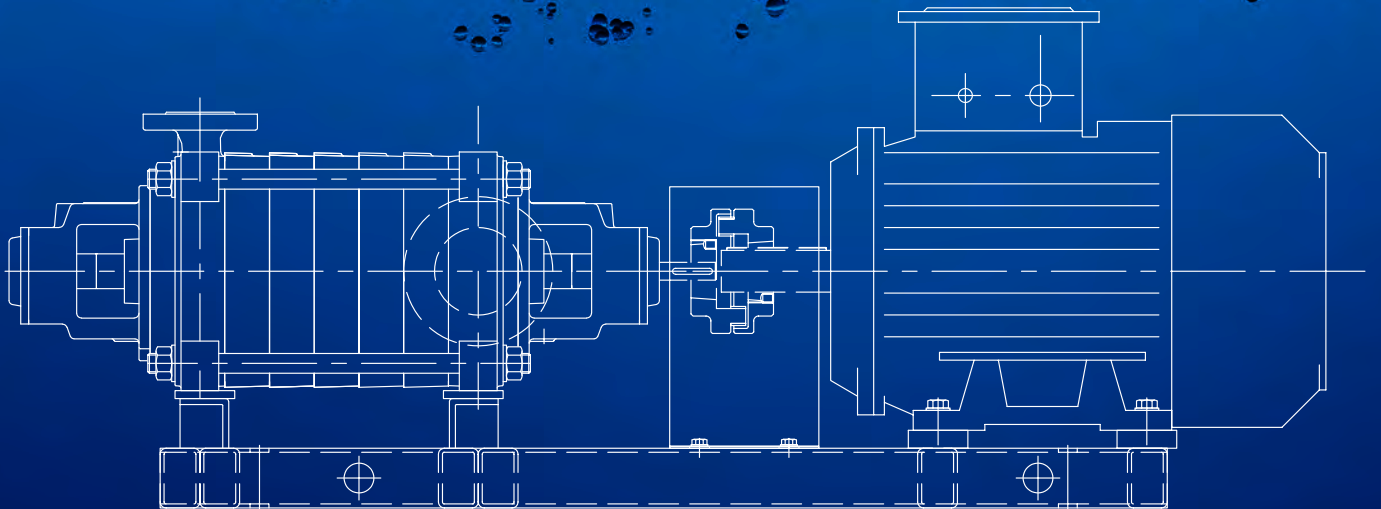


50Hz

# HP - HV Technical Catalogue



# L'Azienda

**L'Azienda: Marly è una società, produttrice di pompe centrifughe, che vanta un'esperienza pluriennale nel settore industriale.**

L'attuale staff dirigenziale iniziò un'attività di successo nel settore delle pompe già negli anni '70. Oggi Marly è un player di riferimento del settore delle pompe industriali con una progettazione, realizzazione e collaudo interni per pompe prodotte con materiali ed esecuzioni speciali anche su commessa per oltre 28 diversi settori di applicazione.

***The Company: Marly is a company specialized in the production of pumps with many years of experience***

*The current managerial staff began an activity of producing pumps with special materials and executions, also on commission, for over 28 different application sectors success in the pump sector since the '70s. Today Marly is a standard setting player in the industrial pumps sector, with in-house design, production and testing.*

# The Company



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# Introduzione alla linea HP

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Le pompe centrifughe multistadio della serie HP sono del tipo a sezione radiale, per l'installazione orizzontale o verticale. Le bocche di aspirazione e mandata con flangiatura tipo EN o ANSI, possono avere esecuzione radiale e ruotabili di 90°, nei modelli HP, HPM e HPR, oppure bocca di aspirazione con posizione assiale nei modelli HPA e HPMA.

Questa famiglia di pompe è progettata per lavorare in applicazioni pesanti e a pressioni molto elevate (fino a 100 Bar per le versioni HPR) e con temperature fino a 180°C. La grande disponibilità di materiali, i diversi tipi di tenuta sull'albero e le varie soluzioni di lubrificazione dei cuscinetti della pompa, rendono questa linea molto versatile e ideale per molte applicazioni nei settori industriali, dell'energia e del trattamento acqua.

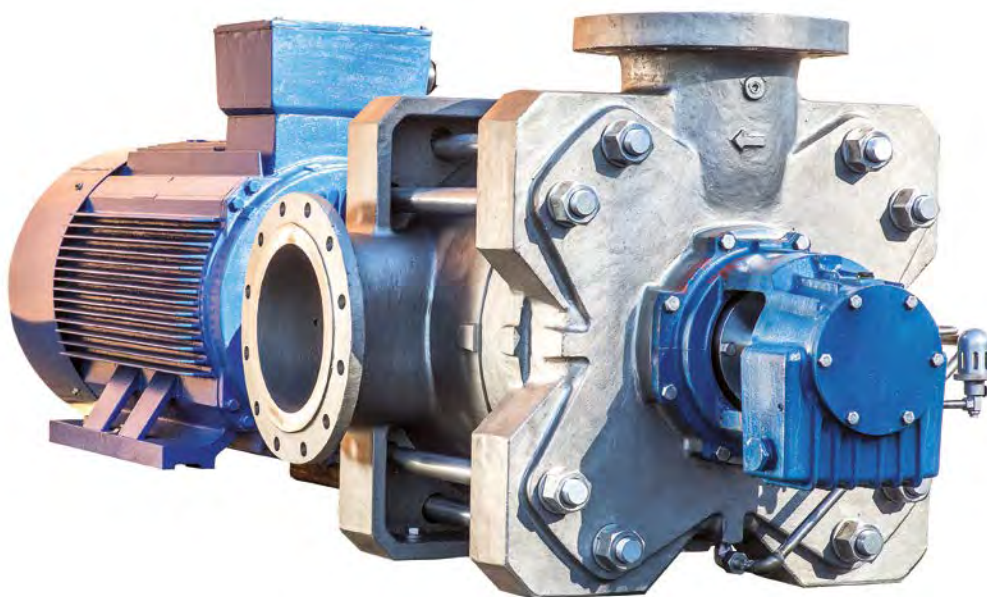
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# Introduction to the HP line

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*The multistage centrifugal pumps belonging to the HP series have a radial cross section, allowing an horizontal or vertical installation. The flanges of the suction and discharge ports are according to the EN or ANSI standards, these ports can operate radially and can be rotated 90°, in the HP, HPM and HPR models, or have*

*an axial suction port for the HPA and HPMA models. This family of pumps is designed to operate in heavy duty conditions and with very high pressures (up to 100 Bar for the HPR versions) and with temperatures up to 180°C. The great choice of materials, the different kinds of sealing on the shaft and the various lubrication solutions for the pump's bearings, make this line very versatile and ideal for many uses in the industrial, energy and water processing fields.*



# Qualità

Marly è dotata di una struttura di controllo e di un piano di miglioramento costante dei processi produttivi che assicurano, per ogni prodotto, la conformità agli standard qualitativi più rigidi del settore. Tutte le pompe vengono collaudate con dei test di fine linea che assicurano il corretto funzionamento nell'installazione. Le prestazioni idrauliche sono controllate e garantite secondo la norma ISO 9906 grado 3B.

# Quality

*Marly is equipped with a control structure and a continuous improvement production process plan that provide, for each product, compliance with the most stringent quality standards in the industry. All pumps are end-of-line tested to ensure the correct operation of the installation. The hydraulic performance are controlled and guaranteed according to ISO 9906 grade 3B.*



Su richiesta tutta la gamma HP è disponibile con certificazione Atex  
*On request the full HP range is available with Atex Certification*



## Le caratteristiche principali della linea HP

- Portate fino **1200 m<sup>3</sup>/h**.
- Pressioni fino a **1000 m**.
- Alta efficienza idraulica, fino a **80%**
- Tamburo di bilanciamento, posto sul corpo di mandata, compensa efficacemente la spinta assiale prodotta dalle giranti
- Sistema di tenuta versatile è disponibile nel tipo a Baderna, Meccanica Singola, oppure Meccanica Bilanciata, altri tipi speciali a richiesta.
- Cuscinetti della pompa sono disponibili con lubrificazione a grasso oppure ad olio per garantire una lunga vita di lavoro
- Anelli di usura fissi e su richiesta anche rotanti di vari materiali con trattamenti di indurimento

### Dati di funzionamento generale:

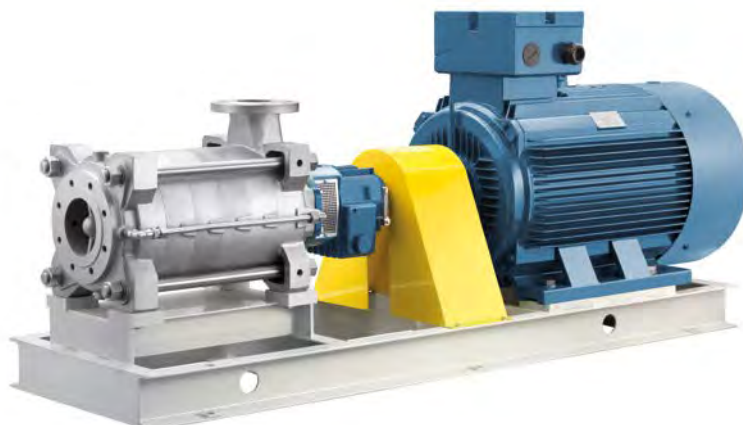
- Pressione fino a 100 bar  
Temperature da -20°C a +180°C  
Velocità di rotaz. fino a 3600 giri/min  
Flange standard: UNI/EN  
Bocca aspirante: DN 40-300 - PN 16-25  
Bocca premente: DN 25-250 - PN 64-100  
Tolleranza sulle prestazioni: ISO9906-3B

## Main characteristics HP line

- Flow rates up to **1200 m<sup>3</sup>/h**.
- Pressure up to **1000 m**.
- High hydraulic efficiency, up to **80%**
- Balancing drum, placed on the discharge casing, which effectively compensates the axial thrust produced by the impellers
- Versatile sealing system: which is available as packing, single Mechanical or Balanced Mechanical, other special types upon request.
- The pumps' bearings are available with grease or oil lubrication in order to assure a long operating life
- Wear rings: they are available both fixed as well as rotating, in various materials, with hardening treatments.

### General operating data:

- Pressure up to 100 bar  
Temperatures from -20°C to +180°C  
Rotational speed up to 3600 rpm.  
Standard flanges: UNI/EN  
Suction port: DN 40-300 - PN 16-25  
Discharge port: DN 25-250 - PN 64-100  
Performance tolerances: ISO9906-3B



## Principali campi d'impiego

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- Gruppi di Pressurizzazione in edilizia e settore delle costruzioni
- Gruppi Antincendio e applicazioni con motori diesel
- Miniere e applicazioni ATEX
- Impianti di servizio nei settori petrolchimico, Energia
- Impianti di Geotermia
- Alimentazione Caldaia
- Dissalazione acqua per Osmosi Inversa
- Impianti di filtrazione e Ultra-filtrazione
- Impianti di trattamento acqua



## Main fields of application

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- *Pressure raising groups in the building and construction sector*
- *Firefighting and applications with diesel engines*
- *Mining and ATEX applications*
- *Service facilities in the petrochemical sectors, Energy*
- *Geothermal plants*
- *Boiler feed*
- *Water desalination by reverse Osmosis*
- *Filtration and ultrafiltration plants*
- *Water treatment plants*



## Principali aspetti tecnici e costruttivi

Le **giranti** ottenute per fusione e disponibili in vari metallurgie, sono del tipo radiale, chiuse, bloccate sull'albero per mezzo di chiavette. La girante di aspirazione, è progettata per ottenere valori di NPSHr molto bassi. Per migliorare l'efficienza idraulica, contenere le usure meccaniche, ottimizzare manutenzione ordinaria, tutte le giranti sono dotate di anelli di rasamento. Disponibili su richiesta anelli di rasamento rotanti e sul mozzo.

*The **impellers** which are casted and available in various metals, are radial, closed and blocked to the shaft by keys. The suction impeller is designed to achieve very low NPSHr values. To improve the hydraulic efficiency, limit the mechanical wear and optimise the routine maintenance, all the impellers are equipped with shims. Available upon request rotating shims and on the hub.*

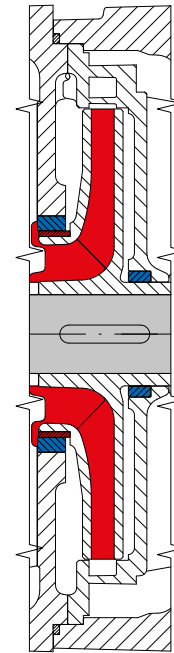
Per garantire una lunga vita di lavoro dei cuscinetti di spinta, nel corpo premente è alloggiato il tamburo di bilanciamento progettato per ridurre la spinta assiale generata dalle giranti.

Il tamburo, alimentato dalla tubazione di bilanciamento, è costruito in acciaio AISI 420 indurito in superficie ed è dotato di una camicia di usura disponibile in diversi materiali.

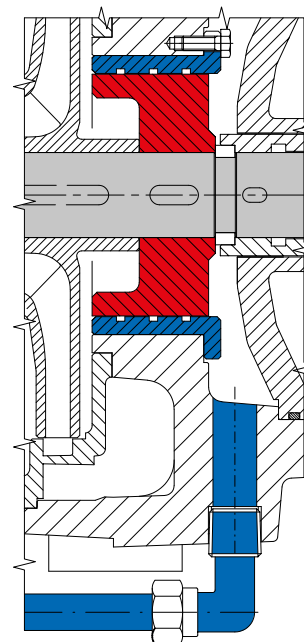
*To assure a long operational life for the thrust bearings, a balancing drum is housed in the discharge casing, it is designed to reduce the impellers' axial thrust. The drum, which is fed by a balancing tubing, is made of AISI 420 steel, superficially hardened and provided with a wear sleeve which is available in different materials.*

## Main technical and constructional features

### Girante radiale • *Radial impeller*



### Tamburo di bilanciamento • *Balancing drum*





La **camera di tenuta** è idonea ad alloggiare sia la tenuta di tipo a baderna che quella meccanica. L'albero in prossimità della tenuta è protetto da apposite camicie d'albero in acciaio speciale che facilita la manutenzione. Le tenute meccaniche sono unificate secondo la norma EN 12756; e possono essere dei seguenti tipi:

- Tenuta meccanica bilanciata o semplice, raffreddata dal liquido pompato oppure flussata esternamente da apposito orifizio.
- Tenuta meccanica doppia o a cartuccia per applicazioni con liquidi particolarmente aggressivi e/o caldi.

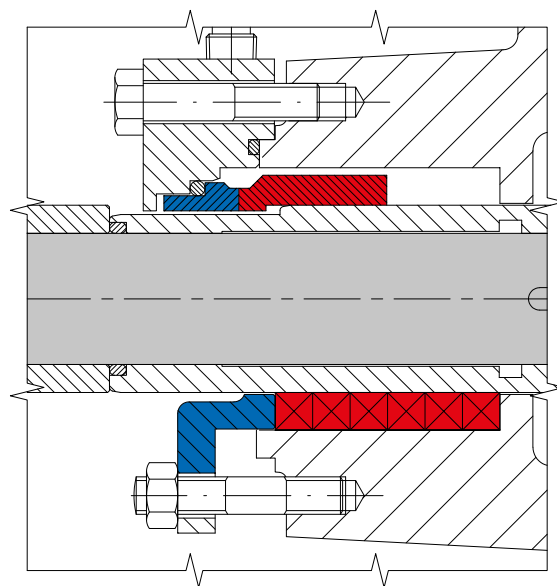
*The seal chamber is suitable to house both a packing seal as well as a mechanical one. The shaft near the seal is protected by specific special steel shaft sleeves that facilitate the maintenance. The mechanical seals are standardised according to standard EN 12756; and can be of the following kinds:*

- *Balanced or simple mechanical seal, cooled by the pumped liquid or externally flushed through a specific orifice.*
- *Double mechanical or cartridge seal to be used with liquids which are particularly aggressive and/or hot.*

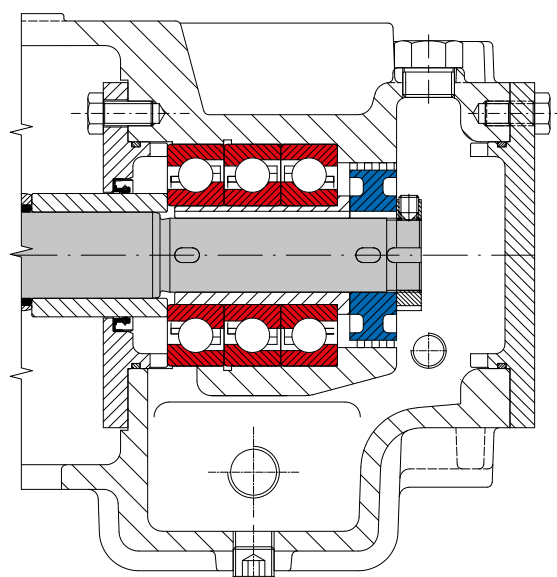
La pompa è dotata di una doppia (singola se versione HPA e HPMA) supportazione con cuscinetti a sfere e a rulli, progettata per sostenere la spinta assiale residua prodotta dalle giranti. I cuscinetti possono essere lubrificati a grasso, oppure ad olio con apposita camera di lubrificazione. Nel lato "NDE" sono presenti 3 cuscinetti a sfere obliqui per compensare la spinta naturale delle giranti e l'eventuale contro-spinta. Nel lato "DE" è alloggiato un cuscinetto a rulli che permette eventuali dilatazioni assiali dell'albero.

*The pump is equipped with a (single if the version is HPA and HPMA) ball or roller bearing double support, designed to support the residual axial thrust produced by the impellers. The bearings can be grease lubricated or with oil with a specific lubrication chamber. On the "NDE" side there are 3 oblique ball bearings to compensate the impeller's natural thrust and any counterthrust. On the "DE" side a roller bearing is housed that allows any axial expansion of the shaft.*

## Camera di tenuta • Seal housing



## Supporti cuscinetti • Bearings housing



# Materiali ed esecuzioni disponibili

## Available materials and executions

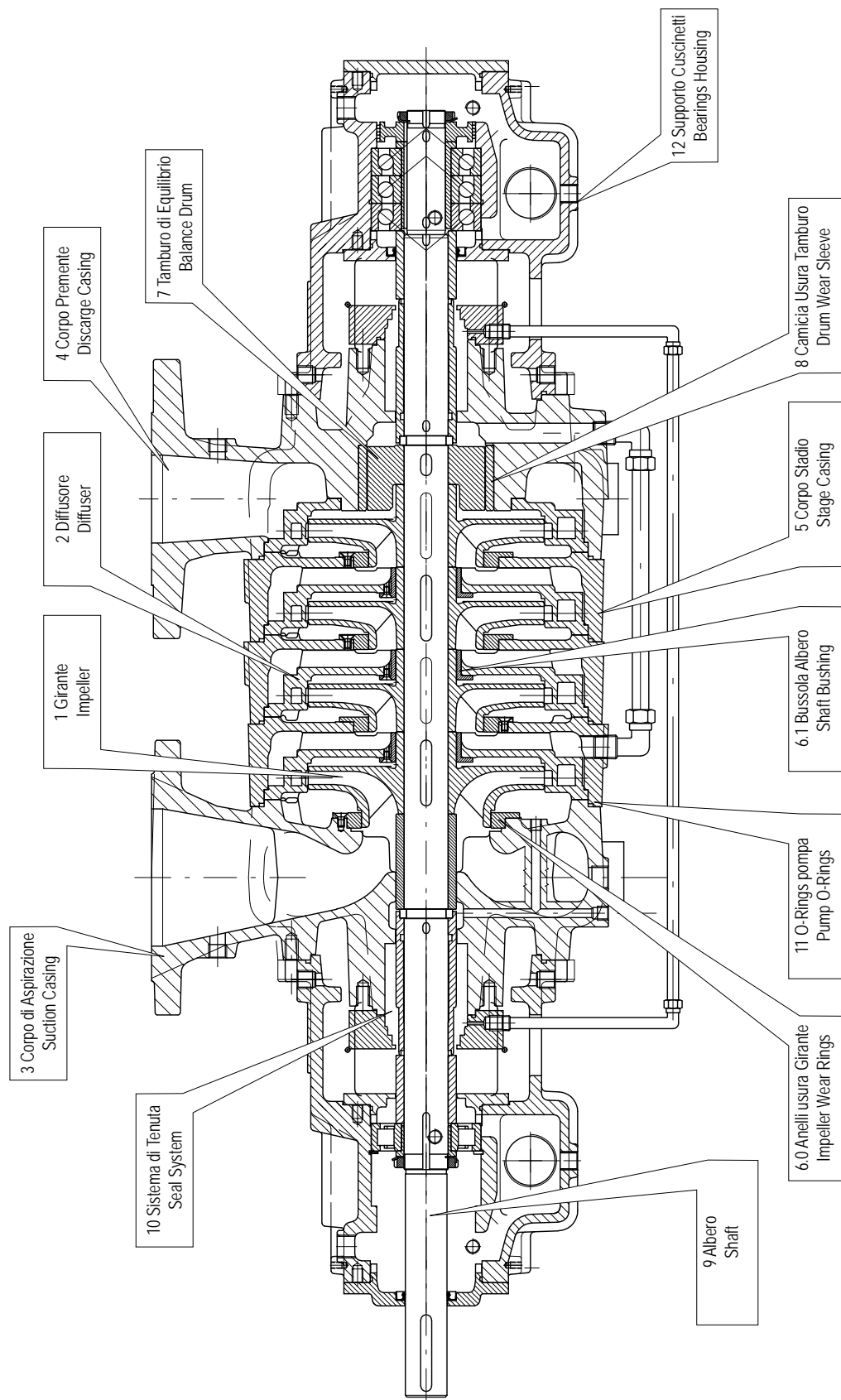
### Materiali dei principali componenti - Main pump materials parts

Rif. Ref.	Descrizione parte Part description	Esecuzione materiali - Material Executions (**)			
		Ghisa / Cast Iron	S.S. AISI316	S.S. DUPLEX	S.S. SUPER DUPLEX
1	<b>Girante</b> Impeller	(*) EN (G G25) ASTM (A48 : Nr.35)	EN (X2CrNiMo1712) 1.4404 ASTM (316L)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750
2	<b>Diffusore</b> Diffuser	(*) EN (G G25) ASTM (A48 : Nr.35)	EN (X2CrNiMo1712) 1.4404 ASTM (316L)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750
3	<b>Corpo aspirante</b> Suction casing	EN (G GG42) ASTM (A536 : Gr.65-A5-12)	EN (X2CrNiMo1712) 1.4404 ASTM (316L)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750
4	<b>Corpo premente</b> Discharge casing	EN (G GG42) ASTM (A536 : Gr.65-A5-12)	EN (X2CrNiMo1712) 1.4404 ASTM (316L)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750
5	<b>Corpo di stadio</b> Stage casing	EN (G GG42) ASTM (A536 : Gr.65-A5-12)	EN (X2CrNiMo1712) 1.4404 ASTM (316L)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750
6.0	<b>Anello di usura girante</b> Impeller Wear ring	EN (G Cu Sn 12) ASTM (B427 : C90800)	Stabil Peek ST530		
6.1	<b>Bussola Albero</b> Shaft Bushing	<b>Su richiesta</b> On Request	Stabil Peek ST530		
7	<b>Tamburo di equilibrio</b> Balance drum	EN (X 30 Cr13) ASTM (420)	EN (X2CrNiMo1712) 1.4404 ASTM (316L)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750
8	<b>Camicia d'usura Tamburo</b> Drum Wear Sleeve	<b>Non presente</b> Absent	Stabil Peek ST530		
9	<b>Albero</b> Shaft	EN (X 30 Cr13) ASTM (420)	EN (X2CrNiMoN22.5.3) 1.4462 ASTM (S1803)	EN (X2CrNiMoN25.7.4) 1.4410 UNS S32750	
10	<b>Sistema di Tenuta</b> Seal System	<b>Baderna</b> Gland Packing	<b>Tenuta Meccanica</b> Mechanical Seal  Carb./SIC/EPDM		
11	<b>O-Rings Pompa</b> Pump O-Rings	EPDM			
12	<b>Supporto Cuscinetti</b> Bearings housing	EN (G G25) ASTM (A48 : Nr.35)			

(\*) Per queste parti sono disponibili su richiesta i materiali in Bronzo e acciaio AISI 316 / For these items Bronze and Stainless Steel AISI 316 materials are available on request. · (\*\*) Materiali ed esecuzioni speciali sono disponibili su richiesta / Special Materials and executions are available on request.

# Sezione delle principali parti

## Sectional drawing of main pump parts



## Materiali e tipi di tenuta

Le **tenute meccaniche** sono unificate secondo EN 12756 e disponibili nella versione "bilanciata" o "non bilanciata" secondo il tipo MG12 e H7N.

## Seal materials and types

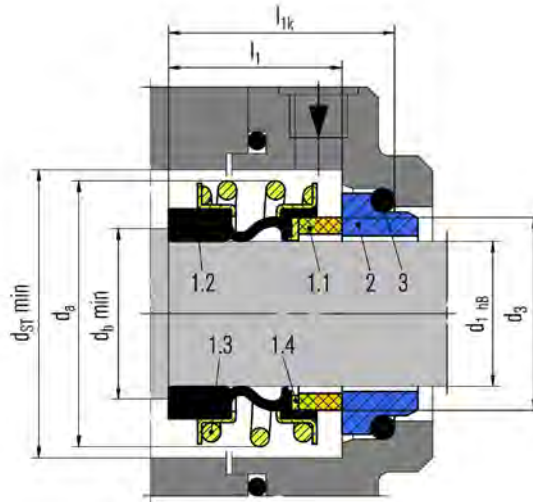
The **mechanical seals** are standardized according to EN 12756 and available on "balanced" and "un-balanced" types, with model codes MG12 e H7N.

Tipo MG12 - bidirezionale non bilanciata  
Materiali e diam. "d1" di H75N sono come MG12

Model MG12 un-balanced and bi-directional  
Materials and diam. "d1" for H75N are as per MG12

Tenuta meccanica Burgmann  
tipo MG12 non bilanciata

*Burgmann mechanical seal  
type MG12 un-balanced*



eMG12

**Item Description**

- 1.1 Seal face
- 1.2 Bellows
- 1.3 Set of springs
- 1.4 PEEK-PTFE disk
- 2 Seat (G6)
- 3 O-Ring or cup rubber

### Materiali delle tenute meccaniche / Mechanical seals materials

	POSIZIONE / POSITION 1.1 - 2	POSIZIONE / POSITION 1.2 - 3	POSIZIONE / POSITION 1.3
A	Carbone impregnato Antimonio <i>Antimony impregnated Carbon</i>	E : EPDM	G : AISI 316
Q1	Carburo di Silicio <i>Silicon Carbide</i>	V : FPM	

### Combinazioni dei Materiali / Available Materials Combinations: MG12 – H7N

Tipo Type	POSIZIONE / POSITION					TEMPERATURA TEMPERATURE (°C)
	1.1	2	1.2 - 3	1.3	1.4	
	Parte Rotante <i>Rotating Part</i>	Parte fissa <i>Stationary Part</i>	Elastomeri <i>Elastomers</i>	Molla <i>Spring</i>	Altre Parti <i>Other Parts</i>	
TENUTA MECCANICA STANDARD / STANDARD MECHANICAL SEAL						
AQ1EGG	A	Q1	E	G	G	-30 +120
TENUTE MECCANICHE SU RICHIESTA / ON DEMAND MECHANICAL SEALS						
AQ1VGG	A	Q1	V	G	G	-10 +120
Q1Q1EGG	Q1	Q1	E	G	G	-30 +120
Q1Q1VGG	Q1	Q1	V	G	G	-10 +120

### Dimensioni / Dimensions mm.

Taglio Pompa <i>Pump size</i>	d <sub>1</sub>	d <sub>3</sub>	d <sub>a</sub>	d <sub>b</sub>	d <sub>m</sub>	d <sub>s</sub>	d <sub>st</sub>	l	l <sub>1</sub>	l <sub>1k</sub>
HP 25	32	40.2	53.5	46.0	41	41	55	27.5	35.0	42.5
HP 32	40	48.8	62.0	55.0	55	49	64	30.0	36.0	45.0
HP 50	45	53.8	68.0	60.0	55	55	70	30.0	36.0	45.0
HP 80	50	58.8	74.0	65.0	60	60	77	30.5	38.0	47.5
HP 100	55	64.2	81.0	72.0	65	65	83	35.0	36.5	47.5
HP 125	70	80.0	99.5	90.0	82	82	103	40.0	48.7	60.0
HP 150 - 250	85	96.0	120.0	107.0	97	97	124	41.0	46.0	60.0

# Materiali e tipi di tenuta

# Seal materials and types

Tipo H7N - bidirezionale bilanciata Materiali e dimensioni	Model H7N balanced and bi-directional Materials and dimensions
Tenuta meccanica Burgmann tipo H7N bilanciata  <i>Burgmann mechanical seal                  type H7N balanced</i>	

### Materiali delle tenute meccaniche / Mechanical seals materials

	POSIZIONE / POSITION 1.1 - 2	POSIZIONE / POSITION 1.4 - 3	POSIZIONE / POSITION 1.2 - 1.3 - 1.5 - 1.6
A	Carbone impregnato Antimonio <i>Antimony impregnated Carbon</i>	E : EPDM	G : AISI 316
Q1	Carburo di Silicio <i>Silicon Carbide</i>	V : FPM	

### Combinazioni dei Materiali / Available Materials Combinations : MG12 – H7N

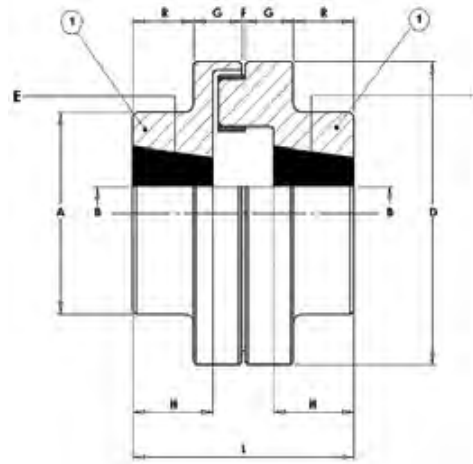
Tipo Type	POSIZIONE / POSITION					TEMPERATURA TEMPERATURE (°C)
	1.1 <i>Parte Rotante Rotating Part</i>	2 <i>Parte fissa Stationary Part</i>	1.4 - 3 <i>Elastomeri Elastomers</i>	1.5 <i>Molla Spring</i>	1.2 - 1.3 - 1.5 - 1.6 <i>Altre Parti Other Parts</i>	
TENUTA MECCANICA STANDARD / STANDARD MECHANICAL SEAL						
AQ1EGG	A	Q1	E	G	G	-30 +120
TENUTE MECCANICHE SU RICHIESTA / ON DEMAND MECHANICAL SEALS						
AQ1VGG	A	Q1	V	G	G	-10 +120
Q1Q1EGG	Q1	Q1	E	G	G	-30 +120
Q1Q1VGG	Q1	Q1	V	G	G	-10 +120

### Dimensioni / Dimensions mm.

Taglio Pompa Pump size	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	d <sub>7</sub>	d <sub>8</sub>	d <sub>5</sub>	l <sub>1k</sub>	l <sub>1N</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>5</sub>	l <sub>6</sub>	l <sub>7</sub>	l <sub>8</sub>	l <sub>9</sub>	l <sub>39</sub>	l <sub>40</sub>	A	b	e	f	h <sub>1</sub>	h <sub>2</sub>	k	m <sub>x</sub>
HP 25	32	38	55	42.0	48.0	3	59	50.0	65	20	38.5	2.0	5	9.0	19.5	11.5	24.5	9.0	24.0	6	8.0	8.0	6.6	22.6	9	M6
HP 32	40	45	62	51.0	58.0	4	66	52.5	75	23	38.5	2.0	6	9.0	22.0	14.0	26.0	11.0	24.0	6	8.0	8.0	6.6	22.6	9	M6
HP 50	45	50	67	56.0	63.0	4	71	52.5	75	23	38.5	2.0	6	9.0	22.0	14.0	26.0	11.0	24.0	6	8.0	8.0	6.6	22.6	9	M6
HP 80	50	55	72	62.0	70.0	4	76	57.5	85	25	42.5	2.5	6	9.0	23.0	15.0	26.5	12.5	24.0	6	8.0	8.0	6.6	22.6	9	M6
HP 100	55	60	81	67.0	75.0	4	85	57.5	85	25	42.5	2.5	6	9.0	23.0	15.0	28.5	12.5	26.0	8	8.0	9.0	6.6	24.6	11	M8
HP 125	70	75	99	83.0	92.0	4	105	70.0	95	28	52.0	2.5	7	9.0	26.0	18.0	30.5	14.5	26.0	8	8.0	10.0	6.6	24.6	11	M8
HP 150-250	85	90	114	100.0	110.0	4	119	75.0	105	28	56.8	3.0	7	9.0	26.2	18.2	30.2	14.0	26.0	10	8.0	10.0	6.6	24.6	11	M8

# Giunto flessibile tipo GTB

# Flexible Coupling GTB type



**Tipo / Type**  
**18-114-120:**  
 Equilibratura a richiesta  
 Balancing on request

**Tipo / Type**  
**127÷260:**  
 Equilibratura standard  
 Standard balancing

**E**  
 Bloccaggio  
 bussola esterno  
 External  
 bush clamp

**I**  
 Bloccaggio  
 bussola interno  
 Internal  
 bush clamp

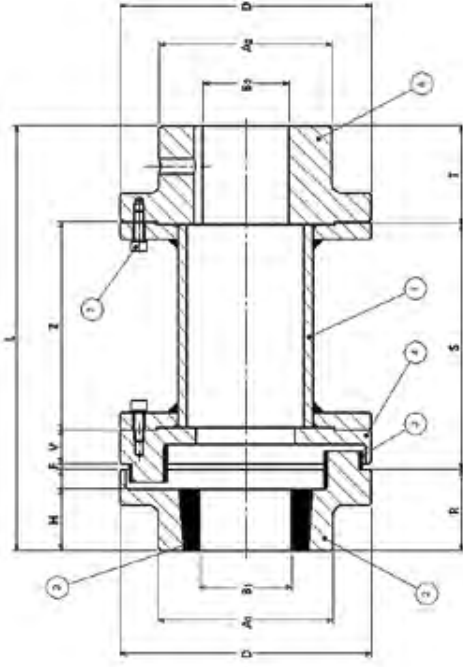
## DATI TECNICI / Technical data

Tipo Type	Codice giunto Coupling code	Tk <sub>n</sub> [Nm]	Tk <sub>max</sub> [Nm]	Max rpm	A	B <sub>min</sub>	B <sub>max</sub>	D	F	G	H	L	R	1 Codice semigiunto Half coupling code	Elemento elastico Flexible element		Fori standard Standard bore [mm]	Tipo bussola Bush type	Peso Weight [kg]	
					[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		n°	Cod.				[Nm]
18	1018B01 I+I 1018B02 E+E 1018B03 I+E	132	396	6000	56	12	26	85	2	20	20	72	15	I · 3018B01 E · 3018B02	3	4080003	12-14-15-16-18-19-20-22-24-25-26	B2820 11.08	6	1,4
114	1114B01 I+I 1114B02 E+E 1114B03 I+E	166	498	5000	70	12	32	100	3	20	25	83	20	I · 3114B01 E · 3114B02	4	4080003	12-14-15-16-18-19-20-22-24-25-26-28-30-32	B3025 12.10	20	2,3
114	1114B13	166	498	5000	70 88	12	32 42	100	3	20	25	83	20	I · 3114B01 E · 3114B03	4	4080003	12-14-15-16-18-19-20-22-24-25-26-28-30-32 12-14-15-16-18-19-20-22-24-25-26-28-30-32-35-38-40-42	B3025 12.10 B4025 16.10	20	2,5
120	1120B01 I+I 1120B02 E+E 1120B03 I+E	323	969	4800	82	12	42	125	3	20	25	83	20	I · 3120B01 E · 3120B02	5	4080003	12-14-15-16-18-19-20-22-24-25-26-28-30-32-35-38-40-42	B4025 16.10	20	2,8
120	1120B18	323	969	4800	82 105	12 15	42 50	125	3	20	25 30	88	20	I · 3120B01 E · 3120B03	5	4080003	12-14-15-16-18-19-20-22-24-25-26-28-30-32-35-38-40-42 16-18-19-20-22-24-25-26-28-30-32-35-38-40-42-45-48-50	B4025 16.10 B5030 20.12	20	3,5
127	1127B01 I+I 1127B02 E+E 1127B03 I+E	402	1206	4000	102	16	50	145	3	27	30	95	19	I · 3127B01 E · 3127B02	5	4080004	16-18-19-20-22-24-25-26-28-30-32-35-38-40-42-45-48-50	B5030 20.12	30	5,4
140	1140B01 I+I 1140B02 E+E 1140B03 I+E	546	1638	3000	112	18	65	165	3	27	45	125	34	I · 3140B01 E · 3140B02	6	4080004	18-19-20-22-24-25-26-28-30-32-35-38-40-42-45-48-50-55-60-65	B6545 25.17	50	7,6
170	1170B01 I+I 1170B02 E+E 1170B03 I+E	855	2565	2900	142	25	75	204	3	29	50	135	37	I · 3170B01 E · 3170B02	8	4080004	25-26-28-30-32-35-38-40-42-45-48-50-55-60-65-70-75	B7550 30.20	90	13
210	1210B01 I+I 1210B02 E+E 1210B03 I+E	1396	4188	2900	142	25	75	245	3	32	50	135	34	I · 3210B01 E · 3210B02	10	4080004	45-48-50-55-60-65-70-75	B9090 35.35	110	17,5
260	1260B01 I+I 1260B02 E+E 1260B03 I+E	2100	6300	2200	172	45	90	284	3	34	90	215	72	I · 3260B01 E · 3260B02	12	4080004	45-48-50-55-60-65-70-75-80-85-90	B9090 35.35	110	34,5

In fase di ordine, specificare codice giunto, diametro "B", bloccaggio "I" o "E".

In placing an order, please specify the coupling code, the diameter "B", the clamp "I" or "E".

# Giunto con spaziatore tipo GTBD Spacer Coupling GTBD type



Lato pompa / Pump side

Lato motore / Motor side

## DATI TECNICI / Technical data

Codice complessivo Overall code	Tipo Type	Tk <sub>h</sub> [Nm]	Tk <sub>max</sub> [Nm]	Max rpm	Dimensioni / Dimensions																Coppia di serraggio Tightening torque [Nm]									
					D [mm]	A1 [mm]	A2 [mm]	B1 max [mm]	B2 max [mm]	F [mm]	V [mm]	H [mm]	R [mm]	S [mm]	T [mm]	L [mm]	Z [mm]	1 Distanziatore Spacer	2 Mozzo Hub	3 Bussola Bush		4 Flangia Flange	5 Tassello Insert	6 Mozzo lato Motore Motor side hub	7 Viti Screws					
1018B04	18	132	396	6000	85	56	55	26	32	5	18,5	20	35	100	45	180	78	0000001	I-3018B01	B2820	0018001	4080003	3018003	N° 6 M8x22	26					
1018B05					85	56	26	32	5	18,5	20	35	100	45	180	78	0000001	E-3018B02												
1018B06					85	56	26	32	5	18,5	20	35	140	45	220	118	0000002	I-3018B01												
1018B07					85	56	26	32	5	18,5	20	35	140	45	220	118	0000002	E-3018B02												
1114B04	114	166	498	5000	100	70	70	32	42	5	18,5	25	40	100	45	185	78	0000003/1	I-3114B01						26					
1114B05					100	70	32	42	5	18,5	25	40	100	45	185	78	0000003/1	E-3114B02												
1114B06					100	70	32	42	5	18,5	25	40	140	45	255	118	0000004/1	I-3114B01												
1114B07																														
1120B04	120	323	969	4800	125	82	90	42	55	5	18,5	25	40	100	50	190	78	0000005/1	I-3120B01						26					
1120B05					125	82	90	42	55	5	18,5	25	40	100	50	190	78	0000005/1	E-3120B02											
1120B06					125	82	90	42	55	5	18,5	25	40	140	50	230	118	0000006/1	I-3120B01											
1120B07					125	82	90	42	55	5	18,5	25	40	140	50	230	118	0000006/1	E-3120B02											
1120B08																														
1127B12	127	402	1206	4000	145	102	100	50	65	5	25,5	30	46	100	70	216	71	0000017	I-3127B01						26					
1127B13					145	102	100	50	65	5	25,5	30	46	100	70	216	71	0000017	E-3127B02											
1127B14					145	102	100	50	65	5	25,5	30	46	140	70	256	111	0000018	I-3127B01											
1127B15					145	102	100	50	65	5	25,5	30	46	140	70	256	111	0000018	E-3127B02											
1127B16					145	102	100	50	65	5	25,5	30	46	180	70	296	151	0000019	I-3127B01											
1127B17					145	102	100	50	65	5	25,5	30	46	180	70	296	151	0000019	E-3127B02											
1127B18					145	102	100	50	65	5	25,5	30	46	200	70	316	171	0000022	I-3127B01											
1140B14					140	546	1638	3000	165	112	110	65	65	5	25,5	45	61	100	65	226	71	0000009	I-3140B01							26
1140B15	165	112	110	65					65	5	25,5	45	61	100	65	226	71	0000009	E-3140B02											
1140B16	165	112	110	65					65	5	25,5	45	61	140	65	266	111	0000010	I-3140B01											
1140B17	165	112	110	65					65	5	25,5	45	61	140	65	266	111	0000010	E-3140B02											
1170B12	170	855	2565	2900	204	142	140	75	85	5	27,5	50	66	140	80	286	109	0000013	I-3170B01						26					
1170B13					204	142	140	75	85	5	27,5	50	66	140	80	286	109	0000013	E-3170B02											
1170B14					204	142	140	75	85	5	27,5	50	66	200	80	346	169	0000014	I-3170B01											
1170B15					204	142	140	75	85	5	27,5	50	66	200	80	346	169	0000014	E-3170B02											
1170B16																														
1210B08	210	1396	4188	2900	245	142	165	75	100	5	30,5	50	66	250	110	426	216	0000016	I-3210B01						26					
1210B09					245	142	165	75	100	5	30,5	50	66	250	110	426	216	0000016	E-3210B02											

Le caratteristiche e le dimensioni contenute in questo catalogo possono essere variate senza preavviso.

In caso di applicazioni particolari, Vi consigliamo di consultare il nostro ufficio tecnico.

I codici sono solo indicativi, in quanto viene assegnato un codice specifico ad ogni singola configurazione foro+cava.

Features and dimensions can be subjected to change without notice.

In case of particular applications, please contact our Engineering Department.

Codes shown are indicative only, as a specific code is assigned for each bore-keyway configuration.

Caratteristiche costruttive  
e dati d'impiego

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Constructive feature  
and operative data

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## HP - HPA

TAGLIA POMPA / PUMP SIZE	25.1 INOX	25.2	25.2 INOX	32.2	32.2 INOX	50.2	50.4	50.6	80.2	80.4	80.6	100.2	100.4	100.6	125.2	125.4	125.6	150.2	150.4	150.6	250.2	250.4
<b>Pressione massima aspirazione</b> Max suction pressure	16 bar																					
<b>Pressione massima mandata</b> Max delivery pressure	64 bar per HP - 40 bar per HPA																					
<b>Temperatura massima</b> Max liquid temperature	120°C (90°C con tenuta a baderna / 90°C with gland packing)																					
<b>Lubrificazione cuscinetti</b> Ball bearing lubrication	grasso grease																					
<b>Diametro sporgenza</b> Shaft projection diameter	18	28	32	38	42	55	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
<b>P/n (KW/1') - albero AISI 420</b> P/n (KW/1') - shaft AISI 420	0,0100	0,0475	0,0745	0,135	0,186	0,373	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745
<b>P/n (KW/1') - albero AISI 316</b> P/n (KW/1') - shaft AISI 316	0,0077	0,0365	0,0575	0,104	0,143	0,287	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573
<b>Cuscinetto lato accoppiamento</b> Ball bearing side drive	NU 306	NU 307	NU 308	NU 309	NU 310	NU 314	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317
<b>Cuscinetto lato opp. accopp.</b> Ball bearing side end drive	3306 x 2	7307 x 2 6306	7308 x 2 6307	7309 x 2 6308	7310 x 2 6309	7314 x 2 6312	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315	7317 x 2 6315
<b>Diametro tenuta baderna (mm)</b> Gland packing diameter (mm)	35	45	50	55	61	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
<b>Sezione baderna</b> Gland packing section	8 x 8	10 x 10	10 x 10	10 x 10	12 x 12	14 x 14	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16
<b>N° anelli baderna</b> No. Gland packing rings	4	5	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
<b>Tipo baderna fino a 25 bar</b> Type Gland packing max 25 bar	treccia di cotone impregnato grafite cotton graphite impregnated braide																					
<b>Tipo baderna oltre 25 bar</b> Type Gland packing > 25 bar	treccia di teflon impregnato grafite teflon graphite impregnated braide																					
<b>Diametro tenuta meccanica</b> Mechanical seal diameter	32	40	45	50	55	70	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
<b>Numero max. stadi a 3000 /1'</b> Max number stage 3000 r.p.m.	20	19	13	13	10	10	10	10	8	8	6	6	6	6	4	4	4	2	2	2	2	-
<b>Numero max. stadi a 1500 /1'</b> Max number stage 1500 r.p.m.	25	25	20	25	20	20	20	20	18	18	16	16	16	16	12	12	12	10	10	10	8	5

## HPM - HPMA

16 bar																						
TAGLIA POMPA / PUMP SIZE	25.1 INOX	25.2 INOX	32.2 INOX	32.2 INOX	50.2	50.4	50.6	80.2	80.4	80.6	100.2	100.4	100.6	125.2	125.4	125.6	150.2	150.4	150.6	250.2	250.4	
<b>Pressione massima aspirazione</b> Max suction pressure	16 bar																					
<b>Pressione massima mandata</b> Max delivery pressure	64 bar per HPM - 40 bar per HPMA																					
<b>Temperatura massima</b> Max liquid temperature	140°C (90°C con tenuta a baderna / 90°C with gland paking)																					
<b>Lubrificazione cuscinetti</b> Ball bearing lubrication	olio oil																					
<b>Raffreddamento cuscinetti</b> Ball bearing cooling	> 100°C																					
<b>Diametro sporgenza</b> Shaft projection diameter	20	28	32	38	42	55	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
<b>P/n (KW/1') - albero AISI 420</b> P/n (KW/1') - shaft AISI 420	0,0155	0,0475	0,0745	0,135	0,186	0,373	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745	0,745
<b>P/n (KW/1') - albero AISI 316</b> P/n (KW/1') - shaft AISI 316	0,0120	0,0365	0,0575	0,104	0,143	0,287	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573	0,573
<b>Cuscinetto lato accoppiamento</b> Ball bearing side drive	NU 306	NU 307	NU 308	NU 309	NU 310	NU 314	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317	NU 317
<b>Cuscinetto lato opp. accopp.</b> Ball bearing side end drive	7306 x 2	7307 x 2	7308 x 2	7309 x 2	7310 x 2	7314 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2	7317 x 2
<b>Diametro tenuta baderna</b> Gland packing diameter	35	45	50	55	61	75	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
<b>Sezione baderna</b> Gland packing section	8 x 8	10 x 10	10 x 10	10 x 10	12 x 12	14 x 14	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16	16 x 16
<b>N° anelli baderna</b> No. Gland packing rings	4	5	6	6	5	5	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5
<b>Tipo baderna</b> Type Gland packing	treccia di teflon impregnato grafite teflon graphite impregnated braide																					
<b>Diametro tenuta meccanica</b> Mechanical seal diameter	32	40	45	50	55	70	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
<b>Numero max. stadi a 3000 /1'</b> Max number stage 3000 r.p.m.	20	19	10	8	6	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	-
<b>Numero max. stadi a 1500 /1'</b> Max number stage 1500 r.p.m.	25	25	20	18	16	12	10	8	6	4	2	2	2	2	2	2	2	2	2	2	2	5

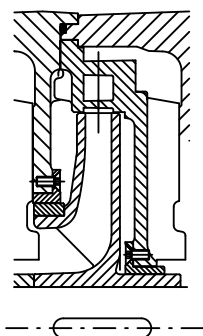
<b>HPR</b>																		
TIPO/TYPE	32.2	32.2	50.2	50.4	50.6	80.2	80.4	80.6	100.2	100.4	100.6	125.2	125.4	125.6	150.2	150.4	150.6	
<b>Pressione massima aspirazione</b> Max suction pressure	32.2	32.2	50.2	50.4	50.6	80.2	80.4	80.6	100.2	100.4	100.6	125.2	125.4	125.6	150.2	150.4	150.6	
<b>Pressione massima mandata</b> Max delivery pressure	25 bar																	
<b>Temperatura massima</b> Max liquid temperature	100 bar																	
<b>Lubrificazione cuscinetti</b> Ball bearing lubrication	180°C																	
<b>Raffreddamento cuscinetti</b> Ball bearing cooling	olio oil																	
<b>Camera di raffreddamento</b> Cooling casing	> 100°C																	
<b>Diametro sporgenza</b> Shaft projection diameter	> 140°C																	
<b>P/n (KW/1') - albero AISI 420</b> P/n (KW/1') - shaft AISI 420	28	38	32	32	32	38	42	42	42	42	42	55	55	55	55	55	55	70
<b>P/n (KW/1') - albero AISI 316</b> P/n (KW/1') - shaft AISI 316	0,0475	0,135	0,0745	0,0745	0,0745	0,135	0,186	0,186	0,186	0,186	0,186	0,373	0,373	0,373	0,373	0,373	0,373	0,745
<b>Cuscinetto lato accoppiamento</b> Ball bearing side drive	NU 307	NU 309	NU 308	NU 308	NU 308	NU 309	NU 310	NU 310	NU 310	NU 310	NU 310	NU 314	NU 314	NU 314	NU 314	NU 314	NU 314	NU 317
<b>Cuscinetto lato opp. accopp.</b> Ball bearing side end drive	7307 x 3	7309 x 3	7308 x 3	7308 x 3	7308 x 3	7309 x 3	7310 x 3	7310 x 3	7310 x 3	7310 x 3	7310 x 3	7314 x 3	7314 x 3	7314 x 3	7317 x 2	7317 x 2	7317 x 2	7317 x 2
<b>Diametro tenuta meccanica</b> Mechanical seal diameter	40	50	45	45	45	50	55	55	55	55	55	70	70	70	70	70	70	85
<b>Numero max. stadi a 3000 /1'</b> Max number stage 3000 r.p.m.	20	20	17	16	14	13	13	12	10	10	8	5	5	5	4	4	4	3
<b>Numero max. stadi a 1500 /1'</b> Max number stage 1500 r.p.m.	25	25	20	20	20	18	18	18	16	16	16	12	12	12	11	11	11	10

# HV

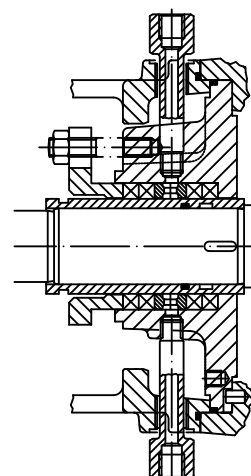
TIPO/TYPE	25.1 INOX	25.2	25.2 INOX	32.2	32.2 INOX	50.2	50.4	50.6	80.2	80.4	80.6	100.2	100.4	100.6	125.2	125.4	125.6	150.2	150.4	150.6	250.2	250.4	
<b>Pressione massima aspirazione</b> Max suction pressure																							
	16 bar																						
<b>Pressione massima mandata</b> Max delivery pressure																							
	64 bar																						
<b>Temperatura massima</b> Max liquid temperature																							
	100°C																						
<b>Lubrificazione cuscinetti</b> Ball bearing lubrication																							
	grasso grease																						
<b>Diametro sporgenza</b> Shaft projection diameter	18		22		28		32		38		52		65		65								65
<b>P/n (KW/1') - albero AISI 420</b> P/n (KW/1') - shaft AISI 420	0,0100		0,0220		0,0475		0,0745		0,135		0,305		0,542		0,542								0,542
<b>P/n (KW/1') - albero AISI 316</b> P/n (KW/1') - shaft AISI 316	0,0077		0,0169		0,0365		0,0575		0,104		0,235		0,417		0,417								0,417
<b>Cuscinetto lato accoppiamento</b> Ball bearing side drive	3306 x 2		7307 x 2		7308 x 2		7309 x 2		7310 x 2		7314 x 2		7317 x 2		7317 x 2								7317 x 2
<b>Cuscinetto lato opp. accopp.</b> Ball bearing side end drive																							
	boccola di guida in bronzo bronze drive bush																						
<b>Diametro tenuta baderna</b> Gland packing diameter	35		45		50		55		61		75		90		90								90
<b>Sezione baderna</b> Gland packing section	8 x 8		10 x 10		10 x 10		10 x 10		12 x 12		14 x 14		16 x 16		16 x 16								16 x 16
<b>N° anelli baderna</b> No. Gland packing rings	4		5		6		6		5		5		5		5								5
<b>Tipo baderna fino a 25 bar</b> Type Gland packing max 25 bar																							
	treccia di cotone impregnato grafite cotton graphite impregnated braide																						
<b>Tipo baderna oltre 25 bar</b> Type Gland packing > 25 bar																							
	treccia di teflon impregnato grafite teflon graphite impregnated braide																						
<b>Diametro tenuta meccanica</b> Mechanical seal diameter	32		40		45		50		55		70		85		85								85
<b>Numero max. stadi a 3000 /1'</b> Max number stage 3000 r.p.m.	14	14	14	11	11	9	9	9	7	7	6	6	6	6	4	4	4	2	2	2	2	2	-
<b>Numero max. stadi a 1500 /1'</b> Max number stage 1500 r.p.m.	14	14	14	11	11	10	10	10	8	8	6	6	6	6	5	5	5	4	4	4	4	2	2

# HP · HPM · HPR

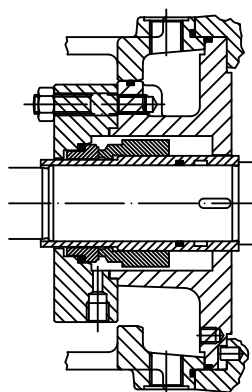
Varianti costruttive - Design variations



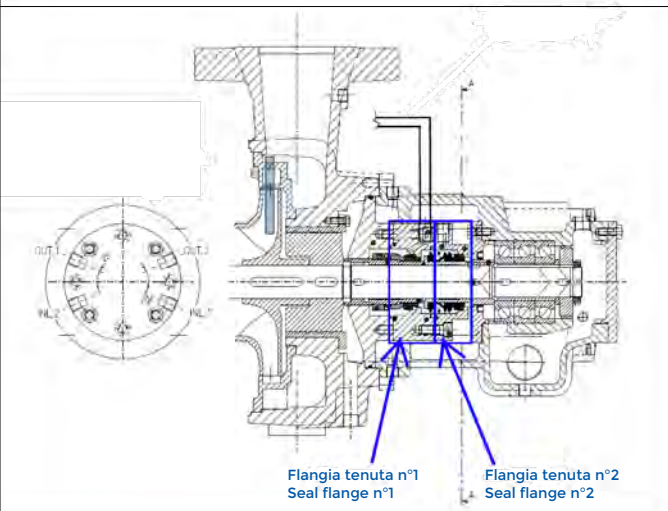
**Anello di usura possibili:  
singoli e doppi su corpi, giranti e diffusori**  
Possible wear rings:  
single or double on casings, impellers and diffusers



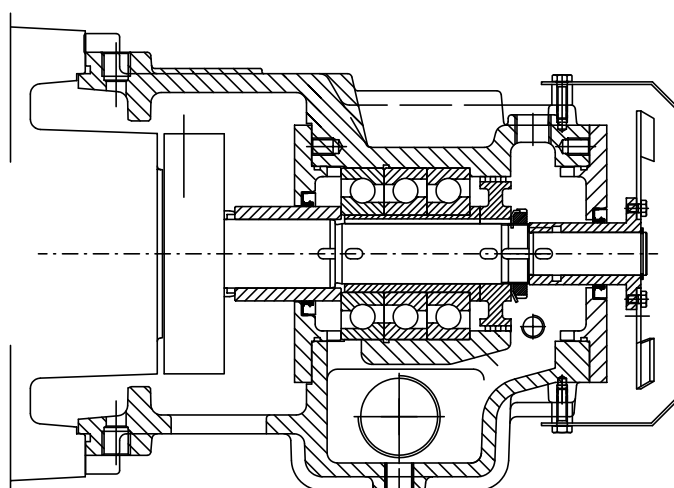
**Flussaggio baderne**  
Gland packing cooling



**Tenuta meccanica con camera di raffreddamento**  
Mechanical seal with coal chamber



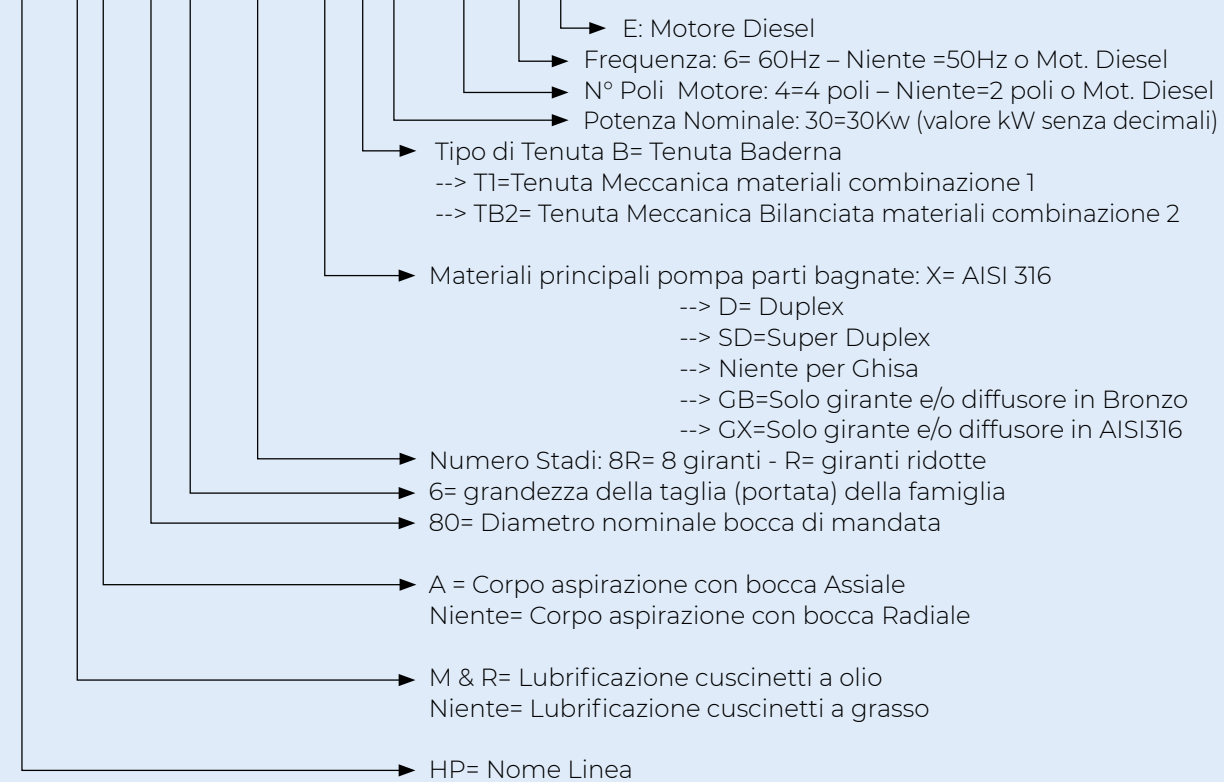
**Sistema tenuta doppia come da Plan 55**  
Double seal system as per Plan 55



**Raffreddamento supporto ad olio con aria**  
Oil bearing fan cooling

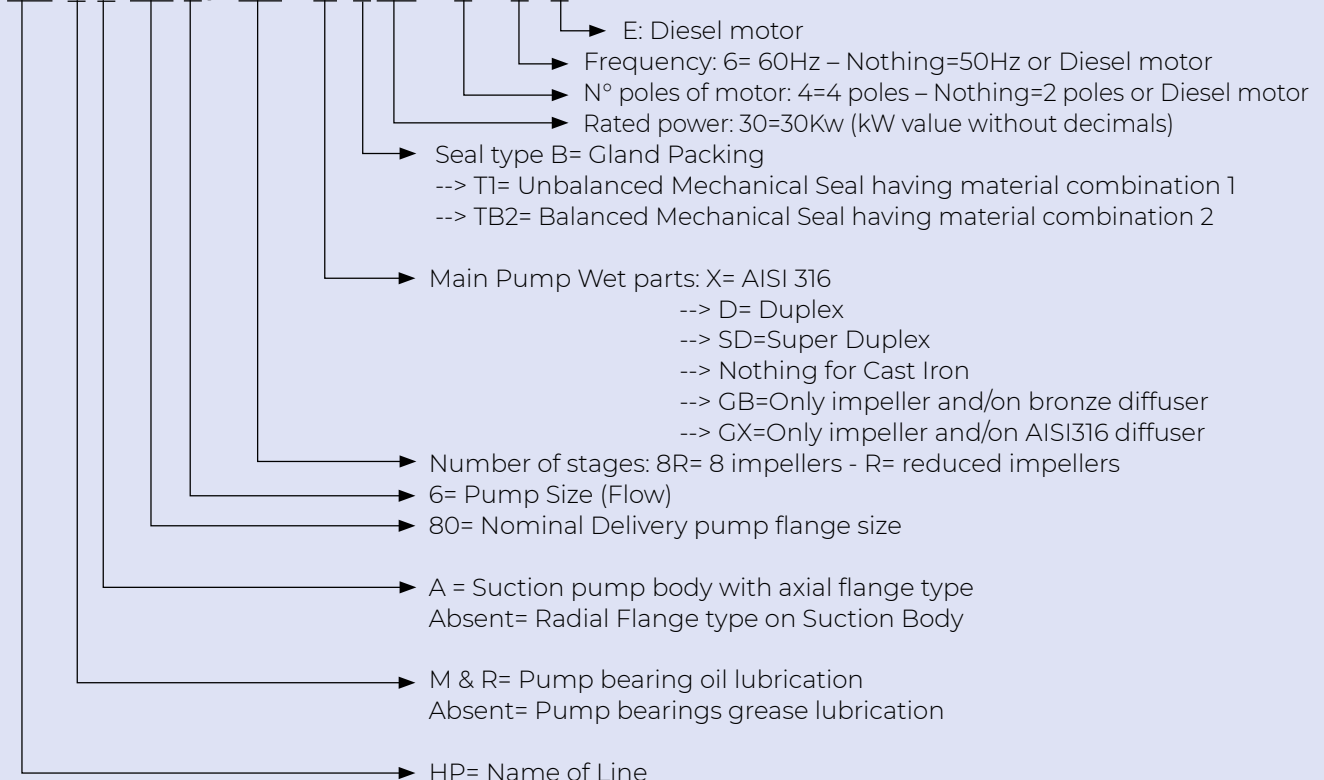
## Chiave di denominazione HP:

**HPMA 80.6 / 8R - X-B30 - 4 - 6 -E**



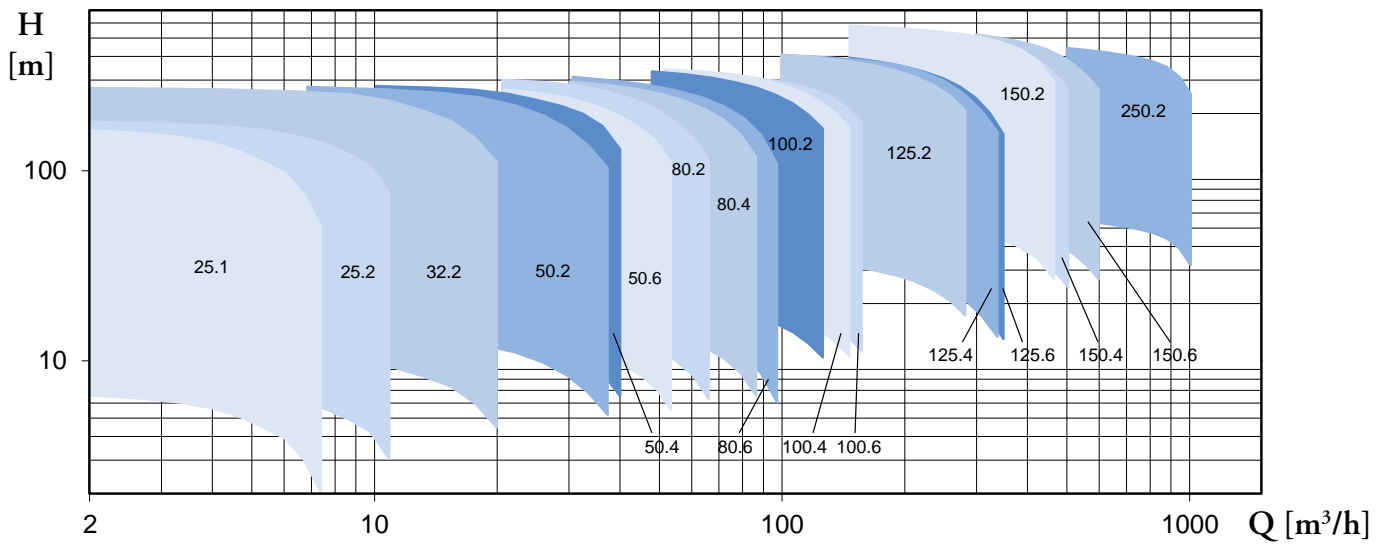
## Legend HP:

**HPMA 80.6 / 8R - X-B30 - 4 - 6 -E**

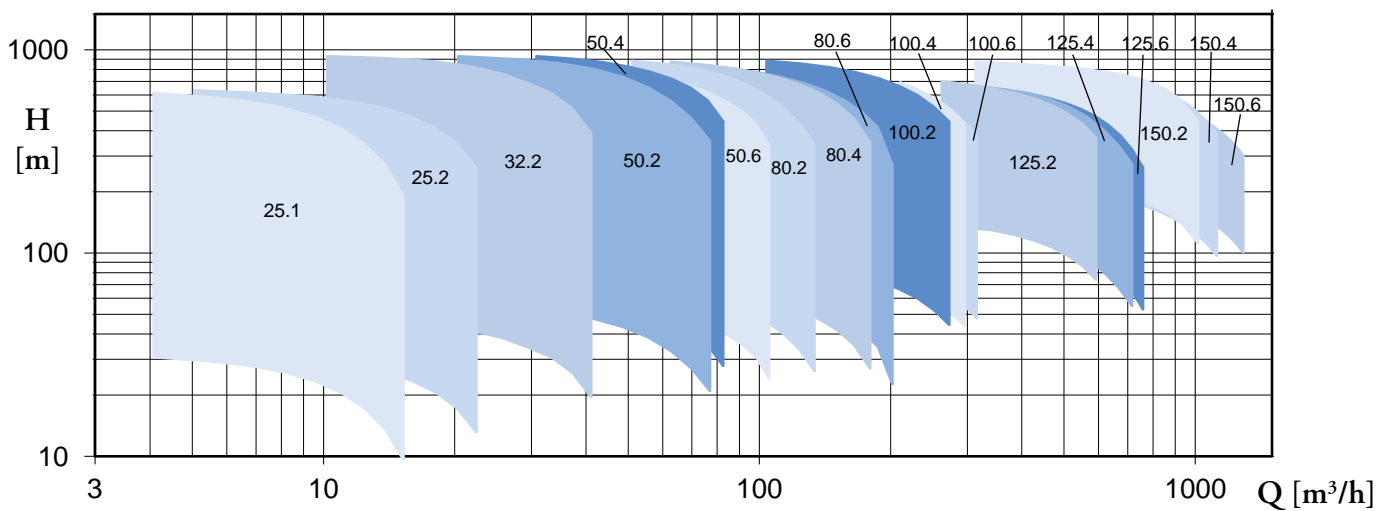


# Campi di prestazioni / Performance range

1500 r.p.m.



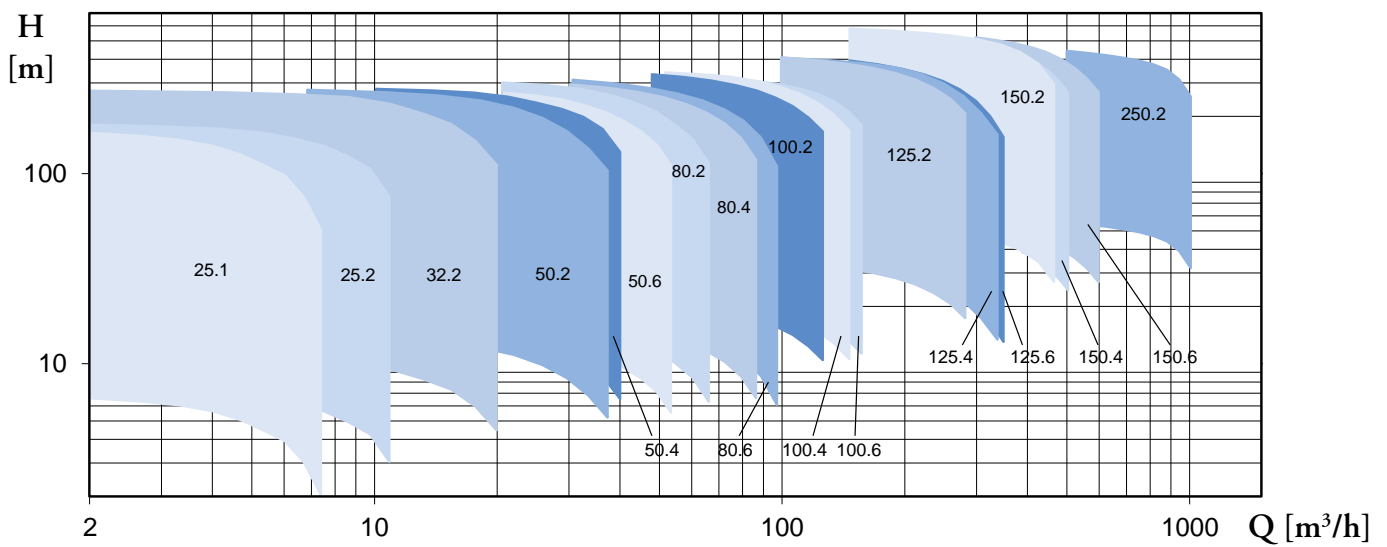
3000 r.p.m.



Curve  
prestazionali per  
linea di prodotto  
1500 rpm

Performance  
curves for  
product line  
1500 rpm

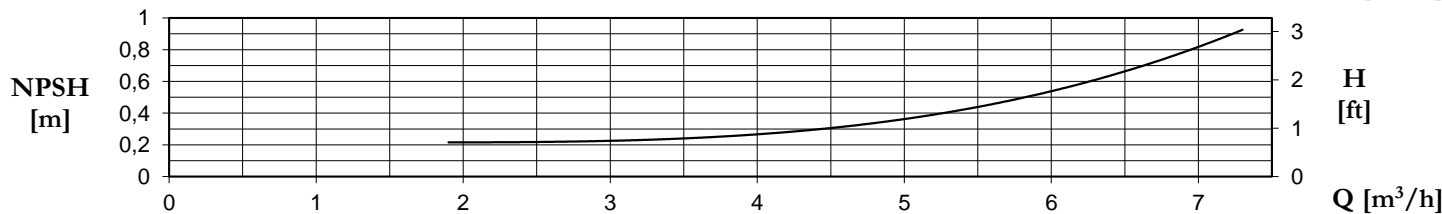
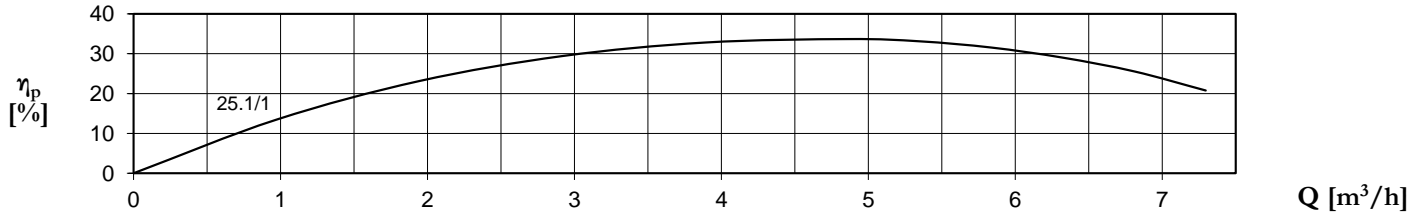
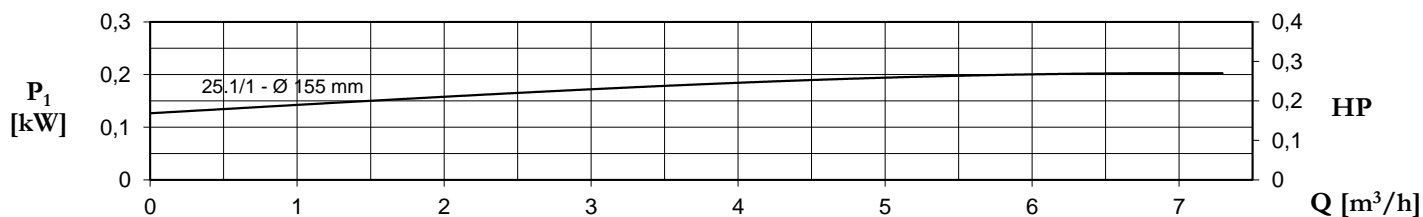
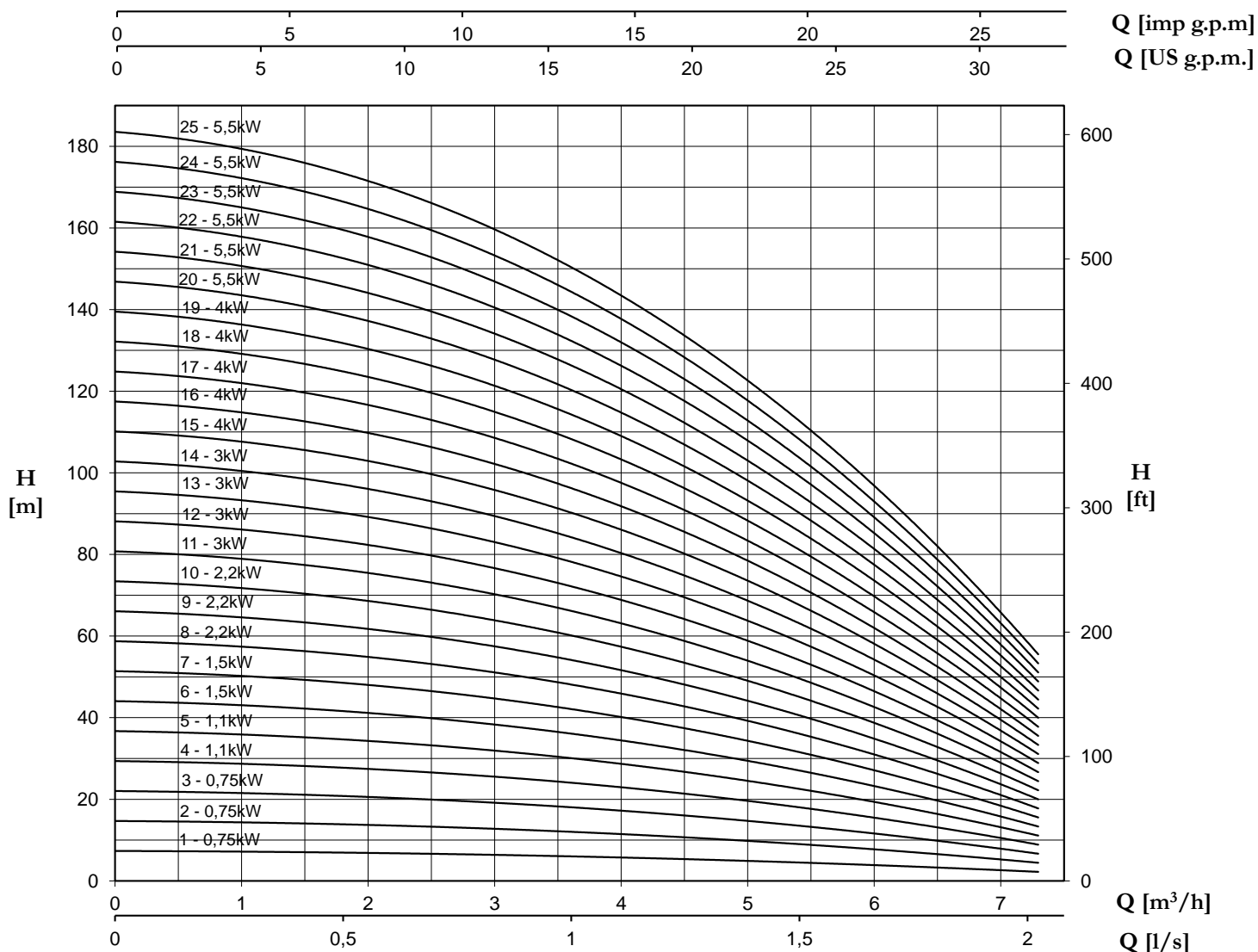
1500 r.p.m.





