



pompes  
**5**  
années de garantie

Pièces et main-d'œuvre  
Packages  
**8**  
années de garantie

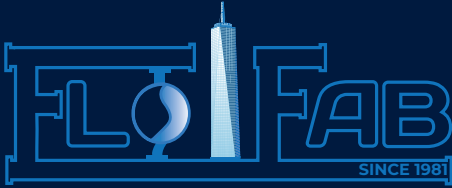


# API

610 STANDARD

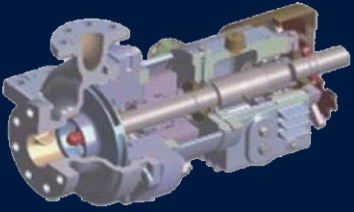
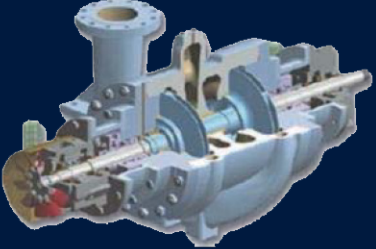
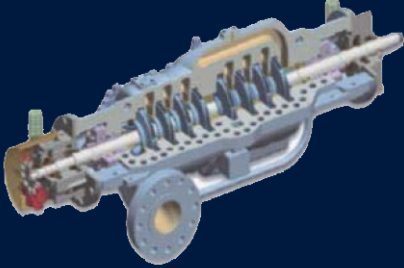
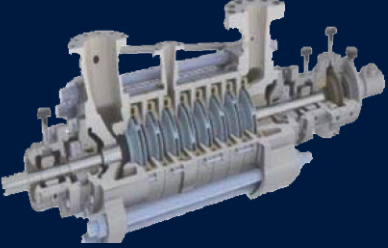

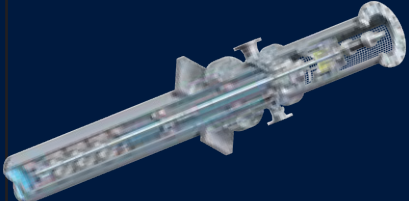
# CATALOG

**Centrifugal Pumps**  
for Petroleum,  
Petrochemical  
and Natural Industries

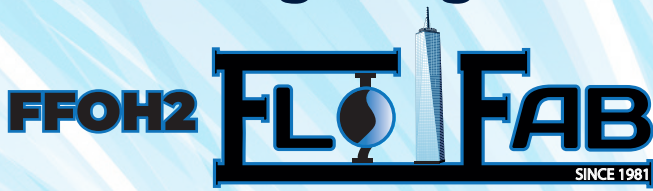


**API 610 STANDARD  
Centrifugal Pumps for Petroleum,  
Petrochemical and Natural Industries**

## Pump Segment Matrix

| <b>PUMP TYPE</b>  | <b>Flofab Models</b> | <b>Petro Chemical</b> | <b>Oil &amp; Gas</b> | <b>Coil Chemical</b> | <b>Power</b> | <b>Pulp &amp; paper</b> | <b>Food, matel</b> | <b>API Model</b> |
|---|----------------------|-----------------------|----------------------|----------------------|--------------|-------------------------|--------------------|------------------|
|    | <b>FFSHC</b>         | <b>X</b>              | <b>X</b>             | <b>X</b>             | <b>X</b>     |                         | <b>X</b>           | <b>FFOH2</b>     |
|    | <b>FFTR</b>          | <b>X</b>              | <b>X</b>             | <b>X</b>             | <b>X</b>     |                         |                    | <b>FFBB2</b>     |
|   | <b>FFMTA</b>         | <b>X</b>              | <b>X</b>             | <b>X</b>             | <b>X</b>     |                         | <b>X</b>           | <b>FFBB3</b>     |
|  | <b>FFMSTR</b>        | <b>X</b>              |                      | <b>X</b>             | <b>X</b>     |                         |                    | <b>FFBB4</b>     |
|  | <b>FFMDTR</b>        | <b>X</b>              | <b>X</b>             | <b>X</b>             | <b>X</b>     |                         |                    | <b>FFBB5</b>     |
|   | <b>FFLDD</b>         | <b>X</b>              |                      |                      | <b>X</b>     |                         |                    | <b>FFVS6</b>     |

# Overhung Single Stage Radially Split Pumps



## APPLICATION:

### Upstream

- Crude oil, oil products and liquefied gases including offshore
- Pressure boosting
- Water supply (sea and produced water)
- Fuel gas purification

### Downstream

- Gas fractionation
- Hydrocracking
- Catalytic cracking
- Isomerization
- Visbreaking
- Coking
- Demercaptanization
- Alkylation
- Hydrotreating

