

Submersible Motor Pump

AmaRex Pro

Type Series Booklet



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Type Series Booklet AmaRex Pro

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Waste Water

Submersible Motor Pump

AmaRex Pro



Main applications

- Waste water transport
- Waste water management
- Drainage systems
- Waste water treatment plants
- Stormwater transport
- Recirculation
- Sludge treatment

Fluids handled

- Service water
- Grey water
- Waste water with faeces
- Waste water containing long fibres and solid substances
- Fluids containing gas
- Activated sludge
- Digested sludge
- Raw sludge

Further information on fluids handled

Overview of fluids handled

Operating data

Table 1: Operating properties

Characteristic		Value
Flow rate	Q [m³/h]	≤ 300
	Q [l/s]	≤ 83,3
Head	H [m]	≤ 35
Fluid temperature	T [°C]	≤ +40
Rated power	P ₂ [kW]	2,2 - 7,5

Design details

Design

- Vertical single-stage submersible motor pump for wet installation, with open two-vane impeller (D-max), stationary or transportable version.
- Single-stage, single-entry, close-coupled non-self-priming pump set

Drive

- Permanent magnet synchronous motor to thermal class H
- Enclosure: IP68 to EN 60529/IEC529

Shaft seal

- Two bi-directional mechanical seals in tandem arrangement, with liquid reservoir

Impeller type

- Open two-vane impeller (impeller type D-max)

Bearings

Motor-end bearings:

- Grease-packed bearings sealed for life
- Maintenance-free

Pump-end bearings:

- Grease-packed bearings sealed for life
- Maintenance-free
- Reinforced bearings

Designation

Table 2: 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
A	R	X		P	R	O		D	0	8	0	-	1	8	0	/	0	7	5	A	4	U	S	G	2	-	2	3	0

See name plate and data sheet

Table 3: Designation key

Position	Code	Description
1-7	Pump type	
	ARX PRO	AmaRex Pro
9	Impeller type	
	D-max	Open two-vane impeller
10-16	Size	
	080	Nominal discharge nozzle diameter [mm]
	180	Size of hydraulic system
18-20	Rated power P_2 [kW]	
	022	2,20
	...	...
	075	7,50
21	Efficiency class ¹⁾	
	A	IE5
22	Number of motor poles	
	4	4 poles
23	Motor version	
	U	Non-explosion-proof, standard
24	Motor construction type	
	S	Wet installation
25-26	Material variant	
	G2	Standard variant grey cast iron, impeller made of white cast iron
28-30	Nominal impeller diameter [mm]	
	090	90
	...	...
	230	230

¹ The IEC 60034-30-2 standard is not binding for submersible motor pumps. Efficiencies are determined according to the measurement method described in IEC 60034-2. For motors that achieve efficiency levels similar to those of standardised motors according to the IEC 60034-30-2 standard this marking is used.

Materials

Table 4: Overview of available materials

Part No. (⇒ Page 39)	Description		Version	Material variant
				G2
Pump set				
100	Casing			EN GJL-250
160	Cover (motor)			EN GJL-250
162	Suction cover			EN-GJL-250
163	Discharge cover			EN-GJL-250
210	Shaft			1.4021
230	Impeller		D-max	EN-GJN-HB555
412	O-ring		Standard	Nitrile butadiene rubber (NBR70)
			Optional	Fluoroelastomer (FKM80)
				Viton, Teflon-coated (FEP/FKM)
433	Mechanical seal	Drive end	Standard	Carbon/Al2O3
		Pump end	Standard	SiC/SiC/NBR
			Optional	SiC/SiC/FPM SiC/SiC/KAL
914	Hexagon socket head cap screw			A4
Installation parts				
182	Pump foot			1.4301
572	Suspension bracket			1.4571
59-24	Wire			1.4401
72-1	Flanged bend			EN-GJL-250
732	Claw			EN-GJL-250
885	Lifting chain			1.4404
	Lifting rope			Polypropylene
892	Foot plate			1.4301
894	Mounting bracket			1.4301

Description of materials

EN-GJL-250 grey cast iron (lamellar graphite cast iron)

Lamellar graphite cast iron to EN 1561 is the most widely used cast material for handling municipal sewage, waste water and sludges as well as stormwater and surface water. It is suitable for neutral fluids which are only slightly aggressive and cause little wear. The pH should be ≥ 6.5 , the sand content ≤ 0.5 g/l.

Wear-resistant white cast iron (EN-GJN-HB555 [XCR14] or technically equivalent material)

Wear-resistant white cast iron is suitable for handling highly abrasive fluids containing sand, ash or iron ore sinter, for example. It has a Rockwell hardness of at least 54 HRC, which is higher than that of hardened chrome steel. Owing to its hardness, the chromium-molybdenum alloy cast iron features a notably higher wear resistance than EN-GJL-250 grey cast iron and other cast materials. The pH should be ≥ 6.5 .

Product benefits

- High efficiency thanks to enhanced power density (Wh/m³), overall efficiency of up to 70 %, lower total cost of ownership
- Non-clogging (no clogging by wet wipes) with patented deflection technology and D-max impeller
- Long service life with high operating reliability and durable bearings (100,000 operating hours)
- Environmentally friendly with non-toxic, food-approved oil fill for lubricating the mechanical seal (liquid reservoir)
- Flexible thanks to easy substitution of competitor pumps with a large range of adapter claws and substitution pump app

Product information

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

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Selection information

Application limits

In submerged condition the pump set is suitable for S1 duty (continuous duty) without any restrictions.

In non-submerged condition the pump set is either suitable for S1 duty (continuous duty) or exclusively for S3 duty (intermittent duty), depending on its size. For operation outside the fluid observe the minimum water level.
(⇒ Page 26)

The relative duty cycle in S3 duty (intermittent duty) is restricted, depending on the size.

Table 5: Relative duty cycle in S3 duty (intermittent duty)

Size	P ₂	Relative duty cycle
	[kW]	
D080-180	2,2	-
D080-180	4,0	-
D080-230	5,5	40 %, 10 minutes
D080-230	7,5	30 %, 10 minutes
D100-180	2,2	-
D100-180	4,0	-
D100-230	5,5	50 %, 10 minutes
D100-230	7,5	30 %, 10 minutes
D150-230	2,2	-
D150-230	4,0	70 %, 10 minutes
D150-230	5,5	50 %, 10 minutes

Overview of product features / selection tables

Overview of product features

Table 6: Overview of product features

Characteristic	Value
Material variant	G2
Voltage	380 - 480 V
Starting method	DOL
Cooling	Cooled by surrounding fluid
Duty type	Continuous duty S1: maximum immersion depth 25 m Continuous duty S1: outside the fluid, minimum water level R3/R4 Intermittent duty S3: outside the fluid, minimum water level R1/R2
Bearing	
Bearing design	Double-row angular contact ball bearing
Lubrication	Grease-packed rolling element bearings sealed for life
Sealing element	Contacting seals (e.g. 2RS1) on both sides
Monitoring equipment	
Winding temperature	Temperature monitoring circuit with automatic reset and start-up: bimetal switch
Power cable	
Type	Shielded power cable, rubber-sheathed (S07RC4N8-F)
Length	10 m
Cable entry	Resin-sealed cable entry
Sealing elements	
Shaft seal	Mechanical seal/bellows-type mechanical seal (Q1Q1PGG) Mechanical seal with covered springs
Shaft seal material, pump end	Q1Q1PGG Q1Q1VGG Q12Q1VGG1
Elastomer seals	NBR FKM
Explosion protection	Non-explosion-proof
Coating	Environmentally friendly top coat (two-component epoxy paint), colour RAL 5002, film thickness 80 µm
Maximum fluid temperature	40 °C
Installation	
Stationary, with twin guide rail arrangement	Installation depth: 6 m (available up to 12 m)
Stationary, with guide wire arrangement	Installation depth: 4.5 m (available up to 9.5 m and 14.5 m)
Transportable (DN 80 and DN 100)	Installation depth 14.5 m

Impellers

Table 7: Overview of impeller types

Illustration	Description	Use
	Open two-vane impeller (impeller type D-max)	Suitable for the following fluids: waste water containing wet wipes and long fibres

Overview of fluids handled

The table below for your guidance is based on KSB's long-standing experience. The data are standard values and are not to be considered as generally binding recommendations. More detailed advice is available from our specialist department. The KSB materials laboratory's wealth of experience may be useful when selecting materials.

Table 8: Selection aid for materials per fluid handled

Fluid handled ²⁾	Recommended sealing elements	Comments/recommendations
Water, surface water		
▪ Dam water	NBR	Free passage > any solids contained, possibly pre-screened
▪ Lake water	NBR	Free passage > any solids contained, possibly pre-screened
▪ River water	NBR	Free passage > any solids contained, possibly pre-screened
Water, contaminated water		
▪ Combined sewage, with strainer	NBR	-
▪ Combined sewage, without strainer	NBR	-
▪ Slightly contaminated water	NBR	Free passage > any solids contained, possibly pre-screened
▪ Waste water with faeces	NBR	To EN 12050 the free passage must be at least 40 mm.
▪ Waste water without faeces	NBR	-
Municipal waste water		
▪ Biologically treated	NBR	-
▪ Domestic waste water with faeces	NBR	To EN 12050 the free passage must be at least 40 mm.
▪ Domestic waste water without faeces	NBR	-
▪ Pumped drainage	NBR	-
▪ Raw waste water containing solids, long fibres and abrasive particles	NBR	Free passage > any solids contained, possibly pre-screened
▪ Untreated	NBR	ATV ³⁾ recommendation: 100 mm free passage; minimum free passage 76 mm
Water, raw water		
▪ No details specified	NBR	-
Abrasive, non-corrosive industrial waste water⁴⁾		
▪ Containing dust / ash	NBR	-
▪ Containing lime milk > 5 to 15 %	NBR	-
▪ Pigment suspensions	NBR	-
▪ Lime water	NBR	-
▪ Wash water containing solids	NBR	-
Non-abrasive, non-corrosive industrial waste water		
▪ Industrial waste water with faeces	NBR	-
▪ Industrial waste water without faeces	NBR	-
▪ Industrial waste water with fibres	NBR	-
Suspensions containing solids		
▪ Pulp, concentration up to 1 % bone dry	NBR	-
▪ Water/sand mixture up to 5 g/l	NBR	-
▪ Pulp, concentration up to 6 % bone dry	NBR	-
▪ Water/sand mixture up to 0.5 g/l	NBR	-
Sludges		

²⁾ Consult us for any fluids not listed here.

³⁾ ATV = German regulatory body for waste water management

⁴⁾ Severe hydroabrasive wear occurs if solids contents of approx. 0.5 g/l or higher are combined with circumferential speeds > 20 m/s or part load conditions to the left of the duty point. The required materials highly depend on the operating hours, speed and flow velocity.

