

Series 1510 Centrifugal Pumps

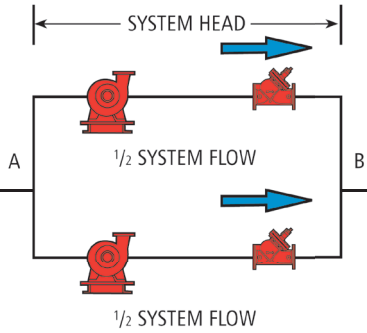
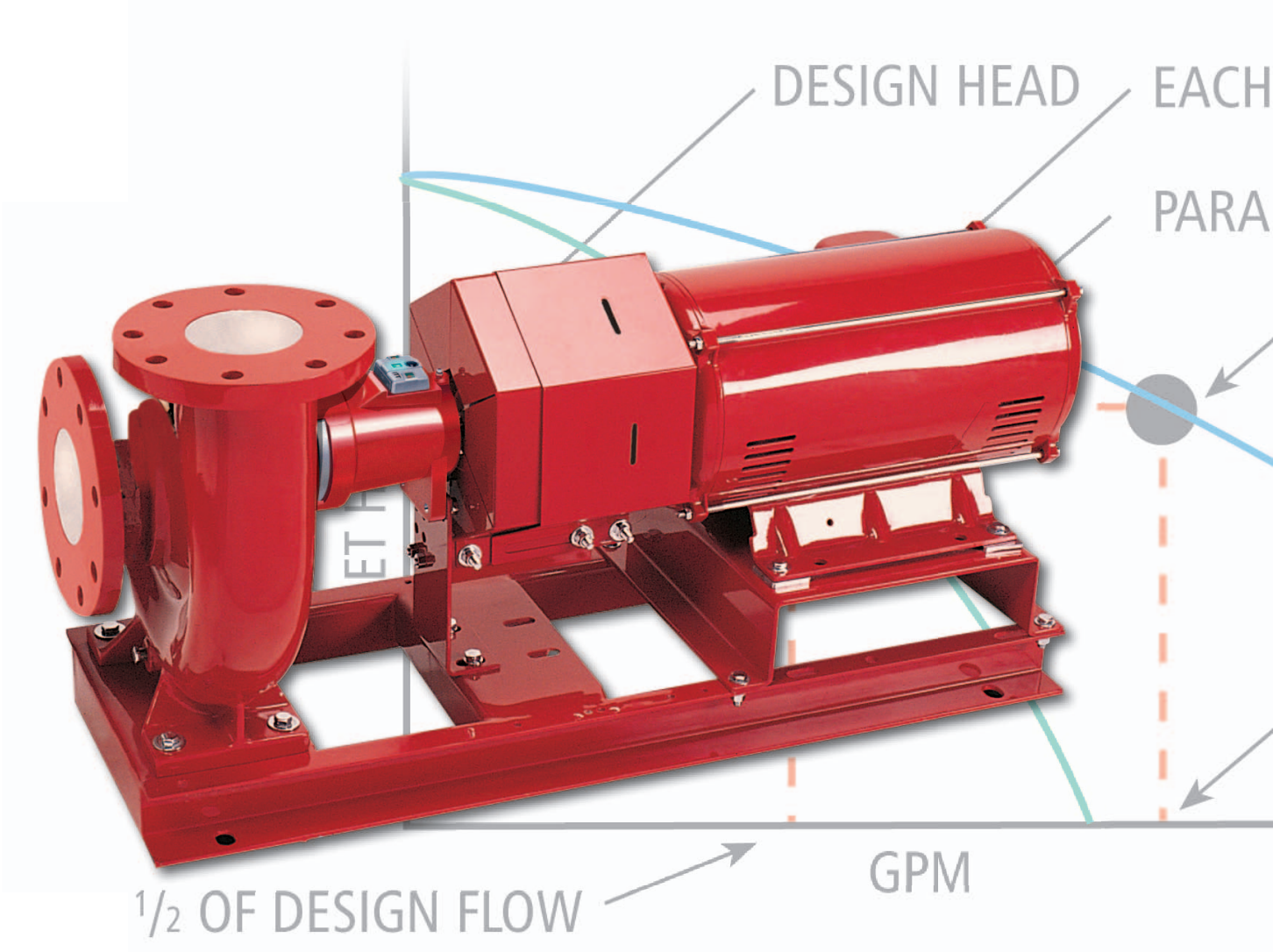


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Useful Pump Formulas

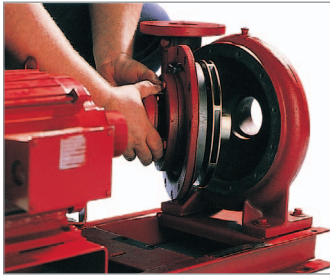
$$\begin{aligned} \text{Pressure (PSI)} &= \frac{\text{Head (Feet)} \times \text{Specific Gravity}}{2.31} \\ \text{Head (Feet)} &= \frac{\text{Pressure (PSI)} \times 2.31}{\text{Specific Gravity}} \\ \text{Vacuum (Inches of Mercury)} &= \frac{\text{Dynamic Suction Lift (Feet)} \times .883}{\text{Specific Gravity}} \\ \text{Horsepower (Brake)} &= \frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960 \times \text{Pump Efficiency}} \\ \text{Horsepower (Water)} &= \frac{\text{GPM} \times \text{Head (Feet)} \times \text{Specific Gravity}}{3960} \\ \text{Efficiency (Pump)} &= \frac{\text{Horsepower (Water)}}{\text{Horsepower (Brake)}} \times 100 \text{ Per Cent} \\ \text{NPSH (Available)} &= \text{Positive Factors} - \text{Negative Factors} \end{aligned}$$

Affinity Laws: Effect of change of speed or impeller diameter on centrifugal pumps.

	GPM Capacity	Ft. Head	BHP
Impeller Diameter Change	$Q_2 = \frac{D_2}{D_1} Q_1$	$H_2 = \left(\frac{D_2}{D_1}\right)^2 H_1$	$P_2 = \left(\frac{D_2}{D_1}\right)^3 P_1$
Speed Change	$Q_2 = \frac{\text{RPM}_2}{\text{RPM}_1} Q_1$	$H_2 = \left(\frac{\text{RPM}_2}{\text{RPM}_1}\right)^2 H_1$	$P_2 = \left(\frac{\text{RPM}_2}{\text{RPM}_1}\right)^3 P_1$

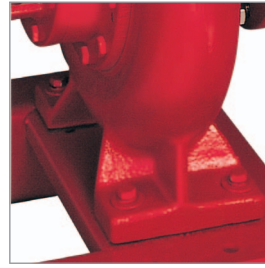
Where Q = GPM, H = Head, P = BHP, D = Impeller Dia., RPM = Pump Speed

Take away these eight standard features and you'll have a pump like everyone else's.



True Back Pullout

A B&G standard in design and construction. Ease in service is assured, while piping and motor remain undisturbed. Extended delays for repairs are virtually eliminated.



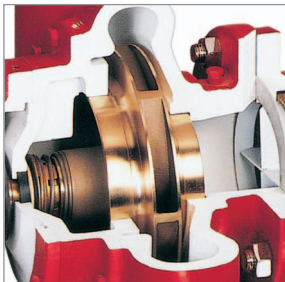
Solid-Foot Mounted Volute

All Series 1510 pumps are provided as standard with an integrally cast volute foot located directly beneath the pump volute. This integrally cast foot ensures that the alignment between the volute and motor assembly is maintained. Without

solid support beneath the volute, the piping weight alone will cause distortion which can lead to premature failure of the bearings, shaft and mechanical seal. This feature is equally important on hot water applications. The Series 1510 volute foot provides a solid foundation and eliminates the deflections which would otherwise exist within an unsupported overhung volute during the normal thermal expansion of the system piping against the volute.

