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## SPECIFICATION

50Hz

Rev. A

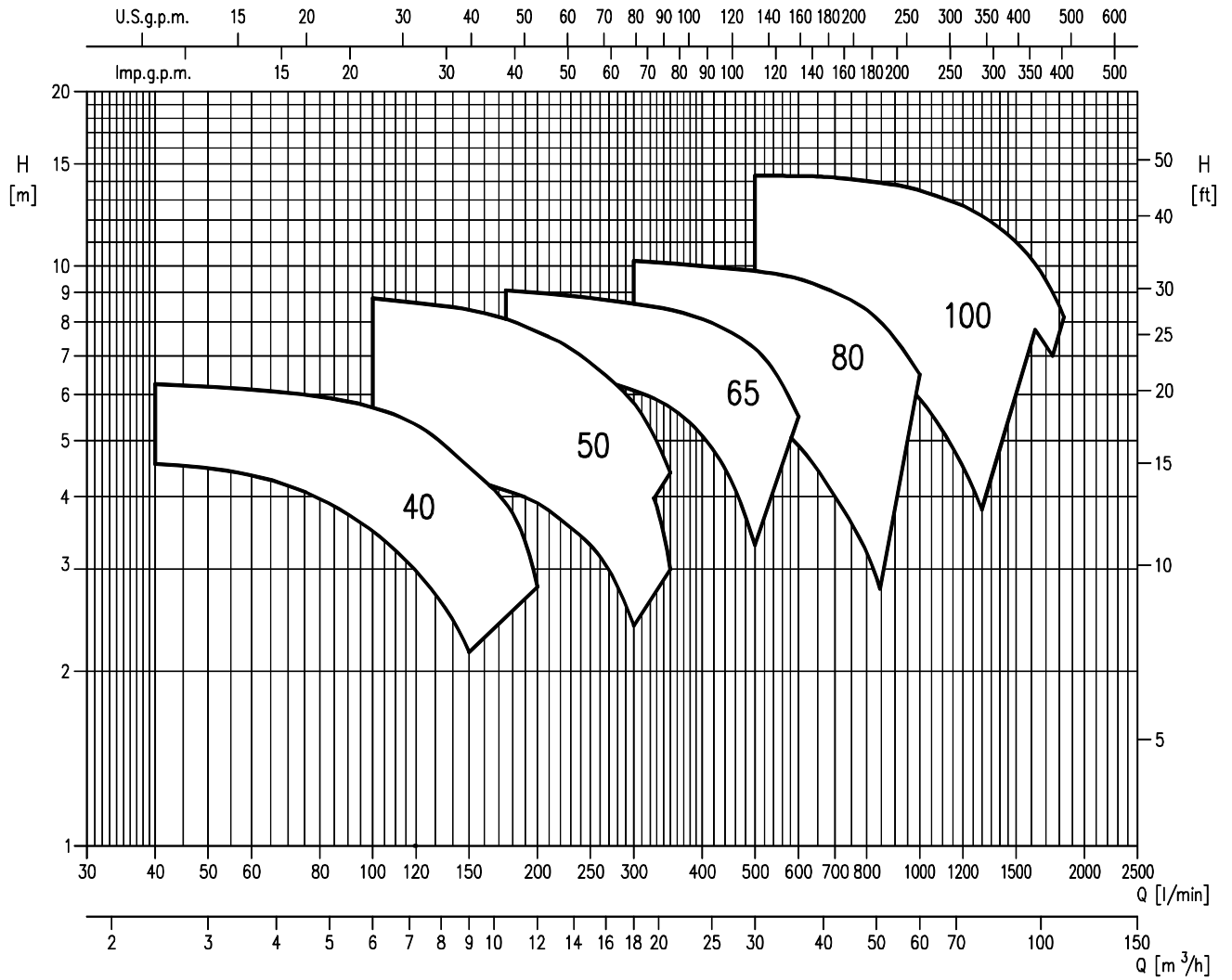
| PUMP                             |                  |                             |
|----------------------------------|------------------|-----------------------------|
| Liquid Handled                   | Type of liquid   | Clean water                 |
|                                  | Temperature [°C] | min. -10<br>max +110        |
|                                  | Viscosity [E]    | max 5                       |
| Maximum ambient temperature [°C] |                  | +40 (over ask for de tails) |
| Maximum working pressure [MPa]   |                  | 1.0                         |
| Construction                     | Impeller         | Closed centrifugal type     |
|                                  | Shaft seal type  | Mechanical seal             |
|                                  | Bearing          | On the motor                |
| Pipe Connection                  | Suction          | UNI 2223-29 PN16 DIN 2501   |
|                                  | Discharge        | UNI 2223-29 PN16 DIN 2501   |
| Material                         | Casing           | CAST IRON                   |
|                                  | Impeller         | CAST IRON                   |
|                                  | Casing cover     | CAST IRON                   |
|                                  | Shaft seal       | Carbon/SiC/EPDM             |
|                                  | Shaft            | AISI 420                    |
|                                  | Bracket          | CAST IRON                   |
| Applicable standard of test      |                  | ISO 9906 – Annex A          |

| MOTOR                               |  |
|-------------------------------------|--|
| Type                                | Electric - TEFC<br>Three Phase                         |
| Efficiency level (Reg. 640/2009)    | - from 0.25 kW up to 0.55 kW<br>IE2 0.75 kW up to 4 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]                   | 0.25 ÷ 4   |
| [HP]                                | 0.33 ÷ 5,5   |
| Frequency [Hz]                      | 50   |
| Voltage [V]                         | 230/400 ±10%   |
| Over load protection                | Provided by the user                                   |
| Casing material                     | Alluminum  |

## SELECTION CHART

50Hz

Rev. A



SELECTION CHART

50Hz

Rev. A

LPCD 4 Poles: 40, 50, 65 Version

| Pump type LPCD4<br>Three Phase    | Power |      | Capacity |     |     |     |     |     |     |     |      |     |      |     |     |     |     |     |     |     |
|-----------------------------------|-------|------|----------|-----|-----|-----|-----|-----|-----|-----|------|-----|------|-----|-----|-----|-----|-----|-----|-----|
|                                   | [kW]  | [HP] | l/min    | 0   | 40  | 50  | 75  | 100 | 125 | 150 | 175  | 200 | 225  | 250 | 300 | 350 | 400 | 450 | 500 | 600 |
|                                   |       |      | m³/h     | 0   | 2,4 | 3   | 4,5 | 6   | 7,5 | 9   | 10,5 | 12  | 13,5 | 15  | 18  | 21  | 24  | 27  | 30  | 36  |
| H=Total manometric head in meters |       |      |          |     |     |     |     |     |     |     |      |     |      |     |     |     |     |     |     |     |
| LPCD4 40-125/0,25R                | 0,25  | 0,33 | 4,8      | 4,5 | 4,4 | 4,1 | 3,7 | 3   | 2,2 | -   | -    | -   | -    | -   | -   | -   | -   | -   | -   | -   |
| LPCD4 40-125/0,25                 | 0,25  | 0,33 | 6,3      | -   | 6,2 | 6   | 5,7 | 5,2 | 4,5 | 3,9 | 2,8  | -   | -    | -   | -   | -   | -   | -   | -   | -   |
| LPCD4 50-125/0,25                 | 0,25  | 0,33 | 4,8      | -   | -   | -   | 4,6 | 4,5 | 4,3 | 4,1 | 3,9  | 3,6 | 3,3  | 2,4 | -   | -   | -   | -   | -   | -   |
| LPCD4 50-125/0,37                 | 0,37  | 0,5  | 6,4      | -   | -   | -   | 6,3 | 6,2 | 6,1 | 6   | 5,8  | 5,6 | 5,3  | 4,6 | 3   | -   | -   | -   | -   | -   |
| LPCD4 50-160/0,55                 | 0,5   | 0,7  | 9,2      | -   | -   | -   | 8,8 | 8,6 | 8,4 | 8,1 | 7,7  | 7,3 | 6,8  | 5,8 | 4,4 | -   | -   | -   | -   | -   |
| LPCD4 65-160/0,75R                | 0,55  | 0,75 | 6,9      | -   | -   | -   | -   | -   | 6,8 | 6,7 | 6,6  | 6,5 | 6,4  | 6,1 | 5,7 | 5,1 | 4,3 | 3,3 | -   | -   |
| LPCD4 65-160/0,75                 | 0,75  | 1    | 8,3      | -   | -   | -   | -   | -   | -   | -   | 8,1  | 8   | 7,9  | 7,8 | 7,4 | 7   | 6,6 | 6   | 4   | -   |
| LPCD4 65-160/1.1                  | 0,9   | 1,25 | 9,1      | -   | -   | -   | -   | -   | -   | -   | 9,0  | 8,9 | 8,8  | 8,7 | 8,4 | 8,1 | 7,7 | 7,2 | 5,5 | -   |

