



Bulletin B-305E

Bell & Gossett



Series 1531 Pumps
The Industry Standard
In End Suction Pump Design



SERIES 1531 CLOSE-COUPLED PUMPS



STANDARD DESIGN FEATURES

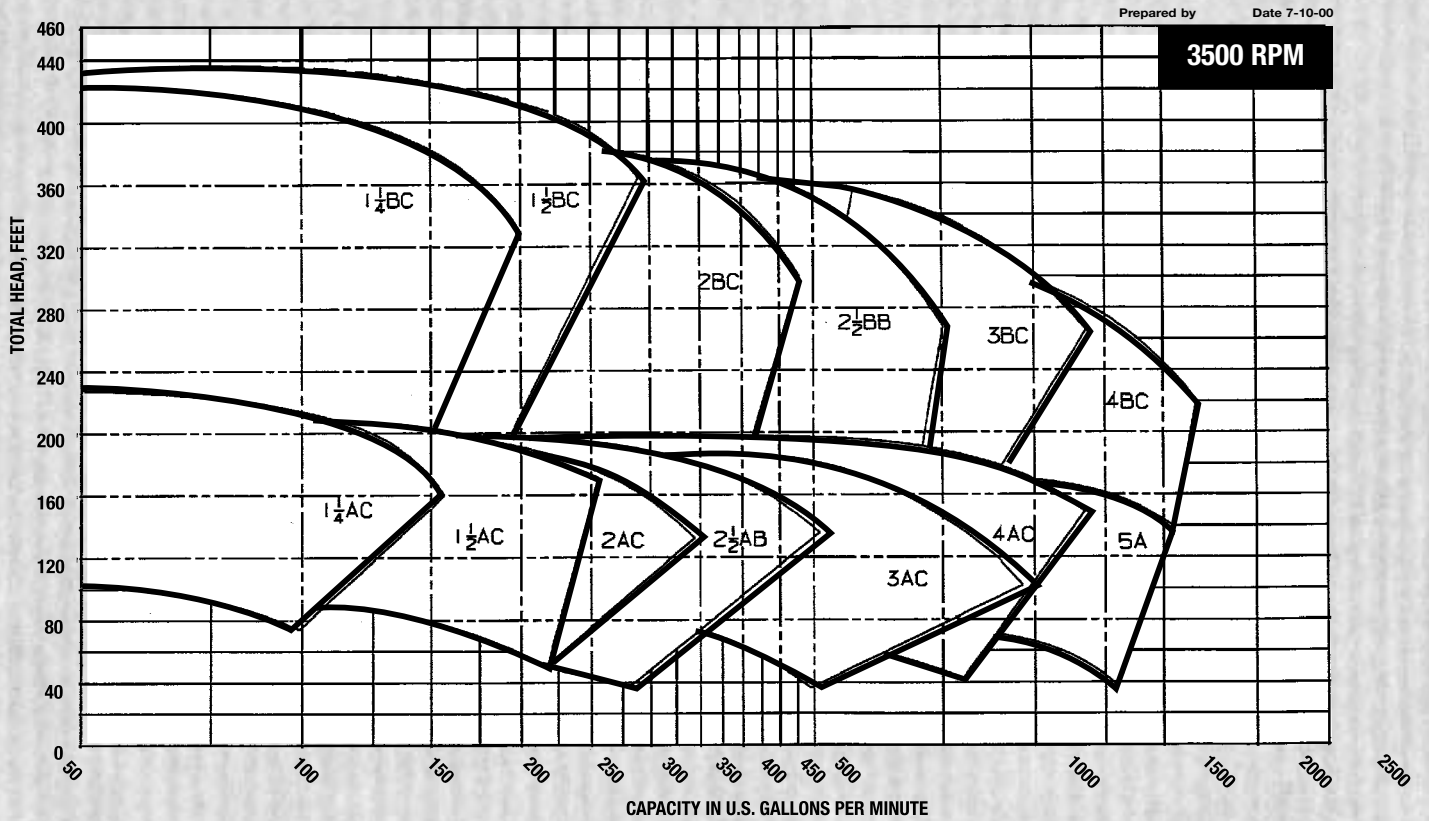
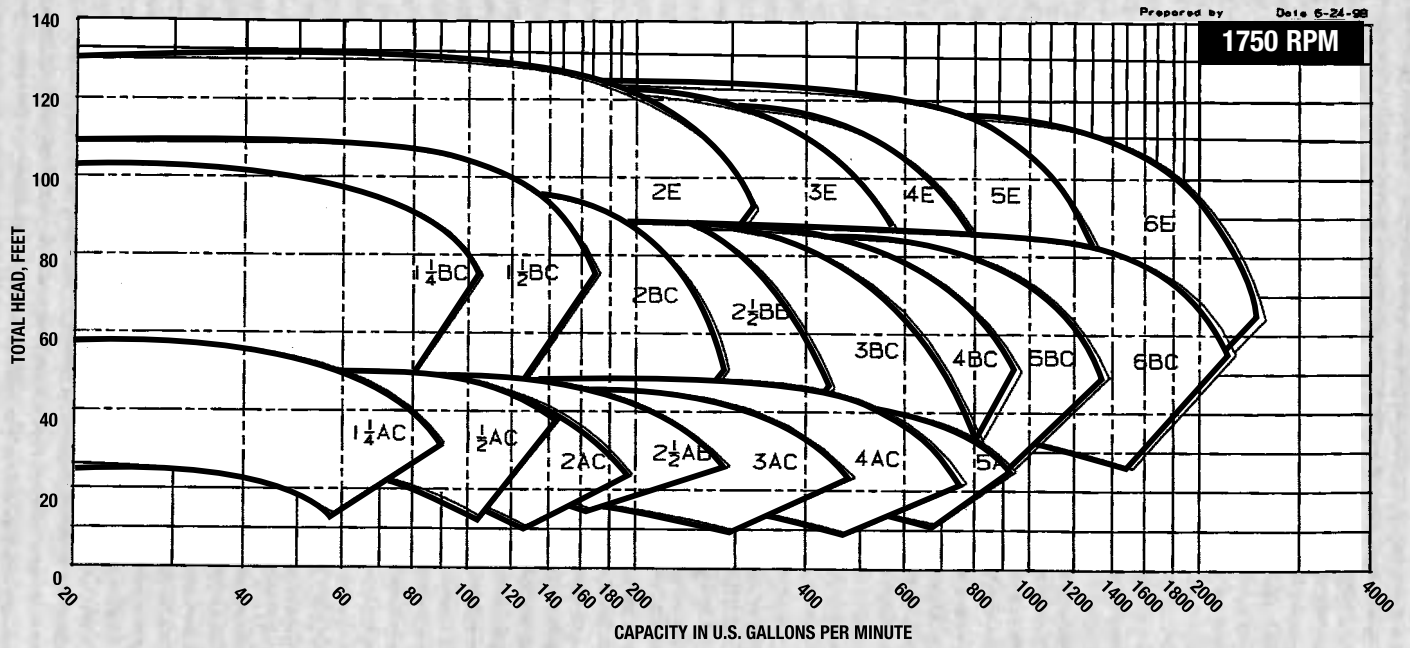
1. **Self-flushing mechanical seals** ensure maximum seal face lubrication, heat dissipation and debris removal without vulnerable, external flush tubing. As much as 25 percent of the total pump flow continuously flushes the seal faces.
2. **Back pull-out** design allows one service tech ease of maintenance.
3. **Aluminum bronze shaft sleeve** construction is standard. Special sealing between the sleeve and shaft prevents corrosion of the shaft by the pumped fluid.
4. **Enclosed, balanced impeller** for quiet, vibration free performance. Impellers are precision fitted to the shaft and positively locked with a shaft key.
5. **Heavy duty cast iron volute** construction for 175 PSI working pressure.
6. **Jacking bolts** provide ease of volute disassembly.
7. **Gauge tappings** on the suction and discharge flanges along with volute vent and drain tappings are standard.
8. **Hydrostatic testing** of each pump is standard.

