



Bulletin B-112E

Bell & Gossett



Series 90 In-Line Mounted Centrifugal Pumps

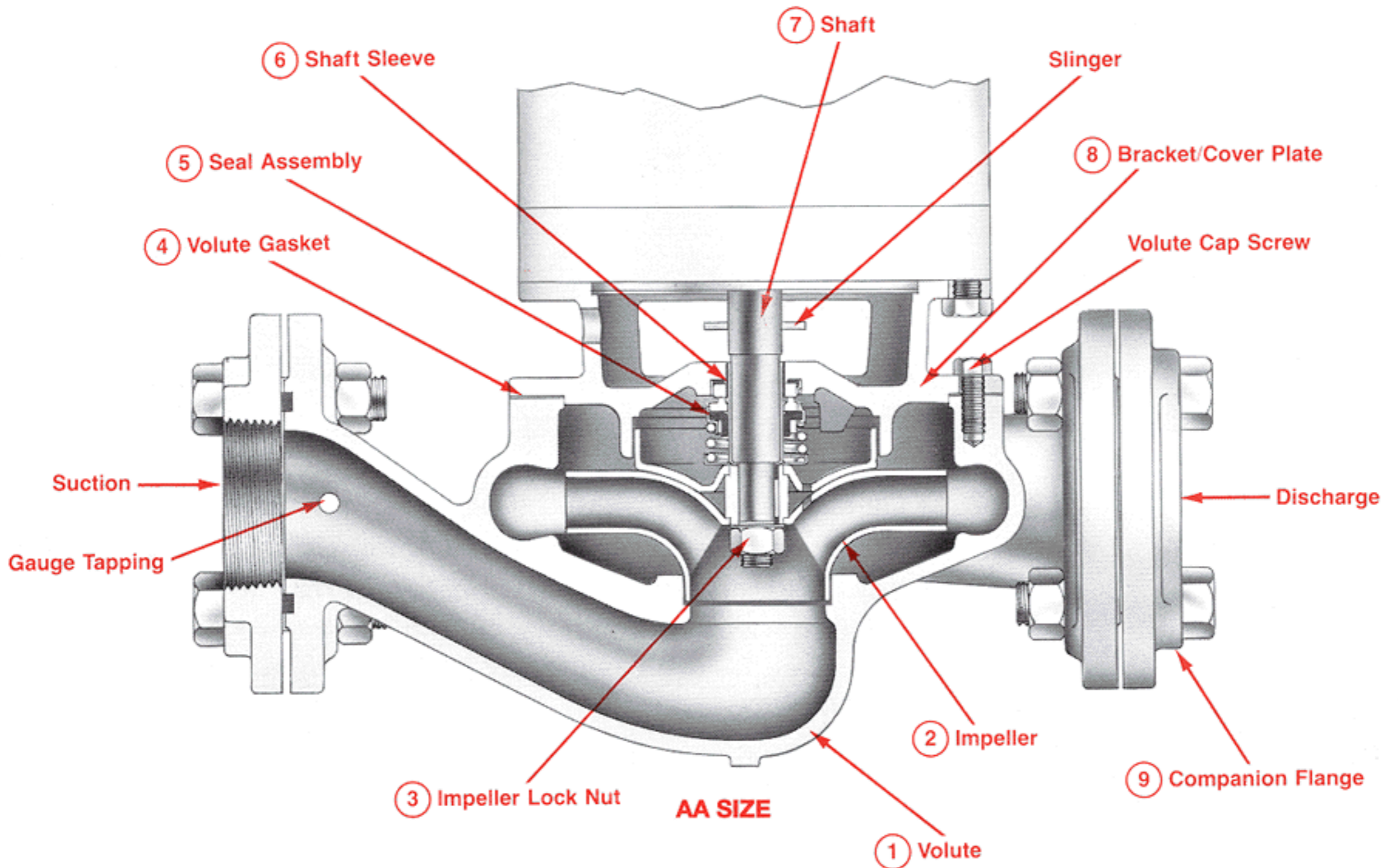
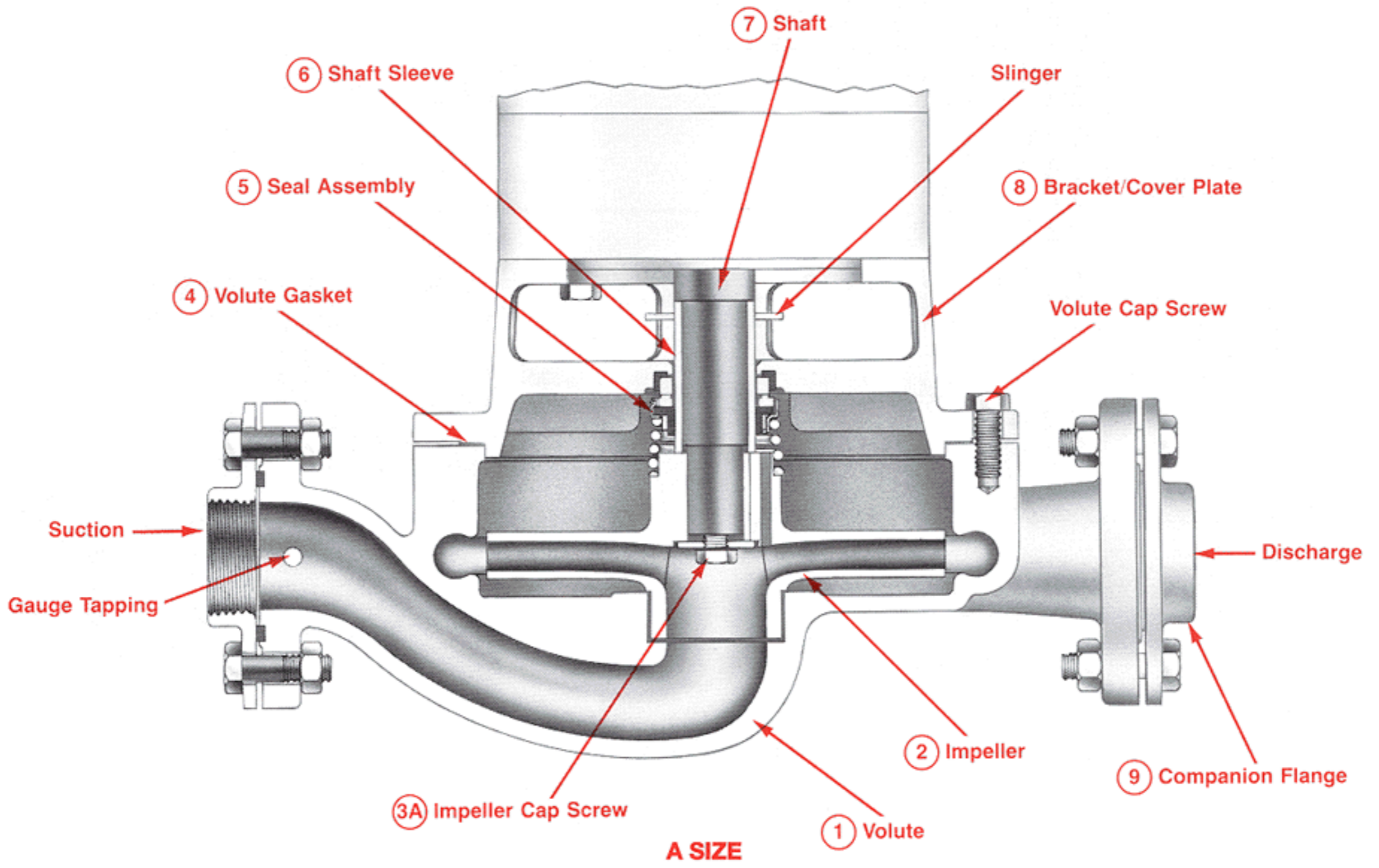
- 225°F maximum working temperature, 175 PSI maximum working pressure
- Close coupled, horizontal or vertical installation
- Space saving, low maintenance, long life, quick shipment
- For hydronic heating and cooling, domestic hot water, cooling tower, machinery cooling, pressure boosting, industrial fluid transfer, refrigeration and heat exchanger circulation

