

# DOUBLE SUCTION

# SINGLE STAGE PUMPS

CLASSES HSS-HSM-HSL-HSO



**FOR LONG LIFE,  
QUIET OPERATION  
AND HIGH EFFICIENCY**

# DOUBLE SUCTION SINGLE STAGE PUMPS

More than 30 sizes efficiently cover capacities ranging to 20,000 gallons per minute.

Rugged mechanical design and construction provides for less than .002" shaft deflection. This cuts the frequency of stuffing box maintenance. A minimum average bearing life of 150,000 hrs. means fewer shut downs.

Horizontally split casings simplify inspection and maintenance of rotating parts; the piping does not have to be disturbed. Greater interchangeability has been provided by shaft groupings to reduce inventory requirements.



Shaft and Stuff Assembly

"Invaluable" operating reports stress long life, quiet operation, high efficiency and freedom from frequent shut downs. This is assured by engineering and design experience utilizing the best obtainable materials and construction skills.



Horizontally split casing Provides easy access

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# DOUBLE SUCTION SINGLE STAGE PUMPS / SPECIFICATIONS

**CASING**—Horizontally split, volute type, flanges in bottom half, designed for optimum velocity change and hydraulic balance at any capacity and head. Top and bottom halves bolted and dowelled to provide exact positioning at assembly, after inspection or replacement of parts. Top of volute and suction chambers provided with tapped vent connections. Standard construction provides 150 psi working pressure and 225 psi hydrostatic pressure with temperature range from 0° to 250° F. Modification of construction allows working pressures to 250 psi.

**IMPELLER** — Double suction, enclosed, one-piece type, hydraulically balanced and secured to shaft by feather key and locking collars for exact alignment.

**CASING RINGS** — Replaceable radial type held by pins to prevent rotation.

**SHAFT** — Stainless, type 303, ground and polished to provide precision fit of all parts and sized to provide less than .002" deflection at face of the stuffing box. Shaft sleeves are furnished as an optional feature. Above D-6 Group: Steel Shaft with bronze sleeve.

**BEARINGS** — Grease lubricated, deep groove type, shielded one side to minimize contamination.

## INTERCHANGEABILITY

GROUP	D-1	D-3	D-4	D-5	D-6	16-1	16-2	16-3	18-1	20-1
	25 HSM	3 HSO	4 HBL	5 HBL	6L HSM	16 HSB	16 HBL	18 HBS	20 HSB	20 HSS
	2L HSM	4 HSS	5 HSS	6 HSL	8 HSL	12 HSL	16 HSM	20 HBS	20 HSM	
<b>PUMP</b>	2 HSO	4 HSM	5 HSM	10 HSM	16 HSM					
<b>SIZES</b>	3 HSM	6 HSB	8 HSM	10 HSB	12 HSM					
		8 HSS	10 HSB	12 HSM						
			12 HSB							

\*All D.P. items are 1152 B.P.A.

**PARTS COMMON TO EACH GROUP:** Shaft Bearings, Thrust Collars or Nuts, Glands, Bearing Brackets, Seal Cages, Deflectors and Packing.

tion and over-greasing, are designed for 150,000 hours average life. Bearings adequately carry axial and radial thrust loads. The thrust bearing is fixed by snap rings and the radial bearing floats.

**BEARING BRACKETS** — Bolted and dowelled to bottom half of casing to insure perfect alignment of the rotor, bearing rings and bearings. The drip pocket of the brackets is provided with adequate drain holes to prevent flooding of the bearings.

**GLANDS** — Solid smothering type held by stainless steel adjusting bolts.

**STUFFING BOXES** — Packed with graphitized Teflon are supplied for suction pressures below 15 psi or when flushing is required. Stuffing boxes can be tapped for in and out water connection when required. Mechanical seals can be provided in standard casing.

**BASEPLATE** — Steel, ribbed for rigidity with provision for gROUTING. Drip channel feature collection and drainage for all leakage.

