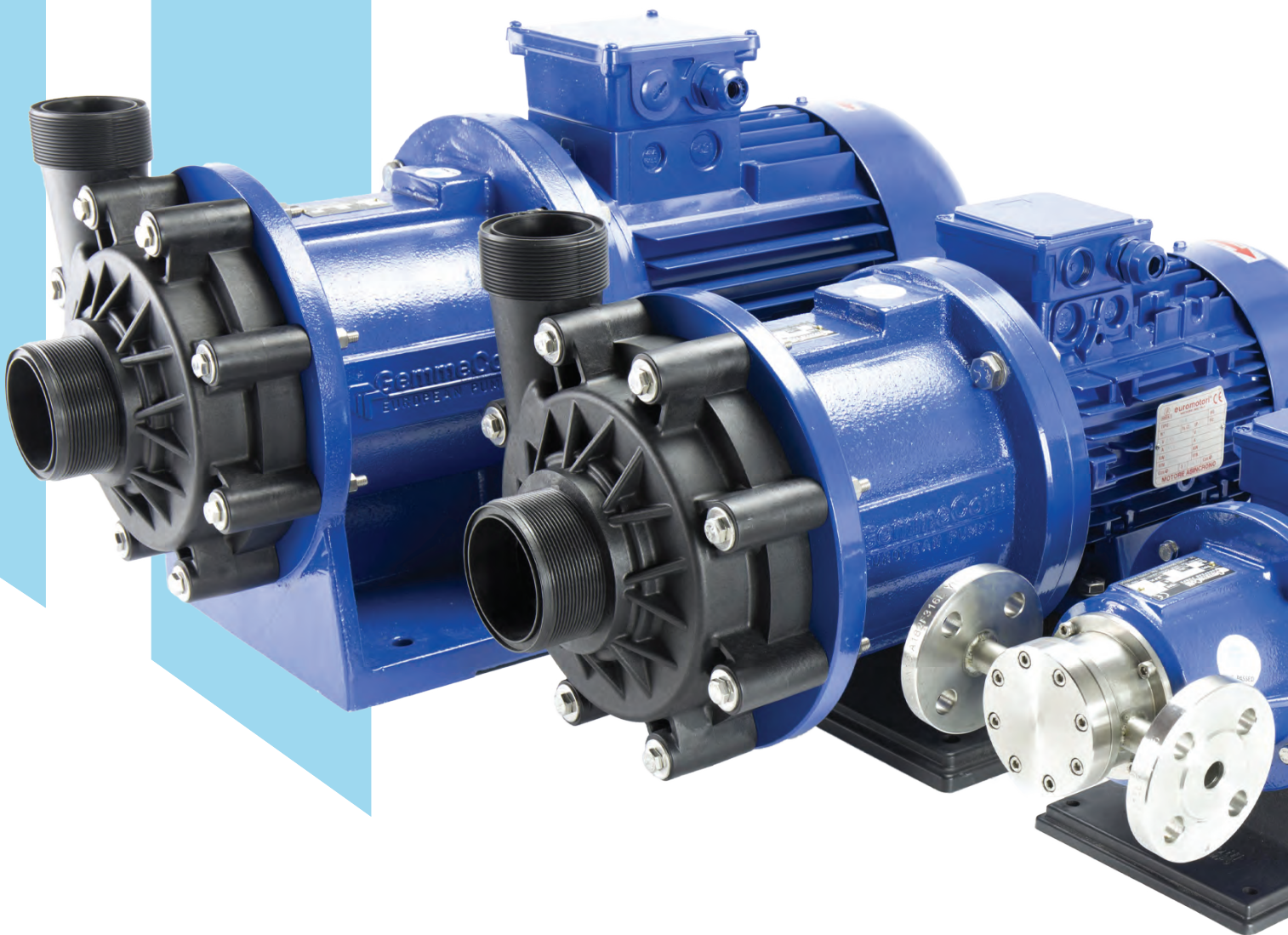


CHEMICAL PUMPS SINCE 1992



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All the data indicated in this catalogue are pure indicative and can be changed without prior notice.





## OUR COMPANY

GemmeCotti srl has been designing and manufacturing chemical pumps for acids and dangerous liquids since 1992, when its founders started their own company after considerable experience in pump design and production.

Over the years, GemmeCotti has created its own range of industrial pumps designed and manufactured by its experienced team of experts. We are now specialized in magnetic drive pumps, mechanical seal pumps and vertical pumps.

GemmeCotti pumps are valued worldwide and they are successfully used in many different industries including: chemical and petrochemical, pharmaceutical, oil refinery, electroplating, printed circuits, electronic, photography, military, water treatments, biotechnology, paper mills, textile, sugar plants, food processing, dairies and many others.

## OUR MISSION

GemmeCotti corporate policy is oriented to quality and continuous improvement. Our main purpose is to become "Privileged supplier" of our customers for chemical pumps for acids and dangerous liquids and to maintain this status. We want to offer the best products and the best service possible with an extremely reduced delivery time.

## OUR VALUES

The values that have guided the company from the beginning are: the quality of the pumps and of their materials, the competence, availability and courtesy of the employees who meet the customer's needs and the constant desire to offer the best service in terms of price/quality and delivery time of the pumps.

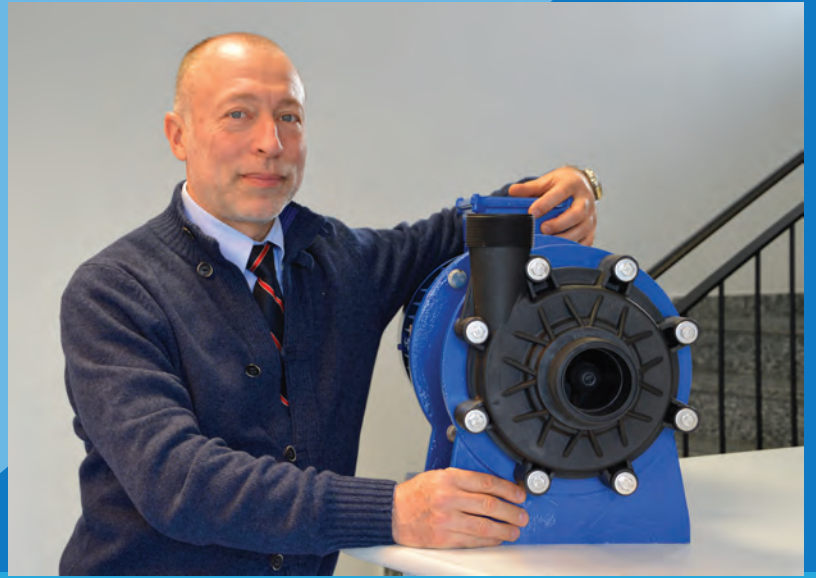




“

THE QUALITY  
OF THE PUMPS AND  
OF THEIR MATERIALS.  
THE COMPETENCE,  
AVAILABILITY AND  
COURTESY OF  
THE EMPLOYEES.

”



## SALES AND AFTER-SALES SERVICE

GemmeCotti offers to customers a complete sale and after-sale service. Our customer service helps them during the whole sales process, from the pump selection, throughout all the purchasing procedure, as well as technical assistance in case of pump repair and spare-part supply even after the standard warranty period. For every pump supplied there is a complete kit of spare parts available on stock.

## QUALITY MANAGEMENT SYSTEM ISO 9001:2015

“Quality” is a key word for GemmeCotti, this is why we have been an ISO 9001 certified company since 2007. Recently our Quality Management System has been updated to the new ISO 9001:2015, making us one of the first companies in Italy to be certified to the new quality standards. This is a clear proof

of our dedication to constant improvement and desire to offer high quality service and products.

GemmeCotti is constantly becoming more and more efficient and the customer satisfaction is always our priority. Our main desire is to meet the customers' expectations and offer them the best support and top-level products. We aim to continuously improve every business process: from the technical and production department, to the marketing and sales office.

Every aspect has been developed and organized so that the company can be competitive and flexible on the pump market and can maintain the position of leading supplier of chemical pumps.





## PUMPS PRODUCTION

GemmeCotti's first aim is to understand the customers' requirements and supply the best product to fit their needs. The sales and technical office are able to select the right pump model and the recommended materials for the requested application using our company's know-how together with up-to-date software tools. Once chosen, the pump with the selected configuration can be manufactured.

All the parts of the pumps come from qualified Italian suppliers and they are checked and machined carefully by highly skilled GemmeCotti personnel to assure the compliance to the technical constructive drawings. The construction materials of GemmeCotti pumps are of the highest quality and they are suitable to resist corrosion and to handle most of the existing chemicals.

The assembly process takes place in our workshop where inspections are performed step by step on every single pump. When the pumps are ready, we test them one by one using our new and modern test bench to check the performances and the good functioning before shipping them to the customer.

Thanks to a fully stocked warehouse, GemmeCotti can store most of the parts of the standard pumps, so that in case of urgent request, we are able to supply rapidly to the customer both pumps and spare parts.



“

RECENTLY THE COMPANY'S QUALITY SYSTEM HAS BEEN UPDATED TO THE REQUIREMENTS OF THE NEW ISO 9001:2015.

”



## PUMPS DESIGN

GemmeCotti's technical office and research & development department are continuously involved in the design of new pumps and the improvement of the existing ones. Using CAD softwares we make 3D drawings of all the pump parts and pump assembly and then we use finite element method FEM to perform structure analysis in order to assure structural resistance and strength.

All the pumps are designed following four main objectives: have a reliable high-tech design, work and withstand the hardest conditions, be chemically resistant and suitable to operate with corrosive and aggressive liquids, guarantee a long-lasting service with minimum maintenance.

Our engineers are constantly involved in new projects and in the design of new pumps according to what the market of chemical pumps requires and to the customers' needs. We are able to offer more than 500 pump variations for meeting a wide range of applications but, if requested, we can also customize our standard pumps according to the customer's preferences.





## MAIN APPLICATIONS

GemmeCotti supplies a wide range of pump systems and solutions for industrial processes, system builders and OEMs. We combine competence and experience with customization ensuring the perfect solution for specific

industrial applications.

GemmeCotti chemical pumps can be used in many different applications where it is necessary to handle chemicals, acids, dangerous and corrosive liquids.

Among the many industrial fields that use our pumps there are:



CHEMICAL INDUSTRIES



PCB INDUSTRIES - PRINTED  
CIRCUIT BOARDS PRODUCTION



AIR TREATMENTS



WATER TREATMENTS



PHARMACEUTICAL INDUSTRIES



BIOTECHNOLOGY / BIOFUEL



BOTTLING COMPANIES  
(BEVERAGES, COSMETICS ETC.)



FOOD INDUSTRIES



GALVANIC ELECTROPLATING



AQUARIUMS & MARINE PARKS



PRODUCTION OF DETERGENTS



FILM INDUSTRIES



OIL & GAS



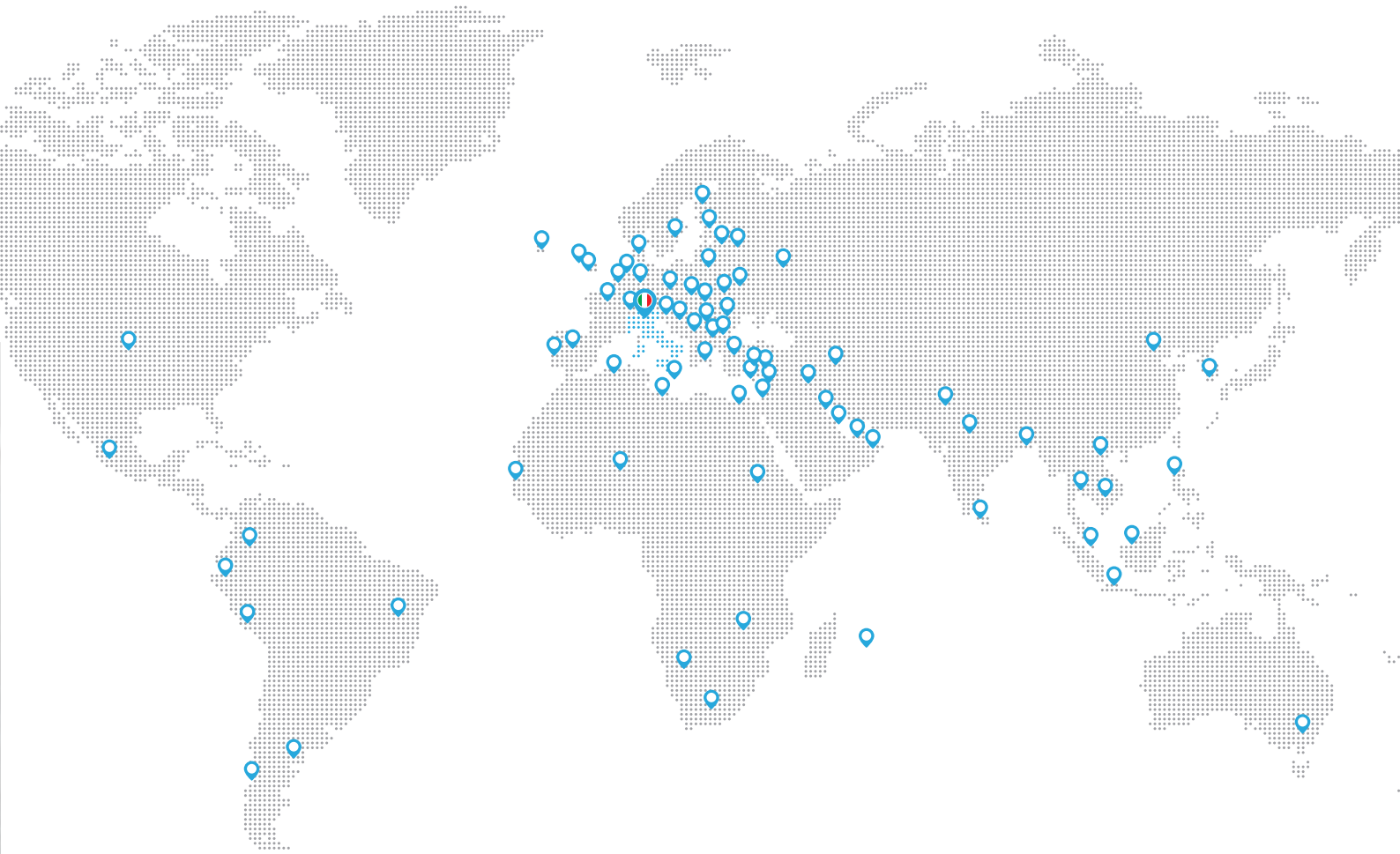
CAR WASHING PLANTS



TEXTILE INDUSTRIES



THERMOREGULATION PROCESS



## QUALITY MADE IN ITALY

GemmeCotti pumps are entirely manufactured on our premises and they are 100% MADE IN ITALY. They are designed, assembled and tested in our workshop by highly skilled personnel, while the pump parts are made and machined by our Italian suppliers, who are all located in the area near our company. This is the reason why, for us, the suppliers play an important role in the resulting quality of the pumps. We choose and select them through a strict qualification process and we keep a close relationship with them in order to ensure the highest quality

of each pump part and consequently of the complete pump assembly. The Italian origin has always been considered a guarantee of product quality and value, given by the long experience and technical skills of Italian workers. We are proud to carry on this tradition and to supply top-quality industrial pumps in more than 90 countries around the world. Our customers can count on a product which meets mechanical excellence standards at a competitive price with the assurance of Italian origin.



# MAGNETIC PUMP DESIGN



## MAG DRIVE PUMPS

Mag drive pumps have a special sealless design that is suitable for pumping corrosive and dangerous liquids thanks to the high chemical resistance and to the absence of leakage and emissions. The structure is really simple and it requires very little maintenance with consequent savings in terms of repairing, spare parts and machine downtime costs during the pump life.

### HOW DOES THE MAGNETIC DRIVE SYSTEM WORK?

In magnetic pumps, there is an external magnet which is connected to the shaft of the electric motor.

The synchronous motion is transmitted from the motor to the rotor (consisting of the internal magnet and the impeller) through the external magnet.

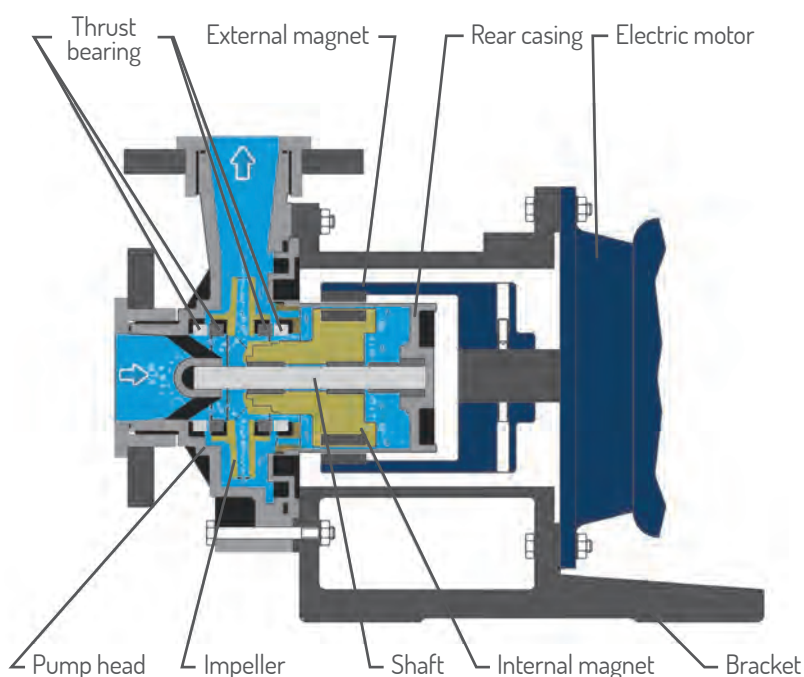
The two magnets never come into contact, they are moved by the magnetic field only.

The impeller connected to the internal magnet spins around a static shaft and the liquid moves through the pump.

The whole hydraulic part is hermetically sealed: in the space between the magnets there is a rear casing which closes on the pump head and prevents the pumped liquid from coming out of the pump.

### ADVANTAGES

1. This special hermetic pump design prevents any leakage of liquid and fugitive emissions, which in the case of chemicals, corrosive liquids and explosive and inflammable fluids, could be very dangerous for the people and the environment. Our mag-drive pumps fully respect the most stringent environmental and safety guidelines and regulations. Our special design also prevents the loss of expensive liquids which would add unnecessary costs.
2. Magnetic pumps are very reliable and need very little maintenance thanks to their simple design. In normal working conditions, these pumps can work without any kind of repair for more than a decade, ensuring a considerable return on the initial investment. In order to safeguard the proper operation of these pumps, the only maintenance required is to periodically check o-rings and bearings, without any other maintenance work.
3. The coupling is very easy because there is no need for a motor/pump alignment.



The robust design of GemmeCotti magnetic pumps means that they can be used in the demanding work conditions of most industrial sectors.

This technology ensures great safety in case of pumping hazardous liquids as acids, bases and solvents, for this reason it is ideal for applications in the chemical, petrochemical, pharmaceutical, electronic and galvanic sector, which require high quality and safety standards. It is important to remember that the usage of magnetic pumps implies paying particular attention to the operating conditions: this type of pumps can't transfer liquids with solids. The liquid must be clean, without solids in suspension (max. quantity of solids: max 2% - max 1mm).



# MAG-DRIVE CENTRIFUGAL PUMPS

## SEAL-LESS MAG DRIVE CENTRIFUGAL PUMPS

In seal-less magnetic drive centrifugal pumps, the external magnet is directly connected to the motor shaft and it transmits the torque to the internal magnet.

The magnetic field created produces a rotation without physical contact between the parts so the impeller spins and moves the fluid. The rear casing is placed between the two magnet joints and it hermetically closes the hydraulic part from the motor.

GemmeCotti can supply four different models of mag drive centrifugal pumps:

### HTM PP/PVDF

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 130 m<sup>3</sup>/h.
- Head up to 48 mlc.
- Injection molded parts.

### HTM SP

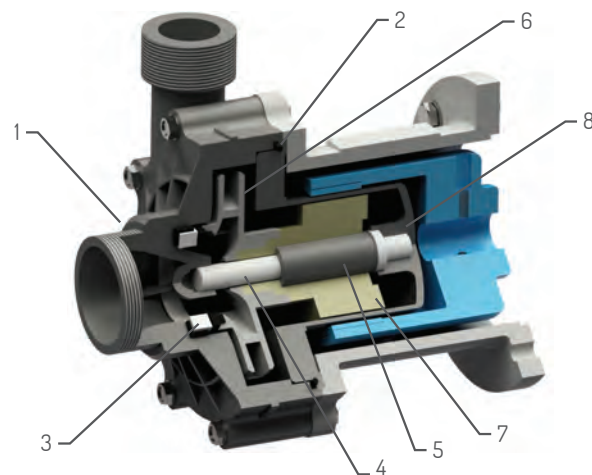
- Self-priming pumps made of PP.
- Capacity up to 25 m<sup>3</sup>/h.
- Head up to 22 mlc.

### HCM

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 130 m<sup>3</sup>/h.
- Head up to 48 mlc.
- Pump head machined from a block.

### HTM SS 316

- Metallic pumps made of stainless steel AISI316.
- Capacity up to 32 m<sup>3</sup>/h.
- Head up to: 24 mlc.



CENTRIFUGAL PUMPS				
PART NUMBER - DESCRIPTION	MATERIALS IN CONTACT WITH THE LIQUID			
	HTM PP/PVDF	HTM SP	HCM	HTM SS 316
1 - PUMP HEAD	PP or PVDF	PP	PP or PVDF	AISI 316
2 - O-RING	EPDM or VITON	EPDM or VITON	EPDM or VITON	EPDM or VITON
3 - CASING THRUST BUSH	CERAMIC Al <sub>2</sub> O <sub>3</sub> + EPDM or VITON	CERAMIC Al <sub>2</sub> O <sub>3</sub> + EPDM	CERAMIC Al <sub>2</sub> O <sub>3</sub> + EPDM or VITON	PTFEC
4 - SHAFT	CERAMIC Al <sub>2</sub> O <sub>3</sub> 99,7%	CERAMIC Al <sub>2</sub> O <sub>3</sub> 99,7%	CERAMIC Al <sub>2</sub> O <sub>3</sub> 99,7%	HASTELLOY-C 276
5 - BEARINGS	PTFEC	PTFEC	PTFEC	PTFEC
6 - IMPELLER	PP or PVDF	PP or PVDF	PP or PVDF	AISI 316
7 - INTERNAL MAGNET	PP or PVDF + NdFeB	PP or PVDF + NdFeB	PP or PVDF + NdFeB	AISI 316 + SmCo
8 - REAR CASING	PP or PVDF	PP or PVDF	PP or PVDF	AISI 316

# HTM 4-31 PP/PVDF



## THERMOPLASTIC MAG-DRIVE CENTRIFUGAL PUMPS



### STANDARD:

- Gas threaded In and Out connections.
- Direct starting motor.

### OPTIONAL:

- Flanges available (DIN or ANSI).
- Dry-running protection.
- Baseplate.
- HTM pumps are available also for NEMA motors and with NPT connections.
- Available in ATEX version for zone 2 II3G (mod. EM-C PP/PVDF).

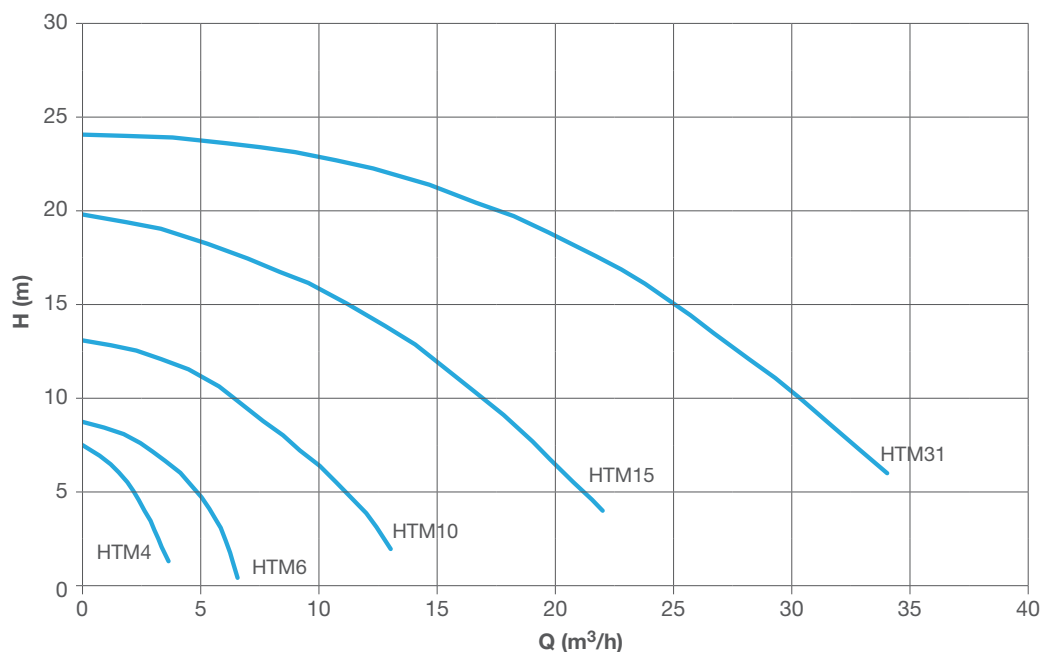
### MAIN FEATURES

Mag drive centrifugal pumps series HTM PP/PVDF are made of thermoplastic materials (Polypropylene and PVDF) and are suitable for high corrosive liquids. Thanks to the innovative mag drive system, pumps model HTM PP/PVDF reduce the risks of leakage and emissions and the maintenance costs.

The transmission of the motion occurs through magnetic joints without any mechanical seal and this design guarantees the maximum safety and efficiency. The pumped liquid has to be clean and without solids in suspension.

- Materials available: PP / PVDF.
- Materials in contact with the liquid; casing and impeller: PP/PVDF; o-ring: EPDM (standard for PP pumps); VITON (standard for PVDF pumps); static shaft: Al203 99,7 %; Bushing PTFEC.
- Max flow: 35 m<sup>3</sup>/h; Max head 24 m.
- Temperature: PP: max 70°C – PVDF: max 90°C.
- Max viscosity: 200 cSt.
- Pressure rating: NP 6 at 20°C.
- High torque magnetic coupling NdFeB standard.
- Suitable for high corrosive liquids.

