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## SPECIFICATION

50Hz

Rev. H

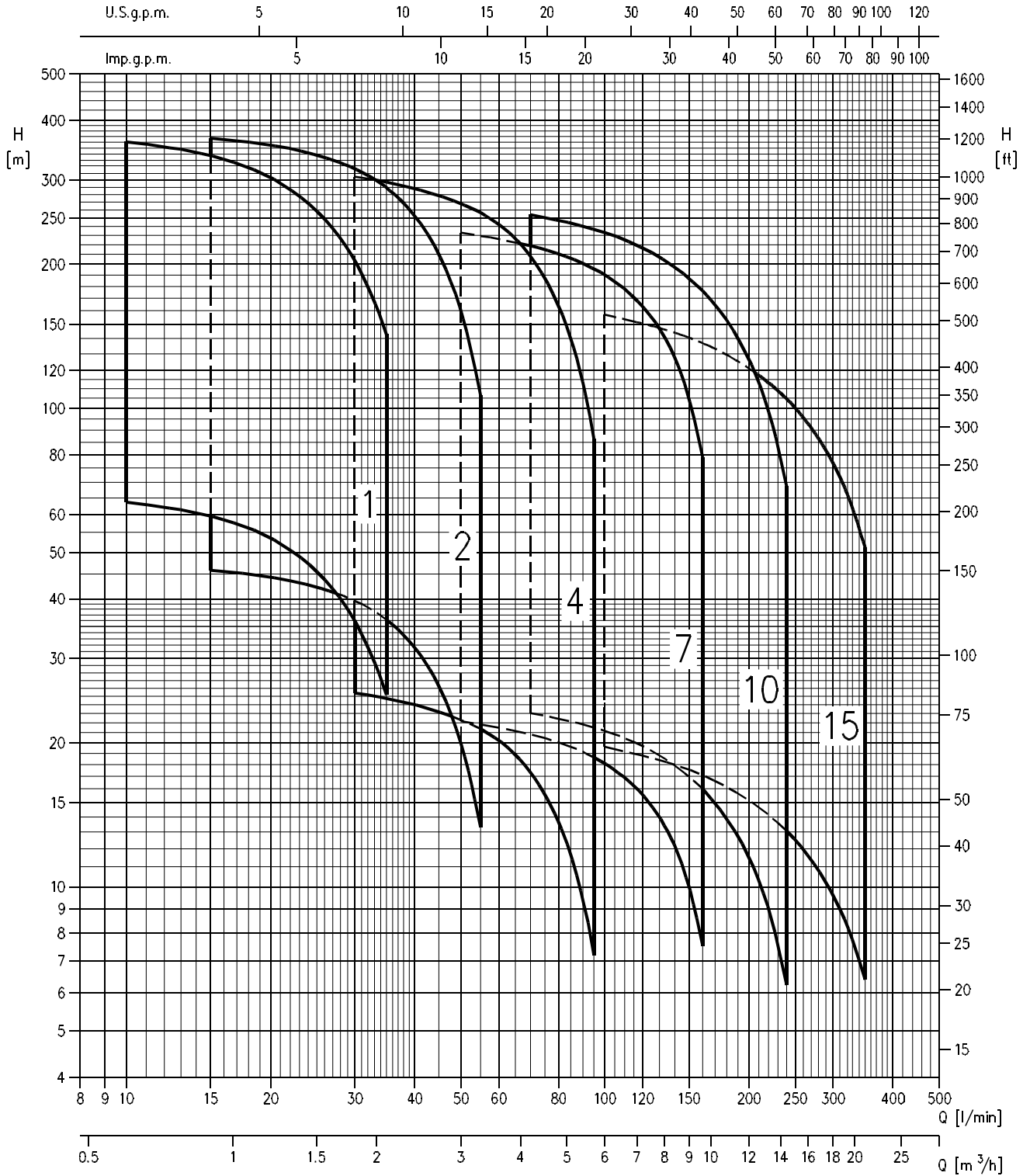
| PUMP                        |                      |  |
|-----------------------------|----------------------|--|
| Liquid Handled              | Type of liquid       | Clean water  |
|                             | Temperature [°C]     | Maximum 40 (depends on maximum temperature motor)                                    |
|                             | Sand content         | Maximum : 50 parts per million   |
|                             | Chlorine ion density | Maximum : 500 parts per million  |
| Construction                | Impeller             | Closed centrifugal - Face clearance type   |
|                             | Bearing              | Sleeve type - Alumina (Ceramic) / EPDM rubber  |
| Pipe connection             | Suction              | N/A  |
|                             | Discharge            | G1 1/4 (models 4N1, 4N2, 4N4) UNI ISO 228<br>G2 (models 4N7, 4N10, 4N15) UNI ISO 228 |
| Material                    | Impeller             | Ixef® (models 4N1, 4N2, 4N4, 4N7)  |
|                             |                      | Glass Fibre Reinforced PC (models 4N10, 4N15)  |
|                             | Intermediate casing  | EN 1.4301 (AISI 304)   |
|                             | Diffuser             | PPE+PS Glass Fibre Reinforced  |
|                             | Shaft                | EN 1.4301 (AISI 304)   |
|                             | Discharge casing     | EN 1.4308 (ASTM CF8)   |
|                             | Valve                | EN 1.4301 (AISI 304)   |
| Bracket                     | EN 1.4308 (ASTM CF8) |  |
| Applicable standard of test |                      | ISO 9906 - Annex A   |

| MOTOR                            |  |   |                                     |                      |
|----------------------------------|--|---|-------------------------------------|----------------------|
| Type                             | Submersible oil filled (type OY)                                       |   | Submersible water filled (type WY)  |                      |
| Manufacturer                     | Sumoto   |   | Franklin                            |                      |
|                                  | Single phase   | Three phase   | Single phase                        | Three phase          |
| Power rating                     | [kW]   | 0.37÷2.2  | 0.37÷7.5                            | 0.37÷2.2             |
|                                  | [HP]   | 0.5÷3.0   | 0.5÷10                              | 0.5÷3.0              |
| No. of Poles                     | 2  |   |                                     |                      |
| Rated speed                      | Refer to each characteristic performance rotation speed as rated speed |   |                                     |                      |
| Insulation class                 | F  |   | B                                   |                      |
| Protection degree                | IP 68  |   | IP 68                               |                      |
| Maximum ambient temperature [°C] | 35   |   | 30                                  |                      |
| Maximum immersion [m]            | 150  |   | 350                                 |                      |
| Starts / hours                   | 30   |   | 20                                  |                      |
| Start type                       | Direct on line   |   |                                     |                      |
| Frequency [Hz]                   | 50 Hz  |   |                                     |                      |
| Voltage [V]                      | 230 ±10%   | 380-415 ±10%  | 230 -10%+6%                         | 380-415 -10%+6%      |
| Capacitor for start and run      | Fitted in starter box  | -   | Fitted in starter box               | -                    |
| Over load protection             | Fitted in starter box  | Provided by the user  | Fitted in starter box               | Provided by the user |
| Sealing liquid                   | Oil type: Marcol 82 (Esso)   |   | Propylene Glycol 50% water solution |                      |
| Motor bracket                    | Cast iron nickel plated  |   | EN 1.4301 (AISI 304)                |                      |
| Casing material                  | EN 1.4301 (AISI 304)   |   |                                     |                      |
| Power cable                      | material   | EPDM/Cross Seald Polyethylene   |                                     |                      |
|                                  | size [mm <sup>2</sup> ]  | 4x1.5   |                                     |                      |
|                                  | length [m]   | L=1.75 (up to 2.2 kW) / L=2.5 (for 3 and 4 kW) / L=4 (for 5.5 and 7.5 kW) |                                     |                      |
| Flange mount                     | NEMA standard  |   |                                     |                      |

**SELECTION CHART**

50Hz

Rev. H



# SUBMERSIBLE MULTISTAGE PUMPS

# WINNER

## SELECTION CHART

50Hz

Rev. H

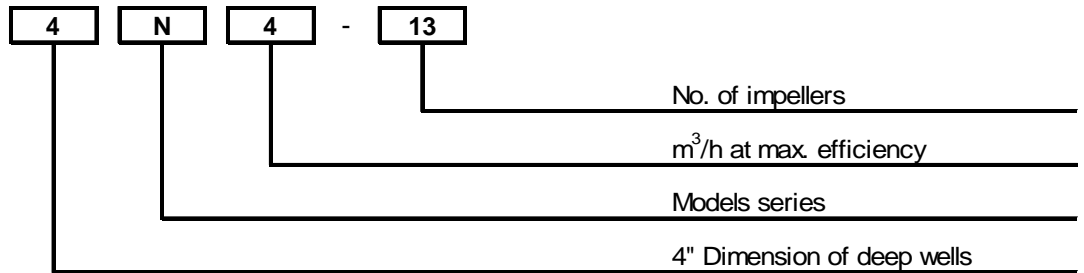
| Pump type    | Power |      | Q=Capacity        |      |      |      |      |       |       |      |       |       |      |
|--------------|-------|------|-------------------|------|------|------|------|-------|-------|------|-------|-------|------|
|              |       |      | l/min             | 0    | 10   | 15   | 20   | 25    | 30    | 35   | 45    | 55    | 75   |
|              | [kW]  | [HP] | m <sup>3</sup> /h | 0    | 0.6  | 0.9  | 1.2  | 1.5   | 1.8   | 2.1  | 2.7   | 3.3   | 4.5  |
| H=Total Head |       |      |                   |      |      |      |      |       |       |      |       |       |      |
| 4N1- 12      | 0.37  | 0.5  | 66.5              | 63.5 | 59.5 | 53.5 | 45.5 | 36    | 25.2  | -    | -     | -     | -    |
| 4N1- 18      | 0.55  | 0.7  | 100               | 95.5 | 89.5 | 80.5 | 68.5 | 54    | 37.8  | -    | -     | -     | -    |
| 4N1- 24      | 0.75  | 1.0  | 133               | 127  | 119  | 107  | 91   | 72    | 50.5  | -    | -     | -     | -    |
| 4N1- 34      | 1.10  | 1.5  | 189               | 180  | 169  | 152  | 129  | 102   | 71.5  | -    | -     | -     | -    |
| 4N1- 48      | 1.50  | 2.0  | 266               | 254  | 238  | 214  | 182  | 144   | 101   | -    | -     | -     | -    |
| 4N1- 68      | 2.20  | 3.0  | 377               | 360  | 337  | 303  | 258  | 204   | 142   | -    | -     | -     | -    |
| 4N2- 7       | 0.37  | 0.5  | 48.5              | -    | 46   | 44.5 | 42.5 | 39.6  | 36.1  | 26.2 | 13.3  | -     | -    |
| 4N2- 10      | 0.55  | 0.7  | 69.3              | -    | 65.5 | 63.5 | 60.5 | 56.5  | 51.5  | 37.5 | 19    | -     | -    |
| 4N2- 14      | 0.75  | 1.0  | 97                | -    | 91.5 | 89   | 84.5 | 79    | 72    | 52.5 | 26.6  | -     | -    |
| 4N2- 20      | 1.10  | 1.5  | 139               | -    | 131  | 127  | 121  | 113   | 103   | 75   | 38    | -     | -    |
| 4N2- 28      | 1.50  | 2.0  | 194               | -    | 183  | 178  | 169  | 158   | 144   | 105  | 53    | -     | -    |
| 4N2- 40      | 2.20  | 3.0  | 277               | -    | 262  | 254  | 242  | 226   | 206   | 150  | 76    | -     | -    |
| 4N2- 56      | 3.00  | 4.0  | 388               | -    | 367  | 355  | 338  | 317   | 289   | 210  | 106   | -     | -    |
| 4N4- 4       | 0.37  | 0.5  | 27.8              | -    | -    | -    | -    | 25.4  | 24.8  | 23.2 | 21.4  | 15.5  | 7.2  |
| 4N4- 7       | 0.55  | 0.7  | 48.7              | -    | -    | -    | -    | 44.45 | 43.33 | 40.6 | 37.38 | 27.23 | 12.6 |
| 4N4- 9       | 0.75  | 1.0  | 62.6              | -    | -    | -    | -    | 57    | 55.5  | 52   | 48    | 35    | 16.2 |
| 4N4- 13      | 1.10  | 1.5  | 90.4              | -    | -    | -    | -    | 82.5  | 80.5  | 75.5 | 69.5  | 50.5  | 23.4 |
| 4N4- 18      | 1.50  | 2.0  | 125               | -    | -    | -    | -    | 114   | 111   | 104  | 96    | 70    | 32.4 |
| 4N4- 27      | 2.20  | 3.0  | 188               | -    | -    | -    | -    | 171   | 167   | 157  | 144   | 105   | 48.5 |
| 4N4- 36      | 3.00  | 4.0  | 250               | -    | -    | -    | -    | 229   | 223   | 209  | 192   | 140   | 65   |
| 4N4- 48      | 4.00  | 5.5  | 334               | -    | -    | -    | -    | 305   | 297   | 278  | 256   | 187   | 86.5 |

