

2011  
50 Hz

4"

**ZDS**  
pump innovation



## Certificate and **"No Quibble Guarantee"**...



As far as we are aware, ZDS is the only company to offer a "No Quibble Guarantee" on the entire product portfolio. It simply means that regardless of what problem you or your client encounters, we will replace the product up until 24 months after purchase. The only requirement is that the products are returned complete and have not been tampered with. ZDS knows your satisfaction comes from using, selling or installing pumps and not by pulling them back up again.

Enjoy our quality!

Be sure to visit **www.zdsgroup.com**  
...for the latest news!




ZDS is a young and innovative company and changes sometimes happen faster than even this catalogue can handle. For the most recent information, be sure to visit our website frequently.

At our website you can:

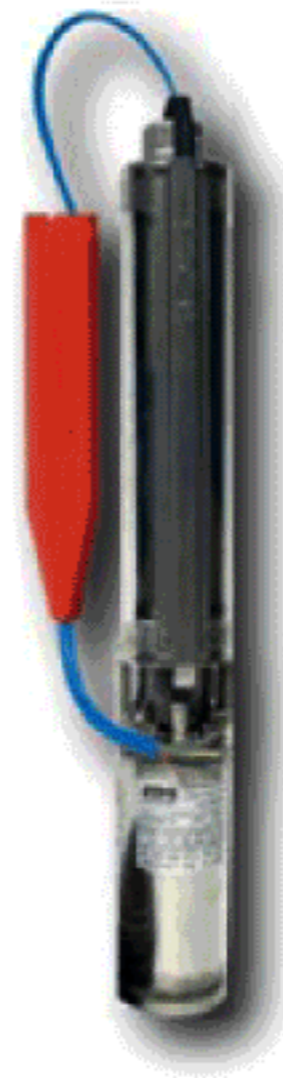
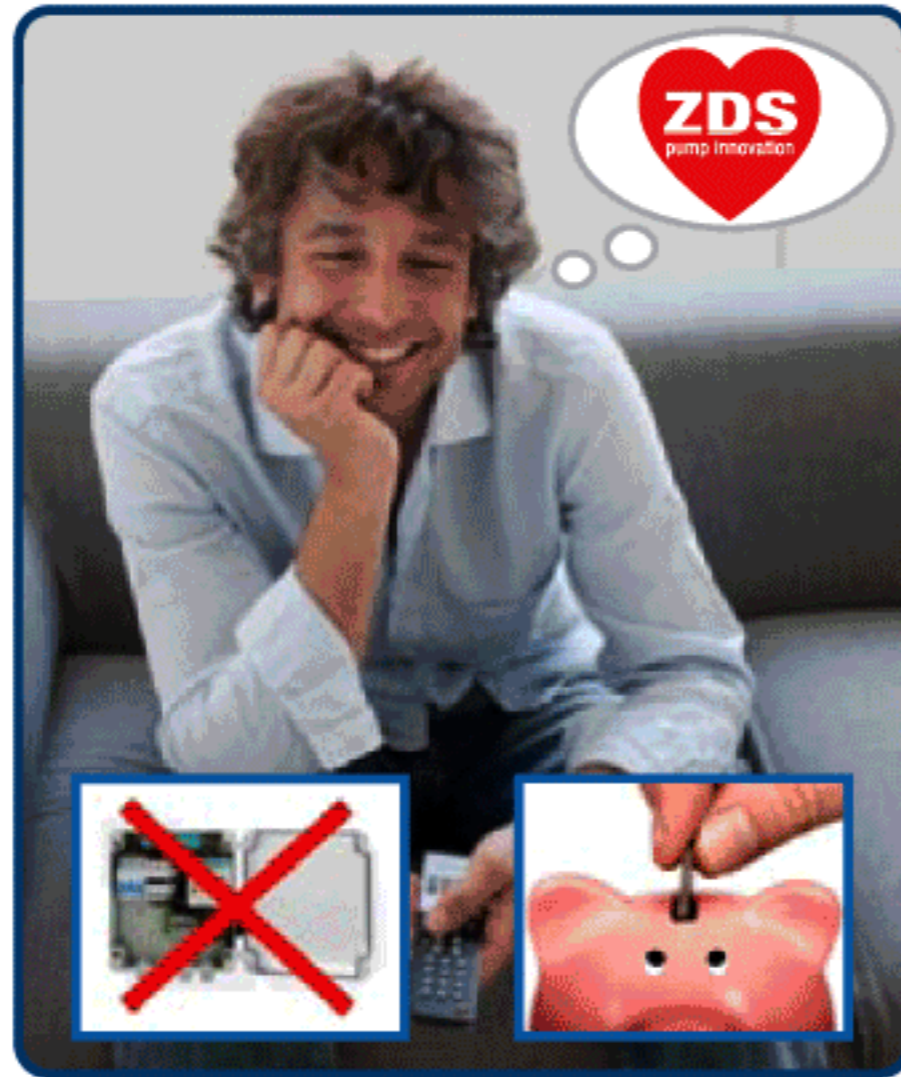
- Log-into your ZDS account and order directly from our website 24hours a day 7 days per week. Your net prices will show automatically.
- If you have not created an account yet, please do so by filling in the form at [www.zdsgroup.com/partner](http://www.zdsgroup.com/partner).
- Download current Sales & Marketing Material.
- Download Technical Documentation and Instruction Manuals.

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*TWO DIFFERENT WORLDS*  
*Which is yours?*

**ZDS Submersible Pump with DRP**



- **Easy Installation & Reliable**
- **Quicker & Cost Effective**

*ZDS pumps with DRP are factory-protected against:*

Overload	Low Voltage	Phase imbalance	Phase Loss	
Incorrect phase sequence	Thermal Protection	High Voltage	Dry-running	Too Frequent Starts/Stops

*OR*

**Conventional Submersible Pump**



- **Complicated Installation**
- **Time consuming & Costly**

# PUMP PROTECTOR **DRP**

for 4" submerged Motors.

## **What is the Pump Protector – DRP?**

*The Pump Protector - DRP is an innovative electronic device that guarantees optimal protection of the submerged pump from dry running.*

*Additionally, it also protects the motor from burning out in case of repeated starts and stops.*

## **Where is the DRP installed and how does it work?**

The DRP is ready for use, integrated into the connection cable and needs no further installation. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP and restarts the pump automatically a short time after the water rises above the DRP to allow water to flow into the borehole. In contrast to traditional solutions, no additional cables, sensors and control boxes are needed. The DRP device has been developed and tested to make the submerged pump function autonomously in conditions of water shortage.

In case of repeated starting and stopping of the pump, such as when the air in a pressure tank is low or the membrane is damaged, the DRP registers the frequent starts and stops and will automatically stop the motor from burning out. The DRP may be reset simply by disconnecting the power supply.

We can now supply DRPs for every motor in our range up to and including 4 kw in single & 3 phase. It is worth bearing in mind that, to ensure trouble-free operation, the 3 phase DRPs and the single phase 2.2 kW DRP may ONLY be purchased with the appropriate motor. It can not be bought as a separate unit. Because of the protection they offer to the motors, not just dry-running protection, we believe we are approaching the point where the majority of our motors will be supplied with the DRP already fitted. It is still the case that no other manufacturer is able to match this product and we believe that it gives all of our customers a terrific selling point when they are faced with competition from other brands.

## **...What are the technical limitations?**

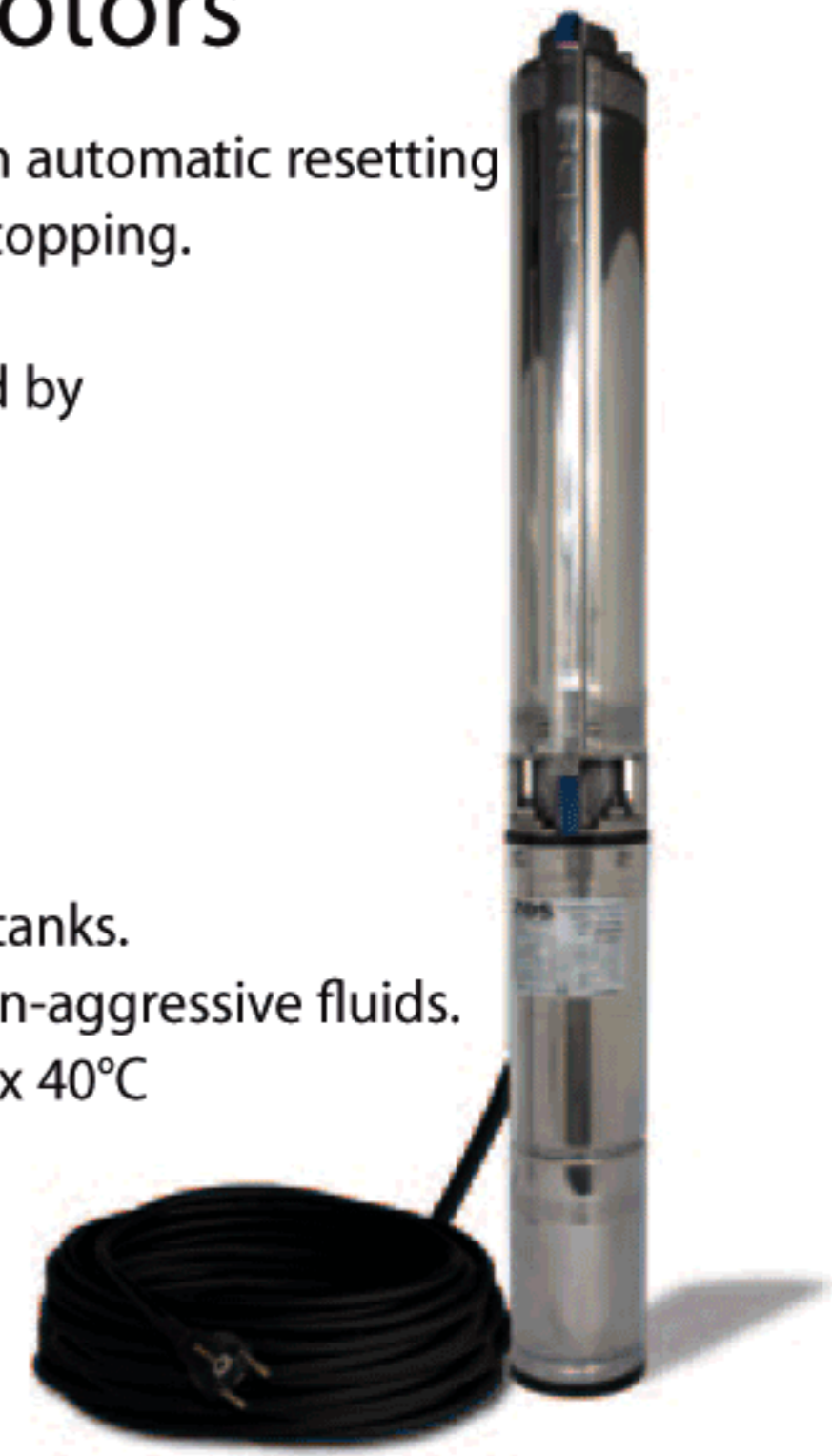
- The blue DRP for single-phase use has a permissible range of 220-240V at frequency 50/60 Hz. To manage the inductive load of a single-phase motor, the maximum motor power is limited to 2.2 kW.
- The red DRP for three-phase has a permissible range of 220-240V at frequency 50/60 Hz maximum motor power is limited to 2,2 kW. For 380V-415V motors at frequency 50/60 Hz maximum motor power is limited to 4 kW.
- The Pump Protector DRP can not be used with frequency converter!

**The Pump Protector - DRP is also available for Franklin motors single-phase as well as three-phase.**



## Complete Kits with 4" 2-wire ZDS Motors

- Single-phase 2-wire electric submerged pump with built in motor protector with automatic resetting
  - Does not require an external control box for starting, operating and stopping.
    - With or without Pump Protector - DRP
  - Corrosion resistant. The hydraulic part and the motor are protected by an outer sleeve in Technopolymer or in Stainless Steel.
    - Delivery (Q): up to 100 l/min (6 m<sup>3</sup>/h) • Head (H): up to 113 m
    - 2-wire single-phase from 0,25 to 1,1 kW • 1x220-240 V~, 50 Hz
      - Maximum supply voltage variations: +6% / -10%
        - Range of power: 0,25 kW – 1,1 kW
          - Integrated sturdy check valve.
    - Suitable for use in boreholes of minimum 4" diameter and in water tanks.
- Suitable for applications with clean water, water without solid particles and non-aggressive fluids.
  - Operating temperature for electric submerged pumps: O2 motor - max 40°C
    - Installation: vertical or horizontal.



Hydraulic data (n~2850 min <sup>-1</sup> )																	POWER	MAX ENCUMBRANCE	
Delivery (Q) – Ø Outlet diameter: 1 1/4 G-F																			
m <sup>3</sup> /h	0	0,3	0,6	0,9	1,2	1,5	1,8	2,1	2,4	2,7	3,0	3,6	4,2	4,8	5,4	6,0	kW	LENGTH mm	
l/min	0	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100			(HP)
Total head in meters H = dynamic total pressure	50	48	44	39	29	18											0,25 (0,33)	746	
	75	73	67	58	44	27											0,37 (0,5)	827	
	113	109	100	86	66	41											0,55 (0,75)	974	
	51	50	50	48	45	42	38	32	27								0,37 (0,5)	767	
	77	76	75	70	68	63	56	49	41								0,55 (0,75)	884	
	102	101	100	96	90	84	75	64	54								0,75 (1)	991	
	50				47	46	44	41	40	38	36	27	21				0,55 (0,75)	906	
	72				68	66	64	60	58	53	51	40	30				0,75 (1)	1053	
	105				99	96	93	89	85	80	75	60	44				1,1 (1,5)	1279	
	37									33	32	32	29	28	25	20	18	0,55 (0,75)	809
	49									44	43	42	39	37	33	30	24	0,75 (1)	891
	80									72	70	68	64	60	54	46	39	1,1 (1,5)	1084

Techopolymer				
WITH PUMP PROTECTOR- DRP				
Model	Cable (m)	Code	€	Weight (kg)
QPGo.P.1-8.1.5.DRP	1,5	196080007S		12,3
QPGo.P.1-8.15.DRP	15	196080008S		14,3
QPGo.P.1-12.1.5.DRP	1,5	196080011S		12,8
QPGo.P.1-12.30.DRP	30	196080012S		16,8
QPGo.P.1-18.1.5.DRP	1,5	196080017S		14,3
QPGo.P.1-18.30.DRP	30	196080018S		18,2
QPGo.P.2-8.1.5.DRP	1,5	196080107S		12,4
QPGo.P.2-8.15.DRP	15	196080108S		14,4
QPGo.P.2-12.1.5.DRP	1,5	196080111S		13,8
QPGo.P.2-12.30.DRP	30	196080112S		17,7
QPGo.P.2-16.1.5.DRP	1,5	196080115S		15,3
QPGo.P.2-16.30.DRP	30	196080116S		19,2
QPGo.P.3-9.1.5.DRP	1,5	196080208S		13,7
QPGo.P.3-9.15.DRP	15	196080209S		15,7
QPGo.P.3-13.1.5.DRP	1,5	196080212S		15,5
QPGo.P.3-13.30.DRP	30	196080213S		19,5
QPGo.P.3-19.1.5.DRP	1,5	196080218S		18,8
QPGo.P.3-19.30.DRP	30	196080219S		22,8
QPGo.P.5-6.1.5.DRP	1,5	196080305S		13,1
QPGo.P.5-6.15.DRP	15	196080306S		15,1
QPGo.P.5-8.1.5.DRP	1,5	196080307S		14,6
QPGo.P.5-8.15.DRP	15	196080308S		16,6
QPGo.P.5-13.1.5.DRP	1,5	196080312S		17,2
QPGo.P.5-13.30.DRP	30	196080313S		21,2

## An Entire 4" Solution ...in one Package!

### Complete Solutions Ready to Install...

When all components come in one box, the hassle of stock management is reduced significantly. It eliminates the need to order certain numbers of this and other numbers of that, and saves time keeping stock of everything.

The boxes are easy to pick up, easy to store and easy to deliver.

Shelves are packed neatly, space is saved and orders are carried out quickly.

### Be Protected!

The complete kits with 2-wire motors come with the capacitor and thermal motor protection built into the motor. There is no control box to connect up and come with 15 or 30m lead already fitted with a plug ready to drop in the bore hole and plug in. How could it be easier?

Please note, a method of control such as a tank float switch or pressure vessel and pressure switch will be required to control the pump if you require an automatic water supply.



