1 1/2 P.T.	BASE PLATE DRAIN	X		
P-8	1/2 P.T.	PED. COOL WATER IN & OUT			
P-9	1/2 P.T.	INLET BRG. WATER JACKET			X
P-10	1/2 P.T.	OUTLET BRG. WATER JACKET			X
P-11	1/2 P.T.	PACKING GLAND QUENCH			X
P-12	1/2 P.T.	CAGE RING CONN. IN & OUT ON HORIZ. ↓			X
P-13	1/2 P.T.	INLET STUFF. BOX WATER JACKET			X
P-14	1/2 P.T.	OUTLET STUFF. BOX WATER JACKET			X
P-15	1/2 P.T.	SEAL VENT OR QUENCH INLET			X
P-16	1/2 P.T.	SEAL QUENCH DRAIN			X
P-17	1/2 P.T.	SEAL INJECTION			X
P-18	3/4 P.T.	GAGE CONNECTION			
P-19	3/4 P.T.	SUCTION DRAIN	X		X
P-20	1 P.T.	SIGHT LEVEL GLASS	X		X

- NOTES:
- PUMPS ARE SELF VENTING
 - SUCT. & DISCH. FLANGES 300 LB. 1 1/8" F. PER ANSI B 16.5
 - BASE PLATE SUPPLIED WITH 5" MIN. DIA. GROUT HOLE AND 1/2" DIA. VENT HOLES IN ALL CORNERS OF EACH SECTION - GROUT HOLES LOCATED FOR FULL GROUTING WITHOUT REMOVING PUMP OR DRIVER
 - 1/2" P.T. IN & OUT TO STUFFING BOX AND BRG. WATER JACKETS ARE DRILLED IN ALL CASES
 - YES - INDICATES CONNECTIONS ARE TO BE PIPED IN - INDICATES CLOSURES ARE NOT SUPPLIED TO FORM JACKET
 - BOSSSES ARE PROVIDED FOR ADDITION OF ANY ABOVE TAPS
 - STANDARD GUARD MEETS OSHA & CAL. CODE REQUIREMENTS



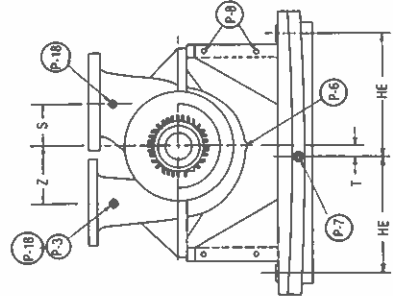
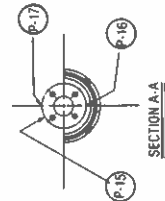
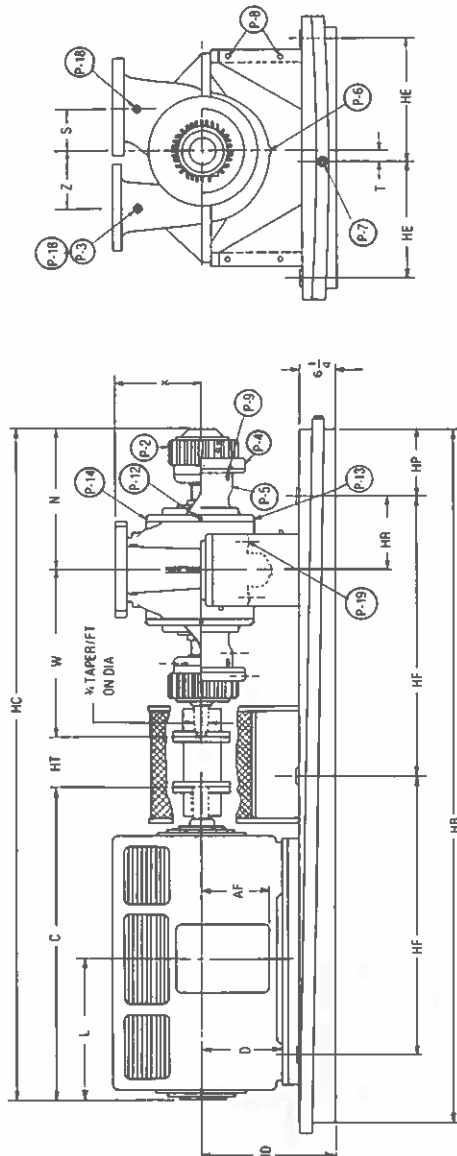
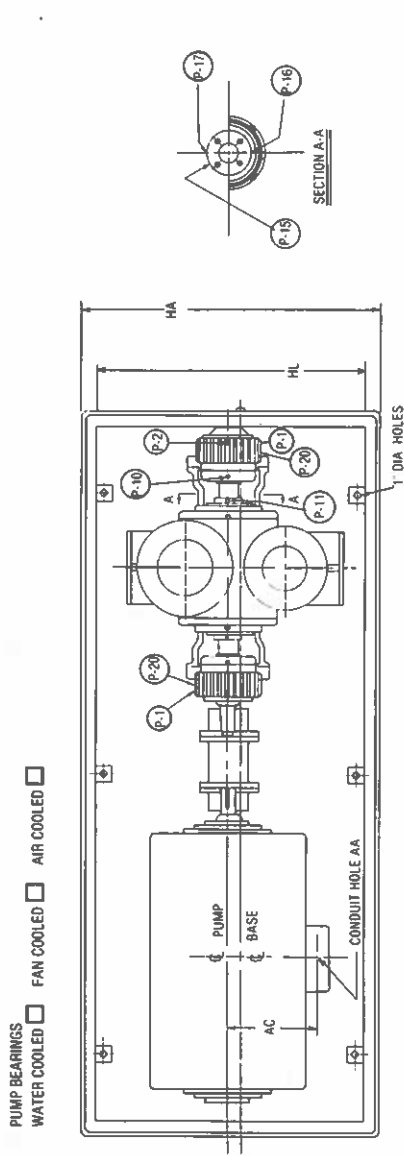
LINE NO.	PUMP SIZE		PUMP ROTATION C.C.W. FROM COUPLING END																		
	DISCH	SUCT	IMP	N	W	X	Z	S	C	D	HT	HC	HD	HR	HP	HB	HF	HL	HA	HE	T
5	6	10	19	25 1/2	29 1/2	18	12 3/4	6		9	25	19	12					46	53	25	2
6	8	10	13	25 1/2	29 1/2	17	11	9 1/4		9	25	19	12					46	53	25	2
7	8	10	15	25 1/2	29 1/2	16 1/2	11	7 1/2		9	25	19	12					46	53	25	2

Not for construction - contact factory for certified outline drawing.

DOUBLE SUCTION PROCESS PUMP - TYPE DSJH OUTLINE DIMENSIONS

ITEM	SIZE	DESCRIPTION	YES	NO	PLUG BOTH END
P-1	4 OZ.	OILER	X		X
P-2	1/2 P.T.	OIL FILLER CAP	X		X
P-3	1/2 P.T.	SEAL RECIRCULATION CASE TAP	X		
P-4	1/2 P.T.	OIL DRAIN	X		X
P-5	1/2 P.T.	BRACKET DRAIN	X		X
P-6	1/2 P.T.	CASE DRAIN	X		X
P-7	1 1/2 P.T.	BASE PLATE DRAIN	X		
P-8	1/2 P.T.	PED. COOL WATER IN & OUT			
P-9	1/2 P.T.	INLET BRG. WATER JACKET			X
P-10	1/2 P.T.	OUTLET BRG. WATER JACKET			X
P-11	1/2 P.T.	PACKING GLAND QUENCH			X
P-12	1/2 P.T.	CAGE RING CONN. IN & OUT ON HORIZ. \downarrow			X
P-13	1/2 P.T.	INLET STUFF. BOX WATER JACKET			X
P-14	1/2 P.T.	OUTLET STUFF. BOX WATER JACKET			X
P-15	1/2 P.T.	SEAL VENT OR QUENCH INLET			X
P-16	1/2 P.T.	SEAL QUENCH DRAIN			X
P-17	1/2 P.T.	SEAL INJECTION			X
P-18	1/2 P.T.	GAGE CONNECTION	X		X
P-19	1/2 P.T.	SUCTION DRAIN	X		X
P-20	1 P.T.	SIGHT LEVEL GLASS	X		X

- NOTES:
 1. PUMPS ARE SELF VENTING
 2. SUCT. & DISCH. FLANGES 300 LB. 1/16 B.F. PER ANSI B 16.5
 3. BASE PLATE SUPPLIED WITH 5" MIN. DIA. GROUT HOLE AND 1/2" DIA. VENT HOLES IN ALL CORNERS OF EACH SECTION. GROUT HOLES LOCATED FOR FULL GROUTING WITHOUT REMOVING PUMP OR DRIVER
 4. 1/2" P.T. IN & OUT TO STUFFING BOX AND BRG. WATER JACKETS ARE DRILLED IN ALL CASES
 YES - INDICATES CONNECTIONS ARE TO BE PIPED NO - INDICATES CLOSURES ARE NOT SUPPLIED TO FORM JACKET
 5. BOSSES ARE PROVIDED FOR ADDITION OF ANY ABOVE TAPS
 6. STANDARD GUARD MEETS OSHA & CAL. CODE REQUIREMENTS



PUMP SIZE		PUMP ROTATION C.C.W. FROM COUPLING END																				
LINE NO.	DISCH	SUCT	IMP	N	W	X	Z	S	C	D	HT	HC	HD	HR	HP	HB	HF	HL	HA	HE	T	
8	8	10	18	27 1/2	34 1/2	10	12	6	11	25	16	16	16	16	16	46	48	21 1/2	2			
9																						
10																						

Not for construction - contact factory for certified outline drawing.

VINTAGE PARTS MARKETING

PRODUCT LINE:	DSJH
HERITAGE COMPANY:	Byron Jackson
CONFIGURATION:	BB2 - Double Suction, Between Bearings
TYPICAL APPLICATION:	Refinery
VINTAGE:	1978 - 1990
PRODUCT LIFESPAN:	API 610, 6th – 7th edition
SUBJECT:	Installation List

The DSJH was the between bearing, double suction API process pump. The between bearing design was new for the 6th edition. API also allowed the overhung, double suction design with customer approval. This is the model DSJA. Technical information for both is included in this section.

NOTE: This information is intended for the use of Flowserve Employees. The information provided is based on standard catalogue / price book information. Details for specific units or serial numbers may be different as a result of non-standard construction, and parts, repairs and upgrades provided by Flowserve or third parties.