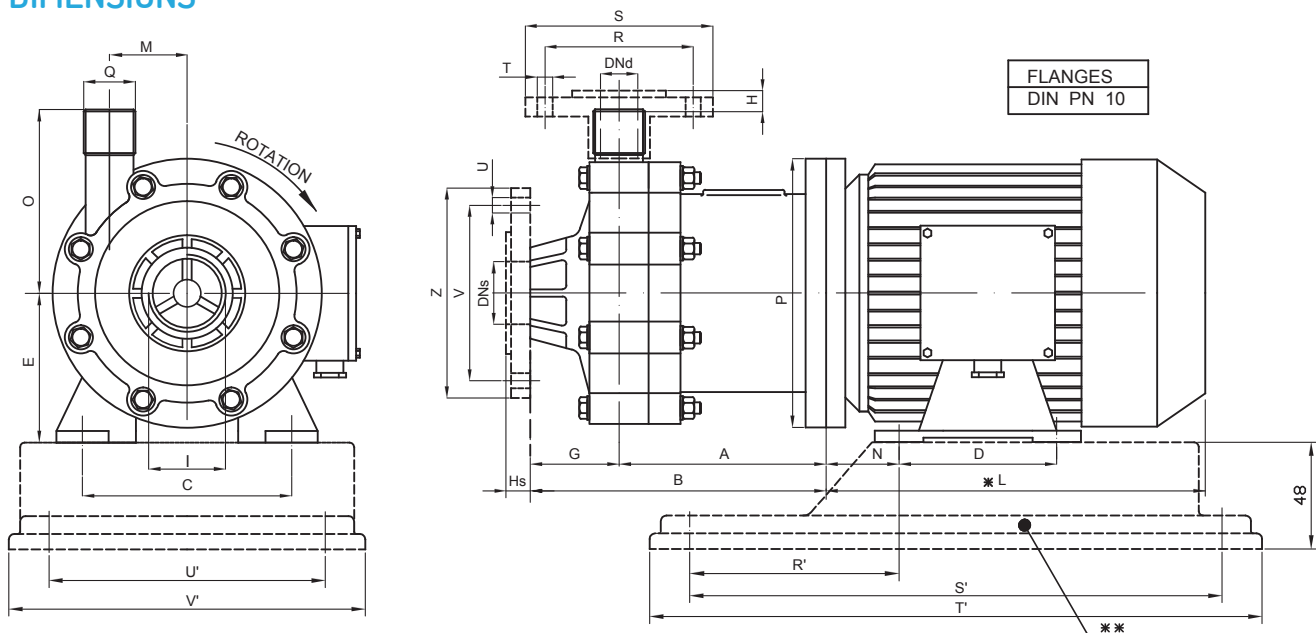
## PERFORMANCE CURVES 50HZ - 2900 RPM - SIZES FROM HTM 4 TO HTM 31



### HTM PP/PVDF TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (kg)		SUITABLE MOTOR POWER (KW) 2900 rpm / FLANGE AND FRAME
		50HZ (m³/h)	60HZ (usgpm)	50HZ (mcl)	60HZ (ft)			PP	PVDF	
HTM 4	PP- PVDF	3,5	16	7	33	1" FEMALE	1/2" MALE	0,9	1	0,12 / 56 B - B3/B5
HTM 6	PP- PVDF	6,5	30	8,5	42	1" FEMALE	3/4" MALE	1,6	1,8	0,25 / 63 B - B3/B5
HTM 10	PP- PVDF	13	68	14	58	1 1/2" FEMALE	1" MALE	2,6	2,9	0,55 / 71 2B - B3/B5 • 1,1 / 80 B - B3/B5
HTM 15	PP- PVDF	23	125	20	90	2" MALE	1 1/2" MALE	5,8	6,6	1,1 / 80 B - B3/B5 • 1,5 / 90 S - B3/B5 • 2,2 / 90L - B3/B5
HTM 31	PP- PVDF	35	185	24	115	2 1/2" MALE	2" MALE	8,0	8,9	2,2 / 90 L - B3/B5 • 3 / 100 L - B3/B5 • 4 / 112 M - B3/B5

### HTM 4-6-10 PP/PVDF DIMENSIONS



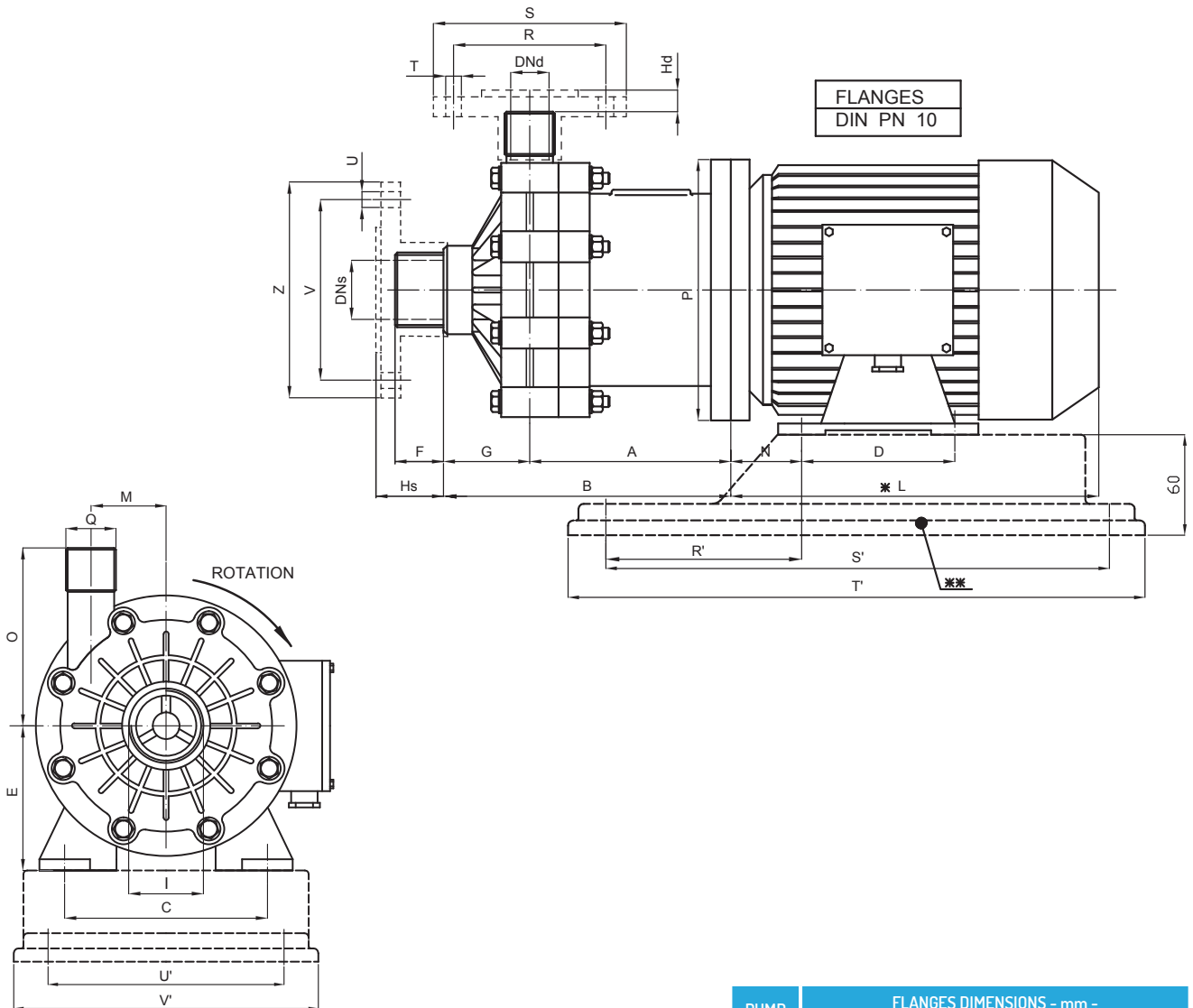
PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DN <sub>s</sub>	DN <sub>d</sub>
HTM 4	-	-	-	-	-	-	-	-
HTM 6	75	105	14	14	85	115	25	20
HTM 10	85	115	14	18	110	150	40	25

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -													BASEPLATE DIMENSIONS - mm -						
			A	B	C	D	E	H <sub>s</sub>	G	H	I	L*	M	N	O	P	Q	R'	S'	T'	U'	V'
HTM 4	56 B	0.12	76	115	90	71	56	-	39	-	1" FEMALE	176	34	36	80	120	1/2" MALE	94	244	280	130	160
HTM 6	63 B	0.25	85	143	100	80	63	22	59	6	1" FEMALE	191	45	40	98	140	3/4" MALE	102	244	280	130	160
HTM 10	71 2B	0.55	112	180	112	90	71	34	70	5	1 1/2" FEMALE	215	45	45	100	160	1" MALE	112	244	280	130	160
HTM 10	80B	1.1	122	190	125	100	80	34	70	5	1 1/2" FEMALE	232	45	50	100	200	1" MALE	120	302	350	157	205

\* Different according to the manufacturer. \*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.  
 NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
 PUMPS AVAILABLE THREADED OR FLANGED.



## HTM 15-31 PP/PVDF DIMENSIONS



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PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DN <sub>s</sub>	DN <sub>d</sub>
HTM 15	110	153	18	18	125	168	50	40
HTM 31	125	168	18	18	145	188	65	50

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -															BASEPLATE DIMENSIONS - mm -					
			A	B	C	D	E	F	G	H <sub>s</sub>	H <sub>d</sub>	I	L*	M	N	O	P	Q	R'	S'	T'	U'	V'
HTM 15	80 B	1,1	150	230	125	100	80	28	52	42	13	2" MALE	232	66	50	135	200	1-1/2" MALE	120	302	350	157	205
HTM 15	90 S	1,5	160	240	140	100	90	28	52	42	13	2" MALE	256	66	56	135	200	1-1/2" MALE	132	302	350	157	205
HTM 31	90 L	2,2	184	245	140	125	90	30	61	44	13	2 1/2" MALE	280	66	56	140	200	2" MALE	132	302	350	157	205
HTM 31	100 L	3	203	264	160	140	100	30	61	44	13	2 1/2" MALE	315	66	63	140	250	2" MALE	140	352	400	202	250
HTM 31	112 M	4	203	264	190	140	112	30	61	44	13	2 1/2" MALE	325	66	70	140	250	2" MALE	140	352	400	202	250

\* Different according to the manufacturer. \*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.  
NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
PUMPS AVAILABLE THREADED OR FLANGED.

# HTM 40-100 PP/PVDF

NEW



## THERMOPLASTIC MAG-DRIVE CENTRIFUGAL PUMPS



### STANDARD:

- Gas threaded In and Out connections.
- Direct starting motor.
- HTM 80-100: standard pumps supplied with DIN flanges.

### OPTIONAL:

- Flanges available (DIN or ANSI).
- Dry-running protection device.
- Baseplate available for HTM 40.
- HTM 40-50 are available for NEMA motors and with NPT connections.
- Available in ATEX version for zone 2 II3G (mod. EM-C PP/PVDF).

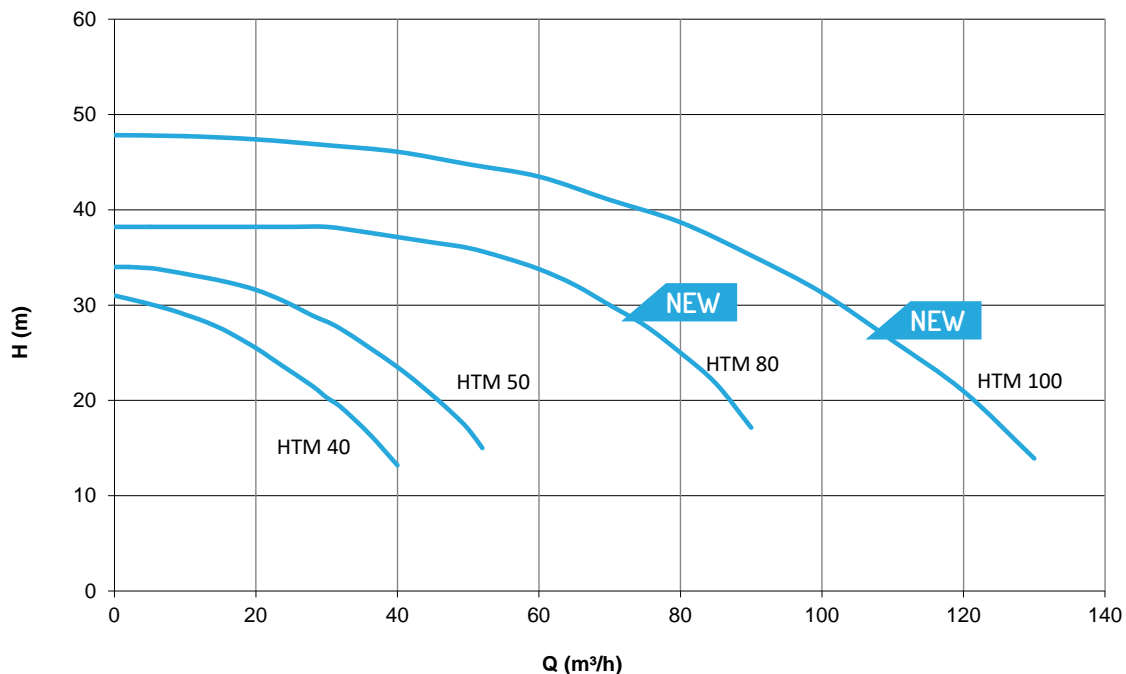
### MAIN FEATURES

Mag drive centrifugal pumps series HTM PP/PVDF are made of thermoplastic materials (Polypropylene and PVDF) and are suitable for high corrosive liquids. Thanks to the innovative mag drive system, pumps model HTM PP/PVDF reduce the risks of leakage and emissions and the maintenance costs. The transmission of the motion occurs through magnetic joints without any mechanical seal and this design guarantees the maximum safety and efficiency. The pumped liquid has to be clean and without solids in suspension.

- Materials available: PP / PVDF.
- Materials in contact with the liquid; casing and impeller: PP/PVDF; o-ring: EPDM (standard for PP pumps); VITON (standard for PVDF pumps); static shaft: Al203 99,7 %; Bushing PTFEC.
- Max flow: 130 m<sup>3</sup>/h; Max head 48 m.
- Temperature: PP: max 70°C – PVDF: max 90°C.
- Max viscosity: 200 cSt.
- Pressure rating: NP 6 at 20°C.
- High torque magnetic coupling NdFeB standard.
- Suitable for high corrosive liquids.

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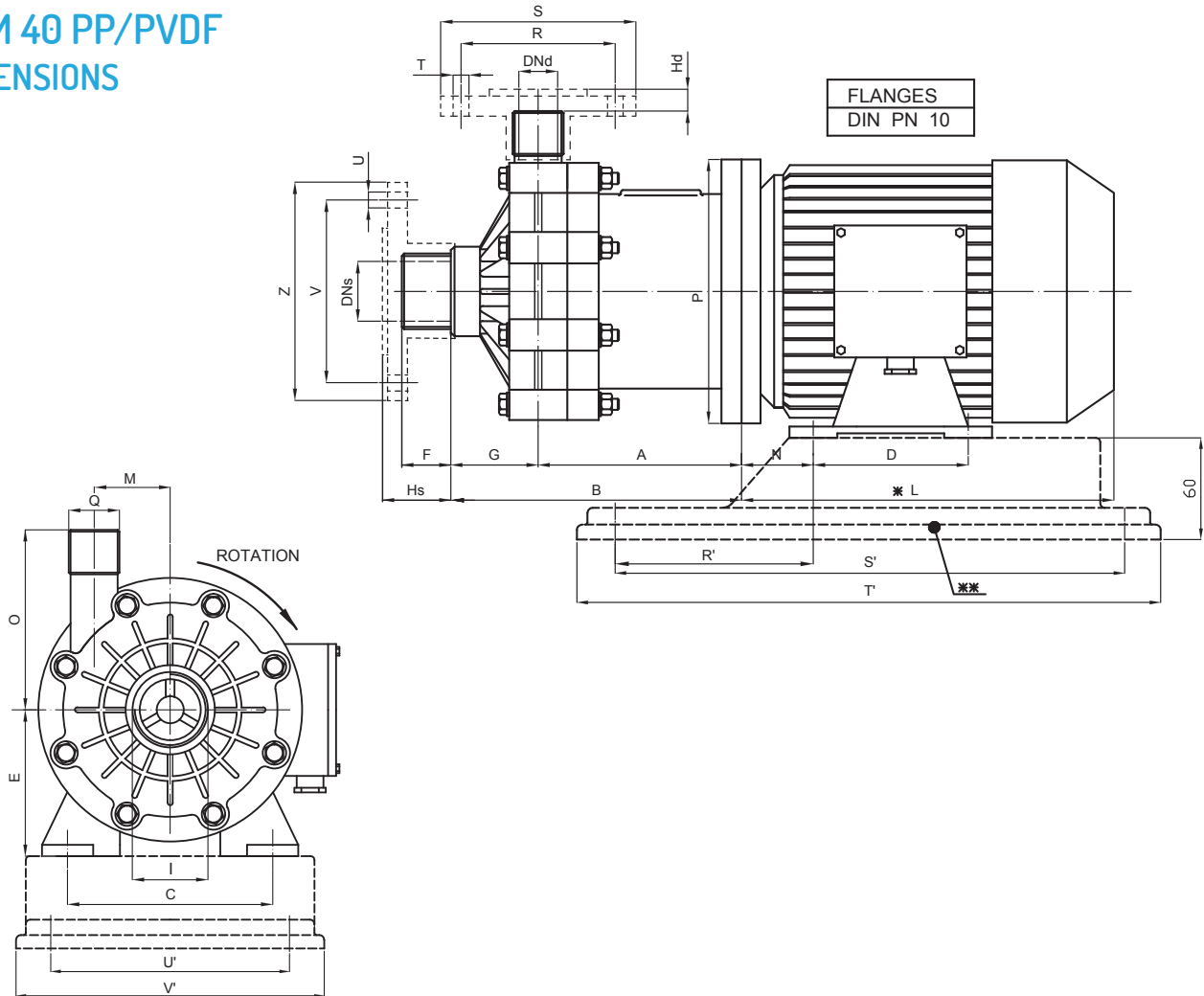
## PERFORMANCE CURVES 50HZ - 2900 RPM - SIZES FROM HTM 40 TO HTM 100



HTM PP/PVDF TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (kg)		SUITABLE MOTOR POWER (Kw) 2900 rpm / FLANGE AND FRAME
		50HZ (m³/h)	60HZ (usgpm)	50HZ (mcl)	60HZ (ft)			PP	PVDF	
HTM 40	PP- PVDF	42	215	31	150	3" MALE	2 1/2" MALE	19.7	21.3	3/100 L - B3/B5 • 4/112M - B3/B5
HTM 50	PP- PVDF	43	220	33	160	3" MALE	2 1/2" MALE	32.2	35	5.5 / 132 S2A - B5 • 7.5 / 132 S2B - B5
HTM 80	PP- PVDF	90	352	38	123	DIN 80	DIN 65	42	44	7.5 / 132 S2 - B5 • 11 / 160 M2A - B5 15 / 160 M2B - B5 • 18.5 / 160 L2 - B5
HTM 100	PP- PVDF	130	528	48	148	DIN 100	DIN 80	40	45	11 / 160 M2A - B5 • 15 / 160 M2B - B5 18.5 / 160 L2 - B5 • 22 / 180 M2 - B5

HTM 40 PP/PVDF DIMENSIONS



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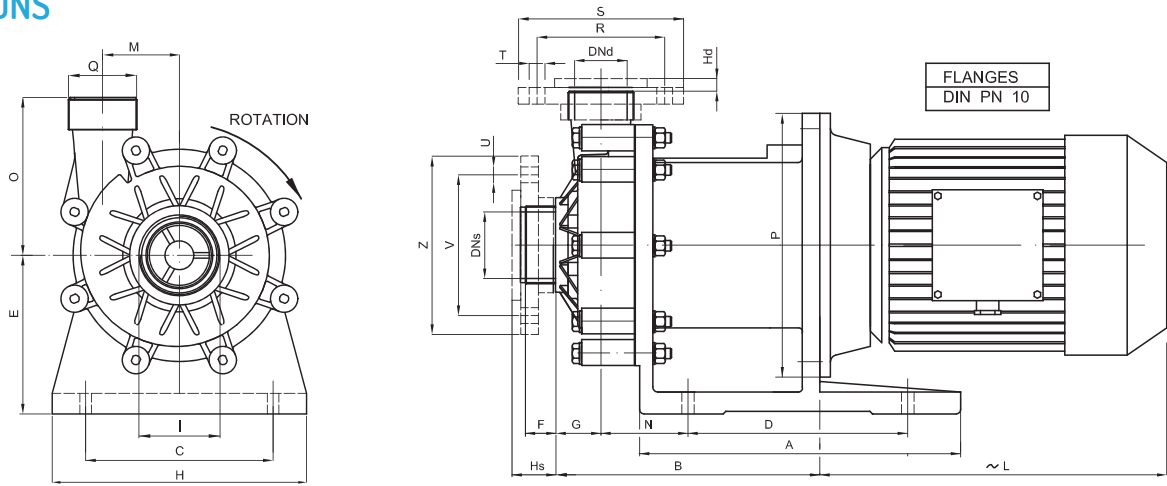
PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -														BASEPLATE DIMENSIONS - mm -						
			A	B	C	D	E	F	G	Hs	Hd	I	L*	M	N	O	P	Q	R'	S'	T'	U'	V'
HTM 40	100 L	3	228	320	160	140	100	40	52	50	10	3" MALE	315	82,5	63	170	250	2 1/2" MALE	140	352	400	202	250
HTM 40	112 M	4	228	320	190	140	112	40	52	50	10	3" MALE	325	82,5	70	170	250	2 1/2" MALE	156	352	400	202	250

PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DNs	DNd
HTM 40	145	188	18	18	160	203	80	65

\* Different according to the manufacturer.  
 OPTIONAL UPON REQUEST: Flanges and baseplate.  
 NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
 PUMPS AVAILABLE THREADED OR FLANGED.



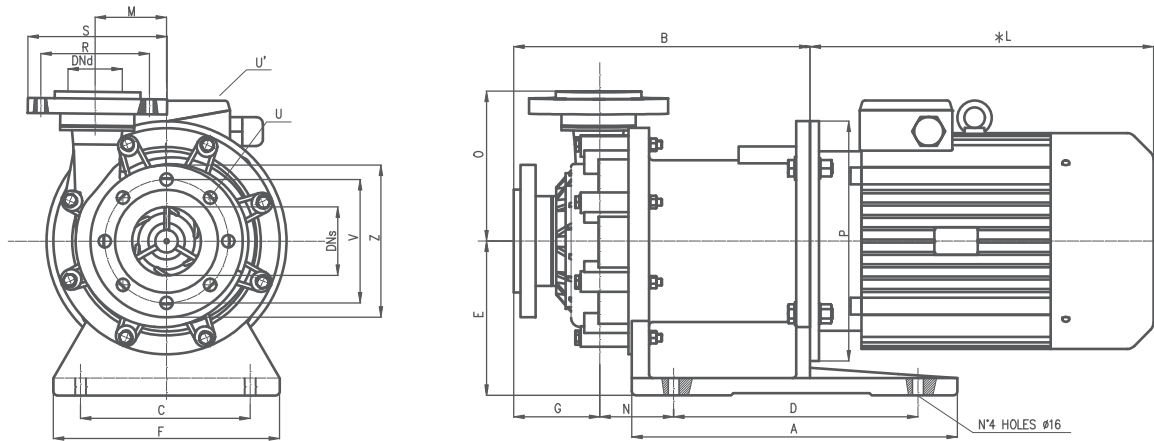
# HTM 50 PP/PVDF DIMENSIONS



PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -																
			A	B	C	D	E	F	G	H	Hs	Hd	I	-L	M	N	O	P	Q
HTM 50	132 S2A	5,5	365	339	216	250	192	40	52	274	50	10	3" MALE	383	82,5	98	170	300	2" 1/2 MALE
HTM 50	132 S2B	7,5	365	339	216	250	192	40	52	274	50	10	3" MALE	421	82,5	98	170	300	2" 1/2 MALE

PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DNs	DNd
HTM 50	145	188	18	18	160	203	80	65

# HTM 80-100PP/PVDF DIMENSIONS



PUMP TYPE	MOTOR FLANGE B5	KW	DIMENSIONS - mm -											
			A	B	C	D	E	F	G	*L	M	N	O	P
HTM 80	G 132S2	7,5	475	433	250	360	225	330	126	421	103	104	215	300
HTM 80	G 160M2A	11	475	433	250	360	225	330	126	510	103	104	215	350
HTM 80	G 160M2B	15	475	433	250	360	225	330	126	510	103	104	215	350
HTM 80	G 160L2	18,5	475	433	250	360	225	330	126	554	103	104	215	350
HTM 100	G 160M2A	11	475	435	250	360	225	330	124	510	103	104	217	350
HTM 100	G 160M2B	15	475	435	250	360	225	330	124	510	103	104	217	350
HTM 100	G 160L2	18,5	475	435	250	360	225	330	124	554	103	104	217	350
HTM 100	G 180M2	22	475	435	250	360	225	330	124	595	103	104	217	350

PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	U	U*	V	Z	DNs	DNd
HTM 80	145	188	n° 8 holes Ø18	n° 4 holes Ø18	160	200	80	65
HTM 100	160	200	n° 8 holes Ø18	n° 8 holes Ø18	180	220	100	80

\* Different according to the manufacturer.  
NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.

\* HTM 50, OPTIONAL UPON REQUEST: Flanges.  
\* HTM 80-100: standard pumps supplied with DIN flanges.

## THERMOPLASTIC SELF-PRIMING MAG DRIVE CENTRIFUGAL PUMPS



### STANDARD:

- Gas threaded In and Out connections.
- Direct starting motor.

### OPTIONAL:

- Baseplate.

### MAIN FEATURES

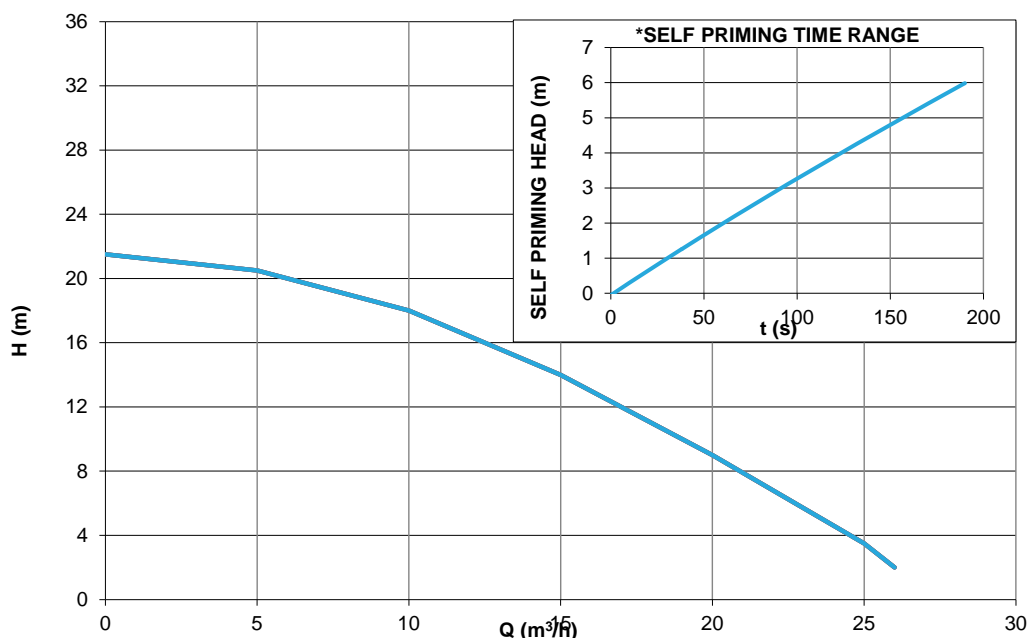
HTM-SP pumps combine the typical features of our mag drive centrifugal pumps with the self-priming capability. At sea level these pumps can prime up to 6 meters. HTM-SP pumps are made of Polypropylene (PP), a thermoplastic material that ensures the best resistance to most chemicals.

