

In-line Twin Pump

## Etaline DL

Fixed Speed / Variable Speed  
50 Hz

### Type Series Booklet



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Type Series Booklet Etaline DL

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## Heating / Air-conditioning / Ventilation

### In-line Pumps

## Etaline DL



#### Main applications

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

#### Fluids handled

- Fluids not chemically or mechanically aggressive to the materials

#### Further information on fluids handled

Overview of fluids handled (⇒ Page 8)

#### Related documents

Information/documents

Document	Reference number
Type series booklet PumpDrive 2 / PumpDrive 2 Eco	4074.5

#### Operating data

Operating properties

Characteristic	Value		
	Single-pump operation	Parallel operation	
Flow rate	Q [m <sup>3</sup> /h]	≤ 95	≤ 150
	Q [l/s]	≤ 26,3	≤ 42
Head	H [m]	≤ 21	≤ 21
Fluid temperature	T [°C]	≥ -15	≥ -15
		≤ +120	≤ +120
Operating pressure	p [bar]	≤ 10 <sup>2)</sup>	≤ 10 <sup>2)</sup>

#### Design details

##### Design

- Close-coupled design / in-line design
- Single-stage
- Horizontal installation / vertical installation
- Rigid connection between pump and motor
- Fixed speed version (without PumpDrive) / variable speed version (with PumpDrive)

##### Pump casing

- Radially split volute casing
- In-line design

##### Drive (fixed speed version)

- Surface-cooled squirrel-cage motor to KSB standard
- Efficiency class IE3 to IEC 60034-30 (≥ 0.75 kW)
- Rated voltage (50 Hz) 1~ 220 - 240 V / 3~ 220 - 240 V 3~ 380 - 420 V ≤ 1.1 kW
- Rated voltage (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

##### Drive (variable speed version)

- Surface-cooled squirrel-cage motor to KSB standard prepared for mounting a PumpDrive 2 Eco
- Efficiency class IE2 to IEC 60034-30 (≥ 0.75 kW)
- Rated voltage (50 Hz) 3~ 220 - 240 V / 3~ 380 - 420 V
- Type of construction IM B14
- Enclosure IP55
- Duty cycle: continuous duty S1
- Thermal class F

PumpDrive 2 Eco:

1) No drinking water in acc. with UBA (German drinking water regulations to German Environment Agency)  
 2) The sum of inlet pressure and shut-off head must not exceed the value indicated.

- Self-cooling frequency inverter of modular design for the continuously variable speed control of asynchronous reluctance motors and synchronous reluctance motors by means of analog standard signals or the control panel
- Mains voltage 3~ 380 V AC -10 % to 480 V AC +10 %
- Mains voltage 1~ 220 V AC -10 % to 240 V AC +10 %
- Mains frequency 50 Hz to 60 Hz  $\pm$  2 %

#### Shaft seal

- KSB mechanical seal

#### Impeller type

- Closed radial impeller

#### Bearings

- Radial ball bearings in the motor housing
- Grease lubrication

## 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 $\geq -15 - \leq +120$ [°C]
	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

Position	Code	Description
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	Design	
	-	Fixed speed version, without PumpDrive 2 Eco
	PD2E	Variable speed version, with PumpDrive 2 Eco

## Materials

Symbols key

Symbol	Description
X	Standard
-	Version not available / not feasible

Overview of available materials

Part No. (⇒ Page 38)	Description	Material	Material variant <sup>3)</sup>	
			GG	GP
102	Volute casing	Grey cast iron EN-GJL 200 / EN-GJL 250 <sup>4)</sup>	X	X
230	Impeller	Grey cast iron EN-GJL-150	X	-
		Polysulphone PSU-GF30	-	X
341	Drive lantern	Aluminium AC-46500	X	X
412.50	O-ring	EPDM	X	X
554.03	Washer	CW508L	X	X
580	Cap, conical	Polyamide 66	X	X
914.21	Hexagon socket head cap screw	A4	X	X

3) Dependent on size

4) DN 80

### Coating and preservation

- Coating and preservation to manufacturer's standard

### Product benefits

- Improved efficiency and NPSHreq 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.
- PumpDrive perfectly matched to pump and motor by default factory parameter settings
- Space-saving owing to motor-mounted variable speed system

### Product information

#### Product information as per Regulation No. 1907/2006 (REACH)

For information as per chemicals Regulation (EC) No 1907/2006 (REACH), see <http://www.ksb.com/reach>.

#### 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  $MEI \geq 0.70$ .
- 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
- 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>

### 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.

## Overview of product features / selection tables

## Overview of fluids handled

## KSB EasySelect, selection software for all applications



KSB EasySelect is a comprehensive selection tool for all applications. It guides users to an optimal solution for their projects by offering a fast, easy and user-friendly way to select and configure pumps and valves. All that is required are some project-specific criteria and a few minutes' time. The tool systematically guides the user through KSB's wide range of products to the right product for the application at hand.

Other fluids upon request.

## Symbols key

Symbol	Description
X	Standard
-	Version not available / not feasible

Excerpt from the overview of fluids handled with associated material variants

Fluid handled	T <sup>5)</sup>		Material variant Grey cast iron / grey cast iron Grey cast iron / polysulphone	Seal code		Comments
	min.	max.		BQ,EGG	Q <sub>5</sub> -Q <sub>1</sub> ,EGG	
			GG			
			[°C]		GP	
Service water	-	-	X	X	-	-
Heating water <sup>7)</sup>	-	-	X	X	-	-
Condensate	-	-	X	X	-	-
Cooling water (without antifreeze)	-	≤ +60	X	X	-	-
Cooling water pH ≥ 7.5 (with antifreeze)	≥ -10	≤ +60	X	X	-	-
Cooling water pH ≥ 7.5 (with antifreeze)	≥ +60	≤ +110	X	-	X	-
Pure water	-	≤ +60	X	X	-	-
Partly desalinated water	-	≤ +120	X	X	-	-
Fully desalinated (deionised) water, boiler feed water	-	≤ +110	X	X	-	-
Cooling brine, inorganic; pH ≥ 7.5, inhibited	≥ -10	≤ +25	X	X	-	-
Water with antifreeze, pH ≥ 7.5	≥ -10	≤ +60	X	X	-	-
Water with antifreeze, pH ≥ 7.5	≥ +60	≤ +120	X	-	X	-

5) T = fluid temperature

6) Special design

7) Treatment to VdTÜV 1466; additional requirement: O<sub>2</sub> t < 0.02 mg/l



## Overview of functions

Overview of PumpDrive 2 Eco functions

Functions / firmware	PumpDrive 2 Eco
<b>Protective functions</b>	
Thermal motor protection	X
Mains voltage monitoring	X
Phase failure, motor side	X
Short-circuit monitoring, motor side (phase to phase and phase to earth)	X
Dynamic overload protection by speed limitation ( $I^2t$ control)	X
Resonant frequency suppression	X
Broken wire detection (live zero)	X
Dry running protection (external control signal)	X
Operating point estimation and characteristic curve control	X
<b>Open-loop control</b>	
Open-loop control mode	X
<b>Closed-loop control</b>	
Closed-loop control mode via integrated PID controller	X
Pressure control / differential pressure control ( $\Delta p$ const)	X
Pressure control / differential pressure control with dynamic pressure compensation ( $\Delta p$ var)	X
Flow rate control	X
Sensorless differential pressure control ( $\Delta p$ const) in a single-pump configuration	X
Sensorless differential pressure control with dynamic pressure compensation ( $\Delta p$ var) in a single-pump configuration	X
Sensorless flow rate control	X
Level control	X
Temperature control	X
<b>Operation and monitoring (display)</b>	
Measured value display (pressure, head, speed, electric power, motor voltage, motor current, torque)	X
Fault history	X
Operating hours counter	X
Fault reporting via relay	X
<b>Frequency inverter functions</b>	
Programmable start ramps and stop ramps	X
Field-oriented control (vector control), V/f control	X
Configurable motor control method (asynchronous motor, KSB SuPremE)	X
Automatic motor adaptation (AMA)	X
Motor standstill heater	X
Manual-0-automatic mode	X
External OFF	X
External minimum speed	X
Sleep mode (stand-by mode)	X
<b>Pump functions</b>	
Flow rate estimation	X
M12 module with PumpMeter bus connection	X
M12 module for dual-pump configuration	X
Functional check run	X
Integrated dual-pump configuration (1×100 % with redundant pump or 2×50 % without redundant pump)	X
<b>Operation</b>	
Control panel	X <sup>8)</sup>
Service interface	X

8) Some functions can only be parameterised and/or displayed using the KSB ServiceTool (see operating manual).

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

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

**Pressure limits and temperature limits**

Pressure limits and temperature limits as a function of material variant

Material variant	T <sup>9)</sup>	Test pressure <sup>10)</sup>	Operating pressure
	[°C]	[bar]	[bar]
GG, GP	-15 to +120	≤ 15	≤ 10

**Technical data**
**Motor (fixed speed version), n = 2900 rpm**

50 Hz, technical data of the motor, n = 2900 rpm (fixed speed version)

Etaline DL	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		
n = 2900 rpm	[kW]	[kW]	[A]	[A]	[A]		
032-032-063	0,30	0,25	-	1,32	0,76	63	16,1
032-032-080	0,30	0,25	-	1,32	0,76	63	15,6
032-032-080	0,30	0,25	2,00	-	-	63	17,2
032-032-100	0,30	0,25	-	1,32	0,76	63	25,4
032-032-100	0,30	0,25	2,00	-	-	63	27,5
032-032-105	0,66	0,55	-	2,80	1,60	63	36
032-032-105	0,66	0,55	4,20	-	-	63	33
032-032-125	0,90	0,75	-	2,77	1,60	71	36
032-032-125	0,90	0,75	4,75	-	-	71	35,5
040-040-060	0,30	0,25	-	1,32	0,76	63	25,2
040-040-060	0,30	0,25	2,00	-	-	63	25,9
040-040-090	0,66	0,55	-	2,80	1,60	63	32,8
040-040-090	0,66	0,55	4,20	-	-	63	28,2
040-040-100	0,90	0,75	-	2,77	1,60	71	32,8
040-040-100	0,90	0,75	4,75	-	-	71	35,6
050-050-110	1,30	1,10	-	3,90	2,25	80	46,6
050-050-110	1,30	1,10	6,90	-	-	80	41,5
050-050-125	2,20	1,80	-	5,90	3,40	90S	54,6
065-065-100	1,30	1,10	-	3,90	2,25	80	58,6
065-065-100	1,30	1,10	6,90	-	-	80	50,5
065-065-115	2,20	1,80	-	5,90	3,40	90S	67,8
065-065-125	3,40	3,00	-	9,70	5,60	90L	80,8
080-080-105	1,30	1,10	-	3,90	2,25	80	63
080-080-115	2,20	1,80	-	5,90	3,40	90S	80,8
080-080-125	3,40	3,00	-	9,70	5,60	90L	93,7

11) Continuous duty S1

12) ≥ 0,75 kW = IE3

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

50 Hz, technical data of the motor, n = 1450 rpm (fixed speed version)

Etaline DL	P <sub>2</sub>	P <sub>N</sub>	I <sub>N</sub>	I <sub>N</sub>	I <sub>N</sub>	Motor	[kg]
	max. <sup>13)</sup>	IE3 <sup>14)</sup>	1~230 V	3~230 V	3~400 V		
	IE3 <sup>14)</sup>						
n = 1450 rpm	[kW]	[kW]	[A]	[A]	[A]		
032-032-125	0,14	0,12	-	0,83	0,48	63	28,8
032-032-125	0,14	0,12	1,20	-	-	63	28,8
040-040-100	0,14	0,12	-	0,83	0,48	63	26,7
040-040-100	0,14	0,12	1,20	-	-	63	27,4
050-050-125	0,21	0,18	-	1,15	0,66	63	30,8
050-050-125	0,21	0,18	1,60	-	-	63	35
050-050-160	0,90	0,75	-	2,96	1,71	80	62,7
050-050-160	0,90	0,75	5,75	-	-	80	56,4
065-065-125	0,44	0,37	-	2,15	1,25	63	47,3
065-065-125	0,44	0,37	3,20	-	-	63	47,6
080-080-125	0,44	0,37	-	2,15	1,25	63	60,2
080-080-125	0,44	0,37	3,20	-	-	63	60,8

**Motor (variable speed version), n = 2900 rpm**

50 Hz, technical data of the motor, n = 2900 rpm (variable speed version)

Etaline DL PumpDrive 2 Eco	P <sub>2</sub>	P <sub>N</sub>	I <sub>N</sub>	I <sub>N</sub>	Motor	[kg]
	max. <sup>15)</sup>	IE2 <sup>16)</sup>	1~230 V	3~400 V		
	IE2 <sup>16)</sup>					
n = 2900 rpm	[kW]	[kW]	[A]	[A]		
032-032-100	0,30	0,25	-	0,76	63	31,6
032-032-100	0,30	0,25	2,00	-	63	31,6
032-032-105	0,66	0,55	-	1,60	63	37,3
032-032-105	0,66	0,55	4,20	-	63	37,1
032-032-125	0,90	0,75	-	1,60	71	37,3
032-032-125	0,90	0,75	4,75	-	71	41,8
040-040-060	0,30	0,25	-	0,76	63	29,4
040-040-060	0,30	0,25	2,00	-	63	30,0
040-040-090	0,66	0,55	-	1,60	63	33,6
040-040-090	0,66	0,55	4,20	-	63	34,9
040-040-100	0,90	0,75	-	1,60	71	34,8
040-040-100	0,90	0,75	4,75	-	71	39,7
050-050-110	1,30	1,10	-	2,25	80	45,6
050-050-110	1,30	1,10	6,90	-	80	45,6
050-050-125	2,20	1,80	-	3,40	90S	50,6
065-065-100	1,30	1,10	-	2,25	80	54,6
065-065-100	1,30	1,10	6,90	-	80	54,6
065-065-115	2,20	1,80	-	3,40	90S	60,1
065-065-125	3,40	3,00	-	5,60	90L	68,1
080-080-105	1,30	1,10	-	2,25	80	67,1
080-080-115	2,20	1,80	-	3,40	90S	72,6
080-080-125	3,40	3,00	-	5,60	90L	81,1