**COUPLING** — Flexible, Lowey or Ajax as standard with other types available.

## MATERIALS OF CONSTRUCTION

PART	1 BRONZE FITTED	2 CAST IRON	3 DUCTILE IRON	4 BRONZE	5 A.R.B. BRONZE	6 316 SS FITTED	7 316 SS
Casing	C.I.	C.I.	D.I.	Brz.	A.R.B.	C.I.	316 SS
Impeller	Brz.	C.I.	C.I.	Brz.	A.R.B.	316 SS	316 SS
Collars***	Steel	Steel	Steel	Brz.	A.R.B.	316 SS	316 SS
Casing Rings	Brz.	Steel	Steel	Brz.	A.R.B.	#20	#20
Shaft	303 SS11	303 SS11	303 SS11	303 SS*	Monel	316 SS	316 SS
Glands	C.I.	C.I.	C.I.	Brz.	A.R.B.	C.I.	316 SS
Seat Cages				Glass Filled Teflon - Split			
Bearing Brackets				Cast Iron			
Deflector				Neoprene***			
Packing				John Crane 5811			

\*Material can be used where necessary to prevent secondary erosion.

\*\*Friction nuts used above D-2 Drive. By wt. drawing.

\*\*\*Material above D-2 Group.

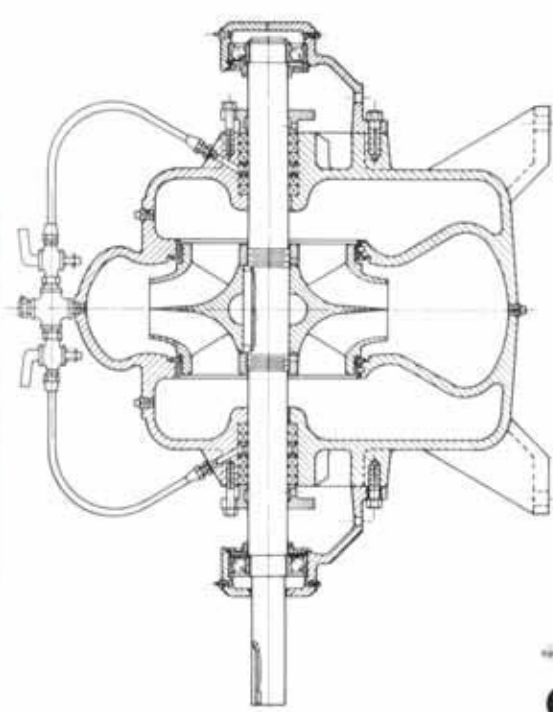
1152 16.1, 16.2, 16.3, 18.1 and 20.1 with bronze sleeves.



