

# V 85-2

## Positive displacement internal gear pump



Indicative picture of the product

### Product Data

Capacity  
**Up to 947 l/min**

Pressure  
**Up to 12 bar**

Viscosity  
**Up to 6.000 cSt  
for standard versions**

Temperature  
**Up to 300°C**

### Characteristics

The V Series internal gear volumetric pumps, standard versions, are designed to handle clean fluids (including abrasive fluids) with viscosity from 20 to 6.000 cSt. Higher viscosities can also be managed by V Series pumps with:

- accurate size selection
- fluid-specific rotation speed adjustment
- clearances adjustments and specific construction

Designed for heavy and demanding duties, they are used in all industrial applications where gentle management of viscous, sensitive and challenging products is required. V Series rotary volumetric pumps ensure flow rates are proportional to the rotational speed and allow constant pulsation-free flows, regardless of the back pressure; setups with frequency variators ensure accurate and variable flow rates based on feedback signals coming from control devices (flow rate, pressure, mass, level, etc.). Volumetric rotary pumps with internal gears allow reversible rotation and different ports orientation, for maximum installation versatility and flexibility.

### Advantages

- 1 Simple design.** Only two moving parts: rotor and idler gears, and only one shaft seal.
- 2 Reliable, robust and built for long life.** Perfect handling of medium-high viscosity fluids, low peripheral speeds of the rotor, an external support with a large-sized roller bearing to support axial and radial loads in order to ensure a longer service life.
- 3 Simple and minimal maintenance.** Inspections and adjustments can be carried out without removing the pump, piping or drive.
- 4 Reversibility.** By inverting the direction of rotation the flow of liquid is reversed. Full performance is available in either direction of flow.
- 5 Preheating.** Heating chambers cast around the casing or integrated in the cover and on the seal housing, allowing high viscosities accurate control.
- 6 Constant flow.** directly proportional to the rotational speed and virtually independent of the pressure. Smooth pulsation-free flow, preventing pressure spikes which could cause vibrations in the pipework.
- 7 Gentle handling of shear-sensitive fluids.** Thanks to low rotation speed and wider cavities between gear teeth, any alterations of viscous and sensitive products are avoided.

### Applications *(some type of fluids)*

Resins, polymers  
Polyurethane foams (isocyanate and polyol)  
Glues, adhesives, sealants  
Plastic materials, rubbers, compounds for coatings  
Paints, inks, dyes and synthetic pigments  
Soaps, surfactants, cleaning products  
Bitumen, pitch, tar  
Food production fluids such as molasses, dextrose, glycerin, lecithin, syrups, chocolate, peanut butter, vegetable oils, starches, animal feed, animal fats, pet food  
Fertilizers  
Lubricating fuel oils  
Additives  
Alcohols and solvents  
Glycol