13) Continuous duty S1

14) ≥ 0.75 kW = IE3

15) Continuous duty S1

16) ≥ 0.75 kW = IE2

**Motor (variable speed version), n = 1450 rpm**

50 Hz, technical data of the motor, n = 1450 rpm (variable speed version)

Etaline DL PumpDrive 2 Eco	P <sub>2</sub>	P <sub>N</sub>	I <sub>N</sub>	I <sub>N</sub>	Motor	[kg]
	max. <sup>17)</sup> IE2 <sup>18)</sup>	IE2 <sup>18)</sup>	1~230 V	3~400 V		
n = 1450 rpm	[kW]	[kW]	[A]	[A]		
032-032-125	0,14	0,12	-	0,48	63	32,9
032-032-125	0,14	0,12	1,20	-	63	32,9
040-040-100	0,14	0,12	-	0,48	63	30,8
040-040-100	0,14	0,12	1,20	-	63	31,5
050-050-125	0,21	0,18	-	0,66	63	37,6
050-050-125	0,21	0,18	1,60	-	63	39,1
050-050-160	0,90	0,75	-	1,71	80	64,1
050-050-160	0,90	0,75	5,75	-	80	61,1
065-065-125	0,44	0,37	-	1,25	63	50,1
065-065-125	0,44	0,37	3,20	-	63	50,1
080-080-125	0,44	0,37	-	1,25	63	62,6
080-080-125	0,44	0,37	3,20	-	63	63,1

**Pump**

Technical data of the pump

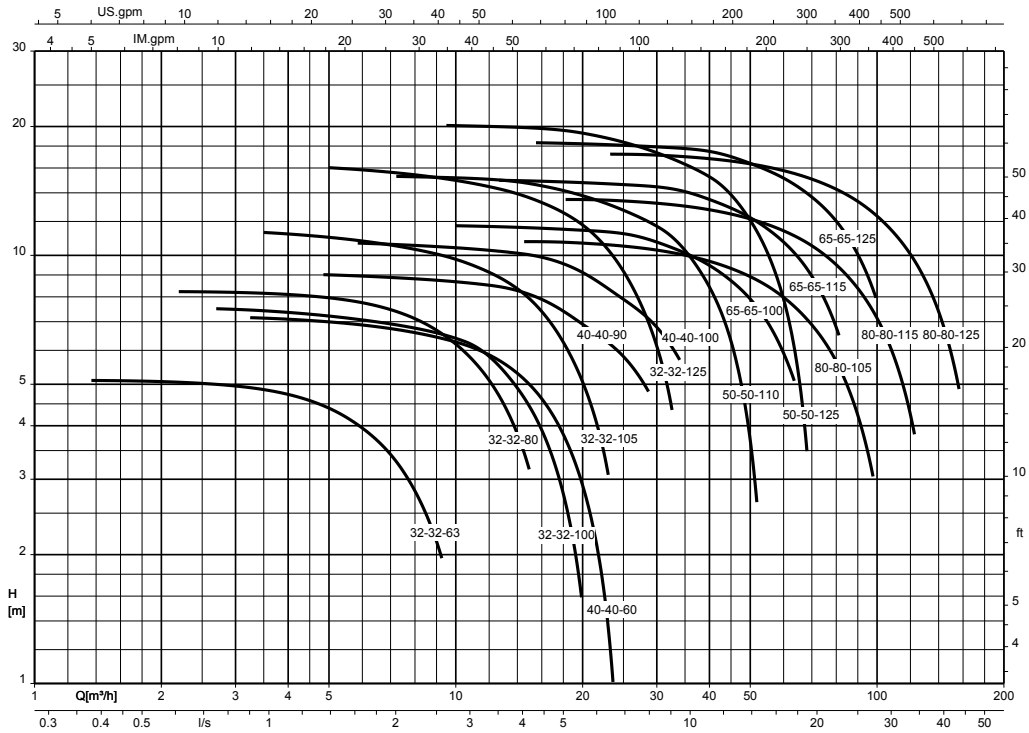
Etaline DL	Shaft unit	Impeller diameter	Speed limit	
			Minimum	Maximum
		[mm]	[rpm]	[rpm]
032-032-063	WE 12	63	500	3000
032-032-080	WE 12	80	500	3000
032-032-100	WE 12	80	500	3000
032-032-105	WE 12	105	500	3000
032-032-125	WE 12	125	500	3000
040-040-060	WE 12	80	500	3000
040-040-090	WE 12	90	500	3000
040-040-100	WE 12	98	500	3000
040-040-100	WE 14	98	500	3000
050-050-110	WE 14	109	500	3000
050-050-125	WE 12	125	500	3000
050-050-125	WE 14	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
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

17) Continuous duty S1

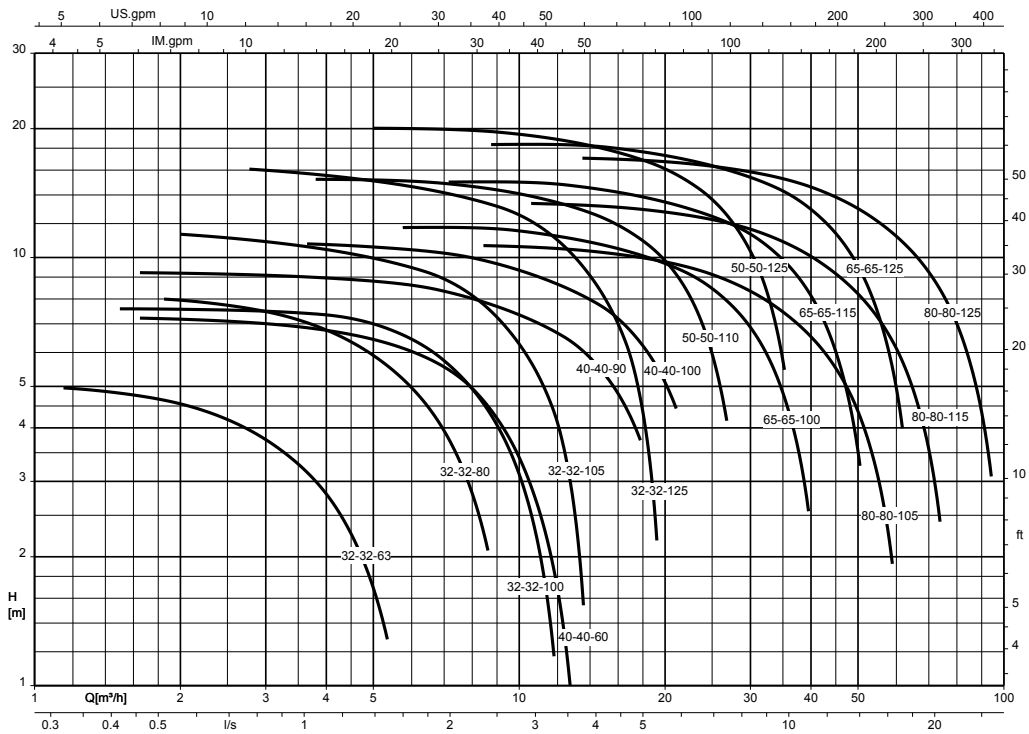
18) ≥ 0.75 kW = IE2

Selection charts

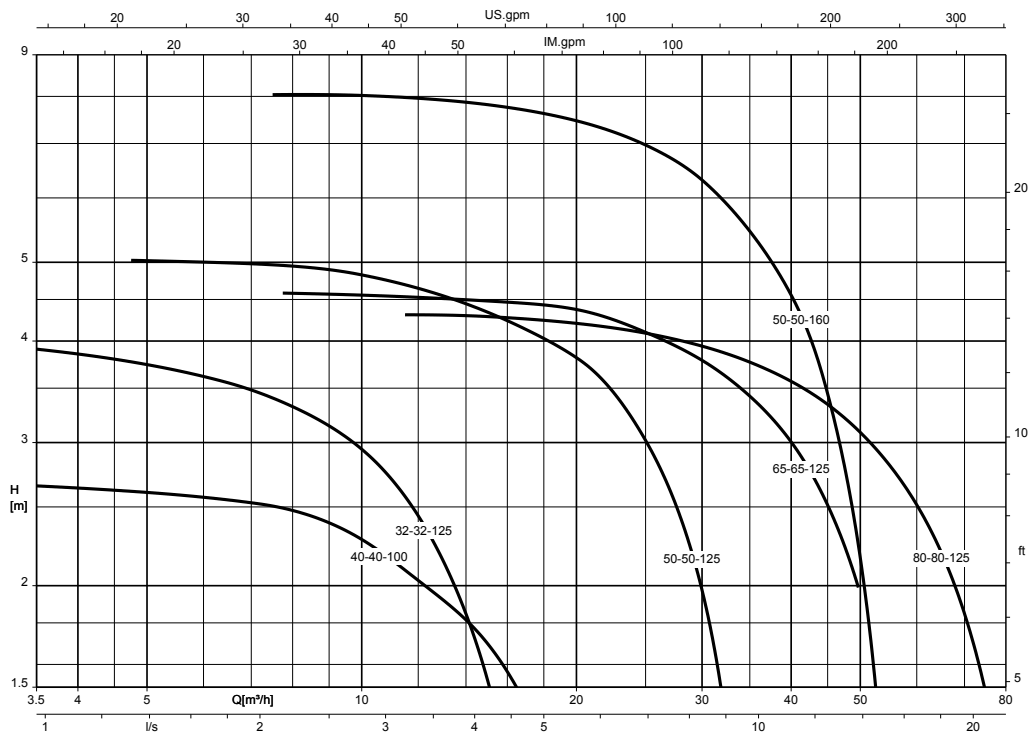
**Etaline DL (fixed speed version, parallel operation), n = 2900 rpm**



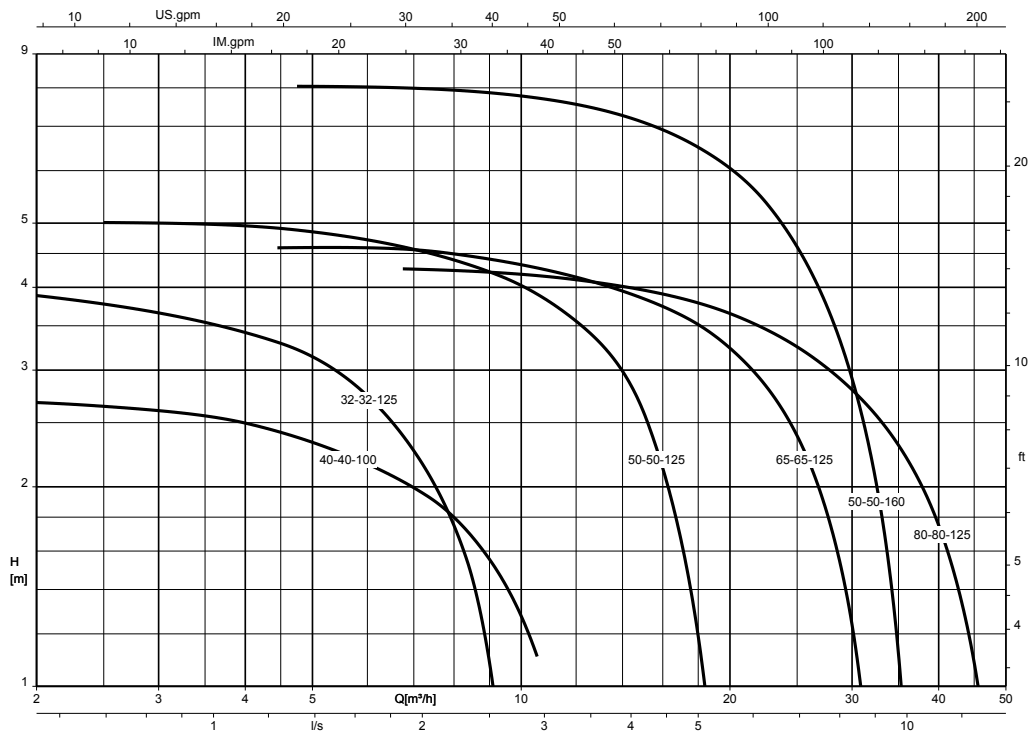
**Etaline DL (fixed speed version, single-pump operation), n = 2900 rpm**



**Etaline DL (fixed speed version, parallel operation), n = 1450 rpm**



**Etaline DL (fixed speed version, single-pump operation), 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  $Q = 0.3 \times Q_{\text{BEP}}$  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

