

In-line Pump

**Etaline L**

50 Hz

**Type Series Booklet**



## **Legal information/Copyright**

Type Series Booklet Etaline L

All rights reserved. The contents provided herein must neither be distributed, copied, reproduced, edited or processed for any other purpose, nor otherwise transmitted, published or made available to a third party without the manufacturer's express written consent.

Subject to technical modification without prior notice.

© KSB SE & Co. KGaA, Frankenthal 04/05/2018

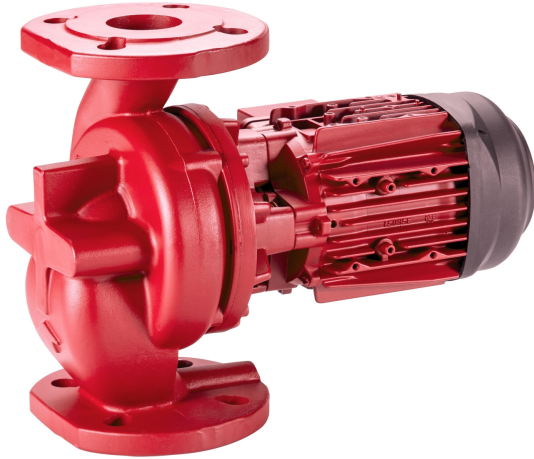
## Contents

|                                                                                                                                                                |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Heating / Air-conditioning / Ventilation .....</b>                                                                                                          | <b>4</b> |
| In-line Pumps.....                                                                                                                                             | 4        |
| Etaline L .....                                                                                                                                                | 4        |
| Main applications.....                                                                                                                                         | 4        |
| Fluids handled .....                                                                                                                                           | 4        |
| Further information on fluids handled.....                                                                                                                     | 4        |
| Operating data.....                                                                                                                                            | 4        |
| Design details .....                                                                                                                                           | 4        |
| Designation .....                                                                                                                                              | 5        |
| Materials.....                                                                                                                                                 | 6        |
| Coating and preservation .....                                                                                                                                 | 6        |
| Product benefits.....                                                                                                                                          | 6        |
| Product information as per Regulation No. 547/2012 (for water pumps with a maximum shaft power of 150 kW) implementing "Ecodesign" Directive 2009/125/EC ..... | 6        |
| Acceptance tests and warranty .....                                                                                                                            | 6        |
| Overview of fluids handled .....                                                                                                                               | 7        |
| Pressure limits and temperature limits .....                                                                                                                   | 7        |
| Technical data .....                                                                                                                                           | 7        |
| Motor, n = 2900 rpm (fixed-speed version).....                                                                                                                 | 7        |
| Motor, n = 1450 rpm (fixed-speed version).....                                                                                                                 | 9        |
| Pump.....                                                                                                                                                      | 9        |
| Selection Charts.....                                                                                                                                          | 11       |
| Etaline L, n = 2900 rpm .....                                                                                                                                  | 11       |
| Etaline L, n = 1450 rpm .....                                                                                                                                  | 12       |
| Characteristic curves.....                                                                                                                                     | 13       |
| General .....                                                                                                                                                  | 13       |
| Etaline L, n = 2900 rpm .....                                                                                                                                  | 14       |
| Etaline L, n = 1450 rpm .....                                                                                                                                  | 26       |
| Dimensions and connections.....                                                                                                                                | 35       |
| Connections.....                                                                                                                                               | 35       |
| Pump set dimensions (fixed-speed version).....                                                                                                                 | 36       |
| Flange dimensions.....                                                                                                                                         | 38       |
| Flange design .....                                                                                                                                            | 38       |
| Typical installation positions .....                                                                                                                           | 39       |
| Accessories.....                                                                                                                                               | 40       |
| Pump accessories (fixed-speed version) .....                                                                                                                   | 40       |
| Electrical accessories.....                                                                                                                                    | 41       |
| General assembly drawing with list of components.....                                                                                                          | 42       |

## Heating / Air-conditioning / Ventilation

### In-line Pumps

## Etaline L



### Main applications

- Service water supply systems
- Heating systems
- Industrial recirculation systems
- Air-conditioning systems
- Cooling circuits
- Swimming pools
- Water supply systems<sup>1)</sup>

### Fluids handled

- Fluids not chemically or mechanically aggressive to the materials

### Further information on fluids handled

(⇒ Page 7)

### Operating data

Operating properties

| Characteristic     |          | Value  |
|--------------------|----------|--------|
| Flow rate          | Q [m³/h] | ≤ 95   |
|                    | Q [l/s]  | ≤ 26,3 |
| Head               | H [m]    | ≤ 21   |
| Fluid temperature  | T [°C]   | ≥ -15  |
|                    |          | ≤ +120 |
| Operating pressure | p [bar]  | ≤ 10   |

### Design details

#### Design

- Close-coupled design / in-line design
- Single-stage
- Horizontal installation / vertical installation
- Rigid connection between pump and motor

#### Pump casing

- Radially split volute casing
- In-line design

#### Drive

- Surface-cooled squirrel-cage motor to KSB standard
- Efficiency class IE3 to IEC 60034-30 (≥ 0.75 kW)
- Winding 50 Hz, 1~220-240 V / 3~220-240 V / 3~380-420 V ≤ 1.1 kW
- Winding 50 Hz, 3~220-240 V / 3~380-420 V ≥ 1.8 kW
- Type of construction IM B14
- Enclosure IP55
- Duty cycle: continuous duty S1
- Thermal class F

#### Shaft seal

- KSB mechanical seal

#### Impeller type

- Closed radial impeller

#### Bearings

- Radial ball bearings in the motor housing
- Grease lubrication

#### Automation

Automation options:

- PumpDrive

1) Not suitable for drinking water in accordance with the German Environment Agency

## Designation

Designation example

| Position |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1        | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 |
| E        | T | L | L | 0 | 2 | 5 | - | 0 | 2  | 5  | -  | 0  | 6  | 3  | -  | G  | G  | S  | A  | V  | 1  | 1  | D  | 2  | 0  | 0  | 1  | 2  | 2  | C  |    | A  | A  | T  | B  | I  | E  | 3  | P  | D  | 2  | E  |

See name plate and data sheet

Designation key

| Position | Code                                  | Description                                      |
|----------|---------------------------------------|--------------------------------------------------|
| 1-4      | Pump type                             |                                                  |
|          | ETLL                                  | Etaline L                                        |
|          | ETLD                                  | Etaline DL                                       |
| 5-16     | Size, e.g.                            |                                                  |
|          | 025                                   | Nominal suction nozzle diameter [mm]             |
|          | 025                                   | Nominal discharge nozzle diameter [mm]           |
|          | 063                                   | Nominal impeller diameter [mm]                   |
| 17       | Pump casing material                  |                                                  |
|          | B                                     | Bronze CC491K                                    |
|          | G                                     | Grey cast iron EN-GJL-200 / EN-GJL-250           |
| 18       | Impeller material                     |                                                  |
|          | B                                     | Bronze G-CuSn10Zn                                |
|          | G                                     | Grey cast iron EN-GJL-150                        |
|          | P                                     | Polysulphone PSU-GF30                            |
| 19       | Design                                |                                                  |
|          | P                                     | With casing cover made of polysulphone PSU-GF30  |
|          | S                                     | Standard                                         |
|          | W                                     | Approved for drinking water to WRAS              |
|          | X                                     | Non-standard (BT3D, BT3)                         |
| 20       | Casing cover                          |                                                  |
|          | A                                     | Conical seal chamber                             |
| 21       | Shaft seal type                       |                                                  |
|          | V                                     | Conical seal chamber with vent                   |
| 22-23    | Seal code, single mechanical seal     |                                                  |
|          | 11                                    | BQ1EGG                                           |
|          | 12                                    | BQ1PGG Available upon request.                   |
|          | 13                                    | BVPGG Available upon request.                    |
|          | 14                                    | Q5Q1EGG Available upon request.                  |
|          | 15                                    | Q5Q1PGG Available upon request.                  |
| 24       | Scope of supply                       |                                                  |
|          | D                                     | Pump, baseplate, coupling, coupling guard, motor |
| 25       | Shaft unit                            |                                                  |
|          | 2                                     | Shaft unit 12                                    |
|          | 4                                     | Shaft unit 14                                    |
|          | 6                                     | Shaft unit 16                                    |
| 26-29    | Motor rating $P_N$ [kW] (basis 50 Hz) |                                                  |
|          | 0012                                  | 0,12                                             |
|          | ...                                   | ...                                              |
|          | 0300                                  | 3,00                                             |
| 30       | Number of motor poles                 |                                                  |
| 31       | Motor design                          |                                                  |
|          | C                                     | 3-phase AC motor 230 V / 400 V                   |
|          | M                                     | 1-phase AC motor 230 V                           |
| 32       | -                                     |                                                  |
| 33       | Product generation                    |                                                  |
|          | A                                     | Etaline L / Etaline DL                           |
| 34-36    | Motor manufacturer                    |                                                  |
|          | ATB                                   | ATB                                              |
| 37-39    | Efficiency class                      |                                                  |
| 40-43    | PumpDrive                             |                                                  |

| Position | Code | Description     |
|----------|------|-----------------|
| 40-43    | PD2E | PumpDrive 2 Eco |

## Materials

Overview of available materials

| Part. No. | Description                   | Material                                             | Material variant |                 |                 |                 |
|-----------|-------------------------------|------------------------------------------------------|------------------|-----------------|-----------------|-----------------|
|           |                               |                                                      | GG               | GP              | BB              | BP              |
| 102       | Volute casing                 | Grey cast iron EN-GJL 200 / EN-GJL 250 <sup>2)</sup> | X                | X               | -               | -               |
|           |                               | Bronze CC491K                                        | -                | -               | X               | X               |
| 230       | Impeller                      | Grey cast iron EN-GJL-150                            | X                | -               | -               | -               |
|           |                               | Bronze G-CuSn10Zn                                    | -                | -               | X               | -               |
|           |                               | Polysulphone PSU-GF30                                | -                | X               | -               | X               |
| 341       | Drive lantern                 | Aluminium AC-46500                                   | X                | X               | X               | X               |
| 412.50    | O-ring                        | EPDM                                                 | X                | X               | X               | X               |
| 554.03    | Washer                        | CW508L                                               | X                | X               | X               | X               |
| 580       | Cap, conical                  | Polyamide 66                                         | X                | X               | X               | X               |
|           |                               | Polysulphone PSU-GF30                                | ○ <sup>3)</sup>  | ○ <sup>3)</sup> | ○ <sup>3)</sup> | ○ <sup>3)</sup> |
| 914.21    | Hexagon socket head cap screw | A4                                                   | X                | X               | X               | X               |

## Coating and preservation

- Coating and preservation to manufacturer's standard

## Product benefits

- Improved efficiency and NPSH<sub>req</sub> by experimentally verified hydraulic design of impellers (vanes)
- Little wear, low vibration levels and excellent smooth running characteristics thanks to good suction performance and virtually cavitation-free operation across a wide operating range
- Casing sealed reliably – even in varying operating conditions – by confined casing gasket
- Optimum match of pump to fluid handled by a large choice of materials for many applications as standard
- Low-noise low-vibration motors specially designed for Etaline L. Also available as 2-pole motors.
- Pump performance curves, including efficiency characteristics: see documented characteristic curve
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with full impeller diameter. 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.
- Operation of this water pump 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.
- Information relevant for disassembly, recycling or disposal at end of life: see installation/operating manual
- Information on benchmark efficiency or benchmark efficiency graph for MEI = 0.70 (0.40) for the pump based on the model shown in the Figure are available at: <http://www.europump.org/efficiencycharts>

## Product information as per Regulation No. 547/2012 (for water pumps with a maximum shaft power of 150 kW) implementing "Ecodesign" Directive 2009/125/EC

- Minimum efficiency index: see data sheet
- The benchmark for the most efficient water pumps is MEI ≥ 0.70.
- Year of construction: see data sheet
- Manufacturer's name or trade mark, commercial registration number and place of manufacture: see data sheet or order documentation
- Product's type and size identifier: see data sheet
- Hydraulic pump efficiency (%) with trimmed impeller: see data sheet

## Acceptance tests and warranty

### Materials inspection and testing

- Test report 2.2 on request

### Hydraulic test

- The duty point of each pump with a delivery address or final destination in Europe is guaranteed to ISO 9906/3B.

 Other inspections/tests on request

### Warranty

- Warranties are given within the scope of the valid terms and conditions of sale and delivery.

2) DN 80  
3) Optional design with additional code P  
4) T = fluid temperature  
5) Special design  
6) Treatment to VdTÜV 1466; additional requirement: O2 t < 0.02 mg/l

## Overview of fluids handled

Combinations of fluids handled and material variants (X = standard)

| Fluid handled                                                              | T <sup>4)</sup> |        | Material variant                  |                                 |                          |                             | Seal code           |                                   | Comments                                   |
|----------------------------------------------------------------------------|-----------------|--------|-----------------------------------|---------------------------------|--------------------------|-----------------------------|---------------------|-----------------------------------|--------------------------------------------|
|                                                                            |                 |        | Grey cast iron/<br>grey cast iron | Grey cast iron/<br>polysulphone | Tin bronze/tin<br>bronze | Tin bronze/<br>polysulphone | BQ <sub>1</sub> EGG | Q <sub>5</sub> Q <sub>1</sub> EGG |                                            |
|                                                                            | Min.            | Max.   | GG                                | GP                              | BB                       | BP                          | 11                  | 14 <sup>5)</sup>                  |                                            |
|                                                                            | [°C]            |        |                                   |                                 |                          |                             |                     |                                   |                                            |
| Service water                                                              | -               | -      | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Heating water <sup>6)</sup>                                                | -               | -      | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Condensate                                                                 | -               | -      | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Cooling water without antifreeze                                           | -               | ≤ +60  | X                                 | X                               | -                        | -                           | X                   | -                                 | Open circuit: use material variant BB/ BP. |
| Cooling water with antifreeze, pH ≥ 7.5                                    | ≥ -30           | ≤ +60  | X                                 | X                               | -                        | -                           | X                   | -                                 | Open circuit: use material variant BB/ BP. |
| Cooling water with antifreeze, pH ≥ 7.5                                    | ≥ +60           | ≤ +110 | X                                 | X                               | -                        | -                           | -                   | X                                 | Open circuit: use material variant BB/ BP. |
| Pure water                                                                 | -               | ≤ +60  | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Swimming pool water: filtration                                            | -               | ≤ +40  | -                                 | -                               | X                        | X                           | X                   | -                                 | Use pumps with additional code P.          |
| Swimming pool water, water features without turbulences and/or air content | -               | ≤ +40  | -                                 | -                               | X                        | X                           | X                   | -                                 | Use pumps with additional code P.          |
| Partly desalinated water                                                   | -               | ≤ +120 | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Fully desalinated (deionised) water, boiler feed water                     | -               | ≤ +110 | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Cooling brine, inorganic; pH > 7.5, inhibited                              | ≥ -30           | ≤ +25  | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Water with antifreeze, pH ≥ 7.5                                            | ≥ -30           | ≤ +60  | X                                 | X                               | -                        | -                           | X                   | -                                 | -                                          |
| Water with antifreeze, pH ≥ 7.5                                            | ≥ +60           | ≤ +120 | X                                 | X                               | -                        | -                           | -                   | X                                 | -                                          |

## Pressure limits and temperature limits

Pressure limits and temperature limits as a function of material variant

| Material variant | T <sup>7)</sup> | Test pressure <sup>8)</sup> | Operating pressure |
|------------------|-----------------|-----------------------------|--------------------|
|                  | [°C]            | [bar]                       | [bar]              |
| GG, GP, BB, BP   | -15 to +120     | ≤ 15                        | ≤ 10               |

## Technical data

### Motor, n = 2900 rpm (fixed-speed version)

50 Hz

| Etaline L     | P <sub>2</sub>     | P <sub>N</sub>     | I <sub>N</sub> | I <sub>N</sub> | I <sub>N</sub> | Motor | [kg] |
|---------------|--------------------|--------------------|----------------|----------------|----------------|-------|------|
|               | Max. <sup>9)</sup> | IE3 <sup>10)</sup> | 1~230 V        | 3~230 V        | 3~400 V        |       |      |
|               | IE3 <sup>10)</sup> |                    |                |                |                |       |      |
| n = 2900 rpm  | [kW]               | [kW]               | [A]            | [A]            | [A]            |       |      |
| 025-025-063   | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 8,4  |
| 025-025-063   | 0,30               | 0,25               | 2,00           | -              | -              | 63    | 8    |
| 025-025-070.1 | 0,21               | 0,18               | -              | 1,05           | 0,60           | 63    | 8,5  |
| 025-025-070.1 | 0,14               | 0,12               | 1,20           | -              | -              | 63    | 8,6  |
| 025-025-071   | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 7,7  |

7) Fluid temperature; for hot water heating systems to DIN 4752, Section 4.5, application limits must be observed.

8) The casing components are checked for leakage by means of internal pressure tests to AN 1897/75-03D00 with water.

