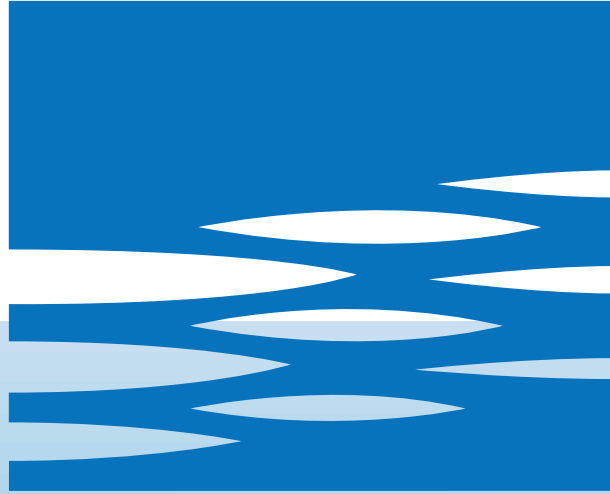




**EBARA**

## SELECTION CHART

50Hz

Rev. D

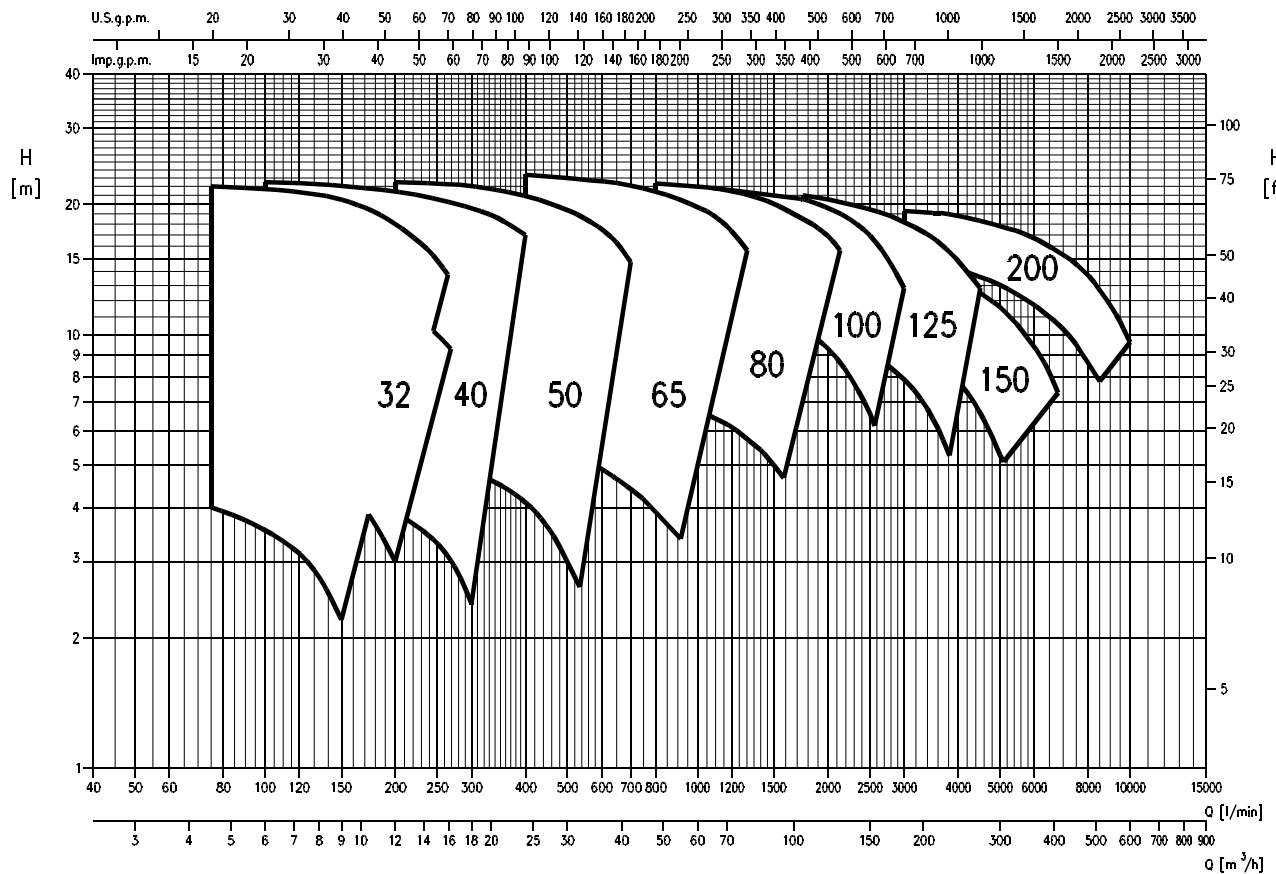
| PUMP                           |                  |                             |
|--------------------------------|------------------|-----------------------------|
| Liquid Handled                 | Type of liquid   | Clean water                 |
|                                | Temperature [°C] | Min. -10<br>max +90         |
| Maximum working pressure [MPa] |                  | 1.0                         |
| Flange                         |                  | UNI 2236                    |
| Counterflange (On request)     |                  | UNI 2247                    |
| Construction                   | Impeller         | Closed centrifugal type     |
|                                | Shaft seal type  | Mechanical seal             |
|                                | Bearing          | On the motor                |
| Pipe Connection                | Suction          | PN16 - UNI 2223-29 DIN 2501 |
|                                | Discharge        | PN16 - UNI 2223-29 DIN 2501 |
| Material                       | Casing           | CAST IRON                   |
|                                | Impeller         | CAST IRON                   |
|                                | Shaft seal       | Sic/Sic/NBR                 |
|                                | Shaft            | AISI 420                    |
|                                | Bracket          | CAST IRON                   |
| Applicable standard of test    |                  | ISO 9906 – Annex A          |

| MOTOR                               |                                                             |
|-------------------------------------|-------------------------------------------------------------|
| Type                                | Electric - TEFC                                             |
|                                     | Three Phase                                                 |
| Efficiency level (Reg. 640/2009)    | IE2 from 1.1 kW up to 5.5 kW<br>IE3 from 7.5 kW up to 22 kW |
| No. of Poles                        | 4                                                           |
| Rotation speed [min <sup>-1</sup> ] | ≈1400                                                       |
| Insulation Class                    | F                                                           |
| Protection degree (CEI EN 60034-5)  | IP 55                                                       |
| Power rating [kW]                   | 1,1 ÷ 22                                                    |
| [HP]                                | 1,5 ÷ 30                                                    |
| Frequency [Hz]                      | 50                                                          |
| Voltage [V]                         | 230/400 ±10% up to 4kW<br>400/690 ±10% 5.5kW and above      |
| Over load protection                | Provided by the user                                        |
| Casing material                     | Aluminum (up to MEC 160)<br>Cast iron (MEC 180 and above)   |

## SELECTION CHART

50Hz

Rev. D



## MMD 4 Poles: 32, 40, 50 Version

| Pump type MMD4  | Power |      | Capacity                          |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |  |  |  |
|-----------------|-------|------|-----------------------------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|--|--|--|
|                 | [kW]  | [HP] | l/min                             | 0 | 50   | 75   | 100  | 125  | 150  | 175  | 200  | 225  | 250  | 275  | 300  | 350  | 400  | 450  | 500  | 550  | 600  | 650  | 700 |  |  |  |
|                 |       |      | m³/h                              | 0 | 3    | 5    | 6    | 8    | 9    | 11   | 12   | 14   | 15   | 17   | 18   | 21   | 24   | 27   | 30   | 33   | 36   | 39   | 42  |  |  |  |
| Three Phase     |       |      | H=Total manometric head in meters |   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |  |  |  |
| MMD4 32-250/1,1 | 1.1   | 1.5  | 19                                | - | 18.5 | 18   | 17.5 | 17.0 | 15.9 | 14.5 | 12.8 | 11   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -   |  |  |  |
| MMD4 32-250/1,5 | 1.5   | 2    | 22.5                              | - | 22.0 | 21.6 | 21.2 | 20.5 | 19.4 | 18   | 16.5 | 15   | 13   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -   |  |  |  |
| MMD4 40-250/1,5 | 1.5   | 2    | 18.7                              | - | -    | 18.3 | 18   | 17.7 | 17.4 | 17   | 16.7 | 16.2 | 15.6 | 15   | 13.7 | 12   | -    | -    | -    | -    | -    | -    | -   |  |  |  |
| MMD4 40-250/2,2 | 2.2   | 3    | 23.2                              | - | -    | 22.5 | 22.3 | 22   | 21.7 | 21.4 | 21.2 | 20.5 | 20.2 | 19.5 | 18.5 | 17   | -    | -    | -    | -    | -    | -    | -   |  |  |  |
| MMD4 50-250/2,2 | 2.2   | 3    | 19.5                              | - | -    | -    | -    | -    | -    | 18.5 | 18.3 | 18.1 | 17.8 | 17.5 | 17   | 16.2 | 15.5 | 14.5 | 13.5 | 12.5 | 11.3 | 10   |     |  |  |  |
| MMD4 50-250/3   | 3     | 4    | 23                                | - | -    | -    | -    | -    | -    | 22.5 | 22.4 | 22.3 | 22.2 | 22   | 21.5 | 20.9 | 20.2 | 19.4 | 18.5 | 17.5 | 16.3 | 14.7 |     |  |  |  |

# MMD 4 Poles

## 50Hz

## MMD 4 Poles: 65, 80 Version

| Pump type MMD4  | Power |      | Capacity                          |   |     |     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
|-----------------|-------|------|-----------------------------------|---|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
|                 | [kW]  | [HP] | l/min                             | 0 | 300 | 350 | 400 | 450  | 500  | 550  | 600  | 650  | 700  | 800  | 900  | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1750 | 2000 | 2250 |  |  |
|                 |       |      | m³/h                              | 0 | 18  | 21  | 24  | 27   | 30   | 33   | 36   | 39   | 42   | 48   | 54   | 60   | 66   | 72   | 78   | 84   | 90   | 105  | 120  | 135  |  |  |
| Three Phase     |       |      | H=Total manometric head in meters |   |     |     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |  |
| MMD4 65-250/4   | 4     | 5.5  | 20                                | - | -   | -   | -   | 19.5 | 19.3 | 19.1 | 18.8 | 18.5 | 17.5 | 16.5 | 15.5 | 14   | 12.5 | 10.4 | -    | -    | -    | -    | -    | -    |  |  |
| MMD4 65-250/5,5 | 5.5   | 7.5  | 23.3                              | - | -   | -   | -   | 23   | 22.8 | 22.6 | 22.4 | 22.2 | 21.4 | 20.6 | 19.7 | 18.7 | 17.3 | 15.7 | 14   | -    | -    | -    | -    | -    |  |  |
| MMD4 80-160/1,5 | 1.5   | 2    | 8.0                               | - | -   | -   | -   | -    | -    | 7.7  | 7.6  | 7.5  | 7.3  | 7    | 6.7  | 6.4  | 6.1  | 5.7  | 5.4  | 5    | -    | -    | -    | -    |  |  |
| MMD4 80-160/2,2 | 2.2   | 3    | 10                                | - | -   | -   | -   | -    | -    | 9.7  | 9.6  | 9.5  | 9.3  | 9    | 8.8  | 8.5  | 8.2  | 7.9  | 7.5  | 7.1  | 6    | -    | -    | -    |  |  |
| MMD4 80-200/3   | 3     | 4    | 12.8                              | - | -   | -   | -   | -    | -    | 12   | 11.9 | 11.7 | 11.5 | 11.3 | 11   | 10.5 | 10   | 9.5  | 9    | 8.5  | 7    | -    | -    | -    |  |  |
| MMD4 80-200/4   | 4     | 5.5  | 14.9                              | - | -   | -   | -   | -    | -    | 14.4 | 14.3 | 14.2 | 14   | 13.8 | 13.5 | 13.1 | 12.6 | 12.2 | 11.6 | 11   | 9    | 6.5  | -    | -    |  |  |
| MMD4 80-250/5,5 | 5.5   | 7.5  | 20                                | - | -   | -   | -   | -    | -    | -    | -    | -    | 19.2 | 18.9 | 18.5 | 18   | 17.6 | 17.1 | 16.5 | 16   | 14   | 12   | -    | -    |  |  |
| MMD4 80-250/7.5 | 7.5   | 10   | 23.5                              | - | -   | -   | -   | -    | -    | -    | -    | -    | 22.3 | 22.1 | 21.9 | 21.7 | 21.3 | 21   | 20.5 | 20   | 18.5 | 16.9 | 14.5 | -    |  |  |