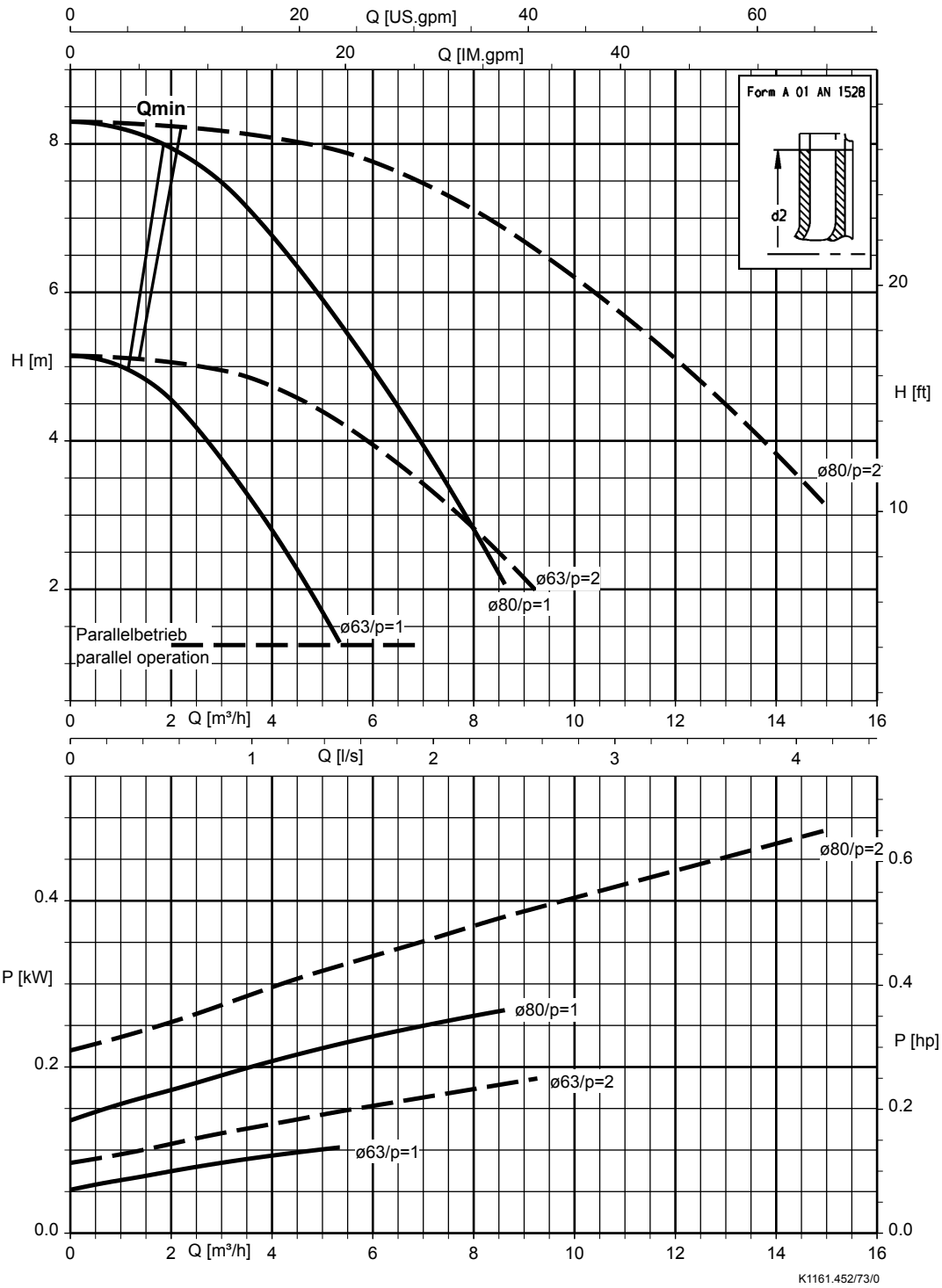
The indicated heads and performance data apply to pumped fluids with a density  $\rho = 1.0 \text{ kg/dm}^3$  and a kinematic viscosity of up to  $20 \text{ mm}^2/\text{s}$  max. If the density  $\neq 1.0$ , the performance data must be multiplied by  $\rho$ . For a viscosity  $> 20 \text{ mm}^2/\text{s}$  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 impellers, plastic impellers and bronze impellers.

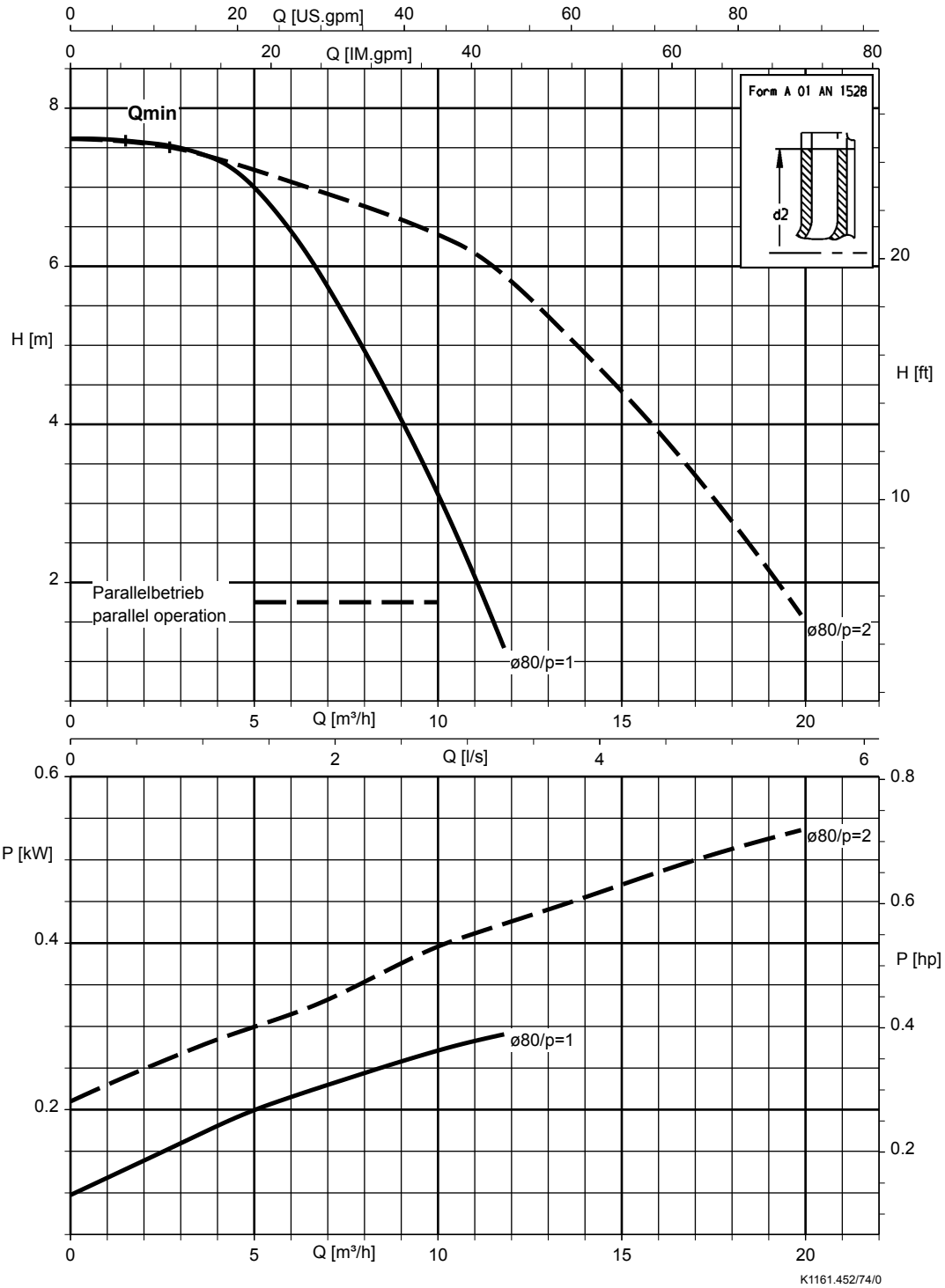
Etaline SYT (fixed speed version), n = 2900 rpm

Etaline DL 032-032-080, n = 2900 rpm

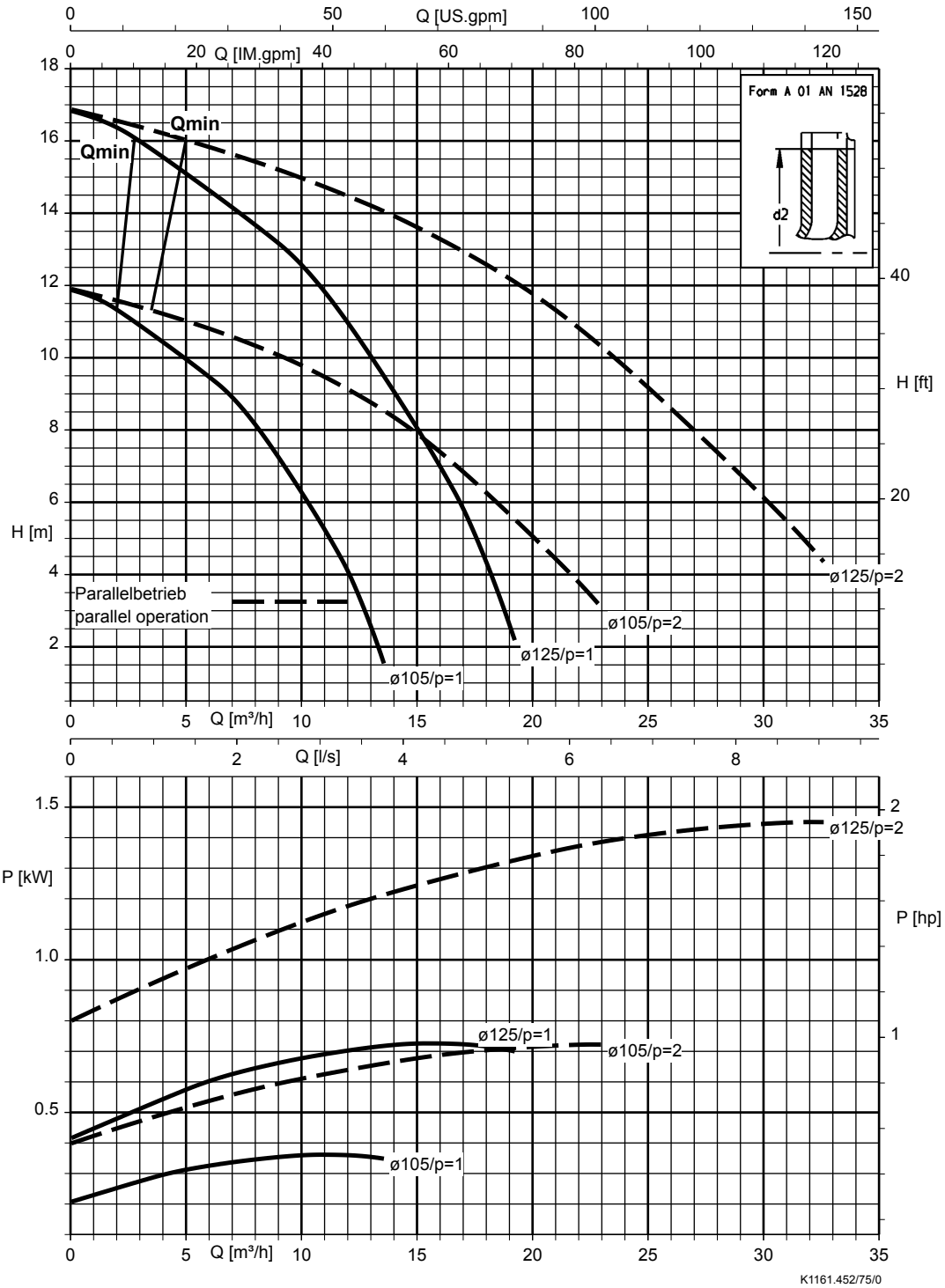




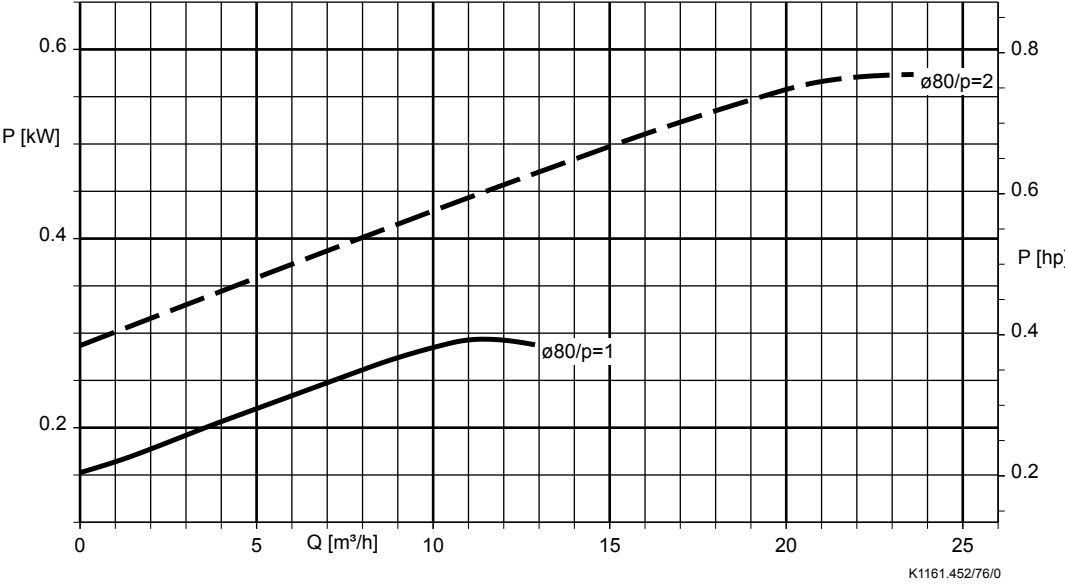
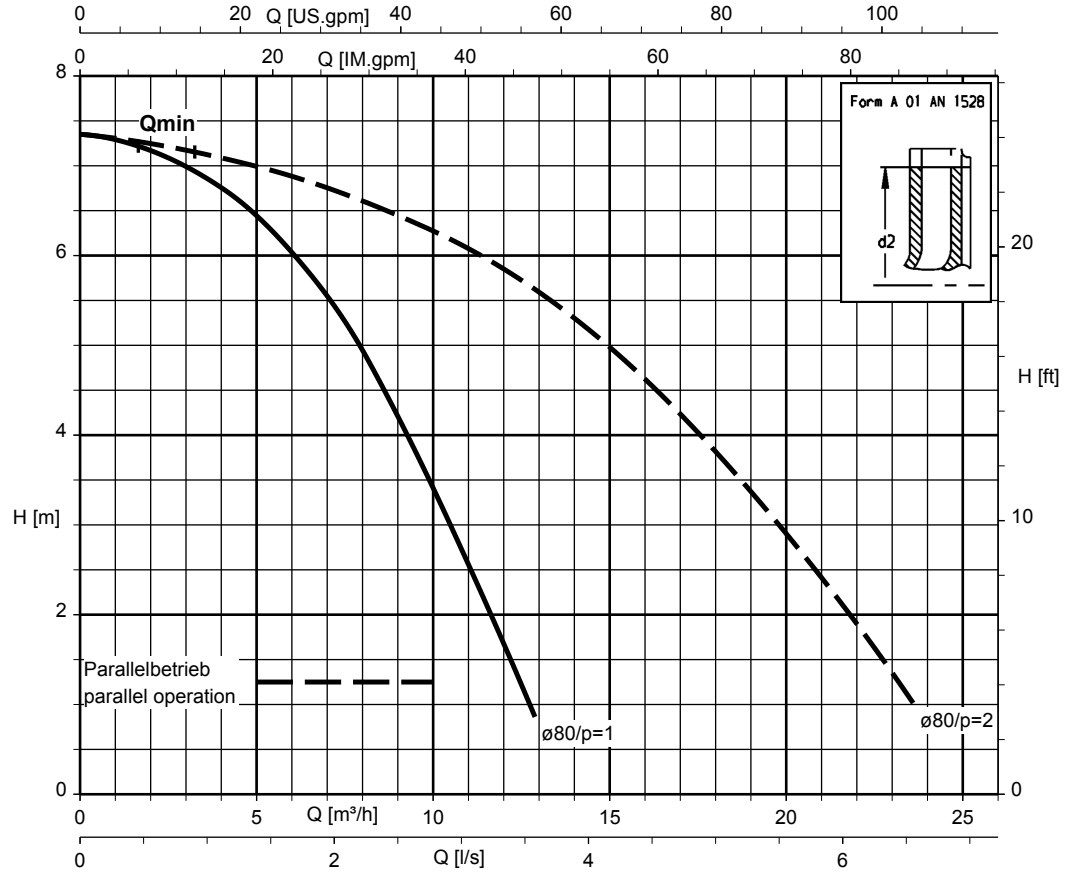
Etaline DL 032-032-100, n = 2900 rpm