Part of the



Bell & Gossett





Construction Materials for parts in contact with fluid

| ITEM NO. | DESCRIPTION | BRONZE FITTED PUMP | ALL BRONZE PUMP* |
|----------|---|---|--|
| 1 | Volute | Cast Iron ASTM #A159 | Cast Brass ASTM #B584 |
| 2 | Impeller | AA Sizes – Brass ASTM #B36 A Sizes – Cast Brass ASTM #B584 | |
| 3 | Impeller Lock Nut | #304 Stainless Steel | #304 Stainless Steel |
| 3A | Impeller Capscrew | #304 Stainless Steel | #304 Stainless Steel |
| 4 | Volute Gasket | Cellulose Fiber | Cellulose Fiber |
| 5 | Seal Assembly Seal Housing Bellows Seal Ring Spring Seat Insert Seat Gasket | Brass Buna N Rubber Carbon #304 Stainless Steel Ceramic Buna N Rubber | |
| 6 | Shaft Sleeve | All except 7½, 10, & 15 HP Sizes – Copper Alloy 110 7½, 10, & 15 HP Sizes – Aluminum Bronze – ASTM #B198 | |
| 7 | Shaft | #1045 Steel | #1045 Steel |
| 8 | Bracket | Cast Iron ASTM #A159 | Cast Brass ASTM #B584 |
| 9 | Companion Flange | 1", 1¼", 1½" – Steel SAE1006 2" – Cast Iron ASTM #A150 | 1", 1¼", 1½" – Brass ASTM #B36 2" – Cast Brass ASTM #B584 |

*Available in all sizes ½ through 5 HP ratings only.