| Pump type    | Power |      | Q=Capacity        |      |      |      |      |      |      |      |      |      |      |
|--------------|-------|------|-------------------|------|------|------|------|------|------|------|------|------|------|
|              |       |      | l/min             | 0    | 50   | 70   | 100  | 130  | 160  | 200  | 240  | 280  | 320  |
|              | [kW]  | [HP] | m <sup>3</sup> /h | 0    | 3.0  | 4.2  | 6.0  | 7.8  | 9.6  | 12.0 | 14.4 | 16.8 | 19.2 |
| H=Total Head |       |      |                   |      |      |      |      |      |      |      |      |      |      |
| 4N7- 4       | 0.55  | 0.7  | 24.8              | 22.2 | 20.8 | 18.1 | 14   | 7.5  | -    | -    | -    | -    | -    |
| 4N7- 6       | 0.75  | 1.0  | 37.2              | 33.3 | 31.2 | 27.1 | 21   | 11.3 | -    | -    | -    | -    | -    |
| 4N7- 8       | 1.10  | 1.5  | 49.5              | 44.5 | 41.5 | 36.2 | 28   | 15   | -    | -    | -    | -    | -    |
| 4N7- 12      | 1.50  | 2.0  | 74.5              | 66.5 | 62.5 | 54.5 | 42   | 22.6 | -    | -    | -    | -    | -    |
| 4N7- 17      | 2.20  | 3.0  | 105               | 94.5 | 88.5 | 77   | 59.5 | 32   | -    | -    | -    | -    | -    |
| 4N7- 23      | 3.00  | 4.0  | 143               | 128  | 120  | 104  | 80.5 | 43.5 | -    | -    | -    | -    | -    |
| 4N7- 30      | 4.00  | 5.5  | 186               | 166  | 156  | 136  | 105  | 56.5 | -    | -    | -    | -    | -    |
| 4N7- 42      | 5.50  | 7.5  | 260               | 233  | 219  | 190  | 147  | 79   | -    | -    | -    | -    | -    |
| 4N10- 4      | 0.75  | 1.0  | 25.7              | -    | 23.1 | 21.2 | 18.8 | 16   | 11.5 | 6.2  | -    | -    | -    |
| 4N10- 6      | 1.10  | 1.5  | 38.6              | -    | 34.6 | 31.8 | 28.2 | 24   | 17.3 | 9.4  | -    | -    | -    |
| 4N10- 8      | 1.50  | 2.0  | 51.5              | -    | 46.2 | 42.5 | 37.7 | 32   | 23.1 | 12.5 | -    | -    | -    |
| 4N10- 13     | 2.20  | 3.0  | 83.5              | -    | 75   | 69   | 61   | 52   | 37.5 | 20.3 | -    | -    | -    |
| 4N10- 17     | 3.00  | 4.0  | 109               | -    | 98   | 90   | 80   | 68   | 49   | 26.5 | -    | -    | -    |
| 4N10- 23     | 4.00  | 5.5  | 148               | -    | 133  | 122  | 108  | 92   | 66.5 | 35.8 | -    | -    | -    |
| 4N10- 32     | 5.50  | 7.5  | 206               | -    | 185  | 170  | 151  | 128  | 92   | 50   | -    | -    | -    |
| 4N10- 44     | 7.50  | 10.0 | 283               | -    | 254  | 233  | 207  | 176  | 127  | 68.5 | -    | -    | -    |
| 4N15- 4      | 1.10  | 1.5  | 25.5              | -    | -    | 23.5 | 22.4 | 21   | 18.9 | 16.3 | 13.3 | 9.8  | 7    |
| 4N15- 6      | 1.50  | 2.0  | 38.3              | -    | -    | 35.3 | 33.6 | 31.5 | 28.3 | 24.4 | 19.9 | 14.7 | 10.5 |
| 4N15- 8      | 2.20  | 3.0  | 51.1              | -    | -    | 47   | 45   | 42   | 37.7 | 32.5 | 26.5 | 19.6 | 14   |
| 4N15- 11     | 3.00  | 4.0  | 72.2              | -    | -    | 67.5 | 65   | 61.5 | 56   | 49.5 | 41.9 | 33.2 | 25.9 |
| 4N15- 14     | 4.00  | 5.5  | 91.9              | -    | -    | 86   | 82.5 | 78   | 71.5 | 63   | 53.5 | 42   | 33   |
| 4N15- 20     | 5.50  | 7.5  | 131               | -    | -    | 123  | 118  | 112  | 102  | 90   | 76   | 60.5 | 47   |
| 4N15- 27     | 7.50  | 10.0 | 177               | -    | -    | 166  | 159  | 151  | 137  | 121  | 103  | 81.5 | 63.5 |

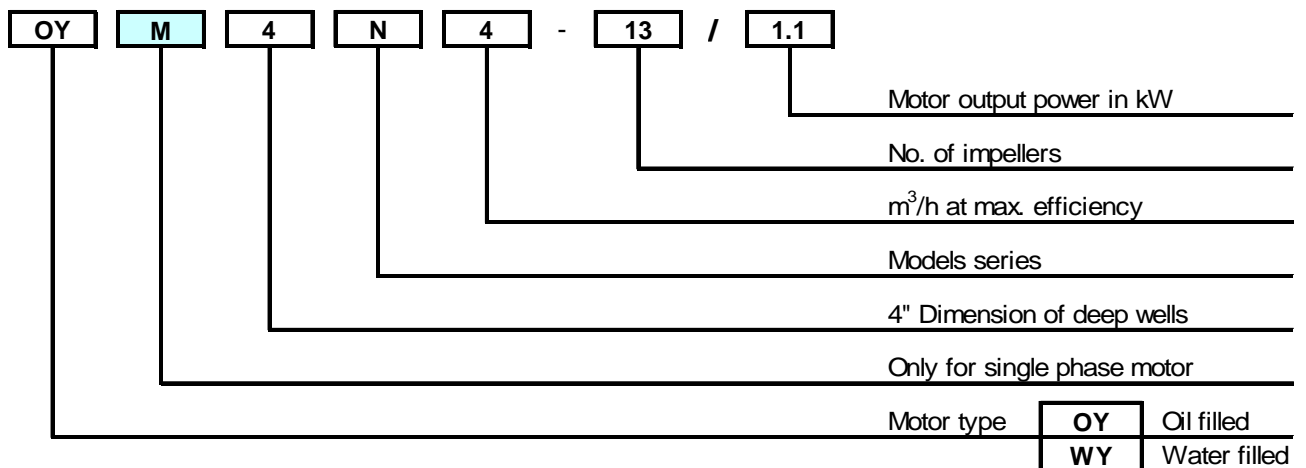


TYPE KEY

EXAMPLE ( pump without motor ) :



EXAMPLE ( pump with motor ) :



### PERFORMANCE CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906 Annex A

The curves refer to effective speed of asynchronous motors at 50 Hz

Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of  $\nu = 1 \text{ mm}^2/\text{s}$  (1 cSt)

The continuous curves indicate the recommended working range. The dotted curve is only a guide.

In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point.

Symbols explanation:

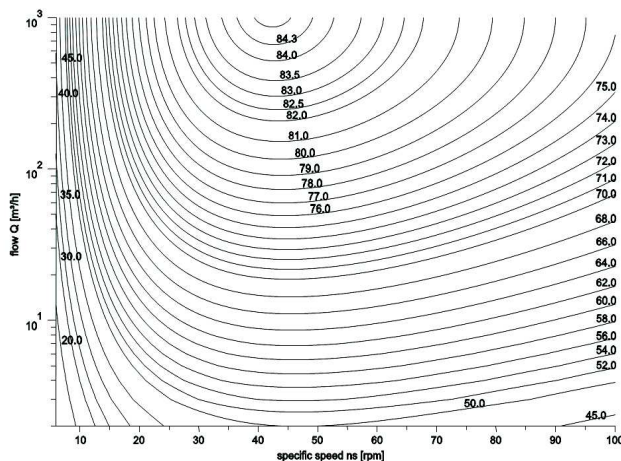
- Q = volume flow rate
- H = total head
- $P_2$  = pump power input (shaft power)
- $\eta$  = pump efficiency
- NPSH = net positive suction head required by the pump
- MEI = minimum efficiency index

The minimum efficiency index (MEI) is a measure of the quality of a pump size in respect to its mean efficiency. The minimum efficiency index is based on the hydraulic efficiency and on the head at the best efficiency point.

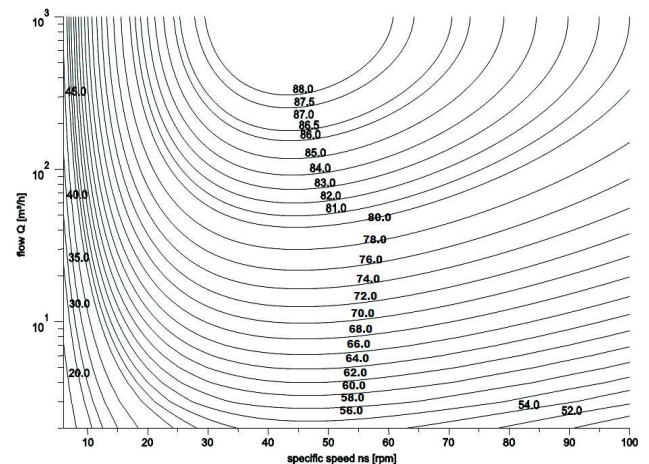
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of these water pumps with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

