

CLASS FF

MULTI-STAGE

CENTRIFUGAL PUMPS



HIGH HEAD PERFORMANCE

BULLETIN 910-A

CLASS FF CENTRIFUGAL PUMPS

Economical High Head Performance

The Buffalo "FF" Centrifugal Pump delivers predictable, reliable high head performance without the higher cost typical of most horizontally split multi-stage pumps. This is achieved with Buffalo's proven cost effective vertically split, single suction 2 stage internal crossover design. Low life-cycle cost is enhanced by Buffalo's exclusive balanced thrust operation which tends to reduce pump maintenance costs.

Versatility of Application

A wide range of demanding pumping applications can be readily handled with the Buffalo "FF". While ductile iron and 316SS are the standard materials of construction, the "FF" is available in a wide range of machinable alloys. This wide range of

metallurgy makes application possibilities almost limitless. In addition, the Class "FF" is available as a Buffalo Can-O-Matic® Hermetically Sealed Pump for applications where the possibility of leakage cannot be tolerated.

Versatility of Installation

Buffalo Class "FF" Pumps are available in a variety of configurations including: Frame Mounted, Close Coupled, Vertical In-Line, Horizontal In-Line and Vertical Submerged. This makes it easy to select an "FF" to meet virtually any process system arrangement.

Maximum Parts Interchangeability

All "FF" Pumps use the same pump end, size for size, regardless of configuration. Therefore, spare parts inventory can be kept to a minimum, irrespective of the number of mounting configurations required to meet a plant's high head pumping requirements.

Buffalo Quality Products & Service

Buffalo Pump's ongoing commitment to high quality products is your assurance of optimum performance with minimum downtime due to pump failure.

When you have a liquid handling problem, or your Buffalo Pumps require maintenance, Buffalo's nationwide network of factory trained representatives is there to be of assistance.

General Specifications

BUFFALO CLASS FF TWO STAGE PUMPS

MODEL CONFIGURATIONS: Five

STANDARD CONSTRUCTION:

Ductile iron, 316 stainless steel fitted or all 316 stainless steel.

CAPACITIES: to 1100 gpm.

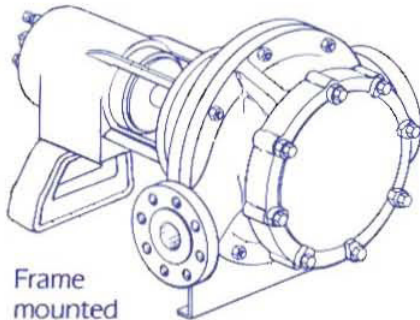
HEADS: to 980 ft.

© Copyright 1986
BUFFALO PUMPS

BUFFALO PUMPS, INC.....A LEADER IN PUMP TECHNOLOGY

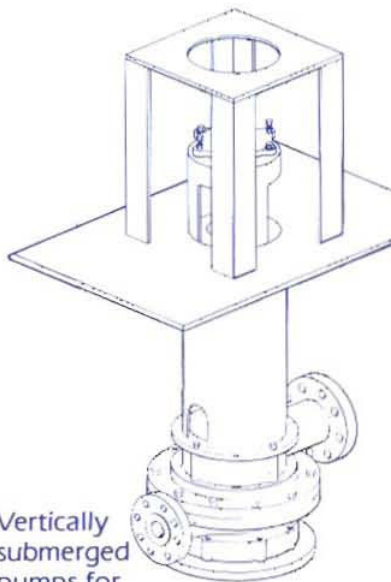
CLASS FF CENTRIFUGAL PUMPS

Mounting Configurations/
Maximum Versatility
to Meet Varied
Pumping System Requirements



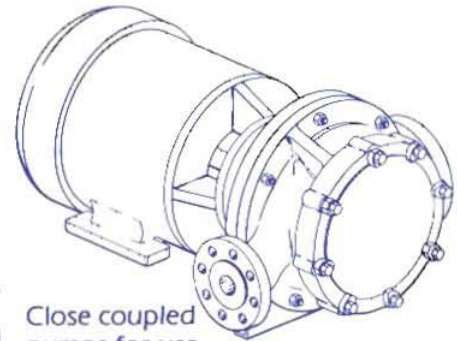
Frame mounted with base and coupling. Oil lubricated bearings have 2 year minimum life.