Etaline DL 032-032-125, n = 2900 rpm

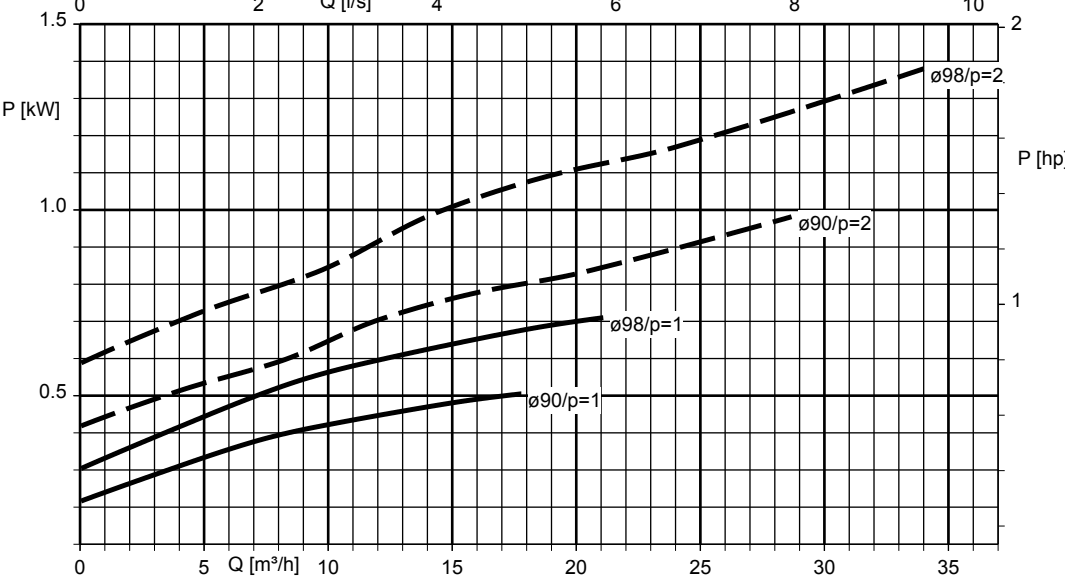
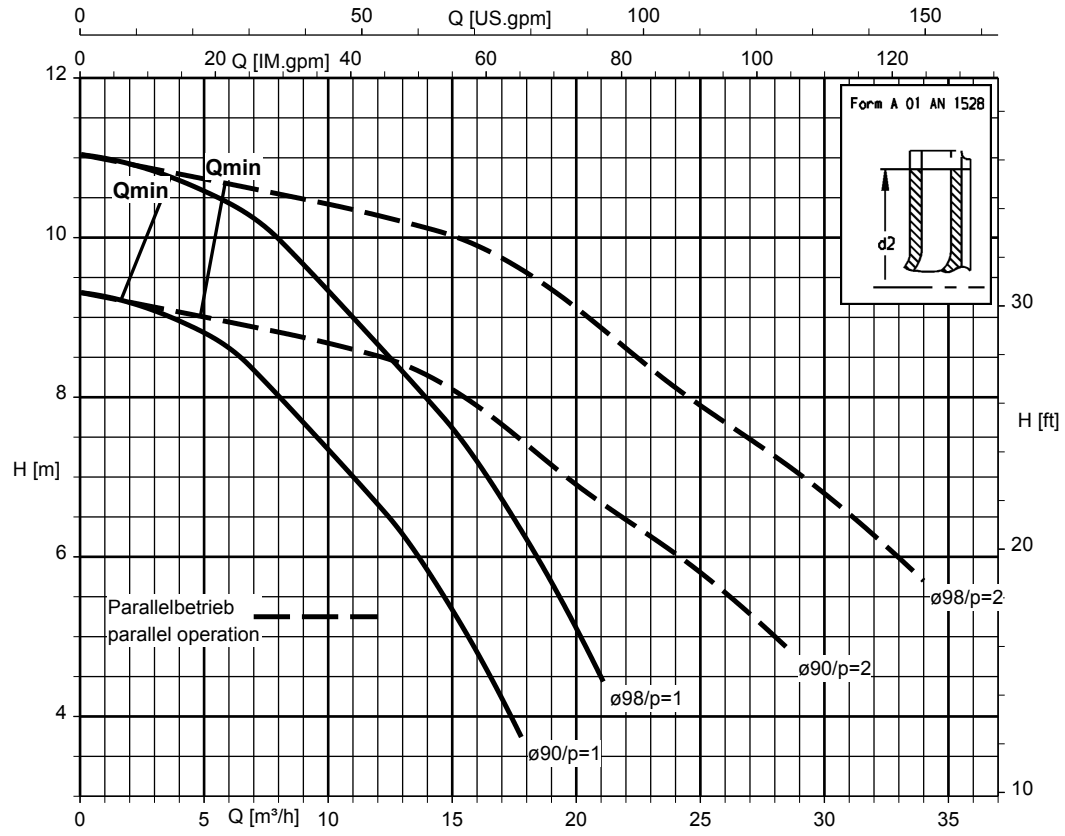


