

# POMPE A GIRANTE FLESSIBILE

FLEXIBLE IMPELLER PUMPS



CATALOGO  
TECNICO

TECHNICAL  
CATALOGUE

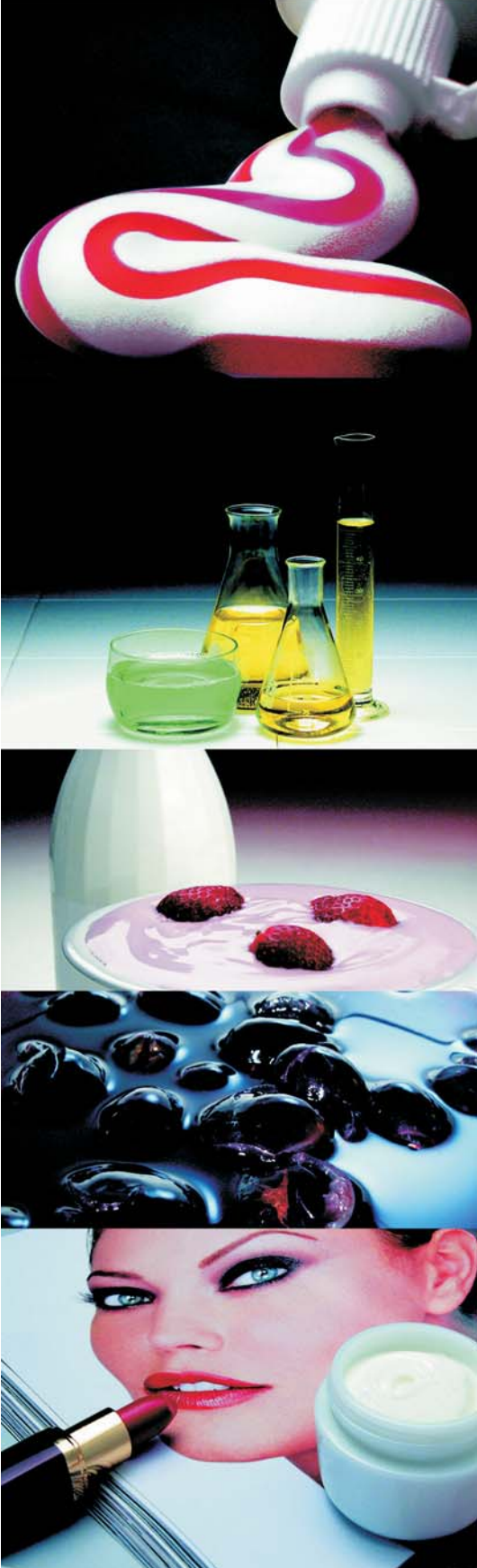


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# LIVERANI

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FLUID TRANSFER TECHNOLOGY



Pompe inox autoadescanti a girante flessibile a basso regime di giri, adatte al trasferimento di fluidi delicati e fragili, viscosi, anche con corpi in sospensione. Le pompe trovano largo impiego nei settori ENOLOGICO (vino, mosto, mosto e uva diraspata), ALIMENTARE (birra, succo e polpa di frutta, miele, zucchero liquido, sciroppi, glucosio, latte, burro, yogurt, uova liquide, olio, salsa di pomodoro, salamoia, ecc.), CHIMICO (amido, colle a base acqua, emulsioni, glicerina, cera, detergenti, lattice di gomma, liquidi fotografici, polielettrolita, vernici, inchiostri, scarichi industriali, ecc.), COSMETICO e FARMACEUTICO (saponi liquidi, detergenti, shampoo, creme, ecc.).

Il meccanismo semplice ed essenziale frutto di un perfetto principio costruttivo, la pluralità dei materiali utilizzati e l'elevato controllo di qualità dell'intero ciclo produttivo, permettono di realizzare pompe estremamente versatili e adatte a soddisfare qualsiasi applicazione richiesta. Ogni modello è disponibile con diversi tipi di girante, tenute meccaniche e raccordi e con molteplici possibilità di esecuzione: pompe ad asse nudo e pompe coassiali con motore elettrico, motore idraulico orbitale, motoriduttore, riduzione a puleggia (su base o carrello), variatore meccanico e inverter.

*Stainless steel low-speed rotary pumps with flexible impeller; particularly suitable for transfer of delicate, fragile and viscous fluids, also with solid parts in suspension. Our pumps are widely used in the OENOLOGICAL field (wine, must, must and stemmed grapes), in FOOD processing (beer, fruit pulp and juice, honey, liquid sugar, syrups, glucose, milk, melted butter, yoghurt, liquid eggs, oil, tomatoes pulp and juice, brine, etc.), in CHEMICAL INDUSTRY (starch, water based glues, emulsions, glycerine, wax, detergents, rubber latex, photographic processing liquids, polyelectrolyte, paints, ink, industrial discharges, etc.), in COSMETIC and PHARMACEUTICAL production (liquid soap, cleaning lotion, cream, shampoo, etc.).*

*The easy mounting principle, the multiple choice of production materials and the Quality System procedure applied throughout production, allow us to offer a wide, versatile and customized product range. Every pump range can be produced with different impeller types, mechanical gasket, couplings and in numerous executions, which are: bare shaft pump; coaxial motorized pump (with electric or orbital hydraulic motor); with gearmotor; with pulley (on trolley or base); with mechanical speed variator or with frequency converter.*



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I dati e le caratteristiche tecniche riportate nel presente catalogo non sono impegnativi. La LIVERANI s.r.l. si riserva il diritto di apportare qualsiasi modifica senza alcun preavviso.

*The technical data and characteristics stated in this catalogue are not binding. LIVERANI s.r.l. reserves the right to make modifications without notice.*



Pompe ad asse nudo (**S/P**)  
*Bare shaft pumps (S/P)*

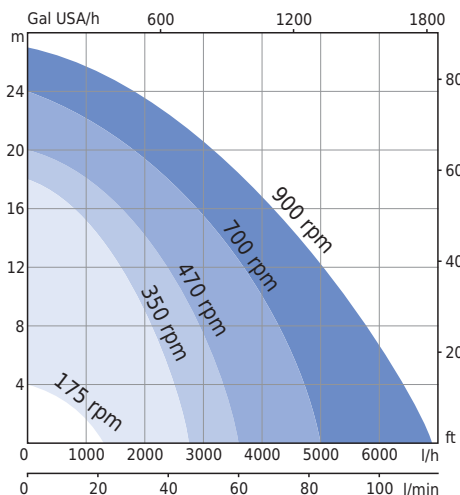


Pompe con motore idraulico orbitale (**MID**)  
*Hydraulic orbital motor pumps (MID)*

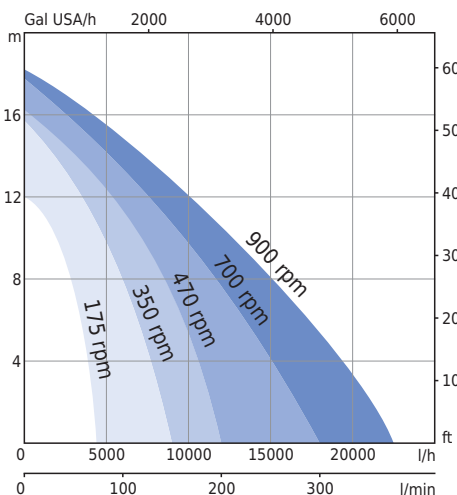
Tipo Type	Peso (S/P - MID) Weight (S/P - MID)	Giri/min Rpm	H (m) = Prevalenza / Head									
			0	4	8	12	16	18	20	24	27	
<b>S/P MINOR 40</b> <b>MID MINOR 40</b>	5.4 kg - 11.7 kg	min 175	1320	0								
		350	2750	2500	2100	1600	800	0				
		470	3600	3300	2900	2400	1600	1000	0			
		700	5000	4700	4300	3700	3000	2520	1800	0		
		max 900	6900	6200	5760	5040	4200	3660	3200	1800	0	
<b>S/P MAJOR 60</b> <b>MID MAJOR 60</b>	9.7 kg - 16 kg	min 175	4320	3840	3000	0						
		350	9000	7800	6000	3700	0					
		470	12000	10500	8700	5100	0					
		700	18000	15000	12000	8400	2500	0				
		max 900	22500	19560	15000	11220	3000	0				
<b>S/P MAXI 80</b> <b>MID MAXI 80</b>	15.7 kg - 22 kg	min 150	12000	10000	7500	0						
		300	24600	22200	18900	12000	0					
		470	36000	34200	30000	24000	12000	0				
		max 600	43800	41400	36000	30000	16000	0				

Q (l/h) = Portata / Capacity

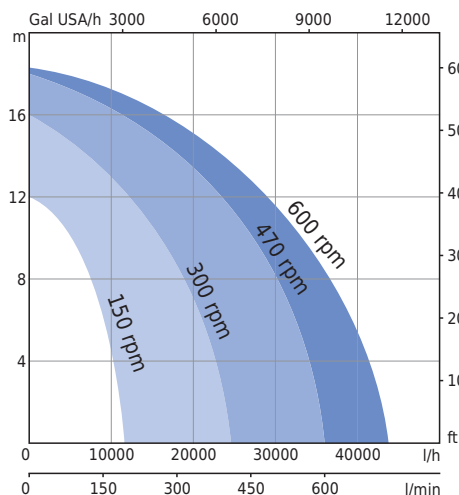
**S/P MINOR 40**  
**MID MINOR 40**



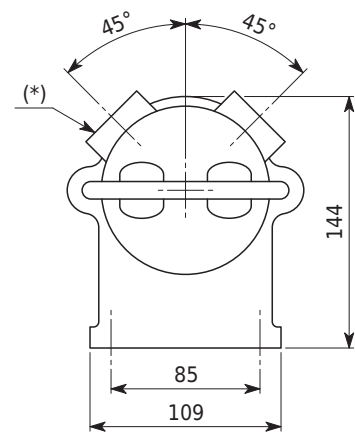
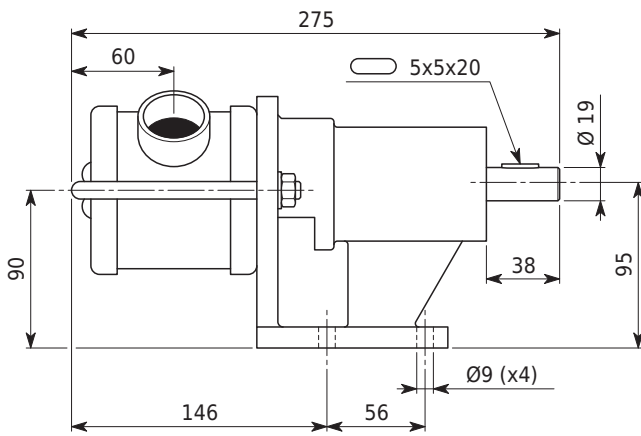
**S/P MAJOR 60**  
**MID MAJOR 60**



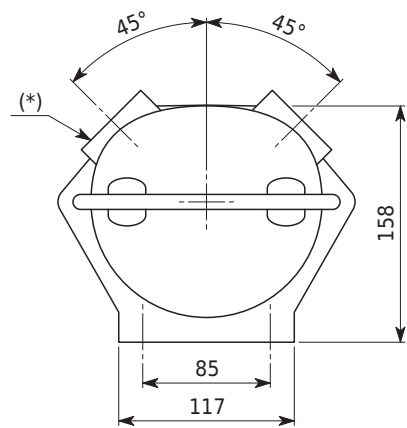
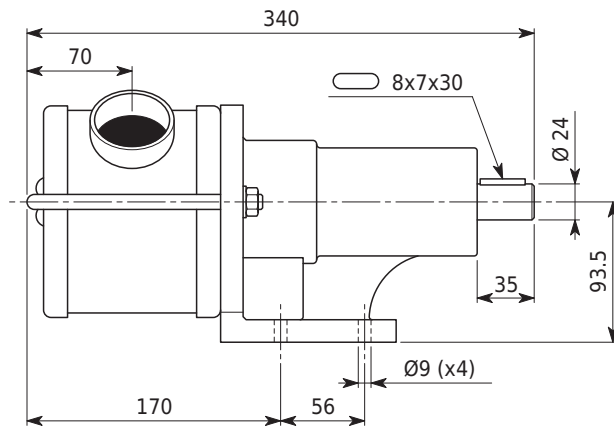
**S/P MAXI 80**  
**MID MAXI 80**



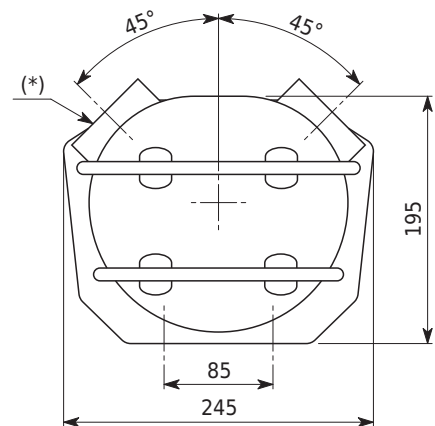
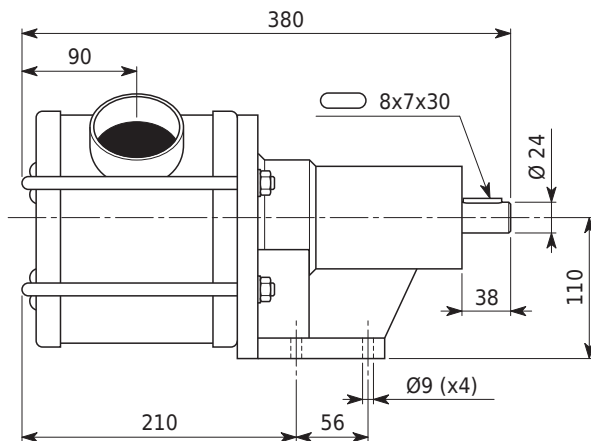
**S/P  
MINOR 40**



