



The 4" Submersible Pumps Specialist



CATALOGUE

50 Hz
n~2850 min⁻¹



ZDS

/// pump innovation

ZDS, headquartered in Padua, is specialized in the design and manufacture of 4" submersible pumps for water treatment and distribution; electric motors; electronic control systems and accessories.

ZDS products are manufactured to ISO 9001 standards: to achieve the quality objectives, to be innovative and to meet customer requirements. From the very beginning, the company has been focused on the development of automatic and innovative complete solutions thanks to builtin electronic protections that are ready to use, economical and easy to install.

Innovative ideas have been supported by technical know-how and organizational skills gained from long-term experience which is rooted in the know-how of some historic manufacturers in the hydraulic field.



THE 4" SUBMERSIBLE PUMPS SPECIALIST

PRODUCT CATALOGUE

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WATER-COOLED COMPLETE 4" SUBMERSIBLE PUMPS



Plug&Go.Evo

44 - 49

Single-phase



ZDJet, ZDJet.DRP, ZDJet.DRP-Plus, ZDJet.Defender

50 - 65

Single-phase



P/X.H3, P/X.H3.DRP, P/X.H3.Defender

66 - 79

Single-phase



P/X.HT, P/X.HT.DRP, P/X.HT.Defender

80 - 93

Three-phase

OIL-COOLED COMPLETE 4" SUBMERSIBLE PUMPS



QPGGo, QPGGo.DRP, QPGGo.DRP-Plus, QPGGo.Defender

94 - 109

Single-phase



P/X.O3, P/X.O3.DRP, P/X.O3.Defender

110 - 123

Single-phase



P/X.OT, P/X.OT.DRP, P/X.OT.Defender

124 - 137

Three-phase

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Basic instructions for the selection of a submersible pump:

1. Delivery (Q)

When you select a submersible pump and you do not know the real delivery of the borehole, it is recommended to consider the smallest quantity of water which is necessary for that installation (Q = delivery of water). If the quantity of water you draw is bigger than the one the borehole can deliver, the borehole itself might be damaged, even if the dry running protection of the pump is activated. Regarding irrigation and other possible uses of water instead, it is necessary to consider the data provided by the manufacturer of the plant or equipment.

2. Pressure

In order to ensure the correct operating working pressure to the highest point of the plant, we advise you to make the calculation following described criteria for the determination of the pressure required by the pumps:

$$H = A + B + C$$

H: Total Head, total dynamic pressure + safety factor 3%

A: maximum difference between the water surface and the ground with pump in action

B: distance from the ground to the highest point of use

C: pressure required to the highest point of use + head losses

The total dynamic pressure (H) refers to the minimum pressure guaranteed. It may be influenced by the dynamic water level of the well, caused by the variation of the groundwater while the pump is running. In this case it is necessary to calculate correctly the dynamic water level of the well in order

to avoid too much pressure for the user. As far as it relates to irrigation and other possible uses of water instead, it is necessary to consider the data provided by the manufacturer of the plant or equipment.

Example of head losses every 100 mt of straight pipeline

Material	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100	Galvanized steel	Polyethylene PE 100
DN (mm) External diameter	25	32	32	40	40	50	50	63	65	75						
Nominal Ø	1"		1" 1/4		1" 1/2		2"		2" 1/2							
Internal Ø (mm)	27	PN16 26	PN25 23.2	35.8	PN16 32.6	PN25 29	41.3	PN16 40.8	PN25 36.2	52.5	PN16 51.4	PN25 45.8	68	PN16 61.4	PN25 54.4	
Delivery (Q)	m³/h	l/min	METERS													
	0.6	10	0.7	0.5	0.9	0.2	0.2	0.3	-	-	0.1	-	-	-	-	-
	0.9	15	1.6	1.1	1.9	0.4	0.4	0.6	0.2	0.1	0.2	-	-	-	-	-
	1.2	20	2.6	1.8	3.2	0.7	0.6	1.1	0.4	0.2	0.4	-	-	-	-	-
	1.5	25	3.8	2.9	5.0	1.0	1.0	1.7	0.5	0.3	0.6	0.1	-	0.1	-	-
	1.8	30	5.3	4.0	6.9	1.4	1.3	2.3	0.7	0.4	0.8	0.2	0.1	0.2	-	0.1
	2.1	35	6.9	5.2	9.1	1.8	1.7	3.1	0.9	0.6	1.0	0.3	0.2	0.3	-	0.1
	2.4	40	8.8	6.8	11.9	2.3	2.3	4.0	1.2	0.8	1.4	0.4	0.3	0.4	-	0.1
	3.0	50	13.1	10.1	17.6	3.4	3.4	5.9	1.7	1.1	2.0	0.5	0.4	0.6	0.1	0.15
	3.6	60	18.3	14.3	24.9	4.7	4.7	8.4	2.4	1.6	2.8	0.8	0.5	0.9	0.2	0.4
	4.2	70	24.2	19.1	33.3	6.2	6.3	11.2	3.1	2.2	3.8	1.0	0.7	1.2	0.3	0.5
	4.8	80	30.9	24.2	42.1	7.9	8.0	14.2	4.0	2.7	4.8	1.3	0.9	1.5	0.3	0.7
	5.4	90	38.3	30.2	52.7	9.8	10.0	17.8	4.9	3.4	6.0	1.6	1.1	1.9	0.4	0.8
	6.0	100	46.5	36.9	-	11.9	12.3	21.7	6.0	4.1	7.4	1.9	1.3	2.3	0.5	1.0
	7.5	125	-	55.3	-	17.9	18.4	32.5	9.0	6.2	11.0	2.8	2.0	3.5	0.8	1.5
	9.0	150	-	-	-	25.1	25.8	45.7	12.5	8.7	15.5	3.9	2.8	4.9	1.1	2.1
	10.5	175	-	-	-	33.3	34.4	-	16.7	11.6	20.7	5.2	3.8	6.6	1.5	2.8
	12.0	200	-	-	-	42.8	43.9	-	21.4	14.7	26.4	6.6	4.8	8.4	1.9	3.6
	15.0	250	-	-	-	-	-	-	32.3	22.3	40.0	10.0	7.3	12.7	2.8	5.5
	18.0	300	-	-	-	-	-	-	44.5	30.5	57.5	13.8	10.2	17.8	3.9	7.7
	21.0	350	-	-	-	-	-	-	59.1	40.5	-	18.4	13.5	23.6	6.7	10.2
	24.0	400	-	-	-	-	-	-	-	52.0	-	23.6	17.3	30.3	10.0	13.1

