



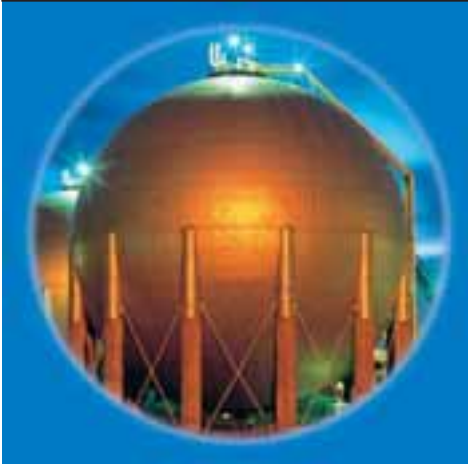
## Side Channel Pumps



SIHI Pumps  
[www.sterlingamericas.com](http://www.sterlingamericas.com)



## ***Economical, ecological and safe***



For 75 years SIHI has built Side Channel Pumps.

These pumps are applied especially in the following industrial branches: Side Channel Pumps achieve, in the low capacity range, higher heads and better efficiency, even if they are of smaller size than a centrifugal size. Significant advantages include the self-priming ability as well as the ability to handle great portions of gas. This guarantees highly reliable pumps in many pump process applications.

■ **Chemical industry**

■ **LPG industry**

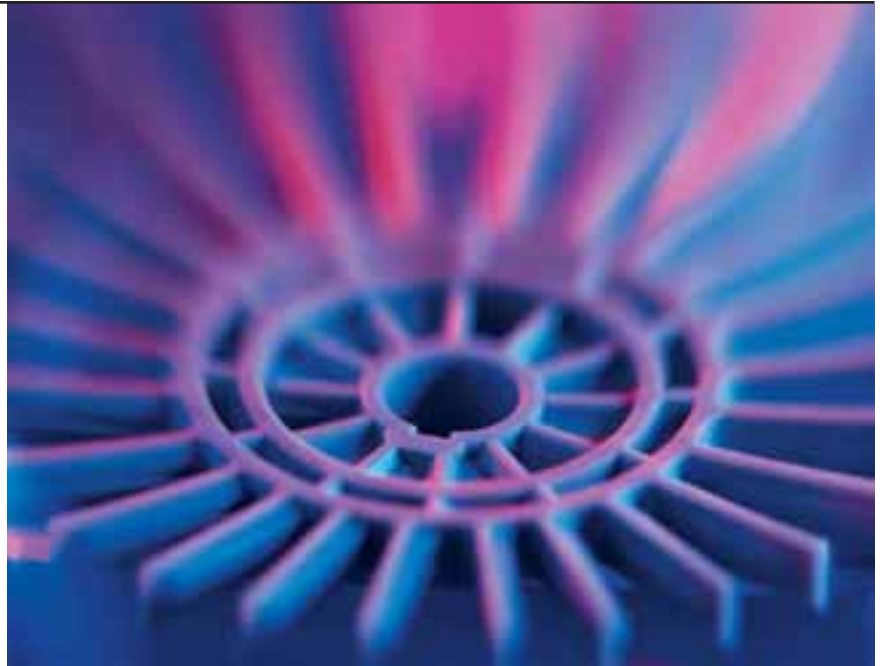
■ **Food industry**

■ **Process engineering**

***SIHI Side Channel  
Pumps: The solution  
for critical duties***



# Materials

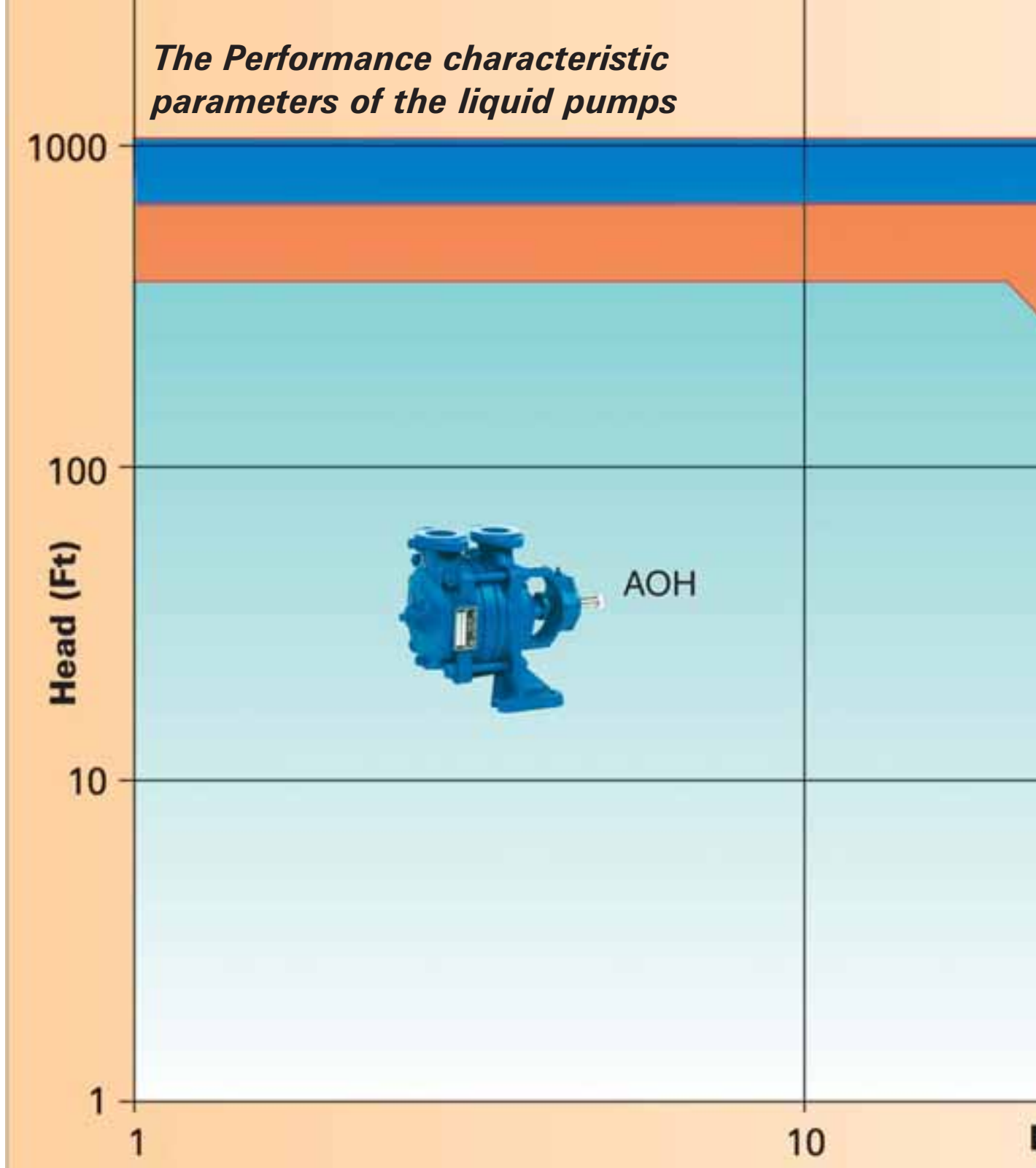


## Materials of Construction

Materials	Designation	CEH	AEH	AKH	AOH
Cast Iron, Bronze Impellers	0A	X	X	X	X
Cast Iron, SS Impellers	0B	X	X	X	X
Ductile Iron Bronze Impellers	1A	X	X		
Ductile Iron, SS Impellers	1B	X	X		
All Stainless Steel	4B	X	X	X	
Ductile Iron Paek Impellers	1F	X	X		
All Stainless Steel, Paek Impellers	4F	X	X		



