WALRUS PUMP

TPR Series

Vertical Multistage Centrifugal Pump

60Hz



Better Life
Through Innovation

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TPR Series Vertical Multistage Centrifugal Pump

60 Hz

Power: 0.37 - 45 kW

Head: Up to 260 M

Flow: Up to 2,333 L/min

Outlet: 1¼" - 4"



Construction Industry

Agriculture & Fishing Industry

Manufacturing Industry

Electricity & New Energy Industry

Entertainment & Leisure Industry

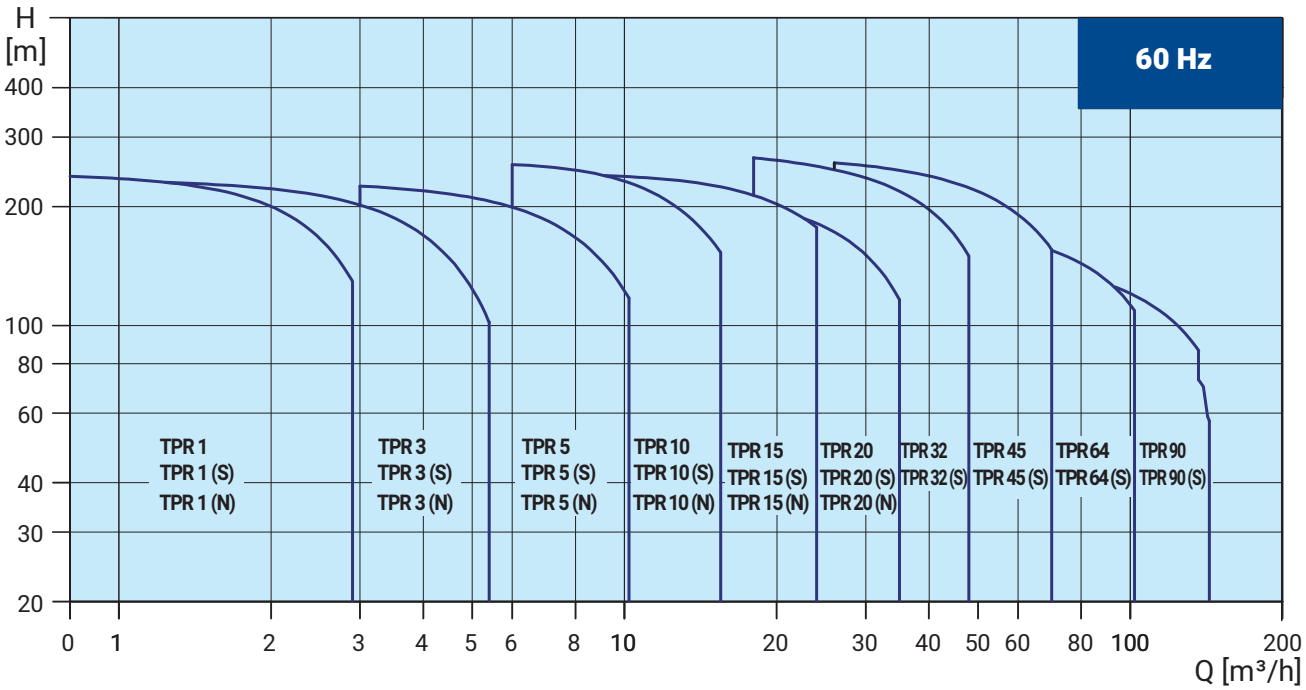
Accommodation & Food Service Industry

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]	1.2	3.6	6	12	18	24
Flow range [m³/h]	0.8-2.9	1.4-5.4	3-10.2	6-16	10-29	13-35
Max. pressure [bar]	24	24	24	25	24	21
Motor power [kW]	0.37-3.0	0.37-4	0.55-7.5	0.75-11	1.5-18.5	2.2-18.5
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	[m^3/h]	38	54	77	108
Flow range	[m^3/h]	18-48	26-70	36-102	54-146
Max. pressure	[bar]	27	26	18	16
Motor power	[kW]	2.2-30	5.5-45	7.5-45	11-45
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

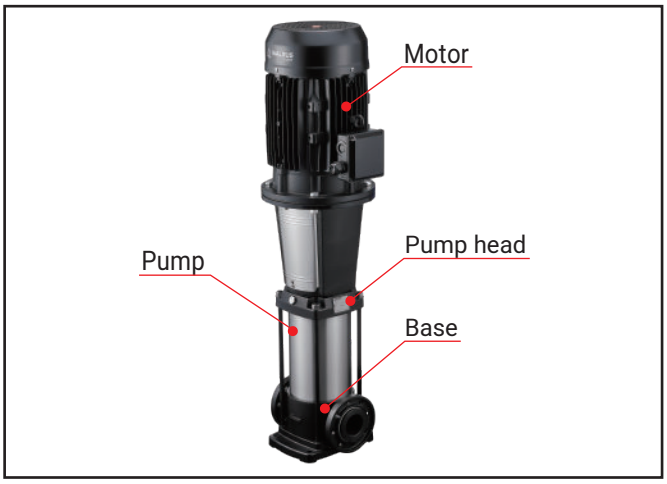
Application	TPR, TPR(S)	TPR(N)
Water supply		
Filtration and transfer at waterworks	●	❍
Distribution from waterworks	●	❍
Pressure boosting in mains	●	❍
Pressure boosting in high-rise buildings, hotels, etc.	●	❍
Pressure boosting for industrial water supply	●	❍
Industry		
Pressure boosting		
Process-water 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

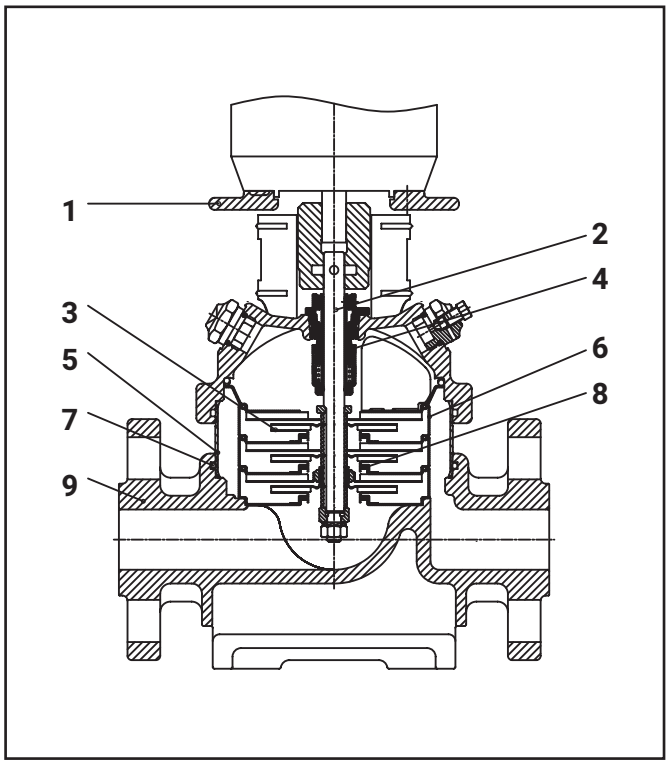
Operating conditions

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.

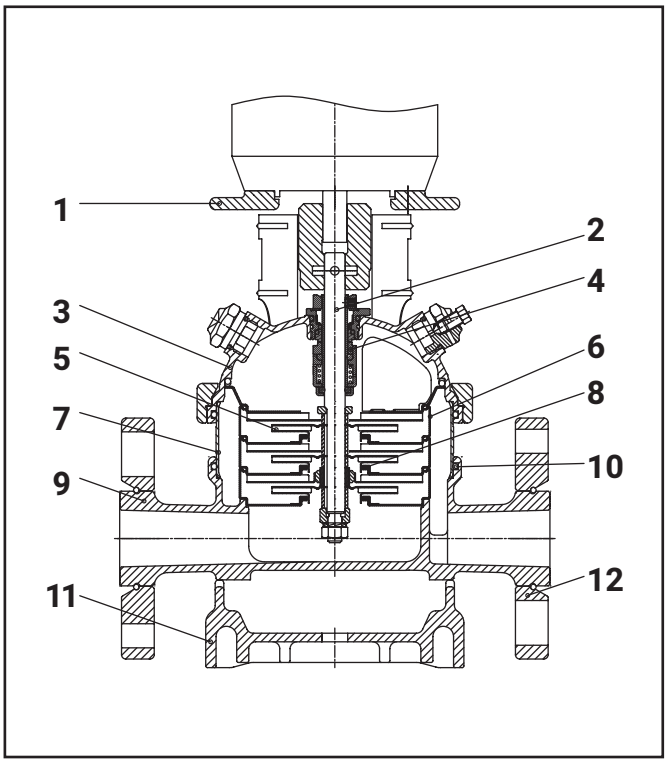
TPR 1 / 3 / 5 / 10 / 15 / 20



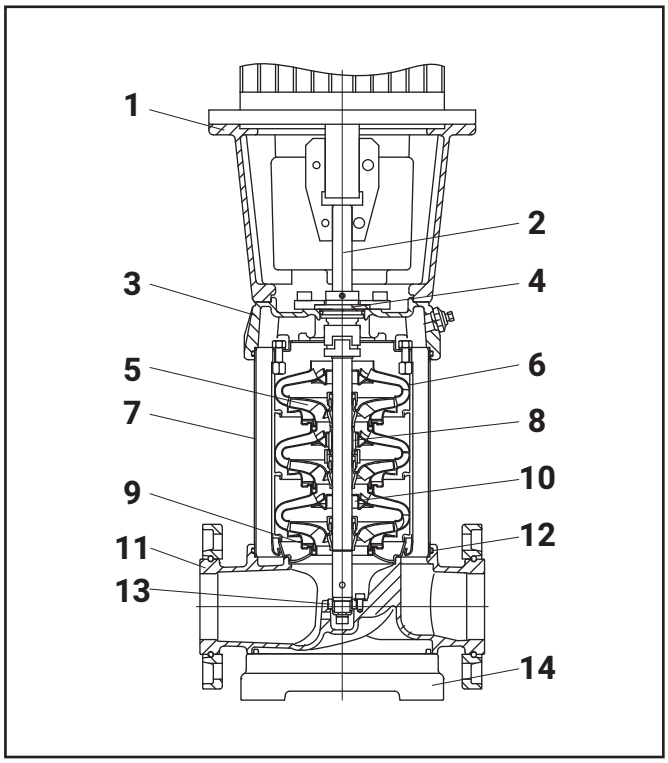
Materials

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

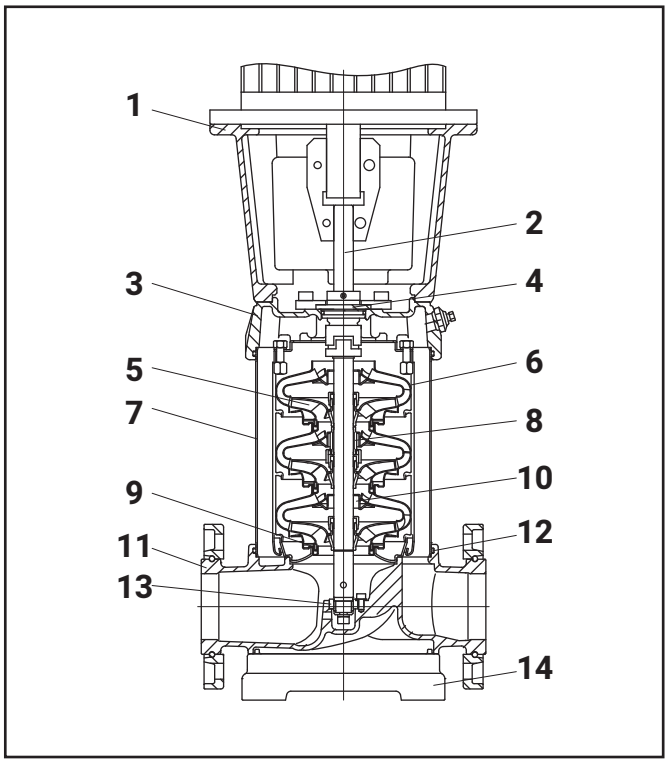
No.	Description	Materials	
		TPR(S)	TPR(N)
1	Pump head	FC200	
2	Shaft	SUS304	SUS316
3	Pump head cover	SUS304	SUS316
4	Shaft seal	Cartridge type	
5	Impeller	SUS304	SUS316
6	Chamber	SUS304	SUS316
7	Sleeve	SUS304	SUS316
8	Neck ring	PTFE	
9	Base	SUS304	SUS316
10	O-ring for sleeve	EPDM or HNBR	
11	Base plate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

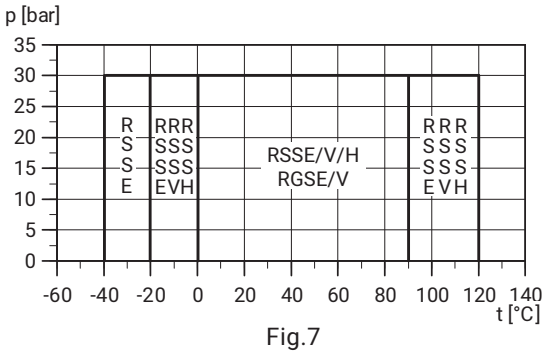
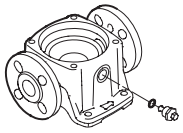
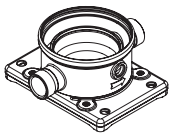


Fig.7

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 → 1-25	10
1-27	15
TPR3(S)(N)	
3-2 → 3-17	10
3-19 → 3-25	15
TPR5(S)(N)	
5-2 → 5-9	10
5-10 → 5-24	15
TPR10(S)(N)	
10-1 → 10-5	8
10-6 → 10-17	10
TPR15(S)	
15-1 → 15-2	8
15-3 → 15-12	10
TPR20(S)(N)	
20-1	8
20-2 → 20-10	10
TPR32(S)	
32-1-1 → 32-2	4
32-3-2 → 32-6	10
32-7-2 → 32-10-2	15
TPR45(S)	
45-1-1 → 45-1	4
45-2-2 → 45-3	10
45-4-2 → 45-7	15
TPR64(S)	
64-1-1	4
64-4-1 → 64-2-1	10
64-4-2 → 64-5-2	15
TPR90(S)	
90-1-1 → 90-2-2	10
90-2-1 → 90-4-2	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: TPR3-17F
Maximum operating pressure: 25bar
Maximum inlet pressure: 10bar
Discharge pressure against a closed valve: 16.3bar,
See page 15.
This pump is not a 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 chose 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

Calculatio 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 catitation, make sure that there is a minimum pressure on the suction side of the pump.

