

# POMPE A GIRANTE FLESSIBILE

FLEXIBLE IMPELLER PUMPS



CATALOGO  
TECNICO

TECHNICAL  
CATALOGUE

**LIVERANI**

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# BARE SHAFT PUMPS

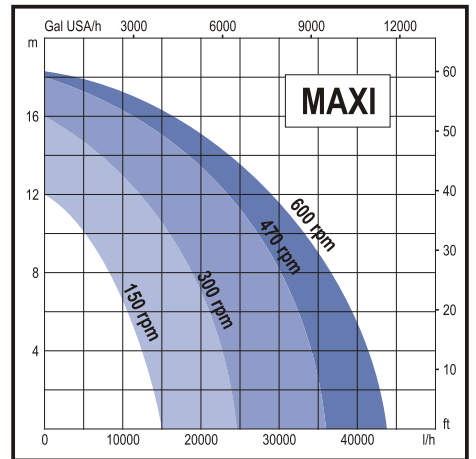
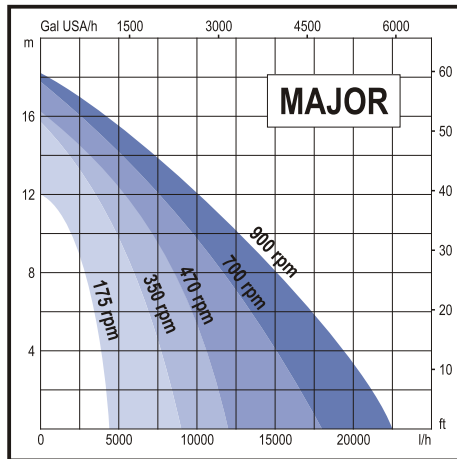
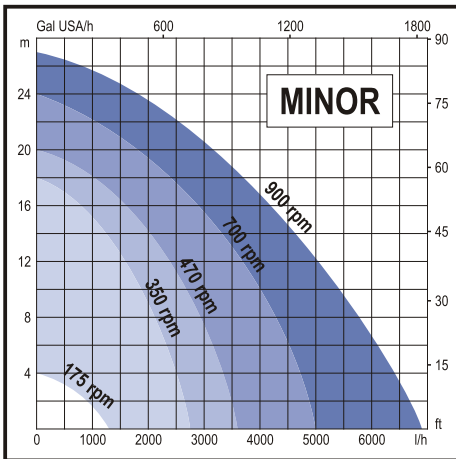
## HYDRAULIC ORBITAL MOTOR PUMPS



**POMPE AD ASSE NUDO (S/P)**  
BARE SHAFT PUMPS (S/P)

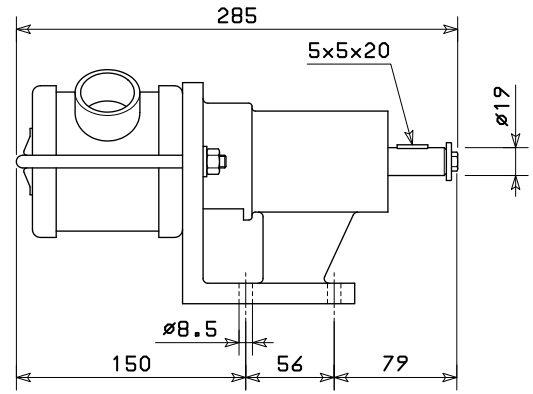
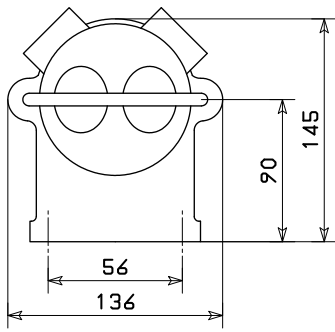


**POMPE CON MOTORE IDRAULICO ORBITALE (MID)**  
HYDRAULIC ORBITAL MOTOR PUMPS (S/P)

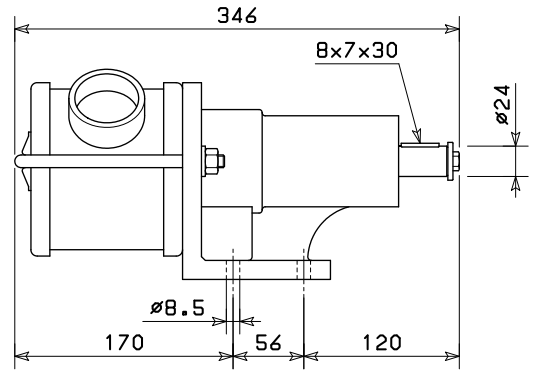
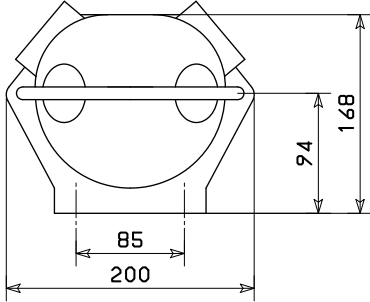


| Type            | /Weight |         | /min<br>Rpm | H (m) = |       |       |       |       | Q (l/h) = |      |      |    |   | H |
|-----------------|---------|---------|-------------|---------|-------|-------|-------|-------|-----------|------|------|----|---|---|
|                 | S/P     | MID     |             | 0       | 4     | 8     | 12    | 16    | 18        | 20   | 24   | 24 |   |   |
| <b>MINOR 40</b> | 5,4 kg  | 11,7 kg | min 175     | 1320    | 0     |       |       |       |           |      |      |    |   | Q |
|                 |         |         | 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>MAJOR 60</b> | 9,7 kg  | 16 kg   | min 175     | 4320    | 3840  | 3000  | 0     |       |           |      |      |    |   | Q |
|                 |         |         | 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>MAXI 80</b>  | 15,7 kg | 22 kg   | min 150     | 15000   | 12000 | 8700  | 0     |       |           |      |      |    | Q |   |
|                 |         |         | 300         | 24600   | 22200 | 18900 | 12000 | 0     |           |      |      |    |   |   |
|                 |         |         | 470         | 36000   | 34200 | 30000 | 24000 | 12000 | 0         |      |      |    |   |   |
|                 |         |         | max 600     | 43800   | 41400 | 36000 | 30000 | 16000 | 0         |      |      |    |   |   |

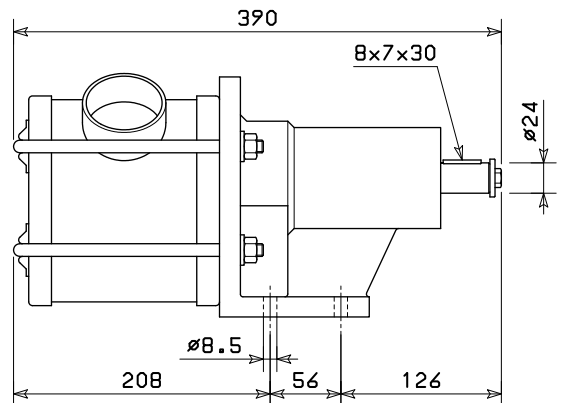
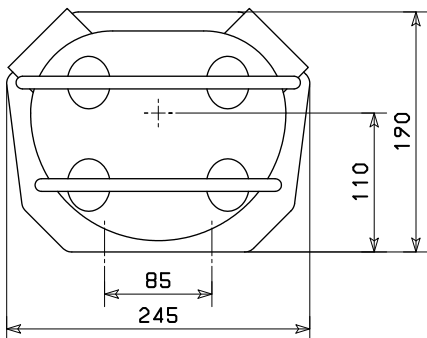
MINOR



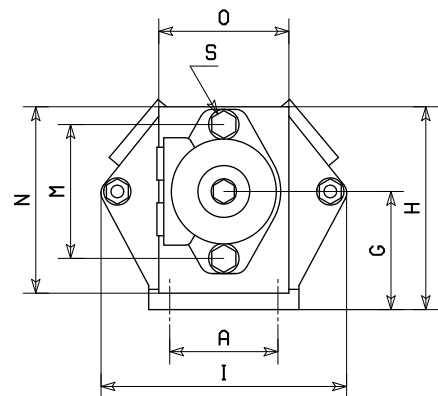
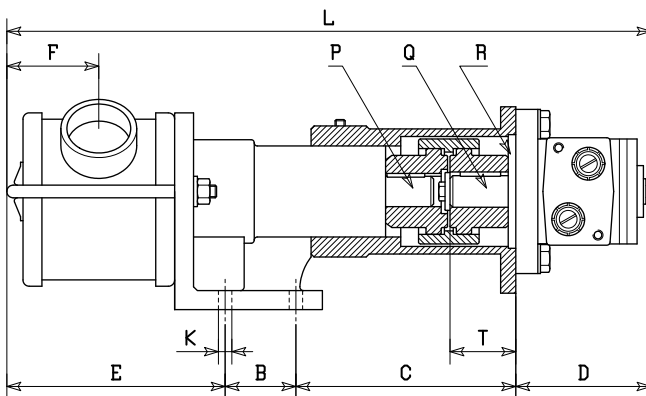
MAJOR



MAXI



MID



| Tipo/Typ | A  | B  | C   | D   | E   | F  | G   | H   | I   | K    | L   | M   | N   | O   | P   | Q   | R     | S   | T  |
|----------|----|----|-----|-----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-------|-----|----|
| MINOR 40 | 56 | 56 | 141 | 107 | 150 | 60 | 90  | 157 | 136 | Ø8.5 | 454 | 106 | 146 | 103 | Ø19 | Ø25 | Ø82.5 | M12 | 69 |
| MAJOR 60 | 85 | 56 | 175 | 107 | 170 | 70 | 94  | 161 | 200 | Ø8.5 | 508 | 106 | 146 | 103 | Ø24 | Ø25 | Ø90   | M12 | 52 |
| MAXI 80  | 85 | 56 | 182 | 107 | 208 | 90 | 110 | 177 | 240 | Ø8.5 | 553 | 106 | 146 | 103 | Ø24 | Ø25 | Ø90   | M12 | 52 |

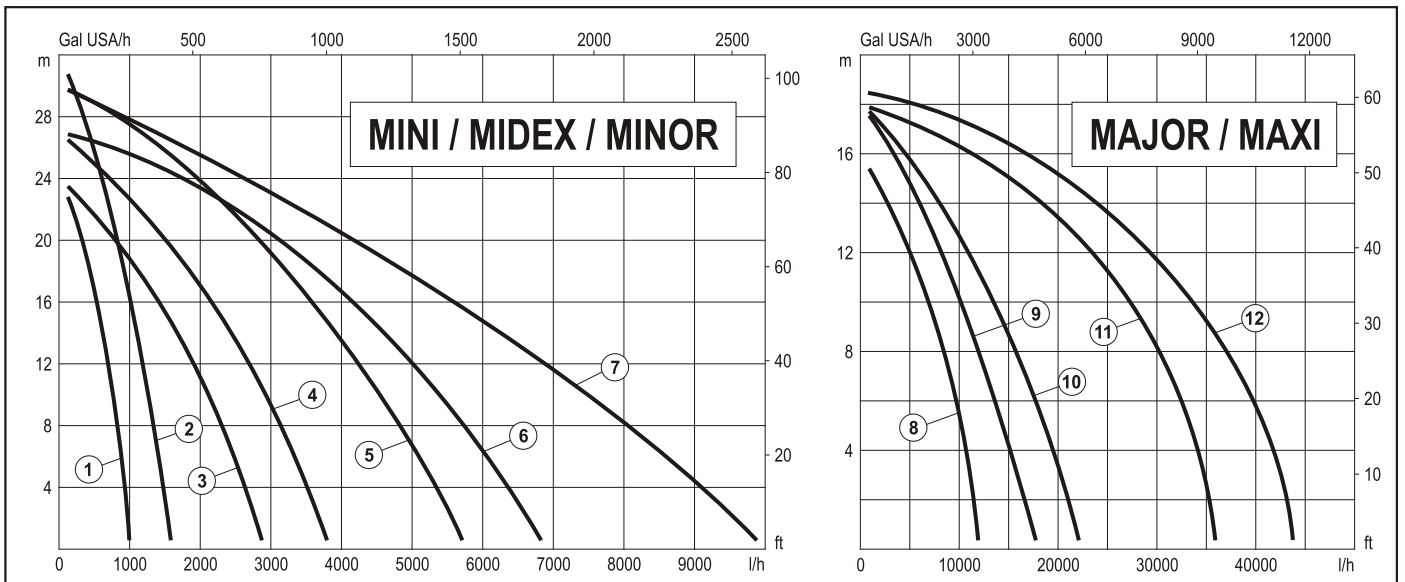
# COAXIAL PUMPS



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



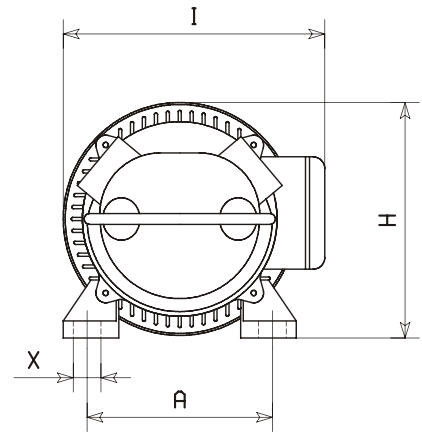
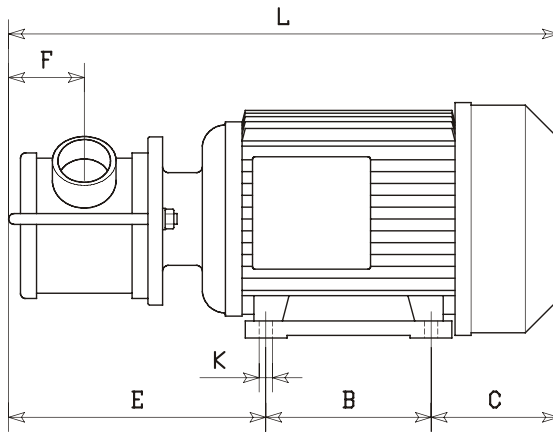
**EP MINOR 40 - MAJOR 60 - MAXI 80**



