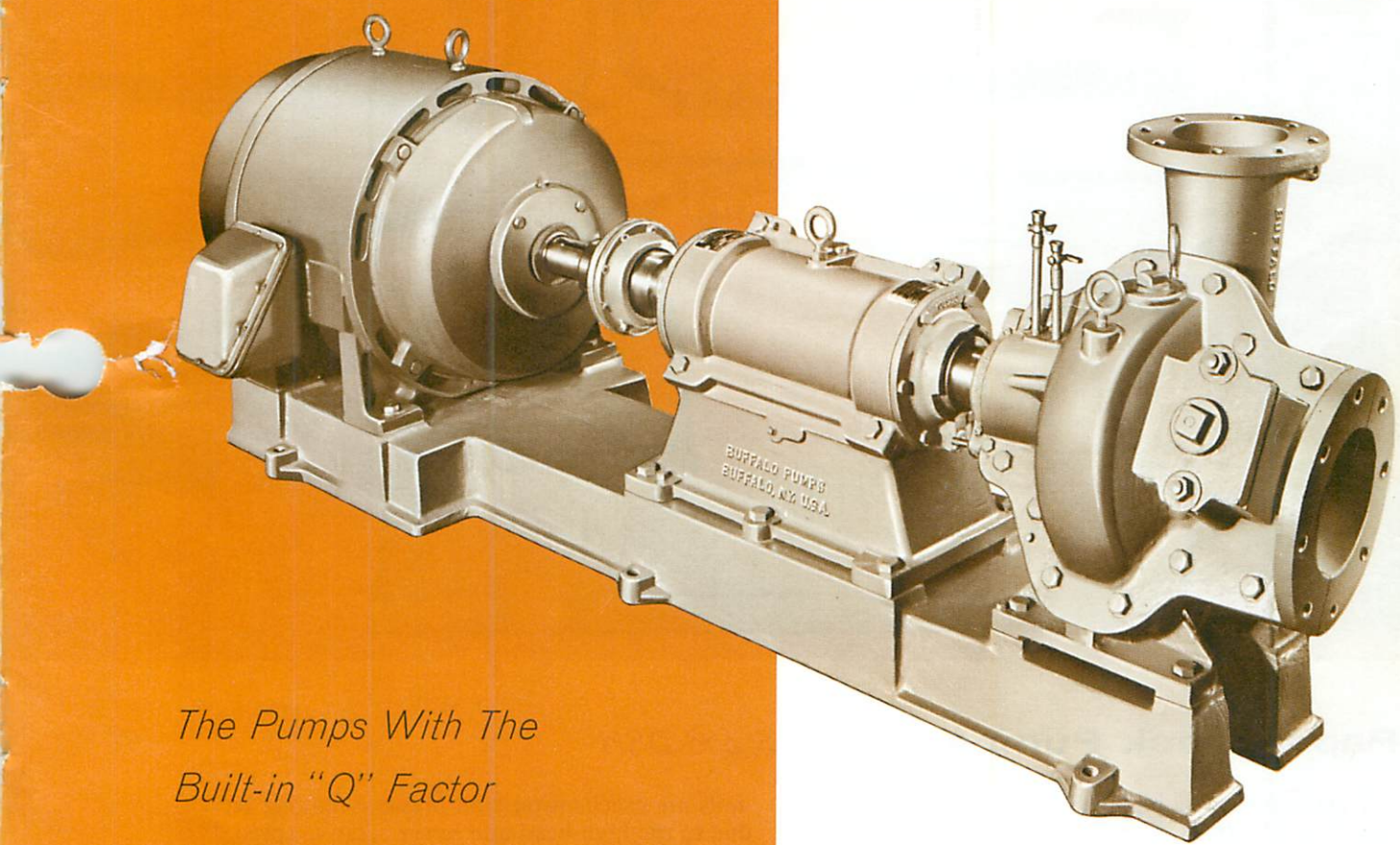
Bulletin 953-M

Buffalo®

Paper Stock

PUMPS



The Pumps With The Built-in "Q" Factor

engineered for:

- *superior on-the-job performance*
- *minimum maintenance*
- *easily accessible interiors*
- *maximum interchangeability of parts*