LPCD 4 Poles: 80, 100 Version

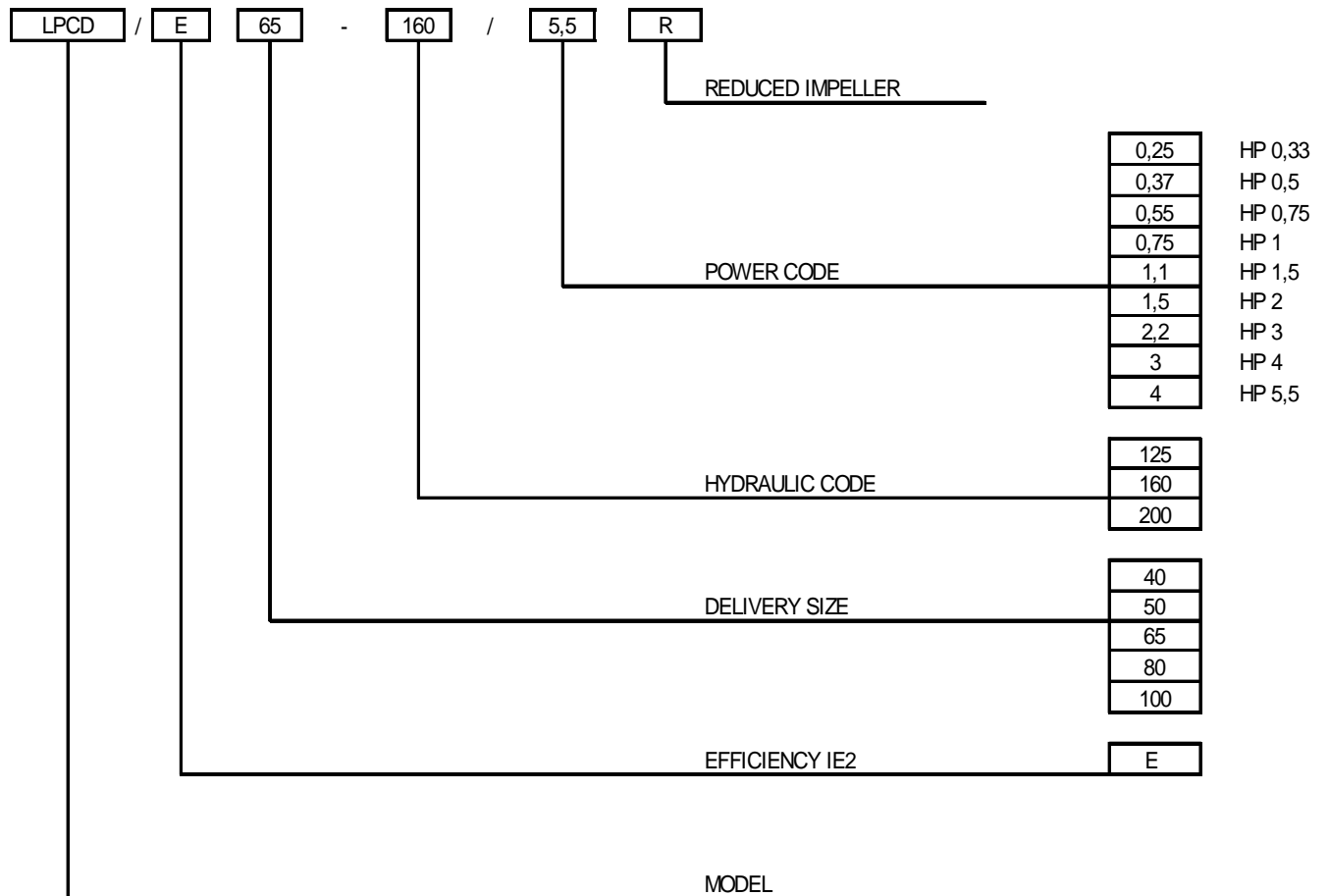
| Pump type LPCD4<br>Three Phase    | Power |      | Capacity |      |      |     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------|-------|------|----------|------|------|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                                   | [kW]  | [HP] | l/min    | 0    | 300  | 350 | 400 | 450  | 500  | 600  | 700  | 800  | 900  | 1000 | 1100 | 1200 | 1300 | 1500 | 1750 | 2000 |
|                                   |       |      | m³/h     | 0    | 18   | 21  | 24  | 27   | 30   | 36   | 42   | 48   | 54   | 60   | 66   | 72   | 78   | 90   | 105  | 120  |
| H=Total manometric head in meters |       |      |          |      |      |     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LPCD4 80-160/0,75                 | 0,75  | 1    | 6,4      | 6,3  | 6,1  | 6   | 5,8 | 5,6  | 4,9  | 4    | 3,2  | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| LPCD4 80-160/1.1R                 | 0,90  | 1,25 | 7,4      | 7,3  | 7,2  | 7,1 | 7   | 6,8  | 6,3  | 5,6  | 4,8  | 3,8  | -    | -    | -    | -    | -    | -    | -    | -    |
| LPCD4 80-160/1,1                  | 1,1   | 1,5  | 8,6      | 8,5  | 8,5  | 8,4 | 8,3 | 8,2  | 7,9  | 7,3  | 6,7  | 5,9  | 5    | -    | -    | -    | -    | -    | -    | -    |
| LPCD4 80-160/1,5                  | 1,5   | 2    | 10,3     | 10,2 | 10,1 | 10  | 9,9 | 9,8  | 9,5  | 9    | 8,4  | 7,5  | 6,5  | -    | -    | -    | -    | -    | -    | -    |
| LPCD4 100-200/1,5                 | 1,5   | 2    | 8,6      | -    | -    | -   | -   | 8,1  | 7,8  | 7,4  | 7    | 6,5  | 5,9  | 5,2  | 4,5  | 3,8  | -    | -    | -    | -    |
| LPCD4 100-200/2,2                 | 2,2   | 3    | 10,6     | -    | -    | -   | -   | 10,2 | 10   | 9,7  | 9,3  | 9    | 8,6  | 8,2  | 7,7  | 7,2  | 6    | -    | -    | -    |
| LPCD4 100-200/3                   | 3     | 4    | 12,7     | -    | -    | -   | -   | -    | 12   | 11,8 | 11,5 | 11,3 | 10,9 | 10,5 | 10   | 9,5  | 8,5  | 7    | -    | -    |
| LPCD4 100-200/4                   | 4     | 5,5  | 14,9     | -    | -    | -   | -   | -    | 14,3 | 14,2 | 14   | 13,8 | 13,4 | 13,1 | 12,7 | 12,2 | 11   | 9    | 6,5  | -    |