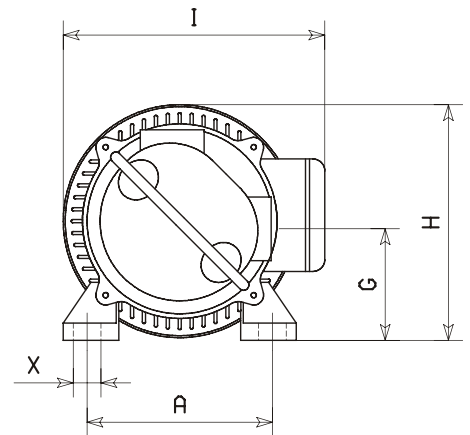
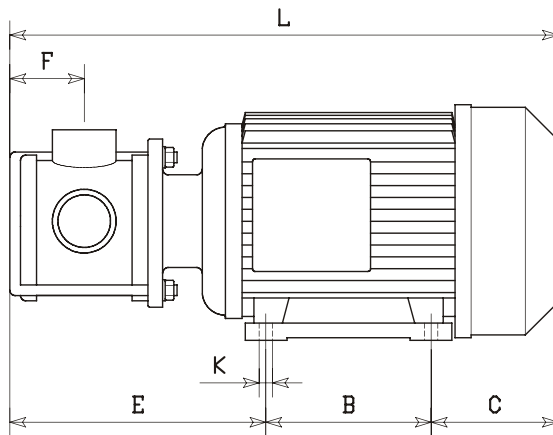
| Type            | Weight | /Type     | HP   | kW   | Speed | /min<br>Rpm | Ref. | H (m) =   |       |       |       |       |      |      |      | H   |    |   |   |
|-----------------|--------|-----------|------|------|-------|-------------|------|-----------|-------|-------|-------|-------|------|------|------|-----|----|---|---|
|                 |        |           |      |      |       |             |      | Q (l/h) = |       |       |       |       |      |      |      |     |    |   |   |
|                 |        |           |      |      |       |             |      | 0         | 4     | 8     | 12    | 16    | 18   | 24   | 27   | 30  | 32 |   |   |
| EP MINI 3/4"    | 9,3 kg | MF TF     | 0,5  | 0,37 | 1     | 900         | 1    | 1000      | 900   | 840   | 720   | 540   | 450  | 0    |      |     |    |   | Q |
|                 | 9,0 kg | MF TF     | 0,75 | 0,56 | 1     | 1400        | 2    | 1620      | 1440  | 1320  | 1140  | 1020  | 900  | 600  | 400  | 180 | 0  |   |   |
|                 | 10 kg  | CC 12-24V | 0,4  | 0,3  | 1     | 1400        | 2    | 1620      | 1440  | 1320  | 1140  | 1020  | 900  | 600  | 400  | 180 | 0  |   |   |
| EP MIDEX 1" 1/4 | 15 kg  | MF TF     | 0,75 | 0,56 | 1     | 900         | 4    | 3840      | 3480  | 3180  | 2760  | 2160  | 1800 | 720  | 0    |     |    |   | Q |
|                 | 15 kg  | MF TF     | 1    | 0,75 | 1     | 1400        | 5    | 5760      | 5160  | 4800  | 4320  | 3600  | 3180 | 1920 | 1200 | 0   |    |   |   |
|                 | 15 kg  | TF        | 0,75 | 0,56 | 2     | 1400        | 5    | 5760      | 5160  | 4800  | 4320  | 3600  | 3180 | 1920 | 1200 | 0   |    |   |   |
|                 |        |           | 0,5  | 0,37 |       | 700         | 3    | 2880      | 2600  | 2300  | 1900  | 1400  | 1100 | 0    |      |     |    |   |   |
| 15,4 kg         | CC 24V | 0,7       | 0,5  | 1    | 900   | 4           | 3840 | 3480      | 3180  | 2760  | 2160  | 1800  | 720  | 0    |      |     |    |   |   |
| EP MINOR 40     | 20 kg  | MF TF     | 2    | 1,5  | 1     | 900         | 6    | 6900      | 6200  | 5760  | 5040  | 4200  | 3660 | 1800 | 0    |     |    |   | Q |
|                 | 20 kg  | TF        | 2    | 1,5  | 1     | 1400        | 7    | 10000     | 9000  | 8000  | 6900  | 5500  | 4900 | 2600 | 1700 | 0   |    |   |   |
|                 | 27 kg  | TF        | 2,5  | 1,87 | 2     | 1400        | 7    | 10000     | 9000  | 8000  | 6900  | 5500  | 4900 | 2600 | 1700 | 0   |    |   |   |
| 1,82            |        |           | 1,35 | 900  |       | 6           | 6900 | 6200      | 5760  | 5040  | 4200  | 3660  | 1800 | 0    |      |     |    |   |   |
| EP MAJOR 60     | 38 kg  | TF        | 1,5  | 1,1  | 1     | 470         | 8    | 12000     | 10500 | 8700  | 5100  | 0     |      |      |      |     |    | Q |   |
|                 | 31 kg  | TF        | 2    | 1,5  | 1     | 700         | 9    | 18000     | 15000 | 12000 | 8400  | 2500  | 0    |      |      |     |    |   |   |
|                 | 31 kg  | TF        | 2,5  | 1,87 | 1     | 900         | 10   | 22500     | 19560 | 15000 | 11220 | 3000  | 0    |      |      |     |    |   |   |
| EP MAXI 80      | 68 kg  | TF        | 4,5  | 3,4  | 1     | 470         | 11   | 36000     | 34200 | 30000 | 24000 | 12000 | 0    |      |      |     |    |   | Q |
|                 | 68 kg  | TF        | 4,5  | 3,4  | 1     | 600         | 12   | 43800     | 41400 | 36000 | 30000 | 16000 | 0    |      |      |     |    |   |   |

\* MF = Monofase/Single-phase TF = Trifase/Three-phase CC = Corrente continua/Direct current

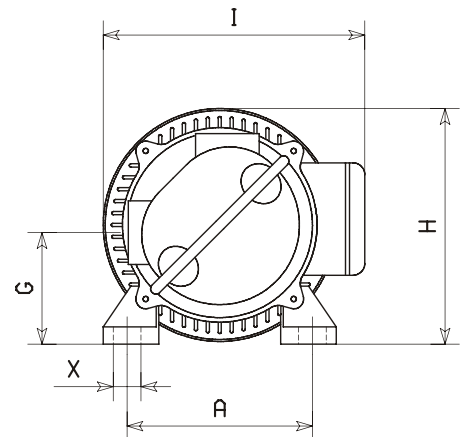
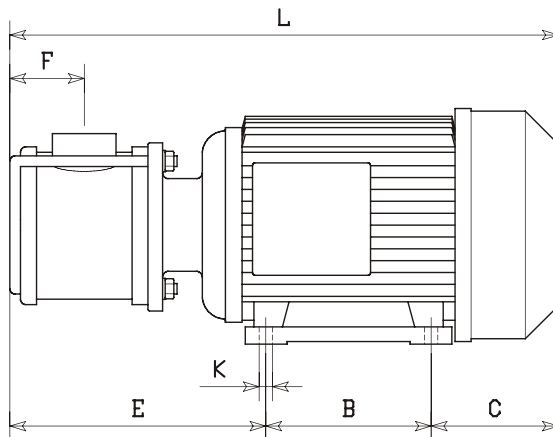
Pos. V



Pos. 90D



Pos. 90S



| Tipo Typ       | /min Rpm |      | L   | H   | I   | A   | B   | C   | E   | F  | G   | K  | X  |
|----------------|----------|------|-----|-----|-----|-----|-----|-----|-----|----|-----|----|----|
| EP MINI 3/4"   | 900      | 1400 | 276 | 140 | 180 | 112 | 90  | 80  | 106 | 26 | 70  | 7  | 12 |
|                | 900      | 1400 | 338 | 159 | 215 | 125 | 100 | 85  | 153 | 38 | 70  | 8  | 16 |
| EP MIDEK 1"1/4 | 700/1400 |      | 338 | 159 | 215 | 125 | 100 | 85  | 153 | 38 | 70  | 8  | 16 |
|                | 900      | 1400 | 420 | 180 | 238 | 140 | 125 | 95  | 200 | 60 | 84  | 10 | 16 |
| EP MINOR 40    | 900/1400 |      | 455 | 198 | 250 | 160 | 140 | 107 | 208 | 60 | 94  | 12 | 21 |
|                | 700      | 900  | 490 | 198 | 250 | 160 | 140 | 107 | 243 | 70 | 82  | 12 | 21 |
| EP MAJOR 60    | 470      |      | 514 | 225 | 275 | 190 | 140 | 115 | 259 | 70 | 82  | 12 | 22 |
|                | 470      | 600  | 630 | 261 | 330 | 216 | 178 | 143 | 309 | 90 | 115 | 12 | 22 |

## BELT DRIVEN PUMPS ON BASE OR TROLLEY

6



**GRUPPO A PULEGGIA SU BASE**  
BELT DRIVEN PUMP ON BASE

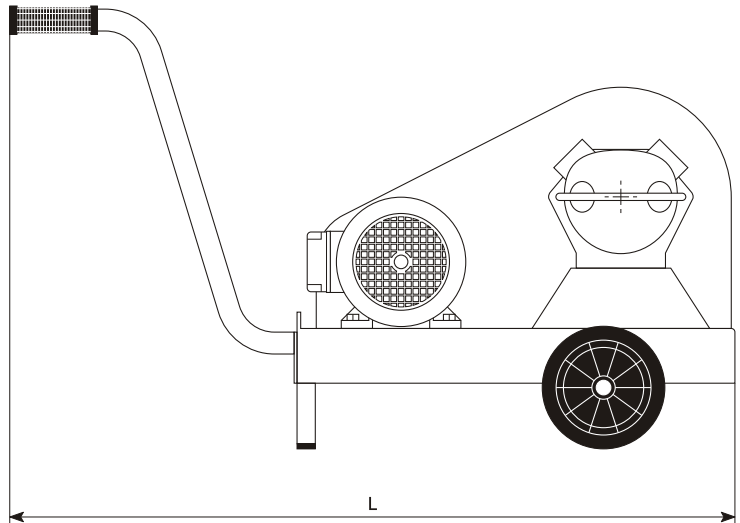
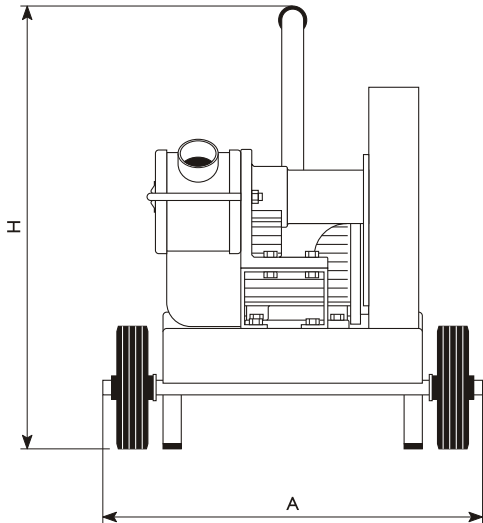
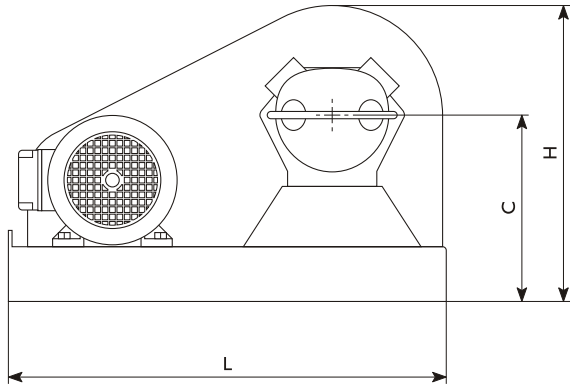
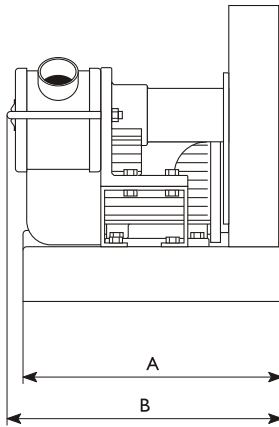
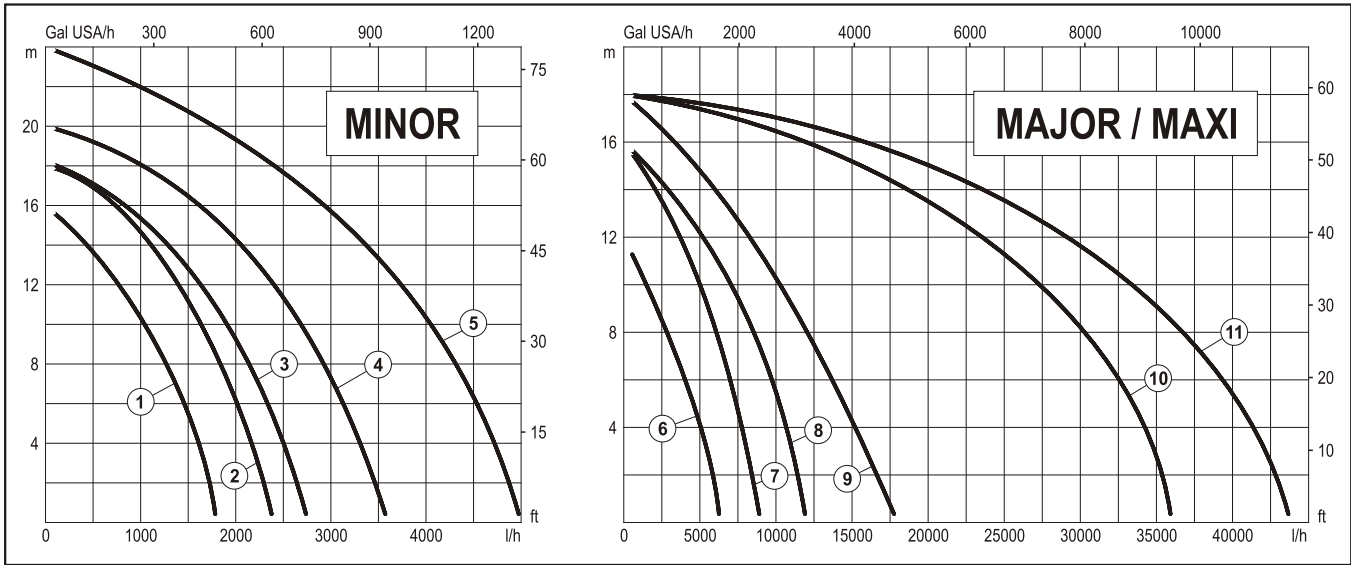


