LANDVÉLAR

ARGAL

CHEMICAL PUMPS

Prima range

TMP
centrifugal

Alifter range

TMA
self-priming

magnetical driven pumps in thermoplastic materials

In this catalog Argal proposes the range of PRIMA pumps, magnetical driven, inclusive of centrifugal serie named **TMP** and the self-priming volumetric execution named **TMA** of the ALIFTER range.
Single stage, close-coupled execution, strongly built through an injection-moulding process and ready to fit normalized motors.
Argal operates with ISO 9001:2000 Quality System certified by SQS-IQNet.

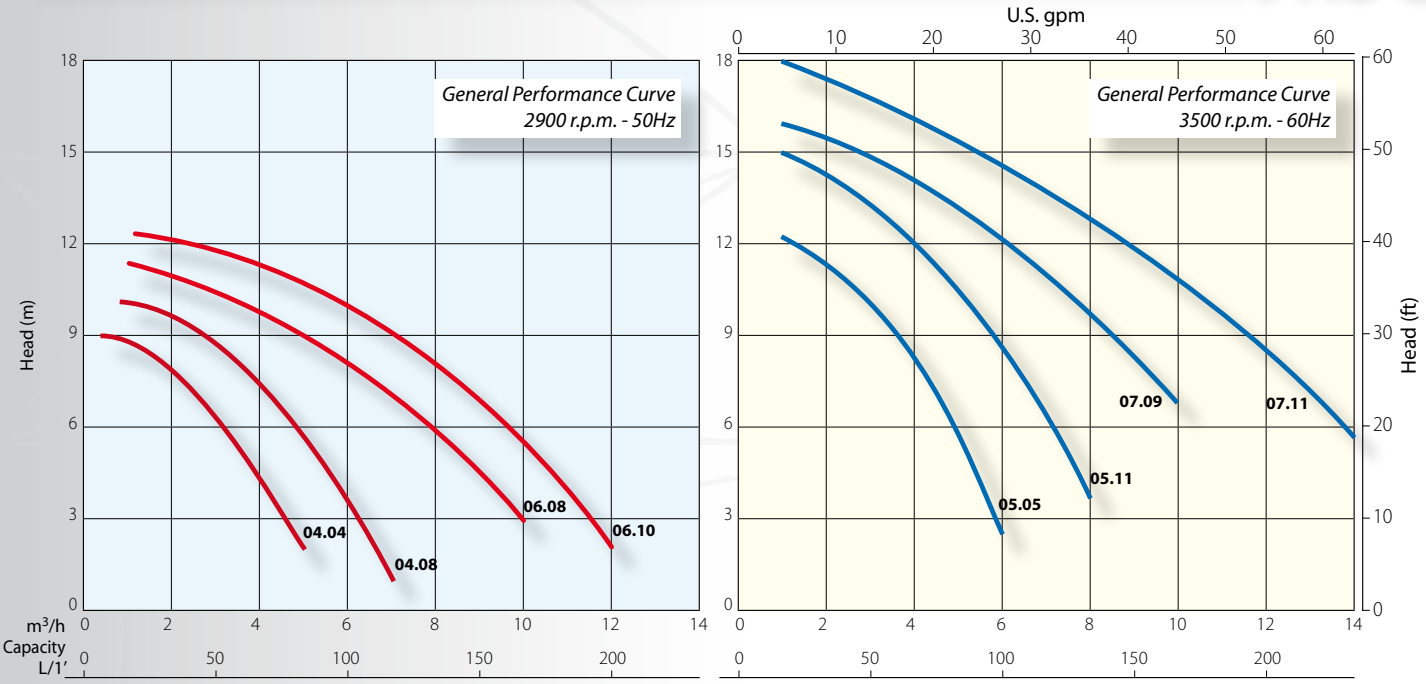
View of TMP and TMA pumps in different materials.

TMP PUMPS SERIE
The pumps of the **TMP** serie, magnetically driven, have been developed following the idea of previous AM serie, but trying to give a more concise answer to the actual demands of the market. These pumps are centrifugal, horizontal axis, close-coupled types, the bodies are entirely built with reinforced thermoplastic polymers, and materials for internal components are: ceramic oxides, HD carbon, fluorinated elastomers: which mean any contact of metallic parts with the pumped fluid is avoided. This combination of materials is correctly chosen to obtain the best in the performances and on a small scale: "chemical pumps".