Internally Self-Flushing Mechanical Seal

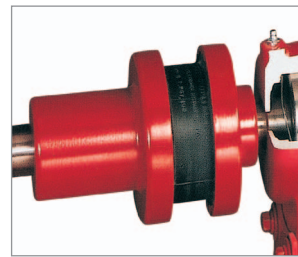
This design is way ahead of its time. This unique seal design is proven in many years of service. It requires no special external flushing provisions, since the design provides for constant efficient flushing action internally. This standard feature ensures maximum seal face lubrication, heat dissipation and debris removal without vulnerable, external flush tubing. The internal flushing action passes two and a half to three times the flow over the seal faces — compared to a few GPM for conventional, stuffing-box designed pumps.



Computer Controlled Impeller Balancing

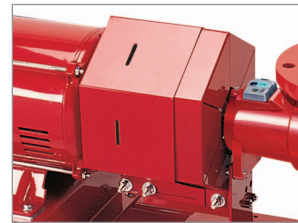
1510 impellers are balanced to ANSI/HI 9.6.4-2009, balance grade G6.3 standards. This method of computer balancing Impellers provides for quiet, efficient, vibration free performance. Diameters are

computer selected at the factory to furnish assurance that your capacity requirements will be met.



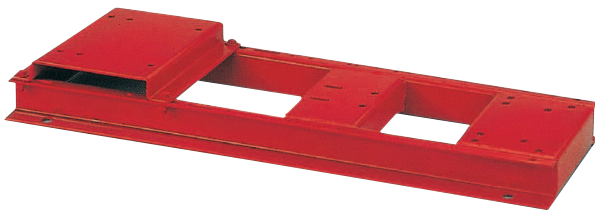
Center Drop-Out Spacer Coupling

Unlike conventional jaw type or rigid style couplings, a center drop-out spacer coupling allows removal of the bearing frame and rotating element without disturbing the pump end pipe alignment or motor electrical connections.



ANSI/OSHA-Compliant Coupler Guard

The coupler guard complies with ANSI B15.1 and OSHA 1910.219. The guard offers increased protection against potential injuries and is standard on all 1510 pumps. The guards include slotted viewing windows for easy inspection.



Heavy Duty, Rugged Baseplate

The Bell & Gossett fabricated heavy duty baseplate is supplied as standard on every Series 1510 pump. Unlike rolled steel and "C" channel baseplates, the Series 1510 baseplate provides a heavy duty saddle assembly, full seam welds, closed baseplate ends and an open top to provide ease of access for proper equipment grouting.



Patented i-ALERT™ Condition Monitor

Continuously measures vibration and temperature at the outboard bearing and automatically indicates when pre-set levels of vibration and temperature have been exceeded, so that changes can be made before failure occurs. A visual indication of pump health makes walk-around inspections more efficient and accurate. This onboard pump intelligence helps minimize life-cycle costs while maximizing performance.

Technical Data

BALANCE STANDARDS

Impellers are balanced to Hydraulic Institute Standards ANSI/HI 9.6.4-2009.

The allowable residual unbalance in the impeller rotating assembly conforms to ANSI grade G6.3 (Ref. ISO 1940).

ANSI Balance Quality Grades of G2.5 and G1 for the rotating assembly are also available. Consult your local Bell & Gossett Representative for additional details.

VIBRATION LIMITS

Series 1510 pumps conform to Hydraulic Institute ANSI/HI 9.6.4-2009 for recommended acceptable unfiltered field vibration limits (as measured at the pump bearings per ANSI/HI 9.6.4-2009, Figure 9.6.4.2.3.1) for pumps with rolling contact bearings.

PUMP SPEED RPM	OVERALL DISPLACEMENT (Unfiltered) Peak to Peak-Mils (.001")
3600	2.2
1800	3.8
1200	5.8

SEISMIC CAPABILITIES

Series 1510 pumps are capable of withstanding a horizontal load of 0.5g* without adversely affecting pump operation.

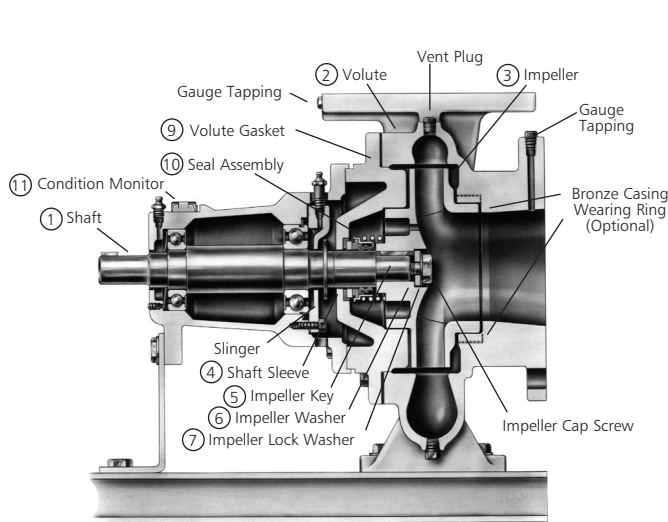
*Piping and/or fasteners used to anchor the pump to the mounting pads on the floor are excluded.

MECHANICAL SEAL

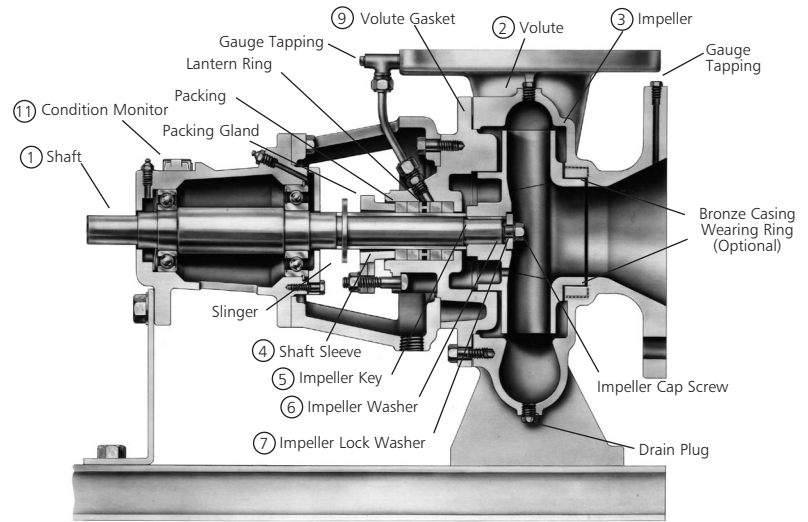
Seal Features	
Standard Seal Type	B&G
Internally Flushed Seal	Yes
Enlarged Seal Chamber	Yes
Standard Seal Construction	Buna-Carbon-Ceramic
Standard Working Pressure	175 psig (12 Bar)
Maximum Working Pressure	250 psig (17 Bar)
Standard Seal Temperature Rating	225 deg F (107°C)
Optional Temperature Rating	250 deg F (121°C)

The ceramic material is 99.5% pure alumina oxide, ceramic seat hardness of 68 Rockwell C, or a tensile strength of 300,000 psi.

Materials of Construction



Standard Configuration



Optional – S Configuration

DESCRIPTION	BRONZE FITTED PUMP (STANDARD CONFIGURATION)	ALL IRON PUMP (OPTIONAL)
1 Shaft	Steel SAE 1144	Steel SAE 1144
2 Volute	Cast Iron ASTM #A159	Cast Iron ASTM #A159
3 Impeller	Cast Bronze ASTM #B584	Cast Iron ASTM #A536
4 Shaft Sleeve	Bismuth Bronze #C89835	#304 Stainless Steel ASTM #A312
5 Impeller Key	#304 Stainless Steel	#304 Stainless Steel
6 Impeller Washer	1510 – Steel	Stainless Steel
7 Impeller Lock Washer	#304 Stainless Steel	#304 Stainless Steel
8 Impeller Cap Screw	#304 Stainless Steel	#304 Stainless Steel
9 Volute Gasket	Cellulose Fiber	Cellulose Fiber
10 Seal Assemblies		
11 Condition Monitor	Stainless Steel Encloser	Stainless Steel Encloser
Standard Seal		
Bellows	Buna N	Buna N
Faces	Carbon-Ceramic	Carbon-Ceramic
Metal Parts	Brass	Stainless Steel
Spring	Stainless Steel	Stainless Steel
For Stuffing Box		
10A Flushed Single		
O-Rings	EPREPR	Carbon-Tungsten Carbide
Faces	Carbon-Tungsten Carbide	Carbon-Tungsten Carbide
Metal Parts	Stainless Steel	Stainless Steel
Spring	Stainless Steel	Stainless Steel
Packed		
Packing	Graphited Impregnated Teflon	Graphited Impregnated Teflon
Gland	Bronze	Cast Iron
Lantern Ring	Filled TFE	Filled TFE

OPTIONAL FEATURES

All Iron Construction

Bronze Casing Wear Ring

Stainless Steel Shaft Sleeve

Stainless Steel Shaft

Drip Pan

EPR/Tungsten Carbide Seal

(Standard Configuration only)

Stuffing Box Construction with several seal and packing options

Seal Selection Guide For:

A. Standard Seals

- BUNA-PH Limitations 7-9; Temperature Range -20°F to +225°F

- EPR-PH Limitations 7-11; Temperature Range -20°F to +250°F

For use on open or closed clear water systems. Maximum working pressure 175 psi.