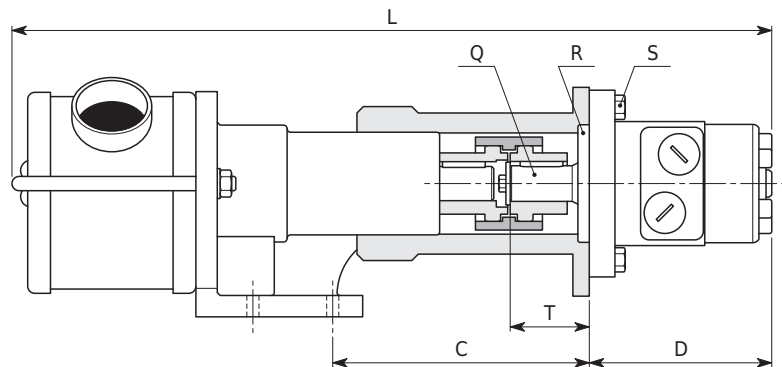
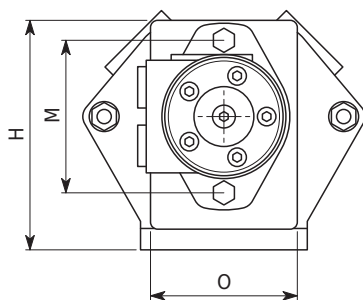
**S/P  
MAJOR 60**



**S/P  
MAXI 80**



**MID  
MINOR 40  
MAJOR 60  
MAXI 80**



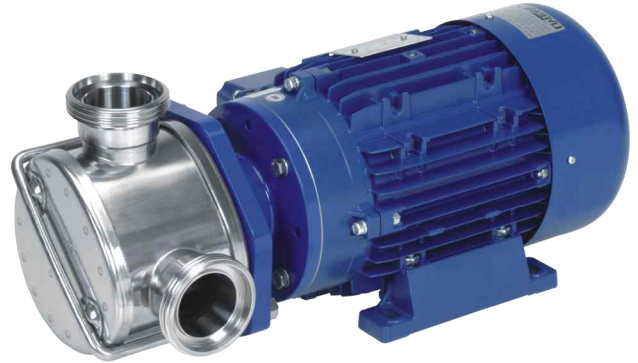
Tipo / Type	C	D	H	L	M	O	Q	R	S	T
<b>MID MINOR 40</b>	142	128	160	478	106	103	Ø25 / 8x7x30	Ø82.5 / 8	M12	55.5
<b>MID MAJOR 60</b>	180	128	160	542	106	103	Ø25 / 8x7x30	Ø82.5 / 8	M12	55.5
<b>MID MAXI 80</b>	185	128	177	575	106	103	Ø25 / 8x7x30	Ø82.5 / 8	M12	55.5

(\*) raccordi disponibili p.17 / available pipe fittings p.17

## Elettropompe coassiali Coaxial pumps



**EP MINI 3/4"**  
**EP MIDEX 1 1/4"**

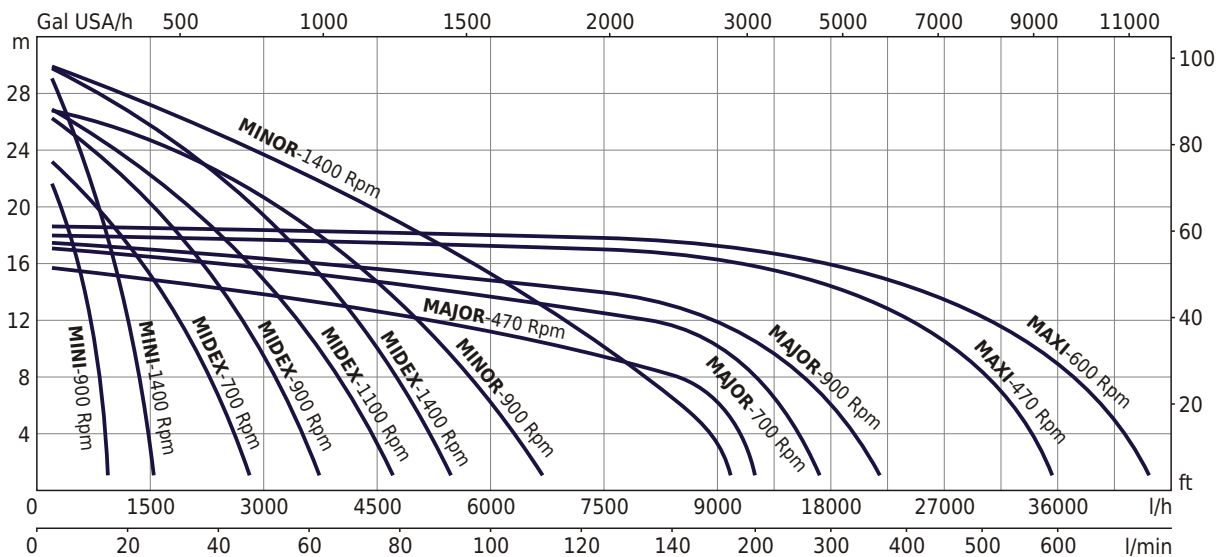


**EP MINOR 40**  
**EP MAJOR 60**  
**EP MAXI 80**

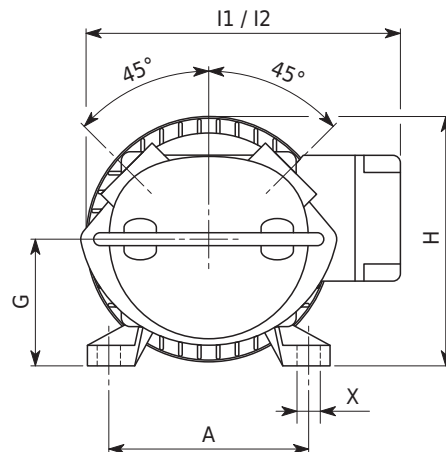
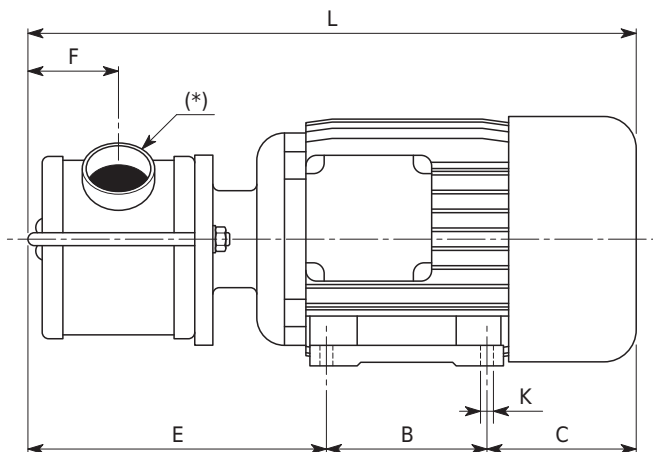
Tipo Type	Peso Weight	Motore * Motor *	HP	kW	Velocità Speed	Giri/min Rpm	H (m) = Prevalenza / Head									
							0	4	8	12	16	18	24	27	30	32
<b>EP MINI 3/4"</b>	9.3 kg	MF - TF	0.5	0.37	1	900	1000	900	840	720	540	450	0			
	9.0 kg	MF - TF	0.75	0.56	1	1400	1620	1440	1320	1140	1020	900	600	400	180	0
	10 kg	CC 12-24V	0.4	0.3	1	1400	1620	1440	1320	1140	1020	900	600	400	180	0
<b>EP MIDEX 1 1/4"</b>	15 kg	MF - TF	0.75	0.56	1	900	3840	3480	3180	2760	2160	1800	720	0		
	15 kg	MF - TF	1	0.75	1	1400	5760	5160	4800	4320	3600	3180	1920	1200	0	
	15 kg	TF	0.75	0.56	2	1400	5760	5160	4800	4320	3600	3180	1920	1200	0	
			0.5	0.37	2	700	2880	2600	2300	1900	1400	1100	0			
	14 kg	CC 12V	0.74	0.55	1	1100	4800	4400	3980	3450	2800	2400	1100	0		
	14 kg	CC 24V	0.74	0.55	1	1100	4800	4400	3980	3450	2800	2400	1100	0		
<b>EP MINOR 40</b>	20 kg	MF - TF	2	1.5	1	900	6900	6200	5760	5040	4200	3660	1800	0		
	20 kg	TF	2	1.5	1	1400	10000	9000	8000	6900	5500	4900	2600	1700	0	
	27 kg	TF	2.5	1.87	2	1400	10000	9000	8000	6900	5500	4900	2600	1700	0	
			1.82	1.35	2	900	6900	6200	5760	5040	4200	3660	1800	0		
<b>EP MAJOR 60</b>	38 kg	TF	1.7	1.25	1	470	12000	10500	8700	5100	0					
	31 kg	TF	2	1.5	1	700	18000	15000	12000	8400	2500	0				
	31 kg	TF	2.5	1.87	1	900	22500	19560	15000	11220	3000	0				
<b>EP MAXI 80</b>	68 kg	TF	4.5	3.3	1	470	36000	34200	30000	24000	12000	0				
	68 kg	TF	4.7	3.5	1	600	43800	41400	36000	30000	16000	0				

Q (l/h) = Portata / Capacity

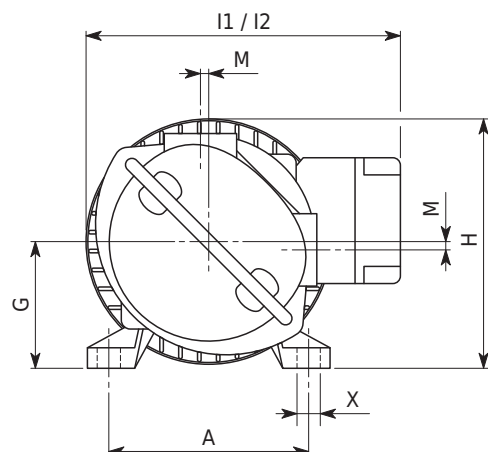
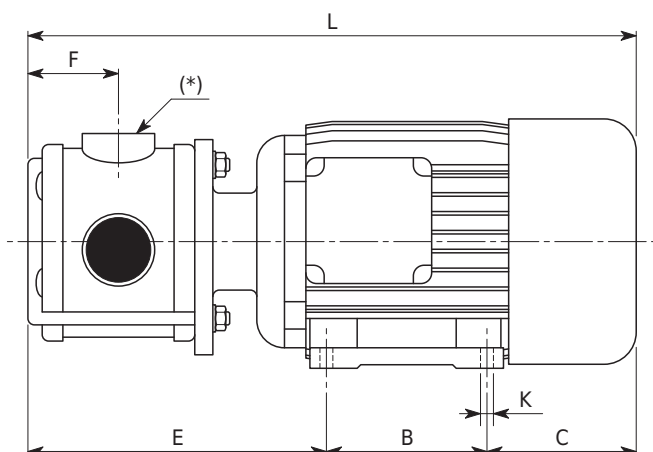
\* MF = monofase/single-phase - TF = trifase/three-phase - CC = corrente continua/direct current



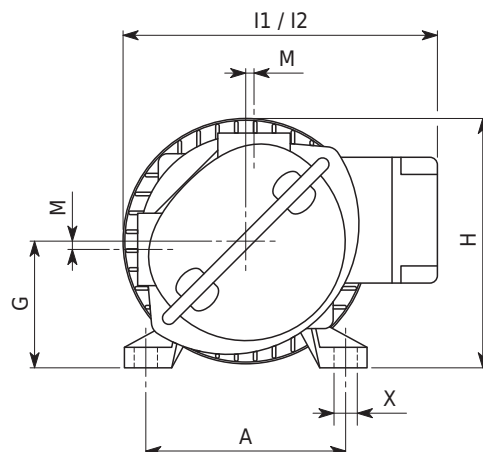
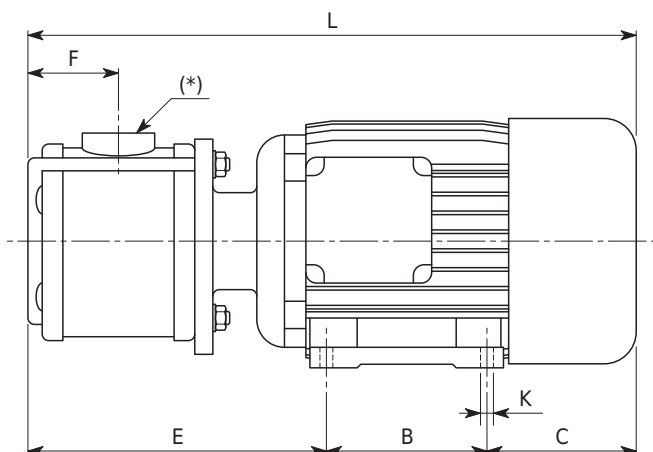
Posizione  
Position  
**V**



Posizione  
Position  
**90D**



Posizione  
Position  
**90S**



Tipo Type	Motore Motor	Velocità Speed	A	B	E	F	G	H	I1 **	I2 **	L	M	K	X
<b>EP MINI 3/4"</b>	M71	1	112	90	106	26	71	140	192	210	276	0	7	12
<b>EP MIDEX 1"1/4</b>	M80	1	125	100	148	38	80	159	200	227	338	7	8	16
	M80	2	125	100	148	38	80	159	-	227	338	7	8	16
<b>EP MINOR 40</b>	M90	1	140	125	198	60	90	180	210	240	420	4.5	10	16
	M100	2	160	140	210	60	100	198	-	260	455	4.5	12	21
<b>EP MAJOR 60</b>	M100	1	160	140	253	70	100	198	245	263	490	6.5	12	21
	M112	1	190	140	259	70	112	225	275	-	514	6.5	12	22
<b>EP MAXI 80</b>	M132	1	216	178	312	90	132	261	320	-	630	13	12	22

\* raccordi disponibili p.17 / available pipe fittings p.17

\*\* I1 = motore con morsetteria / motor with terminal board connection

\*\* I2 = motore con interruttore/invertitore / motor with on-off/rotative reverse switch

