DL/ DLF Series

VERTICAL-MULTI-STAGES PUMP

DL(HT 200 / ASTM80-55-06)

DLF(AISI 304 / AISI 316)

OPERATING CONDITIONS

- Low viscosity, non-inflammable and non-explosive liquids not containing solid particles or fibers. The liquids must not chemically attack the pump materials. When pumping liquids with a density or viscosity is higher than that of water, a motor with a higher output power rating shall be used.
- Liquid temperature:-20°C~+120°C
- Flow ranges: 0.7-240 m^3/h
- Liquid pH value:4-10
- Max. ambient temperature: +40°C
- Max. operation pressure: 33 bare
- Altitude: up to 1000 m

MOTOR

- IE1 motor (IE2/IE3 motor optional)
- Totally enclosed & fan-cooled
- Protection class: Ip55
- Standard voltage:50Hz:1x220-230/240V
  3x200-220/346-380V
  3x220-240/380-415V
  3 x380-415V

IDENTIFICATIONS CODES

- DL : Cast iron base & pump cover
- DLF : Stainless steel wetted parts
- A: Oval flange; K: Clamp connector;
- G:Threaded connector

IDENTIFICATION CODES

DL F 1 s

- S small impeller
- 1 Rated flow (m^3/h)
- F (Common type omitted) Flow passage components are of stainless steel AISI304 or 3161
- DL Light vertical multistage centrifugal pump

DL/ DLF1,2,3,4,5,8,10,12,15 and 20

DL F 8 – 2

- Stage
- Rated flow (m^3/h)
- (Common type omitted) Flow passage components are of stainless steel AISI304 or 316L
- Light vertical multistage centrifugal pump

DL/ DLF32,42,45,65,85,95,125 and 150

DL F 32 – 30 / 2

- Number of small impeller
- Stage X10
- Rated flow (m^3/h)
- (Common type omitted) Flow passage components are of stainless steel AISI304 or 316L
- Light vertical multistage centrifugal pump

DL / DLF200

DL F 200 – 30 – 2A – B

- One small impeller B
- Two small impellers A
- Stage X10
- Rated flow (m^3/h)
- (Common type omitted) Flow passage components are of stainless steel AISI304 or 316L
- Light vertical multistage centrifugal pump

APPLICATION

Application	YDL	YDLF
Water supply		
Filtration and transmission of water supply system	●	○
Distribution of water supply system	●	○
Pressurization in water supply trunks	●	○
Pressurization in high-rise buildings, hotels and other buildings	●	○
Pressurization of industrial water	●	○
Industry		
Pressurization of Water		
Process water system	●	●
* Washing and cleaning system	●	●
Car wash tunnel	●	○
Fire fighting system	●	-
Liquid transfer System		
Cooling and air conditioning systems (refrigerants)	●	○
Boiler feed and condensing systems	●	○
Machine tools (cooling lubricants)	●	●
Aquaculture	●	○
Special liquid transfer work		
Oils and alcohols	●	●
Acids and Bases	-	●
Glycols and coolants	●	-
Water treatment		
Ultrafiltration	-	●
Reverse systems	-	●
Softening, ionization, demineralization systems	-	●
Distillation system	-	●
Separator	●	●
Swimming pools	-	●
Irrigation		
Farmland irrigation (flood irrigation) sprinkler	●	○
Irrigation	●	○
Drip irrigation	●	○

● Recommended version.

○ Optional version.

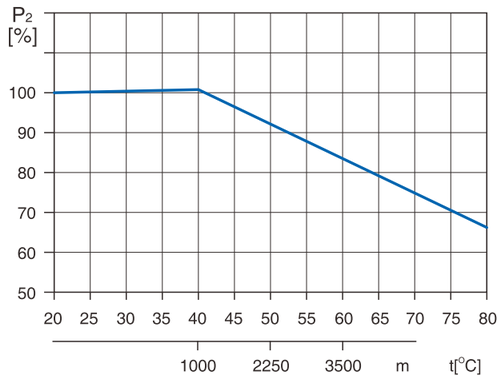
* For applications involving CIP (cleaning in place) and motors greater than 55 kW, a bearing flange and a base without thrust balancing device or flange must be used. For more information please contact our sales

DL/ DLF Series

VERTICAL-MULTI-STAGES PUMP

AMBIENT TEMPERATURE

- Max. ambient temperature: +40°C. Ambient temperature above 40°C or installation at altitude of more than 1000 meters above sea level require the use of an oversize motor. Because of low air density and poor cooling effects, the motor output power P2 will be decreased. See the picture.
- In such cases, it may be necessary to use a motor with a highe!output power rating.



For example, when the pump is installed at altitude of more than 3500 meters above sea level, P2 will be decreased to 88%.When the ambient temperature is 70°C, P2 will be decreased to 78%.

MINIMUM INLET PRESSURE-NPSH

Calculation of the inlet pressure “H" is recommended in thesesituations:
The liquid temperature is high.
The flow is significantly higher than the rated flow.
Water is drawn from depths.
Water is drawn through long pipes.
Inlet conditions are poor.

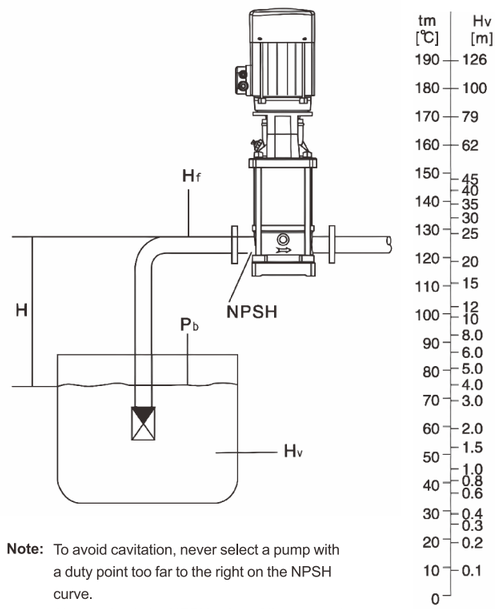
MAXIMUM INLET PRESSURE

The following table shows the maximum permissible inlet pressure. However, the current inlet pressure + the pressure against a closed valve must always be lower than the Max. permissible operating pressure.
If the maximum permissible operating pressure is exceeded, the bearing in the motor may be damaged and the life of the shaft seal reduced.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift “H" in meters head can be calculated as follows:

H	= P_b x 10.2-NPSH-H_f-H_v-H_s
P_b	= Barometric pressure in bar. (Barometric pressure can be set to 1 bar). In closed systems, P_b indicates the system pressure in bar.
NPSH	= Net Positive Suction Head in meters head. (To be read from the NPSH curve at the highest flow the pump will be delivering.)
H_f	= Friction loss in suction pipe in meters head. (At the highest flow the pump will be delivering.)
H_v	= Vapor pressure in meters head. (To be read from the vapor pressure scale. “H_v" depends on the liquid temperature “tm”)
H_s	= Safety margin=minimum 0.5 meters head.

If the “H” calculated is positive, the pump can operate at a suction lift of maximum “H" meters head.
If the “H" calculated is negative, an inlet pressure of minimum“H” meters head is required.



Note: To avoid cavitation, never select a pump with a duty point too far to the right on the NPSH curve.
Always check the NPSH value of the pump at the highest possible flow.

DAVE-PUMP

PRODUCT RANGE

MODEL / DESCRIPTION	DL(F) 1s	DL(F) 1	DL(F) 2	DL(F) 3	DL(F) 4	DL(F) 5	DL(F) 8	DL(F) 10	DL(F) 12	DL(F) 15	DL(F) 20
Rated flow [m³/h]	0.8	1	2	3	4	5	8	10	12	15	20
Flow range [m³/h]	0.3-1.1	0.7-2.4	1.0-3.5	1.2-4.5	1.5-8	2.5-8.5	5-12	5-13	7-16	8-23	10.5-29
Max.pressure [bar]	20	22	23	24	21	24	21	22	22	23	25
Motor power [kW]	0.37-1.1	0.37-2.2	0.37-3	0.37-3	0.37-4	0.37-4	0.75-7.5	1.1-7.5	1.9-4.4	1.1-15	1.1-18.5
Temperature Range [℃]	-20℃~+120℃ (Note: Both the Max. permissible pressure and liquid temperature range refer to the pump capacity.)										
Max.pump efficiency [%]	33	45	46	55	59	60	62	65	63	70	72
Pipe connection-YDL											
Oval flange [developing]	Rp1"	Rp1"	Rp1"	Rp1"	Rp1¼"	Rp1¼"	Rp1½"	Rp1½"	Rp1½"	Rp2"	Rp2"
DIN flange	DN25	DN25	DN25	DN25	DN32	DN32	DN40	DN40	DN50	DN50	DN50
Pipe connection-YDLF											
Oval flange	—	—	—	—	—	—	—	—	—	—	—
DIN flange	DN32	DN32	DN32	DN32	DN32	DN32	DN40	DN40	DN50	DN50	DN50
Clamp connector	Φ42	Φ42	Φ42	Φ42	Φ42	Φ42	Φ60	Φ60	Φ60	Φ60	Φ60
Threaded connector	ZG1¼	ZG1¼	ZG1¼	ZG1¼	ZG1¼	ZG1¼	ZG2	ZG2	ZG2	ZG2	ZG2
YDL EN 10088 1.4301≈AISI 304	●	●	●	●	●	●	●	●	●	●	●
YDLF EN 10088 1.4301≈AISI 304/316	●	●	●	●	●	●	●	●	●	●	●

MODEL / DESCRIPTION	DL(F) 32	DL(F) 42	DL(F) 45	DL(F) 65	DL(F) 85	DL(F) 95	DL(F) 120	DL(F) 125	DL(F) 150	DL(F) 155	DL(F) 200
Rated flow [m³/h]	32	42	45	64	85	95	120	125	150	155	200
Flow range [m³/h]	15-40	25-55	22-58	30-85	50-110	45-120	60-150	60-160	80-180	75-200	100-240
Max.pressure [bar]	28	30	33	22	17	20	16	16	16	16	16
Motor power [kW]	1.5-30	3-45	3-45	4-45	5.5-45	5.5-45	11-110	11-110	11-110	11-110	18.5-110
Temperature Range [℃]	-20℃~+120℃ (Note: Both the Max. permissible pressure and liquid temperature range refer to the pump capacity.)										
Max.pump efficiency [%]	78	75	79	80	80	81	81	82	82	82	79
Pipe connection- DL											
Oval flange [developing]	—	—	—	—	—	—	—	—	—	—	—
DIN flange	DN65	DN80	DN80	DN100	DN100	DN100	DN125	DN150	DN150	DN150	DN150
Pipe connection-DLF											
Oval flange	—	—	—	—	—	—	—	—	—	—	—
DIN flange	DN65	DN80	DN80	DN100	DN100	DN100	DN125	DN150	DN150	DN150	DN150
Clamp connector	—	—	—	—	—	—	—	—	—	—	—
Threaded connector	—	—	—	—	—	—	—	—	—	—	—
DL EN 10088 1.4301≈AISI 304	●	●	●	●	●	●	●	●	●	●	●
DLF EN 10088 1.4401≈AISI 316/304	●	●	●	●	●	●	●	●	●	●	●

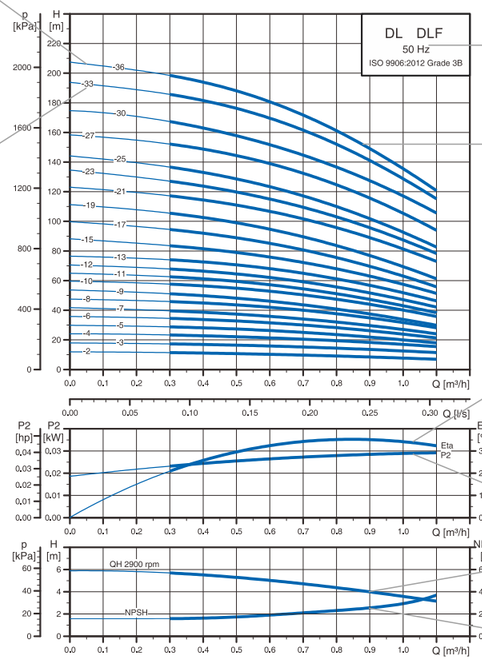
DL/DLF Series

VERTICAL-MULTI-STAGES PUMP

HOW TO READ THE CURVE CHARTS

The thin curves indicate the duty range where long-time operation is not allowed

Number of Stages



Pump type, frequency and ISO standard.

The bold curves indicate the duty range where long-time operation is permitted for best efficiency

The efficiency curve

The output power curves of single impeller

The Q-H curve of single impeller

The NPSH curve

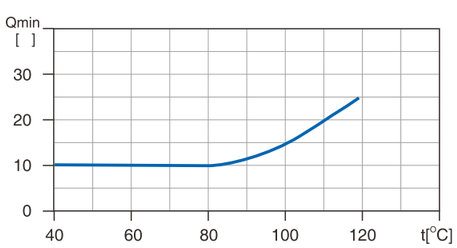
GUIDELINES TO PERFORMANCE CURVES

Tolerances to ISO 9906, Annex A.
Measurements have been made with airless water at a temperature of 20°C and kinematic viscosity of 1mm'/s.To avoid overheating of the motor, the pump should not be use against a high head for a long time.

MINIMUM FLOW RATE

Due to the risk of overheating, the pump should not be used at a flow below the minimum flow rate. The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature.

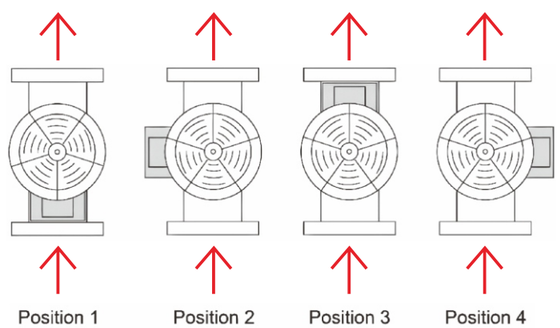
Air cooling apparatus



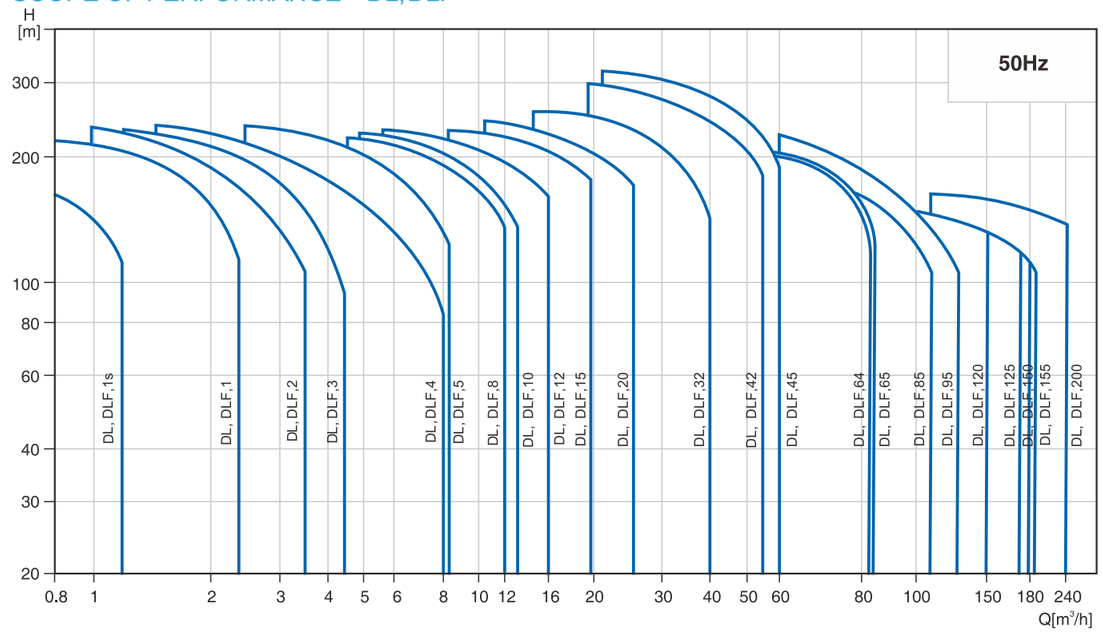
Note: The outlet valve must be opened when the pump is in operation.

TERMINAL BOX POSITIONS

(Note: set to position 1 before delivery)



SCOPE OF PERFORMANCE- DL, DLF



OPERATING RANGE OF SHAFT SEALS

The operating range of the shaft seal depends on the operating pressure, pump type, shaft seal type and liquid temperature. The ranges shown in the following diagram apply to clean water and water with antifreeze

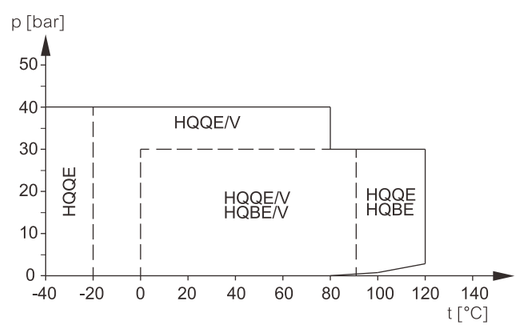
Note that if you use demineralized water with a conductivity below 2 uS/cm with a SiC/SiC shaft seal, there is an increased risk of galvanic corrosion. We recommend that you use SiC/Carbon or SiC/Tungsten Carbide shaft seals.

Operating range of standard shaft seals DL, DLF,1s-155

Standard shaft seal	Motor power [kW]	Describe	Liquid temperature [°C]
HQQE	0.37 - 55	O-ring (box type) (balanced seal), Silicon Carbide/Silicon Carbide, EPDM	-40 to +120
HQQV		O-ring (box type) (balanced seal), Silicon Carbide/Silicon Carbide, FKM	-20 to +90
HQBE		O-ring (box type) (balanced seal), Silicon Carbide/Carbon, EPDM	0 to 120
HQBV		O-ring (box type) (balanced seal), Silicon Carbide/Carbon, FKM	0 to 90

Shaft seal for Ø28 (75-110 kW) shaft end

Standard shaft seal	Motor power [kW]	Describe	Liquid temperature [°C]
HQQE	75-110	O-ring (box type) (balanced seal), Silicon Carbide/Silicon Carbide, EPDM	-40 to +120
HQQV		O-ring (box type) (balanced seal), Silicon Carbide/Silicon Carbide, FKM	-20 to +90
HQBE		O-ring (box type) (balanced seal), Silicon Carbide/Carbon, EPDM	0 to 120
HQBV		O-ring (box type) (balanced seal), Silicon Carbide/Carbon, FKM	0 to 90

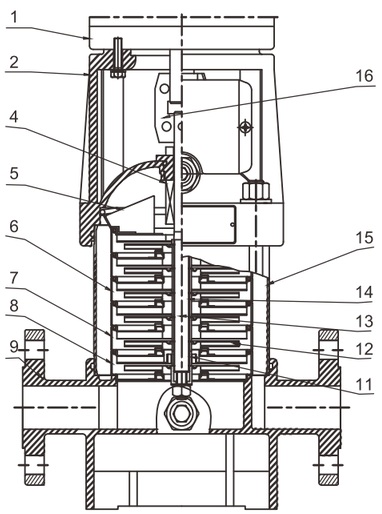


1. Code Analysis
H: stands for Spring, which is usually a spring-loaded seal to ensure that the seal fits tightly to the shaft surface.
Q: stands for Graphite, which usually refers to the friction pair or sealing surface of the seal using graphite-filled PTFE (polytetrafluoroethylene) material. Graphite-filled PTFE has excellent chemical resistance and low friction coefficient.
B: stands for Silicon Carbide, which is an extremely hard and wear-resistant material, usually used for the dynamic and static rings of seals.
E: stands for Ethylene Propylene Rubber (EPDM), an elastomer commonly used in seals, with good chemical resistance and heat resistance, usually used in hot water or steam environments.
V: stands for Fluor rubber (Viton? or FKM), an elastomer material with extremely high chemical resistance and high temperature resistance, widely used in chemical, petrochemical and other fields.