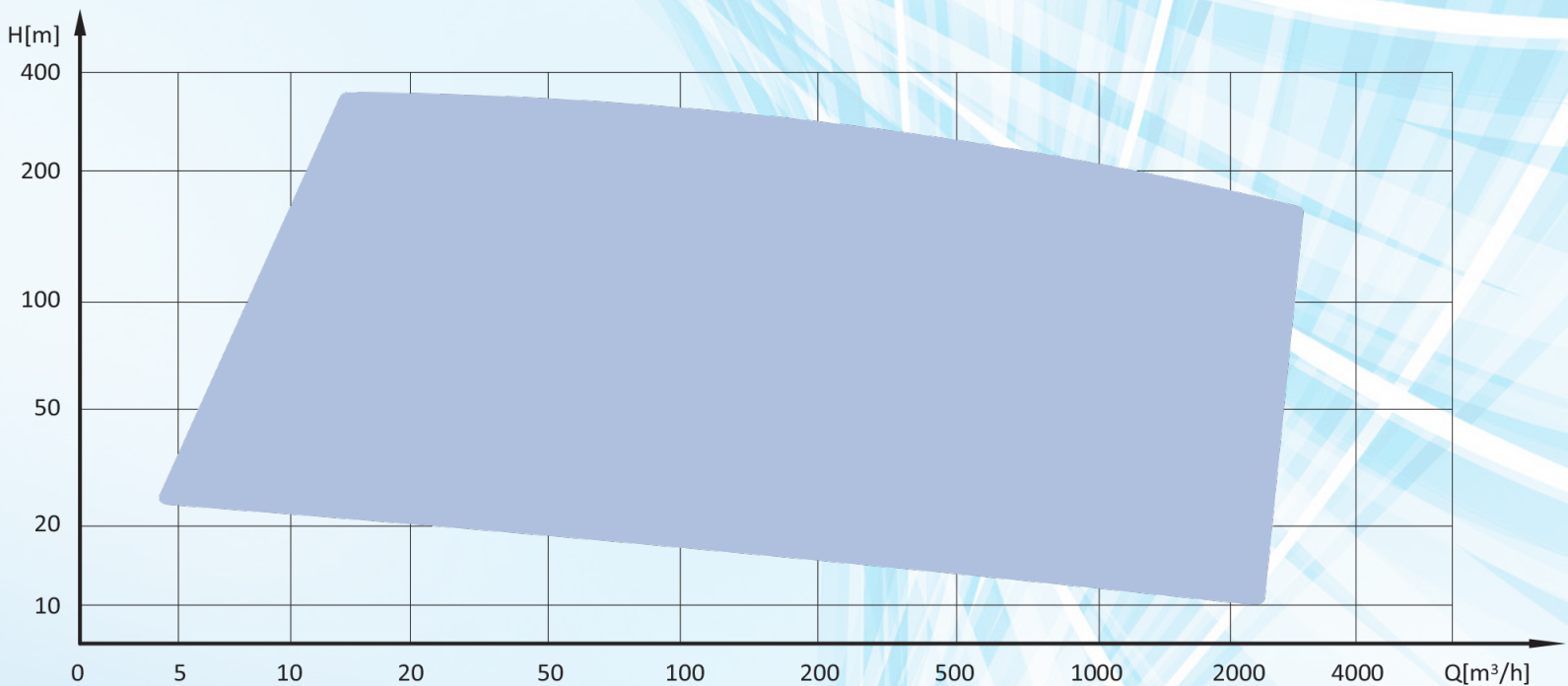
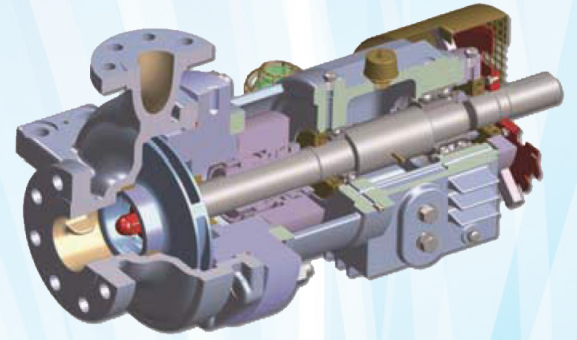
## PERFORMANCE RANGE:

Capacity: 2 ~ 2750 m<sup>3</sup>/h

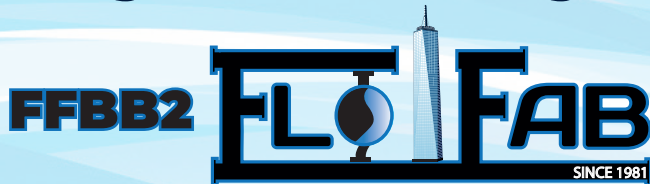
Head: 4 ~ 320 m

Working pressure: 5.0 Mpa

Operating temperature: -80 °C ~ 427 °C



# Single-/ Two-Stage Double Suction Radially Split Pumps



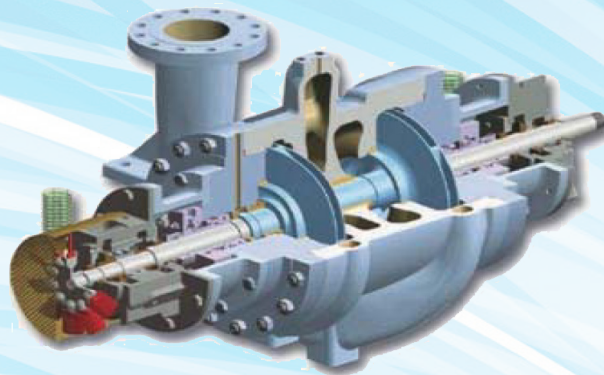
## APPLICATION:

### Upstream

- Crude oil, oil products and liquefied gases in upstream processes, including offshore
- Pressure boosting
- Gas and gas condensate processing
- Fuel gas purification
- Water supply