Fluid handled ²⁾	Recommended sealing elements	Comments/recommendations
▪ Raw sludge	NBR	Pumpable up to a dry substance content of 13 %
▪ Digested sludge	NBR	Pumpable up to a dry substance content of 13 %
▪ Activated sludge	NBR	Pumpable up to a dry substance content of 13 %

Technical data

AmaRex Pro

D = open two-vane impeller

US = without explosion protection, for fluid temperatures of up to 40 °C

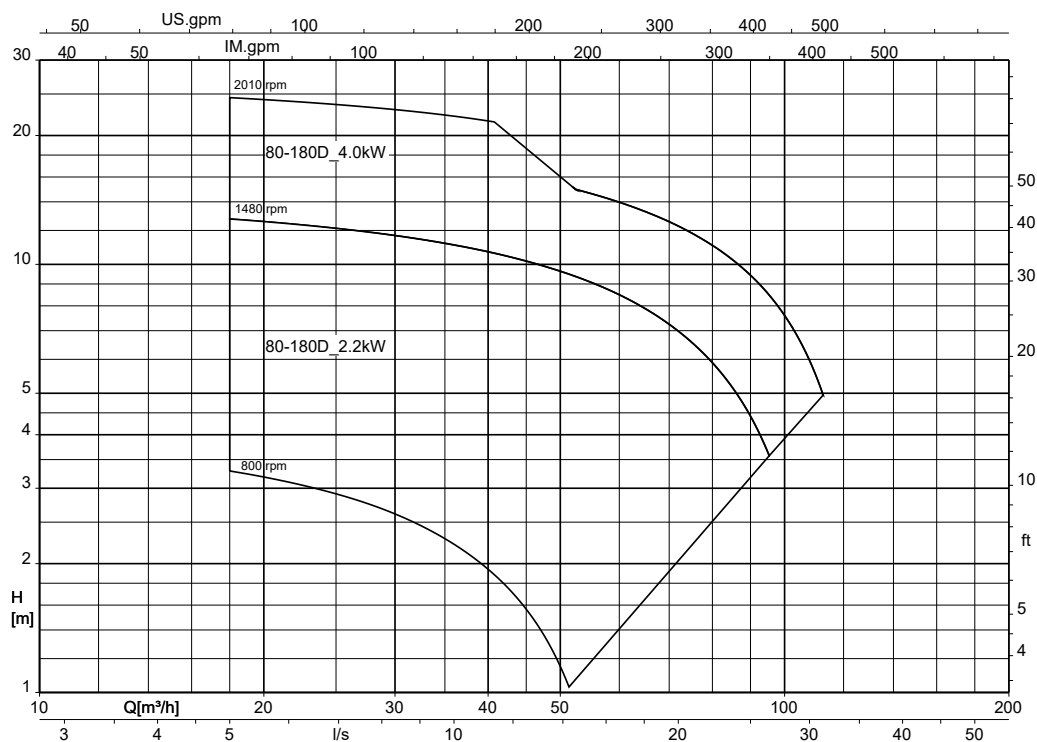
G2 = material variant grey cast iron (pump casing) / grey cast iron (intermediate casing) / Norihard, white cast iron (impeller)

Table 9: Technical data, 3~ 400 V AC

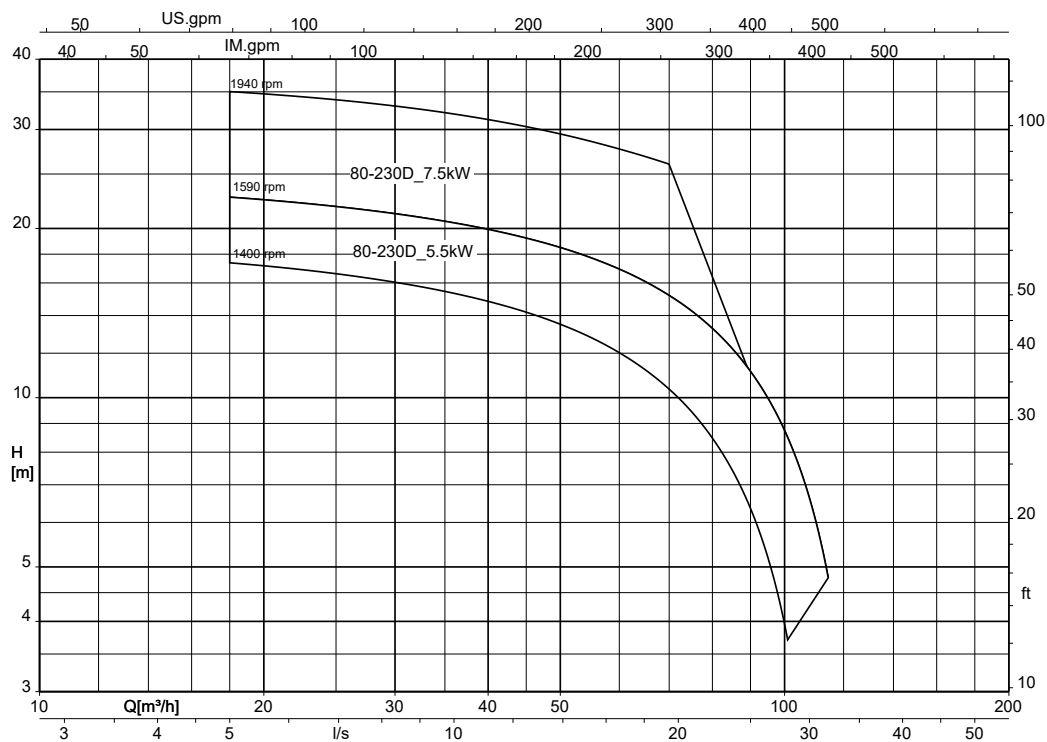
Size	Efficiency class	Number of motor poles	Motor version	Motor construction type	Material variant	Impeller diameter	P ₁	P ₂	I _N	I _{Deragging}	Fluid temperature	Mat. No.	[kg]
						[mm]	[kW]	[kW]	[A]	[A]	[°C]		
D080-180	A	4	U	S	G2	192	2,4	2,2	4,0	12,2	40	39130001	110
D080-180	A	4	U	S	G2	192	4,4	4,0	6,9	12,2	40	39130002	110
D080-230	A	4	U	S	G2	230	6,0	5,5	9,6	23,5	40	39130003	132
D080-230	A	4	U	S	G2	230	8,1	7,5	12,9	23,5	40	39130004	132
D100-180	A	4	U	S	G2	184	2,5	2,2	4,0	12,2	40	39130005	123
D100-180	A	4	U	S	G2	184	4,4	4,0	6,9	12,2	40	39130006	123
D100-230	A	4	U	S	G2	220	5,9	5,5	9,6	23,5	40	39130007	136
D100-230	A	4	U	S	G2	220	8,1	7,5	12,9	23,5	40	39130008	136
D150-230	A	4	U	S	G2	226	2,3	2,2	4,2	17,6	40	39130009	148
D150-230	A	4	U	S	G2	226	4,4	4,0	7,2	20,4	40	39130010	148
D150-230	A	4	U	S	G2	226	6,0	5,5	9,7	22,2	40	39130011	148