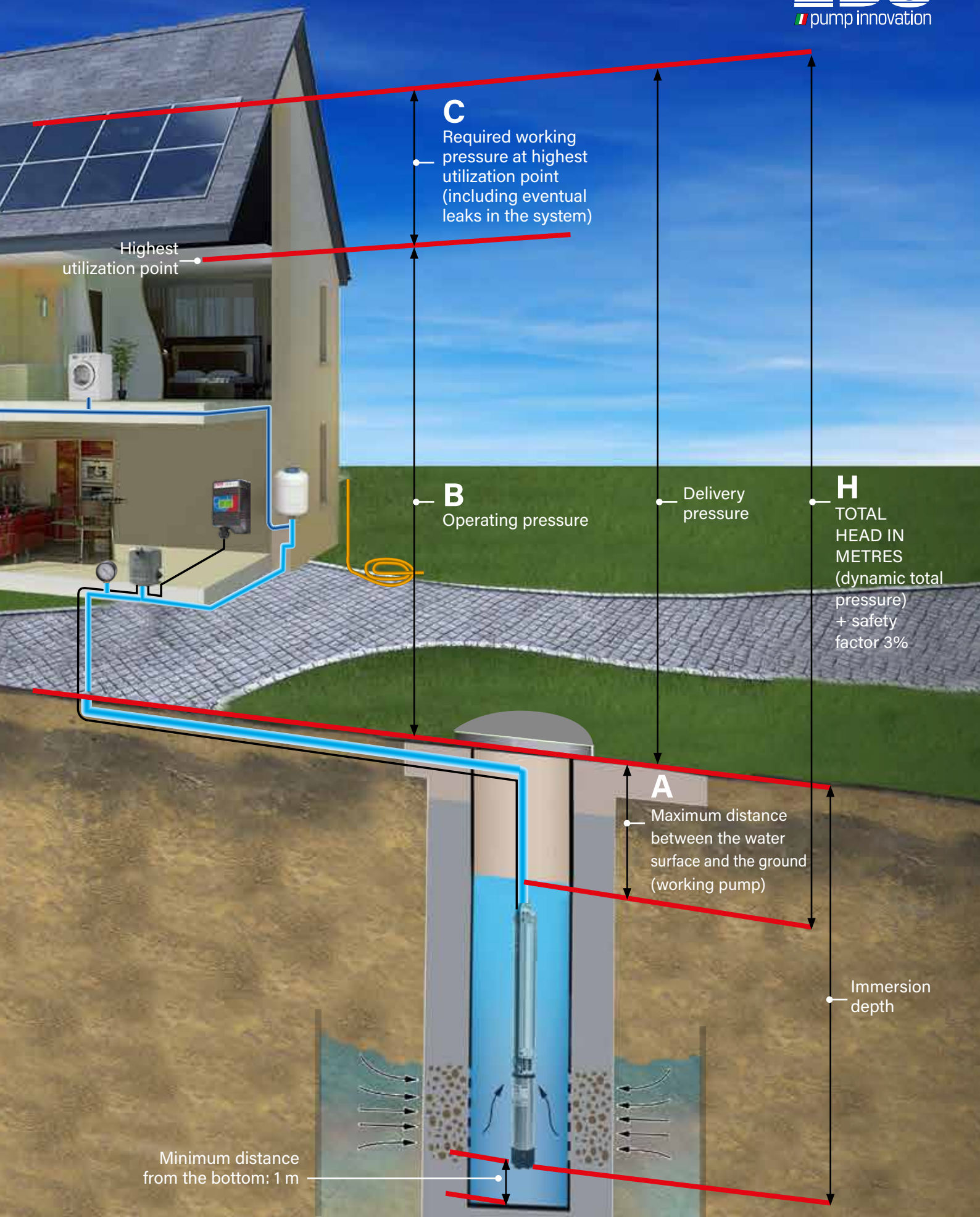
We recommend to install a proper cooling jacket in installations bigger than 10 cm, to guarantee the correct motor cooling flow.

For every 90° pipe curve or valve losses to be added: 0,18 m.

For every check valve losses to be added: 0,5 m.

If possible we recommend not to exceed 15 m losses in 100 m of pipeline.

Internal diameter of polyethylene pipeline: PE100 UNI 10910.





4" HYDRAULIC PARTS





4" Hydraulic parts

Multistage centrifugal hydraulic parts designed to be used in 4" wells or larger, available in a wide range of deliveries and heads. Reliable, strong, easy to maintain, they are suitable in applications for lifting, distribution, and pressurization of water in water systems.

QS4P and QS4X main characteristics

Each single part of QS4P and QS4X has been designed with particular care to ensure the highest quality and reliability.

The pump impellers, diffusers, stage boxes, bushings and floating rings are made of special technopolymers, materials to improve performance, efficiency and to resist corrosion.

The non-return 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.

The non-return valves have undergone very severe durability tests: more than 600.000 water hammers at 37 bars for QS4P and more than 1.000.000 water hammers at 37 bar for QS4X.