## *The Performance characteristic parameters of the liquid pumps*



### **AOH**

**Side channel pump**

**Technical data:**

*Capacity: to 40 GPM (to 9 M<sup>3</sup>/Hr)*

*Heads: to 390 FT. (122 m)*

*Temperature: to 250°F (120°C)*

*Pressure: to 150 PSIG (10 bar)*

*Viscosity: to 1400 SSU*

*Speeds: to 1750 RPM*



### **AKH**

**Side channel pump**

**Technical data:**

*Capacity: 30 to 160 GPM (7 to 36 M<sup>3</sup>/Hr)*

*Heads: to 650 FT. (198 m)*

*Temperature: to 250°F (120°C)*

*Pressure: to 225 PSIG (16 bar)*

*Viscosity: to 1400 SSU*

*Speeds: to 1750 RPM*



### **CEH**

**Side channel pump with NPSH stage**

**Technical data:**

*Capacity: to 160 GPM (to 36 M<sup>3</sup>/Hr)*

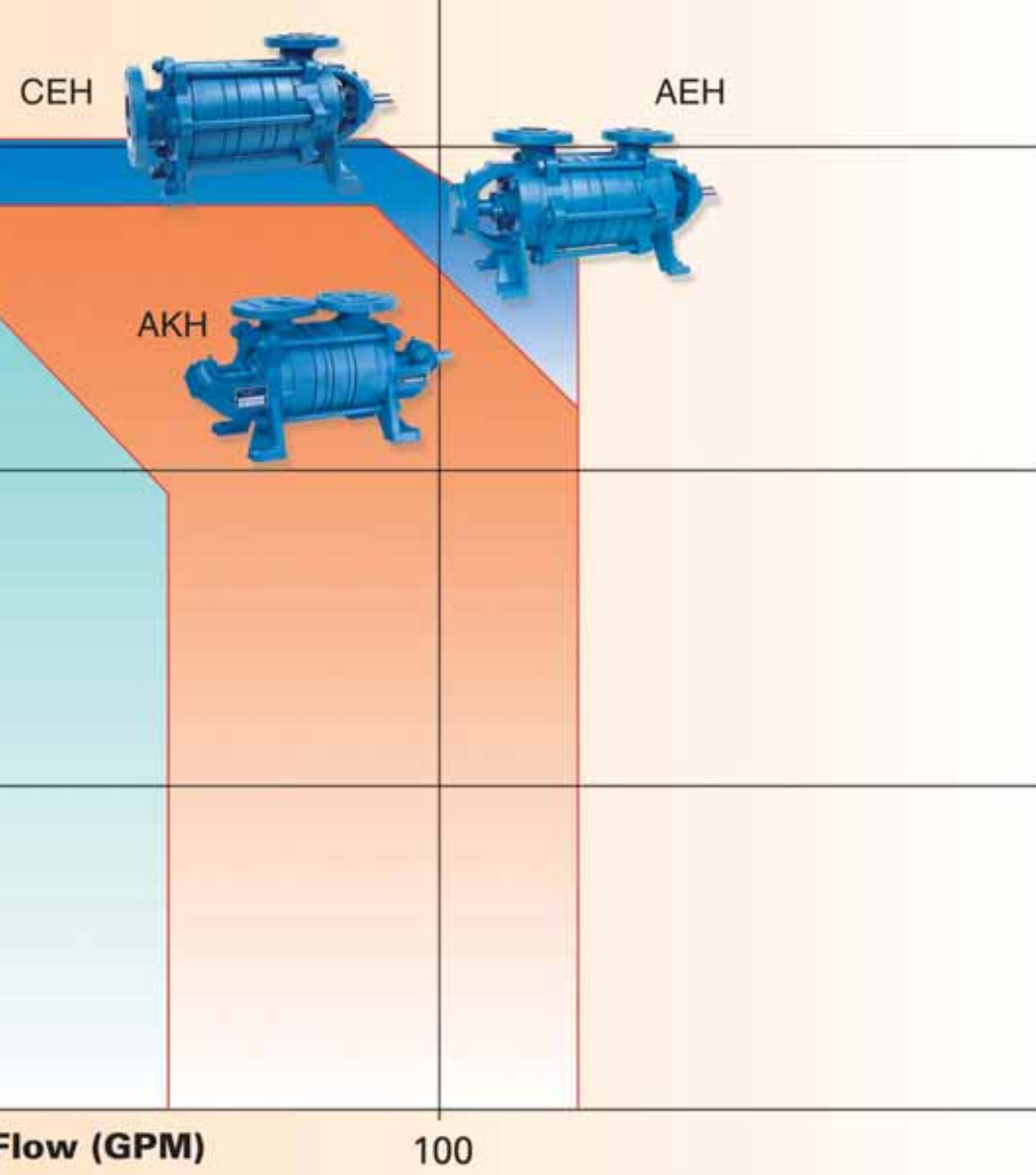
*Heads: to 1000 FT. (305 m)*

*Temperature: to 430°F (220°C)*