## Pompe con riduzione a puleggia su base o carrello Belt driven pumps on base or trolley



Gruppo a puleggia su base  
Belt driven pump on base



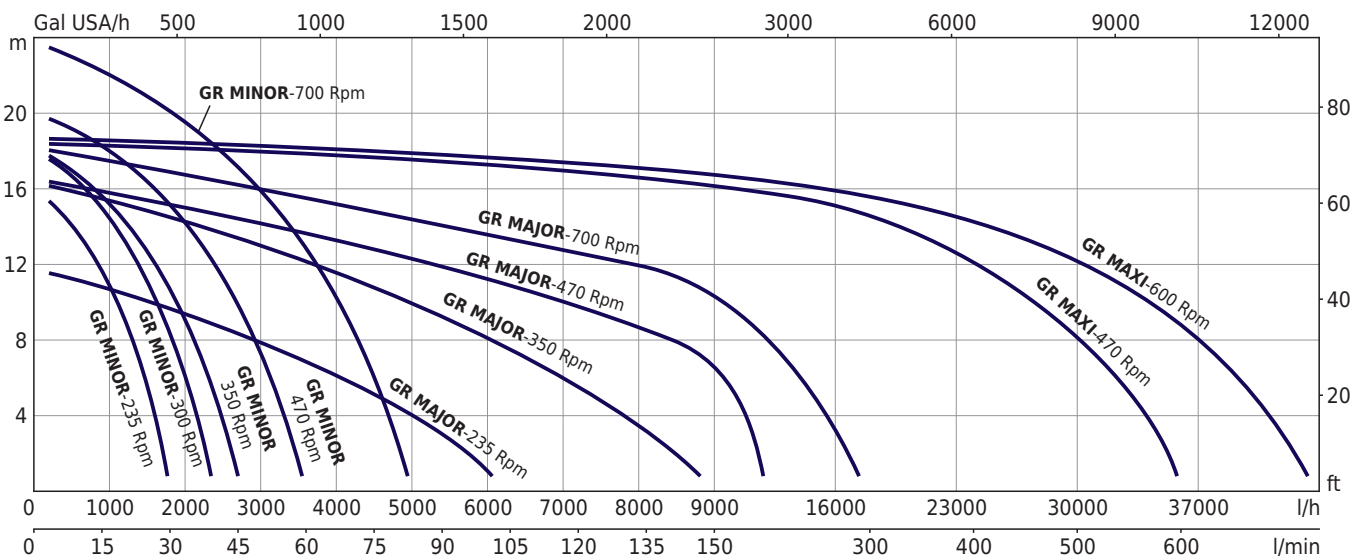
Gruppo a puleggia su carrello  
Belt driven pump on trolley

Tipo Type	Peso * Weight *	Motore ** Motor **	HP	kW	Velocità Speed	Giri/min Rpm	H (m) = Prevalenza / Head							
							0	4	8	12	16	18	20	24
<b>GR MINOR 40</b>	36 / 38 kg	MF - TF	2	1.5	1	300	2400	2150	1800	1400	700	0		
	36 / 38 kg	MF - TF	2	1.5	1	470	3600	3300	2900	2400	1600	1000	0	
	36 / 38 kg	MF - TF	2	1.5	1	700	5000	4700	4300	3700	3000	2520	1800	0
	45 / 46 kg	TF	2.2 1.2	1.6 0.9	2	470 235	3600 1800	3300 1600	2900 1300	2400 750	1600 0	1000	0	
	40 / 41 kg	TF	3 2	2.2 1.5	2	700 350	5000 2750	4700 2500	4300 2100	3700 1600	3000 800	2520	1800	0
<b>GR MAJOR 60</b>	42 / 44 kg	MF - TF	2	1.5	1	470	12000	10500	8700	5100	0			
	42 / 44 kg	TF	2.5	1.86	1	700	18000	15000	12000	8400	2500	0		
	51 / 53 kg	TF	2.2 1.2	1.6 0.9	2	470 235	12000 6300	10500 5100	8700 2700	5100 0	0			
	44 / 45 kg	TF	3 2	2.2 1.5	2	700 350	18000 9000	15000 7800	12000 6000	8400 3700	2500 0	0		
<b>GR MAXI 80</b>	65 / 67 kg	TF	5.5	4	1	470	36000	34200	30000	24000	12000	0		
	65 / 67 kg	TF	5.5	4	1	600	43800	41400	36000	30000	16000	0		

Q (l/h) = Portata / Capacity

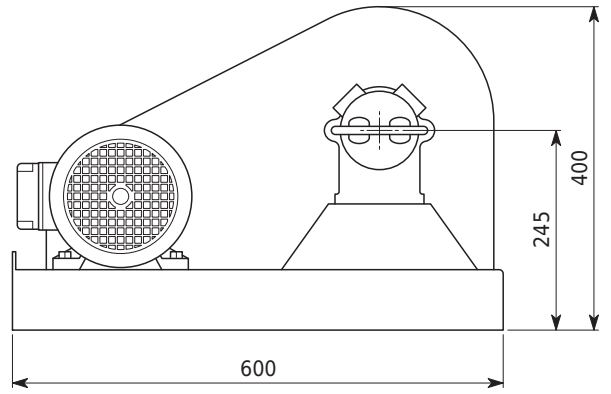
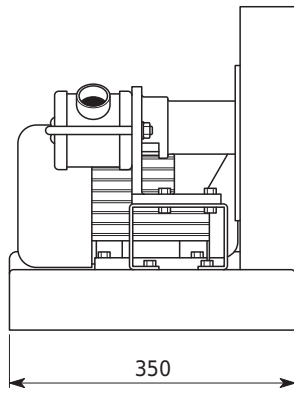
\* Gruppo su base / Gruppo su carrello - Group on base / Group on trolley

\*\* MF = monofase / single-phase - TF = trifase / three-phase

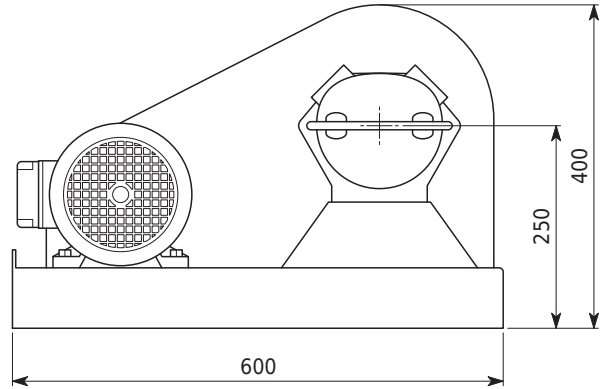
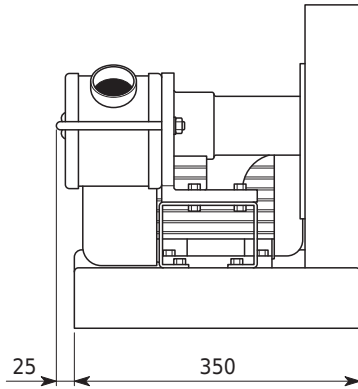




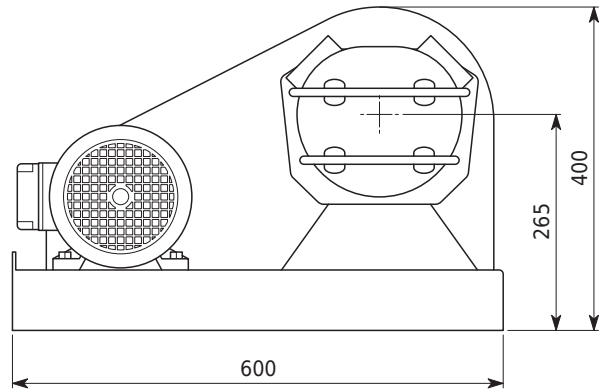
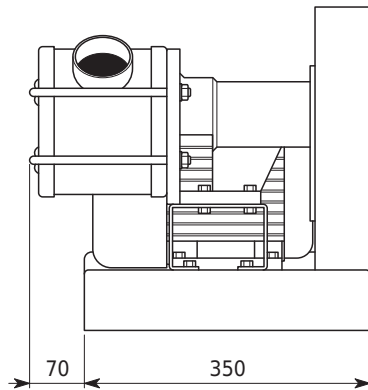
**GR MINOR 40**  
su base  
on base



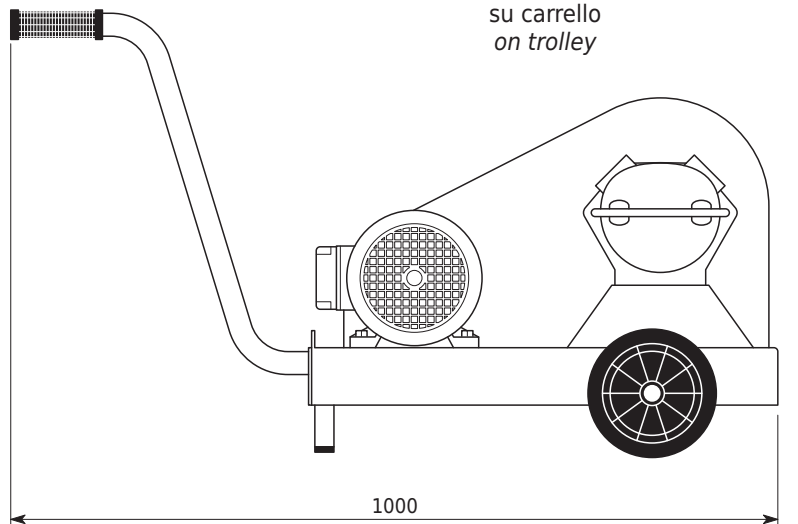
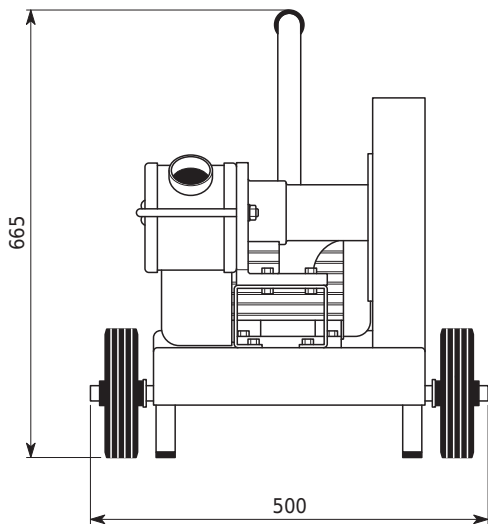
**GR MAJOR 60**  
su base  
on base



**GR MAXI 80**  
su base  
on base



**GR MINOR 40 - MAJOR 60 - MAXI 80**  
su carrello  
on trolley





**RID MINOR 40**  
**RID MAJOR 60**  
**RID MAXI 80**



**RID MAXI Double**



**RID MAXI Double 2Q**

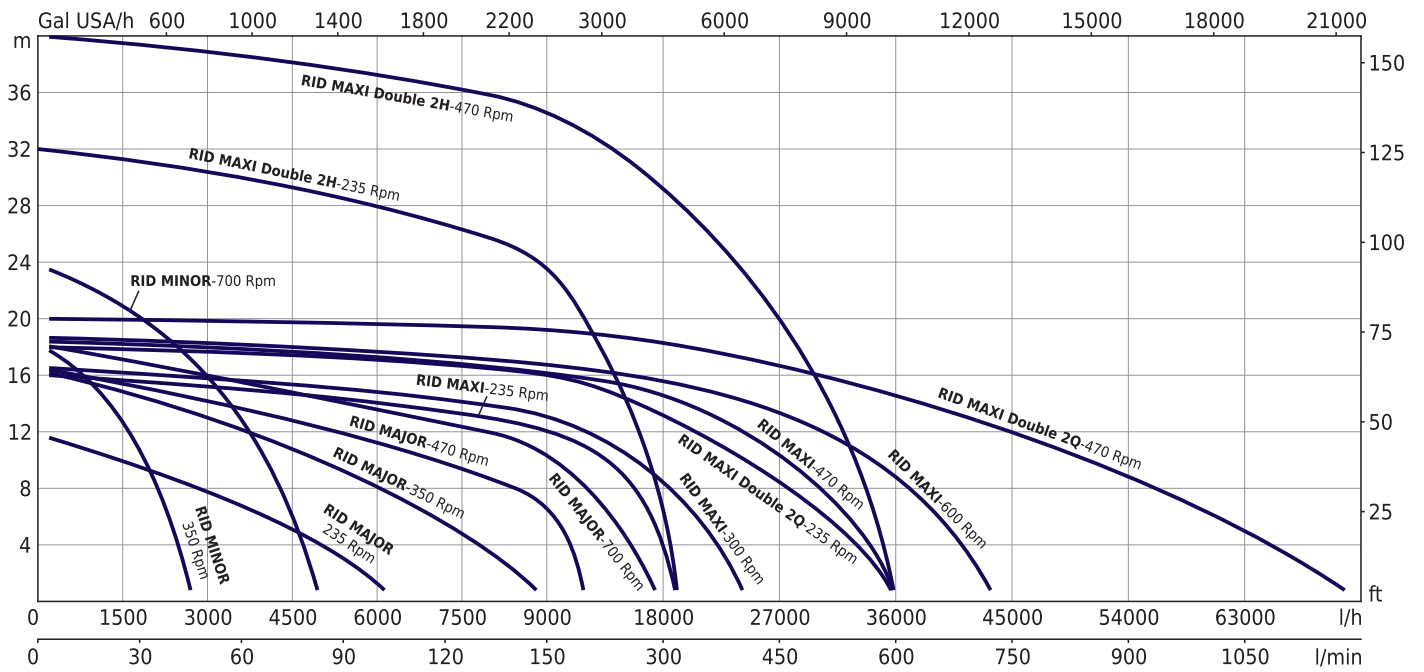


**RID MAXI Double 2H**

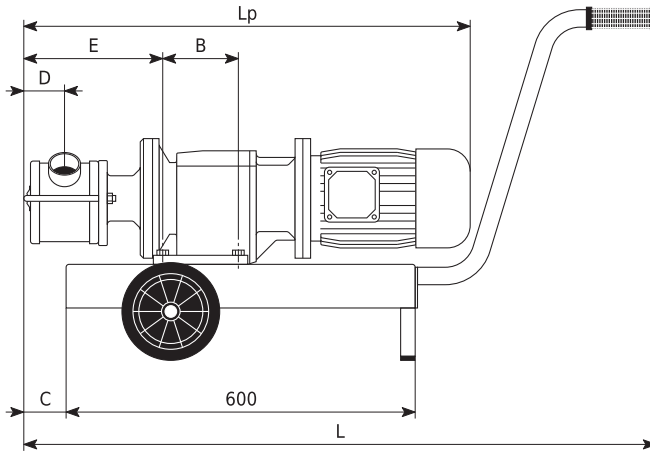
Tipo Type	Peso Weight	Motore * Motor *	HP	kW	Velocità Speed	Giri/min Rpm	H (m) = Prevalenza / Head								
							0	4	12	16	18	20	24	32	40
<b>RID MINOR 40</b>	38 kg	TF	2	1.5	1	350	2750	2500	1600	800	0				
	38 kg	TF	2	1.5	1	700	5000	4700	3700	3000	2520	1800	0		
	38 kg	TF	3 2	2.2 1.5	2	700 350	5000 2750	4700 2500	3700 1600	3000 800	2520 0	1800	0		
<b>RID MAJOR 60</b>	48 kg	TF	3	2.2	1	235	6300	5100	0						
	48 kg	TF	3	2.2	1	350	9000	7800	3700	0					
	48 kg	TF	3	2.2	1	470	12000	10500	5100	0					
	48 kg	TF	3	2.2	1	700	18000	15000	8400	2500	0				
	48 kg	TF	3 2	2.2 1.5	2	470 235	12000 6300	10500 5100	5100 0	0					
	48 kg	TF	3 2	2.2 1.5	2	700 350	18000 9000	15000 7800	8400 3700	2500 0	0				
<b>RID MAXI 80</b>	79 kg	TF	5.5	4	1	235	19200	18000	9600	0					
	79 kg	TF	5.5	4	1	300	24600	22200	12000	0					
	79 kg	TF	5.5	4	1	470	36000	34200	24000	12000	0				
	79 kg	TF	5.5	4	1	600	43800	41400	30000	16000	0				
	79 kg	TF	6 4.5	4.5 3.3	2	470 235	36000 19200	34200 18000	24000 9600	12000 0	0				
	79 kg	TF	6 4.5	4.5 3.3	2	600 300	43800 24600	41400 22200	30000 12000	16000 0	0				
<b>RID MAXI Double 2Q</b>	185 kg	TF	7.5	5.5	1	470	72000	65000	45000	30000	20000	0			
	200 kg	TF	7.5 4	5.5 3	2	470 235	72000 36000	65000 33000	45000 20500	30000 10000	20000 0	0			
	185 kg	TF	7.5	5.5	1	470	36000	35000	32000	29700	28400	27000	23600	14300	0
<b>RID MAXI Double 2H</b>	200 kg	TF	7.5 4	5.5 3	2	470 235	36000 19200	35000 18500	32000 16200	29700 14300	28400 13200	27000 12000	23600 9000	14300 0	0