**GRUPPO A PULEGGIA SU CARRELLO**  
BELT DRIVEN PUMP ON TROLLEY

| Tipo<br>Typ        | *<br>Weight * | Motore/Motor ** |            |            | Speed      | /min<br>Rpm | Ref.   | H (m) = |       |       |       | Q (l/h) = |      |      |    | H |   |
|--------------------|---------------|-----------------|------------|------------|------------|-------------|--------|---------|-------|-------|-------|-----------|------|------|----|---|---|
|                    |               | Tipo/Typ        | HP         | kW         |            |             |        | 0       | 4     | 8     | 12    | 16        | 18   | 20   | 24 |   |   |
| <b>GR MINOR 40</b> | 36-38 kg      | MF TF           | 2          | 1,5        | I          | 300         | 2      | 2400    | 2150  | 1800  | 1400  | 700       | 0    |      |    |   | Q |
|                    | 36-38 kg      | MF TF           | 2          | 1,5        | I          | 470         | 4      | 3600    | 3300  | 2900  | 2400  | 1600      | 1000 | 0    |    |   |   |
|                    | 36-38 kg      | MF TF           | 2          | 1,5        | I          | 700         | 5      | 5000    | 4700  | 4300  | 3700  | 3000      | 2520 | 1800 | 0  |   |   |
|                    | 45-46 kg      | TF              | 2,4<br>1,4 | 1,8<br>I   | 2          | 470<br>235  | 4<br>I | 3600    | 3300  | 2900  | 2400  | 1600      | 1000 | 0    |    |   |   |
|                    |               |                 |            |            |            |             |        | 1800    | 1600  | 1300  | 750   | 0         |      |      |    |   |   |
| 40-41 kg           | TF            | 3<br>2          | 2,2<br>1,5 | 2          | 700<br>350 | 5<br>3      | 5000   | 4700    | 4300  | 3700  | 3000  | 2520      | 1800 | 0    |    |   |   |
|                    |               |                 |            |            |            |             | 2750   | 2500    | 2100  | 1600  | 800   | 0         |      |      |    |   |   |
| <b>GR MAJOR 60</b> | 42-44 kg      | MF TF           | 2          | 1,5        | I          | 470         | 8      | 12000   | 10500 | 8700  | 5100  | 0         |      |      |    |   |   |
|                    | 42-44 kg      | TF              | 2,5        | 1,86       | I          | 700         | 9      | 18000   | 15000 | 12000 | 8400  | 2500      | 0    |      |    |   |   |
|                    | 51-53 kg      | TF              | 2,4<br>1,4 | 1,8<br>I   | 2          | 470<br>235  | 8<br>6 | 12000   | 10500 | 8700  | 5100  | 0         |      |      |    |   |   |
|                    |               |                 |            |            |            |             |        | 6300    | 5100  | 2700  | 0     |           |      |      |    |   |   |
|                    | 44-45 kg      | TF              | 3<br>2     | 2,2<br>1,5 | 2          | 700<br>350  | 9<br>7 | 18000   | 15000 | 12000 | 8400  | 2500      | 0    |      |    |   |   |
| 9000               |               |                 |            |            |            |             |        | 7800    | 6000  | 3700  | 0     |           |      |      |    |   |   |
| <b>GR MAXI 80</b>  | 65-67 kg      | TF              | 5,5        | 4          | I          | 470         | 10     | 36000   | 34200 | 30000 | 24000 | 12000     | 0    |      |    |   |   |
|                    | 65-67 kg      | TF              | 5,5        | 4          | I          | 600         | 11     | 43800   | 41400 | 36000 | 30000 | 16000     | 0    |      |    |   |   |

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

\*\* MF = Monofase/Single-phase TF = Trifase/Three-phase



| Tipo<br>Typ        | /Group on base |     |     |     |     | /Group on trolley |     |      |
|--------------------|----------------|-----|-----|-----|-----|-------------------|-----|------|
|                    | A              | B   | C   | H   | L   | A                 | H   | L    |
| <b>GR MINOR 40</b> | 350            | -   | 245 | 400 | 600 | 500               | 610 | 1000 |
| <b>GR MAJOR 60</b> | 350            | 375 | 250 | 400 | 600 | 500               | 610 | 1000 |
| <b>GR MAXI 80</b>  | 350            | 430 | 265 | 400 | 600 | 500               | 610 | 1000 |



# PUMPS WITH GEARMOTOR



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



**RID MAXI Double**



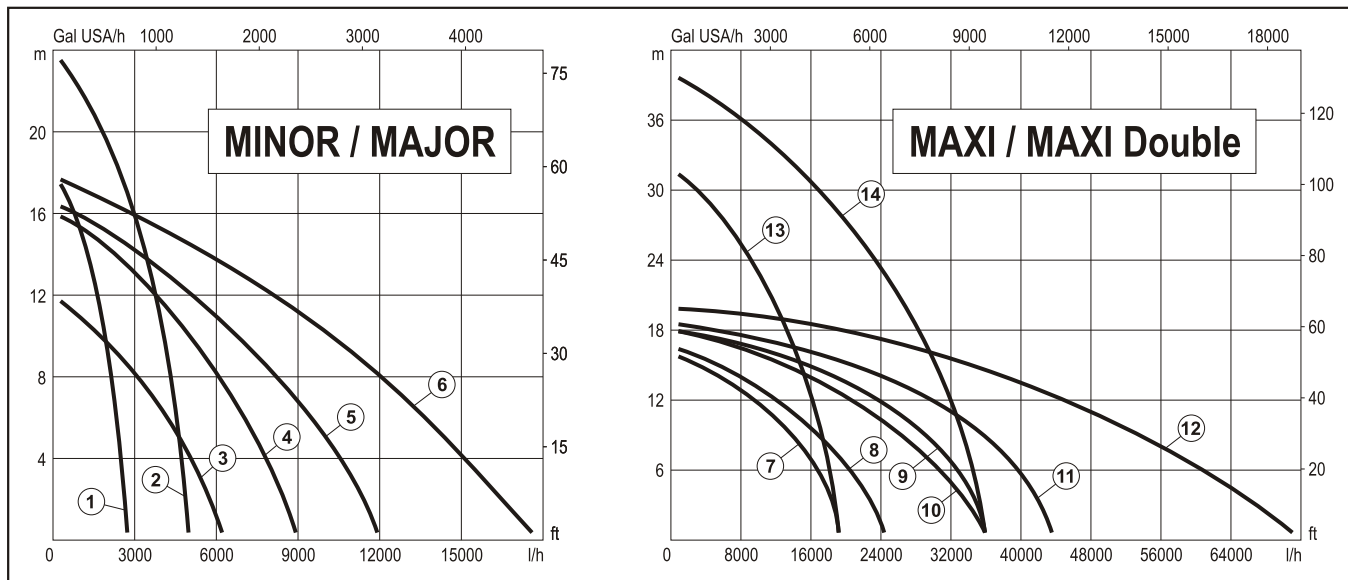
**RID MAXI Double 2Q**



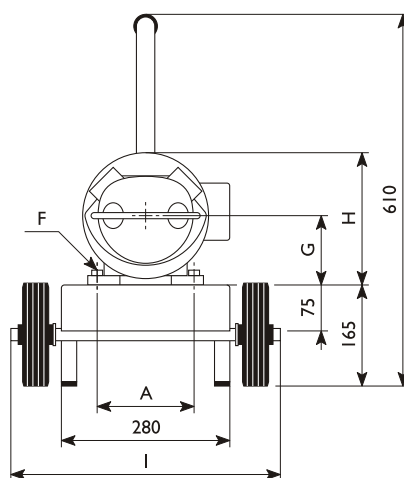
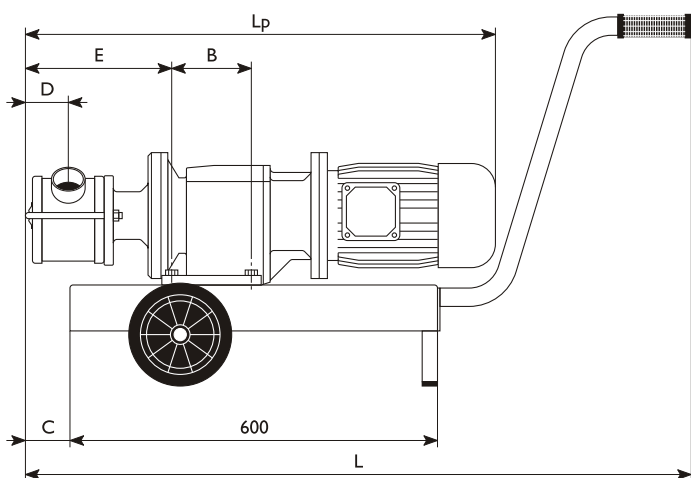
**RID MAXI Double 2H**

| Tipo<br>Typ        | Weight | Motor *  |     |     | Speed | /min<br>Rpm | Ref. | H (m) = |       |       |       |       |       |       | Q (l/h) = |       |       | H     |       |
|--------------------|--------|----------|-----|-----|-------|-------------|------|---------|-------|-------|-------|-------|-------|-------|-----------|-------|-------|-------|-------|
|                    |        | Tipo/Typ | HP  | kW  |       |             |      | 0       | 4     | 12    | 16    | 18    | 20    | 24    | 32        | 40    |       |       |       |
| RID MINOR 40       | 38 kg  | TF       | 2   | 1,5 | 1     | 350         | 1    | 2750    | 2500  | 1600  | 800   | 0     |       |       |           |       |       |       |       |
|                    | 38 kg  | TF       | 2   | 1,5 | 1     | 700         | 2    | 5000    | 4700  | 3700  | 3000  | 2520  | 1800  | 0     |           |       |       |       |       |
|                    | 38 kg  | TF       | 3   | 2,2 | 2     | 700         | 2    | 5000    | 4700  | 3700  | 3000  | 2520  | 1800  | 0     |           |       |       |       |       |
|                    |        |          |     |     |       |             |      |         |       |       |       |       |       |       | 2         | 1,5   | 1     | 2750  | 2500  |
| RID MAJOR 60       | 48 kg  | TF       | 3   | 2,2 | 1     | 470         | 5    | 12000   | 10500 | 5100  | 0     |       |       |       |           |       |       |       |       |
|                    | 48 kg  | TF       | 3   | 2,2 | 1     | 700         | 6    | 18000   | 15000 | 8400  | 2500  | 0     |       |       |           |       |       |       |       |
|                    | 48 kg  | TF       | 3   | 2,2 | 2     | 470         | 5    | 12000   | 10500 | 5100  | 0     |       |       |       |           |       |       |       |       |
|                    |        |          |     |     |       |             |      |         |       |       |       | 2     | 1,5   | 3     | 6300      | 5100  | 0     |       |       |
|                    | 48 kg  | TF       | 3   | 2,2 | 2     | 700         | 6    | 18000   | 15000 | 8400  | 2500  | 0     |       |       |           |       |       |       |       |
|                    |        |          |     |     |       |             |      |         |       |       |       |       | 2     | 1,5   | 4         | 9000  | 7800  | 3700  | 0     |
| RID MAXI 80        | 79 kg  | TF       | 5,5 | 4   | 1     | 470         | 9    | 36000   | 34200 | 24000 | 12000 | 0     |       |       |           |       |       |       |       |
|                    | 79 kg  | TF       | 5,5 | 4   | 1     | 600         | 11   | 43800   | 41400 | 30000 | 16000 | 0     |       |       |           |       |       |       |       |
|                    | 79 kg  | TF       | 6   | 4,5 | 2     | 470         | 9    | 36000   | 34200 | 24000 | 12000 | 0     |       |       |           |       |       |       |       |
|                    |        |          |     |     |       |             |      |         |       |       |       |       | 4,5   | 3,3   | 7         | 19200 | 18000 | 9600  | 0     |
|                    | 79 kg  | TF       | 6   | 4,5 | 2     | 600         | 11   | 43800   | 41400 | 30000 | 16000 | 0     |       |       |           |       |       |       |       |
|                    |        |          |     |     |       |             |      |         |       |       |       |       | 4,5   | 3,3   | 8         | 24600 | 22200 | 12000 | 0     |
| RID MAXI Double 2Q | 185 kg | TF       | 7,5 | 5,5 | 1     | 470         | 12   | 72000   | 65000 | 45000 | 30000 | 20000 | 0     |       |           |       |       |       |       |
|                    | 200 kg | TF       | 7,5 | 5,5 | 2     | 470         | 12   | 72000   | 65000 | 45000 | 30000 | 20000 | 0     |       |           |       |       |       |       |
| 4                  |        |          |     |     |       |             |      |         |       |       |       |       |       | 3     | 10        | 36000 | 33000 | 20500 | 10000 |
| RID MAXI Double 2H | 185 kg | TF       | 7,5 | 5,5 | 1     | 470         | 14   | 36000   | 35000 | 32000 | 29700 | 28400 | 27000 | 23600 | 14300     | 0     |       |       |       |
|                    | 200 kg | TF       | 7,5 | 5,5 | 2     | 470         | 14   | 36000   | 35000 | 32000 | 29700 | 28400 | 27000 | 23600 | 14300     | 0     |       |       |       |
| 4                  |        |          |     |     |       |             |      |         |       |       |       |       |       |       |           |       | 3     | 13    | 19200 |

