V 70-2

Positive displacement internal gear pump

Indicative picture of the product

Product Data

Capacity
Up to 472 l/min

Pressure
Up to 16 bar

Viscosity
Up to 60,000 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 60,000 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 intallation 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, preveting 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 70-2 - PERFORMANCES BASED ON VISCOSITY AND WORKING PRESSURE

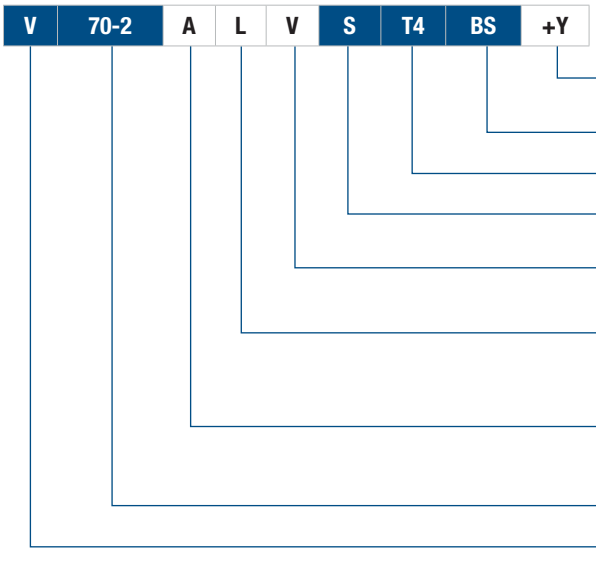
Displacement	Viscosity	Rpm (max)	Pressure (bar)				
liters/rev	mm²/s (cSt)	rpm	2	4	8	12	16
			Power (kW)/ Capacity (l/min)				
0,8	20	600	3,5 / 470	5,1 / 460	8,3 / 440	11,5 / 420	—
	60	600	3,7 / 472	5,4 / 463	8,6 / 446	11,8 / 429	—
	200	550	4,2 / 433	5,7 / 426	8,7 / 413	11,6 / 399	14,5 / 386
	600	480	4,5 / 379	6,0 / 373	8,5 / 363	11,0 / 352	13,7 / 342
	2.000	400	5,0 / 317	6,2 / 313	8,5 / 306	10,7 / 299	13,0 / 292
	6.000	330	5,2 / 262	6,2 / 259	8,1 / 255	10,0 / 250	11,8 / 245
	20.000	250	5,1 / 199	6,0 / 198	7,5 / 196	8,9 / 194	10,2 / 192
	60.000	190	4,8 / 152	5,5 / 151	6,7 / 151	7,8 / 150	8,9 / 149

*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 70-2 - 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 STEAL TYPE B (R.F.) or TYPE A (F.F)	DN80 PN16	90° / 180°	180°	71 / 82	300 for cast iron pumps 200 or stainless steel pumps Depending on the type of seal
ANSI - ANSI B16.1 CAST IRON CLASS 125 R.F. o F.F. ANSI B16.5 STAINLESS STEAL CLASS 150 R.F. o F.F.	3"	90° / 180°	180°		

V 70-2 - PRODUCT DESCRIPTION



+Y	Construction variants and accessories (see table no.3 and table no.4). Can be multiple
BS	Construction materials (see table no.2)
T4	Type of shaft seal (see table no.1)
S	Bare shaft pump with bearing for coupling by means of a Flexible Coupling
V	Pump for vertical installation. No indication: pump for standard setup
L	180° port position (only for cast iron pumps). No indication: pump with standard port position (90°)
A	Pump according to ATEX directive A - gas; AD - gas and dust No indication: standard pump (safe zone)
70-2	Pump model (size)
V	Series positive displacement internal gear pumps

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

TABLE 1 - SHAFT SEALING	
P	Packing gland
P1	Flushed packing gland. For ATEX pumps' versions, this option is mandatory and specifies a construction with a thermocouple well (no flushing).
P...-RAD	Lip Ring Seal (only sizes up to V 100-2 included) - Contact factory for availability of combinations with ATEX versions (A - AD)
T4 (T6)	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
T4W (T6W)	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.
T7*	Double tandem mechanical seal (not available on V 25-2 and V 30-2)
T8*	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