Q (l/h) = Portata / Capacity

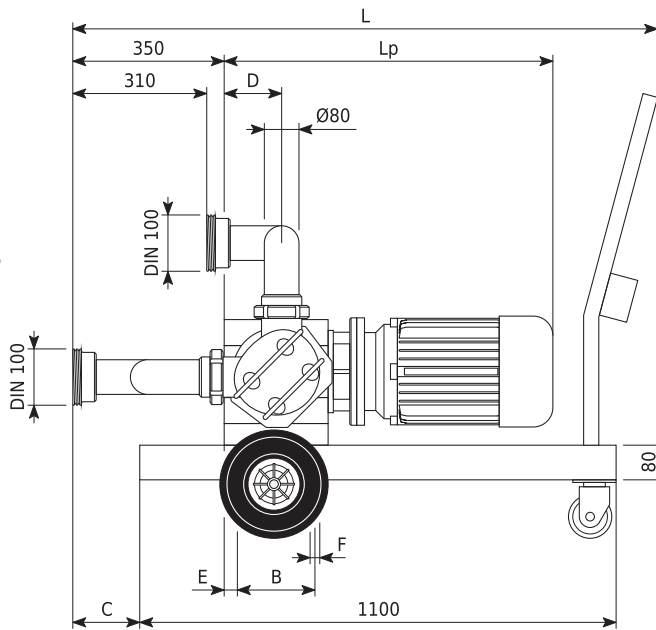
\* TF = trifase / three-phase



**RID  
MINOR 40  
MAJOR 60  
MAXI 80**



**RID  
MAXI Double**



Tipo / Type	A	B	C	D	E	F	G	H	I	L	Lp	M	N
<b>RID MINOR 40</b>	130	60-107.5	40	60	210	M12	103	203	440	1050	680	-	-
<b>RID MAJOR 60</b>	160	130	135	70	245	Ø11	110	210	440	1145	770	-	-
<b>RID MAXI 80</b>	180	149.5	160	90	255	Ø14	130	255	440	1200	850	-	-
<b>RID MAXI Double</b>	175	170	155	135	35	Ø14	120	416	700	1350	730	695	415

## Pompe con variatore o inverter

### Pumps with mechanical speed variator or frequency converter



Pompe con variatore (VA)  
Pumps with m. speed variator (VA)



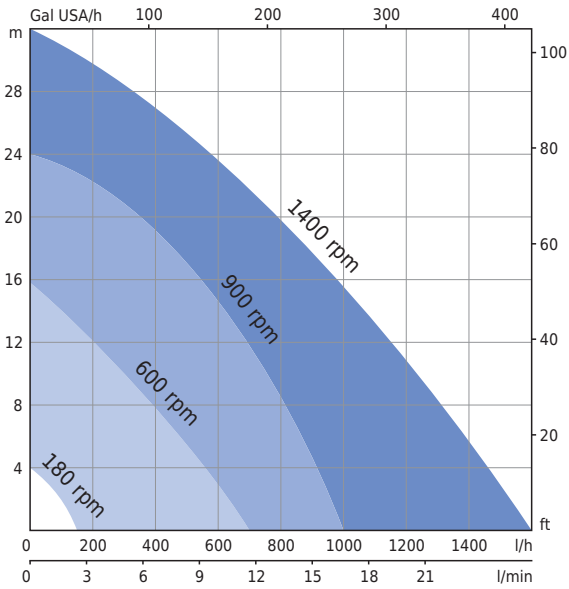
Pompe con inverter (INV)  
Pumps with frequency converter (INV)

Tipo Type	Alimentazione * Feeding *	HP	kW	Giri/min Rpm	H (m) = Prevalenza / Head											
					0	4	8	12	16	18	20	24	27	32	40	
<b>VA MINOR 40</b>	TF 230-400 V 50 Hz	2	1.5	min 175	1320	800	0									
				350	2750	2500	2100	1600	800	0						
				700	5000	4700	4300	3700	3000	2520	1800	0				
				max 900	6900	6200	5760	5040	4200	3660	3200	1800	0			
<b>VA MAJOR 60</b>	TF 230-400 V 50 Hz	2.5	1.87	min 175	4320	3840	3000	0								
				350	9000	7800	6000	3700	0							
				700	18000	15000	12000	8400	2500	0						
				max 900	22500	19560	15000	11220	3000	0						
<b>VA MAXI 80</b>	TF 230-400 V 50 Hz	5.5	4	min 150	12000	10000	7500	0								
				300	24600	22200	18900	12000	0							
				470	36000	34200	30000	24000	12000	0						
				max 600	43800	41400	36000	30000	16000	0						
<b>INV MINI 3/4"</b>	MF 230 V 50 Hz	TF 400 V 50 Hz	0.75	0.56	min 180	150	0									
					600	700	560	390	150	0						
					900	1000	900	840	720	540	450	350	0			
					max 1400	1620	1440	1320	1140	1020	900	800	600	400	0	
<b>INV MIDEX 1 1/4</b>	MF 230 V 50 Hz	TF 400 V 50 Hz	1	0.75	min 180	600	480	0								
					600	2600	2300	2000	1400	800	400	0				
					900	3840	3480	3180	2760	2160	1800	1600	720	0		
					max 1400	5760	5160	4800	4320	3600	3180	2800	1920	1200	0	
<b>INV MINOR 40</b>	MF 230 V 50 Hz	TF 400 V 50 Hz	2.5	1.87	min 50	380	0									
					175	1320	800	0								
					350	2750	2500	2100	1600	800	0					
					700	5000	4700	4300	3700	3000	2520	1800	0			
		max 900	6900	6200	5760	5040	4200	3660	3200	1800	0					
<b>INV MAJOR 60</b>	MF 230 V 50 Hz	TF 400 V 50 Hz	3	2.2	min 50	1230	0									
					175	4320	3840	3000	0							
					350	9000	7800	6000	3700	0						
					700	18000	15000	12000	8400	2500	0					
		max 900	22500	19560	15000	11220	3000	0								
<b>INV MAXI 80</b>	TF 230 V 50 Hz	TF 400 V 50 Hz	5.5	4	min 50	3800	0									
					150	12000	10000	7500	0							
					300	24600	22200	18900	12000	0						
					470	36000	34200	30000	24000	12000	0					
		max 600	43800	41400	36000	30000	16000	0								
<b>INV MAXI Double 2Q</b>	TF 230 V 50 Hz	TF 400 V 50 Hz	7.5	5.5	min 50	7600	0									
					175	27000	24000	20000	13000	0						
					235	36000	33000	27500	20500	10000	0					
					350	54000	48500	41500	33000	22000	14000	0				
		max 470	72000	65000	56000	45000	30000	20000	0							
<b>INV MAXI Double 2H</b>	TF 230 V 50 Hz	TF 400 V 50 Hz	7.5	5.5	min 50	3800	2000	0								
					175	14100	13500	12600	11400	9700	8600	7400	4500	0		
					235	19200	18500	17500	16200	14300	13200	12000	9000	5900	0	
					350	27600	26700	25500	24000	22200	21000	20000	17200	14800	9700	0
		max 470	36000	35000	33600	32000	29700	28400	27000	23600	20600	14300	0			

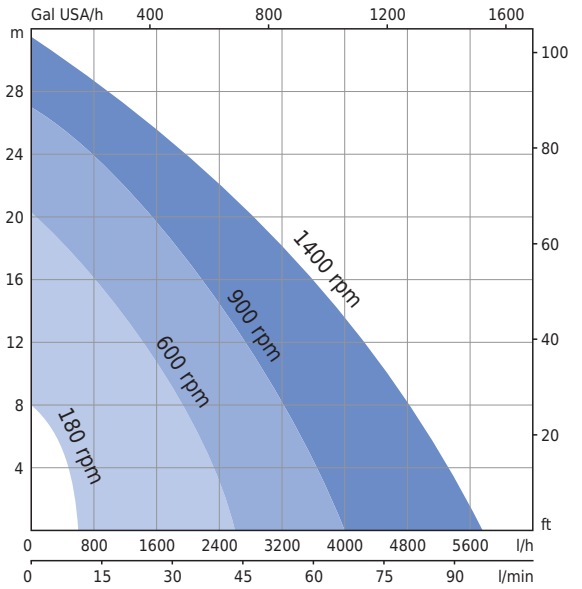
Q (l/h) = Portata / Capacity

\* MF = monofase / single-phase - TF = trifase / three-phase

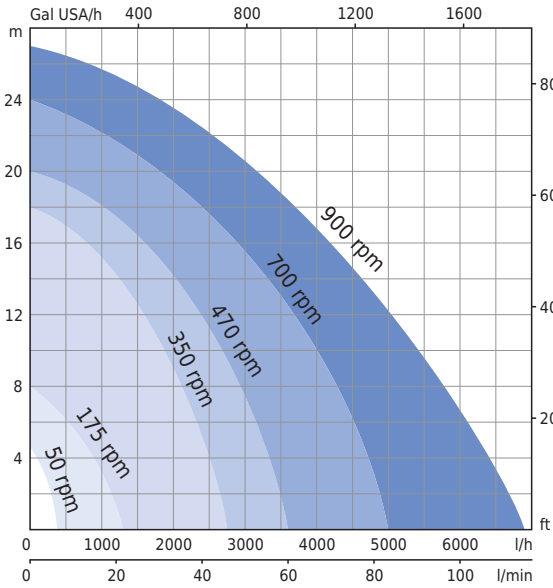
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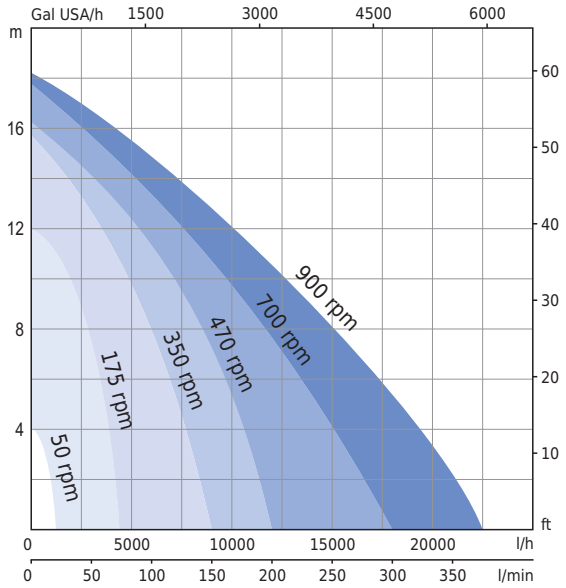
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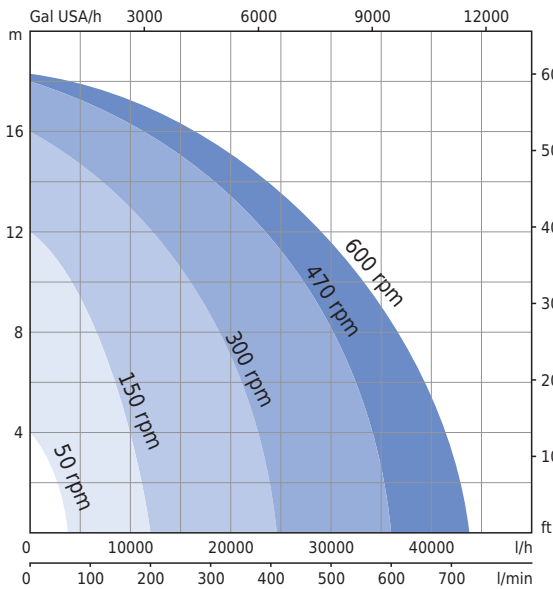
**VA MINOR 40  
INV MINOR 40**



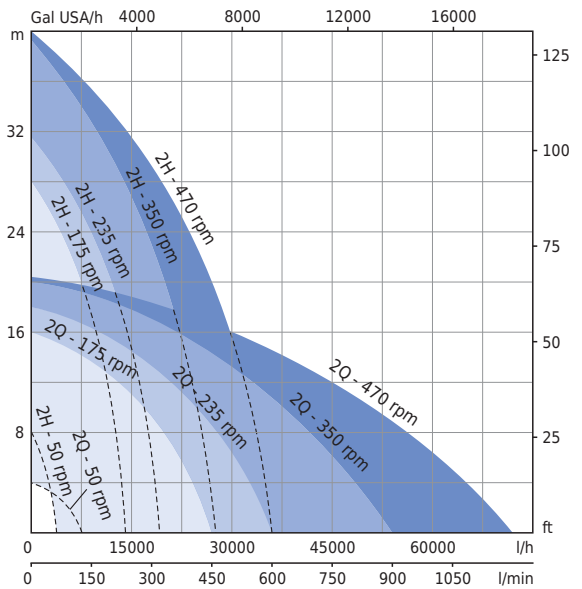
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INV MAJOR 60**