MEI = 0.4 for Multistage Submersible 2900rpm



MEI = 0.7 for Multistage Submersible 2900 rpm



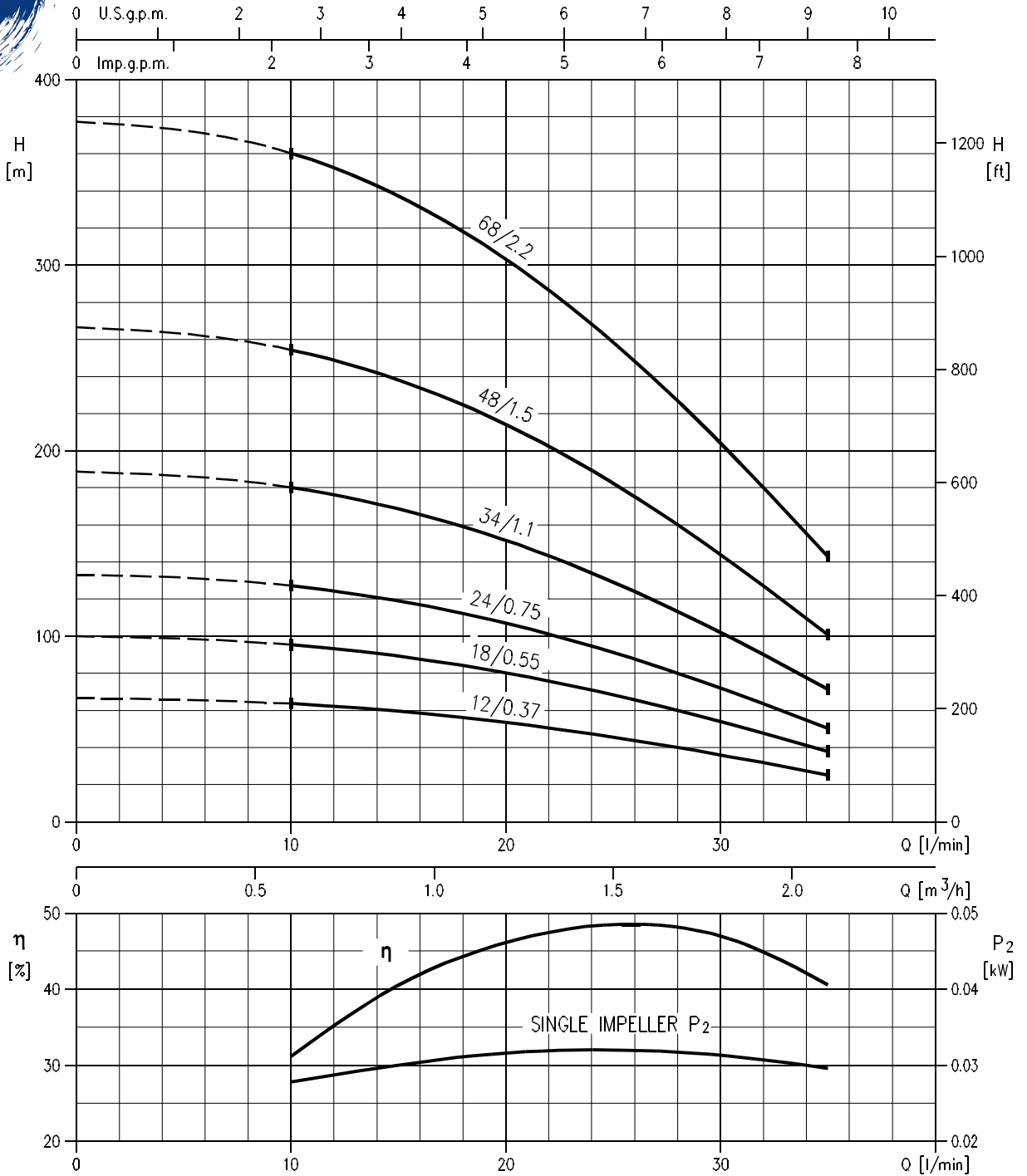
PERFORMANCE CURVE

50Hz

Rev. H



WINNER 4N1 - MEI > 0.70 - Impeller diameter = 67.6 mm



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906-Annex A



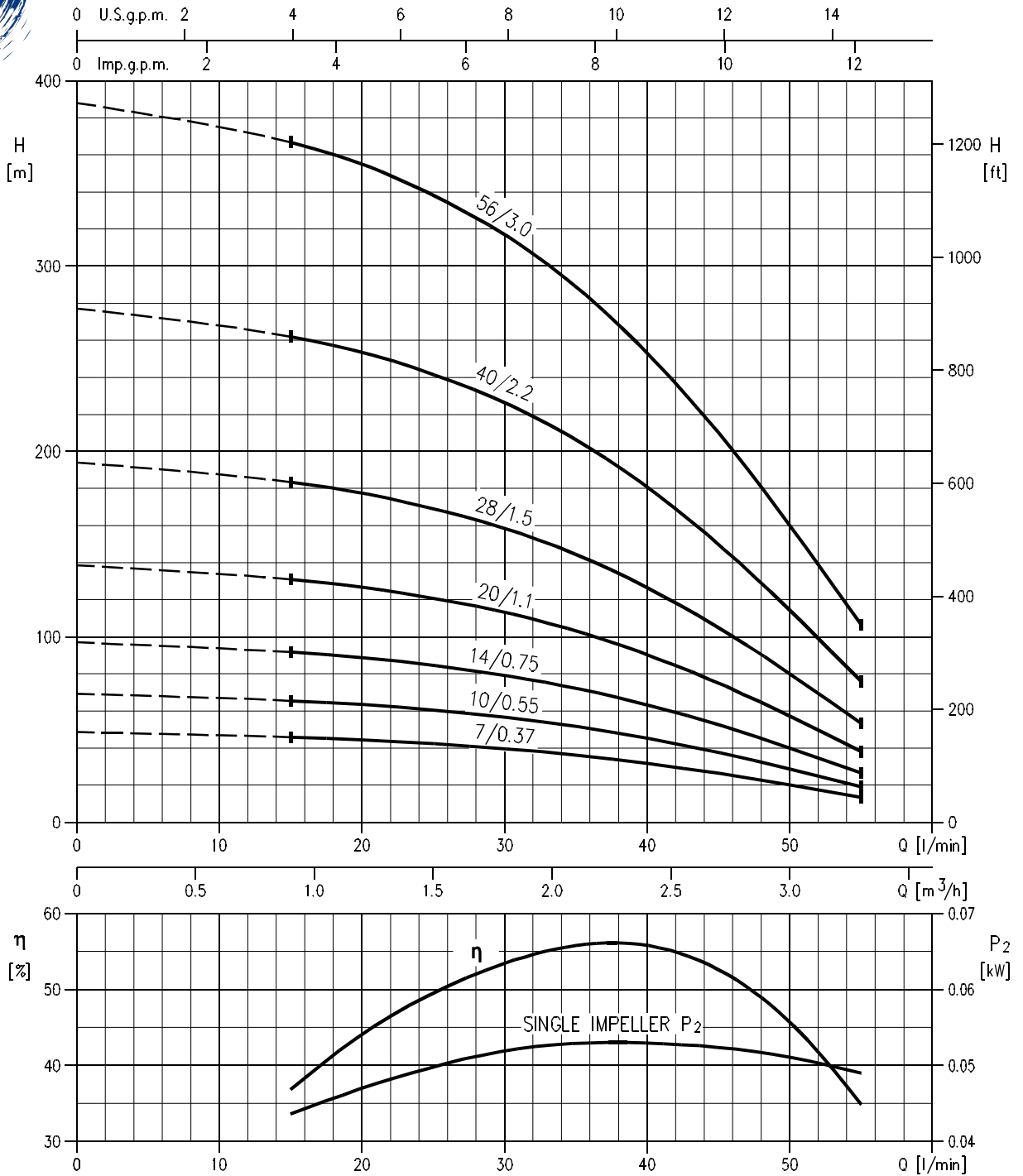
PERFORMANCE CURVE

50Hz

Rev. H



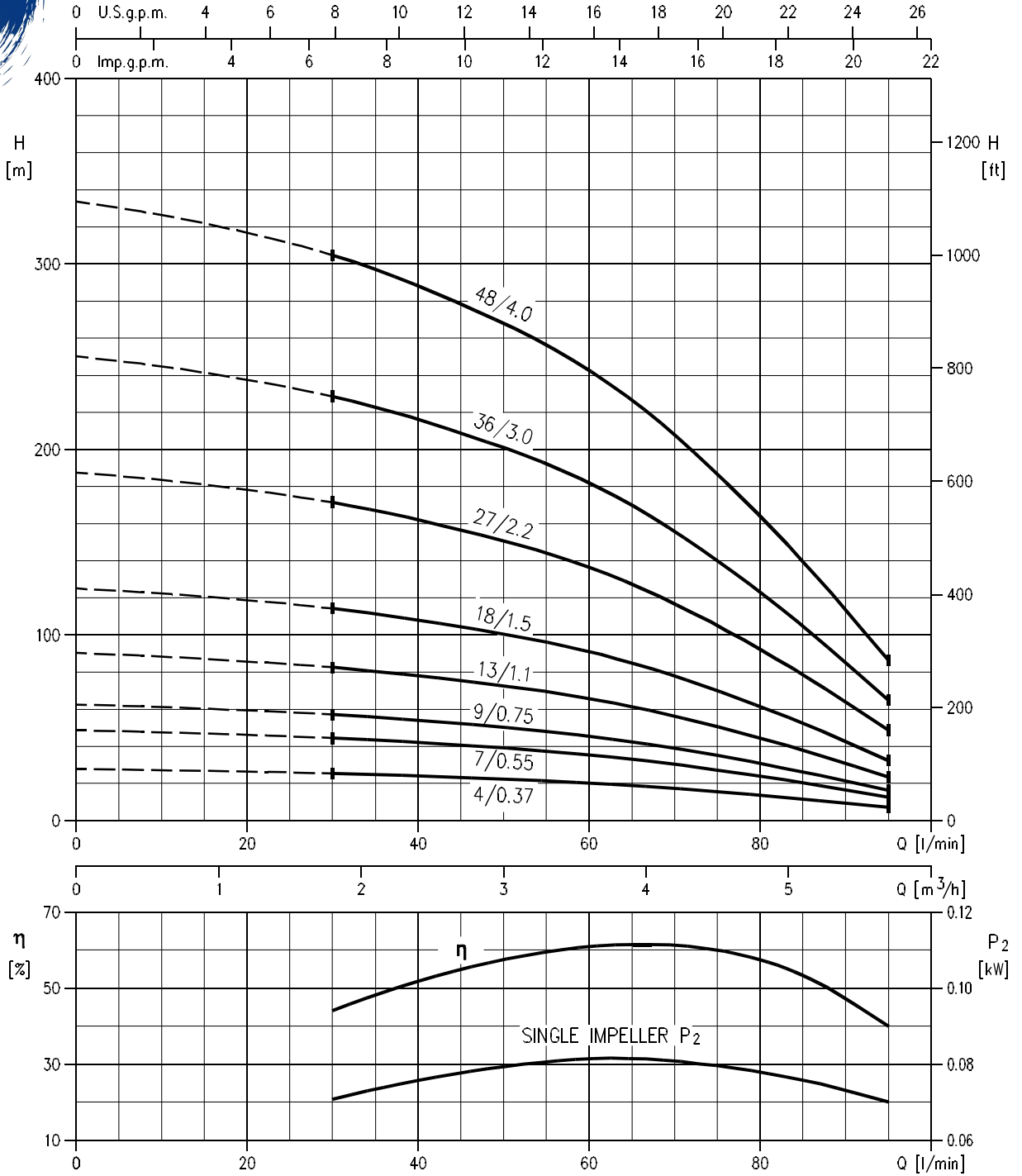
WINNER 4N2 - MEI > 0.70 - Impeller diameter = 76 mm



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906-Annex A

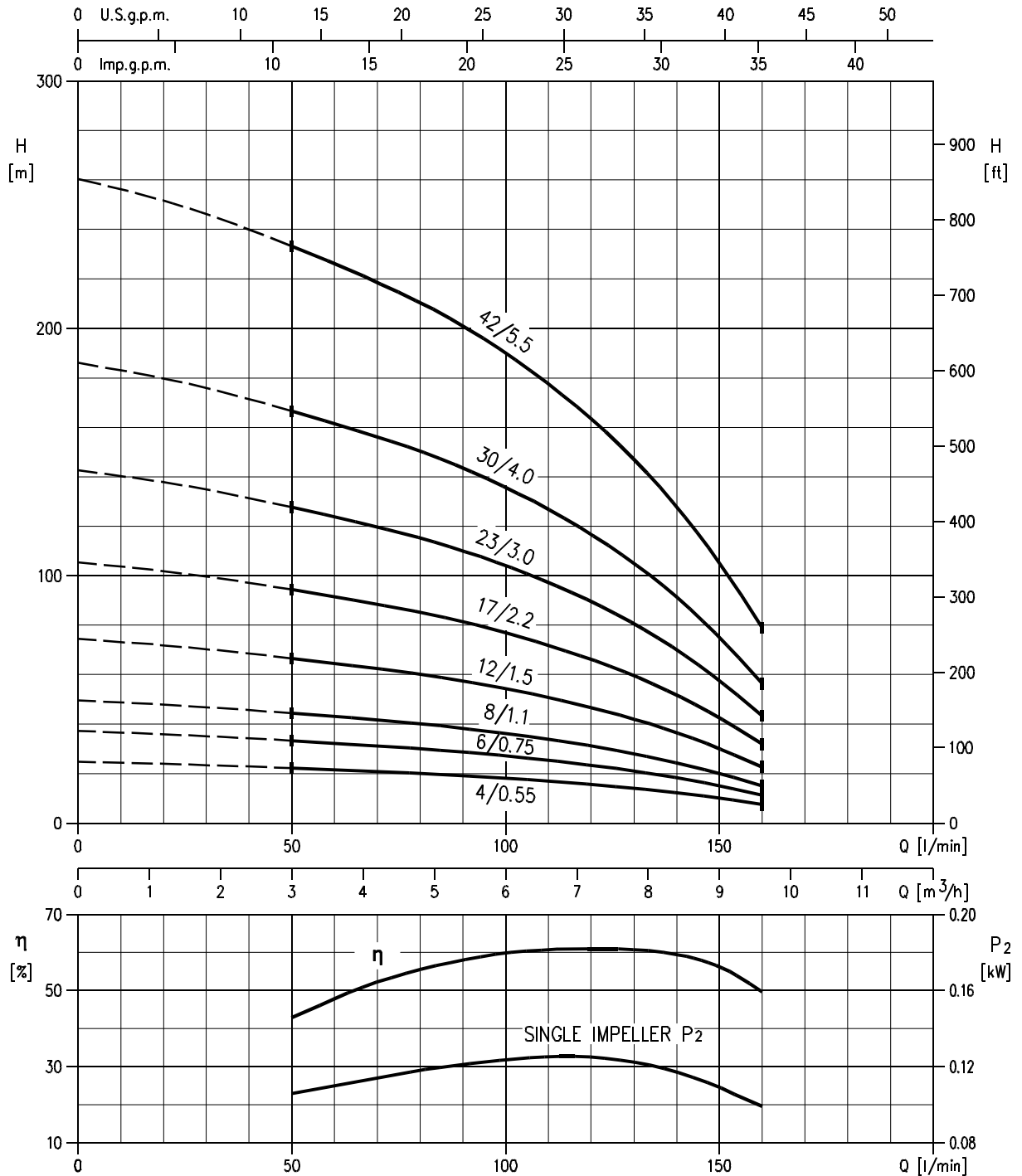


WINNER 4N4 - MEI > 0.70 - Impeller diameter = 76 mm



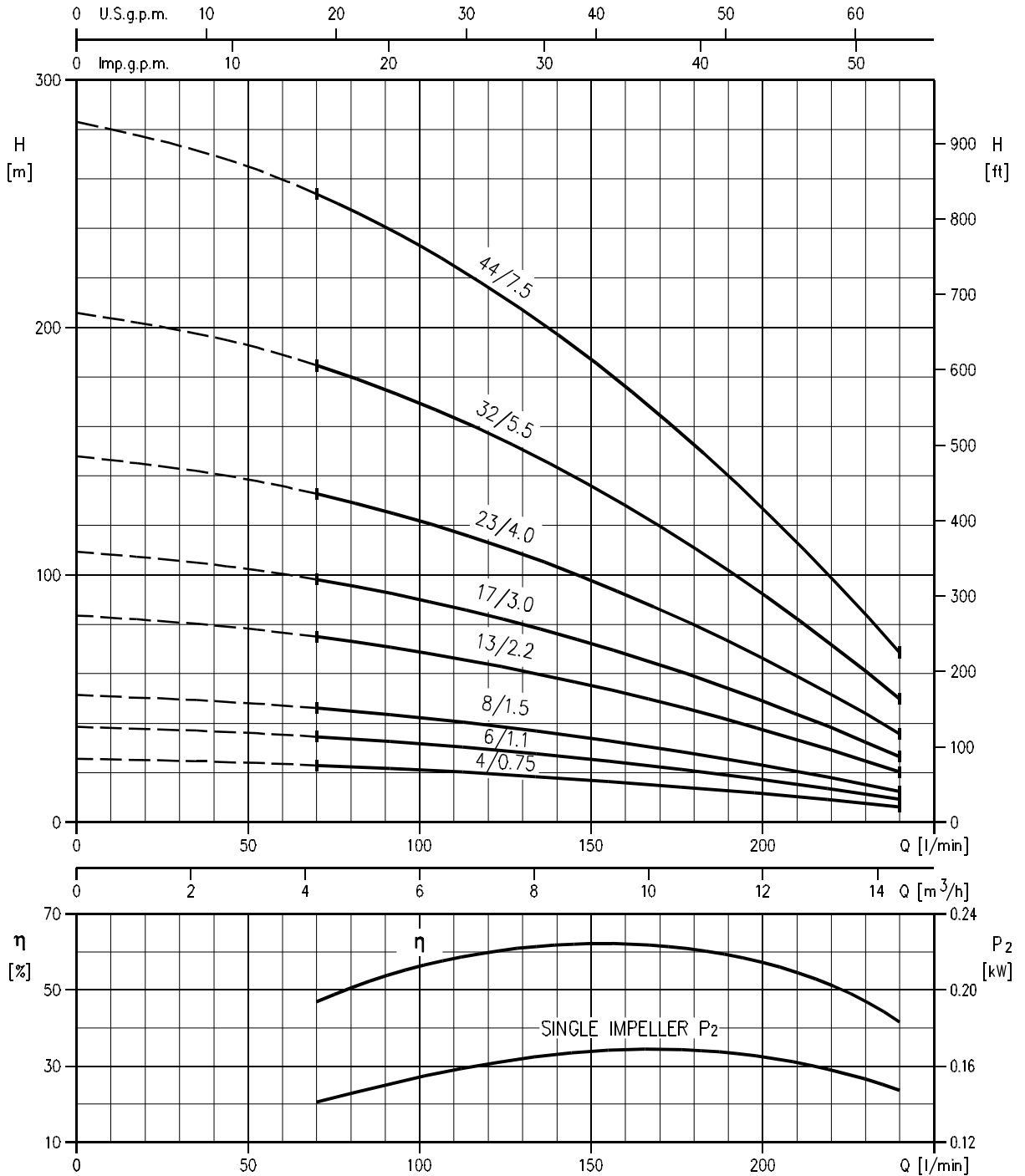
Rotation speed  $\approx 2850 \text{ min}^{-1}$   
 Test standard: ISO 9906-Annex A

