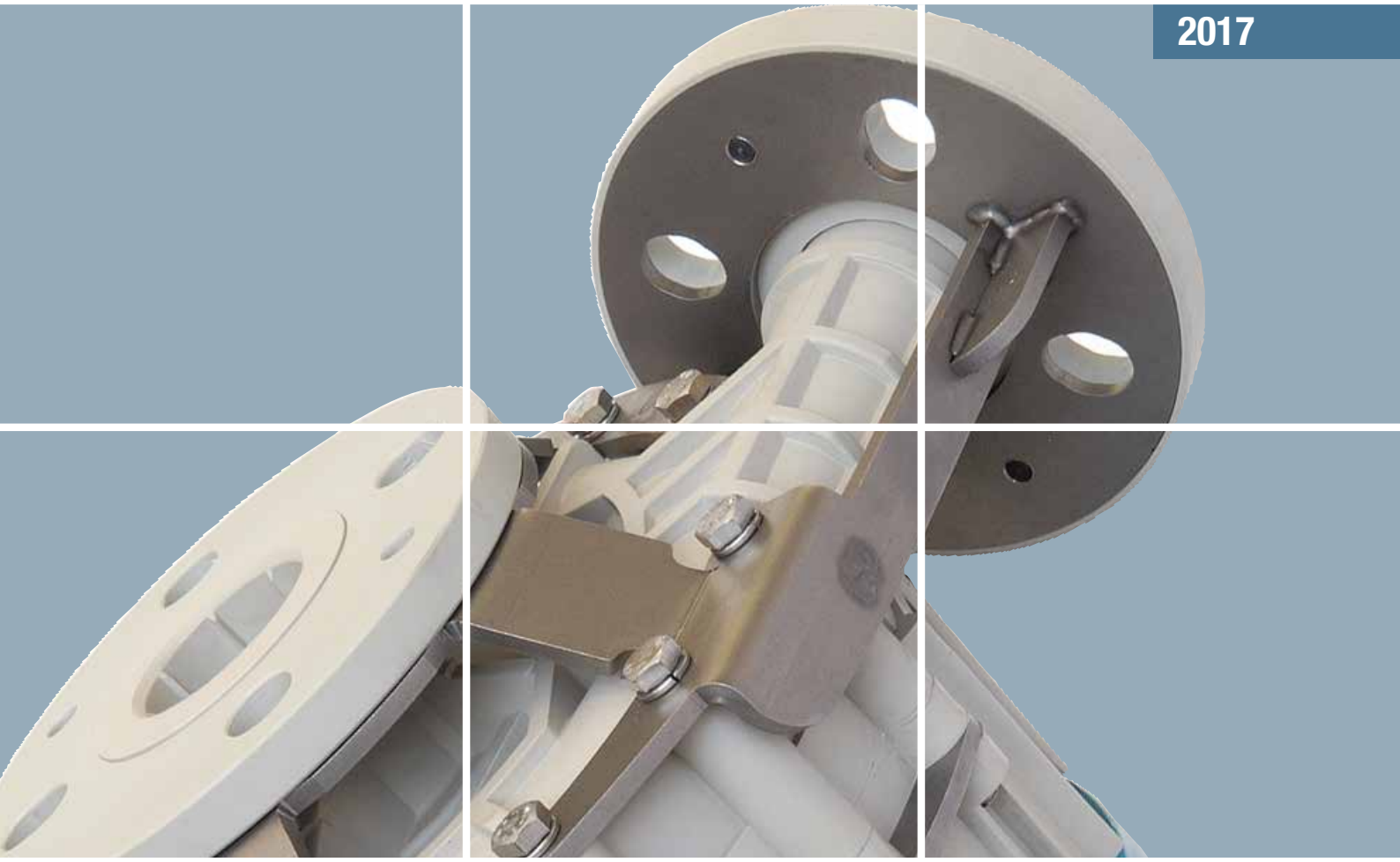
ROUTE

EU product
Made in Italy

2017





PATENTED

CENTRIFUGAL PUMPS

- MAGNETICAL DRIVEN
- MECHANICAL SEALED

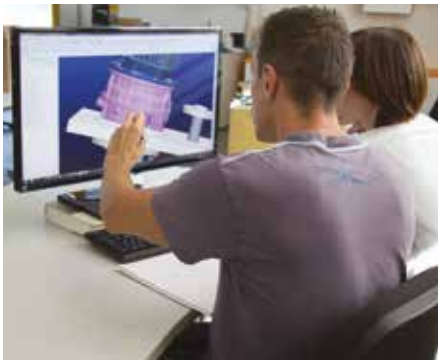
IN THERMOPLASTIC MATERIALS

50-60 Hz

ARGAL ITALY PUMPS

SINCE 1975

EN









QUALITY EXPERIENCE INNOVATION SINCE 1975

ARGAL® boasts forty years of activity in the **invention and production of pumps** made of thermoplastic material, **compounds and corrosion-resistant metal alloys**. During the past decade significant efforts were directed to research and development on the entire production and such an effort resulted in pump ranges completely new or renovated both regarding mechanical and hydraulic systems.

The mission of **ARGAL®** is continuous and constant technological improvement, along the path of innovation instead of emulation.
Our aim is to offer the best technical performance and engineering obtaining the leadership in performance while providing appropriate responses to the needs of market dynamics by realizing a "State-of-the-art quality.

Today the company has a wide range of pumps in various constructions for industrial applications requiring temperatures ranging from -40° C to +120°C, with load capacities up to 1700 m^3/h-head over the 100 m. **ARGAL®** also offers the most complete italian range of AODD pumps (from ¼" to 4") with metallic or plastic solutions to satisfy the most various market demand.

All are **certified ISO 9001:2008 according to Vision ISO 9001:2008 rule**. We strongly want to offer a wide production program with high quality pumps ranges and really competitive prices.





LEGENDA

MATERIALS	MIN TEMPERATURE	MAX TEMPERATURE	ENVIROMENTAL TEMPERATURE
WR PP + Glass	− 5° (°C) + 23° (°F)	+ 80° (°C) + 176° (°F)	− 0° (°C) ÷ + 40° (°C) + 14° (°F) ÷ + 104° (°F)
GF ECTFE + Carbon Fiber	− 20° (°C) − 4° (°F)	+ 100° (°C) + 212° (°F)	− 20° (°C) ÷ + 40° (°C) − 4° (°F) ÷ + 104° (°F)
GX ECTFE + Carbon Fiber (for Atex applications)	− 20° (°C) − 4° (°F)	+ 100° (°C) + 212° (°F)	− 20° (°C) ÷ + 40° (°C) − 4° (°F) ÷ + 104° (°F)

TECHNOLOGY

Sealless

Sealed

CERTIFICATION/WARRANTY

Atex

European Conformity

Eurasian Conformity

12 months

24 months

SERIES

1 = TECHNOLOGY	2 = CONSTRUCTION	3 = RANGE NAME
T Sealless	**M** Close-coupled	**"R"** oute
Z Sealed		

TMR PUMPS

MAGNETICAL DRIVEN

ZMR PUMPS

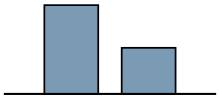
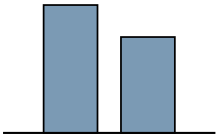
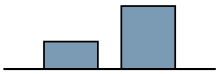
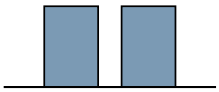
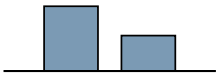
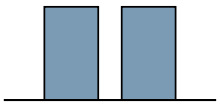
MECHANICAL SEALED

This series of thermoplastic or fluorinated polymers chemical pumps is available in both magnetic drive setting and mechanical seal for pumping various chemical liquids even if laden with impurities and suspended solids.

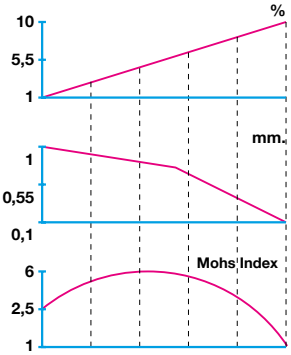
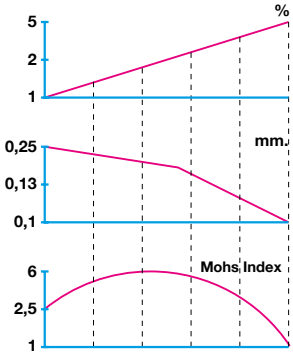
Mainly by the quantity and quality of these, you can choose the setting that better suits you. A patented system for dry running without damage is available for the magnetic drive “R” version.



