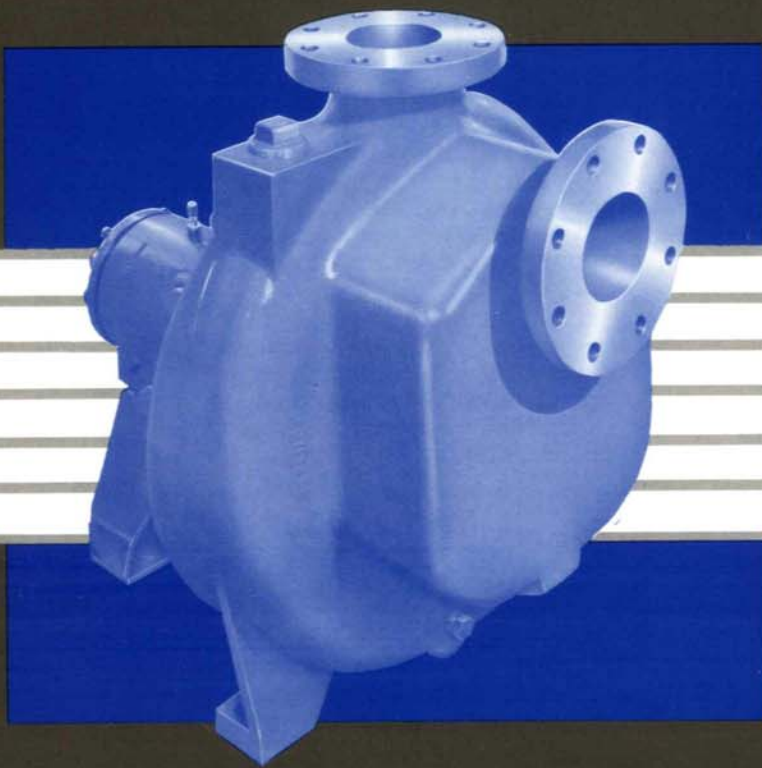


Buffalo Self-Priming Pump

CR-SP



**Efficient
Quiet
Reliable**

Bulletin 918-A

Self-Priming Pumps

CR-SP

Background

For years, many centrifugal pump users have been looking for an economical pump which would provide high efficiencies, quiet operation, and short, consistent priming times when used for intermittent or cyclical pumping applications. These operating benefits have been difficult to obtain when standard centrifugal pumps are fitted with costly auxiliaries such as separate priming pumps or performance-robbing foot or check valves. "Self-priming" pumps designed for this service generally have long and/or inconsistent priming times, noisy operation and low operating efficiencies.

The Buffalo Self-Priming Centrifugal Pump CR-SP

Buffalo's newly designed self-priming pump provides high operating efficiencies for pumps of this type... operates quietly and has a short, consistent priming time. This performance is achieved with a unique combination of diffuser guide vane, Buffalo's proven open impeller, and a special casing configuration which provides ample fluid for repriming.

In addition, extended bearing life and added years of reliable operation are made possible through Buffalo's balanced axial and radial thrust design which keeps these forces to an absolute minimum.

Parts Interchangeability

All Buffalo CR-SP Self-Priming pumps utilize our standard oil lubricated M-3 ANSI power frame regardless of pump size. This power frame is also supplied as standard equipment on Buffalo's CR-FV/Vortex Pump, "Class FF"/Two Stage Pump and CRE/CRO frame mounted ANSI standard pump. This allows the Buffalo pumps user to minimize spare parts inventory requirements as well as achieve maximum power frame interchangeability irrespective of pump size or class.

NOTE: CRE/CRO is available in 4 power frame sizes. Refer to Buffalo Pumps sales before utilizing any present CRE/CRO power frames on CR/SP. Power frame interchangeability not applicable to horizontal split case, vertical submerged, or solids handling pump lines.

Application Engineering

Buffalo Factory Trained Authorized Representatives are located in major business centers. They are there to help you with your pumping applications, system start-up, and follow-up field service.

General Specifications

PUMP SIZES: 7
CAPACITIES: to 800 GPM
HEAD: to 540'
RPM: 1750 & 3500
TEMPERATURE: to 500°F
WORKING PRESSURES:
to 400 PSI standard,
higher pressure designs
available.