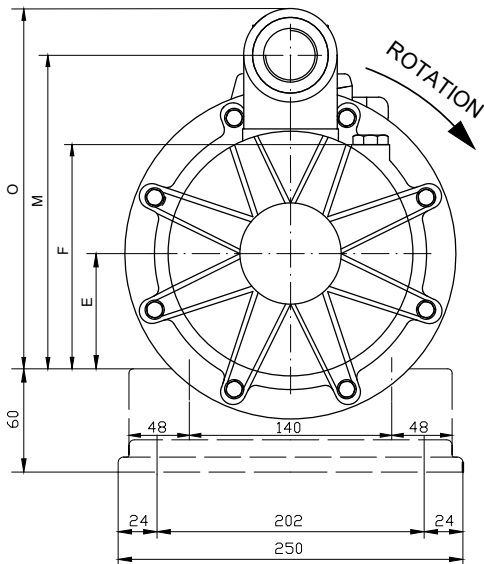
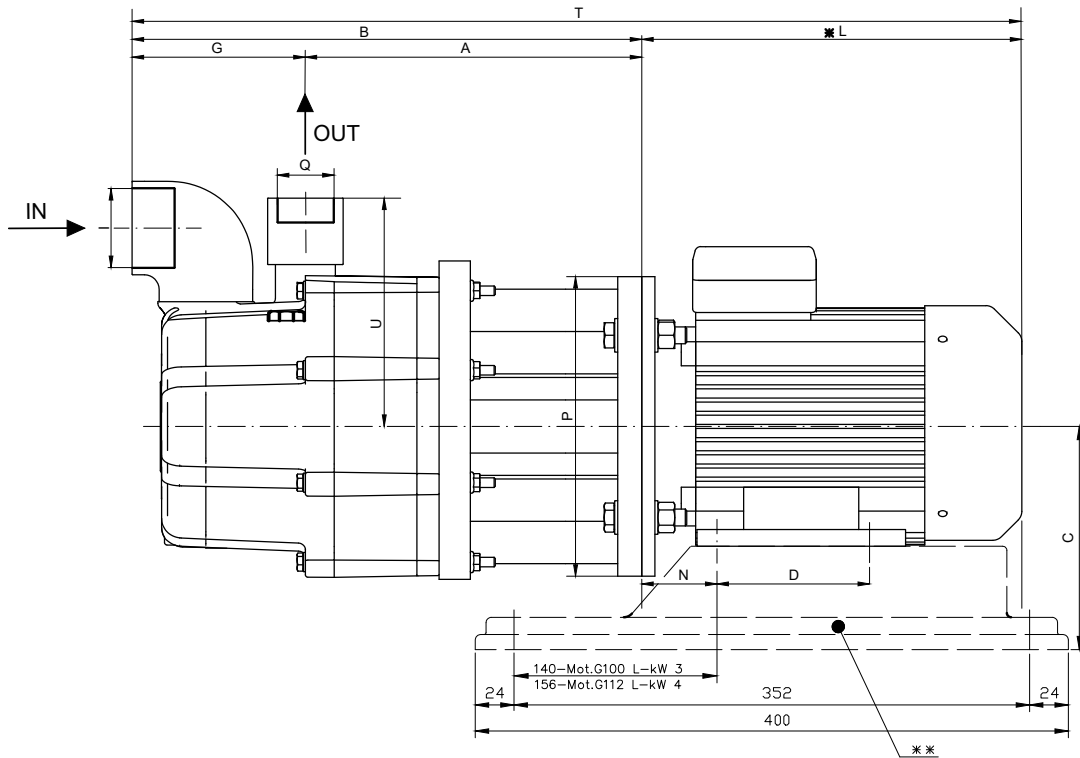
Thanks to the innovative sealless magnetic drive system, the pump model HTM-SP guarantees the maximum safety and efficiency, reducing the risks of leakage and emissions in the environment and the maintenance costs. The pumped liquid has to be clean, without solids in suspension.

- Materials available: PP or PVDF\*;
- Materials in contact with the liquid:
  - Pump housing: PP;
  - Impeller: PP or PVDF;
  - O-ring: EPDM (standard for PP pumps) / VITON (standard for PVDF pumps);
  - Static shaft: Al203 99.7%;
  - Bearing: PTFEC.
- Capacity up to 25 m<sup>3</sup>/h.
- Head up to 22 m.
- Max temperature: PP: 70° C - PVDF: 90° C.
- Max viscosity: 200 cSt.
- Pressure rating: PN6 at 20° C.
- Self-priming up to 6m at sea level.
- Suction connection available in 3 welded configurations (frontal, on the right and on the left).

\*Pump housing only available in PP.

## PERFORMANCE CURVES 50HZ - 2900 RPM





PUMP TYPE	MOTOR FLANGE B5	P (KW)	DIMENSIONS - mm -															
			A	B	C	D	E	F	G	I	L	M	N	O	P	Q	T	U
HTM 31 SP	G 100 L	3	280,5	425	160	140	100	191	144,5	1"1/2 FEMALE	317	265,5	63	304,5	250	1" FEMALE	742	190,5
HTM 31 SP	G 112 M	4	280,5	425	160	140	100	191	144,5	1"1/2 FEMALE	317	265,5	63	304,5	250	1" FEMALE	742	190,5

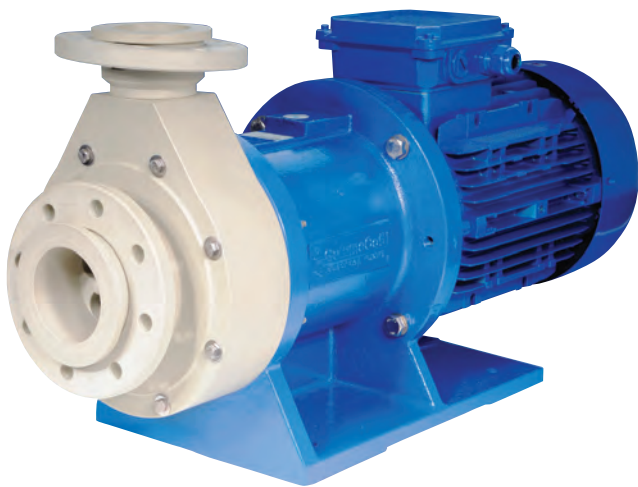
\* Different according to the manufacturer.

\*\* OPTIONAL UPON REQUEST: Baseplate.





## THERMOPLASTIC MAG-DRIVE CENTRIFUGAL PUMPS



### OPTIONAL:

- Dry-running protection device.

### TYPICAL APPLICATIONS:

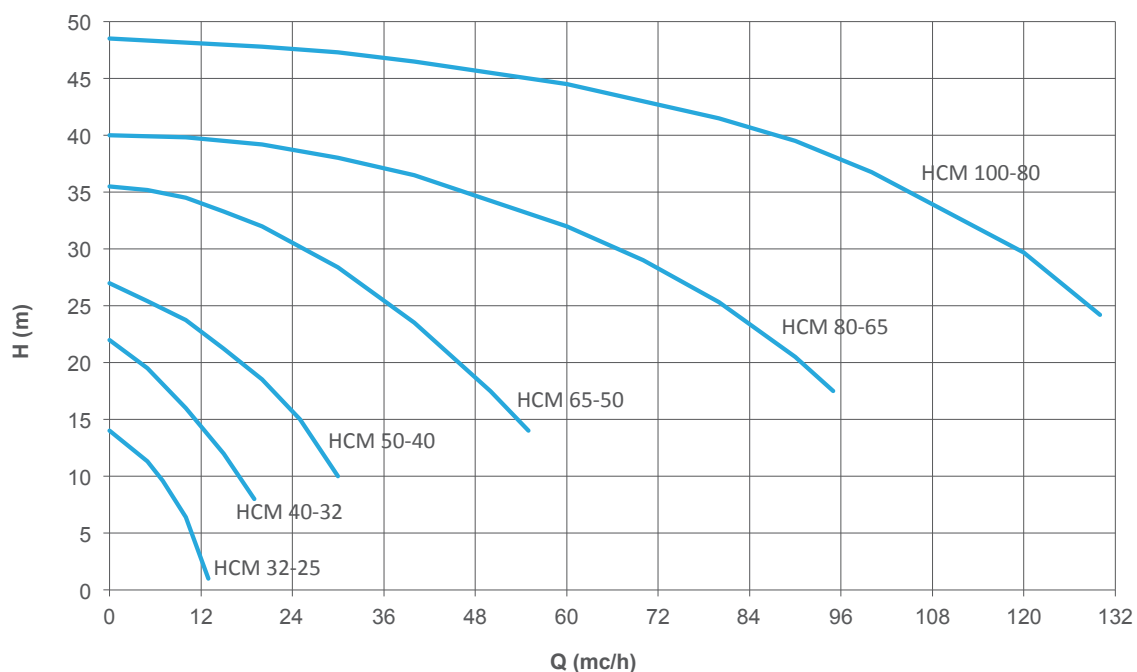
- High corrosive liquids.
- Toxic, noxious and carcinogenic liquids.

### MAIN FEATURES

Mag drive centrifugal pumps series HCM are made of thermoplastic materials (Polypropylene or PVDF) and, thanks to their strong and resistant structure, they are suitable for high corrosive fluids and heavy duty applications. The pump casing is machined from a solid block for a great resistance in terms of pressure and temperature and the transmission of the motion occurs through magnetic joints without any mechanical seal. This magnetic drive system guarantees the maximum safety and efficiency reducing risks of leakage and emissions.

- Materials available: PP / PVDF.
- Materials in contact with the liquid: pump head and impeller PP or PVDF; o-ring EPDM (standard for PP pumps) VITON (standard for PVDF pumps); shaft Al2O3 99,7%; bushing PTFEC.
- Max capacity: 130 m<sup>3</sup>/h.
- Max head: 48m.
- Max temperature: PP: 70°C -PVDF: 90°C.
- Max pressure: 6 bar.
- Flanged or threaded connections according to the pump size.
- Strong structure, maximum resistance to corrosive liquids.

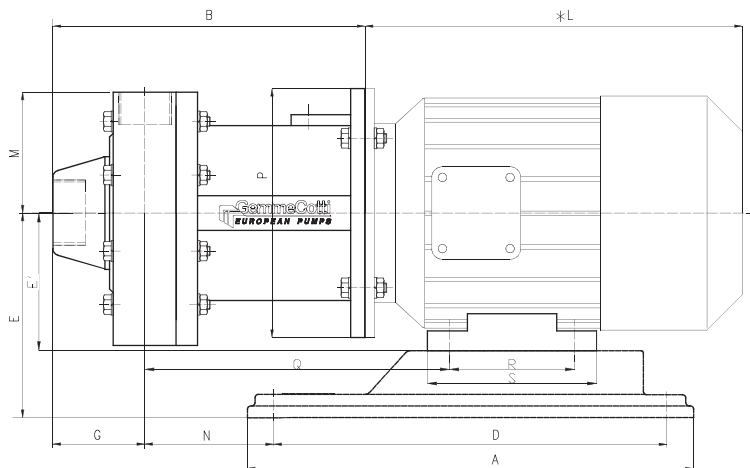
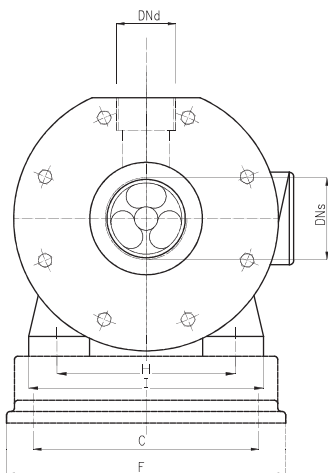
### PERFORMANCE CURVES 50HZ - 2900 RPM



### HCM PP/PVDF TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (KG)		SUITABLE MOTOR POWER (Kw) 2900 rpm / FLANGE AND FRAME
		50HZ (M3/H)	60HZ (USGPM)	50HZ (MLC)	60HZ (FT)			PP	PVDF	
HCM 32-25	PP- PVDF	13	68	14	58	32	25	3	3.5	0,55 / 71 - B3/B5
HCM 40- 32	PP- PVDF	23	125	20	90	40	32	7	8	1,1 / 80 - B3/B5
	PP- PVDF									1,5 / 90 - B3/B5
HCM 50 - 40	PP- PVDF	35	185	24	115	50	40	10	11	2,2 / 90 - B3/B5
	PP- PVDF									3 / 100 - B3/B5
HCM 65- 50	PP- PVDF	43	220	33	165	65	50	37	41	4 / 112 - B3/B5
	PP- PVDF									5,5 / 132 - B5
	PP- PVDF									7,5 / 132 - B5
	PP- PVDF									9 / 132 - B5
HCM 80 - 65	PP- PVDF	92	480	38	180	80	65	55	60	7,5 / 132 S2 - B5
	PP- PVDF									11 / 160 M2A - B5
	PP- PVDF									15 / 160 M2B - B5
	PP- PVDF									18,5 / 160 L2 - B5
HCM 100 - 80	PP- PVDF	135	650	48	197	100	80	60	66	11 / 160 M2A - B5
	PP- PVDF									15 / 160 M2B - B5
	PP- PVDF									18,5 / 160 L2 - B5
	PP- PVDF									22 / 180 M2 - B5

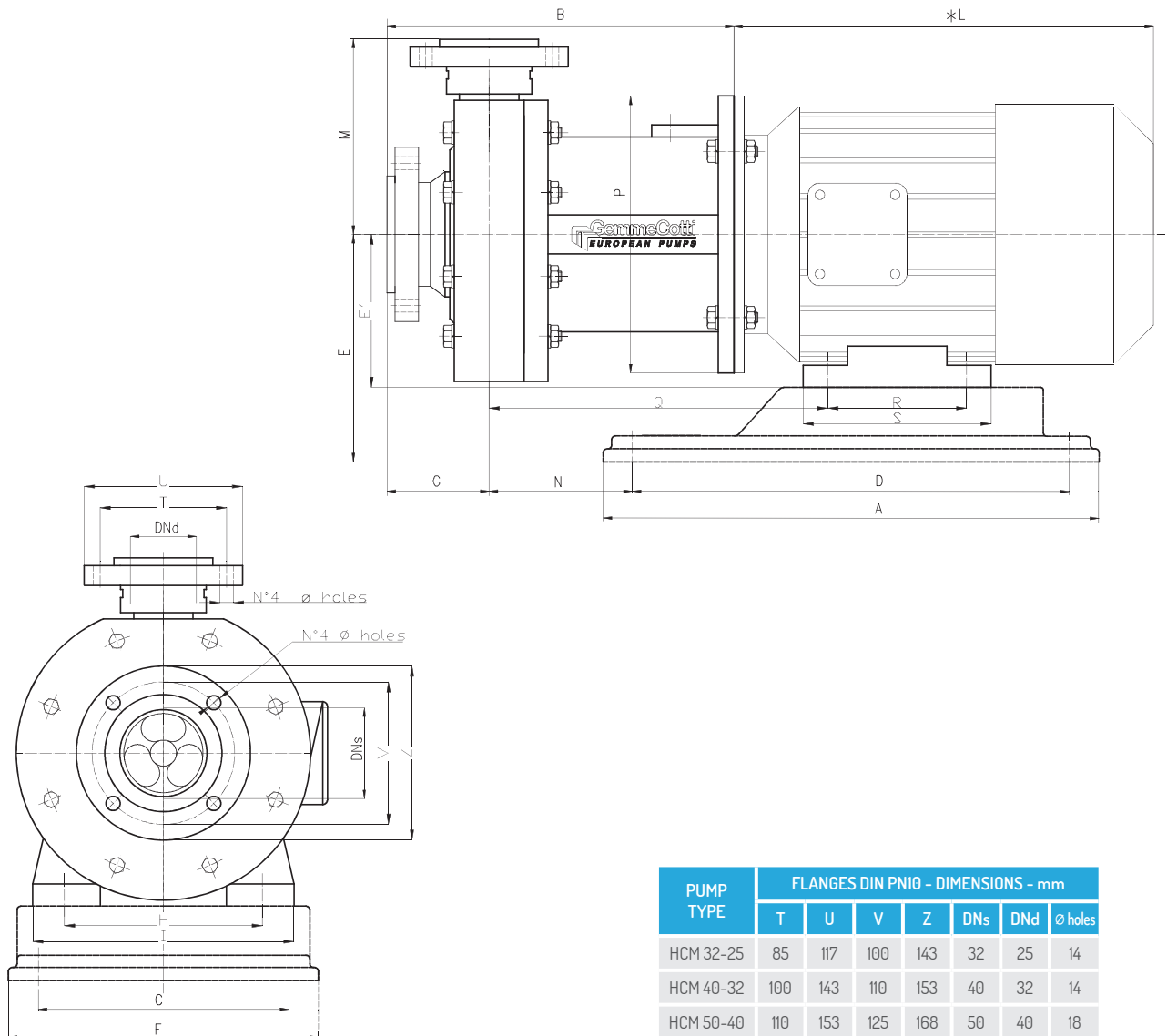
### HCM 32-25 / 40-32 / 50-40 PP/PVDF DIMENSIONS



PUMP TYPE	MOTOR FLANGE B3 - B5	Kw	DIMENSIONS - mm -																	CONNECTIONS - in	
			A	B	C	D	E	E'	F	G	H	I	L*	M	N	P	Q	R	S	DN <sub>s</sub>	DN <sub>d</sub>
HCM 32-25	71	0.55	280	180	130	244	119	71	160	65	112	140	260	101	45	158.5	157	90	110	1 1/2" FEMALE	1" FEMALE
HCM 40-32	80	1.1	350	236	146	302	140	80	205	70	125	160	280	142	80	200	200	100	130	1 1/2" FEMALE	1 1/4" FEMALE
	90	1.5		246			150	90			140	170			84		216	100	153		
HCM 50-40	90	2.2	350	268	146	302	150	90	205	84	140	180	280	105	108	200	240	125	160	2" FEMALE	1 1/2" FEMALE
	100	3					400	202			352	160			100		250	160	200		

\* Different according to the manufacturer.  
 OPTIONAL UPON REQUEST: Baseplate - Flanges.

## HCM 32-25 / 40-32 / 50-40 / 65-50L PP/PVDF WITH FLANGES DIMENSIONS



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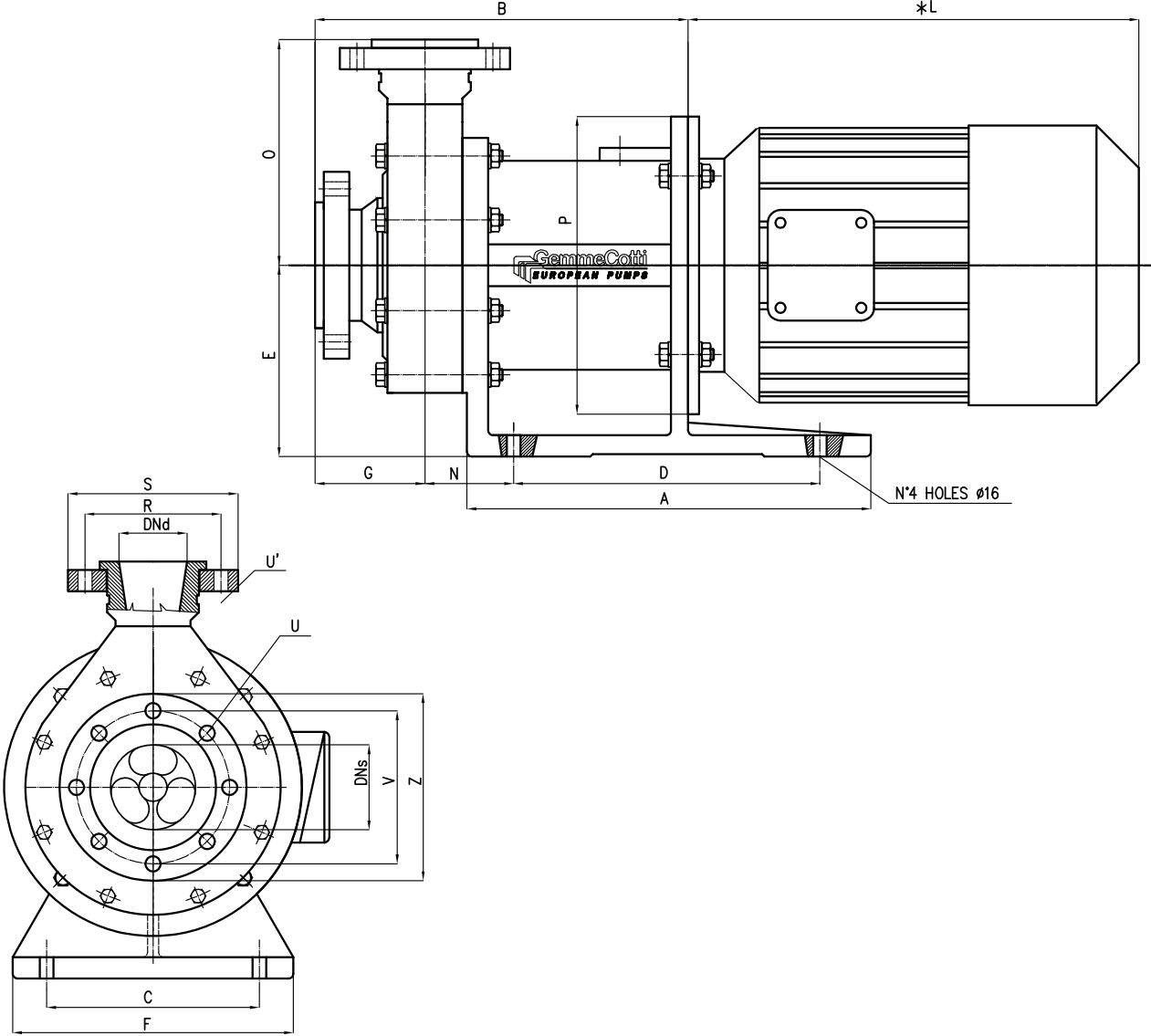
PUMP TYPE	FLANGES DIN PN10 - DIMENSIONS - mm						
	T	U	V	Z	DNs	DNd	Ø holes
HCM 32-25	85	117	100	143	32	25	14
HCM 40-32	100	143	110	153	40	32	14
HCM 50-40	110	153	125	168	50	40	18
HCM 65-50-L	125	168	145	188	65	50	18

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -																
			A	B	C	D	E	E'	F	G	H	I	L*	M	N	P	Q	R	S
HCM 32-25	71	0.55	280	187	130	244	119	71	160	75	112	140	260	115	45	158.5	157	90	110
HCM 40-32	80	1.1	350	236	146	302	140	80	205	85	125	160	280	142	80	200	200	100	130
	90	1.5		246			150	90			140	180					84	216	100
HCM 50-40	90	2.2	350	268	146	302	150	90	205	84	140	180	280	149	108	200	240	125	160
	100	3					400	202			352	160					100	250	160
HCM 65-50-L	112	4	400	331	202	352	172	112	250	103	190	230	324	171	142	250	298	140	195

\* Different according to the manufacturer.



# HCM 65-50H / 80-65 / 100-80 PP/PVDF DIMENSIONS



PUMP TYPE	MOTOR FLANGE BS	KW	DIMENSIONS - mm -											FLANGE DIN PN 10 - DIMENSIONS - mm -							
			A	B	C	D	E	F	G	L*	N	O	P	R	S	U	U'	V	Z	DN <sub>s</sub>	DN <sub>d</sub>
HCM 65-50-H	132	5.5	365	351	216	250	192	274	103	383	98	171	300	125	168	n°4 Ø18 holes	n°4 Ø18 holes	145	188	65	50
	132	7.5								421											
	132	9								421											
HCM 80-65	132S2	7.5	475	430	250	360	225	330	130	421	105	234	300	145	188	n°8 Ø18 holes	n°4 Ø18 holes	160	200	80	65
	160M2A	11								510			350								
	160M2B	15								554											
HCM 100-80	160L2	18.5	475	436	250	360	225	330	126	510	105	263	350	160	200	n°8 Ø18 holes	n°8 Ø18 holes	180	220	100	80
	160M2A	11								554											
	160M2B	15								595											
	180M2	22								595											

\* Different according to the manufacturer.



## METALLIC MAG-DRIVE CENTRIFUGAL PUMPS



### MAIN FEATURES

Mag drive centrifugal pumps series HTM SS are made of AISI 316 and are suitable for hydrocarbons solvents and dangerous liquids. Thanks to the innovative mag drive design, pumps model HTM SS reduce the risks of leakage and emissions and the maintenance costs. The transmission of the motion occurs through magnetic joints without any mechanical seal. This design guarantees the maximum safety and efficiency. The pumped liquid has to be clean and without solids in suspension. Pumps series HTM SS 316 are also available in ATEX version for zone 1 and 2 (pump model EM-C).

### STANDARD:

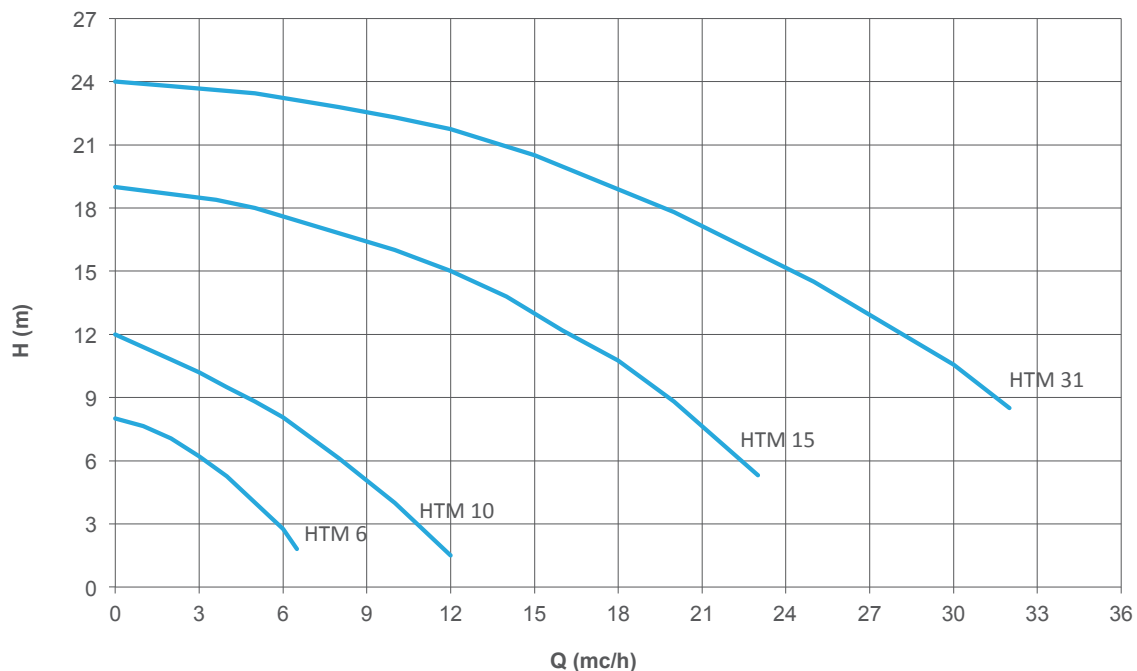
- Threaded in and out connections.

### OPTIONAL:

- Explosion proof motor.
- Flanges available (DIN or ANSI).
- Dry-running protection device.
- Baseplate.
- Overload switch.
- Available in ATEX version for zone 1 II2G and zone 2 II3G (pump mod. EM-C).

- Materials available: AISI 316;
- Materials in contact with the liquid: casing and impeller: stainless steel AISI 316; o-ring: EPDM/VITON; bushing: PTFE/CARBON; shaft: Hastelloy C276.
- Max flow: 32 m<sup>3</sup>/h; max head: 24 mlc.
- Max temperature: 160° C.
- Max viscosity: 200 cSt.
- Pressure rating: NP 10 at 20° C.