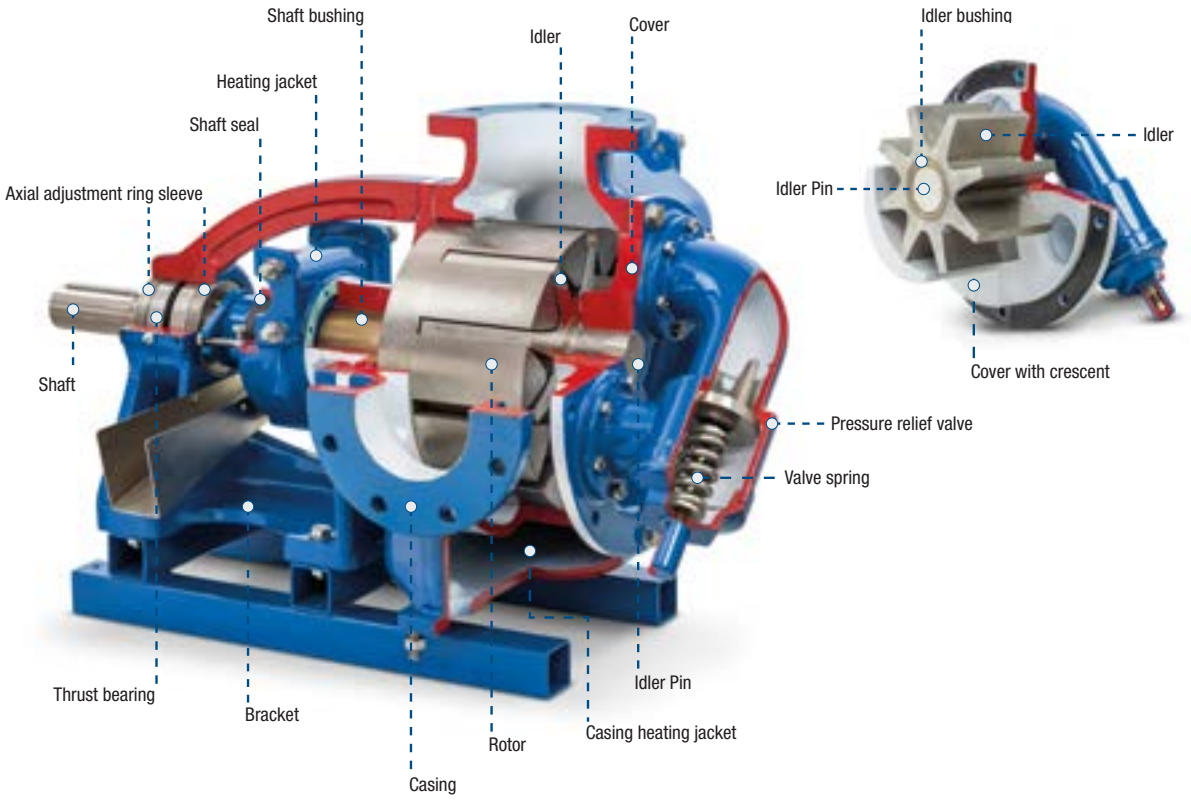
TABLE 2 - MATERIAL	
No key	Cast iron with bronze bushes. For lubricating and non lubricating liquids
G	All iron with cast iron bushes. For lubricating and non lubricating liquids.
BS	Cast iron with graphite bushes. Tight tolerances. Idler with special antigalling treatment. AISI 329 or SAF 2205 steel shaft and idler pin. Suitable for all types of solvents, including chlorinated solvents, which do not corrode cast iron
HT	In ductile iron with internal bronze bushes for circulating heat transfer oil up to +300°C.
HTR	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
K	CF-8M (AISI 316) stainless steel. Graphite bushes (liquids with viscosity up to 10,000 cSt). For higher viscosities or abrasive liquids, use pumps with options +B (bronze bushes) or +W2 (idler pin and bushes in tungsten carbide)
AW	Case hardened steel with tungsten carbide bushes and idler pin. For highly abrasive liquids such as colours, resins, polyols and bitumen with fillers