Priming Time

1750 RPM

$$T = T_c \left(\frac{L_p}{L_{ES}} \right) \left(\frac{D_p}{D_s} \right)^2$$

T = System Priming Time

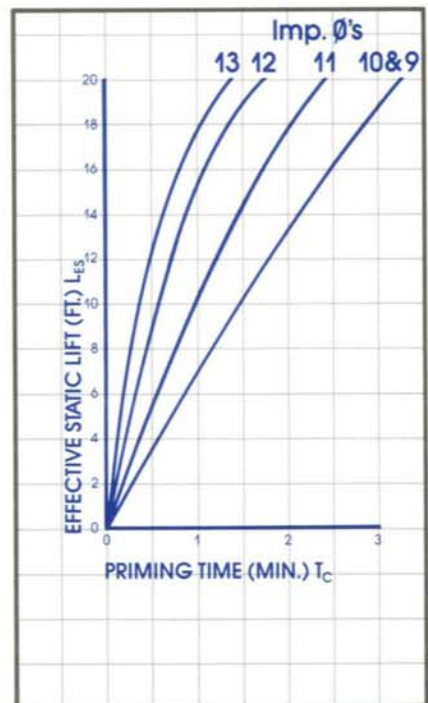
T_c = Priming Time from curve below

L_p = Total Length of Suction Pipe

L_{ES} = Effective Static Lift
(Static Lift X S.G.)

D_p = Suction Pipe Dia.

D_s = Pump Suction Dia.



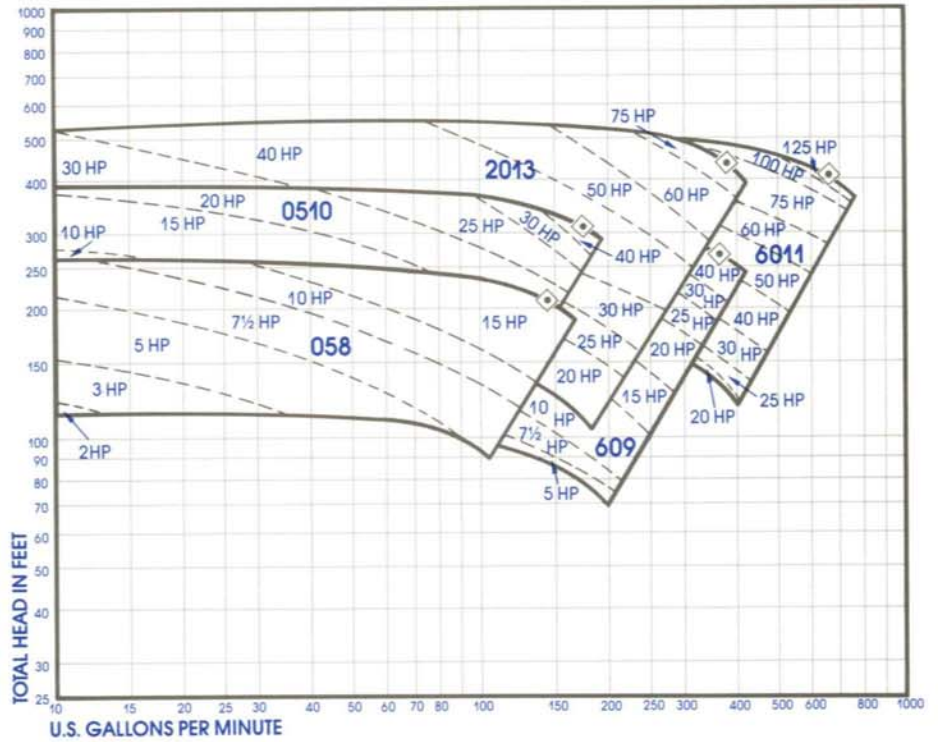
NOTE: Priming Time shown above is typical for 1750 RPM operation. Some variations may occur dependent upon size of pump and speed of operation.