MAIN FEATURES
Versatility and performances.
You can practically pump all the chemicals at low and medium temperatures with all the bodies in GFR-PP (glass fibre reinforced polypropylene) or CFF-E-CTFE (Etylene-ChloroTrifluoroEtylene carbon fibre filled).
Strong magnetic coupling made up of rare-earth materials (Neodimium Iron Boron) and **"N"** (standard), **"P"** (powered) or **"S"** (strong-powered) versions allow to pump, also at maximum flow, liquids with 1.05 - 1.35 - 1.8 specific gravity respectively.
R-N-X: three internal configuration of constructive materials for many applications: from clean water to waste and slightly abrasive liquids, strong alkali or salts such as sodium hypochlorite, and acids such as chromic, nitric, sulphuric, etc..

"Hermetic" pump
The outlet magnet assembly driven by the motor shaft, produces a magnetic torque dragging up in rotation the inside magnet assembly on which the impeller is over moulded.
The rear casing, having appropriate shape and joined to the volute casing, divides the two magnetic units, making an hermetic case all around the impeller.

Safety and life
The drive magnetic system finally excludes any type of rotating seal. The only need of the seal is guaranteed thanks to an O-ring static gasket, in the connection between volute casing and rear casing.
Special solutions and employed materials occasionally allow dry running operation (starting from 15 min. up to many hours in function of working conditions), avoiding any damages inside the TMP pumps. These solutions require an internal structure **"R"**.



NOTES: All curves are referred to: water at 20°C - viscosity 1 °E - specific gravity 1 kg/dm2 pt

THE MATERIALS **table 1**

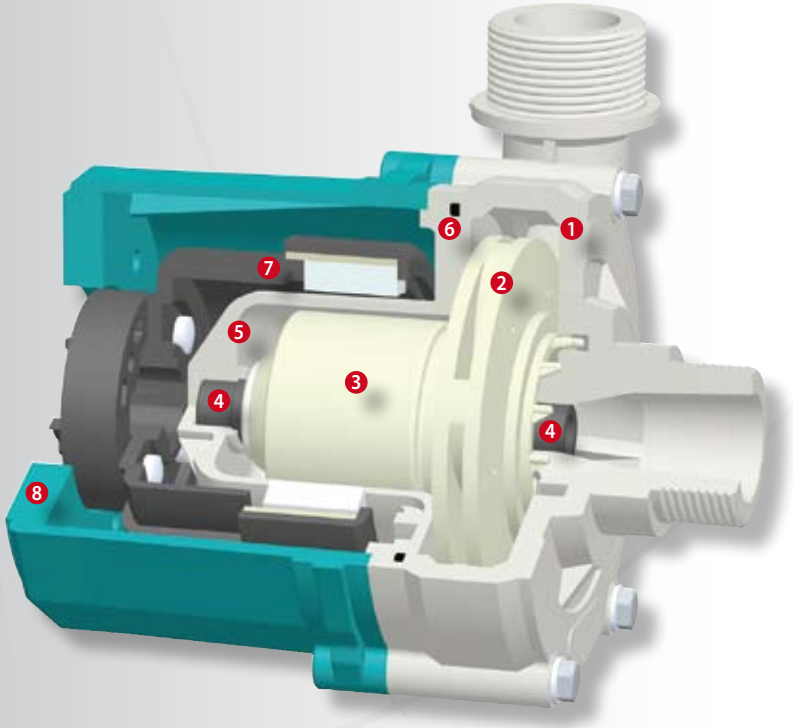
VERSION	REINFORCED POLYMERS	MIN. TEMP.	MAX TEMP.	ENVIRONMENT TEMP.
WR	GFR/PP	-5°C (23°F)	80°C (176°F)	0÷40°C (14÷104°F)
GF	CFF/E-CTFE	-20°C (-4°F)	100°C (212°F)	-20÷40°C (-4÷104°F)
GX*				

Note: Maximum inlet pressure: 1,5 bar - (*) Compliant to ATEX 94/9/EC regulations

THE CONSTRUCTIONS **table 2**

VERSION	WR			GF			GX*	
	R1	X1	N1	R2	X2	N2	R2	X2
Volute casing	GFR-PP			CFF-E-CTFE				
Rear casing								
Centrifugal impeller								
Guide bushing	CARB.HD	SiC	GFR-PTFE	CARB.HD	SiC	GFR-PTFE	CARB.HD	GFR-PTFE
Shaft	CER			SiC				
Thrust bush								
OR gasket	FKM (1)			FKM (1) (2)				
Screws	Stainless steel							

Upon request:(1)EPDM and (2) FFKM - * Compliant to ATEX 94/9/EC regulations



TMP - SECTION VIEW

1 - Volute casing

2 - Centrifugal impeller (covered type)

