



# SMV VERTICAL MULTISTAGE INLINE PUMPS

FOR WHERE IT REALLY MATTERS

For where it really matters

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# **Introduction of SMV Vertical Multistage Inline pumps**

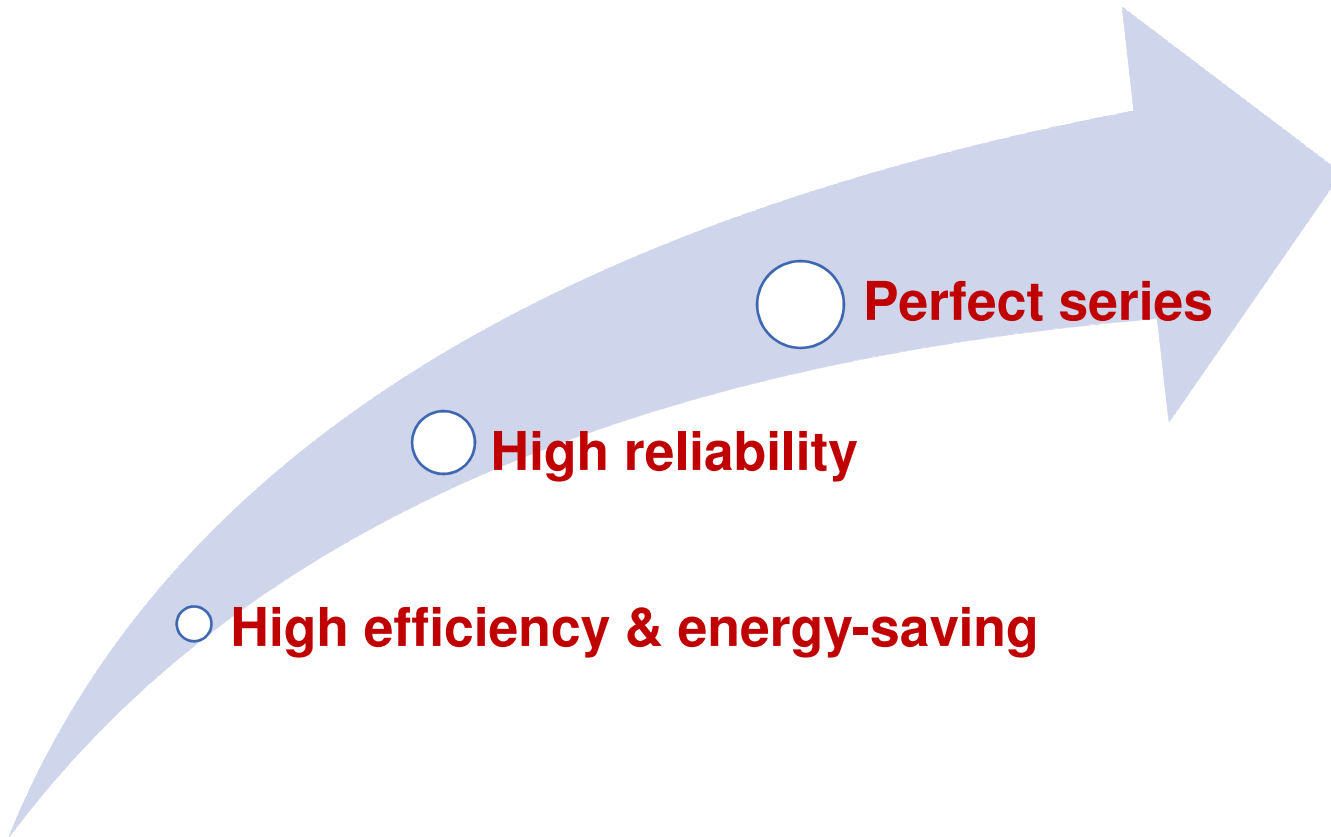
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# General Introduction