9) Continuous duty S1

10) ≥ 0.75 kW = IE3

| Etaline L    | P <sub>2</sub>     | P <sub>N</sub>     | I <sub>N</sub> | I <sub>N</sub> | I <sub>N</sub> | Motor | [kg]  |
|--------------|--------------------|--------------------|----------------|----------------|----------------|-------|-------|
|              | Max. <sup>9)</sup> | IE3 <sup>10)</sup> | 1~230 V        | 3~230 V        | 3~400 V        |       |       |
|              | IE3 <sup>10)</sup> |                    |                |                |                |       |       |
| n = 2900 rpm | [kW]               | [kW]               | [A]            | [A]            | [A]            |       |       |
| 025-025-071  | 0,30               | 0,25               | 2,00           | -              | -              | 63    | 8     |
| 025-025-080  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 8,7   |
| 025-025-080  | 0,30               | 0,25               | 2,00           | -              | -              | 63    | 9     |
| 025-025-080  | 0,44               | 0,37               | -              | 1,60           | 0,92           | 63    | 8,7   |
| 025-025-085  | 0,21               | 0,18               | -              | 1,05           | 0,60           | 63    | 10    |
| 025-025-105  | 0,44               | 0,37               | -              | 1,60           | 0,92           | 63    | 11    |
| 032-032-063  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 7,9   |
| 032-032-071  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 7,7   |
| 032-032-080  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 8,4   |
| 032-032-080  | 0,30               | 0,25               | 2,00           | -              | -              | 63    | 9     |
| 032-032-080  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 8,1   |
| 032-032-080  | 0,44               | 0,37               | -              | 1,60           | 0,92           | 63    | 8,7   |
| 032-032-100  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 14,9  |
| 032-032-100  | 0,30               | 0,25               | 2,00           | -              | -              | 63    | 14,9  |
| 032-032-105  | 0,66               | 0,55               | -              | 2,80           | 1,60           | 63    | 16,1  |
| 032-032-105  | 0,66               | 0,55               | 4,20           | -              | -              | 63    | 15,9  |
| 032-032-125  | 0,90               | 0,75               | -              | 2,77           | 1,60           | 71    | 17,8  |
| 032-032-125  | 0,90               | 0,75               | 4,75           | -              | -              | 71    | 18,7  |
| 040-040-060  | 0,30               | 0,25               | -              | 1,32           | 0,76           | 63    | 15,3  |
| 040-040-060  | 0,30               | 0,25               | 2,00           | -              | -              | 63    | 15,2  |
| 040-040-060  | 0,44               | 0,37               | -              | 1,60           | 0,92           | 63    | 16    |
| 040-040-090  | 0,66               | 0,55               | -              | 2,80           | 1,60           | 63    | 15,6  |
| 040-040-090  | 0,66               | 0,55               | 4,20           | -              | -              | 63    | 19    |
| 040-040-090  | 0,90               | 0,75               | -              | 2,77           | 1,60           | 71    | 18,3  |
| 040-040-100  | 0,90               | 0,75               | -              | 2,77           | 1,60           | 71    | 18,9  |
| 040-040-100  | 0,90               | 0,75               | 4,75           | -              | -              | 71    | 21,4  |
| 050-050-090  | 0,66               | 0,55               | -              | 2,80           | 1,60           | 63    | 17,8  |
| 050-050-090  | 0,66               | 0,55               | 4,20           | -              | -              | 63    | 18,5  |
| 050-050-100  | 0,90               | 0,75               | -              | 2,77           | 1,60           | 71    | 21,1  |
| 050-050-100  | 0,90               | 0,75               | 4,75           | -              | -              | 71    | 21    |
| 050-050-110  | 1,30               | 1,10               | -              | 3,90           | 2,25           | 80    | 28,1  |
| 050-050-110  | 1,30               | 1,10               | 6,90           | -              | -              | 80    | 24,8  |
| 050-050-110  | 2,20               | 1,80               | -              | 5,90           | 3,40           | 80    | 27,4  |
| 050-050-125  | 2,20               | 1,80               | -              | 5,90           | 3,40           | 90S   | 31,24 |
| 065-065-100  | 1,30               | 1,10               | -              | 3,90           | 2,25           | 80    | 32    |
| 065-065-100  | 1,30               | 1,10               | 6,90           | -              | -              | 80    | 32    |
| 065-065-115  | 2,20               | 1,80               | -              | 5,90           | 3,40           | 90S   | 39,1  |
| 065-065-125  | 3,40               | 3,00               | -              | 9,70           | 5,60           | 90L   | 46,1  |
| 080-080-105  | 1,30               | 1,10               | -              | 3,90           | 2,25           | 80    | 40,3  |
| 080-080-105  | 1,30               | 1,10               | 6,90           | -              | -              | 80    | 37,4  |
| 080-080-115  | 2,20               | 1,80               | -              | 5,90           | 3,40           | 90S   | 44,9  |
| 080-080-125  | 3,40               | 3,00               | -              | 9,70           | 5,60           | 90L   | 50,9  |

11) Continuous duty S1

12) ≥ 0.75 kW = IE3



**Motor, n = 1450 rpm (fixed-speed version)**

50 Hz

| Etaline L    | P <sub>2</sub>      | P <sub>N</sub>     | I <sub>N</sub> | I <sub>N</sub> | I <sub>N</sub> | Motor | [kg] |
|--------------|---------------------|--------------------|----------------|----------------|----------------|-------|------|
|              | Max. <sup>11)</sup> | IE3 <sup>12)</sup> | 1~230 V        | 3~230 V        | 3~400 V        |       |      |
|              | IE3 <sup>12)</sup>  |                    |                |                |                |       |      |
| n = 1450 rpm | [kW]                | [kW]               | [A]            | [A]            | [A]            |       |      |
| 025-025-080  | 0,14                | 0,12               | -              | 0,83           | 0,48           | 63    | 8,5  |
| 025-025-080  | 0,14                | 0,12               | 1,20           | -              | -              | 63    | 8,8  |
| 032-032-080  | 0,14                | 0,12               | -              | 0,83           | 0,48           | 63    | 8    |
| 032-032-080  | 0,14                | 0,12               | 1,20           | -              | -              | 63    | 8,5  |
| 032-032-125  | 0,14                | 0,12               | -              | 0,83           | 0,48           | 63    | 14,6 |
| 032-032-125  | 0,14                | 0,12               | 1,20           | -              | -              | 63    | 14   |
| 040-040-100  | 0,14                | 0,12               | -              | 0,83           | 0,48           | 63    | 15,5 |
| 040-040-100  | 0,14                | 0,12               | 1,20           | -              | -              | 63    | 17,3 |
| 050-050-100  | 0,14                | 0,12               | -              | 0,83           | 0,48           | 63    | 16,7 |
| 050-050-100  | 0,14                | 0,12               | 1,20           | -              | -              | 63    | 17   |
| 050-050-125  | 0,21                | 0,18               | -              | 1,15           | 0,66           | 63    | 20,8 |
| 050-050-125  | 0,21                | 0,18               | 1,60           | -              | -              | 63    | 21,4 |
| 050-050-160  | 0,90                | 0,75               | -              | 2,96           | 1,71           | 80    | 33,8 |
| 050-050-160  | 0,90                | 0,75               | 5,75           | -              | -              | 80    | 32,1 |
| 065-065-125  | 0,44                | 0,37               | -              | 2,15           | 1,25           | 63    | 29,7 |
| 065-065-125  | 0,44                | 0,37               | 3,20           | -              | -              | 63    | 30   |
| 080-080-125  | 0,44                | 0,37               | -              | 2,15           | 1,25           | 63    | 35   |
| 080-080-125  | 0,44                | 0,37               | 3,20           | -              | -              | 63    | 34,1 |

**Pump**

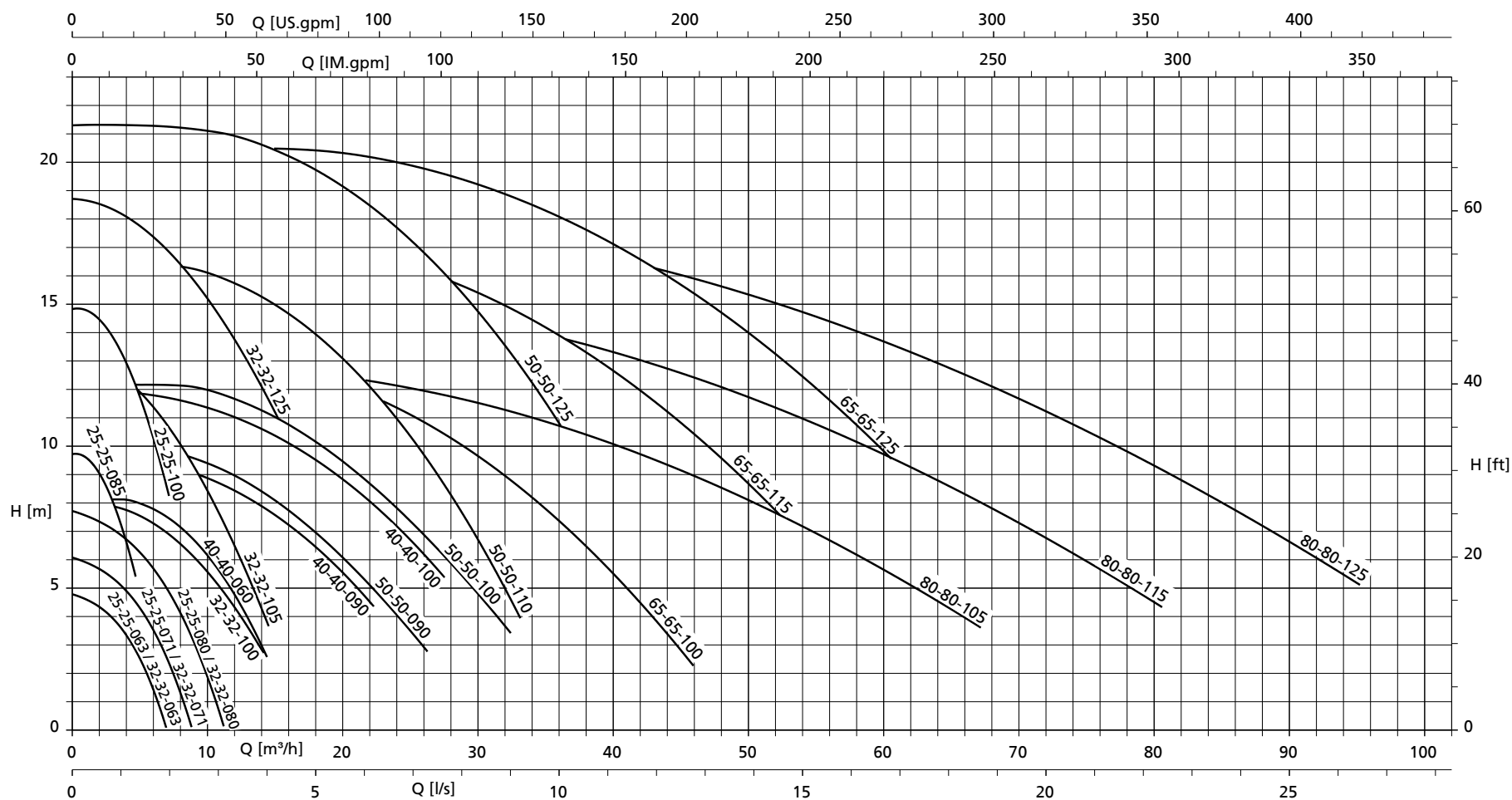
Overview

| Etaline L     | Shaft unit | Impeller diameter | Speed limit |         |
|---------------|------------|-------------------|-------------|---------|
|               |            |                   | Minimum     | Maximum |
|               |            | [mm]              | [rpm]       | [rpm]   |
| 025-025-063   | WE 12      | 63                | 500         | 3000    |
| 025-025-070.1 | WE 12      | 70                | 500         | 3000    |
| 025-025-071   | WE 12      | 71                | 500         | 3000    |
| 025-025-080   | WE 12      | 80                | 500         | 3000    |
| 025-025-085   | WE 12      | 85                | 500         | 3000    |
| 025-025-105   | WE 12      | 110               | 500         | 3000    |
| 032-032-063   | WE 12      | 63                | 500         | 3000    |
| 032-032-071   | WE 12      | 71                | 500         | 3000    |
| 032-032-080   | WE 12      | 80                | 500         | 3000    |
| 032-032-100   | WE 12      | 80                | 500         | 3000    |
| 032-032-105   | WE 12      | 105               | 500         | 3000    |
| 032-032-125   | WE 12      | 125               | 500         | 3000    |
| 040-040-060   | WE 12      | 80                | 500         | 3000    |
| 040-040-090   | WE 12      | 90                | 500         | 3000    |
| 040-040-100   | WE 12      | 98                | 500         | 3000    |
| 050-050-090   | WE 12      | 90                | 500         | 3000    |
| 050-050-100   | WE 12      | 98                | 500         | 3000    |
| 050-050-110   | WE 14      | 109               | 500         | 3000    |
| 050-050-125   | WE 12      | 125               | 500         | 3000    |
| 050-050-125   | WE 16      | 125               | 500         | 3000    |
| 050-050-160   | WE 14      | 159               | 500         | 3000    |
| 050-050-160   | WE 16      | 159               | 500         | 3000    |
| 065-065-100   | WE 14      | 100               | 500         | 3000    |
| 065-065-115   | WE 16      | 113               | 500         | 3000    |
| 065-065-125   | WE 12      | 125               | 500         | 3000    |
| 065-065-125   | WE 16      | 125               | 500         | 3000    |
| 080-080-105   | WE 14      | 100               | 500         | 3000    |

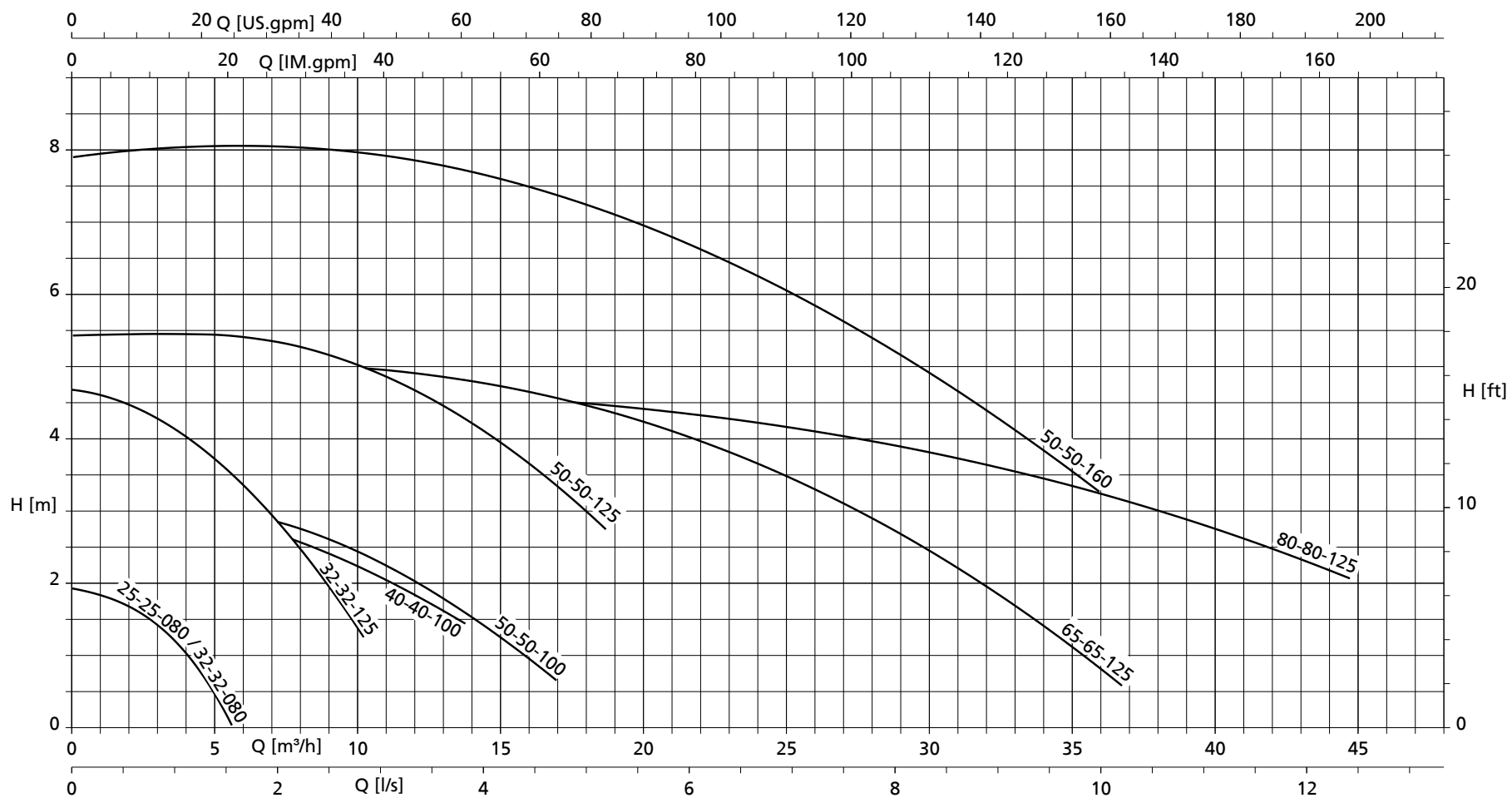
| Etaline L   | Shaft unit | Impeller diameter | Speed limit |         |
|-------------|------------|-------------------|-------------|---------|
|             |            |                   | Minimum     | Maximum |
|             |            | [mm]              | [rpm]       | [rpm]   |
| 080-080-115 | WE 16      | 112               | 500         | 3000    |
| 080-080-125 | WE 12      | 126,5             | 500         | 3000    |
| 080-080-125 | WE 16      | 126,5             | 500         | 3000    |

## Selection Charts

Etaline L,  $n = 2900$  rpm



Etaline L, n = 1450 rpm



## Characteristic curves

### General

#### Test class

Characteristic curves to ISO 9906 Class 3B

#### NPSH values

The NPSH values indicated in the characteristic curves correspond to a head drop of 3 %.

#### NPSH values in part-load conditions

NPSH values for flow rates below  $Q = 0.3 \times Q_{\text{opt}}$  can only be measured with intense technical efforts. Evidence of NPSH values in the part-load range cannot be provided.