TYPE KEY AND CURVE SPECIFICATION

50Hz

Rev. A

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:

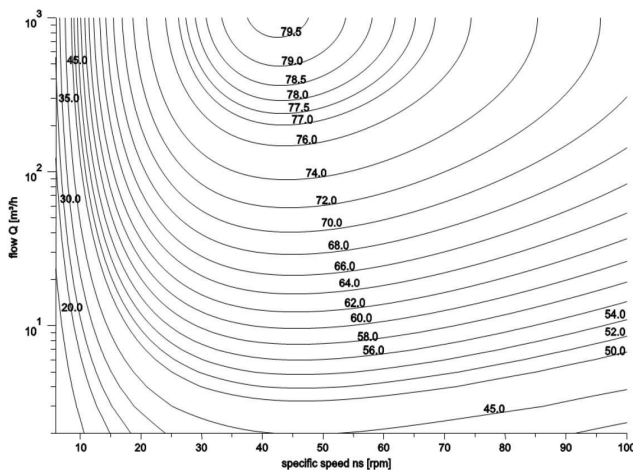
- Q = volume flow rate
- H = total head
- $P_2$  = pump power input (shaft power)
- $\eta$  = pump efficiency
- NPSH = net positive suction head required by the pump
- MEI = minimum efficiency index

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.

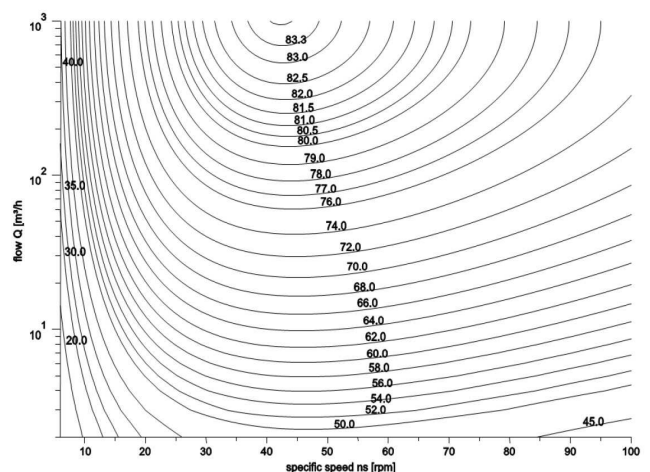
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

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.

MEI = 0.4 for ESCCi 2900rpm



MEI=0.7 for ESCCi 2900 rpm



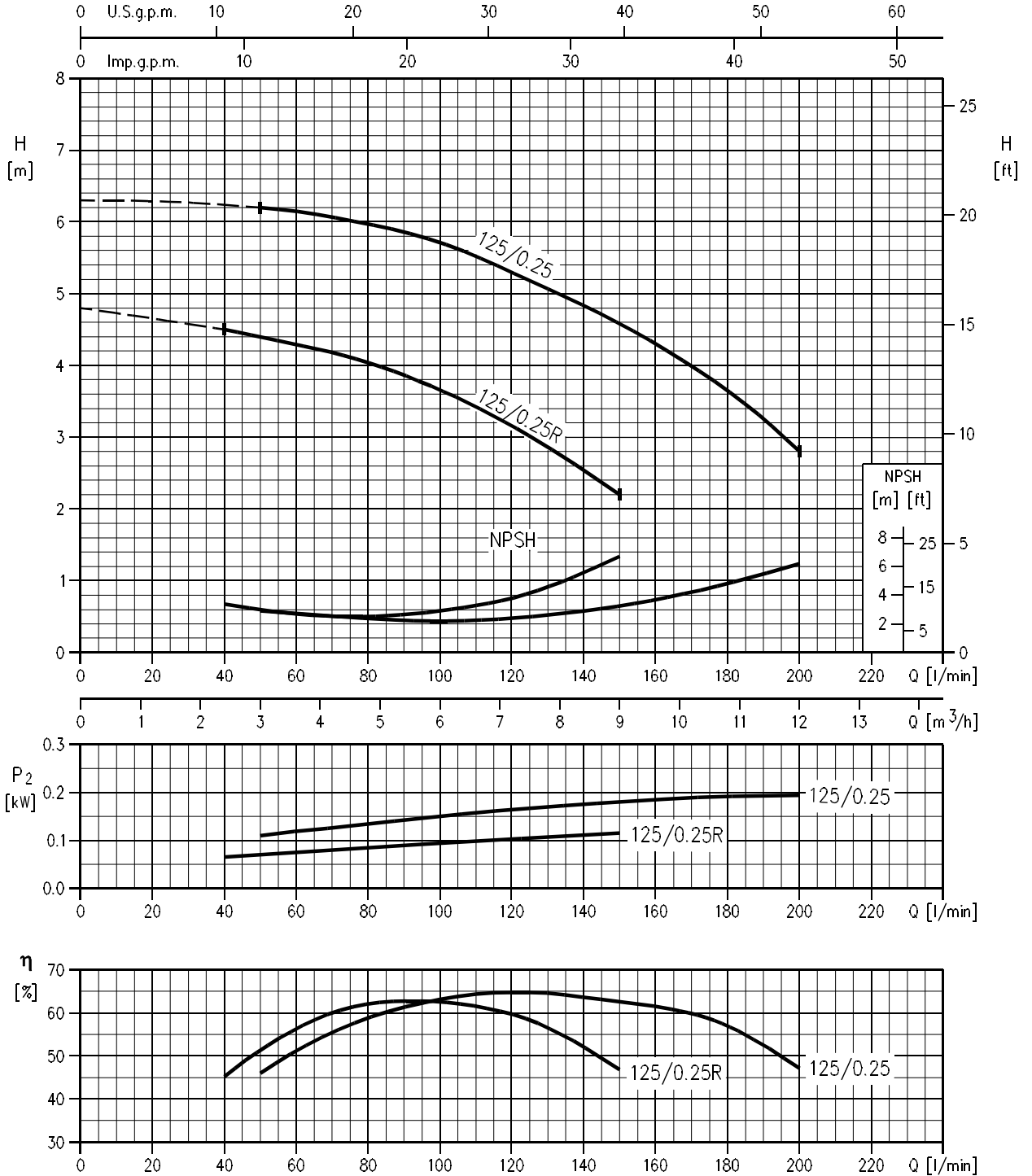
## PERFORMANCE CURVE

50Hz

Rev. A

LPCD 40-125/0.25R (0.25 kW)  
LPCD 40-125/0.25 (0.25 kW)