Performance Curves

CR-SP 3500 RPM

◆ = Peak Efficiency

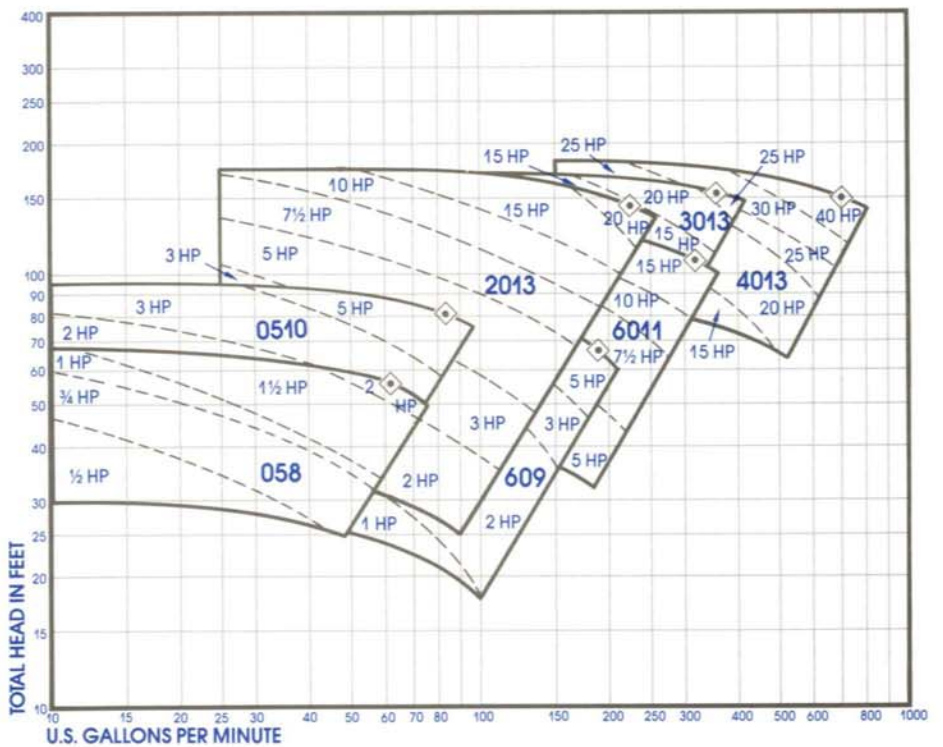
All horsepower based on 1.0 S.G. & 31.5 S.S.U.