Selection charts

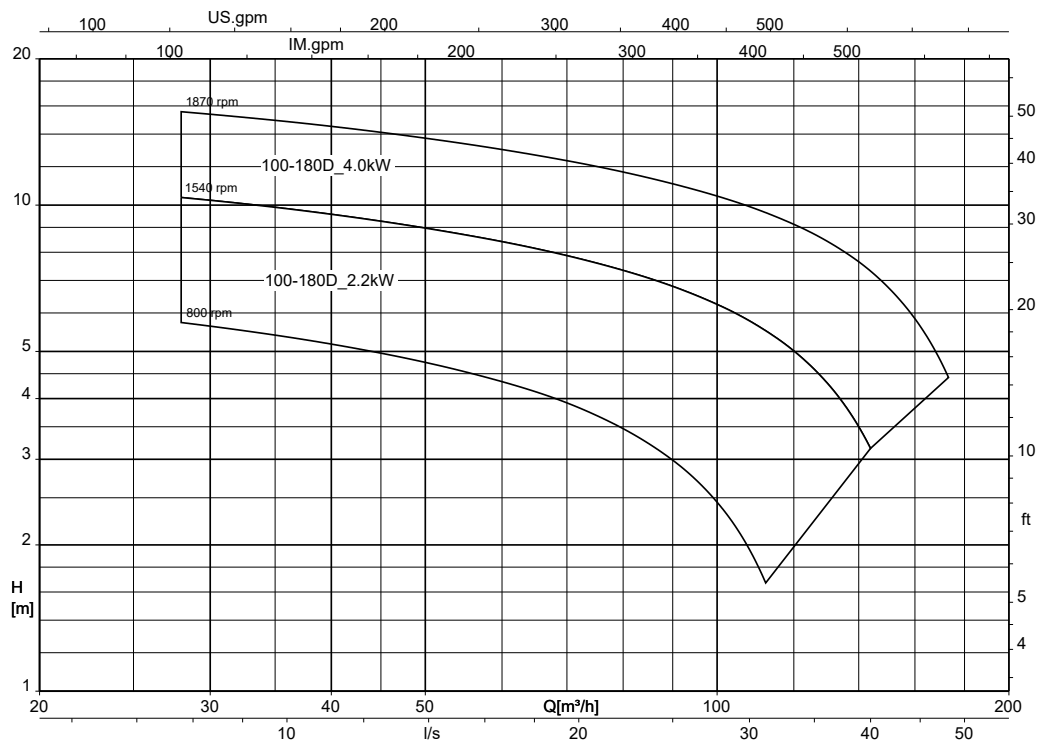
AmaRex Pro D080-180



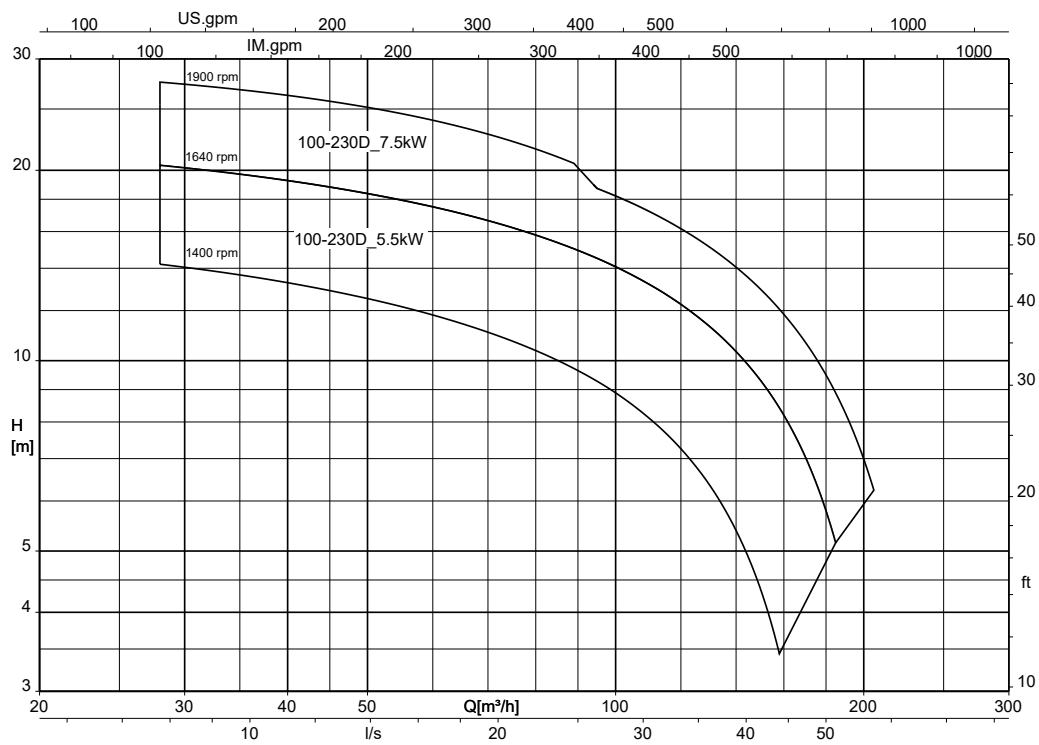
AmaRex Pro D080-230



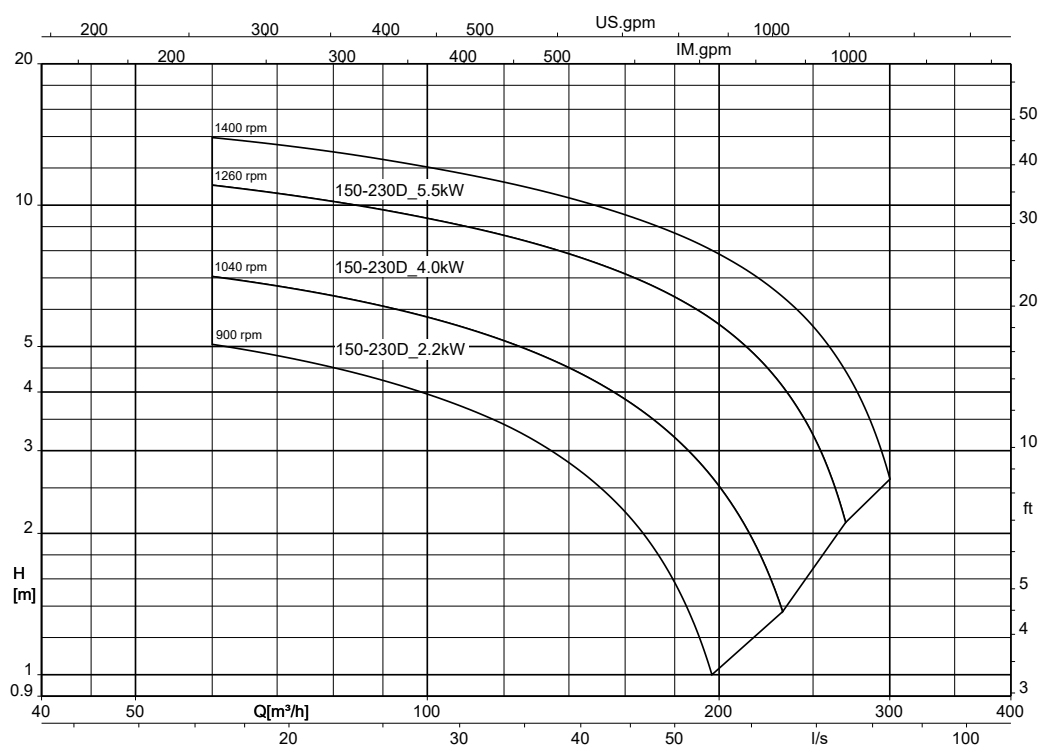
AmaRex Pro D100-180



AmaRex Pro D100-230

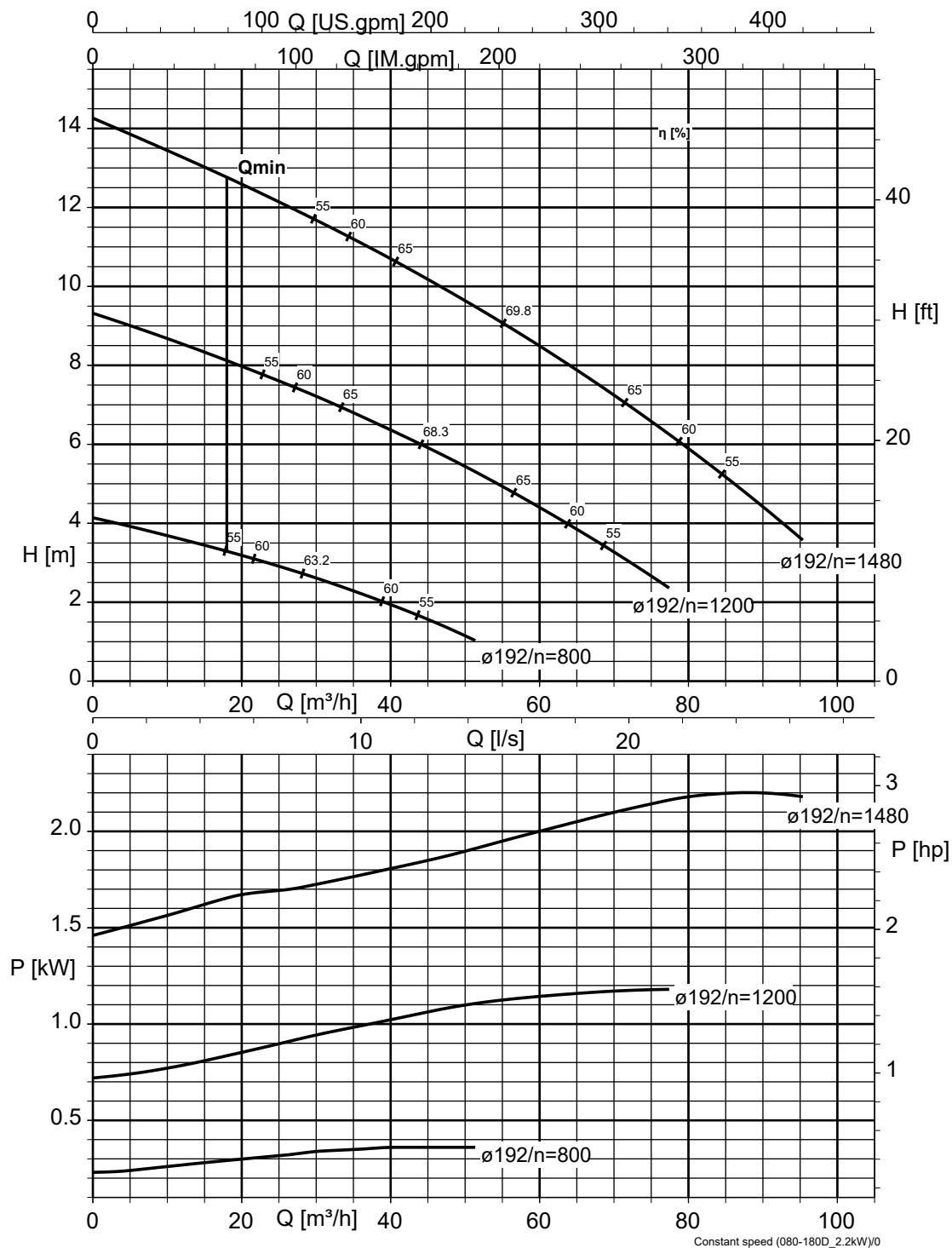


AmaRex Pro D150-230

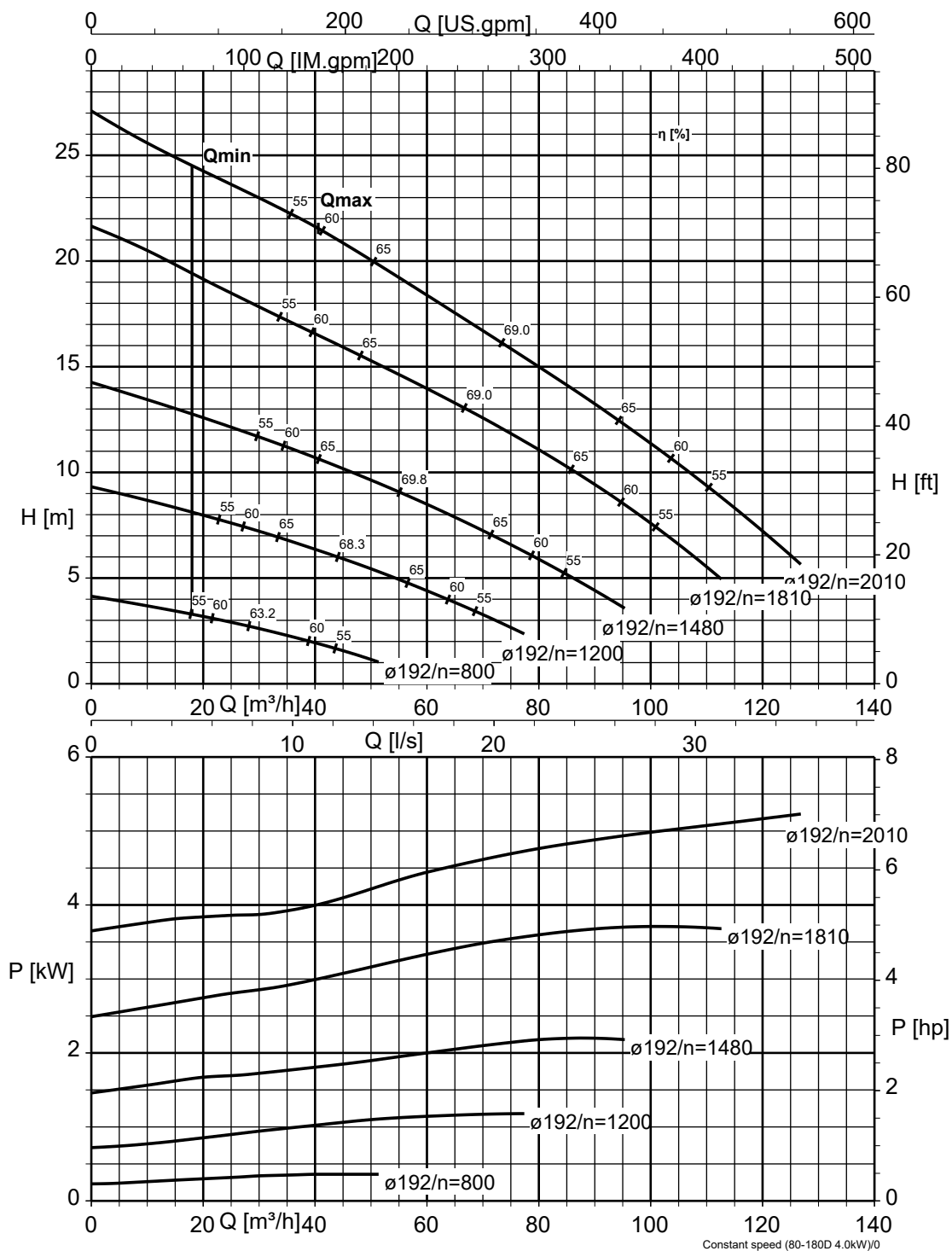


Characteristic curves

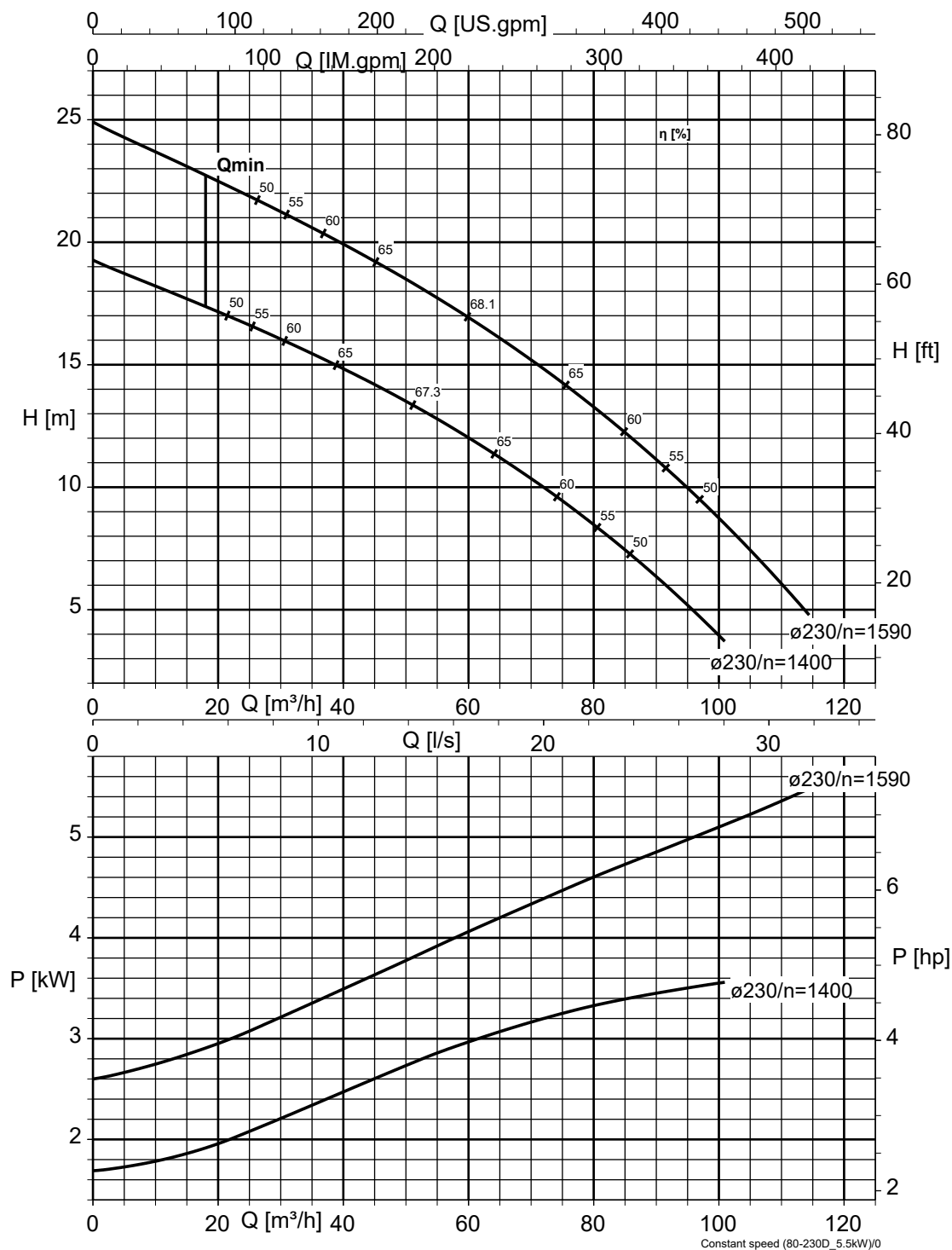
AmaRex Pro D80-180, 2.2 kW



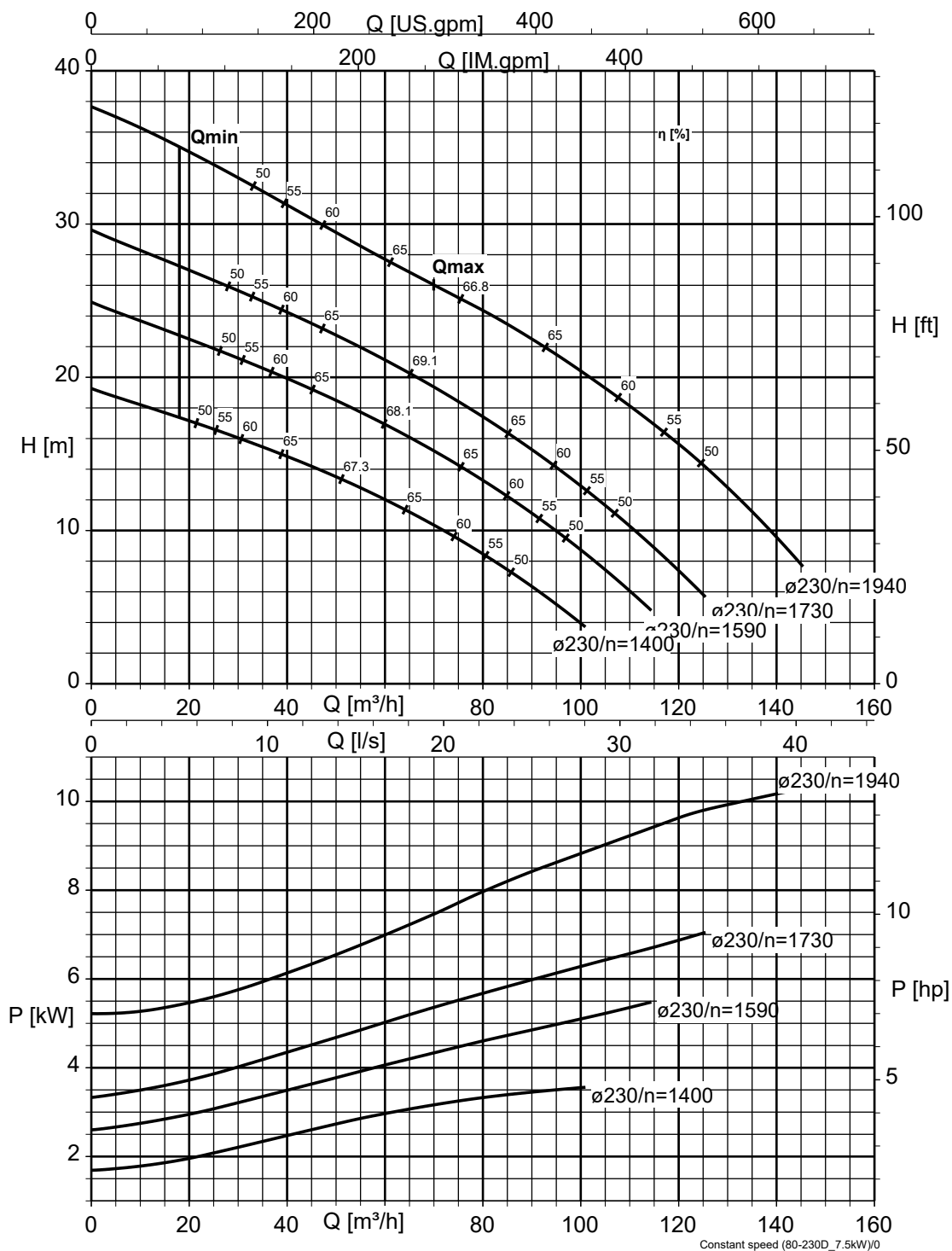
AmaRex Pro D80-180, 4.0 kW



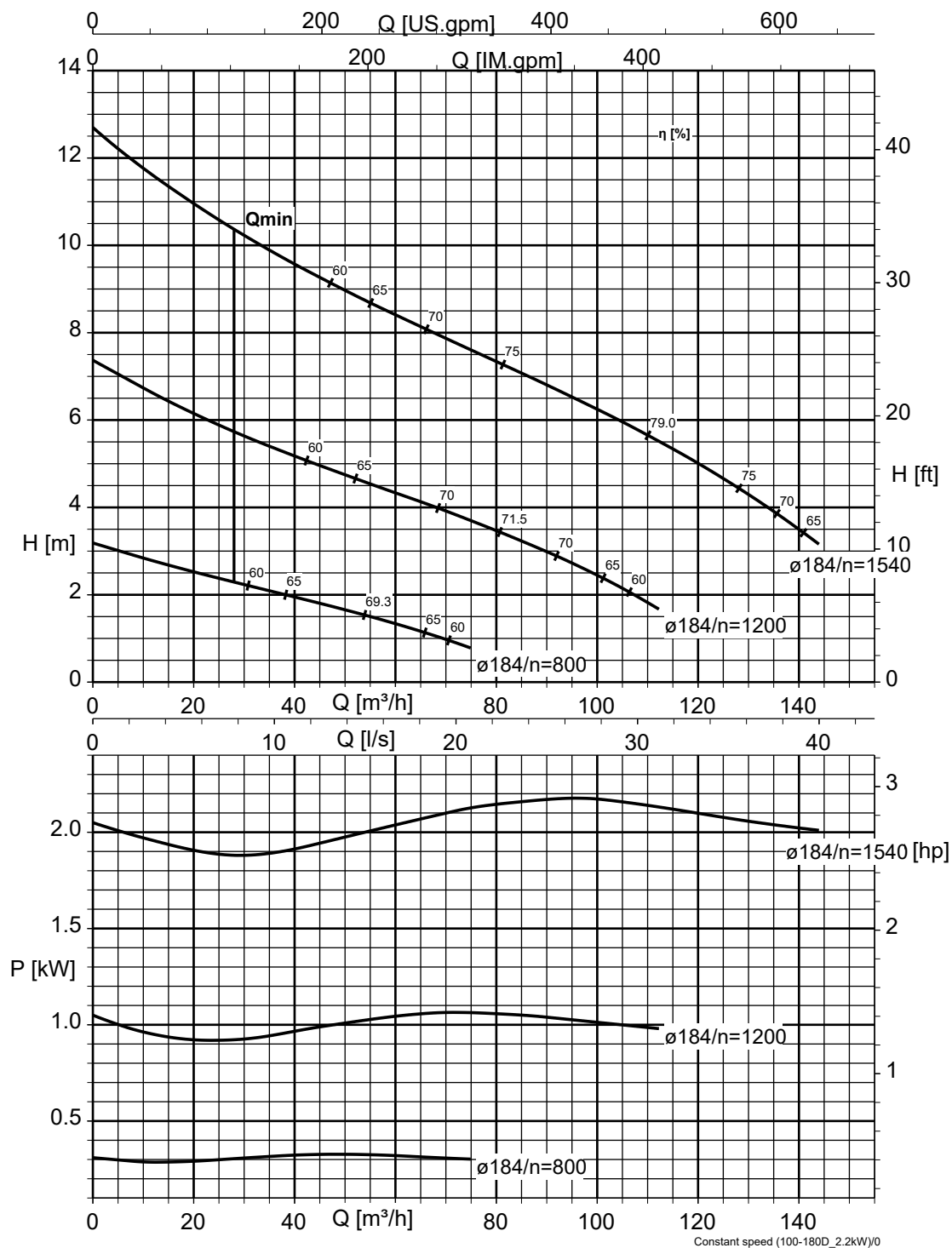
AmaRex Pro D80-230, 5.5 kW



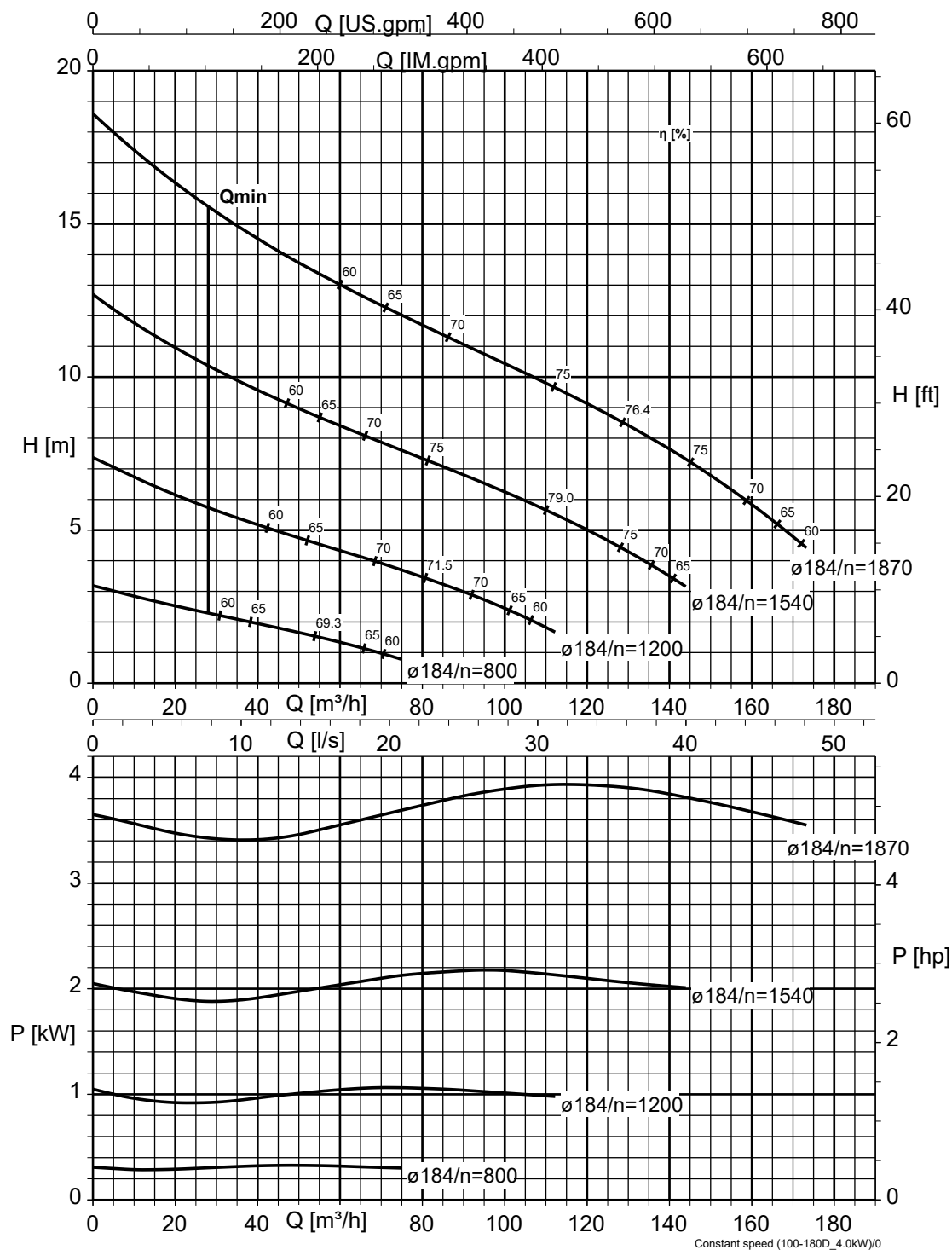
AmaRex Pro D80-230, 7.5 kW



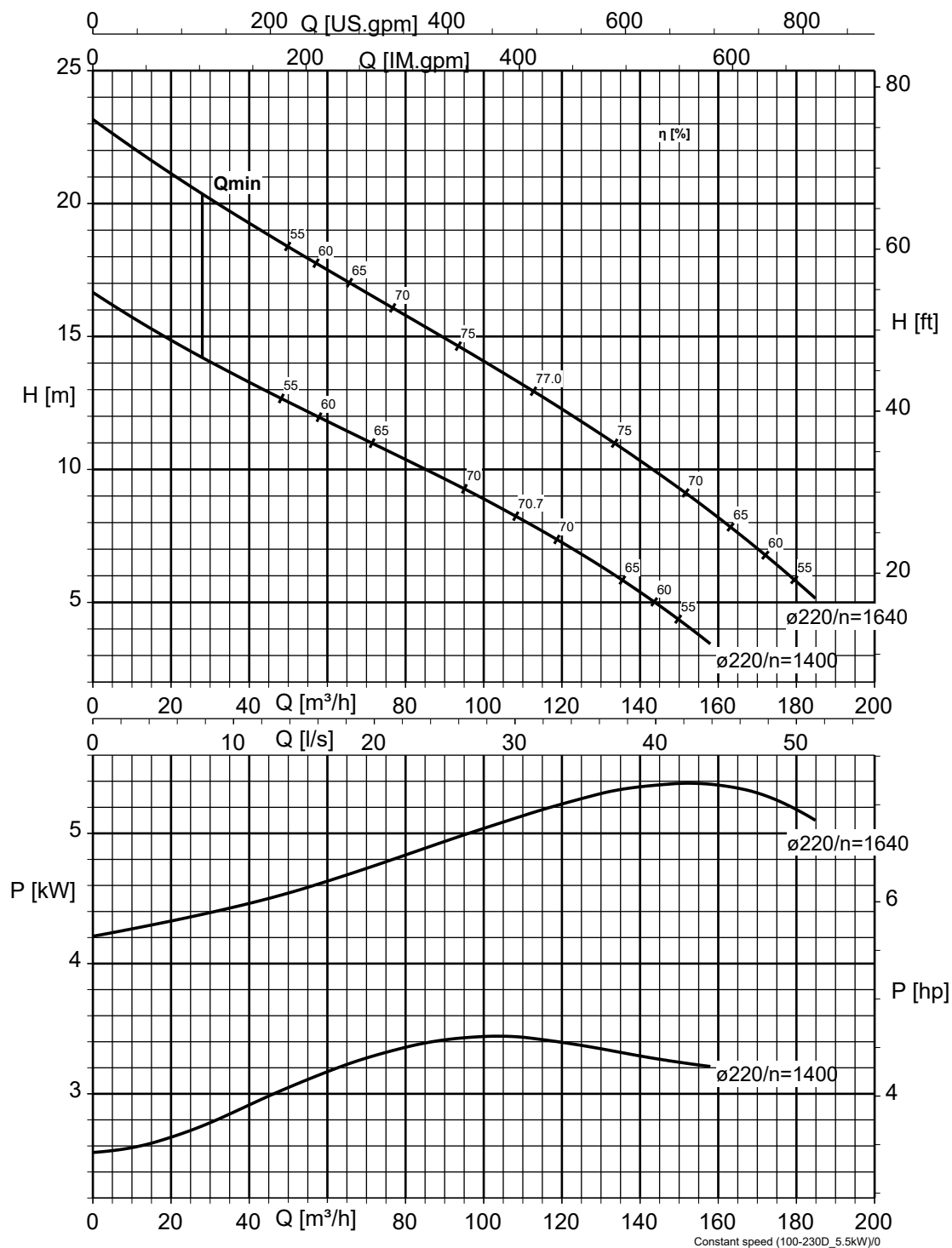
AmaRex Pro D100-180, 2.2 kW



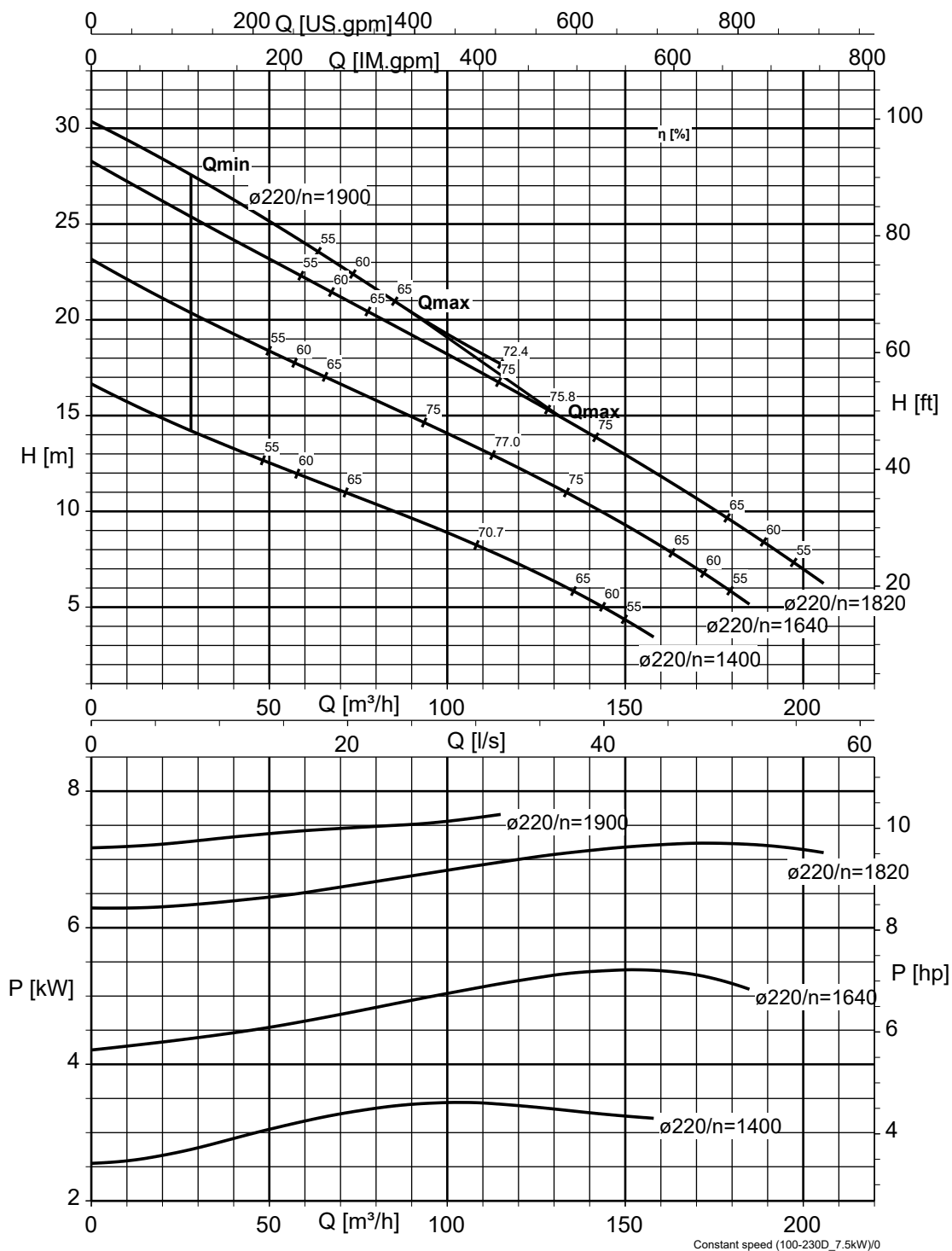
AmaRex Pro D100-180, 4.0 kW



