



TYPE VSM/VSMS
VERTICAL SPACE MISER PUMPS
Close and Split Coupled



VERTICAL SPACE MISER

Type VSM (Close Coupled)
Type VSMS (Split Coupled)

SMALL FOOTPRINT FOR TIGHT SPACES

- › Vertically mounted top suction/top discharge pump fits where many pumps won't.

SIMPLIFIED INSTALLATION

- › Same-size suction and discharge connections simplify piping.
- › VSM/VSMS pumps don't require grouting.

LOW LIFE CYCLE COST

- › Contoured suction baffle provides laminar flow to impeller.
- › Suction and discharge bends, eliminating the need for suction diffusers, angle type valves and/or elbows, which improves overall system efficiency.
- › Short shaft with minimum overhang reduces shaft deflection and improves bearing and mechanical seal life.

EASIER SERVICE

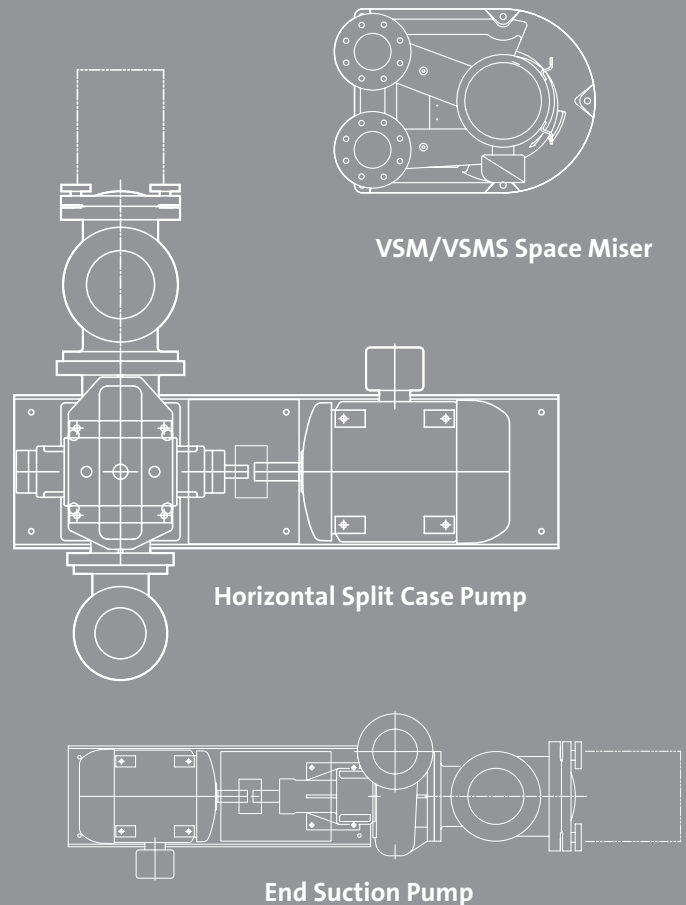
- › Top pull out design allows rotating assembly to be removed without disturbing the volute or piping for ease of maintenance and service.

RELIABILITY

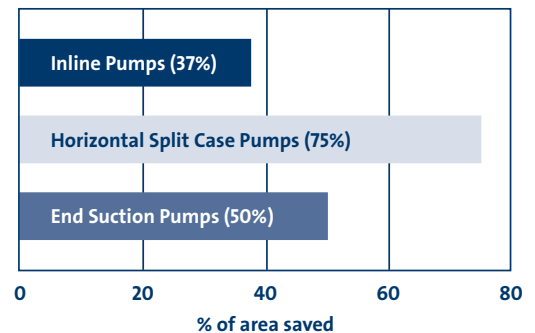
- › Double volute design helps to reduce radial thrust and prolong seal life.
- › Ductile iron construction provides the highest nozzle load in the industry.