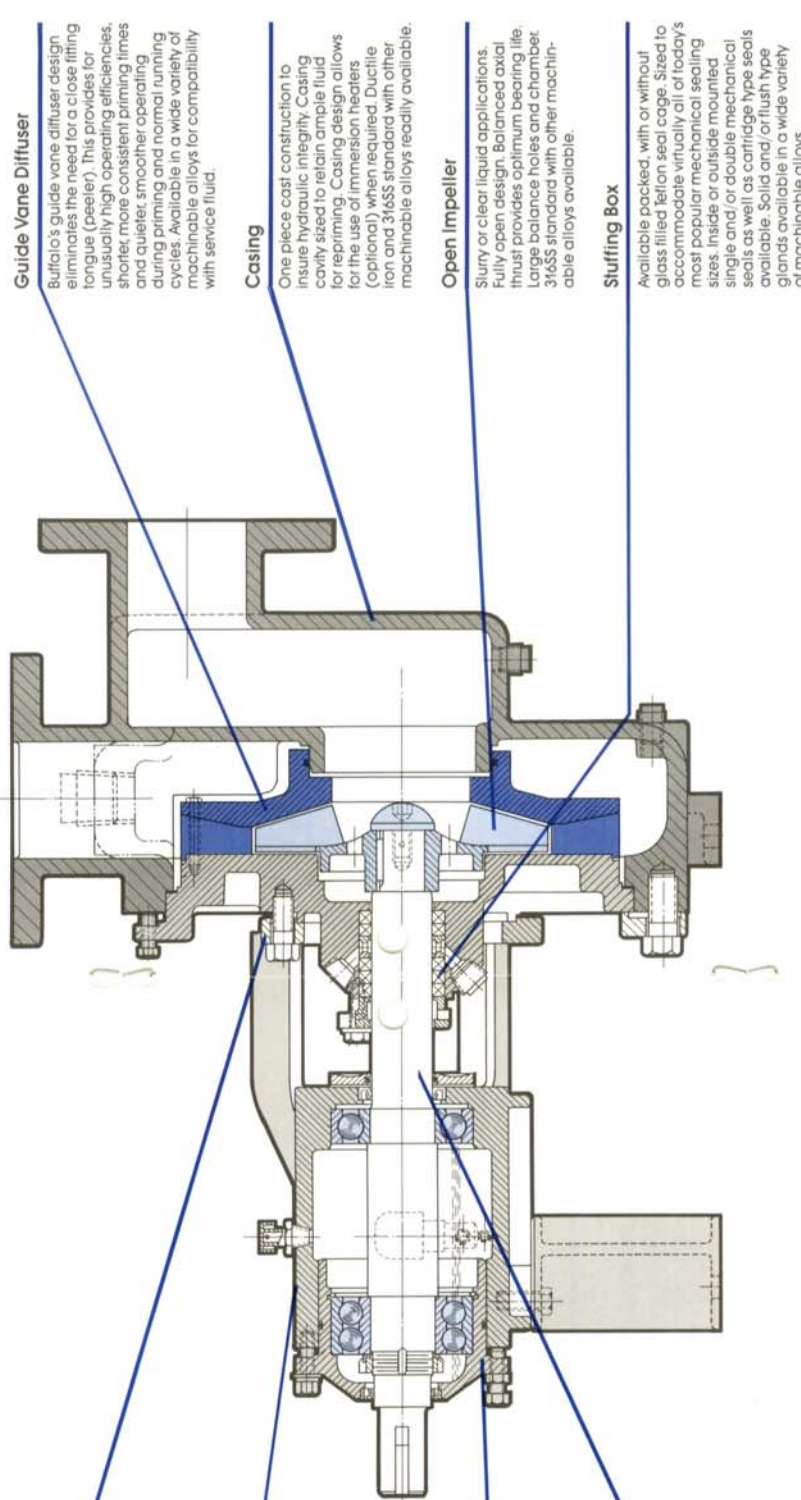
CR-SP 1750 RPM

◆ = Peak Efficiency

All horsepower based on 1.0 S.G. & 31.5 S.S.U.



Self-Priming Pumps CR-SP



Quick Release Locking Lugs

High strength sintered metal. Facilitates easy back-withdrawal of rotating element from casing without disturbing suction or discharge piping.

Guide Vane Diffuser

Buffalo's guide vane diffuser design eliminates the need for a close fitting tongue (peeler). This provides for unusually high operating efficiencies, shorter, more consistent priming times and quieter, smoother operating during priming and normal running cycles. Available in a wide variety of machinable alloys for compatibility with service fluid.

Bearing Frame

All 7 sizes of the CR-SP utilize Buffalo's standard oil lubricated M-3 bearing frame. Breather and drain provided. A stainless steel deflector and lip seals, are used to protect bearings from contamination. Water cooled bearing frame available.

Casing

One piece cast construction to insure hydraulic integrity. Casing cavity sized to retain ample fluid for repriming. Casing design allows for the use of immersion heaters (optional) when required. Ductile iron and 316SS standard with other machinable alloys readily available.

Thrust Bearing and Cartridge

Double row to minimize end play. 2 year minimum life. Axial adjustment of cartridge maintains proper impeller clearance for optimum performance.

Open Impeller

Slurry or clear liquid applications. Fully open design. Balanced axial thrust provides optimum bearing life. Large balance holes and chamber. 316SS standard with other machinable alloys available.

