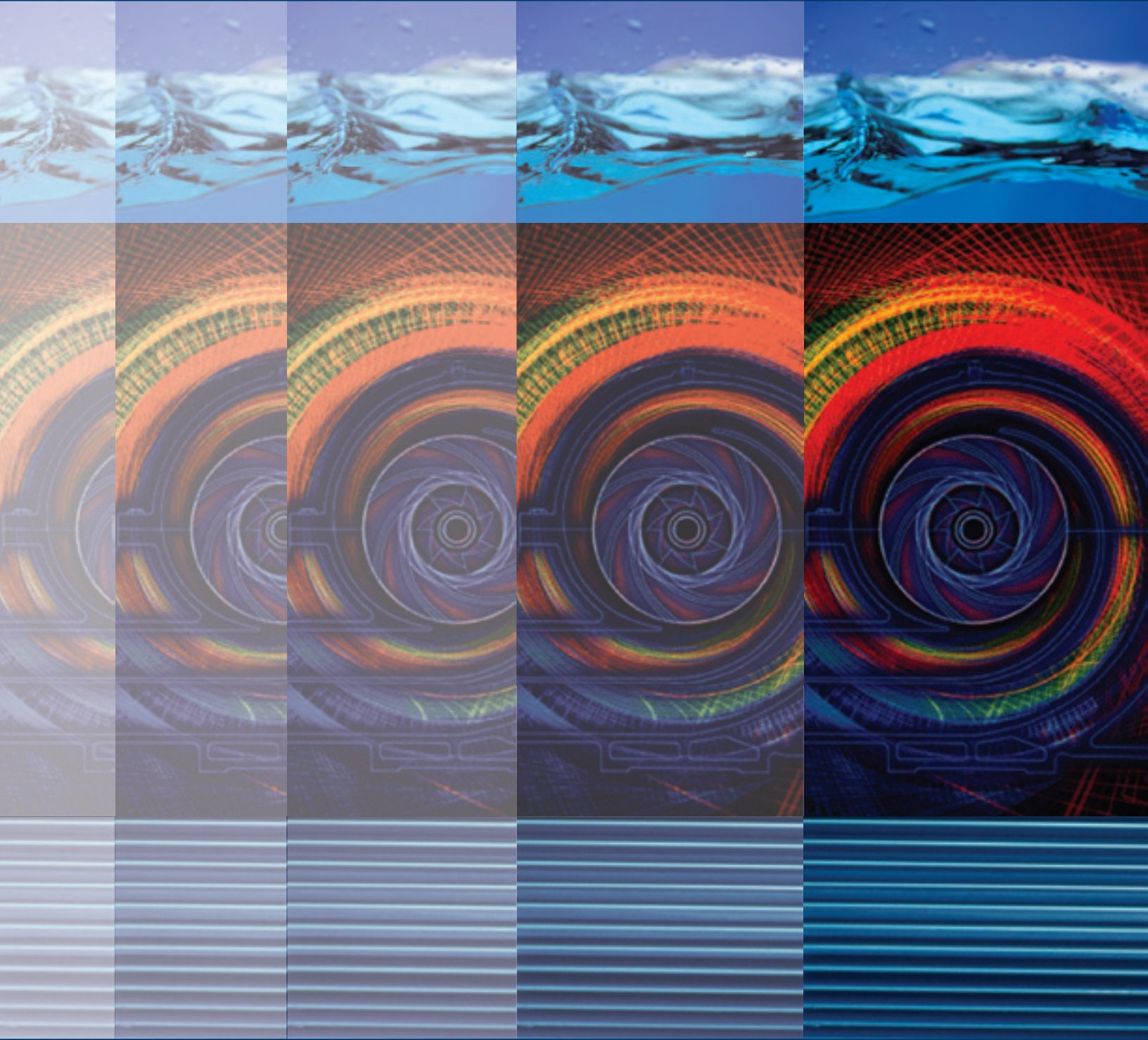



# PACO ALL PRODUCTS BROCHURE



BE > THINK > INNOVATE >

GRUNDFOS 



**P**umps are literally the heart of fluid movement in the commercial/municipal infrastructure. We depend on pumps to move fluids that enhance human comfort, health, safety and productivity.