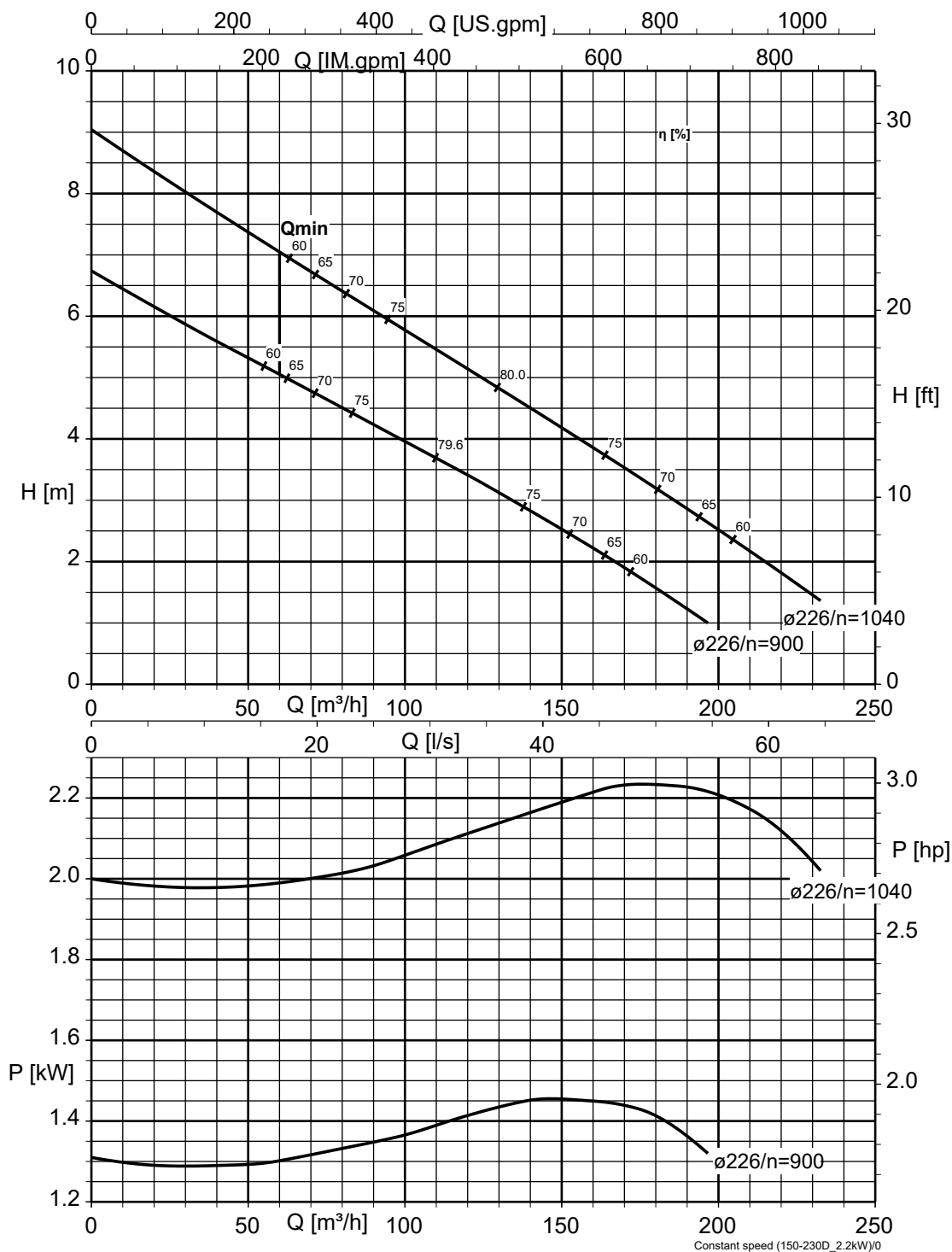
AmaRex Pro D100-230, 5.5 kW



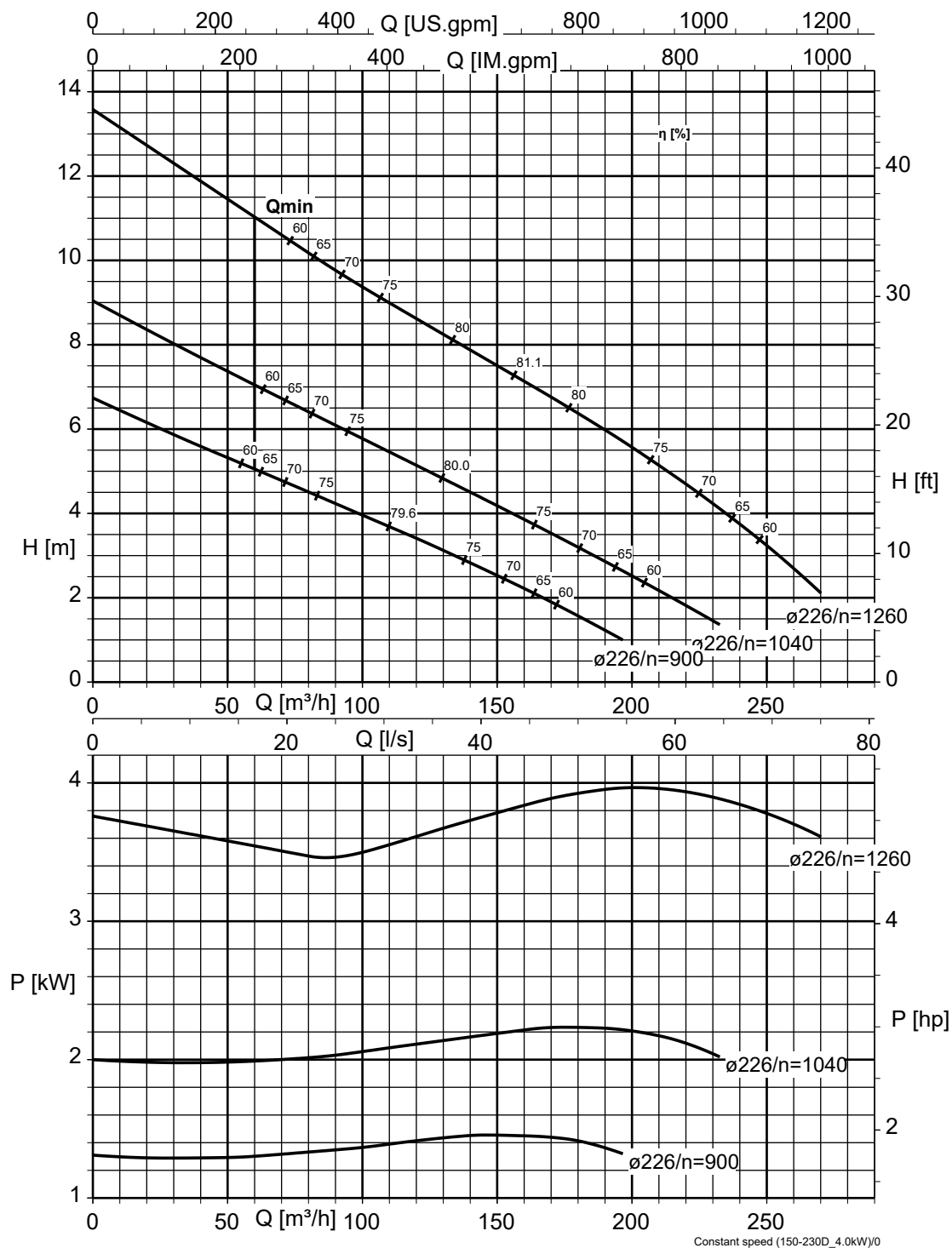
AmaRex Pro D100-230, 7.5 kW



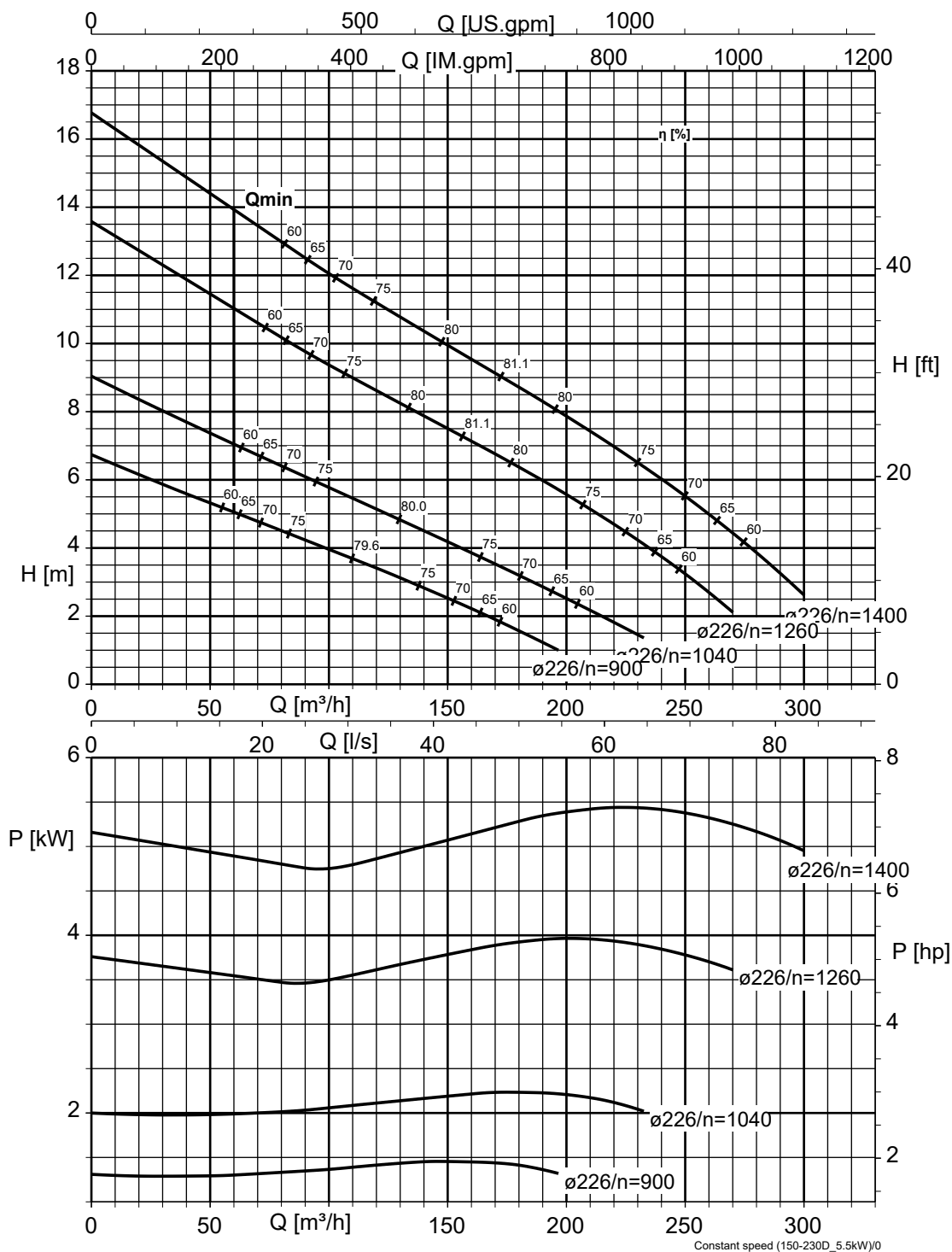
AmaRex Pro D150-230, 2.2 kW



AmaRex Pro D150-230, 4.0 kW



AmaRex Pro D150-230, 5.5 kW



Dimensions and weights

AmaRex Pro, DN 80 - DN 100, transportable model

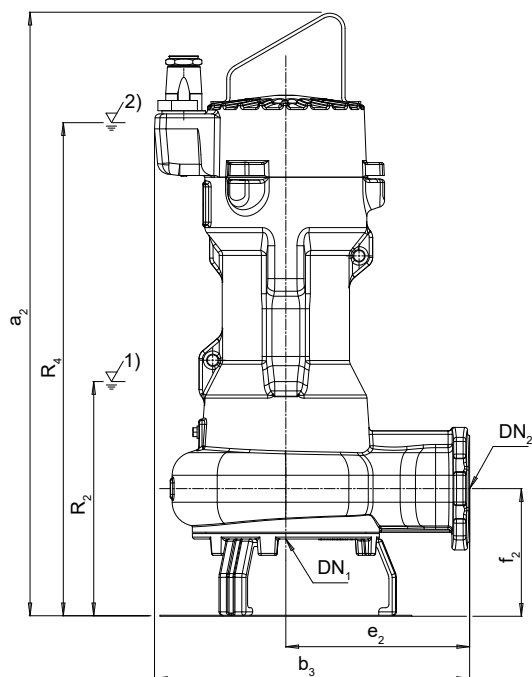


Fig. 1: Dimensions of AmaRex Pro, DN 80 - DN 100, transportable model [mm]

1)	Duty type S3 (maximum immersion depth 25 m / outside of fluid, minimum water level R2)
2)	Duty type S1 (maximum immersion depth 25 m / outside of fluid, minimum water level R4)

Table 10: Dimensions of AmaRex Pro, DN 80 - DN 100, transportable model