### Density of the fluid handled

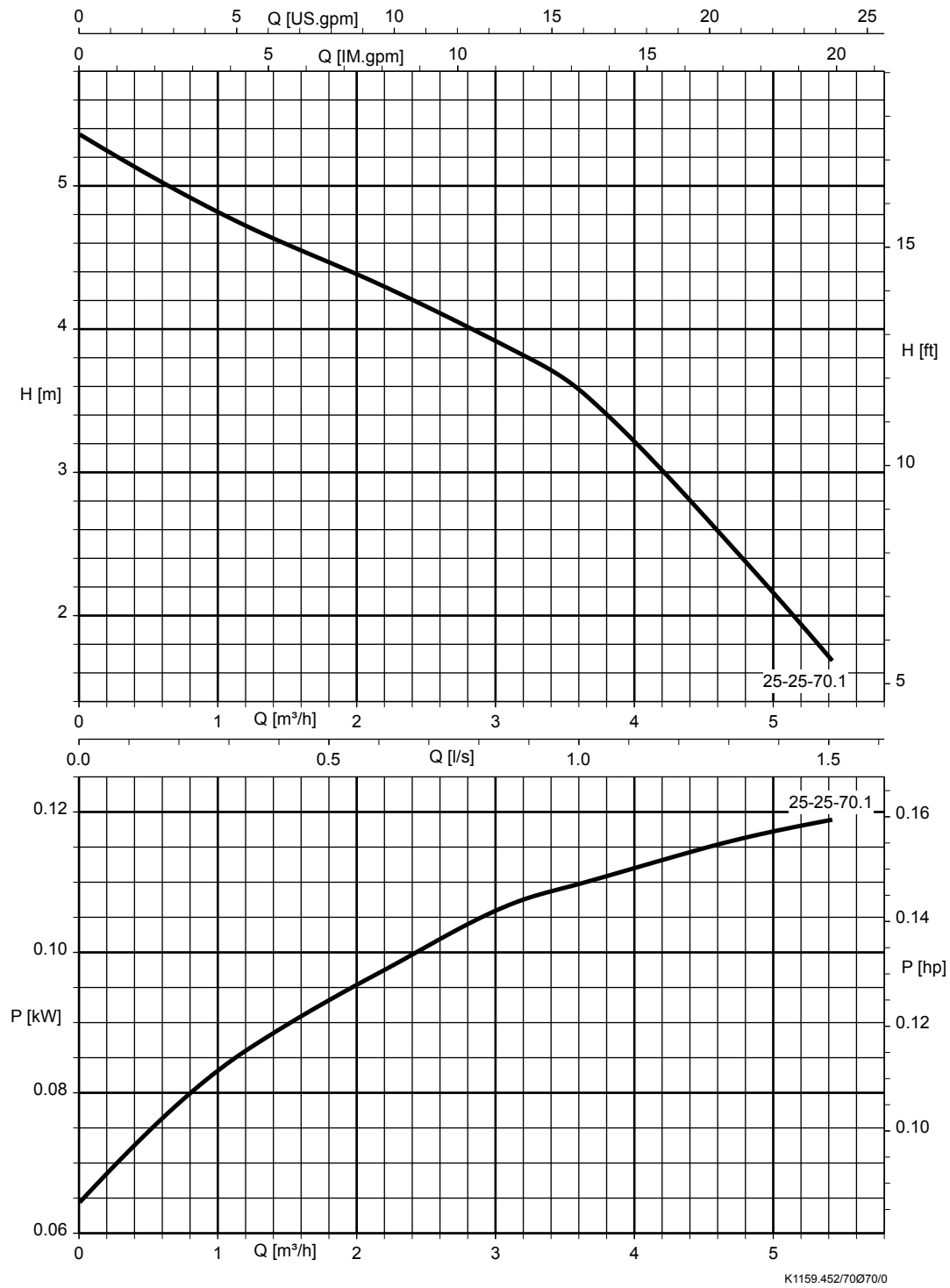
The indicated heads and performance data apply to pumped fluids with a density  $\rho = 1.0 \text{ kg/dm}^3$  and a kinematic viscosity of up to  $20 \text{ mm}^2/\text{s}$  max. If the density  $\neq 1.0$ , the performance data must be multiplied by  $\rho$ . For a viscosity  $> 20 \text{ mm}^2/\text{s}$  the corresponding data for cold water has to be calculated and the impact on the pump's performance has to be determined.

### Correction factors

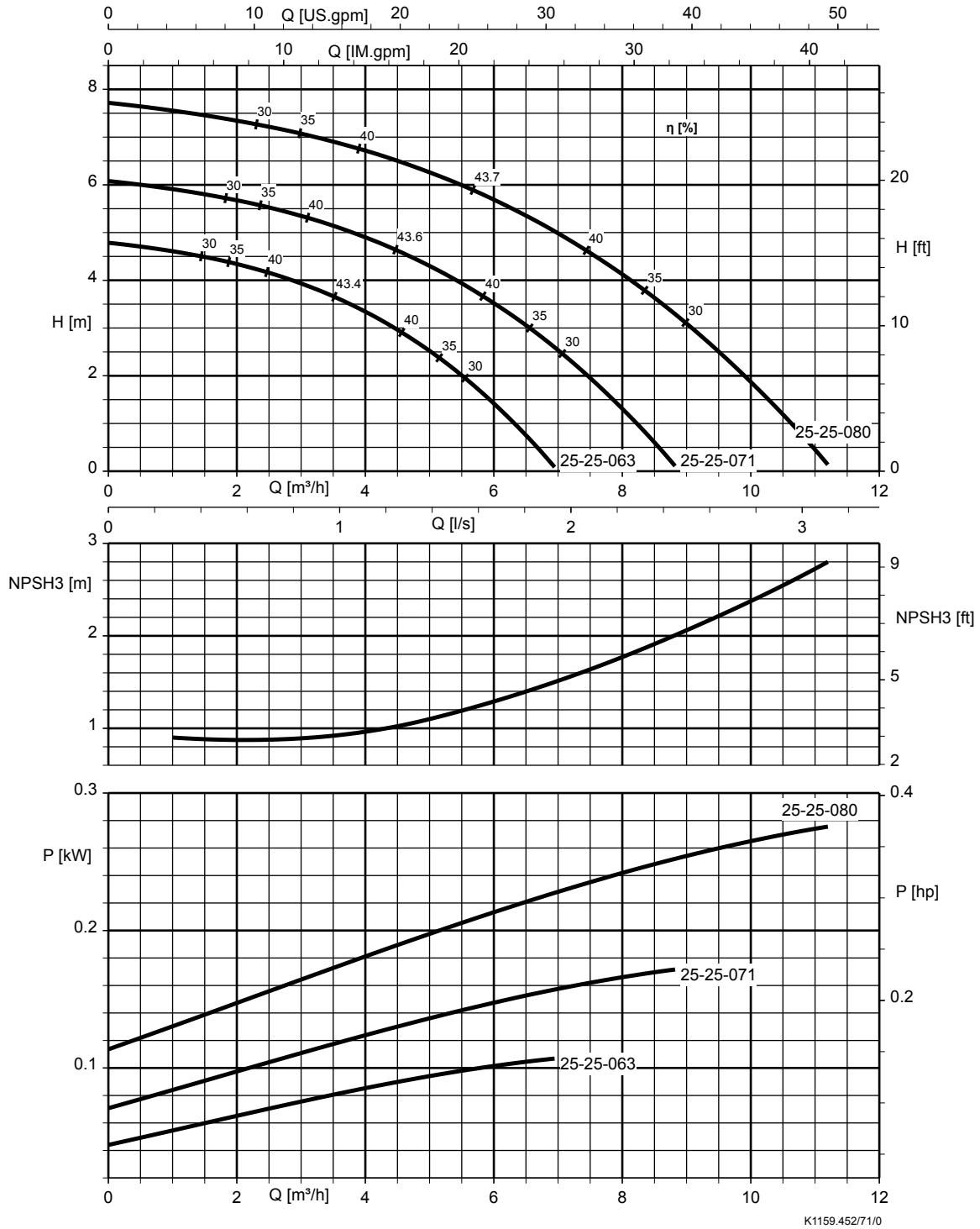
The characteristic curves apply to pumps with cast iron or bronze impellers. When using an impeller made of cast steel materials the efficiency and pump power of the corresponding pump sizes have to be multiplied by the correction factors indicated in the characteristic curves.

Etaline L,  $n = 2900$  rpm

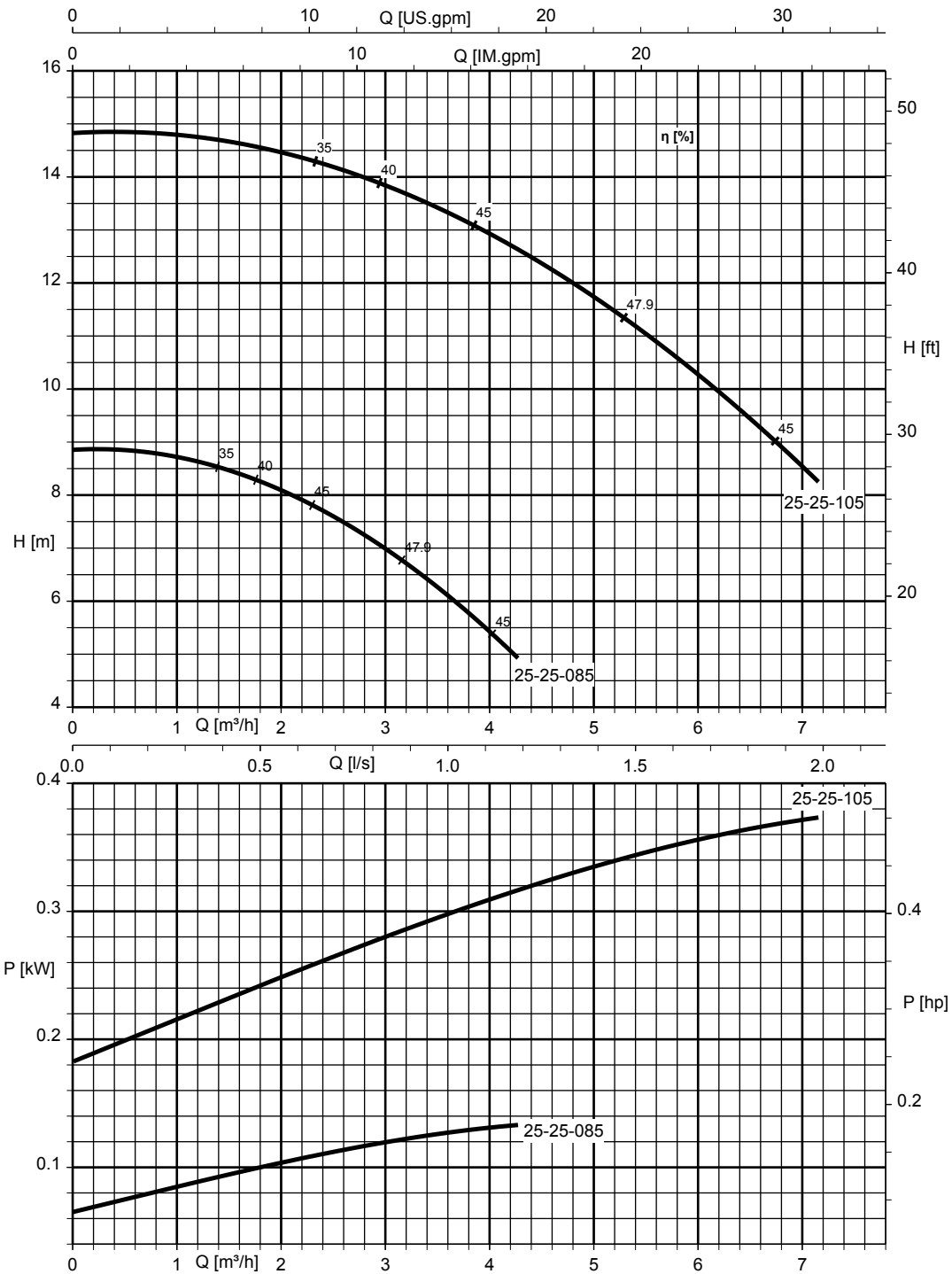
Etaline L 025-025-070.1,  $n = 2900$  rpm