Grundfos CBS Inc. is poised to meet the industry's demand for the availability of reliable, energy efficient pumps and has built a network of worldwide distribution and multi-plant manufacturing that offers one of the finest, most complete lines of premium efficient pumps and pumping systems.

To ensure that you are specifying the optimal pump for your applications, we encourage you to contact your nearest Grundfos CBS Inc. branch office, distributor, or representative; or, visit us at [www.pacopumps.com](http://www.pacopumps.com). We can provide you with technical and applications expertise to help you choose the pump best suited for any particular application.





## OVERVIEW

Grundfos CBS Inc. manufactures and markets the PACO line of pumps, one of the world's finest and most complete lines of centrifugal pumps and pumping systems.

The materials and workmanship that go into each pump are thoroughly inspected and tested to exacting standards prior to its final assembly and shipment.

We utilize and maintain modern quality control procedures and testing facilities, and the PACO manufacturing plant, located in Brookshire, Texas, is ISO 9001 certified.

## OUR COMMITMENT

Grundfos CBS Inc. is committed to advancing pump technology and providing its customers with the most efficient pumps on the market.

Using computer aided design technology and intensive engineering efforts, we have developed the industry's leading premium efficient, "SMART" centrifugal pumps.

The innovative design of our pump and impeller produces a higher operating efficiency – up to 91 percent – and provides a wider band of best operating efficiency, even during conditions of off-design operation.

The double volute design – which offsets radial thrust forces on the shaft and impeller and reduces radial load – has been extended throughout the product line, including the End Suction, Inline, and Double Suction Split Case pumps.

Quite simply, the PACO line of pumps is the smart choice for lower initial cost, longer pump life, reduced operating and maintenance costs, maximum reliability, and quieter operation.

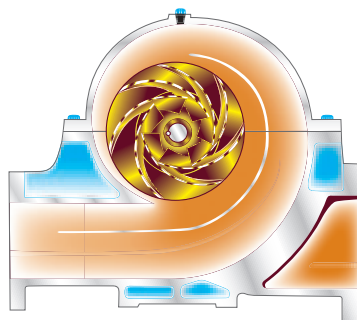
## SUPERIOR CUSTOMER SERVICE AND SUPPORT

Grundfos CBS Inc. has an established network of sales and service representatives throughout the world who are dedicated to providing customers with superior service and product support.

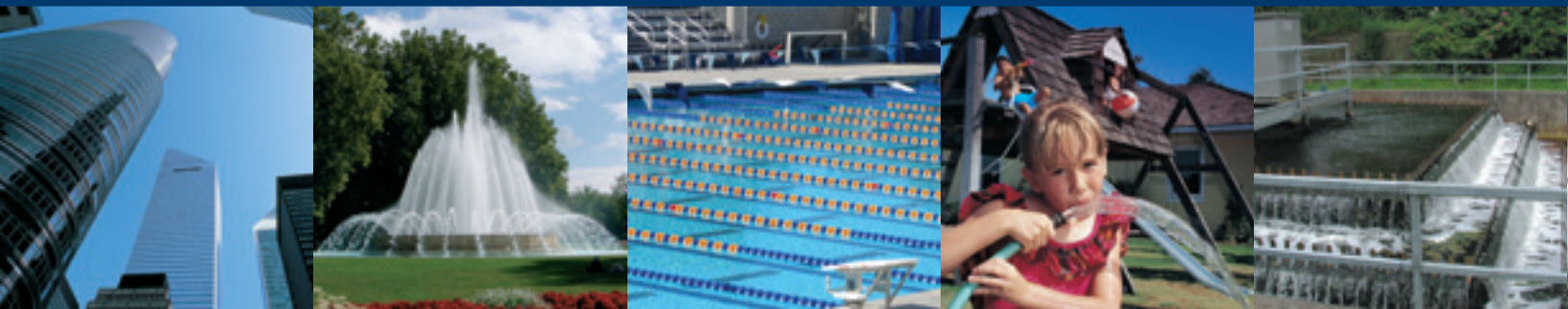
Our offices are staffed with experienced pump specialists who are trained and have extensive knowledge in pump applications and pumping system assessment.