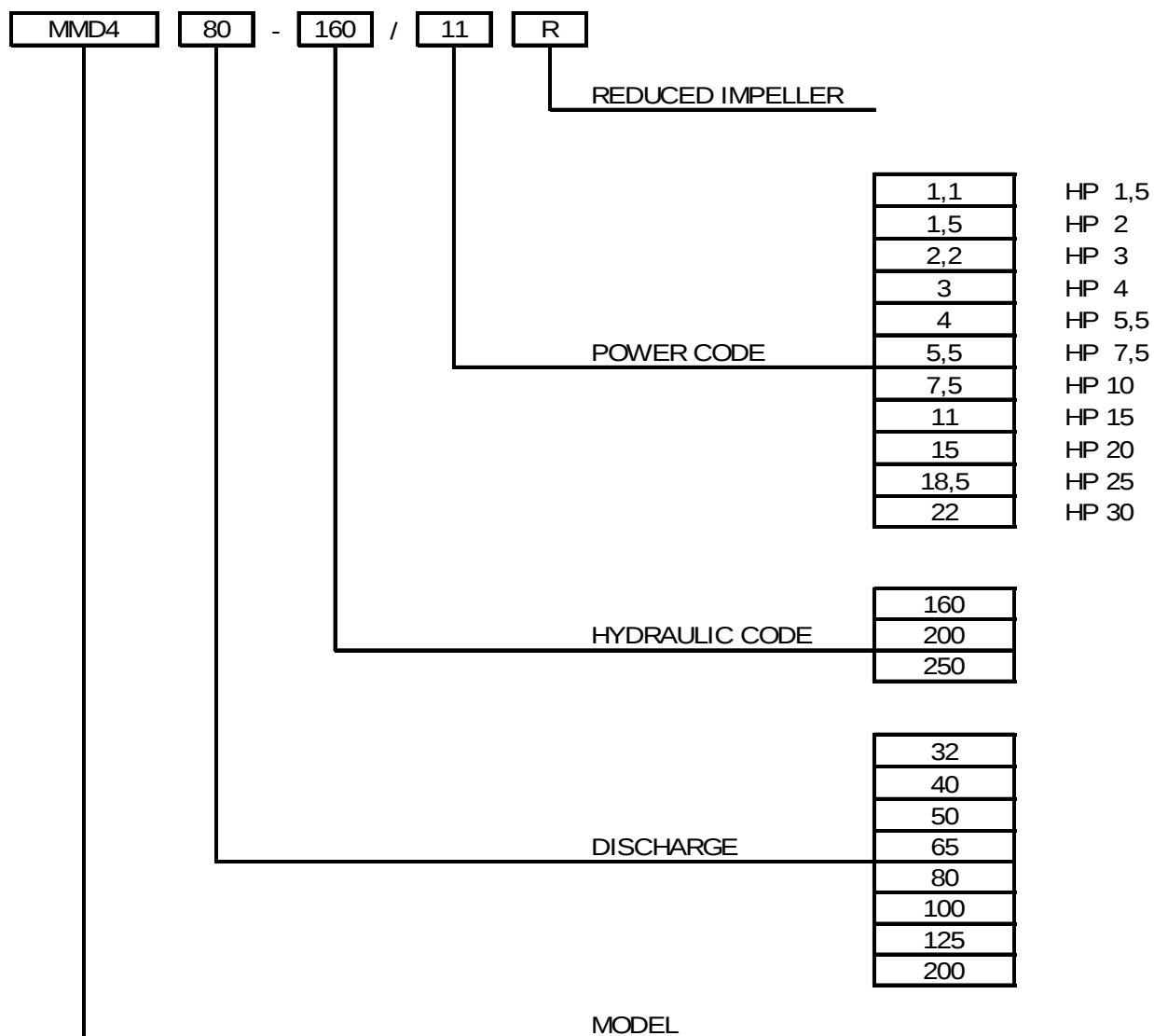
| Pump type MMD4                    | Power |      | Capacity      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |  |
|-----------------------------------|-------|------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|--|
|                                   | [kW]  | [HP] | l/min<br>m³/h | 0    | 900  | 1000 | 1200 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 3700 | 4000 | 4500 | 5000 | 5500 | 6500 | 7000 | 8500 | 9000 | 9500 | 10000 |  |
| Three Phase                       |       |      |               | 0    | 54   | 60   | 72   | 90   | 105  | 120  | 135  | 150  | 165  | 180  | 210  | 222  | 240  | 270  | 300  | 330  | 390  | 420  | 510  | 540  | 570  | 600   |  |
| H=Total manometric head in meters |       |      |               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |  |
| MMD4 100-200/4                    | 4     | 5.5  | 13.0          | 12.3 | 12.2 | 11.8 | 11.2 | 10.3 | 9.3  | 8    | 6.6  | 4.8  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 100-200/5,5                  | 5.5   | 7.5  | 14.7          | 14.5 | 14.4 | 14   | 13.4 | 12.8 | 12   | 11   | 9.8  | 8.5  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 100-250/7,5                  | 7.5   | 10   | 20            | -    | 19.5 | 19.1 | 18.5 | 17.5 | 16.5 | 15.2 | 14   | 12   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 100-250/11                   | 11    | 15   | 22.4          | -    | 22   | 21.8 | 21.5 | 20.5 | 19.5 | 18.5 | 17   | 15   | 12.8 | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 125-200/5,5                  | 5.5   | 7.5  | 11.2          | -    | -    | -    | 10.5 | 10.3 | 9.9  | 9.5  | 9.1  | 8.5  | 7.9  | 6.4  | 5.7  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 125-200/7,5R                 | 7.5   | 10   | 12.4          | -    | -    | -    | 11.8 | 11.6 | 11.3 | 11.0 | 10.6 | 10.2 | 9.6  | 8.3  | 7.7  | 6.7  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 125-200/7,5                  | 7.5   | 10   | 13.7          | -    | -    | -    | -    | 12.9 | 12.7 | 12.4 | 12.1 | 11.7 | 11.2 | 10.1 | 9.6  | 8.7  | 7.1  | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 125-200/11                   | 11    | 15   | 15            | -    | -    | -    | -    | 14.3 | 14.1 | 13.8 | 13.6 | 13.2 | 12.8 | 11.8 | 11.3 | 10.6 | 9.2  | 7.6  | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 125-250/11                   | 11    | 15   | 18.6          | -    | -    | -    | -    | 17.2 | 16.7 | 16.2 | 15.5 | 14.8 | 13.9 | 12   | 11.3 | 10   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 125-250/15                   | 15    | 20   | 22            | -    | -    | -    | -    | 21.0 | 20.5 | 20.1 | 19.5 | 18.9 | 18.2 | 16.6 | 16   | 14.8 | 12.8 | -    | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 150-200/7,5                  | 7.5   | 10   | 11.6          | -    | -    | -    | -    | -    | 11.0 | 10.7 | 10.4 | 10.1 | 9.7  | 8.8  | 8.4  | 7.8  | 6.6  | 5.3  | -    | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 150-200/11R                  | 11    | 15   | 12.5          | -    | -    | -    | -    | -    | 12   | 11.8 | 11.6 | 11.2 | 10.9 | 10.2 | 9.8  | 9.2  | 8    | 6.8  | 5.6  | -    | -    | -    | -    | -    | -    | -     |  |
| MMD4 150-200/11                   | 11    | 15   | 14.5          | -    | -    | -    | -    | -    | -    | -    | 13.7 | 13.5 | 13.2 | 12.5 | 12.2 | 11.7 | 10.8 | 9.8  | 8.7  | 6.1  | -    | -    | -    | -    | -    | -     |  |
| MMD4 150-200/15                   | 15    | 20   | 15.8          | -    | -    | -    | -    | -    | -    | -    | 15.2 | 14.9 | 14.7 | 14.2 | 13.8 | 13.4 | 12.5 | 11.6 | 10.5 | 8.2  | 6.8  | -    | -    | -    | -    | -     |  |
| MMD4 200-250/18,5R                | 18.5  | 25   | 16            | -    | -    | -    | -    | -    | -    | -    | -    | -    | 14.9 | 14.5 | 14.3 | 14.1 | 13.6 | 13   | 12.3 | 11   | 10.3 | 7.8  | -    | -    | -    | -     |  |
| MMD4 200-250/18,5                 | 18.5  | 25   | 16.9          | -    | -    | -    | -    | -    | -    | -    | -    | -    | 15.9 | 15.5 | 15.3 | 15.2 | 14.7 | 14.2 | 13.6 | 12.3 | 11.6 | 9.1  | 8.2  | -    | -    | -     |  |
| MMD4 200-250/22R                  | 22    | 30   | 19.3          | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 18.0 | 17.8 | 17.6 | 17.1 | 16.6 | 16   | 14.7 | 13.9 | 11.2 | 10.1 | 9    | -    | -     |  |
| MMD4 200-250/22                   | 22    | 30   | 20.4          | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 19.1 | 18.9 | 18.8 | 18.3 | 17.8 | 17.3 | 16   | 15.3 | 12.7 | 11.7 | 10.7 | 9.6  | -     |  |

## TYPE KEY AND CURVE SPECIFICATIONS

50Hz

Rev. D

## TYPE KEY:



## 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 NPSH curve is an average curve obtained in the same conditions of performance curves.

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.

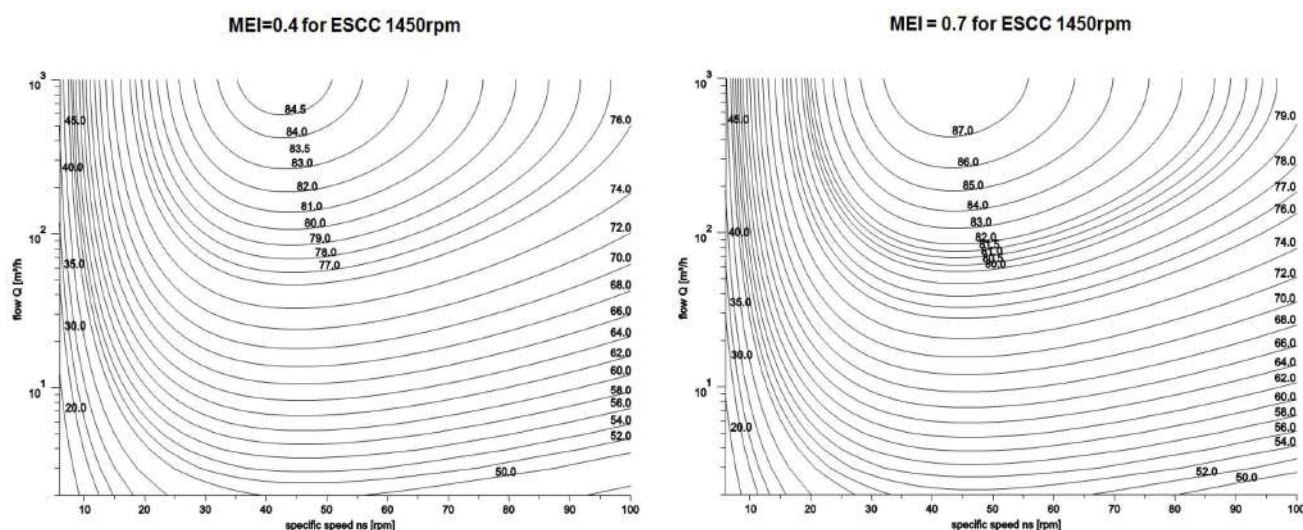
Symbols explanation:

- 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.

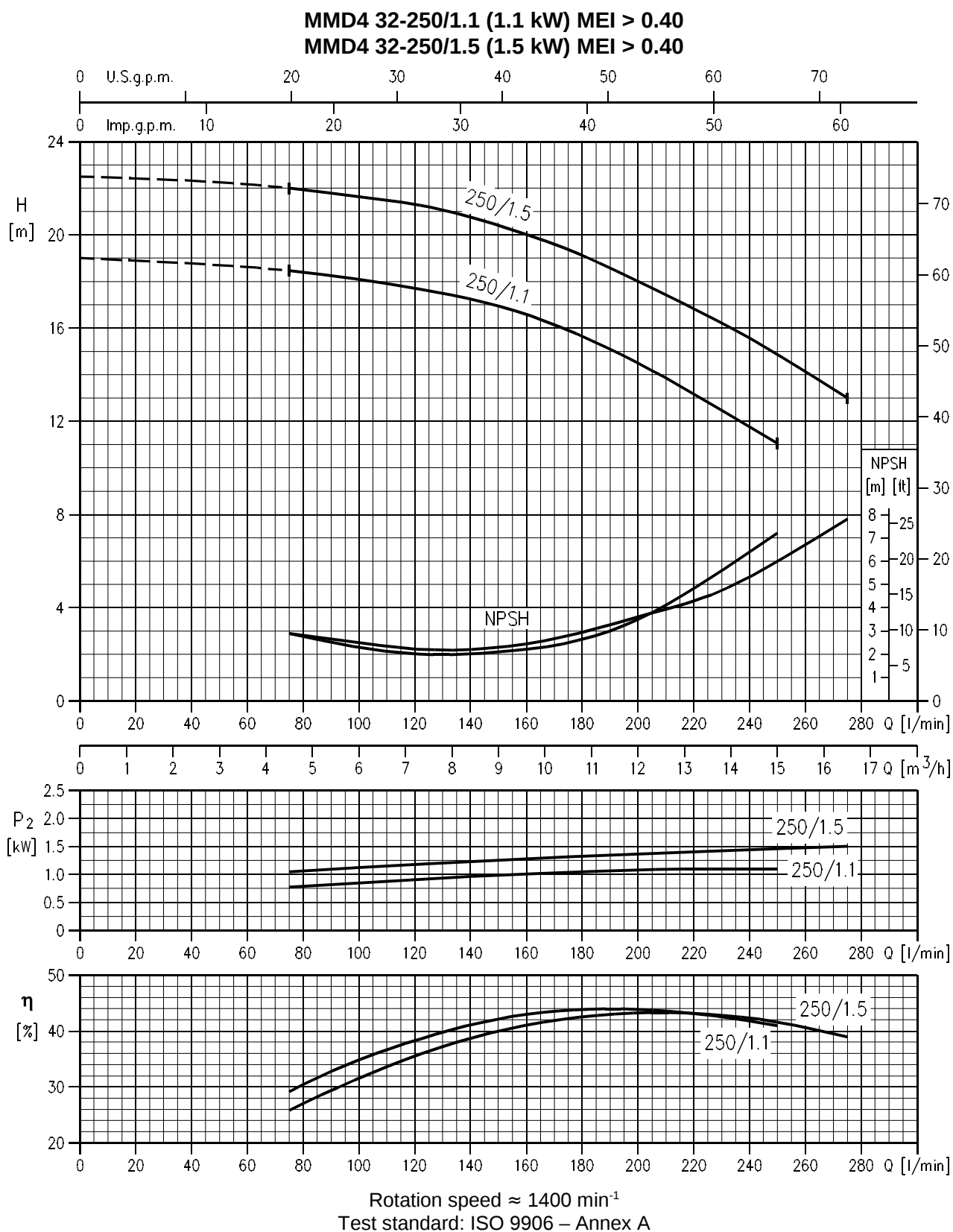
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

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.



