



WALRUS
PUMP

TPR Series

Vertical Multistage Centrifugal Pump

50Hz



**Better Life
Through Innovation**

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TPR Series Vertical Multistage Centrifugal Pump

50 Hz

Power: 0.37 - 45 kW

Head: Up to 320 M

Flow: Up to 2,000 L/min

Outlet: 1¼" - 4"



Construction Industry



Agriculture & Fishing Industry



Manufacturing Industry



Electricity & New Energy Industry



Entertainment & Leisure Industry



Accommodation & Food Service Industry



Wholesale & Retail Industry

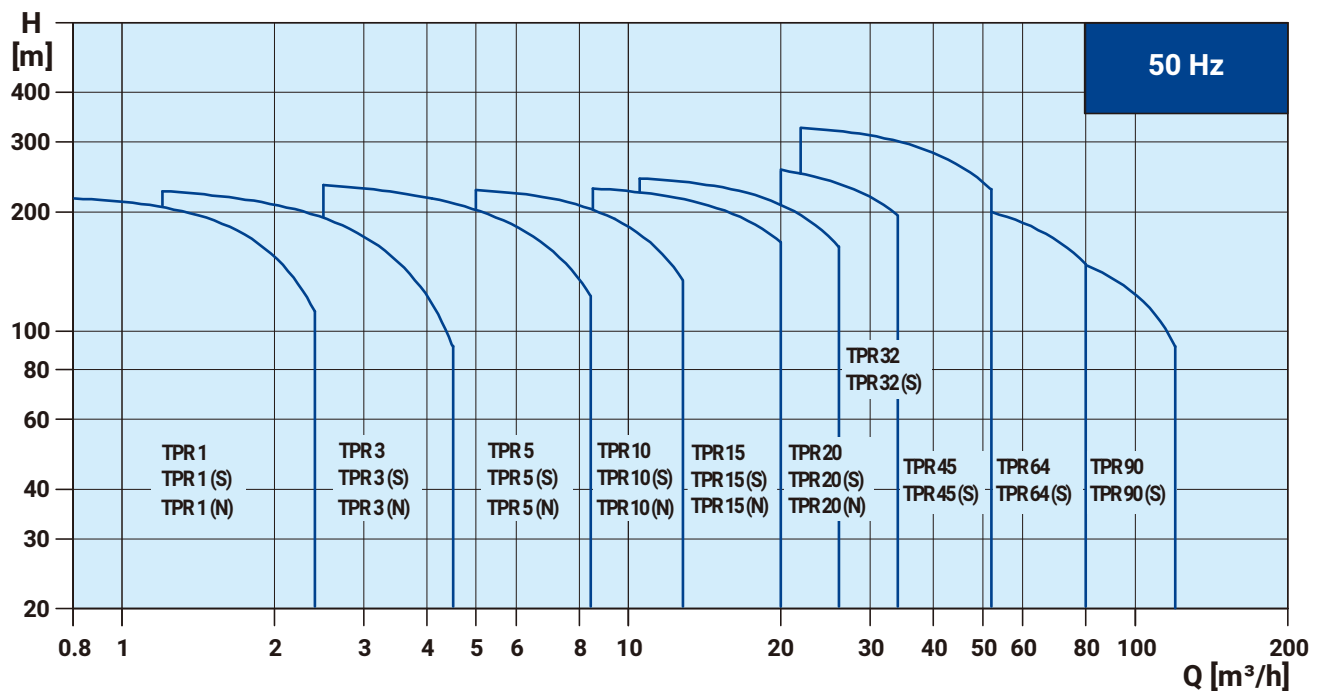


Water Supply & Pollution Control



Service Industry

Performance Range



Product Range

Description	TPR 1 (S)(N)	TPR 3 (S)(N)	TPR 5 (S)(N)	TPR 10 (S)(N)	TPR 15 (S)(N)	TPR 20 (S)(N)
Range						
Nominal flow rate [m³/h]	1	3	5	10	15	20
Flow range [m³/h]	0.7-2.4	1.2-4.5	2.5-8.5	5-13	9-24	11-29
Max. pressure [bar]	22	24	24	22	23	25
Motor power [kW]	0.37-2.2	0.37-3	0.37-5.5	0.37-7.5	1.1-15	1.1-18.5
Temperature range [°C]	-20 ~ +120					
Version						
TPR	●	●	●	●	●	●
TPR(S) / TPR(N)	●	●	●	●	●	●
TPR Pipe Connect						
DIN flange	DN 25/DN 32	DN 25/DN 32	DN 25/DN 32	DN 40	DN 50	DN 50
TPR(S) Pipe Connection						
DIN flange	DN 25/DN 32	DN 25/DN 32	DN 25/DN 32	DN 40	DN 50	DN 50
PJE coupling (Victaulic)	R 1¼	R 1¼	R 1¼	R 2	R 2	R 2
TPR(N) Pipe Connection						
DIN flange	DN 25/DN 32	DN 25/DN 32	DN 25/DN 32	DN 40	DN 50	DN 50
PJE coupling (Victaulic)	R 1¼	R 1¼	R 1¼	R 2	R 2	R 2

● Available or recommended application

- Not available or not recommended

Description	TPR 32 (S)	TPR 45 (S)	TPR 64 (S)	TPR 90 (S)
Range				
Nominal flow rate [m³/h]	32	45	64	90
Flow range [m³/h]	15-40	22-58	30-85	45-120
Max. pressure [bar]	28	33	22	20
Motor power [kW]	1.5-30	3-45	4-45	5.5-45
Temperature range [°C]	-20 ~ +120			
Version				
TPR	●	●	●	●
TPR(S)	●	●	●	●
TPR Pipe Connect				
DIN flange	DN 65	DN 80	DN 100	DN 100
TPR(S) Pipe Connection				
DIN flange	DN 65	DN 80	DN 100	DN 100
PJE coupling (Victaulic)	-	-	-	-

● Available or recommended application

- Not available or not recommended

Applications

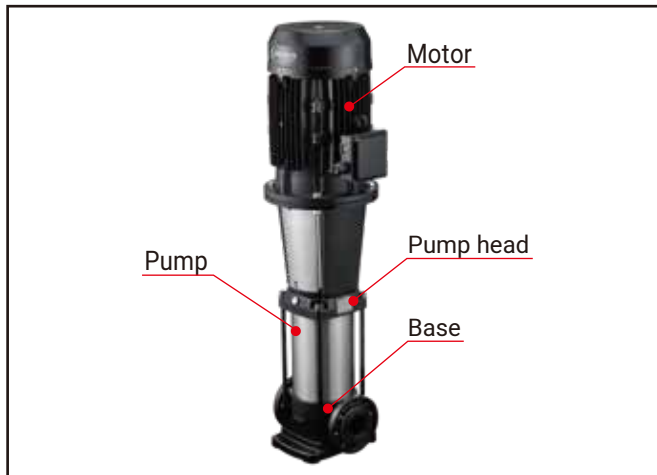
Application	TPR, TPR(S)	TPR(N)
Water supply		
Filtration and transfer at waterworks	•	○
Distribution from waterworks	•	○
Pressure boosting in mains	•	○
Pressure boosting in high-rise buildings, hotels, etc.	•	○
Pressure boosting for industrial water supply	•	○
Industry		
Pressure boosting		
Process-water systems	•	•
Washing and cleaning systems	•	•
Vehicle-washing tunnels	•	○
Firefighting systems	•	
Liquid transfer		
Cooling and air-conditioning systems (refrigerants)	•	○
Boiler feed and condensate systems	•	○
Machine tools (cooling lubricants)	•	•
Special transfer duties		
Oils and alcohols	•	•
Glycol and coolants	•	
Water treatment		
Ultra-filtration systems		•
Reverse osmosis systems *		•
Softening, ionising, demineralising systems		•
Distillation systems		•
Separators	•	•
Irrigation		
Field irrigation (flooding)	•	○
Sprinkler irrigation	•	○
Drip-feed irrigation	•	○

• Recommended version.

○ Alternative version.

Pump

TPR(S) is a non self-priming, vertical multistage centrifugal pump, consisting of a base, pump head, pump body and an outer sleeve. The base has in-line suction and discharge ports, and all seals are maintenance-free.



Motor

The motor is a totally enclosed, fan cooled, 2-pole standard motor.

Installation specifications: 0.37-4.0kW, V18;
over 5.5kW, V1

Insulation class: F

Enclosure class: IP55, IP54

Standard voltages: 3x 220/380 V

Stops and Restarts: 0.37-less than 4kw, 30times/hour
Over 4.0kw, 20times/hour

Operating conditions

Delivery liquids: non-viscous, non-flammable/explosive, without neither solid nor fiber particles, and should not cause physical nor chemical damage to the pump. For viscosity larger than water, use pumps with a higher output if necessary.

Whether a pump is suitable for a certain liquid depends factors such as the liquid's chlorine content, PH value, temperature and composition, among other factors.

Liquids temperature: -20°C to 120°C

Environmental Temperature: Maximum 40°

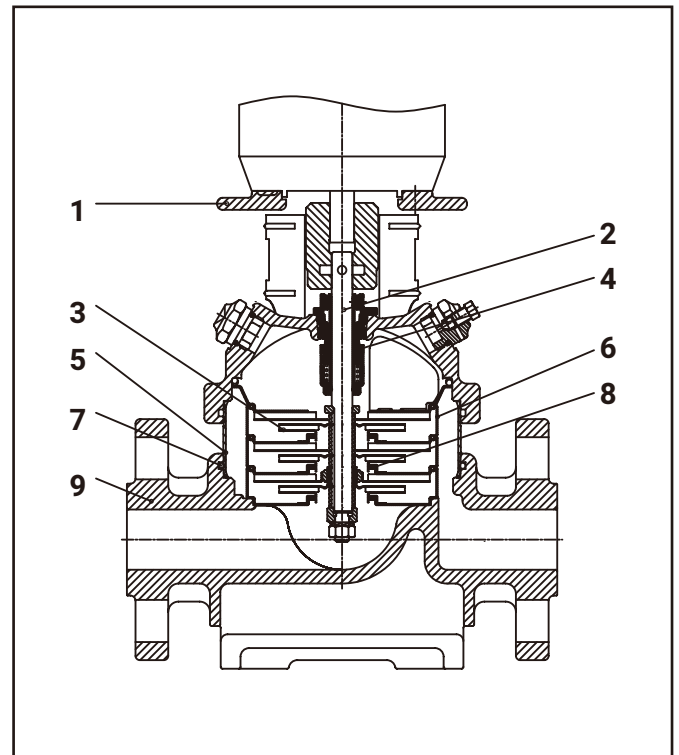
At environmental temperatures over 40°C or altitudes over 1000m above sea level, motor heat dissipation will be reduced due to reduced air density thus reducing heat dissipation, and cause a decrease in power output. In those situations, higher rated pump is necessary.

Minimum suction pipe pressure: the suction pressure should be calculated and checked if any of these conditions exist:

- High liquid temperature
- Flow significantly larger than rated maximum
- Liquid requires long suction distance
- The suction pipe is long
- Liquid entry conditions are bad

For calculations, please see page 10.

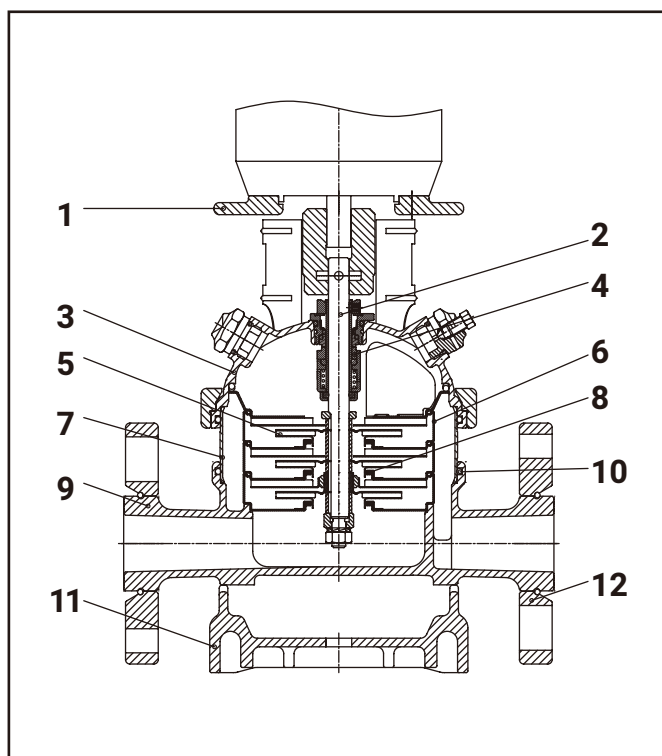
TPR 1 / 3 / 5 / 10 / 15 / 20



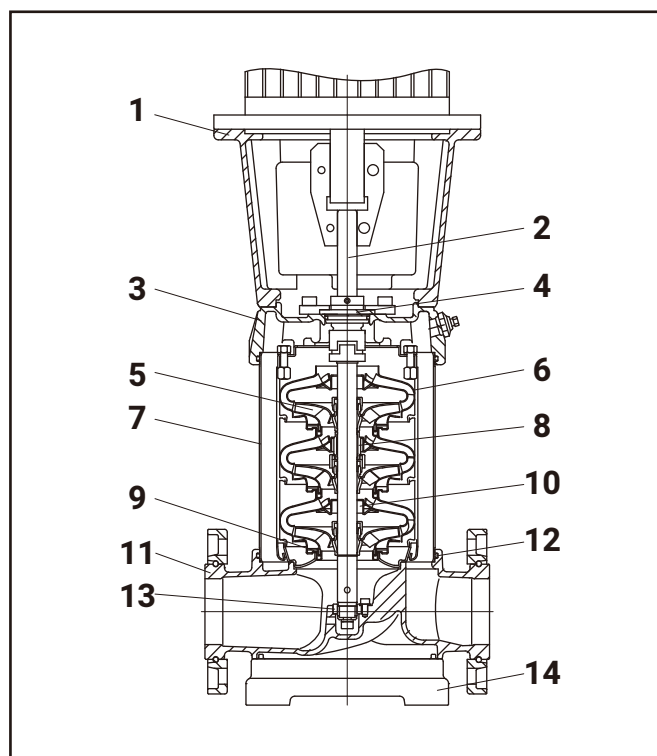
Materials

No.	Description	Materials
1	Pump head	FC200
2	Shaft	SUS304
3	Impeller	SUS304
4	Shaft seal	Cartridge type
5	Sleeve	SUS304
6	Chamber	SUS304
7	O-ring for sleeve	EPDM or HNBR
8	Neck ring	PTFE
9	Base	FC200
	Rubber parts	EPDM or HNBR

TPR 1 / 3 / 5 / 10 / 15 / 20 (S)(N)



TPR 32 / 45 / 64 / 90



Materials

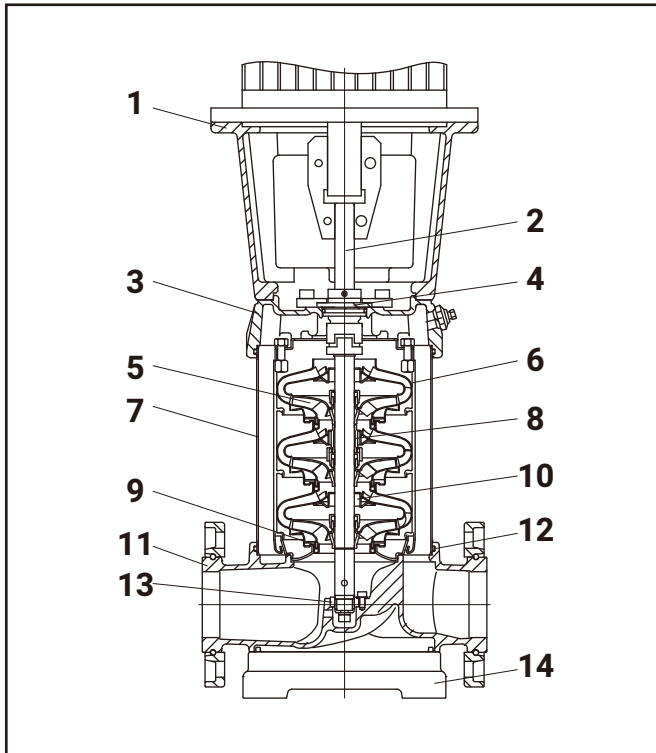
No.	Description	Materials	
		TPR(S)	TPR(N)
1	Pump head	FC200	
2	Shaft	SUS304	SUS316
3	Pump head cover	SUS304	SUS316
4	Shaft seal	Cartridge type	
5	Impeller	SUS304	SUS316
6	Chamber	SUS304	SUS316
7	Sleeve	SUS304	SUS316
8	Neck ring	PTFE	
9	Base	SUS304	SUS316
10	O-ring for sleeve	EPDM or HNBR	
11	Base plate	FC200	
12	Flange	FC200	
	Rubber parts	EPDM or HNBR	

SUS304 may be replaced by SUS316 depended on stock availability.