Comprehensive sales literature available for each product illustrates the quality of our pumps and provides required engineering data.

We are committed to providing you with tools and software for all your pump needs. Hydraulic selection software, energy savings analysis tools, engineering calculations, CAD drawings, dimension sheets, specifications manuals, and parts guides are just a click away at [www.pacopumps.com](http://www.pacopumps.com).



*The double volute design for the KP/KPV Double Suction Split Case Pumps*



### **HVAC**

Building owners and managers throughout the world have come to depend on the PACO line of pumps for their quality, reliability, and premium design efficiency in providing chilled water, condenser water, hot water circulating, boiler feed, deaeration service, and condensate return systems.

For all heating, ventilating, and air conditioning (HVAC) applications, our products are the smart choice: energy-efficient designs lower operating costs, a double volute design lowers maintenance costs, and design simplicity lowers the overall product costs.

### **PLUMBING**

Grundfos CBS Inc. produces a full line of pumps designed to meet the plumbing requirements for all types of structures in the commercial building services industry.

From water pressure booster systems and drainage sump pumps to wastewater removal and sewage transport, our pumps can be trusted to deliver dependable results during peak demand.

### **RECREATION**

The PACO line of pumps are used worldwide to move water for visual effect and recreational enjoyment and for the circulation of water: from the thrill of a water slide to the enjoyment of an Olympic-sized swimming pool.

These pumps are also used to create a mood: from the tranquility of a brook or waterfall to the excitement of a simulated volcanic eruption.

Hotels, resorts, condominiums, office buildings, theme parks, universities, and municipalities rely on the PACO line of pumps from Grundfos CBS Inc. for the filtration, circulation, and general aesthetics of their waterscapes, lakes, streams, swimming pools, fountains, and water slides.

The PACO line of pumps are also NSF-50 certified for use in commercial swimming pools and spas.

### **WATER**

We take an ever-increasing position in delivering water to homes each day: water used to drink, bathe, dispose of our waste, and irrigate our lawns and fields. The PACO line of pumps fully comply with all known state-mandated drinking water regulations, helping to ensure clean, lead-free drinking water.

As providers of pumps and pumping systems to municipal and industrial users for water treatment installations, we share the environmental concerns for water resources. The Clean Water Act and other legislation have increased the demand for high-quality, energy-efficient pumps to service water treatment and wastewater treatment plants.

Grundfos is one of the first pump companies to acquire NSF-61 Certification for Drinking Water System Components. This certification is available for many of the Grundfos CBS Inc. products and ensures that the materials used to manufacture our pumps do not contaminate the water supply.



### **WASTEWATER**

PACO non-clog pumps are used in the collection and treatment of wastewater in urban and rural municipalities across the globe. Treated water is reclaimed and “reused” for irrigation and aquifer protection to conserve clean water resources.

### **IRRIGATION AND AGRICULTURE**

Grundfos CBS Inc. offers a wide range of pumps and pumping systems for professional irrigation of farmland, sports stadiums, golf courses, parks, and vineyards.

The PACO line of premium efficiency pumps help the end user to irrigate their fields more effectively, which increases productivity and reduces energy costs and fuel consumption. These pumps also irrigate a multitude of crops, helping to contribute to the growth of the world’s food supply.

Both electric and engine-driven PACO irrigation pumps are operating in flood and tail waters and sprinkler irrigation systems throughout the world.

### **GENERAL INDUSTRY**

Grundfos CBS Inc. manufactures a diverse selection of pumps designed to handle the most common general service applications found in industry.

The PACO line of Pumps are an excellent choice for typical transfer pumping and booster service applications as well as for non-critical site service in the oil production and refining industries.

The PACO horizontal split case, end suction, and inline pumps are excellent choices for heat rejection applications for automated machinery in manufacturing. Grundfos CBS Inc.’s specialty

pumps are used in automotive spray booths to assist in providing the highest quality paint finish for new cars.

