



## SPECIFICATIONS XA Flex-Coupled End Suction Pumps

**Casing:** The casing is constructed of ASTM A48 class 30 high tensile cast iron or other specified material. It is of the single volute design with single suction and has a replaceable bronze case wear ring standard. Heavy wall allows for generous corrosion allowance with a 20 year design life. Suction & discharge flanges are cast of 250 PSI dimensions and all models feature a 250 PSI case working pressure. Each suction and discharge flange is drilled and tapped for easy connection to the system piping. The suction and discharge flanges also feature a tapped connection for a suction and discharge gauge. The suction has a cast integral vortex suppressor to minimize inlet vortices and the discharge is of the centerline type. On XA models, the centerline discharge transmits any residual pipe strain to the cast integral feet on the casing minimizing moment forces that can be catastrophic on casings with a tangential discharge. XA models feature back pullout allowing the removal of the power frame assembly without disturbing suction or discharge piping. CPS-Pumps is one of only a select number of pump manufacturers in the world that offers end suction pumps in a variety of other cast materials including all bronze and all stainless steel construction. These are available upon request.

**Impeller:** The impeller is of the single suction, enclosed, non-overloading type. It is constructed of investment cast 304 stainless steel or other specified material, machined, dynamically & hydraulically balanced. The impeller is keyed to the shaft and secured by locking impeller nut and lock washer. Optional impeller wear rings are available upon request. Impellers are furnished with back pump out vanes or double case wear rings to balance axial thrust.

**Shaft Sleeve:** The shaft sleeve is constructed of a heavy wall stainless steel or other specified material and machined to precision tolerances. An internal o-ring is designed to keep fluid from leaking under the shaft sleeve. The shaft sleeve is keyed to prevent rotation during operation.

**Case Wear Ring:** The case wear ring is made of bronze or other specified material. It is designed with a large wearing surface with the diameter at wearing surface reduced to a minimum and is firmly secured in the casing by interference fit. The casing is undercut allowing the case wear ring to be removed without any special machining required.

**Shaft:** The XA shaft is manufactured of corrosion resistant 420 stainless steel, ground and polished to a smooth external surface. It is designed for extra stiffness to avoid all critical speeds in operation and is threaded for bearing lock nuts. The portion of the shaft that is exposed to the pumped fluid is covered with a renewable 304 stainless steel shaft sleeve, locked tightly against the impeller. The shaft is designed

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to use an inboard and outboard deep groove ball bearing for rotor support.

**Rear Cover:** The rear covers are extra deep, being designed for packing and lantern ring or component mechanical seals. An internal Plan 1 flush is standard. If the pumped fluid is not suitable for clean flushing then an external flush plan can be supplied upon request.

CPS-Pumps offers many different type of packing and mechanical seals. Packing can be supplied in carbon graphite and/or polymer designs. A variety of component and cartridge mechanical seals are available upon request.

**Power Frame:** XA models feature a power frame constructed of ASTM A48 class 30, high tensile cast iron and provides support for the inboard and outboard bearings. The power frame is fitted with two single row, deep groove ball bearings of ample capacity designed to account for radial as well as axial loads in either direction. Each bearing is pressed on to the shaft and located against precision machined shoulders assuring proper alignment and location. Bearing caps with lip seals provide protection to the bearings by keeping dust and dirt out of the power frame. Bearing isolators can be supplied upon request. Each bearing is of the oil-lubricated type for quiet operation and the power frame has oil level indicator integral for inspection of proper level.

**XA Bearings:** Both the inboard and outboard bearings are of the single row, deep groove type, precision grade. Each bearing is of the extra large capacity for both radial and axial loads and both bearings are confined rigidly in the bearing housing. All bearings are sized to maintain a minimum L10 bearing life of 50,000 hours with many models exceeding 100,000 hours standard. Each bearing is designed for oil-lubrication and a water slinger is provided to prevent leakage from the stuffing box from entering the bearing housing. Grease lubrication with a grease fitting is optional. Each bearing housing is sealed from water leakage by the use of an oil lip seal. Bearing isolators are available upon request. Double row outboard and/or double row inboard bearings are available upon request.

**Motor:** XA models utilize NEMA or IEC T-frame motors. This design uses readily available and stocked standard motors. This motor concept allows the user to use nearly any motor enclosure such as ODP, TEFC, Explosion Proof, Corro-Duty and Wash-Down Duty.

# Model XA Flex-Coupled

**Sizes:** 1.25x2-5(32/13) to 28x32-24(700/60)  
**Flows:** 24,000 GPM (5,500 m<sup>3</sup>/hr)  
**Heads:** 450 Feet (140 m)  
**Temp:** 350° F (177° C)

## Services:

- Aerospace
- Building Trades
- Chemical
- Construction
- Food & Beverage
- General Industry
- Marine
- Mining & Aggregate
- OEM
- Oil & Gas
- Power Generation
- Petro-Chemical
- Pharmaceutical
- Pulp & Paper
- Semiconductor
- Water & Wastewater

## Case Wear Ring

- Standard case wear ring is supplied in bronze or other specified alloy
- Can be easily removed and replaced without additional machining
- For hydraulic balancing, larger models feature a front & rear case wear ring in lieu of rear pump out vanes on the impeller

## Impeller

- One piece investment cast 304 stainless steel or other specified alloy
- Hydraulically balanced using rear pump out vanes or balancing holes in impeller
- Expertly machined and dynamically balanced prior to assembly
- Francis design allows for broad band efficiency and large flow region



## Casing

- Heavy duty ASTM A48 class 30 cast iron
- Heavy wall allows for generous corrosion allowance with a 20 year design life
- Unique and industry exclusive suction vortex suppressor
- Centerline & self-venting discharge transmits any residual pipe strain around the circumference of the casing to the cast integral feet
- Centerline discharge also eliminates the need for left & right handed casings & impellers
- Suction and discharge connections have gauge tap standard and are drilled & tapped for quick connection to system piping
- Suction & discharge flanges are cast to 250# dimensions requiring no pattern modification for high pressure applications
- Studded construction make assembly process very quick

## Rear Cover

- Heavy duty class 30 cast iron or other specified alloy
- Internal Plan 1 flush standard
- External flush optional
- Easily replaceable, heavy wall 304 stainless steel shaft sleeve standard
- CPS LP21 mechanical seal standard
- Can be supplied with packing or external component or cartridge seal

## Shaft

- Corrosion resistant 420 stainless steel
- Oversized for unplanned loads and to minimize deflection at the mechanical seal location
- Sized for larger roller bearings allowing longer bearing life

## Power Frame

- Heavy duty ASTM A48 class 30 cast iron
- Houses two (2) oversized, deep groove roller bearings that fully support the rotor assembly
- Oil lubricated standard with optional grease lubrication
- Each bearing housing cap has an oil lip seal to keep contaminants out of the bearing housing
- Optional bearing isolators
- Registered to rear cover and casing for ultimate support and concentricity