H = Pb x 10.2 - NPSH - Hf - Hv – Hs

Pb =Barometric pressure in bar.
Barometric pressure can be set to 1 bar.In closed systeam, Pb 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.

Hf =Friction loss in suction pipe in metres head.
At the highest flow the pump will be delivering.

Hv =Vapour pressure in metres head.
To be read from the Vapour pressure scale.

Hs =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.

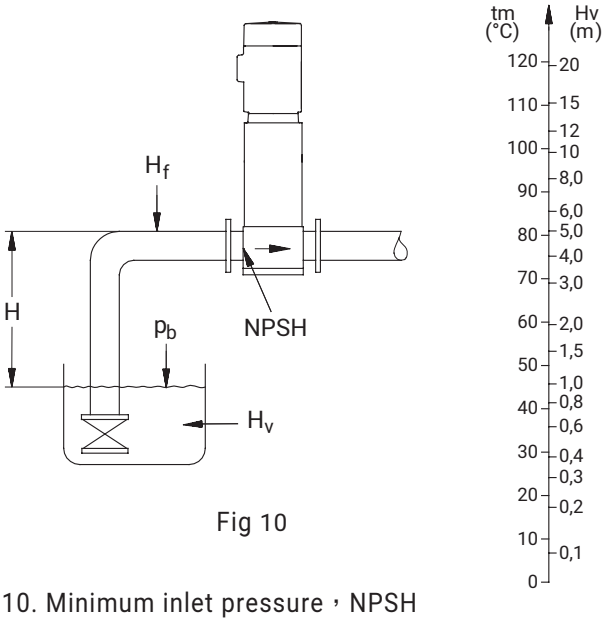
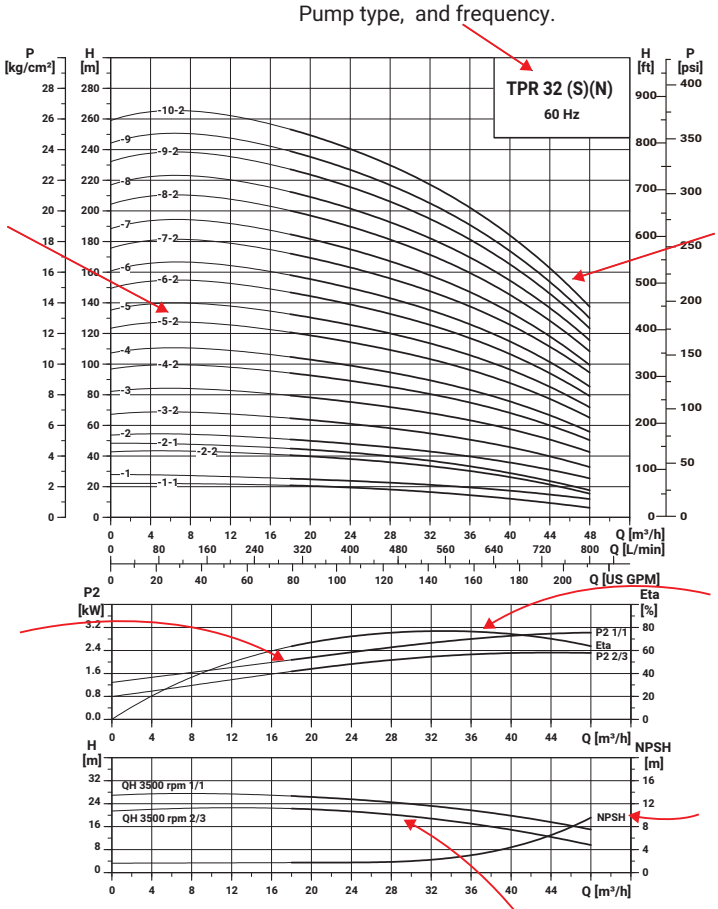


Fig 10

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 folw.

How to read the curve charts



Number of stages.
First figure: number of stages.
Second figure: number of reduced-diameter impellers.

QH curve for the individual pump. The bold curves indicate the recommended duty range for best efficiency.

The power curves indicate pump input power per stage.
Curves are shown for complete (1/1) and for reduced-diameter (2/3) impellers.

The eta curve shows the efficiency of the pump.
The eta curve is an average curve of all the pump types shown in the chart.
The efficiency of pump reduced-diameter impellers is approx. 2 % lower than the eta curve shown in the chart.

The NPSH curve is an average curve for all the variants shown.
When sizing the pum safety margin of at least 0.5 m.

QH curve for each individual impeller.
Curves are shown for complete.

Fig 11

Guidelines to performance curves

- To lerances to ISO9906:1999 , Annex A, if indicated.
- The motors used for the measurements are standard industqrial motors (IE3)
- Measurements have been made with airless water at a temperature of 20°C.
- The curves apply to the following kinematic viscosity:
  ν = 1 mm²/s(1cSt).
- Due to prevent the risk of overheat, the pumps should not be used at floe 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.

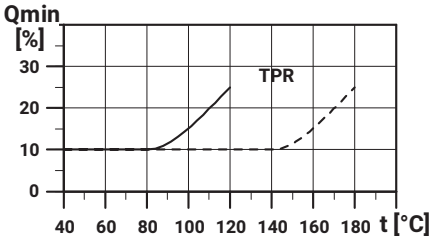
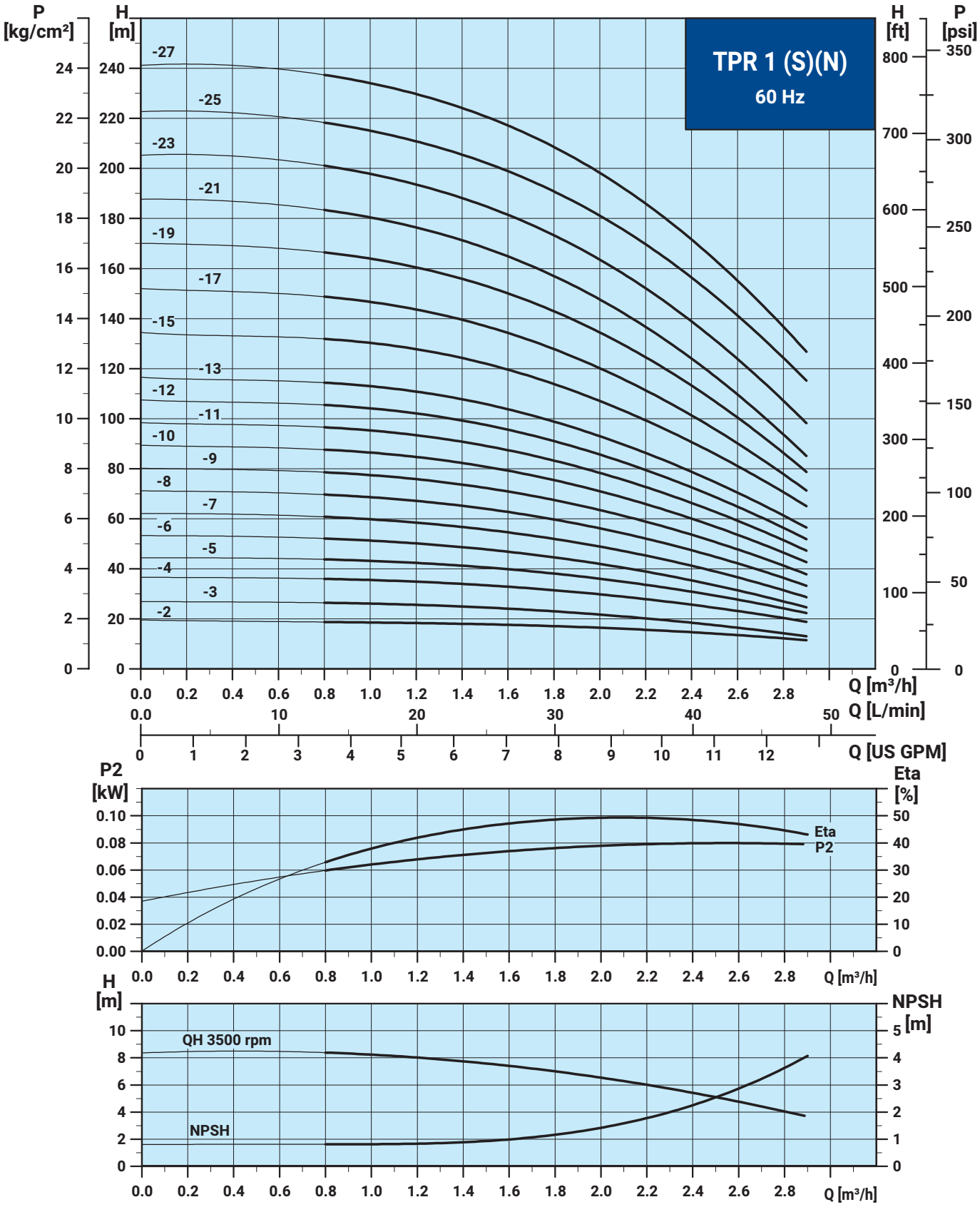


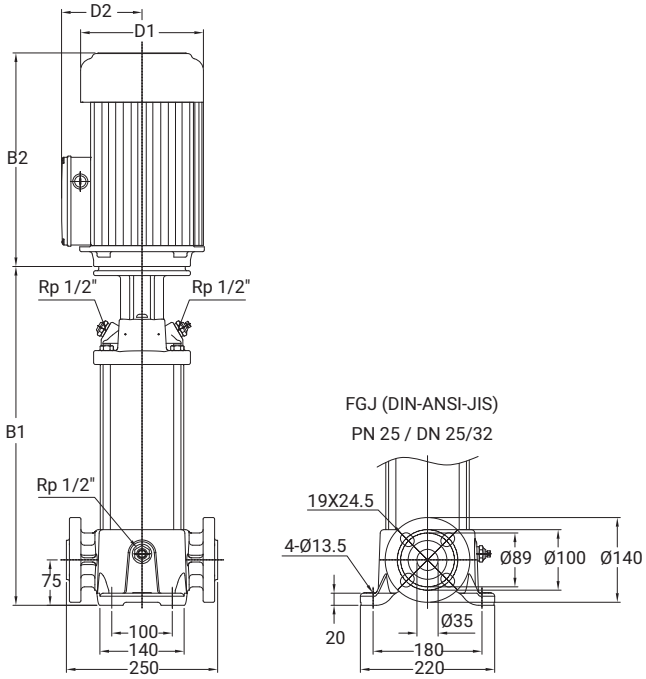
Fig 12

Performance curves

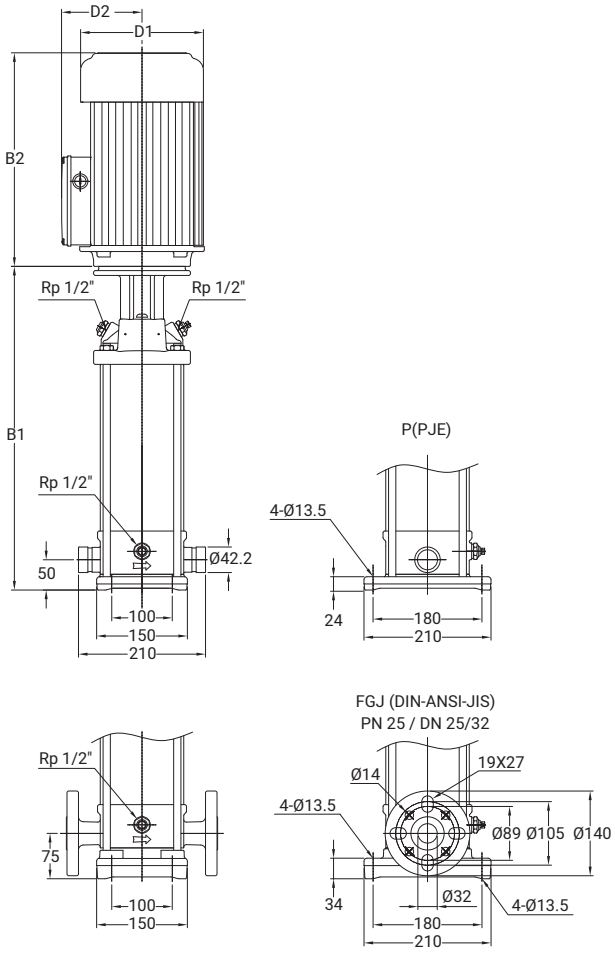


Dimensional Sketches

TPR 1



TPR 1 (S)(N)