Shaft

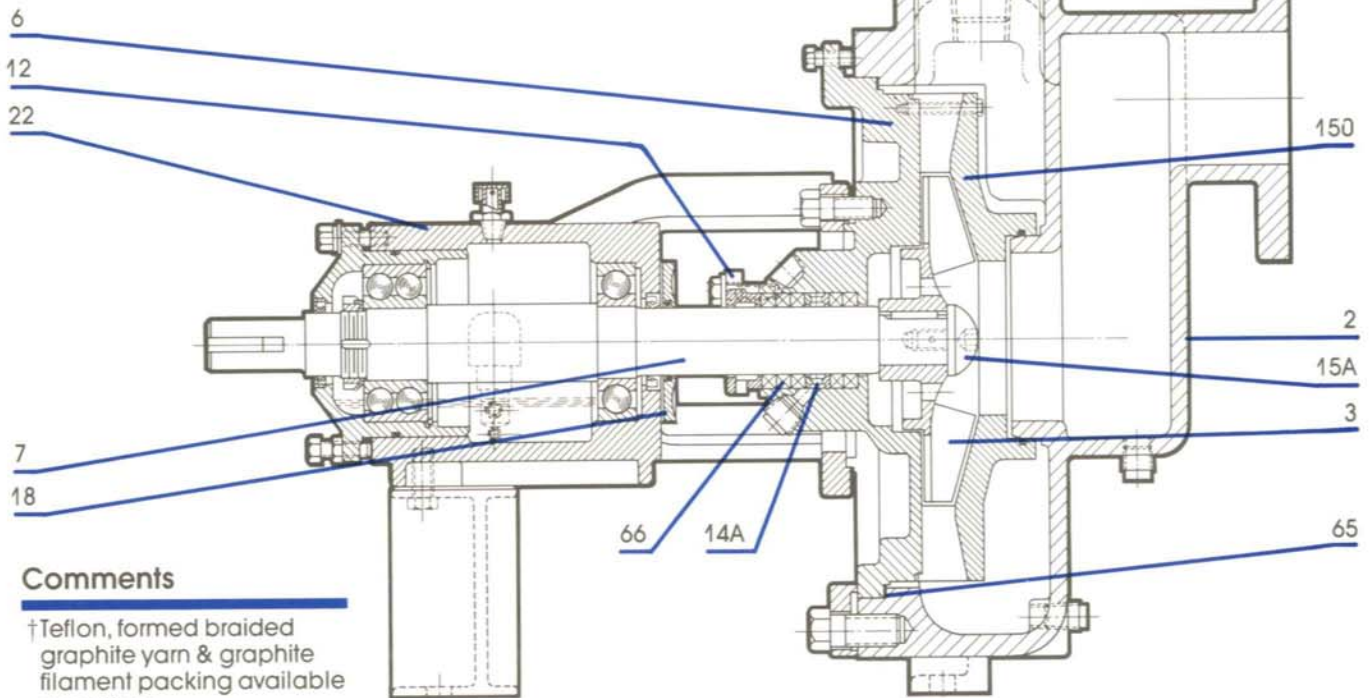
Sized for .002" maximum deflection. 316SS standard with other machinable alloys available. Replaceable hook type shaft sleeve with gasket between sleeve and impeller also available.

Stuffing Box

Available packed, with or without glass filled Teflon seal cage. Sized to accommodate virtually all of today's most popular mechanical sealing sizes. Inside or outside mounted single and/or double mechanical seals as well as cartridge type seals available. Solid and/or flush type glands available in a wide variety of machinable alloys.