CLASS FF



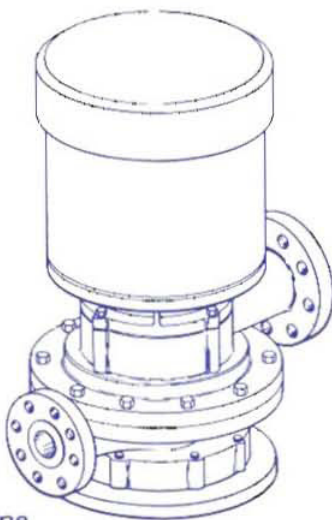
Vertically submerged pumps for tank or pit installation; utilizes the proven Buffalo VCRO mechanical design.

CLASS VFF



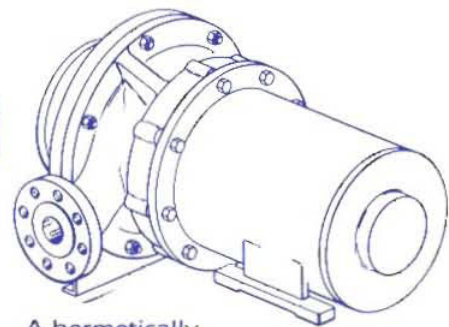
Close coupled pumps for use where compactness is a must. NEMA JP shaft motor.

CLASS CCFF



In-line pumps for space-saving installation. Close coupled with NEMA JP motors or frame mounted with P base or C face motors.

CLASS IFF



A hermetically sealed Can-O-Matic® pump for use where the possibility of leakage is unacceptable.

CLASS HFF

BUFFALO PUMPS

CLASS FF CENTRIFUGAL PUMPS

Impeller Locking Devices:

Stainless steel • Self locking
• Hydraulically designed for better fluid flow

Oil Lubrication:

Standard on all Class "FF" pumps. Breather and drain provided • O-Ring mounted deflector and lip seals protect radial and thrust bearings from contamination

Thrust Bearing & Cartridge:

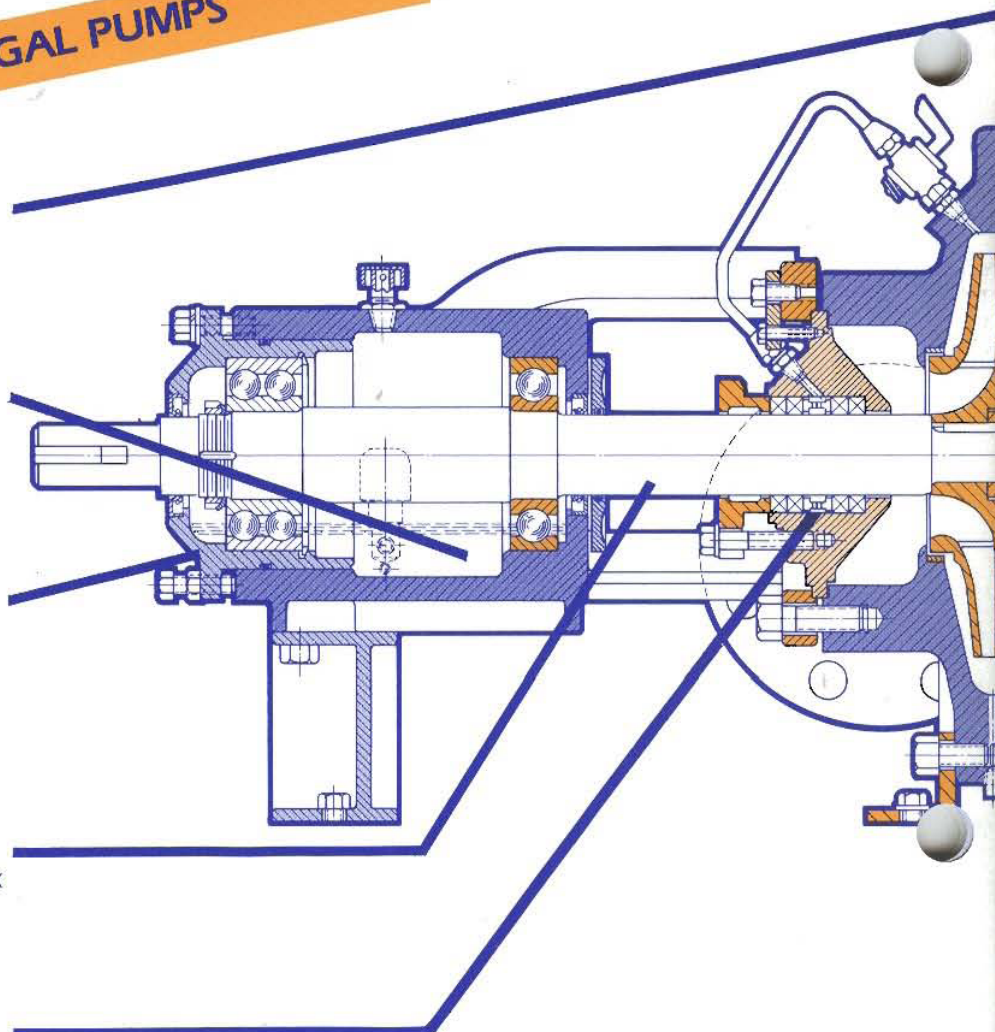
Double row to minimize end play • 2 year minimum life
• Axial adjustment of cartridge maintains impeller clearance and optimum performance