### Version

WITH OUT PUMP PROTECTOR - DRP				
Model	Cable (m)	Code	€	Weight (kg)
QGo.P.1-8.1.5	1,5	196080007		10,8
QGo.P.1-8.15	15	196080008		13,7
QGo.P.1-12.1.5	1,5	196080011		11,3
QGo.P.1-12.30	30	196080012		16,3
QGo.P.1-18.1.5	1,5	196080017		12,8
QGo.P.1-18.30	30	196080018		17,7
QGo.P.2-8.1.5	1,5	196080107		10,9
QGo.P.2-8.15	15	196080108		13,8
QGo.P.2-12.1.5	1,5	196080111		12,3
QGo.P.2-12.30	30	196080112		17,2
QGo.P.2-16.1.5	1,5	196080115		13,8
QGo.P.2-16.30	30	196080116		18,7
QGo.P.3-9.1.5	1,5	196080208		12,2
QGo.P.3-9.15	15	196080209		15,1
QGo.P.3-13.1.5	1,5	196080212		14,0
QGo.P.3-13.30	30	196080213		19,0
QGo.P.3-19.1.5	1,5	196080218		17,1
QGo.P.3-19.30	30	196080219		22,3
QGo.P.5-6.1.5	1,5	196080305		11,6
QGo.P.5-6.15	15	196080306		14,5
QGo.P.5-8.1.5	1,5	196080307		13,1
QGo.P.5-8.15	15	196080308		16,0
QGo.P.5-13.1.5	1,5	196080312		15,7
QGo.P.5-13.30	30	196080313		20,7

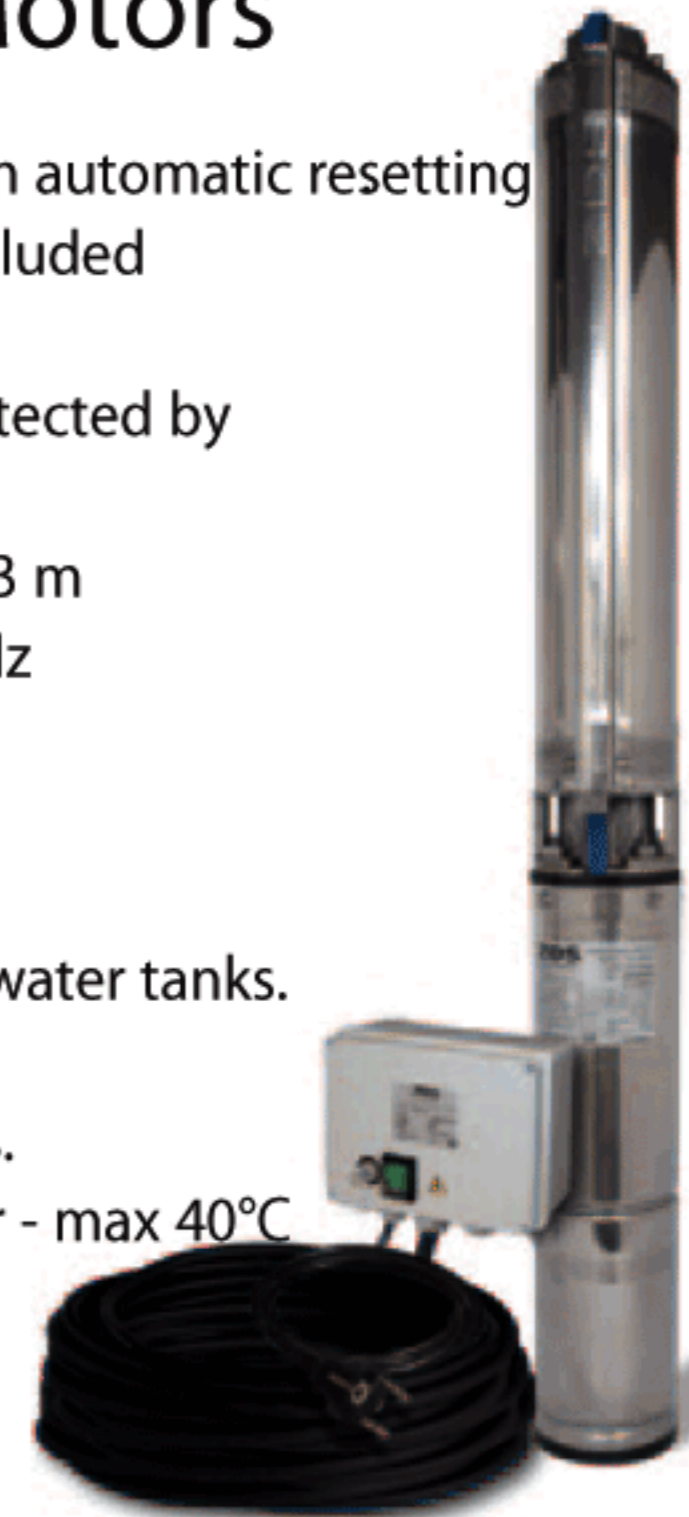
### Stainless Steel Version

WITH PUMP PROTECTOR - DRP					WITH OUT PUMP PROTECTOR - DRP				
Model	Cable (m)	Code	€	Weight (kg)	Model	Cable (m)	Code	€	Weight (kg)
QGo.X.1-8.1.5.DRP	1,5	196072007S		13,3	QGo.X.1-8.1.5	1,5	196072007		11,8
QGo.X.1-8.15.DRP	15	196072008S		15,3	QGo.X.1-8.15	15	196072008		14,7
QGo.X.1-12.1.5.DRP	1,5	196072011S		13,8	QGo.X.1-12.1.5	1,5	196072011		12,3
QGo.X.1-12.30.DRP	30	196072012S		17,8	QGo.X.1-12.30	30	196072012		17,3
QGo.X.1-18.1.5.DRP	1,5	196072017S		15,2	QGo.X.1-18.1.5	1,5	196072017		13,7
QGo.X.1-18.30.DRP	30	196072018S		19,2	QGo.X.1-18.30	30	196072018		18,7
QGo.X.2-8.1.5.DRP	1,5	196072107S		13,4	QGo.X.2-8.1.5	1,5	196072107		11,9
QGo.X.2-8.15.DRP	15	196072108S		15,4	QGo.X.2-8.15	15	196072108		14,8
QGo.X.2-12.1.5.DRP	1,5	196072111S		14,6	QGo.X.2-12.1.5	1,5	196072111		13,1
QGo.X.2-12.30.DRP	30	196072112S		18,6	QGo.X.2-12.30	30	196072112		18,1
QGo.X.2-16.1.5.DRP	1,5	196072115S		16,3	QGo.X.2-16.1.5	1,5	196072115		14,8
QGo.X.2-16.30.DRP	30	196072116S		20,2	QGo.X.2-16.30	30	196072116		19,7
QGo.X.3-9.1.5.DRP	1,5	196072208S		14,6	QGo.X.3-9.1.5	1,5	196072208		13,1
QGo.X.3-9.15.DRP	15	196072209S		16,6	QGo.X.3-9.15	15	196072209		16,0
QGo.X.3-13.1.5.DRP	1,5	196072212S		16,5	QGo.X.3-13.1.5	1,5	196072212		15,0
QGo.X.3-13.30.DRP	30	196072213S		20,5	QGo.X.3-13.30	30	196072213		20,0
QGo.X.3-19.1.5.DRP	1,5	196072218S		19,8	QGo.X.3-19.1.5	1,5	196072218		18,2
QGo.X.3-19.30.DRP	30	196072219S		23,8	QGo.X.3-19.30	30	196072219		23,3
QGo.X.5-6.1.5.DRP	1,5	196072305S		14,1	QGo.X.5-6.1.5	1,5	196072305		12,6
QGo.X.5-6.15.DRP	15	196072306S		16,1	QGo.X.5-6.15	15	196072306		15,5
QGo.X.5-8.1.5.DRP	1,5	196072307S		15,6	QGo.X.5-8.1.5	1,5	196072307		14,1
QGo.X.5-8.15.DRP	15	196072308S		17,6	QGo.X.5-8.15	15	196072308		17,0
QGo.X.5-13.1.5.DRP	1,5	196072312S		18,2	QGo.X.5-13.1.5	1,5	196072312		16,7
QGo.X.5-13.30.DRP	30	196072313S		22,2	QGo.X.5-13.30	30	196072313		21,6

## Complete Kits with 4" PSC ZDS Motors



- Single-phase PSC electric submerged pump with built in motor protector with automatic resetting
  - Control Box CBO for starting, operating and stopping is included
    - With or without Pump Protector - DRP
- Corrosion resistant. The hydraulic part and the motor are protected by an outer sleeve in Technopolymer or in stainless steel.
  - Delivery (Q): up to 100 l/min (6 m<sup>3</sup>/h) • Head (H): up to 113 m
- PSC single-phase from 0,25 to 1,1 kW • 1x220-240 V~, 50 Hz
  - Maximum supply voltage variations: +6% / -10%
    - Range of power: 0,25 kW – 1,1 kW
      - Integrated sturdy check valve.
- Suitable for use in boreholes of minimum 4" diameter and in water tanks.
  - Suitable for applications with clean water, water without solid particles and non-aggressive fluids.
- Operating temperature for electric submerged pumps: O3 motor - max 40°C
  - Installation: vertical or horizontal.



Hydraulic data (n~2850 min <sup>-1</sup> )																	POWER	MAX ENCUMBRANCE	
Delivery (Q) – Ø Outlet diameter: 1 ¼ G-F																			
m <sup>3</sup> /h	0	0,3	0,6	0,9	1,2	1,5	1,8	2,1	2,4	2,7	3,0	3,6	4,2	4,8	5,4	6,0	kW	LENGTH mm	
l/min	0	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100			(HP)
Total head in meters H = dynamic total pressure	50	48	44	39	29	18											0,25 (0,33)	746	
	75	73	67	58	44	27											0,37 (0,5)	827	
	113	109	100	86	66	41											0,55 (0,75)	974	
	51	50	50	48	45	42	38	32	27								0,37 (0,5)	767	
	77	76	75	70	68	63	56	49	41								0,55 (0,75)	884	
	102	101	100	96	90	84	75	64	54								0,75 (1)	991	
	50				47	46	44	41	40	38	36	27	21				0,55 (0,75)	906	
	72				68	66	64	60	58	53	51	40	30				0,75 (1)	1053	
	105				99	96	93	89	85	80	75	60	44				1,1 (1,5)	1279	
	37									33	32	32	29	28	25	20	18	0,55 (0,75)	809
	49									44	43	42	39	37	33	30	24	0,75 (1)	891
	80									72	70	68	64	60	54	46	39	1,1 (1,5)	1084

Techopolymer				
WITH PUMP PROTECTOR - DRP				
Model	Cable (m)	Code	€	Weight (kg)
P.1-8.03.1.5.DRP	1,5	196081007S		12,7
P.1-8.03.15.DRP	15	196081008S		14,9
P.1-12.03.1.5.DRP	1,5	196081011S		13,2
P.1-12.03.30.DRP	30	196081012S		17,8
P.1-18.03.1.5.DRP	1,5	196081017S		14,6
P.1-18.03.30.DRP	30	196081018S		19,2
P.2-8.03.1.5.DRP	1,5	196081107S		12,8
P.2-8.03.15.DRP	15	196081108S		15,0
P.2-12.03.1.5.DRP	1,5	196081111S		14,1
P.2-12.03.30.DRP	30	196081112S		18,7
P.2-16.03.1.5.DRP	1,5	196081115S		15,6
P.2-16.03.30.DRP	30	196081116S		20,2
P.3-9.03.1.5.DRP	1,5	196081208S		14,1
P.3-9.03.15.DRP	15	196081209S		16,3
P.3-13.03.1.5.DRP	1,5	196081212S		15,8
P.3-13.03.30.DRP	30	196081213S		20,5
P.3-19.03.1.5.DRP	1,5	196081218S		19,0
P.3-19.03.30.DRP	30	196081219S		23,7
P.5-6.03.1.5.DRP	1,5	196081305S		13,4
P.5-6.03.15.DRP	15	196081306S		15,7
P.5-8.03.1.5.DRP	1,5	196081307S		14,9
P.5-8.03.15.DRP	15	196081308S		17,1
P.5-13.03.1.5.DRP	1,5	196081312S		17,4
P.5-13.03.30.DRP	30	196081313S		22,1



## Pump Protector DRP

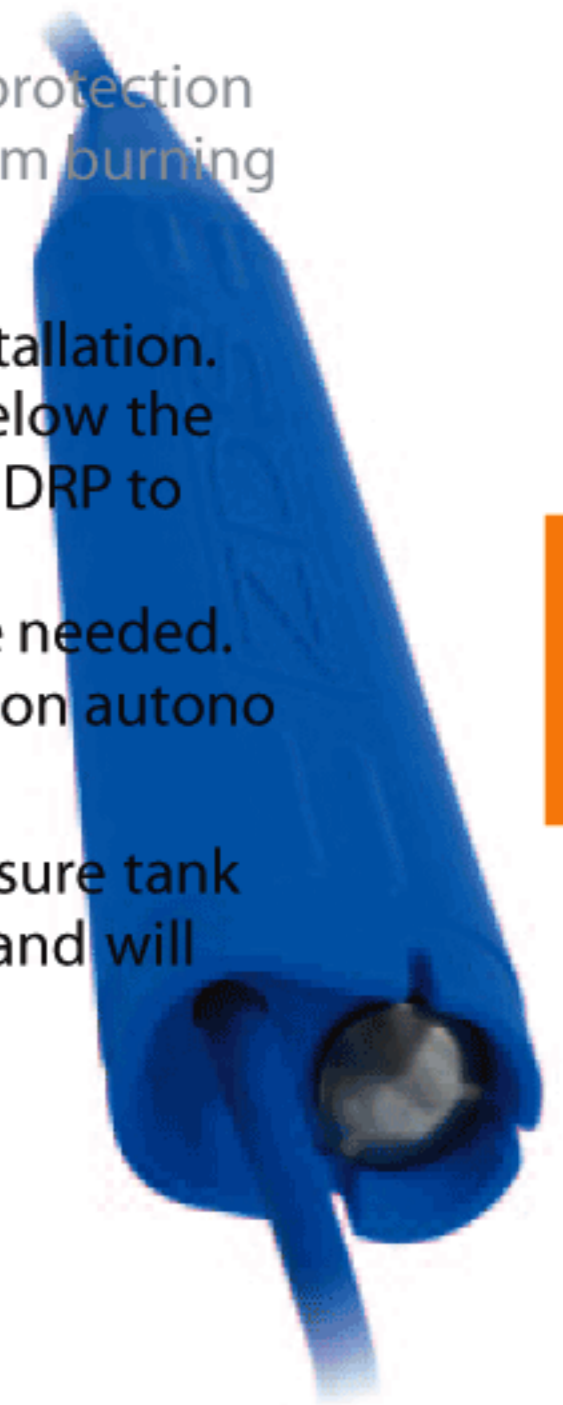
The Pump Protector - DRP is an innovative electronic device that guarantees optimal protection of the submerged pump from dry running. Additionally, it also protects the motor from burning out in case of continuous starts and stops.

The DRP is ready for use, integrated into the connection cable and needs no further installation. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP and restarts the pump automatically a short time after the water rises above the DRP to allow water to flow into the borehole.

In contrast to traditional solutions, no additional cables, sensors and control boxes are needed. The DRP device has been developed and tested to make the submerged pump function autonomously in conditions of water shortage.

In case of continuous starting and stopping of the pump, like when the air of a pressure tank is low or the "balloon" is damaged, the DRP registers the frequent starts and stops and will automatically stop the motor from burning out.

The DRP will be reset simply by disconnecting the power supply.



### Version

WITH OUT PUMP PROTECTOR - DRP				
Model	Cable (m)	Code	€	Weight (kg)
P.1-8.O3.1.5	1,5	196081007		12,1
P.1-8.O3.15	15	196081008		14,4
P.1-12.O3.1.5	1,5	196081011		12,7
P.1-12.O3.30	30	196081012		17,4
P.1-18.O3.1.5	1,5	196081017		14,1
P.1-18.O3.30	30	196081018		18,8
P.2-8.O3.1.5	1,5	196081107		12,3
P.2-8.O3.15	15	196081108		14,5
P.2-12.O3.1.5	1,5	196081111		13,6
P.2-12.O3.30	30	196081112		18,3
P.2-16.O3.1.5	1,5	196081115		15,0
P.2-16.O3.30	30	196081116		19,8
P.3-9.O3.1.5	1,5	196081208		13,5
P.3-9.O3.15	15	196081209		15,8
P.3-13.O3.1.5	1,5	196081212		15,3
P.3-13.O3.30	30	196081213		20,0
P.3-19.O3.1.5	1,5	196081218		18,5
P.3-19.O3.30	30	196081219		23,2
P.5-6.O3.1.5	1,5	196081305		12,9
P.5-6.O3.15	15	196081306		15,2
P.5-8.O3.1.5	1,5	196081307		14,4
P.5-8.O3.15	15	196081308		16,7
P.5-13.O3.1.5	1,5	196081312		16,9
P.5-13.O3.30	30	196081313		21,6

### Stainless Steel Version

WITH PUMP PROTECTOR - DRP					WITH OUT PUMP PROTECTOR - DRP				
Model	Cable (m)	Code	€	Weight (kg)	Model	Cable (m)	Code	€	Weight (kg)
X.1-8.O3.1.5.DRP	1,5	196073007S		13,7	X.1-8.O3.1.5	1,5	196073007		13,1
X.1-8.O3.15.DRP	15	196073008S		15,9	X.1-8.O3.15	15	196073008		15,4
X.1-12.O3.1.5.DRP	1,5	196073011S		14,2	X.1-12.O3.1.5	1,5	196073011		13,7
X.1-12.O3.30.DRP	30	196073012S		18,9	X.1-12.O3.30	30	196073012		18,4
X.1-18.O3.1.5.DRP	1,5	196073017S		15,6	X.1-18.O3.1.5	1,5	196073017		15,0
X.1-18.O3.30.DRP	30	196073018S		20,2	X.1-18.O3.30	30	196073018		19,8
X.2-8.O3.1.5.DRP	1,5	196073107S		13,8	X.2-8.O3.1.5	1,5	196073107		13,2
X.2-8.O3.15.DRP	15	196073108S		16,0	X.2-8.O3.15	15	196073108		15,5
X.2-12.O3.1.5.DRP	1,5	196073111S		15,0	X.2-12.O3.1.5	1,5	196073111		14,4
X.2-12.O3.30.DRP	30	196073112S		19,6	X.2-12.O3.30	30	196073112		19,2
X.2-16.O3.1.5.DRP	1,5	196073115S		16,6	X.2-16.O3.1.5	1,5	196073115		16,0
X.2-16.O3.30.DRP	30	196073116S		21,2	X.2-16.O3.30	30	196073116		20,8
X.3-9.O3.1.5.DRP	1,5	196073208S		15,0	X.3-9.O3.1.5	1,5	196073208		14,4
X.3-9.O3.15.DRP	15	196073209S		17,2	X.3-9.O3.15	15	196073209		16,7
X.3-13.O3.1.5.DRP	1,5	196073212S		16,8	X.3-13.O3.1.5	1,5	196073212		16,3
X.3-13.O3.30.DRP	30	196073213S		21,4	X.3-13.O3.30	30	196073213		21,0
X.3-19.O3.1.5.DRP	1,5	196073218S		20,1	X.3-19.O3.1.5	1,5	196073218		19,5
X.3-19.O3.30.DRP	30	196073219S		24,7	X.3-19.O3.30	30	196073219		24,3
X.5-6.O3.1.5.DRP	1,5	196073305S		14,5	X.5-6.O3.1.5	1,5	196073305		13,9
X.5-6.O3.15.DRP	15	196073306S		16,7	X.5-6.O3.15	15	196073306		16,2
X.5-8.O3.1.5.DRP	1,5	196073307S		15,9	X.5-8.O3.1.5	1,5	196073307		15,3
X.5-8.O3.15.DRP	15	196073308S		18,1	X.5-8.O3.15	15	196073308		17,6
X.5-13.O3.1.5.DRP	1,5	196073312S		18,4	X.5-13.O3.1.5	1,5	196073312		17,9
X.5-13.O3.30.DRP	30	196073313S		23,0	X.5-13.O3.30	30	196073313		22,6

*4" Hydraulic parts.  
Upper head and pump support  
in **STAINLESS STEEL***

**QS4X characteristics...**

*Each single part of QS4X has been designed with particular care.*

*The check-valves, made of resistant thermoplastic material, have been tested to over 600.000 water hammers at 37 bar (370 m.c.w.) water pressure.*

*The special design of the hydraulic parts, made in technopolymer, allows the pump to work even in heavy sand conditions. The pump requires a low starting-torque which enables longer life and greater reliability even under conditions of severe voltage drops.*

**What is so special about the design of our hydraulic parts?**

The internal construction of our hydraulic parts consists primarily of five pieces; impeller with metal support ring, diffuser, stage-box, technopolymer bearing and floating vinyl-ring.

ZDS has selected this unique design in order to make the pump much more resistant to sand and equivalent abrasives.

Compared to conventional designs and in some particular conditions, the hydraulic part may need only 25% of the starting torque to start pumping.

This makes the ZDS pump a particularly good option when you are challenged with an unstable power supply.



**Details...**

- The check valve is integrated into the upper head to allow the weight of the water column and any water hammer to be discharged without damaging the impellers and diffusers.
- Thick rigid cover cable in stainless steel to protect wires during installation.
- Pump head and support in stainless steel.
- Removable stainless steel filter.
- Maximum pump overall diameter: 98 mm (cable cover included).
- Recommended maximum quantity of suspended sand: 120 g/m<sup>3</sup>.