Size	P ₂ [kW]	Efficiency class	Number of motor poles	Motor version	Motor construction type	DN ₁	DN ₂	a ₂ [mm]	b ₃ [mm]	e ₂ [mm]	f ₂ [mm]	R ₂ [mm]	R ₄ [mm]
D080-180	2,2	A	4	U	S	90	80	793	423	230	178	303	303
D080-180	4,0	A	4	U	S	90	80	793	423	230	178	303	303
D080-230	5,5	A	4	U	S	90	80	879	423	230	184	309	638
D080-230	7,5	A	4	U	S	90	80	879	423	230	184	309	638
D100-180	2,2	A	4	U	S	110	100	819	463	270	195	329	329
D100-180	4,0	A	4	U	S	110	100	819	463	270	195	329	329
D100-230	5,5	A	4	U	S	110	100	886	463	270	188	369	645
D100-230	7,5	A	4	U	S	110	100	886	463	270	188	369	819

Connection elbow

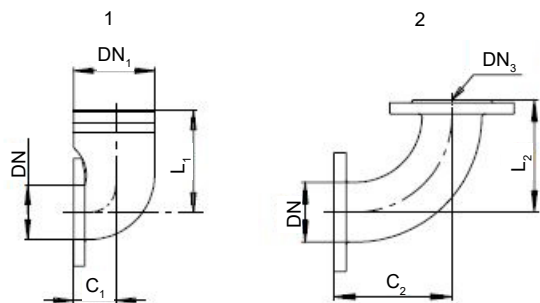


Fig. 2: Dimensions of connection elbow [mm]

1	Connection elbow with flange/hose connection P13	2	Connection elbow with flanges P14
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Table 11: Connection elbow dimensions

