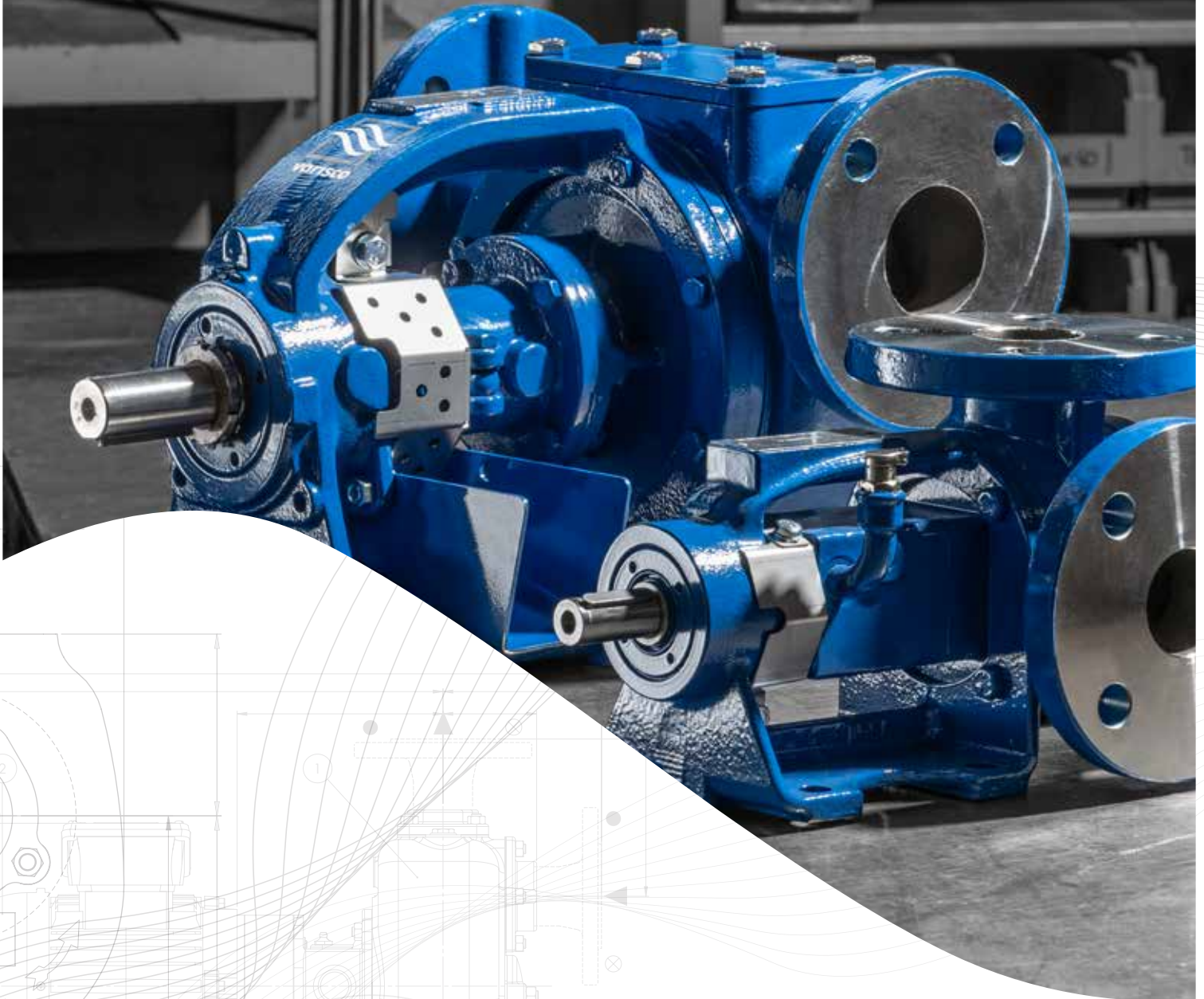


# Positive displacement internal gear pumps

## V and SAXMAG V Series



**varisco**<sup>®</sup>  
solid pumping solutions

# Positive displacement internal gear pumps

## V and SAXMAG V Series

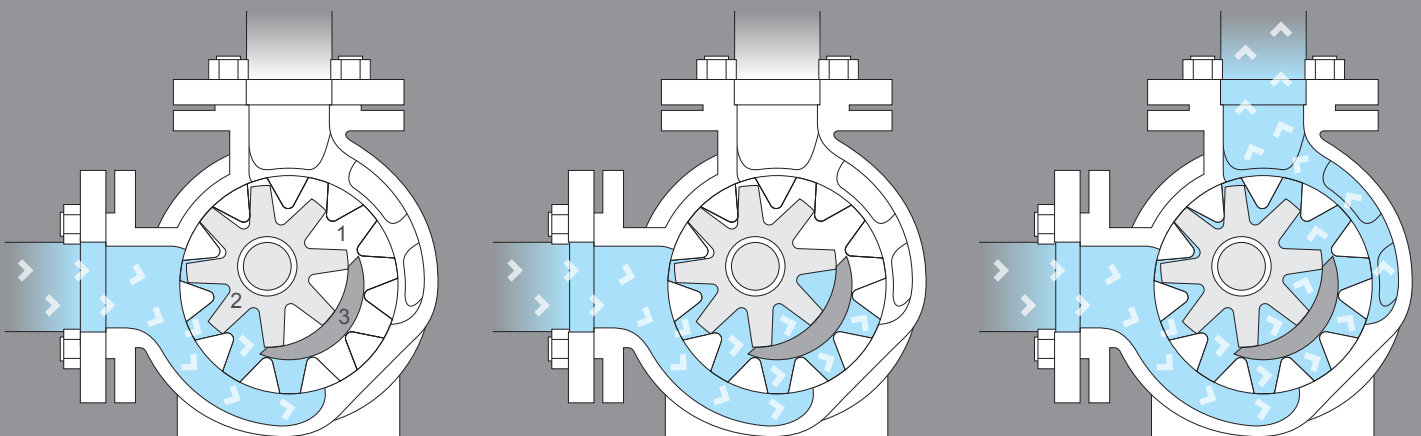
The **V** and **SAXMAG V** series internal gear pumps are designed to work in demanding environments and are used to transport viscous liquids even if they contain abrasive powders, as long as they do not contain solid bodies.

Active since 1932, Varisco boasts a long and consolidated experience in the design and production of pumps for use in industrial processes. All products are characterized by their reliability and quality and are tested at the internal Research and development center.



## Working principle

V pumps are internal gear positive displacement rotary pumps. The flow is generated by two gears: the rotor and idler, one inside the other, separated by a crescent. As the gears rotate, liquid is drawn into the spaces created between the gears and the crescent. When the gears mesh, the liquid is forced out of the pump. The result is a smooth flow of liquid and high capacity combined with compact size.

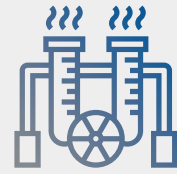




# Applications



Chemicals: solvents, acids, alkalis, polyols, filled polyols, isocyanates, rubbers, latex and polyester resins



Petroleum products: diesel, fuel oil, lubricating oil, additives and crude oil



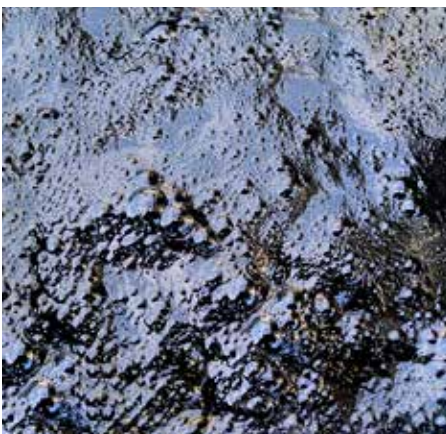