## SPECIFICATIONS:

### QS4X.1 - page 11

Max Delivery (Q): 25 l/min (1,5 m<sup>3</sup>/h), Max Head (H): 314 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>"

### QS4X.2 - page 12

Max Delivery (Q): 40 l/min (2,4 m<sup>3</sup>/h), Max Head (H): 307 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>"

### QS4X.3 - page 13

Max Delivery (Q): 70 l/min (4,2 m<sup>3</sup>/h), Max Head (H): 283 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>"

### QS4X.5 - page 14

Max Delivery (Q): 100 l/min (6 m<sup>3</sup>/h), Max Head (H): 276 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>"

### QS4X.8 - page 15

Max Delivery (Q): 190 l/min (11,4 m<sup>3</sup>/h), Max Head (H): 268 m, outlet diameter 2"

### QS4X.10 - page 16

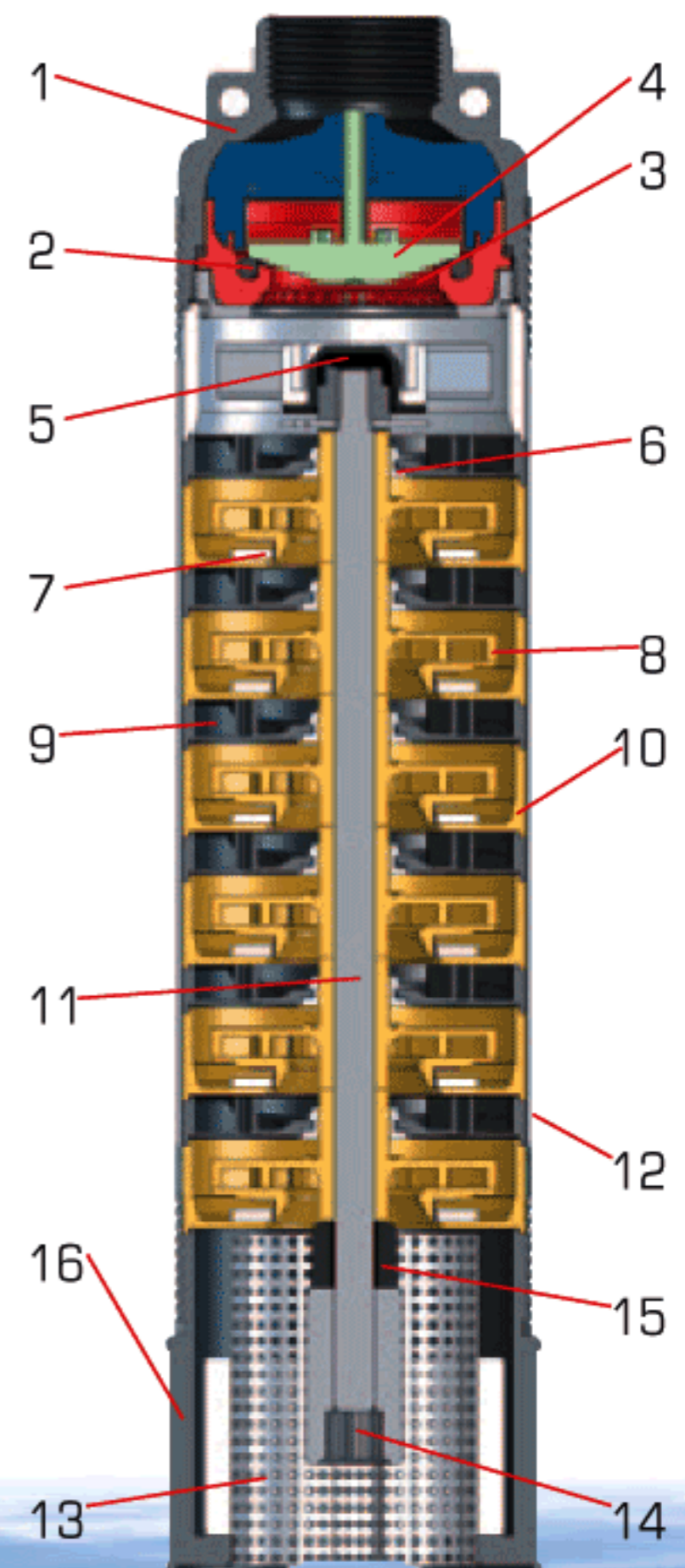
Max Delivery (Q): 250 l/min (15 m<sup>3</sup>/h), Max Head (H): 186 m, outlet diameter 2"

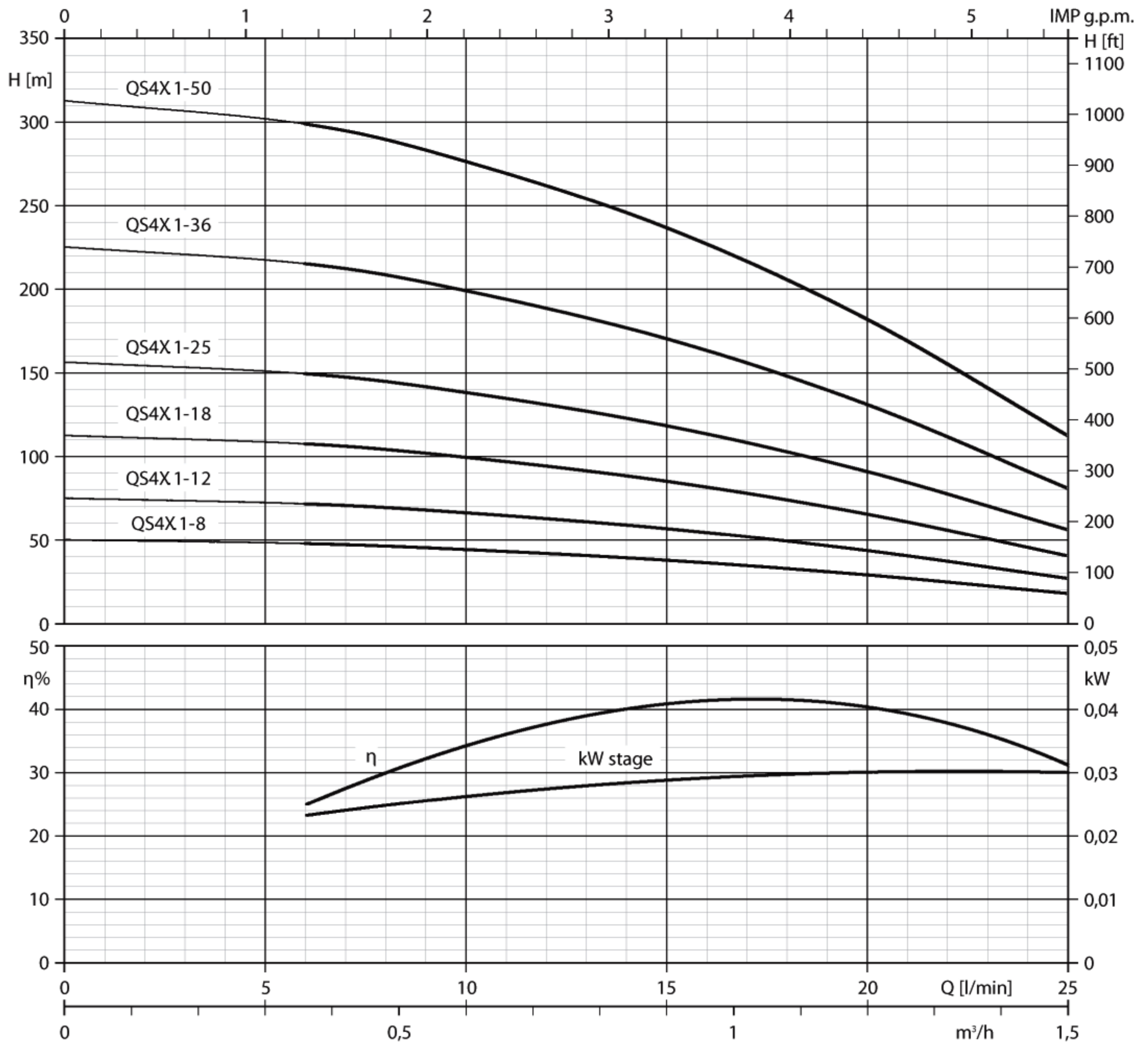


## Construction Characteristics...

- The pump impellers and diffusers are made of technopolymer, a material to improve performance and efficiency and to resist corrosion.
- The stainless steel coupling shaft is oversized to resist better mechanical torque.
- Built with floating rings and bushes, which provide excellent resistance to abrasion.

Pos.	COMPONENT	MATERIAL
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O - Ring	NBR
3	Complete valve	Technopolymer
4	Plate valve	Technopolymer
5	Shaft guide	NBR
6	Bearing	Technopolymer
7	Floating ring	Technopolymer
8	Impeller	Technopolymer and stainless steel
9	Diffuser	Technopolymer
10	Stage box	Technopolymer
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Removable Filter	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Technopolymer
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)



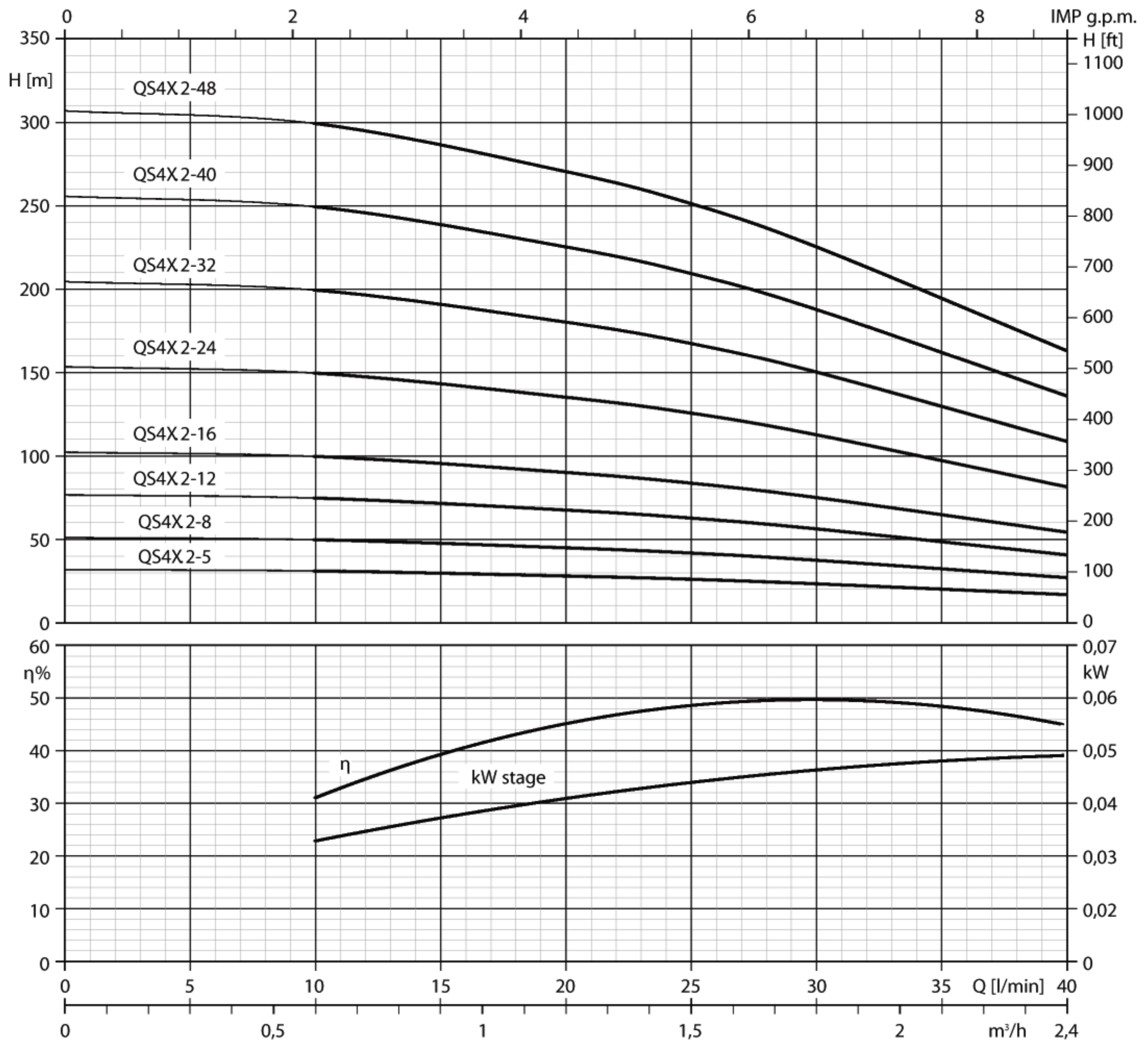


- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.1	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )					LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>			
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F							Power		Minimum Thrust	
			m³/h	0	0,36	0,6	1,2			1,5	kW		HP
QS4X.1-8		1810100081		50,2	48,0	44,4	29,2	18,0	357	3.5	0,25	0,33	1500
QS4X.1-12		1810100121		75,4	72,0	66,6	43,8	27,0	437	4.0	0,37	0,5	1500
QS4X.1-18		1810100181		113,0	108,0	99,9	65,7	40,5	557	4.8	0,55	0,75	1500
QS4X.1-25		1810100251		157,0	150,0	138,8	91,3	56,3	697	5.7	0,75	1	1500
QS4X.1-36		1810100361		226,1	216,0	199,8	131,4	81,0	950	7.6	1,1	1,5	2500
QS4X.1-50		1810100501		314,0	300,0	277,5	182,5	112,5	1230	9.9	1,5	2	3000

■ QS4X 4" pump ends can be fitted with:

- Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.

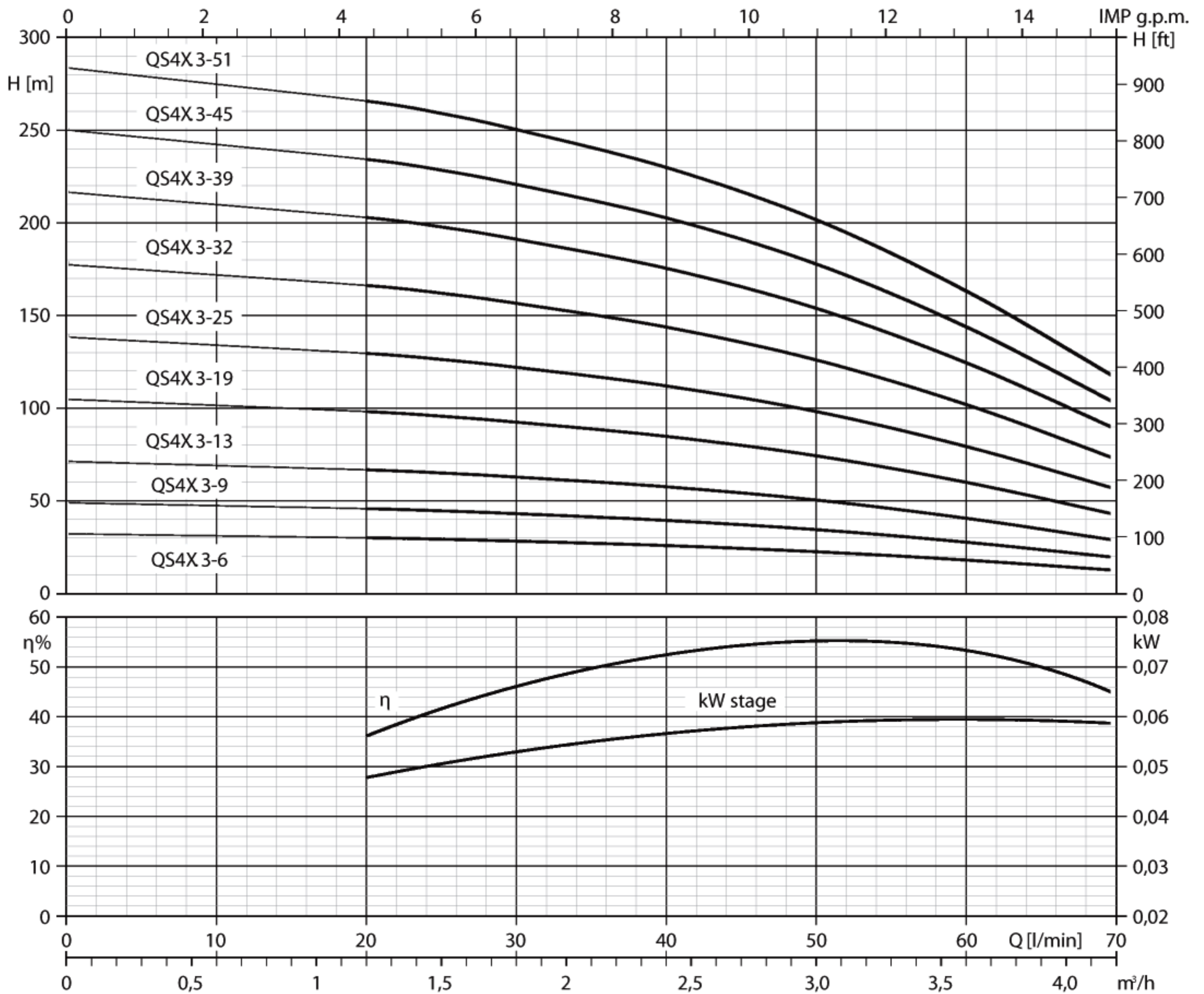


- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.2	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )						LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>			
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F								Power		Minimum Thrust	
			m³/h	0	0,6	1,2	1,5	1,8			2,4	kW		HP
			l/min	0	10	20	25	30			40			F[N]
QS4X2-5		1810101051	H = total head in meters (dynamic total pressure)	32,0	31,2	28,2	26,2	23,5	17,0	310	3.1	0,25	0,33	1500
QS4X2-8		1810101081		51,2	49,9	45.1	41.9	37.6	27.2	377	3.6	0,37	0,5	1500
QS4X2-12		1810101121		76,8	74.9	67.7	62.9	56.4	40.8	467	4.1	0,55	0,75	1500
QS4X2-16		1810101161		102,4	99.8	90.2	83.8	75.2	54.4	557	4.8	0,75	1	1500
QS4X2-24		1810101241		153,6	149.8	135.4	125.8	112.8	81.6	737	5.9	1,1	1,5	2500
QS4X2-32		1810101321		204,7	199.7	180.5	167.7	150.4	108.0	917	7.7	1,5	2	2500
QS4X2-40		1810101401		255,9	249.6	225.6	209.6	188.0	136.0	1130	8.5	2,2	3	3000
QS4X2-48		1810101481		307,1	299.5	270.7	251.5	225.6	163.2	1310	9.9	2,2	3	4000

• QS4X 4" pump ends can be fitted with:

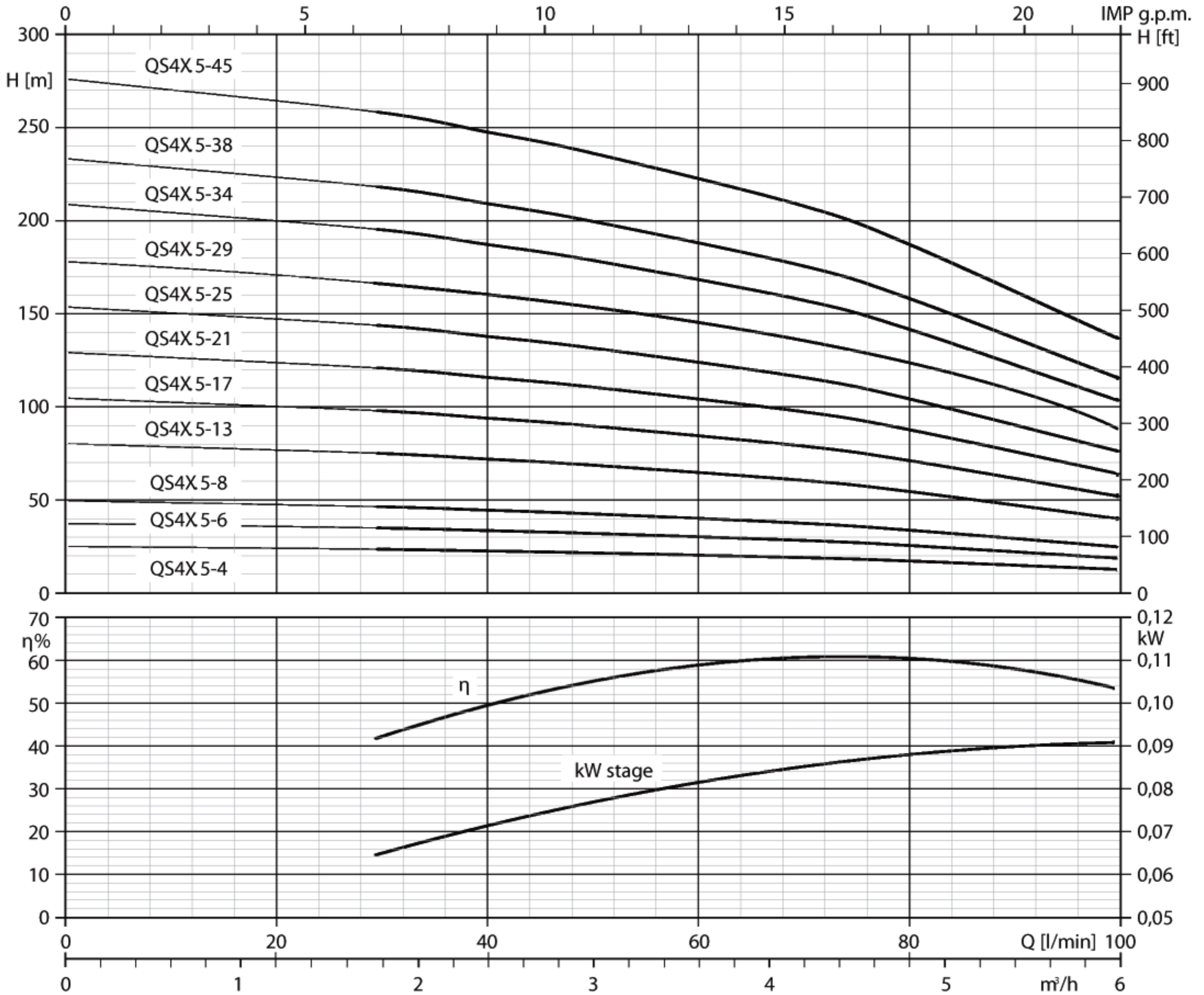
- Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.



- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.3	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )								LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>		
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F										Power		Minimum Thrust
			m³/h	0	1,2	1,5	1,8	2,4	3	4,2			kW	HP	
QS4X.3-6		1810102061	33.3	31.2	30.4	29.4	27.0	23.7	13.7	392	3.6	0,37	0,5	1500	
QS4X.3-9		1810102091	50.0	46.8	45.6	44.1	40.5	35.6	20.6	490	4.1	0,55	0,75	1500	
QS4X.3-13		1810102131	72.2	67.6	65.9	63.7	58.5	51.4	29.8	620	5.0	0,75	1	1500	
QS4X.3-19		1810102191	105.5	98.8	96.3	93.1	85.5	75.1	43.5	815	6.6	1,1	1,5	1500	
QS4X.3-25		1810102251	138.8	130.0	126.8	122.5	112.5	98.8	57.3	1010	7.5	1,5	2	2500	
QS4X.3-32		1810102321	177.6	166.4	162.2	156.8	144.0	126.4	73.3	1270	9.6	2,2	3	2500	
QS4X.3-39		1810102391	216.5	202.8	197.7	191.1	175.5	154.1	89.3	1497	11.0	2,2	3	3000	
QS4X.3-45		1810102451	249.8	234.0	228.2	220.5	202.5	177.8	103.1	1725	12.4	3	4	4000	
QS4X.3-51		1810102511	283.1	265.2	258.6	249.9	229.5	201.5	116.8	1920	14.1	3	4	4000	

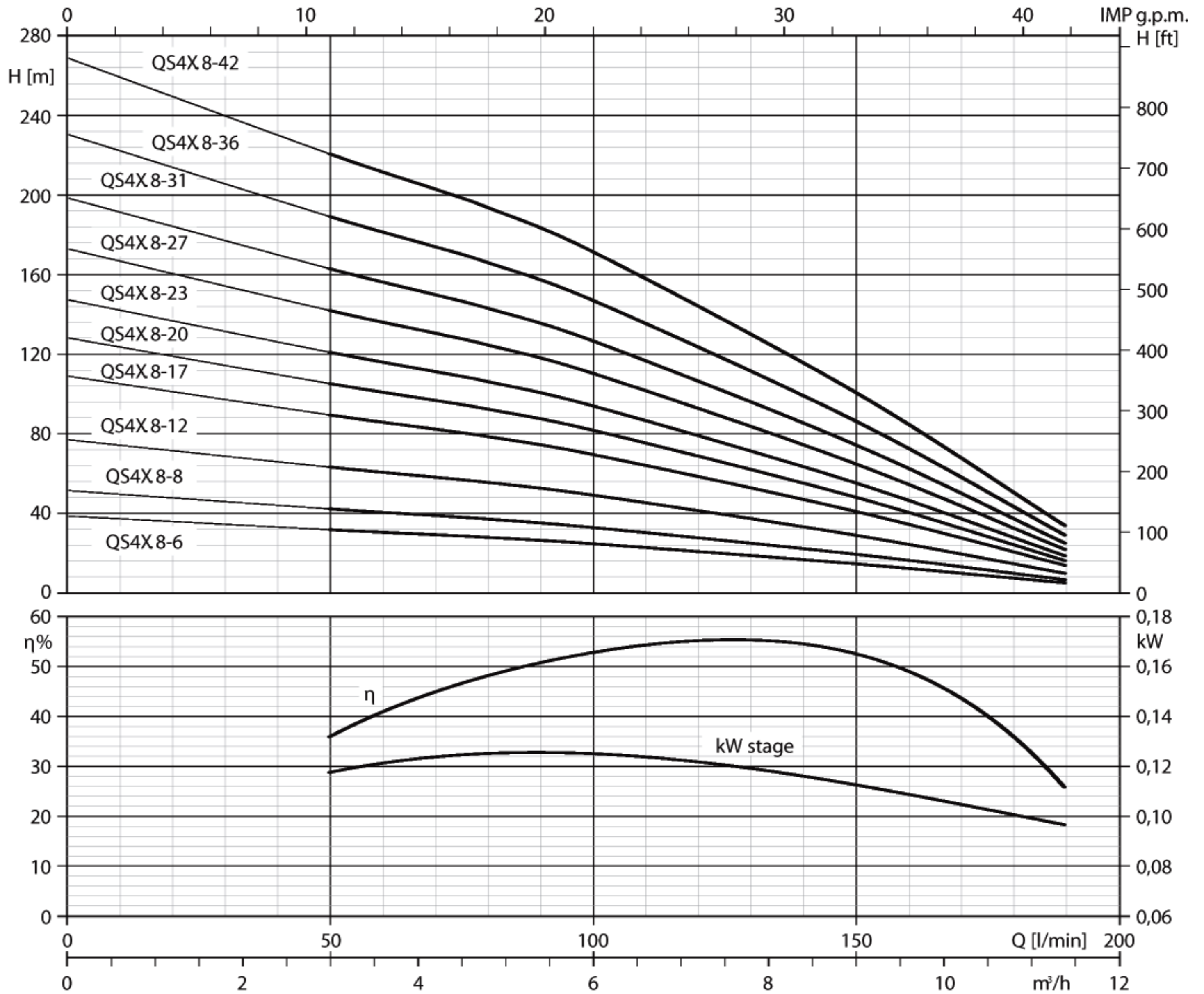
- QS4X 4" pump ends can be fitted with:
    - Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
    - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.



- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.5	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )						LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>		
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F								Power		Minimum Thrust
			m³/h	0	1,8	2,4	3	4,2			4,8	6	
QS4X.5-4	1810103041	24.5	22.9	22.0	21.0	18.5	16.7	12.1	327	3.2	0,37	0,5	1500
QS4X.5-6	1810103061	36.8	34.4	33.0	31.5	27.7	25.0	18.2	392	3.6	0,55	0,75	1500
QS4X.5-8	1810103081	49.1	45.8	44.0	42.0	37.0	33.3	24.2	457	4.0	0,75	1	1500
QS4X.5-13	1810103131	79.7	74.5	71.5	68.3	60.1	54.2	39.4	620	5.1	1,1	1,5	1500
QS4X.5-17	1810103171	104.3	97.4	93.5	89.3	78.5	70.8	51.5	750	6.0	1,5	2	2500
QS4X.5-21	1810103211	128.8	120.3	115.5	110.3	97.0	87.5	63.6	880	6.8	2,2	3	2500
QS4X.5-25	1810103251	153.3	143.3	137.5	131.3	115.5	104.2	75.8	1010	7.6	2,2	3	2500
QS4X.5-29	1810103291	177.9	166.2	159.5	152.3	134.0	120.8	87.9	1172	8.7	3	4	4000
QS4X.5-34	1810103341	208.5	194.8	187.0	178.5	157.1	141.7	103.0	1335	9.8	3	4	4000
QS4X.5-38	1810103381	233.1	217.1	209.0	199.5	175.6	158.3	115.1	1497	11.2	4	5,5	4000
QS4X.5-45	1810103451	276.0	257.9	247.5	236.3	207.9	187.5	136.4	1725	13.0	4	5,5	4000

- QS4X 4" pump ends can be fitted with:
- Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.



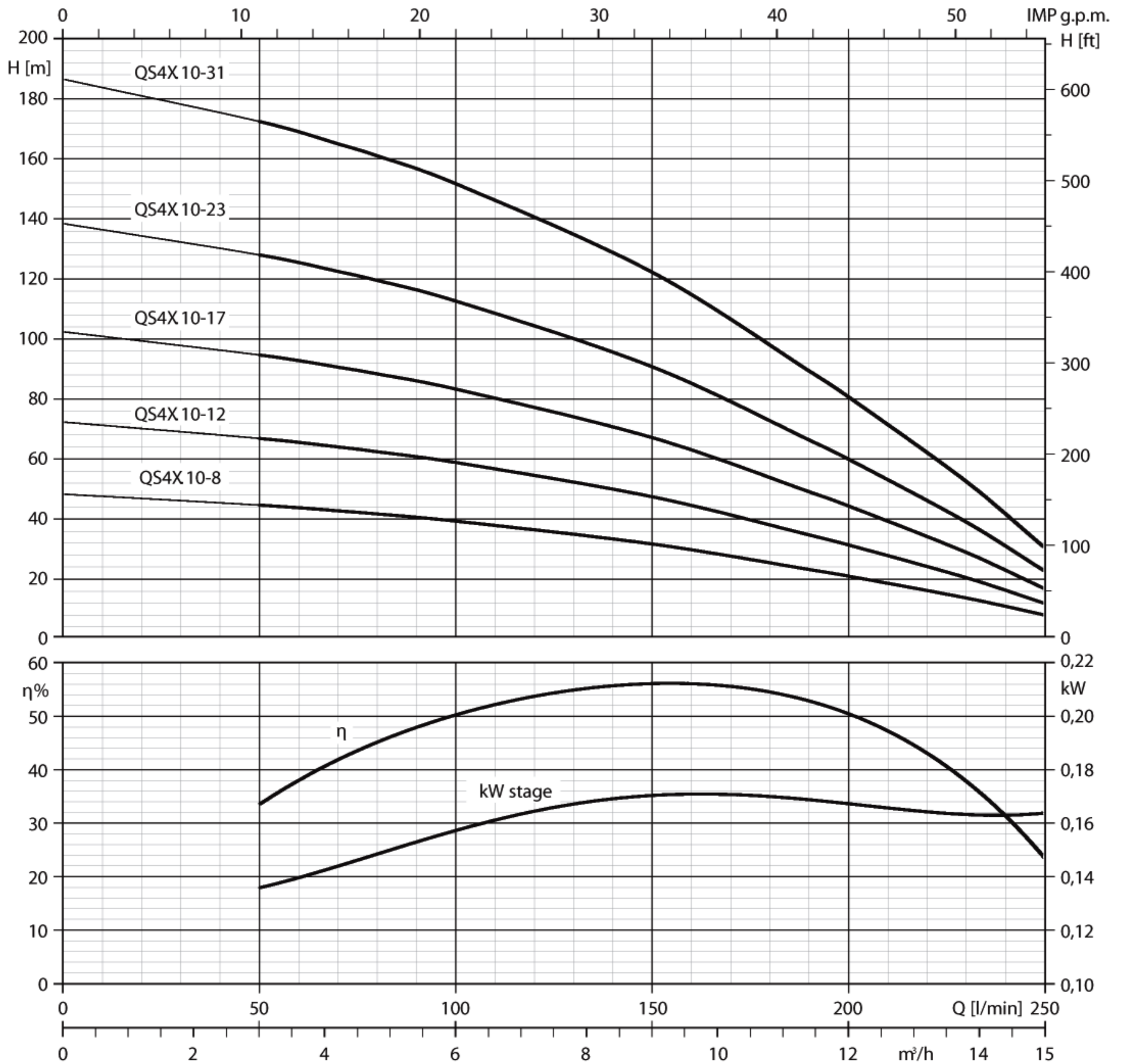
- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.8	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )						LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>		
			Delivery (Q) – Ø Outlet diameter: 2" G-F								Power		Minimum Thrust
			m <sup>3</sup> /h	0	4,2	4,8	6,0	9,0			11,4	kW	
QS4X8-6		1810104061	38.4	29.0	27.7	24.5	14.4	4.8	512	4.2	0,75	1	1500
QS4X8-8		1810104081	51.2	38.6	36.9	32.7	19.2	6.4	617	4.8	1,1	1,5	1500
QS4X8-12		1810104121	76.8	58.0	55.3	49.0	28.8	9.6	827	6.2	1,5	2	1500
QS4X8-17		1810104171	108.8	82.1	78.4	69.4	40.8	13.6	1122	7.8	2,2	3	2500
QS4X8-20		1810104201	128.0	96.6	92.2	81.7	48.0	16.0	1280	8.9	3	4	2500
QS4X8-23		1810104231	147.2	111.1	106.0	93.9	55.2	18.4	1437	9.8	3	4	2500
QS4X8-27		1810104271	172.8	130.4	124.5	110.2	64.8	21.6	1680	11.4	4	5,5	4000
QS4X8-31		1810104311	198.4	149.7	142.9	126.6	74.4	24.8	1890	12.6	4	5,5	4000
QS4X8-36		1810104361	230.4	173.9	166.0	147.0	86.4	28.8	2185	14.4	5,5	7,5	4000
QS4X8-42		1810104421	268.8	202.9	193.6	171.5	100.8	33.6	2500	16.3	5,5	7,5	4000

■ QS4X 4" pump ends can be fitted with:

- Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.





- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.10	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )							LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>			
			Delivery (Q) – Ø Outlet diameter: 2" G-F									Power		Minimum Thrust F[N]	
			m³/h	0	4.2	4.8	6.0	9.0	11.4			13.8	15.0		kW
QS4X.10-8	1810105081	H = total head in meters (dynamic total pressure)	48.2	42.6	41.6	39.2	31.6	23.1	13.6	7.9	617	4.8	1,5	2	1500
QS4X.10-12	1810105121		72.3	64.0	62.4	58.8	47.4	34.7	20.4	11.9	827	6.2	2,2	3	1500
QS4X.10-17	1810105171		102.4	90.6	88.4	83.3	67.2	49.1	28.9	16.8	1122	7.8	3	4	2500
QS4X.10-23	1810105231		138.6	122.6	119.6	112.7	90.9	66.4	39.1	22.8	1437	9.8	4	5,5	4000
QS4X.10-31	1810105311		186.8	165.2	161.2	151.9	122.5	89.5	52.7	30.7	1890	12.7	5,5	7,5	4000

- QS4X 4" pump ends can be fitted with:
    - Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
    - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.

*4" Hydraulic parts.  
Upper head and pump support  
in **TECHNOPOLYMER***

**QS4P characteristics...**

*Each single part of QS4P has been designed with particular care.*

*A stainless steel thread in the pump head allows the pump to be connected easily to any type of pipe. Check-valve, made of resistant thermoplastic material, have been tested to 600.000 water hammers at 37 bar (370 m.c.w.) water pressure.*

*The special design of the hydraulic parts, made of technopolymer, allows the pump to work even in heavy sand conditions. The pump requires a low starting-torque which enables longer life and greater reliability even under conditions of severe voltage drops.*

**What is so special about the design of our hydraulic parts?**

The internal construction of our hydraulic parts consists primarily of five pieces; impeller with metal support ring, diffuser, stage-box, technopolymer bearing and floating vinyl-ring.

ZDS has selected this unique design in order to make the pump much more resistant to sand and equivalent abrasives.

Compared to conventional designs and in some particular conditions, the hydraulic part may need only 25% of the starting torque to start pumping. This makes the ZDS pump a particularly good option when you are challenged with an unstable power supply.



**Details...**

- The check valve is integrated into the upper head to allow the weight of the water column and any water hammer to be discharged without damaging the impellers and diffusers.
- Thick cover cable in technopolymer, resistant and rigid, to protect wires from being damaged during installation.
- Head and pump support in technopolymer, strong and resistant to acid water corrosion (low pH value) and ferrous water.
- Maximum pump overall diameter: 98 mm (cable cover included).
- Recommended maximum quantity of suspended sand: 120 g/m<sup>3</sup>.



