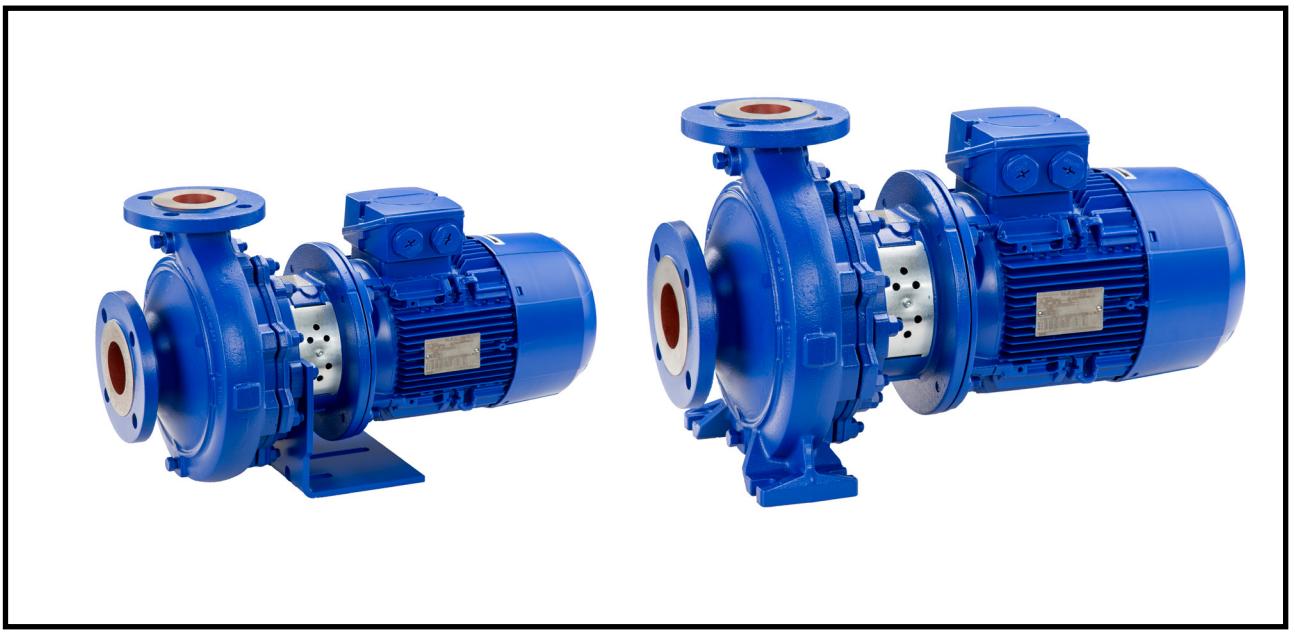
Our technology. Your success.
Pumps · Valves · Service

Etabloc

Close-Coupled Pump

Performance Curves

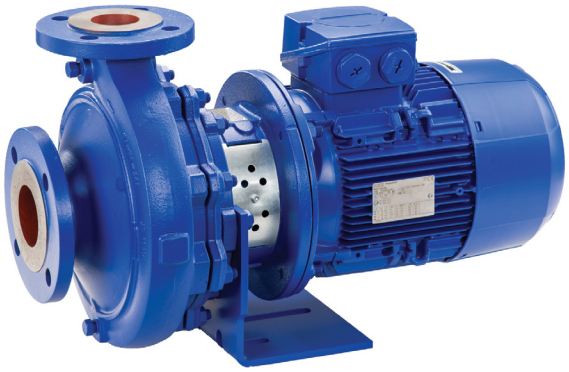


KSB

Centrifugal Pumps with Shaft Seal

Close-coupled Pump

Etabloc



Operating data

Operating properties

Characteristic		Value
Flow rate	Q	Up to 612 m ³/h (50 Hz) Up to 715 m ³/h (60 Hz)
Head	H	Up to 102 m (50 Hz) Up to 144 m (60 Hz)
Operating temperature	t	-30 °C to +140 °C
Operating pressure	p	Up to 16 bar

Main applications

Pump for handling clean or aggressive fluids not chemically and mechanically aggressive to the pump materials.

- Water supply systems
- Cooling circuits
- Swimming pools
- Fire-fighting systems
- General irrigation systems
- Drainage systems
- Heating systems
- Air-conditioning systems
- Spray irrigation systems

Fluids handled

- Seawater
- Brackish water
- Drinking water
- Hot water
- Service water
- Fire-fighting water
- Brine
- Cleaning agents
- Condensate
- Oils

Designation

Example: ETB 050-032-160 GBXA 10D2

Key to the designation

Code	Description	
ETB	Type series	
	ETB	Etabloc
050	Nominal suction nozzle diameter [mm]	
032	Nominal discharge nozzle diameter [mm]	
160	Nominal impeller diameter [mm]	
G	Casing material	
	G	= cast iron
	B	= bronze
	S	= nodular cast iron
	C	= stainless steel
B	Impeller material if different from casing material	
	G	= cast iron
	C	= stainless steel
	B	= bronze
X	Special design	
		= standard design
	F	= bottle rinser variant
	X	= special design
A	Casing cover	
	A	= conical cover
	C	= cylindrical cover
10	Seal code	
	10	= $Q_1Q_1X_4GG$
D	Scope of supply	
	D	= pump with motor
2	Shaft unit	
	2	= WS_25
	3	= WS_35
	4	= WS_55

Design details

Design

- Volute casing pump
- Single-stage
- Ratings to EN 733
- Complies with the 2009/125/EC Directive

Pump casing

- Radially split volute casing
- Volute casing of some pumps with integrally cast pump feet
- Replaceable casing wear rings (optional for casing material C)

Impeller type

- Closed radial impeller with multiply curved vanes

Shaft seal

- Single mechanical seals to EN 12756
- Double mechanical seals to EN 12756
- Shaft equipped with replaceable shaft protecting sleeve in the shaft seal area

Drive

Table 1: General motor data

Characteristic	Description
Design	KSB surface-cooled IEC frame three-phase current squirrel-cage motor
Winding	**50 Hz** Up to 2.2 kW 220-240 V/ 380-420 V Up to 3 kW 380-420 V/ 660-725 V **60 Hz** Up to 2.6 kW 440-480 V Up to 3.6 kW 440-480 V
Type of construction	Up to 4 kW IM V1 From 5.5 kW IM V15
Enclosure	IP55
Mode of operation	Continuous operation S1
Thermal class	F with temperature sensors: 3 thermistors
Explosion-proof version	
Design	KSB surface-cooled IEC frame three-phase current squirrel-cage motor
Winding	**50 Hz** Up to 1.85 kW 220-240 V/ 380-420 V Up to 2.5 kW 380-420 V/ 660-725 V
Type of construction	Up to 3.3 kW IM V1 From 4.6 kW IM V15
Enclosure	IP55 or IP54
Mode of operation	Continuous operation S1
Type of protection	EExe II
Temperature class	T3

Product benefits

- Improved efficiency and NPSH $_{req}$ by experimentally verified hydraulic design of impellers (vanes)
- Low energy costs through compliance with future requirements of Commission Regulation 547/2012 (minimum efficiency index MEI ≥ 0.4)
- Operating costs reduced by trimming the impeller diameter to match the specified duty point
- 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
- Large variety of materials for perfectly matching the pump to the fluid handled. Large range of materials for many applications available as standard
- Extended selection chart with additional pump sizes for small flow rates
- Easy to dismantle with forcing screws provided at the interface of casing cover and lantern

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 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 identificator: 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 = 0.7 (0.4) for the pump based on the model shown in the Figure are available at: http://www.europump.org/efficiencycharts

Acceptance tests/warranty

Overview of acceptance tests/warranty

Acceptance tests/warranty
Materials testing
▪ Test report 2.2 on request
Final inspection
▪ Inspection certificate 3.1 to EN 10204 on request

Acceptance tests/warranty
Hydraulic test against surcharge
▪ To ISO 9906/2B or ISO 9906/3B
▪ NPSH test
Other inspections/tests possible on request
Warranty
▪ Warranties are given within the scope of the valid delivery conditions.

Overview of all fluids handled

Table of fluids handled and associated material combinations
✘ = standard

Fluid handled	Application limit Temperature	Materials Casing/Impeller					Shaft seal Mechanical seal						Comments
		Grey cast iron/ grey cast iron	Grey cast iron/ tin bronze	Nodular cast iron/ grey cast iron	Tin bronze/ tin bronze	CrNiMo cast steel/ CrNiMo cast steel	U3BEGG	Q1Q1EGG	U3U3VGG	Q1Q1X4GG	BQ1EGG	Q12Q1M1GG	
	[°C]	G	GB	S	B	C	6	7	9	10	11	12	
Water													
Brackish water [1]	≤ 25				✘					✘			CrNiMo cast steel can be used
Fire-fighting water [2]	≤ 60		✘							✘			Contact KSB for delivery to VdS guidelines.
Heating water [3]	≤ 120	✘									✘		If used as circulator pump to DIN 4752: pmax ≤10 bar. If ductile material has been specified: "S"
Heating water	≤ 140	✘					✘						
Heating water	≥ 110	✘								✘			
Condensate	≤ 120	✘									✘		
Condensate, not conditioned	≤ 120					✘					✘		
Cooling water (without antifreeze)	≤ 60	✘								✘			Open circuit: GB 10 required
Cooling water pH ≥ 7.5 (with antifreeze [4])	≥ -30 ≤ 60	✘									✘		Open loop: use GB
Cooling water pH ≥ 7.5 (with antifreeze [4])	≥ 60 ≤ 110	✘						✘					Open loop: use GB
Slightly contaminated water	≤ 60	✘								✘			
Seawater	≤ 25				✘					✘			CrNiMo cast steel can be used
Pure water [5]	≤ 60	✘									✘		
Raw water	≤ 60	✘								✘			
Swimming pool water (fresh water)	≤ 60	✘								✘			Also applies to requirements as per DIN 19643
Swimming pool water [6]: filtration	≤ 40		✘							✘			Variant GB Shaft C45+N, shaft sleeve CrNiMo steel, nut A4/AISI 316, key A2, casing wear ring (suction and discharge side) grey cast iron JL 1040/ CI
Swimming pool water [6]: water features; without turbulences and/or air content	≤ 40		✘							✘			Variant GB Shaft C45+N, shaft sleeve CrNiMo steel, nut A4/ AISI 316, key A2, casing wear ring (suction and discharge side) CC495K-GS
Swimming pool water [6]: water features; with turbulences and/or air content	≤ 40				✘					✘			Variant B Shaft 1.4571, shaft sleeve CrNiMo steel, nut A4/ AISI 316, key A2, casing wear ring (suction and discharge side) CC495K-GS
Swimming pool water (seawater)	≤ 40				✘					✘			CrNiMo cast steel for t ≤ 25 °C
Dam water	≤ 60		✘							✘			If solids are contained, contact KSB.

1) For components made of bronze: ammonia (NH3) ≤ 5 mg/kg, free from hydrogen sulphide (H2S); no limitation of Cl content required in this case. Please contact KSB if limits are exceeded.
2) General evaluation criteria for results of water analysis: pH value ≥ 7; chlorides content (Cl) ≤ 250 mg/kg. Chlorine (Cl2) ≤ 0.6 mg/kg.
3) Treatment to VdTÜV 1466; additional requirement: O2 < 0.02 mg/l
4) Antifreeze on ethylene glycol basis with inhibitors. Content: >20 % to 50 % (e.g. Antifrogen N)
5) No ultra-pure water! Conductivity at 25 °C: ≤ 800 µS/cm, neutral with regard to chemical corrosion
6) For France, observe the applicable rules as per ministerial order dated 18 January 2002.

Fluid handled	Application limit Temperature	Materials Casing/impeller					Shaft seal Mechanical seal						Comments
		Grey cast iron/ grey cast iron	Grey cast iron/ tin bronze	Nodular cast iron/ grey cast iron	Tin bronze/ tin bronze	CrNiMo cast steel/ CrNiMo cast steel	U3BEGG	Q1Q1EGG	U3U3VGG	Q1Q1X4GG	BQ1EGG	Q12Q1M1GG	
	[°C]	G	GB	S	B	C	6	7	9	10	11	12	
Drinking water [7]	≤ 60		✘								✘		
Partly desalinated water	≤ 120	✘									✘		
Fully desalinated water	≤ 120					✘					✘		Purity requirements cannot be met
Fully desalinated water as boiler feed water	≤ 120	✘									✘		
Refrigerants, cooling brines													
Cooling brine; inorganic, pH value> 7.5, inhibited	≥ -30 ≤ 25	✘									✘		
Water with antifreeze agent, pH value ≥ 7.5	≥ -30 ≤ 60	✘									✘		
Water with antifreeze agent, pH value ≥ 7.5	≥ 60 ≤ 110	✘						✘					
Oils/emulsions													
Diesel oil, fuel oil EL	≤ 60			✘						✘			G possible, unless specific standards have to be observed
Lubricating oil, turbine oil, does not apply to SF-D oils (hardly flammable)	≤ 80			✘						✘			If specified "without internal primer" contact KSB. G possible, unless specific standards have to be observed
Drilling/grinding emulsion	≤ 60	✘							✘				
Oil and water emulsion	≤ 60	✘							✘				
Brewery applications													
Beer mash	≤ 100	✘										✘	If there is a risk of the pump running dry due to excessive emptying of the tank, an Etanorm with double seal in tandem arrangement must be used.
Beer wort	≤ 100	✘										✘	

Mechanical Seals - Code Designation and Materials

Seal Code	Material Code	Seal Materials	Seal Plan
11	BQ1EGG-WA	Hard Carbon/Silicon Carbide/EPDM	Single
7	Q1Q1EGG	Silicon Carbide/Silicon Carbide/EPDM	Single
10	Q1Q1X4GG	Silicon Carbide/Silicon Carbide/Nitrile	Single
6	U3BEGG	Tungsten Carbide/Hard Carbon/EPDM	Single
9	U3U3VGG	Tungsten Carbide/Tungsten Carbide/FPM(Viton)	Single
15	Q1Q1K9GG/G	Silicon Carbide/Silicon Carbide/Kalrez	Single
17	Q1BVGG	Silicon Carbide/Hard Carbon/FPM(Viton)	Single
24	Q1Q1K9GG/G+Q1BVGG	Silicon Carbide/Hard Carbon/FPM(Viton) --- Silicon Carbide/Hard Carbon/FPM(Viton)	Double:- Back-to-Back
21	Q1Q1K9GG/G+Q1Q1K9GG/G	Silicon Carbide/Hard Carbon/FPM(Viton) --- Silicon Carbide/Hard Carbon/FPM(Viton)	Double:- Back-to-Back
18	Q1Q1EGG/G+Q1Q1EGG/G	Silicon Carbide/Silicon Carbide/EPDM --- Silicon Carbide/Silicon Carbide/EPDM	Double:- Tandem

A seal supply flush/quench/barrier/lubrication system may be required depending on configuration and application for seal system.

Pressure and temperature limits of the pump

Pressure and temperature limits of the pump

Material variant	Fluid temperature[8)9)]	Test pressure[10)]
G, GC	-30 °C to +140 °C	21 bar
GB	-30 °C to +140 °C	21 bar
S, SB, SC	-30 °C to +140 °C	25 bar
B	-30 °C to +140 °C	13 bar
C	-30 °C to +140 °C	21 bar

7) For France, ACS approval is required.
8) For hot water heating systems to DIN 4752, Section 4.5, application limits must be observed.
9) For fluid temperatures >140 °C use Etanorm SYT.
10) The casing components are checked for leakage by means of internal pressure tests to AN 1897/75-03D00 with water.

Name plate

Fig. 1: Name plate (example)

1	Type series code, size and version	2	Type series
3	KSB order No., order item No. and consecutive No.	4	Flow rate
5	Kinematic viscosity of the fluid handled	6	Minimum efficiency index
7	Material number (if applicable)	8	Impeller diameter
9	Head	10	Speed
11	Year of construction	12	Efficiency (see data sheet)

Materials

Overview of available materials for Europe - A1=DefaultMaterial A2=Optional Material

Part No.	Description		Material variant							
			G	GB	GC	B	S	SB	SC	C
102	Volute casing	Grey cast iron JL1040 / A 48 CL 35B	A1	A1	A1	-	-	-	-	-
		Bronze CC480K-GS / B30 C90700	-	-	-	A1	-	-	-	-
		Nodular cast iron JS1030 / A536 GR 60-40-18	-	-	-	-	A1	A1	A1	-
		Stainless steel 1.4408 / A743 Gr CF8 M	-	-	-	-	-	-	-	A1
161	Casing cover, conical	Grey cast iron JL1040 / A 48 CL 35B	A1	A1	A1	-	-	-	-	-
		Bronze CC480K-GS / B30 C90700	-	-	-	A1	-	-	-	-
		Nodular cast iron JS1030 / A536 GR 60-40-18	-	-	-	-	A1	A1	A1	-
		Stainless steel 1.4408 / A743 Gr CF8 M	-	-	-	-	-	-	-	A1
161	Casing cover, cylindrical	Grey cast iron JL1040 / A 48 CL 35B	A2	A2	A2	-	-	-	-	-
		Stainless steel 1.4408 / A743 Gr CF8 M	-	-	-	-	-	-	-	A2
		Bronze CC480K-GS / B30 C90700	-	-	-	A2	-	-	-	-
210	Shaft	Tempered steel C45+N	A1	A1	A1	-	A1	A1	A1	-
		Stainless steel 1.4571	A2	A2	A2	A1	A2	A2	A2	A1
230	Impeller	Grey cast iron JL1040 / A 48 CL 35B	A1	-	-	-	A1	-	-	-
		Bronze CC480K-GS / B30 C90700	-	A1	-	A1	-	A1	-	-
		Stainless steel 1.4408 / A743 Gr CF8 M	-	-	A1	-	-	-	A1	A1
341	Drive lantern	Grey cast iron JL1040 / A 48 CL 35B	A1	A1	A1	A1	A1	A1	A1	A1
400	Sealing elements	DPAF, asbestos-free	A1	A1	A1	A1	A1	A1	A1	A1
502.01	Casing wear ring, suction side	Grey cast iron JL1040 / CI	A1	A1	A1	-	A1	A1	A1	-
		Stainless steel (CrNiMo steel)	A2	-	A2	-	-	-	-	A2
		Bronze CC480K-GS	-	A2	-	A1	-	A2	-	-
502.02	Casing wear ring, discharge side	Grey cast iron JL1040 / CI	A1	A1	A1	-	A1	A1	A1	-
		Stainless steel (CrNiMo steel)	A2	-	A2	-	-	-	-	A2
		Bronze CC480K-GS	-	A2	-	A1	-	A2	-	-

Part No.	Description		Material variant							
			G	GB	GC	B	S	SB	SC	C
523	Shaft sleeve [11]	Stainless steel (CrNiMo steel)	A1	A1	A1	A1	A1	A1	A1	A1
902	Studs	Steel 8.8	A1	A1	A1	-	A1	A1	A1	-
		A4-70 / A193 Gr B8M CL2	A2	A2	A2	A1	A2	A2	A2	A1
903	Plug	Steel	A1	A1	A1	-	A1	A1	A1	-
		CC 493K-GS	-	-	-	A1	-	-	-	-
		A4/ AISI 316	A2	A2	A2	-	A2	A2	A2	A1
920	Nut	8+A2A / 8+B633 SC1 TP3	A1	A1	A1	-	A1	A1	A1	-
		A4 / AISI 316	A2	A2	A2	A1	A2	A2	A2	A1
920.95	Impeller nut	A4 / AISI 316	A2	A1	A1	A1	A2	A1	A1	A1
		Steel 8	A1	-	-	-	A1	-	-	-

Availability of pump sizes per material variant

Available material variants

Size	G	GB	GC	B	S	SB	SC	C
040-025-160	✗	✗	✗	-	✗	✗	✗	✗
040-025-200	✗	✗	✗	-	✗	✗	✗	✗
050-032-125.1	✗	✗	✗	✗	✗	✗	✗	✗
050-032-160.1	✗	✗	✗	✗	✗	✗	✗	✗
050-032-200.1	✗	✗	✗	✗	✗	✗	✗	✗
050-032-250.1	✗	✗	✗	-	-	-	-	✗
050-032-125	✗	✗	✗	-	-	-	-	✗
050-032-160	✗	✗	✗	✗	✗	✗	✗	✗
050-032-200	✗	✗	✗	✗	✗	✗	✗	✗
050-032-250	✗	✗	✗	-	✗	✗	✗	✗
065-040-125	✗	✗	✗	-	-	-	-	✗
065-040-160	✗	✗	✗	✗	✗	✗	✗	✗
065-040-200	✗	✗	✗	✗	✗	✗	✗	✗
065-040-250	✗	✗	✗	✗	✗	✗	✗	✗
065-050-125	✗	✗	✗	-	-	-	-	✗
065-050-160	✗	✗	✗	✗	✗	✗	✗	✗
065-050-200	✗	✗	✗	✗	✗	✗	✗	✗
065-050-250	✗	✗	✗	✗	✗	✗	✗	✗

11) For variants with mechanical seal
12) For variants with mechanical seal

Size	G	GB	GC	B	S	SB	SC	C
065-050-315	✗	✗	✗	-	✗	✗	✗	✗
080-065-125	✗	✗	✗	-	-	-	-	✗
080-065-160	✗	✗	✗	✗	✗	✗	✗	✗
080-065-200	✗	✗	✗	✗	✗	✗	✗	✗
080-065-250	✗	✗	✗	✗	✗	✗	✗	✗
080-065-315	✗	✗	✗	-	✗	✗	✗	✗
100-080-160	✗	✗	✗	✗	✗	✗	✗	✗
100-080-200	✗	✗	✗	✗	✗	✗	✗	✗
100-080-250	✗	✗	✗	✗	✗	✗	✗	✗
100-080-315	✗	✗	✗	-	✗	✗	✗	✗
100-080-400	✗	✗	✗	-	-	-	-	✗
125-100-160	✗	✗	✗	✗	✗	✗	✗	✗
125-100-200	✗	✗	✗	✗	✗	✗	✗	✗
125-100-250	✗	✗	✗	✗	✗	✗	✗	✗
125-100-315	✗	✗	✗	✗	✗	✗	✗	✗
125-100-400	✗	✗	✗	-	-	-	-	✗
150-125-200	✗	✗	✗	✗	✗	✗	✗	✗
150-125-250	✗	✗	✗	✗	✗	✗	✗	✗
150-125-315	✗	✗	✗	✗	✗	✗	✗	✗
150-125-400	✗	✗	✗	-	✗	✗	✗	✗
200-150-200	✗	✗	✗	-	-	-	-	✗
200-150-250	✗	✗	✗	✗	-	-	-	✗
200-150-315	✗	✗	✗	✗	✗	✗	✗	✗
200-150-400	✗	✗	✗	✗	✗	✗	✗	✗

Technical data

Technical data

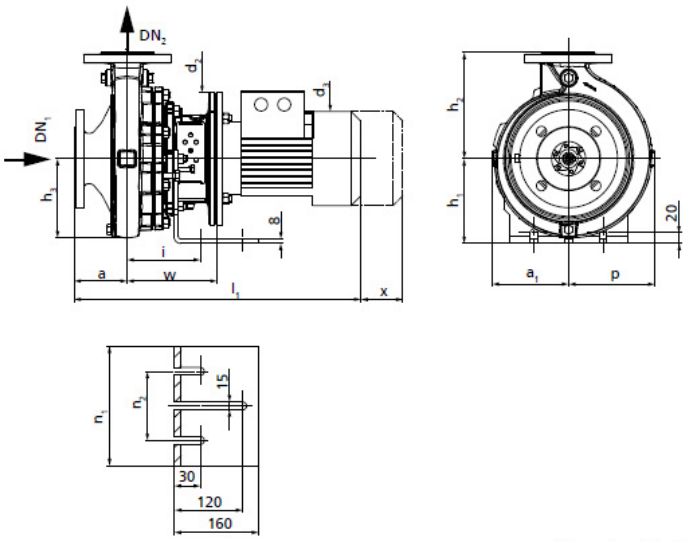
Sizes	Shaft unit	Impeller				Speed limit	
		Impeller outlet width	Impeller inlet diameter	Impeller diameter		Maximum	Minimum
				Maximum	Minimum		
		[mm]	[mm]	[mm]	[mm]	[rpm]	[rpm]
040-025-160	WS_25	6,0	45,2	169	130	3500	500
040-025-200	WS_25	6,0	45,2	209	160	3500	500
050-032-125.1	WS_25	6,6	52,4	139	104	4300	500
050-032-160.1	WS_25	5,7	52,7	170	136	4400	500
050-032-200.1	WS_25	5,6	54,0	204	170	3800	500
050-032-250.1	WS_25	5,5	58,3	254	200	3000	500
050-032-125	WS_25	9,8	63,4	139	104	4200	500
050-032-160	WS_25	8,5	60,6	174	136	3500	500
050-032-200	WS_25	7,0	62,9	209	170	3700	500
050-032-250	WS_25	7,5	62,6	261	209	3000	500
065-040-125	WS_25	14,0	73,9	139	104	4000	500
065-040-160	WS_25	13,0	70,0	174	128	4400	500
065-040-200	WS_25	9,4	69,4	209	165	3700	500
065-040-250	WS_25	8,4	74,1	260	200	3000	500
065-040-315	WS_35	7,5	75,3	326	260	2300	500
065-050-125	WS_25	19,9	87,9	142	112	4500	500
065-050-160	WS_25	16,9	86,9	174	128	4400	500
065-050-200	WS_25	13,8	83,1	219	170	3400	500
065-050-250	WS_25	10,5	84,0	260	215	3000	500
065-050-315	WS_35	10,0	87,0	323	265	2400	500
080-065-125	WS_25	25,8	99,0	141	109	4000	500
080-065-160	WS_25	21,0	92,0	174	132	3900	500
080-065-200	WS_25	17,0	99,7	219	175	3000	500
080-065-250	WS_35	15,1	101,0	260	215	3000	500
080-065-315	WS_35	13,7	108,2	320	260	2400	500
100-080-160	WS_25	31,6	124,0	174	138	3500	500
100-080-200	WS_35	24,5	115,0	219	180	3500	500
100-080-250	WS_35	19,0	115,0	269	215	2900	500
100-080-315	WS_35	18,7	115,6	334	269	1900	500
100-080-400	WS_55	15,0	130,0	398	330	1900	500
125-100-160	WS_35	37,6	135,0	185	162	3600	500

Sizes	Shaft unit	Impeller				Speed limit	
		Impeller outlet width	Impeller inlet diameter	Impeller diameter		Maximum	Minimum
				Maximum	Minimum		
		[mm]	[mm]	[mm]	[mm]	[rpm]	[rpm]
125-100-200	WS_35	32,5	142,0	219	179	3300	500
125-100-250	WS_35	27,0	145,0	269	210	2500	500
125-100-315	WS_35	23,0	142,0	334	270	1800	500
125-100-400	WS_55	18,0	142,8	401	329	1900	500
150-125-200	WS_35	40,7	159,0	224	182	2600	500
150-125-250	WS_35	37,0	162,4	269	218	2000	500
150-125-315	WS_55	30,9	162,0	334	270	2300	500
150-125-400	WS_55	25,9	162,4	419	330	1800	500
200-150-200	WS_35	59,5	180,0	224	188	2300	500
200-150-250	WS_35	48,8	191,0	269	220	1800	500
200-150-315	WS_55	39,7	191,5	334	264	2100	500
200-150-400	WS_55	33,0	191,4	419	330	1800	500

Etabloc Pump Dimensions and Weights

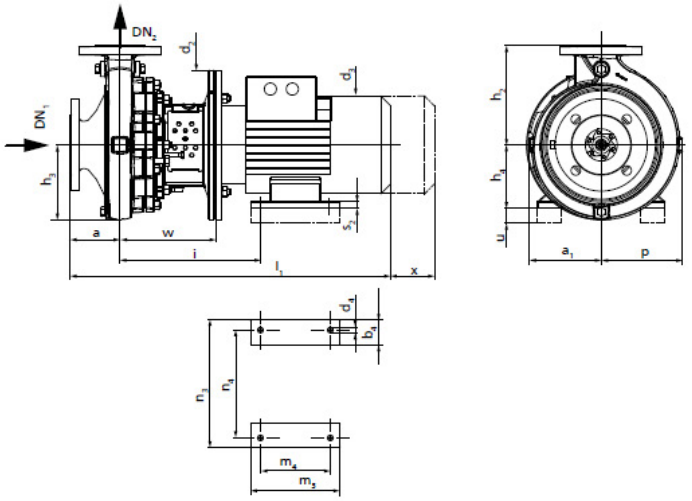
For Pump Dimensions Refer To The 'Etabloc Type Series Booklet'.