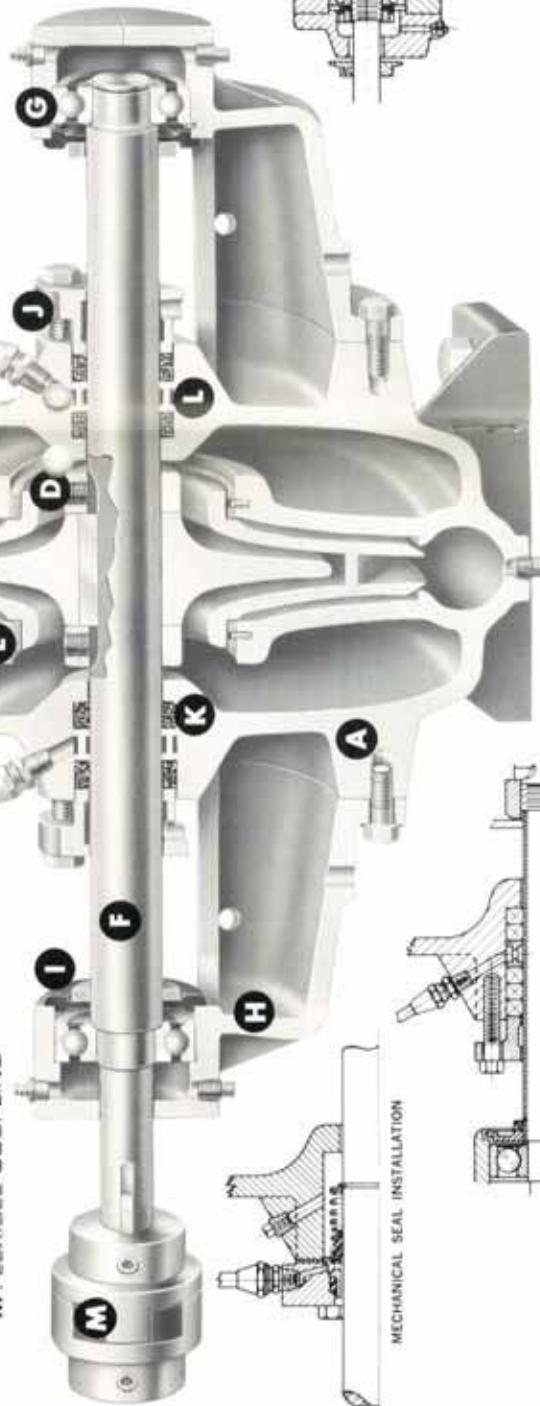


# DOUBLE SUCTION SINGLE STAGE PUMPS

- A CASING
- B CASING COVER
- C IMPELLER
- D COLLAR
- E CASING RINGS
- F SHAFT
- G BEARINGS
- H BEARING BRACKET
- I DEFLECTOR
- J GLAND
- K PACKING
- L SEAL CAGE
- M FLEXIBLE COUPLING



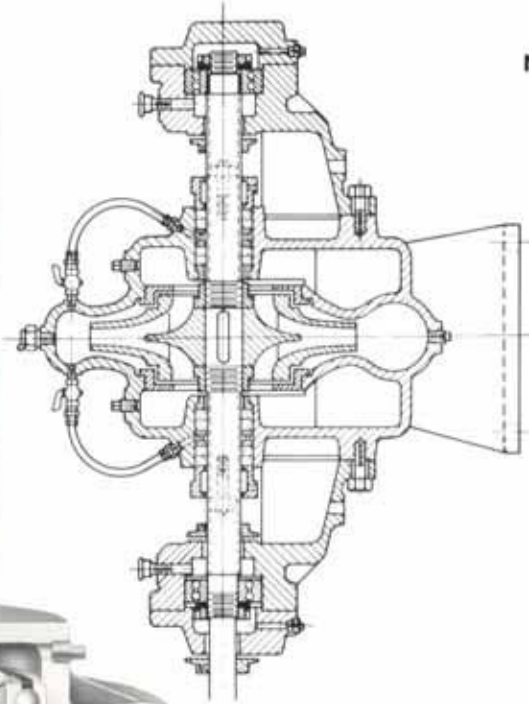
GROUPS D-6 AND 16-2



TYPICAL OF  
GROUPS D-1 through D-5  
(refer MX sectional)

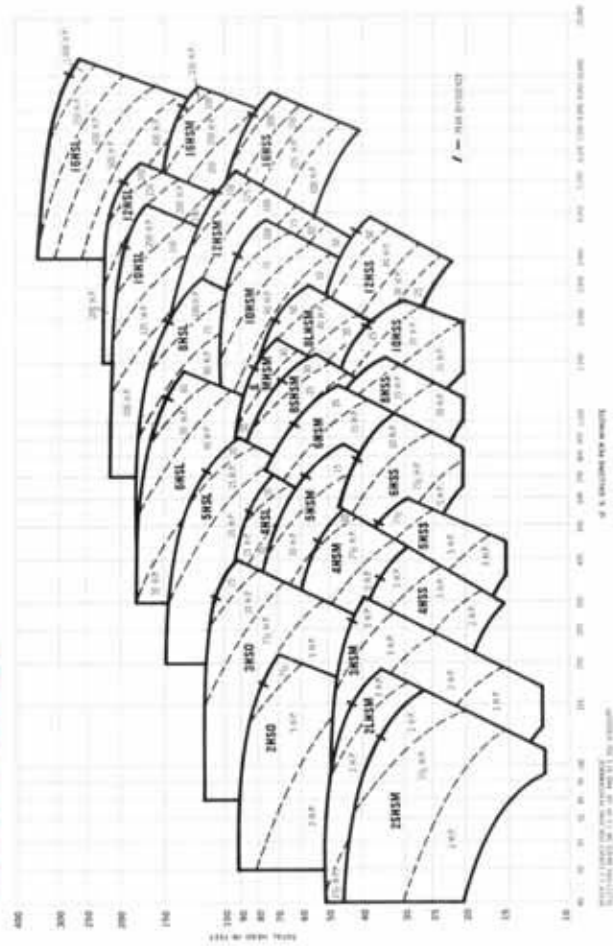
D-1	MX-55	D-4	MX-60
D-2	MX-59	D-5	MX-68
D-3	MX-57	D-6	MX-78