The stainless steel coupling shaft is oversized to better resist mechanical torque.

The special design of the hydraulic part, allows the pump to work even in heavy sand conditions, up to maximum of 150 g/m³.

Thanks to its particular design, ZDS hydraulic part automatically eliminates any air contained in the submersible pump.

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

The internal construction of our hydraulic parts primarily consists of the following components: technopolymer impellers with stainless steel support rings, technopolymer diffusers and stage-boxes, thermoplastic bushing and floating rings.

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 similar products available on the market, the ZDS hydraulic part needs less starting torque to start pumping. This is why the ZDS pump is a particularly good option when you are challenged with unstable power supply.

Technical specifications

Pumped liquid:	clean, free of solids and abrasives, non-viscous, non-aggressive, non-crystallised and chemically neutral.
Flange:	4" NEMA standard dimensions
Rated ambient temperature:	max. 40° C
Maximum quantity of suspended sand:	150 g/m ³
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Allowed range of water PH:	6,4 - 8,0
Outlet diameter:	1" ¼ G-F (1,2,3,5 series), 2" G-F (8,10 series)
Maximum pump overall diameter:	98 mm (cable cover included)
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	300 m



ErP Ready - MEI Index:

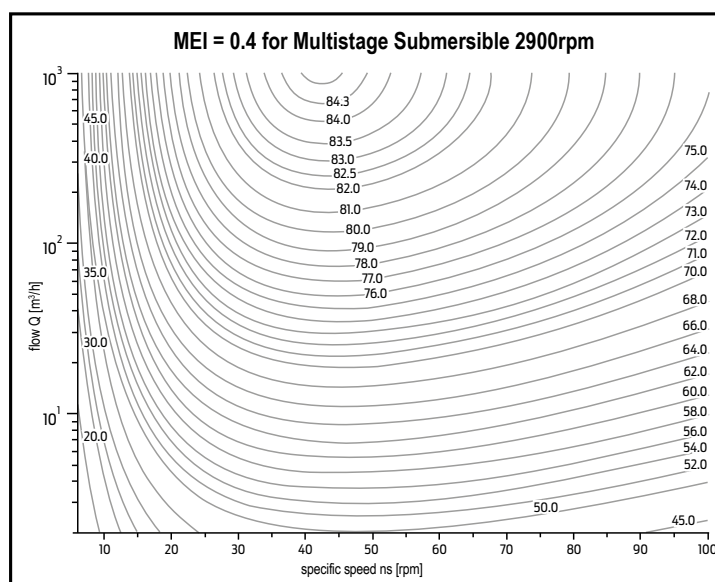
ZDS hydraulic parts from Series 1 to Series 5 are highly efficient and comply with the ErP Directive (Commission Regulation (EC) No 547/2012) which is effective from 1 January 2013. These hydraulic parts are classified/graduated in a new energy efficiency index (MEI).

Minimum Efficiency Index (MEI) is the dimensionless scale unit for hydraulic pump efficiency at best efficiency point (BEP), part load and overload.

The operation of ZDS hydraulic parts for clean water in variable points of the performance curve can be more efficient and cheap if it is controlled, for example, by an adjustable speed motor which adjusts the operation of the pump to the system.

Trimmed impeller diameter offer lower efficiency than full impeller diameter. Impeller trimming will make the submersible pump work in a fixed point with lower energy consumption. Minimum Efficiency Index (MEI) is based on the full diameter impeller.

Information about the referential efficiency are available on www.zdsgroup.com.

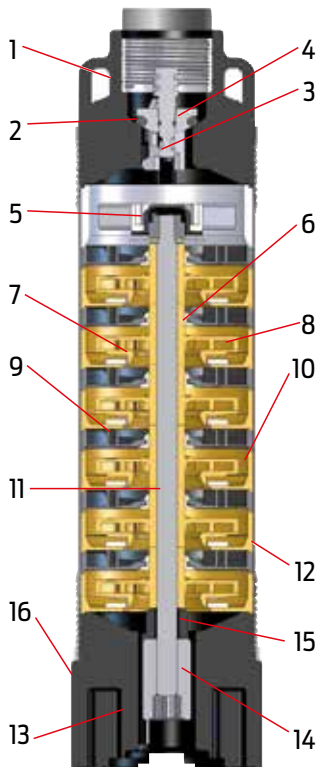




QS4P

4" Hydraulic parts with pump head and lower support in TECHNOPOLYMER

- Pump head and lower support made of special material, strong and resistant to acid water corrosion (low pH value) and ferrous water.
- Extra mechanical resistance of the upper head is guaranteed by the double threaded stainless steel ring placed inside and outside of this component.
- Integrated filter inside the lower support.