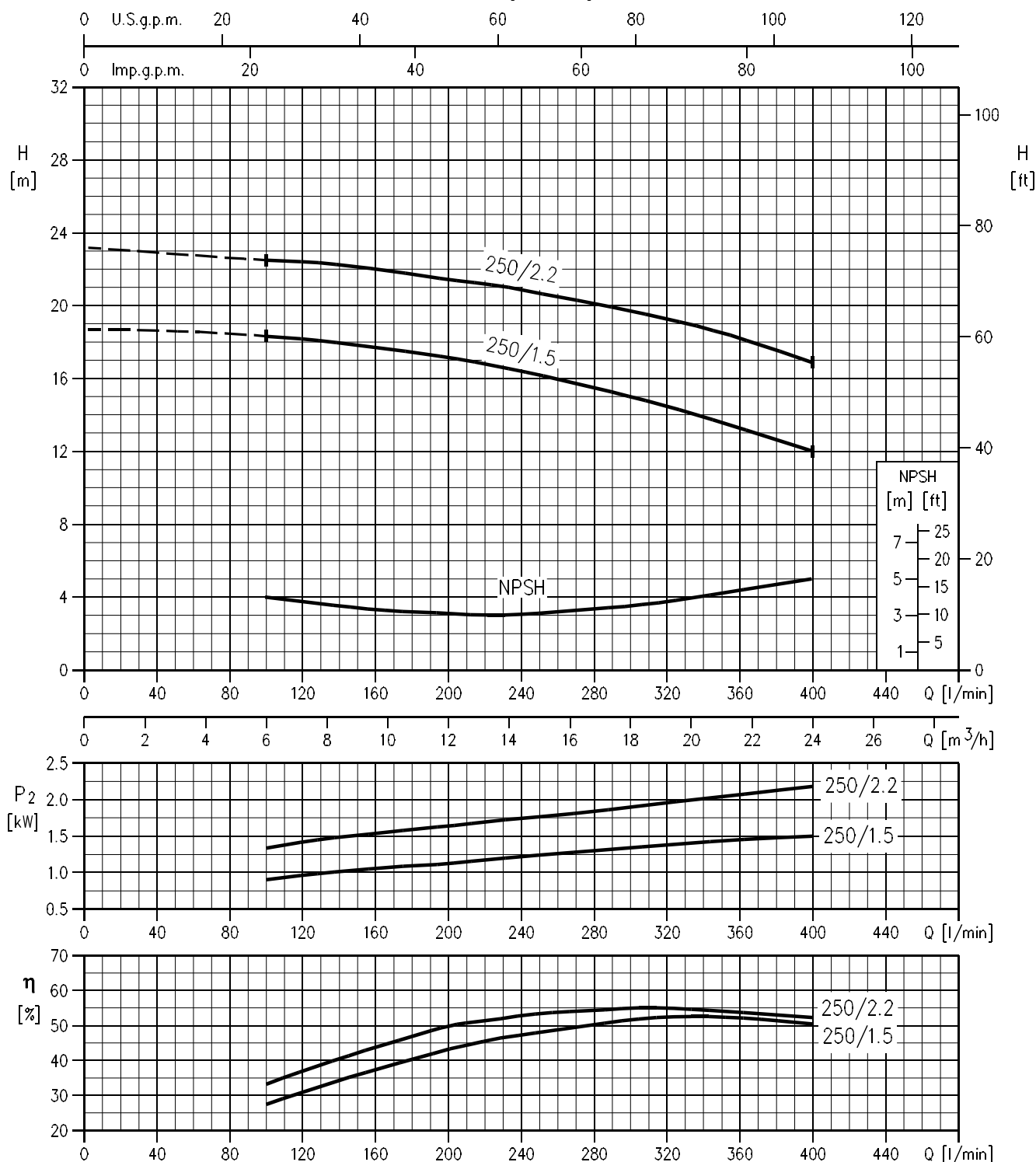
**PERFORMANCE CURVE****50Hz**

Rev. D

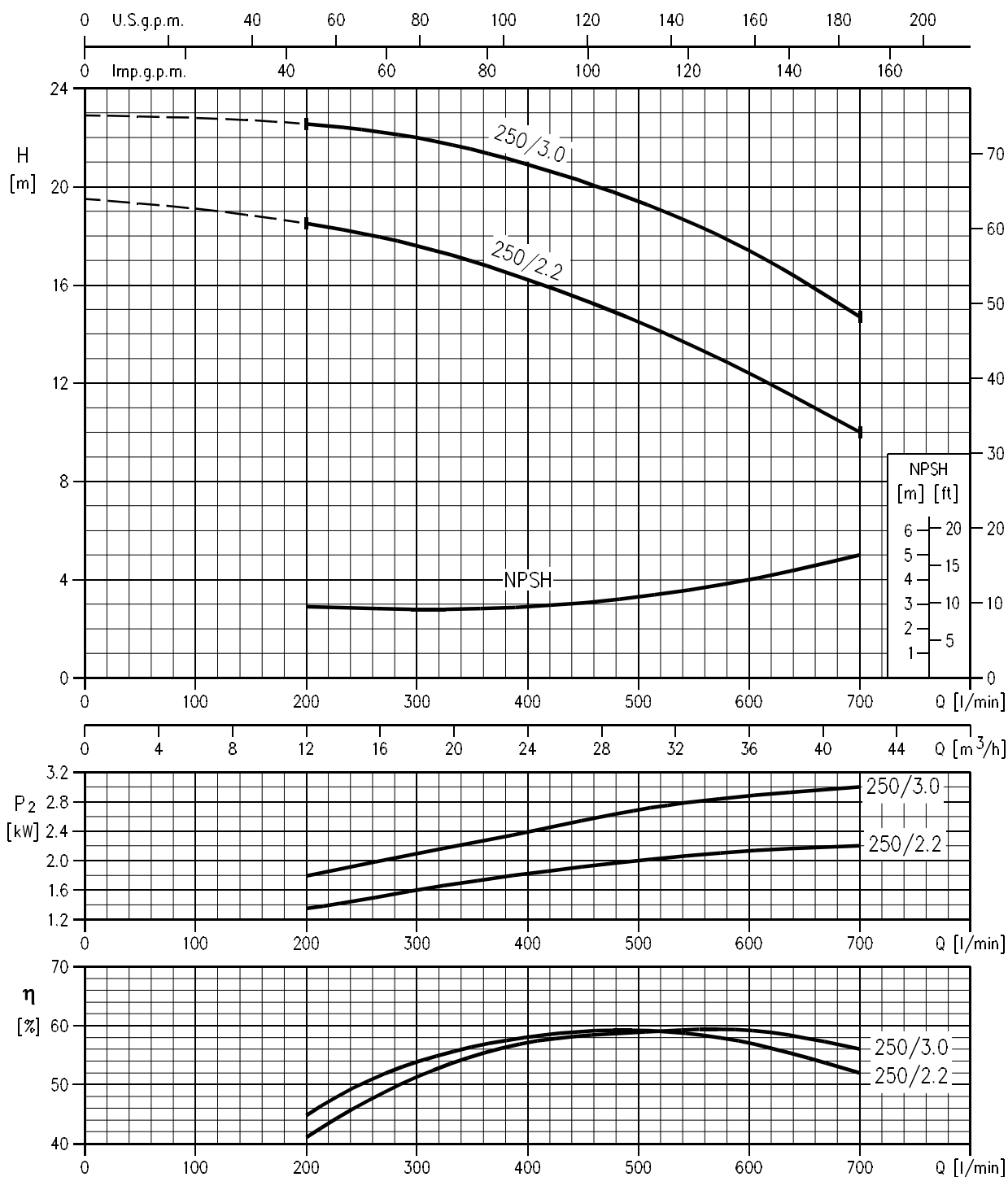


**PERFORMANCE CURVE****50Hz**

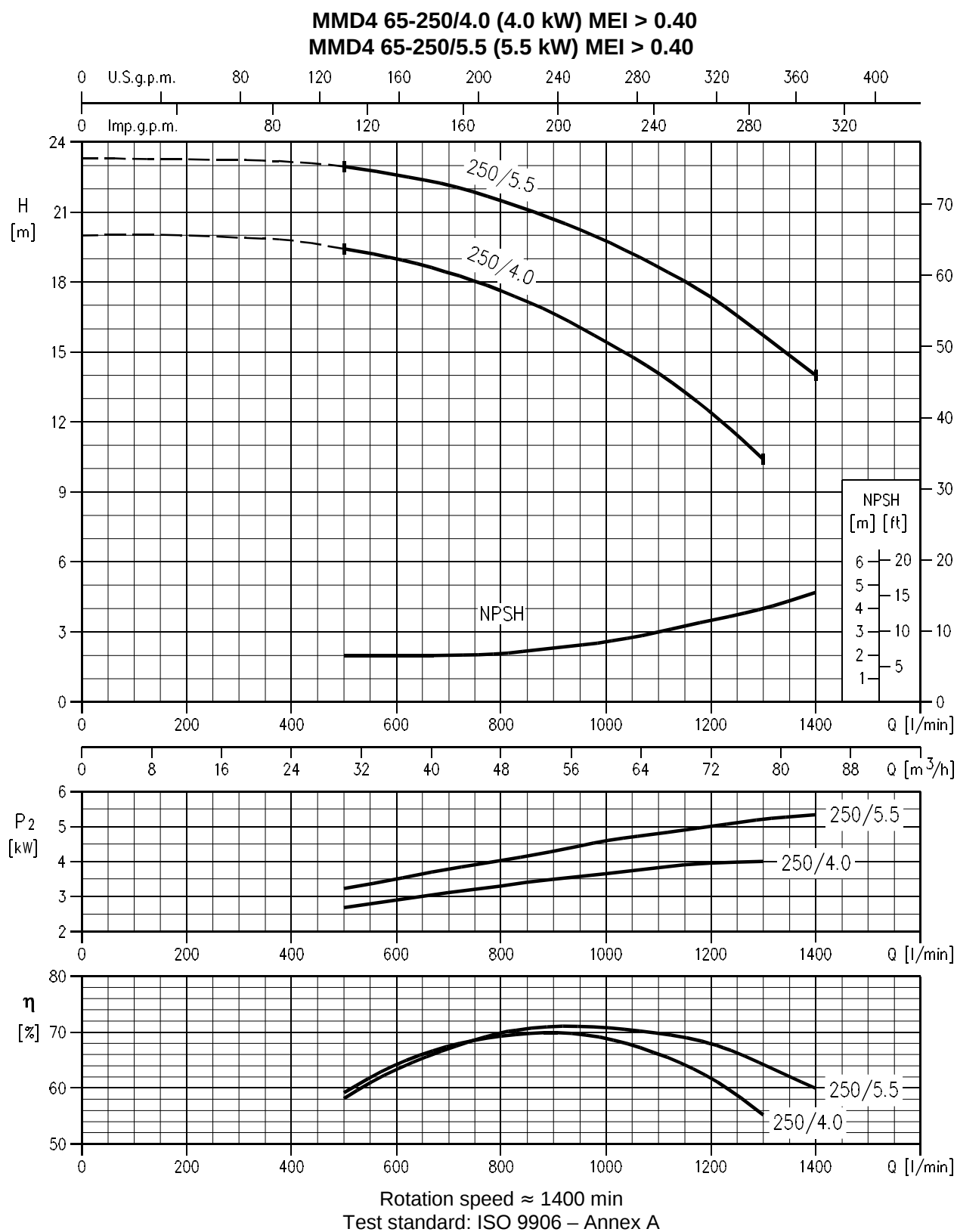
Rev. D

**MMD4 40-250/1.5 (1.5 kW) MEI > 0.40****MMD4 40-250/2.2 (2.2 kW) MEI > 0.40**

Rotation speed ≈ 1400 min  
 Test standard: ISO 9906 – Annex A

**MMD4 50-250/2.2 (2.2 kW) MEI > 0.40****MMD4 50-250/3.0 (3.0 kW) MEI > 0.40**

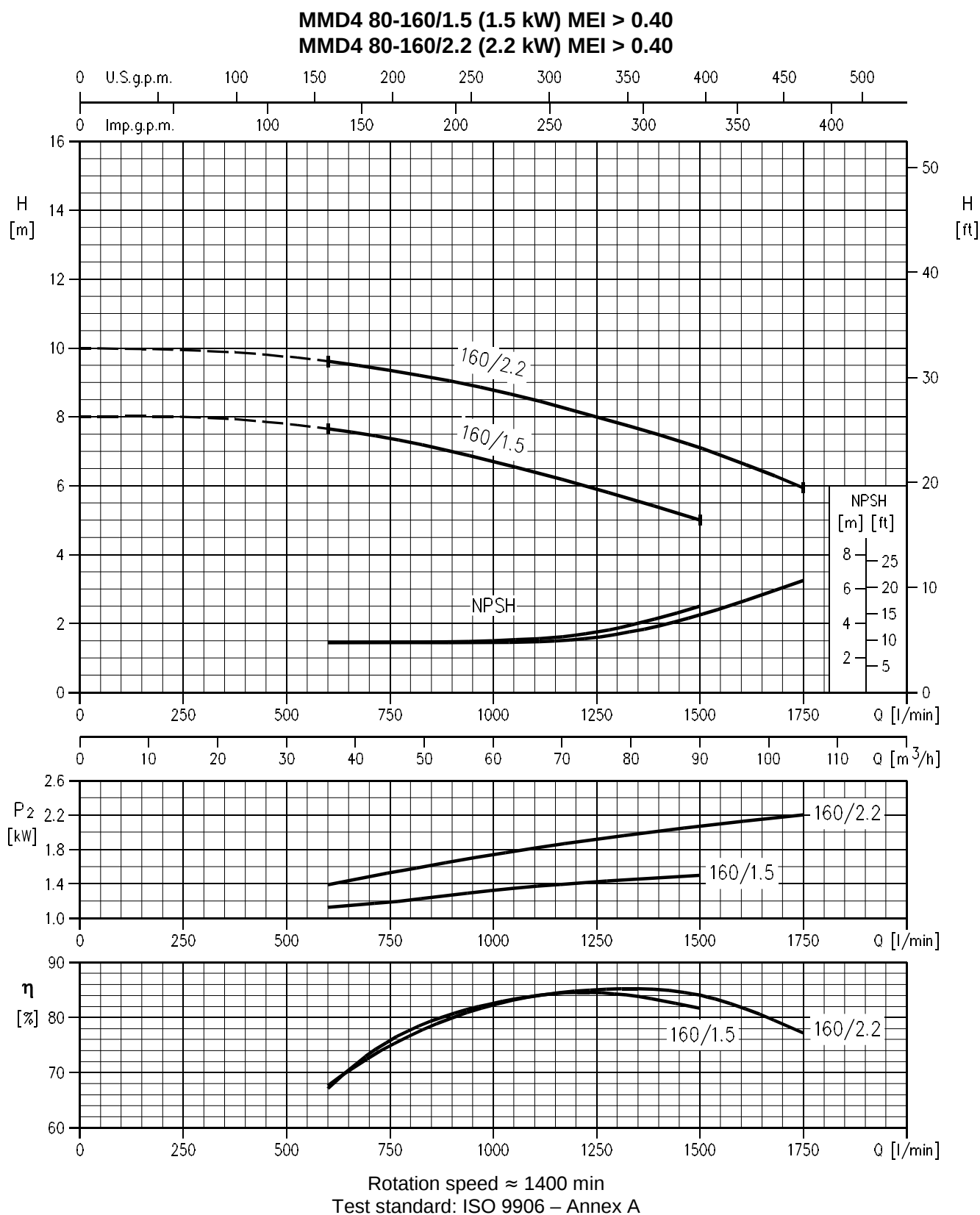
Rotation speed ≈ 1400 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A



