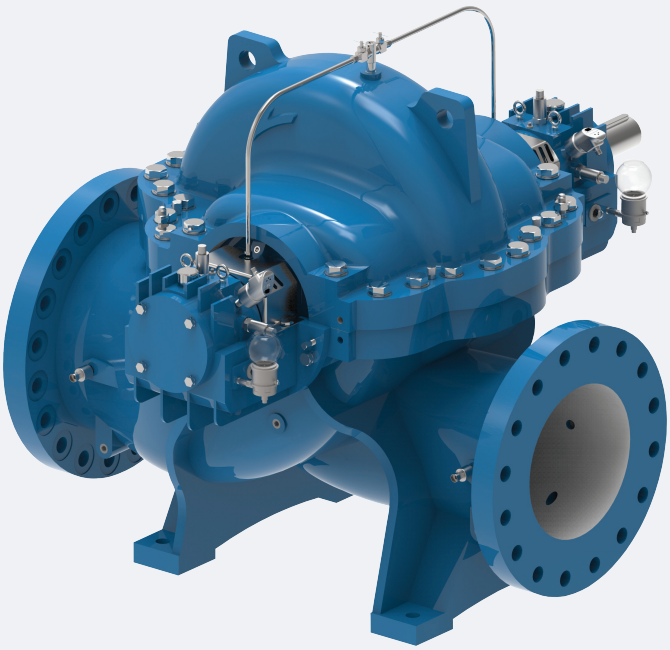
Specifications
XYeXCSP-100046 R1



e-XC single stage, double suction centrifugal pumps

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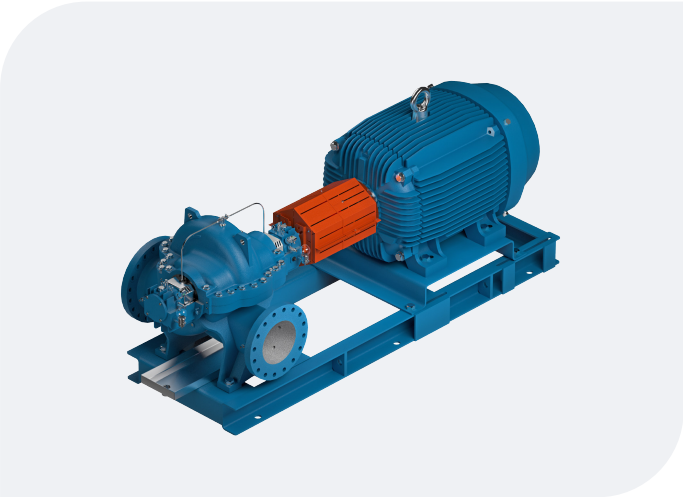
e-XC single stage, double suction centrifugal pumps

This specification covers e-XC single-stage, double-suction, horizontal split case pumps for municipal and industrial applications such as power generation, oil and gas, manufacturing, water utilities, recreational facilities, and mining. Pumps will be manufactured by Xylem. Units are available as:

- Complete pump set (pump, base, coupling, coupling guard and driver)
- Pump set less driver (pump, base, coupling and coupling guard)
- Pump only



Pump performance

1. The pump(s) shall be designed for and operated continuously under normal service.
2. Pump performance shall be ANSI/HI 14.6 and ISO 9906:2012 (Grade 2B) compliant. Other performance acceptance grades such as 1B and 1U are available upon request.
3. Hydraulic specifications:

    a. Maximum flow: 57,061 gpm (12,960 m³/hr)
    b. Maximum head: 873 ft. (266 m)

4. Fluid temprature range:

    a. Standard: 0 to 250°F (-18 to 121°C)

5. Casing Operating Pressure:

    a. Cast Iron: 175 psi (12 bar)
    b. Ductile Iron and Stainless Steel: 175 psi, 400 psi and 450 psi (12, 28 and 31 bar)