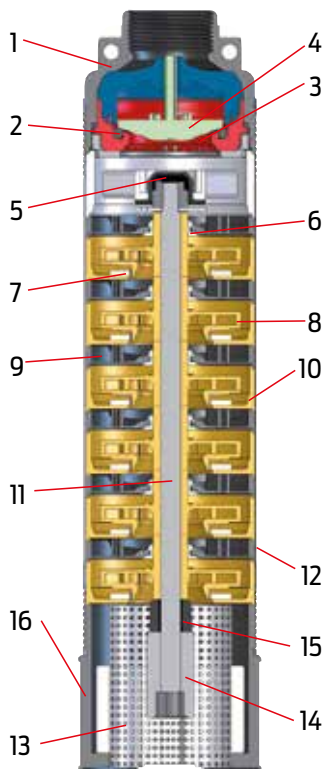


Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC

QS4X

4" Hydraulic parts with pump head and lower support in STAINLESS STEEL

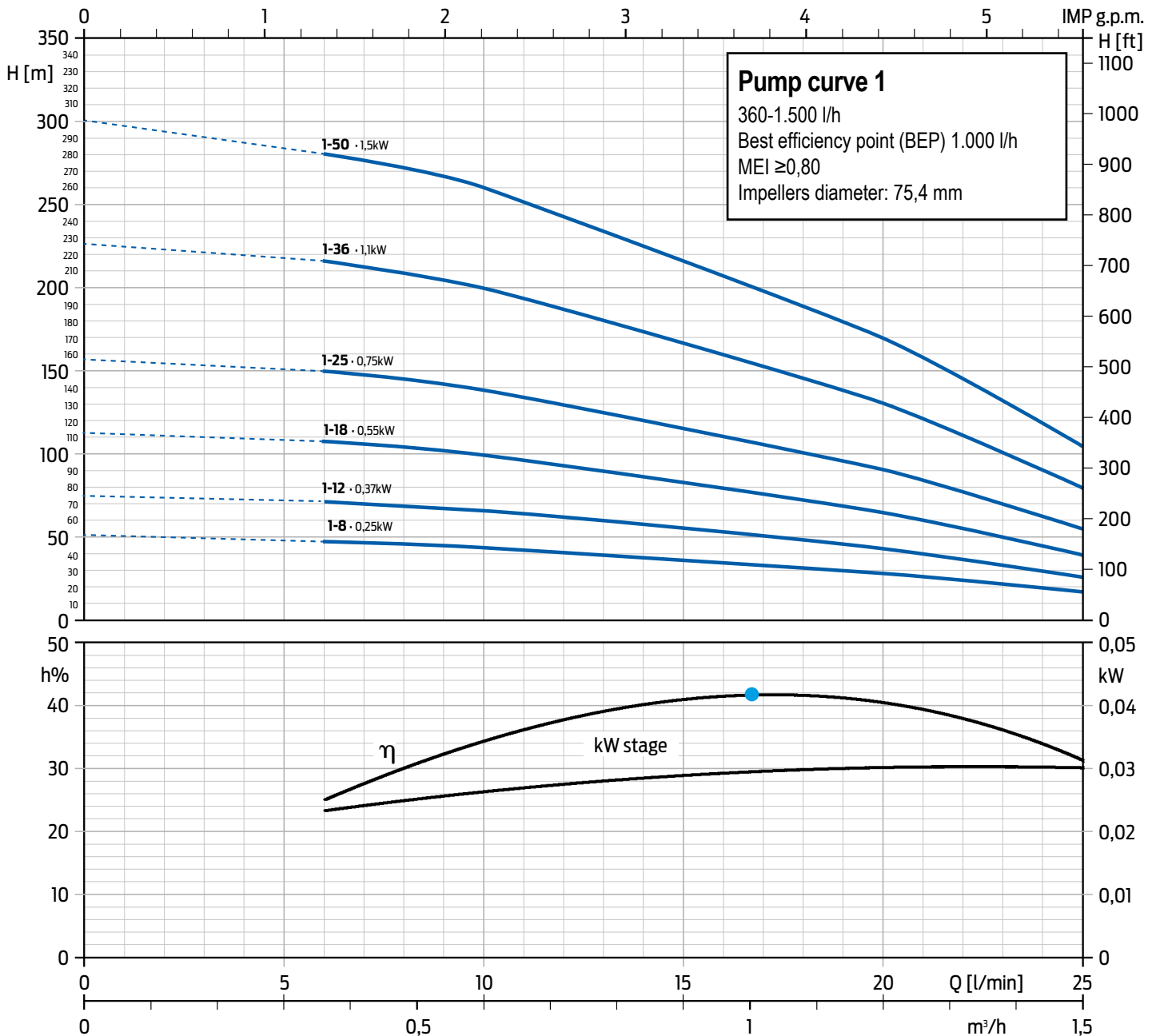
- Pump head available in 1-1/4" or 2" outlet diameter.
- Cable cover in stainless steel, to protect the power supply cable during installation.
- Removable stainless steel filter.



* Removable

Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter*	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)

Hydraulic parts series 1



- 4" NEMA standard dimensions
- Operating curves at: 2850 min⁻¹
- Performance limits: ISO 9906 – annex A, mass production pump section.