Classes DSH · DS

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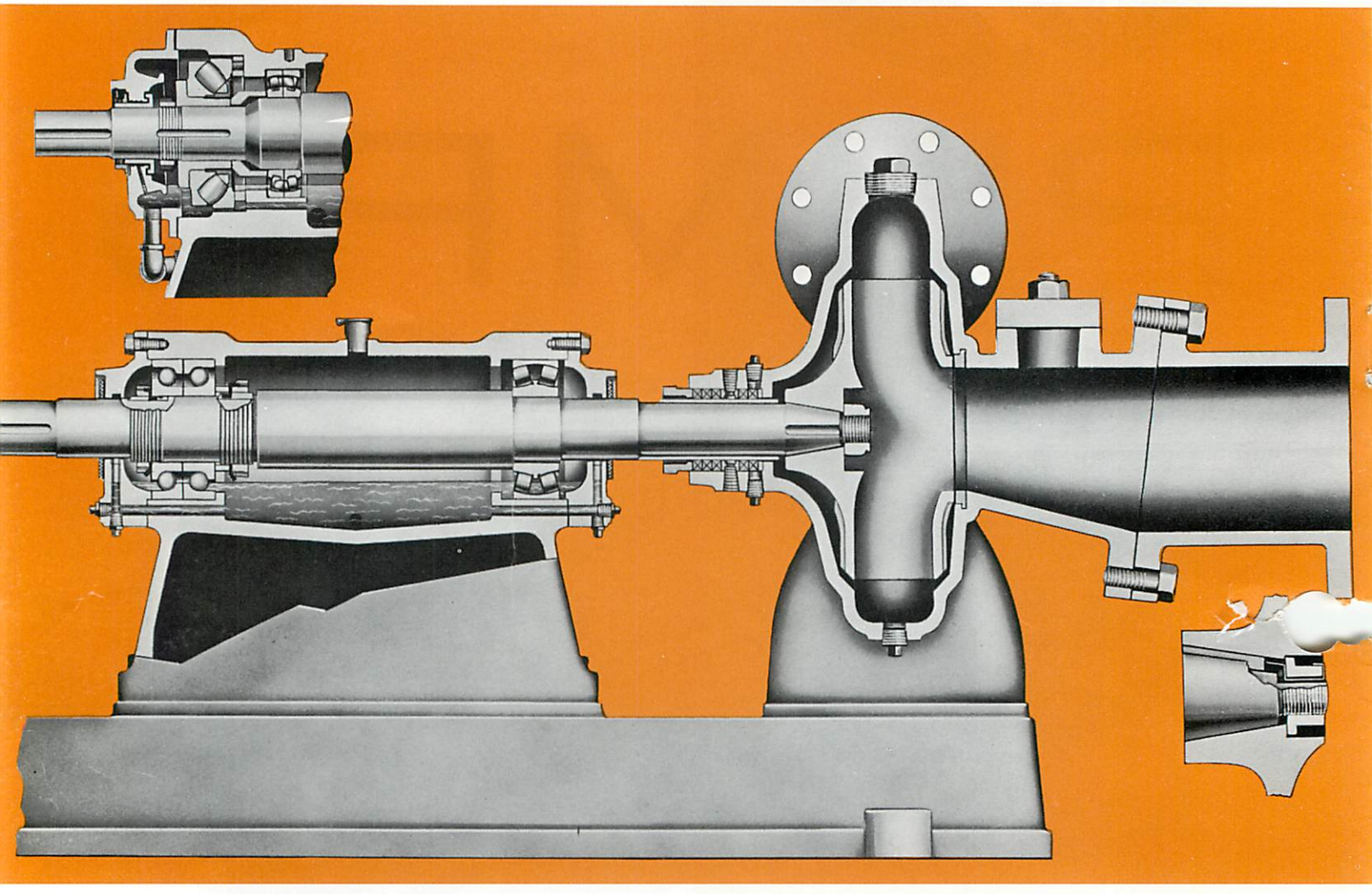


Paper Stock Pumps *Classes DS and DSH*

The DS pumps are a high efficiency, relatively higher speed line of pumps. Due to the higher speeds, initial installation costs are minimized.

The DSH pumps are essentially a high head, slower speed line. Basically, they will perform the same as the DS line at a lower speed. For example, the DS pump gives a total head and a given gallon-per-minute capacity at 1150 RPM; the DSH pumps will give the same total head and the same gallon-per-minute capacity at 860 RPM. Due to this slower speed, wear on the internal parts, wearing ring, stuffing box packing and shaft sleeves is reduced to a minimum, giving a longer, more efficient and useful life before major overhauls become necessary. These units are excellent on high pressure refining services, due to the high head and lower rotative speed.

"Buffalo" Pumps will not guarantee performance when handling stock having bone-dry consistencies of greater than 5%, as much depends upon the characteristics of the individual stock. Upon request, the local "Buffalo" sales representatives or the factory will refer you to mills in which "Buffalo" Pumps are handling 6% lap stock directly from the broke beaters, with practically no submergence—or 6% sulphite stock at 100 psig at 1750 RPM—or 800 GPM of 7 to 8% sulphite stock at 860 RPM and several other such installations.

Specifications

Casing Diagonally split to facilitate easy removal of interior parts. Discharge and suction piping need not be disturbed, thereby expediting repairs.

Standard construction is top horizontal discharge, which we recommend. This discharge eliminates the need for a casing vent to bleed off entrained air or gases in the stock. The vapors merely pass out through the discharge nozzle. Vertical up discharge is also available if desired. It is imperative with this type of construction that a vent line from the top of the casing volute be supplied to bleed off entrained vapors.