PRODUCT RANGE

- › Sizes 4" to 10"
- › Flows up to 4100 GPM
- › Heads up to 400 feet
- › Horsepower up to 125 hp
- › Fluid temp up to 275°F

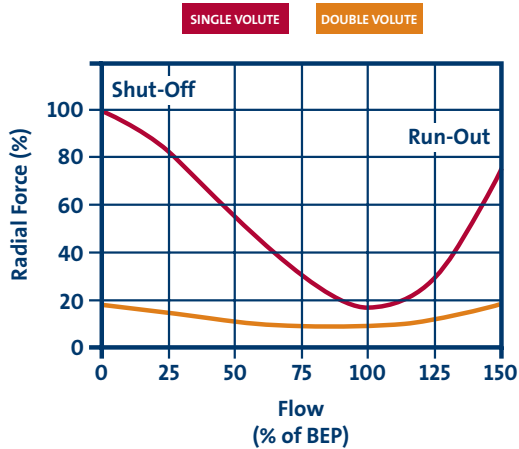


ACTUAL AVERAGE FLOOR SPACE SAVINGS when compared to the Top 5 U.S. HVAC pump manufacturers (from 500 gpm to 3000 gpm)



COMPARISON CHART

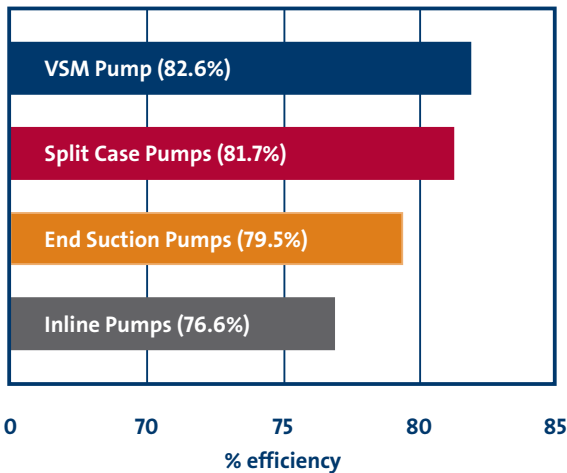
Typical radial force vs. design capacity with single and double volute



TRUE OVERALL HIGH SYSTEM EFFICIENCY

The PACO VSM efficiency includes the losses in the suction and discharge nozzles. With Francis vane impellers and contoured suction vanes, the VSM provides high efficiency. For a true comparison of efficiencies with other manufacturers' products, losses in suction guides or elbows (for all horizontal suction or discharge units) must be taken into consideration.

AVERAGE OVERALL SYSTEM EFFICIENCY
based on efficiencies from Top 5 manufacturers
(from 500 gpm to 3000 gpm)



VSM/VSMS

Double Volute Design with Superior Advantages

- Longer life
- Quieter operation
- Low life cycle cost
- Lower maintenance
- Space-saving

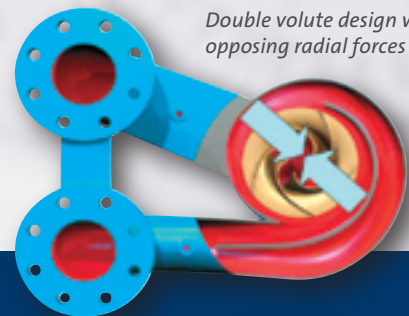
Type VSM and VSMS pumps utilize a double volute design that offers a distinct advantage over single volute designs.

The double volute design incorporates two cutwaters located at 180°, which divide the flow into two geometrically similar regions of the volute. The resultant hydraulic forces within the pumps are equal and opposed. As a result, the net radial force is maintained at a very low level throughout the operating range of the pump, and shaft deflection is kept to a minimum.

A typical single volute pump is normally designed to operate at or near the best efficiency point (BEP). In actual application, many pumps stray away from BEP due to load variances and/or changes in the system head curve.

As single volute pumps begin to operate away from BEP, the resultant radial load increases dramatically, causing increased shaft loads, deflection, and vibration. Excessive radial loads can cause premature failure of the mechanical seal, bearings, and shaft.