QS4P.1

 Upper head and lower support in **TECHNOPOLIMER**

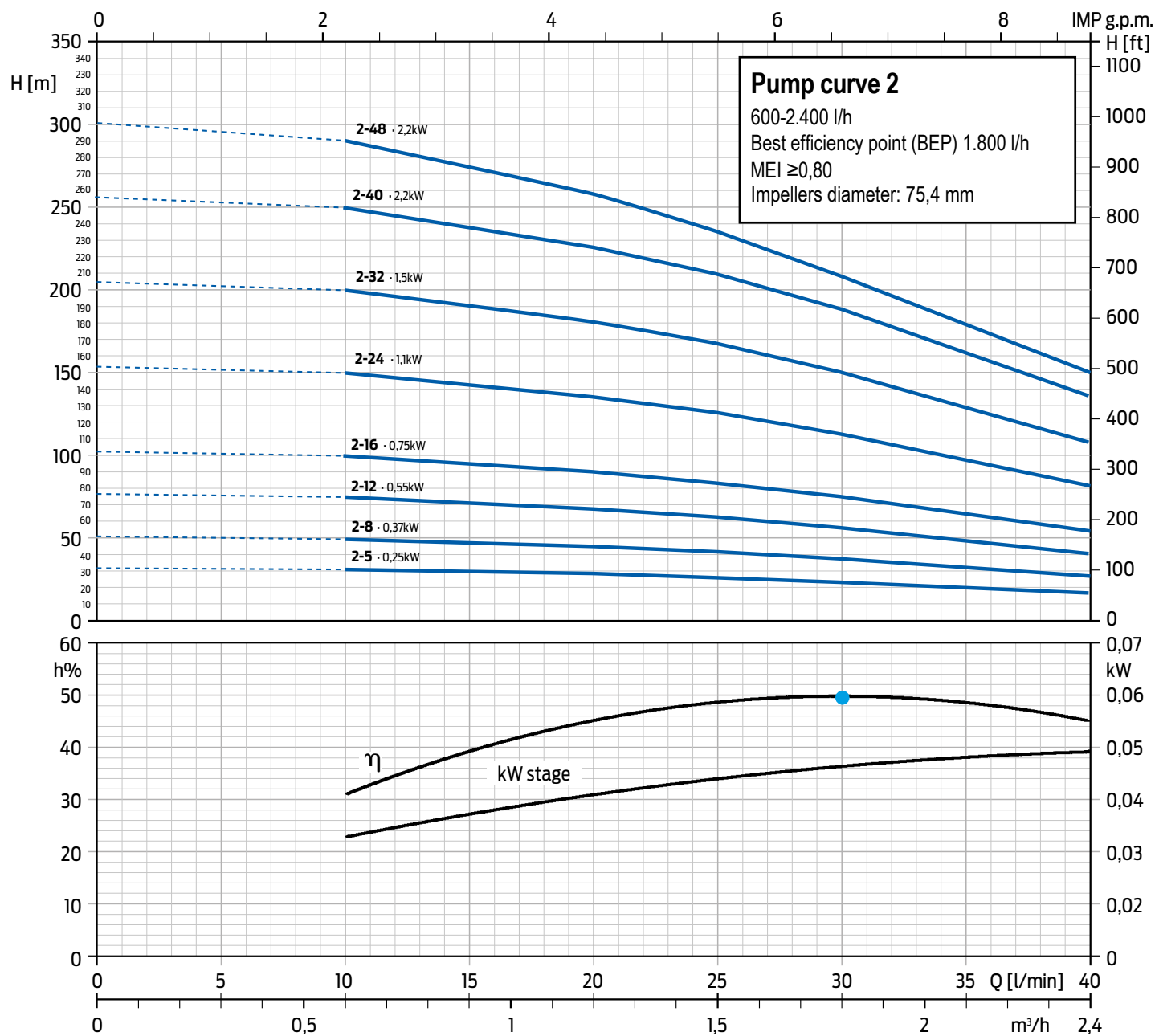

HYDRAULIC TECHNOPOLYMER Pump curve 1	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)						L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F							
		Power		Minimum Thrust	m³/h	0	0,36	0,6	1,2	1,5		
		kW	HP									
QS4P.1-8	181005008	0,25	0,33	1500	Total head in meters = H= dynamic total pressure	50,2	48	44,4	29,2	18	357	2,5
QS4P.1-12	181005012	0,37	0,5	1500		75,4	72	66,6	43,8	27	437	3
QS4P.1-18	181005018	0,55	0,75	1500		113	108	99,9	65,7	40,5	557	3,9
QS4P.1-25	181005025	0,75	1	1500		157	150	138,8	91,3	56,3	697	4,8

QS4X.1

 Upper head and lower support in **STAINLESS STEEL**


HYDRAULIC INOX Pump curve 1	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)						L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F							
		Power		Minimum Thrust	m³/h	0	0,36	0,6	1,2	1,5		
		kW	HP								F [N]	l/min
QS4X.1-8	1810100081	0,25	0,33	1500	Total head in meters = H= dynamic total pressure	50,2	48	44,4	29,2	18	357	3,5
QS4X.1-12	1810100121	0,37	0,5	1500		75,4	72	66,6	43,8	27	437	4
QS4X.1-18	1810100181	0,55	0,75	1500		113	108	99,9	65,7	40,5	557	4,8
QS4X.1-25	1810100251	0,75	1	1500		157	150	138,8	91,3	56,3	697	5,7
QS4X.1-36	1810100361	1,1	1,5	2500		226,1	216	199,8	131,4	81	950	7,6
QS4X.1-50	1810100501	1,5	2	2500		300	280	260	170	106	1230	9,9

Hydraulic parts series 2



- 4" NEMA standard dimensions
- Operating curves at: 2850 min⁻¹
- Performance limits: ISO 9906 – annex A, mass production pump section.

QS4P.2

Upper head and lower support in **TECHNOPOLIMER**



HYDRAULIC TECHNOPOLYMER Pump curve 2	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)							L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F								
		Power		Minimum Thrust	m³/h	0	0,6	1,2	1,5	1,8	2,4		
		kW	HP										
QS4P.2-5	181005105	0,25	0,33	1500	Total head in meters = H= dynamic total pressure	32	31,2	28,2	26,2	23,5	17,0	310	2,1
QS4P.2-8	181005108	0,37	0,5	1500		51,2	49,9	45,1	41,9	37,6	27,2	377	2,6
QS4P.2-12	181005112	0,55	0,75	1500		76,8	74,9	67,7	62,9	56,4	40,8	467	3,2
QS4P.2-16	181005116	0,75	1	1500		102,4	99,8	90,2	83,8	75,2	54,4	557	3,8
QS4P.2-24	181005124	1,1	1,5	2500		153,6	149,8	135,4	125,8	112,8	81,6	737	5,2