## PERFORMANCE CURVE

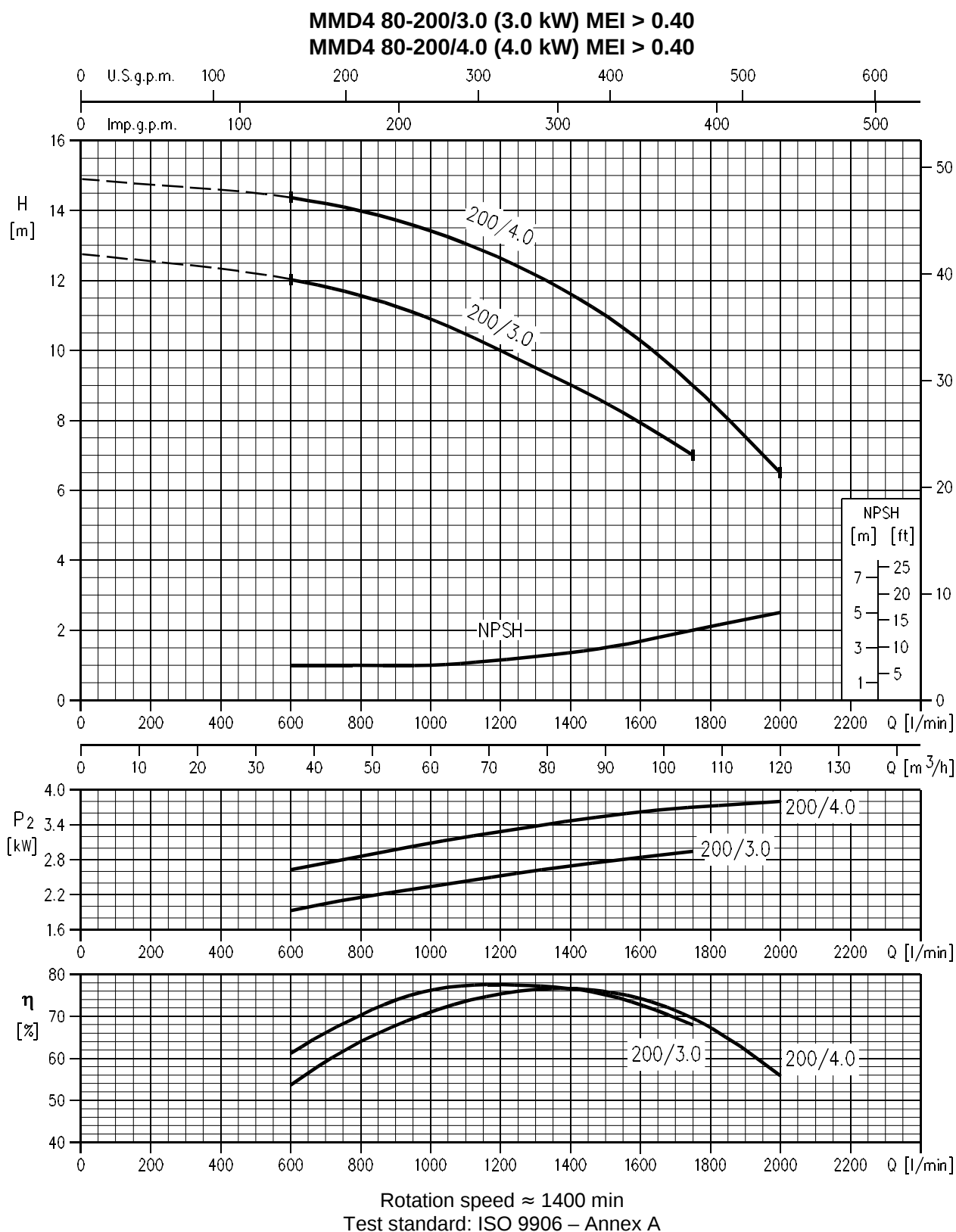
50Hz

Rev. D



**PERFORMANCE CURVE****50Hz**

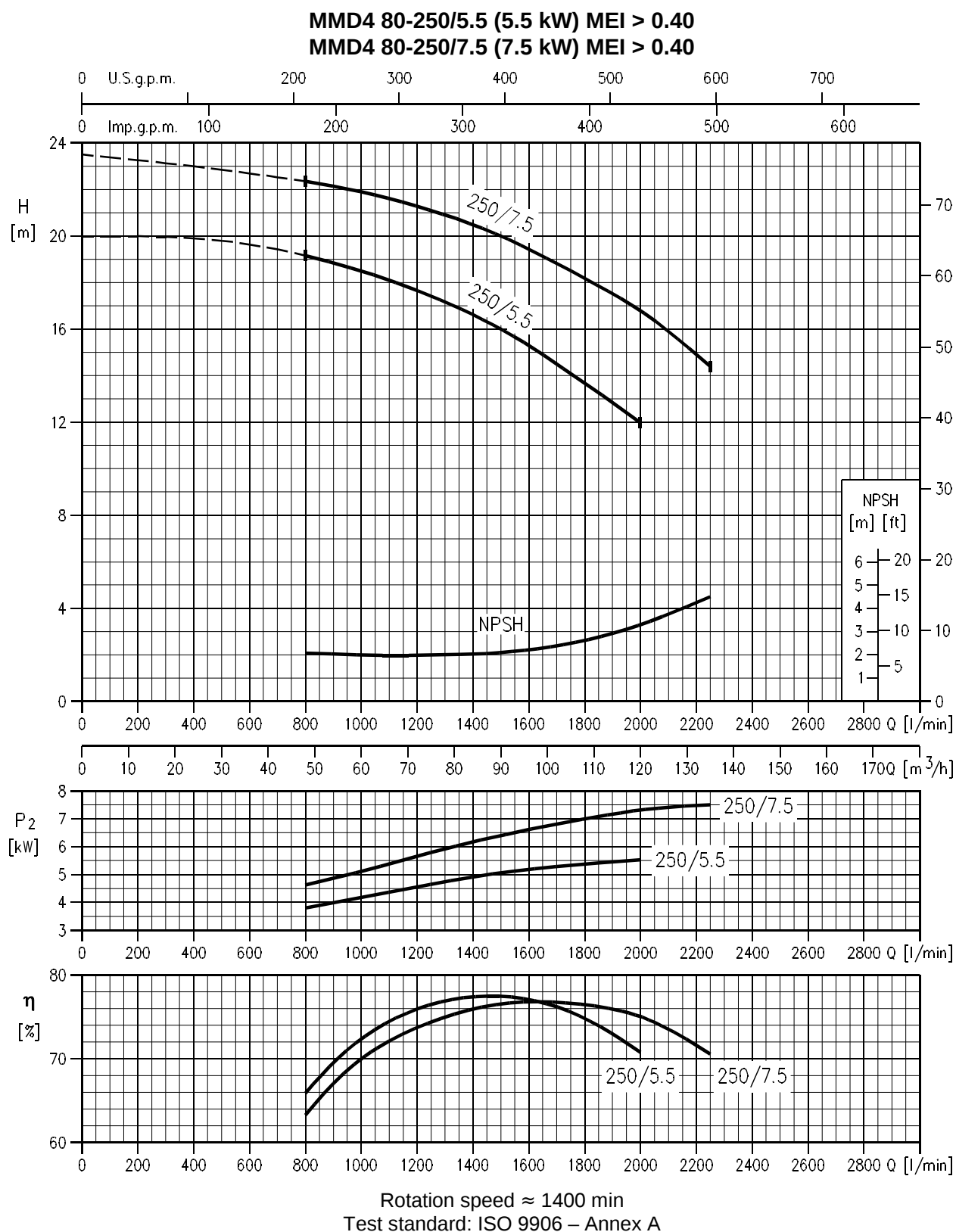
Rev. D

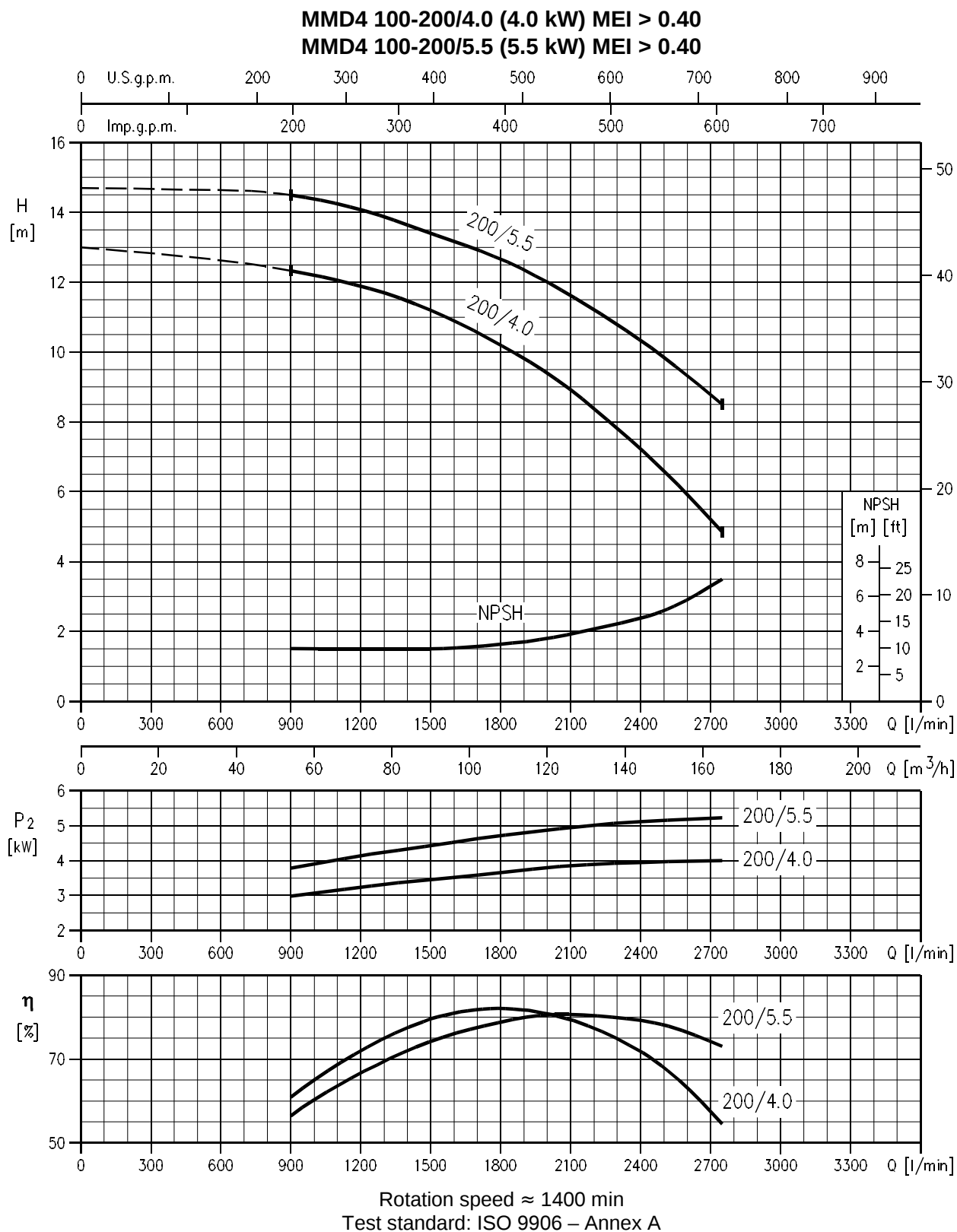


## PERFORMANCE CURVE

50Hz

Rev. D

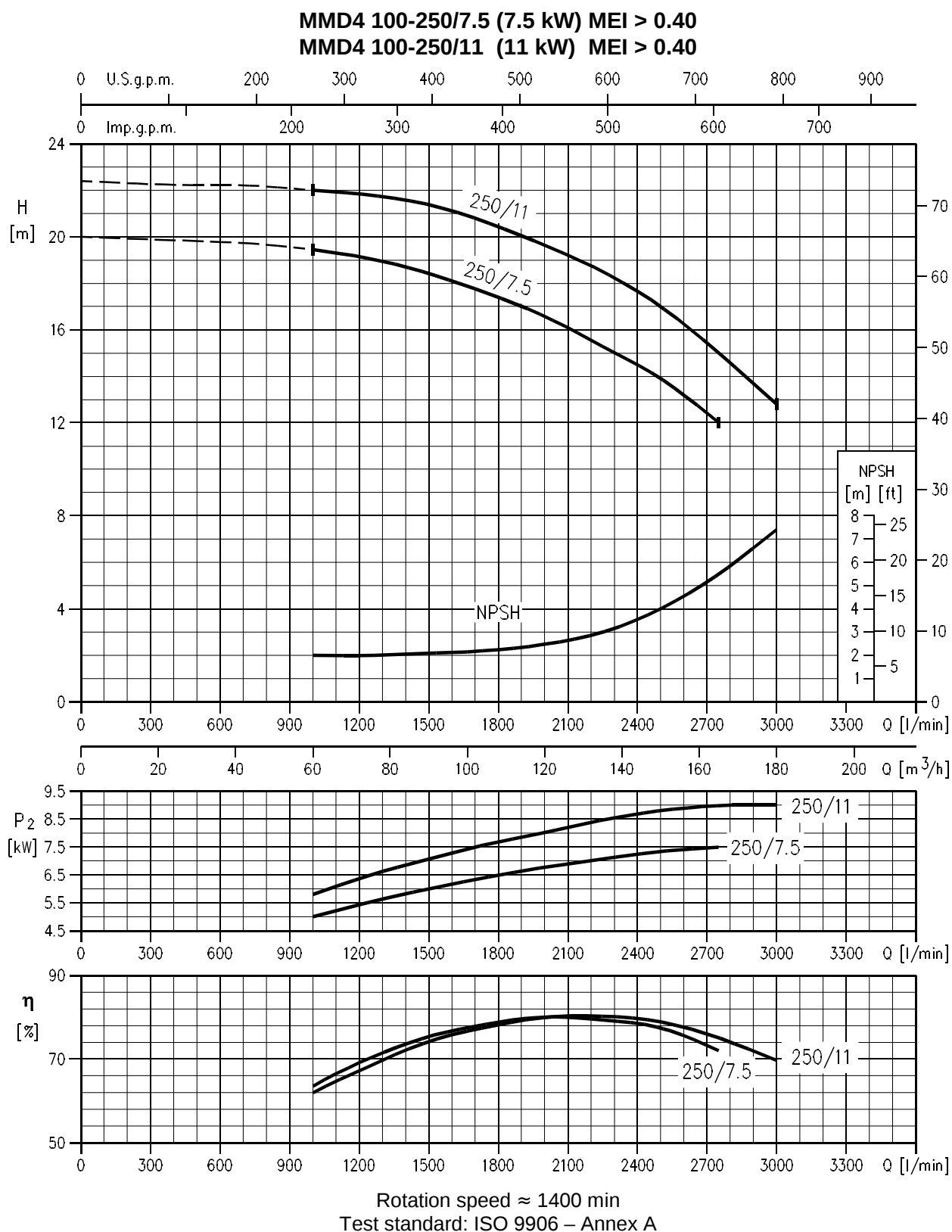




## PERFORMANCE CURVE

50Hz