Nominal discharge nozzle diameter	Connection elbow with flange/hose connection (P13)			Connection elbow with flanges (P14)		
	DN ₁	C ₁ [mm]	L ₁ [mm]	DN ₃	C ₂ [mm]	L ₂ [mm]
80	75	115	175	80	135	135
100	110	45	195	100	120	135

AmaRex Pro, DN 80 - DN 150, stationary installation, guide wire arrangement, twin guide rail arrangement

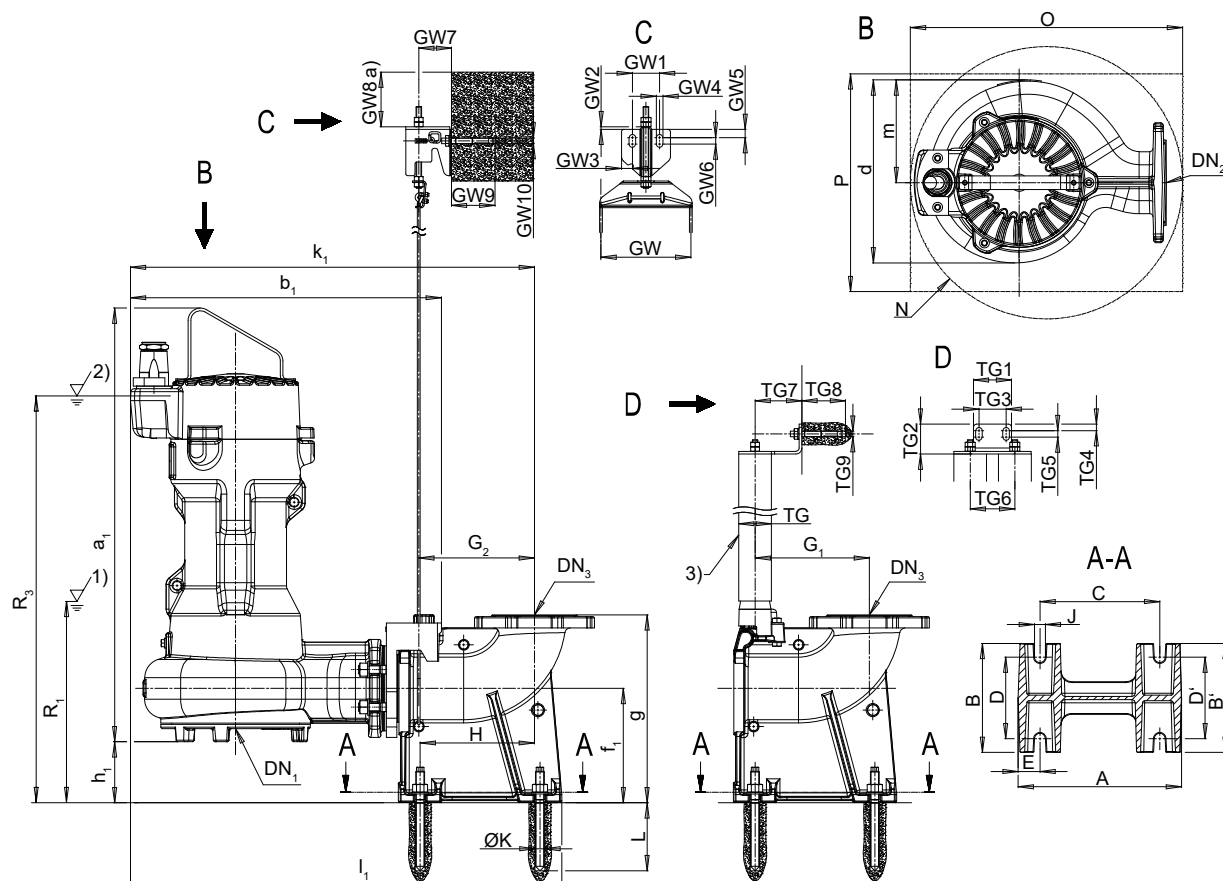


Fig. 3: Dimensions of AmaRex Pro, DN 80 - DN 150, stationary installation, guide wire arrangement, twin guide rail arrangement [mm]

a)	Minimum length
1)	Duty type S3 (maximum immersion depth 25 m / outside of fluid, minimum water level R1)
2)	Duty type S1 (maximum immersion depth 25 m / outside of fluid, minimum water level R3)
3)	Not included in the scope of supply