Dimensions and Weights

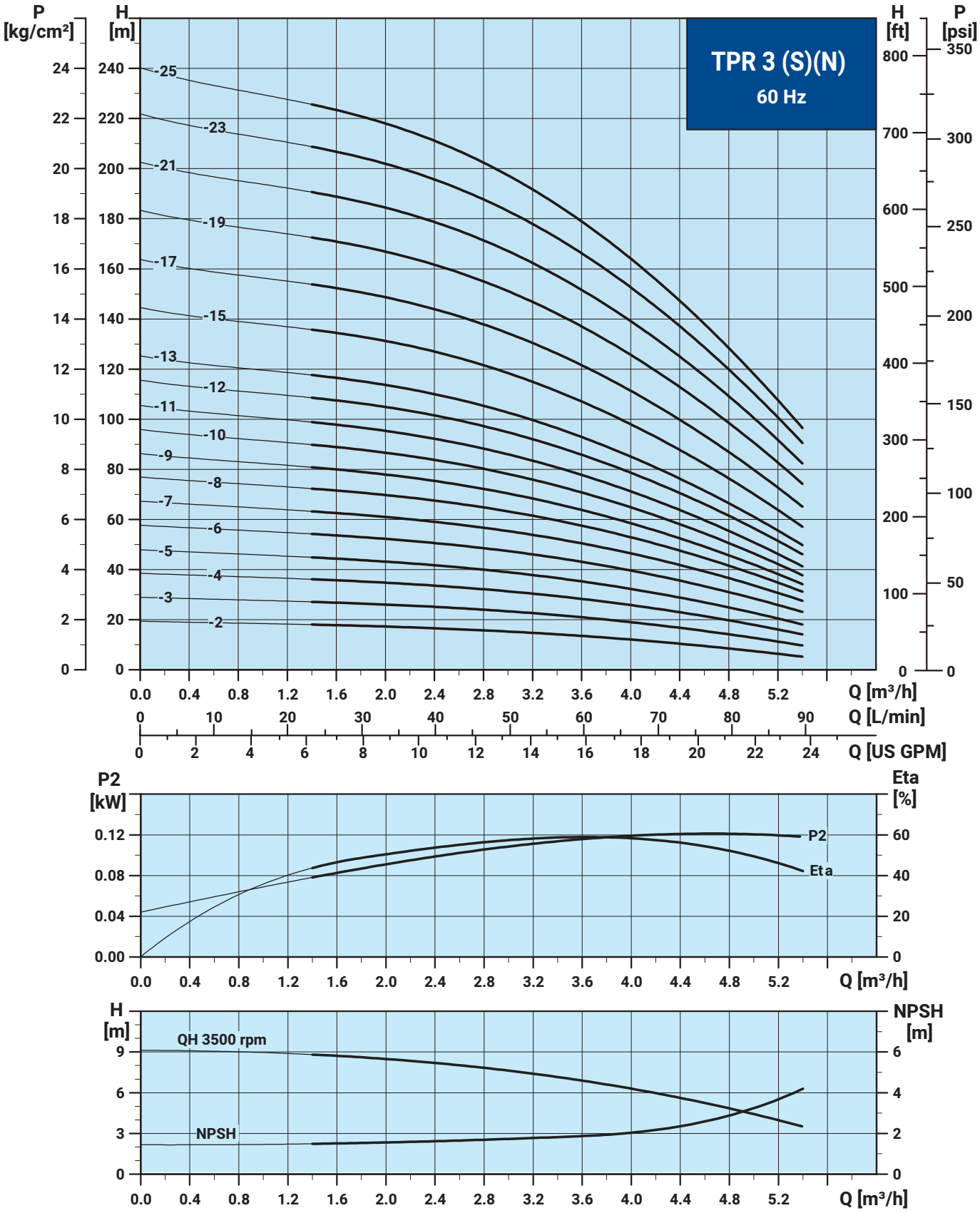
TPR 1

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	0.55	314	547	144.5	110
TPR 1-6	0.55	332	565	144.5	110
TPR 1-7	0.75	356	589	144.5	110
TPR 1-8	0.75	374	607	144.5	110
TPR 1-9	0.75	392	625	144.5	110
TPR 1-10	1.1	410	674	144.5	110
TPR 1-11	1.1	428	692	144.5	110
TPR 1-12	1.1	446	710	144.5	110
TPR 1-13	1.1	464	728	144.5	110
TPR 1-15	1.5	517	796	181	122
TPR 1-17	1.5	553	832	181	122
TPR 1-19	2.2	589	898	181	122
TPR 1-21	2.2	625	934	181	122
TPR 1-23	2.2	661	970	181	122
TPR 1-25	2.2	697	1006	181	122
TPR 1-27	3	733	1057	208	133

TPR 1 (S)(N)

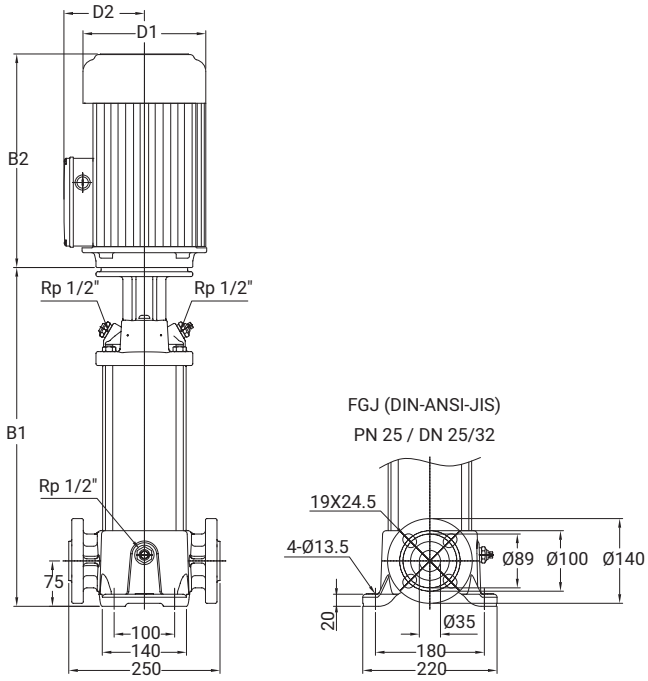
Pump type	Motor [kW]	Dimension [mm]					
		PJE		DIN flange		D1	D2
		B1	B1+B2	B1	B1+B2		
TPR 1-2 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 1-3 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 1-4 (S)(N)	0.37	280	474	295	489	144.5	110
TPR 1-5 (S)(N)	0.55	298	532	313	547	144.5	110
TPR 1-6 (S)(N)	0.55	316	550	331	565	144.5	110
TPR 1-7 (S)(N)	0.75	340	574	355	589	144.5	110
TPR 1-8 (S)(N)	0.75	358	592	373	607	144.5	110
TPR 1-9 (S)(N)	0.75	376	610	391	625	144.5	110
TPR 1-10 (S)(N)	1.1	394	658	409	673	144.5	110
TPR 1-11 (S)(N)	1.1	412	676	427	691	144.5	110
TPR 1-12 (S)(N)	1.1	430	694	445	709	144.5	110
TPR 1-13 (S)(N)	1.1	448	712	463	727	144.5	110
TPR 1-15 (S)(N)	1.5	501	780	516	795	181	122
TPR 1-17 (S)(N)	1.5	537	816	552	831	181	122
TPR 1-19 (S)(N)	2.2	573	882	588	897	181	122
TPR 1-21 (S)(N)	2.2	609	918	624	933	181	122
TPR 1-23 (S)(N)	2.2	645	954	660	969	181	122
TPR 1-25 (S)(N)	2.2	681	990	696	1005	181	122
TPR 1-27 (S)(N)	3	717	1041	732	1056	208	133

Performance curves

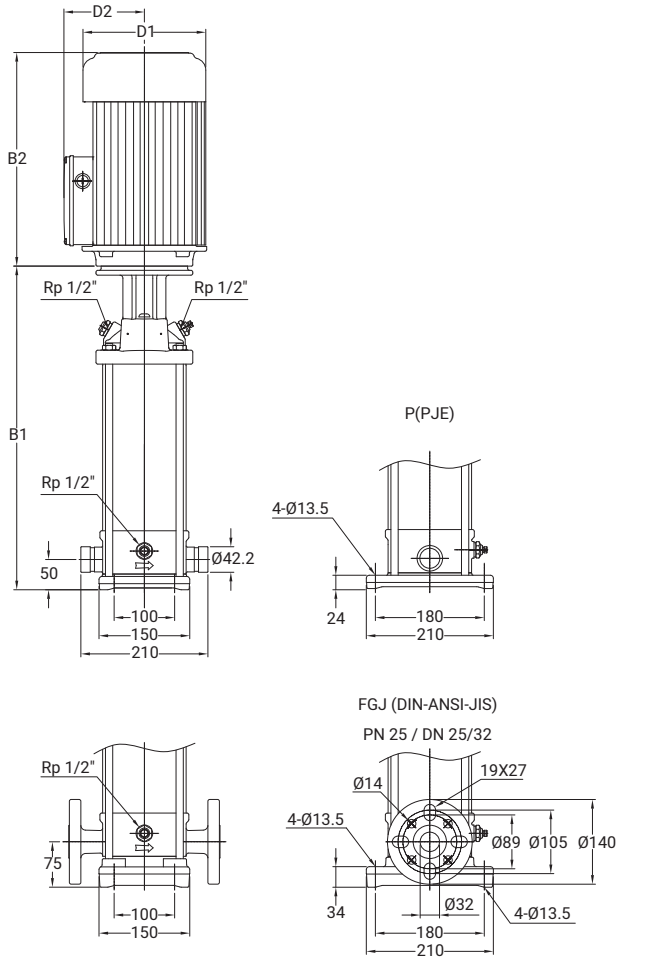


Dimensional Sketches

TPR 3



TPR 3 (S)(N)



Dimensions and Weights

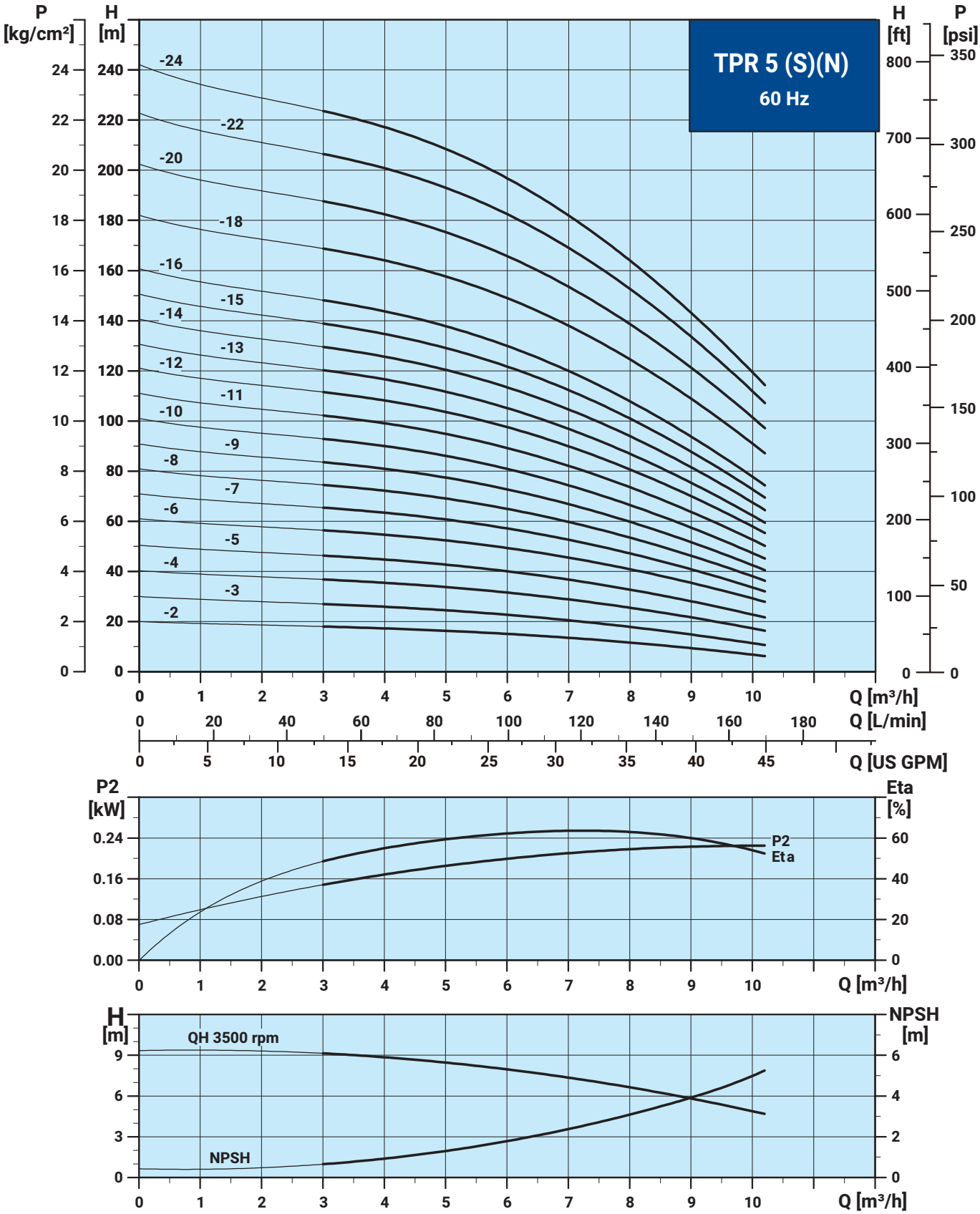
TPR 3

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	0.55	278	511	144.5	110
TPR 3-4	0.55	296	529	144.5	110
TPR 3-5	0.75	320	553	144.5	110
TPR 3-6	1.1	338	602	144.5	110
TPR 3-7	1.1	356	620	144.5	110
TPR 3-8	1.1	374	638	144.5	110
TPR 3-9	1.5	409	688	181	122
TPR 3-10	1.5	427	706	181	122
TPR 3-11	1.5	445	724	181	122
TPR 3-12	2.2	463	772	181	122
TPR 3-13	2.2	481	790	181	122
TPR 3-15	2.2	517	826	181	122
TPR 3-17	2.2	553	862	181	122
TPR 3-19	3	593	917	208	133
TPR 3-21	3	629	953	208	133
TPR 3-23	3	665	989	208	133
TPR 3-25	4	701	1060	208	133