B. Flushed Single Seals (Stuffing Box Design)

- PH Limitations 7-11; Temperature Range -20°F to +300°F**

For use on closed or open systems where the temperature or pressure requirements exceed the limitations of the standard seal. Available in 175 psi, or 250 psi working pressures.

C. Flushed double Seals (Stuffing Box Design)

PH Limitations 7-9; Temperature Range 0°F to +250°F

For use on closed or open low pressure systems which may contain a high concentration of abrasives. An external flush is required. Maximum working pressure 175 psi.

D. Packing (Stuffing Box Design)

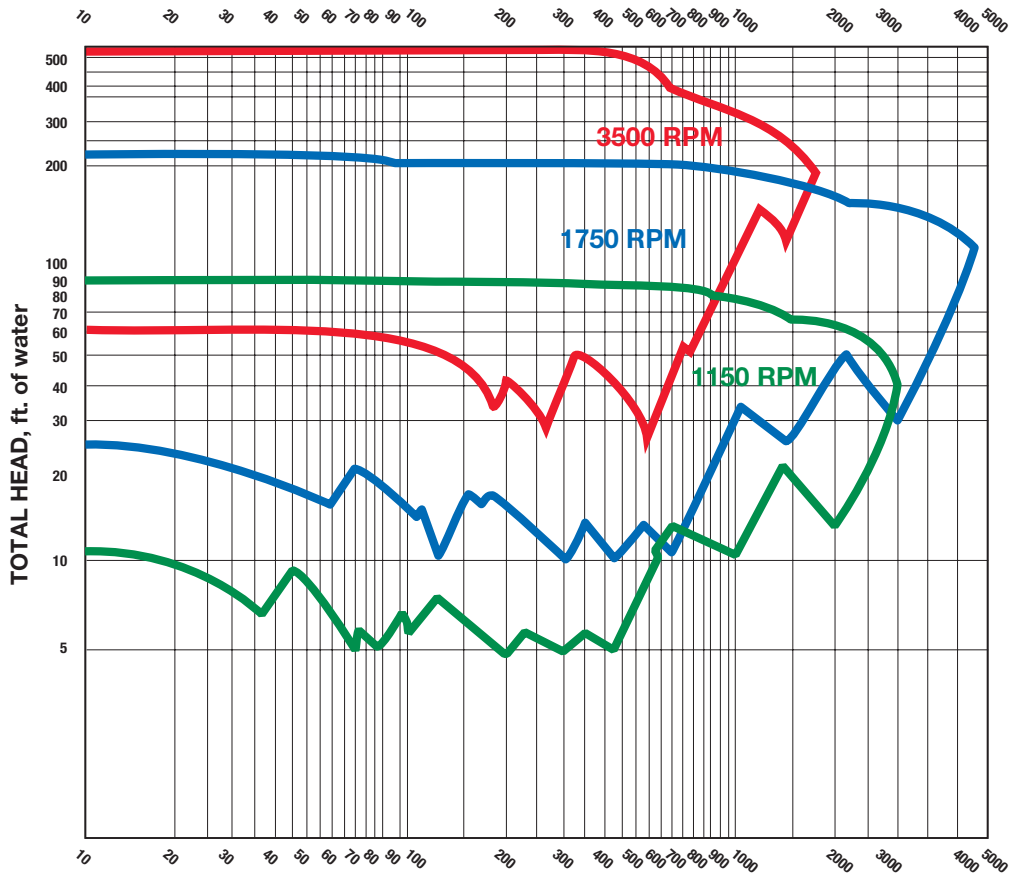
PH Limitations 7-9; Temperature Range 0°F to +190°F

For use on open or closed systems which require a large amount of make-up water, as well as systems which are subjected to widely varying chemical conditions and solids buildup.

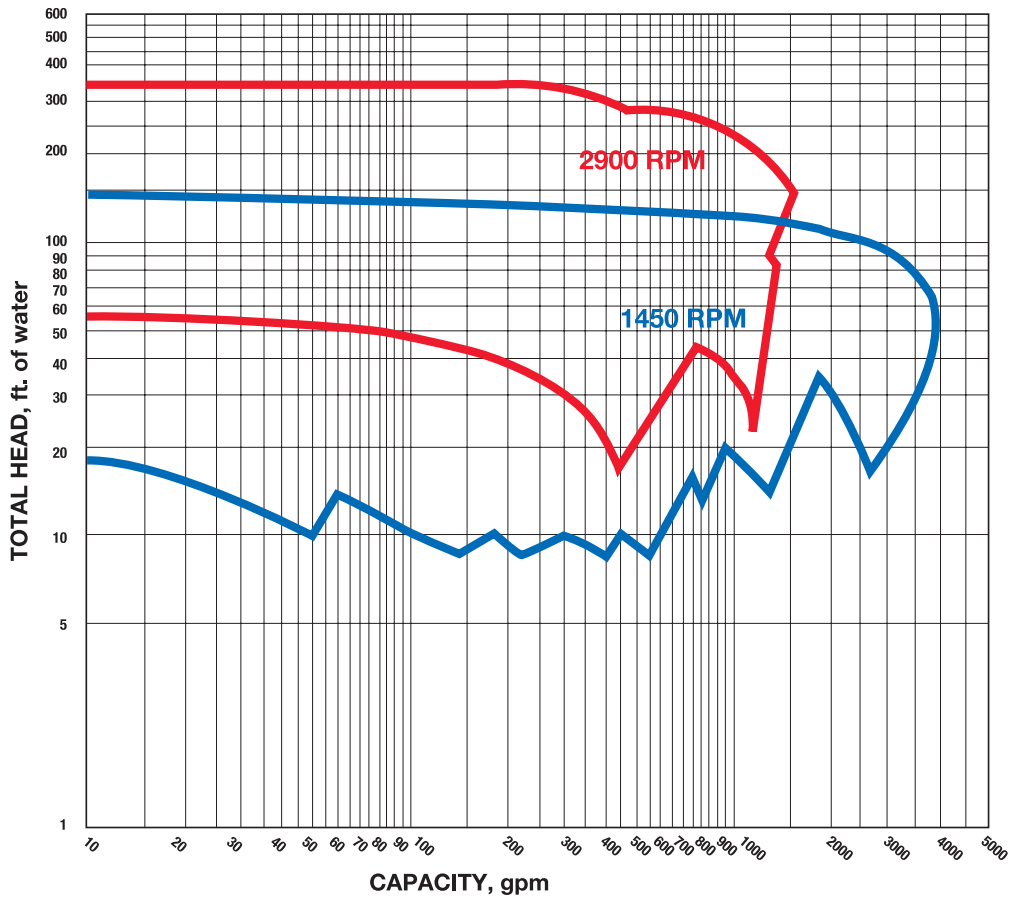
** For operating temperatures above 250°F, a cooled flush is required – and is recommended for temperatures above 225°F for optimum seal life. On closed systems, cooling is accomplished by inserting a small heat exchanger in the flush line to cool the fluid. Flush-line Filters and Sediment Separators are available on special request.