Table 12: Dimensions of AmaRex Pro, DN 80 - DN 150, stationary installation, guide wire arrangement, twin guide rail arrangement

Size	P ₂ [kW]	Efficiency class	Number of motor poles	Motor version	Motor construction type	DN ₁	DN ₂	a ₁ [mm]	b ₁ [mm]	d [mm]	Df [mm]	f ₁ [mm]	g [mm]	gf [mm]	h ₁ [mm]	Hf [mm]	k ₁ [mm]	kf [mm]	l ₁ [mm]	m [mm]	R ₁ [mm]	R ₃ [mm]
D080-180	2,2	A	4	U	S	90	80	703	531	282	160	200	320	132	112	200	663	160	753	154	325	325
D080-180	4,0	A	4	U	S	90	80	703	531	282	160	200	320	132	112	200	663	160	753	154	325	325
D080-230	5,5	A	4	U	S	90	80	784	531	311	160	200	320	132	112	200	663	160	753	166	326	655
D080-230	7,5	A	4	U	S	90	80	784	531	311	160	200	320	132	112	200	663	160	753	166	326	655
D100-180	2,2	A	4	U	S	110	100	722	571	324	180	210	345	156	112	220	742	180	792	186	344	344
D100-180	4,0	A	4	U	S	110	100	722	571	324	180	210	345	156	112	220	742	180	792	186	344	344
D100-230	5,5	A	4	U	S	110	100	797	571	336	180	210	345	156	112	220	742	180	792	189	392	668
D100-230	7,5	A	4	U	S	110	100	797	571	336	180	210	345	156	112	220	742	180	792	189	392	842
D150-230	2,2	A	4	U	S	135	150	867	632	374	271	232	481	211	95	285	799	240	957	217	445	445
D150-230	4,0	A	4	U	S	135	150	867	632	374	271	232	481	211	95	285	799	240	957	217	445	721
D150-230	5,5	A	4	U	S	135	150	867	632	374	271	232	481	211	95	285	799	240	957	217	445	895

Pump flange DN3

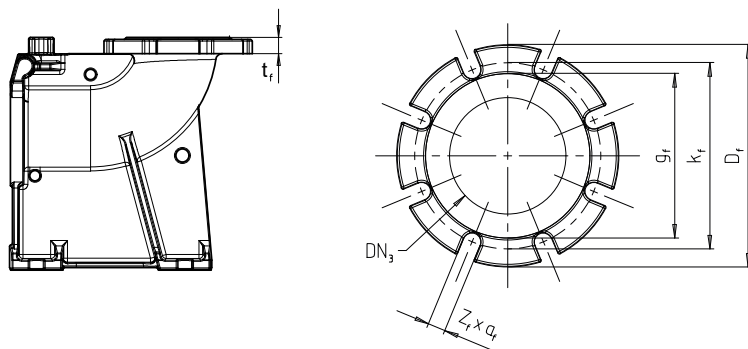


Fig. 4: Pump flange dimensions DN3 [mm]

Table 13: Dimensions of pump flange DN3

Nominal discharge nozzle diameter / variant	DN ₃	a _f	D _i	g _r	k _r	t _f	Z _r ⁵⁾
		[mm]	[mm]	[mm]	[mm]	[mm]	
80/80 ISO	80	18	200	132	160	23	8
80/80 ASME	80	19	190	127	152,5	23	4
80/100	100	18	220	156	180	23	8
100/100	100	19	220	156	180	24	8
150/150	150	23	285	212	240	26	8

Flanged bend / foundation

Table 14: Dimensions of flanged bend / foundation

Size	P ₂ [kW]	Efficiency class	Number of motor poles	Motor version	Motor construction type	DN ₃	A	B	B'	C	D	D'	E	G1	G2	H	J	Øk	L	N _{min.}	O _{min.}	P _{min.}
							[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
D080-180	2,2	A	4	U	S	80	300	200	200	220	150	150	40	173	170	170	20	18	125	580	580	400
D080-180	4,0	A	4	U	S	80	300	200	200	220	150	150	40	173	170	170	20	18	125	580	580	400
D080-230	5,5	A	4	U	S	80	300	200	200	220	150	150	40	173	170	170	20	18	125	580	580	400
D080-230	7,5	A	4	U	S	80	300	200	200	220	150	150	40	173	170	170	20	18	125	580	580	400
D100-180	2,2	A	4	U	S	100	300	200	200	220	150	150	40	213	210	210	20	18	125	650	650	420
D100-180	4,0	A	4	U	S	100	300	200	200	220	150	150	40	213	210	210	20	18	125	650	650	420
D100-230	5,5	A	4	U	S	100	300	200	200	220	150	150	40	213	210	210	20	18	125	650	650	420
D100-230	7,5	A	4	U	S	100	300	200	200	220	150	150	40	213	210	210	20	18	125	650	650	420
D150-230	2,2	A	4	U	S	150	535	285	285	430	215	215	53	-	206	325	20	18	125	730	730	500
D150-230	4,0	A	4	U	S	150	535	285	285	430	215	215	53	-	206	325	20	18	125	730	730	500
D150-230	5,5	A	4	U	S	150	535	285	285	430	215	215	53	-	206	325	20	18	125	730	730	500

Guide wire arrangement, twin guide rail arrangement

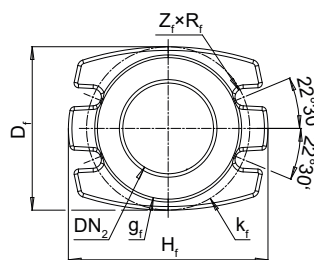
Table 15: Dimensions of guide wire arrangement, twin guide rail arrangement

Nominal discharge nozzle diameter	GW	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	GW9	GW10	TG	TG1	TG2	TG3	TG4	TG5	TG6	TG7	TG8	TG9
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
80	165	50	5	20	12	15	12	60	100	80	10	60,3×3,6	70	55	50	12	12	82	86	80	10
100	165	50	5	20	12	15	12	60	100	80	10	60,3×3,6	70	55	50	12	12	82	86	80	10
150	230	50	5	20	12	15	12	60	100	80	10	60,3×3,6	70	55	50	12	12	140	86	80	10

⁵ Number of holes

Pump flange DN2

DN 80, DN 100



DN 150

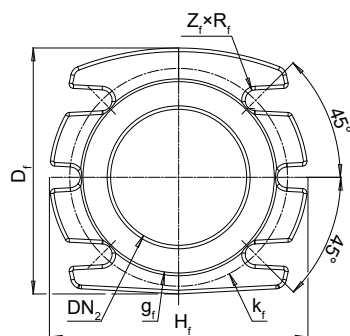


Fig. 5: Dimensions of pump flange DN2 [mm]

Table 16: Dimensions of pump flange DN2

Nominal discharge nozzle diameter	DN ₂	g _{fi}	k _{fi}	D _f	H _f	R _{fi}	Z _f ⁶⁾
		[mm]	[mm]	[mm]	[mm]	[mm]	
80	80	132	160	160	200	9,5	4
100	100	156	180	180	220	9,5	4
150	100	211	240	271	285	11,5	6

⁶⁾ Number of holes

Installation types

Table 17: Installation type S, stationary wet installation

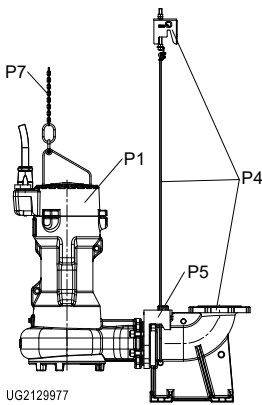
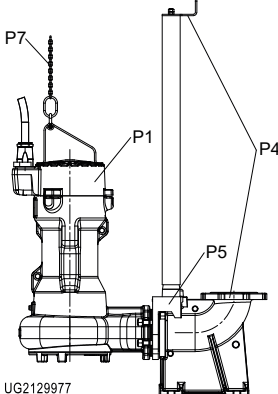
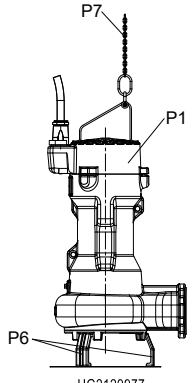
Installation type	Description	Comment
	Guide wire arrangement P1: pump P4: installation parts for guide wire arrangement, installation depth = 4.5 m / 9.5 m / 14.5 m P5: claw P7: chain and shackle	-
	Twin guide rail arrangement P1: pump P4: installation parts for twin guide rail arrangement P5: claw and adapter P7: chain and shackle	Only available for specific sizes, see selection configurator

Table 18: Installation type P, transportable wet-installed model

Installation type	Description	Note
	Transportable wet-installed model P1: pump P6: pump foot P7: chain and shackle	-

Installation information

Suggested installation layouts for transportable pump sets

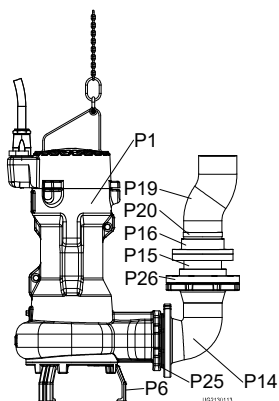


Fig. 6: Installation example 1, sizes 80, 100

Vertical hose connection (quick-action coupling) with plastic hose P19 and hose clip P20

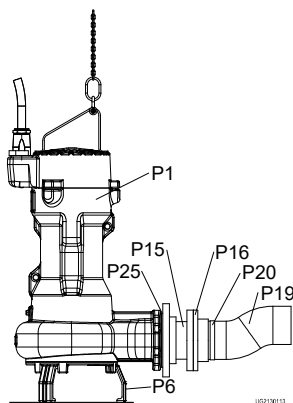


Fig. 7: Installation example 2, sizes 80, 100

Horizontal hose connection (quick-action coupling connection) with plastic hose P19, hose clip P20, Storz hose coupling P16, Storz rigid coupling P15

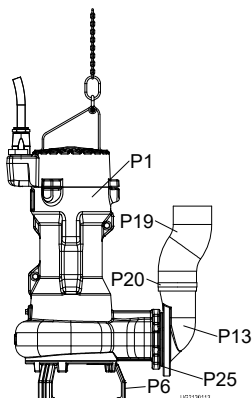


Fig. 8: Installation example 3, sizes 80, 100

Vertical hose connection with plastic hose P19, hose clip P20 and connection elbow P13

Scope of supply

Stationary wet-installed model (installation type S)

- Pump set, complete with power cable
- Claw with sealing elements and fasteners
- Lifting rope / lifting chain⁷⁾
- Mounting bracket with fasteners
- Flanged bend with fastening elements
- Guiding equipment⁸⁾

Transportable wet-installed model (installation type P)

- Pump set, complete with power cable
- Feet (and foot plate, if applicable)
- Lifting rope / lifting chain⁹⁾

⁷ Optional

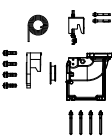
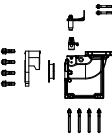
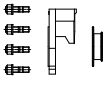
⁸ The guide rails are not included in the scope of supply.