TABLE 3 - EXECUTIONS	
A - AD	ATEX version; A = gas; AD = gas and dust (for pumps with mechanical seal, the +O2 barrier fluid containment tank is included)
V	Vertical pump installation (from V 25-2 to V 100-2 - only with mechanical seal)
L	Casing with 180° flanges (only for cast iron pumps). Not available in the SPHTR version or in conjunction with the +R option
+FR	With RF DIN PN16 flanges
+FA	With FF ANSI 125/150 flanges
+FAR	With RF ANSI 125/150 flanges
+R	Integral heating (or cooling) jacket on casing
+R1	Integral heating (or cooling) jacketed seal hausing or jacketed magnetic coupling
+R2	Heating (or cooling) jacket on cover
+R3	+R +R1 (available only for cast iron pumps with 90° ports - Not available for ATEX pumps, with +O2 option and in combination with +EH)
+R4	+R1 +R2 (not available for ATEX pumps, with +O2 option and in combination with +EH)
+EH	Electric Heating (only casing +R)
+B	Bronze bushes (for stainless steel pumps only)
+W	Hard material mechanical stationary seal face
+W1	Tungsten carbide idler pin and idler bush
+W2	Tungsten carbide idler pin and bushes and stainless steel stellite coated
+QPQ	Hardening treatment (cast iron pumps only)
+K33	Hardening treatment (stainless steel pumps only)
+X	Special construction (possible additional description in specific document)

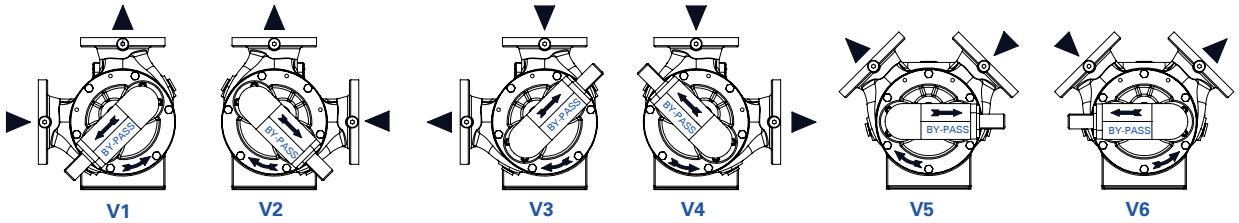
TABLE 4 - OPTIONALS	
+O2	With quench liquid reservoir (included for ATEX pumps)
+O2X	Pressure vessel for double mechanical seals ST8 (API PLAN 53A - Refer to specific documents)
+Y	Pressure relief valve - Calibration for standard pressures (from 1 to 8 bar for cast iron models - from 1 to 10 bar stainless steel models).
+YH	High-pressure relief valve - Calibration for high pressures (from 9 to 16 bar for cast iron models - from 11 to 14 bar stainless steel models).
+PT	Thermowell for ATEX pump (to be evaluated for ATEX version as indicated in the manual)
+TC	Thermocouple for ATEX pump (to be evaluated for ATEX version as indicated in the manual)
+X	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 70-2 STANDARD CONSTRUCTION



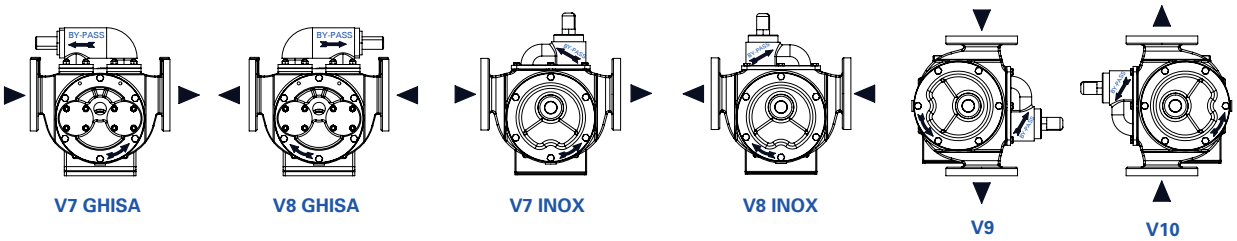
V 70-2 PUMP MODEL - PORT POSITION: 90°



STANDARD POSITIONING: V1

V 70-2 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
V 70-2 SP PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	PTFE
V 70-2 SPG PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	GREY CAST IRON	PTFE
V 70-2 SPHT PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	PTFE - GRAPHITE
V 70-2 SPHTR PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	PTFE - GRAPHITE
V 70-2 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
V 70-2 ST4W PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
V 70-2 ST4WG PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	GREY CAST IRON	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
V 70-2 ST4BS PUMP	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 70-2 MODEL - PORT POSITION: 90° - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH DOUBLE MECHANICAL SEAL (T8)								
Standard version	Casing	Cover	Rotor	Idler	Idler Pin	Shaft	Bushings	Seal
V 70-2 ST8WG PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
V 70-2 ST8BS PUMP	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 - CERAMICA - PTFE - ACCIAIO INOX