Product specifications

1. Rotation when viewing the pump from the driver end shall be one of:

a. Clockwise
b. Counterclockwise

2. Impeller and impeller wear rings

a. The impeller shall be double-suction enclosed type, hydraulically and dynamically balanced, keyed to the shaft, and fixed in the axial position. Impeller shall be fit with two (2) impeller wear rings of material identical to the impeller. Wear rings shall be easily replaceable.
b. Impeller and impeller wear rings as standard are made of Stainless Steel CF8 (304). Other impeller and impeller wear rings materials are available upon request:
    i. ASTM A743 CF8 (304 SS)
    ii. ASTM A743 CF8M (316 SS)
    iii. ASTM A743 2205 Duplex SS
    iv. ASTM A743 2507 Super Duplex SS
c. Impellers shall be dynamically balanced in accordance with ISO G6.3 guidelines. Other impeller balancing grades are available upon request:
    i. G2.5
    ii. G1.0

3. Volute casing

a. The volute shall be of horizontal split case design with mounting feet integral cast into the bottom half of the casing. Suction and discharge flanges shall be on a common centerline in both horizontal and vertical planes. The volute shall include a priming port, gauge ports at inlet and discharge nozzles, drain ports, and a venting port. The upper casing shall be capable of being removed without disturbing piping connections or electrical motor connections.
b. The casing shall be of sufficient strength, weight, and thickness to ensure long life and reliable operation. The volute shall have smooth fluid passages large enough at all points to pass any size solid which can pass through the impeller and provide smooth unobstructed flow. The casing shall be hydrostatically tested as below:
    i. For 125 flange rating and 175 psi design pressure, casing shall be pressure tested at 263 psi for 10 minutes.
    ii. For 250 flange rating and 400 psi design pressure, casing shall be pressure tested at 600 psi for 30 minutes.
    iii. For 250 flange rating and 450 psi design pressure, casing shall be pressure tested at 675 psi for 30 minutes.
c. Volute as standard shall be made of ASTM A48 Cast Iron Class 35 or ASTM A536 Ductile Iron 65-45-12. Other volute materials are available upon request:
    i. ASTM A743 CF8M 316 SS
    ii. ASTM A743 2205 Duplex SS
    iii. ASTM A743 2507 Super Duplex SS

d. The casing shall be fitted with ASTM B584 C90300 bronze wear rings as standard. Other casing wear ring materials are available upon request:
    i. ASTM B584 C90300 Bronze
    ii. ASTM A743 2205 Duplex SS
    iii. Nitronic 60
e. Casing flanges shall support the max working pressure and design condition of the pump.
    i. Flange sizes below 28” shall be drilled to Class 125 or Class 250 per ANSI B16.1 standards.
    ii. Flange sizes equal to or greater than 28” shall be drilled to Class 125 or Class 250 per AWWA C207 (Classes D and F) standards.

4. External flush lines

a. The pump shall be furnished with external flush lines mounted to the vent port located atop the upper casing. Flush lines shall feed directly to the seal chamber to lubricate and cool seal elements. Flush line elements as standard shall be made of ASTM A743 CF8 (304) stainless steel. Other flush line materials are available upon request:
    i. ASTM A743 CF8M (316 SS)

5. Shaft and shaft slaves

i. The impeller shaft shall be rigid with a non-stepped design and provide high resistance to shaft deflection. The impeller shaft shall be AISI standard 4140 steel and protected by 304 stainless steel shaft sleeves. The shaft sleeves shall completely protect the shaft from fluid handled by the pump. A seal shall be established by an FKM rubber O-ring and PTFE gasket. The shaft sleeves shall be keyed to the shaft and locked in place axially with a sleeve nut that is threaded onto the shaft.
ii. Shaft sleeves as standard shall be made of ASTM A743 CF8 stainless steel (304). Other shaft sleeve materials are available upon request:
    - ASTM A743 CF8 (304 SS)
    - ASTM A743 CF8M (316 SS)
    - ASTM A743 2205 Duplex SS