Shaft:

Sized for .002" maximum deflection at face of stuffing box
• 316SS is standard • Alloy 20 and other machineable alloys available

Stuffing Box:

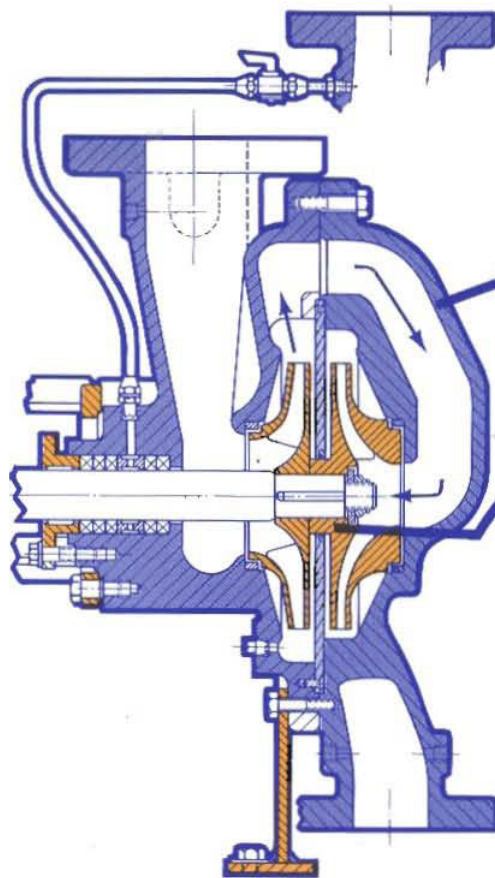
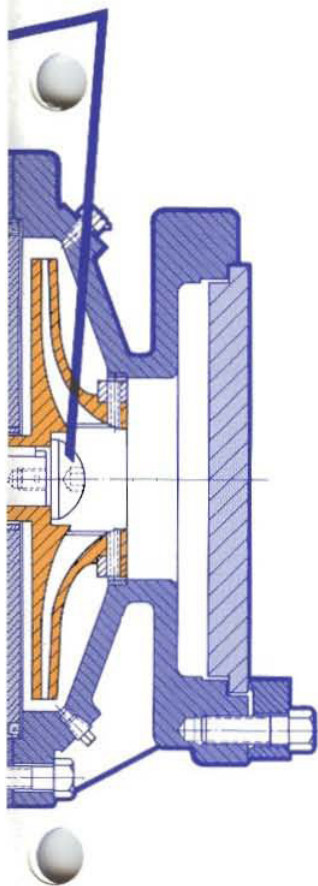
Packed with or without glass filled Teflon seal cage
• Smothering gland • Sized to accommodate inside or outside mounted single and double mechanical seals • Solid or flush glands