Soaps and cleaning products: surfactants, liquid cleaning products, products for personal hygiene



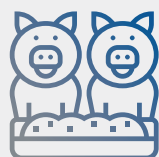
Adhesives: glues, epoxy resins



Paints and inks: printing ink, lacquers, linings, automotive paint, additives



High temperature liquids: bitumen, pitch, tar, bitumen emulsions and diathermic oil



Animal feed products: food pastes, liquid feed, vegetable oil and animal fats



Food industry products: molasses, chocolate\*, cocoa butter and glucose

\* CHOCO series with MOCA certification available - regulation no. 1935/2004



# V Series

## Main characteristics of the range

V volumetric internal gear pumps are used in applications where the management of clean fluids with high viscosities is required.

They are used in all industrial applications where a delicate treatment of the pumped product is required, preventing chemical-physical alterations.

Volumetric rotary, they ensure flow rates proportional to the rotational speed and constant pulse-free flows, regardless of the back pressure.



EASY MAINTENANCE



CERTIFICATIONS:

- ATEX 2014/34/EU
- EC NO. 1935/2004 (CHOCO SERIES)
- API 676 (EXCEPTS)



### CONSTRUCTION CHARACTERISTICS

- > Axial packing, mechanical, lip, single or double seals
- > Double shaft support through large bearings for axial and radial loads and shaft and idler bushings available in cast iron, bronze, graphite, tungsten carbide
- > Dedicated ring nuts for tolerance axial adjustment
- > Hardened steel or stainless steel shaft
  - Hardened steel, stainless steel or tungsten carbide pin