Self-Priming Pumps CR-SP

Materials of Construction



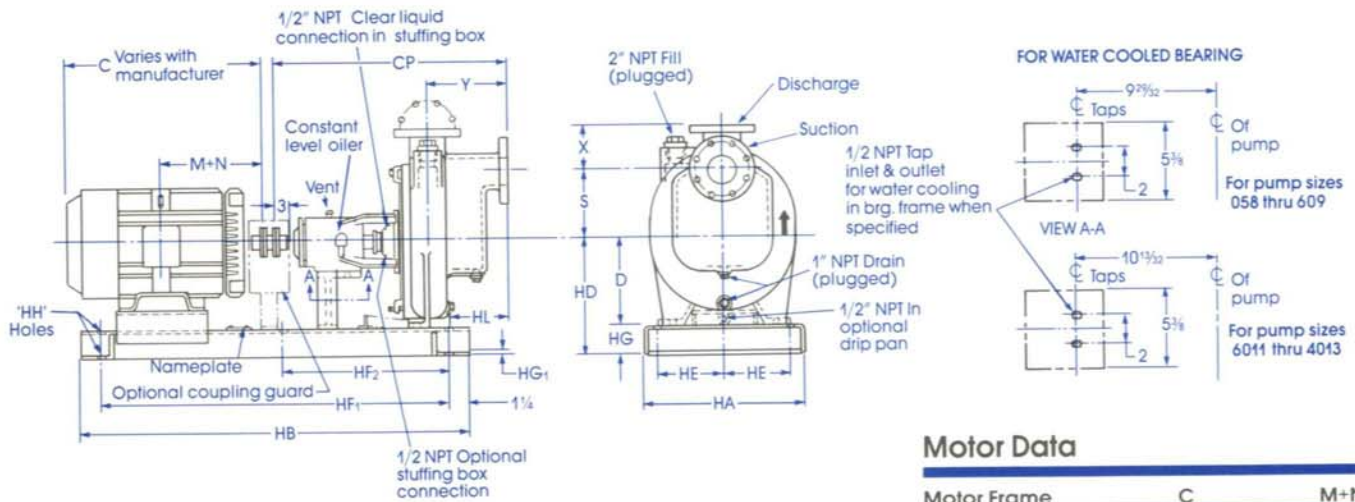
Comments

† Teflon, formed braided graphite yarn & graphite filament packing available as options

* Other machinable alloys available.

Part No.	Part Description	Ductile Iron/Ductile Iron Fitted	Ductile Iron/316SS Fitted	All 316SS	Alloy 20
2	Casing	Ductile Iron	Ductile Iron	316SS*	Alloy 20
3	Impeller	316SS	316SS	316SS*	Alloy 20
6	Casing Cover	Ductile Iron	Ductile Iron	316SS*	Alloy 20
7	Shaft	316SS	316SS	316SS*	Alloy 20
12	Gland	316SS	316SS	316SS	Alloy 20
14A	Lantern Ring	GLASS FILLED TEFLON			
15A	Impeller Locking Screw	316SS	316SS	316SS	Alloy 20
18	Deflector	316SS	316SS	316SS	316SS
22	Bearing Frame	CAST IRON			
65	Gasket	NON-ASBESTOS			
66	Packing Rings†	NON-ASBESTOS			
150	Diffuser	Ductile Iron	Ductile Iron	316SS*	Alloy 20
For mechanical seals					
12	Gland	316SS	316SS	316SS	Alloy 20

Dimensional Data



Pump Data

Size	058	0510	609	6011	2013	3013	4013
Suct. x Disch. x Max. Imp. Dia.	2 x 2 x 8	2 x 2 x 10	3 x 3 x 9	3 x 3 x 11	3 x 3A x 13	3 x 3 x 13	4 x 4 x 13
CP	28 ^{13/16}	30 ^{13/16}	30 ^{13/16}	32 ^{5/16}	32 ^{5/16}	32 ^{5/16}	32 ^{5/16}
X	5 ^{1/4}	5 ^{1/4}	5 ^{1/4}	6	6	6	6
Y	8	10	10	11	11	11	11
S	4	8	6	9 ^{1/2}	9 ^{1/2}	9 ^{1/2}	9 ^{1/2}
D	8 ^{1/4}	10	10	12	12	12	12
HL	6 ^{3/32}	8 ^{3/32}	8 ^{3/32}	9 ^{1/32}	9 ^{1/32}	9 ^{1/32}	9 ^{1/32}
HT ₁ *	4 ^{3/8}	4 ^{1/2}	4 ^{3/8}	5 ^{11/16}	5 ^{11/16}	5 ^{11/16}	5 ^{11/16}