3 - Centrifugal impeller (magnetic part)

4 - Guide bushings

5 - Rear casing

6 - OR gasket

7 - Drive magnet assembly

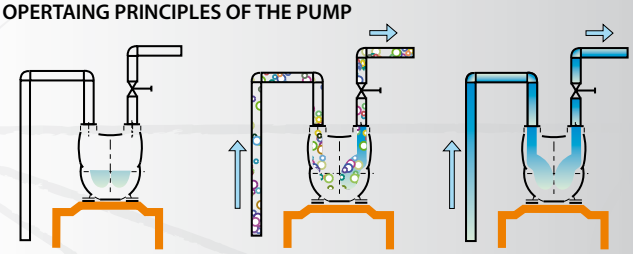
8 - Bracket

The self priming , magnetic drive pumps of the TMA serie are volumetric, can deliver the flow in both directions reversing the direction of rotation of the motor and are adequate to speedily prime chemical liquids with high specific gravity and/or high vapour tension.

MAIN FEATURES

- Start-up with empty pipes
- Fast priming-phase
- Maximum Lift = -5 m
- Reversible (inlet-outlet reversal)
- Suitable for specific weight up to 2 kg/dm3
- Suitable for vapour pressure up to 1 m (H2O @ 45°C)
- Minimum NPSHa (available on the plant) = 3 m (abs)
- Impeller replaceable apart from magnets
- IEC or NEMA standard motors can be installed

OPERTAING PRINCIPLES OF THE PUMP

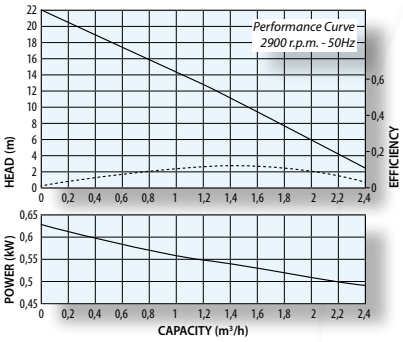


Stopping phase: a small quantity of liquid is trapped into the pump to enable the next starting.

Priming phase: the impeller gives a specific circulation of air-liquid mixture moving air from the suction pipe to the discharge side in the atmosphere.

Pumping phase: after the air is totally removed from the suction side, the pipe is flooded by the liquid and the pumping phase can start.

01.16



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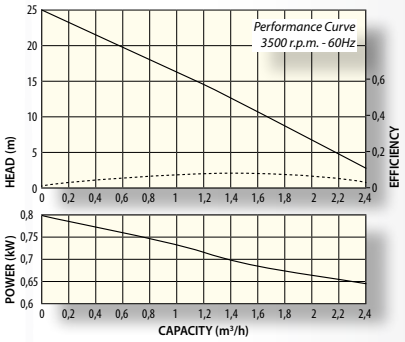
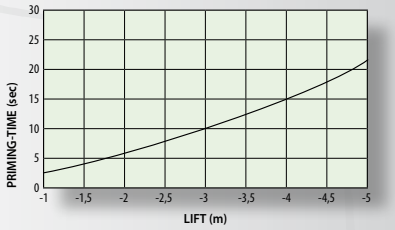


PRIMING TIME WITH WATER



THE MATERIALS table 3

VERSION	REINFORCED POLYMERS	MIN. TEMP.	MAX TEMP.	ENVIRONMENT TEMP.
WR	GFR/PP	-5°C (23°F)	60°C (140°F)	0÷40°C (14÷104°F)
GF	CFF/E-CTFE	-20°C (-4°F)	90°C (194°F)	-20÷40°C (-4÷104°F)

Note: Maximum inlet pressure: 1,5 bar

THE CONSTRUCTIONS table 4

VERSION	WR			GF		
	R1	X1	N1	R2	X2	N2
Volute casing	GFR-PP			CFF-E-CTFE		
Rear casing						
Centrifugal impeller						
Guide bushing	CARB.HD	SiC	GFR-PTFE	CARB.HD	SiC	GFR-PTFE
Shaft	CER			SiC		
Thrust bush						
OR gasket	FKM (1)			FKM (1) (2)		
Screws	Stainless steel					