### TECHNICAL DATA

Max flow rate up to 240 m<sup>3</sup>/h - 1.056 USGPM

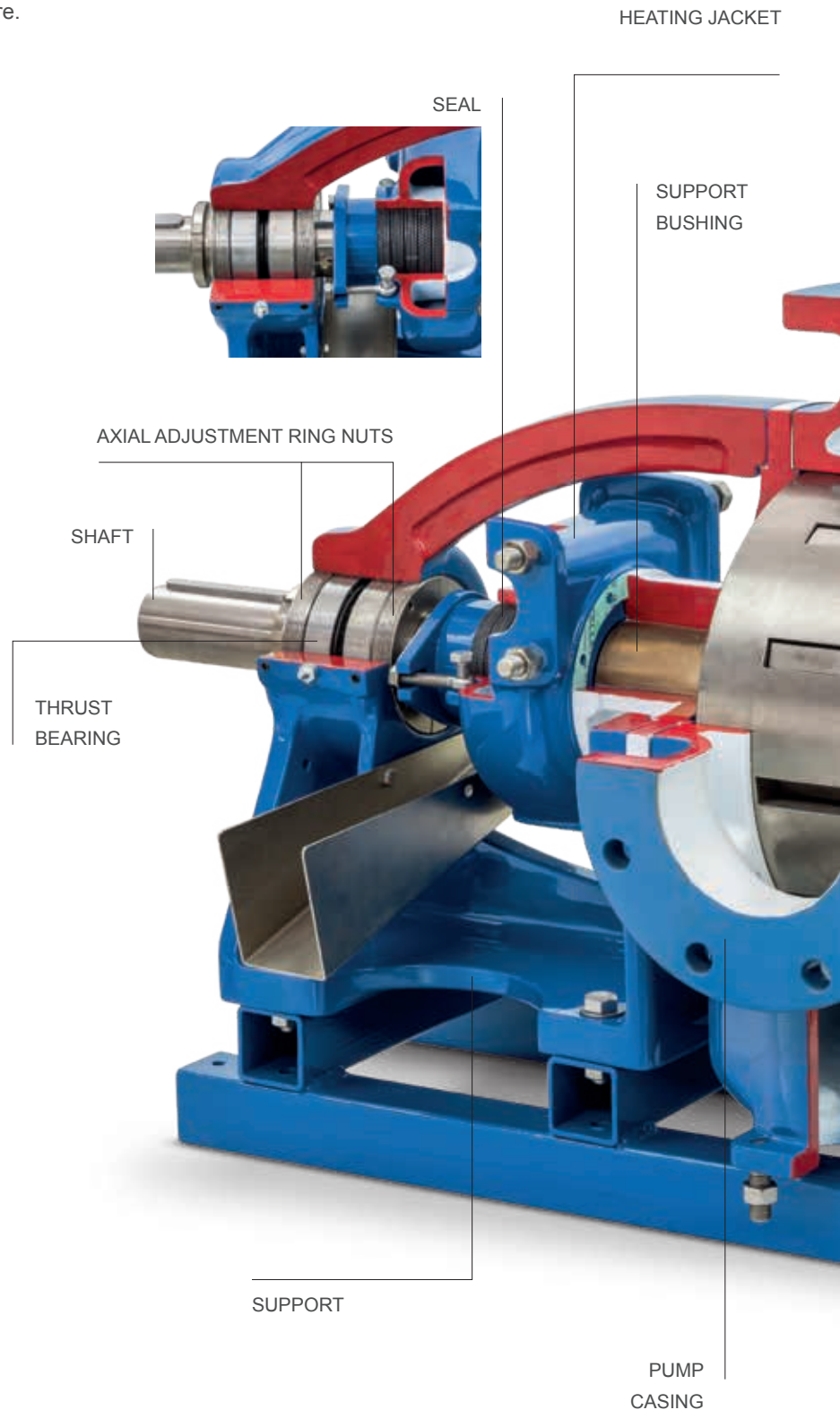
Viscosity:

- Standard version from 20 to 60,000 mm<sup>2</sup>/s
- Version over 60,000 mm<sup>2</sup>/s on request

Max pressure up to 16 bar - 232 psi

Max temperature 200°C (HT version: 300°C)  
392°F max (HT version: 572°F)