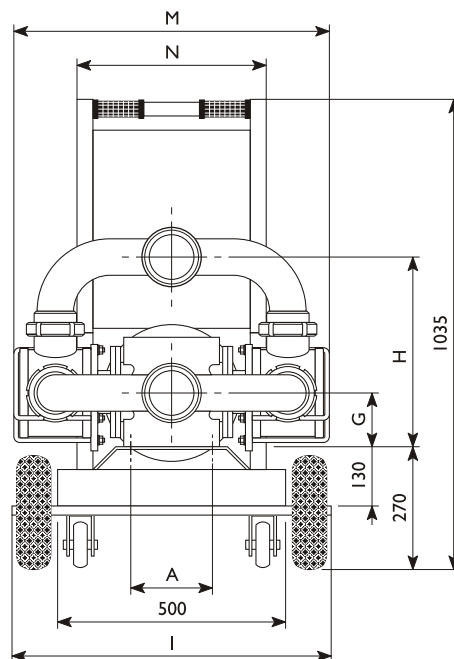
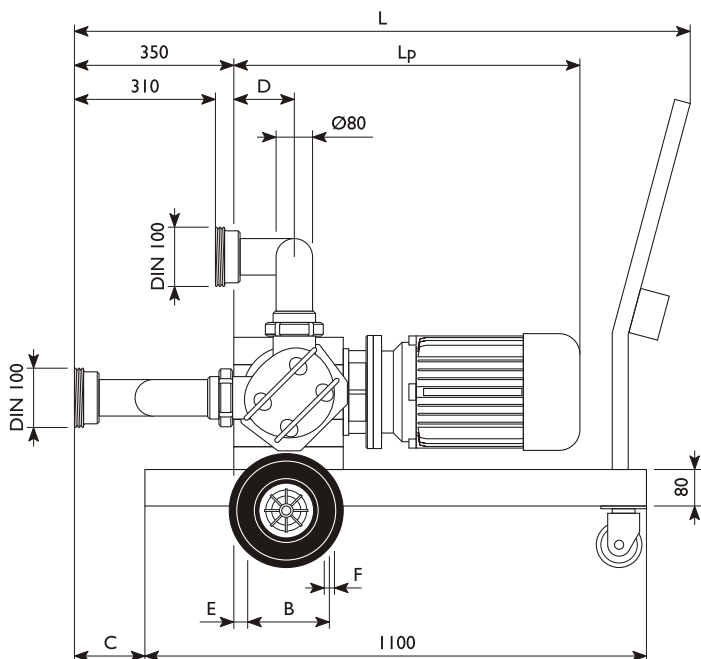
\* TF = Trifase/Three-phase



RID MINOR - MAJOR - MAXI



RID MAXI Double



| Tipo/Typ        | A   | B     | C   | D   | E   | F   | G   | H   | I   | L    | Lp  | M   | N   |
|-----------------|-----|-------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
| RID MINOR 40    | 130 | 107,5 | 70  | 60  | 183 | Ø11 | 103 | 202 | 440 | 1050 | 688 | -   | -   |
| RID MAJOR 60    | 160 | 130   | 135 | 70  | 245 | Ø11 | 110 | 210 | 440 | 1145 | 770 | -   | -   |
| RID MAXI 80     | 180 | 149,5 | 160 | 90  | 255 | Ø14 | 130 | 255 | 440 | 1200 | 850 | -   | -   |
| RID MAXI Double | 175 | 170   | 155 | 135 | 35  | Ø14 | 120 | 416 | 700 | 1350 | 730 | 695 | 415 |

# PUMPS WITH MECHANICAL SPEED VARIATOR OR FREQUENCY CONVERTER

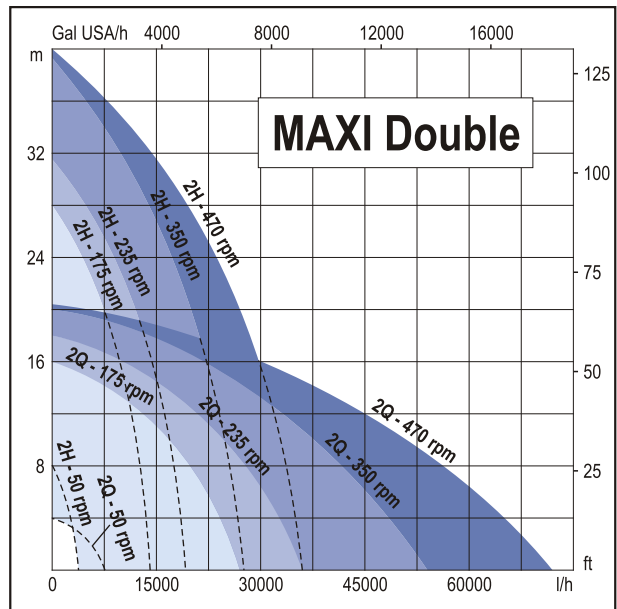
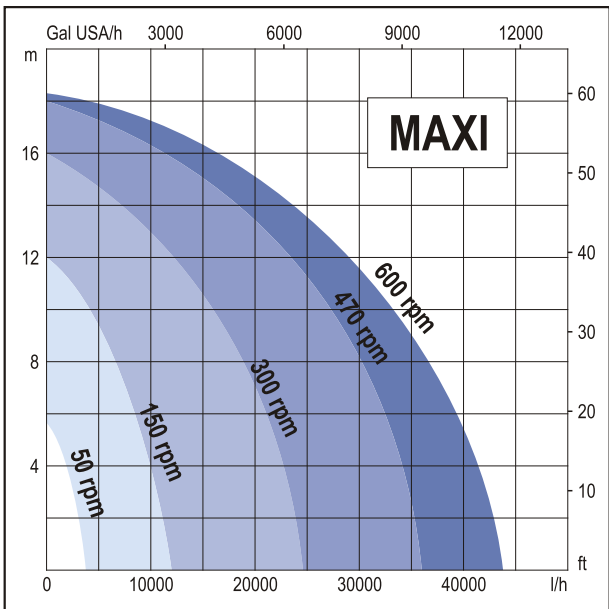
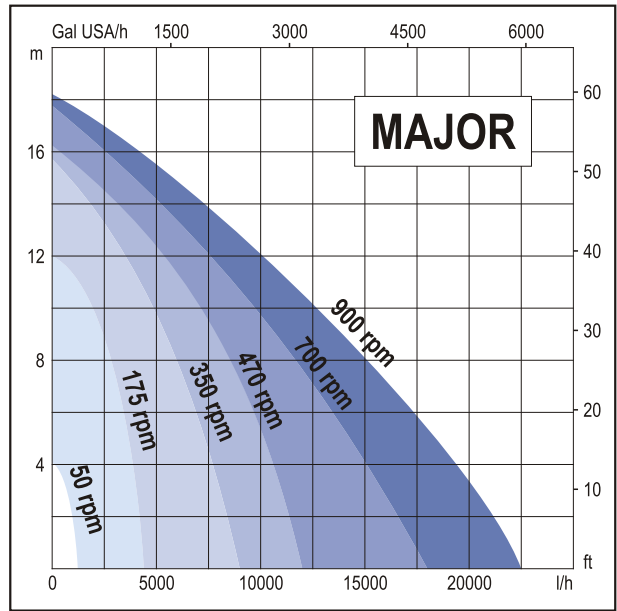
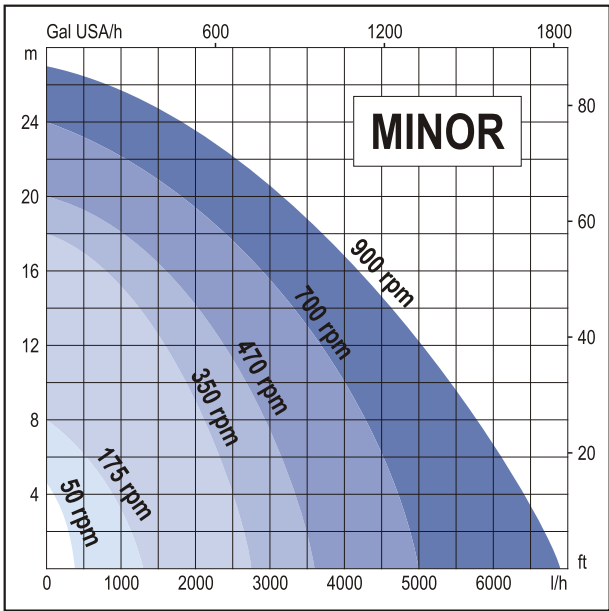
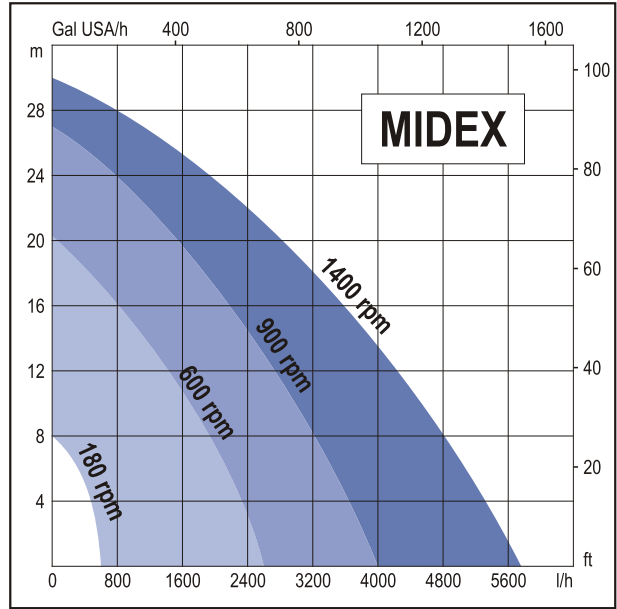
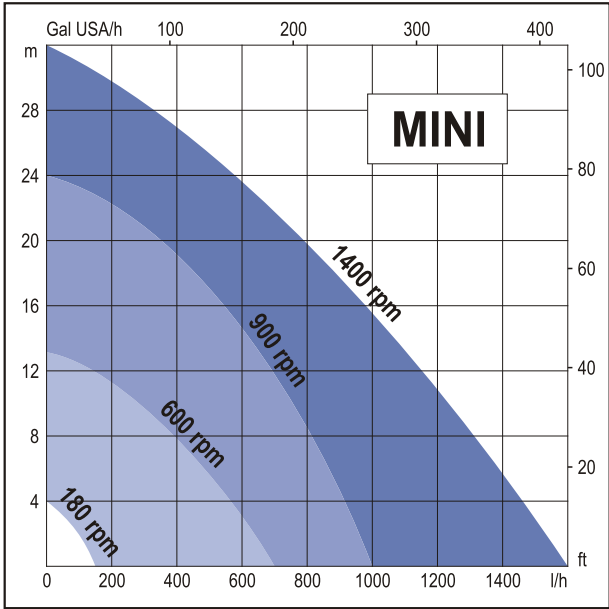


**POMPE CON VARIATORE (VA)**  
PUMPS WITH MECH. SPEED VARIATOR (VA)

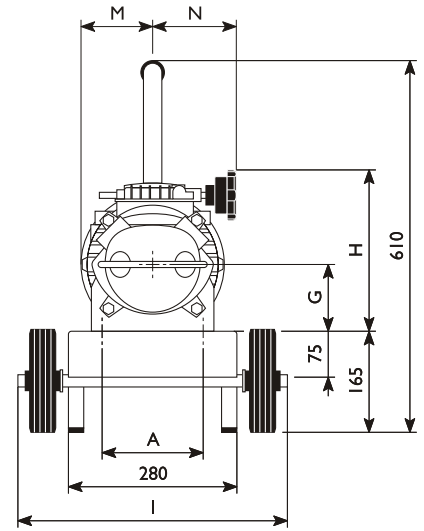
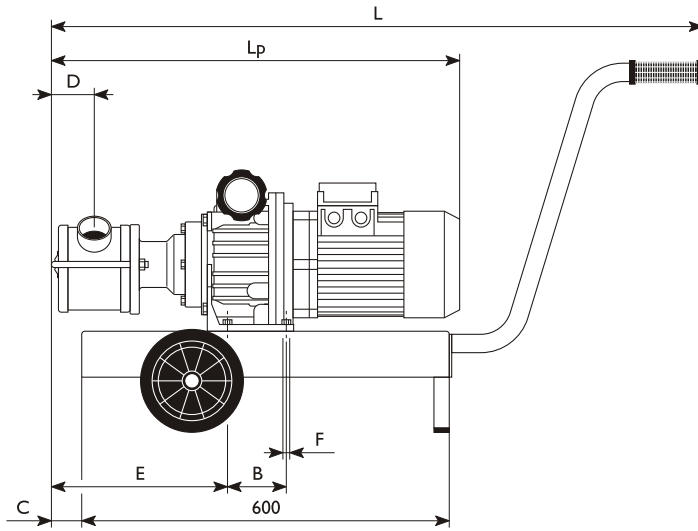
**POMPE CON INVERTER (INV)**  
PUMPS WITH FREQUENCY CONVERTER (INV)