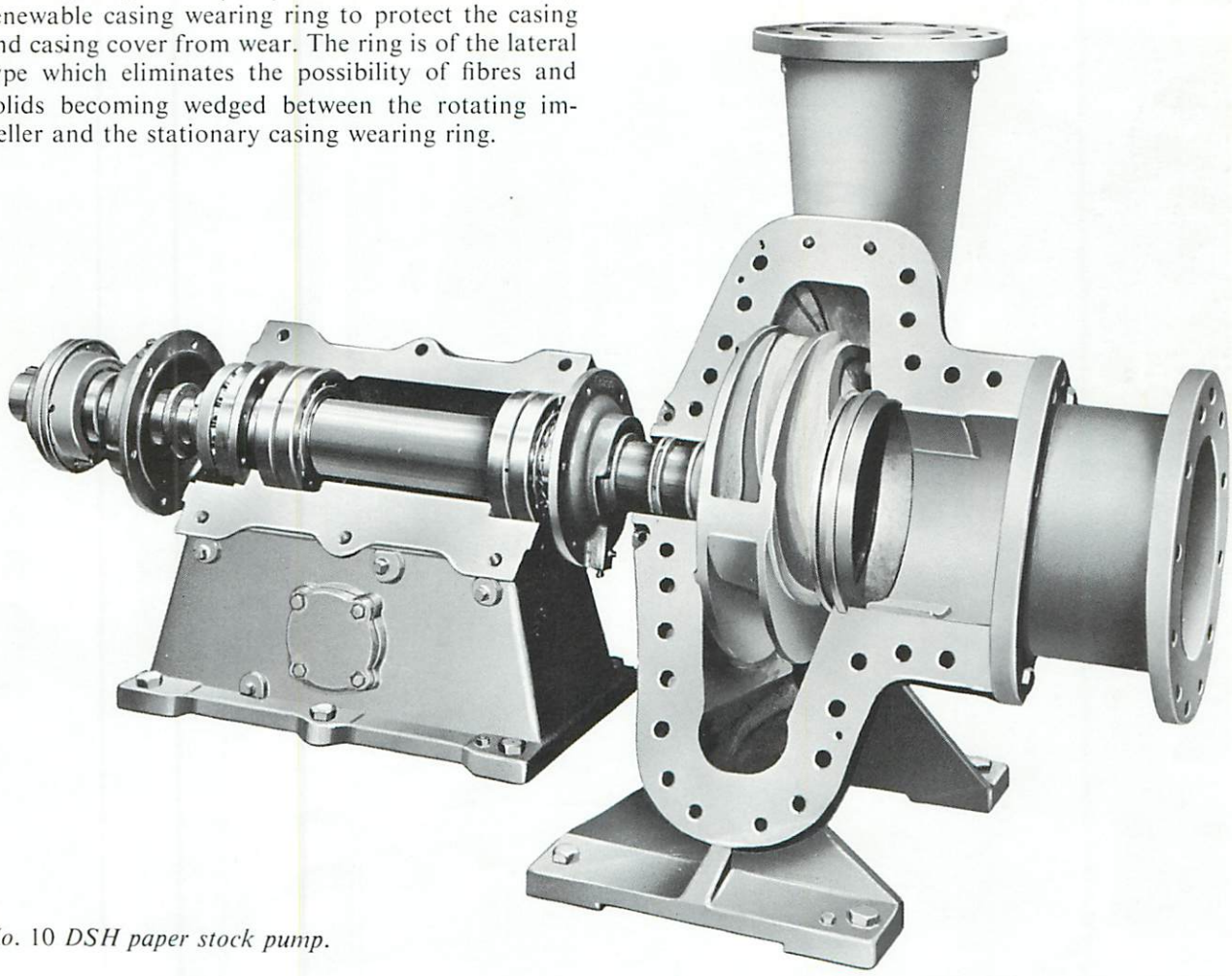
Casings with increasing suction nozzles are available at a nominal extra charge. The impeller inlet diameter or eye remains unchanged.

Wearing Rings All pumps are fitted with an easily renewable casing wearing ring to protect the casing and casing cover from wear. The ring is of the lateral type which eliminates the possibility of fibres and solids becoming wedged between the rotating impeller and the stationary casing wearing ring.

Bearing Frame Diagonally-split to allow for easy removal of the rotating assembly. The bearing frame is designed to withstand the severe shock and thrust loads *which may be imposed upon it*. The frame is available in three sizes namely "A," "B" and "C" depending upon the horse power requirement of the pump. Refer to the table of bearing frame sizes which appears later in this bulletin. The large frame designated as "C" size has a provision for a water cooled oil reservoir to prevent over-heating due to the extreme loads which may be encountered.

Bearings Bearings are of the ball type and roller type and are oversize to absorb heavy shock and thrust loads. The guide bearing located in the inboard housing of the frame is free to float within the housing and absorbs radial loading only. This bearing is of heavy roller bearing construction and therefore the severe and sudden radial loads are easily absorbed.

The thrust bearing located in the outboard end of the frame is a duplex-mounted ball bearing in the small bearing frame, sizes "A" and "B." (Please refer to the table of bearing frames in the rear of this bulletin.) The thrust bearing in the large frame



No. 10 DSH paper stock pump.