DOUBLE SUCTION PROCESS PUMPS — TYPE DSJA

PARTIAL LIST OF USERS

Serial No.	No. Pumps	Customer	Capacity GPM	Differential Head (Feet)	Liquid	Temp. °F	Specific Gravity
4 x 6 x 10½							
751-N-0234	2	Foster Wheeler - Ashland Petroleum	720	243	Wax Free Oil	218	.78
761-C-1247	2	A.G. McKee & Co. - Shell Oil	508	321	Water	212	.959
771-H-0003	2	Pullman Kellogg - Exxon Chemical Co.	555	313	Hydrocarbon	110	.59
771-C-1255	1	Gulf Oil Company	700	220	No. 2 Oil	80	.87
781-H-0124	2	S.I.P. Inc. - Conoco	430	282	Light Cycle Oil	440	.776
781-H-0091	2	Fluor - Marathon Oil	605	354	Butane	150	.555
781-L-0109	3	G.E.A. Power Cooling Systems	550	282	Condensate	130	.97
816-S-1047	2	Borden Chem. - Geismar, LA	350	286	Ammonia	95	.682
816-W-0207	1	Douglas Oil - Paramount, CA	300	62	Heavy Naphtha	100	.744
826-S-0259	2	Texaco - Port Neches, TX	760	321	Atmos. Crude Residuuum	633	.786
836-M-1605	1	Indiana Farm Bureau - Vernon, IN	592	350	Naphtha 54.4 API	450	.66
4 x 6 x 13¼							
721-H-0190	2	Ford, Bacon & Davis - American Pet.	1050	395	Heavy Diesel	645	.615
721-L-0166	1	A.H. Alexander - Mobil Oil	1200	465	Gas Fuel Oil	Amb.	.75/.88
721-H-0395	1	Standard Oil Company	1010	340	Aromatics	250	.80
731-H-0012	2	Bechtel - Texaco, Inc.	1018	375	FCC Feed	410	.78
731-H-0402	2	S.I.P. Inc. - Exxon Chemicals	740	415	Methanol - Xylene	130	.78
731-C-0047	1	Continental Oil Company	1050	400	Heavy Cycle Gas Oil	530	.82
741-N-0683	1	Caltex Petroleum	630	475	Naphtha	145	.61
741-S-1372	2	Bechtel - Mississippi Power & Light	610	670	Condensate	227	.952
741-V-0212	2	Aramco	1040	615	Butanes	155	.512
761-C-1625	3	Ashland Oil, Inc.	1000	425	Hydrocarbon	350	.705
771-S-1337	2	Pacific Refining Company	1113	383	Heavy Naphtha	185/225	.70
771-C-0072	1	Koch Refining Company	1000	530	Hot Oil	725	.81
781-E-0290	2	Gulf Oil Company - Philadelphia, PA	640	445	Hydrocarbon	350	.78
781-H-0089	2	Fluor - Marathon Oil	698	535	H.C. & H.F. Acid	105	.474
781-N-0153	2	Texaco, Inc.	1000	410	Gasoline	450	.70
781-N-0304	2	Exxon Corporation	440	413	LPG	90	.56
796-E-0235	1	Gulf Oil Company - Philadelphia, PA	1280	530	Heavy Furnace Oil	406	.72
796-V-0286	1	Exxon Co., U.S.A. - Lagoven S.A.	1200	495	Crude Oil	110	.76
806-E-0245	2	Ashland Oil - Caltletsburg, KY	950	474	Hydrocarbon	199	.784
836-M-0089	2	Texaco - Lawrenceville, IL	1100	595	Reduced Crude	540	.70
6 x 8 x 11							
721-V-0103	2	Chinese Petroleum Corp.	2500	440	Water	Amb.	1.0
731-L-0135	1	Southern Calif. Edison Co.	2100	320	Fuel Oil - Crude	60/200	.98/.78
731-H-0329	2	Tenneco Oil Company	1700	430	Crude Oil	105	.789
731-N-0685	2	Scientific Design - Oxirane Chemicals	1900	376	Hydrocarbon	317	.58
731-S-1142	2	Standard Oil Co. of Calif.	1750	460	Altmont Crude	150	.78
741-N-0208	4	International Boiler Works	1611	230	Therminol #66	433/555	.84
741-S-1396	1	Bechtel - Mississippi Power & Light	1500	458	Filtered Water	40/150	1.0
741-S-1528	1	Bechtel - Standard Oil	2240	405	Jet Merox	80	.77
741-L-0458	2	Marathon Oil	1450	416	Hydrocarbon	357	.60
741-H-0610	2	R.M. Parsons - Gulf Oil Co.	1031	236	Propylene	---	.499
741-H-0831	2	Fluor - Champlin Petroleum	1308	305	Sour Light Hydrocarbon	150	.591
751-H-0010	1	Fluor - Champlin Petroleum	1069	359	Debutinized Bottoms	374	.56
751-N-0226	2	Foster Wheeler - Ashland Petroleum	1378	433	Furfural	325	1.003
761-L-0028	1	Dow Chemical - Freeport, TX	2555	406	Kerosene	437	.668
761-H-0085	2	Cities Services Oil Co. - Lake Charles, LA	2580	444	Heavy Gas Oil	525	.77
771-C-1659	1	Ashland Petr. - Caltletsburg, KY	1234	234	Diesel	493	.652
771-N-0240	2	Ashland Petr. - Caltletsburg, KY	1774	408	Light Naphtha	244	.645
771-C-1703	1	Ashland Oil, Inc. - Canton, OH	1030	313	Gasoline	130	.59
771-H-0098	2	Tenneco Oil - Chalmette, LA	1313	340	Hydrocarbon	568	.60
781-H-0137	2	Getty Refining - Delaware City, DE	1192	377	Sour Water	88	.99
781-N-0627	2	Gulf Oil Co. - Philadelphia, PA	1555	294	Furnace Oil	440	.739



DOUBLE SUCTION PROCESS PUMPS – TYPE DSJA

PARTIAL LIST OF USERS

Serial No.	No. Pumps	Customer	Capacity GPM	Differential Head (Feet)	Liquid	Temp. °F	Specific Gravity
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6 x 8 x 11

796-E-0210	1	Caltex Petroleum - Bahrn Petroleum	1622	475	Crude Oil	300	77
796-E-0233	2	Gulf Oil - Philadelphia, PA	1410	283	Gas Oil	360	815
796-E-0229	3	Gulf Oil - Philadelphia, PA	1450	383	Furnace Oil	440	70
796-E-0227	2	Gulf Oil - Philadelphia, PA	1900	432	Light Gas Oil	388	772
806-V-0238	3	Empresa Colombiana De Petroleos	1200	311	Crude Oil	86	90
806-E-0657	2	Gulf Oil - Philadelphia, PA	1585	450	Vacuum Gas Oil	390	77
816-W-0613	1	Conoco - Billings, MT	2000	407	Crude Oil	270	765
836-M-0002	1	Union Oil - Lemont, IL	1445	455	Diethylene Glycol	300	922

6 x 8 x 13½

721-C-0034	1	Union Oil Co. of California	1800	550	Heavy Gas Oil	650	71
721-H-0009	2	Foster Wheeler - Gulf Oil Co	1800	469	H.C. & H.F. Acid	110	464
731-S-1005	1	Standard Oil Co. of California	2000	550	Water	60	1.0
731-H-0062	2	M.W. Kellogg - Peoples Gas	1450	604	Naphtha	360	46
731-H-0404	2	S.I.P. Inc. - Exxon Chemicals	850	165	Xylene	380	70
731-H-0306	3	Exxon Co., U.S.A.	1500	716	Gas Oil	250	87
731-H-0354	2	Barnard & Burk Inc. - Shell Oil	1360	570	Dehex Tops	139	612
731-L-0668	2	Marathon Oil	1300	638	Hydrocarbon	516	65
741-N-1883	2	Aramco	1470	710	Condensate	307	917
76D-Y-1386	1	Dow Chemical N.V.	1232	499	Butane	86	60
781-C-0507	1	Amoco Oil Company	2300	565	Finished Gasoline	100	71
816-V-0203	6	Corp. Nacional Del Cobre	1823	443	Reclaimed Water	46/64	1.0

6 x 10 x 19

701-H-0350	2	Humble Oil & Refining Co	1500	450	Brine	100	1.2
731-H-0360	2	Shell Oil Company	2000	210	Rectified Absorber Bottoms	228	57
731-S-1161	2	Standard Oil Co. of California	2700	310	Hydrocarbon	675	74
741-L-0378	1	Marathon Oil	1800	340	Hydrocarbon	105	687
741-L-0588	1	Marathon Oil	1800	340	Hydrocarbon	105	687
761-E-0267	2	Exxon Chemical Co. - Baton Rouge, LA	2474	269	H.C. & Solvent	266	755



DOUBLE SUCTION PROCESS PUMPS — TYPE DSJH

PARTIAL LIST OF USERS

Serial No.	No. Pumps	Customer	Capacity GPM	Differential Head (Feet)	Liquid	Temp. °F	Specific Gravity
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4 x 6 x 10½

761-F-0169	16	Aramco Services Company	780	314	Hot Water	311	91
761-F-0317	8	Aramco Services Company	780	314	Hot Water	311	91
781-L-0014	2	Gulf Oil Co - Philadelphia PA	600	297	Lean Oil	105	71
796-F-0041	4	Aramco Services Company	780	294	Hot Water	311	91
826-S-0022	2	Texaco - Convent. LA	738	243	Steam Condensate	212	93

4 x 6 x 13¼

721-L-0471	2	C.F. Braun - Amoco Chemicals	900	640	Hydrocarbon	238	69
741-L-0754	2	C.F. Braun - Amoco Chemicals	900	640	Hydrocarbon	238	69
751-H-0168	1	Continental Oil Co	1200	475	Crude Oil	500	68
781-N-0264	2	Exxon Co. USA - Baton Rouge, LA	913	520	Naphtha	148	591
806-S-0416	2	Koch Refining - Pine Bend, MN	842	402	Hydrocarbon	510	581
806-W-0104	2	Powerine Oil Co - Santa Fe Springs, CA	1035	627	Hot Potassium Solution	240	122
826-S-0007	1	Saber Refining - Corpus Christi, TX	1000	544	Gasoline Component C	100	68
826-S-0056	2	Texaco - Port Arthur, TX	1095	568	Gasoline	360	61
826-S-0193	1	Texaco - Convent. LA	740	462	N-Butane	45	55
826-S-0284	1	Conoco - Westlake, LA	1037	557	Circulating Oil	672	684
826-S-1045	1	Shell Oil Co - Norco, LA	500	595	Pitch - Hydrocarbon	675	83
826-W-0057	2	Chevron - Richmond, CA	1290	572	Hydrocarbon	417	731

4 x 6 x 19

761-H-0618	3	Celanese Chemical Co - Bayport, TX	1350	1080	Organic Fluid	263	97
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6 x 8 x 11

731-H-0110	1	Continental Oil Company	1000	285	Hydrocarbon	350	683
731-L-0706	2	Marathon Oil	2100	336	Hot Water	496	788
741-H-0591	1	Lummus Co - Gulf Oil Chemicals	1370	396	Hydrocarbon	254	67
741-N-0186	1	E.I. Dupont De Nemours	850	400	Anhydrous Ammonia	136	543
741-L-0463	2	Exxon - Baytown, TX	1465	444	Hydrocarbon	110	78
741-V-0676	2	Aramco	2240	405	Propane	110	456
741-V-0433	2	Aramco	2240	405	Propane	110	456
741-L-0752	2	C.F. Braun - Amoco Oil Co	825	190	Hydrocarbon	159	73
771-H-0096	2	Tenneco Oil Co - Chalmette, LA	1346	318	Boiler Feed Water	195	80
781-L-0032	2	La Gloria Oil & Gas - Tyler, TX	1763	350	24 7° API Oil	548	713
781-F-0956	2	Pullman Kellogg - Aramco	2049	341	Heavy Gas Oil	643	88
796-W-0079	2	Champlin Petroleum - Wilmington, CA	1500	362	Hydrocarbon	437	536
796-M-0121	1	Amoco Oil Co - Whiting Refinery	2100	490	Furnace Oil	605	66
803-E-1704	2	Sunflower Electric	3029	376	Condensate	350	891
806-S-0414	2	Koch Refining - Pine Bend, MN	1865	444	Hydrocarbon	484	531
806-E-0243	2	Exxon Co. USA - Linden, NJ	1580	353	Gas Oil	560	705
823-V-0013	2	Korea Electric - Goseong, Korea	675	82	Condensate	500	897
836-S-0091	2	American Petrofina - Port Arthur, TX	2143	332	Heavy Raffinate	269	602
836-S-0075	2	American Petrofina - Port Arthur, TX	2102	432	Depentanizer Bottoms	458	60
836-W-0051	2	Union Oil - Roden, CA	1520	437	Flashed Crude	334	83