Materials

No.	Description	Materials
1	Motor stool	FC200
2	Shaft	SUS304
3	Pump head	FC200
4	Shaft sea	Cartridge type
5	Impeller	SUS304
6	Chamber	SUS304
7	Sleeve	SUS304
8	Bearing	Tungsten carbide
9	Neck ring	Carbon-graphite-filled PTFE
10	Bearing ring	Bronze
11	Base	FC200
12	O-ring for sleeve	EPDM or FKM
13	Bearing	Tungsten carbide
14	Base plate	FCD500
	Rubber parts	EPDM or FKM

TPR 32 / 45 / 64 / 90 (S)



Materials

No.	Description	Materials
1	Motor stool	FC200
2	Shaft	SUS304
3	Pump head	SUS304
4	Shaft seal	Cartridge type
5	Impeller	SUS304
6	Chamber	SUS304
7	Sleeve	SUS304
8	Bearing	Tungsten carbide
9	Neck ring	Carbon-graphite-filled PTFE
10	Bearing ring	Bronze
11	Base	SUS304
12	O-ring for sleeve	EPDM or FKM
13	Bearing	Tungsten carbide
14	Base plate	FCD500
	Rubber parts	EPDM or FKM

Type Keys

Pump

Example	TPR	32	-3	-1	N	F	RSSH
Type range:							
TPR							
Flow rate [m³/h]							
Number of stages							
Number of impellers							
Code for pump material							
Code for pipe connection							
Code for shaft seal							

Key to codes

Code	Description
Code for materials Notes: 1)	
S	SUS 304
N	SUS 316
Code for pipe connection Notes: 1)	
P	PJE Coupling (Victarlic)
F	DIN flange

Shaft seal Notes: 2,3)

Example	R	S	S	H
Shaft seal type designation				
Material of stationary seal face				
Material of rotating seal face				
Material of secondary seal (rubber parts)				

Code	Description
Shaft seal type designation	
R	TPR balanced cartridge seal with O-ring
Seal face material (stationary and rotating)	
G	Carbon, resin-impregnated
S	Silicon Carbide (SiC)
T	Tungsten
Secondary seal material (rubber parts)	
E	EPDM
H	HNBR
V	VITON (FKM)

1) TPR 32 ~ 90 not offered SUS316 and PJE type.

2) TPR 1 ~ 20 only has RSSE / RSSH / RSSV.

3) TPR 32 ~ 90 not offered HNBR.

Operating range of the shaft seal

The operating range of the shaft seal depends on operating pressure, pump type, type of shaft seal and liquid temperature. The range shown in fig. 7 applies to clean water and water with anti-freeze liquids.

If the operating range is exceeded, the life of the shaft seal may be reduced.

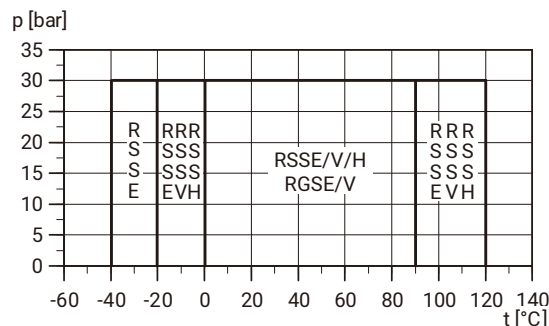


Fig.7

Standard shaft seal	Pump type	Description	Liquid temperature [°C]
RSSE	TPR 1 ~ 90	SIC/SIC, EPDM	-40 ~ +120
RSSH	TPR 1 ~ 20	SIC/SIC, HNBR	-20 ~ +120
RSSV	TPR 1 ~ 90	SIC/SIC, VITON	-20 ~ +120
RGSE	TPR 32 ~ 90	Carbon/SIC, EPDM	0 ~ +90
RGSV	TPR 32 ~ 90	Carbon/SIC, VITON	0 ~ +90

Maximum operating pressure and liquid temperature

Pump type	DIN		PJE	
	Maximum permissible operating pressure [bar]	Liquid temperature [°C]	Maximum permissible operating pressure [bar]	Liquid temperature [°C]
TPR 1 (S)(N)	25	-20 ~ +120	25	-20 ~ +120
TPR 3 (S)(N)	25		25	
TPR 5 (S)(N)	25		25	
TPR 10-1 → 10-10 (S)(N)	16		16	
TPR 10-12 → 10-17 (S)(N)	25		25	
TPR 15-1 → 15-8(S)(N)	16		16	
TPR 15-9 → 15-12 (S)(N)	25		25	
TPR 20-1 → 20-7 (S)(N)	16		16	
TPR 20-8 → 20-10 (S)(N)	25		25	
TPR 32-1-1 → 32-5 (S)	16		-	
TPR 32-6-2 → 32-10-2 (S)	30		-	
TPR 45-1-1 → 45-4 (S)	16		-	
TPR 45-5-2 → 45-7 (S)	30		-	
TPR 64-1-1 → 64-3 (S)	16		-	
TPR 64-4-2 → 64-5-2 (S)	30		-	
TPR 90-1-1 → 90-3 (S)	16		-	
TPR 90-4-2 (S)	30		-	

Maximum Inlet Pressure

The following table shows the maximum permissible inlet pressure. However, the actual inlet pressure plus the pressure against a closed valve must always be lower than the maximum permissible operating pressure.

If the maximum permissible operating pressure is exceeded, the conical bearing in the motor may be damaged and the life of the shaft seal reduced.

Pump Type	Maximum Inlet Pressure [bar]
TPR1(S)(N)	
1-2 → 1-36	10
TPR3(S)(N)	
3-2 → 3-29	10
3-31 → 3-36	15
TPR5(S)(N)	
5-2 → 5-16	10
5-18 → 5-36	15
TPR10(S)(N)	
10-1 → 10-6	8
10-7 → 10-22	10
TPR15(S)(N)	
15-1 → 15-3	8
15-4 → 15-17	10
TPR20(S)(N)	
20-1 → 20-3	8
20-4 → 20-17	10
TPR32(S)	
32-1-1 → 32-4	4
32-5-2 → 32-10	10
32-11-2 → 32-14	15
TPR45(S)	
45-1-1 → 45-2	4
45-3-2 → 45-5	10
45-6-2 → 45-13-2	15
TPR64(S)	
64-1-1 → 64-2-2	4
64-2-1 → 64-4-2	10
64-4-1 → 64-8-1	15
TPR90(S)	
90-1-1 → 90-1	4
90-2-2 → 90-3-2	10
90-3 → 90-6	15

Operating Pressure and Inlet Pressure

The values for operating and inlet pressures shown in the table should not be considered individually but should always be compared.

See the following examples.

Example 1:

The following pump type has been selected :

TPR3-25F

Maximum operating pressure: 25bar

Maximum inlet pressure: 10bar

Discharge pressure against a closed valve: 16.3bar,

See page 15.

This pump is not allowed to start at an inlet pressure of 10 bar, but at an inlet pressure of $25 - 16.3 = 8.7$ bar.

Pump material

Select the material variant on the basis of the liquid to be pumped.

TPR series divide into three types: TPR, TPR(S), TPR(N):

- TPR is suitable for clean non-aggressive liquid.
For example water and light oil.
- TPR(S) is suitable for light aggressive liquid;
all of wetted parts are stainless steel.
- TPR(N) pumps are suitable for industrial liquids.

Pump connections

Selection of pump connection depends on the rated pressure and pipework.

To meet any requirement, the TPR, TPR(S) and TPR(N) pumps offer a wide range of flexible connections.

- DIN flange
- PJE Coupling (Victarlic)

Shaft seal

How to choose the right Mechanical Seal

- Liquid Type
- Liquid Temperature
- Max Pressure

Operating pressure and inlet pressure

Do not exceed the limit values for these pressures:

- maximum operating pressure
- maximum inlet pressures

Minimum inlet pressure, NPSH

Calculation of the inlet pressure "H" is recommended in these situations:

- 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.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump.

$$H = P_b \times 10.2 - \text{NPSH} - H_f - H_v - H_s$$

P_b = Barometric pressure in bar.

Barometric pressure can be set to 1 bar. In closed system, P_b indicates the pressure in bar.

NPSH = Friction loss in suction pipe in metres 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 metres head.

At the highest flow the pump will be delivering.

H_v = Vapour pressure in metres head.

To be read from the Vapour pressure scale.

H_s = Safety margin [m], minimum 0.5 metres head.

If the calculated "H" is positive, the pump can operate at a suction lift of maximum "H" metres head.

If the calculated "H" is negative, an inlet pressure of minimum "H" metres head is required.

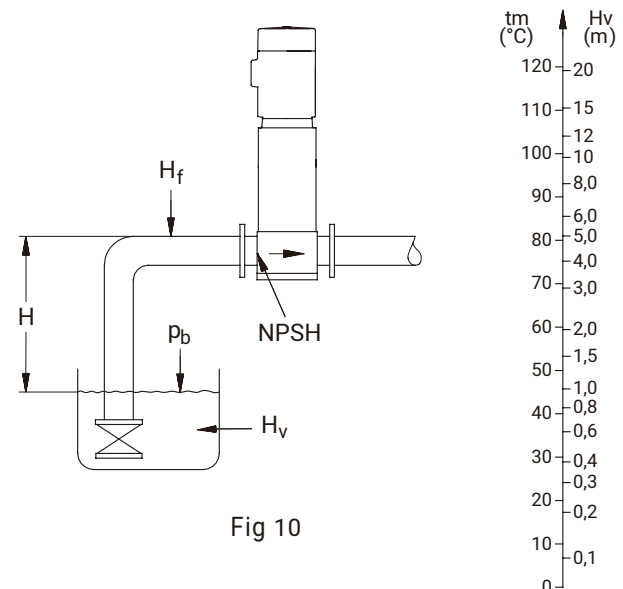


Fig 10

Fig 10. Minimum inlet pressure, NPSH

Note: To avoid cavitation, do not 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.

How to read the curve charts

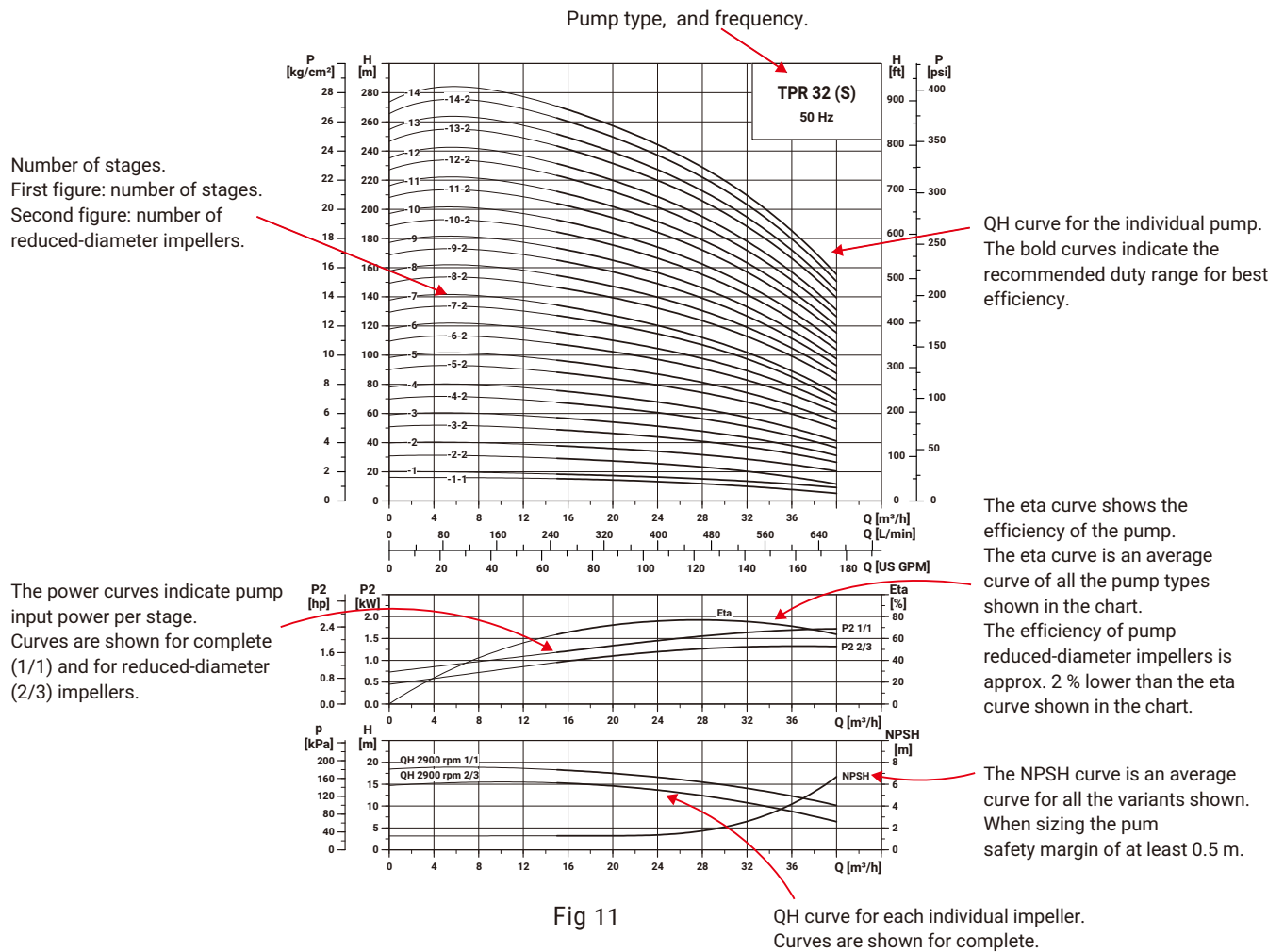


Fig 11

Guidelines to performance curves

- To conform to ISO9906:1999, Annex A, if indicated.
- The motors used for the measurements are standard industrial motors (IE3)
- Measurements have been made with airless water at a temperature of 20°C.
- The curves apply to the following kinematic viscosity:
 $\nu = 1 \text{ mm}^2/\text{s} (1 \text{ cSt})$.
- Due to prevent the risk of overheating, the pumps should not be used at flow below the minimum flow rate.
- The QH curves apply to a rated motor speed of a three-phase mains-operated motor.

The curve below shows the minimum flow rate as percentage of the rated flow rate in relation to the liquid temperature. The dotted line shows a TPR pump fitted with an air-cooled top assembly.

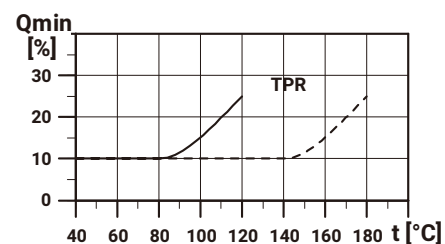
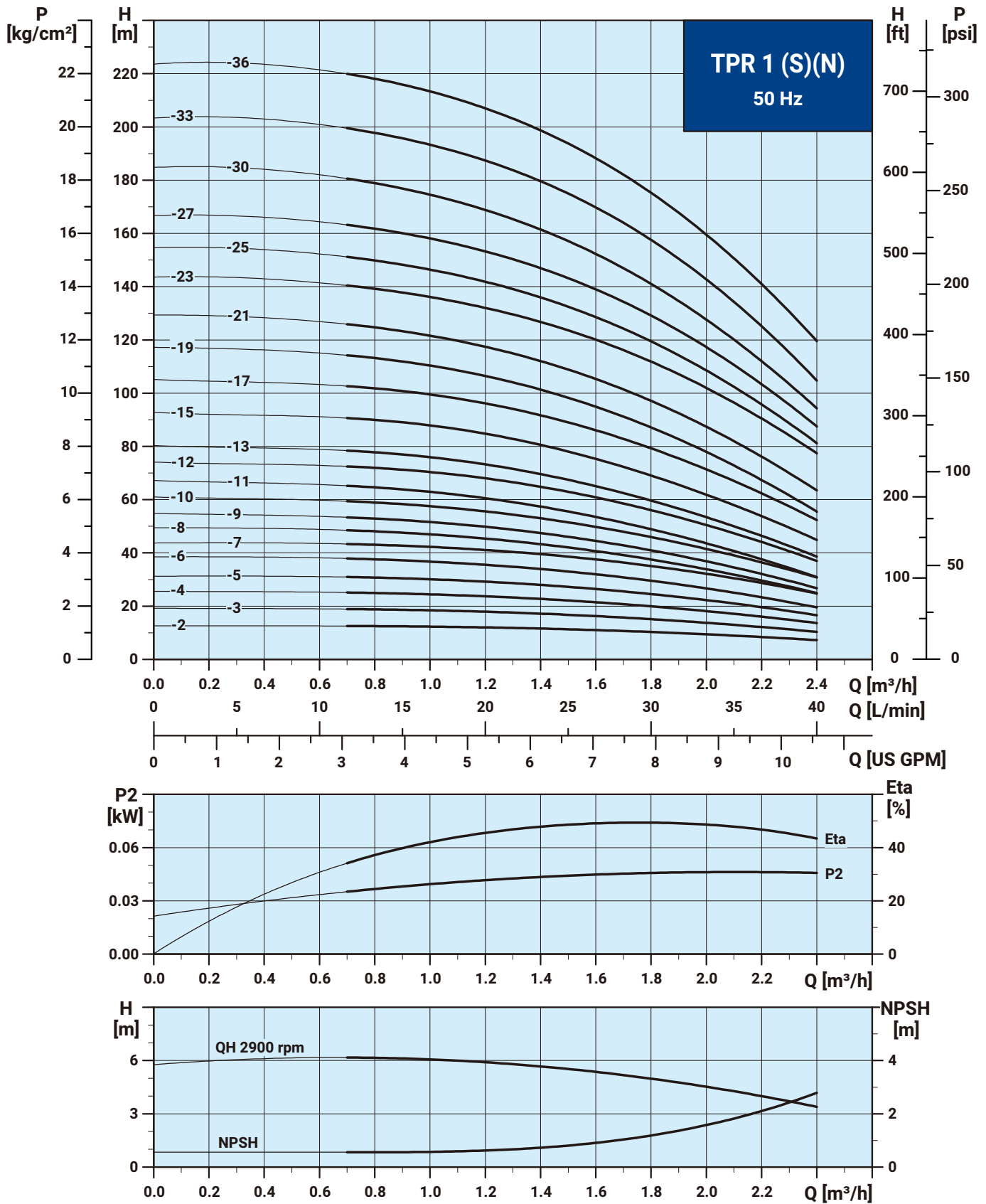