In addition, Grundfos offers a full line of pump models and sizes to meet the needs of Original Equipment Manufacturers (OEMs). Our PACO line of pumps features a compact design, reliable operation, competitive pricing, and dependable customer service.

### **STEEL**

Steel mills utilize the PACO line of pumps for steel processing requirements. The double suction split case pumps provide water to spray units for cooling steel during the manufacturing process. Submersible pumps are used for dewatering service from scale pits to remote retention ponds.

### **POWER**

Producing pumps for power plant operations is our specialty. The PACO product line includes pumps for condensate, circulating, screen wash, cooling tower, makeup, service water, heater drain, and ash handling applications.

### **SEMI-CONDUCTOR**

The electronics industry relies on our pumps to help maintain a controlled temperature environment in their offices and clean room manufacturing facility. Our domestic water booster system provides potable drinking water for consumption, and sump and sewage pump systems collect and dispose of the facility’s waste.





### PRODUCT OVERVIEW BY MARKET

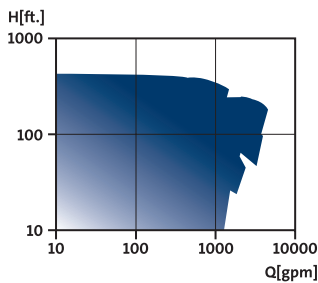
The PACO line of pumps are the preferred centrifugal pump choice for many market applications. Extensive product offerings with broad performance ranges make product selection an easy task. A summary of product suitability for various applications can be found on the following pages.

PRODUCT TYPE	PRODUCT DESCRIPTION	MARKET											
		HVAC	PLUMBING	RECREATION	WATER WORKS	WASTEWATER	IRRIGATION/AGRICULTURE	AQUACULTURE	GENERAL INDUSTRY	STEEL MILLS	POWER PLANTS	SEMI-CONDUCTOR	OEM
PACO LC, LCV	Close coupled end suction pumps	♦		♦	♦		♦	♦	♦	♦	♦	♦	♦
PACO LF	End suction pumps, frame mounted	♦		♦	♦		♦	♦	♦	♦	♦	♦	♦
PACO KP, KPV, KPH	Horizontal split case pumps	♦		♦	♦		♦	♦	♦	♦	♦	♦	♦
PACO VL, VLS	Vertical inline pumps	♦		♦	♦			♦	♦		♦	♦	♦
PACO VSM, VSMS	Vertical space miser pumps	♦							♦			♦	♦
PACO GR, GS	Condensate return pumps	♦	♦						♦				
PACO MiniFlo, PACOFlo	Booster packages		♦		♦	♦		♦	♦			♦	
PACO OLN, LN	Low NPSH centrifugal pumps	♦	♦				♦		♦			♦	♦
PACO OL	Two stage centrifugal pumps	♦	♦				♦	♦	♦			♦	♦
PACO PIP 500/700	Small sewage and effluent pumps		♦	♦		♦			♦	♦	♦		♦
PACO NC, NCD	Vertical column non-clog pumps		♦			♦			♦	♦	♦		
PACO SL, SLD	Vertical column sump pumps		♦						♦			♦	
PACO QDSC, NSC	Submersible non-clog pumps		♦			♦		♦	♦	♦	♦		
PACO SM	Submersible sump pumps		♦						♦			♦	♦
PACO NCH, NCF, NCP, NCU, NCVU	Dry-pit non-clog pumps					♦		♦	♦	♦	♦		



### PACO LC, LCV

Close coupled, single stage end suction pumps



#### Technical Data

Flow, Q: max 4,000 gpm  
 Head, H: max 400 feet  
 Liquid temp.: max 275° F  
 Working press.: max 175 psi  
 HP range: 1/3 to 125  
 Discharge sizes: 1" to 8"

#### Applications

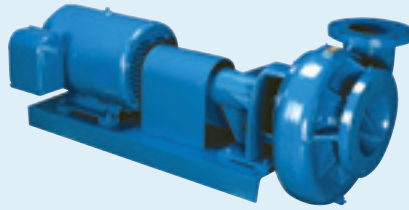
- Water circulation
- Pressure boosting
- Filter systems
- Cooling systems
- Water supply
- Washing systems
- Other industrial systems