6 x 8 x 13½

731-L-0084	1	Fluor - NIOC	1210	323	H.C. Naphtha	404	544
771-C-0020	2	Koch Refining Co	2000	636	Reduced Crude	550	78
771-N-0244	1	Ashland Petroleum - Catlettsburg, KY	1186	734	Reduced Crude	615 641	78
781-L-0641	4	Cardinal Operating Co - Brilliant, OH	1700	475	Water	60	10
796-W-0154	2	Fluor - SIR - Ivory Coast, Africa	1408	394	Light Naphtha	144	625
816-W-0181	2	Conoco - Westlake, LA	1700	441	Gasoline	385	54
816-W-0153	2	Pertamina - Java, Indonesia	1157	496	Vacuum Bottoms	720	82
826-S-0183	2	Tenneco - Chalmette, LA	1157	459	Gas Oil	628	59
836-W-0425	2	Conoco - Westlake, LA	1450	630	Desulfurized Gas Oil	650	755

6 x 10 x 19

721-L-0368	2	Fluor - Hercul Chemical Co	1926	302	Mixed Xylenes	276	58
771-H-0001	2	Pullman Kellogg - Exxon Chemical Co	1855	354	H.C. & Solvents	153	784
806-S-0526	2	Conoco, Inc - Westlake, LA	1675	325	Hydrocarbon	518	51
816-W-0094	2	Conoco, Inc - Westlake, LA	2023	196	Coker Dist Draw	424	638



DOUBLE SUCTION PROCESS PUMPS — TYPE DSJH

PARTIAL LIST OF USERS

Serial No.	No. Pumps	Customer	Capacity GPM	Differential Head (Feet)	Liquid	Temp. °F	Specific Gravity
8 x 10 x 13							
691-C-0141	3	Procon, Inc. - Shell Oil Company	3340	556	LFD Spray	611	79
731-L-0148	2	Fluor - NIOC	2138	279	Kerosene	438	62
731-L-0596	2	Pertamina - Java, Indonesia	2589	404	Light Gas Oil	478	65
741-C-0121	2	Interstate Power Company	2800	640	River Water	35/85	1.0
741-C-0221	2	Buckeye Power, Inc.	3500	486	Mild Acid	---	1.0
761-F-0069	8	Fluor - Aramco Services Co	3750	552	Propane	110	46
771-H-0055	2	Brown & Root - Shell Oil Company	4000	501	Kerosene	100	84
771-C-1235	2	A.G. McKee & Co. - Shell Oil Co.	3689	614	Water	86	1.0
771-F-0186	2	Aramco Services Co.	3500	624	Bunker Fuel	80/120	94/924
771-H-0144	1	Conoco, Inc. - Westlake, LA	1900	140	Heavy Naphtha	290	747
796-E-0232	1	Gulf Oil - Philadelphia, PA	2625	321	Naphtha	315	662
806-S-1116	1	Tenneco Oil Co. - Chalmette, LA	2100	550	Flashed Crude	450	71
816-W-0115	2	Pertamina - Java, Indonesia	2822	457	Sweet Naphtha	426	56
826-S-0081	2	Tenneco - Chalmette, LA	3171	519	Hydrocarbon	550	815
836-S-0079	2	American Petrolina - Port Arthur, TX	4004	532	Splitter Bottoms	549	63
8 x 10 x 15							
741-V-0420	3	Aramco	2420	828	Natural Gas	120	53
741-C-1738	2	Vitok Engineers - Nitroven	2150	1033	20% Mono. Olimine	113	1.01
741-L-0439	2	Fluor - Exxon	1660	747	Isobutane	130	51
741-V-0010	6	Chinese Petroleum Corp. - Taiwan	1620	790	Crude Oil	80	862
741-L-0415	2	L A Dept of Water & Power	3250	800	Fuel Oil	140/210	96
741-S-1516	1	Bechtel - Standard Oil of California	2800	630	JP-4	65/80	77/82
741-L-0454	2	ECOL - Garyville, LA	1700	635	Hydrocarbon	110	597
741-V-0599	3	Priemer-Trend - Indonesia	2000	900	Crude Oil	Amb	86
741-C-1619	3	Cincinnati Gas & Electric - OH	1700	925	Ash Sluice	Amb	1.0
741-H-0993	2	Atlantic Richfield Co. - Houston, TX	1656	903	Desulfurized Oil	585	734
741-L-0461	2	Exxon - Baytown, TX	2067	794	Hydrocarbon	296	64
741-N-0957	2	Lummus Co. - Techmash Import	1322	658	MEA Solution	171	98
741-V-0620	2	Aramco	2800	700	Boiler Feed Water	250	94
741-C-0215	2	Buckeye Power, Inc. - Brilliant, OH	2200	850	Water	40/85	1.0
741-L-0471	2	Atlantic Richfield Co. - Houston, TX	1717	877	Lean DEA	183	986
741-H-0608	2	Fluor - Champlin Petroleum	2447	534	Hydrocarbon	649	61
751-V-1806	2	Aramco	2400	710	Condensate	250	94
751-H-0561	3	Rock Island Ref. - Indianapolis, IN	1285/1400	742/636	35.6% API Mixed Oil	60/249	847/777
751-H-0081	2	Exxon USA, Inc.	2342	525	Crude Oil	60/140	83/93
751-C-1665	1	Ashland Oil, Inc	2200	908	Hydrocarbon	450	75
751-L-0010	1	City of Los Angeles	3250	800	Fuel Oil	140/210	96
751-L-0110	2	RM Parsons - Shell Oil Company	2300	646	Acetonitrile	240/315	72/66
761-E-0012	1	Tennessee Valley Authority	2000	730	Condensate	173	975
771-C-1606	1	Cincinnati Gas & Electric - OH	1700	925	Water	125	1.0
771-N-0238	2	Ashland Petroleum - Catlettsburg, KY	2698	790	Crude Oil	366	755
771-H-0569	1	Champlin Petroleum Co. - Corp Chr. TX	1850	523	Absorber Bottoms	375	53
771-N-0039	1	Buckeye Power, Inc. - Brilliant, OH	2200	850	Water	40/85	1.0
771-H-0078	1	Texaco, Inc. - Port Arthur, TX	1800	700	Raw Crude	85	85
781-L-0001	2	LaGloria Oil & Gas - Tyler, TX	1841	892	Flashed Crude	236	785
781-C-1627	3	Ashland Oil Company - Catlettsburg, KY	2500	680	Gasoline	100	73
781-N-0209	1	Empresa Colombiana de Petroleos	3120	639	Hot Oil	613	77
781-H-0113	2	Shell Oil Co. - Norco, LA	2144	576	Sour Gas Oil	100	85
781-H-0060	2	Phillips Petroleum - Texas	2200	693	Fuel Oil	600	60
781-H-0094	3	Shell Oil Co. - Norco, LA	2100	664	Deminerlized Water	45	80
781-N-0241	2	Llanoven, S.A. - Venezuela	1400	810	Vacuum Col Residue	700	793
781-C-0065	2	Amoco Oil Company - Texas City, TX	1902	637	Hydrocarbon	110	718
796-M-0070	2	Amoco Oil Company - Texas City, TX	1100	195	Hydrocarbon Residual	725	78
796-S-1026	1	Shell Oil Company - Norco, LA	1550	735	Pitch	670/765	815
796-S-1027	1	Shell Oil Company - Norco, LA	1520	610	Heavy Gas Oil	551/590	634
796-S-0848	2	Coastal States Petr. - Corp Chr. TX	3090	591	Heavy Vacuum Gas Oil	554	777
796-W-0152	2	Fluor - SIR - Ivory Coast, Africa	2108	381	45° API Oil	653	61
816-W-0117	2	Pertamina - Java, Indonesia	2422	451	Kerosene	592	582
816-S-0748	1	Celanese Chem - Pampa, TX	3200	747	Acetic Acid & Butane	130	68
826-S-0006	1	Saber Refining - Corpus Christi, TX	2100	544	Gasoline Component	100	68
836-W-0053	2	Union Oil - Rodeo, CA	1394	954	Hydrocarbon	530	79

DOUBLE SUCTION PROCESS PUMPS – TYPE DSJH

PARTIAL LIST OF USERS

Serial No.	No. Pumps	Customer	Capacity GPM	Differ-entia Head (Feet)	Liquid	Temp. °F	Specific Gravity
8 x 10 x 18							
731-H-0017	2	Texaco, Inc - Fedalga WA	2323	1080	Flashed Crude	270	76
731-H-0348	2	Exxon Co. USA - Baton Rouge LA	3150	1100	Flashed Crude	380	738
731-L-0654	3	Marathon Oil - Garyville, LA	3250	951	Hydrocarbon	80	86
731-L-0657	2	Marathon Oil - Garyville, LA	3530	892	Hydrocarbon	380	729
741-N-0669	2	Irving Ref - New Brunswick, Canada	4700	1040	Crude Oil	35	865
761-E-0005	1	Tennessee Valley Authority	3600	1200	Condensate	366	883
761-E-0345	1	Marathon Oil - Garyville, LA	3530	892	Crude Oil	265	792
761-H-0001	2	Telespen - Shell Oil Company	5175	1115	Kerosene	290	72
771-N-0263	2	Exxon Co. USA	2460	1215	Crude Oil	325	75
781-H-0034	2	Phillips Petroleum - Sweeney, TX	4200	1075	Crude Oil	90	842
781-C-0040	2	Ashland Petroleum - Callettsburg, KY	2650	929	H.C. & H.F. Acid	143	50
796-W-0013	2	Conoco - Lake Charles, LA	3370	1064	ES Sider Crude	60	84
79D-H-0071	2	Romchim, Romania	2642	771	Crude Oil	68	85
796-E-0224	3	Gulf Oil Co. - Philadelphia, PA	3300	647	Crude Oil	535	66
796-S-0144	1	Cities Services Co. - Lake Charles, LA	4390	1148	Desalted Crude	238	785
826-S-0266	2	Tenneco - Chalmette, LA	2495	1209	Hydrocarbon	75	56
10 x 12 x 15							
681-L-0440	2	C.F. Braun - Union Oil Co.	4480	661	Heavy Vacuum Gas Oil	525	758
711-S-0758	2	Bechtel - Mississippi Power & Light	6350	800	Boiler Feed Water	284	927
711-N-0613	3	Caltex Petroleum Corp.	3800	613	Crude Oil	140	826
721-C-0025	2	East Kentucky RECC	2750	315	Feed Water	305	916
721-N-1443	1	Asiatic Petroleum Corp.	3610	374	Crude Oil	77	83
731-L-0682	2	Marathon Oil	5260	908	Hydrocarbon	540	743
741-L-0137	2	Pertamina - Java, Indonesia	3742	387	Waxy Spindle Distillate	465/610	765
741-V-0214	2	Aramco	4000	622	Gasoline	130	67
741-L-0467	2	Fluor - Sohio	2130	170	Boiler Feed Water	496	79
741-V-0427	2	Aramco	4000	622	Gasolines	130	67
741-V-0504	1	Aramco	5600	607	Butane	30	59
741-V-0529	1	Singapore Petroleum Co.	4200	437	Diesel Oil	80	83
741-C-0170	2	Kentucky Utilities	4400	875	Water	60/120	1.0
741-L-0819	1	Marathon Oil	5260	908	Hydrocarbon	540	743
751-L-0034	1	Standard Oil Co. of California	4850	780	Crude Oil	70/150	88
761-H-0038	9	National Iranian Gas Co.	2451	145	34% Wt DEA	250	99
781-H-0036	2	Litwin Corp - Phillips Petroleum	4600	686	Crude Oil	266	775
781-E-0382	2	Good Hope Refining - Good Hope, LA	4850	622	Crude Oil	80	835
781-C-0055	2	Central Louisiana Electric	4500	805	Strained Salt Water	40/95	1.0
796-M-0077	2	Koch Refining Company	2325	175	Reduced Crude	600	78
806-W-0070	2	C.F. Braun - Conoco Chemicals	2400	132	Hydrocarbon	225	678
10 x 14 x 20							
691-N-0495	4	IGE - Hidroelectrica Espanola, Spain	5100	300	Dearated Condensate	330	902
741-V-0501	1	Aramco	5850	270	Dry Crude	160	834
741-V-0502	2	Aramco	6050	260	Diesel Oil	350	712
741-V-0477	2	Asiatic Petroleum	7200	429	Sea Water	95	1.02
741-V-0425	2	Aramco	4225	280	Dry Crude	90/140	84
751-V-1804	2	Aramco	5000	280	Condensate	200	965
761-F-0001	8	Fluor - Aramco	3800	294	Ethane	41	392
761-F-0009	12	Fluor - Aramco	4715	303	Propane	135	434
761-F-0097	2	Fluor - Aramco	4050	232	Hydrocarbon	162	60
761-F-0021	9	Fluor - Aramco	4440	318	Butane	150	508
761-C-1249	3	Shell Oil Company - Norco, LA	2835	108/129	H.C./Acid	143/148	80 99
781-F-0954	2	Pullman Kellogg - Aramco	4394	326	Diesel	433	85
796-S-1001	1	Shell Oil Company - Norco, LA	7150	299	Crude Oil	350	78
796-F-0009	1	Pullman Kellogg - Aramco	4400	318	Butane	150	508
816-W-0102	3	Pertamina - Java, Indonesia	3588	232	Light Diesel	500	68
816-W-0147	2	Pertamina - Java, Indonesia	3440	243	Gas Oil	500	822
836-E-0102	2	Conoco Chemicals - Baltimore, MD	3600	280	Therminol 66	550	824