TPR 3 (S)(N)

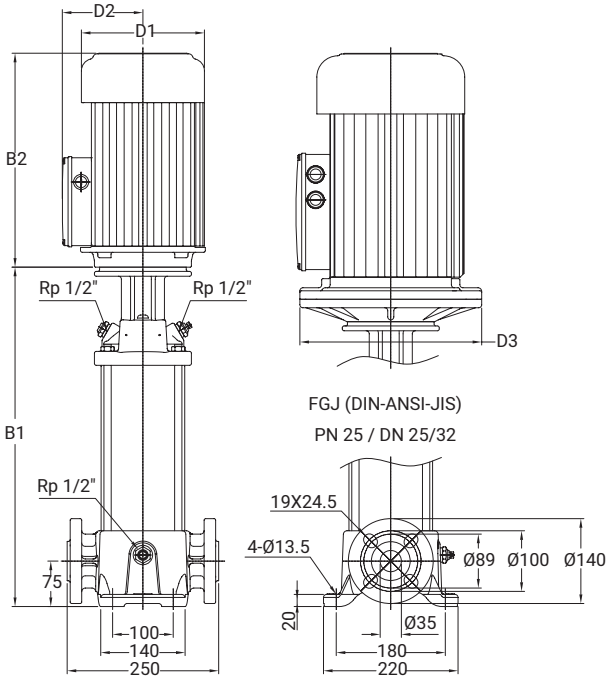
Pump type	Motor [kW]	Dimension [mm]					
		PJE		DIN flange		D1	D2
		B1	B1+B2	B1	B1+B2		
TPR 3-2 (S)(N)	0.37	262	456	277	471	144.5	110
TPR 3-3 (S)(N)	0.55	262	496	277	511	144.5	110
TPR 3-4 (S)(N)	0.55	280	514	295	529	144.5	110
TPR 3-5 (S)(N)	0.75	304	538	319	553	144.5	110
TPR 3-6 (S)(N)	1.1	322	586	337	601	144.5	110
TPR 3-7 (S)(N)	1.1	340	604	355	619	144.5	110
TPR 3-8 (S)(N)	1.1	358	622	373	637	144.5	110
TPR 3-9 (S)(N)	1.5	393	672	408	687	181	122
TPR 3-10 (S)(N)	1.5	411	690	426	705	181	122
TPR 3-11 (S)(N)	1.5	429	708	444	723	181	122
TPR 3-12 (S)(N)	2.2	447	756	462	771	181	122
TPR 3-13 (S)(N)	2.2	465	774	480	789	181	122
TPR 3-15 (S)(N)	2.2	501	810	516	825	181	122
TPR 3-17 (S)(N)	2.2	537	846	552	861	181	122
TPR 3-19 (S)(N)	3	577	901	592	916	208	133
TPR 3-21 (S)(N)	3	613	937	628	952	208	133
TPR 3-23 (S)(N)	3	649	973	664	988	208	133
TPR 3-25 (S)(N)	4	685	1044	700	1059	208	133

Performance curves

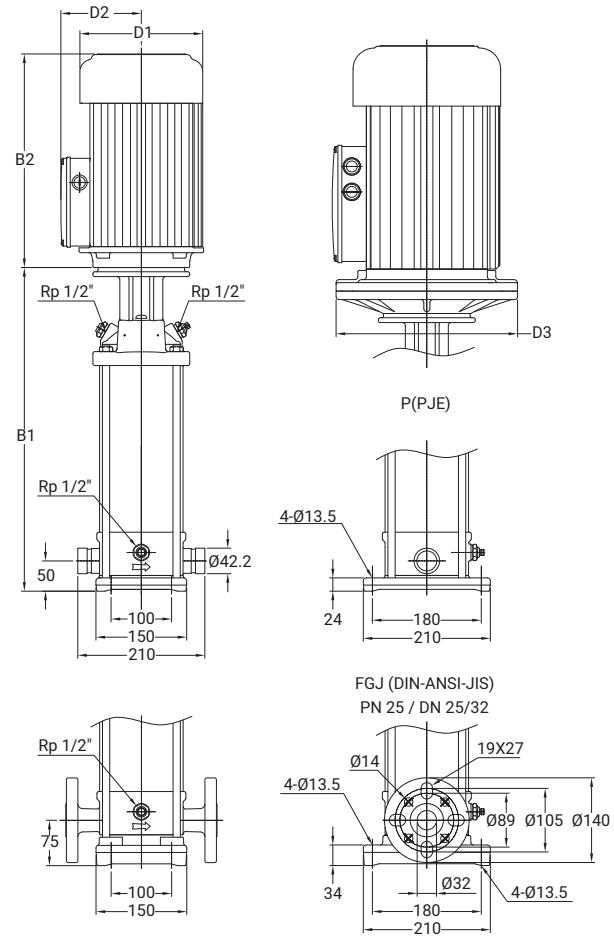


Dimensional Sketches

TPR 5



TPR 5 (S)(N)



Dimensions and Weights

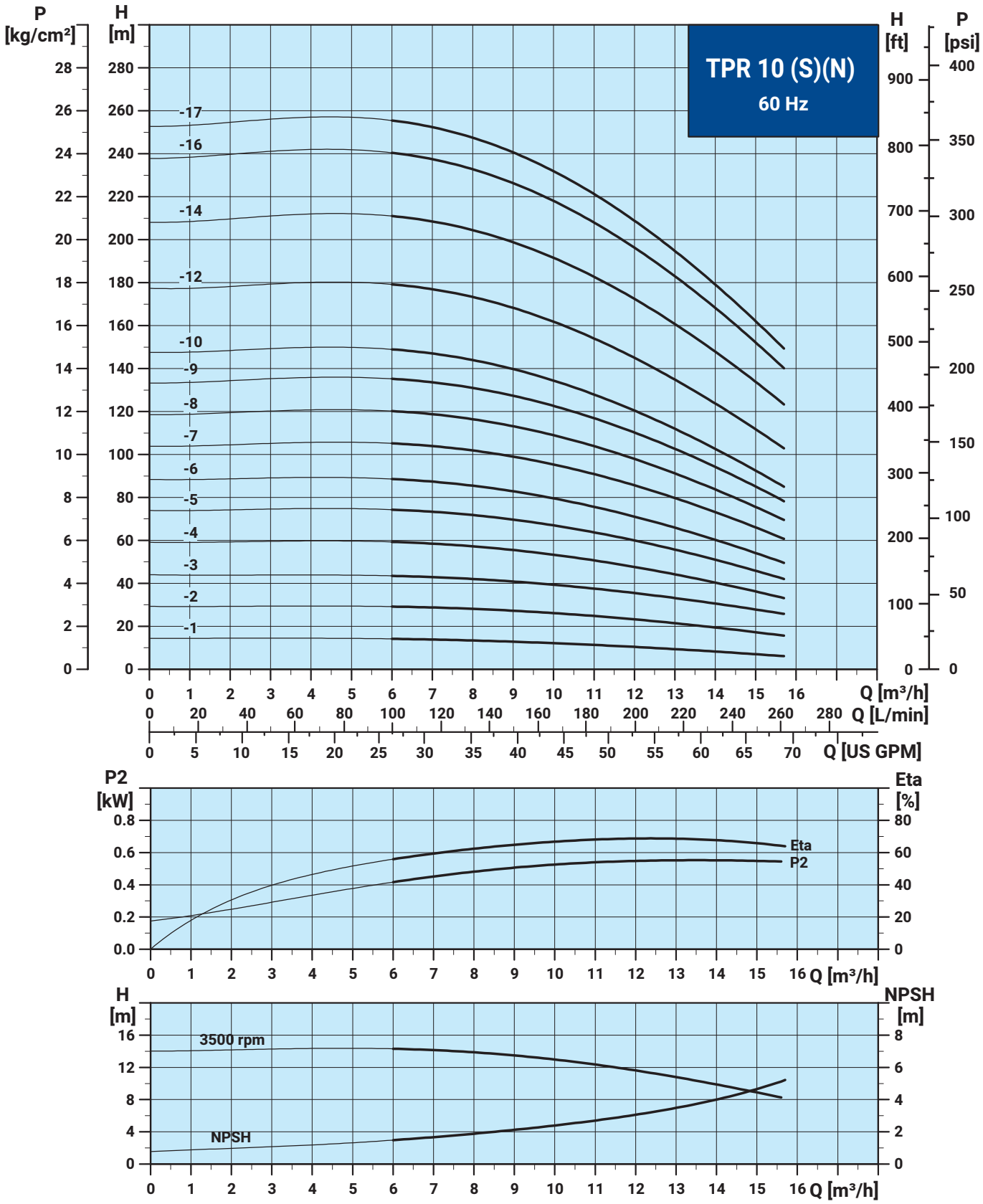
TPR 5

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 5-2	0.55	278	511	144.5	110	-
TPR 5-3	1.1	311	575	144.5	110	-
TPR 5-4	1.1	338	602	144.5	110	-
TPR 5-5	1.5	365	644	181	122	-
TPR 5-6	2.2	409	718	181	122	-
TPR 5-7	2.2	436	745	181	122	-
TPR 5-8	2.2	463	772	181	122	-
TPR 5-9	2.2	490	799	181	122	-
TPR 5-10	3	521	845	208	133	-
TPR 5-11	3	548	872	208	133	-
TPR 5-12	3	575	899	208	133	-
TPR 5-13	4	602	961	208	133	-
TPR 5-14	4	629	988	208	133	-
TPR 5-15	4	656	1015	208	133	-
TPR 5-16	4	683	1042	208	133	-
TPR 5-18	5.5	774	1139	244	156.5	300
TPR 5-20	5.5	828	1193	244	156.5	300
TPR 5-22	5.5	882	1247	244	156.5	300
TPR 5-24	7.5	936	1341	244	156.5	300

TPR 5 (S)(N)

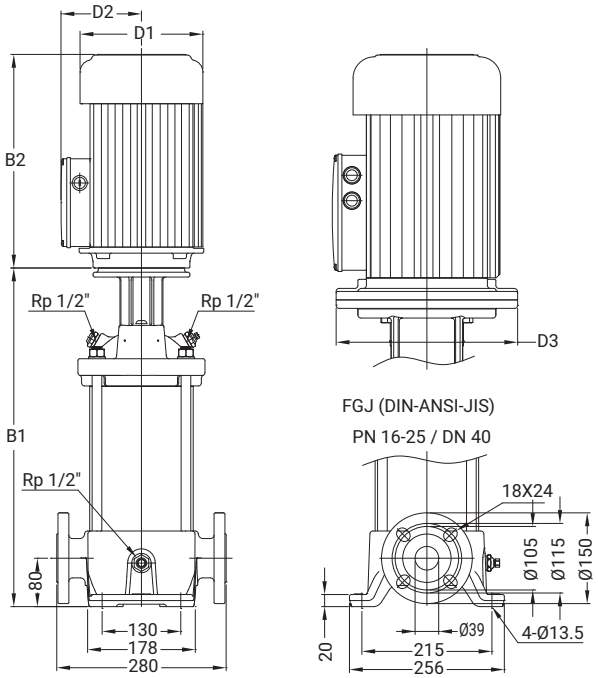
Pump type	Motor [kW]	Dimension [mm]						
		PJE		DIN flange		D1	D2	D3
		B1	B1+B2	B1	B1+B2			
TPR 5-2 (S)(N)	0.55	262	496	277	511	144.5	110	-
TPR 5-3 (S)(N)	1.1	295	559	310	574	144.5	110	-
TPR 5-4 (S)(N)	1.1	322	586	337	601	144.5	110	-
TPR 5-5 (S)(N)	1.5	349	628	364	643	181	122	-
TPR 5-6 (S)(N)	2.2	393	702	408	717	181	122	-
TPR 5-7 (S)(N)	2.2	420	729	435	744	181	122	-
TPR 5-8 (S)(N)	2.2	447	756	462	771	181	122	-
TPR 5-9 (S)(N)	2.2	474	783	489	798	181	122	-
TPR 5-10 (S)(N)	3	505	829	520	844	208	133	-
TPR 5-11 (S)(N)	3	532	856	547	871	208	133	-
TPR 5-12 (S)(N)	3	559	883	574	898	208	133	-
TPR 5-13 (S)(N)	4	586	945	601	960	208	133	-
TPR 5-14 (S)(N)	4	613	972	628	987	208	133	-
TPR 5-15 (S)(N)	4	640	999	655	1014	208	133	-
TPR 5-16 (S)(N)	4	667	1026	682	1041	208	133	-
TPR 5-18 (S)(N)	5.5	758	1124	773	1139	244	156.5	300
TPR 5-20 (S)(N)	5.5	812	1178	827	1193	244	156.5	300
TPR 5-22 (S)(N)	5.5	866	1232	881	1247	244	156.5	300
TPR 5-24 (S)(N)	7.5	920	1326	935	1341	244	156.5	300