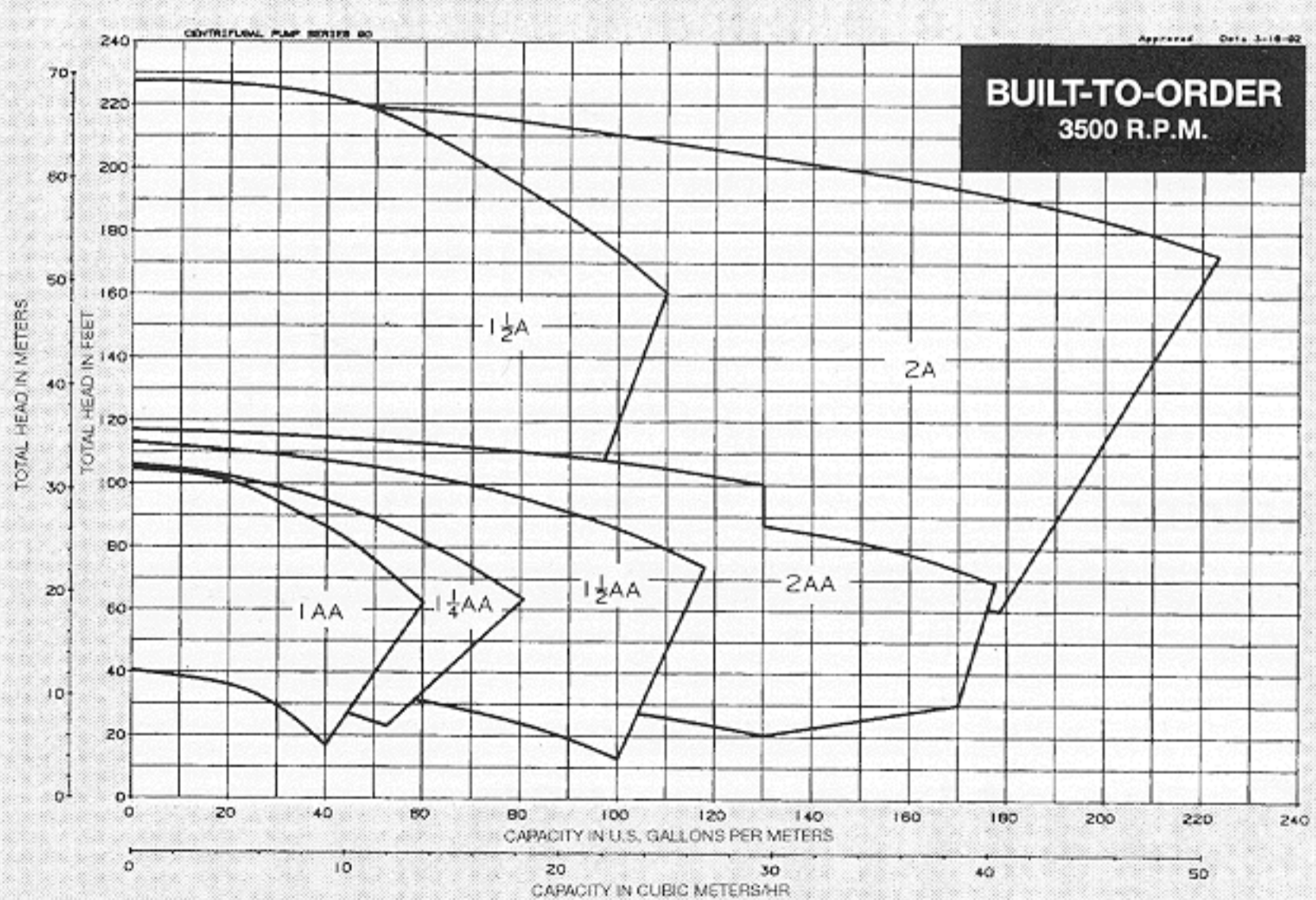
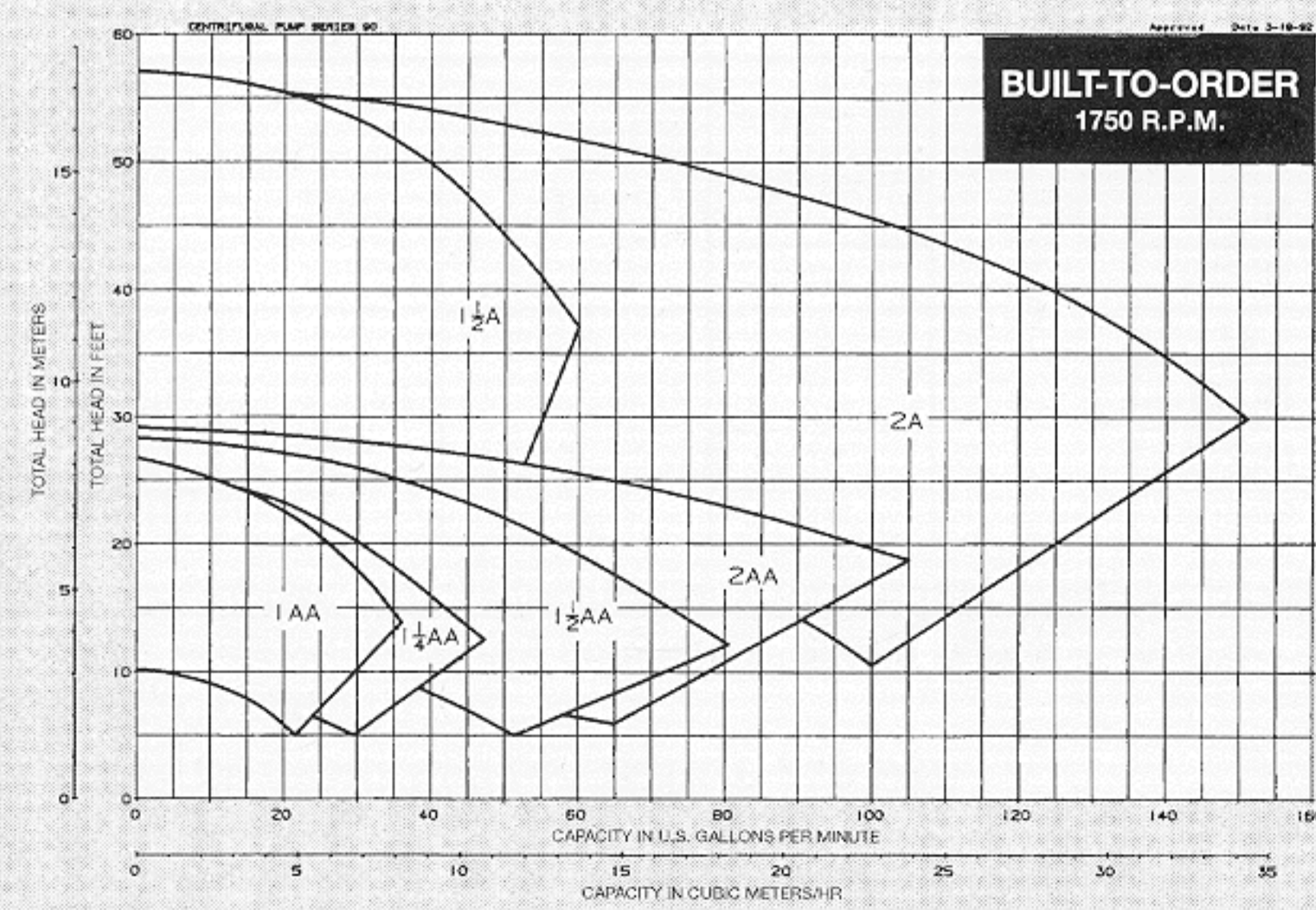