A double volute design ensures that hydraulic radial loads are equal and opposed and thereby nullified. Pump operation remains stable throughout the entire performance curve, with minimal shaft deflection, prolonging seal, bearing, and shaft life.



Double volute design with opposing radial forces

TYPE VSM

Close Coupled

BRACKET AND SEAL HOUSING

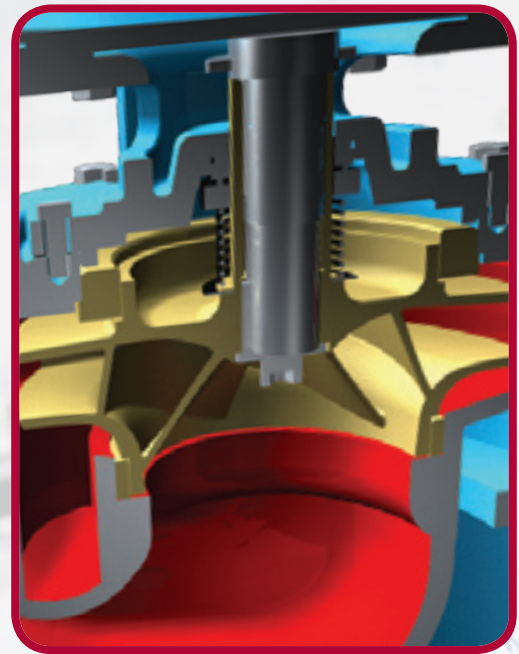
- › One piece
- › Registered fit
- › Eliminates machining tolerance stacking
- › Provides positive placement
- › Prolongs mechanical seal and bearing life

SHAFT SLEEVE

- › Standard feature
- › Isolates shaft from medium
- › Protects shaft from corrosion

MOTOR

- › Industry-standard JM frame motor



TYPE VSMS

Split Coupled

AXIALLY SPLIT COUPLING

- › Rigid spacer type coupling design allows easy disassembling and replacement of mechanical seal without removing motor