# General Features



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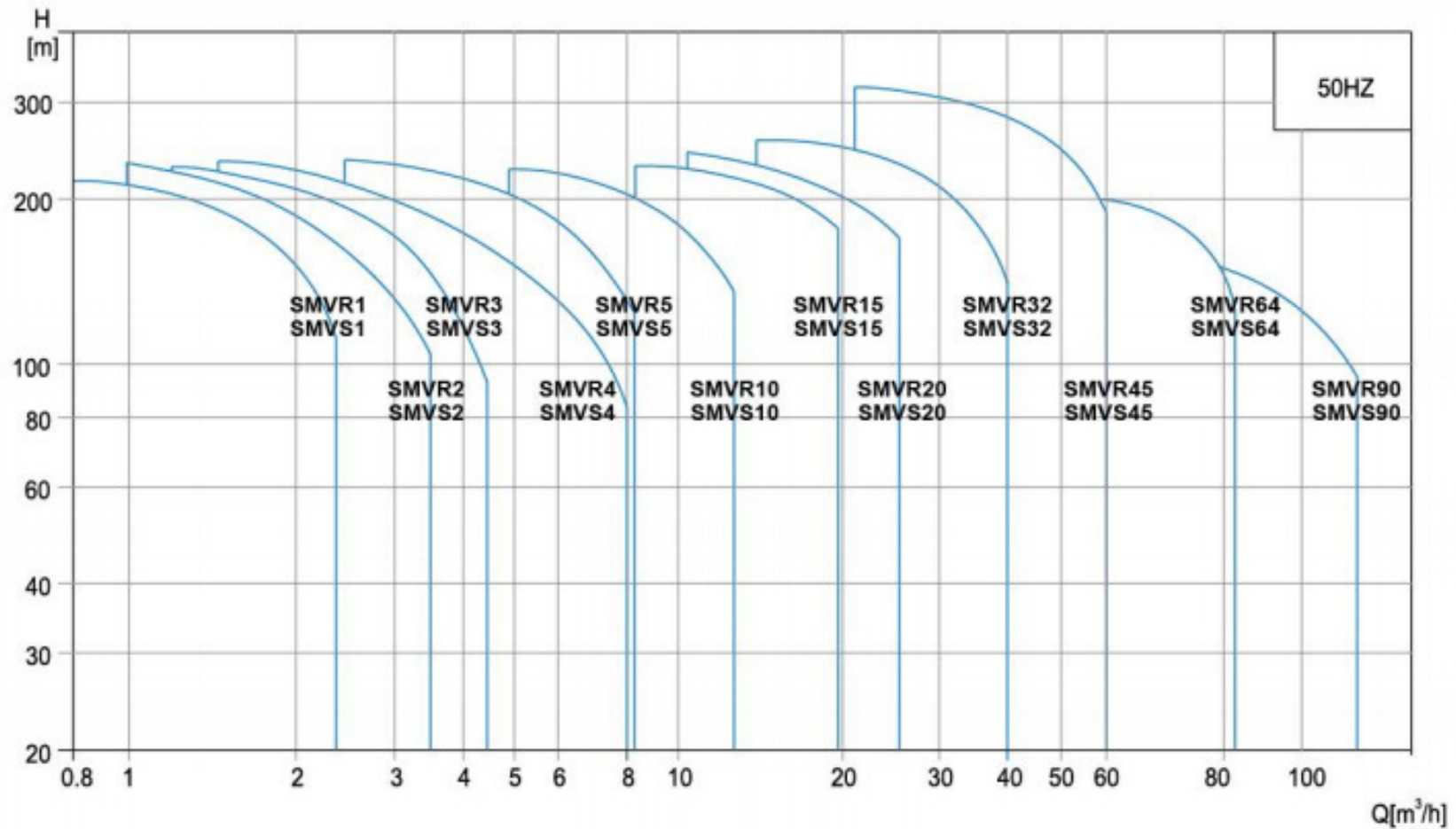
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# Technical Data

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- **Rated flow:** 1, 2, 3, 4, 5, 10, 15, 20, 32, 45, 64, 90 m<sup>3</sup>/h
- **Power range:** 0.37 - 45 kW
- **Voltage range :** 380 - 415V
- **Flow range:** 0.7 - 120 m<sup>3</sup>/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



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# 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**