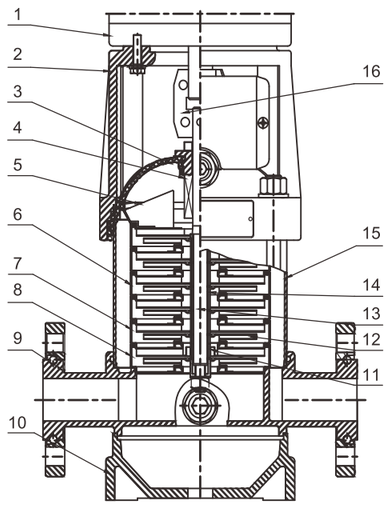
DL/DLF Series

VERTICAL-MULTI-STAGES PUMP

SECTION DRAWING DLF, DLN 1,2,3,4



DL



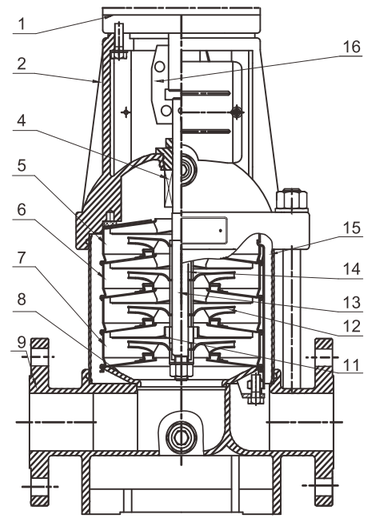
DLF

MATERIAL DLF, DLN 1,2,3,4

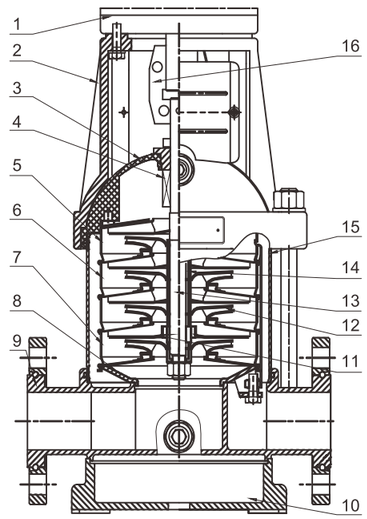
NO.	Name	Material	AISI/ASTM
1	Motor		
2	Pump head	Cast iron	HT200
4	Mechanical seal		
5	Top diffuser	Stainless steel	AISI304
6	Diffuser	Stainless steel	AISI304
7	Support diffuser	Stainless steel	AISI304
8	Inducer	Stainless steel	AISI304
11	Bearing	Tungsten carbide	AISI304
12	Impeller	Stainless steel	AISI304
13	Shaft	Stainless steel	AISI304 AISI316L

NO.	Name	Material	AISI/ASTM
14	Impeller sleeve	Stainless steel	AISI304
15	Cylinder	Stainless stee]	AISI304
16	Coupling	Carbon steel	
	DLF		
3	Seal base	Stainless steel	AISI304
9	Inlet and outlet chamber	Stainless steel	AISI304
10	Base plate	Cast iron	HT200
	DL		
9	Inlet and outlet chamber	Cast iron	HT200

SECTION DRAWING DLF, DLN 8,10,12,15,20



DL



DLF

MATERIAL DLF, DLN 8,10,12,15,20

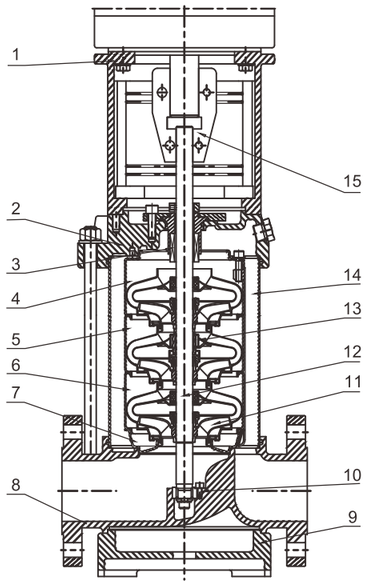
NO.	Name	Material	AISI/ASTM
1	Motor		
2	Pump head	Cast iron	HT200
4	Mechanical seal		
5	Top diffuser	Stainless steel	AISI304
6	Diffuser	Stainless steel	AISI304
7	Support diffuser	Stainless steel	AISI304
8	Inducer	Stainless steel	AISI304
11	Bearing	Tungsten carbide	
12	Impeller	Stainless steel	AISI304
13	Shaft	Stainless steel	AISI304 AISI316L

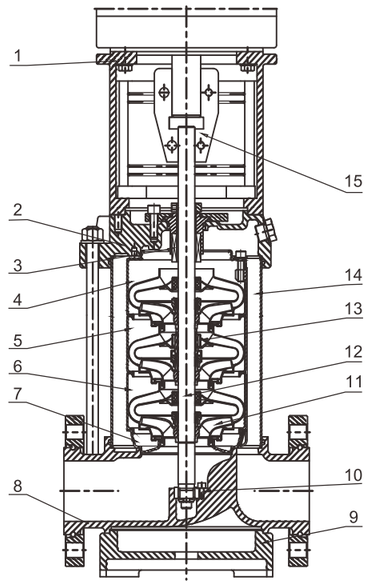
NO.	Name	Material	AISI/ASTM
14	Impeller sleeve	Stainless steel	AISI304
15	Cylinder	Stainless stee]	AISI304
16	Coupling	Carbon steel	
	DLF		
3	Seal base	Stainless steel	AISI304
9	Inlet and outlet chamber	Stainless steel	AISI304
10	Base plate	Cast iron	HT200
	DL		
9	Inlet and outlet chamber	Cast iron	HT200

DL/DLF Series

VERTICAL-MULTI-STAGES PUMP

SECTION DRAWING DLF,DLN 32,42,65,85





MATERIAL DLF, DLN 32,42,65,85

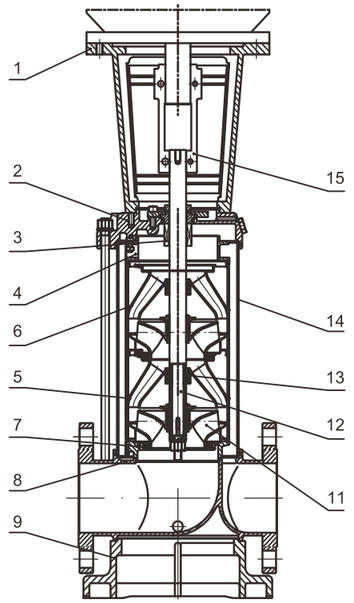
DL

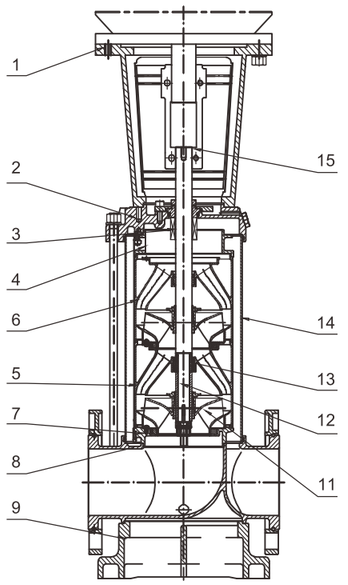
NO.	Name	Material	AISI/ASTM
1	Bracket	Cast iron	HT200
3	Mechanical seal		
4	Top diffuser	Stainless steel	AISI304
5	Support diffuser	Stainless steel	AISI304
6	Diffuser	Stainless steel	AISI304
7	Inducer	Stainless steel	AISI304
9	Base plate	Cast iron	HT200
10	Bottom bearing	Tungsten carbide	
11	Impeller	Stainless steel	AISI304

DLF

NO.	Name	Material	AISI/ASTM
12	Shaft	Stainless steel	AISI316L AISI304 AISI431
13	Intermediate bearing	Tungsten carbidc	
14	Cylinder	Stainless steel	AISI304
15	Coupling	Carbon steel	
	Rubber parts	NBR	
	DL		
2	Pump head	Cast iron	HT200
8	Inlet and outlet chamber	Cast iron	HT200
	DLF		
2	Pump head	Stainless steel	AISI304
8	Inlet and outlet chamber	Stainless steel	AISI304

SECTION DRAWING DLF, DLN 120,150,200





MATERIAL DLF, DLN 120,150,200

DL

NO.	Name	Material	AISI/ASTM
1	Bracket	Cast iron	HT200
3	Mechanical seal		
4	Discharge	Stainless steel	AISI304
5	Support diffuser	Stainless steel	AISI304
6	Diffuser	Stainless steel	AISI304
7	Inducer	Stainless steel	AISI304
9	Base plate	Cast iron	ASTM 80-55-06
11	Impeller	Stainless steel	AISI304
12	Shaft	Stainless steel	AISI304

DLF

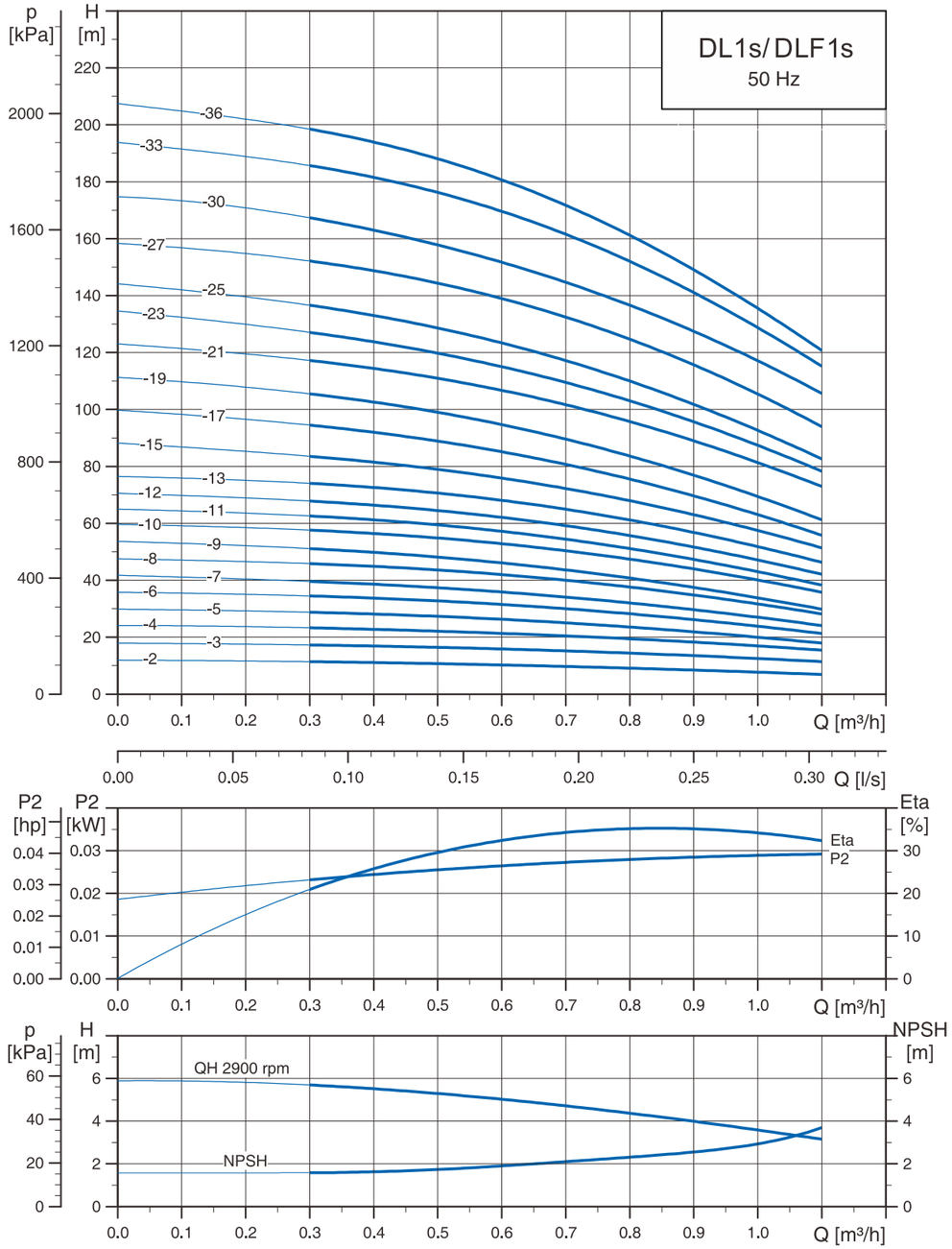
NO.	Name	Material	AISI/ASTM
13	Bearing	Tungsten carbide	
14	Cylinder	Stainless steel	AISI304
15	Coupling	Carbon steel	
	Rubber parts	NBR	
	DL		
2	Pump head	Cast iron	ASTM 80-55-06
8	Inlet and outlet chamber	Cast iron	ASTM 80-55-06
	DLF		
2	Pump head	Stainless steel	AISI304
8	Inlet and outlet chamber	Stainless steel	AISI304

DL/DLF Series

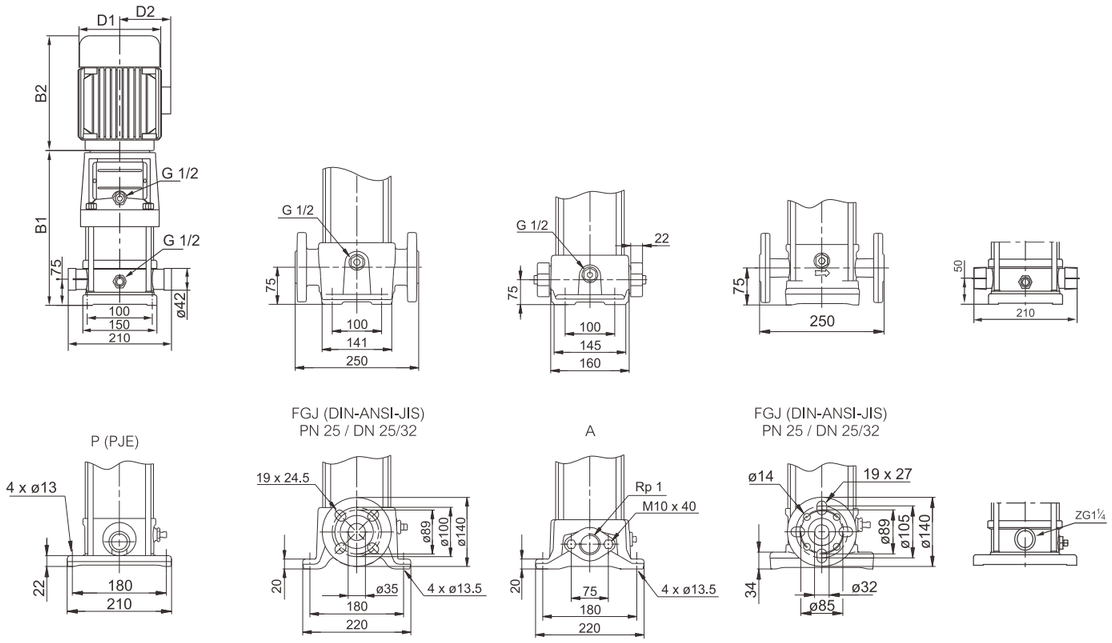
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL1s/ DLF1s



DIMENSION DRAWING



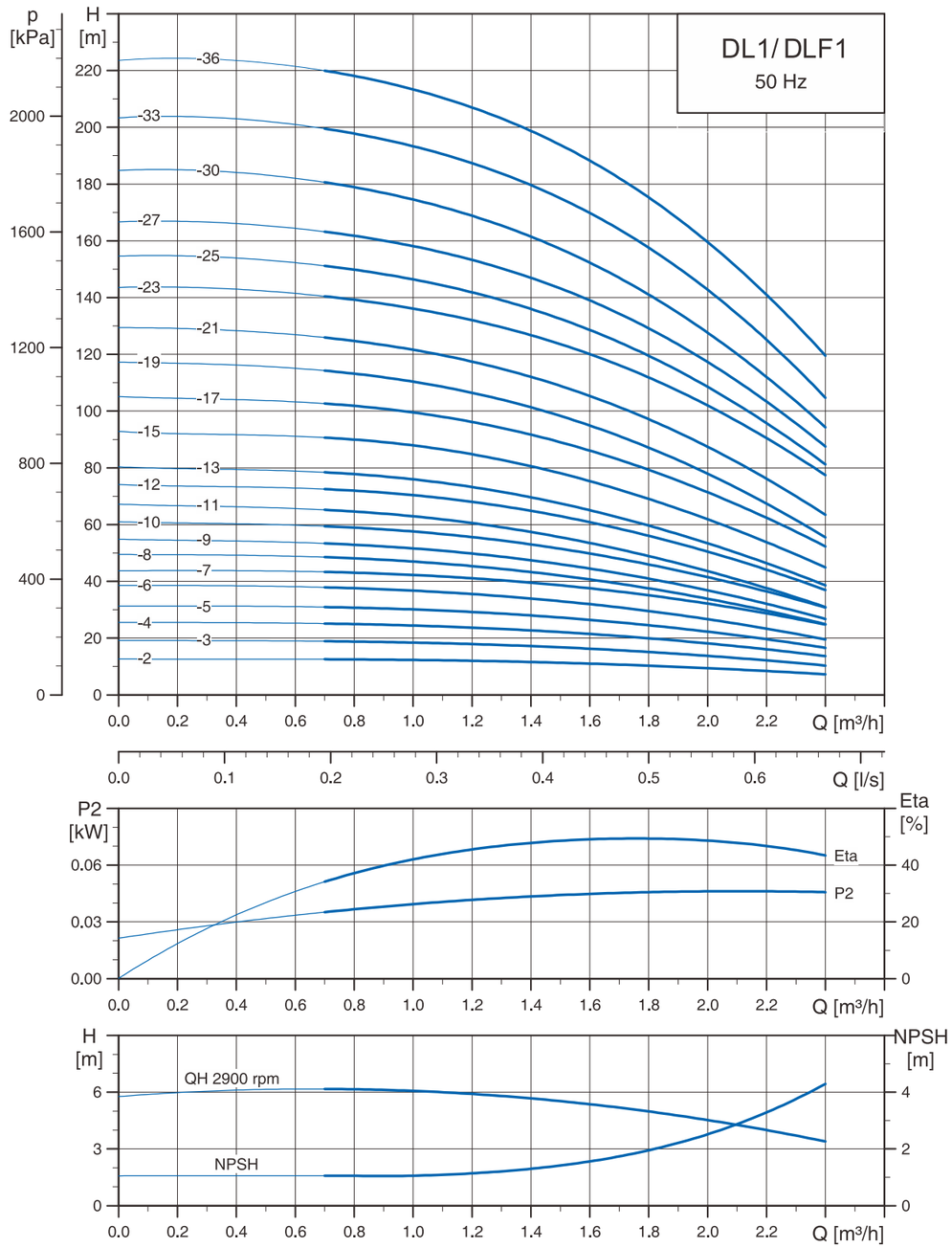
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL 1s-2	0.37	254	445	279	470	141	109	18	23
DL 1s-3	0.37	254	445	279	470	141	109	18	23
DL 1s-4	0.37	272	463	297	488	141	109	19	23
DL 1s-5	0.37	290	481	315	506	141	109	19	24
DL 1s-6	0.37	308	499	333	524	141	109	19	24
DL 1s-7	0.37	326	517	351	542	141	109	20	24
DL 1s-8	0.37	344	535	369	560	141	109	20	25
DL 1s-9	0.37	362	553	387	578	141	109	21	25
DL 1s-10	0.37	380	571	405	596	141	109	21	26
DL 1s-11	0.37	398	589	423	614	141	109	21	26
DL 1s-12	0.37	416	607	441	632	141	109	22	26
DL 1s-13	0.37	434	625	459	650	141	109	22	27
DL 1s-15	0.55	470	661	495	686	141	109	24	28
DL 1s-17	0.55	506	697	531	722	141	109	25	29
DL 1s-19	0.55	542	733	567	758	141	109	25	30
DL 1s-21	0.75	584	815	609	840	141	109	28	32
DL 1s-23	0.75	620	851	645	876	141	109	29	33
DL 1s-25	0.75	656	887	681	912	141	109	29	34
DL 1s-27	1.10	692	943	717	968	141	109	32	37
DL 1s-30	1.10	—	—	771	1022	141	109	—	38
DL 1s-33	1.10	—	—	825	1076	141	109	—	39
DL 1s-36	1.10	—	—	879	1130	141	109	—	41