Mechanical, thermal, and chemical characteristics of the materials

Material charateristics	PP	E-CTFE
Mechanical: Structural (traction) (flexion) Superficial (hardness) (abrasion)		
Thermal: Low temperatures High temperatures		
Chemical: Inorganic compounds Organic compounds		

The rotation transmission model

EVALUATION FEATURES	Mechanical driven pumps Z	Magnetical driven pumps T
Hermetic structure	By mechanical seal	Total
Examination of Solids in suspension General characteristics (to correlate) • Quantity in weight % • Dimensions mm. • Hardness in Mohs		
• Inclination to precipitate (crystallizzation, polymerization)	Applicable	Applicable if the general characteristics are close to the Minimum values
• Sensitivity to the magnetic field	Applicable	Not applicable
Wear parts numbers	2	4+5
Maintenance	Normal	Simple
Viscosity (over 30cSt it is necessary to adjust the impeller dimension and the driving torque)	<250 cSt	<150 cSt

The internal structure of mag driven pumps

EVALUATION FEATURES	TYPE OF INTERNAL STRUCTURE		
	N1 R1 X1	N2 R2	X2
Concentrated acid compounds of fluorine; strong concentrated hot alkaline	Not applicable	Adequate	Applicable
Clean chemical mediums; hot/cold; concentrated/in solution	Adequate	Applicable	Applicable
Exam of suspended solids (to correlate): • Max. Quantity in weigh % • Max. Dimensions mm • Max. Hardness index Mohs	 3 0,5 2	 5 0,5 2	 5 0,5 6
Mediums which are inclined to produce gas when used	Not applicable	Adequate	Applicable
Mediums with air in dispersion	Adequate N1	Adequate N2	Not applicable

Sequence of the values in the appliability scale

–	~	+	++
Not applicable	Unadvised	Applicable	Adequate

The mechanical seals

ELEMENTI DI VALUTAZIONE	EXTERNAL SINGLE			INTERNAL SINGLE		DOUBLE FLUSHED API PLAN 54		
	SF1 - SF2	TS5-TS6	TS7-TS8	BS5-BS6	BS8-BF3*	MSF1 MSF2	MTS5 MTS6	MTS7 MTS8
Concentrated acid compunds of fluorine; strong concentrated hot alkaline	Not Applicable	Not Applicable	Applicable	Not Applicable	Applicable	Not Applicable	Not Applicable	Applicable
Clean chimical mediums; hot/cold; concentrated/in solution	Adequate	Applicable	Applicable	Applicable	Applicable	Adequate	Applicable	Applicable
Mediums which are inclined to produce gas when are used	Adequate	Applicable TS5	Applicable TS7	Applicable BS5	Not Applicable	Adequate	Applicable	Applicable
Exam of suspended solids (to correlate): • Max. Quantity in weight % • Max. Dimensions mm • Max. Hardness index Mohs	 3 0,5 2	 3 0,5 3 TS5 4 TS6	 3 0,5 3 TS7 6 TS8	 6 1,5 3 BS5 4 BS6	 10 2 6	 3 0,5 2	 6 0,5 3 MTS5 4 MTS6	 10 0,5 3 MTS7 4 MTS8
Mediums which are inclined to precipitate	Not Applicable	Applicable TS6	Applicable TS8	Not Applicable	Adequate BF3	Applicable	Adequate MTS6	Adequate MTS8

*Also available with external flushing

Patent video



The magnetic drive pump features the patented “bi-directional axial self-alignment system” which allows running dry for the “R” configuration.

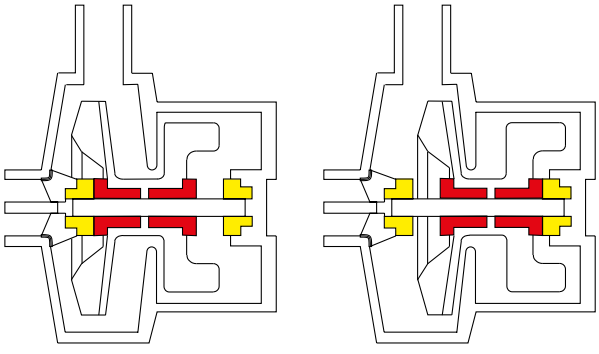
The combination of adequate materials of the driving system of the impeller with a specific magnetic field wholly eliminates all frontal frictions that are the cause of breakage when dry running. It is possible to couple standard motors without disassembling the pump.

PATENTED SYSTEM: THE PRINCIPLE OF TWO AXIAL DIRECTIONS SELF-ALIGNMENT SYSTEM

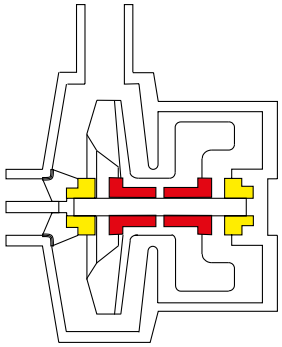
The impeller subjected to different hydraulic load is free to move axially.

Two rings which are limit devices of its excursion fix the work-space it engages during the standard operation. In case of anomalies due to pressure loss as dry running, the extra magnetic field (always active) contrasting the axial pushes, calls back the impeller in the neutral position.

This distinctive automatism precisely prevents the contact with the rings (limiting devices) and consequently avoids frictions and heat increase. The shape of the magnets and the orientation of the fields are the keys that show the desired action.

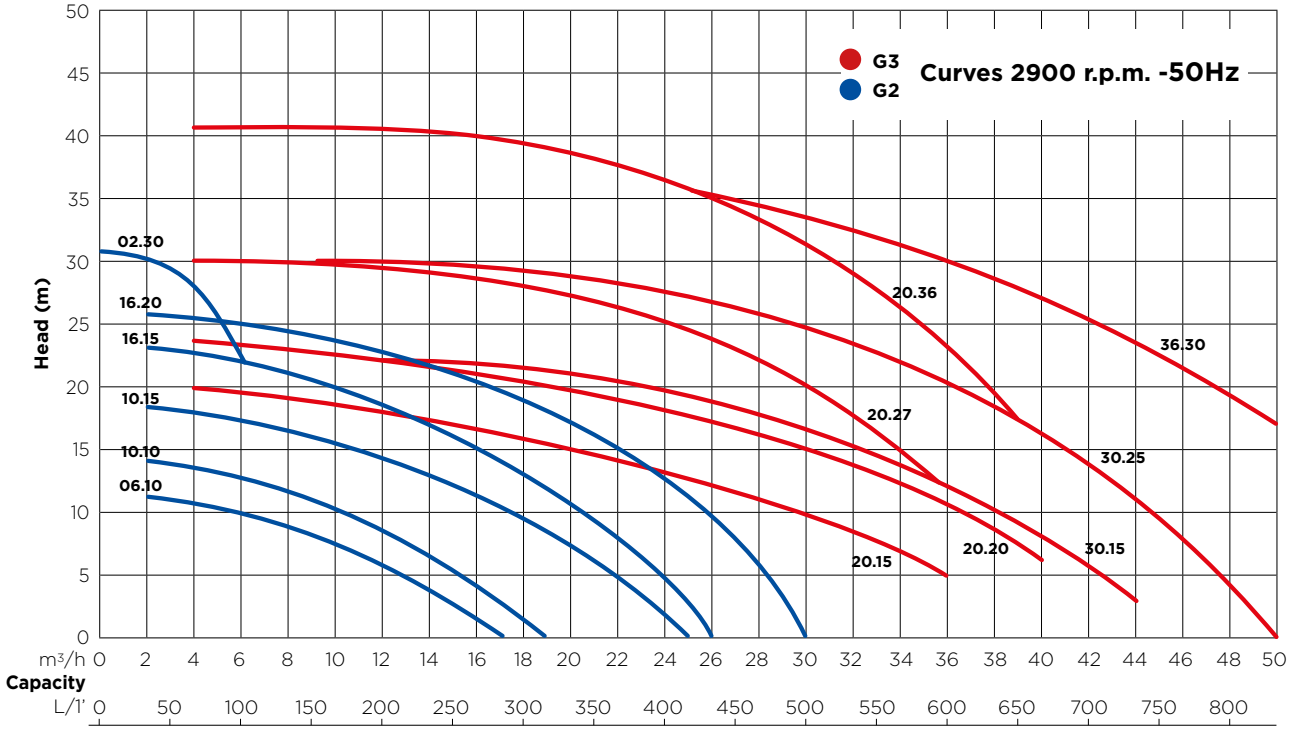


Front and back side positions under hydraulic loads in different working conditions