OPTIONAL EQUIPMENT

- All iron construction
- All bronze construction
- Bronze casing wear ring
- Vertical mounting
- EPT, Viton or Teflon mechanical seals

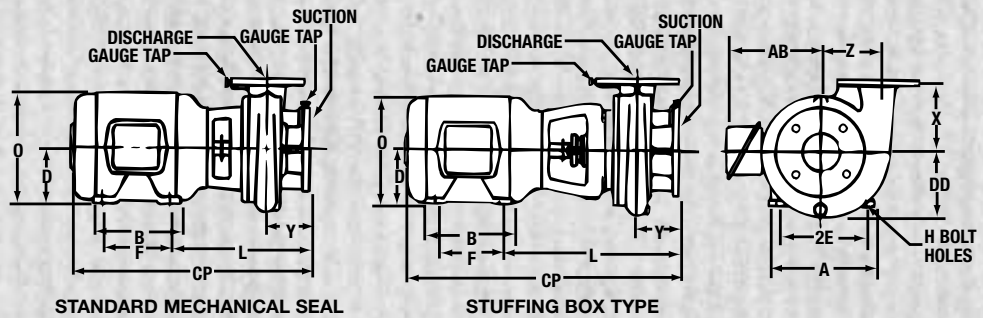
SERIES 1531

SELECTION CHARTS



SERIES 1531

CENTRIFUGAL PUMP DIMENSIONS



MOTOR FRAME STD. SEAL	MOTOR FRAME BOX TYPE	MOTOR DIMENSIONS ¹ - INCHES (MM)							
		A (MAX.)	B (MAX.)	F	2E	AB (MAX.)	D	H	O (MAX.)
143JM	143JP	7 (178)	6 (152)	4 (102)	5 1/2 (140)	7 (178)	3 1/2 (89)	1 1/32 (9)	7 1/4 (184)
145JM	145JP	7 (178)	6 (152)	5 (127)	5 1/2 (140)	7 (178)	3 1/2 (89)	1 1/32 (9)	7 1/4 (184)
182JM	182JP	9 (229)	6 1/2 (165)	4 1/2 (114)	7 1/2 (191)	8 1/2 (216)	4 1/2 (114)	1 3/32 (10)	9 3/8 (238)
184JM	184JP	9 (229)	7 1/2 (191)	5 1/2 (140)	7 1/2 (191)	8 1/2 (216)	4 1/2 (114)	1 3/32 (10)	9 3/8 (238)
213JM	213JP	10 1/2 (267)	7 1/2 (191)	5 1/2 (140)	8 1/2 (216)	10 3/4 (273)	5 1/4 (133)	1 3/32 (10)	11 1/8 (283)
215JM	215JP	10 1/2 (267)	9 (229)	7 (178)	8 1/2 (216)	10 3/4 (273)	5 1/4 (133)	1 3/32 (10)	11 1/8 (283)
254JP	254JP	12 1/2 (318)	10 3/4 (273)	8 1/4 (210)	10 (254)	10 3/4 (273)	6 1/4 (159)	1 7/32 (14)	13 1/8 (333)
256JP	256JP	12 1/2 (318)	12 1/2 (318)	10 (254)	10 (254)	10 3/4 (273)	6 1/4 (159)	1 7/32 (14)	13 1/8 (333)
284JP	284JP	14 (356)	12 1/2 (318)	9 1/2 (241)	11 (279)	12 5/8 (321)	7 (178)	1 7/32 (14)	15 (381)
286JP	286JP	14 (356)	14 (356)	11 (279)	11 (279)	12 5/8 (321)	7 (178)	1 7/32 (14)	15 (381)
324JP	324JP	16 (406)	14 (356)	10 1/2 (267)	12 1/2 (318)	15 1/8 (384)	8 (203)	2 1/32 (17)	17 (432)
326JP	326JP	16 (406)	15 1/2 (394)	12 (305)	12 1/2 (318)	15 1/8 (384)	8 (203)	2 1/32 (17)	17 (432)