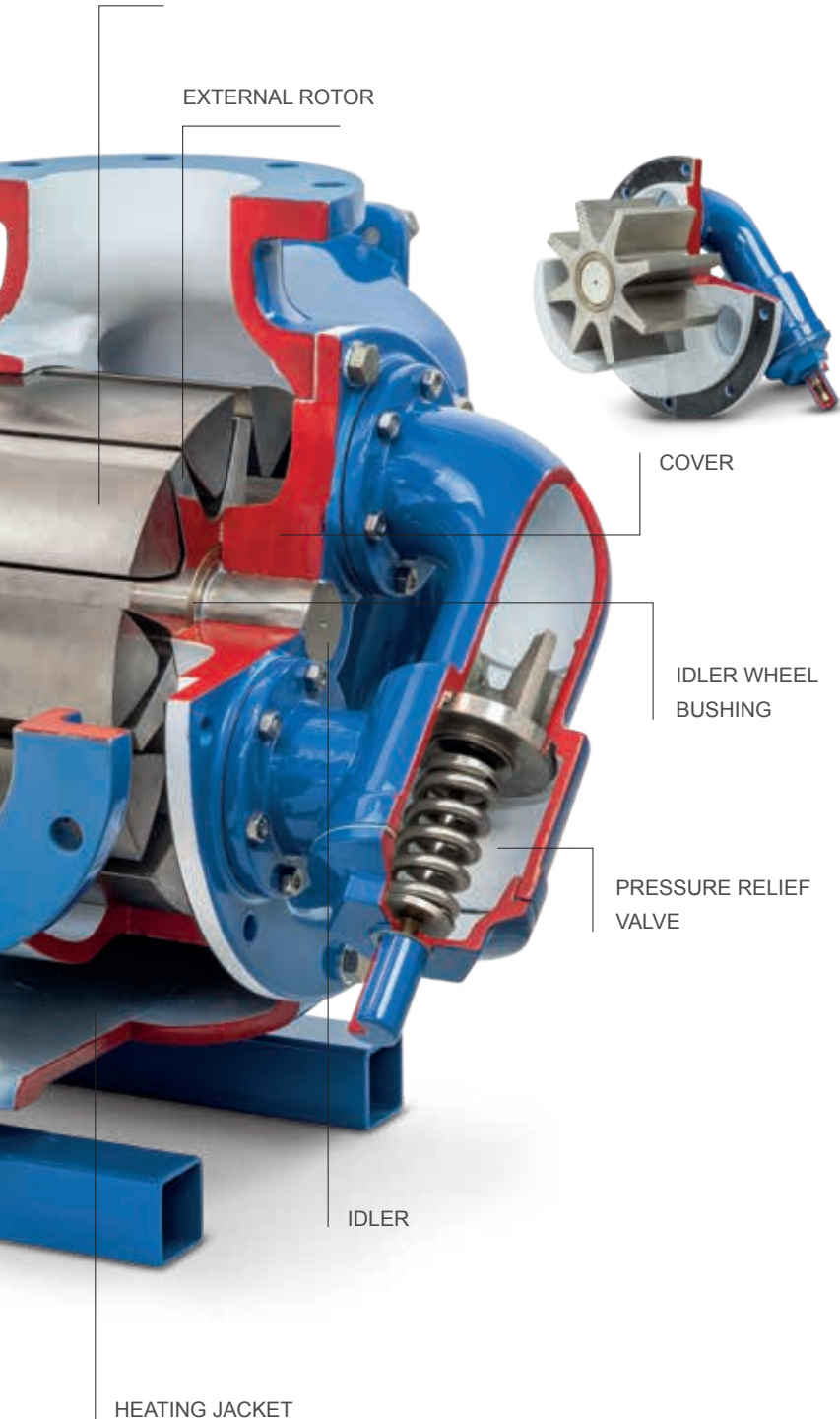
Standard construction materials: cast iron, hardened cast iron, stainless steel, carbon steel







INTERNAL ROTOR



EXTERNAL ROTOR

COVER

IDLER WHEEL  
BUSHING

PRESSURE RELIEF  
VALVE

IDLER

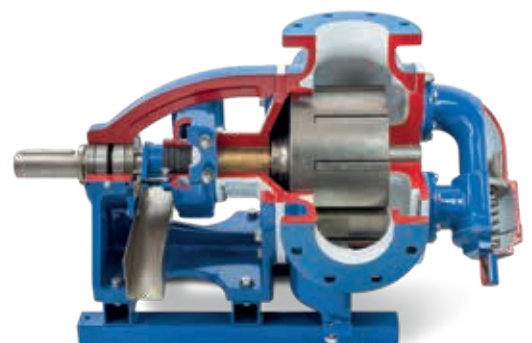
HEATING JACKET

## ADVANTAGES

- > Designed for **heavy-duty service** (HEAVY DUTY PUMPS)
- > **Constant flow rate**, proportional to the number of revolutions, regardless of back pressure
- > **Gentle treatment of shear-sensitive fluids** (transfer of the pumped product without crushing or mixing)
- > **Continuous flow**, pulse-free and no pressure peaks, hence no system vibrations
- > **Versatility**. With the same pump, use the rotor axis adjustment device to pump liquids with viscosities below that of water or high viscosity liquids
- > **Reversible**. By changing the direction of rotation you change the direction in which the liquid flows, keeping the features and performance unchanged.
- > The high degree of vacuum that can be obtained enables **rapid self-priming**
- > **Low NPIPr** (NPSHr)
- > Simple construction, sturdiness, long lifespan, low peripheral rotor speeds for **greater reliability**
- > **Limited and compensated wear**.
- > **Simple minimal maintenance**. Inspections and adjustments can be performed without removing the pump, the pipes or the motor
- > **UNI EN 12756** standard dimension mechanical seals (former DIN 24960 - K)
- > **Interchangeability of components** with others, having different characteristics or alternative materials.
- > **The inlets can be set up in different ways**, by turning the casing on the support.