Rev. D

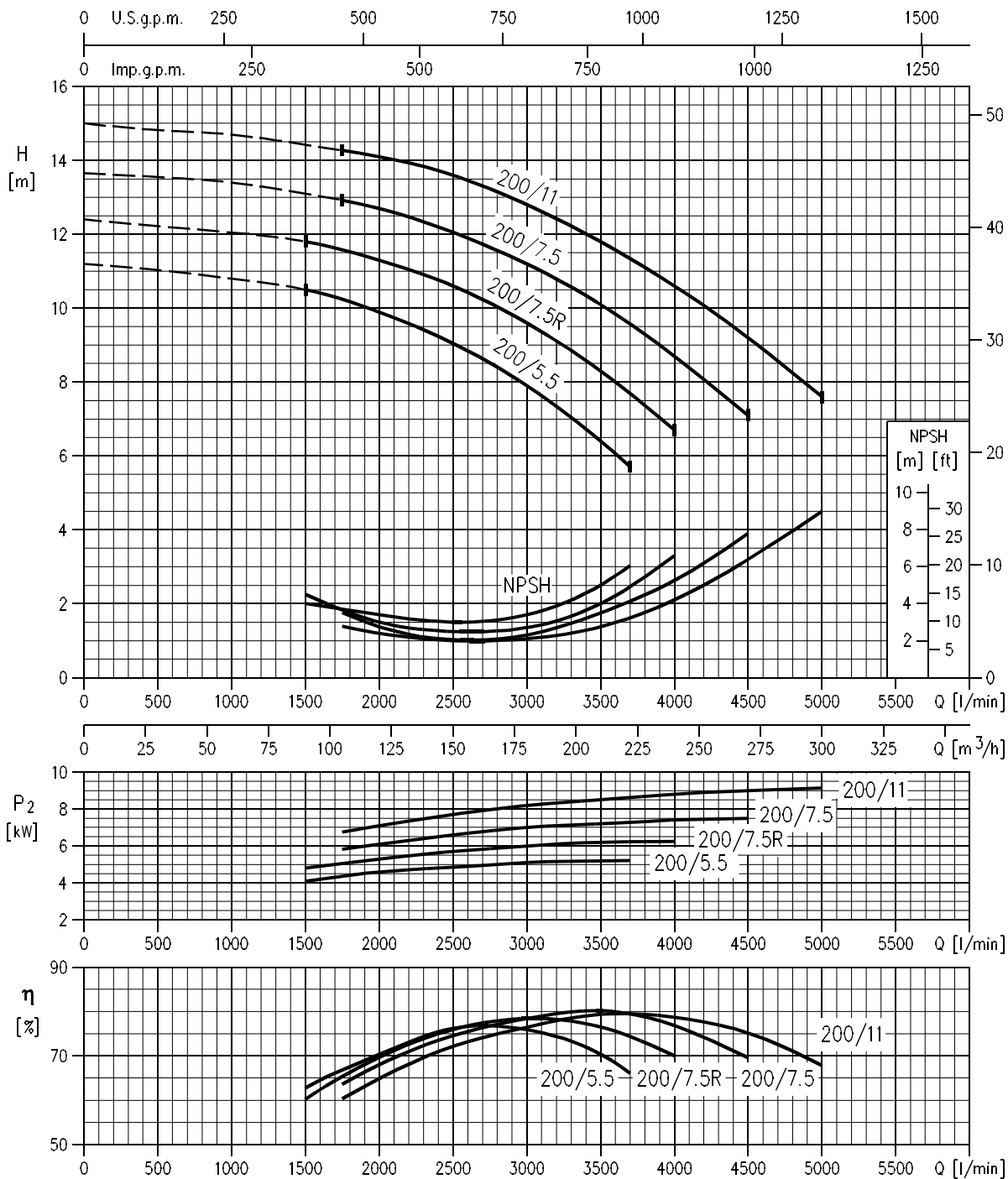


## PERFORMANCE CURVE

50Hz

Rev. D

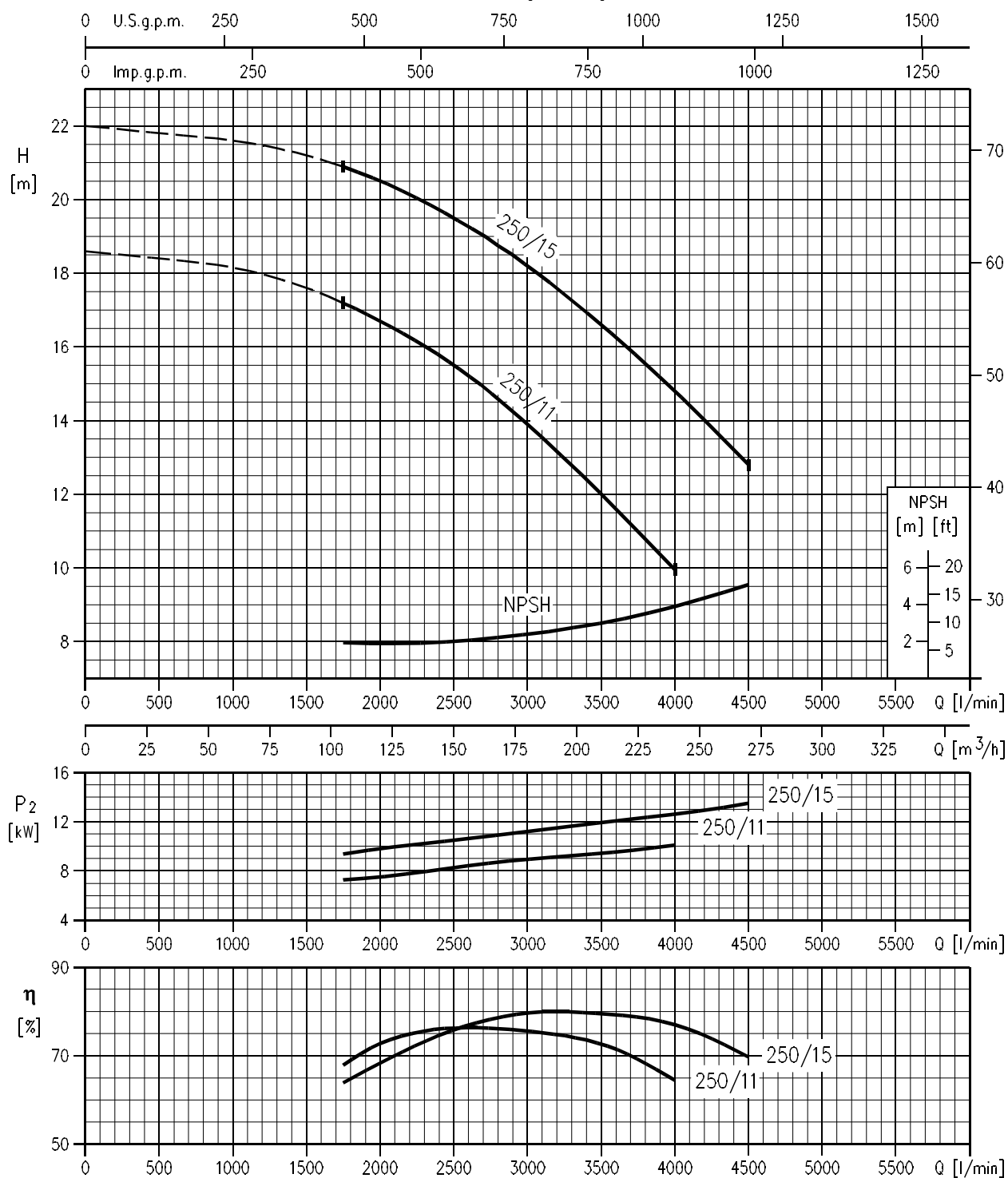
MMD4 125-200/5.5 (5.5 kW) MEI > 0.40  
 MMD4 125-200/7.5R (7.5R kW) MEI > 0.40  
 MMD4 125-200/7.5 (7.5 kW) MEI > 0.40  
 MMD4 125-200/11 (11 kW) MEI > 0.40