#### Features

- Compact design
- Standard motor
- Short shaft design
- Vertical or horizontal mount
- Back pull out
- Double volute casing

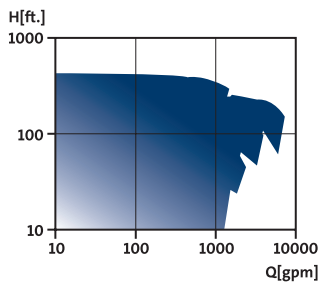
#### Optional

- Motor enclosures
- All iron or all lead-free bronze
- Seal materials and configurations
- NSF/ANSI-50 or NSF/ANSI-61 labels



### PACO LF

Frame mounted, single stage end suction pumps



#### Technical Data

Flow, Q: max 6,500 gpm  
 Head, H: max 400 feet  
 Fluid temp.: max 275° F  
 Working press.: max 175 psi  
 HP range: 1/3 to 300  
 Discharge sizes: 1" to 10"

#### Applications

- Water circulation
- Pressure boosting
- Filter systems
- Cooling systems
- Water supply
- Washing systems
- Other industrial systems

#### Features

- Heavy-duty frame, shaft, bearing
- Wide hydraulic range
- Flexible, coupled design
- Steel or cast-iron base plate
- Back pull out
- Double volute casing

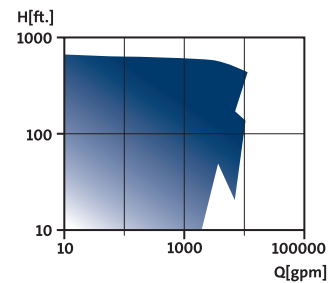
#### Optional

- Bearing frame lubrication
- All iron or all lead-free bronze
- Seal materials and configurations
- NSF/ANSI-50 or NSF/ANSI-61 labels



### PACO KP, KPV, KPH

Split case, double suction pumps



#### Technical Data

Flow, Q: max 20,000 gpm  
 Head, H: max 730 feet  
 Fluid temp.: max 300° F  
 Working press.: max 400 psi  
 HP range: 1 to 5,000  
 Discharge sizes: 2" to 20"

#### Applications

- Chilled water
- Condensate water
- Commercial pools and water parks
- Direct and indirect cooling water
- Service water
- Water distribution systems

#### Features

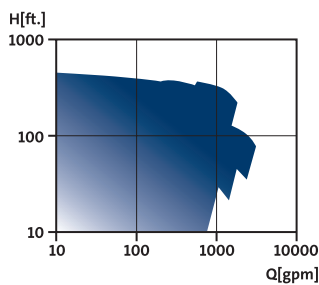
- Wide hydraulic range
- Multiple material constructions and sealing arrangements
- Self-contained bearing housing
- Compensated dual volute design
- Vertical or horizontal mount

#### Optional

- Bearing housing lubrication
- Materials of construction
- Seal materials and configurations
- NSF/ANSI-50 or NSF/ANSI-61 labels



**PACO VL, VLS**  
Vertical, in-line pumps



**Technical Data**

Flow, Q: max 3,900 gpm  
 Head, H: max 420 feet  
 Fluid temp.: max 275° F  
 Working press.: max 175 psi  
 HP range: 1/3 to 125  
 Discharge sizes: 1.25" to 10"

**Applications**

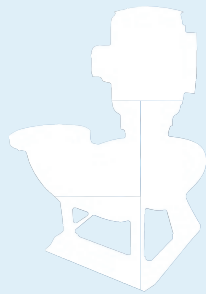
- Chilled water
- Condensed water
- Hot water
- Service water
- District heating systems

**Features**

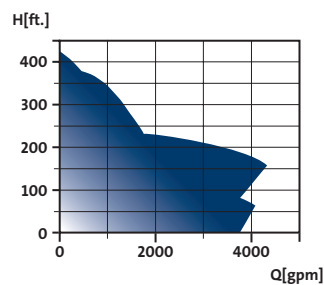
- Short shaft design
- Same-size suction/discharge connections
- Compensated dual volute design (3" and larger)
- Back pull out
- Small installation footprint
- Low noise