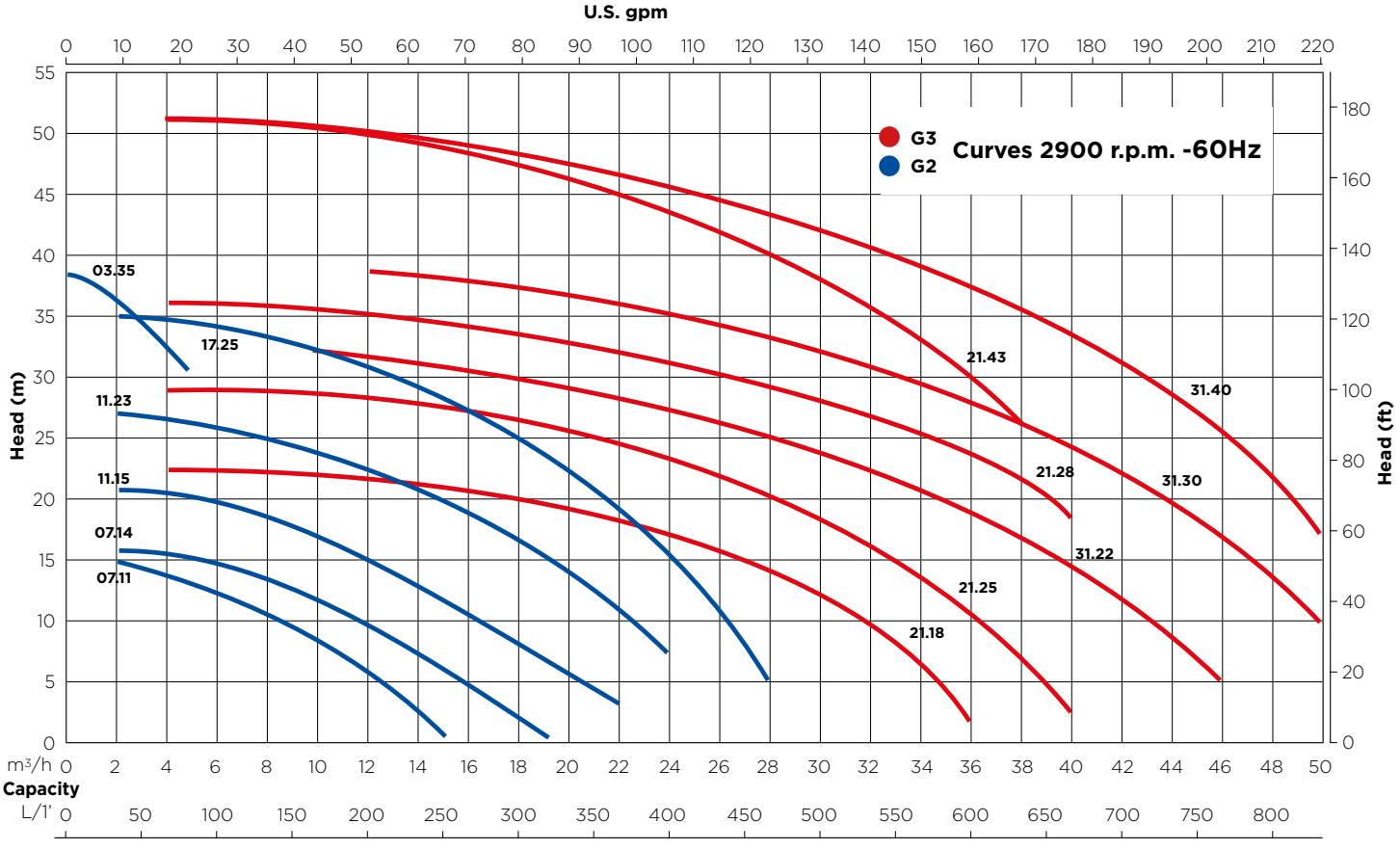


Central position is running dry condition thanks to the additional magnetic field.

GENERAL CURVES 50 HZ • 60 HZ



NOTES: All curves are referred to: water at 20°C - viscosity 1 °E - specific gravity 1 kg/dm³



NOTES: All curves are referred to: water at 20°C - viscosity 1 °E - specific gravity 1 kg/dm³

ROUTE TMR





1. Volute casing
2. Centrifugal impeller (covered type)
3. Centrifugal impeller (magnetic part)
4. Central disk
5. Rear casing
6. OR gasket
7. Drive magnetic assembly
8. Bracket
9. Motor adapter
10. R2 guide system (G2 size)
11. X1 guide system (G3 size)

ROUTE ZMR



1 **Volute casing**

2 **Centrifugal impeller (open type)**

3 **Ogive**

4 **Rear casing**

5 **Daphragm**

6 **Internal mechanical seal**

7 **Shaft**

8 **Dividing plate**

9 **Bracket**

10 **Motor adapter**

PREPARATIONS OF G2 SIZE



Flanged version with guard plate	Std flanged version	Std threaded version	Threaded version with guard plate

HERMETIC PUMPS

The magnetically driven pumps are defined “hermetic” because of the exclusion of any rotating component of the seal. The only necessity of it, between the volute casing and the back casing, is guaranteed from a static gasket: O-ring type.

FOR ALL CHEMICALS

You can practically pump all chemicals at low and medium temperatures with the bodies made of GFR-PP (Glass fiber reinforced Polypropylene) or CFF-E-CTFE (Ethylene- Chloro-Trifluoro-Ethylene carbon fiber filled).

- **Loaded fluids, lightly abrasive**

The different internal configurations of the materials allow to pump both clean fluids and mediums with solids in suspensions or moderately abrasive

- **Heavy fluids**

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.

DRY RUNNING OPERATION

Running-dry conditions with guide bushings in Carbon HD is guaranteed without damages thanks to the “two axial directions self-alignment” system (optional and with models 20.36 - 36.30 excluded).
The conformation of the industrial plant, as well as the fluid presence or absence in the pump body and its nature, affect the length of the running dry phase without damages or abnormal wear.
All these details are listed in our manual user.

POSSIBLE ROTATION OF VOLUTE CASING

Various shifts of the volute casing can be obtained thanks to rotation. The joint of the outlet connection of the pump with the tube of the plant is made easier.

CENTRIFUGAL IMPELLER PROPERLY BALANCED

Thanks to particular hydraulic and structural changes, the impeller is balanced to reduce the assistance for maintenance. The separability of the blade part from the one containing all magnets with driving and axial control, a significant amount of money is saved in case of impeller sub-stitution (only G3 size).

VARIOUS TYPOLOGIES OF CONNECTIONS

Connections with BSP cylindrical thread or NPT; flanges ISO, ANSI, JIS.

INDEPENDENT MOTOR APPLICATION

The motor can be installed and removed easily without dismantling or opening the volute casing. Standard motors are IEC or NEMA.

VOLUTE CASING DRAINING

Draining connection is arranged, and it is available upon request.

GUARD PLATE

A stainless steel guard plate is designed and fitted to all models to protect the front casing from accidental mechanical shocks of various nature (e.g.: starts up with vacuum in inlet piping with possible tubing excursions due to elastic brackets or thermal elongation). The guard plate is optional for the G3 size of pumps.

BASE AVAILABILITY

The base for anchorage of the pump is in stainless steel with ground terminals in chemical-resistant thermoplastic materials. It is supplied upon request.



THE MATERIALS

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*	CFF/E-CTFE	-20°C (-4°F)	100°C (212°F)	-20÷40°C (-4÷104°F)

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

THE CONSTRUCTIONS

TMR (G2-G3 sizes)	WR	GF	GX*
Volute casing	GFR/PP	CFF/E-CTFE	CFF/E-CTFE
Rear casing			
Centrifugal impeller			
OR gasket	FKM (1)	FKM (1); (2)	FKM (1); (2)

A richiesta: (1) EPDM and (2) FFPM - * Compliant to ATEX 94/9/EC

GUIDE SYSTEMS

	WR			GF			GX	
TMR (G2-G3 sizes)	**R1**	**X1**	**N1**	**R2**	**X2**	**N2**	**R2**	**N2**
Guide bushing	Carbon HD	SiC	GFR/PTFE	Carbon HD	SiC	GFR/PTFE	Carbon HD	GFR/PTFE
Thrust bush	CER			SiC			SiC	
Shaft	CER			SiC			SiC	

VARIOUS TYPES OF MECHANICAL SEALS FOR ALL CHEMICALS

Different types of mechanical seals are available, single lubricated by pumped liquid or with flushing systems with liquid from the outside. Thanks to bodies in GFR-PP (glass fibre-reinforced polypropylene) or in CFF-E-CTFE (Ethylene-Chloro-Trifluoro-Ethylene-Carbon fiber filled) all chemicals at low and medium temperatures can be pumped. The different combinations of materials of the sliding counterface of the mechanical seal allow pumping liquids with solids in suspensions or abrasive. Various electrical powers are available in the “N” (standard) “P” (powered) or “S” (strong-powered) versions. They allow to pump, also at maximum flow, liquids with 1,05 – 1,35 – 1,8 specific gravity respectively.

POSSIBLE ROTATION OF VOLUTE CASING

Various shifts of the volute casing can be obtained thanks to a rotating basis. The joint of the outlet connection of the pump with the tube of the plant is made easier.

VARIOUS TYPOLOGIES OF CONNECTIONS

Connections with BSP cylindrical thread or NPT; flanges ISO, ANSI, JIS.

ELECTRICAL MOTORS

IEC or NEMA standard motors can be installed

GUARD PLATE

A stainless steel guard plate is designed and fitted to all models to protect the front casing from accidental mechanical shocks of various nature (e.g.: starts up with vacuum in inlet piping with possible tubing excursions due to elastic brackets or thermal elongation). The guard plate is optional for the G2 size of pumps.

Base and volute casing draining are available upon request.