SIZE OF PUMP AND DISCHARGE	SUCTION	PUMP DIMENSIONS - INCHES (MM)					
		DD	X	Y	Z	L (MAX) ¹	CP (MAX) ¹
1 1/4 AC (NPT)	1 1/2 NPT	4 3/4 (121)	5 (127)	3 1/4 (83)	4 1/2 (114)	14 5/8 (371)	25 1/2 (648)
1 1/2 AC (NPT)	2 NPT	5 (127)	6 (152)	3 1/8 (79)	4 5/8 (117)	16 5/8 (422)	32 1/4 (819)
2 AC	2 1/2	5 1/2 (140)	6 1/2 (165)	3 1/2 (89)	4 3/4 (121)	17 1/8 (435)	34 1/2 (876)
2 1/2 AB	3	5 13/16 (148)	6 (152)	4 1/4 (108)	4 11/16 (119)	17 15/16 (456)	35 1/4 (895)
3 AC	4	6 1/4 (159)	6 (152)	4 1/8 (105)	5 (127)	17 7/8 (454)	36 1/8 (918)
4 AC†	5	6 7/8 (175)	7 1/2 (191)	4 15/16 (125)	5 3/4 (146)	19 13/16 (503)	40 5/8 (1032)
5 A†	6	7 7/8 (200)	8 1/2 (216)	5 13/16 (148)	6 1/4 (159)	21 5/16 (541)	42 (1067)
1 1/4 BC (NPT)	1 1/2 NPT	6 1/8 (156)	8 (203)	3 1/4 (83)	5 1/2 (140)	16 3/4 (425)	35 1/8 (892)
1 1/2 BC (NPT)	2 NPT	6 1/4 (159)	6 1/2 (165)	3 1/8 (79)	5 3/4 (146)	17 1/8 (435)	36 3/8 (924)
2 BC	2 1/2	6 1/8 (156)	7 (178)	4 (102)	5 7/8 (149)	18 1/8 (460)	39 (991)
2 1/2 BB	3	7 1/4 (184)	6 3/4 (171)	4 (102)	6 (152)	18 3/16 (462)	39 1/8 (994)
3 BC	4	7 (178)	7 1/2 (191)	4 3/4 (121)	6 1/8 (156)	19 3/16 (487)	40 (1016)
4 BC	5	8 5/8 (219)	8 (203)	5 (127)	7 (178)	19 (483)	36 3/8 (924)
5 BC	6	9 1/2 (241)	10 (254)	6 (152)	7 1/2 (191)	20 3/8 (518)	37 1/8 (943)
6 BC	8	10 3/8 (264)	10 1/2 (267)	7 (178)	8 1/4 (210)	22 3/4 (578)	43 1/2 (1105)
2 E	3	7 5/8 (194)	8 (203)	5 1/2 (140)	6 1/2 (165)	18 7/16 (468)	39 1/4 (997)
3 E	4	8 1/2 (216)	9 1/2 (241)	5 1/2 (140)	7 3/8 (187)	18 1/8 (460)	35 1/2 (902)
4 E	5	9 1/4 (235)	9 3/4 (248)	5 9/16 (141)	7 1/4 (184)	18 3/16 (462)	35 (889)
5 E	6	9 5/8 (244)	10 1/2 (267)	5 7/16 (138)	7 15/16 (202)	18 13/16 (478)	38 (965)
6 E	8	10 7/8 (276)	11 (279)	6 1/8 (156)	8 15/32 (215)	19 3/4 (502)	40 5/8 (1032)

Dimensions are subject to change. Not to be used for construction purposes unless certified.
¹Varies with motor manufacturer.

Frame Size Selections* ODP and TEFC

STANDARD WORKING PRESSURE 175 PSI (12 BAR)

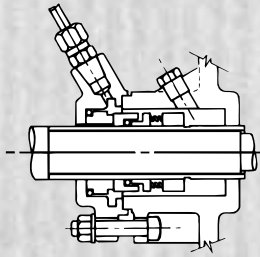
Flanges drilled and faced per 125# ANSI Standards.