# HP 25.1 INOX

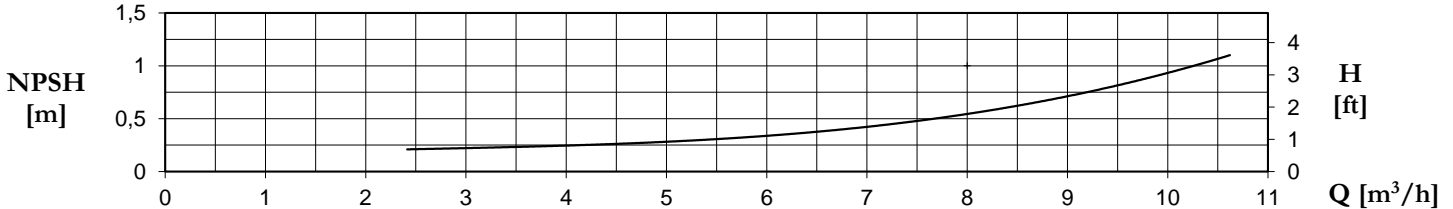
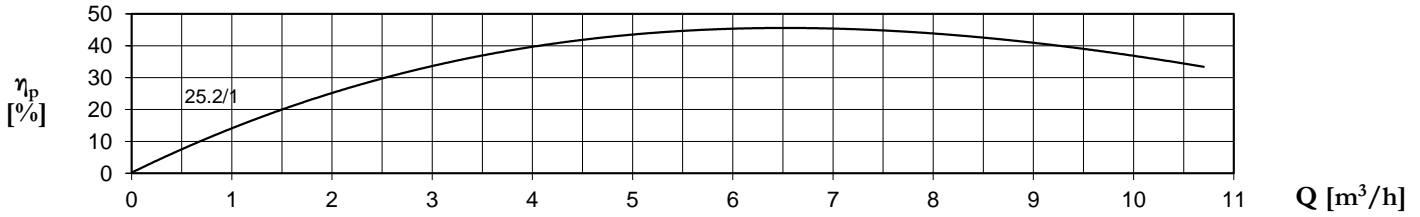
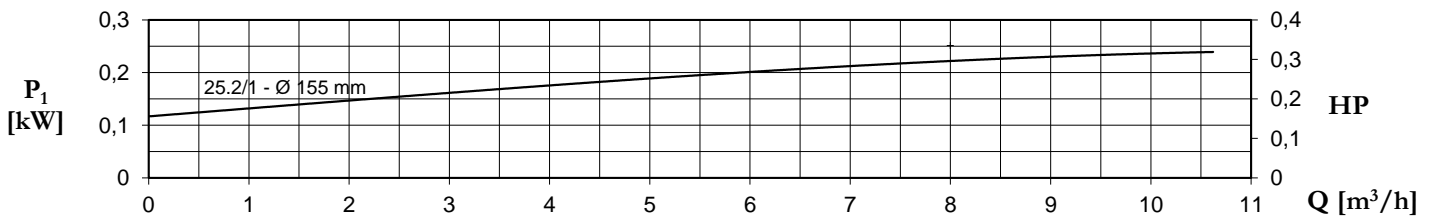
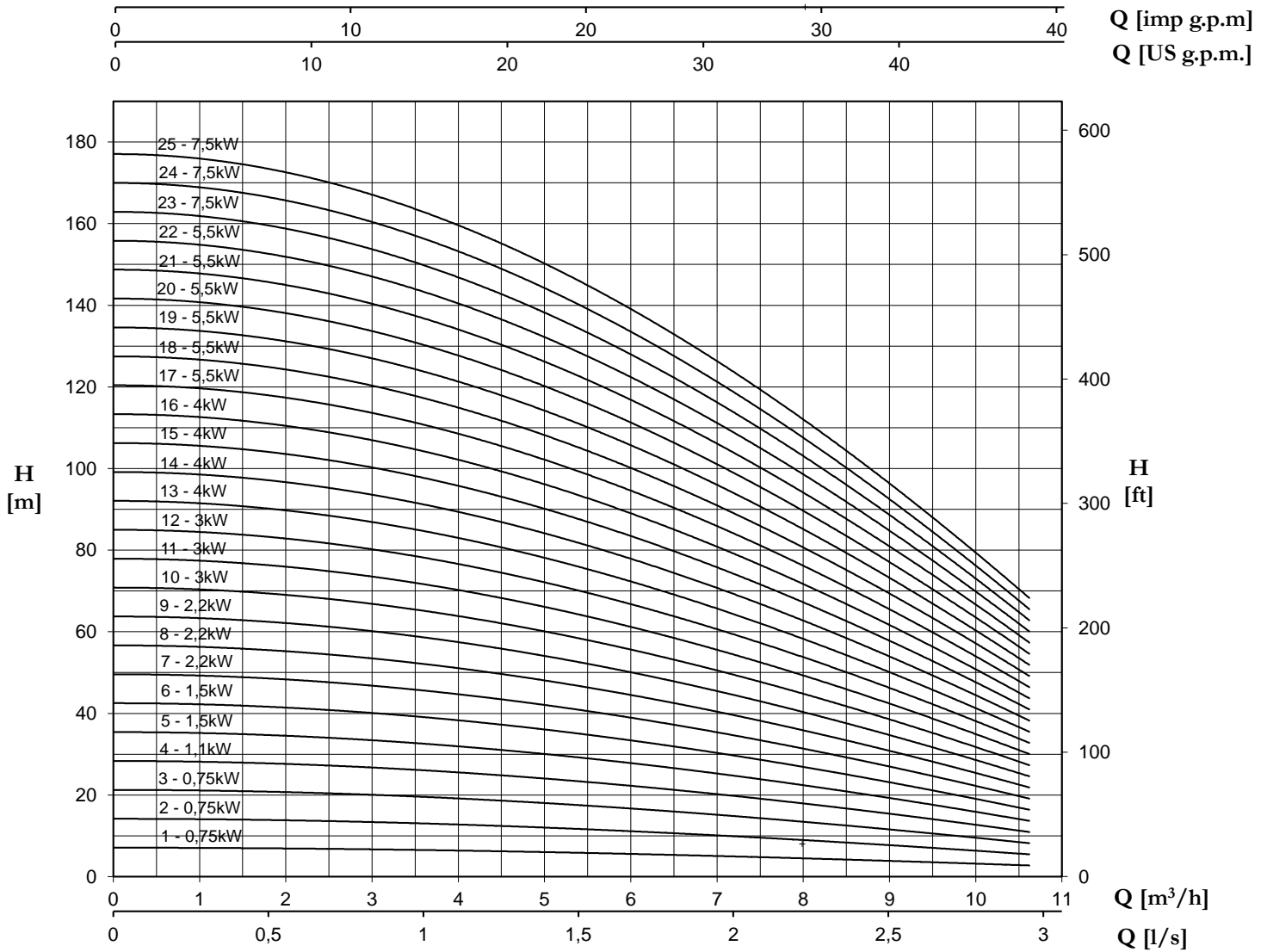
1400 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 25.2

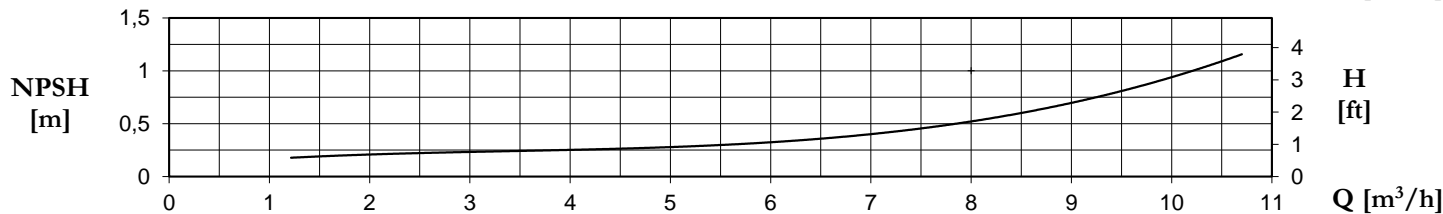
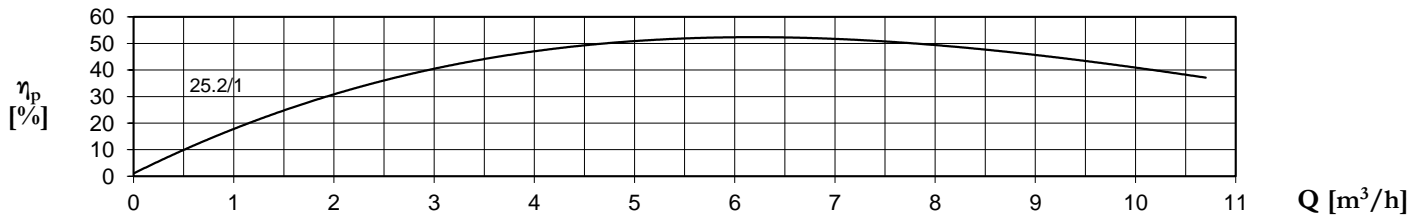
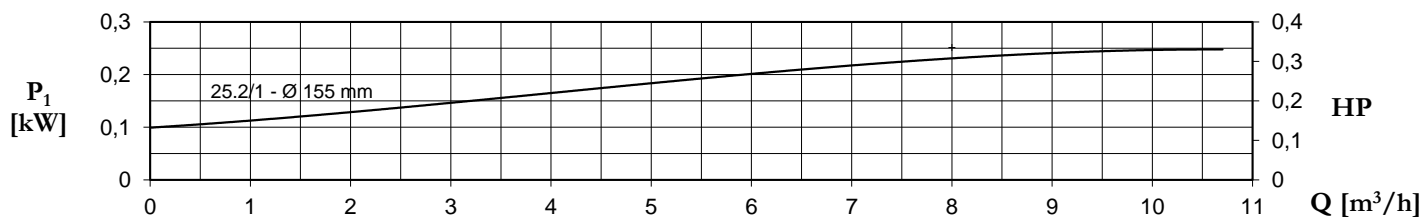
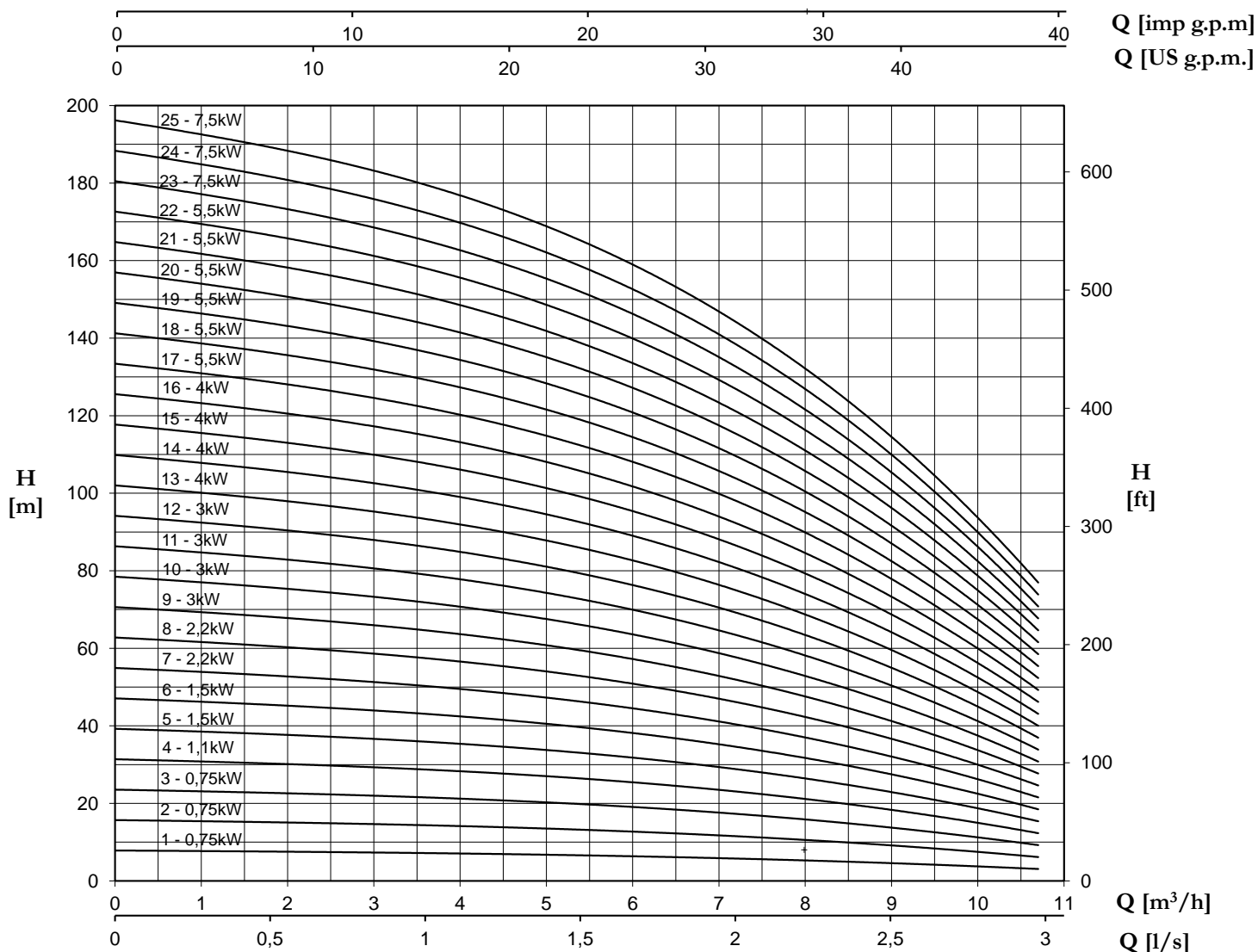
1400 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 25.2 INOX

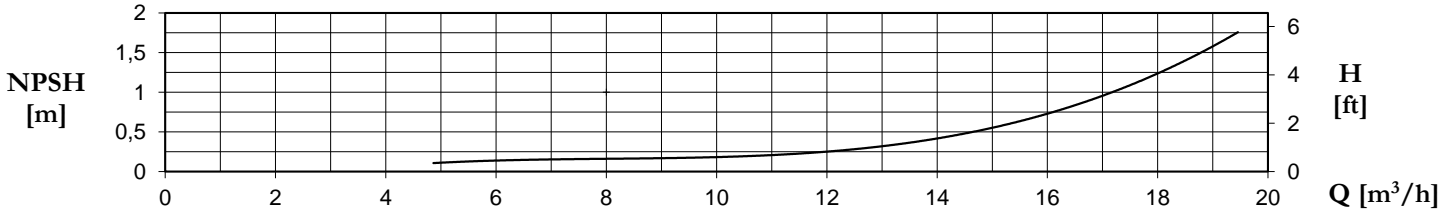
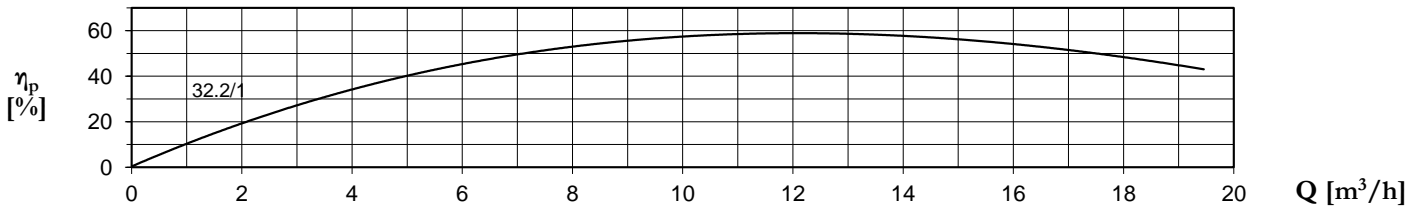
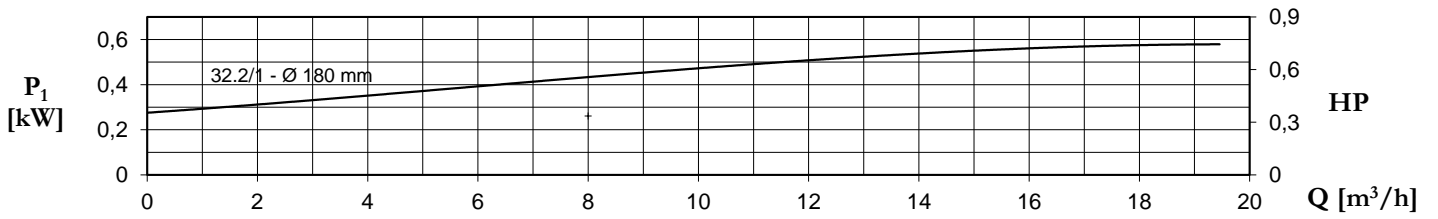
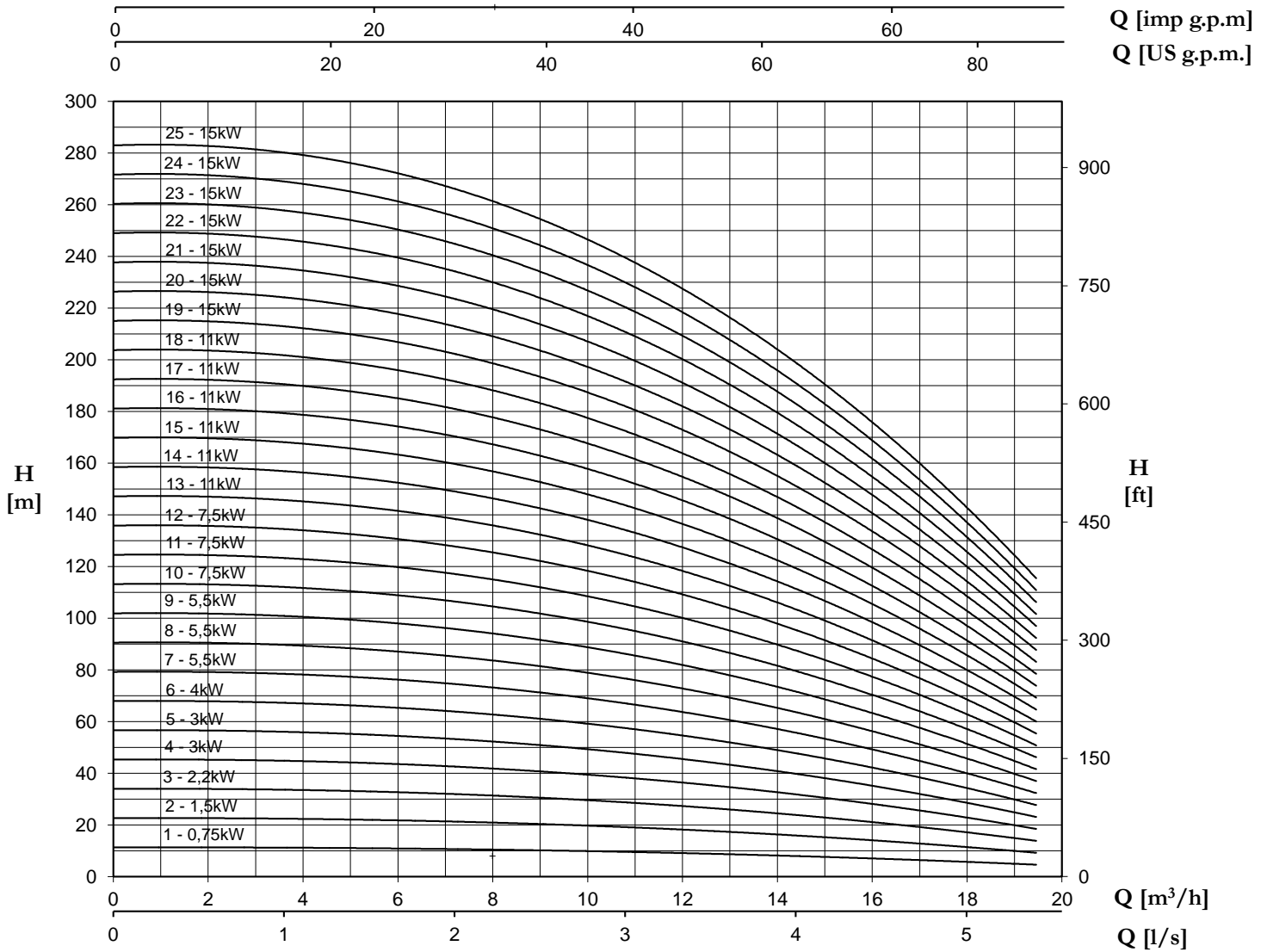
1400 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 32.2

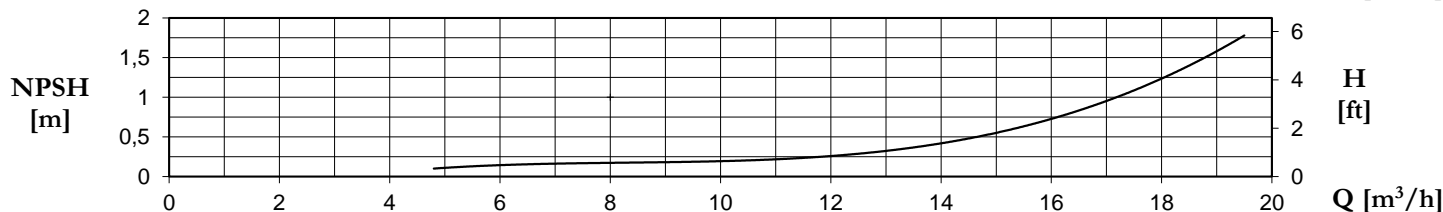
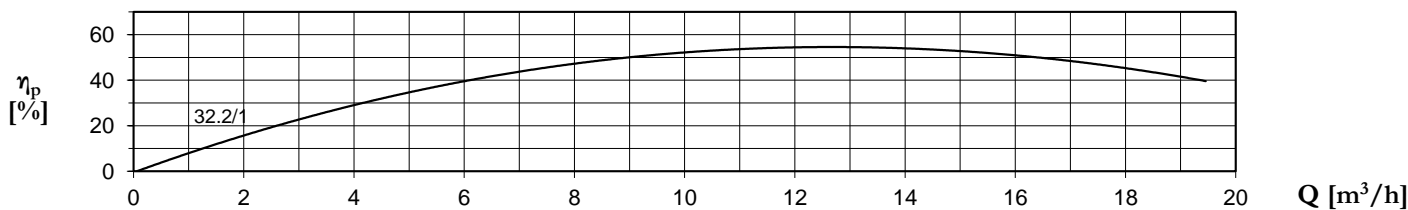
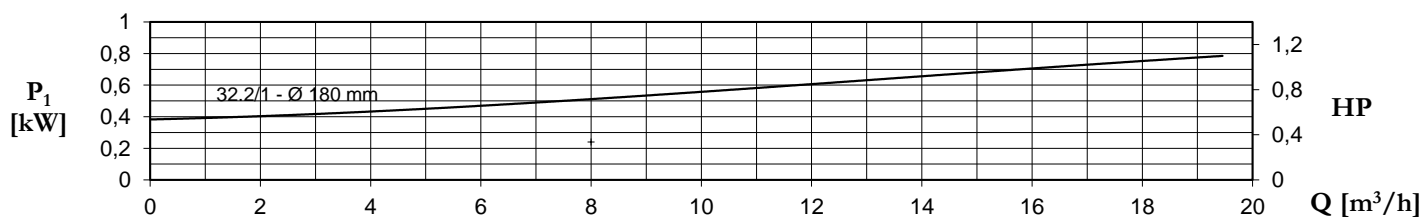
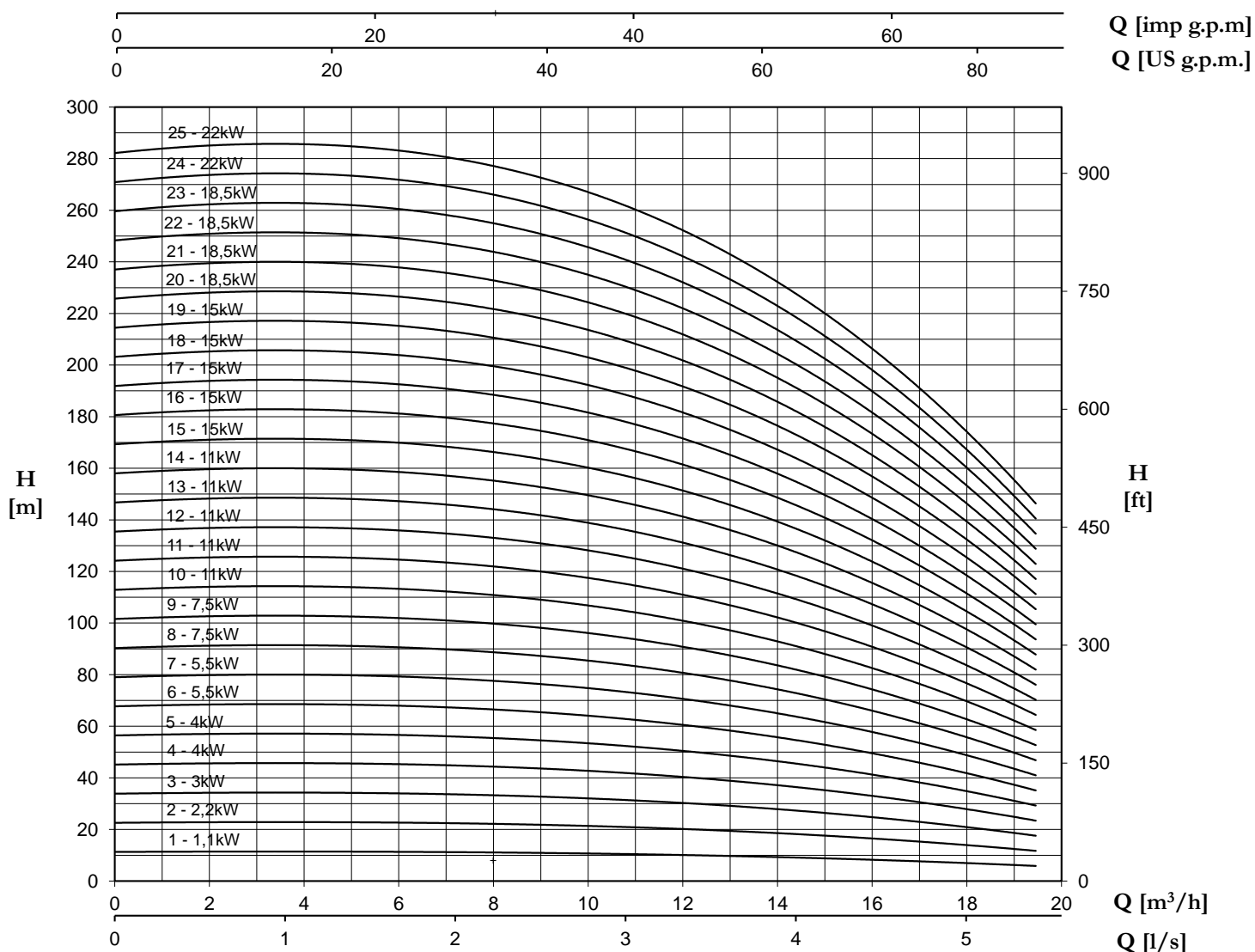
1430 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 32.2 INOX

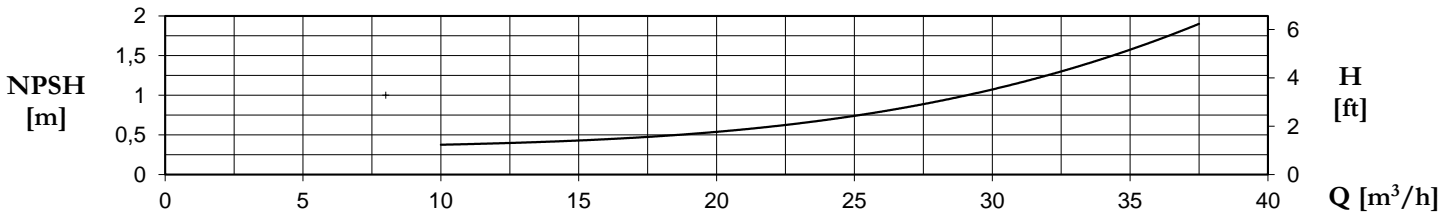
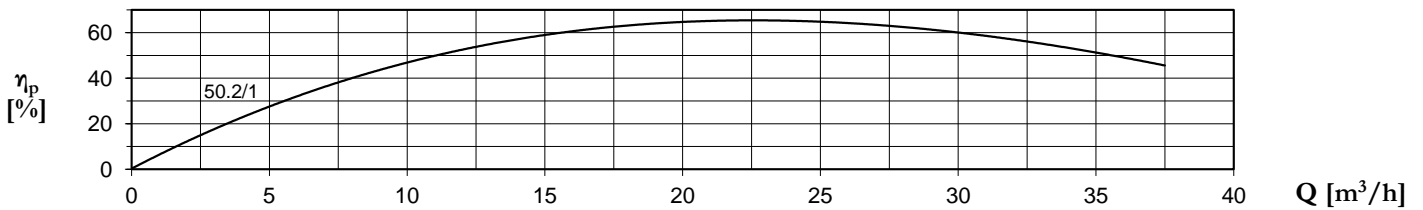
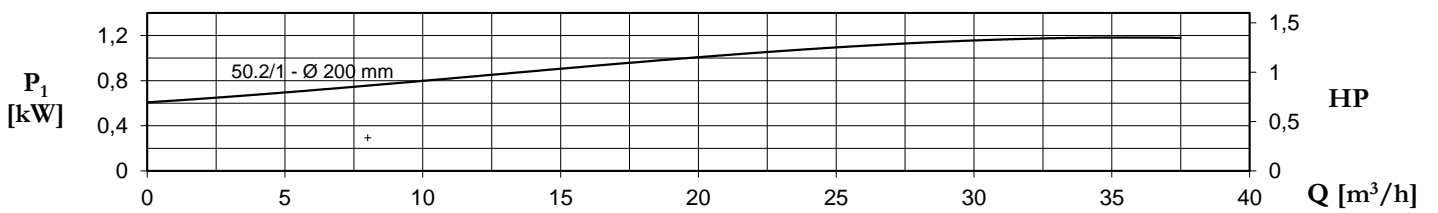
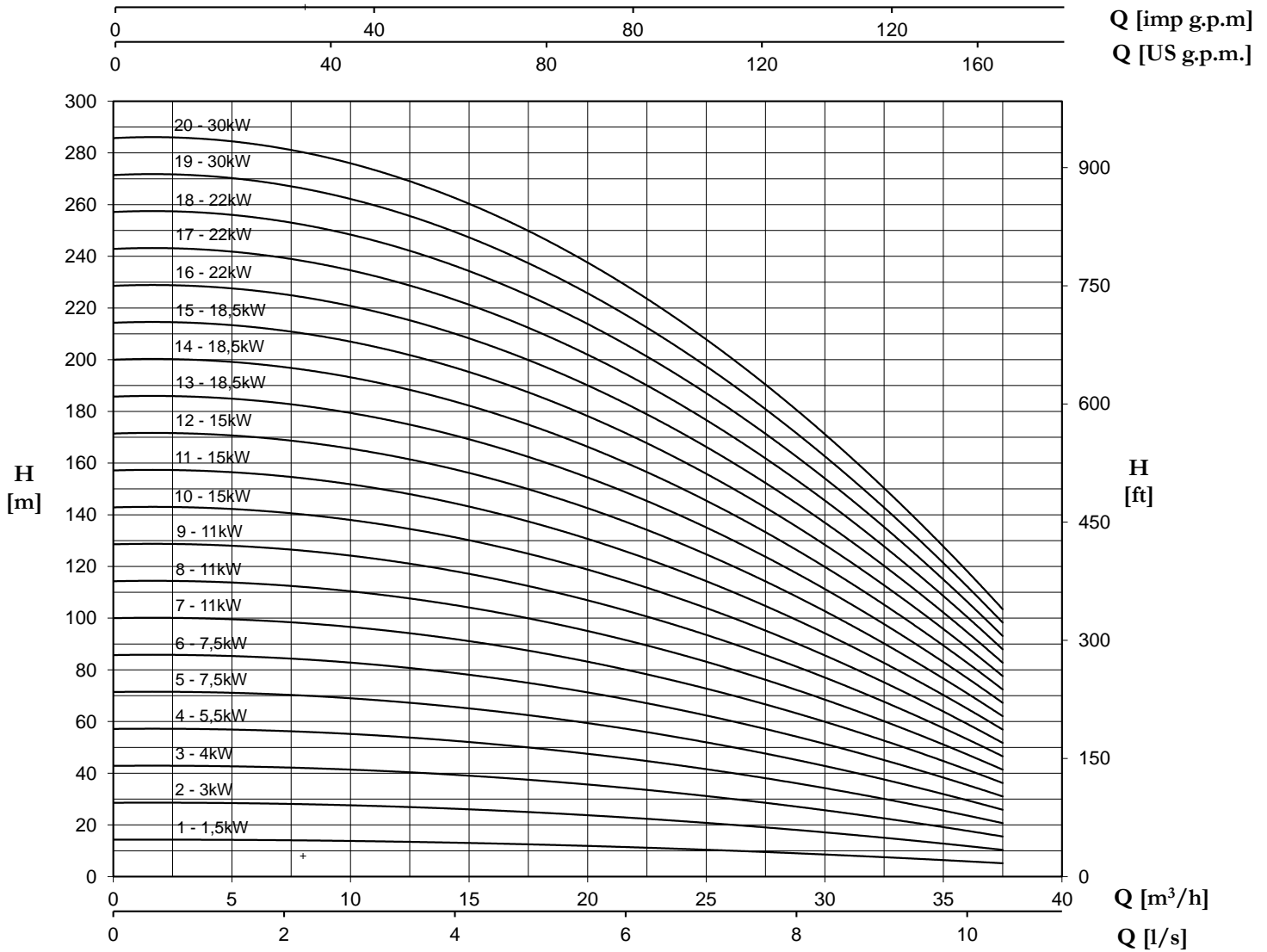
1430 r.p.m.



Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 50.2

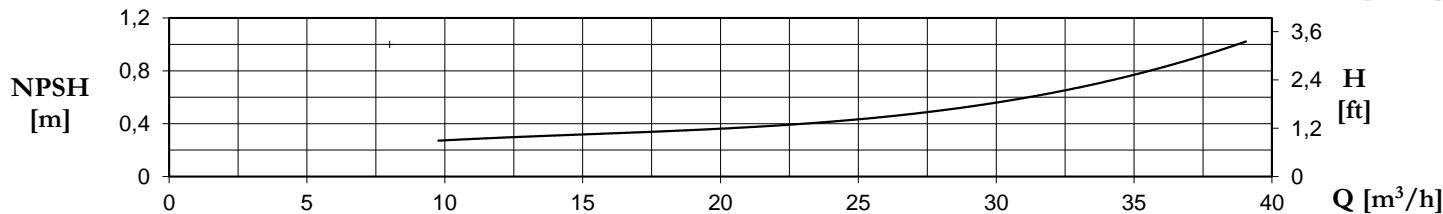
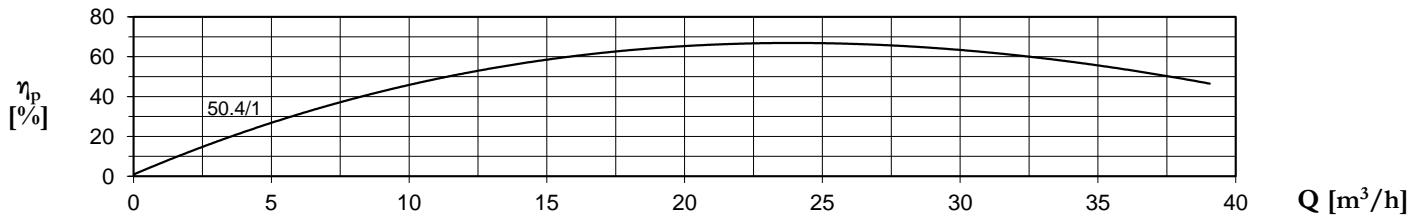
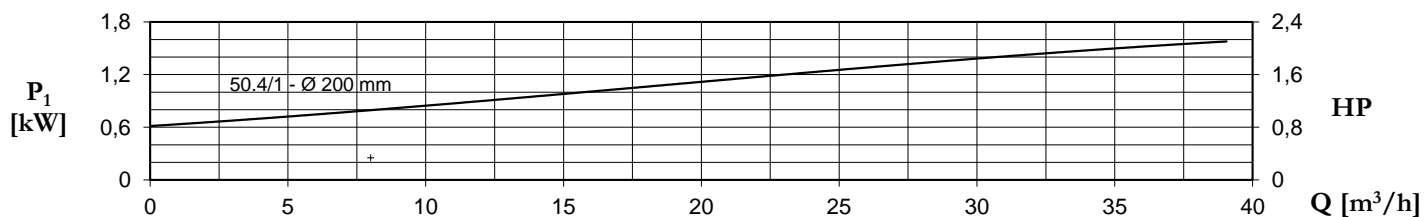
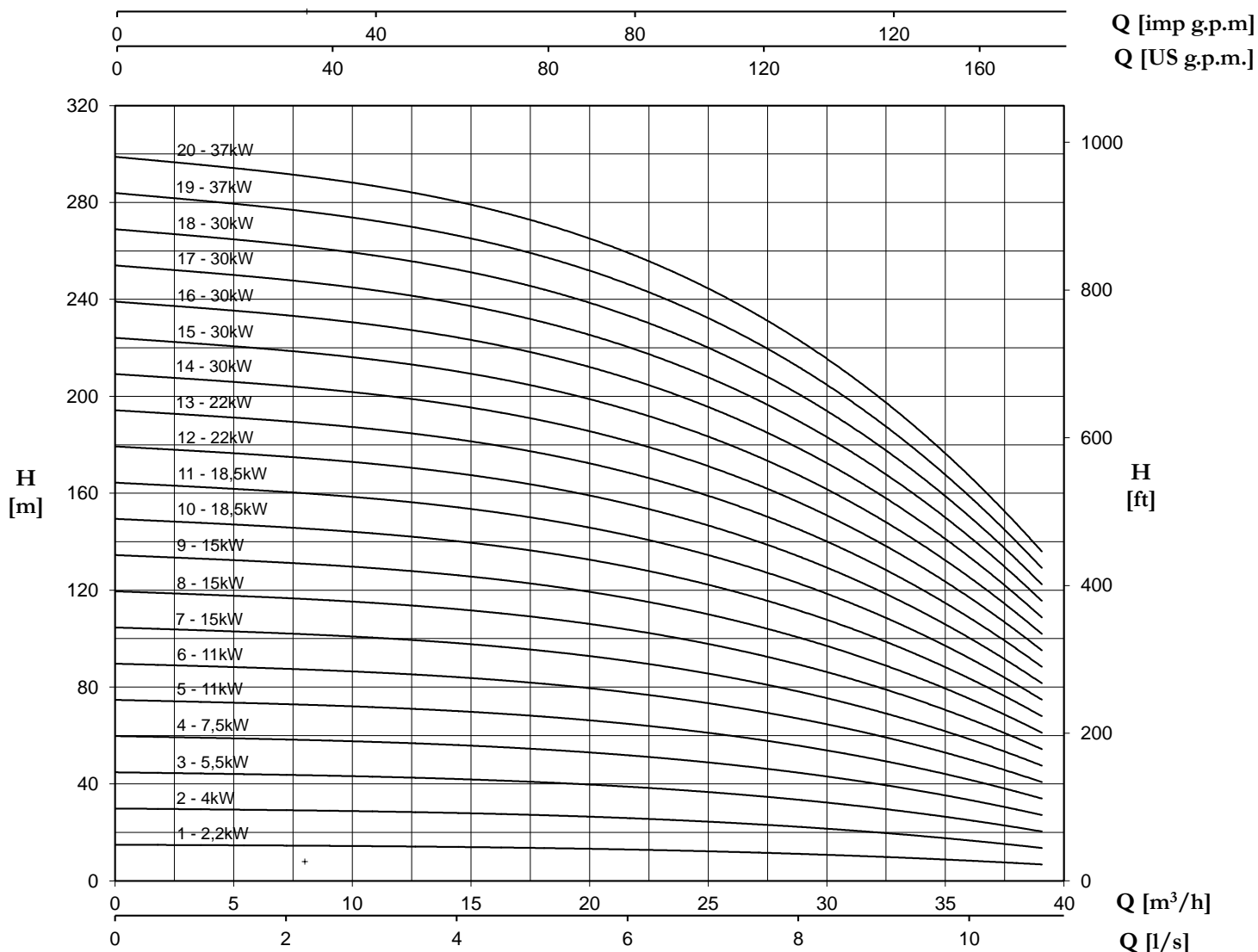
1480 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 50.4

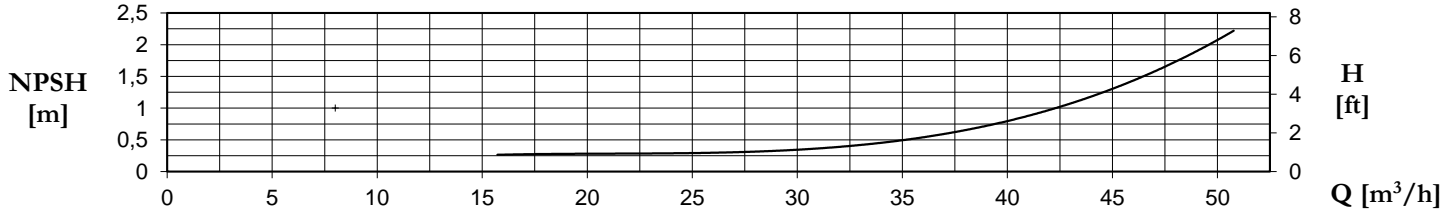
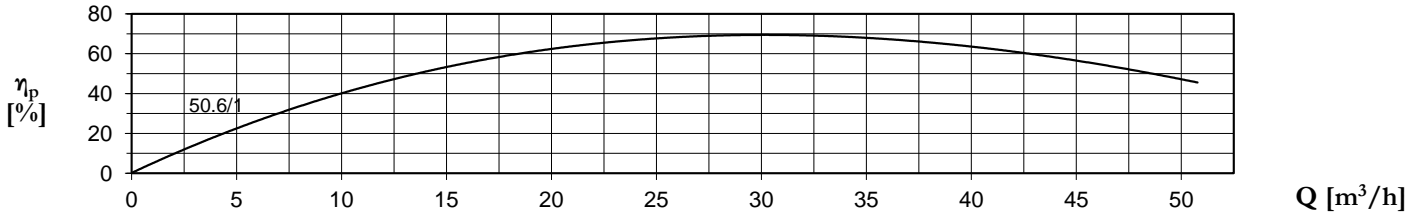
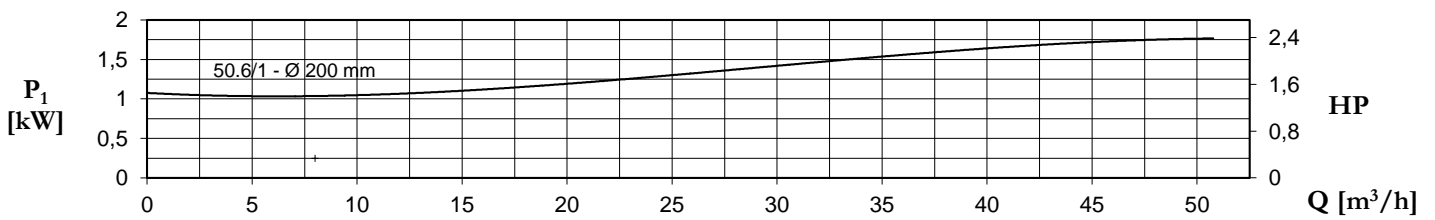
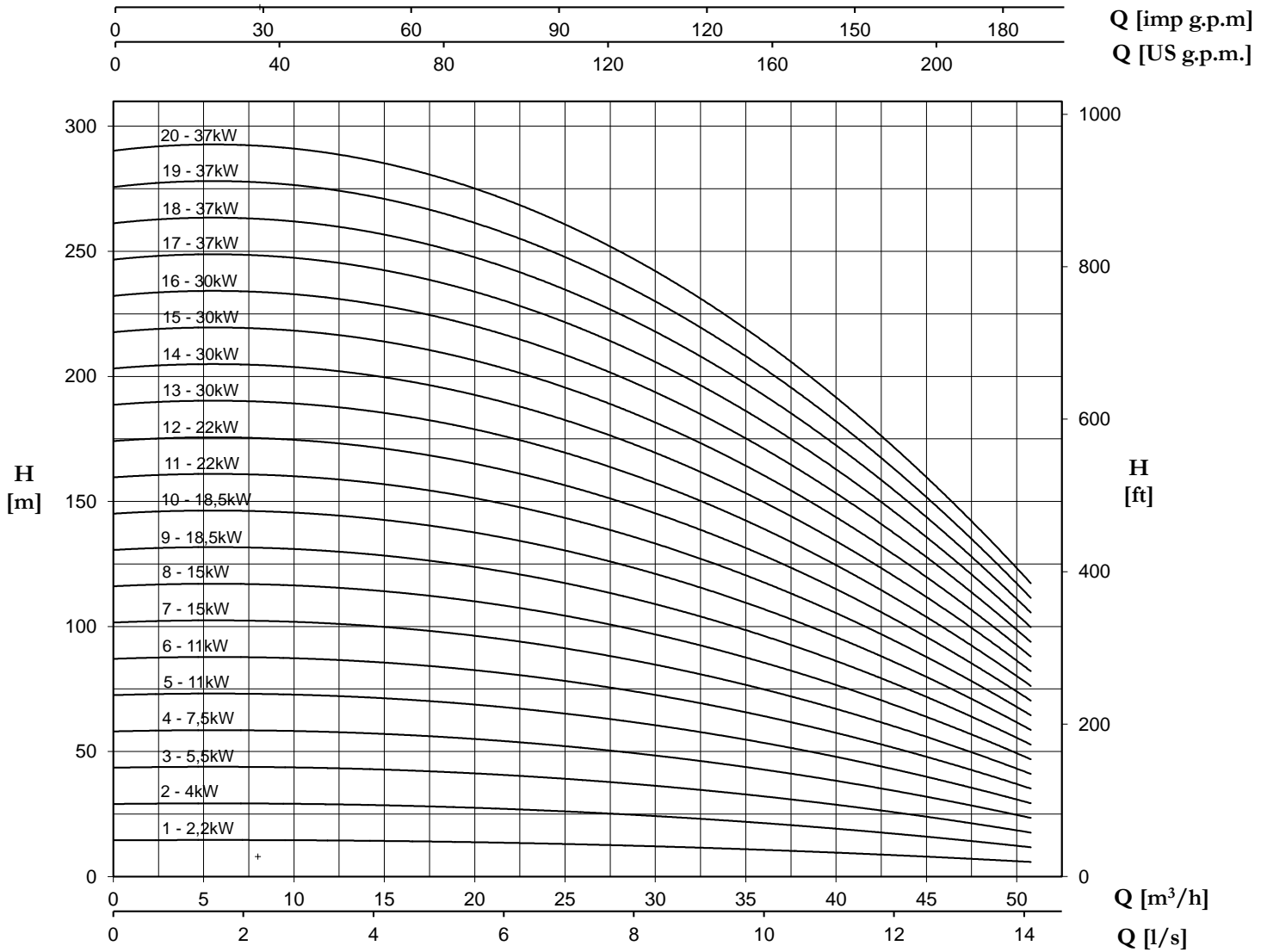
1450 r.p.m.



Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 50.6

1450 r.p.m.

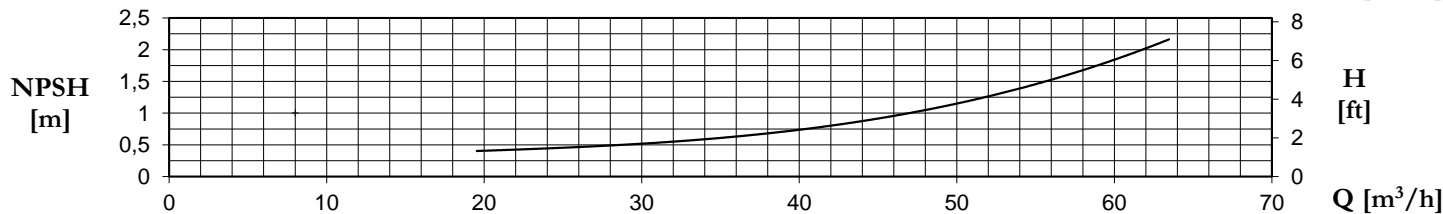
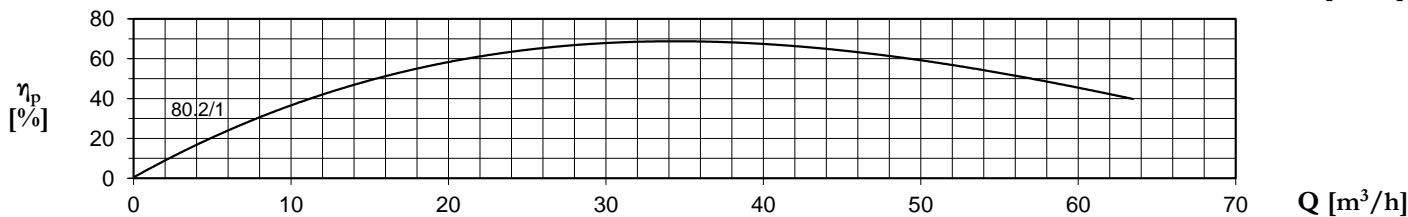
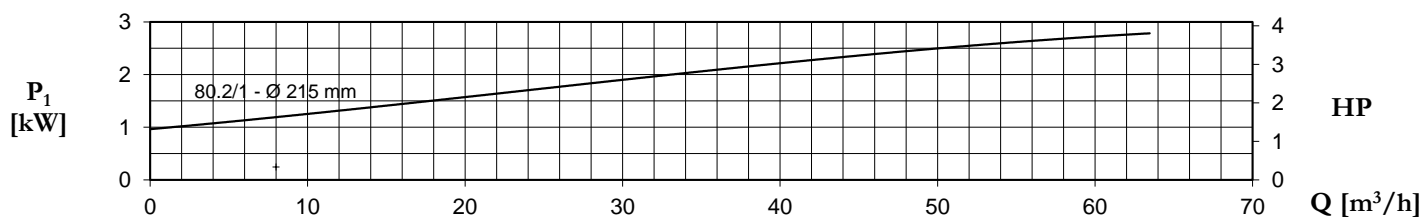
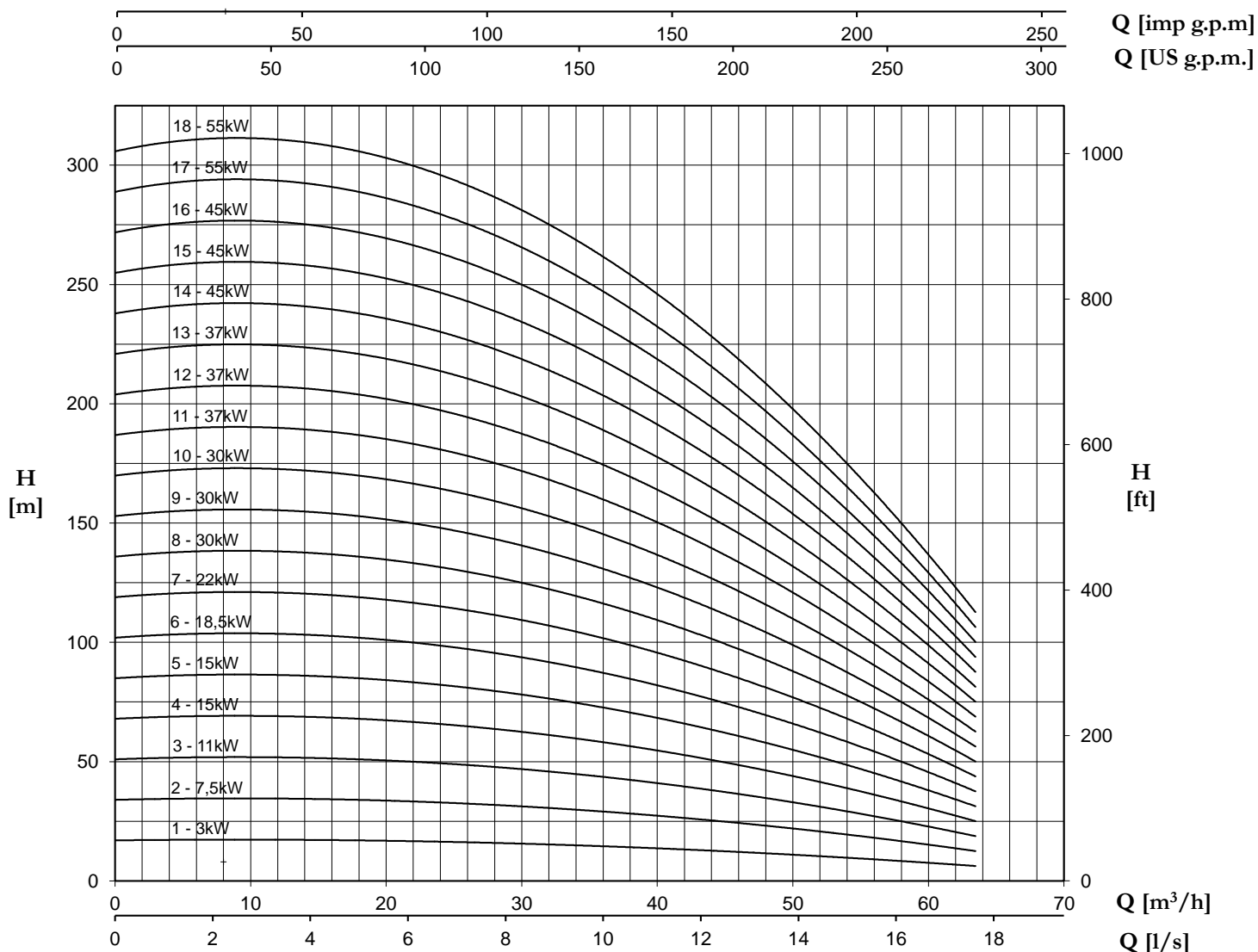


Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000



# HP 80.2

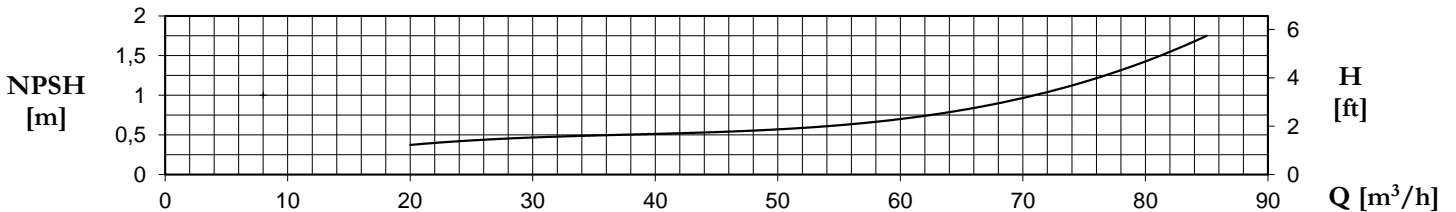
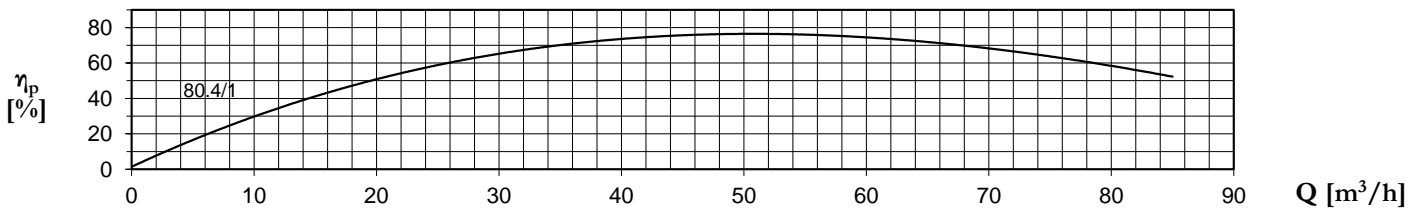
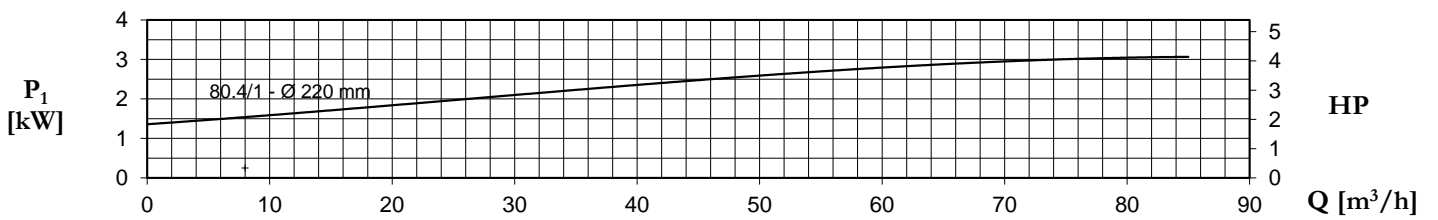
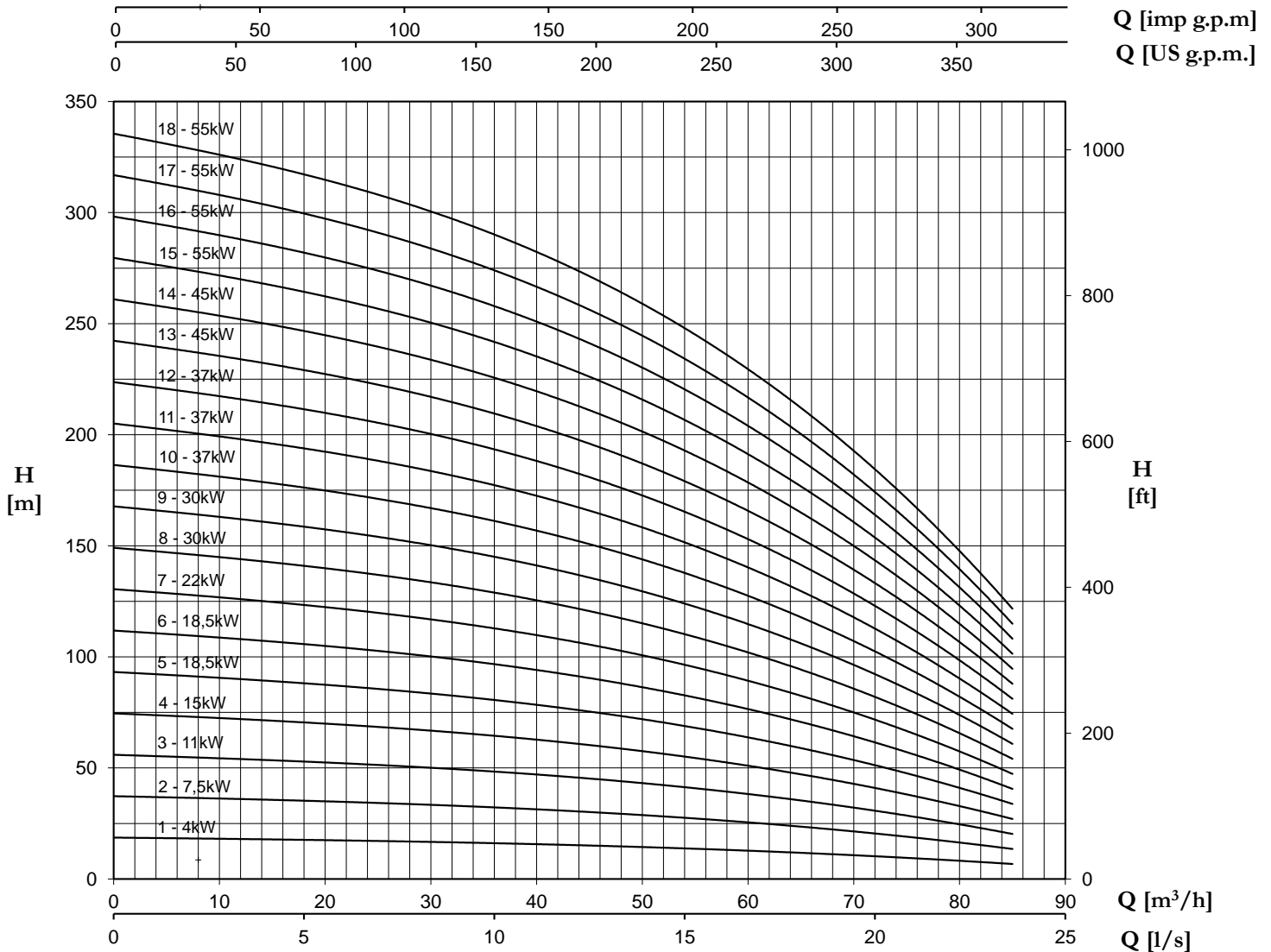
1450 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 80.4

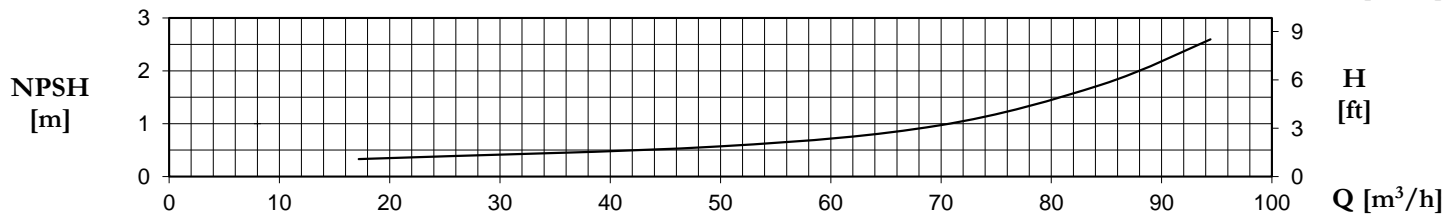
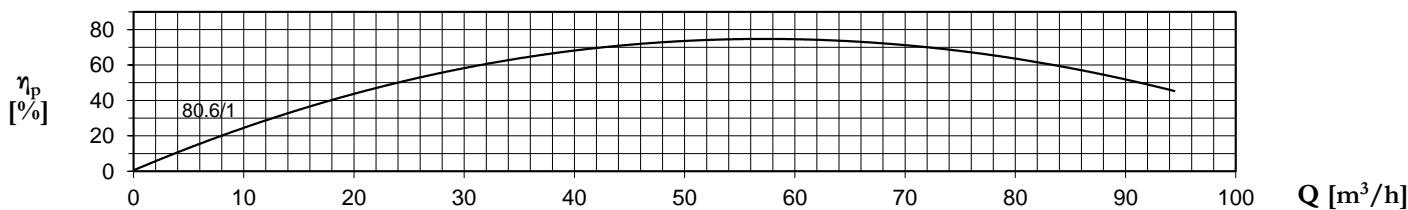
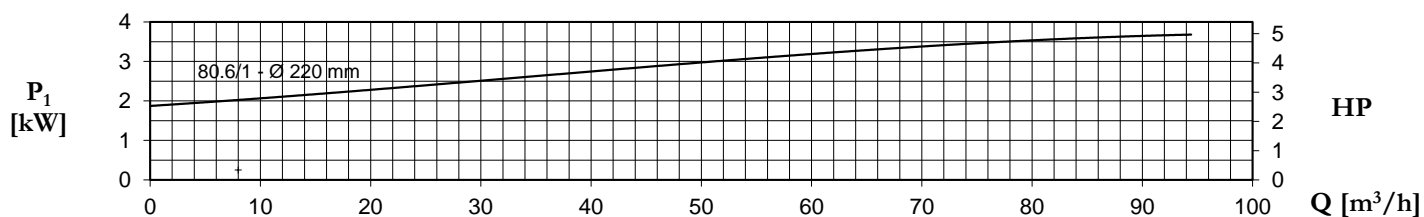
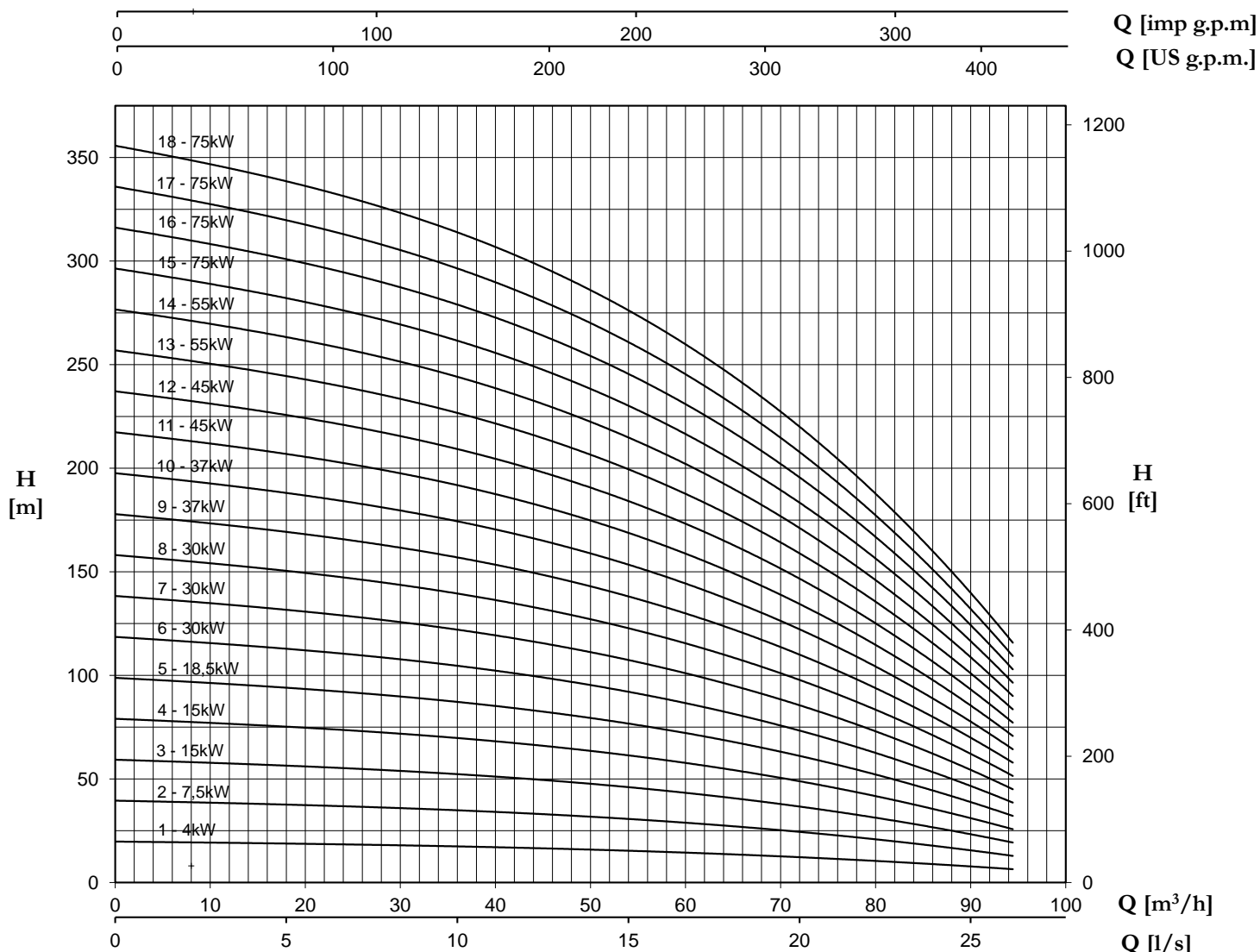
1480 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 80.6

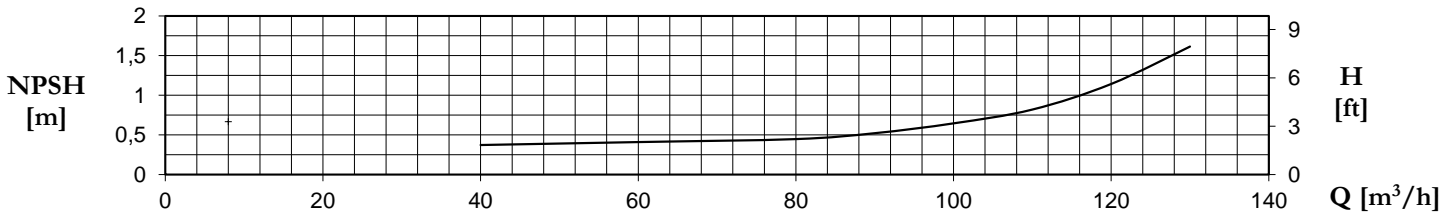
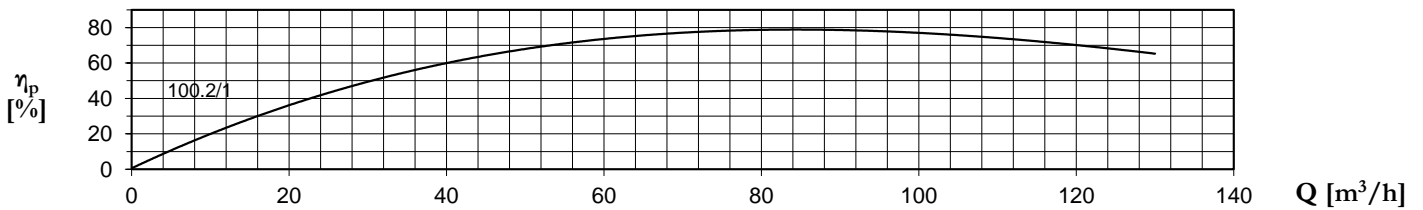
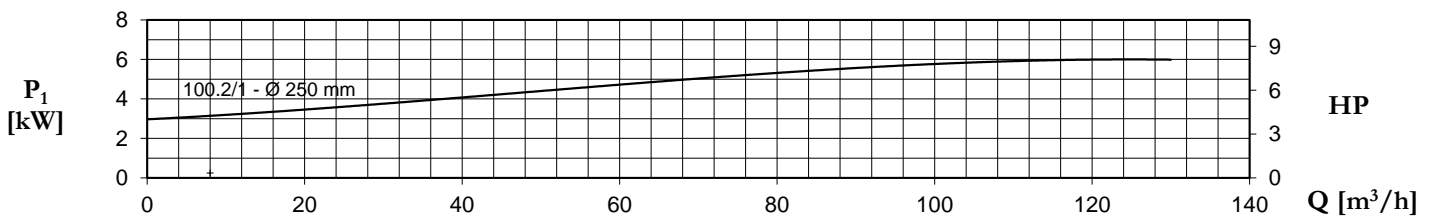
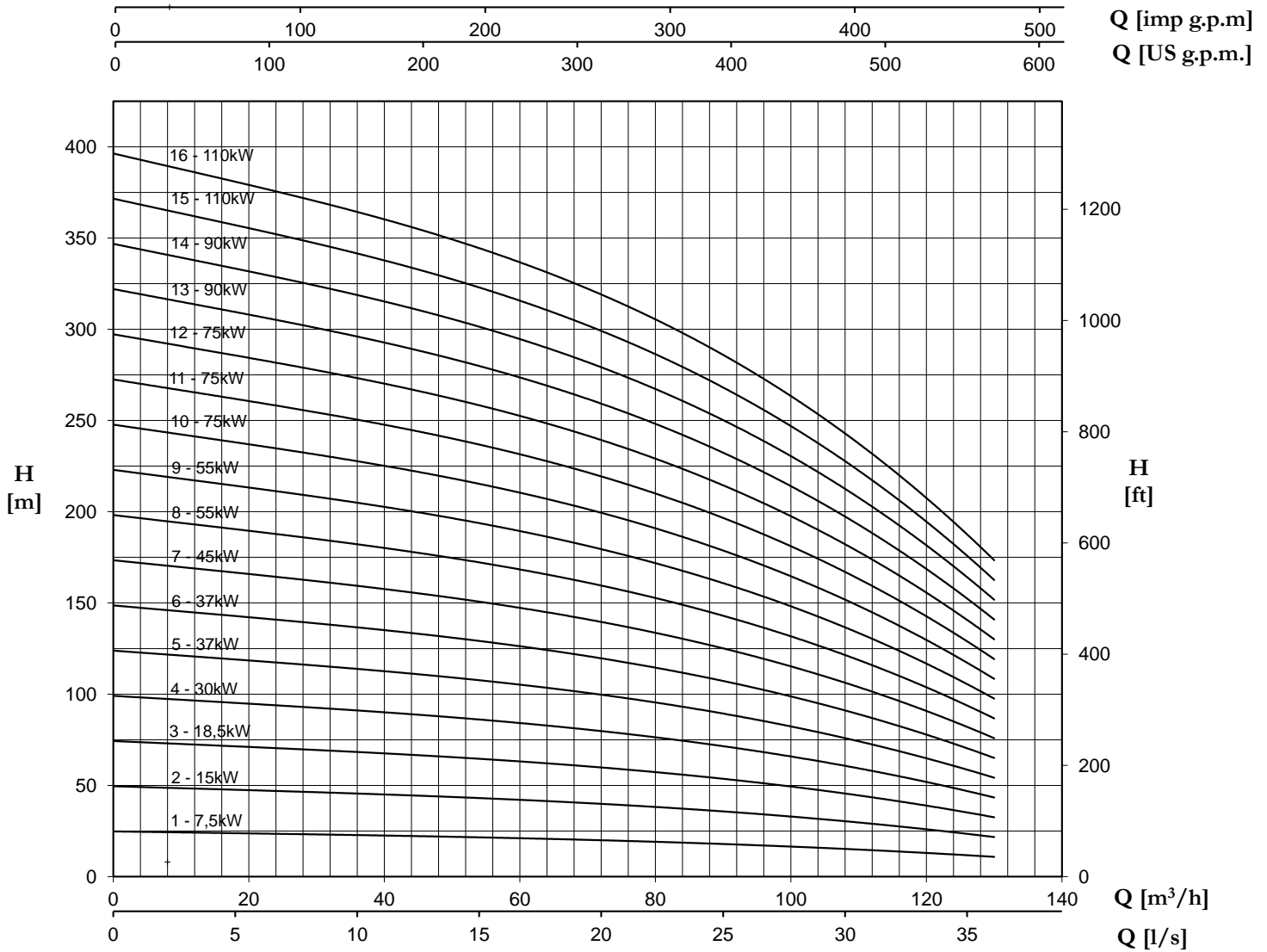
1450 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 100.2

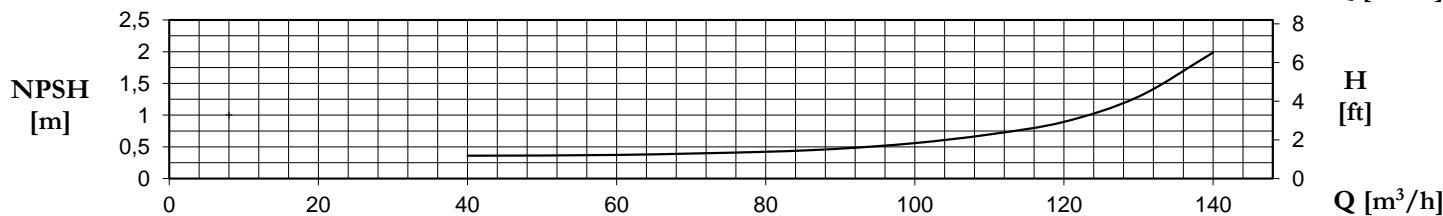
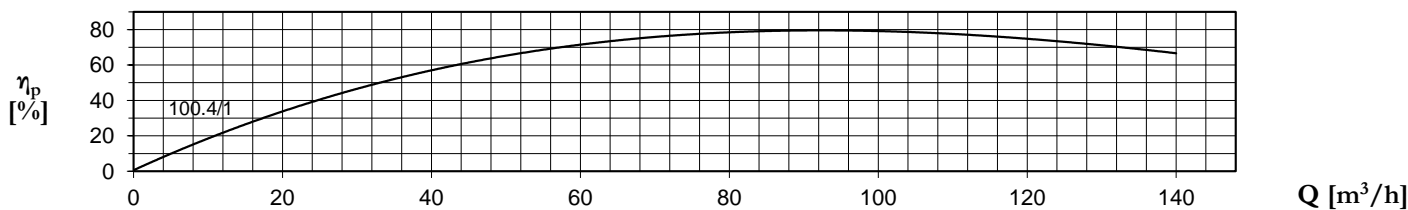
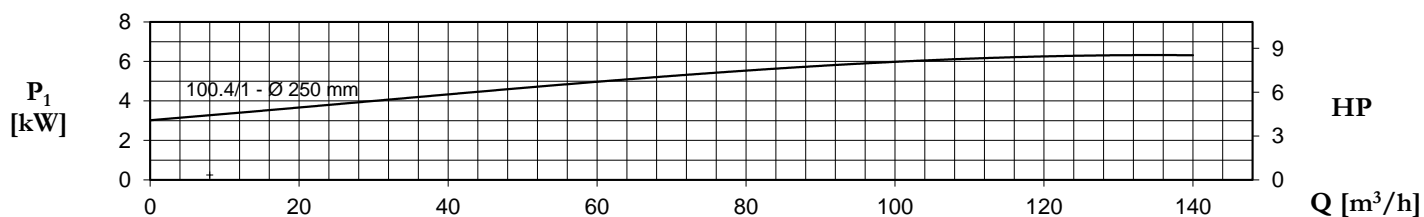
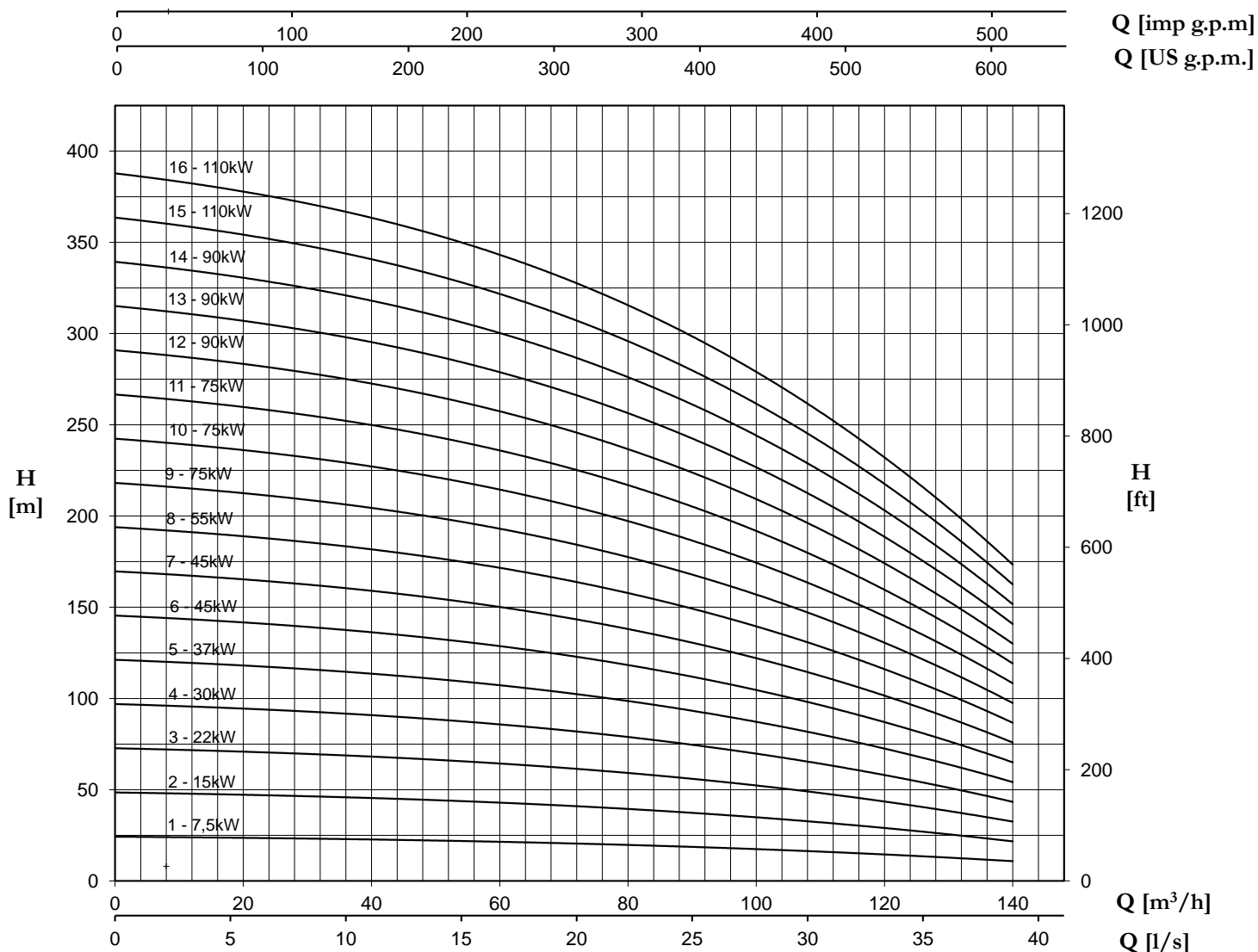
1480 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 100.4

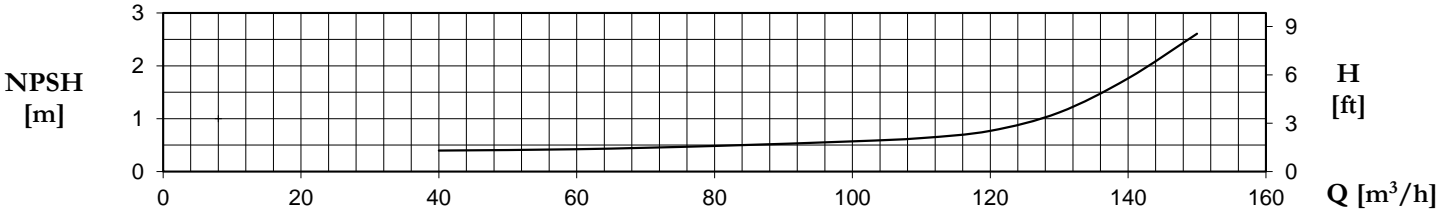
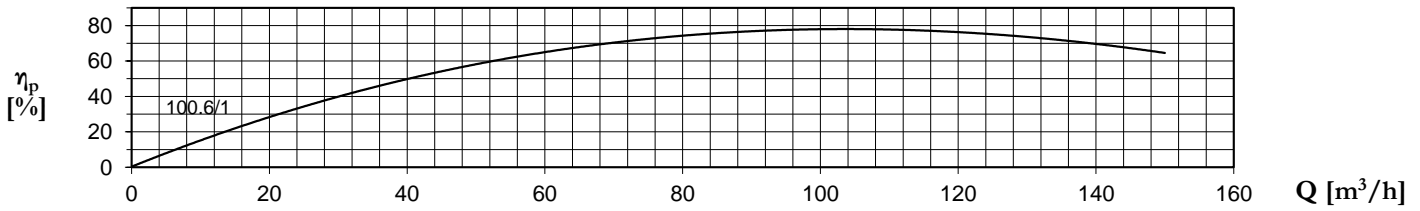
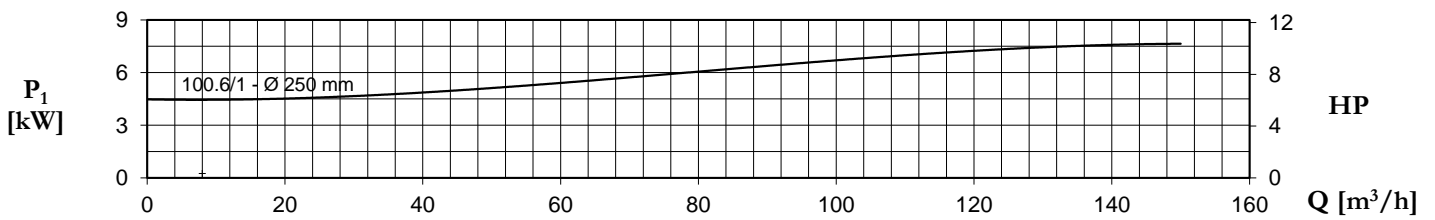
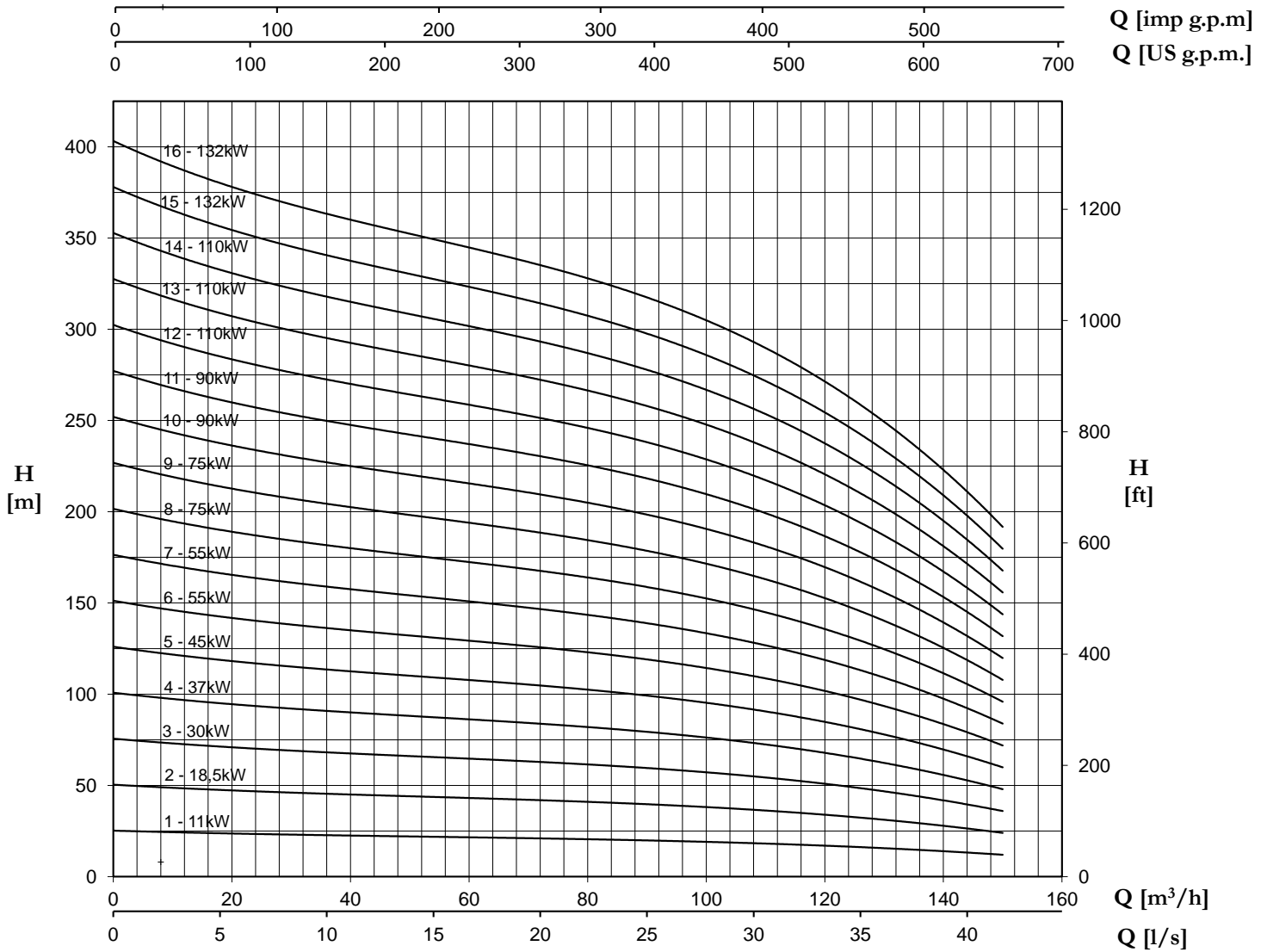
1480 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 100.6