Selection Charts

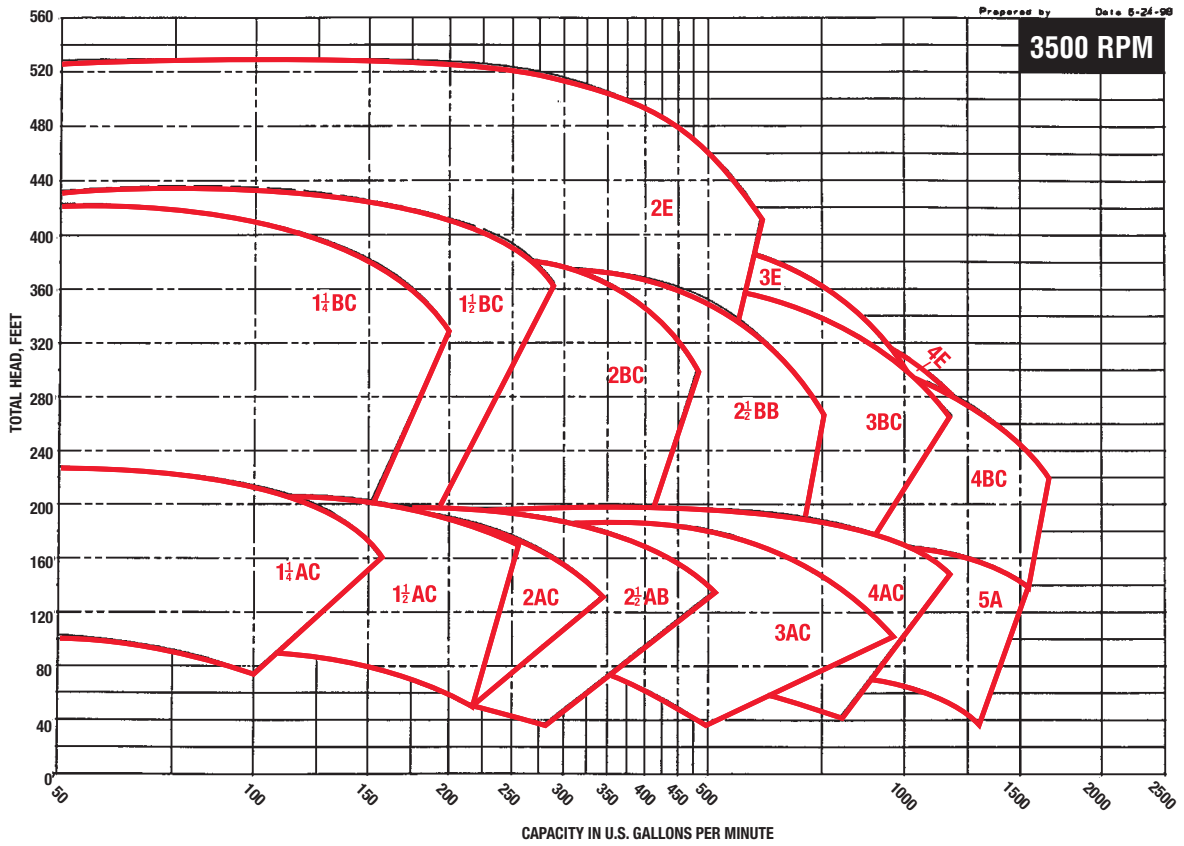
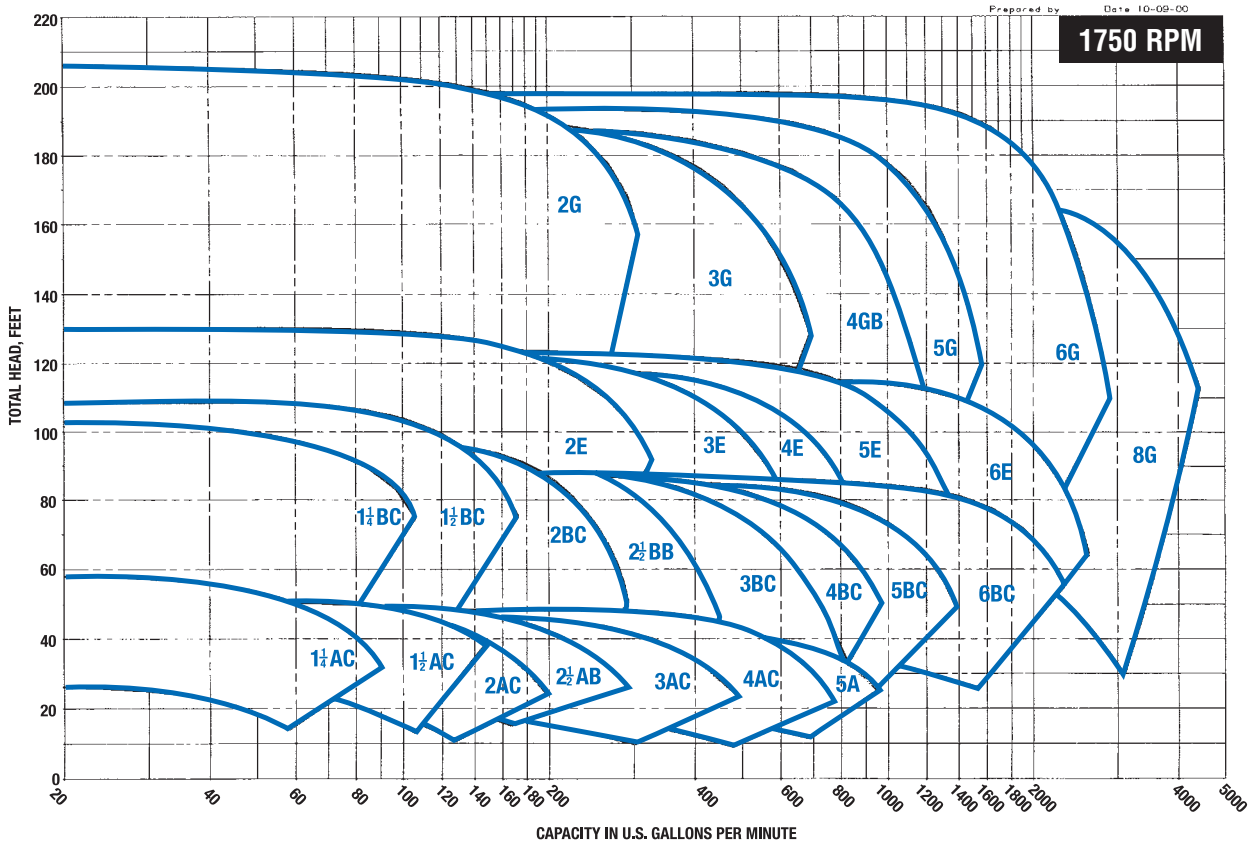
60 Hz



50 Hz

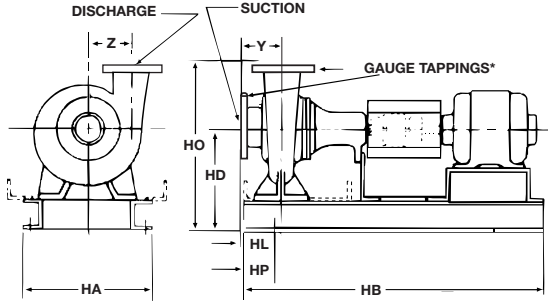


Series 1510 Performance Curves



Series 1510 Centrifugal Pumps

Dimensions



*Gauge Tapping Sizes: 1/8" for NPT, 1/4" for flanged sizes

Motor Horsepower and Frame Tabulation three phase (Dripproof Enclosure)

Horsepower	Frame @ 1750 RPM	Frame @ 3500 RPM	Horsepower	Frame @ 1750 RPM	Frame @ 3500 RPM
1/2	56		20	256T	254T
3/4	56		25	284T	256T
1	143T		30	286T	284TS
1 1/2	145T		40	324T	286TS
2	145T	145T	50	326T	324TS
3	182T	145T	60	364T	326TS
5	184T	182T	75	365T	364TS
7 1/2	213T	184T	100	404TS	365TS
10	215T	213T	125	—	404TS
15	254T	215T			