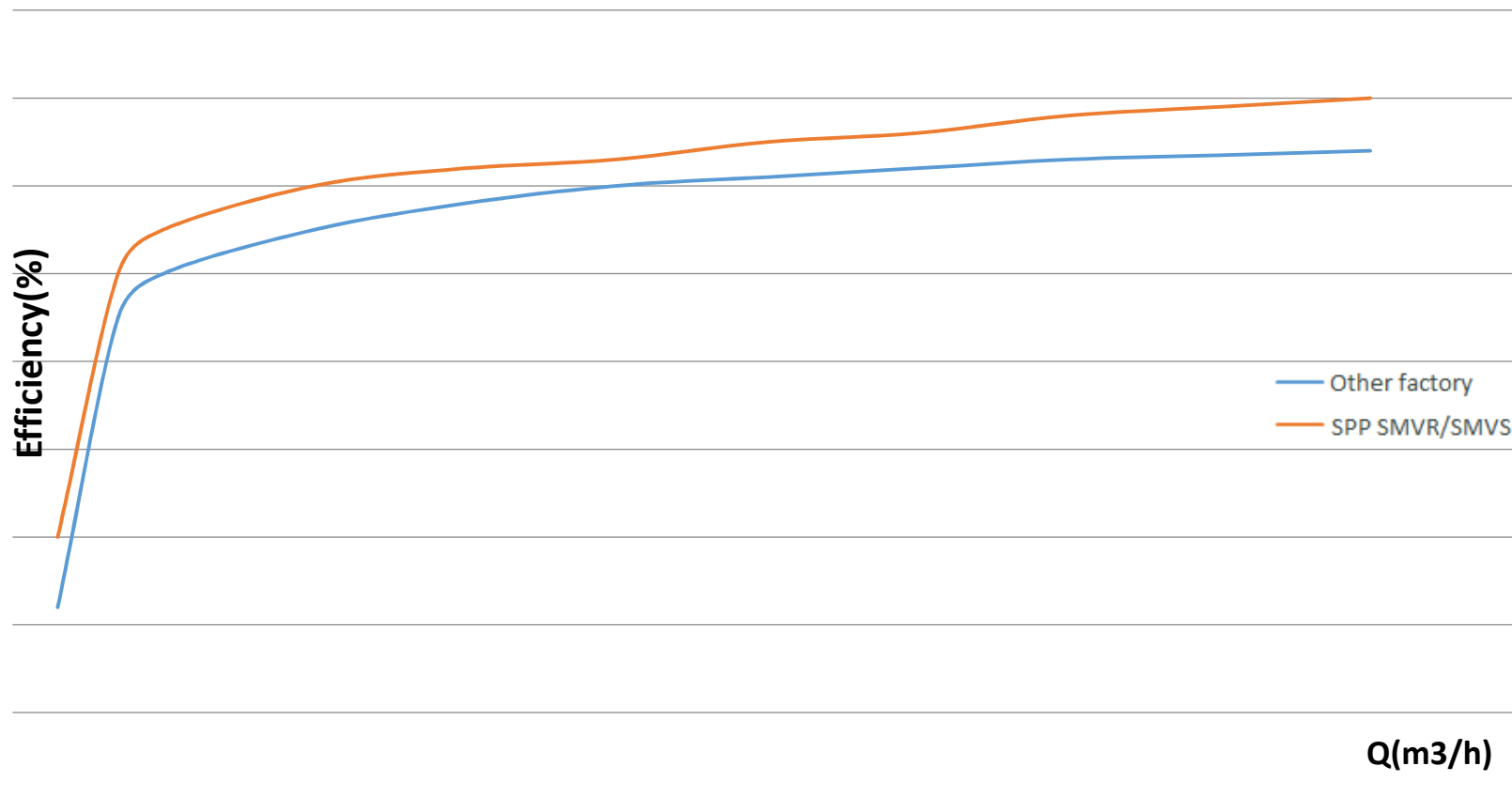


# Features

# Efficient and Energy-saving

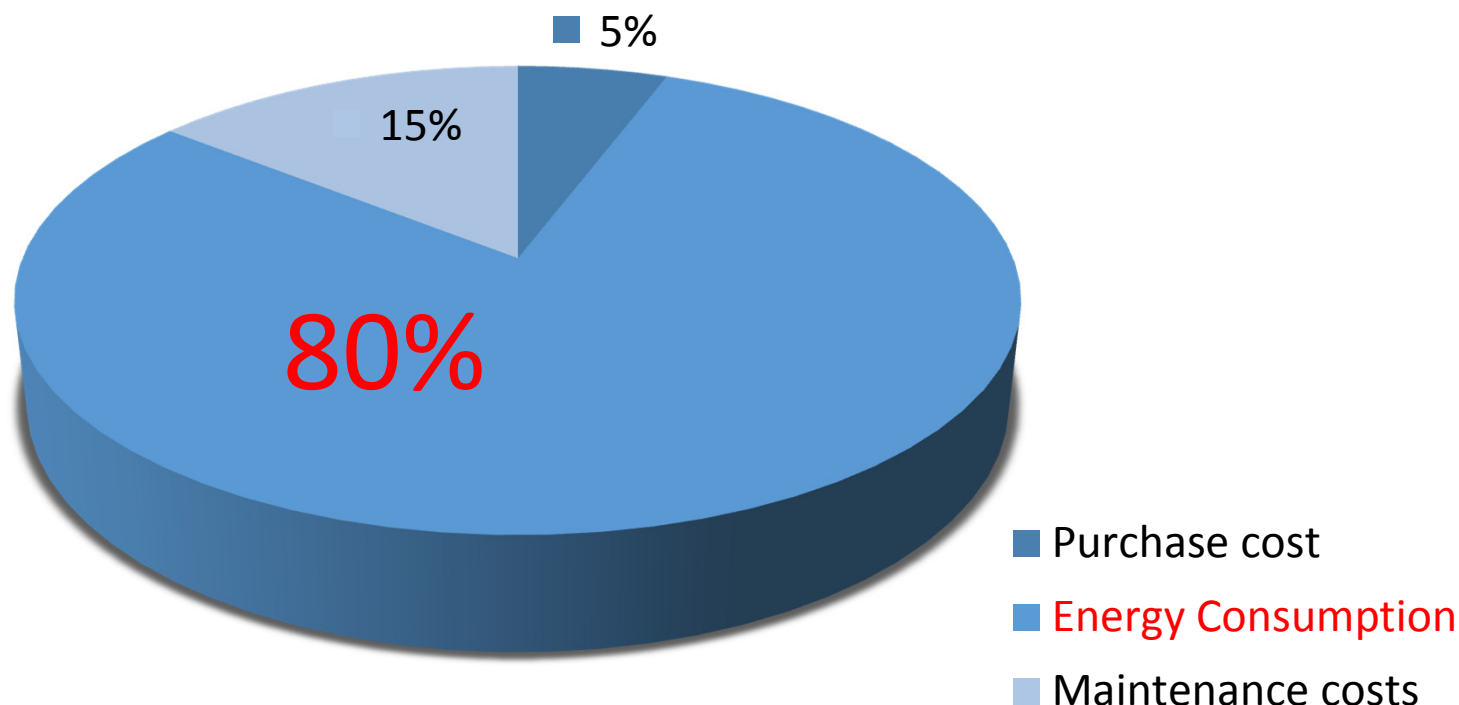


Efficiency comparison



# Efficient and Energy-saving

Cost proportion of a pump with reasonable service life