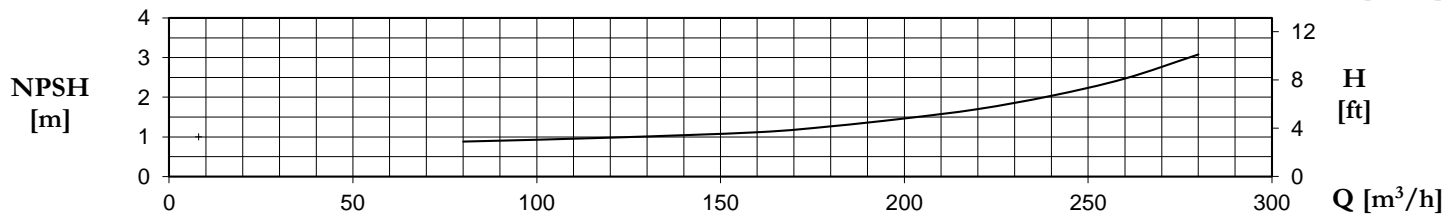
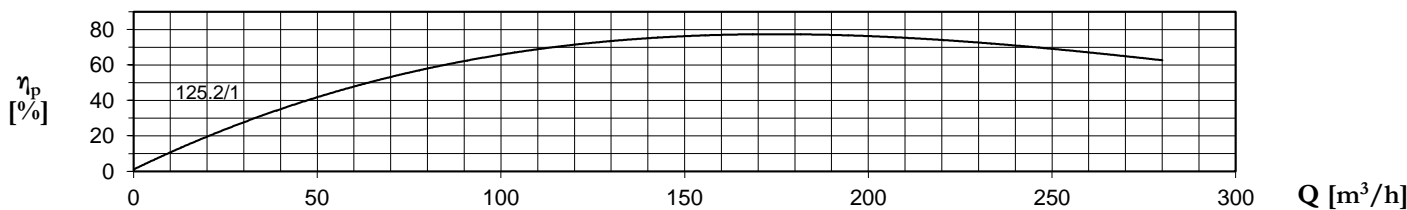
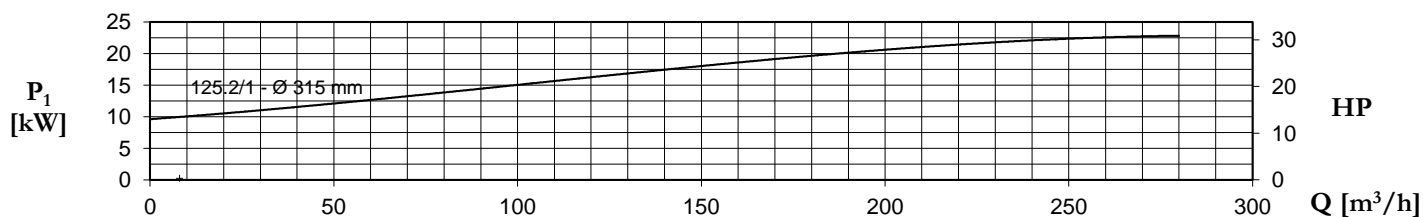
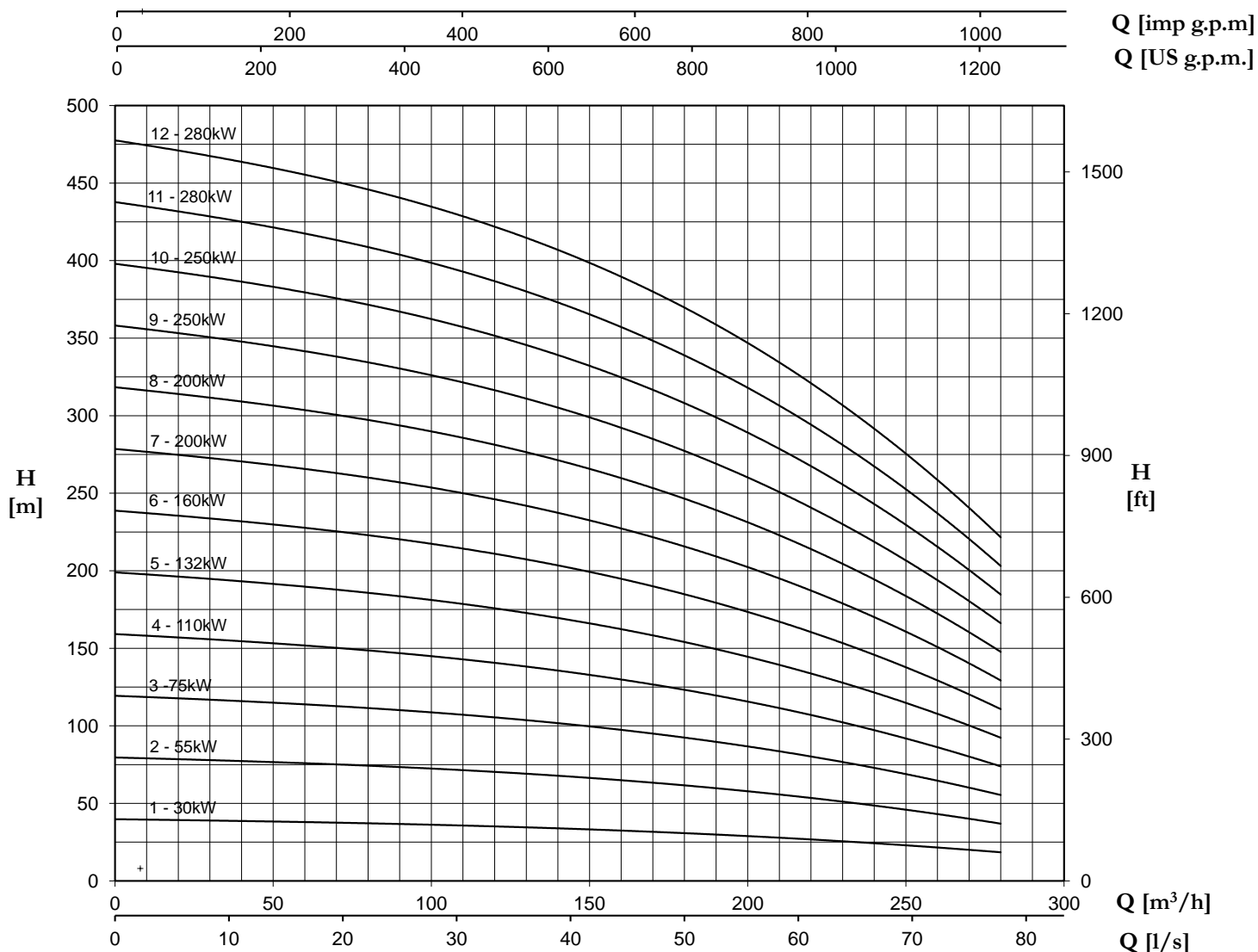
1480 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 125.2

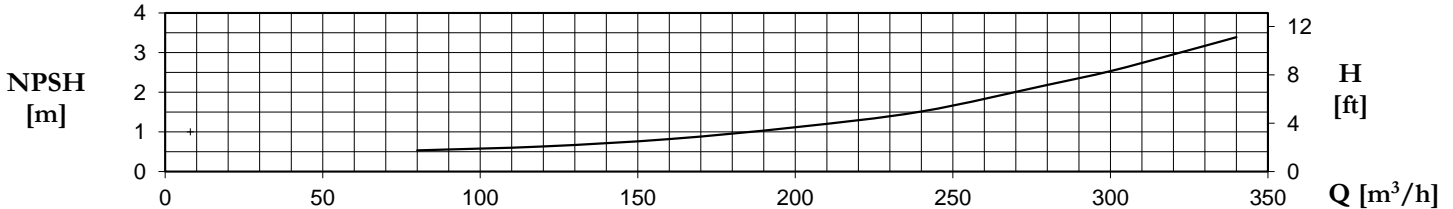
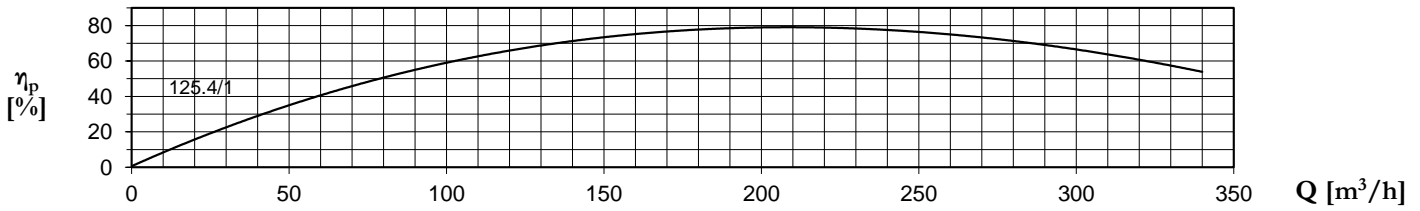
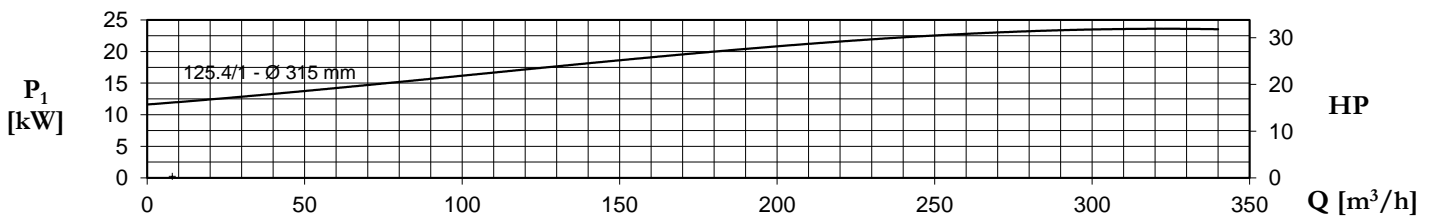
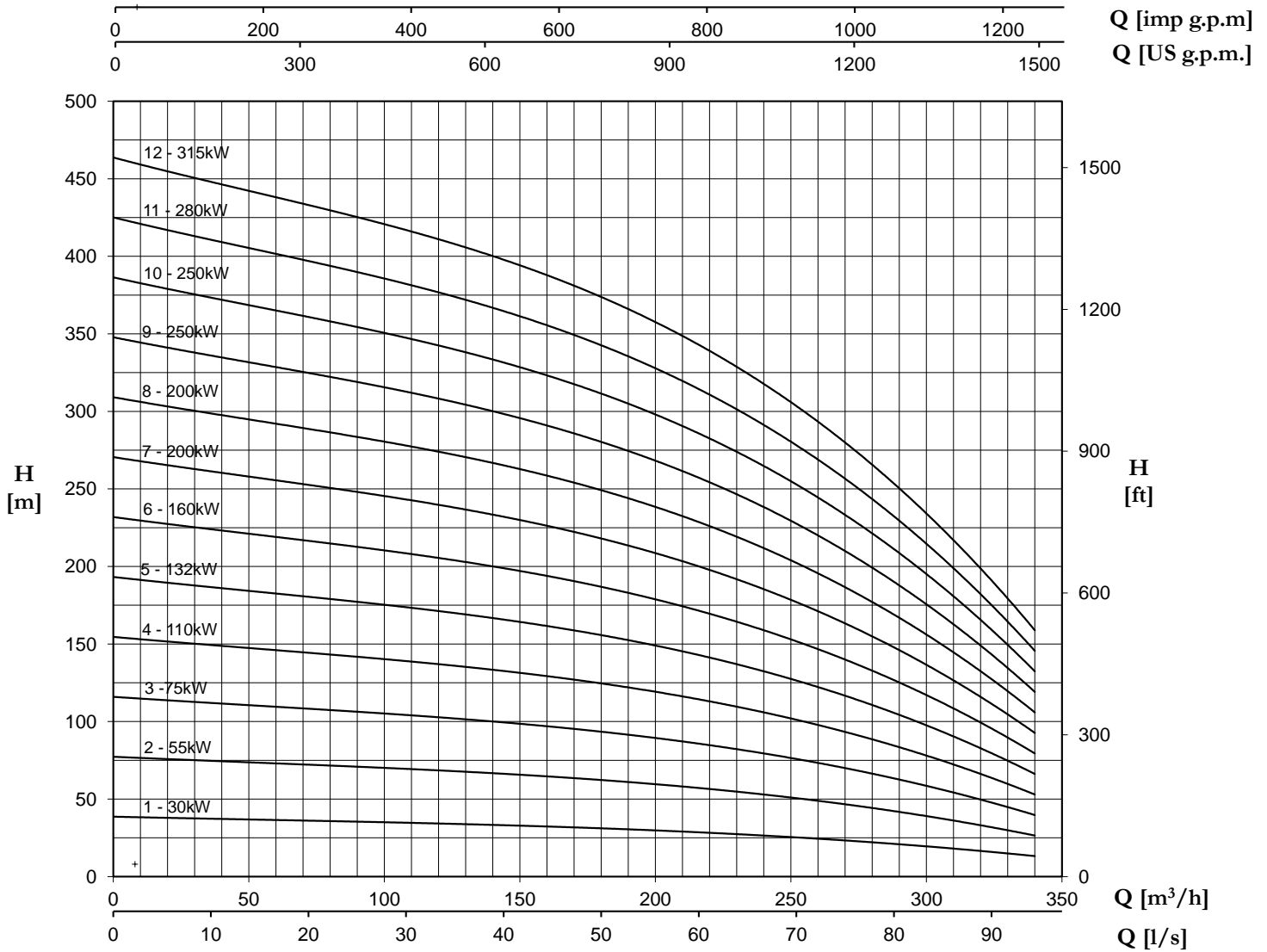
1480 r.p.m.



Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 125.4

1480 r.p.m.

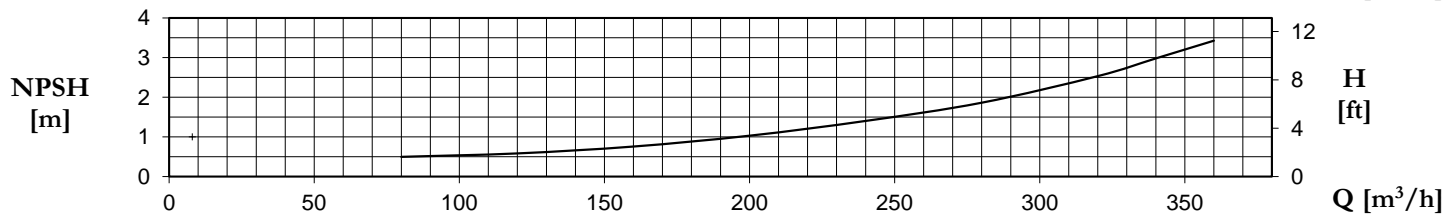
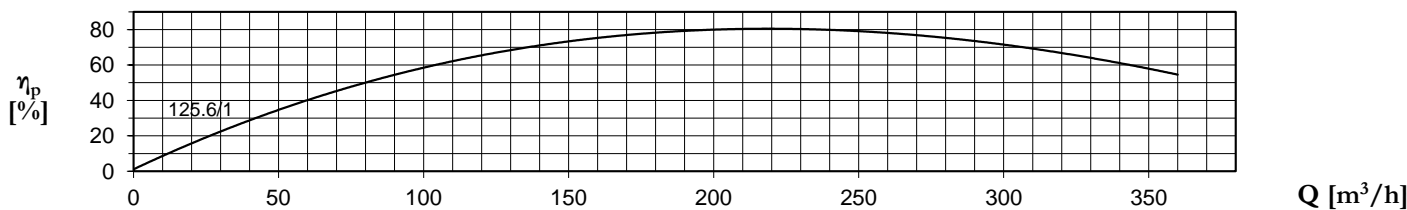
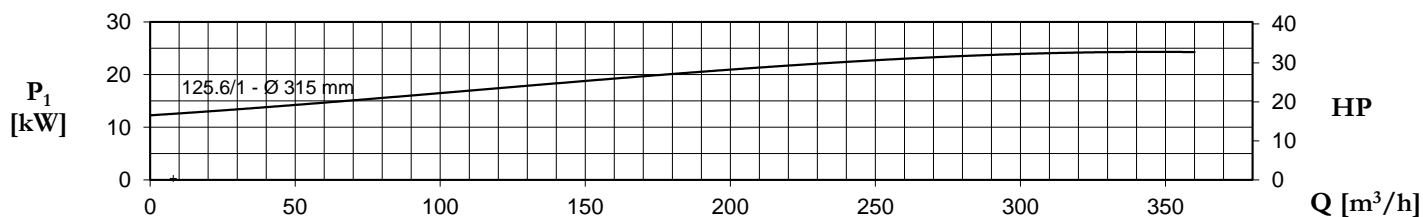
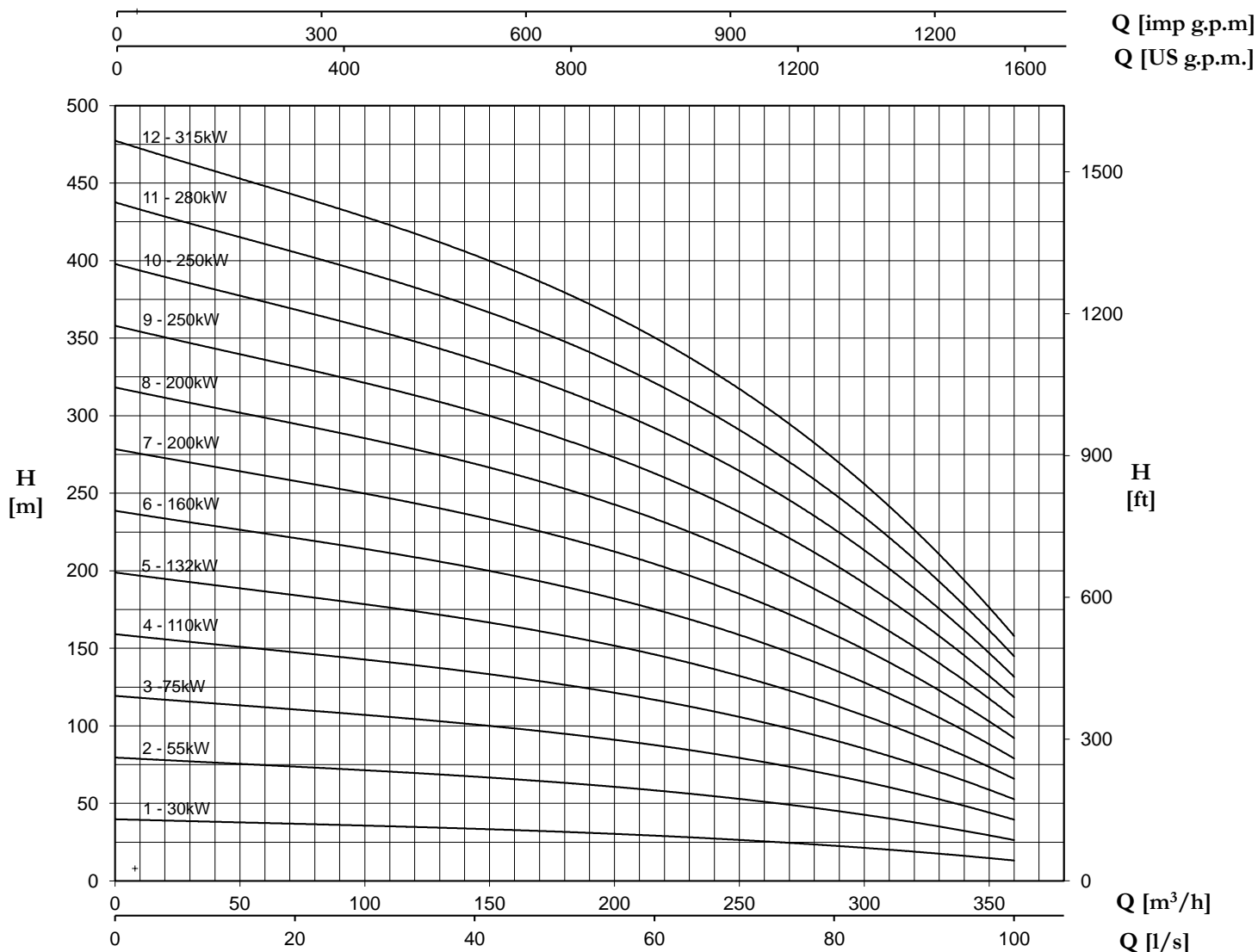


Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000



# HP 125.6

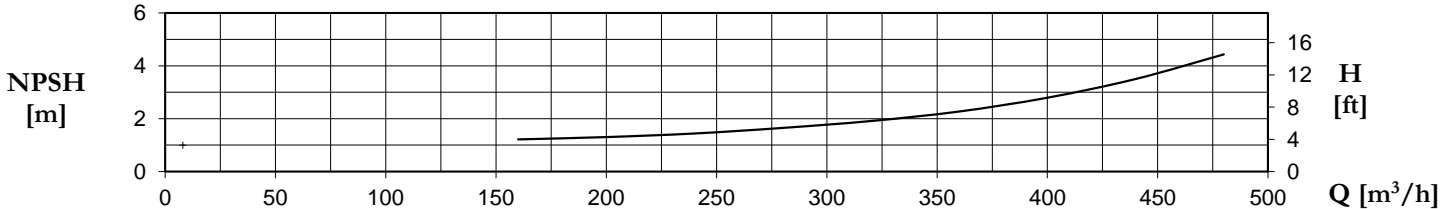
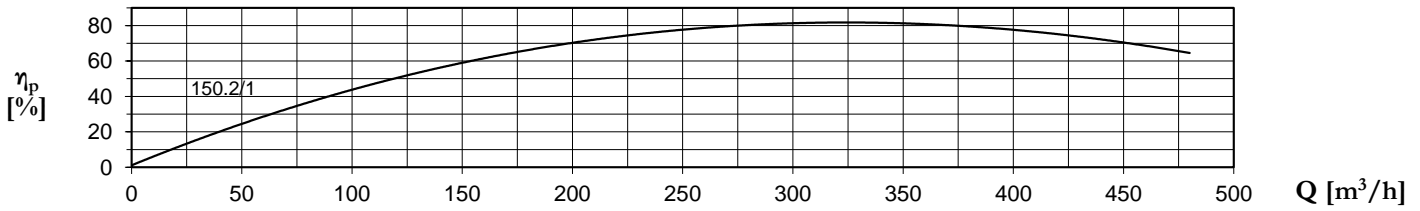
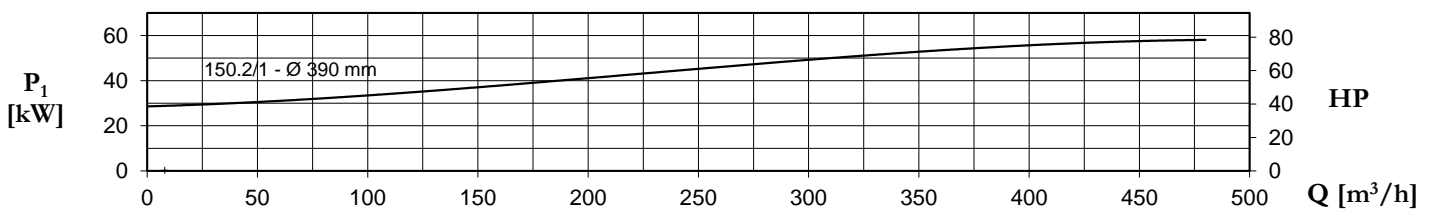
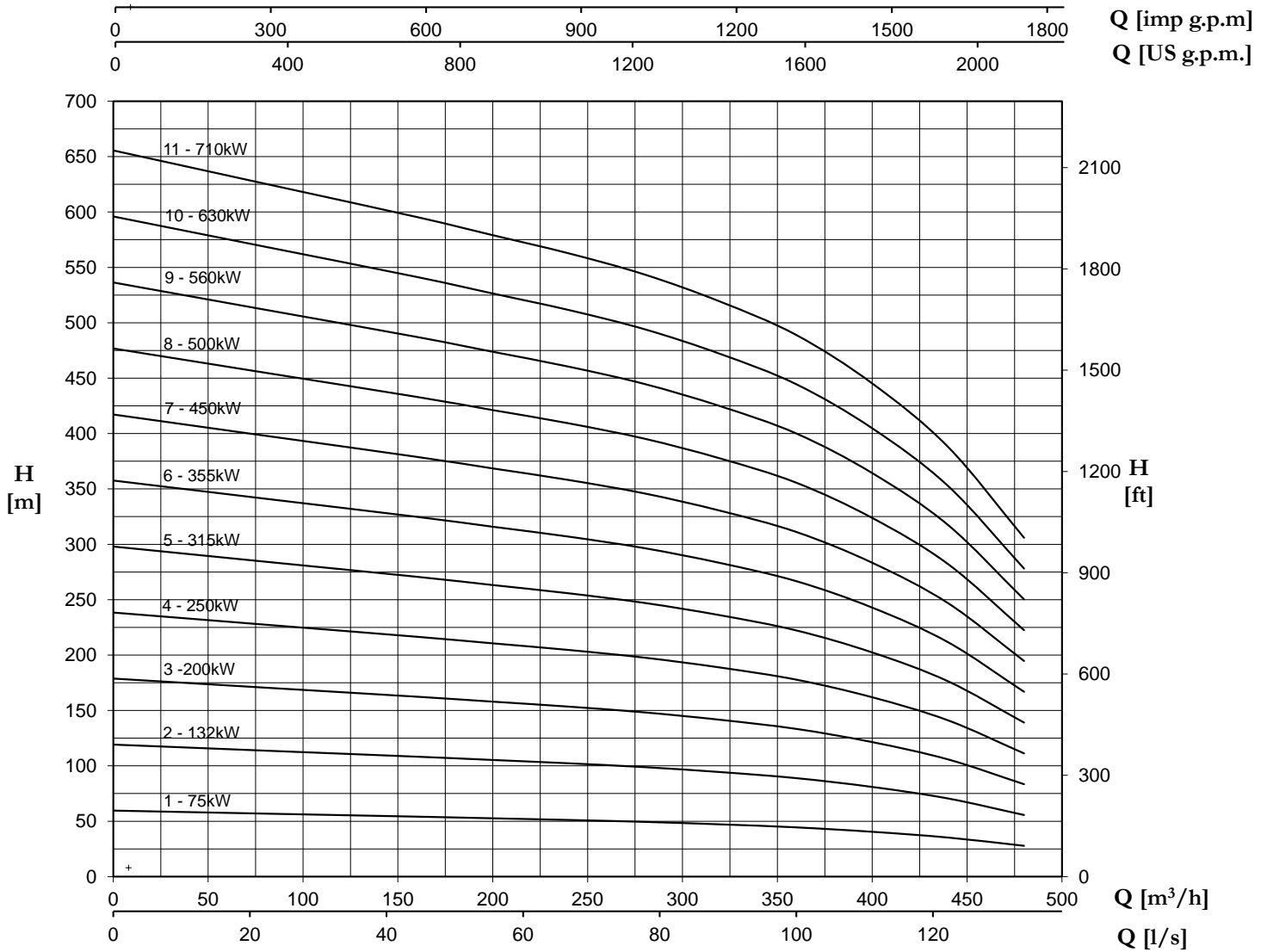
1480 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 150.2

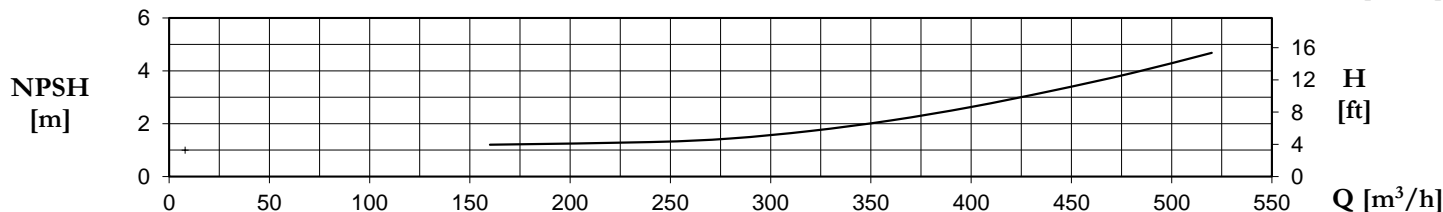
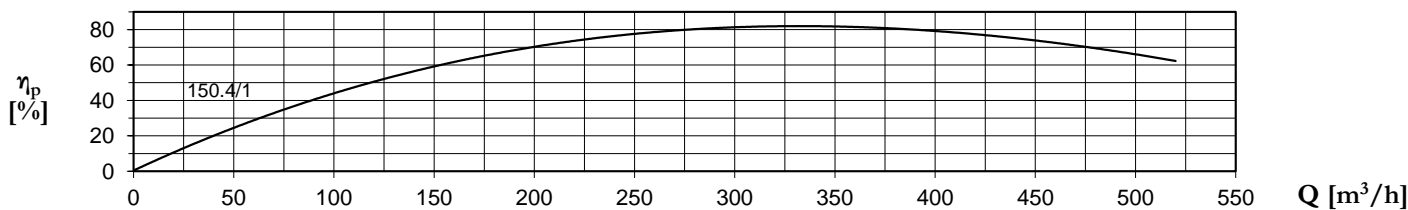
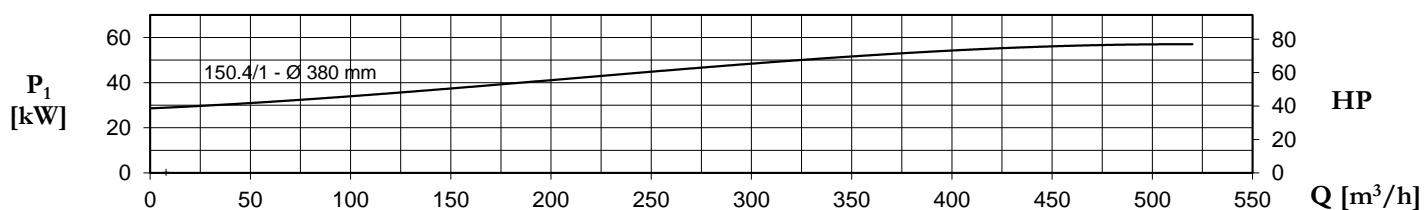
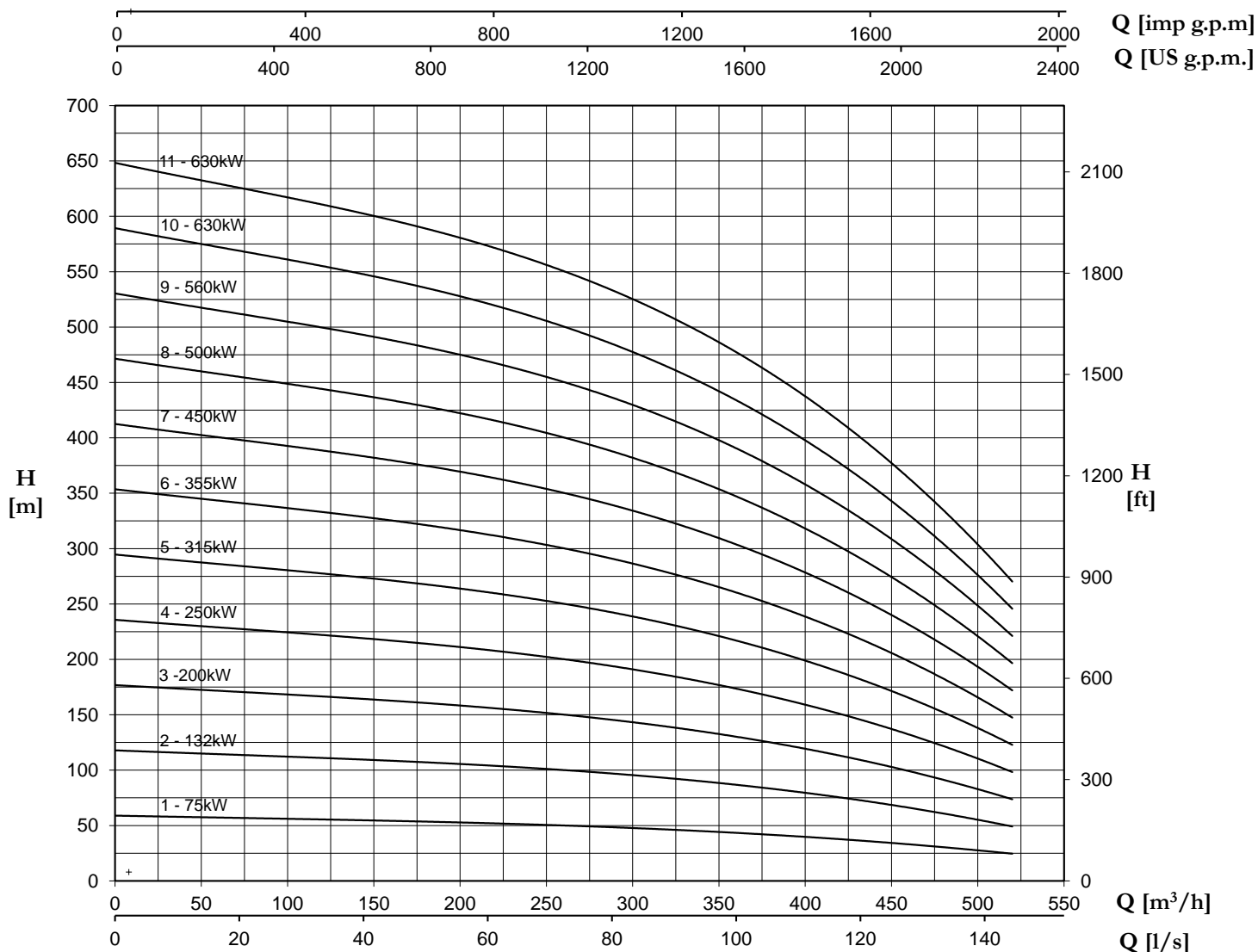
1480 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 150.4

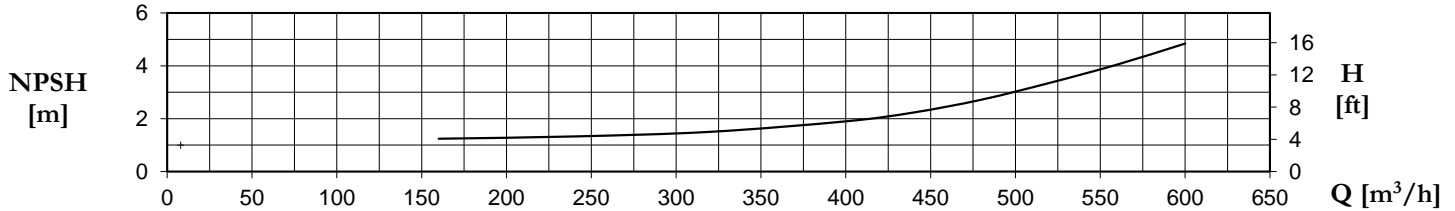
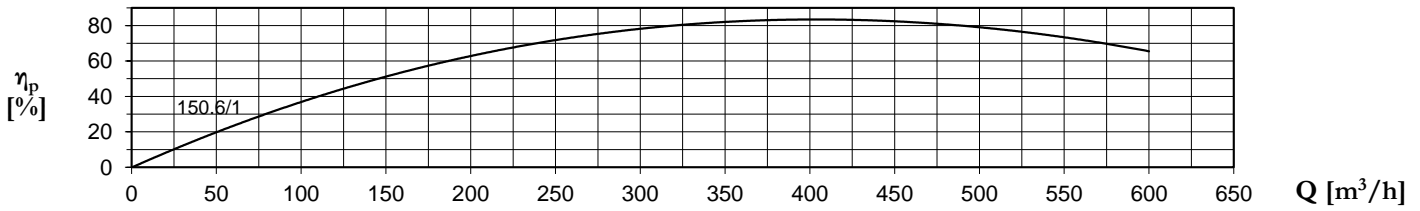
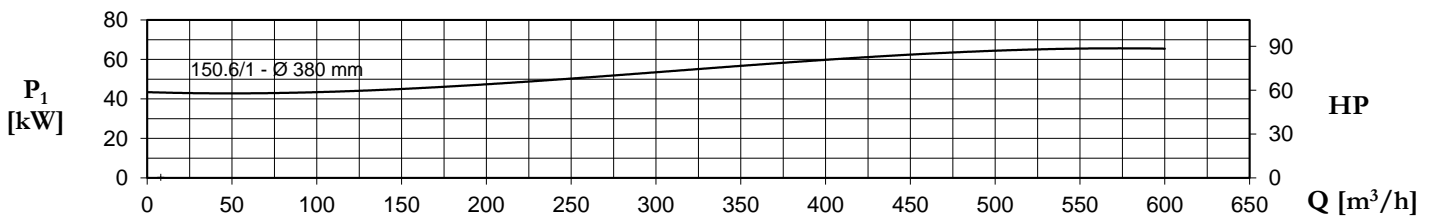
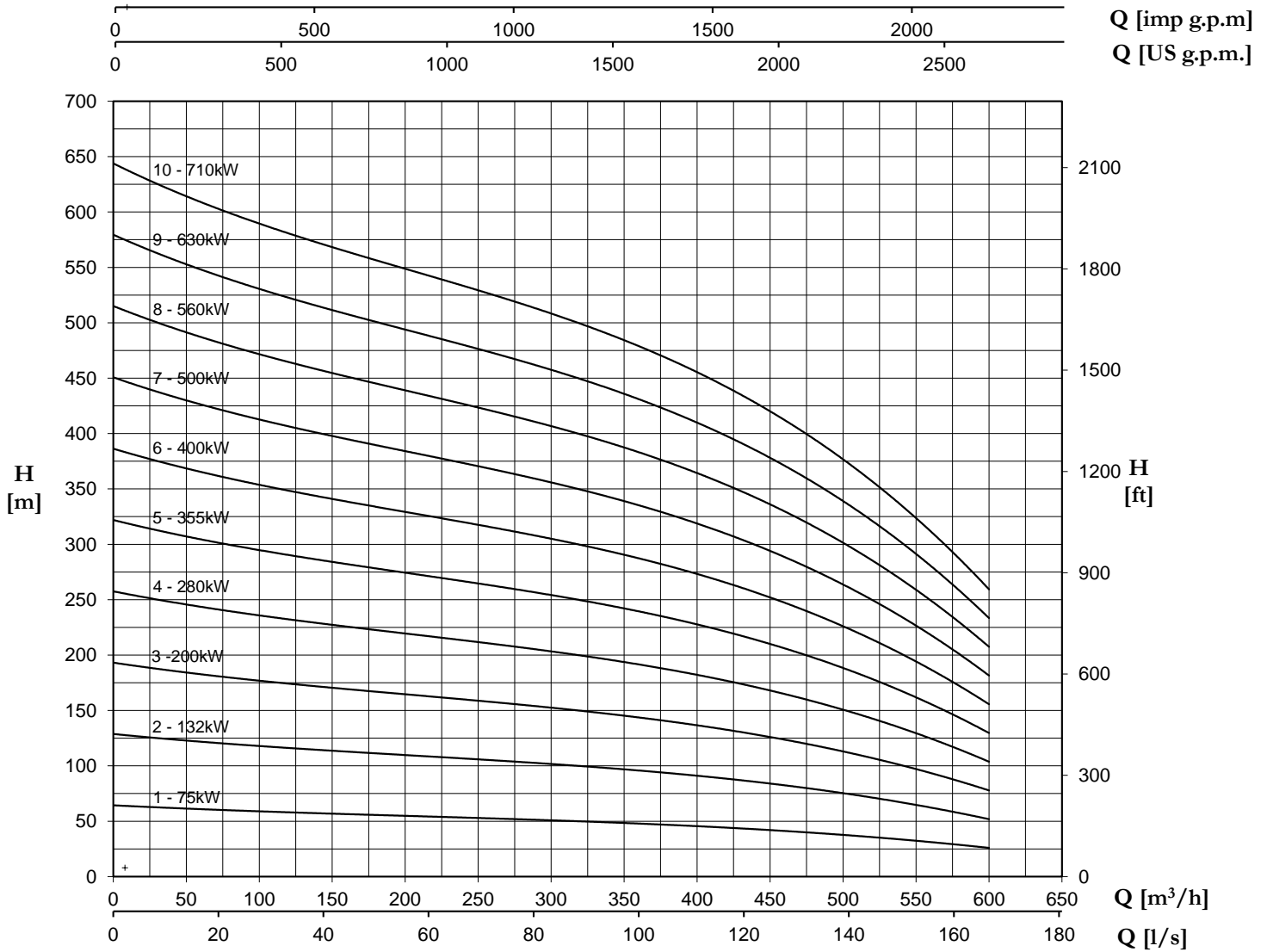
1480 r.p.m.



Valid for: p=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 150.6

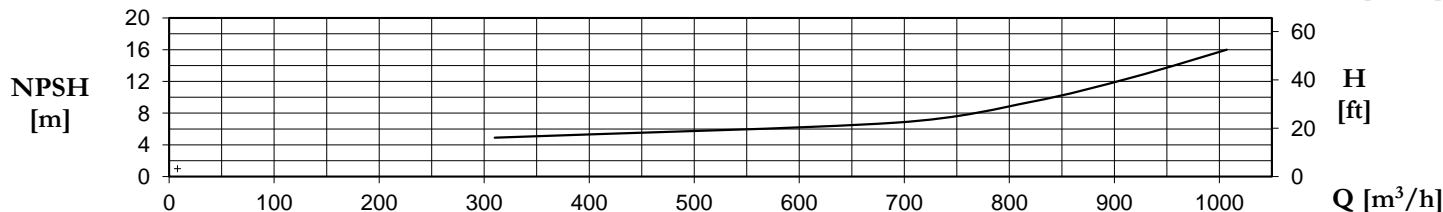
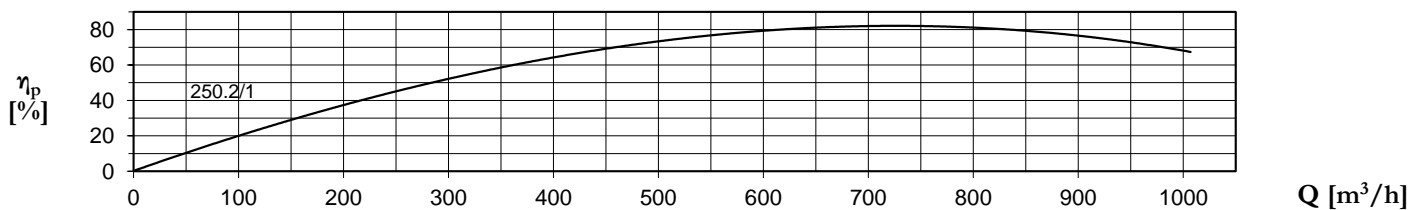
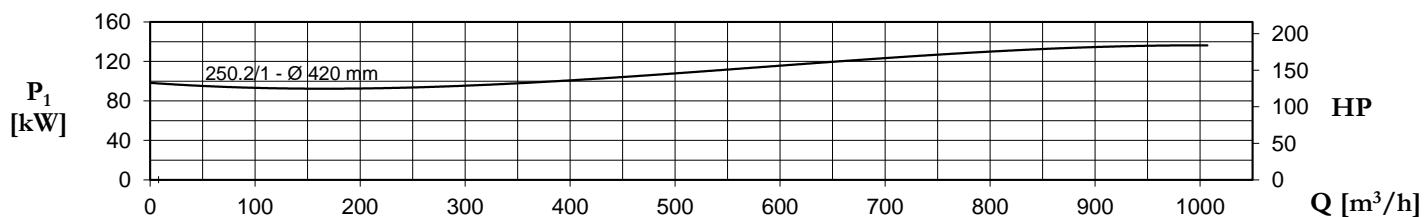
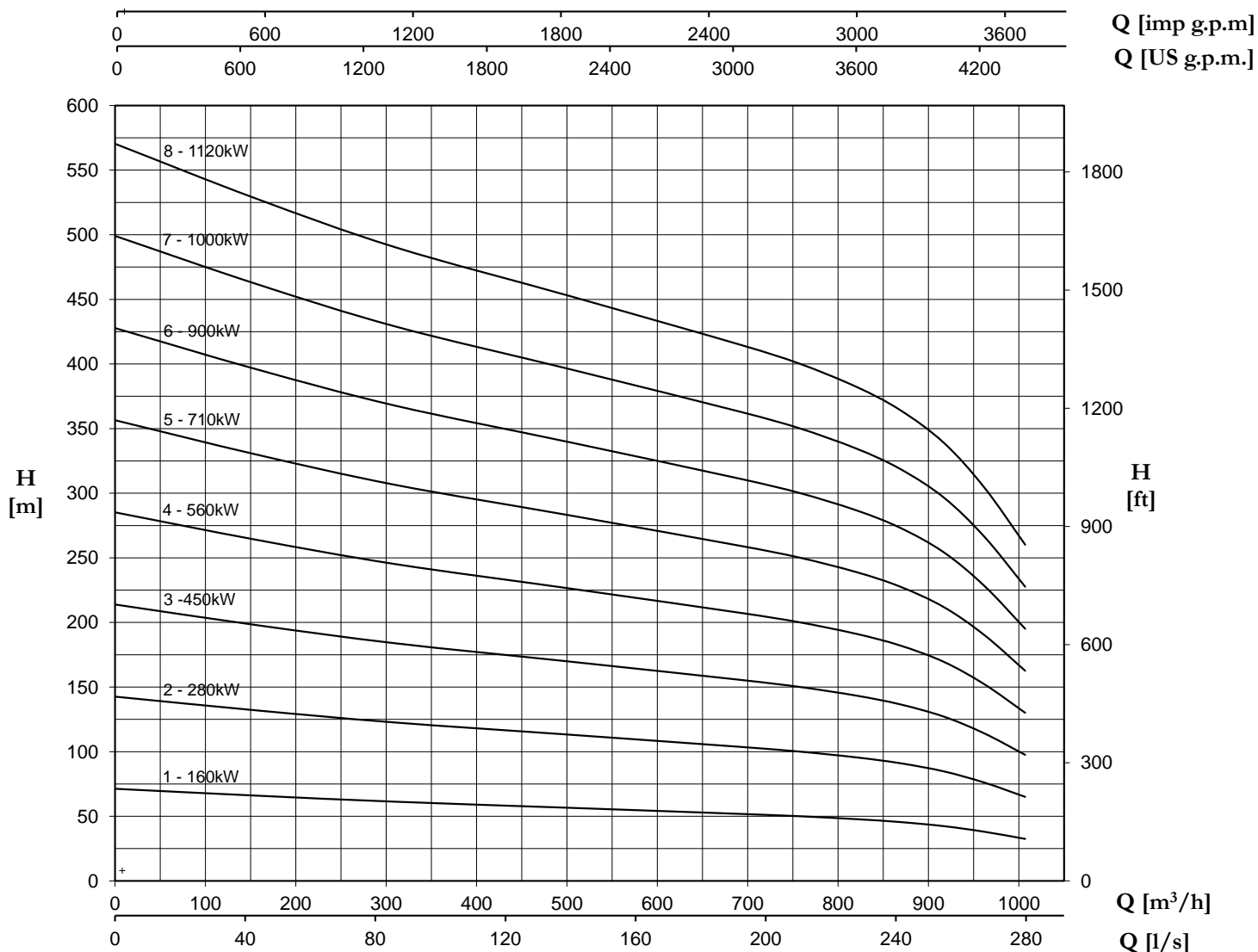
1480 r.p.m.



Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 250.2

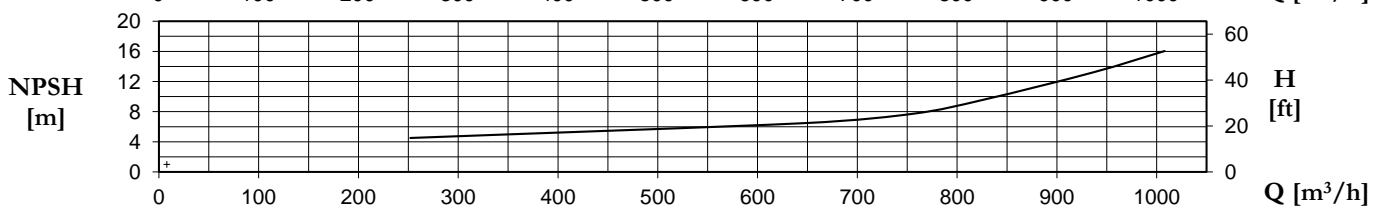
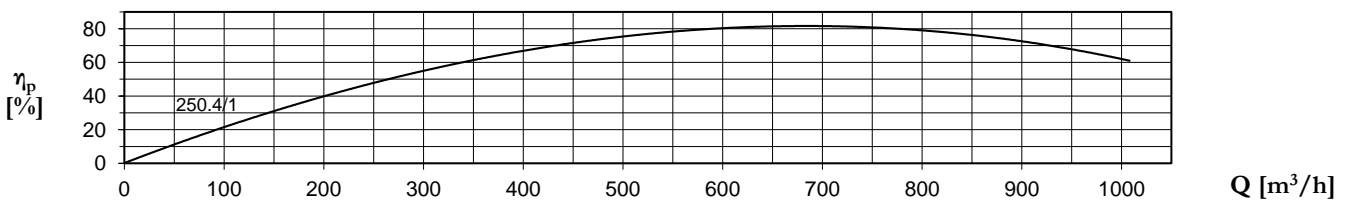
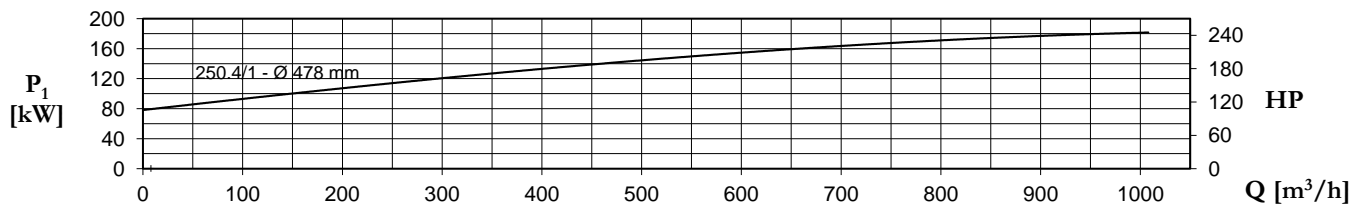
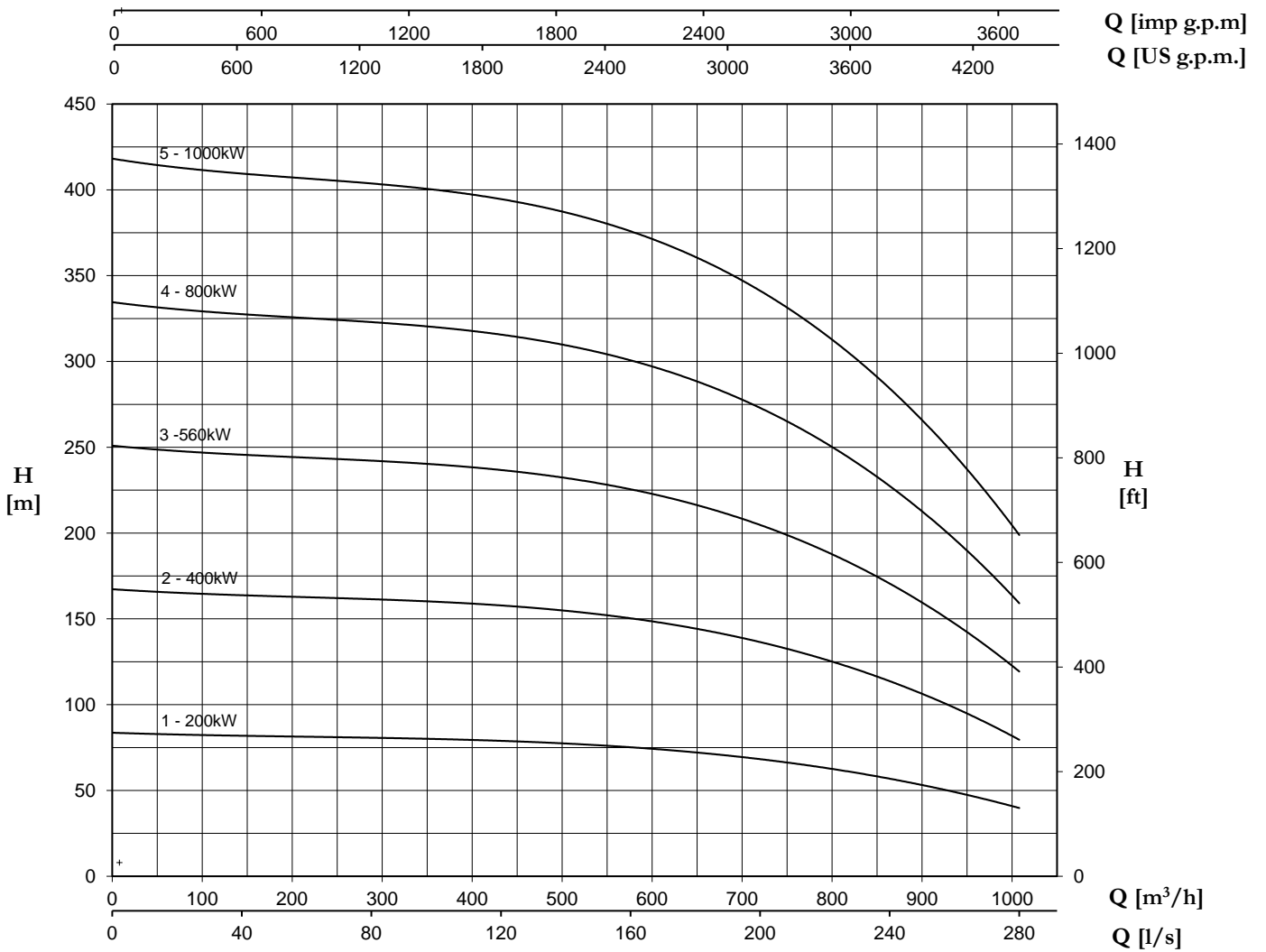
1480 r.p.m.



Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 250.4

1480 r.p.m.

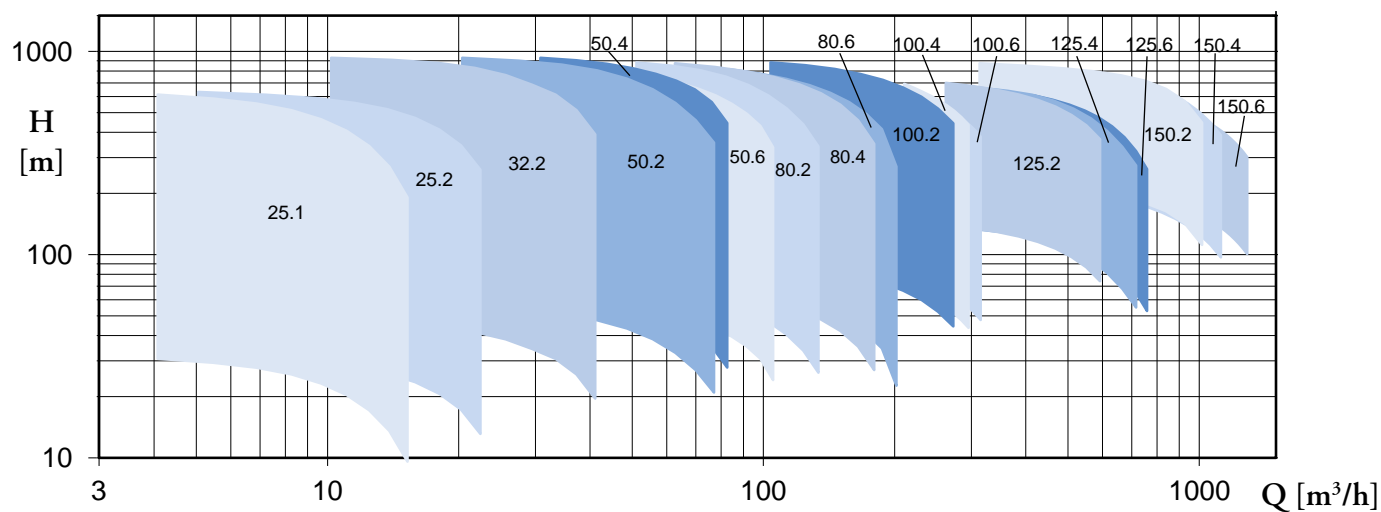


Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

Curve  
prestazionali per  
linea di prodotto  
3000 rpm

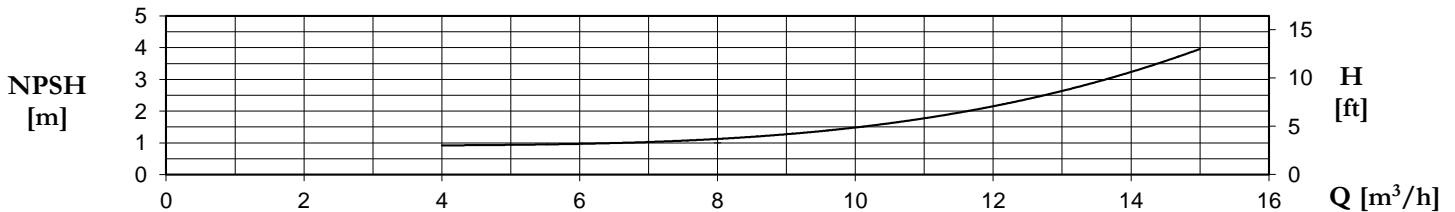
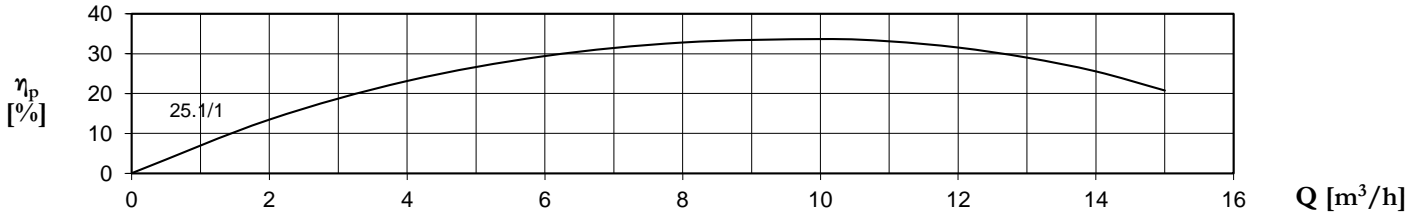
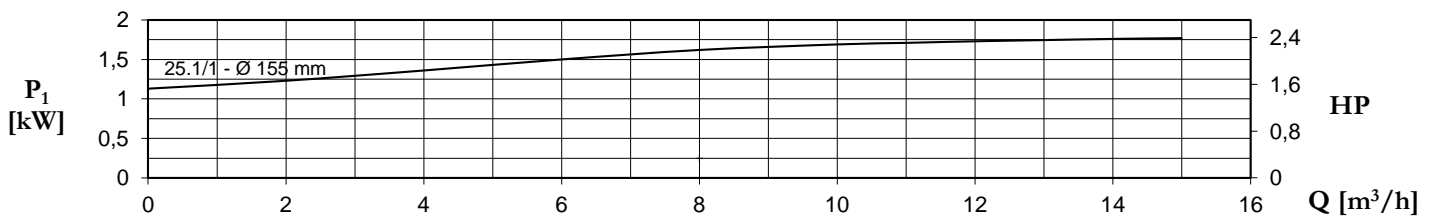
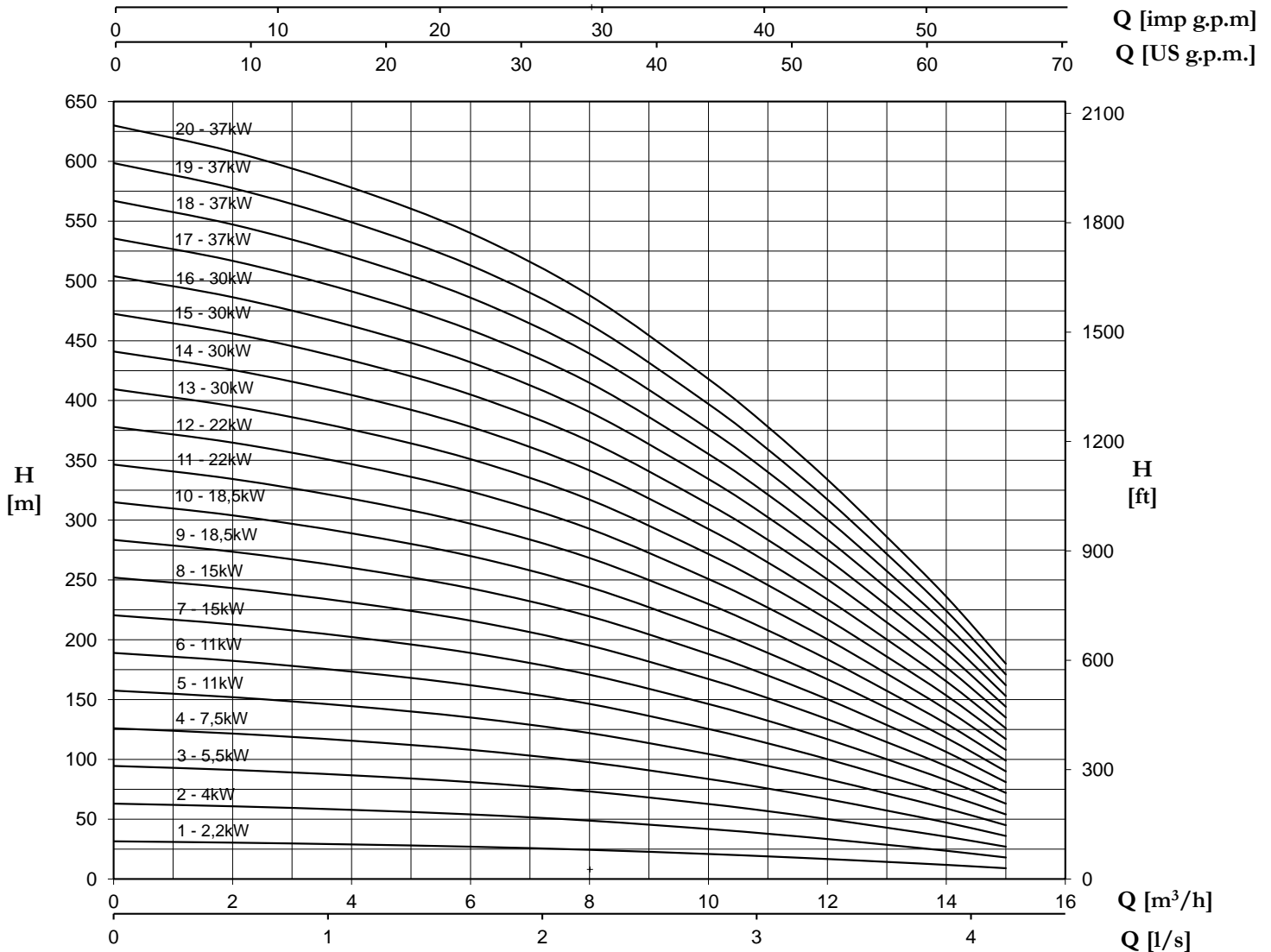
Performance  
curves for  
product line  
3000 rpm

3000 r.p.m.



# HP 25.1 INOX

2900 r.p.m.

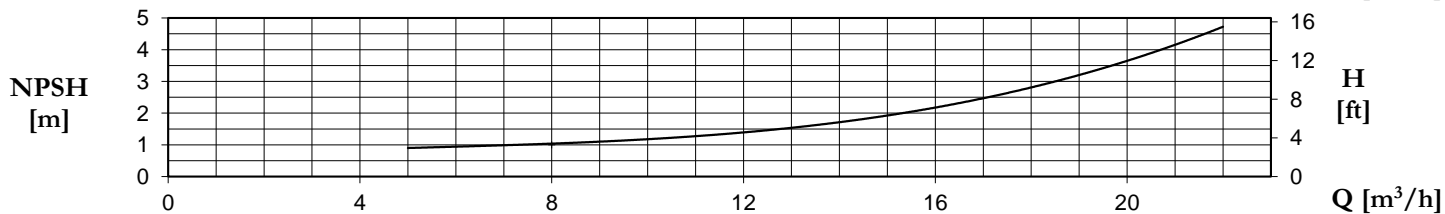
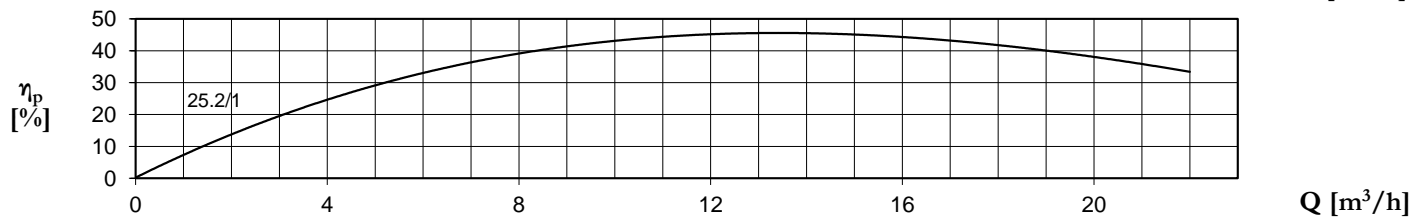
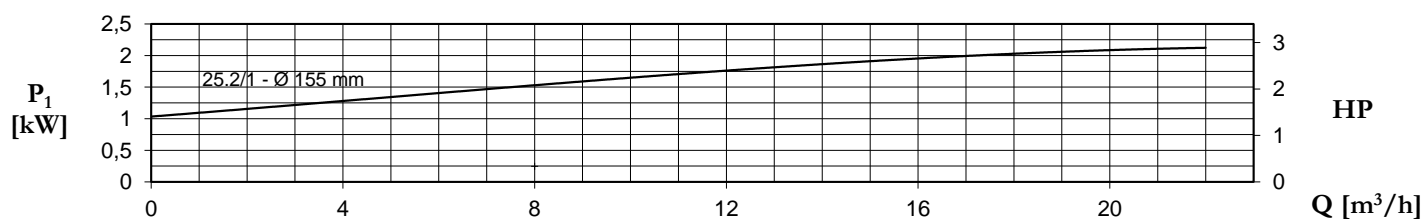
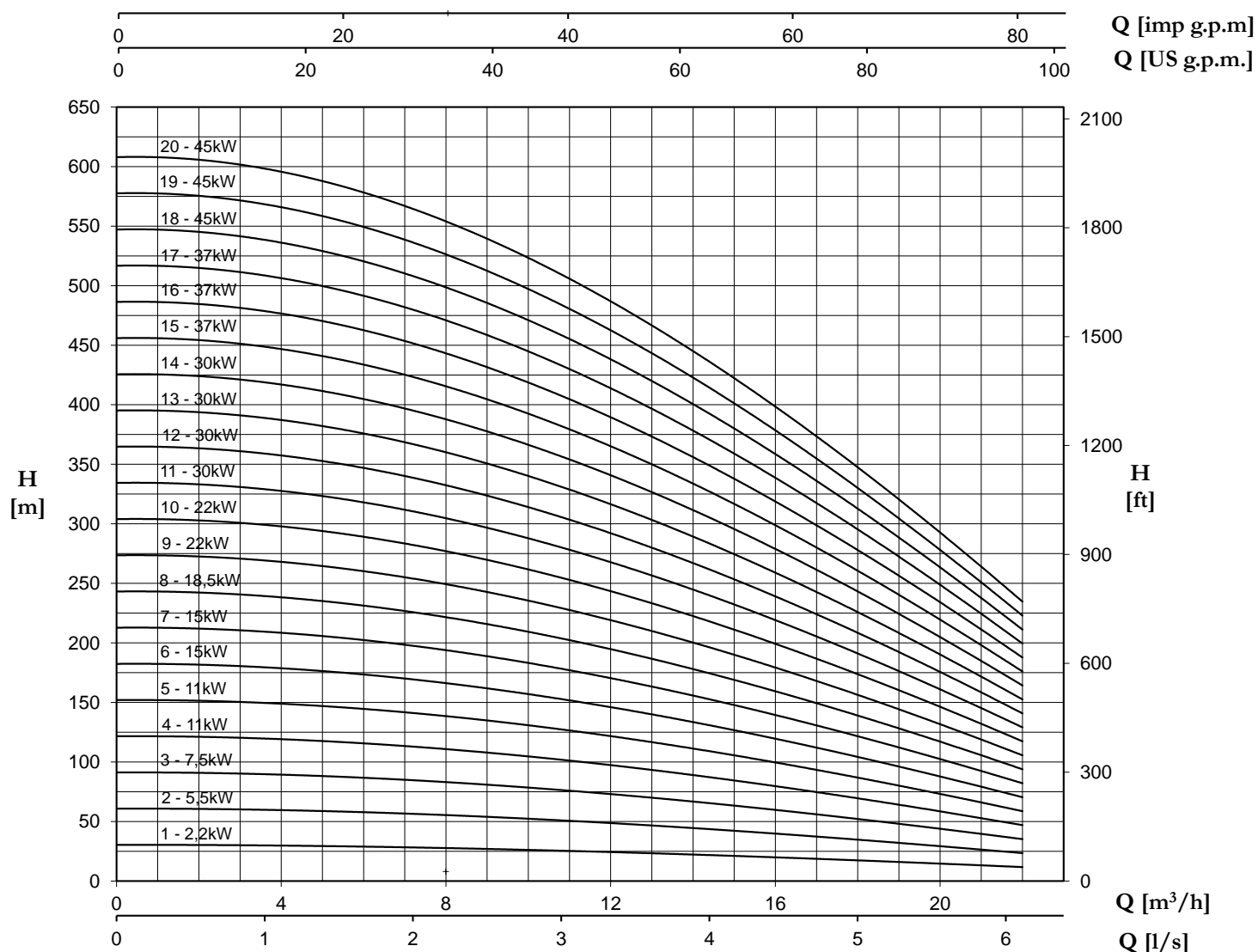


Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000



# HP 25.2

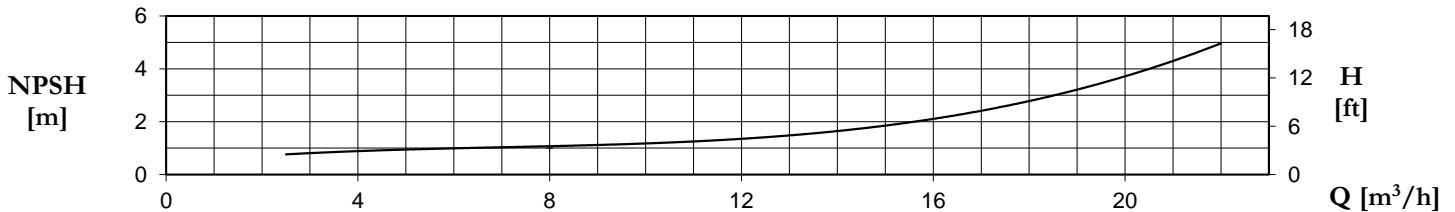
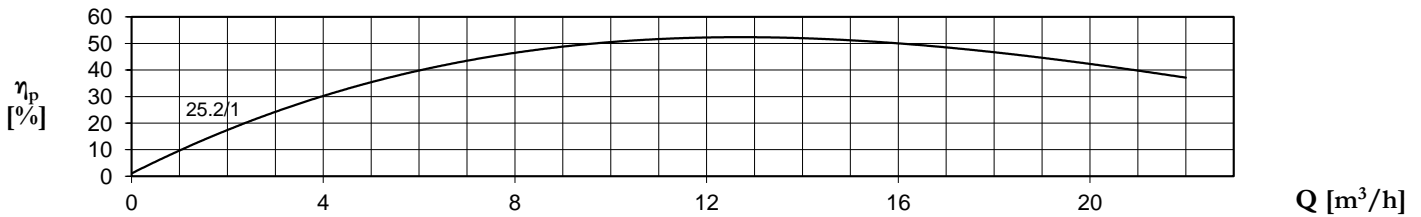
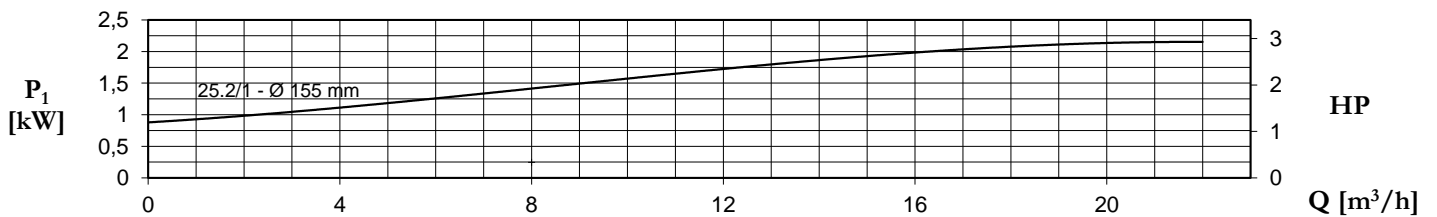
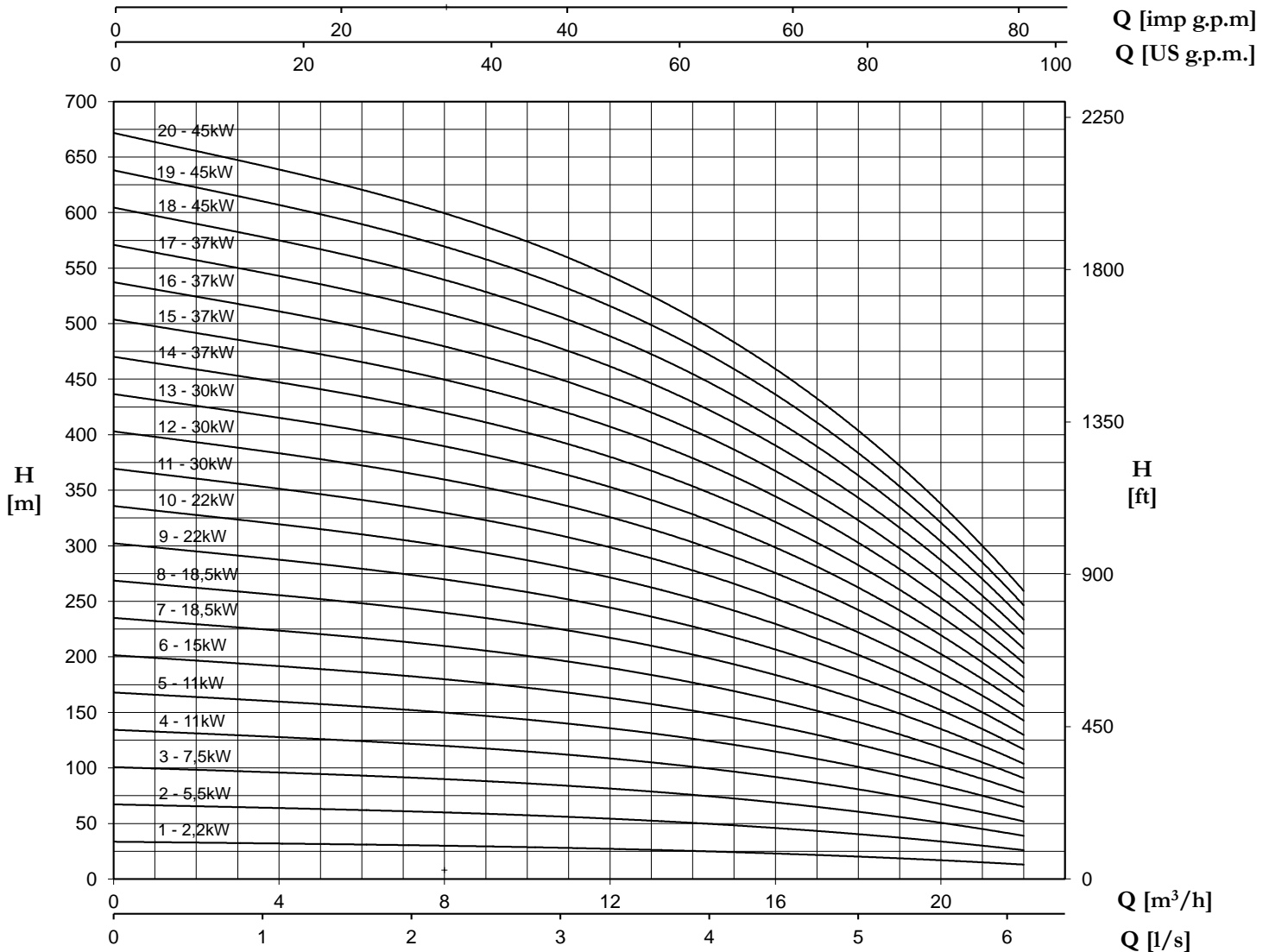
2900 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 25.2 INOX