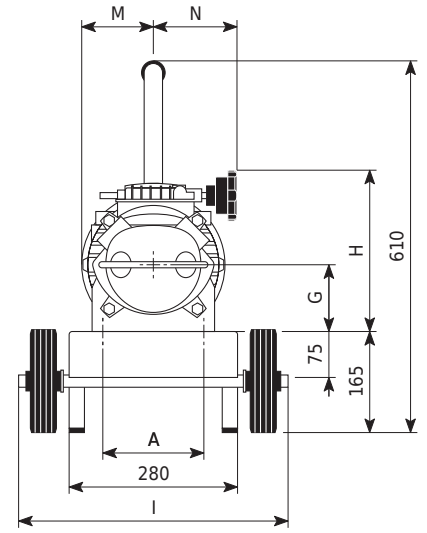
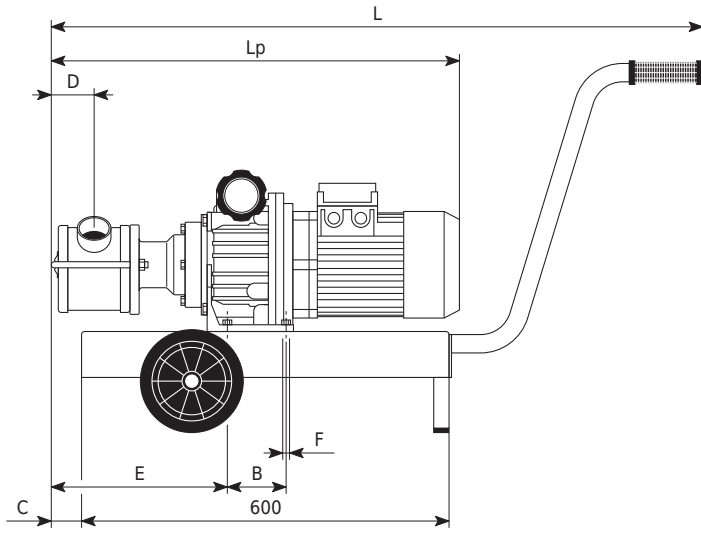
**VA MAXI 80  
INV MAXI 80**



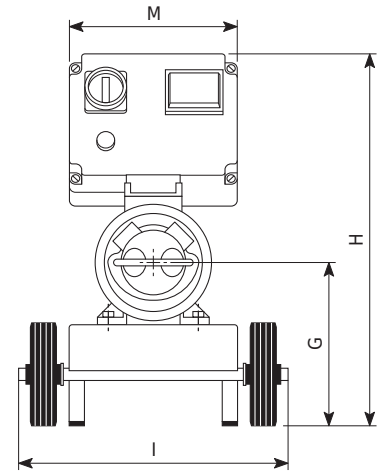
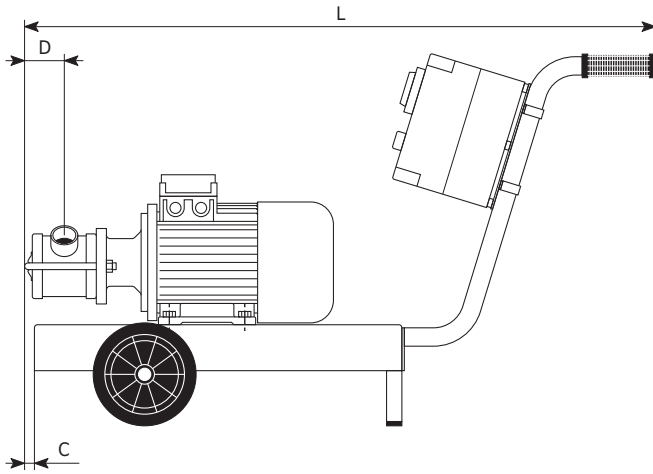
**INV MAXI Double 2Q  
INV MAXI Double 2H**



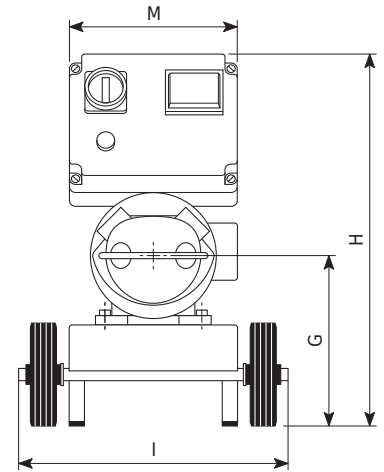
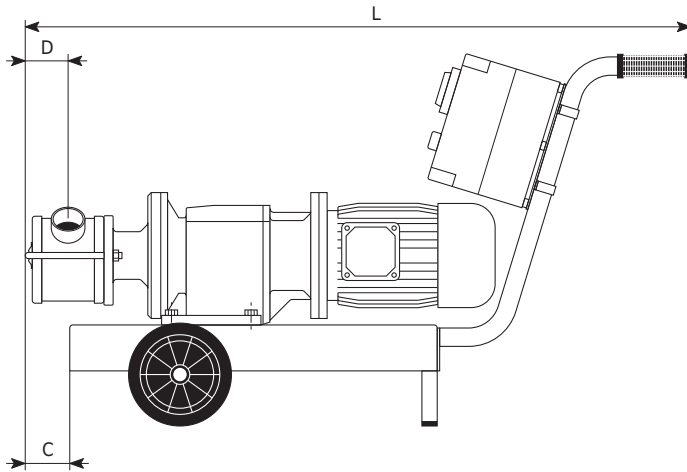
**VA  
MINOR 40  
MAJOR 60  
MAXI 80**



**INV  
MINI 3/4"  
MIDEX 1"1/4**








**INV  
MINOR 40  
MAJOR 60  
MAXI 80**



Tipo / Type	Peso / Weight	A	B	C	D	E	F	G	H	I	L	Lp	M	N
<b>VA MINOR 40</b>	63 kg	164	96	20	60	260	Ø11	109	264	440	1030	640	117	137
<b>VA MAJOR 60</b>	67 kg	164	96	55	70	295	Ø11	109	264	440	1065	675	117	137
<b>VA MAXI 80</b>	109 kg	200	120	115	90	305	M12	132	337	440	1125	770	136	172.5
<b>INV MINI 3/4"</b>	17 kg	-	-	-	26	-	-	175	550	340	790	-	285	-
<b>INV MIDEX 1"1/4</b>	23 kg	-	-	15	38	-	-	175	550	340	805	-	285	-
<b>INV MINOR 40</b>	45 kg	-	-	70	60	-	-	268	610	440	1050	-	285	-
<b>INV MAJOR 60</b>	55 kg	-	-	135	70	-	-	275	610	440	1145	-	285	-
<b>INV MAXI 80</b>	95 kg	-	-	160	90	-	-	295	610	440	1200	-	285	-
<b>INV MAXI Double</b>	185/200 kg	Dimensioni p.9 / Dimensions p.9												

## Tabella di corrosione giranti *Impeller corrosion table*

<b>Materiale Material</b>	 Nitrile <i>Nitrile</i>	 Neoprene <i>Neoprene rubber</i>	 EPDM <i>EPDM</i>	 Gomma naturale <i>Natural rubber</i>	 Silicone <i>Silicon</i>
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Le temperature riportate tra parentesi sono da considerarsi come temperature massime di utilizzo. La temperatura di 20° C rappresenta all'incirca la temperatura ambiente.

Il termine "Variabile" indica che all'interno della stessa famiglia di polimeri si possono avere comportamenti diversi in funzione del tipo di polimero, della concentrazione del prodotto e della temperatura di utilizzo.

*Temperatures reported in parentheses must be considered the highest temperatures that can be used. The temperature of 20° C corresponds to an average room temperature.*

*The term "Variable" means that within the same family of polymers there can be different behaviours according to the kind of polymer, the concentration of the product and the temperature at which it is used.*

<b>Caratteristica Characteristic</b>	<b>A</b> Ottimo <i>Excellent</i>	<b>B</b> Discreto/Buono <i>Fair/Good</i>	<b>C</b> Sconsigliato/Scarso <i>Not advisable/Poor</i>	<b>V</b> Variabile <i>Variable</i>	<b>Nd</b> Non disponibile <i>Not available</i>
--	--	--	--	--	--

Prodotto	NBR	EPDM	CR	NR	VMQ
Acetato di etile	C	A (55° C) - C (70° C)	C	C	B (20° C)
Aceto	B (20° C) - V (60° C)	A (60°-90° C)	B (90° C)	B (20° C)	A (20° C)
Acido Acetico (30%)	B (20° C)	A	B (20° C)	B (20° C)	Nd
Acido Borico	A (60° C) - B (90° C)	A (60° C) - B (90° C)	A (70° C) - B (90° C)	A (20° C) - B (85° C)	A (20° C)
Acido Bromico (40%)	C	A (90° C)	V	B (20° C)	C
Acido Cianidrico	B (60° C)	A (60° C)	V	Nd	B (20° C)
Acido Citrico	A (70° C) - B (80° C)	A	A	A (20° C)	A (20° C)
Acido Cloridrico concentrato	C	C	C	V	C
Acido Cloroacetico	C	B (70°-90° C)	A (20° C) - C (40° C)	V	V
Acido Cromico	C	B	V	V	V
Acido Fluoridrico (50%)	C	B (60° C)	V	C (20° C)	V
Acido Fluoridrico concentrato	C	C	C	C	C
Acido Fluoroborico	A (60° C) - B (85° C)	A (60° C) - B (80° C)	A (60° C) - B (85° C)	A (20° C) - B (65° C)	A (20° C)
Acido Formico	V	A (90° C)	V	B (20° C)	B (20° C)
Acido Fosforico (85%)	C	A (80° C)	A (40° C)	B (65° C)	C
Acido Lattico concentrato	A (20° C)	A (60° C)	A (20° C) - B (60° C) C (80° C)	Nd	Nd
Acido Nitrico (10%)	C	A (40° C) - C (80° C)	C (40° C)	C	B (20° C)
Acido Nitrico (70%)	Nd	C	C	C	C
Acido Ossalico concentrato	B (60° C)	A (100° C)	B (60° C)	B (20° C)	B (20° C)
Acido Palmitico	A (70° C)	B (20° C)	B (20-70° C)	B (20° C)	C
Acido Picrico	C	A (20° C)	B (20° C)	C	C
Acido Picrico (10%)	B (70° C)	B (90° C)	A (20° C) - C (40° C)	B (20° C)	C

Prodotto	NBR	EPDM	CR	NR	VMQ
Acido Solforico (50%)	A (20° C) - C (80° C)	B (60-80° C)	B (70° C)	B (26° C)	V
Acido Solforico (80%)	B (40° C)-C (60-80° C)	A (60° C) - C (80° C)	C	C	C
Acido Stearico	A (80° C)	B (60° C)	B (60-70° C)	V	B (20° C)
Acqua	A (80° C)	A (100° C)	B (80° C)	A (20° C) - B (80° C)	B (80° C)
Alcol Benzilico	C	B (40° C) - C (60° C)	V	C	Nd
Alcol Etilico	A (60° C) - B (85° C)	A (90° C)	A (70° C) - B (80° C)	A (20° C) - B (65° C)	B (20° C)
Alcol Metilico	B (65° C)	A (70° C) - B (80° C)	A (60° C) - B (80° C)	B (37° C)	A (70° C)
Alcol Propilico	B (80° C)	B (90° C)	A (60° C) - B (90° C)	A (20° C) - B (65° C)	A (20° C)
Ammonio Idrato conc. (38%)	A (80° C)	Nd	A (90° C)	A (65° C)	Nd
Anidride Solforosa	C	C (20° C)	C (20° C)	C	A (20° C)
Anilina	C	A (90° C)	C	C	B (20° C)
Benzina	A (80° C)	C	C	C	C
Birra	A (60° C) - B (80° C)	A (60° C) - B (80° C)	A (60° C)	A (20° C)	A (20° C)
Bromo gas	C	C	C	C	C
Burro	A (60° C)	A (60° C)	B (20° C) - C (60° C)	C	B (20° C)
Butadiene	V	V	V	C	C
Butano	A (90° C) - B (80° C)	C	A (60° C)	C	C
Calcio Idrato	A (20° C) - B (90° C)	A (20° C)	A (20° C) - B (90° C)	A (20° C) - B (65° C)	A (20° C)
Calcio Ipoclorito	C	A (120° C)	C	C	B (20° C)
Cherosene	A (80° C)	C	B (20° C)	C	C
Cloro Umido	C	V	C	C	C
Cloroformio	C	C	C	C	C
Gelatina	A (70° C)	A (80° C)	A (60° C) - B (80° C)	A (20° C) - B (65° C)	A (20° C)
Glicerina	A (80° C)	A (80° C) - B (90° C)	A (70° C)	A (20° C) - B (65° C)	A (20° C)
Glucosio	A (70° C)	A (80° C)	A (60° C)	A (20° C) - B (48° C)	A (20° C)
Iodio	B (60° C) A (20° C) 6.5%	B (70° C) A (20° C) 6.5%	C	C	C
Latte	A (60° C)	A (100° C)	A (60° C)	A (20° C) - B (37° C)	A (20° C)
Magnesio Cloruro	A (70° C) - B (80° C)	A (80° C) - B (100° C)	A (80° C) - B (90° C)	A (20° C) - B (85° C)	A (20° C)
Magnesio Solfato	A (80° C) - B (100° C)	A (80° C) - B (100° C)	A (80° C) - B (90° C)	B (85° C)	A (20° C)
Mercurio	A (60° C)	A (60° C)	A (60° C)	A (20° C)	A (20° C)
Metililchetone	C	A (60° C) - B (90° C)	C	C	C
Nafta	A (80° C)	C	C	C	C
Olio di Anilina	C	B (20° C)	C	C	C
Olio di Cotone	A (70° C) - B (80° C)	A (20° C) - B (80° C)	B (65° C)	C	A (20° C)
Olio di fegato di merluzzo	A (20° C) - B (50° C)	A (20° C)	B (20° C)	C	B (20° C)
Olio di Granoturco	A (80° C)	V	B (20° C)	C	A (20° C)
Olio di Lino	A (80° C)	B (20° C)	B (80° C)	C	C
Olio di Oliva	A (80° C)	B (20° C)	V	C	V
Olio di Pino	B (80° C)	C	C	C	C
Olio di Ricino	A (70° C)	A (60° C)	A (70° C)	A (25° C)	A (20° C)
Olio di Soia	A (80° C)	V	B (20° C)	C	C
Olio Idraulico (esteri fosforici)	C	A (100° C)	C	C	V
Olio SAE n.10	A (80° C)	C	V	C	V
Olio Vegetale	A (70° C)	V	C (20° C)	C	A (20° C)
Paraffina	A (60° C)	C	B (20° C)	V	C
Percloroetilene	V	C	C	C	V
Sodio Cloruro	A (70° C)	B (90° C)	A (80° C)	A (65° C)	B

