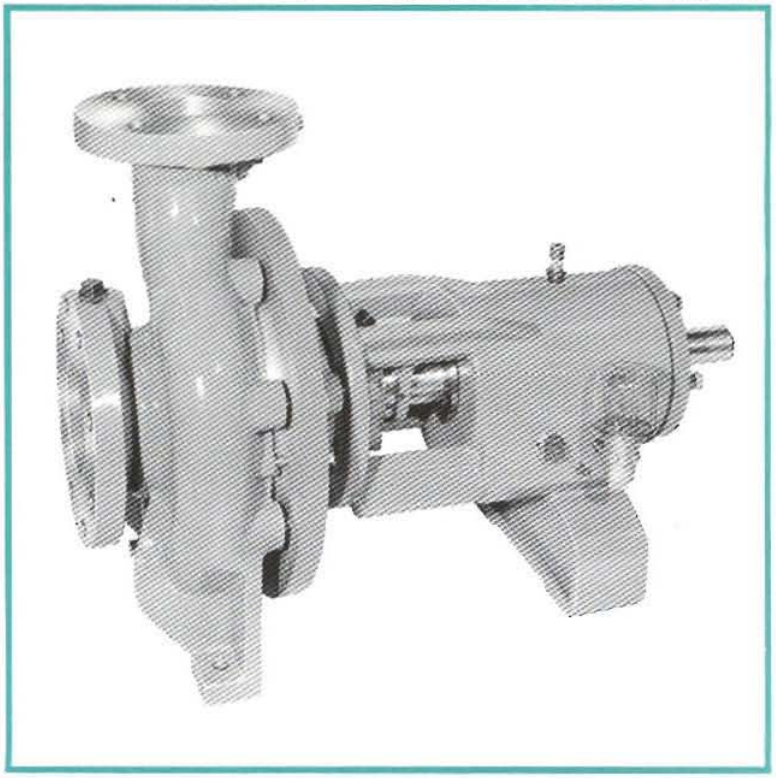
THE BUFFALO CR-FV VORTEX PUMP



BULLETIN 902-B

THE BUFFALO CR-FV VORTEX PUMP

- Original design rating remains virtually unchanged in service
- Oversize running tolerances reduce wear, increase versatility
- Existing Buffalo CRE/CRO standard dimension pumps can be readily converted to a CR-FV Vortex Pump
- The Buffalo CR-FV is designed for maximum parts interchangeability, and minimum maintenance cost

Operation/Application

The Buffalo CR-FV Vortex-Inducing Recessed Fixed Vane Impeller imparts a swirling action to the fluid in the casing. This vortex action enables the fluid to pass smoothly from the suction to the discharge, keeping abrasive particles away from the impeller. This minimizes impeller wear, thereby drastically reducing the sensitivity of performance with respect to wear.

Also, since greater running clearances are used, larger size solids can be handled without the worry of clogging which is common with open impeller centrifugal pumps employing close running clearances. The size of solids which may be pumped is outlined on page 6.

The CR-FV is ideally suited to effectively handle abrasive slurries, chemical and petroleum fluids, liquids with entrained air, liquids containing crystals and solids, cellulose and synthetic fibers in solution. Since there are no extreme or violent changes in direction of the pumped fluid, fragile material may be pumped with minimum degradation.

Parts Interchangeability/Retrofit

Major parts interchangeability within the CR-FV Vortex Pump line greatly simplifies spare parts requirements. For example: one bearing frame, bearing size, shaft and gland fit all fourteen pump sizes.

The ANSI standard dimension pump end used allows interchangeability with Buffalo CRE/CRO Pumps. Field conversion of CRE/CRO Pumps to CR-FV Pumps can be readily accomplished by the addition of a spacer, Vortex Impeller, and a spacer coupling. The motor can be relocated on the same baseplate.

General Specifications

NUMBER OF PUMP SIZES: 14
BEARING FRAME: M3
HEADS: to 190 ft.
CAPACITIES: to 2,000 gpm.
RETROFIT CAPABILITY: 9", 11", 13" Buffalo CRE/CRO Pumps

THE FIXED VANE VORTEX IMPELLER

- Long impeller service life
- Balanced thrust operation increases bearing life
- 7" through 13" impeller diameters sized in ⅛" increments

The CR-FV Impeller is of one piece cast construction to insure hydraulic integrity; and sized according to the customer's design rating. Standard material of construction is CD4MCu. A wide variety of metals, including alloy 20, are available to meet specific application requirements. The impeller is keyed and positively locked to the shaft to avoid "spin-off" should the pump be inadvertently operated in the opposite direction than that specified.