MEI > 0.40 Impeller diameter = 120 mm  
MEI > 0.40 Impeller diameter = 139 mm



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

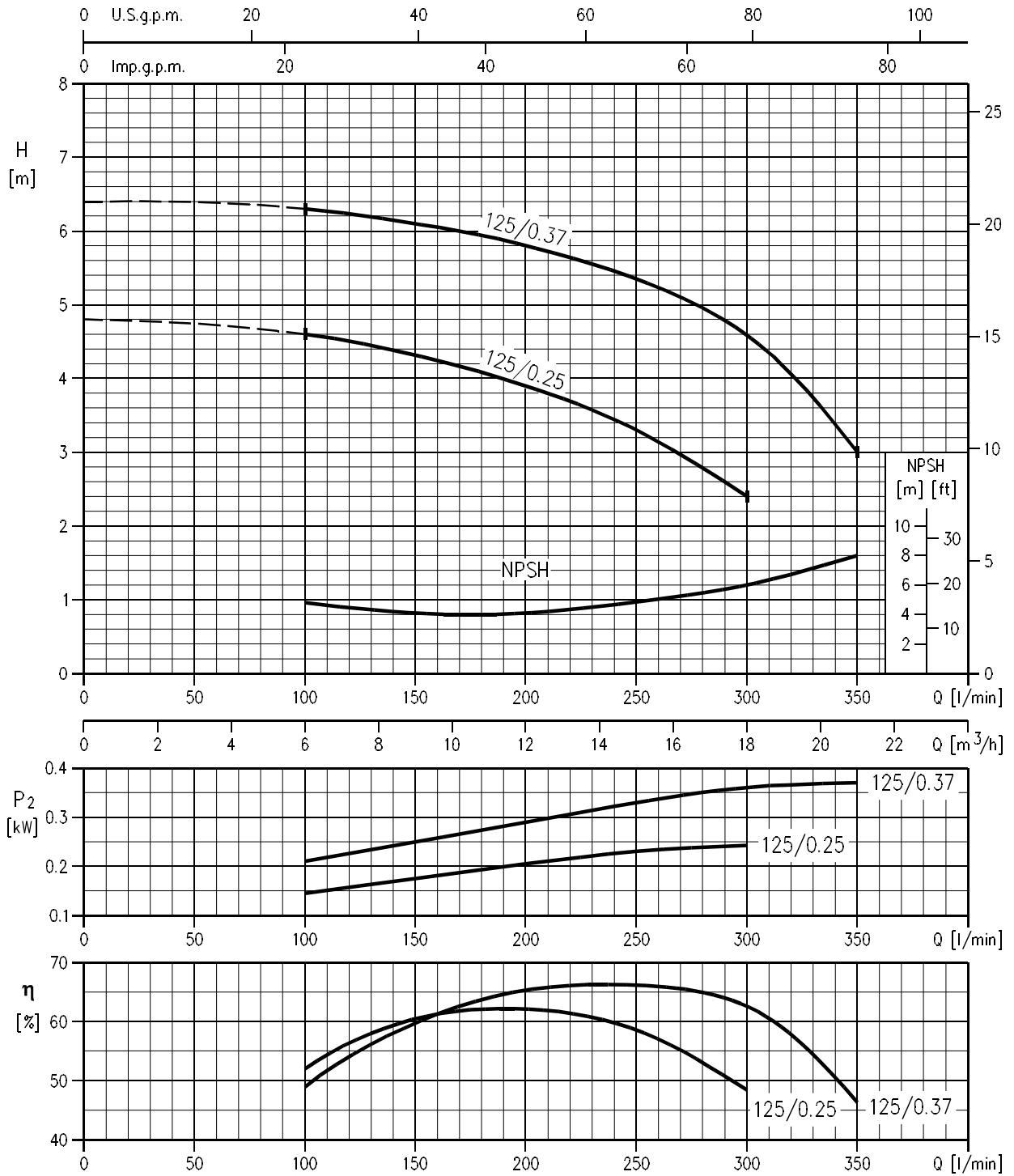


PERFORMANCE CURVE

50Hz

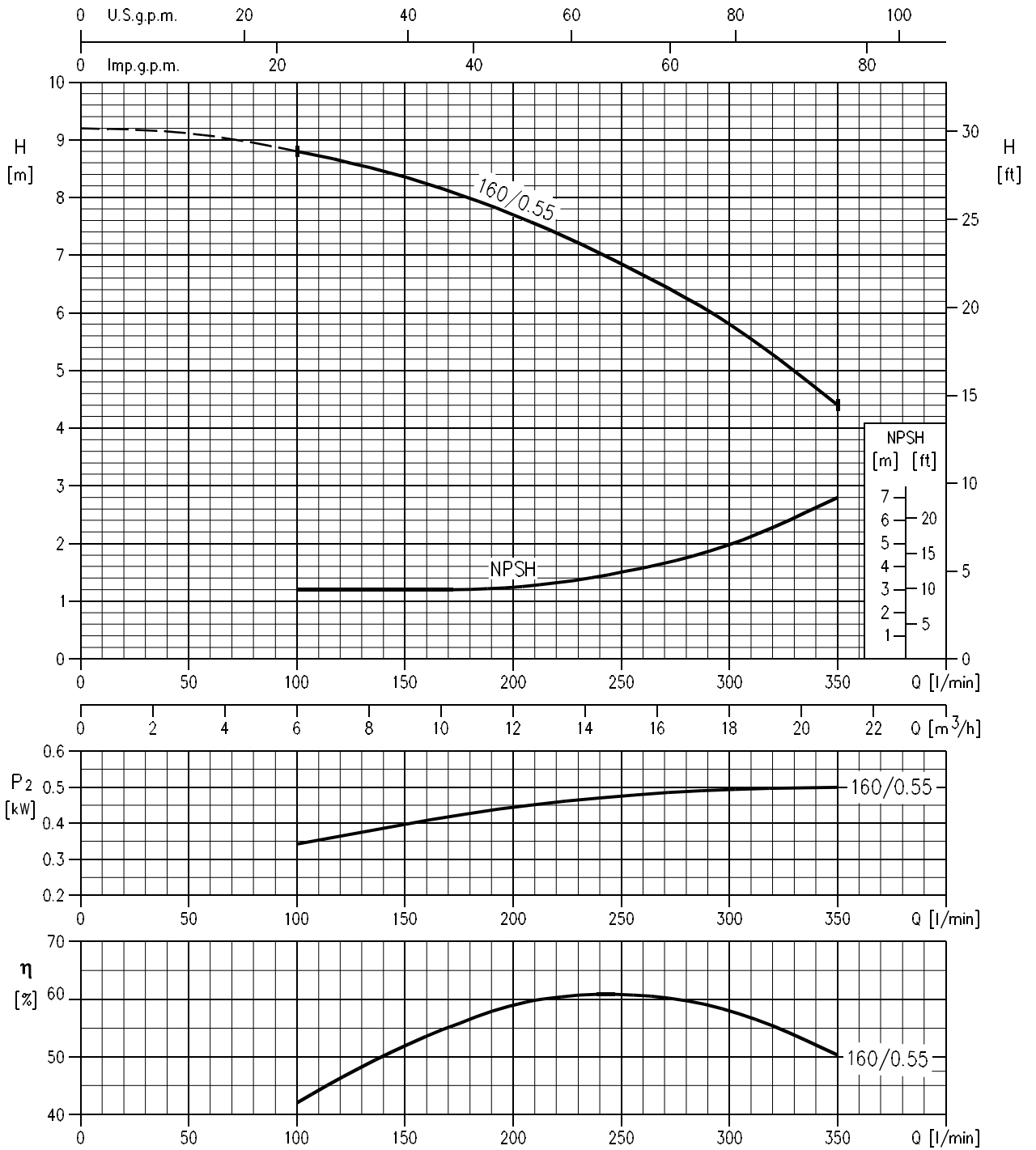
Rev. A

LPCD4 50-125/0.25 (0.25 kW) MEI > 0.40 Impeller diameter = 129 mm  
 LPCD4 50-125/0.37 (0.37 kW) MEI > 0.40 Impeller diameter = 140.5 mm