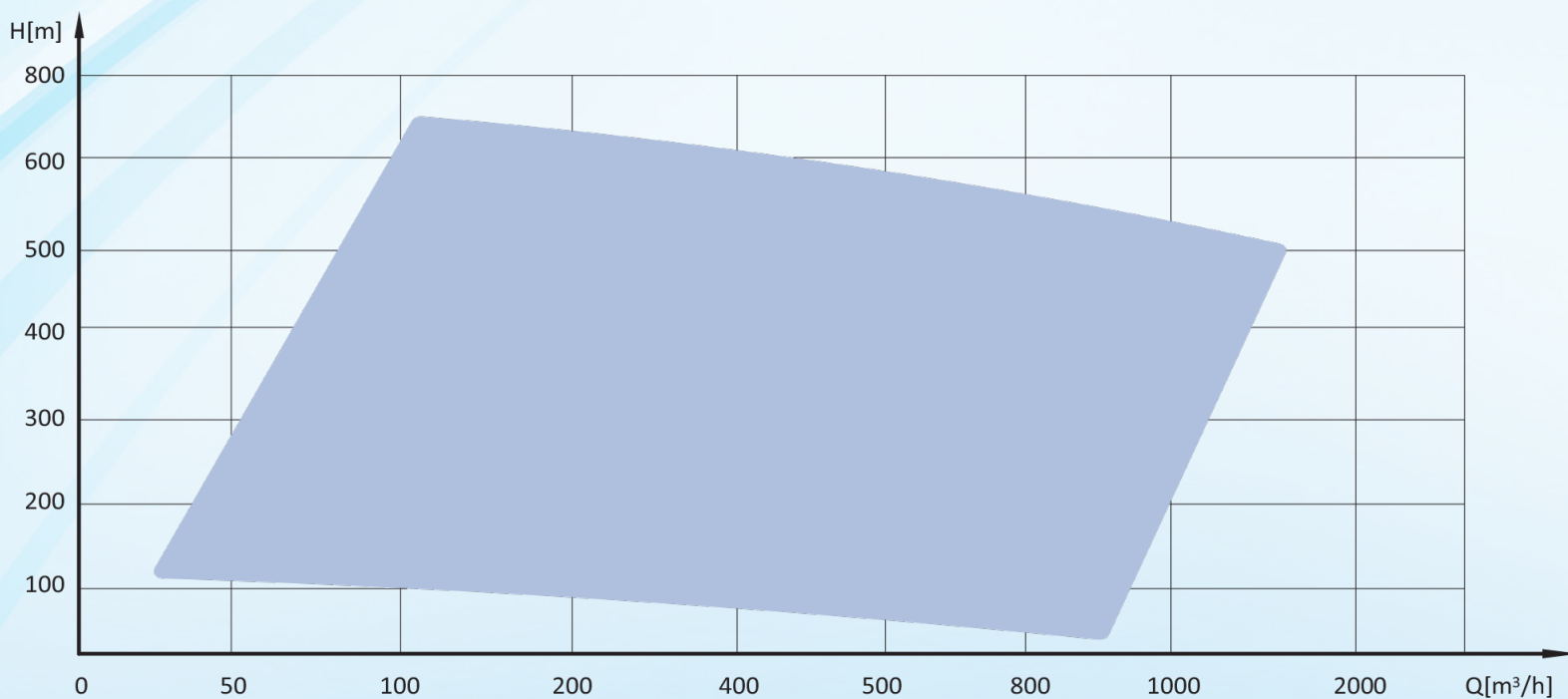
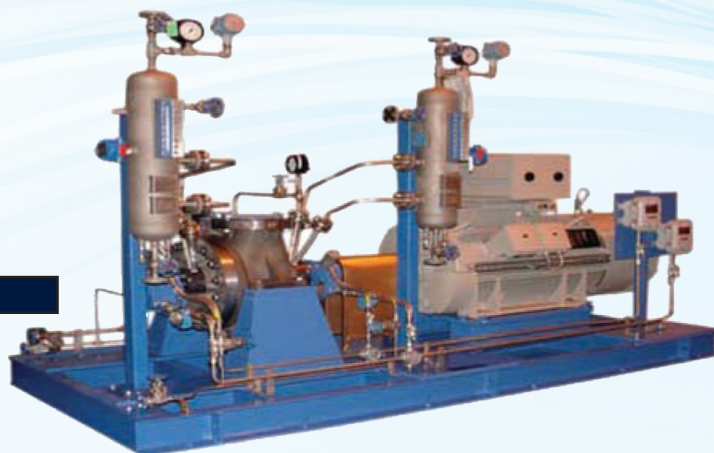
### Downstream

- Gas fractionation
- Atmospheric/vacuum distillation
- Hydrocracking
- Catalytic cracking
- Isomerization
- Demercaptanization
- Alkylation
- Reforming

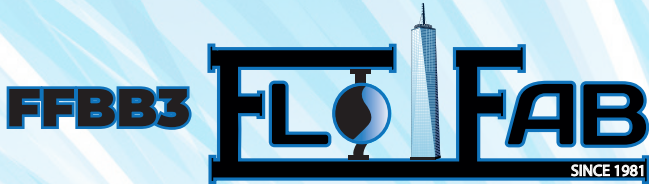


## PERFORMANCE RANGE:

Capacity: 40 ~ 4500 m<sup>3</sup>/h  
Head: ~ 460 m  
Working pressure: ~ 15 Mpa  
Operating temperature: -80 °C ~ 427 °C