(Size "C") is a heavy duty, spring loaded roller bearing. This can easily absorb the sudden thrust loads common to severe service. Severe loading is common to all paper mills and "Buffalo" Pumps has taken note of this fact and designed the bearing frames accordingly.

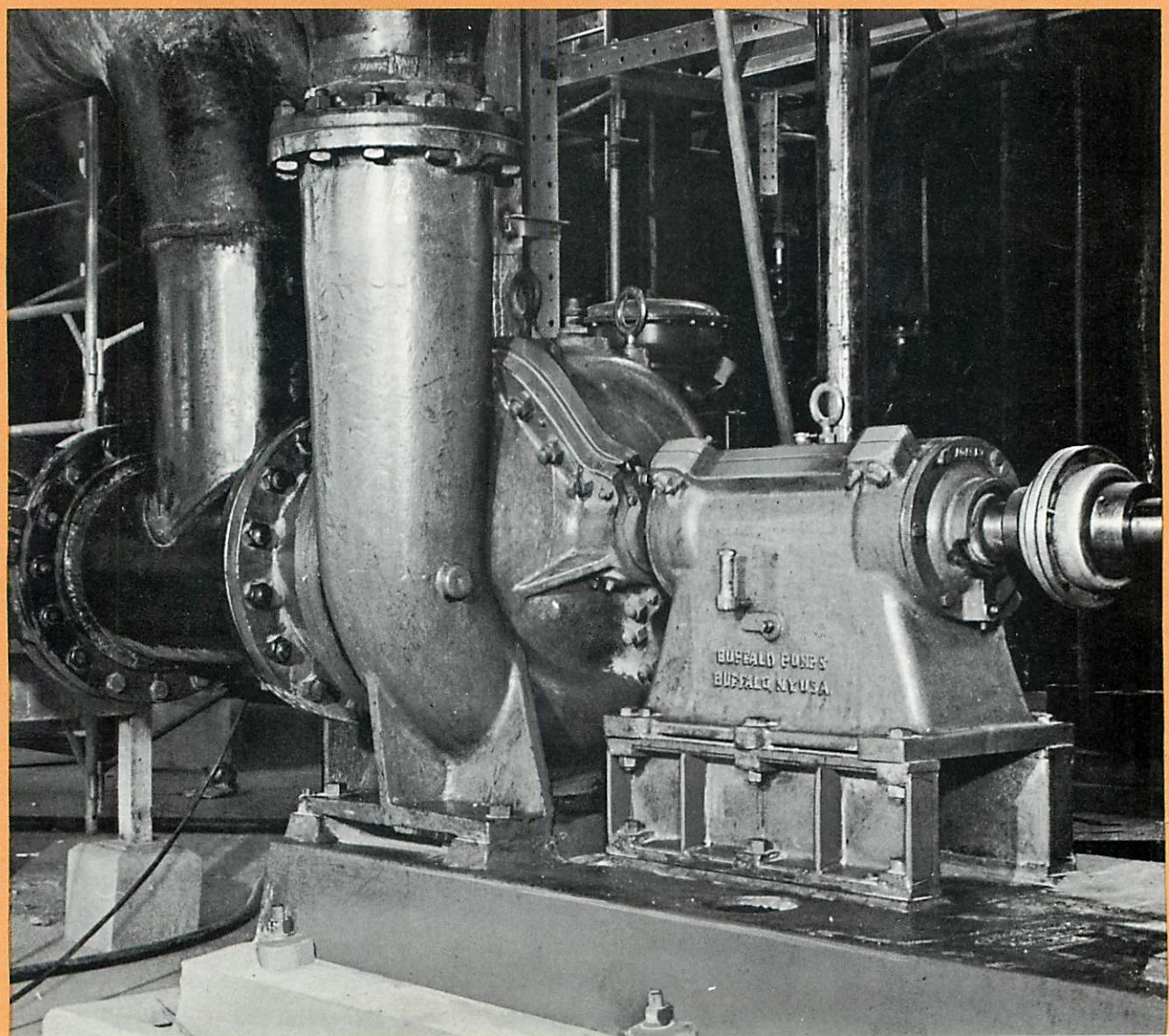
Base Plate Constructed of cast iron and ribbed for rigid support of pump, bearing frame and driver. The bearing frame and pump casing are dowelled to the base plate to insure proper and permanent alignment with the shaft so that the rotating parts are concentric at all times. Ample provision has been made for grouting.

Shaft Extra heavy with a tapered impeller fit to facilitate easy removal of the impeller from the shaft. Also, because of the taper, the shaft is strengthened considerably immediately behind the impeller hub, where loading stresses are concentrated.

Taper-Bored Impellers The standard enclosed type is designed for maximum efficiency. All passages are wide and completely open to aid in the passage of entrained air and any solids which may be included. Vanes on the back shroud are beneficial to operation in that these vanes prevent stock from piling up behind the impeller and imposing high pressure on the stuffing box and heavy thrust upon the bearing stand.