Mechanical sealed
Route ZMR G2 size pump
in E-CTFE reinforced material (GF)

Mechanical sealed
Route ZMR G3 size pump
in PP reinforced material (WR)

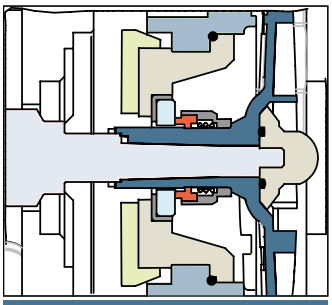
THE CONSTRUCTIONS OF MECHANICAL

CONSTRUCTION	MODEL	ROTATING PART	FIXED RING	BELLOW	2nd ROTATING PART	2nd FIXED RING	WORKING CONDITIONS
INTERNAL SINGLE	BS5	CARBON	CER	FKM			LOW COST (easy maintenance)
	BS7		SiC				
	BS6	SiC	CER				LOW COST HARD PARTICLES (easy maintenance)
	BS8-BF3**		SiC				HARD PARTICLES
EXTERNAL SINGLE	SF1	GFR/PTFE	CER	PTFE			NORMAL USE
	SF2		SiC				
	TS5	CARBON	CER	FKM			
	TS7		SiC				
	TS6	SiC	CER				HARD PARTICLES
	TS8		SiC				
DOUBLE	MSF1	GFR/PTFE	CER	PTFE	CARBON	CER	CRITICAL
	MSF2		SiC				
	MTS5	CARBON	CER	FKM			
	MTS7		SIC				
	MTS6	SiC	CER				EXTREME
	MTS8		SiC				

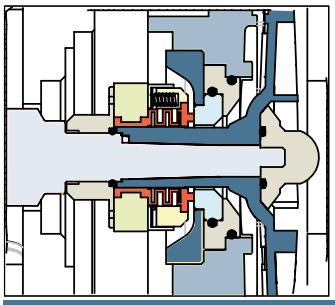
(**) Only for ZMR G3 size

SECTIONS OF VARIOUS KIND OF MECHANICAL SEALS

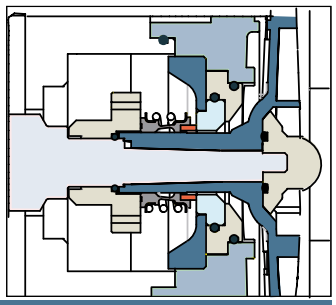
BS5 - BS6 - BS7 - BS8



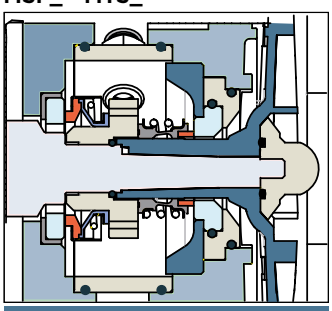
SF1 - SF2



TS5 - TS6 - TS7 - TS8



MSF_ - MTS_



INTERNAL SINGLE | EXTERNAL SINGLE | DOUBLE

PUMP SPECIFICATIONS (G2 - G3 sizes)

TMR - ZMR	50Hz	All models (G2 size)	All models (G3 size)
ø Inlet	BSP	1 1/2"	2"
ø Outlet	BSP	1 1/4"	1 1/2"
ø Inlet	NPT	1 1/2"	2"
ø Outlet	NPT	1 1/4"	1 1/2"
ISO flange	DNA (mm)	40	50
	DNM (mm)	32 (40*)	40
ANSI flange	DNA (Inch)	1 1/2"	2"
	DNM (Inch)	1 1/4" (1 1/2"*)	1 1/2"
JIS flange	DNA (Inch)	1 1/2"	2"
	DNM (Inch)	1 1/4" (1 1/2"*)	1 1/2"

(*) Available on request

MOTOR SPECIFICATIONS (G2 size)

		06.10			10.10			10.15			16.15			16.20			02.30		
		N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
Power (IEC) 50 Hz	kW	0,55	0,75	1,1	0,75	1,1	1,5	1,1	1,5	2,2	1,5	2,2	3	2,2	3	4*	2,2	3	4*
Motor size	IEC	71	80A	80B	80A	80B	90S	80B	90S	90L	90S	90L	100	90L	100	112	90L	100	112
Phases	N.	3phase (all models) - 1phase (< 3 kW)																	
Std. voltage (IEC)	V	400 ± 5% 50Hz - 220 ± 5% 50Hz																	
Motor protection	IP	55																	

(*) ZMR only

WEIGHT (G2 size)

Pump weight (without motor)			MOTOR WEIGHT													
WR	GF	GX	Versions	IEC 3phase							IEC 3phase E-exd					
4	5		Frame	71	80A	80B	90S	90L	100	112*	71	80A	80B	90S	90L	100	112*
			Kg	7	8	10	13	17	22	31	15	20	20	30	31	41	65

(*) ZMR only

"BSP" outlet cylindrical threaded connection



Detail of outlet flanged connection directly to the plant flange

MOTOR SPECIFICATIONS (G3 size)

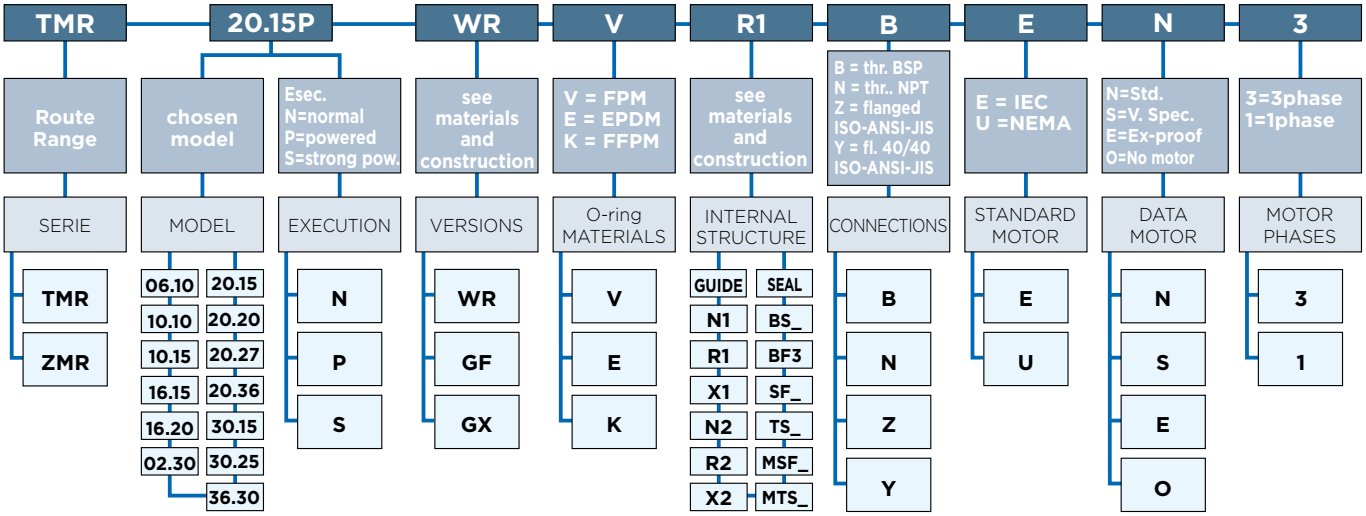
		20.15			20.20			20.27			20.36			30.15			30.25			36.30		
		N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
Power (IEC) 50 Hz	kW	2,2	3	4	3	4	5,5	4	5,5	7,5	5,5	7,5	11	4	5,5	7,5	5,5	7,5	11	7,5	11	15*
Motor size	IEC	90L	100L	112M	100L	112M	132SA	112M	132SA	132SB	132SA	132SB	160MA	112M	132SA	132SB	132SA	132SB	160MA	132SB	160MA	160MB
Phases	N.	3phase																				
Std. voltage (IEC)	V	400 ± 5% 50Hz																				
Motor protection	IP	55																				

(*) ZMR only

WEIGHT (G3 size)

Pump weight (without motor)			MOTOR WEIGHT													
WR	GF	GX	Versions	IEC 3phase							IEC 3phase E-exd					
12 (TMR) 8 (ZMR)	13 (TMR) 9 (ZMR)		Frame	90L	100L	112M	132SA	132SB	160MA	160MB	90L	100L	112M	132SA	132SB	160MA	160MB
			Kg	17	22	31	53	61	75	85	31	41	65	80	80	155	155

PUMP IDENTIFICATION LABEL



View of stainless steel reinforced flat-face flange connections

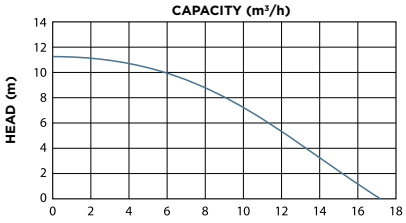


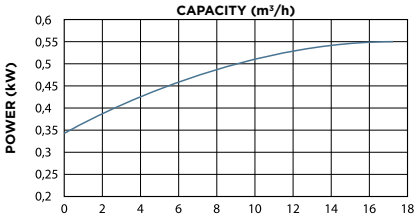
50 HZ

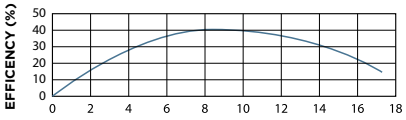
G2 Curves

ROUTE TMR • ZMR

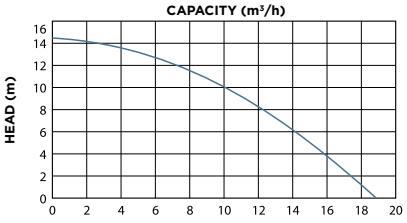
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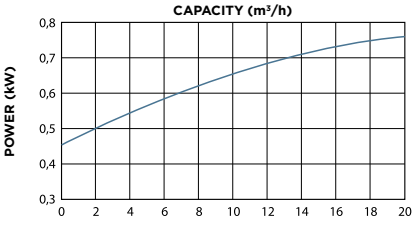