Rotation speed ≈ 1400 min  
 Test standard: ISO 9906 – Annex A

**PERFORMANCE CURVE****50Hz**

Rev. D

**MMD4 125-250/11 (11 kW) MEI > 0.40****MMD4 125-250/15 (15 kW) MEI > 0.40**

Rotation speed ≈ 1400 min  
 Test standard: ISO 9906 – Annex A

## PERFORMANCE CURVE

50Hz

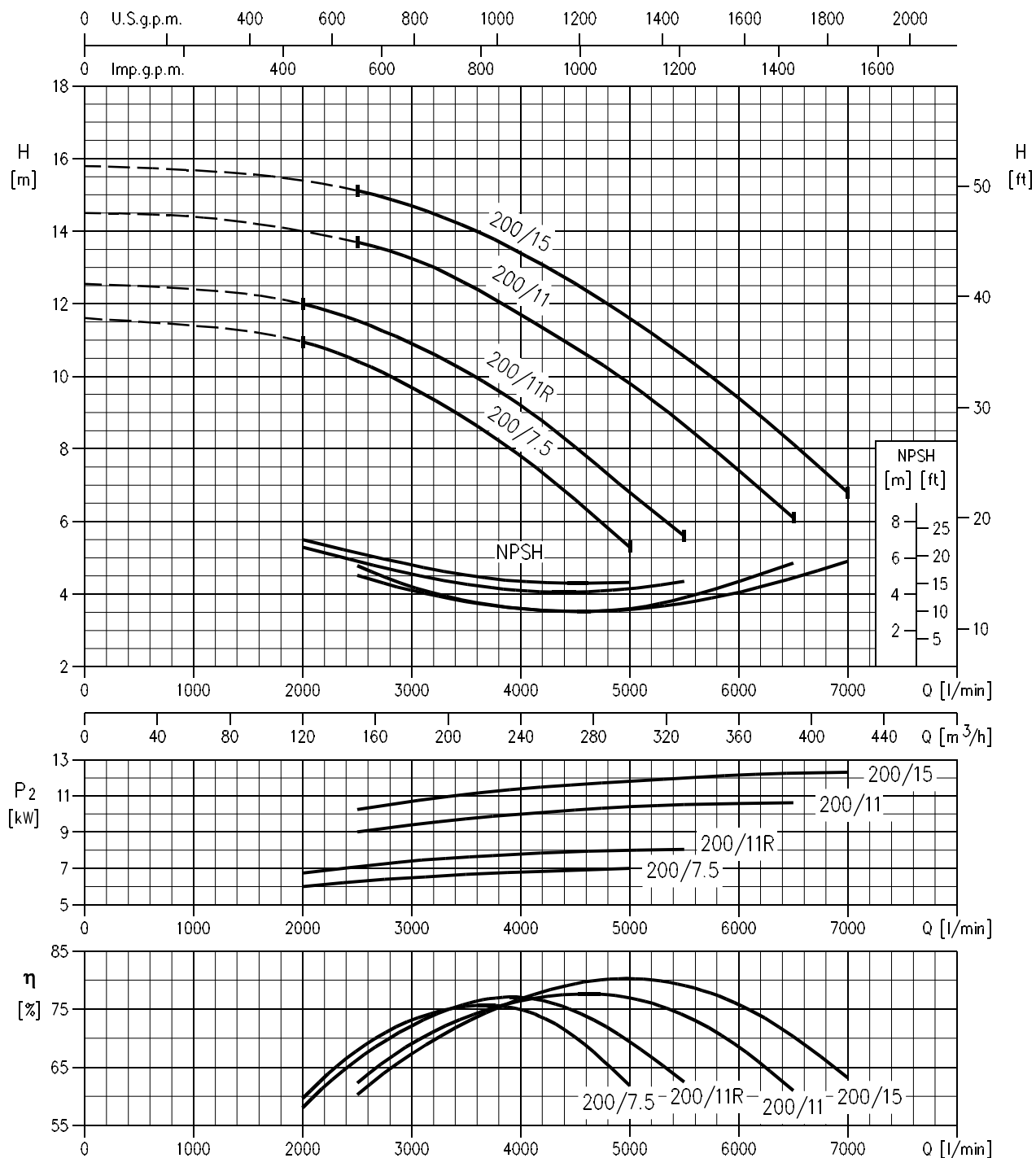
Rev. D

MMD4 150-200/7.5 (7.5 kW) MEI &gt; 0.40

MMD4 150-200/11R (11R kW) MEI &gt; 0.40

MMD4 150-200/11(11kW) MEI &gt; 0.40

MMD4 150-200/15 (15 kW) MEI &gt; 0.40



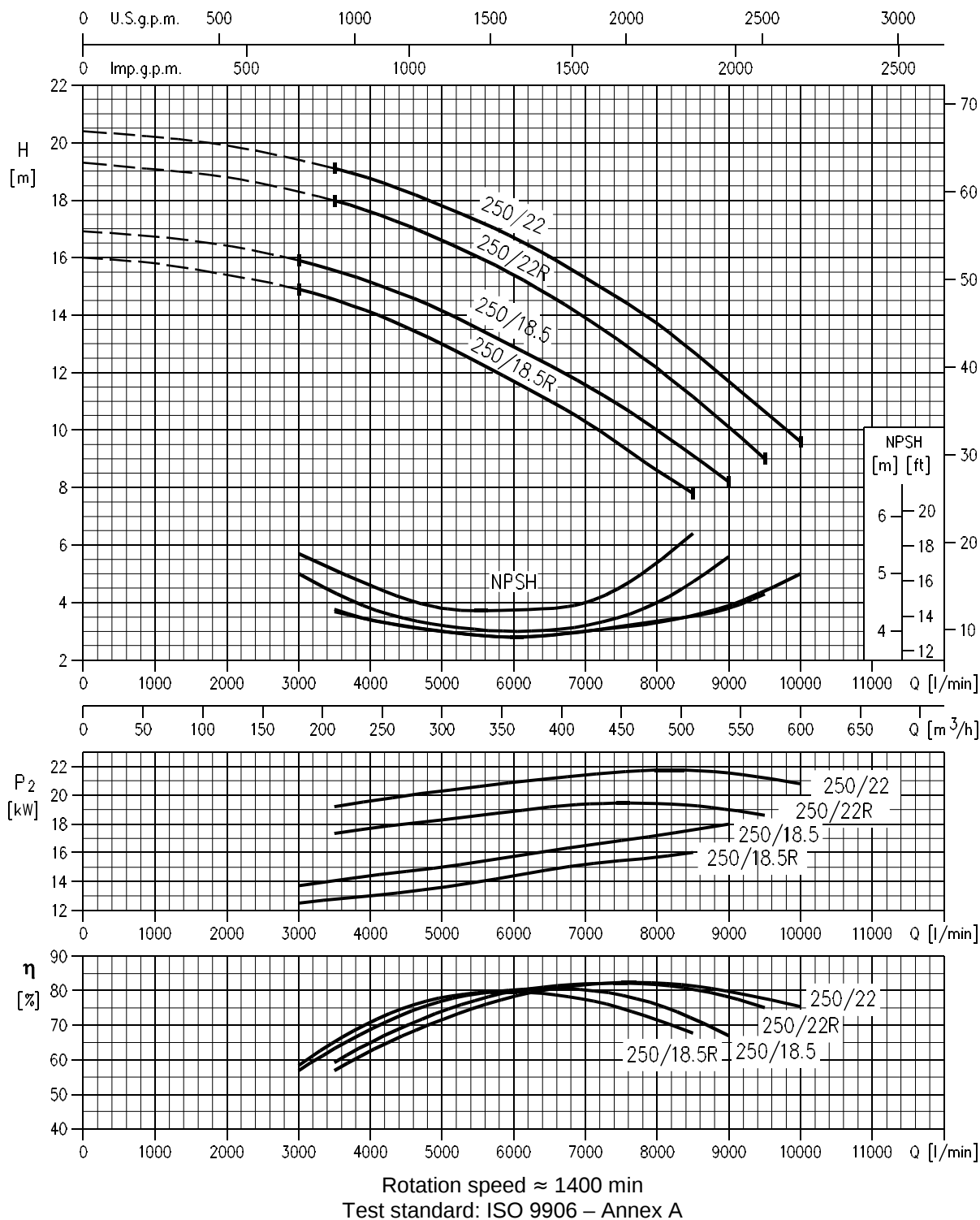
Rotation speed ≈ 1400 min  
 Test standard: ISO 9906 – Annex A

MMD4 200-250/18.5R (18.5 kW) MEI &gt; 0.40

MMD4 200-250/18.5 (18.5 kW) MEI &gt; 0.40

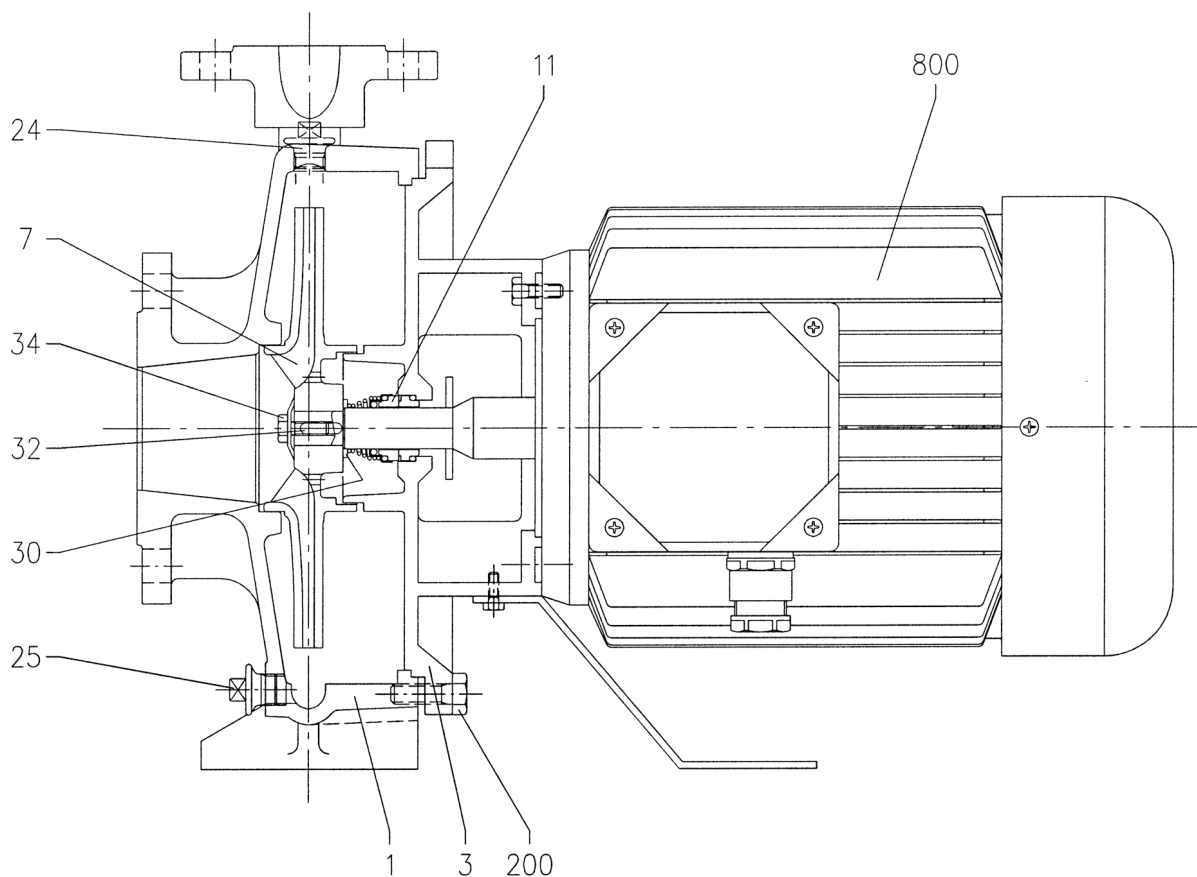
MMD4 200-250/22R (22 kW) MEI &gt; 0.40

MMD4 200-250/22 (22 kW) MEI &gt; 0.40



## SECTIONAL VIEW DRAWING

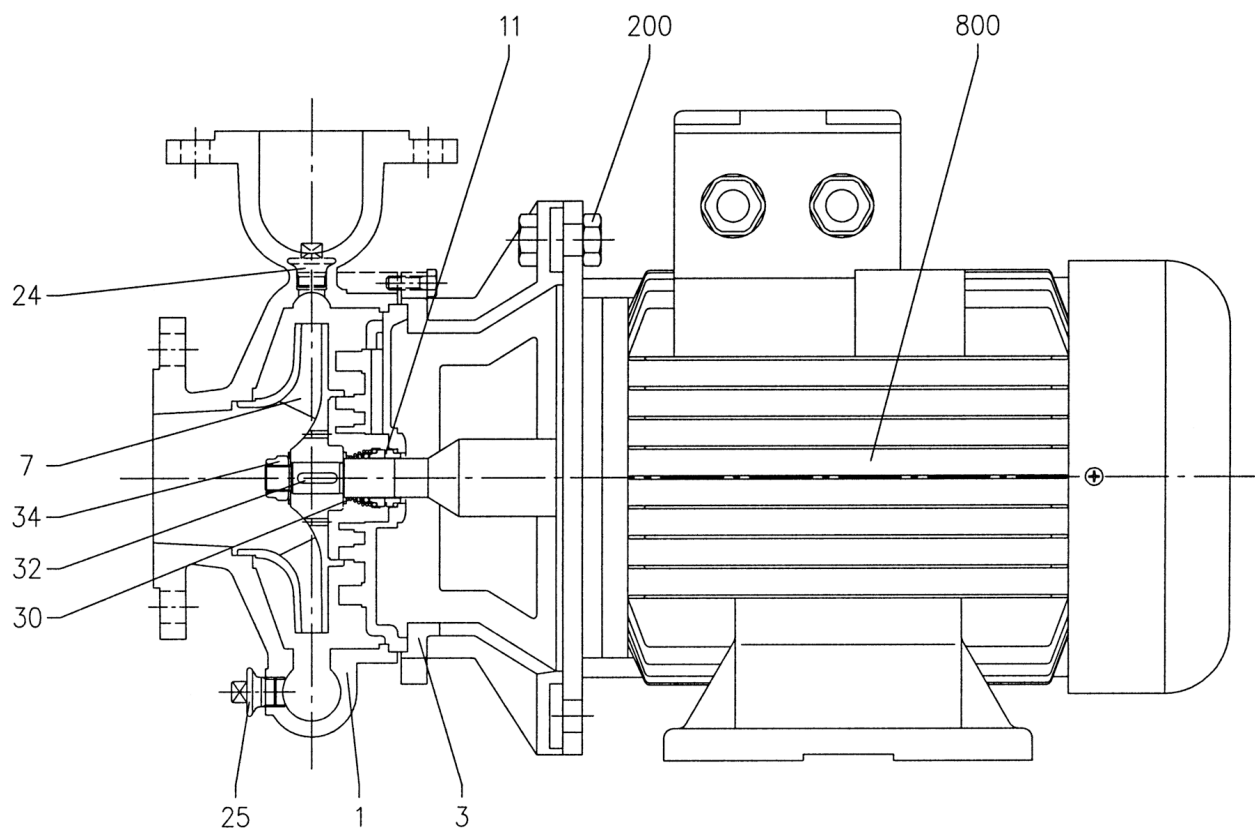
UP TO MEC 160



| N°  | PART NAME       | MATERIAL                 |
|-----|-----------------|--------------------------|
| 1   | Casing          | Cast iron                |
| 3   | Motor bracket   | Cast iron                |
| 7   | Impeller        | Cast iron                |
| 11  | Mechanical seal | SiC/SiC/NBR              |
| 24  | Priming plug    | Stainless Steel          |
| 25  | Drain plug      | Stainless Steel          |
| 30  | Spacer          | Stainless Steel          |
| 32  | Key             | Stainless Steel          |
| 34  | Impeller nut    | Stainless Steel          |
| 200 | Screw           | Stainless Steel          |
| 800 | Motor           | aluminum (up to MEC 160) |