**WINNER 4N7 - MEI > 0.40 - Impeller diameter = 74.2 mm**



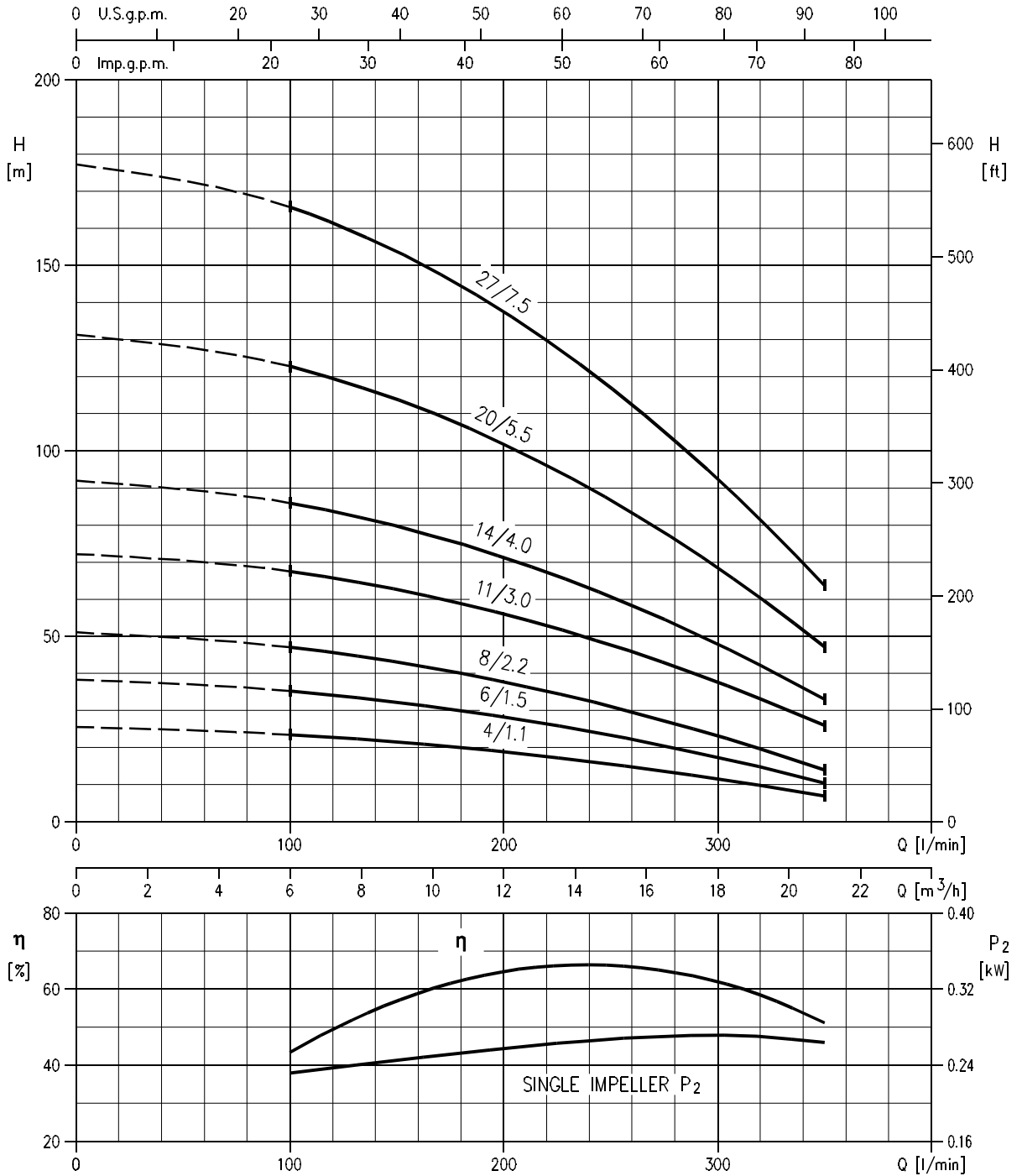
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906-Annex A

**WINNER 4N10 - MEI > 0.40 - Impeller diameter = 76.4 mm**



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906-Annex A

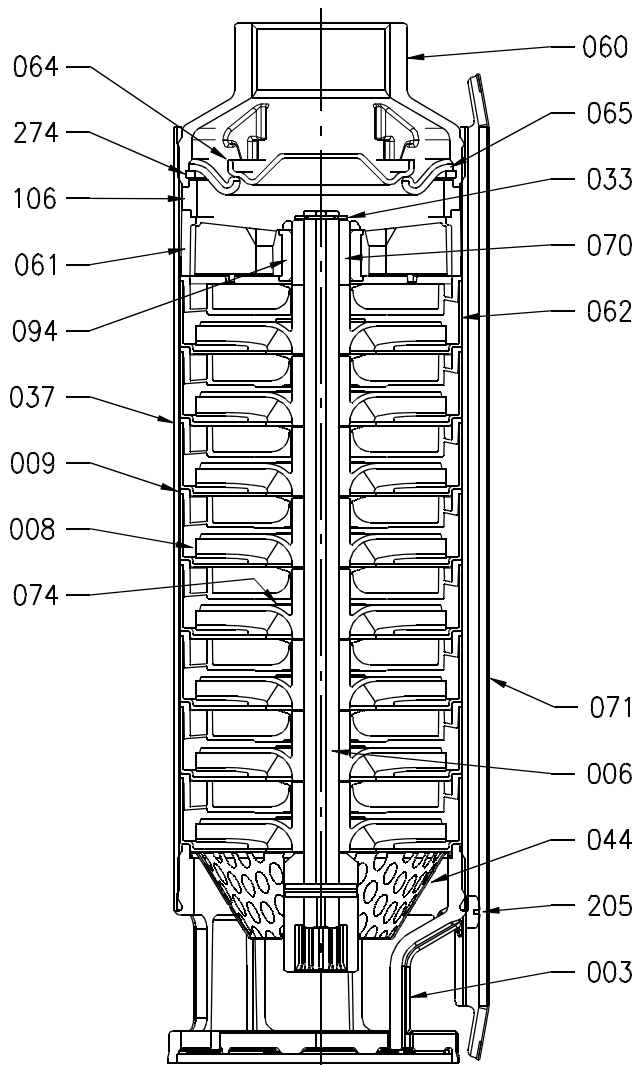
**WINNER 4N15 - MEI > 0.40 - Impeller diameter = 78 mm**



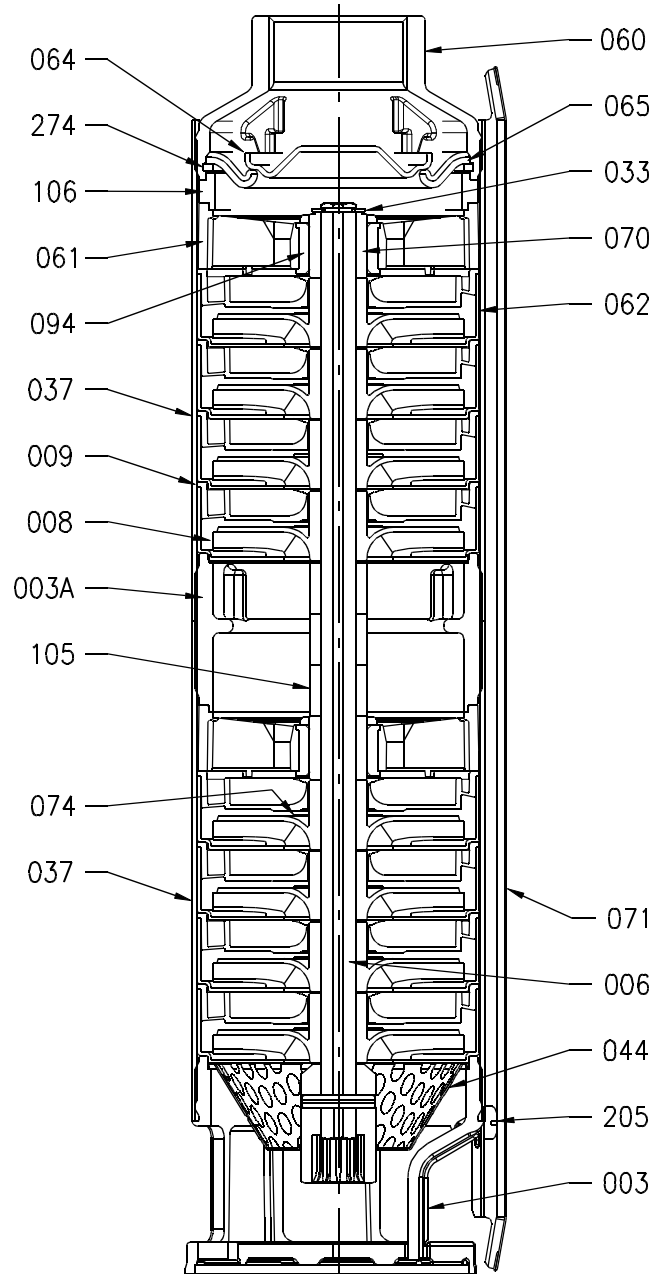
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test standard: ISO 9906-Annex A

SECTIONAL VIEW  
4N1 - 4N2 - 4N4

SINGLE PUMP CASING



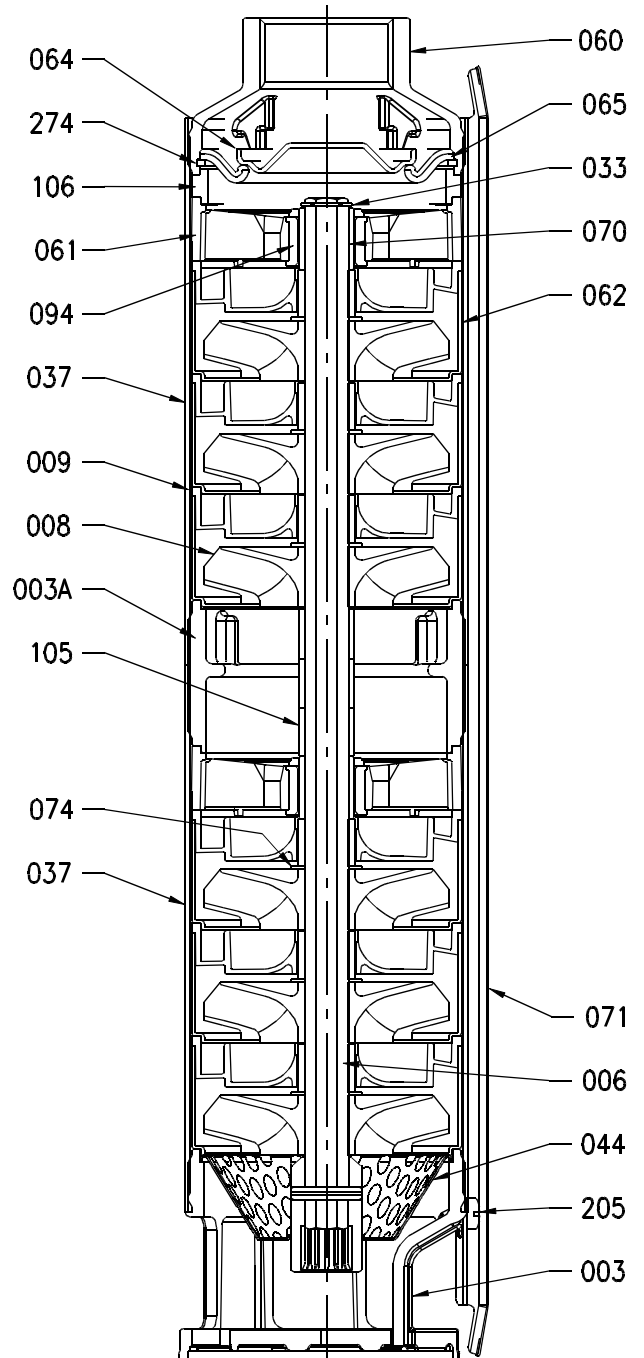
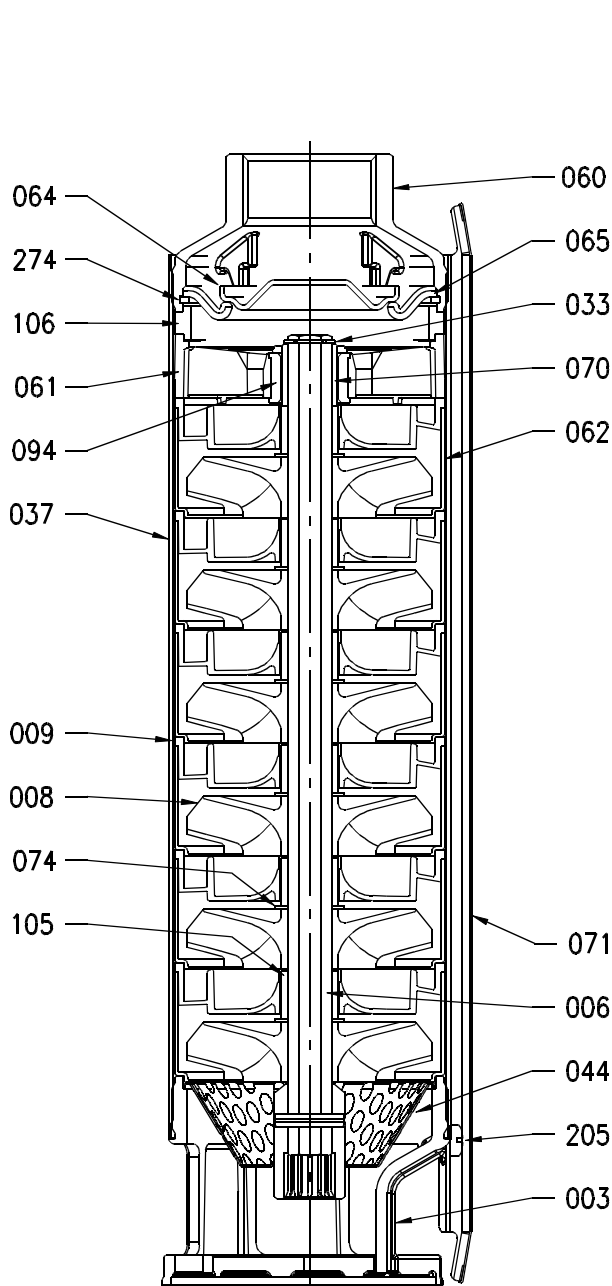
DOUBLE PUMP CASING