Performance curves

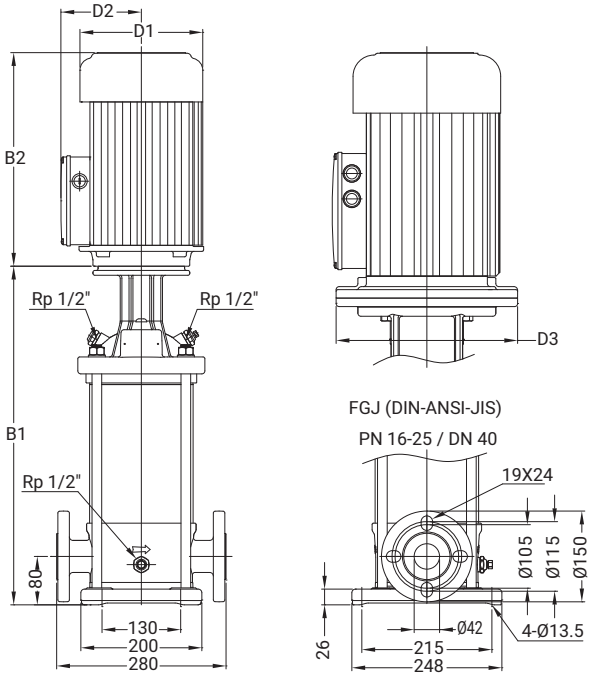


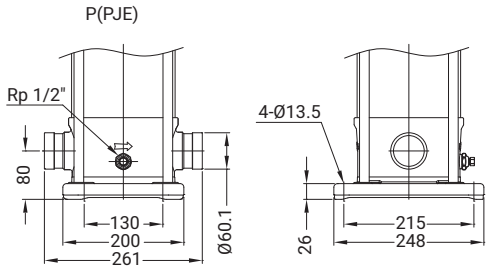
Dimensional Sketches

TPR 10



TPR 10 (S)(N)





Dimensions and Weights

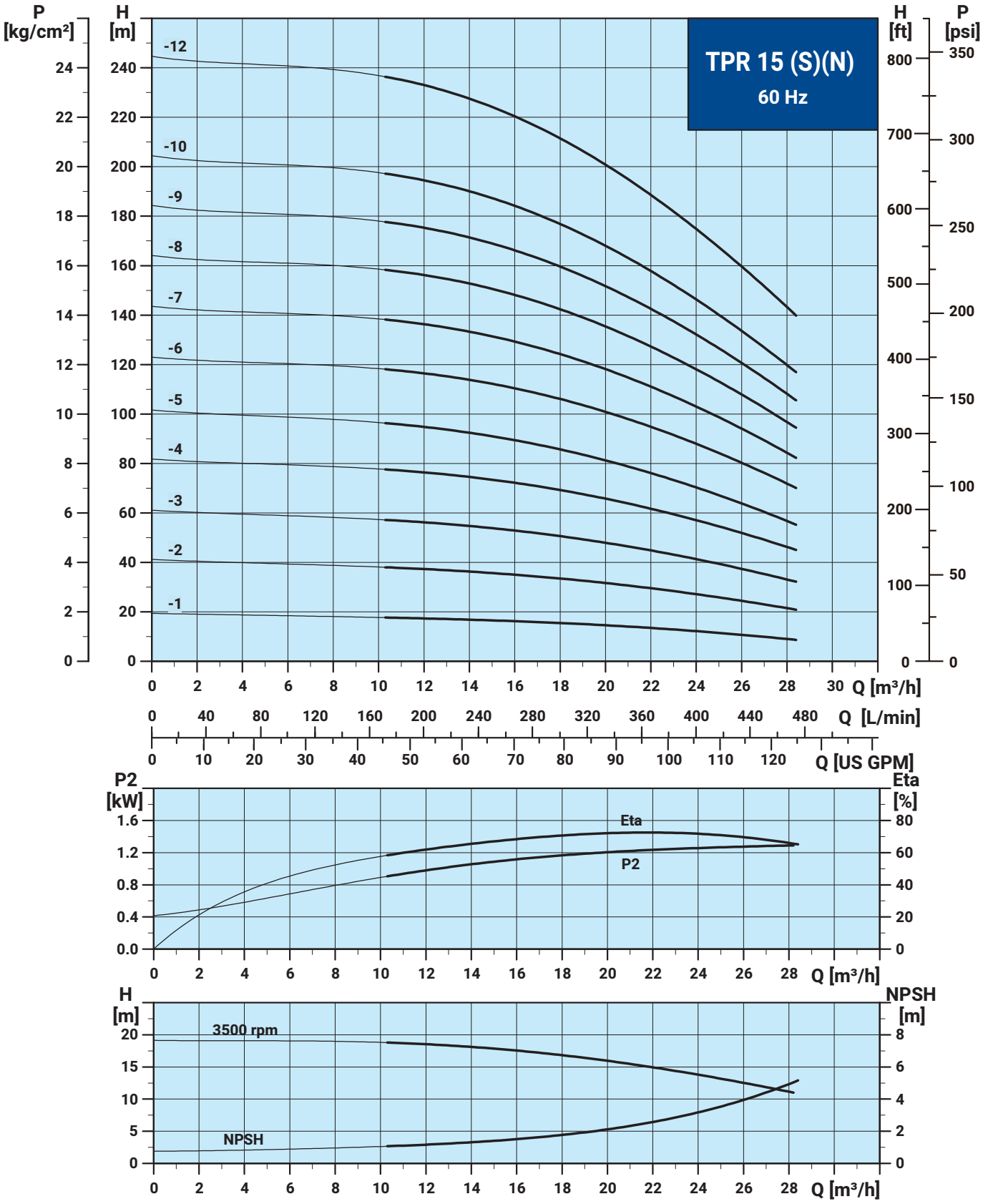
TPR 10

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 10-1	0.75	348	582	144.5	110	-
TPR 10-2	1.5	363	642	181	122	-
TPR 10-3	2.2	393	702	181	122	-
TPR 10-4	3	426	750	208	133	-
TPR 10-5	3	456	780	208	133	-
TPR 10-6	4	486	845	208	133	-
TPR 10-7	5.5	550	916	244	156.5	300
TPR 10-8	5.5	580	946	244	156.5	300
TPR 10-9	5.5	610	976	244	156.5	300
TPR 10-10	7.5	640	1046	244	156.5	300
TPR 10-12	7.5	700	1106	244	156.5	300
TPR 10-14	11	841	1341	330	250	350
TPR 10-16	11	901	1401	330	250	350
TPR 10-17	11	931	1431	330	250	350

TPR 10 (S)(N)

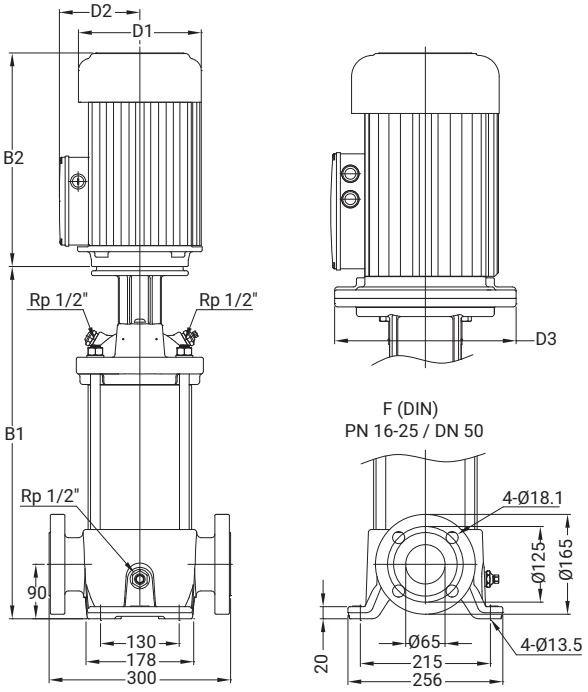
Pump type	Motor [kW]	Dimension [mm]						
		PJE		DIN flange		D1	D2	D3
		B1	B1+B2	B1	B1+B2			
TPR 10-1 (S)(N)	0.75	360	594	360	594	144.5	110	-
TPR 10-2 (S)(N)	1.5	375	654	375	654	181	122	-
TPR 10-3 (S)(N)	2.2	405	714	405	714	181	122	-
TPR 10-4 (S)(N)	3	438	762	438	762	208	133	-
TPR 10-5 (S)(N)	3	468	792	468	792	208	133	-
TPR 10-6 (S)(N)	4	498	857	498	857	208	133	-
TPR 10-7 (S)(N)	5.5	562	928	562	928	244	156.5	300
TPR 10-8 (S)(N)	5.5	592	958	592	958	244	156.5	300
TPR 10-9 (S)(N)	5.5	622	988	622	988	244	156.5	300
TPR 10-10 (S)(N)	7.5	652	1058	652	1058	244	156.5	300
TPR 10-12 (S)(N)	7.5	712	1118	712	1118	244	156.5	300
TPR 10-14 (S)(N)	11	853	1353	853	1353	330	250	350
TPR 10-16 (S)(N)	11	913	1413	913	1413	330	250	350
TPR 10-17 (S)(N)	11	943	1443	943	1443	330	250	350

Performance curves

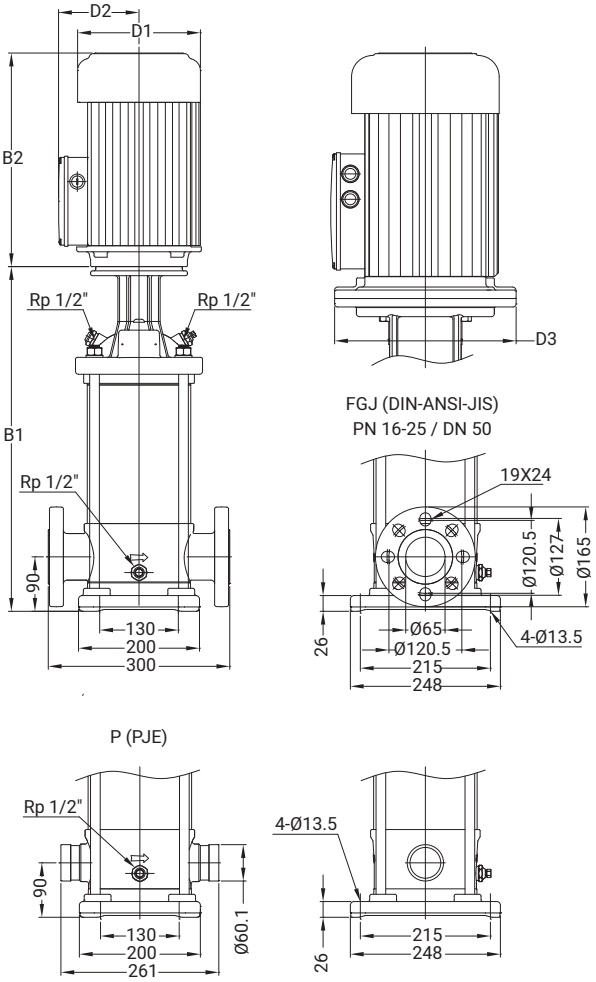


Dimensional Sketches

TPR 15



TPR 15 (S)(N)