## OPTIONAL

- > Heating jackets for pump casing and seal holder that can be supplied with fluid, steam and electric resistances
- > Single, double and heated by-pass pressure relief valve



# V Series

## Standard set-ups

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**BARE SHAFT**  
V



**BASE AND JOINT**  
V... BP



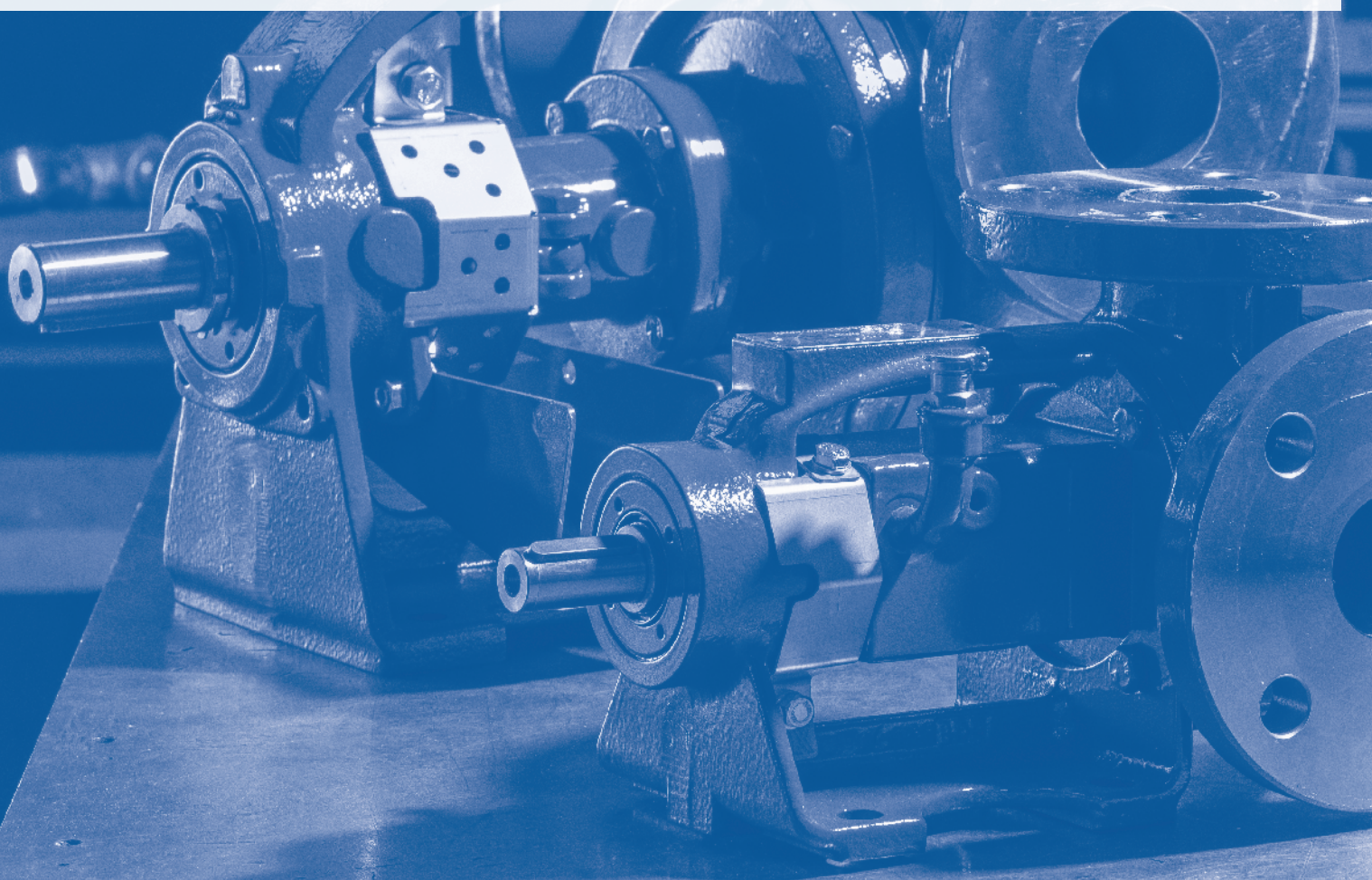
**VERTICAL**  
BASE AND JOINT V...V...BP





# Technical specifications

V Series	Ports		Displacement l/rev	Max Capacity Q max - m <sup>3</sup> /h	Max Pressure bar	Speed rpm	Port position Ductile iron		Port position Stainless Steel	
	mm	in					90°	180°	90°	180°
V25-2	40	1" 1/4	0,045	4,5	16	1750	•	•	•	
V30-2	40	1" 1/4	0,082	8,4	16	1750	•	•	•	
V50-3	50	2"	0,23	15,6	16	1150	•	•	•	•
V60-2	50	2"	0,5	22	16	750	•	•		•
V70-2	80	3"	0,8	28	16	600	•	•		•
V80-2	80	3"	1,2	42	16	600	•	•		•
V85-2	100	4"	1,6	54	12	600	•			
V90-2	100	4"	2,2	54	12	425	•	•	•	
V100-2	100	4"	3,2	78	12	425	•	•	•	
V120-2	125	5"	6,5	117	8	320	•			
V151	150	6"	6,5	117	8	320			•	•
V150-2	150	6"	7,8	144	8	320	•			
V180	200	8"	12	170	8	240				•
V200	200	8"	16,7	240	8	240		•		•





# SAXMAG V

## Internal gear pumps with magnetic coupling



Increasingly widespread awareness about environmental issues has encouraged enterprises to design and install technical process plants that conform to the most recent health and accident prevention standards. Certain of the national and international standards, such as ATEX 94/9, make these requirements even more stringent. This is why VARISCO decided to develop magnetic drive pumps.