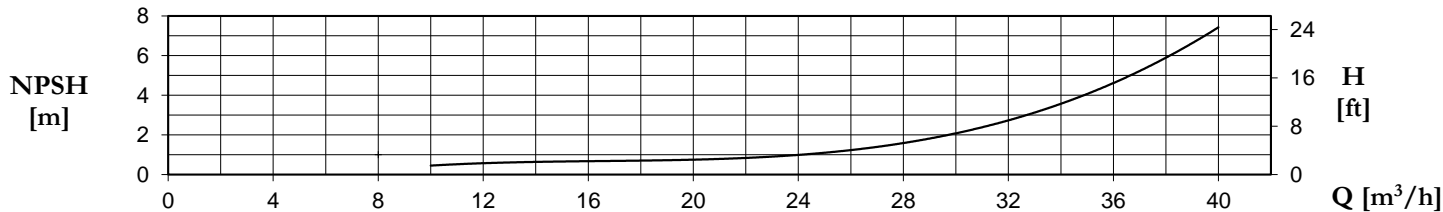
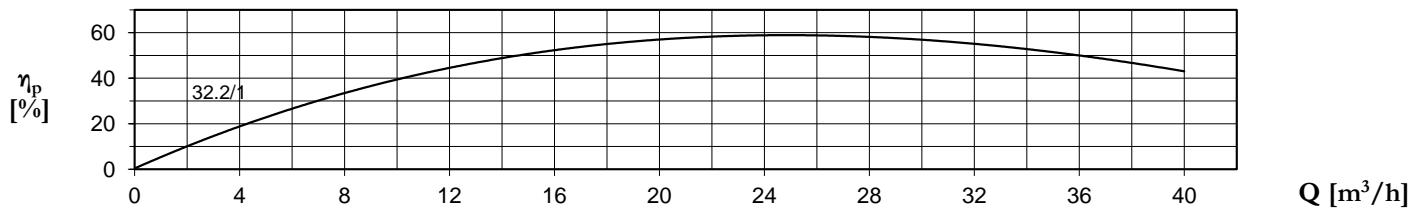
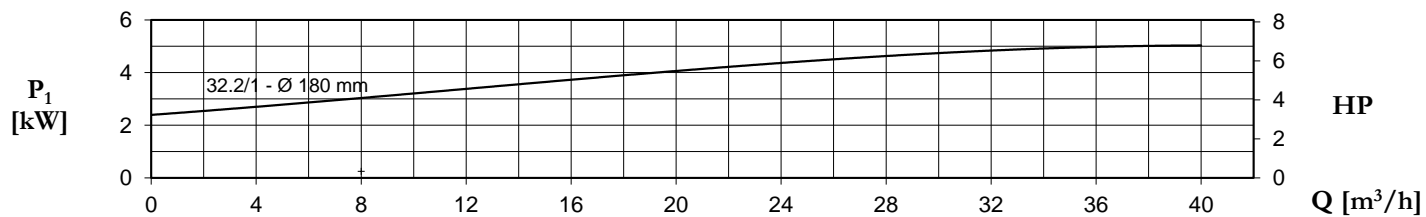
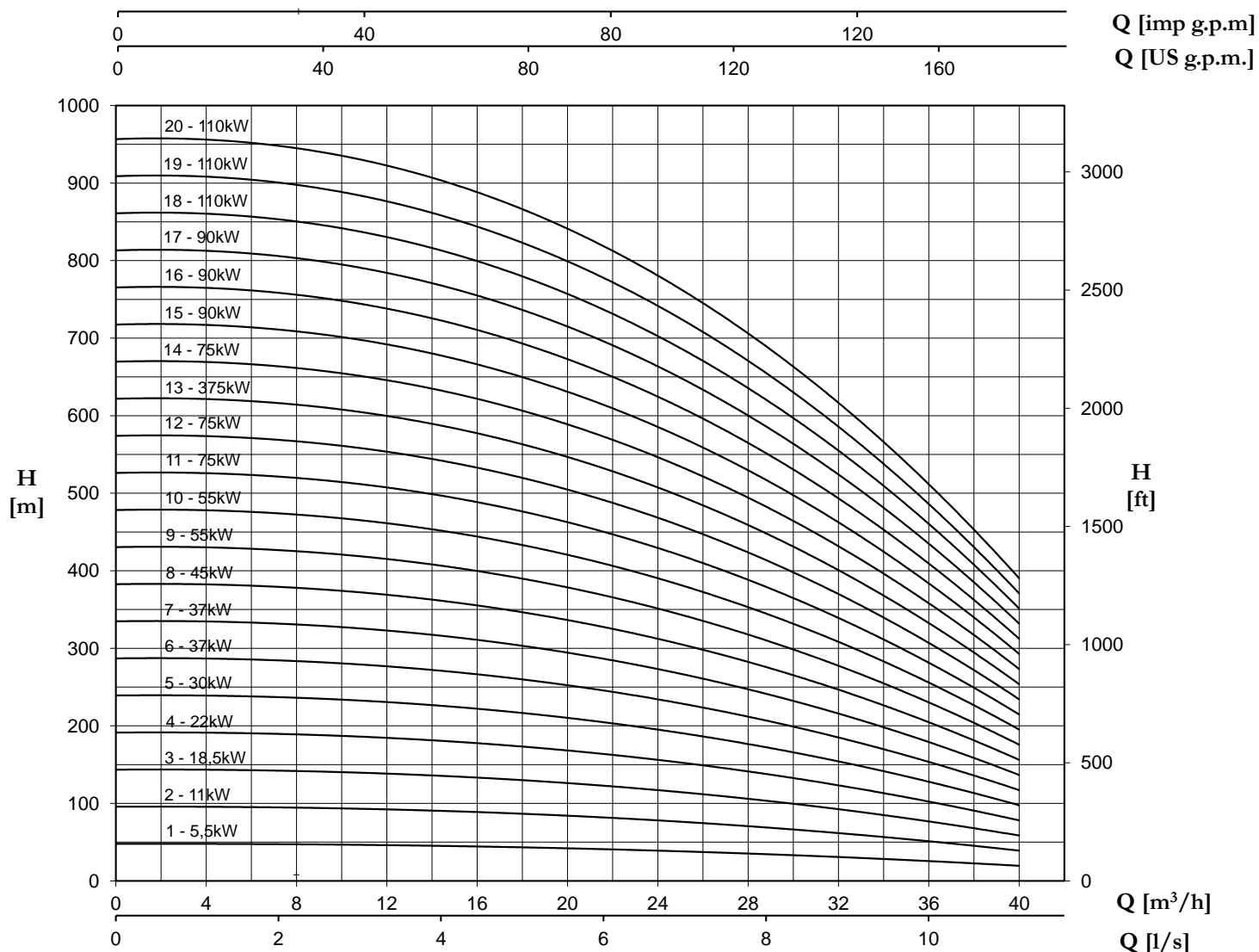
2900 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 32.2

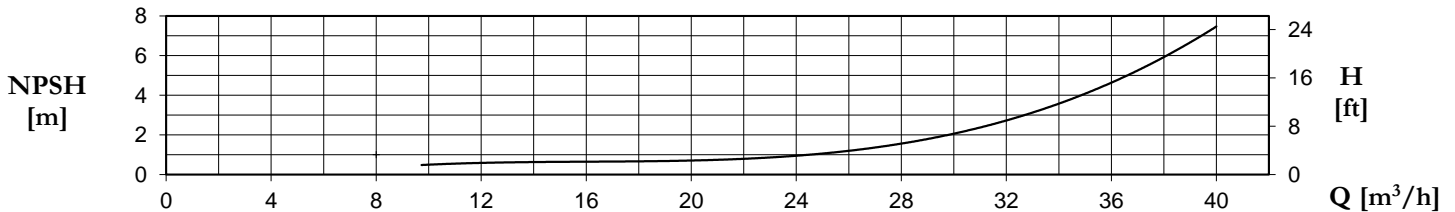
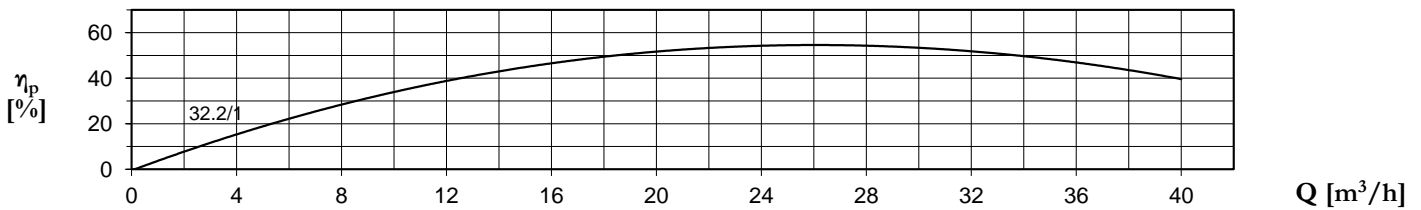
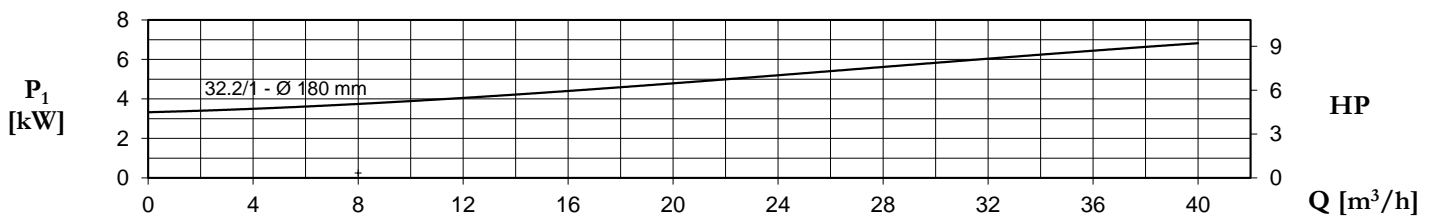
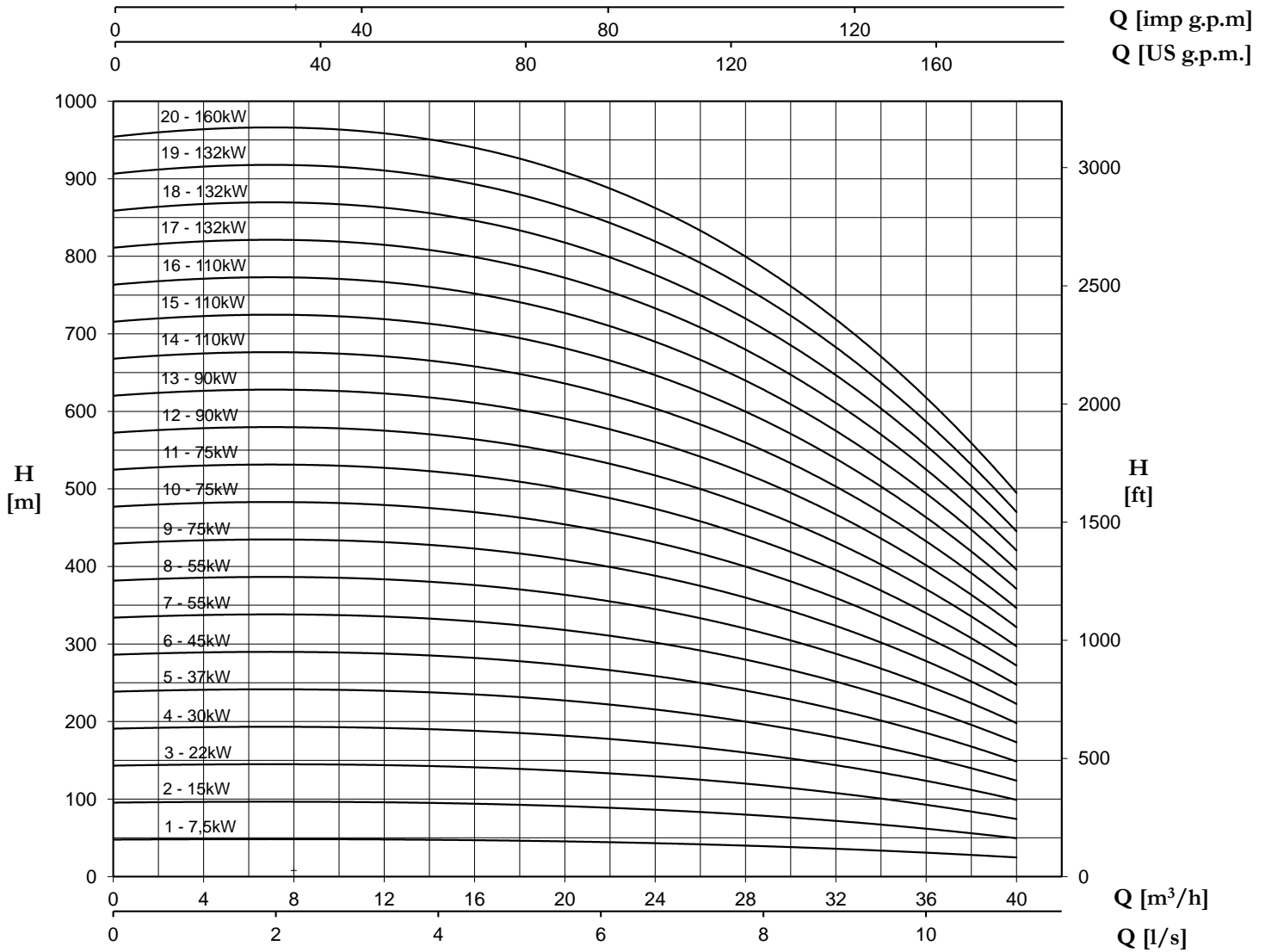
2940 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 32.2 INOX

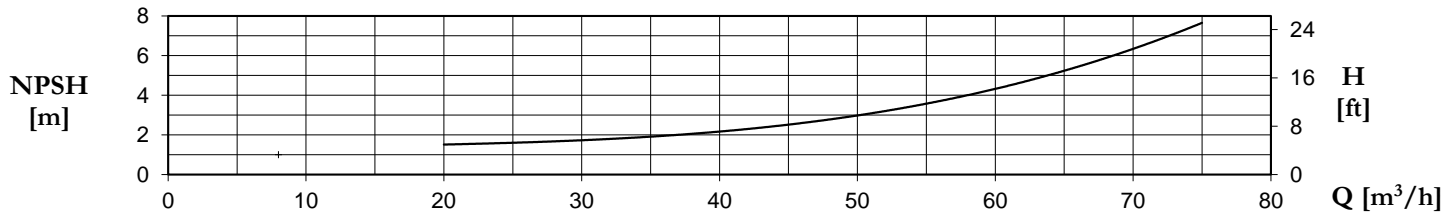
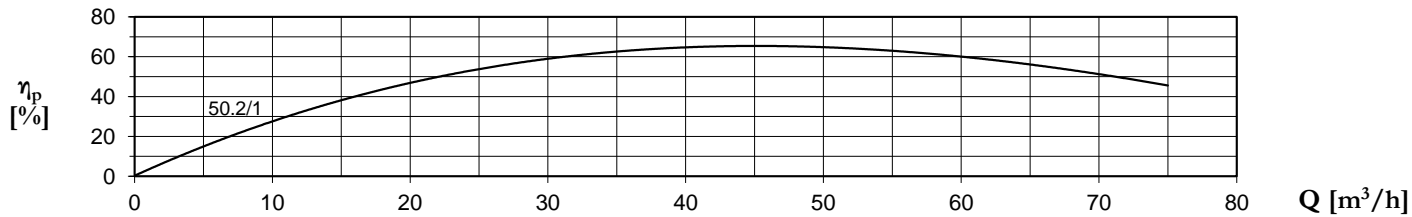
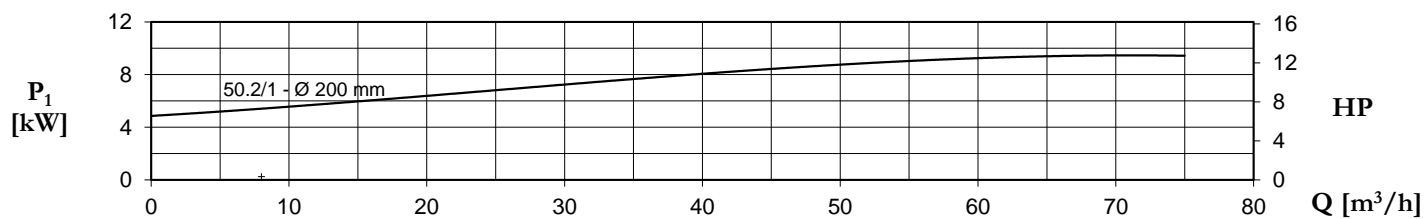
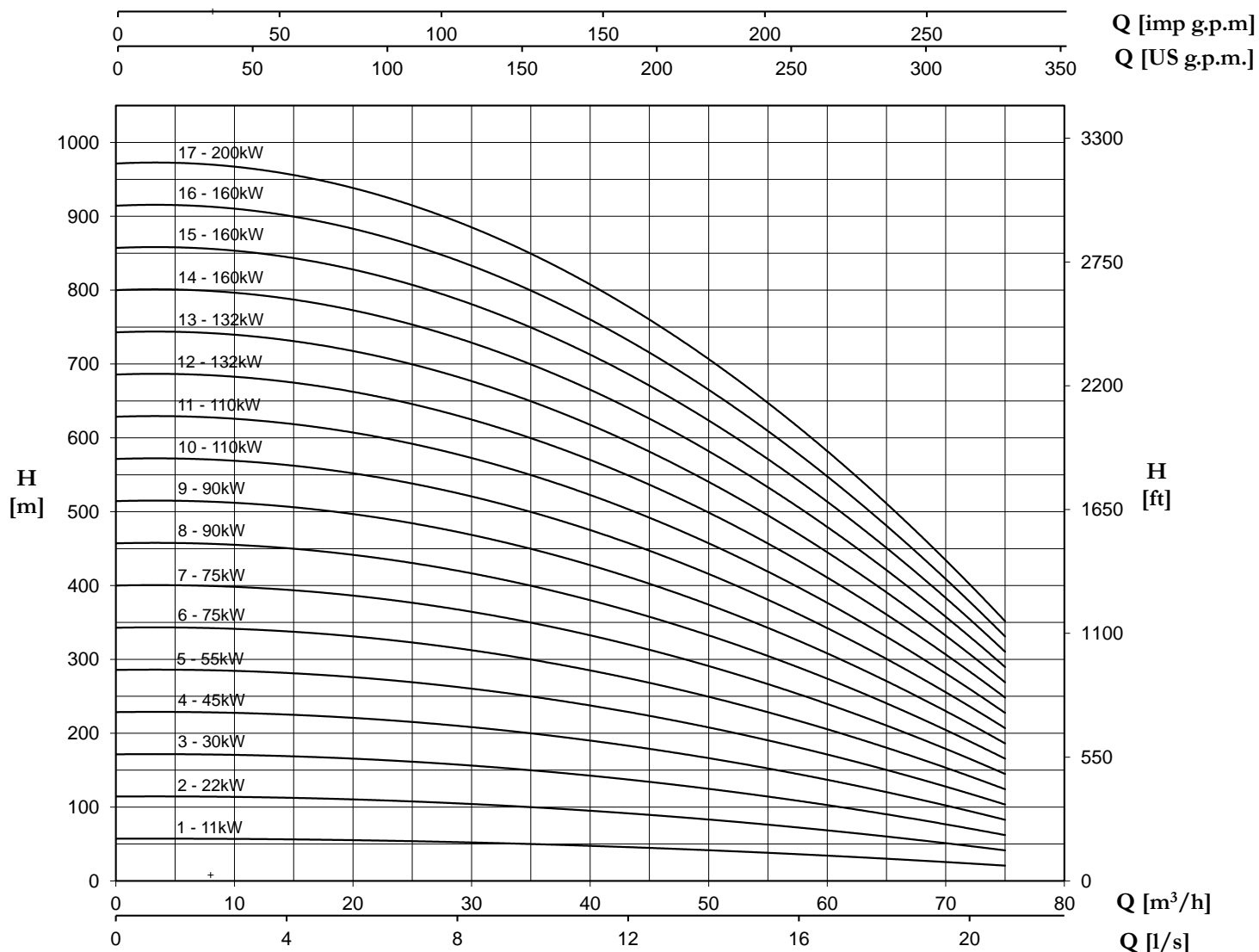
2940 r.p.m.



Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 50.2

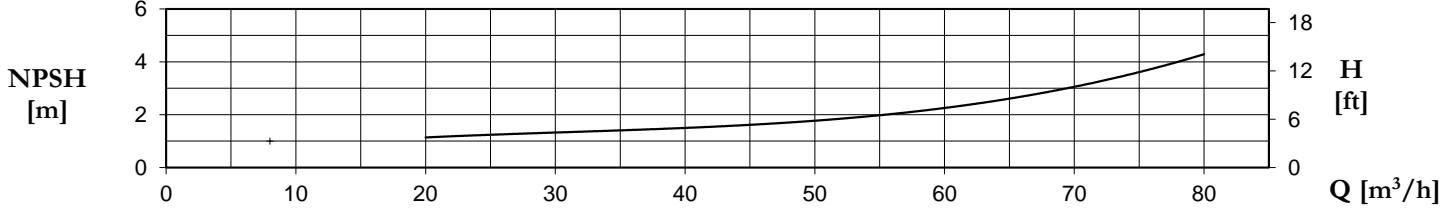
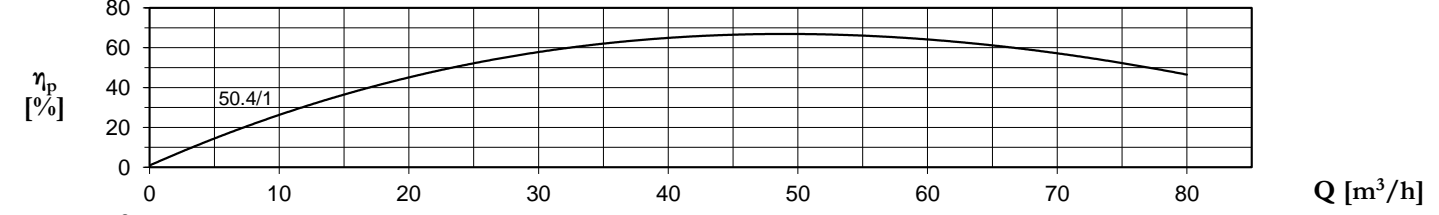
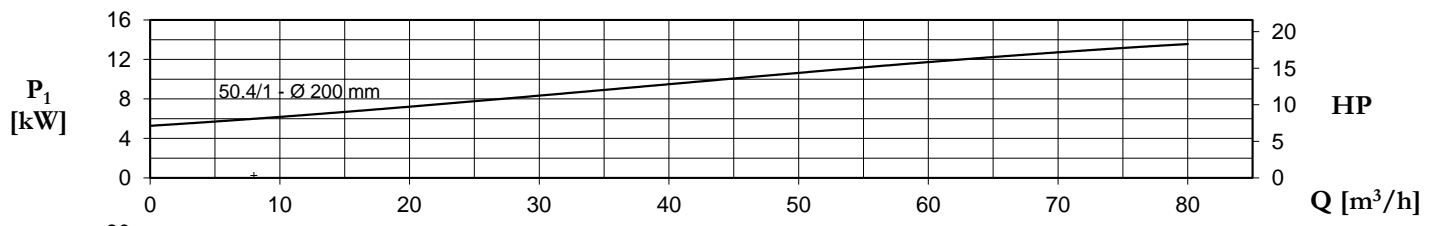
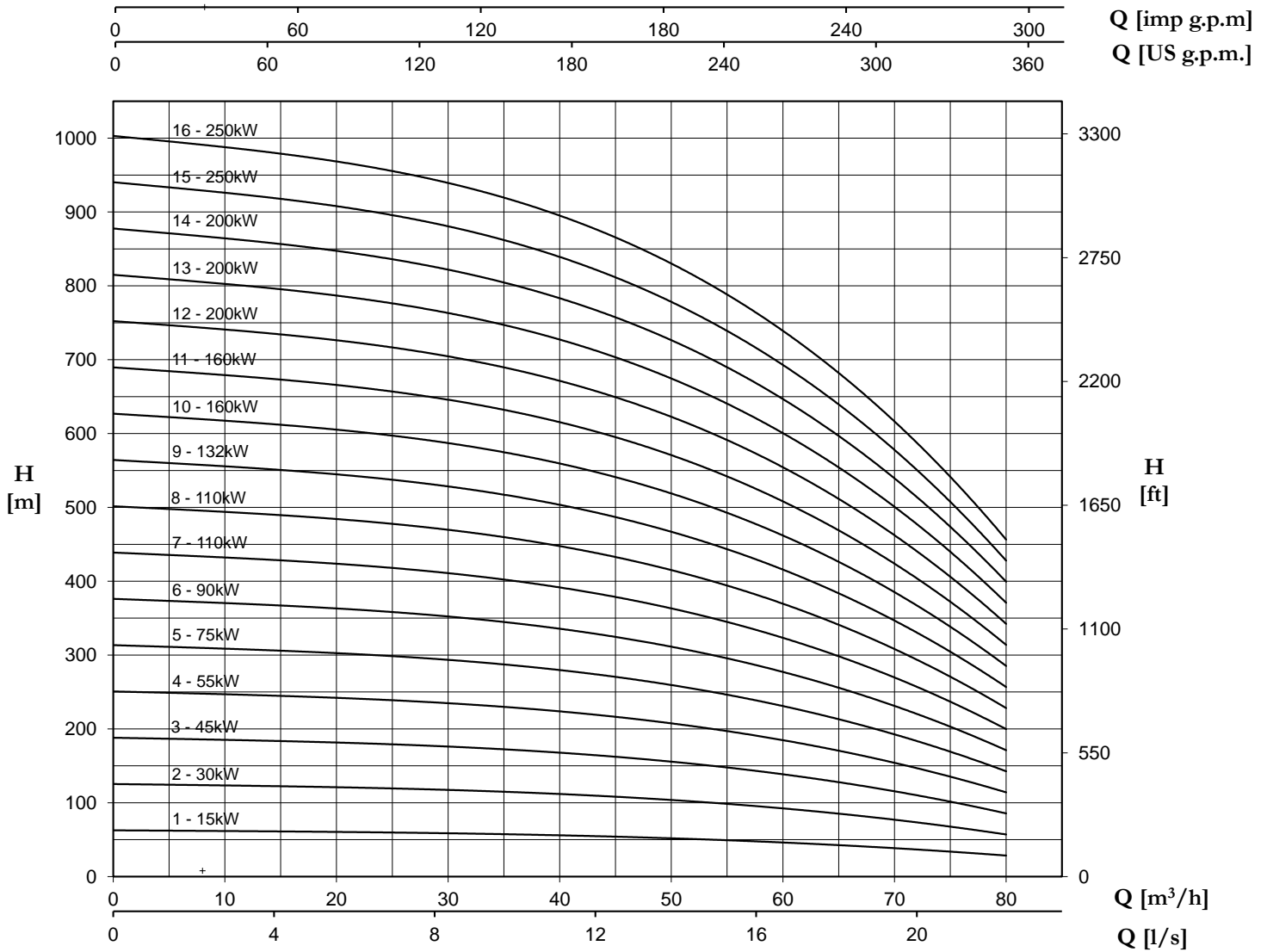
2970 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 50.4

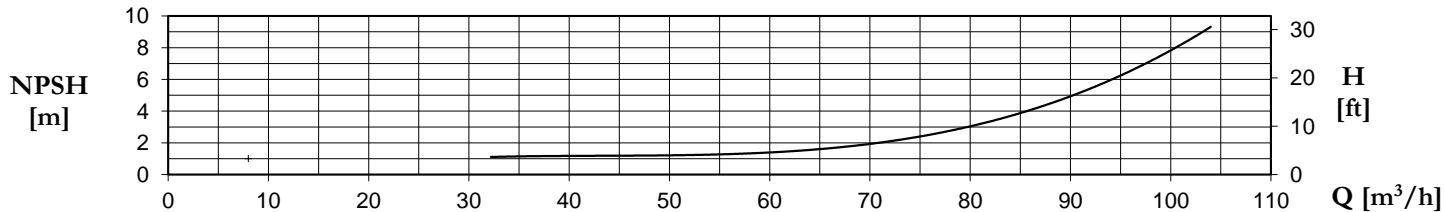
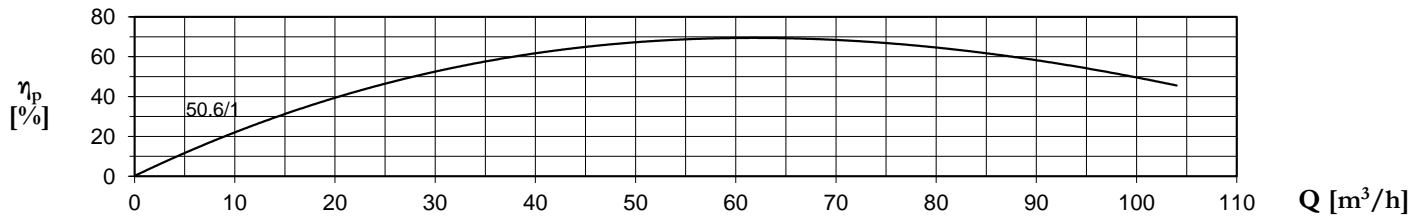
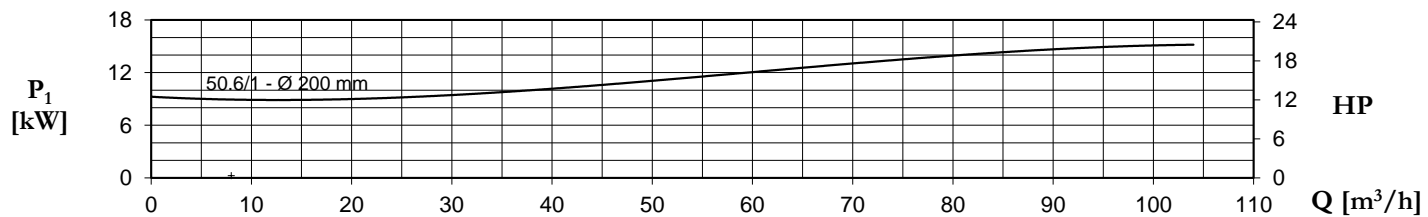
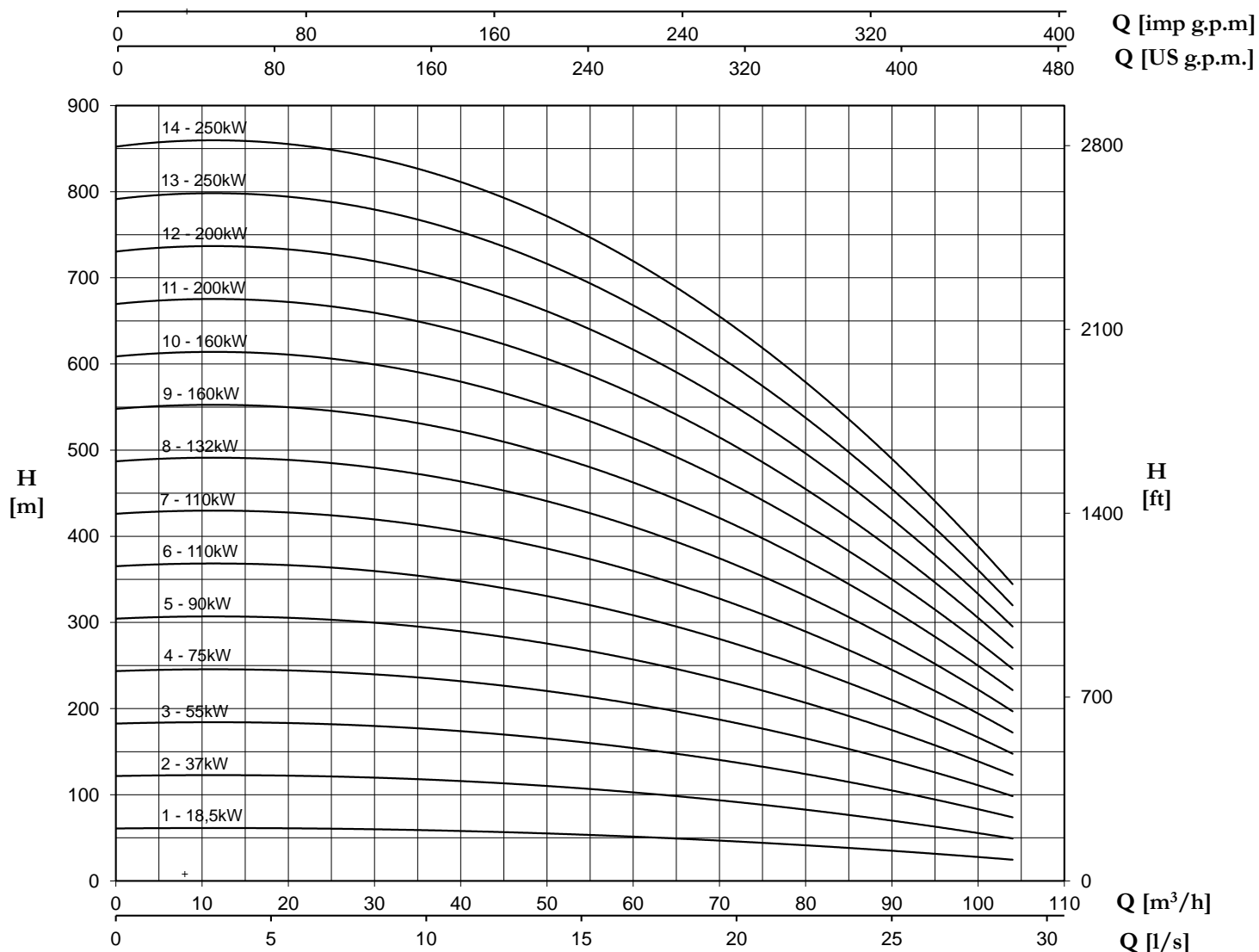
2970 r.p.m.



Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 50.6

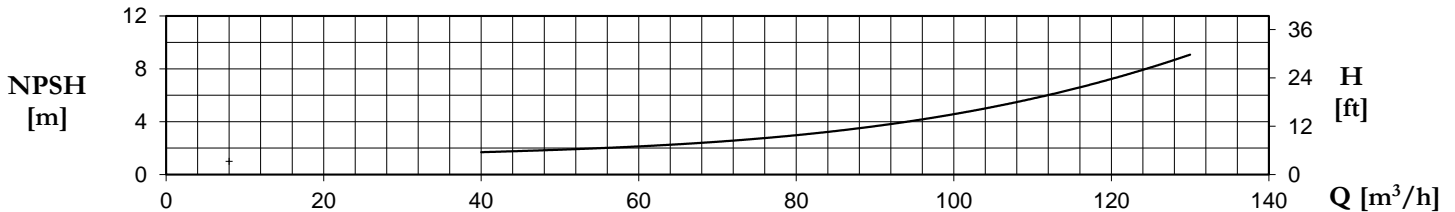
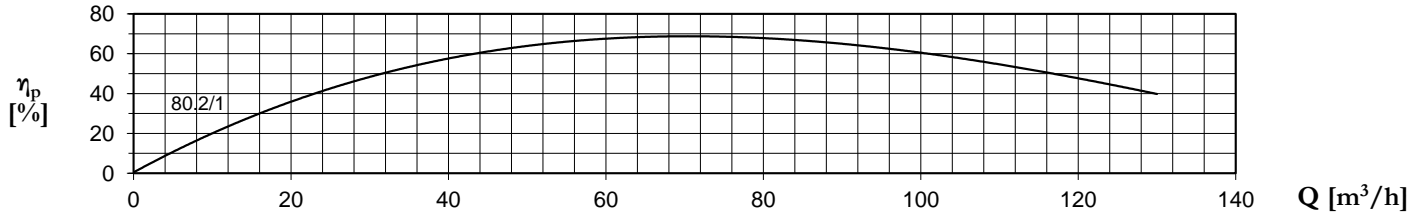
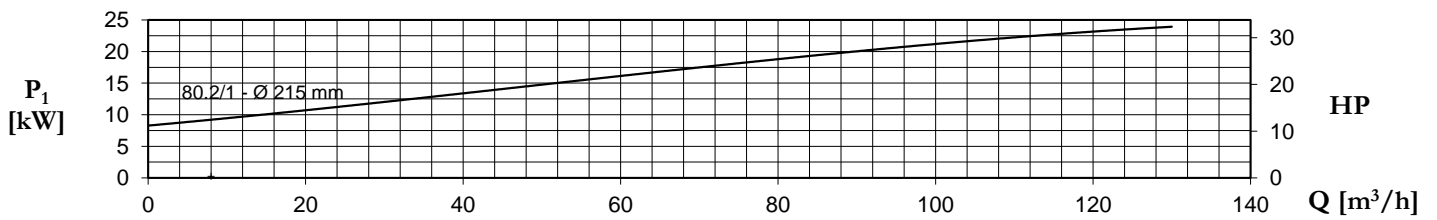
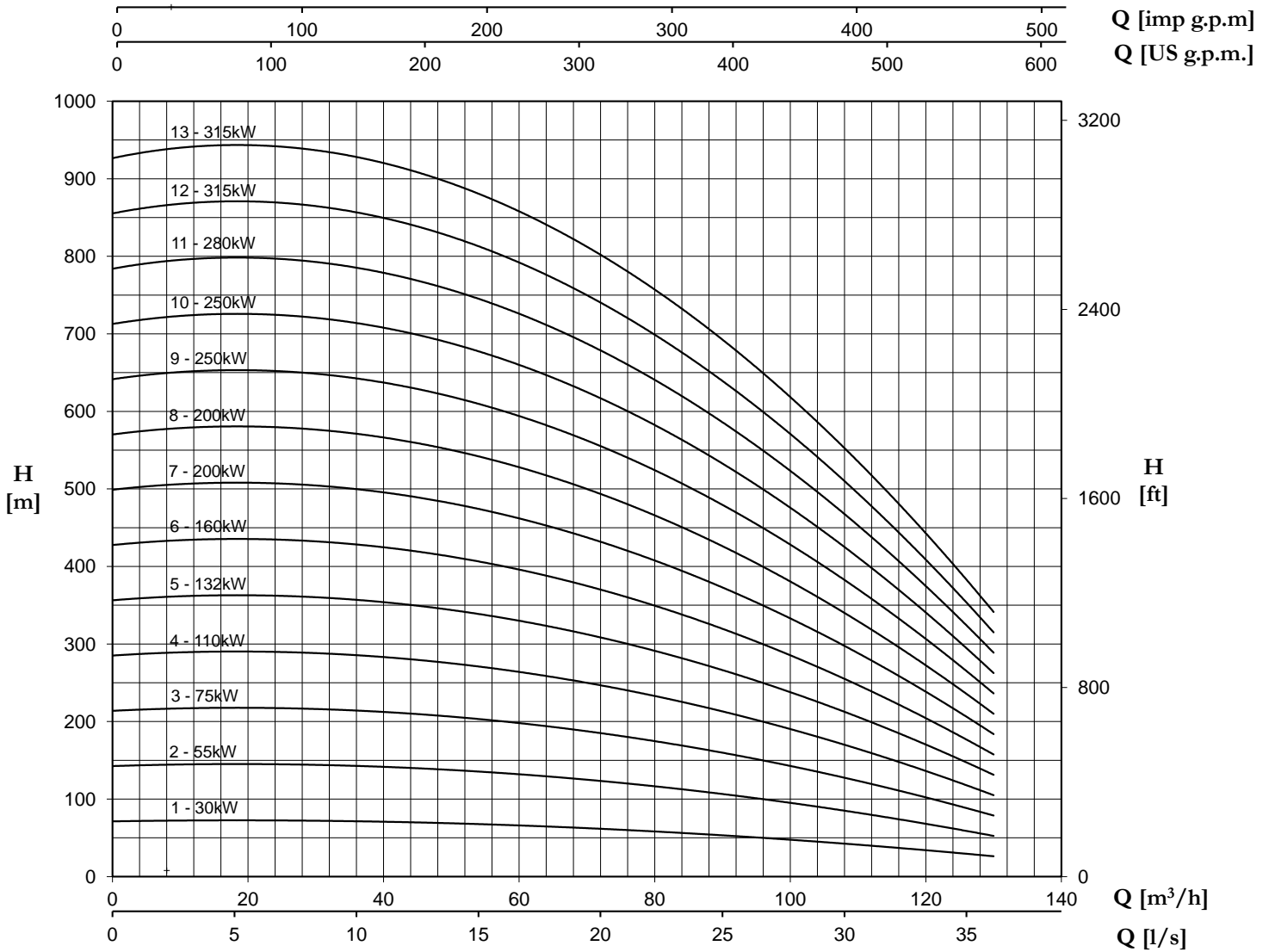
2970 r.p.m.



Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 80.2

2970 r.p.m.

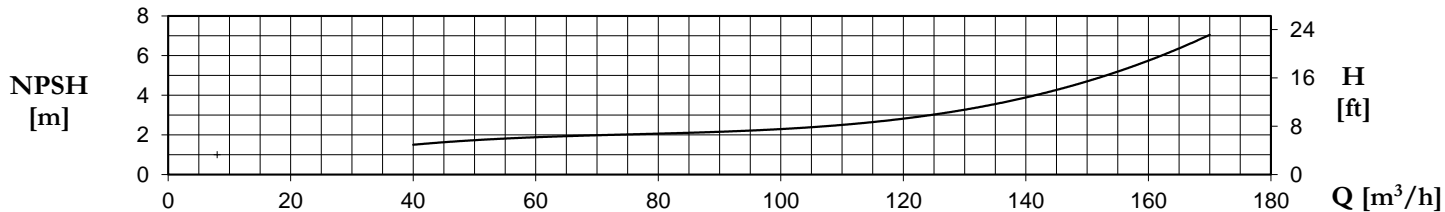
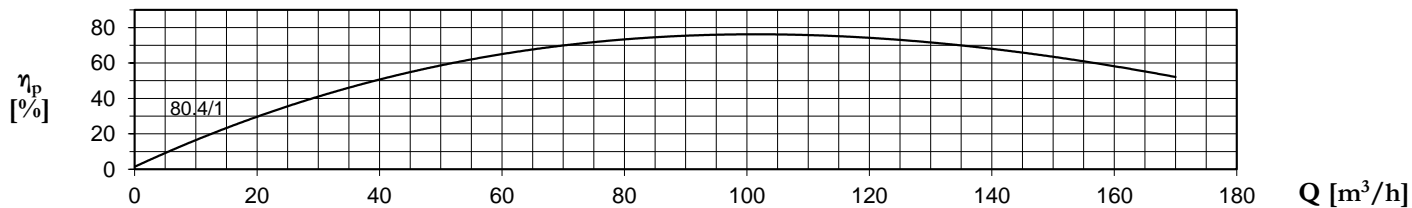
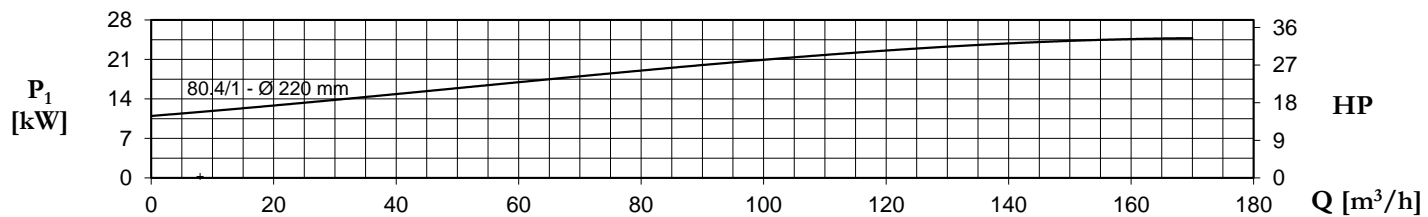
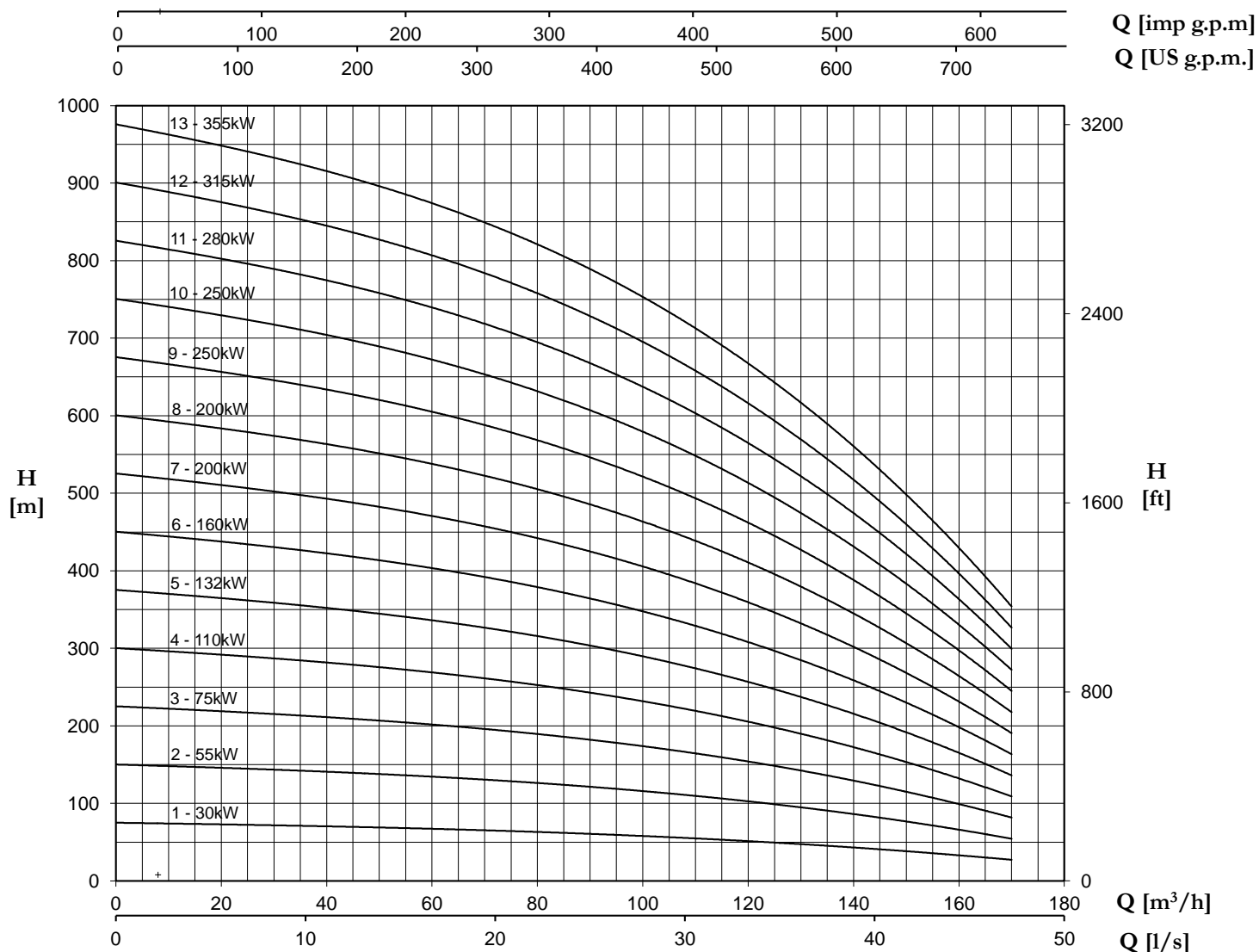


Valid for:  $\rho=1$  (kg/dm³), viscosity  $\leq 20$  mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000



# HP 80.4

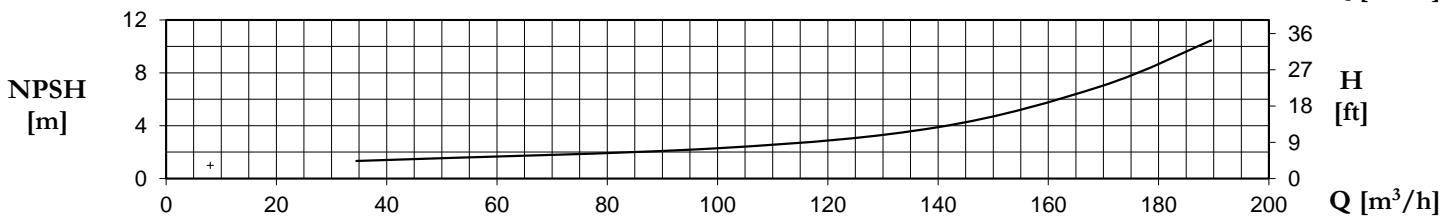
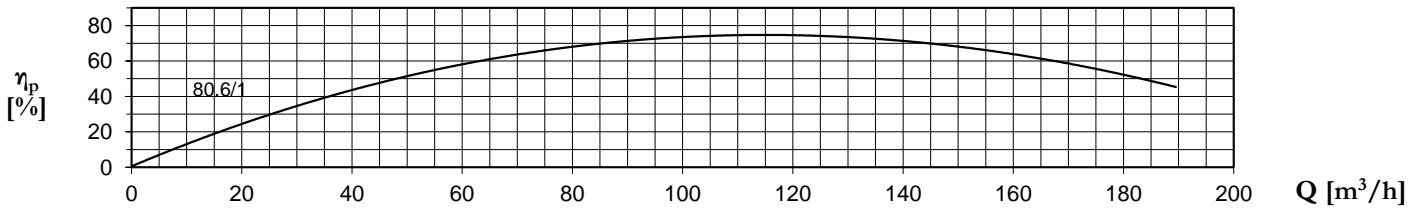
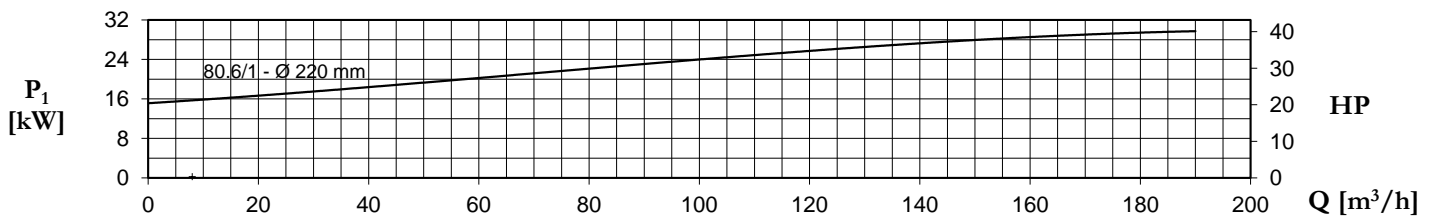
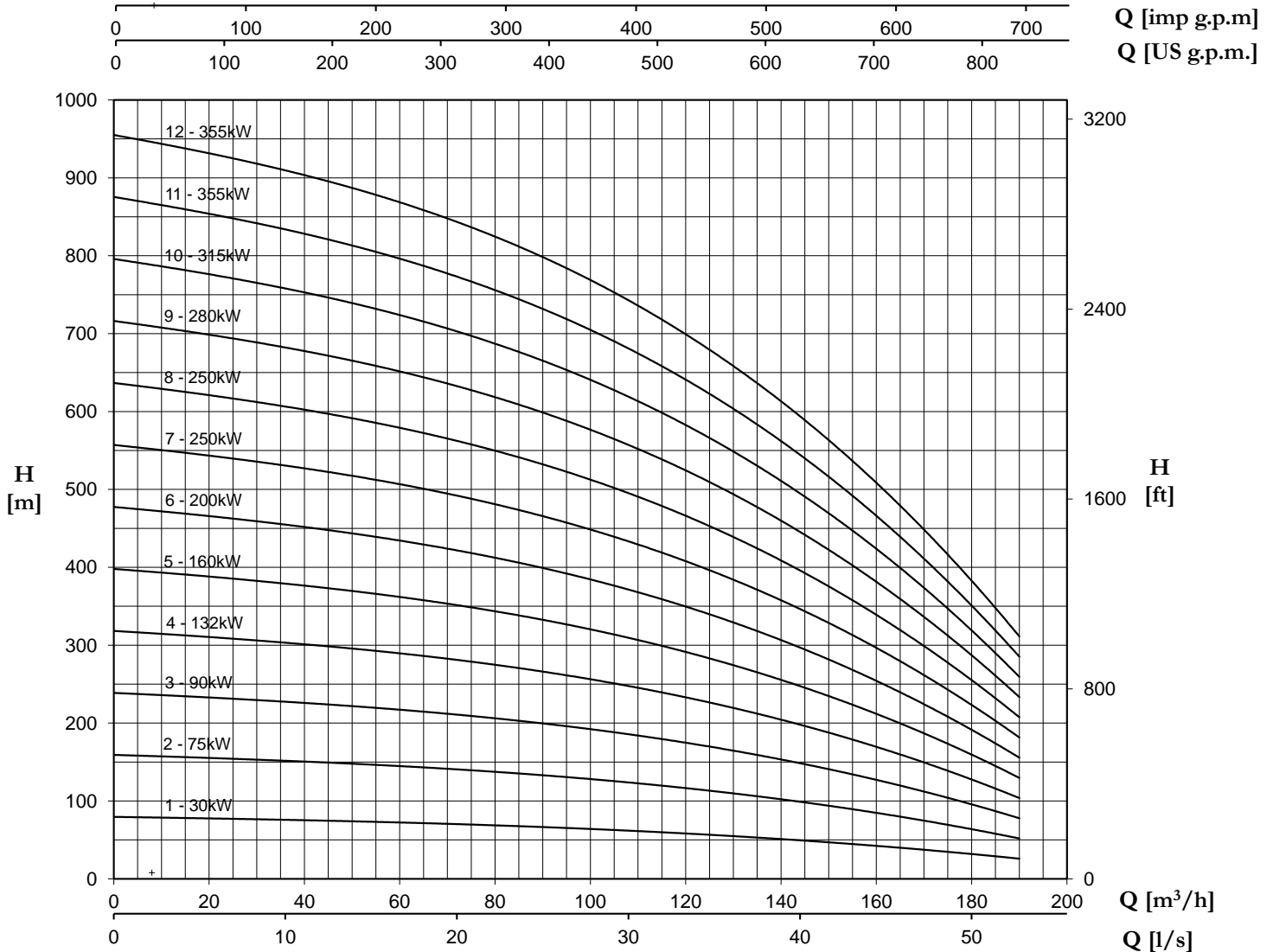
2970 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 80.6

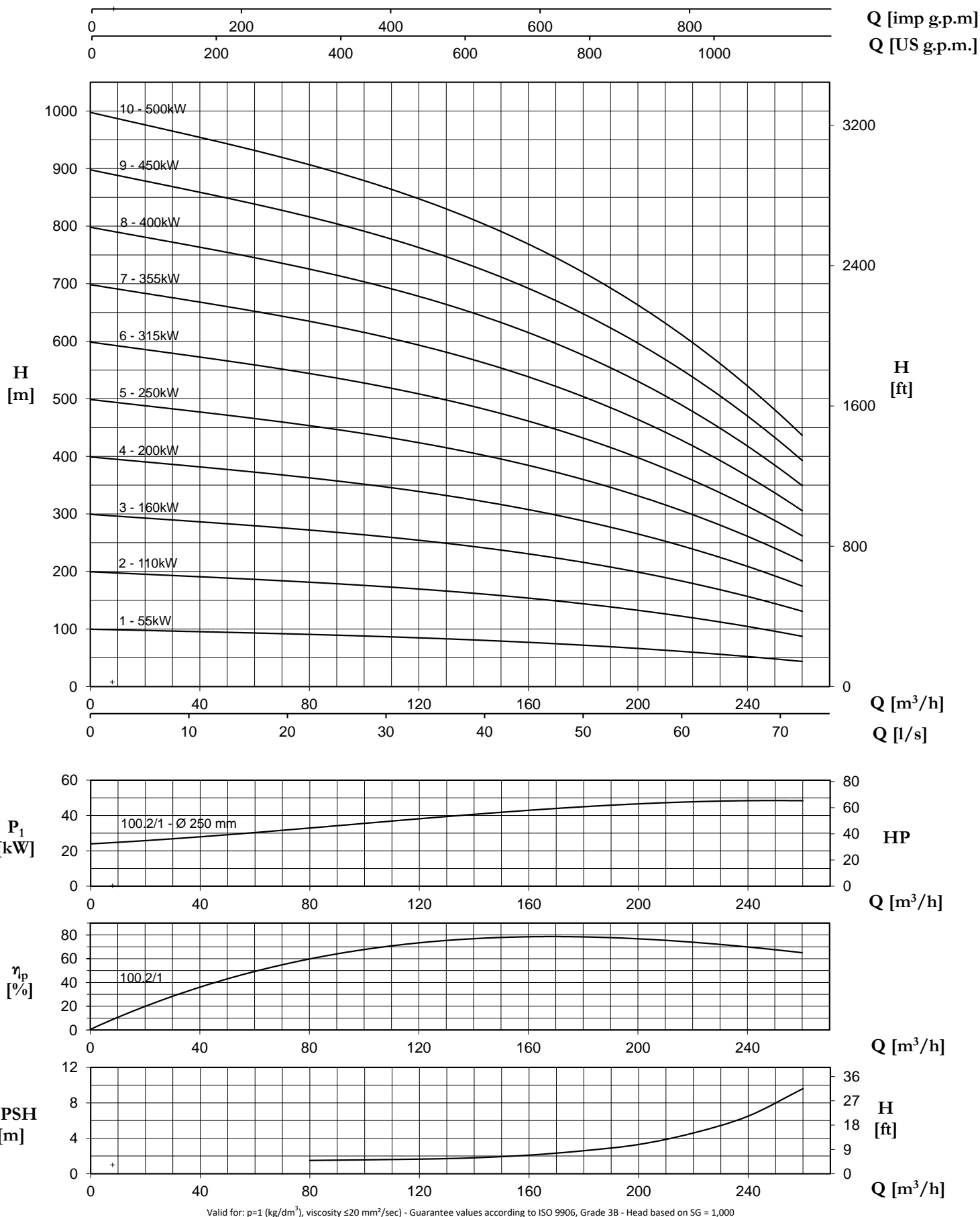
2970 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

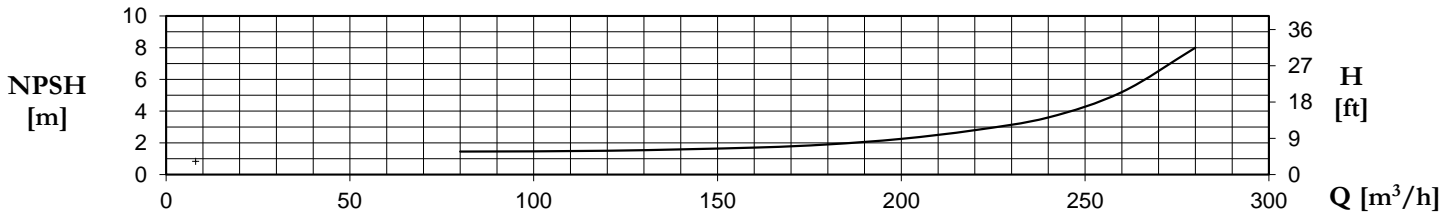
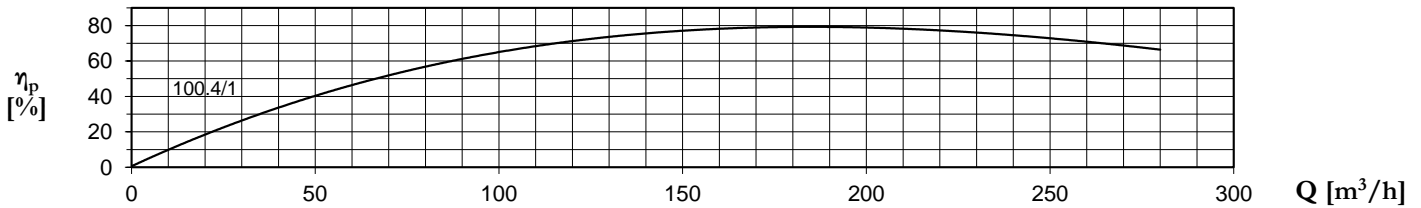
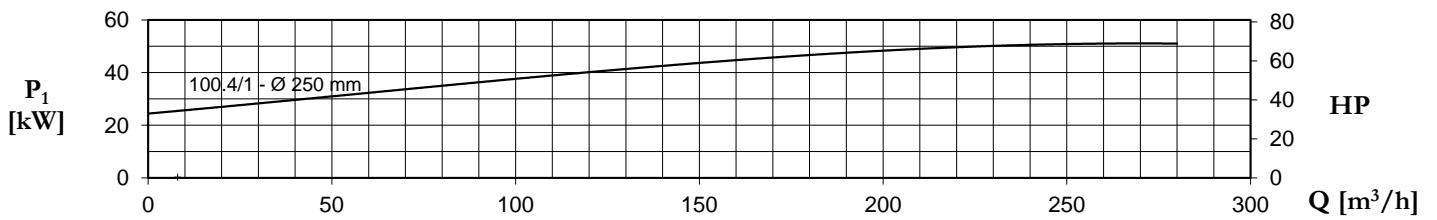
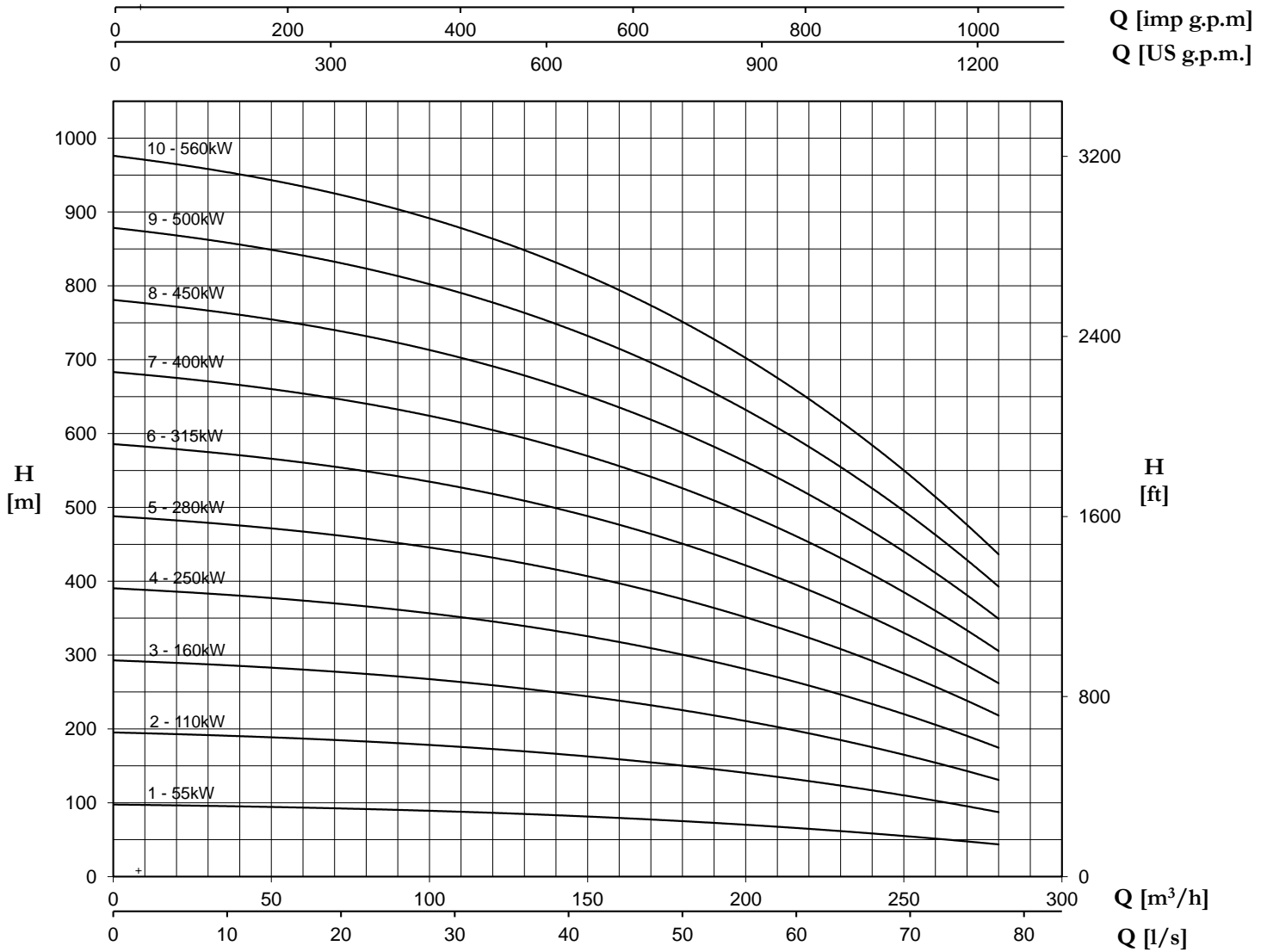
# HP 100.2

2970 r.p.m.



# HP 100.4

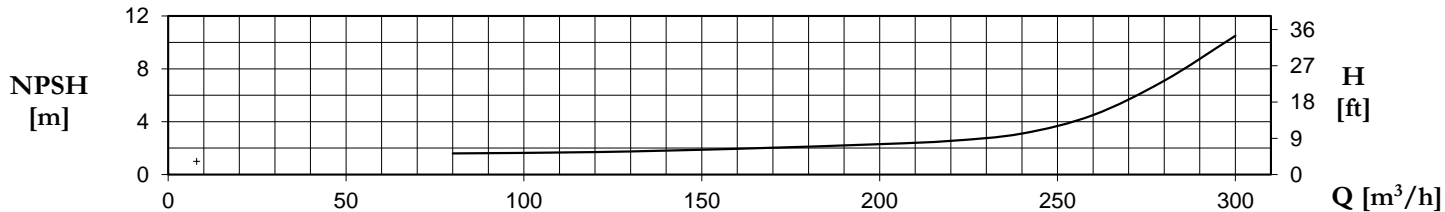
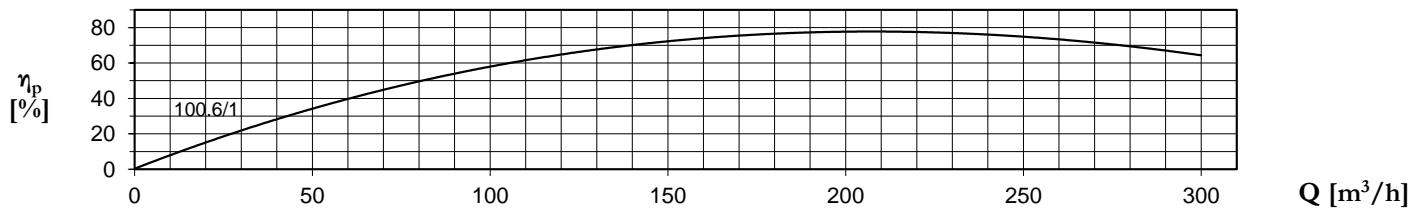
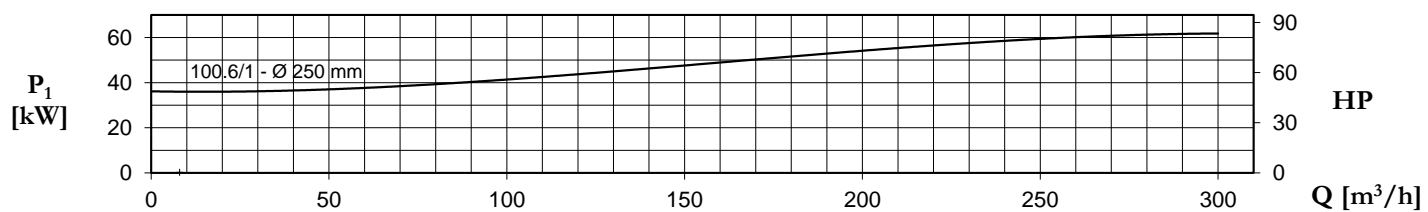
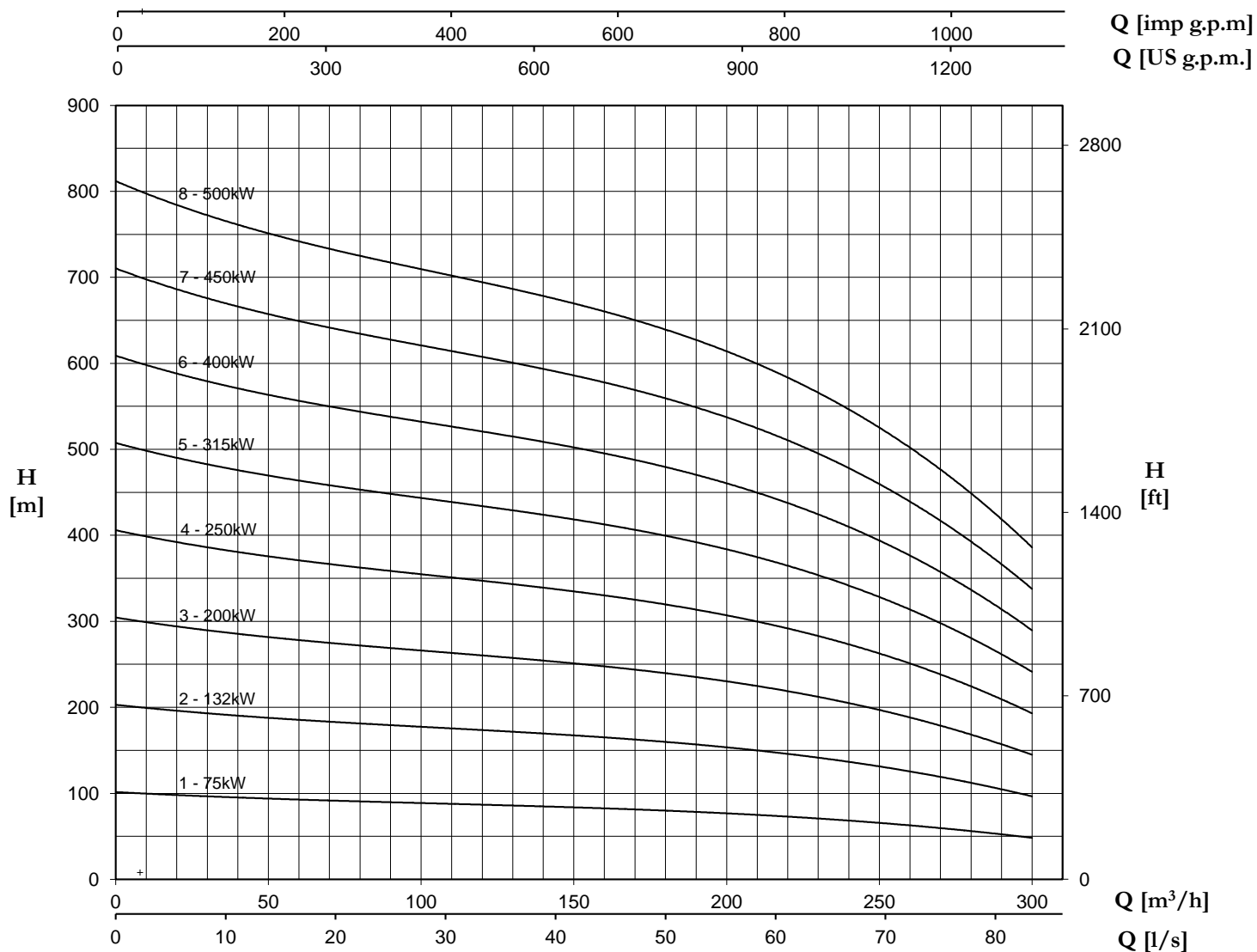
2970 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 100.6

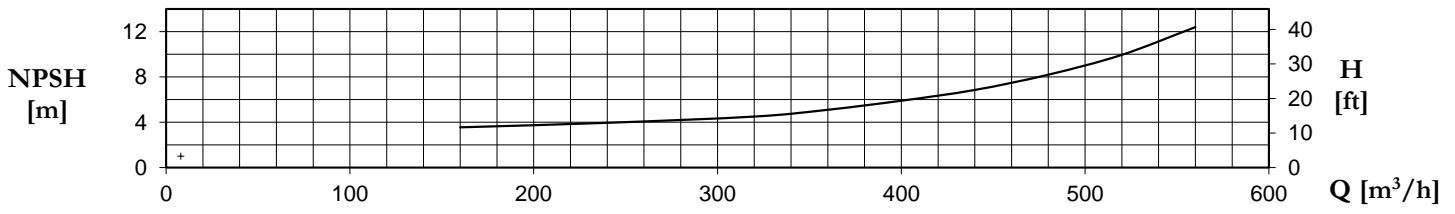
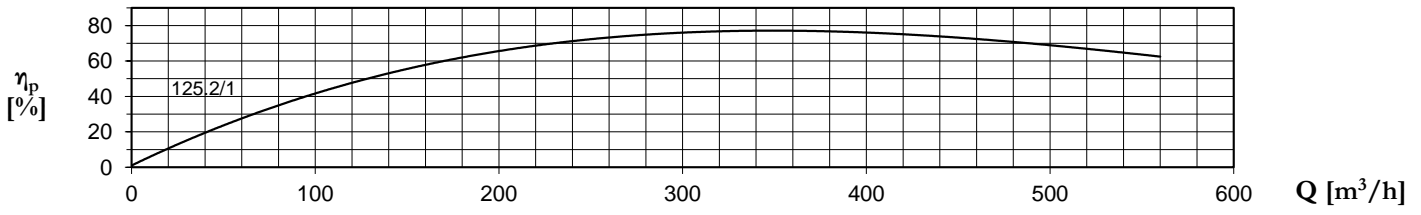
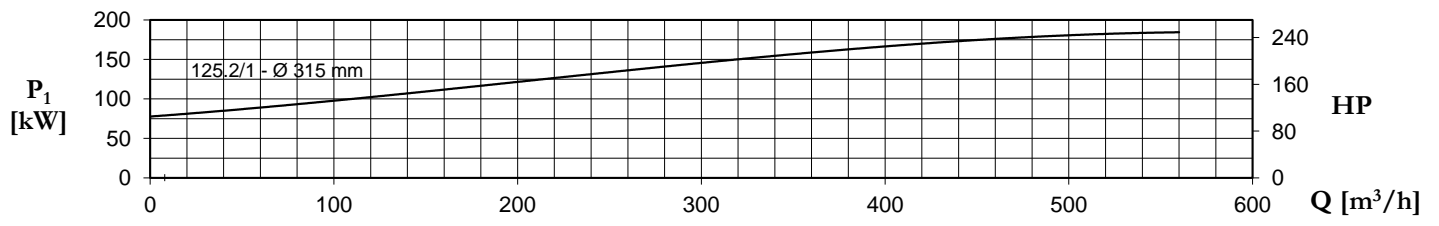
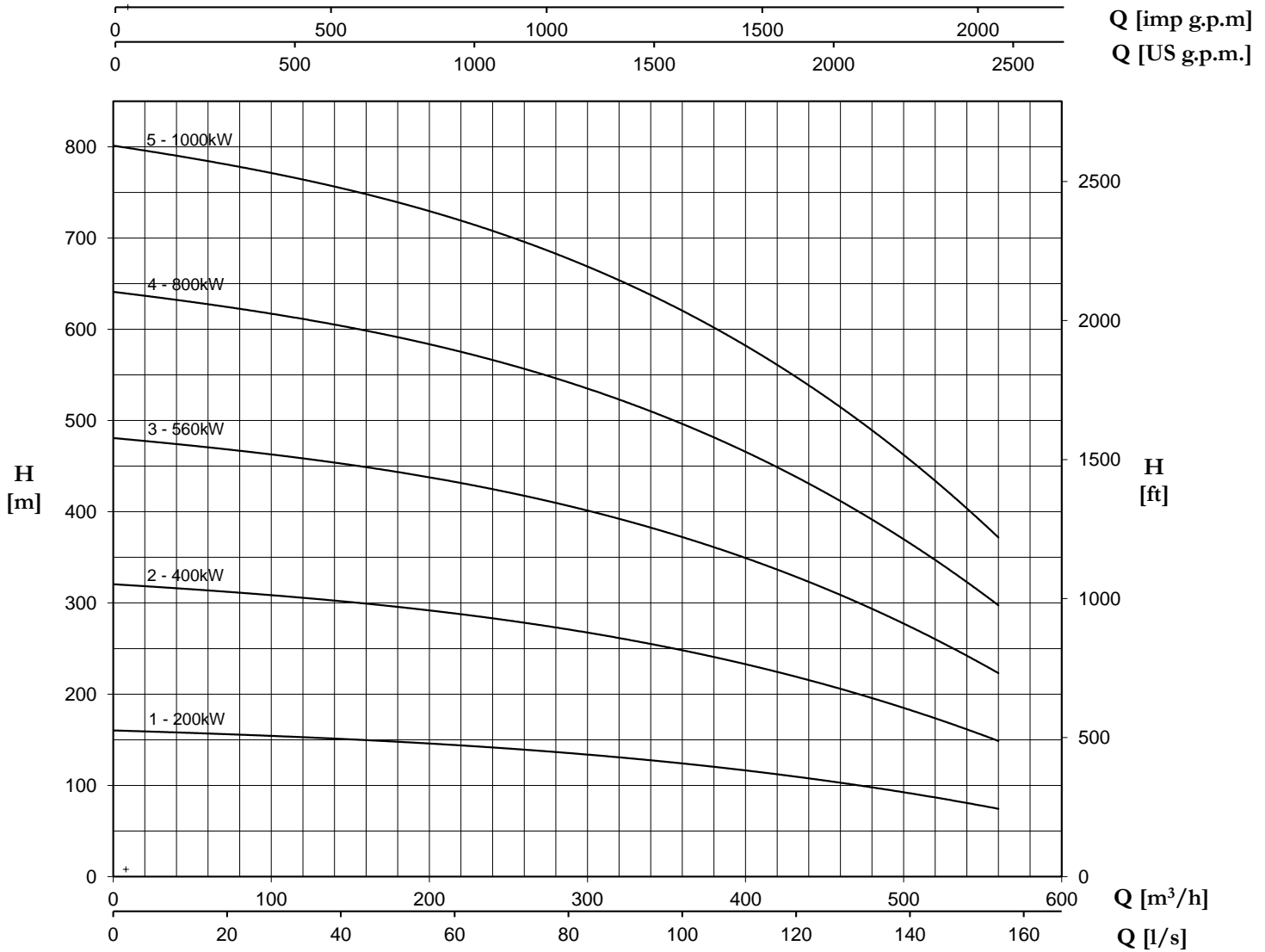
2970 r.p.m.



Valid for: ρ=1 (kg/dm<sup>3</sup>), viscosity ≤20 mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 125.2

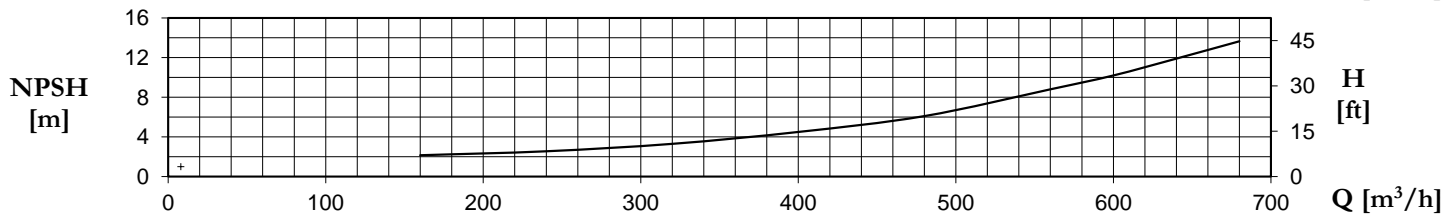
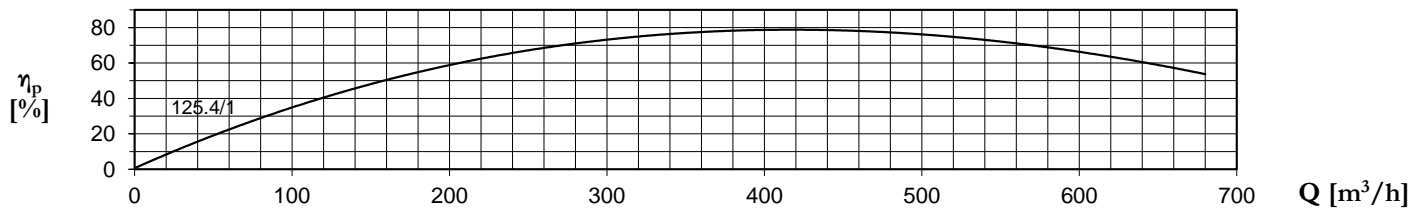
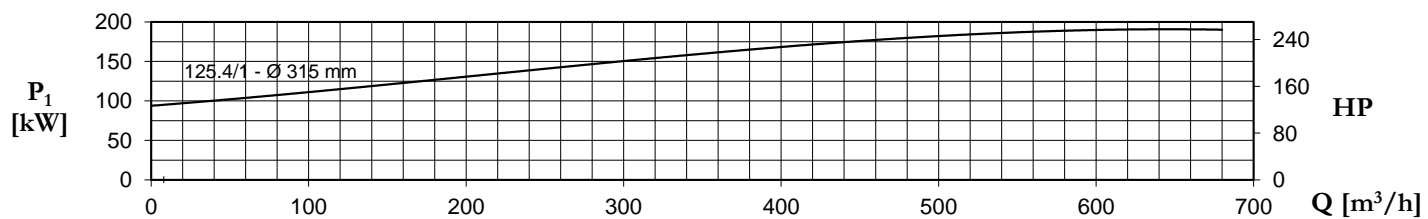
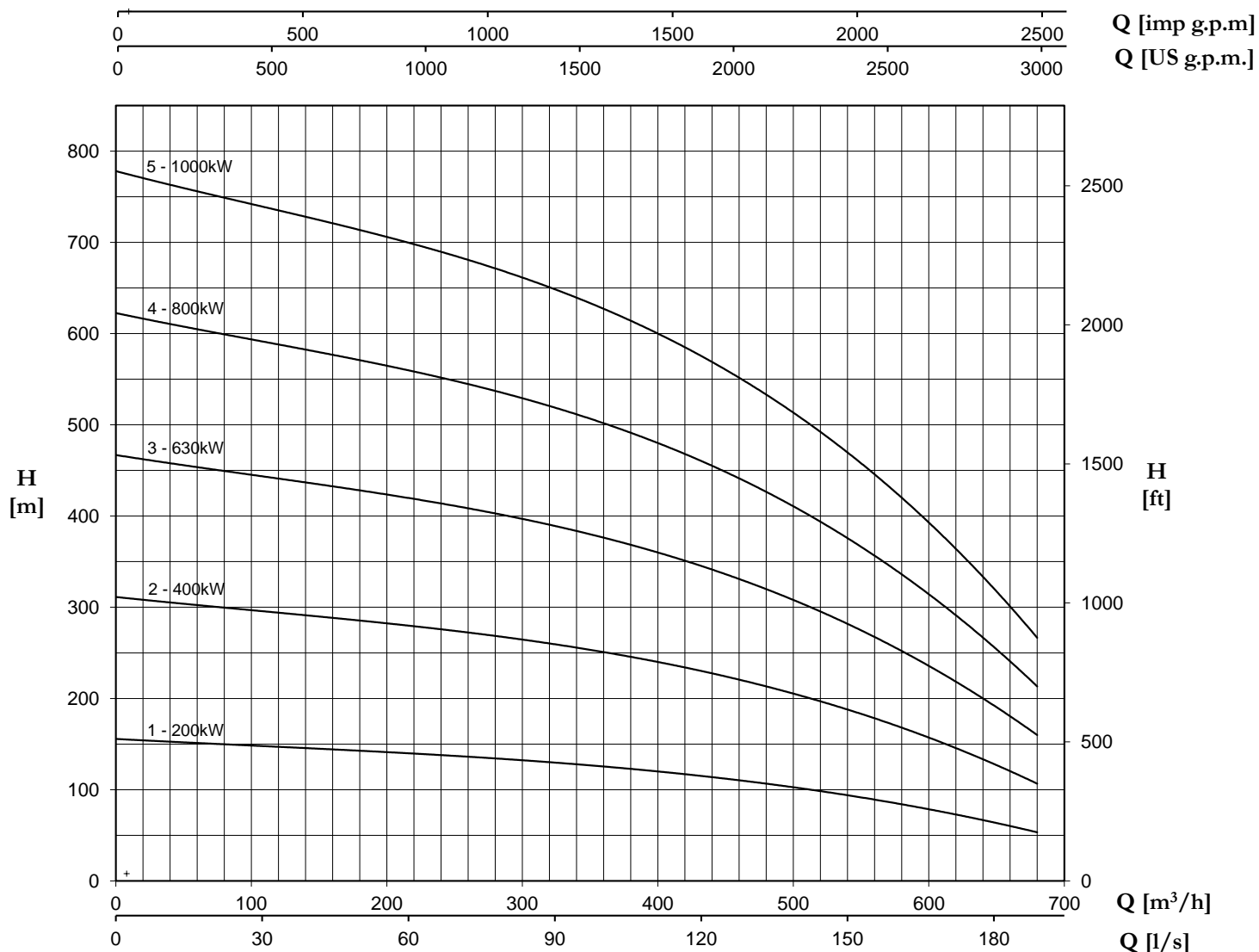
2970 r.p.m.



Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 125.4

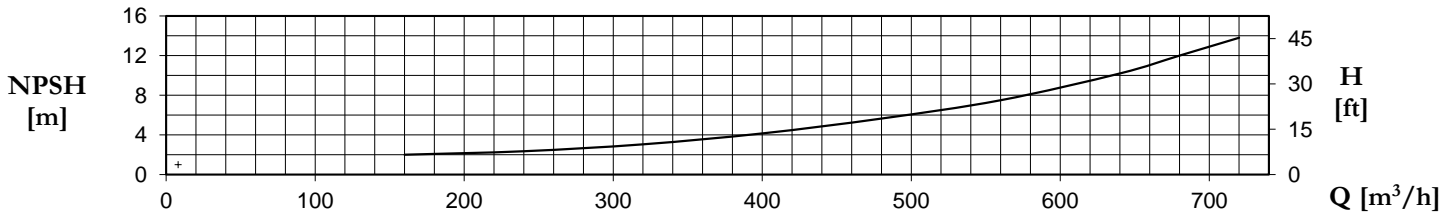
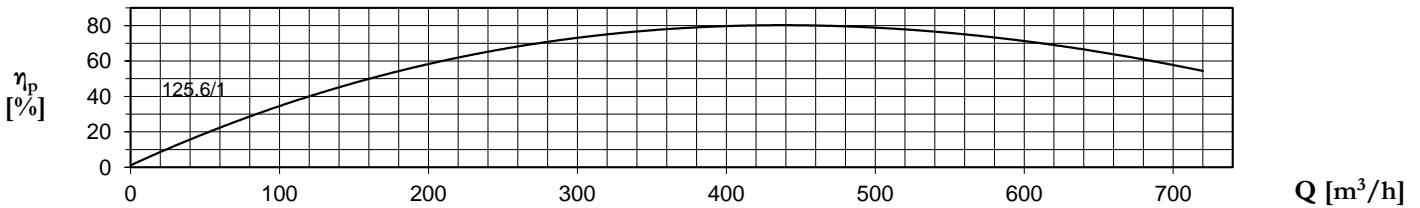
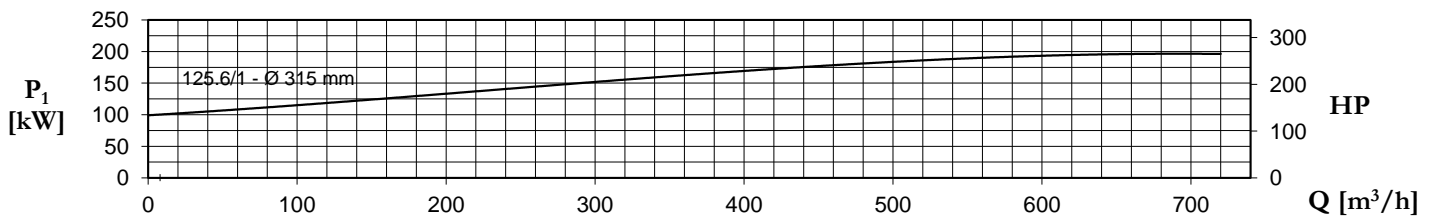
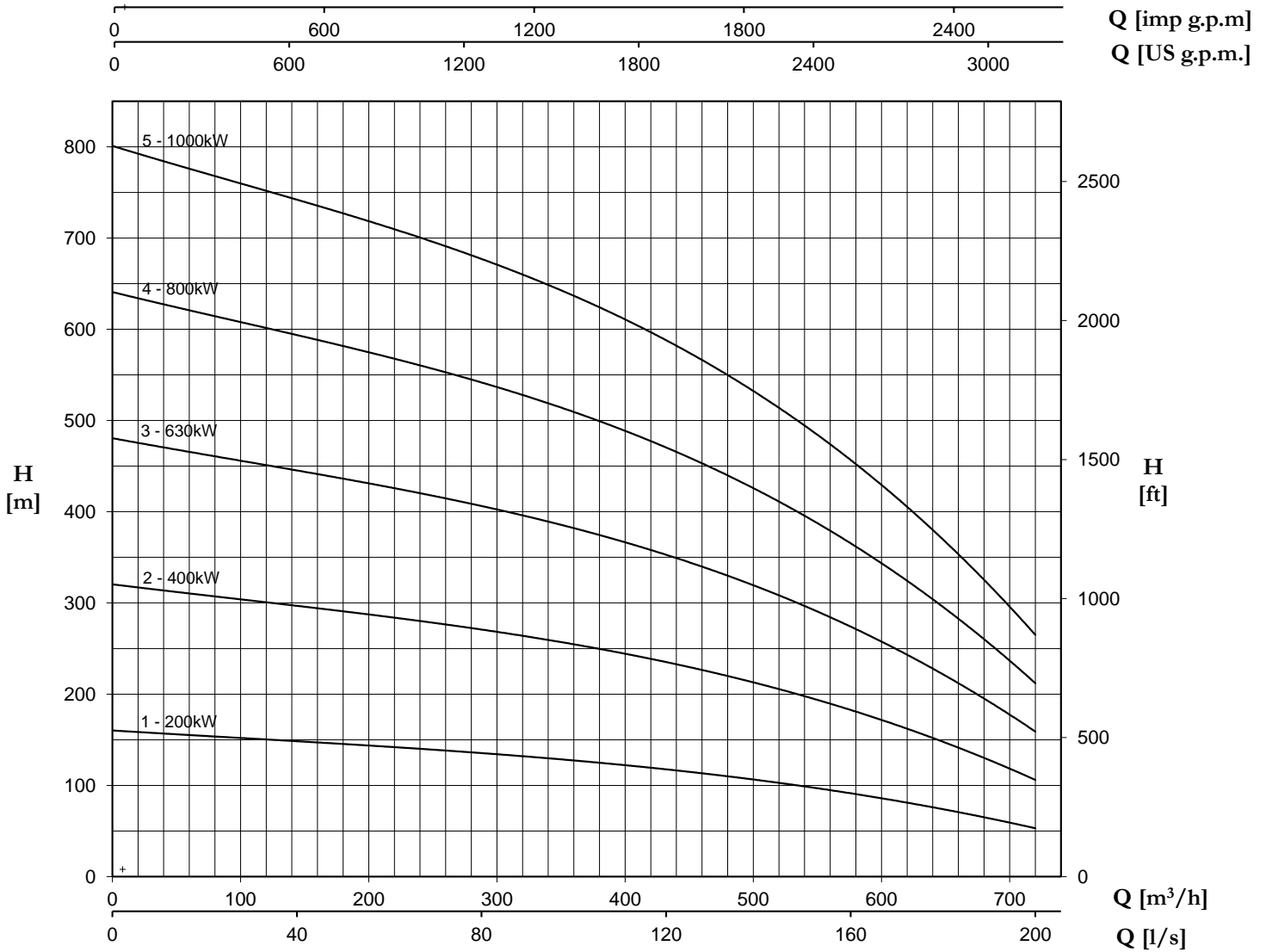
2970 r.p.m.



Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 125.6

2970 r.p.m.

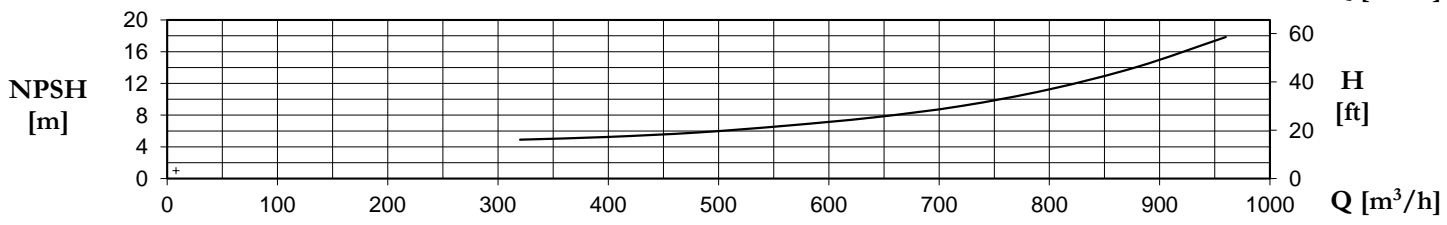
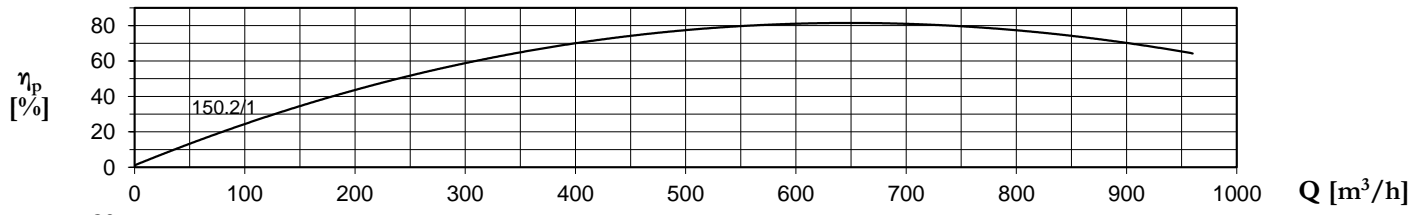
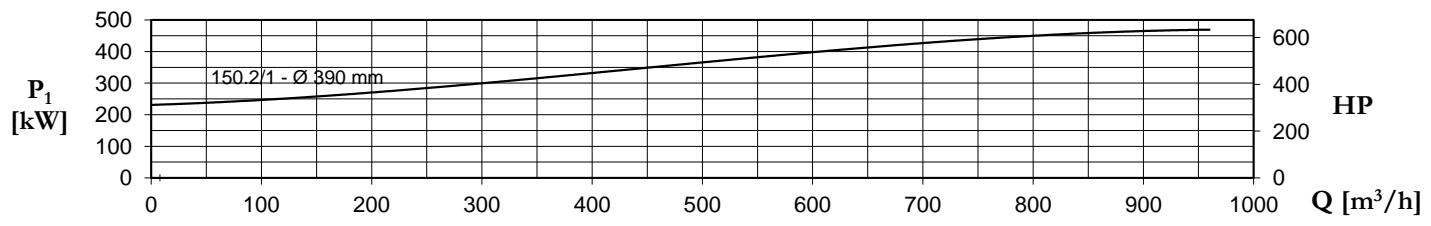
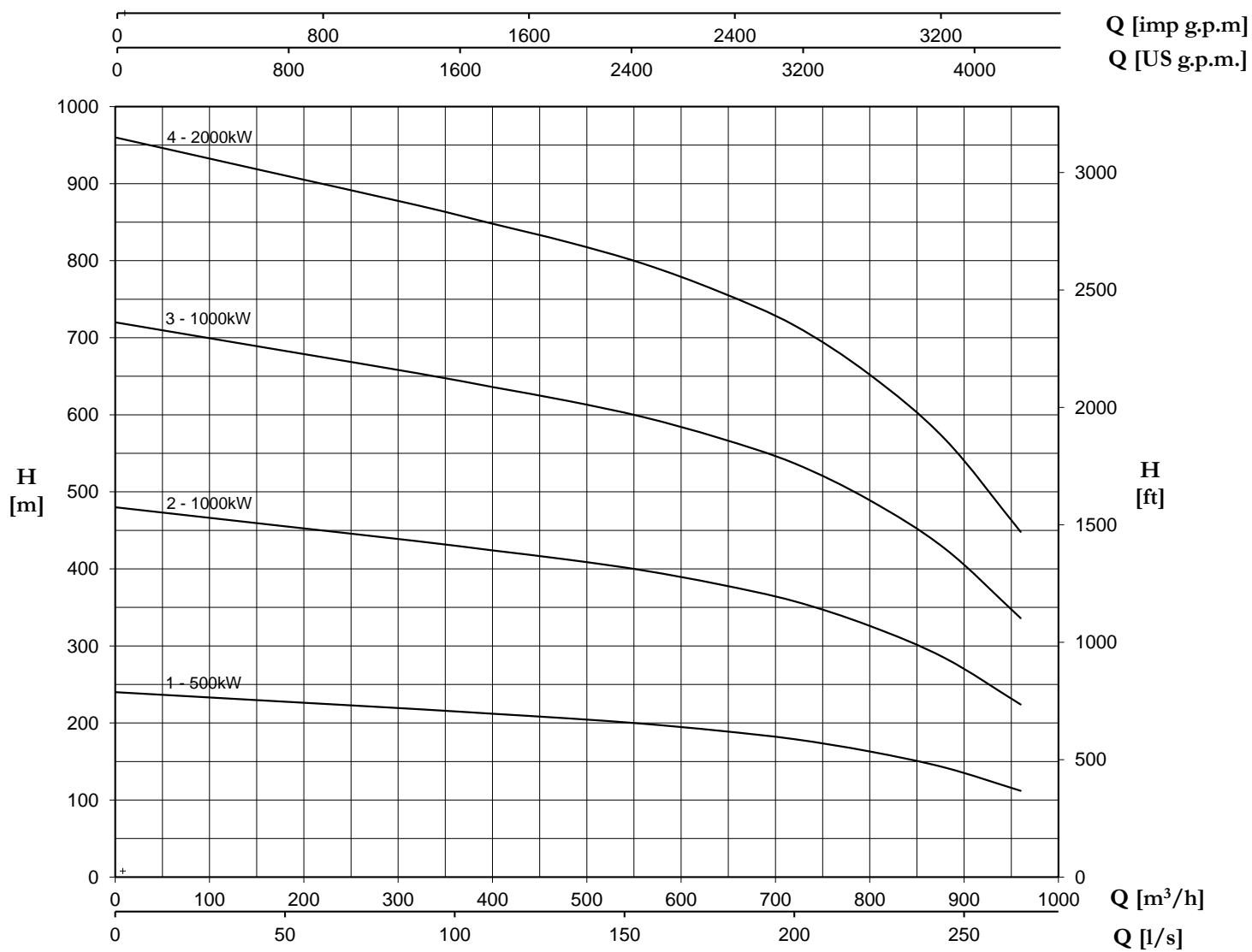


Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000



# HP 150.2

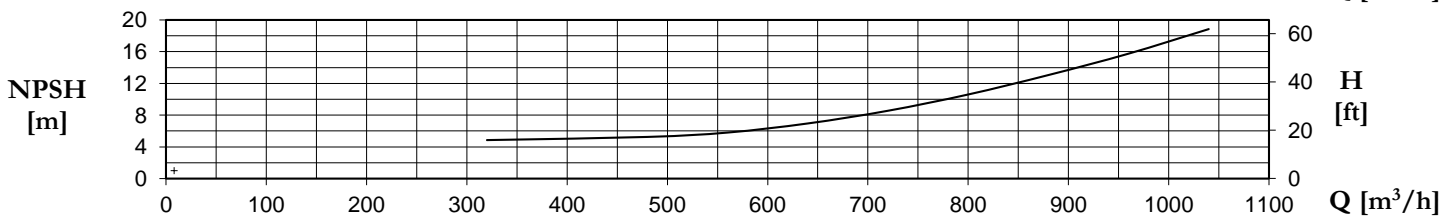
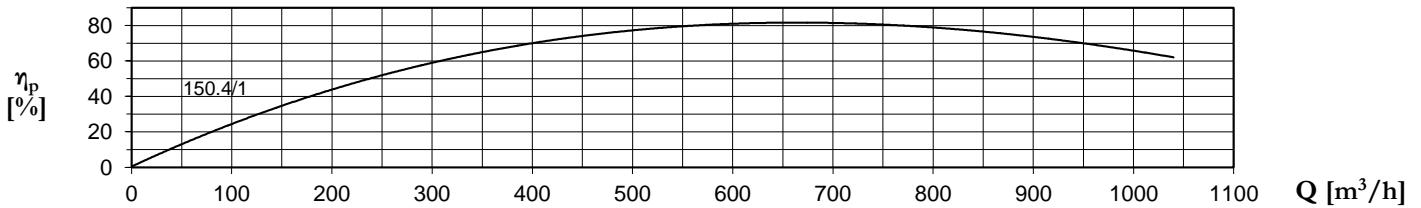
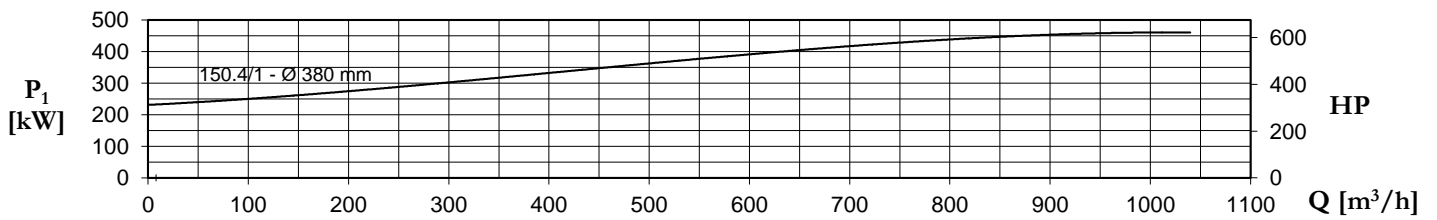
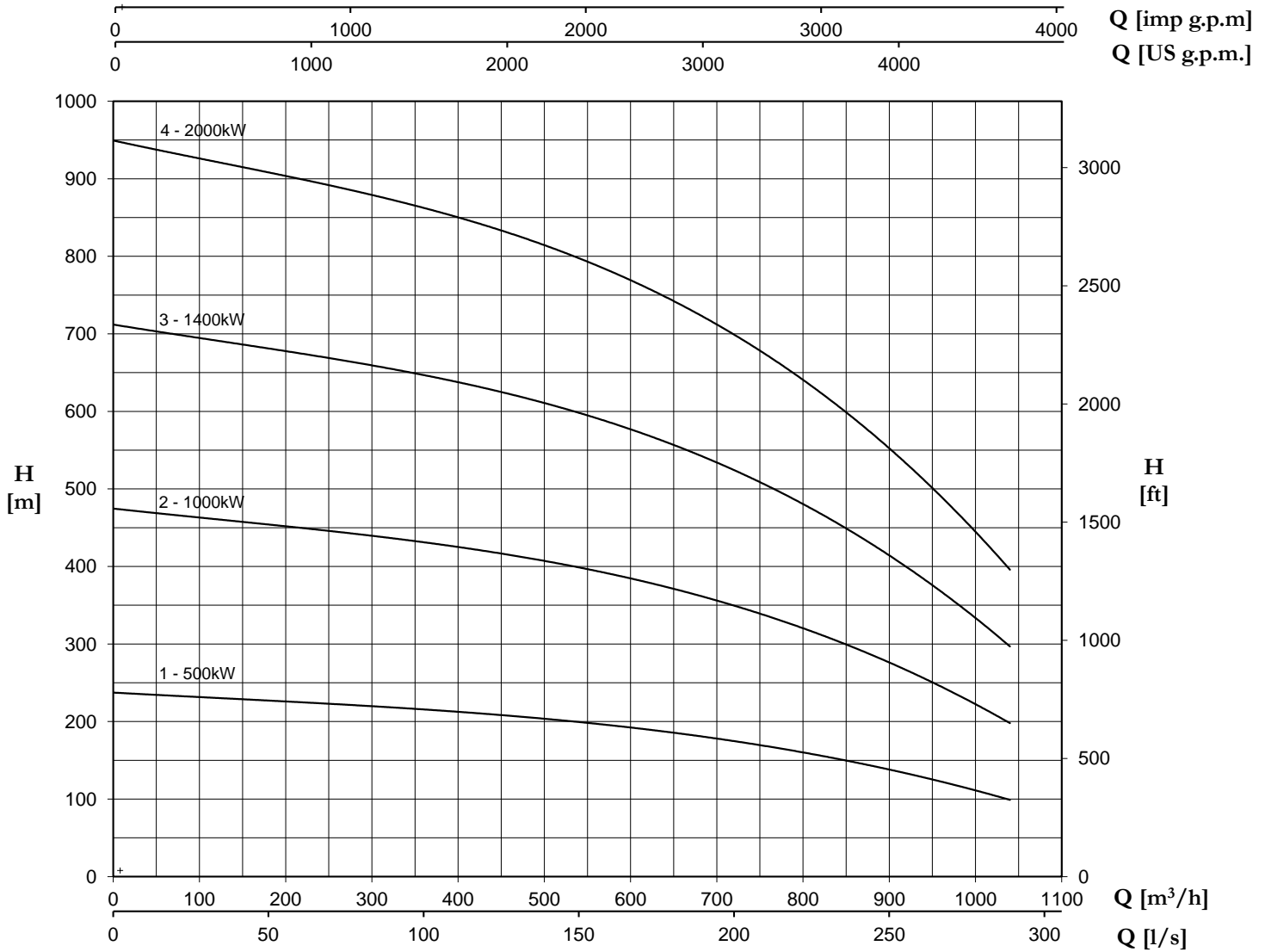
2970 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 150.4

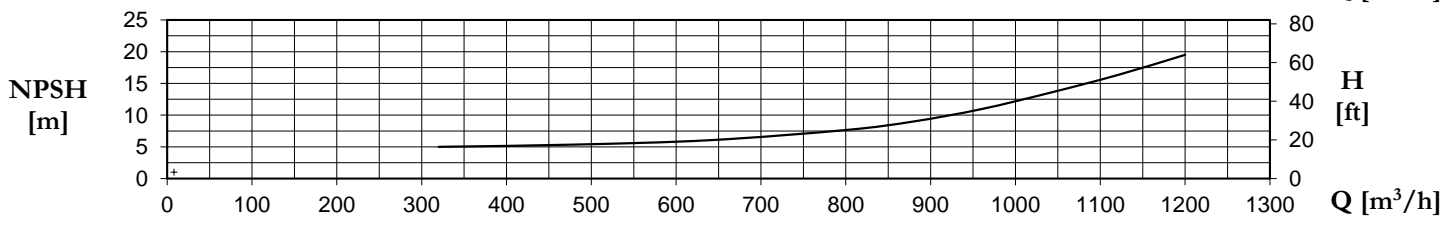
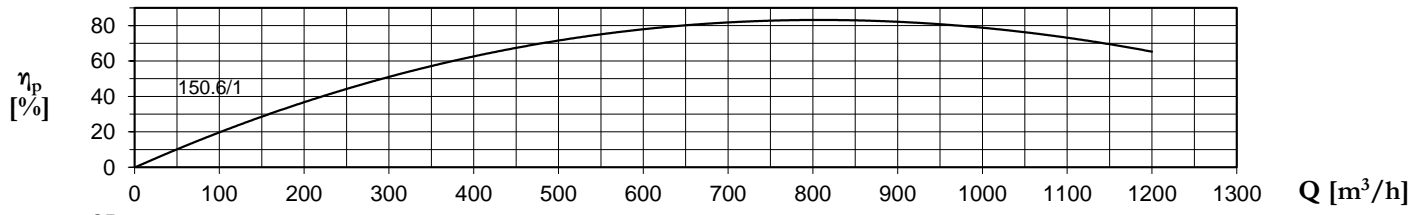
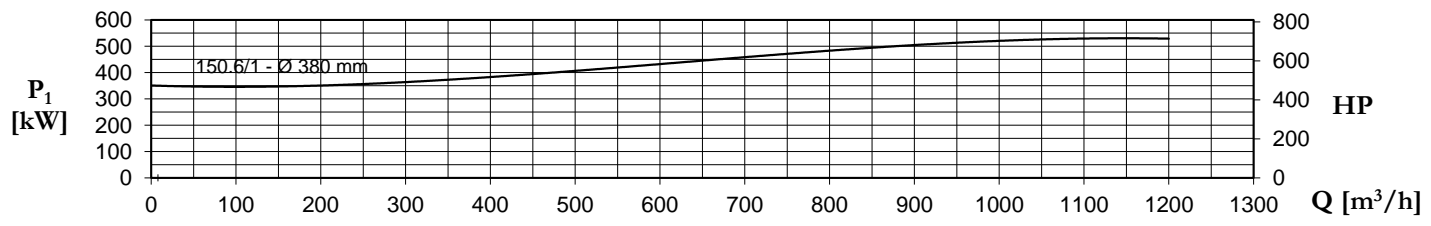
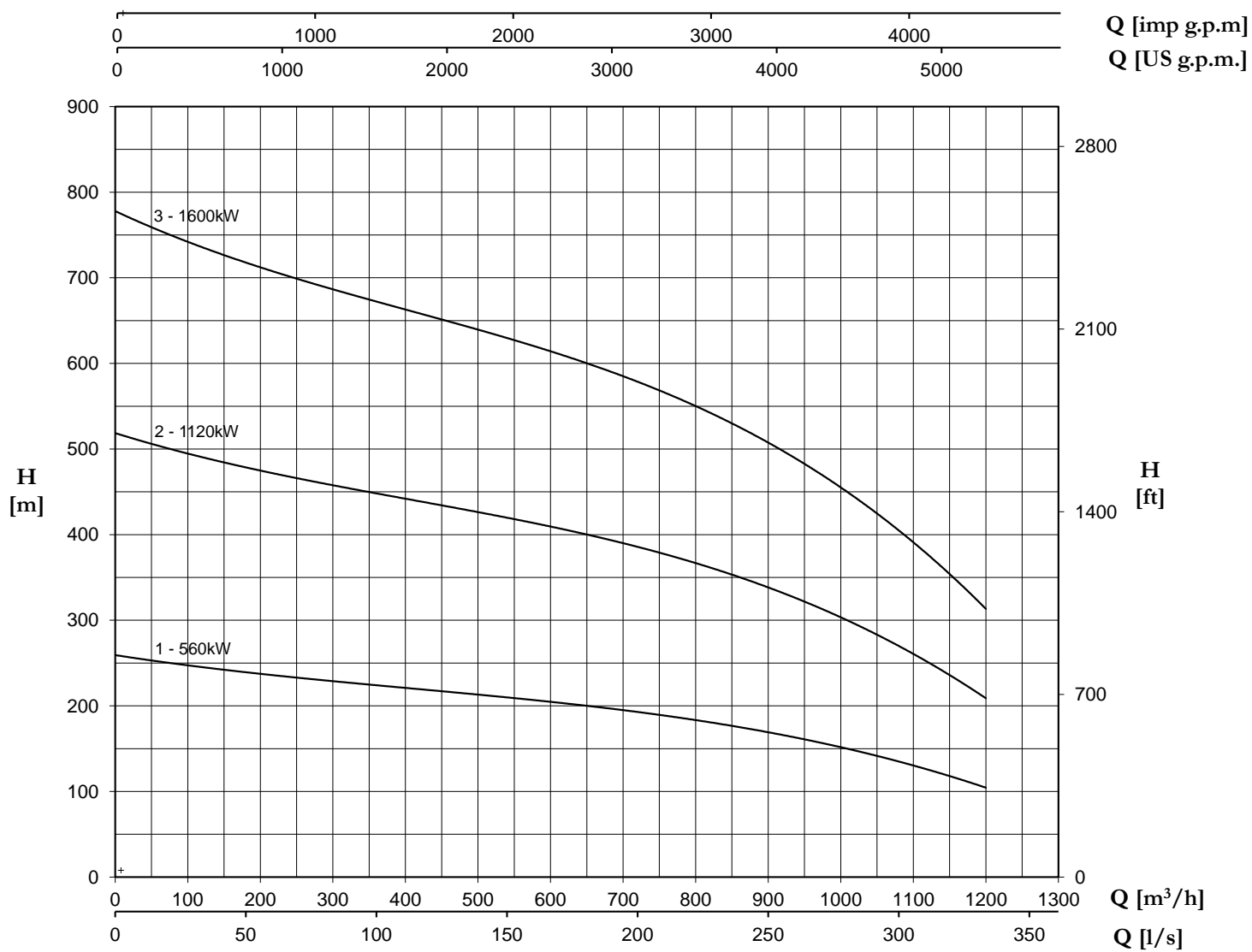
2970 r.p.m.



Valid for:  $\rho=1$  (kg/dm<sup>3</sup>), viscosity  $\leq 20$  mm<sup>2</sup>/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

# HP 150.6

2970 r.p.m.

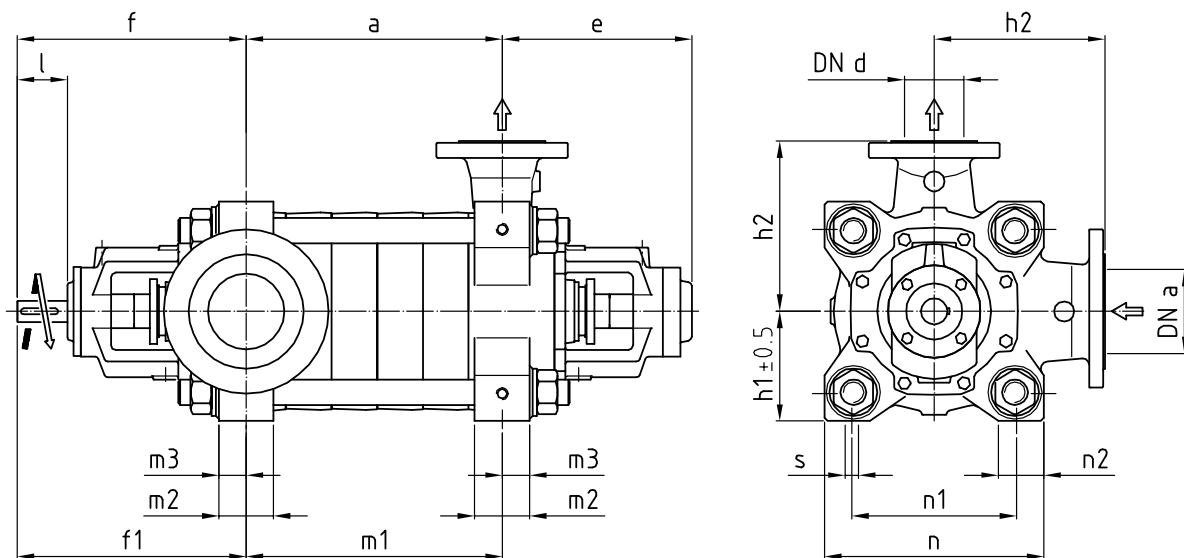


Valid for: ρ=1 (kg/dm³), viscosity ≤20 mm²/sec) - Guarantee values according to ISO 9906, Grade 3B - Head based on SG = 1,000

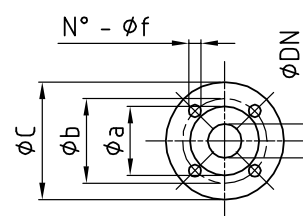
Dimensioni di ingombro pompa

Pump overall dimensions

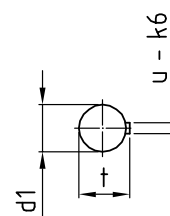
# HP LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



TIPO TYPE	Flangia aspirante UNI - DIN PN16 Suction flange UNI - DIN PN16						Flangia premente UNI - DIN PN64 Discharge flange UNI - DIN PN64					
	DNa	a	b	C	N°	f	DNp	a	b	C	N°	f
25	40	88	110	150	4	18	25	65	100	140	4	18
32	50	102	125	165	4	18	32	75	110	155	4	22
50	80	138	160	200	8	18	50	95	135	180	4	22
80	125	188	210	250	8	18	80	130	170	215	8	22
100	150	212	240	285	8	22	100	160	200	250	8	25
125	200	268	295	340	12	22	125	185	240	295	8	30
150	250	320	355	405	12	25	150	215	280	345	8	33
250	300	370	410	460	12	28	250	345	400	470	12	36



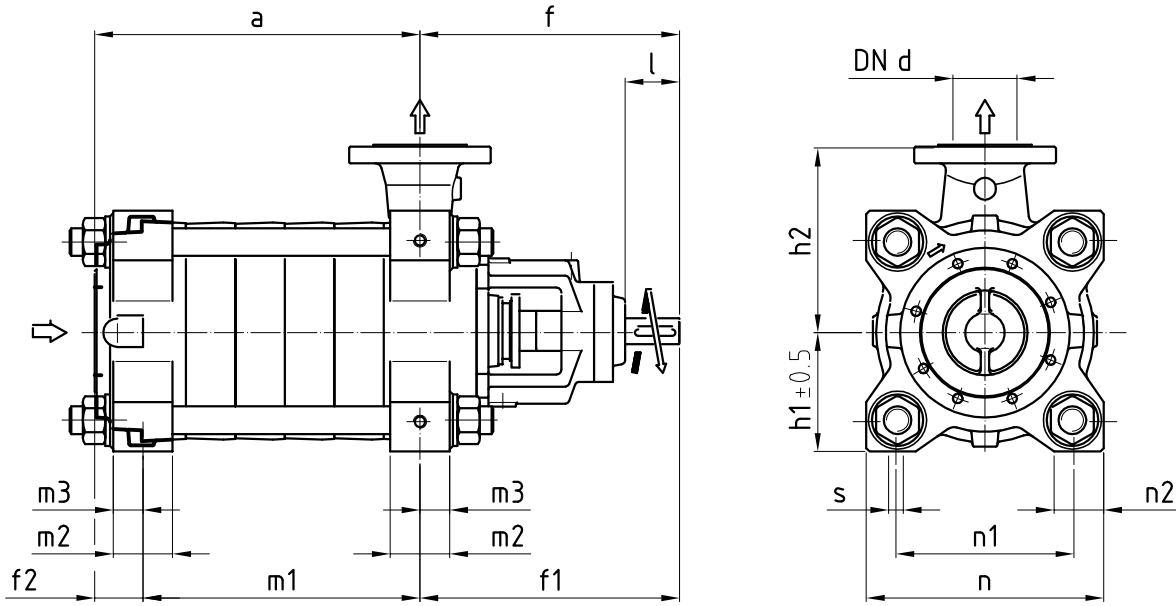
TIPO TYPE	Dimensioni pompa Pump dimensions					Dimensioni piedi Feet dimensions					Estremità d'albero Shaft end				
	e	f	f1	h1	h2	m2	m3	n	n1	n2	s	d1	l	t	u
25	192	239,5	239,5	120	160	38	19	240	186	50	M12	18	52	20,5	6
32	297	300	300	140	200	50	25	280	210	65	M16	28	60	31	8
50	323	340	340	155	225	55	27,5	301	240	65	M16	32	80	35	10
80	344	360	360	175	250	65	32,5	350	270	75	M20	38	80	41	10
100	373	410	410	205	315	75	37,5	410	300	90	M20	42	110	45	12
125	451	514,5	514,5	255	350	95	47,5	510	400	110	M24	55	130	59	16
150	515	552,5	552,5	305	420	120	60	610	460	140	M27	70	140	74,5	20
250	535	580	580	415	550	135	73/90	830	590	265	M42	70	155	74,5	20



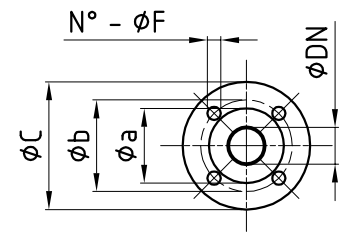
TIPO TYPE	Numero di stadi - Number of stages																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
25	$\frac{a}{m1}$	100	145	190	235	280	325	370	415	460	505	550	595	640	685	730	775	820	865	910	955	1000	1045	1090	1135
32	$\frac{a}{m1}$	125	180	235	290	345	400	455	510	565	620	675	730	785	840	895	950	1005	1060	1115	1170	1225	1280	1335	1390
50	$\frac{a}{m1}$	152	214	276	338	400	462	524	586	648	710	772	834	896	958	1020	1082	1144	1206	1268					
80	$\frac{a}{m1}$	195	270	345	420	495	570	645	720	795	870	945	1020	1095	1170	1245	1320	1395							
100	$\frac{a}{m1}$	235	325	415	505	595	685	775	865	955	1045	1135	1225	1315	1405	1495									
125	$\frac{a}{m1}$	295	405	515	625	735	845	955	1065	1175	1285	1395													
150	$\frac{a}{m1}$	370	505	640	775	910	1045	1180	1315	1450															
250	$\frac{a}{m1}$	505	700	895	1090	1285	1480	1675																	

Dimensioni in mm - Dimensions in mm

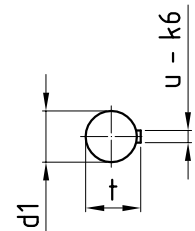
# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



TIPO TYPE	Flangia aspirante UNI - DIN PN16 Suction flange UNI - DIN PN16						Flangia premente UNI - DIN PN64 Discharge flange UNI - DIN PN64					
	DNa	a	b	C	N°	f	DNp	a	b	C	N°	f
25	50	102	125	165	4	M16	25	65	100	140	4	18
32	65	102	125	165	8	M16	32	75	110	155	4	22
50	100	158	180	220	8	M16	50	108	135	180	4	22
80	125	188	210	250	8	M16	80	142	170	215	8	22
100	150	212	240	285	8	M22	100	170	200	250	8	25
125	200	268	295	340	12	M22	125	205	240	295	8	29
150	250	320	355	405	12	M27	150	240	280	345	8	33



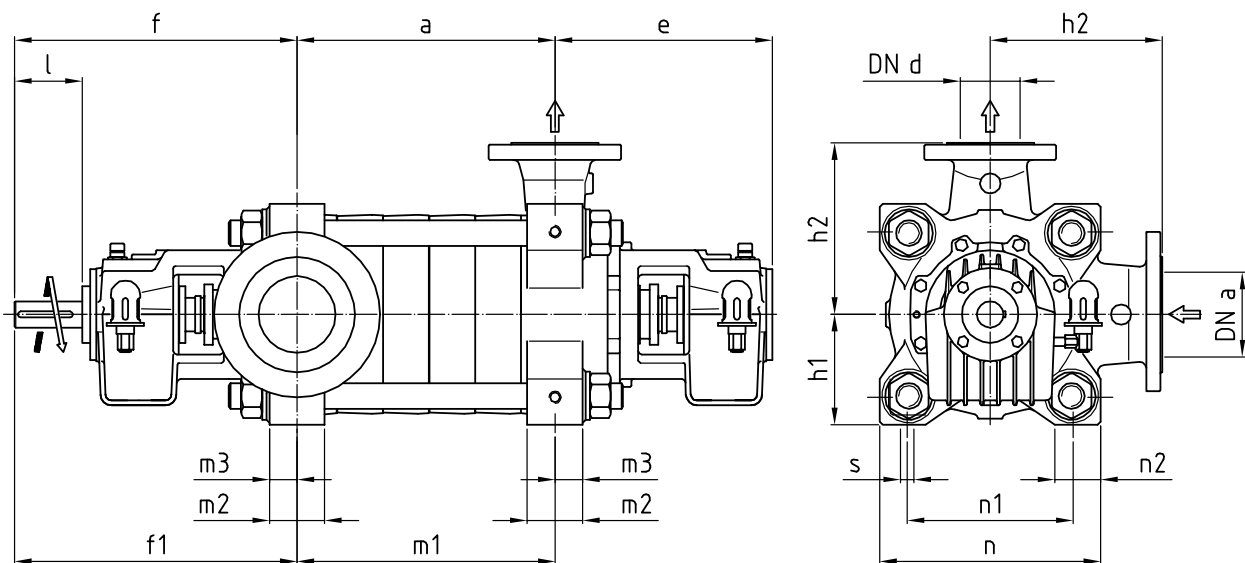
TIPO TYPE	Dimensioni pompa Pump dimensions					Dimensioni piedi Feet dimensions						Estremità d'albero Shaft end			
	f	f1	f2	h1	h2	m2	m3	n	n1	n2	s	d1	l	t	u
25	250	250	41	120	160	38	19	240	186	50	M12	18	52	20,5	6
32	360	360	70	140	200	50	25	280	210	65	M16	24	60	27	8
50	410	410	67	155	225	55	27,5	310	240	65	M16	28	80	31	8
80	460	460	65	175	250	65	32,5	350	270	75	M20	32	80	35	10
100	480	480	75	205	315	75	37,5	410	300	90	M20	38	110	41	10
125	590	590	85	255	350	95	47,5	510	400	110	M24	52	130	56	16
150	660	660	110	305	420	120	60	610	460	140	M27	65	140	69	18



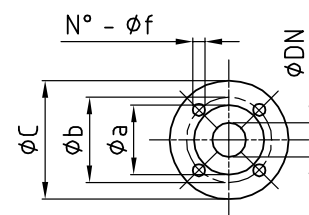
TIPO TYPE	Numero di stadi - Number of stages																			
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
25	a	160	205	250	295	340	385	430	475	520	565	610	655	700	745	790	835	880	925	970
	m1	100	145	190	235	280	325	370	415	460	505	550	595	640	685	730	775	820	865	910
32	a	195	250	305	360	405	470	525	580	635	690	745	800	855	910	965	1020	1075	1130	1185
	m1	125	180	235	290	345	400	455	510	565	620	675	730	785	840	895	950	1005	1060	1115
50	a	220	282	344	406	468	530	592	654	716	778	840	902	964	1026	1088	1150	1212		
	m1	152	214	276	338	400	462	524	586	648	710	772	834	896	958	1020	1082	1144		
80	a	260	335	410	485	560	635	710	785	860	935	1010	1085	1160	1235	1310				
	m1	195	270	345	420	495	570	645	720	795	870	945	1020	1095	1170	1245				
100	a	310	400	490	580	670	760	850	940	1030	1120	1210	1300	1390						
	m1	235	325	415	505	595	685	775	865	955	1045	1135	1225	1315						
125	a	350	460	570	680	790	900	1010	1120	1230	1340	1450								
	m1	265	375	485	595	710	815	925	1035	1145	1255	1365								
150	a	420	555	690	825	960	1095	1230	1365	1500										
	m1	310	445	580	715	850	985	1120	1255	1390										

Dimensioni in mm - Dimensions in mm

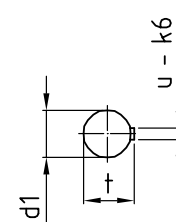
# HPM LUBRIFICAZIONE A OLIO / OIL LUBRICATION



TIPO TYPE	Flangia aspirante UNI - DIN PN16 Suction flange UNI - DIN PN16						Flangia premente UNI - DIN PN64 Discharge flange UNI - DIN PN64					
	DNa	a	b	C	N°	f	DNp	a	b	C	N°	f
32	50	102	125	165	4	18	32	75	110	155	4	22
50	80	138	160	200	8	18	50	95	135	180	4	22
80	125	188	210	250	8	18	80	130	170	215	8	22
100	150	212	240	285	8	22	100	160	200	250	8	25
125	200	268	295	340	12	22	125	185	240	295	8	30
150	250	320	355	405	12	25	150	215	280	345	8	33
250	300	370	410	460	12	28	250	345	400	470	12	36



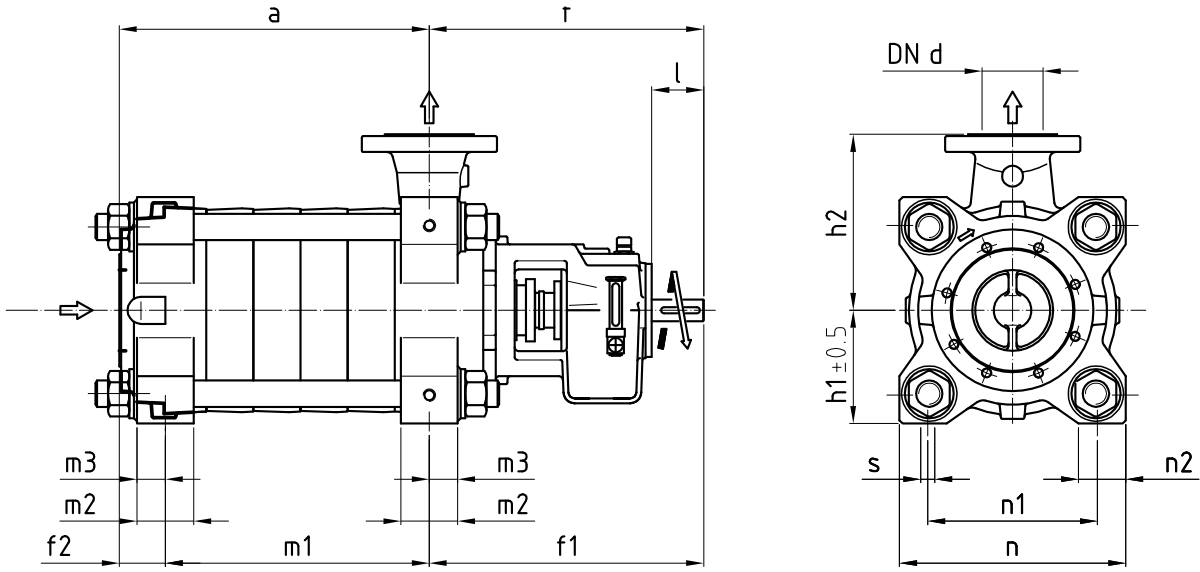
TIPO TYPE	Dimensioni pompa Pump dimensions					Dimensioni piedi Feet dimensions					Estremità d'albero Shaft end				
	e	f	f1	h1	h2	m2	m3	n	n1	n2	s	d1	l	t	u
25	223	270,5	270,5	120	160	38	19	240	186	50	M12	20	58	22,5	6
32	354	404	404	140	200	50	25	280	210	65	M16	28	60	31	8
50	379	449	449	155	225	55	27,5	310	240	65	M16	32	80	35	10
80	399	473	473	175	250	65	32,5	350	270	75	M20	38	80	41	10
100	428	528	528	205	315	75	37,5	410	300	90	M20	42	110	45	12
125	513	644	644	255	350	95	47,5	510	400	110	M24	55	130	59	16
150	508	629,5	629,5	305	420	120	60	610	460	140	M27	70	140	74,5	20
250	528	649,5	649,5	415	550	135	73/90	830	590	265	M42	70	151,5	74,5	20



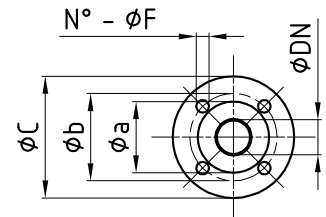
TIPO TYPE	Numero di stadi - Number of stages																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
25	100	145	190	235	280	325	370	415	460	505	550	595	640	685	730	775	820	865	910	955	1000	1045	1090	1135	
32	125	180	235	290	345	400	455	510	565	620	675	730	785	840	895	950	1005	1060	1115	1170	1225	1280	1335	1390	
50	152	214	276	338	400	462	524	586	648	710	772	834	896	958	1020	1082	1144	1206	1268						
80	195	270	345	420	495	570	645	720	795	870	945	1020	1095	1170	1245	1320	1395								
100	235	325	415	505	595	685	775	865	955	1045	1135	1225	1315	1405	1495										
125	295	405	515	625	735	845	955	1065	1175	1285	1395														
150	370	505	640	775	910	1045	1180	1315	1450																
250	505	700	895	1090	1285	1480	1675																		

Dimensioni in mm - Dimensions in mm

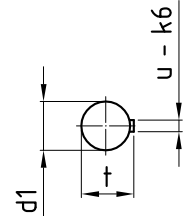
# HPMA LUBRIFICAZIONE A OLIO / OIL LUBRICATION



TIPO TYPE	Flangia aspirante UNI - DIN PN16 Suction flange UNI - DIN PN16						Flangia premente UNI - DIN PN64 Discharge flange UNI - DIN PN64					
	DNa	a	b	C	N°	f	DNp	a	b	C	N°	f
25	50	102	125	165	4	M16	25	65	100	140	4	18
32	65	102	125	165	8	M16	32	75	110	155	4	22
50	100	158	180	220	8	M16	50	108	135	180	4	22
80	125	188	210	250	8	M16	80	142	170	215	8	22
100	150	212	240	285	8	M22	100	170	200	250	8	25
125	200	268	295	340	12	M22	125	205	240	295	8	29
150	250	320	355	405	12	M27	150	240	280	345	8	33



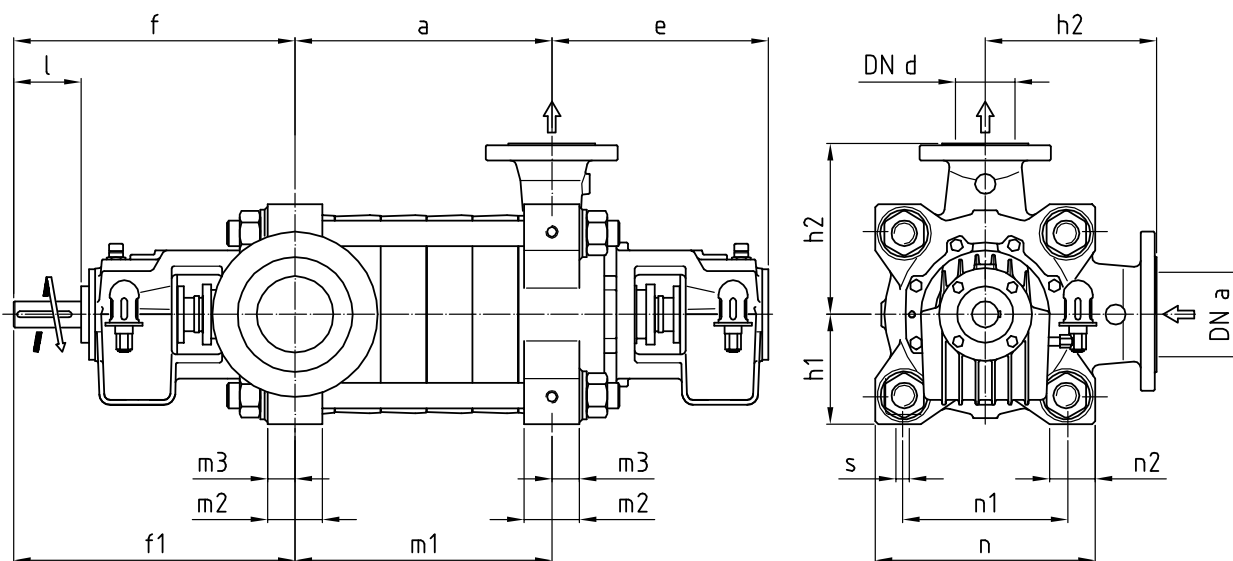
TIPO TYPE	Dimensioni pompa Pump dimensions						Dimensioni piedi Feet dimensions					Estremità d'albero Shaft end			
	f	f1	f2	h1	h2	m2	m3	n	n1	n2	s	d1	l	t	u
25	280	280	41	120	160	38	19	240	186	50	M12	18	52	20,5	6
32	395	395	70	140	200	50	25	280	210	65	M16	24	60	27	8
50	465	465	67	155	225	55	27,5	310	240	65	M16	28	80	31	8
80	485	486	65	175	250	65	32,5	350	270	75	M20	32	80	35	10
100	545	545	75	205	315	75	37,5	410	300	90	M20	38	110	41	10
125	650	650	85	255	350	95	47,5	510	400	110	M24	52	130	56	16
150	660	660	110	305	420	120	60	610	460	140	M27	65	140	69	18



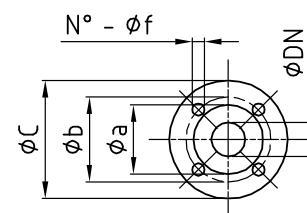
TIPO TYPE	Numero di stadi - Number of stages																			
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
25	a	160	205	250	295	340	385	430	475	520	565	610	655	700	745	790	835	880	925	970
	m1	100	145	190	235	280	325	370	415	460	505	550	595	640	685	730	775	820	865	910
32	a	195	250	305	360	405	470	525	580	635	690	745	800	855	910	965	1020	1075	1130	1185
	m1	125	180	235	290	345	400	455	510	565	620	675	730	785	840	895	950	1005	1060	1115
50	a	220	282	344	406	468	530	592	654	716	778	840	902	964	1026	1088	1150	1212		
	m1	152	214	276	338	400	462	524	586	648	710	772	834	896	958	1020	1082	1144		
80	a	260	335	410	485	560	635	710	785	860	935	1010	1085	1160	1235	1310				
	m1	195	270	345	420	495	570	645	720	795	870	945	1020	1095	1170	1245				
100	a	310	400	490	580	670	760	850	940	1030	1120	1210	1300	1390						
	m1	235	325	415	505	595	685	775	865	955	1045	1135	1225	1315						
125	a	350	460	570	680	790	900	1010	1120	1230	1340	1450								
	m1	265	375	485	595	710	825	945	1065	1185	1305	1425								
150	a	420	555	690	825	960	1095	1230	1365	1500										
	m1	310	445	580	715	850	985	1120	1255	1390										



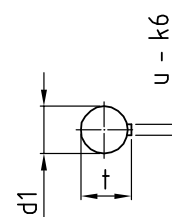
# HPR LUBRIFICAZIONE A OLIO / OIL LUBRICATION



TIPO TYPE	Flangia aspirante UNI - DIN PN25 Suction flange UNI - DIN PN25						Flangia premente UNI - DIN PN100 Discharge flange UNI - DIN PN100					
	DNa	a	b	C	N°	f	DNp	a	b	C	N°	f
32	50	102	125	165	4	18	32	75	110	155	4	22
50	80	138	160	200	8	18	50	95	145	195	4	25
80	125	188	220	270	8	25	80	130	180	230	8	25
100	150	218	250	300	8	25	100	160	210	265	8	30
125	200	278	310	360	12	25	125	185	250	315	8	33
150	250	355	370	425	12	30	150	215	290	355	12	33



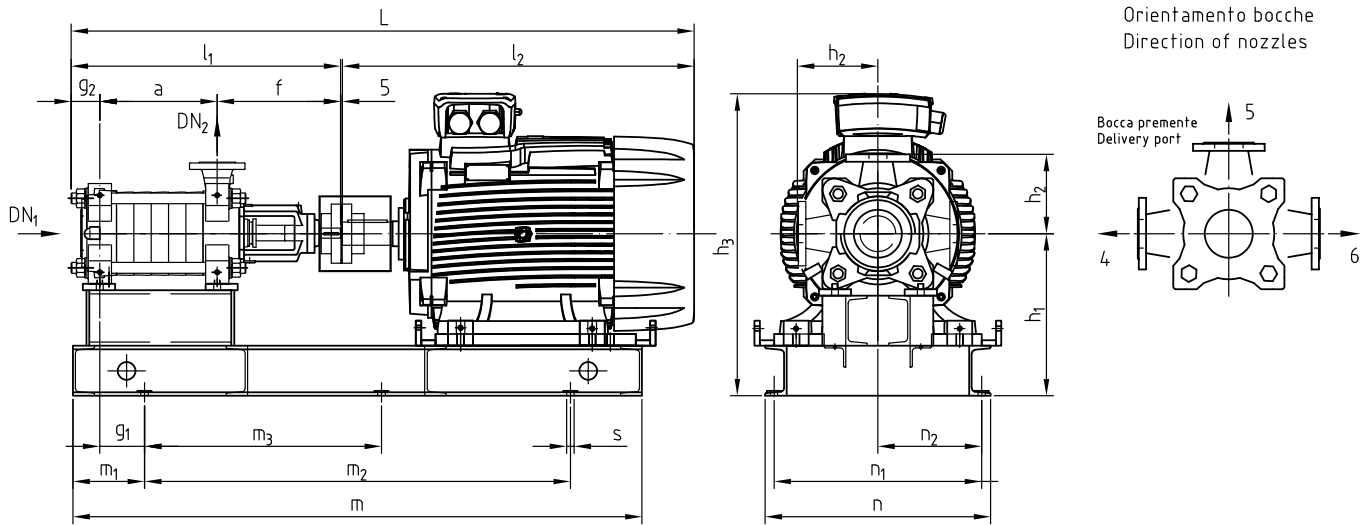
TIPO TYPE	Dimensioni pompa Pump dimensions					Dimensioni piedi Feet dimensions						Estremità d'albero Shaft end			
	e	f	f1	h1	h2	m2	m3	n	n1	n2	s	d1	l	t	u
32	354	404	404	140	200	50	25	280	210	65	M16	28	60	31	8
50	379	449	449	155	225	55	27,5	310	240	65	M16	32	80	35	10
80	399	473	473	175	250	65	32,5	350	270	75	M20	38	80	41	10
100	428	528	528	205	315	75	37,5	410	300	90	M20	42	110	45	12
125	513	644	644	255	350	95	47,5	510	400	110	M24	55	130	59	16
150	508	629,5	629,5	305	420	120	60	610	460	140	M27	70	140	74,5	20



TIPO TYPE	Numero di stadi - Number of stages																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
32 — a m1	125	180	235	290	345	400	455	510	565	620	675	730	785	840	895	950	1005	1060	1115	1170	1225	1280	1335	1390	
50 — a m1	152	214	276	338	400	462	524	586	648	710	772	834	896	958	1020	1082	1144	1206	1268						
80 — a m1	195	270	345	420	495	570	645	720	795	870	945	1020	1095	1170	1245	1320	1395								
100 — a m1	235	325	415	505	595	685	775	865	955	1045	1135	1225	1315	1405	1495										
125 — a m1	295	405	515	625	735	845	955	1065	1175	1285	1395														
150 — a m1	370	505	640	775	910	1045	1180	1315	1450	1585															

Dimensioni in mm - Dimensions in mm

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



## HPA 25 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	DN <sub>1</sub>	DN <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
25/1	0,75	28	12	80	50	25	55	250	160	634	100	41	263	393	346	283	600	150	300	-	310	275	137,5	4x17
25/2	0,75	37	12	90	50	25	100	250	160	679	100	41	263	393	391	283	640	150	340	-	310	275	137,5	4x17
25/3	0,75	46	12	100	50	25	145	250	160	724	100	41	263	393	436	283	700	150	400	-	310	275	137,5	4x17
25/4	1,1	55	25	122,1	50	25	190	250	160	769	100	41	263	413	481	283	740	150	440	-	310	275	137,5	4x17
25/5	1,1	64	25	137,1	50	25	235	250	160	814	100	41	283	413	526	283	780	150	480	-	320	280	140	4x19
	1,5	64	30	130	50	25	235	250	160	869	100	41	283	428	526	338	820	150	520	-	320	280	140	4x19
25/6	1,5	73	30	141	50	25	280	250	160	914	100	41	283	428	571	338	860	150	560	-	320	280	140	4x19
25/7	1,5	82	30	152	50	25	325	250	160	959	100	41	283	428	616	338	900	150	600	-	320	280	140	4x19
	2,2	82	36	160	50	25	325	250	160	994	100	41	283	440	616	373	940	150	640	-	320	280	140	4x19
25/8	2,2	91	36	171	50	25	370	250	160	1039	100	41	283	440	661	373	980	150	680	-	320	280	140	4x19
25/9	2,2	100	36	190	50	25	415	250	160	1084	100	41	303	460	706	373	1020	150	720	-	330	290	145	4x19
	3	100	40	192	50	25	415	250	160	1084	100	41	303	460	706	373	1020	150	720	-	330	290	145	4x19
	2,2	109	36	202	50	25	460	250	160	1129	100	41	303	460	751	373	1080	150	780	-	330	290	145	4x19
25/10	3	109	40	204	50	25	460	250	160	1129	100	41	303	460	751	373	1080	150	780	-	330	290	145	4x19
25/11	3	118	40	215	50	25	505	250	160	1174	100	41	303	460	796	373	1120	150	820	-	330	290	145	4x19
25/12	3	127	40	226	50	25	550	250	160	1219	100	41	303	460	841	373	1160	150	860	-	330	290	145	4x19
25/13	3	136	40	236	50	25	595	250	160	1264	100	41	303	460	886	373	1200	150	900	-	330	290	145	4x19
	4	136	46	239	50	25	595	250	160	1281	100	41	303	480	886	390	1220	150	920	-	360	320	160	4x19
25/14	3	145	40	248	50	25	640	250	160	1309	100	41	303	460	931	373	1260	150	960	-	330	290	145	4x19
	4	145	46	251	50	25	640	250	160	1326	100	41	303	480	931	390	1260	150	960	-	360	320	160	4x19
25/15	4	154	46	261	50	25	685	250	160	1371	100	41	303	480	976	390	1300	150	1000	-	360	320	160	4x19
25/16	4	163	46	272	50	25	730	250	160	1416	100	41	303	480	1021	390	1340	150	1040	-	360	320	160	4x19
25/17	4	172	46	284	50	25	775	250	160	1461	100	41	303	480	1066	390	1400	150	1100	-	360	320	160	4x19
	5,5	172	70	301	50	25	775	250	160	1531	100	41	303	500	1066	460	1480	150	1180	-	360	320	160	4x19
25/18	4	181	46	295	50	25	820	250	160	1506	100	41	303	480	1111	390	1440	150	1140	-	360	320	160	4x19
	5,5	181	70	312	50	25	820	250	160	1576	100	41	323	520	1111	460	1520	150	1220	610	360	320	160	6x21
25/19	4	190	46	305	50	25	865	250	160	1551	100	41	303	480	1156	390	1480	150	1180	-	360	320	160	4x19
	5,5	190	70	335	50	25	865	250	160	1621	100	41	323	520	1156	460	1560	150	1260	630	360	320	160	6x21
25/20	5,5	199	70	346	50	25	910	250	160	1666	100	41	323	520	1201	460	1600	150	1300	650	360	320	160	6x21

## HPA 32 - 1450 rpm

Model	kW	kg P.	kg M.	kg Tot.	DN <sub>1</sub>	DN <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
32/1	0,75	50	12	105	65	32	70	360	200	783	90	70	283	433	500	283	740	150	440	-	310	275	137,5	4x17
	1,1	50	25	113	65	32	70	360	200	838	90	70	303	448	500	338	780	150	480	-	320	280	140	4x19
32/2	1,1	65	25	130	65	32	125	360	200	893	90	70	303	448	555	338	820	150	520	-	320	280	140	4x19
	1,5	65	30	132	65	32	125	360	200	893	90	70	303	448	555	338	820	150	520	-	320	280	140	4x19
	2,2	65	36	134	65	32	125	360	200	928	90	70	303	460	555	373	860	150	560	-	320	280	140	4x19
32/3	1,5	74	30	150	65	32	180	360	200	968	90	70	303	448	610	358	920	150	620	-	320	280	140	4x19
	2,2	74	36	156	65	32	180	360	200	1003	90	70	303	460	610	393	920	150	620	-	320	280	140	4x19
	3	74	40	160	65	32	180	360	200	1003	90	70	303	460	610	393	920	150	620	-	320	280	140	4x19

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

## HPA 32 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
32/4	2,2	83	36	170	65	32	235	360	200	1058	90	70	303	460	665	393	960	150	660	-	320	280	140	4x19
	3	83	40	174	65	32	235	360	200	1058	90	70	303	460	665	393	960	150	660	-	320	280	140	4x19
	4	83	46	180	65	32	235	360	200	1075	90	70	303	480	665	410	980	150	680	-	320	280	140	4x19
32/5	2,2	92	36	195	65	32	290	360	200	1113	90	70	323	460	720	393	1020	150	720	-	320	280	140	4x19
	3	92	40	199	65	32	290	360	200	1113	90	70	323	460	720	393	1020	150	720	-	320	280	140	4x19
	4	92	46	205	65	32	290	360	200	1130	90	70	323	480	720	410	1040	150	740	-	320	280	140	4x19
32/6	3	101	40	211	65	32	345	360	200	1168	90	70	323	460	775	393	1080	150	780	-	320	280	140	4x19
	4	101	46	217	65	32	345	360	200	1185	90	70	323	480	775	410	1080	150	780	-	320	280	140	4x19
	5,5	101	70	241	65	32	345	360	200	1255	90	70	323	520	775	480	1160	150	860	-	320	280	140	4x19
32/7	4	110	46	235	65	32	400	360	200	1240	90	70	323	480	830	410	1220	150	920	-	320	280	140	4x19
	5,5	110	70	259	65	32	400	360	200	1310	90	70	323	520	830	480	1220	150	920	-	320	280	140	4x19
32/8	4	119	46	267	65	32	455	360	200	1295	90	70	323	480	885	410	1280	150	980	-	320	280	140	4x19
	5,5	119	70	291	65	32	455	360	200	1365	90	70	323	520	885	480	1280	150	980	-	320	280	140	4x19
	7,5	119	57	278	65	32	455	360	200	1401	90	70	323	520	885	516	1280	150	980	-	320	280	140	4x19
32/9	5,5	128	70	282	65	32	510	360	200	1420	90	70	323	520	940	480	1320	150	1020	-	320	280	140	4x19
	7,5	128	57	294	65	32	510	360	200	1456	90	70	323	520	940	516	1320	150	1020	-	320	280	140	4x19
32/10	5,5	137	70	310	65	32	565	360	200	1475	90	70	323	520	995	480	1380	150	1080	-	320	280	140	4x19
	7,5	137	57	322	65	32	565	360	200	1511	90	70	323	520	995	516	1380	150	1080	-	320	280	140	4x19
	11	137	125	390	65	32	565	360	200	1610	90	70	323	578	995	615	1500	150	1200	-	360	320	160	4x19
32/11	5,5	146	70	338	65	32	620	360	200	1530	90	70	323	520	1050	480	1440	150	1140	-	320	320	160	4x19
	7,5	146	57	350	65	32	620	360	200	1566	90	70	323	520	1050	516	1440	150	1140	-	320	320	160	4x19
	11	146	125	418	65	32	620	360	200	1665	90	70	343	578	1050	615	1540	150	1240	620	360	380	160	6x21
32/12	5,5	155	70	355	65	32	675	360	200	1585	90	70	323	520	1105	480	1500	150	2000	-	320	280	140	4x19
	7,5	155	57	367	65	32	675	360	200	1621	90	70	323	520	1105	516	1500	150	2000	-	320	280	140	4x19
	11	155	125	435	65	32	675	360	200	1720	90	70	343	578	1105	615	1620	150	1320	630	360	310	155	6x21
32/13	7,5	164	57	386	65	32	730	360	200	1676	90	70	343	520	1160	516	1680	150	1380	690	360	310	155	6x21
	11	164	125	454	65	32	730	360	200	1775	90	70	343	578	1160	615	1680	150	1380	690	360	310	155	6x21
32/14	7,5	173	57	403	65	32	785	360	200	1731	90	70	343	520	1215	516	1720	150	1420	710	360	310	155	6x21
	11	173	125	471	65	32	785	360	200	1830	90	70	343	578	1215	615	1720	150	1420	710	360	310	155	6x21
32/15	7,5	287	57	410	65	32	840	360	200	1786	90	70	343	520	1270	516	1780	150	1480	740	360	310	155	6x21
	11	182	125	478	65	32	840	360	200	1885	90	70	343	578	1270	615	1780	150	1480	740	360	310	155	6x21
	15	182	150	503	65	32	840	360	200	1980	90	70	343	595	1270	710	1780	150	1480	740	360	310	155	6x21
32/16	11	191	125	506	65	32	895	360	200	1940	90	70	343	578	1325	615	1840	150	1540	770	360	310	155	6x21
	15	191	150	520	65	32	895	360	200	2035	90	70	343	595	1325	710	1840	150	1540	770	360	310	155	6x21
32/17	11	200	125	524	65	32	950	360	200	1995	90	70	343	578	1380	615	1900	150	1600	800	360	310	155	6x21
	15	200	150	538	65	32	950	360	200	2090	90	70	343	595	1380	710	1900	150	1600	800	360	310	155	6x21
32/18	11	209	125	541	65	32	1005	360	200	2050	90	70	343	578	1435	615	1940	150	1640	790	360	310	155	6x21
	15	209	150	555	65	32	1005	360	200	2145	90	70	343	595	1435	710	1940	150	1640	790	360	310	155	6x21
32/19	11	218	125	558	65	32	1060	360	200	2105	90	70	343	578	1490	615	2000	150	1700	850	360	310	155	6x21
	15	218	150	572	65	32	1060	360	200	2200	90	70	343	595	1490	710	2000	150	1700	850	360	310	155	6x21
32/20	11	227	125	598	65	32	1115	360	200	2160	90	70	363	578	1545	615	2060	150	1760	880	360	310	155	6x21
	15	227	150	612	65	32	1115	360	200	2255	90	70	363	595	1545	710	2060	150	1760	880	360	310	155	6x21
	18,5	227	171	651	65	32	1115	360	200	2275	90	70	363	633	1545	730	2140	150	1840	920	450	400	200	6x21

## HPA 50 - 1450 rpm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
50/1	1,1	62	25	378	100	50	90	410	225	965	90	67	318	463	635	330	860	150	560	-	360	320	160	4x19
	1,5	62	30	383	100	50	90	410	225	993	90	67	318	463	635	358	860	150	560	-	360	320	160	4x19
	2,2	62	36	389	100	50	90	410	225	1028	90	67	318	475	635	393	880	150	580	-	360	320	160	4x19
50/2	2,2	81	36	389	100	50	220	410	225	1090	90	67	318	475	697	393	1000	150	640	-	360	320	160	4x19
	3	81	40	393	100	50	220	410	225	1090	90	67	318	475	697	393	1000	150	640	-	360	320	160	4x19
	4	81	46	399	100	50	220	410	225	1107	90	67	318	495	697	410	1000	150	640	-	360	320	160	4x19
50/3	3	100	40	393	100	50	282	410	225	1152	90	67	338	475	759	393	1060	150	700	-	360	320	160	4x19
	4	100	46	399	100	50	282	410	225	1169	90	67	338	495	759	410	1060	150	700	-	360	320	160	4x19
	5,5	100	70	423	100	50	282	410	225	1239	90	67	338	535	759	480	1140	150	780	-	380	340	170	4x19
50/4	4	119	46	399	100	50	344	410	225	1231	90	67	338	515	821	410	1200	150	840	-	380	340	170	4x19
	5,5	119	70	423	100	50	344	410	225	1301	90	67	338	535	821	480	1200	150	840	-	380	340	170	4x19
	7,5	119	57	410	100	50	344	410	225	1337	90	67	338	535	821	516	1200	150	840	-	380	340	170	4x19
50/5	5,5	138	70	423	100	50	406	410	225	1363	90	67	338	535	883	480	1280	150	900	-	380	340	170	4x19
	7,5	138	57	410	100	50	406	410	225	1399	90	67	338	535	883	516	1280	150	900	-	380	340	170	4x19
	11	138	125	478	100	50	406	410	225	1498	90	67	338	593	883	615	1400	150	1040	-	380	340	170	4x19

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

## HPA 50 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
50/7	7,5	176	57	410	100	50	530	410	225	1523	90	67	358	535	1007	516	1520	150	1160	-	380	340	170	6x21
	11	176	125	478	100	50	530	410	225	1622	90	67	358	593	1007	615	1520	150	1160	-	380	340	170	6x21
	15	176	150	503	100	50	530	410	225	1717	90	67	358	610	1007	710	1520	150	1160	-	380	340	170	6x21
50/8	7,5	195	57	410	100	50	592	410	225	1585	90	67	358	535	1069	516	1580	150	1220	640	380	340	170	6x21
	11	195	125	478	100	50	592	410	225	1684	90	67	358	593	1069	615	1580	150	1220	640	380	340	170	6x21
	15	195	150	503	100	50	592	410	225	1779	90	67	358	610	1069	710	1580	150	1220	640	380	340	170	6x21
50/9	11	214	125	592	100	50	654	410	225	1746	90	67	358	593	1131	615	1640	150	1340	670	380	340	170	6x21
	15	214	150	617	100	50	654	410	225	1841	90	67	358	610	1131	710	1640	150	1340	670	380	340	170	6x21
	18,5	214	171	638	100	50	654	410	225	1861	90	67	358	628	1131	730	1720	150	1420	710	440	400	200	6x21
50/10	11	233	125	592	100	50	716	410	225	1808	90	67	358	613	1193	615	1700	150	1400	700	380	340	170	6x21
	15	233	150	617	100	50	716	410	225	1903	90	67	358	610	1193	710	1700	150	1400	700	380	340	170	6x21
	18,5	233	171	638	100	50	716	410	225	1923	90	67	358	628	1193	730	1780	150	1480	740	440	400	200	6x21
	22	233	190	657	100	50	716	410	225	1973	90	67	358	628	1193	780	1780	150	1480	740	440	400	200	6x21
50/11	11	252	125	592	100	50	778	410	225	1870	90	67	358	613	1255	615	1780	150	1480	740	380	340	170	6x21
	15	252	150	617	100	50	778	410	225	1965	90	67	358	610	1255	710	1780	150	1480	740	380	340	170	6x21
	18,5	252	171	638	100	50	778	410	225	1985	90	67	358	628	1255	730	1840	150	1540	770	440	400	200	6x21
	22	252	190	657	100	50	778	410	225	2035	90	67	358	628	1255	780	1840	150	1540	770	440	400	200	6x21
50/12	11	271	125	592	100	50	840	410	225	1932	90	67	358	613	1317	615	1840	150	1540	730	380	340	170	6x21
	15	271	150	617	100	50	840	410	225	2027	90	67	358	610	1317	710	1840	150	1540	730	380	340	170	6x21
	18,5	271	171	638	100	50	840	410	225	2047	90	67	358	628	1317	730	1900	150	1600	770	440	400	200	6x21
	22	271	190	657	100	50	840	410	225	2097	90	67	358	628	1317	780	1900	150	1600	770	440	400	200	6x21
50/13	15	290	150	617	100	50	902	410	225	2089	90	67	358	610	1379	710	1980	150	1680	800	440	400	200	6x21
	18,5	290	171	638	100	50	902	410	225	2109	90	67	358	628	1379	730	1980	150	1680	800	440	400	200	6x21
	22	290	190	657	100	50	902	410	225	2159	90	67	358	628	1379	780	1980	150	1680	800	440	400	200	6x21
	30	290	255	722	100	50	902	410	225	2150	90	67	378	681	1379	771	2020	150	1720	820	500	460	230	6x21
50/14	15	309	150	617	100	50	896	340	225	2269	90	67	358	610	1559	710	1900	150	1600	800	440	400	200	6x21
	18,5	309	171	638	100	50	896	340	225	2289	90	67	358	628	1559	730	1900	150	1600	800	440	400	200	6x21
	22	309	190	657	100	50	896	340	225	2339	90	67	358	628	1559	780	1900	150	1600	800	440	400	200	6x21
	30	309	255	722	100	50	896	340	225	2330	90	67	358	681	1559	771	1940	150	1640	820	480	440	220	6x21
50/15	15	328	150	638	100	50	958	340	225	2331	90	67	358	610	1621	710	1960	150	1660	830	440	400	200	6x21
	18,5	328	171	659	100	50	958	340	225	2351	90	67	358	628	1621	730	1960	150	1660	830	440	400	200	6x21
	22	328	190	678	100	50	958	340	225	2401	90	67	358	628	1621	780	1960	150	1660	830	440	400	200	6x21
50/16	18,5	347	171	739	100	50	1020	340	225	2413	90	67	378	648	1683	730	2020	150	1720	860	460	420	210	6x21
	22	347	190	758	100	50	1020	340	225	2463	90	67	378	648	1683	780	2020	150	1720	860	460	420	210	6x21
	30	347	255	823	100	50	1020	340	225	2454	90	67	378	681	1683	771	2060	150	1760	880	480	440	220	6x21
	37	347	320	898	100	50	1020	340	225	2454	90	67	408	720	1683	815	2180	150	1880	940	540	500	250	6x21
50/17	18,5	366	171	739	100	50	1082	340	225	2475	90	67	378	648	1745	730	2080	150	1780	890	460	420	210	6x21
	22	366	190	758	100	50	1082	340	225	2525	90	67	378	648	1745	780	2080	150	1780	890	460	420	210	6x21
	30	366	255	823	100	50	1082	340	225	2516	90	67	378	681	1745	771	2120	150	1820	910	480	440	220	6x21
	37	366	269	837	100	50	1082	340	225	2560	90	67	408	720	1745	815	2180	150	1880	940	540	500	250	6x21
50/18	18,5	385	171	761	100	50	1144	340	225	2537	90	67	378	648	1807	730	2140	150	1840	920	460	420	210	6x21
	22	385	190	780	100	50	1144	340	225	2587	90	67	378	648	1807	780	2140	150	1840	920	460	420	210	6x21
	30	385	255	845	100	50	1144	340	225	2578	90	67	378	681	1807	771	2180	150	1880	940	480	440	220	6x21
	37	385	269	859	100	50	1144	340	225	2622	90	67	408	720	1807	815	2240	150	1940	970	540	500	250	6x21

## HPA 80 - 1450 rpm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
80/1	1,5	87	30	174	125	80	120	460	250	1003	80	65	338	483	645	358	960	150	660	-	420	380	190	4x19
	2,2	87	36	180	125	80	120	460	250	1038	80	65	338	495	645	393	960	150	660	-	420	380	190	4x19
	3	87	40	184	125	80	120	460	250	1038	80	65	338	495	645	393	960	150	660	-	420	380	190	4x19
	4	87	46	190	125	80	120	460	250	1055	80	65	338	515	645	410	960	150	660	-	420	380	190	4x19
80/2	3	116	40	225	125	80	195	460	250	1113	80	65	358	495	720	393	1120	150	820	-	420	380	190	4x19
	4	116	46	231	125	80	195	460	250	1130	80	65	358	515	720	410	1120	150	820	-	420	380	190	4x19
	5,5	116	70	255	125	80	195	460	250	1200	80	65	358	555	720	480	1120	150	820	-	420	380	190	4x19
80/3	7,5	116	57	242	125	80	195	460	250	1236	80	65	358	555	720	516	1120	150	820	-	420	380	190	4x19
	5,5	145	70	286	125	80	270	460	250	1275	80	65	358	555	795	480	1320	150	1020	-	420	380	190	4x19
	7,5	145	57	273	125	80	270	460	250	1311	80	65	358	555	795	516	1320	150	1020	-	420	380	190	4x19
	11	145	125	341	125	80	270	460	250	1410	80	65	358	613	795	615	1320	150	1020	-	420	380	190	4x19
80/4	15	145	150	366	125	80	270	460	250	1505	80	65	358	610	795	710	1320	150	1020	-	420	380	190	4x19
	7,5	174	57	306	125	80	345	460	250	1386	80	65	358	555	870	516	1380	150	1080	-	420	380	190	4x19
	11	174	125	374	125	80	345	460	250</															

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

## HPA 80 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
80/6	15	232	150	506	125	80	495	460	250	1730	80	65	378	610	1020	710	1620	150	1320	660	460	420	210	6x21
	18,5	232	171	527	125	80	495	460	250	1750	80	65	378	648	1020	730	1620	150	1320	660	460	420	210	6x21
	22	232	190	546	125	80	495	460	250	1800	80	65	378	648	1020	780	1620	150	1320	660	460	420	210	6x21
	30	232	255	611	125	80	495	460	250	1791	80	65	378	681	1020	771	1660	150	1360	680	500	460	230	6x21
80/7	15	261	150	539	125	80	570	460	250	1805	80	65	378	610	1095	710	1700	150	1400	700	460	420	210	6x21
	18,5	261	171	560	125	80	570	460	250	1825	80	65	378	648	1095	730	1700	150	1400	700	460	420	210	6x21
	22	261	190	579	125	80	570	460	250	1875	80	65	378	648	1095	780	1700	150	1400	700	460	420	210	6x21
	30	261	255	644	125	80	570	460	250	1866	80	65	378	681	1095	771	1740	150	1440	720	500	460	230	6x21
80/8	18,5	290	171	593	125	80	645	460	250	1900	80	65	378	648	1170	730	1820	150	1520	760	500	460	230	6x21
	22	290	190	612	125	80	645	460	250	1950	80	65	378	648	1170	780	1820	150	1520	760	500	460	230	6x21
	30	290	255	677	125	80	645	460	250	1941	80	65	378	681	1170	771	1820	150	1520	760	500	460	230	6x21
80/9	22	319	190	651	125	80	720	460	250	2025	80	65	378	648	1245	780	1900	150	1600	800	500	460	230	6x21
	30	319	255	716	125	80	720	460	250	2016	80	65	378	681	1245	771	1900	150	1600	800	500	460	230	6x21
	37	319	269	730	125	80	720	460	250	2060	80	65	383	695	1245	815	1940	150	1640	820	540	500	250	6x21
80/10	22	348	190	700	125	80	795	460	250	2100	80	65	378	648	1320	780	1960	150	1660	830	500	460	230	6x 21
	30	348	255	765	125	80	795	460	250	2091	80	65	378	681	1320	771	1960	150	1660	830	500	460	230	6x 21
	37	348	269	779	125	80	795	460	250	2135	80	65	403	695	1320	815	2020	150	1720	860	540	500	250	6x21
80/11	30	377	255	817	125	80	870	460	250	2166	80	65	403	681	1395	771	2100	150	1800	900	540	500	250	6x21
	37	377	269	831	125	80	870	460	250	2210	80	65	403	695	1395	815	2100	150	1800	900	540	500	250	6x21
	45	377	353	915	125	80	870	460	250	2215	80	65	403	715	1395	820	2100	150	1800	900	540	500	250	6x21
80/12	30	406	255	846	125	80	945	460	250	2241	80	65	403	681	1470	771	2160	150	1860	930	540	500	250	6x21
	37	406	269	860	125	80	945	460	250	2285	80	65	403	695	1470	815	2160	150	1860	930	540	500	250	6x21
	5,5	406	70	661	125	80	945	460	250	2290	80	65	403	715	1470	820	2160	150	1860	930	540	500	250	6x21
80/13	30	435	255	875	125	80	1020	460	250	2316	80	65	403	681	1545	771	2240	150	1940	970	540	500	250	6x21
	37	435	269	889	125	80	1020	460	250	2360	80	65	403	695	1545	815	2240	150	1940	970	540	500	250	6x21
	45	435	353	973	125	80	1020	460	250	2365	80	65	403	715	1545	820	2240	150	1940	970	540	500	250	6x21
	55	435	450	1070	125	80	1020	460	250	2455	80	65	433	788	1545	910	2320	150	2020	1010	600	560	280	6x21
80/14	37	464	269	924	125	80	1095	460	250	2435	80	65	403	695	1620	815	2320	150	2020	1010	540	500	250	6x21
	45	464	353	1008	125	80	1095	460	250	2440	80	65	403	715	1620	820	2320	150	2020	1010	540	500	250	6x21
	55	464	450	1105	125	80	1095	460	250	2530	80	65	433	788	1620	910	2400	150	2100	1050	600	560	280	6x21
80/15	37	493	269	953	125	80	1170	460	250	2510	80	65	403	695	1695	815	2400	150	2100	1050	540	500	250	6x21
	45	493	353	1037	125	80	1170	460	250	2515	80	65	403	715	1695	820	2400	150	2100	1050	540	500	250	6x21
	55	493	450	1134	125	80	1170	460	250	2605	80	65	433	788	1695	910	2460	150	2160	1080	600	560	280	6x21
	75	493	605	1289	125	80	1170	460	250	2680	80	65	493	891	1695	985	2550	150	2250	750	660	620	310	8x21
80/16	37	522	269	988	125	80	1245	460	250	2585	80	65	403	695	1770	815	2480	150	2180	1090	540	500	250	6x21
	45	522	353	1072	125	80	1245	460	250	2590	80	65	403	715	1770	820	2480	150	2180	1090	540	500	250	6x21
	55	522	450	1169	125	80	1245	460	250	2680	80	65	453	788	1770	910	2550	150	2250	750	600	560	280	8x21
	75	522	605	1324	125	80	1245	460	250	2755	80	65	493	891	1770	985	2640	150	2340	780	660	620	310	8x21