Dimensions



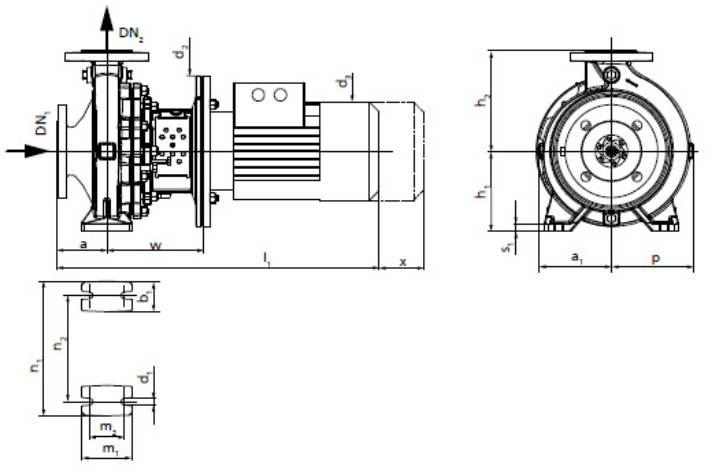
Pump set with support foot (up to motor size 112)

Dimensions [mm]

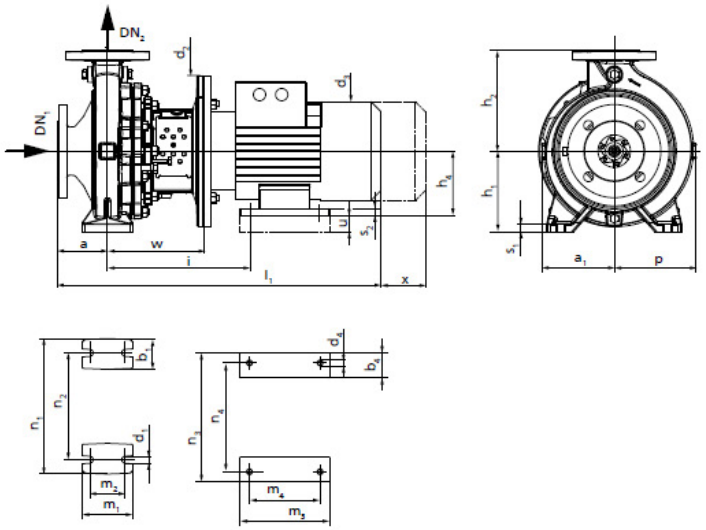


Pump set with motor foot (motor sizes 132 to 180)

Etabloc B/ C/ S/ SB/ SC; ≤ 22 kW

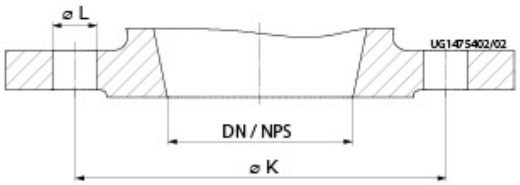


Pump set with volute casing foot (up to motor size 112)



Pump set with volute casing foot and motor foot (motor sizes 132 to 180)

Flange dimensions



Flange dimensions

Flange dimensions [mm]

DN/ NPS	Standard													
	EN 1092-1[15], EN 1092-2 [16] EN 1092-3[17]												ASME B 16.1 or ASME B 16.5	
	Material													
	B		C				G				S		B, C, G, S	
	PN 10		PN 10		PN 16		PN 10		PN 16		PN 16		Class 125 or Class 150	
	Ø K	Number of holes	Ø K	Number of holes	Ø K	Number of holes	Ø K	Number of holes	Ø K	Number of holes	Ø K	Number of holes	Ø K	Number of holes
25/ NPS1	85	4 ×Ø14	-	-	85	4 ×Ø14	-	-	85	4 ×Ø14	85	4 ×Ø14	79,2	4 ×Ø15,7
32/ NPS11/4	100	4 ×Ø18	-	-	100	4 ×Ø18	-	-	100	4 ×Ø19	100	4 ×Ø19	88,9	4 ×Ø15,7
40/ NPS11/2	110	4 ×Ø18	-	-	110	4 ×Ø18	-	-	110	4 ×Ø19	110	4 ×Ø19	98,6	4 ×Ø15,7
50/ NPS2	125	4 ×Ø18	-	-	125	4 ×Ø18	-	-	125	4 ×Ø19	125	4 ×Ø19	120,7	4 ×Ø19,1
65/ NPS21/2	145	4 ×Ø18	-	-	145	4 ×Ø18	-	-	145	4 ×Ø19	145	4 ×Ø19	139,7	4 ×Ø19,1
80/ NPS3	160	8 ×Ø18	-	-	160	8 ×Ø18	-	-	160	8 ×Ø19	160	8 ×Ø19	152,4	4 ×Ø19,1
100/ NPS4	180	8 ×Ø18	-	-	180	8 ×Ø18	-	-	180	8 ×Ø19	180	8 ×Ø19	190,5	8 ×Ø19,1
125/ NPS5	210	8 ×Ø18	-	-	210	8 ×Ø18	-	-	210	8 ×Ø19	210	8 ×Ø19	215,9	8 ×Ø22,4
150/ NPS6	240	8 ×Ø22	-	-	240	8 ×Ø22	-	-	240	8 ×Ø23	240	8 ×Ø23	241,3	8 ×Ø22,4
200/ NPS8	295	8 ×Ø22	295	8 ×Ø22	-	-	295	8 ×Ø23	-	-	295	12 ×Ø23	298,5	8 ×Ø22,4

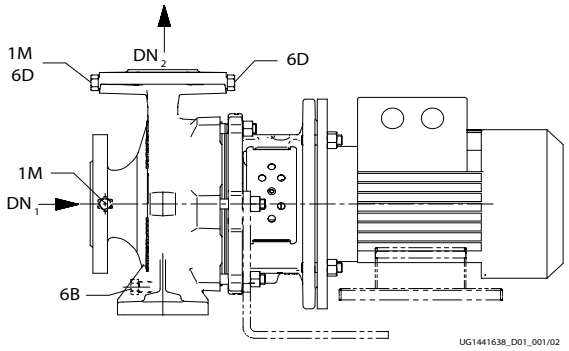
Flange design

Flange design by materials

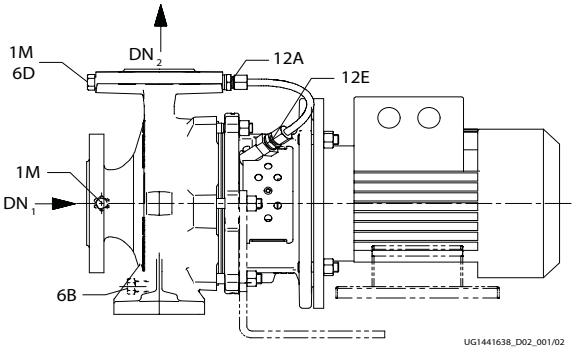
Material variant	Standard	Nominal size	Pressure class
G, GB [13], GC	EN 1092-2	DN 25 - DN 150	PN 16
		DN 200	PN 10
	Drilled to ASME B16.1 [14]	DN 25 - DN 200	Class 125
S, SB, SC	EN 1092-2	DN 25 - DN 200	PN 16
	Drilled to ASME B16.1 [14]	DN 25 - DN 200	Class 125
B	EN 1092-3	DN 25 - DN 200	PN 10
	Drilled to ASME B16.1 [14]	DN 25 - DN 200	Class 125
C	EN 1092-1	DN 25 - DN 150	PN 16
		DN 200	PN 10
	Drilled to ASME B16.1 [14]	DN 25 - DN 200	Class 150

13) Only in region A
14) Suction-side DN 80 machined like DN 100
15) Only applies to pump flanges made of stainless steel (C).
16) Only applies to pump flanges made of grey cast iron (G) and nodular cast iron (S).
17) Only applies to pump flanges made of bronze (B).

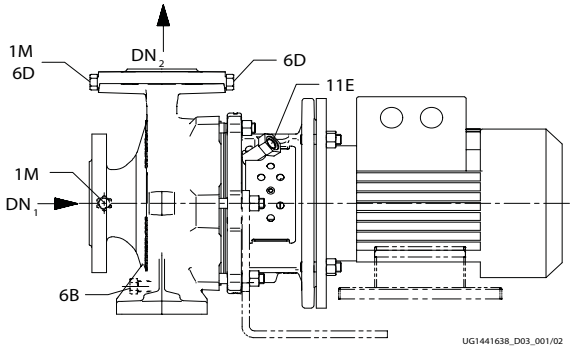
Connections



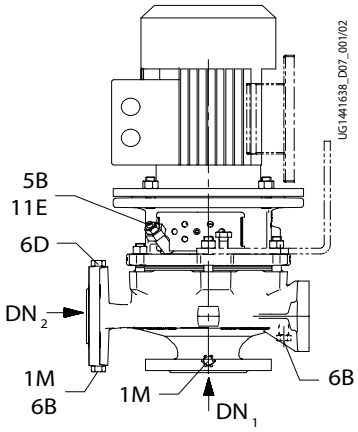
Single mechanical seal in A-type cover (A) and single mechanical seal in A-type cover with internal circulation (IA)



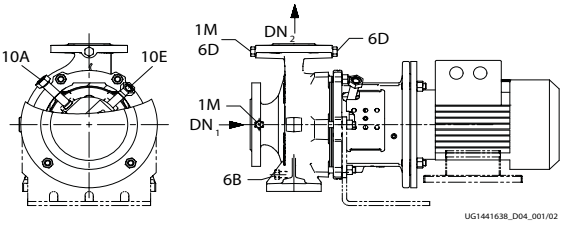
Single mechanical seal in A-type cover with external circulation (EA)



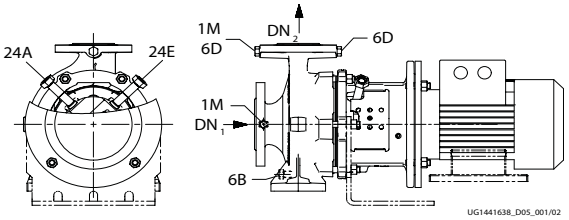
Single mechanical seal in A-type cover with external flushing (FA)



Single mechanical seal in A-type cover with external flushing (FA) and venting if vertically installed



Double mechanical seal in back-to-back arrangement (DB)



Double mechanical seal in tandem arrangement (TI)

Connection types

Connection	Description	Configuration	Position
1M	Pressure gauge connection	On pump set with	DN_2
		pressure sensor	-
1M optional	Pressure gauge connection	Drilled and closed	DN_1
		or with pressure sensor	-
5B	Vent	Connection of G 1/4 fitting	-
6B	Fluid drain	Drilled and closed	-
6D	Fluid priming	Drilled and closed	DN_2, suction side
	and venting	-	-
6D optional	Fluid priming	Drilled and closed	DN_2, drive end
	and venting	-	-
10A optional	External barrier fluid outlet	Connection of G 1/4 fitting	-
10E optional	External barrier fluid inlet	Connection of G 1/4 fitting	-
11E optional	Flushing liquid inlet	Connection of G 1/4 fitting	-
12A optional	Circulation liquid outlet	Drilled and connected	DN_2, drive end
12E optional	Circulation liquid inlet	Drilled and connected	-
24A optional	Quench liquid outlet	Connection of G 1/4 fitting	-
24E optional	Quench liquid inlet	Connection of G 1/4 fitting	-

Characteristics Curves - Accordance & Tolerances

General
Test class: Characteristics curves to ISO 9906 Class 3B

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

NPSH values in low-flow conditions
NPSH values for flow rates below Q=0.3 x Qopt can only be measured with intense technical efforts. Evidence of NPSH values in the low-flow range cannot be provided.

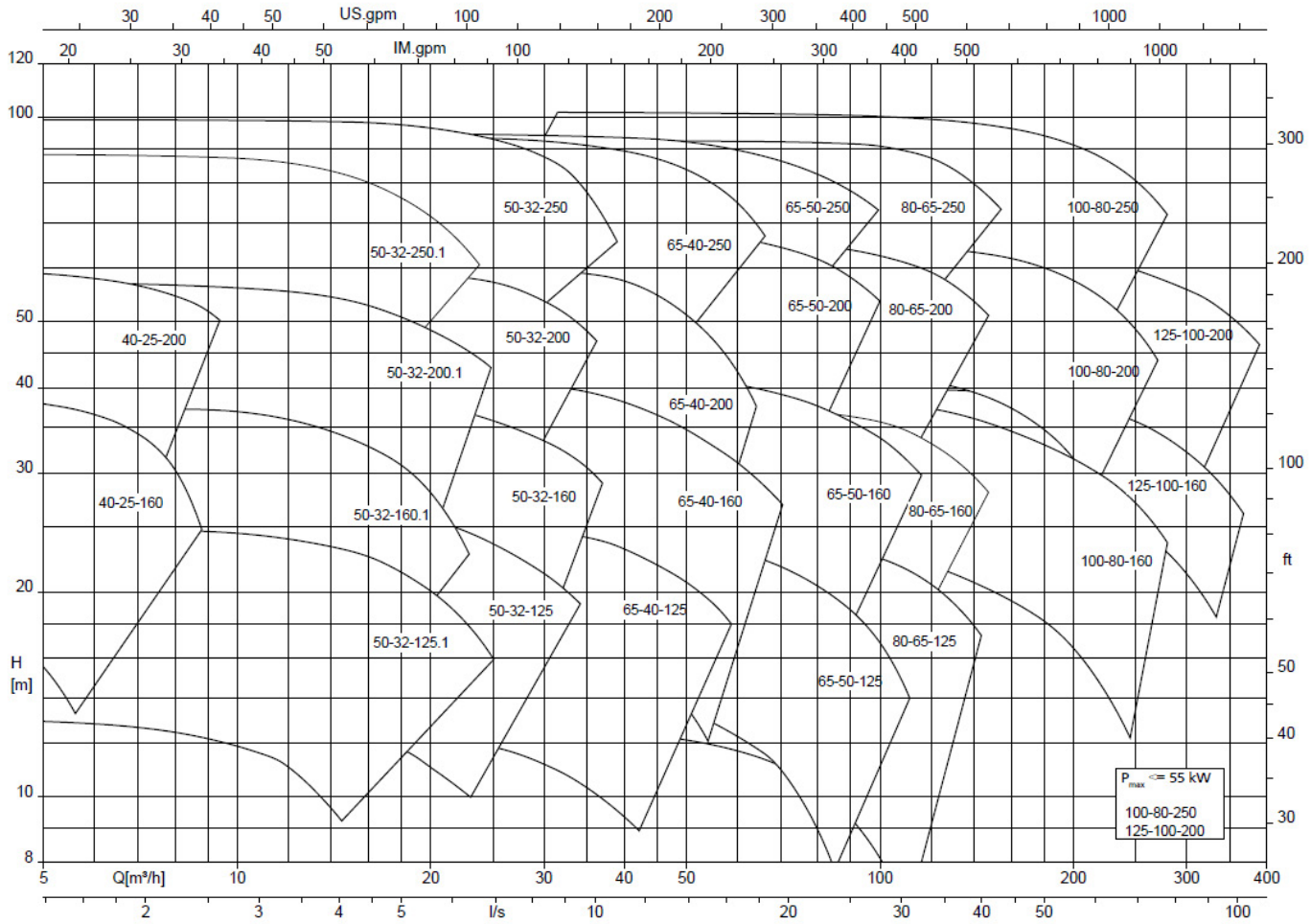
Density of the fluid handled
The indicated heads and performance data apply to pumped fluids with a density p=1.0kg/dm3 and a kinetic viscosity v of up to 20 mm2/s max. If the density = 1.0, the performance data must be multiplied by p. For viscosities >20 mm2/s the corresponding data for cold water has to be calculated and the impact on the pump's performance has to be determined.

Friction loss
For some design variants (reinforced bearings, specific shaft seals) friction losses must be considered and indicated as additional power requirement in the data sheet.

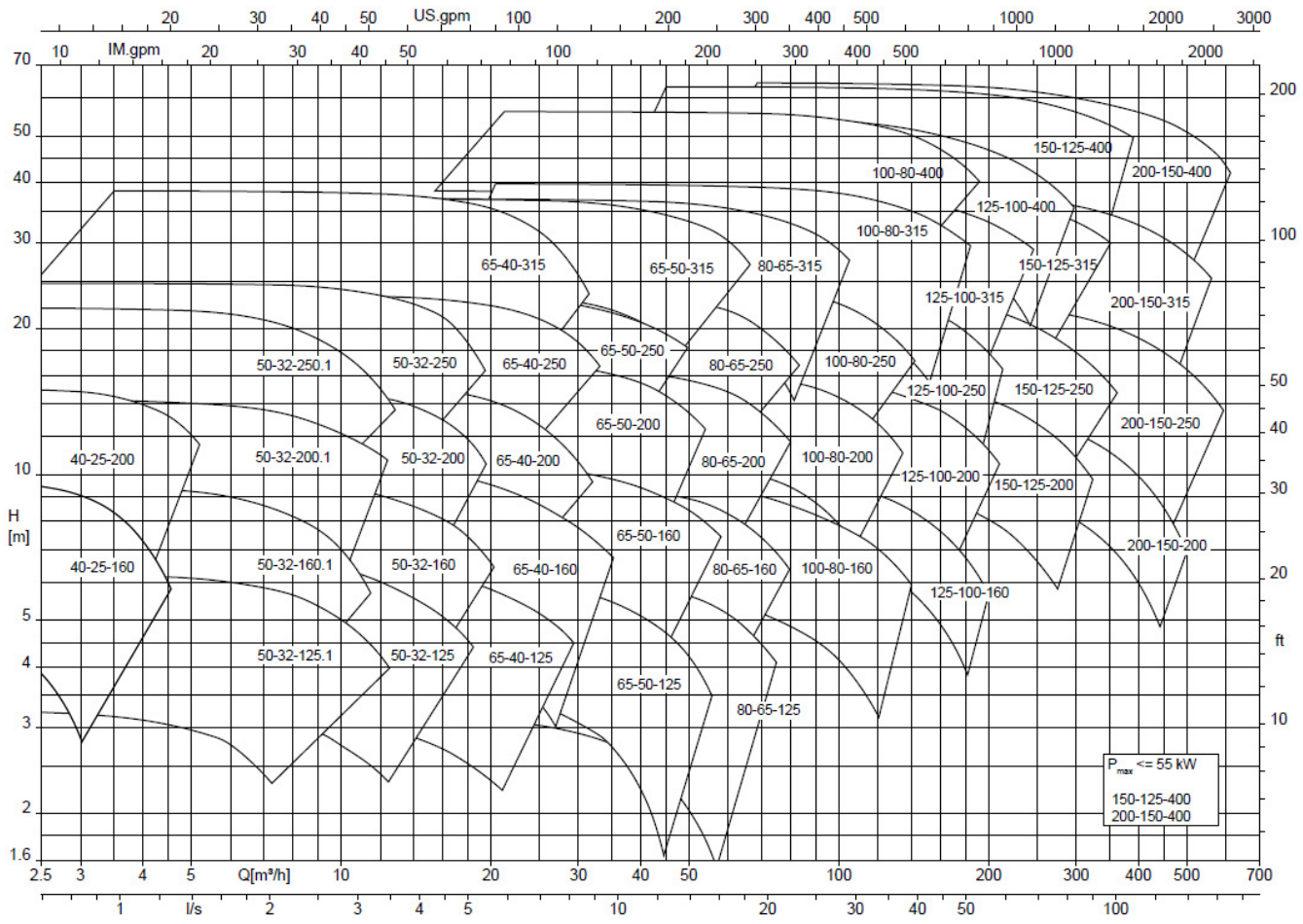
Correction factors
The characteristics curves apply to pumps with cast iron or bronze impellers. When using an impeller made of cast steel materials the efficiency and pump power of the corresponding pump sizes have to be multiplied by the correction factors indicated the characteristics curves.