### WORKING PRINCIPLE

The magnetic coupling allows power to be transmitted without contact and with absolutely no leaks, thanks to the static seal. The coupling consists of an inner magnet (rotor side) and an external magnet (drive-motor side) separated from each other by a stainless steel glass.

The pump shaft in the magnetic coupling is in stainless steel with a ceramic lining and is mounted on a solid carbide sliding bearing, lubricated by the pumped fluid. The heat generated by leakage through eddy currents is dissipated through dedicated cooling and lubricating grooves.



CERTIFICATIONS:  
- ATEX 2014/34/UE  
- API 676  
(with exceptions)



SAXMAG HEATING JACKET



GUARANTEED PROTECTION  
FROM HAZARDOUS LEAKS

HIGH SAFETY STANDARDS EVEN  
IN ATEX ENVIRONMENTS

### TECHNICAL DATA

Max flow rate up to 82 m<sup>3</sup>/h - 361 USGPM

Viscosity from 20 up to 20.000 [mm<sup>2</sup>/s - cSt]

Pressure Max 12 bar - 174 psi

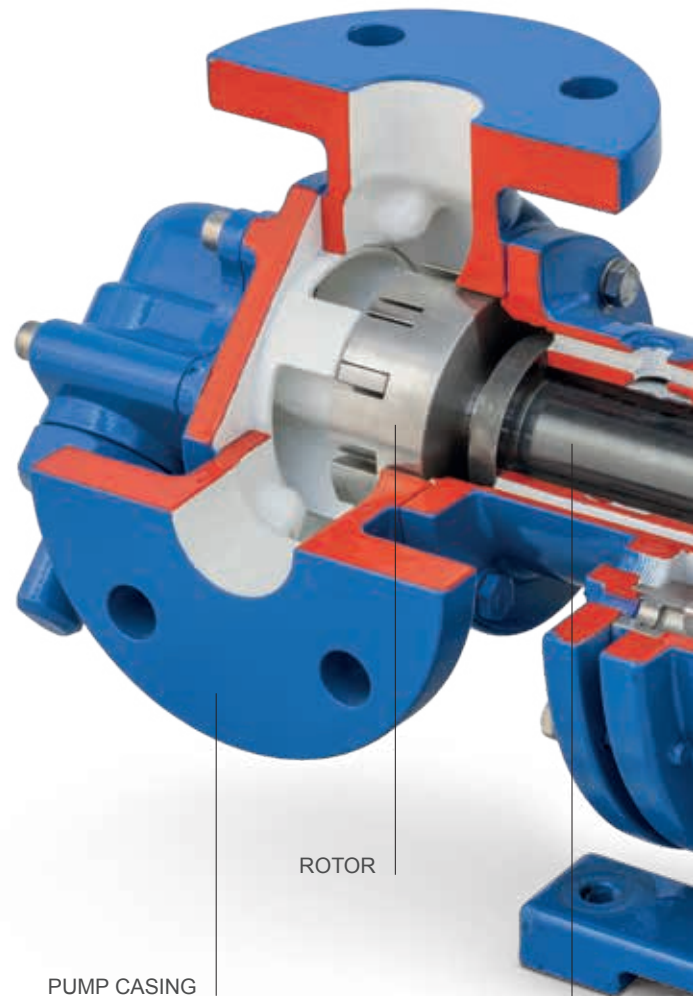
Temperature:

Standard version max. 90 °C

High temperature version max. 200 °C

Magnetic coupling construction materials:

- cobalt samarium magnets
- internal stainless steel shaft with overlay - ceramic
- tungsten carbide bushings (standard version) or bronze (high-temperature version)
- stainless steel glass