**Optional**

- Materials of construction
- Seal materials and configurations
- Support stand
- High pressure capabilities



**PACO VSM, VSMS**  
Vertical space miser pumps



**Technical Data**

Flow, Q: max 4,050 gpm  
 Head, H: max 400 feet  
 Fluid temp.: max 275° F  
 Working press.: 300+ psi  
 HP range: 2 to 125  
 Discharge sizes: 4" to 10"

**Applications**

- Chilled water
- Condensed water
- Hot water
- Service water
- District heating systems

**Features**

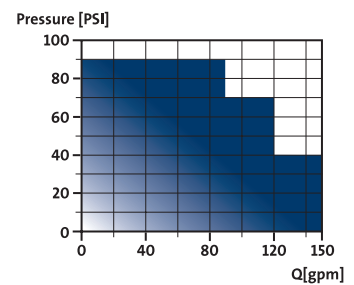
- Top suction/top discharge
- Small installation footprint
- Internal suction baffle
- Suction/discharge connections
- Back pull out
- Short shaft design

**Optional**

- Materials of construction
- Seal materials and configurations
- Motor enclosures



**PACO GR, GS**  
Condensate return units



**Technical Data**

Flow, Q: max 150 gpm  
 max 100,000 EDR  
 Fluid temp.: max 250° F  
 Discharge press.: max 90 psi  
 HP range: 1/2 to 10

**Applications**

- Condensate return

**Features**

- Receivers
  - GR: cast iron, 15 to 100 gallons
  - GS: 3/16" steel, 14 to 150 gallons
- PACO bronze-fitted pumps
  - Mechanical seal to 210° F
  - 2' to 4' Lo-NPSH bronze impeller
- Level controls
  - Duplex: mechanical float switch with alternator
  - Simplex: mechanical float switch
- Control panels
  - Simplex and duplex NEMA 4 w/UL
  - Typical controls and components

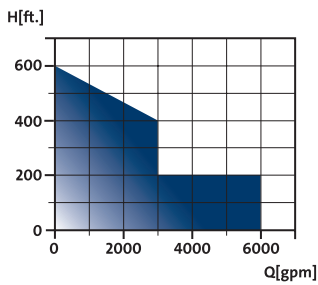
**Optional**

- Tank fittings and accessories
- Mechanical seal to 250° F
- Custom controls and receivers





**PACO MiniFlo, PACOFlo**  
Packaged water booster systems



**Technical Data**

Flow, Q: max 6,000 gpm  
 Head, H: max 600 feet  
 Fluid temp.: max 275° F  
 Working press.: max 400 psi  
 HP range: 1 to 60  
 Manifold sizes: 3" to 10"

**Applications**

- Commercial pressure boosting
- High-rise/apartment pressure boosting
- Industrial pressure boosting
- Municipal pressure boosting
- Primary/secondary HVAC
- Irrigation
- Water features

**Features**

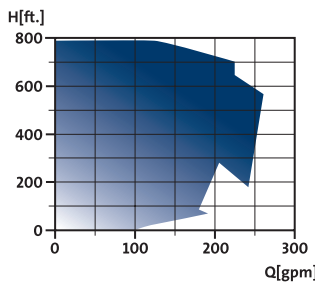
- Multiple pump configurations
- Utilizes PACO LC, VL, KP pumps; Grundfos CR pumps; and vertical lineshaft turbines
- Stainless-steel manifolds
- Factory assembled and tested
- PACOMONITOR™ Flow Sensor
- Programmable controllers

**Optional**

- Custom pump configurations
- Custom controls
- Accessories



**PACO OLN, LN, OL**  
Low NPSH centrifugal pumps



**Technical Data**

Flow, Q: max 250 gpm  
 Head, H: max 790 feet  
 Fluid temp.: max 250° F  
 Working press.: max 300 psi  
 HP range: 1 to 60  
 Discharge sizes: 1" to 2"

**Applications**

- Boiler feed
- Deaerator transfer
- Condensate return
- Pressure boosting
- Washing systems