Materials of Construction

Part No.	Part Name	Ductile Iron	316 S.S. Fitted	All Stainless Steel	Part No.	Part Name	Ductile Iron	316 S.S. Fitted	All Stainless Steel
2	1st Stage Casing	D.I.	D.I.	316 S.S.	9	Casing Wearing Ring		Carbon Graphite	
2A	2nd Stage Casing	D.I.	D.I.	316 S.S.	12	Gland	C.I.	316 S.S.	316 S.S.
3	2nd Stage Impeller	C.I.	316 S.S.	316 S.S.	14A	Seal Cage		Glass Filled Teflon	
3A	1st Stage Impeller	C.I.	316 S.S.	316 S.S.	15A	Impeller Locking Screw		Self Locking 316 S.S.	
4	Impeller Wearing Ring—	316 S.S.	316 S.S.	316 S.S.	18	Deflector		316 S.S. with O-Ring	
	2nd Stage				19	Interstage Diaphragm	Steel	Steel	316 S.S.
5	2nd Stage Sideplate	Steel	Steel	316 S.S.	20	Interstage Bushing		Carbon Graphite	
6	Stuffing Box	D.I.	D.I.	316 S.S.	22	Frame		C.I. M-3 CRE/CRO Oil Lubrication	
7	†Shaft	316 S.S.	316 S.S.	316 S.S.	25	Thrust Bearing Cartridge		C.I. Positive Axial Rotor Adjustment	
					240	Locking Lugs		Sintered Metal—Quick Release	

†0.002" Maximum Deflection at Stuffing Box



Casing:

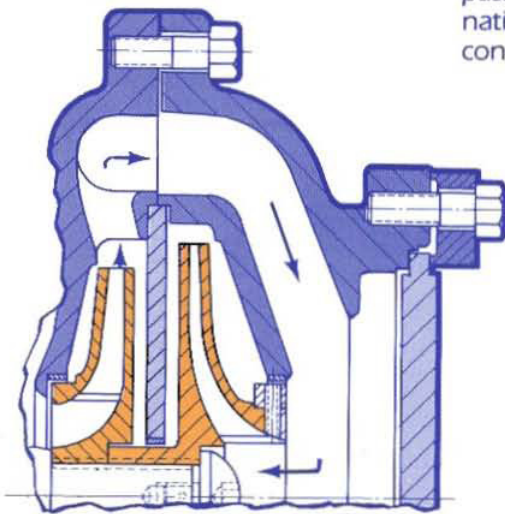
Balanced thrust off-set volute
affords minimal radial thrust
• 300 Lb. flat face flanges

Enclosed Impellers:

Clear liquid applications • Low
NPSH • Balanced axial thrust
• High efficiency

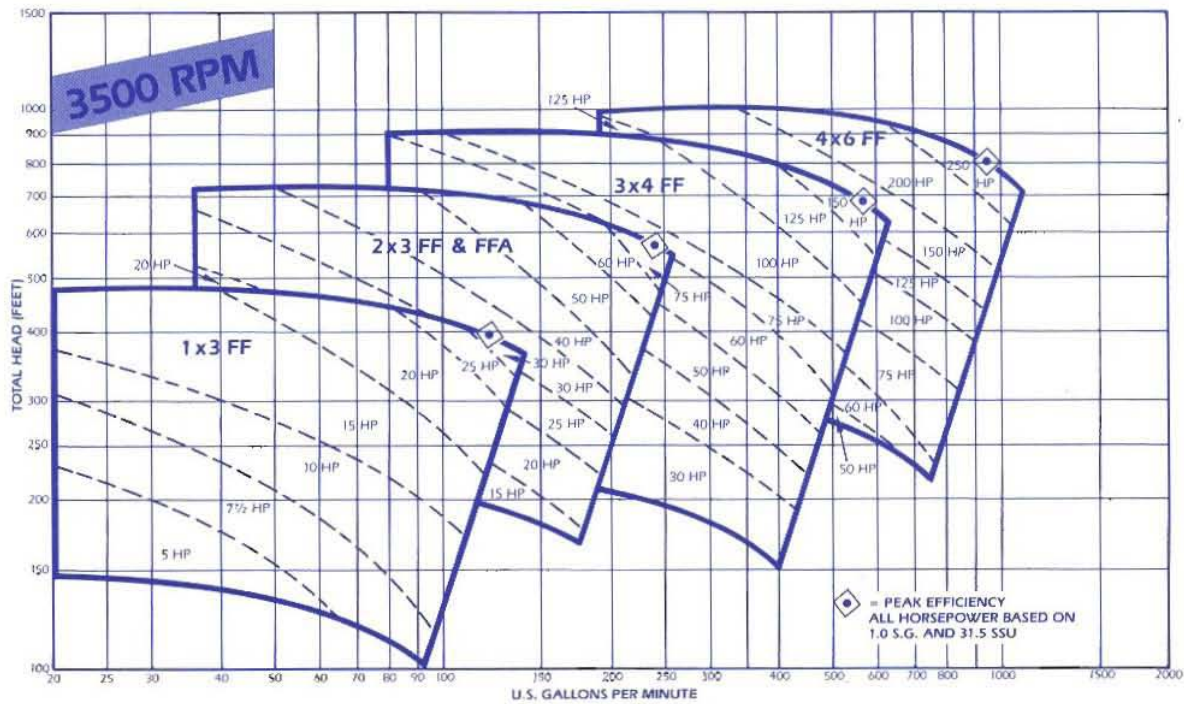
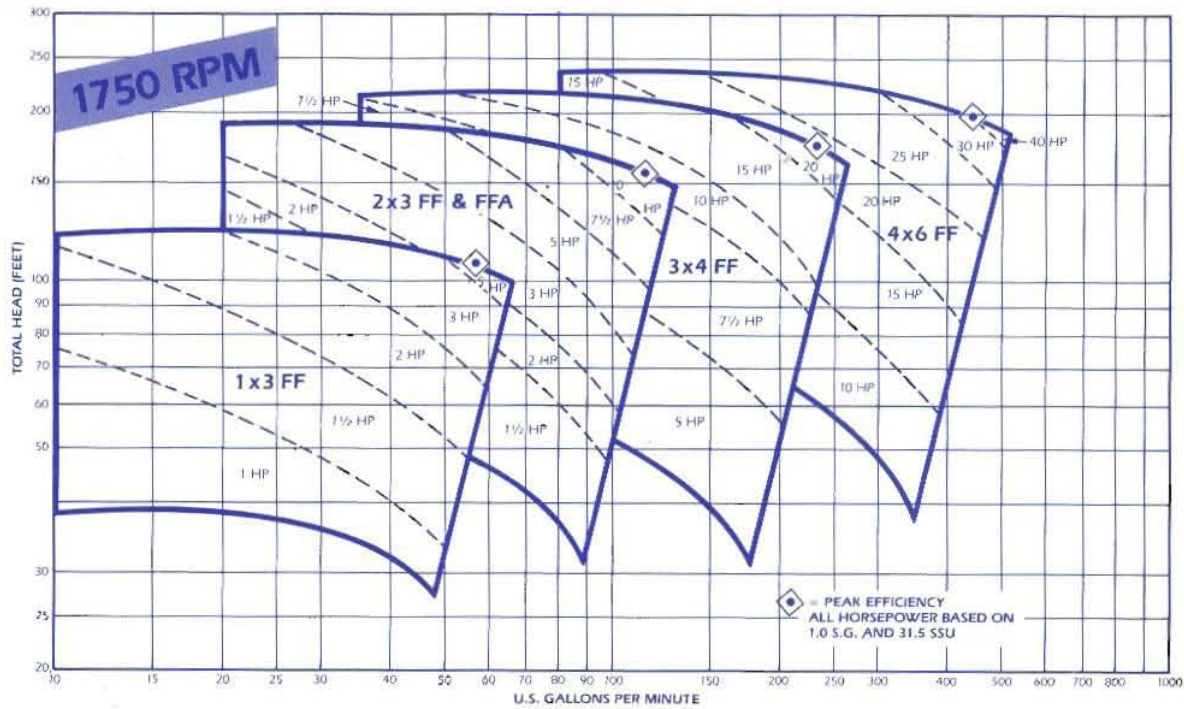
Internal Crossover Design:

Fluid flows from the discharge
of the first stage impeller to the
suction of the 2nd stage via an
internal, hydraulically designed
passageway (see illust.), elimi-
nating the need for bulky, space
consuming external crossovers.



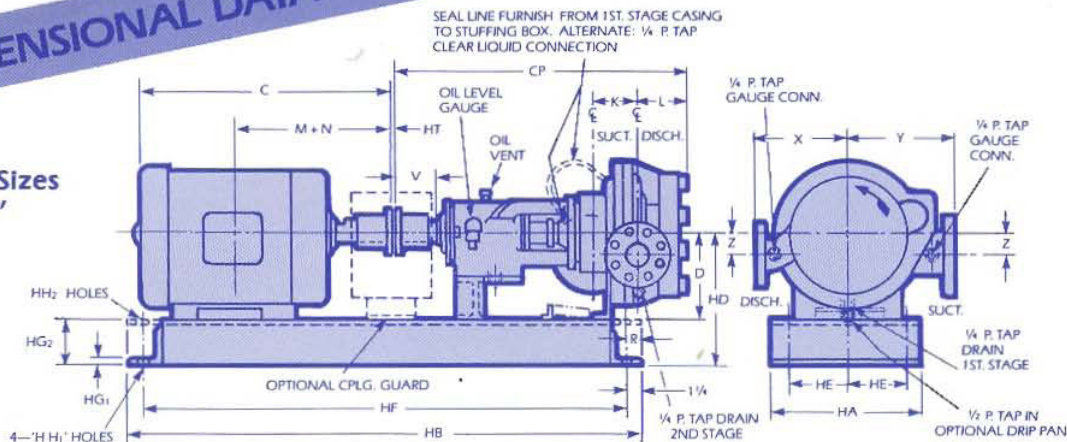
CLASS FF CENTRIFUGAL PUMPS

PERFORMANCE DATA



DIMENSIONAL DATA

Pump Sizes 1" & 2"



Pump Data

Pump Class	Suct. X Disch.	CP	D	HT	K	L	R	V	X	Y	Z	Bare Pump Wgt.
FF	3 x 2	28 3/8	8 1/4	—	4 1/2	5 1/2	3/8	3	9 1/2	11	2	279
FFA	3 x 2	28 3/8	8 1/4	—	4 1/2	5 1/2	3/8	3	9 1/2	11	2	279
FF	3 x 1	28 3/8	8 1/4	—	4 1/2	5 1/2	3/8	3	9 1/2	11	2	200

Base Plate Data

Base No.	Motor Frame	HA	HB	HD	HE	HF	HG ₁	HG ₂	HH ₁	HH ₂	Base Wgt.
1	143-215T	12	45	12	4 1/2	42 1/2	1/4	—	4 3/4	—	81
2	254T-286T	15	52	12 3/8	6	49 1/2	1/4	—	4 3/4	—	109
3	324T, TS-326T, TS	18	58	13	7 1/2	55 1/2	—	4 1/4	—	4-1	110
	364T, TS-365T, TS			14							