3PH Motor Frame Selection						
HP	ODP			TEFC		
	3600	1800	1200	3600	1800	1200
1/2			143JM			143JM
3/4			143JM			143JM
1		143JM	145JM		143JM	145JM
1 1/2	143JM	145JM	182JM	143JM	145JM	182JM
2	145JM	145JM	184JM	145JM	145JM	184JM
3	145JM	182JM	213JM	182JM	182JM	213JM
5	182JM	184JM	215JM	184JM	184JM	215JM
7 1/2	184JM	213JM	254JP	213JM	213JM	254JP
10	213JM	215JM	256JP	215JM	215JM	256JP
15	215JM	254JP	284JP	254JP	254JP	284JP
20	254JP	256JP	286JP	256JP	256JP	286JP
25	256JP	284JP	324JP	284JP	284JP	324JP
30	284JP	286JP	326JP	286JP	286JP	326JP
40	286JP	324JP		324JP	324JP	
50	324JP	326JP		326JP	326JP	
60	326JP					

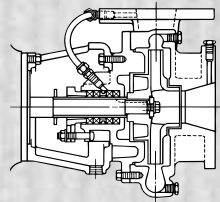
*10 motors are one frame size larger than shown.

SERIES 1531

CONSTRUCTION FEATURES AND OPTIONS

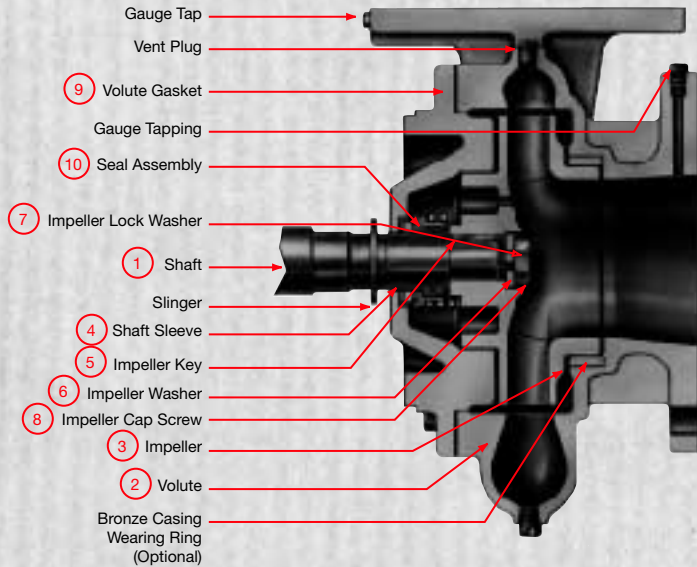


**1531-S OPTIONAL
SINGLE MECHANICAL SEAL**



**1531-PF OPTIONAL
PACKING**

STANDARD	OPTIONAL
Cast Iron Volute	All Iron Construction
Bronze Impeller	All Bronze Construction*
Alloy Steel Shaft	Bronze Casing Wear Ring
Bronze Shaft Sleeve	Stainless Steel Shaft Sleeve
Mechanical Seal	EPT/Tungsten Carbide Seal (Standard Configuration only)
	Stuffing Box Construction with several seal and packing options



SEAL SELECTION GUIDE

STANDARD SEALS

BUNA – PH Limitations 7-9; Temperature Range -40 to +225°F
 EPT – PH Limitations 7-11; Temperature Range -40 to +250°F
 For use on closed or open systems which are relatively free of dirt and/or other abrasive particles.

FLUSHED SINGLE SEALS (Stuffing Box Design)

PH Limitations 7-11; Temperature Range -20 to +300°F†
 For use on closed or open low pressure systems which may contain a high concentration of abrasives. An external flush is required.

FLUSHED DOUBLE SEALS (Stuffing Box Design)

PH Limitations 7-9; Temperature Range 0 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.