SECTIONAL VIEW  
4N7

SINGLE PUMP CASING

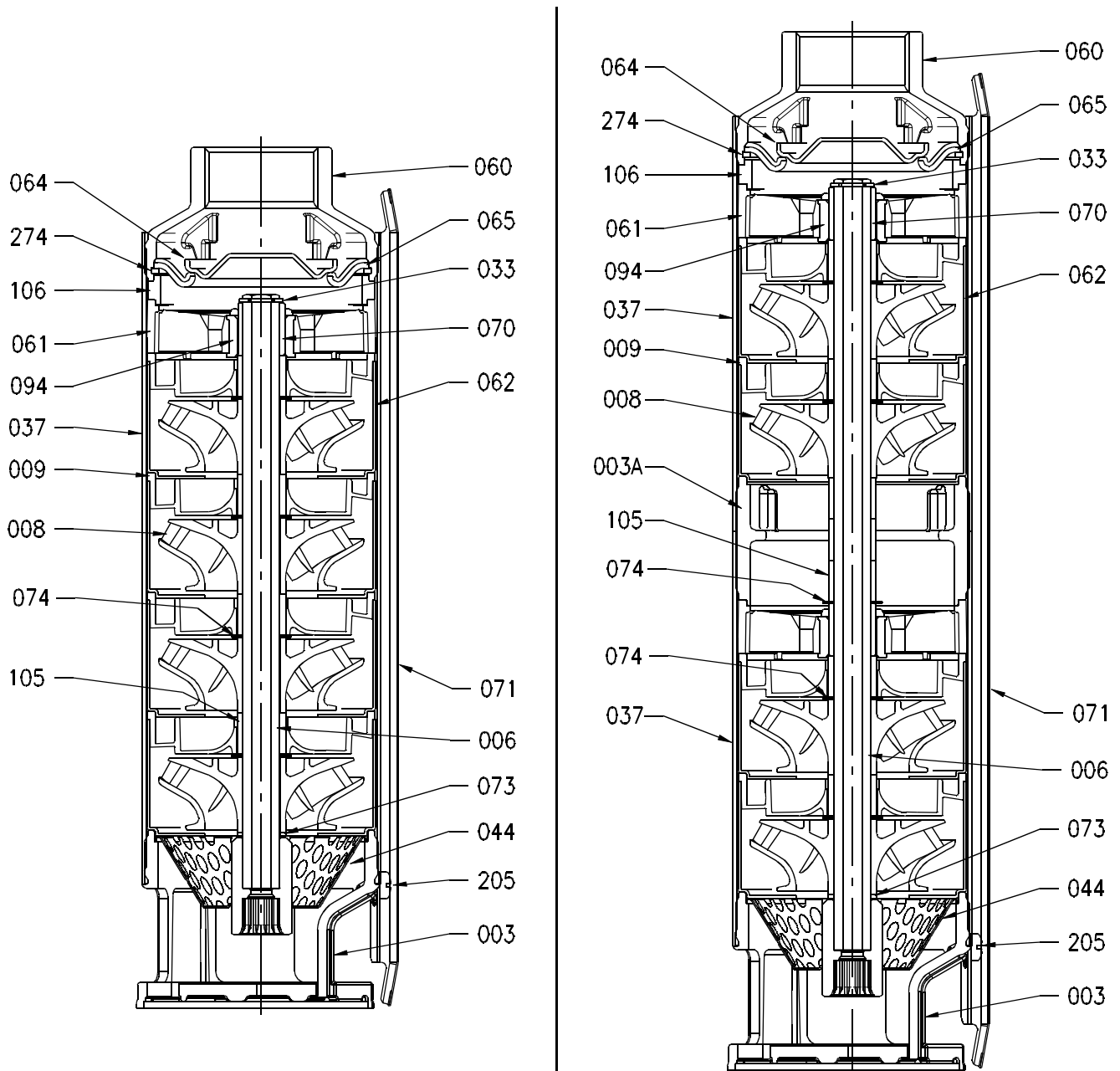
DOUBLE PUMP CASING



SECTIONAL VIEW  
4N10

SINGLE PUMP CASING

DOUBLE PUMP CASING

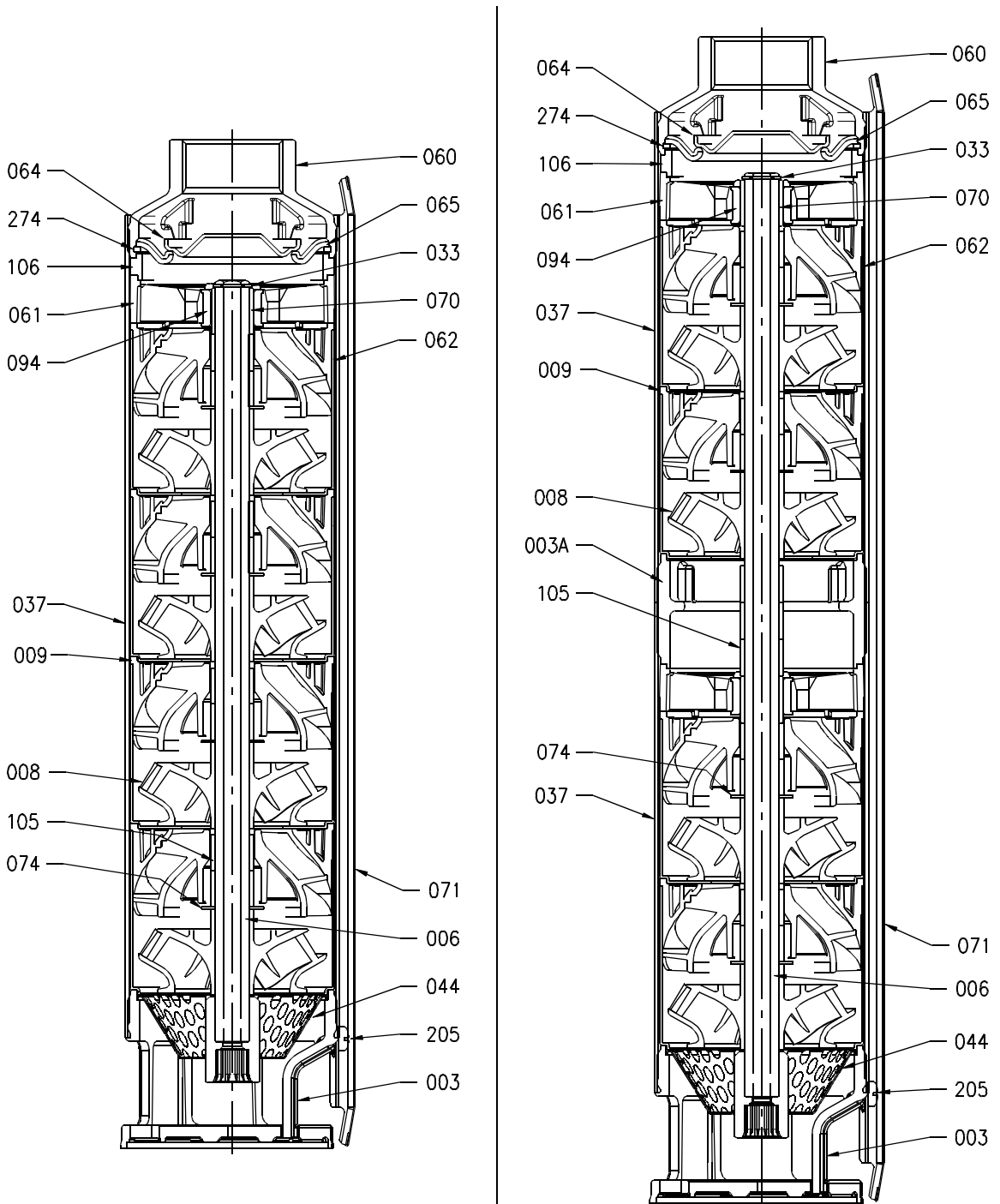




SECTIONAL VIEW  
4N15

SINGLE PUMP CASING

DOUBLE PUMP CASING



**SECTIONAL VIEW TABLE**

| N°   | PART.NAME                    | MATERIAL                                     | Q.TY |
|------|------------------------------|--|------|
| 003  | Bracket                      | EN 1.4308 (ASTM CF8)                         | 1    |
| 003A | Join ring                    | EN 1.4308 (ASTM CF8)                         | [*]  |
| 006  | Pump shaft with coupling     | EN 1.4301 (AISI 304)                         | 1    |
| 008  | Impeller                     | Ixef® (model 4N1, 4N2, 4N4, 4N7)             | [*]  |
|      |                              | Glass fibre reinforced PC (model 4N10, 4N15) | [*]  |
| 009  | Diffuser                     | PPE+PS Glass fibre reinforced                | [*]  |
| 033  | Elastic Ring                 | EN 1.4301 (AISI 304)                         | 1    |
| 037  | Outer casing                 | EN 1.4301 (AISI 304)                         | [*]  |
| 044  | Strainer                     | EN 1.4301 (AISI 304)                         | 1    |
| 060  | Discharge casing             | EN 1.4308 (ASTM CF8)                         | 1    |
| 061  | Upper / Intermediate bracket | PPE+PS Glass fibre reinforced                | [*]  |
| 062  | Stage housing                | EN 1.4301 (AISI 304)                         | [*]  |
| 064  | Valve                        | EN 1.4301 (AISI 304)                         | 1    |
| 065  | Valve seat                   | EN 1.4301 (AISI 304) + EPDM Rubber           | 1    |
| 070  | Shaft sleeve bearing         | Alumina (Ceramic)                            | [*]  |
| 071  | Cable guard                  | EN 1.4301 (AISI 304)                         | 1    |
| 073  | Thrust washer first impeller | EN 1.4301 (AISI 304)                         | [*]  |
| 074  | Thrust washer                | EN 1.4301 (AISI 304)                         | [*]  |
| 094  | Bearing                      | EPDM Rubber                                  | [*]  |
| 105  | Spacer                       | PPE+PS Glass fibre reinforced                | [*]  |
| 106  | Spacer                       | NORYL+GF20%                                  | 1    |
| 205  | Screw (M4 x 6 UNI 7687)      | EN 1.4301 (AISI 304)                         | 2    |
| 274  | Elastic Ring                 | EN 1.4310 (AISI 302)                         | 1    |