6. Bearing housings

a. Bearing housings shall support heavy duty, single-row, ball bearings. Bearings shall be regreasable. The inboard bearing will absorb thermal expansive forces while the outboard bearing will be locked into place to absorb radial and thrust loads. Bearings shall be replaceable without disturbing the system piping.
b. Both bearing housings shall contain two (2) drilled ports for temperature monitoring and three (3) ports for dual-axis vibration monitoring.
c. Bearing housings shall be sealed with cast iron labyrinth seals.
d. The gap between the bearing housing and pump shall be fitted with a sheet metal shaft guard.
e. Bearings as standard shall be grease lubricated. Option available for oil lubrication upon request.
f. Oil lubrication will include inpro bearing isolators as standard.

7. Bearings

a. The outboard end bearing of the pump is 4-way locked in place and locates the pump shaft.
b. The inboard end is designed with a limited degree of float as recommended by the bearing manufacturer and the pump is designed with said float in mind.
c. Despite having no theoretical axial load, we also consider 20% of the hydraulic load applied to the impeller shroud from the discharge side as a factor of safety against imbalanced loads and ensure the resulting.
d. Bearings shall be designed for an L10 life of 100,000 hours at shutoff.

8. Baseplate

a. Baseplate shall be structural steel or fabricated steel channel with fully closed sides and ends. Cross members shall be securely welded and the grouting area shall be fully open.
b. Baseplate shall be field grouted.
c. The combined pump, motor and baseplate assembly shall be sufficiently stiff to limit vibration.
d. Baseplate shall be fitted with eight (8) motor alignment screws for standard motors above 215 frame size.
e. Optional drip pan made of galvanized steel available upon request.

9. Coupling and guard

a. Couplings shall be flexible non-spacer type. Couplings are available as Rexnord Omega and Falk Steelflex®.
b. Couplings shall be shielded by an ANSI B11.19-2010, OSHA 1910.219, and ISO 14120:2015 compliant coupling guard. The guard shall be sheet metal, painted orange and completely protect all rotating elements between the motor and pump.
c. Coupling shall be installed when a complete pump set is purchased. Complete pump sets will be rough aligned at the factory aligned prior to shipment.
d. Final alignment shall be done in the field by others as part of the installation process

10. Pump sealing

a. MR4 Rubber Bellow Seal - Seal sizes equal to or below 4 in.
    i. Pump shall be equipped with a pair of externally flushed mechanical seal assemblies.
    ii. Seal assemblies shall be unbalanced unitized rubber bellow type.
    iii. Seal assemblies as standard shall be Carbon/Silicon Carbide/EPDM where a carbon face rotates against a stationary silicon carbide face. Seal elastomers shall be made of EPDM rubber. Seal housing shall be 304 Stainless Steel construction.
    iv. The seal shall be rated for 175 psig (12 bar) working pressure.
b. MR3 Metal Pusher Seal - Seal sizes up to 8.25 in.
    i. Pump shall be equipped with a pair of externally flushed mechanical seal assemblies.
    ii. Seal assemblies shall be balanced metal pusher type.
    iii. Seal assemblies as standard shall be Carbon/Silicon Carbide/EPDM where a carbon face rotates against a stationary silicon carbide face. Seal elastomers shall be made of EPDM rubber. Seal housing shall be 316 Stainless Steel construction.

iv. Seal assemblies upgrades also available as Silicon Carbide/Silicon Carbide/EPDM, Carbon/Silicon Carbide/FKM and Silicon Carbide/Silicon Carbide/FKM upon request.
v. The seal shall be rated up to 450 psig (31 bar) working pressure.

c. Packing
   i. Pump shall be sealed with packing.
   ii. Packing shall be Style 608D graphite packing with PTFE lantern ring.
   iii. The packing shall be rated to 300 psig (20.7 bar) working pressure.

d. Alternative options from John Crane and Chesterton are available upon request.
   i. John Crane
      • Cartridge seal: Type 5610, 5610Q & 561
   ii. Chesterton
      • Cartridge seal: Type 155 & 255

