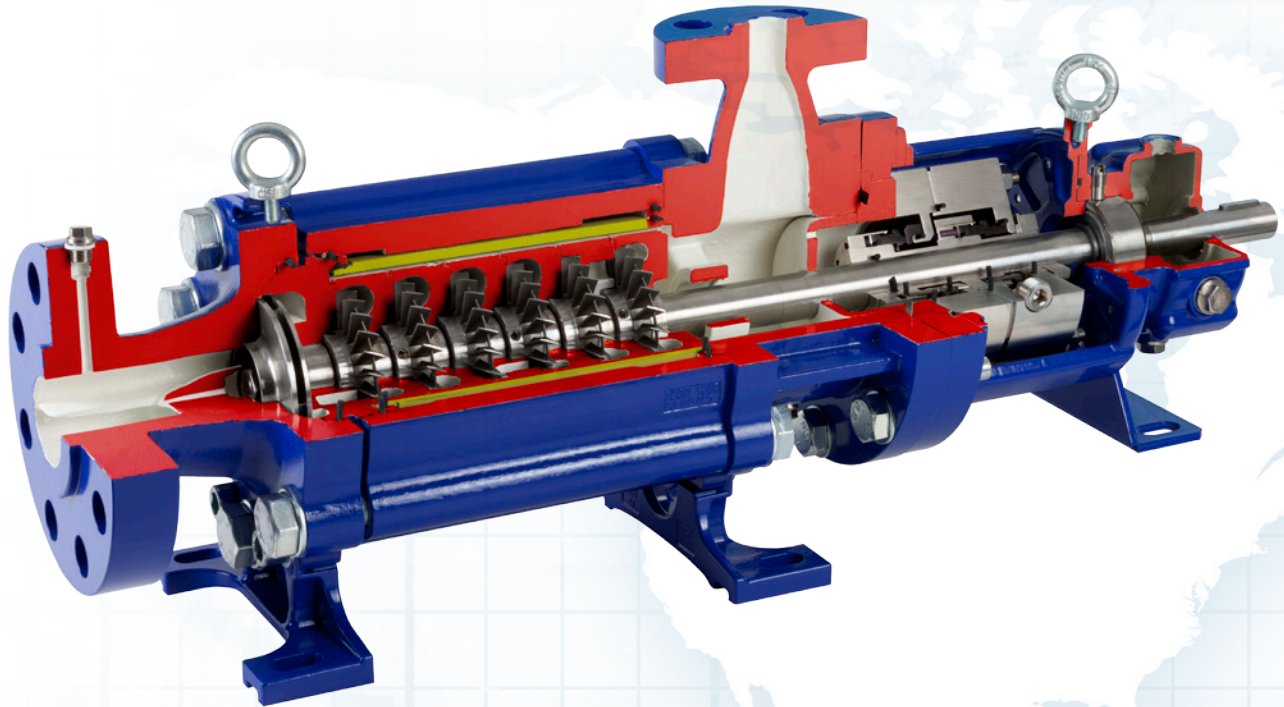


SERO[®] PumpSystems

Inspiring technology. Meeting your needs.

High Pressure
Low NPSH
Pump Solutions



*High Pressure Side Channel Pumps
with API Features*

SHP[™]



Engineered to meet demanding process conditions.

SHP™ (High Pressure Side Channel Pump)

THE SERO ADVANTAGE

Headquartered in Germany, SERO PumpSystems is the world's only exclusive manufacturer of side channel pumps. Since the issuance of their first side channel pump patent in 1929, SERO has continued to revolutionize the industrial pump industry. Specializing in individually configured pumping systems, SERO has consistently been on the leading edge of side channel pump design and technology.