These features make the new CR-FV Vortex Pump a welcome addition to the already outstanding Buffalo Pump line. When you need a pumping problem solved, look to Buffalo for the solution.

BUFFALO PUMPS... A LEADER IN PUMP TECHNOLOGY

THE BUFFALO CR-FV VORTEX PUMP

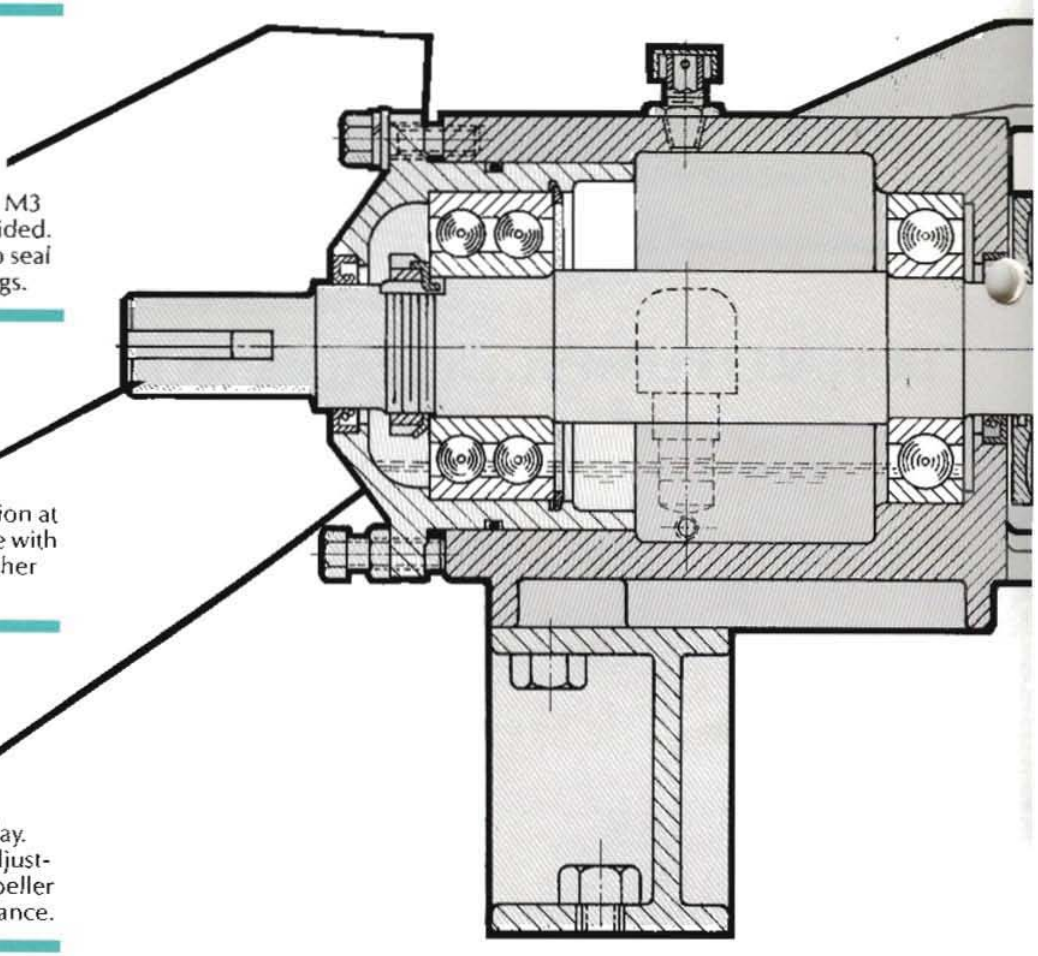
QUICK RELEASE LUGS
High strength sintered metal. Allows quick back-pull-out removal of impeller and frame for inspection or service.