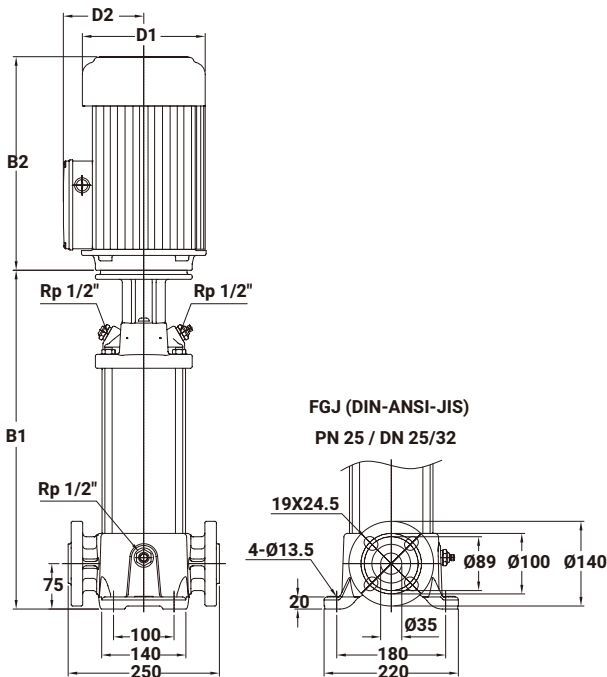
Fig 12

Performance curves



Dimensional Sketches

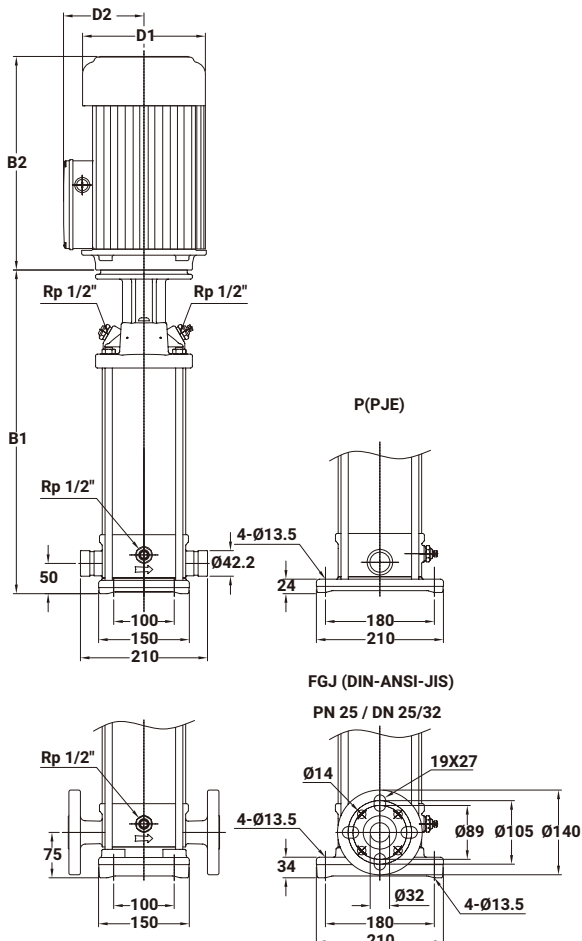
TPR 1



TPR 1

Pump type	Motor [kW]	Dimension [mm]			
		DIN flange		D1	D2
		B1	B1+B2		
TPR 1-2	0.37	278	471	144.5	110
TPR 1-3	0.37	278	471	144.5	110
TPR 1-4	0.37	296	489	144.5	110
TPR 1-5	0.37	314	507	144.5	110
TPR 1-6	0.37	332	525	144.5	110
TPR 1-7	0.37	350	543	144.5	110
TPR 1-8	0.55	368	601	144.5	110
TPR 1-9	0.55	386	619	144.5	110
TPR 1-10	0.55	404	637	144.5	110
TPR 1-11	0.55	422	655	144.5	110
TPR 1-12	0.75	446	679	144.5	110
TPR 1-13	0.75	464	697	144.5	110
TPR 1-15	0.75	500	733	144.5	110
TPR 1-17	1.10	536	800	144.5	110
TPR 1-19	1.10	572	836	144.5	110
TPR 1-21	1.10	608	872	144.5	110
TPR 1-23	1.10	644	908	181	122
TPR 1-25	1.50	697	976	181	122
TPR 1-30	1.50	733	1012	181	122
TPR 1-30	1.50	787	1066	181	122
TPR 1-33	2.20	841	1150	181	122
TPR 1-36	2.20	895	1204	181	122

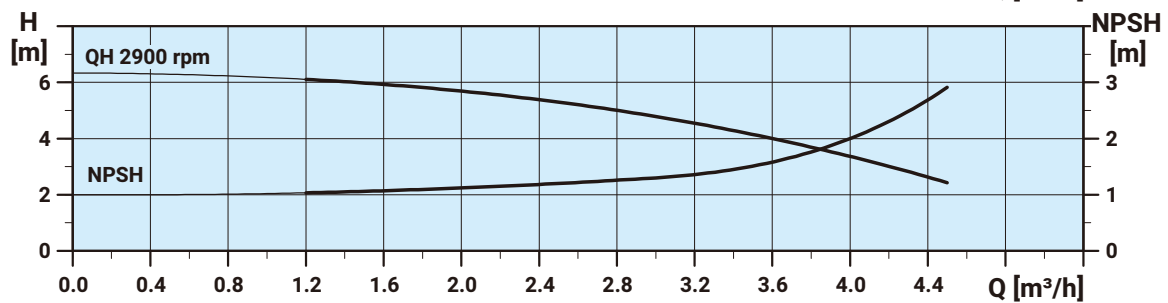
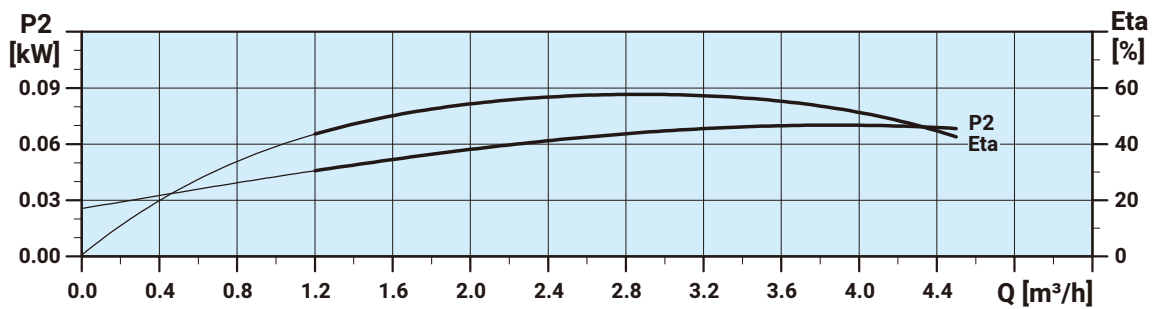
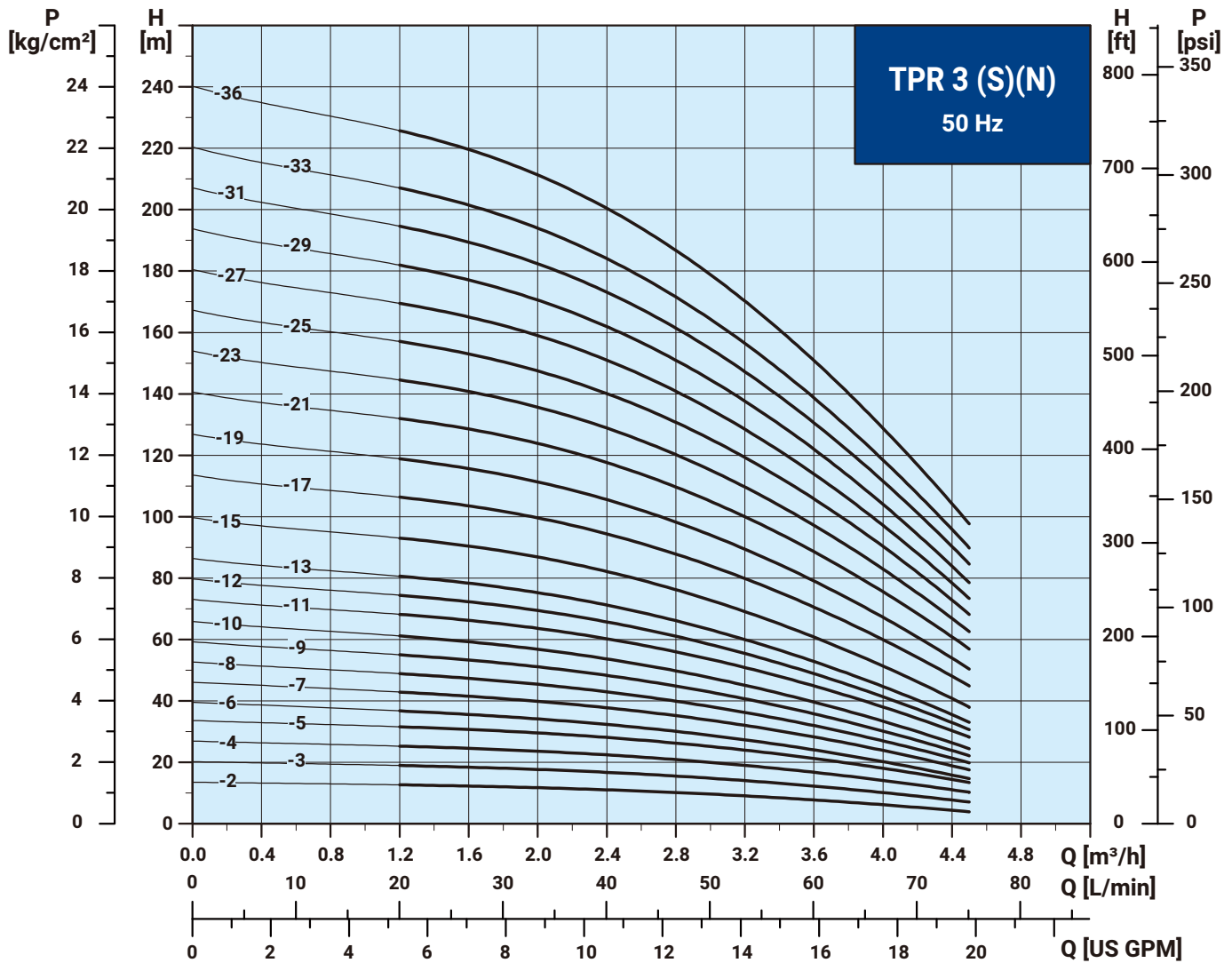
TPR 1 (S)(N)



TPR 1 (S)(N)

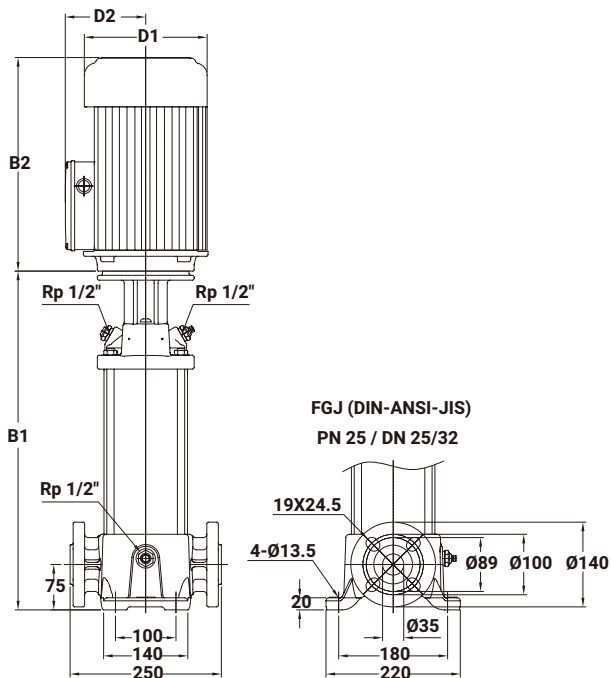
Pump type	Motor [kW]	Dimension [mm]					
		PJE		DIN flange		D1	D2
		B1	B1+B2	B1	B1+B2		
TPR 1-2 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 1-3 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 1-4 (S)(N)	0.37	280	474	295	489	144.5	110
TPR 1-5 (S)(N)	0.37	298	492	313	507	144.5	110
TPR 1-6 (S)(N)	0.37	316	510	331	525	144.5	110
TPR 1-7 (S)(N)	0.37	334	528	349	543	144.5	110
TPR 1-8 (S)(N)	0.55	352	586	367	601	144.5	110
TPR 1-9 (S)(N)	0.55	370	604	385	619	144.5	110
TPR 1-10 (S)(N)	0.55	388	622	403	637	144.5	110
TPR 1-11 (S)(N)	0.55	406	640	421	655	144.5	110
TPR 1-12 (S)(N)	0.75	430	664	445	679	144.5	110
TPR 1-13 (S)(N)	0.75	448	682	463	697	144.5	110
TPR 1-15 (S)(N)	0.75	484	718	499	733	144.5	110
TPR 1-17 (S)(N)	1.10	520	784	535	799	144.5	110
TPR 1-19 (S)(N)	1.10	556	820	571	835	144.5	110
TPR 1-21 (S)(N)	1.10	592	856	607	871	144.5	110
TPR 1-23 (S)(N)	1.10	628	892	643	907	144.5	110
TPR 1-25 (S)(N)	1.50	681	960	696	975	181	122
TPR 1-27 (S)(N)	1.50	717	996	732	1011	181	122
TPR 1-30 (S)(N)	1.50	771	1050	786	1065	181	122
TPR 1-33 (S)(N)	2.20	825	1134	840	1149	181	122
TPR 1-36 (S)(N)	2.20	879	1188	894	1203	181	122

Performance curves



Dimensional Sketches

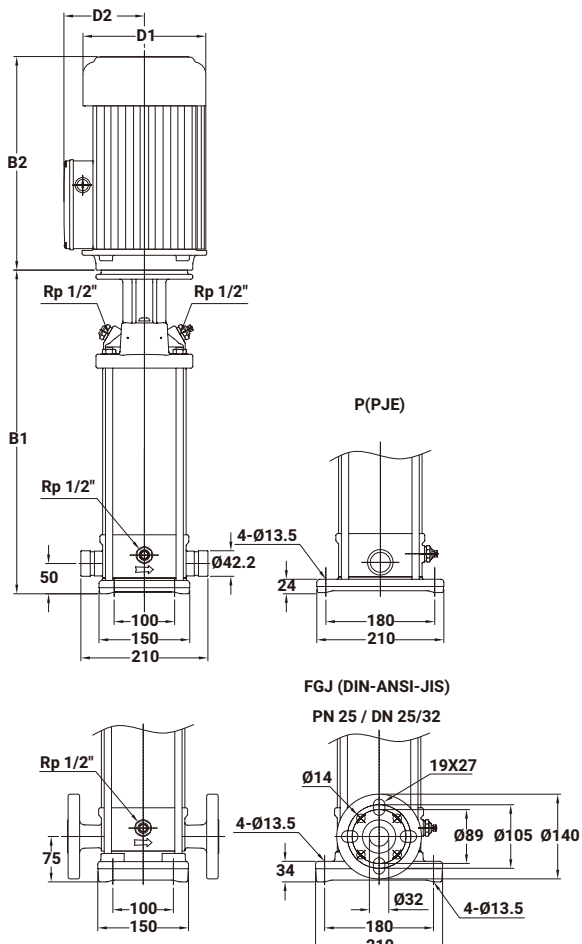
TPR 3



TPR 3

Pump type	Motor [kW]	Dimension [mm]			
		DIN flange		D1	D2
		B1	B1+B2		
TPR 3-2	0.37	278	471	144.5	110
TPR 3-3	0.37	278	471	144.5	110
TPR 3-4	0.37	296	489	144.5	110
TPR 3-5	0.37	314	507	144.5	110
TPR 3-6	0.55	332	565	144.5	110
TPR 3-7	0.55	350	583	144.5	110
TPR 3-8	0.75	374	607	144.5	110
TPR 3-9	0.75	392	625	144.5	110
TPR 3-10	0.75	410	643	144.5	110
TPR 3-11	1.10	428	692	144.5	110
TPR 3-12	1.10	446	710	144.5	110
TPR 3-13	1.10	464	728	144.5	110
TPR 3-15	1.10	500	764	144.5	110
TPR 3-17	1.50	553	832	181	122
TPR 3-19	1.50	589	868	181	122
TPR 3-21	2.20	625	934	181	122
TPR 3-23	2.20	661	970	181	122
TPR 3-25	2.20	697	1006	181	122
TPR 3-27	2.20	733	1042	181	122
TPR 3-29	2.20	769	1078	181	122
TPR 3-31	3.00	809	1133	208	133
TPR 3-33	3.00	845	1169	208	133
TPR 3-36	3.00	899	1223	208	133