GROUPS 16-1, 16-3, 18 AND 20



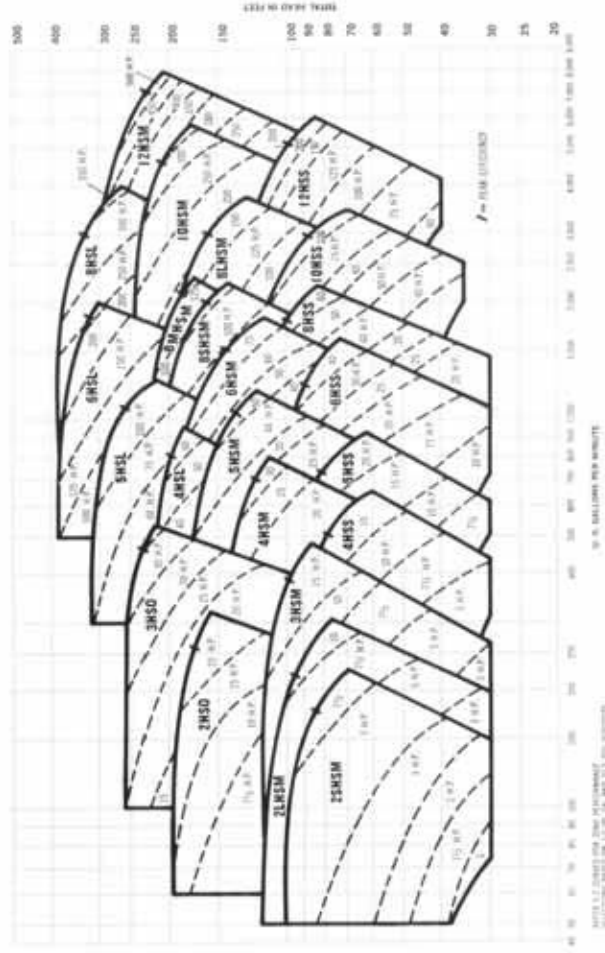
# DOUBLE SUCTION SINGLE STAGE PUMPS / COMPOSITE

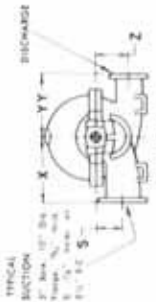
1150 RPM



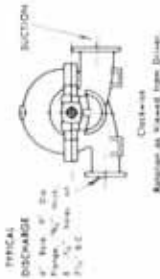
# RATING CHARTS

1750 RPM

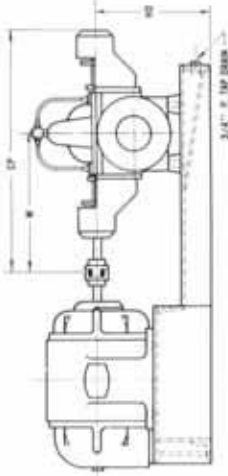




**ROTATION**



**PUMP END DIMENSIONS**



# DOUBLE SUCTION SINGLE STAGE PUMPS / DIMENSIONS

**AMERICAN STANDARD C. I. FLANGES**  
(125 Lb. Standard)

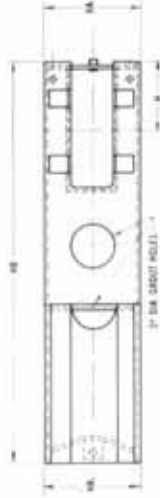
Nominal Size Inches	Flange Dia. of Bolt Circle	No. of Bolts	Flange Thickness	Size of Bolts
1	4 1/4	4	1 1/2	1 1/2
1 1/2	4 1/2	4	1 1/2	1 1/2
2	5 1/4	4	1 1/2	1 1/2
2 1/2	5 3/4	4	1 1/2	1 1/2
3	6 1/4	4	1 1/2	1 1/2
4	7 1/4	8	1 1/2	1 1/2
5	8 1/4	8	1 1/2	1 1/2
6	9 1/4	8	1 1/2	1 1/2
8	11 1/4	12	1 1/2	1 1/2
10	13 1/4	12	1 1/2	1 1/2
12	15 1/4	12	1 1/2	1 1/2
14	17 1/4	16	1 1/2	1 1/2
16	19 1/4	16	1 1/2	1 1/2
18	21 1/4	16	1 1/2	1 1/2
20	23 1/4	20	1 1/2	1 1/2
24	27 1/4	20	1 1/2	1 1/2