**Features**

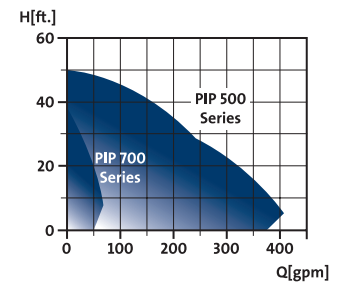
- Low NPSH requirements
- High performance
- Compact design
- Replaceable case wear rings
- Short shaft design
- Vertical or horizontal mount

**Optional**

- Materials of construction
- Seal materials and configurations
- Motor enclosures
- Alternate piping positions



**PIP500, PIP700**  
Small sewage and effluent pumps



**PACO PIP500**

Submersible non-clog pump

**Technical Data**

Flow, Q: max 400 gpm  
 Head, H: max 50 feet  
 Fluid temp.: max 150° F  
 HP range: 1/2 to 2  
 Discharge size: 3"  
 Solids size: max 2-1/2" dia.

**Features**

- Automatic level controls
- Oil-filled motors

**PACO PIP700**

Submersible effluent pump

**Technical Data**

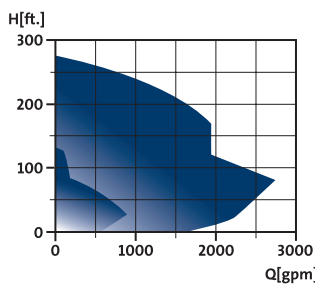
Flow, Q: max 70 gpm  
 Head, H: max 38 feet  
 Fluid temp.: max 120° F  
 HP range: 1/3 to 1/2  
 Discharge sizes: 1-1/2" to 2"

**Features and Benefits**

- Automatic level controls
- Oil-filled motors
- 115 volts, 60 hz



**PACO NC, NCD, SL, SLD**  
Vertical wet-pit column pumps



**PACO NC/NCD**  
Vertical column wet-pit non-clog pump

**Technical Data**

Flow, Q: max 2,800 gpm  
Head, H: max 220 feet  
HP range: 125  
Discharge size: max 6"  
Solids size: max 4"

**Features**

- Simplex and duplex configurations
- Bearing options to meet application
- Stainless-steel pump shaft
- Construction materials to meet application

**PACO SL/SLD**

Vertical column wet-pit sump pump

**Technical Data**

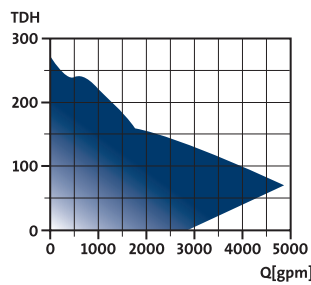
Flow, Q: max 800 gpm  
Head, H: max 125 feet  
Fluid temp.: max 150° F  
HP range: max 15  
Discharge sizes: max 4"

**Features**

- Simplex and duplex configurations
- Highly efficient, semi-open impellers
- Explosion-proof motors and float switches for hazardous locations
- Construction materials to meet application



**PACO QDSC, NSC, SM**  
Submersible sump and sewage pumps



**Technical Data**

Flow, Q: max 4,500 gpm  
Head, H: max 250 feet  
HP range: max 150  
Discharge sizes: 2" to 8"  
Solids size: max 4"

**Applications**

- Commercial sewage
- Municipal sewage
- Industrial sewage
- Drainage
- Effluent sumps
- Hazardous locations

**Features**

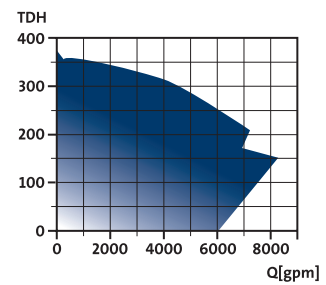
- Oversized bearings
- Oil-lubricated mechanical seals
- Moisture sensor probes for leak detection
- Class 1; Div. 1; Groups C & D explosion-proof motors
- Adjustable case wear ring
- Impeller designs to meet application

**Optional**

- Slide rail system
- Materials of construction
- Seal materials and configurations
- Control accessories