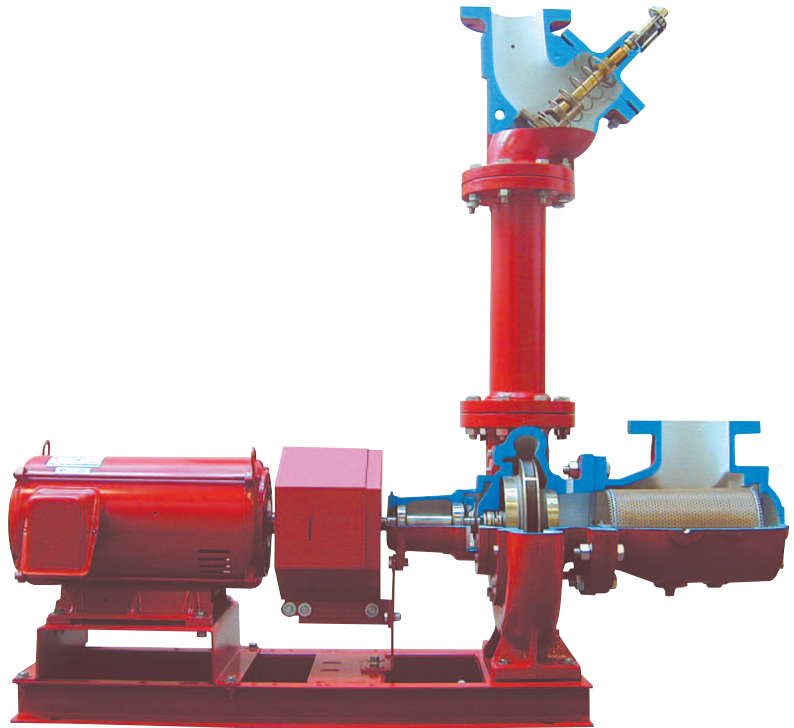
DIMENSIONS – INCHES (MM)			STANDARD MECHANICAL SEAL PUMP MODEL 1510, 1510-F							STUFFING BOX CONSTRUCTION PUMP MODEL 1510-PF, 1510-S											
PUMP SIZE DISCHARGE	SUCTION SIZE	MOTOR FRAME SIZE	HA	HB	HD	HL	HO	HP	Y	Z	HA	HB	HD	HL	HO	HP	Y	Z			
1 1/4 AC (NPT)	1 1/2 (NPT)	56	12 (305)	28 3/8 (730)	9 1/4 (248)	3 3/8 (79)	14 1/4 (375)	3 (76)	3 3/4 (83)	4 1/2 (114)	14 3/4 (371)	34 3/8 (879)	9 1/4 (248)	1 1/4 (44)	14 3/4 (375)	3 (76)	3 3/4 (83)	4 1/2 (114)			
		143T-145T	31(787)	39 1/4(1000)		10 1/4 (273)						1 11/16 (46)	18 3/4 (476)	12(305)	2 11/16 (53)				18 3/4 (476)	5(127)	
		182T-184T	34 3/8(879)	39 1/4(1000)		10 1/4 (273)						1 11/16 (46)	18 3/4 (476)	12(305)	2 11/16 (53)				18 3/4 (476)	5(127)	
		213T-215T	31(787)	39 1/4(1000)	10 1/4 (273)	1 11/16 (46)	18 3/4 (476)				12(305)	2 11/16 (53)	18 3/4 (476)	5(127)							
		254T-256T	16 (406)	46 1/2 (1181)	12(305)	2 11/16 (53)	20(508)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	2 11/16 (53)	18 3/4 (476)			5 (127)	19 1/2(495)	5 (127)
		284TS-286TS	16 (406)	46 1/2 (1181)	12(305)	2 11/16 (53)	20(508)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	2 11/16 (53)	18 3/4 (476)			5 (127)	19 1/2(495)	5 (127)
1 1/4 AC (NPT)	2 (NPT)	56	12 (305)	28 3/8 (730)	9 1/4 (248)	3 3/8 (79)	15 1/4 (400)	3 (76)	3 3/4 (83)	4 1/2 (117)	14 3/4 (371)	34 3/8 (879)	9 1/4 (248)	1 11/16 (43)	15 1/4 (400)	3 (76)	3 3/4 (79)	4 1/2 (117)			
		143T-145T	31(787)	39 1/4(1000)		10 1/4 (273)						1 11/16 (43)	17 1/4 (438)	12(305)	2 11/16 (53)				17 1/4 (438)	5(127)	
		182T-184T	34 3/8(879)	39 1/4(1000)		10 1/4 (273)						1 11/16 (43)	17 1/4 (438)	12(305)	2 11/16 (53)				17 1/4 (438)	5(127)	
		213T-215T	31(787)	39 1/4(1000)	10 1/4 (273)	1 11/16 (43)	17 1/4 (438)				12(305)	2 11/16 (53)	17 1/4 (438)	5(127)							
		254T-256T	16 (406)	46 1/2 (1181)	12(305)	2 11/16 (53)	18 3/4(470)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	2 11/16 (53)	18 3/4 (470)			5 (127)	19 1/2(495)	5 (127)
		284TS-286TS	16 (406)	46 1/2 (1181)	12(305)	2 11/16 (53)	18 3/4(470)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	2 11/16 (53)	18 3/4 (470)			5 (127)	19 1/2(495)	5 (127)
1 1/4 BC (NPT)	2 (NPT)	56	12 (305)	28 3/8 (730)	9 1/4 (248)	3 3/8 (79)	16 3/4 (425)	3 (76)	3 3/4 (83)	4 1/2 (117)	14 3/4 (371)	34 3/8 (879)	9 1/4 (248)	1 11/16 (43)	15 1/4 (400)	3 (76)	3 3/4 (79)	4 1/2 (117)			
		143T-145T	31(787)	39 1/4(1000)		10 1/4 (273)						1 11/16 (43)	17 1/4 (438)	12(305)	2 11/16 (53)				17 1/4 (438)	5(127)	
		182T-184T	34 3/8(879)	39 1/4(1000)		10 1/4 (273)						1 11/16 (43)	17 1/4 (438)	12(305)	2 11/16 (53)				17 1/4 (438)	5(127)	
		213T-215T	31(787)	39 1/4(1000)	10 1/4 (273)	1 11/16 (43)	17 1/4 (438)				12(305)	2 11/16 (53)	17 1/4 (438)	5(127)							
		254T-256T	16 (406)	46 1/2 (1181)	12(305)	2 11/16 (53)	18 3/4(470)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	2 11/16 (53)	18 3/4 (470)			5 (127)	19 1/2(495)	5 (127)
		284TS-286TS	16 (406)	46 1/2 (1181)	12(305)	2 11/16 (53)	18 3/4(470)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	2 11/16 (53)	18 3/4 (470)			5 (127)	19 1/2(495)	5 (127)
2 AC	2 1/2	56	12 (305)	28 3/8 (730)	9 1/4 (248)	3 3/8 (90)	16 3/4 (413)	3 (76)	3 3/4 (89)	4 1/2 (121)	14 3/4 (371)	34 3/8 (879)	9 1/4 (248)	2 1/8 (56)	16 3/4 (413)	3 (76)	3 3/4 (89)	4 1/2 (121)			
		143T-145T	31(787)	39 1/4(1000)		10 1/4 (273)						2 11/16 (68)	17 1/4 (451)	12(305)	2 11/16 (68)				17 1/4 (451)	5(127)	
		182T-184T	34 3/8(879)	39 1/4(1000)		10 1/4 (273)						2 11/16 (68)	17 1/4 (451)	12(305)	2 11/16 (68)				17 1/4 (451)	5(127)	
		213T-215T	31(787)	39 1/4(1000)	10 1/4 (273)	2 11/16 (68)	17 1/4 (451)				12(305)	2 11/16 (68)	17 1/4 (451)	5(127)							
		254T-256T	16 (406)	46 1/2 (1181)	12(305)	3 11/16 (97)	19(483)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	3 11/16 (97)	19 (483)			5 (127)	19(483)	5 (127)
		284TS-286TS	16 (406)	46 1/2 (1181)	12(305)	3 11/16 (97)	19(483)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	3 11/16 (97)	19 (483)			5 (127)	19(483)	5 (127)
2 BC	2 1/2	56	12 (305)	28 3/8 (730)	9 1/4 (248)	3 3/8 (90)	16 3/4 (413)	3 (76)	3 3/4 (89)	4 1/2 (121)	14 3/4 (371)	34 3/8 (879)	9 1/4 (248)	2 1/8 (56)	16 3/4 (413)	3 (76)	3 3/4 (89)	4 1/2 (121)			
		143T-145T	31(787)	39 1/4(1000)		10 1/4 (273)						2 11/16 (68)	17 1/4 (451)	12(305)	2 11/16 (68)				17 1/4 (451)	5(127)	
		182T-184T	34 3/8(879)	39 1/4(1000)		10 1/4 (273)						2 11/16 (68)	17 1/4 (451)	12(305)	2 11/16 (68)				17 1/4 (451)	5(127)	
		213T-215T	31(787)	39 1/4(1000)	10 1/4 (273)	2 11/16 (68)	17 1/4 (451)				12(305)	2 11/16 (68)	17 1/4 (451)	5(127)							
		254T-256T	16 (406)	46 1/2 (1181)	12(305)	3 11/16 (97)	19(483)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	3 11/16 (97)	19 (483)			5 (127)	19(483)	5 (127)
		284TS-286TS	16 (406)	46 1/2 (1181)	12(305)	3 11/16 (97)	19(483)				5 (127)	16 (406)	51 1/4 (1314)	12(305)	3 11/16 (97)	19 (483)			5 (127)	19(483)	5 (127)
2 Et	2 1/2	182T	16 (406)	42 1/4 (1073)	14 (356)	6 1/8 (165)	22 (559)	5 (127)	5 1/2 (140)	6 1/2 (165)	16 (406)	42 1/4 (1073)	14 (356)	6 1/8 (165)	22 (559)	5 (127)	5 1/2 (140)	6 1/4 (165)			
		213T																			
		254T																			
		286TS																			
		324TS																			
		326TS																			
364TS																					
365TS																					
2 Et	2 1/2	182T	16 (406)	42 1/4 (1073)	14 (356)	6 1/8 (165)	22 (559)	5 (127)	5 1/2 (140)	6 1/2 (165)	16 (406)	42 1/4 (1073)	14 (356)	6 1/8 (165)	22 (559)	5 (127)	5 1/2 (140)	6 1/4 (165)			
		213T																			
		254T																			
		286TS																			
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365TS																					
2 Gt	3	213T-215T	16 (406)	46 1/2 (1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	46 1/4(1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		254T-256T	16 (406)	46 1/2 (1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	46 1/4(1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		284T	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		213T-215T	12(305)	28 3/8(730)	9 1/4(248)	4 1/8(111)	15 1/4(400)	3(76)	4 1/4(108)	4 11/16(119)	14 3/4(371)	34 3/8(879)	9 1/4(248)	3(76)	15 1/4(400)	3(76)	4 1/4(108)	4 11/16(119)			
		254T-256T	14 3/4(371)	34 3/8(879)	10 1/4(273)	2 1/4(70)	17 1/4(445)	16 3/4(425)	4 1/2(110)	6 1/2(152)	14 3/4(371)	34 3/8(879)	10 1/4(273)	2 1/4(70)	17 1/4(445)	16 3/4(425)	4 1/2(110)	6 1/2(152)			
		284TS-286TS	16(406)	46 1/2(1181)	13(330)	3 3/8(98)	19 1/4(502)	18 1/4(476)	5(127)	4(102)	6(152)	16(406)	46 1/4(1181)	13(330)	3 3/8(98)	19 1/4(502)	18 1/4(476)	5(127)	4(102)	6(152)	
2 1/2 AB	3	213T-215T	16 (406)	46 1/2 (1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	46 1/4(1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		254T-256T	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		284T	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		213T-215T	12(305)	28 3/8(730)	9 1/4(248)	4 1/8(111)	15 1/4(400)	3(76)	4 1/4(108)	4 11/16(119)	14 3/4(371)	34 3/8(879)	9 1/4(248)	3(76)	15 1/4(400)	3(76)	4 1/4(108)	4 11/16(119)			
		254T-256T	14 3/4(371)	34 3/8(879)	10 1/4(273)	2 1/4(70)	17 1/4(445)	16 3/4(425)	4 1/2(110)	6 1/2(152)	14 3/4(371)	34 3/8(879)	10 1/4(273)	2 1/4(70)	17 1/4(445)	16 3/4(425)	4 1/2(110)	6 1/2(152)			
		284TS-286TS	16(406)	46 1/2(1181)	13(330)	3 3/8(98)	19 1/4(502)	18 1/4(476)	5(127)	4(102)	6(152)	16(406)	46 1/4(1181)	13(330)	3 3/8(98)	19 1/4(502)	18 1/4(476)	5(127)	4(102)	6(152)	
2 1/2 BB	3	213T-215T	16 (406)	46 1/2 (1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	46 1/4(1181)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		254T-256T	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	16 (406)	51 1/4(1314)	14 (356)	3 3/4 (98)	23 (584)	5 (127)	7 1/4 (184)	7 1/4 (184)				
		284T	16 (406)	51 1/4																	