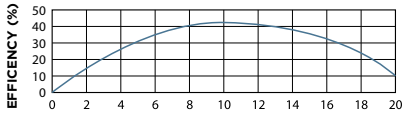




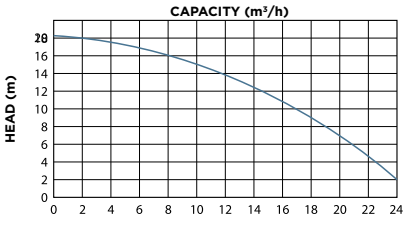
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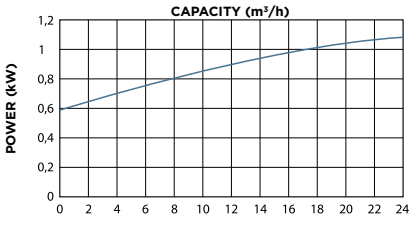


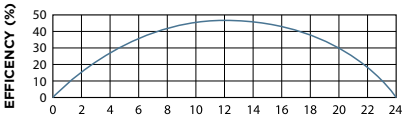




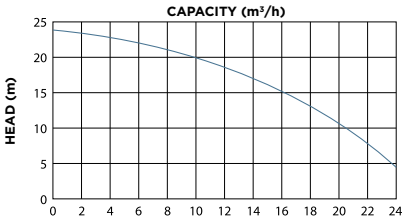
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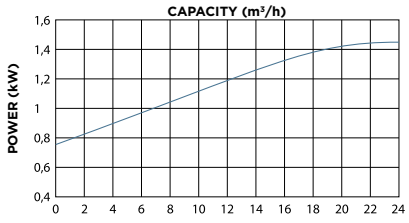


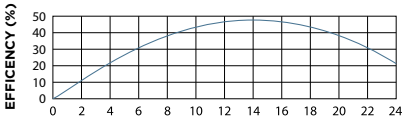




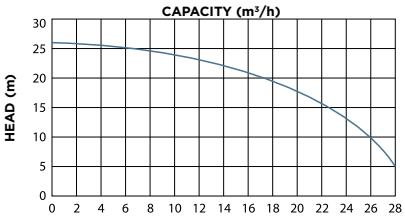
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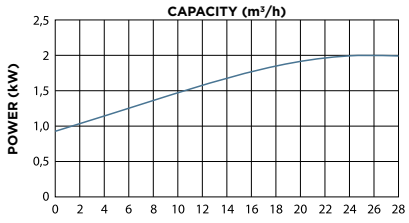


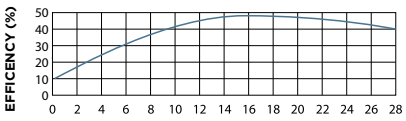




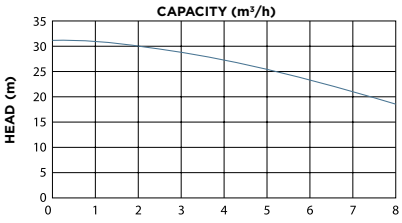
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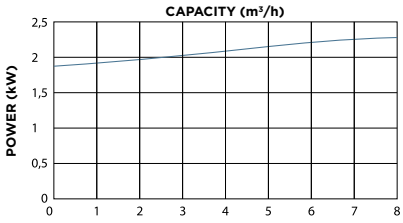


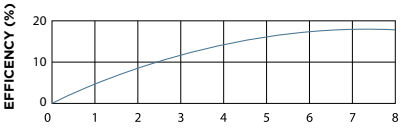




2.30





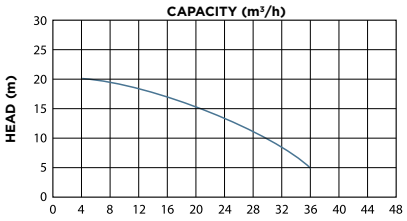


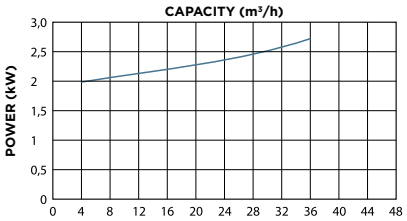


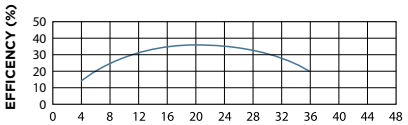
In the magnetical execution
the motor is easily installed
without disassembling the wet-end.

G3 Curves

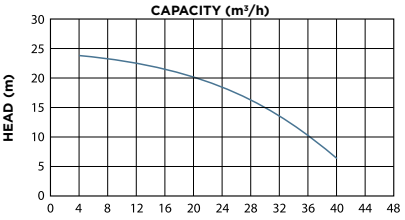
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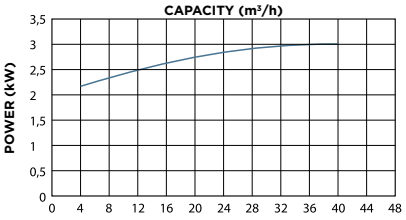


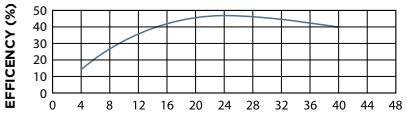




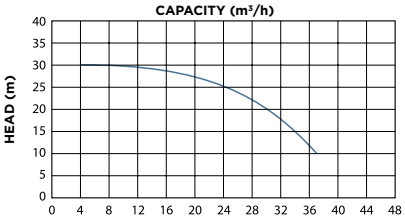
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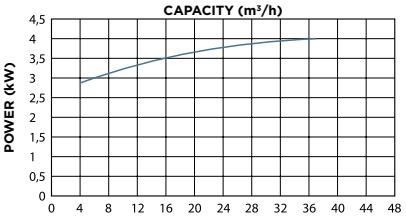


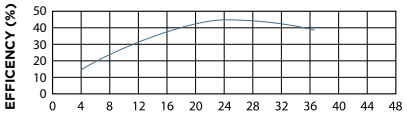




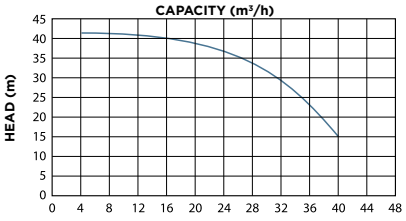
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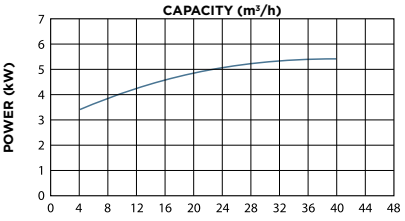


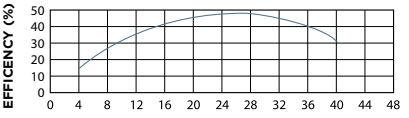




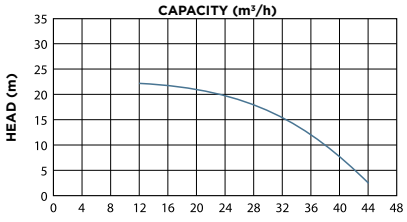
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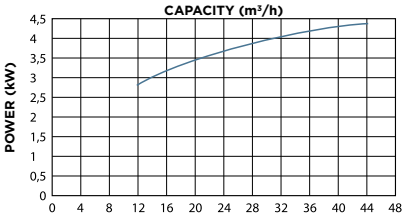


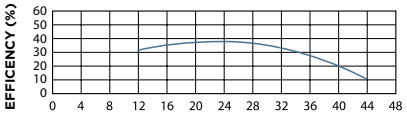




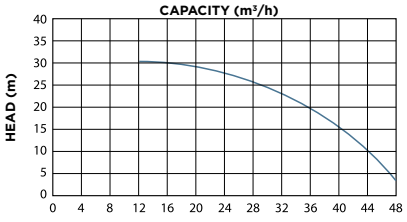
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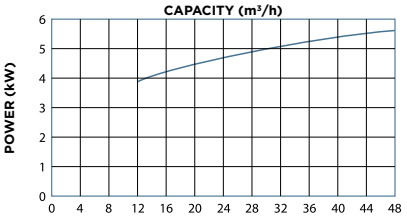


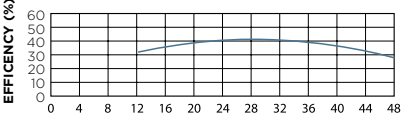




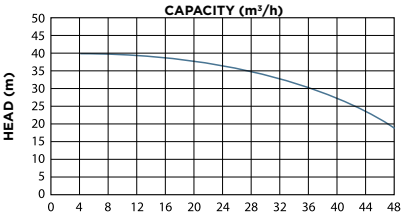
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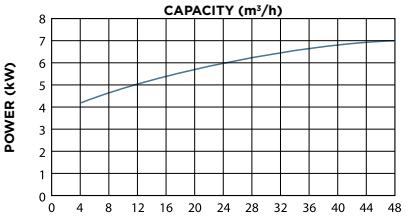