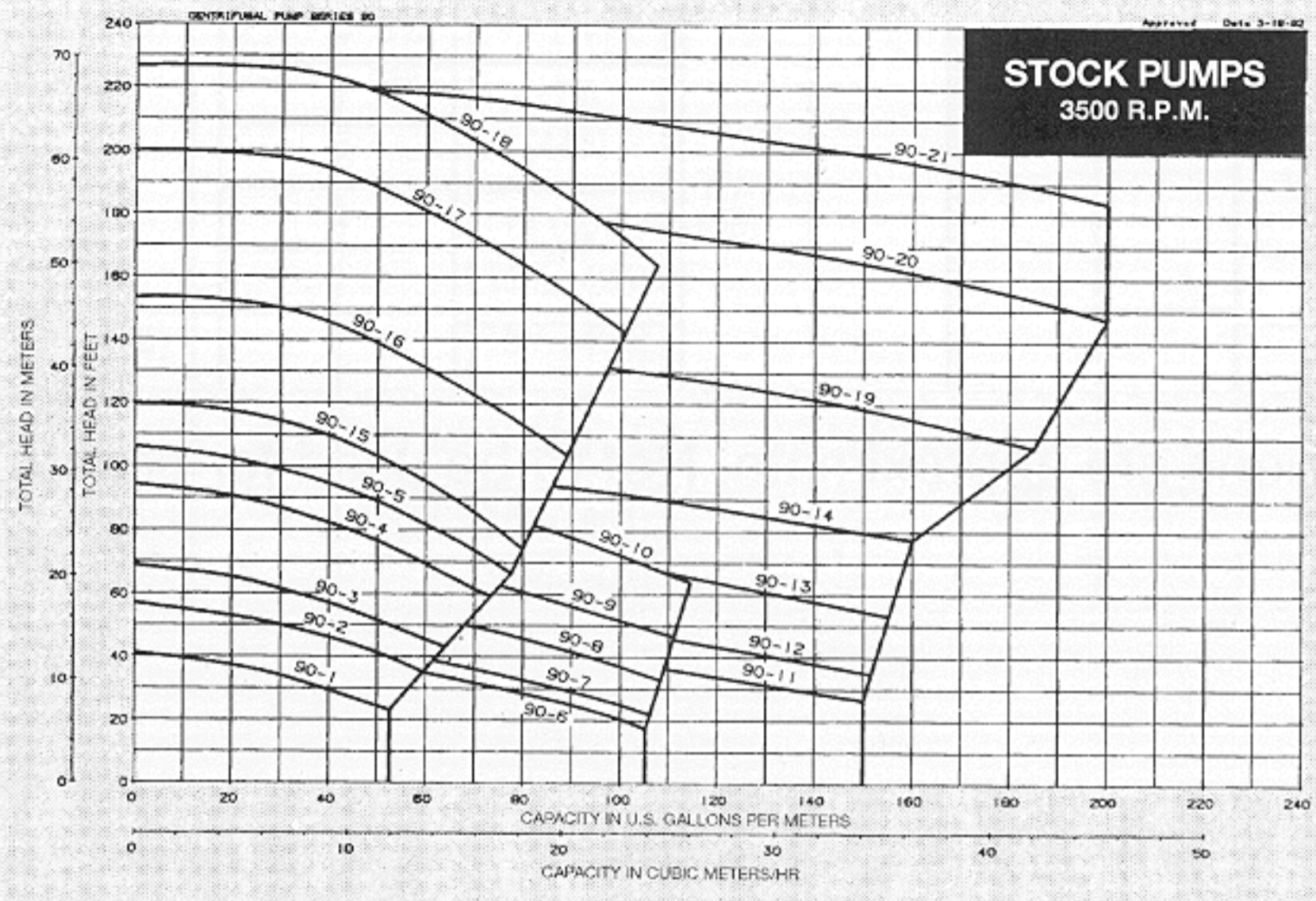