| Tipo<br>Typ               | /Feeding                |                     | /min<br>Rpm | H (m) = |          |       |       |       | Q (l/h) = |       |       |       |       | H     |       |    |
|---------------------------|-------------------------|---------------------|-------------|---------|----------|-------|-------|-------|-----------|-------|-------|-------|-------|-------|-------|----|
|                           | Tipo/Typ *              | HP                  |             | kW      | 0        | 4     | 8     | 12    | 16        | 18    | 20    | 24    | 27    |       | 32    | 40 |
| <b>VA MINOR 40</b>        | TF<br>230-400V<br>50 Hz | 2                   | 1,5         | min 175 | 1320     | 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<br>230-400V<br>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<br>230-400V<br>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<br>230V<br>50 Hz     | TF<br>400V<br>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<br>230V<br>50 Hz     | TF<br>400V<br>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<br>230V<br>50 Hz     | TF<br>400V<br>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     |       |       |    |
| <b>INV MAJOR 60</b>       | MF<br>230V<br>50 Hz     | TF<br>400V<br>50 Hz | 3           | 2,2     | min 900  | 6900  | 6200  | 5760  | 5040      | 4200  | 3660  | 3200  | 1800  | 0     |       |    |
|                           |                         |                     |             |         | max 900  | 1230  | 0     |       |           |       |       |       |       |       |       |    |
|                           |                         |                     |             |         | 175      | 4320  | 3840  | 3000  | 0         |       |       |       |       |       |       |    |
|                           |                         |                     |             |         | 350      | 9000  | 7800  | 6000  | 3700      | 0     |       |       |       |       |       |    |
| <b>INV MAXI 80</b>        | TF<br>230V<br>50 Hz     | TF<br>400V<br>50 Hz | 5,5         | 4       | 700      | 18000 | 15000 | 12000 | 8400      | 2500  | 0     |       |       |       |       |    |
|                           |                         |                     |             |         | max 900  | 22500 | 19560 | 15000 | 11220     | 3000  | 0     |       |       |       |       |    |
|                           |                         |                     |             |         | min 50   | 3800  | 0     |       |           |       |       |       |       |       |       |    |
|                           |                         |                     |             |         | 150      | 12000 | 10000 | 7500  | 0         |       |       |       |       |       |       |    |
| <b>INV MAXI Double 2Q</b> | TF<br>230V<br>50 Hz     | TF<br>400V<br>50 Hz | 7,5         | 5,5     | 300      | 24600 | 22200 | 18900 | 12000     | 0     |       |       |       |       |       |    |
|                           |                         |                     |             |         | 470      | 36000 | 34200 | 30000 | 24000     | 12000 | 0     |       |       |       |       |    |
|                           |                         |                     |             |         | max 600  | 43800 | 41400 | 36000 | 30000     | 16000 | 0     |       |       |       |       |    |
|                           |                         |                     |             |         | min 50   | 7600  | 0     |       |           |       |       |       |       |       |       |    |
| <b>INV MAXI Double 2H</b> | TF<br>230V<br>50 Hz     | TF<br>400V<br>50 Hz | 7,5         | 5,5     | 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<br>230V<br>50 Hz     | TF<br>400V<br>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  |
| <b>INV MAXI Double 2H</b> | TF<br>230V<br>50 Hz     | TF<br>400V<br>50 Hz | 7,5         | 5,5     | max 470  | 36000 | 35000 | 33600 | 32000     | 29700 | 28400 | 27000 | 23600 | 20600 | 14300 | 0  |

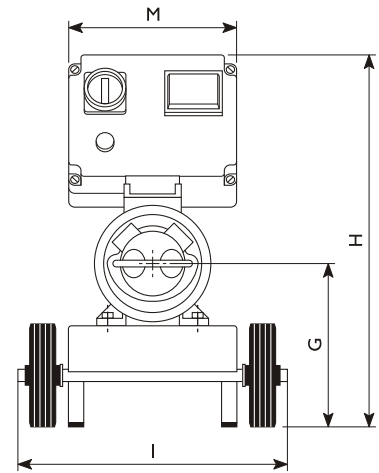
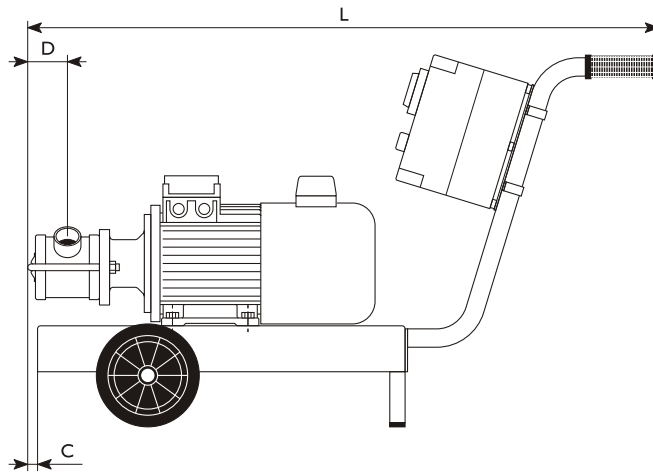
\* MF = Monofase/Single-phase TF = Trifase/Three-phase



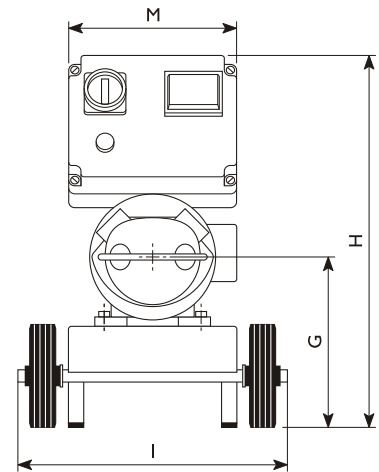
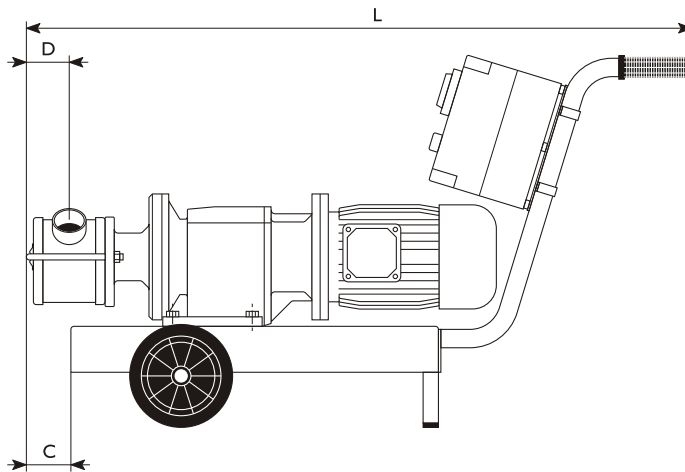
## VA MINOR - MAJOR - MAXI



## INV MINI - MIDEX



## INV MINOR - MAJOR - MAXI



| Tipo/Type             | /Weight    | A                               | B   | C   | D  | E   | F   | G   | H   | I   | L    | Lp  | M   | N     |
|-----------------------|------------|---------------------------------|-----|-----|----|-----|-----|-----|-----|-----|------|-----|-----|-------|
| VA MINOR 40           | 63 kg      | 164                             | 96  | 20  | 60 | 260 | Ø11 | 109 | 264 | 440 | 1030 | 640 | 117 | 137   |
| VA MAJOR 60           | 67 kg      | 164                             | 96  | 55  | 70 | 295 | Ø11 | 109 | 264 | 440 | 1065 | 675 | 117 | 137   |
| VA MAXI 80            | 109 kg     | 200                             | 120 | 115 | 90 | 305 | M12 | 132 | 337 | 440 | 1125 | 770 | 136 | 172,5 |
| INV MINI 3/4"         | 17 kg      | -                               | -   | -   | 26 | -   | -   | 175 | 550 | 340 | 790  | -   | 285 | -     |
| INV MIDEX 1"1/4       | 23 kg      | -                               | -   | 15  | 38 | -   | -   | 175 | 550 | 340 | 805  | -   | 285 | -     |
| INV MINOR 40          | 45 kg      | -                               | -   | 70  | 60 | -   | -   | 268 | 610 | 440 | 1050 | -   | 285 | -     |
| INV MAJOR 60          | 55 kg      | -                               | -   | 135 | 70 | -   | -   | 275 | 610 | 440 | 1145 | -   | 285 | -     |
| INV MAXI 80           | 95 kg      | -                               | -   | 160 | 90 | -   | -   | 295 | 610 | 440 | 1200 | -   | 285 | -     |
| INV MAXI Double 2Q/2H | 185/200 kg | Dimensioni p.9 / Dimensions p.9 |     |     |    |     |     |     |     |     |      |     |     |       |

## IMPELLER CORROSION TABLE

|             |                | Material        |
|-------------|----------------|-----------------|
| <b>NBR</b>  | Nitrile        | Nitrile         |
| <b>EPDM</b> | Epdm           | Epdm            |
| <b>CR</b>   | Neoprene       | Neoprene rubber |
| <b>NR</b>   | Gomma naturale | Natural rubber  |
| <b>VMQ</b>  | Silicone       | Silicon         |

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

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.*

| Prodotto                      | NBR                     | EPDM                   | CR                                  | NR                     | VMQ       |
|-------------------------------|-------------------------|------------------------|-------------------------------------|------------------------|-----------|
| Acetato di etile              | C                       | A (55° C)<br>C (70° C) | C                                   | C                      | B (20° C) |
| Aceto                         | B (20° C)<br>* (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)              | -         |
| Acido Borico                  | A (60° C)<br>B (90° C)  | A (60° C)<br>B (90° C) | A (70° C)<br>B (90° C)              | A (20° C)<br>B (85° C) | A (20° C) |
| Acido Bromico (40%)           | C                       | A (90° C)              | *                                   | B (20° C)              | C         |
| Acido Cianidrico              | B (60° C)               | A (60° C)              | *                                   | -                      | B (20° C) |
| Acido Citrico                 | A (90° C)<br>B (100° C) | A                      | A                                   | A (20° C)              | A (20° C) |
| Acido Cloridrico concentrato  | C                       | C                      | C                                   | *                      | C         |
| Acido Cloroacetico            | C                       | B (70-90° C)           | A (20° C)<br>C (40° C)              | *                      | *         |
| Acido Cromico                 | C                       | B                      | *                                   | *                      | *         |
| Acido Fluoridrico (50%)       | C                       | B (60° C)              | *                                   | C (20° C)              | *         |
| Acido Fluoridrico concentrato | C                       | C                      | C                                   | C                      | C         |
| Acido Fluoroborico            | A (60° C)<br>B (85° C)  | A (60° C)<br>B (80° C) | A (60° C)<br>B (85° C)              | A (20° C)<br>B (65° C) | A (20° C) |
| Acido Formico                 | *                       | A (90° C)              | *                                   | 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)<br>B (60° C)<br>C (80° C) | -                      | -         |
| Acido Nitrico (10%)           | C                       | A (40° C)<br>C (80° C) | C (40° C)                           | C                      | B (20° C) |
| Acido Nitrico (70%)           | -                       | C                      | C                                   | C                      | C         |
| Acido Ossalico concentrato    | B (60° C)               | A (120° 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)<br>C (40° C)              | B (20° C)              | C         |
| Acido Solforico (50%)         | A (20° C)<br>C (80° C)  | B (60-80° C)           | B (70° C)                           | B (26° C)              | *         |















| Prodotto                          | NBR                         | EPDM                        | CR                      | NR                     | VMQ       |
|-----------------------------------|-----------------------------|-----------------------------|-------------------------|------------------------|-----------|
| Acido Solforico (80%)             | B (40° C)<br>C (60-80° C)   | A (60° C)<br>C (80° C)      | C                       | C                      | C         |
| Acido Stearico                    | A (120° C)                  | B (60° C)                   | B (60-70° C)            | *                      | B (20° C) |
| Acqua                             | A (80° C)                   | A (135° C)                  | B (100° C)              | A (20° C)<br>B (80° C) | B (80° C) |
| Alcol Benzilico                   | C                           | B (40° C)<br>C (60° C)      | *                       | C                      | -         |
| Alcol Etilico                     | A (60° C)<br>B (85° C)      | A (90° C)                   | A (70° C)<br>B (80° C)  | A (20° C)<br>B (65° C) | B (20° C) |
| Alcol Metilico                    | B (65° C)                   | A (70° C)<br>B (80° C)      | A (60° C)<br>B (80° C)  | B (37° C)              | A (70° C) |
| Alcol Propilico                   | B (90° C)                   | B (90° C)                   | A (60° C)<br>B (90° C)  | A (20° C)<br>B (65° C) | A (20° C) |
| Ammonio Idrato concentrato (38%)  | A (90° C)                   | -                           | A (90° C)               | A (65° C)              | -         |
| 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 (120° C)                  | C                           | C                       | C                      | C         |
| Birra                             | A (60° C)<br>B (120° C)     | A (60° C)<br>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)<br>C (60° C)  | C                      | B (20° C) |
| Butadiene                         | *                           | *                           | *                       | C                      | C         |
| Butano                            | A (90° C)<br>B (120° C)     | C                           | A (60° C)               | C                      | C         |
| Calcio Idrato                     | A (20° C)<br>B (90° C)      | A (20° C)                   | A (20° C)<br>B (90° C)  | A (20° C)<br>B (65° C) | A (20° C) |
| Calcio Ipoclorito                 | C                           | A (120° C)                  | C                       | C                      | B (20° C) |
| Cherosene                         | A (120° C)                  | C                           | B (20° C)               | C                      | C         |
| Cloro Umido                       | C                           | *                           | C                       | C                      | C         |
| Cloroformio                       | C                           | C                           | C                       | C                      | C         |
| Gelatina                          | A (90° C)                   | A (80° C)                   | A (60° C)<br>B (80° C)  | A (20° C)<br>B (65° C) | A (20° C) |
| Glicerina                         | A (120° C)                  | A (80° C)<br>B (90° C)      | A (70° C)               | A (20° C)<br>B (65° C) | A (20° C) |
| Glucosio                          | A (90° C)                   | A (80° C)                   | A (60° C)               | A (20° C)<br>B (48° C) | A (20° C) |
| Iodio                             | B (60° C)<br>A (20° C) 6,5% | B (70° C)<br>A (20° C) 6,5% | C                       | C                      | C         |
| Latte                             | A (60° C)                   | A (120° C)                  | A (60° C)               | A (20° C)<br>B (37° C) | A (20° C) |
| Magnesio Cloruro                  | A (80° C)<br>B (100° C)     | A (80° C)<br>B (100° C)     | A (80° C)<br>B (100° C) | A (20° C)<br>B (85° C) | A (20° C) |
| Magnesio Solfato                  | A (80° C)<br>B (100° C)     | A (80° C)<br>B (100° C)     | A (80° C)<br>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) |
| Metiltilchetone                   | C                           | A (60° C)<br>B (90° C)      | C                       | C                      | C         |
| Nafta                             | A (120° C)                  | C                           | C                       | C                      | C         |
| Olio di Anilina                   | C                           | B (20° C)                   | C                       | C                      | C         |
| Olio di Cotone                    | A (90° C)<br>B (100° C)     | A (20° C)<br>C (80° C)      | B (65° C)               | C                      | A (20° C) |
| Olio di fegato di merluzzo        | A (20° C)<br>B (50° C)      | A (20° C)                   | B (20° C)               | C                      | B (20° C) |
| Olio di Granoturco                | A (120° C)                  | *                           | B (20° C)               | C                      | A (20° C) |
| Olio di Lino                      | A (90° C)                   | B (20° C)                   | B (80° C)               | C                      | C         |
| Olio di Oliva                     | A (120° C)                  | B (20° C)                   | *                       | C                      | *         |
| Olio di Pino                      | B (120° C)                  | C                           | C                       | C                      | C         |
| Olio di Ricino                    | A (100° C)                  | A (60° C)                   | A (70° C)               | A (25° C)              | A (20° C) |
| Olio di Soia                      | A (120° C)                  | *                           | B (20° C)               | C                      | C         |
| Olio Idraulico (esteri fosforici) | C                           | A (120° C)                  | C                       | C                      | *         |
| Olio SAE n.10                     | A (120° C)                  | C                           | *                       | C                      | *         |
| Olio vegetale                     | A (90° C)                   | *                           | C (20° C)               | C                      | A (20° C) |
| Paraffina                         | A (60° C)                   | C                           | B (20° C)               | *                      | C         |
| Percloroetilene                   | *                           | C                           | C                       | C                      | *         |
| Sodio Cloruro                     | A (70° C)                   | B (90° C)                   | A (100° C)              | A (65° C)              | B         |
| Sodio Idrato                      | B (65° C)                   | A (20° C)                   | B (90° C)               | A (20° C)<br>B (65° C) | C (20° C) |
| Succo di frutta                   | A (60° C)                   | A (120° C)                  | A (60° C)               | *                      | A (20° C) |
| Succo di pomodoro                 | A (60° C)                   | A (20° C)                   | A (60° C)               | -                      | -         |