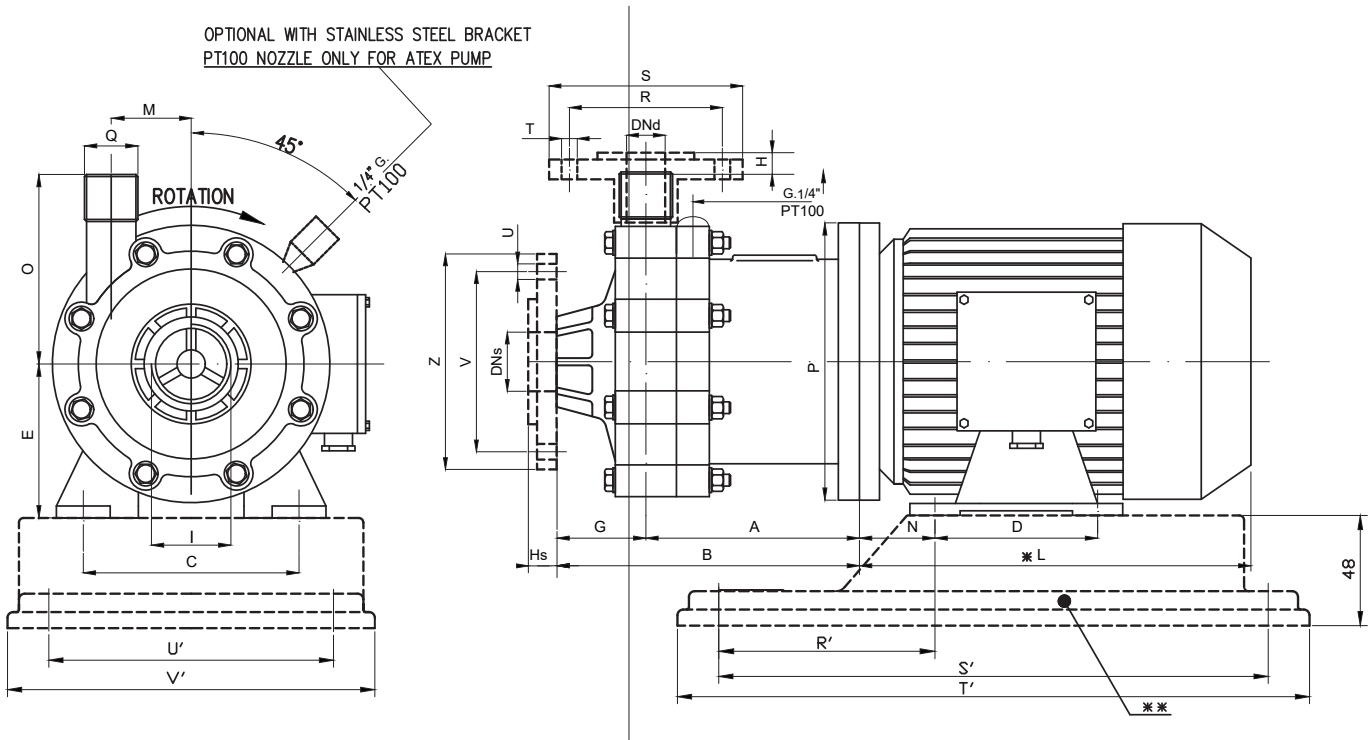
## PERFORMANCE CURVES 50HZ - 2900 RPM



HTM SS 316 TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (KG)	SUITABLE MOTOR POWER (KW) 2900 rpm / FLANGE AND FRAME
		50HZ (M3/H)	60HZ (USGPM)	50HZ (MLC)	60HZ (FT)				
HTM 6	AISI316	6	30	8	42	1" FEMALE	3/4" MALE	6.2	0,55 / 71 B - B3/B5
HTM 10	AISI316	12	50	12	52	1 1/2" FEMALE	1" MALE	11.7	1,1 / 80 B - B3/B5
HTM 15	AISI316	23	117	19	85	2" MALE	1 1/2" MALE	17	1,5 / 90 S - B3/B5
HTM 31	AISI316	32	180	24	110	2 1/2" MALE	2" MALE	20	2,2 / 90 L - B3/B5

HTM 6-10 SS316 • EM-C 6-10 SS316 (ATEX VERSION) DIMENSIONS

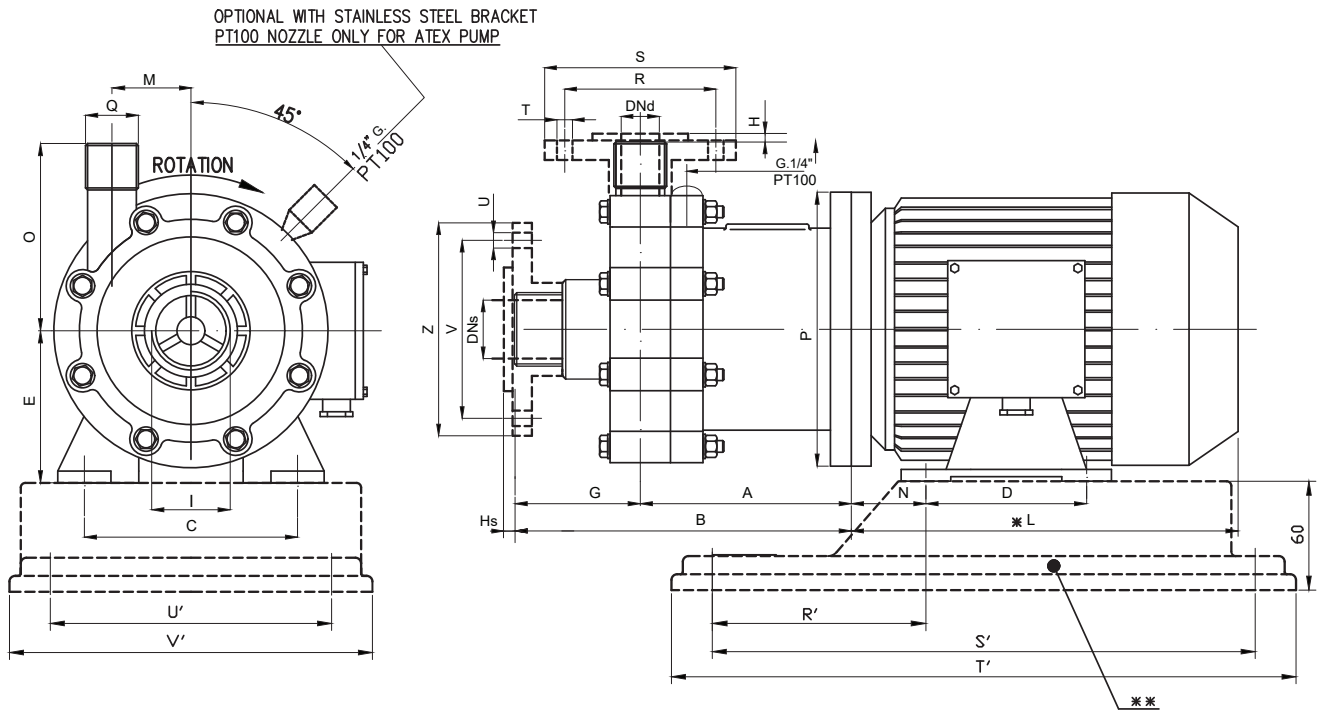


PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DN <sub>s</sub>	DN <sub>d</sub>
HTM 6 SS316	75	105	14	14	85	115	25	20
HTM 10 SS316	85	115	14	18	110	150	40	25

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -														BASEPLATE DIMENSIONS - mm -					
			A	B	C	D	E	F	G	H	I	-L	M	N	O	P	Q	R'	S'	T'	U'	V'
HTM 6 SS316	71 B	0,55	137	194	112	90	71	24	57	4	1" FEMALE	215	46	45	89	160	3/4 MALE	102	244	280	130	160
HTM 10 SS316	80 B	1,1	145	214	125	100	80	20	69	8	1 1/2" FEMALE	232	44	50	98	200	1" MALE	120	302	350	157	205

NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR. PUMPS AVAILABLE THREADED OR FLANGED.

## HTM 15-31 SS316 • EM-C 15-31 SS316 (ATEX VERSION) DIMENSIONS



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PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DN <sub>s</sub>	DN <sub>d</sub>
HTM 15 SS316	110	153	18	18	125	168	50	40
HTM 31 SS316	125	168	18	18	145	188	65	50

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -														BASEPLATE DIMENSIONS - mm -					
			A	B	C	D	E	H <sub>s</sub>	G	H	I	-L	M	N	O	P	Q	R'	S'	T'	U'	V'
HTM 15 SS316	90 S	1.5	177	257	140	100	90	6	80	4	2" G. MALE	255	66	56	135	200	1" 1/2 G. MALE	132	302	350	157	205
HTM 31 SS316	90 L	2.2	175	266	140	125	90	6.5	91	6	2" 1/2 G. MALE	280	66	56	140	200	2" MALE	132	302	350	157	205

NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
PUMPS AVAILABLE THREADED OR FLANGED.



# MAG-DRIVE TURBINE PUMPS

## SEAL-LESS MAG DRIVE TURBINE PUMPS

In seal-less magnetic drive turbine pumps, the external magnet is directly connected to the motor shaft and it transmits the torque to the internal magnet.

The magnetic field created produces a rotation without physical contact between the parts and the turbine spins and moves the fluid. The rear casing is placed between the two magnet joints and it hermetically closes the hydraulic part from the motor.

GemmeCotti supplies three different models of mag drive turbine pumps:

### HTT

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 9 m<sup>3</sup>/h.
- Head up to 50 mlc.

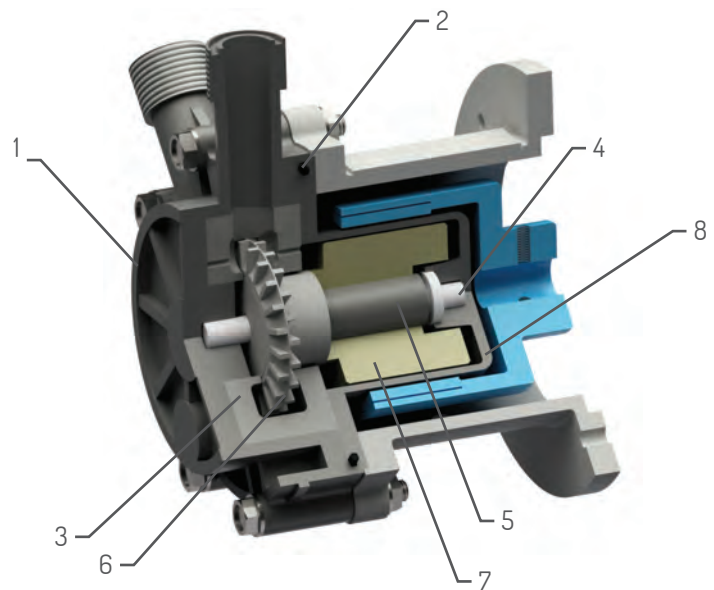
### HTT-SP

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 7 m<sup>3</sup>/h.
- Head up to 25 mlc.

- Machined from a block.
- Self-priming up to 3 m.

### HTA

- Metallic pumps made of stainless steel AISI316.
- Capacity up to 7 m<sup>3</sup>/h.
- Head up to: 80 mlc.



## MATERIALS IN CONTACT WITH THE LIQUID

PART NUMBER - DESCRIPTION	TURBINE PUMPS		
	HTT	HTT-SP	HTA
1 - PUMP HEAD	PP OR PVDF	PP OR PVDF	AISI 316
2 - O-RING	EPDM OR VITON	EPDM OR VITON	EPDM OR VITON
3 - FRONT AND REAR DISC	PP OR PVDF	PP OR PVDF	PTFEC
4 - SHAFT + RING	CERAMIC Al <sub>2</sub> O <sub>3</sub> 99,7%	CERAMIC Al <sub>2</sub> O <sub>3</sub> 99,7%	HASTELLOY-C 276
5 - BEARING	PTFEC	PTFEC	PTFEC
6 - IMPELLER	PVDF	PVDF	AISI 316
7 - INTERNAL MAGNET	PP OR PVDF + NdFeB	PP OR PVDF + NdFeB	AISI 316 + SmCo
8 - REAR CASING	PP OR PVDF	PP OR PVDF	AISI 316



## THERMOPLASTIC MAG-DRIVE REGENERATIVE TURBINE PUMPS



### STANDARD:

- Gas threaded In and Out connections.
- Static shaft in high purity ceramic.
- Chemical resistant PTFE/carbon sleeve bearings.
- High torque magnetic coupling.
- Direct starting motor.

### OPTIONAL:

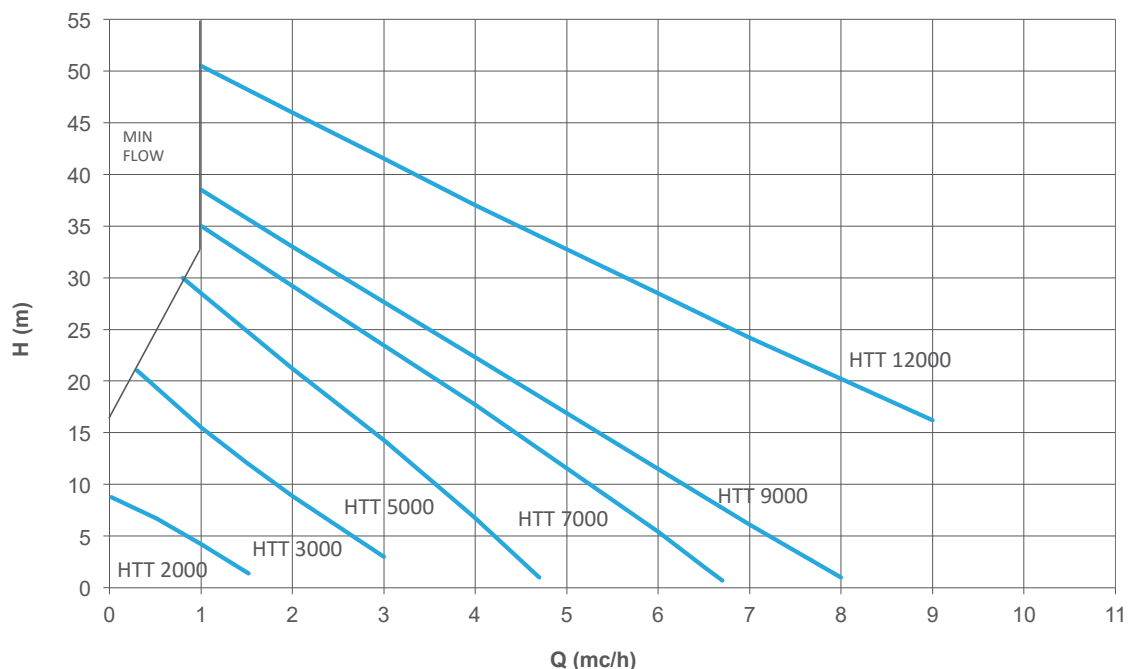
- DIN or ANSI 150 flanges available.
- Baseplate.
- Dry-running protection device.
- Available in ATEX version for zone 2 II3G (pump mod. EM-T PP/PVDF).

Mag drive regenerative turbine pumps series HTT are made of thermoplastic materials (polypropylene-PP and PVDF) and are suitable for pumping high corrosive liquids. Thanks to the innovative mag drive system, pumps model HTT reduce risks of leakage and emissions and the maintenance costs. The transmission of the motion occurs through magnetic joints without any mechanical seal. This sealless design guarantees the maximum safety and efficiency. The pumped liquid has to be clean and without solids in suspension.

### MAIN FEATURES

- Materials available: PP / PVDF.
- Plastic injection moulded
- Materials in contact with the liquid: casing and rear casing: PP/PVDF; Impeller: PVDF; o-ring: EPDM (standard for PP pumps); VITON (standard for PVDF pumps); shaft: Al203 99,7%; bearing: PTFEC.
- Max flow: 9 m<sup>3</sup>/h; Max head 50 m.
- Temperature: PP: max 70°C – PVDF: max 90°C.
- Max viscosity: 40 cPs.
- Pressure rating: NP 6.
- It handles up to 20% entrained gas. HTT pump resists cavitation.

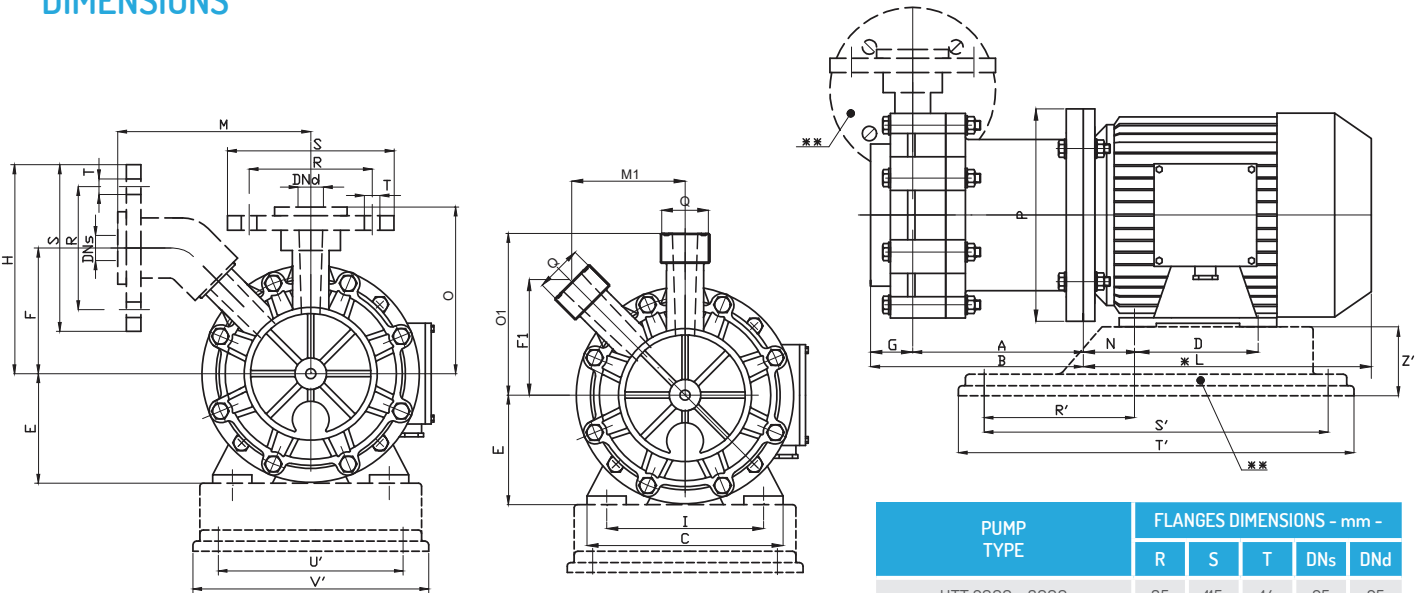
## PERFORMANCE CURVES 50HZ - 2900 RPM



HTT TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (KG)		SUITABLE MOTOR POWER (Kw) - 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (M3/H)	60HZ (USGPM)	50HZ (MLC)	60HZ (FT)			PP	PVDF		
HTT 2000	PP- PVDF	1.7	8.8	10	50	1" MALE	1" MALE	2.8	3.8	0,37	71 - B3/B5
HTT 3000	PP- PVDF	3	15	21	102	1" MALE	1" MALE	2.8	3.8	0,37	71 - B3/B5
										0,55	71 - B3/B5
HTT 5000	PP- PVDF	5	26	30	140	1 1/2" MALE	1 1/2" MALE	8	10	0,75	80 - B3/B5
										1,1	80 - B3/B5
HTT 7000	PP- PVDF	7	37	36	162	1 1/2" MALE	1 1/2" MALE	8	10	1,1	80 - B3/B5
										1,5	90 S - B3/B5
										2,2	90 L - B3/B5
HTT 9000	PP- PVDF	8	41	36	177	1 1/2" MALE	1 1/2" MALE	8	10	2,2	90 - B3/B5
										3	100 - B3/B5
HTT 12000	PP- PVDF	9	42	48	235	1 1/2" MALE	1 1/2" MALE	8	10	3	100 - B3/B5
										4	112 - B3/B5

HTT 2000 - 3000 - 5000 - 7000 - 9000 - 12000 PP/PVDF DIMENSIONS



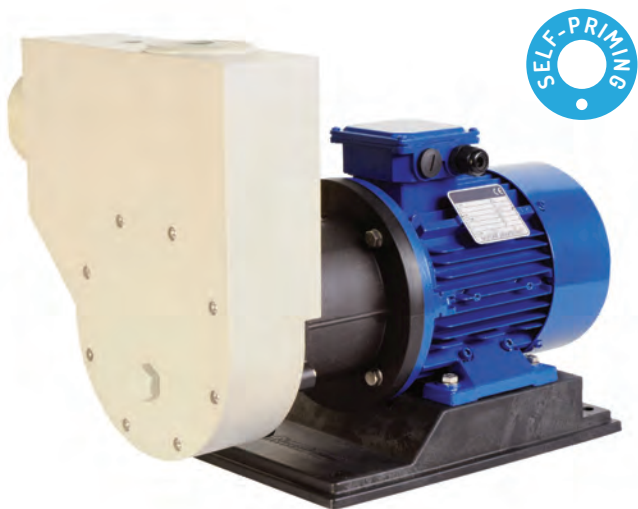
PUMP TYPE	FLANGES DIMENSIONS - mm -				
	R	S	T	DN <sub>s</sub>	DN <sub>d</sub>
HTT 2000 - 3000	85	115	14	25	25
HTT 5000 - 7000 - 9000 - 12000	110	153	18	40	40

PUMP TYPE	MOTOR FLANGE B3 - B5	Kw	DIMENSIONS - mm -																BASEPLATE DIMENSIONS - mm -							
			A	B	C	D	E	F	F1	G	H	I	*L	M	M1	N	O	O1	P	Q	R'	S'	T'	U'	V'	Z'
HTT 2000	71 A	0.37	118	146	142	90	71	86	78	28	145	112	192	135	78	45	116	110	160	1" MALE	112	244	280	130	160	48
	71 B	0.55	118	146	142	90	71	86	78	28	145	112	215	135	78	45	116	110	160	1" MALE	112	244	280	130	160	48
HTT 5000	80 A	0.75	187	221	160	100	80	110	95	34	187	125	215	189	95.5	50	148	135	200	1 1/2" G MALE	120	302	350	157	205	60
	80 B	1.1	187	221	160	100	80	110	95	34	187	125	232	189	95.5	50	148	135	200	1 1/2" G MALE	120	302	350	157	205	60
HTT 7000	90 S	1.5	187	221	170	100	90	110	95	34	187	140	255	189	95.5	56	148	135	200	1 1/2" G MALE	120	302	350	157	205	60
	90 L	2.2	187	221	170	125	90	110	95	34	187	140	280	189	95.5	56	148	135	200	1 1/2" G MALE	132	302	350	157	205	60
HTT 9000	100	3	207	241	200	140	100	110	95	34	187	160	315	189	95.5	63	148	135	250	1 1/2" G MALE	140	352	400	202	250	60
	100 L	3	207	241	200	140	100	110	95	34	187	160	315	189	95.5	63	148	135	250	1 1/2" G MALE	140	352	400	202	250	60
HTT 12000	G 112 M	4	207	241	230	112	110	95	34	187	190	324	189	95.5	70	148	135	250	1 1/2" G MALE	156	352	400	202	250	60	

\* Different according to the manufacturer. \*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.  
 NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
 PUMPS AVAILABLE THREADED OR FLANGED.



## THERMOPLASTIC MAG-DRIVE REGENERATIVE TURBINE PUMPS, SELF-PRIMING



HTT-SP pumps can prime up to 5 m with water at ambient temperature. The casing is made from a PP solid machined block and the impeller in PVDF for maximum chemical resistance. The casing is machined from a solid block. The impeller in PVDF is self-balanced to eliminate thrust bearing wear and it is separate to minimize the maintenance costs. This kind of pump offers maximum resistance withstanding also external corrosion. It handles up to 20% entrained gas and resists cavitation.

### MAIN FEATURES:

- Max flow: 6 m<sup>3</sup>/h; max head 28 m.
- Max temperature: PP: 70°C - PVDF: 90°C.
- High torque magnetic coupling.
- Chemical resistant PTFE/carbon sleeve bearings.
- Static shaft in high purity ceramic.
- Direct starting motor.

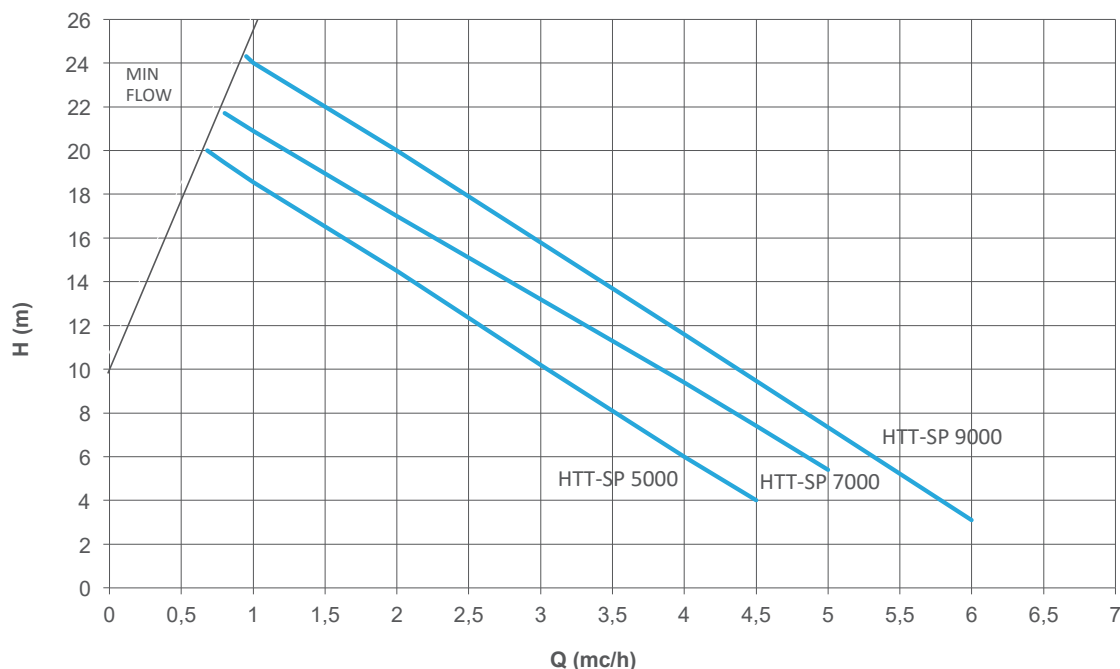
### STANDARD:

- High torque magnetic coupling.
- Chemical resistant PTFE/carbon sleeve bearings.
- Static shaft in high purity ceramic.
- Direct starting motors.

### OPTIONAL:

- DIN or ANSI flanges available.
- Baseplate.
- Available in ATEX version for zone 2 II3G (pump mod. EM-T SP).