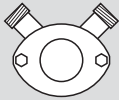
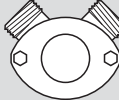

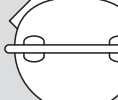
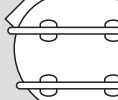
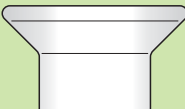




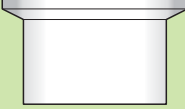





Prodotto	NBR	EPDM	CR	NR	VMQ
Sodio Idrato	B (65° C)	A (20° C)	B (90° C)	A (20° C) - B (65° C)	C (20° C)
Succo di frutta	A (60° C)	A (100° C)	A (60° C)	V	A (20° C)
Succo di pomodoro	A (60° C)	A (80° C)	A (60° C)	Nd	Nd
Toluolo	C	C	C	C	C
Tricloroetilene	C	C	C	C	C
Trietanolammia	C (20° C) 100% B (37° C) 80%	A (70° C)	A (70° C)	B (26° C)	C
Vino	A (90° C)	A (90° C)	A (90° C)	A (20° C) - B (65° C)	A (20° C)
Whisky	A (90° C)	A (90° C)	A (60° C) - C (90° C)	A (20° C) - B (65° C)	A (20° C)
Xilolo	C	C	C	C	C
Zolfo fuso 120° C	C	A (100° C)	A (20° C)	C (20° C)	A (20° C) - C (120° C)
Zucchero di canna	A (60° C) - B (90° C)	A (80° C)	A (20° C) - B (90° C)	A (20° C)	A (20° C)

Product	NBR	EPDM	CR	NR	VMQ
Acetic acid (30%)	B (20° C)	A	B (20° C)	B (20° C)	Nd
Ammonium hydroxide (38%)	A (80° C)	Nd	A (90° C)	A (65° C)	Nd
Aniline	C	A (90° C)	C	C	B (20° C)
Aniline oil	C	B (20° C)	C	C	C
Beer	A (60° C) - B (80° C)	A (60° C) - B (80° C)	A (60° C)	A (20° C)	A (20° C)
Benzyl alcohol	C	B (40° C) - C (60° C)	V	C	Nd
Boric acid	A (60° C) - B (90° C)	A (60° C) - B (90° C)	A (70° C) - B (90° C)	A (20° C) - B (85° C)	A (20° C)
Bromic acid (40%)	C	A (90° C)	V	B (20° C)	C
Butadiene	V	V	V	C	C
Butane	A (90° C) - B (80° C)	C	A (60° C)	C	C
Butter	A (60° C)	A (60° C)	B (20° C) - C (60° C)	C	B (20° C)
Calcium hydrate	A (90° C) - B (90° C)	A (20° C)	A (20° C) - B (90° C)	A (20° C) - B (65° C)	A (20° C)
Calcium hypochlorite	C	A (120° C)	C	C	B (20° C)
Cane sugar liquide	A (60° C) - B (90° C)	A (80° C)	A (20° C) - B (90° C)	A (20° C)	A (20° C)
Castor oil	A (70° C)	A (60° C)	A (70° C)	A (25° C)	A (20° C)
Chlorine (dump)	C	V	C	C	C
Chloroacetic acid	C	B (70°-90° C)	A (20° C) - C (40° C)	V	V
Chloroform	C	C	C	C	C
Chromic acid	C	B	V	V	V
Citric acid	A (70° C) - B (80° C)	A	A	A (20° C)	A (20° C)
Cod-liver oil	A (20° C) - B (50° C)	A (20° C)	B (20° C)	C	B (20° C)
Corn oil	A (80° C)	V	B (20° C)	C	A (20° C)
Cotton oil	A (70° C) - B (80° C)	A (20° C) - C (80° C)	B (65° C)	C	A (20° C)
Diesel oil	A (80° C)	C	C	C	C
Ethyl acetate	C	A (55° C) - C (70° C)	C	C	B (20° C)
Ethyl alcohol	A (60° C) - B (85° C)	A (90° C)	A (70° C) - B (80° C)	A (20° C) - B (65° C)	B (20° C)
Fluoboric acid	A (60° C) - B (85° C)	A (60° C) - B (80° C)	A (60° C) - B (85° C)	A (20° C) - B (65° C)	A (20° C)
Formic acid	V	A (90° C)	V	B (20° C)	B (20° C)
Fruit juices	A (60° C)	A (100° C)	A (60° C)	V	A (20° C)
Gelatine	A (70° C)	A (80° C)	A (60° C) - B (80° C)	A (20° C) - B (65° C)	A (20° C)
Glucose	A (70° C)	A (80° C)	A (60° C)	A (20° C) - B (48° C)	A (20° C)
Glycerine	A (80° C)	A (80° C) - B (90° C)	A (70° C)	A (20° C) - B (65° C)	A (20° C)
Hydraulic oil	C	A (100° C)	C	C	V

Product	NBR	EPDM	CR	NR	VMQ
Hydrochloric acid (conc.)	C	C	C	V	C
Hydrocyanic acid	B (60° C)	A (60° C)	V	Nd	B (20° C)
Hydrofluoric acid (50%)	C	B (60° C)	V	C (20° C)	V
Hydrofluoric acid (conc.)	C	C	C	C	C
Iodine	B (60° C) A (20° C) 6.5%	B (70° C) A (20° C) 6.5%	C	C	C
Kerosene	A (80° C)	C	B (20° C)	C	C
Lactic acid (conc.)	A (20° C)	A (60° C)	A (20° C) - B (60° C) C (80° C)	Nd	Nd
Linseed oil	A (80° C)	B (20° C)	B (20° C)	C	C
Magnesium chloride	A (70° C) - B (80° C)	A (80° C) - B (100° C)	A (80° C) - B (90° C)	A (20° C) - B (85° C)	A (20° C)
Magnesium sulphate	A (80° C) - B (100° C)	A (80° C) - B (100° C)	A (80° C) - B (90° C)	B (85° C)	A (20° C)
Mercury	A (60° C)	A (60° C)	A (60° C)	A (20° C)	A (20° C)
Methyl alcohol	B (65° C)	A (70° C) - B (80° C)	A (60° C) - B (80° C)	B (37° C)	A (70° C)
Methyl-ethyl-ketone	C	A (60° C) - B (90° C)	C	C	C
Milk	A (60° C)	A (100° C)	A (60° C)	A (20° C) - B (37° C)	A (20° C)
Nitric acid (10%)	C	A (40° C) - C (80° C)	C (40° C)	C	B (20° C)
Nitric acid (70%)	Nd	C	C	C	C
Olive oil	A (80° C)	B (20° C)	V	C	V
Oxalic acid (conc.)	B (60° C)	A (100° C)	B (60° C)	B (20° C)	B (20° C)
Palmitic acid	A (70° C)	B (20° C)	B (20-70° C)	B (20° C)	C
Paraffin	A (60° C)	C	B (20° C)	V	C
Perchloroethylen	V	C	C	C	V
Petrol	A (80° C)	C	C	C	C
Phosphoric acid (85%)	C	A (80° C)	A (40° C)	B (65° C)	C
Picric acid	C	A (20° C)	B (20° C)	C	C
Picric acid (10%)	B (70° C)	B (90° C)	A (20° C) - C (40° C)	B (20° C)	C
Pine oil	B (80° C)	C	C	C	C
Propylic alcohol	B (80° C)	B (90° C)	A (60° C) - B (90° C)	A (20° C) - B (65° C)	A (20° C)
SAE n.10 oil	A (80° C)	C	V	C	V
Sodium chloride	A (70° C)	B (90° C)	A (80° C)	A (65° C)	B
Sodium hydrate	B (65° C)	A (20° C)	B (90° C)	A (20° C) - B (65° C)	C (20° C)
Soybean oil	A (80° C)	V	B (20° C)	C	C
Stearic acid	A (80° C)	B (60° C)	B (60-70° C)	V	B (20° C)
Sulphur (fused 120° C)	C	A (100° C)	A (20° C)	C (20° C)	A (20° C) - C (120° C)
Sulphur dioxide	C	C (20° C)	C (20° C)	C	A (20° C)
Sulphuric acid (50%)	A (20° C) - C (80° C)	B (60-80° C)	B (70° C)	B (26° C)	V
Sulphuric acid (80%)	B (40° C)-C (60-80° C)	A (60° C) - C (80° C)	C	C	C
Toluol	C	C	C	C	C
Tomatoes juices	A (60° C)	A (80° C)	A (60° C)	Nd	Nd
Trichloroethylene	C	C	C	C	C
Triethanolamine	C (20° C) 100% B (37° C) 80%	A (70° C)	A (70° C)	B (26° C)	C
Vegetable oil	A (70° C)	V	C (20° C)	C	A (20° C)
Vinegar	B (20° C) - V (60° C)	A (60°-90° C)	B (90° C)	B (20° C)	A (20° C)
Water	A (80° C)	A (100° C)	B (80° C)	A (20° C) - B (80° C)	B (80° C)
Whisky	A (90° C)	A (90° C)	A (60° C) - C (90° C)	A (20° C) - B (65° C)	A (20° C)
Wine	A (90° C)	A (90° C)	A (90° C)	A (20° C) - B (65° C)	A (20° C)
Xylol	C	C	C	C	C

## Raccordi Pipe fittings

		MINI	MIDEX	MINOR	MAJOR	MAXI
Tipo Type						
<b>Garolla</b>		<i>Non disponibile Not available</i>	Garolla 40	Garolla 40 Garolla 50	Garolla 50 Garolla 60 Garolla 70	Garolla 70 Garolla 80 Garolla 100
<b>DIN 11851</b>		DIN 20 DIN 25	DIN 32 DIN 40	DIN 40 DIN 50	DIN 50 DIN 60 DIN 65	DIN 65 DIN 80 DIN 100
<b>BSP-M</b>		BSP-M 3/4"	BSP-M 1"1/4	BSP-M 1"1/4 BSP-M 1"1/2	BSP-M 2"	BSP-M 2"1/2 BSP-M 3"
<b>BSP-F</b>		<i>Non disponibile Not available</i>	BSP-F 1"	BSP-F 1" BSP-F 1"1/4	BSP-F 1"1/2 BSP-F 2"	BSP-F 2"1/2 BSP-F 3"
<b>Macon</b>		<i>Non disponibile Not available</i>	Macon 40	Macon 40 Macon 50	Macon 40 Macon 50	Macon 70
<b>Triclover</b>		Triclover 1"	Triclover 1"1/2	Triclover 1"1/2	Triclover 2"	Triclover 3"
<b>SMS</b>		SMS 25	SMS 38	SMS 38	SMS 51	SMS 76
<b>BSM (RJT)</b>		BSM 1"	BSM 1"1/2	BSM 1"1/2	BSM 2" BSM 2"1/2	BSM 3"
<b>Friederich</b>		<i>Non disponibile Not available</i>	Friederich 40	Friederich 40	Friederich 40 Friederich 60	Friederich 60

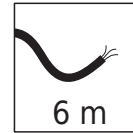
## Quadri elettrici Control Panels



Impianto elettrico CE.  
CE control panel.



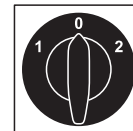
Conforme CE  
CE compliance



Cavo di uscita 6 m  
Exit cable 6 m



Conforme IP55  
IP55 compliance



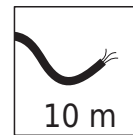
Interruttore/invertitore  
Reverse switch



Impianto elettrico CE con derivazione supplementare 24V NC per sensore di temperatura, pressostato, sensore di livello, ecc.  
CE control panel with supplementary 24V NC shunt trip for temperature sensor, pressure switch, level sensor, etc.



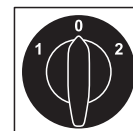
Conforme CE  
CE compliance



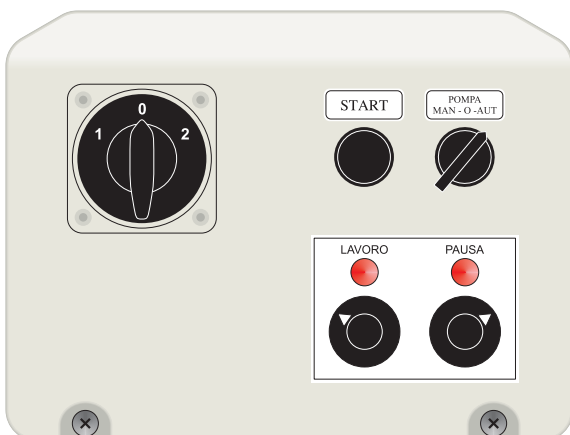
Cavo di uscita 10 m  
Exit cable 10 m



Conforme IP55  
IP55 compliance



Interruttore/invertitore  
Reverse switch

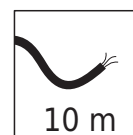


Impianto elettrico CE con temporizzatore con 2 selettori 12 posizioni per pausa e lavoro e con 2 range di temporizzazioni disponibili (da specificare in caso di ordine):  
tipo **LIV1** = lavoro 2-24 minuti, pausa 10-120 minuti;  
tipo **LIV2** = lavoro 2-24 minuti, pausa 1-12 ore.  
CE control panel with 2 selector switch timer, with 12 possible selections each and with 2 time rate options (to be stated in case of order):