STAINLESS STEEL SHAFT

- › Eliminates possibility of oxidation

BRACKET

- › Registered fit

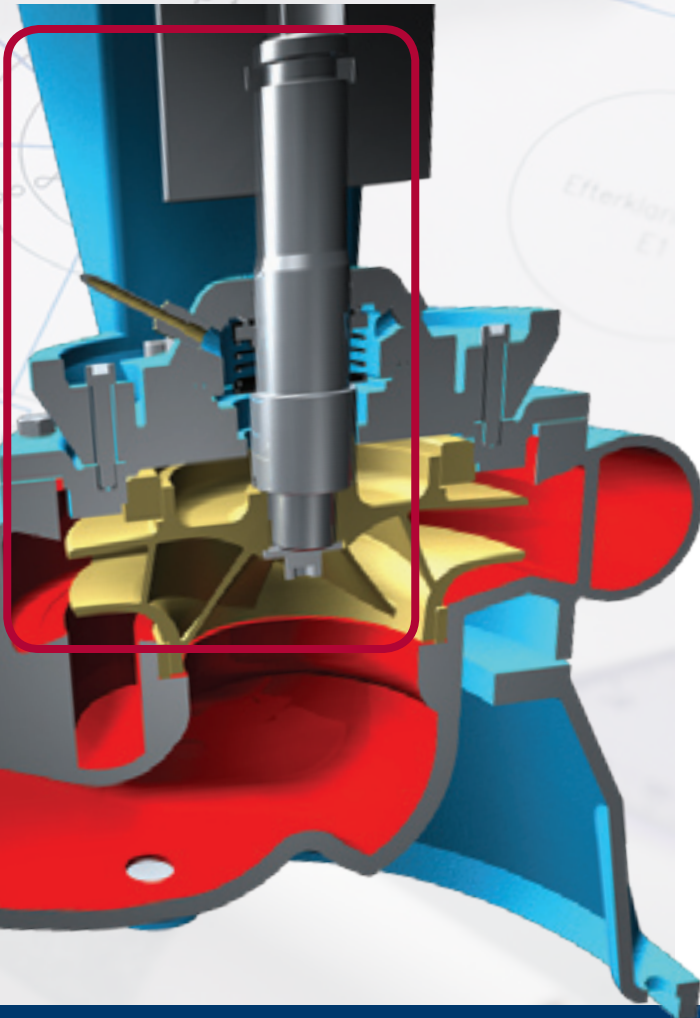
MOTOR

- › Industry-standard P Base motor



PACO TYPE VSM/VSMS PUMPS – DESIGNED TO GIVE YOU

- › Low life cycle and operating costs
- › Increased floor space savings
- › Longer mechanical seal, shaft, and bearing life
- › Higher operating efficiency
- › Ease in replacement
- › Reduced installation and maintenance costs



IMPELLER

- › Single suction cast bronze with Francis vanes
- › Trimmed to exact customer conditions
- › Static and dynamically balanced to ISO 1940-G3
- › Hydraulically balanced to reduce thrust loads

MECHANICAL SEALS

- › Match construction with site requirements
- › Internal seals are available in various configurations and materials to meet the needs of the application

VOLUTES

- › Made of ductile iron
- › Flanges positioned to allow vertical piping
- › Double volute design reduces radial loads, internal recirculation, and turbulence
- › No need for horizontal suction pipe runs, elbows, suction guides, or discharge elbows

NAMEPLATE

- › Non-corrosive and located away from insulated areas; contains all data necessary for ordering spare and replacement parts

BRONZE CASE WEAR RINGS

- › Included as Standard
- › Allows for simple and inexpensive renewal of “like new” operating tolerances, even after years of operation

DESIGN ADVANTAGES

- › Integrally cast diffuser vane reduces pre-rotation and provides laminar flow into oversized impeller eye
- › No need for external flow straighteners

PUMP STAND

- › Made of ductile iron
- › Designed with smallest possible footprint to support entire pump and motor
- › No grouting requirements

VSM/VSMS

Vertical space miser pumps

Technical Data

Flow, Q: max 4,100 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

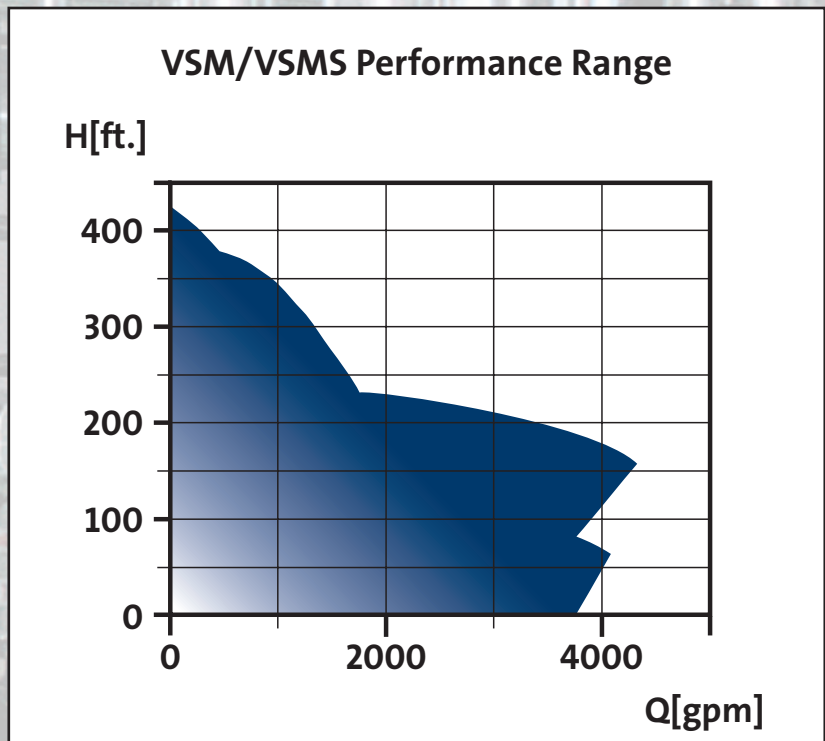
Optional

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

	CASE WORKING PRESSURE	ANSI FLANGE
Standard	175 psi	125 lb.
Optional	300 psi	250 lb.