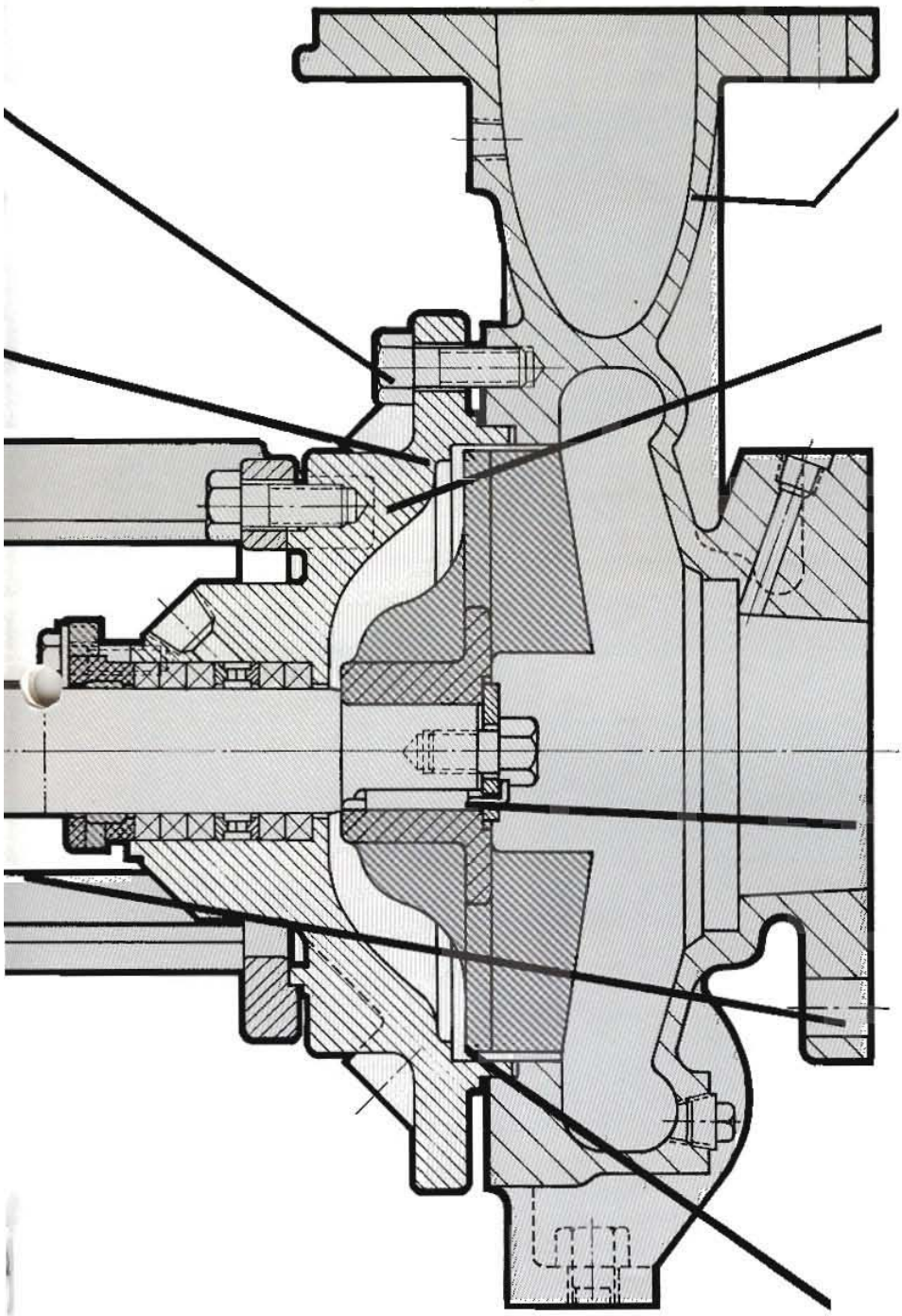
RABBETED FIT
Affords positive alignment between frame, spacer and casing. Confined gasket prevents leakage and protects rabbeted fit.

M3 FRAME
Oil lubrication standard for the M3 frame. Breather and drain provided. Labyrinth flinger-lip seal and lip seal protect radial and thrust bearings.

SHAFT
Sized for .002 maximum deflection at face of stuffing box. 316SS, for use with packing or mechanical seals. Other alloys available.

THRUST BEARING AND CARTRIDGE
Double row to minimize end play. Two year minimum life. Axial adjustment of cartridge maintains impeller location and optimum performance.





UNIVERSAL CASING

Unique balanced thrust design affords minimal radial thrust. Vertical up centerline discharge. 150 lb. flanges standard. 300 lb. optional.