# Multistage Axially Split Pumps



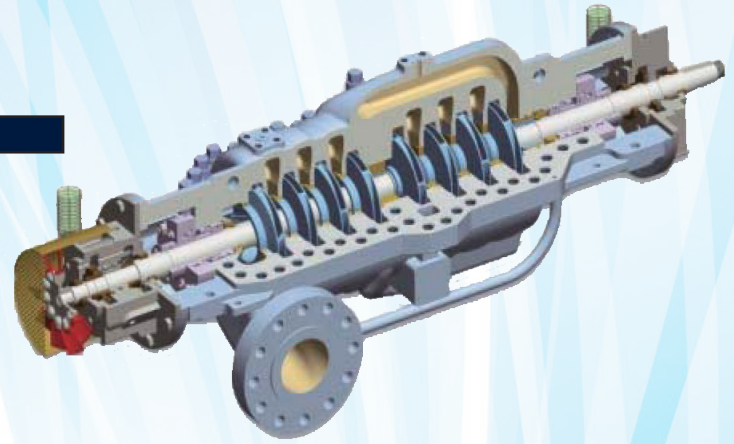
## APPLICATION:

### Upstream

- Crude oil, oil products and liquefied gases in upstream processes, including offshore
- Pressure boosting
- Gas and gas condensate processing
- Fuel gas purification

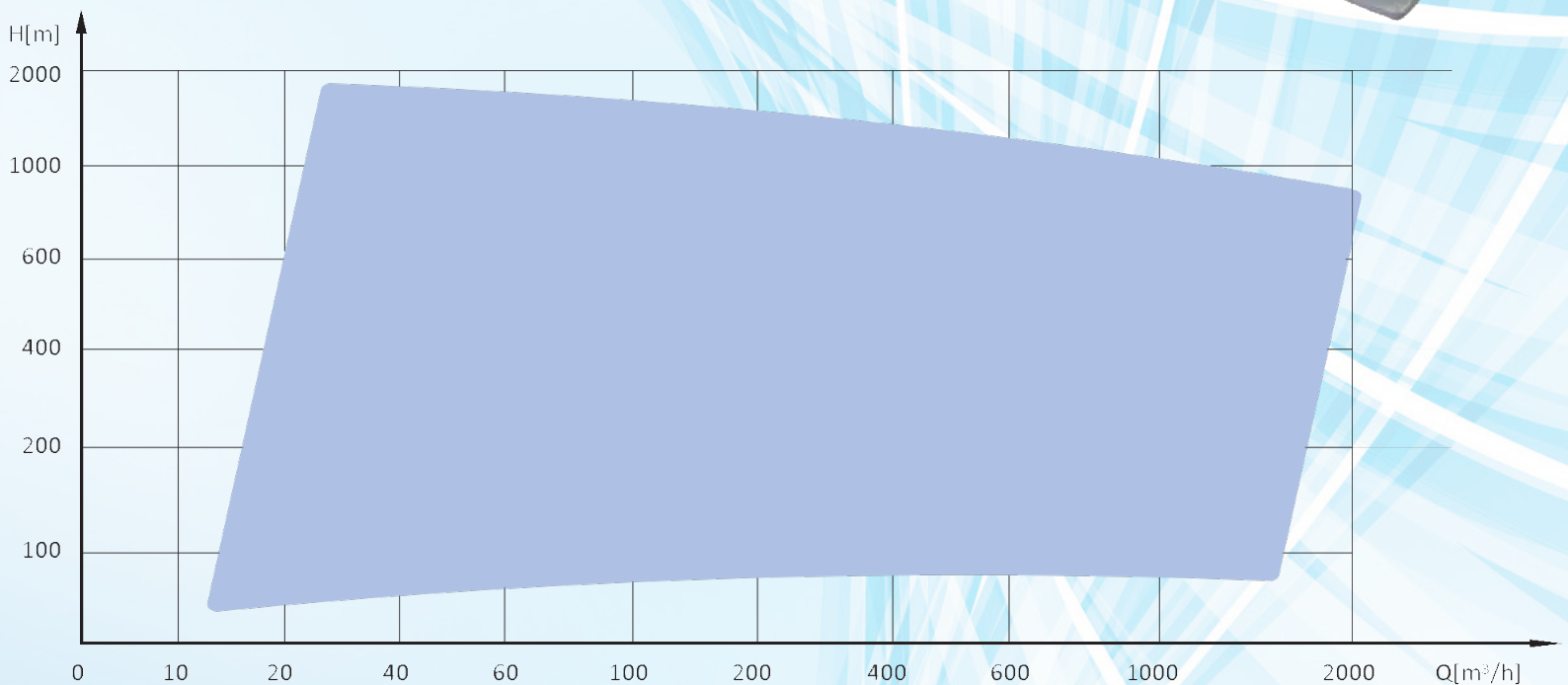
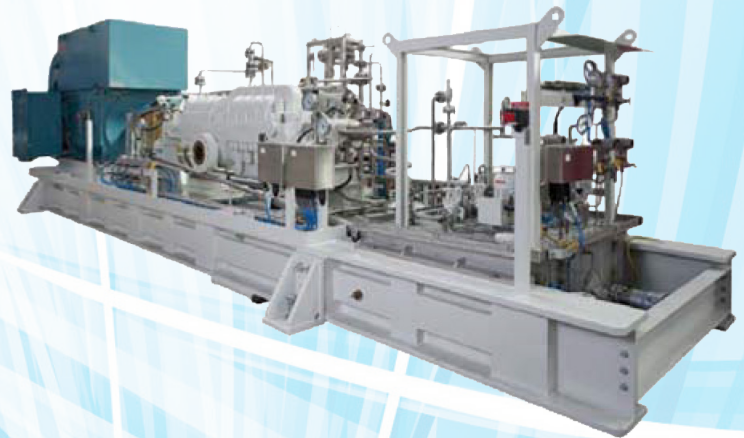
### Downstream