**High efficient = Cost saving!**

# 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

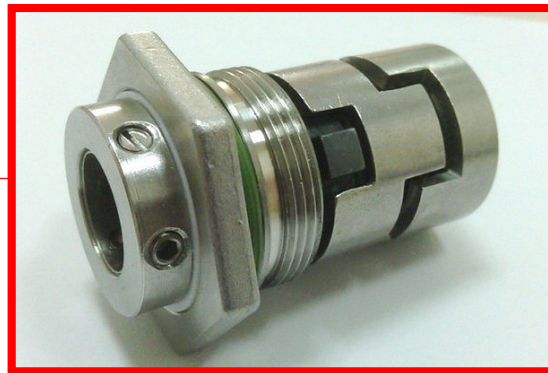
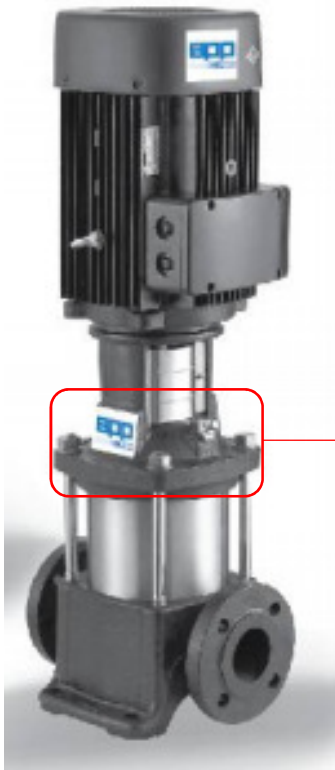
# Product Reliability