CASING COVER-SPACER

Accurately machined to fit casing. Properly positions casing in relation to impeller. Confined gasket at mating surface.

SHAFT SLEEVE – OPTIONAL

Replaceable hook type sleeve with a gasket between sleeve and impeller. Allows for easy removal and prevents any leakage under shaft sleeve.

IMPELLER LOCKING SCREW

Stainless steel. Positive impeller containment.

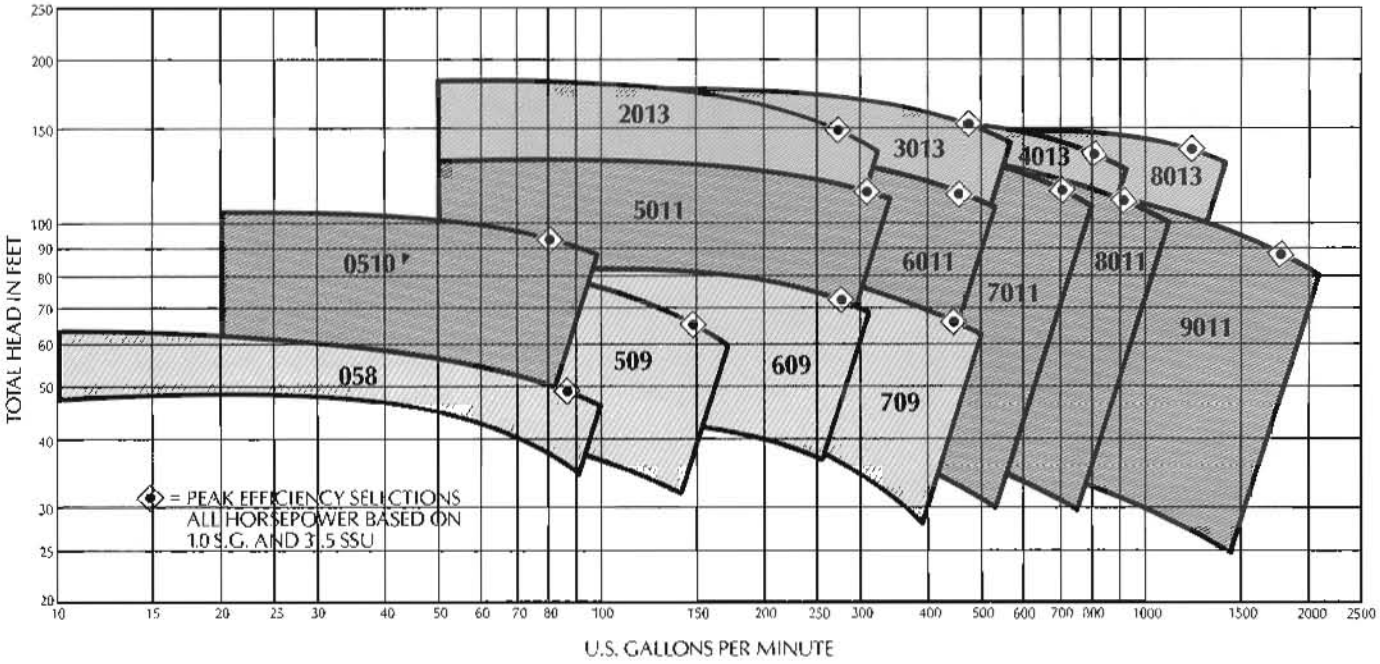
STUFFING BOX

Packed, with or without glass filled Teflon lantern ring. Smothering gland. Inside or outside mounted, single and double mechanical seals. Tapped in-out connection to allow flushing of shaft or shaft sleeve.

IMPELLER

One piece construction. Cast of alloy CD4MCu.