- Catalytic cracking
- Isomerization

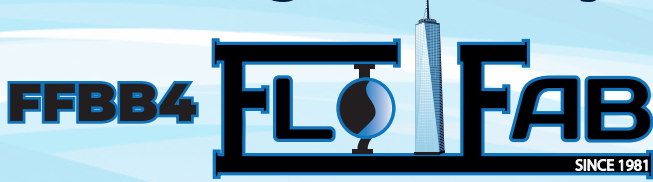


## PERFORMANCE RANGE:

Capacity: 8 ~ 1500 m<sup>3</sup>/h  
Head: ~ 2220 m  
Working pressure: ~ 25 Mpa  
Operating temperature: -45 °C ~ 200 °C



# Multistage Radially Split Pumps



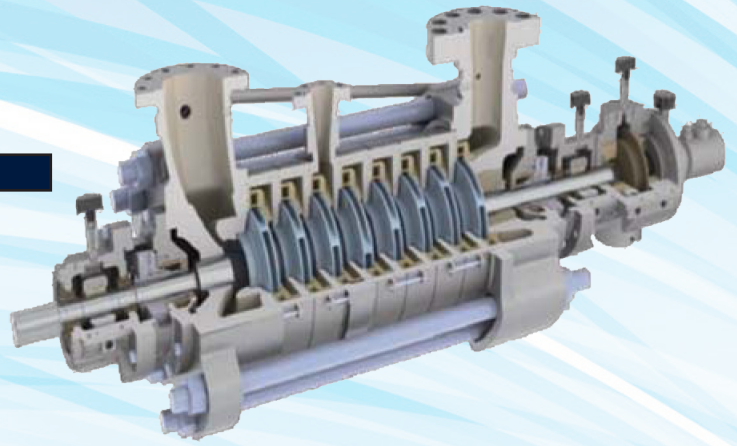
## APPLICATION:

### Upstream

- Crude oil, oil products and liquefied gases in upstream processes, including offshore
- Pre-processing of crude oil and gas
- Hot oil injection system
- Water injection system (produced and sea water)
- Fuel gas purification

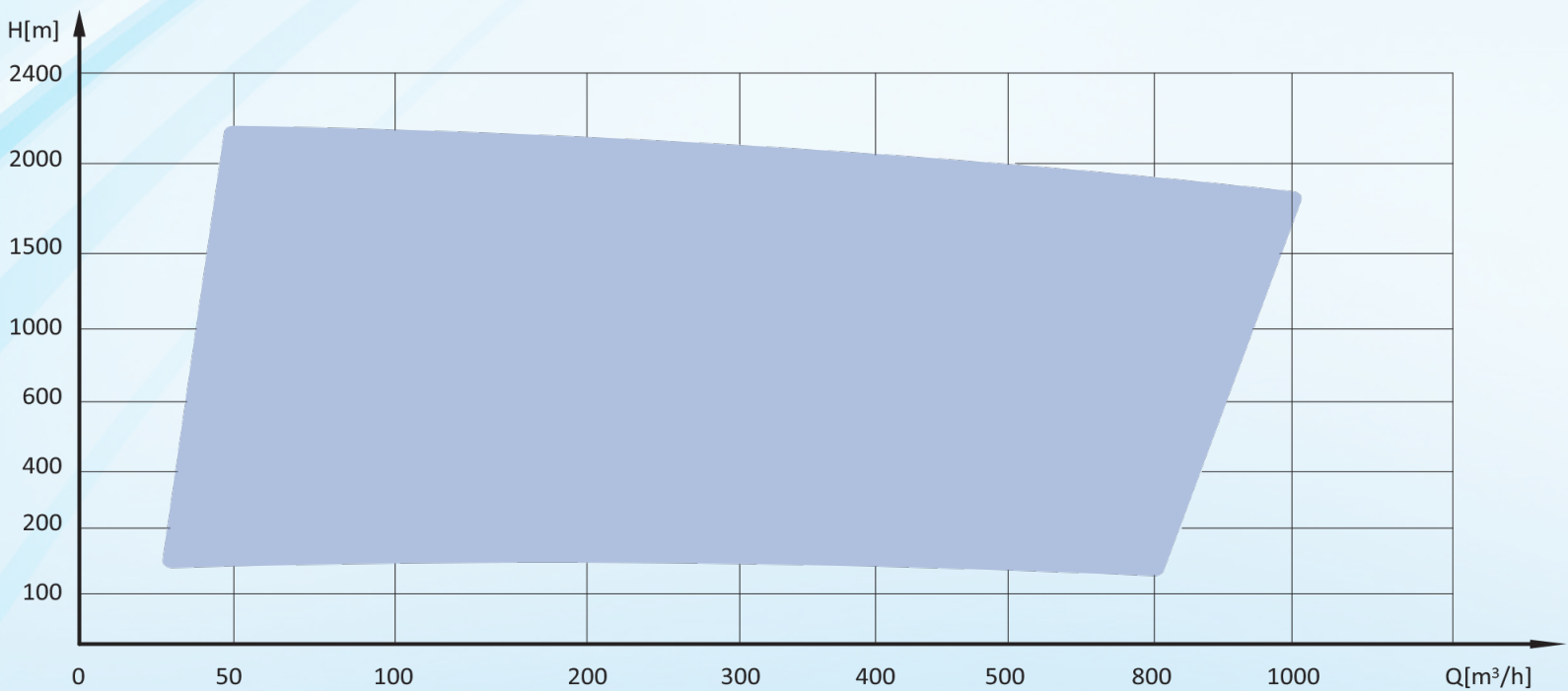
### Downstream

- Injection of oil, oil products and various liquids in refining and petrochemical processes