Motor Data

Mtr. FR.	C	M+N	Mtr. FR.	C	M+N	Mtr. FR.	C	M+N
143T	13 3/8	6 1/8	284TS	25 1/4	12 3/4	365TS	31 3/4	15 1/4
145T	13 3/8	7	286T	28 3/8	14 1/8	404T	37 3/4	20
182T	14 1/4	7 3/4	286TS	26 3/4	13 1/2	404TS	34 1/4	17
184T	15 1/8	8 1/4	324T	29 3/8	15 3/4	405T	38 1/4	20 3/4
213T	18	9 3/8	324TS	28 3/8	14 1/4	405TS	35 3/4	17 3/4
215T	19 1/2	10 3/8	326T	31 1/8	16 1/2	444T	43 1/8	23 1/4
254T	22 1/2	12 3/8	326TS	29 3/8	15	444TS	39 3/8	19 1/2
256T	24 1/8	13 3/4	364T	32 3/8	17 3/8	445T	45 1/8	24 1/4
284T	26 1/8	14 1/8	364TS	30 3/4	15 1/4	445TS	41 3/8	20 1/2
						447T	48 1/8	26

Suction & Discharge Data

Standard Pressure—Flat Faced Flanges											
Pump Class	Size	Suction Flange				Flange Bolt Circle	Discharge Flange				Flange Bolt Circle
		Size	O.D.	Tkns	Holes		Size	O.D.	Tkns	Holes	
FFA	3 x 2	3	8¼	1½	8-¾	6½	2	6½	¾	8-¾	5
FF	3 x 2	3	8¼	1½	8-¾	6½	2	6½	¾	8-¾	5
FF	3 x 1	3	8¼	1½	8-¾	6½	1	4½	1½	4-¾	3½
FF	3 x 4	4	10	1¼	8-¾	7½	3	8¼	1½	8-¾	6½
FF	4 x 6	6	12½	1½	12-½	10½	4	10	1¼	8-¾	7½

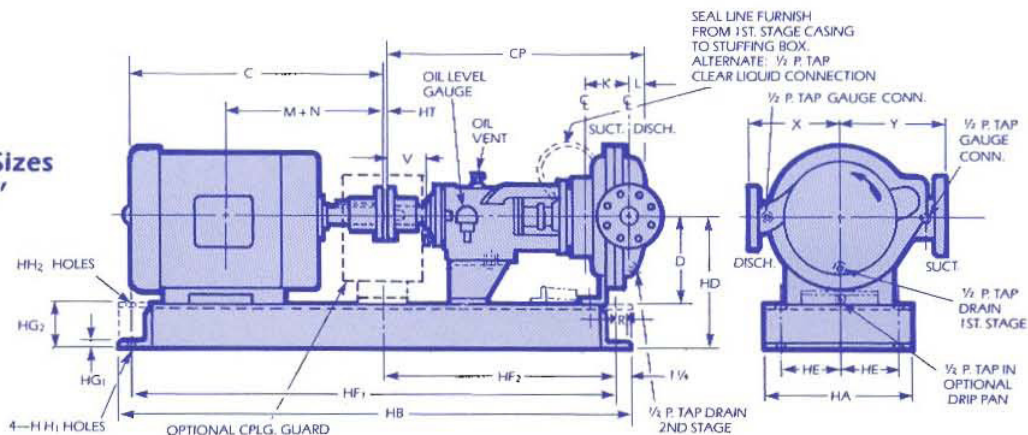
Base Plate Data

Base No.	Motor Frame	HA	HB	HD	HE	HF ₁	HF ₂	HG ₁	HG ₂	HH ₁	HH ₂	Base Wgt.
2	254T-286T, TS	15	52	16 1/8	6	49 1/2	—	1/4	—	4 3/4	—	109
3	324T, TS; 326T, TS; 364T, TS; 365T, TS	18	58	16 1/4	7 1/2	55 1/2	—	—	—	4 1/4	—	110
4	404T, TS; 405T, TS; 444TS	18	60	16	7 1/2	57 1/2	—	—	—	4	—	182
5A	444T, 445T; 445TS, 447TS; 447T, 449T, TS	22	72	16	9	69 1/2	34 1/4	—	—	—	6-1"	200

Pump Data

Pump Class	Suct. X Disch.	CP	D	HT	K	L	R	V	X	Y	M	Bare Pump Wgt.
FF	4 x 3	32 3/8	12	—	7 1/8	3 3/4	3 1/2	3	13	14	18 1/4	420
FF	6 x 4	33 3/8	12	—	10	3 3/4	4	3	15	17	18 1/4	559

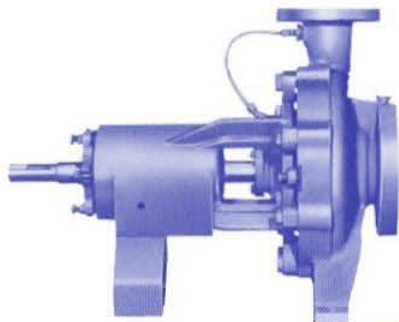
Pump Sizes 3" & 4"



Note: All dimensions in inches.