Etaline L 025-025-063/071/080, n = 2900 rpm



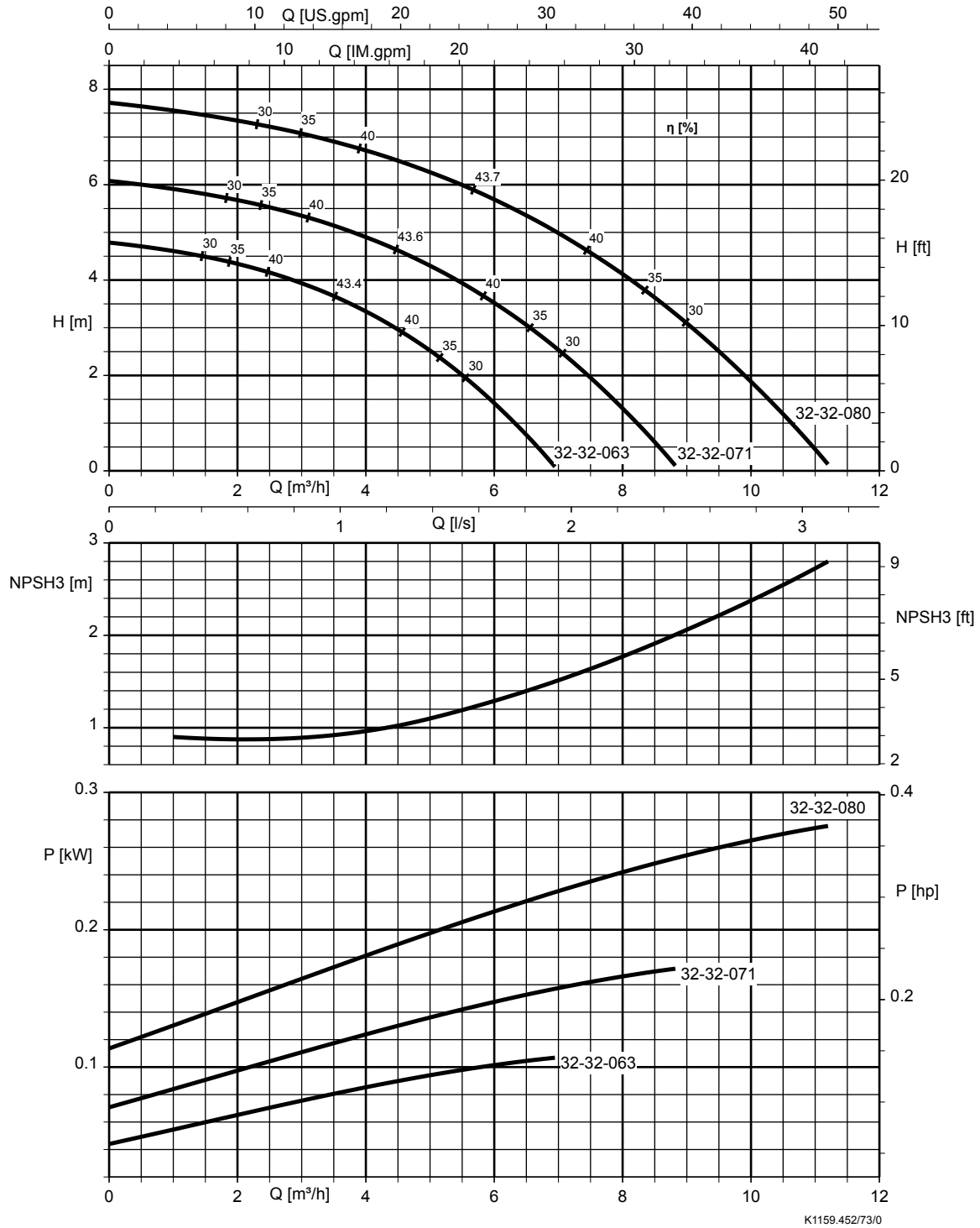
Etaline L 025-025-085/105, n = 2900 rpm



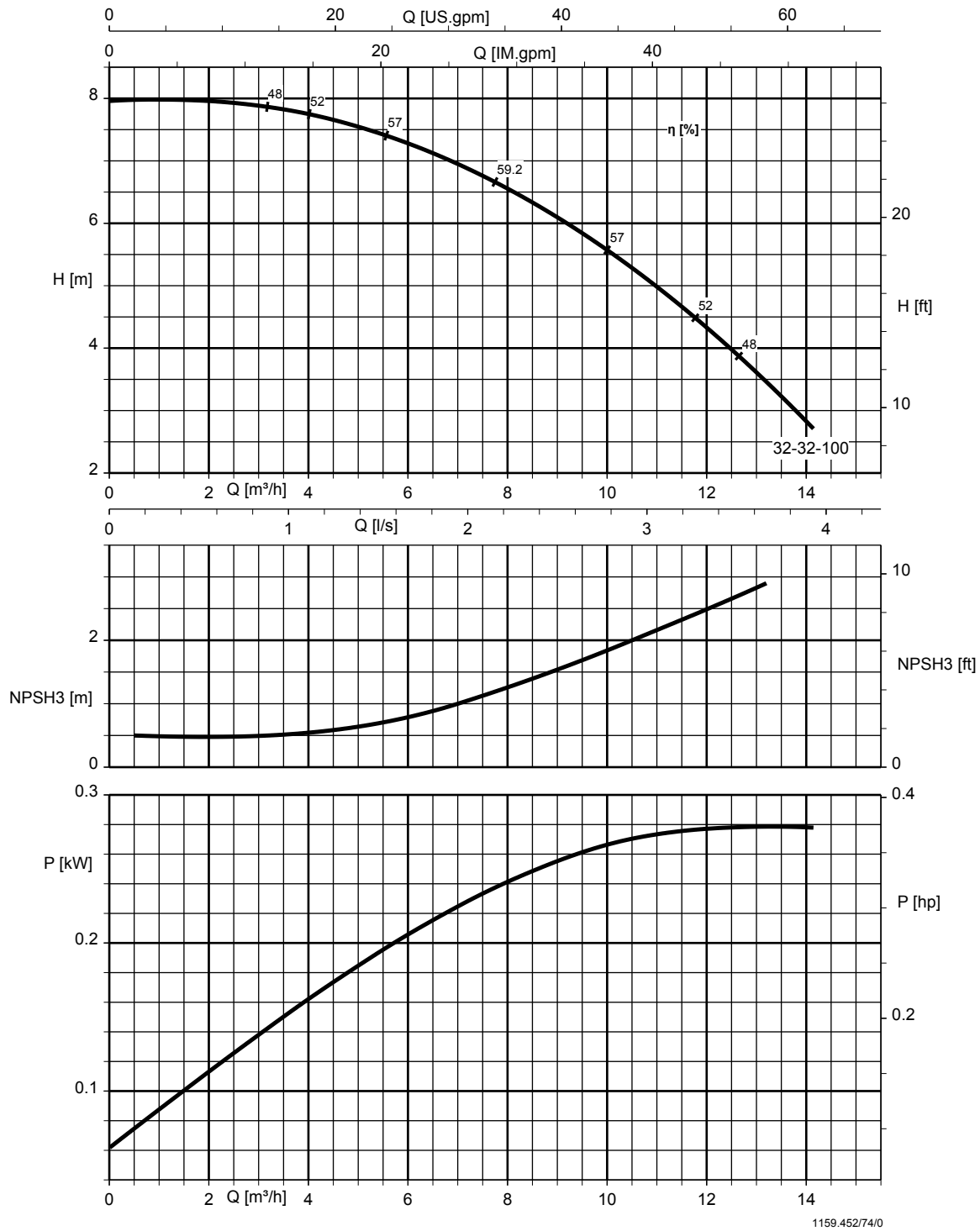
K1159.452/72/0



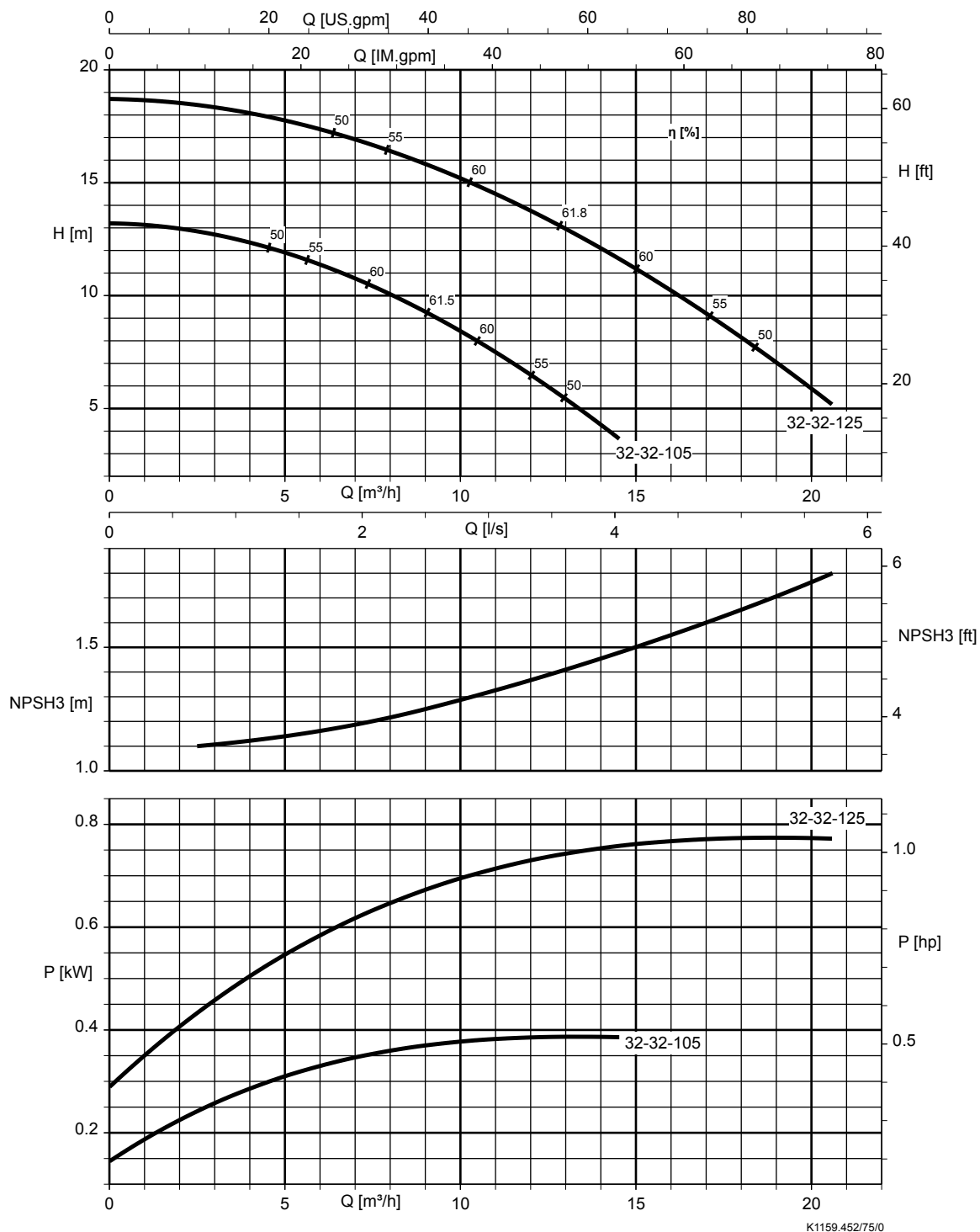
Etaline L 032-032-063/071/080, n = 2900 rpm



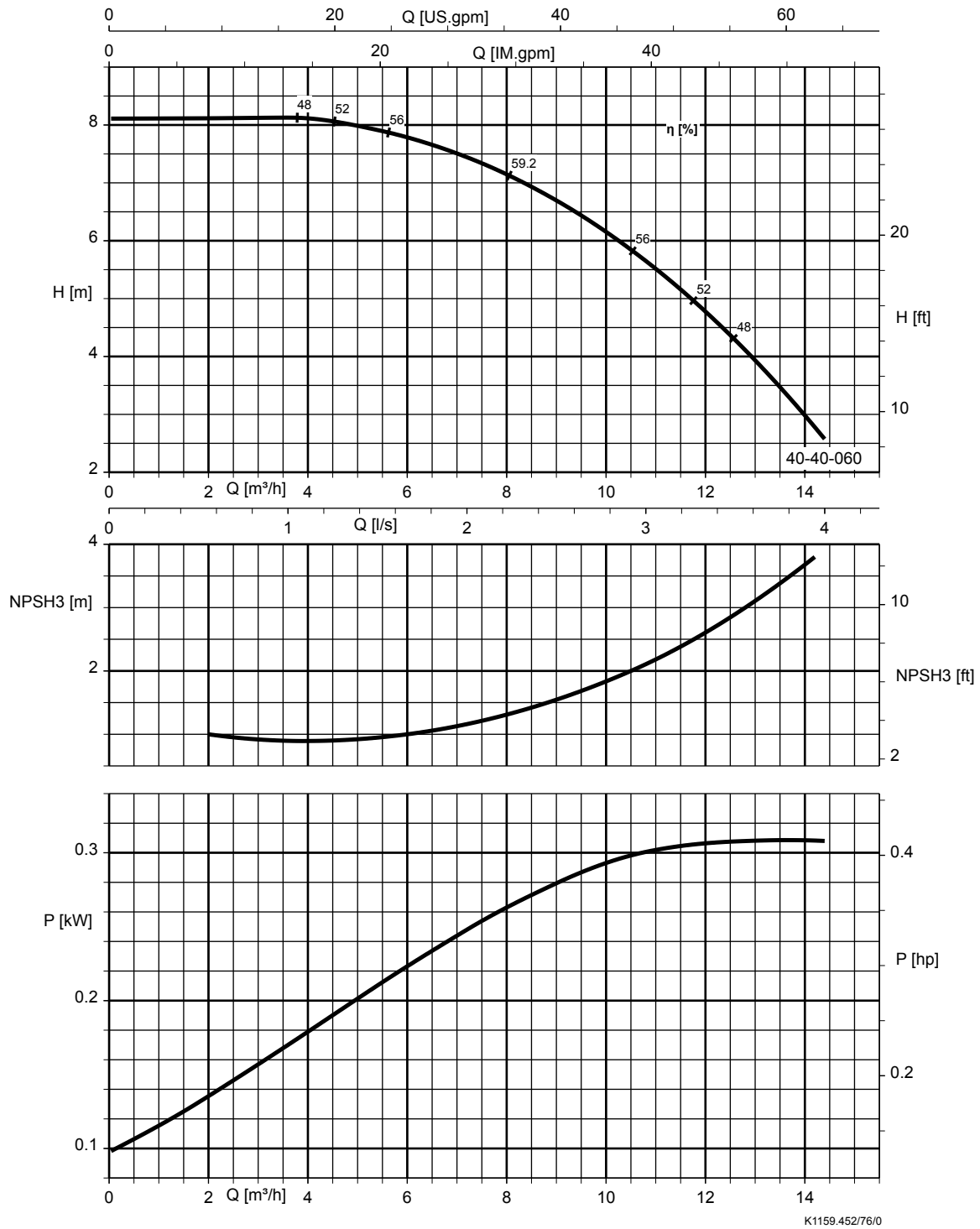
Etaline L 032-032-100,  $n = 2900$  rpm



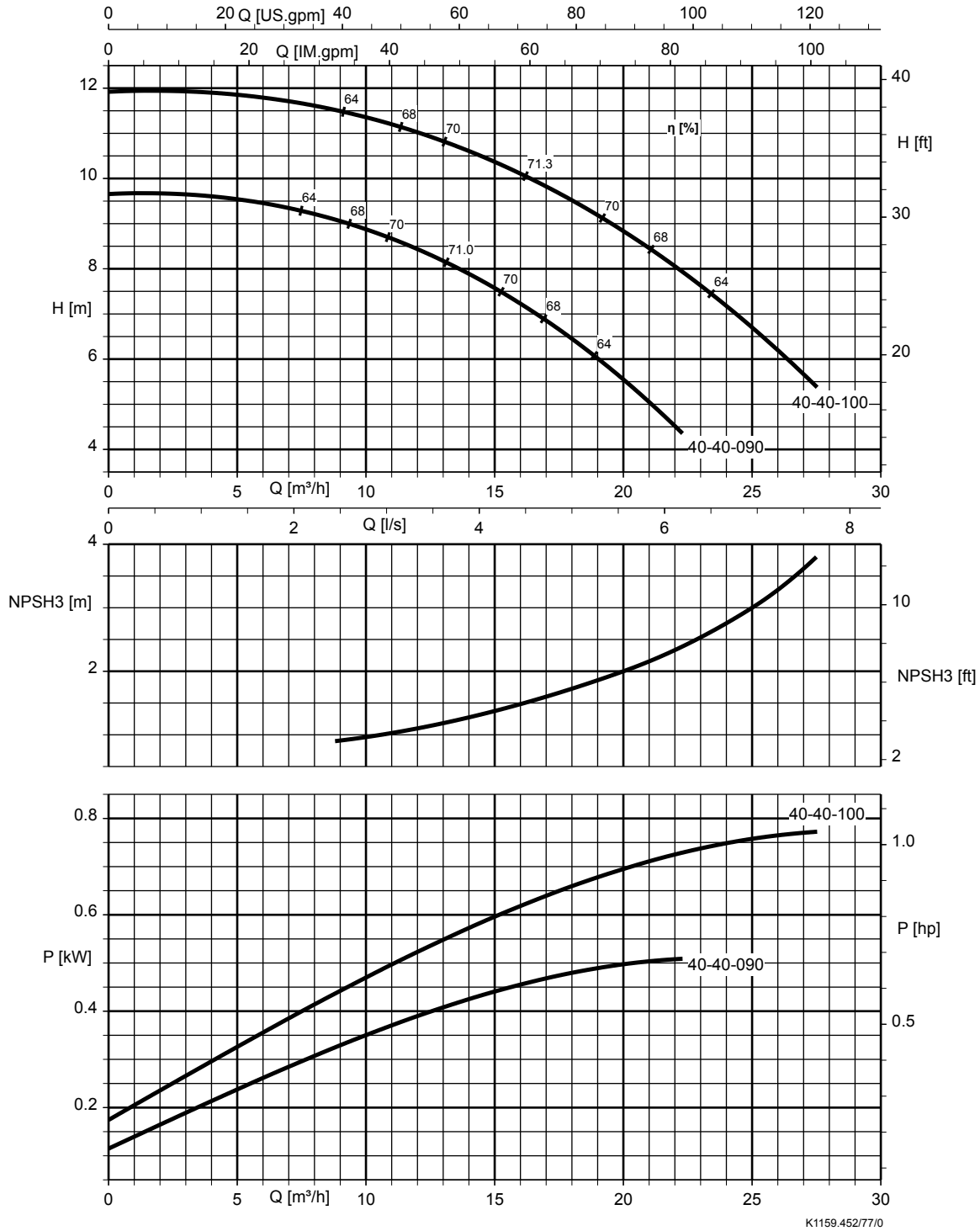
**Etaline L 032-032-105/125, n = 2900 rpm**



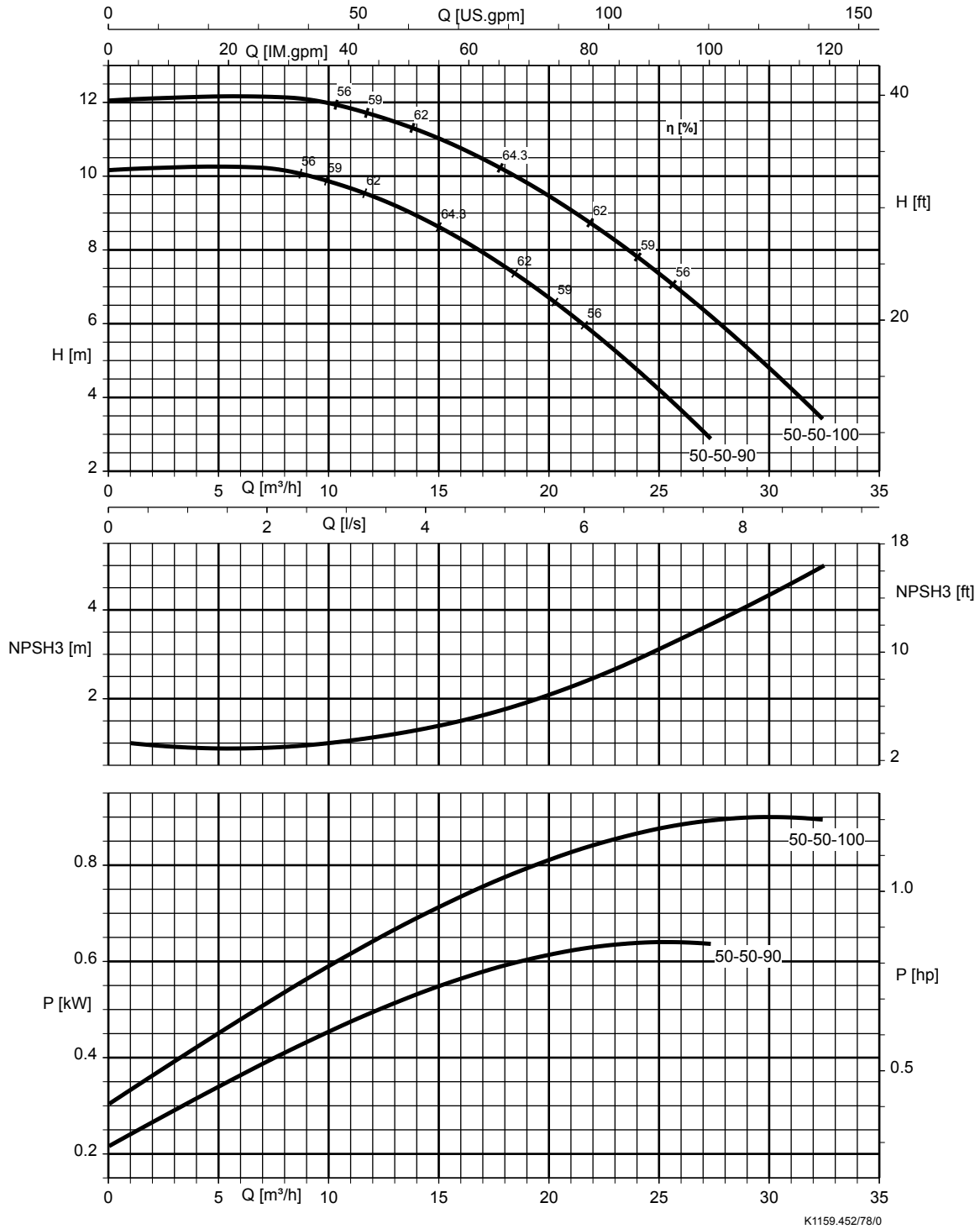
Etaline L 040-040-060,  $n = 2900$  rpm



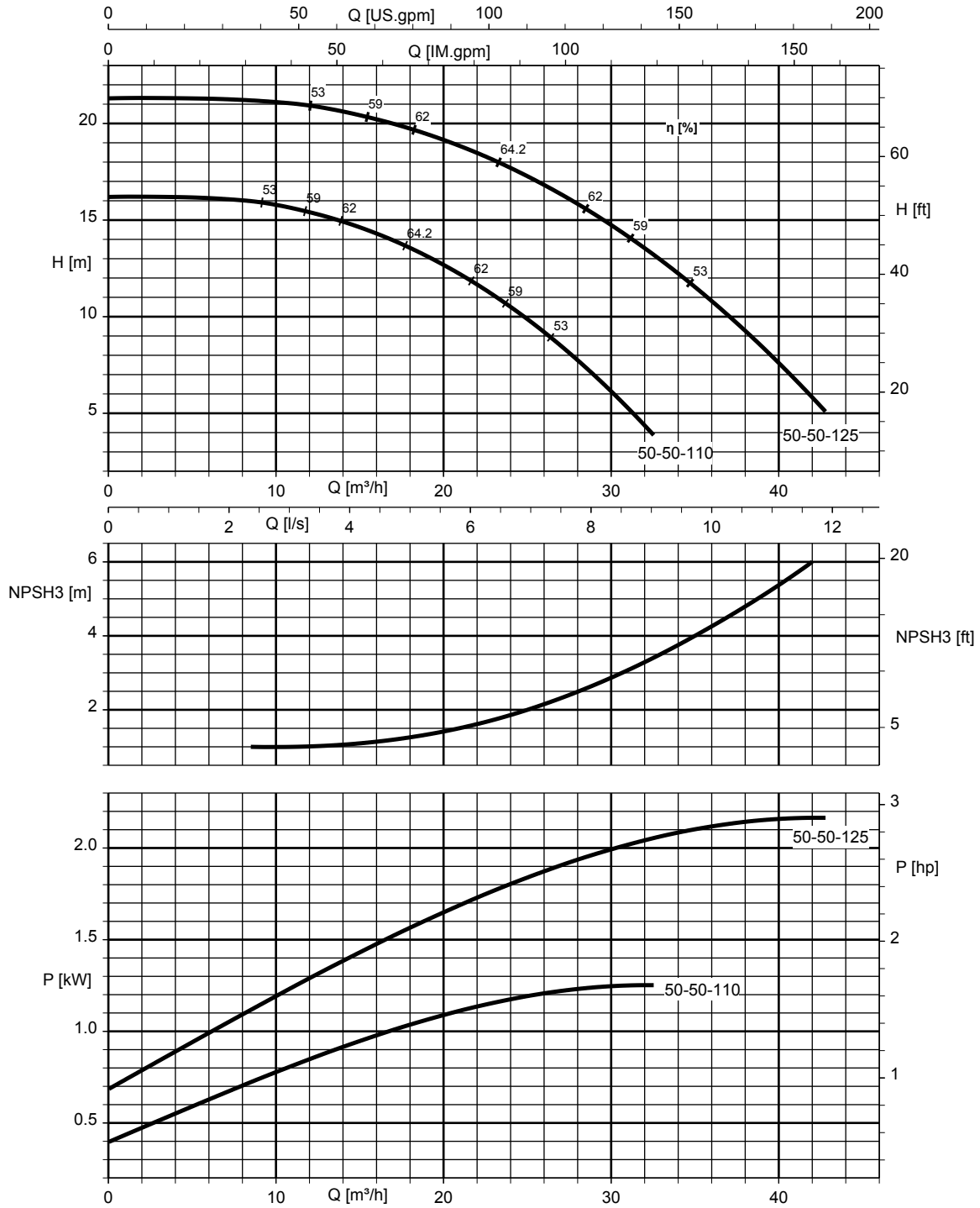
**Etaline L 040-040-090/100, n = 2900 rpm**