*Pressure: to 580 PSIG (40 bar)*

*Viscosity: to 1400 SSU*

*Speeds: to 1750 RPM*



## ***AEH***

### **Side channel pump**

#### **Technical data:**

*Capacity: to 160 GPM (to 36 M<sup>3</sup>/Hr)*

*Heads: to 1000 FT. (305 m)*

*Temperature: to 430°F (220°C)*

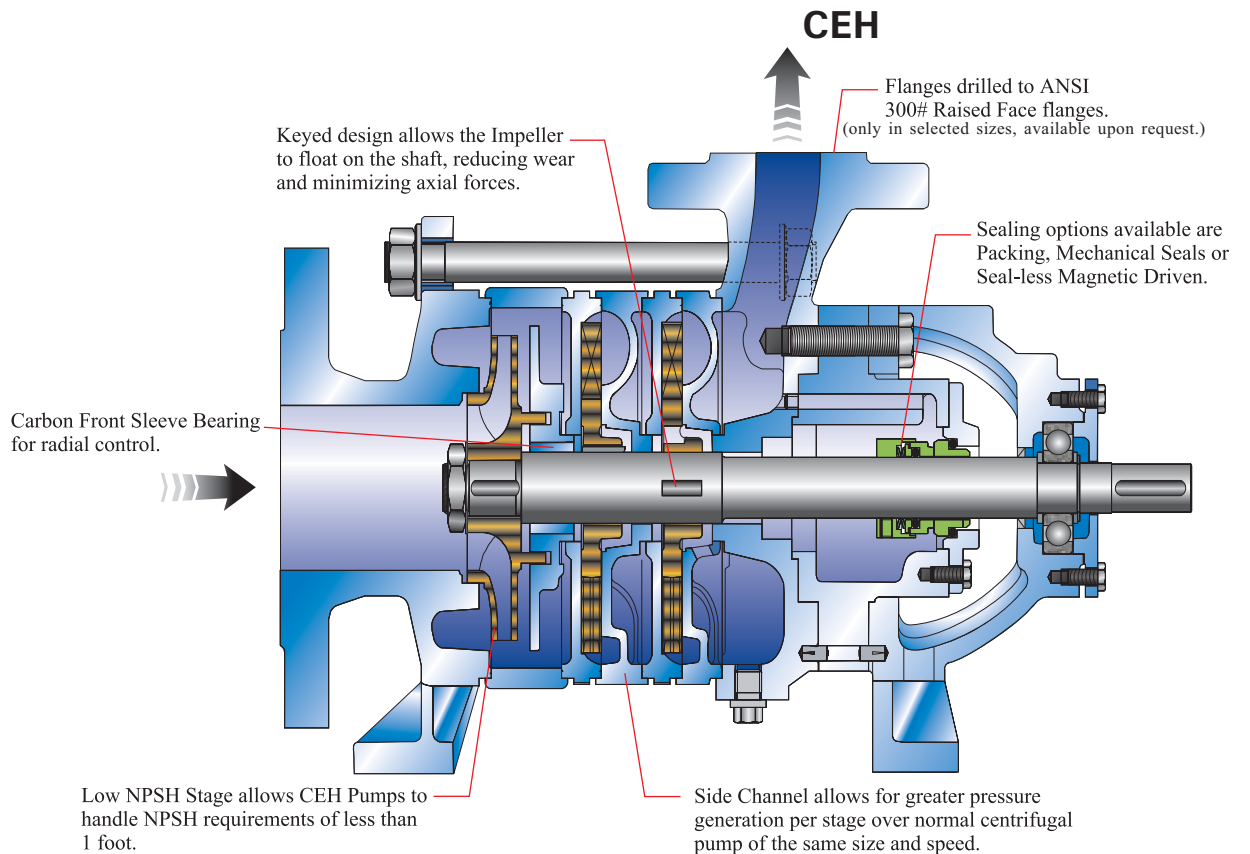
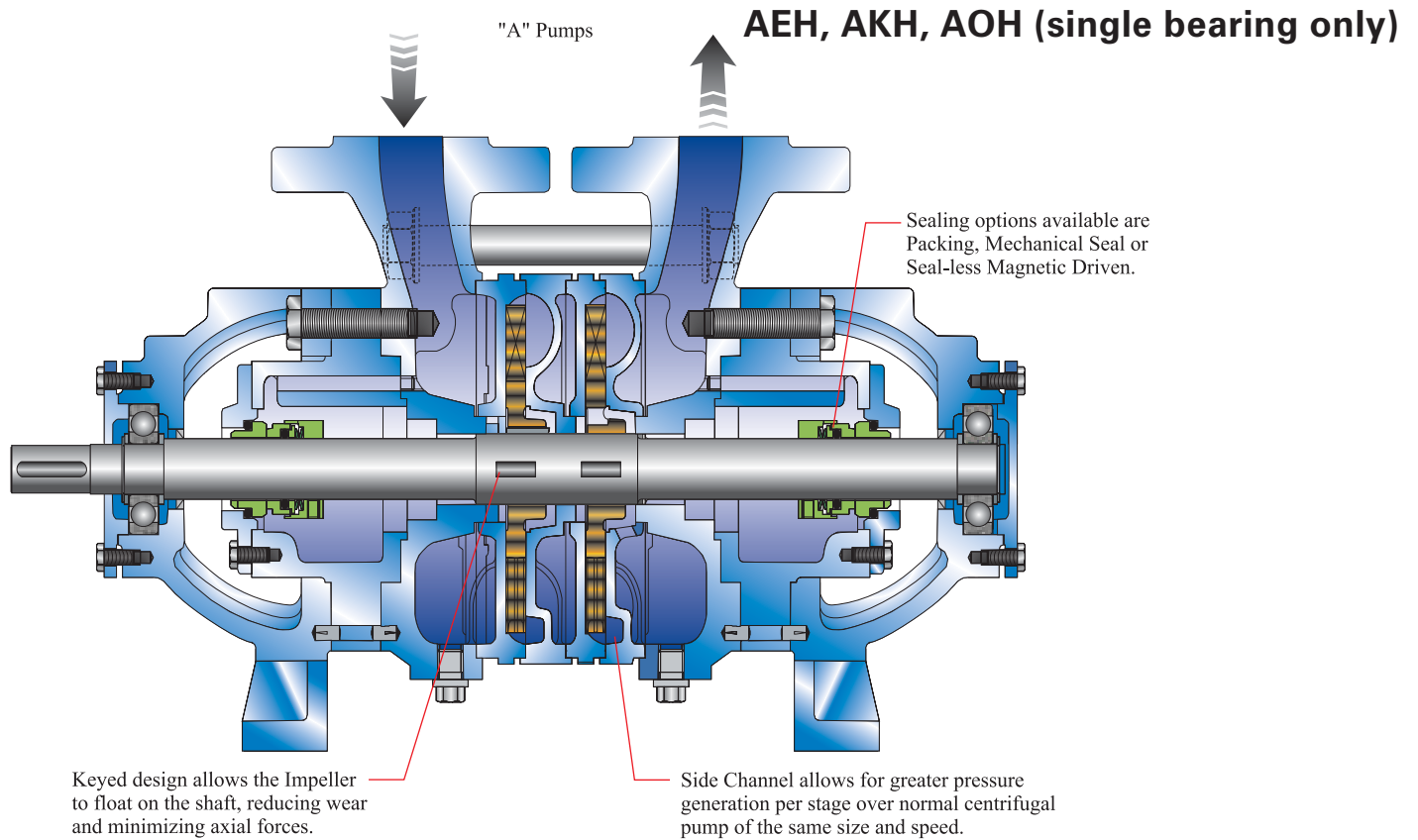
*Pressure: to 580 PSIG (40 bar)*