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

LPCD4 50-160/0.55 (0.55 kW) MEI > 0.40 Impeller diameter = 169 mm



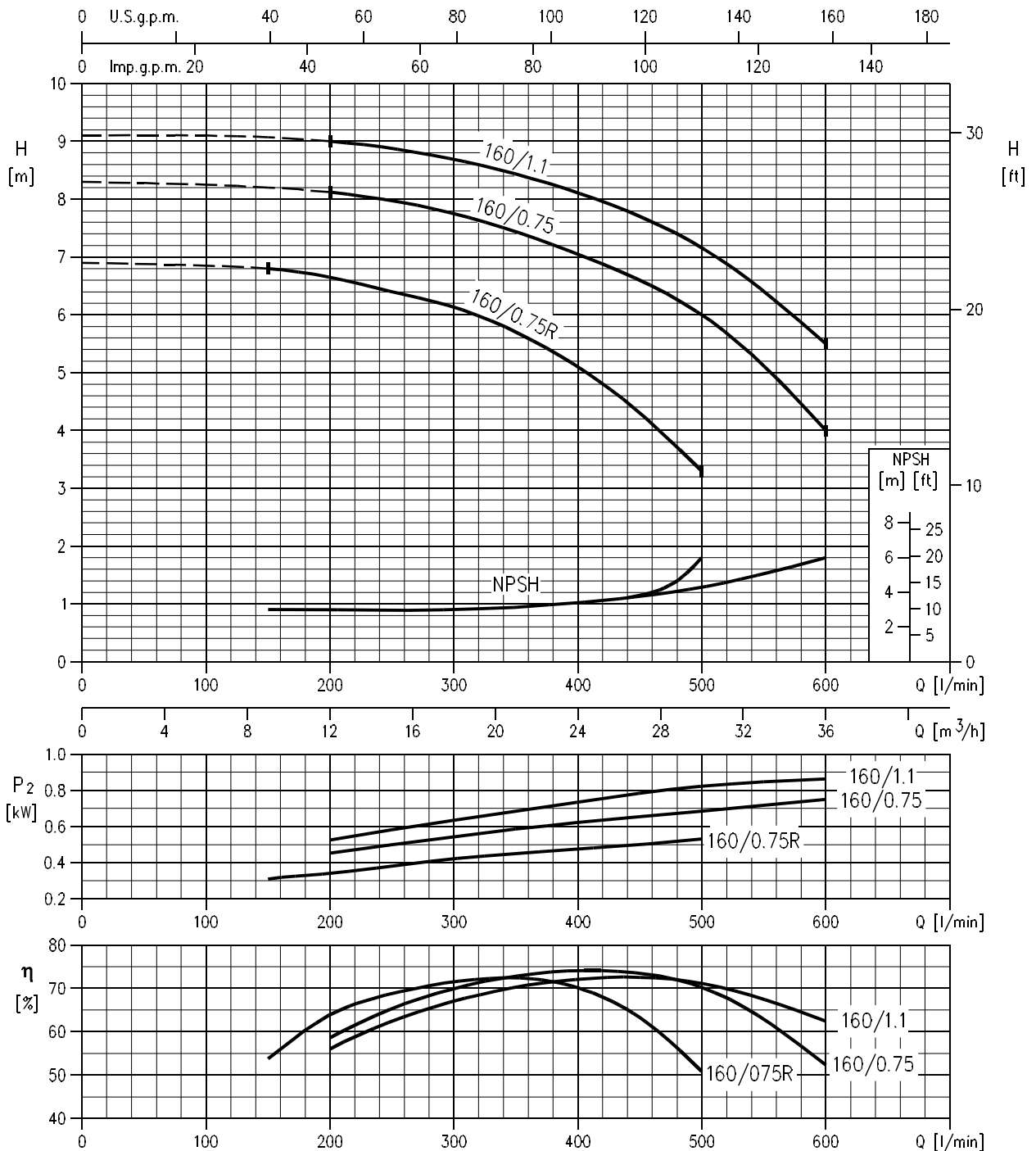
Rotation speed  $\approx 1400 \text{ min}^{-1}$   
 Test standard: ISO 9906 – Annex A

## PERFORMANCE CURVE

50Hz

Rev. A

LPCD4 65-160/0.75R (0.75 kW) MEI > 0.40 Impeller diameter = 150 mm  
 LPCD4 65-160/0.75 (0.75 kW) MEI > 0.40 Impeller diameter = 160 mm  
 LPCD4 65-160/1.1 (1.1 kW) MEI > 0.40 Impeller diameter = 169 mm



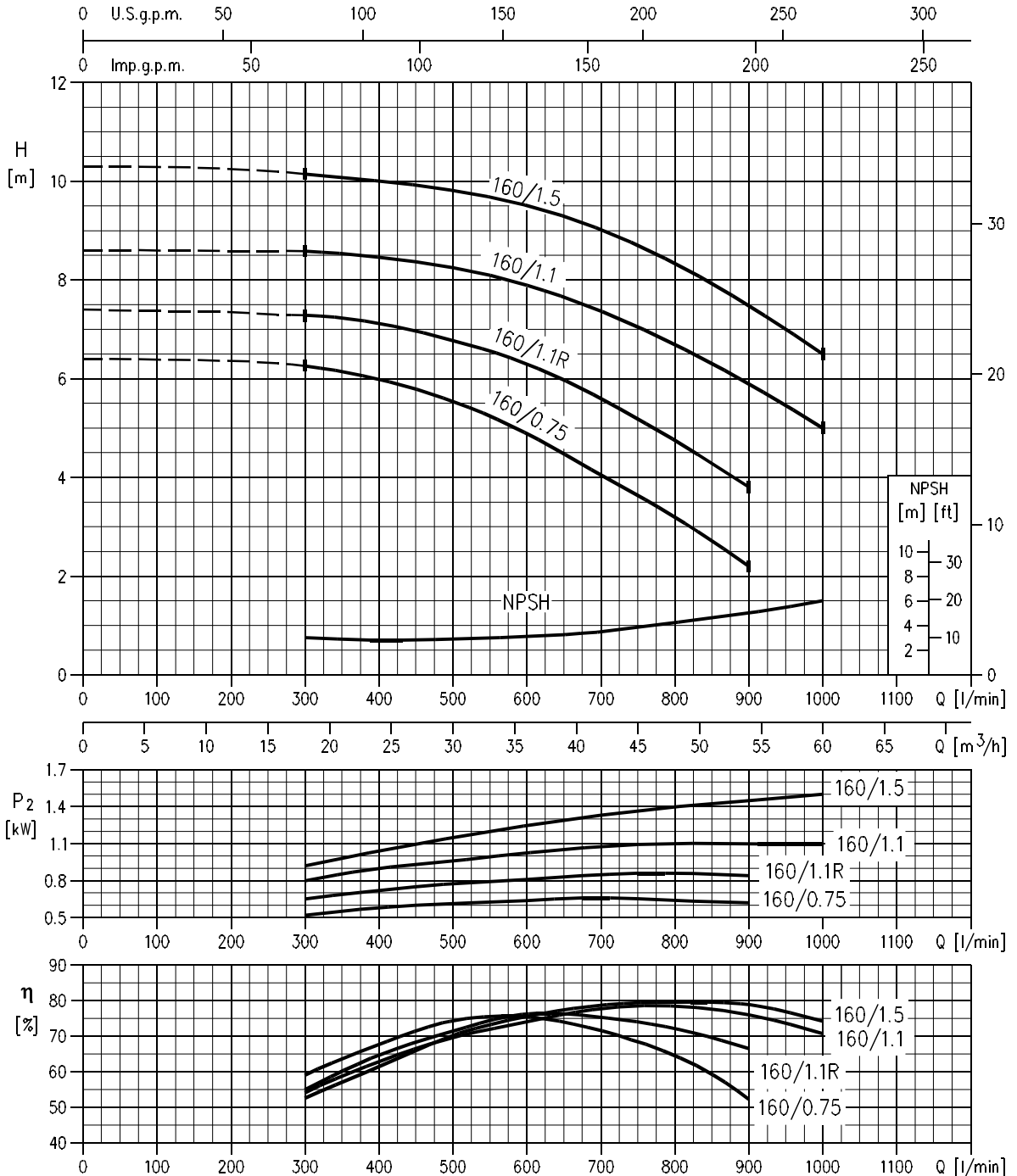
Rotation speed ≈ 1400 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