DOUBLE SUCTION PROCESS PUMPS – TYPE DSJH

PARTIAL LIST OF USERS

Serial No.	No. Pumps	Customer	Capacity GPM	Differential Head (Feet)	Liquid	Temp. °F	Specific Gravity
12 x 16 x 22							
681-H-1079	2	Celanese Chemicals Co	5400	312	Kerosene	455	63
691-H-1033	1	Brown & Root - Gulf Oil	2900	300	Hydrocarbon	398	69
701-H-0737	2	American Oil Company	4800	325	Sulfolane	335	1.14
701-H-0272	2	Ford, Bacon & Davis - Shell Oil	5088	428	Xylenes	409	745
701-L-0347	1	Atlantic Richfield Co	4000	180	Hydrocarbon	Amb.	74 / 86
711-N-0616	2	Aramco	4200	460	Propane	130	424
731-L-0666	2	Marathon Oil	5375	311	Hydrocarbon	530	639
731-L-0660	2	Marathon Oil	4200	392	Hydrocarbon	670	767
781-H-0078	2	Fluor - Marathon Oil	4260	395	Hydrocarbon	154	515
781-C-0038	2	Procon - Ashland Petroleum	3200	500	HC & HF Acid	378	513
731-E-0380	2	Good Hope Refining	5500	426	Crude Oil	379	725
796-V-0005	1	Honan Oil Refinery Ltd - Korea	3700	460	Bunker	158	96
806-F-1782	3	Dravo - Aramco	6800	290	Diesel Oil	300	735
806-S-0110	1	Celanese Chemicals Co	5400	388	Kerosene	410	582
816-S-0125	2	Champlin Petr - Corpus Christi, TX	3736	484	Hydrocarbon	594	611
816-S-1041	1	Good Hope Refining, LA	5500	426	Crude Oil	379	725
816-W-0110	3	Pertamina - Java, Indonesia	3769	275	Naphtha	249	62
826-S-0131	2	Esso/Exxon - Malaysia	3190	325	Essotherm 500HC	300	782
836-V-0205	2	Lago Oil/Exxon - Aruba	5974	427	Tar - Pitch	220	42
12 x 16 x 23							
701-E-0182	1	Orlando Utilities Commission	5625	590	Condensate	370	888
71SBO126	4	Thompson Castlemaine	4906	240	Condensate	327	905
741-L-0003	2	R.M. Parsons - ECOL	7500	457	Hydrocarbon	484	505
741-V-0210	2	Aramco	4910	517	Butanes	150	507
741-V-0423	2	Aramco	4910	517	Butanes	150	507
741-L-0387	2	Marathon Oil	5420	515	Hydrocarbons	584	597
741-S-1517	1	Bechtel - Standard Oil Co	7000	368	Gasoline Blender	78	74
771-H-0105	2	Texaco, Inc	4500	549	Diesel Oil	618	61
781-H-0086	3	Fluor - Marathon Oil	7503	441	HC & HF Acid	475	465
816-W-0105	3	Pertamina - Java, Indonesia	5865	363	Kerosene	378	67
836-S-0083	2	American Petrofina - Port Arthur, TX	4816	516	Heavy Naphtha	516	51
12 x 16 x 26							
701-N-0104	4	I G E - Tokyo Electric	8380	334	Boiler Feed Water	312	913
781-H-0074	2	Marathon Oil - Marathon, LA	6350	252	Slurry	685 / 740	87
816-W-0143	2	Pertamina - Java, Indonesia	6737	552	Waxy Spindle Distillate	485	76
826-S-0012	1	Lagoven S A - Venezuela	8400	677	Diluent Marine Diesel	85	869
826-S-0052	1	Tenneco - Chalmette, LA	7000	581	Diesel	80	88

VINTAGE PARTS MARKETING

PRODUCT LINE:	DSJH
HERITAGE COMPANY:	Byron Jackson
CONFIGURATION:	BB2 - Double Suction, Between Bearings
TYPICAL APPLICATION:	Refinery
VINTAGE:	1978 - 1990
PRODUCT LIFESPAN:	API 610, 6th – 7th edition
SUBJECT:	Product Specific Engineering

The DSJH was the between bearing, double suction API process pump. The between bearing design was new for the 6th edition. API also allowed the overhung, double suction design with customer approval. This is the model DSJA. Technical information for both is included in this section.

NOTE: This information is intended for the use of Flowserve Employees. The information provided is based on standard catalogue / price book information. Details for specific units or serial numbers may be different as a result of non-standard construction, and parts, repairs and upgrades provided by Flowserve or third parties.



PREFACE

This document lists material codes for basic materials used in Byron Jackson pumps. The codes represent interationally recognized standards which meet specific Byron Jackson requirements.

The document is segmented into:

Segment 1 - Users' Guide

Segment 2 - Material Code Index - Cross Reference Table

Segment 3 - Material Code Group Tables

ISSUED 10 MARCH 1981	ISSUED BY <i>Carl H. Himmelman</i>	APPROVED BY <i>Mark C. Schaub</i>
REVISED 15 NOVEMBER 1986	CARL H. HIMMELMAN	MARK C. SCHAUB

Collins
Memorandum

**Borg-Warner
Industrial
Products,
Inc.**

**Pump
Division**

**P. O. Box
2017
Terminal
Annex**

**Los Angeles
California
90051**

**Telephone
213 587 6171
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677233**



**BorgWarner
Industrial Products**

Date

28 August 1987

Subject

Material Code Revision

CH-87-025

From

C. Himmelman

To

Material Code (P-400) Holders

Please make the following revision to your copy of the Byron Jackson Material Code dated 15 November 1986. Keep this letter with your copy of the Code for reference. All changes are effective now and will be incorporated in the next issue of the Code.

1. Index-Cross Reference
 - a. Page 5. Change IJ to current group 05.
 - b. Page 7. Change VK to current group 05, change YC to current group 01.

2. Group 01 (Page 9)
 - a. Code AF: Delete "hot roled". Add "HR".
 - b. Code AK: Delete "Ann". Add "HR".
 - c. Code YC: New Code. Enter A217GrC5 (static casting) in "other" column. Enter N & T in "HT/Hardness" column. Enter general castings in "applications" column.

3. Group 02 (Page 10)

Code BX: In "Bars" column, change A476 to A276.
In "Forgings" column, change A743 to A473.

4. Group 03 (Page 13)

Code OD: In "Bars" column, change BMA to 8MA.

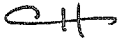
5. Group 05 (Pages 15 and 16)
 - a. Code IC: In "Bars" column, insert < in front of first 6 and > in front of second 6.
 - b. Code IJ: New code. Enter A216GrWCA (static casting) in "other" column. Enter general castings in "Applications" column.
 - c. Code VK: New code. Enter A216GrWCC (static casting) in "other" column. Enter general castings in "Applications" column.

6. Group 08 (Page 21)

Code PQ: Change "Other" entry to read, "Babbitt impregnated carbon grade GM-105.3 and Met Car M-159. Change "Common Term" to "Carbon" from "Graphalloy".

If you have any comments or questions about the material code, please contact me.

Regards,



Carl Himmelman



SEGMENT 1 USERS GUIDE

Purpose

This procedure affects (but is not limited to) the following functions at all Byron Jackson Pump Division facilities.

Marketing and Sales, in discussion with customers when processing orders.

Applications Engineering and Estimating, in processing propositions and/or quotations.

Design Engineering, in developing designs and establishing materials of construction.

Materials Engineering and Metallurgy, in specifying materials and processes and establishing standards.

Manufacturing and Industrial Engineering, in developing manufacturing processes.

Materials Management, in purchasing make or buy decisions and in buying materials and services.

Production Control and Manufacturing, in scheduling and manufacturing activities.

Quality Assurance and Quality Control, in material identification, requirements verification and documentation.

General

The Byron Jackson Pump Division material code is a symbolic representation of a commercially oriented standard. It identifies a common material or part with simple requirements and high usage.

The code describes the base material, design base, product form, procurement data, processing data and typical applications.

The code does not describe special testing or processing, nuclear requirements, unique customer requirements or low usage items.



Procedure

Responsible Function	Action
A. Marketing, Sales, Applications Engineering, Estimating Design Engineering, Materials Engineering/Metallurgy.	<ol style="list-style-type: none">1. Evaluate material requirements from customer specifications, service conditions, design requirements, Byron Jackson experience.2. Choose material group, ASTM or other specification, special processing.3. Identify desired group in segment 2.4. Locate desired group in segment 3, and find ASTM or other specification in appropriate column.5. Check that proper special processing needs (such as overlay, heat treatment) are shown.6. Determine material code.7. If no code exists,<ol style="list-style-type: none">a. Use XX. See group 11.b. If material will have future repeated use, submit material code request to LAO Metallurgical Engineering.
B. Manufacturing/Industrial Engineering, Materials Management.	<ol style="list-style-type: none">1. Read code from Byron Jackson document, such as Bill of Material.2. Find code in index segment 2.3. Find code in segment 3.4. Read complete description of code.5. Determine available alternates.6. Determine best product form among alternates.<ol style="list-style-type: none">a. Price/Availability.b. Best processing.c. Available inventory.d. Consolidate with other call-outs.7. Decide who will perform work included in options-Byron Jackson, vendor, sub-contractor.8. If decisions limit later code options, state in plain language on applicable documents.
C. Production Control, Manufacturing.	<ol style="list-style-type: none">1. Same as in B above, except that options committed to in B cannot be changed without permission.
D. Quality Assurance/Control.	<ol style="list-style-type: none">1. Read code in applicable Byron Jackson Pump, Division document such as Bill of Material or purchase order.2. Find code in index segment 2.3. Find code in segment 3.4. Verify software/hardware compliance with specification and processing indicated.



SEGMENT 2

INDEX - CROSS REFERENCE TABLE

The Byron Jackson Material Code Index - Cross Reference Table is listed on the pages that follow.

The purpose of the Index - Cross Reference Table is three-fold:

1. To list all codes in the Byron Jackson Material Code system in alphabetical sequence.
2. To identify the status of each code for the purpose of revision control, cross reference and applicability.
3. To index the codes to their respective material group for ease of selection.

Explanation of Index - Cross Reference Table

Code Column

This column lists the Byron Jackson Material Codes in alphabetical order.

- indicates a revised code.