**LIV1** type = run 2-24 minutes, pause 10-120 minutes;  
**LIV2** type = run 2-24 minutes, pause 1-12 hours.



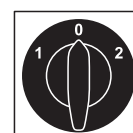
Conforme CE  
CE compliance



Cavo di uscita 10 m  
Exit cable 10 m

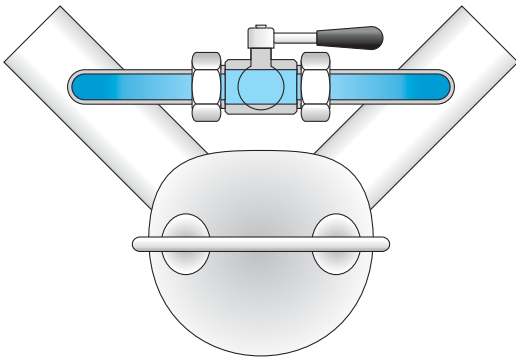


Conforme IP55  
IP55 compliance

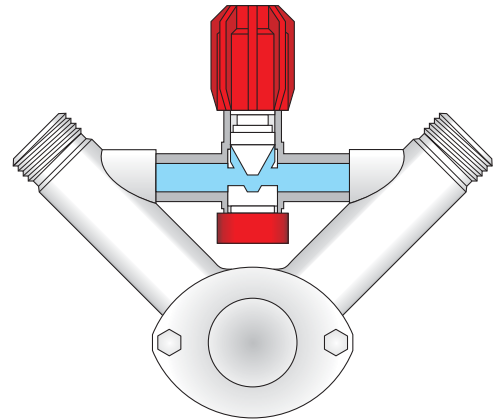


Interruttore/invertitore  
Reverse switch

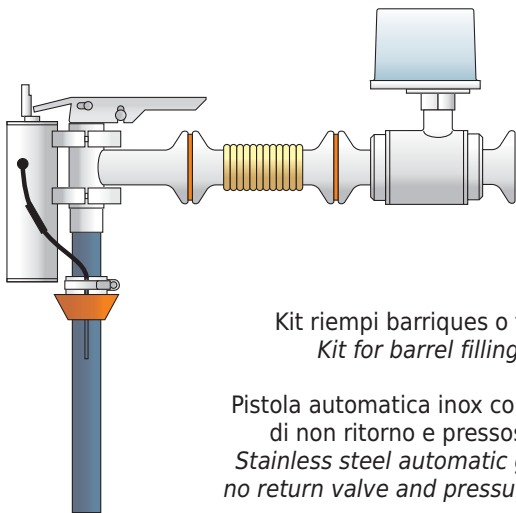
## Accessori Accessories



By-pass con valvola a sfera per i modelli: Mini, Major, Maxi.  
*Ball bypass valve for pump types: Mini, Major, Maxi.*



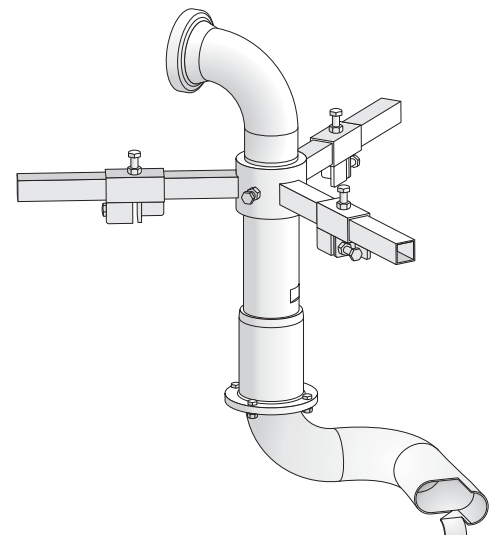
By-pass con valvola a molla per i modelli: Midex e Minor.  
*Spring bypass valve for pump types: Midex and Minor.*



Kit riempi barriques o fusti.  
*Kit for barrel filling.*

Pistola automatica inox con valvola di non ritorno e pressostato.  
*Stainless steel automatic gun with no return valve and pressure switch.*

Il kit può essere utilizzato solo con quadro elettrico del tipo con derivazione supplementare 24V NC.  
In caso di pompa con inverter quest'ultimo deve essere dotato di derivazione supplementare NC.  
*The kit must be used only with a control panel with a supplementary 24V NC shunt trip.*  
In case of pump driven by frequency converter, the last must be fitted with a supplementary NC trip.



Irroratore centrifugo serie IRR LIVERANI:  
- sistema di fissaggio standard per chiusino da 400 mm  
- a richiesta sistema di fissaggio per chiusini di dimensioni superiori

*Centrifugal sprinkler LIVERANI IRR type:*  
- standard fastening system for 400 mm manways  
- on request fasteing system for larger manways.



Carenatura inox per elettropompe.  
*Inox cover for electric pumps.*



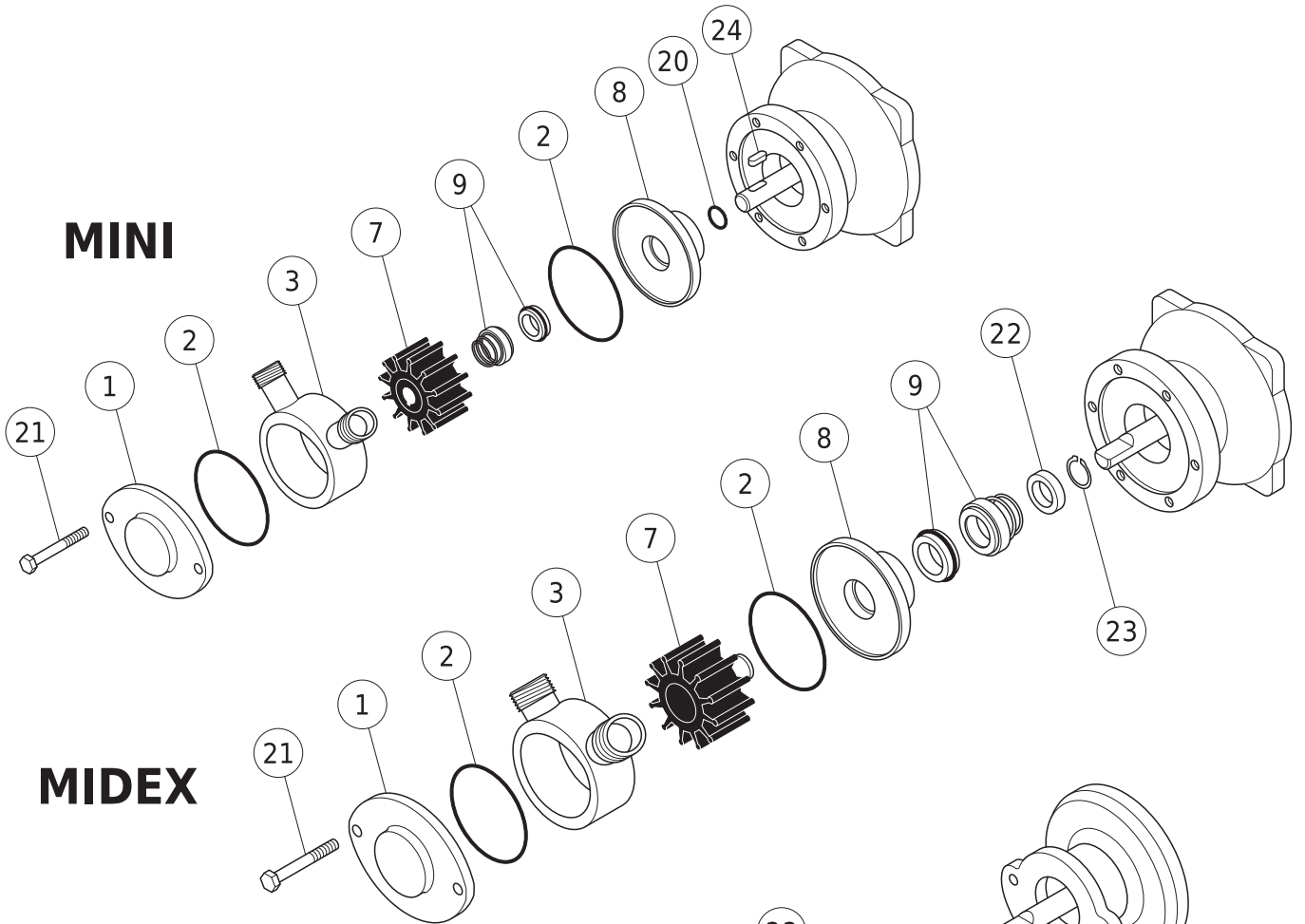
A richiesta l'assemblaggio può essere effettuato con:  
- Carrello inox  
- Con ruote in Poliammide bianche  
- Impianto elettrico con invertitore standard montato sul manico  
- Uscite sanitarie (DIN, SMS, TRICLAMP, BSM/RJT)

*On request equipped with:*  
- Stainless steel trolley  
- With Polyamide white wheels  
- Standard control panel with reverser switch  
- Sanitary inlet/outlet (DIN, SMS, TRICLAMP, BSM/RJT)

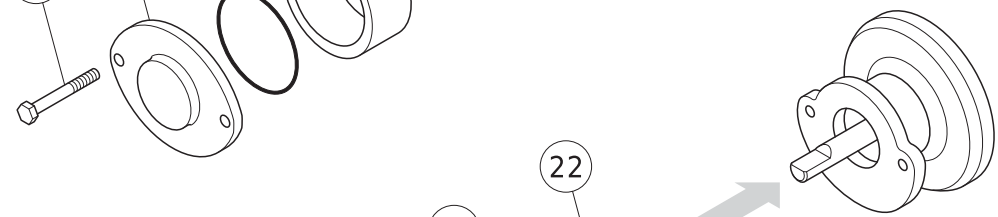
## Componenti Spare parts

Pos.	Descrizione Description	Materiale Material	MINI	MIDEX	MINOR	MAJOR	MAXI
1	Culatta anteriore / Front cover	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
		Acciaio Inox AISI 316 / Stainless Steel AISI 316	●	●			
2	Anello OR culatta / O ring cover	Gomma NBR / Rubber (NBR)	●	●	●	●	●
3	Corpo pompa / Casing	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
		Acciaio Inox AISI 316 / Stainless Steel AISI 316	●	●			
7	Girante / Impeller	Gomma Naturale (NR) / Natural Rubber (NR)	●	●	●	●	●
		Neoprene (CR) / Neoprene Rubber (CR)	●	●	●	●	●
		Nitrile (NBR) / Nitrile (NBR)	●	●	●	●	●
		EPDM / EPDM	●	●	●	●	●
		Silicone (VMQ) / Silicon (VMQ)			●	●	●
8	Culatta posteriore / Rear cover	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
		Acciaio Inox AISI 316 / Stainless Steel AISI 316	●	●			
9	Tenuta meccanica / Mechanical gasket	Inox-Grafite-NBR / Stainless Steel-Graphite-NBR	●	●	●	●	●
		Carburo di Tungsteno-NBR / Tungsten Carbide-NBR	●	●	●	●	●
		Carburo di Tungsteno-Viton / Tungsten Carbide-Viton	●	●	●	●	●
10	Supporto tipo S/P / Support S/P type	Alluminio / Aluminium			●	●	●
	Supporto tipo MID / Support MID type	Alluminio / Aluminium			●	●	●
11	Rondella / Washer	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
12	Dado / Nut	Ottone cromato / Chromate brass			●	●	●
13	Cuscinetto / Ball bearing	Commerciale / Commercial			●	●	●
14	Albero / Shaft	Acciaio Inox AISI 420 / Stainless Steel AISI 420			●	●	●
15	Chiavetta / Flat key	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
16	Anello Seeger / Seeger ring	Acciaio / Steel			●	●	●
17	Puleggia / Pulley	Alluminio / Aluminium			●	●	●
18	Rondella / Washer	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
19	Vite / Bolt	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
20	Anello protezione albero / Guard ring	Gomma NBR / Rubber (NBR)	●		●	●	
21	Cavallotto / U-Bolt	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
	Vite / Bolt	Acciaio Inox AISI 304 / Stainless Steel AISI 304	●	●			
22	Cavallotto / U-Bolt	Acciaio Inox AISI 304 / Stainless Steel AISI 304					●
	Anello distanziale / Spacing ring	Acciaio Inox AISI 304 / Stainless Steel AISI 304		●	●	●	
23	Anello Seeger / Seeger ring	Acciaio Inox AISI 304 / Stainless Steel AISI 304		●	●	●	
	Cuscinetto / Ball bearing	Commerciale / Commercial					●
24	Chiavetta / Flat key	Acciaio Inox AISI 304 / Stainless Steel AISI 304	●				
25	Flangia tipo MID / MID flange	Alluminio / Aluminium			●	●	●
26	Vite / Bolt	Acciaio / Steel			●	●	●
27	Giunto pompa / Pump coupling	Acciaio / Steel			●	●	●
28	Vite / Bolt	Acciaio / Steel			●	●	●
29	Manicotto di collegamento / Box coupling	Nylon / Nylon			●	●	●
30	Giunto motore / Motor coupling	Acciaio / Steel			●	●	●
31	Motore orbitale / Orbital motor	Commerciale / Commercial			●	●	●
32	Anello di centraggio / Center ring	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
33	Chiavetta / Flat key	Acciaio / Steel			●	●	●
34	Rondella / Washer	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
35	Vite / Bolt	Acciaio Inox AISI 304 / Stainless Steel AISI 304			●	●	●
36	Anello Seeger SB 50 int. / Seeger ring SB 50 int.	Acciaio / Steel			●		