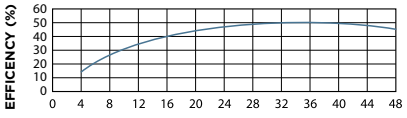




36.30

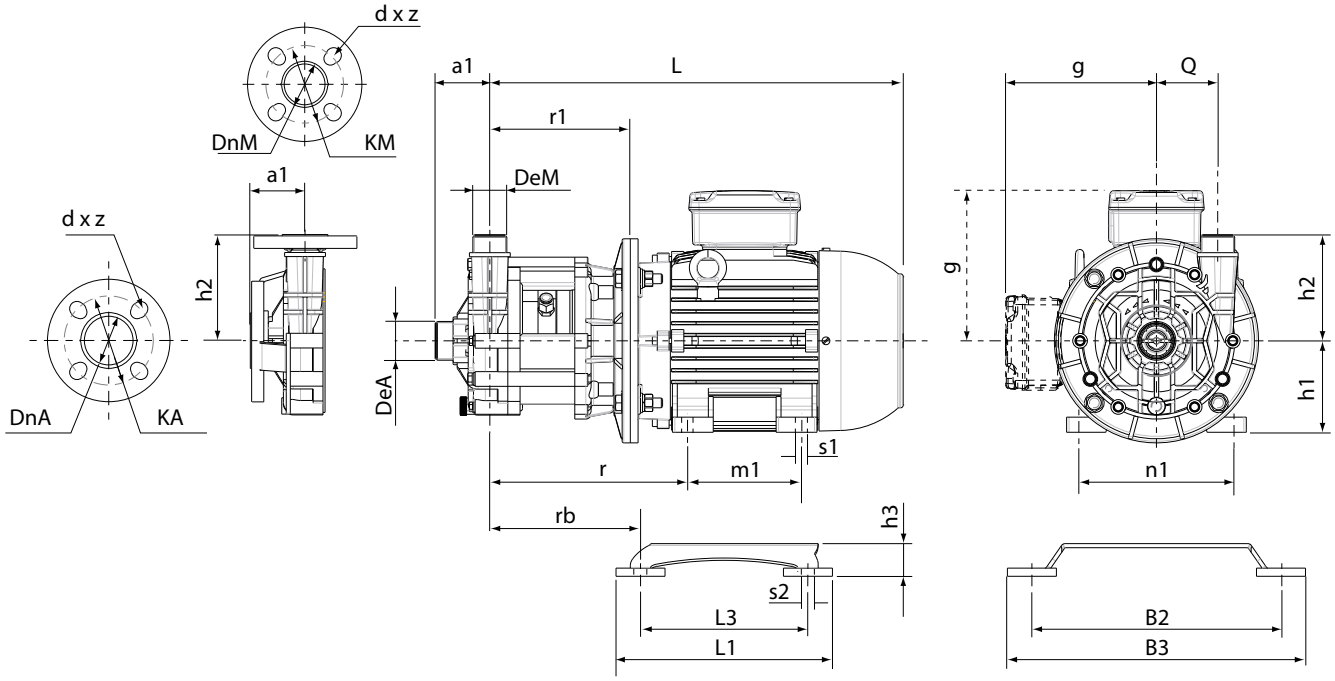






size	model		IEC frame	DnA	DnM	DeA	DeM	KA iso / ansi / jis	KM iso / ansi / jis	d x z iso / ansi / jis	a1	L(1)		Q	h1	h2	r		r1		rb		m1	n1	s1	g(1)	L3	B2	S2	L1	B3	h3
												TMR	ZMR				TMR	ZMR	TMR	ZMR	TMR	ZMR											
G2	06.10	N	71	40 - 1" ½	32 - 1" ¼	1" ½	1" ¼	110 / 98 / 105	100 / 89 / 100	18 x 4 / 16 x 4 / 19 x 4	67	356	364	75	71	130	194	202	149	157	161	169	90	112	7	106	185	248	14	245	308	40
		P	80A									385	393		80		199	207					100	125	8	110						
		S	80B																													
	10.10	N	80A																													
		P	80B																													
		S	90S									405	413		90		205	213						140		142						
	10.15	N	80B									385	393		80		199	207						125		110						
		P	90S									405	413		90		205	213						140		142						
		S	90L									430	438										125									
	16.15	N	90S									405	413										100									
		P	90L									430	438										125									
		S	100									478	486		100		227	235	164	172	176	184	140	160	10	155	205	305		259	359	
	16.20 - 02.30*	N	90L									430	438		90		205	213	149	157	161	169	125	140	8	142	185	248		245	308	
		P	100									478	486		100		227	235	164	172	176	184	140	160	10	155	205	305		259	359	
		S	112(2)									487	495		112		234	242						190		168						

(*) 02.30 close impeller in all ranges - (2) ZMR only



size	model		IEC frame	DnA	DnM	DeA	DeM	KA iso / ansi / jis	KM iso / ansi / jis	d x z iso / ansi / jis	a1	L(1)		Q	h1	h2	r		r1		rb		m1	n1	s1	g(1)	L3	B2	S2	L1	B3	h3
												TMR	ZMR				TMR	ZMR	TMR	ZMR	TMR	ZMR										
G3	20.15	N	90L	50 - 2"	40 - 1" ½	2"	1" ½	125 / 121 / 120	110 / 98 / 105	18 x 4 / 16 - 19 x 4 / 19 x 4	70	469	515	96	90	160	244	290	188	234	200	246	125	140	8	142	185	248	14	245	308	55
		P	100L									512	558		100		261	307	198	244	217	256	140	160	10	155	205	305		265	365	
		S	112M									521	567		112		268	314						190		168						
	20.20	N	100L									512	558		100		261	307						160		155						
		P	112M									521	567		112		268	314						190		168						
		S	132SA									578	624		132		307	353	218	264	235	282		216		181	263	359		333	429	
	20.27	N	112M									521	567		112		268	314	198	244	217	256		190		168	205	305		265	365	
		P	132SA									578	624		132		307	353	218	264	235	282		216		181	263	359		333	429	
		S	132SB																													
	20.36	N	132SA																													
		P	132SB																													
		S	160MA									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
	30.15	N	112M									521	567		112		268	314	198	244	217	256	140	190	10	168	205	305		265	365	
		P	132SA									578	624		132		307	343	218	264	235	282		216		181	263	359		333	429	
		S	132SB																													
	30.25	N	132SA																													
		P	132SB																													
		S	160MA									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
	36.30	N	132SB									578	624		132		307	353	218	264	235	282	140	216	10	181	263	359		333	429	
		P	160MA									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
		S	160MB(2)																													

(1) can change for motors of different brands - (2) ZMR only



Magnetic driven pump G3 size
in reinforced polypropylene (WR).

PUMP SPECIFICATIONS (G2 - G3 sizes)

TMR - ZMR	60Hz	All models (G2 size)	All models (G3 size)
ø Inlet	BSP	1 1/2"	2"
ø Outlet	BSP	1 1/4"	1 1/2"
ø Inlet	NPT	1 1/2"	2"
ø Outlet	NPT	1 1/4"	1 1/2"
ISO flange	DNA (mm)	40	50
	DNM (mm)	32 (40*)	40
ANSI flange	DNA (Inch)	1 1/2"	2"
	DNM (Inch)	1 1/4" (1 1/2"*)	1 1/2"
JIS flange	DNA (Inch)	1 1/2"	2"
	DNM (Inch)	1 1/4" (1 1/2"*)	1 1/2"

(*) Available on request

MOTOR SPECIFICATIONS (G2 size)

		07.11			07.14			11.15			11.23			17.25			03.35		
		N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
Power (IEC) 60 Hz	kW	0,75	1,1	1,5	1,1	1,5	2,2	1,5	2,2	3	2,2	3		4			4		
Motor size	IEC	80A	80B	90S	80B	90S	90L	90S	90L	100	90L	100		112			112		
Power (NEMA)	HP	1	1,5	2	1,5	2	3	2	3	5	3	5		5			5		
Motor size	NEMA	56C	56C	145TC	143TC	145TC	182TC	145TC	182TC	184TC	182TC	184TC		184TC			184TC		
Phases	N.	3phase (all models) - 1phase (< 3 kW)																	
Std. voltage (IEC)	V	460 ± 10% 60Hz - 230 ± 5% 10% 60Hz																	
Motor protection	IP	55																	

WEIGHT (G2 size)

Pump weight (without motor)			MOTOR WEIGHT											
WR	GF	GX	Versions	IEC 3phase						IEC 3phase E-exd					
4	5		Frame	80A	80B	90S	90L	100	112*	80A	80B	90S	90L	100	112*
			Kg	8	10	13	17	22	31	20	20	30	31	41	65

(*) ZMR only

MOTOR SPECIFICATIONS (G3 size)