## PERFORMANCE CURVE

50Hz

Rev. A

**LPCD4 80-160/0.75 (0.75 kW) MEI > 0.40 Impeller diameter = 138 mm**  
**LPCD4 80-160/1.1R (1.1 kW) MEI > 0.40 Impeller diameter = 148 mm**  
**LPCD4 80-160/1.1 (1.1 kW) MEI > 0.70 Impeller diameter = 158 mm**  
**LPCD4 80-160/1.5 (1.5 kW) MEI > 0.70 Impeller diameter = 169 mm**



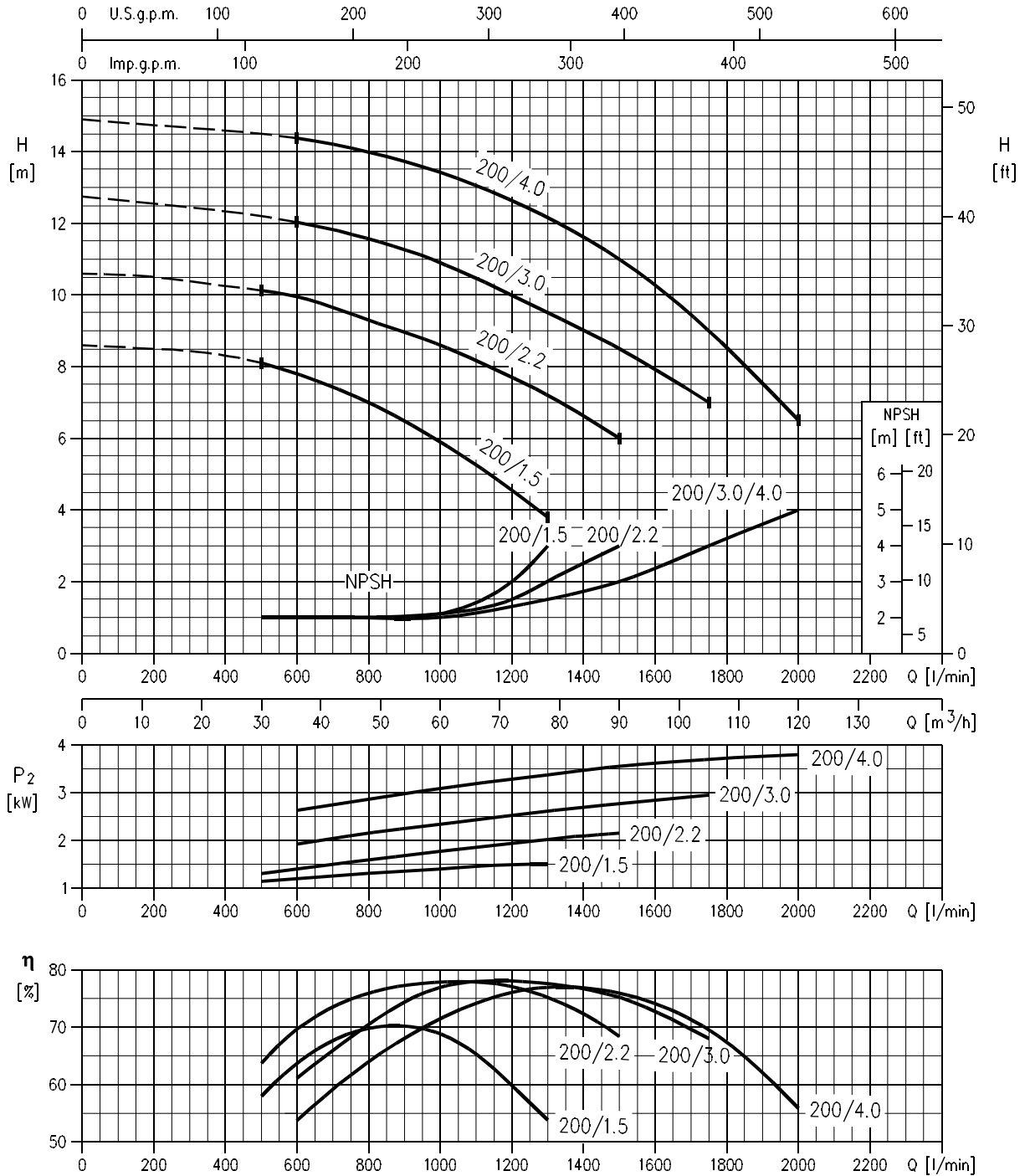
Rotation speed ≈ 1400 min  
 Test standard: ISO 9906 – Annex A

## PERFORMANCE CURVE

50Hz

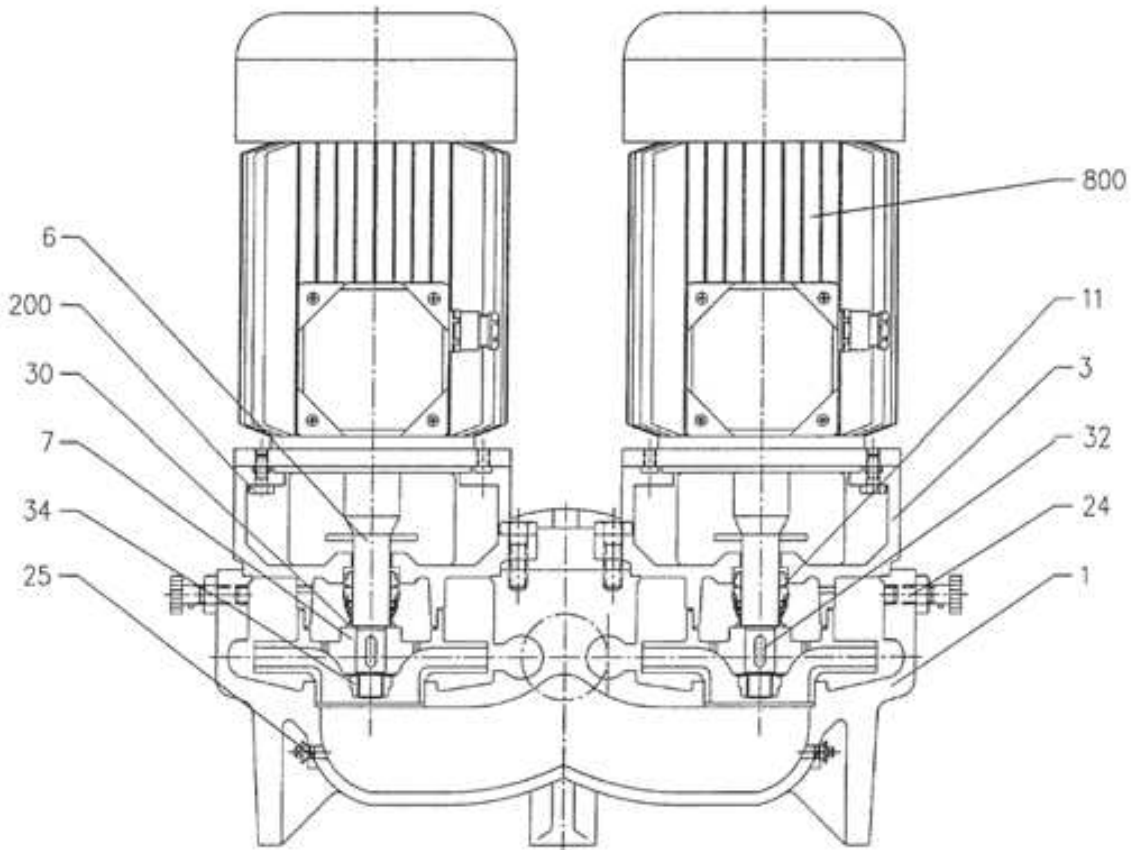
Rev. A

LPCD4 100-200/1.5 (1.5 kW) MEI > 0.40 Impeller diameter = 165 mm  
 LPCD4 100-200/2.2 (2.2 kW) MEI > 0.40 Impeller diameter = 185 mm  
 LPCD4 100-200/3.0 (3.0 kW) MEI > 0.40 Impeller diameter = 200 mm  
 LPCD4 100-200/4.0 (4.0 kW) MEI > 0.40 Impeller diameter = 209 mm