Selection charts

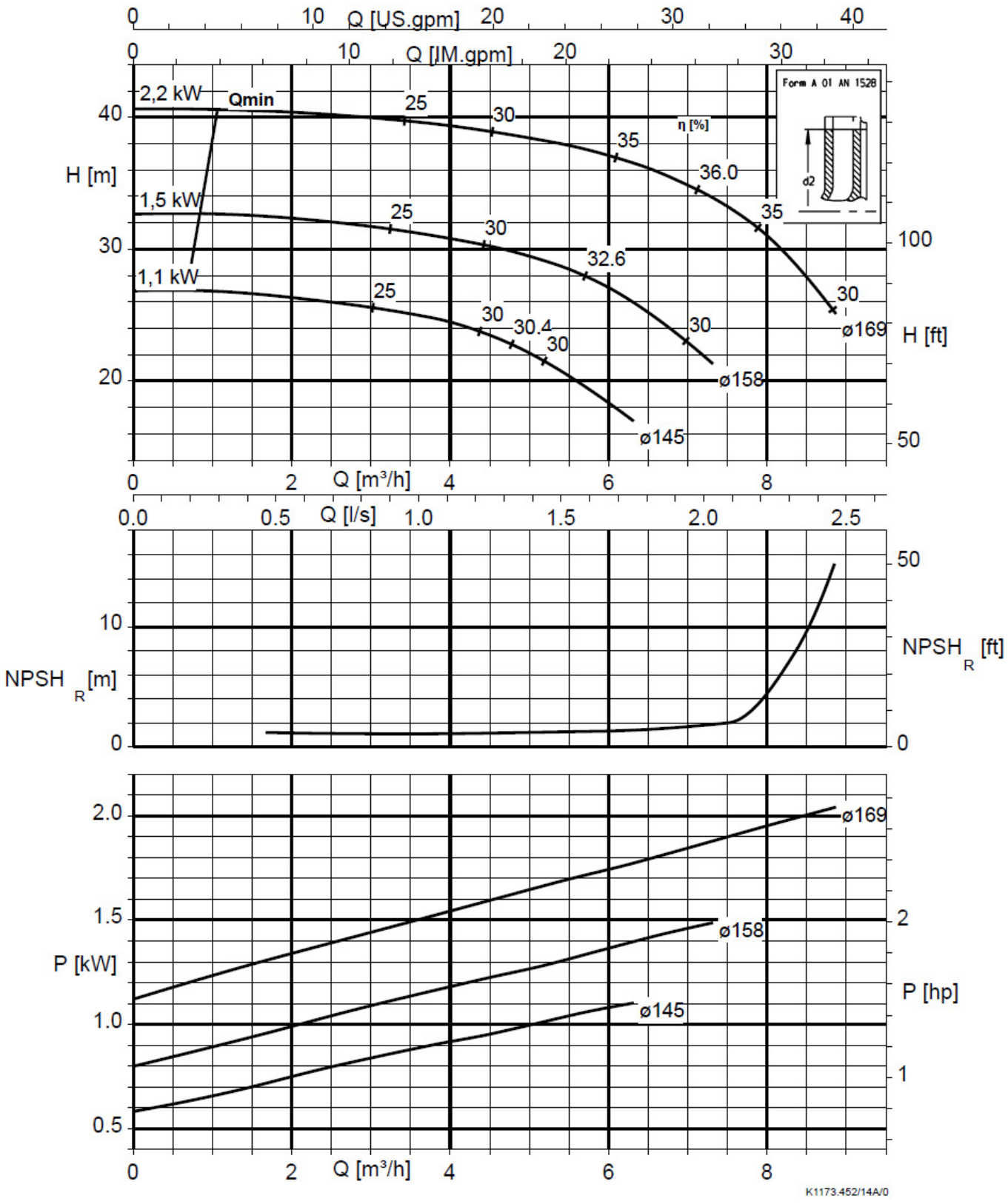
Etabloc, n = 2900 rpm



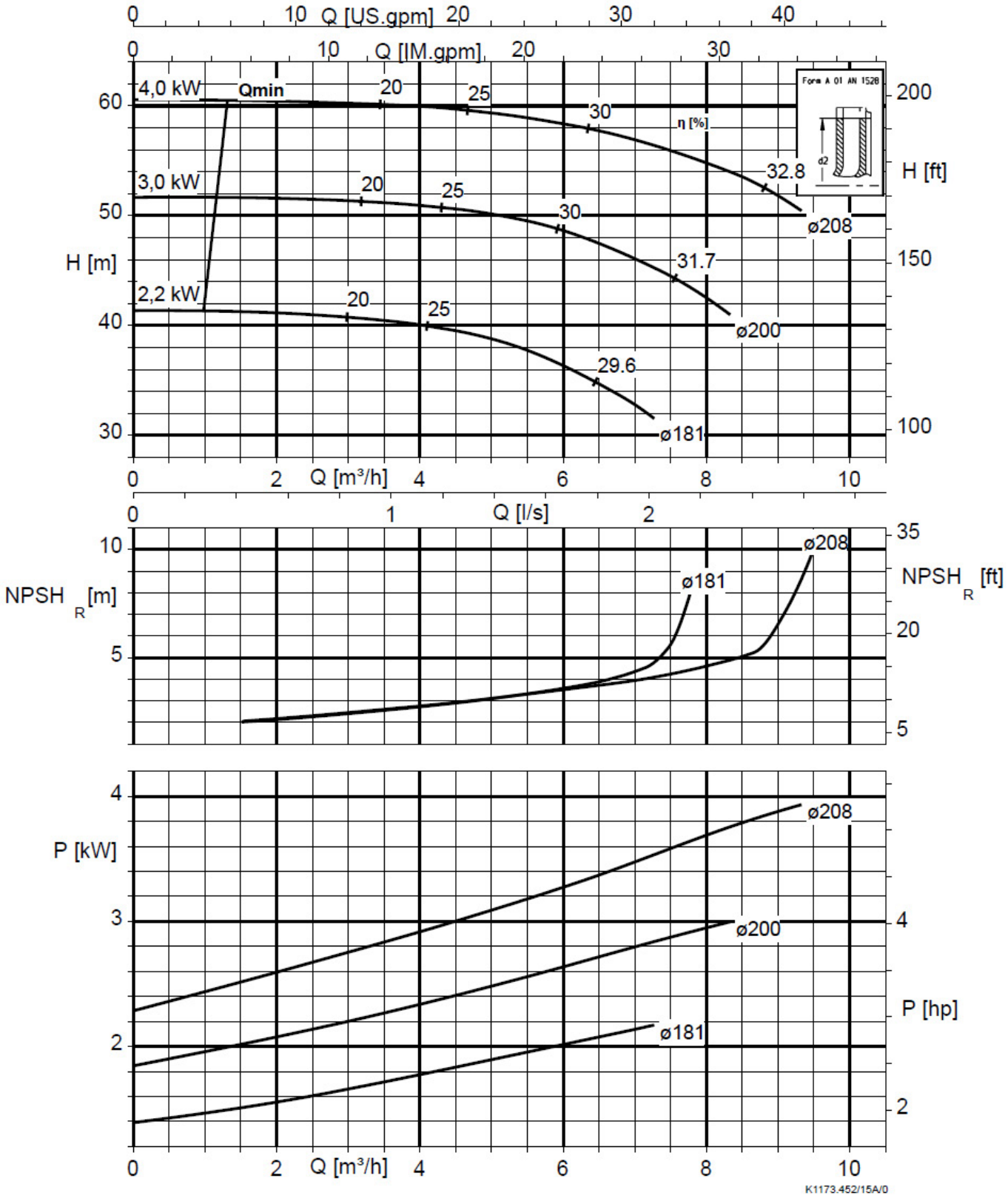
Etabloc, n = 1450 rpm



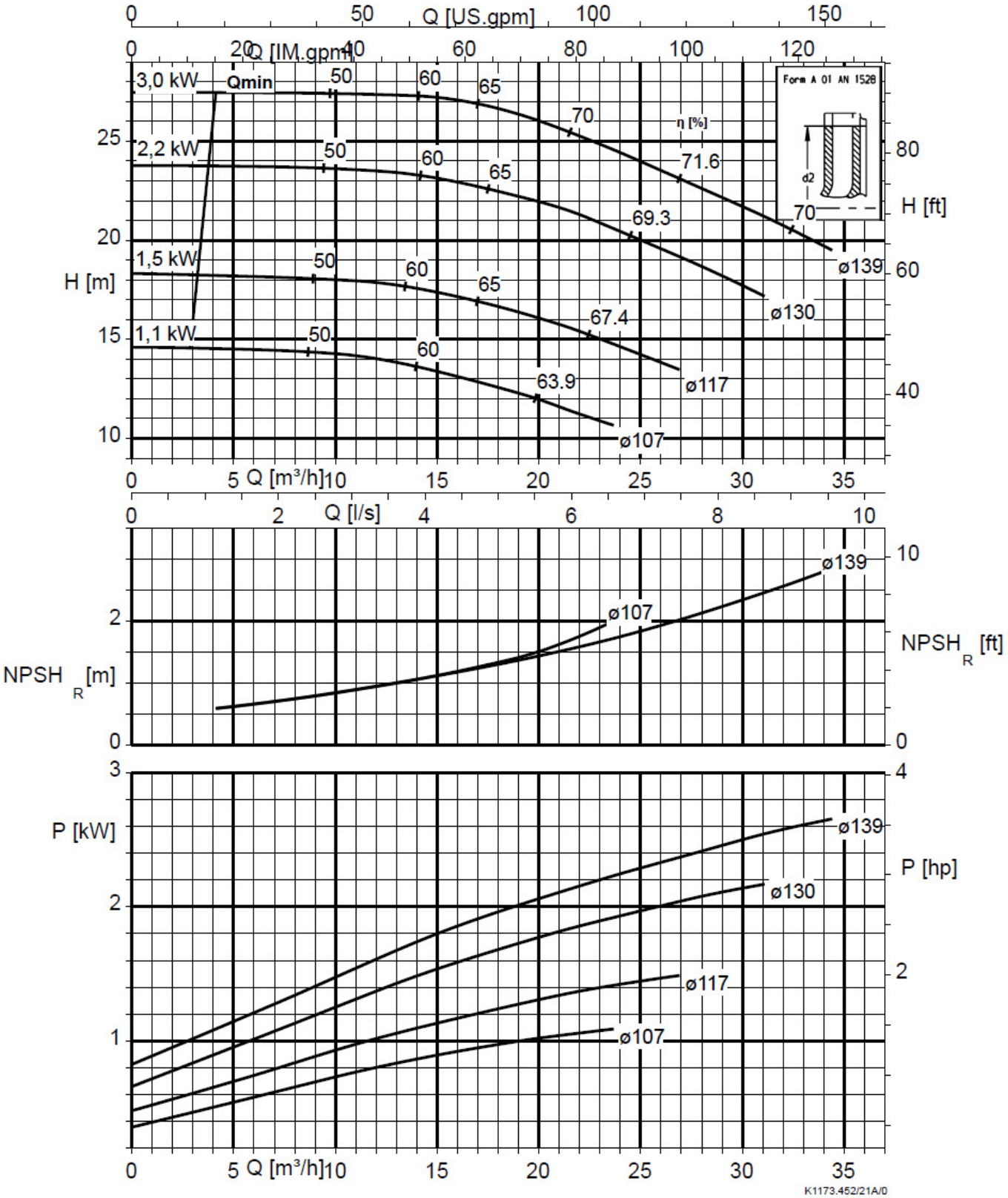
Etabloc 040-025-160, n = 2900 rpm



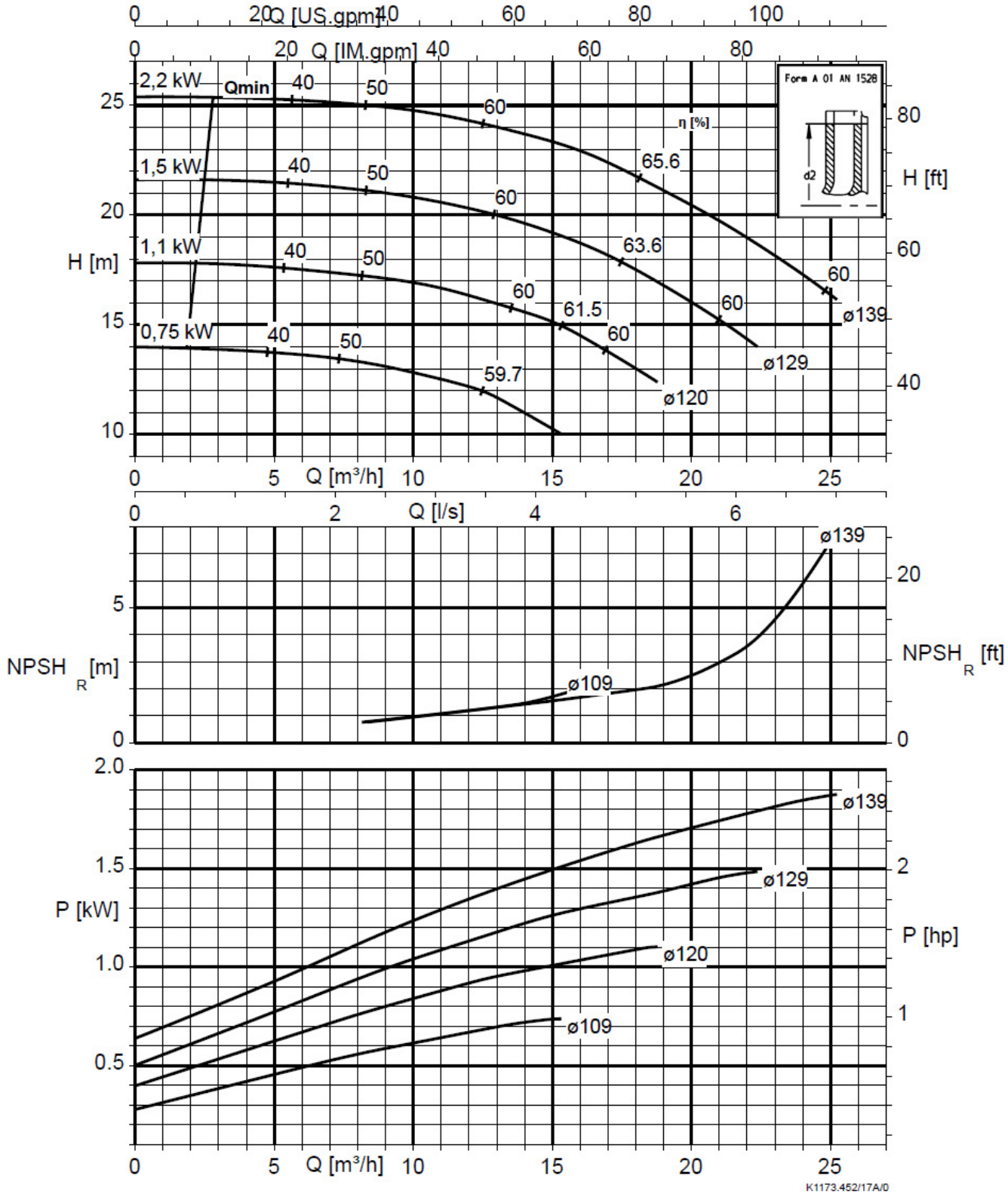
Etabloc 040-025-200, n = 2900 rpm



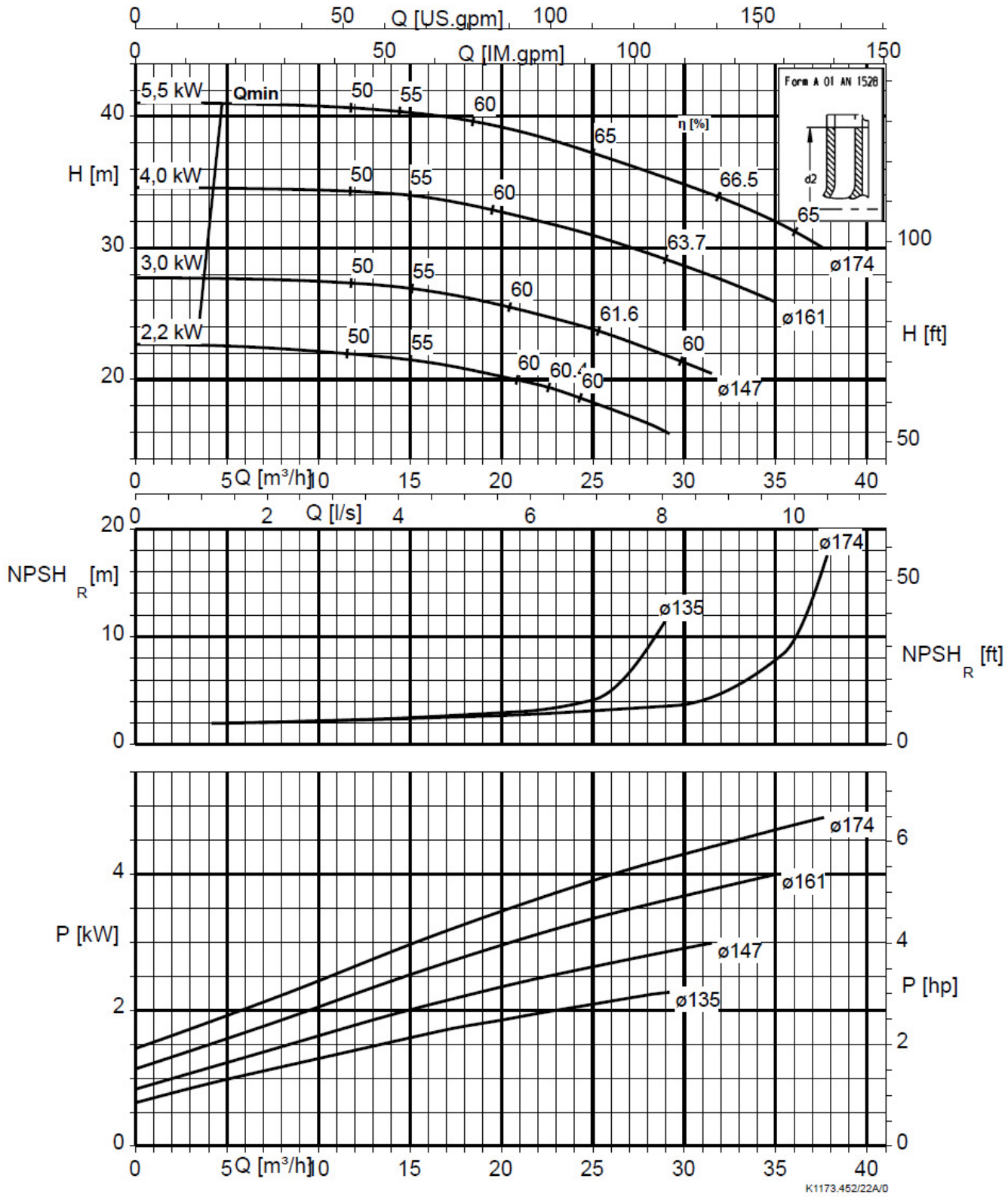
Etabloc 050-032-125, n = 2900 rpm



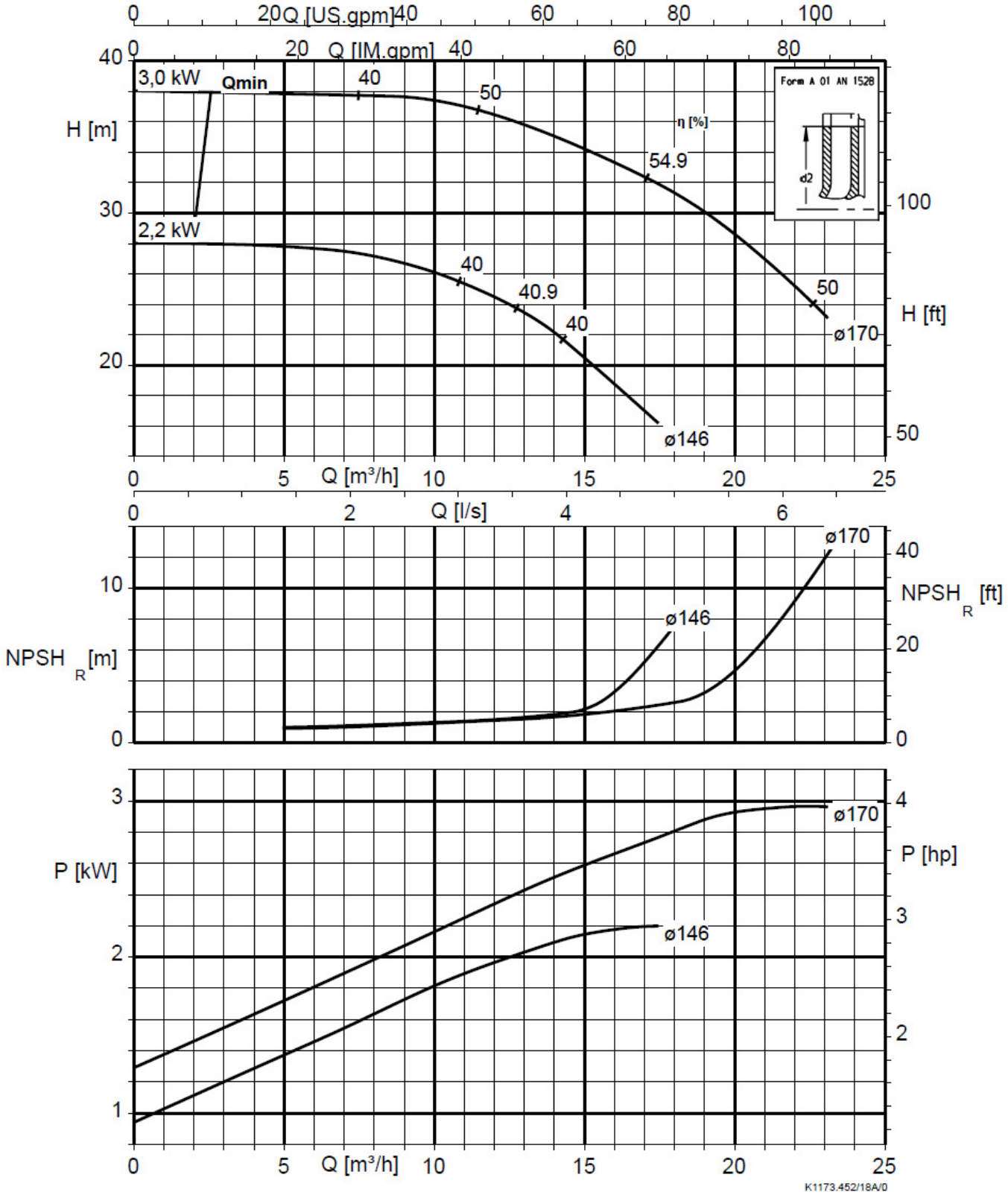
Etabloc 050-032-125.1, n = 2900 rpm



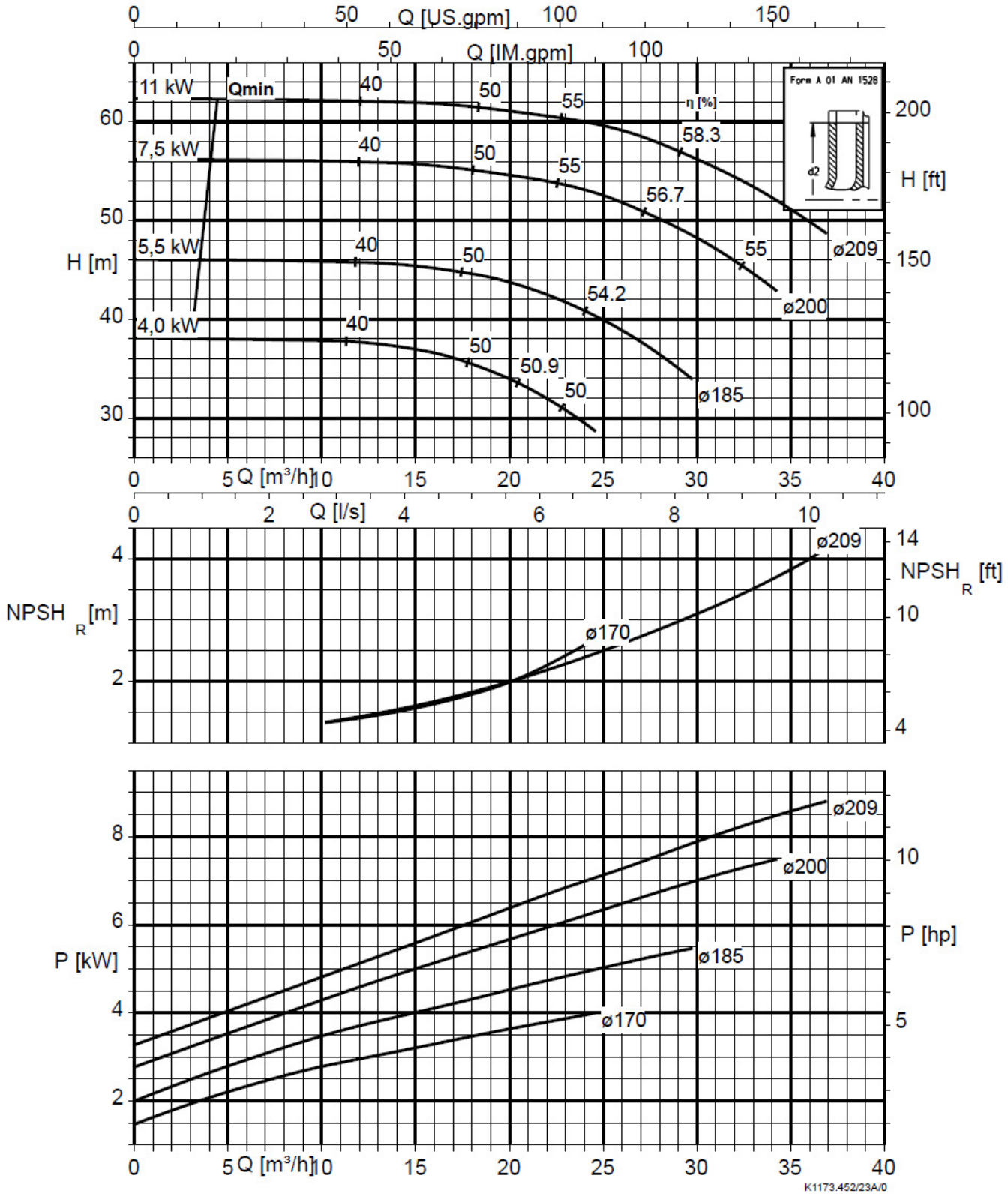
Etabloc 050-032-160, n = 2900 rpm



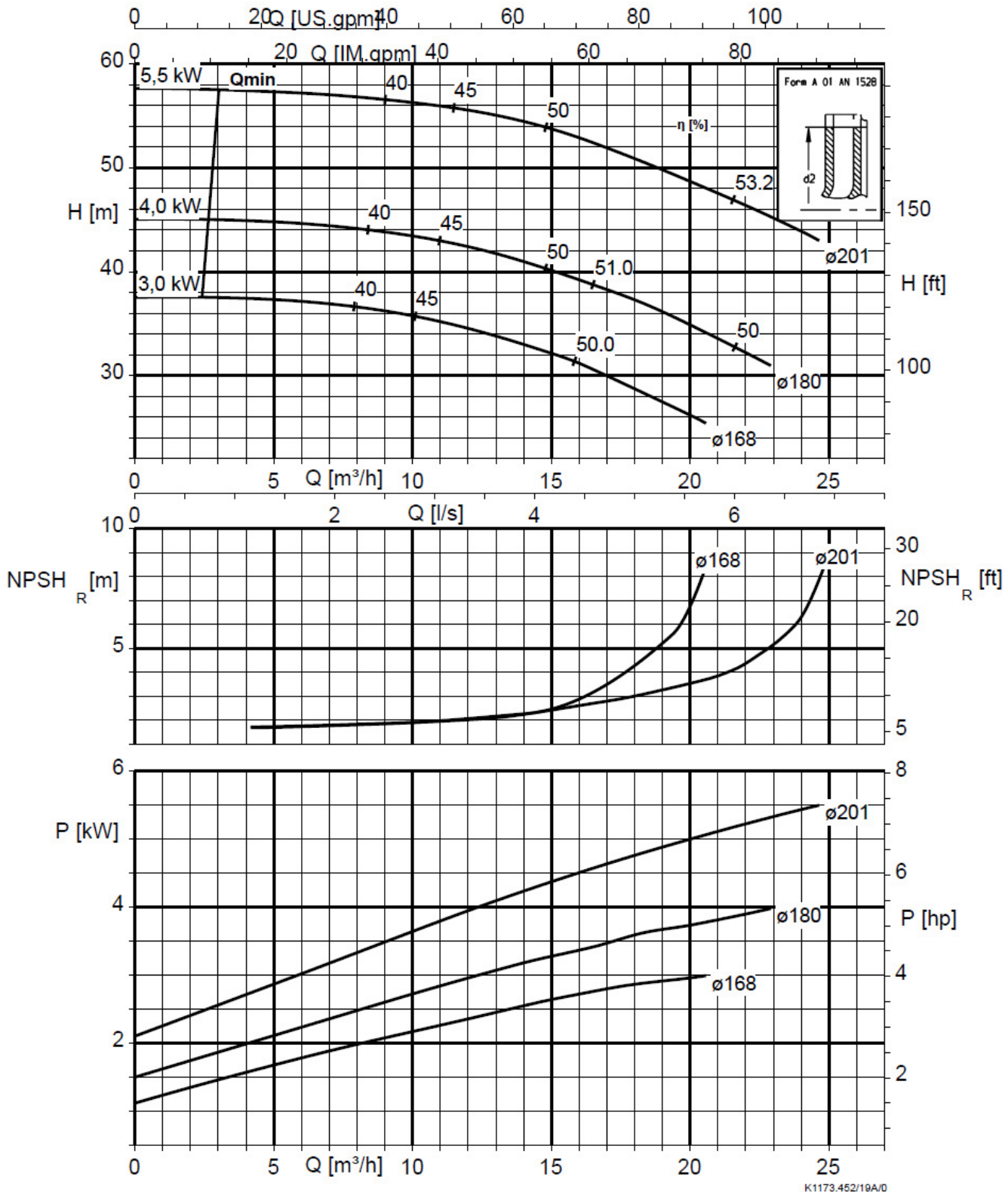
Etabloc 050-032-160.1, n = 2900 rpm



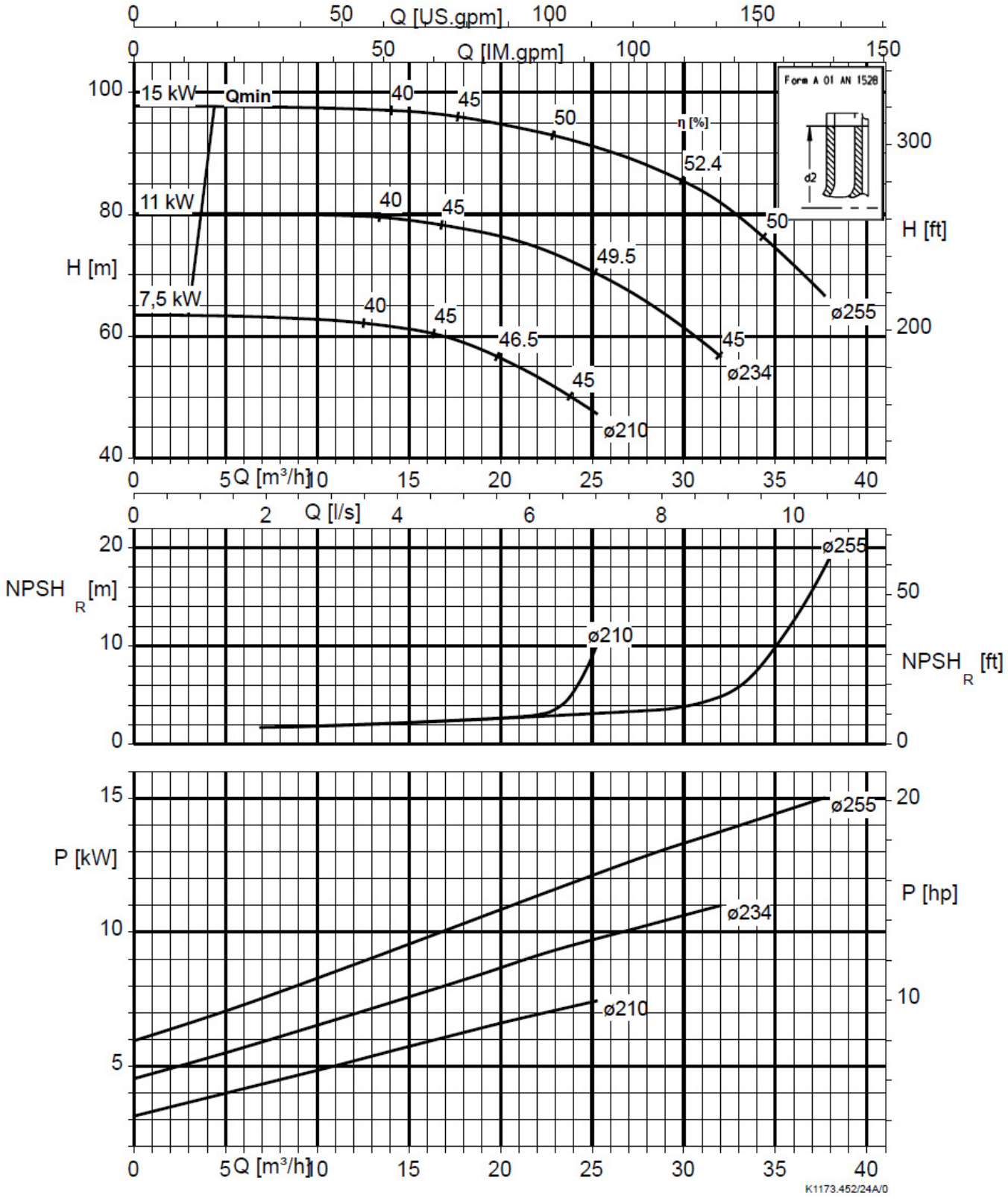
Etabloc 050-032-200, n = 2900 rpm



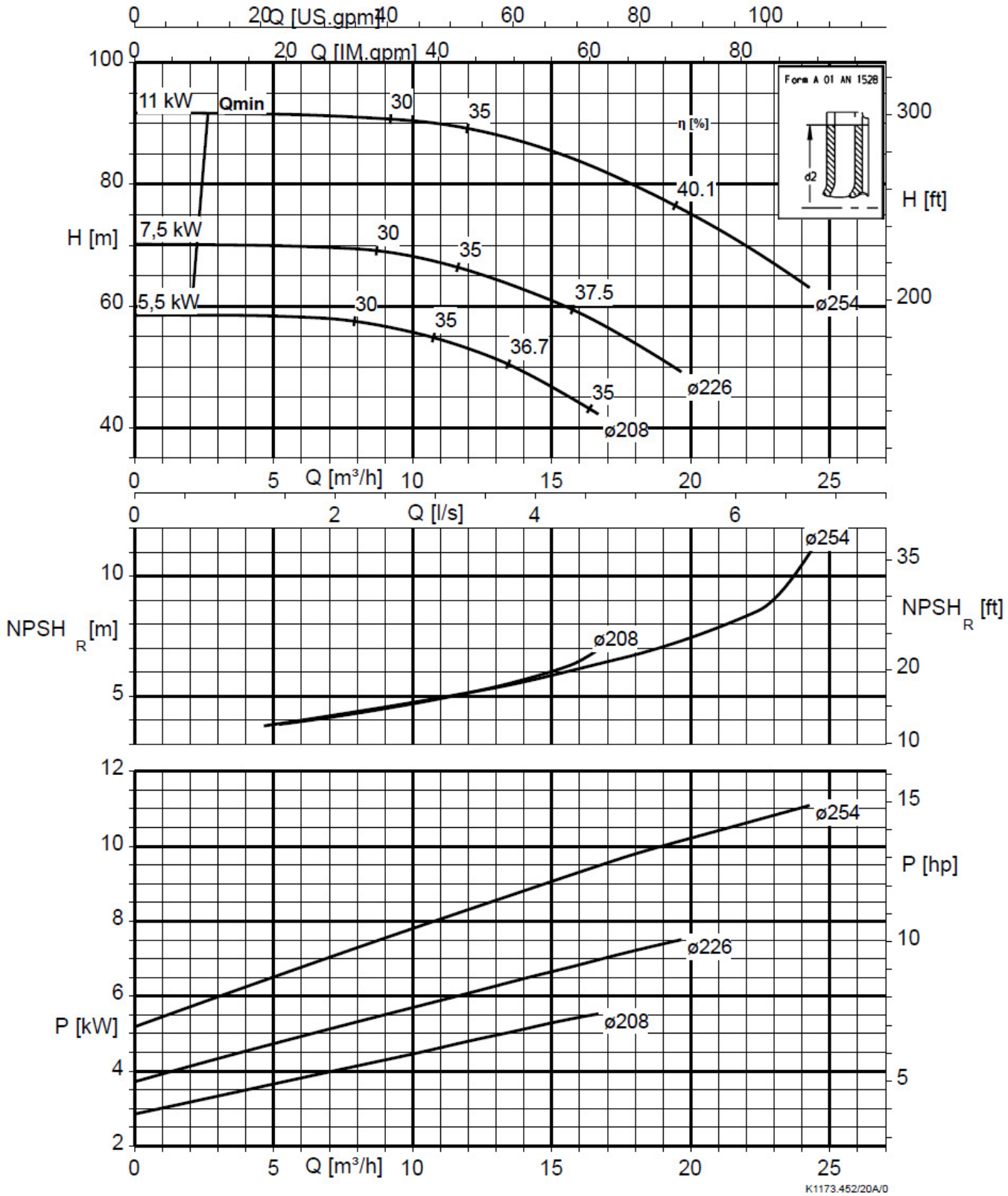
Etabloc 050-032-200.1, n = 2900 rpm



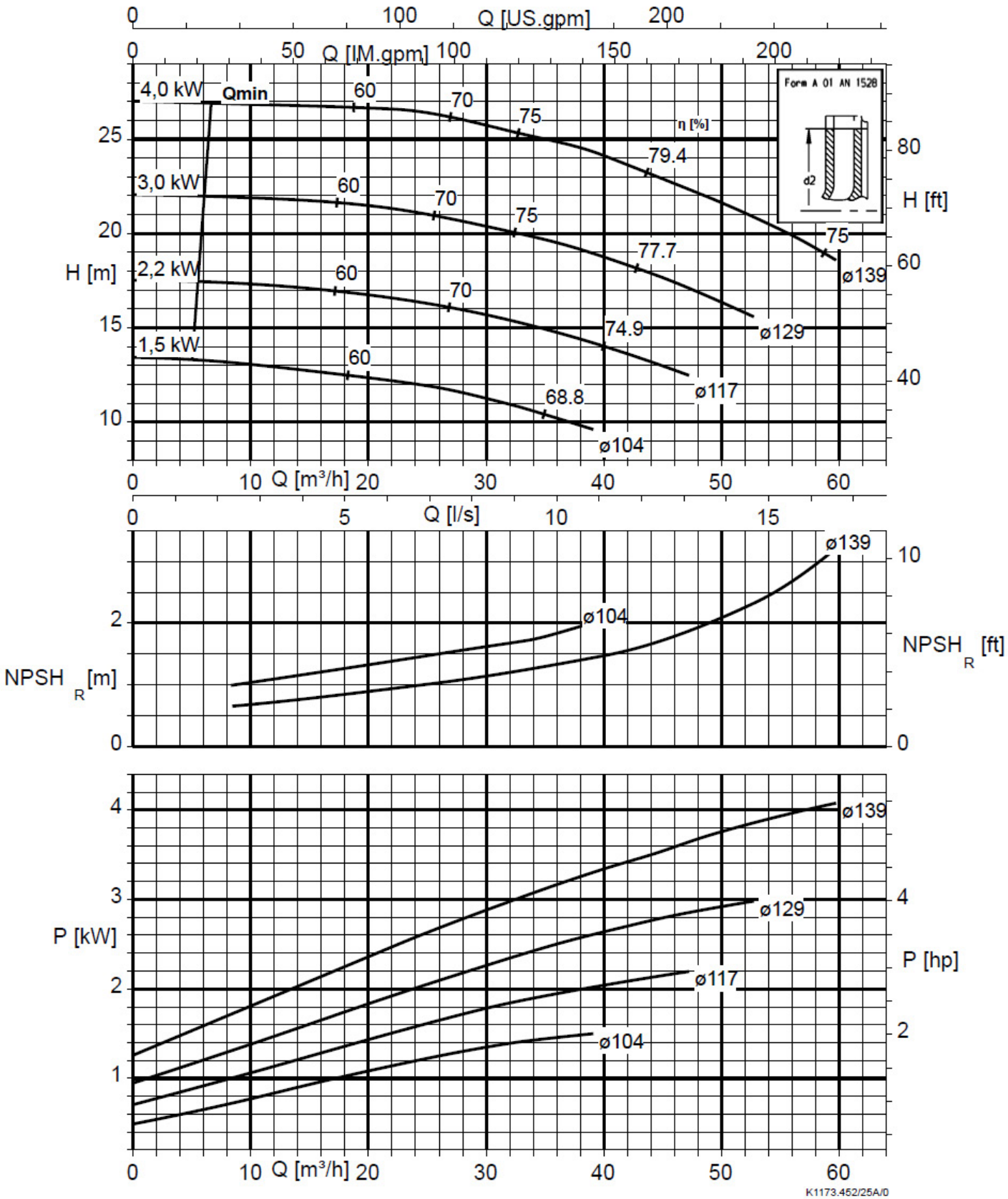
Etabloc 050-032-250, n = 2900 rpm



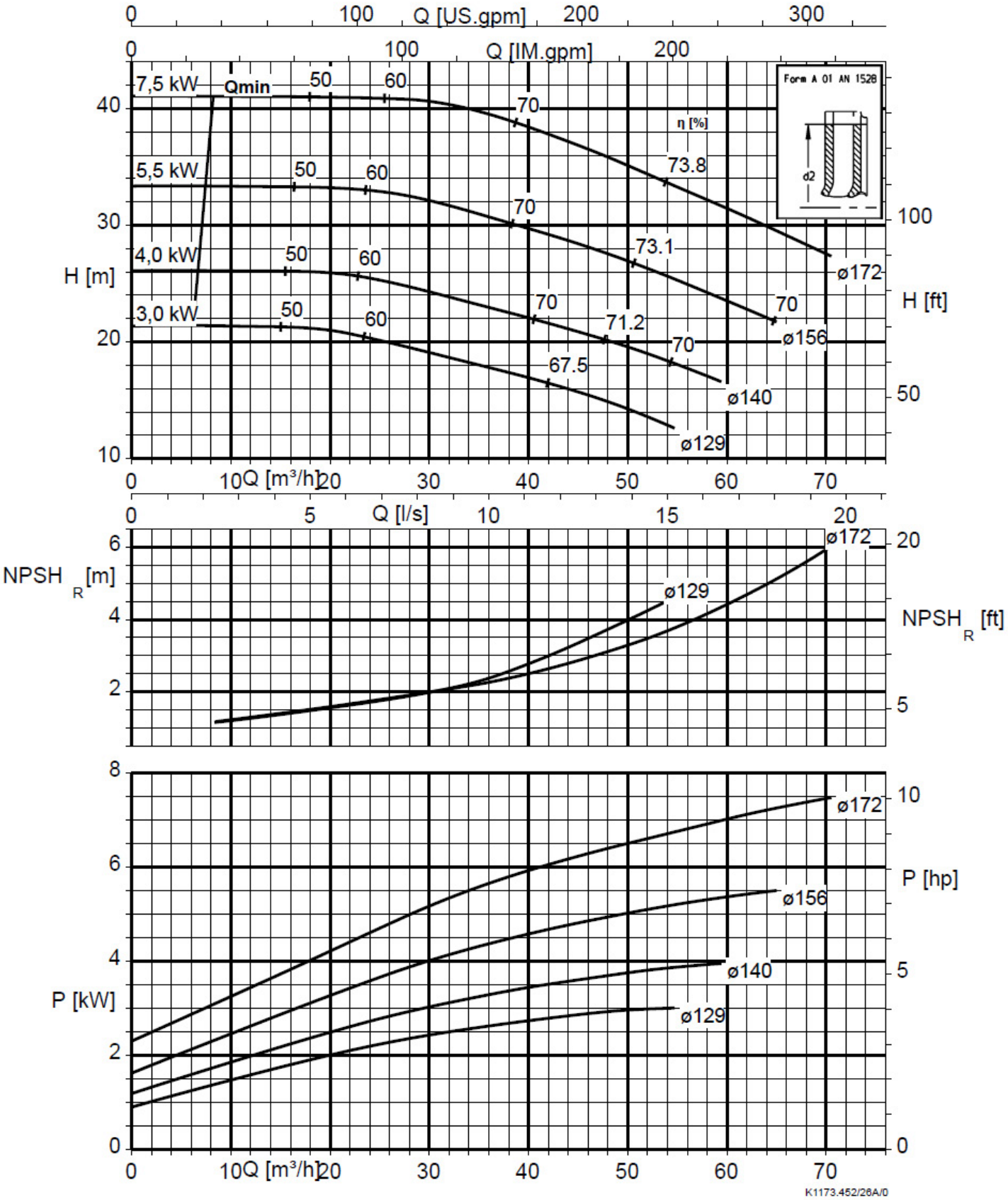