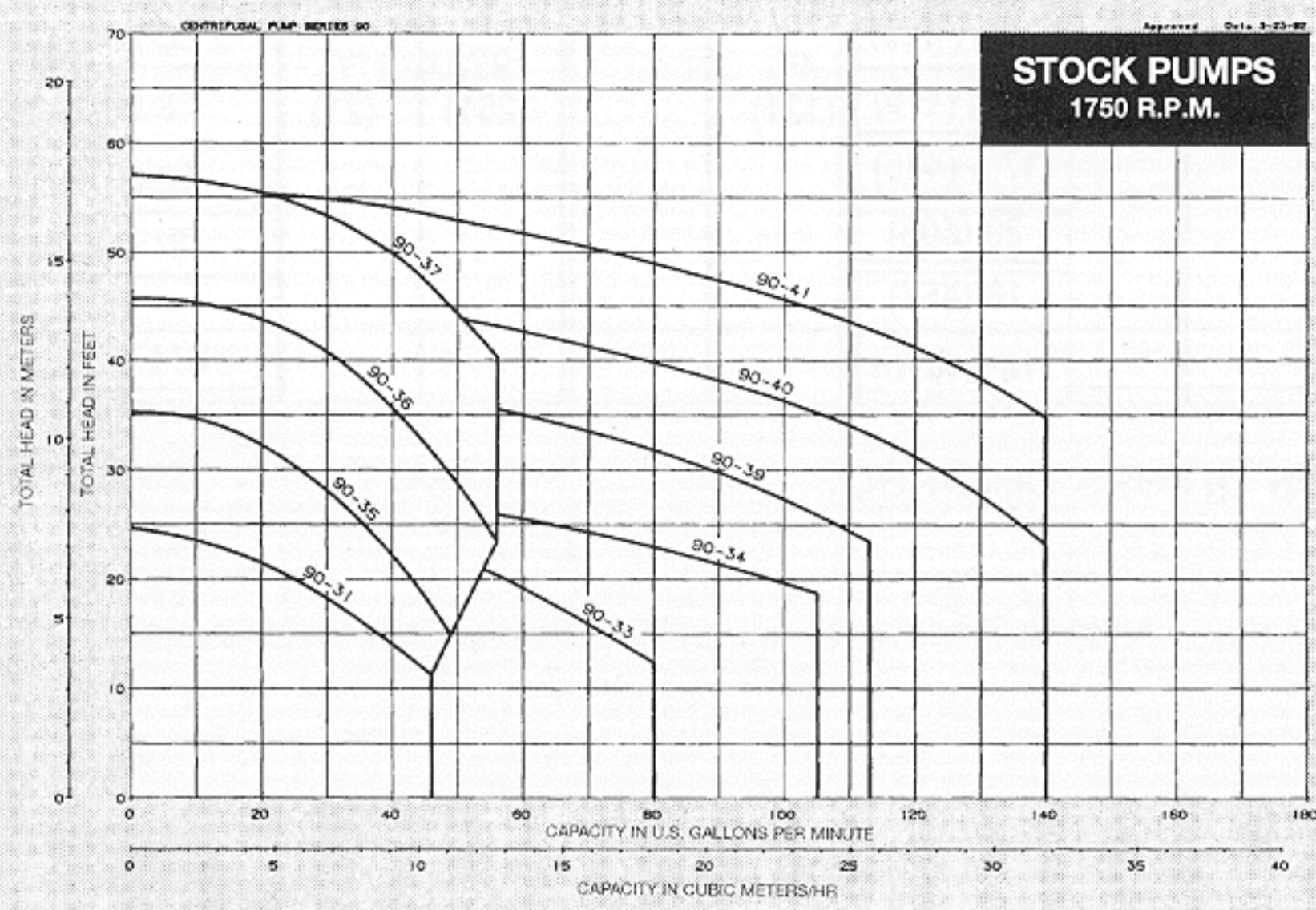
Series 90 Centrifugal Pumps