## 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

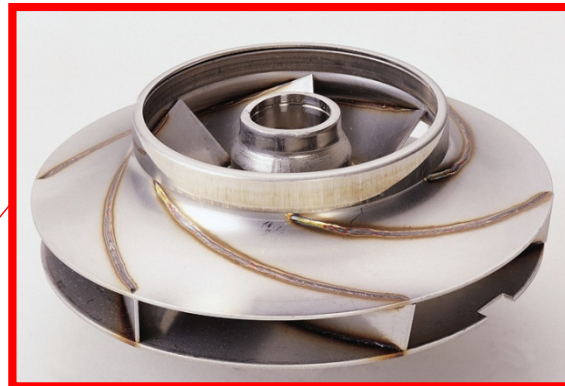
# Product Reliability



## 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 **10m<sup>3</sup>/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 in range of 0 - 8000 PPM, **SMVR / SMVS** pumps can be used for pressure boosting of reverse osmosis system.

# RO system - Hospital



- 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

Grundfos motor

Vent and extension hole

Vent only

- Surface treated by wiredrawing technology

- Holes for air discharge and water filling
- Pressure sensor can be installed after plug removing

Matt treatment

**SPP - SMVS/SMVR**

**Grundfos - CR/CRN**

**CNP - CDL/CDLF**

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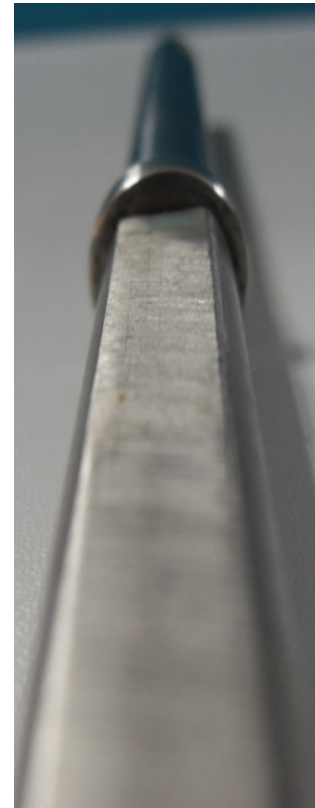


# Shaft



## Splined shaft

- ✓ Cold extrusion technology
- ✓ Good axiality
- ✓ High surface strength



## Some Competitors

## Flat square shaft

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

# 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.



## Some Competitors

- ✓ 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.