## PERFORMANCE CURVES 50HZ - 2900 RPM

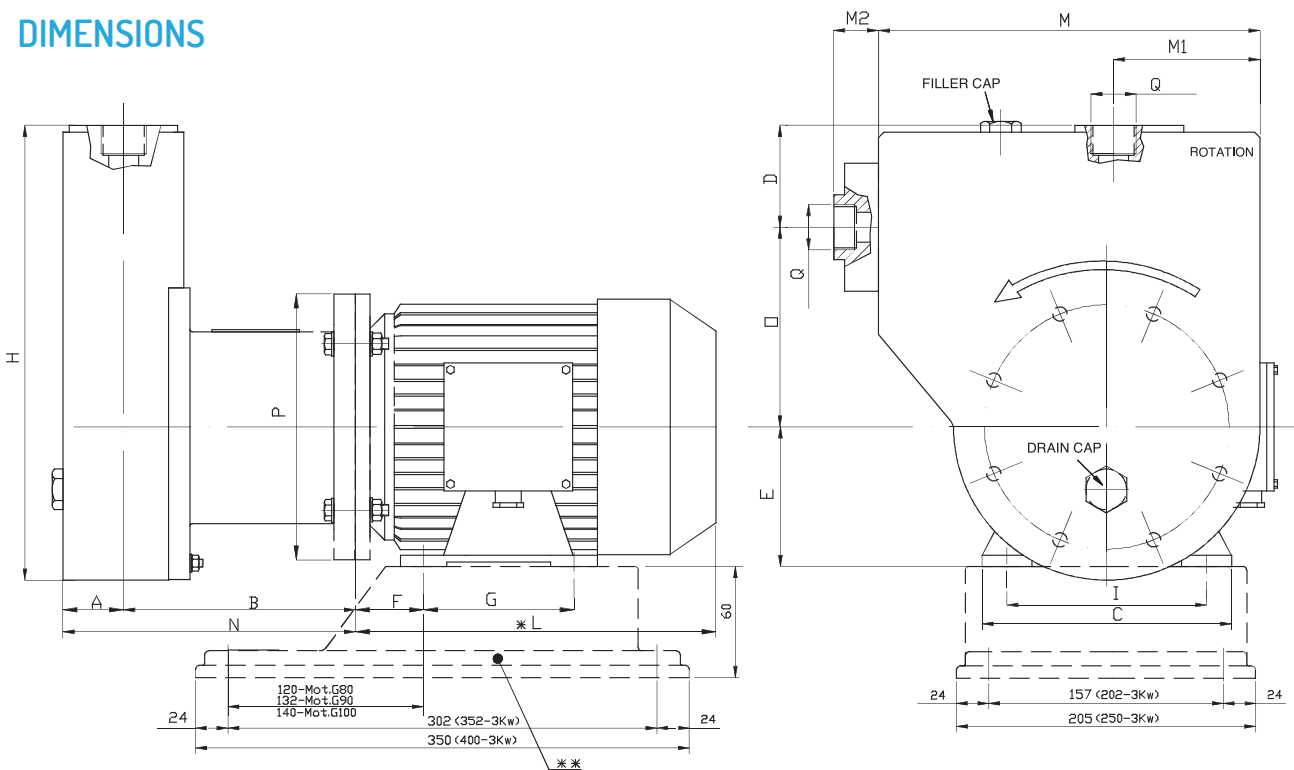




### HTT-SP TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	SUITABLE MOTOR POWER (KW) - 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (M3/H)	60HZ (USGPM)	50HZ (MLC)	60HZ (FT)				
HTT-SP 5000	PP- PVDF	4.5	23	18	90	1" FEMALE	1" FEMALE	0,75	80 - B3/B5
								1,1	80 - B3/B5
HTT-SP 7000	PP- PVDF	5	27	20	98	1" FEMALE	1" FEMALE	1,1	80 - B3/B5
								1,5	90 S - B3/B5
HTT-SP 9000	PP- PVDF	6	32	24	110	1" FEMALE	1" FEMALE	2,2	90 L - B3/B5
								3	90 - B3/B5

### HTT-SP DIMENSIONS



PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -																
			A	B	C	D	E	F	G	H	I	*L	M	M1	M2	N	O	P	Q
HTT-SP 5000	80	0,75	PP = 45 PVDF = 41	175	160	70	80	50	100	325	125	215	270	97,5	33	PP = 220 PVDF = 216	147	200	1" FEMALE
		232																	
HTT-SP 7000	80	1,1	PP = 45 PVDF = 41	175	160	70	80	50	100	325	125	232	270	97,5	33	PP = 220 PVDF = 216	147	200	1" FEMALE
		255																	
HTT-SP 9000	90	1,5	PP = 45 PVDF = 41	175	170	70	90	56	125	325	140	280	270	97,5	33	PP = 220 PVDF = 216	147	200	1" FEMALE
		280																	
HTT-SP 9000	90	2,2	PP = 45 PVDF = 41	175	170	70	90	56	125	325	140	280	270	97,5	33	PP = 220 PVDF = 216	147	200	1" FEMALE
		340										250							

\* Different according to the manufacturer.

\*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.



## METALLIC MAG-DRIVE REGENERATIVE TURBINE PUMPS



### STANDARD

- Static shaft in HC 276.
- Chemical resistant PTFE/Carbon sleeve bearings standard.
- High torque magnetic coupling.
- Direct starting motors.

### OPTIONAL

- DIN or ANSI flanges available.
- Explosion proof motor.
- Dry-running protection device.
- Baseplate.
- Available in ATEX version for zone 1 II2G and zone 2 II3G (pump mod. EM-T).

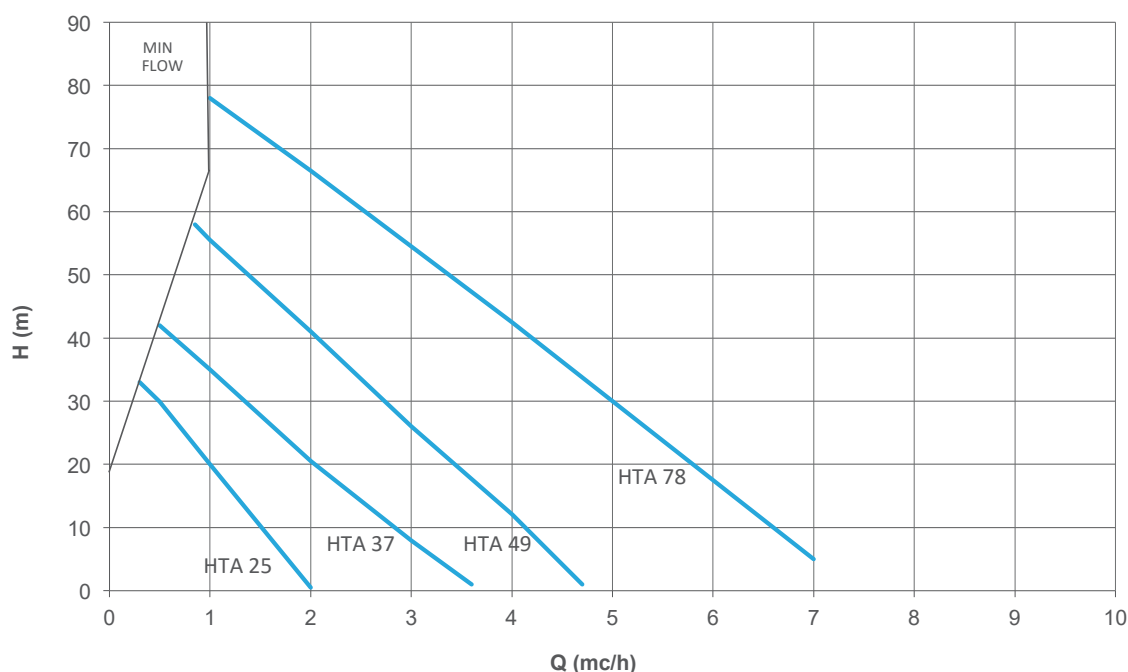
### MAIN FEATURES

Mag drive regenerative turbine pumps series HTA are made of AISI 316 and are suitable for solvents, hydrocarbons, dangerous and inflammable liquids. Thanks to the innovative mag drive system, pumps model HTA reduce the risks of leakage and emissions and maintenance costs. The transmission of the motion occurs through magnetic joints without any mechanical seal. This design guarantees the maximum hermetic safety and efficiency. The pumped liquid has to be clean and without solids in suspension.

Pumps series HTA are also available in ATEX version for zone 1 and 2 (pump model EM-T).

- High head / low flow capability minimizes by-pass requirements.
- Materials available: AISI 316;
- Materials in contact with the liquid: casing and impeller: stainless steel AISI 316; o-ring EPDM/VITON; bushing: PTFEC; shaft: Hastelloy C276.
- Max flow 7 m<sup>3</sup>/h; max head 80 mlc.
- Max Temperature: 160°C.
- Pressure Rating NP 25 at 20°C.
- Impeller design handles up to 20% entrained gas. Ideal for pumping liquefied gas.

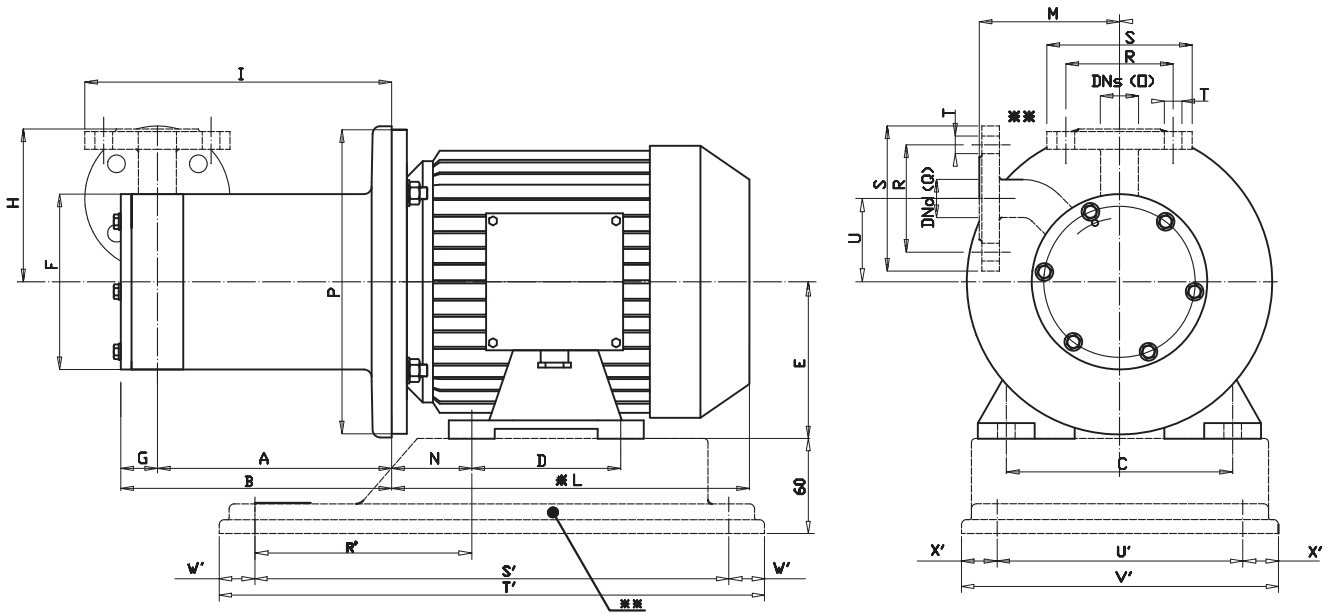
## PERFORMANCE CURVES 50HZ - 2900 RPM



### HTA TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (KG)	SUITABLE MOTOR POWER (KW) - 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (M3/H)	60HZ (USGPM)	50HZ (MLC)	60HZ (FT)					
HTA 25	AISI316	2	10	32	140	3/4" FEMALE	3/4" FEMALE	10.3	1.1	80 - B3/B5
HTM 37	AISI316	3.5	19	43	180	3/4" FEMALE	3/4" FEMALE	10.3	1.1	80 - B3/B5
									2.2	90 - B3/B5
HTA 49	AISI316	4.7	25	58	235	1" FEMALE	1" FEMALE	18.7	2.2	90 - B5
									3	100 - B5
HTA 78	AISI316	7	36	76	320	1" FEMALE	1" FEMALE	19	3	100 - B5
									4	112 - B5

### HTA 25-37 SS / EM-T 25-37 SS (ATEX VERSION) DIMENSIONS

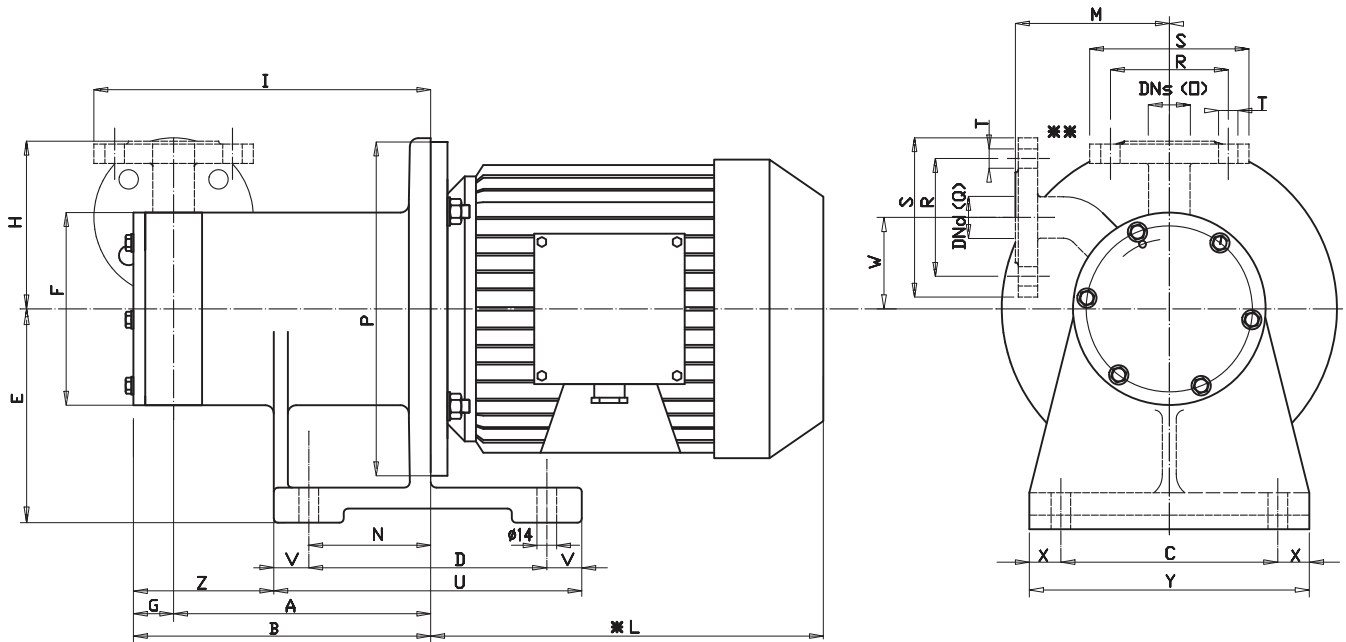


PUMP TYPE	FLANGES DIMENSIONS - mm -					
	R	S	T	DNs	DNd	
HTA 25-37	75	105	14	20	20	DN20 PN40

PUMP TYPE	MOTOR B3 - B5		DIMENSIONS - mm -														BASEPLATE DIMENSIONS - mm -								
	SIZE	KW	A	B	C	D	E	F	G	H	I	*L	M	N	O	P	Q	U	R'	S'	T'	U'	V'	W'	X'
HTA 25	80	1.1	167	192	125	100	80	123	25	100	218	232	98	50	3/4" G. FEMALE	200	3/4" G. FEMALE	61	120	302	350	157	205	24	24
HTA 37	80	1.1	167	192	125	100	80	123	25	100	220	232	98	50	3/4" G. FEMALE	200	3/4" G. FEMALE	61	120	302	350	157	205	24	24
	90	2.2	177	202	140	125	90				230	280		56					132						

\* Different according to the motor supplier. \*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.  
NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
PUMPS AVAILABLE THREADED OR FLANGED.

## HTA 49-78 SS / EM-T 49-78 SS (ATEX VERSION) DIMENSIONS



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PUMP TYPE	FLANGES DIMENSIONS - mm -					
	R	S	T	DNs	DNd	
HTA 49-78	85	115	14	25	25	DN25 PN40

PUMP TYPE	MOTOR BS		DIMENSIONS - mm -																				
	SIZE	KW	A	B	C	D	E	F	G	H	I	*L	M	N	O	P	Q	U	V	W	X	Y	Z
HTA 49	90	2.2	185	215	155	170	150	139	30	121	253	280	111	109	1" G. FEMALE	200	1" G. FEMALE	220	25	62.5	22.5	200	91
	100	3	205	235	155	170	150	139	30	121	263	316	111	119	1" G. FEMALE	250	1" G. FEMALE	220	25	62.5	22.5	200	91
HTA 78	100	3	205	235	155	170	150	158	30	133	316	316	133	119	1" G. FEMALE	250	1" G. FEMALE	220	25	85.5	22.5	200	91
	112	4	205	235	155	170	150	158	30	133	324	316	133	119	1" G. FEMALE	250	1" G. FEMALE	220	25	85.5	22.5	200	91

\* Different according to the motor supplier. \*\* OPTIONAL UPON REQUEST: Flanges.  
NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
PUMPS AVAILABLE THREADED OR FLANGED.



# MAG-DRIVE ROTARY VANE PUMPS

## SEAL-LESS MAG DRIVE VANE PUMPS

In seal-less magnetic drive vane pumps, the external magnet is directly connected to the motor shaft and it transmits the torque to the internal magnet. The magnetic field created produces a rotation without physical contact between the parts and the rotor spins. The vanes inside the rotor slide in and out of their seat and they move the fluid. The rear casing is placed between the two magnet joints and it hermetically closes the hydraulic part from the motor.

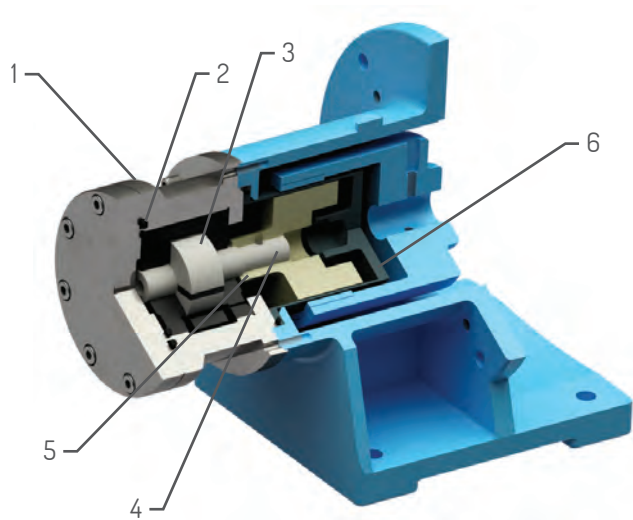
GemmeCotti supplies two different models of volumetric pumps:

### HPP/HPF

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 1000 l/h.
- Pressure up to 5 bar.

### HTP

- Metallic pumps made of stainless steel AISI316.
- Capacity up to 2100 l/h.
- Pressure up to: 13 bar.
- Dry self-priming.



## MATERIALS IN CONTACT WITH THE LIQUID

PART NUMBER - DESCRIPTION	VANE PUMPS	
	HPP/HPF	HTP
1 - PUMP BODY+ COVER	PP OR PVDF	AISI 316
2- O-RING	EPDM OR VITON	EPDM OR VITON
3- FLANGES STATOR VANES + PINS	PVDF + GRAPHITE	GRAPHITE
4- ROTOR SHAFT	PVDF	AISI 316
5- INTERNAL MAGNET	PP OR PVDF + NdFeB	AISI 316 + SmCo
6- REAR CASING	PP OR PVDF	AISI 316



## THERMOPLASTIC MAG-DRIVE ROTARY VANE PUMPS



### SYSTEM PRESSURE

5 bar.

### STANDARD

- High torque magnetic coupling.
- Direct starting motor.

### OPTIONAL

- Flanges available (DIN or ANSI).
- Dry-running protection device.
- Baseplate.
- Available in ATEX version for zone 2 II3G (pump mod. EM-P PP/PVDF).

### MAIN FEATURES

Mag drive rotary vane pumps series HPP-HPF are made of thermoplastic materials (PP/PVDF) and are suitable for corrosive liquids, alkalis, toxic, noxious and carcinogenic fluids. Thanks to the innovative mag drive system, pumps model HPP-HPF reduce the risks of leakage and the maintenance costs. HPP-HPF pumps are useful for low flow and high head applications such as Pilot Plants and Sampling.

### MATERIALS AVAILABLE

- PP, PVDF.
- Materials in contact with the liquid: casing, end cover, internal magnet and rear casing: PP/PVDF; o-ring: EPDM (standard for PP pumps); VITON (standard for PVDF pumps).
- Graphite Stator.
- Rotor shaft: PVDF.

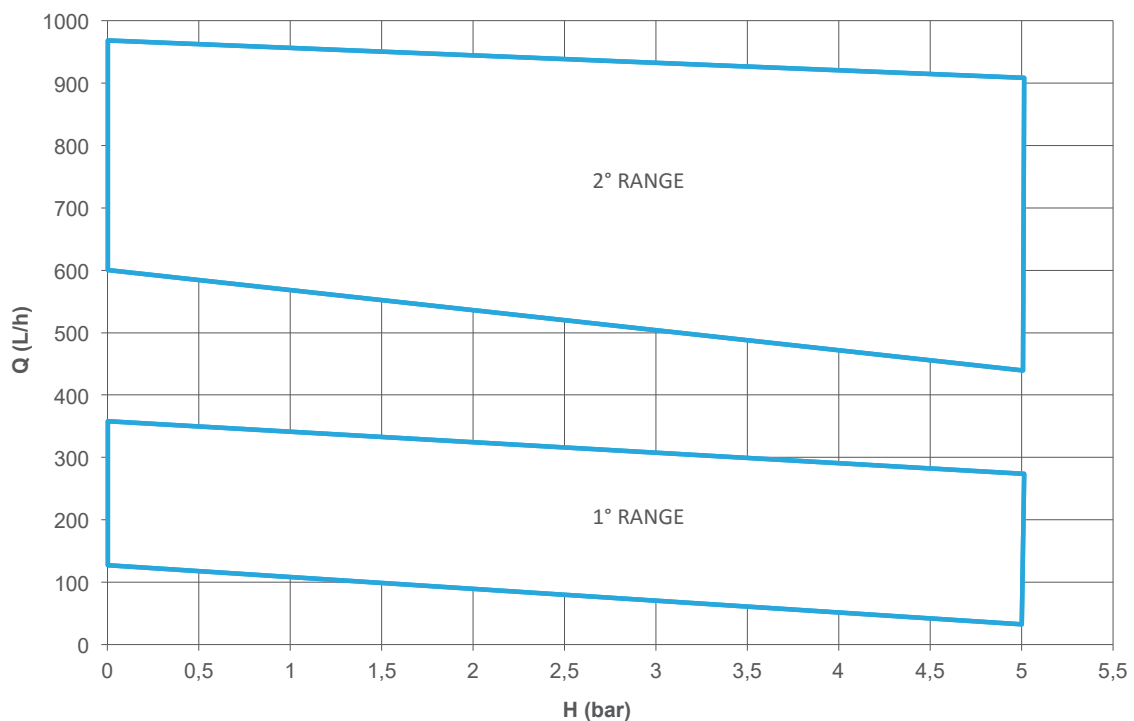
### PERFORMANCES

Max flow 1000 l/h. Max pressure 5 bar.

### TEMPERATURE

PP: max 70°C - PVDF: max 90°C.

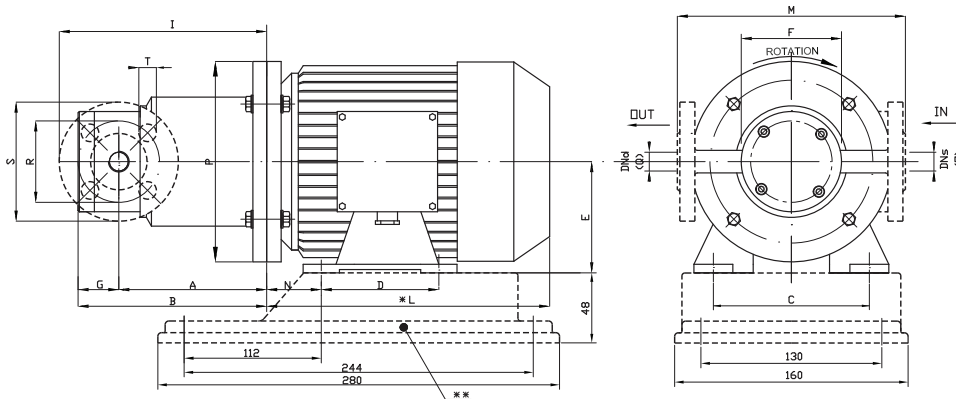
## PERFORMANCE CURVES 50HZ - 1450 RPM



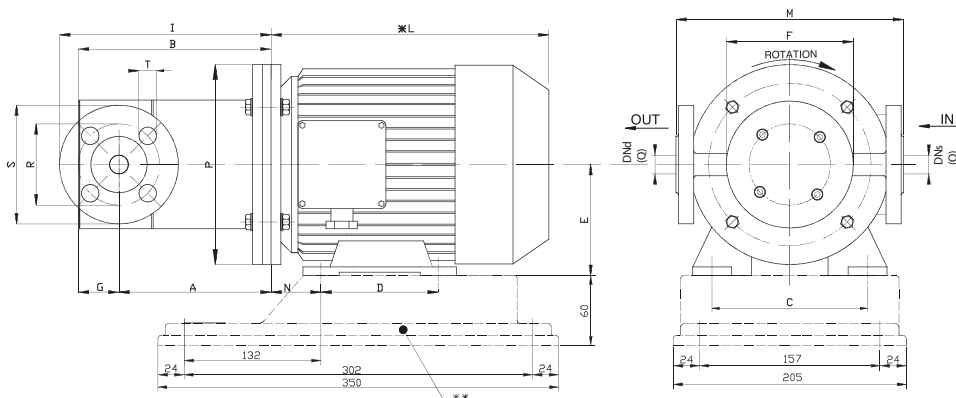
### HPP/HPF TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (KG)		SUITABLE MOTOR POWER (KW) - 1450 rpm	MOTOR FLANGE AND FRAME
		50HZ (l/h)	60HZ (usgpm)	50HZ (bar)	60HZ (PSI)			PP	PVDF		
HPP/HPF 100 1R	PP- PVDF	120	0.66	5	72	3/8" FEMALE	3/8" FEMALE	2.9	3.2	0,37	71 - B3/B5
HPP/HPF 200 1R	PP- PVDF	200	1.1	5	72	3/8" FEMALE	3/8" FEMALE	2.9	3.2	0,37	71 - B3/B5
HPP/HPF 300 1R	PP- PVDF	290	1.5	5	72	3/8" FEMALE	3/8" FEMALE	2.9	3.2	0,37	71 - B3/B5
HPP/HPF 400 1R	PP- PVDF	360	1.85	5	72	3/8" FEMALE	3/8" FEMALE	2.9	3.2	0,37	71 - B3/B5
HPP/HPF 600 2R	PP- PVDF	600	2.5	5	72	1/2" FEMALE	1/2" FEMALE	7	7.5	1,5	90 - B3/B5
HPP/HPF 800 2R	PP- PVDF	800	3	5	72	1/2" FEMALE	1/2" FEMALE	7	7.5	1,5	90 - B3/B5
HPP/HPF 1000 2R	PP- PVDF	990	3.5	5	72	1/2" FEMALE	1/2" FEMALE	7	7.5	1,5	90 - B3/B5

### HPP-HPF 1° RANGE DIMENSIONS



### HPP-HPF 2° RANGE DIMENSIONS



PUMP TYPE	FLANGES DIMENSIONS - mm - DN 15 PN 16				
	R	S	T	DNs	DNd
HPP-HPF 1° RANGE	65	95	14	15	15

PUMP TYPE	FLANGES DIMENSIONS - mm - DN 20 PN 16				
	R	S	T	DNs	DNd
HPP-HPF 2° RANGE	75	105	14	20	20

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -													
			A	B	C	D	E	F	G	I	*L	M	N	O	P	Q
HPP-HPF 1° RANGE	71-4B	0,37	128	164	112	90	71	90	36	175	215	182	45	3/8"G.	160	3/8"G.
HPP-HPF 2° RANGE	90-52	1,5	169	213	140	100	90	127	44	222	255	218	56	1/2"G.	200	1/2"G.