Upon request:(1)EPDM and (2) FFKM

TMA - SECTION VIEW

1 - Connections casing

2 - Impeller

3 - Magnetic core

4 - Front volute casing

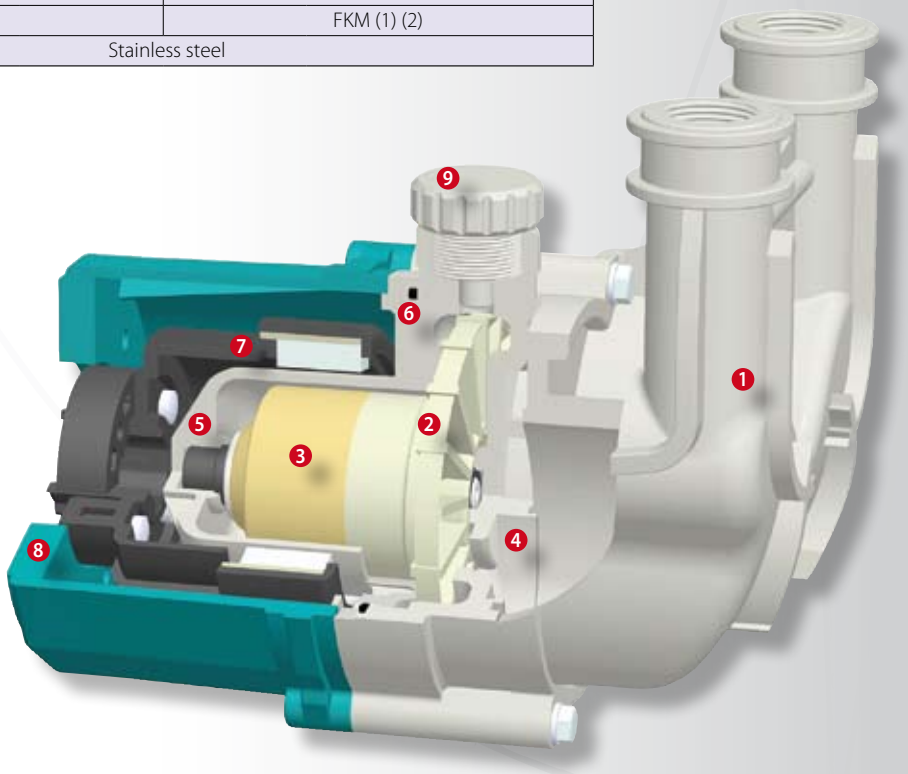
5 - Rear casing

6 - OR gasket

7 - Drive magnet assembly

8 - Bracket

9 - Filling plug



PUMP SPECIFICATIONS table 5

Connections		TMP								TMA	
	Thread	04.04	05.05	04.08	05.11	06.08	07.09	06.10	07.11	01.16	01.21
DeM	BSP-NPT	3/4" m		1" m		1 1/4" m		1 1/4" m		3/4" f	
DeM	BSP-NPT	3/4" f		1" m		1 1/4" m		1 1/4" m		3/4" f	
	Flange										
DnM-DnA	ISO			25		32		32		20	
DnM-DnA	ANSI			1"		1 1/4"		1 1/4"		1"	

MOTOR SPECIFICATIONS 50Hz models table 6

		04.04			04.08			06.08			06.10			01.16		
		N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
Power (IEC) 50 Hz	kW	0.18	0.25	0.37	0.25	0.37	0.55	0.37	0.55	0.75	0.55	0.75	1.1	0.55	0.75	1.1
Motor size	IEC	63A	63B	71A	63B	71A	71B	71A	71B	80A	71B	80A	80B	71B	80A	80B
Phases	N.	3phase - 1phase														
Std. voltage (IEC)	V	400 ± 5% 50Hz - 220 ± 5% 50Hz														
Motor protection	IP	55														

MOTOR SPECIFICATIONS 60Hz models table 7

		05.05			05.11			07.09			07.11			01.21		
		N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
Power (IEC) 60 Hz	kW	0.25	0.37	0.55	0.37	0.55	0.75	0.55	0.75	1.1	0.75	1.1		0.55	0.75	1.1
Motor size	IEC	63B	71A	71B	71A	71B	80A	71B	80A	80B	80A	80B		71B	80A	80B
Phases	N.	3phase - 1phase														
Std. voltage (IEC)	V	460 ± 10% 60Hz - 230 ± 10% 60Hz														
Motor protection	IP	55														