Etaline L 050-050-090/100, n = 2900 rpm

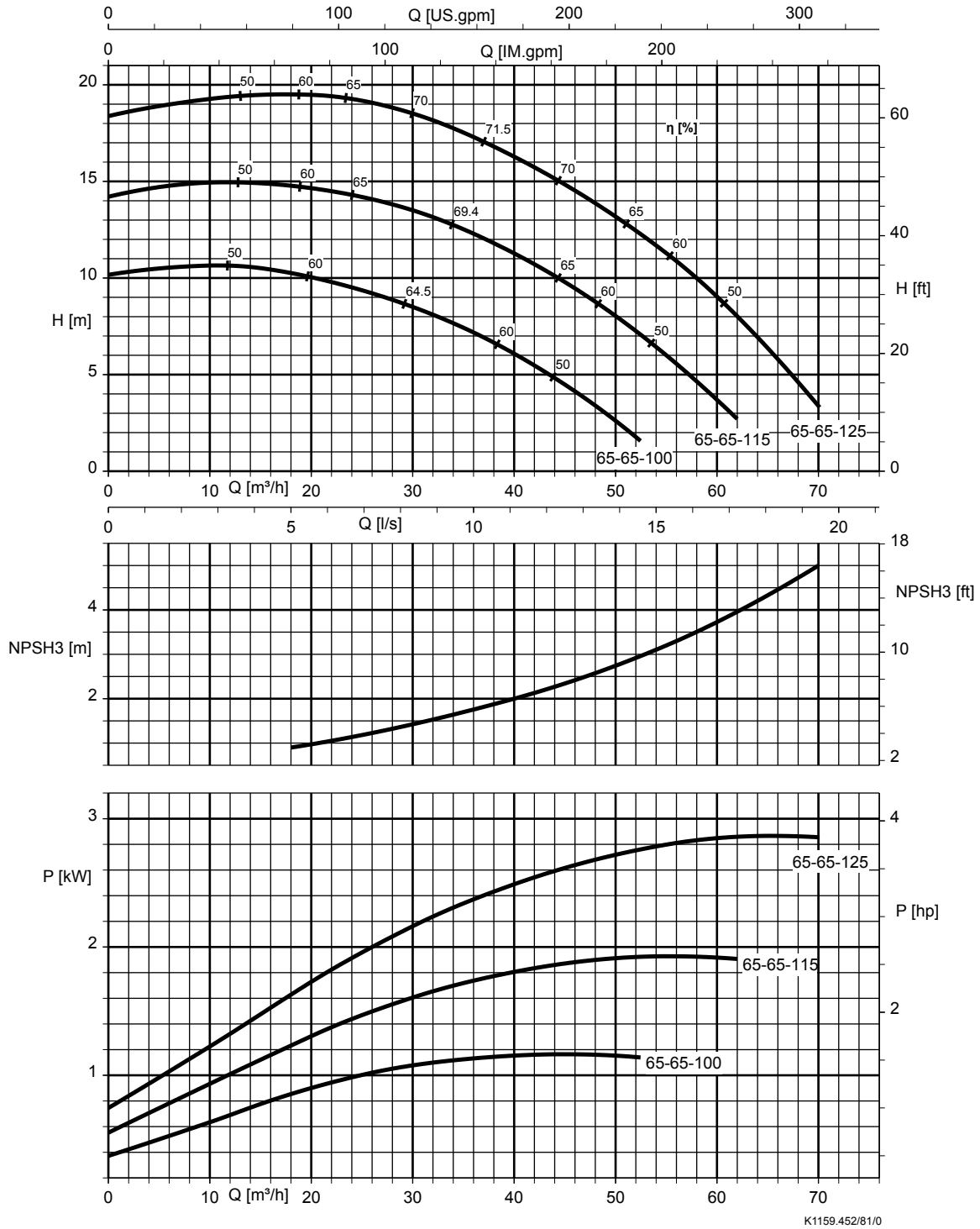


Etaline L 050-050-110/125, n = 2900 rpm



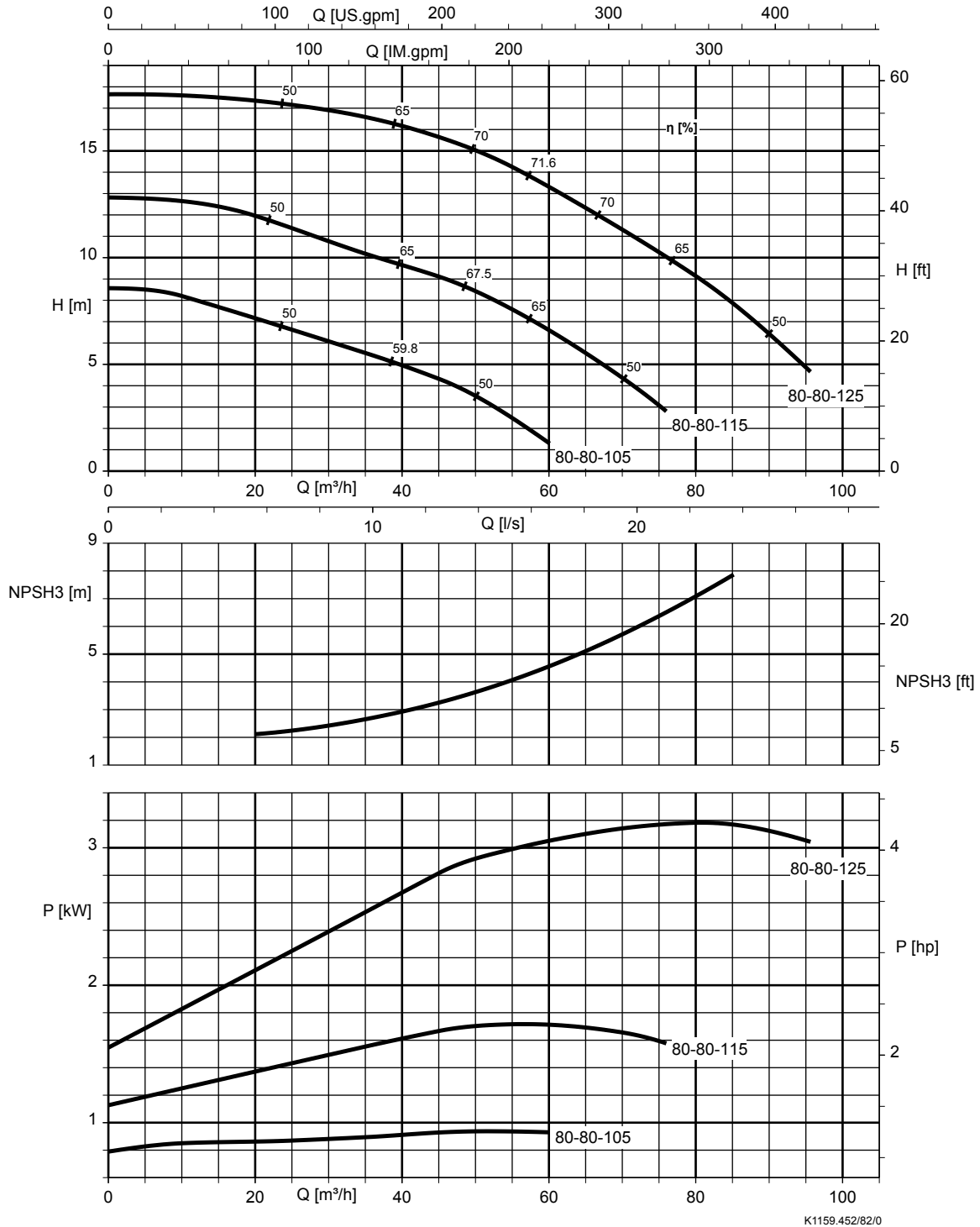
K1159.452/79/0

Etaline L 065-065-100/115/125,  $n = 2900$  rpm



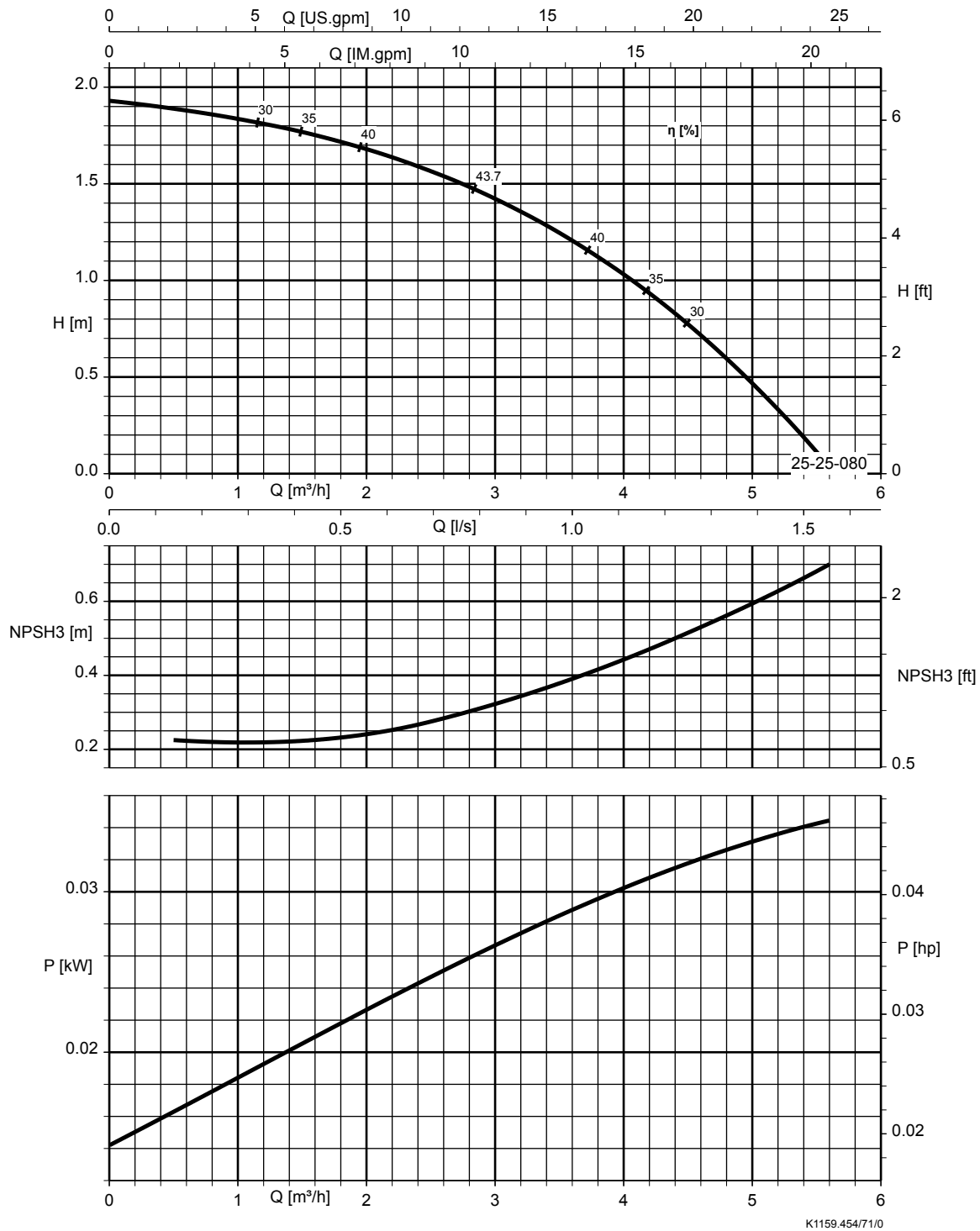


Etaline L 080-080-105/115/125,  $n = 2900$  rpm

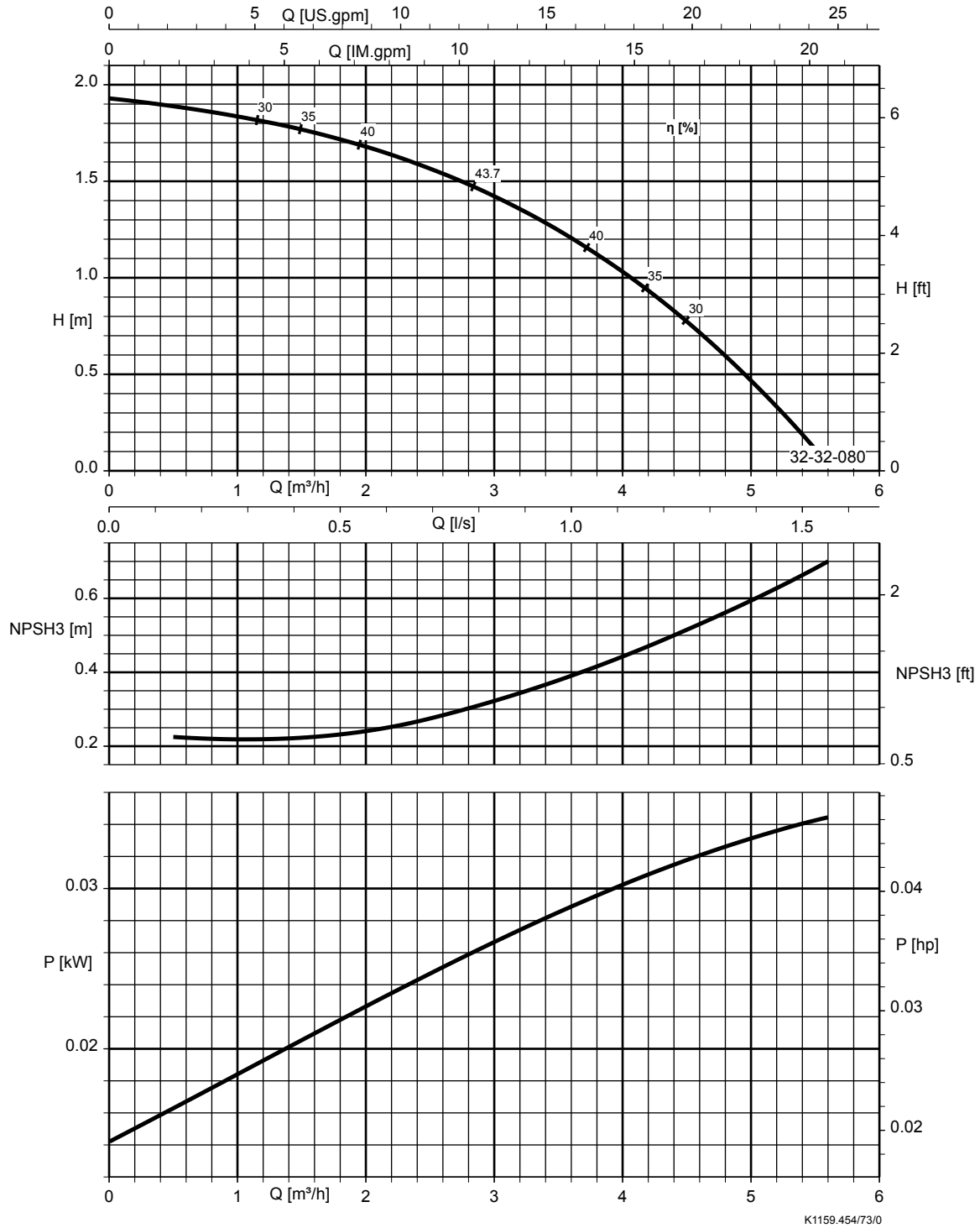


Etaline L,  $n = 1450$  rpm

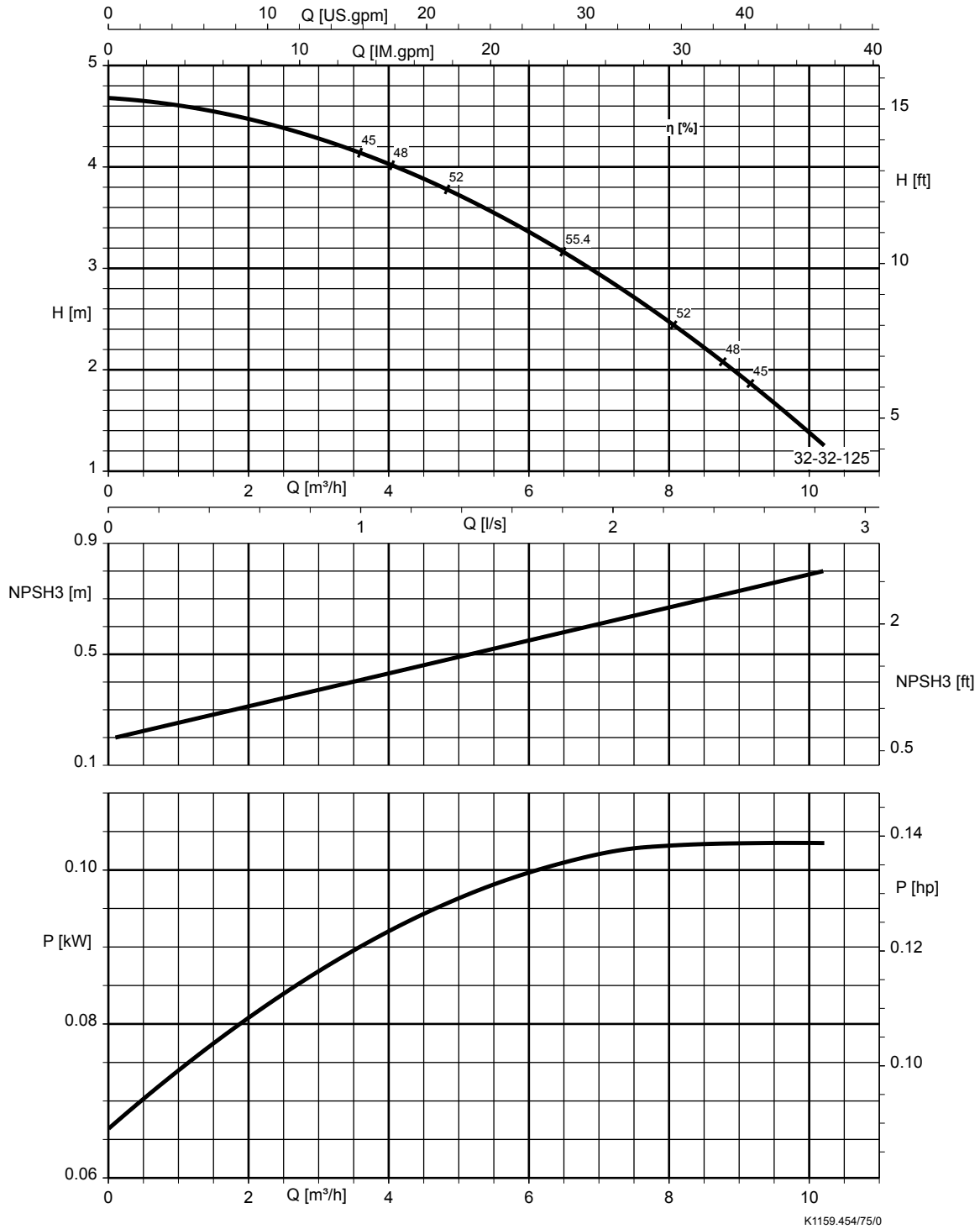
Etaline L 25-25-080,  $n = 1450$  rpm



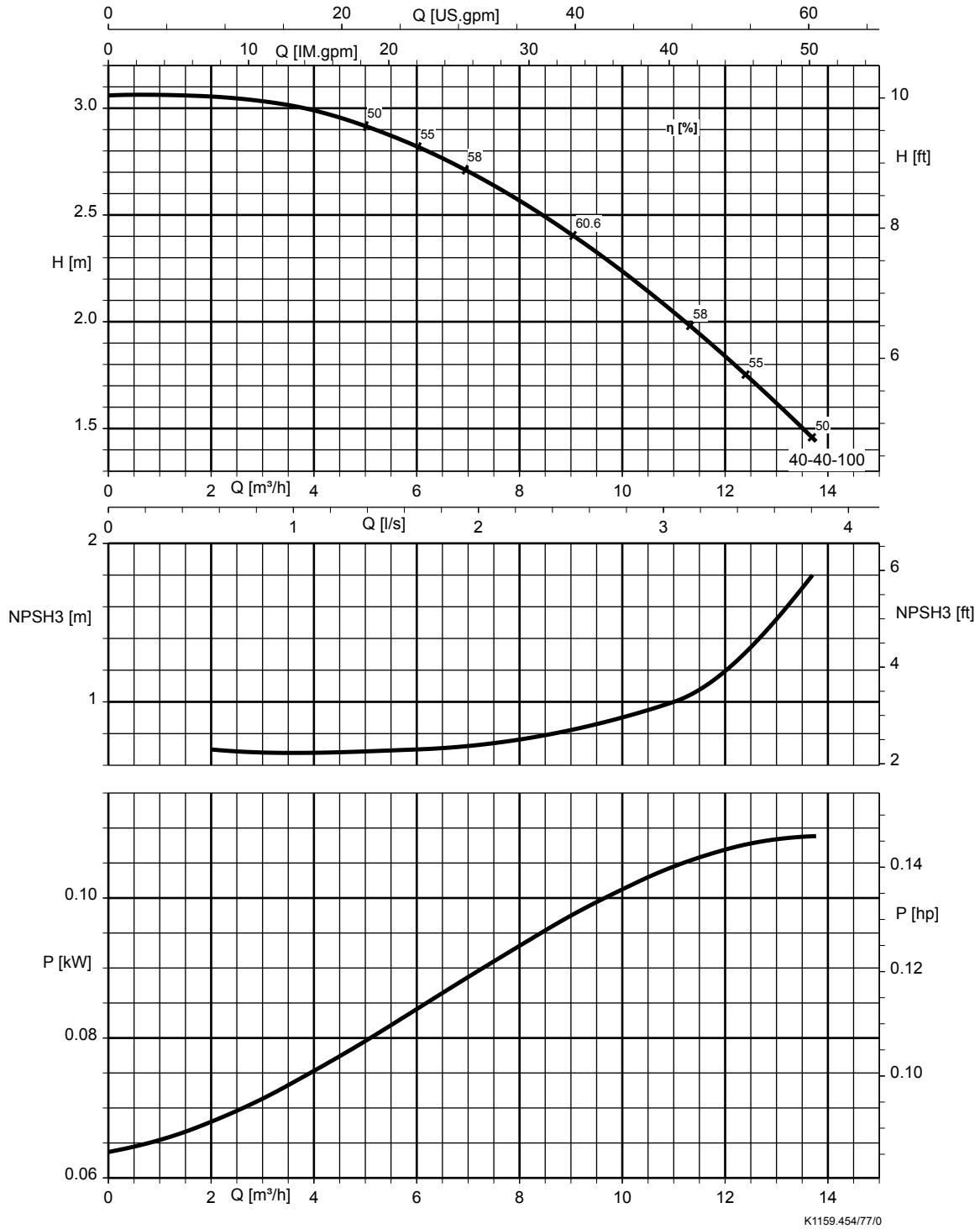
Etaline L 32-32-080,  $n = 1450$  rpm



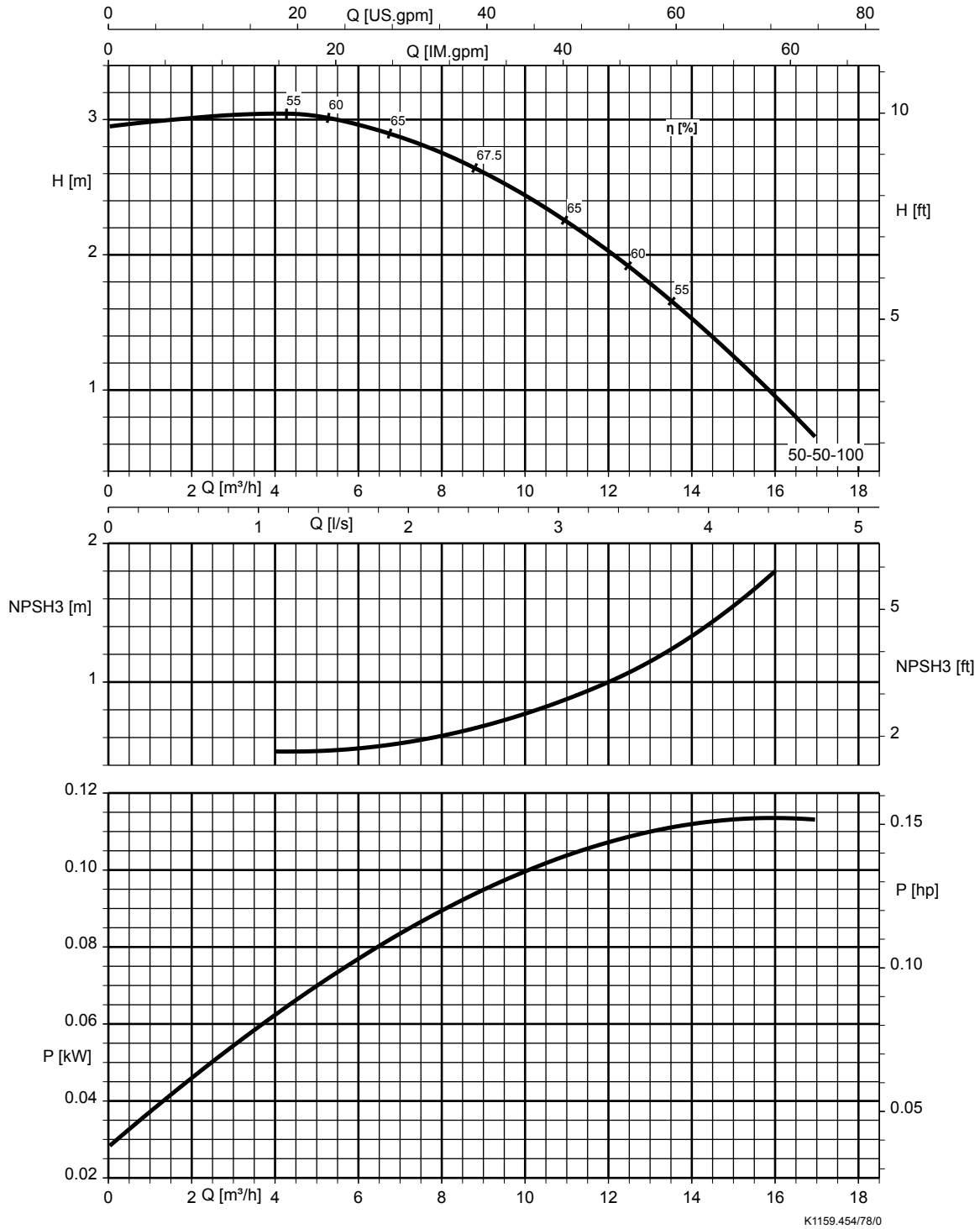
Etaline L 32-32-125, n = 1450 rpm



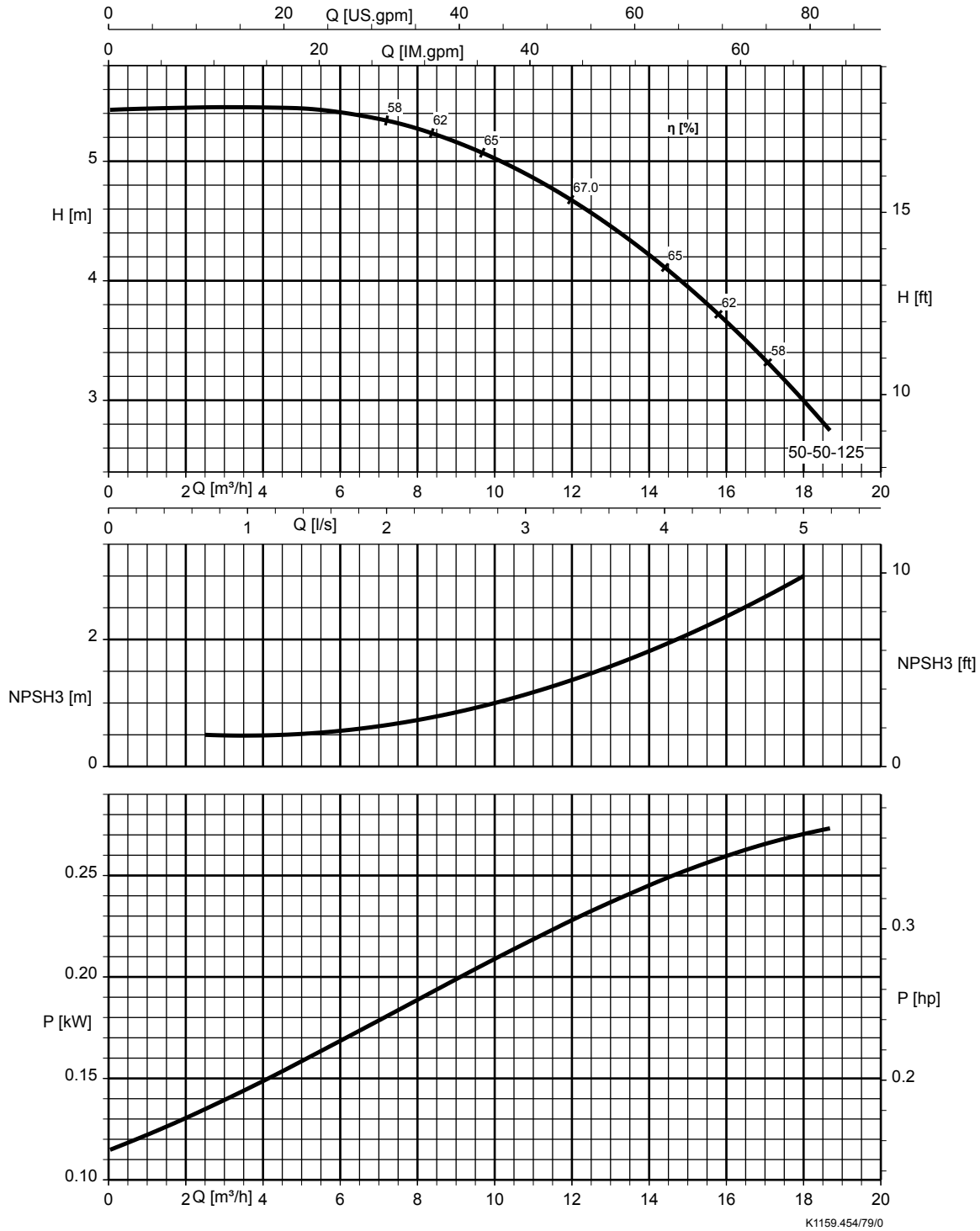
**Etaline L 40-40-100, n = 1450 rpm**



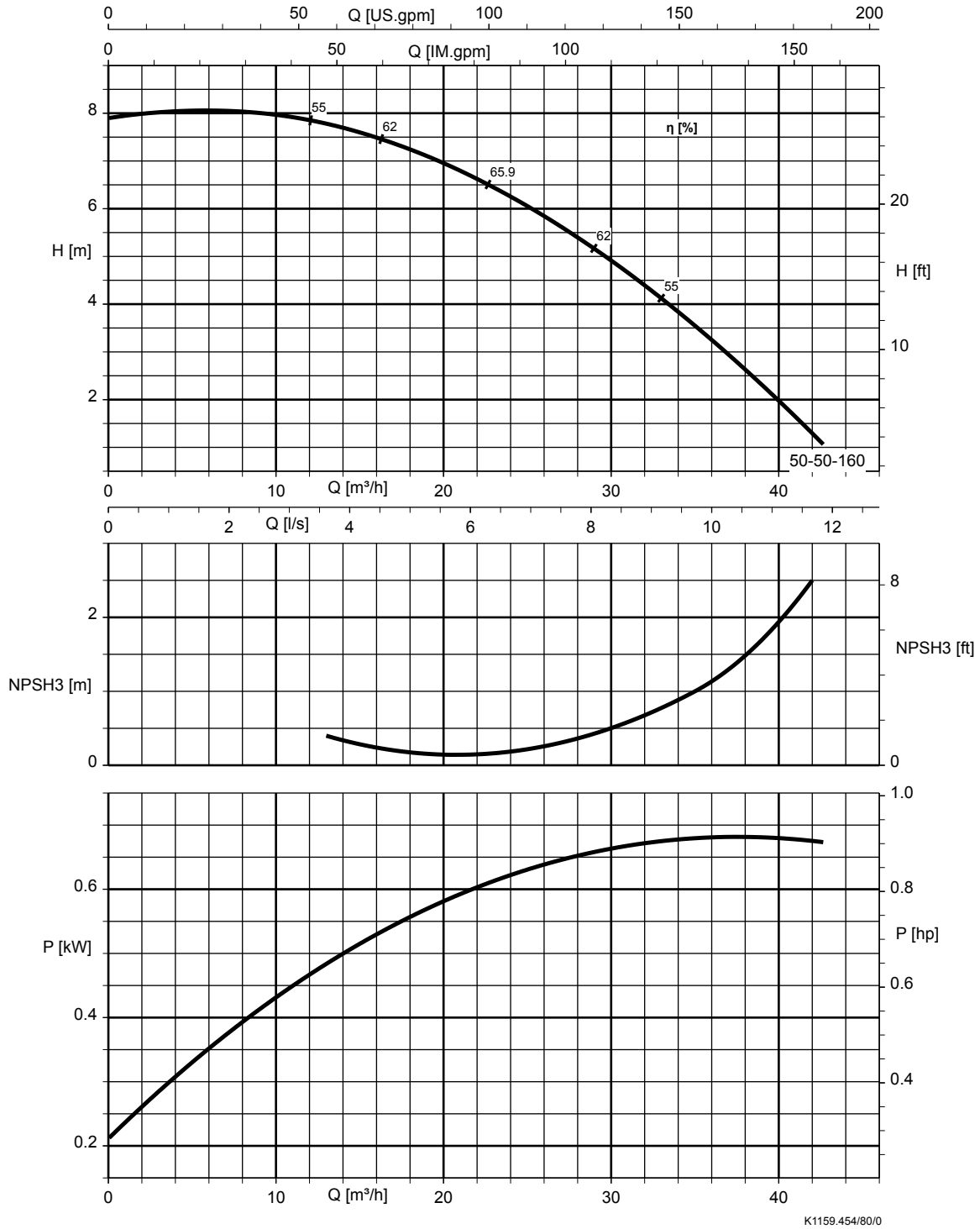
Etaline L 50-50-100, n = 1450 rpm



Etaline L 50-50-125,  $n = 1450 \text{ rpm}$

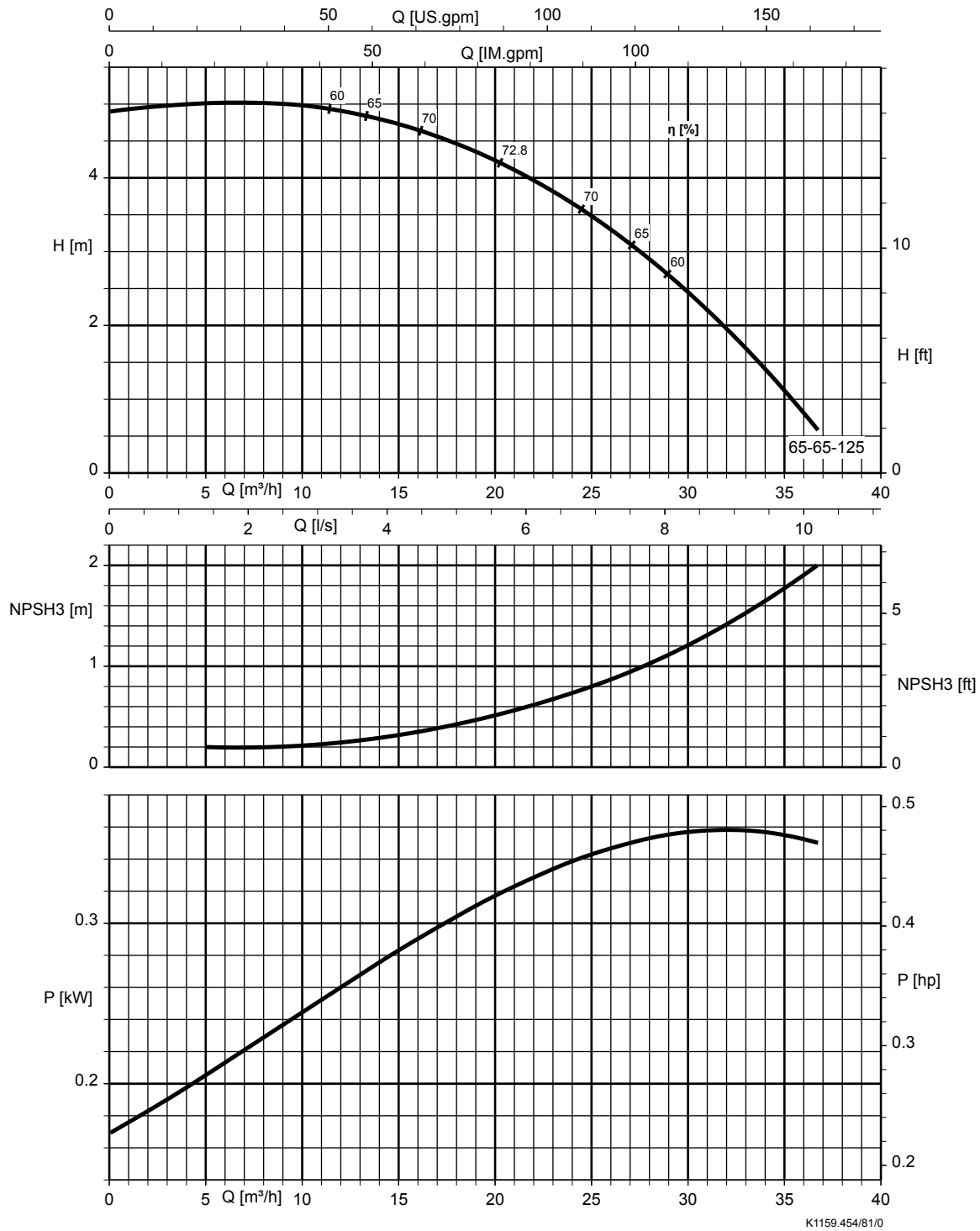


Etaline L 50-50-160,  $n = 1450 \text{ rpm}$

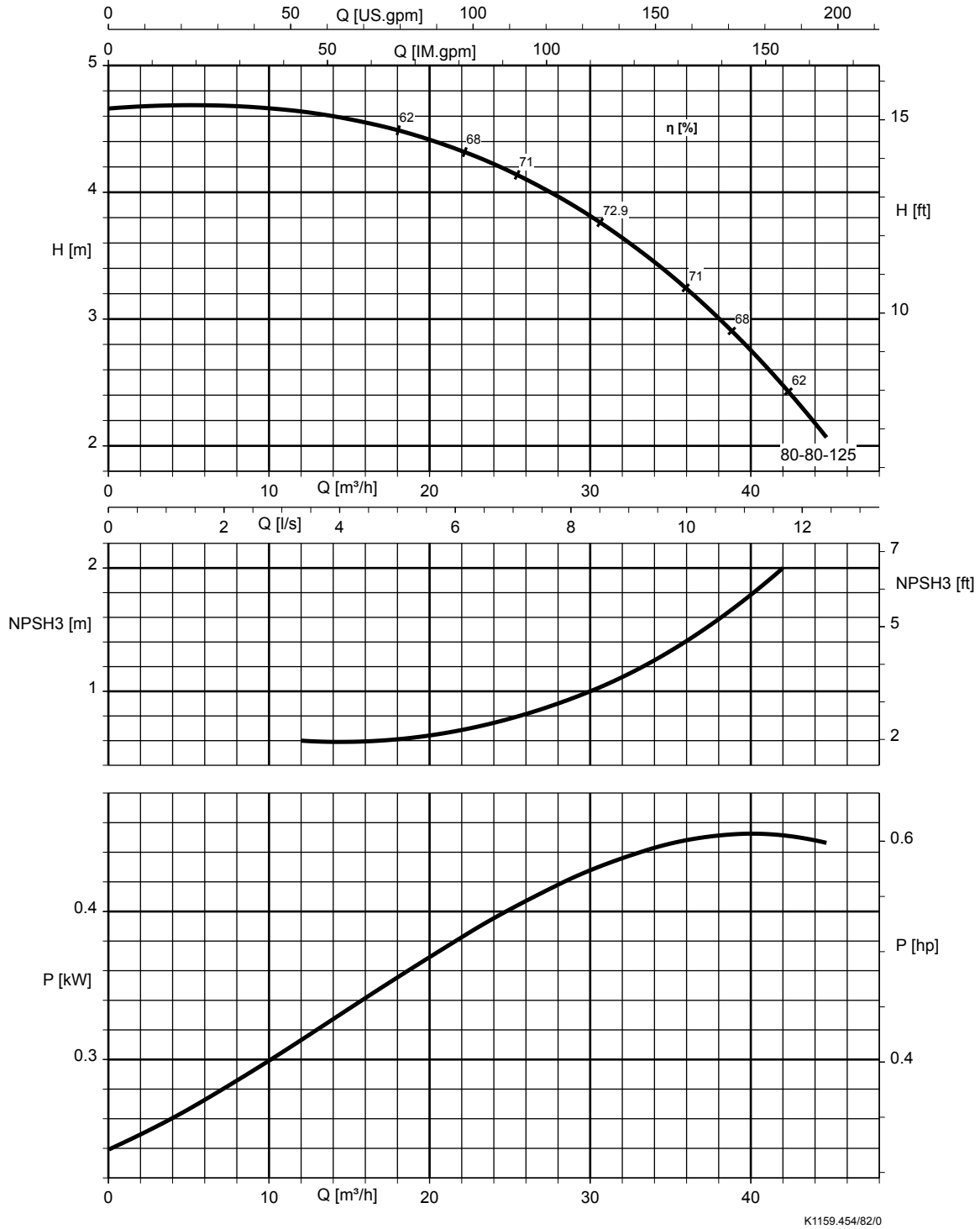




Etaline L 65-65-125, n = 1450 rpm



Etaline L 80-80-125, n = 1450 rpm



## Dimensions and connections

### Connections

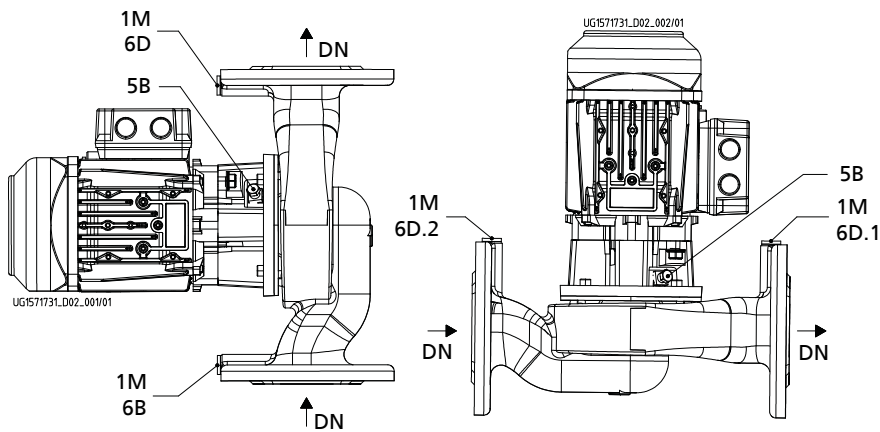


Fig. 1: Connections

#### Connection types

| Connection     | Description                                     | Configuration                                                      | Position                            |
|----------------|-------------------------------------------------|--------------------------------------------------------------------|-------------------------------------|
| 1M             | Pressure gauge connection                       | Drilled and closed, or pressure sensor for PumpMeter (if selected) | Suction flange and discharge flange |