Etaline DL 040-040-060, n = 2900 rpm



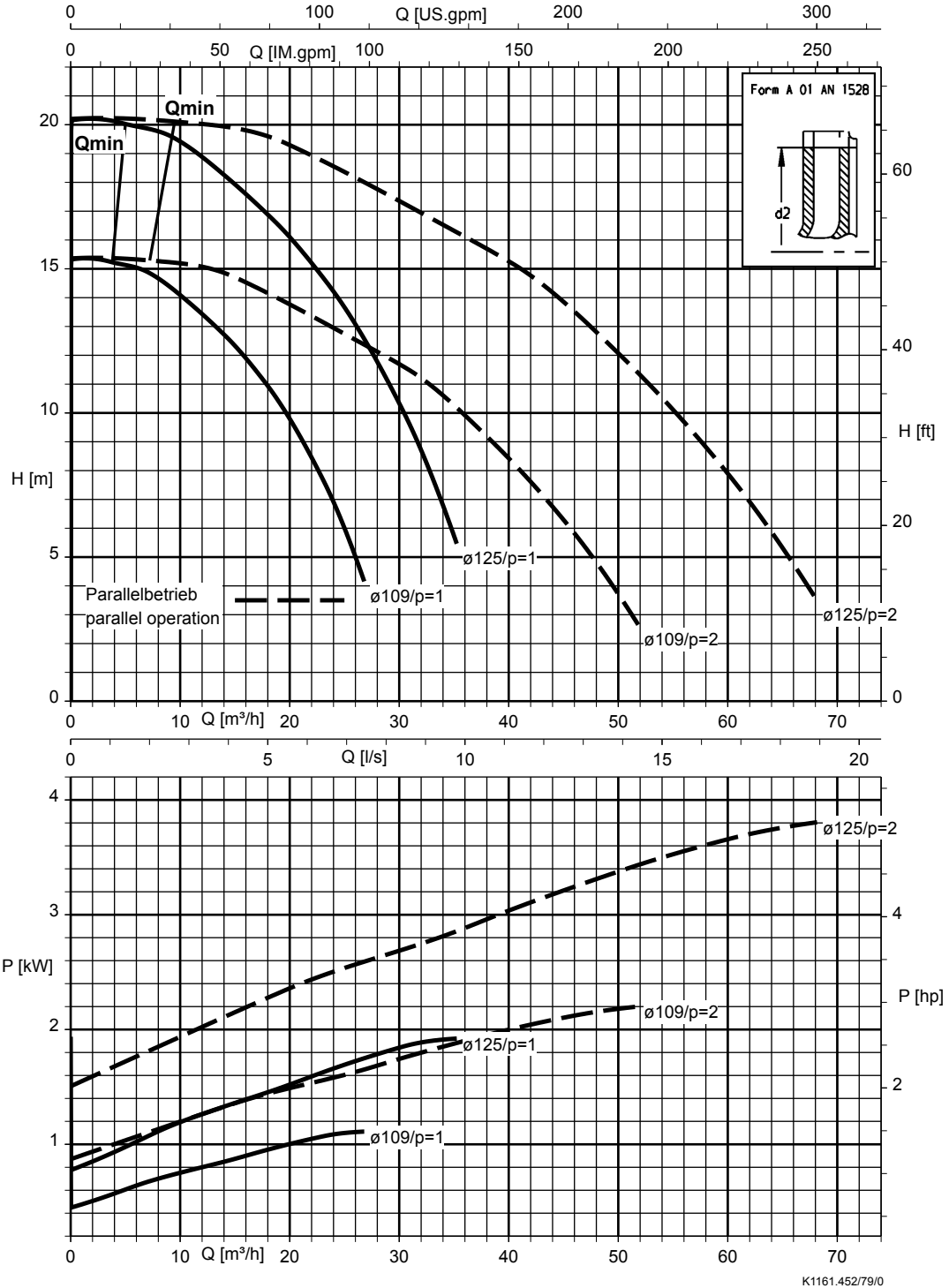
K1161.452/76/0

Etaline DL 040-040-100, n = 2900 rpm

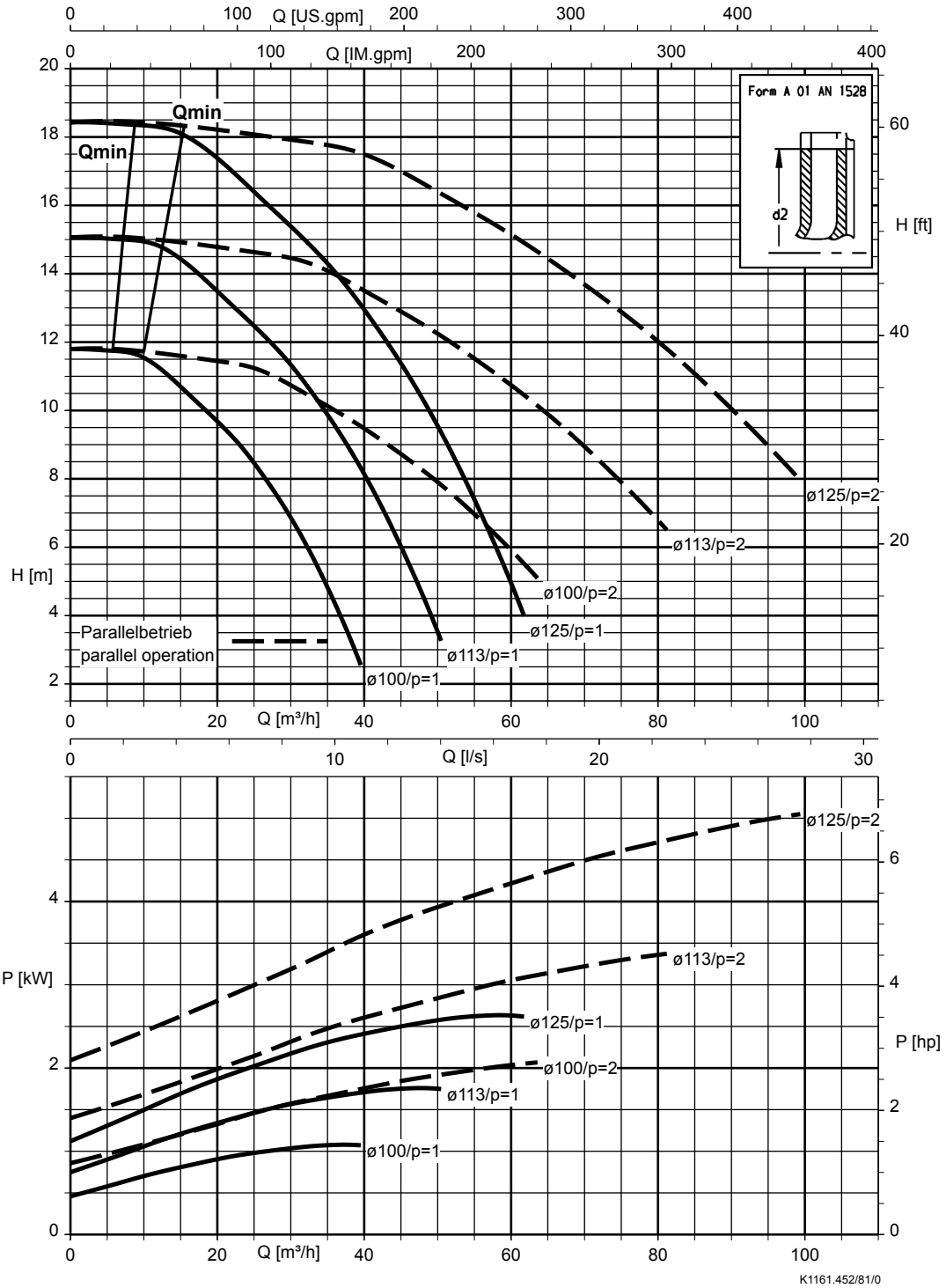


K1161.452/77/0

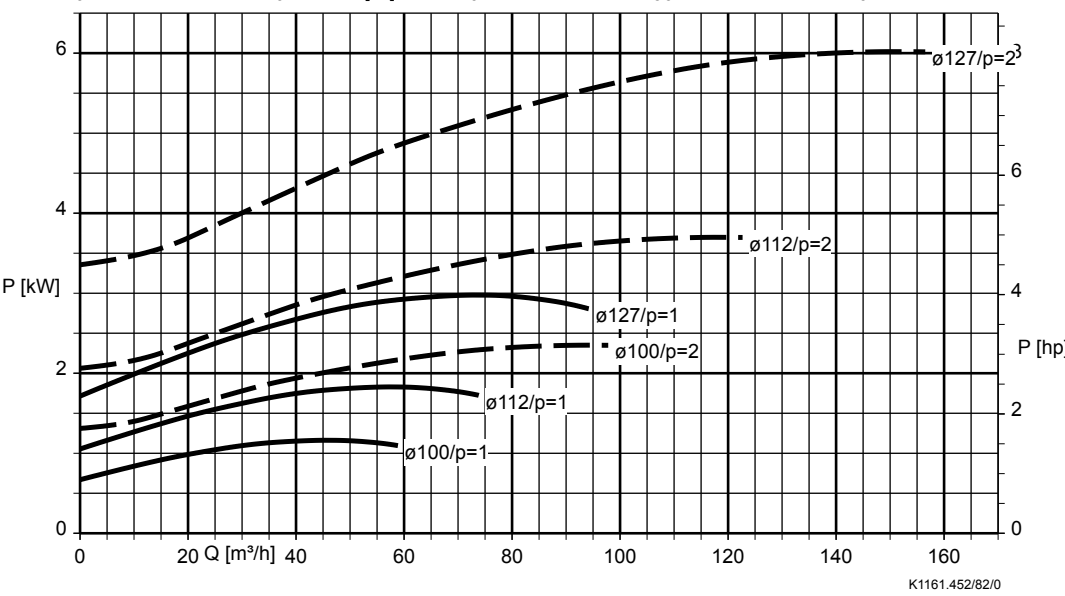
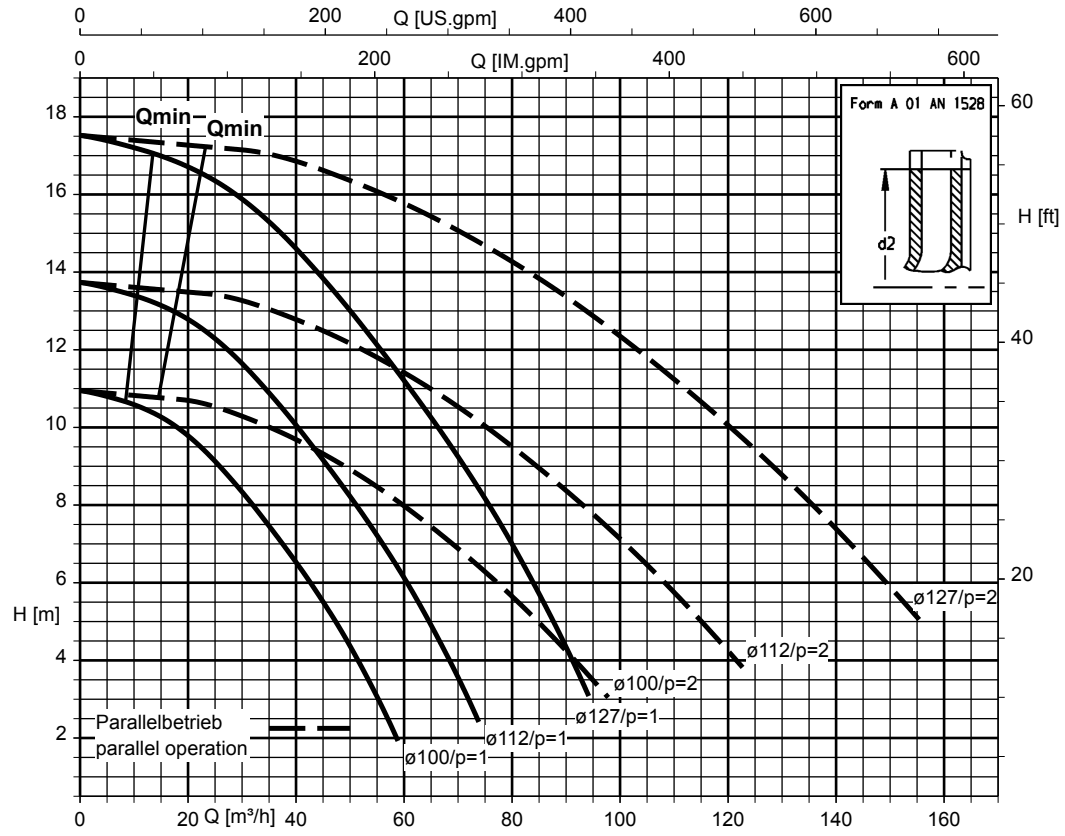
Etaline DL 050-050-125, n = 2900 rpm



Etaline DL 065-065-125, n = 2900 rpm



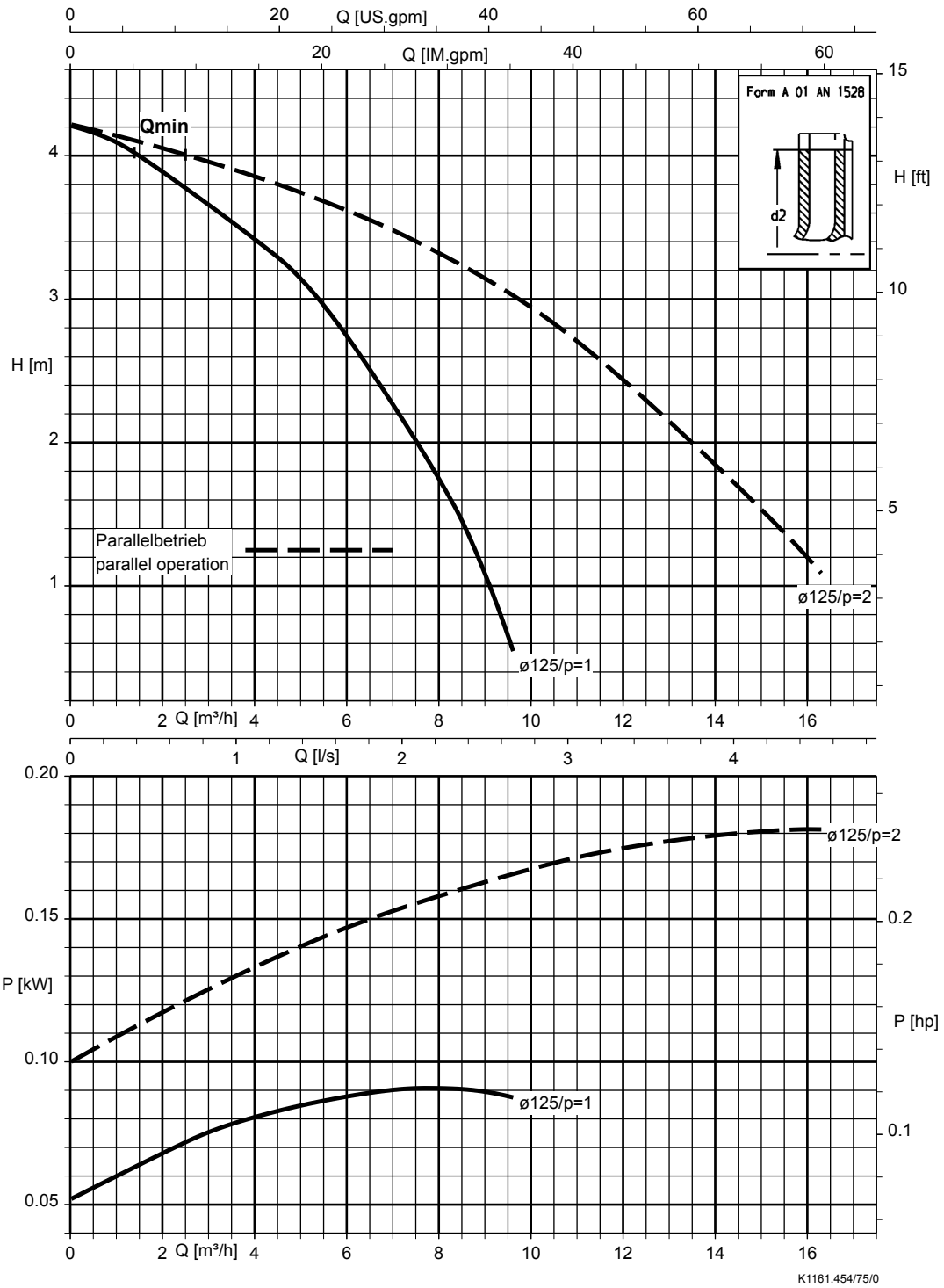
Etaline DL 080-080-125, n = 2900 rpm



K1161.452/82/0

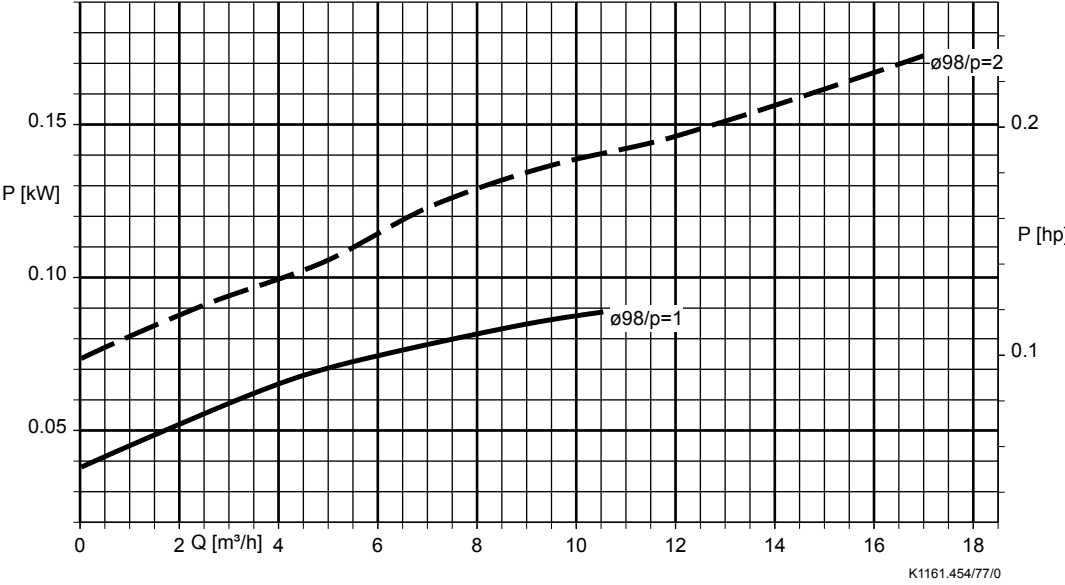
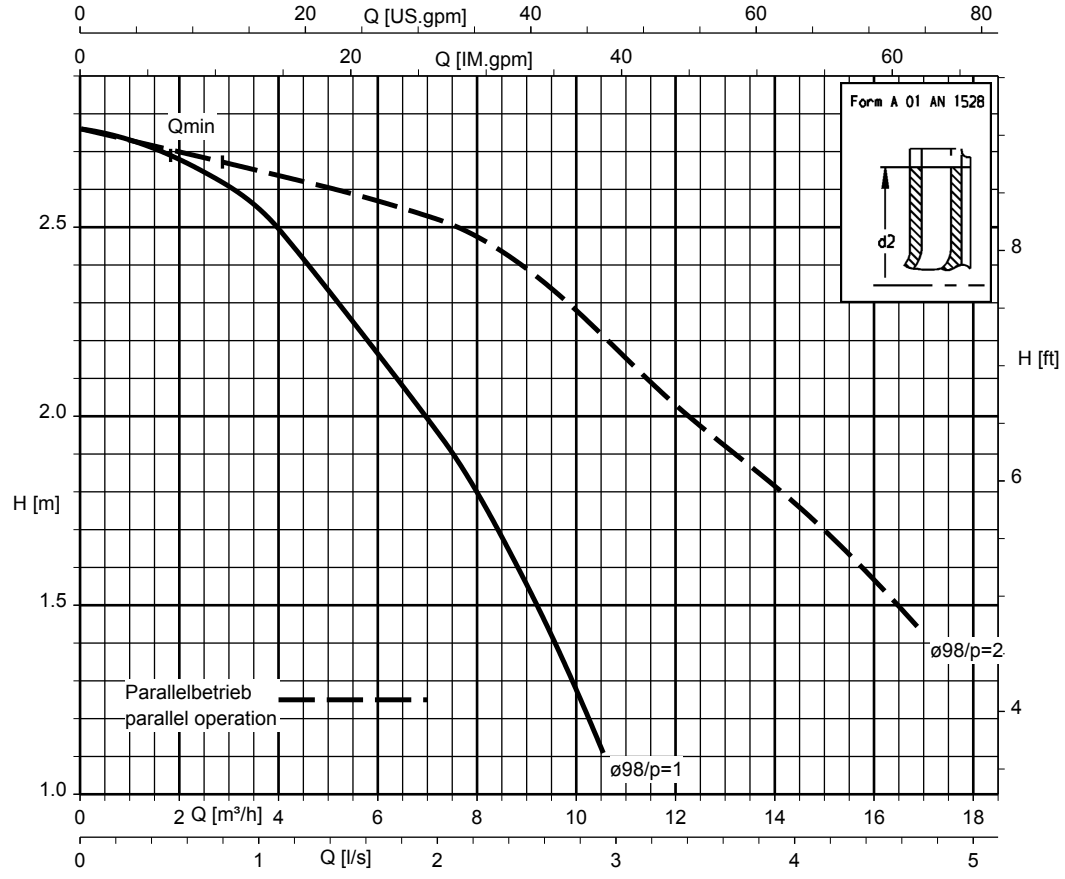
Etaline L (fixed speed version), n = 1450 rpm