Status column

This column lists the status of each code. There are five different status designations available. Each code can only have one status designated and shall be as follows:

- BWMS - Assigned to Borg-Warner Mechanical Seal Division. See BWMS Code for meaning and status.
- Current - Now in active usage within Byron Jackson Pump Division.
- Deleted - Code no longer in active usage. No replacement code issued. Asterisk-contact LAO Metallurgical Engineering for possible substitute.
- Use ___ (___) - Code is no longer in active usage. Use substituted code listed in status column. (___) indicates year transition was made.
- Vacant - An unassigned, undesignated code. On request, a vacant code may qualify for Current. See above.

Group Column

This group lists the material group to which each code is assigned. A code cannot be in more than one group. The groups are designated as follows and are found in the Material Code Tables.

- Group 01 - Alloy Steel
- 02 - Martensitic Stainless Steel
- 03 - Austenitic Stainless Steel
- 04 - Miscellaneous Stainless Steel
- 05 - Carbon Steel
- 06 - Non-Ferrous Metals
- 07 - Cast Iron and Meehanite
- 08 - Carbon
- 09 - Commercial Fabrications
- 10 - Gaskets
- 11 - Miscellaneous Materials
- 00 - No group listing in the material code tables.



INDEX - CROSS REFERENCE

CODE STATUS	GROUP CODE STATUS	GROUP CODE STATUS	GROUP CODE STATUS	GROUP CODE STATUS	GROUP
AA Current	01	CQ Current	03	FG Current	06
AB Current	01	CR Use HR (62)	03	FH Current	06
AC Current	01	CS Use HS (62)	03	FI BWMS	00
AD Deleted* (80)	00	CT Use HT (62)	03	FJ Current	06
AE Current	01	CU Use CV (62)	03	FK Current	06
AF Current	01	CV Current	03	FL BWMS	00
AG Current	01	CW Use HT (62)	03	FM Current	06
AH Current	01	CX Current	03	FN Current	06
AI BWMS	00	CY Use CX (62)	03	FO BWMS	00
AJ Current	01	CZ Use DB (62)	03	FP Current	06
AK Current	01	DA Use KY (86)	03	FQ Use EX (62)	06
AL Current	02	DB Current	03	FR BWMS	00
AM Deleted* (80)	00	DC Use DB (62)	03	FS Current	06
AN Use BD (69)	02	DD Current	03	FT Deleted* (62)	00
AO BWMS	00	DE Use DD (62)	03	FU Use FV, FW (62)	07
AP Current	02	DF Current	03	FV Current	07
AQ Use AL (62)	02	DG Deleted* (62)	00	FW Current	07
AR Use AP (62)	02	DH Current	03	FX Current	07
AS Use AL (62)	02	DI BWMS	00	FY Current	07
AT Use AY (69)	02	DJ Current	03	FZ BWMS	00
AU Use AZ (69)	02	DK Use DB (62)	03	GA Use JV (68)	07
AV Use BA (69)	02	DL Use DH (62)	03	GB Use JW (68)	07
AW Use BB (69)	02	DM Current	03	GC Use JX (68)	07
AX Use BC (69)	02	DN Current	03	GD Current	05
AY Current	02	DO BWMS	00	GE Current	08
AZ Current	02	DP Use HP (62)	03	GF Current	08
BA Current	02	DQ Use DN (62)	03	GG Current	08
BB Current	02	DR Use HQ (62)	03	GH Current	08
BC Current	02	DS Use DD (62)	03	GI BWMS	00
BD Current	02	DT Deleted* (80)	00	GJ Current	08
BE Current	02	DU BWMS	00	GK Current	08
BF Current	02	DV Deleted* (80)	00	GL Use GE (65)	08
BG Current	02	DW Deleted* (80)	00	GM Current	11
BH Current	02	DX Deleted* (62)	00	GN Current	11
BI BWMS	00	DY Current	03	GO BWMS	00
BJ Use BX (62)	02	DZ BWMS	00	GP Current	05
BK Use BW (62)	02	EA Use DY (62)	03	GQ Use Z A B C D F G H J i 75)	09
BL Deleted* (80)	00	EB Deleted* (62)	00	GR Current	10
BM Use BG (62)	02	EC Use DD (62)	03	GS Current	10
BN Use BH (69)	02	ED BWMS	00	GT BWMS	00
BO BWMS	00	EE BWMS	00	GU Current	10
BP Use BW (69)	02	EF Use HU (62)	06	GV Use GW, GY, KB, KW (62)	10
BQ Use BX (69)	02	EG Use HU (62)	06	GW Current	10
BR Deleted* (62)	00	EH Current	05	GX BWMS	00
BS Use BZ (69)	02	EI BWMS	00	GY Current	10
BT Deleted* (62)	00	EJ Current	05	GZ Deleted* (62)	00
BU Use BG (62)	02	EK Current	05	HA Current	10
BV Use BH (62)	02	EL Current	05	HB BWMS	00
BW Current	02	EM Current	05	HC Use JT or JU (62)	00
BX Current	02	EN Current	05	HD BWMS	00
BY Deleted* (62)	00	EO BWMS	00	HE Deleted* (80)	00
BZ Current	02	EP Current	05	HF Use JP (62)	05
CA Deleted* (62)	00	EQ Current	05	HG BWMS	00
CB Current	02	ER Current	05	HH BWMS	00
CC Current	02	ES Current	05	HI BWMS	00
CD Current	02	ET Current	05	HJ Current	03
CE Deleted* (80)	00	EU Current	05	HK Deleted* (62)	00
CF Deleted* (80)	00	EV Current	06	HL Use BD (78)	02
CG Current	03	EW Current	06	HM Use DH (62)	03
CH Current	03	EX Current	06	HN Use DM (80)	03
CI BWMS	00	EY Current	06	HO BWMS	00
CJ USE CH (62)	03	EZ Current	06	HP Current	03
CK Current	03	FA Current	06	HQ Current	03
CL Use CH (62)	03	FB Current	06	HR Current	03
CM Current	03	FC Current	06	HS Current	03
CN USE CH (62)	03	FD Current	06	HT Current	03
CO BWMS	00	FE Current	06	HU Current	06
CP Use CX (62)	03	FF Deleted* (80)	00	HV Deleted* (80)	00
				HW Current	06
				HX Use BX (69)	02
				HY Use HT (83)	03
				HZ Use CH (83)	03
				IA Current	01
				IB Current	05
				IC Current	05
				ID Current	06
				IE Current	05
				IF Current	07
				IG Current	06
				IH Current	02
				II Vacant	00
				IJ Vacant	00
				IK Vacant	00
				IL Vacant	00
				IM Vacant	00
				IN Vacant	00
				IO Vacant	00
				IP Vacant	00
				IQ Vacant	00
				IR Vacant	00
				IS Vacant	00
				IT Vacant	00
				IU Vacant	00
				IV Vacant	00
				IW Vacant	00
				IX Vacant	00
				IY Vacant	00
				IZ Vacant	00
				JA Current	06
				JB Current	06
				JC Current	05
				JD Current	05
				JE Use KX (80)	03
				JF Current	10
				JG Current	10
				JH Deleted* (80)	00
				JI BWMS	00
				JJ Current	06
				JK Use DY (78)	03
				JL BWMS	00
				JM BWMS	00
				JN Current	06
				JO BWMS	00
				JP Current	05
				jq Current	08
				JR Use GR (68)	11
				JS Current	03
				JT BWMS	00
				JU BWMS	00
				JV Current	07
				JW Current	07
				JX Current	07
				JY Current	10
				JZ Current	11
				KA Current	11
				KB Current	10
				KC Current	05
				KD Current	11
				KE Current	02
				KF Current	06
				KG Current	06
				KH Current	10
				KI BWMS	00
				KJ Current	07
				KK Current	10
				KL Current	11



INDEX - CROSS REFERENCE (Continued)

CODE	STATUS	GROUP	CODE	STATUS	GROUP	CODE	STATUS	GROUP	CODE	STATUS	GROUP
KM	Current	06	NF	BWMS	00	PY	BWMS	00	SR	BWMS	00
KN	Current	02	NG	Use DY (75)	03	PZ	Current	05	SS	Use RM (80)	07
KO	BWMS	00	NH	BWMS	00	QA	BWMS	00	ST	Current	02
KP	Current	11	NI	BWMS	00	QB	BWMS	00	SU	Current	02
KQ	Use KR (69)	02	NJ	BWMS	00	QC	BWMS	00	SV	BWMS	00
KR	Current	02	NK	BWMS	00	QD	Use LV (71)	02	SW	BWMS	00
KS	Current	10	NL	BWMS	00	QE	BWMS	00	SX	BWMS	00
KT	Current	05	NM	BWMS	00	QF	BWMS	00	SY	BYMS	00
KU	Current	05	NN	Vacant	00	QG	Current	02	SZ	BWMS	00
KV	Use EH (80)	05	NO	BWMS	00	QH	BWMS	00	TA	BWMS	00
KW	Current	10	NP	BWMS	00	QI	BWMS	00	TB	Deleted* (80)	00
KX	Current	03	NQ	BWMS	00	QJ	BWMS	00	TC	Deleted* (80)	00
KY	Current	03	NR	BWMS	00	QK	BWMS	00	TD	Deleted* (80)	00
KZ	Current	11	NS	BWMS	00	QL	BWMS	00	TE	Deleted* (80)	00
LA	Current	11	NT	BWMS	00	QM	Current	10	TF	Deleted* (80)	00
LB	Current	11	NU	BWMS	00	QN	Deleted* (75)	00	TG	Deleted* (80)	00
LC	Current	11	NV	BWMS	00	QO	BWMS	00	TH	Deleted* (80)	00
LD	Current	06	NW	BWMS	00	QP	Deleted* (80)	00	TI	BWMS	00
LE	Current	07	NX	Current	03	QQ	Use ZABCDEFGHIJ(75)	09	TJ	Deleted* (80)	00
LF	Current	07	NY	Current	06	QR	Deleted* (80)	00	TK	Deleted* (80)	00
LG	Current	02	NZ	Current	02	QS	BWMS	00	TL	Current	07
LH	Current	03	OA	Current	02	QT	BWMS	00	TM	Current	04
LI	BWMS	00	OB	Current	03	QU	Current	11	TN	Use ES (80)	05
LJ	Current	03	OC	Current	04	QV	BWMS	00	TO	BWMS	00
LK	Current	06	OD	Current	03	QW	Current	07	TP	Current	04
LL	Current	11	OE	Vacant	00	QX	BWMS	00	TQ	Current	06
LM	Current	08	OF	Vacant	00	QY	Current	07	TR	Deleted* (80)	00
LN	Use GE (68)	08	OG	Vacant	00	QZ	Use GU (75)	10	TS	Deleted* (80)	00
LO	BWMS	00	OH	Vacant	00	RA	BWMS	00	TT	Deleted* (80)	00
LP	BWMS	00	OI	Vacant	00	RB	Deleted* (80)	00	TU	Deleted* (80)	00
LQ	Deleted* (75)	00	OJ	Vacant	00	RC	BWMS	00	TV	Current	08
LR	BWMS	00	OK	Vacant	00	RD	Current	01	TW	Current	10
LS	Deleted* (75)	00	OL	Vacant	00	RE	Current	10	TX	Deleted* (80)	00
LT	BWMS	00	OM	Vacant	00	RF	Current	07	TY	Deleted* (80)	00
LU	Current	02	ON	Vacant	00	RG	BWMS	00	TZ	BWMS	00
LV	BWMS	00	OO	Vacant	00	RH	Deleted* (80)	00	UA	BWMS	00
LW	BWMS	00	OP	Vacant	00	RI	BWMS	00	UB	BWMS	00
LX	Deleted* (80)	00	OQ	Vacant	00	RJ	BWMS	00	UC	BWMS	00
LY	Current	07	OR	Vacant	00	RK	Current	06	UD	BWMS	00
LZ	Current	05	OS	Vacant	00	RL	BWMS	00	UE	BWMS	00
MA	Use LM (68)	08	OT	Vacant	00	RM	Current	07	UF	Current	11
MB	Current	02	OU	Vacant	00	RN	Deleted* (80)	00	UG	BWMS	00
MC	Current	08	OV	Vacant	00	RO	BWMS	00	UH	BWMS	00
MD	Current	08	OW	Vacant	00	RP	Deleted* (80)	00	UI	BWMS	00
ME	Current	07	OX	Vacant	00	RQ	Deleted* (80)	00	UJ	BWMS	00
MF	Current	05	OY	Vacant	00	RR	Deleted* (80)	00	UK	BWMS	00
MG	Current	10	OZ	Vacant	00	RS	Deleted* (80)	00	UL	BWMS	00
MH	Current	06	PA	Deleted* (80)	00	RT	Deleted* (80)	00	UM	BWMS	00
MI	BWMS	00	PB	Current	05	RU	Deleted* (80)	00	UN	BWMS	00
MJ	BWMS	00	PC	Current	06	RV	BWMS	00	UO	BWMS	00
MK	BWMS	00	PD	BWMS	00	RW	Use EL (75)	05	UP	Current	05
ML	BWMS	00	PE	Current	03	RX	Use MF (75)	05	UQ	Use CC (81)	02
MM	Current	05	PF	BWMS	00	RY	Current	08	UR	Use JJ (83)	06
MN	BWMS	00	PG	BWMS	00	RZ	BWMS	00	US	Use JJ (83)	06
MO	BWMS	00	PH	Deleted* (83)	00	SA	Current	02	UT	Current	03
MP	BWMS	00	PI	BWMS	00	SB	Current	07	UU	Use FG (80)	06
MQ	BWMS	00	PJ	Deleted* (80)	00	SC	Current	11	UV	BWMS	00
MR	BWMS	00	PK	Current	08	SD	Current	02	UW	Current	11
MS	BWMS	00	PL	BWMS	00	SE	Current	02	UX	Current	07
MT	BWMS	00	PM	Current	06	SF	BWMS	00	UY	Current	07
MU	BWMS	00	PN	Use GY (70)	10	SG	Current	05	UZ	Current	07
MV	BWMS	00	PO	BWMS	00	SH	Current	07	VA	BWMS	00
MW	BWMS	00	PP	Current	08	SI	BWMS	00	VB	Current	01
MX	BWMS	00	PQ	Current	08	SJ	BWMS	00	VC	BWMS	00
MY	BWMS	00	PR	Current	08	SK	Current	05	VD	Current	03
MZ	BWMS	00	PS	Deleted* (69)	00	SL	BWMS	00	VE	Current	06
NA	Current	08	PT	Current	10	SM	BWMS	00	VF	Current	05
NB	BWMS	00	PU	Current	11	SN	BWMS	00	VG	Current	06
NC	BWMS	00	PV	Current	02	SO	BWMS	00	VH	Current	03
ND	BWMS	00	PW	Use BW (80)	02	SP	Deleted* (80)	00	VI	BWMS	00
NE	BWMS	00	PX	Deleted* (73)	00	SQ	Current	02	VJ	Current	03