Dimensions and Weights

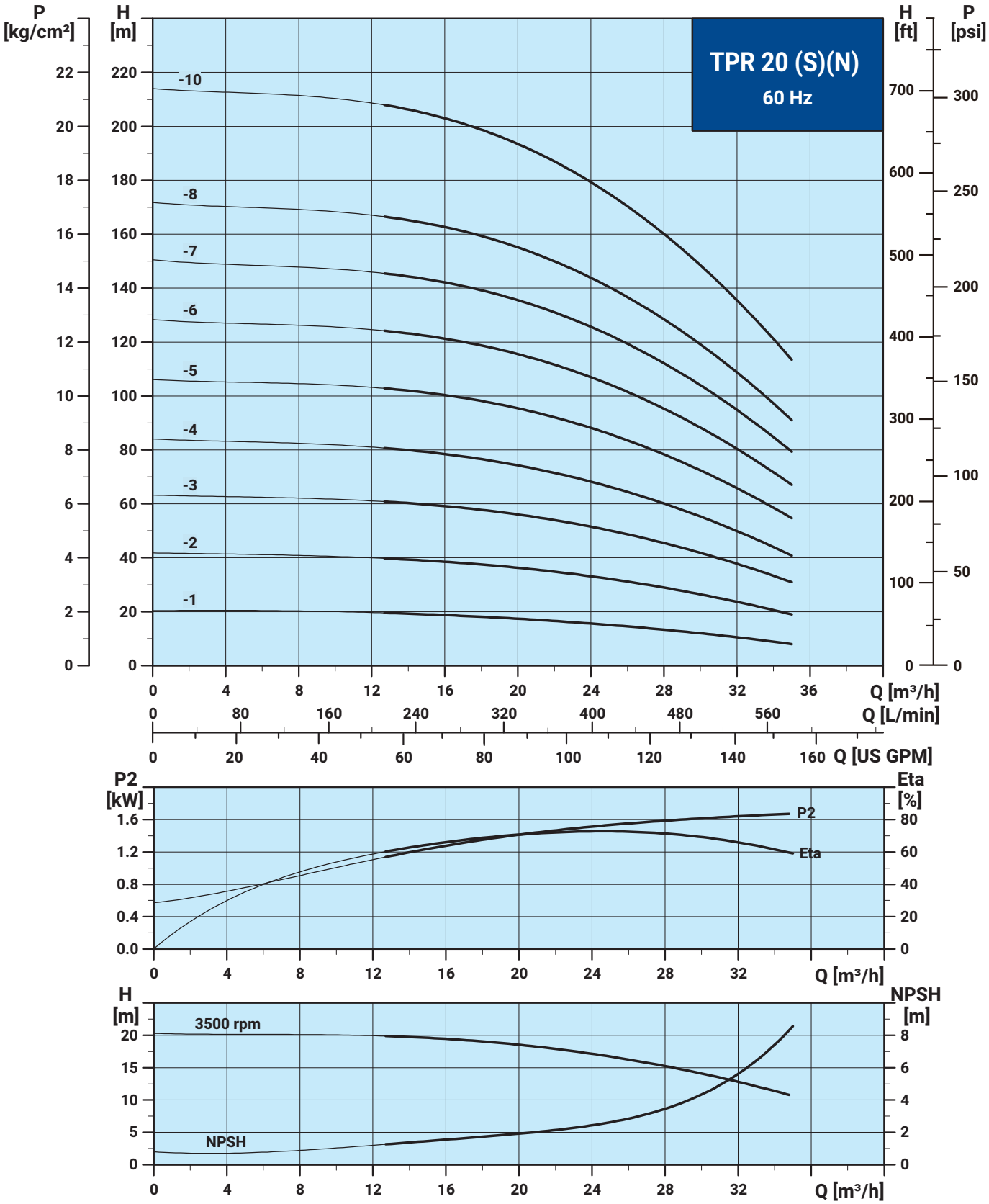
TPR 15

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 15-1	1.5	416	695	181	122	-
TPR 15-2	3	419	743	208	133	-
TPR 15-3	4	464	823	208	133	-
TPR 15-4	5.5	543	909	244	156.5	300
TPR 15-5	7.5	588	994	244	156.5	300
TPR 15-6	11	714	1214	330	250	350
TPR 15-7	11	759	1259	330	250	350
TPR 15-8	11	804	1304	330	250	350
TPR 15-9	15	849	1349	330	250	350
TPR 15-10	15	894	1394	330	250	350
TPR 15-12	18.5	984	1529	330	250	350

TPR 15 (S)(N)

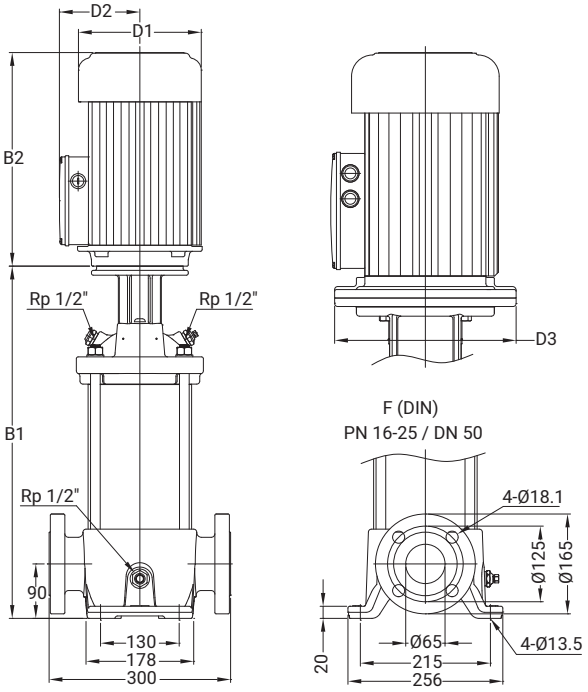
Pump type	Motor [kW]	Dimension [mm]						
		PJE		DIN flange		D1	D2	D3
		B1	B1+B2	B1	B1+B2			
TPR 15-1 (S)(N)	1.5	417	696	417	696	181	122	-
TPR 15-2 (S)(N)	3	420	744	420	744	208	133	-
TPR 15-3 (S)(N)	4	465	824	465	824	208	133	-
TPR 15-4 (S)(N)	5.5	544	910	544	910	244	156.5	300
TPR 15-5 (S)(N)	7.5	589	995	589	995	244	156.5	300
TPR 15-6 (S)(N)	11	715	1215	715	1215	330	250	350
TPR 15-7 (S)(N)	11	760	1260	760	1260	330	250	350
TPR 15-8 (S)(N)	11	805	1305	805	1305	330	250	350
TPR 15-9 (S)(N)	15	850	1350	850	1350	330	250	350
TPR 15-10 (S)(N)	15	895	1395	895	1395	330	250	350
TPR 15-12 (S)(N)	18.5	985	1530	985	1530	330	250	350

Performance curves

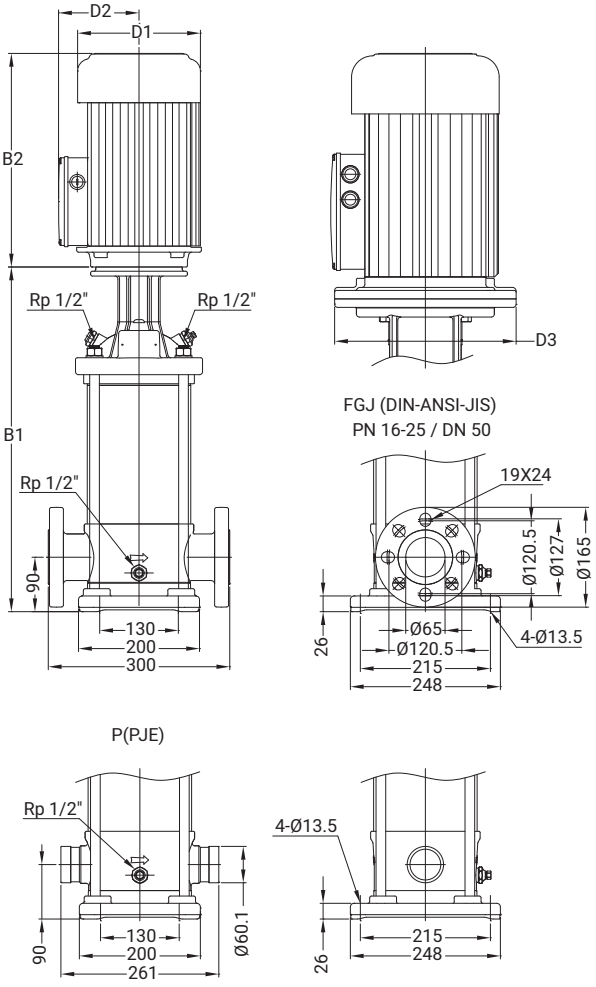


Dimensional Sketches

TPR 20



TPR 20 (S)(N)



Dimensions and Weights

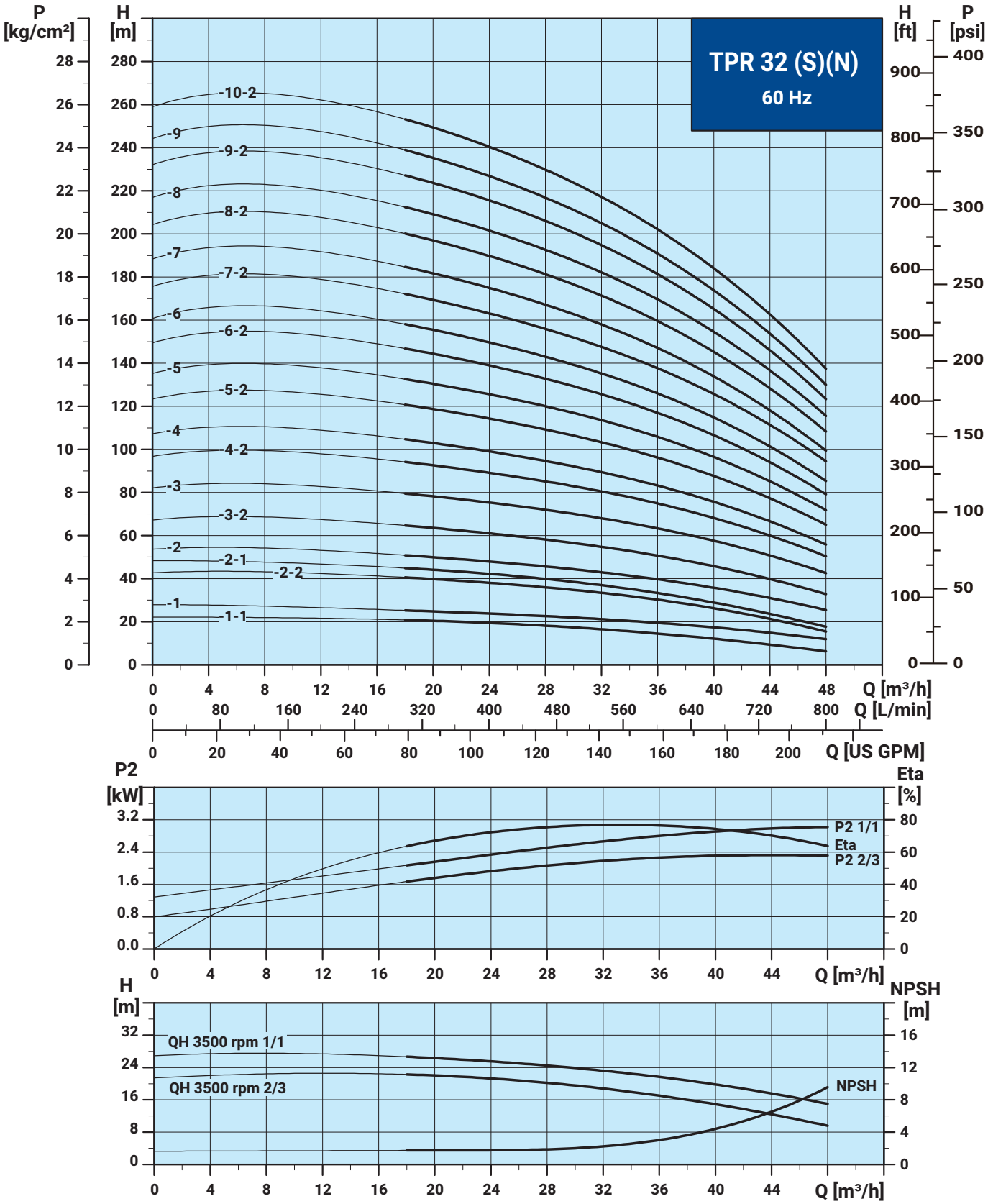
TPR 20

Pump type	Motor [kW]	Dimension [mm]				
		DIN flange		D1	D2	D3
		B1	B1+B2			
TPR 20-1	2.2	416	725	181	122	-
TPR 20-2	4	419	778	208	133	-
TPR 20-3	5.5	498	864	244	156.5	350
TPR 20-4	7.5	543	949	244	156.5	300
TPR 20-5	11	669	1169	330	250	350
TPR 20-6	11	714	1214	330	250	350
TPR 20-7	15	759	1259	330	250	350
TPR 20-8	15	804	1304	330	250	350
TPR 20-10	18.5	894	1439	330	250	350

TPR 20 (S)(N)