## HPA 100 - 1450 rpm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
100/1	5,5	174	70	319	150	100	145	480	315	1180	70	75	408	605	700	480	1100	150	800	-	480	440	220	4x19
	7,5	174	57	319	150	100	145	480	315	1216	70	75	408	605	700	516	1100	150	800	-	480	440	220	4x19
	11	174	125	396	150	100	145	480	315	1315	70	75	408	663	700	615	1220	150	920	-	480	440	220	4x19
100/2	11	219	125	471	150	100	235	480	315	1405	70	75	408	663	790	615	1320	150	1020	-	480	440	220	4x19
	15	219	150	496	150	100	235	480	315	1500	70	75	408	660	790	710	1320	150	1020	-	480	440	220	4x19
	18,5	219	171	517	150	100	235	480	315	1520	70	75	408	678	790	730	1380	150	1080	-	500	460	230	4x19
100/3	15	264	150	563	150	100	325	480	315	1590	70	75	408	663	880	710	1460	150	1160	-	500	460	230	4x19
	18,5	264	171	584	150	100	325	480	315	1610	70	75	408	660	880	730	1460	150	1160	-	500	460	230	4x19
	22	264	190	603	150	100	325	480	315	1660	70	75	408	678	880	780	1460	150	1160	-	500	460	230	4x19
	30	264	255	668	150	100	325	480	315	1651	70	75	408	711	880	771	1500	150	1200	-	500	460	230	4x19
100/4	18,5	309	171	644	150	100	415	480	315	1700	70	75	428	660	970	730	1580	150	1280	640	500	460	230	6x21
	22	309	190	663	150	100	415	480	315	1750	70	75	428	678	970	780	1580	150	1280	640	500	460	230	6x21
	30	309	255	728	150	100	415	480	315	1741	70	75	428	711	970	771	1580	150	1280	640	500	460	230	6x21
100/5	37	309	269	742	150	100	415	480	315	1785	70	75	413	725	970	815	1660	150	1360	680	520	480	240	6x21
	22	354	190	718	150	100	505	480	315	1840	70	75	413	678	1060	780	1760	150	1460	730	520	480	240	6x21
	30	354	255	783	150	100	505	480	315	1831	70	75	413	711	1060	771	1760	150	1460	730	520	480	240	6x21
	37	354	269	797	150	100	505	480	315	1875	70	75	413	725	1060	815	1760	150	1460	730	520	480	240	6x21
	45	354	353	881	150	100	505	480	315	1880	70	75	413	725	1060	820	1760	150	1460	730	520	480	240	6x21
100/6	30	399	255	836	150	100	595	480	315	1921	70	75	413	711	1150	771	1840	150	1540	770	520	480		

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

## HPA 100 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
100/7	37	444	269	903	150	100	685	480	315	2055	70	75	413	725	1240	815	1940	150	1640	820	520	480	240	6x21
	45	444	353	987	150	100	685	480	315	2060	70	75	413	725	1240	820	1940	150	1640	820	520	480	240	6x21
	55	444	450	1084	150	100	685	480	315	2150	70	75	413	725	1240	910	2000	150	1700	850	560	520	260	6x21
100/8	45	489	353	1040	150	100	775	480	315	2150	70	75	433	725	1330	820	2080	150	1780	890	580	540	270	6x21
	55	489	450	1137	150	100	775	480	315	2240	70	75	433	725	1330	910	2080	150	1780	890	580	540	270	6x21
	75	489	605	1292	150	100	775	480	315	2315	70	75	463	861	1330	985	2180	150	1880	940	640	600	300	6x21
100/9	45	534	353	1090	150	100	865	480	315	2240	70	75	433	725	1420	820	2180	150	1880	940	580	540	270	6x21
	55	534	450	1187	150	100	865	480	315	2330	70	75	433	725	1420	910	2180	150	1880	940	580	540	270	6x21
	75	534	605	1342	150	100	865	480	315	2405	70	75	463	861	1420	985	2260	150	1960	980	640	600	300	6x21
100/10	45	579	353	1140	150	100	955	480	315	2330	70	75	463	775	1510	820	2360	150	2060	1030	640	600	300	6x21
	55	579	450	1237	150	100	955	480	315	2420	70	75	463	818	1510	910	2360	150	2060	1030	640	600	300	6x21
	75	579	605	1392	150	100	955	480	315	2495	70	75	463	861	1510	985	2360	150	2060	1030	640	600	300	6x21
	90	579	700	1487	150	100	955	480	315	2545	70	75	463	861	1510	1035	2360	150	2060	1030	640	600	300	6x21
100/11	55	624	450	1287	150	100	1045	480	315	2510	70	75	463	818	1600	910	2440	150	2140	1070	640	600	300	6x21
	75	624	605	1442	150	100	1045	480	315	2585	70	75	463	861	1600	985	2440	150	2140	1070	640	600	300	6x21
	90	624	700	1537	150	100	1045	480	315	2635	70	75	463	861	1600	1035	2440	150	2140	1070	640	600	300	6x21
100/12	55	669	450	1342	150	100	1135	480	315	2600	70	75	483	818	1690	910	2550	150	2250	750	640	600	300	8x21
	75	669	605	1497	150	100	1135	480	315	2675	70	75	483	861	1690	985	2550	150	2250	750	640	600	300	8x21
	90	669	700	1592	150	100	1135	480	315	2725	70	75	483	861	1690	1035	2550	150	2250	750	640	600	300	8x21
	110	669	925	1817	150	100	1135	480	315	2850	70	75	543	1073	1690	1160	2700	150	2400	800	740	700	350	8x21
100/13	75	714	605	1554	150	100	1225	480	315	2765	70	75	483	881	1780	985	2640	150	2340	780	640	600	300	8x21
	90	714	700	1649	150	100	1225	480	315	2815	70	75	483	881	1780	1035	2640	150	2340	780	640	600	300	8x21
	110	714	925	1874	150	100	1225	480	315	2940	70	75	543	1073	1780	1160	2790	150	2490	830	740	700	350	8x21
100/14	75	759	605	1611	150	100	1315	480	315	2855	70	75	483	881	1870	985	2730	150	2430	810	640	600	300	8x21
	90	759	700	1706	150	100	1315	480	315	2905	70	75	483	881	1870	1035	2730	150	2430	810	640	600	300	8x21
	110	759	925	1931	150	100	1315	480	315	3030	70	75	543	1073	1870	1160	2880	150	2580	860	740	700	350	8x21

## HPA 125 - 1450 rpm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
125/1	18,5	283	171	608	200	125	155	590	350	1560	50	85	498	768	830	730	1460	150	1160	-	600	560	280	4x19
	22	283	190	627	200	125	155	590	350	1610	50	85	498	768	830	780	1460	150	1160	-	600	560	280	4x19
	30	283	255	692	200	125	155	590	350	1601	50	85	498	801	830	771	1460	150	1160	-	600	560	280	4x19
125/2	37	364	269	787	200	125	265	590	350	1755	50	85	518	830	940	815	1700	150	1400	700	600	560	280	6x21
	45	364	353	871	200	125	265	590	350	1760	50	85	518	830	940	820	1700	150	1400	700	600	560	280	6x21
	55	364	450	968	200	125	265	590	350	1850	50	85	518	873	940	910	1700	150	1400	700	600	560	280	6x21
125/3	45	445	353	968	200	125	375	590	350	1870	50	85	518	830	1050	820	1900	150	1600	800	640	600	300	6x21
	55	445	450	1065	200	125	375	590	350	1960	50	85	518	873	1050	910	1900	150	1600	800	640	600	300	6x21
	75	445	605	1220	200	125	375	590	350	2035	50	85	518	916	1050	985	1900	150	1600	800	640	600	300	6x21
125/4	75	526	605	1316	200	125	485	590	350	2145	50	85	518	916	1160	985	2200	150	1900	950	720	680	340	6x21
	90	526	700	1411	200	125	485	590	350	2195	50	85	518	916	1160	1035	2200	150	1900	950	720	680	340	6x21
	110	526	925	1636	200	125	485	590	350	2320	50	85	518	1048	1160	1160	2200	150	1900	950	720	680	340	6x21
125/5	90	607	700	1492	200	125	595	590	350	2305	50	85	518	916	1270	1035	2300	150	2000	1000	720	680	340	6x21
	110	607	925	1717	200	125	595	590	350	2430	50	85	518	1048	1270	1160	2300	150	2000	1000	720	680	340	6x21
	132	607	1180	1972	200	125	595	590	350	2460	50	85	518	1048	1270	1190	2300	150	2000	1000	720	680	340	6x21
125/6	110	688	925	1814	200	125	705	590	350	2540	50	85	518	1048	1380	1160	2420	150	2120	1060	720	680	340	6x21
	132	688	1180	2069	200	125	705	590	350	2570	50	85	518	1048	1380	1190	2420	150	2120	1060	720	680	340	6x21
	160	688	1161	2050	200	125	705	590	350	2700	50	85	518	1048	1380	1320	2420	150	2120	1060	720	680	340	6x21
125/7	132	769	1180	2162	200	125	845	590	350	2710	50	85	538	1048	1520	1190	2520	150	2220	740	720	680	340	8x21
	160	769	1161	2143	200	125	845	590	350	2840	50	85	538	1048	1520	1320	2520	150	2220	740	720	680	340	8x21
	200	769	1241	2223	200	125	845	590	350	2840	50	85	538	1048	1520	1320	2520	150	2220	740	720	680	340	8x21
125/8	132	850	1180	2253	200	125	925	590	350	2790	50	85	538	1048	1600	1190	2640	150	2340	780	720	680	340	8x21
	160	850	1161	2234	200	125	925	590	350	2920	50	85	538	1048	1600	1320	2640	150	2340	780	720	680	340	8x21
	200	850	1241	2314	200	125	925	590	350	2920	50	85	538	1048	1600</									

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

## HPA 150 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
150/1	30	509	255	942	250	150	175	660	420	1716	40	110	533	836	945	771	1720	150	1420	710	720	680	340	6x21
	37	509	269	956	250	150	175	660	420	1760	40	110	533	845	945	815	1720	150	1420	710	720	680	340	6x21
	45	509	353	1040	250	150	175	660	420	1765	40	110	533	845	945	820	1720	150	1420	710	720	680	340	6x21
	55	509	450	1137	250	150	175	660	420	1855	40	110	533	888	945	910	1720	150	1420	710	720	680	340	6x21
150/2	75	509	605	1292	250	150	175	660	420	1930	40	110	533	931	945	985	1720	150	1420	710	720	680	340	6x21
	2,2	645	605	1439	250	150	310	660	420	2065	40	110	553	951	1080	985	2040	150	1740	870	720	680	340	6x21
	90	645	700	1534	250	150	310	660	420	2115	40	110	553	951	1080	1035	2040	150	1740	870	720	680	340	6x21
	110	645	925	1759	250	150	310	660	420	2240	40	110	553	1083	1080	1160	2040	150	1740	870	720	680	340	6x21
150/3	132	645	1180	2014	250	150	310	660	420	2270	40	110	553	1083	1080	1190	2040	150	1740	870	720	680	340	6x21
	90	781	700	1684	250	150	445	660	420	2250	40	110	553	951	1215	1035	2160	150	1860	930	720	680	340	6x21
	110	781	925	1909	250	150	445	660	420	2375	40	110	553	1083	1215	1160	2160	150	1860	930	720	680	340	6x21
	132	781	1180	2164	250	150	445	660	420	2405	40	110	553	1083	1215	1190	2160	150	1860	930	720	680	340	6x21
150/4	160	781	1161	2145	250	150	445	660	420	2535	40	110	553	1083	1215	1320	2160	150	1860	930	720	680	340	6x21
	200	781	1241	2225	250	150	445	660	420	2535	40	110	553	1083	1215	1320	2160	150	1860	930	720	680	340	6x21
	160	917	1161	2298	250	150	580	660	420	2670	40	110	573	1103	1350	1320	2490	150	2190	730	840	800	400	8x21
	200	917	1241	2378	250	150	580	660	420	2670	40	110	573	1103	1350	1320	2490	150	2190	730	840	800	400	8x21
150/5	250	917	1870	3007	250	150	580	660	420	2850	40	110	573	1228	1350	1500	2490	150	2190	730	840	800	400	8x21
	315	917	2090	3227	250	150	580	660	420	2850	40	110	573	1228	1350	1500	2490	150	2190	730	840	800	400	8x21
	200	1053	1241	2532	250	150	715	660	420	2805	40	110	573	1103	1485	1320	2610	150	2310	770	840	800	400	8x21
	250	1053	1870	3161	250	150	715	660	420	2985	40	110	573	1228	1485	1500	2610	150	2310	770	840	800	400	8x21
150/6	315	1053	2090	3381	250	150	715	660	420	2985	40	110	573	1228	1485	1500	2610	150	2310	770	840	800	400	8x21
	365	1053	2050	3341	250	150	715	660	420	3295	40	110	573	1118	1485	1810	2610	150	2310	770	840	800	400	8x21
	250	1189	1870	3314	250	150	850	660	420	3120	40	110	573	1228	1620	1500	2730	150	2430	810	840	800	400	8x21
	315	1189	2090	3534	250	150	850	660	420	3120	40	110	573	1228	1620	1500	2730	150	2430	810	840	800	400	8x21
150/7	365	1189	2050	3494	250	150	850	660	420	3430	40	110	573	1118	1620	1810	2730	150	2430	810	840	800	400	8x21
	400	1189	2350	3794	250	150	850	660	420	3605	40	110	573	1148	1620	1985	2730	150	2430	810	840	800	400	8x21
	315	1325	2090	3688	250	150	985	660	420	3255	40	110	573	1228	1755	1500	2880	150	2580	860	840	800	400	8x21
	365	1325	2050	3648	250	150	985	660	420	3565	40	110	573	1118	1755	1810	2880	150	2580	860	840	800	400	8x21
150/8	400	1325	2350	3948	250	150	985	660	420	3740	40	110	573	1148	1755	1985	2880	150	2580	860	840	800	400	8x21
	470	1325	2550	4148	250	150	985	660	420	3740	40	110	573	1148	1755	1985	2880	150	2580	860	840	800	400	8x21
	560	1325	2750	4348	250	150	985	660	420	3740	40	110	573	1148	1755	1985	2880	150	2580	860	840	800	400	8x21
	365	1461	2050	3798	250	150	1120	660	420	3700	40	110	593	1138	1890	1810	3030	150	2730	910	840	800	400	8x21
150/9	400	1461	2350	4098	250	150	1120	660	420	3875	40	110	593	1168	1890	1985	3030	150	2730	910	840	800	400	8x21
	470	1461	2090	3838	250	150	1120	660	420	3875	40	110	593	1168	1890	1985	3030	150	2730	910	840	800	400	8x21
	560	1461	2050	3798	250	150	1120	660	420	3875	40	110	593	1168	1890	1985	3030	150	2730	910	840	800	400	8x21
	600	1461	3400	5148	250	150	1120	660	420	4015	40	110	652	1262	1890	2125	3480	150	3180	1060	980	940	470	8x21
150/10	400	1597	2350	4247	250	150	1255	660	420	4010	40	110	593	1168	2025	1985	3150	150	2850	950	840	800	400	8x21
	470	1597	2090	3987	250	150	1255	660	420	4010	40	110	593	1168	2025	1985	3150	150	2850	950	840	800	400	8x21
	560	1597	2050	3947	250	150	1255	660	420	4010	40	110	652	1227	2025	1985	3600	150	3300	1100	980	940	470	8x21
	600	1597	3400	5297	250	150	1255	660	420	4150	40	110	652	1262	2025	2125	3600	150	3300	1100	980	940	470	8x21
150/10	470	1733	2090	4145	250	150	1390	660	420	4145	40	110	593	1168	2160	1985	3270	150	2970	990	840	800	400	8x21
	560	1733	2050	4105	250	150	1390	660	420	4145	40	110	593	1168	2160	1985	3270	150	2970	990	840	800	400	8x21
	600	1733	3400	5455	250	150	1390	660	420	4285	40	110	652	1262	2160	2125	3720	150	3420	1140	980	940	470	8x21
	680	1733	3600	5655	250	150	1390	660	420	4285	40	110	652	1262	2160	2125	3720	150	3420	1140	980	940	470	8x21

# HPA LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

## HPA 25 - 2950 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
25/1	1,1	28	18	76	50	25	55	250	160	629	100	41	263	393	346	283	640	150	340	-	310	275	137,5	4x17
	1,5	28	23	81	50	25	55	250	160	676	100	41	263	408	346	330	640	150	340	-	310	275	137,5	4x17
	2,2	28	26	84	50	25	55	250	160	684	100	41	263	408	346	338	640	150	340	-	310	275	137,5	4x17
25/2	2,2	37	23	95	50	25	100	250	160	764	100	41	263	420	391	373	700	150	400	-	310	275	137,5	4x17
	3	37	26	98	50	25	100	250	160	764	100	41	263	420	391	373	700	150	400	-	310	275	137,5	4x17
	4	37	35	107	50	25	100	250	160	764	100	41	263	420	391	373	700	150	400	-	310	275	137,5	4x17
	5,5	37	43	115	50	25	100	250	160	781	100	41	263	440	391	390	720	150	420	-	310	275	137,5	4x17
25/3	4	46	35	123	50	25	145	250	160	809	100	41	283	420	436	373	760	150	460	-	320	280	140	4x19
	5,5	46	66	154	50	25	145	250	160	826	100	41	283	460	436	390	760	150	460	-	320	280	140	4x19
	7,5	46	73	161	50	25	145	250	160	826	100	41	283	480	436	390	760	150	460	-	320	280	140	4x19
25/4	7,5	55	73	170	50	25	190	250	160	871	100	41	283	480	481	390	800	150	500	-	320	280	140	4x19
	11	55	120	217	50	25	190	250	160	977	100	41	283	480	481	496	880	150	580	-	320	280	140	4x19
25/5	11	64	120	234	50	25	235	250	160	1022	100	41	283	480	526	496	920	150	620	-	320	280	140	4x19
25/6	11	73	120	243	50	25	280	250	160	1067	100	41	283	480	571	496	980	150	680	-	320	280	140	4x19
	15	73	132	255	50	25	280	250	160	1186	100	41	318	573	571	615	1100	150	800	-	400	360	180	4x19
25/7	15	82	132	264	50	25	325	250	160	1231	100	41	318	573	616	615	1140	150	840	-	400	360	180	4x19
	18,5	82	150	282	50	25	325	250	160	1326	100	41	318	570	616	710	1140	150	840	-	400	360	180	4x19
25/8	15	91	132	290	50	25	370	250	160	1276	100	41	318	573	661	615	1200	150	900	-	400	360	180	4x19
	18,5	91	150	308	50	25	370	250	160	1371	100	41	318	570	661	710	1200	150	900	-	400	360	180	4x19
25/9	18,5	100	150	317	50	25	415	250	160	1416	100	41	318	570	706	710	1240	150	940	-	400	360	180	4x19
	22	100	205	372	50	25	415	250	160	1436	100	41	318	588	706	730	1300	150	1000	-	420	380	190	4x19
25/10	18,5	109	150	343	50	25	460	250	160	1461	100	41	318	570	751	710	1280	150	980	-	400	360	180	4x19
	22	109	205	398	50	25	460	250	160	1481	100	41	318	588	751	730	1340	150	1040	-	420	380	190	4x19
25/11	22	118	205	407	50	25	505	250	160	1526	100	41	318	588	796	730	1400	150	1100	-	420	380	190	4x19
	30	118	250	452	50	25	505	250	160	1567	100	41	338	641	796	771	1440	150	1140	-	480	440	220	4x19
25/12	22	127	205	427	50	25	550	250	160	1571	100	41	318	588	841	730	1440	150	1140	-	420	380	190	4x19
	30	127	250	472	50	25	550	250	160	1612	100	41	338	641	841	771	1480	150	1180	-	480	440	220	4x19
25/13	30	136	250	481	50	25	595	250	160	1657	100	41	358	661	886	771	1520	150	1220	610	480	440	220	6x21
25/14	30	145	250	490	50	25	640	250	160	1702	100	41	358	661	931	771	1580	150	1280	640	480	440	220	6x21
25/15	30	154	250	512	50	25	685	250	160	1747	100	41	358	661	976	771	1620	150	1320	660	480	440	220	6x21
	37	154	270	532	50	25	685	250	160	1747	100	41	358	661	976	771	1620	150	1320	660	480	440	220	6x21
25/16	30	163	250	521	50	25	730	250	160	1792	100	41	358	661	1021	771	1660	150	1360	680	480	440	220	6x21
	37	163	270	541	50	25	730	250	160	1792	100	41	358	661	1021	771	1660	150	1360	680	480	440	220	6x21
25/17	37	172	270	550	50	25	775	250	160	1837	100	41	358	661	1066	771	1700	150	1400	700	480	440	220	6x21
25/18	37	181	270	570	50	25	820	250	160	1882	100	41	358	661	1111	771	1760	150	1460	730	480	440	220	6x21
	45	181	315	615	50	25	820	250	160	1961	100	41	383	695	1111	850	1780	150	1480	740	520	480	240	6x21
25/19	37	190	270	579	50	25	865	250	160	1927	100	41	358	661	1156	771	1800	150	1500	750	480	440	220	6x21
	45	190	315	624	50	25	865	250	160	2006	100	41	383	695	1156	850	1820	150	1520	760	520	480	240	6x21
25/20	37	199	270	603	50	25	910	250	160	1972	100	41	358	661	1201	771	1840	150	1540	770	480	440	220	6x21
	45	199	315	648	50	25	910	250	160	2051	100	41	383	695	1201	850	1860	150	1560	780	520	480	240	6x21

## HPA 32 - 2950 rpm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
32/1	2,2	50	26	93	50	32	70	300	200	1025	90	237	303	448	667	358	740	150	440	-	320	280	140	4x19
	3	50	26	102	50	32	70	300	200	1060	90	237	303	460	667	393	740	150	440	-	320	280	140	4x19
	4	50	35	110	50	32	70	300	200	1077	90	237	303	480	667	410	740	150	440	-	320	280	140	4x19
	5,5	50	43	133	50	32	70	360	200	910	90	70	323	480	500	410	800	150	500	-	320	280	140	4x19
	7,5	50	73	149	50	32	70	360	200	980	90	70	323	500	500	480	880	150	580	-	320	280	140	4x19
32/2	4	65	35	156	50	32	125	300	200	1132	90	237	303	480	722	410	880	150	580	-	320	280	140	4x19
	5,5	65	43	179	50	32	125	300	200	1132	90	237	303	480	722	410	880	150	580	-	320	280	140	4x19
	7,5	65	73	186	50	32	125	300	200	1202	90	237	303	500	722	480	880	150	580	-	320	280	140	4x19
	11	65	120	269	50	32	125	300	200	1337	90	237	303	558	722	615	1000	150	700	-	360	320	160	4x19
32/3	15	65	132	269	50	32	125	300	200	1337	90	237	303	558	722	615	1000	150	700	-	360	320	160	4x19
	11	74	120	280	50	32	180	300	200	1392	90	237	323	558	777	615	1060	150	760	-	360	320	160	4x19
	15	74	132	292	50	32	180	300	200	1392	90	237	323	558	777	615	1060	150	760	-	360	320	160	4x19
	18,5	74	150	310	50	32	180	300	200	1487	90	237	323	575	777	710	1060	150	760	-	360	320	160	4x19
32/4	22	74	205	346	50	32	180	300	200	1507	90	237	323	593	777	730	1140	150	840	-	440	400	200	4x19
	15	83	132	290	50	32	235	300	200	1447	90	237	323	558	832	615	1180	150	880	-	440	400	200	4x19
	18,5	83	150	308	50	32	235	300	200	1542	90	237	323	575	832	710	1180	150	880	-	440	400	200	4x19
	22	83	205	363	50	32	235	300	200	1562	90	237	323	593	832	730	1180	150	880	-	440	400	200	4x19
32/5	30	83	250	423	50	32	235	300	200	1603	90	237	338	641	832	771	1220	150	920	-	480	440	220	4x19
	18,5	92																						

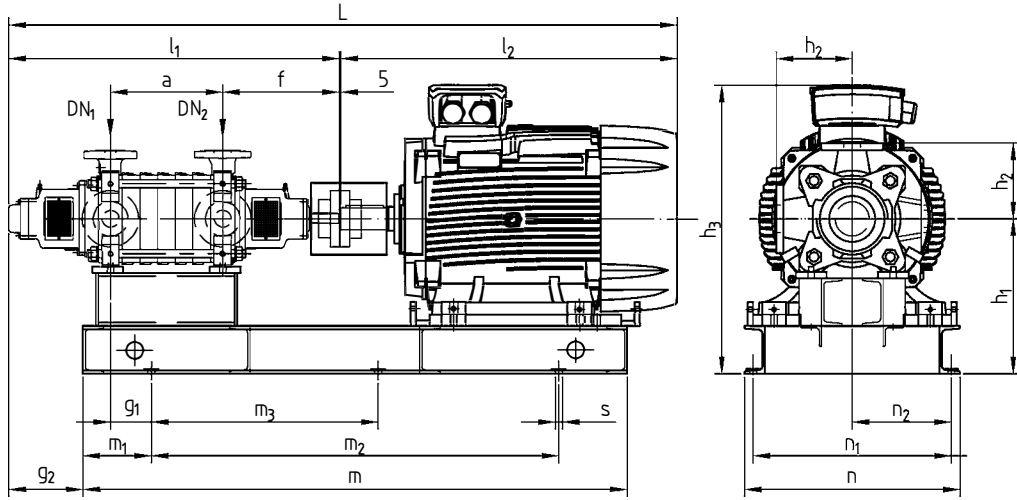








# HP LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



## HP 25 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	DN <sub>1</sub>	DN <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
25/1	0,75	39	12	91	40	25	55	239,5	160	774,5	100	142	263	393	486,5	283	600	150	300	-	310	275	137,5	4x17
25/2	0,75	48	12	101	40	25	100	239,5	160	819,5	100	142	263	393	531,5	283	640	150	340	-	310	275	137,5	4x17
25/3	0,75	57	12	111	40	25	145	239,5	160	864,5	100	142	263	393	576,5	283	680	150	380	-	310	275	137,5	4x17
25/4	1,1	66	25	122,1	40	25	190	239,5	160	909,5	100	142	263	413	621,5	283	720	150	420	-	310	275	137,5	4x17
25/5	1,1	75	25	137,1	40	25	235	239,5	160	954,5	100	142	283	413	666,5	283	780	150	480	-	320	280	140	4x19
	1,5	75	30	141	40	25	235	239,5	160	1009,5	100	142	283	428	666,5	338	800	150	500	-	320	280	140	4x19
25/6	1,5	84	30	152	40	25	280	239,5	160	1054,5	100	142	283	428	711,5	338	840	150	540	-	320	280	140	4x19
25/7	1,5	93	30	163	40	25	325	239,5	160	1099,5	100	142	283	428	756,5	338	900	150	600	-	320	280	140	4x19
	2,2	111	36	171	40	25	325	239,5	160	1134,5	100	142	283	440	756,5	373	920	150	620	-	320	280	140	4x19
25/8	2,2	102	36	182	40	25	370	239,5	160	1179,5	100	142	283	440	801,5	373	980	150	680	-	320	280	140	4x19
25/9	2,2	111	36	201	40	25	415	239,5	160	1224,5	100	142	303	460	846,5	373	1020	150	720	-	330	290	145	4x19
	3	111	40	203	40	25	415	239,5	160	1224,5	100	142	303	460	846,5	373	1020	150	720	-	330	290	145	4x19
25/10	2,2	120	36	212	40	25	460	239,5	160	1269,5	100	142	303	460	891,5	373	1060	150	760	-	330	290	145	4x19
	3	120	40	214	40	25	460	239,5	160	1269,5	100	142	303	460	891,5	373	1060	150	760	-	330	290	145	4x19
25/11	3	129	40	225	40	25	505	239,5	160	1314,5	100	142	303	460	936,5	373	1100	150	800	-	330	290	145	4x19
25/12	3	138	40	236	40	25	550	239,5	160	1359,5	100	142	303	460	981,5	373	1140	150	840	-	330	290	145	4x19
25/13	3	147	40	247	40	25	595	239,5	160	1404,5	100	142	303	460	1026,5	373	1200	150	900	-	330	290	145	4x19
	4	147	46	250	40	25	595	239,5	160	1421,5	100	142	303	480	1026,5	390	1200	150	900	-	360	320	160	4x19
25/14	3	156	40	258	40	25	640	239,5	160	1449,5	100	142	303	460	1071,5	373	1240	150	940	-	330	290	145	4x19
	4	156	46	261	40	25	640	239,5	160	1466,5	100	142	303	480	1071,5	390	1240	150	940	-	360	320	160	4x19
25/15	4	165	46	272	40	25	685	239,5	160	1511,5	100	142	303	480	1116,5	390	1300	150	1000	-	360	320	160	4x19
25/16	4	174	46	283	40	25	730	239,5	160	1556,5	100	142	303	480	1161,5	390	1340	150	1040	-	360	320	160	4x19
25/17	4	183	46	294	40	25	775	239,5	160	1601,5	100	142	303	480	1206,5	390	1380	150	1080	-	360	320	160	4x19
	5,5	183	70	311	40	25	775	239,5	160	1671,5	100	142	303	500	1206,5	460	1460	150	1160	-	360	320	160	4x19
25/18	4	192	46	305	40	25	820	239,5	160	1646,5	100	142	303	480	1251,5	390	1420	150	1120	-	360	320	160	4x19
	5,5	192	70	322	40	25	820	239,5	160	1716,5	100	142	303	520	1251,5	460	1500	150	1200	-	360	320	160	4x19
25/19	4	201	46	316	40	25	865	239,5	160	1691,5	100	142	303	480	1296,5	390	1480	150	1180	-	360	320	160	4x19
	5,5	201	70	346	40	25	865	239,5	160	1761,5	100	142	323	520	1296,5	460	1560	150	1260	630	360	320	160	6x21
25/20	5,5	210	70	357	40	25	910	239,5	160	1806,5	100	142	323	520	1341,5	460	1600	150	1300	650	360	320	160	6x21
25/21	5,5	219	70	368	40	25	955	239,5	160	1851,5	100	142	323	520	1386,5	460	1640	150	1340	670	360	320	160	6x21
25/22	5,5	228	70	379	40	25	1000	239,5	160	1896,5	100	142	323	520	1431,5	460	1680	150	1380	690	360	320	160	6x21
25/23	5,5	237	70	390	40	25	1045	239,5	160	1941,5	100	142	323	520	1476,5	460	1740	150	1440	720	360	320	160	6x21
	7,5	237	57	392	40	25	1045	239,5	160	1977,5	100	142	323	520	1476,5	496	1740	150	1440	720	360	320	160	6x21
25/24	5,5	246	70	401	40	25	1090	239,5	160	1986,5	100	142	323	520	1521,5	460	1780	150	1480	740	360	320	160	6x21
	7,5	246	57	403	40	25	1090	239,5	160	2022,5	100	142	323	520	1521,5	496	1780	150	1480	740	360	320	160	6x21
25/25	5,5	255	70	412	40	25	1135	239,5	160	2031,5	100	142	323	520	1566,5	460	1820	150	1520	760	360	320	160	6x21
	7,5	255	57	414	40	25	1135	239,5	160	2067,5	100	142	323	520	1566,5	496	1820	150	1520	760	360	320	160	6x21

























# HP LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

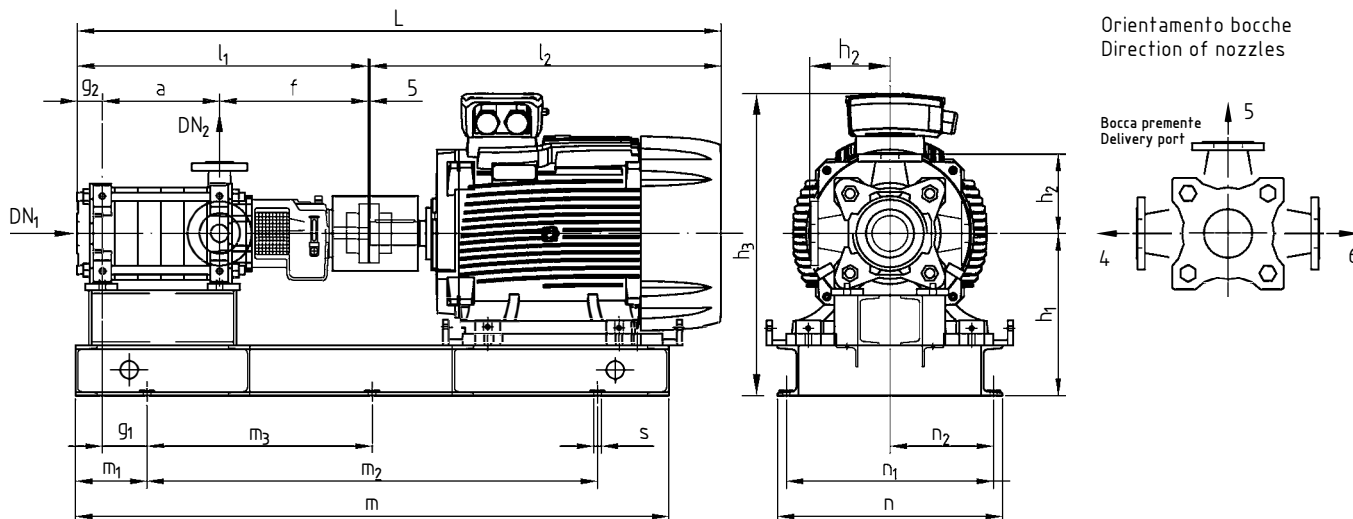
## HP 150 - 2950 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
150/1	200	720	1221	2169	250	150	235	552.5	420	1325	40	405	553	1083	1302,5	1320	2060	150	1760	880	840	800	400	6x21
	250	720	2090	3038	250	150	235	552.5	420	1505	40	405	553	1208	1302,5	1500	2060	150	1760	880	840	800	400	6x21
	315	720	2530	3478	250	150	235	552.5	420	1505	40	405	553	1208	1302,5	1500	2060	150	1760	880	840	800	400	6x21
	355	720	2000	2948	250	150	235	552.5	420	1795	40	405	553	1098	1302,5	1790	2060	150	1760	880	840	800	400	6x21
	400	720	2300	3248	250	150	235	552.5	420	1935	40	405	553	1128	1302,5	1930	2060	150	1760	880	840	800	400	6x21
	450	720	2400	3348	250	150	235	552.5	420	1935	40	405	553	1128	1302,5	1930	2060	150	1760	880	840	800	400	6x21
	510	720	2550	3498	250	150	235	552.5	420	3237,5	40	405	553	1128	1302,5	1930	2060	150	1760	880	840	800	400	6x21
150/2	400	856	2300	3419	250	150	370	552.5	420	1795	40	405	682	1257	1437,5	1790	2970	150	2670	890	1080	1040	520	8x21
	450	856	2400	3519	250	150	370	552.5	420	1935	40	405	682	1257	1437,5	1930	2970	150	2670	890	1080	1040	520	8x21
	510	856	2550	3669	250	150	370	552.5	420	1935	40	405	682	1257	1437,5	1930	2970	150	2670	890	1080	1040	520	8x21
	560	856	3150	4269	250	150	370	552.5	420	2100	40	405	682	1292	1437,5	2095	2970	150	2670	890	1080	1040	520	8x21
	650	856	3300	4419	250	150	370	552.5	420	2100	40	405	682	1292	1437,5	2095	2970	150	2670	890	1080	1040	520	8x21
	750	856	3550	4669	250	150	370	552.5	420	2100	40	405	682	1292	1437,5	2095	2970	150	2670	890	1080	1040	520	8x21
	820	856	4600	5719	250	150	370	552.5	420	2325	40	405	682	1332	1437,5	2320	2970	150	2670	890	1080	1040	520	8x21
	940	856	4900	6019	250	150	370	552.5	420	2325	40	405	682	1332	1437,5	2320	2970	150	2670	890	1080	1040	520	8x21
150/3	1030	856	5200	6319	250	150	370	552.5	420	3762,5	40	405	682	1332	1437,5	2320	2970	150	2670	890	1080	1040	520	8x21
	1200	856	6100	7219	250	150	370	552.5	420	4117,5	40	405	732	1432	1437,5	2675	3480	150	3180	1060	1220	1180	590	8x21
	650	992	3300	4583	250	150	505	552.5	420	2100	40	405	682	1292	1572,5	2095	3090	150	2790	930	1080	1040	520	8x21
	750	992	3550	4833	250	150	505	552.5	420	2100	40	405	682	1292	1572,5	2095	3090	150	2790	930	1080	1040	520	8x21
	820	992	4600	5883	250	150	505	552.5	420	2325	40	405	682	1332	1572,5	2320	3090	150	2790	930	1080	1040	520	8x21
	940	992	4900	6183	250	150	505	552.5	420	2325	40	405	682	1332	1572,5	2320	3090	150	2790	930	1080	1040	520	8x21
	1030	992	5200	6483	250	150	505	552.5	420	3897,5	40	405	682	1332	1572,5	2320	3090	150	2790	930	1080	1040	520	8x21
	1200	992	6100	7383	250	150	505	552.5	420	2680	40	405	752	1452	1572,5	2675	3600	150	3300	1100	1220	1180	590	8x21
150/4	1300	992	6300	7583	250	150	505	552.5	420	2680	40	405	752	1452	1572,5	2675	3600	150	3300	1100	1220	1180	590	8x21
	1420	992	6700	7983	250	150	505	552.5	420	4252,5	40	405	752	1452	1572,5	2675	3600	150	3300	1100	1220	1180	590	8x21
	1680	992	8200	9483	250	150	505	552.5	420	4442,5	40	405	792	1562	1572,5	2865	3480	150	3180	1060	1400	1360	680	8x21
	1030	1128	5200	6656	250	150	640	552.5	420	2325	40	405	812	1462	1707,5	2320	3600	150	3300	1100	1400	1360	680	8x21
	1200	1128	6100	7556	250	150	640	552.5	420	2680	40	405	812	1512	1707,5	2675	3600	150	3300	1100	1400	1360	680	8x21
	1300	1128	6300	7756	250	150	640	552.5	420	2680	40	405	812	1512	1707,5	2675	3600	150	3300	1100	1400	1360	680	8x21
1420	1128	6700	8156	250	150	640	552.5	420	2680	40	405	812	1512	1707,5	2675	3600	150	3300	1100	1400	1360	680	8x21	
1680	1128	8200	9656	250	150	640	552.5	420	2870	40	405	812	1562	1707,5	2865	3600	150	3300	1100	1400	1360	680	8x21	
1900	1128	8600	10056	250	150	640	552.5	420	4577,5	40	405	812	1562	1707,5	2865	3600	150	3300	1100	1400	1360	680	8x21	



# HPMA LUBRIFICAZIONE A OLIO / OIL LUBRICATION



## HPMA 25 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	DN <sub>1</sub>	DN <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
25/1	0,75	33	12	87	50	25	55	280	160	664	100	41	263	393	376	283	640	150	340	-	310	275	137,5	4x17
25/2	0,75	42	12	96	50	25	100	280	160	709	100	41	263	393	421	283	680	150	380	-	310	275	137,5	4x17
25/3	0,75	51	12	106	50	25	145	280	160	754	100	41	263	393	466	283	720	150	420	-	310	275	137,5	4x17
25/4	1,1	60	25	122,1	50	25	190	280	160	799	100	41	283	413	511	283	760	150	460	-	320	280	140	4x19
25/5	1,1	69	25	137,1	50	25	235	280	160	844	100	41	283	413	556	283	820	150	520	-	320	280	140	4x19
	1,5	69	30	136	50	25	235	280	160	899	100	41	283	428	556	338	840	150	540	-	320	280	140	4x19
25/6	1,5	78	30	147	50	25	280	280	160	944	100	41	283	428	601	338	880	150	580	-	320	280	140	4x19
25/7	1,5	87	30	159	50	25	325	280	160	989	100	41	283	428	646	338	940	150	640	-	320	280	140	4x19
	2,2	87	36	167	50	25	325	280	160	1024	100	41	283	440	646	373	960	150	660	-	320	280	140	4x19
25/8	2,2	96	36	177	50	25	370	280	160	1069	100	41	283	440	691	373	1000	150	700	-	320	280	140	4x19
25/9	2,2	105	36	197	50	25	415	280	160	1114	100	41	303	460	736	373	1060	150	760	-	330	290	145	4x19
	3	105	40	199	50	25	415	280	160	1114	100	41	303	460	736	373	1060	150	760	-	330	290	145	4x19
25/10	2,2	114	36	208	50	25	460	280	160	1159	100	41	303	460	781	373	1100	150	800	-	330	290	145	4x19
	3	114	40	210	50	25	460	280	160	1159	100	41	303	460	781	373	1100	150	800	-	330	290	145	4x19
25/11	3	123	40	221	50	25	505	280	160	1204	100	41	303	460	826	373	1140	150	840	-	330	290	145	4x19
25/12	3	132	40	232	50	25	550	280	160	1249	100	41	303	460	871	373	1200	150	900	-	330	290	145	4x19
25/13	3	141	40	242	50	25	595	280	160	1294	100	41	303	460	916	373	1240	150	940	-	330	290	145	4x19
	4	141	46	245	50	25	595	280	160	1311	100	41	303	480	916	390	1240	150	940	-	360	320	160	4x19
25/14	3	150	40	254	50	25	640	280	160	1339	100	41	303	460	961	373	1280	150	980	-	330	290	145	4x19
	4	150	46	257	50	25	640	280	160	1356	100	41	303	480	961	390	1280	150	980	-	360	320	160	4x19
25/15	4	159	46	268	50	25	685	280	160	1401	100	41	303	480	1006	390	1340	150	1040	-	360	320	160	4x19
25/16	4	168	46	279	50	25	730	280	160	1446	100	41	303	480	1051	390	1380	150	1080	-	360	320	160	4x19
25/17	4	177	46	289	50	25	775	280	160	1491	100	41	303	480	1096	390	1420	150	1120	-	360	320	160	4x19
	5,5	177	70	306	50	25	775	280	160	1561	100	41	303	500	1096	460	1500	150	1200	-	360	320	160	4x19
25/18	4	186	46	300	50	25	820	280	160	1536	100	41	303	480	1141	390	1460	150	1160	-	360	320	160	4x19
	5,5	186	70	317	50	25	820	280	160	1606	100	41	323	520	1141	460	1560	150	1260	630	360	320	160	6x21
25/19	4	195	46	321	50	25	865	280	160	1581	100	41	323	480	1186	390	1520	150	1220	610	360	320	160	6x21
	5,5	195	70	342	50	25	865	280	160	1651	100	41	323	520	1186	460	1600	150	1300	650	360	320	160	6x21
25/20	5,5	204	70	353	50	25	910	280	160	1696	100	41	323	520	1231	460	1640	150	1340	670	360	320	160	6x21

## HPMA 32 - 1450 rpm

Model	kW	kg P.	kg M.	kg Tot.	DN <sub>1</sub>	DN <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
32/1	0,75	61	12	121	65	32	70	420	200	843	90	70	283	433	560	283	800	150	500	-	320	280	140	4x19
	1,1	61	25	127	65	32	70	420	200	898	90	70	323	448	560	338	840	150	540	-	320	280	140	4x19
32/2	1,1	76	25	143	65	32	125	420	200	953	90	70	303	448	615	338	880	150	580	-	320	280	140	4x19
	1,5	76	30	145	65	32	125	420	200	953	90	70	303	448	615	338	880	150	580	-	320	280	140	4x19
	2,2	76	36	146	65	32	125	420	200	988	90	70	303	460	615	373	920	150	620	-	320	280	140	4x19
32/3	1,5	91	30	162	65	32	180	420	200	1028	90	70	303	448	670	358	980	150	680	-	320	280	140	4x19
	2,2	91	36	168	65	32	180	420	200	1063	90	70	303	460	670	393	980	150	680	-	320	280	140	4x19
	3	91	40	172	65	32	180	420	200	1063	90	70	303	460	670	393	980	150	680	-	320	280	140	4x19









# HPMA LUBRIFICAZIONE A OLIO / OIL LUBRICATION

## HPMA 150 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
150/1	30	727	255	1160	250	150	175	660	420	1716	40	110	533	836	945	771	1780	150	1480	740	720	680	340	6x21
	37	727	269	1174	250	150	175	660	420	1760	40	110	533	845	945	815	1780	150	1480	740	720	680	340	6x21
	45	727	353	1258	250	150	175	660	420	1765	40	110	533	845	945	820	1780	150	1480	740	720	680	340	6x21
	55	727	450	1355	250	150	175	660	420	1855	40	110	533	888	945	910	1780	150	1480	740	720	680	340	6x21
	75	727	605	1510	250	150	175	660	420	1930	40	110	533	931	945	985	1780	150	1480	740	720	680	340	6x21
150/2	2,2	863	605	1657	250	150	310	660	420	2065	40	110	553	951	1080	985	2100	150	1800	900	720	680	340	6x21
	90	863	700	1752	250	150	310	660	420	2115	40	110	553	951	1080	1035	2100	150	1800	900	720	680	340	6x21
	110	863	925	1977	250	150	310	660	420	2240	40	110	553	1083	1080	1160	2100	150	1800	900	720	680	340	6x21
	132	863	1180	2232	250	150	310	660	420	2270	40	110	553	1083	1080	1190	2100	150	1800	900	720	680	340	6x21
150/3	90	999	700	1902	250	150	445	660	420	2250	40	110	553	951	1215	1035	2240	150	1940	960	720	680	340	6x21
	110	999	925	2127	250	150	445	660	420	2375	40	110	553	1083	1215	1160	2240	150	1940	960	720	680	340	6x21
	132	999	1180	2382	250	150	445	660	420	2405	40	110	553	1083	1215	1190	2240	150	1940	960	720	680	340	6x21
	160	999	1161	2363	250	150	445	660	420	2535	40	110	553	1083	1215	1320	2240	150	1940	960	720	680	340	6x21
	200	999	1241	2443	250	150	445	660	420	2535	40	110	553	1083	1215	1320	2240	150	1940	960	720	680	340	6x21
150/4	160	1135	1161	2516	250	150	580	660	420	2670	40	110	573	1103	1350	1320	2550	150	2250	750	840	800	400	8x21
	200	1135	1241	2596	250	150	580	660	420	2670	40	110	573	1103	1350	1320	2550	150	2250	750	840	800	400	8x21
	250	1135	1870	3225	250	150	580	660	420	2850	40	110	573	1228	1350	1500	2550	150	2250	750	840	800	400	8x21
	315	1135	2090	3445	250	150	580	660	420	2850	40	110	573	1228	1350	1500	2550	150	2250	750	840	800	400	8x21
150/5	200	1271	1241	2750	250	150	715	660	420	2805	40	110	573	1103	1485	1320	2670	150	2370	990	840	800	400	8x21
	250	1271	1870	3379	250	150	715	660	420	2985	40	110	573	1228	1485	1500	2670	150	2370	990	840	800	400	8x21
	315	1271	2090	3599	250	150	715	660	420	2985	40	110	573	1228	1485	1500	2670	150	2370	990	840	800	400	8x21
	365	1271	2050	3559	250	150	715	660	420	3295	40	110	573	1118	1485	1810	2670	150	2370	990	840	800	400	8x21
150/6	250	1407	1870	3532	250	150	850	660	420	3120	40	110	573	1228	1620	1500	2820	150	2520	840	840	800	400	8x21
	315	1407	2090	3752	250	150	850	660	420	3120	40	110	573	1228	1620	1500	2820	150	2520	840	840	800	400	8x21
	365	1407	2050	3712	250	150	850	660	420	3430	40	110	573	1118	1620	1810	2820	150	2520	840	840	800	400	8x21
	400	1407	2350	4012	250	150	850	660	420	3605	40	110	573	1148	1620	1985	2820	150	2520	840	840	800	400	8x21
150/7	315	1543	2090	3906	250	150	985	660	420	3255	40	110	573	1228	1755	1500	2940	150	2640	880	840	800	400	8x21
	365	1543	2050	3866	250	150	985	660	420	3565	40	110	573	1118	1755	1810	2940	150	2640	880	840	800	400	8x21
	400	1543	2350	4166	250	150	985	660	420	3740	40	110	573	1148	1755	1985	2940	150	2640	880	840	800	400	8x21
	470	1543	2550	4366	250	150	985	660	420	3740	40	110	573	1148	1755	1985	2940	150	2640	880	840	800	400	8x21
	560	1543	2750	4566	250	150	985	660	420	3740	40	110	573	1148	1755	1985	2940	150	2640	880	840	800	400	8x21
150/8	365	1679	2050	4016	250	150	1120	660	420	3700	40	110	593	1138	1890	1810	3090	150	2790	930	840	800	400	8x21
	400	1679	2350	4316	250	150	1120	660	420	3875	40	110	593	1168	1890	1985	3090	150	2790	930	840	800	400	8x21
	470	1679	2090	4056	250	150	1120	660	420	3875	40	110	593	1168	1890	1985	3090	150	2790	930	840	800	400	8x21
	560	1679	2050	4016	250	150	1120	660	420	3875	40	110	593	1168	1890	1985	3090	150	2790	930	840	800	400	8x21
	600	1679	3400	5366	250	150	1120	660	420	4015	40	110	652	1262	1890	2125	3540	150	3240	1080	980	940	470	8x21
150/9	400	1815	2350	4465	250	150	1255	660	420	4010	40	110	593	1168	2025	1985	3210	150	2910	970	840	800	400	8x21
	470	1815	2090	4205	250	150	1255	660	420	4010	40	110	593	1168	2025	1985	3210	150	2910	970	840	800	400	8x21
	560	1815	2050	4165	250	150	1255	660	420	4010	40	110	652	1227	2025	1985	3660	150	3360	1120	980	940	470	8x21
	600	1815	3400	5515	250	150	1255	660	420	4150	40	110	652	1262	2025	2125	3660	150	3360	1120	980	940	470	8x21
150/10	470	1951	2090	4363	250	150	1390	660	420	4145	40	110	593	1168	2160	1985	3360	150	3060	1020	840	800	400	8x21
	560	1951	2050	4323	250	150	1390	660	420	4145	40	110	593	1168	2160	1985	3360	150	3060	1020	840	800	400	8x21
	600	1951	3400	5673	250	150	1390	660	420	4285	40	110	652	1262	2160	2125	3810	150	3510	1170	980	940	470	8x21
	680	1951	3600	5873	250	150	1390	660	420	4285	40	110	652	1262	2160	2125	3810	150	3510	1170	980	940	470	8x21



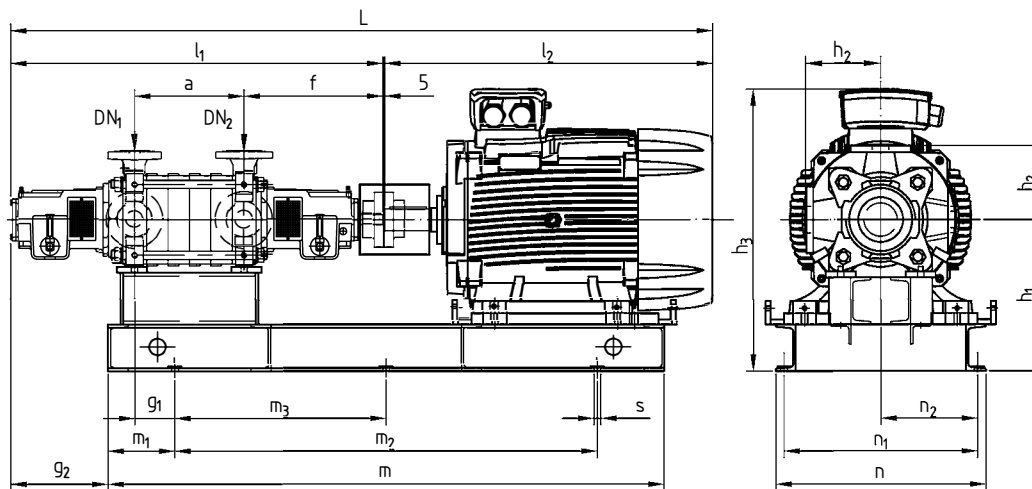








# HPM/HPR LUBRIFICAZIONE A OLIO / OIL LUBRICATION



## HPM 25 - 1450 rpm

Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	DN <sub>1</sub>	DN <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
25/1	0,75	44	12	97	40	25	55	270,5	160	836,5	100	173	263	393	548,5	283	620	150	320	-	310	275	137,5	4x17
25/2	0,75	53	12	107	40	25	100	270,5	160	881,5	100	173	263	393	593,5	283	660	150	360	-	310	275	137,5	4x17
25/3	0,75	62	12	117	40	25	145	270,5	160	926,5	100	173	263	393	638,5	283	720	150	420	-	310	275	137,5	4x17
25/4	1,1	71	25	122,1	40	25	190	270,5	160	971,5	100	173	283	413	683,5	283	760	150	460	-	320	280	140	4x19
25/5	1,1	80	25	137,1	40	25	235	270,5	160	1016,5	100	173	283	413	728,5	283	800	150	500	-	320	280	140	4x19
	1,5	80	30	147	40	25	235	270,5	160	1071,5	100	173	283	428	728,5	338	840	150	540	-	320	280	140	4x19
25/6	1,5	89	30	158	40	25	280	270,5	160	1116,5	100	173	283	428	773,5	338	880	150	580	-	320	280	140	4x19
25/7	1,5	98	30	168	40	25	325	270,5	160	1161,5	100	173	283	428	818,5	338	920	150	620	-	320	280	140	4x19
	2,2	98	36	178	40	25	325	270,5	160	1196,5	100	173	283	440	818,5	373	960	150	660	-	320	280	140	4x19
25/8	2,2	107	36	188	40	25	370	270,5	160	1241,5	100	173	283	440	863,5	373	1000	150	700	-	320	280	140	4x19
25/9	2,2	116	36	207	40	25	415	270,5	160	1286,5	100	173	303	460	908,5	373	1040	150	740	-	330	290	145	4x19
	3	116	40	209	40	25	415	270,5	160	1286,5	100	173	303	460	908,5	373	1040	150	740	-	330	290	145	4x19
25/10	2,2	125	36	219	40	25	460	270,5	160	1331,5	100	173	303	460	953,5	373	1100	150	800	-	330	290	145	4x19
	3	125	40	221	40	25	460	270,5	160	1331,5	100	173	303	460	953,5	373	1100	150	800	-	330	290	145	4x19
25/11	3	134	40	232	40	25	505	270,5	160	1376,5	100	173	303	460	998,5	373	1140	150	840	-	330	290	145	4x19
25/12	3	143	40	243	40	25	550	270,5	160	1421,5	100	173	303	460	1043,5	373	1180	150	880	-	330	290	145	4x19
25/13	3	152	40	253	40	25	595	270,5	160	1466,5	100	173	303	460	1088,5	373	1220	150	920	-	330	290	145	4x19
	4	152	46	255	40	25	595	270,5	160	1483,5	100	173	303	480	1088,5	390	1240	150	940	-	360	320	160	4x19
25/14	3	161	40	265	40	25	640	270,5	160	1511,5	100	173	303	460	1133,5	373	1280	150	980	-	330	290	145	4x19
	4	161	46	268	40	25	640	270,5	160	1528,5	100	173	303	480	1133,5	390	1280	150	980	-	360	320	160	4x19
25/15	4	170	46	278	40	25	685	270,5	160	1573,5	100	173	303	480	1178,5	390	1320	150	1020	-	360	320	160	4x19
25/16	4	179	46	289	40	25	730	270,5	160	1618,5	100	173	303	480	1223,5	390	1360	150	1060	-	360	320	160	4x19
25/17	4	188	46	300	40	25	775	270,5	160	1663,5	100	173	303	480	1268,5	390	1420	150	1120	-	360	320	160	4x19
	5,5	188	70	317	40	25	775	270,5	160	1733,5	100	173	303	500	1268,5	460	1500	150	1200	-	360	320	160	4x19
25/18	4	197	46	311	40	25	820	270,5	160	1708,5	100	173	303	480	1313,5	390	1460	150	1160	-	360	320	160	4x19
	5,5	197	70	328	40	25	820	270,5	160	1778,5	100	173	323	520	1313,5	460	1540	150	1240	620	360	320	160	6x21
25/19	4	206	46	322	40	25	865	270,5	160	1753,5	100	173	303	480	1358,5	390	1500	150	1200	-	360	320	160	4x19
	5,5	206	70	352	40	25	865	270,5	160	1823,5	100	173	323	520	1358,5	460	1580	150	1280	640	360	320	160	6x21
25/20	5,5	215	70	363	40	25	910	270,5	160	1868,5	100	173	323	520	1403,5	460	1620	150	1320	660	360	320	160	6x21
25/21	5,5	224	70	375	40	25	955	270,5	160	1913,5	100	173	323	520	1448,5	460	1680	150	1380	690	360	320	160	6x21
25/22	5,5	233	70	386	40	25	1000	270,5	160	1958,5	100	173	323	520	1493,5	460	1720	150	1420	710	360	320	160	6x21
25/23	5,5	242	70	396	40	25	1045	270,5	160	2003,5	100	173	323	520	1538,5	460	1760	150	1460	730	360	320	160	6x21
	7,5	242	57	398	40	25	1045	270,5	160	2039,5	100	173	323	520	1538,5	496	1760	150	1460	730	360	320	160	6x21
25/24	5,5	251	70	407	40	25	1090	270,5	160	2048,5	100	173	323	520	1583,5	460	1800	150	1500	750	360	320	160	6x21
	7,5	251	57	409	40	25	1090	270,5	160	2084,5	100	173	323	520	1583,5	496	1800	150	1500	750	360	320	160	6x21
25/25	5,5	260	70	419	40	25	1135	270,5	160	2093,5	100	173	323	520	1628,5	460	1860	150	1560	780	360	320	160	6x21
	7,5	260	57	421	40	25	1135	270,5	160	2129,5	100	173	323	520	1628,5	496	1860	150	1560	780	360	320	160	6x21

























# HPM/HPR LUBRIFICAZIONE A OLIO / OIL LUBRICATION

## HPM 150 - 2950 rpm

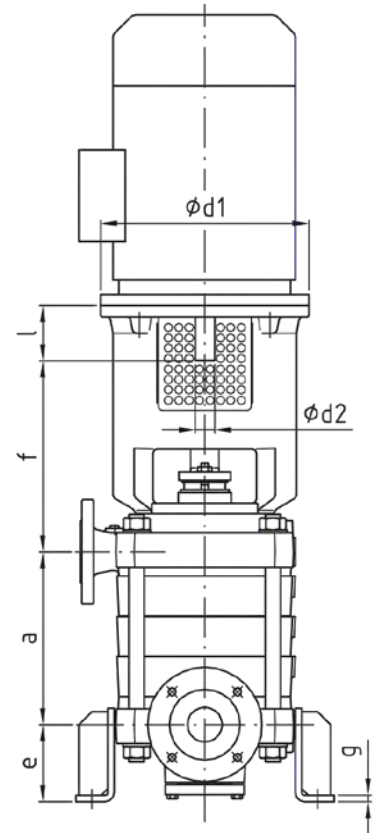
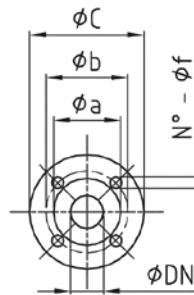
Quote / dimensions in mm

Model	kW	kg P.	kg M.	kg Tot.	Dn <sub>1</sub>	Dn <sub>2</sub>	a	f	h <sub>2</sub>	L	g <sub>1</sub>	g <sub>2</sub>	h <sub>1</sub>	h <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	m	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>	n	n <sub>1</sub>	n <sub>2</sub>	s
150/1	200	969	1221	2418	250	150	235	629,5	420	2692,5	40	398	553	1083	1372,5	1320	2140	150	1840	920	840	800	400	6x21
	250	969	2090	3287	250	150	235	629,5	420	2872,5	40	398	553	1208	1372,5	1500	2140	150	1840	920	840	800	400	6x21
	315	969	2530	3727	250	150	235	629,5	420	2872,5	40	398	553	1208	1372,5	1500	2140	150	1840	920	840	800	400	6x21
	355	969	2000	3197	250	150	235	629,5	420	3162,5	40	398	553	1098	1372,5	1790	2140	150	1840	920	840	800	400	6x21
	400	969	2300	3497	250	150	235	629,5	420	3302,5	40	398	553	1128	1372,5	1930	2140	150	1840	920	840	800	400	6x21
	450	969	2400	3597	250	150	235	629,5	420	3302,5	40	398	553	1128	1372,5	1930	2140	150	1840	920	840	800	400	6x21
	510	969	2550	3747	250	150	235	629,5	420	3302,5	40	398	553	1128	1372,5	1930	2140	150	1840	920	840	800	400	6x21
150/2	400	1105	2300	3668	250	150	370	629,5	420	3297,5	40	398	682	1257	1507,5	1790	3030	150	2730	910	1080	1040	520	8x21
	450	1105	2400	3768	250	150	370	629,5	420	3437,5	40	398	682	1257	1507,5	1930	3030	150	2730	910	1080	1040	520	8x21
	510	1105	2550	3918	250	150	370	629,5	420	3437,5	40	398	682	1257	1507,5	1930	3030	150	2730	910	1080	1040	520	8x21
	560	1105	3150	4518	250	150	370	629,5	420	3602,5	40	398	682	1292	1507,5	2095	3030	150	2730	910	1080	1040	520	8x21
	650	1105	3300	4668	250	150	370	629,5	420	3602,5	40	398	682	1292	1507,5	2095	3030	150	2730	910	1080	1040	520	8x21
	750	1105	3550	4918	250	150	370	629,5	420	3602,5	40	398	682	1292	1507,5	2095	3030	150	2730	910	1080	1040	520	8x21
	820	1105	4600	5968	250	150	370	629,5	420	3827,5	40	398	682	1332	1507,5	2320	3030	150	2730	910	1080	1040	520	8x21
	940	1105	4900	6268	250	150	370	629,5	420	3827,5	40	398	682	1332	1507,5	2320	3030	150	2730	910	1080	1040	520	8x21
150/3	1030	1105	5200	6568	250	150	370	629,5	420	3827,5	40	398	682	1332	1507,5	2320	3030	150	2730	910	1080	1040	520	8x21
	1200	1105	6100	7468	250	150	370	629,5	420	4182,5	40	398	752	1432	1507,5	2675	3540	150	3240	1080	1220	1180	590	8x21
	650	1241	3300	4832	250	150	505	629,5	420	3737,5	40	398	682	1292	1642,5	2095	3150	150	2850	950	1080	1040	520	8x21
	750	1241	3550	5082	250	150	505	629,5	420	3737,5	40	398	682	1292	1642,5	2095	3150	150	2850	950	1080	1040	520	8x21
	820	1241	4600	6132	250	150	505	629,5	420	3962,5	40	398	682	1332	1642,5	2320	3150	150	2850	950	1080	1040	520	8x21
	940	1241	4900	6432	250	150	505	629,5	420	3962,5	40	398	682	1332	1642,5	2320	3150	150	2850	950	1080	1040	520	8x21
	1030	1241	5200	6732	250	150	505	629,5	420	3962,5	40	398	682	1332	1642,5	2320	3150	150	2850	950	1080	1040	520	8x21
	1200	1241	6100	7632	250	150	505	629,5	420	4317,5	40	398	752	1452	1642,5	2675	3690	150	3390	1130	1220	1180	590	8x21
150/4	1300	1241	6300	7832	250	150	505	629,5	420	4317,5	40	398	752	1452	1642,5	2675	3690	150	3390	1130	1220	1180	590	8x21
	1420	1241	6700	8232	250	150	505	629,5	420	4317,5	40	398	752	1452	1642,5	2675	3690	150	3390	1130	1220	1180	590	8x21
	1680	1241	8200	9732	250	150	505	629,5	420	4507,5	40	398	812	1562	1642,5	2865	3540	150	3240	1080	1400	1360	680	8x21
	1030	1377	5200	6905	250	150	640	629,5	420	4097,5	40	398	812	1462	1777,5	2320	3690	150	3390	1130	1400	1360	680	8x21
	1200	1377	6100	7805	250	150	640	629,5	420	4452,5	40	398	812	1512	1777,5	2675	3690	150	3390	1130	1400	1360	680	8x21
	1300	1377	6300	8005	250	150	640	629,5	420	4452,5	40	398	812	1512	1777,5	2675	3690	150	3390	1130	1400	1360	680	8x21
	1420	1377	6700	8405	250	150	640	629,5	420	4452,5	40	398	812	1512	1777,5	2675	3690	150	3390	1130	1400	1360	680	8x21
1680	1377	8200	9905	250	150	640	629,5	420	4642,5	40	398	812	1562	1777,5	2865	3690	150	3390	1130	1400	1360	680	8x21	
1900	1377	8600	10305	250	150	640	629,5	420	4642,5	40	398	812	1562	1777,5	2865	3690	150	3390	1130	1400	1360	680	8x21	

# HV LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

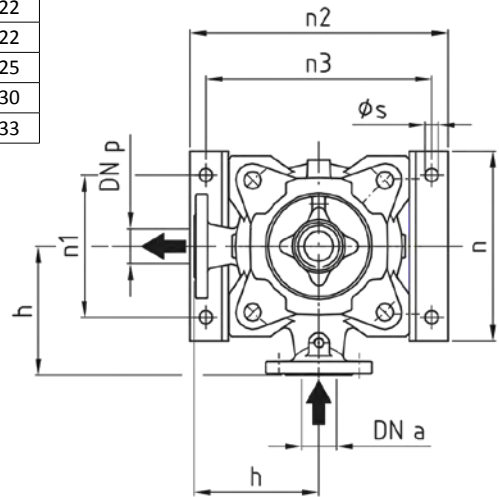
H = dimensione totale - H = Total dimensions

TIPO MOTORE MOTOR TYPE		DIMENSIONI MOTORE MOTOR DIMENSIONS		
Gr-Size	Poli-Poles	Ød1	Ød2	l
100	2...8	250	28	60
112	2...8	250	28	60
132	2...8	300	38	80
160	2...8	350	42	110
180	2...8	350	48	110
200	2...8	400	55	110
225	2	450	55	110
	4...8		60	140
250	2	550	60	140
	4...8		65	
280	2	550	65	140
	4...8		75	
315	2	660	65	140
	4...8		80	
355	2	800	75	140
	4...8		100	



TIPO TYPE	Flangia aspirante UNI - DIN PN16 Suction flange UNI - DIN PN16						Flangia premente UNI - DIN PN64 Discharge flange UNI - DIN PN64					
	DNa	a	b	C	N°	f	DNp	a	b	C	N°	f
25	40	88	110	150	4	18	25	65	100	140	4	18
32	50	102	125	165	4	18	32	75	110	155	4	22
50	80	138	160	200	8	18	50	95	135	180	4	22
80	125	188	210	250	8	18	80	130	170	215	8	22
100	150	212	240	285	8	22	100	160	200	250	8	25
125	200	268	295	340	12	22	125	185	240	295	8	30
150	250	320	355	405	12	25	150	215	280	345	8	33

TIPO TYPE	Dimensioni pompa Pump dimensions			Dimensioni piedi Feet dimensions					
	e	f	h	g	n	n1	n2	n3	s
25	190	250	160	6	260	210	360	310	17
32	150	365	200	6	300	250	400	350	17
50	160	400	225	6	350	300	550	500	20
80	190	420	250	10	400	340	600	440	23
100	180	470	315	10	450	390	600	540	23
125	250	590	350	10	600	480	810	730	27
150	270	665	420	10	650	580	850	780	27



TIPO TYPE	Numero di stadi - Number of stages													
	2	3	4	5	6	7	8	9	10	11	12	13	14	
25	a	100	145	190	235	280	325	370	415	460	505	550	595	640
32	a	125	180	235	290	345	400	455	510	565	620			
50	a	152	214	276	338	400	462	524	586	648				
80	a	195	270	345	420	495	570	645						
100	a	235	325	415	505	595								
125	a	295	405	515	625									
150	a	370	505	640										

Dimensioni in mm - Dimensions in mm



# PESI SOLO POMPA / BARE-SHAFT PUMP WEIGHTS

TIPO TYPE	PESO WEIGHT	Numero di stadi - Number of stages																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HP 25	Lubrificazione a grasso / Grease lubrication kg	39	48	57	66	75	84	93	102	111	120	129	138	147	156	165	174	183	192	201	210	219	228	237	246	255
HP 32		72	87	102	117	132	147	162	177	192	207	222	237	252	267	282	297	312	327	342	357	372	387	402	417	432
HP 50		99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403	422	441	460					
HP 80		137	196	225	252	281	310	339	369	398	427	456	485	515	544	573	602	631	660							
HP 100		241	286	331	376	421	466	511	556	601	646	691	736	781	826	871	916									
HP 125		401	482	563	644	725	806	887	968	1049	1130	1211	1292													
HP 150		720	856	992	1128	1264	1400	1536	1672	1808	1944															
HP 250		1247	1563	1879	2195	2511	2827	3143	3459	3775	4091	4407	4723													

TIPO TYPE	PESO WEIGHT	Numero di stadi - Number of stages																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HPM / HPR 25	Lubrificazione a olio / Oil lubrication kg	44	53	62	71	80	89	98	107	116	125	134	143	152	161	170	179	188	197	206	215	224	233	242	251	260
HPM / HPR 32		93	108	123	138	153	168	183	198	213	228	243	258	273	288	303	318	333	348	363	378	393	408	423	438	453
HPM / HPR 50		129	148	167	186	205	224	243	262	281	300	319	338	357	376	395	414	433	452	471	490					
HPM / HPR 80		191	220	249	278	307	336	365	394	423	452	481	510	539	568	597	626	655	684							
HPM / HPR 100		281	326	371	416	461	506	551	596	641	686	731	776	821	866	911	956									
HPM / HPR 125		486	567	648	729	810	891	972	1053	1134	1215	1296	1377													
HPM / HPR 150		969	1105	1241	1377	1513	1649	1785	1921	2057	2193	2329														
HPM 250		1249	1565	1881	2197	2513	2829	3145	3461	3777	4093	4409	4725													

TIPO TYPE	PESO WEIGHT	Numero di stadi - Number of stages																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
HV 25	kg	42	51	60	69	78	87	96	105	114	123	132	141	150	159											
HV 32		108	123	138	153	168	183	198	213	228	243	258														
HV 50		151	170	189	208	227	246	265	284	303	322															
HV 80		158	187	216	245	274	303	332	361																	
HV 100		332	377	422	467	512	557																			
HV 125		514	595	676	757	838																				
HV 150		918	1054	1190	1326																					
HV 250		1447	1763																							

## PESI SOLO POMPA / BARE-SHAFT PUMP WEIGHTS

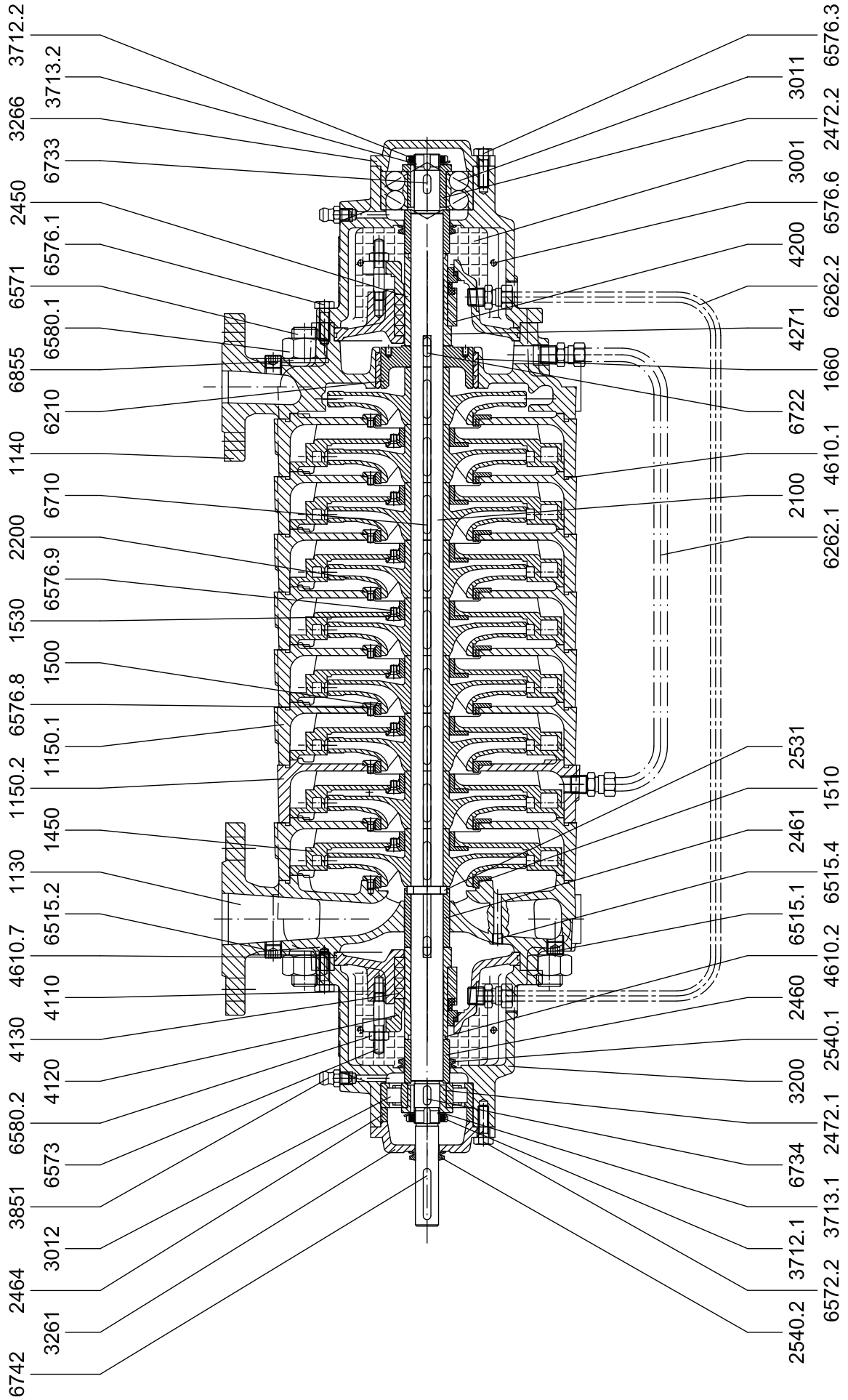
TIPO TYPE	PESO WEIGHT	Numero di stadi - Number of stages																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HPA 25	Lubrificazione a grasso / Grease lubrication	kg	28	37	46	55	64	73	82	91	100	109	118	127	136	145	154	163	172	181	190	199
HPA 32			50	65	74	83	92	101	110	119	128	137	146	155	164	173	182	191	200	209	218	227
HPA 50			62	81	100	119	138	157	176	195	214	233	252	271	290	309	328	347	366	385		
HPA 80			87	116	145	174	203	232	261	290	319	348	377	406	435	464	493	522				
HPA 100			174	219	264	309	354	399	444	489	534	579	624	669	714	759						
HPA 125			283	364	445	526	607	688	769	850	931	1012	1093	1174								
HPA 150			509	645	781	917	1053	1189	1325	1461	1597	1733										

TIPO TYPE	PESO WEIGHT	Numero di stadi - Number of stages																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HPMA 25	Lubrificazione a olio / Oil lubrication	kg	33	42	51	60	69	78	87	96	105	114	123	132	141	150	159	168	177	186	195	204
HPMA 32			61	76	91	106	121	136	151	166	181	196	211	226	241	256	271	286	301	316	331	346
HPMA 50			76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	361	380	399		
HPMA 80			120	149	178	207	236	265	294	323	352	381	410	439	468	497	526	555				
HPMA 100			197	242	287	332	377	422	467	512	557	602	647	692	737	782						
HPMA 125			343	424	505	586	667	748	829	910	991	1072	1153	1234								
HPMA 150			727	863	999	1135	1271	1407	1543	1679	1815	1951										

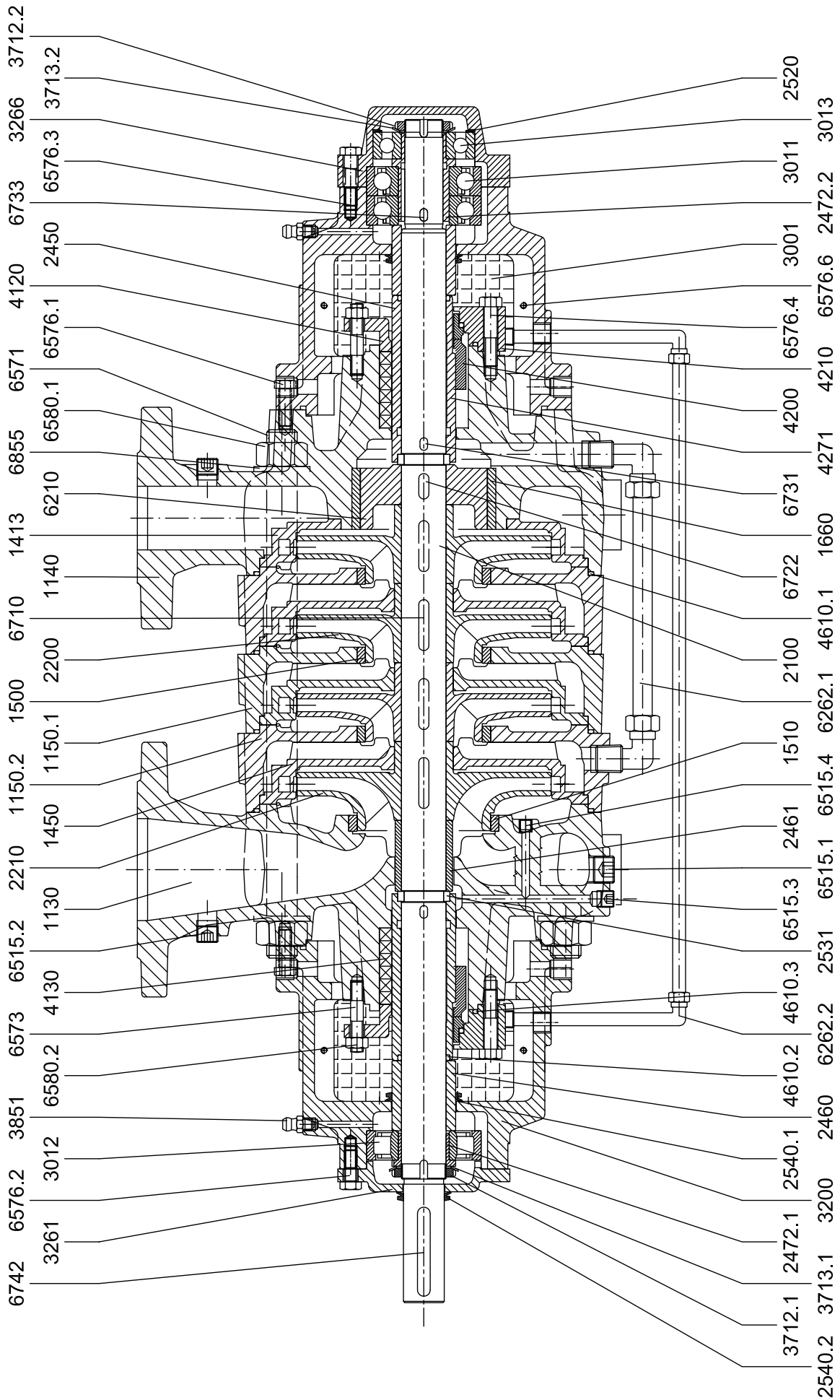
Materiali dei componenti  
Parti di ricambio e codici di riferimento