| 5B             | Vent connection for the mechanical seal chamber | Plugged with vent plug                                             | Casing cover                        |
| 6B             | Fluid drain                                     | Drilled and closed                                                 | Volute casing                       |
| 6D, 6D.1, 6D.2 | Fluid priming and venting                       | Drilled and closed                                                 | Volute casing                       |

#### Connection

| Etaline L   | 1M, 6B, 6D, 6D.1, 6D.2 |
|-------------|------------------------|
| 032-032-100 | G 1/4                  |
| 032-032-105 | G 1/4                  |
| 032-032-125 | G 1/4                  |
| 040-040-060 | G 1/4                  |
| 040-040-090 | G 1/4                  |
| 040-040-100 | G 1/4                  |
| 050-050-090 | G 1/4                  |
| 050-050-100 | G 1/4                  |

| Etaline L   | 1M, 6B, 6D, 6D.1, 6D.2 |
|-------------|------------------------|
| 050-050-110 | G 1/4                  |
| 050-050-125 | G 1/4                  |
| 050-050-160 | G 1/4                  |
| 065-065-100 | G 1/4                  |
| 065-065-115 | G 1/4                  |
| 065-065-125 | G 1/4                  |
| 080-080-105 | G 1/4                  |
| 080-080-115 | G 1/4                  |
| 080-080-125 | G 1/4                  |

### Pump set dimensions (fixed-speed version)

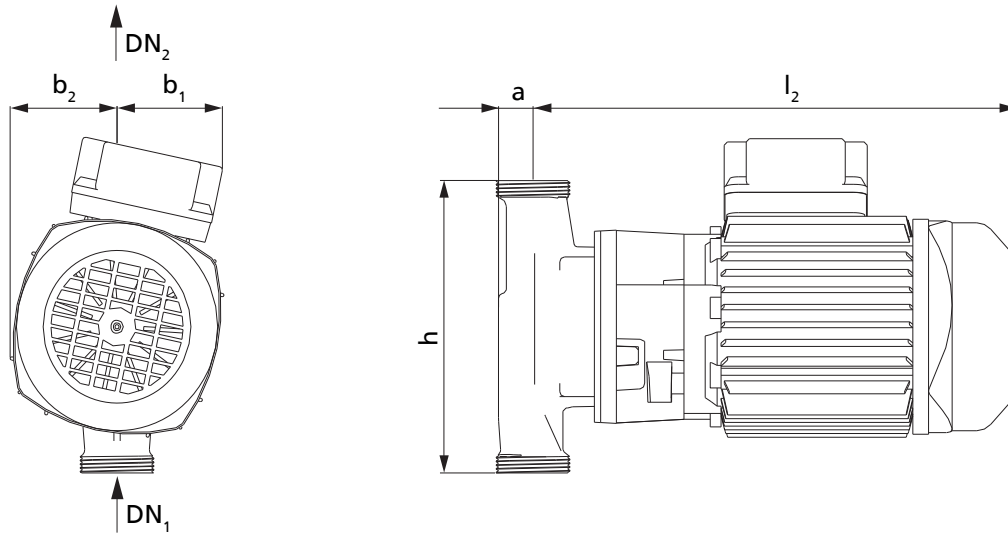


Fig. 2: Dimensions of screw-ended pump set, size < 032-032-100

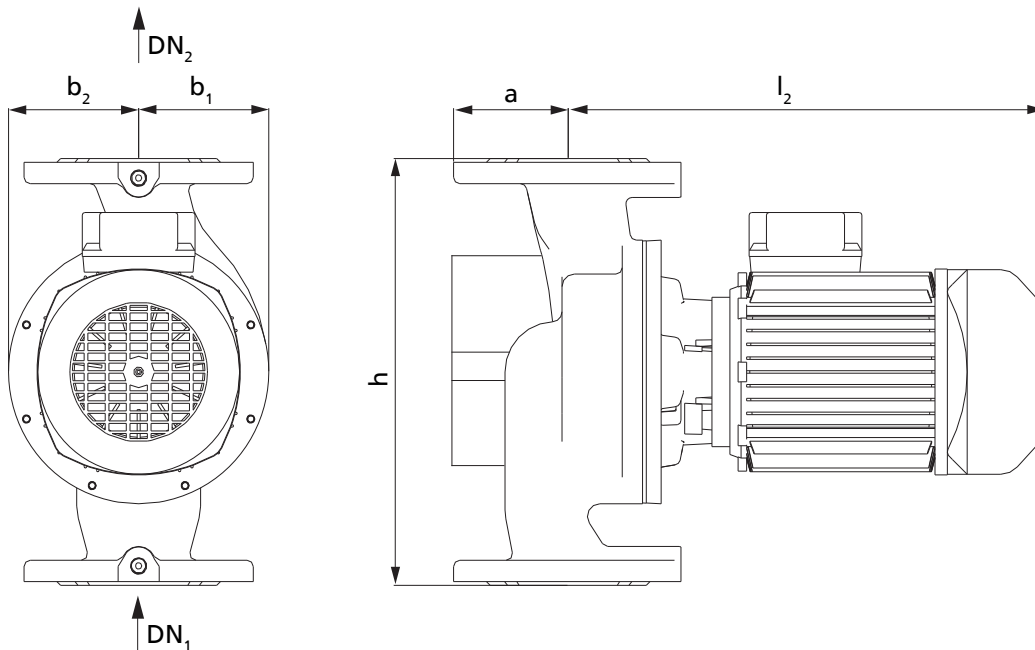