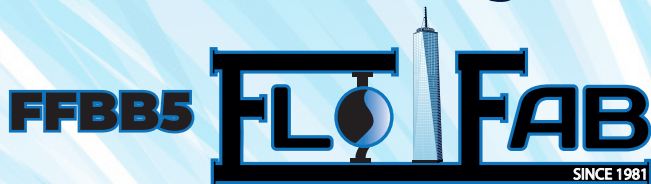


## PERFORMANCE RANGE:

Capacity: 9 ~ 1200 m<sup>3</sup>/h  
Head: 140 ~ 3200 m  
Working pressure: ~ 35 Mpa  
Operating temperature: -80 °C ~ 220 °C



# Barrel Multistage Radially Split Pumps



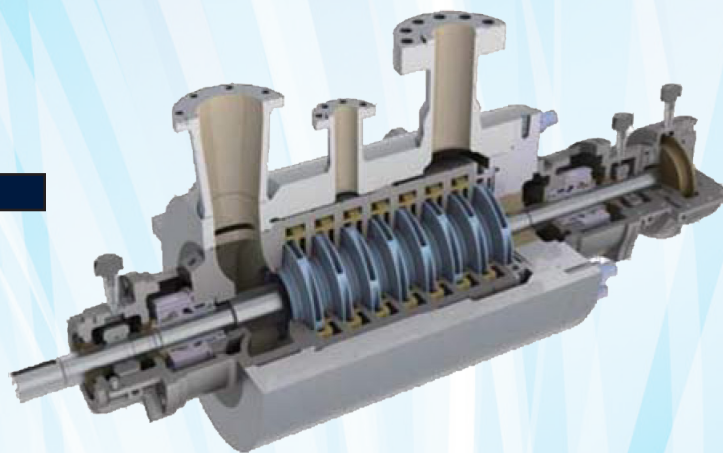
## APPLICATION:

### Upstream

- Crude oil, oil products and liquefied gases in upstream processes, including offshore
- Water injection system (produced and sea water)
- Hoot oil injection system

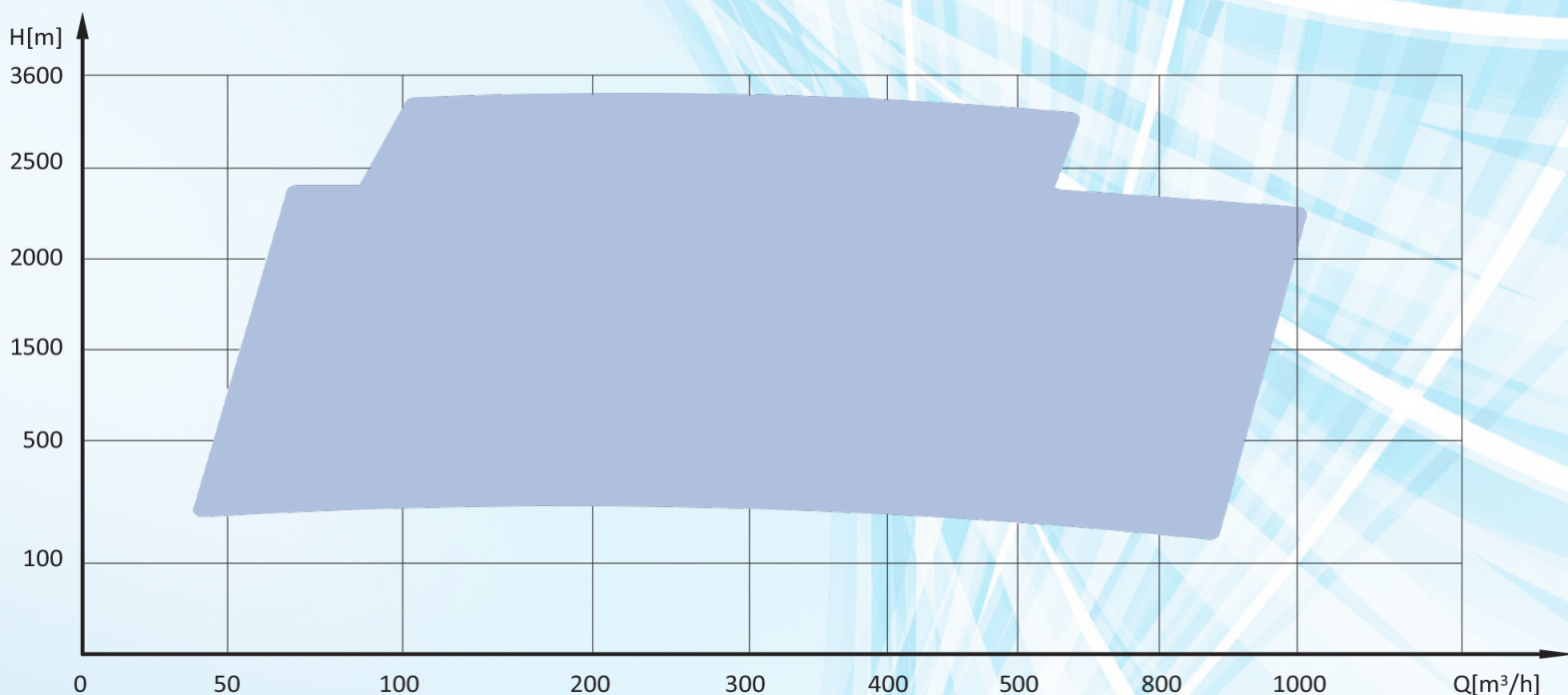
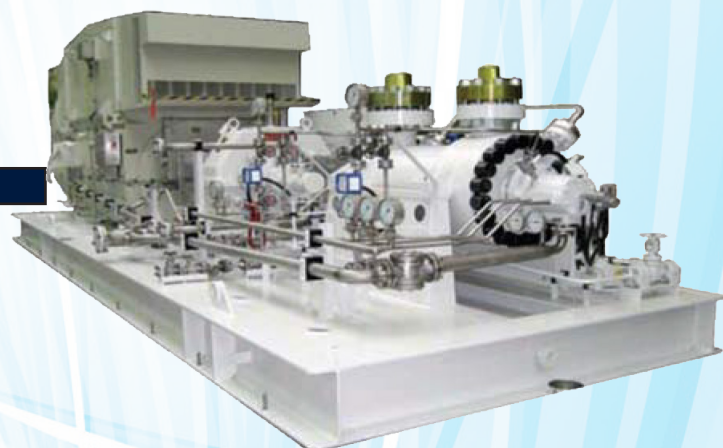
### Downstream