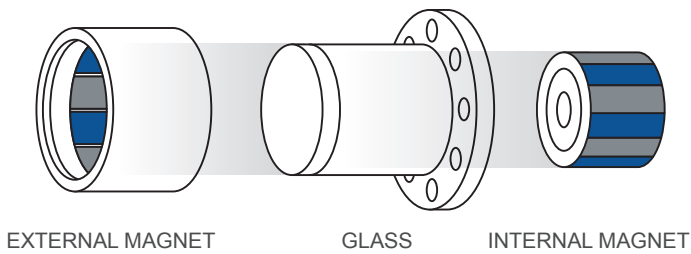
ROTOR

PUMP CASING

INTERNAL SHAFT



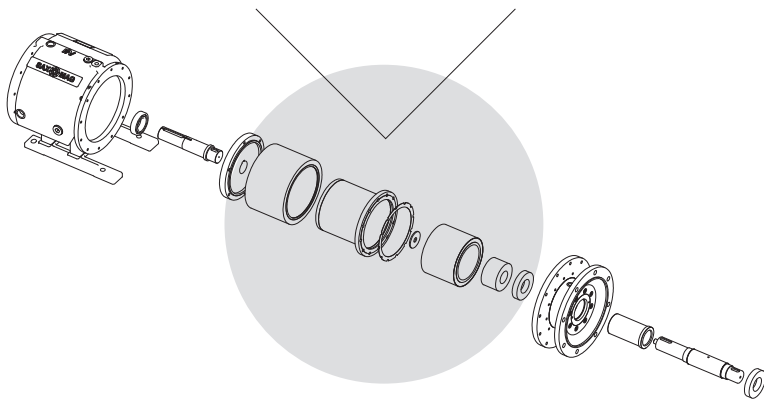




EXTERNAL MAGNET

GLASS

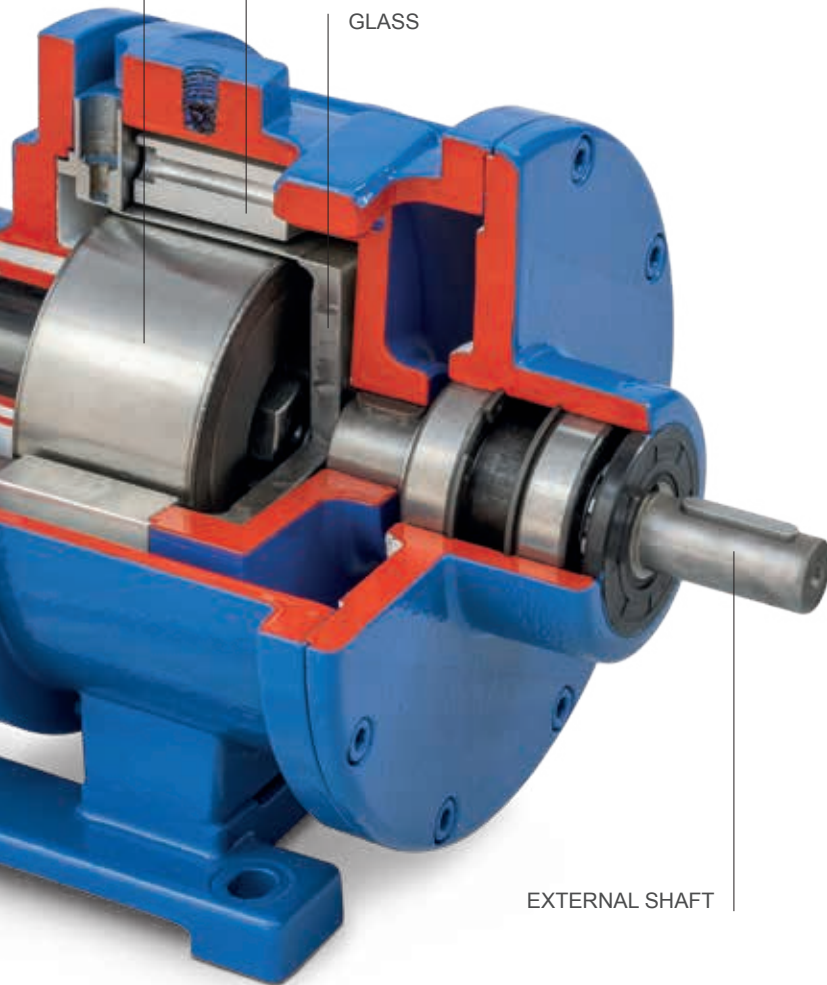
INTERNAL MAGNET



INTERNAL MAGNET

EXTERNAL MAGNET

GLASS



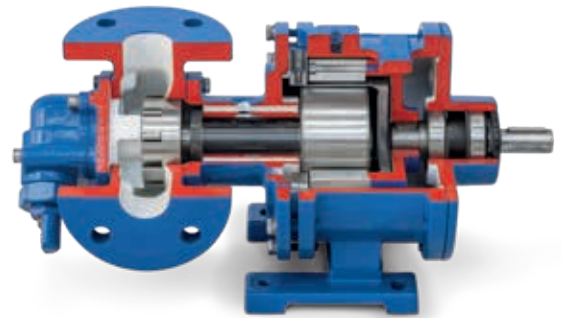
EXTERNAL SHAFT

### ADVANTAGES

- > No mechanical fluid seal systems, no leaks or losses, no contact between driving part and pumping part
- > Shorter maintenance intervals and system downtimes compared to versions with mechanical seal
- > Cost-effectiveness and simple handling compared with pressurised double mechanical seal solutions
- > Magnetic couplings designed for fluids with large viscosity variations
- > Permanent magnets made of samarium cobalt:
  - very good corrosion resistance
  - transmission of high torques, even at high temperatures

### OPTIONAL MAGNETIC JOINT

- > Atex (PT 100 mandatory and available with or without transmitter)
- > Driver with heating and/or cooling jacket (standard on 550 and 850 Nm)



### FLUIDS CONVEYED

- Additives
  - Bitumen emulsions
  - Chloro-paraffin
  - Epoxy resins
  - Varnishes
  - Glycerine
  - Glues
  - Adhesives
  - Synthetic resins
  - Polyols
  - Isocyanate
  - Phenolic resins
  - Sulphates
  - Acids
  - Impregnating resins
  - Vinyl acetate
- \*Viscosity: 20.000 cSt (max)