11. Paint

a. Non-Duplex Stainless Steel pumps and non-Stainless Steel pumps shall be painted with at least one coat of high-grade Pantone Blue RAL 5015 Enamel paint under product code 72-3162 prior to shipment:

Liquid paint standards:		**Cured film properties:**	
Gallon weight (lbs./gallon)	9.10 +/- .2	**At 1.5 mil dry film thickness over Bondrite 1000 Panel**	
Weight solids	34%+/-2%	60° Gloss ASTM D-523	60 +/- 5
Volume solids	25%+/-2%	Hardness ASTM D 3363	H-2H
Viscosity #4Zahn@. 77°F	20"-25"	Adhesion ASTM 3359	5B (100%)
VOC sans water	2.74 lbs.gl	Impact resistance direct ASTM D 2794	100 in/lbs.
VOC as supplied	1.12 lbs.gl	Humidity resistance ASTM D 4585	500 hours
		Degree of blistering ASTM D 714	None
		Salt Spray ASTM B 117	500 hours
		Creepage, method 2	1/16" - 1/8"

b. The pump end only has external primer Kem Kromik Universal Metal Primer Brown.

12. Testing

a. Pumps shall be hydrostatically tested to the criteria stated in 3B above
b. Certified hydrostatic test is available upon request.
c. Certified performance testing (head/flow/efficiency and NPSH) per Hydraulic Institute 14.6 standards is available upon request. Pumps shall be tested to performance acceptance grade 2B as standard. Other performance acceptance grades such as 1B and 1U are available upon request.
d. Testing is available as either non-witness or witness testing.
e. Xylem Professional Engineer certification of test results is available upon request.
f. Performance testing shall be conducted with factory test motors as standard.
g. Option for testing using job motor will require Xylem's review and approval of acceptance test criteria.

13. Sensors

a. The pump shall include Xylem optimyze® Condition Monitoring Sensor(s).
b. The pump shall also be built with optional sensor interfaces for condition monitoring and allow connectivity to an intelligent plant monitoring and/or diagnostic system.

14. NSF/ANSI 61 & NSF/ANSI 372 – CSA group certified[1]

a. NSF/ANSI/CAN 61 (Drinking Water System Components – Health Effects) are certification standards for products that come into contact with drinking water which ensure a product is safe for potable water applications.
    i. CSA Group File Number: 009553_0_000
    ii. CSA Group Class Number: 6861-08
b. NSF/ANSI/CAN 372 (Drinking Water System Components — Lead Content) verifies the lead content within drinking water products to ensure they are safe as defined by the Safe Drinking Water Act. These requirements are based on EPA and Health Canada requirements.
    i. CSA Group File Number: 009553_0_000
    ii. CSA Group Class Number: 6853-01
c. Certification to both NSF/ANSI/CAN 61 and 372 standards can be provided upon request for pump selections using the materials below:
    i. Standard construction (dry shaft):
        - Casing: Cast iron, ductile iron or CF8 (316 SS)
        - Impeller and impeller wear rings: CF8 (304 SS) or CF8M (316 SS)
        - Casing wear rings: Bronze, 2205 (duplex) SS or Nitronic 60
        - Mechanical seals: MR3 (C/SiC/EPDM or SiC/SiC/EPDM) metal pusher seals or MR4 (C/SiC/EPDM) rubber bellow mechanical seals
        - Cartridge seals: John Crane 5610 (C/SiC/FKM, C/SiC/EPDM, SiC/SiC/FKM or SiC/SiC/EPDM) or Chesterton 155 (C/SiC/EPDM or SiC/SiC/EPDM)
d. An optional internal epoxy coating (Scotchkote 134) is available.

[1] For the official certification listing, please visit www.csagroup.org and enter the file and class numbers on the CSA Group Product Listing page.

To learn more about e-XC Pumps

Xylem Product Cybersecurity

Xylem values your system security and the availability of your critical services. For more information on Xylem cybersecurity practices or to contact the cybersecurity team please visit **xylem.com/security.**

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