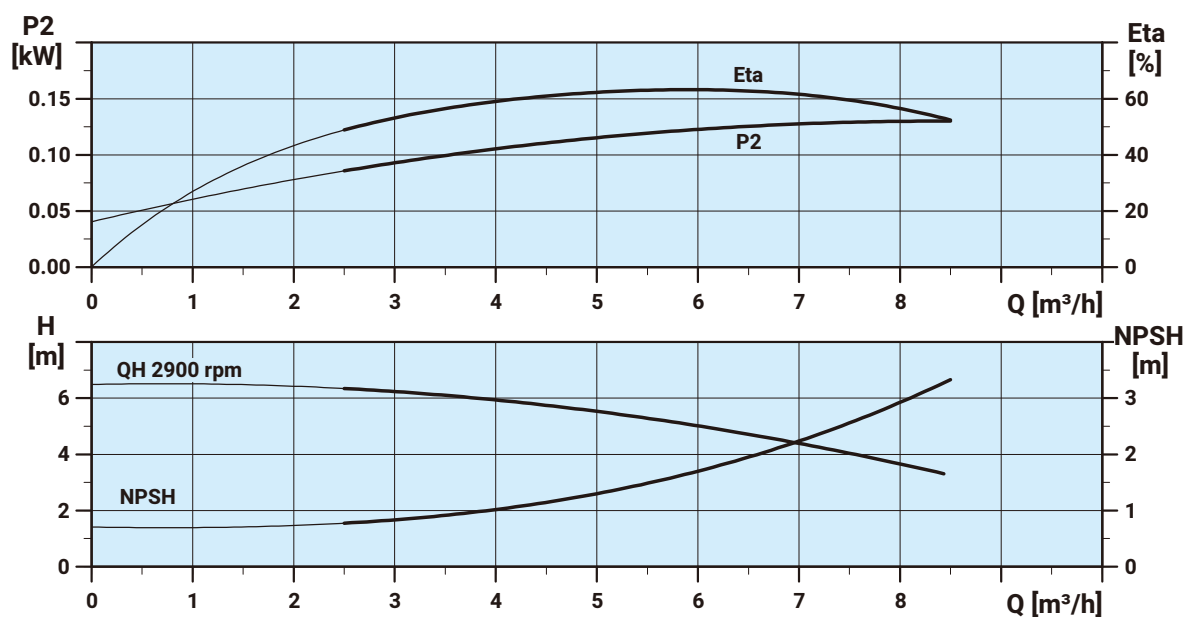
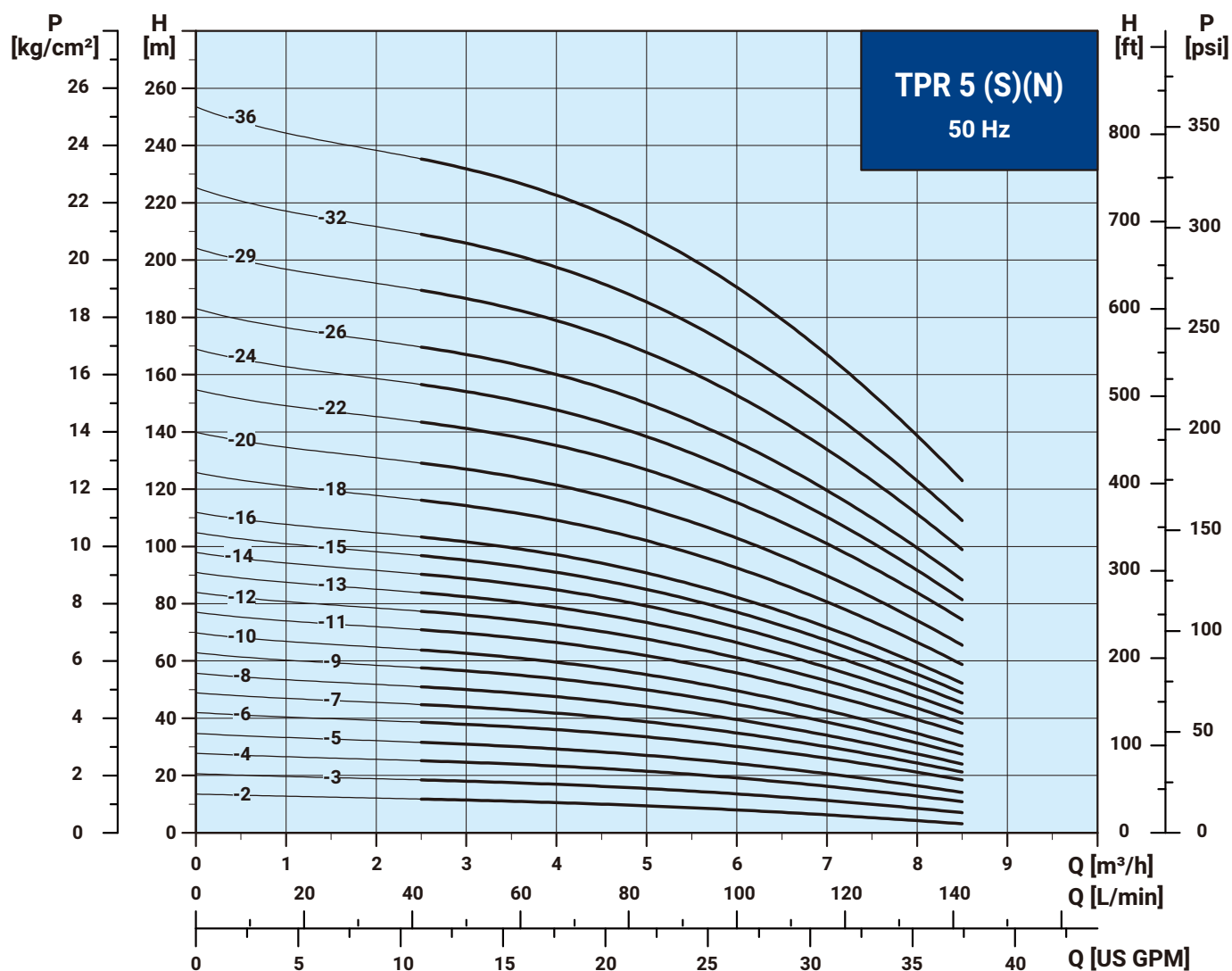
TPR 3 (S)(N)



TPR 3 (S)(N)

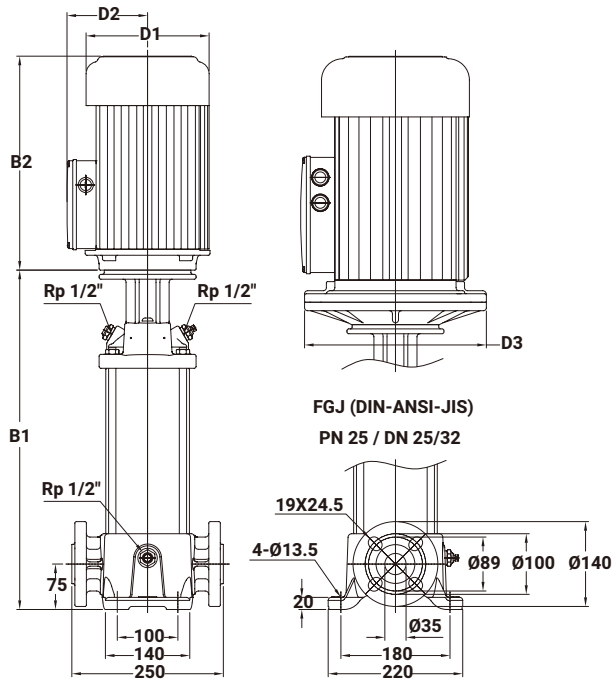
Pump type	Motor [kW]	Dimension [mm]					
		PJE		DIN flange		D1	D2
		B1	B1+B2	B1	B1+B2		
TPR 3-2 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 3-3 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 3-4 (S)(N)	0.37	280	474	295	489	144.5	110
TPR 3-5 (S)(N)	0.37	298	492	313	507	144.5	110
TPR 3-6 (S)(N)	0.55	316	550	331	565	144.5	110
TPR 3-7 (S)(N)	0.55	334	568	349	583	144.5	110
TPR 3-8 (S)(N)	0.75	358	592	373	607	144.5	110
TPR 3-9 (S)(N)	0.75	376	610	391	625	144.5	110
TPR 3-10 (S)(N)	0.75	394	628	409	643	144.5	110
TPR 3-11 (S)(N)	1.10	412	676	427	691	144.5	110
TPR 3-12 (S)(N)	1.10	430	694	445	709	144.5	110
TPR 3-13 (S)(N)	1.10	448	712	463	727	144.5	110
TPR 3-15 (S)(N)	1.10	484	748	499	763	144.5	110
TPR 3-17 (S)(N)	1.50	537	816	552	831	181	122
TPR 3-19 (S)(N)	1.50	573	852	588	867	181	122
TPR 3-21 (S)(N)	2.20	609	918	624	933	181	122
TPR 3-23 (S)(N)	2.20	645	954	660	969	181	122
TPR 3-25 (S)(N)	2.20	681	990	696	1005	181	122
TPR 3-27 (S)(N)	2.20	717	1026	732	1041	181	122
TPR 3-29 (S)(N)	2.20	753	1062	768	1077	181	122
TPR 3-31 (S)(N)	3.00	793	1117	808	1132	208	133
TPR 3-33 (S)(N)	3.00	829	1153	844	1168	208	133
TPR 3-36 (S)(N)	3.00	883	1207	898	1222	208	133

Performance curves

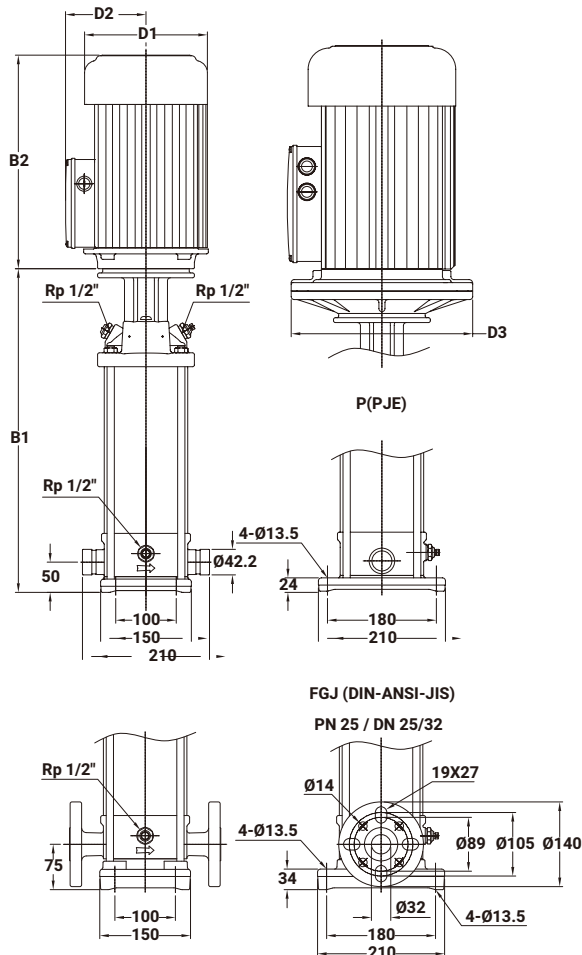


Dimensional Sketches

TPR 5



TPR 5 (S)(N)



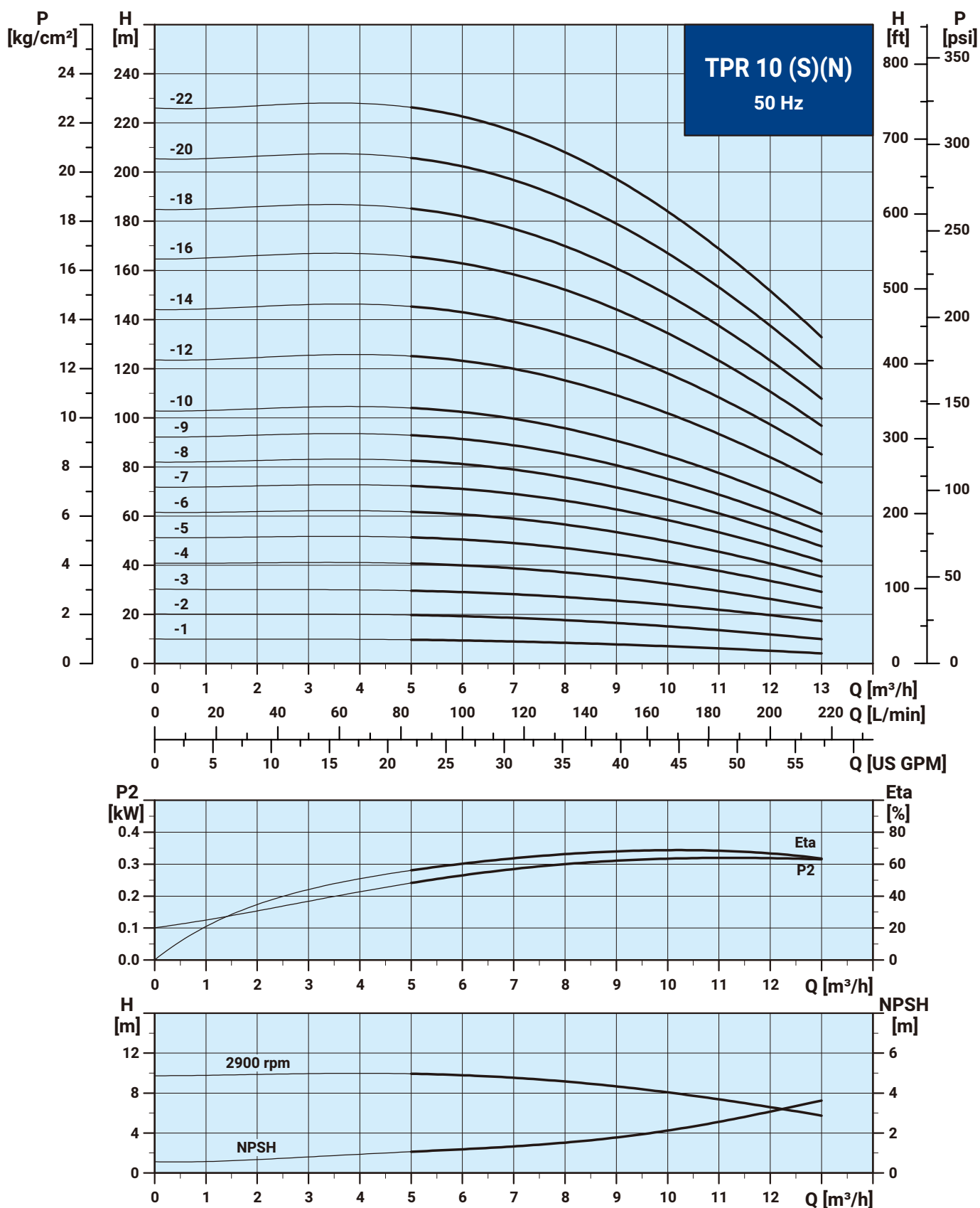
TPR 5

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 5-2	0.37	278	471	144.5	110	-
TPR 5-3	0.55	305	538	144.5	110	-
TPR 5-4	0.55	332	565	144.5	110	-
TPR 5-5	0.75	365	598	144.5	110	-
TPR 5-6	1.10	392	656	144.5	110	-
TPR 5-7	1.10	419	683	144.5	110	-
TPR 5-8	1.10	446	710	144.5	110	-
TPR 5-9	1.50	490	769	181	122	-
TPR 5-10	1.50	517	796	181	122	-
TPR 5-11	2.20	544	853	181	122	-
TPR 5-12	2.20	571	880	181	122	-
TPR 5-13	2.20	598	907	181	122	-
TPR 5-14	2.20	625	934	181	122	-
TPR 5-15	2.20	652	961	181	122	-
TPR 5-16	2.20	679	988	181	122	-
TPR 5-18	3.00	737	1061	208	133	-
TPR 5-20	3.00	791	1115	208	133	-
TPR 5-22	4.00	845	1204	208	133	-
TPR 5-24	4.00	899	1258	208	133	-
TPR 5-26	4.00	953	1312	208	133	-
TPR 5-29	4.00	1034	1393	208	133	-
TPR 5-32	5.50	1152	1517	244	156.5	300
TPR 5-36	5.50	1260	1625	244	156.5	300