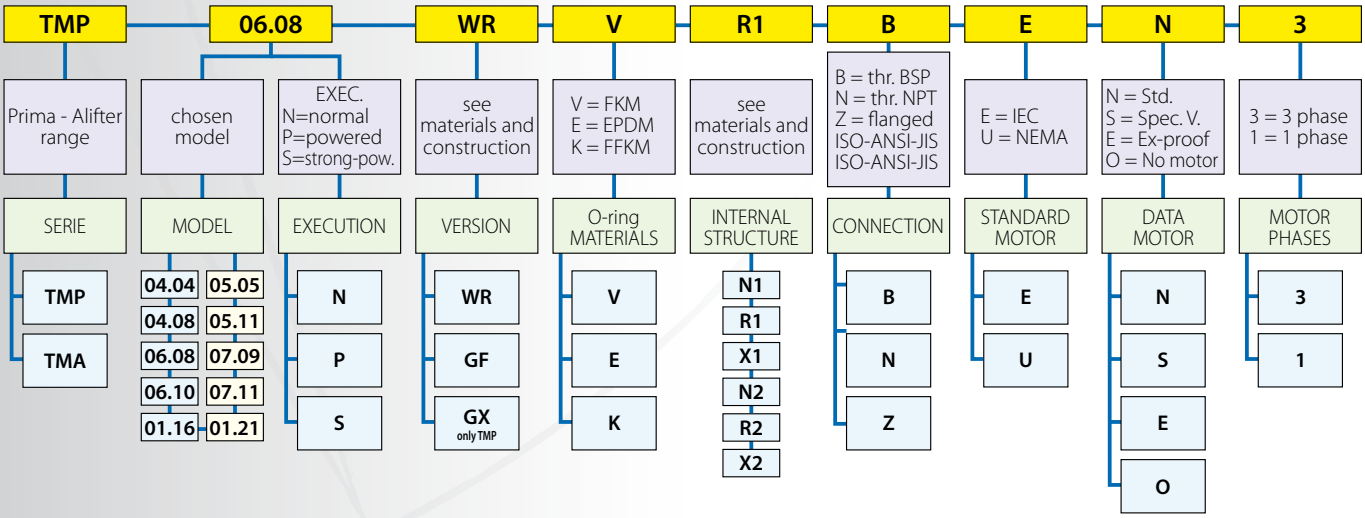
WEIGHT 50-60Hz models table 8

Pump weight (without motor)			Motor weight						
WR	GF	GX	Version	IEC 3phase - 1phase					
1,5 - (2,5*)	2 - (3*)		Frame	63A	63B	71A	71B	80A	80B
			Kg	5,6	6,3	7,3	8,2	10,8	12

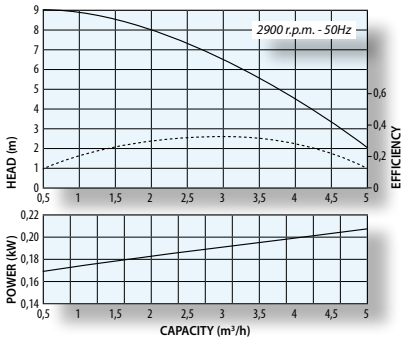
* Weight referred to TMA


TMA pump and trolley

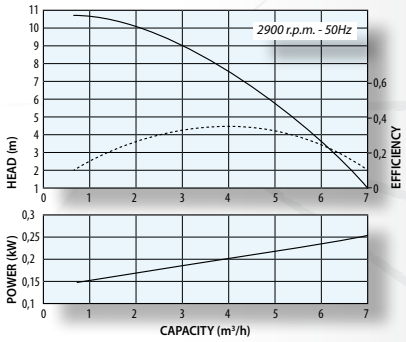
PUMP IDENTIFICATION LABEL table 9



04.04



04.08



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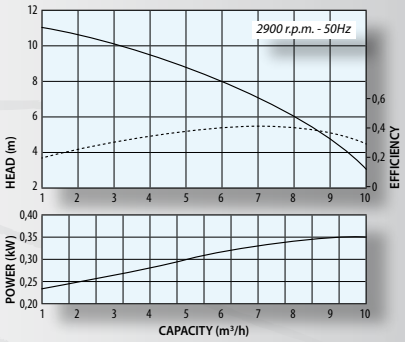

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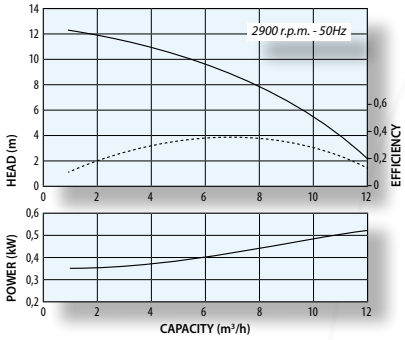