*HT₁ is minimum distance required for back pull-out

Base Data

Base No.	Motor Frame	HA	HB	HE	HF ₁	HF ₂	HG	HH	HD		HG ₁	Base Wgt.
									D = 8 ^{3/4}	D = 10		
1	143T-215T	12	45	4 ^{1/2}	42 ^{1/2}	—	—	4- ^{3/4}	12	13 ^{3/4}	—	81
2	254T-286T	15	52	6	49 ^{1/2}	—	—	4- ^{3/4}	12 ^{3/8}	14 ^{1/8}	—	109
3	324T, TS; 326T, TS 364T, TS; 365T, TS	18	58	7 ^{1/2}	55 ^{1/2}	—	4 ^{3/4}	4-1	13	14 ^{3/4}	—	110
									14	—	—	
4	404T, TS; 405T, TS 444TS	18	60	7 ^{1/2}	57 ^{1/2}	—	4	4-1	15	15	—	182
									16	16	—	
5	444T, 445T, TS 447TS	22	62 ^{3/4}	9	60 ^{1/4}	30	4	6-1	—	16	—	200
1A	213T-254T	22	50	9	47 ^{1/2}	—	4	4-1	—	—	16	124
2A	256T-286TS	22	52	9	49 ^{1/2}	—	4	4-1	—	—	16	128
3A	286T-365T	22	58	9	55 ^{1/2}	—	4	4-1	—	—	16	140
4A	404T, TS-405T, TS	22	62	9	59 ^{1/2}	—	4	4-1	—	—	16	156
5A	444T-447TS	22	72	9	69 ^{1/2}	34 ^{3/4}	4	6-1	—	—	16	203

*Base Numbers 1 thru 5 for 058 thru 609
Base Numbers 1A thru 5A for 6011 thru 4013

All dimensions shown are in inches.

Motor Data

Motor Frame	C	M+N
143T	13 ^{1/8}	6 ^{1/2}
145T	13 ^{3/8}	7
182T	14 ^{3/8}	7 ^{3/4}
184T	15 ^{3/8}	8 ^{1/4}
213T	18	9 ^{3/8}
215T	19 ^{1/2}	10 ^{3/8}
254T	22 ^{7/8}	12 ^{3/8}
256T	24 ^{3/8}	13 ^{3/4}
284TS	25 ^{1/4}	12 ^{3/4}
284T	26 ^{3/8}	14 ^{1/8}
286TS	26 ^{3/8}	13 ^{1/2}
286T	28 ^{1/8}	14 ^{3/8}
324TS	28 ^{1/8}	14 ^{1/4}
324T	29 ^{3/8}	15 ^{3/4}
326TS	29 ^{3/8}	15
326T	31 ^{1/8}	16 ^{1/2}
364TS	30 ^{3/4}	15 ^{1/4}
364T	32 ^{7/8}	17 ^{3/8}
365TS	31 ^{3/4}	15 ^{3/4}
365T	34 ^{1/2}	17 ^{7/8}
404TS	34 ^{1/4}	17
404T	37 ^{3/4}	20
405TS	35 ^{3/4}	17 ^{3/4}
405T	38 ^{1/4}	20 ^{3/4}
444TS	39 ^{3/8}	19 ^{1/2}
444T	43 ^{1/8}	23 ^{1/4}
445TS	41 ^{3/8}	20 ^{1/2}
445T	45 ^{1/8}	24 ^{1/4}
447TS	44 ^{3/8}	22 ^{1/4}

Flange Data/Flat Faced

Nom. Pipe Size	O.D.	Thkns.	B.C.	Bolts (Straddling)
2	6	7/8	4 ^{3/4}	4- ^{5/8}
3	7 ^{1/2}	1 ^{1/16}	6	4- ^{5/8}
4	9	1 ^{1/16}	7 ^{1/2}	8- ^{5/8}

Other Buffalo Pumps

Leakproof Can-O-Matic® II 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.



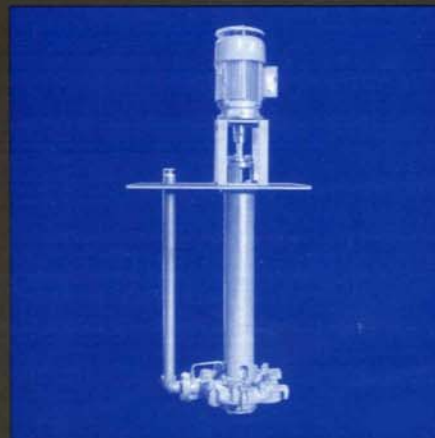
ANSI Standard Pumps

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.



Vertical Submerged Pumps

A reliable, heavy duty industrial pump for a wide range of pit and tank applications including pumping slurries, chemicals, condensate, waste water, etc. 21 sizes from 1" to 8" discharge. Capacities to 4800 gpm. Heads to 250 ft. Bulletin 905.



buffalo pumps



An Ampco-Pittsburgh Company



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