TPR 5 (S)(N)

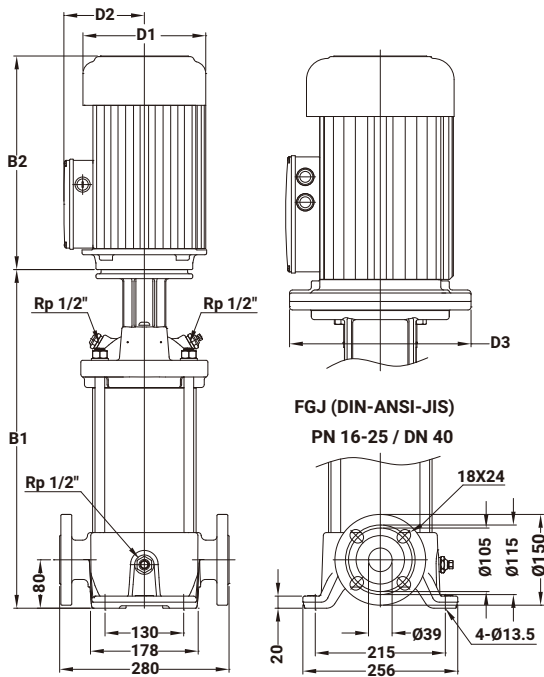
Pump type	Motor [kW]	Dimension [mm]						
		PJE		DIN flange		D1	D2	D3
		B1	B1+B2	B1	B1+B2			
TPR 5-2 (S)(N)	0.37	262	456	277	471	144.5	110	-
TPR 5-3 (S)(N)	0.55	289	483	304	498	144.5	110	-
TPR 5-4 (S)(N)	0.55	316	510	331	525	144.5	110	-
TPR 5-5 (S)(N)	0.75	349	583	364	598	144.5	110	-
TPR 5-6 (S)(N)	1.10	376	640	391	655	144.5	110	-
TPR 5-7 (S)(N)	1.10	403	667	418	682	144.5	110	-
TPR 5-8 (S)(N)	1.10	430	694	445	709	144.5	110	-
TPR 5-9 (S)(N)	1.50	474	753	489	768	181	122	-
TPR 5-10 (S)(N)	2.20	501	780	516	795	181	122	-
TPR 5-11 (S)(N)	2.20	528	837	543	852	181	122	-
TPR 5-12 (S)(N)	2.20	555	864	570	879	181	122	-
TPR 5-13 (S)(N)	2.20	582	891	597	906	181	122	-
TPR 5-14 (S)(N)	2.20	609	918	624	933	181	122	-
TPR 5-15 (S)(N)	2.20	636	945	651	960	181	122	-
TPR 5-16 (S)(N)	2.20	663	972	678	987	181	122	-
TPR 5-18 (S)(N)	3.00	721	1045	736	1060	208	133	-
TPR 5-20 (S)(N)	3.00	775	1099	790	1114	208	133	-
TPR 5-22 (S)(N)	4.00	829	1188	844	1203	208	133	-
TPR 5-24 (S)(N)	4.00	883	1242	952	1257	208	133	-
TPR 5-26 (S)(N)	4.00	937	1296	1033	1311	208	133	-
TPR 5-29 (S)(N)	4.00	1018	1377	1377	1392	208	133	-
TPR 5-32 (S)(N)	5.50	1136	1502	1517	1517	244	156.5	300
TPR 5-36 (S)(N)	5.50	1244	1610	1625	1625	244	156.5	300

Performance curves



Dimensional Sketches

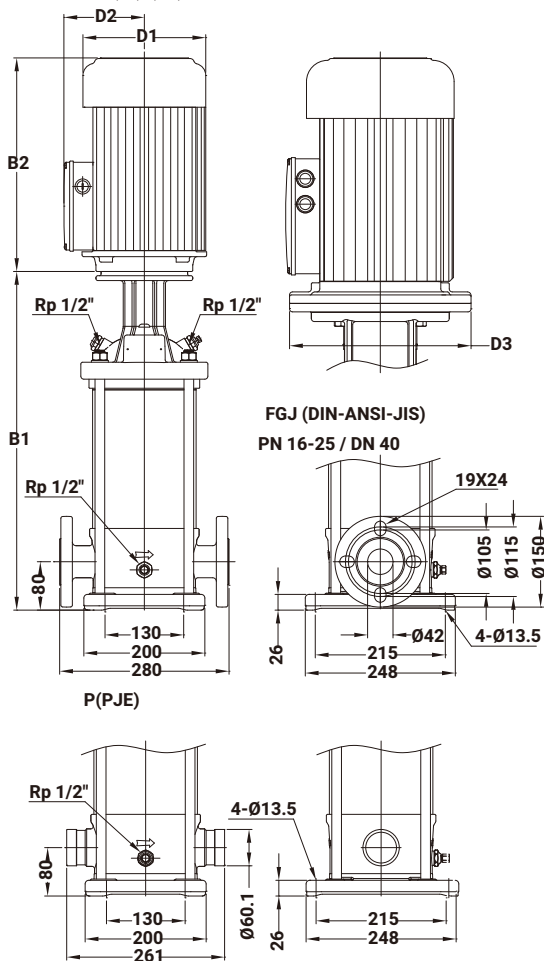
TPR 10



TPR 10

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 10-1	0.37	343	537	144.5	110	-
TPR 10-2	0.75	348	582	144.5	110	-
TPR 10-3	1.10	378	642	144.5	110	-
TPR 10-4	1.50	423	702	181	122	-
TPR 10-5	2.20	453	762	181	122	-
TPR 10-6	2.20	483	792	181	122	-
TPR 10-7	3.00	516	840	208	133	-
TPR 10-8	3.00	546	870	208	133	-
TPR 10-9	3.00	576	900	208	133	-
TPR 10-10	4.00	606	965	208	133	-
TPR 10-12	4.00	666	1025	208	133	-
TPR 10-14	5.50	760	1126	244	156.5	300
TPR 10-16	5.50	820	1186	244	156.5	300
TPR 10-18	7.50	880	1286	244	156.5	300
TPR 10-20	7.50	940	1346	244	156.5	300
TPR 10-22	7.50	1000	1346	244	156.5	300

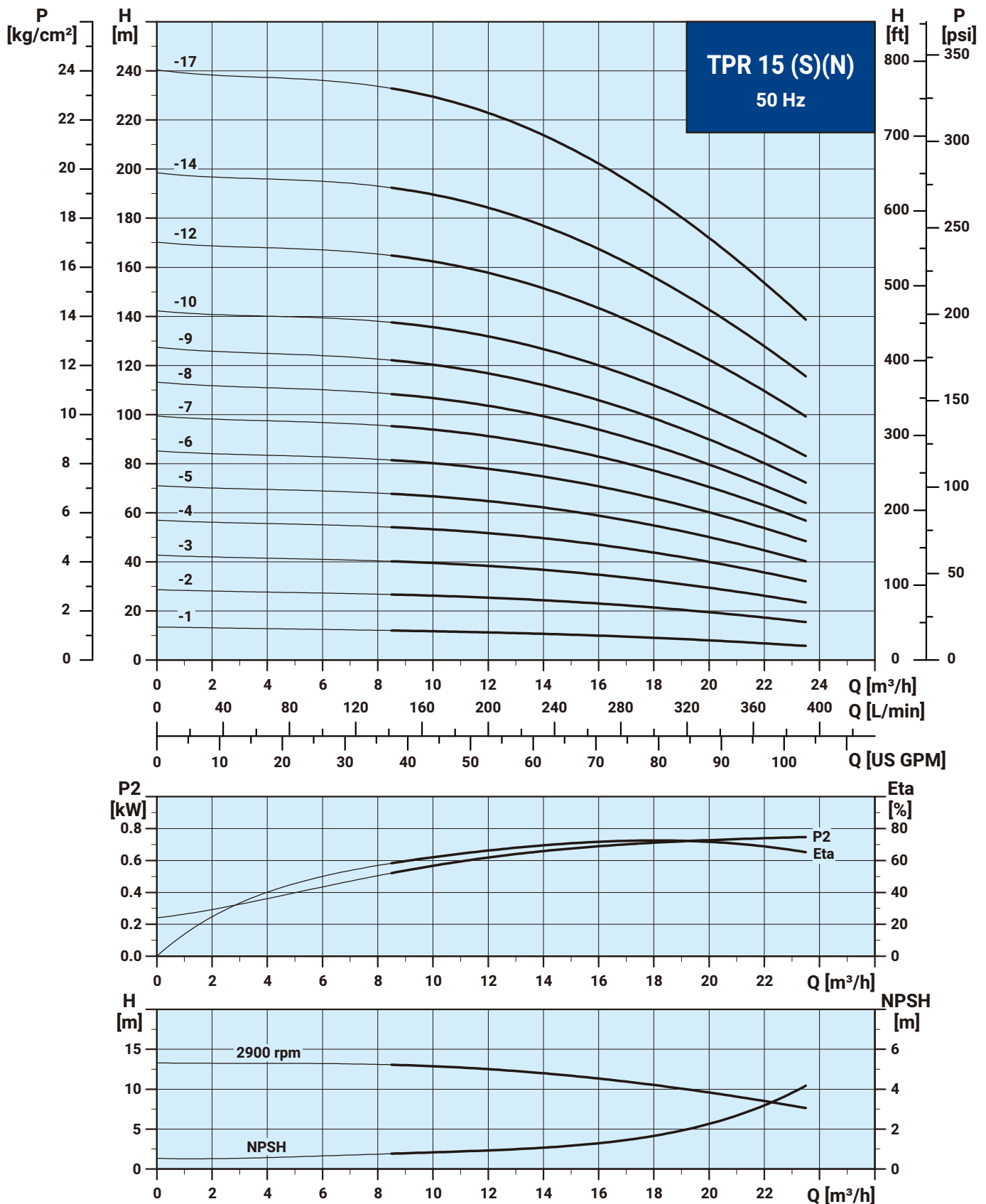
TPR 10 (S)(N)



TPR 10 (S)(N)

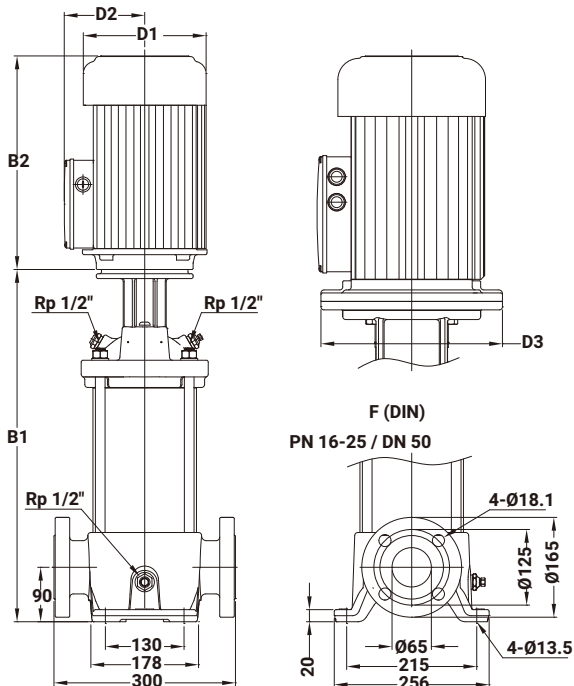
Pump type	Motor [kW]	Dimension [mm]					
		PJE		DIN flange		D1	D2
		B1	B1+B2	B1	B1+B2		
TPR 10-1 (S)(N)	0.37	355	549	355	549	144.5	110
TPR 10-2 (S)(N)	0.75	355	589	355	589	144.5	110
TPR 10-3 (S)(N)	1.10	390	654	390	654	144.5	110
TPR 10-4 (S)(N)	1.50	435	714	435	714	181	122
TPR 10-5 (S)(N)	2.20	465	774	465	774	181	122
TPR 10-6 (S)(N)	2.20	495	804	495	804	181	122
TPR 10-7 (S)(N)	3.00	528	852	528	852	208	133
TPR 10-8 (S)(N)	3.00	558	882	558	882	208	133
TPR 10-9 (S)(N)	3.00	588	912	588	912	208	133
TPR 10-10 (S)(N)	4.00	618	997	618	977	208	133
TPR 10-12 (S)(N)	4.00	678	1037	678	1037	208	133
TPR 10-14 (S)(N)	5.50	772	1138	772	1138	244	156.5
TPR 10-16 (S)(N)	5.50	832	1198	832	1198	244	156.5
TPR 10-18 (S)(N)	7.50	892	1298	892	1298	244	156.5
TPR 10-20 (S)(N)	7.50	952	1358	952	1358	244	156.5
TPR 10-22 (S)(N)	7.50	1012	1418	1012	1418	244	156.5

Performance curves



Dimensional Sketches

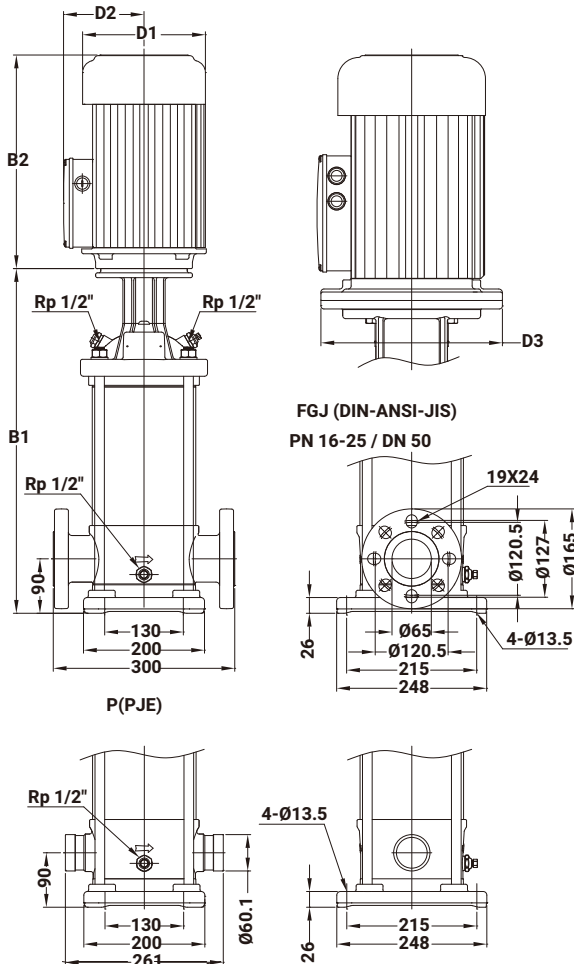
TPR 15



TPR 15

Pump type	Motor [kW]	Dimension [mm]					
		DIN flange		D1	D2	D3	
		B1	B1+B2				
TPR 15-1	1.10	401	665	144.5	110	-	
TPR 15-2	2.20	416	725	181	122	-	
TPR 15-3	3.00	464	788	208	133	-	
TPR 15-4	4.00	509	868	208	133	-	
TPR 15-5	4.00	554	913	208	133	-	
TPR 15-6	5.50	633	999	244	156.5	300	
TPR 15-7	5.50	678	1044	244	156.5	300	
TPR 15-8	7.50	723	1129	244	156.5	300	
TPR 15-9	7.50	768	1174	244	156.5	300	
TPR 15-10	11.00	894	1394	330	250	350	
TPR 15-12	11.00	984	1484	330	250	350	
TPR 15-14	11.00	1074	1574	330	250	350	
TPR 15-17	15.00	1209	1709	330	250	350	

