

Xylem A-C Custom Pump

Custom-engineered large-volume pumping solutions

150 years of custom pump expertise

Our legacy of engineered custom pump solutions runs deep, originating with Allis-Chalmers and evolving through ITT A-C Pump and Flygt A-C Pump to today's Xylem. Across generations and names, one thing has remained constant: **our commitment to building tough, high-performing pumps for the world's most demanding water applications.**

Our reference list, on-time delivery, equipment performance, and installation and service support have earned us a reputation for reliability around the world.

When off-the-shelf won't cut it and the job demands volume, power and precision, we're here with proven expertise and a portfolio backed by decades of successful installations.

Explore our custom pump solutions and their broad range of applications

Dry pit pumps provide non-clog pumping of wastewater and other non-corrosive liquids with soft solids in suspension. Typical applications include:

- Wastewater treatment influent and sludge
- Raw water intake
- Stormwater runoff

Split-case pumps move large volumes of both clean and surface water for municipal facilities, power generation, agriculture and industry. Typical applications include:

- Water supply
- High-service effluent pumping
- Cooling water circulation
- Process water
- River and sea water
- Irrigation
- Desalination
- Dewatering

Vertical column pumps have open or enclosed line shafts for pumping in municipal water, power generation, agriculture and industry. Typical applications include:

- Circulating water and cooling towers
- Irrigation
- Stormwater and flood control

Horizontal axial flow pumps transport exceptionally high flows at low heads. Typical applications include:

- Stormwater and flood control
- Irrigation
- Canal and tunnel flushing



Dry pit pumps

NS series



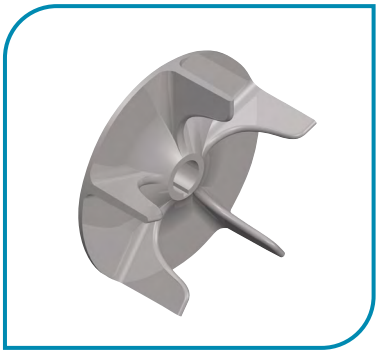
A-C Custom Pump NS series dry pit pumps are robust end suction pumps that provide efficient solids handling in fluids ranging from raw water and wastewater to activated and digested sludge. They are available in NSW, NSX and NSY models to fit the needs of small and mid-sized municipalities.

The pumps' heavy-duty cast construction minimizes vibration while an optional immersible motor provides continued operation in the event of dry pit flooding. The result is reliable, trouble-free operation.

Non-clog impeller

The NS series dual-vane non-clog impeller features smooth water passages capable of passing soft solids without clogging. Impeller clearance is easily adjusted without disassembling the pump. Wear plates come standard in hardened 410 stainless steel on both the suction cover and impeller.

The NSX model is also available with a unique Shearpeller impeller designed to handle fluids containing abrasives, large stringy solids, high concentrations of suspended solids, and up to 20% vapor. Ideal for digester sludge and grit services, this non-clog design offers greater solids handling capability than standard non-clog impellers and higher efficiency than fully recessed impellers.



Shearpeller impeller design for large solids and abrasives

Dynamic sealing

NS series pumps can be fitted with the Equiseal flushless dynamic seal in place of traditional packing or mechanical seals. In addition to providing longer life, Equiseal conserves water and decreases infrastructure and maintenance costs.

Flexible configuration options

NS series centrifugal pumps can be supplied for horizontal or vertical installation and clockwise or counterclockwise rotation. The discharge nozzle can be arranged in any one of eight positions for either rotation, to suit the piping arrangement.

Capacities and sizes

	Max flow		Max Total Dynamic Head (TDH)		Discharge size	
Model	US GPM	m^3/h	ft	m	in	mm
NSW	6,500	1,500	250	75	4–12	100–300
NSX	4,000	900	100	31	4–8	100–200
NSY	20,000	4,500	100	31	10–24	250–600