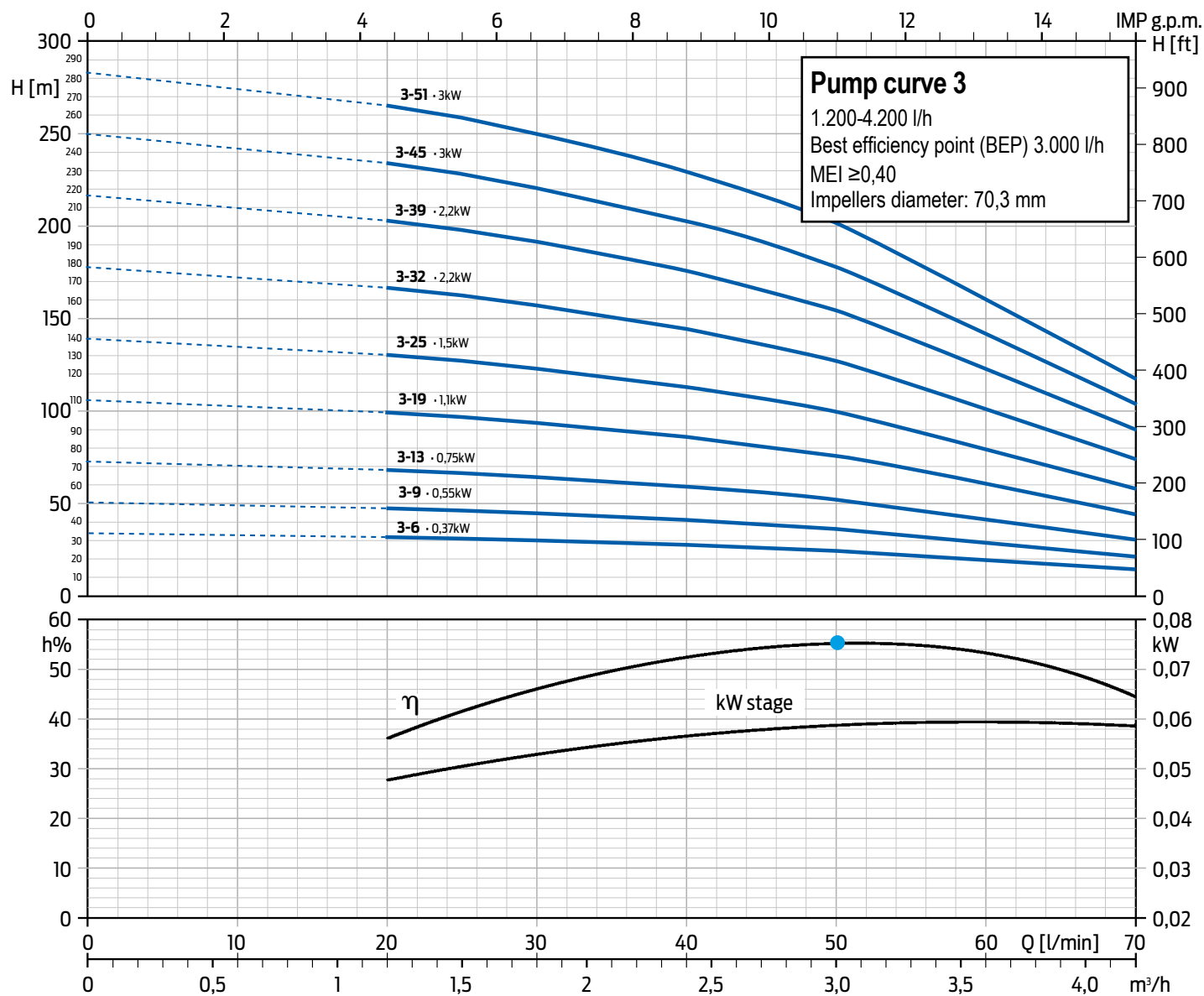


QS4X.2

Upper head and lower support in **STAINLESS STEEL**

HYDRAULIC INOX Pump curve 2	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)							L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F								
		Power		Minimum Thrust	m³/h	0	0,6	1,2	1,5	1,8	2,4		
		kW	HP	F [N]	l/min	0	10	20	25	30	40		
QS4X.2-5	1810101051	0,25	0,33	1500	Total head in meters = H= dynamic total pressure	32	31,2	28,8	26,2	23,5	17	310	3,1
QS4X.2-8	1810101081	0,37	0,5	1500		51,2	49,9	45,1	41,9	37,6	27,2	377	3,6
QS4X.2-12	1810101121	0,55	0,75	1500		76,8	74,9	67,7	62,9	56,4	40,8	467	4,1
QS4X.2-16	1810101161	0,75	1	1500		102,4	99,8	90,2	83,8	75,2	54,4	557	4,8
QS4X.2-24	1810101241	1,1	1,5	2500		153,6	149,8	135,4	125,8	112,8	81,6	737	5,9
QS4X.2-32	1810101321	1,5	2	2500		204,7	199,7	180,5	167,7	150,4	108	917	7,7
QS4X.2-40	1810101401	2,2	3	3000		255,9	249,6	225,6	209,6	188	136	1130	8,5
QS4X.2-48	1810101481	2,2	3	4000		300	290	258	235	208	150	1310	9,9

Hydraulic parts series 3



- 4" NEMA standard dimensions
- Operating curves at: 2850 min⁻¹
- Performance limits: ISO 9906 – annex A, mass production pump section.