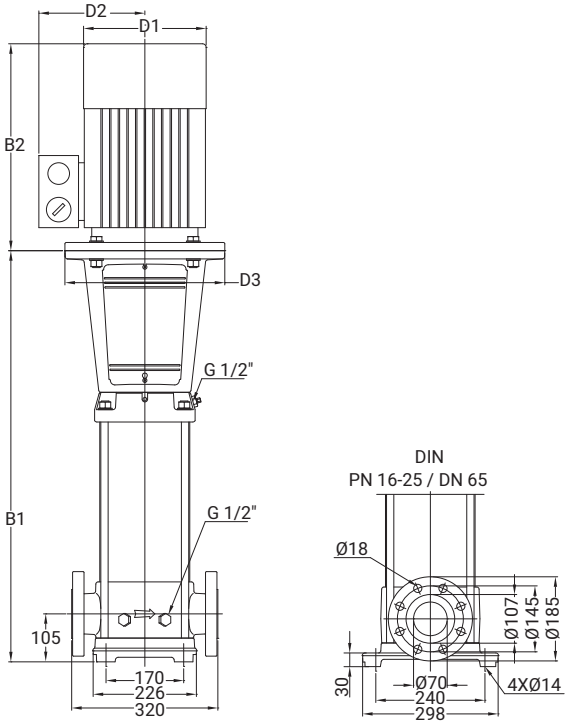
Pump type	Motor [kW]	Dimension [mm]						
		PJE		DIN flange		D1	D2	D3
		B1	B1+B2	B1	B1+B2			
TPR 20-1 (S)(N)	2.2	417	726	417	726	181	122	-
TPR 20-2 (S)(N)	4	420	779	420	779	208	133	-
TPR 20-3 (S)(N)	5.5	499	865	499	865	244	156.5	300
TPR 20-4 (S)(N)	7.5	544	950	544	950	244	156.5	300
TPR 20-5 (S)(N)	11	670	1170	670	1170	330	250	350
TPR 20-6 (S)(N)	11	715	1215	715	1215	330	250	350
TPR 20-7 (S)(N)	15	760	1260	760	1260	330	250	350
TPR 20-8 (S)(N)	15	805	1305	805	1305	330	250	350
TPR 20-10 (S)(N)	18.5	895	1440	895	1440	330	250	350

Performance curves



Dimensional Sketches

TPR 32 (S)

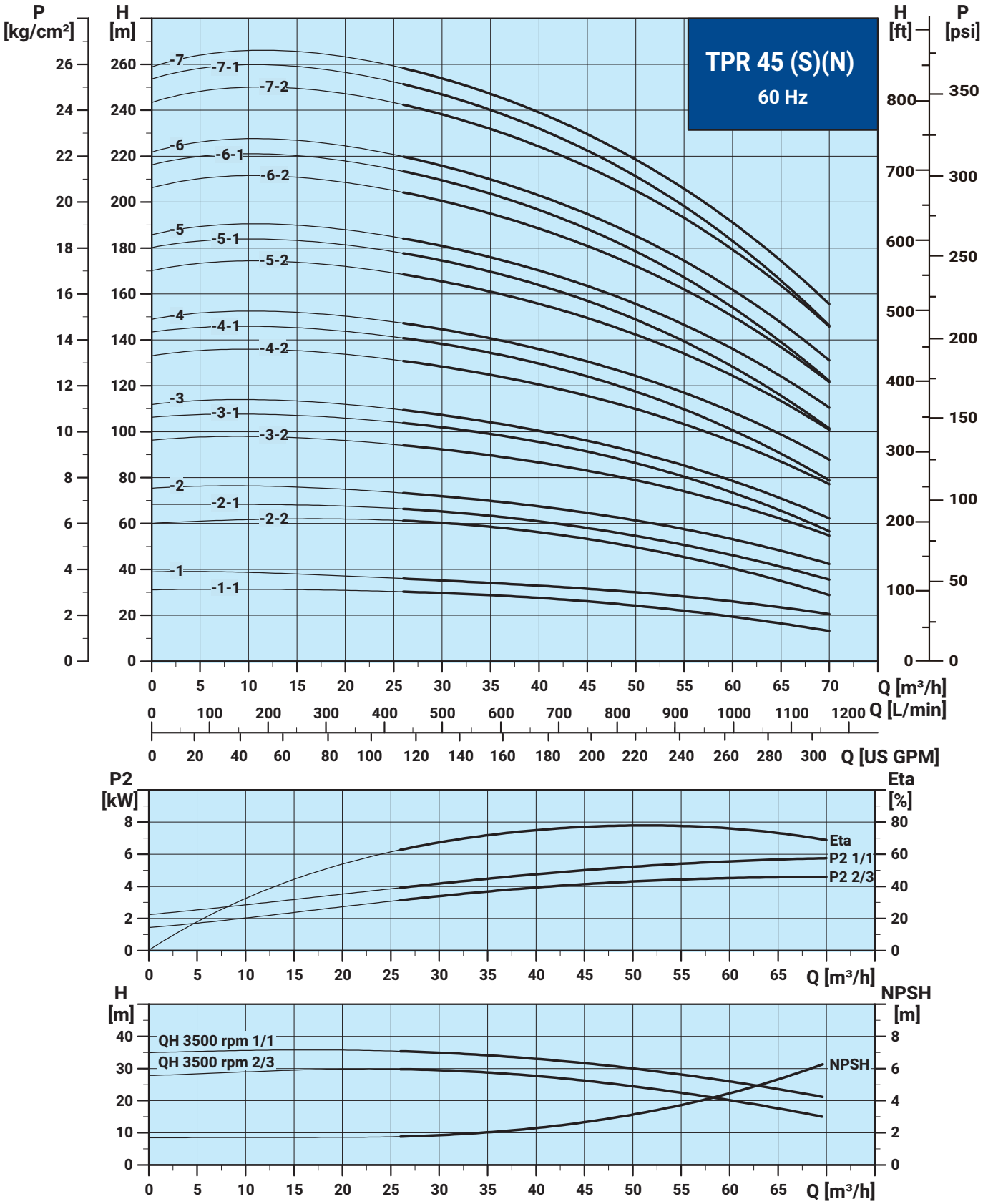


Dimensions and Weights

TPR 32 (S)

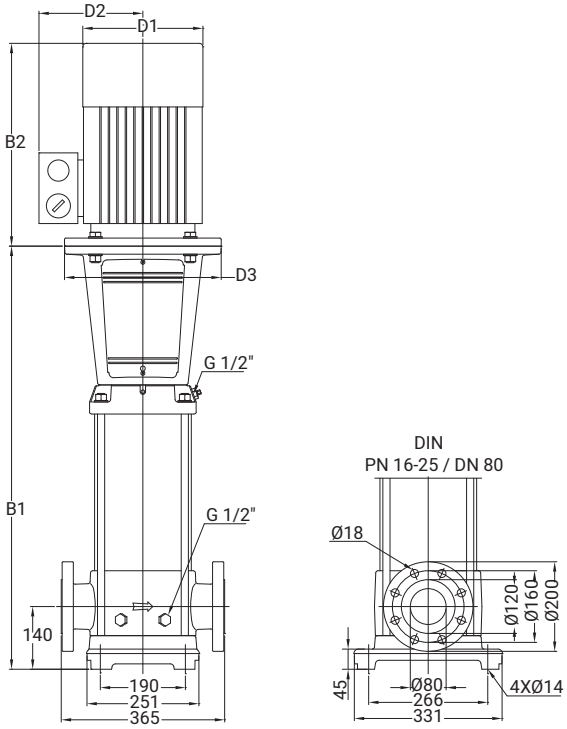
Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 32-1-1 (S)	2.2	505	826	178	110	-
TPR 32-1 (S)	3	505	840	198	120	-
TPR 32-2-2 (S)	5.5	575	966	220	134	300
TPR 32-2-1 (S)	5.5	575	966	220	134	300
TPR 32-2 (S)	7.5	575	954	260	159	300
TPR 32-3-2 (S)	11	755	1226	314	204	350
TPR 32-3 (S)	11	755	1226	314	204	350
TPR 32-4-2 (S)	11	825	1296	314	204	350
TPR 32-4 (S)	15	825	1296	314	204	350
TPR 32-5-2 (S)	15	895	1366	314	204	350
TPR 32-5 (S)	18.5	895	1410	314	204	350
TPR 32-6-2 (S)	18.5	965	1480	314	204	350
TPR 32-6 (S)	18.5	965	1480	314	204	350
TPR 32-7-2 (S)	22	1035	1576	314	204	350
TPR 32-7 (S)	22	1035	1576	314	204	350
TPR 32-8-2 (S)	30	1105	1716	396	315	400
TPR 32-8 (S)	30	1105	1716	396	315	400
TPR 32-9-2 (S)	30	1175	1786	396	315	400
TPR 32-9 (S)	30	1175	1786	396	315	400
TPR 32-10-2 (S)	30	1245	1856	396	315	400

Performance curves



Dimensional Sketches

TPR 45 (S)

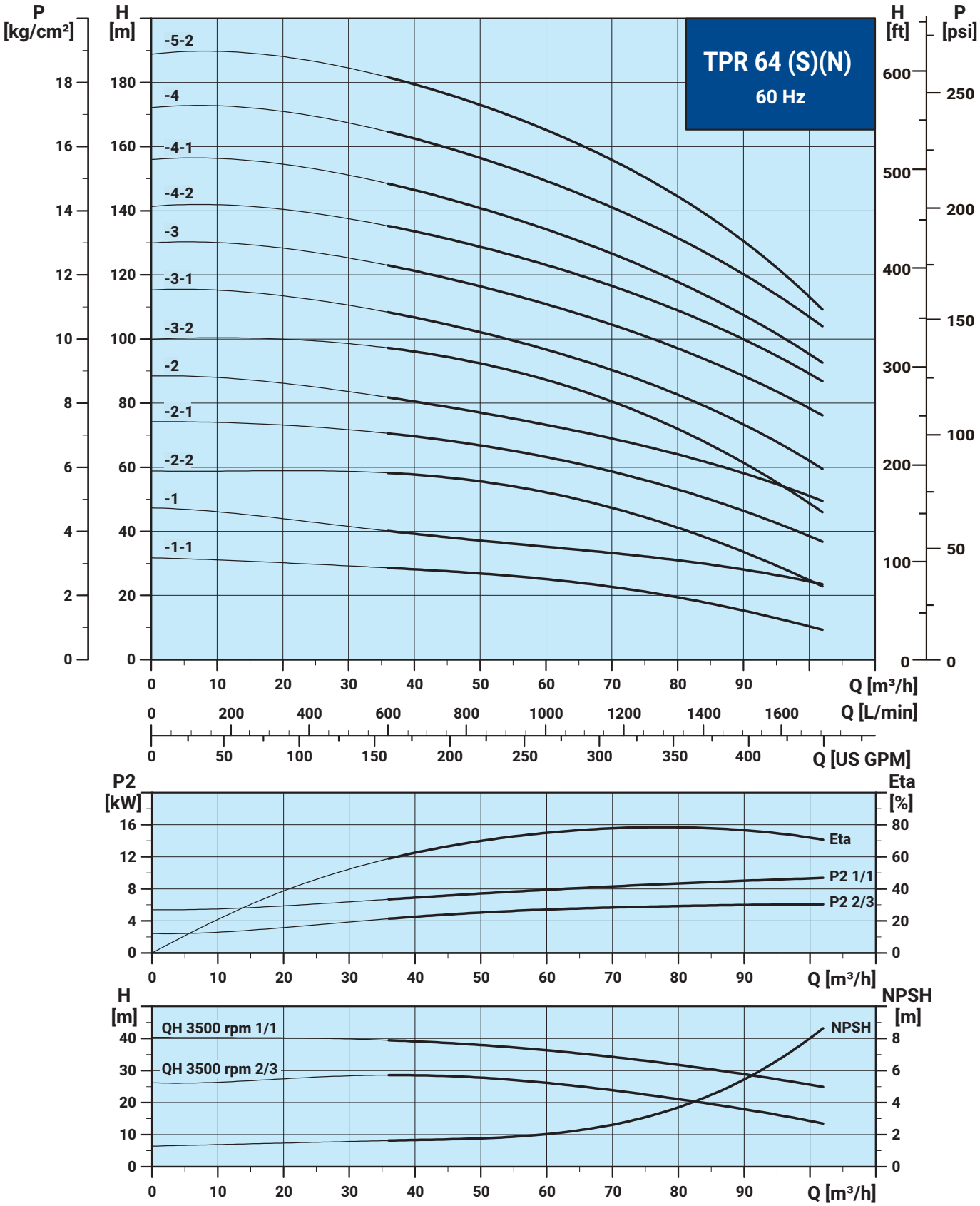


Dimensions and Weights

TPR 45 (S)