Dry pit pumps

SS series and WSY

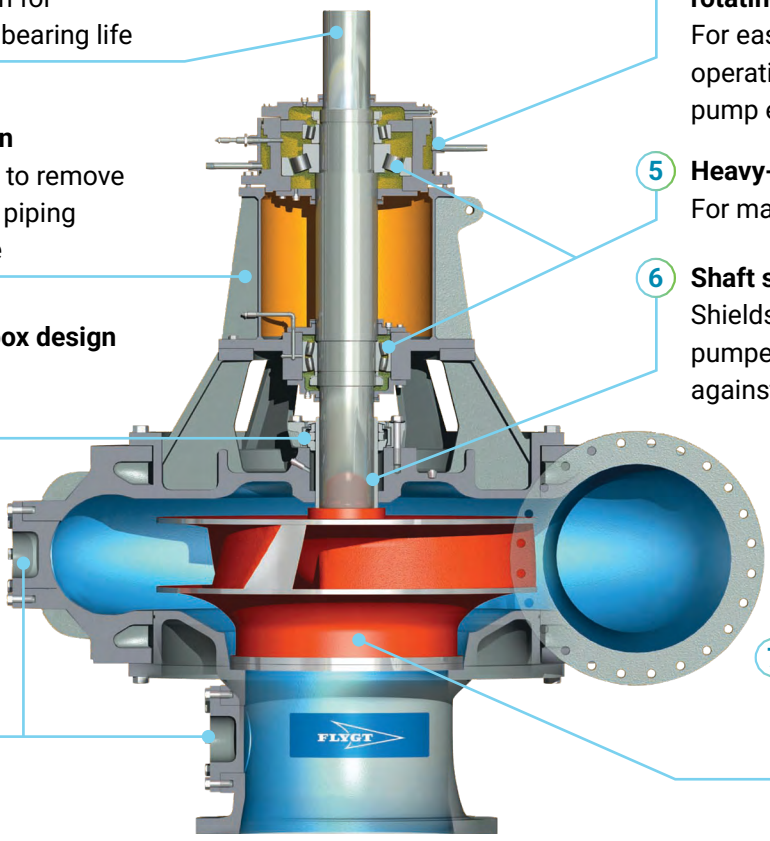
The A-C Custom Pump SS series and WSY dry pit pumps provide end suction pumping for high flow capacities. The broad range of options for materials, impellers, housings, seals, bearings, bearing lubrication and drivers makes them suitable for most large water, wastewater and industrial effluent pump applications.

As custom-designed pumps, they can be tailored to meet specific duty points while maximizing overall pumping efficiency.



Capacities and sizes

	Max flow		Max Total Dynamic Head (TDH)		Discharge size	
Model	US GPM	m^3/h	ft	m	in	mm
SSE	90,000	20,500	120	37	18–42	457–1067
SSF	70,000	16,000	230	70	12–30	305–762
SSVF	1,800,000	410,000	800+	240+	Up to 216	Up to 5500
WSY	180,000	48,900	120	37	24–54	610–1372



3 **Large shaft diameter**
Minimizes deflection for extended shaft and bearing life

2 **Back pull-out design**
Eliminates the need to remove the casing from the piping during maintenance

1 **Universal stuffing box design**
Accepts packing or mechanical seal

8 **Access ports**
Simplify hydraulic inspection

4 **Externally adjustable rotating assembly**
For easy renewal of critical operating clearances and pump efficiency

5 **Heavy-duty bearings**
For maximum life expectancy

6 **Shaft sleeve**
Shields the shaft from the pumped media and protects against wear at the stuffing box

7 **Contoured impeller nut**
Prevents debris from getting caught

Split-case pumps

9800 WS



A-C Custom Pump 9800 WS double-suction split-case pumps deliver long, reliable service life and industry-leading efficiency for pumping large volumes of clean water and surface water.

Custom engineered for high efficiency

9800 WS pumps can achieve pumping efficiency of up to 91%, delivering significant operating cost savings. Built on high-performance double-suction impellers that balance axial thrust, these pumps minimize vibration. Even under difficult suction conditions, low impeller inlet velocities ensure superior performance and quiet operation.

Flexible configuration options

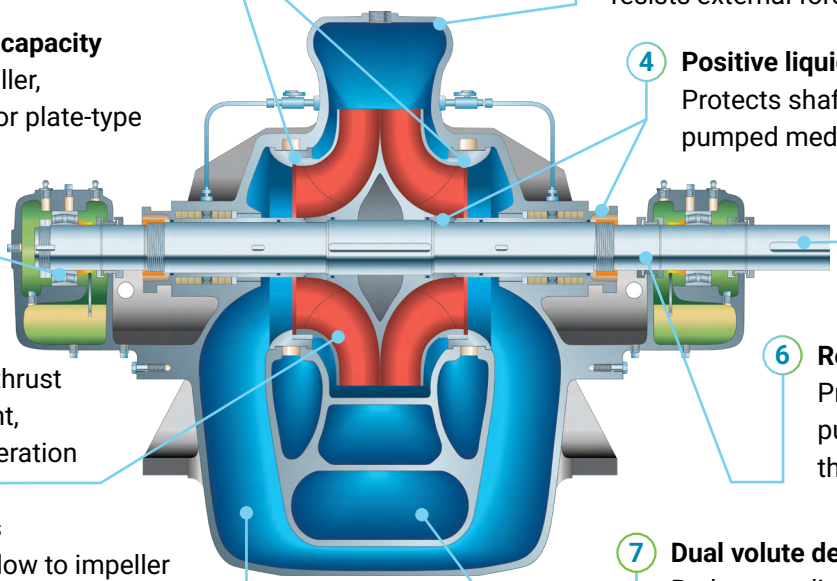
As customized pumping solutions, A-C Custom Pump split-case pumps can meet a range of installation and operating requirements. They are available for horizontal or vertical installation, with side or bottom suction. They can be manufactured to meet NSF/ANSI 61 standard requirements for drinking water applications.