V 70-2 PUMP MODEL - PORT POSITION: 180°



V7 GHISA | V8 GHISA | V7 INOX | V8 INOX | V9 | V10

STANDARD POSITIONING: V7

V 70-2 MODEL - PORT POSITION: 180° (L*) - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH PACKING GLAND (P)								
Standard version	Casing	Cover	Rotor	Idler	Idler Pin	Shaft	Bushings	Packing gland
V 70-2L SP PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	BRONZE	PTFE
V 70-2L SPG PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	GREY CAST IRON	PTFE
V 70-2 SPK* PUMP	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	AISi 329 STAINLESS STEEL	AISi 329 STAINLESS STEEL	GRAPHITE	PTFE
V 70-2 MODEL - PORT POSITION: 180° (L*) - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH SINGLE MECHANICAL SEAL (T4-T4W)								
Standard version	Casing	Cover	Rotor	Idler	Idler Pin	Shaft	Bushings	Seal
V 70-2L ST4WG PUMP	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	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	GREY CAST IRON	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
V 70-2L ST4BS PUMP	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 70-2 ST4WAW* PUMP	ASTM A217 WC6 CARBON STEEL	ASTM A217 WC6 CARBON STEEL	ASTM A217 WC6 CARBON STEEL	ASTM A217 WC6 CARBON STEEL	X153CrMoV12 EN ISO 4957 CARBON STEEL	18NiCrMo5 EN 10084 CARBON STEEL	TUNGSTEN CARBIDE	TUNGSTEN CARBIDE or SILICON CARBIDE (both faces) - PTFE - STAINLESS STEEL
V 70-2 ST4K* PUMP	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	AISi 329 STAINLESS STEEL	AISi 329 STAINLESS STEEL	GRAPHITE	GRAPHITE - CERAMIC - PTFE - STAINLESS STEEL
V 70-2 ST4WK* PUMP	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	AISi 329 STAINLESS STEEL	AISi 329 STAINLESS STEEL	GRAPHITE	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL
V 70-2 MODEL - PORT POSITION: 180° (L*) - BARE SHAFT PUMP FOR ELASTIC COUPLING (S) WITH DOUBLE MECHANICAL SEAL (T8)								
Standard version	Casing	Cover	Rotor	Idler	Idler Pin	Shaft	Bushings	Seal
V 70-2 ST8K* PUMP	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	AISi 329 STAINLESS STEEL	AISi 329 STAINLESS STEEL	GRAPHITE	GRAPHITE - CERAMICA - PTFE - ACCIAIO INOX
V 70-2 ST8WK* PUMP	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	ASTM A351 CF8M STAINLESS STEEL	AISi 329 STAINLESS STEEL	AISi 329 STAINLESS STEEL	GRAPHITE	TUNGSTEN CARBIDE or SILICON CARBIDE - CERAMIC - PTFE - STAINLESS STEEL

The carbon steel and stainless steel versions have 180° port configurations without the "L" indication in the pump code