BUFFALO PUMPS

OTHER BUFFALO PUMPS



ANSI STANDARD PUMP

Buffalo CRE/CRO ANSI Standard Pumps with open or enclosed impeller, 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 liquids. 17 sizes. Capacities to 3500 gpm. Heads to 750 ft. Temperatures from -180°F to +750°F. Pressures to 400 psi. Higher pressures available. Bulletin 929.



SELF-PRIMING PUMPS

Diffuser type for high efficiency and designed for maximum interchangeability. Available in 7 sizes with open impellers. This self-primer uses standard CRE/CRO parts with unique diffusers and casings. Corrosive/abrasive liquids, suspensions and slurries are handled. Capacities to 1,400 gpm. Heads to 450 ft. Bulletin 918.

buffalo pumps



N. TONAWANDA, NEW YORK 14120-0156



Sales Representatives

ALBANY, NY
ALBUQUERQUE, NM
ALLENTOWN, PA
ATLANTA, GA
BALTIMORE (SEVERNA PARK), MD
BIRMINGHAM, AL
BOSTON (WAKEFIELD), MA
BUFFALO (ORCHARD PARK), NY
CHICAGO (WHEELING), IL
CINCINNATI, OH
CLEVELAND, OH
COLUMBUS, OH
DALLAS (RICHARDSON), TX
DENVER (ENGLEWOOD), CO
DES MOINES, IA
DETROIT (FARMINGTON HILLS), MI
FLORIDA (MIAMI), FL
(TAMPA)
GREENSBORO, NC
GREENVILLE, SC
HARTFORD (AVON), CT
HOUSTON, TX
INDIANAPOLIS, IN
KANSAS CITY, MO
KNOXVILLE, TN
LOS ANGELES
(SANTA FE SPRINGS), CA
LOUISVILLE, KY
MEMPHIS, TN
MILWAUKEE, WI
MINNEAPOLIS
(GOLDEN VALLEY), MN
NEW ORLEANS, LA
NEW YORK (E. NORWALK, CT)
NORTHERN NEW JERSEY
(PLUCKEMIN), NJ
OKLAHOMA CITY, OK
PHILADELPHIA (BERLIN), PA
PHOENIX, AZ
PITTSBURGH, PA
RICHMOND, VA
ROCHESTER, NY
ST. LOUIS, MO
SALT LAKE CITY, UT
SAN ANTONIO, TX
SAN FRANCISCO
(EMERYVILLE), CA
SEATTLE (BELLEVUE), WA
SYRACUSE, NY
TOLEDO (PERRYSBURG), OH
TULSA, OK
WASHINGTON, D.C.
(ROCKVILLE, MD)
(ALEXANDRIA, VA)
EASTERN REGIONAL PUMP OFFICE
PHILADELPHIA (KING OF PRUSSIA), PA
MICHIGAN REGIONAL PUMP OFFICE
FARMINGTON HILLS, MI
SOUTHERN REGIONAL PUMP OFFICE
MARIETTA, GA

In Canada:
CALGARY, ALTA
EDMONTON, ALTA
HAMILTON, ONT.
KITCHENER, ONT.
MONTREAL, QUE.
OTTAWA, ONT.
SAINT JOHN, N.B.
SARNIA, ONT.
SASKATOON, SASK.
SLIDBURY, ONT.
TORONTO, ONT.
VANCOUVER, B.C.
WINNIPEG, MAN.

In Mexico:
GUADALAJARA, JAL.
MEXICO CITY, D.F.
MONTERREY, N.L.