Stuffing Box Integrally cast as a part of the casing, the stuffing box is extra deep. It has two seal cage connections to allow for outside sealing water taps. The seal cage may either be placed at the bottom of the box or two rows of packing for the 2″, 3″ and 4″ DS pumps or three rows of packing for the other sizes may be inserted before the seal cage. The position of the seal cage is optional. The standard location is behind the two or three rows of packing. If the nature of the material being handled is such that it contains grit and other abrasive substances, it would then be desirable to have a clear water flush at the bottom of the box. This flush would tend to keep harmful materials away from the packing. To accomplish this, the seal cage is placed at the bottom of the box.

12 x 14″ DS paper stock pump handling 2½%, 100°F. stock to a hypo tower. The rating is 4200 gpm at 95′ head and is driven by a 125 HP, 1180 RPM motor.



Seal Cage The split type is standard. A sealing water line to the seal cage is piped from an outside source and may be metered by a lever cock or valve.

Packing Ample packing is supplied with each pump. Special types of packing are available at slight extra costs.

Gland Split type glands are standard construction. Stainless steel studs and nuts are furnished to resist corrosion and to facilitate easy packing adjustment.

Deflector The deflector is mounted on the shaft ahead of the inboard bearing to prevent liquid leakage into the bearing. The deflector is made of neoprene on the 2″, 3″ and 4″ DS pumps. These pumps have the small bearing frame, size "A." The deflector is made of metal on all other sizes and classes.

Suction Spool Piece An optional feature, mounted on the suction flange of the pump and designed primarily for fast, efficient servicing and reduction of maintenance costs. Use of the spool piece reduces repair time and cost of repairs.

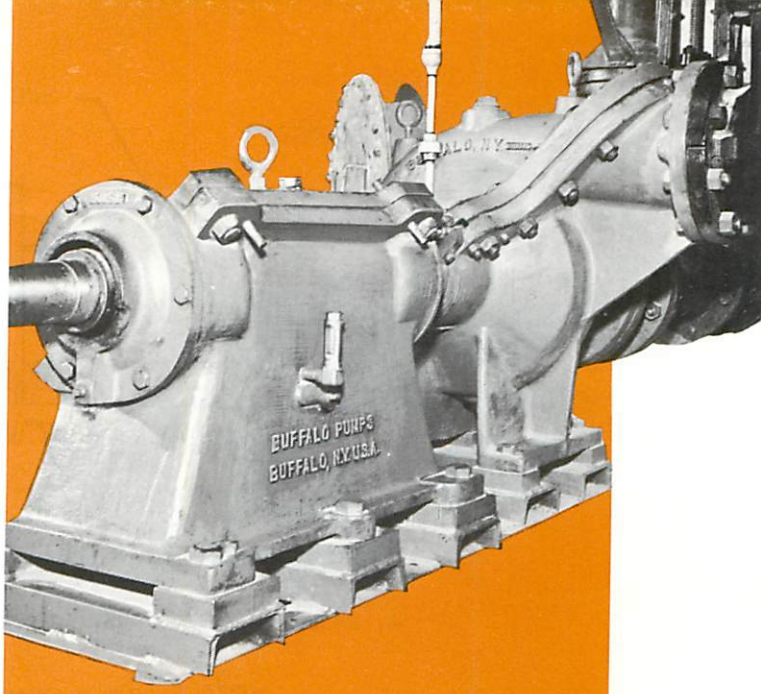
Suction and Discharge Flanges Inlet and outlet flanges are normally drilled and sized to the #125 American Standard specifications. High pressure flanges can be provided where necessary.

Booster Impeller This is an optional item offered if suction conditions warrant the need, as when handling high consistency stock with comparatively low submergence on the suction. With the booster impeller, these pumps are particularly suitable for dumping beaters, feeding Jordans and handling "gassy" stocks which normally bind other pumps.

They are also admirably suited for head box service. Most sizes in the DS and DSH line of pumps have provision for future installation of a booster impeller.

Coupling The "Buffalo" flexible coupling is a pin and rubber bushing type and is supplied as standard equipment in most cases. If desired, a special coupling can be supplied at slight additional charge.

Special Metals All wetted parts of the pump end can be made of special machinable alloys when necessary.



6 x 8″ DS paper stock pump handling 3½% washer dumpings to a blow tank. Temperature is 150°, rating is 500 gpm at 95′ head. The unit is V-belt driven by a 30 HP, 1150 RPM motor.