CR-FV PERFORMANCE 1750 RPM



MATERIALS OF CONSTRUCTION

Part No.	Part Name	Cast Iron*	Ductile Iron*	All 316SS*	All CD-4MCu[1]
2	Casing	C.I.	D.I.	316SS	CD-4MCu[1]
3	Impeller	CD-4MCu[1]			
6	Casing Cover-Spacer	C.I.	D.I.	316SS	CD-4MCu[1]
7	Shaft	316SS			
12	Gland	316SS			
14A	Split Seal Cage	Glass Filled Teflon			
15A	Impeller Lock Screw	316SS			
16	Impeller Washer	316SS			
18A	Deflector	316SS			
22	Bearing Frame	Cast Iron			
25	Bearing Cover	Cast Iron			
102A	Gland Screw	18-8 Stainless			
240	Bolt Lugs	Sintered Metal			
252	Frame Foot	Cast Iron			

*Normally factory stock

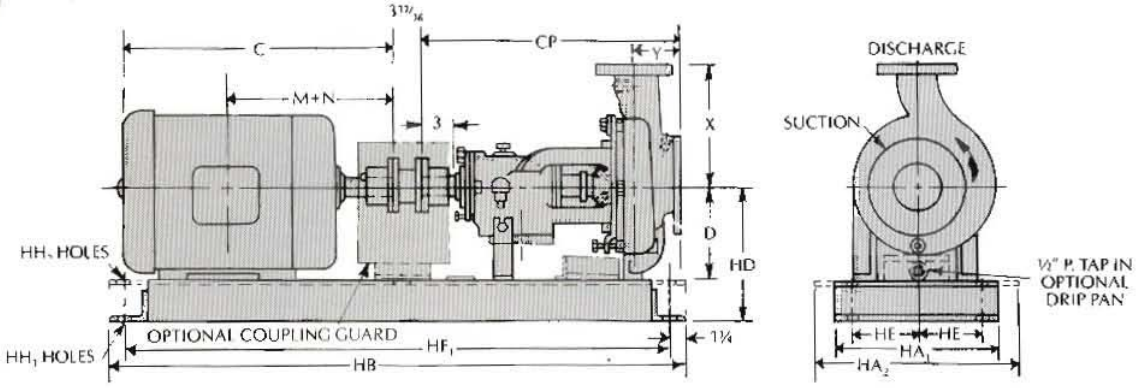
[1]Corrosion and abrasion resisting material, hardness 240-260 B.H.N.
Alloy 20 and other alloys available on special orders.

MATERIAL COMPOSITION PER CENT

Alloy	Ni	Cr	Mo	Cu	C
CD-4MCu	5.0	26.0	2.0	3.0	.04
316SS	9.0	19.0	2.5	—	.08
Alloy 20	29.0	20.0	2.5	3.5	.07

MAXIMUM SIZE OF SOLIDS HANDLED

CR-FV SIZE	MAXIMUM SOLID SIZE
058	1"
509	1 3/16"
609	1 1/8"
709	1 5/16"
0510	1 5/16"
5011	1 1/8"
6011	1 1/4"
7011	1 5/8"
8011	2 1/8"
9011	2 1/2"
2013	1"
3013	1 1/8"
4013	1 5/16"
8013	1 7/8"



PUMP DATA (M3 FRAME)

Size	058	509	609	709	0510	5011	6011	7011	8011	9011	2013	3013	4013	8013
CP	26								26	28	26			26
X	8½	8½	9½	11	8½	10½	11½	12½	13½	13½	10½	11½	12½	13½
Y	4								4	6	4			4
D	8¼				8¼	10								10
Pump Weight (lbs.)	140	143	149	166	154	162	171	185	200	212	214	227	236	243

BASE PLATE DATA

Base No.	Motor Frame	HA_1	HA_2	HB	HD		HE	HF_1	HH_1	HH_2	Base Wgt.
					D8¼	D10					
1	143T – 215T	12	14	45	12	13¾	4½	42½	4-¾	—	81
2	254T – 286T	15	—	52	12⅜	14⅛	6	49½	4-¾	—	109
3	324T, TS; 326T, TS 364T, TS; 365TS	18	—	58	13 14	14¾	7½	55½	—	4-1"	110
4	365T	18	—	60	13 14	14¾	7½	57½	—	4-1"	182
	404T, TS; 405TS	18	—	60	15 16	15 16	7½	57½	—	4-1"	182
5	405T; 444T, TS	22	—	62¾	—	15	9	60¼	—	6-1"	200