DL/DLF Series

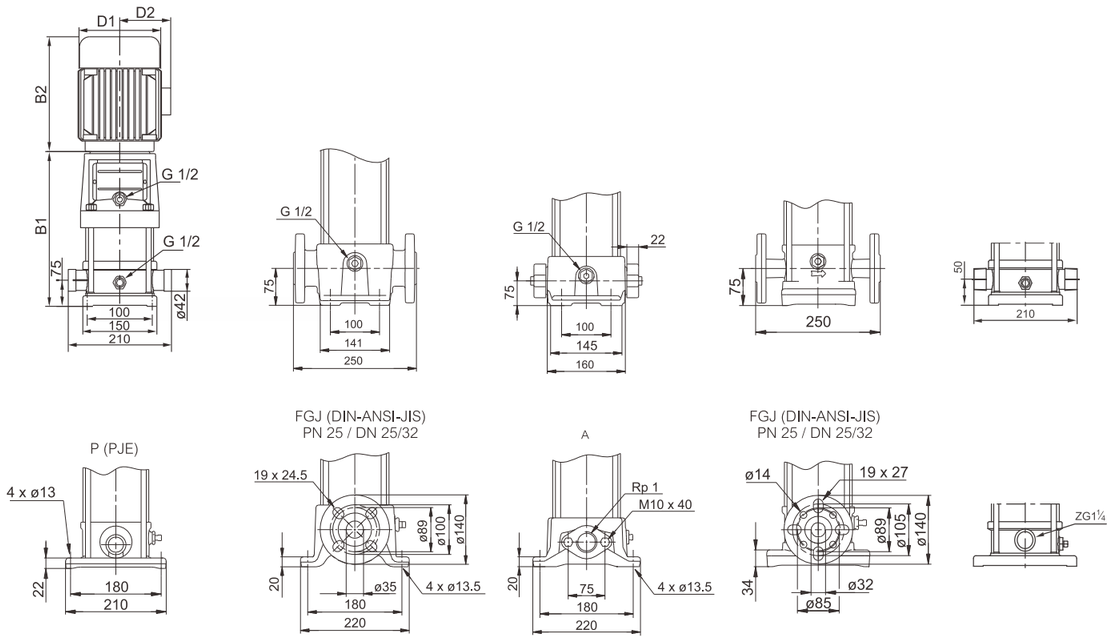
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL1/ DLF1



DIMENSION DRAWING



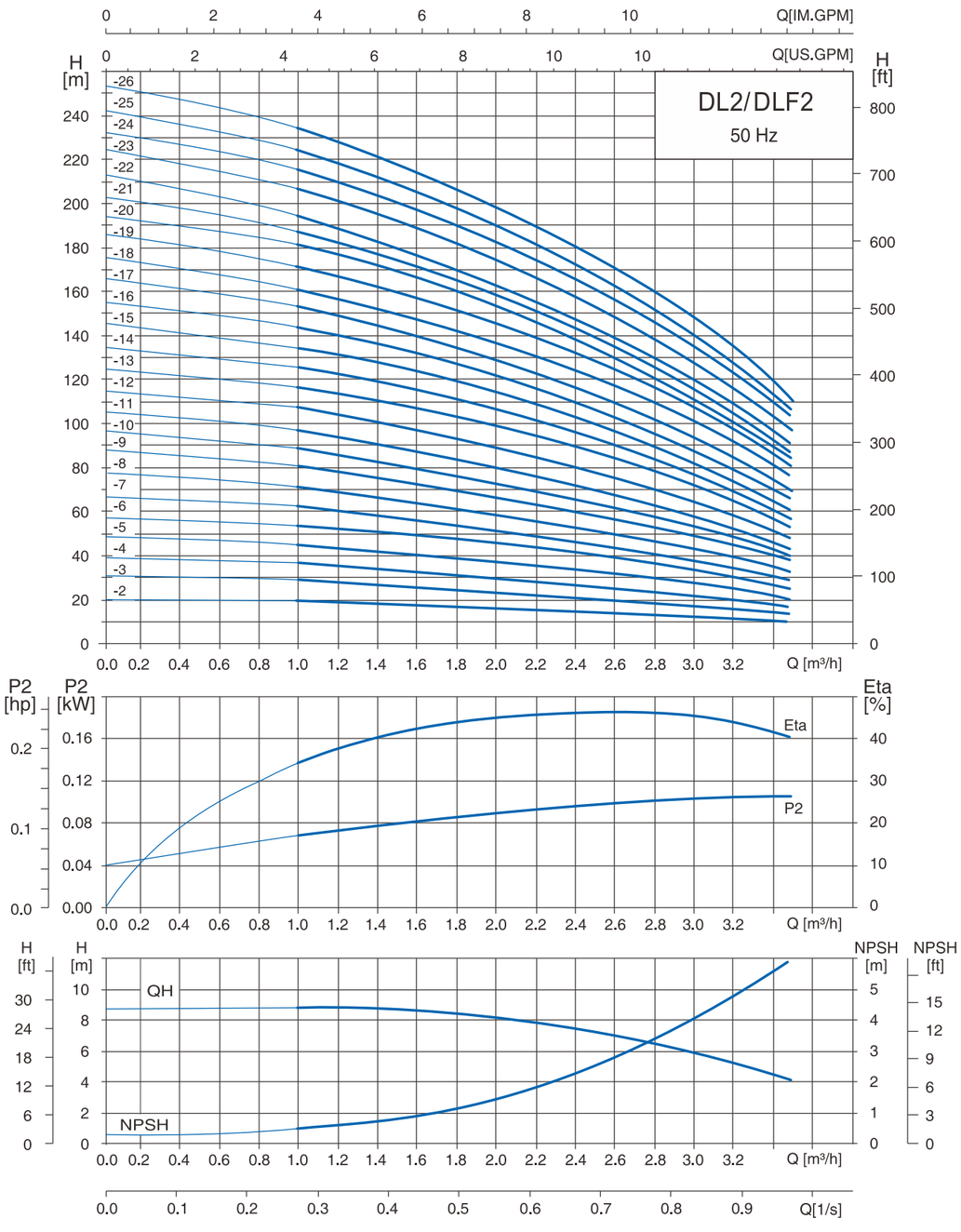
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL 1-2	0.37	254	445	279	470	141	109	18	23
DL 1-3	0.37	254	445	279	470	141	109	18	23
DL 1-4	0.37	272	463	297	488	141	109	19	23
DL 1-5	0.37	290	481	315	506	141	109	19	24
DL1-6	0.37	308	499	333	524	141	109	20	24
DL 1-7	0.37	326	517	351	542	141	109	20	25
DL 1-8	0.55	344	535	369	560	141	109	21	26
DL 1-9	0.55	362	553	387	578	141	109	21	26
DL 1-10	0.55	380	571	405	596	141	109	22	26
DL 1-11	0.55	398	589	423	614	141	109	22	27
DL 1-12	0.75	422	653	447	678	141	109	24	29
DL 1-13	0.75	440	671	465	696	141	109	25	29
DL1-15	0.75	476	707	501	732	141	109	26	30
DL 1-17	1.10	512	763	537	788	141	109	29	33
DL1-19	1.10	548	799	573	824	141	109	30	34
DL 1-21	1.10	584	835	609	860	141	109	30	35
DL 1-23	1.10	620	871	645	896	141	109	31	36
DL1-25	1.50	—	—	697	978	178	110	—	44
DL 1-27	1.50	—	—	733	1014	178	110	—	44
DL 1-30	1.50	—	—	787	1068	178	110	—	46
DL 1-33	2.20	—	—	841	1162	178	110	—	47
DL 1-36	2.20	—	—	895	1216	178	110	—	49

DL/DLF Series

VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL2/ DLF2



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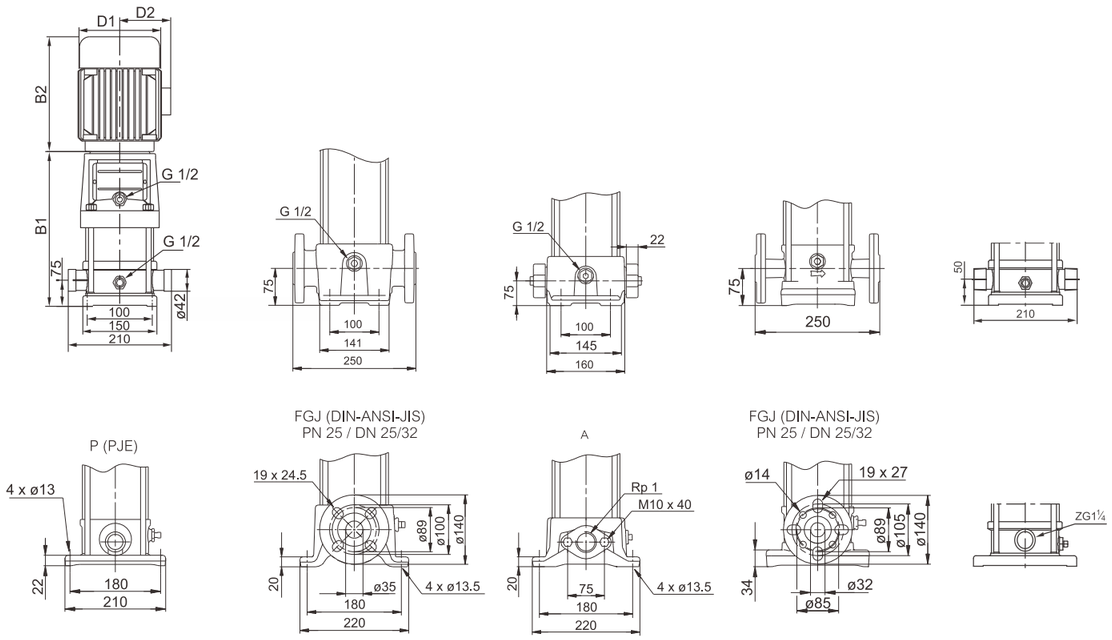


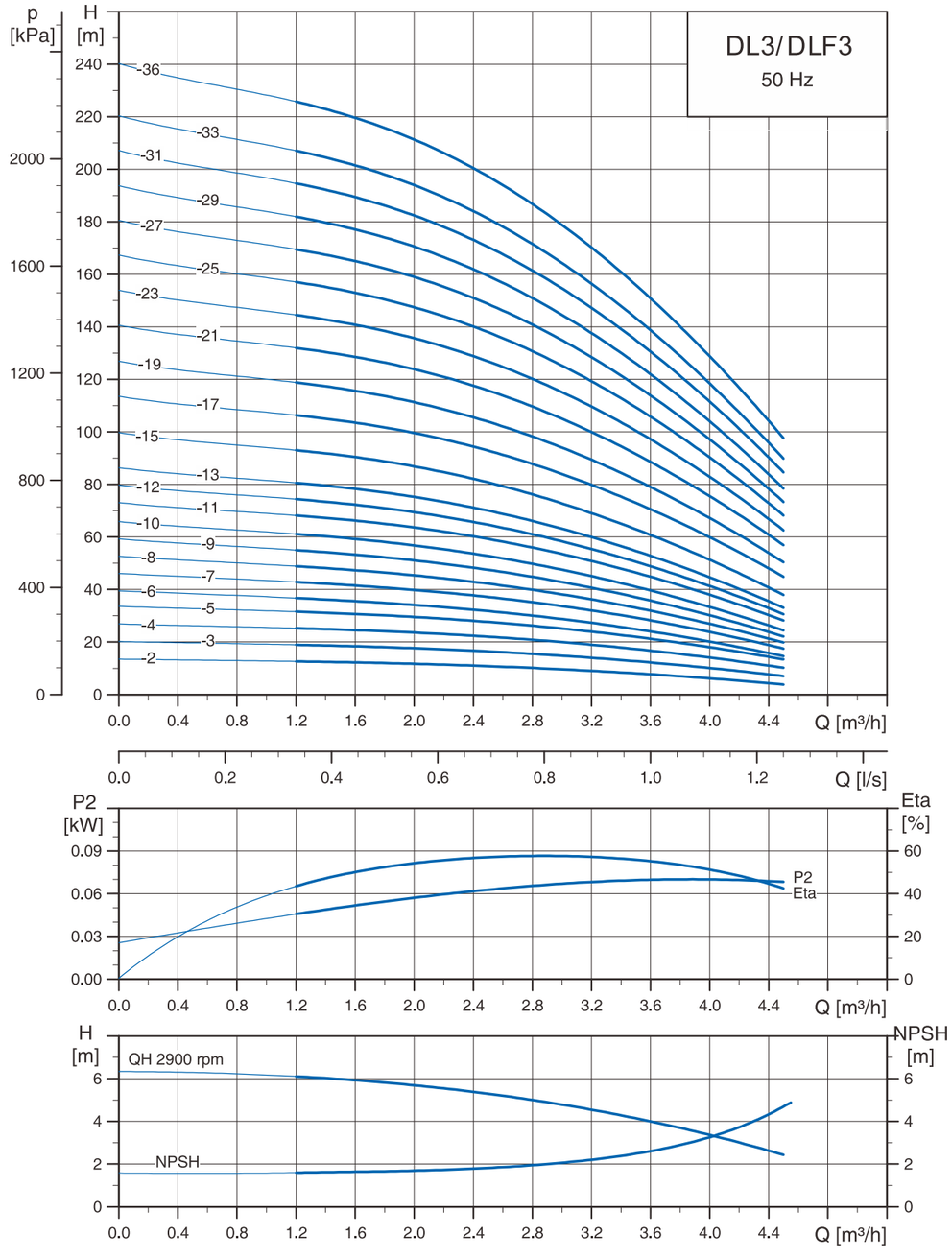
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL2-2	0.37	—	—	258	483	148	117	—	20
DL2-3	0.37	—	—	276	501	148	117	—	20
DL2-4	0.55	—	—	294	519	148	117	—	22
DL2-5	0.55	—	—	312	537	148	117	—	23
DL2-6	0.75	—	—	340	585	170	142	—	26
DL2-7	0.75	—	—	358	603	170	142	—	26
DL2-9	1.1	—	—	394	639	170	142	—	28
DL2-11	1.1	—	—	430	675	170	142	—	29
DL2-13	1.5	—	—	476	766	190	155	—	35
DL2-15	1.5	—	—	512	802	190	155	—	36
DL2-18	2.2	—	—	566	856	190	155	—	41
DL2-22	2.2	—	—	638	928	190	155	—	42
DL2-26	3.0	—	—	720	1065	197	165	—	52

DL/DLF Series

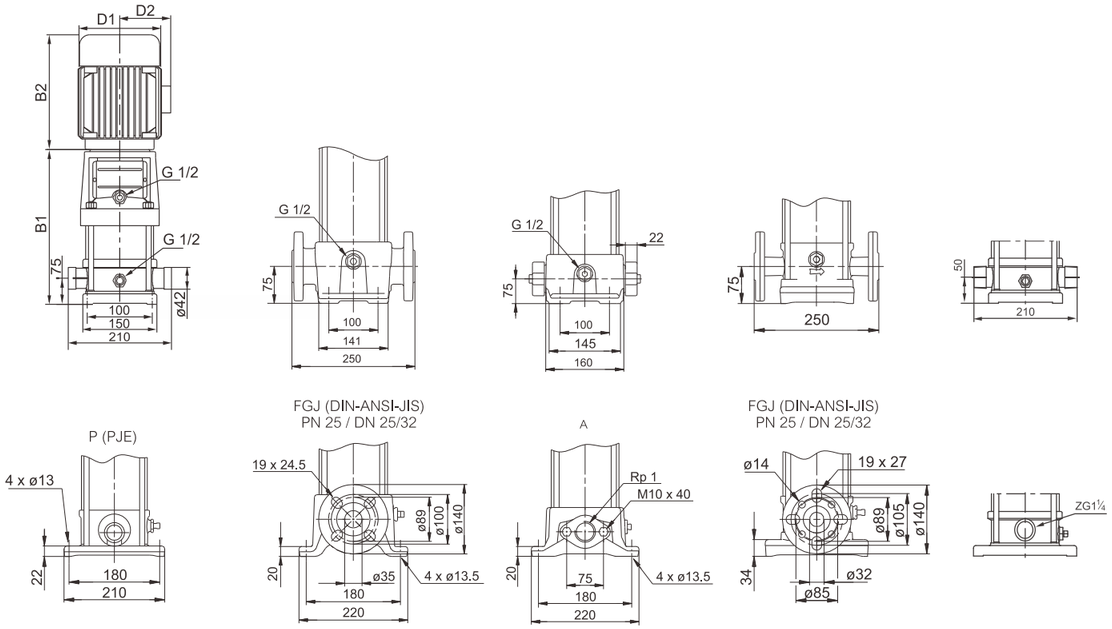
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL3/ DLF3



DIMENSION DRAWING



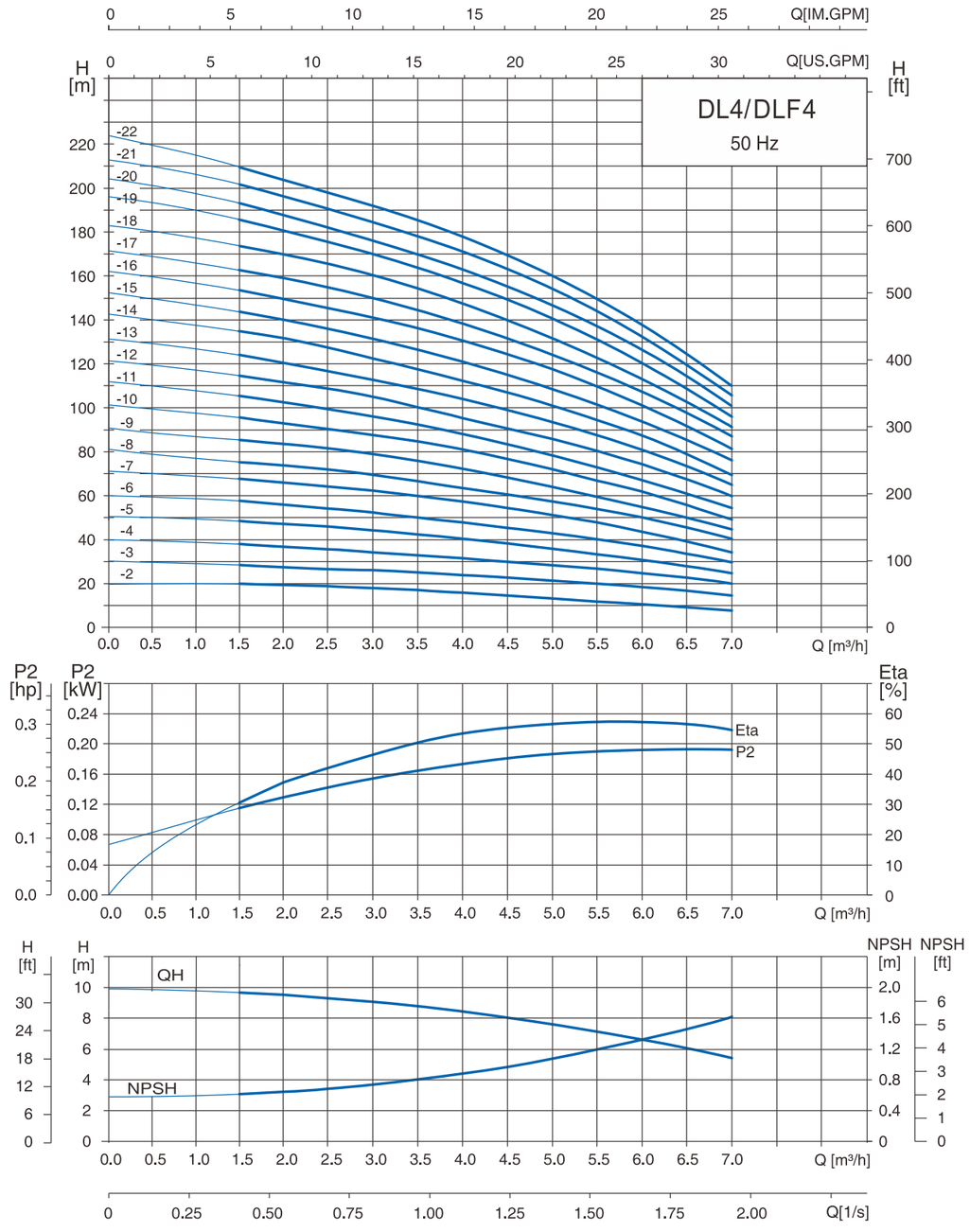
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL 3-2	0.37	254	445	279	470	141	109	18	23
DL 3-3	0.37	254	445	279	470	141	109	18	23
DL 3-4	0.37	272	463	297	488	141	109	19	23
DL 3-5	0.37	290	481	315	506	141	109	19	24
DL 3-6	0.55	308	499	333	524	141	109	20	25
DL 3-7	0.55	326	517	351	542	141	109	21	25
DL 3-8	0.75	350	581	375	606	141	109	23	27
DL 3-9	0.75	368	599	393	624	141	109	23	28
DL 3-10	0.75	386	617	411	642	141	109	24	28
DL 3-11	1.1	404	655	429	680	141	109	26	31
DL 3-12	1.1	422	673	447	698	141	109	27	31
DL 3-13	1.1	440	691	465	716	141	109	27	32
DL 3-15	1.1	476	727	501	752	141	109	28	32
DL 3-17	1.5	528	809	553	834	178	110	36	40
DL 3-19	1.5	564	845	589	870	178	110	37	41
DL 3-21	2.2	600	921	625	946	178	110	38	42
DL 3-23	2.2	636	957	661	982	178	110	39	43
DL 3-25	2.2	—	—	697	1018	178	110	—	44
DL 3-27	2.2	—	—	733	1054	178	110	—	45
DL 3-29	2.2	—	—	769	1090	178	110	—	46
DL 3-31	3	—	—	809	1144	198	120	—	53
DL 3-33	3	—	—	845	1180	198	120	—	53
DL 3-36	3	—	—	899	1234	198	120	—	55