| Prodotto          | NBR                             | EPDM       | CR                     | NR                     | VMQ                     |
|-------------------|---------------------------------|------------|------------------------|------------------------|-------------------------|
| Toluolo           | C                               | C          | C                      | C                      | C                       |
| Tricloroetilene   | C                               | C          | C                      | C                      | C                       |
| Trietanoloamina   | C (20° C) 100%<br>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)<br>B (65° C) | A (20° C)               |
| Whisky            | A (90° C)                       | A (90° C)  | A (60° C)<br>C (90° C) | A (20° C)<br>B (65° C) | A (20° C)               |
| Xilolo            | C                               | C          | C                      | C                      | C                       |
| Zolfo fuso 120° C | C                               | A (120° C) | A (20° C)              | C (20° C)              | A (20° C)<br>C (120° C) |
| Zucchero di canna | A (60° C)<br>B (90° C)          | A (80° C)  | A (20° C)<br>B (90° C) | A (20° C)              | A (20° C)               |

|                          | NBR                     | EPDM                   | CR                     | NR                     | VMQ       |
|--------------------------|-------------------------|------------------------|------------------------|------------------------|-----------|
| Acetic Acid (30%)        | B (20° C)               | A                      | B (20° C)              | B (20° C)              | -         |
| Ammonium Hydroxide (38%) | A (90° C)               | -                      | A (90° C)              | A (65° C)              | -         |
| Aniline                  | C                       | A (90° C)              | C                      | C                      | B (20° C) |
| Aniline Oil              | C                       | B (20° C)              | C                      | C                      | C         |
| Beer                     | A (60° C)<br>B (120° C) | A (60° C)<br>B (80° C) | A (60° C)              | A (20° C)              | A (20° C) |
| Benzyl Alcohol           | C                       | B (40° C)<br>C (60° C) | *                      | C                      | -         |
| Boric Acid               | A (60° C)<br>B (90° C)  | A (60° C)<br>B (90° C) | A (70° C)<br>B (90° C) | A (20° C)<br>B (85° C) | A (20° C) |
| Bromic Acid (40%)        | C                       | A (90° C)              | *                      | B (20° C)              | C         |
| Butadiene                | *                       | *                      | *                      | C                      | C         |
| Butane                   | A (90° C)<br>B (120° C) | C                      | A (60° C)              | C                      | C         |
| Butter                   | A (60° C)               | A (60° C)              | B (20° C)<br>C (60° C) | C                      | B (20° C) |
| Calcium Hydrate          | A (20° C)<br>B (90° C)  | A (20° C)              | A (20° C)<br>B (90° C) | A (20° C)<br>B (65° C) | A (20° C) |
| Calcium Hypochlorite     | C                       | A (120° C)             | C                      | C                      | B (20° C) |
| Cane Sugar liquide       | A (60° C)<br>B (90° C)  | A (80° C)              | A (20° C)<br>B (90° C) | A (20° C)              | A (20° C) |
| Castor Oil               | A (100° C)              | A (60° C)              | A (70° C)              | A (25° C)              | A (20° C) |
| Chlorine (damp)          | C                       | *                      | C                      | C                      | C         |
| Chloroacetic Acid        |                         | B (70-90° C)           | A (20° C)<br>C (40° C) | *                      | *         |
| Chloroform               | C                       | C                      | C                      | C                      | C         |
| Chromic Acid             | C                       | B                      | *                      | *                      | *         |
| Citric Acid              | A (90° C)<br>B (100° C) | A                      | A                      | A (20° C)              | A (20° C) |
| Cod-Liver Oil            | A (20° C)<br>B (50° C)  | A (20° C)              | B (20° C)              | C                      | B (20° C) |
| Corn Oil                 | A (120° C)              | *                      | B (20° C)              | C                      | A (20° C) |
| Cotton Oil               | A (90° C)<br>B (100° C) | A (20° C)<br>C (80° C) | B (65° C)              | C                      | A (20° C) |
| Diesel Oil               | A (120° C)              | C                      | C                      | C                      | C         |
| Ethyl Acetate            | C                       | A (55° C)<br>C (70° C) | C                      | C                      | B (20° C) |
| Ethyl Alcohol            | A (60° C)<br>B (85° C)  | A (90° C)              | A (70° C)<br>B (80° C) | A (20° C)<br>B (65° C) | B (20° C) |
| Fluoboric Acid           | A (60° C)<br>B (85° C)  | A (60° C)<br>B (80° C) | A (60° C)<br>B (85° C) | A (20° C)<br>B (65° C) | A (20° C) |
| Formic Acid              | *                       | A (90° C)              | *                      | B (20° C)              | B (20° C) |
| Fruit Juices             | A (60° C)               | A (120° C)             | A (60° C)              | *                      | A (20° C) |
| Gelatine                 | A (90° C)               | A (80° C)              | A (60° C)<br>B (80° C) | A (20° C)<br>B (65° C) | A (20° C) |
| Glucose                  | A (90° C)               | A (80° C)              | A (60° C)              | A (20° C)<br>B (48° C) | A (20° C) |
| Glycerine                | A (120° C)              | A (80° C)<br>B (90° C) | A (70° C)              | A (20° C)<br>B (65° C) | A (20° C) |

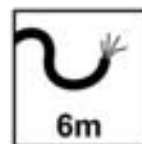
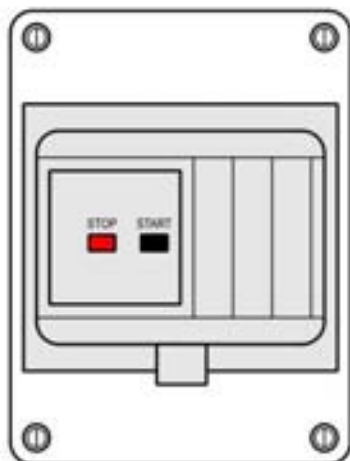


|                                  | NBR                             | EPDM                        | CR                                  | NR                     | VMQ                     |
|----------------------------------|---------------------------------|-----------------------------|-------------------------------------|------------------------|-------------------------|
| Hydraulic Oil                    | C                               | A (120° C)                  | C                                   | C                      | *                       |
| Hydrochloric Acid (concentrated) | C                               | C                           | C                                   | *                      | C                       |
| Hydrocyanic Acid                 | B (60° C)                       | A (60° C)                   | *                                   | B (20° C)              | B (20° C)               |
| Hydrofluoric Acid (50%)          | C                               | B (60° C)                   | *                                   | C (20° C)              | *                       |
| Hydrofluoric Acid (concentrated) | C                               | C                           | C                                   | C                      | C                       |
| Iodine                           | B (60° C)<br>A (20° C) 6,5%     | B (70° C)<br>A (20° C) 6,5% | C                                   | C                      | C                       |
| Kerosene                         | A (120° C)                      | C                           | B (20° C)                           | C                      | C                       |
| Lactic Acid (concentrated)       | A (20° C)                       | A (60° C)                   | A (20° C)<br>B (60° C)<br>C (80° C) | -                      | -                       |
| Linseed Oil                      | A (90° C)                       | B (20° C)                   | B (80° C)                           | C                      | C                       |
| Magnesium Chloride               | A (80° C)<br>B (100° C)         | A (80° C)<br>B (100° C)     | A (80° C)<br>B (100° C)             | A (20° C)<br>B (85° C) | A (20° C)               |
| Magnesium Sulphate               | A (80° C)<br>B (100° C)         | A (80° C)<br>B (100° C)     | A (80° C)<br>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)<br>B (80° C)      | A (60° C)<br>B (80° C)              | B (37° C)              | A (70° C)               |
| Methyl-ethyl-ketone              | C                               | A (60° C)<br>B (90° C)      | C                                   | C                      | C                       |
| Milk                             | A (60° C)                       | A (120° C)                  | A (60° C)                           | A (20° C)<br>B (37° C) | A (20° C)               |
| Nitric Acid (10%)                | C                               | A (40° C)<br>C (80° C)      | C (40° C)                           | C                      | B (20° C)               |
| Nitric Acid (70%)                | -                               | C                           | C                                   | C                      | C                       |
| Olive Oil                        | A (120° C)                      | B (20° C)                   | *                                   | C                      | *                       |
| Oxalic Acid (concentrated)       | B (60° C)                       | A (120° 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)                           | *                      | C                       |
| Perchloroethylen                 | *                               | C                           | C                                   | C                      | *                       |
| Petrol                           | A (120° 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)<br>C (40° C)              | B (20° C)              | C                       |
| Pine Oil                         | B (120° C)                      | C                           | C                                   | C                      | C                       |
| Propylic Alcohol                 | B (90° C)                       | B (90° C)                   | A (60° C)<br>B (90° C)              | A (20° C)<br>B (65° C) | A (20° C)               |
| SAE n. 10 Oil                    | A (120° C)                      | C                           | *                                   | C                      | *                       |
| Sodium Chloride                  | A (70° C)                       | B (90° C)                   | A (100° C)                          | A (65° C)              | B                       |
| Sodium Hydrate                   | B (65° C)                       | A (20° C)                   | B (90° C)                           | A (20° C)<br>B (65° C) | C (20° C)               |
| Soybean Oil                      | A (120° C)                      | *                           | B (20° C)                           | C                      | C                       |
| Stearic Acid                     | A (120° C)                      | B (60° C)                   | B (60-70° C)                        | *                      | B (20° C)               |
| Sulphur (fused 120° C)           | C                               | A (120° C)                  | A (20° C)                           | C (20° C)              | A (20° C)<br>C (120° C) |
| Sulphur Dioxide                  | C                               | C (20° C)                   | C (20° C)                           | C                      | A (20° C)               |
| Sulphuric Acid (50%)             | A (20° C)<br>C (80° C)          | B (60-80° C)                | A (70° C)                           | B (26° C)              | *                       |
| Sulphuric Acid (80%)             | B (40° C)<br>C (60-80° C)       | A (60° C)<br>C (80° C)      | C                                   | C                      | C                       |
| Toluol                           | C                               | C                           | C                                   | C                      | C                       |
| Tomatoes Juices                  | A (60° C)                       | A (20° C)                   | A (60° C)                           | -                      | -                       |
| Trichloroethylene                | C                               | C                           | C                                   | C                      | C                       |
| Triethanolamine                  | C (20° C) 100%<br>B (37° C) 80% | A (70° C)                   | A (70° C)                           | B (26° C)              | C                       |
| Vegetable Oil                    | A (90° C)                       | *                           | C (20° C)                           | C                      | A (20° C)               |
| Vinegar                          | B (20° C)<br>* (60° C)          | A (60-90° C)                | B (90° C)                           | B (20° C)              | A (20° C)               |
| Water                            | A (80° C)                       | A (135° C)                  | B (100° C)                          | A (20° C)<br>B (80° C) | B (80° C)               |
| Whisky                           | A (90° C)                       | A (90° C)                   | A (60° C)<br>C (90° C)              | A (20° C)<br>B (65° C) | A (20° C)               |
| Wine                             | A (90° C)                       | A (90° C)                   | A (90° C)                           | A (20° C)<br>B (65° C) | A (20° C)               |
| Xylol                            | C                               | C                           | C                                   | C                      | C                       |