Components materials  
Spare parts and reference codes

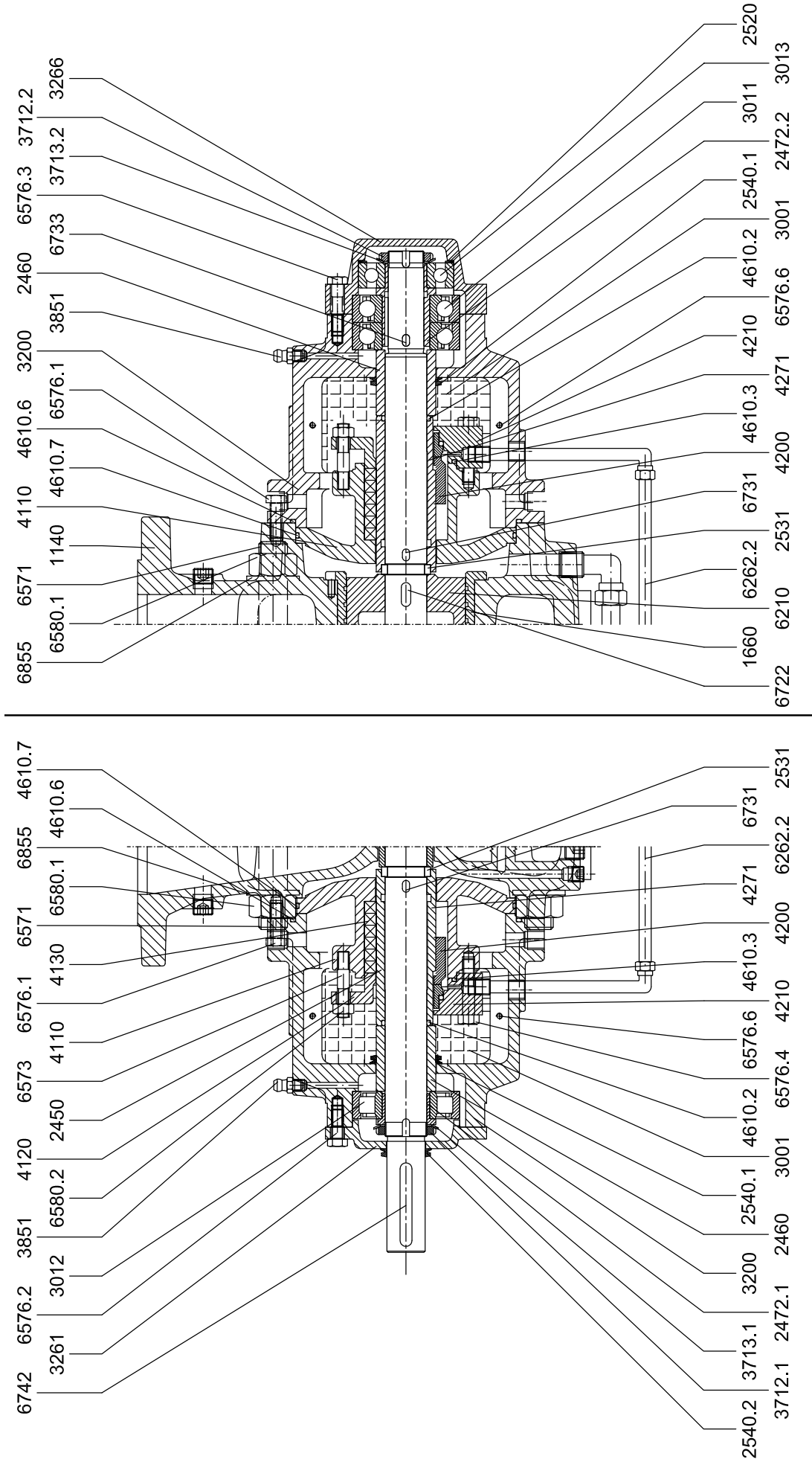
HP 25 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



HP 32-50-80-100-125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



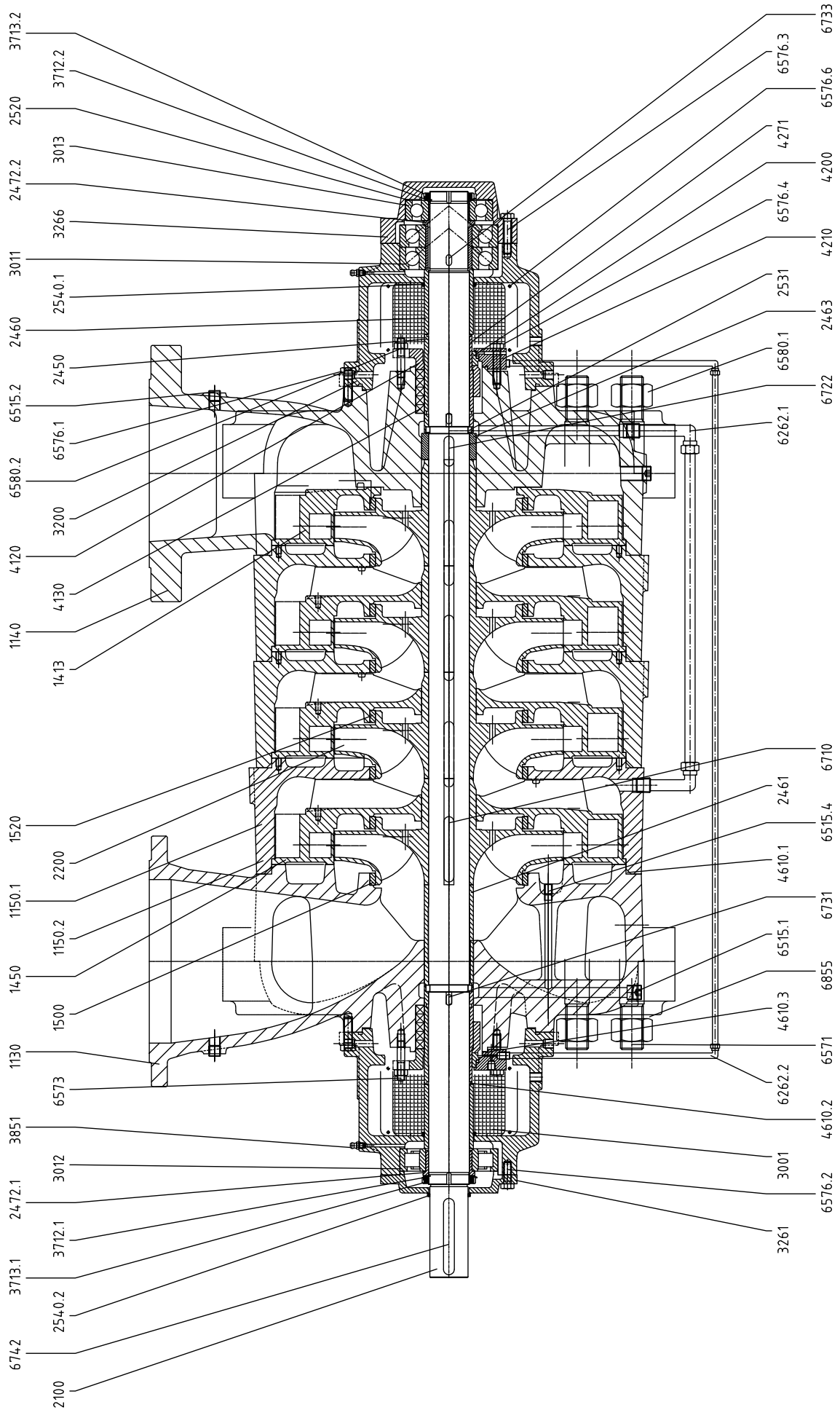
# HP 125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



## HP 25-32-50-80-100-125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1130	Corpo aspirante	Suction casing		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1450	Diffusore	Diffuser		
1500	Kit anelli di usura girante	Kit Wear rings impeller	Si / Yes	1
1660	Boccola c. premente	Discharge casing bush	Si / Yes	1
2100	Albero	Shaft		
2200	Girante	Impeller		
2210	Girante di aspirazione	Impeller suction stage		
2520	Molla a tazza	Shoulder ring	Si / Yes	1
2450	Camicia per baderna	Shaft sleeve	Si / Yes	1
2460	Kit Bussole distanziatrice	Kit Space sleeve	Si / Yes	1
2472.1	Kit Bussole cuscinetti	Kit Shaft sleeve bearing	Si / Yes	1
2531	Anello in due metà	Retaing Split ring		
2540.1	Kit Deflettori	Kit Trower	Si / Yes	1
3001	Rete protezione	Safety net		
3011	Kit Cuscinetti a sfere e rulli	Kit Ball and Roller bearings	Si / Yes	1
3200	Supporto	Bearing housing		
3261	Coperchietto l. comando	Bearing cover drive size		
3266	Coperchietto cieco	Bearing end cover		
3712.1	Kit Ghiera del cuscinetto e Rosetta	Kit Bearing nut and lockwasher	Si / Yes	1
3851	Ingrassatore	Grease cup		
4110	Cassa stoppa	Seal box		
4120	Premitreccia	Gland		
4130	Guarnizione a treccia	Gland paking	Si / Yes	1
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve m. seal	Si / Yes	1
4610.1	Kit Guarnizioni OR	Kit O-Rings	Si / Yes	1
6210	Tamburo di equilibrio	Balance disc		
6262.1	Tubo di alimentazione Tamburo	Drum feeding pipe		
6262.2	Tubo flussaggio per tenuta meccanica	Mechanical seal flushing pipe		
6515.1	Kit tappi	Kit Plugs		
6571	Tirante	Tie bolt		
6573	Prigioniero	Gland tie		
6576.1-9	Kit viti	Kit Screw		
6580.1-2	Kit dadi	Kit Nut		
6710	Kit chiavette	Kit Keys	Si / Yes	1
6855	Rondella	Washer		

# HP 250 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

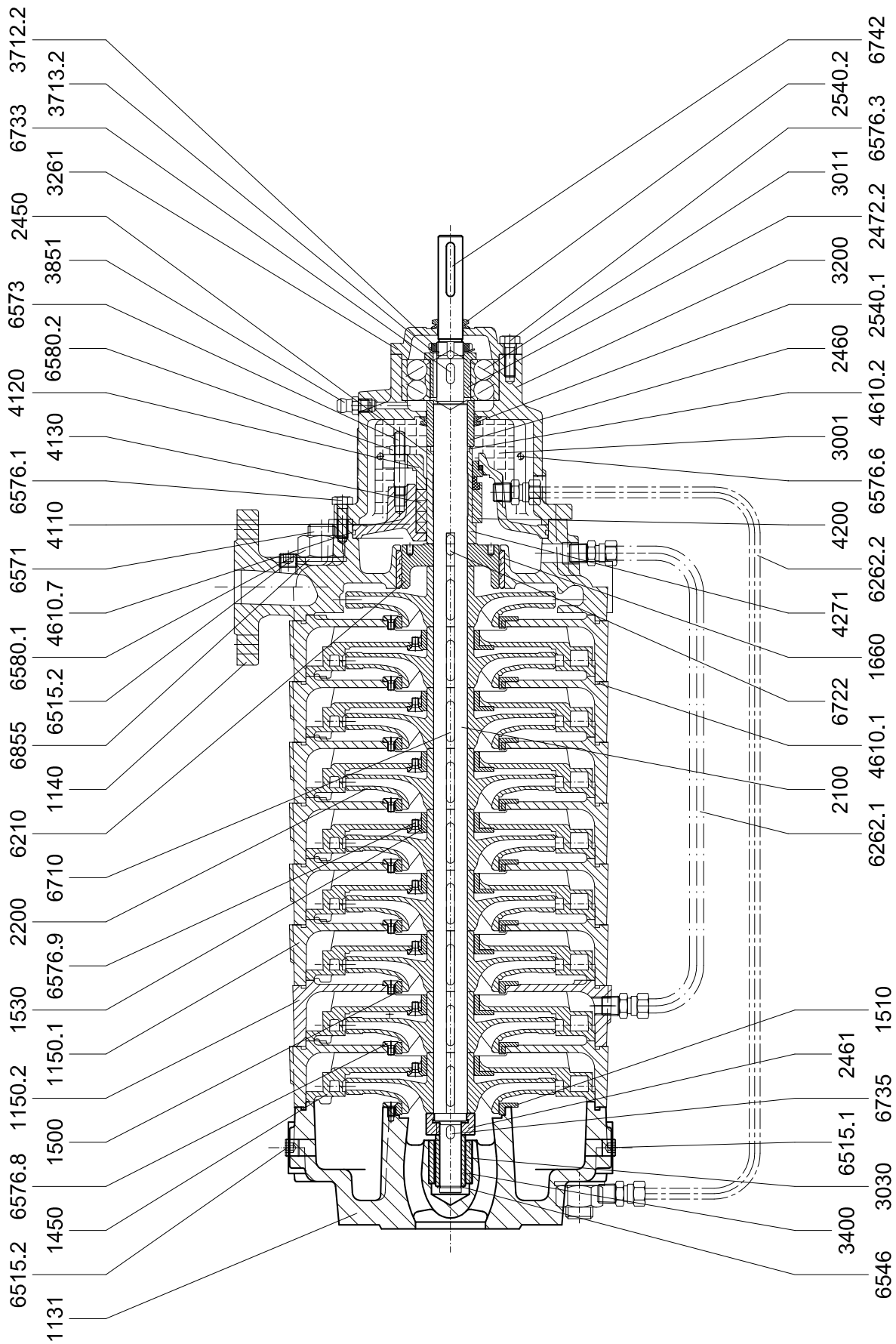




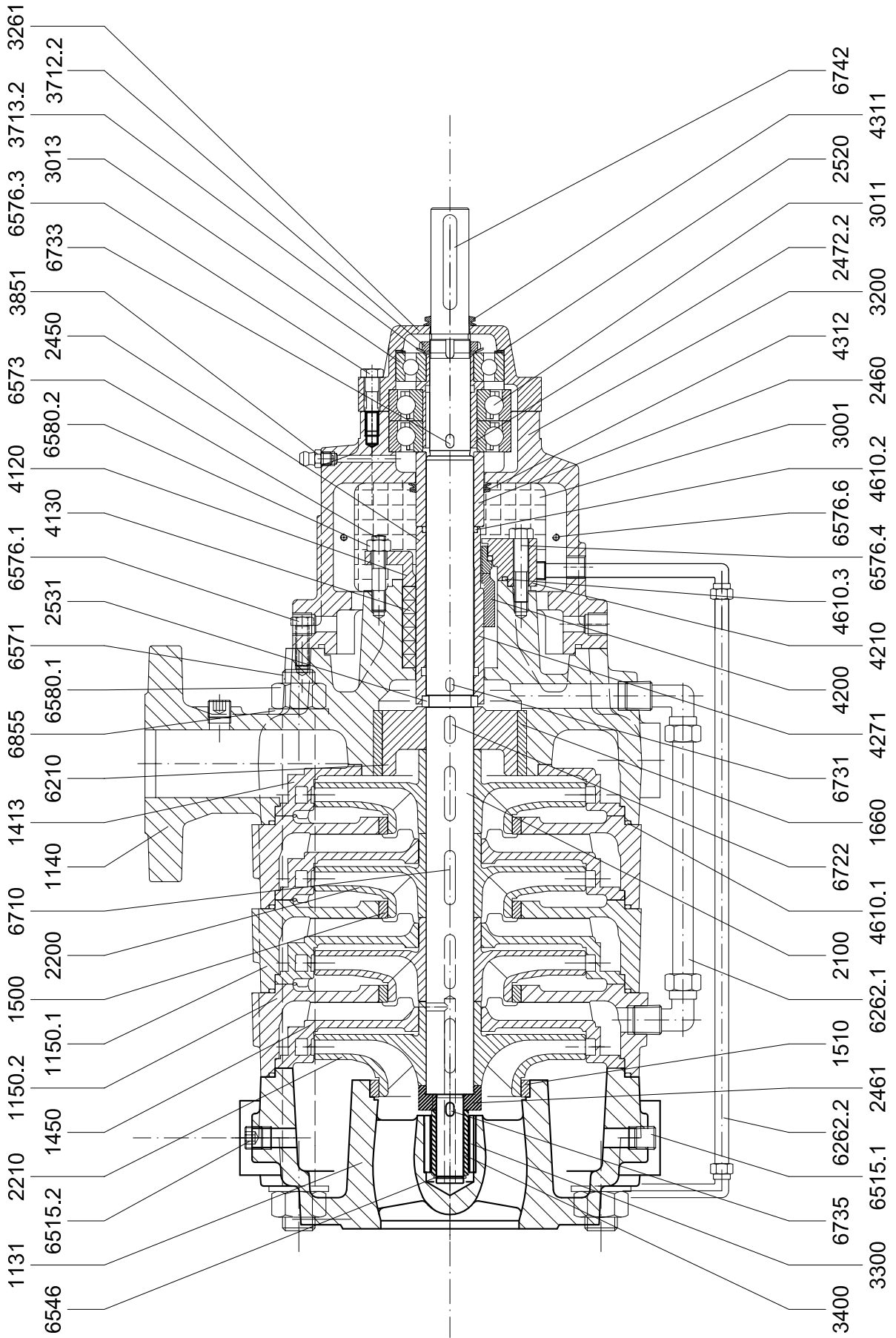
## HP 250 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1130	Corpo aspirante	Suction casing		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1450	Diffusore	Diffuser		
1500	Kit Anelli di usura giranti	Kit Wear rings impellers	Si / Yes	1
1660	Boccola c. premente	Discharge casing bush	Si / Yes	1
2100	Albero	Shaft		
2200	Girante	Impeller		
2450	Camicia per baderna	Shaft sleeve		
2460	Kit Bussole distanz. e Cuscinetti	Kit Spacer and Bear. sleeves	Si / Yes	1
2520	Molla a tazza	Shoulder ring	Si / Yes	1
2531	Anello in due metà	Split ring	Si / Yes	1
2540.1	Kit Deflettori	Kit Trower	Si / Yes	1
3001	Rete protezione	Safety net		
3011	Kit Cuscinetti sfere e rulli	Kit Ball and Roller bearings	Si / Yes	1
3200	Supporto cuscinetti	Bearing housing		
3261	Coperchietto l.comando	Bearing cover drive size		
3266	Coperchietto cieco	Bearing end cover		
3712.1	Kit Ghiere	Kit nuts	Si / Yes	1
3851	Ingrassatore	Grease cup		
4120	Premitreccia	Gland		
4130	Guarnizione a treccia	Gland packing	Si / Yes	1
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve m. seal		
4610.1	Kit Guarnizioni OR	Kit O-Rings	Si / Yes	1
6262.1	Tubo di equilibrio	Balance Pressure Pipe		
6262.2	Tubo per tenuta meccanica	Mechanical seal pipe		
6515.1	Kit Tappi	Kit Plugs		
6571	Tirante	Tie bolt		
6573	Prigioniero	Gland tie		
6576.1-6	Kit Viti	Kit Screws		
6580.1	Kit Dadi	Kit Nuts		
6710	Kit Chiavette	Kit Keys	Si / Yes	1
6855	Rondella	Washer		

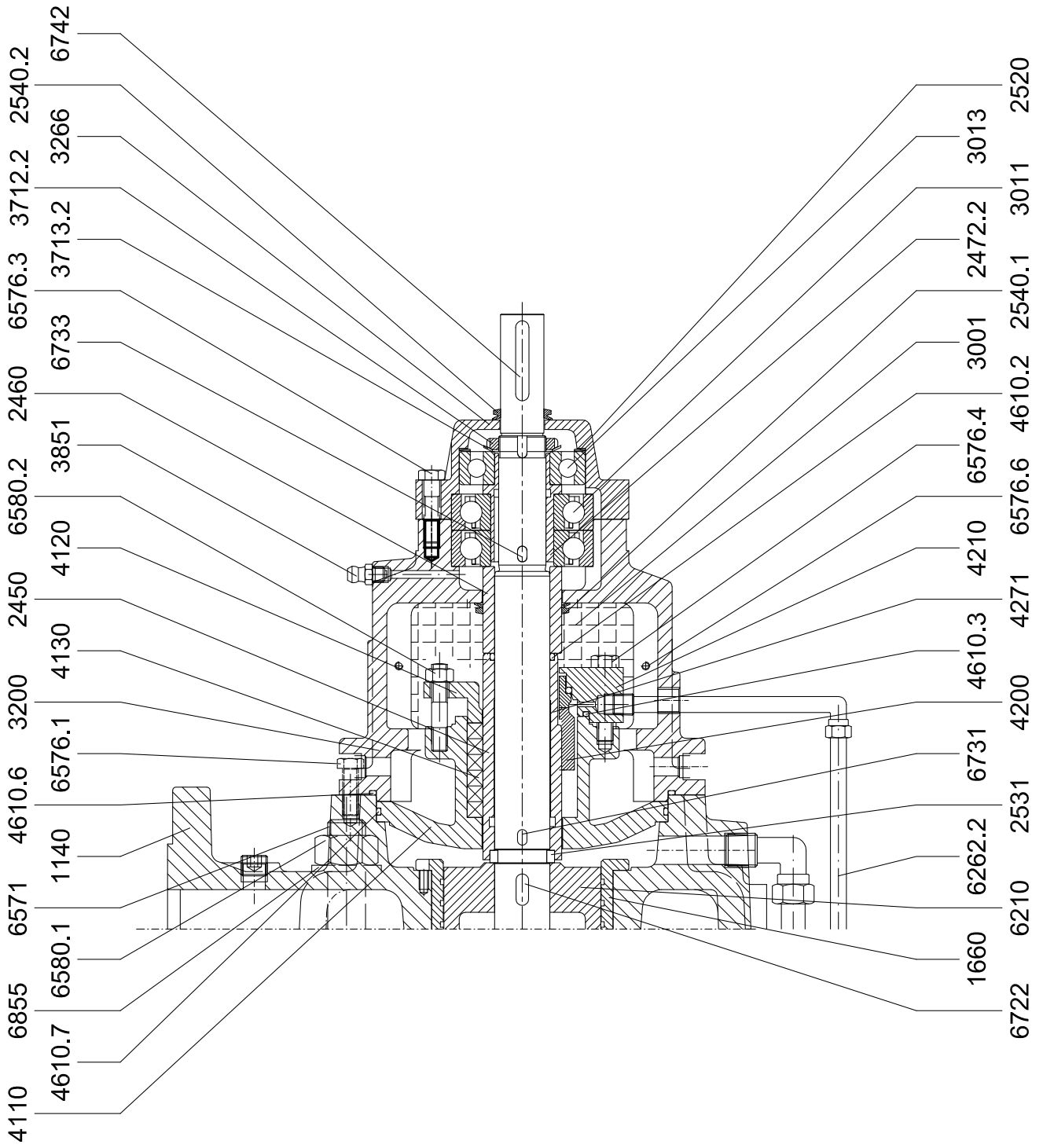
# HPA 25 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



HPA 32-50-80-100-125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



# HPA 125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



## HPA 25-32-50-80-100-125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

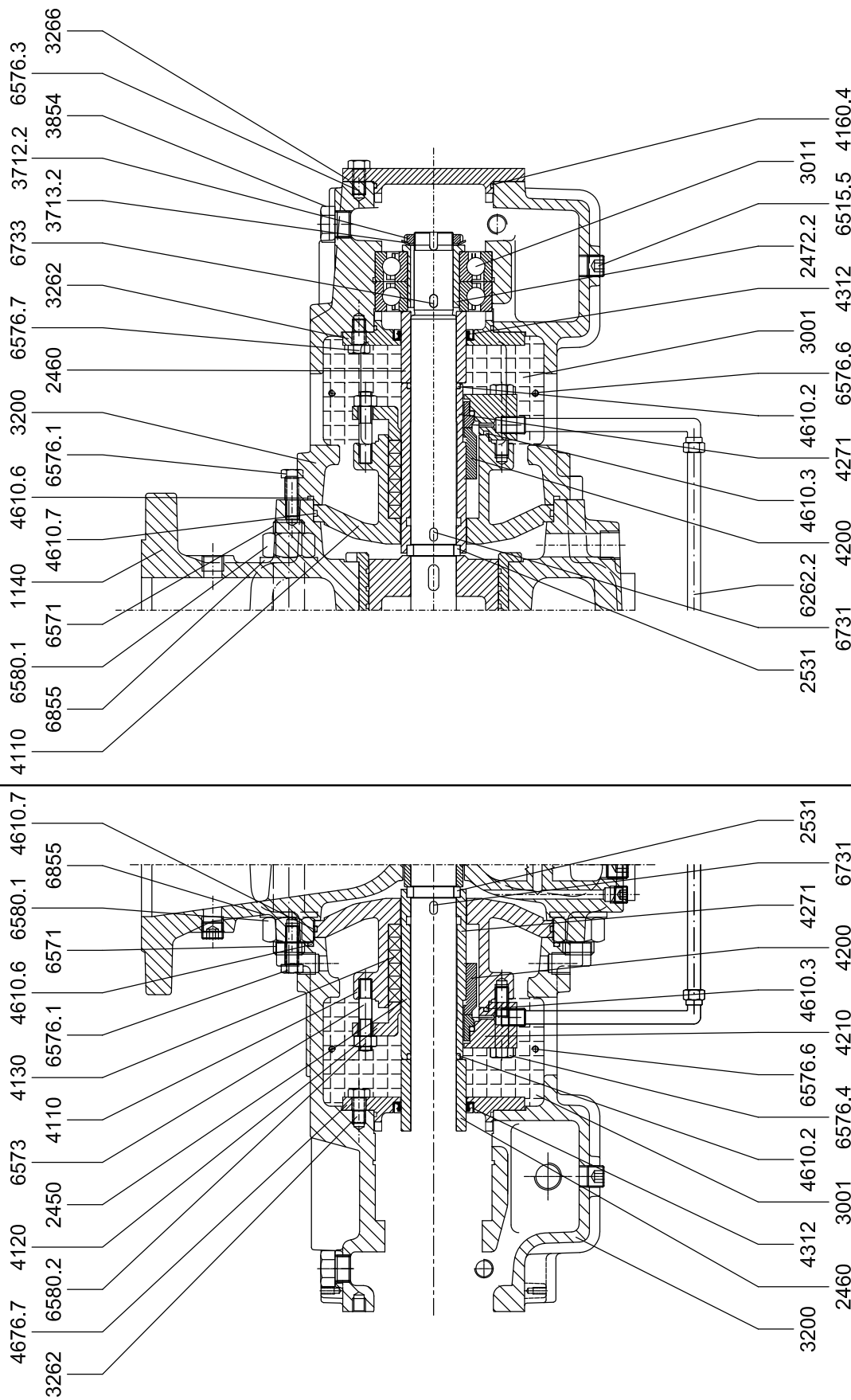
RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1131	Corpo aspirante	Suction casing for axial execution		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1530	Kit Anelli di usura diffusore	KIT diffusers Wear rings	Si / Yes	1
1450	Diffusore	Diffuser		
1500/10	KIT Anelli di usura giranti	KIT Wear ring impeller	Si / Yes	1
1660	Boccola corpo premente	Discharge casing bush	Si / Yes	1
2100	Albero	Shaft		
2101	Circolatore olio	Oil curculator		
2200	Girante	Impeller		
2210	Girante di aspirazione	Impeller suction stage		
2450	Camicia per baderna	Gland packing Shaft sleeve	Si / Yes	1
2460/1	KIT Bussole distanziatrici	KIT Space sleeves	Si / Yes	1
2472.2	Bussola cuscinetto	Shaft sleeve bearing	Si / Yes	1
2520	Molla a tazza	Shoulder ring		
2540.1-2	KIT Deflettori	KT Trowers	Si / Yes	1
2531	Anello in due metà	Retaing ring aplit		
3001	Rete protezione	Safety net		
3011/13	KIT Cuscinetti a sfere	KIT Radial ball bearings	Si / Yes	1
3200	Supporto Cuscinetti	Bearing housing		
3261	Coperchietto l.comando	Bearing cover drive size		
3262	Coperchietto l.pompa	Bearing cover pump size		
3300	Cuscinetto a boccola	Bearing Bushing	Si / Yes	1
3400	Camicia d'albero per il supporto cuscinetti	Shaft-Sleeve Bearings	Si / Yes	1
3712.2	Ghiera del cuscinetto	Bearings Lockwasher		
3713.2	Rosetta di sicurezza	Washer	Si / Yes	1
3851	Ingrassatore	Greaser		
3854	Tappo di riempimento	Oil plug		
4110	Corpo Cassa stoppa	Seal Housing		
4120	Premitreccia	Gland		
4130	Guarnizione a treccia	Gland packing	Si / Yes	1
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve mechanical seal	Si / Yes	1
4311-2	KIT Anelli di tenuta sull'albero	KIT Radial shaft seal	Si / Yes	1
4610.1-7	KIT Guarnizione OR	KIT O-Ring	Si / Yes	1
6210	Tamburo di equilibrio	Balance Drum		
6262.1	Tubo di equilibrio	Balance drum pipe		
6262.2	Tubo per tenuta meccanica	Mechanical seal pipe		
6515.1-5	KIT Tappi	KIT Plugs	Si / Yes	1
6546	Seeger	Seeger	Si / Yes	1
6571	Tirante	Tie rods		
6573	Prigioniero	Tie bolt		
6576.1-9	KIT Viti T.E.	KIT screws		
6580.1-2	KIT Dadi	KIT Nuts		
6701-42	KIT Chiavette	KIT Keys	Si / Yes	1
6855	Rondella	Washer		



# HPM 125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION

HPM 125 - SUCTION AND PRESSURE SIDE  
 HPM 150 - NOT THRUST BEARING SIDE

HPM 150  
 THRUST BEARING SIDE



## HPM 25-32-50-80-100-125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION

RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1130	Corpo aspirante	Suction casing		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1450	Diffusore	Diffuser		
1500	Kit Anelli di usura giranti	Kit Wear rings impellers	Si / Yes	1
1660	Boccola c. premente	Discharge casing bush	Si / Yes	1
2100	Albero	Shaft		
2101	Circolatore olio	Oil circulator		
2200	Girante	Impeller		
2210	Girante di aspirazione	Impeller suction stage		
2450	Camicia per baderna	Gland paking Shaft sleeve	Si / Yes	1
2460-72	Kit Bussole distanz. e cuscinetti	Kit Spacers and Bearings sleeves	Si / Yes	1
2531	Anello in due metà	Split ring		
3001	Rete protezione	Safety net		
3011	Kit Cuscinetti a sfere e Rulli	Kit Ball and Roller bearings	Si / Yes	1
3200	Supporto Cuscinetti	Bearings housing		
3261	Kit Coperchietti cuscinetti	Kit Bearings covers		
3712.1	Kit Ghiere dei cuscinetti	Kit Bearings nuts	Si / Yes	1
3713.1	Kit Rosette	Kit Lockwashers	Si / Yes	1
3854	Tappo di riempimento	Oil filler plug		
3855	Oliatore	Oil lever		
4110	Cassa stoppa	Seal box		
4120	Premitreccia	Gland		
4130	Guarnizione a treccia	Gland paking	Si / Yes	1
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve m. seal	Si / Yes	1
4311	Kit Anelli di tenuta sull'albero	Kit Shaft seal rings	Si / Yes	1
4610.1-7	Kit Guarnizioni OR	Kit O-Rings	Si / Yes	1
6210	Tamburo di equilibrio	Balance Drum		
6262.1	Tubo di equilibrio per Tamburo	Drum feeding pipe		
6262.2	Tubo per tenuta meccanica	Mechanical seal pipe		
6515.1	Kit Tappi	Kit Plugs		
6546	Seeger	Seeger		
6571	Tirante	Tie bolt		
6573	Prigioniero	Gland tie		
6576.1-7	Kit Viti	Kit Screws		
6580.1	Kit Dadi	Kit Nuts		
6701	Kit Chiavette	Kit Keys	Si / Yes	1
6855	Rondella	Washer		

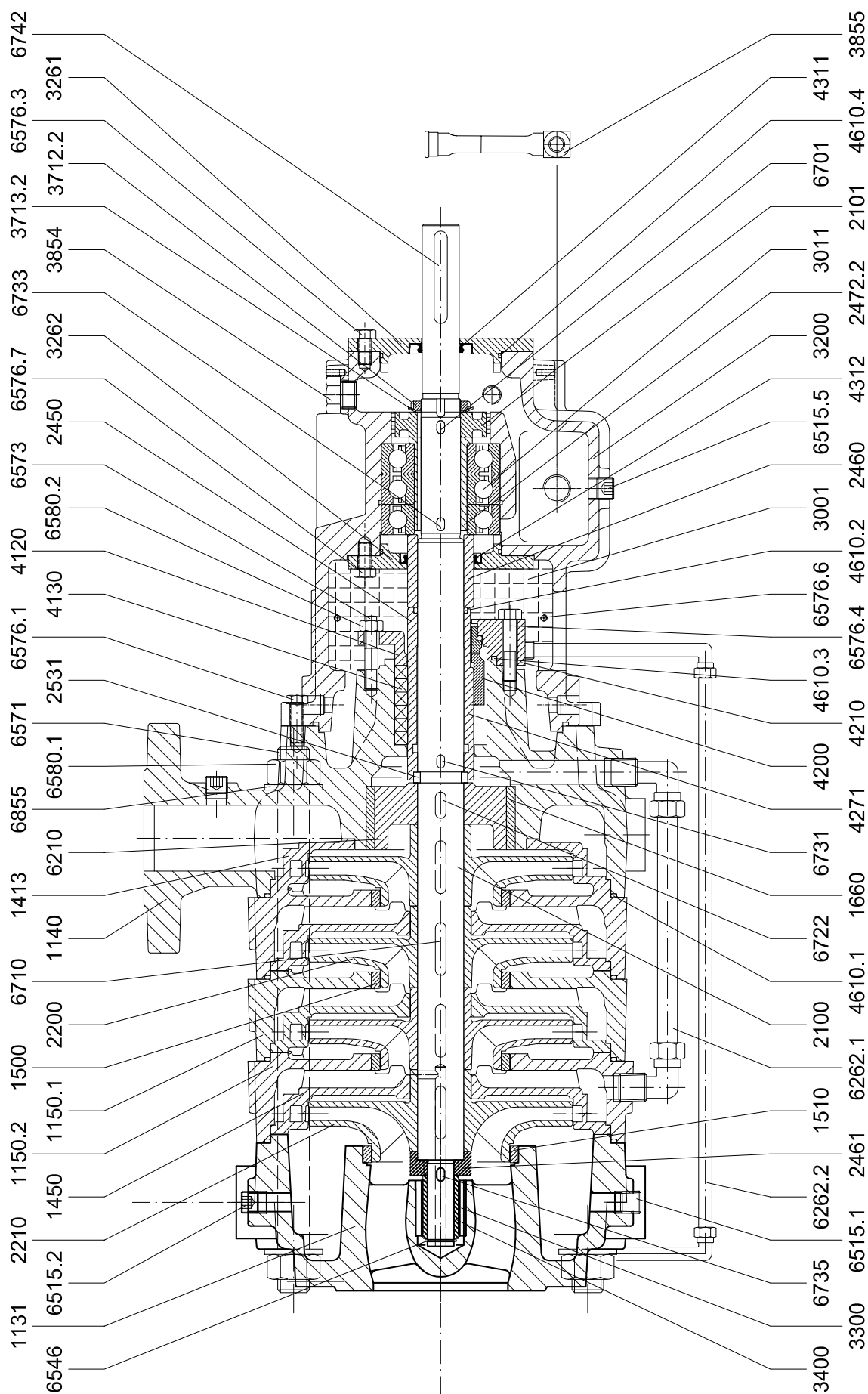




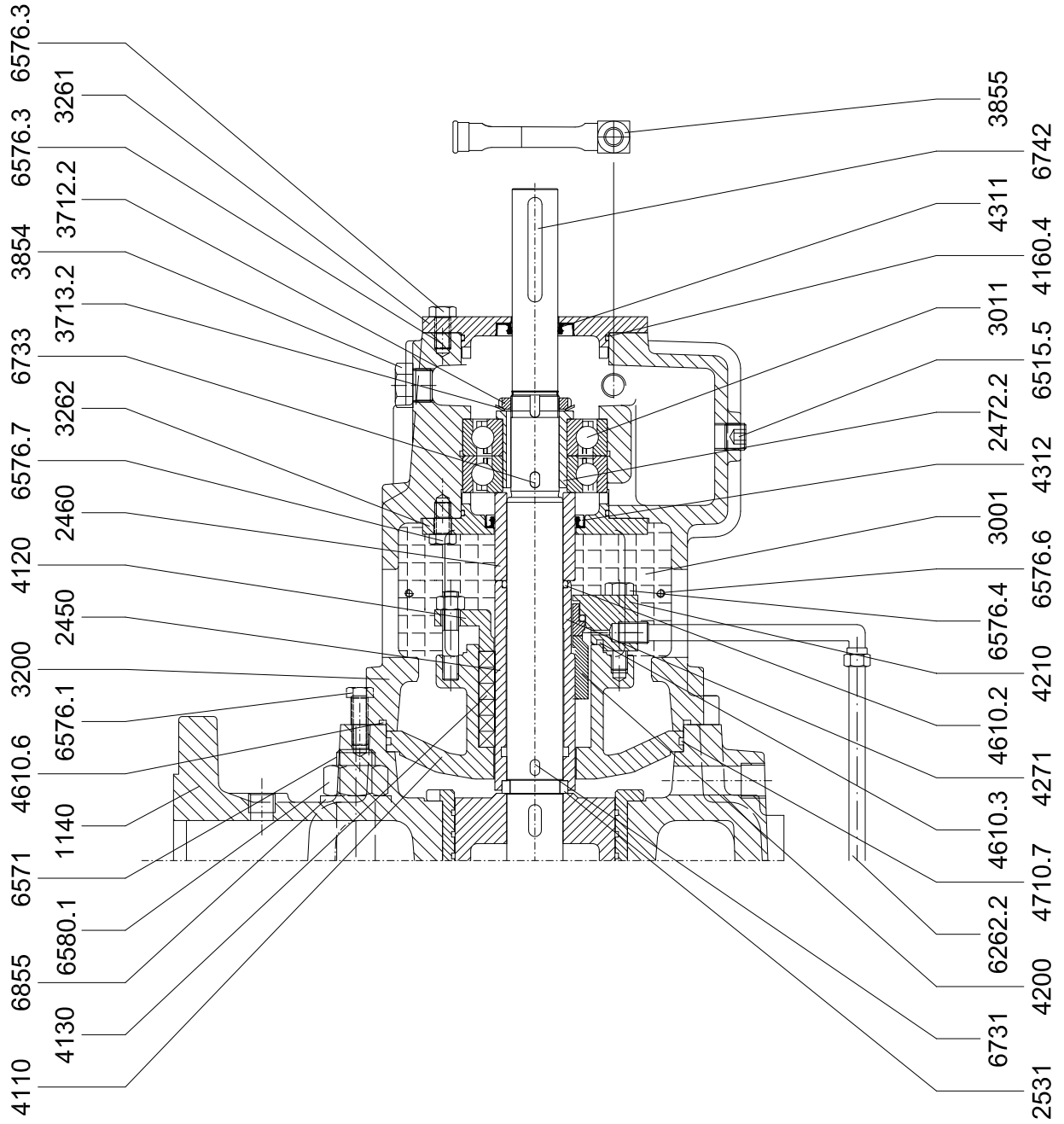
## HPM 250 LUBRIFICAZIONE A OLIO / OIL LUBRICATION

RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1130	Corpo aspirante	Suction casing		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1450	Diffusore	Diffuser		
1500	Kit Anelli di usura giranti	Kit Wear rings impellers	Si / Yes	1
2100	Albero	Shaft	Si / Yes	1
2200	Girante	Impeller		
2450	Camicia per baderna	Shaft sleeve	Si / Yes	1
2460	Kit Bussole distanz. e Cuscinetti	Kit Spacers and sleeves	Si / Yes	1
2531	Anello in due metà	Split Ring	Si / Yes	1
3001	Rete protezione	Safety net		
3011	Kit Cuscinetti Sfere e Rulli	Kit Ball and Roller bearings	Si / Yes	1
3200	Supporto Cuscinetti	Bearing housing		
3261	Kit Coperchietti cuscinetti	Kit Bearing covers	Si / Yes	1
3266	Coperchietto cieco	Bearing end cover	Si / Yes	1
3712.1	Kit Ghiere	Kit nuts	Si / Yes	1
3854	Tappo di riempimento	Oil filler plug		
3855	Oliatore	Oil lever		
4110	Cassa stoppa	Seal box		
4120	Premitreccia	Gland		
4130	Guarnizione a treccia	Gland packing	Si / Yes	1
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve m. seal	Si / Yes	1
4311	Kit Anelli di tenuta sull'albero	Kit shaft seal Rings	Si / Yes	1
4610.1	Kit Guarnizioni OR	Kit O-Rings	Si / Yes	1
6262.1	Tubo di equilibrio	Balance Pressure Pipe		
6262.2	Tubo per tenuta meccanica	Mechanical seal pipe		
6515.1	Kit Tappi	Kit Plugs		
6546	Seeger	Seeger	Si / Yes	1
6571	Tirante	Tie bolt		
6573	Prigioniero	Gland tie		
6576.1-6	Kit Viti	Kit Screws		
6580.1	Kit Dadi	Kit Nuts		
6710	Kit Chiavette	Kit Keys	Si / Yes	1
6855	Rondella	Washer	Si / Yes	1

HPMA 25-32-50-80-100-125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION



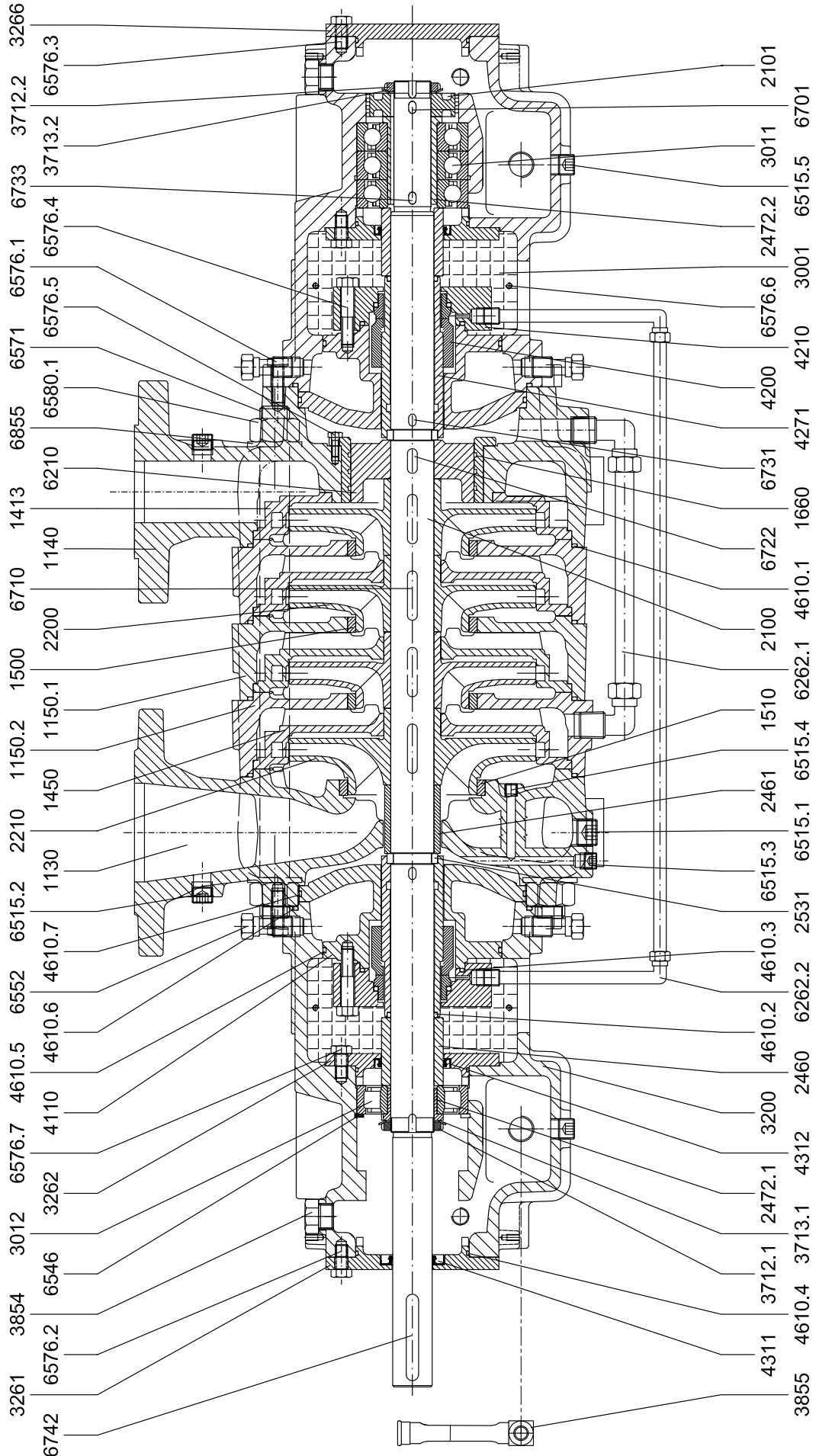
HPMA 125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION



## HPMA 25-32-50-80-100-125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION

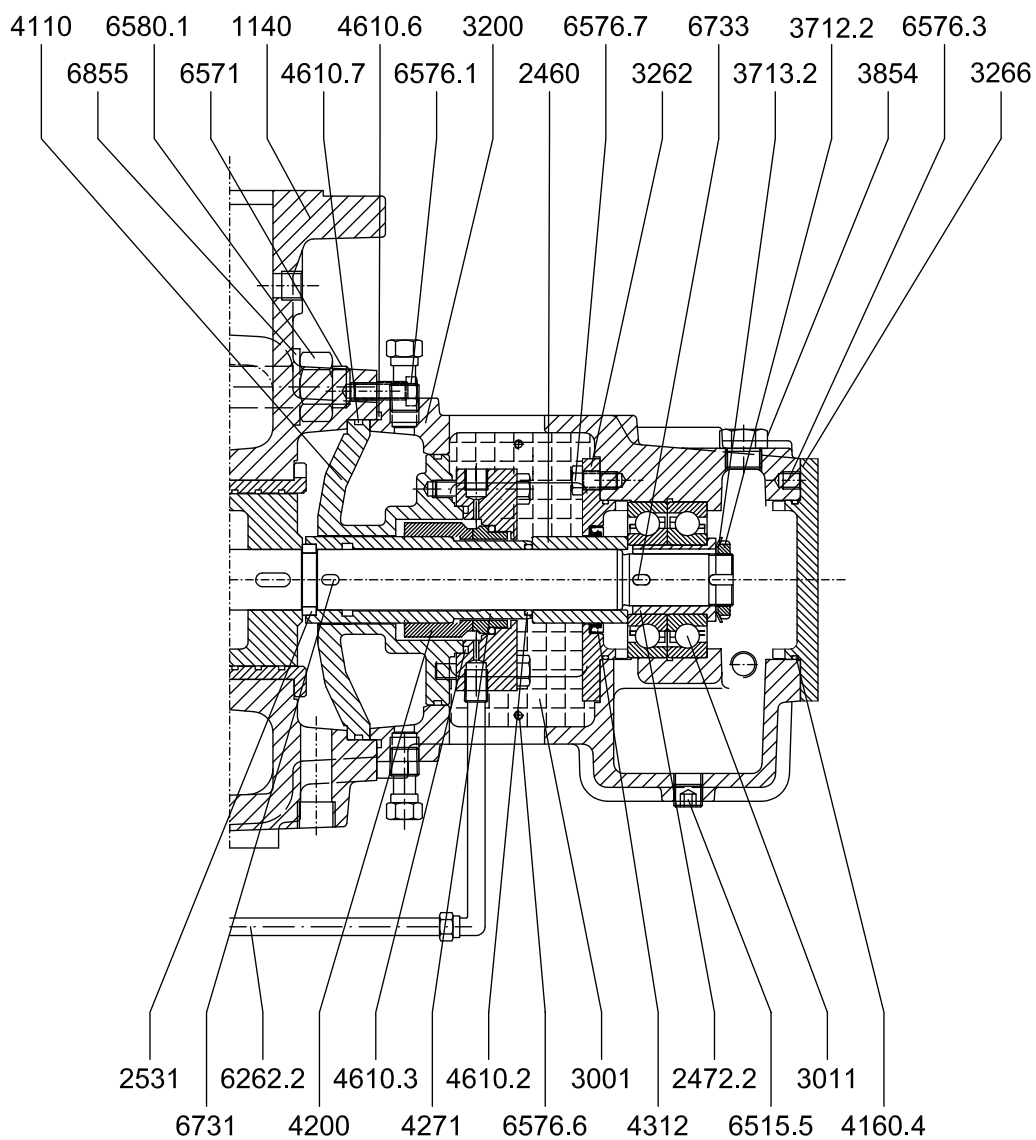
RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1131	Corpo aspirante	Suction casing for axial execution		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1530	Kit Anelli di usura diffusore	KIT diffusers Wear rings	SI / Yes	1
1450	Diffusore	Diffuser		
1500/10	KIT Anelli di usura giranti	KIT Wear ring impeller	SI / Yes	1
1660	Boccola corpo premente	Discharge casing bush	SI / Yes	1
2100	Albero	Shaft		
2101	Circolatore olio	Oil circulator		
2200	Girante	Impeller		
2210	Girante di aspirazione	Impeller suction stage		
2450	Camicia per baderna	Gland packing Shaft sleeve	SI / Yes	1
2460/1	KIT Bussole distanziatrice	KIT Space sleeves	SI / Yes	1
2472.2	Bussola cuscinetto	Shaft sleeve bearing	SI / Yes	1
2520	Molla a tazza	Shoulder ring		
2540.1-2	KIT Deflettori	KT Trowers	SI / Yes	1
2531	Anello in due metà	Split ring		
3001	Rete protezione	Safety net		
3011/13	KIT Cuscinetti a sfere	KIT Radial ball bearings	SI / Yes	1
3200	Supporto Cuscinetti	Bearing housing		
3261	Coperchietto l.comando	Bearing cover drive size		
3262	Coperchietto l.pompa	Bearing cover pump size		
3300	Cuscinetto a boccola	Bearing Bushing	SI / Yes	1
3400	Camicia d'albero per il supporto cuscinetti	Shaft-Sleeve Bearings	SI / Yes	1
3712.2	Ghiera del cuscinetto	Bearings Lockwasher		
3713.2	Rosetta di sicurezza	Washer	SI / Yes	1
3851	Ingrassatore	Greaser		
3854	Tappo di riempimento	Oil plug		
3855	Oliatore livello costante	Costant oil lever		
4110	Corpo Cassa stoppa	Seal Housing		
4120	Premitreccia	Gland packing		
4130	Guarnizione a treccia	Gland	SI / Yes	1
4200	Tenuta meccanica	Mechanical seal	SI / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve mechanical seal	SI / Yes	1
4311-2	KIT Anelli di tenuta sull'albero	KIT Radial shaft seal	SI / Yes	1
4610.1-7	KIT Guarnizione OR	KIT O-Ring	SI / Yes	1
6210	Tamburo di equilibrio	Balance Drum		
6262.1	Tubo di equilibrio	Balance drum pipe		
6262.2	Tubo per tenuta meccanica	Mechanical seal pipe		
6515.1-5	KIT Tappi	KIT Plugs	SI / Yes	1
6546	Seeger	Seeger	SI / Yes	1
6571	Tirante	Tie rods		
6573	Prigioniero	Tie bolt		
6576.1-9	KIT Viti T.E.	KIT screws		
6580.1-2	KIT Dadi	KIT Nuts		
6701-42	KIT Chiavette	KIT Keys	SI / Yes	1
6855	Rondella	Washer		

HPR 25-32-50-80-100-125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION



HPR 150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION

HPR 150  
THRUST BEARING SIDE

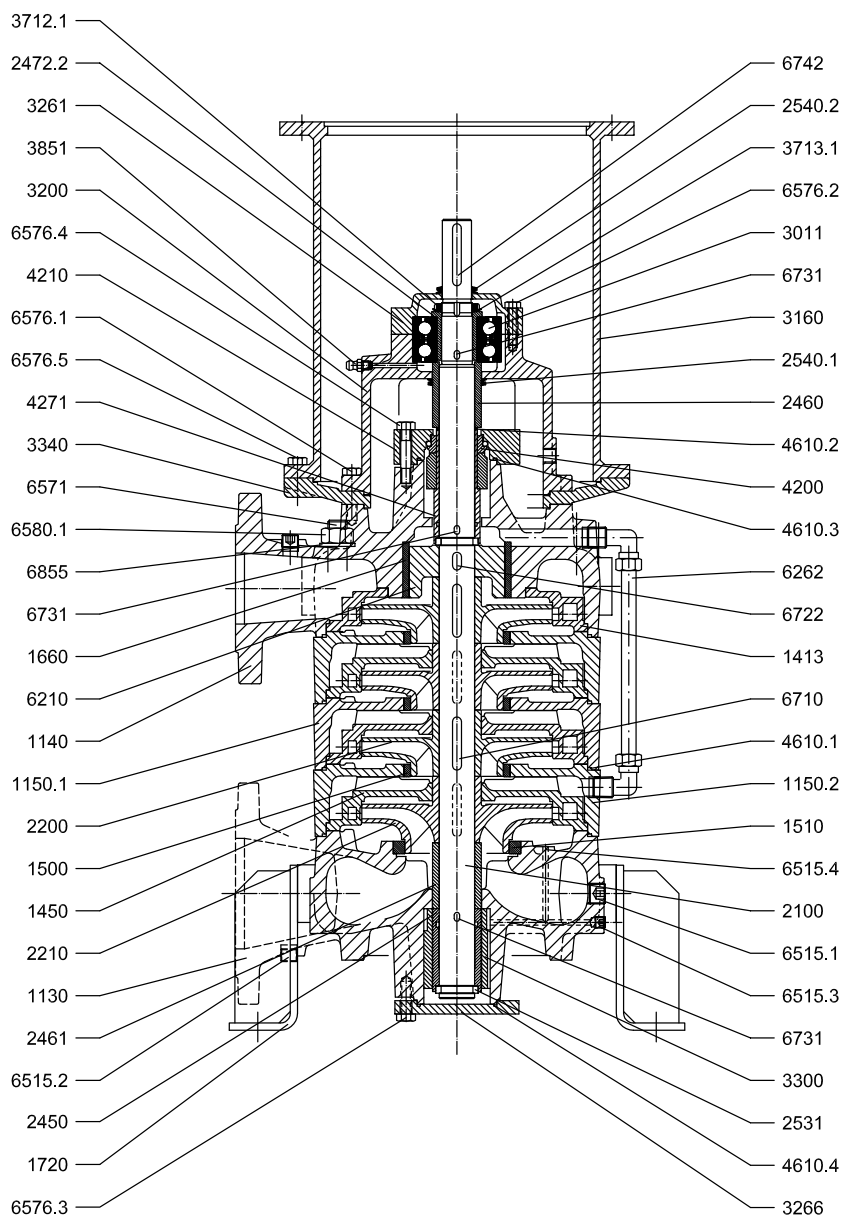


## HPR 25-32-50-80-100-125-150 LUBRIFICAZIONE A OLIO / OIL LUBRICATION

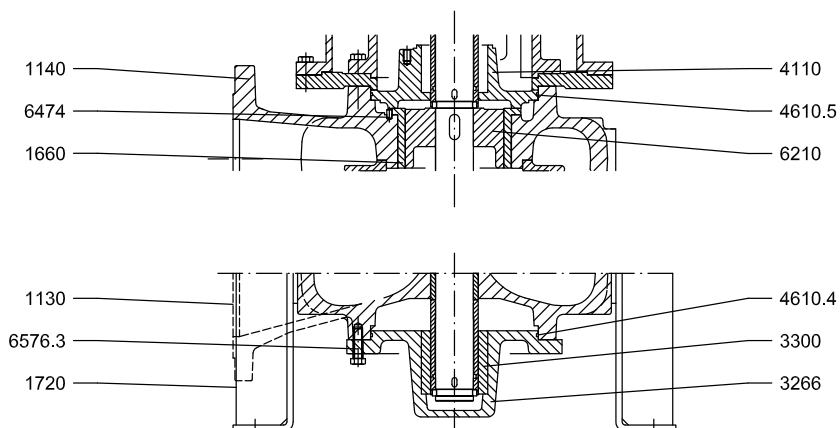
RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1130	Corpo aspirante	Suction casing		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1450	Diffusore	Diffuser		
1500	Kit Anelli di usura girante	Kit Wear rings impellers	Si / Yes	1
1660	Boccola c. premente	Discharge casing bush	Si / Yes	1
2100	Albero	Shaft		
2101	Circolatore olio	Oil circulator		
2200	Girante	Impeller		
2210	Girante di aspirazione	Impeller suction stage		
2460-72	Kit Bussole distanz. e cuscinetti	Kit Spacers and Bearings sleeves	Si / Yes	1
2531	Anello in due metà	Split ring	Si / Yes	1
3001	Rete protezione	Safety net		
3011	Kit Cuscinetti a sfere e Rulli	Kit Radial Ball and Roller bearings	Si / Yes	1
3200	Supporto cuscinetti	Bearing housing		
3261	Kit Coperchietti cuscinetti	Kit Bearing covers		
3712.1	Kit Ghiera dei cuscinetti	Kit Bearing nuts		
3713.1	Kit Rosette	Kit Lockwasher	Si / Yes	1
3854	Tappo di riempimento	Oil filler plug		
3855	Oliatore	Oil lever		
4110	Scatola tenuta meccanica	Seal housing		
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Kit Shaft seal Rings	Si / Yes	1
4311	Kit Anelli di tenuta sull'albero	Radial shaft seal	Si / Yes	1
4610.1-7	Kit Guarnizioni OR	Kit O-Rings	Si / Yes	1
6210	Tamburo di equilibrio	Balance disc		
6262.1	Tubo di equilibrio per Tamburo	Drum feeding pipe		
6262.2	Tubo per tenuta meccanica	Mechanical seal pipe		
6515.1	Kit Tappi	Kit Plugs		
6546	Seeger	Seeger		
6571	Tirante	Tie bolt		
6573	Prigioniero	Gland tie		
6576.1-7	Kit Viti	Kit Screws		
6580.1	Kit Dadi	Kit Nuts		
6701	Kit Chiavette	Kit Keys	Si / Yes	1
6855	Rondella	Washer		



# HV 25-32-50-80-100-250 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



# HV 125-150 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION



## HV 25-32-50-80-100-125-150-250 LUBRIFICAZIONE A GRASSO / GREASE LUBRICATION

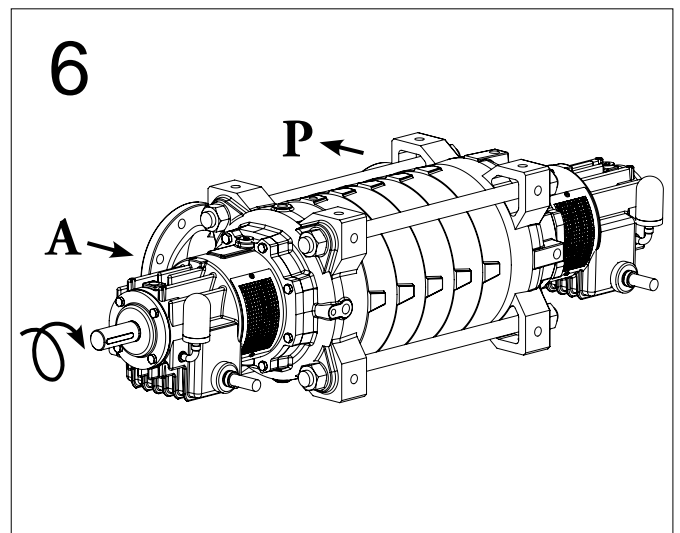
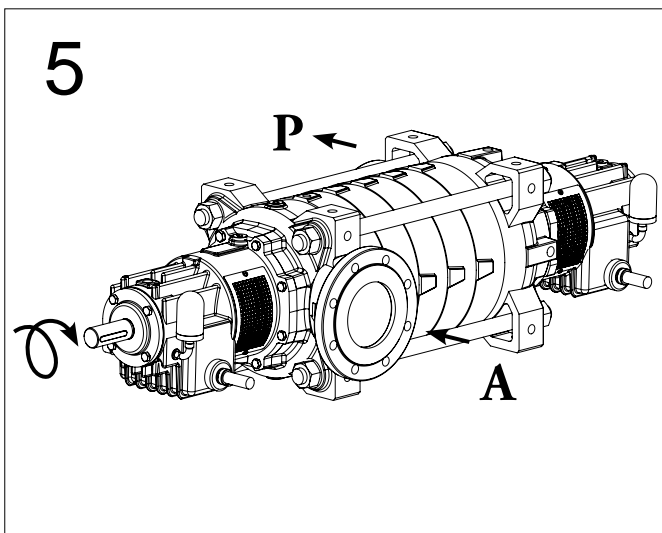
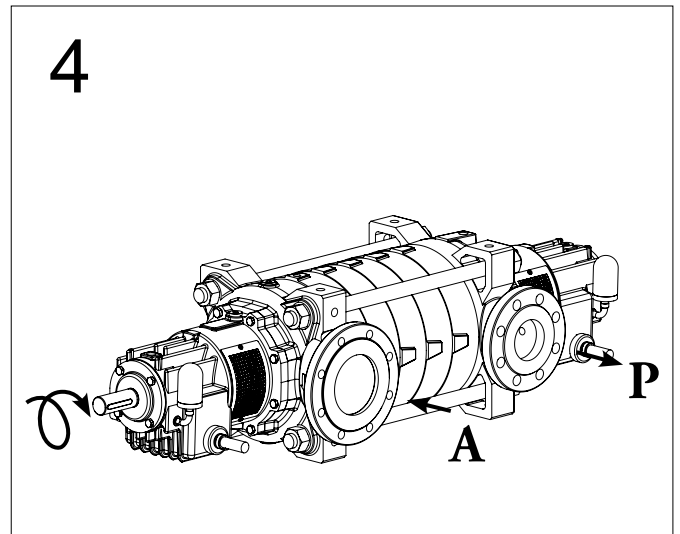
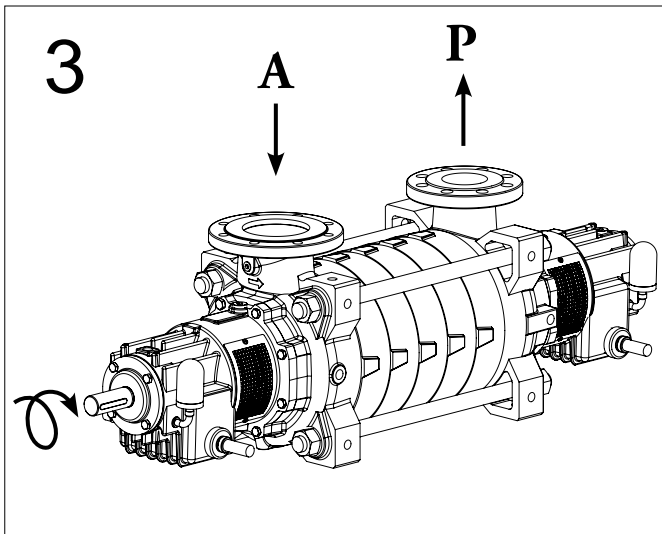
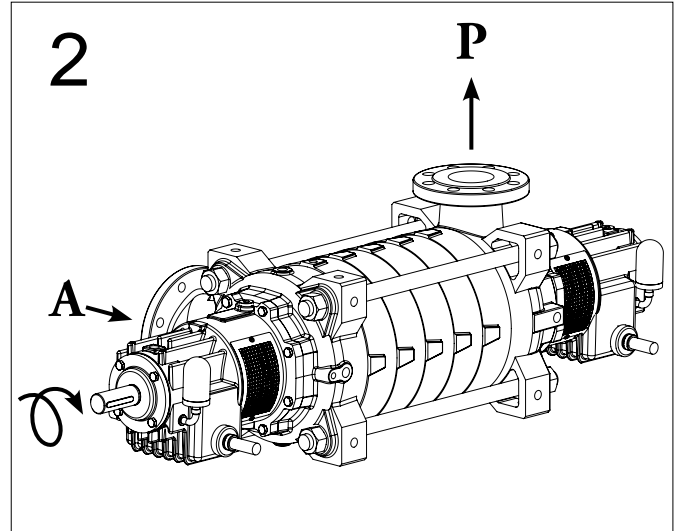
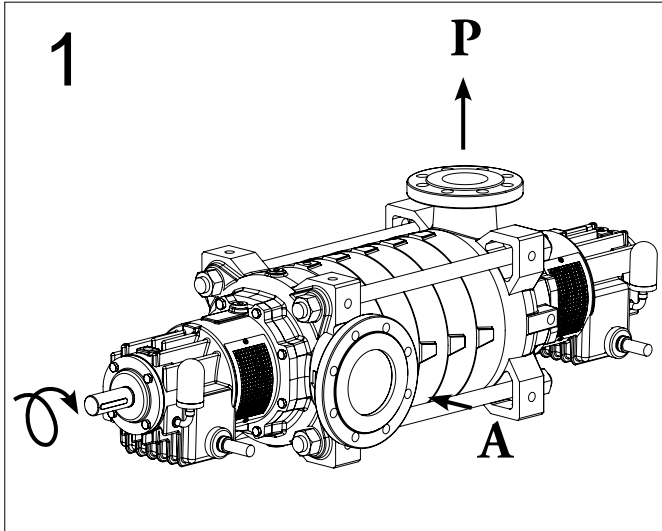
RIF. REF.	Descrizione parte	Part Description	Ricambio consigliato / Recomanded spare part	Q.tà / Q.ty
1130	Corpo aspirante	Suction casing		
1140	Corpo premente	Discharge casing		
1150.1	Corpo di stadio	Stage casing		
1150.2	Corpo di stadio	Stage casing		
1413	Diffusore ultimo stadio	Diffuser last stage		
1450	Diffusore	Diffuser		
1500	Kit Anelli di usura girante	Kit Wear rings impeller	Si / Yes	1
1660	Boccola c. premente	Discharge casing bush	Si / Yes	1
1720	Piede supporto pompa	Pump foot		
2100	Albero	Shaft		
2200	Girante	Impeller		
2210	Girante di aspirazione	Impeller suction stage		
2520	Molla a tazza	Shoulder ring	Si / Yes	1
2450	Camicia per baderna	Space sleeve	Si / Yes	1
2460	Kit Bussole distanziatrice	Kit Space sleeve	Si / Yes	1
2472.1	Kit Bussole cuscinetti	Kit Shaft sleeve bearing	Si / Yes	1
2531	Anello in due metà	Split ring		
2540.1	Kit Deflettori	Kit Trower	Si / Yes	1
3011	Kit Cuscinetti a sfere	Kit Ball bearings	Si / Yes	1
3160	Lanterna motore	Motor Braket		
3200	Supporto cuscinetto	Bearing housing		
3261	Coperchietto l.comando	Bearing cover drive size		
3266	Coperchietto cieco	Bearing end cover		
3300	Cuscinetto a boccola	Bearing bush		
3340	Disco di accoppiamento	Driving plate		
3712.1	Kit Ghiera del cuscinetto	Kit Bearing nut	Si / Yes	1
3851	Ingrassatore	Grease cup		
4110	Cassa stoppa	Seal box		
4200	Tenuta meccanica	Mechanical seal	Si / Yes	1
4210	Flangia tenuta mecc.	Flange mechanical seal		
4271	Camicia tenuta mecc.	Shaft sleeve m. seal	Si / Yes	1
4610.1	Kit Guarnizioni OR	Kit O-Rings	Si / Yes	1
6210	Tamburo di equilibrio	Balance disc		
6262.1	Tubo di alimentazione Tamburo	Drum feeding pipe		
6474	Spina	Pin	Si / Yes	1
6515.1	Kit Tappi	Kit Plugs		
6571	Tirante	Tie bolt		
6576.1-9	Kit Viti	Kit Screw		
6580.1	Dado	Nut		
6710	Kit Chiavette	Kit Keys	Si / Yes	1
6855	Rondella	Washer		

Posizioni delle flange pompa disponibili

Available pump flange positions

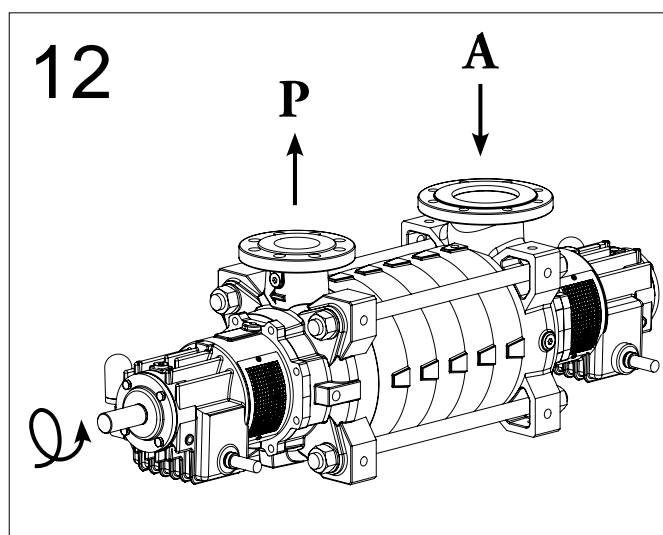
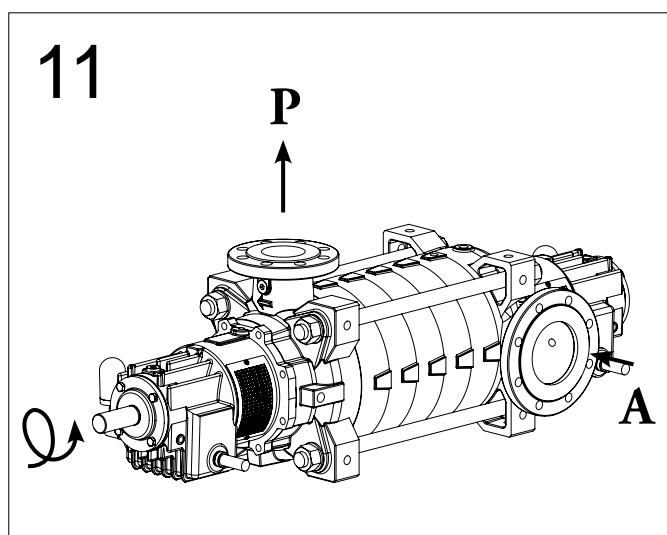
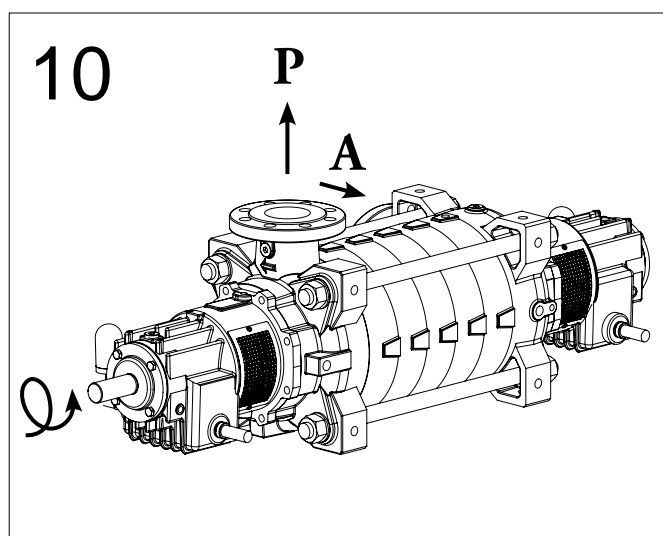
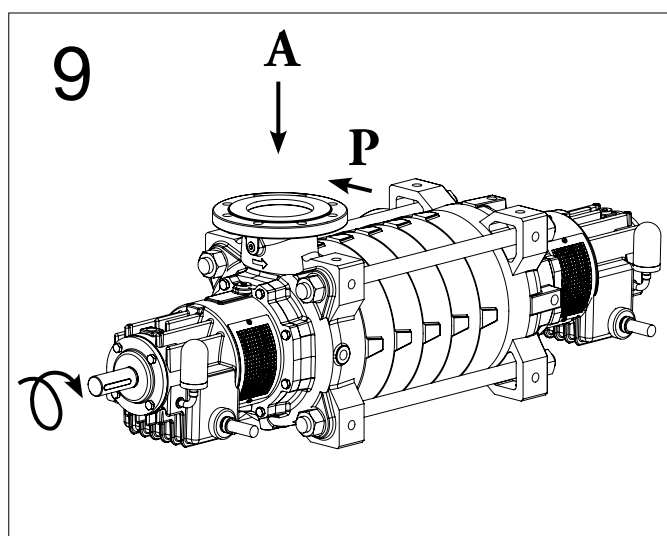
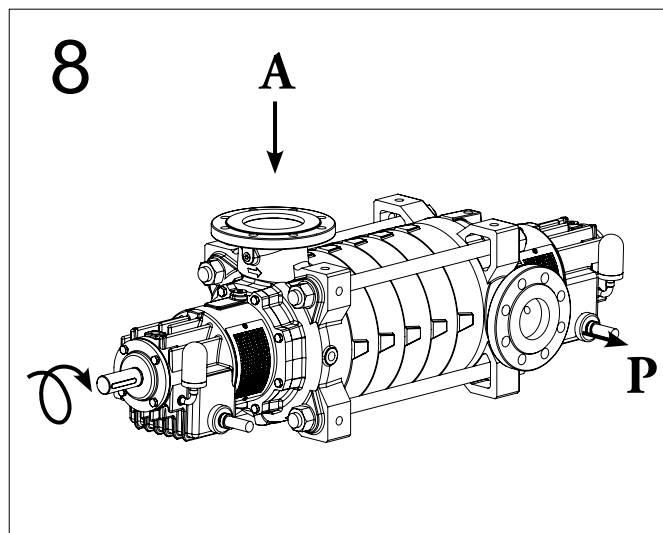
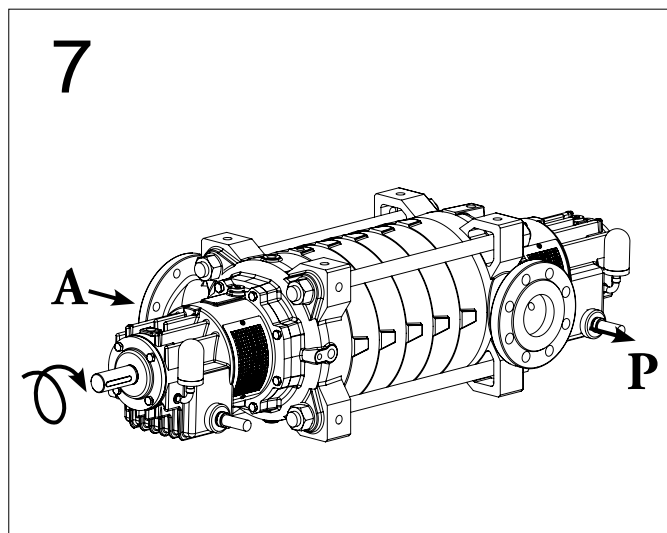
# ORIENTAMENTO BOCCHE POMPE ORIZZONTALI / DIRECTION OF FLANGES HORIZONTAL PUMPS

P: bocca premente - delivery port  
A: bocca aspirante - suction port



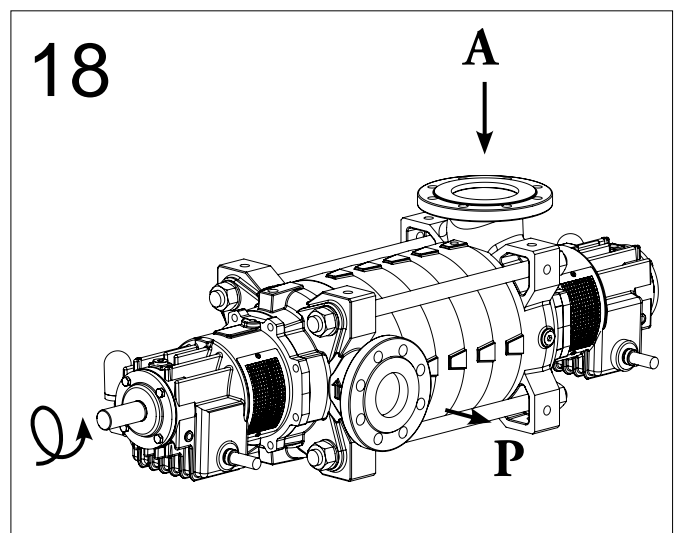
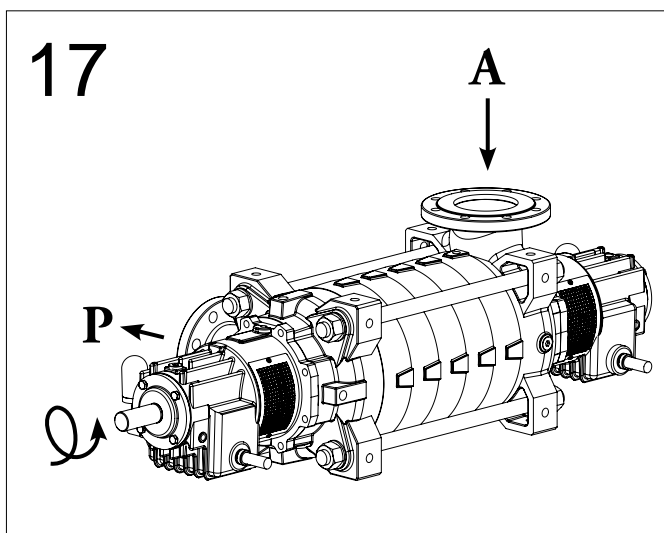
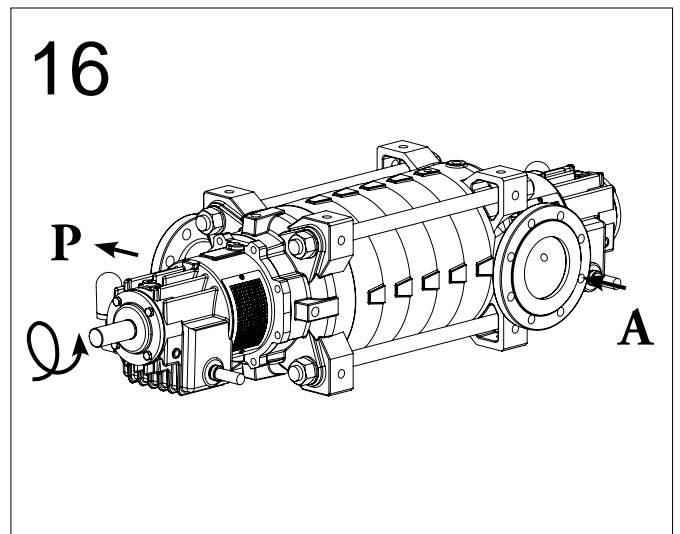
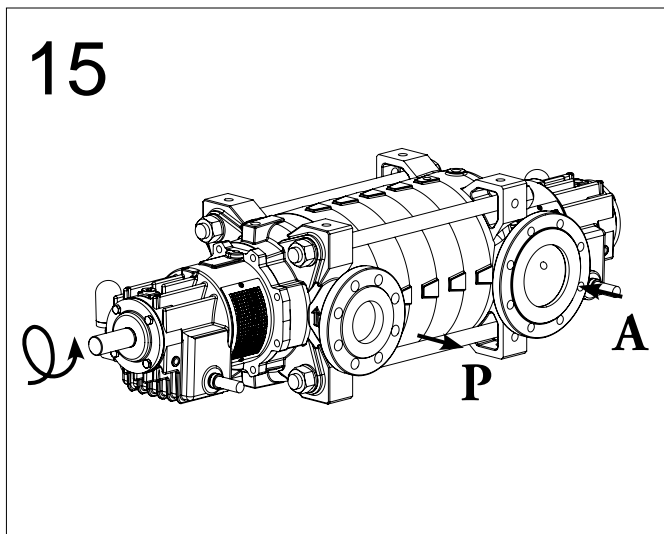
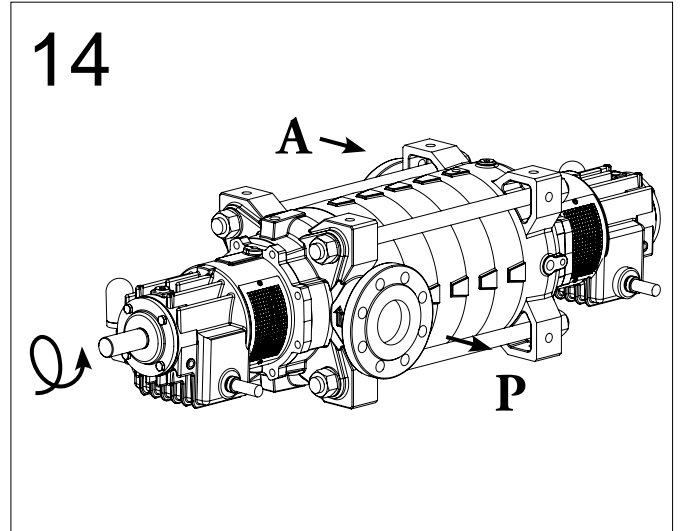
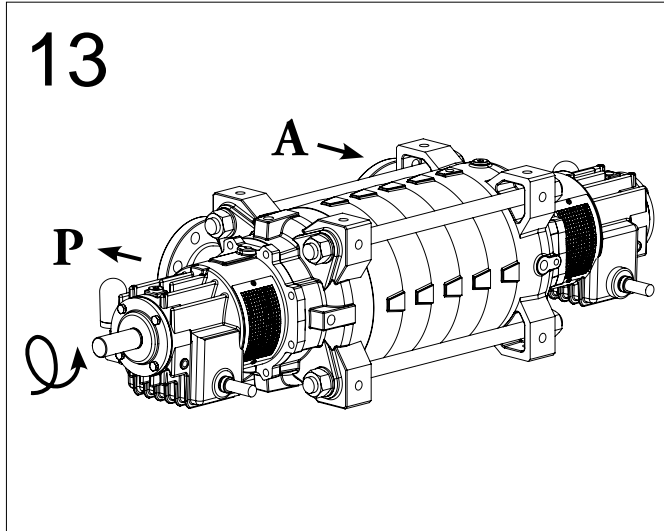
# ORIENTAMENTO BOCCHE POMPE ORIZZONTALI / DIRECTION OF FLANGES HORIZONTAL PUMPS