### Certifications

**ATEX 2014/34/EU**

## V 85-2 - PERFORMANCES BASED ON VISCOSITY AND WORKING PRESSURE

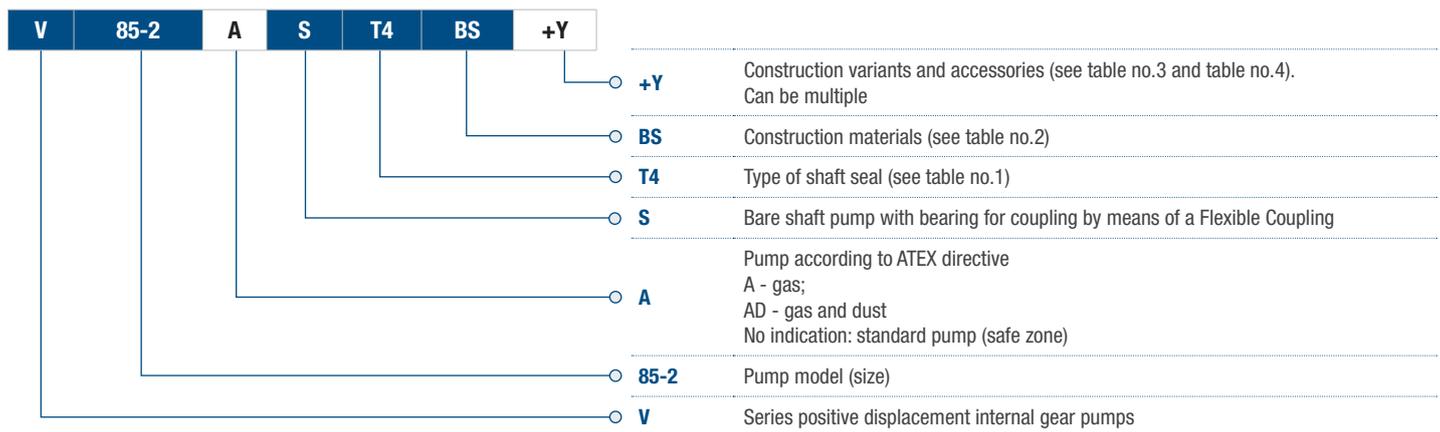
Displacement	Viscosity	Rpm (max)	Pressure (bar)			
			2	4	8	12
liters/rev	mm²/s (cSt)	rpm	Power (kW)/ Capacity (l/min)			
1,6	20	600	5,7 / 945	8,9 / 930	15,3 / 902	21,7 / 873
	60	600	6,2 / 947	9,4 / 935	15,8 / 910	22,2 / 885
	200	550	9,2 / 873	12,3 / 866	18,3 / 852	24,2 / 833
	600	480	7,5 / 761	10,2 / 754	15,4 / 740	20,5 / 726
	2.000	400	7,9 / 635	10,2 / 631	14,7 / 622	19,0 / 614
	6.000	335	8,5 / 533	10,5 / 531	14,2 / 526	18,0 / 521

\*Max allowed speed - based only on the viscosity of the pumped fluid.  
 Select correct maximum speed value considering all the other chemical-physical characteristics of the pumped fluid.

## V 85-2 - TYPE AND POSITION OF SUCTION AND DISCHARGE PORTS - WEIGHTS - WORKING TEMPERATURES

Suction and discharge ports		Port position		Weight (kg)	Max Temperature fluid [°C] (depending on the type of mechanical seal selected)
Type	Measure	Cast iron pump	Carbon steel and stainless steel pump	Depending on pump version	
EN - EN 1092-2 CAST IRON EN 1092-1 STAINLESS STEEL TYPE B (R.F.) or TYPE A (F.F.)	DN100 PN16	90°	Not available.	84	300 for cast iron pumps
ANSI - ANSI B16.1 CAST IRON CLASS 125 R.F. o F.F. ANSI B16.5 STAINLESS STEEL CLASS 150 R.F. o F.F.	4"	90°	Not available.		200 or stainless steel pumps  Depending on the type of seal

## V 85-2 - PRODUCT DESCRIPTION



Key:  
  highlighted backgrounds: always present in the pump naming  
  backgrounds not highlighted: construction variants and accessories

**TABLE 1 - SHAFT SEALING**

<b>P</b>	Packing gland
<b>P1</b>	Flushed packing gland. For ATEX pumps' versions, this option is mandatory and specifies a construction with a thermocouple well (no flushing).
<b>P...-RAD</b>	Lip Ring Seal (only sizes up to V 100-2 included) - Contact factory for availability of combinations with ATEX versions (A - AD)
<b>T4 (T6)</b>	UNI EN 12756 standard dimension mechanical seal. Graphite/ceramic with PTFE gaskets. A PTFE lip seal is mounted behind the main seal to contain a barrier liquid (Quench). On request, a quench liquid reservoir (+O2). For the V 25-2 and V 30-2, the denomination is T5
<b>T4W (T6W)</b>	UNI EN 12756 standard dimension mechanical seal. Tungsten or silicon carbide/ceramic with PTFE gaskets. A PTFE lip seal is mounted behind the main seal to contain a barrier liquid (Quench). On request, a quench liquid reservoir (+O2) can be supplied. For the V 25-2 and V 30-2, the denomination is T5W.
<b>T7*</b>	Double tandem mechanical seal (not available on V 25-2 and V 30-2)
<b>T8*</b>	Double back-to-back mechanical seal