Etabloc 050-032-250.1, n = 2900 rpm



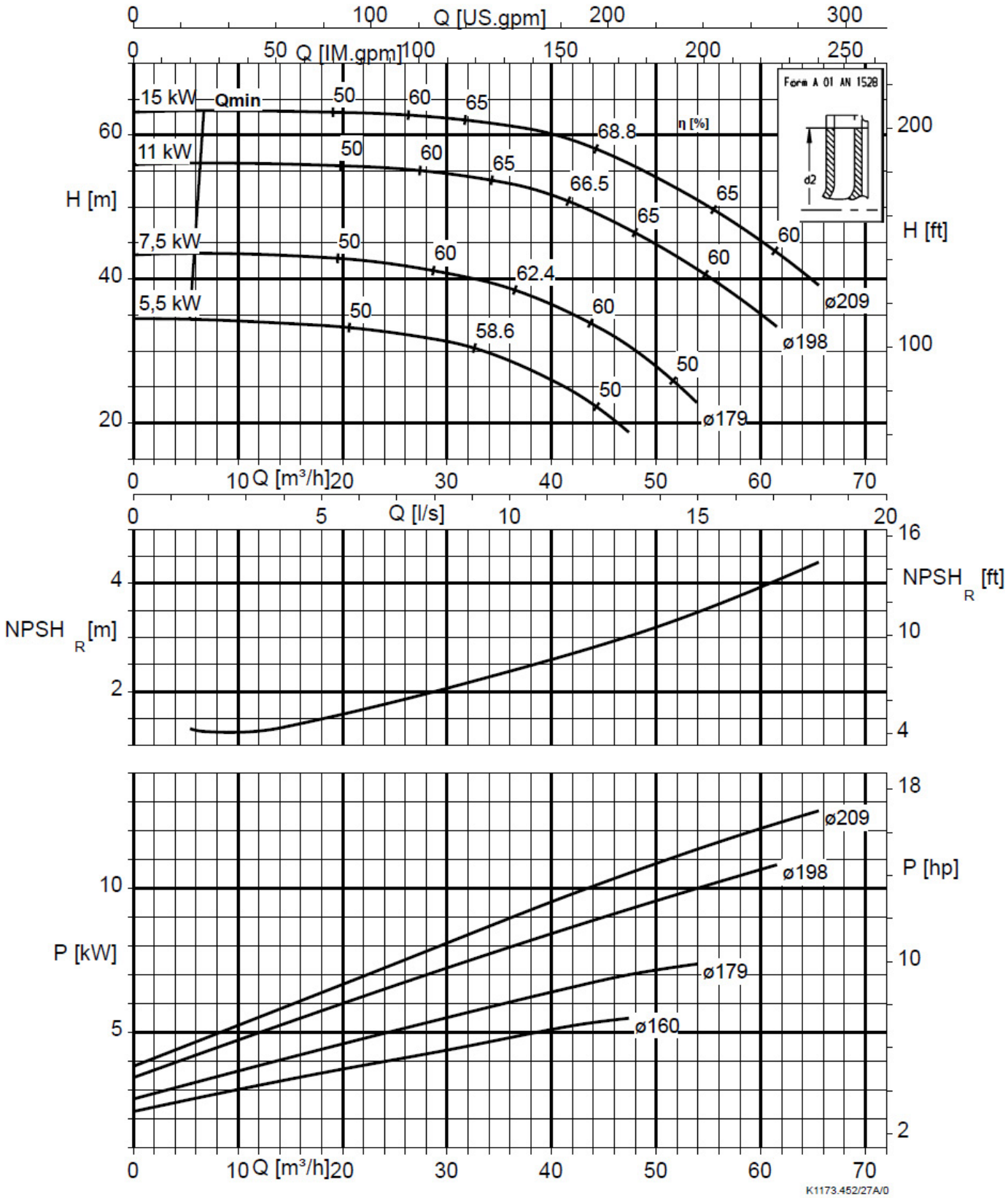
Etabloc 065-040-125, n = 2900 rpm



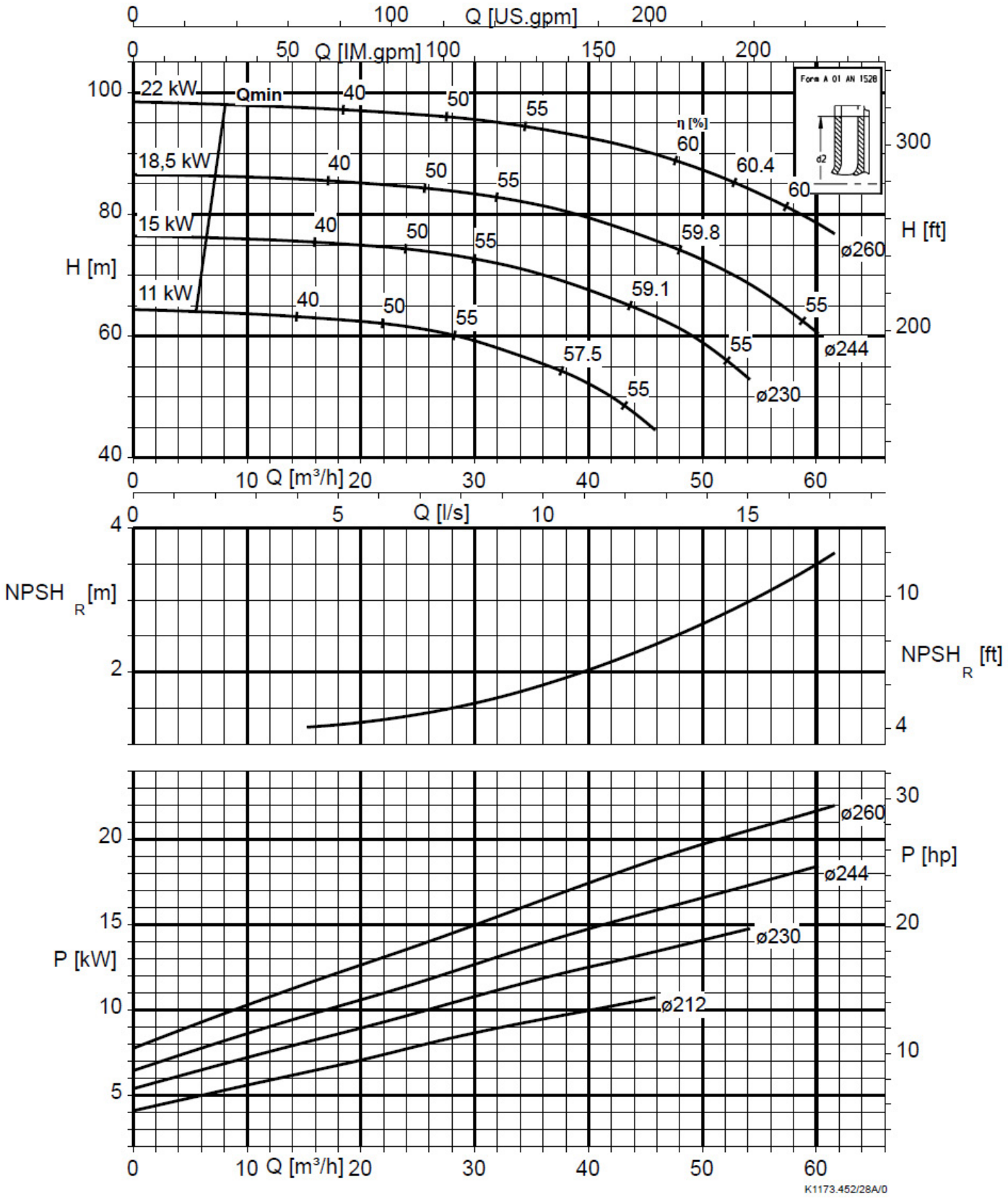
Etabloc 065-040-160, n = 2900 rpm



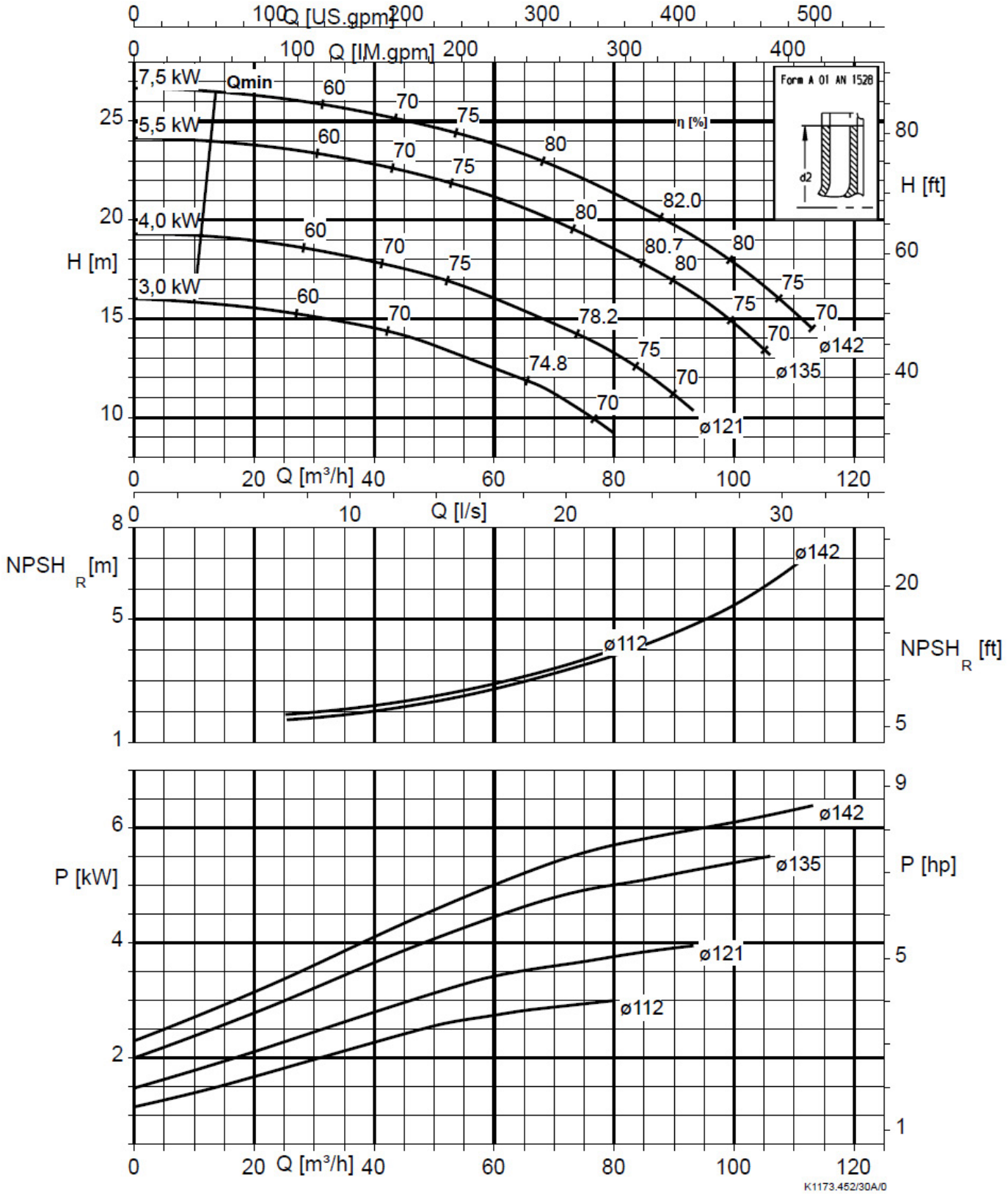
Etabloc 065-040-200, n = 2900 rpm



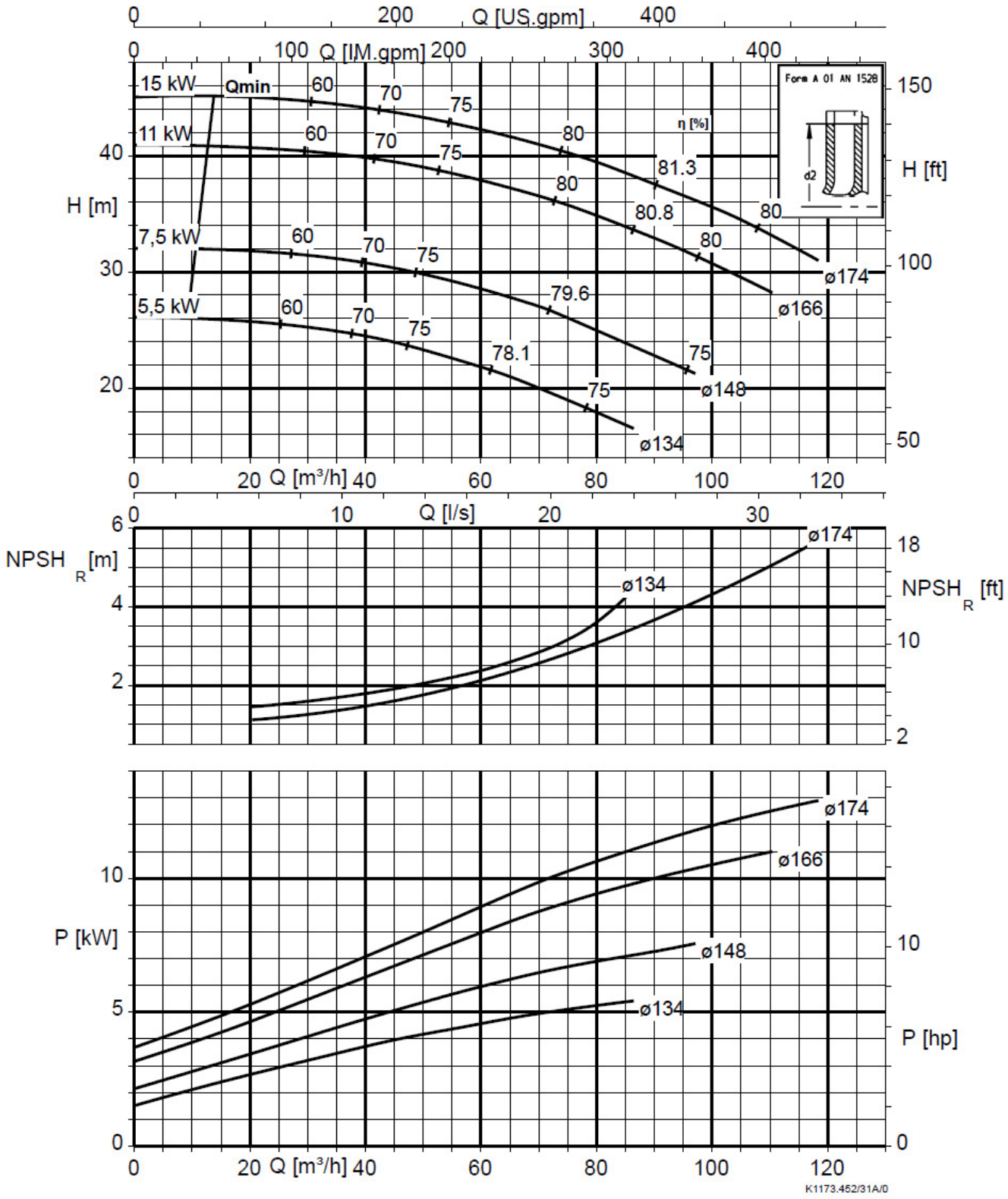
Etabloc 065-040-250, n = 2900 rpm



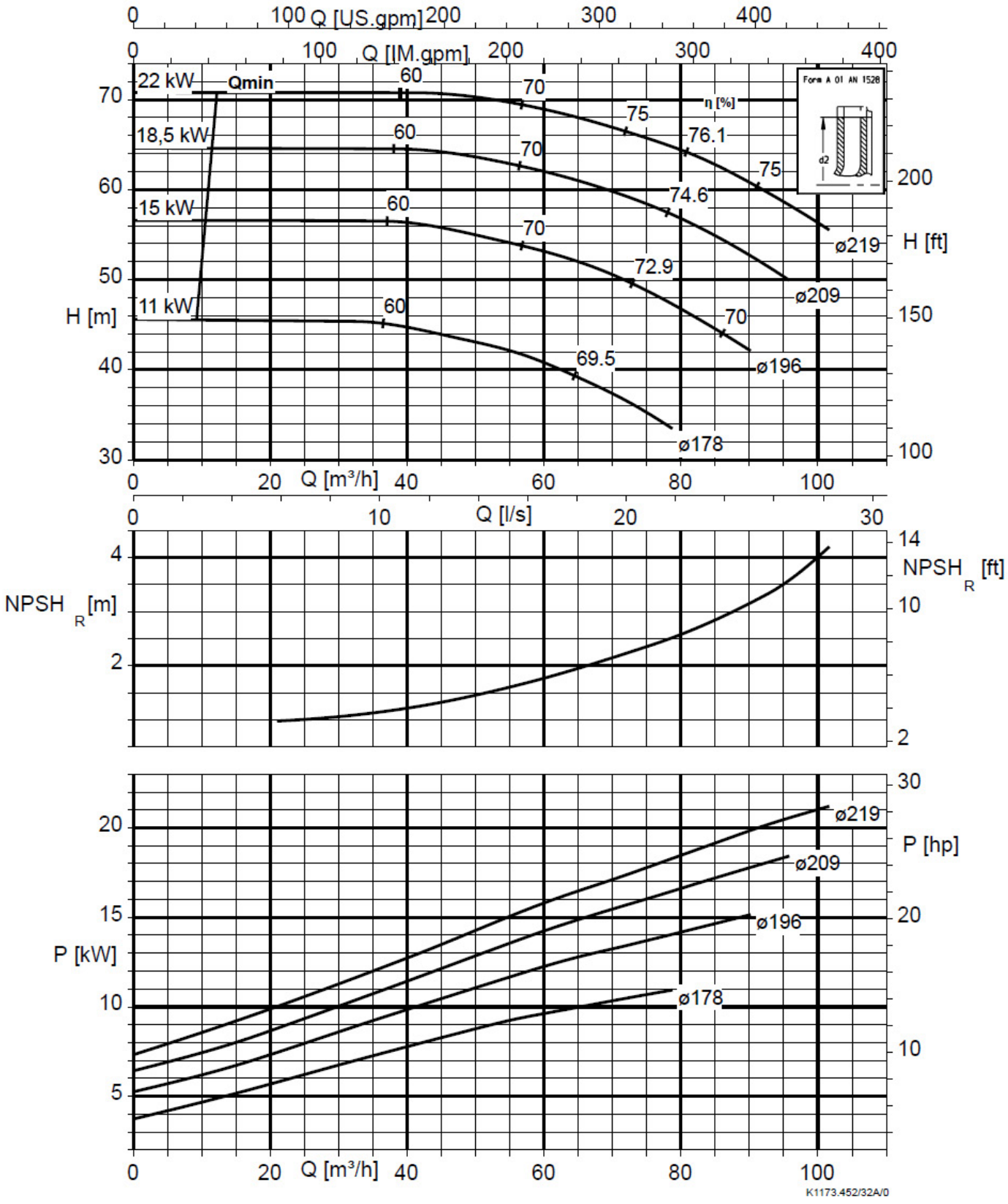
Etabloc 065-050-125, n = 2900 rpm



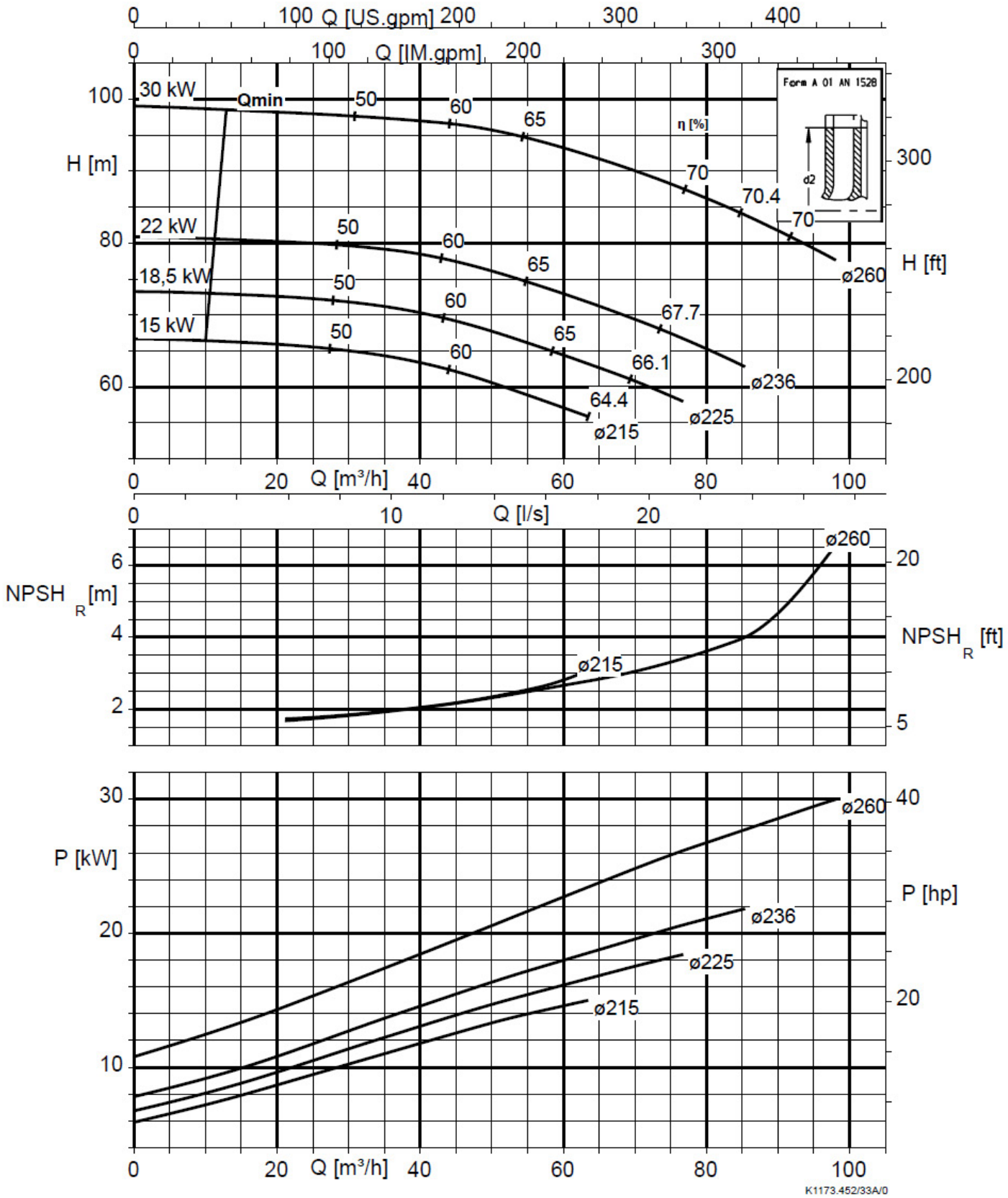
Etabloc 065-050-160, n = 2900 rpm



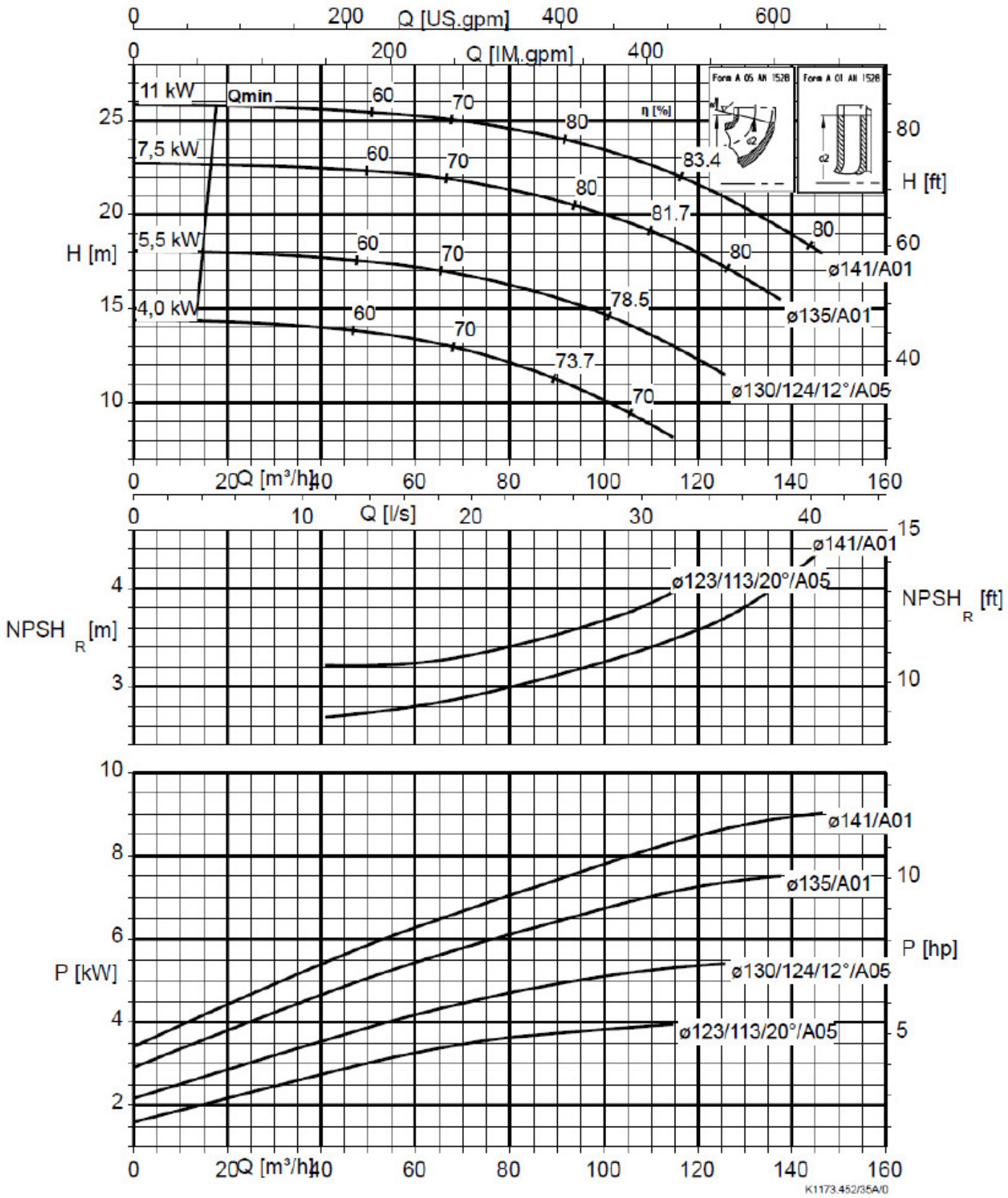
Etabloc 065-050-200, n = 2900 rpm



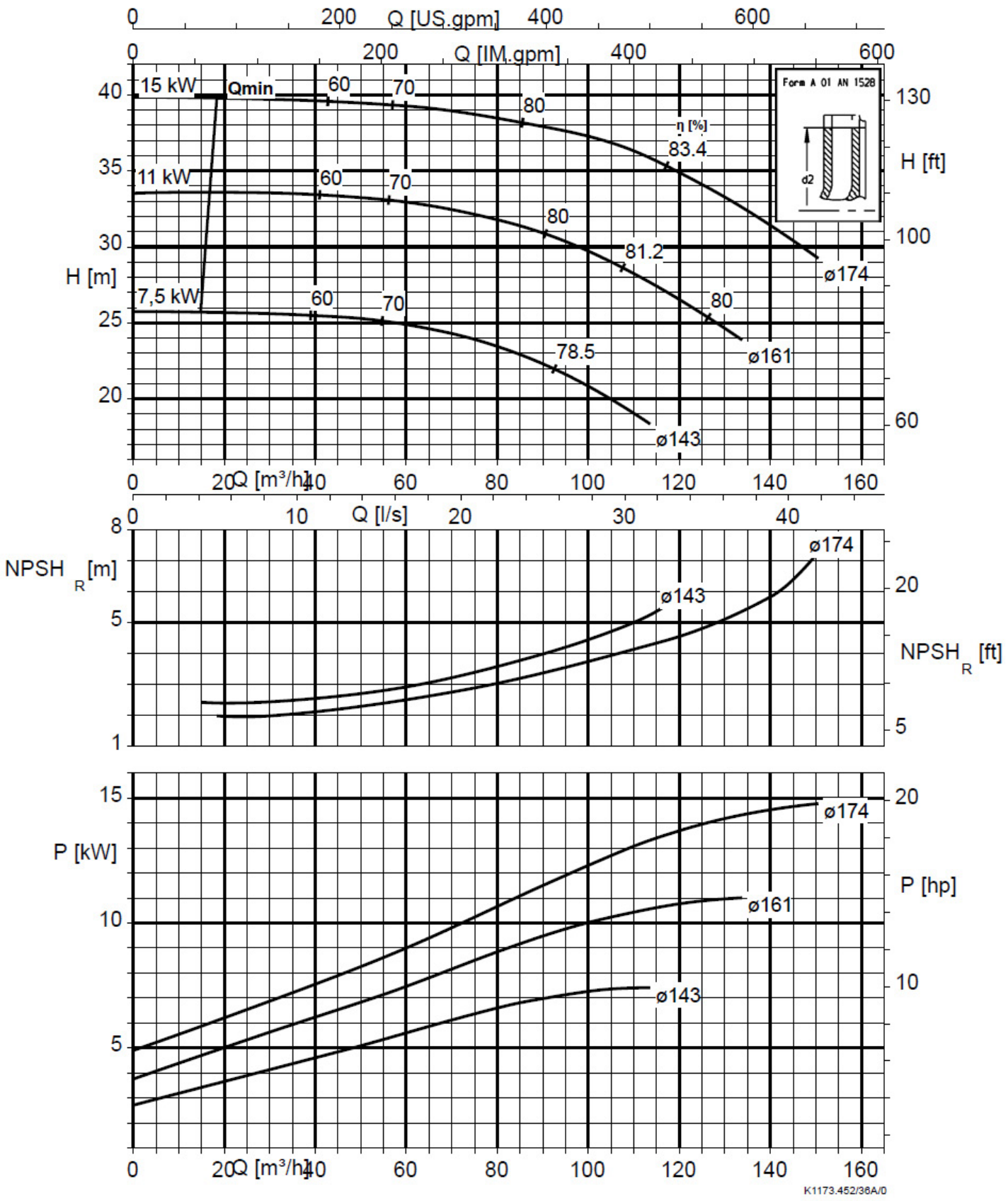
Etabloc 065-050-250, n = 2900 rpm



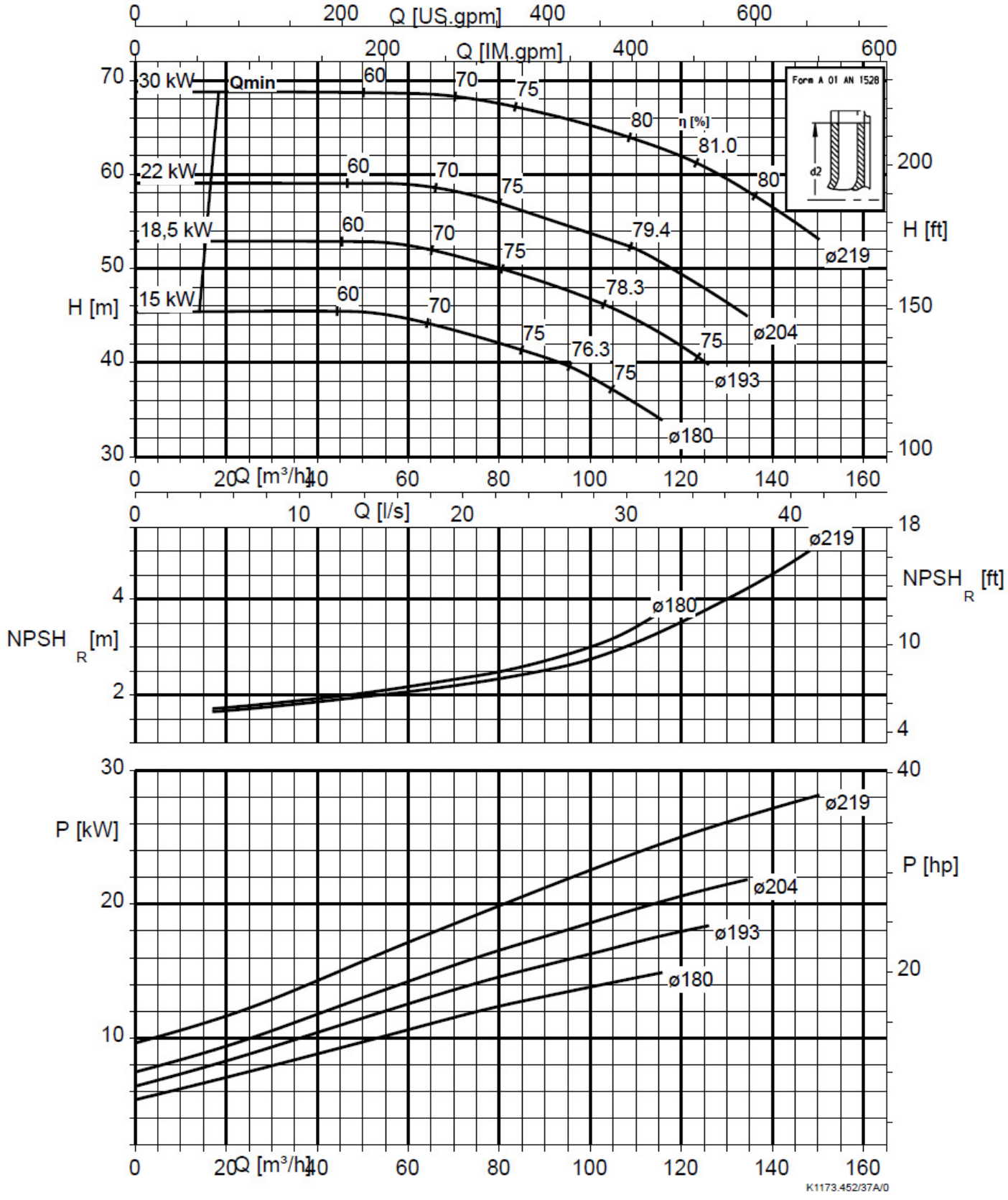
Etabloc 080-065-125, n = 2900 rpm



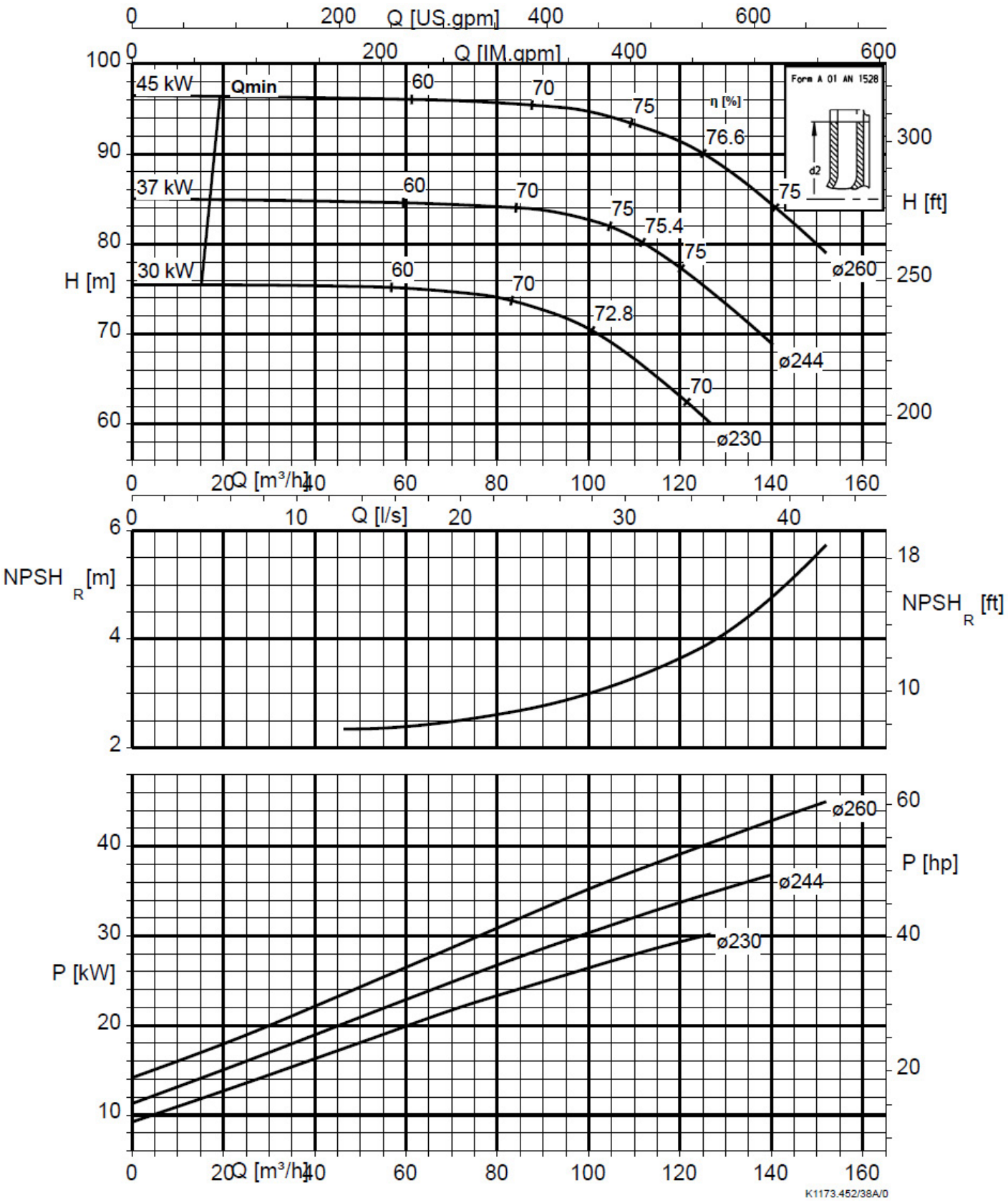
Etabloc 080-065-160, n = 2900 rpm



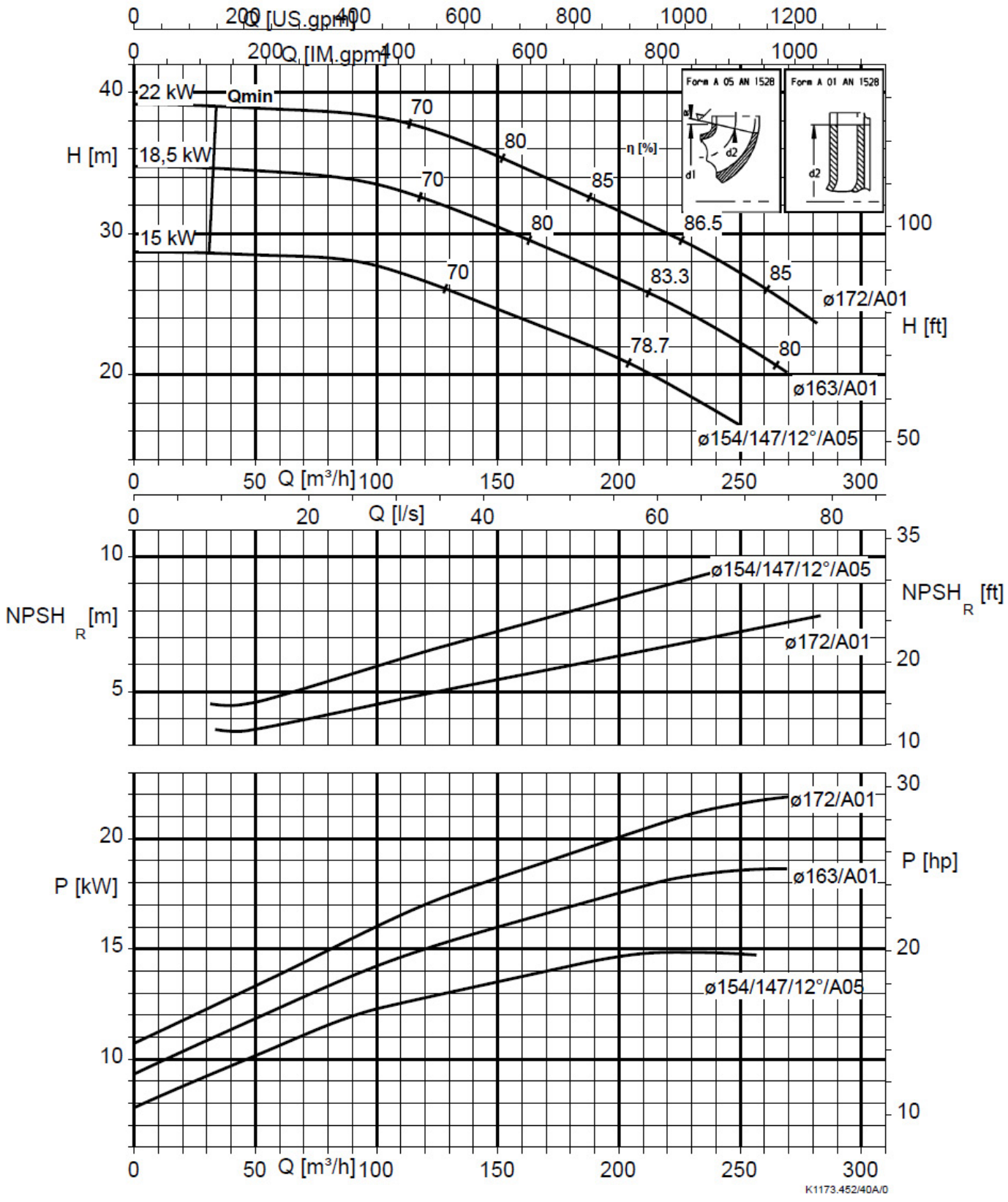
Etabloc 080-065-200, n = 2900 rpm