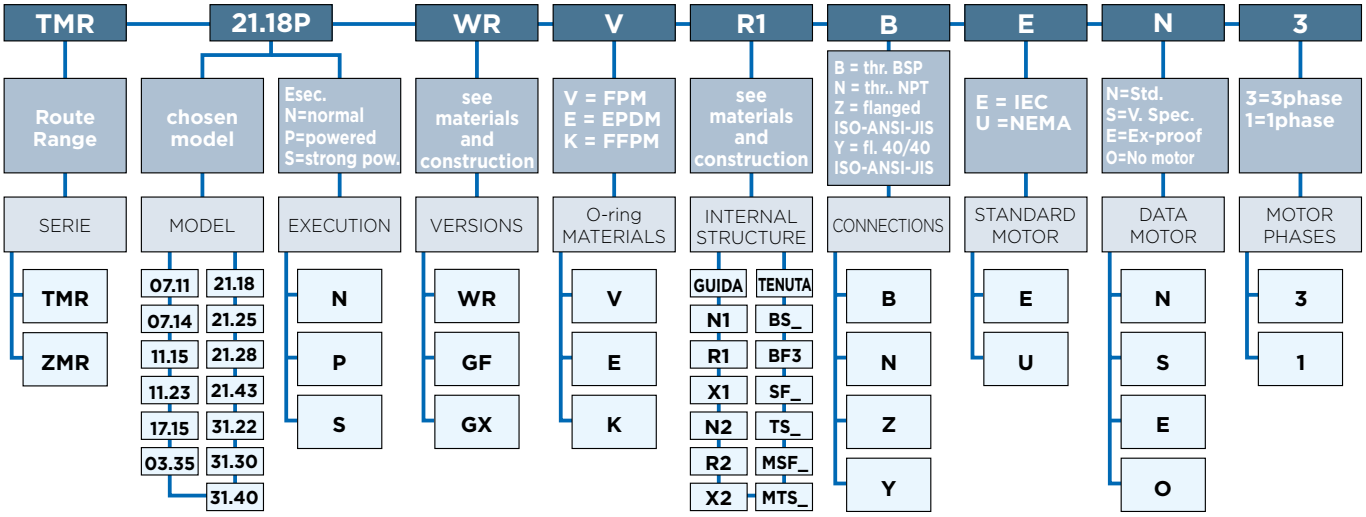
		21.18			21.25			21.28			21.43			31.22			31.30			31.40		
		N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S	N	P	S
Power (IEC) 60 Hz	kW	3	4	5,5	4	5,5	7,5	5,5	7,5	11	7,5	11	15*	5,5	7,5	11	7,5	11	15*	11	15*	
Motor size	IEC	100L	112M	132SA	112M	132SA	132SB	132SA	132SB	160MA	132SB	160MA	160MB	132SA	132SB	160MA	132SB	160MA	160MB	160MA	160MB	
Power (NEMA)	HP	5	5	7,5	5	7,5	10	7,5	10	15	10	15	20*	7,5	10	15	10	15	20*	15	20*	
Phases	N.	3phase																				
Std. voltage (IEC)	V	460 ± 10% 60Hz																				
Motor protection	IP	55																				

(*) ZMR only

WEIGHT (G3 size)

Pump weight (without motor)			MOTOR WEIGHT											
WR	GF	GX	Versions	IEC 3phase						IEC 3phase E-exd					
12 (TMR) 8 (ZMR)	13 (TMR) 9 (ZMR)		Frame	100L	112M	132SA	132SB	160MA	160MB	100L	112M	132SA	132SB	160MA	160MB
			Kg	22	31	53	61	75	85	41	65	80	80	155	155

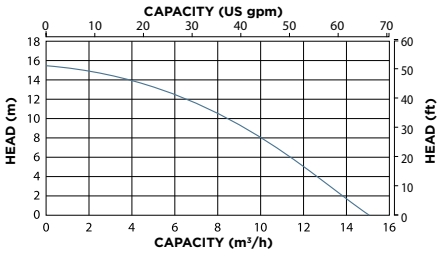
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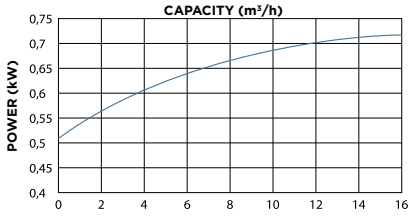


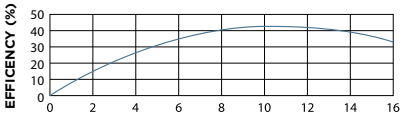
60 HZ

G2 Curves

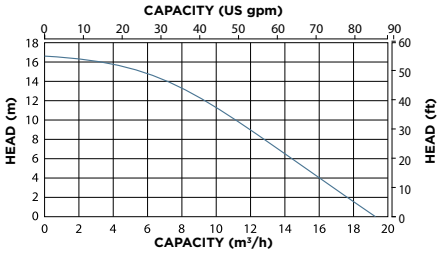
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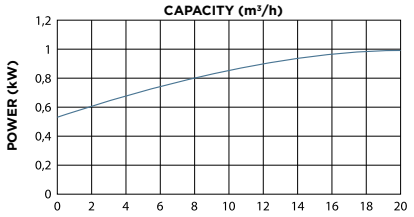


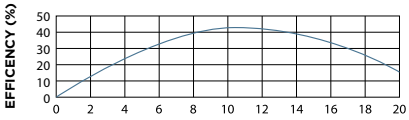




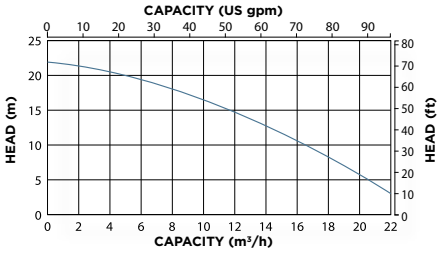
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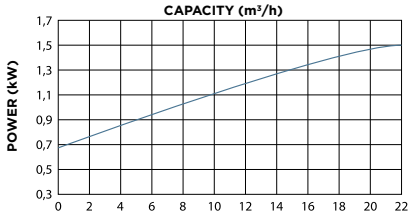


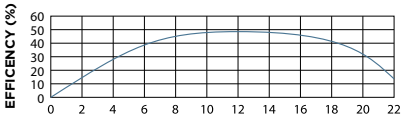




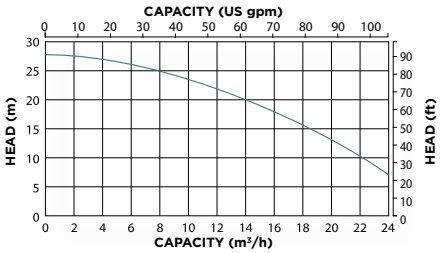
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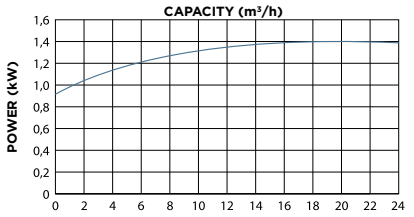


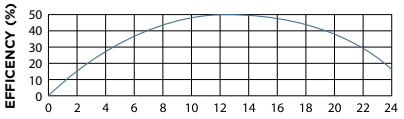




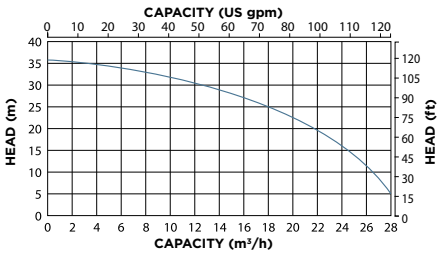
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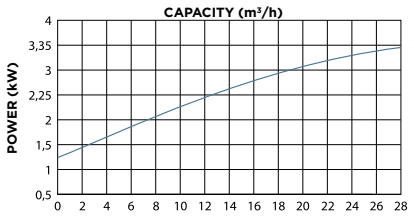


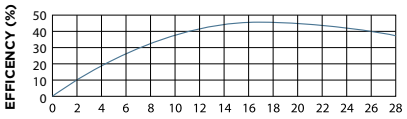




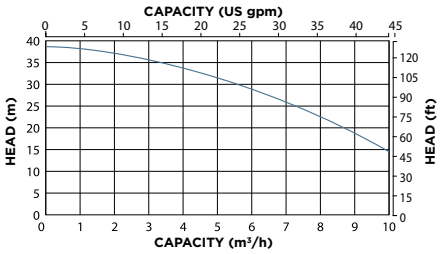
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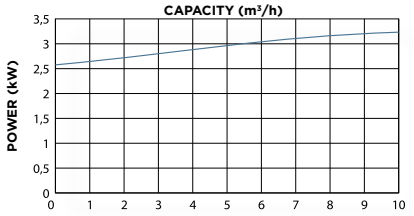