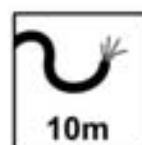
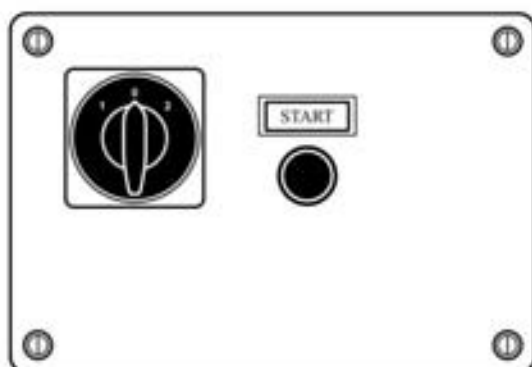
| Tipo Typ          |   | MINI  | MIDEX   | MINOR  | MAJOR   | MAXI  |
|-------------------|---|---|---|--|---|---|
|                   |   |  |  |  |  |  |
| <b>Garolla</b>    |    | <i>Non disponibile<br/>Not available</i>  | Garolla 40  | Garolla 40<br>Garolla 50   | Garolla 50<br>Garolla 60<br>Garolla 70  | Garolla 70<br>Garolla 80<br>Garolla 100   |
| <b>DIN 11851</b>  |    | DIN 25  | DIN 32<br>DIN 40  | DIN 40<br>DIN 50   | DIN 50<br>DIN 65  | DIN 65<br>DIN 80<br>DIN 100   |
| <b>BSP-M</b>      |   | BSP-M 3/4"  | BSP-M 1"1/4   | BSP-M 1"1/4<br>BSP-M 1"1/2   | BSP-M 2"  | BSP-M 2"1/2<br>BSP-M 3"   |
| <b>BSP-F</b>      |  | <i>Non disponibile<br/>Not available</i>  | BSP-F 1"  | BSP-F 1"<br>BSP-F 1"1/4  | BSP-F 1"1/2<br>BSP-F 2"   | BSP-F 2"1/2<br>BSP-F 3"   |
| <b>Macon</b>      |  | <i>Non disponibile<br/>Not available</i>  | Macon 40  | Macon 40<br>Macon 50   | Macon 40<br>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"<br>BSM 2"1/2   | BSM 3"  |
| <b>Friederich</b> |  | <i>Non disponibile<br/>Not available</i>  | Friederich 40   | Friederich 40  | Friederich 40<br>Friederich 60  | Friederich 60   |

## CONTROL PANELS

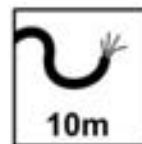
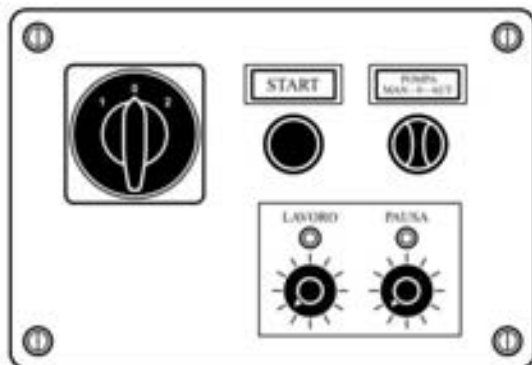
18



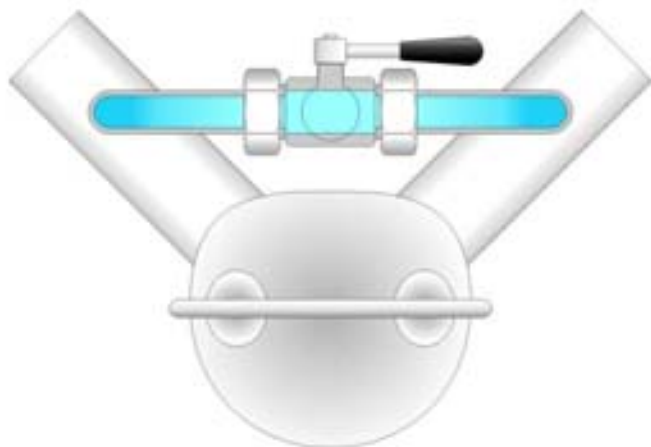
Impianto elettrico CE  
CE control panel



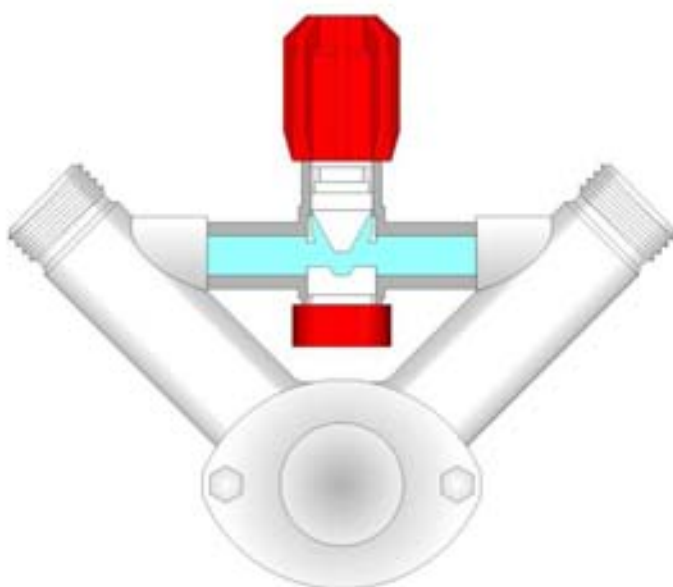
Impianto elettrico CE con derivazione  
supplementare 24V NC per sensore di temperatura,  
pressostato, sensore di livello, ecc.  
CE control panel with supplementary 24V NC shunt trip  
for temperature sensor, pressure switch, level sensor, etc...



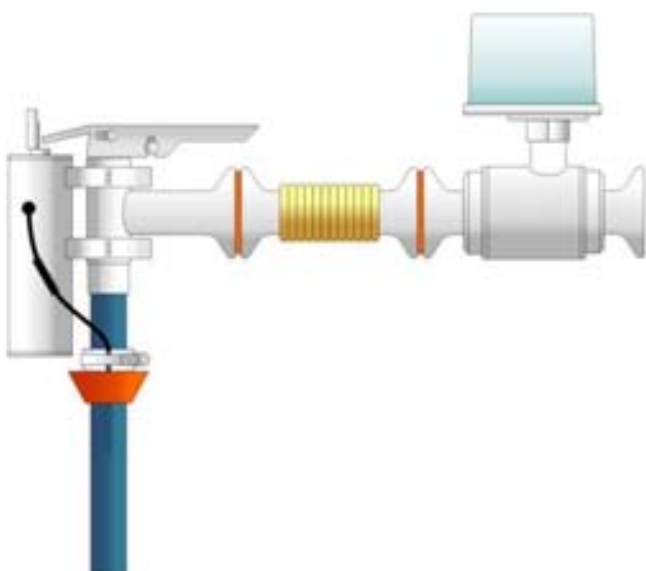
Impianto elettrico CE con temporizzatore con  
2 selettori, 12 posizioni per pausa e lavoro e con  
2 range di temporizzazioni disponibili (da specificare in  
caso di ordine):  
Tipo LIV 1: lavoro 2-24 minuti, pausa 10-120 minuti  
Tipo LIV 2: lavoro 2-24 minuti, pausa 1-12 ore  
CE control panel with 2 selector switch timer,  
with 12 possible selections each and with  
2 time rate options (to be stated in case of order):  
Option 1: LIV 1 run 2-24 minutes, pause 10-120 minutes  
Option 2: LIV 2 run 2-24 minutes, pause 1-12 hours



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



By-pass con valvola a molla per modello Midex.  
*Spring bypass valve for Midex pump types.*



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

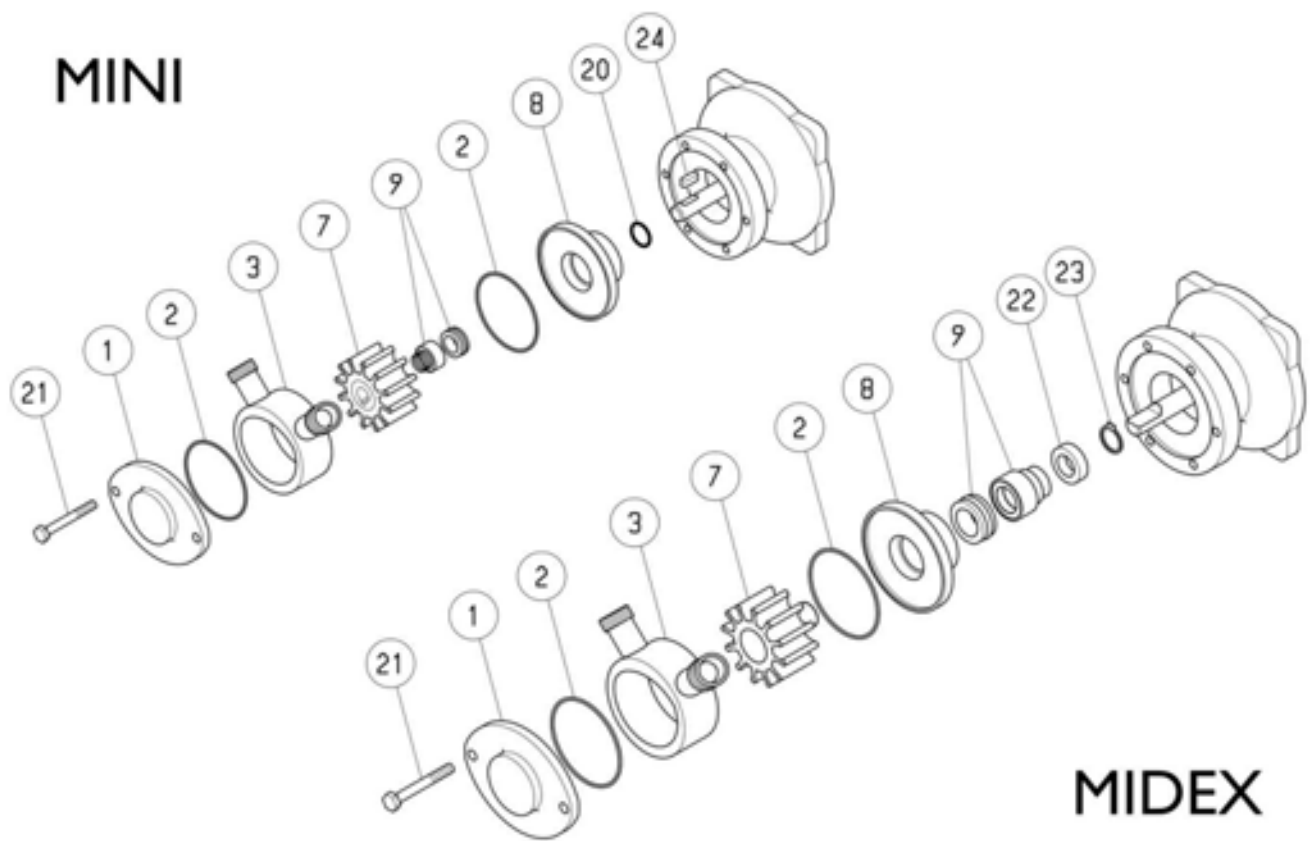
Pistola automatica inox con valvola di non ritorno e pressostato.  
*Stainless steel automatic gun with no return valve and pressure switch.*