## SPECIFICATIONS:

### QS4P.1 - page 19

Max Delivery (Q): 25 l/min (1,5 m<sup>3</sup>/h), Max Head (H): 157 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>

### QS4P.2 - page 20

Max Delivery (Q): 40 l/min (2,4 m<sup>3</sup>/h), Max Head (H): 154 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>

### QS4P.3 - page 21

Max Delivery (Q): 70 l/min (4,2 m<sup>3</sup>/h), Max Head (H): 106 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>

### QS4P.5 - page 22

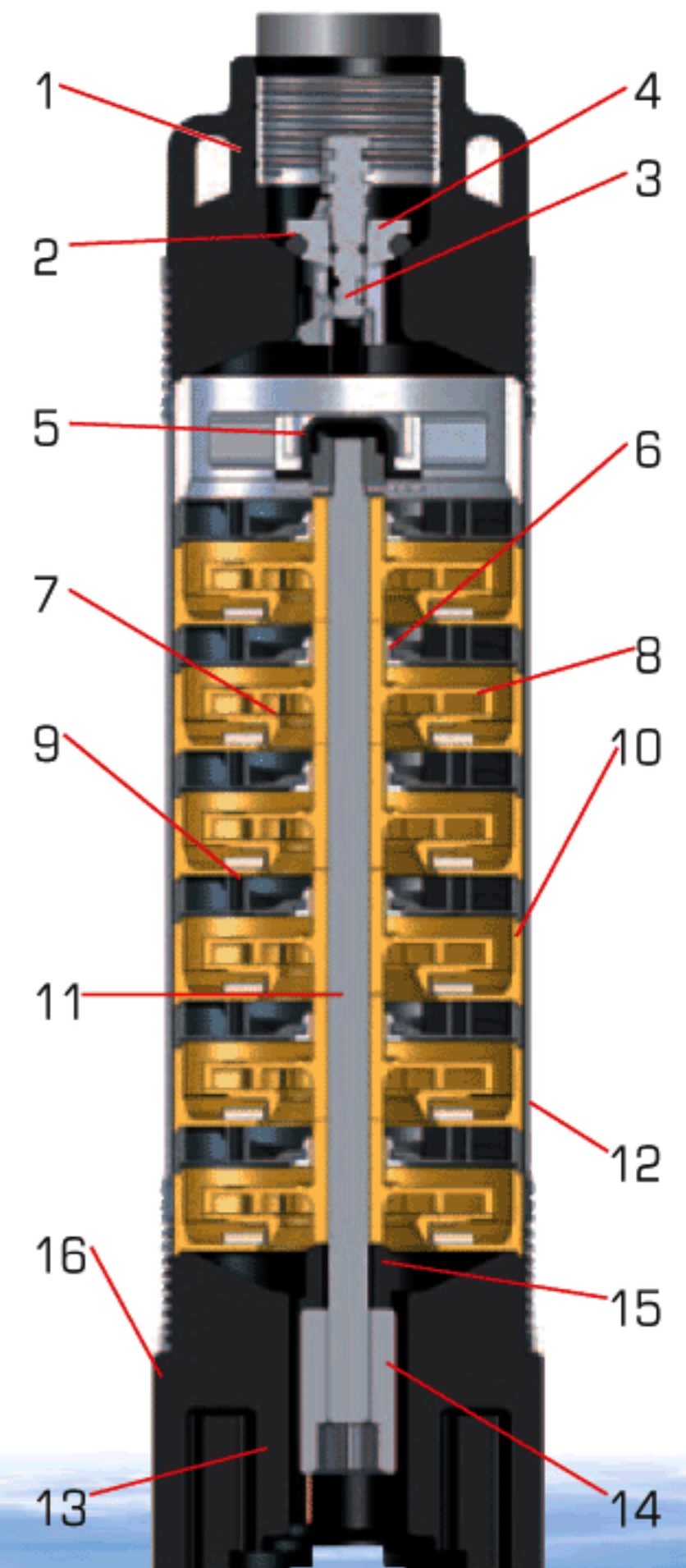
Max Delivery (Q): 100 l/min (6 m<sup>3</sup>/h), Max Head (H): 80 m, outlet diameter 1<sup>1</sup>/<sub>4</sub>

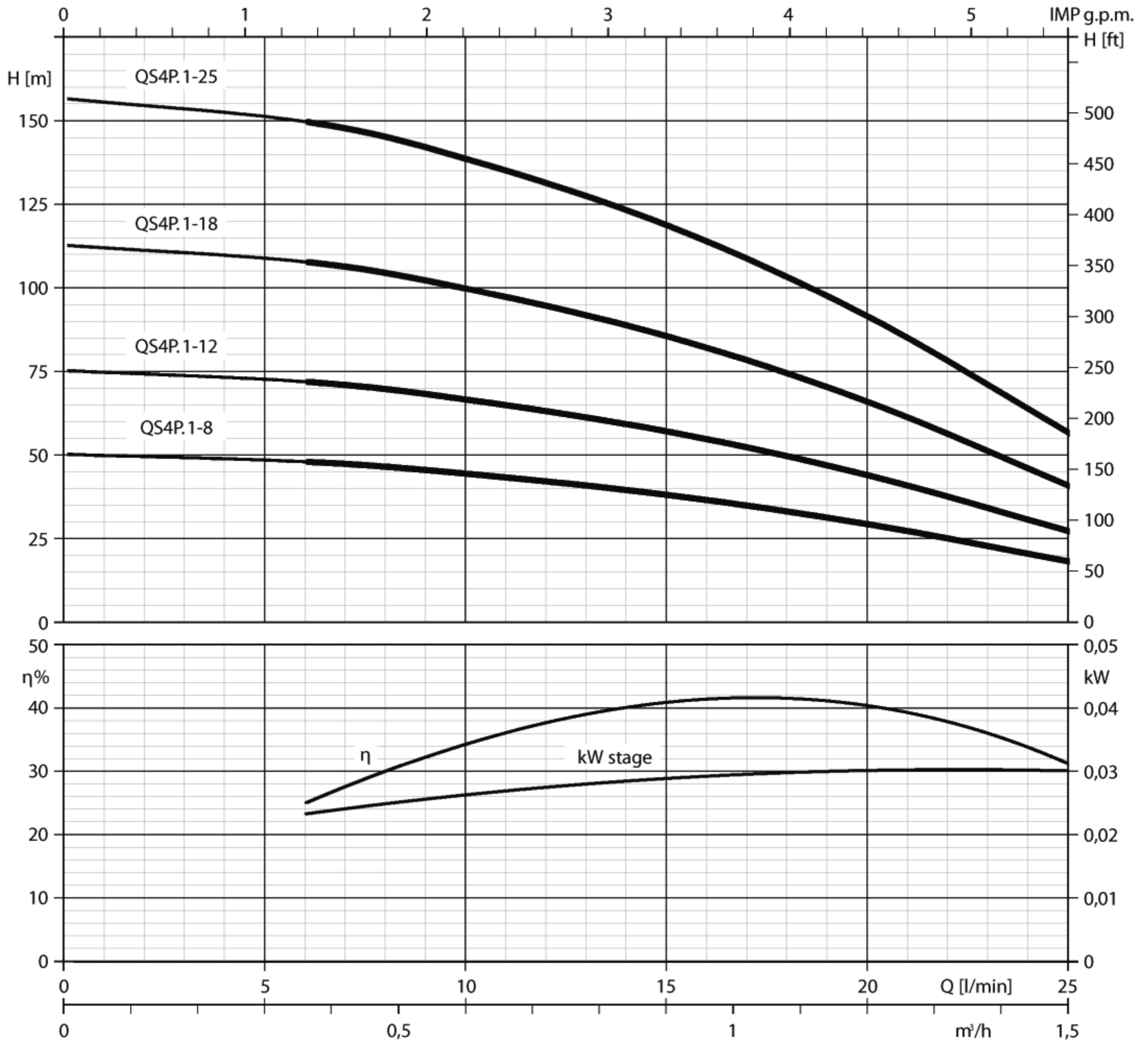


## Construction Characteristics...

- The pump impellers and diffusers are made of technopolymer, a material to improve performance and efficiency and resist corrosion.
- The stainless steel coupling shaft is oversized to resist better mechanical torque.
- Built with floating rings and bushes, which provide excellent resistance to abrasion.

Pos.	COMPONENT	MATERIAL
1	Upper head	Technopolymer
2	O-Ring	NBR
3	Complete valve	Technopolymer
4	Plate valve	Technopolymer
5	Shaft guide	NBR
6	Bearing	Technopolymer
7	Floating ring	Technopolymer
8	Impeller	Technopolymer and stainless steel
9	Diffuser	Technopolymer
10	Stage box	Technopolymer
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	Technopolymer
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Technopolymer
16	Pump support	Technopolymer
-	Cable cover	Technopolymer

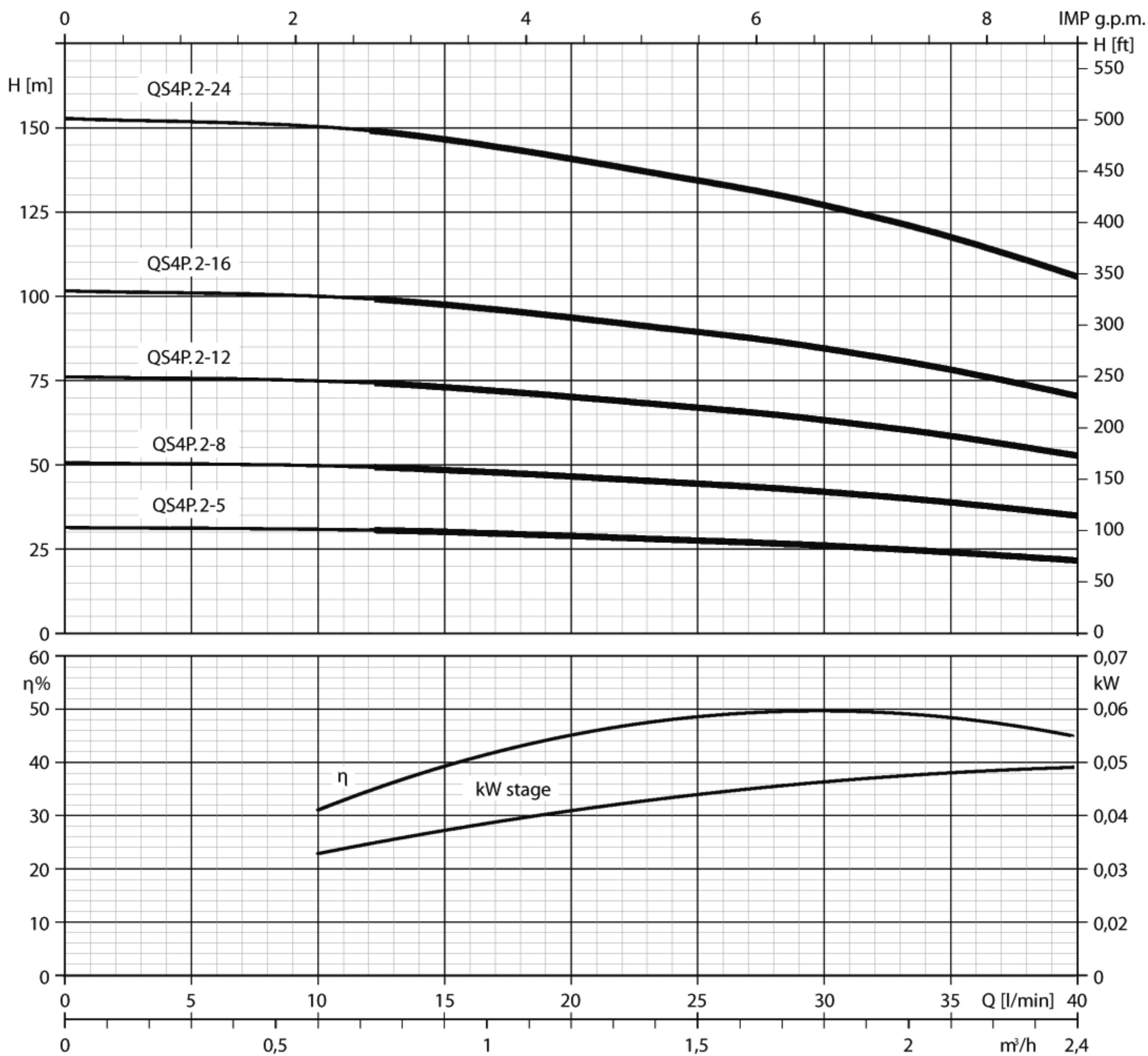




- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.1	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )					LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>			
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F							Power			
			m <sup>3</sup> /h	0	0,36	0,6	1,2			1,5			Minimum Thrust
			l/min	0	6	10	20			25	kW	HP	F[N]
QS4P.1-8		181005008	H = total head in meters (dynamic total pressure)	50,2	48,0	44,4	29,2	18,0	357	2.5	0,25	0,33	1500
QS4P.1-12		181005012		75,4	72,0	66,6	43,8	27,0	437	3.0	0,37	0,5	1500
QS4P.1-18		181005018		113,0	108,0	99,9	65,7	40,5	557	3.9	0,55	0,75	1500
QS4P.1-25		181005025		157,0	150,0	138,8	91,3	56,3	697	4.8	0,75	1	1500

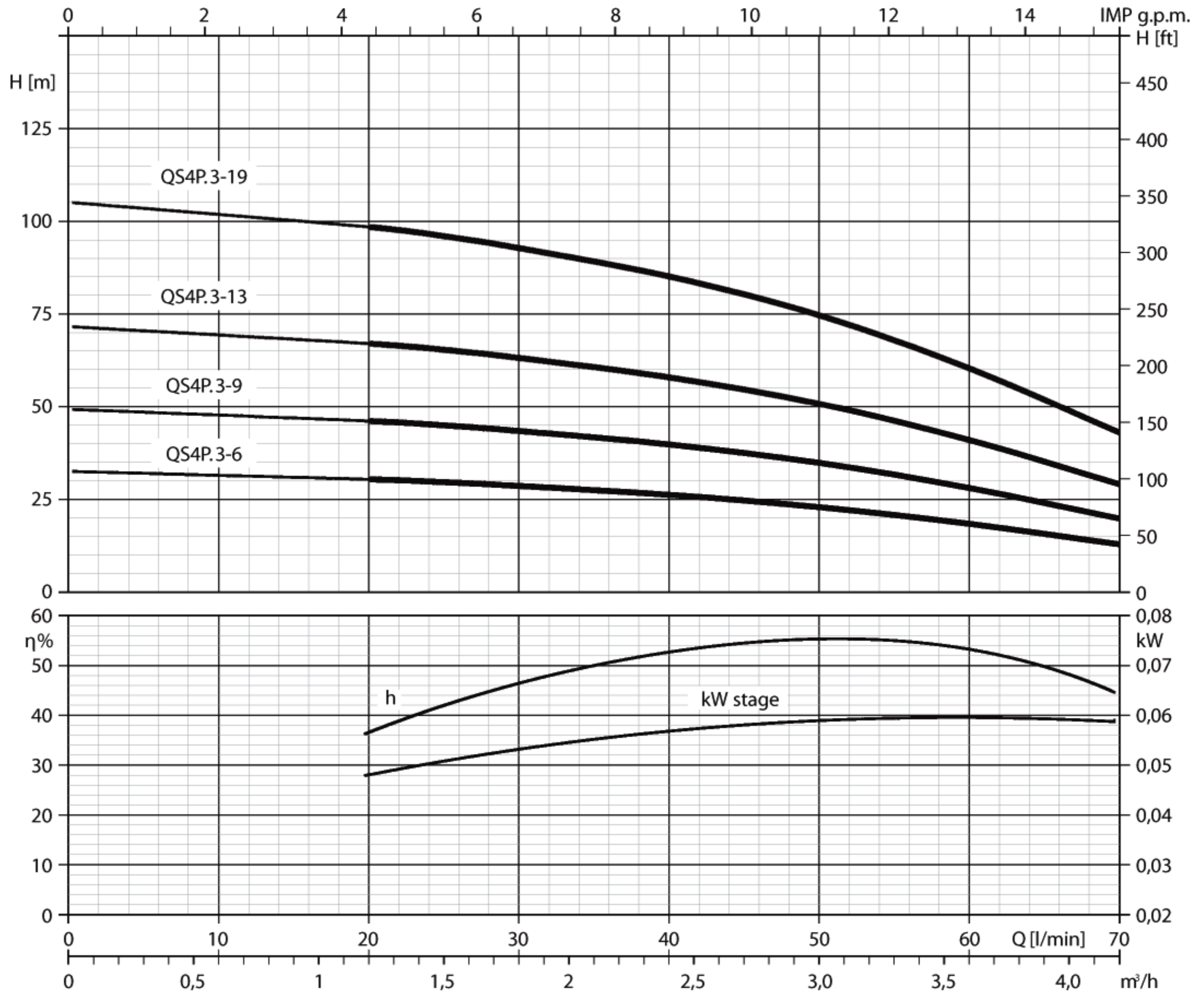
- QS4P 4" pump ends can be fitted with:
  - Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
 Power and Minimum Thrust of a coupled motor must match the ones in the table above.



- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.2	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )						LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>			
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F								Power			
			m <sup>3</sup> /h	0	0,6	1,2	1,5	1,8			2,4	Power		Minimum Thrust
			l/min	0	10	20	25	30			40	kW	HP	F[N]
QS4P.2-5		181005105	H = total head in meters (dynamic total pressure)	32,0	31,2	28,2	26,2	23,5	17,0	310	2.1	0,25	0,33	1500
QS4P.2-8		181005108	51,2	49,9	45.1	41.9	37.6	27.2	377	2.6	0,37	0,5	1500	
QS4P.2-12		181005112	76,8	74.9	67.7	62.9	56.4	40.8	467	3.2	0,55	0,75	1500	
QS4P.2-16		181005116	102,4	99.8	90.2	83.8	75.2	54.4	557	3.8	0,75	1	1500	
QS4P.2-24		181005124	153,6	149.8	135.4	125.8	112.8	81.6	737	5.2	1,1	1,5	2500	

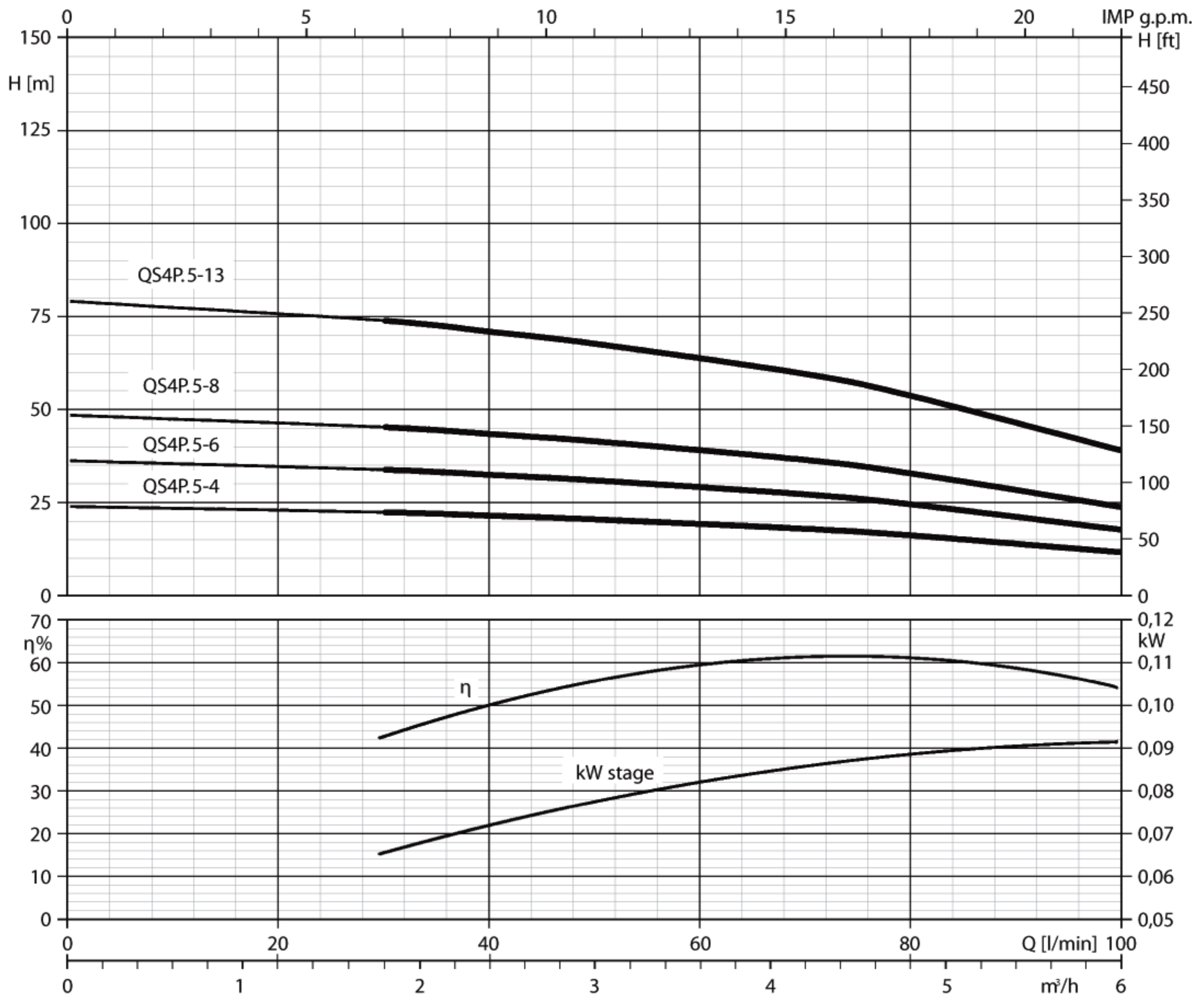
- QS4P 4" pump ends can be fitted with:
  - Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
 Power and Minimum Thrust of a coupled motor must match the ones in the table above.



- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.3	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )							LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>		
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F									Power		Minimum Thrust F[N]
			m³/h	0	1,2	1,5	1,8	2,4	3			4,2	kW	
QS4P.3-6	181005206	H = total head in meters (dynamic total pressure)	33.3	31.2	30.4	29.4	27.0	23.7	13.7	392	2.6	0,37	0,5	1500
QS4P.3-9	181005209		50.0	46.8	45.6	44.1	40.5	35.6	20.6	490	3.2	0,55	0,75	1500
QS4P.3-13	181005213		72.2	67.6	65.9	63.7	58.5	51.4	29.8	620	4.0	0,75	1	1500
QS4P.3-19	181005219		105.5	98.8	96.3	93.1	85.5	75.1	43.5	815	5.6	1,1	1,5	1500

- QS4P 4" pump ends can be fitted with:
    - Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
    - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
- Power and Minimum Thrust of a coupled motor must match the ones in the table above.



- Operating curves at: 2850 min<sup>-1</sup>
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.5	€	Code	HYDRAULIC CHARACTERISTICS (n~2850 min <sup>-1</sup> )							LENGTH [mm]	WEIGHT [kg]	COUPABLE MOTORS 50Hz n~2850 min <sup>-1</sup>		
			Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F									Power		Minimum Thrust F[N]
			m³/h	0	1,8	2,4	3	4,2	4,8			6	kW	
QS4P.5-4	181005304	H = total head in meters (dynamic total pressure)	24.5	22.9	22.0	21.0	18.5	16.7	12.1	327	2.2	0,37	0,5	1500
QS4P.5-6	181005306		36.8	34.4	33.0	31.5	27.7	25.0	18.2	392	2.6	0,55	0,75	1500
QS4P.5-8	181005308		49.1	45.8	44.0	42.0	37.0	33.3	24.2	457	3.0	0,75	1	1500
QS4P.5-13	181005313		79.7	74.5	71.5	68.3	60.1	54.2	39.4	620	4.1	1,1	1,5	1500

- QS4P 4" pump ends can be fitted with:
  - Oil Cooled Motors: single-phase O2 page 23, single-phase O3 page 23, three-phase OT page 25;
  - Water-Cooled Motors: single-phase Franklin H3F page 27, three-phase Franklin HTF page 29;
 Power and Minimum Thrust of a coupled motor must match the ones in the table above.

## 4" Single-phase Oil-Cooled ZDS motors

### **02: 2-wire:**

**does not require control box for starting and running**

### **03: PSC:**

**does require control box for starting and running**

## **Quality in the Well**

*O2 2-wire and O3 PSC are ZDS single-phase submersible motors, cooled by special food grade lubricant, suitable for 4" wells or larger. All motors are manufactured to ISO 9001 standards.*

**\*As of 2010, all ZDS motors come with built-in thermal protection which stops the motor if overheated.**



### **Standard**

- 0,25 - 2,2 kW
- 220V - 240V / 50 Hz
- Voltage tolerance: +6% / -10%  $U_N$
- Thrust capacity: 1.500N; 2.500N; 4.500N

### **Pump Protector – DRP will protect the motor from:**

- Dry running (with automatic restart).
- Frequent starts and stops.
- Overload & surges, such as from lighting.
- Low voltage protection.

### **Specifications**

- **4" NEMA** standard dimensions
- **Stainless Steel Motor Casing**
- **Ball Bearing for axial and radial trust**
- **Degree of protection:** IP68
- **Insulation:** Cl. F
- **Rated Ambient temp.:** max. 40°C
- **Maximum Immersion depth:** 150m
- **Cooling flow:** min 8 cm/sec
- **Starts/h:** 150
- **Mounting:** vertical/horizontal
- **100% of motors are fully tested to all specifications**

#### **The 02**

does not require a control box for starting and running, because the capacitor is built into the motor.

#### **The 03 PSC single-phase motor**

requires a control box CBO for starting and running (see page 33 for more information).



## O2 - 220-240 V

50Hz n~2850 min <sup>-1</sup>	O2- 2-WIRE SINGLE-PHASE OIL- COOLED - Does NOT require control box.															
	€	Code	Cable (m)	V	Power		Thrust [N]	$\eta_n$ [min <sup>-1</sup> ]	$I_n$ [A]	$I_{START}$ [A]	$\eta_{eff}$ [%]	Cos? (P.f)	C450V ( $\mu F$ )	$T_{START}$ $T_n$	L [mm]	W [kg]
					[kW]	[HP]										
O2.025.15.DRP		196195005S	2	220-240	0,25	0,33	1500	2865	2,8 - 2,8	7,2 - 8,0	50	0,99	-	0,80 - 0,85	389	9,6
O2.025.15		196195005L	1,5													8,5
O2.037.15.DRP		196195010S	2	220-240	0,37	0,5	1500	2855	3,3 - 3,3	9,8 - 10,7	52	0,99	-	0,85 - 0,95	389	9,6
O2.037.15		196195010L	1,5													8,5
O2.055.15.DRP		196195015S	2	220-240	0,55	0,75	1500	2840	4,4 - 4,4	12,8 - 13,9	60	0,99	-	0,64 - 0,70	404	10,3
O2.055.15		196195015L	1,5													9,2
O2.075.15.DRP		196195020S	2	220-240	0,75	1	1500	2855	5,8 - 5,8	17,9 - 19,1	62	0,99	-	0,70 - 0,78	429	11,4
O2.075.15		196195020L	1,5													10,3
O2.110.25.DRP		196195025S	2	220-240	1,1	1,5	2500	2855	7,8 - 7,7	23,8 - 24,8	66	0,99	-	0,62 - 0,68	464	13
O2.110.25		196195025L	1,5													11,9

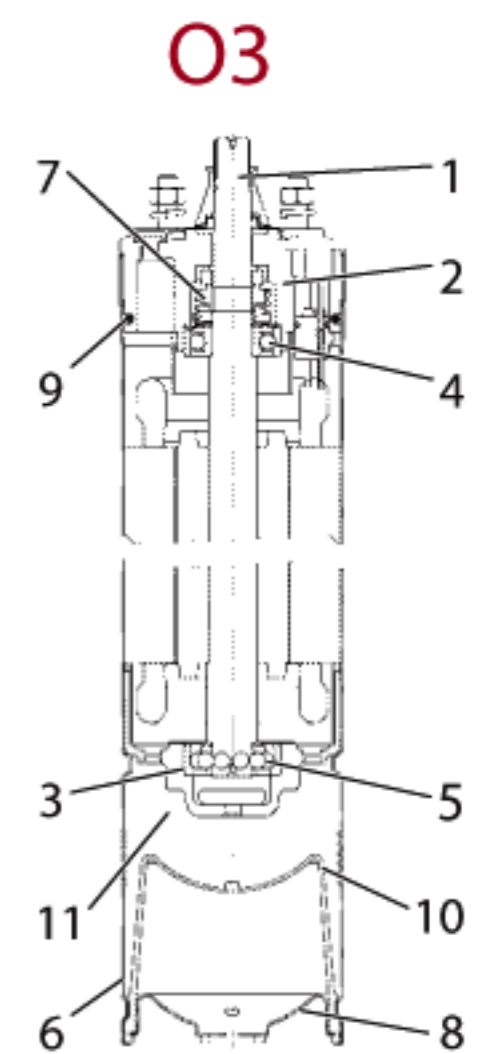
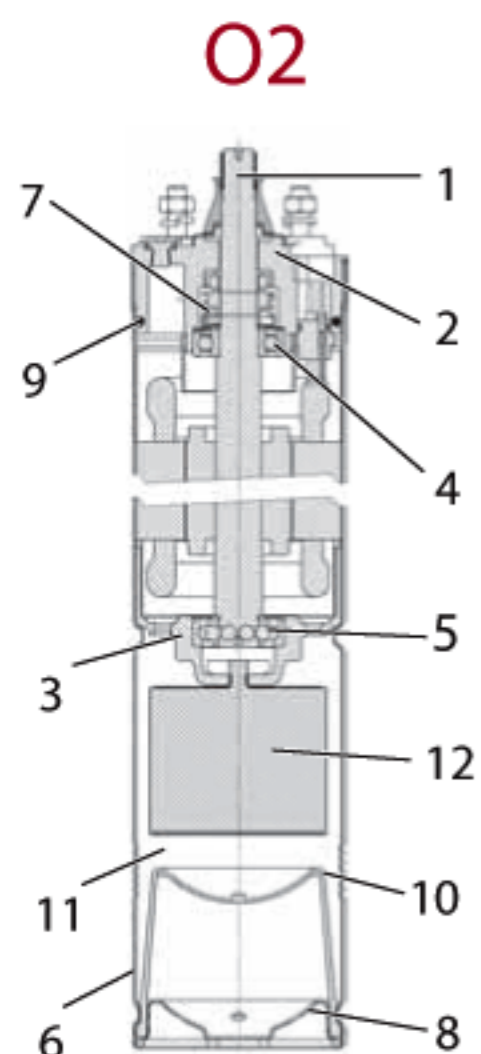
\*Please see page 32 for cable extensions.

## O3 - 220-240 V

50Hz n~2850 min <sup>-1</sup>	O3-PSC SINGLE-PHASE OIL- COOLED - Requires control box.															
	€	Code	Cable (m)	V	Power		Thrust [N]	$\eta_n$ [min <sup>-1</sup> ]	$I_n$ [A]	$I_{START}$ [A]	$\eta_{eff}$ [%]	Cos? (P.f)	C450V ( $\mu F$ )	$T_{START}$ $T_n$	L [mm]	W [kg]
					[kW]	[HP]										
O3.025.15.DRP		196196005S	2	220-240	0,25	0,33	1500	2865	2,8 - 2,8	7,2 - 8,0	50	0,99	20	0,80 - 0,85	324	8,6
O3.025.15		196196005L	1,5													8,0
O3.037.15.DRP		196196010S	2	220-240	0,37	0,5	1500	2855	3,3 - 3,3	9,8 - 10,7	52	0,99	20	0,85 - 0,95	324	8,6
O3.037.15		196196010L	1,5													8,0
O3.055.15.DRP		196196015S	2	220-240	0,55	0,75	1500	2840	4,4 - 4,4	12,8 - 13,9	60	0,99	25	0,64 - 0,70	339	9,2
O3.055.15		196196015L	1,5													8,7
O3.075.15.DRP		196196020S	2	220-240	0,75	1	1500	2855	5,8 - 5,8	17,9 - 19,1	62	0,99	35	0,70 - 0,78	364	10,8
O3.075.15		196196020L	1,5													9,7
O3.110.25.DRP		196196025S	2	220-240	1,1	1,5	2500	2855	7,8 - 7,7	23,8 - 24,8	66	0,99	40	0,62 - 0,68	399	12,4
O3.110.25		196196025L	1,5													11,3
O3.150.25.DRP		196196030S	3	220-240	1,5	2	2500	2855	10,1 - 10,5	33,0 - 34,0	65	0,99	60	0,60 - 0,64	434	14,0
O3.150.25		196196030L	2,5													13,1
O3.150.45.DRP		196196035S	3	220-240	1,5	2	4500	2855	10,1 - 10,5	33,0 - 34,0	65	0,99	60	0,60 - 0,64	457	14,6
O3.150.45		196196035L	2,5													13,7
O3.220.25.DRP		196196040S	3	220-240	2,2	3	2500	2850	14,0 - 14,8	43,0 - 45,0	68	0,99	80	0,60 - 0,64	484	16,3
O3.220.25		196196040L	2,5													15,3
O3.220.45.DRP		196196045S	3	220-240	2,2	3	4500	2850	14,0 - 14,8	43,0 - 45,0	68	0,99	80	0,60 - 0,64	507	16,8
O3.220.45		196196045L	2,5													15,8

\*Please see page 32 for cable extensions. - The Control Box CBO is not included in the price, please see page 33.

Pos.	COMPONENTS	MATERIAL
1	Shaft	Stainless steel AISI 303
2	Top bracket	G20 Cast Iron Nickel plated
3	Bottom bracket	Cast Iron G20
4	Upper bearing	Steel
5	Lower bearing	Steel
6	Motor casing	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Cooling liquid	Food grade lubricant
12	Capacitor	-



## 4" Three-phase Oil-cooled ZDS Motors

### Quality in the Well

OT motors are ZDS three-phase submersible motors, cooled by special food grade lubricant, suitable for 4" wells or larger. All motors are manufactured to ISO 9001 standards. **\*As of 2010, all ZDS OT motors with the pump protector DRP, come with built-in thermal protection which stops the motor if overheated.**

#### Standard

- 0,37 - 5,5 kW
- 3 x 380V-415V
- Voltage tolerance: +6% / -10%  $U_N$
- Thrust capacity: 1.500N; 2.500N; 4.500N

#### Pump Protector – DRP will protect the motor from:

- Dry running (with automatic restart).
- Frequent starts and stops.
- Overload & surges, such as from lighting.
- Low voltage protection.

#### Specifications

- **4" NEMA** standard dimensions
- **Stainless Steel Motor Casing**
- **Ball Bearing for axial and radial thrust**
- **Degree of protection:** IP68
- **Insulation:** Cl. F
- **Rated Ambient temp.:** max. 40°C
- **Maximum Immersion depth:** 150m
- **Cooling flow:** min 8 cm/sec
- **Starts/h:** 150
- **Mounting:** vertical/horizontal
- **100% of motors are fully tested to all specifications**
  
- **An overload protection and a control unit to start and run the motor must be installed according to EN 60947-4-1 Trip time < 10sec. at 5 x  $I_N$**

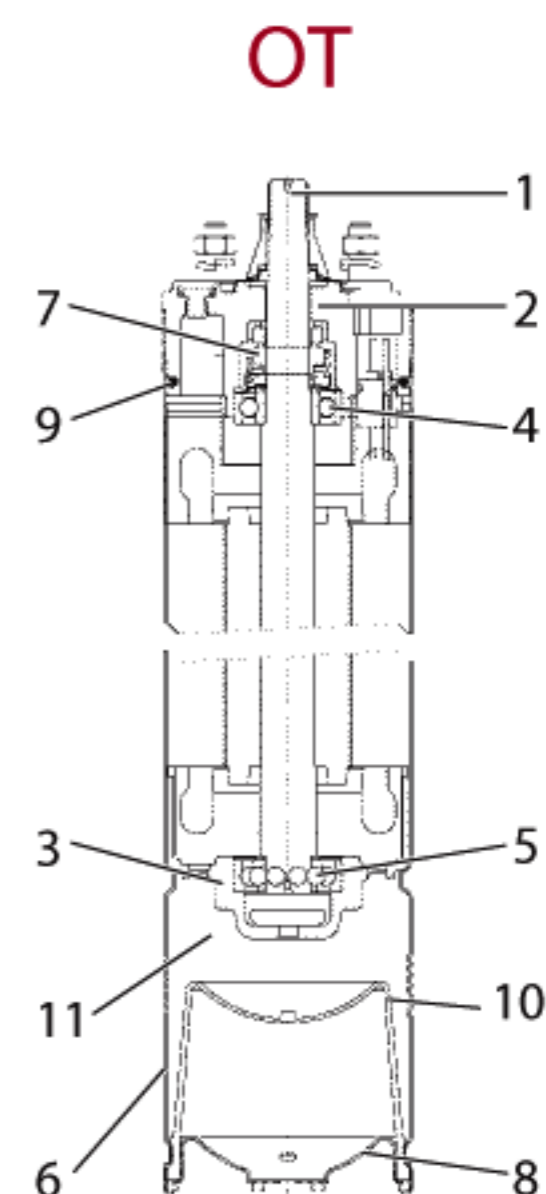


# OT - 380-415 V

50Hz $n \sim 2850 \text{ min}^{-1}$	OT - THREE - PHASE OIL - FILLED														
	€	Code	Cable (m)	V	Power		Thrust [N]	$n_u$ [ $\text{min}^{-1}$ ]	$I_n$ [A]	$I_{START}$ [A]	$\eta \text{ eff}$ [%]	Cos? (P.f)	$T_{START}$ $T_u$	L [mm]	W [kg]
					[kW]	[HP]									
OT.037.15.DRP		184198010S	2	380-415	0,37	0,5	1500	2865-2885	1,5 - 1,7	6,5 - 7,4	58	0,66 - 0,56	4,1	313	8,1
OT.037.15		184198010L	1,5												7,5
OT.055.15.DRP		184198015S	2	380-415	0,55	0,75	1500	2820-2855	1,6 - 1,8	7,6 - 8,3	64	0,77 - 0,67	3	324	8,6
OT.055.15		184198015L	1,5												8,0
OT.075.15.DRP		184198020S	2	380-415	0,75	1	1500	2820-2850	2,3 - 2,6	10,3 - 11,2	66	0,75 - 0,63	3,2	339	9,3
OT.075.15		184198020L	1,5												8,8
OT.110.25.DRP		184198025S	2	380-415	1,1	1,5	2500	2815-2840	3,1 - 3,6	14,0 - 15,2	69	0,76 - 0,64	3,7	364	11,0
OT.110.25		184198025L	1,5												9,9
OT.150.25.DRP		184198030S	3	380-415	1,5	2	2500	2815-2840	4,1 - 4,6	19,6 - 21,4	71	0,77 - 0,66	3,7	399	12,6
OT.150.25		184198030L	2,5												11,6
OT.150.45.DRP		184198035S	3	380-415	1,5	2	4500	2815-2840	4,1 - 4,6	19,6 - 21,4	71	0,77 - 0,66	3,7	422	13,1
OT.150.45		184198035L	2,5												12,2
OT.220.25.DRP		184198040S	3	380-415	2,2	3	2500	2832-2865	5,2 - 5,4	24,2 - 27,0	74	0,86 - 0,76	2,2	434	14,1
OT.220.25		184198040L	2,5												13,1
OT.220.45.DRP		184198045S	3	380-415	2,2	3	4500	2832-2865	5,2 - 5,4	24,2 - 27,0	74	0,86 - 0,76	2,2	457	14,8
OT.220.45		184198045L	2,5												13,8
OT.300.25.DRP		184198050S	3	380-415	3	4	2500	2820-2855	7,0 - 7,2	33,7 - 36,8	75	0,85 - 0,76	3,2	434	14,9
OT.300.25		184198050L	2,5												13,9
OT.300.45.DRP		184198055S	3	380-415	3	4	4500	2820-2855	7,0 - 7,2	33,7 - 36,8	75	0,85 - 0,76	3,2	457	15,5
OT.300.45		184198055L	2,5												14,5
OT.400.25.DRP		184198060S	3	380-415	4	5,5	2500	2825-2860	9,3 - 9,8	42,9 - 46,8	76	0,84 - 0,75	2,8	484	17,4
OT.400.25		184198060L	2,5												16,3
OT.400.45.DRP		184198065S	3	380-415	4	5,5	4500	2825-2860	9,3 - 9,8	42,9 - 46,8	76	0,84 - 0,75	2,8	507	18,0
OT.400.45		184198065L	2,5												16,9
OT.550.45		184198070L	2,5	380-415	5,5	7,5	4500	2820-2850	12,2 - 12,6	56,8 - 62,0	78	0,80 - 0,70	2,7	572	20,5

\*Please see page 32 for cable extensions.