Bronze fitted construction — companion flanges furnished.
Standard Mechanical Seal

Maximum Working Pressure 175 PSI

Motors: 115/230 V, Single Phase or
208-230/460 V, Three Phase
60 Hz
ODP

Selection Charts



Add "S" to pump number when ordering single phase pumps.
Add "T" to pump number when ordering three phase pumps.

Series 90 Centrifugal Pumps ...

A perfect solution to your pumping needs

Ease of Selection A total of 16 single phase and 30 three phase units are available and provide excellent coverage for a large range of pumping requirements. In addition, all pumps can be built to order for more precise pump selection.

Ease of Installation In-Line mounting saves space and alleviates need for special mounting blocks, pads or foundations. Ordinary piping support is all that is needed. Additionally, the Series 90 may be installed vertically or horizontally.

Ease of Maintenance Back pull-out design. Piping need not be disturbed for disassembly. These pumps are very easily serviced. Units 5 HP and smaller are furnished with sealed for life ball bearings. The 7½, 10 and 15 HP units are furnished with fittings for regreasing at recommended intervals.

Typical Specifications Furnish and install pumps with capacities as shown on plans. Pumps shall be in-line type, close-coupled, single stage design, for installation in vertical or horizontal position, and capable of being serviced without disturbing piping connections.

Pump volute shall be of Class 30 cast iron, and impeller shall be of bronze/brass, enclosed type, keyed and secured to the shaft by a locking capscrew or nut.

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 shaft sleeve shall completely cover the wetted area under the seal.

Pumps shall be rated for maximum of 175 psi working pressure. Casings shall have gauge ports at nozzles, and vent and drain ports in casing.

Motor shall meet NEMA specifications and shall be 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.

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

Pump shall be Series "90" as manufactured by ITT Bell & Gossett.