QS4P.3

Upper head and lower support in **TECHNOPOLIMER**



HYDRAULIC TECHNOPOLYMER Pump curve 3	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)								L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F									
		Power		Minimum Thrust	m³/h	0	1,2	1,5	1,8	2,4	3	4,2		
		kW	HP											
QS4P.3-6	181005206	0,37	0,5	1500	Total head in meters = H= dynamic total pressure	33,3	31,2	30,4	29,4	27	23,7	13,7	392	2,6
QS4P.3-9	181005209	0,55	0,75	1500		50	46,8	45,6	44,1	40,5	35,6	20,6	490	3,2
QS4P.3-13	181005213	0,75	1	1500		72,2	67,6	65,9	63,7	58,5	51,4	29,8	620	4
QS4P.3-19	181005219	1,1	1,5	1500		105,5	98,8	96,3	93,1	85,5	75,1	43,5	815	5,6
QS4P.3-25	181005225	1,5	2	2500		138,8	130	126,8	122,5	112,5	98,8	57,3	1010	6,7

4" Hydraulic parts

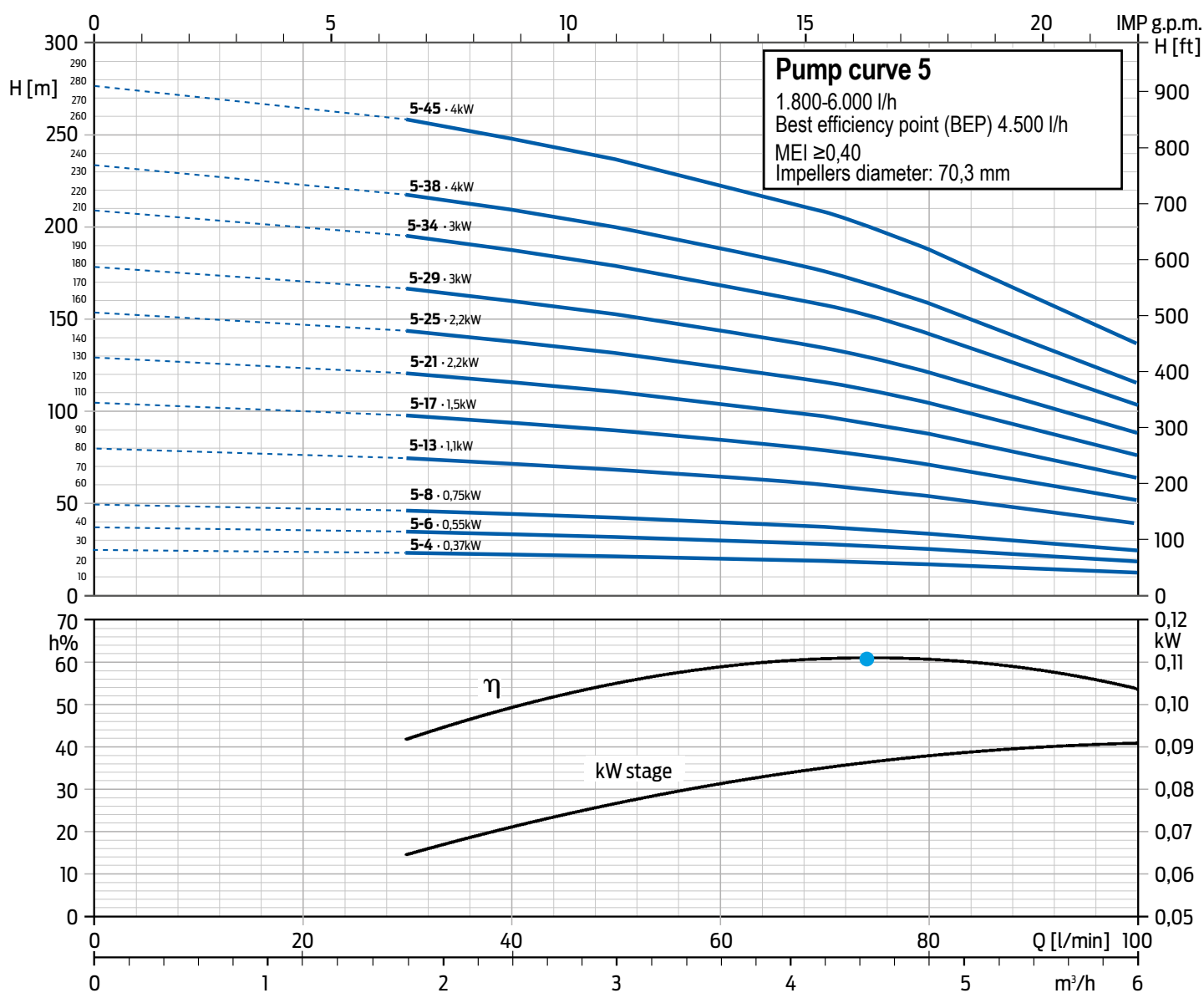
QS4X.3

Upper head and lower support in **STAINLESS STEEL**



HYDRAULIC INOX Pump curve 3	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)								L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F									
		Power		Minimum Thrust	m³/h	0	1,2	1,5	1,8	2,4	3	4,2		
		kW	HP	F [N]	l/min	0	20	25	30	40	50	70		
QS4X.3-6	1810102061	0,37	0,5	1500	Total head in meters = H= dynamic total pressure	33,3	31,2	30,4	29,4	27	23,7	13,7	392	3,6
QS4X.3-9	1810102091	0,55	0,75	1500		50	46,8	45,6	44,1	40,5	35,6	20,6	490	4,1
QS4X.3-13	1810102131	0,75	1	1500		72,2	67,6	65,9	63,7	58,5	51,4	29,8	620	5
QS4X.3-19	1810102191	1,1	1,5	1500		105,5	98,8	96,3	93,1	85,5	75,1	43,5	815	6,6
QS4X.3-25	1810102251	1,5	2	2500		138,8	130	126,8	122,5	112,5	98,8	57,3	1010	7,5
QS4X.3-32	1810102321	2,2	3	2500		177,6	166,4	162,2	156,8	144	126,4	73,3	1270	9,6
QS4X.3-39	1810102391	2,2	3	3000		216,5	202,8	197,7	191,1	175,5	154,1	89,3	1497	11
QS4X.3-45	1810102451	3	4	4000		249,8	234	228,2	220,5	202,5	177,8	103,1	1725	12,4
QS4X.3-51	1810102511	3	4	4000		283,1	265,2	258,6	249,9	229,5	201,5	116,8	1920	14,1

Hydraulic parts series 5



- 4" NEMA standard dimensions
- Operating curves at: 2850 min⁻¹
- Performance limits: ISO 9906 – annex A, mass production pump section.