DL/DLF Series

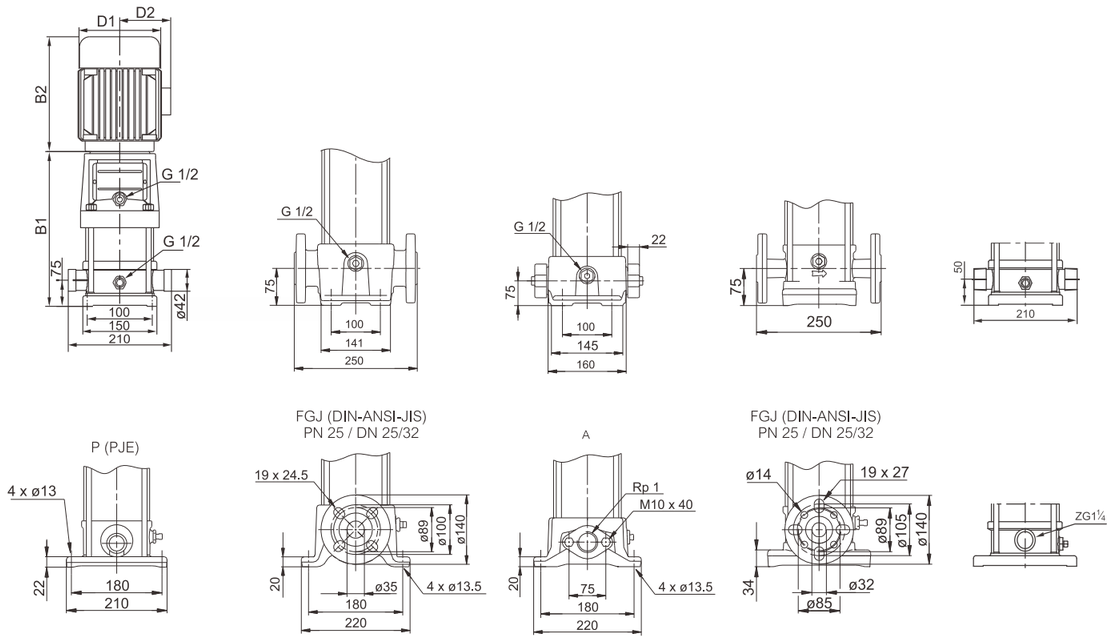
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL4/DLF4



DIMENSION DRAWING



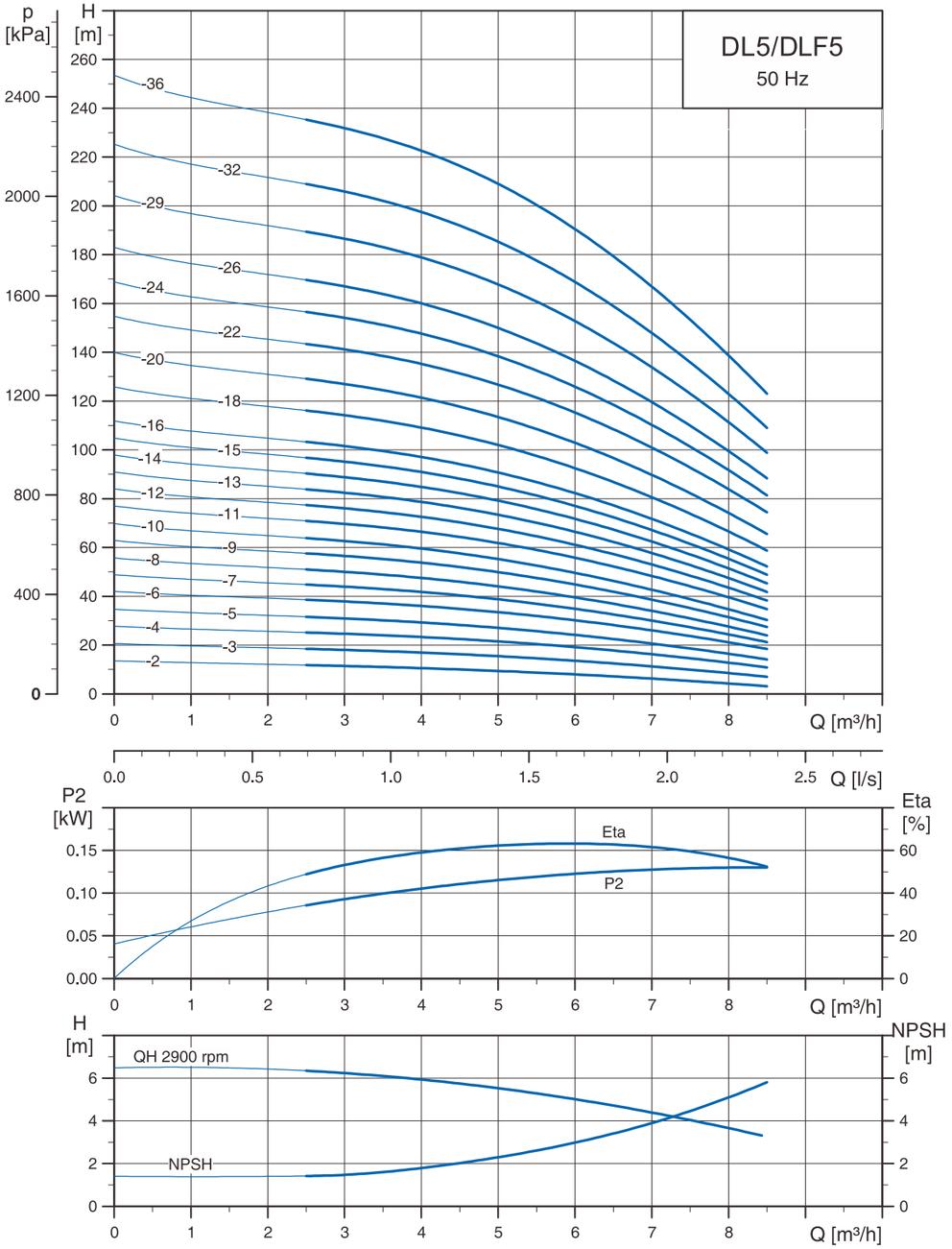
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL4-2	0.37	—	—	276	501	148	117	—	21
DL4-3	0.55	—	—	303	528	148	117	—	22
DL4-4	0.75	—	—	340	585	170	142	—	25
DL4-5	1.1	—	—	367	612	170	142	—	27
DL4-6	1.1	—	—	394	639	170	142	—	27
DL4-7	1.5	—	—	431	721	190	155	—	33
DL4-8	1.5	—	—	458	748	190	155	—	33
DL4-10	2 2	—	—	512	802	190	155	—	37
DL4-12	22	—	—	566	856	190	155	—	38
DL4-14	3.0	—	—	630	975	197	165	—	46
DL4-16	3.0	—	—	684	1029	197	165	—	48
DL4-19	4.0	—	—	765	1120	230	188	—	57
DL4-22	4.0	—	—	846	1201	230	188	—	59

DL/DLF Series

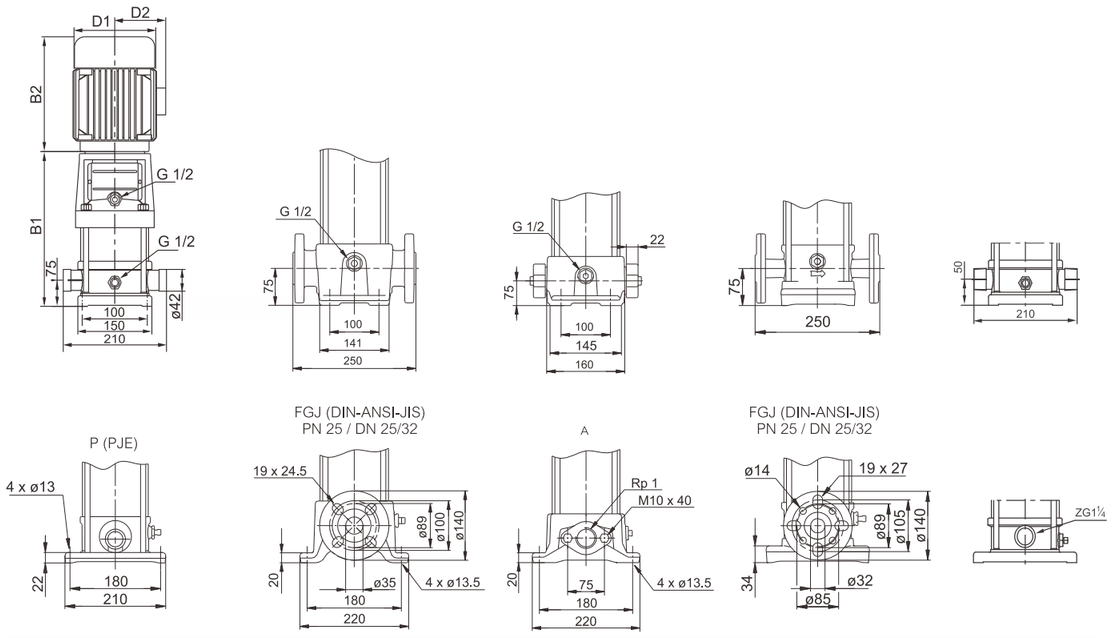
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL5/DLF5



DIMENSION DRAWING



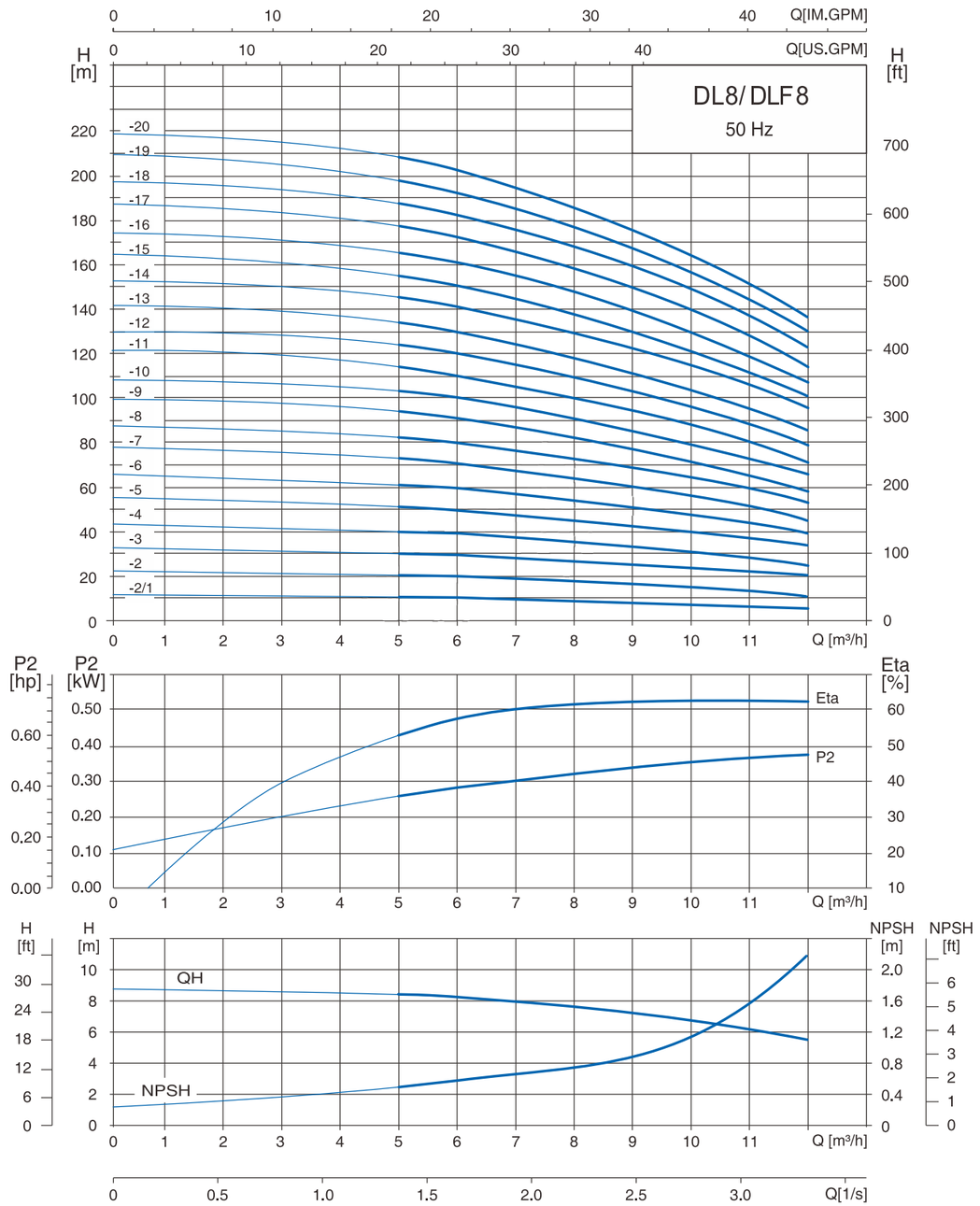
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL 5-2	0.37	254	445	279	470	141	109	18	23
DL 5-3	0.55	281	472	306	497	141	109	20	24
DL 5-4	0.55	308	499	333	524	141	109	20	25
DL 5-5	0.75	341	572	366	597	141	109	22	27
DL 5-6	1.10	368	619	393	644	141	109	25	30
DL 5-7	1.10	395	646	420	671	141	109	26	30
DL 5-8	1.10	422	673	447	698	141	109	26	31
DL 5-9	1.50	465	746	490	771	178	110	34	38
DL 5-10	1.50	492	773	517	798	178	110	34	39
DL 5-11	2.20	519	840	544	865	178	110	36	40
DL 5-12	2.20	546	867	571	892	178	110	36	41
DL 5-13	2.20	573	894	598	919	178	110	37	41
DL 5-14	2.20	600	921	625	946	178	110	37	42
DL 5-15	2.20	627	948	652	973	178	110	38	43
DL 5-16	2.20	654	975	679	1000	178	110	38	43
DL 5-18	3.00	712	1047	737	1072	198	120	46	50
DL 5-20	3.00	766	1101	791	1126	198	120	47	52
DL 5-22	4.00	820	1192	845	1217	220	134	57	62
DL 5-24	4.00	—	—	899	1271	220	134	—	63
DL 5-26	4.00	—	—	953	1325	220	134	—	64
DL 5-29	4.00	—	—	1034	1406	220	134	—	66
DL 5-32	5.50	—	—	1145	1536	220	134	—	82
DL 5-36	5.50	—	—	1253	1644	220	134	—	84

DL/DLF Series

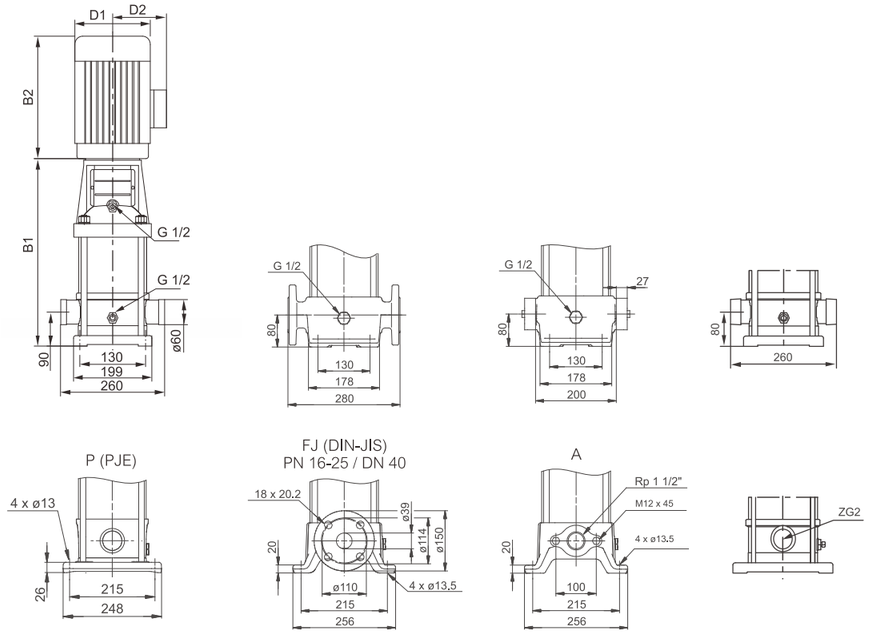
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL8/ DLF8