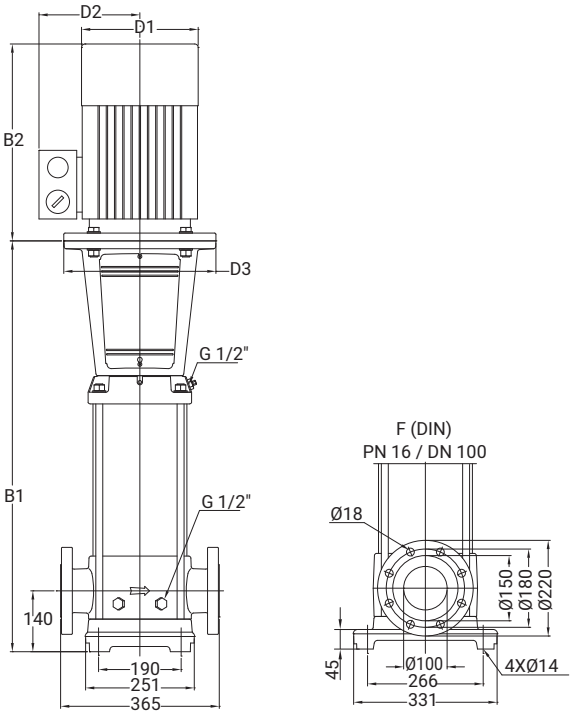
Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 45-1-1 (S)	5.5	563	954	220	134	300
TPR 45-1 (S)	7.5	563	942	260	159	300
TPR 45-2-2 (S)	11	748	1219	314	204	350
TPR 45-2-1 (S)	11	748	1219	314	204	350
TPR 45-2 (S)	15	748	1219	314	204	350
TPR 45-3-2 (S)	18.5	828	1343	314	204	350
TPR 45-3-1 (S)	18.5	828	1343	314	204	350
TPR 45-3 (S)	18.5	828	1343	314	204	350
TPR 45-4-2 (S)	22	908	1449	314	204	350
TPR 45-4-1 (S)	30	908	1519	396	315	400
TPR 45-4 (S)	30	908	1519	396	315	400
TPR 45-5-2 (S)	30	988	1599	396	315	400
TPR 45-5-1 (S)	30	988	1599	396	315	400
TPR 45-5 (S)	30	988	1599	396	315	400
TPR 45-6-2 (S)	37	1068	1704	396	315	400
TPR 45-6-1 (S)	37	1068	1704	396	315	400
TPR 45-6 (S)	37	1068	1704	396	315	400
TPR 45-7-2 (S)	45	1148	1856	439	338	450
TPR 45-7-1 (S)	45	1148	1856	439	338	450
TPR 45-7 (S)	45	1148	1856	439	338	450

Performance curves



Dimensional Sketches

TPR 64 (S)

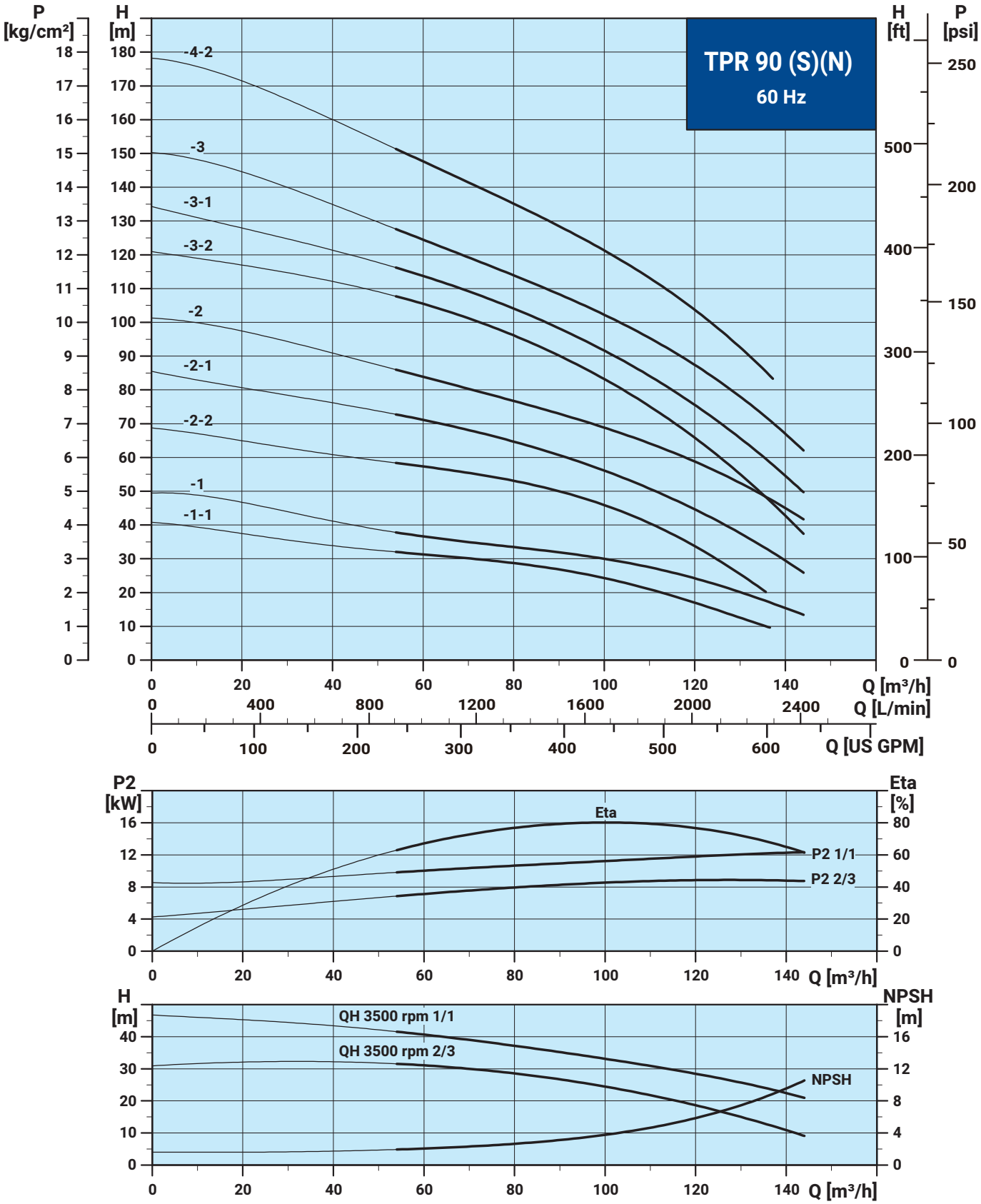


Dimensions and Weights

TPR 64 (S)

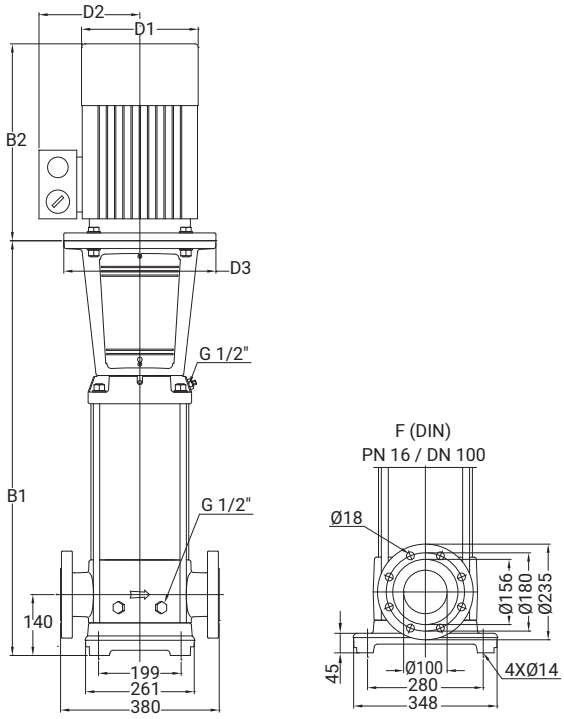
Pump type	Motor [kW]	Dimension [mm]				
		B1	B1+B2	D1	D2	D3
TPR 64-1-1 (S)	7.5	561	940	260	159	300
TPR 64-1 (S)	11	671	1142	314	204	350
TPR 64-2-2 (S)	15	754	1225	314	204	350
TPR 64-2-1 (S)	18.5	754	1269	314	204	350
TPR 64-2 (S)	22	754	1295	314	204	350
TPR 64-3-2 (S)	22	836	1377	314	204	350
TPR 64-3-1 (S)	30	836	1447	396	315	400
TPR 64-3 (S)	30	836	1447	396	315	400
TPR 64-4-2 (S)	37	919	1555	396	315	400
TPR 64-4-1 (S)	37	919	1555	396	315	400
TPR 64-4 (S)	45	919	1627	439	338	450
TPR 64-5-2 (S)	45	1001	1709	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)	11	681	1152	314	204	350
TPR 90-1 (S)	15	681	1152	314	204	350
TPR 90-2-2 (S)	18.5	773	1288	314	204	350
TPR 90-2-1 (S)	22	773	1314	314	204	350
TPR 90-2 (S)	30	773	1384	396	315	400
TPR 90-3-2 (S)	37	865	1501	396	315	400
TPR 90-3-1 (S)	37	865	1501	396	315	400
TPR 90-3 (S)	45	865	1573	439	338	450
TPR 90-4-2 (S)	45	957	1665	439	338	450

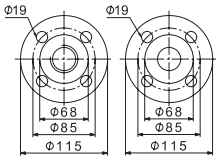
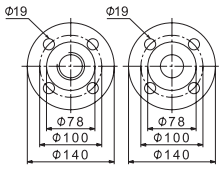
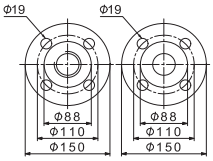
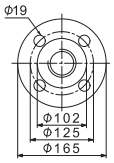
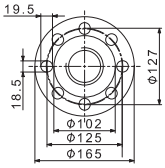
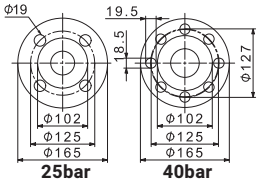
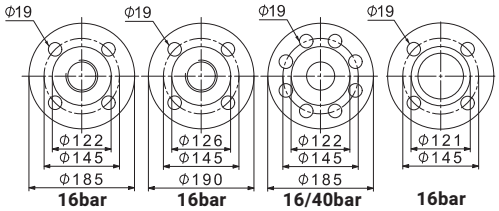
Accessories

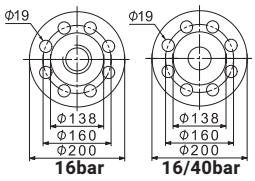
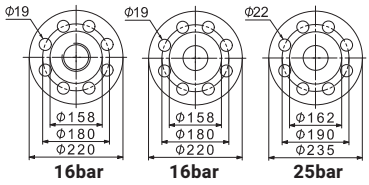
Pipe connection

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.

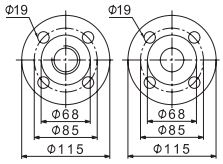
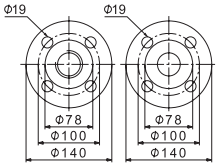
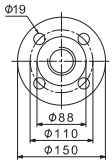
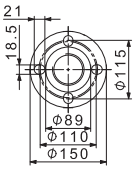
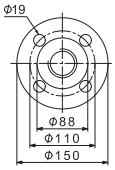
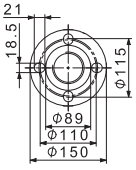
Counter-flange	Pump type	Description	Rated pressure	Pipe connection
	TPR 1,3,5	Threaded	16bar, EN 1092-2	Rp 1
		For welding	25bar, EN 1092-2	25mm, nominal
	TPR 1,3,5	Threaded	16bar, EN 1092-2	Rp 1 1/4
		For welding	25bar, EN 1092-2	32mm, nominal
	TPR 10	Threaded	16bar, EN 1092-2	Rp 1 1/2
		Threaded	16bar,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

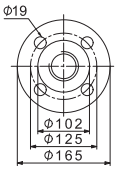
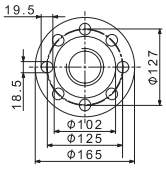
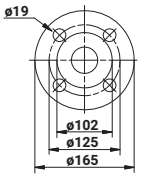
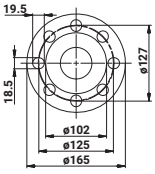
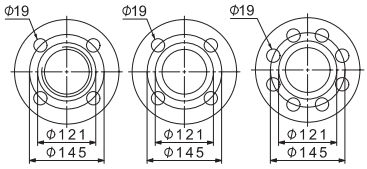
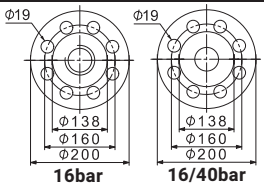
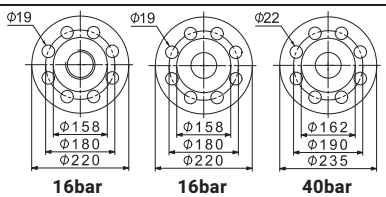
Counter-flange	Pump type	Description	Rated pressure	Pipe connection
	TPR 45	Threaded	16bar	Rp 3
		For welding	16bar	80mm, nominal
		For welding	40bar	80mm, nominal
	TPR 64, 90	Threaded	16bar, EN 1092-2	Rp 4
		For welding	16bar, EN 1092-2	100mm, nominal

Counter-flanges for TPR(S)(N)

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

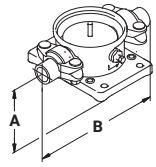
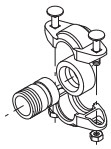
A set consists of one counter-flange, one gasket, bolts and nuts.

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
		**For welding**	25bar, special flange	65mm, nominal
	TPR 32 (S)	**Threaded**	16bar	Rp 2 1/2
		Threaded	16bar, special flange	Rp 3
		For welding	16bar	65mm, nominal
		For welding	40bar	65mm, nominal
		For welding	16bar, special flange	80mm, nominal
	TPR 45 (S)	**Threaded**	16bar	Rp 3
		For welding	16bar	80mm, nominal
		For welding	40bar	80mm, nominal
	TPR 64, 90 (S)	**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/cm²	m H_2O	lbf/in² (psi)	ft H_2O	N/m² (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	m³/h	ft³/h	ft³/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

WALRUS PUMP

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All specifications are subject to change without notice. TPR-60Hz-EN005a-202506