Pos.	COMPONENTS	MATERIAL
1	Shaft	Stainless steel AISI 303
2	Top bracket	G20 Cast Iron Nickel plated
3	Bottom bracket	Cast Iron G20
4	Upper bearing	Steel
5	Lower bearing	Steel
6	Motor casing	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Cooling liquid	Food grade lubricant



## 4" Single-phase encapsulated **Water-Cooled Franklin motors**

### **Quality in the Well**

Franklin Electric's 4" PSC motors are for operation with permanent split capacitor and overload. PSC motors are the choice for dependable, maintenance-free operation, and provide long life for your submersible pump operation.



### **Product features:**

- Hermetically sealed stator
- Water lubricated radial and thrust bearing
- Corrosion resistant AISI 304 SS material
- Removable Water Bloc™ motor cable connector
- Anti-track, self healing stator resin prevents motor burn out
- High efficiency electrical design (lower operating cost, cooler winding temperature)
- Non-contaminating, water-filled design
- KTW-approved material

### **Standard**

- 0,25 - 2,2 kW
- 220V - 230V / 50 Hz
- 230V - 240V / 50 Hz
- Thrust capacity:  
1.500N; 3.000N; 4.000N
- Motor for permanent split capacitor

### **Options**

- VDE approved motor cable
- Built-in lightning arrester
- Built-in overload protection (0,25 - 0,75 kW)

### **Pump Protector – DRP will protect the motor from:**

- Dry running (with automatic restart).
- Frequent starts and stops.
- Overload & surges, such as from lightning.
- Low voltage protection.

### **Specifications**

- 4" NEMA flange
- Degree of protection:** IP 68
- Insulation:** Cl. B
- Ambient temp.:** 30°C
- Cooling flow:** min. 8cm/sec.
- Starts/h:** 20
- Mounting:** Vertical/horizontal
- Voltage tolerance:** +6% / -10%  $U_N$
- Motor protection:** Select thermal overloads according to EN 60947-4-1  
Trip time < 10sec. at  $5 \times I_N$

**The H3F does require a control box for starting and running (available on request)**

The H3F PSC Franklin single-phase motor does require a CBH control box with a permanent split capacitor, see page 33.

# H3F - 220-230 V



50Hz n~2850 min <sup>-1</sup>	H3F - PSC SINGLE-PHASE FRANKLIN WATER -COOLED MOTOR & CABLE & SINGLE PACK. Requires control box.															
	€	Code	Cable (m)	Franklin Code	Power		Thrust	$\eta_n$	$I_n$	$I_{START}$	$\eta_{eff}$	Cos ?	C450V	$T_{START}$	L	W
					[kW]	[HP]										
H3F.025.15.DRP		196191105S	2	254 803 1621L	0,25	0,33	1500	2865	2,8	7,2 - 8,4	54-50	0,92	12,5	0,95 - 1,05	223	8,7
H3F.025.15		196191105L	1,5													8,2
H3F.037.15.DRP		196191110S	2	254 805 1621L	0,37	0,5	1500	2855	3,3	10,7 - 11,2	56-53	0,95	16,0	0,76 - 0,84	242,1	9,5
H3F.037.15		196191110L	1,5													9,0
H3F.055.15.DRP		196191115S	2	254 807 1621L	0,55	0,75	1500	2850	4,4	15,4 - 16,1	64-63	0,96	20,0	0,69 - 0,76	270,8	10,8
H3F.055.15		196191115L	1,5													10,3
H3F.075.15.DRP		196191120S	2	254 808 1621L	0,75	1	1500	2850	5,8	20,2 - 21,1	61-60	0,99	30,0	0,81 - 0,89	298,5	12,2
H3F.075.15		196191120L	1,5													11,7
H3F.110.30.DRP		196191125S	2	254 809 1621L	1,1	1,5	3000	2850	7,8	30,1 - 31,5	64-62	0,96	40,0	0,76 - 0,84	327,2	13,7
H3F.110.30		196191125L	1,5													13,0
H3F.150.30.DRP		196191130S	3	254 810 1621L	1,5	2	3000	2815	10,5	33,9 - 35,4	67-66	0,97	50,0	0,66 - 0,73	355,9	15,2
H3F.150.30		196191130L	2,5													14,5
H3F.220.40.DRP		196191135S	3	254 811 2521L	2,2	3	4000	2825	10,5	54,2 - 56,7	65-66	0,98	70,0	0,59 - 0,65	460,4	19,8
H3F.220.40		196191135L	2,5													19,2

\*Please see page 32 for cable extensions. - The Control Box CBH is not included in the price, please see page 33.

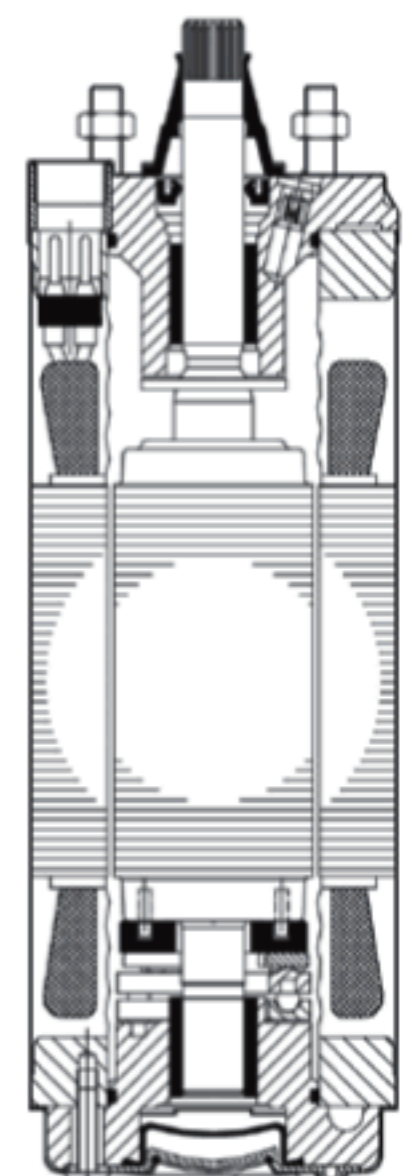
# H3F - 230-240 V



50Hz n~2850 min <sup>-1</sup>	H3F - PSC SINGLE-PHASE FRANKLIN WATER -COOLED MOTOR & CABLE & SINGLE PACK. Requires control box.															
	€	Code	Cable (m)	Franklin Code	Power		Thrust	$\eta_n$	$I_n$	$I_{START}$	$\eta_{eff}$	Cos ?	C450V	$T_{START}$	L	W
					[kW]	[HP]										
H3F.026.15.DRP		196191205S	2	254 813 1621L	0,25	0,33	1500	2861	2,3	7,4 - 7,7	53-50	0,93	12,5	0,95 - 1,04	223	8,7
H3F.026.15		196191205L	1,5													8,2
H3F.038.15.DRP		196191210S	2	254 815 1621L	0,37	0,5	1500	2870	3,1	10,4 - 10,9	58-55	0,93	16,0	0,87 - 0,95	242,1	9,5
H3F.038.15		196191210L	1,5													9,0
H3F.056.15.DRP		196191215S	2	254 817 1621L	0,55	0,75	1500	2840	4,1	14 - 14,6	63-62	0,97	20,0	0,68 - 0,75	270,8	10,8
H3F.056.15		196191215L	1,5													10,3
H3F.076.15.DRP		196191220S	2	254 818 1621L	0,75	1	1500	2845	5,4	18,5 - 19,3	62-60	0,98	30,0	0,78 - 0,86	298,5	12,2
H3F.076.15		196191220L	1,5													11,7
H3F.111.30.DRP		196191225S	2	254 819 1621L	1,1	1,5	3000	2840	8,1	27 - 28,2	64-63	0,97	40,0	0,68 - 0,75	327,2	13,7
H3F.111.30		196191225L	1,5													13,0
H3F.151.30.DRP		196191230S	3	254 820 1621L	1,5	2	3000	2820	10,3	32,9 - 34,3	66-65	0,98	50,0	0,64 - 0,70	355,9	15,2
H3F.151.30		196191230L	2,5													14,5
H3F.221.40.DRP		196191235S	3	254 821 2521L	2,2	3	4000	2830	15,4	51 - 53,2	65-64	0,98	70,0	0,56 - 0,62	460,4	19,8
H3F.221.40		196191235L	2,5													19,2

\*Please see page 32 for cable extensions. - The Control Box CBH is not included in the price, please see page 33.

PART	MATERIAL DIN / AISI
Shell	1.4301
Top endbell, cover	1.4301
Upper endbell	Cast Iron claded
Lower endbell	Cast Iron claded
Bottom endbell cover	1.4301
Diaphragm cover	1.4310
Stud	1.4305
Nut	1.4305
Shaft seal	Lip seal BUNA N
Seal cover	Delrin 500
Slinger	BUNA N
Shaft end	1.4305
Diaphragm	BUNA N
Lead	EPDM
Jam nut (lead)	Brass
Lead sleeve	Ni - plated
Lead bushing	Neoprene
Other seals	BUNA N



## 4" Three-phase encapsulated **Water-Cooled Franklin motors**

### **Quality in the Well**

Franklin Electric's 4" three-phase Motors are manufactured according to ISO 9001 standards. These motors are built for dependable, maintenance-free operation and provide long life for your submersible pump operation.



### **Product features:**

- Hermetically sealed stator
- Water lubricated radial and thrust bearing
- Corrosion resistant AISI 304 SS material
- Removable Water Bloc™ motor cable connector
- Anti-track, self healing stator resin prevents motor burn out
- High efficiency electrical design (lower operating cost, cooler winding temperature)
- Non-contaminating, water-filled design
- KTW-approved material

### **Standard**

- 0,37 - 7,5kW
- 220V - 230 V / 50 Hz
- 380V - 415V / 50 Hz
- Thrust capacity:  
1.500N; 3.000N; 4.000N; 6.500N

### **Options**

- VDE approved motor cable
- Special voltages
- AISI 316 Stainless Steel

### **Pump Protector – DRP will protect the motor from:**

- Dry running (with automatic restart).
- Frequent starts and stops.
- Overload & surges, such as from lighting.
- Low voltage protection.

### **Specifications**

4" NEMA flange  
**Degree of protection:** IP 68  
**Insulation:** Cl. B  
**Ambient temp.:** 30°C at min. cooling flow 8cm/sec.  
**Cooling flow:** min. 8cm/sec.  
**Starts/h:** 20  
**Mounting:** Vertical/horizontal  
**Voltage tolerance:** +6% / -10%  $U_N$   
**Motor protection:** Select thermal overloads according to EN 60947-4-1  
 Trip time < 10sec. at  $5 \times I_N$

**On three-phase Franklin HTF motor** for starting, running and overload protection must be provided by users.

**Motor protection** must be guaranteed in accordance with EN60947-4-1 trip time <10 s a  $5 \times I_N$  norms.

# HTF - 380-415 V



50Hz n~2850 min <sup>-1</sup>	HTF - THREE - PHASE FRANKLIN WATER - COOLED MOTOR & CABLE & SINGLE PACK														
	€	Code	Cable (m)	Franklin Code	Power		Thrust [N]	n <sub>m</sub> [min <sup>-1</sup> ]	I <sub>n</sub> [A]	I <sub>START</sub> [A]	η eff [%]	Cos? (P.f)	T <sub>START</sub> T <sub>n</sub>	L [mm]	W [kg]
					[kW]	[HP]									
HTF.037.15.DRP		184192010S	2	234 761 1621L	0,37	0,5	1500	2850	1,1 - 1,2	4,4 - 4,9	66	0,76 - 0,76	2,08	252	8,8
HTF.037.15		184192010L	1,5												8,3
HTF.055.15.DRP		184192015S	2	234 762 1621L	0,55	0,75	1500	2850	1,6 - 1,7	6,0 - 6,6	67	0,80 - 0,80	1,84	272	9,8
HTF.055.15		184192015L	1,5												9,3
HTF.075.15.DRP		184192020S	2	234 763 1621L	0,75	1	1500	2850	2,1 - 2,2	8,9 - 9,8	69	0,79 - 0,71	2,12	297	11,1
HTF.075.15		184192020L	1,5												10,6
HTF.110.30.DRP		184192025S	2	234 724 1621L	1,1	1,5	3000	2850	3,0 - 3,1	13,8 - 15,3	73	0,81 - 0,72	2,86	317	12,3
HTF.110.30		184192025L	1,5												11,8
HTF.150.30.DRP		184192030S	2	234 725 1621L	1,5	2	3000	2850	3,9 - 4,1	18,6 - 20,2	73	0,81 - 0,72	2,52	332	13,8
HTF.150.30		184192030L	1,5												13,1
HTF.220.40.DRP		184192035S	3	234 726 2521L	2,2	3	4000	2850	5,8 - 6,3	28,7 - 30,8	75	0,81 - 0,79	3,14	362	16,2
HTF.220.40		184192035L	2,5												15,5
HTF.300.40.DRP		184192040S	3	234 764 2521L	3	4	4000	2850	7,5 - 8,2	39,9 - 43,3	76	0,81 - 0,70	3,18	437	19,2
HTF.300.40		184192040L	2,5												18,6
HTF.400.65.DRP		184192045S	3	234 765 3421L	4	5,5	6500	2850	9,8 - 10,3	55,0 - 60,0	78	0,84 - 0,73	3,36	587	26,7
HTF.400.65		184192045L	2,5												26,1
HTF.550.65		184192050L	2,5	234 728 3421L	5,5	7,5	6500	2850	13,5 - 14,2	72,0 - 79,0	76	0,84 - 0,74	2,77	701	31,7
HTF.750.65		184192055L	2,5	234 729 3421L	7,5	10	6500	2850	18,3 - 17,4	96,0 - 102	74	0,84 - 0,79	3,58	780	35,3

\*Please see page 32 for cable extensions.

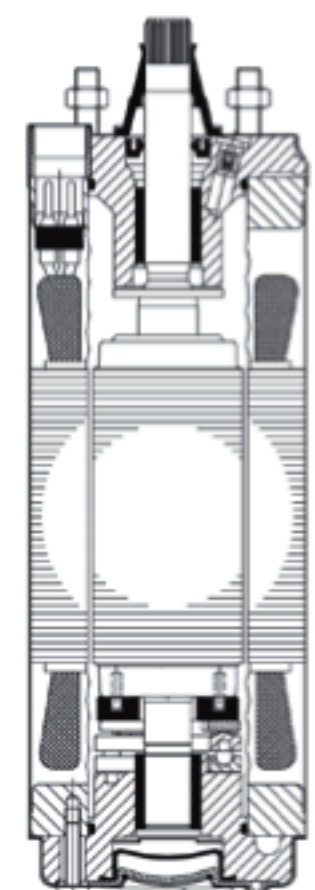
# HTF - 220-230 V



50Hz n~2850 min <sup>-1</sup>	HTF - THREE - PHASE FRANKLIN WATER - COOLED MOTOR & CABLE & SINGLE PACK														
	€	Code	Cable (m)	Franklin Code	Power		Thrust [N]	n <sub>m</sub> [min <sup>-1</sup> ]	I <sub>n</sub> [A]	I <sub>START</sub> [A]	η eff [%]	Cos? (P.f)	T <sub>START</sub> T <sub>n</sub>	L [mm]	W [kg]
					[kW]	[HP]									
HTF.038.15.DRP		197192010S	2	234 751 1621L	0,37	0,5	1500	2850	1,9 - 2,0	7,7 - 8,2	66	0,76 - 0,76	2,08	252	8,8
HTF.038.15		197192010L	1,5												8,3
HTF.056.15.DRP		197192015S	2	234 752 1621L	0,55	0,75	1500	2850	2,8 - 2,9	10,4 - 11,1	67	0,80 - 0,80	1,84	272	9,8
HTF.056.15		197192015L	1,5												9,3
HTF.076.15.DRP		197192020S	2	234 753 1621L	0,75	1	1500	2850	3,6 - 3,7	15,4 - 16,2	69	0,79 - 0,71	2,12	297	11,1
HTF.076.15		197192020L	1,5												10,6
HTF.111.30.DRP		197192025S	2	234 754 1621L	1,1	1,5	3000	2850	5,2 - 5,3	23,8 - 25,2	73	0,81 - 0,72	2,81	317	12,3
HTF.111.30		197192025L	1,5												11,8
HTF.151.30.DRP		197192030S	2	234 755 1621L	1,5	2	3000	2850	6,8 - 6,9	32,1 - 33,0	73	0,81 - 0,72	2,52	332	13,8
HTF.151.30		197192030L	1,5												13,1
HTF.221.40.DRP		197192035S	3	234 756 2521L	2,2	3	4000	2850	10,0 - 10,2	49,9 - 50,3	75	0,81 - 0,79	3,14	362	16,2
HTF.221.40		197192035L	2,5												15,5
HTF.301.40		197192040L	2,5	234 766 3421L	3	4	4000	2850	13,0 - 13,5	67,5 - 69,4	76	0,81 - 0,70	3,31	437	18,6
HTF.401.65		197192045L	2,5	234 767 3421L	4	5,5	6500	2850	17,1 - 17,3	95,0 - 99,0	78	0,84 - 0,73	3,36	587	26,1
HTF.551.65		197192050L	2,5	234 758 3421L	5,5	7,5	6500	2850	23,3 - 24,5	125 - 129	76	0,84 - 0,74	2,88	701	31,7

\*Please see page 32 for cable extensions.