DIMENSION DRAWING



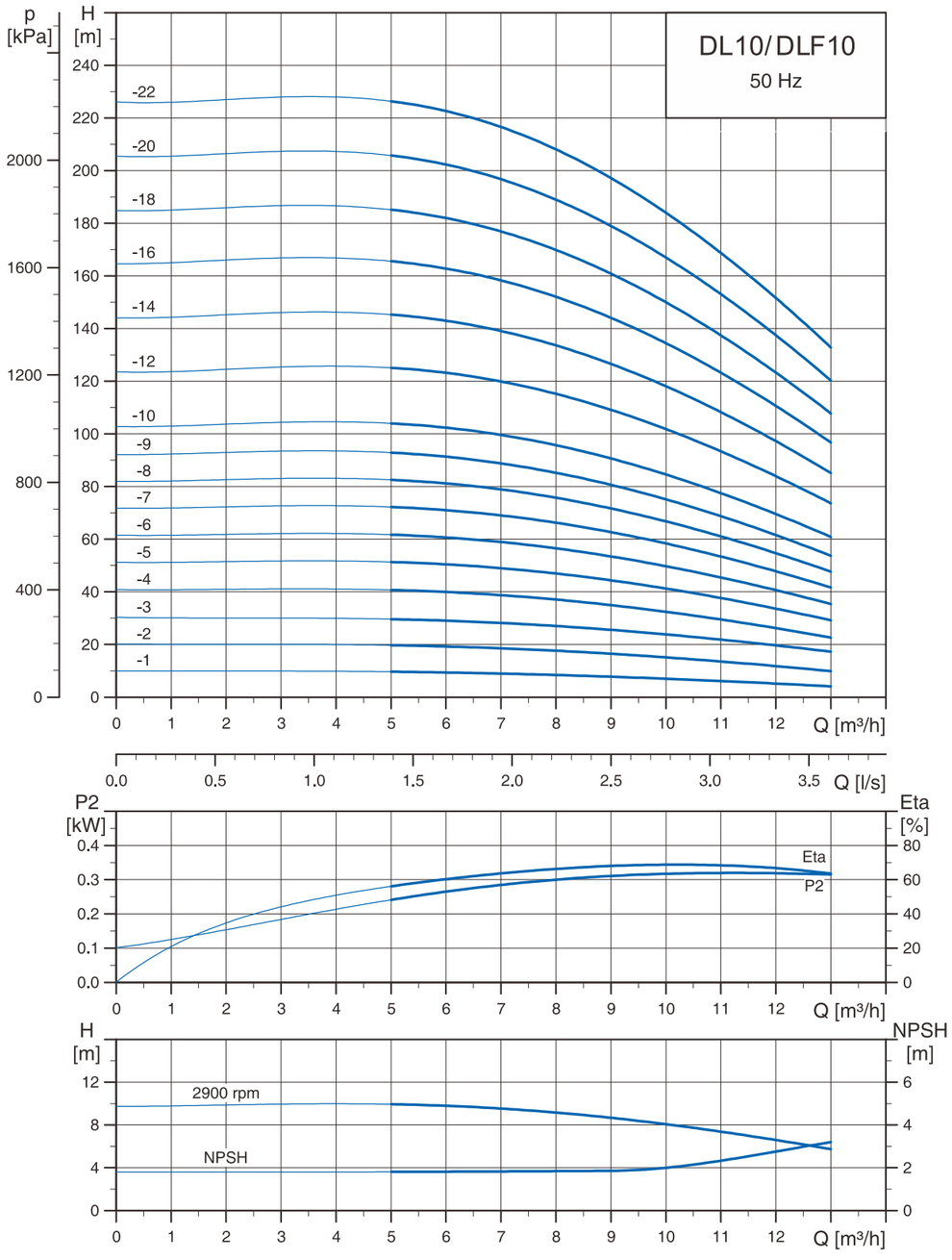
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL8-2/1	0.75	—	—	347	592	170	142	—	32
DL8-2	0.75	—	—	347	592	170	142	—	32
DL8-3	1.1	—	—	377	622	170	142	—	34
DL8-4	1.5	—	—	417	707	190	155	—	40
DL8-5	2.2	—	—	447	737	190	155	—	44
DL8-6	2 2	—	—	477	767	190	155	—	45
DL8-8	3.0	—	—	547	892	197	165	—	53
DL8-10	4.0	—	—	607	962	230	188	—	64
DL8-12	4.0	—	—	667	1022	230	188	—	66
DL8-14	5.5	—	—	747	1137	260	208	—	81
DL8-16	5.5	—	—	807	1197	260	208	—	84
DL8-18	7.5	—	—	867	1257	260	208	—	93
DL8-20	7.5	—	—	927	1317	260	208	—	94

DL/DLF Series

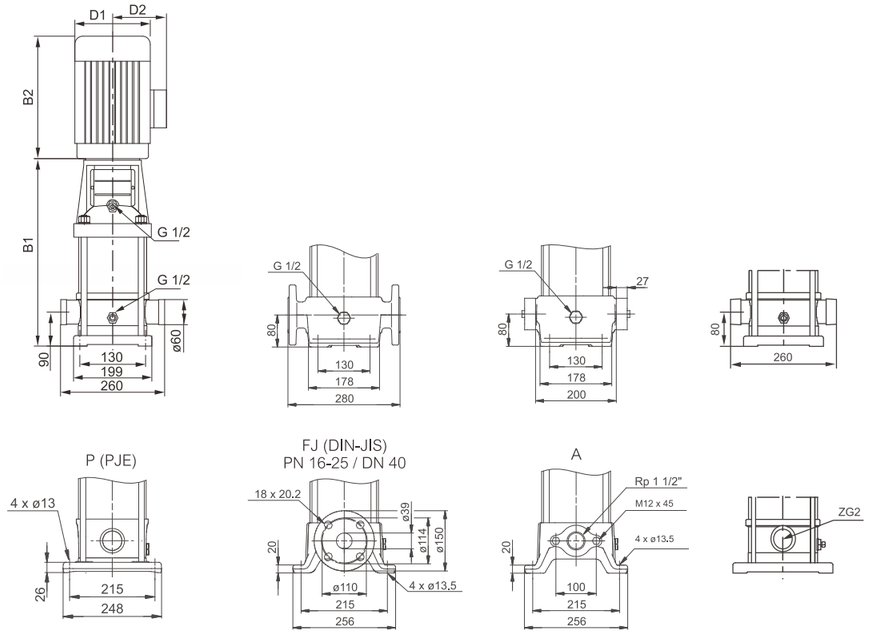
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL10/DLF10



DIMENSION DRAWING



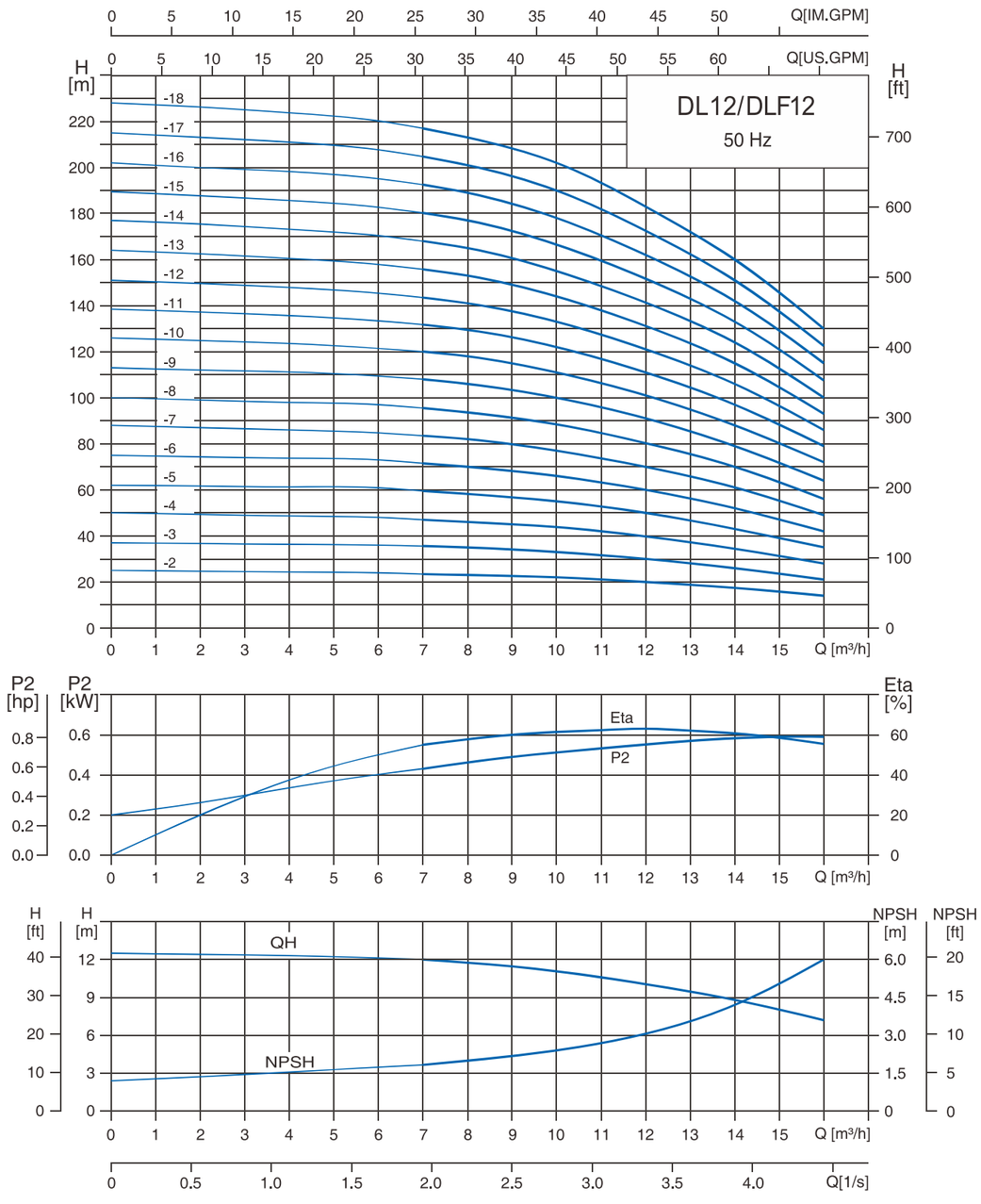
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL10-1	0.37	343	534	343	534	141	109	31	34
DL 10-2	0.75	347	578	347	578	141	109	34	36
DL 10-3	1.10	377	628	377	628	141	109	37	39
DL 10-4	1.50	423	704	423	704	178	110	45	47
DL 10-5	2.20	453	774	453	774	178	110	46	49
DL 10-6	2.20	483	804	483	804	178	110	47	50
DL 10-7	3.00	518	853	518	853	198	120	54	57
DL 10-8	3.00	548	883	548	883	198	120	55	58
DL 10-9	3.00	578	913	578	913	198	120	56	59
DL 10-10	4.00	608	980	608	980	220	134	66	69
DL 10-12	4.00	668	1040	668	1040	220	134	69	71
DL 10-14	5.50	760	1151	760	1151	220	134	91	94
DL 10-16	5.50	820	1211	820	1211	220	134	93	96
DL 10-18	7.50	—	—	880	1259	260	159	—	109
DL 10-20	7.50	—	—	940	1319	260	159	—	112
DL 10-22	7.50	—	—	1000	1379	260	159	—	114

DL/DLF Series

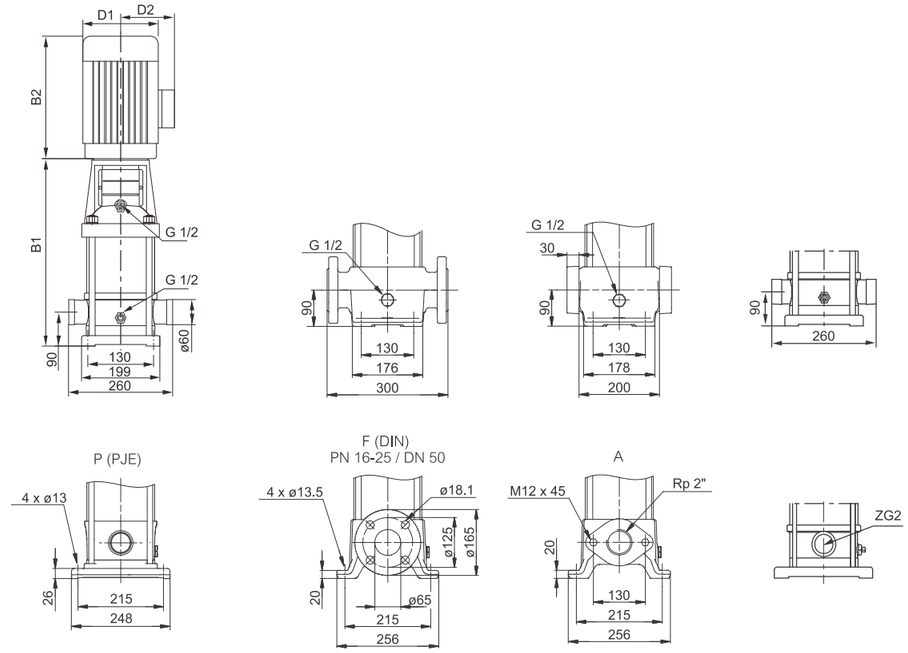
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL12/DLF12



DIMENSION DRAWING



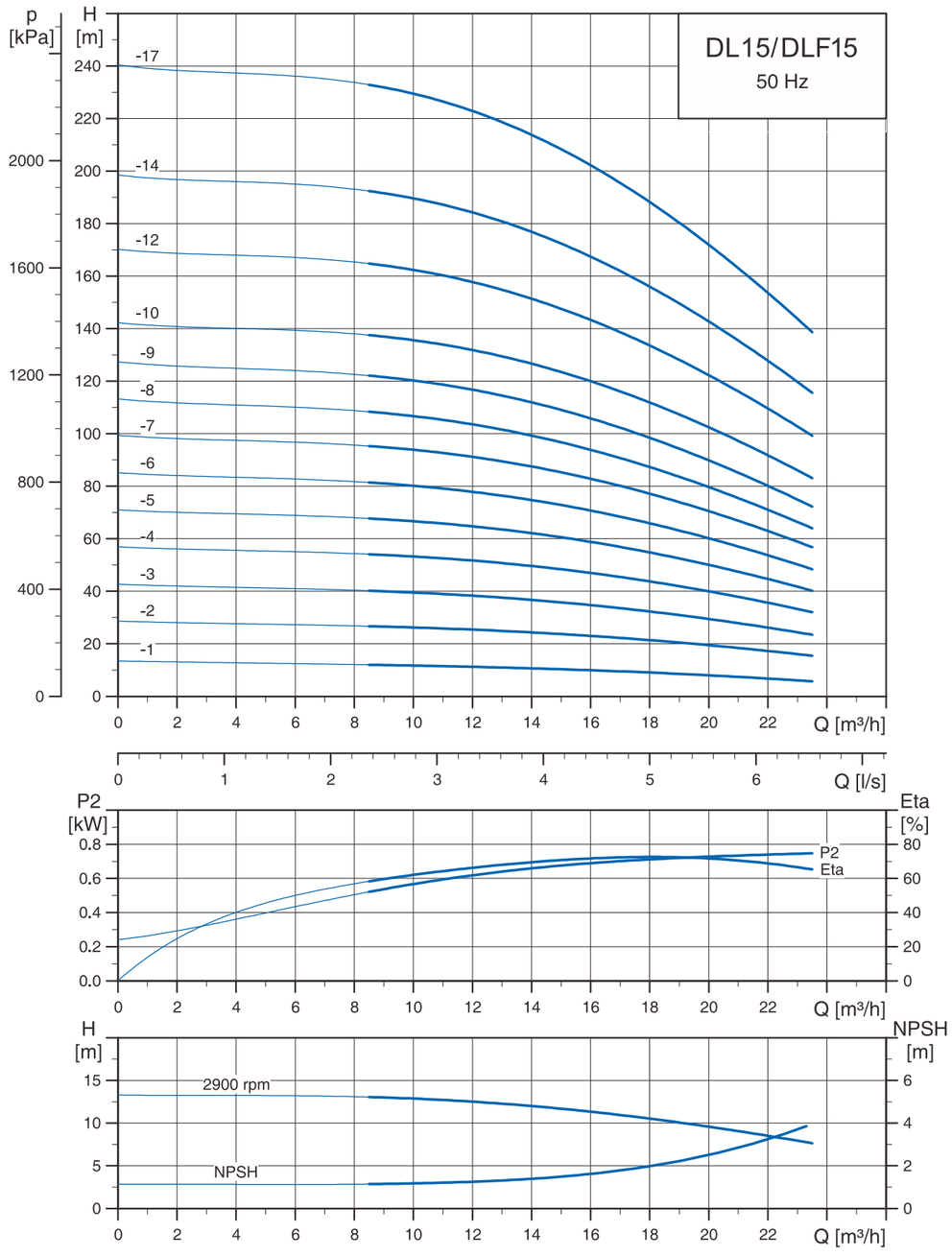
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL12-2	1.5	—	—	367	657	190	155	—	39
DL12-3	2.2	—	—	397	687	190	155	—	43
DL12-4	3	—	—	437	782	197	165	—	51
DL12-5	3	—	—	467	812	197	165	—	53
DL12-6	4	—	—	497	852	230	188	—	61
DL12-7	5.5	—	—	547	937	260	208	—	73
DL12-8	5.5	—	—	577	967	260	208	—	74
DL12-9	5.5	—	—	607	997	260	208	—	76
DL12-10	7.5	—	—	637	1027	260	208	—	83
DL12-12	7.5	—	—	697	1087	260	208	—	87
DL12-14	11	—	—	845	1345	330	255	—	157
DL12-16	11	—	—	905	1405	330	255	—	161
DL12-18	11	—	—	965	1465	330	255	—	164

DL/DLF Series

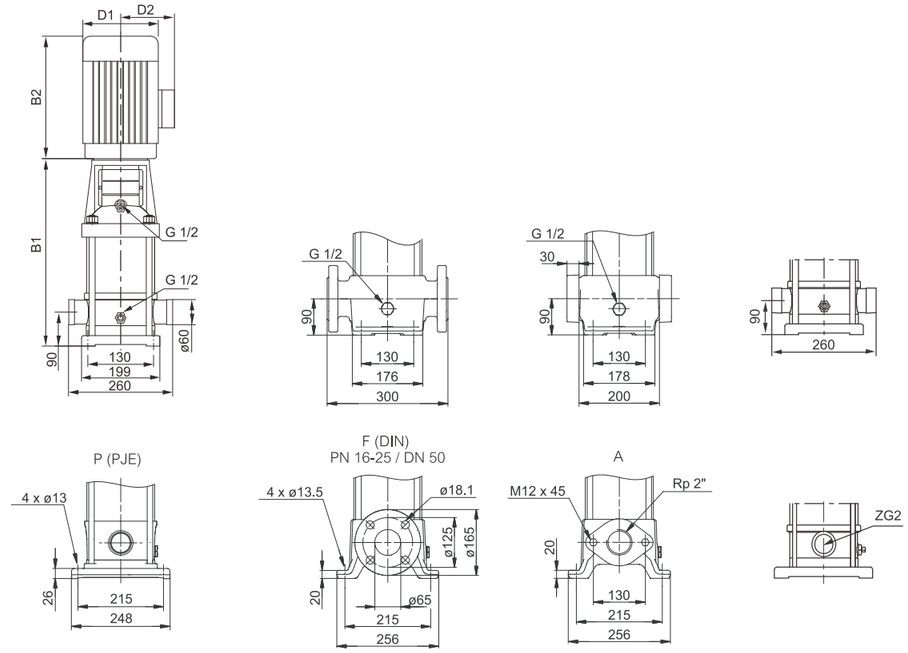
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL15/DLF15