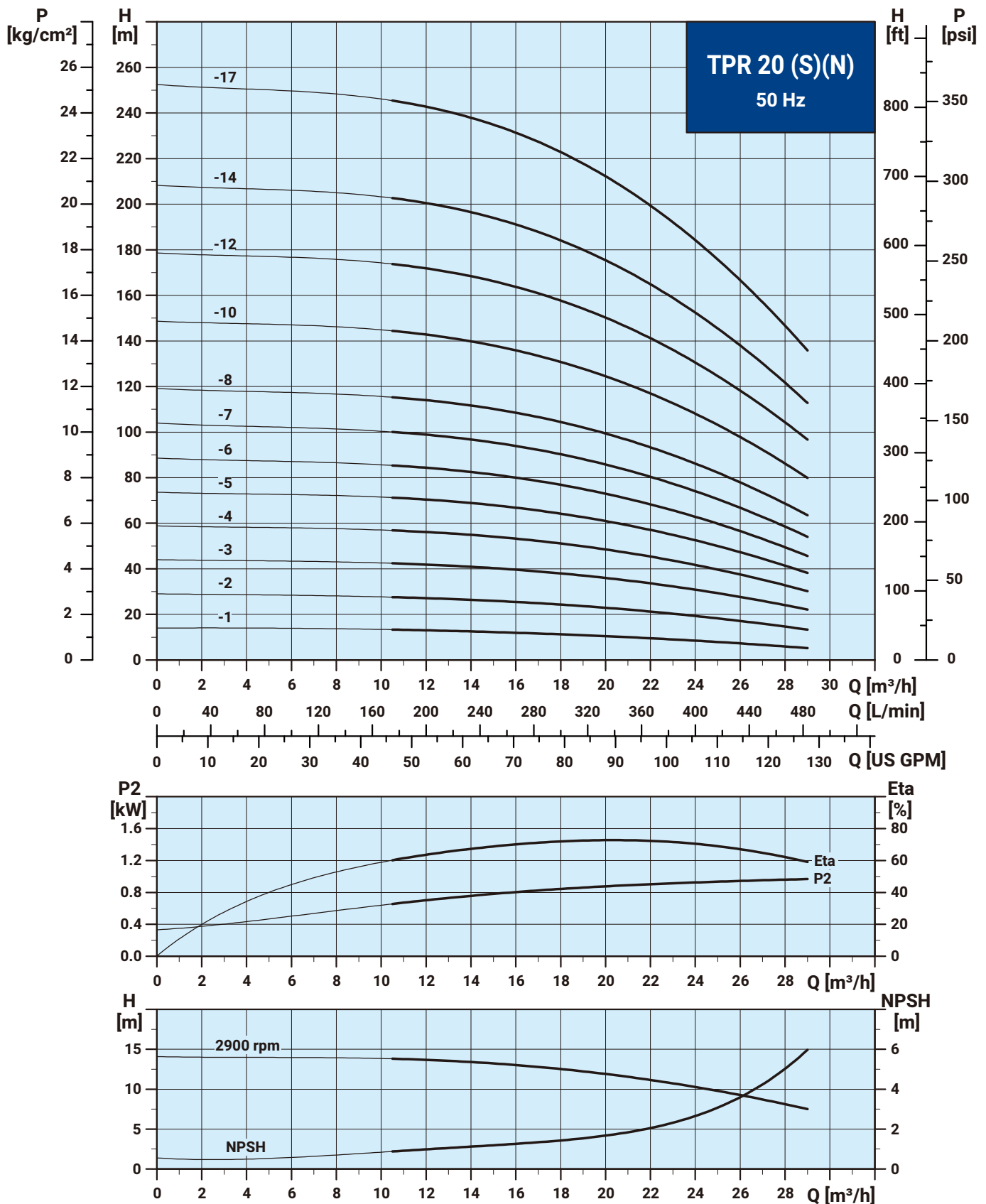
TPR 15 (S)(N)



TPR 15 (S)(N)

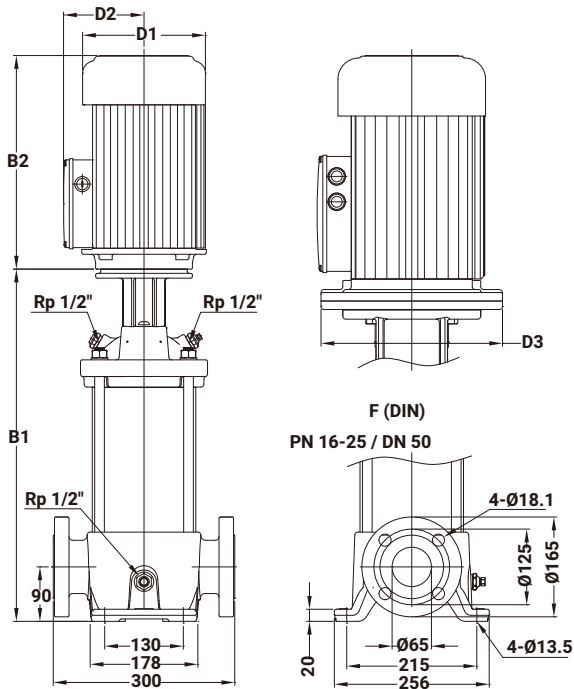
Pump type	Motor [kW]	Dimension [mm]						
		PJE		DIN flange		D1	D2	D3
		B1	B1+B2	B1	B1+B2			
TPR 15-1 (S)(N)	1.10	402	666	402	666	144.5	110	-
TPR 15-2 (S)(N)	2.20	417	726	417	726	181	122	-
TPR 15-3 (S)(N)	3.00	465	789	465	789	208	133	-
TPR 15-4 (S)(N)	4.00	510	869	510	869	208	133	-
TPR 15-5 (S)(N)	4.00	555	914	555	914	208	133	-
TPR 15-6 (S)(N)	5.50	634	1000	634	1000	244	156.5	300
TPR 15-7 (S)(N)	5.50	679	1045	679	1045	244	156.5	300
TPR 15-8 (S)(N)	7.50	724	1130	724	1130	244	156.5	300
TPR 15-9 (S)(N)	7.50	769	1175	769	1175	244	156.5	300
TPR 15-10 (S)(N)	11.00	895	1395	895	1395	330	250	350
TPR 15-12 (S)(N)	11.00	985	1485	985	1485	330	250	350
TPR 15-14 (S)(N)	11.00	1075	1575	1075	1575	330	250	350
TPR 15-17 (S)(N)	15.00	1210	1710	1210	1710	330	250	350

Performance curves

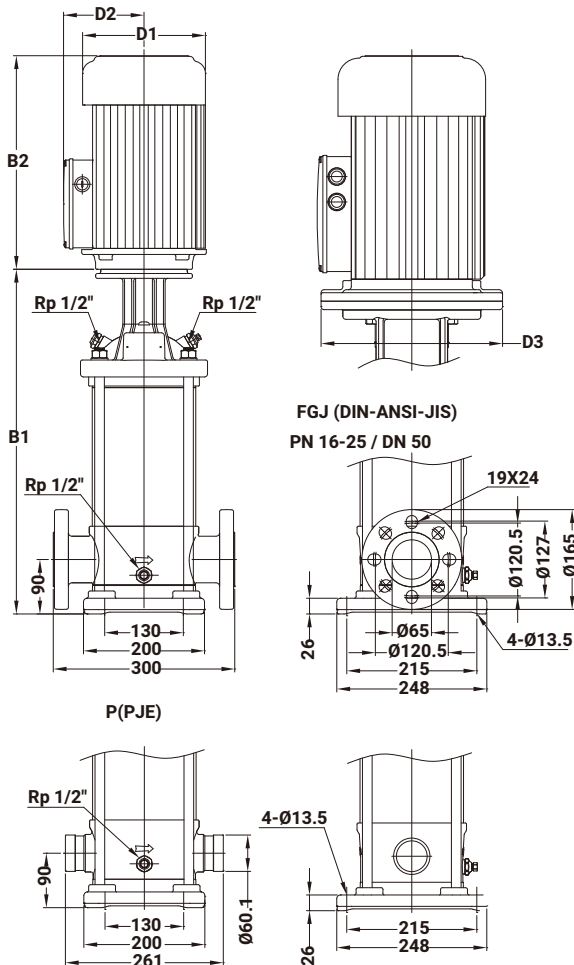


Dimensional Sketches

TPR 20



TPR 20 (S)(N)



Dimensions and Weights

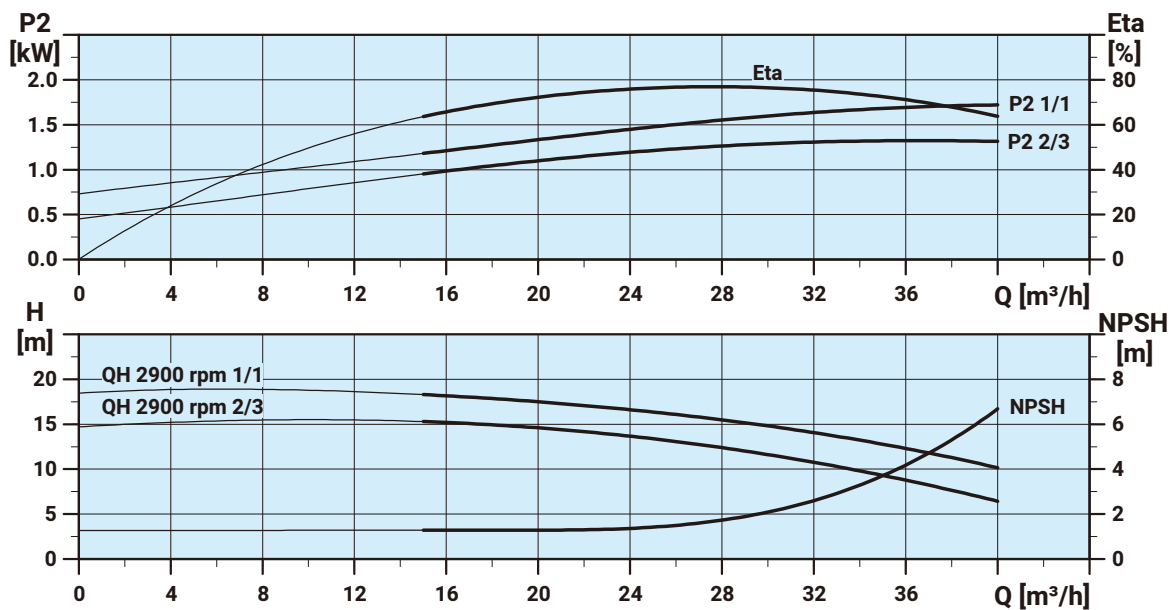
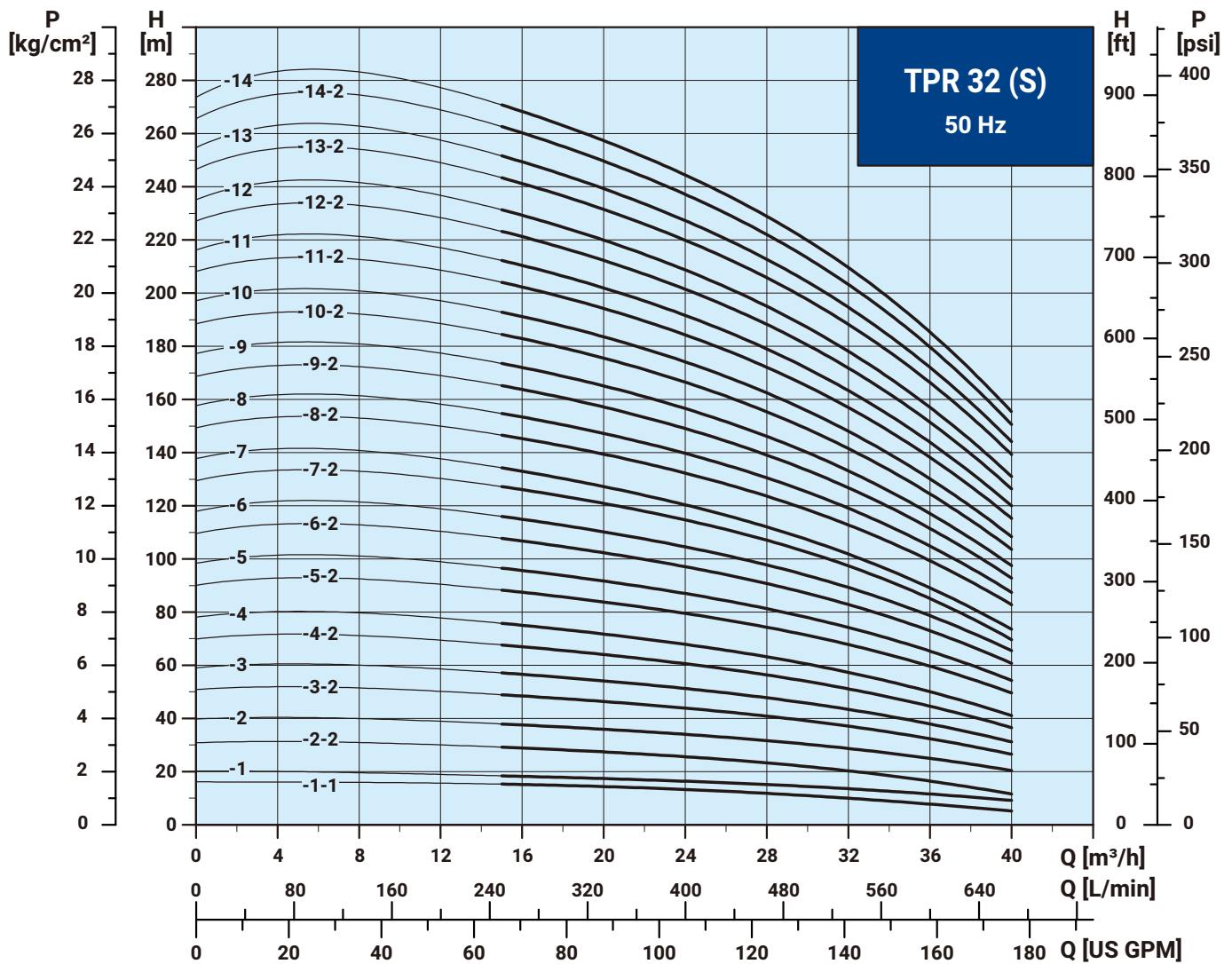
TPR 20

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 20-1	1.10	401	665	144.5	110	-
TPR 20-2	2.20	416	725	181	122	-
TPR 20-3	4.00	464	823	208	133	-
TPR 20-4	5.50	543	909	244	156.5	-
TPR 20-5	5.50	588	954	244	156.5	-
TPR 20-6	7.50	633	1039	244	156.5	300
TPR 20-7	7.50	678	1084	244	156.5	300
TPR 20-8	11.00	804	1210	330	250	300
TPR 20-10	11.00	894	1300	330	250	300
TPR 20-12	15.00	984	1390	330	250	350
TPR 20-14	15.00	1074	1480	330	250	350
TPR 20-17	18.50	1209	1615	330	250	350

TPR 20 (S)(N)

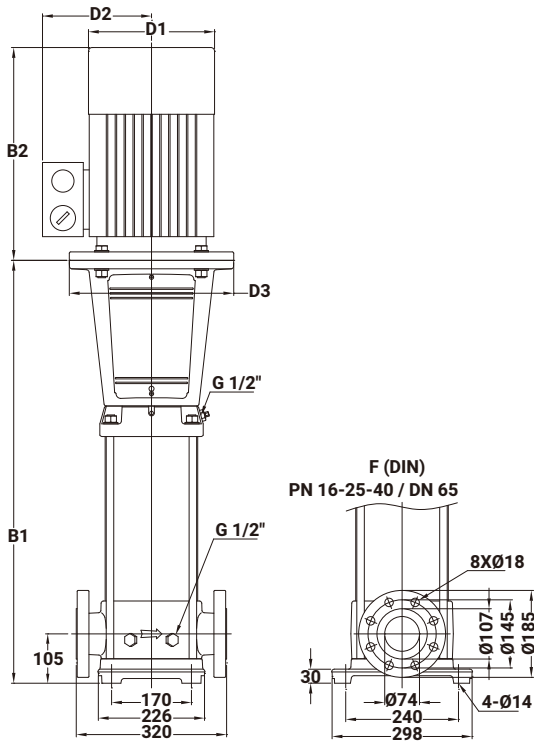
Pump type	Motor [kW]	Dimension [mm]					
		PJE		DIN flange		D1	D2
		B1	B1+B2	B1	B1+B2		
TPR 20-1 (S)(N)	1.10	402	666	402	666	144.5	110
TPR 20-2 (S)(N)	2.20	417	726	417	726	181	122
TPR 20-3 (S)(N)	4.00	465	824	465	824	208	133
TPR 20-4 (S)(N)	5.50	544	910	544	910	244	156.5
TPR 20-5 (S)(N)	5.50	589	955	589	955	244	156.5
TPR 20-6 (S)(N)	7.50	634	1040	634	1040	244	156.5
TPR 20-7 (S)(N)	7.50	679	1085	679	1085	244	156.5
TPR 20-8 (S)(N)	11.00	805	1305	805	1305	330	250
TPR 20-10 (S)(N)	11.00	895	1395	895	1395	330	250
TPR 20-12 (S)(N)	15.00	985	1485	985	1485	330	250
TPR 20-14 (S)(N)	15.00	1075	1575	1075	1575	330	250
TPR 20-17 (S)(N)	18.50	1210	1755	1210	1755	330	250

Performance curves



Dimensional Sketches

TPR 32 (S)