\* The seal materials and lubrication system are decided on case by case depending on the chemical and physical characteristics of the liquids

**TABLE 2 - MATERIAL**

<b>No key</b>	Cast iron with bronze bushes. For lubricating and non lubricating liquids
<b>G</b>	Cast iron construction with cast iron bushes. For lubricant and non-lubricant fluids.
<b>BS</b>	Cast iron with graphite bushes. Tight tolerances. Idler with special antigalling treatment. AISI 329 or SAF 2205 steel shaft and idler pin. Suitable for all types of solvents, including chlorinated solvents, which do not corrode cast iron
<b>HT</b>	In ductile iron with internal bronze bushes for circulating heat transfer oil up to +300°C.
<b>HTR</b>	In cast iron with internal bronze bushes and generous tolerances for liquids up to +300°C. Especially suitable for pumping hot bitumen, tar and pitch. Preheating jacket around casing. On request on type V 50-3 and up, preheating jacket also around axial seal (+R1). On type V 50-3 and up, preheating jackets with flanged ports, plain or grooved
<b>K</b>	CF-8M Construction (stainless steel AISI 316) - Not available.
<b>AW</b>	Hardened steel construction - Not available.

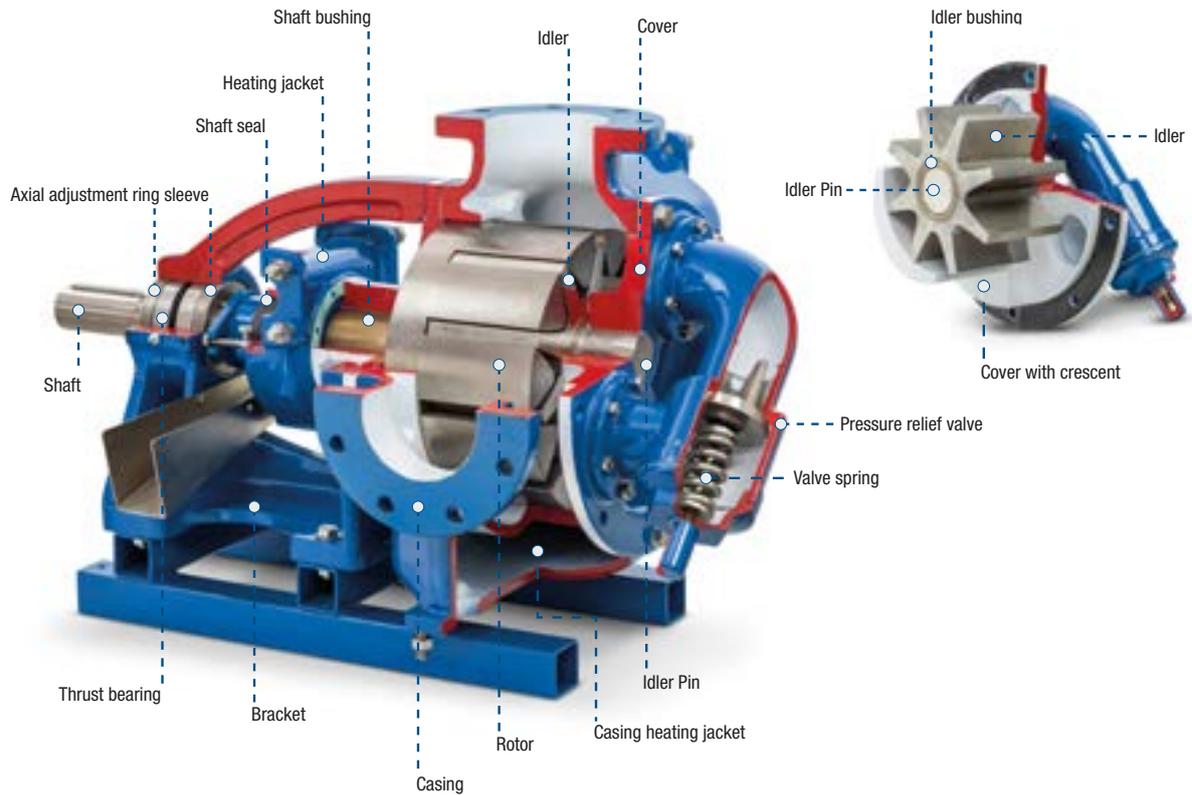
**TABLE 3 - EXECUTIONS**

<b>A - AD</b>	ATEX version; A = gas; AD = gas and dust (for pumps with mechanical seal, the +O2 barrier fluid containment tank is included)
<b>+FR</b>	EN 1092 type B flanges on suction and discharge ports (inquire for availability on other connections).
<b>+FA</b>	ANSI 125/150 FF flanges on suction and discharge ports (inquire for availability on other connections).
<b>+FAR</b>	ANSI 125/150 RF flanges on suction and discharge ports (inquire for availability on other connections).