\* Different according to the manufacturer.

\*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.



## METALLIC ROTARY VANE MAG-DRIVE PUMPS DRY SELF-PRIMING



### MAIN FEATURES

Rotary vane mag drive pumps series HTP are made of AISI 316 and are suitable for hydrocarbons, solvents, heat transfer oils, refrigerants, cryogenics and radioactive liquids. Thanks to the innovative mag drive system, pumps model HTP reduce the risks of leakage and emissions and the maintenance costs. HTP pumps are useful for low flow and high head applications such as Pilot Plants, Sampling and Flushing of mechanical seals. Especially designed for thin non-lubricating liquids and/or high differential pressure.

Pumps series HTP are also available in ATEX version for zone 1 and 2 (pump model EM-P).

### STANDARD

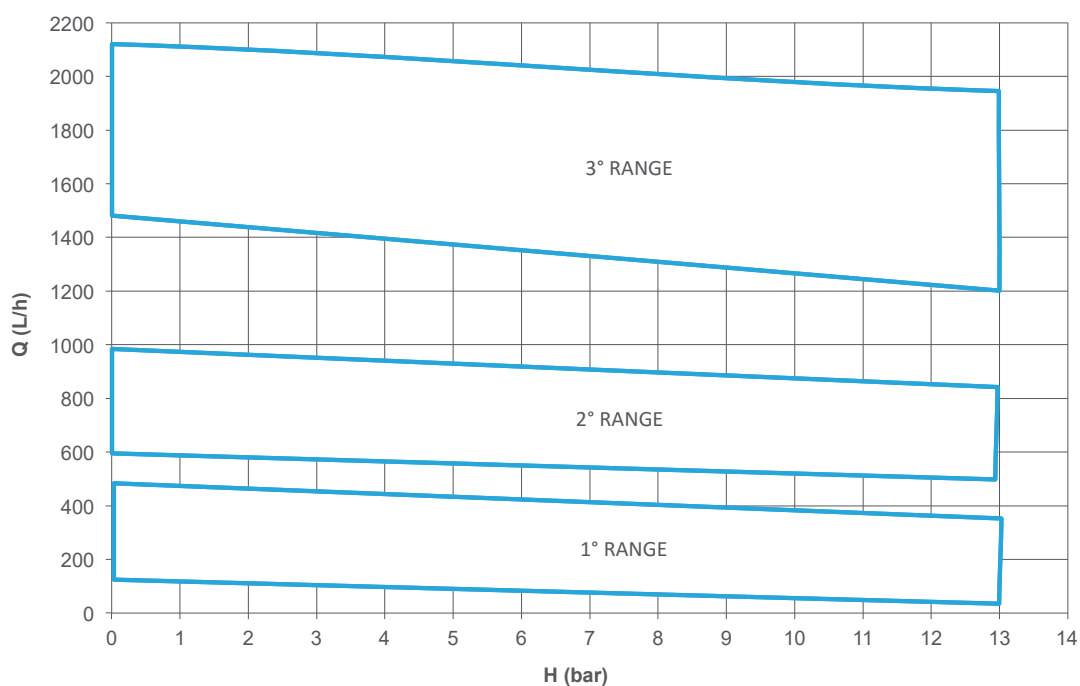
- High torque magnetic coupling.
- Direct starting motor.

### OPTIONAL

- Flanges available (DIN or ANSI).
- Dry-running protection device.
- Baseplate.
- Explosion proof motor.
- Available in ATEX version for zone 1 II3G and zone 2 II3G (pump mod. EM-P).

- Materials available: AISI 316.
- Materials in contact with the liquid: pump body, end cover and rotor: AISI 316; o-ring: EPDM/VITON; carbon graphite stator.
- Max flow: 2100 l/h. Max pressure 13 bar.
- Temperature range: from - 70°C to + 200°C.
- Max viscosity: 2000 cPs.
- System Pressure 25 bar at 20°C.

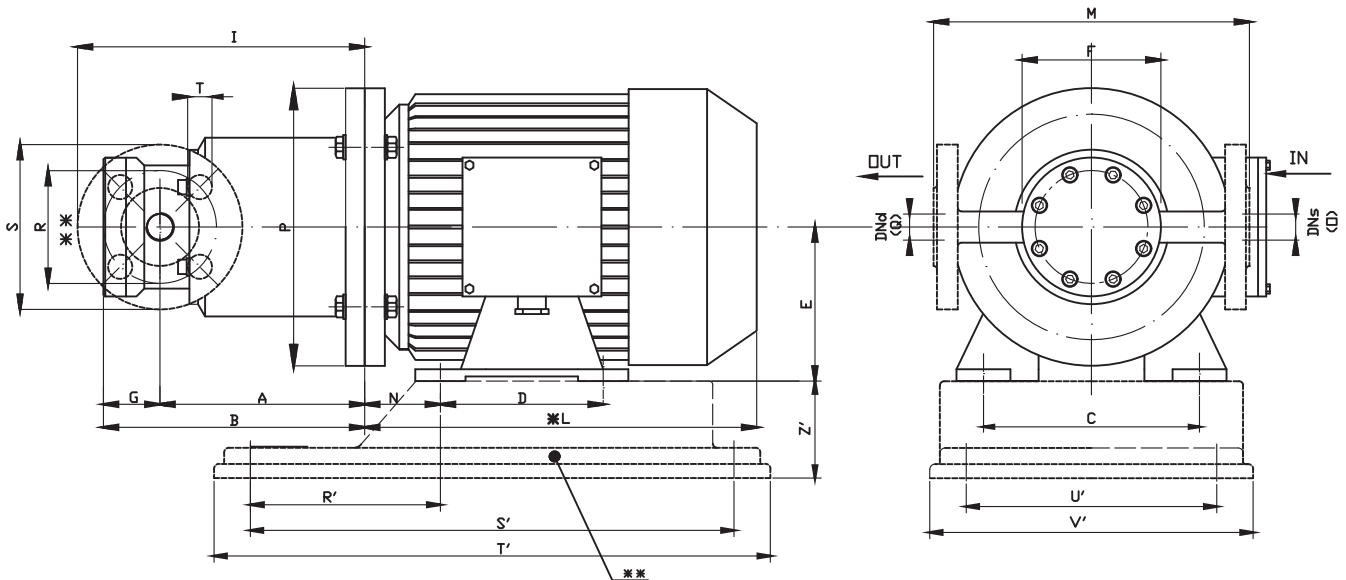
## PERFORMANCE CURVES 50HZ - 1450 RPM



### HTP TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (KG)	SUITABLE MOTOR POWER (Kw) - 1450 rpm	MOTOR FLANGE AND FRAME
		50HZ (l/h)	60HZ (usgpm)	50HZ (bar)	60HZ (PSI)					
HTP 100 1R	AISI316	120	0.66	13	188	3/8" FEMALE	3/8" FEMALE	5	0,37	71 - B3/B5
HTP 200 1R	AISI316	250	1.4	13	188	3/8" FEMALE	3/8" FEMALE	5	0,37	71 - B3/B5
HTP 300 1R	AISI316	350	1.9	13	188	3/8" FEMALE	3/8" FEMALE	5	0,37	71 - B3/B5
HTP 400 1R	AISI316	450	2.3	13	188	3/8" FEMALE	3/8" FEMALE	5	0,37	71 - B3/B5
HTP 600 2R	AISI316	600	3.3	13	188	1/2" FEMALE	1/2" FEMALE	8.3	0,75	80 - B3/B5
HTP 800 2R	AISI316	800	4.3	13	188	1/2" FEMALE	1/2" FEMALE	8.3	0,75	80 - B3/B5
HTP 1000 2R	AISI316	980	5	13	188	1/2" FEMALE	1/2" FEMALE	8.3	1,5	90 - B3/B5
HTP 1500 3R	AISI316	1500	8	13	188	3/4" FEMALE	3/4" FEMALE	19.5	1,5	90 - B5
HTP 2000 3R	AISI316	2100	11.1	13	188	3/4" FEMALE	3/4" FEMALE	19.5	2,2	100 - B5
									3	100 - B5
									4	112 - B5

### HTP 1°-2° RANGE / EM-P 1°- 2° RANGE (ATEX VERSION) DIMENSIONS



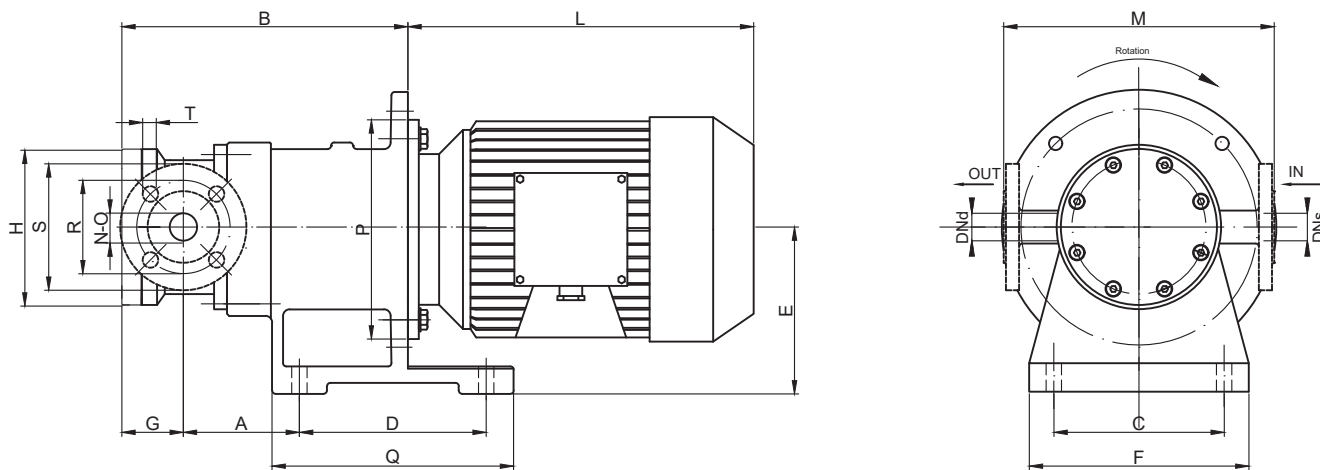
PUMP TYPE	FLANGES DIMENSIONS - mm -					
	R	S	T	DNs	DNd	
HTP 1° RANGE	65	95	14	15	15	DN15 PN40
HTP 2° RANGE	75	105	14	20	20	DN20 PN40

PUMP TYPE	MOTOR FLANGE B3 - B5	Kw	DIMENSIONS - mm -													BASEPLATE DIMENSIONS - mm -						
			A	B	C	D	E	F	G	I	*L	M	N	O	P	Q	R'	S'	T'	U'	V'	Z'
HTP 1° RANGE	71	0,37	127	160	112	90	71	80	33	175	215	182	45	3/8"G.	160	3/8"G.	112	244	280	130	160	48
HTP 2° RANGE	80	0,75	166	204	125	100	80				232						120					
	90 S	1,5	176	214	140	125	90	123	38	218	280	194	50	1/2"G.	200	1/2"G.	132	302	350	157	205	60

\* Different according to the motor supplier. \*\* OPTIONAL UPON REQUEST: Baseplate - Flanges.  
NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
PUMPS AVAILABLE THREADED OR FLANGED.



## HTP 3° RANGE / EM-P 3° RANGE (ATEX VERSION) DIMENSIONS



PUMP TYPE	FLANGES DIMENSIONS - mm -					
	R	S	T	DNs	DNd	
HTP 3° RANGE	85	115	14	25	25	DN25 PN40

PUMP TYPE	MOTOR B5 4P		DIMENSIONS - mm -													
	SIZE	KW	A	B	C	D	E	F	G	H	*L	M	N	O	P	Q
HTP 3° RANGE	90L	1.5	106	260	155	170	150	200	56	142	280	246	3/4" G.	3/4" G.	200	220
	100L	2.2 / 3	106	280	155	170	150	200	56	142	316	246	3/4" G.	3/4" G.	250	220
	112M	4	106	280	155	170	150	200	56	142	334	246	3/4" G.	3/4" G.	250	220

\* Different according to the motor supplier. \*\* OPTIONAL UPON REQUEST: Flanges.  
NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
PUMPS AVAILABLE THREADED OR FLANGED.

# MECHANICAL SEAL CENTRIFUGAL PUMPS

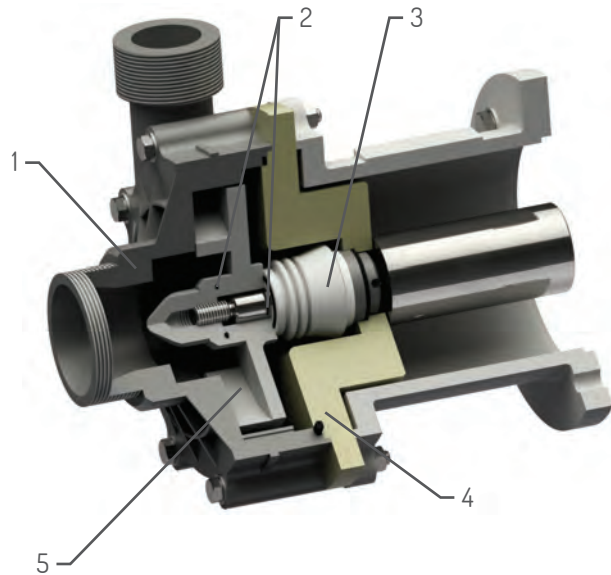
## MECHANICAL SEAL CENTRIFUGAL PUMPS

Mechanical seal centrifugal pumps are the right solution for applications involving solids in the liquid because their design with open impeller allows to pump dirty liquids and fluids with high viscosity. The seal in mechanical seal pumps is composed by a static ring and a rotating ring placed on the pump shaft which is directly coupled to the motor shaft. The two surfaces sliding together need to be lubricated and the seal lubricant is the liquid itself that is being pumped.

GemmeCotti supplies the following model of mechanical seal pump:

### HCO

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 130 m<sup>3</sup>/h.
- Head up to 48 mlc.
- Two different kind of mechanical seal available:  
lip seal for model HCO 95-10, internal PTFE bellow mechanical seal for all the other pump sizes.

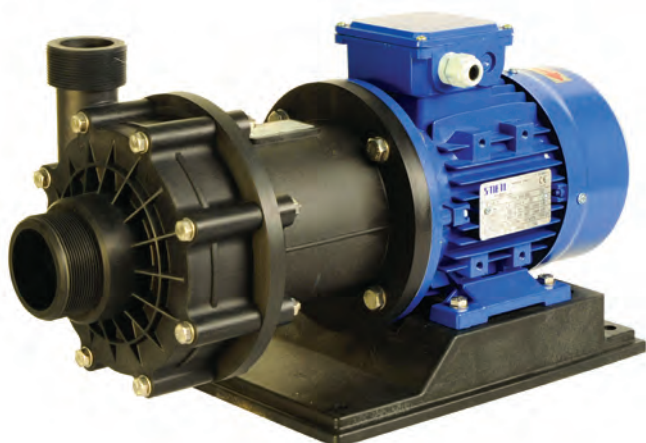


### MATERIALS IN CONTACT WITH THE LIQUID

PART NUMBER - DESCRIPTION	MECHANICAL SEAL PUMPS
	HCO
1 - PUMP HEAD	PP OR PVDF
2 - O-RING	EPDM - VITON
3- MECHANICAL SEAL	PTFE + Al <sub>2</sub> O <sub>3</sub>
4- COVER	PP OR PVDF
5- IMPELLER + IMPELLER NUT	PP OR PVDF



## MECHANICAL SEAL CENTRIFUGAL PUMPS



### STANDARD

- Gas threaded in and out connections.
- Direct starting motor.

### OPTIONAL

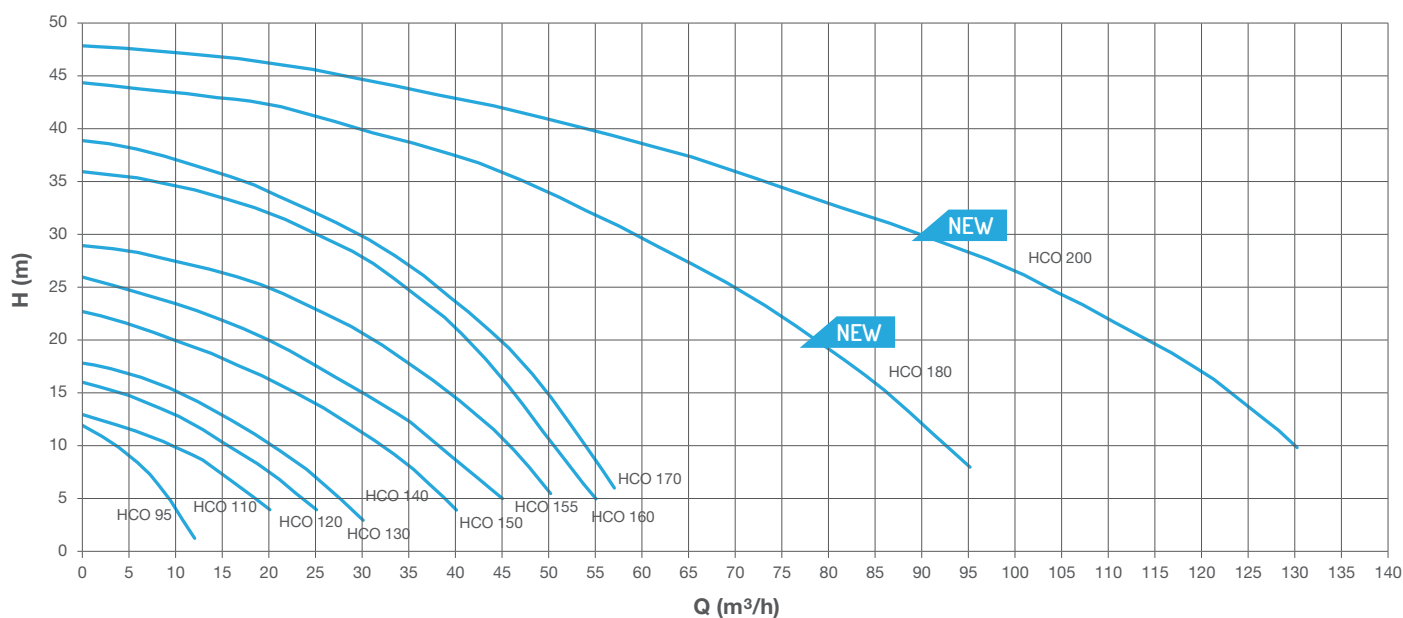
- Flanges available (DIN or ANSI).
- Dry-running protection device.
- Baseplate (from HCO 95 to HCO 140).
- Available in ATEX version for zone 2 II3G (pump mod. EM-CO).

### MAIN FEATURES

Centrifugal pumps series HCO with mechanical seal are made of thermoplastic materials (Polypropylene and PVDF) and are suitable for high corrosive liquids containing solids in suspension. The seal of pumps HCO size 95-10 is guaranteed by a special elastomeric lip seal, while all the other pump sizes (from size 110 to 170) are equipped with an internal PTFE bellows mechanical seal (sic/ceramic), which is manufactured by GemmeCotti.

- Materials available: PP / PVDF.
- Flow up to 130 m<sup>3</sup>/h; Head up to 48 m.
- Temperature: PP: max 70° C - PVDF: max 90° C.
- Max viscosity: 200 cSt.
- Pressure rating: NP 6 at 20° C.
- Lip seal for pumps size 95-10; internal PTFE bellows mechanical seal for all the other sizes.
- Suitable for high corrosive liquids containing solids in suspension (non-abrasive solids - max. 5% - dimension max. 3 mm).

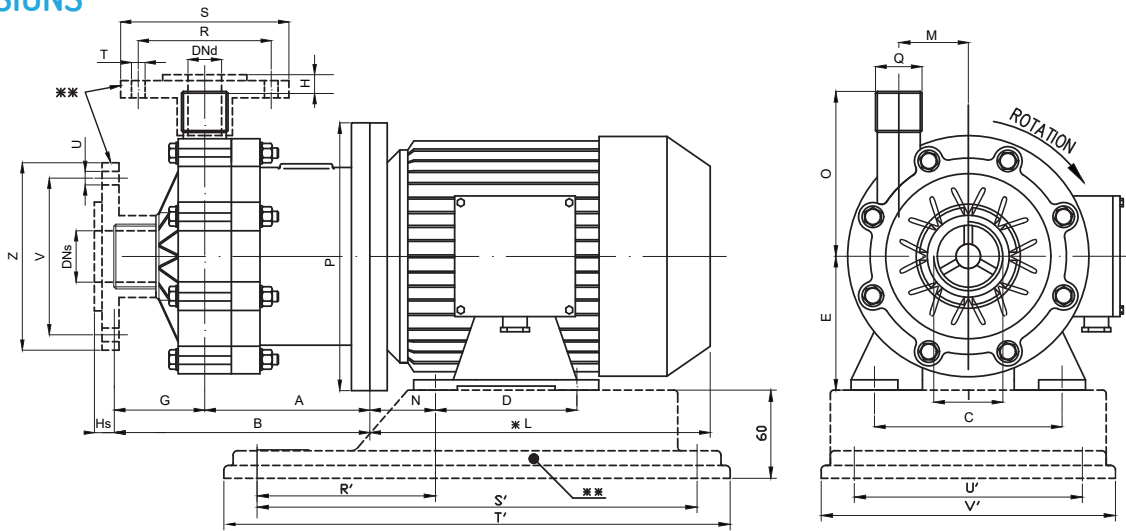
## PERFORMANCE CURVES 50HZ - 2900 RPM



### HCO TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (kg)		SUITABLE MOTOR POWER (KW) - 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (m³/h)	60HZ (usgpm)	50HZ (mcl)	60HZ (ft)			PP	PVDF		
HCO 95-10	PP- PVDF	12	52	12	47	1 1/2" FEMALE	1" MALE	10	12	0,55	71 - B3/B5
HCO 110	PP- PVDF	20	88	13	59	2 1/2" MALE	2" MALE	10	12	1,1	80B - B3/B5
HCO 120	PP- PVDF	25	100	16	75	2 1/2" MALE	2" MALE	10	12	1,5 - 2,2	90S - 90L - B3/B5
HCO 130	PP- PVDF	30	158	18	90	2 1/2" MALE	2" MALE	10	12	2,2	90L - B3/B5
HCO 140	PP- PVDF	40	212	22	104	2 1/2" MALE	2" MALE	11	13	3-4	100L - 112M - B3/B5

### HCO 95/10 - 110 - 120 - 130 - 140 PP/PVDF DIMENSIONS



PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DNs	DNd
HCO 95-10	85	115	14	18	110	150	40	25
HCO 110 - 120 - 130 - 140	125	168	18	18	145	188	65	50

PUMP TYPE	BASEPLATE DIMENSIONS - mm -				
	R'	S'	T'	U'	V'
HCO 95-10	112	244	280	130	160
HCO 110 - 120 - 130	120	302	350	157	205
HCO 140	140	352	400	202	250

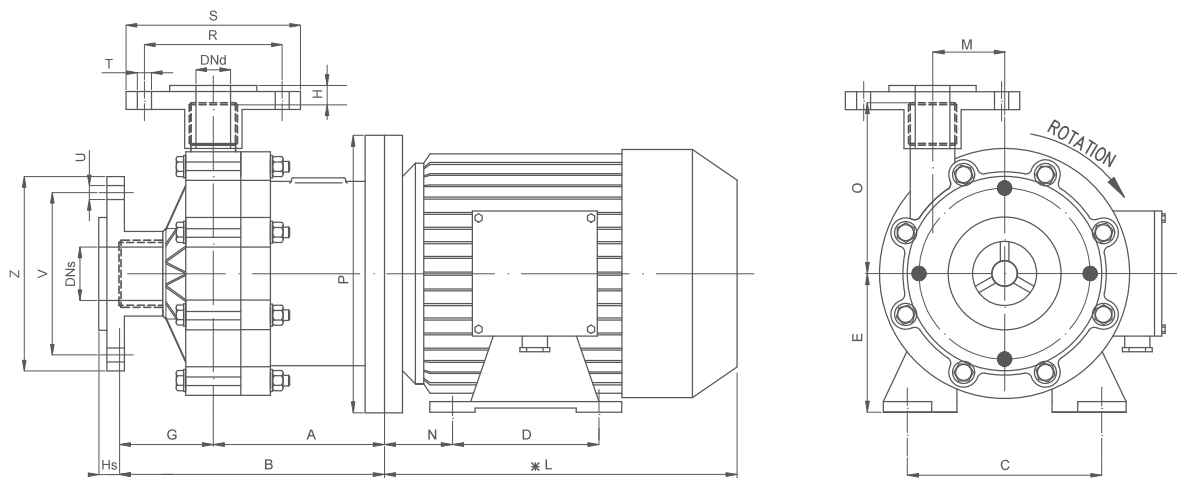
PUMP TYPE	MOTOR FLANGE B3 - B5	Kw	DIMENSIONS - mm -														
			A	B	C	D	E	G	Hs	H	I	- L	M	N	O	P	Q
HCO 95-10	71 B	0,55	110	180	112	90	71	70	20	9	1 1/2 FEMALE	215	45	45	100	160	1" MALE
HCO 110	80 B	1,1	199	290	125	100	80	91	10	13	2 1/2 MALE	232	66	50	140	200	2" MALE
HCO 120	90 S	1,5	209	290	140	100	90	91	10	13	2 1/2 MALE	262	66	56	140	200	2" MALE
HCO 120	90 L	2,2	209	290	140	125	90	91	10	13	2 1/2 MALE	287	66	56	140	200	2" MALE
HCO 130	90 L	2,2	209	290	140	125	90	91	10	13	2 1/2 MALE	280	66	56	140	200	2" MALE
HCO 140	100 L	3	219	310	160	140	100	91	10	13	2 1/2 MALE	315	66	63	140	250	2" MALE
HCO 140	112 M	4	219	310	190	140	112	91	10	13	2 1/2 MALE	325	66	70	140	250	2" MALE

OPTIONAL UPON REQUEST: Baseplate (from HCO 95 to HCO 140) - Flanges.  
 NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
 PUMPS AVAILABLE THREADED OR FLANGED.