**PACO NCH, NCF, NCP, NCU, NCVU**  
Non-clog dry-pit pumps



**Technical Data**

Flow, Q: max 7,100 gpm  
Head, H: max 370 feet  
HP range: 500  
Discharge sizes: 2" to 10"  
Solids size: max 4-1/2"

**Applications**

- Lift stations
- Wastewater treatment plants
- Dewatering
- Industrial waste
- Water features
- Food processing

**Features**

- Oversized bearings
- Short shaft for minimal shaft deflection
- Regreasable, adjustable bearing frames
- Adjustable case and impeller wear rings
- Fabricated steel stand for vertical design

**Optional**

- Materials of construction
- Seal materials and configurations
- Pump accessories
- Impeller designs to meet application



## HVAC PIPING ACCESSORIES



### PACO PSD (Suction diffuser)

#### Features

- Eliminates need for 90° elbow, strainer, flow stabilizer, and reducer
- Simplifies pump installation
- Minimizes costs
- Promotes smooth, even flow profile
- Stainless-steel strainer
- 125# ANSI flanges
- Size 1-1/2" to 14"



### PACO CSB (Combination valve)

#### Features

- Functions as check valve, shutoff valve, and balance valve
- Simplifies pump installation
- Minimizes costs
- Promotes smooth, even flow profile
- Spring-loaded bronze disc minimizes chatter
- Vertical or horizontal orientation
- 125# ANSI flanges
- Size 2" to 14"

## AFTER SALES, PARTS AND SERVICE

Grundfos CBS Inc. is committed to after-sales service. Highly trained technicians can assist customers with initial start-up, troubleshooting, service and repair.

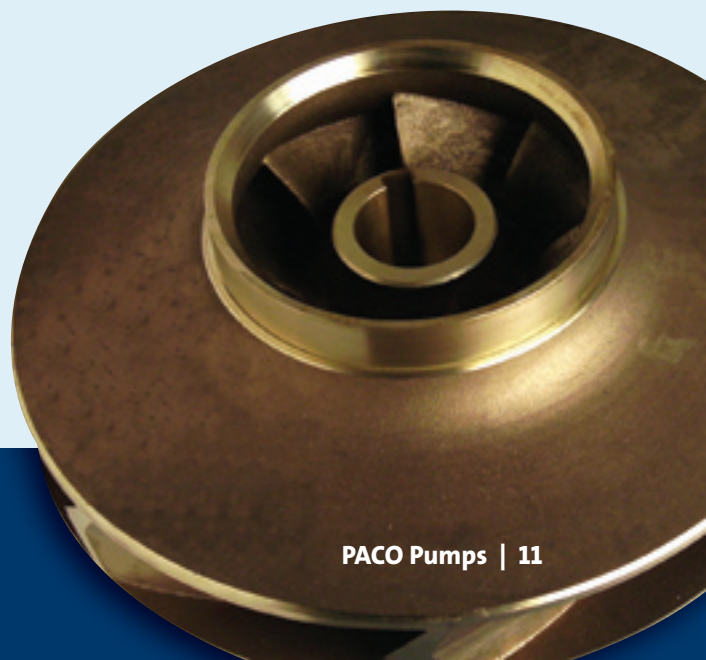
Our technicians can evaluate your system's energy usage with the pumping systems assessment tools and provide recommendations for the engineers and facility operators.

Genuine PACO parts are pre-engineered and pre-packaged to simplify selection, ordering, and stocking. Virtually all required parts for PACO products are available as kits.

## ENGINEERING AND TESTING CAPABILITIES

Our state-of-the-art testing facility features hydrostatic test equipment, an engineering testing laboratory, and allows witness testing of pumps without leaving the office via a web-based live feed of test data, along with full control of the test site image.

The PACO line of pumps are capable of handling all types of applications anywhere in the world. The online selection tool available at [www.pacopumps.com](http://www.pacopumps.com) lets you select the right pump for your application, and our competency center located in Brookshire can design and deliver centrifugal pumps for domestic or international market needs when time demands a quick turnaround.





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[www.grundfos.com/cbs](http://www.grundfos.com/cbs)