- Gas fractionation
- Coking
- Demercaptanization
- Alkylolation
- Reforming

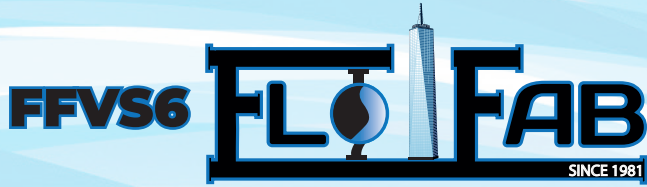


## PERFORMANCE RANGE:

Capacity: 9 ~ 1200 m<sup>3</sup>/h  
Head: ~ 3200 m  
Working pressure: ~ 35 Mpa  
Operating temperature: -80 °C ~ 450 °C



# Vertically Suspended Pumps - Double Casing Multistage Pumps With Diffusers/Bowls



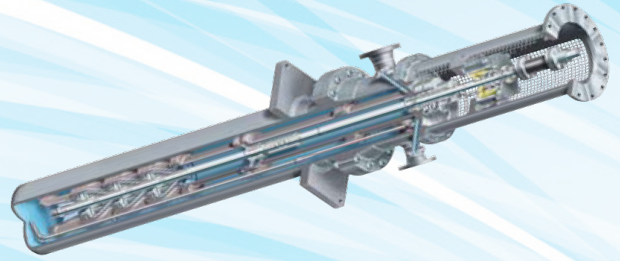
## APPLICATION:

### Upstream

- Transportation of crude oil, oil products and liquefied gases
- Pressure boosting