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.*

# SPARE PARTS

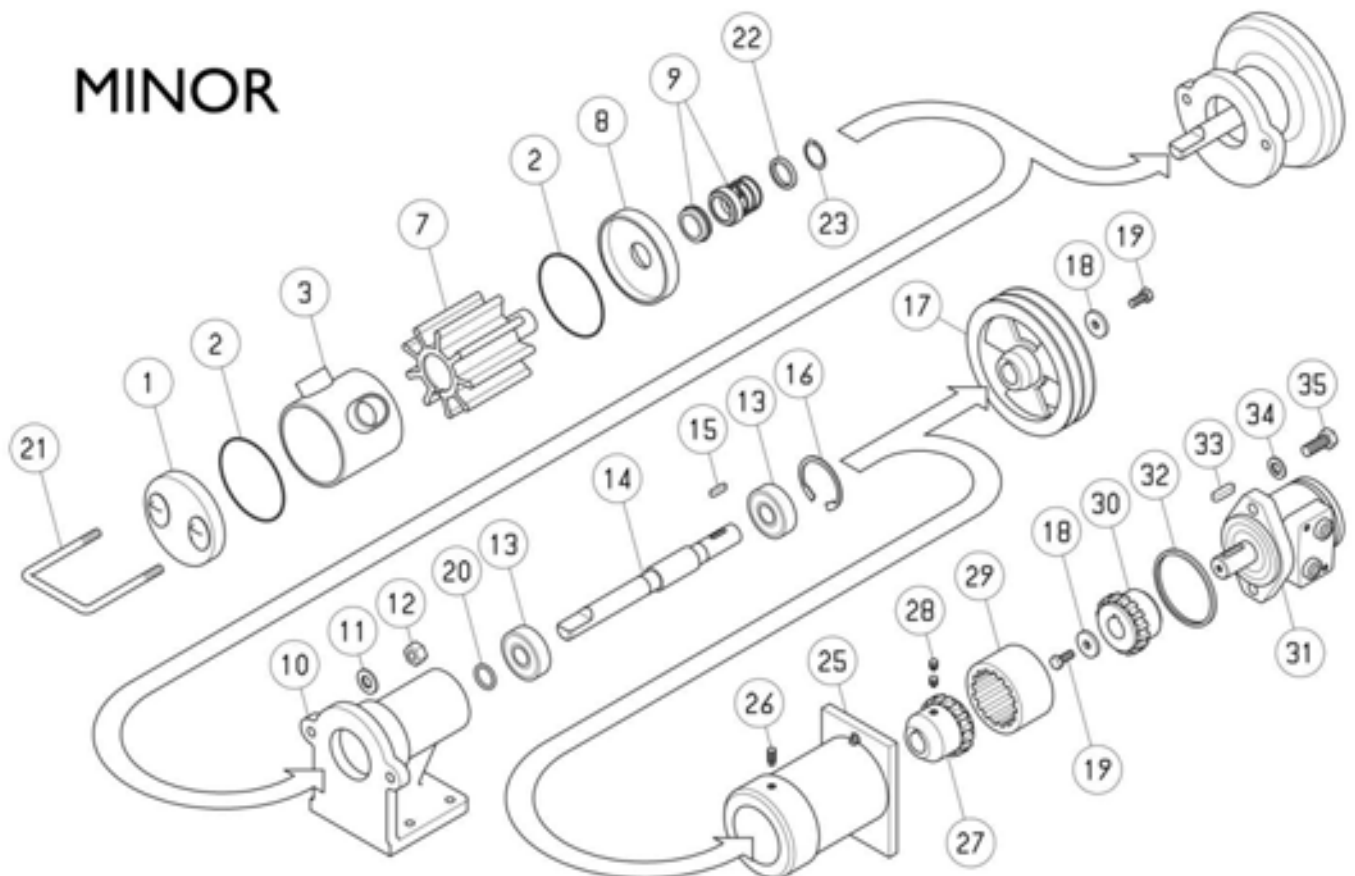
| Pos. |                                      |   | MINI | MIDEX | MINOR | MAJOR | MAXI |
|------|--------------------------------------|---|------|-------|-------|-------|------|
| 1    | CULATTA ANTERIORE / FRONT COVER      | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
|      |                                      | INOX AISI 316 / STAINLESS STEEL AISI 316          | x    | x     |       |       |      |
| 2    | ANELLO OR CULATTA / O RING COVER     | GOMMA NBR / RUBBER (NBR)                          | x    | x     | x     | x     | x    |
| 3    | CORPO POMPA / CASING                 | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
|      |                                      | INOX AISI 316 / STAINLESS STEEL AISI 316          | x    | x     |       |       |      |
| 7    | GIRANTE / IMPELLER                   | GOMMA NATURALE (NR) / NATURAL RUBBER (NR)         | x    | x     | x     | x     | x    |
|      |                                      | NEOPRENE (CR) / NEOPRENE (CR)                     | x    | x     | x     | x     | x    |
|      |                                      | NITRILE (NBR) / NITRILE (NBR)                     | x    | x     | x     | x     | x    |
|      |                                      | EPDM / EPDM                                       | x    | x     | x     | x     | x    |
| 8    | CULATTA POSTERIORE / REAR COVER      | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
|      |                                      | INOX AISI 316 / STAINLESS STEEL AISI 316          | x    | x     |       |       |      |
| 9    | TENUTA MECCANICA / MECHANICAL GASKET | INOX-GRAFITE-NBR / STAINLESS STEEL-GRAPHITE-NBR   | x    | x     | x     | x     | x    |
|      |                                      | CARB. DI TUNGSTENO-NBR / TUNGSTEN CARBIDE-NBR     | x    | x     | x     | x     | x    |
|      |                                      | CARB. DI TUNGSTENO-VITON / TUNGSTEN CARBIDE-VITON | x    | x     | x     | x     | x    |
| 10   | SUPPORTO S/P / SUPPORT S/P           | ALLUMINIO / ALUMINIUM                             |      |       | x     | x     | x    |
|      | SUPPORTO MID / SUPPORT MID           | ALLUMINIO / ALUMINIUM                             |      |       | x     | x     | x    |
| 11   | RONDELLA / WASHER                    | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
| 12   | DADO / NUT                           | OTTONE CROMATO / CHROMATE BRASS                   |      |       | x     | x     | x    |
| 13   | CUSCINETTO / BALL BEARING            | COMMERCIALE / COMMERCIAL                          |      |       | x     | x     | x    |
| 14   | ALBERO / SHAFT                       | INOX AISI 420 / STAINLESS STEEL AISI 420          |      |       | x     | x     | x    |
| 15   | CHIAVETTA / FLAT KEY                 | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
| 16   | ANELLO SEEGER / SEEGER RING          | ACCIAIO / STEEL                                   |      |       | x     | x     | x    |
| 17   | PULEGGIA / PULLEY                    | ALLUMINIO / ALUMINIUM                             |      |       | x     | x     | x    |
| 18   | RONDELLA / WASHER                    | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
| 19   | VITE / BOLT                          | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
| 20   | ANELLO DI PROTEZIONE / GUARD RING    | GOMMA NBR / RUBBER (NBR)                          | x    |       | x     | x     |      |
| 21   | CAVALLOTTO / U-BOLT                  | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
|      | VITE / BOLT                          | INOX AISI 304 / STAINLESS STEEL AISI 304          | x    | x     |       |       |      |
| 22   | CAVALLOTTO / U-BOLT                  | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       |       |       | x    |
|      | ANELLO DISTANZIALE / SPACING RING    | INOX AISI 304 / STAINLESS STEEL AISI 304          |      | x     | x     | x     |      |
| 23   | ANELLO SEEGER / SEEGER RING          | INOX AISI 304 / STAINLESS STEEL AISI 304          |      | x     | x     | x     |      |
|      | CUSCINETTO / BALL BEARING            | COMMERCIALE / COMMERCIAL                          |      |       |       |       | x    |
| 24   | CHIAVETTA / FLAT KEY                 | INOX AISI 304 / STAINLESS STEEL AISI 304          | x    |       |       |       |      |
| 25   | FLANGIA MID / MID FLANGE             | ALLUMINIO / ALUMINIUM                             |      |       | x     | x     | x    |
| 26   | VITE / BOLT                          | ACCIAIO / STEEL                                   |      |       | x     | x     | x    |
| 27   | GIUNTO POMPA / PUMP COUPLING         | ACCIAIO / STEEL                                   |      |       | x     | x     | x    |
| 28   | VITE / BOLT                          | ACCIAIO / STEEL                                   |      |       | x     | x     | x    |
| 29   | MANICOTTO DI COLL.TO / BOX COUPLING  | NYLON / NYLON                                     |      |       | x     | x     | x    |
| 30   | GIUNTO MOTORE / MOTOR COUPLING       | ACCIAIO / STEEL                                   |      |       | x     | x     | x    |
| 31   | MOTORE ORBITALE / ORBITAL MOTOR      | COMMERCIALE / COMMERCIAL                          |      |       | x     | x     | x    |
| 32   | ANELLO DI CENTRAGGIO / CENTER RING   | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
| 33   | CHIAVETTA / FLAT KEY                 | ACCIAIO / STEEL                                   |      |       | x     | x     | x    |
| 34   | RONDELLA / WASHER                    | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |
| 35   | VITE / BOLT                          | INOX AISI 304 / STAINLESS STEEL AISI 304          |      |       | x     | x     | x    |

# MINI

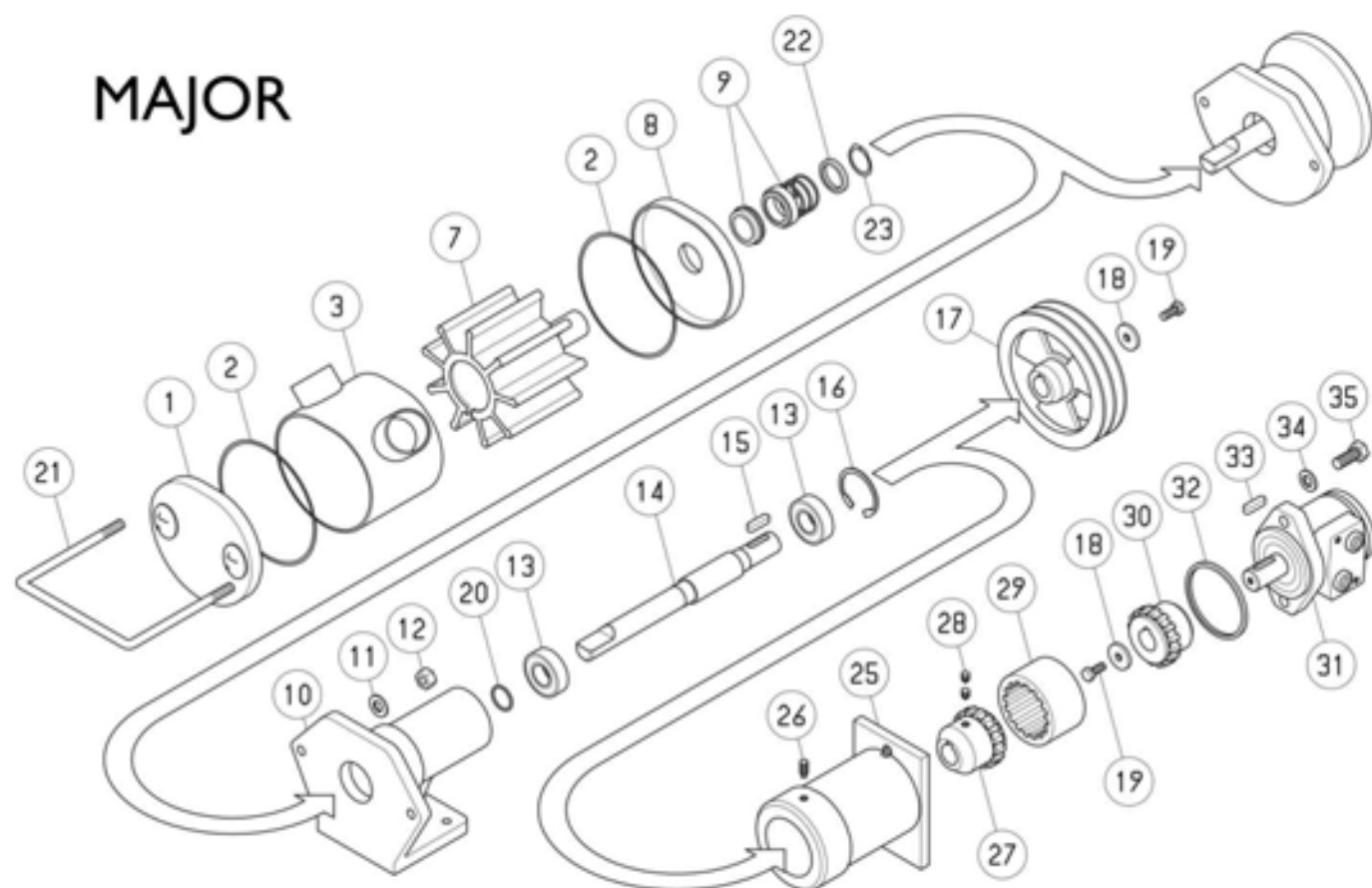


# MIDEX

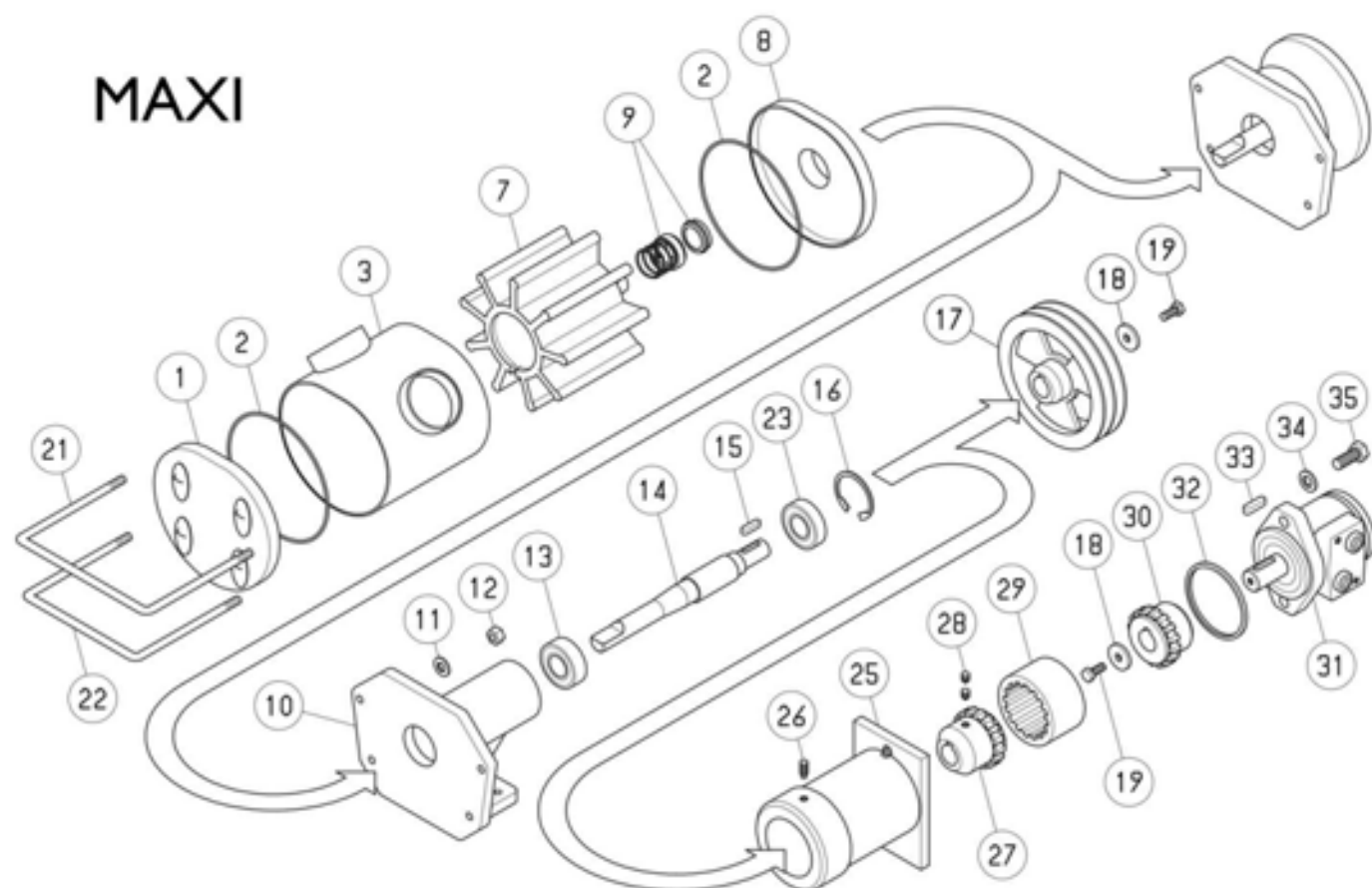
# MINOR



# MAJOR



# MAXI





# LIVERANI

FLUID TRANSFER TECHNOLOGY

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