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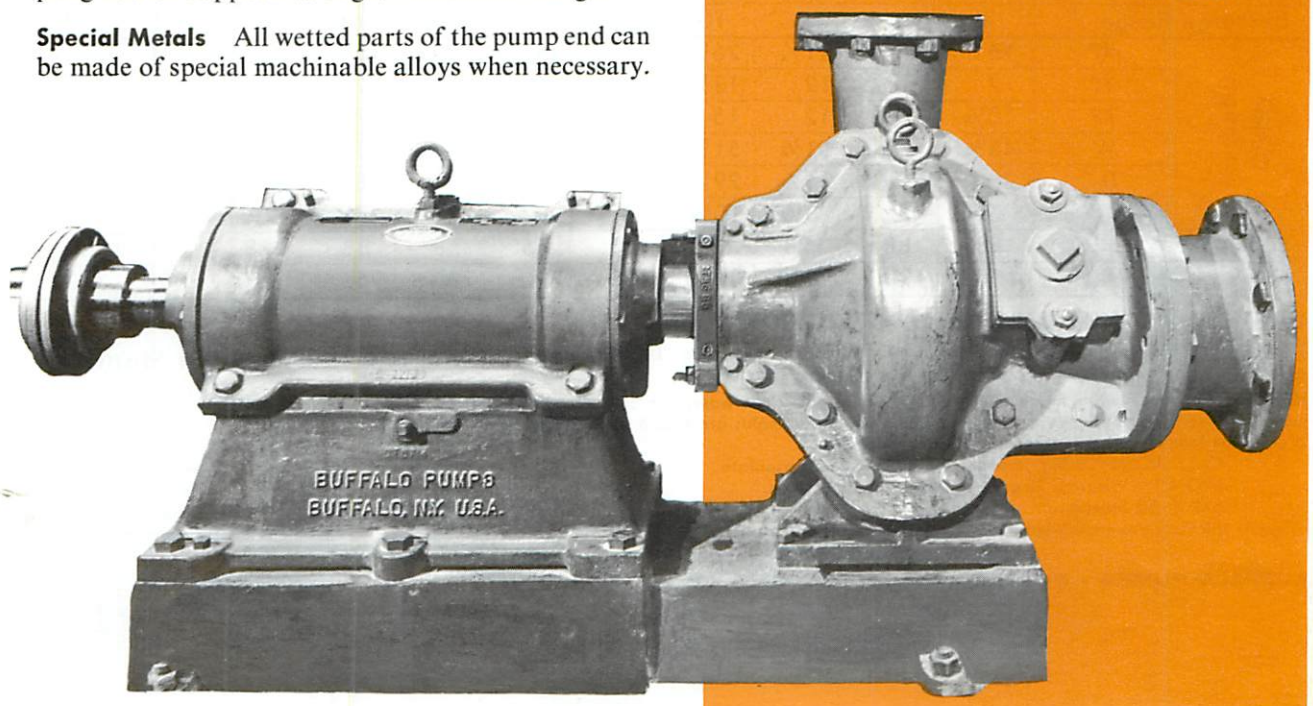
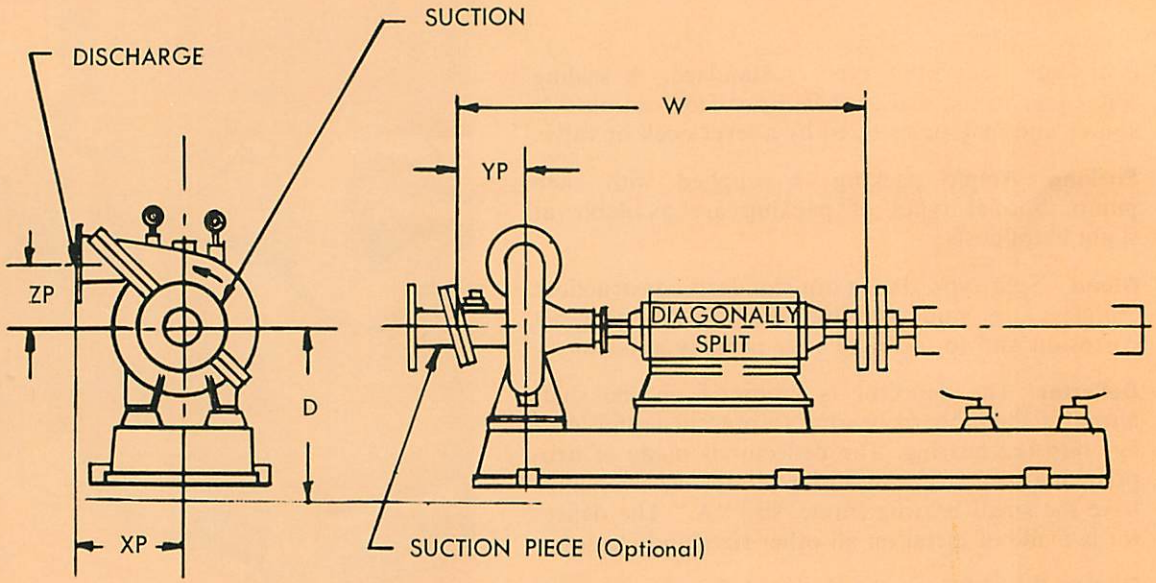
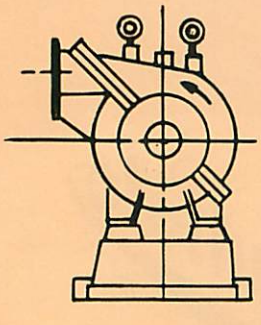
6 x 8″ DS paper stock pump handling 200°F. hot contaminated water, 1100 gpm at 40′ head and driven by a 20 HP, 1175 RPM motor.