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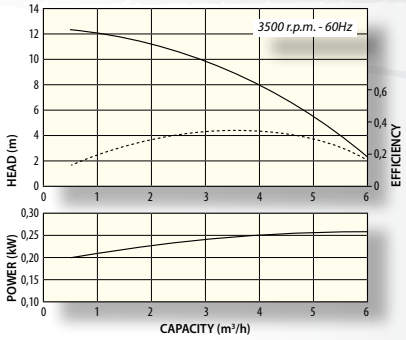

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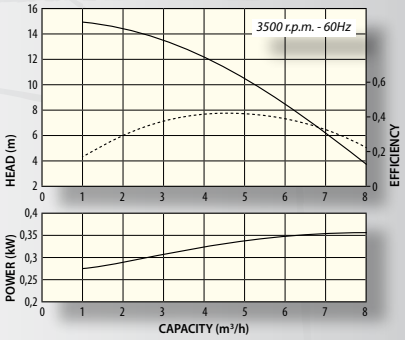

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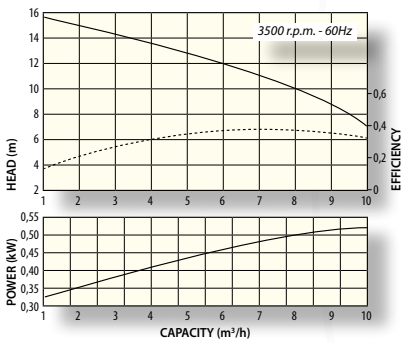

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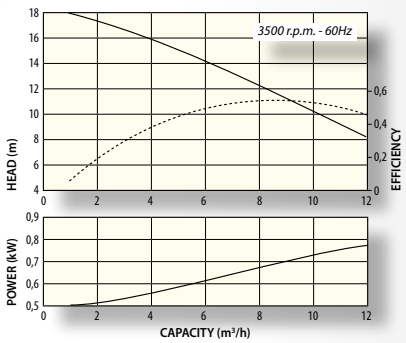
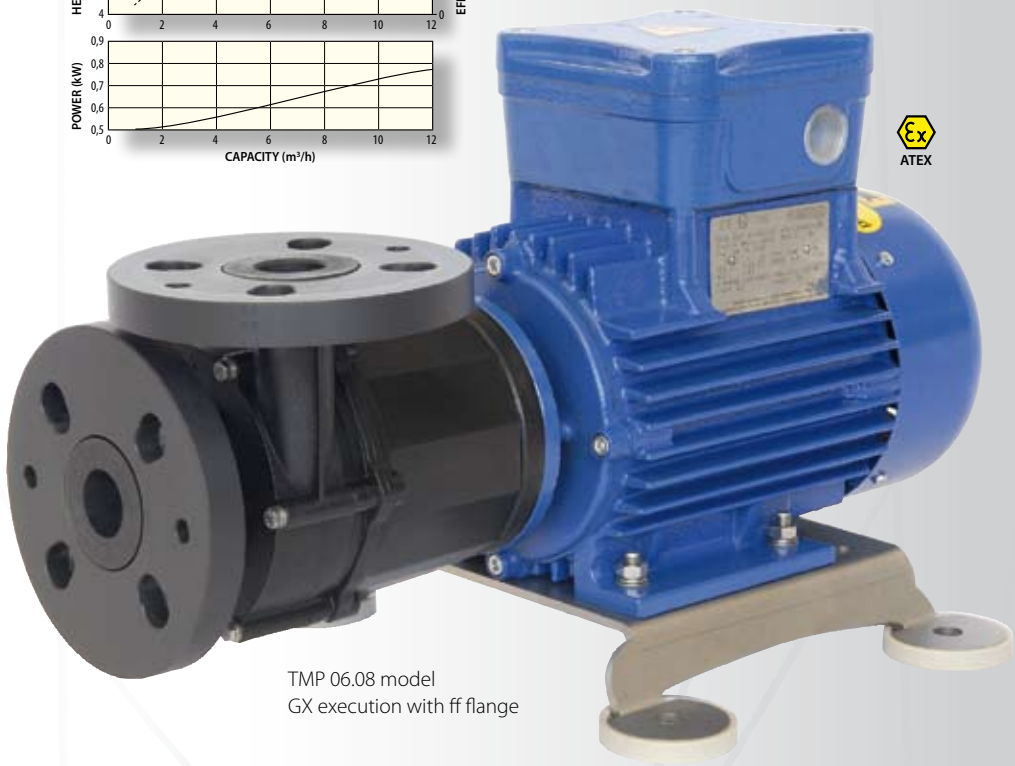