INDEX - CROSS REFERENCE (Continued)

CODE STATUS	GROUP CODE STATUS	GROUP CODE STATUS	GROUP CODE STATUS	GROUP CODE STATUS	GROUP		
VK Vacant	00	WO BWMS	00	XS Vacant	00	YW Vacant	00
VL Vacant	00	WP Vacant	00	XT Vacant	00	YX Vacant	00
VM Vacant	00	WQ Vacant	00	XU Vacant	00	YY Vacant	00
VN Vacant	00	WR Vacant	00	XV Vacant	00	YZ Vacant	00
VO BWMS	00	WS Vacant	00	XW Vacant	00	ZA Current	09
VP Vacant	00	WT Vacant	00	XX Current	11	ZB Current	09
VQ Vacant	00	WU Vacant	00	XY Vacant	00	ZC Current	09
VR Vacant	00	WV Vacant	00	XZ Vacant	00	ZD Current	09
VS Vacant	00	WW Vacant	00	YA Current	03	ZE Current	09
VT Vacant	00	WX Vacant	00	YB Current	03	ZF Current	09
VU Vacant	00	WY Vacant	00	YC Vacant	00	ZG Current	09
VV Current	11	WZ Vacant	00	YD Vacant	00	ZH Current	09
VW Vacant	00	XA Current	11	YE Vacant	00	ZI BWMS	00
VX Vacant	00	XB Vacant	00	YF Vacant	00	ZJ Current	09
VY Vacant	00	XC Vacant	00	YG Vacant	00	ZK Current	09
VZ Vacant	00	XD Vacant	00	YH Vacant	00	ZL Vacant	00
WA Current	10	XE Vacant	00	YI BWMS	00	ZM Vacant	00
WB Current	06	XF Vacant	00	YJ Vacant	00	ZN Vacant	00
WC Current	03	XG Vacant	00	YK Vacant	00	ZO BWMS	00
WD Vacant	00	XH Vacant	00	YL Vacant	00	ZP Vacant	00
WE Vacant	00	XI BWMS	00	YM Vacant	00	ZQ Vacant	00
WF Vacant	00	XJ Vacant	00	YN Vacant	00	ZR Vacant	00
WG Vacant	00	XK Vacant	00	YO BWMS	00	ZS Vacant	00
WH Vacant	00	XL Vacant	00	YP Vacant	00	ZT Vacant	00
WI BWMS	00	XM Vacant	00	YQ Vacant	00	ZU Vacant	00
WJ Vacant	00	XN Vacant	00	YR Vacant	00	ZV Vacant	00
WK Vacant	00	XO BWMS	00	YS Vacant	00	ZW Vacant	00
WL Vacant	00	XP Vacant	00	YT Vacant	00	ZX Vacant	00
WM Vacant	00	XQ Vacant	00	YU Vacant	00	ZY Vacant	00
WN Vacant	00	XR Vacant	00	YV Vacant	00	ZZ Current	11



SEGMENT 3

MATERIAL GROUP TABLES

The Byron Jackson Material Codes are listed on the pages that follow. Explanation of column headings is as follows:

EXPLANATION OF TABLES

The material codes are listed in alpha sequence in a table format using various columns.

NOTE: The use of asterisks represent a small but significant part of the tables.

BJ CODE

This column contains the Byron Jackson material code and is identified with double alpha suffixes which are to be used with a six digit number to form Part Numbers. Example: 000000AA.

• indicates a revised code.

ASTM

This column lists the standards set forth by the American Society for Testing and Materials (ASTM). ASTM has an industry-wide familiarity, nationally and internationally, to suppliers and customers of Byron Jackson. In the event of conflict between ASTM specifications listed in this release and subsequent ASTM revised specifications, the latest ASTM specifications shall prevail.

To accommodate industrial and commercial material forms in Alloy Steel, Stainless Steel, Carbon Steel, and Non-Ferrous groups the ASTM column is subdivided in these sub-columns: bars, forgings, castings or other.

NOTE: When more than one specification is listed for one code and product form, it is only necessary to meet one of them—not all.

SURFACE TREATMENT

• This column contains brief descriptions, when applicable, of the various industrial and commercial forms and process for each material. Brands of equivalent chemistry and hardness may be used when hard surfacing trade names are used.

HT/HARDNESS

This column contains brief descriptions of applicable requirements of material hardness limits and thermal treatment.

APPLICATION

This column contains the most typical usage and purpose of the materials for the various pump components and parts.

NOTE: The applications listed are not all-inclusive and should not limit the use of the materials.

MATERIAL FORM

This column contains brief descriptions of the various industrial and commercial forms and processes used for each material for the remaining five material groups.

OTHER

In some material groups, i.e., the carbon group where ASTM has no available specification codes, commercial and industrial code descriptions are utilized such as a commercial brand name. In these cases the column title ASTM is changed to read **OTHER**. Also, in some columns the **OTHER** is used when the column content does not have a predominance of any particular item.

TERMINOLOGY, ABBREVIATIONS AND ACRONYMS

AISI	American Iron and Steel Institute	HRA	Hot Rolled & Annealed
ASTM	American Society for Testing & Materials	HRC	Rockwell "C" Hardness
Ann	Annealed Condition	HT	Heat Treated
CF	Cold Finished	N & T	Normalized and Tempered
CP	Hard Chrome Plated	Nom	Nominal
FCP	Flash Chrome Plated	Stl	Carbon Steel
HB	Brinell Hardness	TGP	Turned Ground and Polished
HR	Hot Rolled	TS	Tensile Strength



**TABLES
GROUP 01 ALLOY STEEL**

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
AA	A322 GR 4140/ 4142/4145				Ann	Miscellaneous Parts to be HT
AB	A434 CL BC, TP 4140/4142/4145 , AISI 4140*				HRC 20 Min	Shafting
AC	A193 GR B7 (4140 Typical)					Studs/Bolts
*AE			*** PS-1504		**HB 269 Max	Castings HT for Abrasion Resistance
*AF	A322 GR 4615/4620 8615/8620				Hot-Roled or Ann.	Service to -150F(-101C)
AG			A352 GR LC2 (casting)(2-1/2 Ni)			Service to -100F(-73C)
AH			A352 GR LC3 (casting)(3-1/2 Ni)			Service to -150F(-101C)
AJ	A322 GR 6150					Submersible Motor Parts (Belleville Springs)
AK	A322 Gr 8620				Ann	Submersible Motor Rotor Shafts
IA	DIN 14 Ni Cr 14 (1.5752)*			Case Harden 1/32 inch (0.8 mm)	HRC 45-50	Washers
RD			AISI 4130/35* (seamless tubing)		HRA	Shaft Couplings
VB	A194 GR 7 (4140 Typical)				HRC 24-38	Nuts

* Other than ASTM
** Double Normalized and Tempered

*** Medium Carbon, Cr-Ni-Mo casting.



GROUP 02 MARTENSITIC STAINLESS STEEL

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
AL	A276 A479 TP 410	A473 TP 410			Ann	Couplings/Sleeves Boiler Feed Forg/Misc.
AP	A479 TP 410 CL 2				HRC 28 Max.	HT Shafting
AY	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	W/Stell 1	Ann	Sleeves etc.
AZ	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	W/Stell 6	Ann	Sleeves etc.
BA	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	W/Colm. 4	Ann	Shaft Sleeves etc.
BB	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	W/Colm. 5	Ann	Shaft Sleeves etc.
BC	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	W/Colm. 6	Ann	Shaft Sleeves etc.
BD	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	S/Colm. 6	Ann	Shaft Sleeves etc.
BE	A193 GR B6 (410)					Alloy Steel Bolting
BF			A743 GR CA 15 (Static Casting)(11-13 CR)		N & T	Pump/Volute Case/Impeller
BG	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)		Ann	Sleeves/Nuts/Couplings
BH	A276 A479 TP 410 A276 TP 420	A473 TP 410 TP 420	A743 CR CA 15/CA 40 (Centr. Casting)		HT/ HRC28-32	Wearing Parts
BW	A276 TP 410 CondA A479 TP 410	A473 TP 410	A743 GR CA 15 (Centr. Casting)	Chrome Plated	Ann	Wearing Parts
•BX	A276 A479 TP 410 A476 TP 420	A743 TP 410 TP420	A743 CR CA 15/CA 40 (Centr. Casting)		HT/ HRC37-40	Wearing Parts
BZ	A276 TP 420	A473 TP 420	A743 GR CA 40 (Centr. Casting)		HT/ HRC47-50	Wearing Parts
CB	A582 TP 416				Ann	Miscellaneous
CC	A582 TP 416			TGP (32 RMS)	HT/HB 207-255 TS100 Ksi Min.	Shafting
CD	A582 TP 416 Cond.T			Cold Finished	HB 248-302	Splitters/Keys
•IH	A194 GR 6				HRC 20-28	Nuts

w/=welded with s/=sprayed with



GROUP 02 MARTENSITIC STAINLESS STEEL (Continued)