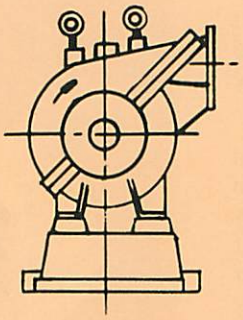


NOTE: Rotation is determined by viewing casing from driver end.

TOP HORIZONTAL DISCHARGE

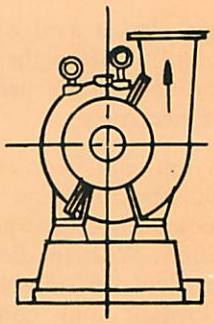


C. W. ROT.

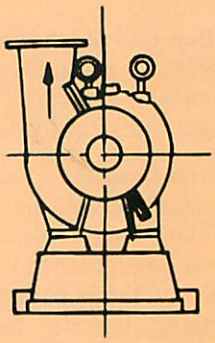


C. C. W. ROT.

VERTICAL UP DISCHARGE



C. W. ROT.



C. C. W. ROT.

Outline Dimension Table

		CLASS DSH				CLASS DS						
Pump Size		4	6	8	10	2	3	4	6	8	10	12
Suction Flange		6	8	10	12	3	4	6	8	10	12	14
Discharge Flange		4	6	8	10	2	3	4	6	8	10	12
Outline Dimensions	XP	16	19¼	21½	26¼	11	11	12¾	15¼	19	23½	25½
	YP	12	14⅞	12	13⅞	8½	8½	9⅞	12	12	13⅞	16
	ZP	10⅛	10¾	12	15	6⅝	6¾	7 1/16	7¾	10⅛	12⅝	13⅛
	W	43¾	43¾	51⅞	51⅞	34⅞	34⅞	34⅞	43¾	43¾	43¾	51⅞
	D	20	20½	26½	29½	13½	16	13½	18	20¾	27½	28½
	Suction Pc.	7¼	8	8½	10⅛	4½	8	7⅞	7⅛	9½	9⅛	9¾
Suction Pc. Wgt., Lbs.		58	88	128	199	30	45	58	88	128	199	225
Net Wgt., Lbs.		1000	1900	2000	3150	700	720	760	950	1650	2800	3200

CAUTION: DO NOT USE FOR CONSTRUCTION.

This table is for estimating purposes only. In most cases, the dimension "D" is determined by the pump. For exact details, see the local sales representative or contact the factory.

Note: All dimensions are in inches. Net weight includes pump and baseplate only and all weights are approximate. Add 15% to obtain approximate shipping weight. Weights are based upon materials of standard construction as follows and include pump end and baseplate:

CAST IRON—Casing, Impeller, Packing Gland, Baseplate.
BRONZE—Wearing Ring, Seal Cage, Throat Bushing.
SAE 4150 Steel Shaft.

Weights will vary depending upon materials of construction.

Bearing Stand

Weight in Lbs.

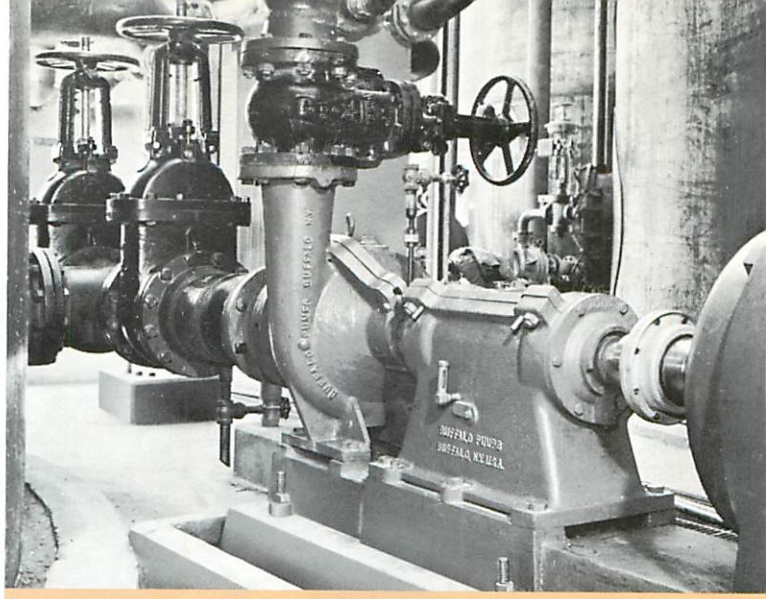
"A" Small	"B" Medium	"C" Large
265	480	800

Paper Stock Pumps

Class DS and DSH Pumps

BEARING STAND OPERATING RANGE

Pump Size	Maximum Speed, RPM	Largest Impeller Diam.
SMALL BEARING STAND (A)		
2 DS	1750	Maximum
3 DS	1750	Maximum
4 DS	1750	Maximum
MEDIUM BEARING STAND (B)		
6 DS	1750	Maximum
8 DS	1750	Maximum
10 DS	1150	Maximum
12 DS	1150	15″
4 DSH	1450	Maximum
6 DSH	1150	Maximum
8 DSH	1150	17″
10 DSH	860	22″
LARGE BEARING STAND (C)		
12 DS	1450	Maximum
6 DSH	1450	Maximum
8 DSH	1450	Maximum
10 DSH	1150	Maximum



Class DS 6 x 8″ pump handling 180°F. water, 1700 gpm at 120′ head and driven by a 75 HP, 1770 RPM motor.