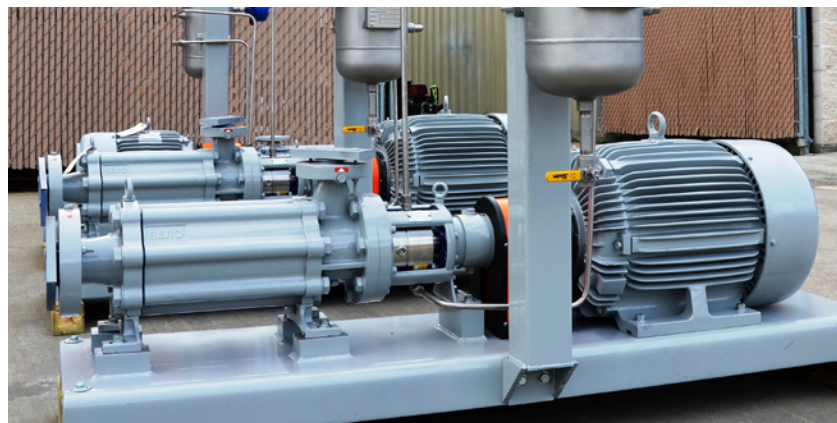
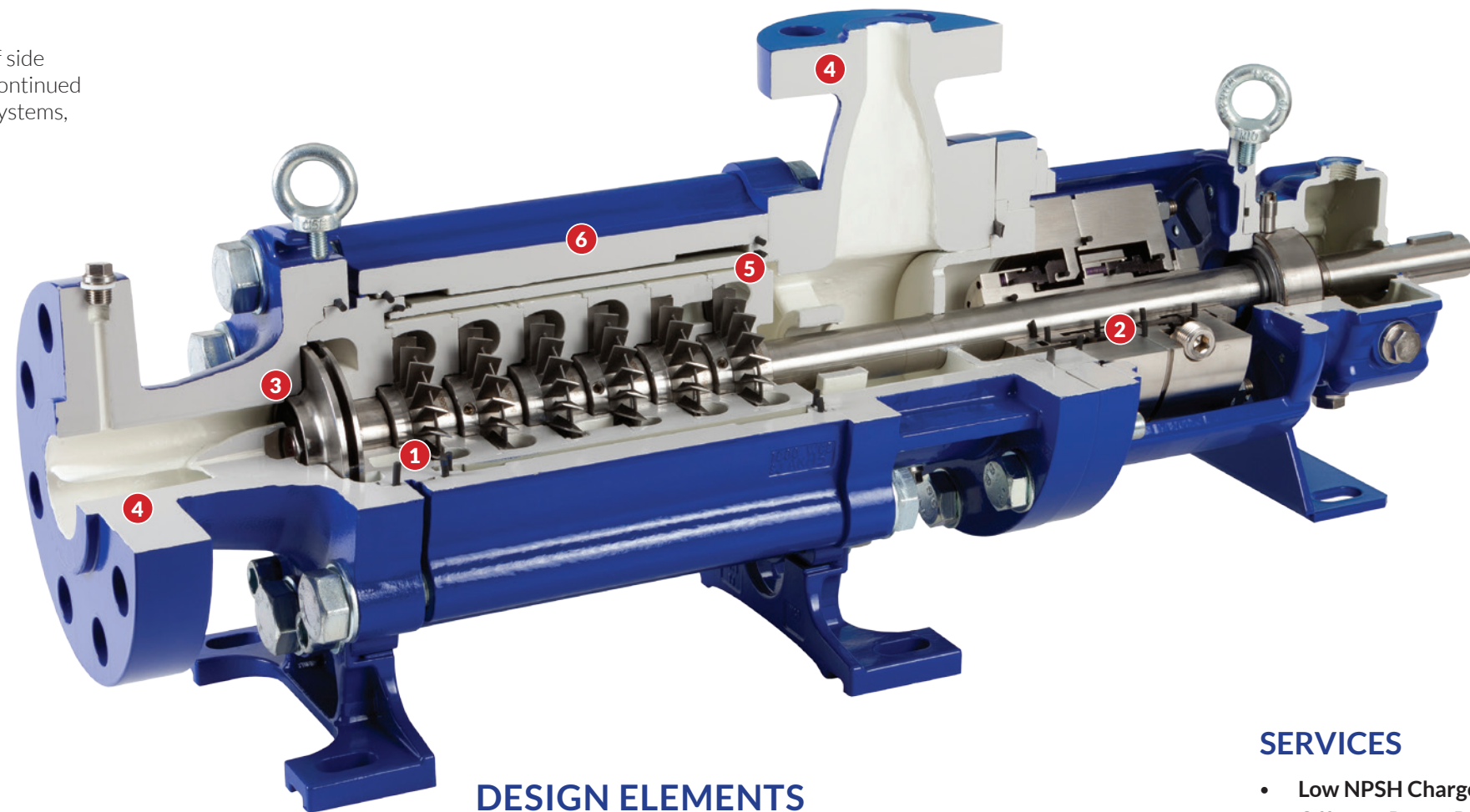
SERO MODEL SHP