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
KE	A276 A479 TP 410 A322 GR 8620/4620				Ann	Rotor Shaft Weldment
KN			A335 GR P5 (Pipe)			Balance Lines
KR	A276 TP 410 TP 420	A473 TP410 TP 420	A743 GR CA 15 (Centr. Casting)		HRC 34-36	Rings
LG	A276 TP 420	A473 TP 420	A743 GR CA 40 (Centr. Casting)		HRC 40-45	Stuffingbox Bushings/ Shaft Sleeves etc.
LU			A743 GR CA 15 (Static Casting)(11-13 CR)		HRC 28-32	Impellers
MB	A479 TP 410 CL 2 (PS-0001)			TGP	HT HRC 28 MAX.	Shafting
NZ			A743 Gr CA 15 (Static Casting)(11-13CR)	W/Stell 6	Ann	Impellers
°OA	A276 TP 420	A473 TP 420	A743 GR CA 40 (Cent. Cstg.)		Ann	Non-welded parts, usually to be Heat Treated
PV			A743 GR CA 15 (Static Casting)(11-13 CR)	Chrome Plated	N & T	Impellers etc.
QG	A582 TP 416				HRC 34-36	Shaft Sleeves
SA			A743 GR CA 6NM (Static Casting)(13 CR-4Ni)		N & T	General Casting
SD			A743 GR CA6NM (Static Casting)(13 CR-4Ni)		HRC 24-32	Impellers Wearing Parts
SE			A743 GR CA6NM (Static Casting)(13 CR-4Ni)	Chrome Plated	N & T	General Casting
SQ	A276 A479 TP 410	A473 TP 410	A743 GR CA 15 (Casting)(11-13 CR)	S/Wallex 55 Metco 31 C	Ann	Sleeves/Imp. Wear Rings etc.
ST		A473 TP 410			Ann	DW Column Couplings
SU		A473 TP 410			1100F(593C) Min. Temp.	DW Column Couplings

w/ = welded with s/ = sprayed with



GROUP 03 AUSTENITIC STAINLESS STEEL

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
CG	A582 TP 303				Ann	Subm/Seal Parts
CH	A276/A479 TP 304	A473 TP 304	A240 TP 304 (Plate)		Ann	Shafting/Ring etc.
•CK	A276/A479 TP 302/303/304/316	A473 TP 302/303/304/316	A240 TP 302/304/316 (Plate)		Ann	Miscellaneous
CM			A743 GR CF 8 (304)		Ann	General Castings
•CQ	A276/A479 TP 304L	A473 TP 304L	A240 TP 304L (Plate) A743 GR. CF3 (Casting)	W/Stell 6	Ann	Sleeves/Rings etc
•CV	A276/A479 TP 304L	A473 TP 304L	A240 TP 304L (Plate) A743 GR CF3 (Casting)	S/Colm 6	Ann	Sleeves etc.
•CX	A276/A479 TP 304L	A473 TP 304L	A240 TP 304L (Plate) A743 GR CF 3 (Casting)	W/Stell 1	Ann	Sleeves etc.
DB	A276/A479 TP 316	A473 TP 316	A240 TP 316 (Plate)		Ann	Shafting/Rings
•DD	A276/A479 TP 316	A473 TP 316	A240 TP 316 (Plate)	CP	Ann	Rings etc.
DF			A312 TP 316 (Pipe)		Ann	Miscellaneous
•DH	A276/A479 TP 316L	A473 TP 316L	A240 TP 316L (Plate) A743 GR CF 3M (Casting)	W/Stell 1	Ann	Sleeves/Rings/Seal Faces
DJ			A743 GR CF 8M (316)		Ann	General Castings
•DM	A276/A479 TP 316L	A473 TP 316L	A240 TP 316L (Plate) A743 GR CF3M (Casting)	W/Stell 6	Ann	Sleeves/Rings etc.
•DN	A276/A479 TP 316L	A473 TP 316L	A240 TP 316L (Plate) A743 GR CF 3M (Casting)	W/Colm 6	Ann	Rings/Seals etc.
DY	B473	B462	B463 (Plate)		Ann	Miscellaneous (Alloy 20)
HJ			A743 GR CN7M Static Casting (Alloy 20)		Ann	General Castings
•HP	A276/A479 TP 316L	A473 TP 316L	A240 TP 316L (Plate) A743 GR CF 3M (Casting)	W/Colm 5	Ann	Rings/Sleeves etc.
•HQ	A276/A479 TP 316L	A473 TP 316L	A240 TP 316L (Plate) A743 GR CF 3M (Casting)	S/Colm 6	Ann	Sleeves etc.
•HR	A276/A479 TP 304L	A473 TP 304L	A240 TP 304L (Plate) A743 GR CF 3 (Casting)	W/Colm 4	Ann	Wear Rings etc.

w/=welded with s/=sprayed with



GROUP 03 AUSTENITIC STAINLESS STEEL (Continued)

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
•HS	A476/A479 TP 304L	A473 TP 304L	A240 TP 304L (Plate) A743 GR CF 3 (Casting)	W/Colm 5	Ann	Wear Rings etc.
•HT	A276/A479 TP 304L	A473 TP 304L	A240 TP 304L (Plate) A743 GR CF 3 (Casting)	W/Colm 6	Ann	Wear Ring etc.
JS			A743 GR CF-3M (316L)		Ann	General Castings
KX	A276/A479 TP 304	A473 TP 304	A743 GR CF 8 (Cent. Casting)	FCP	Ann	Couplings etc.
•KY	A276/A479 TP 316	A473 TP 316	A743 GR CF8M (Cent. Casting)	FCP	Ann	Couplings, Drive Pins, etc.
LH			A213 TP 304 (Tubing)		Ann	Heat Exhcanger Tubing etc.
LJ			A213 TP 316 (Tubing)		Ann	Heat Exchanger Tubing etc.
NX			A269 TP 304 (Tubing)		Ann	Heat Exchanger Tubing etc.
OB	A276 TP 316 Tulsa PS4003			TGP (32 RMS)	Cond. B Thru 1-3/4 in. Ann over 1-3/4 in.	Shafting
•OD	A194 GR BMA				Ann	Nuts
PE			A269 TP 316 (Tubing)		Ann	Submersible Motors
•UT	A193 GR B8M CL. 1 (316)				Ann	Bolting
VD	A276 TP XM 19 A479 TP MX 19	A182 TP F XM 19			Ann	Shafting/Wearing Parts
VH	A479 TP XM 19 Tulsa PS4003			TGP (32 RMS)	HR Thru 3 in. Ann over 3 in.	Shafting
•VJ	A276/A479 TP 316L	A473 TP 316L	A743 TP CF3M (Casting) A240 TP 316L (Plate)	W/Stell 12		Sleeves, Rings, etc.
WC	A193 GR B 8R A194 GR 8R					Threaded Fasteners
YA			A351 GR CN7M (Alloy 20)		Ann	General Castings
•YB	A276/A479 TP 316	A473 TP 316	A743 GR CF3M (Casting)	Electroless Nickel Plate 0.0005-0.001 in.	Ann	Lock Collets, etc.

w/ = welded with s/ = sprayed with



GROUP 05 CARBON STEEL

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
EH	A108/A575 A576 GR 1010 thru GR 1025	A181	A36 (Plate)			Miscellaneous
°EJ	A108/A575/ A576 GR 1010 thru GR 1025	A181	A36 (Plate)	Case harden .010 deep	File Hard	Leveling/Rocker Plate Washers
°EK	AISI 1038 thru 1045			TGP	As-Rolled	Shafting
EL	AISI B1213/B1214 B1215*			HR or CF		Capnuts/Collets etc.
EM	A194 CL2H				HRC 24-38	Capnuts/Hexnuts etc.
°EN		A105 A266 CL 2 or 4**				Boiler Feed Barrels/etc.
EP	Steel*	Steel*	Steel* (Plate)			Miscellaneous (Not welded)
EQ			A53/A106/A120 (Black Pipe)	Welded or Seamless		Vertical Pump Column Pipe, etc.
ER			A216 GR WCB (Static Casting)		N & T	General Castings
ES			A352 GR LCB (Static Casting)		Normalized	Low Temp Castings
ET	A108/A575/ A576 GR 1010 thru GR 1025	A181	A36	Cadmium Plated		Miscellaneous
EU	A108/A575/ A576 GR 1010 thru GR 1025	A181	A36	Phosphate Coat		Miscellaneous
GD	(Galvanized Carbon Steel)*	(Galvanized Carbon STL)*	(Galvanized Carbon STL)* (Plate, Pipe)			Strainers etc.
GP			Steel/Felt (Fabricated)			Pressed Oil Covers
IB		A350 GR LF2	A333 GR 6 (Pipe) A420 GR WPL 6 (Fittings)			Service to -50F (-46C)
°IC	*AISI 1213-1215 CF 6 in. 1140-1145 HR 6 in.			Electroless Nickel Plate 0.0003 in Thick		Couplings
°IE			A513 TP 5 GR 1015-1026 (Tubing)			Stator Shells
JC	A108/A575 A576 GR 1010 thru GR 1025	A181		W/Stell 1		Sleeves/Rings etc.
JD	A108/A575 A576 GR 1010 thru GR 1025	A181		S/Colm 6		Sleeves/Rings etc.

* Other than ASTM

w/= welded with

°** Preferable Standard when Code is used for Boiler Feed Barrels, Covers or Nozzles.

s/= sprayed with



GROUP 05 CARBON STEEL (Continued)

BJ CODE	BARS	ASTM FORGINGS	OTHER	SURFACE TREATMENT	HT/ HARDNESS	APPLICATION
JP			Spring Steel*			Miscellaneous
KC	(Armco M36 No. 4 Insul 26 Gage)*					Laminations
KT			A325 (Bolts)			Hi Strength Fastener
KU			Steel* (Sheet)			Shim Stock
LZ	A108 GR 1010 thru GR 1025			CF		Miscellaneous
MF	AISI B1213 thru B1215			Cadmium Plated		Flange Couplings
MM	A108/A575/A576 GR 1010 thru GR 1025	A181	A36 (Plate)	Zinc Plated		Miscellaneous
PB			A53/A106/API 5L* GR. B (Black Pipe)	Seamless		Bleed Lines, etc.
PZ			AISI 1015* (Tube)			Heat Exchangers
SG	AISI* 1038-1045				HT HB 170 Nom	Shafts etc.
SK			A216 GR WCB	Phosphate Coat	N & T	General Castings
UP	AISI B1213 thru B1215*			Zinc Plated		Miscellaneous
VF	AISI 1038 thru 1045*			Zinc Plated	As Rolled	