Fig. 3: Dimensions of flanged pump set, size ≥ 032-032-100

Dimensions,  $n = 2900 \text{ rpm}$

| Etaline L     | $P_2$               | $P_N$ | DN   | Connection | a    | h    | $b_1$ | $b_2$ | $l_2$ |
|---------------|---------------------|-------|------|------------|------|------|-------|-------|-------|
|               | Max. <sup>13)</sup> |       |      |            |      |      |       |       |       |
|               | [kW]                | [kW]  | [mm] | Thread     | [mm] | [mm] | [mm]  | [mm]  | [mm]  |
| 025-025-063   | 0,30                | 0,25  | 25   | G 1 1/2    | 30   | 180  | 67    | 68    | 266   |
| 025-025-070.1 | 0,14                | 0,12  | 25   | G 1 1/2    | 53   | 180  | 68    | 68    | 282   |
| 025-025-070.1 | 0,21                | 0,18  | 25   | G 1 1/2    | 53   | 180  | 68    | 68    | 282   |
| 025-025-071   | 0,30                | 0,25  | 25   | G 1 1/2    | 30   | 180  | 67    | 68    | 266   |
| 025-025-080   | 0,30                | 0,25  | 25   | G 1 1/2    | 30   | 180  | 67    | 68    | 266   |
| 025-025-080   | 0,44                | 0,37  | 25   | G 1 1/2    | 30   | 180  | 67    | 68    | 315   |
| 025-025-085   | 0,21                | 0,18  | 25   | G 1 1/2    | 35   | 200  | 80    | 84    | 287   |
| 025-025-105   | 0,44                | 0,37  | 25   | G 1 1/2    | 35   | 200  | 80    | 84    | 287   |
| 032-032-063   | 0,30                | 0,25  | 32   | G 2        | 30   | 180  | 67    | 68    | 266   |
| 032-032-071   | 0,30                | 0,25  | 32   | G 2        | 30   | 180  | 67    | 68    | 266   |
| 032-032-080   | 0,30                | 0,25  | 32   | G 2        | 30   | 180  | 67    | 68    | 266   |