**PUMP END DIMENSIONS / INCHES**

CLASS	Discharge	Sections	Net Wt. Lbs.	CP	S	W	X	Y	Z	
HSM	2	2 1/2	140	23%	4 1/2	13 1/4	9	8 1/4	5 1/4	
	3	4	185	23%	5 1/2	13 1/4	8 1/2	8 1/4	6 1/4	
	4	5	330	26 1/2	5	14 1/4	12 1/2	9 1/2	7 1/4	
	5	6	440	29	4 1/2	17	13 1/4	11	8	
	6	8	610	29	4 1/2	17	14	12	9 1/4	
	8	10	870	29 1/2	4 1/2	22 1/2	16	12 1/2	10 1/4	
	10	12	1000	29 1/2	4 1/2	22 1/2	16	12 1/2	10 1/4	
	12	14	1460	33 1/2	4 1/2	24 1/2	16	12 1/2	10 1/4	
	14	16	1850	33 1/2	4 1/2	24 1/2	16	12 1/2	10 1/4	
	16	18	2450	33 1/2	4 1/2	24 1/2	16	12 1/2	10 1/4	
	18	20	3000	33 1/2	4 1/2	24 1/2	16	12 1/2	10 1/4	
	20	24	5000	33 1/2	4 1/2	24 1/2	16	12 1/2	10 1/4	
	HSD	2	2 1/2	200	23%	7	13 1/4	8 1/4	8 1/4	7 1/4
		3	4	330	26 1/2	7 1/4	14 1/4	12	10	8 1/4
		4	5	420	29	7 1/4	17	13	12	8 1/4
		5	6	710	29 1/2	10	22 1/2	15	11 1/4	10
	HSL	6	8	1010	29 1/2	8 1/4	22 1/2	16 1/2	11 1/4	11
		8	10	1530	43 1/2	10 1/4	24 1/2	20	15	12 1/4
		10	12	2060	43 1/2	12	24 1/2	23	18	13 1/4
		12	14	2710	53 1/2	12 1/4	26 1/2	25	18	15 1/4
14		16	3200	53 1/2	14 1/4	28	21	18 1/4	16 1/4	
HSS		4	6	275	26 1/2	6	14 1/4	11	9	6
		5	8	425	29	6 1/4	17	12 1/4	11 1/4	8 1/4
		6	8	580	26 1/2	7 1/4	14 1/4	11 1/4	11 1/4	8 1/4
	8	10	680	29	8 1/4	17	15 1/4	12 1/4	8 1/4	
	10	12	900	29 1/2	10	22 1/2	18	14 1/4	9 1/4	
	12	14	980	29 1/2	11 1/4	22 1/2	20 1/2	16	11 1/4	

\*Approximate — do not use for construction purposes.

**BASE PLATE DIMENSIONS**



**BASE PLATE DIMENSIONS / INCHES**

PUMP SIZE	HSM** Motor Frame	Net Wt. Lbs.	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ
2 HSM	145/215	90	13 1/2	13 1/2	40 1/2	11 1/4	7 1/4																					
3 HSM	145/215	90	13 1/2	13 1/2	40 1/2	11 1/4	7 1/4																					
4 HSM	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
5 HSM	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
6 HSM	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
8 HSM	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
10 HSM	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
2 HSD	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
3 HSD	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					
4 HSL	213/256	120	15 1/2	15 1/2	44 1/2	14 1/4	8 1/4																					



## Sales Representatives

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*with Exclusive BALANCED THRUST*

The result of over 75 years of hydraulic and mechanical engineering experience, Buffalo Forge Chem-Rated Pumps are designed to reduce axial and radial loads for long, maintenance free operation in the chemical process and allied industries.



## "HCR" CAN-O-MATIC®

Combines the standard dimension Chem-Rated® pumps with the leak-proof frame and rotor assembly from our Can-O-Matic line to offer the best features of both.

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