# SAXMAG V

## Main set-ups

**BARE SHAFT  
SAXMAG... VS**



**BASE AND JOINT  
SAXMAG... VE... BP**



## Technical specifications

SAXMAG V Series	Ports		Max Flow l/min	Max Pressure bar (max)	Torque Nm	Max Temperature* C°	Port position Ductile iron		Port position Stainless Steel	
	mm	in					90°	180°	90°	180°
<b>Modelli</b>										
<b>V 25-2</b>	40	1"1/4	75	12	50	200	•	•	•	
<b>V 30-2</b>	40	1"1/4	120	12	50	200	•	•	•	
<b>V 50-3</b>	50	2"	172	12	50 / 110	200	•	•	•	
<b>V 60-2</b>	50	2"	375	12	110 / 320	200	•	•		•
<b>V 70-2</b>	80	3"	440	12	180 / 850	200	•	•		•
<b>V 80-2</b>	80	3"	660	12	180 / 850	200	•	•		•
<b>V 85-2</b>	100	4"	900	8	320 / 850	200	•			
<b>V 100-2</b>	100	4"	1376	8	550 / 850	200	•	•	•	

Viscosity: 20.000 cSt (max)

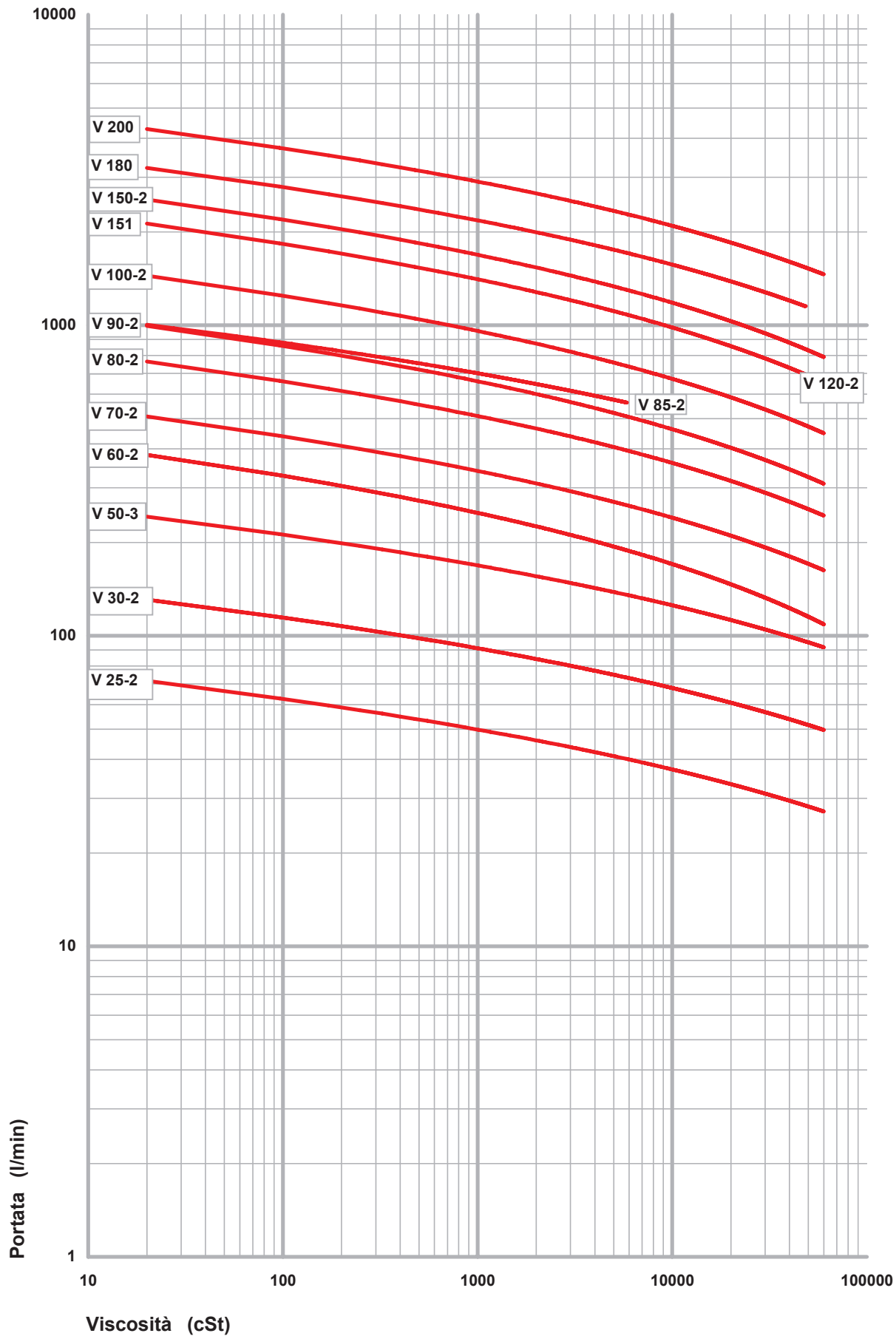
\*Standard version max. 80 °C High temperature version max. 200 °C





# V Series

## Performance curves



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35129 Padova - Italy  
[www.variscopumps.com](http://www.variscopumps.com)