13) Continuous duty S1

| Etaline L   | P <sub>2</sub>      | P <sub>N</sub> | DN   | Connection | a    | h    | b <sub>1</sub> | b <sub>2</sub> | l <sub>2</sub> |
|-------------|---------------------|----------------|------|------------|------|------|----------------|----------------|----------------|
|             | Max. <sup>13)</sup> |                |      |            |      |      |                |                |                |
|             | [kW]                | [kW]           | [mm] | Thread     | [mm] | [mm] | [mm]           | [mm]           | [mm]           |
| 032-032-080 | 0,44                | 0,37           | 32   | G 2        | 30   | 180  | 67             | 68             | 315            |
| 032-032-100 | 0,30                | 0,25           | 32   | -          | 70   | 220  | 72             | 70             | 280            |
| 032-032-105 | 0,66                | 0,55           | 32   | -          | 70   | 260  | 88             | 80             | 302            |
| 032-032-125 | 0,90                | 0,75           | 32   | -          | 70   | 260  | 88             | 80             | 302            |
| 040-040-060 | 0,30                | 0,25           | 40   | -          | 70   | 250  | 75             | 75             | 270            |
| 040-040-060 | 0,44                | 0,37           | 40   | -          | 70   | 250  | 75             | 75             | 295            |
| 040-040-090 | 0,66                | 0,55           | 40   | -          | 75   | 250  | 75             | 75             | 395            |
| 040-040-090 | 0,90                | 0,75           | 40   | -          | 75   | 250  | 75             | 75             | 315            |
| 040-040-100 | 0,90                | 0,75           | 40   | -          | 75   | 250  | 75             | 75             | 315            |
| 050-050-090 | 0,66                | 0,55           | 50   | -          | 85   | 280  | 86             | 85             | 280            |
| 050-050-100 | 0,90                | 0,75           | 50   | -          | 85   | 280  | 86             | 85             | 290            |
| 050-050-110 | 1,30                | 1,10           | 50   | -          | 85   | 280  | 94             | 85             | 325            |
| 050-050-125 | 2,20                | 1,80           | 50   | -          | 85   | 280  | 94             | 85             | 355            |
| 065-065-100 | 1,30                | 1,10           | 65   | -          | 95   | 340  | 105            | 105            | 360            |
| 065-065-115 | 2,20                | 1,80           | 65   | -          | 95   | 340  | 105            | 105            | 390            |
| 065-065-125 | 3,40                | 3,00           | 65   | -          | 95   | 340  | 105            | 105            | 405            |
| 080-080-105 | 1,30                | 1,10           | 80   | -          | 105  | 360  | 130            | 105            | 325            |
| 080-080-115 | 2,20                | 1,80           | 80   | -          | 105  | 360  | 130            | 105            | 360            |
| 080-080-125 | 3,40                | 3,00           | 80   | -          | 105  | 360  | 130            | 105            | 380            |

Dimensions, n = 1450 rpm

| Etaline L   | P <sub>2</sub>      | P <sub>N</sub> | DN   | Connection | a    | h    | b <sub>1</sub> | b <sub>2</sub> | l <sub>2</sub> |
|-------------|---------------------|----------------|------|------------|------|------|----------------|----------------|----------------|
|             | Max. <sup>14)</sup> |                |      |            |      |      |                |                |                |
|             | [kW]                | [kW]           | [mm] | Thread     | [mm] | [mm] | [mm]           | [mm]           | [mm]           |
| 025-025-080 | 0,14                | 0,12           | 25   | G 1 1/2    | 30   | 180  | 67             | 68             | 266            |
| 032-032-080 | 0,14                | 0,12           | 32   | G 2        | 30   | 180  | 67             | 68             | 266            |
| 032-032-125 | 0,14                | 0,12           | 32   | G 2        | 70   | 260  | 88             | 80             | 302            |
| 040-040-100 | 0,14                | 0,12           | 40   | -          | 75   | 250  | 75             | 75             | 295            |
| 050-050-100 | 0,14                | 0,12           | 50   | -          | 85   | 280  | 86             | 85             | 280            |
| 050-050-125 | 0,21                | 0,18           | 50   | -          | 85   | 280  | 94             | 85             | 280            |
| 050-050-160 | 0,90                | 0,75           | 50   | -          | 87   | 340  | 155            | 105            | 355            |
| 065-065-125 | 0,44                | 0,37           | 65   | -          | 95   | 340  | 105            | 105            | 311            |
| 080-080-125 | 0,44                | 0,37           | 80   | -          | 105  | 360  | 130            | 105            | 275            |

14) Continuous duty S1

## Flange dimensions

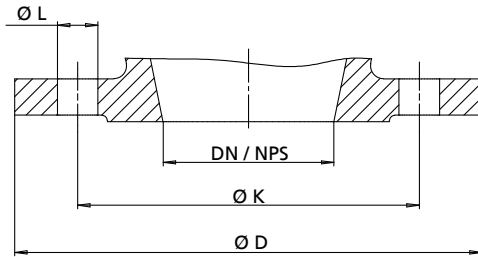


Fig. 4: Flange dimensions

Flange dimensions [mm]

| DN / NPS     | Standard  |     |                   |      |     |                   |                    | Comment                     |
|--------------|-----------|-----|-------------------|------|-----|-------------------|--------------------|-----------------------------|
|              | EN 1092-2 |     |                   |      |     | DIN EN ISO 228-1  |                    |                             |
|              | Material  |     |                   |      |     |                   |                    |                             |
|              | G, B      |     |                   |      |     |                   |                    |                             |
|              | PN 10     |     |                   | PN 6 |     |                   | Thread             |                             |
|              | Ø K       | Ø D | Number of holes L | Ø K  | Ø D | Number of holes L |                    |                             |
| 25           | -         | -   | -                 | -    | -   | -                 | G 1 1/2            | -                           |
| 32 / NPS11/4 | 100       | 140 | 4xØ19             | 90   | 140 | 4xØ14             | G 2 <sup>15)</sup> | Adapter flange PN6/<br>PN10 |
| 40 / NPS11/2 | 110       | 150 | 4xØ19             | 100  | 150 | 4xØ14             | -                  |                             |
| 50 / NPS2    | 125       | 165 | 4xØ19             | 110  | 165 | 4xØ14             | -                  |                             |
| 65 / NPS21/2 | 145       | 185 | 4xØ19             | 130  | 185 | 4xØ14             | -                  |                             |
| 80 / NPS3    | 160       | 200 | 8xØ19             | -    | -   | -                 | -                  |                             |

## Flange design

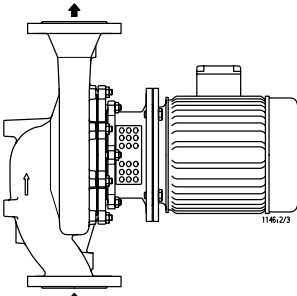
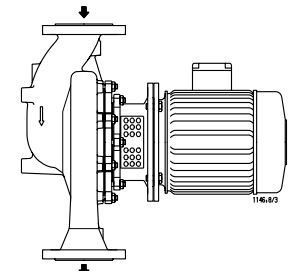
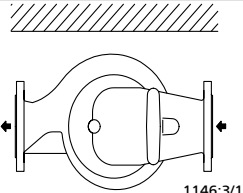
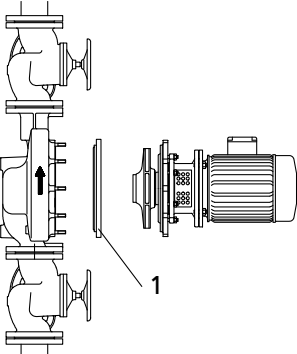
Flange design by materials

| Material variant | Standard             | Nominal size               | Pressure class |
|------------------|----------------------|----------------------------|----------------|
| GG, GP, BB, GP   | DIN EN ISO 228-1     | DN 25                      | PN 10          |
|                  | DIN EN ISO 228-1     | 032-032-063 to 032-032-080 | PN 10          |
|                  | Drilled to EN 1092-2 | DN 32 - DN 65              | PN 6 / PN 10   |
|                  | EN 1092-2            | DN 80                      | PN 10          |

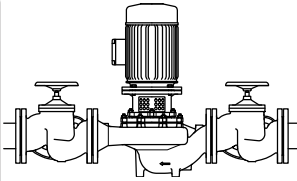
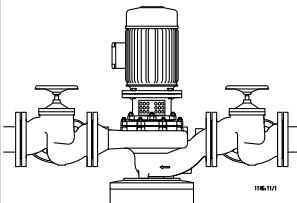
15) For sizes < 032-032-100 only

## Typical installation positions

### Horizontal installation

| Example drawing                                                                                                               | Special features                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Direction of flow from bottom to top</p> | <p><b>Direction of flow from bottom to top</b></p>                                                                                                                                                              |
|  <p>Direction of flow from top to bottom</p> | <p><b>Direction of flow from top to bottom</b></p> <p>The volute casing and/or back pull-out unit must be turned by 180° so that the terminal box remains in its current position on top.</p>                   |
|  <p>Horizontal installation</p>             | <p><b>Horizontal installation (for example under the ceiling)</b></p> <p>The volute casing and/or back pull-out unit must be turned by 90° so that the terminal box remains in its current position on top.</p> |
|  <p>Installation with blind flange</p>     | <p><b>1 = Blind flange (accessories)</b></p> <p>If one of the pumps needs to be serviced, the pump chamber can be shut off by a blind flange so that the system remains operational.</p>                        |

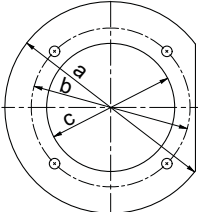
## Vertical installation

| Example drawing                                                                                                               | Special features                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Vertical installation without feet</p>   | <b>Mounted without feet</b><br>Installed directly in the piping. Always anchor the pipes in close proximity to the pump in this case. |
|  <p>Vertical installation with pump foot</p> | <b>Mounted on pump foot (accessory)</b><br>Available upon request.                                                                    |

## Accessories

## Pump accessories (fixed-speed version)

Overview of pump accessories

| Component                                                                                                                        | Ø a / Ø b / Ø c     | For size      | Mat. No.   | [kg] |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|------------|------|
|                                                                                                                                  | [mm]                |               |            |      |
| <div>Blind flange with sealing element</div>  | 140 / 105 / 84,8    | 025-025-063   | 01734726   | 0,8  |
|                                                                                                                                  |                     | 025-025-070.1 |            |      |
|                                                                                                                                  |                     | 025-025-071   |            |      |
|                                                                                                                                  |                     | 025-025-080   |            |      |
|                                                                                                                                  |                     | 032-032-063   |            |      |
|                                                                                                                                  |                     | 032-032-071   |            |      |
|                                                                                                                                  |                     | 032-032-080   |            |      |
|                                                                                                                                  |                     | 040-040-060   |            |      |
|                                                                                                                                  | 140 / 122 / 101,8   | 032-032-100   | 01734727   | 0,9  |
|                                                                                                                                  |                     | 040-040-090   |            |      |
|                                                                                                                                  |                     | 040-040-100   |            |      |
|                                                                                                                                  |                     | 050-050-090   |            |      |
|                                                                                                                                  |                     | 050-050-100   |            |      |
|                                                                                                                                  | 161 / 147 / 125,8   | 025-025-085   | 01734725   | 1,6  |
|                                                                                                                                  |                     | 025-025-105   |            |      |
|                                                                                                                                  |                     | 025-025-110   |            |      |
|                                                                                                                                  |                     | 025-025-115   |            |      |
|                                                                                                                                  |                     | 025-025-120   |            |      |
|                                                                                                                                  |                     | 032-032-105   |            |      |
|                                                                                                                                  |                     | 032-032-125   |            |      |
|                                                                                                                                  |                     | 050-050-110   |            |      |
|                                                                                                                                  | 050-050-125         |               |            |      |
|                                                                                                                                  | 210 / 171,5 / 160,8 | 050-050-160   | 01734723   | 3,2  |
|                                                                                                                                  | 210 / 196 / 126,5   | 065-065-100   | 01734724   | 2,6  |
|                                                                                                                                  |                     | 065-065-115   |            |      |
|                                                                                                                                  |                     | 065-065-125   |            |      |
|                                                                                                                                  |                     | 080-080-105   |            |      |
|                                                                                                                                  |                     | 080-080-115   |            |      |
| 080-080-125                                                                                                                      |                     |               |            |      |
| Pump foot                                                                                                                        |                     |               | On request |      |



## Electrical accessories

Further electrical accessories

| Component                                                                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>PumpDrive 2 Eco</p> | <p><b>PumpDrive 2 Eco</b> self-cooling frequency inverter</p> <p>PumpDrive 2 Eco is a modular, self-cooling frequency inverter which enables continuously variable speed control of asynchronous motors and synchronous reluctance motors by means of analog standard signals or the control panel.</p> <p>The parts of the PumpDrive 2 Eco housing which are in contact with the atmosphere are free from paint-wetting impairment substances.</p> <p>Installation options:</p> <ul style="list-style-type: none"> <li>▪ Motor-mounted model</li> <li>▪ Wall-mounted model</li> <li>▪ Cabinet-mounted model</li> </ul> |

# General assembly drawing with list of components

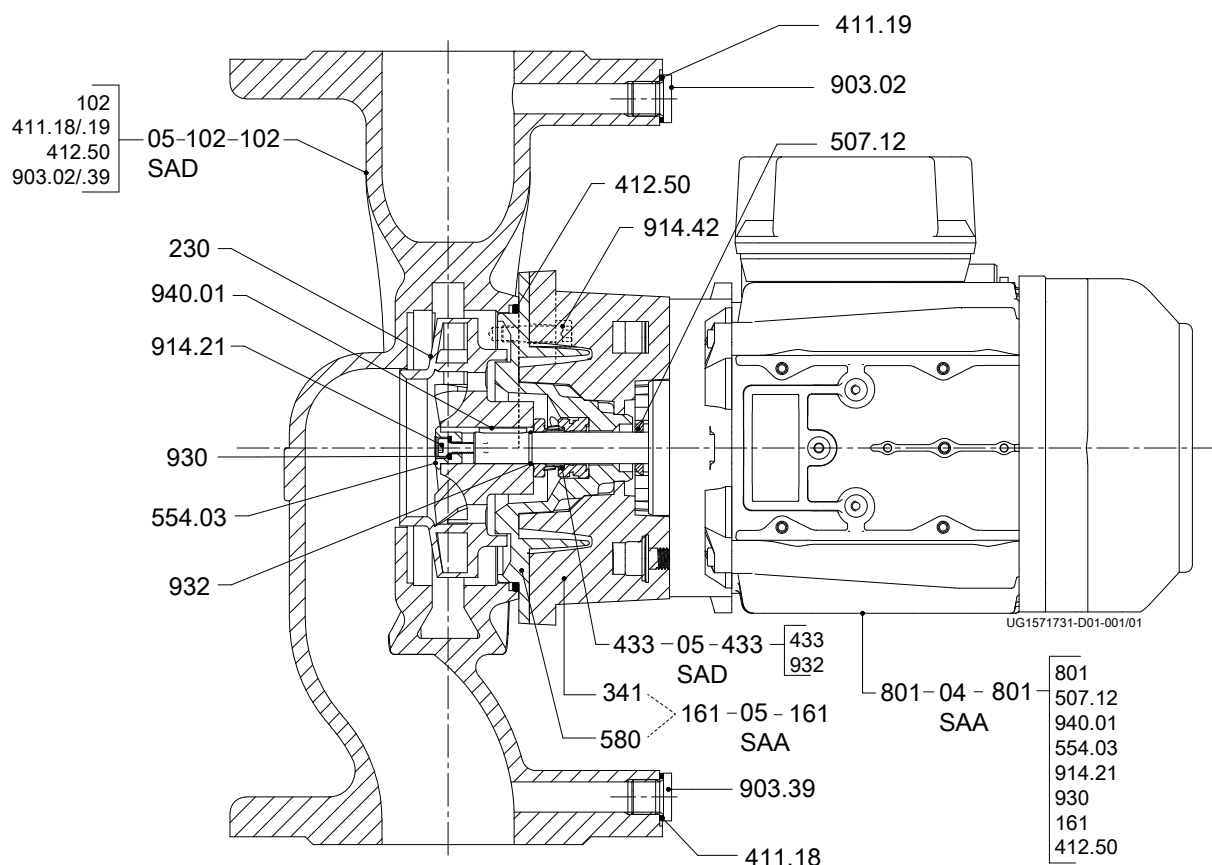


Fig. 5: General assembly drawing

## List of components

| Part No.   | Description     | Part No.   | Description                   |
|------------|-----------------|------------|-------------------------------|
| 102        | Volute casing   | 554.03     | Washer                        |
| 161        | Casing cover    | 580        | Cap                           |
| 230        | Impeller        | 801        | Flanged motor                 |
| 341        | Drive lantern   | 903.02/.39 | Screw plug                    |
| 411.18/.19 | Joint ring      | 914.21/.42 | Hexagon socket head cap screw |
| 412.50     | O-ring          | 930        | Safety device                 |
| 433        | Mechanical seal | 932        | Circlip                       |
| 507.12     | Thrower         | 940.01     | Key                           |

The following spare parts kits are available:

| Spare parts kits | Part No.   | Description                   |
|------------------|------------|-------------------------------|
| 102-05 SAD       | 102        | Volute casing                 |
|                  | 411.18/.19 | Joint ring                    |
|                  | 412.50     | O-ring                        |
|                  | 903.02/.29 | Screw plug                    |
| 230              | 230        | Impeller                      |
| 433-05 SAD       | 433        | Mechanical seal               |
|                  | 932        | Circlip                       |
|                  | 161        | Casing cover                  |
| 801-04 SAA       | 412.50     | O-ring                        |
|                  | 507.12     | Thrower                       |
|                  | 554.03     | Washer                        |
|                  | 801        | Flanged motor                 |
|                  | 914.01     | Hexagon socket head cap screw |
|                  | 930        | Safety device                 |
|                  | 940.01     | Key                           |
| 161-05 SAD       | 341        | Drive lantern                 |

| Spare parts kits |              | Part No. | Description |
|------------------|--------------|----------|-------------|
| 161-05 SAD       | Casing cover | 580      | Cap         |



**KSB SE & Co. KGaA**  
Johann-Klein-Straße 9 • 67227 Frankenthal (Germany)  
Tel. +49 6233 86-0  
[www.ksb.com](http://www.ksb.com)

**DYSTRYBUTOR**  
**Valmark Sp. z o.o.**  
tel: (22) 868 58 58  
mail: [biuro@valmark.pl](mailto:biuro@valmark.pl)