## HCO TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (kg)		SUITABLE MOTOR POWER (KW) - 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (m³/h)	60HZ (usgpm)	50HZ (mcl)	60HZ (ft)			PP	PVDF		
HCO 150	PP- PVDF	45	242	26	124	3" MALE	2 1/2" MALE	11	13	5.5 - 7.5 - 9.2	132 S - B3/B5
HCO 155	PP- PVDF	50	265	29	140	3" MALE	2 1/2" MALE	11	13	5.5 - 7.5 - 9.2	132 S - B3/B5
HCO 160	PP- PVDF	55	290	36	170	3" MALE	2 1/2" MALE	11	13	7.5 - 9.2	132 M - B3/B5
HCO 170	PP- PVDF	58	300	38	175	3" MALE	2 1/2" MALE	11	13	7.5 - 9.2	132 M - B3/B5

## HCO 150 - 155 - 160 - 170 PP/PVDF DIMENSIONS



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PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DNs	DNd
HCO 150 - 155 - 160 - 170	145	188	18	18	160	203	80	65

PUMP TYPE	MOTOR FLANGE B3 - B5	KW	DIMENSIONS - mm -														
			A	B	C	D	E	G	Hs	H	I	- L	M	N	O	P	Q
HCO 150 - HCO 155	132 SA - SB	5.5	184	275	216	140	132	91	10	10	3" MALE	380	82,5	89	170	300	2" 1/2 MALE
HCO 150 - HCO 155	132 SA - SB	7.5	184	275	216	140	132	91	10	10	3" MALE	380	82,5	89	170	300	2" 1/2 MALE
HCO 150 - HCO 155	132 MA	9.2	184	275	216	178	132	91	10	10	3" MALE	418	82,5	89	170	300	2" 1/2 MALE
HCO 160 - HCO 170	132 SB	7.5	184	275	216	140	132	91	10	10	3" MALE	380	82,5	89	170	300	2" 1/2 MALE
HCO 160 - HCO 170	132 MA	9.2	184	275	216	178	132	91	10	10	3" MALE	418	82,5	89	170	300	2" 1/2 MALE

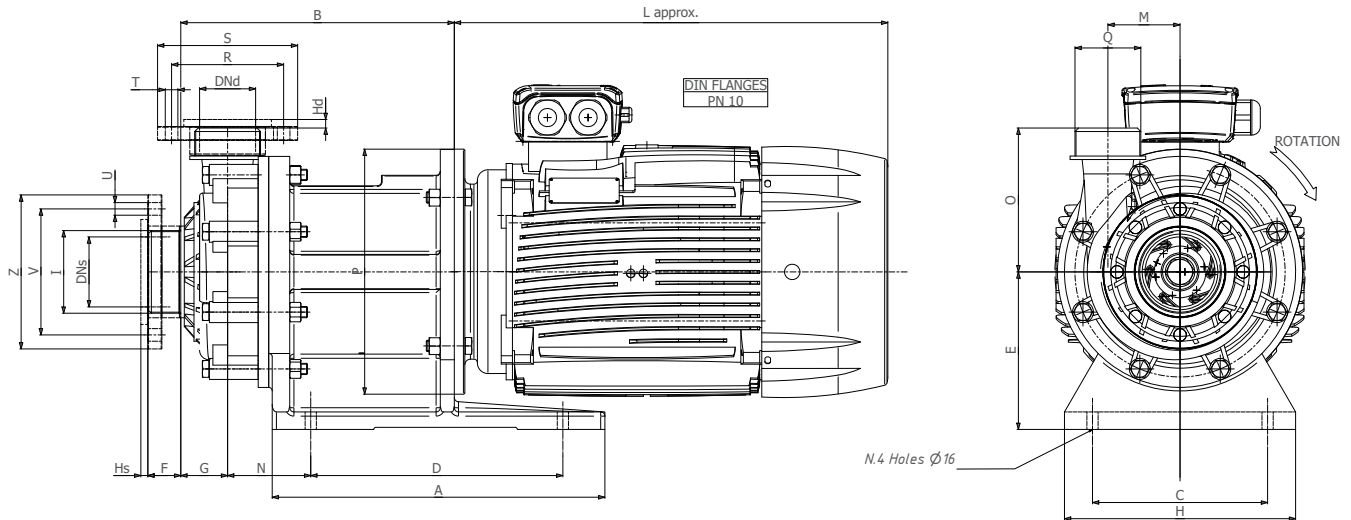
OPTIONAL UPON REQUEST: Flanges.  
 NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
 PUMPS AVAILABLE THREADED OR FLANGED.



## HCO TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	PUMP WEIGHT (kg)		SUITABLE MOTOR POWER (kW) 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (m³/h)	60HZ (usgpm)	50HZ (mcl)	60HZ (ft)			PP	PVDF		
HCO 180	PP- PVDF	95	502	44	208	3 1/2" MALE	2 1/2" MALE	13	15	11 - 15 - 18,5	160M2 - 160L2 - B5
HCO 200	PP- PVDF	130	687	48	227	4" MALE	3 1/2" MALE	13	15	15 - 18,5 - 22 - 37	160M2 - 160L2 - 180M2 200L2 - B5

## HCO 180 - 200 PP/PVDF DIMENSIONS



PUMP TYPE	FLANGES DIMENSIONS - mm -							
	R	S	T	U	V	Z	DNs	DNd
HCO 180	145	185	18	18	160	200	80	65
HCO 200	160	200	18	18	180	220	100	80

PUMP TYPE	MOTOR FLANGE B5	P (kW)	DIMENSIONS - mm -																
			A	B	C	D	E	F	G	H	Hs	Hd	I	L*	M	N	O	P	Q
HCO 180	160 M2	11	475	393,5	250	360	225	43,5	70	330	12	10	3-1/2" MALE	520	103	118,5	205,5	350	2-1/2" MALE
HCO 180	160 M2	15	475	393,5	250	360	225	43,5	70	330	12	10	3-1/2" MALE	520	103	118,5	205,5	350	2-1/2" MALE
HCO 180	160 L2	18,5	475	393,5	250	360	225	43,5	70	330	12	10	3-1/2" MALE	560	103	118,5	205,5	350	2-1/2" MALE
HCO 200	160 M2	15	475	390	250	360	225	47	66,5	330	10	12	4" MALE	520	103	118,5	205,5	350	3-1/2" MALE
HCO 200	160 L2	18,5	475	390	250	360	225	47	66,5	330	10	12	4" MALE	560	103	118,5	205,5	350	3-1/2" MALE
HCO 200	180 M2	22	475	390	250	360	225	47	66,5	330	10	12	4" MALE	620	103	118,5	205,5	350	3-1/2" MALE
HCO 200	200 L2	37	475	390	250	360	225	47	66,5	330	10	12	4" MALE	680	103	118,5	205,5	400	3-1/2" MALE

\* Approximation.

OPTIONAL UPON REQUEST: Flanges.  
 NOTE: DIRECTION OF ROTATION IS COUNTER CLOCKWISE AS SEEN WHEN FACING THE MOTOR.  
 PUMPS AVAILABLE THREADED OR FLANGED.

# VERTICAL PUMPS

## VERTICAL CENTRIFUGAL PUMPS

Vertical centrifugal pumps are suitable for installations with the pump immersed directly in the tank.

GemmeCotti supplies the following models of vertical pumps:

### HV

- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 40 m<sup>3</sup>/h.
- Head up to 22 m.
- Monobloc pump with semi open-impeller.
- Suitable for high corrosive liquids with solids in suspension.
- Maximum length 1000 mm.

### HVL

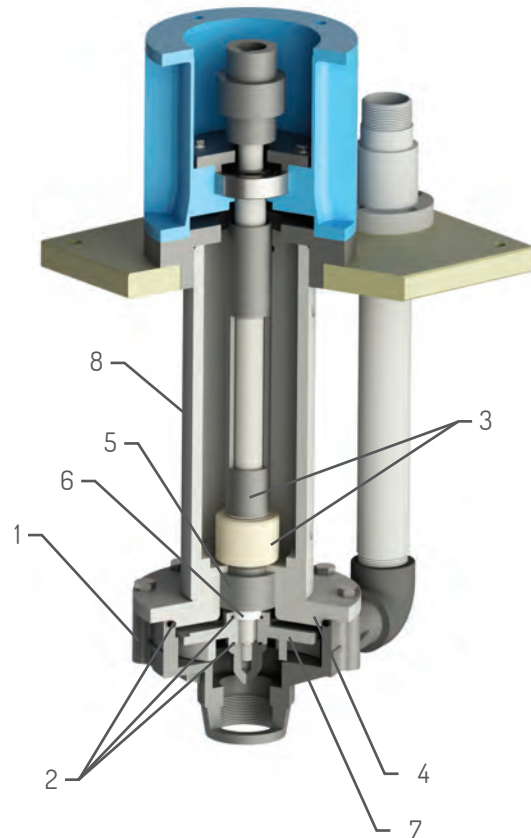
- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 130 m<sup>3</sup>/h.
- Head up to 48 m.
- Centrifugal pump with coupling and semi open-impeller.
- Suitable for high corrosive liquids with solids in suspension.
- Maximum column length 2000 mm.

### PVA

- Vertical centrifugal cantilever pumps.
- Made of AISI316.
- Capacity up to 24 m<sup>3</sup>/h.
- Head up to 26 m.
- Especially designed for the production of PCBs.

### HTM-V

- Vertical magnetic drive pumps.
- Thermoplastic pumps made of PP or PVDF.
- Capacity up to 23 m<sup>3</sup>/h.
- Head up to 20 m.
- Column length: 320 mm.



### MATERIALS IN CONTACT WITH THE LIQUID

PART NUMBER - DESCRIPTION	VERTICAL PUMPS	
	HV	HVL
1 - PUMP HEAD	PP OR PVDF	PP OR PVDF
2 - O-RING	EPDM OR VITON	EPDM OR VITON
3-SHAFT COVERING/GUIDE SHAFT COV.	PP	PP
4- COVER	PP OR PVDF	PP OR PVDF
5- BUSHING	PTFEC	PTFEC
6- WEAR BUSHING	Al <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>
7- IMPELLER	PP OR PVDF	PP OR PVDF
8- COLUMN	PP OR PVDF	PP OR PVDF



## VERTICAL CENTRIFUGAL PUMPS



### FEATURES

- Centrifugal monobloc pump.
- Materials available: PP, PVDF.
- Max flow: 40 m<sup>3</sup>/h; Max head: 22 m.
- Temperature: PP: max 70°C; PVDF: max 90°C.
- Suitable for high corrosive liquids containing solids in suspension.
- Length of the column: from 500 to 1000 mm.

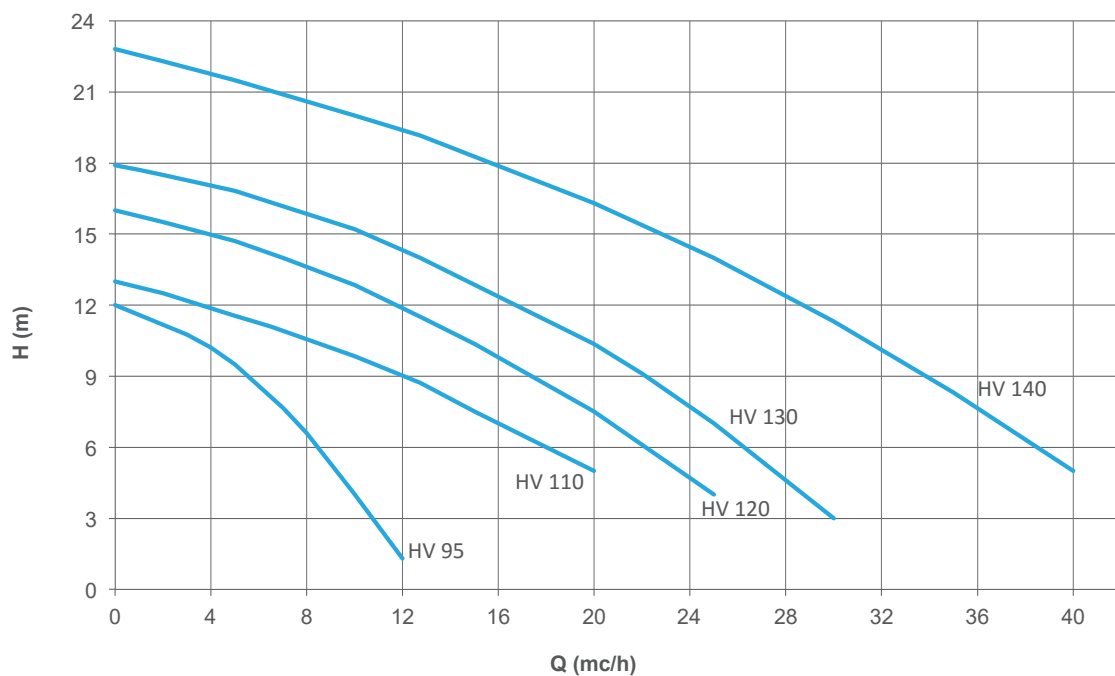
### STANDARD

- Threaded In and Out connections.

### OPTIONAL

- Dry-running protection device.
- Flanges available.
- Suction strainer.

## PERFORMANCE CURVES 50HZ - 2900 RPM

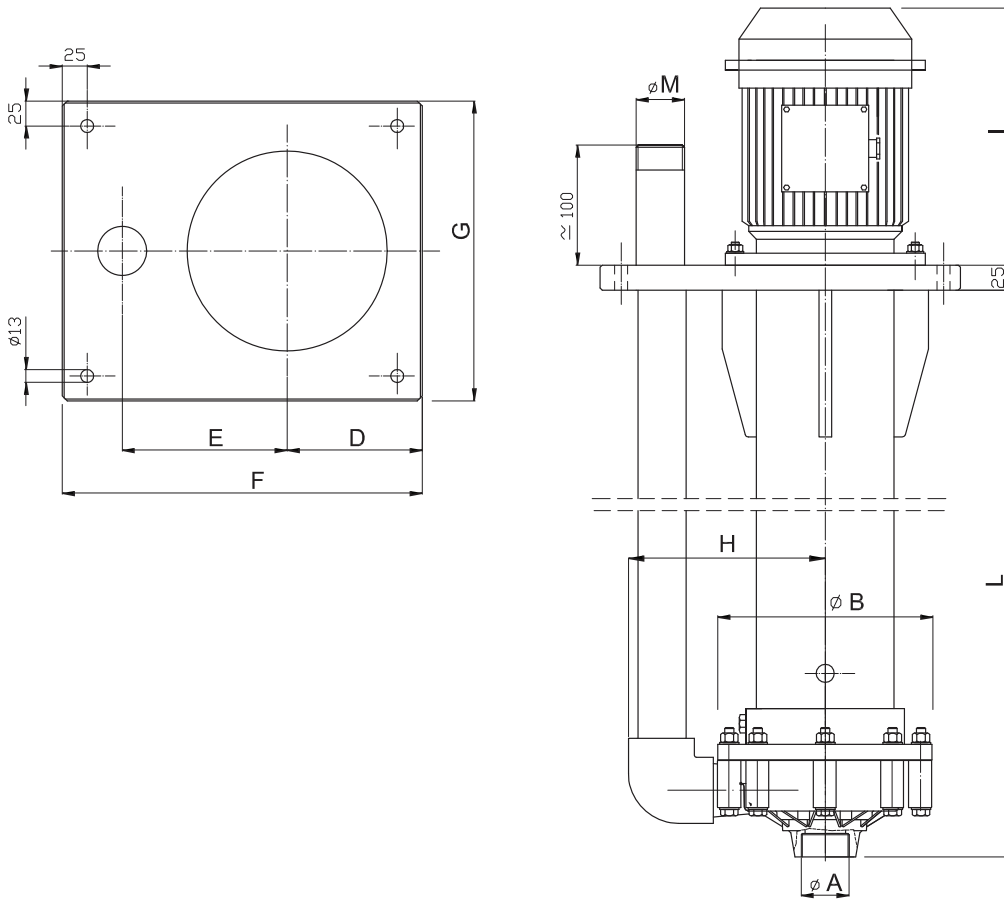


# VERTICAL CENTRIFUGAL PUMPS

## HV TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	COLUMN LENGTHS (mm)	SUITABLE MOTOR POWER (KW) - 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (m <sup>3</sup> /h)	60HZ (usgpm)	50HZ (m/c)	60HZ (ft)					
HV 95	PP- PVDF	12	62	12	55	2" FEMALE	1 1/2" MALE	from 500 to 1000	0,75	80 2A - B5
HV 110	PP- PVDF	20	105	13	60	2" FEMALE	1 1/2" MALE	from 500 to 1000	1,1	80 2B - B5
HV 120	PP- PVDF	25	132	16	75	2" FEMALE	1 1/2" MALE	from 500 to 1000	1,5	90 S - B5
HV 130	PP- PVDF	30	158	18	90	2" FEMALE	1 1/2" MALE	from 500 to 1000	2,2	90 L - B5
HV 140	PP- PVDF	40	210	22	105	2" FEMALE	1 1/2" MALE	from 500 to 1000	3	100 L - B5

## HV 95 - 110 - 120 - 130 - 140 PP/PVDF DIMENSIONS



PUMP TYPE	MOTOR B5	KW	DIMENSIONS - mm -									
			ØA	ØM	ØB	D	E	F	G	H	I	L
HV 95	G 80	0,75	2" F	1 1/2" M	215	135	165	360	300	196	215	Upon request from 500 to 1000 mm
HV 110	G 80	1,1									230	
HV 120	G 90 S	1,5									255	
HV 130	G 90 L	2,2									280	
HV 140	G 100	3									315	



## VERTICAL CENTRIFUGAL PUMPS



### FEATURES

- Centrifugal pump with coupling.
- Materials available: PP, PVDF.
- Max flow: 130 m<sup>3</sup>/h; Max head: 48 m.
- Temperature: PP: max 70°C; - PVDF: max 90°C.
- Suitable for high corrosive liquids containing solids in suspension.
- Length of the column: from 500 to 2000 mm.

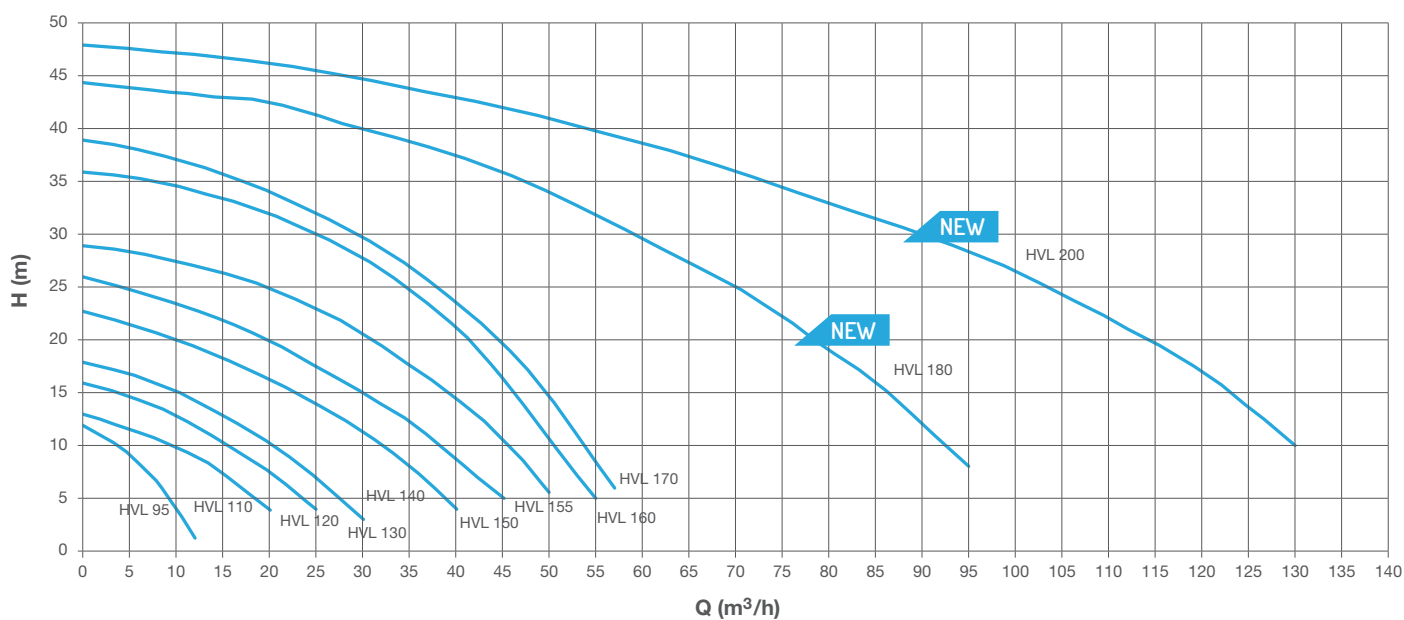
### STANDARD

- Threaded In and Out connections device.

### OPTIONAL

- Dry-running protection device.
- Flanges available.
- Suction strainer.

## PERFORMANCE CURVES 50HZ - 2900 RPM





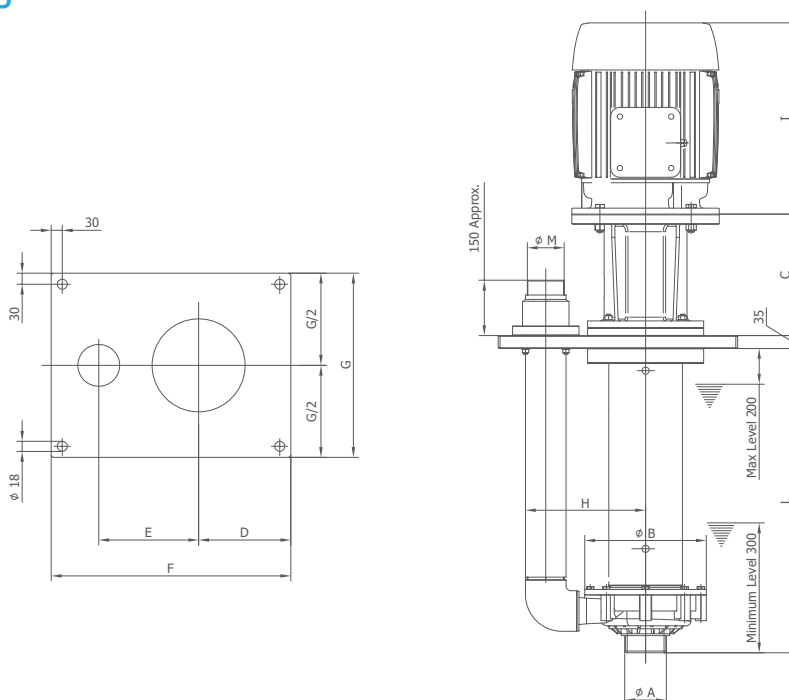


# VERTICAL CENTRIFUGAL PUMPS

## HVL TECHNICAL DATA

PUMP SIZE	MATERIAL	Q MAX		H MAX		SUCTION CONNECTION	DISCHARGE CONNECTION	COLUMN LENGTHS (mm)	SUITABLE MOTOR POWER (KW) 2900 rpm	MOTOR FLANGE AND FRAME
		50HZ (m <sup>3</sup> /h)	60HZ (usgpm)	50HZ (mcl)	60HZ (ft)					
HVL 150	PP- PVDF	45	240	26	120	3" MALE	2 1/2" MALE	from 500 to 2000	5,5 - 7,5	132 S2A - 132 SB - B5
HVL 155	PP- PVDF	50	265	29	140	3" MALE	2 1/2" MALE	from 500 to 2000	5,5 - 7,5	132 S2A - 132 SB - B5
HVL 160	PP- PVDF	55	290	36	175	3" MALE	2 1/2" MALE	from 500 to 2000	7,5 - 9,2	132 S - 132 MA - B5
HVL 170	PP-PVDF	57	300	39	180	3" MALE	2 1/2" MALE	from 500 to 2000	9	132 S - B5
HVL 180	PP-PVDF	95	502	44	208	4" MALE	3 1/2" MALE	from 500 to 2000	11 - 22 - 37	160M - 180M - 200L - B5
HVL 200	PP-PVDF	130	687	48	227	4" MALE	3 1/2" MALE	from 500 to 2000	11 - 22 - 37	160M - 180M - 200L - B5

## HVL 150 - 155 - 160 - 170 - 180 - 200 PP/PVDF DIMENSIONS



PUMP TYPE	MOTOR B5	KW	DIMENSIONS - mm -											
			ØA	ØM	ØB	C	D	E	F	G	H	I*	L	
HVL 150	G 132 SA	5,5	3" M	2" M	275	250	170	215	480	380	260	380	Upon request from 500 to 2000 mm	
HVL 150	132 SB	7,5												265
HVL 155	G 132 SA	5,5												265
HVL 155	132 SB	7,5												265
HVL 160	G 132 SB	7,5												265
HVL 160	132 MA	9,2												265
HVL 170	G 132 SB	9	265											
HVL 180 - HVL 200	160 M	11	4" M	3-1/2" M	330	330	250	271	650	500	325	531		
	180 M	22										645		
	200 L	37										760		

\* Different according to the manufacturer



## VERTICAL MAG DRIVE CENTRIFUGAL PUMPS



### MAIN FEATURES

Vertical mag drive centrifugal pumps series HTM-V are made of thermoplastic materials (Polypropylene and PVDF) and are suitable to handle chemicals and corrosive liquids. This kind of pump has been designed for a vertical submerged installation, providing high reliability for intank and sump applications. HTM-V are seal-less magnetic drive pumps without any kind of labyrinth or mechanical seal. The column of the pump is hermetically sealed and it allows complete isolation of the motor, the extension shaft and external magnet of the pump from the process liquid.

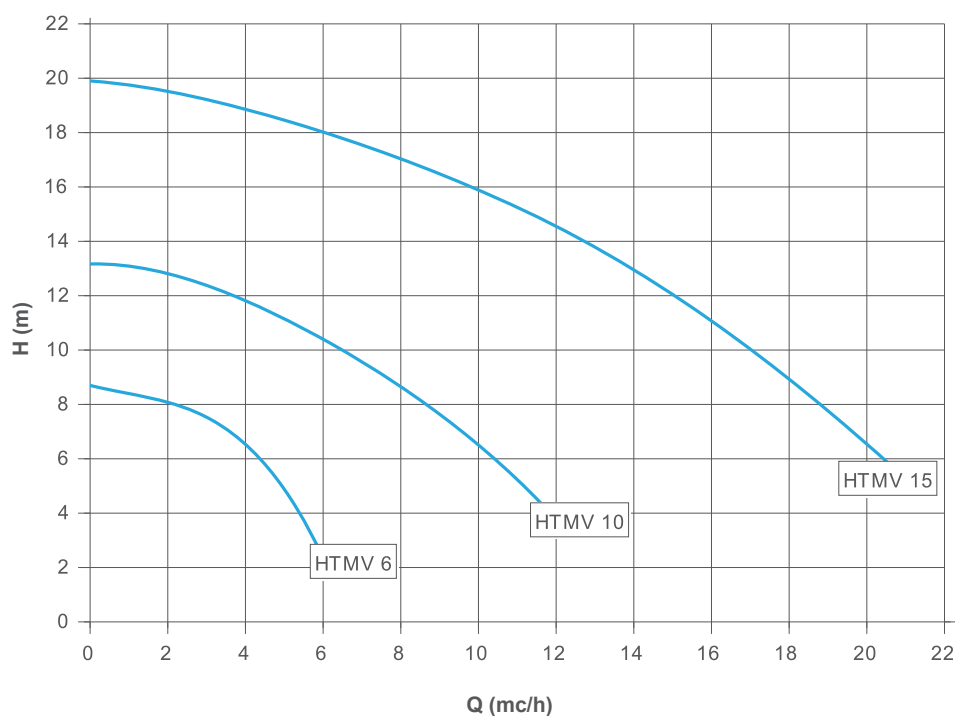
- Materials available: PP /PVDF.
- Materials in contact with the liquid: casing and impeller: PP/PVDF; o-ring: EPDM (standard for PP pumps); VITON (standard for PVDF pumps); shaft: Al2O3 99,7%; bushing: PTFEC.
- Max flow: 22 m<sup>3</sup>/h. Max head 20 mlc.
- Temperature: PP: max 70°C – PVDF: max 90°C.
- Compact design, column length 320mm.

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### OPTIONAL:

- Dry running protection device.
- Also available with bracket suitable for NEMA motors.