DIMENSION DRAWING



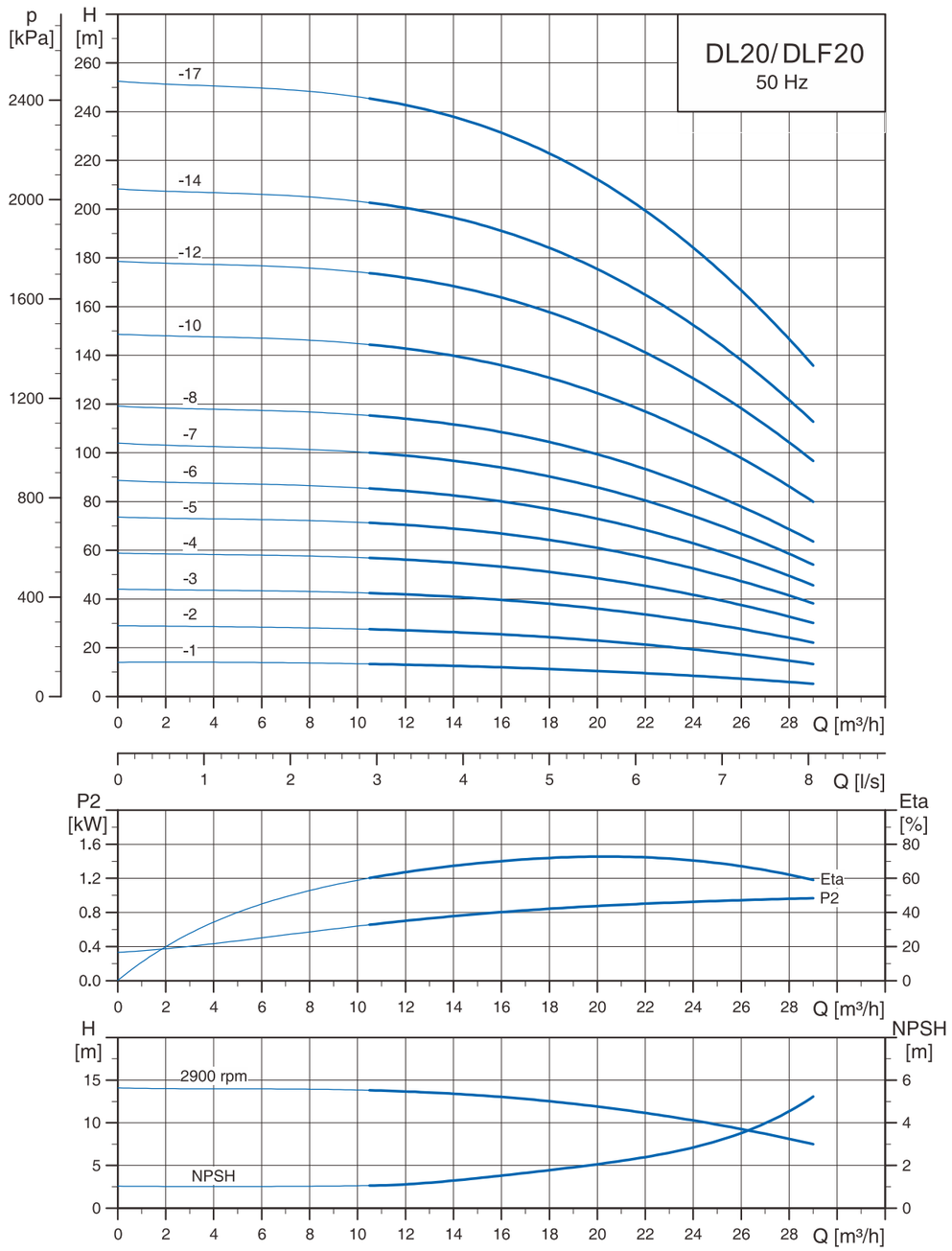
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL 15-1	1.1	400	651	400	651	141	109	41	42
DL 15-2	2.2	415	736	415	736	178	110	49	50
DL 15-3	3	465	800	465	800	198	120	56	57
DL 15-4	4	510	882	510	882	220	134	67	68
DL 15-5	4	555	927	555	927	220	134	68	69
DL 15-6	5.5	632	1023	632	1023	220	134	90	91
DL 15-7	5.5	677	1068	677	1068	220	134	92	93
DL 15-8	7.5	—	—	722	1101	260	159	—	105
DL 15-9	7.5	—	—	767	1146	260	159	—	107
DL 15-10	11	—	—	889	1360	314	204	—	149
DL 15-12	11	—	—	979	1450	314	204	—	153
DL 15-14	11	—	—	1069	1540	314	204	—	157
DL 15-17	15	—	—	1204	1675	314	204	—	175

DL/DLF Series

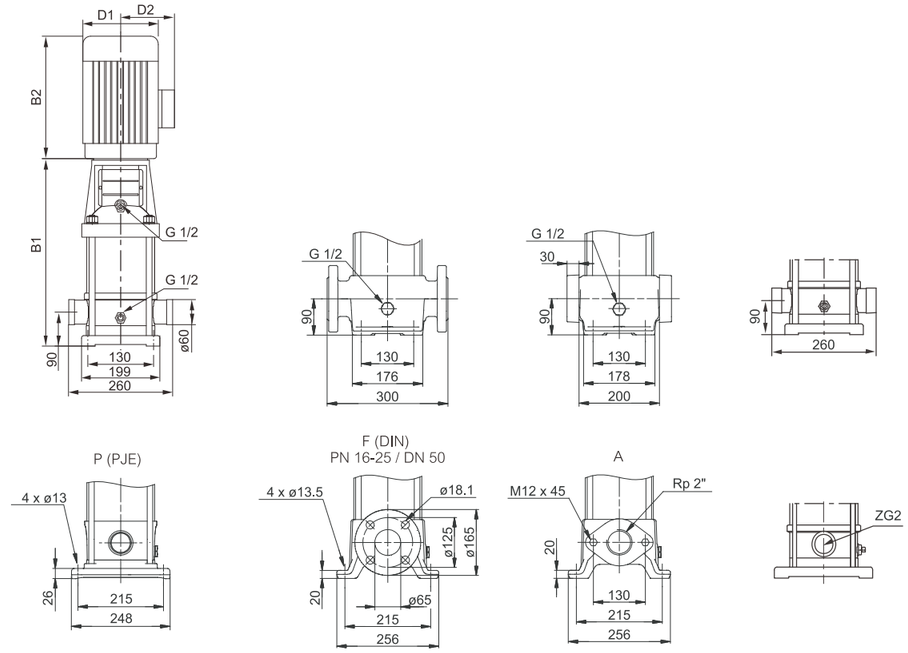
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL20/ DLF20



DIMENSION DRAWING



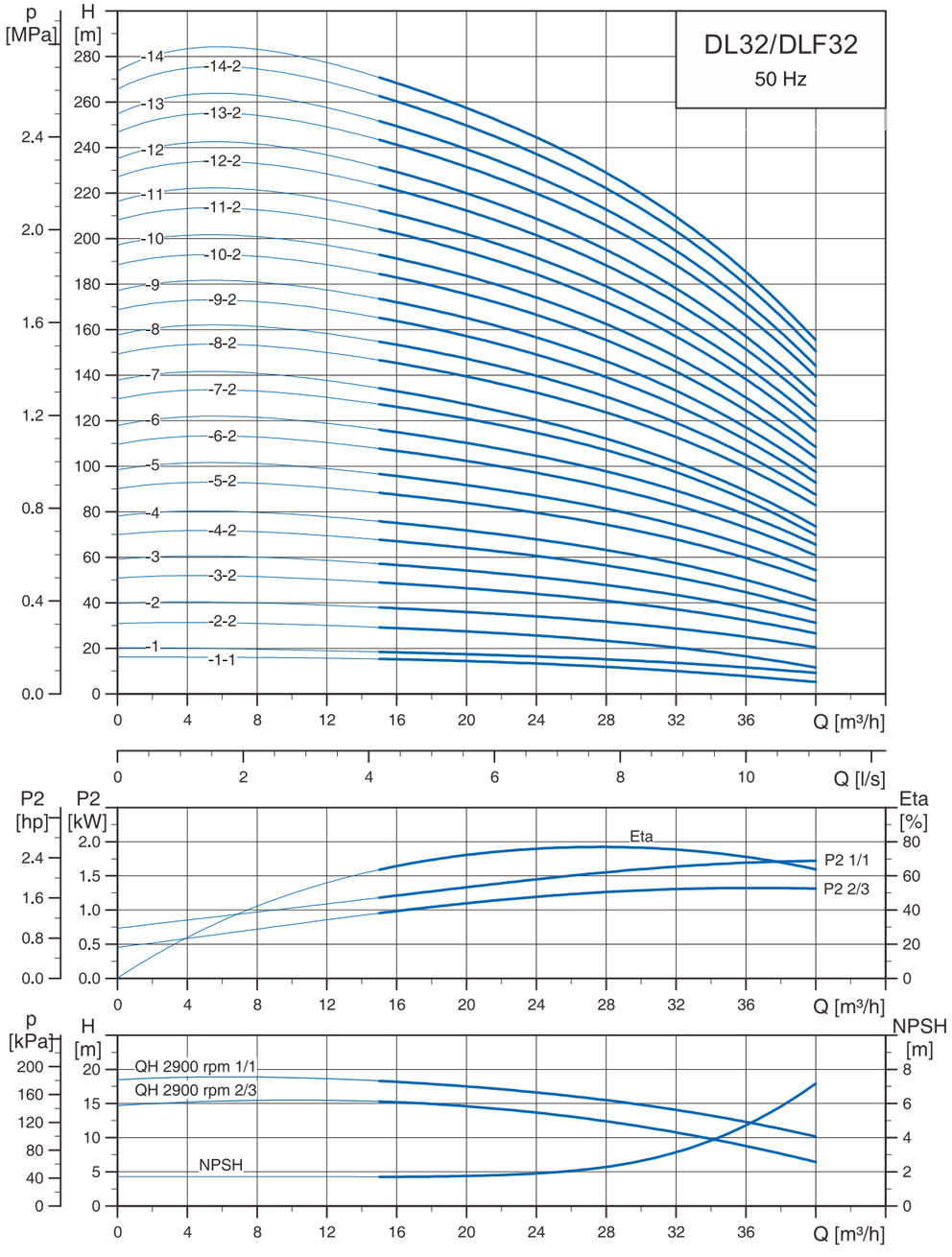
Model	Dimensions (mm)							N.W (kgs)	
	Motor P_2	Oval Flange(developing)		DIN Flange		D1	D2	Oval Flange (developing)	DIN Flange
	kW	B1	B1+B2	B1	B1+B2				
DL 20-1	1.10	400	651	400	651	141	109	41	42
DL 20-2	2.20	415	736	415	736	178	110	49	50
DL 20-3	4.00	465	837	465	837	220	134	65	66
DL 20-4	5.50	542	933	542	933	220	134	87	88
DL 20-5	5.50	587	978	587	978	220	134	89	90
DL 20-6	7.50	632	1011	632	1011	260	159	101	102
DL 20-7	7.50	677	1056	677	1056	260	159	103	103
DL 20-8	11.00	—	—	799	1270	314	204	—	146
DL 20-10	11.00	—	—	889	1360	314	204	—	149
DL 20-12	15.00	—	—	979	1450	314	204	—	166
DL 20-14	15.00	—	—	1069	1540	314	204	—	170
DL 20-17	18.50	—	—	1204	1719	314	204	—	188

DL/DLF Series

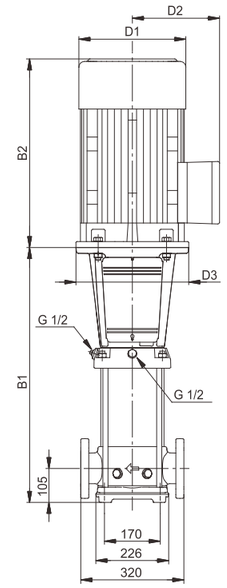
VERTICAL-MULTI-STAGES PUMP

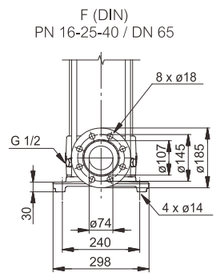
HYDRAULIC PERFORMANCE CURVES

DL32/ DLF32



DIMENSION DRAWING





Model	Dimensions (mm)					
	Motor P_2 kW	B1	B1+B2	D1	D2	N.W kgs
DL 32-1-1	1.50	505	786	178	110	64
DL 32-1	2.20	505	826	178	110	64
DL 32-2-2	3.00	575	910	198	120	73
DL 32-2	4.00	575	947	220	134	82
DL 32-3-2	5.50	645	1036	220	134	96
DL 32-3	5.50	645	1036	220	134	96
DL 32-4-2	7.50	715	1094	260	159	110
DL 32-4	7.50	715	1094	260	159	111
DL 32-5-2	11.00	895	1366	314	204	158
DL 32-5	11.00	895	1366	314	204	158
DL 32-6-2	11.00	965	1436	314	204	161
DL 32-6	11.00	965	1436	314	204	161
DL 32-7-2	15.00	1035	1506	314	204	177
DL 32-7	15.00	1035	1506	314	204	177

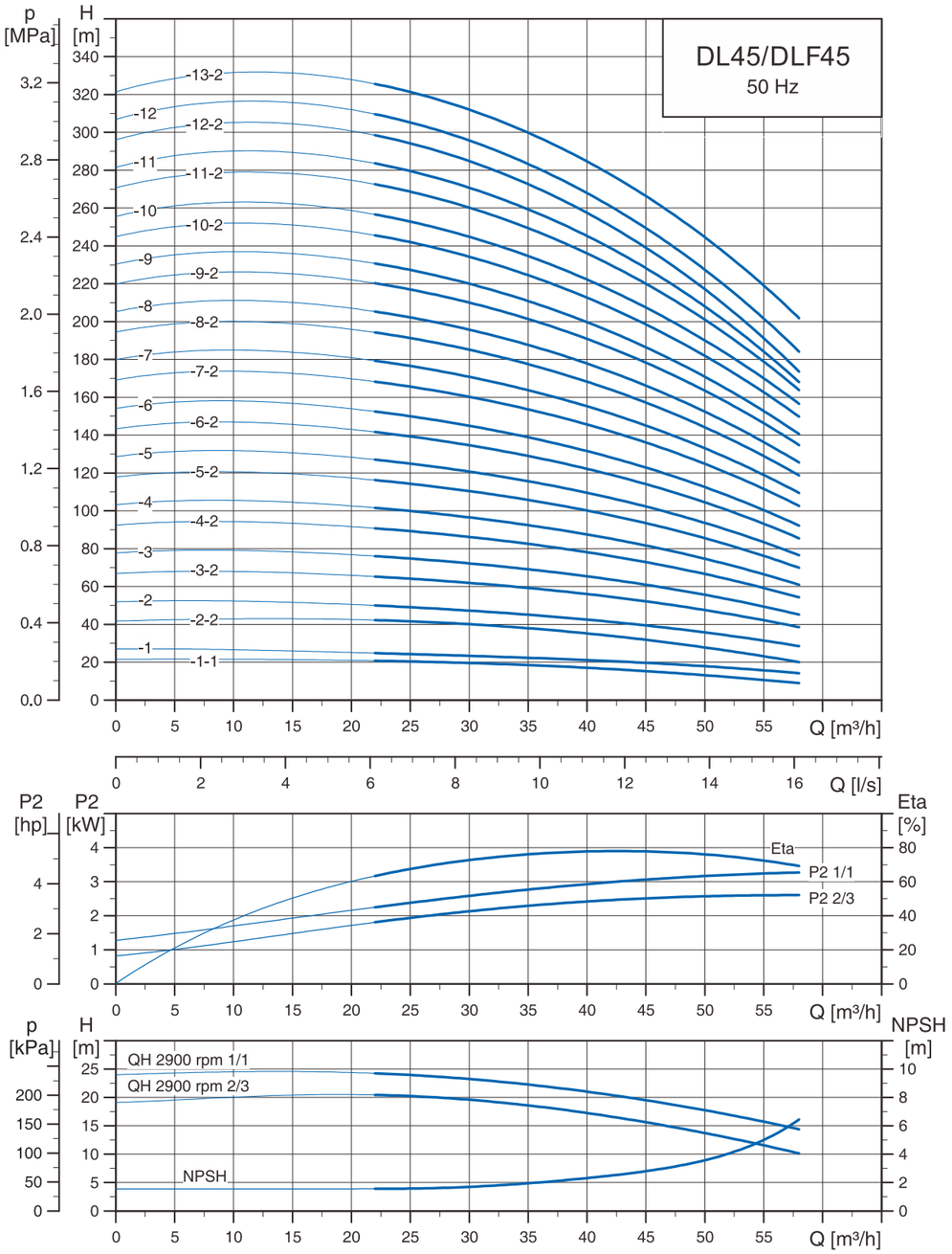
Model	Dimensions (mm)					
	Motor P_2 kW	B1	B1+B2	D1	D2	N.W kgs
DL 32-8-2	15.00	1105	1576	314	204	183
DL 32-8	15.00	1105	1576	314	204	183
DL 32-9-2	18.50	1175	1690	314	204	200
DL 32-9	18.50	1175	1690	314	204	200
DL 32-10-2	18.50	1245	1760	314	204	203
DL 32-10	18.50	1245	1760	314	204	203
DL 32-11-2	22.00	1315	1856	314	204	220
DL 32-11	22.00	1315	1856	314	204	220
DL 32-12-2	22.00	1385	1926	314	204	224
DL 32-12	22.00	1385	1926	314	204	224
DL 32-13-2	30.00	1455	2066	396	315	344
DL 32-13	30.00	1455	2066	396	315	344
DL 32-14-2	30.00	1525	2136	396	315	347
DL 32-14	30.00	1525	2136	396	315	347

DL/DLF Series

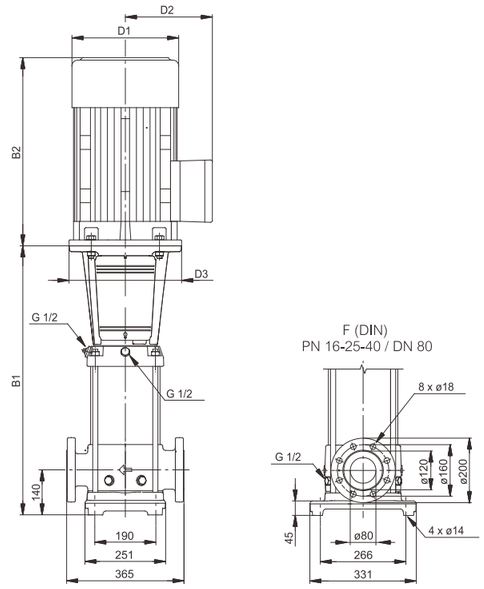
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL45/ DLF45



DIMENSION DRAWING

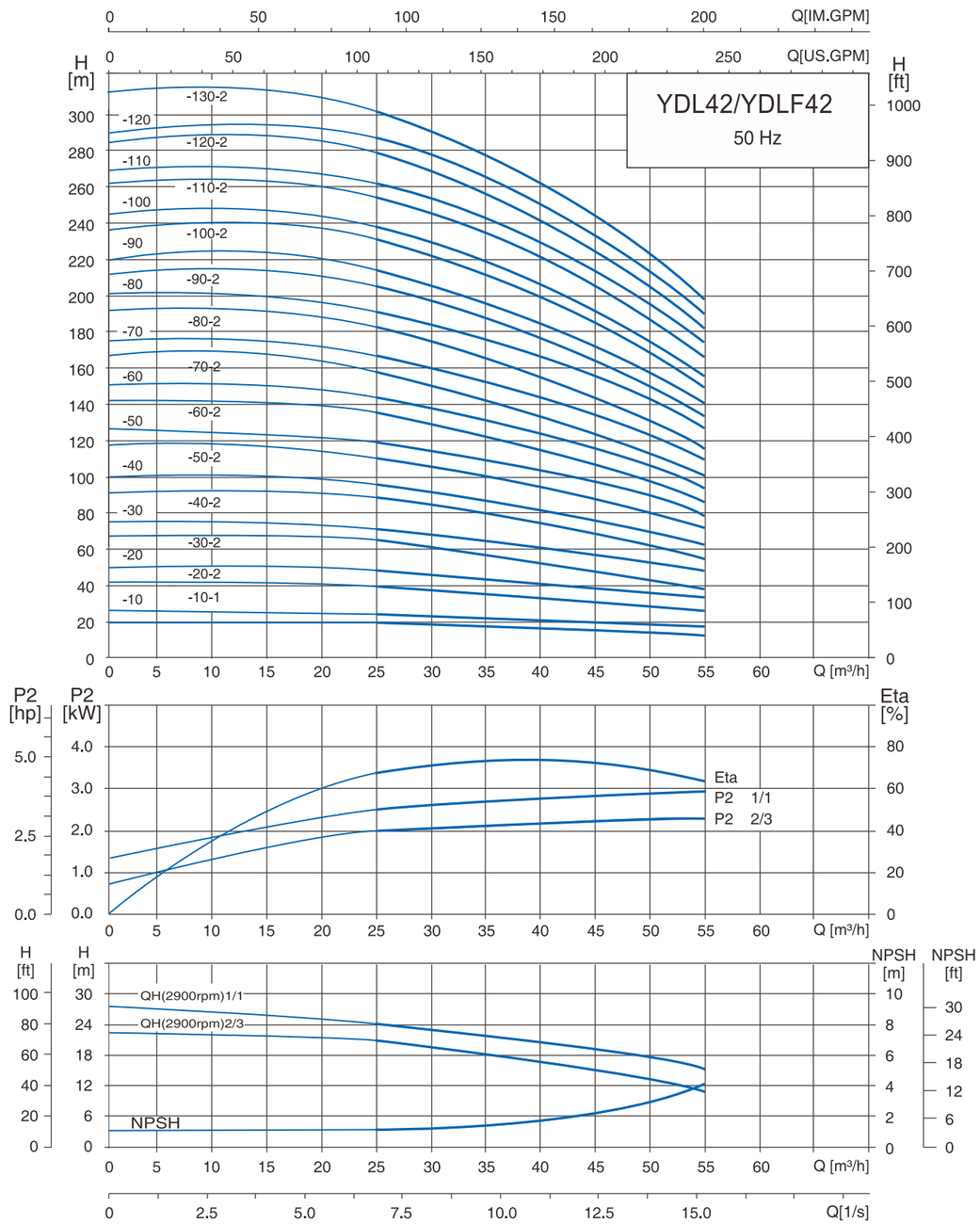


Model	Dimensions (mm)					
	Motor P_2 kW	B1	B1+B2	D1	D2	N.W kgs
DL 45-1-1	3.00	559	894	198	120	80
DL 45-1	4.00	559	931	220	134	89
DL 45-2-2	5.50	639	1030	220	134	104
DL 45-2	7.50	639	1018	260	159	114
DL 45-3-2	11.00	829	1300	314	204	163
DL 45-3	11.00	829	1300	314	204	163
DL 45-4-2	15.00	909	1380	314	204	180
DL 45-4	15.00	909	1380	314	204	180
DL 45-5-2	18.50	989	1504	314	204	197
DL 45-5	18.50	989	1504	314	204	197
DL 45-6-2	22.00	1069	1610	314	204	217
DL 45-6	22.00	1069	1610	314	204	217
DL 45-7-2	30.00	1149	1760	396	315	339