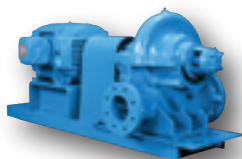
AVAILABLE MODELS AND NOZZLE LOADS			
MODEL	SUCTION/DISCH	NOZZLE LOADS	
		Fz (lb)	(ft. lb)
40957	4x4	2025	751
40121	4x4	2025	751
40127	4x4	2025	751
40157	4x4	2025	751
50957	5x5	2863	1012
50959	5x5	2863	1012
50129	5x5	2863	1012
50157	5x5	2863	1012
60957	6x6	3312	1348
60125	6x6	3312	1348
60157	6x6	3312	1348
80951	8x8	5029	2011
80123	8x8	5029	2011
80157	8x8	5029	2011
10123	10x10	6258	2606

CONSTRUCTION FEATURES			
FEATURE	VSM	VSMS	MATERIAL(S)
Volute	•	•	Ductile Iron - ASTM A536 65-45-12
Impeller	•	•	Silicon Bronze - ASTM B584 UNS C876000
Case Wear Rings	•	•	Bronze - ASTM B584 (SAE660)
Backplate	•	•	Cast Iron - ASTM 48 CI30
Motor Shaft	•	•	Carbon Steel
Pump Shaft	N/A	•	Stainless Steel - AISI 303
Shaft Sleeve	•	N/A	Bronze - ASTM B584 (SAE660)
Coupling	N/A	•	Aluminum - Axially Split Spacer Type
Coupling Guard	N/A	•	ANSI/OSHA compliant
Mechanical Seal	•	•	Type 21 John Crane Single Seal
Stand	•	•	Ductile Iron - ASTM A536 65-45-12



PACO PUMPS HAS YOU COVERED

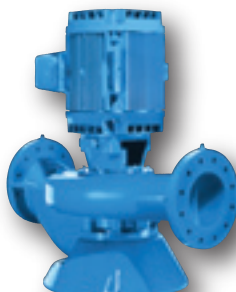
PACO Pumps offers a full line of pumps to cover all your pumping needs. Visit www.pacopumps.com for information about all of our pumps plus an online selection tool, life cycle cost calculations, technical data, and CAD drawings.



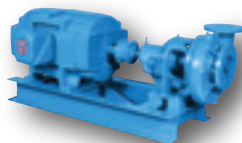
Type KP Split Case Pump



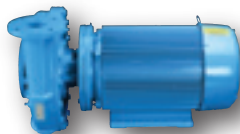
Type KPV Vertically Mounted Split Case Pump



Type VL Vertical Inline Pump



Type LF Frame Mounted End Suction Pump



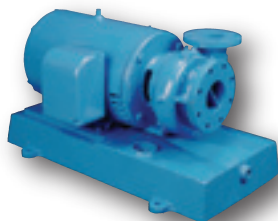
Type LC End Suction Pump



PACOFlo 9000 Booster System



Type QDSC Submersible Pump



Type NCU Dry-Pit Non-Clog Pump



Type NCP Dry-Pit Non-Clog Pump



PARTS & SERVICE

PACO Pumps is committed to excellence in after-sales service. 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.



PACO Pumps are manufactured by Grundfos CBS Inc., a Grundfos company. PACO Pumps, originally named Pacific Pumping Company, was founded in San Francisco in 1907 and is now headquartered in Brookshire, Texas – with branch locations in California, Oregon, Washington, and Texas plus a nationwide distribution network and multi-plant manufacturing facilities.

We're proud of providing quality pumps and equipment to the industry for over 100 years.

For more information, please visit us at www.pacopumps.com.



*Photo: PACO manufacturing facility
Oakland, California; Circa 1940s*

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PACO A9a (L-PP-SL-002)
09/07 (US)

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