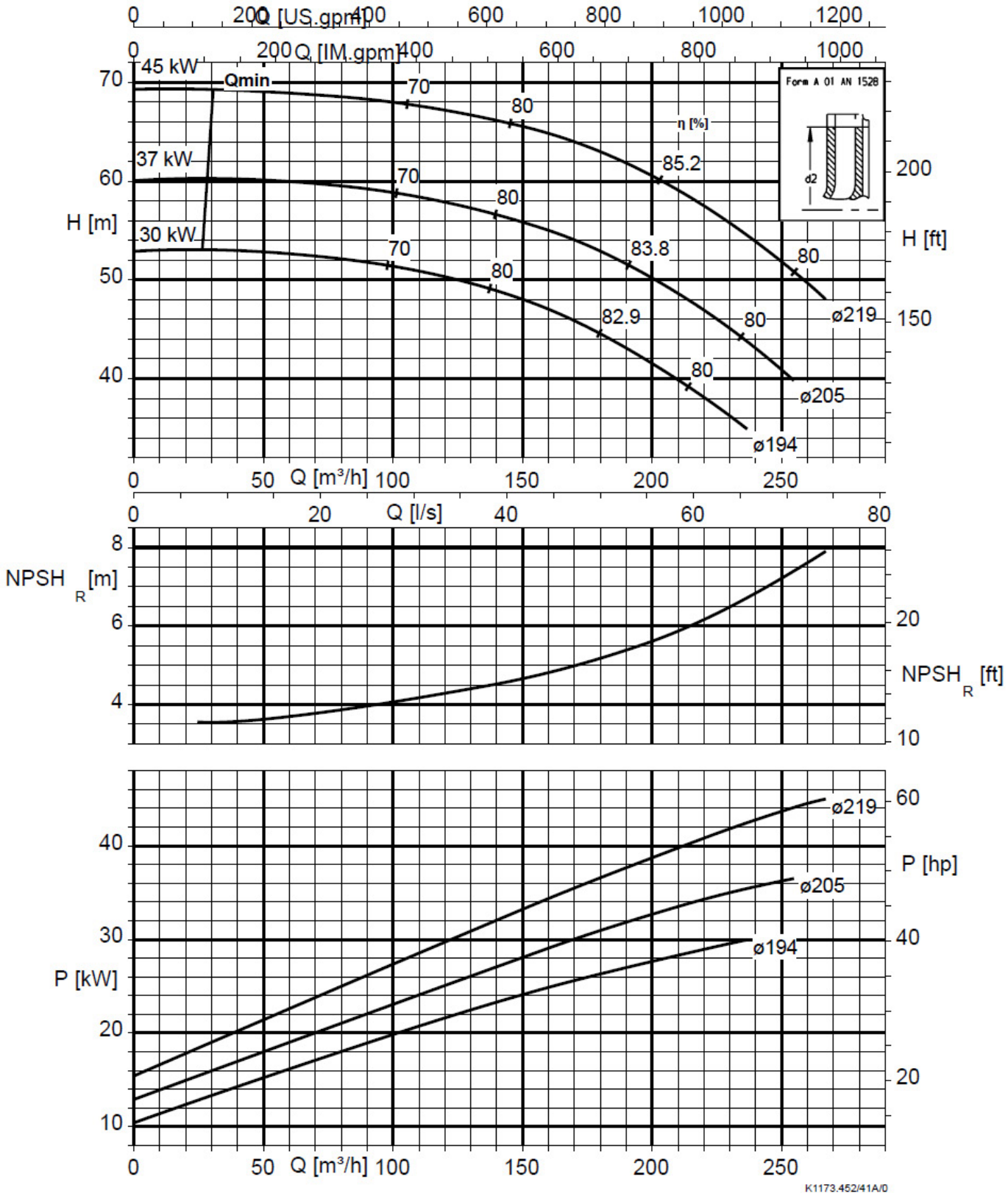
Etabloc 080-065-250, n = 2900 rpm



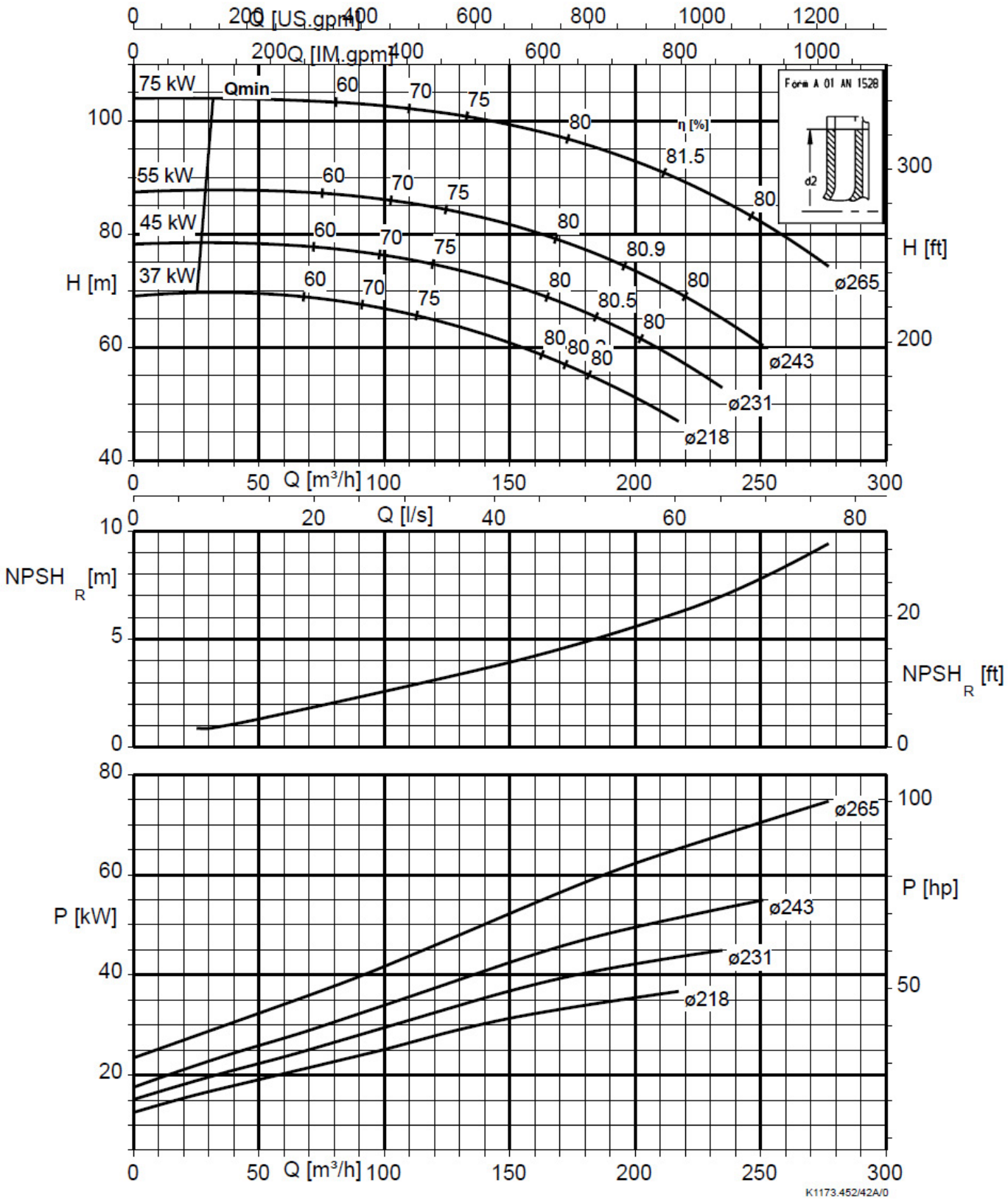
Etabloc 100-080-160, n = 2900 rpm



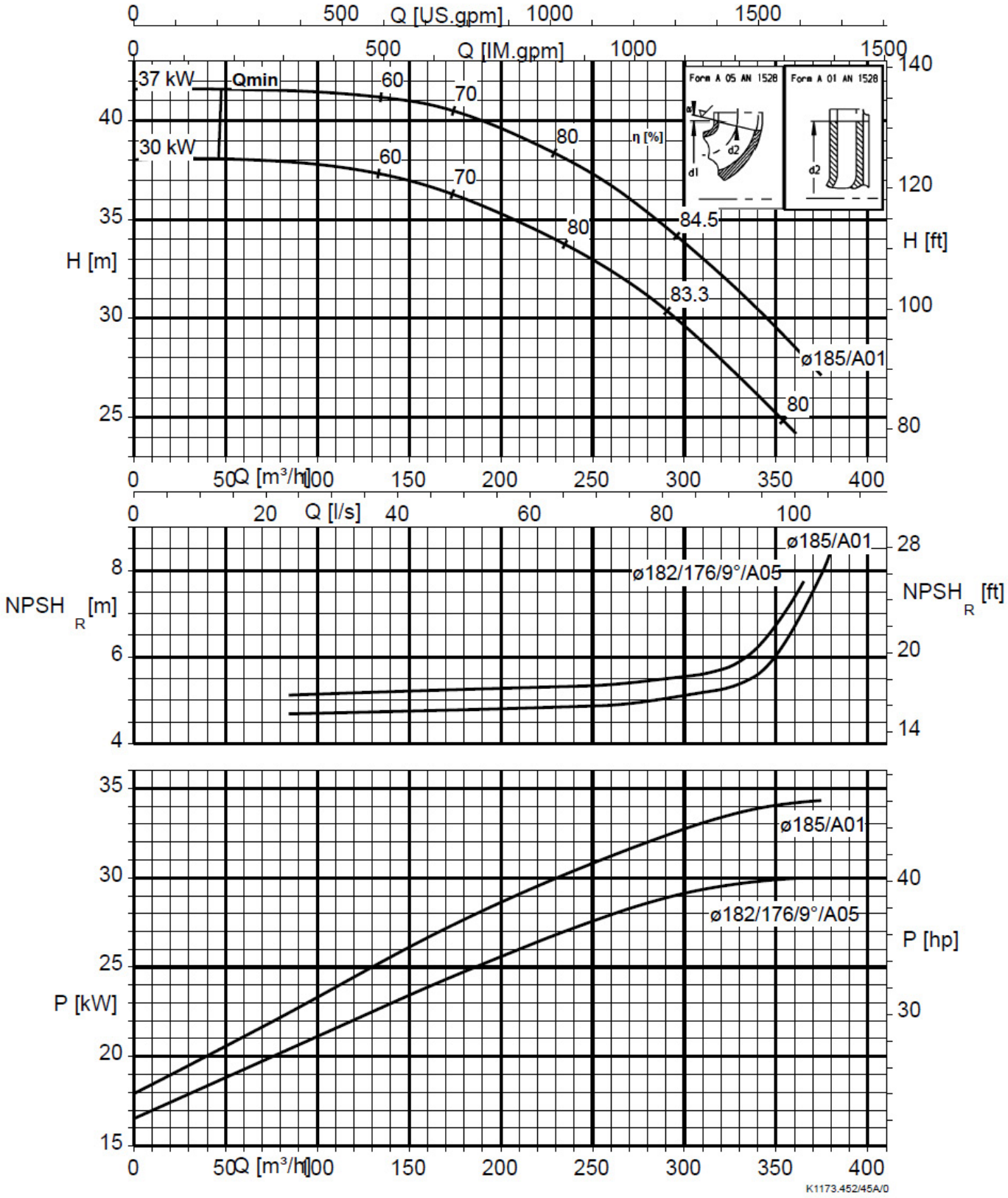
Etabloc 100-080-200, n = 2900 rpm



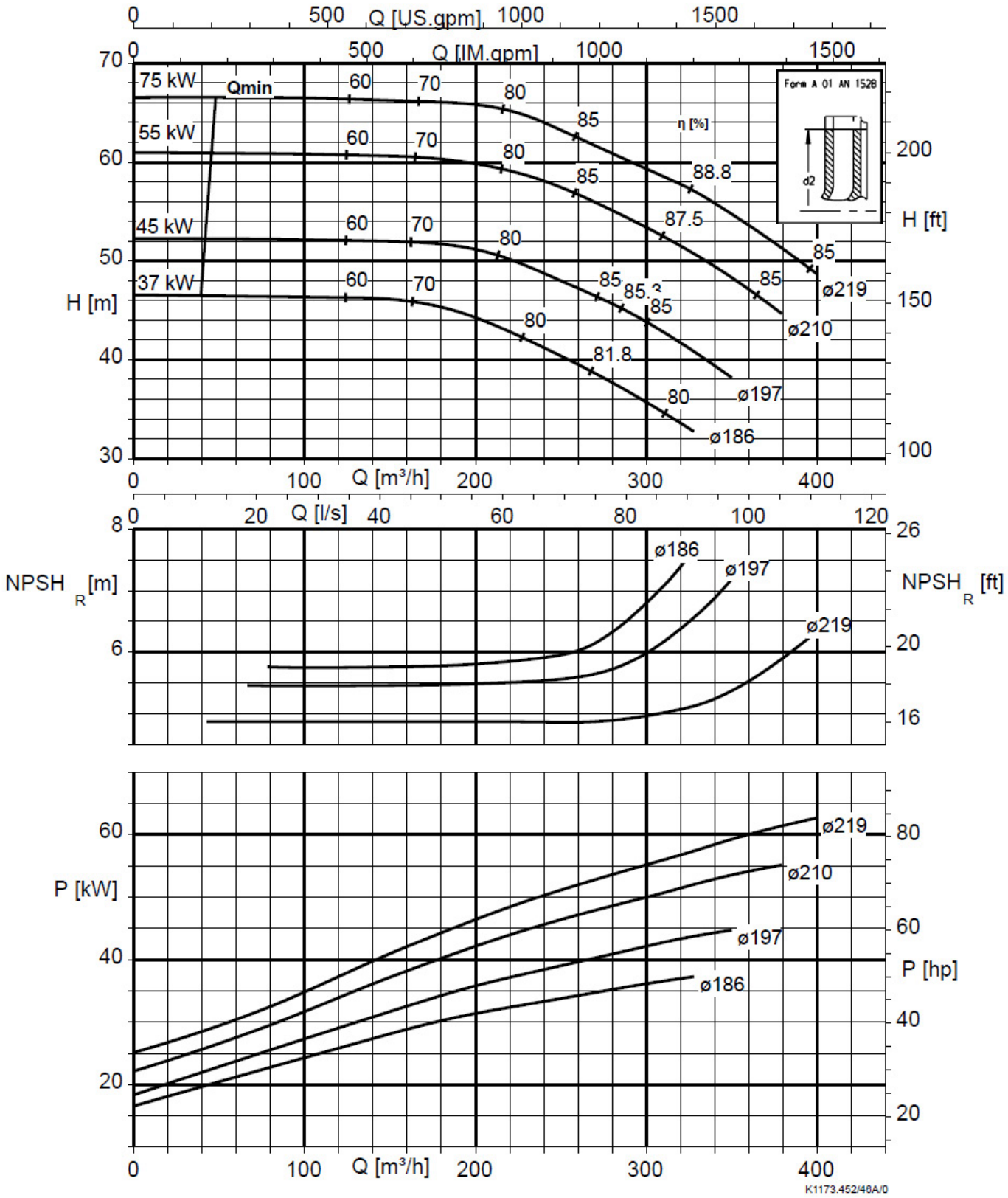
Etabloc 100-080-250, n = 2900 rpm



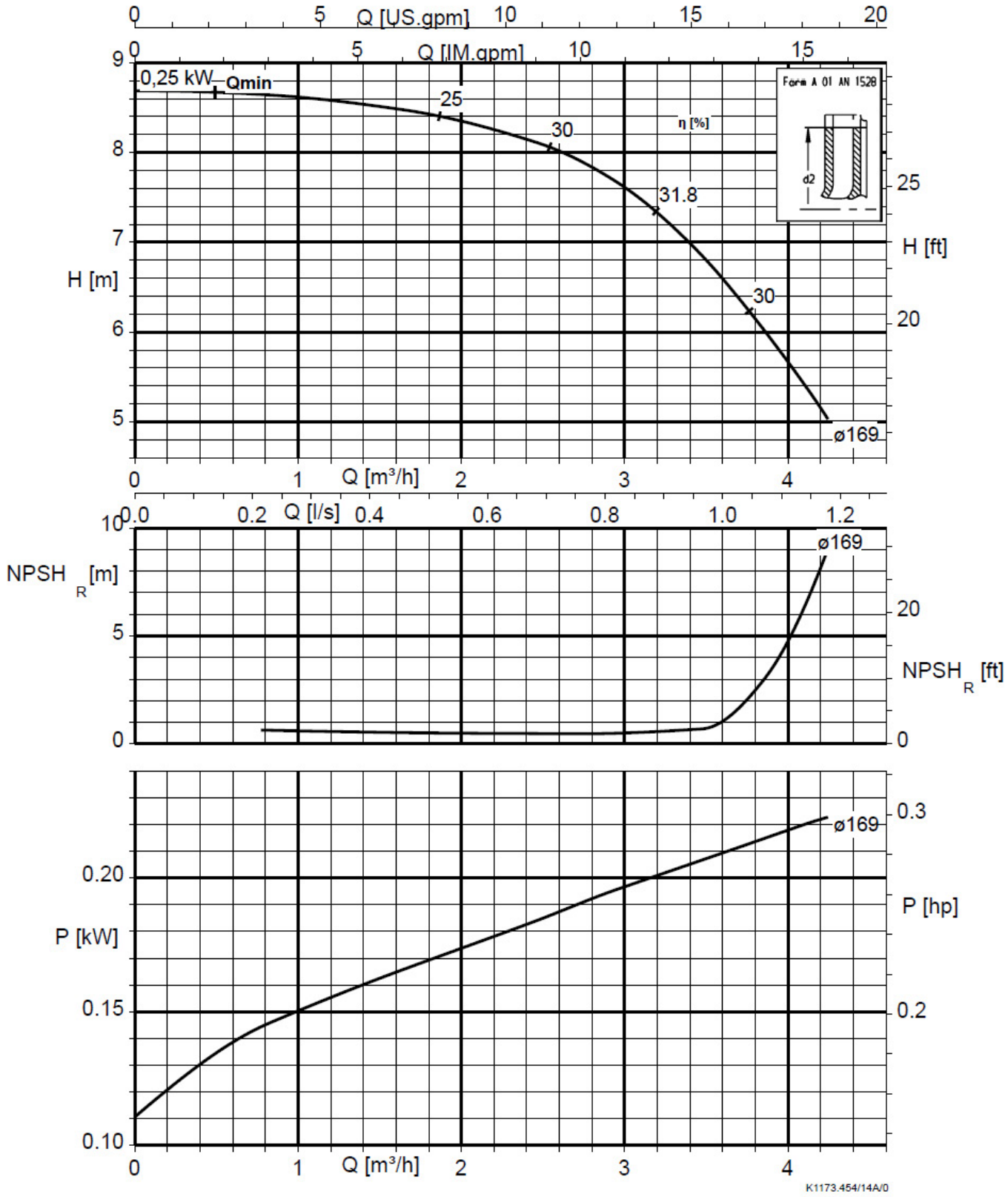
Etabloc 125-100-160, n = 2900 rpm



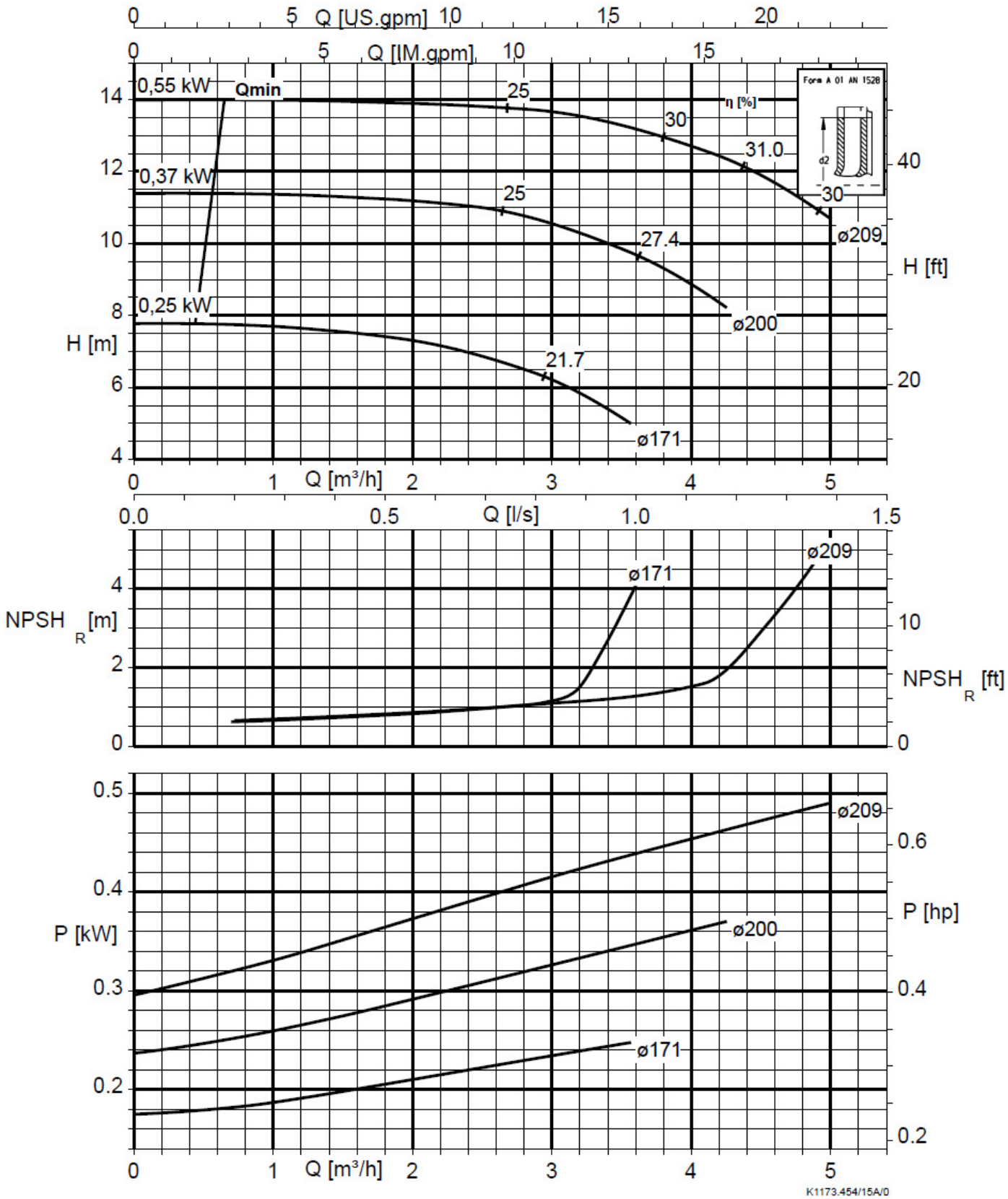
Etabloc 125-100-200, n = 2900 rpm



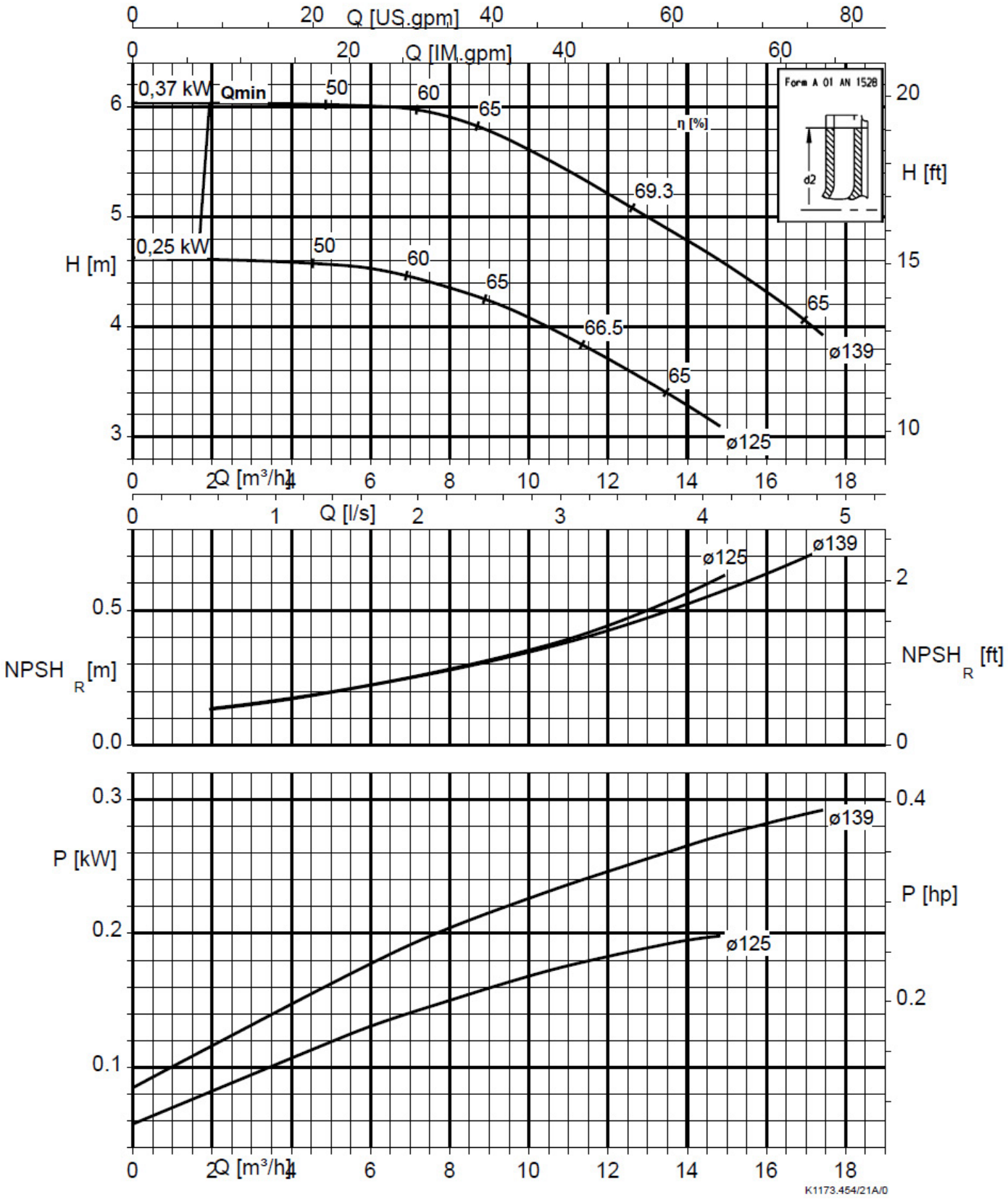
Etabloc 040-025-160, n = 1450 rpm



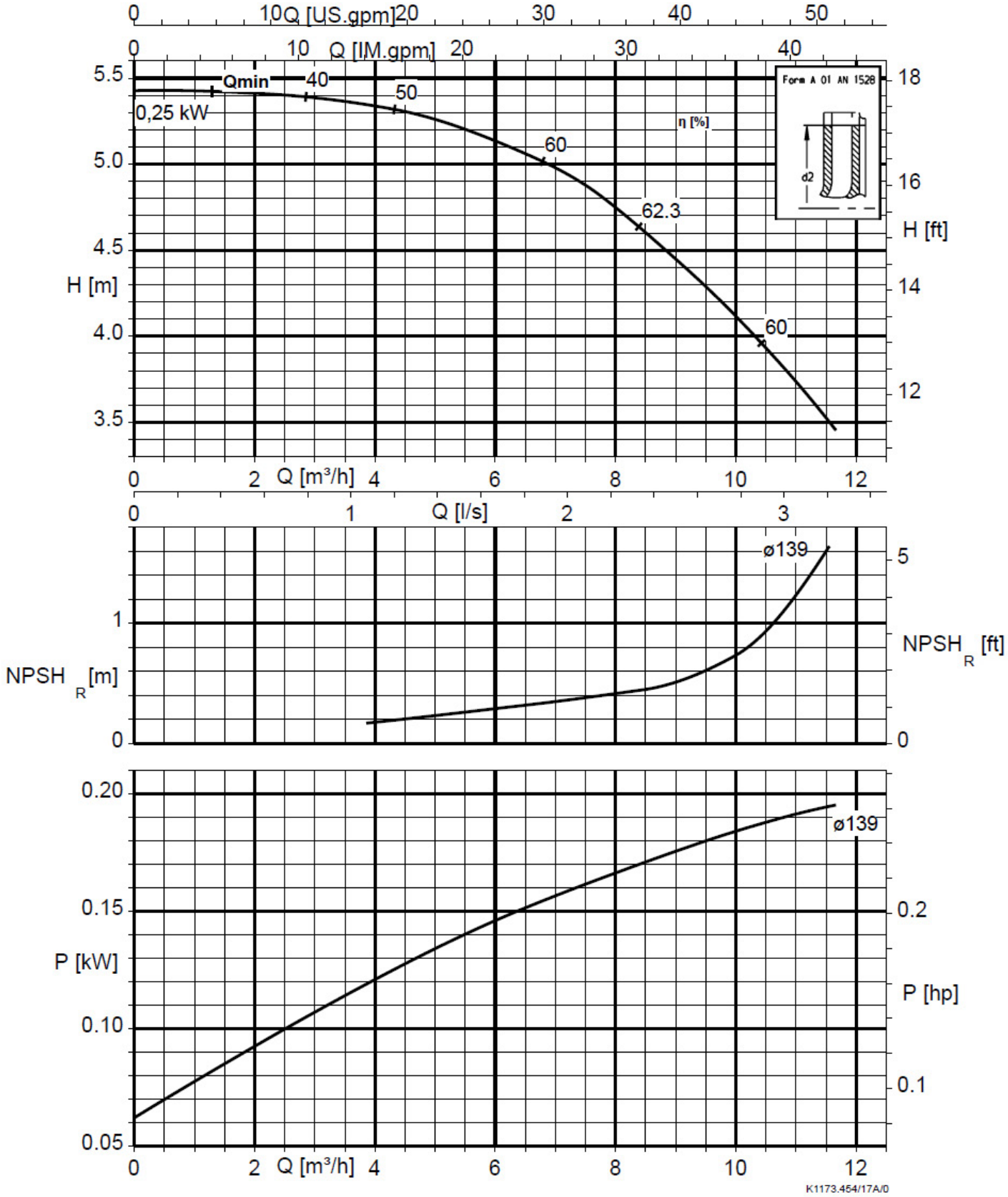
Etabloc 040-025-200, n = 1450 rpm



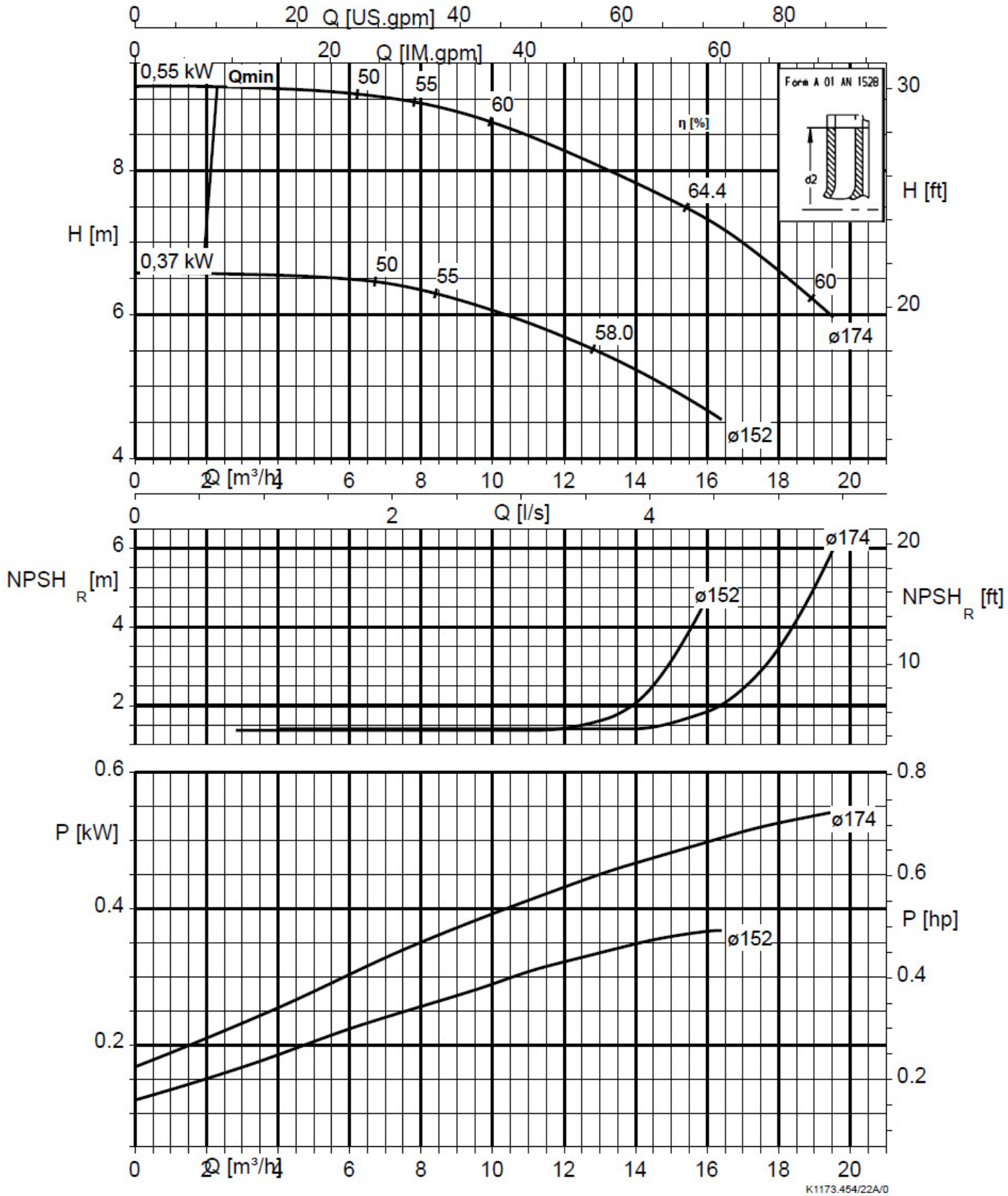
Etabloc 050-032-125, n = 1450 rpm



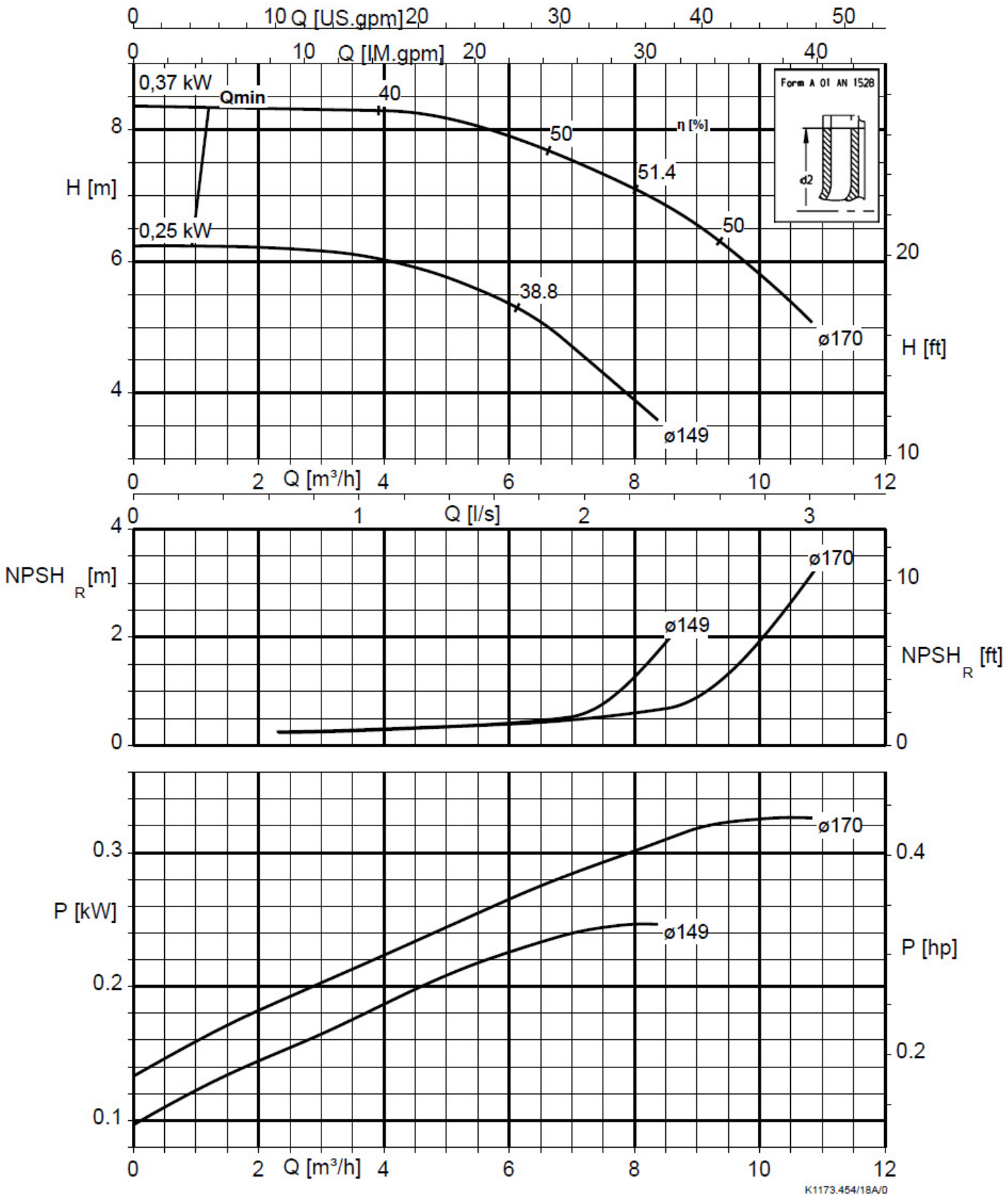
Etabloc 050-032-125.1, n = 1450 rpm



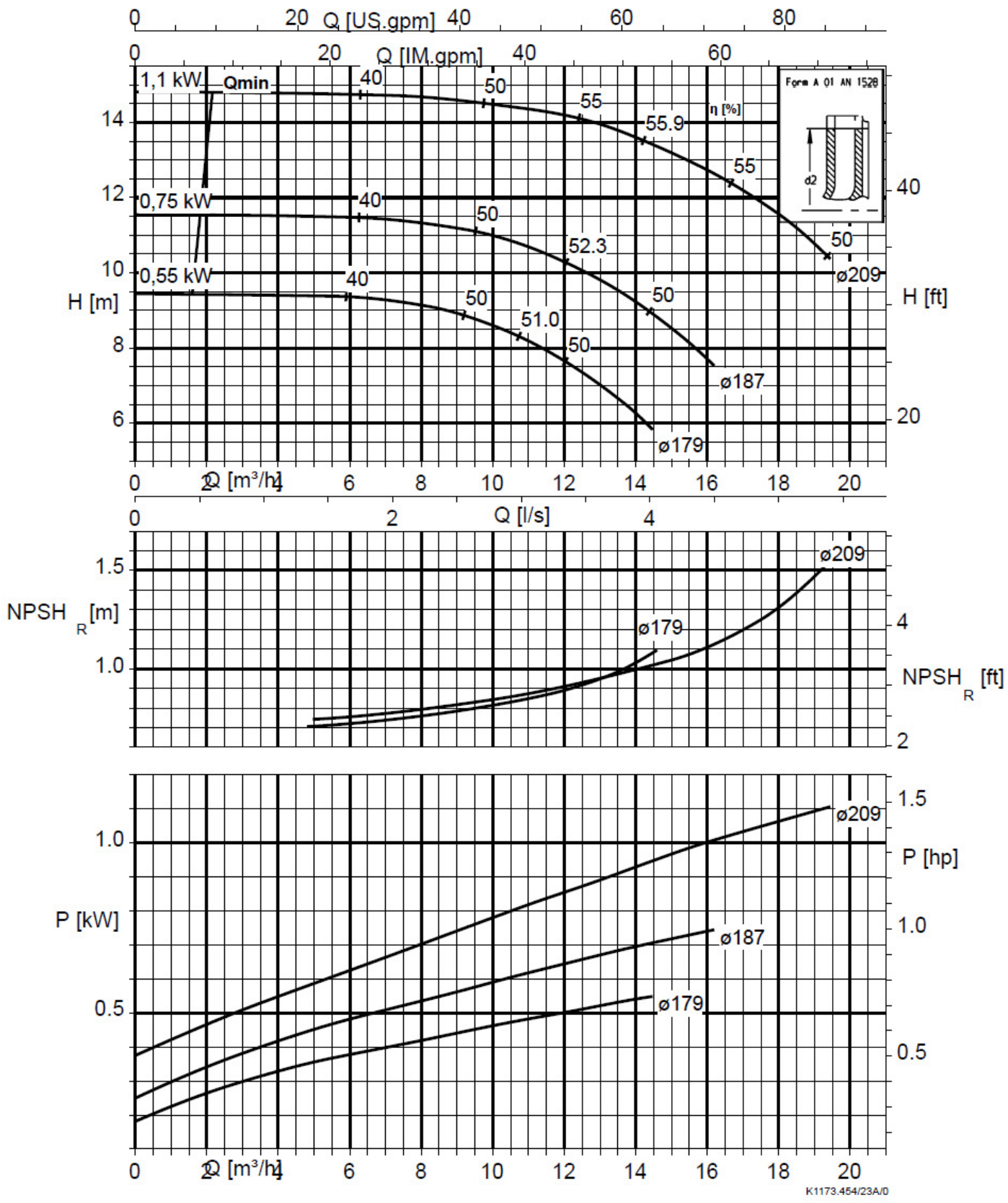
Etabloc 050-032-160, n = 1450 rpm