Capacities and sizes

- Flows from 10,000 to 220,000+ US GPM (2,000 to 50,000+ m^3/h)
- Heads from 10 to 600 ft (3 to 175 m)
- Discharge sizes from 16 to 66 in (406 to 1676 mm)
- Speeds from 245 to 880 RPM

Convenient maintenance

Split-case pumps are designed for easy access to the interior components, with an upper casing half that can be quickly removed for inspection or maintenance without the need to disturb the piping, driver or alignment.



2 **Renewable case and impeller wear rings**
Allow easy maintenance of running clearances

3 **Heavy-duty casing**
Withstands pressure extremes; resists external forces and vibrations

1 **High thrust load capacity**
With spherical roller, double row ball, or plate-type thrust bearings

4 **Positive liquid sealing**
Protects shaft and threaded area from pumped media and corrosive attack

5 **Heavy-duty shaft**
Reduces deflection

9 **Double suction impeller**
Minimizes axial thrust for highly efficient, vibration-free operation

6 **Renewable shaft sleeves**
Protects shaft from pumped media and threaded areas from stress

8 **Large inlet areas**
Ensure smooth flow to impeller inlet for efficient, quiet operation

7 **Dual volute design (depending on size)**
Reduces radial loads, minimizes shaft deflection, and accommodates a wide range of flow rates

Vertical column pumps

WCAX, YDD, WCA, WCF, WCB, WMCC, WMCE



Large custom vertical column pumps from Xylem A-C Custom Pump provide trouble-free operation and industry-leading efficiency of up to 92%.

The heavy-duty construction, cast bowl components and conservative mechanical design minimize vibration on these high-capacity pumps. Semi-enclosed and enclosed impeller options are available in single-and multi-stage configurations to cover a wide range of operating conditions.

Flexible configuration options

A-C Custom Pump vertical column pumps are available in above-floor or below-floor discharge configurations, or in two-floor installations, with thrust bearings in the pump or motor. The enclosed line shaft design protects the pump from fluids containing sand or silt, while open line shaft designs are available for process lubricated applications.

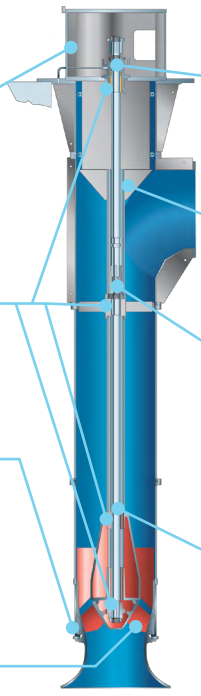
Metallurgies include various cast irons and stainless steels to meet application-specific requirements.

Removable rotating element

The vertical pumps with semi-enclosed impellers are engineered with a pull-out rotating element that substantially reduces maintenance and downtime costs. This allows removal of the inner element without disturbing the suction bell, column pipes, discharge elbow and discharge piping. Since the inner element is completely removable through the top of the pump, there is also no need to drain or enter the sump during maintenance.

Capacities and sizes

- Flows up to 600,000+ US GPM (136,000+ m^3/h)
- Total Dynamic Head (TDH) up to 600 ft (180 m)
- Discharge sizes 32 to 156 in (813 to 3962 mm)



1 **Heavy-duty driver pedestal**
Provides convenient access to the pump coupling and stuffing box

2 **Split-gland stuffing box**
Simplifies packing adjustment and replacement

3 **Shaft tube (option)**
Protects shaft from the pumped media

3 **Intermediate coupling (option)**
Solid sleeve design provides rigid transmission of power and torque

4 **Hardened alloy shaft sleeves**
Prevent shaft wear and extend service life

6 **Single suction or mixed flow impeller**
Overhung for high efficiency and to defend against clogging; balanced to ISO/ANSI G2.5 standards

7 **Impeller cone**
For long wear life and economical renewal of clearances

8 **Upper and lower bearings**
Optimized using lateral critical speed analysis; intermediate bearings also available

Horizontal axial flow pumps

WCXH



A-C Custom Pump's horizontal axial flow pumps deliver proven performance and efficiency for exceptionally high flows at low heads. The rotating element sits high and dry during idle periods, away from the corrosive effects of the pumped water. This extends pump life during intermittent operation.