*Viscosity: to 1400 SSU*

*Speeds: to 1750 RPM*

**An optional magnetic coupling or canned motor is available for the AEH and CEH if required for sealless applications.**

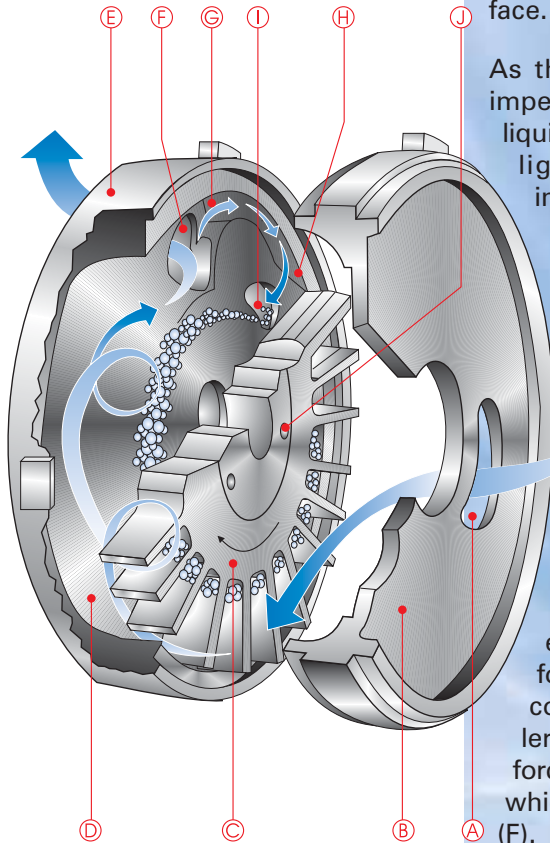
# Proven design



## Side channel principle of operation

The design principle of the lateral channel stages of SIHI turbine type pumps and low NPSH pumps is such that air or vapor locking is eliminated.

Above is shown a view of the lateral channel stage. Liquid or a liquid vapor mixture enters the stage through the inlet port (A) in the suction intermediate plate (B). The internal surface of the suction intermediate plate (B) has a flat surface, not like a conventional turbine plate which has a channeled surface.



As the liquid vapor mixture enters the rotating impeller (C), centrifugal action forces the heavier liquid toward the periphery of the impeller while the lighter vapors collect near the root of the impeller blade. Centrifugal force will then cause the liquid to exit the impeller at the tip into the unique SIHI Side Channel (D) located in the discharge intermediate plate (E). It then reenters the impeller at the root creating a helical flow path. It is this helical flow path that enables the SIHI Side Channel Pumps to generate greater pressure as compared to a standard centrifugal pump of equal size and speed.

The major portion of liquid is discharged through the discharge port (F), the remainder is guided along the mini channel (G) which eventually dead ends at point (H). The liquid is forced toward the root of the impeller blade which compresses any vapor entrained near the impeller hub. The compressed liquid and vapor is now forced through the secondary discharge port (I) after which it rejoins the liquid discharged through port (F). The problem of continual air or vapor build-up within the stage has been overcome by this and is repeated in the subsequent identical stages and eventually discharged from the pump.

The number of stages can be varied within limits to provide the necessary total head for the pump. Where multiple stages are utilized, the location of suction inlet (A) and discharge ports (F and I) are staggered radially for balancing purposes and will minimize shaft deflection.

The impeller in each stage, although keyed for radial drive, is allowed to "float" axially. Balance holes (J) in the impeller hub and the narrow clearances between the impeller and the casing center the impeller hydraulically, thus eliminating axial thrust on the bearings.

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