ATEX

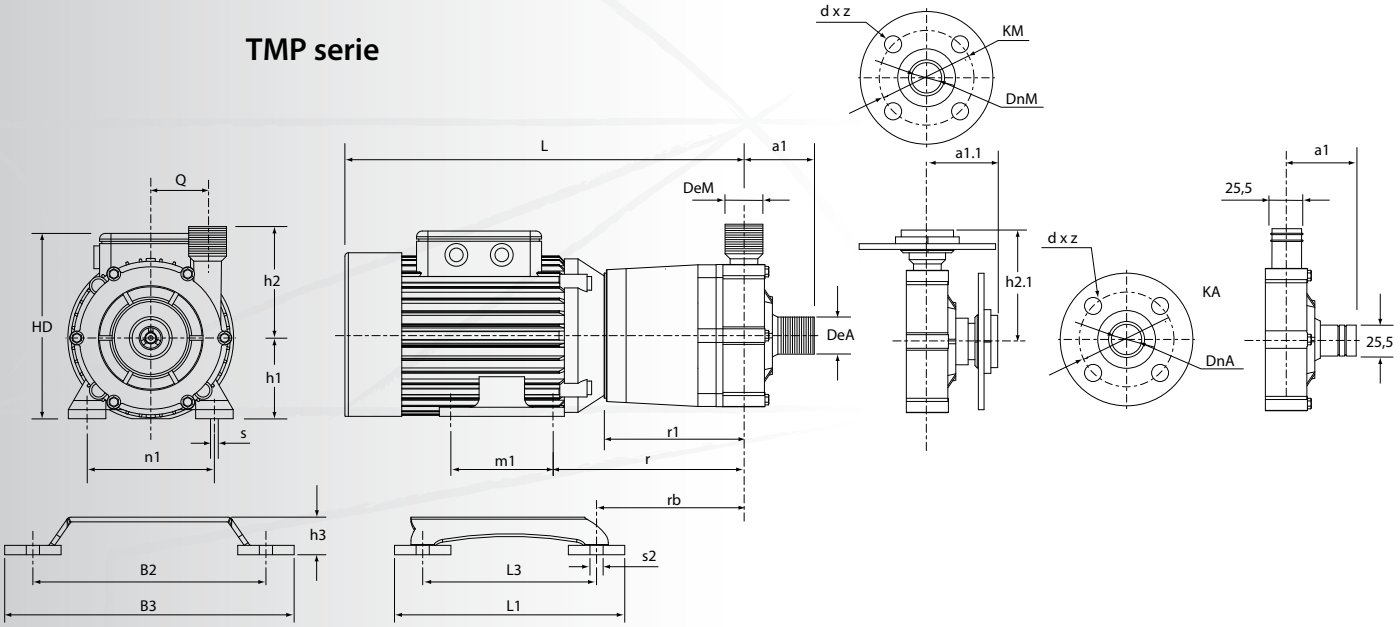


TMP 06.08 model
GX execution with ff flange

Labels in this catalog

GFR/PP	Glass fibre reinforced Polypropylene (30%)	**EPDM**	Etylene-Propylene rubber
CFF/E-CTFE	Etylene-Chloro Trifluoro Ethylene carbon fibre filled (20%)	**BSP - m**	BSP parallel threaded male connect. (according to ISO 7/1)
CARB. H.D.	Carbon hight density	**NPT - m**	Threaded male NPT connections
SiC	Silicon Carbide	**ND**	Nominal diameter
CER	Alumina ceramic at 99,7%	**ISO**	Ref. Flange ISO 2084 - NP10
GFR/PTFE	Glass fibre reinforced PTFE	**ANSI**	Ref. Flange ANSI B 16.5 – Flat Face
FKM	Fluorine elastomer	**IEC**	According to E.C. motors
FFKM	Perfluorelastomer	**NEMA**	Accordind to U.S. motors