Side channel pump hydraulics with an API 610 design philosophy

Volatile process fluid. Low flow rates with high head. Limited NPSH! Entrained gas!! Tough conditions, but not for SERO! The revolutionary Model SHP incorporates numerous API 610 features and is designed to operate in these unique and challenging conditions.

The Model SHP Advantages:

- Exceptional differential pressures / head developed at max speed of 3500 RPM.
- No pulsation!
- Steep performance curves for precise system control.
- Ability to pump vapor laden process fluids.
- Very low NPSH requirements to prevent cavitation.
- Liquid end "barrel" design for dual containment.
- Rugged, heavy duty construction designed for extended life cycle.
- Numerous API 610 features including:
 - ANSI 900 lb raised face flanges to meet nozzle load requirements.
 - API specified materials of construction.
 - API size 3 seal chamber to utilize API 682 cartridge seals.
- "Crafted in Germany" for increased reliability and the lowest cost of ownership.



DESIGN ELEMENTS

- 1 OPEN "STAR" IMPELLER AND SIDE CHANNEL CASING**
Provides high differential pressures with effective gas separation.
- 2 SHAFT SEALING OPTIONS:** *Single or dual cartridge seals. Dry running secondary seals and API 682 compliant seals are available options.*
- 3 A NEWLY DESIGNED IMPELLER AND SUCTION INLET CASING**
provide extremely low NPSH requirements.
- 4 THE MATERIALS OF CONSTRUCTION MEET API 610 GUIDELINES**
Standard MOC's are C-6 and A-8. Variations for low temperature services are available. Pressure casings are rated up to 1450 psi (100 bar) maximum.
- 5 THE UNIQUE HYDRAULIC DESIGN** *is pulsation free and produces high pressure / total dynamic head at a maximum speed of 3500 RPM. High speed gear boxes are not required!*
- 6 MODEL SHP COMES STANDARD WITH AN EXTERNAL "BARREL"**
This feature provides dual containment of the liquid end for safety and environmental control. The area between the barrel and the inner casing can be monitored for leaks via the included threaded connection.

SERVICES

- Low NPSH Charge Pump
- Off-spec Rerun Pump
- Amine Injection
- De-propanizer Recycle
- Scrubber Bottoms Pump
- Pipeline Booster Pump

TYPICAL PROCESS LIQUIDS

- Volatile, high vapor pressure fluids
- LPG: Propane, Butane, Isobutane
- Amine
- Crude Oil
- Condensate
- Light hydrocarbon pipeline mix

Inspiring technology. Meeting your needs.
Engineering Expertise | German Quality | Reliability