* Other than ASTM



GROUP 06 NON-FERROUS METALS

BJ CODE	BARS	ASTM FORGINGS	OTHER	COMMON TERM	HT/ HARDNESS	APPLICATION
•EV			S B148 A954 HT C B271 A954 HT CON B505 A954 HT	AL BRZ.	HB 190 Nom	Sleeve Rings etc.
•EW			S B148 AL 952 C B271 AL 952 CON B505 AL 952	AL BRZ.		Cases etc.
EX			S B584 AL 905 C B271 AL 905	88-10-2-Zn		Bearing Housings
EY			S B584 AL 903	88-8-4		Cases etc.
•EZ			C B271 AL 903 CON B505 AL 903	88-8-4		Rings/Sleeves etc.
FA			S B584 AL 836	85-5-5-5		General Castings
•FB			C B271 AL 836 CON B505 AL 836	85-5-5-5		Rings etc.
•FC			CON B505 C92700 SAE J462 CA 927*	88-10-2 Pb		General Castings
•FD			CON B505 AL 943 S B584 AL 943 C B271 AL 943	71-5-24 Pb		Bearings
•FE			S B584 AL 865 C B271 AL 865 CON B505 AL 865	Mn BRZ.		General Castings
•FG	B98 AL 661 Bolt Temper		F468 AL 661	Si BRZ.		Bolting Mat'l etc.
•FH			S B584 AL 938 C B271 AL 938 CON B505 AL 938	78-7-15 Pb		Bearings/Bushings
•FJ			CDA C93600* S B584 AL 932 C B271 AL 932 CON B505 AL 932	83-7-7-3 SAE 660*		Rings/Bearings etc.
FK	124 AL C482	B 135 AL C370 (Tubing)	S B584 AL 857 C B271 AL 857	Yellow Brass		Sleeve for Rubber Bearings
FM			B26 AL A356-T6	Aluminum		General Casting— Low Temperature
FN	Aluminum*	Aluminum* (Plate, FG)		Aluminum		Miscellaneous
•FP			S B584 AL 922 C B271 AL 922 CON B505 AL 922	Navy "M"		Sleeves/Rings etc.
FS		B75 AL C122 (SMLS Tubing)		Copper		Heat Exchanger Piping
•HU	UNS B164 N 04400 F468	B564 UNS N 04400		Monel	Ann	Shafts, etc. Threaded Fasteners
•ID			S B584 C 92300 C B271 C 92300 SAE 621* CON B 505 C 92300	87-8-1-4		General Castings

* Other than ASTM

C = Centrifugal S = Static
•CON = Continuous



GROUP 06 NON-FERROUS METALS (Continued)						
BJ CODE	BARS	ASTM FORGINGS	OTHER	COMMON TERM	HT/ HARDNESS	APPLICATION
•IG			S B584 AL 876	SI-BRZ.		Castings
HW	(Brass Sheet)*		(Brass Casting)*	Brass		Name Plates
•JA			B505 C 92700 SAE J462 CA 927*	88-10-2 Pb		LOX Service
•JB			S B584 AL 905 C B271 AL 905 CON B505 AL 905	88-10-2 Zn		LOX Service
JJ	K500 QQ-N-286 CL A*			K Monel	HRC 24 Min**	Bolts/Studs/Shafting
JN		B152 AL C102		Copper	Ann	Gaskets
KF		B152 AL C101		Copper		Rotor Bars
KG		Brass (Wire)*		Brass		Submersible Motors
KM		Copper Tinned*		Copper		Cable Connectors etc.
LD			B26 AL 356-T6	Aluminum		General Castings
LK		B163 Alloy N04400 (Tubing)		Monel	Ann	Heat Exchange Tubing
MH	B36 AL C230			Red Brass		Rotor Bars
NY		B167 (Seamless Tubing)		Inconel 600	Ann	Heat Exchange Tubing etc.
PC		AMS 5698-A* (wire)		Inconel X-750		Seal Springs etc.
•PM	B166 Alloy N06600	B564 UNS N06600	B168 Alloy N06600 (Plate)	Inconel 600	Ann	Miscellaneous
•RK			A 494 GR M-30C	Monel		General Castings
•TQ			S B148 AL 953 HT C B271 AL 953HT CON B505 AL 953HT	AL BRZ.	HB 160 Nom.	Rings Bushings
VE			B148 AL 958	Ni-AL BRZ.	Temper Ann	Cases Impellers
VG	B150 Alloy C61300		B169 Alloy C61300(Plate) B315 (Seamless pipe & tube), B608 (welded pipe)	AL BRZ.		Parts of Welded Fabrications and General Pump Parts
•WB	B446	B564 UNS N06625	B443 (Plate, Sheet, Strip B444 (pipe, tube)	Inconel 625	HRC 26 Max. (not for pipe or tube)	Shafting, Rings, Keys

* Other than ASTM

** Ann and Age Hardened

C = Centrifugal S = Static
•CON = Continuous



GROUP 07 CAST IRON AND MEEHANITE

BJ CODE	ASTM	OTHER	FORM/APPLICATION
FV	A48 CL 30		General Castings
FW	A278 CL 40		General Castings
FX	A278 CL 40	Phosphate Coated	Bearing Housings
FY	A436 TP 2	Ni Resist	General Castings
JV	A48 CL 50 (GA-Meehanite)	Heat Treatable to 400 HB Min	General Castings
JW	A48 CL 40 (GC-Meehanite)		General Castings
JX	A48 CL 30 (GE-Meehanite)		General Castings
KJ	A47 GR 32510 (Malleable Iron)		Miscellaneous Castings
LE	A278 CL 40	Heat Treat to 270-300 HB	Thrust Discs
LF	A48 (Meehanite)	Heat Treat to 270-300 HB	Thrust Discs
LY	A48 CL 30 (GE-Meehanite)	Porcelain Coated	DWT Components
ME	A48 CL 30 (GE-Meehanite)	Cadmium Plated	General Castings
QW	A48 CL 35 (GD-Meehanite)		General Castings
QY	A48 CL 35 (GD-Meehanite)	Porcelain Coated	DWT Components
RF	A48 CL 40 (GC-Meehanite)	Porcelain Coated	Miscellaneous Castings
RM	A436 Tp 1	Ni Resist	General Castings
SB	A536 GR 60-40-18	Ductile Iron	General Castings
SH	A536 GR 65-45-12	Ductile Iron	General Castings



GROUP 08 CARBON

BJ CODE	OTHER	COMMON TERM	APPLICATION
GE	BWMS 1T-6849 Met Carbon M-130	Carbon	Bearings/Seal Faces Bearings Only (M-130)
GF	BWMS 1T-6849	Carbon	Bearings/Seal Faces
•GG	USG Mat 14 PCCO GR P-9J Met Carbon M-101	Carbon	Bearings
GH	BWMS 1T-6849	Carbon	Bearings/Seal Faces
•GJ	USG Mat 70	Carbon	Bearings
GK	BWMS 1T-6849	Carbon	Bearings/Seal Faces
•JQ	USG Mat 67 PCCO GR P-5	Carbon	Bearings
LM	BWMS 1T-6849	Carbon	Bearings/Seal Faces
•MC	USG Mat 39 SC PCCO GR P-658 RCS	Carbon	Bearings/Seal Faces
•MD	USG Mat 38 PCCO GR P-65	Carbon	Bearings
NA	BWMS 1T-6849	Carbon	Seal Faces
•PK	USG Mat 80-84 PCCO GR P-5	Carbon	Bearings
PP	Graphalloy GR GM-K-703	Graphalloy	Bearings 600° F max
PQ	Babbitt Graphalloy Grade GM-105.3 & PCCO GR P-19	Graphalloy	Bearings 300° F max
PR	Bronze Graphalloy Grade GM-114.3 & PCCO GR P-55	Graphalloy	Bearings 600° F max
RY	BWMS 1T-6849	Carbon	Seal Faces Bearings
•TV	PS-1002 PS-1003	Carbon	Seal Faces for Nuclear Seats Only

NOTE: Operational facilities may use their own equivalents to 1T-6XXX and PS-1XXX specifications.



GROUP 09 COMMERCIAL FABRICATIONS

BJ CODE	OTHER	COMMON TERM	APPLICATION
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ZA	Fab STL WR-0001	Fab Steel	Fabrication
ZB	Fab 304L WR-0001	Fab 304L	Fabrication
ZC	Fab 316L WR-0001	Fab 316L	Fabrication
ZD	Fab STL/304L WR-0001	Fab Steel/304L	Fabrication
ZE	Fab STL/316L WR-0001	Fab Steel/316L	Fabrication
ZF	Fab 11-13 CR WR-0001	Fab 11-13 CR	Fabrication
ZG	Fab 11-13 CR/STL WR-0001	Fab 11-13 Cr/Steel	Fabrication
ZH	Fab 11-13 CR/304L WR-0001	Fab 11-13 CR/304L	Fabrication
ZJ	Fab 11-13 CR/316L WR-0001	Fab 11-13 CR/316L	Fabrication
ZK	Fab XM-19/ 4140 HT (AB) WR-0001	Fab XM-19/ 4140 HT (AB)	Fabrication

NOTE: Operational facilities may use their own equivalents to WR-0001.



GROUP 10 GASKETS				
BJ CODE	SPECIFICATION	COMMON TERM	FORM/ APPLICATION	NOMINAL SHORE HARDNESS
GR	Garlock 7021 or Anchor "Target"	Compressed Asbestos	Gaskets	
GS	ASTM D2000 2 BG 720 B14 E014 E034	Nitrile (BUNA N)	O-Rings	70
GW	ASTM D2000 6 BG 820 B14 E014 E034	Nitrile (BUNA N)	U-Cups*	80
GU	MIL-R-25897	Viton	O-Rings	70
GY	ASTM D2000 3 BC 715 B14 E034 F17	Neoprene	O-Rings	70
HA		Asbestos	Miscellaneous	
•JF		316 SS with Flexitallic Flexite™ Super Core	Gaskets	
•JG	<i>1973 - ASBESTOS CORE / SS CHANGED DATE 5</i>	304 SS with Flexitallic Flexite™ Super Core	Gaskets	
JY		Fairprene	Molded or Sheet Gasket Material	
KB	ASTM D2000 4 BC 915 B14 E034 F17	Neoprene	Molded or Sheet Gasket Material	90
KH		Fishpaper	Sheet for Gaskets	
KK		Melamine Glass	Sheet for Gaskets	
•KS		Monel with Flexitallic Flexite™ Super Core	Gaskets	
KW	Commercial Quality	Neoprene	Molded or Sheet Gasket Material	50
•MG	ASTM D2000 8CA 810 A25 B35 EA14	Ethylene Propylene	O-Rings**	80
PT	Dupont Zytel 101	Nylon	O-Rings	
QM	ASTM D2000 2 BG 620 B14 E014 E034	Nitrile	O-Rings	60
RE	Parker N-103-7	Nitrile	O-Rings	70
TW	Dupont 1050	Kalrez	O-Rings	80
WA	Garlock Blue-Gard® Style 3400	Compressed Acrylic Fibers	Flat Gaskets	

* Use for Nuclear service ** Not to be used on U cups in Type SU seals.



GROUP 11 MISCELLANEOUS MATERIALS

BJ CODE	OTHER	FORM/APPLICATION
GM	NEMA GR LE/Laminated Plastic (Micarta)	Bearings and Sleeves
GN	Rubber (Marine Type)	Bearings
JZ	Bakelite	Thrust Bearing Pins
KA	Super Gray	End Laminations
KD	****	Standard Sub Assembly
KL	Phenolic	Shims
KP	A576 GR 1010-1025/A181/A216 GR WCB*	Bearings Government end use/Cert. of BABBITT Matl reqd.
KZ	B584 Alloy 836*	Bearings
LA	A48 CL 30*	Bearings
LB	A576 GR 1010-1025/A181/A216 GR WCB*	Bearings
LC	Commercial Grade Polyethylene	Terminal Box Insulation
LL	NEMA Grade XXX Laminated Plastic (paper based phenolic)	Electrical Insulation
PU	ABS Plastic	Miscellaneous
QU	Delrin Plastic	Miscellaneous
•SC	Kennametal KZ 801** Carboloy GR 616 PS-0006	Rings/Seals Faces
•UF	Kennametal KZ162B*** PS-0005	Rings/Seals Faces
UW	Glass Reinforced Plastic	Cage Rings
VV	Non Stocked Assemblies. See Bill of Material for Parts and Material****	

•* with ASTM B23 GR 2 BABBITT
(89 SN, 7.5 SB, 3.5 Cu)

** Common Term: Tungsten Carbide With Nickel Binder

*** Common Term: Titanium Carbide

**** See Affiliate for Specifics