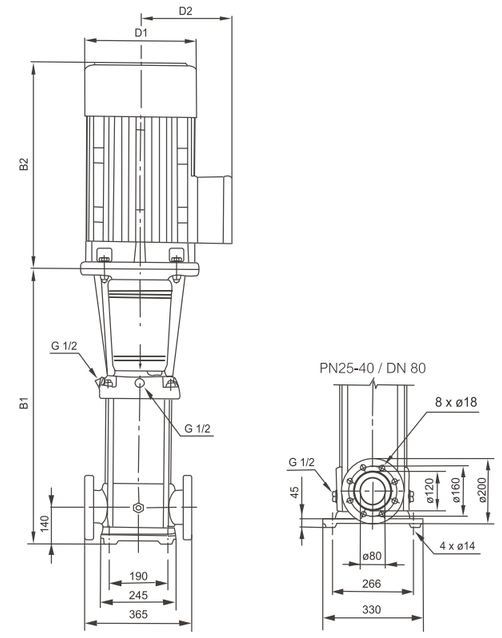
Model	Dimensions (mm)					
	Motor P_2 kW	B1	B1+B2	D1	D2	N.W kgs
DL 45-7	30.00	1149	1760	396	315	339
DL 45-8-2	30.00	1229	1840	396	315	343
DL 45-8	30.00	1229	1840	396	315	343
DL 45-9-2	30.00	1309	1920	396	315	347
DL 45-9	37.00	1309	1945	396	315	362
DL 45-10-2	37.00	1389	2025	396	315	367
DL 45-10	37.00	1389	2025	396	315	367
DL 45-11-2	45.00	1469	2177	439	338	455
DL 45-11	45.00	1469	2177	439	338	455
DL 45-12-2	45.00	1549	2257	439	338	460
DL 45-12	45.00	1549	2257	439	338	460
DL 45-13-2	45.00	1629	2337	439	338	464

HYDRAULIC PERFORMANCE CURVES

DL42/DLF42



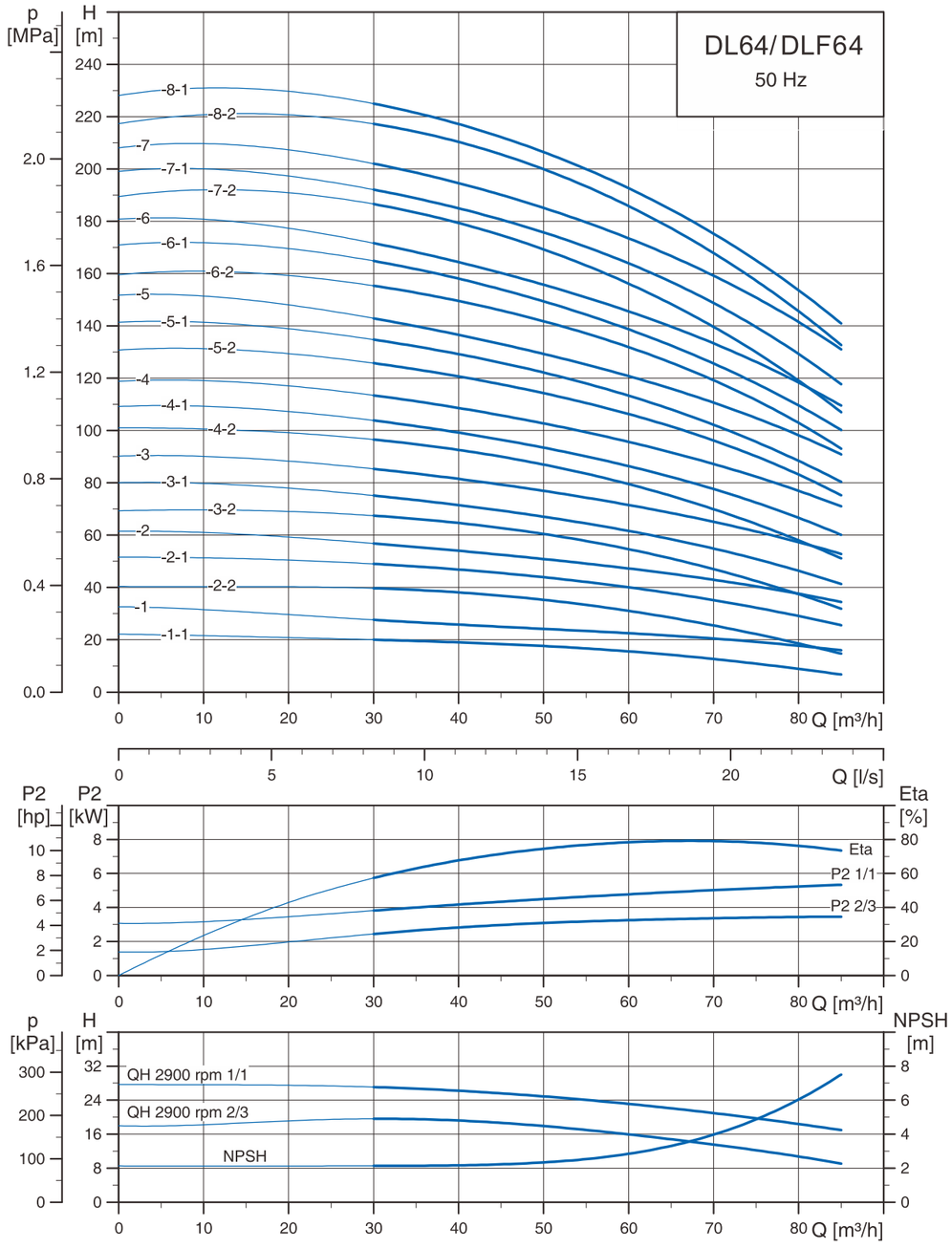
DIMENSION DRAWING



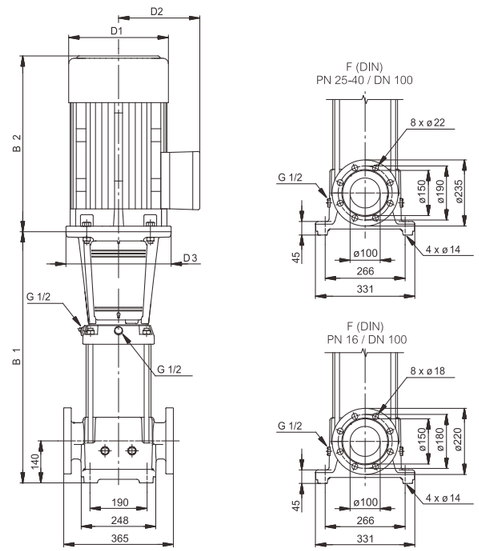
Model	Dimensions					
	Motor P_2	B1	B1+B2	D1	D2	N.W
	kW	mm	mm			kgs
DL42-10-1	3.0	561	906/916	197/230	165/188	83/90
DL42-10	4.0					
DL42-20-2	5.5	641	1031	260	208	105/110
DL42-20	7.5					
DL42-30-2	11	826	1326	330	255	183
DL42-30	11					
DL42-40-2	15	906	1406	330	255	197
DL42-40	15					
DL42-50-2	18.5	986	1536	330	255	221
DL42-50	18.5					
DL42-60-2	22	1066	1641	360	285	261
DL42-60	22					
DL42-70-2	30	1146	1796	400	310	320
DL42-70	30					
DL42-80-2	30	1226	1876	400	310	324
DL42-80	30					
DL42-90-2	30	1306	1956	400	310	328/352
DL42-90	37					
DL42-100-2	37	1386	2036	400	310	355
DL42-100	37					
DL42-110-2	45	1466	2151	450	345	426
DL42-110	45					
DL42-120-2	45	1546	2231	450	345	432
DL42-120	45					
DL42-130-2	45	1626	2311	450	345	438

HYDRAULIC PERFORMANCE CURVES

DL64/DLF64



DIMENSION DRAWING



Model	Dimensions (mm)					
	Motor P_2 kW	B1	B1+B2	D1	D2	N.W kgs
DL 64-1-1	4.00	561	933	220	134	91
DL 64-1	5.50	561	952	220	134	102
DL 64-2-2	7.50	644	1023	260	159	117
DL 64-2-1	11.00	754	1225	314	204	162
DL 64-2	11.00	754	1225	314	204	162
DL 64-3-2	15.00	836	1307	314	204	180
DL 64-3-1	15.00	836	1307	314	204	180
DL 64-3	18.50	836	1351	314	204	193
DL 64-4-2	18.50	919	1434	314	204	197
DL 64-4-1	22.00	919	1460	314	204	211
DL 64-4	22.00	919	1460	314	204	211

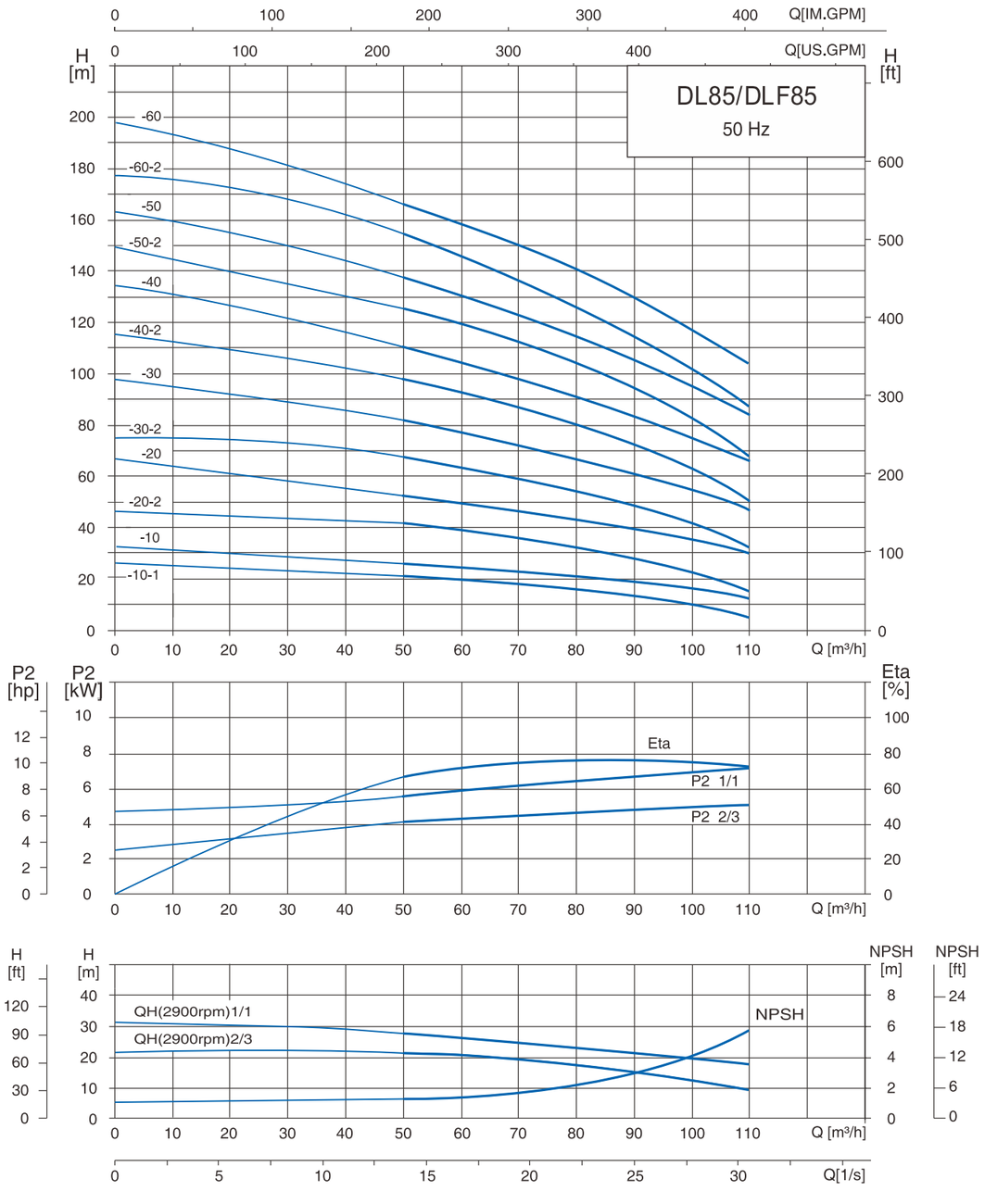
Model	Dimensions (mm)					
	Motor P_2 kW	B1	B1+B2	D1	D2	N.W kgs
DL 64-5-2	30.00	1001	1612	396	315	333
DL 64-5-1	30.00	1001	1612	396	315	333
DL 64-5	30.00	1001	1612	396	315	333
DL 64-6-2	30.00	1084	1695	396	315	339
DL 64-6-1	37.00	1084	1720	396	315	354
DL 64-6	37.00	1084	1720	396	315	354
DL 64-7-2	37.00	1166	1802	396	315	359
DL 64-7-1	37.00	1166	1802	396	315	359
DL 64-7	45.00	1166	1874	439	338	443
DL 64-8-2	45.00	1249	1957	439	338	448
DL 64-8-1	45.00	1249	1957	439	338	448

DL/DLF Series

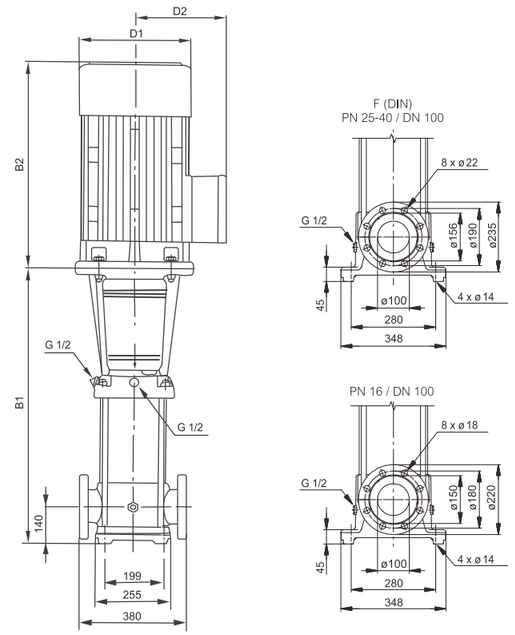
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL85/ DLF85



DIMENSION DRAWING



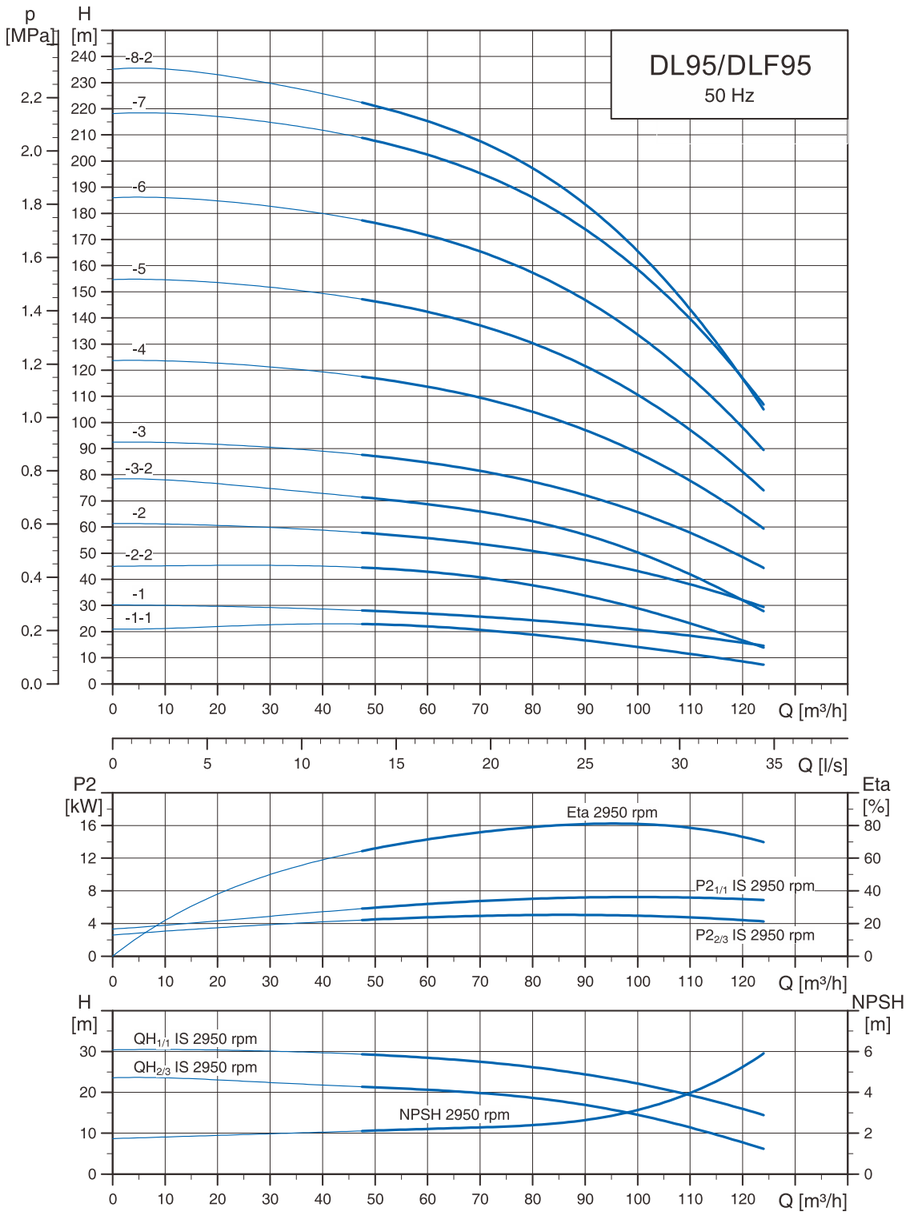
Model	Dimensions					
	Motor P_2	B1	B1+B2	D1	D2	N.W
	kW	mm	mm			kgs
DL85-10-1	5.5	571	961	260	208	105
DL85-10	7.5	571	961	260	208	110
DL85-20-2	11	773	1273	330	255	181
DL85-20	15	773	1273	330	255	192
DL85-30-2	18.5	865	1415	330	255	215
DL85-30	22	865	1440	360	285	252
DL85-40-2	30	957	1607	400	310	312
DL85-40	30	957	1607	400	310	312
DL85-50-2	37	1049	1699	400	310	336
DL85-50	37	1049	1699	400	310	336
DL85-60-2	45	1141	1826	460	340	407
DL85-60	45	1141	1826	460	340	407