DIMENSIONS FOR 90° PORTS POSITIONING VERSION

V 70-2 G

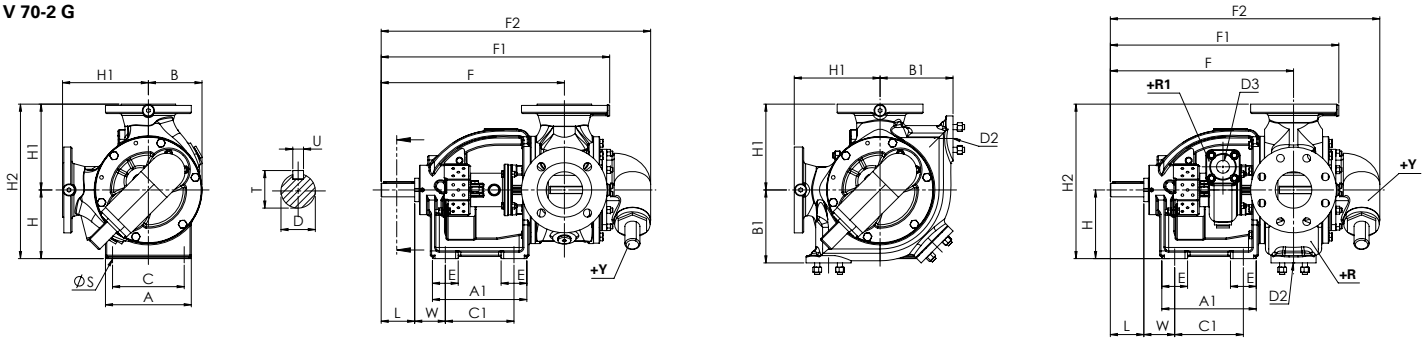


TABLE FOR 90° PORTS POSITIONING VERSION																						
	A		A1		C		C1		E		ØS		W		L		H		H1		H2	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
V 70-2 G	200	7.9	220	8.7	160	6.3	160	6.3	60	2.4	14	0.6	70	2.8	80	3.1	160	6.3	200	7.9	360	14.2

	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 70-2 G	125	4.9	125	4.9	427	16.8	540	21.3	630	24.8	32	1.3	35	1.4	10	0.4	DN20	DN20	DN20	DN20

DIMENSIONS FOR 180° PORTS POSITIONING VERSION

V 70-2L G

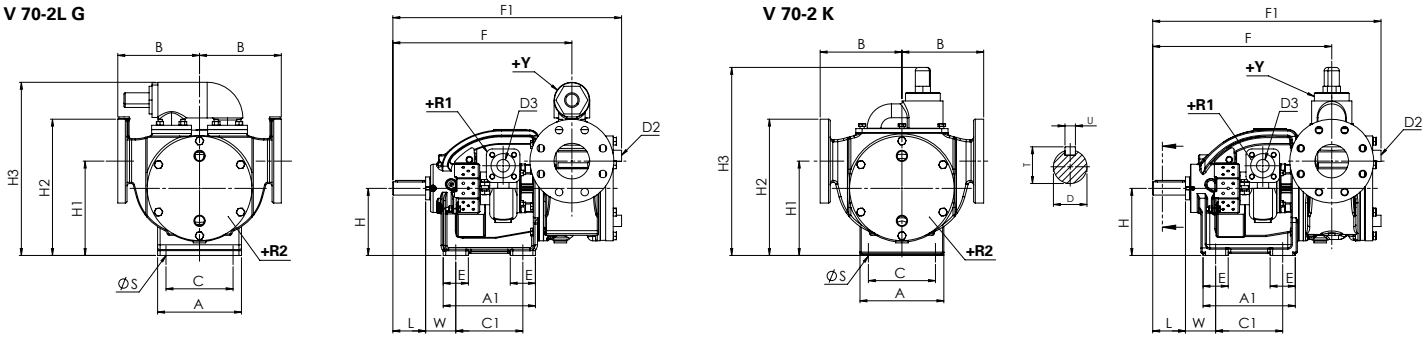


TABLE FOR 180° PORTS POSITIONING VERSION																								
	A		A1		C		C1		E		ØS		W		L		H		H1		H2		H3	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
V 70-2L G	200	7.9	220	8.7	160	6.3	160	6.3	60	2.4	14	0.6	70	2.8	80	3.1	160	6.3	225	8.9	325	12.8	413	16.3
V 70-2 K	200	7.9	220	8.7	160	6.3	160	6.3	60	2.4	14	0.6	70	2.8	80	3.1	160	6.3	225	8.9	325	12.8	445	17.5

	B		F		F1		F2		Dj6		T		U		D2		D3	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	in	in	mm	in
V 70-2L G	195	7.7	427	16.8	533	21.0	-	-	32	1.3	35	1.4	10	0.4	G 3/4"	G 3/4"	DN20	DN20
V 70-2 K	195	7.7	427	16.8	533	21.0	-	-	32	1.3	35	1.4	10	0.4	G 3/4"	G 3/4"	DN20	DN20