⁹ Optional

Accessories

Installation parts for stationary pump sets

Table 19: Installation parts for stationary pump sets

Item	Description	Size	Sealing element	Installation depth	Mat. No.	[kg]
				[m]		
P4 + P5 	Guide wire arrangement	DN 80	NBR 60	4,5	05018552	29.45
	Installation parts for stationary wet installation Comprising: flanged bend, stainless steel anchor bolts, suspension bracket, mounting bracket, 10 m guide wire, claw with stainless steel screws/bolts	DN 3: DIN ISO	FKM 60	4,5	05018553	29.45
		DN 80	NBR 60	4,5	05028880	27.4
		DN 3: ASME	FKM 60	4,5	05028881	27.4
		DN 80/100	NBR 60	4,5	05018556	28.85
		DN 3: DIN ISO ASME	FKM 60	4,5	05018557	28.85
		DN 100	NBR 60	4,5	05018554	34.63
		DN 3: DIN ISO ASME	FKM 60	4,5	05018555	34.63
		DN 150	NBR 60	4,5	05018558	74.17
		DN 3: DIN ISO ASME	FKM 60	4,5	05018559	74.17
P4 + P5 	Twin guide rail arrangement	DN 80	NBR 60	-	05018645	30.24
	Installation parts for stationary wet installation Comprising: flanged bend, stainless steel anchor bolts, mounting bracket, adapter, claw with stainless steel screws/bolts (guide rails not included in scope of supply)	DN 3: DIN ISO	FKM 60	-	05018646	30.24
		DN 80	NBR 60	-	05028447	28.19
		DN 3: ASME	FKM 60	-	05028448	28.19
		DN 80/100	NBR 60	-	05018649	29.64
		DN 3: DIN ISO ASME	FKM 60	-	05018650	29.64
		DN 100	NBR 60	-	05018647	35.42
		DN 3: DIN ISO ASME	FKM 60	-	05018648	35.42
		DN 150	NBR 60	-	05016943	73.25
		DN 3: DIN ISO ASME	FKM 60	-	05016944	73.25
P5 	Guide wire arrangement, twin guide rail arrangement	DN 80	NBR 60	-	05016792	6.37
			FKM 60	-	05016793	6.37
	Claw made of EN-GJL-250 with stainless steel screws/bolts	DN 100	NBR 60	-	05016796	7
			FKM 60	-	05016797	7.09
		DN 150	NBR 60	-	05016798	13.86
			FKM 60	-	05016799	13.86

Installation parts for transportable pump sets

Table 20: Installation parts for transportable pump sets

Item	Description	Size	Mat. No.	[kg]
P6 	3 pump feet	DN 80 / DN 100	05017148	0.07
P6 	Footplate with bolts (only for uneven mounting surfaces and in combination with feet)	DN 80 / DN 100	05016969	1

Chain for stationary and transportable pump sets

Table 21: Chain for stationary and transportable pump sets

Item	Description	Length	Mat. No.	[kg]
		[m]		
P7 	Chain (1.4404), short-linked, hook (1.4301), shackle (1.4404), maximum load 200 kg	3	05018487	0.94
		5	05018489	2.45
		10	05018511	4.55
		15	05018513	6.76
- 	Polypropylene lifting rope with shackle 1.4401 and hook 1.4571	5	05018517	2.24

Pump accessories
Table 22: Accessories for stationary and transportable pump sets

Item	Description	Connection	Length	AmaRex Pro		Mat. No.	[kg]
			[m]	80	100		
P13 	Connection elbow with flange/hose connection made of EN-GJL-250, grey cast iron PN 16, DIN 2501, including joint ring and hose clip; for DN 100 also with fixing bolts, to be used for flange connections item 25 / item 26 (not for DN 100).	DN 80/B 75	-	✗	-	19131746	6.6
		DN 100/A 110	-	-	✗	19139718	10
P14 	Connection elbow with flanges PN 16, DIN 2501 (to be used for flange connections item 25 or item 26), grey cast iron	DN 80/80	-	✗	-	11150856	10
		DN 100/100	-	-	✗	25145802	14.4
P15 	Storz rigid coupling	DN 80/B 75	-	✗	-	18072642	3.5
		DN 100/A 110	-	-	✗	18060162	5
P16 	Storz hose coupling 2 hose clips, item 20, are required for hose mounting (for plastic hoses B 75 and A 110, item 19)	B 75 (DIN 14322)	-	✗	-	00520454	0.7
		A 110 (DIN 14323)	-	-	✗	00522313	1.5
P19 	Plastic hose without coupling, DIN 14 811 B 75	-	5	✗	-	39019064	2
		-	10	✗	-	39019065	4
		-	20	✗	-	39019066	8
		-	30	✗	-	39019071	12
	Plastic hose without coupling, DIN 14 811 80	-	5	✗	-	39018691	2.2
		-	10	✗	-	39019062	4.3
	Plastic hose without coupling, DIN 14 811 A 110	-	5	-	✗	39019067	4.7
		-	10	-	✗	39019068	9.3
		-	30	-	✗	39019070	27.9
		-	-	-	-	-	-
P20 	Hose clip DIN 3017, chrome steel	B 75	-	✗	-	00109515	0,04
		AL 110 - 120 B ¹⁰⁾	-	-	✗	00520853	0.1
P23 	Check valve, grey cast iron, full bore, lifting device, flanges drilled to DIN 2501, PN 16	DN 80	-	✗	-	48829254	16.5
		DN 100	-	-	✗	48829255	20.9
P24 	COBRA-SGP with flat body, grey cast iron, PN 16, flanges drilled to ISO 7005/DIN 2501	DN 80	-	✗	-	48229954	19.5
		DN 100	-	-	✗	48229955	26.8
P25 	Set of installation accessories for a flange connection, discharge nozzle; item 13, 14 or 15 Consisting of: 4 hexagon head bolts with nuts and 1 sealing element	-	-	✗	-	19551100	0.8
				-	✗	19551113	0.8

¹⁰⁾ 2 pcs. required

Item	Description	Connection	Length	AmaRex Pro		Mat. No.	[kg]
			[m]	80	100		
P26 	Set of installation accessories for a flange connection Consisting of: 8 hexagon head bolts with nuts and 1 sealing element	-	-	X	-	19551114	0.8
				-	X	19551116	0.8
P28 	Hand pump, wall mounting, grey cast iron, suction-side connection Rp 1 1/2	-	-	X	X	00520485	12

Alarm switchgears for pumps, non-ATEX-compliant
Table 23: AS 0/AS 1/AS 2/AS 4/AS 5

Item	Description	Mat. No.	[kg]
E50 	Alarm switchgear AS 0 With circuit breaker, acoustic signalling device with 85 dB(A), green equipment-on lamp Plastic housing, IP20, H x W x D = 140 x 80 x 57 [mm]. Use float switch, F1 leakage sensor (item E64), M1 alarm contactor or signal relay of control unit as contactor.	29128401	0.5
E51 	Alarm switchgear AS 2 With circuit breaker, acoustic signalling device with 85 dB(A), green equipment-on lamp, volt-free contact for hook-up to a control station Plastic housing, IP20, H x W x D = 140 x 80 x 57 [mm]. Use float switch, F1 leakage sensor (item E64) or signal relay of control unit as contactor.	29128422	0.5
E52 	Alarm switchgear AS 4 With circuit breaker, acoustic signalling device with 85 dB(A), green equipment-on lamp, volt-free contact for hook-up to a control station, self-charging power supply unit for 5 hours of operation in the event of a power failure Plastic housing, IP20, H x W x D = 140 x 80 x 57 [mm]. Use float switch (E60), F1 leakage sensor (item E64) or signal relay of control unit as contactor.	29128442	0.5
E53 	Alarm switchgear AS 5 Mains-independent, with self-charging power supply unit for 10 hours of operation in the event of a power failure, mains pilot LED, fault indicator light, acknowledgement button, volt-free contact for hook-up to a control station, ready for connection with 1.8 m power cable and plug. ISO housing, IP41, H x W x D = 190 x 165 x 75 [mm]. Use float switch (E60) or signal relay of control unit as contactor.	00530561	1.7
E55 	Alarm switchgear AS 1 In IP30 ISO plug housing, mains-independent, with self-charging power supply unit for 5 hours of operation in the event of a power failure, acoustic signalling device 70 dB(A) with circuit breaker and integrated signal transmitter with 3-metre power cable, max. 60 °C, not suitable for steam and condensate. 1. High water alert by suspending the sensor in a (pump) sump above the pump start-up point. 2. Water alert signal at a water level of only 1 mm by placing the sensor on the floor in areas with a flooding or leakage risk, e.g. the cellar or next to the washing machine in the kitchen or bathroom.	00533740	0.9

Accessories for non-ATEX-compliant control units
Table 24: Accessories for non-ATEX-compliant control units

Item	Description	Length	Mat. No.	[kg]
		[m]		
	Float switch with free cable end Function: circuit closed in upper float position (NO contact) Float switch housing: polypropylene Fluid temperature: ≤ 70 °C Power cable: H07RN-F3G1	3	11037742	0.5
		5	11037743	0.8
		10	11037744	1.3
		15	11037745	1.8
		20	11037746	2.52
		25	11037747	2.9
		30	11037748	3.4
	F1 leakage sensor contactor for alarm switchgears AS 0, AS 2, AS 4 or as alarm transmitter for Level-Control Basic 2 Alarm transmission options: High water alert by suspending the sensor in a (pump) sump above the pump start-up point. Warning at a water level of 1 mm in areas with a flooding or leakage risk (e.g. in the cellar or next to the washing machine in the kitchen or bathroom) Dimensions [mm]: 52 × 21 × 20 (H × W × D)	3 m	19072366	0.2
	Horn, 12 V DC, 105 dB, 150 mA, IP54	-	01086547	0.1
	Alarm combination, 12 V DC	-	01139930	0.1
	Yellow alarm strobe light, 12 V DC, 195 mA, IP65	-	01056355	0.3
	Plastic housing, IP65, for easier installation of alarm strobe light, for wall mounting	-	01061067	0.2
	KSB ServiceTool	-	47121210	0.2
	Parameterisation cable with USB connection for connecting the KSB ServiceTool	1,8	05279586	0.4
	Transmission module for installation in the higher-level control system, as a service interface for connecting the communication lines of the power cable	-	05274790	0.04

General assembly drawings with list of components

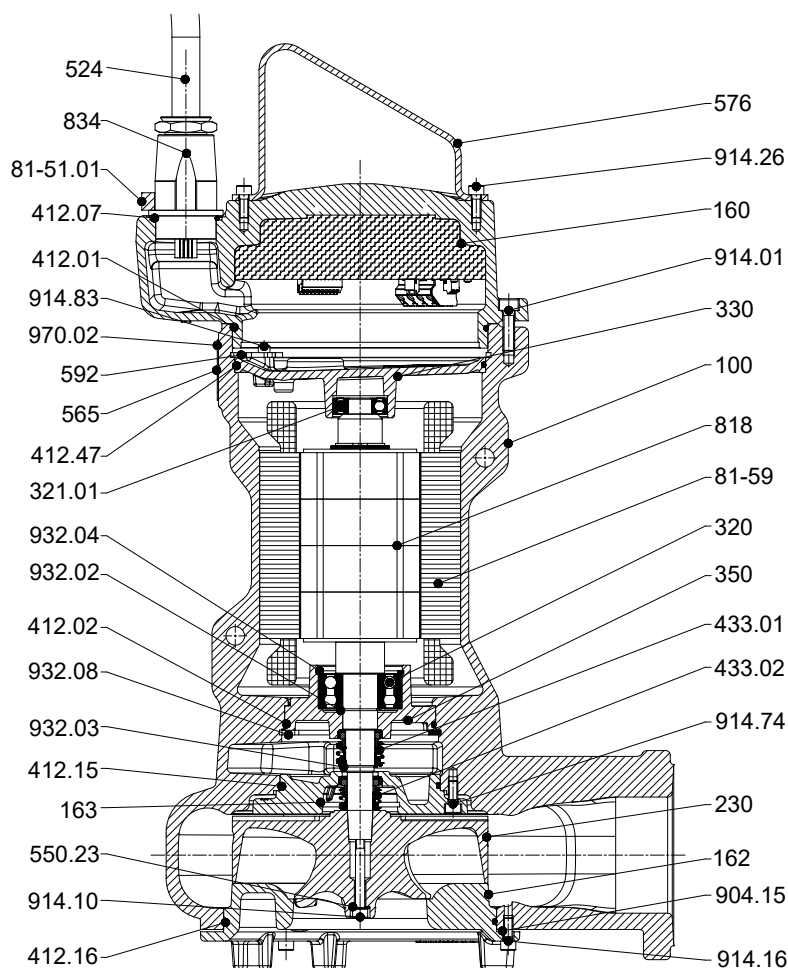


Fig. 9: General assembly drawing

Table 25: List of components

Part No.	Description	Part No.	Description
100	Casing	550.23	Disc
160	Cover	565	Rivet
162	Suction cover	576	Handle
163	Discharge cover	592	Plug
230	Impeller	81-51.01	Clamping element
320	Rolling element bearing	81-59	Stator
321.01	Radial ball bearing	818	Rotor
330	Bearing bracket	834	Cable gland
350	Bearing housing	904.15	Grub screw
412.01/.02/.07/.15/.16/.47	O-ring	914.01/.10/.16/.26/.74/.83	Hexagon socket head cap screw
433.01/.02	Mechanical seal	932.02/.03/.04/.08	Circlip
524	Shaft protecting sleeve	970.02	Label/plate

Glossary

Grey water

Faecal-free waste water

IE5

Efficiency class for rotating electrical machinery to IEC TS 60034-30-2:2016 = Ultra Premium Efficiency (IE = International Efficiency)

Mat. No.

This identification number is composed of an 8-digit numerical code that uniquely identifies a product entered in SAP.



LENNTECH
WATER TREATMENT SOLUTIONS

info@lennotech.com Tel. +31-152-610-900
www.lennotech.com Fax. +31-152-616-289