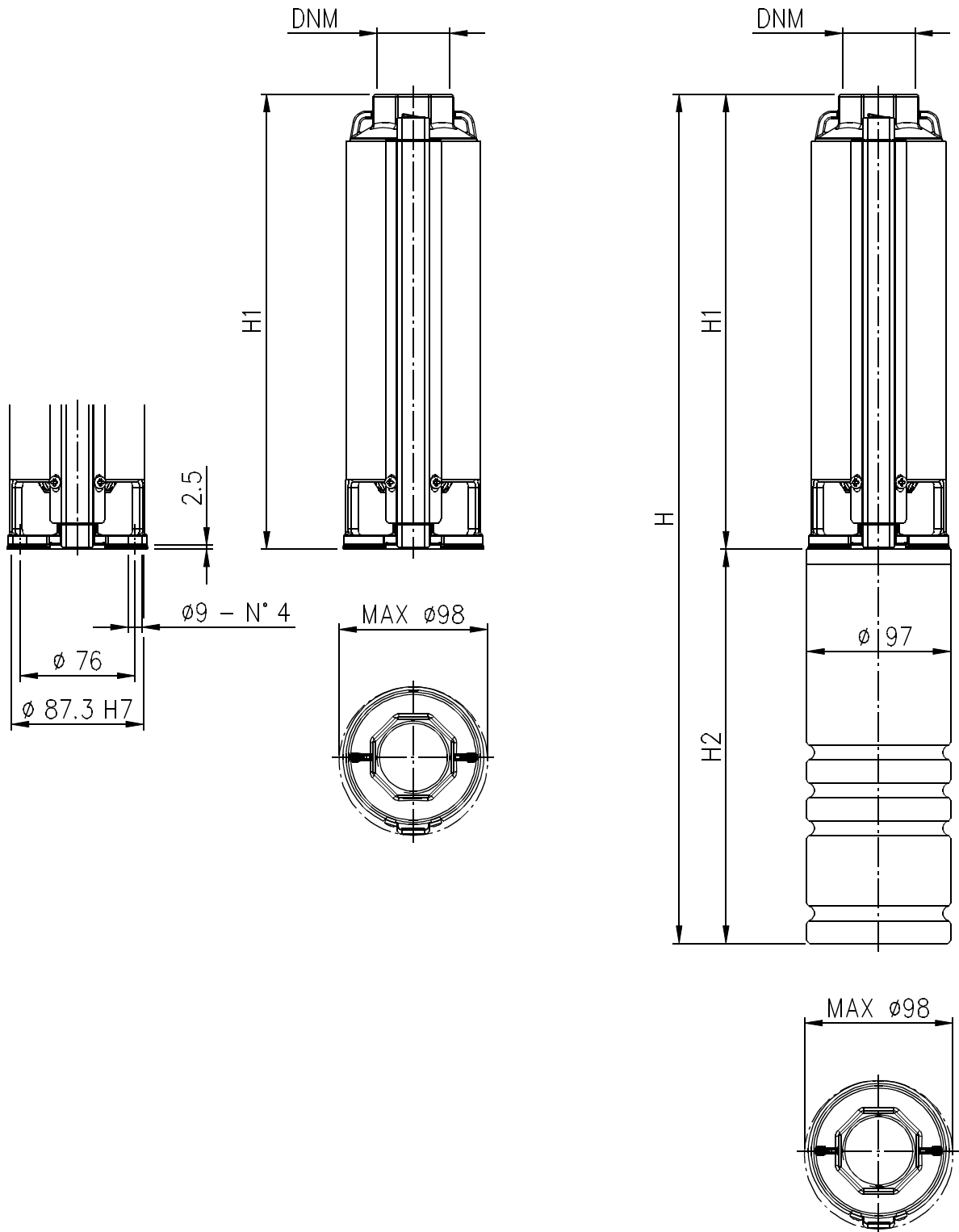
[\*] See table pag.305

QUANTITY FOR MODEL

| Pump type     | Quantity for model |       |       |       |       |       |       |       |       |       |       |
|---------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|               | N°003A             | N°008 | N°009 | N°037 | N°061 | N°062 | N°070 | N°073 | N°074 | N°094 | N°105 |
| 4N1- 12 [*]   | -                  | 12    | 12    | 1     | 1     | 12    | 1     | -     | 12    | 1     | -     |
| 4N1- 18 [*]   | -                  | 18    | 18    | 1     | 1     | 18    | 1     | -     | 18    | 1     | -     |
| 4N1- 24 [*]   | -                  | 24    | 24    | 1     | 1     | 24    | 1     | -     | 24    | 1     | -     |
| 4N1- 34 [*]   | -                  | 34    | 34    | 1     | 1     | 34    | 1     | -     | 34    | 1     | -     |
| 4N1- 48 [**]  | 1                  | 48    | 48    | 2     | 2     | 48    | 2     | -     | 48    | 2     | 1     |
| 4N1- 68 [**]  | 1                  | 68    | 68    | 2     | 2     | 68    | 2     | -     | 68    | 2     | 1     |
| 4N2- 7 [*]    | -                  | 7     | 7     | 1     | 1     | 7     | 1     | -     | 7     | 1     | -     |
| 4N2- 10 [*]   | -                  | 10    | 10    | 1     | 1     | 10    | 1     | -     | 10    | 1     | -     |
| 4N2- 14 [*]   | -                  | 14    | 14    | 1     | 1     | 14    | 1     | -     | 14    | 1     | -     |
| 4N2- 20 [*]   | -                  | 20    | 20    | 1     | 1     | 20    | 1     | -     | 20    | 1     | -     |
| 4N2- 28 [*]   | -                  | 28    | 28    | 1     | 1     | 28    | 1     | -     | 28    | 1     | -     |
| 4N2- 40 [**]  | 1                  | 40    | 40    | 2     | 2     | 40    | 2     | -     | 40    | 2     | 1     |
| 4N2- 56 [**]  | 1                  | 56    | 56    | 2     | 2     | 56    | 2     | -     | 56    | 2     | 1     |
| 4N4- 4 [*]    | -                  | 4     | 4     | 1     | 1     | 4     | 1     | -     | 4     | 1     | -     |
| 4N4- 7 [*]    | -                  | 7     | 7     | 1     | 1     | 7     | 1     | -     | 7     | 1     | -     |
| 4N4- 9 [*]    | -                  | 9     | 9     | 1     | 1     | 9     | 1     | -     | 9     | 1     | -     |
| 4N4- 13 [*]   | -                  | 13    | 13    | 1     | 1     | 13    | 1     | -     | 13    | 1     | -     |
| 4N4- 18 [*]   | -                  | 18    | 18    | 1     | 1     | 18    | 1     | -     | 18    | 1     | -     |
| 4N4- 27 [*]   | -                  | 27    | 27    | 1     | 1     | 27    | 1     | -     | 27    | 1     | -     |
| 4N4- 36 [**]  | 1                  | 36    | 36    | 2     | 2     | 36    | 2     | -     | 36    | 2     | 1     |
| 4N4- 48 [**]  | 1                  | 48    | 48    | 2     | 2     | 48    | 2     | -     | 48    | 2     | 1     |
| 4N7- 4 [*]    | -                  | 4     | 4     | 1     | 1     | 4     | 1     | -     | 4     | 1     | 4     |
| 4N7- 6 [*]    | -                  | 6     | 6     | 1     | 1     | 6     | 1     | -     | 6     | 1     | 6     |
| 4N7- 8 [*]    | -                  | 8     | 8     | 1     | 1     | 8     | 1     | -     | 8     | 1     | 8     |
| 4N7- 12 [*]   | -                  | 12    | 12    | 1     | 1     | 12    | 1     | -     | 12    | 1     | 12    |
| 4N7- 17 [*]   | -                  | 17    | 17    | 1     | 1     | 17    | 1     | -     | 17    | 1     | 17    |
| 4N7- 23 [*]   | -                  | 23    | 23    | 1     | 1     | 23    | 1     | -     | 23    | 1     | 23    |
| 4N7- 30 [**]  | 1                  | 30    | 30    | 2     | 2     | 30    | 2     | -     | 30    | 2     | 33    |
| 4N7- 42 [**]  | 1                  | 42    | 42    | 2     | 2     | 42    | 2     | -     | 42    | 2     | 45    |
| 4N10- 4 [*]   | -                  | 4     | 4     | 1     | 1     | 4     | 1     | 1     | 8     | 1     | 4     |
| 4N10- 6 [*]   | -                  | 6     | 6     | 1     | 1     | 6     | 1     | 1     | 12    | 1     | 6     |
| 4N10- 8 [*]   | -                  | 8     | 8     | 1     | 1     | 8     | 1     | 1     | 16    | 1     | 8     |
| 4N10- 13 [*]  | -                  | 13    | 13    | 1     | 1     | 13    | 1     | 1     | 28    | 1     | 13    |
| 4N10- 17 [*]  | -                  | 17    | 17    | 1     | 1     | 17    | 1     | 1     | 34    | 1     | 17    |
| 4N10- 23 [*]  | -                  | 23    | 23    | 1     | 1     | 23    | 1     | 1     | 46    | 1     | 23    |
| 4N10- 32 [**] | 1                  | 32    | 32    | 2     | 2     | 32    | 2     | 1     | 65    | 2     | 37    |
| 4N10- 44 [**] | 1                  | 44    | 44    | 2     | 2     | 44    | 2     | 1     | 89    | 2     | 51    |
| 4N15- 4 [*]   | -                  | 4     | 4     | 1     | 1     | 4     | 1     | -     | 4     | 1     | 8     |
| 4N15- 6 [*]   | -                  | 6     | 6     | 1     | 1     | 6     | 1     | -     | 6     | 1     | 12    |
| 4N15- 8 [*]   | -                  | 8     | 8     | 1     | 1     | 8     | 1     | -     | 8     | 1     | 16    |
| 4N15- 11 [*]  | -                  | 11    | 11    | 1     | 1     | 11    | 1     | -     | 11    | 1     | 22    |
| 4N15- 14 [*]  | -                  | 14    | 14    | 1     | 1     | 14    | 1     | -     | 14    | 1     | 28    |
| 4N15- 20 [*]  | 1                  | 20    | 20    | 2     | 2     | 20    | 2     | -     | 20    | 2     | 40    |
| 4N15- 27 [**] | 1                  | 27    | 27    | 2     | 2     | 27    | 2     | -     | 27    | 2     | 54    |

[\*] See drawing pag. 300 - 303 Single pump casing  
 [\*\*] See drawing pag. 300 - 303 Double pump casing

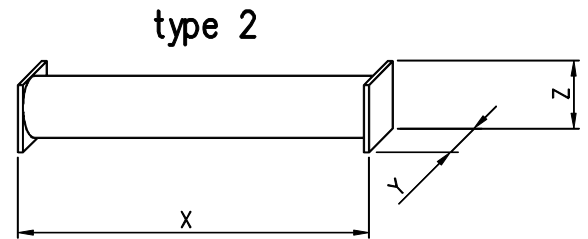
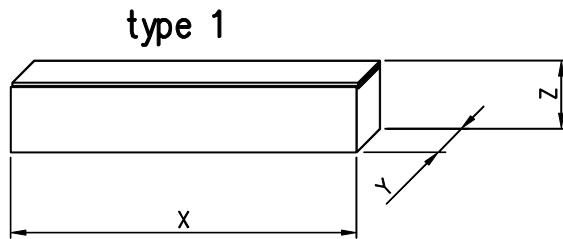
PUMP DRAWING



**DIMENSIONS PUMP TABLE**

| Pump type | Power |      | Pump without motor |         | Pump with oil filled motor |        |             |        | Pump with water filled motor |        |             |        |
|-----------|-------|------|--------------------|---------|----------------------------|--------|-------------|--------|------------------------------|--------|-------------|--------|
|           | [kW]  | [HP] | H1 [mm]            | DNM     | single phase               |        | three phase |        | single phase                 |        | three phase |        |
|           |       |      |                    |         | H2 [mm]                    | H [mm] | H2 [mm]     | H [mm] | H2 [mm]                      | H [mm] | H2 [mm]     | H [mm] |
| 4N1- 12   | 0.37  | 0.5  | 353                | G 1 1/4 | 325                        | 678    | 304         | 657    | 228                          | 581    | 214         | 567    |
| 4N1- 18   | 0.55  | 0.75 | 458                | G 1 1/4 | 325                        | 783    | 325         | 783    | 253                          | 711    | 228         | 686    |
| 4N1- 24   | 0.75  | 1    | 563                | G 1 1/4 | 350                        | 913    | 325         | 888    | 283                          | 846    | 248         | 811    |
| 4N1- 34   | 1.1   | 1.5  | 738                | G 1 1/4 | 385                        | 1123   | 350         | 1088   | 307                          | 1045   | 283         | 1021   |
| 4N1- 48   | 1.5   | 2    | 1049               | G 1 1/4 | 420                        | 1469   | 385         | 1434   | 339                          | 1388   | 307         | 1356   |
| 4N1- 68   | 2.2   | 3    | 1399               | G 1 1/4 | 470                        | 1869   | 420         | 1819   | 437                          | 1836   | 339         | 1738   |
| 4N2- 7    | 0.37  | 0.5  | 265                | G 1 1/4 | 325                        | 590    | 304         | 569    | 228                          | 493    | 214         | 479    |
| 4N2- 10   | 0.55  | 0.75 | 318                | G 1 1/4 | 325                        | 643    | 325         | 643    | 253                          | 571    | 228         | 546    |
| 4N2- 14   | 0.75  | 1    | 388                | G 1 1/4 | 350                        | 738    | 325         | 713    | 283                          | 671    | 248         | 636    |
| 4N2- 20   | 1.1   | 1.5  | 493                | G 1 1/4 | 385                        | 878    | 350         | 843    | 307                          | 800    | 283         | 776    |
| 4N2- 28   | 1.5   | 2    | 633                | G 1 1/4 | 420                        | 1053   | 385         | 1018   | 339                          | 972    | 307         | 940    |
| 4N2- 40   | 2.2   | 3    | 909                | G 1 1/4 | 470                        | 1379   | 420         | 1329   | 437                          | 1346   | 339         | 1248   |
| 4N2- 56   | 3     | 4    | 1189               | G 1 1/4 | -                          | -      | 544         | 1733   | -                            | -      | 394         | 1583   |
| 4N4- 4    | 0.37  | 0.5  | 229                | G 1 1/4 | 325                        | 554    | 304         | 533    | 228                          | 457    | 214         | 443    |
| 4N4- 7    | 0.55  | 0.75 | 293                | G 1 1/4 | 325                        | 618    | 325         | 618    | 253                          | 546    | 228         | 521    |
| 4N4- 9    | 0.75  | 1    | 336                | G 1 1/4 | 350                        | 686    | 325         | 661    | 283                          | 619    | 248         | 584    |
| 4N4- 13   | 1.1   | 1.5  | 422                | G 1 1/4 | 385                        | 807    | 350         | 772    | 307                          | 729    | 283         | 705    |
| 4N4- 18   | 1.5   | 2    | 530                | G 1 1/4 | 420                        | 950    | 385         | 915    | 339                          | 869    | 307         | 837    |
| 4N4- 27   | 2.2   | 3    | 723                | G 1 1/4 | 470                        | 1193   | 420         | 1143   | 437                          | 1160   | 339         | 1062   |
| 4N4- 36   | 3     | 4    | 983                | G 1 1/4 | -                          | -      | 544         | 1527   | -                            | -      | 394         | 1377   |
| 4N4- 48   | 4     | 5.5  | 1241               | G 1 1/4 | -                          | -      | 574         | 1815   | -                            | -      | 543         | 1784   |
| 4N7- 4    | 0.55  | 0.75 | 285                | G 2     | 325                        | 610    | 325         | 610    | 253                          | 538    | 228         | 513    |
| 4N7- 6    | 0.75  | 1    | 356                | G 2     | 350                        | 706    | 325         | 681    | 283                          | 639    | 248         | 604    |
| 4N7- 8    | 1.1   | 1.5  | 427                | G 2     | 385                        | 812    | 350         | 777    | 307                          | 734    | 283         | 710    |
| 4N7- 12   | 1.5   | 2    | 569                | G 2     | 420                        | 989    | 385         | 954    | 339                          | 908    | 307         | 876    |
| 4N7- 17   | 2.2   | 3    | 746                | G 2     | 470                        | 1216   | 420         | 1166   | 437                          | 1183   | 339         | 1085   |
| 4N7- 23   | 3     | 4    | 959                | G 2     | -                          | -      | 544         | 1503   | -                            | -      | 477         | 1436   |
| 4N7- 30   | 4     | 5.5  | 1274               | G 2     | -                          | -      | 574         | 1848   | -                            | -      | 543         | 1817   |
| 4N7- 42   | 5.5   | 7.5  | 1700               | G 2     | -                          | -      | 644         | 2344   | -                            | -      | 653         | 2353   |
| 4N10- 4   | 0.75  | 1    | 325                | G 2     | 350                        | 675    | 325         | 650    | 283                          | 608    | 248         | 573    |
| 4N10- 6   | 1.1   | 1.5  | 412                | G 2     | 385                        | 797    | 350         | 762    | 307                          | 719    | 283         | 695    |
| 4N10- 8   | 1.5   | 2    | 500                | G 2     | 420                        | 920    | 385         | 885    | 339                          | 839    | 307         | 807    |
| 4N10- 13  | 2.2   | 3    | 722                | G 2     | 470                        | 1192   | 420         | 1142   | 437                          | 1159   | 339         | 1060   |
| 4N10- 17  | 3     | 4    | 900                | G 2     | -                          | -      | 544         | 1444   | -                            | -      | 477         | 1377   |
| 4N10- 23  | 4     | 5.5  | 1165               | G 2     | -                          | -      | 574         | 1739   | -                            | -      | 543         | 1708   |
| 4N10- 32  | 5.5   | 7.5  | 1675               | G 2     | -                          | -      | 644         | 2319   | -                            | -      | 653         | 2328   |
| 4N10- 44  | 7.5   | 10   | 2250               | G 2     | -                          | -      | 805         | 3055   | -                            | -      | 731         | 2981   |
| 4N15- 4   | 1.1   | 1.5  | 425                | G 2     | 385                        | 810    | 350         | 775    | 307                          | 732    | 283         | 708    |
| 4N15- 6   | 1.5   | 2    | 562                | G 2     | 420                        | 982    | 385         | 947    | 339                          | 901    | 307         | 869    |
| 4N15- 8   | 2.2   | 3    | 702                | G 2     | 470                        | 1172   | 420         | 1122   | 437                          | 1139   | 339         | 1041   |
| 4N15- 11  | 3     | 4    | 908                | G 2     | -                          | -      | 544         | 1452   | -                            | -      | 477         | 1385   |
| 4N15- 14  | 4     | 5.5  | 1120               | G 2     | -                          | -      | 574         | 1694   | -                            | -      | 543         | 1663   |
| 4N15- 20  | 5.5   | 7.5  | 1600               | G 2     | -                          | -      | 644         | 2244   | -                            | -      | 653         | 2253   |
| 4N15- 27  | 7.5   | 10   | 2158               | G 2     | -                          | -      | 805         | 2963   | -                            | -      | 731         | 2889   |