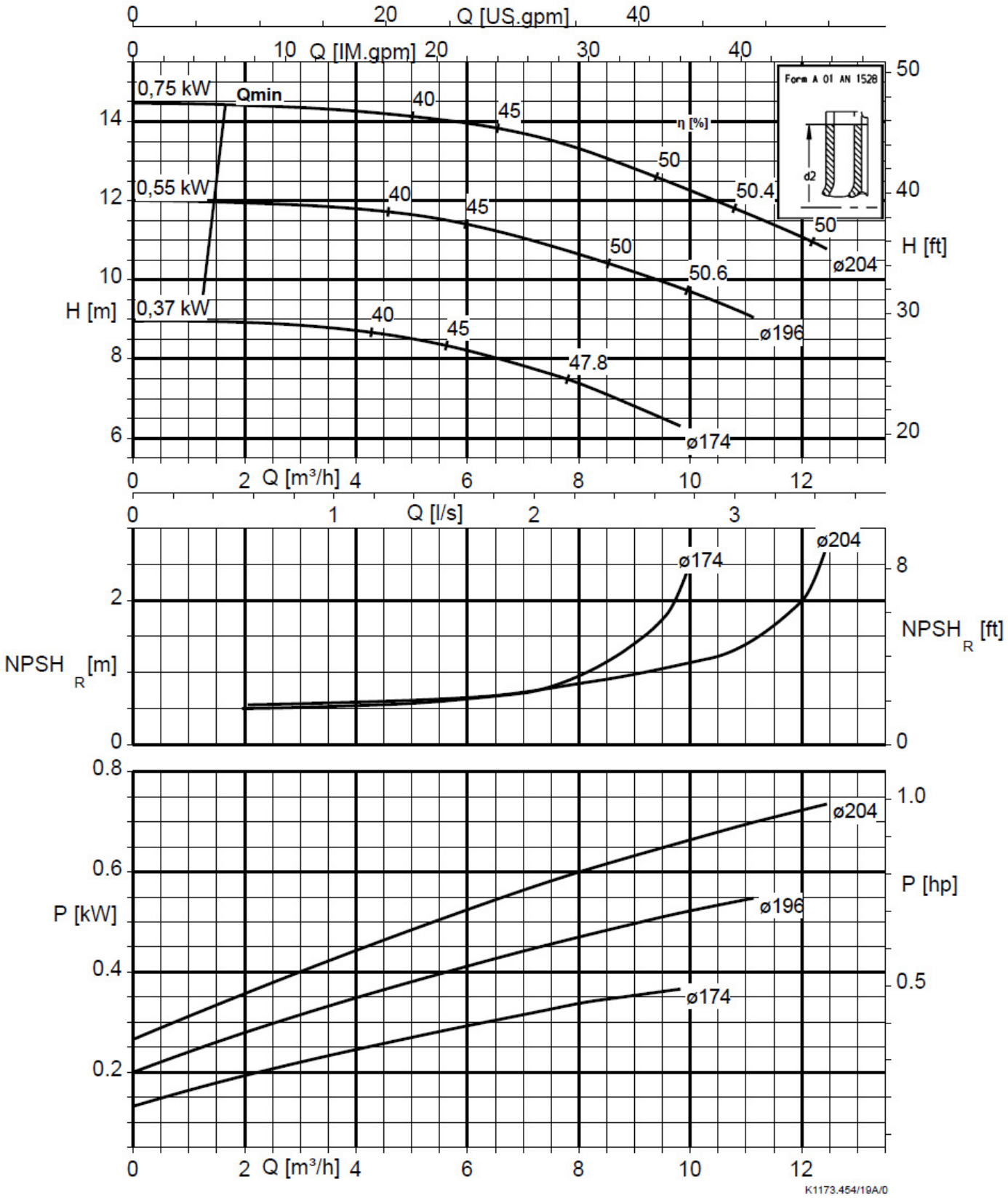
Etabloc 050-032-160.1, n = 1450 rpm



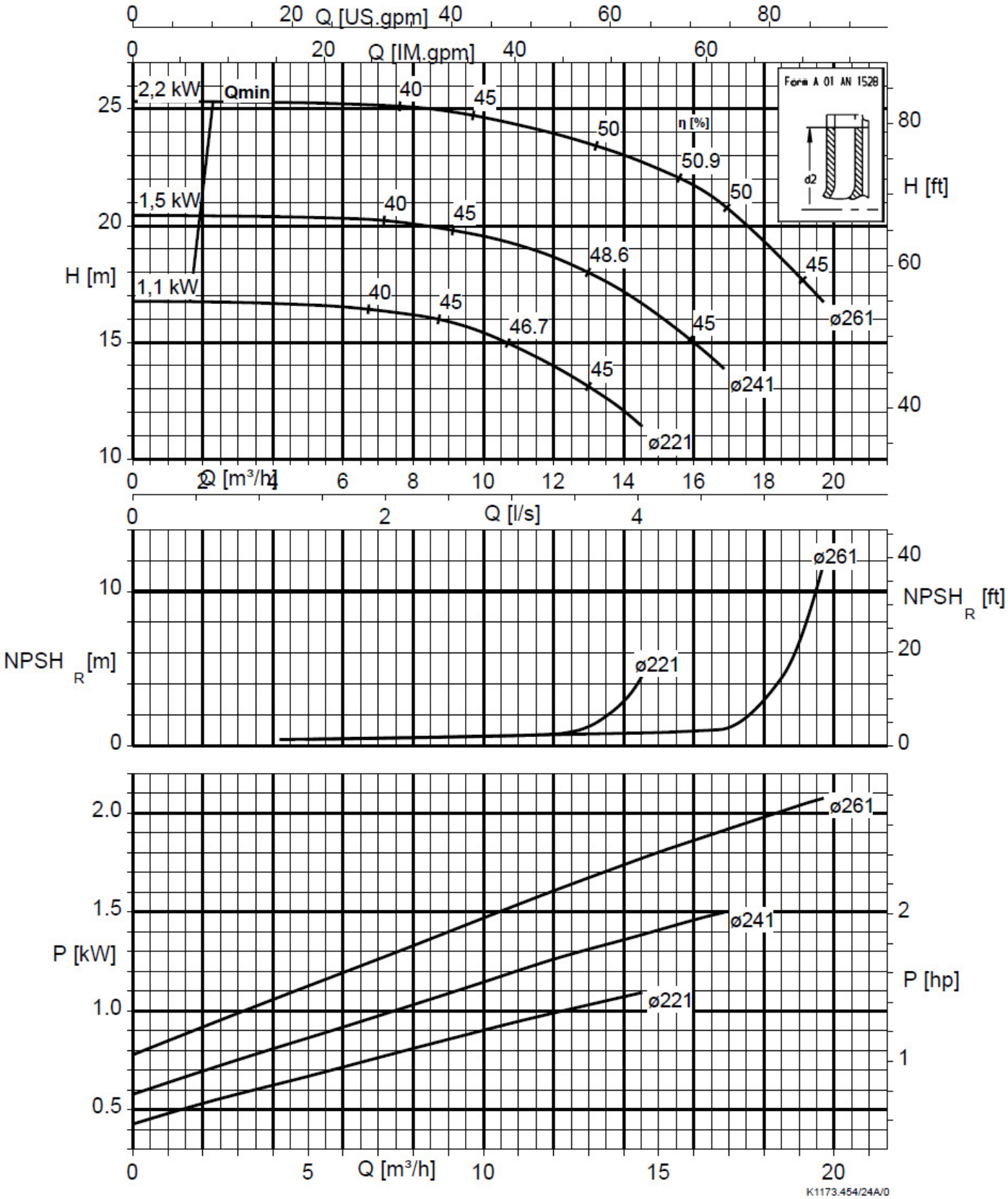
Etabloc 050-032-200, n = 1450 rpm



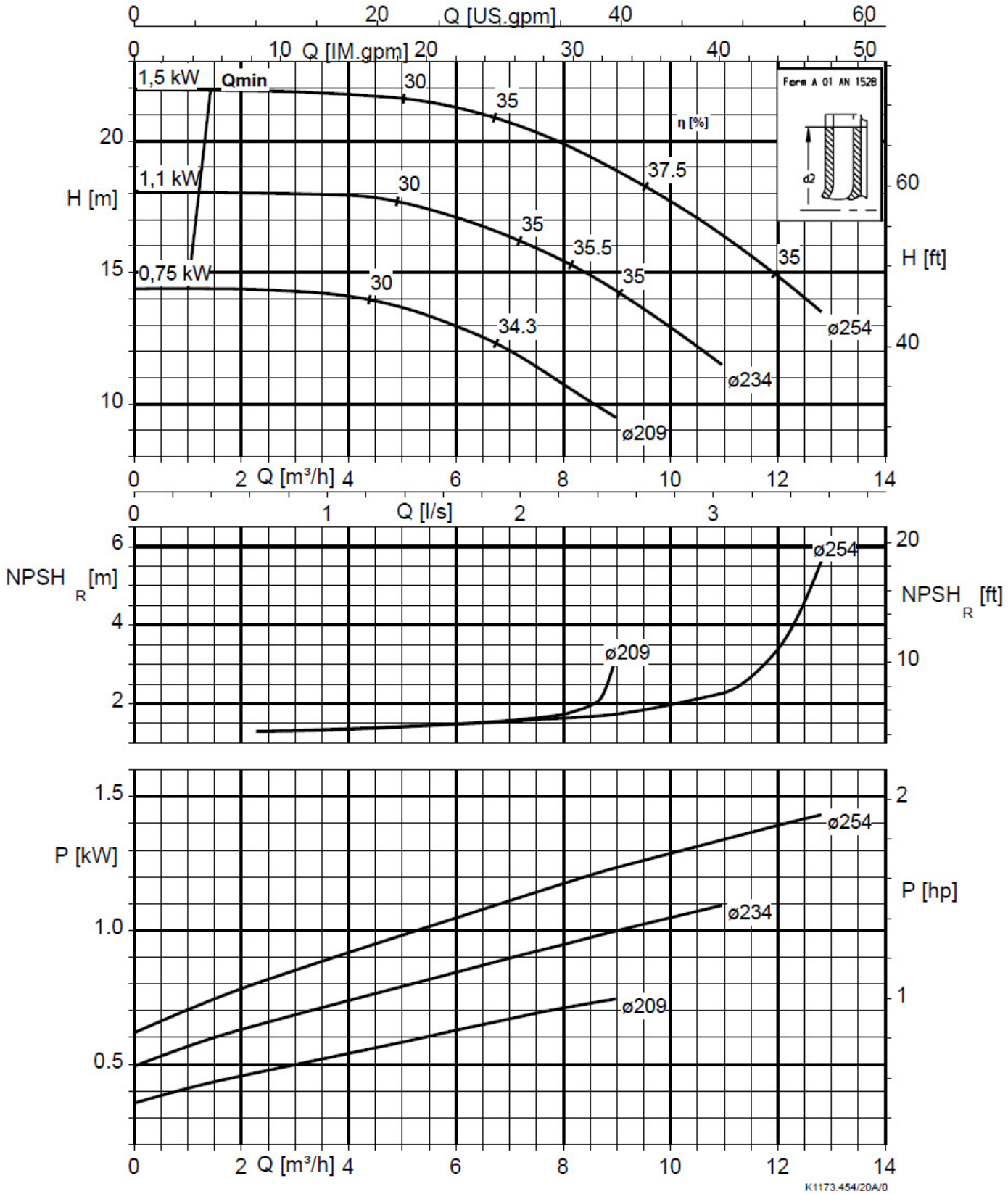
Etabloc 050-032-200.1, n = 1450 rpm



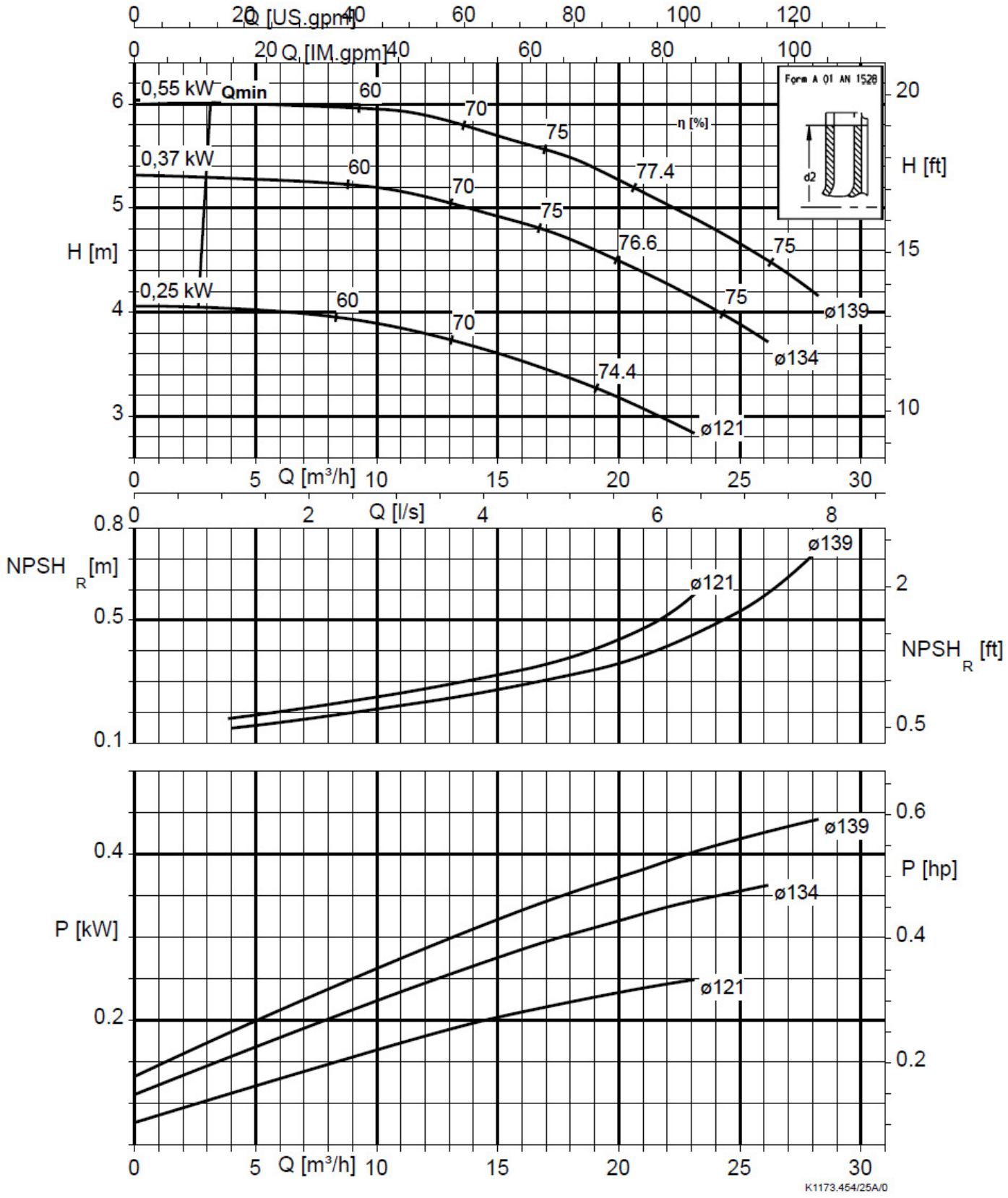
Etabloc 050-032-250, n = 1450 rpm



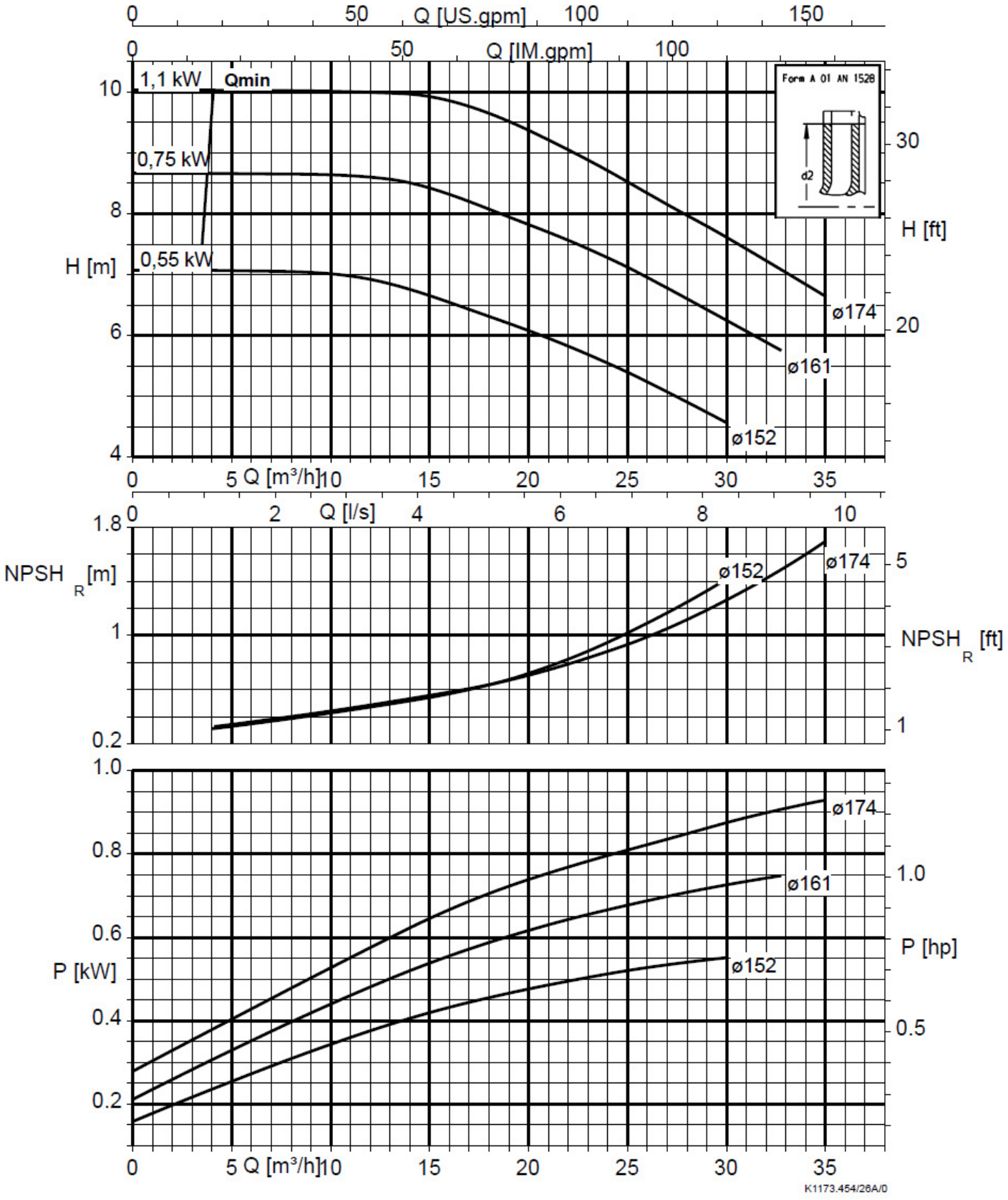
Etabloc 050-032-250.1, n = 1450 rpm



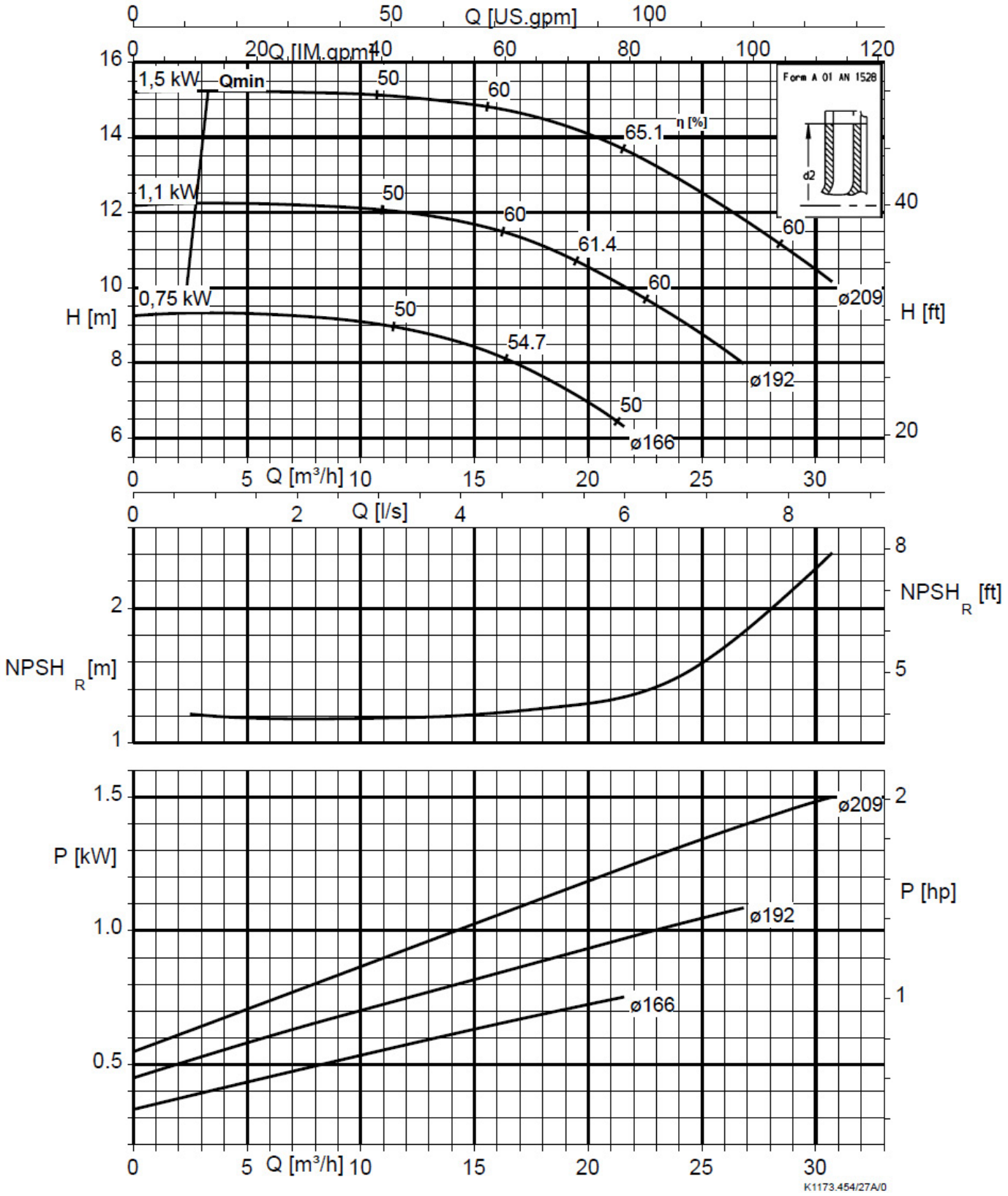
Etabloc 065-040-125, n = 1450 rpm



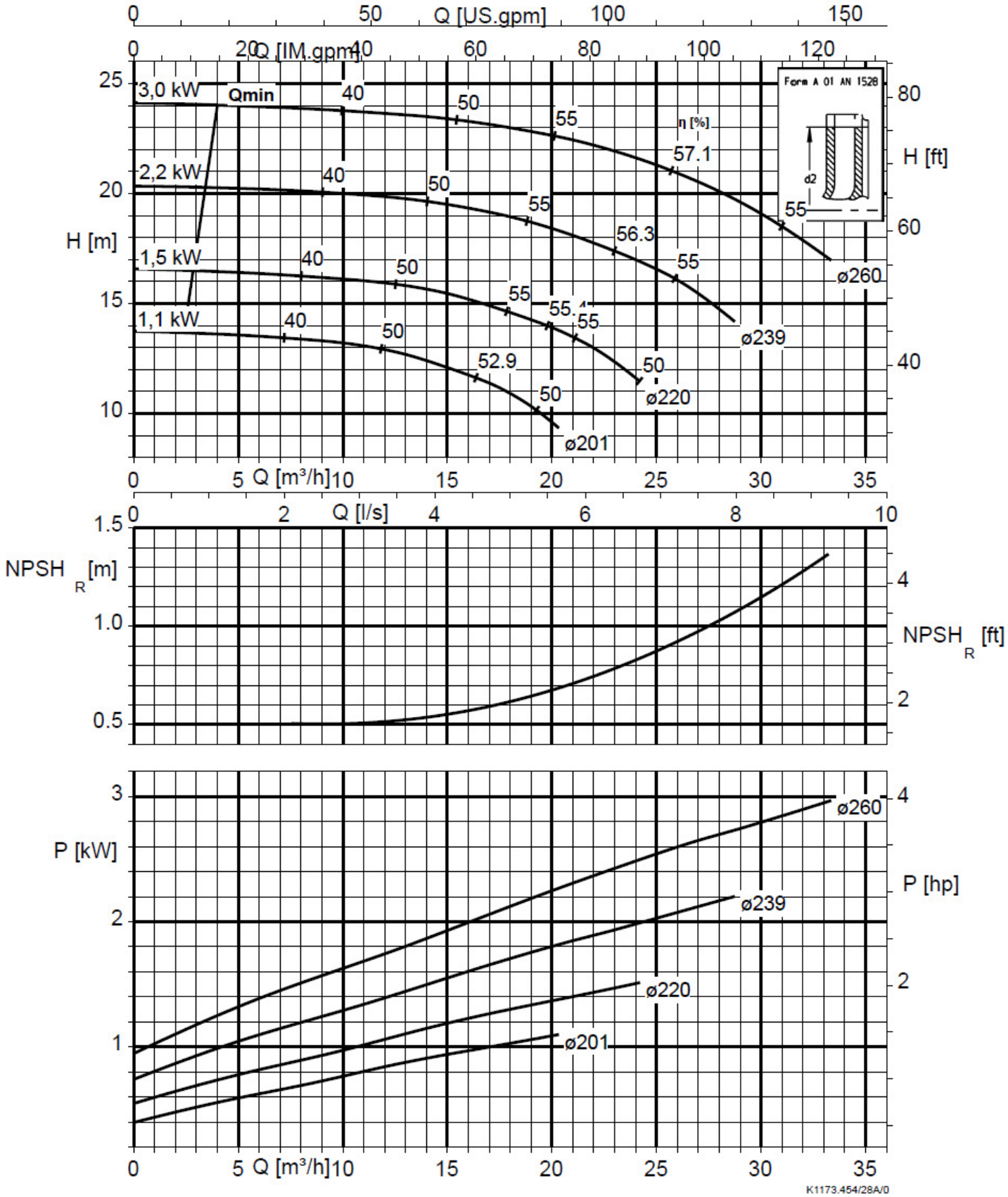
Etabloc 065-040-160, n = 1450 rpm



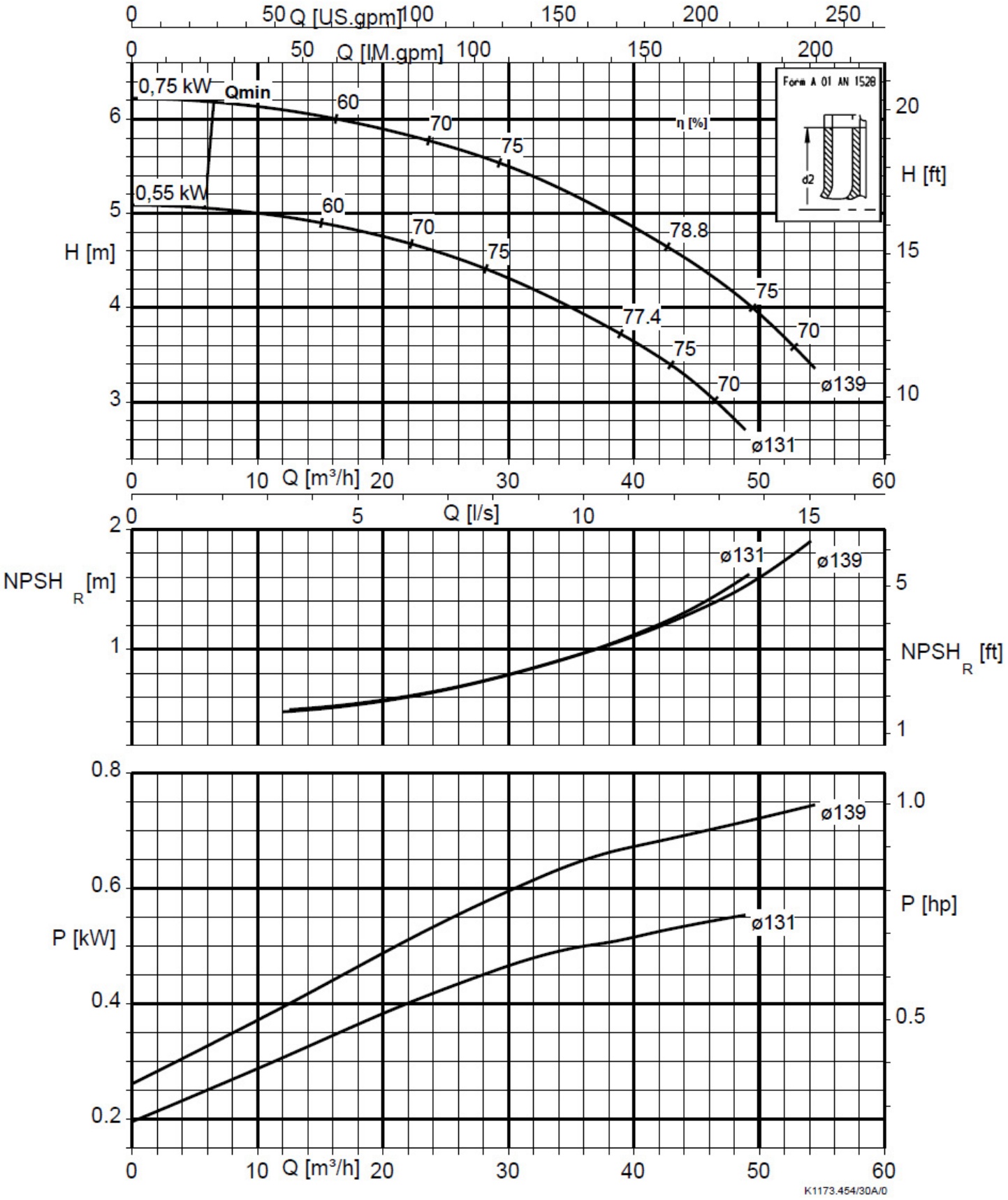
Etabloc 065-040-200, n = 1450 rpm



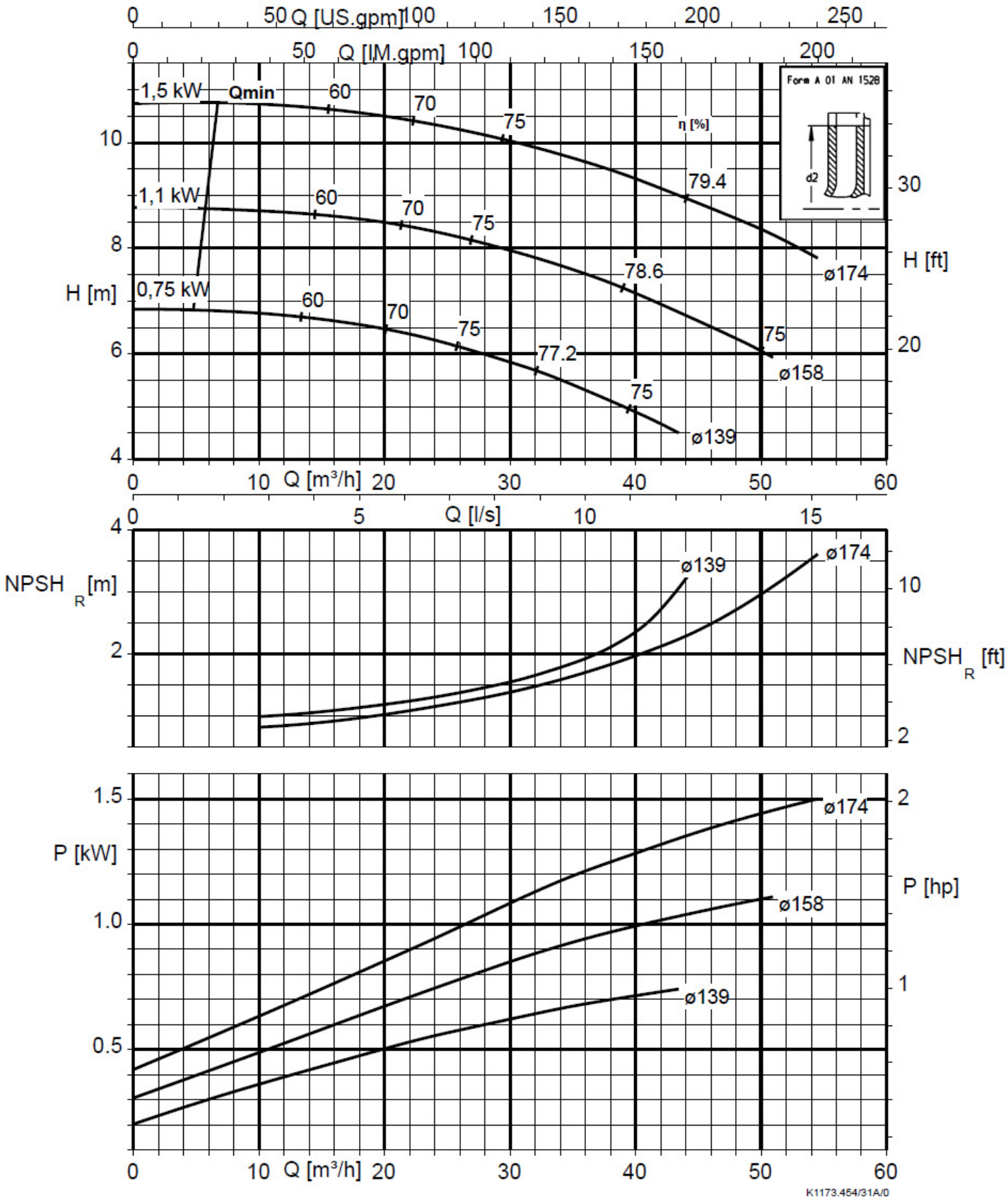
Etabloc 065-040-250, n = 1450 rpm



Etabloc 065-050-125, n = 1450 rpm

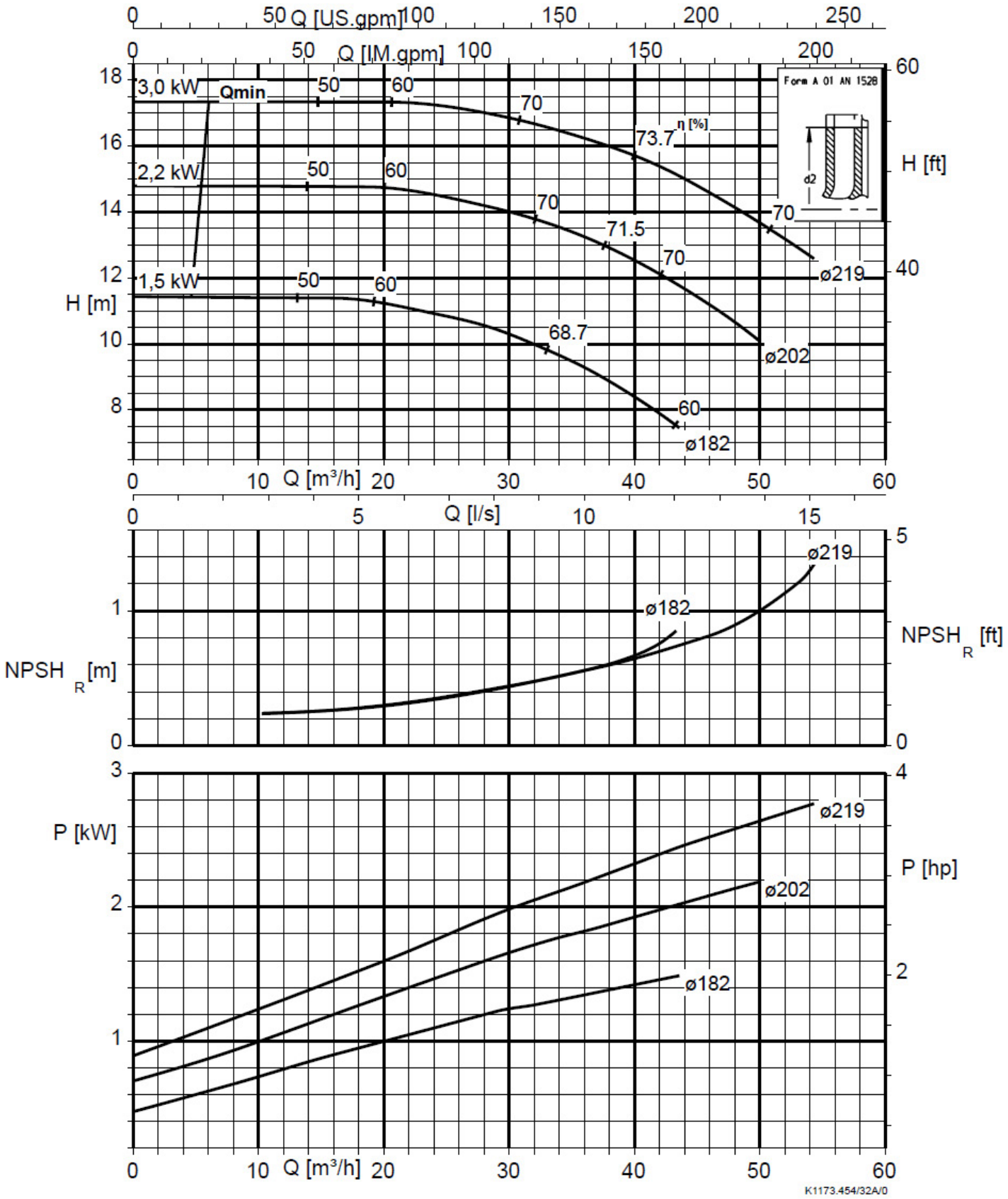


Etabloc 065-050-160, n = 1450 rpm

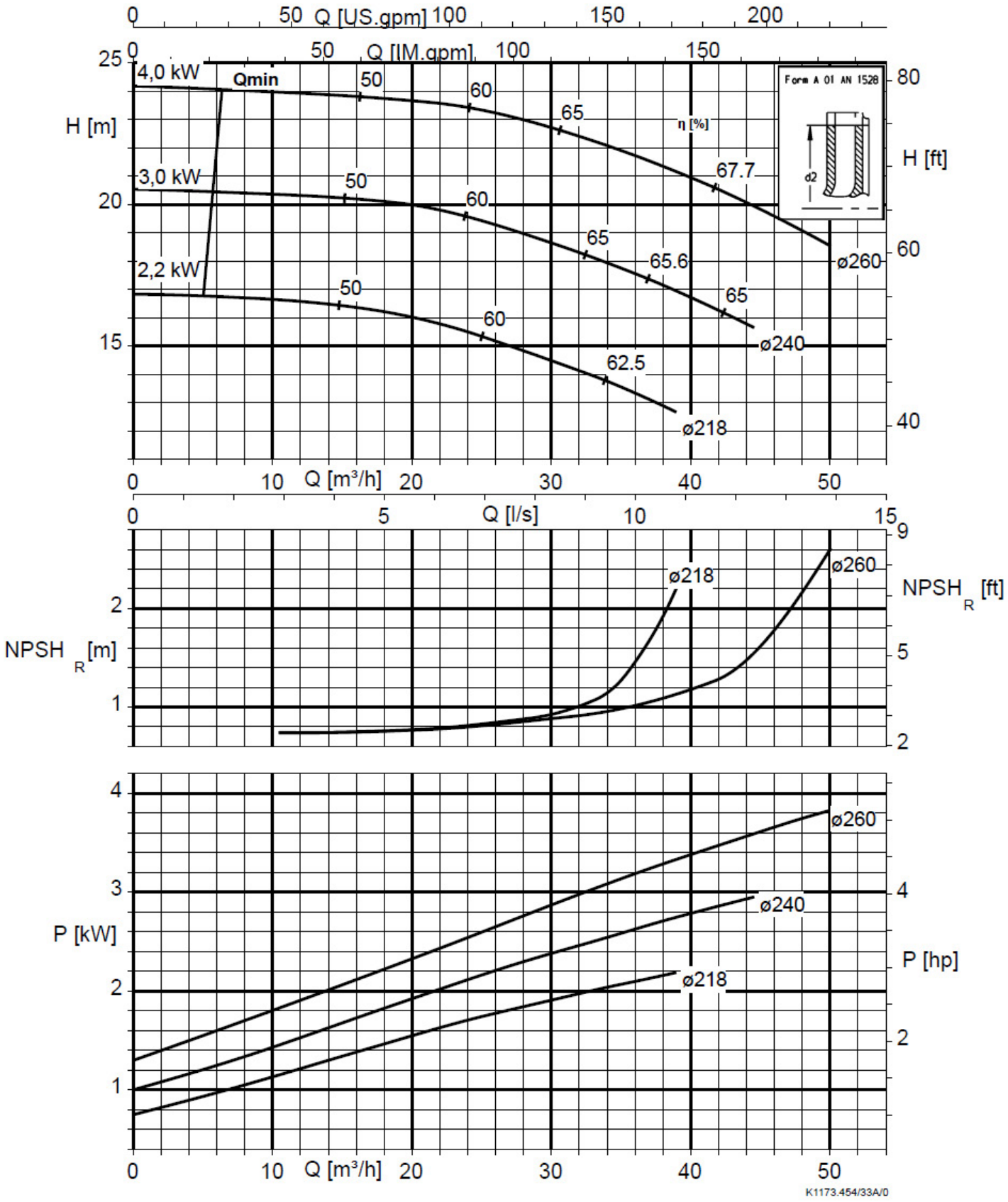


K1173.454/31A/0

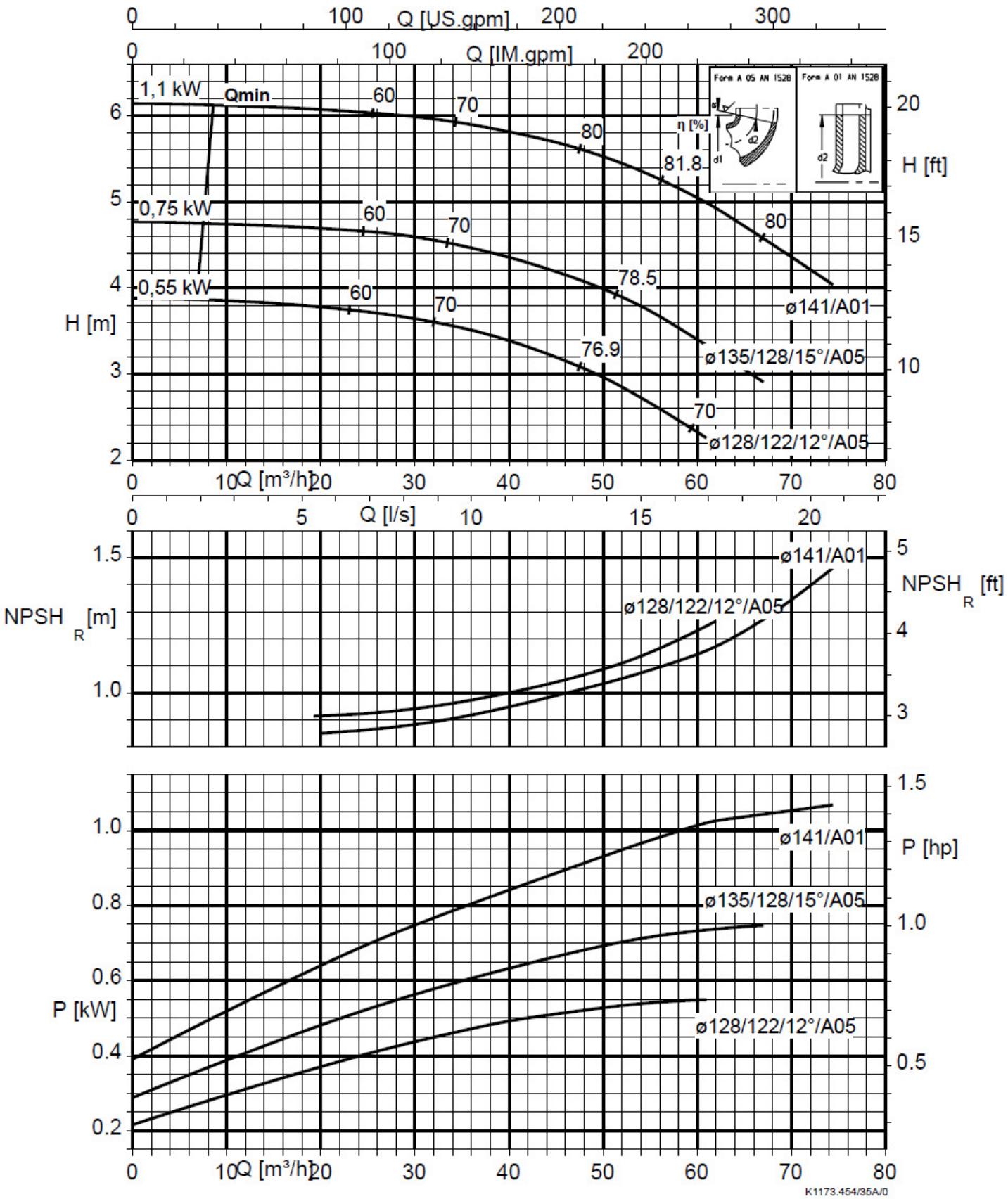