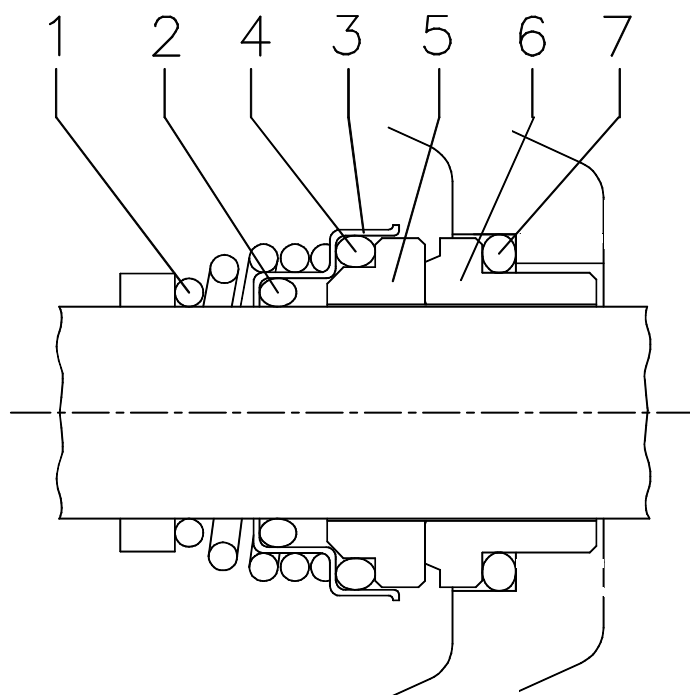
## SECTIONAL VIEW DRAWING

MEC 180 AND MORE POWERFUL



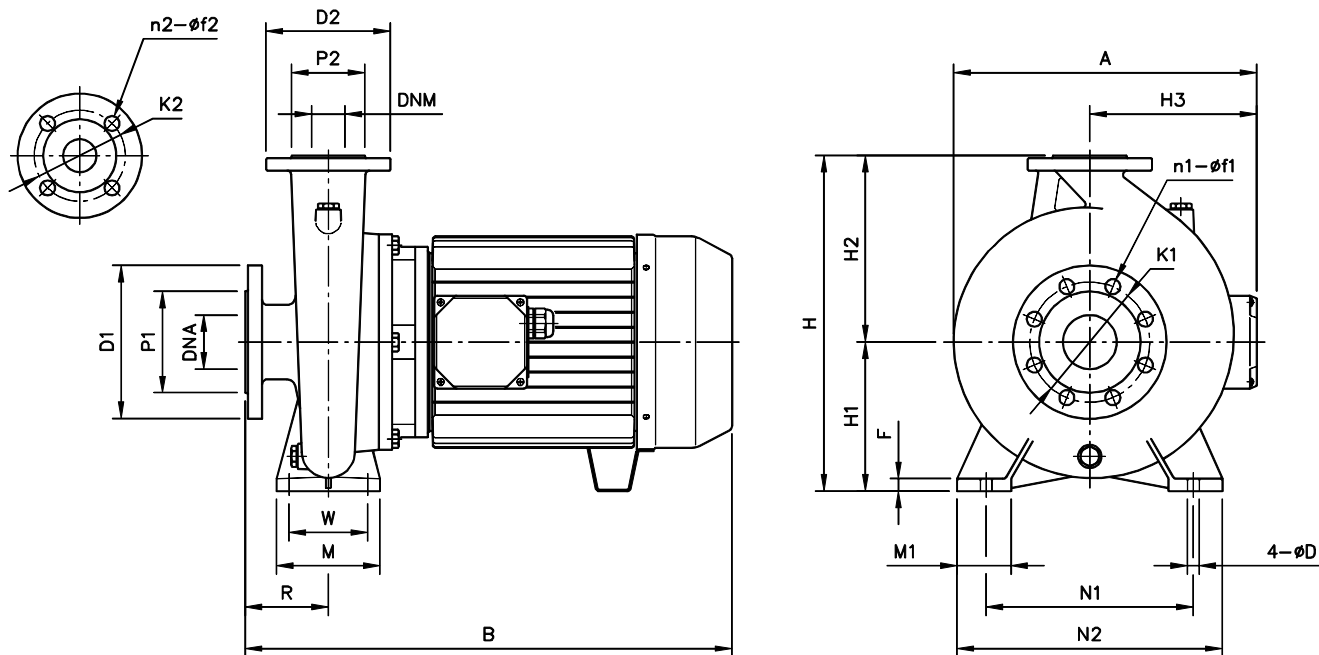
| N°  | PART NAME       | MATERIAL                      |
|-----|-----------------|-------------------------------|
| 1   | Casing          | Cast iron                     |
| 3   | Motor bracket   | Cast iron                     |
| 7   | Impeller        | Cast iron                     |
| 11  | Mechanical seal | SiC/SiC/NBR                   |
| 24  | Priming plug    | Stainless Steel               |
| 25  | Drain plug      | Stainless Steel               |
| 30  | Spacer          | Stainless Steel               |
| 32  | Key             | Stainless Steel               |
| 34  | Impeller nut    | Stainless Steel               |
| 200 | Screw           | Stainless Steel               |
| 800 | Motor           | Cast iron (MEC 180 and above) |

**MECHANICAL SEAL**



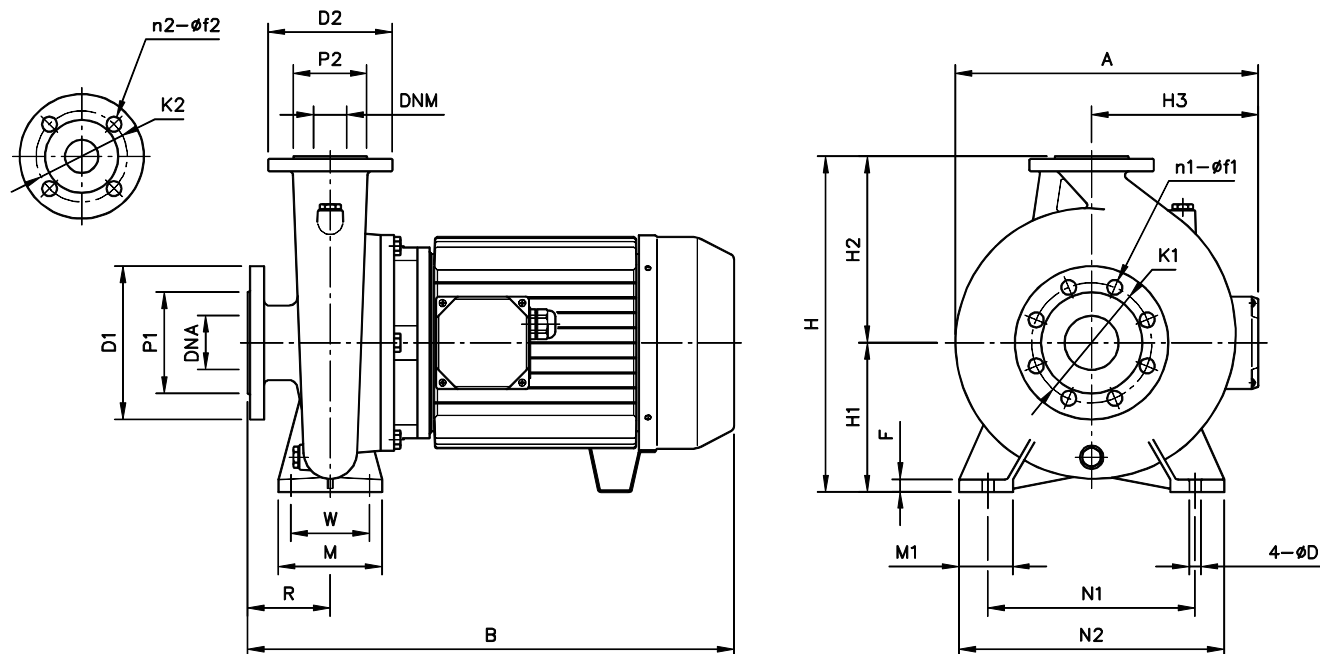
| REF | PART NAME           | MATERIAL                 |
|-----|---------------------|--------------------------|
|     |                     | (Max temperature: +90°C) |
| 1   | Self driving spring | AISI 316                 |
| 2   | O Ring              | NBR                      |
| 3   | Frame               | AISI 316                 |
| 4   | O Ring              | NBR                      |
| 5   | Rotary seal ring    | SiC                      |
| 6   | Stationary sealing  | SiC                      |
| 7   | O Ring              | NBR                      |

## PUMP MMD4 32-40-50-65 VERSION



| Model             | DIMENSIONS (mm) |    |    |     |     |     |     |    |    |     |     |     |     |     |     |     |     |     |     |     |     |    |    |     | WEIGHT<br>(kg) |    |     |
|-------------------|-----------------|----|----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|----------------|----|-----|
|                   | DNA             | n1 | f1 | P1  | K1  | D1  | DNM | n2 | f2 | P2  | K2  | D2  | H   | H1  | H2  | H3  | R   | W   | N1  | M   | N2  | M1 | F  | A   |                | B  | D   |
| MMD4/E 32-250/1,1 | 50              | 4  | 18 | 102 | 125 | 165 | 32  | 4  | 14 | 78  | 100 | 140 | 405 | 180 | 225 | 138 | 100 | 95  | 250 | 125 | 320 | 65 | 12 | 320 | 476            | 14 | 50  |
| MMD4/E 32-250/1,5 | 50              | 4  | 18 | 102 | 125 | 165 | 32  | 4  | 14 | 78  | 100 | 140 | 405 | 180 | 225 | 138 | 100 | 95  | 250 | 125 | 320 | 65 | 12 | 320 | 476            | 14 | 51  |
| MMD4/E 40-250/1,5 | 65              | 4  | 18 | 122 | 145 | 185 | 40  | 4  | 18 | 88  | 110 | 150 | 405 | 180 | 225 | 138 | 100 | 95  | 250 | 125 | 320 | 65 | 12 | 325 | 476            | 14 | 49  |
| MMD4/E 40-250/2,2 | 65              | 4  | 18 | 122 | 145 | 185 | 40  | 4  | 18 | 88  | 110 | 150 | 405 | 180 | 225 | 145 | 100 | 95  | 250 | 125 | 320 | 65 | 12 | 325 | 515            | 14 | 55  |
| MMD4/E 50-250/2,2 | 65              | 4  | 18 | 122 | 145 | 185 | 50  | 4  | 18 | 102 | 125 | 165 | 405 | 180 | 225 | 145 | 100 | 95  | 250 | 125 | 320 | 65 | 14 | 333 | 515            | 14 | 58  |
| MMD4/E 50-250/3   | 65              | 4  | 18 | 122 | 145 | 185 | 50  | 4  | 18 | 102 | 125 | 165 | 405 | 180 | 225 | 145 | 100 | 95  | 250 | 125 | 320 | 65 | 14 | 333 | 549            | 14 | 65  |
| MMD4/E 65-250/4   | 80              | 8  | 18 | 138 | 160 | 200 | 65  | 4  | 18 | 122 | 145 | 185 | 450 | 200 | 250 | 160 | 100 | 120 | 280 | 160 | 360 | 80 | 14 | 365 | 549            | 14 | 79  |
| MMD4/E 65-250/5,5 | 80              | 8  | 18 | 138 | 160 | 200 | 65  | 4  | 18 | 122 | 145 | 185 | 450 | 200 | 250 | 194 | 100 | 120 | 280 | 160 | 360 | 80 | 14 | 365 | 606            | 14 | 103 |

## MMD4 80-100-125-150-200



| Model              | Dimensions (mm) |    |    |     |     |     |     |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |      |    | Weight (kg) |
|--------------------|-----------------|----|----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|------|----|-------------|
|                    | DNA             | n1 | f1 | P1  | K1  | D1  | DNM | n2 | f2 | P2  | K2  | D2  | H   | H1  | H2  | H3  | R   | W   | N1  | M   | N2  | M1  | F  | A   | B    | D  |             |
| MMD4 80-160/1,5    | 100             | 8  | 18 | 158 | 180 | 220 | 80  | 8  | 18 | 138 | 160 | 200 | 405 | 180 | 225 | 138 | 125 | 95  | 250 | 125 | 320 | 65  | 14 | 330 | 501  | 14 | 46          |
| MMD4 80-160/2,2    | 100             | 8  | 18 | 158 | 180 | 220 | 80  | 8  | 18 | 138 | 160 | 200 | 405 | 180 | 225 | 145 | 125 | 95  | 250 | 125 | 320 | 65  | 14 | 330 | 540  | 14 | 52          |
| MMD4 80-200/3      | 100             | 8  | 18 | 158 | 180 | 220 | 80  | 8  | 18 | 138 | 160 | 200 | 430 | 180 | 250 | 145 | 125 | 95  | 280 | 125 | 345 | 65  | 12 | 355 | 586  | 14 | 68          |
| MMD4 80-200/4      | 100             | 8  | 18 | 158 | 180 | 220 | 80  | 8  | 18 | 138 | 160 | 200 | 430 | 180 | 250 | 160 | 125 | 95  | 280 | 125 | 345 | 65  | 12 | 355 | 574  | 14 | 72          |
| MMD4 80-250/5,5    | 100             | 8  | 18 | 158 | 180 | 220 | 80  | 8  | 18 | 138 | 160 | 200 | 480 | 200 | 280 | 194 | 125 | 120 | 315 | 160 | 400 | 80  | 14 | 400 | 631  | 18 | 109         |
| MMD4 80-250/7,5    | 100             | 8  | 18 | 158 | 180 | 220 | 80  | 8  | 18 | 138 | 160 | 200 | 480 | 200 | 280 | 194 | 125 | 120 | 315 | 160 | 400 | 80  | 14 | 400 | 671  | 18 | 119         |
| MMD4 100-200/4     | 125             | 8  | 18 | 188 | 210 | 250 | 100 | 8  | 18 | 158 | 180 | 220 | 480 | 200 | 280 | 160 | 125 | 120 | 280 | 160 | 360 | 80  | 14 | 385 | 574  | 18 | 77          |
| MMD4 100-200/5,5   | 125             | 8  | 18 | 188 | 210 | 250 | 100 | 8  | 18 | 158 | 180 | 220 | 480 | 200 | 280 | 194 | 125 | 120 | 280 | 160 | 360 | 80  | 14 | 385 | 631  | 18 | 103         |
| MMD4 100-250/7,5   | 125             | 8  | 18 | 188 | 210 | 250 | 100 | 8  | 18 | 158 | 180 | 220 | 505 | 225 | 280 | 194 | 140 | 120 | 315 | 160 | 400 | 80  | 14 | 420 | 686  | 18 | 125         |
| MMD4 100-250/11    | 125             | 8  | 18 | 188 | 210 | 250 | 100 | 8  | 18 | 158 | 180 | 220 | 505 | 225 | 280 | 238 | 140 | 120 | 315 | 160 | 400 | 80  | 14 | 420 | 779  | 18 | 168         |
| MMD4 125-200/5,5   | 150             | 8  | 22 | 212 | 240 | 285 | 125 | 8  | 18 | 188 | 210 | 250 | 565 | 250 | 280 | 194 | 140 | 120 | 315 | 160 | 400 | 80  | 14 | 470 | 657  | 18 | 137         |
| MMD4 125-200/7,5R  | 150             | 8  | 22 | 212 | 240 | 285 | 125 | 8  | 18 | 188 | 210 | 250 | 565 | 250 | 315 | 194 | 140 | 120 | 315 | 160 | 400 | 80  | 14 | 470 | 697  | 18 | 147         |
| MMD4 125-200/7,5   | 150             | 8  | 22 | 212 | 240 | 285 | 125 | 8  | 18 | 188 | 210 | 250 | 565 | 250 | 315 | 194 | 140 | 120 | 315 | 160 | 400 | 80  | 14 | 470 | 697  | 18 | 147         |
| MMD4 125-200/11    | 150             | 8  | 22 | 212 | 240 | 285 | 125 | 8  | 18 | 188 | 210 | 250 | 565 | 250 | 315 | 238 | 140 | 120 | 315 | 160 | 400 | 80  | 14 | 470 | 790  | 18 | 190         |
| MMD4 125-250/11    | 150             | 8  | 22 | 212 | 240 | 285 | 125 | 8  | 18 | 188 | 210 | 250 | 605 | 250 | 355 | 238 | 140 | 120 | 315 | 160 | 400 | 80  | 16 | 470 | 790  | 18 | 196         |
| MMD4 125-250/15    | 150             | 8  | 22 | 212 | 240 | 285 | 125 | 8  | 18 | 188 | 210 | 250 | 605 | 250 | 355 | 238 | 140 | 120 | 315 | 160 | 400 | 80  | 16 | 470 | 854  | 18 | 216         |
| MMD4 150-200/7,5   | 200             | 12 | 22 | 268 | 295 | 340 | 150 | 8  | 22 | 212 | 240 | 285 | 680 | 280 | 400 | 194 | 160 | 155 | 450 | 200 | 550 | 100 | 22 | 550 | 717  | 24 | 180         |
| MMD4 150-200/11R   | 200             | 12 | 22 | 268 | 295 | 340 | 150 | 8  | 22 | 212 | 240 | 285 | 680 | 280 | 400 | 238 | 160 | 155 | 450 | 200 | 550 | 100 | 22 | 550 | 810  | 24 | 223         |
| MMD4 150-200/11    | 200             | 12 | 22 | 268 | 295 | 340 | 150 | 8  | 22 | 212 | 240 | 285 | 680 | 280 | 400 | 238 | 160 | 155 | 450 | 200 | 550 | 100 | 22 | 550 | 810  | 24 | 223         |
| MMD4 150-200/15    | 200             | 12 | 22 | 268 | 295 | 340 | 150 | 8  | 22 | 212 | 240 | 285 | 680 | 280 | 400 | 238 | 160 | 155 | 450 | 200 | 550 | 100 | 22 | 550 | 874  | 24 | 229         |
| MMD4 200-250/18,5R | 250             | 12 | 25 | 320 | 355 | 405 | 200 | 12 | 22 | 268 | 295 | 340 | 765 | 315 | 450 | 238 | 200 | 155 | 450 | 200 | 550 | 100 | 22 | 630 | 962  | 24 | 368         |
| MMD4 200-250/18,5  | 250             | 12 | 25 | 320 | 355 | 405 | 200 | 12 | 22 | 268 | 295 | 340 | 765 | 315 | 450 | 238 | 200 | 155 | 450 | 200 | 550 | 100 | 22 | 630 | 962  | 24 | 368         |
| MMD4 200-250/22R   | 250             | 12 | 25 | 320 | 355 | 405 | 200 | 12 | 22 | 268 | 295 | 340 | 765 | 315 | 450 | 238 | 200 | 155 | 450 | 200 | 550 | 100 | 22 | 630 | 1002 | 24 | 383         |
| MMD4 200-250/22    | 250             | 12 | 25 | 320 | 355 | 405 | 200 | 12 | 22 | 268 | 295 | 340 | 765 | 315 | 450 | 238 | 200 | 155 | 450 | 200 | 550 | 100 | 22 | 630 | 1002 | 24 | 383         |