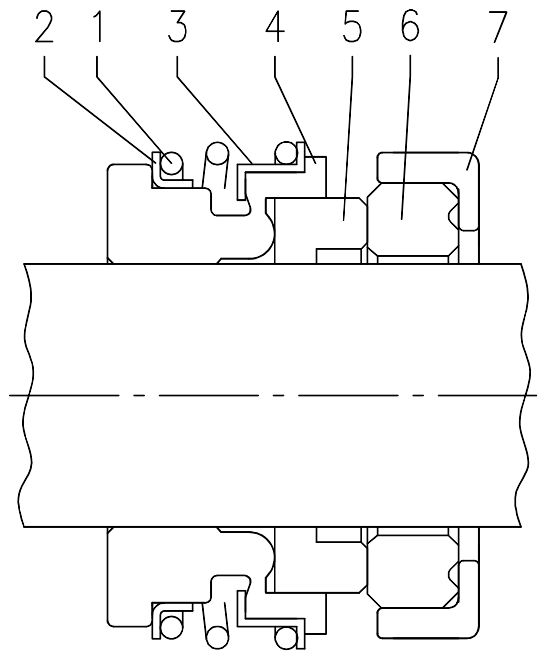
Rotation speed ≈ 1400 min<sup>-1</sup>  
 Test standard: ISO 9906 – Annex A

SECTIONAL VIEW DRAWING

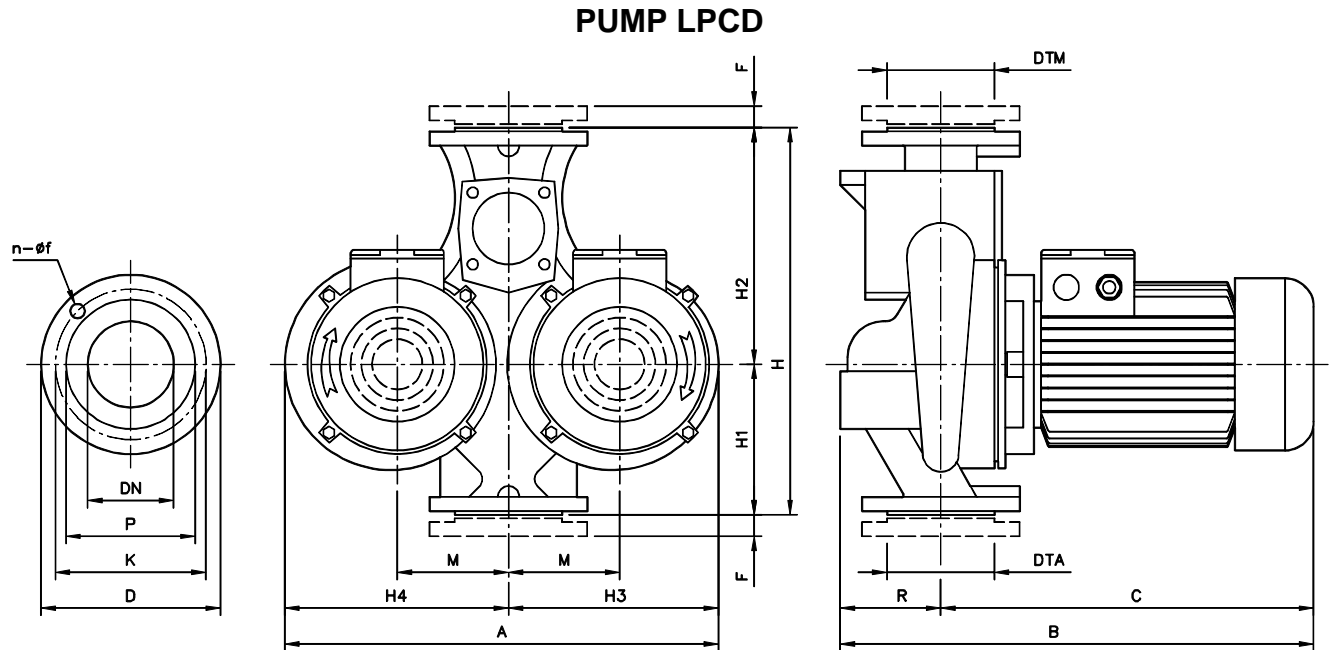


| N°  | PART NAME               | MATERIAL        |
|-----|-------------------------|-----------------|
| 1   | Casing                  | Cast Iron       |
| 3   | Motor bracket           | Cast Iron       |
| 6   | Shaft with rotor        | AISI 420        |
| 7   | Impeller                | Cast Iron       |
| 11  | Mechanical seal         | Carbon/SiC/EPDM |
| 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 frame with stator | Aluminum        |

## MECHANICAL SEAL



| REF | PART NAME     | MATERIAL<br>(Max temperature: 110°C) |
|-----|---------------|--------------------------------------|
| 1   | Spring        | AISI 316                             |
| 2   | O Ring        | EPDM                                 |
| 3   | Frame         | AISI 316                             |
| 4   | O Ring        | EPDM                                 |
| 5   | Rotating part | Carbon                               |
| 6   | Fixed part    | SiC                                  |
| 7   | Rubber cover  | EPDM                                 |