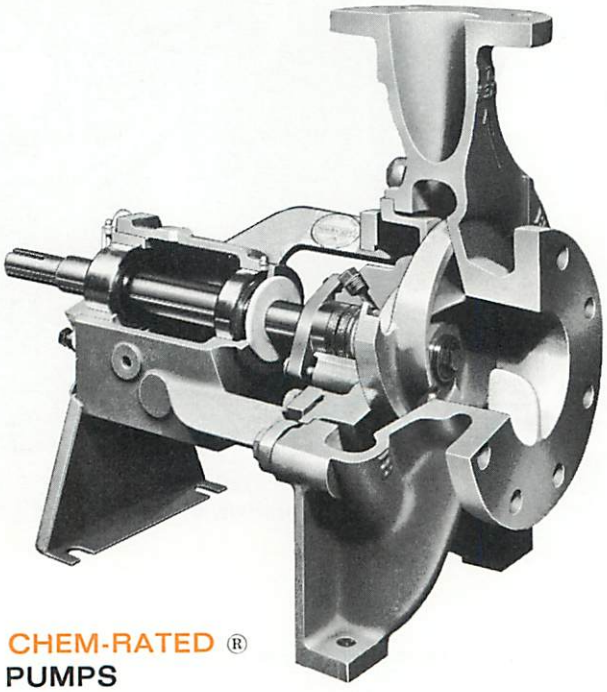
The maximum physical impeller diameters for the above mentioned pumps are: 2 DS, 11″; 3 DS, 11½″; 4 DS, 11⅛″; 6 DS, 12⅞″; 8 DS, 14¾″; 10 DS, 16½″; 12 DS, 18″; 4 DSH, 16⅝″; 6 DSH, 18″; 8 DSH, 19½″; 10 DSH, 24″.

Maximum impeller diameter can be used on the next slower standard speed. Standard speeds are 1750, 1450, 1150, 860 & 690 RPM.

Interchangeability Data

Size	Pump	Bearing Stand	Shaft	Brg. End Cover Inboard	Brg. End Cover Outboard	Thrust Bearing	Guide Bearing	Deflector Inboard	Deflector Outboard	Shaft Sleeve	Gland	Seal Cage	Throat Bushing	Impeller Nut
2	DS	A	A	A	*A	A	A	A	A	A	A	A	A	A
3	DS	A	A	A	*A	A	A	A	A	A	A	A	A	A
4	DS	A	A	A	*A	A	A	A	A	A	A	A	A	A
6	DS	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
8	DS	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
10	DS	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
12	DS	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
12	DS	C	C	C	C	C	C	B&C	C	B&C	B&C	B&C	B&C	B&C
4	DSH	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
6	DSH	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
6	DSH	C	C	C	C	C	C	B&C	C	B&C	B&C	B&C	B&C	B&C
8	DSH	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
8	DSH	C	C	C	C	C	C	B&C	C	B&C	B&C	B&C	B&C	B&C
10	DSH	B	B	B	B	B	B	B&C	B	B&C	B&C	B&C	B&C	B&C
10	DSH	C	C	C	C	C	C	B&C	C	B&C	B&C	B&C	B&C	B&C

Inboard Bearing Cover

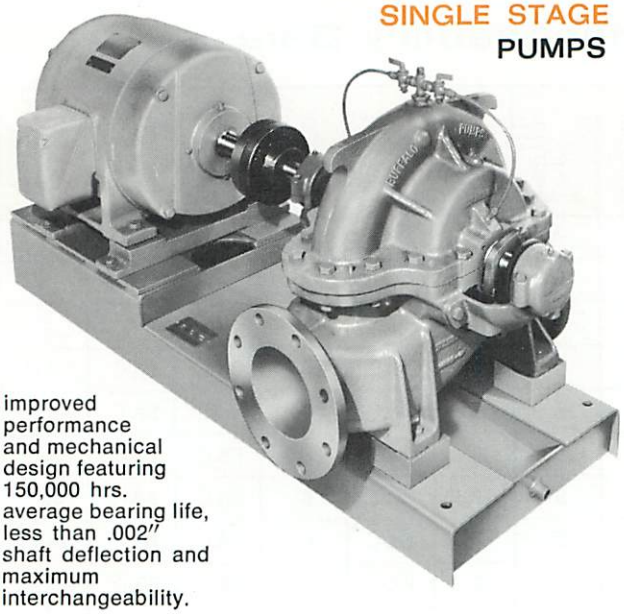


CHEM-RATED ® PUMPS

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.

DOUBLE SUCTION SINGLE STAGE PUMPS



improved performance and mechanical design featuring 150,000 hrs. average bearing life, less than .002" shaft deflection and maximum interchangeability.

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