PACKING (Stuffing Box Design)

PH Limitations 7-9; Temperature Range 0 to +190°F
 For use on open or closed systems which require a large amount of makeup 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 seal flushing fluid.

Flush-line Filters and Sediment Separators are available on special request.

DESCRIPTION	BRONZE FITTED PUMP	ALL IRON PUMP	ALL BRONZE PUMP*
1 Shaft	Steel SAE 1144	Steel SAE 1144	Steel SAE 1144
2 Volute	Cast Iron ASTM #A159	Cast Iron ASTM #A159	Cast Bronze ASTM #B584
3 Impeller	Cast Bronze ASTM #B854	Cast Iron ASTM #159	Cast Bronze ASTM #B584
4 Shaft Sleeve	Aluminum Bronze ASTM #B111	#304 Stainless Steel ASTM #A312	Aluminum Bronze ASTM #B111
5 Impeller Key	#304 Stainless Steel	#304 Stainless Steel	#304 Stainless Steel
6 Impeller Washer	1531 – Brass	Stainless Steel	Brass
7 Impeller Lock Washer	#304 Stainless Steel	#304 Stainless Steel	#304 Stainless Steel
8 Impeller Cap Screw	#304 Stainless Steel	#304 Stainless Steel	#304 Stainless Steel
9 Volute Gasket	Cellulose Fiber	Cellulose Fiber	Cellulose Fiber
10 Seal Assemblies			
Standard Seal			
Bellows	Buna N	Buna N	Buna N
Faces	Carbon-Ceramic	Carbon-Ceramic	Carbon-Ceramic
Metal Parts	Brass	Stainless Steel	Brass
Spring	Stainless Steel	Stainless Steel	Stainless Steel
For Stuffing Box			
10A Flushed Single			
O-Rings	EPR	EPR	
Faces	Carbon-Tungsten Carbide	Carbon-Tungsten Carbide	
Metal Parts	Stainless Steel	Stainless Steel	
Spring	Stainless Steel	Stainless Steel	
10B Flushed Double			
O-Rings	EPR	EPR	
Faces	Carbon-Ceramic	Carbon-Ceramic	
Metal Parts	Stainless Steel	Stainless Steel	
Spring	Stainless Steel	Stainless Steel	
Packed			
Packing	Graphited Braided Yarn	Graphited Braided Yarn	
Gland	Bronze	Cast Iron	
Lantern Ring	Filled TFE	Filled TFE	

*All Bronze Construction **NOT** available in **stuffing box construction** or any of the following sizes: 1 1/2AC, 4AC, 5A, 3AC, 3BC, 4BC, 5BC, 6BC, all E sizes.

ENGINEERING SPECIFICATIONS FOR BELL & GOSSETT SERIES 1531 HORIZONTAL CLOSE COUPLED PUMPS

Furnish and install pumps with capacities as shown on plans. Pumps shall be close coupled, single stage, end suction design, capable of being serviced without disturbing piping connections.

Pump volute shall be Class 30 cast iron. The impeller shall be cast bronze enclosed type, balanced, keyed to the shaft and secured by a locking capscrew.

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

Pumps shall be rated for 175 psi maximum working pressure. Volute shall have gauge tapings at the suction and discharge nozzles and vent and drain tapings at the top and bottom.

Motor shall meet NEMA specifications and shall be of the size, voltage and enclosure called for on the plans. It shall

have heavy duty grease lubricated ball bearings, completely adequate for the maximum load for which the motor is designed.

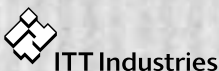
The pump(s) selected shall conform to ANSI/HI 9.6.3.1 standards for Preferred Operating Region (POR) unless otherwise approved by the engineer. The pump NPSH shall conform to the ANSI/HI 9.6.1-1997 standards for *Centrifugal and Vertical Pumps for NPSH Margin*.

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

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

Pumps shall be Series 1531 as manufactured by ITT Bell and Gossett.

AUTHORIZED REPRESENTATIVE



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