# Mechanical Seal



- ◆ 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

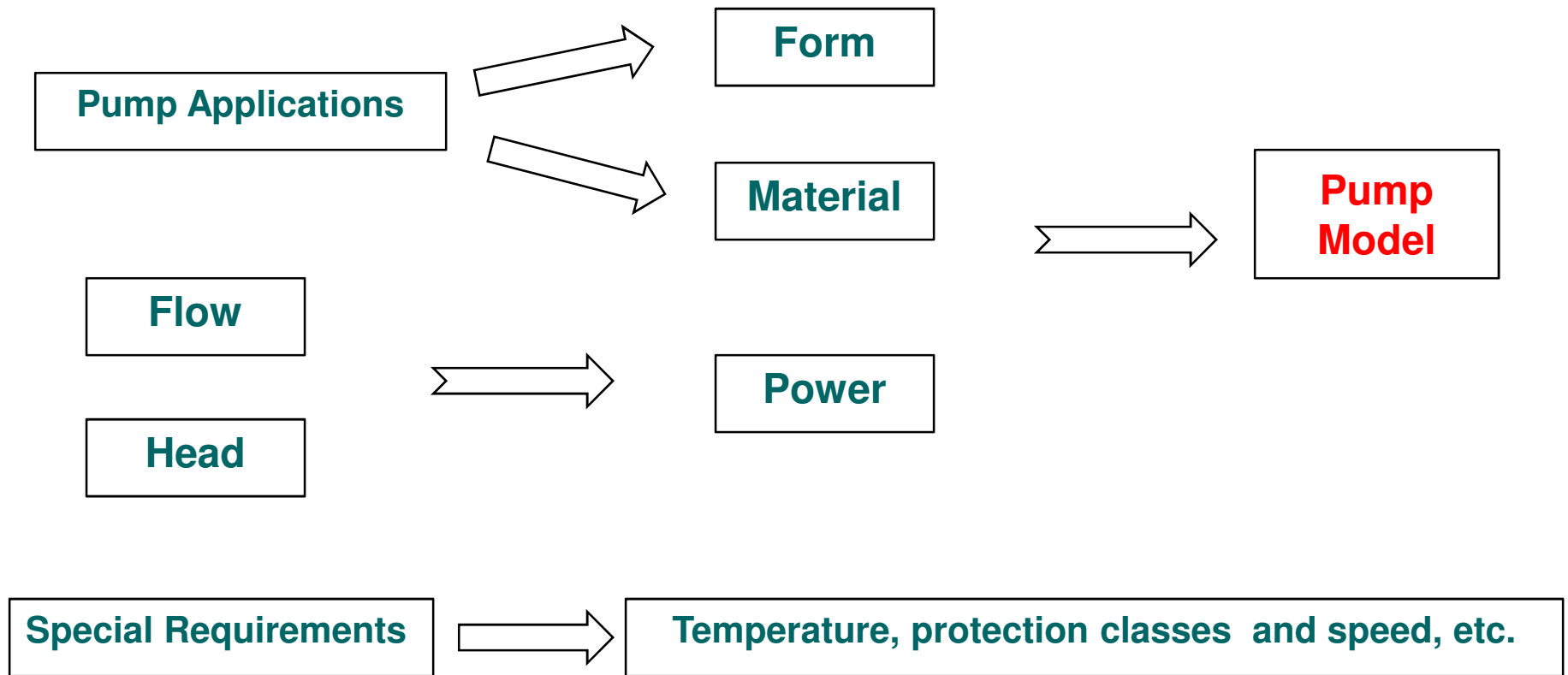
## Some Competitors

- ✓ Big-sized impeller
- ✓ Argon arc welding after spot welding with low strength
- ✓ Ugly surface



# Pump Selection

# Pump Selection Process



# Pipe Diameter



Single pump				
Optimal flow	Flow range	pump	Branch pipe DN	Confluence tube DN
6	3 ~ 8	SMVR5	32	40
11	5 ~ 13	SMVR10	40	50
18	9 ~ 23	SMVR15	50	65
22	11 ~ 28	SMVR20	50	65
32	16 ~ 40	SMVR32	65	80
45	25 ~ 55	SMVR45	80	100
70	35 ~ 80	SMVR64	100	125
90	50 ~ 110	SMVR90	100	125

Two pumps				
Optimal flow	Flow range	pump	Branch pipe DN	Confluence tube DN
12	6 ~ 16	SMVR5	32	50
22	10 ~ 26	SMVR10	40	65
36	18 ~ 46	SMVR15	50	80
44	22 ~ 56	SMVR20	50	100
64	32 ~ 80	SMVR32	65	125
90	50 ~ 110	SMVR45	80	150
140	70 ~ 160	SMVR64	100	150
180	100 ~ 220	SMVR90	100	200

**FOR WHERE IT REALLY MATTERS  
ACROSS THE GLOBE**



A central graphic featuring a blue world map with glowing white nodes and connecting lines, symbolizing global connectivity. Six inset images are placed around the map, each with a project name and location:

- THE SHARD, LONDON (top left)
- SWISS RE, LONDON (top right)
- CONOCO PHILIPS, INDONESIA (middle left)
- BP, CASPIAN SEA (middle right)
- FLAME TOWERS, BAKU (bottom left)
- MARINA BAY SANDS, SINGAPORE (bottom right)

**Thank You!**