Series 1510 Centrifugal Pumps cont.'d

DIMENSIONS – INCHES (MM)			STANDARD MECHANICAL SEAL PUMP MODEL 1510, 1510-F								STUFFING BOX CONSTRUCTION PUMP MODEL 1510-PF, 1510-S							
PUMP SIZE DISCHARGE	SUCTION SIZE	MOTOR FRAME SIZE	HA	HB	HD	HL	HO	HP	Y	Z	HA	HB	HD	HL	HO	HP	Y	Z
3 BC	4	182T-184T	14 7/8 (371)	31(787)	10 1/2 (273)	3 1/8 (94)	18 1/4 (464)	3 (76)	4 1/2 (121)	6 1/2 (156)	14 1/2 (371)	34 1/8(879)	10 1/2 (273)	3 1/8 (94)	18 1/4 (464)	3 (76)	4 1/2 (121)	6 1/2 (156)
		213T-215T		39 1/4(1000)								19 1/2(495)						
		254T	16 (406)	46 1/2(1181)	13(330)	4 1/8(122)	20 1/2(521)	5 (127)			16 (406)	46 1/2(1181)	12(305)	4 1/8(122)	19 1/2(495)	5 (127)		
		284TS-286TS		51 1/2(1314)	13(330)	19 1/2(495)	20 1/2(521)					19 1/2(495)						
		324TS-326TS		51 1/2(1314)	12(305)	4 1/8(122)	20 1/2(521)					19 1/2(495)						
3 Et	4	184T	16 (406)	42 1/2(1073)	14 (356)	6 1/8 (170)	23 1/2 (597)	5 (127)	5 1/2 (140)	7 1/2 (187)	16 (406)	42 1/2(1073)	14 (356)	6 1/8 (170)	23 1/2 (597)	5 (127)	5 1/2 (140)	7 1/2 (187)
		213T-215T		46 1/2(1181)								4 1/8(122)						
		254T	51 1/2(1314)	4 1/8(122)	4 1/8(122)	19 1/2(495)												
		256T	24 (610)	56(1422)	16 1/2(419)	4 1/8(122)	26(660)	6 (152)			24 (610)	56(1422)	16 1/2(419)	4 1/8(122)	26(660)	6 (152)		
		324TS-326TS		56(1422)	16 1/2(419)	4 1/8(122)	26(660)					16 1/2(419)	4 1/8(122)	26(660)				
404TS	56(1422)	16 1/2(419)		4 1/8(122)	26(660)	16 1/2(419)	4 1/8(122)		26(660)									
3 Gt	4	213T-215T	16 (406)	46 1/2(1181)	14 (356)	4 1/8(122)	23 1/2(597)	5 (127)	5 1/2 (143)	8 (203)	16 (406)	46 1/2(1181)	14 (356)	4 1/8(122)	23 1/2(597)	5 (127)	5 1/2 (143)	8 (203)
		254T-256T		51 1/2(1314)								4 1/8(122)						
		284T-286T	51 1/2(1314)	4 1/8(122)	4 1/8(122)	19 1/2(495)												
		324T	24 (610)	56(1422)	16 1/2(419)	4 1/8(122)	26(660)	6 (152)			24 (610)	56(1422)	16 1/2(419)	4 1/8(122)	26(660)	6 (152)		
		145T		31(787)	10 1/2(273)	4 1/8(122)	18 1/4(464)					3(76)	4 1/2 (125)	5 1/2 (146)	14 1/2 (371)			
182T-184T	34 1/8(879)	10 1/2(273)		4 1/8(122)	18 1/4(464)	3(76)	16 (406)		46 1/2(1181)	12(305)		5 1/8(138)					19 1/2(495)	5 (127)
213T	46 1/2(1181)	12(305)	5 1/8(138)	19 1/2(495)	5(127)	16 (406)		46 1/2(1181)	12(305)	5 1/8(138)	19 1/2(495)	5 (127)						
215T	51 1/2(1314)	12(305)	5 1/8(138)	19 1/2(495)	5(127)			16 (406)	46 1/2(1181)	12(305)	5 1/8(138)				19 1/2(495)	5 (127)		
254T-256T	51 1/2(1314)	12(305)	5 1/8(138)	19 1/2(495)	5(127)		16 (406)		46 1/2(1181)	12(305)	5 1/8(138)				19 1/2(495)		5 (127)	
284TS-286TS	51 1/2(1314)	12(305)	5 1/8(138)	19 1/2(495)	5(127)	16 (406)			46 1/2(1181)	12(305)	5 1/8(138)	19 1/2(495)	5 (127)					
324TS-326TS	51 1/2(1314)	12(305)	5 1/8(138)	19 1/2(495)	5(127)			16 (406)	46 1/2(1181)	12(305)	5 1/8(138)	19 1/2(495)		5 (127)				
213T-215T	14 7/8 (371)	34 1/8(879)	12 1/2(324)	4(102)	20 1/2(527)		3(76)		5 (127)	7 (178)	16 (406)	46 1/2(1181)			14(356)	5 1/2(130)	22(559)	5 (127)
254T	46 1/2(1181)	14(356)	5 1/2(130)	22(559)	5(127)	16 (406)	46 1/2(1181)					14(356)	5 1/2(130)		22(559)	5 (127)		
256T	51 1/2(1314)	14(356)	5 1/2(130)	22(559)	5(127)		16 (406)	46 1/2(1181)			14(356)	5 1/2(130)	22(559)	5 (127)				
286TS	51 1/2(1314)	14(356)	5 1/2(130)	22(559)	5(127)			16 (406)			46 1/2(1181)	14(356)	5 1/2(130)		22(559)		5 (127)	
324TS-326TS	51 1/2(1314)	14(356)	5 1/2(130)	22(559)	5(127)	16 (406)					46 1/2(1181)	14(356)	5 1/2(130)		22(559)	5 (127)		
364TS-365TS	24 (610)	56(1422)	16 1/2(419)	5 1/2(146)	24 1/2(622)		6(152)		16 (406)	46 1/2(1181)	14(356)	5 1/2(130)	22(559)	5 (127)				
404TS	24 (610)	56(1422)	16 1/2(419)	5 1/2(146)	24 1/2(622)		6(152)	16 (406)		46 1/2(1181)	14(356)	5 1/2(130)	22(559)		5 (127)			
213T-215T	16 (406)	42 1/2(1073)	14(356)	6 1/8(170)	23 1/2(603)	5(127)	5 1/2 (141)			7 1/2 (184)	16 (406)	42 1/2(1073)	14(356)			6 1/8(170)	23 1/2(603)	5(127)
254T	46 1/2(1181)	14(356)	6 1/8(170)	23 1/2(603)	5(127)	16 (406)			46 1/2(1181)		14(356)	6 1/8(170)	23 1/2(603)	5(127)				
256T	51 1/2(1314)	14(356)	6 1/8(170)	23 1/2(603)	5(127)			16 (406)	46 1/2(1181)		14(356)	6 1/8(170)	23 1/2(603)	5(127)				
284T-286T	51 1/2(1314)	14(356)	6 1/8(170)	23 1/2(603)	5(127)				16 (406)		46 1/2(1181)	14(356)	6 1/8(170)	23 1/2(603)	5(127)			
