Introduction of SMV Vertical Multistage Inline pumps
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General Introduction
General Features

- Perfect series
- High reliability
- High efficiency & energy-saving
Technical Data

- **Rated flow**: 1, 2, 3, 4, 5, 10, 15, 20, 32, 45, 64, 90 m³/h
- **Power range**: 0.37 - 45 kW
- **Voltage range**: 380 - 415V
- **Flow range**: 0.7 - 120 m³/h
- **Head range**: 0 - 249 m
- **Liquid temperature**: -20 °C ~ +120 °C
- **Max. operating pressure**: 33bar
- **Liquid requirements**: Low viscosity, non-inflammable and non-explosive liquids, not containing solid particles or fibers. The liquids must not chemically attack the pump materials.
Scope of Performance - SMVR, SMVS
Connection

SMVR1, 2, 3, 4, 5
Oval flange
(Standard)

SMVR1, 2, 3, 4, 5, 10, 15, 20
DIN flange

SMVR32, 45, 64, 90
DIN flange

SMVS1, 2, 3, 4, 5, 10, 15, 20, 32, 45, 64, 90
DIN flange
(Standard)

SMVS1, 2, 3, 4, 5
Threaded structure

SMVS1, 2, 3, 4, 5
Clamp structure
Overview of Applications

Building water supply

Fire fighting system

Boiler feed water

Water works

Water treatment - RO system

Irrigation system

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Features
Efficient and Energy-saving

Efficiency comparison

- Other factory
- SPP SMVR/SMVS

Q(m³/h) vs. Efficiency (%)
Efficient and Energy-saving

Cost proportion of a pump with reasonable service life

- Purchase cost: 5%
- Energy Consumption: 15%
- Maintenance costs: 80%

High efficient = Cost saving!

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Product Reliability

Motor: SPP make
- IE2 motor (IE3 optional on request)
- Good interchangeability
- Protection class: IP55
- Voltage: 380-415V
Product Reliability

Motor base:
- Cast iron material
- E-coating treatment which improves corrosion resistance
- Applicable to any standard motors
- Maintenance-free
Product Reliability

Shaft:
- Splined shaft structure
- Cold extrusion technology
- High surface strength
Product Reliability

- Quick change
- Easy installation
- Safe and reliable

Mechanical seal:
- 6-hole mechanical seal for fixation with shaft and sleeve
- Stationary part is made of high quality graphite with heat resistance up to 500°C.
- Dynamic part is made of hard alloy, which features high wear resistance and heat shock resistance.
- Fluorine rubber o-ring, best medium resistance
Product Reliability

Pump cover:

- Optimized “Dome” structure ensures complete air discharge and full contact between friction surface of mechanical seal and water
- An extended port on the pump cover for DIY application

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Product Reliability

Barrel:

- Surface treated by wiredrawing technology, without light pollution
- Good parallelism by simultaneous cutting
Product Reliability

Impeller:
- Small-sized with efficient and reliable structure
- Continuous laser welding ensures good strength
- Good corrosion resistance
- High performance and high efficiency
Applications
Water Supply for High Buildings

➢ The pressure of municipal pipe network is insufficient to lift water for commercial buildings. A pressure boosting by pumps is required.

➢ It’s popular to select SMVR / SMVS pumps for a booster system. The main types are constant frequency water supply system, non-negative pressure water supply system and box-type non-negative pressure water system.
Fire Fighting System

- The requirement of **stability and reliability** for fire pumps is very high. The flow can be guaranteed when the head changes.

- **SMVR / SMVS pumps** can be used as fire pumps. Due to the requirement of high flow, the models with rated flow of **10m³/h or above** is recommended.
Boiler Feed System

- Boiler feed pump is used to supply water for boiler feed system, which requires high head and low flow.

- **SMVS / SMVR** pumps can be selected for boiler feed system based on flow requirement.
Waterworks

- The waterworks require pressure boosting due to insufficient pressure. For **energy-saving** and **constant water supply** purpose, frequency control is widely used.

- **SMVR / SMVS pumps** are used in booster systems. The main system types are constant frequency water supply system and non-negative pressure water supply system.
Water Treatment - RO System

- RO system is applicable for Food, textile, power plants and medical industry etc.

- **SMVR / SMVS** pumps are used in RO system.
RO System - Pure Water Preparation

➢ In case the water's salinity TDS is in range of 0 - 8000 PPM, SMVR / SMVS pumps can be used for pressure boosting of reverse osmosis system.
In case the water’s salinity TDS in range of 0 - 3000 PPM, SMVR / SMVS pumps can be used the reverse osmosis systems in hospitals.
Microfiltration

- A lot of water is needed in food, wine-making, malt brewing and soft drink industry. To achieve zero emissions, microfiltration treatment is required.

- SMVR / SMVS pumps are popularly used as booster pumps for the treatment.
Water-saving Irrigation

- A single water-saving irrigation project requires no high flow and head for small area.
- **SMVR / SMVS** pumps with large flow can meet such requirement for irrigation.
Other

- For fountain project, it is required to use a pump with large flow and low head, and usually with inverter control.

- SMVR32-2 is an ideal option for simple fountain.
Product Comparison
General Structure

- High efficient motor
- Good interchange ability
- Surface treated by wiredrawing technology
- Holes for air discharge and water filling
- Pressure sensor can be installed after plug removing

SPP - SMVS/SMVR  Grundfros - CR/CRN  CNP - CDL/CDLF

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Shaft

Splined shaft

- Cold extrusion technology
- Good axially
- High surface strength

Flat square shaft

- Produced by cutting
- Non-axisymmetric structure. Impeller rotates on the shaft
- Shaft may be broken caused by stress concentration

Some Competitors

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Mechanical Seal

✓ Stationary part is made of high quality graphite with heat resistance up to 500°C.
✓ Dynamic part is made of hard alloy, which features high wear resistance and heat shock resistance.
✓ Fluorine rubber o-ring, best medium resistance.

✓ Stationary part is made of hot-pressing graphite. The heat resistance is low. The cost is ten times lower.
✓ The dynamic part is made of powder metallurgy.

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The difference between good and no good cartridge seal can be recognized in a few months. Normally we can find the followings on no good seals:
- **Short life** (a couple of months only)
- **Noise** (in one month or two)
- **Leakage** (in 2-3 months)

Big noise and high heat caused by no good seal during use means **low efficiency**. The electricity is mainly converted to kinetic and thermal energy. Just a few part of the electricity is really used to pump water.
Impeller

- Small-sized impeller with efficient and reliable structure
- Continuous laser welding with high strength
- Good corrosion resistance

Some Competitors

- Big-sized impeller
- Argon arc welding after spot welding with low strength
- Ugly surface
Pump Selection
Pump Selection Process

Pump Applications

Flow

Head

Special Requirements

Form

Material

Power

Temperature, protection classes and speed, etc.

Pump Model
## Pipe Diameter

<table>
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<tr>
<th>Optimal flow</th>
<th>Flow range</th>
<th>Pump</th>
<th>Branch pipe DN</th>
<th>Confluence tube DN</th>
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<td>50 ~ 110</td>
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Thank You!