## TECHNICAL DATA

50Hz

Rev. D

## MOTOR DATA

| Pump type<br><br>Three Phase | Power |      | Efficiency | Input<br>[kW] | Efficiency (% load)<br>and power-factor |      |      |       | Full load current<br>[A] |       |       | Locked rotor current<br>[A] |        |        |
|------------------------------|-------|------|------------|---------------|-----------------------------------------|------|------|-------|--------------------------|-------|-------|-----------------------------|--------|--------|
|                              | [kW]  | [HP] |            |               | η %                                     |      |      | cos—φ | 230 V                    | 400 V | 690 V | 230 V                       | 400 V  | 690 V  |
|                              |       |      |            |               | 50%                                     | 75%  | 100% |       |                          |       |       |                             |        |        |
| MMD4 32-250/1,1              | 1,1   | 1,5  | IE2        | 1,33          | 81,4                                    | 82,7 | 82,5 | 0,77  | 4,3                      | 2,5   | -     | 26,4                        | 15,3   | -      |
| MMD4 32-250/1,5              | 1,5   | 2    | IE2        | 1,81          | 81,0                                    | 83,5 | 83,0 | 0,77  | 5,9                      | 3,4   | -     | 46,5                        | 26,8   | -      |
| MMD4 40-250/1,5              | 1,5   | 2    | IE2        | 1,81          | 81,0                                    | 83,5 | 83,0 | 0,77  | 5,9                      | 3,4   | -     | 46,5                        | 26,8   | -      |
| MMD4 40-250/2,2              | 2,2   | 3    | IE2        | 2,61          | 84,0                                    | 85,3 | 85,1 | 0,74  | 8,9                      | 5,1   | -     | 53,0                        | 30,6   | -      |
| MMD4 50-250/2,2              | 2,2   | 3    | IE2        | 2,61          | 84,0                                    | 85,3 | 85,1 | 0,74  | 8,9                      | 5,1   | -     | 53,0                        | 30,6   | -      |
| MMD4 50-250/3                | 3     | 4    | IE2        | 3,47          | 82,6                                    | 84,7 | 86,4 | 0,77  | 11,3                     | 6,5   | -     | 95,7                        | 55,3   | -      |
| MMD4 65-250/4                | 4     | 5,5  | IE2        | 4,59          | 86,0                                    | 87,3 | 87,1 | 0,78  | 14,8                     | 8,5   | -     | 89,7                        | 51,8   | -      |
| MMD4 65-250/5,5              | 5,5   | 7,5  | IE2        | 6,16          | 87,5                                    | 88,3 | 88,1 | 0,78  | -                        | 11,4  | 6,6   | -                           | 84,4   | 48,7   |
| MMD4 80-160/1,5              | 1,5   | 2    | IE2        | 1,81          | 81,0                                    | 83,5 | 83,0 | 0,77  | 5,9                      | 3,4   | -     | 46,5                        | 26,8   | -      |
| MMD4 80-160/2,2              | 2,2   | 3    | IE2        | 2,61          | 84,0                                    | 85,3 | 85,1 | 0,74  | 8,9                      | 5,1   | -     | 53,0                        | 30,6   | -      |
| MMD4 80-200/3                | 3     | 4    | IE2        | 3,47          | 82,6                                    | 84,7 | 86,4 | 0,77  | 11,3                     | 6,5   | -     | 95,7                        | 55,3   | -      |
| MMD4 80-200/4                | 4     | 5,5  | IE2        | 4,59          | 86,0                                    | 87,3 | 87,1 | 0,78  | 14,8                     | 8,5   | -     | 89,7                        | 51,8   | -      |
| MMD4 80-250/5,5              | 5,5   | 7,5  | IE2        | 6,16          | 87,5                                    | 88,3 | 88,1 | 0,78  | -                        | 11,4  | 6,6   | -                           | 84,4   | 48,7   |
| MMD4 80-250/7,5              | 7,5   | 10   | IE3        | 8,41          | 88,5                                    | 89,4 | 89,2 | 0,74  | -                        | 16,4  | 9,5   | -                           | 121,4  | 70,1   |
| MMD4 100-200/4               | 4     | 5,5  | IE2        | 4,59          | 86,0                                    | 87,3 | 87,1 | 0,78  | 14,8                     | 8,5   | -     | 89,7                        | 51,8   | -      |
| MMD4 100-200/5,5             | 5,5   | 7,5  | IE2        | 6,16          | 87,5                                    | 88,3 | 88,1 | 0,78  | -                        | 11,4  | 6,6   | -                           | 84,4   | 48,7   |
| MMD4 100-250/7,5             | 7,5   | 10   | IE3        | 8,41          | 88,5                                    | 89,4 | 89,2 | 0,74  | -                        | 16,4  | 9,5   | -                           | 121,4  | 70,1   |
| MMD4 100-250/11              | 11    | 15   | IE3        | 12,49         | 89,4                                    | 90,3 | 90,1 | 0,82  | -                        | 22,0  | 12,7  | -                           | 173,8  | 100,3  |
| MMD4 125-200/5,5             | 5,5   | 7,5  | IE2        | 6,16          | 87,5                                    | 88,3 | 88,1 | 0,78  | -                        | 11,4  | 6,6   | -                           | 84,4   | 48,7   |
| MMD4 125-200/7,5R            | 7,5   | 10   | IE3        | 8,41          | 88,5                                    | 89,4 | 89,2 | 0,74  | -                        | 16,4  | 9,5   | -                           | 121,4  | 70,1   |
| MMD4 125-200/7,5             | 7,5   | 10   | IE3        | 8,41          | 88,5                                    | 89,4 | 89,2 | 0,74  | -                        | 16,4  | 9,5   | -                           | 121,4  | 70,1   |
| MMD4 125-200/11              | 11    | 15   | IE3        | 12,49         | 89,4                                    | 90,3 | 90,1 | 0,82  | -                        | 22,0  | 12,7  | -                           | 173,8  | 100,3  |
| MMD4 125-250/11              | 11    | 15   | IE3        | 12,49         | 89,4                                    | 90,3 | 90,1 | 0,82  | -                        | 22,0  | 12,7  | -                           | 173,8  | 100,3  |
| MMD4 125-250/15              | 15    | 20   | IE3        | 16,87         | 90,6                                    | 91,2 | 91,0 | 0,84  | -                        | 29,0  | 16,7  | -                           | 214,6  | 123,9  |
| MMD4 150-200/7,5             | 7,5   | 10   | IE3        | 8,41          | 88,5                                    | 89,4 | 89,2 | 0,74  | -                        | 16,4  | 9,5   | -                           | 121,4  | 70,1   |
| MMD4 150-200/11R             | 11    | 15   | IE3        | 12,49         | 89,4                                    | 90,3 | 90,1 | 0,82  | -                        | 22,0  | 12,7  | -                           | 173,8  | 100,3  |
| MMD4 150-200/11              | 11    | 15   | IE3        | 12,49         | 89,4                                    | 90,3 | 90,1 | 0,82  | -                        | 22,0  | 12,7  | -                           | 173,8  | 100,3  |
| MMD4 150-200/15              | 15    | 20   | IE3        | 16,87         | 90,6                                    | 91,2 | 91,0 | 0,84  | -                        | 29,0  | 16,7  | -                           | 214,6  | 123,9  |
| MMD4 200-250/18,5R           | 18,5  | 22   | IE3        | 19,96         | 90,7                                    | 92,6 | 92,6 | 0,84  | -                        | 34,3  | 19,8  | -                           | 257,25 | 148,52 |
| MMD4 200-250/18,5            | 18,5  | 22   | IE3        | 19,96         | 90,7                                    | 92,6 | 92,6 | 0,84  | -                        | 34,3  | 19,8  | -                           | 257,25 | 148,52 |
| MMD4 200-250/22R             | 22    | 30   | IE3        | 23,67         | 91,1                                    | 93,0 | 93,0 | 0,85  | -                        | 40,2  | 23,2  | -                           | 309,54 | 178,71 |
| MMD4 200-250/22              | 22    | 30   | IE3        | 23,67         | 91,1                                    | 93,0 | 93,0 | 0,85  | -                        | 40,2  | 23,2  | -                           | 309,54 | 178,71 |

## NOISE DATA

| Pump type          | Power |      | L <sub>pA</sub> - dB(A) * |
|--------------------|-------|------|---------------------------|
|                    | [kW]  | [HP] |                           |
| Three Phase        |       |      |                           |
| MMD4 32-250/1,1    | 1.1   | 1.5  | <70                       |
| MMD4 32-250/1,5    | 1.5   | 2    |                           |
| MMD4 40-250/1,5    | 1.5   | 2    |                           |
| MMD4 40-250/2,2    | 2.2   | 3    |                           |
| MMD4 50-250/2,2    | 2.2   | 3    |                           |
| MMD4 50-250/3      | 3     | 4    | 72                        |
| MMD4 65-250/4      | 4     | 5.5  | 78                        |
| MMD4 65-250/5,5    | 5.5   | 7.5  |                           |
| MMD4 80-160/1,5    | 1.5   | 2    | <70                       |
| MMD4 80-160/2,2    | 2.2   | 3    |                           |
| MMD4 80-200/3      | 3     | 4    | 72                        |
| MMD4 80-200/4      | 4     | 5.5  | 78                        |
| MMD4 80-250/5,5    | 5.5   | 7.5  |                           |
| MMD4 80-250/7,5    | 7.5   | 10   | 80                        |
| MMD4 100-200/4     | 4     | 5.5  | 78                        |
| MMD4 100-200/5,5   | 5.5   | 7.5  |                           |
| MMD4 100-250/7,5   | 7.5   | 10   | 80                        |
| MMD4 100-250/11    | 11    | 15   |                           |
| MMD4 125-200/5,5   | 5.5   | 7.5  | 78                        |
| MMD4 125-200/7,5R  | 7.5   | 10   |                           |
| MMD4 125-200/7,5   | 7.5   | 10   | 80                        |
| MMD4 125-200/11    | 11    | 15   |                           |
| MMD4 125-250/11    | 11    | 15   |                           |
| MMD4 125-250/15    | 15    | 20   |                           |
| MMD4 150-200/7,5   | 7.5   | 10   |                           |
| MMD4 150-200/11R   | 11    | 15   |                           |
| MMD4 150-200/11    | 11    | 15   |                           |
| MMD4 150-200/15    | 15    | 20   |                           |
| MMD4 200-250/18,5R | 18.5  | 25   | 81                        |
| MMD4 200-250/18,5  | 18.5  | 25   |                           |
| MMD4 200-250/22R   | 22    | 30   |                           |
| MMD4 200-250/22    | 22    | 30   |                           |

\* Mean value of several measures at 1m distance around the  
Tolerance  $\pm 2.5$  dB.