Etaline DL 032-032-125, n = 1450 rpm



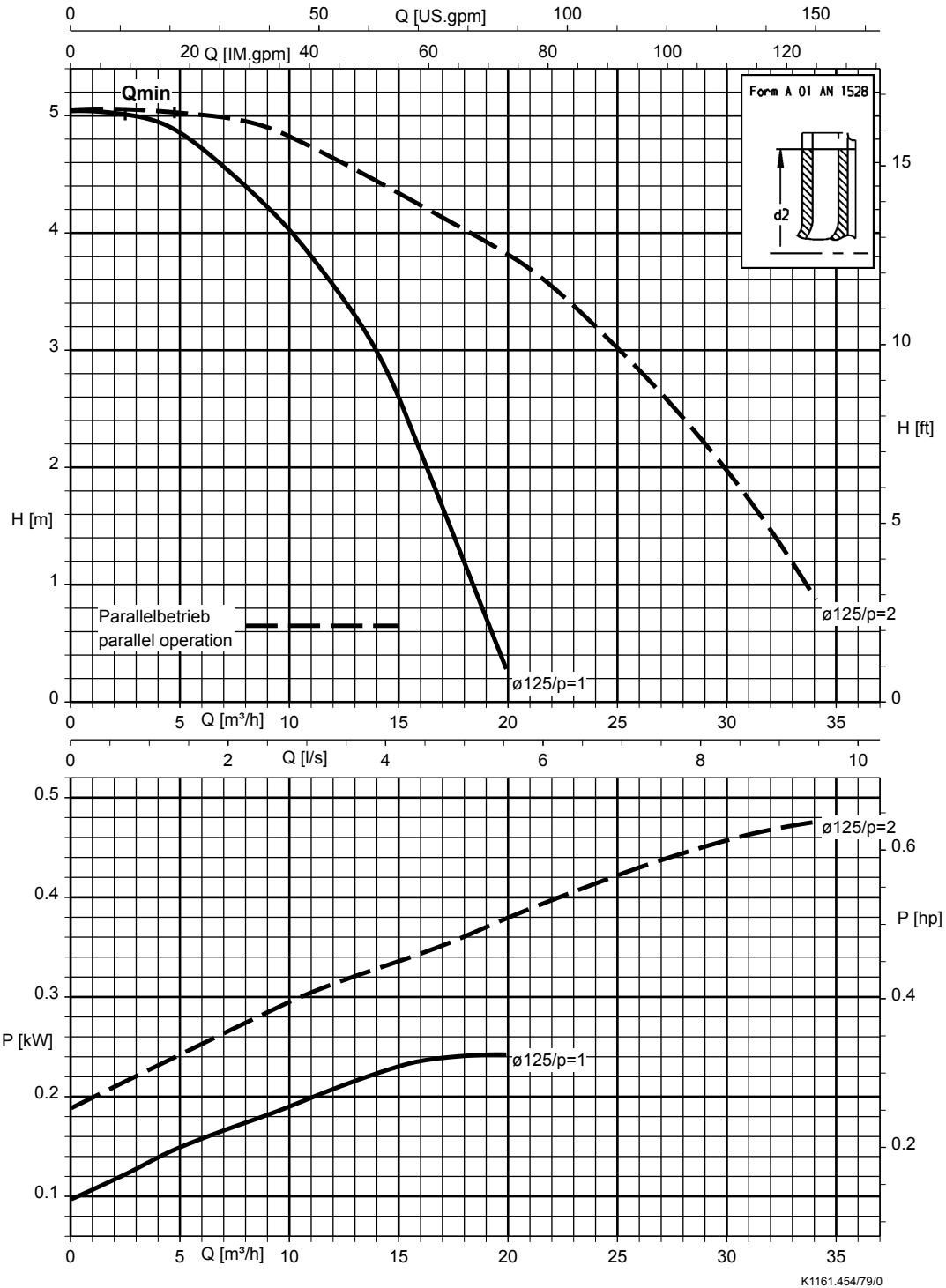


Etaline DL 040-040-100, n = 1450 rpm

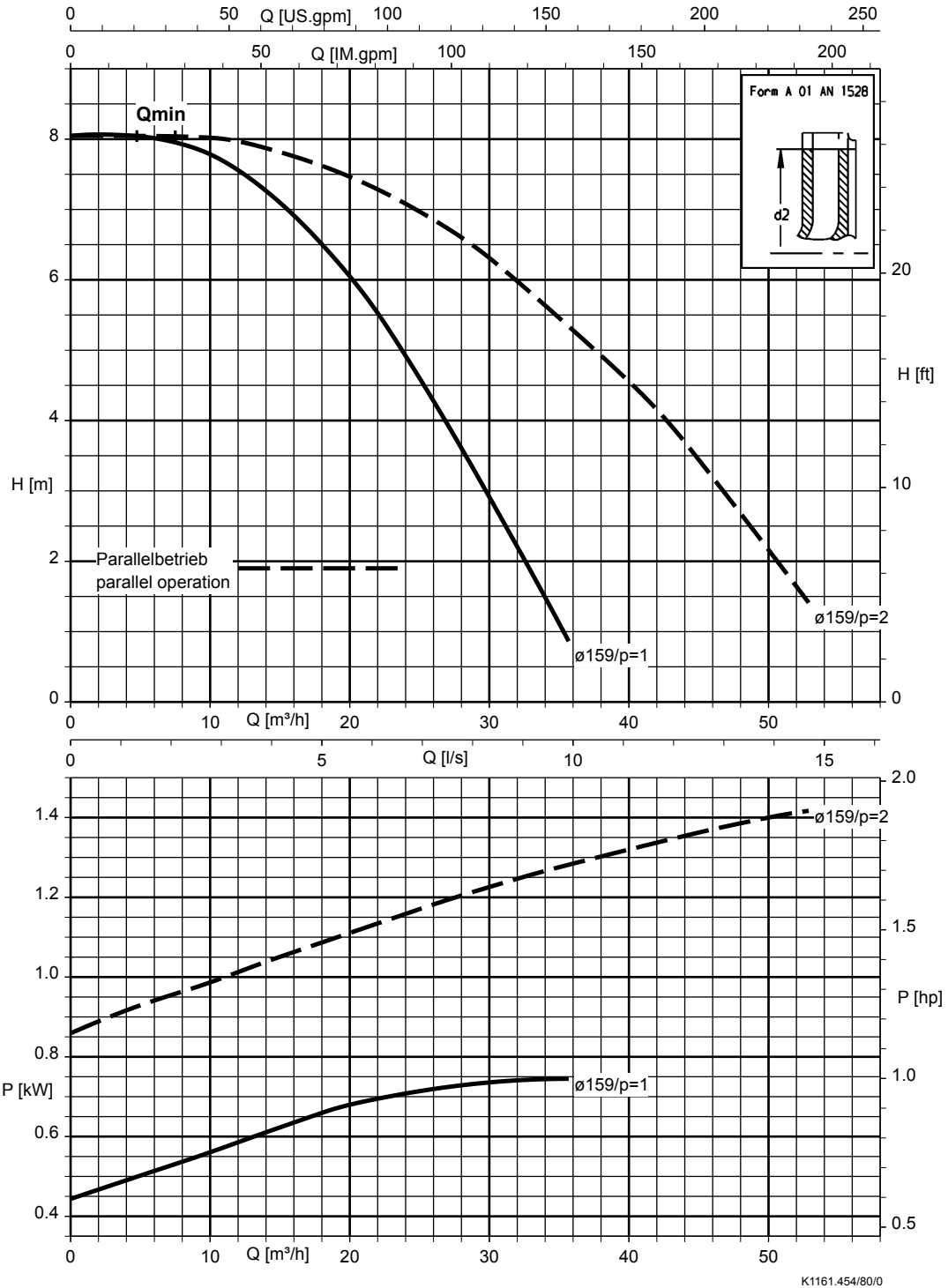


K1161.454/77/0

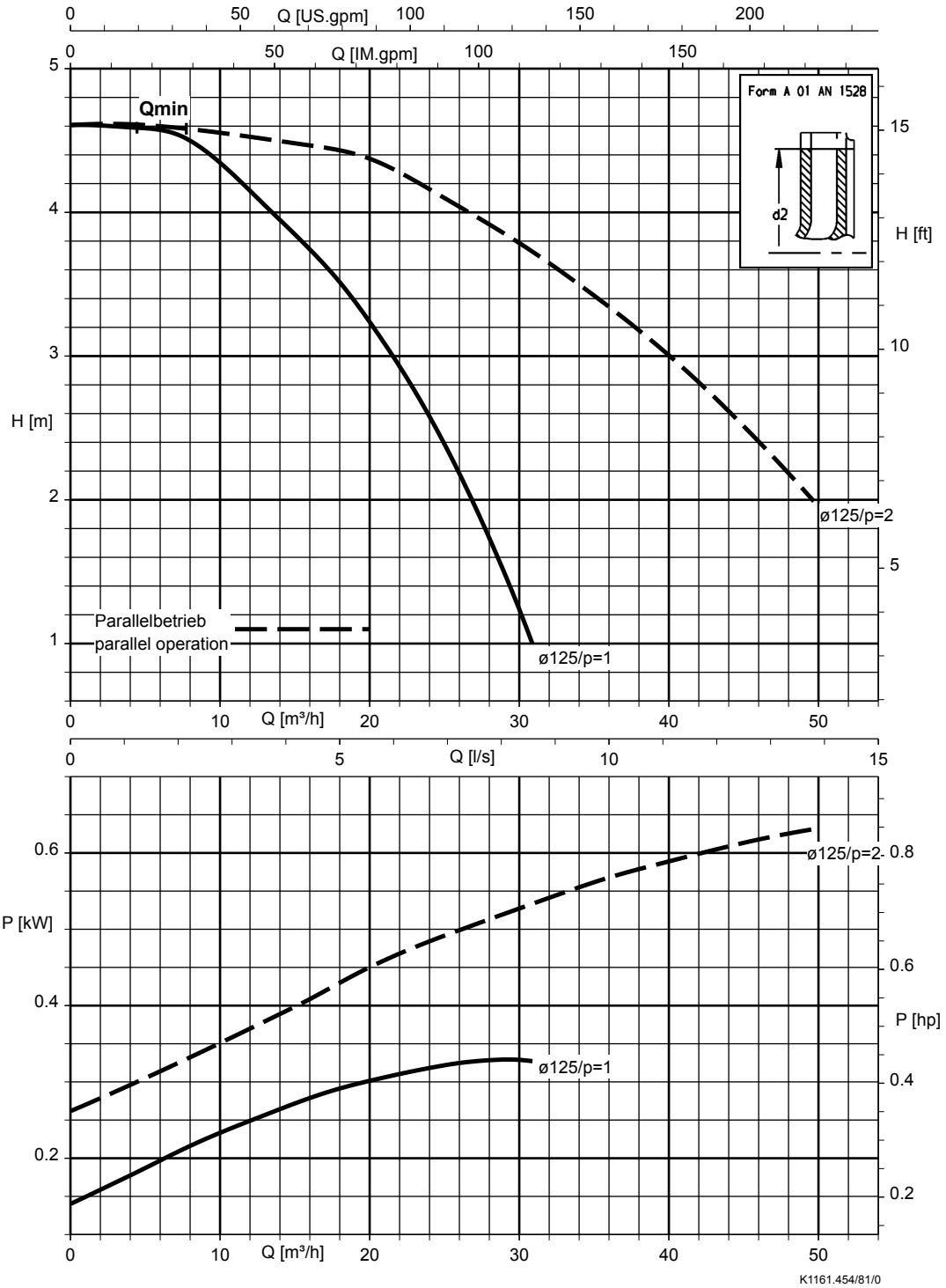
Etaline DL 050-050-125, n = 1450 rpm



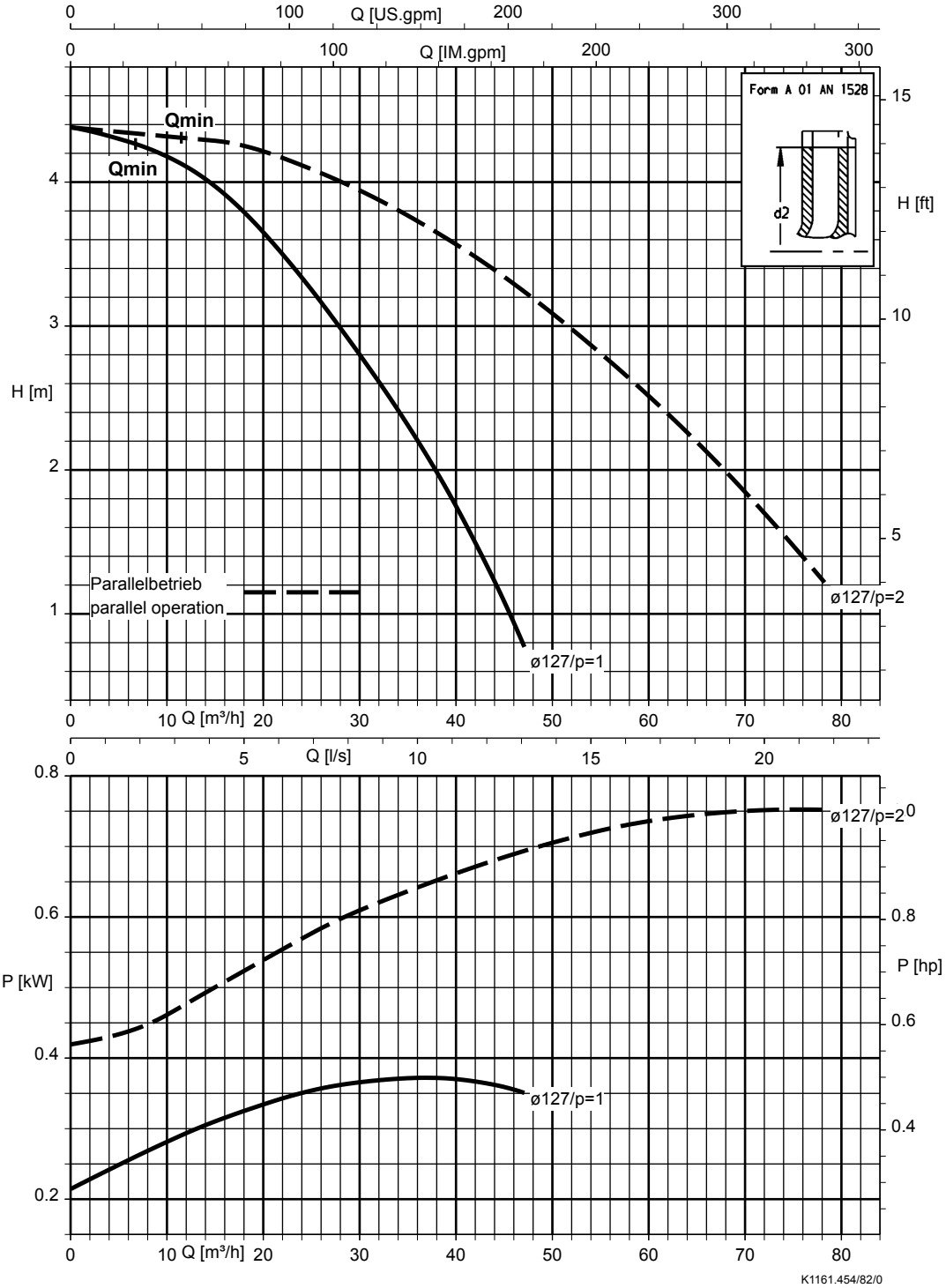
Etaline DL 050-050-160, n = 1450 rpm

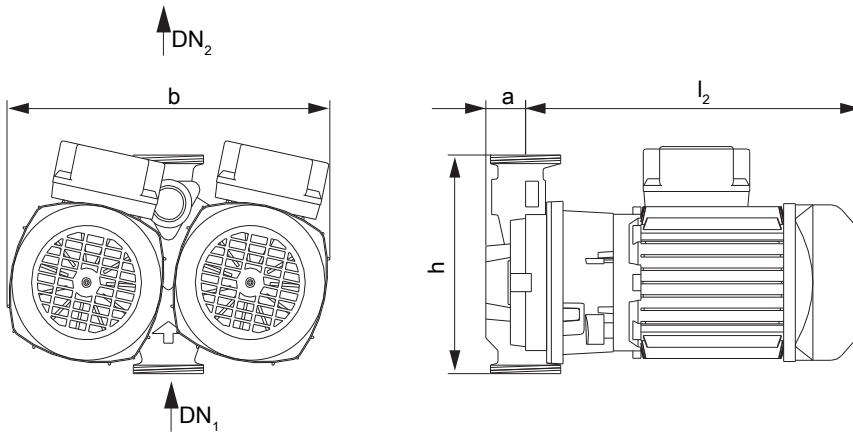
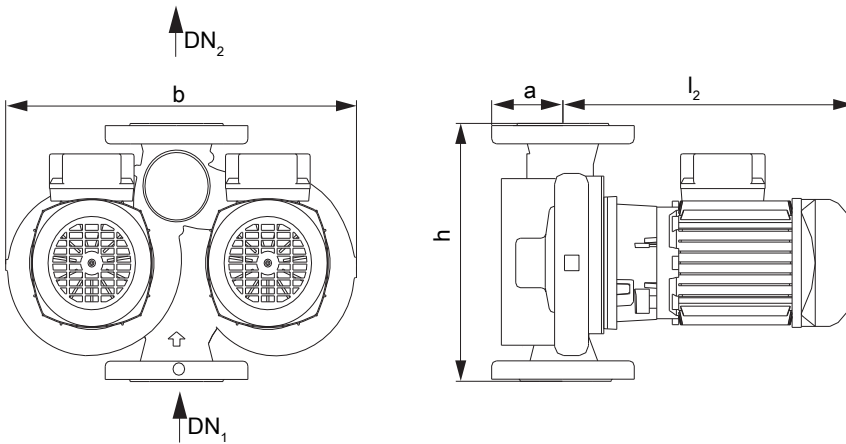


Etaline DL 065-065-125, n = 1450 rpm



Etaline DL 080-080-125, n = 1450 rpm



**Dimensions**
**Pump set dimensions (fixed speed version)**

**Fig. 1: Dimensions of screw-ended pump set, sizes  $\leq$  032-032-080**

**Fig. 2: Dimensions of flanged pump set, sizes  $\geq$  032-032-100**

 Pump set dimensions (fixed speed version),  $n = 2900$  rpm

Etaline DL	$P_2$	$P_N$	DN	Connection	a	h	b	$l_2$
	max. <sup>19)</sup>							
n = 2900 rpm	[kW]	[kW]	[mm]	Thread	[mm]	[mm]	[mm]	[mm]
032-032-063	0,30	0,25	32	G 2	34	180	254	266
032-032-080	0,30	0,25	32	G 2	34	180	254	266
032-032-100	0,30	0,25	32	-	70	220	355	284
032-032-105	0,66	0,55	32	-	70	260	404	304
032-032-125	0,90	0,75	32	-	70	260	404	304
040-040-060	0,30	0,25	40	-	70	250	351	275
040-040-090	0,66	0,55	40	-	75	250	346	295
040-040-100	0,90	0,75	40	-	75	250	346	315
050-050-110	1,30	1,10	50	-	85	280	388	325
050-050-125	2,20	1,80	50	-	85	280	388	355
065-065-100	1,30	1,10	65	-	95	340	450	340
065-065-115	2,20	1,80	65	-	95	340	450	370
065-065-125	3,40	3,00	65	-	95	340	450	385
080-080-105	1,30	1,10	80	-	105	360	515	325
080-080-115	2,20	1,80	80	-	105	360	515	360
080-080-125	3,40	3,00	80	-	105	360	515	380

19) Continuous duty S1

20) Continuous duty S1