<b>+R</b>	Full jacketing around the pump casing (available only for cast iron pumps with 90° ports).
<b>+R1</b>	Heating jacket on the seal box (not available for ATEX pumps; not available with accessory +O2).
<b>+R3</b>	+R +R1 (only available for cast iron pumps with 90° ports - Not available for ATEX pumps, with +O2 option and in combination with +EH)
<b>+EH</b>	Electric heating on pump's casing (jacket filled with magnesium oxide powder - only for +R versions) - Not available for ATEX pumps.
<b>+B</b>	Bronze bushes (if not provided as a standard - not in combination with +W1 - +W2).
<b>+W</b>	Mechanical seal static face in tungsten carbide or silicon carbide (see table 1 - T4 - T4W - T6 - T6W).
<b>+QPQ</b>	ardened components (only for cast iron pumps)
<b>+X</b>	Special construction (as specified on the product offer)

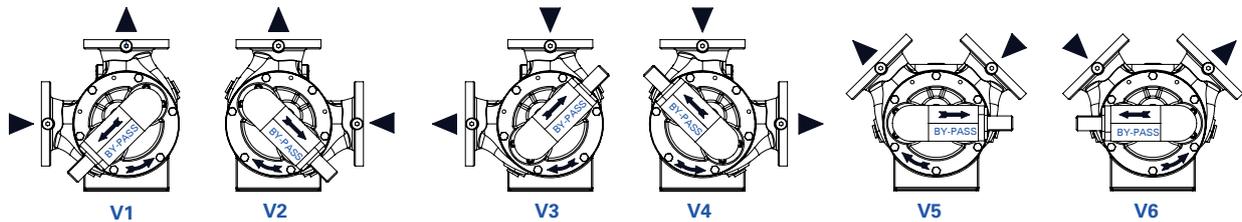
**TABLE 4 - OPTIONALS**

<b>+O2</b>	With quench liquid reservoir (included for ATEX pumps)
<b>+O2X</b>	Pressure vessel for double mechanical seals ST8 (API PLAN 53A - Refer to specific documents)
<b>+Y</b>	Pressure relief valve - Calibration for standard pressures (from 1 to 8 bar for cast iron models).
<b>+YH</b>	High-pressure relief valve - Calibration for high pressures (from 9 to 16 bar cast iron models).
<b>+PT</b>	Thermowell for ATEX pump (to be evaluated for ATEX version as indicated in the manual)
<b>+TC</b>	Thermocouple for ATEX pump (to be evaluated for ATEX version as indicated in the manual)
<b>+X</b>	Special construction (possible additional description in specific document)

\*The use of some types of variants and accessories excludes others; if in doubt, contact the office.