Series "90" Dimensional Drawings

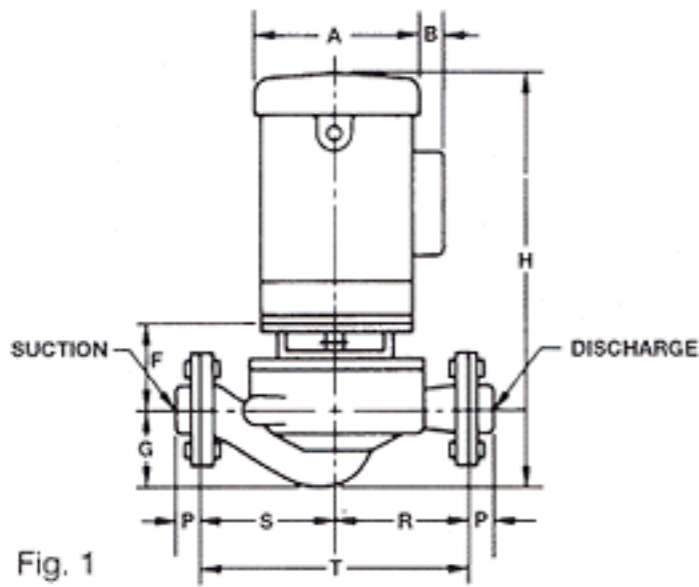


Fig. 1

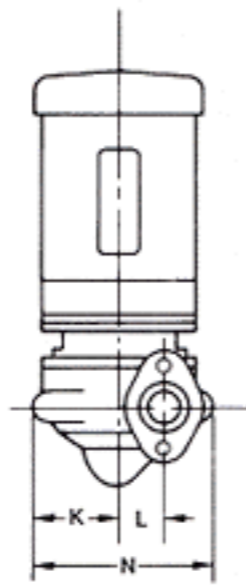


Fig. 2

3500 RPM FIG. 1

| STOCK MODEL NO. | PUMP SIZE | SUCTION & DISCHARGE SIZE NPT | MOTOR H.P. | PHASE | NO. OF FLANGE BOLTS | DIMENSIONS - IN INCHES (MM) | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-----------|------------------------------|------------|------------|---------------------|-----------------------------|--------------|--------------|------------|-------------|------------|-------------|---|---|---|---|---|--------------|--------------|------------|-------------|------------|---------|---|---|---|---------|----------|
| | | | | | | MAX. A | B | F | G | MAX. H | K | L | N | P | R | S | T | | | | | | | | | | | |
| — | 1AA | 1 | 1/4 | 1 | 2 | 7 1/2 (191) | 1 1/2 (38) | 2 1/2 (70) | 3 1/2 (94) | 16 (406) | 3 (76) | 6 1/2 (156) | — | — | — | — | — | | | | | | | | | | | |
| | | | 3 | — | | | 15 1/2 (397) | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 | 1 1/2 (38) | | | 16 1/2 (419) | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 | — | | | 16 1/2 (413) | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 | 1 1/2 (38) | | | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 | — | | | 17 1/2 (438) | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 | — | | | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 | — | | | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | |
| 90-1S | 1 1/2 AA | 1 1/2 | 1/2 | 1 | | | 1 1/2 (38) | | | 2 1/2 (70) | | | | | | | | 3 1/2 (94) | 15 1/2 (394) | 3 1/2 (92) | 7 1/2 (191) | 1 1/2 (35) | 5 (127) | — | — | — | 6 (152) | 11 (279) |
| 90-1T | | | 3 | — | | | 15 1/2 (384) | | | | | | | | | | | | | | | | | | | | | |
| 90-2S | | | 1/4 | 1 | | | 1 1/2 (38) | | | | | | | | | | | | 16 (406) | | | | | | | | | |
| 90-2T | | | 3 | — | | | 15 1/2 (397) | | | | | | | | | | | | | | | | | | | | | |
| 90-3S | | | 1 | 1 | 1 1/2 (38) | 16 1/2 (419) | | | | | | | | | | | | | | | | | | | | | | |
| 90-3T | | | 3 | — | 16 1/2 (413) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-4S | | | 1 | 1 | 1 1/2 (38) | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | | |
| 90-4T | | | 3 | — | 17 1/2 (438) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-5T | | | 1 1/2 | 1 | — | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 3 | — | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | |
| 90-6S | 1 1/2 AA | 1 1/2 | 1/4 | 1 | 1 1/2 (38) | 2 1/2 (73) | 3 1/2 (98) | 16 1/2 (413) | 3 1/2 (95) | 7 1/2 (200) | — | — | — | — | — | — | — | | | | | | | | | | | |
| 90-6T | | | 3 | — | 15 1/2 (403) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-7S | | | 1 | 1 | 1 1/2 (38) | | | 16 1/2 (425) | | | | | | | | | | | | | | | | | | | | |
| 90-7T | | | 3 | — | 16 1/2 (419) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-8S | | | 1 | 1 | 1 1/2 (38) | | | 18 (457) | | | | | | | | | | | | | | | | | | | | |
| 90-8T | | | 3 | — | 17 1/2 (445) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-9T | | | 2 | 3 | — | | | 18 (457) | | | | | | | | | | | | | | | | | | | | |
| 90-10T | | | 3 | — | 19 1/2 (495) | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 5 | | | — | | | | | | | | | | 19 1/2 (495) | | | | | | | | | | |
| | | | | | — | | | — | | | | | | | | | | 18 1/2 (464) | | | | | | | | | | |
| 90-11S | 2AA | 2 | 1 1/2 | 1 | 1 1/2 (38) | 3 (76) | 4 (102) | 18 1/2 (464) | — | 8 (203) | 1 1/2 (21) | — | — | — | — | — | — | | | | | | | | | | | |
| 90-11T | | | 3 | — | 17 1/2 (451) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-12T | | | 2 | 3 | — | | | 18 1/2 (464) | | | | | | | | | | | | | | | | | | | | |
| 90-13T | | | 3 | — | 18 1/2 (464) | | | | | | | | | | | | | | | | | | | | | | | |
| 90-14T | | | 5 | — | 19 1/2 (502) | | | | | | | | | | | | | | | | | | | | | | | |

3500 RPM FIG. 2

| STOCK MODEL NO. | PUMP SIZE | SUCTION & DISCHARGE SIZE NPT | MOTOR H.P. | PHASE | FRAME | NO. OF FLANGE BOLTS | DIMENSIONS - IN INCHES (MM) | | | | | | | | | | | | |
|-----------------|-----------|------------------------------|------------|-------|-------|---------------------|-----------------------------|-------------|------------|--------------|---|-------------|-------------|-------------|----------|-------------|----------|--------------|-------------|
| | | | | | | | MAX. A | F | G | MAX. H | J | K | L | N | P | R | S | T | |
| 90-15T | 1 1/2 A | 1 1/2 | 3 | 3 | 56C | 2 | 7 1/2 (191) | 3 1/2 (94) | 3 1/2 (89) | 18 1/2 (470) | — | 4 1/2 (117) | 1 (25) | 9 1/2 (241) | 3/4 (19) | 6 1/2 (165) | 7 (178) | 13 1/2 (343) | |
| 90-16T | | | 5 | | | | — | 20 (508) | | | | | | | | | | | |
| 90-17T | | | 7 1/2 | | | | 11 1/2 (298) | 4 1/2 (116) | | 23 1/2 (594) | | | | | | | | | 3 1/2 (89) |
| 90-18T | | | 10 | | | | 14 (356) | — | | 27 1/2 (695) | | | | | | | | | 4 1/2 (105) |
| — | 2A | 2 | 5 | 3 | 56 | 4 | 7 1/2 (191) | 3 1/2 (94) | 3 1/2 (95) | 20 1/2 (514) | — | 4 1/2 (121) | 9 1/2 (251) | 3/4 (21) | — | 7 1/2 (191) | 14 (356) | | |
| 90-19T | | | 7 1/2 | | | | 11 1/2 (298) | 4 1/2 (116) | | 23 1/2 (600) | | | | | | | | 3 1/2 (86) | |
| 90-20T | | | 10 | | | | 14 (356) | — | | 27 1/2 (702) | | | | | | | | 4 (102) | |
| 90-21T | | | 15 | | | | — | — | | — | | | | | | | | — | |

All single phase motors include built-in thermal overload protectors. Bronze fitted construction — companion flanges furnished for suction and discharge. Motors — open dripproof enclosure. Single phase — unit no. ending in "S" 115/230 volt cycle 1 phase. Three phase — unit no. ending "T" 208-230/460 volt 60 cycle 3 phase.

MAXIMUM WORKING PRESSURE 175 PSI.

Dimensions are approximate. Not to be used for construction purposes unless certified.