Pump set dimensions (fixed speed version), n = 1450 rpm

Etaline DL	P <sub>2</sub>	P <sub>N</sub>	DN	Connection	a	h	b	l <sub>2</sub>
	max. <sup>20)</sup>							
n = 1450 rpm	[kW]	[kW]	[mm]	Thread	[mm]	[mm]	[mm]	[mm]
032-032-125	0,14	0,12	32	-	70	260	404	304
040-040-100	0,14	0,12	40	-	75	250	346	295
050-050-125	0,21	0,18	50	-	85	280	388	280
050-050-160	0,90	0,75	50	-	87	340	492	355
065-065-125	0,44	0,37	65	-	95	340	450	291
080-080-125	0,44	0,37	80	-	105	360	515	275

## Pump set dimensions (variable speed version)

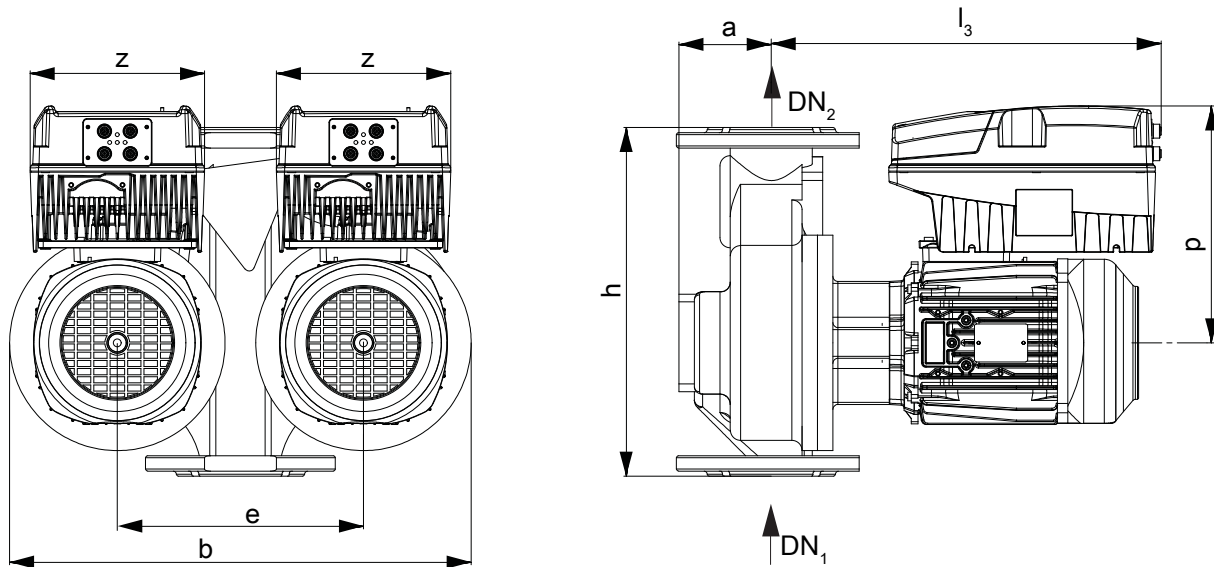


Fig. 3: Dimensions of pump set with PumpDrive 2 Eco

 Dimensions of pump set with PumpDrive 2 Eco (variable speed version),  $n = 2900$  rpm

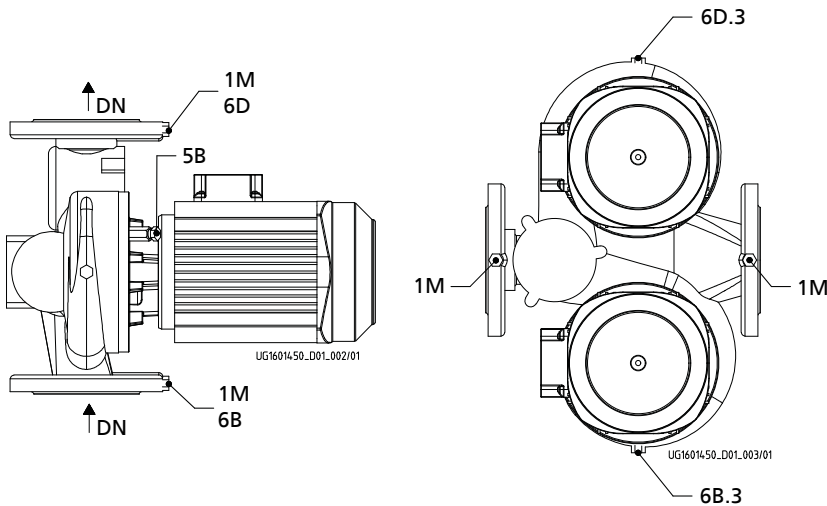
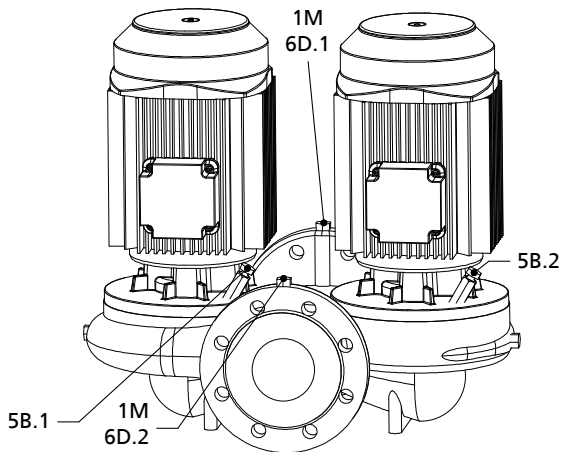
Etaline DL PumpDrive 2 Eco	$P_2$	$P_N$	DN	a	b	e	h	$l_3$	p	z
	max. <sup>21)</sup>									
$n = 2900$ rpm	[kW]	[kW]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
032-032-100	0,30	0,25	32	70	355	200	220	368	215	171
032-032-105	0,66	0,55	32	70	404	220	260	365	215	171
032-032-125	0,90	0,75	32	70	404	220	260	365	223	171
040-040-060	0,30	0,25	40	70	351	200	250	367	215	171
040-040-090	0,66	0,55	40	75	346	200	250	368	215	171
040-040-100	0,90	0,75	40	75	346	200	250	368	223	171
050-050-110	1,30	1,10	50	85	388	200	280	362	232	171
050-050-125	2,20	1,80	50	85	388	200	280	389	245	171
065-065-100	1,30	1,10	65	95	450	240	340	370	232	171
065-065-115	2,20	1,80	65	95	450	240	340	397	245	171
065-065-125	3,40	3,00	65	95	450	240	340	397	246	186
080-080-105	1,30	1,10	80	105	515	270	360	377	232	171
080-080-115	2,20	1,80	80	105	515	270	360	404	245	171
080-080-125	3,40	3,00	80	105	515	270	360	404	246	186