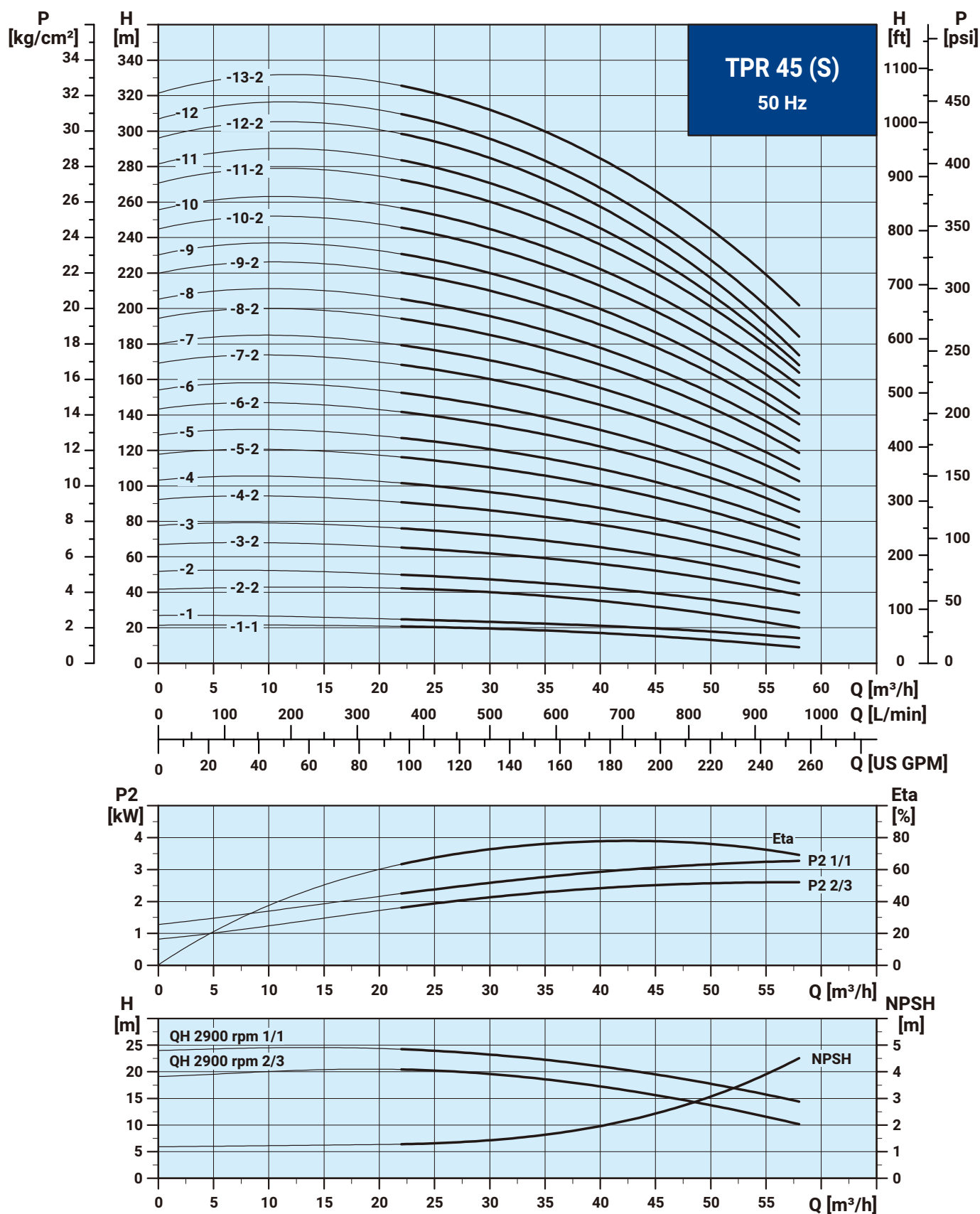


Dimensions and Weights

TPR 32 (S)

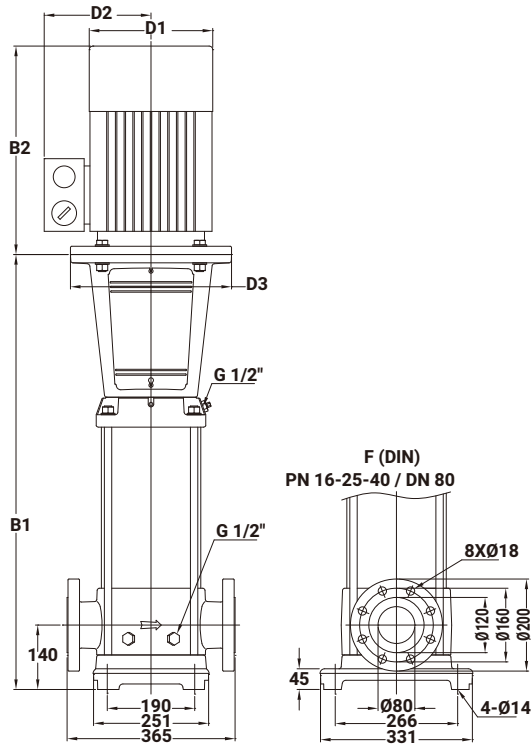
Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 32-1-1 (S)	1.50	505	786	178	110	-
TPR 32-1 (S)	2.20	505	826	178	110	-
TPR 32-2-2 (S)	3.00	575	910	198	120	-
TPR 32-2 (S)	4.00	575	947	220	134	-
TPR 32-3-2 (S)	5.50	645	1036	220	134	300
TPR 32-3 (S)	5.50	645	1036	220	134	300
TPR 32-4-2 (S)	7.50	715	1094	260	159	300
TPR 32-4 (S)	7.50	715	1094	260	159	300
TPR 32-5-2 (S)	11.00	895	1366	314	204	350
TPR 32-5 (S)	11.00	895	1366	314	204	350
TPR 32-6-2 (S)	11.00	965	1436	314	204	350
TPR 32-6 (S)	11.00	965	1436	314	204	350
TPR 32-7-2 (S)	15.00	1035	1506	314	204	350
TPR 32-7 (S)	15.00	1035	1506	314	204	350
TPR 32-8-2 (S)	15.00	1105	1576	314	204	350
TPR 32-8 (S)	15.00	1105	1576	314	204	350
TPR 32-9-2 (S)	18.50	1175	1690	314	204	350
TPR 32-9 (S)	18.50	1175	1690	314	204	350
TPR 32-10-2 (S)	18.50	1245	1760	314	204	350
TPR 32-10 (S)	18.50	1245	1760	314	204	350
TPR 32-11-2 (S)	22.00	1315	1856	314	204	350
TPR 32-11 (S)	22.00	1315	1856	314	204	350
TPR 32-12-2 (S)	22.00	1385	1926	314	204	350
TPR 32-12 (S)	22.00	1385	1926	314	204	350
TPR 32-13-2 (S)	30.00	1455	2066	396	315	400
TPR 32-13 (S)	30.00	1455	2066	396	315	400
TPR 32-14-2 (S)	30.00	1525	2136	396	315	400
TPR 32-14 (S)	30.00	1525	2136	396	315	400

Performance curves



Dimensional Sketches

TPR 45 (S)

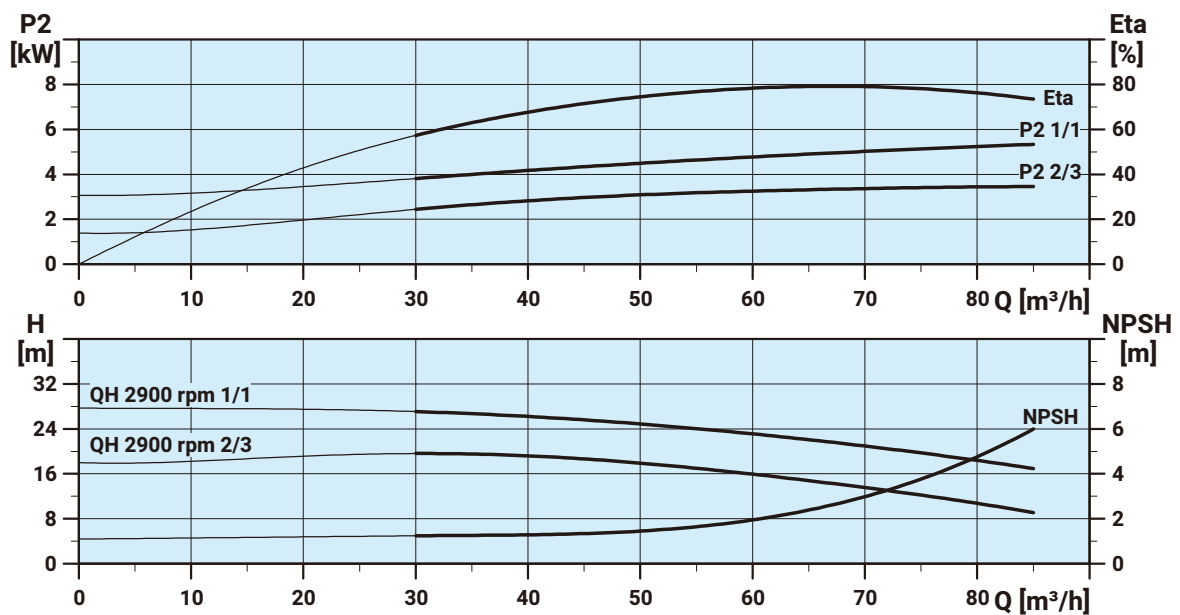
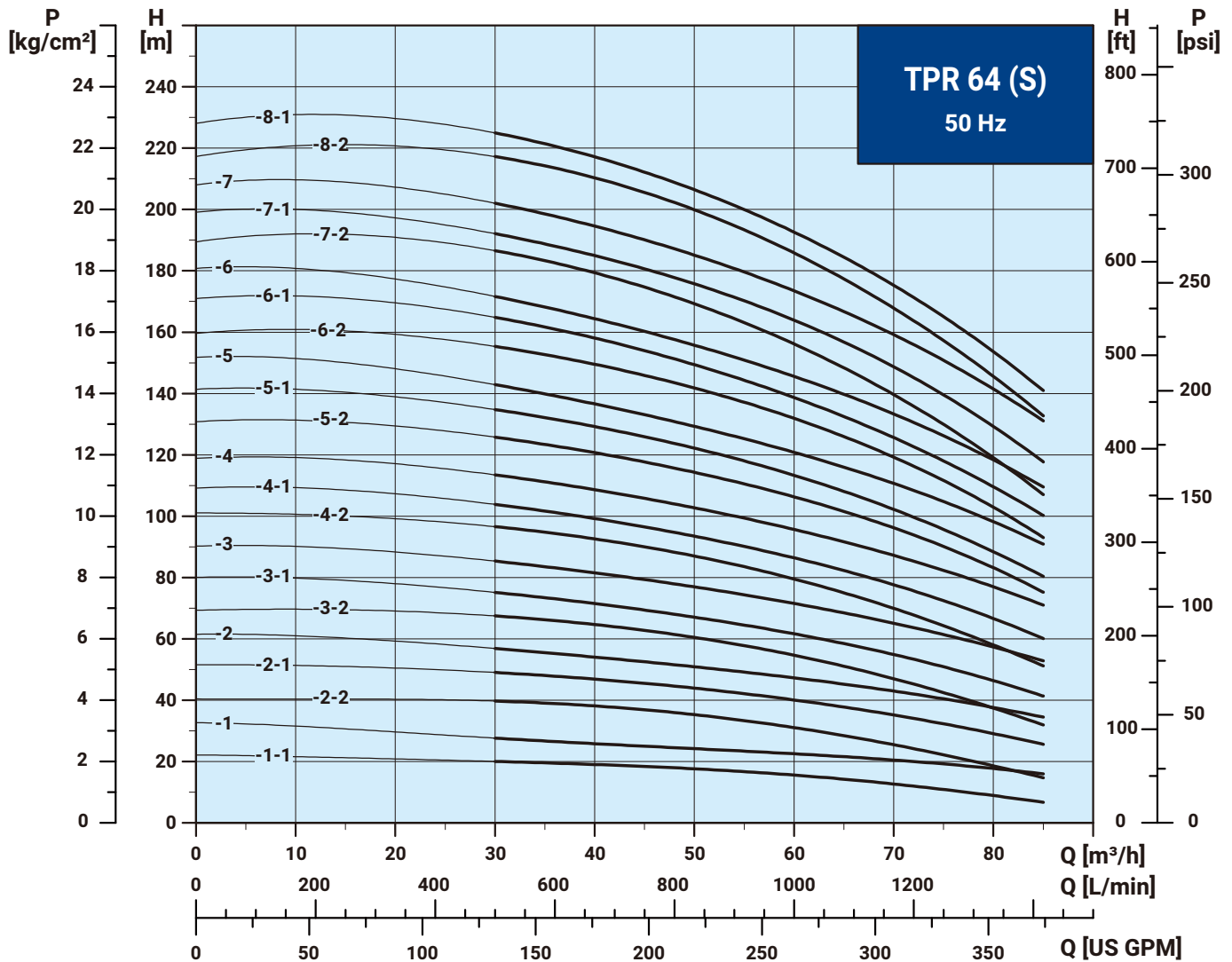


Dimensions and Weights

TPR 45 (S)

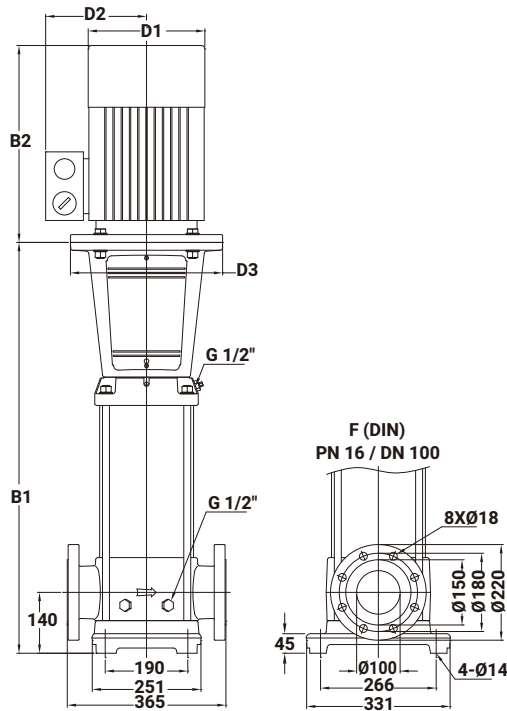
Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 45-1-1 (S)	3.00	558	888	198	120	-
TPR 45-1 (S)	4.00	558	888	220	134	-
TPR 45-2-2 (S)	5.50	638	1058	220	134	300
TPR 45-2 (S)	7.50	638	1058	260	159	300
TPR 45-3-2 (S)	11.00	828	1328	314	204	350
TPR 45-3 (S)	11.00	828	1328	314	204	350
TPR 45-4-2 (S)	15.00	908	1408	314	204	350
TPR 45-4 (S)	15.00	908	1408	314	204	350
TPR 45-5-2 (S)	18.50	988	1538	314	204	350
TPR 45-5 (S)	18.50	988	1538	314	204	350
TPR 45-6-2 (S)	22.00	1068	1668	314	204	350
TPR 45-6 (S)	22.00	1068	1668	314	204	350
TPR 45-7-2 (S)	30.00	1148	1808	396	315	400
TPR 45-7 (S)	30.00	1148	1808	396	315	400
TPR 45-8-2 (S)	30.00	1228	1888	396	315	400
TPR 45-8 (S)	30.00	1228	1888	396	315	400
TPR 45-9-2 (S)	30.00	1308	1968	396	315	400
TPR 45-9 (S)	37.00	1308	1968	396	315	400
TPR 45-10-2 (S)	37.00	1388	2048	396	315	400
TPR 45-10 (S)	37.00	1388	2048	396	315	400
TPR 45-11-2 (S)	45.00	1468	2178	439	338	450
TPR 45-11 (S)	45.00	1468	2178	439	338	450
TPR 45-12-2 (S)	45.00	1556	2266	439	338	450
TPR 45-12 (S)	45.00	1556	2266	439	338	450
TPR 45-13-2 (S)	45.00	1636	2346	439	338	450

Performance curves



Dimensional Sketches

TPR 64 (S)