P: bocca premente - delivery port  
A: bocca aspirante - suction port



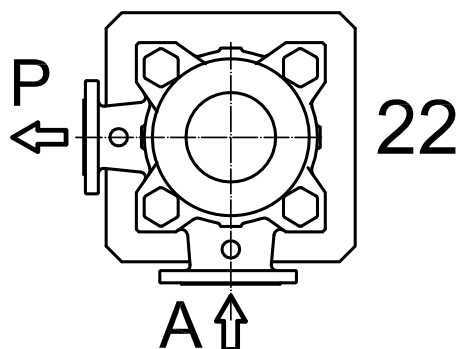
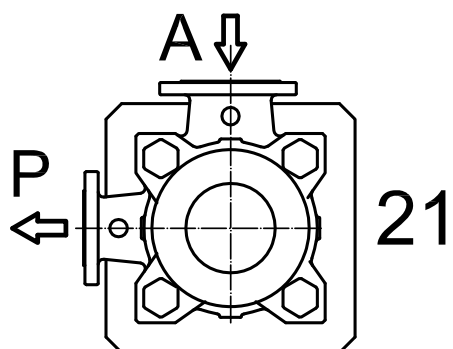
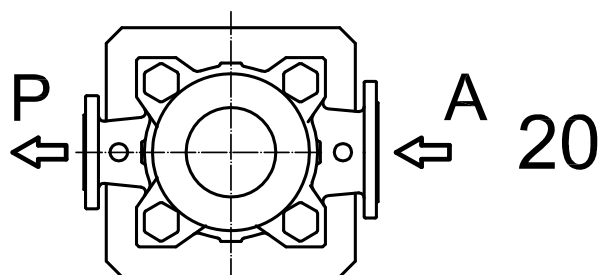
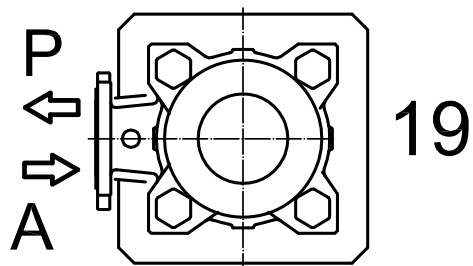
ORIENTAMENTO BOCCHE POMPE ORIZZONTALI /  
DIRECTION OF FLANGES HORIZONTAL PUMPS

P: bocca premente - delivery port  
A: bocca aspirante - suction port



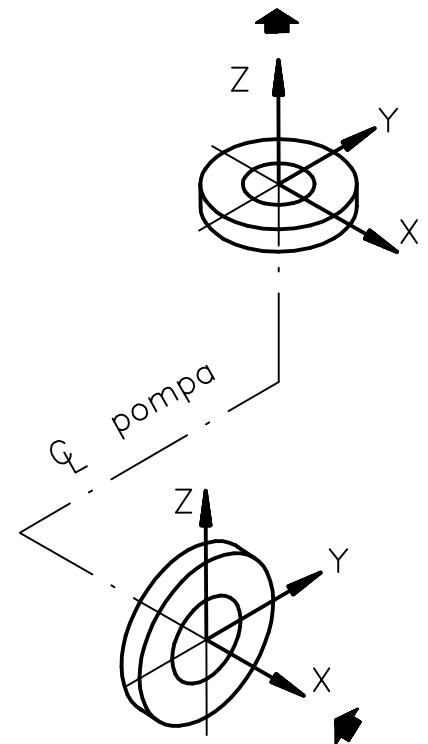
## ORIENTAMENTO BOCHE POMPE VERTICALI / DIRECTION OF NOZZLES VERTICAL PUMPS

P: bocca premente - delivery port  
A: bocca aspirante - suction port



Forze e momenti sulle flange in accordo con API 610 8th ed.  
*Forces and torques to be applied on the flanges in accordance to API 610 8th ed.*

FLANGE FLANGES		FORZE / FORCES daN				MOMENTI / TORQUES daN x m			
		Fx	Fy	Fz	Fr	Mx	My	Mz	Mr
ASPIRAZIONE / SUCTION	Dia.nom. ≤2"	89	71	58	128	46	23	35	62
	Dia.nom. 3"	133	107	89	193	95	47	72	128
	Dia.nom. 4"	178	142	116	256	133	68	100	180
	Dia.nom. 5"	244	190	330	344	175	90	128	256
	Dia.nom. 6"	311	249	205	448	230	118	176	313
	Dia.nom. 8"	489	378	311	692	593	176	258	471
	Dia.nom. 10"	667	534	445	963	502	244	380	675
	Dia.nom. 12"	800	667	534	1170	610	298	461	821
MANDATA / DELIVERY	Dia.nom. ≤2"	71	58	89	128	46	23	35	62
	Dia.nom. 3"	107	89	133	193	95	47	72	128
	Dia.nom. 4"	142	116	178	256	133	68	100	180
	Dia.nom. 5"	165	156	244	344	175	90	128	256
	Dia.nom. 6"	249	205	311	448	230	118	176	313
	Dia.nom. 8"	378	311	489	692	353	176	258	471
	Dia.nom. 10"	534	445	667	963	502	244	380	675



**Il corpo pompa è in grado di sopportare il doppio dei valori di forze e momenti indicati in tabella applicati contemporaneamente sulle bocche, sovrapposti alla pressione interna, senza causare deformazioni che danneggino il funzionamento della pompa e della tenuta.**

*The pump body can stand the double of the torque and forces values above listed for the two flanges, plus the internal pump pressure, without causing deformations which could effect the pump functioning and sealing.*

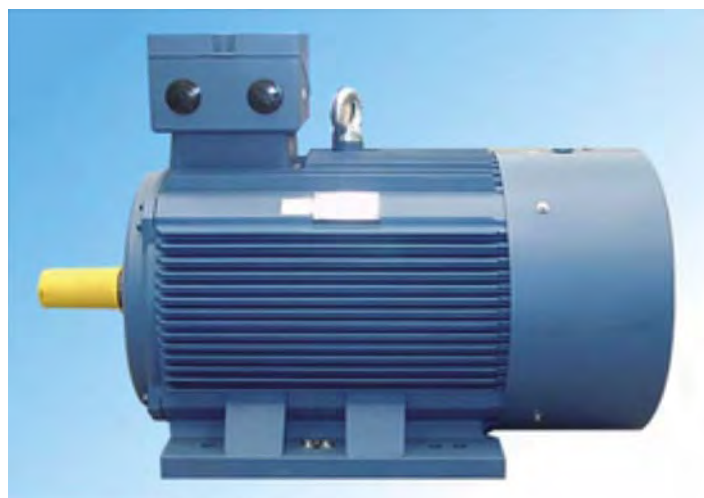


## Dati tecnici e dimensioni Motore elettrico

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## Motor Data and overall dimensions

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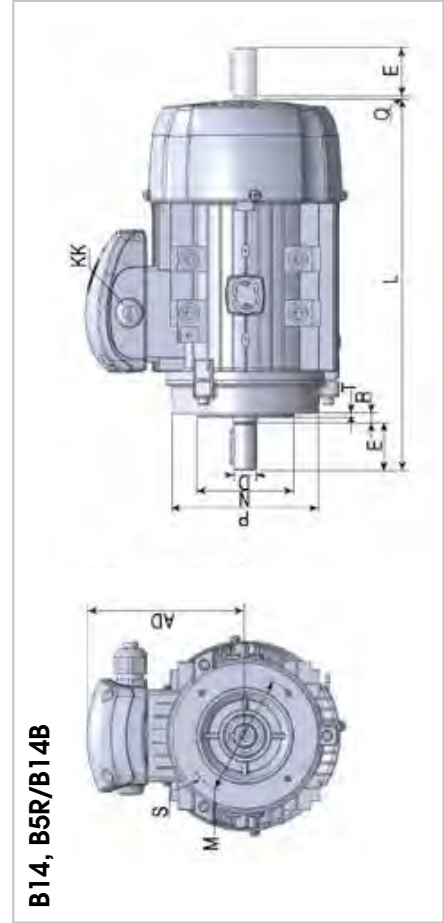
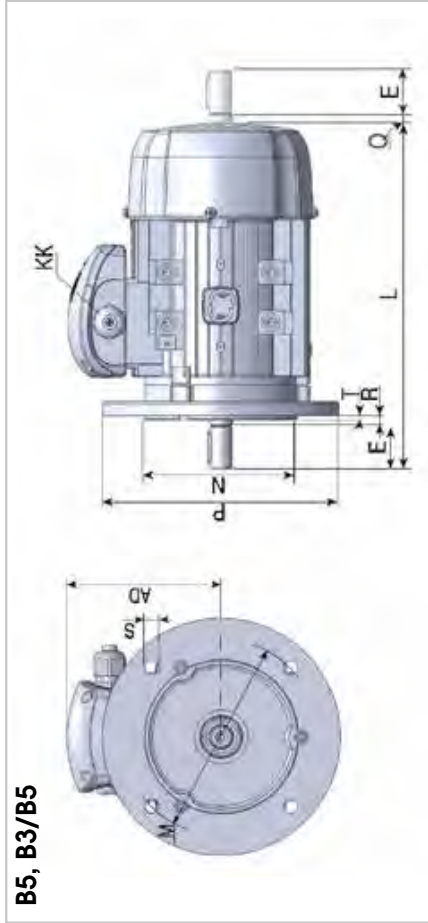
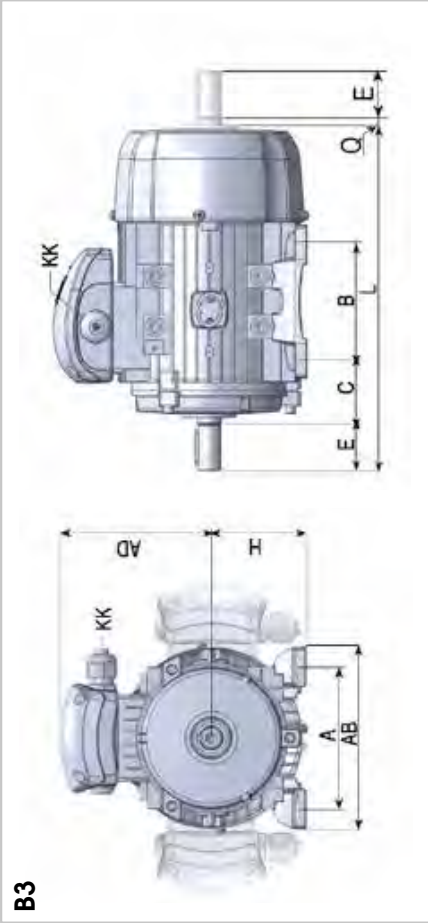
CONSTRUCTION FORMS AND SIZE TABLES

MOTOR CONFIGURATIONS AND INSTALLATION POSITIONS (IEC 34-7)

MOTORS WITH FEET B3	FLANGE-MOUNTED MOTORS B5	FLANGE-MOUNTED MOTORS B14
 IM1051 (IM B6)  IM1061 (IM B7)  IM1071 (IM B8)  IM1001 (IM B3)  IM1011 (IM V5)  IM1031 (IM V6)	 IM3001 (IM B5)  IM3011 (IM V1)  IM3031 (IM V3)  IM2011 (IM V15)	 IM3601 (IM B14)  IM3611 (IM V18)  IM3631 (IM V19)  IM2031 (IM V36)
 IM2001 (IM B35)  IM2101 (IM B34)	<p>V1/V5</p>	<p>V3/V6</p>







TYPE	POLES	SV IE2		SV IE3	ATDC AT24		ATDC+SV AT24+SV		ATTD		ATTD+SV	
		L	L		L	L	L	L	L	L	L	
56	2-8	-	-	-	-	-	-	-	-	-	-	-
63	2-8	301	-	-	276	401	321	438				
71	2-8	341	-	-	300	442	365	497				
80	2-8	388	-	-	340	509	417	560				
90S	2-8	420	440	440	385	566	465	577				
90L	2-8	445	465	465	410	591	490	602				
100	2-8	483	503	503	450	621	488	647				
112M	2-8	525	545	545	475	668	563	693				
132S	2-8	590	610	610	557	765	640	795				
132M	2-8	625	645	645	590	803	677	832				
160M	2-8	765	765	765	720	1009	820	929				
160L	2-8	860	860	860	771	1104	882	1033				
180M	2-8	860	860	860	847	990	995	1140				
180L	2-8	910	910	910	896	1038	1044	1188				
200L	2-8	973	973	973	890	1013	1050	1178				
225S	2-8	955	955	955	935	1090	1115	1125				
225M	2	955	955	955	935	1090	1115	1125				
225M	4-8	985	985	985	965	1120	1145	1255				
250M	2	1045	1045	1045	1075	1211	1285	1466				
250M	4-8	1045	1045	1045	1075	1211	1285	1466				
280S	2	1105	1105	1105	1175	1274	1355	1444				
280S	4-8	1105	1105	1105	1175	1274	1355	1444				
280M	2	1160	1160	1160	1230	1329	1410	1499				
280M	4-8	1160	1160	1160	1230	1329	1410	1499				
315S	2	1400	1400	1400								
315S	4-8	1430	1430	1430								
315M	2	1500	1500	1500								
315M	4-8	1530	1530	1530								
315L	2	1500	1500	1500								
315L	4-8	1530	1530	1530								
355M	2	1740	1740	1740								
355M	4-8	1770	1770	1770								
355L	2	1740	1740	1740								
355L	4-8	1770	1770	1770								

data at 400V 50Hz

IE3, premium efficiency class IE 60034-30-1



Table with 16 columns: KW, Hp, Type, rpm, In (A), Is (A), Is/In, Cn (Nm), Cs (Nm), Cs/Cn, Cmax (Nm), Cmax/Cn, 100%, IE, 75%, 50%, Pwr. fact. cosφ (100%, 75%, 50%), ΔT (°C), LwA (dB), J (Kgm²), Kg

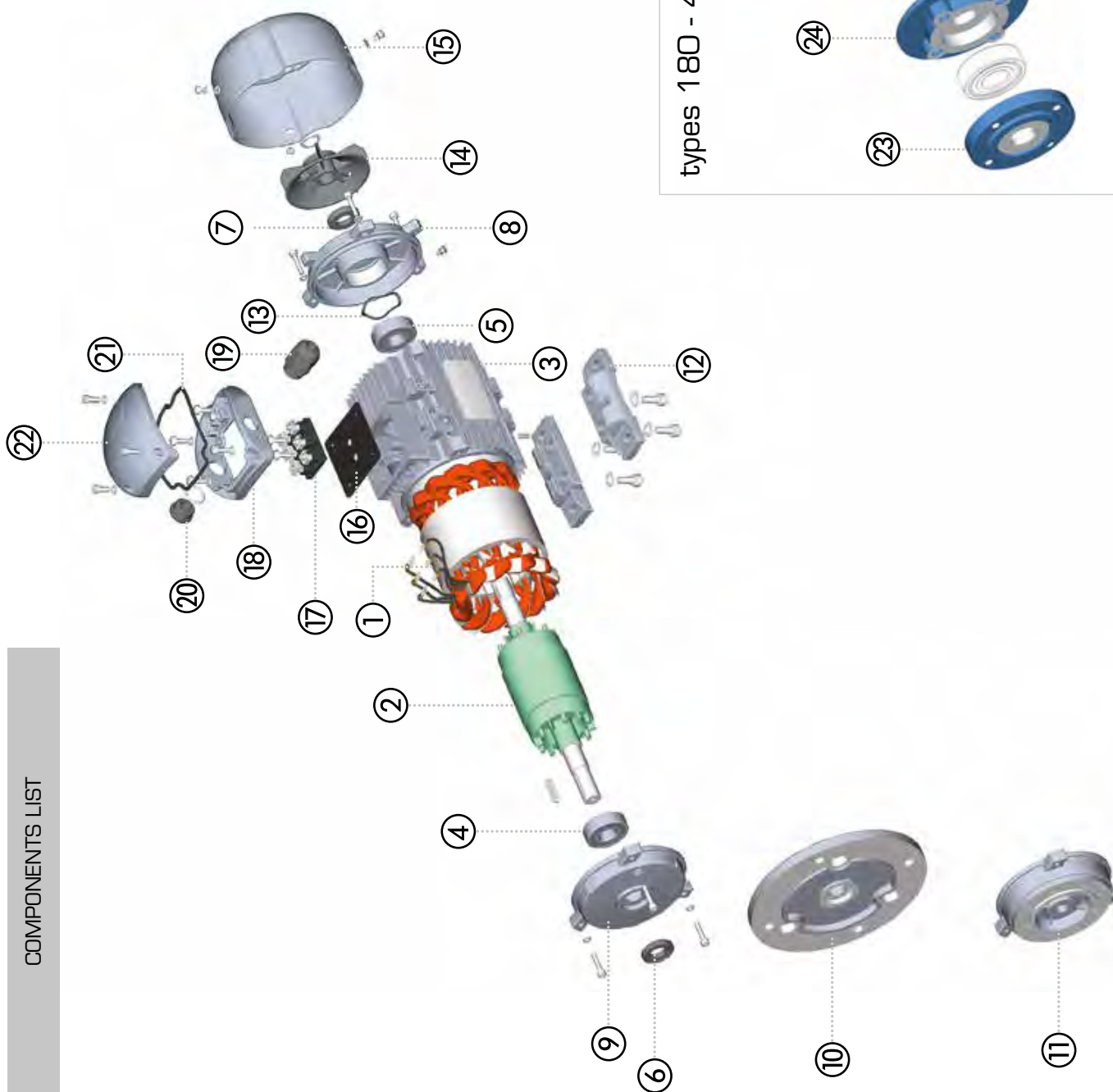
Table with 16 columns: KW, Hp, Type, rpm, In (A), Is (A), Is/In, Cn (Nm), Cs (Nm), Cs/Cn, Cmax (Nm), Cmax/Cn, 100%, IE, 75%, 50%, Pwr. fact. cosφ (100%, 75%, 50%), ΔT (°C), LwA (dB), J (Kgm²), Kg

KW	Hp	Type	rpm	In (A)	Is (A)	Is / In	Cn (Nm)	Cs (Nm)	Cs / Cn	Cmax (Nm)	Cmax / Cn	η %			min IE3	Pwr. fact. cosφ			ΔT (°C)	LwA (dB)	J Kgm²	Kg
												100%	IE	75%		50%	100%	75%				
0,75	1	90S-6	941	1,96	860	4,4	7,61	18,20	2,4	19,03	2,5	79,1	IE3	79,2	75,9	0,699	0,570	0,482	40	55	0,00300	23,0
1,1	1,5	90L-6	936	2,86	12,10	4,2	11,22	27,40	2,4	29,18	2,6	81,1	IE3	81,2	77,7	0,685	0,570	0,438	53	55	0,00360	26,0
1,5	2	100L-6	949	3,53	17,03	4,8	15,09	32,90	2,2	37,74	2,5	83,0	IE3	83,8	82,4	0,738	0,650	0,526	52	60	0,00850	35,0
2,2	3	112M-6	955	5,28	25,56	4,8	22,00	47,60	2,2	57,20	2,6	84,8	IE3	85,6	84,3	0,709	0,630	0,498	59	62	0,01600	44,0
3	4	132S-6	971	6,99	38,51	5,5	29,51	58,10	2,0	76,71	2,6	87,6	IE3	88,0	86,7	0,707	0,611	0,511	39	68	0,02930	67,0
4	5,5	132MA-6	974	9,34	58,39	6,3	39,22	90,90	2,3	125,50	3,2	88,2	IE3	88,0	86,1	0,701	0,610	0,484	51	68	0,03720	75,0
5,5	7,5	132MB-6	972	12,46	72,99	5,9	54,04	124,29	2,3	156,71	2,9	90,0	IE3	90,1	89,2	0,708	0,606	0,492	63	69	0,04780	86,0
7,5	10	160M-6	970	15,56	104,25	6,7	73,84	155,06	2,1	162,45	2,2	89,2	IE3	89,3	88,4	0,780	0,668	0,542	70	72	0,11583	125,0
11	15	160L-6	970	22,26	153,57	6,9	108,30	227,43	2,1	238,26	2,2	90,3	IE3	90,4	89,5	0,790	0,676	0,549	70	72	0,14674	150,0
15	20	180L-6	980	29,28	210,79	7,2	146,17	292,35	2,0	306,96	2,1	91,3	IE3	91,4	90,5	0,810	0,693	0,563	70	72	0,26186	200,0
18,5	25	200LA-6	980	35,95	258,84	7,2	180,28	378,59	2,1	396,62	2,2	91,7	IE3	91,8	90,9	0,810	0,693	0,563	70	72	0,39848	240,0
22	30	200LB-6	980	41,96	306,27	7,3	214,39	450,21	2,1	471,65	2,2	92,3	IE3	92,4	91,5	0,820	0,702	0,570	70	72	0,45540	260,0
30	40	225M-6	980	56,78	403,15	7,1	292,35	584,69	2,0	613,93	2,1	93,0	IE3	93,1	92,2	0,820	0,702	0,570	70	73	0,69196	300,0
37	50	250M-6	980	68,07	483,30	7,1	360,56	757,18	2,1	793,23	2,2	93,4	IE3	93,5	92,6	0,840	0,719	0,584	70	75	1,06640	420,0
45	60	280S-6	980	80,52	579,73	7,2	438,52	920,89	2,1	964,74	2,2	93,8	IE3	93,9	93,0	0,860	0,736	0,598	70	75	1,75835	540,0
55	75	280M-6	980	97,99	705,55	7,2	535,97	1125,54	2,1	1179,13	2,2	94,2	IE3	94,3	93,4	0,860	0,728	0,598	70	77	2,08725	620,0
75	100	315S-6	980	134,48	901,05	6,7	730,87	1461,73	2,0	1534,82	2,1	94,7	IE3	94,8	93,9	0,850	0,728	0,591	70	82	5,19915	855,0
90	125	315MA-6	980	162,79	1090,67	6,7	877,04	1754,08	2,0	1841,79	2,1	95,0	IE3	95,1	94,2	0,840	0,719	0,584	70	82	6,04670	920,0
110	150	315LA-6	980	196,21	1314,59	6,7	1071,94	2143,88	2,0	2251,07	2,1	95,2	IE3	95,3	94,4	0,850	0,728	0,591	70	82	6,59450	1111,0
132	180	315LB-6	980	231,98	1594,27	6,7	1286,33	2572,65	2,0	2701,29	2,1	95,5	IE3	95,6	94,7	0,860	0,736	0,598	70	82	7,40520	1254,0
160	220	355MA-6	980	277,38	1858,42	6,7	1559,18	3118,37	2,0	3274,29	2,1	95,7	IE3	95,8	94,8	0,870	0,745	0,605	70	84	11,49500	1705,0
200	270	355MB-6	980	346,00	2318,18	6,7	1948,98	3897,96	2,0	4092,86	2,1	95,9	IE3	96,0	95,0	0,870	0,745	0,605	70	84	12,58400	1760,0
250	335	355L-6	980	432,50	2897,72	6,7	2436,22	4872,45	2,0	5116,07	2,1	95,9	IE3	96,0	95,0	0,870	0,745	0,605	70	85	15,00400	1870,0

COMPONENTS LIST

N°	CODE
14	3PNFAN
15	3PNFCV
16	3PNUCB
17	3PNTER
18	3PNBCB
19	3PNCMP
20	3PNCAP
21	3PNSCB
22	3PNCCB
23	3PNFOB
24	3PNFIB
25	3PNBIB
26	3PNBOB

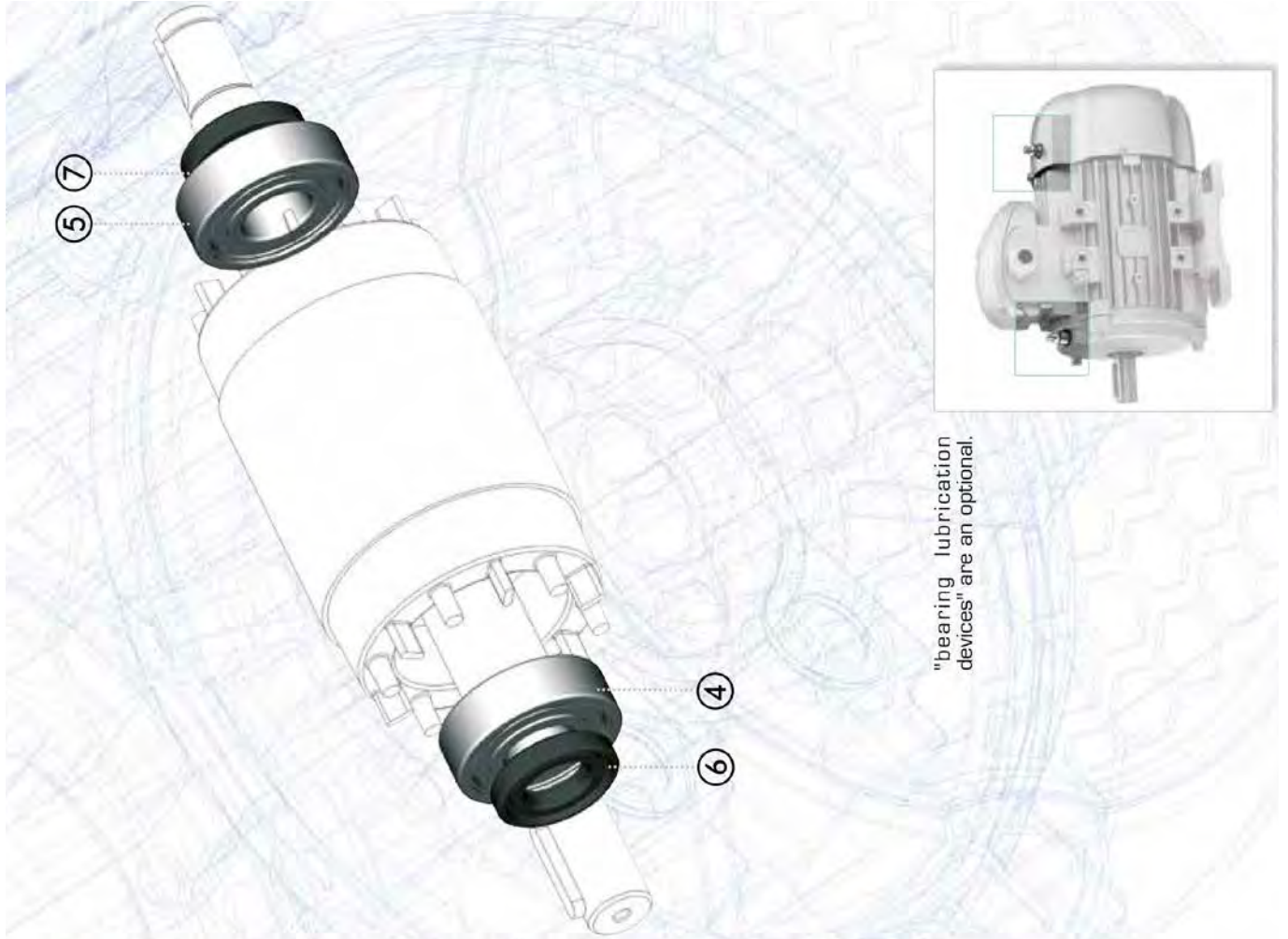
N°	CODE
1	3PNSTA
2	3PNROT
3	3PNFRA
4	3PNFBE
5	3PNBBE
6	3PNFOS
7	3PNBOS
8	3PNBSH
9	3PNBO3
10	3PNBO5
11	3PNB14
12	3PNFEE
13	3PNWAV



types 180 - 400

**RUBBER SEAL RINGS AND BEARINGS**

FRAME SIZE	POLES NUMBER	RUBBER SEAL RING (6)	RUBBER SEAL RING (7)	BEARINGS (4)	BEARINGS (5)
56	2 - 8	12x24x7	12x24x7	6201 ZZ-C3	6201 ZZ-C3
63	2 - 8	12x24x7	12x24x7	6201 ZZ-C3	6201 ZZ-C3
71	2 - 8	15x30x7	15x26x7	6202 ZZ-C3	6202 ZZ-C3
80	2 - 8	20x35x7	20x35x7	6204 ZZ-C3	6204 ZZ-C3
90	2 - 8	25x40x7	25x40x7	6205 ZZ-C3	6205 ZZ-C3
100	2 - 8	30x47x7	30x47x7	6206 ZZ-C3	6206 ZZ-C3
112	2 - 8	30x47x7	30x47x7	6206 ZZ-C3	6206 ZZ-C3
132	2 - 8	40x62x8	40x62x8	6208 ZZ-C3	6208 ZZ-C3
160	2 - 8	45x62x8	45x62x8	6309 ZZ-C3	6309 ZZ-C3
180	2 - 8	55x72x8	55x72x8	6311 ZZ-C3	6311 ZZ-C3
200	2 - 8	60x80x8	60x80x8	6312 ZZ-C3	6312 ZZ-C3
225	2 - 8	65x80x10	65x80x10	6313 ZZ-C3	6313 ZZ-C3
250	2 - 8	70x90x10	70x90x10	6314 ZZ-C3	6314 ZZ-C3
280	2	70x90x10	70x90x10	6314 ZZ-C3	6314 ZZ-C3
280	4 - 8	85x100x12	85x100x12	6317 ZZ-C3	6317 ZZ-C3
315	2	85x110x12	85x110x12	6317-C3	6317-C3
315	4 - 8	95x120x12	95x120x12	NU 319-C3	6319-C3
355	2	95x120x12	95x120x12	6319-C3	6319-C3
355	4 - 8	110x130x12	110x130x12	NU 322-C3	6322-C3
400	4 - 8	130X160X12	130X160X12	NU 326-C3	6326-C3



"bearing lubrication devices" are an optional.



Appendice tecnica

Technical appendix

PERDITE DI CARICO IN METRI OGNI 100 METRI DI TUBAZIONE DRITTA IN ACCIAIO /  
HEAD LOSSES IN METRES FOR EVERY 100 METRES OF STRAIGHT PIPING

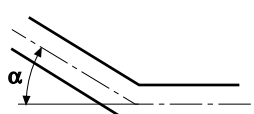
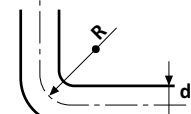
V	Q h	DIAMETRO DEI TUBI IN mm - DIAMETER OF THE PIPES IN mm												
		20	25	30	40	50	65	80	100	125	150	175	200	250
0,5	Q	9,4	14,7	21,2	37,7	59	115	151	235	369	530	723	940	1480
	h	2,4	1,9	1,5	1	0,8	0,56	0,46	0,36	0,28	0,23	0,19	0,16	0,13
0,6	Q	11,3	17,7	25,4	45,3	70,7	138	181	282	442	636	887	1130	1770
	h	3,3	2,6	2,1	1,5	1,12	0,78	0,65	0,5	0,39	0,32	0,27	0,23	0,18
0,7	Q	13,2	20,6	29,7	52,9	82,5	161	211	329	516	742	1010	1315	2070
	h	4,4	3,4	2,7	1,9	1,5	1	0,86	0,67	0,52	0,43	0,36	0,31	0,24
0,8	Q	15,05	23,6	33,9	60,4	94,5	184	241	377	590	848	1155	1505	2360
	h	5,6	4,3	3,4	2,5	1,9	1,3	1,1	0,86	0,67	0,55	0,46	0,4	0,31
0,9	Q	16,95	26,5	38,2	68	106	207	272	423	664	955	1300	1695	2660
	h	6,9	5,3	4,3	3	2,4	1,7	1,4	1,1	0,84	0,69	0,58	0,5	0,39
1	Q	18,8	29,5	42,4	75,5	117,7	230	302	471	737	1060	1445	1880	2950
	h	8,3	6,4	5,1	3,7	2,9	2,1	1,7	1,3	1	0,84	0,71	0,61	0,48
1,1	Q	20,7	32,4	46,6	83	129,5	252	332	518	811	1165	1585	2070	3250
	h	9,9	7,6	6,2	4,4	3,4	2,4	2	1,6	1,2	1	0,85	0,74	0,58
1,2	Q	22,6	35,4	50,9	90,6	141	276	362	565	885	1272	1730	2260	3550
	h	11,7	9	7,2	5,2	4	2,9	2,4	1,9	1,5	1,2	1	0,87	0,69
1,3	Q	24,5	38,3	55	98	153	299	392	612	960	1378	1875	2450	3840
	h	13,5	10,4	8,4	6	4,7	3,3	2,8	2,2	1,71	1,4	1,15	1	0,8
1,4	Q	26,35	41,3	59,3	105,5	165	302	422	660	1032	1473	2020	2635	4140
	h	15,4	11,9	9,6	6,9	5,4	3,8	3,2	2,5	2	1,6	1,3	1,17	0,92
1,5	Q	28,25	44,2	63,6	113	176,5	345	452	707	1106	1590	2165	2825	4430
	h	17,4	13,5	10,9	7,8	6,1	4,4	3,6	2,8	2,25	1,82	1,5	1,34	1,05
1,6	Q	30,1	47,1	67,8	121	188,5	368	483	753	1180	1695	2310	3010	4730
	h	19,6	15,3	12,4	8,9	6,9	4,9	4,1	3,2	2,55	2,05	1,7	1,53	1,18
1,7	Q	32	50,1	72	128	200	392	513	800	1253	1802	2455	3200	5020
	h	21,9	17,2	13,9	10	7,8	5,4	4,6	3,6	2,85	2,3	1,95	1,7	1,33
1,8	Q	33,9	53	76,3	136	212	415	543	848	1327	1905	2600	3390	5320
	h	24,2	19,1	15,4	11,1	8,7	6	5,1	4	3,15	2,6	2,2	1,9	1,48
1,9	Q	35,8	56	80,5	143,5	224	438	573	895	1400	2015	2740	3580	5610
	h	26,8	21	17	12,3	9,6	6,8	5,6	4,4	3,45	2,85	2,45	2,1	1,64
2	Q	37,7	59	84,8	151	235,5	461	603	943	1475	2120	2885	3765	5910
	h	29,6	23	18,6	13,4	10,5	7,5	6,2	4,9	3,8	3,17	2,7	2,33	1,8
2,1	Q	39,5	62	89	158,5	247,5	484	633	990	1548	2225	3030	3955	6200
	h	33,2	25,1	20,4	14,8	11,5	8,2	6,8	5,4	4,2	3,5	2,95	2,55	2
2,2	Q	41,5	64,9	93,2	176	259	507	663	1036	1620	2330	3175	4145	6500
	h	35	27,3	22,3	16,2	12,5	9,1	7,4	5,9	4,6	3,85	3,25	2,8	2,2
2,3	Q	43,3	67,9	97,5	173,5	271	530	694	1082	1695	2440	3320	4330	6800
	h	38	29,7	24,2	17,7	13,6	9,8	8,1	6,4	5	4,15	3,5	3,05	2,4
2,4	Q	45,2	70,8	101,5	181	282,5	553	724	1130	1170	2545	3460	4520	7090
	h	42,1	32,1	26,2	19,1	14,7	10,6	8,8	6,9	5,45	4,55	3,8	3,3	2,62
2,5	Q	47,1	73,7	105,8	189	294,5	576	755	1178	1843	2650	3610	4710	7390
	h	45	34,7	28,3	20,5	16	11,4	9,6	7,5	5,9	4,9	4,1	3,58	2,84
2,6	Q	49	76,6	110	196	306	599	785	1225	1915	2755	3755	4900	7680
	h	48,3	37,3	30,4	22,2	17,2	12,3	10,4	8,1	6,35	5,25	4,4	3,85	3,07
2,7	Q	50,9	79,6	114,3	204	318	622	815	1271	1990	2860	3900	5090	7980
	h	51,7	40	32,5	23,8	18,5	13,2	11,2	8,7	6,85	5,65	4,75	4,15	3,3
2,8	Q	52,7	82,6	118,5	211,5	330	645	845	1320	2060	2970	4040	5280	8270
	h	55,2	42,5	34,8	25,5	19,9	14	12	9,3	7,35	6,05	5,10	4,45	3,56
2,9	Q	54,6	85,5	123	219	342	668	875	1365	2140	3075	4190	5460	8560
	h	58,7	45,1	37,1	27,1	21,3	15,2	12,8	10	7,85	6,45	5,5	4,75	3,82
3	Q	56,5	88,5	127	226,5	354	691	905	1414	2210	3180	4330	5650	8850
	h	62,9	47,9	39,6	28,8	22,6	16,3	13,6	10,7	8,4	6,9	5,9	5,1	4,1

Q = portata in litri al min    V = velocità dell'acqua in m/sec    d = diametro del tubo in mm    h = perdita di carico in m di colonna di acqua ogni  
capacity in litre per min    water velocity in m/sec    pipe diameter in mm    100 m di tubazione dritta  
head loss in m of water for every 100 m of straight piping

Note: i valori sopra indicati s'intendono per tubi internamente lisci in ghisa, per una valutazione di massima le perdite di carico devono essere moltiplicate per:  
0,8 tubi acciaio laminati nuovi  
1,25 tubi acciaio leggermente arrugginiti  
0,7 tubi di alluminio  
0,65 tubi in PVC  
1,25 tubi in fibra di cemento

Note: above data are relevant to completely smooth and cast-iron piping.  
For a general estimation, multiply the head losses data by:  
0,8 flat-rolled new steel piping  
1,25 slightly rusty steel piping  
0,7 piping in aluminium  
0,65 piping in PVC  
1,25 piping in concrete fibre

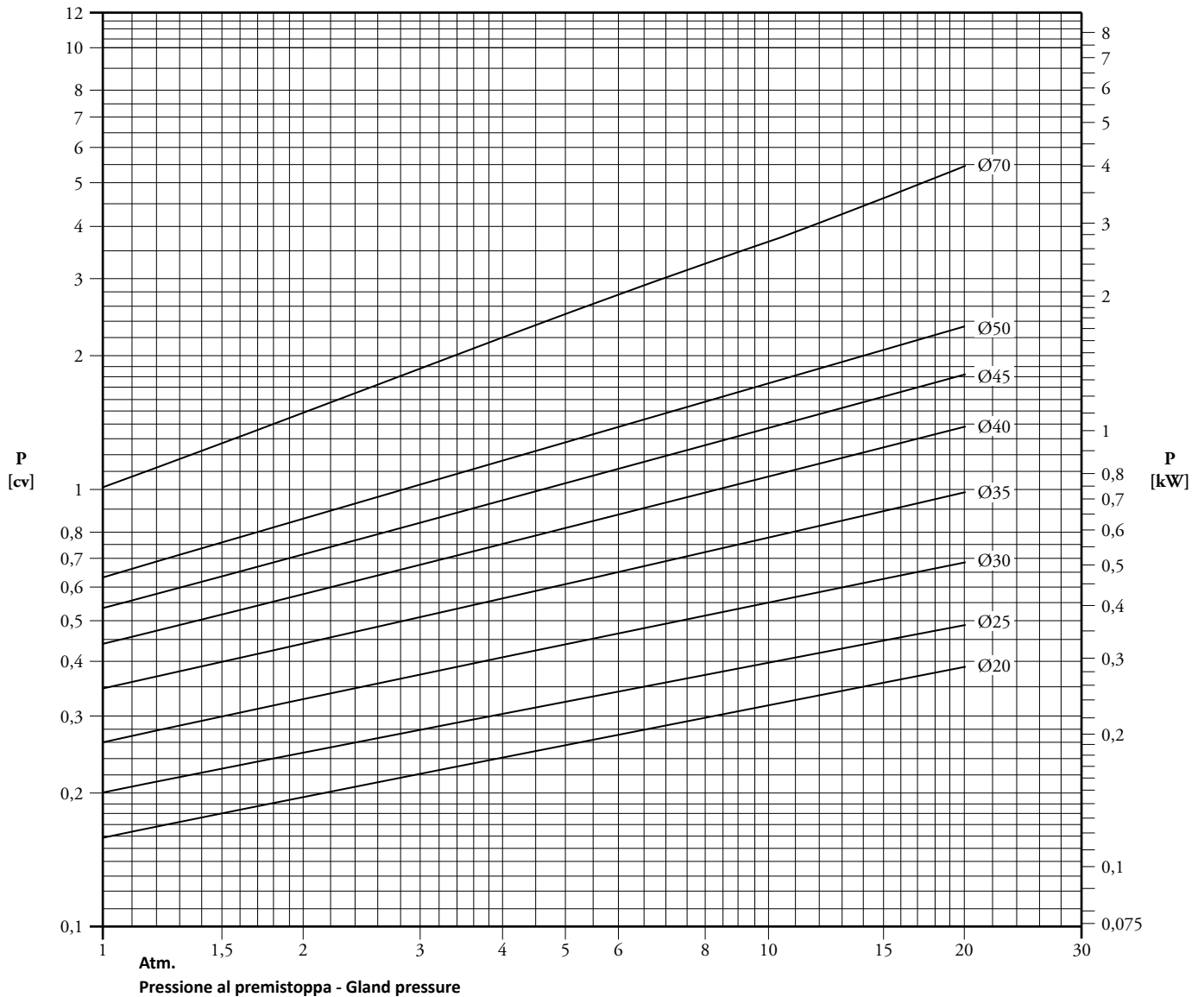
PERDITE DI CARICO IN cm DI COLONNA D'ACQUA /  
 CHARGE LOSSES IN cm OF WATER COLUMN

VELOCITÀ DELL'ACQUA IN m/s WATER SPEED IN m/s	 CURVE AD ANGOLO VIVO OBTUSE ANGLE CURVES					 CURVE NORMALI NORMAL CURVES					SARACINESCHE NORMALI NORMAL SLUICE GATES			
											VALVOLE DI FONDO FOOT VALVE			
											VALVOLE DI RITEGNO NON RETURN VALVE			
	= 30°	= 40°	= 60°	= 80°	= 90°	$\frac{d}{R} = 0,4$	$\frac{d}{R} = 0,6$	$\frac{d}{R} = 0,8$	$\frac{d}{R} = 1$	$\frac{d}{R} = 1,5$	PERDITE DI ENERGIA ALL'USCITA DEI TUBI DI SCARICO V2/2G ENERGY LOSSES AT THE EXIT OF DISCHARGE PIPES V2/2G			
0,1	0,03	0,04	0,05	0,07	0,08	0,007	0,008	0,01	0,0155	0,027	0,03	30	30	0,05
0,15	0,06	0,73	0,1	0,14	0,17	0,016	0,019	0,024	0,033	0,06	0,033	31	31	0,12
0,2	0,11	0,13	0,18	0,26	0,31	0,028	0,033	0,04	0,058	0,11	0,058	31	31	0,21
0,25	0,17	0,21	0,28	0,4	0,48	0,044	0,052	0,063	0,091	0,17	0,09	31	31	0,32
0,3	0,25	0,3	0,41	0,6	0,7	0,063	0,074	0,09	0,13	0,25	0,13	31	31	0,46
0,35	0,33	0,4	0,54	0,8	0,93	0,085	0,1	0,12	0,18	0,33	0,18	31	31	0,62
0,4	0,43	0,52	0,71	1	1,2	0,11	0,13	0,16	0,23	0,43	0,23	32	31	0,82
0,5	0,67	0,91	1,1	1,6	1,9	0,18	0,21	0,26	0,37	0,67	0,37	33	32	1,27
0,6	0,97	1,2	1,6	2,3	2,8	0,25	0,29	0,36	0,52	0,97	0,52	34	32	1,84
0,7	1,35	1,65	2,2	3,2	3,9	0,34	0,4	0,48	0,7	1,35	0,7	35	32	2,5
0,8	1,7	2,1	2,8	4	4,8	0,45	0,53	0,64	0,93	1,7	0,95	36	33	3,3
0,9	2,2	2,7	3,6	5,2	6,2	0,57	0,67	0,82	1,18	2,2	1,2	37	34	4,2
1	2,7	3,3	4,5	6,4	7,6	0,7	0,82	1	1,45	2,7	1,45	38	35	5,1
1,5	6	7,3	10	14	17	1,6	1,9	2,3	3,3	6	3,3	47	40	11,5
2	11	14	18	26	31	2,8	3,3	4	5,8	11	5,8	61	48	20,4
2,5	17	21	28	40	48	4,4	5,2	6,3	9,1	17	9,1	78	58	32
3	25	30	41	60	70	6,3	7,4	9	13	25	13	100	71	46
3,5	33	40	55	78	93	8,5	10	12	18	33	18	123	85	62
4	43	52	70	100	120	11	13	16	23	42	23	150	100	82
4,5	55	67	90	130	160	14	21	26	37	55	37	190	120	103
5	67	82	110	160	190	18	29	36	52	67	52	220	140	127

- 1) La perdita di carico nelle curve è soltanto quella dovuta alla contrazione dei filetti liquidi per cambiamento di direzione: lo sviluppo delle curve deve quindi essere compreso nella lunghezza della tubazione.
  - 2) La perdita di carico nelle valvole e saracinesche è stata determinata in base a prove pratiche.
- 1) The charge loss in the curves is only the one due to the reduction of the liquid threads for the changing of direction: the curves development has to be included in the length of the pipeline.
  - 2) The charge loss in the valves and sluice-gates has been calculated according to practical tests.

# POTENZA ASSORBITA DAL PREMISTOPPA / POWER ABSORBED BY THE GLAND

**DIAGRAMMA RILEVATO ALLA VELOCITÀ DI 1450 Giri/min.**  
 SHOWN IN THE DIAGRAM HAVING A SPEED 1450 R.P.M.



**P = Potenza assorbita alla velocità di 1450 giri/min in CV**  
**P = Absorbed power at 1450 R.P.M. in CV**

**PER DIFFERENTI VELOCITÀ DI ROTAZIONE (n) CALCOLARE LA POTENZA (Px) CON:**  
**FOR DIFFERENTS R.P.M. (n) THE LOSS (Px) CAN BE CALCULATED WITH:**

$$P_x = \frac{P}{1450} \times n$$

## COMPARAZIONE UNITÀ DI MISURA / MEASUREMENT COMPARISON IN UNIT

### Comparazione unità di misura - Measurement comparison in unit

	CV	HP	kW	kgm/s
CV	1	0,9863	0,7355	75
HP	1,0139	1	0,7457	76,05
kW	1,36	1,341	1	101,98

### Pressione - Pressure

UNITA' - UNIT	RAGGUAGLIO - COMPARISON
$1 \text{ kg/cm}^2 = 9,81 \cdot \frac{\text{N}}{\text{cm}^2} = 0,981 \text{ bar} = 98100 \text{ Pa}$	$1 \text{ Pa} = 1 \cdot \frac{\text{N}}{\text{cm}^2} = 1 \text{ Pascal}$
$1 \text{ kg/cm}^2 = 1 \text{ at} = 10000 \text{ kg/m}^2 = \text{atm tecnica} = 10 \text{ m col. d'acqua a } 4^\circ\text{C} = 735,56 \text{ Torr (mm Hg a } 0^\circ\text{C)}$ $1 \text{ kg/cm}^2 = 1 \text{ at} = 10000 \text{ kg/m}^2 = \text{techn. atmosphere} = 10 \text{ m water col at } 4^\circ\text{C} = 735,56 \text{ Torr (mm Hg at } 0^\circ\text{C)}$	
$1 \text{ lb per pollice quadro} = 1 \text{ psi} = 0,0703 \text{ kg/cm}^2$ $1 \text{ lb per square inch} = 1 \text{ psi} = 0,0703 \text{ kg/cm}^2$	$1 \text{ kg/cm}^2 = 14,2 \text{ psi}$

### MISURE DI CAPACITÀ COMPARATE AL LITRO - CAPACITY MEASURES COMPARED AT LITRE

UNITÀ - UNIT	RAGGUAGLIO - COMPARISON	UNITÀ - UNIT	RAGGUAGLIO - COMPARISON
Oncia inglese per liquidi..... <i>(Imperial fluid ounce)</i>	0,0284 litri - litre	litri - litre	35,2 Imp. fl. oz.
Oncia americana per liquidi..... <i>(U.S. fluid ounce)</i>	0,0295 litri - litre	litri - litre	33,81 U.S. fl. oz.
Pinta inglese..... <i>(Imperial pint)</i>	0,568 litri - litre	litri - litre	1,76 Imp. pint
Gallone americano..... <i>(U.S. gallon)</i>	3,785 litri - litre	litri - litre	0,2642 U.S. gal.
Gallone inglese..... <i>(Imperial gallon)</i>	4,546 litri - litre	litri - litre	0,22 Imp. gal.
Stajo americano..... <i>(U.S. bushel)</i>	35,24 litri - litre	litri - litre	0,0284 U.S. bu.
Stajo inglese..... <i>(Imperial bushel)</i>	36,35 litri - litre	litri - litre	0,0275 Imp. bu.
Barile americano..... <i>(U.S. barrel)</i>	119,22 litri - litre	litri - litre	0,0083 U.S. bbl.
Barile inglese..... <i>(Imperial barrel)</i>	163,65 litri - litre	litri - litre	0,00611 Imp. bbl.

## APPENDICE TECNICA / TECHNICAL APPENDIX

### CENNI SULLE POMPE CENTRIFUGHE NOTICES ON CENTRIFUGAL PUMPS

#### Calcolo della potenza assorbita

$P_a$

(noti):

$Q$  - portata in l/s

$H$  - prevalenza man.totale in m

$h$  - rendimento

$g$  - densità in Kg/dm<sup>3</sup>

#### Absorbed power calculation $P_a$

(known):

$Q$  - capacity l/s

$H$  - total head in m

$h$  - efficiency

$g$  - density in Kg/dm<sup>3</sup>

$$P_a = g \cdot \frac{Q \cdot H}{102 \cdot h} \quad [\text{kW}]$$

#### Calcolo del rendimento (noti):

$Q$  - portata in l/s

$H$  - prevalenza man.totale in m

$P_a$  - potenza assorbita in kW

$g$  - densità in Kg/dm<sup>3</sup>

#### Efficiency calculation (known):

$Q$  - capacity l/s

$H$  - total head in m

$P_a$  - absorbed power in kW

$g$  - density in Kg/dm<sup>3</sup>

$$h = g \cdot \frac{Q \cdot H}{102 \cdot P_a} \quad [\text{kW}]$$

#### Curve di funzionamento

Fra le curve di funzionamento di una pompa centrifuga a varie velocità, purchè non intervengano fenomeni di cavitazione, sussiste la legge di affinità che possiamo così praticamente esprimere:

#### Working curves

Between the working curves of a centrifugal pump at different speed, is in force the affinity law, provided that there aren't cavitation effects, and that could be like this:

le curve  $Q$ - $H$  e  $Q$ - $P_a$  a  $n$ . giri si cambiano in  $Q'$ - $H'$  e  $Q'$ - $P_a'$  a  $n'$  giri.

Secondo:

curves  $Q$ - $H$  and  $Q$ - $P_a$  at  $n$ . rounds are changed in  $Q'$ - $H'$  and  $Q'$ - $P_a'$  at  $n'$  rounds.

According to:

$$Q' = \left(\frac{n'}{n}\right) \cdot Q \quad H' = \left(\frac{n'}{n}\right)^2 \cdot H \quad P_a' = \left(\frac{n'}{n}\right)^3 \cdot P_a$$

APPENDICE TECNICA / TECHNICAL APPENDIX

**TABELLA INDICATIVA DELLE POTENZE IN KW ED IN KVA  
DEI GENERATORI DA ACCOPPIARE AI MOTORI**

INDICATING TABLE OF POWERS IN KW AND KVA  
OF THE GENERATORS TO COUPLE WITH MOTORS

POTENZA DEL MOTORE MOTOR POWER		POTENZA DEL GENERATORE GENERATOR POWER	
		AVVIAMENTO DIRETTO DIRECT STARTING	
kW	HP	kW	kVA
2,2	3	6	7,5
3	4	8	10
4	5,5	10	12,5
5,5	7,5	12,5	15,6
7,5	10	15	18,8
9,2	12,5	18,8	23,5
11	15	22,5	28
13	17,5	26,4	33
15	20	30	38
18,5	25	40	50
22	30	45	57
26	35	52	65
30	40	60	75
37	50	75	94
45	60	90	112
51,5	70	105	131
55	75	120	150
66	90	135	170
75	100	150	190
92	125	185	230
110	150	210	260
132	180	260	323
147	200	280	360
165	225	325	404
185	250	365	454
200	275	390	485
220	300	430	535
240	330	470	584
265	360	520	646
300	400	580	720

POTENZA DEL MOTORE MOTOR POWER		POTENZA DEL GENERATORE GENERATOR POWER	
		AVVIAMENTO STELLA - TRIANGOLO STAR-DELTA-STARTING	
kW	Hp	kW	kVA
-	-	-	-
3	4	8	7,5
4	5,5	8	10
5,5	7,5	10,8	13,5
7,5	10	14	17,5
9,2	12,5	17,2	21,5
11	15	20,5	25,5
13	17,5	23,6	29,5
15	20	27	34
18,5	25	33	42
22	30	40	50
26	35	45	57
30	40	52	65
37	50	65	81
45	60	77	97
51,5	70	90	112
55	75	102	128
66	90	115	144
75	100	128	160
90	125	158	198
110	150	190	237
132	180	228	284
147	200	254	316
165	225	285	354
185	250	320	398
200	275	345	429
220	300	380	472
240	330	415	516
265	360	458	569
300	400	510	634

**MISURE ELETTRICHE**  
 ELECTRIC MEASURES

Grandezza Size	Corrente alternata trifase Three-phase alternating current
$P_a$ = <b>Potenza assorbita in kW</b> absorbed power in kW	$P_a = \frac{1,73 \times U \times I \times \cos \varphi}{1000}$
$P_r$ = <b>Potenza resa in kW</b> returned power in kW	$P_r = \frac{1,73 \times U \times I \times \cos \varphi \times \eta_m}{1000}$
$I$ = <b>Corrente assorbita in Amp.</b> absorbed current in Amp.	$I = \frac{P_r \times 1000}{1,73 \times U \times \cos \varphi \times \eta_m}$
$\cos \varphi$ = <b>Fattore di potenza</b> power factor	$\cos \varphi = \frac{P_a \times 1000}{1,73 \times U \times I}$
$\eta_m \%$ = <b>Rendimento motore</b> motor efficiency	$\eta_m \% = \frac{P_r}{P_a} \times 100$
$S \%$ = <b>Scorrimento</b> slip	$S \% = \frac{n_s - n}{n_s} \times 100$
$n_s$ = <b>Velocità di sincronismo</b> speed of synchronism	$n_s = \frac{F \times 120}{P}$

**Scorrimento:** si definisce scorrimento la differenza tra la velocità di sincronismo e la velocità effettiva.

Slip: slip is defined as the difference between the speed of synchronism and the effective speed.

**U** = **Tensione nominale**  
 Nominal voltage

**F** = **Frequenza in Hz**  
 Frequency in Hz

**n** = **Velocità di rotazione in Giri/min.**  
 Speed of rotation in R.P.M.

**P** = **Numero poli**  
 Number of poles



PROPRIETÀ DELL'ACQUA SATURATA (LIQUIDO-VAPORE): TABELLA DI TEMPERATURE  
 PROPERTIES OF SATURATED WATER (LIQUID-VAPOR): TEMPERATURE TABLE

Proprietà  
 without previous notice.

Temp. °C	Press. bar	Specific Volume m <sup>3</sup> /kg		Internal Energy kJ/kg		Enthalpy kJ/kg			Entropy kJ/kg · K		Temp. °C
		Sat. Liquid v <sub>f</sub> × 10 <sup>3</sup>	Sat. Vapor v <sub>g</sub>	Sat. Liquid u <sub>f</sub>	Sat. Vapor u <sub>g</sub>	Sat. Liquid h <sub>f</sub>	Evap. h <sub>fg</sub>	Sat. Vapor h <sub>g</sub>	Sat. Liquid s <sub>f</sub>	Sat. Vapor s <sub>g</sub>	
0.01	0.00611	1.0002	206.136	0.00	2375.3	0.01	2501.3	2501.4	0.0000	9.1562	0.01
4	0.00813	1.0001	157.232	16.77	2380.9	16.78	2491.9	2508.7	0.0610	9.0514	4
5	0.00872	1.0001	147.120	20.97	2382.3	20.98	2489.6	2510.6	0.0761	9.0257	5
6	0.00935	1.0001	137.734	25.19	2383.6	25.20	2487.2	2512.4	0.0912	9.0003	6
8	0.01072	1.0002	120.917	33.59	2386.4	33.60	2482.5	2516.1	0.1212	8.9501	8
10	0.01228	1.0004	106.379	42.00	2389.2	42.01	2477.7	2519.8	0.1510	8.9008	10
11	0.01312	1.0004	99.857	46.20	2390.5	46.20	2475.4	2521.6	0.1658	8.8765	11
12	0.01402	1.0005	93.784	50.41	2391.9	50.41	2473.0	2523.4	0.1806	8.8524	12
13	0.01497	1.0007	88.124	54.60	2393.3	54.60	2470.7	2523.3	0.1953	8.8285	13
14	0.01598	1.0008	82.848	58.79	2394.7	58.80	2468.3	2527.1	0.2099	8.8048	14
15	0.01705	1.0009	77.926	62.99	2396.1	62.99	2465.9	2528.9	0.2245	8.7814	15
16	0.01818	1.0011	73.333	67.18	2397.4	67.19	2463.6	2530.8	0.2390	8.7582	16
17	0.01938	1.0012	69.044	71.38	2398.8	71.38	2461.2	2532.6	0.2535	8.7351	17
18	0.02064	1.0014	65.038	75.57	2400.2	75.58	2458.8	2534.4	0.2679	8.7123	18
19	0.02198	1.0016	61.293	79.76	2401.6	79.77	2456.5	2536.2	0.2823	8.6897	19
20	0.02339	1.0018	57.791	83.95	2402.9	83.96	2454.1	2538.1	0.2966	8.6672	20
21	0.02487	1.0020	54.514	88.14	2404.3	88.14	2451.8	2539.9	0.3109	8.6450	21
22	0.02645	1.0022	51.447	92.32	2405.7	92.33	2449.4	2541.7	0.3251	8.6229	22
23	0.02810	1.0024	48.574	96.51	2407.0	96.52	2447.0	2543.5	0.3393	8.6011	23
24	0.02985	1.0027	45.883	100.70	2408.4	100.70	2444.7	2545.4	0.3534	8.5794	24
25	0.03169	1.0029	43.360	104.88	2409.8	104.89	2442.3	2547.2	0.3674	8.5580	25
26	0.03363	1.0032	40.994	109.06	2411.1	109.07	2439.9	2549.0	0.3814	8.5367	26
27	0.03567	1.0035	38.774	113.25	2412.5	113.25	2437.6	2550.8	0.3954	8.5156	27
28	0.03782	1.0037	36.690	117.42	2413.9	117.43	2435.2	2552.6	0.4093	8.4946	28
29	0.04008	1.0040	34.733	121.60	2415.2	121.61	2432.8	2554.5	0.4231	8.4739	29
30	0.04246	1.0043	32.894	125.78	2416.6	125.79	2430.5	2556.3	0.4369	8.4533	30
31	0.04496	1.0046	31.165	129.96	2418.0	129.97	2428.1	2558.1	0.4507	8.4329	31
32	0.04759	1.0050	29.540	134.14	2419.3	134.15	2425.7	2559.9	0.4644	8.4127	32
33	0.05034	1.0053	28.011	138.32	2420.7	138.33	2423.4	2561.7	0.4781	8.3927	33
34	0.05324	1.0056	26.571	142.50	2422.0	142.50	2421.0	2563.5	0.4917	8.3728	34
35	0.05628	1.0060	25.216	146.67	2423.4	146.68	2418.6	2565.3	0.5053	8.3531	35
36	0.05947	1.0063	23.940	150.85	2424.7	150.86	2416.2	2567.1	0.5188	8.3336	36
38	0.06632	1.0071	21.602	159.20	2427.4	159.21	2411.5	2570.7	0.5458	8.2950	38
40	0.07384	1.0078	19.523	167.56	2430.1	167.57	2406.7	2574.3	0.5725	8.2570	40
45	0.09593	1.0099	15.258	188.44	2436.8	188.45	2394.8	2583.2	0.6387	8.1648	45
50	0.1235	1.0121	12.032	209.32	2443.5	209.33	2382.7	2592.1	0.7038	8.0763	50
55	0.1576	1.0146	9.568	230.21	2450.1	230.23	2370.7	2600.9	0.7679	7.9913	55
60	0.1994	1.0172	7.671	251.11	2456.6	251.13	2358.5	2609.6	0.8312	7.9096	60
65	0.2503	1.0199	6.197	272.02	2463.1	272.06	2346.2	2618.3	0.8935	7.8310	65
70	0.3119	1.0228	5.042	292.95	2469.6	292.98	2333.8	2626.8	0.9549	7.7553	70
75	0.3858	1.0259	4.131	313.90	2475.9	313.93	2321.4	2635.3	1.0155	7.6824	75
80	0.4739	1.0291	3.407	334.86	2482.2	334.91	2308.8	2643.7	1.0753	7.6122	80
85	0.5783	1.0325	2.828	355.84	2488.4	355.90	2296.0	2651.9	1.1343	7.5445	85
90	0.7014	1.0360	2.361	376.85	2494.5	376.92	2283.2	2660.1	1.1925	7.4791	90
95	0.8455	1.0397	1.982	397.88	2500.6	397.96	2270.2	2668.1	1.2500	7.4159	95
100	1.014	1.0435	1.673	418.94	2506.5	419.04	2257.0	2676.1	1.3069	7.3549	100
110	1.433	1.0516	1.210	461.14	2518.1	461.30	2230.2	2691.5	1.4185	7.2387	110
120	1.985	1.0603	0.8919	503.50	2529.3	503.71	2202.6	2706.3	1.5276	7.1296	120
130	2.701	1.0697	0.6685	546.02	2539.9	546.31	2174.2	2720.5	1.6344	7.0269	130
140	3.613	1.0797	0.5089	588.74	2550.0	589.13	2144.7	2733.9	1.7391	6.9299	140
150	4.758	1.0905	0.3928	631.68	2559.5	632.20	2114.3	2746.5	1.8418	6.8379	150
160	6.178	1.1020	0.3071	674.86	2568.4	675.55	2082.6	2758.1	1.9427	6.7502	160
170	7.917	1.1143	0.2428	718.33	2576.5	719.21	2049.5	2768.7	2.0419	6.6663	170
180	10.02	1.1274	0.1941	762.09	2583.7	763.22	2015.0	2778.2	2.1396	6.5857	180
190	12.54	1.1414	0.1565	806.19	2590.0	807.62	1978.8	2786.4	2.2359	6.5079	190

## Esempi di applicazione

### Enel Green Power

Nell'entroterra toscano che va dalla Provincia di Siena fino alla provincia di Grosseto è presente un importante e vasto distretto per lo sfruttamento dell'energia geotermica, unico al mondo per tecnologie in uso e quantità di energia elettrica prodotta. Solo nel comprensorio di Larderello le circa 70 Centrali a vapore producono più di 300 Megawatt di energia elettrica. Marly, in questo contesto, collabora da molti anni con Enel Green Power, società la quale gestisce questo distretto fin dai primi anni del secolo (la prima perforazio-

## Case stories

### Enel Green Power

*In the central part of Italy, in the region of Tuscany, there is the biggest district of ENEL Green Power (the State National Energy company) for the exploitation of the Geothermal energy from the underground giant deposit. This is a sole example of exploitation of geothermal Energy in the world, since the quantity of electricity produced and quality of extracted steam are unique worldwide. In fact, in this region there are more than 70 geothermal power stations, fed with that underground steam. Those power stations produce about 300 Megawatt of power electricity; which corresponds on about 30% of the energy demand of the Tuscany region.*

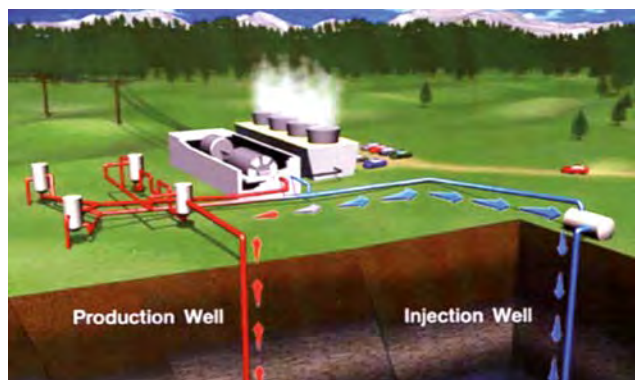


ne è stata eseguita nel 1907). Questa pluriennale collaborazione ha portato Marly a sviluppare dei prodotti personalizzati che soddisfano appieno e con ottimi risultati di affidabilità, le gravose specifiche tecniche di Enel per queste applicazioni. Lo sfruttamento dei giacimenti di Larderello consiste nel prelevare il vapore dal sottosuolo con pozzi che arrivano anche a profondità di 6.000m, dove il vapore ha una pressione superiore ai 40 Bar e una temperatura che può superare i 200° C.

*Marly, is acting in this industry sector since more than 20 years and the cooperation with Enel started about 15 years ago. Thanks to this long lasting cooperation Marly developed some specific product in order to overcome to some very challenging application like chemically aggressive water and high temperature water to be pumped in the production cycle of the geothermal power station.*

*Now Marly can offer to its industrial clients a unique experience and application knowledge which come from this long experience made in the Enel Power Station sector. The exploitation of the Larderello steam underground deposits, consist of drilling wells up to 6.000m depth to extract the geothermal water steam. The extracted steam has an average temperature of 160-200°C and a pressure of 5-10 bars.*

Il vapore viene convogliato con tubazioni d'acciaio speciale nelle centrali di produzione e trasformato in energia elettrica per mezzo delle turbine a vapore. Le pompe Marly intervengono nella fase successiva, quando il vapore ri-condensato, dopo il processo di produzione, viene raccolto e ri-iniettato nei pozzi del giacimento geotermico sottostante, per trasformare l'acqua ri-condensata in nuovo vapore per la produzione elettrica innescando così un ciclo virtuoso di energia pulita.



*The steam is conveyed with Stainless steel pipes to the local power stations which transform the steam into electrical Energy by steam turbines systems. Marly pumps are used in the following key phases of the Energy production.*

*Once the process of energy production is completed, about 60% of the geothermal steam is recondensate into water and collected to be re-inject underground, to feed the wells for news team production. Multistage Marly pumps are used to feed the wells with that recondensed water.*

*Marly pumps are also used in some special cleaning phase of the steam called AMIS phases. In that application the pump is handling condensed water with a very high concentration of caustic soda.*

Le pompe Marly sono anche utilizzate nelle fase intermedie chiamate "AMIS" dove il vapore viene "pulito" da minerali e componenti aggressivi che potrebbero nuocere all'ambiente e alle apparecchiature della centrale. In queste fasi le pompe Marly devono lavorare con alte percentuali di sostanze chimiche quali la Soda Caustica e acqua geotermica ad alta temperatura.

Nella foto che segue, si vede una pompa Marly al lavoro: modello HP 100-4 prodotta in acciaio fuso AISI 316 della portata di 250m<sup>3</sup>/h, e della prevalenza di 200m; la potenza installata del motore elettrico è di 150 kw. Questa pompa fa parte di una centrale di pompaggio di "Ri-iniezione" dei pozzi che tratta acqua di condensazione a circa 80°C moderatamente aggressiva.

*In the following picture is shown the Marly pump model HP 100-4 made of casted stainless steel AISI 316, producing a flow of 250m<sup>3</sup>/h, with a pressure of 200m; the power of the installed electric motor is 160 kw. This pump is part of the pumping system made of 3 units which re-inject the condensate water, at about 85°C into the feeding wells.*



Di lato una centrale di ri-iniezione nei pressi di Larderello, composta da 6 pompe Marly completamente in Acciaio fuso AISI 316, con una capacità totale del gruppo pompante di 1200m<sup>3</sup>/h, una pressione di 150 m a una potenza installata di 3000 kw. Questa centrale è composta sia di pompe multistadio HP che di pompe CA normalizzate EN733 completamente prodotte in acciaio legato fuso.

*In the picture shown a Marly pumping station made of 3 End-Suction pumps model CAX150-400 with 75Kw motor and 2 multistage pumps model HPR 125/5 with 90Kw motors. All the 5 pumps are made of casted stainless steel AISI 316. The total capacity of the station is 1200m<sup>3</sup>/h, at the pressure of 150 m. All the pumps are controlled with Variable Speed Controllers.*



Nella foto che segue si vede la stazione di pompaggio di Ri-iniezione della zona del Lago Boracifero, dove sono presenti circa 180 pozzi di estrazione di vapore e ben 25 centrali di produzione elettrica a vapore. Questa batteria di pompe, prodotte in acciaio fuso AISI316, sono del tipo HP125-2 con 2 stadi e una potenza installata di 300 kw; ri-inietta l'acqua geotermica ricondensata delle centrali locali. Ogni pompa eroga una portata di 350 m<sup>3</sup>/h e una pressione di 220m. Tutte queste pompe Marly installate nelle aree del Larderello e in quella del Lago Boracifero lavorano ormai da più di 20 anni senza aver mai rilevato anomalie e rotture al di fuori dai programmi ordinari di manutenzione.

*The following picture shows another pumping station for well re-injection, located in Lago Boracifero into the Larderello area. In this site there are about 180 suction wells which are used to feed 25 local power stations.*

*This set of 4 Marly pumps are all made of casted stainless steel AISI316, the pumps are of the model HP125-2, coupled with an electric motor of 315 kw each.*

*Each pump produces 350 m<sup>3</sup>/h flow at 220m head, all the pumps are driven by variable speed controllers, in order to keep the wells feeding pressure precisely stable and constant.*



Si noti che circa il 33% dell'energia Elettrica consumata dalla regione Toscana viene prodotta in questo distretto Geotermico con la tecnica delle Centrali di produzione con Turbine a Vapore alimentate e/o assistite dalle pompe Marly.

*All those pumps installed are working safely since more than 10 years, facing a regular yearly maintenance program, but never suffering of critical failures.*

## CONDIZIONI GENERALI DI VENDITA



1) ORDINI: Qualsiasi ordinazione trasmessaci, sia a mezzo di ns/agenti che a mezzo lettera, telefono o fax, si intende definita soltanto dopo ns/regular accettazione scritta. 2) CONSEGNA: I termini indicati per la consegna non sono impegnativi ma subordinati alle possibilità di fabbricazione o a causa di forza maggiore (agitazioni sindacali, guasti a macchinari, ritardata consegna da parte dei fornitori, situazioni generali di irreperibilità di materie prime, incendi, inondazioni od altre cause di forza maggiore). Un eventuale ritardo non può dar luogo da parte dell'acquirente ad annullamento dell'ordine né a pretesa di rifusione di danni. 3) SPEDIZIONE: La merce viaggia a rischio e pericolo del committente anche se il prezzo è stabilito franco destino. Non si risponde di alcun reclamo per mancanza di peso od avarie di viaggio essendo di ciò responsabile solo ed esclusivamente il vettore al quale il destinatario deve prontamente elevare riserva prima di ritirare la merce e di ciò dare comunicazione scritta anche al cessionario per conoscenza. Trascorsi comunque 8 giorni dalla data di ricevimento della merce non sono più ammessi reclami. 4) PREZZI: I prezzi si intendono al netto degli oneri fiscali, possono essere variati senza obbligo di preavviso. 5) RISERVA DI PROPRIETÀ: La proprietà dei beni consegnati permane al costruttore e non trapassa al cliente se non dopo l'integrale pagamento del prezzo, degli interessi e delle spese dovute. In caso di inadempienza la merce andrà, su espressa richiesta del costruttore, prontamente riconsegnata presso i depositi dal costruttore indicati in porto franco. Il costruttore si riserva comunque la facoltà di addebitare al cliente le spese sostenute per la rigenerazione e messa a nuovo del materiale reso. 6) PAGAMENTI: I pagamenti devono essere effettuati alla scadenza e nei modi convenuti alla ns/sede. Non sono riconosciuti i pagamenti effettuati ad agenti, rappresentanti od altri anche se a mezzo effetti, salvo espressa autorizzazione scritta del costruttore. In caso di pagamento dilazionato, il mancato pagamento anche di una sola rata consente al costruttore di esigere il saldo immediato del rimanente credito aumentato degli interessi maturati al tasso medio in vigore nel periodo. 7) DIVIETO DI AZIONE: Il cliente non può, per nessuna ragione, ritardare o sospendere i pagamenti dovuti a qualunque titolo, anche se fossero insorti reclami o contestazioni, nè può promuovere o proseguire azioni giudiziarie di alcun genere se prima non abbia provveduto al pagamento nei termini e nei modi pattuiti. 8) CARATTERISTICHE TECNICHE: I dati e le caratteristiche tecniche citati in tutte le pubblicazioni ufficiali del costruttore fanno riferimento a valori nominali indicativi. Per specifiche necessità e su esplicita richiesta, il costruttore può mettere a disposizione schede tecniche di prodotto più dettagliate da cui si possono altresì dedurre i criteri di accettabilità interna dei prodotti. Il costruttore si riserva il diritto di apportare qualsiasi modifica senza preavviso; pertanto pesi, misure, prestazioni e quanto altro indicato non sono vincolanti ma solo indicativi. 9) GARANZIA: Il costruttore presta le garanzie di legge. La garanzia copre ogni difetto di costruzione del solo materiale prodotto dal costruttore, essa inoltre si limita alla riparazione o sostituzione dell'elettropompa o del pezzo riconosciuti difettosi presso gli stabilimenti del costruttore o quant'altri dallo stesso autorizzati. In nessun caso comunque la garanzia implica la possibilità di richiesta di indennità e si declina ogni responsabilità per danni materiali e corporali che venissero causati dalle macchine prodotte dal costruttore, sia diretti che indiretti. La garanzia decade: - Se la macchina è stata riparata, smontata o manomessa da persone non autorizzate dal costruttore. - Se il guasto è stato provocato da errori di collegamento elettrico od idraulico, da mancata o non adeguata protezione. - Se l'impianto o l'installazione delle macchine non è stato eseguito correttamente. - Se la macchina è stata assoggettata a sovraccarichi oltre i limiti di targa. - Se i materiali sono stati guastati a seguito del contatto con liquidi abrasivi o corrosivi comunque non compatibili con i materiali impiegati nella costruzione delle pompe. - Se i materiali sono avariati a seguito del naturale logoramento. La macchina difettosa dovrà pervenire presso gli stabilimenti del costruttore in porto franco. Il costruttore si riserva l'insindacabile giudizio sulla causa del difetto e se lo stesso rientra nei casi previsti dalla garanzia. A riparazione avvenuta, la macchina sarà restituita in porto assegnato al cliente. 10) FORO COMPETENTE: Per eventuali controversie il foro competente sarà quello di Verona anche se il pagamento è convenuto a mezzo tratta. 11) RICHIAMO AD ALTRE NORME: Per quanto non espressamente stabilito nei punti precedenti, varranno le disposizioni di legge e le norme usuali e consuetudinarie del luogo in cui ha sede il costruttore e vigenti in materia.

**Il costruttore non si assume alcuna responsabilità per errori ed omissioni e si riserva il diritto di modifiche senza obbligo di preavviso.**

## GENERAL SALES CONDITIONS



1) ORDERS: Any order sent to us, whether by our representatives or by letter, telephone or fax, will be considered definite only after our regular acceptance in writing. 2) DELIVERY: The terms indicated for delivery are not binding but subject to manufacturing factors and unforeseeable circumstances (trade unions unrest, breakdown of machinery, late delivery by our suppliers, general unavailability of raw materials, fire, flood or other forces majeure). Any delay which might occur will not give rise on the part of the purchaser of the right to annul the order or to claim damages. 3) TRANSPORT: Goods travel at the customer's risk even if the price is stated as carriage free. The vendor will not be liable for the underweight goods or damage caused during transit as the carrier is exclusively liable in such cases and it is to him that the receiving party must promptly address a right informative notice in writing to this to the dealer. After 8 days have passed from receipt of the goods, no claims are in any case admissible. 4) PRICES: The prices are to be understood as net of tax duties and may be changed without notice. 5) RIGHT OF PROPERTY: The goods property belongs to the manufacturer and it is not acquired by the customer until the complete payment is made for the goods, and for any interest and costs involved. In case of payment not honoured, goods will, on the manufacturer's express request, be promptly sent back to the stores in free port indicated by the manufacturer. In any case the manufacturer reserves the right to charge the customer with the cost of restoration and renewal of returned goods. 6) PAYMENTS: Payments must be effected at due dates and in the terms agreed at our Headquarters. Payments made to agents, representatives or others are not recognized even by bills unless there is an express written authority by the manufacturer. In case of payment by instalments the failure to pay even one instalment allows the manufacturer to require the balance immediately plus the interest accrued at the average rate in force for the period. 7) BLOCKAGE OF CLAIMS: The customer may not, for any reason, delay or suspend payments owed on any account even if claims or disputes have arisen, nor may he start or take legal action of any kind if he has not first paid by the terms and in the terms agreed. 8) TECHNICAL CHARACTERISTICS: The technical data and characteristics stated in all the manufacturer's official publications refer to indicative nominal values. For specific needs and on explicit demand, the manufacturer can provide detailed technical sheets from which the internal acceptance criteria of the product can be deduced. The manufacturer reserves the right to make any modification without prior notice. Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding. 9) GUARANTEE: The manufacturer gives the guarantees provided by the Law. The guarantee covers every manufacturing defect only for the components/parts produced by the manufacturer: the Company also limits itself to the repair or replacement of the electric pump, or of the part recognized as being faulty, at the manufacturer's premises or other authorized premises. In no case however does the guarantee imply the possibility of claiming an indemnity and any liability is denied for damage to things or to the person caused by the manufacturer machines, whether directly or indirectly. The guarantee does not apply: - If the machine has been repaired, dismantled or tampered by persons not authorized by the manufacturer. - If the breakdown has been caused by errors in connecting the electrical or hydraulic systems, or by the failure to provide protection or the provision of inadequate protection. - If the setting up of the machine or its electrical or hydraulic systems has not been correctly carried out. - If the machine has been subject to loads exceeding the ones within the label specifications. - If materials have been damaged due to contact with abrasive or corrosive liquids or which are in any way incompatible with the materials used in the manufacture of the pumps. - If the materials have deteriorated due to natural wear. The defective machine must be taken to the manufacturer's premises in free port. The manufacturer reserves the indisputable right to impute the cause of the defect and to ascertain whether it falls within the warrant cases at his full expences. When the machine has been repaired it will be returned to the customer. 10) COMPETENT COURT: In case of any dispute the competent Court will be the one of Verona even if the payment is by Bill of Exchange. 11) RECOURSE TO OTHER NORMS: As regard to other matters not expressly stated in the above points, the laws, norms and commercial customs in force at the place, where the manufacturer has its premises, will be applied.

**The manufacturer assumes no responsibility for errors and omissions and reserves the right of changes without notice.**

 **GAZZETTA UFFICIALE DELL'UNIONE EUROPEA**

Regolamento UE 547/2012



ALLEGATO II

«L'efficienza di una pompa con girante tornita è generalmente inferiore a quella di una pompa con diametro di girante pieno. La tornitura della girante adegua la pompa a un punto di lavoro fisso, con un conseguente minore consumo di energia. L'indice di efficienza minima (MEI) è basato sul diametro massimo della girante».

«Il funzionamento della presente pompa per acqua con punti di funzionamento variabili può essere più efficiente ed economico se controllato, ad esempio, tramite un motore a velocità variabile che adegua il funzionamento della pompa al sistema».

Le informazioni sull'efficienza di riferimento sono disponibili all'indirizzo:  
[www.europump.org/efficiencycharts](http://www.europump.org/efficiencycharts).

 **OFFICIAL JOURNAL OF THE EUROPEAN UNION**

Regulation UE 547/2012

ANNEX II

«The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter».

«The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system».

Information on benchmark efficiency is available at:  
[www.europump.org/efficiencycharts](http://www.europump.org/efficiencycharts).

 **DIARIO OFICIAL DE LA UNIÓN EUROPEA**

Reglamento (UE) no 547/2012

ANEXO II

«La eficiencia de una bomba con un impulsor ajustado suele ser inferior a la de una bomba con el impulsor de diámetro completo. El ajuste del impulsor adapta la bomba a un punto de trabajo fijado, que da lugar a un menor consumo energético. El índice de eficiencia mínima (MEI) se basa en el impulsor de diámetro completo».

«El funcionamiento de esta bomba hidráulica con puntos de trabajo variables puede resultar más eficiente y económico si se controla, por ejemplo, mediante el uso de un mando de regulación de velocidad que ajuste el trabajo de la bomba al sistema».

La información sobre los criterios de referencia de la eficiencia puede consultarse en:  
[www.europump.org/efficiencycharts](http://www.europump.org/efficiencycharts).

 **JOURNAL OFFICIEL DE L'UNION EUROPÉENNE**

Reglamento (UE) no 547/2012

ANNEXE II

«Le rendement d'une pompe équipée d'une roue ajustée est généralement inférieur à celui d'une pompe dont la roue est à son diamètre maximal. Le rognage de la roue permet d'adapter le diamètre de la pompe jusqu'à un point de fonctionnement spécifié et, ainsi, de réduire la consommation d'énergie. L'indice de rendement minimal (MEI) est fondé sur le diamètre maximal de la roue».

«L'utilisation de la présente pompe à eau avec des points de fonctionnement variables peut s'avérer plus efficace et plus économique si un dispositif de contrôle, tel qu'un variateur de vitesse, permet d'ajuster le point de fonctionnement de la pompe au regard du système».

Informations sur l'efficacité de référence sont disponibles sur:  
[www.europump.org/efficiencycharts](http://www.europump.org/efficiencycharts).



# 50Hz

HP - HV Technical Catalogue



## **MARLY WATER PUMPS**

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