Etabloc 065-050-200, n = 1450 rpm



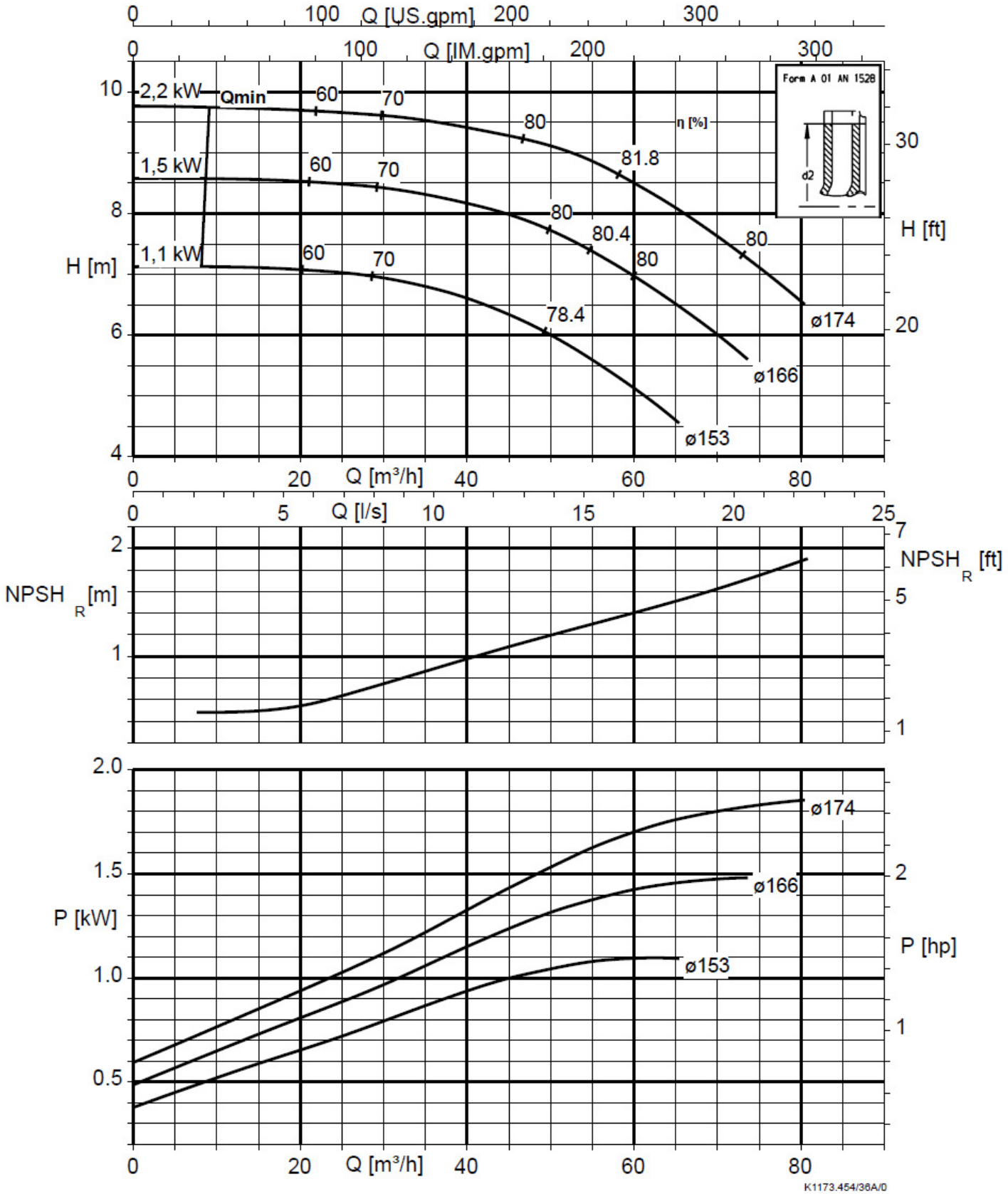
Etabloc 065-050-250, n = 1450 rpm



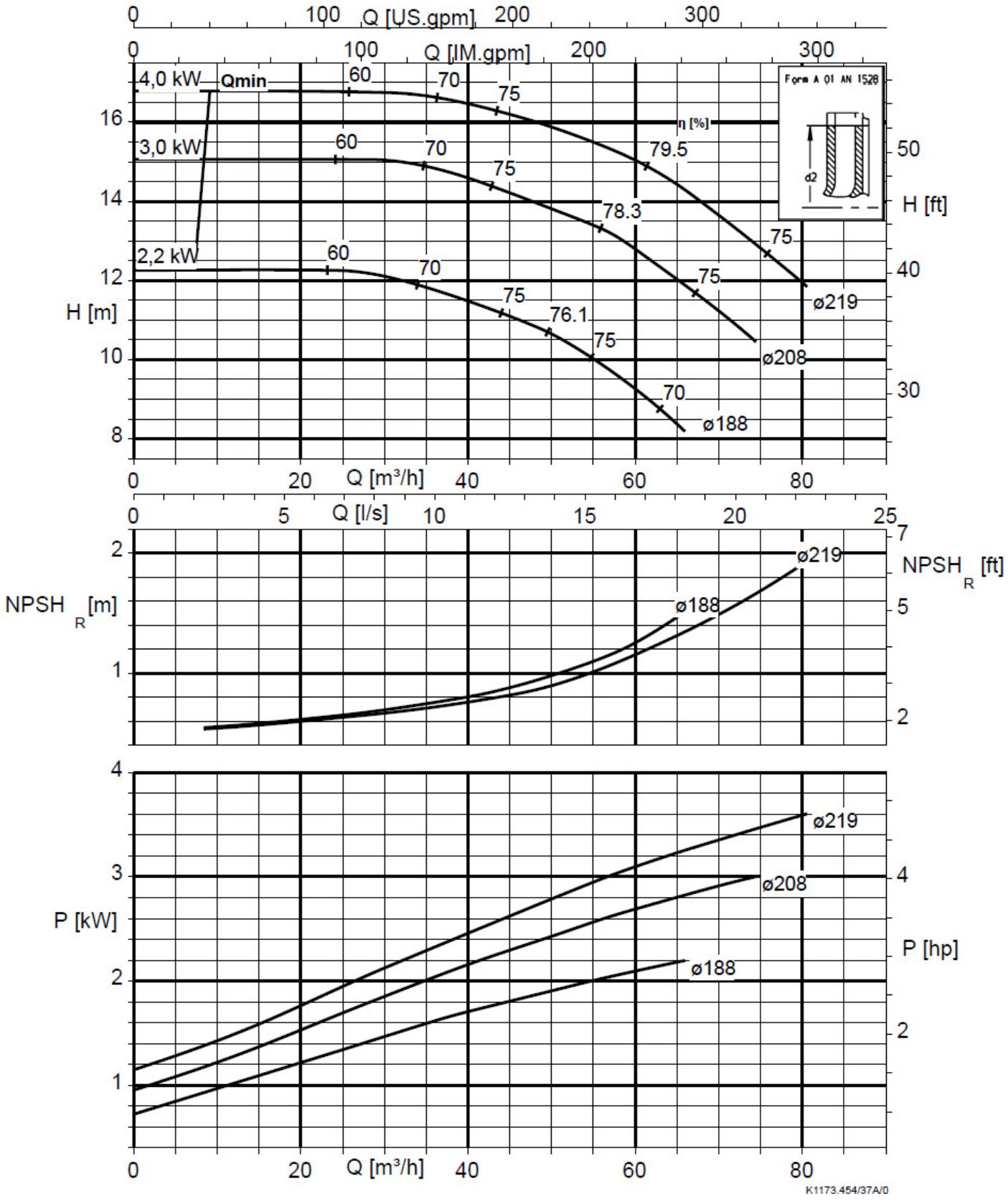
Etabloc 080-065-125, n = 1450 rpm



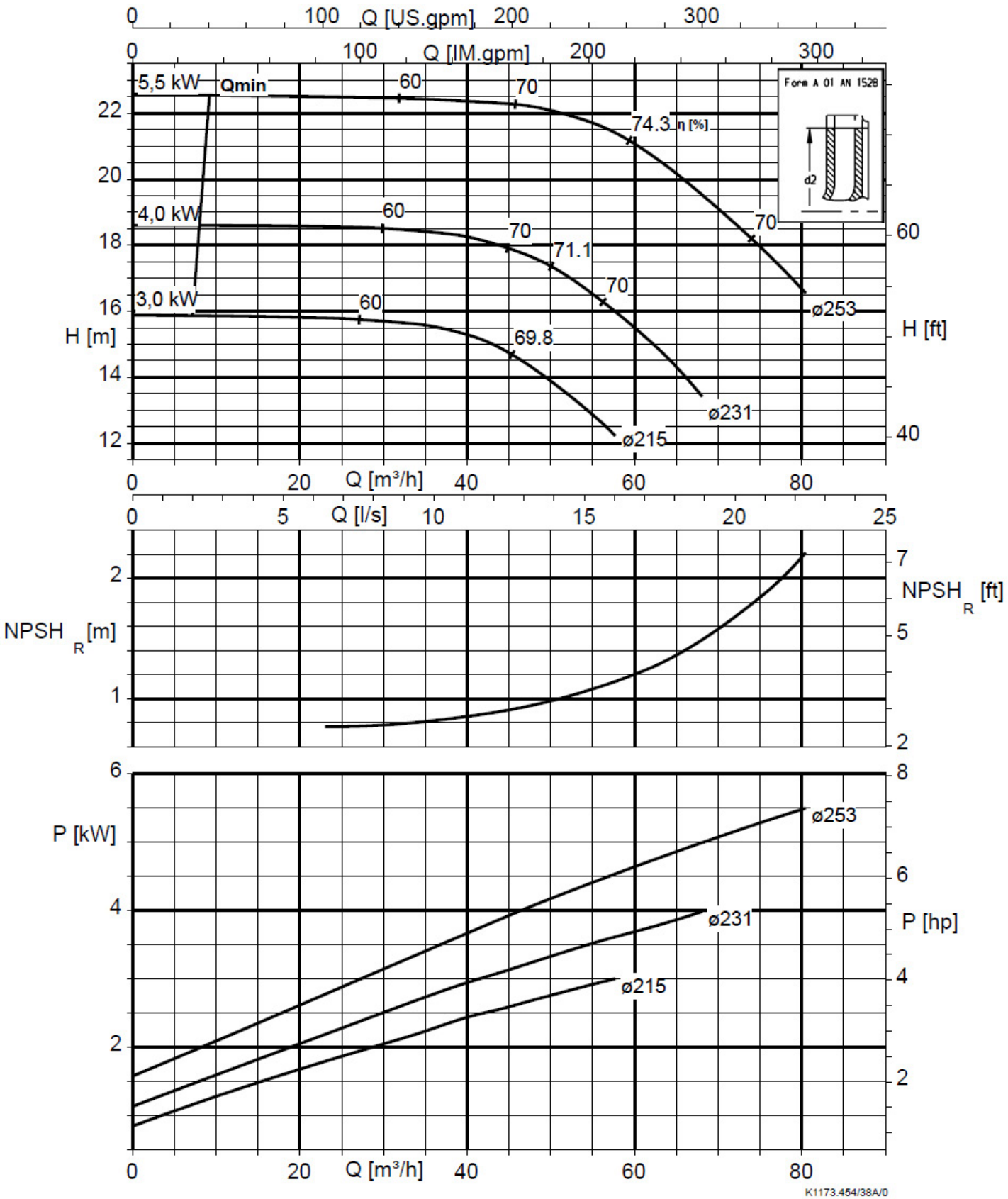
Etabloc 080-065-160, n = 1450 rpm



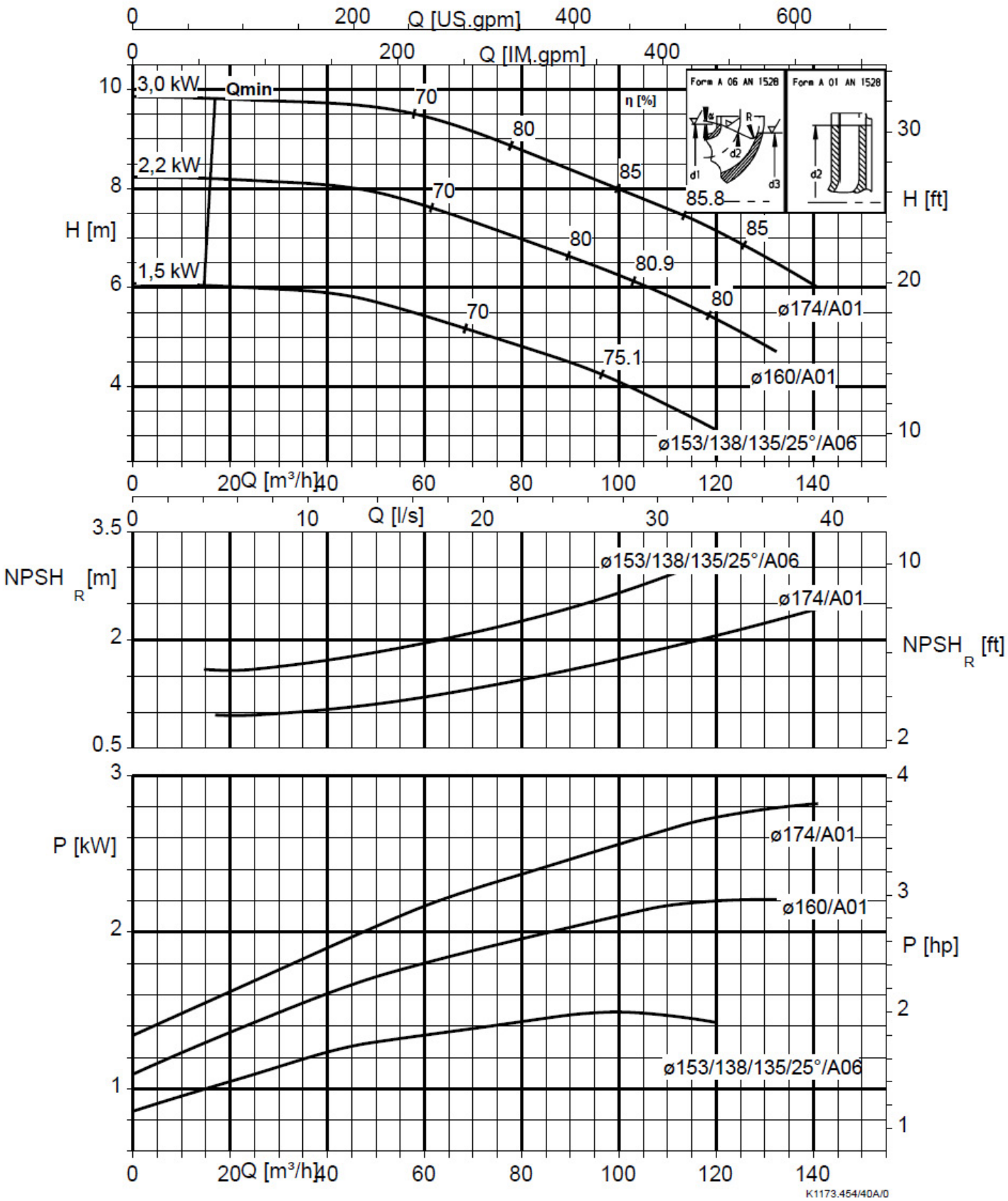
Etabloc 080-065-200, n = 1450 rpm



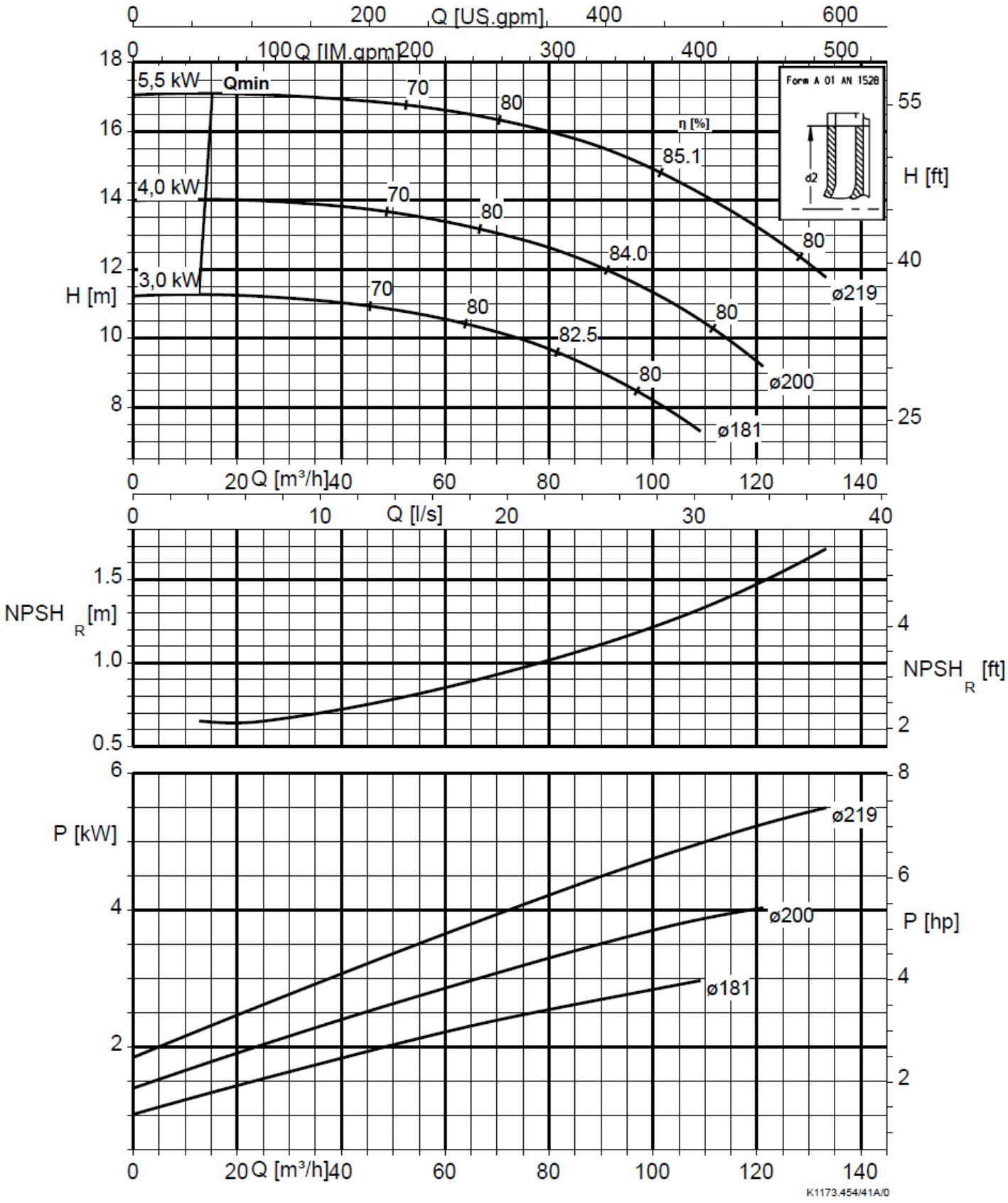
Etabloc 080-065-250, n = 1450 rpm



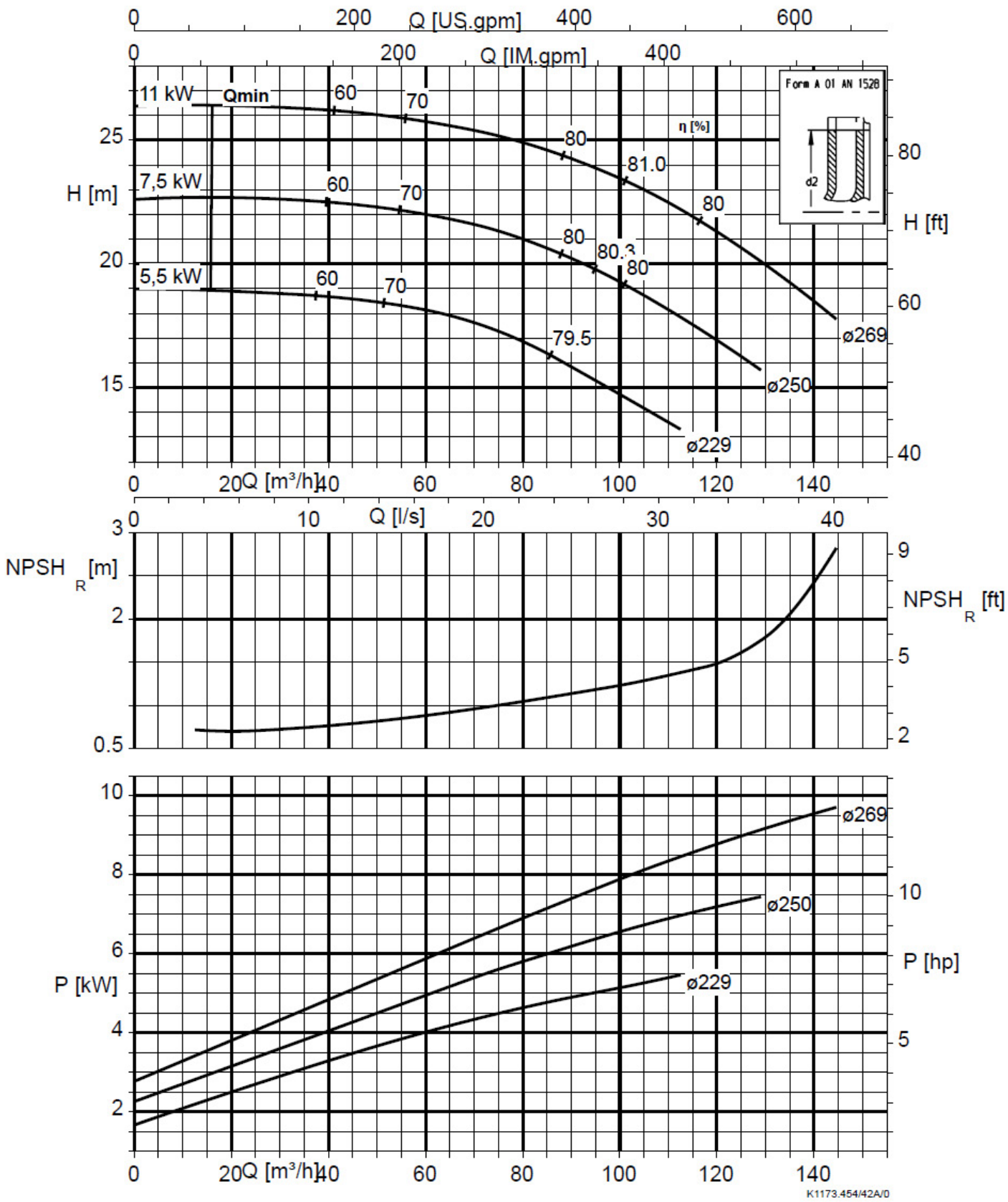
Etabloc 100-080-160, n = 1450 rpm



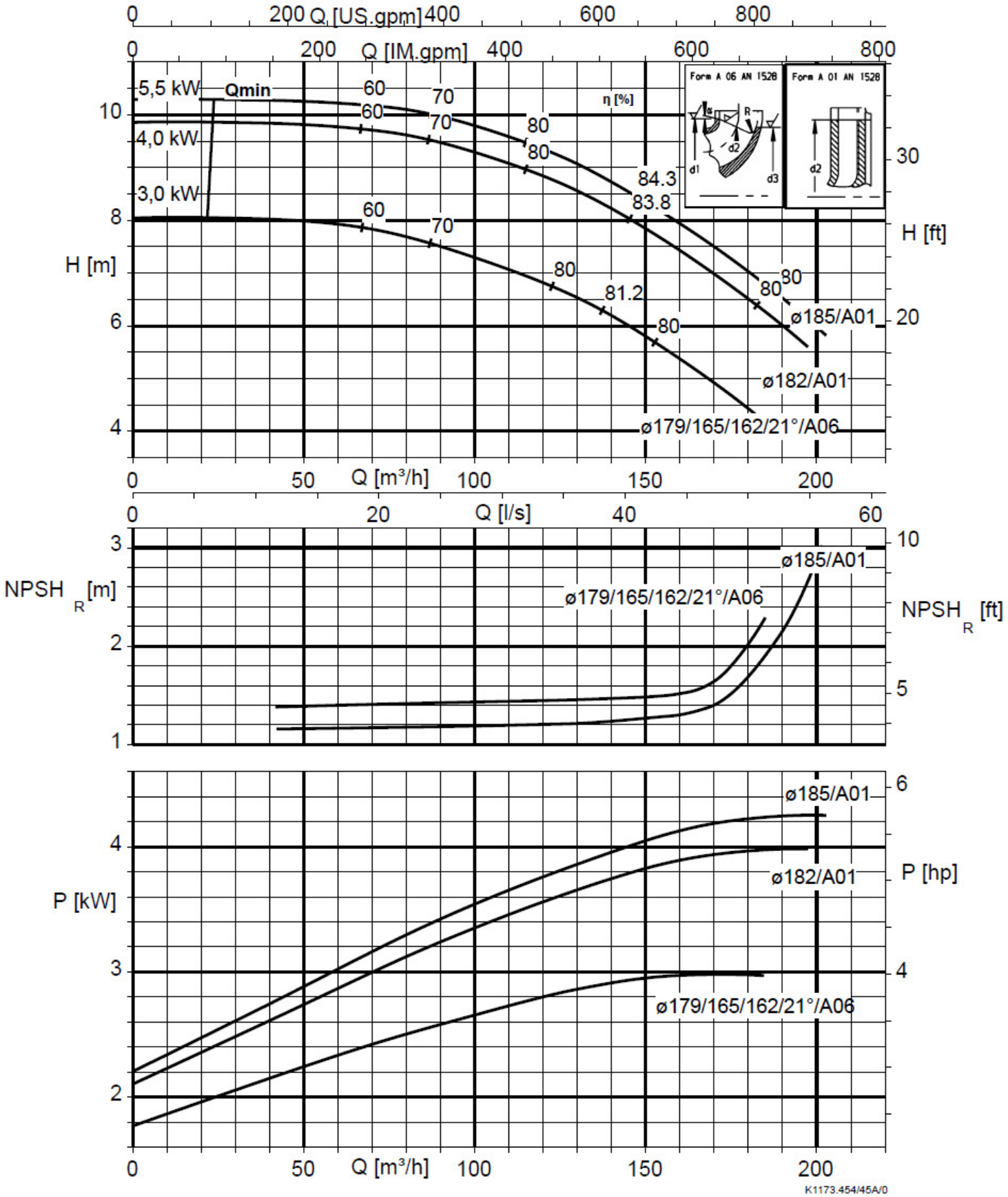
Etabloc 100-080-200, n = 1450 rpm



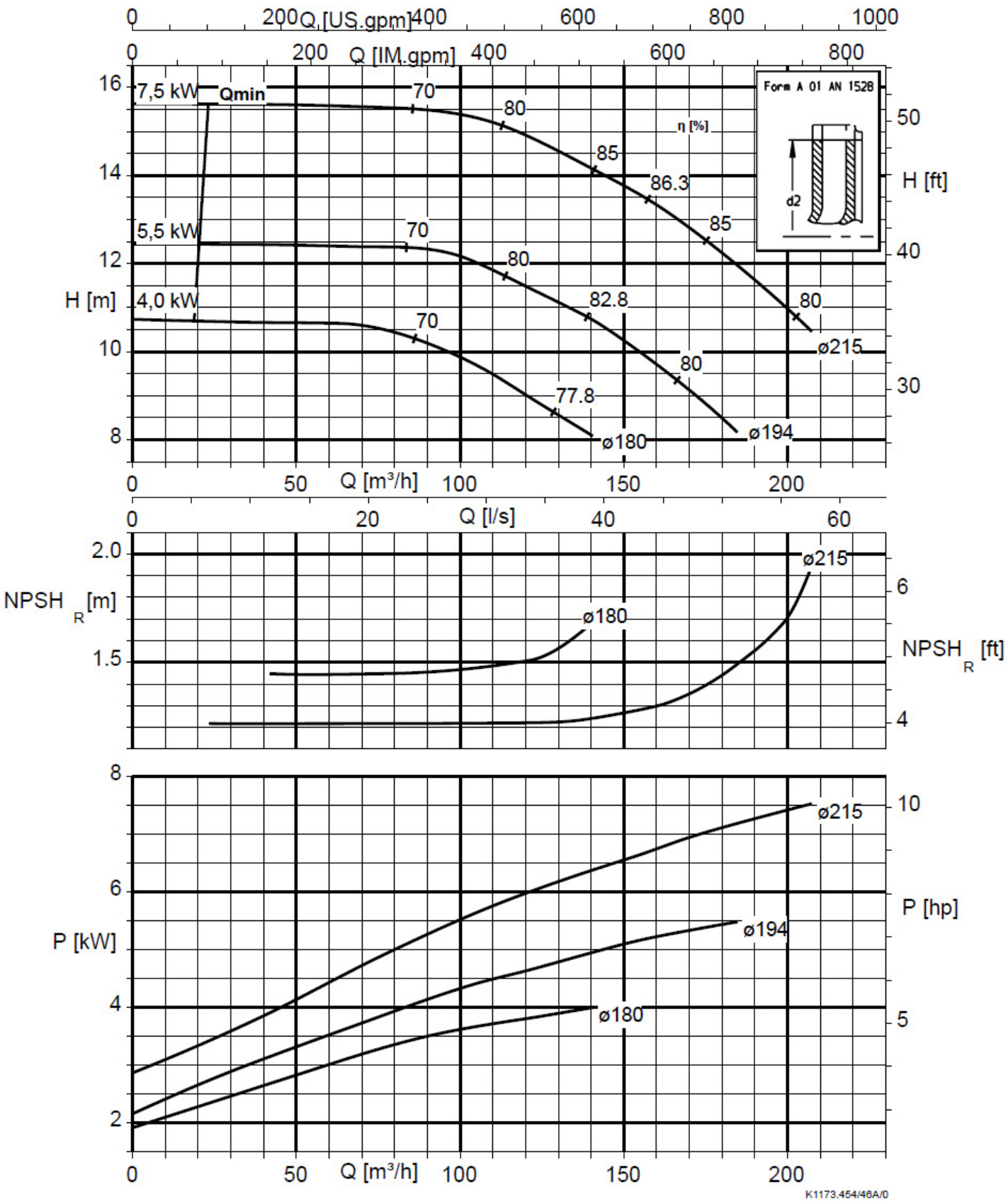
Etabloc 100-080-250, n = 1450 rpm



Etabloc 125-100-160, n = 1450 rpm



Etabloc 125-100-200, n = 1450 rpm



EC Declaration of Conformity

Manufacturer: **KSB Aktiengesellschaft**
Johann-Klein-Straße 9
67227 Frankenthal (Germany)

The manufacturer herewith declares that **the product**:

Etabloc, Etabloc SYT, Etaline, Etaline SYT, Etaline Z, Etachrom NC, Etachrom BC, Etanorm, Etanorm SYT, Etanorm GPV/CPV, Etaprime L, Etaprime B/BN, Vitachrom

KSB order number: .....

- is in conformity with the provisions of the following Directives as amended from time to time:
  - Pump (set): Machinery Directive 2006/42/EC

The manufacturer also declares that

- the following harmonised international standards have been applied:
  - ISO 12100
  - EN 809

Person authorised to compile the technical file:
Name
Function
Address (company)
Address (Street, No.)
Address (post or ZIP code, city) (country)

The EC Declaration of Conformity was issued in/on:

Place, date

.....*.....

Name

Function
Company
Address

* A signed, legally binding declaration of conformity is supplied with the product.

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