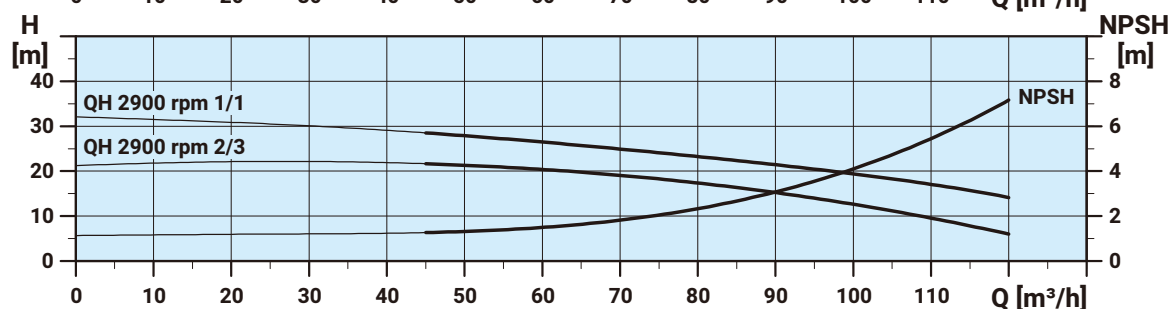
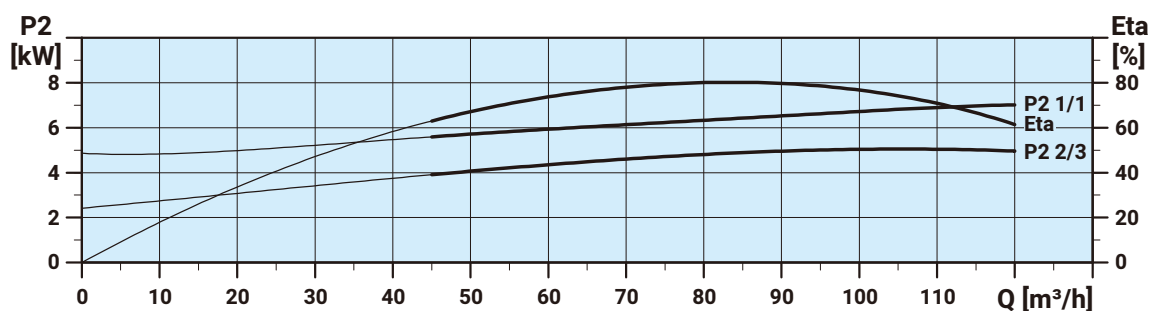
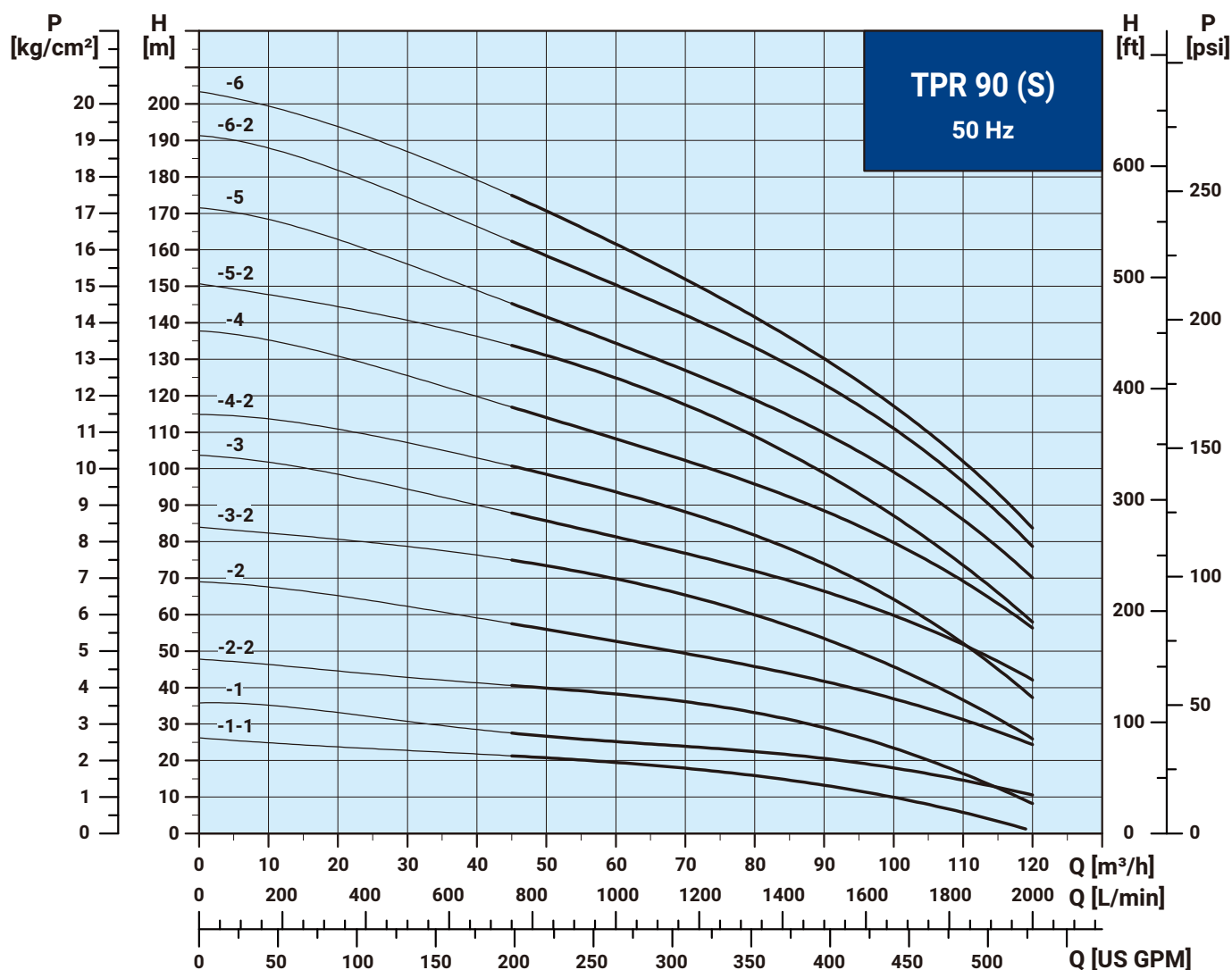


Dimensions and Weights

TPR 64 (S)

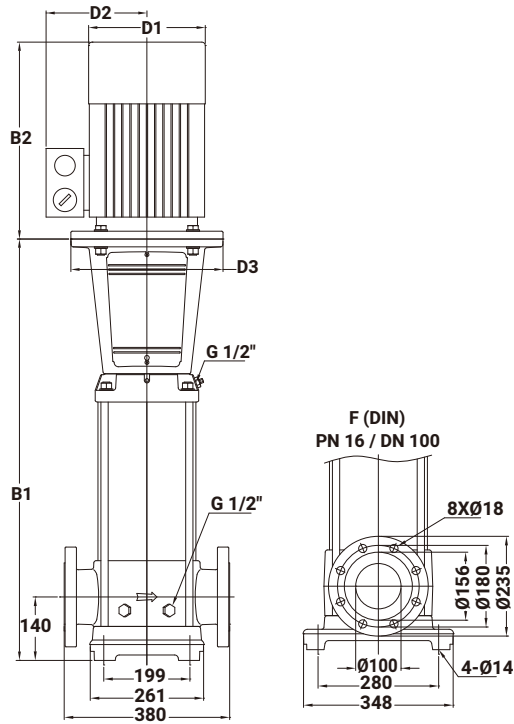
Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 64-1-1 (S)	4.00	561	933	220	134	-
TPR 64-1 (S)	5.50	561	952	220	134	300
TPR 64-2-2 (S)	7.50	644	1023	260	159	300
TPR 64-2-1 (S)	11.00	754	1225	314	204	350
TPR 64-2 (S)	11.00	754	1225	314	204	350
TPR 64-3-2 (S)	15.00	836	1307	314	204	350
TPR 64-3-1 (S)	15.00	836	1307	314	204	350
TPR 64-3 (S)	18.50	836	1351	314	204	350
TPR 64-4-2 (S)	18.50	919	1434	314	204	350
TPR 64-4-1 (S)	22.00	919	1460	314	204	350
TPR 64-4 (S)	22.00	919	1460	314	204	350
TPR 64-5-2 (S)	30.00	1001	1612	396	315	400
TPR 64-5-1 (S)	30.00	1001	1612	396	315	400
TPR 64-5 (S)	30.00	1001	1612	396	315	400
TPR 64-6-2 (S)	30.00	1084	1695	396	315	400
TPR 64-6-1 (S)	37.00	1084	1720	396	315	400
TPR 64-6 (S)	37.00	1084	1720	396	315	400
TPR 64-7-2 (S)	37.00	1166	1802	396	315	400
TPR 64-7-1 (S)	37.00	1166	1802	396	315	400
TPR 64-7 (S)	45.00	1166	1874	439	338	450
TPR 64-8-2 (S)	45.00	1248	1956	439	338	450
TPR 64-8-1 (S)	45.00	1248	1956	439	338	450

Performance curves



Dimensional Sketches

TPR 90 (S)



Dimensions and Weights

TPR 90 (S)

Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 90-1-1 (S)	5.50	571	962	220	134	300
TPR 90-1 (S)	7.50	571	950	260	159	300
TPR 90-2-2 (S)	11.00	773	1244	314	204	350
TPR 90-2 (S)	15.00	773	1244	314	204	350
TPR 90-3-2 (S)	18.50	865	1380	314	204	350
TPR 90-3 (S)	22.00	865	1406	314	204	350
TPR 90-4-2 (S)	30.00	957	1568	396	315	400
TPR 90-4 (S)	30.00	957	1568	396	315	400
TPR 90-5-2 (S)	37.00	1049	1685	396	315	400
TPR 90-5 (S)	37.00	1049	1685	396	315	400
TPR 90-6-2 (S)	45.00	1141	1849	439	338	450
TPR 90-6 (S)	45.00	1141	1849	439	338	450

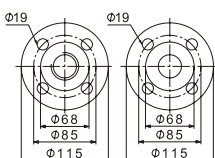
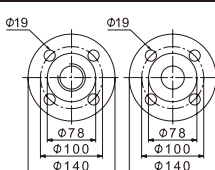
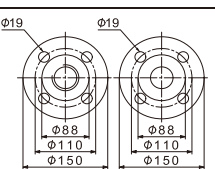
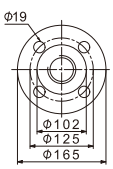
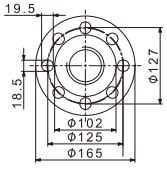
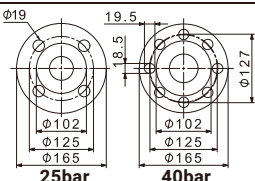
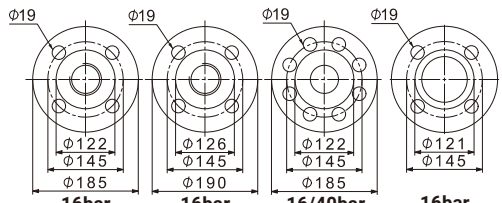
Accessories

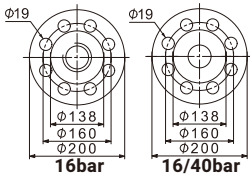
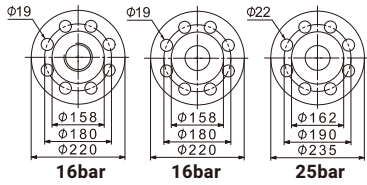
Pipe connection

Various sets of counter-flanges and couplings are available for pipe connection.

Counter-flanges for TPR

A set consists of one counter-flange, one gasket, bolts and nuts.

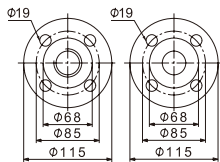
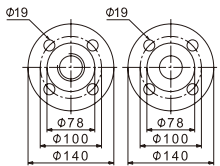
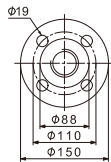
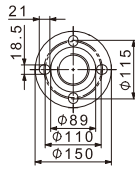
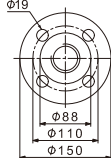
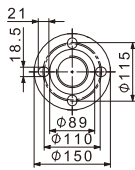
Counter-flange	Pump type	Description	Rated pressure	Pipe connection
	TPR 1,3,5	Threaded	16bar, EN 1092-2	Rp 1
		For welding	25bar, EN 1092-2	25mm, nominal
	TPR 1,3,5	Threaded	16bar, EN 1092-2	Rp 1 1/4
		For welding	25bar, EN 1092-2	32mm, nominal
	TPR 10	Threaded	16bar, EN 1092-2	Rp 1 1/2
		Threaded	16bar, EN 1092-2	Rp 2
		For welding	25bar, EN 1092-2	40mm, nominal
		For welding	40bar, special flange	50mm, nominal
	TPR 15 TPR 20	Threaded	16bar, EN 1092-2	Rp 2
		Threaded	16bar, special flange	Rp 2 1/2
	TPR 15 TPR 20	Threaded	16bar, special flange	Rp 2 1/2*
		For welding	25bar, EN 1092-2	50mm, nominal
	TPR 15 TPR 20	For welding	40bar, special flange	65mm, nominal
		For welding	40bar, special flange	65mm, nominal
	TPR 32	Threaded	16bar, EN 1092-2	Rp 2 1/2
		Threaded	16bar, special flange	Rp 3
		For welding	16bar, EN 1092-2	65mm, nominal
		For welding	40bar, DIN 2635	65mm, nominal

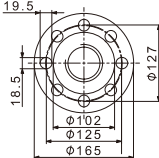
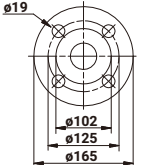
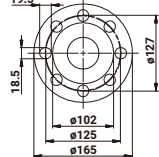
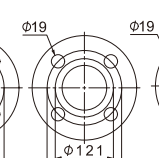
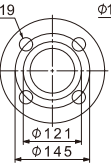
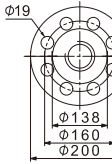
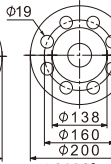
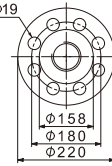
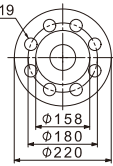
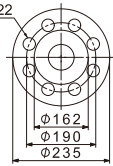
Counter-flange	Pump type	Description	Rated pressure	Pipe connection
	TPR 45	Threaded	16bar	Rp 3
		For welding	16bar	80mm, nominal
		For welding	40bar	80mm, nominal
	TPR 64, 90	Threaded	16bar, EN 1092-2	Rp 4
		For welding	16bar, EN 1092-2	100mm, nominal

Counter-flanges for TPR(S)(N)

Counter-flanges for TPR(N) pumps are made of stainless steel .(SUS 316)

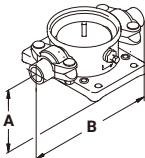
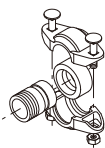
A set consists of one counter-flange, one gasket, bolts and nuts.

Counter-flange	Pump type	Description	Rated pressure	Pipe connection
	TPR 1,3,5 (S)(N)	Threaded	16bar, EN 1092-2	Rp 1
		For welding	25bar, EN 1092-2	25mm, nominal
	TPR 1,3,5 (S)(N)	Threaded	16bar, EN 1092-2	Rp 1 1/4
		For welding	25bar, EN 1092-2	32mm, nominal
	TPR 10 (S)(N)	For welding	16bar, EN 1092-2	Rp 1 1/2
		Threaded	16bar, EN 1092-2	Rp 2
		For welding	25bar, EN 1092-2	40mm, nominal
		For welding	25bar, special flange	50mm, nominal

Counter-flange	Pump type	Description	Rated pressure	Pipe connection
	TPR 15, 20 (S)(N)	Threaded	16bar, EN 1092-2	Rp 2
		Threaded	16bar, special flange	Rp 2 1/2
		Threaded	16bar, special flange	Rp 2 1/2*
		For welding	25bar, EN 1092-2	50mm, nominal
	TPR 32 (S)	For welding	25bar, special flange	65mm, nominal
		Threaded	16bar	Rp 2 1/2
		Threaded	16bar, special flange	Rp 3
		For welding	16bar	65mm, nominal
		For welding	40bar	65mm, nominal
	TPR 45 (S)	For welding	16bar, special flange	80mm, nominal
		Threaded	16bar	Rp 3
		For welding	16bar	80mm, nominal
	TPR 64, 90 (S)	For welding	40bar	80mm, nominal
		Threaded	16bar	Rp 4
		For welding	16bar	100mm, nominal
				

PJE couplings for TPR(S)(N)

Materials in contact with the pumped liquid are made of stainless steel (AISI 316) and rubber.
A set consists of tow coupling halves, one gasket, one pipe stub (for welding or threaded), bolts and nuts.

Coupling	Pump type	Pipe stub	Max. pressure [bar]	A	B	Pipe connection	Rubber parts	Nuber of coupling sets required
	TPR 1,3,5 (S)(N)	Threaded	69	50	320	R 1 1/4	EPDM	2
	TPR 10 (S)(N) TPR 15, 20 (S)(N)	Threaded	69	80	377	R 2	EPDM	2

Pressure and Head Conversion Table

kgf/cm ²	m H ₂ O	lbf/in ² (psi)	ft H ₂ O	N/m ² (Pa)	kPa	bar
1	10	14.22	32.81	98,067	98.07	0.981
0.1	1	1.42	3.28	9,789	9.789	0.098
0.0703	0.703	1	2.31	6,895	6.895	0.069
0.0305	0.305	0.433	1	2,984	2.984	0.03
1.02X10 ⁻⁵	1.02X10 ⁻⁴	1.45X10 ⁻⁴	3.35X10 ⁻⁴	1	0.001	10 ⁻⁵
0.0102	0.102	0.145	0.335	1,000	1	0.01
1.02	10.2	14.5	33.52	10 ⁵	100	1

Water Flow Conversion Table

L /min	m ³ /h	ft ³ /h	ft ³ /min	Imp. gal/min	US gal/min
1	0.06	2.1189	0.0353	0.22	0.264
16.667	1	35.3147	0.5886	3.666	4.403
0.472	0.0283	1	0.0167	0.104	0.125
28.317	1.6990	60	1	6.229	7.480
4.546	0.2728	9.6326	0.1605	1	1.201
3.785	0.2271	8.0209	0.1337	0.833	1

Memo



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All specifications are subject to change without notice. TPR-50Hz-EN004a-202311