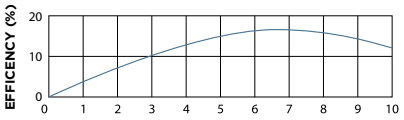




03.35

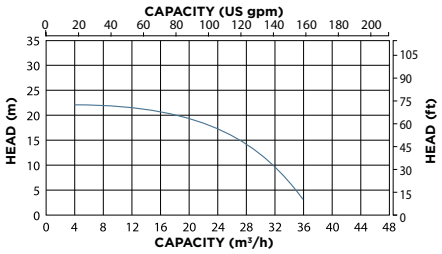


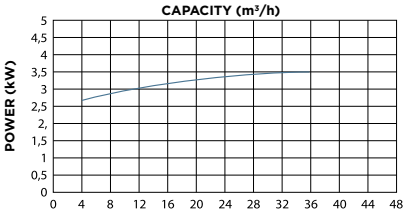


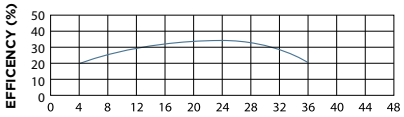


G3 Curves

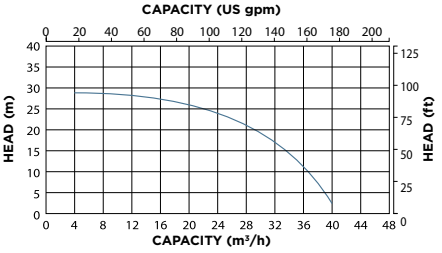
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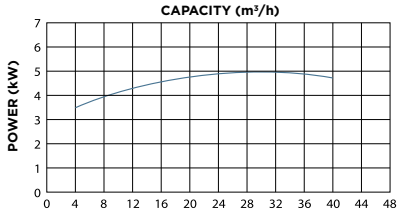


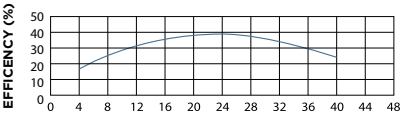




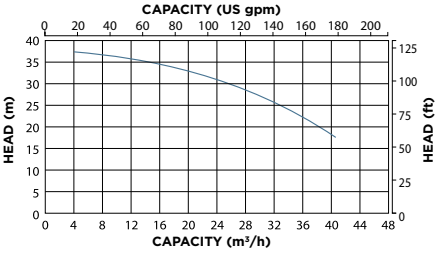
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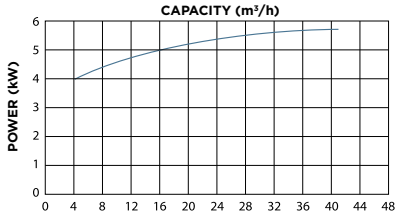


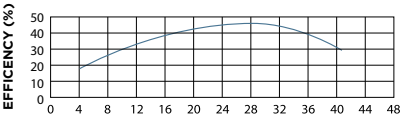




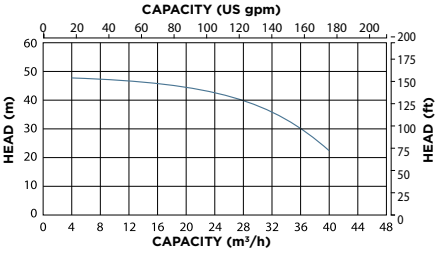
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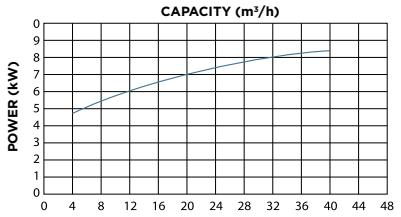


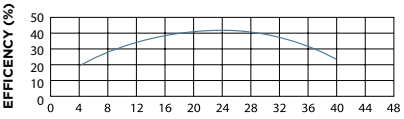




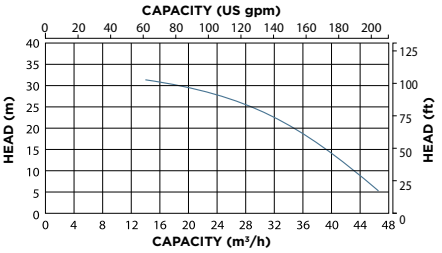
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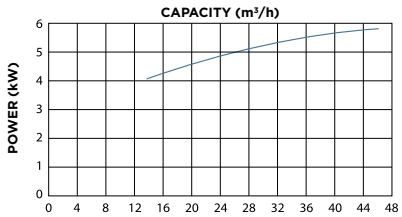


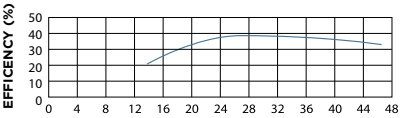




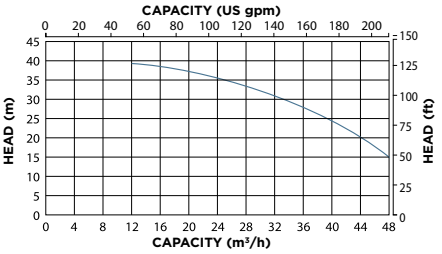
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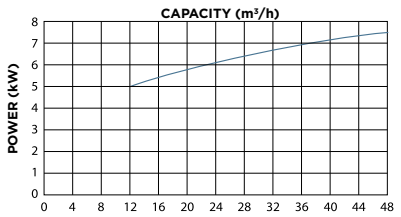


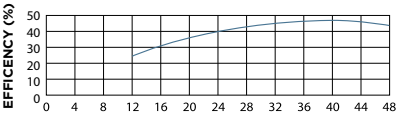




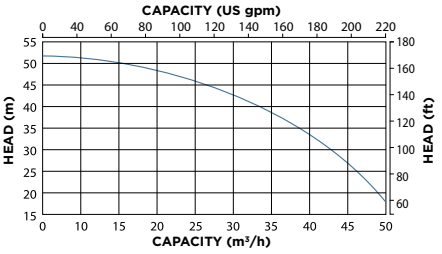
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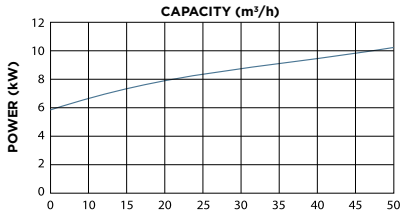


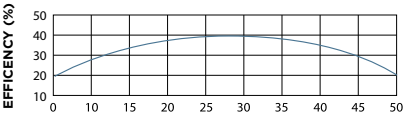




31.40







size	model		IEC frame	DnA	DnM	DeA	DeM	KA iso / ansi / jis	KM iso / ansi / jis	d x z iso / ansi / jis	a1	L(1) TMR	L(1) ZMR	Q	h1	h2	r TMR	r ZMR	r1 TMR	r1 ZMR	rb TMR	rb ZMR	m1	n1	s1	g(1)	L3	B2	S2	L1	B3	h3
G2	07.11	N	80A	40 - 1" ½	32 - 1" ¼	1" ½	1" ¼	110 / 98 / 105	100 / 89 / 100	18 x 4 / 16 x 4 / 19 x 4	67	385	393	75	80	130	199	207	149	157	161	169	100	125	8	110	185	248	14	245	308	40
		P	80B																												
		S	90S									405	413		90		205	213						140		142						
	07.14	N	80B									385	393		80		199	207						125		110						
		P	90S									405	413		90		205	213					125	140		142						
		S	90L									430	438										100									
	11.15	N	90S									405	413										125									
		P	90L									430	438																			
		S	100									478	486		100		227	235	164	172	176	184	140	160	10	155	205	305		259	359	
	11.23	N	90L									430	438		90		205	213	159	157	161	169	125	140	8	142	185	248		245	308	
		P	100									478	486		100		227	235	164	172	176	184	140	160	10	155	205	305		259	359	
		S																														
	17.25 03.35	N	112									487	495		112		234	242	164	172	176	184	140	190	10	168	205	305		259	359	
		P																														
		S																														

dimensional page 20

size	model		IEC frame	DnA	DnM	DeA	DeM	KA iso / ansi / jis	KM iso / ansi / jis	d x z iso / ansi / jis	a1	L(1) TMR	L(1) ZMR	Q	h1	h2	r TMR	r ZMR	r1 TMR	r1 ZMR	rb TMR	rb ZMR	m1	n1	s1	g(1)	L3	B2	S2	L1	B3	h3
G3	21.18	N	100L	50 - 2"	40 - 1" ½	2"	1" ½	125 / 121 / 120	110 / 98 / 105	18 x 4 / 16 - 19 x 4 / 19 x 4	70	512	558	96	100	160	261	307	198	244	214	256	140	160	10	155	205	305	14	265		55
		P	112M									521	587		112		268	314						190		168					365	
		S	132SA									578	624		132		307	353	218	264	235	282		216		181	263	359		333	429	
	21.25	N	112M									521	587		112		268	314	198	244	214	256		190		168	205	305		265	365	
		P	132SA									578	624		132		307	353	218	264	235	282		216		181	263	359		333	429	
		S	132SB																													
	21.28	N	132SA																													
		P	132SA																													
		S	160MA									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
	21.43	N	132SB									578	624		132		307	353	218	264	235	282	140	216	10	181	263	359		333	429	
		P	160MA									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
		S	160MB																													
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		P	132SB																													
		S	160MA									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
	31.30	N	132SB									578	624		132		307	353	218	264	235	282	140	216	10	181	263	359		333	429	
		P	160MA																													
		S	160MB(2)									743	864		160		356	402	248	294	265	312	210	254	14	215	335	405		405	475	
	31.40	N	160MA																													
		P	160MB(2)																													
		S																														

(1) can change for motors of different brands - (2) ZMR only

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