PART	MATERIAL DIN / AISI
Shell	1.4301
Top endbell, cover	1.4301
Upper endbell	Cast Iron clad
Lower endbell	Cast Iron clad
Bottom endbell cover	1.4301
Diaphragm cover	1.4310
Stud	1.4305
Nut	1.4305
Shaft seal	Lip seal BUNA N
Seal cover	Delrin 500
Slinger	BUNA N
Shaft end	1.4305
Diaphragm	BUNA N
Lead	EPDM
Jam nut (lead)	Brass
Lead sleeve	Ni - plated
Lead bushing	Neoprene
Other seals	BUNA N



## Cable Extension for 4" submerged ZDS and Franklin motors

The following cable extensions must be ordered together with a ZDS or Franklin motor listed on pages 23-29. Please consult the "Quick Guide" on page 32 for the required cable section.



Cable Extension for 4" ZDS motors - Single-Phase 2-Wire - O2					
Model	€	Section (mm <sup>2</sup> )	Code	Description	W (kg)
CX.15.3x1		3x1	081505100	15 m of lead cable H07 3x1	1,7
CX.30.3x1		3x1	081505105	30 m of lead cable H07 3x1	3,4
CX.45.3x1		3x1	081505107	45 m of lead cable H07 3x1	5,1
CX.60.3x1		3x1	081505110	60 m of lead cable H07 3x1	6,7
CX.15.3x1,5		3x1,5	081505112	15 m of lead cable H07 3x1,5	2,0
CX.30.3x1,5		3x1,5	081505113	30 m of lead cable H07 3x1,5	3,9
CX.45.3x1,5		3x1,5	081505115	45 m of lead cable H07 3x1,5	5,9
CX.60.3x1,5		3x1,5	081505120	60 m of lead cable H07 3x1,5	7,9
CX.90.3x1,5		3x1,5	081505125	90 m of lead cable H07 3x1,5	11,8
CX.120.3x1,5		3x1,5	081505124	120 m of lead cable H07 3x1,5	15,7
CX.30.3x2,5		3x2,5	081505126	30 m of lead cable H07 3x2,5	6,1
CX.45.3x2,5		3x2,5	081505127	45 m of lead cable H07 3x2,5	9,1
CX.60.3x2,5		3x2,5	081505130	60 m of lead cable H07 3x2,5	12,1
CX.90.3x2,5		3x2,5	081505135	90 m of lead cable H07 3x2,5	18,1
CX.120.3x2,5		3x2,5	081505140	120 m of lead cable H07 3x2,5	24,1
CX.90.3x4		3x4	081505143	90 m of lead cable H07 3x4	25,3
CX.120.3x4		3x4	081505145	120 m of lead cable H07 3x4	33,7

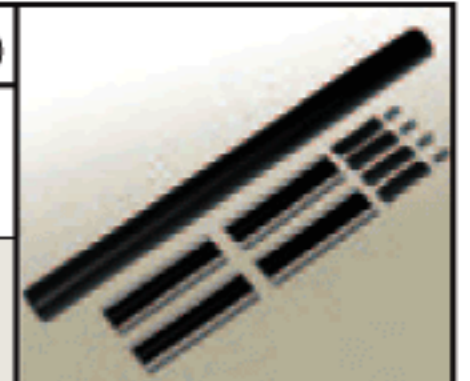
Cable Extension for 4" ZDS & Franklin motors - Single-Phase PSC 03 - PSC H3F or Three-Phase - OT - HTF					
Model	€	Section (mm <sup>2</sup> )	Code	Description	W (kg)
CX.15.4x1		4x1	081505200	15 m of lead cable H07 4x1	2,0
CX.30.4x1		4x1	081505205	30 m of lead cable H07 4x1	4,0
CX.45.4x1		4x1	081505206	45 m of lead cable H07 4x1	6,0
CX.60.4x1		4x1	081505207	60 m of lead cable H07 4x1	8,0
CX.90.4x1		4x1	081505208	90 m of lead cable H07 4x1	10,0
CX.15.4x1,5		4x1,5	081505210	15 m of lead cable H07 4x1,5	2,6
CX.30.4x1,5		4x1,5	081505215	30 m of lead cable H07 4x1,5	5,2
CX.45.4x1,5		4x1,5	081505220	45 m of lead cable H07 4x1,5	7,7
CX.60.4x1,5		4x1,5	081505225	60 m of lead cable H07 4x1,5	10,3
CX.90.4x1,5		4x1,5	081505230	90 m of lead cable H07 4x1,5	15,4
CX.120.4x1,5		4x1,5	081505231	120 m of lead cable H07 4x1,5	20,5
CX.15.4x2,5		4x2,5	081505232	15 m of lead cable H07 4x2,5	3,7
CX.30.4x2,5		4x2,5	081505233	30 m of lead cable H07 4x2,5	7,3
CX.45.4x2,5		4x2,5	081505234	45 m of lead cable H07 4x2,5	10,9
CX.60.4x2,5		4x2,5	081505235	60 m of lead cable H07 4x2,5	14,5
CX.90.4x2,5		4x2,5	081505240	90 m of lead cable H07 4x2,5	21,7
CX.120.4x2,5		4x2,5	081505245	120 m of lead cable H07 4x2,5	28,9
CX.45.4x4		4x4	081505248	45 m of lead cable H07 4x4	10,3
CX.60.4x4		4x4	081505249	60 m of lead cable H07 4x4	20,5
CX.90.4x4		4x4	081505250	90 m of lead cable H07 4x4	30,7
CX.120.4x4		4x4	081505255	120 m of lead cable H07 4x4	40,9

## Borehole Cable and Heat-Shrink Connection Kit

CABLES WITHOUT CONNECTORS FOR 2-WIRE SINGLE-PHASE 4" MOTORS O2				
Model	€	Code	Description	W (kg/m)
H07 - 3x1 mm <sup>2</sup>		081510001	Section 3x1 mm <sup>2</sup>	0,11
H07 - 3x1,5 mm <sup>2</sup>		081510002	Section 3x1,5 mm <sup>2</sup>	0,13
H07 - 3x2,5 mm <sup>2</sup>		081510003	Section 3x2,5 mm <sup>2</sup>	0,20
H07 - 3x4 mm <sup>2</sup>		081510004	Section 3x4 mm <sup>2</sup>	0,28

CABLES WITHOUT CONNECTORS FOR PSC SINGLE-PHASE 4" MOTORS O3 AND H3F, AS WELL AS FOR THREE-PHASE MOTORS HTF AND OT				
Model	€	Code	Description	W (kg/m)
H07 - 4x1 mm <sup>2</sup>		081510010	Section 4x1 mm <sup>2</sup>	0,13
H07 - 4x1,5 mm <sup>2</sup>		081510011	Section 4x1,5 mm <sup>2</sup>	0,17
H07 - 4x2,5 mm <sup>2</sup>		081510012	Section 4x2,5 mm <sup>2</sup>	0,24
H07 - 4x4 mm <sup>2</sup>		081510013	Section 4x4 mm <sup>2</sup>	0,34

Model	€	Code	Description	W (kg)
KIT GTR1		081505010	Heat-Shrink connection kit for 1- 4 mm <sup>2</sup> motor cable.	0,09
KIT GTR2		081505015	Heat-Shrink connection kit for 6-10 mm <sup>2</sup> motor cable.	0,10





# Quick Guide

for the selection of maximum cable length (m) for:

2-WIRE SINGLE-PHASE - 1x220-240 V~, 50 Hz								
kW	HP	A	3 x 1 mm <sup>2</sup>	3 x 1,5 mm <sup>2</sup>	3 x 2,5 mm <sup>2</sup>	3 x 4 mm <sup>2</sup>	3 x 6 mm <sup>2</sup>	3 x 10 mm <sup>2</sup>
0,25	0,33	2,8	93 m	140 m	232 m	370 m	553 m	-
0,37	0,5	3,3	79 m	119 m	197 m	314 m	470 m	776 m
0,55	0,75	4,4	60 m	89 m	148 m	236 m <sup>2</sup>	352 m	582 m
0,75	1	5,8	45 m	68 m	112 m	179 m	267 m	442 m
1,1	1,5	7,7	32 m	48 m	80 m	128 m	191 m	316 m
1,5	2	10,5	-	37 m	62 m	99 m	148 m	244 m

PSC SINGLE-PHASE - 1x220-240 V~, 50 Hz								
kW	HP	A	4 x 1 mm <sup>2</sup>	4 x 1,5 mm <sup>2</sup>	4 x 2,5 mm <sup>2</sup>	4 x 4 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 10 mm <sup>2</sup>
0,25	0,33	2,8	93 m	140 m	232 m	370 m	553 m	-
0,37	0,5	3,3	79 m	119 m	197 m	314 m	470 m	776 m
0,55	0,75	4,4	60 m	89 m	148 m	236 m	352 m	582 m
0,75	1	5,8	45 m	68 m	112 m	179 m	267 m	442 m
1,1	1,5	7,8	32 m	48 m	80 m	128 m	191 m	316 m
1,5	2	10,5	-	37 m	62 m	99 m	148 m	244 m
2,2	3	14,8	-	25 m	42 m	67 m	100 m	166 m

THREE-PHASE - 3x380-415 V~, 50 Hz								
kW	HP	A	4 x 1 mm <sup>2</sup>	4 x 1,5 mm <sup>2</sup>	4 x 2,5 mm <sup>2</sup>	4 x 4 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 10 mm <sup>2</sup>
0,37	0,5	1,7	381 m	571 m	-	-	-	-
0,55	0,75	1,8	360 m	540 m	897 m	-	-	-
0,75	1	2,6	249 m	374 m	621 m	-	-	-
1,1	1,5	3,6	180 m	270 m	448 m	715 m	-	-
1,5	2	4,6	141 m	211 m	351 m	560 m	835 m	-
2,2	3	5,4	106 m	159 m	265 m	422 m	630 m	-
3	4	7,2	79 m	118 m	197 m	314 m	469 m	774 m
4	5,5	9,8	-	96 m	160 m	255 m	380 m	628 m
5,5	7,5	12,6	-	68 m	114 m	181 m	271 m	447 m

THREE-PHASE - 3x220-240 V~, 50 Hz								
kW	HP	A	4 x 1 mm <sup>2</sup>	4 x 1,5 mm <sup>2</sup>	4 x 2,5 mm <sup>2</sup>	4 x 4 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 10 mm <sup>2</sup>
0,37	0,5	2,9	129 m	193 m	320 m	510 m	762 m	-
0,55	0,75	3,1	120 m	180 m	300 m	477 m	713 m	-
0,75	1	4,5	83 m	124 m	206 m	329 m	491 m	811 m
1,1	1,5	6,2	60 m	90 m	150 m	239 m	356 m	588 m
1,5	2	8,0	47 m	70 m	116 m	185 m	276 m	456 m
2,2	3	9,3	-	55 m	91 m	145 m	217 m	358 m
3	4	12,5	-	41 m	69 m	110 m	164 m	270 m
4	5,5	17,0	-	-	54 m	86 m	129 m	212 m
5,5	7,5	21,8	-	-	38 m	60 m	90 m	149 m

• Voltage drop:  $\Delta U = 4\%$  •  $\cos \phi = 0,99$  for single-phase motor -  $\cos \phi = 0,80$  for three phase motor • Cable specific resistance:  $\rho = 0,0178 \Omega \text{ mm}^2/\text{m}$  • Inductive resistance:  $X_L = 0,0783 \cdot 10^{-3} [\Omega/\text{m}]$  • Environmental temperature:  $30^\circ\text{C}$  - In case of specific installation or for a precise cable selection the following calculation is recommended:  
 •  $U$  = Nominal Voltage [V] •  $\Delta U$  = Voltage drop [%] •  $I$  = Current [A]  
 •  $a$  = Coefficient 2,0 for single phase motor - Coefficient 1,73 for three phase motor •  $\cos \phi$  = Power parameter •  $\rho$  = Specific resistance [ $\Omega\text{mm}^2/\text{m}$ ]  
 •  $q$  = Cable conductor section [ $\text{mm}^2$ ] •  $X_L$  = Inductive resistance [ $\Omega/\text{m}$ ]

$$L = \frac{U \times \Delta U}{I \times a \times 100 \times (\cos \phi \frac{\rho}{q} + \sqrt{1 - \cos^2 \phi} \times X_L)} \text{ [m]}$$

**ATTENTION: Should be in accordance with the specifications in the tables. Using conductor cross sections below the specified grades will damage the motor. Other cable types are available on request. The values below are calculated with  $\cos \phi$  0,99 for single phase motors and 0,80 for three-phase motors. For exact cable section you should use the correct variables relating your specific motor.**

## Control Box for starting and protecting Single-phase 4" PSC submerged motors

### ■ Technical Specifications...

- Electromechanical control box in thermoplastic shell, protection standard IP 55
- Power inlet 1x230V~±10% 50Hz and starter capacitor • 1,5 m cable with European plug included • Inlet for connection to pressure switches or floating valves • Manually resettable thermic overload cut-off • Environmental temperature during use: from -10°C to +40°C.



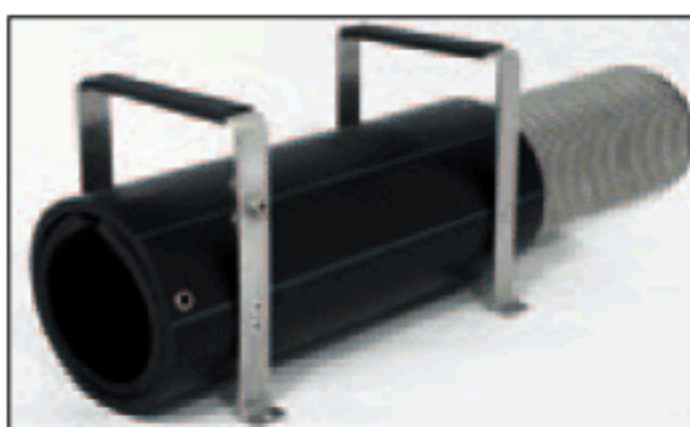
Model	€	Code	Power	Thermic protection	Capacitor	W (kg)
			kW	I <sub>m</sub> [A]	[μF]	
<b>MODEL CBO FOR OIL-COOLED MOTORS PSC O3</b>						
CBO.025		082515029	0,25	4	20	0,7
CBO.037		082515041	0,37	4	20	0,7
CBO.055		082515059	0,55	5	25	0,8
CBO.075		082515079	0,75	7	35	0,8
CBO.110		082515114	1,1	10	40	0,8
CBO.150		082515154	1,5	12	60	0,9
CBO.220		082515224	2,2	18	80	1,0
<b>MODEL CBH FOR WATER-COOLED MOTORS PSC H3F</b>						
CBH.025		082515028	0,25	4	12,5	0,8
CBH.037		082515040	0,37	4	16	0,8
CBH.055		082515058	0,55	5	20	0,8
CBH.075		082515078	0,75	6	30	0,8
CBH.110		082515113	1,1	10	40	0,8
CBH.150		082515153	1,5	12	50	1,0
CBH.220		082515223	2,2	18	70	1,1

ATTENTION: All control-boxes supplied with European plugs. Other plugs available on request.

## KIOS Sleeve

### The ideal solution for rainwater harvesting.

The KIOS kit is the "easy-fix" for horizontal installations of submersible pumps. It ensures the proper cooling of the motor and it comes with an oversized filter to avoid blockage by leaves or small stones. The KIOS kit can be mounted to a surface and has convenient handles for easy carrying.



KIOS KIT 1      O2 → 1,5 kW - O3 → 1,5 kW - H3F → 2,2 kW - OT & HTF → 2,2 kW

Model	€	Code	Length (mm)	Height (mm)	Width (mm)	Weight (kg)
KIOSKIT1		081190010	600	180	140	1,4



KIOS KIT 2      O2 : 2,2 kW - O3: 2,2 kW - OT & HTF 4 kW → 7,5 kW

Model	€	Code	Length (mm)	Height (mm)	Width (mm)	Weight (kg)
KIOSKIT2		081190015	900	180	140	2,3

# Terms and Conditions

## 1 – ORDERS AND ORDERS ACCEPTANCE

Orders have to be submitted to ZDS Srl. either by e-mail, fax, post or through the online webshop for acceptance, indicating exactly the name and code of products. Order confirmation from ZDS will be submitted by e-mail and fax and are considered binding upon receipt.

## 2 – SHIPMENT

When ZDS srl. arranges delivery the products are at the risk of ZDS srl. The client must report incorrect delivery within 8 days upon receipt of products, otherwise the shipment will be considered delivered correctly and is then at the risk of the client. When shipment is arranged by the client the products are at the risk of the client. Goods may leave from other locations than its principal place of business.

## 3 – DELIVERY TERMS

The Date of Shipment specified on the order confirmation is the date when goods are ready for shipment. ZDS srl. shall not be responsible for failure to deliver products on time or to fill orders when such delay or failure results from causes beyond ZDS's control. ZDS is obliged to inform the client about any delayed deliveries and once accepted by client a delay in delivery does not authorize the client to cancel or modify the order. At delivery, the client shall check and inspect the incoming goods and potential damages must be notified to the carrier by making a note on the shipment documents. ZDS srl. must be informed in writing within 8 days from receipt of the goods.

## 4 – WARRANTY

As far as we are aware, ZDS is the only company to offer a 24 Months "No Quibble Guarantee" on the entire product portfolio. It simply means that regardless of what problem you or your client encounters, we will replace the product until 24 months after purchase. The 24 Months No Quibble Warranty takes effect at the time of purchase. The warranty certificate must be signed and stamped by a ZDS retailer and the purchase date must be clearly indicated. Overdue warranty registration will void any guarantee. In case the date of purchase is missing on the warranty certificate, the production date will be used for any warranty claims. The products must not have been tampered with and must be returned complete, in one piece. The second time a similar product is claimed for warranty, we reserve the right to make a technical review before we replace the product again. ZDS srl. reserves the right to make the final decision about the warranty's validity. The warranty never implies the possibility of compensation.

## 5 – PRICES

Unless agreed differently, the prices in the Manufacturer Suggested Retail Price (MSRP) list are net of taxes and Ex-Works ZDS srl. principal place of business. Any additional costs are not included. Goods will be invoiced at shipment date price and ZDS srl reserves the right to modify product prices up to shipment date.

## 6 – TERMS OF PAYMENT

Payment has to be made to ZDS srl before the invoice's expiry date and according to the order conditions. In case of payment in arrears or incomplete payments, an administration fee of up to 5% may be added to the invoice.

## 7 – DOCUMENTS AND DRAWINGS

While ZDS srl. attempt to maintain the information as accurately as possible, the documentation may contain errors or omissions for which we disclaim any liability. The material and contents are provided without warranty of any kind. ZDS srl reserves the right to amend the documentation without prior notice.

## 8 – ORDER CANCELLATION

The buyer may be held responsible for problems caused by the cancellation or change of orders, and in any case the cancellation or change will not be considered valid without written acceptance from ZDS.

## 9 – PLACE OF JURISDICTION

For any dispute on contract interpretations and/or fulfillment, the place of jurisdiction is exclusively Rovigo.



## ABOUT US

ZDS is well known for the production and marketing of highly efficient and reliable submersible pumps and motors for deep well pumps of 4". To illustrate the confidence we have in the quality of our products, we offer a "No Quibble Guarantee" on the entire product portfolio. As far as we are aware, ZDS is the only company to offer this guarantee. It simply means that regardless of what problem you or your client encounters, we will replace the product up until 24 months after purchase. ZDS knows your satisfaction comes from using, selling or installing pumps and not by pulling them back up again.

Enjoy our quality!



Your local ZDS Partner is:

**ZDS**  
pump innovation