## PERFORMANCE CURVES 50HZ - 2900 RPM





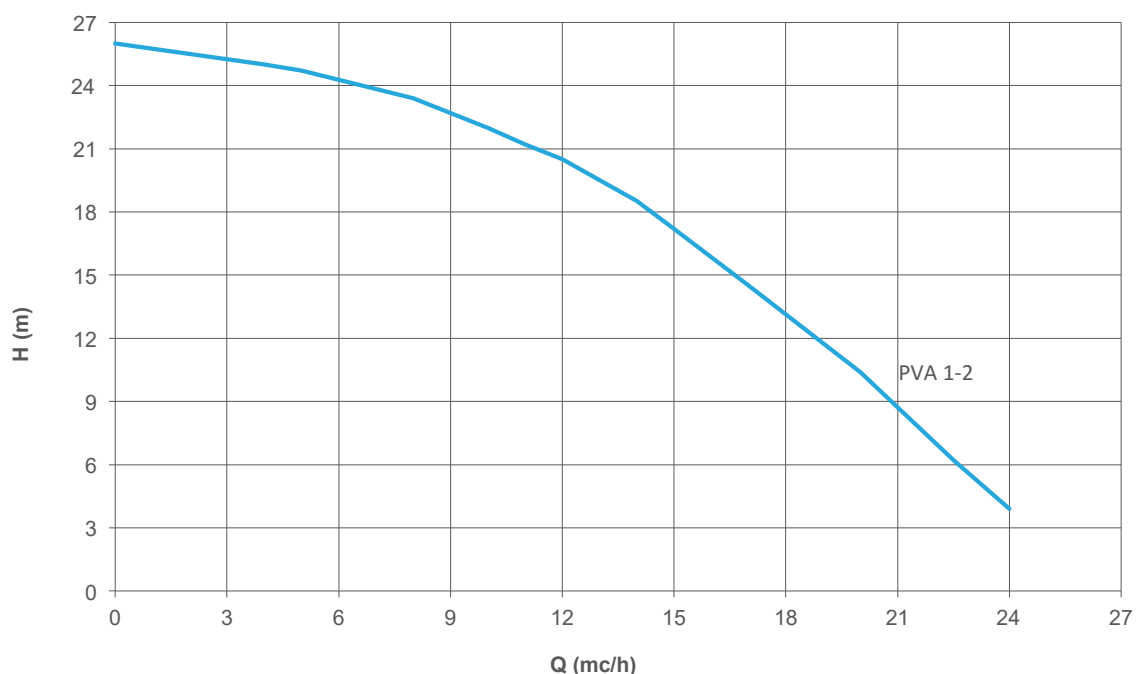
## CENTRIFUGAL VERTICAL CANTILEVER PUMPS



### FEATURES

- Materials available: AISI 316 or Titanium.
- Max flow: 24 m<sup>3</sup>/h. Max head: 26 m.
- Fume labyrinth seal. A combined system of labyrinth, rings and PTFE lip seal guarantees tightness against gas and vapours.
- Impeller with low axial thrust.
- Suitable for corrosive liquids containing solids.
- Especially designed for use in the production of printed circuit boards (PCB).  
AISI 316 version is suitable for potassium permanganate applications at 90°C.  
Titanium version is suitable for "Black Oxide".
- Two different types available: PVA 1 for tank transfer and PVA 2 used as a boosting pump. PVA 2 model should be installed in the same tank where PVA 1. This provides a tight system which prevents any leaks.

### PERFORMANCE CURVES 50HZ - 2900 RPM





## DOUBLE DIAPHRAGM PUMPS

### HAOD 20



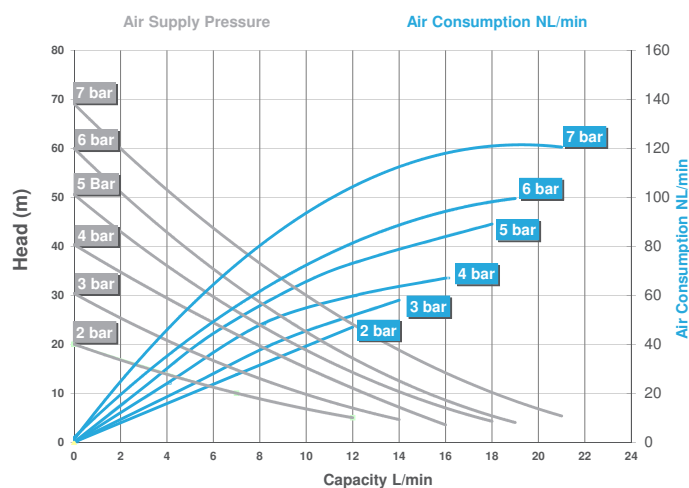
The double diaphragm pumps HAOD are suitable to pump aggressive liquids, even with very high viscosity and solids in suspension. These pumps are built with an anti-stalling pneumatic circuit that ensures the highest possible level of security and efficiency and it doesn't require lubricated air. The HAOD pumps are available in several materials and dimensions and they can operate in potentially explosive atmospheres (ATEX version).

#### MAIN FEATURES

- Materials available: PP / PVDF / AISI 316
- Max operating temperature:  
PP: 60°C - PVDF: 95°C - AISI 316: 95°C
- Adjustable capacity and head
- Can function even if dry-running
- Automatic suction and potential to be submersible
- Ecological design ensuring a reduction of air consumption

#### OPTIONAL

- Pulsation dampeners
- Available in ATEX version.

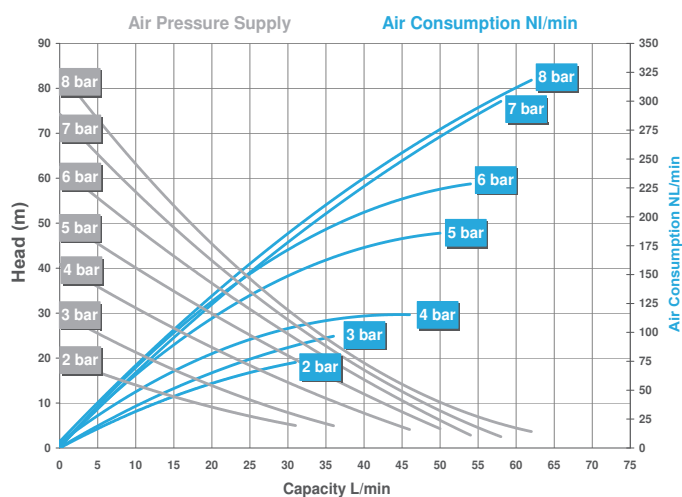


Construction materials	PP, PVDF
Diaphragm	PTFE + BACK UP NBR
Intake/delivery connections	G 3/8"
Air connection	3/8"
* Max self-priming capacity	4 m
* Max flow	21 L/m
Max head	70 m
Max air supply pressure	7 bar
Max dimensions of solids in suspension (diameter)	0,5 mm
Max operating temperature	PP 60°C PVDF 95°C
Weight	PP 1,2 kg PVDF 1,9 kg

\* The performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C at sea level. For other liquids please contact GemmeCotti srl. The values can change according to the material of construction.



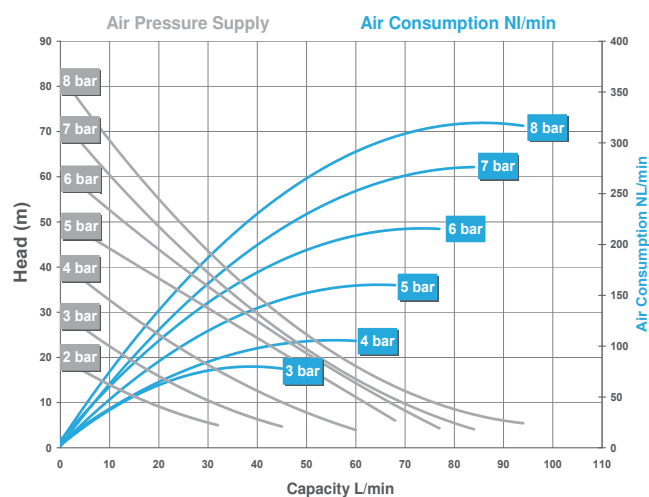
## HAOD 55



Construction materials	PP, PVDF, AISI 316
Diaphragm	PTFE con EPDM
Intake/delivery connections	G 1/2"
Air connection	1/2"
* Max self-priming capacity	3 m
* Max flow	58 L/m
Max head	70 m
Max air supply pressure	8 bar
Max dimensions of solids in suspension (diameter)	3,0 mm
Max operating temperature	PP 60°C PVDF 95°C AISI 316 95°C
Weight	PP 4,0 kg PVDF 5,5 kg AISI 316 6,0 kg

\* The performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C at sea level. For other liquids please contact GemmeCotti srl. The values can change according to the material of construction.

## HAOD 100



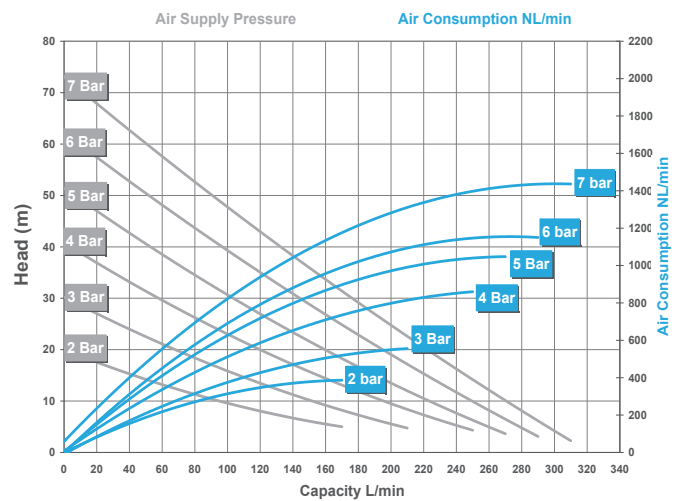
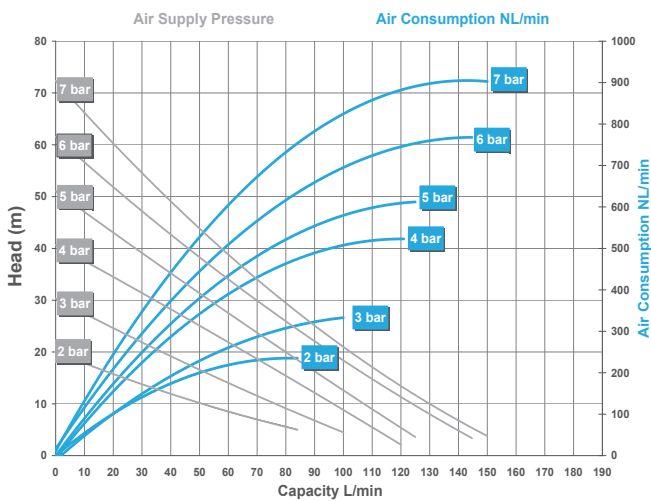
Construction materials	PP, PVDF
Diaphragm	PTFE con EPDM
Intake/delivery connections	G 3/4"
Air connection	1/2"
* Max self-priming capacity	3 m
* Max flow	95 L/m
Max head	80 m
Max air supply pressure	8 bar
Max dimensions of solids in suspension (diameter)	3,0 mm
Max operating temperature	PP 60°C PVDF 95°C
Weight	PP 4,0 kg PVDF 5,5 kg

\* The performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C at sea level. For other liquids please contact GemmeCotti srl. The values can change according to the material of construction.

## HAOD 150



## HAOD 300



Construction materials	PP, PVDF, AISI 316
Diaphragm	PTFE con EPDM
Intake/delivery connections	G 1"
Air connection	1/2"
* Max self-priming capacity	4 m
* Max flow	150 L/m
Max head	70 m
Max air supply pressure	7 bar
Max dimensions of solids in suspension (diameter)	3,5 mm
Max operating temperature	PP 60°C PVDF 95°C AISI 316 95°C
Weight	PP 6,0 kg PVDF 7,0 kg AISI 316 14,0 kg

Construction materials	PP, PVDF, AISI 316
Diaphragm	PTFE con EPDM
Intake/delivery connections	G 1 1/2"
Air connection	1/2"
* Max self-priming capacity	4 m
* Max flow	310 L/m
Max head	70 m
Max air supply pressure	7 bar
Max dimensions of solids in suspension (diameter)	5,0 mm
Max operating temperature	PP 60°C PVDF 95°C AISI 316 95°C
Weight	PP 14,0 kg PVDF 22,0 kg AISI 316 30,0 kg

\* The performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C at sea level. For other liquids please contact GemmeCotti srl. The values can change according to the material of construction.

\* The performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C at sea level. For other liquids please contact GemmeCotti srl. The values can change according to the material of construction.

# ATEX PUMPS AISI 316

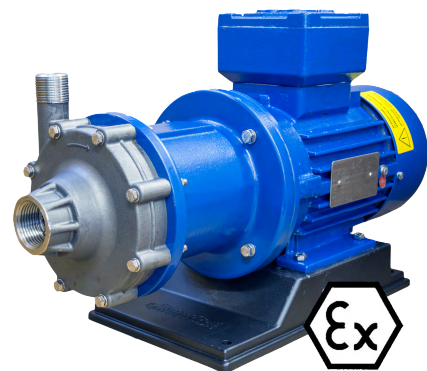


For applications in potentially explosive atmospheres GemmeCotti offers ATEX certified pumps.

ATEX pumps made of metallic material AISI 316 are suitable to be used in potentially explosive atmospheres classified zone 1 II 2G c Tx and zone 2 II 3G c Tx.

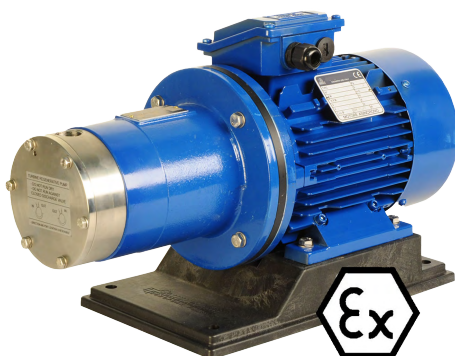
All our ATEX pumps comply with the technical and safety requirements of ATEX Directive 2014/34/EU.

Pump model EM-C made of AISI316 – for ATEX zone 1 and 2  
(See pump model HTM SS316 page 24)

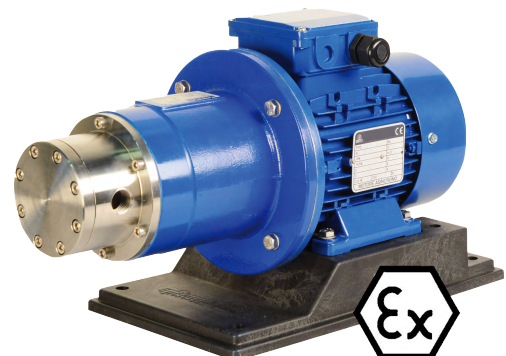


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Pump model EM-T made of AISI 316 – for ATEX zone 1 and 2  
(See pump model HTA page 32)



Pump model EM-P made of AISI 316 for ATEX zone 1 and 2  
(See pump model HTP page 38)



# ATEX PUMPS PP/PVDF

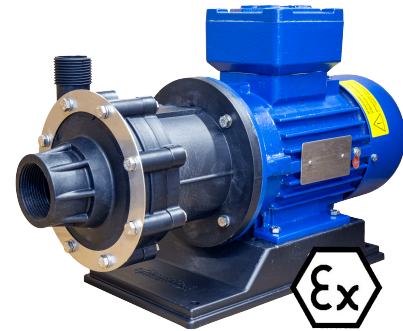


For applications in potentially explosive atmospheres GemmeCotti offers ATEX certified pumps.

ATEX pumps made of thermoplastic material polypropylene (PP) or PVDF are suitable to be used in potentially explosive atmospheres classified zone 2 II 3G c Tx.

All our ATEX pumps comply with the technical and safety requirements of ATEX Directive 2014/34/EU.

Pump model EM-C PP/PVDF - only for ATEX zone 2  
(See pump model HTM PP/PVDF page 12)

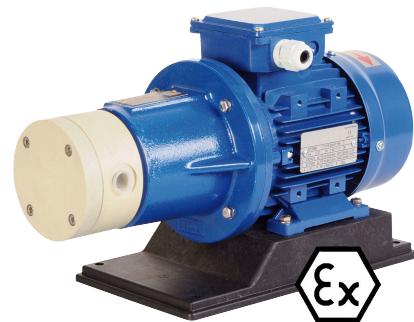


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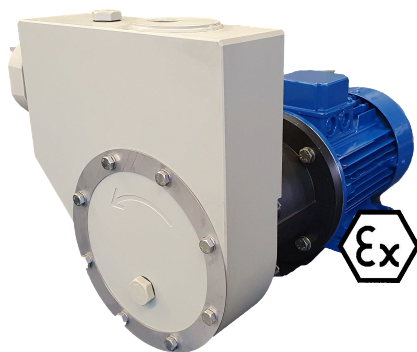
Pump model EM-T PP/PVDF - only for ATEX zone 2  
(See pump model HTT page 28)



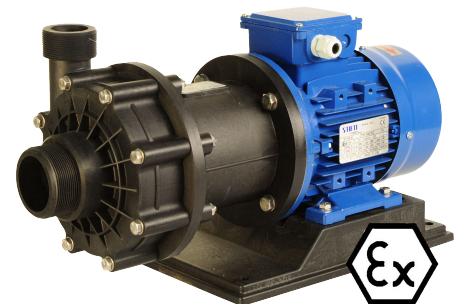
Pump model EM-P PP/PVDF - only for ATEX zone 2  
(See pump model HPP/HPF page 36)



Pump model EM-T SP - only for ATEX zone 2  
(See pump model HTT- SP page 30)



Pump model EM-CO - only for ATEX zone 2  
(See pump model HCO page 42)





## DRY-RUNNING PROTECTION DEVICE A1-13-Y

To prevent damages to the pumps due to the lack of liquid, GemmeCotti supplies the dry running protection device Emirel A1-13-Y. This device avoids the dry running, the closed discharge and the blocked suction.

Thanks to the adjustable threshold and timer, it is possible to set up the minimum power and operation time of the device. If the power is lower than the set value, the pump will automatically stop.

This device is particularly recommended during the operations of tanker unloading and for all the applications in which there is the risk of liquid shortage.



Main features of the dry running protection device:

- Single Phase CURRENT RELAY
- Multirange 15-35A
- 2 set points MAX / min
- Also for motors with INVERTER

## FLANGES

GemmeCotti pumps are usually supplied with threaded connections. Upon request we can also supply DIN or ANSI flanges for thermoplastic pumps (flat stub + free flange) and welded DIN or ANSI flanges for AISI316 pumps.







## BASEPLATES

The pump complete with the motor can be installed perfectly horizontal thanks to our baseplates. GemmeCotti Baseplates for horizontal pumps are made of PP (Polypropylene) and they are suitable for motors B3/B5 IEC and NEMA from 0,12 kw to 4 kw. The baseplates are available in 3 different dimensions (type "A", type "B" and type "C").

## MAIN FEATURES

The pump complete with the motor can be installed perfectly horizontal thanks to our baseplates. GemmeCotti Baseplates for horizontal pumps are made of PP (Polypropylene) and they are suitable for motors B3/B5 IEC and NEMA from 0,12 kw to 4 kw. The baseplates are available in 3 different dimensions (type "A", type "B" and type "C").

## MATERIAL

- PP

## DIMENSION AVAILABLE

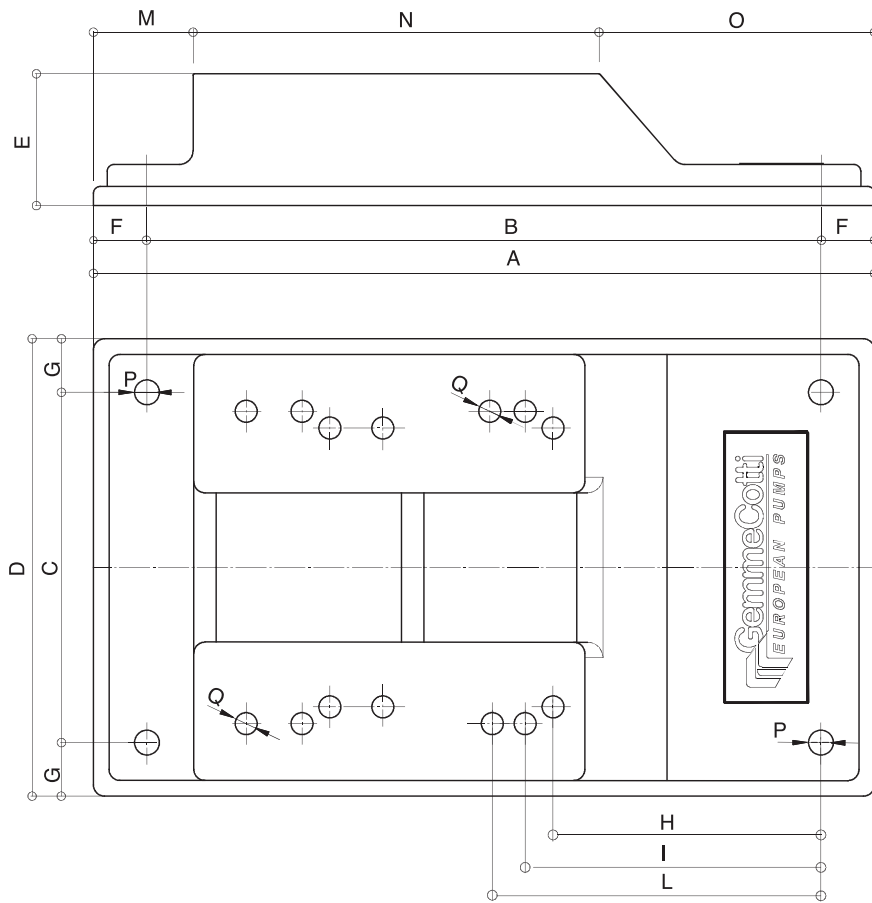
Available in 3 different dimensions:

- BASEPLATE TYPE "A" suitable for:  
IEC motors B3/B5 from size 56 to size 71
- BASEPLATE TYPE "B" suitable for:  
IEC motors from size 80 to size 90 and NEMA motors 56TC and 145T.
- BASEPLATE TYPE "C" suitable for:  
IEC motors from size 100 to size 112 and NEMA motors 184T.





## DIMENSIONS



TYPE	MOTOR	DIMENSIONS - mm -														
		A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q
A	IEC-GR. 56															
	IEC-GR. 63	280	244	130	160	48	18	15	94	102	112	29	151	100	8	8
	IEC-GR. 71															
B	IEC-GR. 80															
	IEC-GR. 90	350	302	157	205	60	24	24	120	132	-	45	175	130	12	11
	NEMA-GR. 56TC															
C	NEMA-GR. 145T															
	IEC-GR. 100	400	352	202	250	60	24	24	140	156	-	45	210	145	12	12
	IEC-GR. 112															
	NEMA-GR. 184T															

# CHEMICAL COMPATIBILITY GUIDE

Legend: **A**= Very good | **B**= Good | **C**= Poor, not recommended | **D**= Very poor, not recommended | **1**= Good until 22°C (72°F) | **2**= Good until 48°C (120°F)

CHEMICAL	PUMP MATERIALS			O-RINGS MATERIALS		
	PP	PVDF	AISI 316	EPDM	Viton	PTFE
ACETIC ACID	B	C	B	A	B	A
ACETIC ACID 20%	A	A	A	A	B	A
ACETIC ACID 80%	A	C	B	A	B	A
ACETIC ACID, GLACIAL	A1	A1	A	B	D	A
ACETONE	A	D	A	A	D	A
ALCOHOLS: ETHYL	A	A	A	A	A	A
ALCOHOLS: ISOPROPYL	A2	A	B	A	A	A2
ALCOHOLS: METHYL	A2	A	A	A	C	A
ALCOHOLS: PROPYL	A	A2	A	A	A	A
ALUMINIUM SULFATE	A	A	B2	A	A	A
AMINES	B2	-	A	B	D	A2
AMMONIA, LIQUID	A2	A	A2	A	D	A
CHLORINE, ANHYDROUS LIQUID	D	A1	C	B	A	A
CHLOROFORM	C1	A	A	D	A	A1
CHROMIC ACID < 50%	D	A2	B2	B	A	A
COPPER CHLORIDE	A	A	D	A	A	A
COPPER SULFATE > 5%	A	A	B	A	A	A
DETERGENTS	A	A	A1	A	A	A
DIESEL FUEL	A1	A	A1	D	A	A
ETHER	D	B1	A	C	C	A
ETHYLENE GLYCOL	A	A	B	A	A	A
ETHYL ACETATE	A1	D	B	B	D	A
FERRIC CHLORIDE	A	A	D	A	A	A
FORMALDEHYDE 100%	C	A	A	A	D	A
FUEL	A1	A	A1	D	A	B
FUEL OILS	A	B	A	D	A	B
GASOLINE (HIGH - AROMATIC)	A	A	A	D	A	A
GLUCOSE	A	A	A	A	A	A
HYDRAULIC OIL (PETRO)	D	A	A	D	A	A
HYDROCHLORIC ACID < 33%	A2	A	D	A2	A	A
HYDROFLUORIC ACID 50%	D	A	D	D	B	A
HYDROFLUORIC ACID 100%	C1	A	B1	D	B	A
HYDROGEN PEROXIDE 10%	A	A	B	A	A	A
HYDROGEN PEROXIDE 30%	B1	A	B	B	A	A
KEROSENE	A	B	A	D	A	A

All the information in this chart is only approximate and should only be used for an initial choice of the type of materials best suited for the customers' pumps. The data comes from various highly reliable sources. Despite this, GemmeCotti itself did not carry out the relative tests, and is not responsible for the preciseness of the data. Therefore, GemmeCotti has no responsibility for possible malfunctions or damage of any type caused by the incorrect selection of construction materials and/or of the incorrect choice of pump size if it is not made by GemmeCotti itself after having received all suitable information regarding the application and the characteristics of the pumped liquid.

CHEMICAL	PUMP MATERIALS			O-RINGS MATERIALS		
	PP	PVDF	AISI 316	EPDM	Viton	PTFE
LACQUER THINNERS	D	-	A	D	D	A
MOTOR OIL	A1	B	A2	D	-	A
NAPHTHA	B	A	A	D	A	B
NICKEL CHLORIDE	A	A	C	A1	A	A
NITRIC ACID < 50%	D	A	A1	D	A	A
OIL: HYDRAULIC OIL (SYNTHETIC)	D	A	A	A	A	A
OLIVE OIL	A	-	A	D	A	A1
PHENOL (CARBOLIC ACID)	B	A1	B	B	A	A
POTASSIUM PERMANGANATE	A1	A	B	A	A	A
PHOSPHORIC ACID < 40%	A	A	C	A	A	A
PHOSPHORIC ACID > 40%	A	A	D	A	A	A
PHOTOGRAPHIC DEVELOPER	A	-	A	B	A	A
ROSINS	A2	-	A1	-	A	A
SALT BRINE	A	A	A2	A	A2	A2
SEA WATER	A	A	C	A2	A	A
SOAP SOLUTIONS	A	A1	A1	A	A	A
SODIUM BICARBONATE	A	A	A1	A2	A	A
SODIUM BISULFITE	A	A	B1	A2	A	A
SODIUM CARBONATE	A	A	A	A2	A	A
SODIUM CHLORIDE	A	A	B	A	A	A
SODIUM HYDROXIDE (10%)	A	C	-	A	C	-
SODIUM HYDROXIDE (40%)	A	C	-	A	C	-
SODIUM HYDROXIDE (50%)	A	C	B1	A	D	A
SODIUM HYPOCHLORITE (100%)	C	A	C	B1	A1	A
SODIUM HYPOCHLORITE 12,5%	C	A	C	A	A	A
SULFURIC ACID (10-75%)	A1	A	D	B2	A2	A
SULFURIC ACID (75-100%)	C1	A	D	B1	A1	A
SULFURIC ACID 100%	D	D	A	D	A	A
TIN SALTS	A	A	D	B	A	A
TOLUENE (TOLUOL)	C1	A1	A	D	C	A
UREA	A	A	B	A	A	A
WATER, ACID, MINE	A	A	B	A	A	A
WATER, DISTILLED	A	A	A	A	A	A
ZINC CHLORIDE	A	A	B	A	A	A



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