PACKING



| Pump type | Pump with oil filled motor |        |        |             |      |        |        |             |             |      |        |        |        |             | Pump with water filled motor |        |        |        |             |      |        |             |        |             |      |  |  |  |
|-----------|----------------------------|--------|--------|-------------|------|--------|--------|-------------|-------------|------|--------|--------|--------|-------------|------------------------------|--------|--------|--------|-------------|------|--------|-------------|--------|-------------|------|--|--|--|
|           | single phase               |        |        |             |      |        |        | three phase |             |      |        |        |        |             | single phase                 |        |        |        |             |      |        | three phase |        |             |      |  |  |  |
|           | X [mm]                     | Y [mm] | Z [mm] | Weight [Kg] | type | X [mm] | Y [mm] | Z [mm]      | Weight [Kg] | type | X [mm] | Y [mm] | Z [mm] | Weight [Kg] | type                         | X [mm] | Y [mm] | Z [mm] | Weight [Kg] | type | X [mm] | Y [mm]      | Z [mm] | Weight [Kg] | type |  |  |  |
| 4N1- 12   | 495                        | 100    | 100    | 3,7         | 1    | 800    | 100    | 100         | 10,7        | 1    | 800    | 100    | 100    | 10,2        | 1                            | 800    | 100    | 100    | 11,7        | 1    | 640    | 100         | 100    | 10,9        | 1    |  |  |  |
| 4N1- 18   | 495                        | 100    | 100    | 4,8         | 1    | 1035   | 100    | 100         | 12,4        | 1    | 1035   | 100    | 100    | 11,8        | 1                            | 800    | 100    | 100    | 14,0        | 1    | 800    | 100         | 100    | 12,5        | 1    |  |  |  |
| 4N1- 24   | 640                        | 100    | 100    | 5,9         | 1    | 1035   | 100    | 100         | 14,6        | 1    | 1035   | 100    | 100    | 13,5        | 1                            | 1035   | 100    | 100    | 16,3        | 1    | 1035   | 100         | 100    | 14,6        | 1    |  |  |  |
| 4N1- 34   | 800                        | 100    | 100    | 8,0         | 1    | 1300   | 100    | 100         | 18,3        | 1    | 1300   | 100    | 100    | 16,7        | 1                            | 1300   | 100    | 100    | 19,8        | 1    | 1300   | 100         | 100    | 18,2        | 1    |  |  |  |
| 4N1- 48   | 1300                       | 100    | 100    | 11,8        | 1    | 1530   | 100    | 100         | 23,8        | 1    | 1530   | 100    | 100    | 22,2        | 1                            | 1530   | 100    | 100    | 24,7        | 1    | 1530   | 100         | 100    | 23,0        | 1    |  |  |  |
| 4N1- 68   | 1530                       | 100    | 100    | 15,0        | 1    | 1986   | 110    | 110         | 29,2        | 2    | 1986   | 110    | 110    | 27,0        | 2                            | 1986   | 110    | 110    | 32,3        | 2    | 1846   | 110         | 110    | 27,6        | 2    |  |  |  |
| 4N2- 7    | 350                        | 100    | 100    | 3,8         | 1    | 640    | 100    | 100         | 10,8        | 1    | 640    | 100    | 100    | 10,3        | 1                            | 640    | 100    | 100    | 12,8        | 1    | 640    | 100         | 100    | 12,2        | 1    |  |  |  |
| 4N2- 10   | 350                        | 100    | 100    | 4,1         | 1    | 800    | 100    | 100         | 11,7        | 1    | 800    | 100    | 100    | 11,1        | 1                            | 640    | 100    | 100    | 14,1        | 1    | 640    | 100         | 100    | 13,0        | 1    |  |  |  |
| 4N2- 14   | 495                        | 100    | 100    | 4,4         | 1    | 1035   | 100    | 100         | 13,1        | 1    | 800    | 100    | 100    | 12,0        | 1                            | 800    | 100    | 100    | 14,8        | 1    | 800    | 100         | 100    | 13,1        | 1    |  |  |  |
| 4N2- 20   | 495                        | 100    | 100    | 5,3         | 1    | 1035   | 100    | 100         | 15,6        | 1    | 1035   | 100    | 100    | 14,0        | 1                            | 1035   | 100    | 100    | 17,1        | 1    | 1035   | 100         | 100    | 15,5        | 1    |  |  |  |
| 4N2- 28   | 640                        | 100    | 100    | 6,7         | 1    | 1300   | 100    | 100         | 18,7        | 1    | 1300   | 100    | 100    | 17,1        | 1                            | 1035   | 100    | 100    | 19,6        | 1    | 1035   | 100         | 100    | 17,9        | 1    |  |  |  |
| 4N2- 40   | 1035                       | 100    | 100    | 10,0        | 1    | 1530   | 100    | 100         | 24,2        | 1    | 1530   | 100    | 100    | 22,0        | 1                            | 1530   | 100    | 100    | 27,3        | 1    | 1300   | 100         | 100    | 22,6        | 1    |  |  |  |
| 4N2- 56   | 1300                       | 100    | 100    | 13,0        | 1    | -      | -      | -           | -           | -    | 1846   | 110    | 110    | 25,8        | 2                            | -      | -      | -      | -           | -    | 1846   | 110         | 110    | 28,0        | 2    |  |  |  |
| 4N4- 4    | 350                        | 100    | 100    | 2,4         | 1    | 640    | 100    | 100         | 9,4         | 1    | 640    | 100    | 100    | 8,9         | 1                            | 640    | 100    | 100    | 10,4        | 1    | 640    | 100         | 100    | 9,6         | 1    |  |  |  |
| 4N4- 7    | 350                        | 100    | 100    | 3,0         | 1    | 800    | 100    | 100         | 10,6        | 1    | 800    | 100    | 100    | 10,0        | 1                            | 640    | 100    | 100    | 12,2        | 1    | 640    | 100         | 100    | 10,7        | 1    |  |  |  |
| 4N4- 9    | 350                        | 100    | 100    | 3,4         | 1    | 800    | 100    | 100         | 12,1        | 1    | 800    | 100    | 100    | 11,0        | 1                            | 800    | 100    | 100    | 13,8        | 1    | 640    | 100         | 100    | 12,1        | 1    |  |  |  |
| 4N4- 13   | 495                        | 100    | 100    | 4,3         | 1    | 1035   | 100    | 100         | 14,6        | 1    | 800    | 100    | 100    | 13,0        | 1                            | 800    | 100    | 100    | 16,1        | 1    | 800    | 100         | 100    | 14,5        | 1    |  |  |  |
| 4N4- 18   | 640                        | 100    | 100    | 5,4         | 1    | 1035   | 100    | 100         | 17,4        | 1    | 1035   | 100    | 100    | 15,8        | 1                            | 1035   | 100    | 100    | 18,3        | 1    | 1035   | 100         | 100    | 16,6        | 1    |  |  |  |
| 4N4- 27   | 800                        | 100    | 100    | 7,3         | 1    | 1300   | 100    | 100         | 21,5        | 1    | 1300   | 100    | 100    | 19,3        | 1                            | 1300   | 100    | 100    | 24,6        | 1    | 1300   | 100         | 100    | 19,9        | 1    |  |  |  |
| 4N4- 36   | 1035                       | 100    | 100    | 11,0        | 1    | -      | -      | -           | -           | -    | 1846   | 110    | 110    | 23,8        | 2                            | -      | -      | -      | -           | -    | 1530   | 100         | 100    | 26,0        | 1    |  |  |  |
| 4N4- 48   | 1300                       | 100    | 100    | 14,0        | 1    | -      | -      | -           | -           | -    | 1986   | 110    | 110    | 29,3        | 2                            | -      | -      | -      | -           | -    | 1986   | 110         | 110    | 34,0        | 2    |  |  |  |
| 4N7- 4    | 350                        | 100    | 100    | 3,0         | 1    | 800    | 100    | 100         | 10,6        | 1    | 800    | 100    | 100    | 10,0        | 1                            | 640    | 100    | 100    | 12,2        | 1    | 640    | 100         | 100    | 10,7        | 1    |  |  |  |
| 4N7- 6    | 495                        | 100    | 100    | 3,5         | 1    | 800    | 100    | 100         | 12,2        | 1    | 800    | 100    | 100    | 11,1        | 1                            | 800    | 100    | 100    | 13,9        | 1    | 800    | 100         | 100    | 12,2        | 1    |  |  |  |
| 4N7- 8    | 495                        | 100    | 100    | 4,0         | 1    | 1035   | 100    | 100         | 14,3        | 1    | 1035   | 100    | 100    | 12,7        | 1                            | 800    | 100    | 100    | 15,8        | 1    | 800    | 100         | 100    | 14,2        | 1    |  |  |  |
| 4N7- 12   | 640                        | 100    | 100    | 5,5         | 1    | 1300   | 100    | 100         | 17,5        | 1    | 1035   | 100    | 100    | 15,9        | 1                            | 1035   | 100    | 100    | 18,4        | 1    | 1035   | 100         | 100    | 16,7        | 1    |  |  |  |
| 4N7- 17   | 800                        | 100    | 100    | 7,1         | 1    | 1300   | 100    | 100         | 21,3        | -    | 1300   | 100    | 100    | 19,1        | 1                            | 1300   | 100    | 100    | 24,4        | 1    | 1300   | 100         | 100    | 19,7        | 1    |  |  |  |
| 4N7- 23   | 1035                       | 100    | 100    | 9,0         | 1    | -      | -      | -           | -           | -    | 1846   | 110    | 110    | 21,8        | 2                            | -      | -      | -      | -           | -    | 1530   | 100         | 100    | 24,0        | 1    |  |  |  |
| 4N7- 30   | 1300                       | 100    | 100    | 12,8        | 1    | -      | -      | -           | -           | -    | 2466   | 110    | 110    | 28,1        | 2                            | -      | -      | -      | -           | -    | 1986   | 110         | 110    | 32,8        | 2    |  |  |  |
| 4N7- 42   | 1846                       | 110    | 110    | 16,5        | 2    | -      | -      | -           | -           | -    | 3036   | 110    | 110    | 35,1        | 2                            | -      | -      | -      | -           | -    | 3036   | 110         | 110    | 43,1        | 2    |  |  |  |
| 4N10- 4   | 350                        | 100    | 100    | 3,3         | 1    | 1035   | 100    | 100         | 12,0        | 1    | 1035   | 100    | 100    | 10,9        | 1                            | 800    | 100    | 100    | 13,7        | 1    | 800    | 100         | 100    | 12,0        | 1    |  |  |  |
| 4N10- 6   | 495                        | 100    | 100    | 4,1         | 1    | 1035   | 100    | 100         | 14,4        | 1    | 1035   | 100    | 100    | 12,8        | 1                            | 800    | 100    | 100    | 15,9        | 1    | 1035   | 100         | 100    | 14,3        | 1    |  |  |  |
| 4N10- 8   | 640                        | 100    | 100    | 5,0         | 1    | 1035   | 100    | 100         | 17,0        | 1    | 1035   | 100    | 100    | 15,4        | 1                            | 1035   | 100    | 100    | 17,9        | 1    | 1035   | 100         | 100    | 16,2        | 1    |  |  |  |
| 4N10- 13  | 800                        | 100    | 100    | 7,3         | 1    | 1300   | 100    | 100         | 21,5        | 1    | 1300   | 100    | 100    | 19,3        | 1                            | 1300   | 100    | 100    | 24,6        | 1    | 1300   | 100         | 100    | 19,9        | 1    |  |  |  |
| 4N10- 17  | 1035                       | 100    | 100    | 9,1         | 1    | -      | -      | -           | -           | -    | 1846   | 110    | 110    | 21,9        | 2                            | -      | -      | -      | -           | -    | 1530   | 100         | 100    | 24,1        | 1    |  |  |  |
| 4N10- 23  | 1300                       | 100    | 100    | 11,7        | 1    | -      | -      | -           | -           | -    | 1986   | 110    | 110    | 27,0        | 2                            | -      | -      | -      | -           | -    | 1986   | 110         | 110    | 31,7        | 2    |  |  |  |
| 4N10- 32  | 1846                       | 110    | 110    | 17,0        | 2    | -      | -      | -           | -           | -    | 3036   | 110    | 110    | 35,6        | 2                            | -      | -      | -      | -           | -    | 3036   | 110         | 110    | 43,6        | 2    |  |  |  |
| 4N10- 44  | 2466                       | 110    | 110    | 22,7        | 2    | -      | -      | -           | -           | -    | 3286   | 110    | 110    | 49,7        | 2                            | -      | -      | -      | -           | -    | 3286   | 110         | 110    | 53,3        | 2    |  |  |  |
| 4N15- 4   | 495                        | 100    | 100    | 3,8         | 1    | 1035   | 100    | 100         | 14,1        | 1    | 1035   | 100    | 100    | 12,5        | 1                            | 1035   | 100    | 100    | 15,6        | 1    | 1035   | 100         | 100    | 14,0        | 1    |  |  |  |
| 4N15- 6   | 640                        | 100    | 100    | 5,0         | 1    | 1300   | 100    | 100         | 17,0        | 1    | 1300   | 100    | 100    | 15,4        | 1                            | 1035   | 100    | 100    | 17,9        | 1    | 1035   | 100         | 100    | 16,2        | 1    |  |  |  |
| 4N15- 8   | 800                        | 100    | 100    | 6,0         | 1    | 1300   | 100    | 100         | 20,2        | 1    | 1300   | 100    | 100    | 18,0        | 1                            | 1300   | 100    | 100    | 23,3        | 1    | 1300   | 100         | 100    | 18,6        | 1    |  |  |  |
| 4N15- 11  | 1035                       | 100    | 100    | 8,2         | 1    | -      | -      | -           | -           | -    | 1846   | 110    | 110    | 21,0        | 2                            | -      | -      | -      | -           | -    | 1530   | 100         | 100    | 23,2        | 1    |  |  |  |
| 4N15- 14  | 1300                       | 100    | 100    | 10,5        | 1    | -      | -      | -           | -           | -    | 1986   | 110    | 110    | 25,8        | 2                            | -      | -      | -      | -           | -    | 1986   | 110         | 110    | 30,5        | 2    |  |  |  |
| 4N15- 20  | 1846                       | 110    | 110    | 15,5        | 2    | -      | -      | -           | -           | -    | 2466   | 110    | 110    | 34,1        | 2                            | -      | -      | -      | -           | -    | 3036   | 110         | 110    | 42,1        | 2    |  |  |  |
| 4N15- 27  | 2466                       | 110    | 110    | 23,0        | 2    | -      | -      | -           | -           | -    | 3286   | 110    | 110    | 50,0        | 2                            | -      | -      | -      | -           | -    | 3286   | 110         | 110    | 53,6        | 2    |  |  |  |

