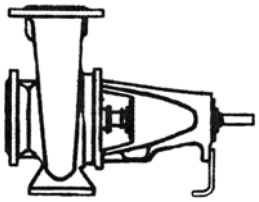
AMERICAN-MARSH PUMPS

PRODUCT BULLETIN
MODEL REF END SUCTION

American-Marsh Model REF End Suction pumps are used in a variety of industries. These rugged and efficient centrifugal pumps are designed for long life and low operational costs. Each model is of the back pull out design so when the need arises for repair or inspection, system piping does not need to be disturbed.



INDUSTRIAL Process, Petrochemical, Cargo Transfer

COMMERCIAL HVAC, Booster, Condensate Return, Supply Water, Cooling Tower

MUNICIPAL Quench Water, Filtration, Transfer, Filter Backwash, Circulation

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Material Specifications

PART	CONSTRUCTION			
	BRONZE FITTED	IRON FITTED	NI-RESIST FITTED	316SS FITTED
Casing	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Impeller	Bronze	Cast Iron	Ni-Resist	316 Stainless Steel
Shaft Sleeve	Bronze	Bronze	316 Stainless Steel	316 Stainless Steel
Shaft	420 Stainless Steel	420 Stainless Steel	420 Stainless Steel	420 Stainless Steel
Case Wear Ring	Bronze	Cast Iron	Ni-Resist	316 Stainless Steel
Power Frame	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Bearing Caps	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Bolts, Studs & Nuts	Steel	Steel	Steel	Steel
Mechanical Seal	Carbon/Si-C/Buna	Carbon/Si-C/Buna	Carbon/Si-C/Buna	Carbon/Si-C/Buna

MODEL REF SPECIFICATIONS

Casing: The casing is constructed of high tensile cast iron or other specified material. It is of the volute type, carefully and accurately proportioned to permit smooth flow and to convert high velocity energy of the fluid as it leaves the impeller into pressure. Suction and discharge nozzles are casted integral with the volute and are of 250 psi dimensions. All REF models feature a 250 psi case working pressure. The casing has cast integral feet standard and the discharge port is of the vertical centerline type. Necessary vent and drain openings are provided.

Impeller: The impeller is of the end suction type, casted in one piece of bronze or other specified material. All impellers are hydraulically and dynamically balanced prior to assembly and all impellers have pump out vanes standard on the back side of the imepller to reduce material from building up near the stuffing box.

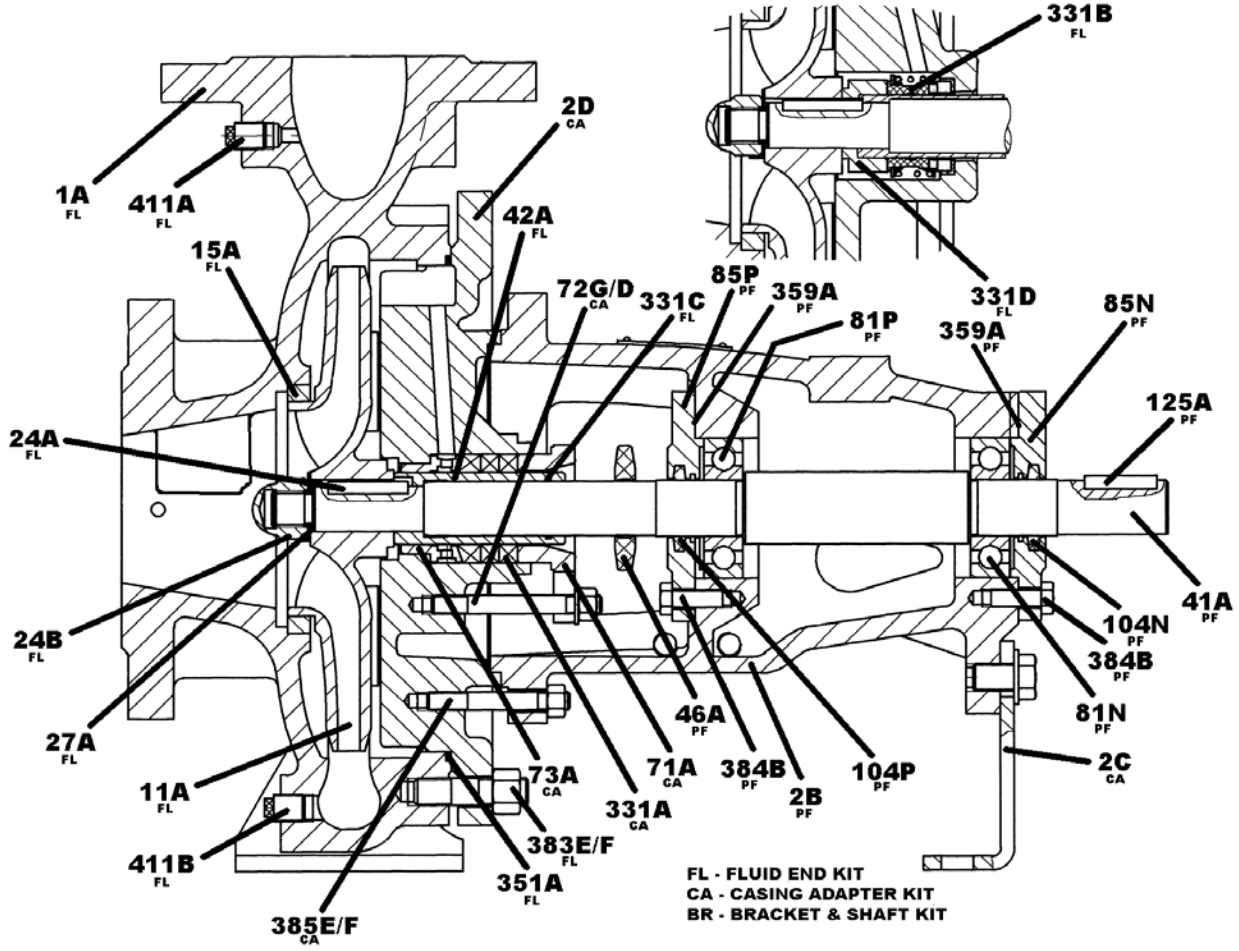
Case Wear Ring: Standard enclosed impellers are designed with integral case wear rings accurately turned to provide close running fits in casing. The diameters of these rings are such as to reduce end thrust to a minimum. On larger models a rear case wear ring is provided for additional wear resistance.