| Model              | Dimensions (mm) |         |   |    |     |     |     |     |     |     |     |     |     |     |    |     |     |     | Weight (kgf) |
|--------------------|-----------------|---------|---|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|--------------|
|                    | DTAM            | DNAM    | n | f  | P   | K   | D   | H   | H1  | H2  | H3  | H4  | M   | R   | F  | A   | B   | C   |              |
| LPCD4 40-125/0,25R | G 1 1/2         | 40PN16  | 4 | 18 | 88  | 110 | 150 | 340 | 130 | 210 | 197 | 200 | 100 | 100 | 20 | 397 | 430 | 330 | 44           |
| LPCD4 40-125/0,25  | G 1 1/2         | 40PN16  | 4 | 18 | 88  | 110 | 150 | 340 | 130 | 210 | 197 | 200 | 100 | 100 | 20 | 397 | 430 | 330 | 44           |
| LPCD4 50-125/0,25  | G 2             | 50PN16  | 4 | 18 | 102 | 125 | 165 | 365 | 145 | 220 | 197 | 200 | 105 | 110 | 22 | 397 | 440 | 330 | 46           |
| LPCD4 50-125/0,37  | G 2             | 50PN16  | 4 | 18 | 102 | 125 | 165 | 365 | 145 | 220 | 197 | 200 | 105 | 110 | 22 | 397 | 440 | 330 | 47           |
| LPCD4 50-160/0,55  | G 2             | 50PN16  | 4 | 18 | 102 | 125 | 165 | 410 | 170 | 240 | 235 | 245 | 120 | 110 | 22 | 480 | 440 | 330 | 53           |
| LPCD4 65-160/0,75R | G 2 1/2         | 65PN16  | 4 | 18 | 122 | 145 | 185 | 450 | 180 | 270 | 268 | 275 | 140 | 130 | 22 | 543 | 460 | 330 | 66           |
| LPCD4 65-160/0,75  | G 2 1/2         | 65PN16  | 4 | 18 | 122 | 145 | 185 | 450 | 180 | 270 | 268 | 275 | 140 | 130 | 22 | 543 | 476 | 346 | 66           |
| LPCD4 65-160/1,1   | G 2 1/2         | 65PN16  | 4 | 18 | 122 | 145 | 185 | 450 | 180 | 270 | 268 | 275 | 140 | 130 | 22 | 543 | 511 | 381 | 79           |
| LPCD4 80-160/0,75  | G 3             | 80PN16  | 8 | 18 | 138 | 160 | 200 | 510 | 205 | 305 | 270 | 280 | 135 | 150 | 24 | 550 | 496 | 346 | 75           |
| LPCD4 80-160/1,1R  | G 3             | 80PN16  | 8 | 18 | 138 | 160 | 200 | 510 | 205 | 305 | 270 | 280 | 135 | 150 | 24 | 550 | 531 | 381 | 86           |
| LPCD4 80-160/1,1   | G 3             | 80PN16  | 8 | 18 | 138 | 160 | 200 | 510 | 205 | 305 | 270 | 280 | 135 | 150 | 24 | 550 | 531 | 381 | 86           |
| LPCD4 80-160/1,5   | G 3             | 80PN16  | 8 | 18 | 138 | 160 | 200 | 510 | 205 | 305 | 270 | 280 | 135 | 150 | 24 | 550 | 531 | 381 | 87           |
| LPCD4 100-200/1,5  | G 4             | 100PN16 | 8 | 18 | 158 | 180 | 220 | 630 | 240 | 390 | 345 | 325 | 165 | 180 | 26 | 670 | 573 | 393 | 133          |
| LPCD4 100-200/2,2  | G 4             | 100PN16 | 8 | 18 | 158 | 180 | 220 | 630 | 240 | 390 | 345 | 325 | 165 | 180 | 26 | 670 | 612 | 432 | 143          |
| LPCD4 100-200/3    | G 4             | 100PN16 | 8 | 18 | 158 | 180 | 220 | 630 | 240 | 390 | 345 | 325 | 165 | 180 | 26 | 670 | 646 | 466 | 154          |
| LPCD4 100-200/4    | G 4             | 100PN16 | 8 | 18 | 158 | 180 | 220 | 630 | 240 | 390 | 345 | 325 | 165 | 180 | 26 | 670 | 634 | 454 | 169          |



## TECHNICAL DATA

50Hz

Rev. A

## MOTOR DATA

| Pump type<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] |            |               | $\eta$ %                                |      |      | cos $\phi$               | 230 V | 400 V | 690 V                       | 230 V | 400 V | 690 V |
|                          |       |      |            |               | 50%                                     | 75%  | 100% |                          |       |       |                             |       |       |       |
| LPCD4 40-125/0,25R       | 0,25  | 0,33 | -          | 0,41          | -                                       | -    | -    | -                        | 1,6   | 0,9   | -                           | 5,0   | 2,9   | -     |
| LPCD4 40-125/0,25        | 0,25  | 0,33 | -          | 0,41          | -                                       | -    | -    | -                        | 1,6   | 0,9   | -                           | 5,0   | 2,9   | -     |
| LPCD4 50-125/0,25        | 0,25  | 0,33 | -          | 0,41          | -                                       | -    | -    | -                        | 1,6   | 0,9   | -                           | 5,0   | 2,9   | -     |
| LPCD4 50-125/0,37        | 0,37  | 0,5  | -          | 0,56          | -                                       | -    | -    | -                        | 2,1   | 1,2   | -                           | 6,9   | 4,0   | -     |
| LPCD4 50-160/0,55        | 0,55  | 0,75 | -          | 0,56          | -                                       | -    | -    | -                        | 2,1   | 1,2   | -                           | 6,9   | 4,0   | -     |
| LPCD4 65-160/0,75R       | 0,75  | 1,0  | IE2        | 0,93          | 75,0                                    | 78,1 | 79,4 | 0,71                     | 3,3   | 1,9   | -                           | 17,1  | 9,8   | -     |
| LPCD4 65-160/0,75        | 0,75  | 1,0  | IE2        | 0,93          | 75,0                                    | 78,1 | 79,4 | 0,71                     | 3,3   | 1,9   | -                           | 17,1  | 9,8   | -     |
| LPCD4 65-160/1.1         | 1,1   | 1,5  | IE2        | 1,33          | 81,4                                    | 82,7 | 82,5 | 0,77                     | 4,3   | 2,5   | -                           | 26,4  | 15,3  | -     |
| LPCD4 80-160/0,75        | 0,75  | 1,0  | IE2        | 0,93          | 75,0                                    | 78,1 | 79,4 | 0,71                     | 3,3   | 1,9   | -                           | 17,1  | 9,8   | -     |
| LPCD4 80-160/1.1R        | 1,1   | 1,5  | IE2        | 1,33          | 81,4                                    | 82,7 | 82,5 | 0,77                     | 4,3   | 2,5   | -                           | 26,4  | 15,3  | -     |
| LPCD4 80-160/1,1         | 1,1   | 1,5  | IE2        | 1,33          | 81,4                                    | 82,7 | 82,5 | 0,77                     | 4,3   | 2,5   | -                           | 26,4  | 15,3  | -     |
| LPCD4 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  | -     |
| LPCD4 100-200/1,5        | 1,5   | 2    | IE2        | 1,81          | 81,0                                    | 83,5 | 83,0 | 0,77                     | 5,9   | 3,4   | -                           | 46,5  | 26,8  | -     |
| LPCD4 100-200/2,2        | 2,2   | 3    | IE2        | 2,61          | 84,0                                    | 85,3 | 85,1 | 0,74                     | 8,9   | 5,1   | -                           | 53,0  | 30,6  | -     |
| LPCD4 100-200/3          | 3     | 4    | IE2        | 3,47          | 82,6                                    | 84,7 | 86,4 | 0,77                     | 11,3  | 6,5   | -                           | 95,7  | 55,3  | -     |
| LPCD4 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  | -     |

## NOISE DATA

| Pump type<br>Three Phase | Power |      | LpA - dB(A) * |
|--------------------------|-------|------|---------------|
|                          | [kW]  | [HP] |               |
| LPCD4 40-125/0,25R       | 0,25  | 0,33 | <70           |
| LPCD4 40-125/0,25        | 0,25  | 0,33 |               |
| LPCD4 50-125/0,25        | 0,25  | 0,33 |               |
| LPCD4 50-125/0,37        | 0,37  | 0,5  |               |
| LPCD4 50-160/0,55        | 0,55  | 0,75 |               |
| LPCD4 65-160/0,75R       | 0,75  | 1    |               |
| LPCD4 65-160/0,75        | 0,75  | 1    |               |
| LPCD4 65-160/1.1         | 1,1   | 1,5  |               |
| LPCD4 80-160/0,75        | 0,75  | 1    |               |
| LPCD4 80-160/1.1R        | 1,1   | 1,5  |               |
| LPCD4 80-160/1,1         | 1,1   | 1,5  |               |
| LPCD4 80-160/1,5         | 1,5   | 2    |               |
| LPCD4 100-200/1,5        | 1,5   | 2    |               |
| LPCD4 100-200/2,2        | 2,2   | 3    |               |
| LPCD4 100-200/3          | 3     | 4    | 72            |
| LPCD4 100-200/4          | 4     | 5,5  | 78            |

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