1750 RPM FIG. 1

| STOCK MODEL NO. | PUMP SIZE | SUCTION & DISCHARGE SIZE NPT | MOTOR H.P. | PHASE | NO. OF FLANGE BOLTS | DIMENSIONS - IN INCHES (MM) | | | | | | | | | | | | |
|-----------------|-----------|------------------------------|------------|-------|---------------------|-----------------------------|--------------|--------------|-------------|--------------|-------------|-------------|-------------|------------|-------------|-------------|--------------|--------------|
| | | | | | | MAX. A | B | F | G | MAX. H | K | L | N | P | R | S | T | |
| — | 1AA | 1 | 1/4 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 2 1/4 (70) | 3 1/16 (94) | 15 1/2 (394) | 3 (76) | 1 1/2 (38) | 6 1/2 (156) | 1 1/2 (38) | 3 (76) | 6 1/2 (156) | 1 1/2 (38) | 11 (279) |
| | | | | 3 | | | 14 1/2 (368) | | | 16 (406) | | | | | | | | |
| 90-31S | 1 1/2 AA | 1 1/2 | 1/4 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 2 1/4 (70) | 3 1/16 (94) | 14 1/2 (368) | 3 3/8 (92) | 1 1/2 (38) | 7 1/2 (191) | 1 1/2 (38) | 3 3/8 (92) | 7 1/2 (191) | 1 1/2 (38) | 6 (152) |
| 90-31T | | | | 3 | | | 16 (406) | | | 15 1/2 (394) | | | | | | | | |
| 90-33S | 1 1/2 AA | 1 1/2 | 1/2 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 2 1/4 (73) | 3 3/8 (98) | 16 1/4 (413) | 1 1/2 (38) | 7 1/2 (200) | 5 (127) | 1 1/2 (38) | 1 1/2 (38) | 7 1/2 (200) | 5 (127) | 6 1/2 (165) |
| 90-33T | | | | 3 | | | 15 1/2 (400) | | | 16 1/2 (419) | | | | | | | | |
| 90-34S | 2AA | 2 | 1/2 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 3 (76) | 4 (102) | 16 1/2 (419) | 3 3/4 (95) | 8 (203) | 1 1/2 (38) | 1 1/2 (38) | 8 (203) | 1 1/2 (38) | 11 1/2 (292) | 6 1/2 (165) |
| 90-34T | | | | 3 | | | 16 (406) | | | 17 1/2 (445) | | | | | | | | |
| 90-35S | 1 1/2 A | 1 1/2 | 1/2 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 3 1/2 (89) | 3 1/2 (89) | 16 1/4 (413) | 4 1/2 (117) | 9 1/2 (241) | 1 1/2 (38) | 1 1/2 (38) | 9 1/2 (241) | 1 1/2 (38) | 7 (178) | 13 1/2 (343) |
| 90-35T | | | | 3 | | | 17 1/2 (451) | | | 17 1/2 (438) | | | | | | | | |
| 90-36S | 1 1/2 A | 1 1/2 | 3/4 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 3 1/2 (89) | 3 1/2 (89) | 17 1/2 (438) | 4 1/2 (117) | 9 1/2 (241) | 1 1/2 (38) | 1 1/2 (38) | 9 1/2 (241) | 1 1/2 (38) | 7 (178) | 13 1/2 (343) |
| 90-36T | | | | 3 | | | 18 1/2 (470) | | | 17 1/2 (438) | | | | | | | | |
| 90-37S | 1 1/2 A | 1 1/2 | 1 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 3 1/2 (89) | 3 1/2 (89) | 19 1/2 (502) | 4 1/2 (117) | 9 1/2 (241) | 1 1/2 (38) | 1 1/2 (38) | 9 1/2 (241) | 1 1/2 (38) | 7 (178) | 13 1/2 (343) |
| 90-37T | | | | 3 | | | 17 1/2 (451) | | | 17 1/2 (438) | | | | | | | | |
| 90-39S | 2A | 2 | 1/2 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 3 11/16 (94) | 3 3/4 (95) | 17 (432) | 4 1/4 (121) | 9 1/2 (251) | 1 1/2 (38) | 1 1/2 (38) | 9 1/2 (251) | 1 1/2 (38) | 7 1/2 (191) | 14 (356) |
| 90-39T | | | | 3 | | | 16 1/2 (419) | | | 17 1/2 (445) | | | | | | | | |
| 90-40S | 2A | 2 | 3/4 | 1 | 2 | 7 1/2 | 1 1/2 (38) | 3 11/16 (94) | 3 3/4 (95) | 18 (457) | 4 1/4 (121) | 9 1/2 (251) | 1 1/2 (38) | 1 1/2 (38) | 9 1/2 (251) | 1 1/2 (38) | 7 1/2 (191) | 14 (356) |
| 90-40T | | | | 3 | | | 17 1/2 (445) | | | 20 (508) | | | | | | | | |
| 90-41T | 2A | 2 | 1 | 3 | 2 | 7 1/2 | 1 1/2 (38) | 3 11/16 (94) | 3 3/4 (95) | 18 (457) | 4 1/4 (121) | 9 1/2 (251) | 1 1/2 (38) | 1 1/2 (38) | 9 1/2 (251) | 1 1/2 (38) | 7 1/2 (191) | 14 (356) |

Dimensions are approximate. Not to be used for construction purposes unless certified.

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