The between-bearing design reduces vibration and lessens deflection at the impeller compared to an overhung design, and the complete rotor can be dynamically balanced to ISO 21940-11 grades.

Customized flood control pumping

The choice of suction bell or formed suction intake, impeller and bowl materials, discharge arrangement, and pump drive source allow the pump to be optimized for specific site requirements and operating conditions. For highly demanding applications, a trash cutter option can be added to chop up large solids and help deliver reliable performance.

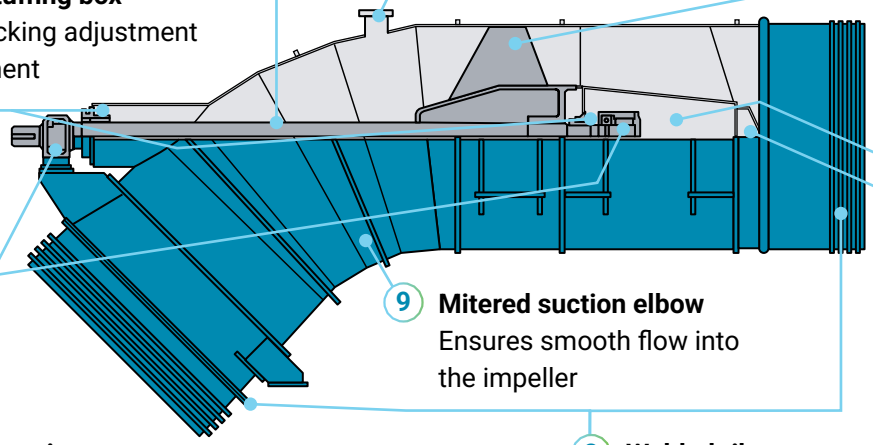
Cost-effective installation and maintenance

Because the horizontal pump sits out of the water, sump excavation is reduced. The need for gates, stop plugs and dewatering systems to perform maintenance is also eliminated, further reducing construction costs.

The horizontal split casing of the WCXH provides ease of maintenance; the top casing can be fully removed to expose the complete rotating assembly.

Capacities and sizes

- Flows from 30,000 to 500,000+ US GPM (7,000 to 115,000+ m^3/h)
- Heads up to 26 ft (8 m)
- Discharge sizes up to 132+ in (3352+ mm)
- Speeds from 100 to 135 RPM



3 **Alloy steel shaft**
Designed with lateral and torsional critical speeds safely above the pump operating speed

4 **Large priming connections**
For evacuation of air during pump start

5 **Open single-suction impeller**
Excellent suction lift characteristics

2 **Split-gland stuffing box**
Simplifies packing adjustment and replacement

6 **Heavy-wall steel diffuser**
Split along the shaft for easy removal and access to bearings

7 **Nose cone**
Guides flow into the discharge tunnel for high efficiency

9 **Mitered suction elbow**
Ensures smooth flow into the impeller

1 **Anti-friction bearings**
In split housings for easy inspection and maintenance; available with temperature and vibration sensors

8 **Welded ribs**
Ensure positive engagement of suction and discharge pieces with the concrete

Keep your custom pumps running for decades to come

Xylem's aftermarket and service group can establish a service plan to reduce your operating costs, maintenance costs and downtime. Highly qualified engineers and technicians, using modern analytical processes, can evaluate your pump operation, recommend a course of action, and promptly deliver on repairs or replacement.

Custom engineering and pump upgrades

Add years of operation to the life of your pump – and increase efficiency, capacity and reliability – with a hydraulic or mechanical redesign to an upgraded rating. Minimize downtime from repeat component failures by upgrading to corrosion/erosion-resistant materials.

Pump reconditioning

Restore your pump to original specifications for improved performance, extended pump life, and lower operating costs.

Diagnostic field service and engineering

Leverage Xylem expertise for on-site inspection, analysis and diagnosis; installation and removal services; repair supervision; and pump overhaul. We can also provide engineering startup assistance, vibration analysis, 3D modeling, finite element analysis and computational flow dynamics (CFD) analysis.



Xylem A-C Custom Pump solutions are backed by full-scale testing capabilities, so each pump's performance can be accurately certified before it leaves our facilities.

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