**OIL FILLED MOTOR**

| Power |      | Height thrust [N] | Single phase 230 V |        |        |              | Three phase 380 V |        |        |              | Three phase 415 V |        |        |              |
|-------|------|-------------------|--------------------|--------|--------|--------------|-------------------|--------|--------|--------------|-------------------|--------|--------|--------------|
| [kW]  | [HP] |                   | Input [kW]         | IN [A] | IA [A] | Power factor | Input [kW]        | IN [A] | IA [A] | Power factor | Input [kW]        | IN [A] | IA [A] | Power factor |
| 0,37  | 0,5  | 1500              | 0,78               | 3,6    | 10,2   | 0,94         | 0,66              | 1,4    | 5,0    | 0,72         | 0,83              | 1,6    | 5,0    | 0,72         |
| 0,55  | 0,75 | 1500              | 0,97               | 4,5    | 13,6   | 0,94         | 0,94              | 1,9    | 7,0    | 0,75         | 1,08              | 2,0    | 7,0    | 0,75         |
| 0,75  | 1    | 1500              | 1,32               | 6,0    | 18,5   | 0,96         | 1,17              | 2,4    | 10,0   | 0,74         | 1,38              | 2,6    | 10,0   | 0,74         |
| 1,1   | 1,5  | 1500              | 1,83               | 8,2    | 26,0   | 0,97         | 1,56              | 3,2    | 14,0   | 0,74         | 1,81              | 3,4    | 14,0   | 0,74         |
| 1,5   | 2    | 1500              | 2,48               | 11,0   | 34,0   | 0,98         | 2,09              | 4,4    | 17,0   | 0,72         | 2,38              | 4,6    | 17,0   | 0,72         |
| 2,2   | 3    | 4400              | 3,27               | 14,8   | 48,0   | 0,96         | -                 | -      | -      | -            | -                 | -      | -      | -            |
| 2,2   | 3    | 1500              | -                  | -      | -      | -            | 3,00              | 6      | 24,0   | 0,76         | 3,39              | 6,2    | 24,0   | 0,76         |
| 2,2   | 3    | 5000              | -                  | -      | -      | -            | 3,02              | 5,6    | 23,0   | 0,82         | 3,42              | 5,8    | 23,0   | 0,82         |
| 3     | 4    | 5000              | -                  | -      | -      | -            | 4,05              | 7,7    | 30,0   | 0,80         | 4,49              | 7,8    | 30,0   | 0,80         |
| 4     | 5,5  | 5000              | -                  | -      | -      | -            | 5,24              | 9,7    | 45,0   | 0,82         | 5,78              | 9,8    | 45,0   | 0,82         |
| 5,5   | 7,5  | 5000              | -                  | -      | -      | -            | 7,37              | 13,5   | 55,0   | 0,83         | 8,23              | 13,8   | 55,0   | 0,83         |
| 7,5   | 10   | 4400              | -                  | -      | -      | -            | 9,75              | 19     | 72,0   | 0,78         | 10,93             | 19,5   | 72,0   | 0,78         |

**WATER FILLED MOTOR**

| Power |      | Height thrust [N] | Single phase 230 V |        |        |              | Three phase 380 V |        |        |              | Three phase 415 V |        |        |              |
|-------|------|-------------------|--------------------|--------|--------|--------------|-------------------|--------|--------|--------------|-------------------|--------|--------|--------------|
| [kW]  | [HP] |                   | Input [kW]         | IN [A] | IA [A] | Power factor | Input [kW]        | IN [A] | IA [A] | Power factor | Input [kW]        | IN [A] | IA [A] | Power factor |
| 0,37  | 0,5  | 3000              | 0,69               | 3,3    | 12,6   | 0,91         | 0,57              | 1,1    | 5,1    | 0,79         | 0,58              | 1,14   | 5,61   | 0,71         |
| 0,55  | 0,75 | 3000              | 0,93               | 4,3    | 17,7   | 0,94         | 0,83              | 1,6    | 7      | 0,79         | 0,86              | 1,7    | 7,7    | 0,7          |
| 0,75  | 1    | 3000              | 1,28               | 5,7    | 22,7   | 0,98         | 1,07              | 2,0    | 10,1   | 0,81         | 1,10              | 2,1    | 10,9   | 0,73         |
| 1,1   | 1,5  | 3000              | 1,78               | 8,4    | 33,9   | 0,92         | 1,51              | 2,8    | 15,3   | 0,82         | 1,54              | 2,9    | 16,7   | 0,74         |
| 1,5   | 2    | 3000              | 2,34               | 10,7   | 41,7   | 0,95         | 2,13              | 3,9    | 19,7   | 0,83         | 2,10              | 4      | 21,5   | 0,73         |
| 2,2   | 3    | 4000              | 3,28               | 14,7   | 61,8   | 0,97         | 2,91              | 5,4    | 28,3   | 0,82         | 3,00              | 5,8    | 30,9   | 0,72         |
| 3     | 4    | 4000              | -                  | -      | -      | -            | 3,99              | 7,4    | 39,9   | 0,82         | 4,09              | 7,9    | 43,6   | 0,72         |
| 4     | 5,5  | 6500              | -                  | -      | -      | -            | 5,24              | 9,7    | 54,1   | 0,82         | 5,38              | 10,4   | 59,1   | 0,72         |
| 5,5   | 7,5  | 6500              | -                  | -      | -      | -            | 7,05              | 12,6   | 73,3   | 0,85         | 7,08              | 12,8   | 80,1   | 0,77         |
| 7,5   | 10   | 6500              | -                  | -      | -      | -            | 9,74              | 17,2   | 94,3   | 0,86         | 9,74              | 17,6   | 103    | 0,77         |

**OIL FILLED MOTORS CABLE SELECTION**

EXAMPLE : MOTOR 0.75 kW 230 V CABLE LENGTH 75 m - 4x2,5 mm<sup>2</sup>

**Single phase 230 V**

| POWER |      | CABLE TYPE AND MAXIMUM LENGTH (*) |       |     |       |     |     |      |      |
|-------|------|-----------------------------------|-------|-----|-------|-----|-----|------|------|
| [kW]  | [HP] | 4x1                               | 4x1,5 | 4x2 | 4x2,5 | 4x4 | 4x6 | 4x10 | 4x16 |
| 0.37  | 0.5  | 50                                | 75    | 100 | 125   | -   | -   | -    | -    |
| 0.55  | 0.75 | 38                                | 57    | 76  | 95    | 152 | -   | -    | -    |
| 0.75  | 1    | 30                                | 45    | 60  | 75    | 120 | 174 | -    | -    |
| 1.1   | 1.5  | 22                                | 33    | 43  | 53    | 85  | 127 | 210  | -    |
| 1.5   | 2    | -                                 | 23    | 31  | 38    | 63  | 92  | 154  | 246  |
| 2.2   | 3    | -                                 | -     | 22  | 28    | 45  | 67  | 112  | 180  |

**Three phase 380-415 V**

| POWER |      | CABLE TYPE AND MAXIMUM LENGTH (*) |       |     |       |     |     |      |      |
|-------|------|-----------------------------------|-------|-----|-------|-----|-----|------|------|
| [kW]  | [HP] | 4x1                               | 4x1,5 | 4x2 | 4x2,5 | 4x4 | 4x6 | 4x10 | 4x16 |
| 0.37  | 0.5  | 240                               | -     | -   | -     | -   | -   | -    | -    |
| 0.55  | 0.75 | 164                               | 246   | 328 | -     | -   | -   | -    | -    |
| 0.75  | 1    | 133                               | 200   | 266 | 333   | -   | -   | -    | -    |
| 1.1   | 1.5  | 97                                | 146   | 195 | 244   | 390 | -   | -    | -    |
| 1.5   | 2    | 72                                | 109   | 145 | 180   | 290 | 435 | -    | -    |
| 2.2   | 3    | 51                                | 78    | 103 | 130   | 207 | 310 | 516  | -    |
| 3     | 4    | 41                                | 62    | 83  | 104   | 167 | 250 | 416  | -    |
| 4     | 5.5  | 31                                | 46    | 62  | 77    | 124 | 186 | 310  | 496  |
| 5.5   | 7.5  | -                                 | 33    | 45  | 56    | 90  | 135 | 225  | 360  |
| 7.5   | 10   | -                                 | -     | -   | -     | 66  | 100 | 165  | 270  |

(\*) Maximum cable length with a voltage drop of 3% at 30°C ambient temperature.

If the operating voltage  $U_i$  in the installation is different from the nominal voltage  $U_n$ , it is possible to calculate the permissible maximum length  $L_{max}$ , with the given table length  $L_{tab}$ , with the following formula:

$$L_{max} = L_{tab} (U_i / U_n)^2$$



**WATER FILLED MOTORS CABLE SELECTION**

EXAMPLE : MOTOR 0.75 kW 230 V CABLE LENGTH 73 m - 4x2,5 mm<sup>2</sup>

**Single phase 230 V**

| POWER |      | CABLE TYPE AND MAXIMUM LENGTH (*) |       |     |       |     |     |      |      |
|-------|------|-----------------------------------|-------|-----|-------|-----|-----|------|------|
| [kW]  | [HP] | 4x1                               | 4x1,5 | 4x2 | 4x2,5 | 4x4 | 4x6 | 4x10 | 4x16 |
| 0.37  | 0.5  | 50                                | 76    | 101 | 126   | -   | -   | -    | -    |
| 0.55  | 0.75 | 39                                | 58    | 77  | 97    | 155 | -   | -    | -    |
| 0.75  | 1    | 29                                | 44    | 58  | 73    | 117 | 175 | -    | -    |
| 1.1   | 1.5  | 20                                | 30    | 40  | 50    | 79  | 119 | 198  | -    |
| 1.5   | 2    | -                                 | 23    | 31  | 39    | 62  | 93  | 156  | 249  |
| 2.2   | 3    | -                                 | -     | 23  | 28    | 45  | 68  | 113  | 181  |

**Three phase 380-415 V**

| POWER |      | CABLE TYPE AND MAXIMUM LENGTH (*) |       |     |       |     |     |      |      |
|-------|------|-----------------------------------|-------|-----|-------|-----|-----|------|------|
| [kW]  | [HP] | 4x1                               | 4x1,5 | 4x2 | 4x2,5 | 4x4 | 4x6 | 4x10 | 4x16 |
| 0.37  | 0.5  | 325                               | -     | -   | -     | -   | -   | -    | -    |
| 0.55  | 0.75 | 223                               | 335   | 446 | -     | -   | -   | -    | -    |
| 0.75  | 1    | 167                               | 251   | 335 | 418   | -   | -   | -    | -    |
| 1.1   | 1.5  | 120                               | 179   | 239 | 299   | 478 | -   | -    | -    |
| 1.5   | 2    | 86                                | 129   | 172 | 215   | 343 | 515 | -    | -    |
| 2.2   | 3    | 61                                | 91    | 122 | 152   | 243 | 365 | 609  | -    |
| 3     | 4    | 45                                | 67    | 89  | 112   | 179 | 268 | 446  | -    |
| 4     | 5.5  | 34                                | 51    | 68  | 85    | 135 | 203 | 338  | 541  |
| 5.5   | 7.5  | -                                 | 40    | 53  | 66    | 106 | 159 | 266  | 425  |
| 7.5   | 10   | -                                 | -     | -   | -     | 78  | 117 | 196  | 313  |

(\*) Maximum cable length with a voltage drop of 3% at 30°C ambient temperature.

If the operating voltage  $U_i$  in the installation is different from the nominal voltage  $U_n$ , it is possible to calculate the permissible maximum length  $L_{max}$ , with the given table length  $L_{tab}$ , with the following formula:

$$L_{max} = L_{tab} (U_i / U_n)^2$$