 Dimensions of pump set with PumpDrive 2 Eco (variable speed version),  $n = 1450$  rpm

Etaline DL PumpDrive 2 Eco	$P_2$	$P_N$	DN	a	b	e	h	$l_3$	p	z
	max. <sup>22)</sup>									
$n = 1450$ rpm	[kW]	[kW]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
032-032-125	0,14	0,12	32	70	404	220	260	365	215	171
040-040-100	0,14	0,12	40	75	346	200	250	368	215	171
050-050-125	0,21	0,18	50	85	388	200	280	362	215	171
050-050-160	0,90	0,75	50	87	492	250	340	370	232	171
065-065-125	0,44	0,37	65	95	450	240	340	370	215	171
080-080-125	0,44	0,37	80	105	515	270	360	377	215	171

21) Continuous duty S1  
 22) Continuous duty S1



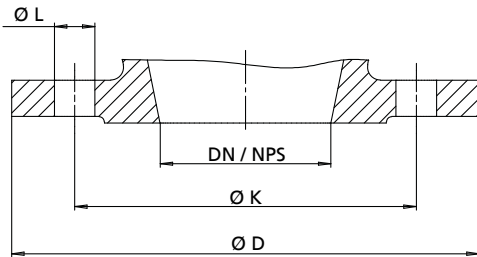
**Connections**

**Fig. 4: Horizontal installation**

**Fig. 5: Vertical installation**
**Connections**

Connection	Design	Configuration	Position
1M	Connection for pressure gauge	Drilled and closed	Suction flange and discharge flange
5B, 5B.1, 5B.2	Vent connection for the mechanical seal chamber	Plugged with vent plug	Casing cover
6B, 6B.3	Fluid drain	Drilled and closed	Volute casing
6D, 6D.1, 6D.2, 6D.3	Fluid priming and venting	Drilled and closed	Volute casing

**Connection**

Etaline DL	1M, 6B, 6D, 6D.1, 6D.2	6B.3, 6D.3
032-032-063	-	-
032-032-080	-	-
032-032-100	G 1/4	G 1/8
032-032-105	G 1/4	G 1/8
032-032-125	G 1/4	G 1/8
040-040-060	G 1/4	G 1/8
040-040-090	G 1/4	G 1/8
040-040-100	G 1/4	G 1/8
050-050-110	G 1/4	G 1/8
050-050-125	G 1/4	G 1/8
050-050-160	G 1/4	G 1/8
065-065-100	G 1/4	G 1/8
065-065-115	G 1/4	G 1/8

Etaline DL	1M, 6B, 6D, 6D.1, 6D.2	6B.3, 6D.3
065-065-125	G 1/4	G 1/8
080-080-105	G 1/4	G 1/8
080-080-115	G 1/4	G 1/8
080-080-125	G 1/4	G 1/8

**Flange design (fixed speed version)**

**Fig. 6: Flange dimensions**

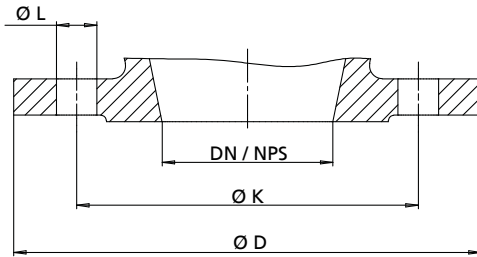
Flange dimensions [mm]

DN / NPS	NORM							Comment
	EN 1092-2				DIN EN ISO 228-1			
	Material							
	G							
	PN 10			PN 6			Thread	
	Ø K	Ø D	Number of holes L	Ø K	Ø D	Number of holes L		
32 / NPS1 1/4	100	140	4xØ19	90	140	4xØ14	G 2 <sup>23)</sup>	Adapter flange PN6/ PN10
40 / NPS1 1/2	110	150	4xØ19	100	150	4xØ14	-	
50 / NPS2	125	165	4xØ19	110	165	4xØ14	-	
65 / NPS2 1/2	145	185	4xØ19	130	185	4xØ14	-	
80 / NPS3	160	200	8xØ19	-	-	-	-	-

**Flange design by materials**

Material variant	NORM	Nominal diameter	Pressure class
GG, GP	DIN EN ISO 228-1	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

23) For sizes &lt; 032-032-100 only

**Flange design (variable speed version)**

**Fig. 7: Flange dimensions**

Flange dimensions [mm]

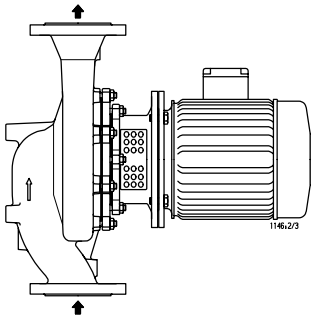
DN / NPS	NORM						Comment
	EN 1092-2						
	Material						
	G						
	PN 10			PN 6			
	Ø K	Ø D	Number of holes L	Ø K	Ø D	Number of holes L	
32 / NPS1 1/4	100	140	4xØ19	90	140	4xØ14	Adapter flange PN6/PN10
40 / NPS1 1/2	110	150	4xØ19	100	150	4xØ14	
50 / NPS2	125	165	4xØ19	110	165	4xØ14	
65 / NPS2 1/2	145	185	4xØ19	130	185	4xØ14	
80 / NPS3	160	200	8xØ19	-	-	-	-

Flange design by materials

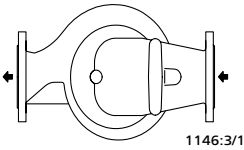
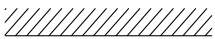
Material variant	NORM	Nominal diameter	Pressure class
GG, GP	Drilled to EN 1092-2	DN 32 - DN 65	PN 6 / PN 10
	EN 1092-2	DN 80	PN 10

## Installation types

### Horizontal installation

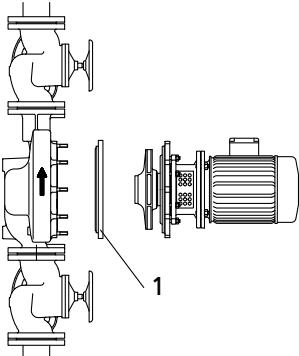


**Fig. 8:** Horizontal installation, direction of flow from bottom to top



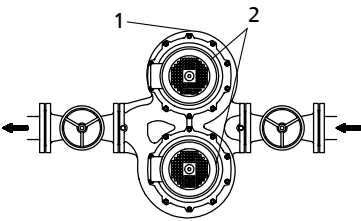
**Fig. 9:** Horizontal installation (for example under the ceiling)

**i** 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.



**Fig. 10:** Horizontal installation with blind flange (1 = blind flange, accessories)

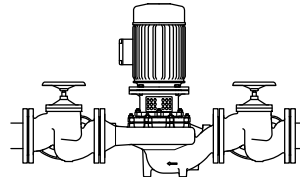
**i** If one of the pumps needs to be serviced, the pump chamber can be shut off by a blind flange so that the system remains operational.



**Fig. 11:** Horizontal piping (1 = screw plug 6D.3, 2 = valves 5B, 5B.1, 5B.2)

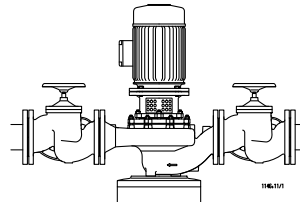
**i** If the piping is laid horizontally, vent the upper pump through upper screw plug 6D.3 and vent valves 5B, 5B.1, 5B.2. This will ensure trouble-free operation.

### Vertical installation

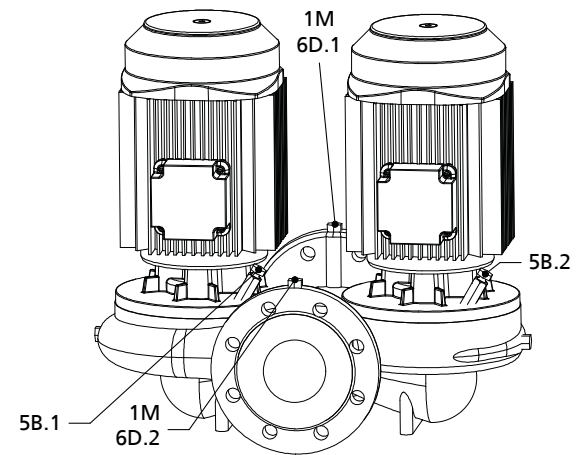


**Fig. 12:** Vertical installation/fastening without pump foot

**i** Installed directly in the piping. Always anchor the pipes in close proximity to the pump in this case.



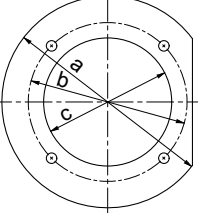
**Fig. 13:** Vertical installation/fastening with pump foot (accessories, available on request)



**Fig. 14:** **i** Vent the mechanical seal chambers through vent valves 5B.1 and 5B.2.

**Accessories**
**Pump accessories**

Overview of pump accessories

Component	$\varnothing a / \varnothing b / \varnothing c$	For size	Mat. No.	[kg]
	[mm]			
Blind flange with sealing element 	140 / 105 / 84,8	032-032-063	01734726	0,8
		032-032-080		
		040-040-060		
	140 / 122 / 101,8	032-032-100	01734727	0,9
		040-040-090		
		040-040-100		
	161 / 147 / 125,8	032-032-105	01734725	1,6
		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	

## General assembly drawings

## General assembly drawing with list of components

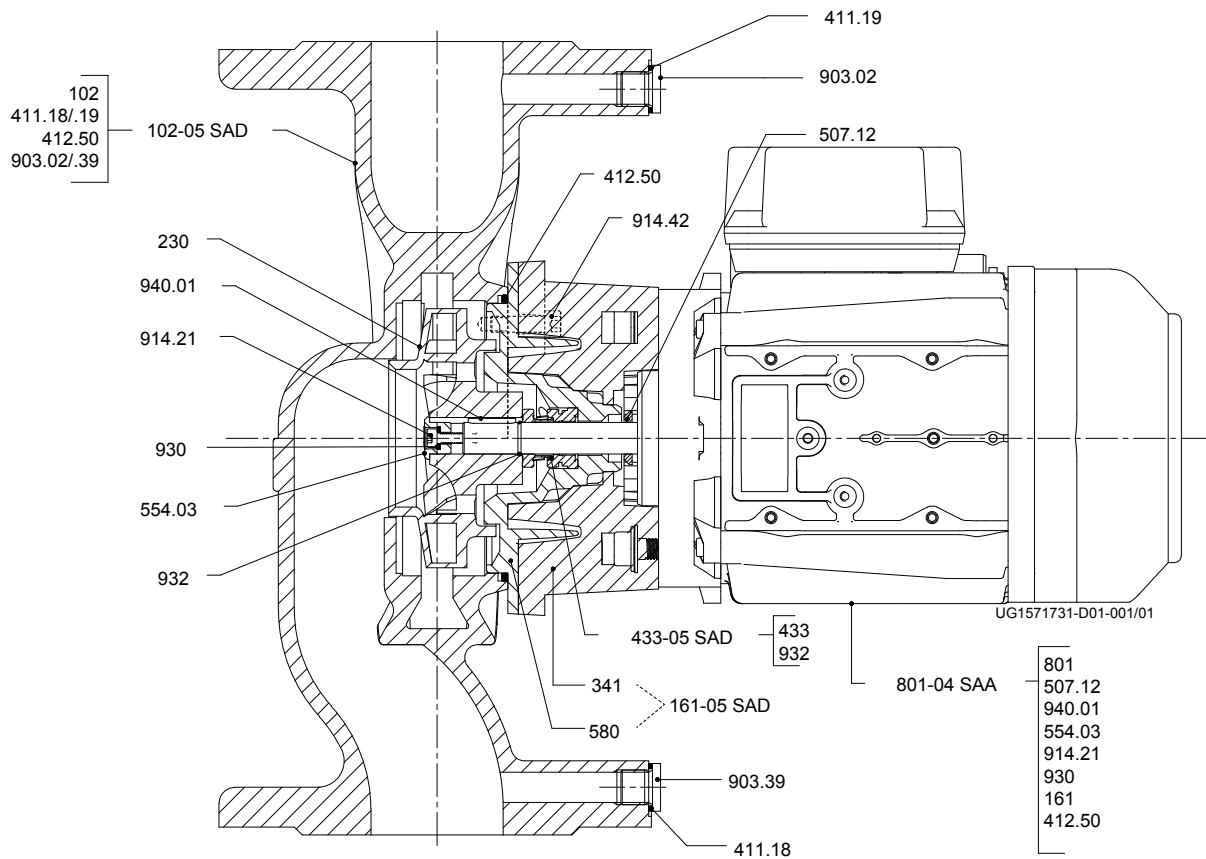


Fig. 15: General assembly drawing

## 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

## Spare parts kits

Part No.	Description	Part No.	Description
102-05 SAD	Volute casing	102	Volute casing
		411.18/.19	Joint ring
		412.50	O-ring
		903.02/.39	Screw plug
161-05 SAD	Casing cover	341	Drive lantern
		580	Cap
230	Impeller	230	Impeller
433-05 SAD	Shaft seal	433	Mechanical seal
		932	Circlip
801-04 SAA	Motor	161	Casing cover
		412.50	O-ring
		507.12	Thrower
		554.03	Washer

Part No.	Description	Part No.	Description
801-04 SAA	Motor	801	Flanged motor
		914.21	Hexagon socket head cap screw
		930	Safety device
		940.01	Key

## Glossary

### Close-coupled design

Motor directly fitted to the pump via a flange or a drive lantern

### IE2

Efficiency class to IEC 60034-30: 2 = High Efficiency (IE = International Efficiency)

### IE3

Efficiency class to IEC 60034-30: 3 = Premium Efficiency (IE = International Efficiency)

### In-line design

A pump whose suction and discharge nozzle are arranged opposite each other and have the same nominal diameter.

### WRAS

Approved by all water suppliers in the UK (WRAS = Water Regulations Advisory Scheme)











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