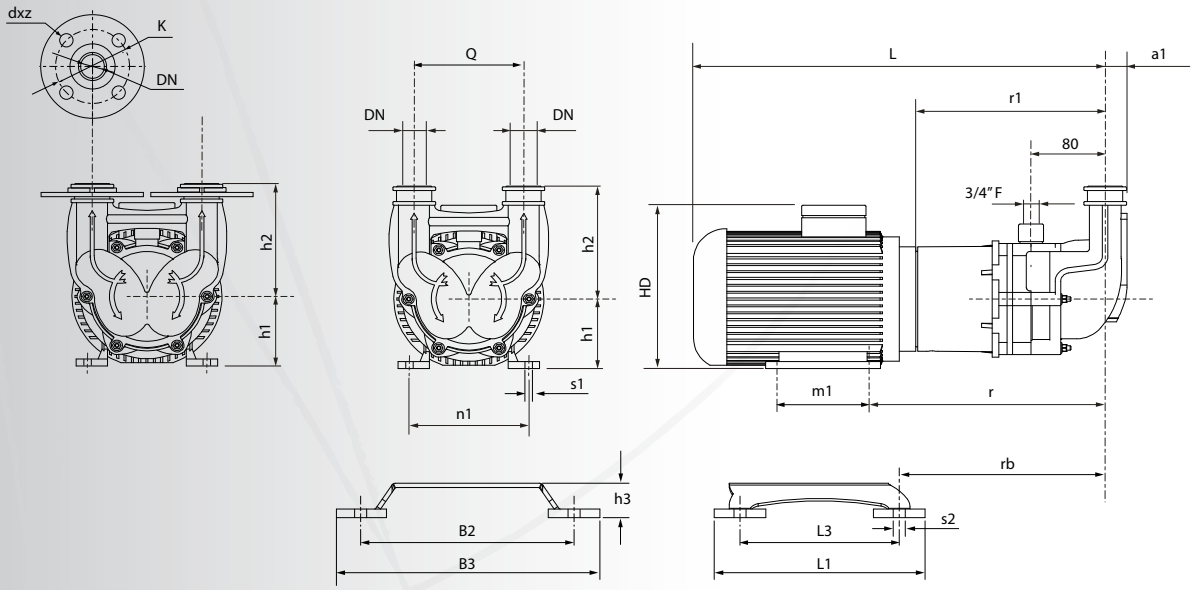
TMP serie



DIMENSIONS WITH IEC MOTORS **table 8**

	TMP 50Hz												TMP 60Hz												TMA 50HZ			TMA 60HZ		
	04.04			04.08			06.08			06.10			05.05			05.11			07.09			07.11			01.16			01.21		
	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
a1	62			62			62			62			62			62			62			62			23,5			23,5		
a1.1	70			70			70			70			70			70			70			70								
Q	47			49			53			53			47			49			53			53			118			118		
h2	100			100			100			100			100			100			100			100			129			129		
h2.1	108			108			108			108			108			108			108			108								
L(*)	330	330	348	330	348	348	348	348	388	348	388	388	330	348	348	348	348	388	348	388	388	388	388		435	450	450	435	450	450
h1	63	63	71	63	71	71	71	71	80	71	80	80	63	71	71	71	71	80	71	80	80	80	80		71	80	80	71	80	80
HD(*)	160	160	177	160	177	177	177	177	190	177	190	190	160	177	177	177	177	190	177	190	190	190	190		177	190	190	177	190	190
m1	80	80	90	80	90	90	90	90	100	90	100	100	80	90	90	90	90	100	90	100	100	100	100		90	100	100	90	100	100
n1	100	100	112	100	112	112	112	112	125	112	125	125	100	112	112	112	112	125	112	125	125	125	125		112	125	125	112	125	125
r1	123	123	123	123	123	123	123	123	133	123	133	133	123	123	123	123	123	133	123	133	133	133	133		205	215	215	205	215	215
r	163	163	168	163	168	168	168	168	183	168	183	183	163	168	168	168	168	183	168	183	183	183	183		250	265	265	250	265	265
rb	135	135	135	135	135	135	135	135	145	135	145	145	135	135	135	135	135	145	135	145	145	145	145		216	282	282	216	282	282
s	7	7	7	7	7	7	7	7	10	7	10	10	7	7	7	7	7	10	7	10	10	10	10		7	10	10	7	10	10
B2			248		248	248	248	248	248	248	248	248		248	248	248	248	248	248	248	248	248	248		248	248	248	248	248	248
B3			308		308	308	308	308	308	308	308	308		308	308	308	308	308	308	308	308	308	308		308	308	308	308	308	308
L1			245		245	245	245	245	245	245	245	245		245	245	245	245	245	245	245	245	245	245		245	245	245	245	245	245
L3			185		185	185	185	185	185	185	185	185		185	185	185	185	185	185	185	185	185	185		185	185	185	185	185	185
h3			40		40	40	40	40	40	40	40	40		40	40	40	40	40	40	40	40	40	40		40	40	40	40	40	40
s2			14		14	14	14	14	14	14	14	14		14	14	14	14	14	14	14	14	14	14		14	14	14	14	14	14

TMA serie



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