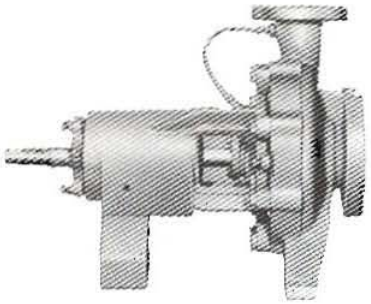
SUCTION & DISCHARGE FLANGE DATA

STANDARD PRESSURE – FLAT FACED FLANGES												
	Suction Flange			Flange Bolt'g (Straddle ℄)		Flange Bolt	Discharge Flange			Flange Bolt'g (Straddle ℄)		Flange Bolt
Size	Size	O.D.	Tkns.	No. Taps	No. Holes	Circle	Size	O.D.	Tkns.	No. Taps	No. Holes	Circle
058	2	6	3/4	—	4-¾	4¾	1	4¼	9/16	—	4-⅝	3⅛
509	3	7½	15/16	—	4-¾	6	1½	5	11/16	—	4-⅝	3⅞
609	3	7½	15/16	—	4-¾	6	2	6	3/4	—	4-¾	4¾
709	4	9	15/16	—	8-¾	7½	3	7½	15/16	—	4-¾	6
0510	2	6	—	4-⅝	—	4¾	1	4¼	9/16	4-½	—	3⅛
5011	3	7½	—	4-⅝	—	6	1½	5	11/16	—	4-⅝	3⅞
6011	3	7½	—	4-⅝	—	6	2	6	3/4	—	4-¾	4¾
7011	4	9	—	8-⅝	—	7½	3	7½	15/16	—	4-¾	6
8011	6	11	—	8-¾	—	9½	4	9	15/16	—	8-¾	7½
9011	8	13½	—	8-¾	—	11¾	6	11	1	—	8-⅞	9½
2013	3	7½	15/16	—	4-¾	6	1½	5	11/16	—	4-⅝	3⅞
3013	3	7½	15/16	4-⅝	—	6	2	6	3/4	—	4-¾	4¾
4013	4	9	15/16	8-⅝	—	7½	3	7½	15/16	—	4-¾	6
8013	6	11	—	8-¾	—	9½	4	9	15/16	—	8-¾	7½

MOTOR DATA

Motor Frame	C	M+N
145T	13 1/16	7
182T	14¾	7 11/16
184T	15¼	8 5/16
213T	17⅞	9⅝
215T	19⅜	10⅜
254T	21 13/16	12⅜
256T	23 9/16	13¼
284T	24 9/16	14⅛
284TS	23 3/16	12¾
286T	26 1/16	14⅞
286TS	24 11/16	13½
324T	27 3/16	15¾
324TS	25 11/16	14¼
326T	28 11/16	16½
326TS	27 3/16	15
364T	33 1/16	17⅜
364TS	30 15/16	15¼
365T	34 1/16	17⅞
365TS	31 15/16	15¾
404T	37 3/16	20
404TS	34 1/16	17
405T	38 11/16	20¾
405TS	35 11/16	17¾
444T	42⅝	23¼
444TS	38⅞	19½

OTHER BUFFALO PUMPS

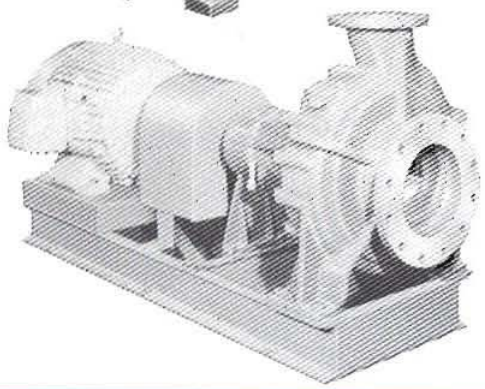


4-WAY FRAME MOUNTED PUMP

Buffalo 4-Way Pumps are designed to operate with reduced axial and radial loads for long maintenance-free service in the chemical process and allied industries. 21 sizes. Capacities to 5000 gpm. Pressures to 400 psi. Bulletin 903.

LEAKPROOF CAN-O-MATIC® PUMPS

The reliable, hermetically sealed pump designed to handle toxic, volatile and corrosive liquids, refrigerants and high temperature water. 17 sizes. Capacities to 1200 gpm. Heads to 480 ft. Temperatures from –120°F to +490°F. Pressures to 600 psi. Bulletin 979.



BUFFALO "SH" SOLIDS HANDLING PUMPS

These industrial solids handling pumps are available in horizontal, vertical non-submerged, vertical submerged and close coupled models. Sizes to handle up to 4" solids. Capacities to 7300 gpm. Pressures to 100 psi. Heads to 230'. Bulletin 964.

buffalo pumps

An Ampco-Pittsburgh Company

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