DL/DLF Series

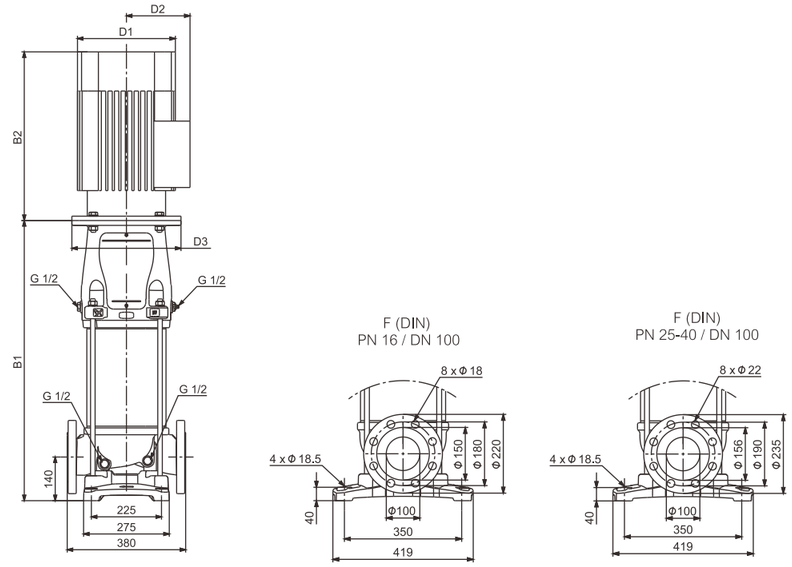
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL95/DLF95



DIMENSION DRAWING



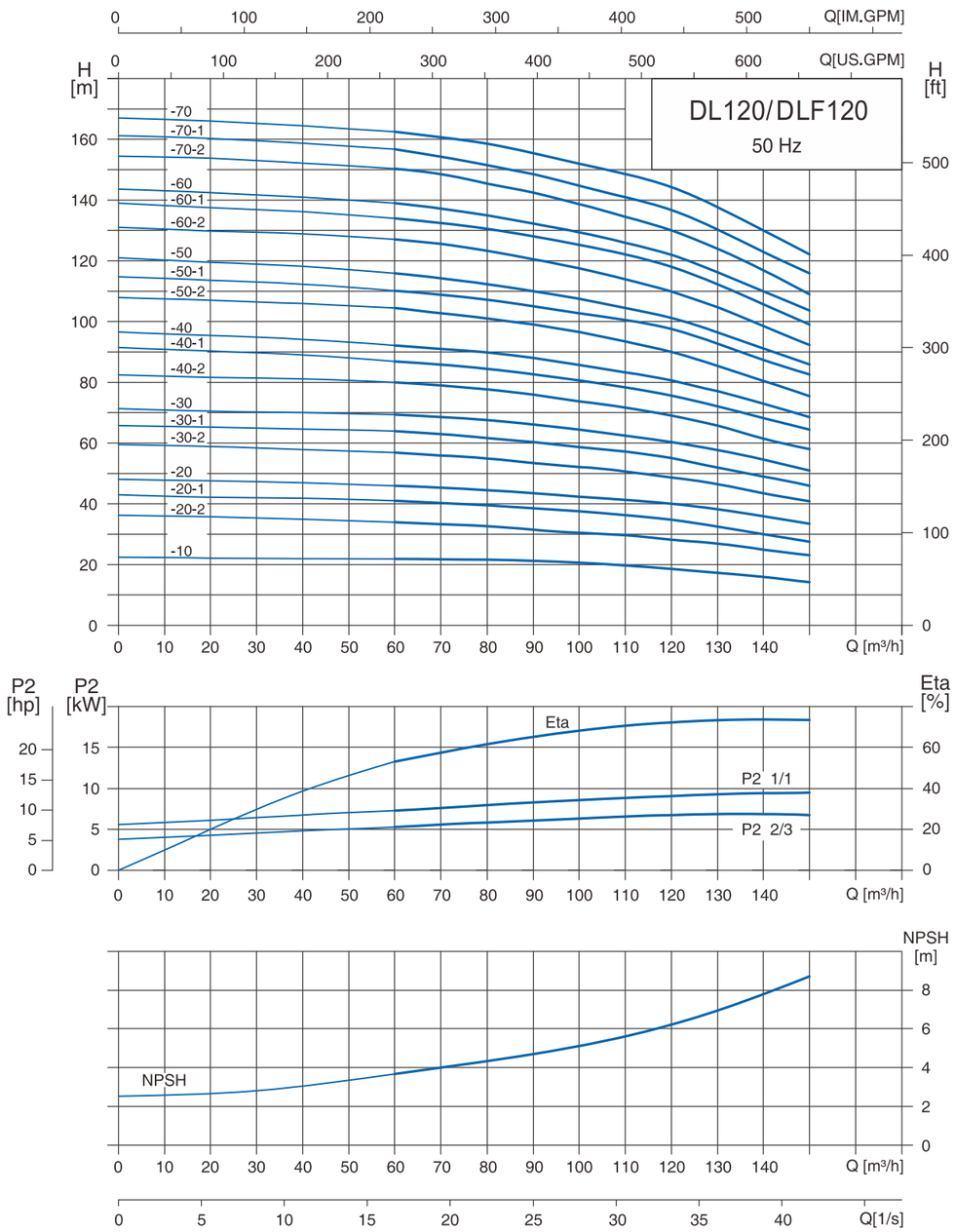
Model	Dimensions					
	Motor P_2	B1	B1+B2	D1	D2	N.W
	kW	mm	mm			kgs
DL 95-1-1	5.5	689	1080	220	134	125
DL 95-1	7.5	689	1068	260	159	135
DL 95-2-2	11	795	1266	314	204	182
DL 95-2	15	795	1266	314	204	193
DL 95-3-2	18.5	900	1415	314	204	212
DL 95-3	22	900	1441	314	204	227
DL 95-4	30	1009	1620	396	315	349
DL 95-5	37	1114	1750	396	315	380
DL 95-6	45	1238	1946	449	338	462
DL 95-7	55	1342	2089	497	410	562
DL 95-8-2	55	1446	2193	497	410	568

DL/DLF Series

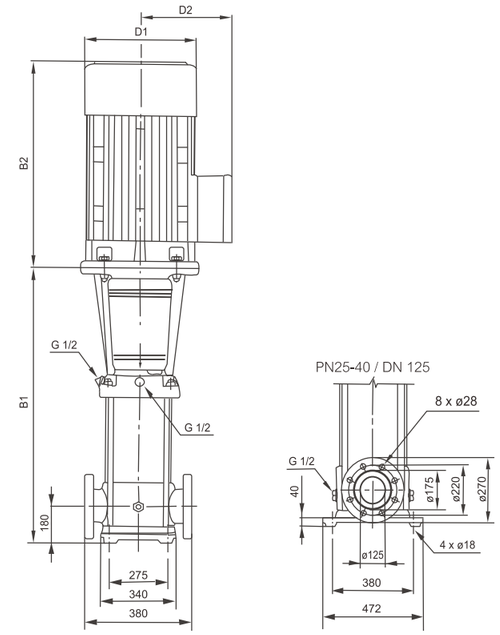
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL120/DLF120



DIMENSION DRAWING



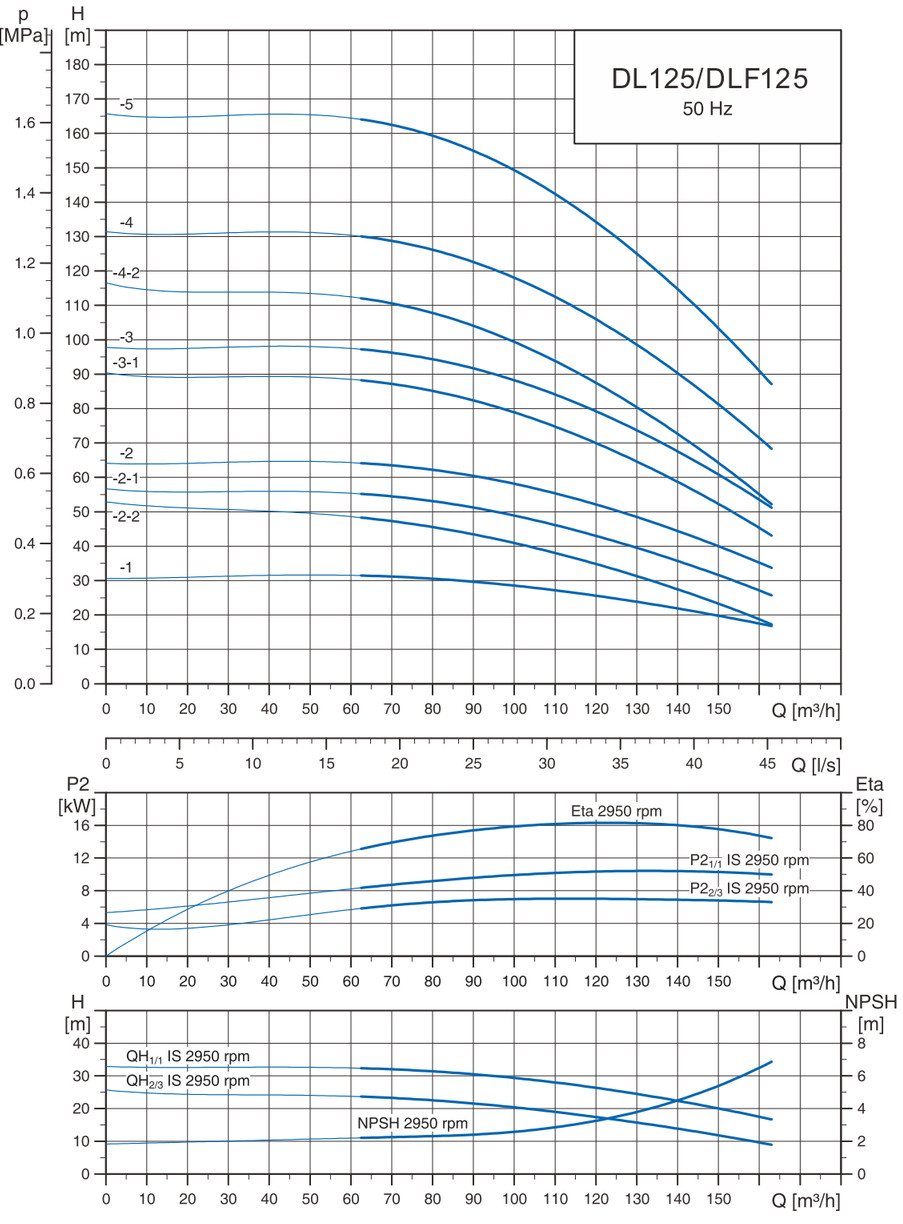
Model	Dimensions					
	Motor P_2	B1	B1+B2	D1	D2	N.W
	kW	mm	mm			kgs
DL120-10	11	840	1340	330	255	230
DL120-20-2	15	1000	1500	330	255	245
DL120-20-1	18.5	1000	1550	330	255	250
DL120-20	22	1000	1575	360	285	285
DL120-30-2	30	1160	1810	400	310	360
DL120-30-1	30	1160	1810	400	310	360
DL120-30	30	1160	1810	400	310	360
DL120-40-2	37	1320	1970	400	310	400
DL120-40-1	37	1320	1970	400	310	400
DL120-40	45	1320	2005	460	340	460
DL120-50-2	45	1480	2165	460	340	470
DL120-50-1	45	1480	2165	460	340	470
DL120-50	55	1510	2270	540	370	575
DL120-60-2	55	1670	2430	540	370	585
DL120-60-1	55	1670	2430	540	370	585
DL120-60	75	1670	2515	580	410	705
DL120-70-2	75	1830	2675	580	410	715
DL120-70-1	75	1830	2675	580	410	715
DL120-70	75	1830	2675	580	410	715

DL/DLF Series

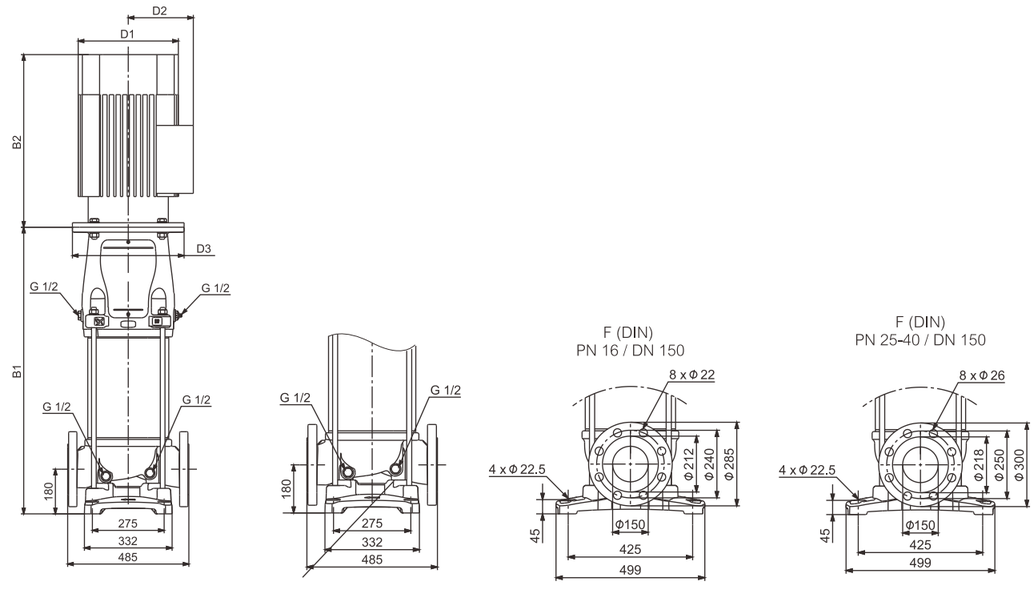
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL125/ DLF125



DIMENSION DRAWING



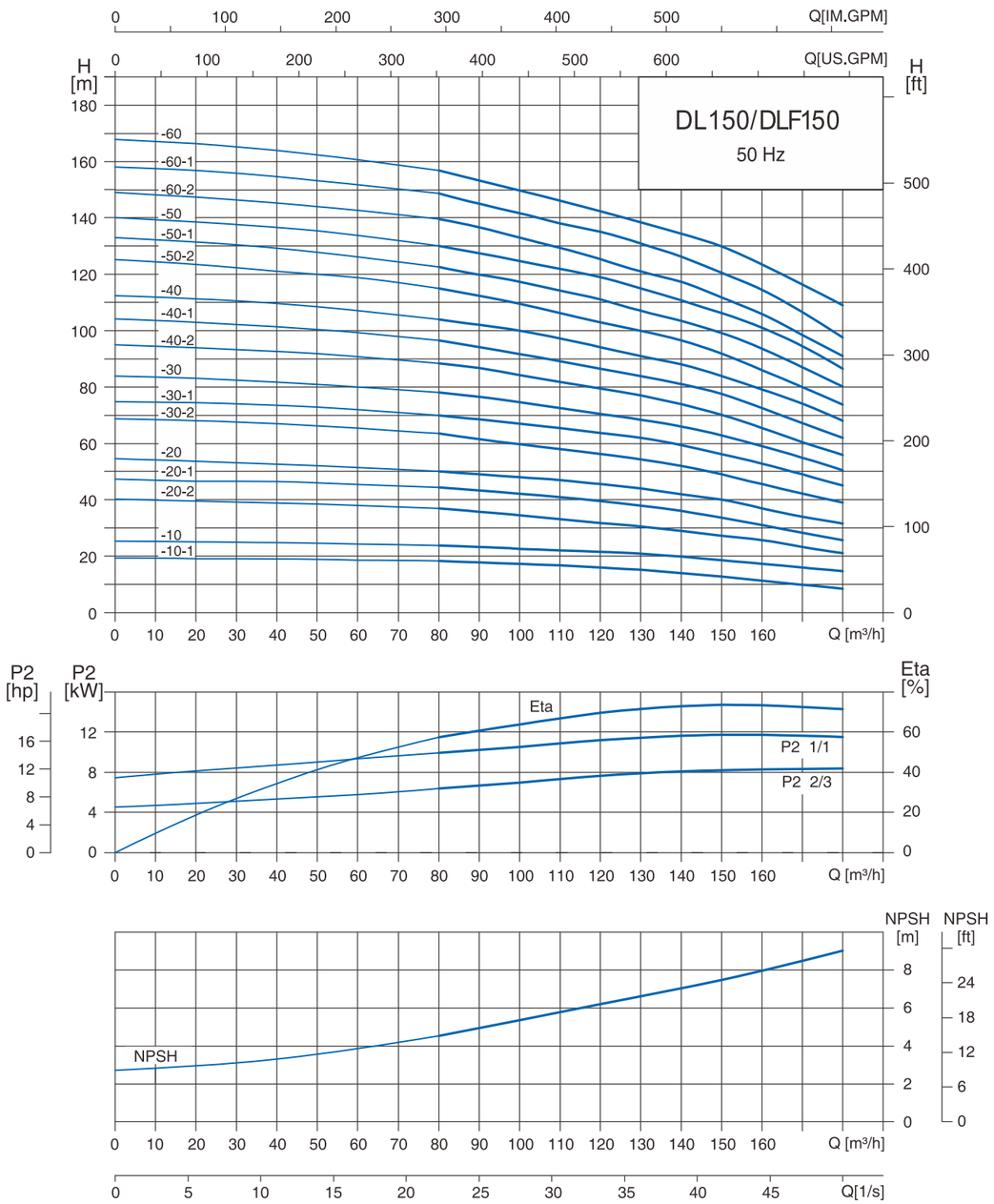
Model	Dimensions					
	Motor P_2	B1	B1+B2	D1	D2	N.W
	kW	mm	mm			kgs
DL 125-1	11	783	1254	314	204	213
DL 125-2-2	15	905	1376	314	204	235
DL 125-2-1	18.5	905	1420	314	204	248
DL 125-2	22	905	1446	314	204	263
DL 125-3-1	30	1029	1640	396	315	390
DL 125-3	37	1029	1665	396	315	415
DL 125-4-2	37	1151	1787	396	315	425
DL 125-4	45	1174	1882	449	338	501
DL 125-5	55	1294	2041	497	410	603

DL/DLF Series

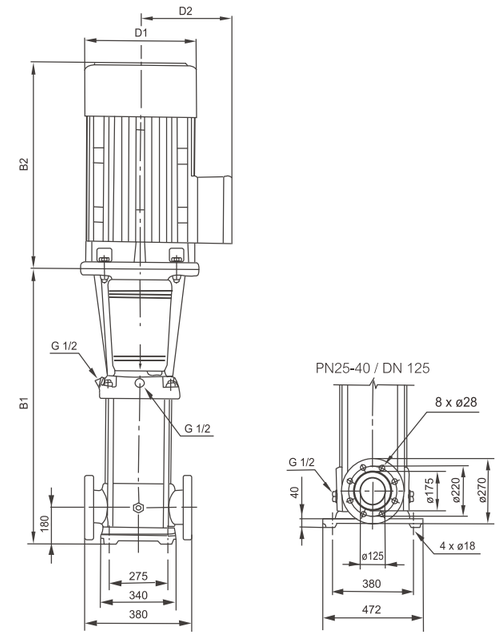
VERTICAL-MULTI-STAGES PUMP

HYDRAULIC PERFORMANCE CURVES

DL150/DLF150



DIMENSION DRAWING



Model	Dimensions					
	Motor P_2	B1	B1+B2	D1	D2	N.W
	kW	mm	mm			kgs
DL150-10-1	11	840	1340	330	255	230
DL150-10	15	840	1340	330	255	235
DL150-20-2	18.5	1000	1550	330	255	250
DL150-20-1	22	1000	1575	360	285	295
DL150-20	30	1000	1650	400	310	350
DL150-30-2	30	1160	1810	400	310	360
DL150-30-1	37	1160	1810	400	310	360
DL150-30	37	1160	1810	400	310	385
DL150-40-2	45	1320	2005	460	340	460
DL150-40-1	45	1320	2005	460	340	460
DL150-40	55	1350	2110	540	370	560
DL150-50-2	55	1510	2270	540	370	570
DL150-50-1	75	1510	2355	580	410	690
DL150-50	75	1510	2355	580	410	690
DL150-60-2	75	1670	2515	580	410	700
DL150-60-1	75	1670	2515	580	410	700
DL150-60	75	1670	2515	580	410	700