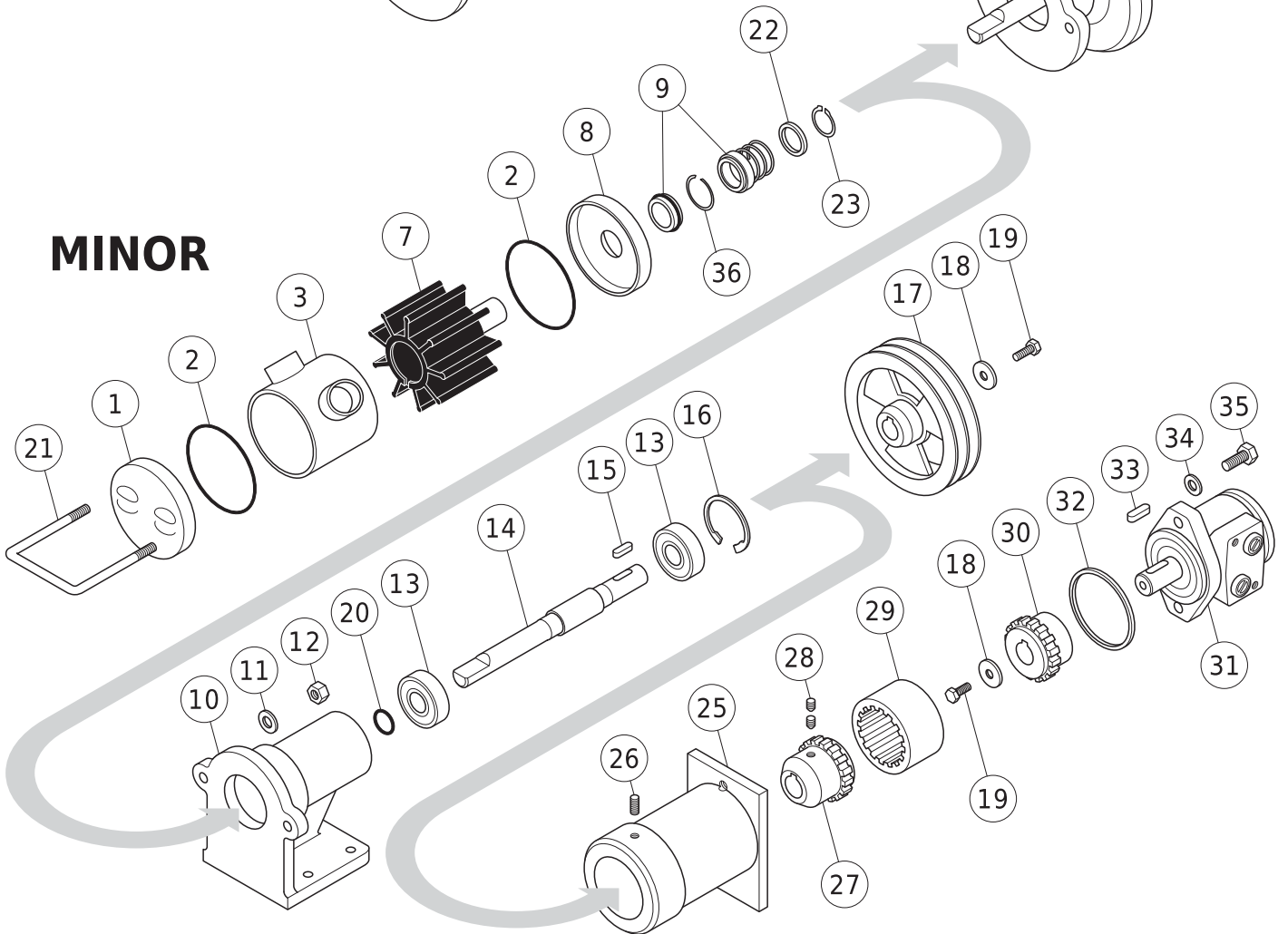
# MINI



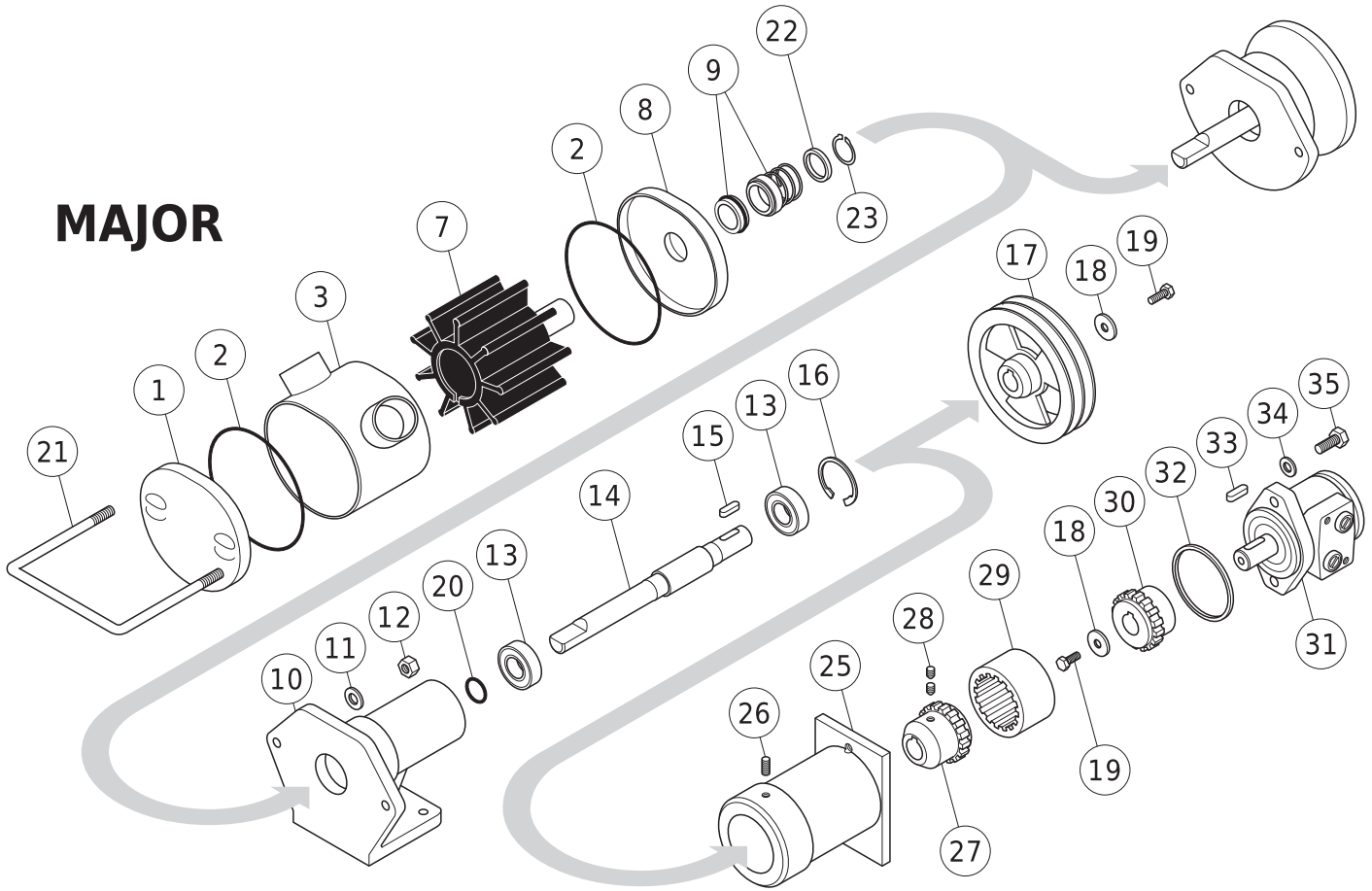
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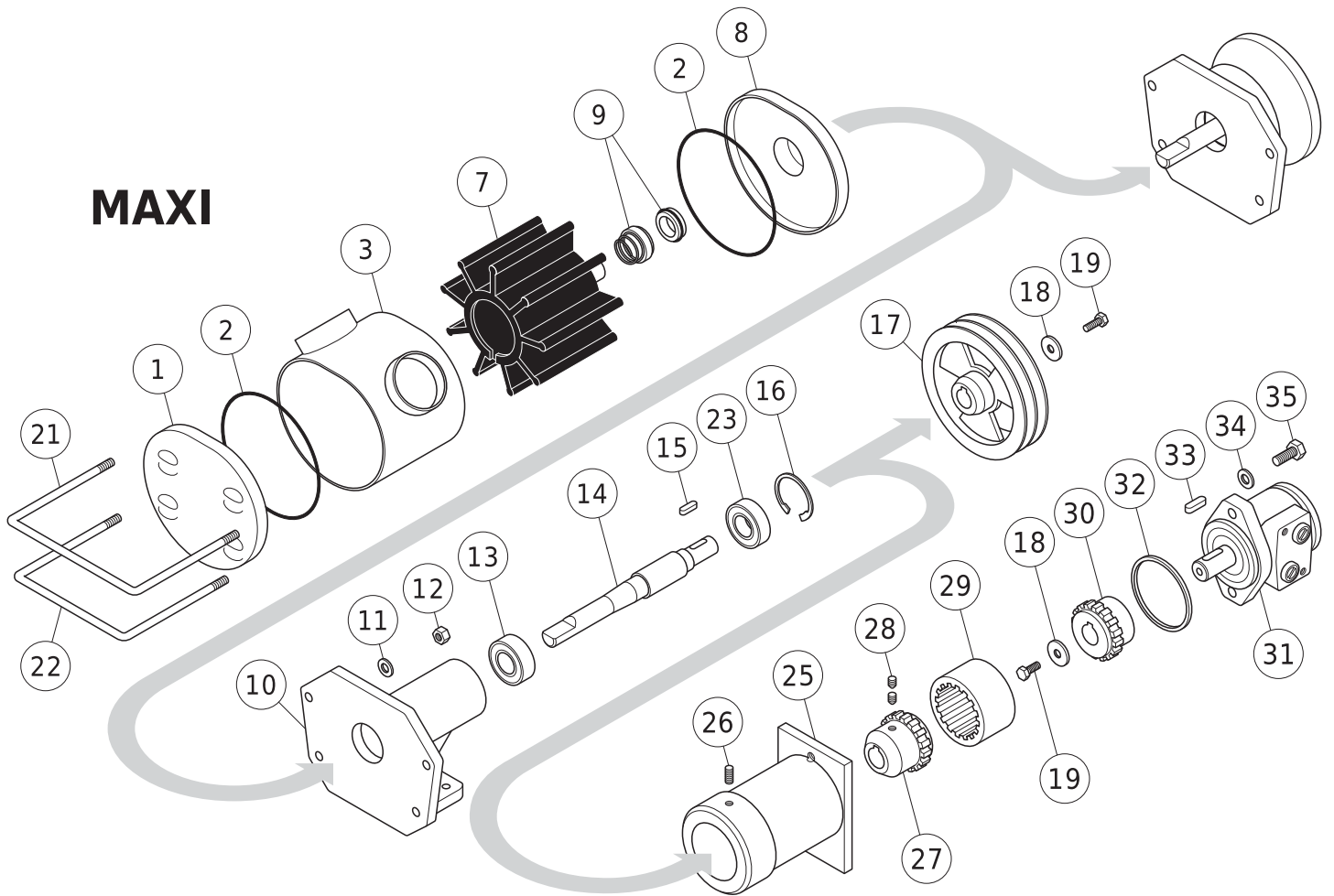
# MINOR



# MAJOR













# MAXI

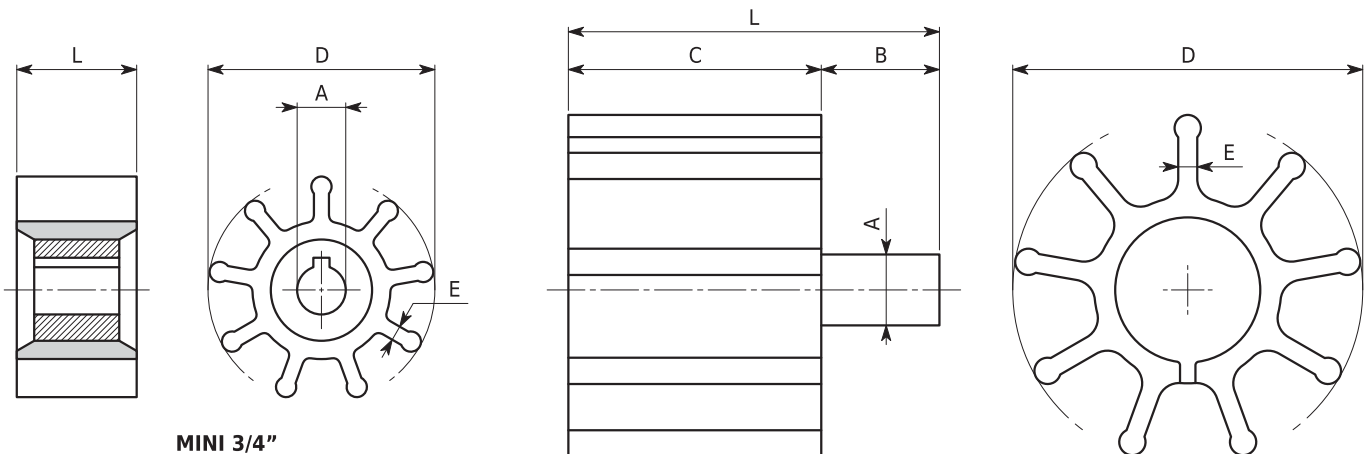
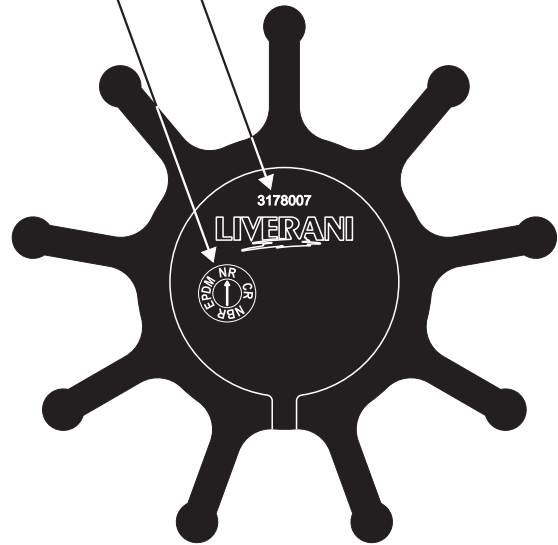




## Identificazione e dimensione della girante *Identification and impeller dimensions*

Riferimento materiale girante <i>Impeller's material reference</i>		
		<b>NBR</b> Nitrile <i>Nitrile</i>
		<b>CR</b> Neoprene <i>Neoprene rubber</i>
		<b>EPDM</b> EPDM <i>EPDM</i>
		<b>NR</b> Gomma naturale <i>Natural rubber</i>
		<b>VMQ</b> Silicone <i>Silicon</i>

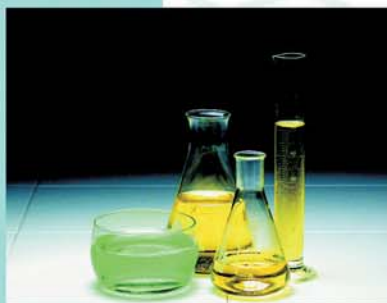
Riferimento pompa <i>Pump reference</i>	
<b>MINI 3/4"</b>	n.d. / n.a.
<b>MIDEX 1"1/4</b>	3173007
<b>MINOR 40</b>	3174007
<b>MAJOR 60</b>	3176007
<b>MAXI 80</b>	3178007



**MINI 3/4"**

**MIDEX 1"1/4 - MINOR 40 - MAJOR 60 - MAXI 80**

Tipo <i>Type</i>	A	B	C	D	E	L	Nr. pale <i>Nr. blades</i>
<b>MINI 3/4"</b>	Ø 12	-	29.6	Ø 56	4	29.6	8
<b>MIDEX 1"1/4</b>	Ø 24.8	35	52	Ø 66.5	5	87	8
<b>MINOR 40</b>	Ø 24.8	35	87	Ø 98	5.5	122	9
<b>MAJOR 60</b>	Ø 30	57	107	Ø 146	7	164	9
<b>MAXI 80</b>	Ø 30	44	144	Ø 196	10	188	9



# LIVERANI

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