Shaft: The shaft is of high strength 420 stainless steel, ground to accurate dimensions and polished to a smooth surface. It is designed for extra stiffness to avoid all critical speeds in operation. The shaft is protected by a shaft sleeve of ample thickness to ensure long life. The shaft sleeve can be supplied in various materials.

Casing Adapter: The casing adapter is constructed of cast iron or other specified material. The casing adapter connects the six (6) power frame assemblies to the forty-three (43) casing assemblies. The casing adapter also houses the mechanical seal or packing and has an integral flush line standard for stuffing box lubrication. When the casing assembly is supplied of optional material, the casing adapter is also constructed of the same material due to the fact that it is also in contact with the pumped fluid.

Power Frame: The power frame is constructed of high tensile cast iron and provides support for the inboard and outboard bearings. Each bearing is of the deep grove, single row type designed to carry all thrust and radial loads encountered by the pump. All bearings are sized to maintain a minimum of 50,000 hour bearing life. Each bearing housing is sealed from water leakage by the use of an oil lip seal. The power frame has an integral oil sump that provides oil for lubrication to each bearing. An oil level eye is provided standard on the power frame to visually indicate the oil level.

Stuffing Box: The stuffing box is sized for a standard, front loading mechanical seal with integral flush line. The mechanical seal is constructed of a carbon rotary face, a silicon-carbide stationary face and buna elastomers standard. Packing with a lantern ring and internal flush line are optional. Also optional are a wide variety of cartridge mechanical seals.



REF Sectional Drawing

Item Number	Item Description	Num. Req.
1A	Casing	1
2B	Power Frame	1
2C	Foot, Power Frame	1
2D	Casing Adapter	1
11A	Impeller	1
15A	Case Wear Ring, Front	1
15B	Case Wear Ring, Rear	Varies
24A	Impeller Key	1
24B	Impeller Nut	1
27A	Impeller Washer	1
41A	Shaft	1
42A	Shaft Sleeve	1
46A	Water Slinger	1
71A	Stuffing Box Gland	1
72G/D	Hinge Bolt & Nut	2
73A	Lantern Ring	1
81N	Outboard Bearing, Thrust	1

Item Number	Item Description	Num. Req.
81P	Inboard Bearing, Radial	1
85N	Outboard Bearing Cap	1
85P	Inboard Bearing Cap	1
104N	Outboard Lip Seal	1
104P	Inboard Lip Seal	1
125A	Coupling Key	1
331A	Packing	1 Set
331B	Mechanical Seal	1
331C	Shaft Sleeve O-Ring	1
331D	Mechanical Seal Locking Collar	1
351A	Casing Gasket	1
359A	Bearing Housing Gasket	2
383E/F	Casing Stud & Nut	Varies
385E/F	Bearing Housing Stud & Nut	Varies
384B	Bearing Cap Capscrew	1
411A	Plug, Vent	1
411B	Plug, Drain	1

Recommended spare parts are in BOLD.