SERO[®]
PumpSystems

SHP Material Classes

COMPONENTS	C-6 SERO STANDARD	A-8 (SS OPTION)	TT6 LOW TEMP OPTION #1 (-50° F)	TT8 LOW TEMP OPTION #2 (-75° F)
PRESSURIZED CASINGS	A487 GR CA6NM	A351 GR CF3M	A351 GR CF3M	A351 GR CF3M
STAGES	A743 GR CA6NM	A743 GR CF3M	A743 GR CA6NM	A743 GR CF3M
IMPELLERS	A743 GR CA6NM	A743 GR CF3M	A743 GR CA6NM	A743 GR CF3M
SHAFT	EN10088-1.4021	EN10088-1.4571	EN10088-1.4021	EN10088-1.4571
PRESSURE SLEEVE (INNER BARREL)	EN10220-1.0580	EN10220-1.4571	EN10220-1.4571	EN10220-1.4571
BARREL (2ND CONTAINMENT)	A216 GR WCB	A216 GR WCB	A216 GR WCB	A216 GR WCB
SEAL HOUSING/ BEARING HOUSING	A216 GR WCB / EN100 83 - 1.0501 (C35)	A216 GR WCB / EN100 83 - 1.0501 (C35)	A216 GR WCB / EN100 88 - 1.4501 (V2A)	A216 GR WCB / EN100 88 - 1.4501 (V2A)

Construction

SHP 110

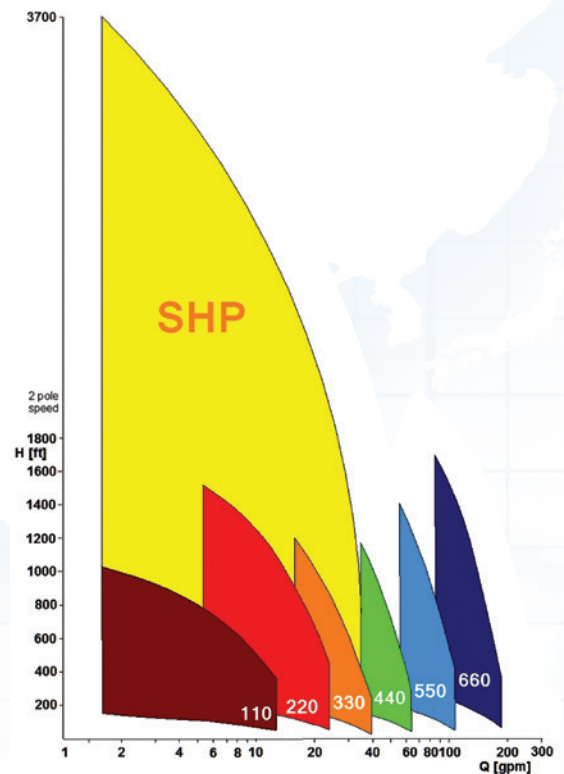
Flange Position	End suction: axial inlet 2" (50 mm) Top discharge: radial outlet 1" (25 mm)
Flanges	ASME B 16.5 – 900 lbs RF or DIN EN 1092.1 – PN 100
Shaft Sealing	<ul style="list-style-type: none"> Single or dual cartridge seal arrangements <ul style="list-style-type: none"> Follows API 682 standards Special designs up to 1450 PSIG MAWP Dry running secondary seal option
Stage Bearing	Medium lubricated. Metal jacketed, carbon graphite
Bearing	<ul style="list-style-type: none"> Stacked, single row, angular contact ball bearings Shielded, greased for life as standard Oil lubrication option available
Direction of Rotation	Counterclockwise from coupling end

Operating Data

SHP 110

Flow rates	4 GPM to 38 GPM (0.9 m3/hr to 8.5 m3/hr)
Head Generation	Up to 3500' TDH (1065 m TDH)
Speed	Up to 3500 RPM
Std. Temperature Rating	-5 deg F up to 300 deg F (-20 deg C up to 150 deg C)
MAWP	1450 PSI (100 bar)
NPSHr	0.7' to 4' (0.2 m up to 1.2 m)

SHP Performance vs. Standard Side Channel Pumps



SERO[®]
PumpSystems

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