324TS-326TS	51 1/2(1314)	14(356)	6 1/8(170)	23 1/2(603)	5(127)	16 (406)					46 1/2(1181)	14(356)	6 1/8(170)	23 1/2(603)	5(127)			
364TS-365TS	24 (610)	56(1422)	16 1/2(419)	4 1/8(125)	26 1/2(667)		6(152)	16 (406)		46 1/2(1181)	14(356)	4 1/8(125)	26 1/2(667)	6(152)				
404TS	24 (610)	56(1422)	16 1/2(419)	4 1/8(125)	26 1/2(667)		6(152)		16 (406)	46 1/2(1181)	14(356)	4 1/8(125)	26 1/2(667)	6(152)				
213T-215T	16 (406)	46 1/2(1181)	15(381)	5 1/2(137)	25(635)	5(127)	6 (152)			8 1/2 (217)	16 (406)	46 1/2(1181)	15(381)	5 1/2(137)	25(635)	5(127)	6 (152)	8 1/2 (217)
254T-256T	51 1/2(1314)	15(381)	5 1/2(137)	25(635)	5(127)	16 (406)		46 1/2(1181)			15(381)	5 1/2(137)	25(635)	5(127)				
284T-286T	51 1/2(1314)	15(381)	5 1/2(137)	25(635)	5(127)			16 (406)	46 1/2(1181)		15(381)	5 1/2(137)	25(635)	5(127)				
324T	51 1/2(1314)	15(381)	5 1/2(137)	25(635)	5(127)				16 (406)		46 1/2(1181)	15(381)	5 1/2(137)	25(635)	5(127)			
364TS-365TS	24 (610)	56(1422)	16 1/2(419)	5 1/2(146)	24 1/2(622)	6(152)					16 (406)	46 1/2(1181)	14(356)	5 1/2(130)	22(559)	5 (127)		
213T-215T	14 7/8 (371)	34 1/8(879)	12 1/2(324)	5 1/2(146)	21 1/2(540)	3(76)	5 1/2 (148)	6 1/2 (159)		14 1/2 (371)		34 1/8(879)	12 1/2(324)	5 1/2(146)	21 1/2(540)		3(76)	
213T-215T	34 1/8(879)	12 1/2(324)	5 1/2(146)	21 1/2(540)	3(76)	16 (406)			46 1/2(1181)			14(356)	6 1/8(175)	22 1/2(572)	5 (127)			
254T-256T	46 1/2(1181)	14(356)	6 1/8(175)	22 1/2(572)	5(127)				16 (406)	46 1/2(1181)	14(356)	6 1/8(175)	22 1/2(572)	5 (127)				
284TS-286TS	51 1/2(1314)	14(356)	6 1/8(175)	22 1/2(572)	5(127)					16 (406)	46 1/2(1181)	14(356)	6 1/8(175)			22 1/2(572)	5 (127)	
324TS-326TS	51 1/2(1314)	14(356)	6 1/8(175)	22 1/2(572)	5(127)	16 (406)					46 1/2(1181)	14(356)	6 1/8(175)		22 1/2(572)	5 (127)		
364TS	24 (610)	56(1422)	16 1/2(419)	4 1/8(125)	26 1/2(667)		6(152)	16 (406)	46 1/2(1181)		14(356)	4 1/8(125)	26 1/2(667)	6(152)				
213T-215T	16 (406)	46 1/2(1181)	15(381)	6 1/8(170)	25(635)		5(127)		6 (152)	7 1/2 (191)	16 (406)	46 1/2(1181)	15(381)	6 1/8(170)	25(635)		5(127)	6 (152)
254T	51 1/2(1314)	15(381)	6 1/8(170)	25(635)	5(127)	16 (406)	46 1/2(1181)				15(381)	6 1/8(170)	25(635)	5(127)				
256T	51 1/2(1314)	15(381)	6 1/8(170)	25(635)	5(127)		16 (406)	46 1/2(1181)			15(381)	6 1/8(170)	25(635)	5(127)				
284T	51 1/2(1314)	15(381)	6 1/8(170)	25(635)	5(127)			16 (406)			46 1/2(1181)	15(381)	6 1/8(170)	25(635)	5(127)			
254T-256T	51 1/2(1314)	15(381)	6 1/8(170)	25(635)	5(127)	16 (406)					46 1/2(1181)	15(381)	6 1/8(170)	25(635)	5(127)			
284T-286T	51 1/2(1314)	15(381)	6 1/8(170)	25(635)	5(127)		16 (406)		46 1/2(1181)	15(381)	6 1/8(170)	25(635)	5(127)					
324T	51 1/2(1314)	15(381)	6 1/8(170)	25(635)	5(127)			16 (406)	46 1/2(1181)	15(381)	6 1/8(170)	25(635)	5(127)					
254T-256T	24 (610)	56(1422)	16 1/2(419)	5 1/2(138)	29 1/2(749)	6(152)			6 (152)	9 (229)	24 (610)	56(1422)	16 1/2(419)	5 1/2(138)	29 1/2(749)	6(152)	6 (152)	9 (229)
284T-286T	56(1422)	16 1/2(419)	5 1/2(138)	29 1/2(749)	6(152)	16 (406)	46 1/2(1181)				15(381)	8 1/2(213)	25 1/2(648)	5(127)				
324T-326T	56(1422)	16 1/2(419)	5 1/2(138)	29 1/2(749)	6(152)		16 (406)	46 1/2(1181)			15(381)	8 1/2(213)	25 1/2(648)	5(127)				
364T-365T	56(1422)	16 1/2(419)	5 1/2(138)	29 1/2(749)	6(152)			16 (406)	46 1/2(1181)	15(381)	8 1/2(213)	25 1/2(648)	5(127)					
404TS	56(1422)	16 1/2(419)	5 1/2(138)	29 1/2(749)	6(152)	16 (406)			46 1/2(1181)	15(381)	8 1/2(213)	25 1/2(648)	5(127)					
254T-256T	16 (406)	46 1/2(1181)	15(381)	8 1/2(213)	25 1/2(648)		5(127)		7 (178)	8 1/2 (210)	16 (406)	46 1/2(1181)	15(381)	8 1/2(213)	25 1/2(648)	5(127)	7 (178)	8 1/2 (210)
284T-286T	51 1/2(1314)	15(381)	8 1/2(213)	25 1/2(648)	5(127)		16 (406)	46 1/2(1181)			15(381)	8 1/2(213)	25 1/2(648)	5(127)				
324T-326T	51 1/2(1314)	15(381)	8 1/2(213)	25 1/2(648)	5(127)	16 (406)		46 1/2(1181)			15(381)	8 1/2(213)	25 1/2(648)	5(127)				
254T-256T	24 (610)	56(1422)	16 1/2(419)	6(152)	27 1/2(699)			6(152)			16 (406)	46 1/2(1181)	15(381)	6(152)	27 1/2(699)	6(152)		
284T-286T	56(1422)	16 1/2(419)	6(152)	27 1/2(699)	6(152)		16 (406)	46 1/2(1181)				15(381)	6(152)	27 1/2(699)	6(152)			
324T-326T	56(1422)	16 1/2(419)	6(152)	27 1/2(699)	6(152)	16 (406)		46 1/2(1181)	15(381)	6(152)		27 1/2(699)	6(152)					
364T	56(1422																	