## V 85-2 PUMP MODEL - PORT POSITION: 90°



STANDARD POSITIONING: V1

### V 85-2 MODEL - PORT POSITION: 90° - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH PACKING GLAND (P)

Standard version	Casing	Cover	Rotor	Idler	Idler Pin	Shaft	Bushings	Packing gland
<b>V 85-2 SP PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	18NiCrMo5 EN 10084 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	PTFE
<b>V 85-2 SPG PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	18NiCrMo5 EN 10084 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	GREY CAST IRON	PTFE
<b>V 85-2 SPHTR PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	18NiCrMo5 EN 10084 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	GREY CAST IRON	PTFE

### V 85-2 MODEL - PORT POSITION: 90° - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH SINGLE MECHANICAL SEAL (T4-T4W)

Standard version	Casing	Cover	Rotor	Idler	Idler Pin	Shaft	Bushings	Seal
<b>V 85-2 ST4W PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	18NiCrMo5 EN 10084 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
<b>V 85-2 ST4BS PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	AISI 329 STAINLESS STEEL	AISI 329 STAINLESS STEEL	GRAPHITE	GRAPHITE - CERAMIC - PTFE - STAINLESS STEEL

### V 85-2 MODEL - PORT POSITION: 90° - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH DOUBLE MECHANICAL SEAL (T8)

Standard version	Casing	Cover	Rotor	Idler	Perno	Shaft	Bushings	Seal
<b>V 85-2 ST8W PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	18NiCrMo5 EN 10084 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
<b>V 85-2 ST8BS PUMP</b>	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1561 EN-GJL-200 GREY CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	EN 1563 EN-GJS-500 DUCTILE CAST IRON	AISI 329 STAINLESS STEEL	AISI 329 STAINLESS STEEL	GRAPHITE	GRAPHITE - CERAMIC - PTFE - STAINLESS STEEL

## DIMENSIONS FOR 90° PORTS POSITIONING VERSION

### V 85-2 G

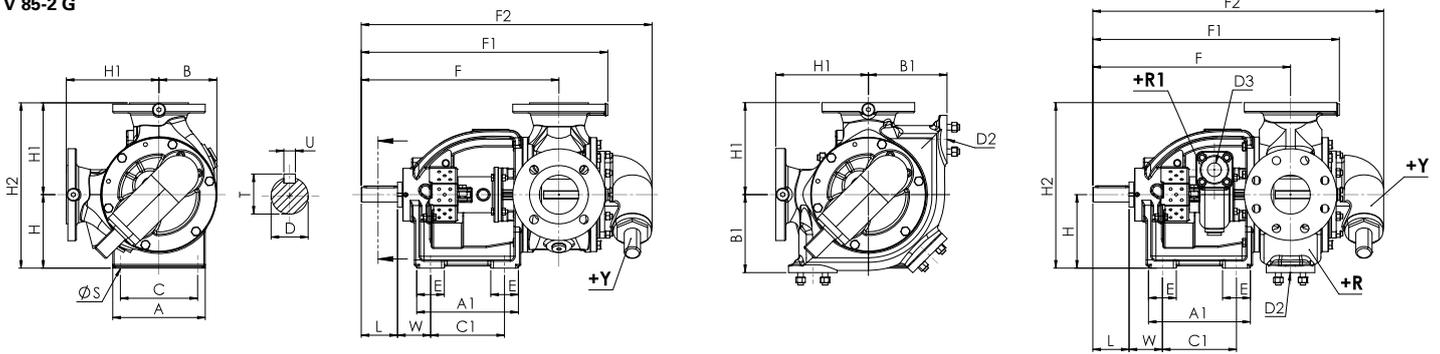


TABLE FOR 90° PORTS POSITIONING VERSION

	A		A1		C		C1		E		ØS		W		L		H		H1		H2	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
V 85-2 G	200	7.9	220	8.7	160	6.3	160	6.3	60	2.4	14	0.6	70	2.8	80	3.1	160	6.3	200	7.9	360	14.2
	B		B1		F		F1		F2		Dj6		T		U		D2		D3			
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
V 85-2 G	125	4.9	170	6.7	439.5	17.3	560	22	655	25.8	32	1.3	35	1.4	10	0.4	DN20	DN20	DN20	DN20		