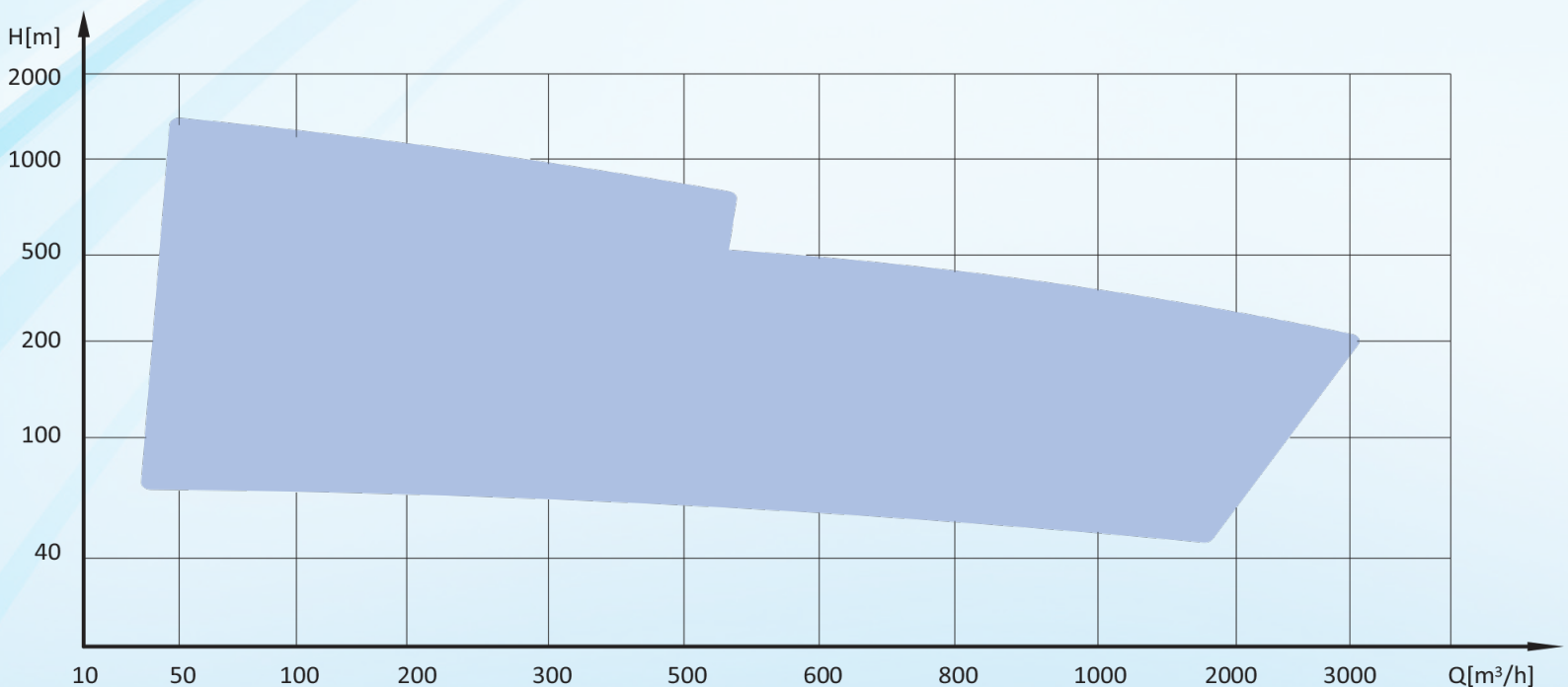
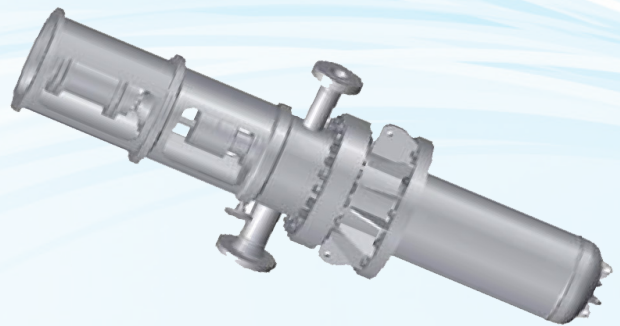
### Downstream

- Gas fractionation
- Demercaptanization
- Visbreaking
- Deforming



## PERFORMANCE RANGE:

Capacity: 10 ~ 1300 m<sup>3</sup>/h  
 Head: 40 ~ 1200 m  
 Working pressure: up to 15 Mpa  
 Operating temperature: -110 °C ~ 250 °C







# MATERIAL CLASS

## According to API 610 11<sup>TH</sup> Edition

| <b>Pump parts</b>         | <b>Materials Classes</b> |              |              |              |              |              |              |
|---------------------------|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                           | <b>I-1</b>               | <b>I-2</b>   | <b>S-1</b>   | <b>S-3</b>   | <b>S-4</b>   | <b>S-5</b>   | <b>S-6</b>   |
| <b>Casing</b>             | Cast iron                | Cast iron    | Carbon steel | Carbon steel | Carbon steel | Carbon steel | Carbon steel |
| <b>Inner casing parts</b> | Cast iron                | Bronze       | Cast iron    | Ni-resist    | Cast iron    | Carbon steel | 12% CR       |
| <b>Shaft</b>              | Carbon steel             | Carbon steel | Carbon steel | Carbon steel | Carbon steel | AISI 4140    | AISI 4140    |
| <b>Impeller</b>           | Cast iron                | Bronze       | Cast iron    | Ni-resist    | Carbon steel | Carbon steel | 12% CR       |

| <b>Pump parts</b>         | <b>Materials Classes</b> |              |            |            |            |            |              |
|---------------------------|--------------------------|--------------|------------|------------|------------|------------|--------------|
|                           | <b>S-8</b>               | <b>S-9</b>   | <b>C-6</b> | <b>A-7</b> | <b>A-8</b> | <b>D-1</b> | <b>D-2</b>   |
| <b>Casing</b>             | Carbon steel             | Carbon steel | 12% CR     | AUS        | 316 AUS    | Duplex     | Super Duplex |
| <b>Inner casing parts</b> | 316 AUS                  | Ni-Cu alloy  | 12% CR     | AUS        | 316 AUS    | Duplex     | Super Duplex |
| <b>Shaft</b>              | 316 AUS                  | Ni-Cu alloy  | 12% CR     | AUS        | 316 AUS    | Duplex     | Super Duplex |
| <b>Impeller</b>           | 316 AUS                  | Ni-Cu alloy  | 12% CR     | AUS        | 316 AUS    | Duplex     | Super Duplex |

## SCOPE OF SUPPLY

**Pump:** according to API 610

**Driver:** electric motor from SIEMENS, ABB, WEG and other manufacturers

**Bearings:** from SKF, NSK, FAG and other leading manufacturers

**Coupling:** from John Crane and Trumy.

**Shaft Sealing:** mechanicals seals from John Crane EagleBurgmann, and FFlowserve.

**Sensors:** auxiliary systems

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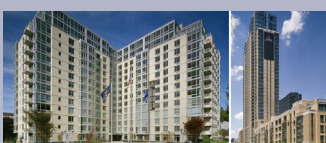
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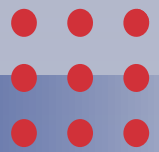
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