THE B&G End Suction Pump System

Consists of:
B&G Series 1510 Pump
B&G Triple Duty Valve
B&G Suction Diffuser



Triple Duty Valve

- Lowest Pressure Drop
- ASHRAE 90.1 Energy Efficient Design
- Three Valves in one!
 - Nonslam drip-tight check valve
 - Positive shutoff valve
 - Calibrated system balance valve
- EPDM Disc Soft Seat Design
- Repack Under Pressure
- Brass Seat & Bronze Disc
- Stainless Steel Stem
- Multi-turn Valve (8-9 turns) vs 1/4 turn range of control
- Available connections – Threaded – Flanged – Grooved
- ESP-Plus System Selection



Suction Diffuser

- Full length stainless steel straightening vanes
- Oversize cylinder assures minimum strainer pressure drop
- Pressure gauge tap
- Magnetic drain plug to protect pump seals
- Adjustable support foot
- Space saving design reduces the “footprint” size of the unit
- Available connections – Threaded – Flanged – Grooved
- Reducer and elbow provide multiple combinations of inlet and pump suction configurations which eliminate the need for reducer fittings
- ESP-Plus System Selection

Typical Specification for Series 1510 Base Mounted, Flexible Coupled, End-Suction Pumps

Furnish and install pumps with performance characteristics as shown on plans. Pumps shall be base mounted, single stage, end suction design with a foot mounted volute to allow removal and service of the entire rotating assembly without disturbing the pump piping, electrical motor connections or pump to motor alignment.

A CSA certified condition monitor shall be installed on the pump power end to continuously measure vibration and temperature at the outboard bearing. Vibration modes shall be based on ANSI/HI 9.6.4-2009 and ISO 101816 recommended levels. Vibration alarms shall be at 100% increase over pump baseline. Minimum vibration of 0.125 inch/sec is required to avoid nuisance tripping. A high vibration alarm shall be at 0.50 inch/sec. Temperature alarm shall be at 195°F (91°C). The condition monitors' electronics shall be potted in epoxy and surrounded by a stainless steel enclosure. Accuracy shall be +/- 15% within an ambient temperature range of -40°F to 212°F (-40°C to 100°C).

Pump volute shall be Class 30 cast iron with integrally-cast pedestal support feet. The impeller shall be cast bronze enclosed type, balanced to ANSI/HI 9.6.4-2009 balance grade G6.3 and keyed to the shaft and secured by a locking capscrew.

The liquid cavity shall be sealed off at the pump shaft by an internally-flushed mechanical seal with ceramic seal seat and carbon seal ring, suitable for continuous operation at 225°F (107°C). A replaceable bronze shaft sleeve shall completely cover the wetted area under the seal.

Pump shall be rated for minimum of 175 psi (12 bar) working pressure. Volute shall have gauge tapings at the suction and discharge nozzles and vent and drain tapings at the top and bottom.

The pump(s) vibration limits shall conform to Hydraulic Institute ANSI/HI 9.6.4-2009 for recommend acceptable unfiltered field vibration limits (as measured per ANSI/HI 9.6.4-2009 Figure 9.6.4.2.3.1) for pumps with rolling contact bearings.

Baseplate shall be of structural steel or fabricated steel channel with fully enclosed sides and ends, and securely welded cross members. Grouting area shall be fully open. The combined pump and motor baseplate shall be sufficiently stiff as to limit the susceptibility of vibration. The minimum baseplate stiffness shall conform to ANSI/HI 1.3-2009 for Horizontal Baseplate Design standards.

The seismic capability of the pump shall allow it to withstand a horizontal load of 0.5g, excluding piping and/or fasteners used to anchor the pump to mounting pads or to the floor, without adversely affecting pump operation.

A flexible type, center drop-out design coupler, capable of absorbing torsional vibration, shall be employed between the pump and motor. Pumps for variable speed application shall be provided with a suitable coupler sleeve. The coupling shall be shielded by a dual rated ANSI B15.1 & OSHA 1910.219 compliant coupling guard and contain viewing windows for inspection of the coupling.

Motor shall meet NEMA and EISA 2007 (where applicable) specifications and shall be of the size, voltage and enclosure called for on the plans. Pump and motor shall be factory aligned, and shall be realigned by the contractor per factory recommendations after installation.

The pump(s) selected shall conform to ANSI/HI 9.6.3.1 standards for Preferred Operating Region (POR) unless otherwise approved by the engineer.

Each pump shall be factory hydrostatically tested per Hydraulic Institute standards. It shall then be thoroughly cleaned and painted with at least one coat of high grade paint prior to shipment.

The pump(s) shall be manufactured, assembled and tested in an ISO 9001 approved facility.

Pumps shall be Series 1510 as manufactured by Xylem Bell & Gossett or equal.

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- 2) a leading global water technology company.

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