QS4P.5

Upper head and lower support in **TECHNOPOLIMER**

HYDRAULIC TECHNOPOLYMER Pump curve 5	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)								L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F									
		Power		Minimum Thrust	m³/h	0	1,8	2,4	3	4,2	4,8	6		
		kW	HP											
QS4P.5-4	181005304	0,37	0,5	1500	Total head in meters = H= dynamic total pressure	24,5	22,9	22	21	18,5	16,7	12,1	327	2,2
QS4P.5-6	181005306	0,55	0,75	1500		36,8	34,4	33	31,5	27,7	25	18,2	392	2,6
QS4P.5-8	181005308	0,75	1	1500		49,1	45,8	44	42	37	33,3	24,2	457	3
QS4P.5-13	181005313	1,1	1,5	1500		79,7	74,5	71,5	68,3	60,1	54,2	39,4	620	4,1
QS4P.5-17	181005317	1,5	2,0	2500		104,3	97,4	93,5	89,3	78,5	70,8	51,5	750	5
QS4P.5-21	181005321	2,2	3,0	2500		128,8	120,3	115,5	110,3	97	87,5	63,3	880	5,8
QS4P.5-25	181005325	2,2	3,0	2500		153,3	143,3	137,5	131,3	115,5	104,2	75,8	1010	6,7

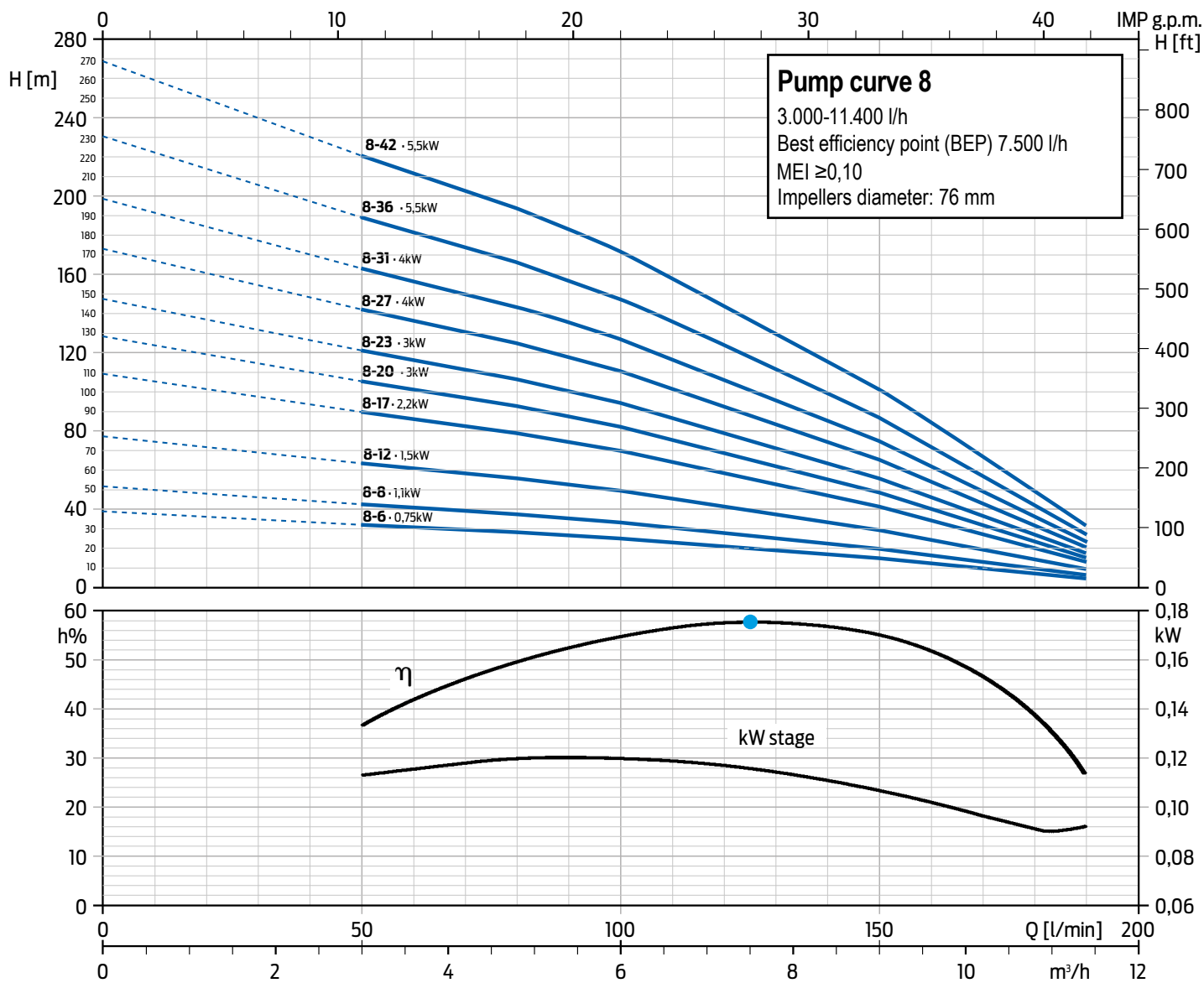


QS4X.5

Upper head and lower support in **STAINLESS STEEL**

HYDRAULIC INOX Pump curve 5	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)								L.	W.
					Delivery (Q) Ø Outlet diameter: 1" ¼ G-F									
		Power		Minimum Thrust	m³/h	0	1,8	2,4	3	4,2	4,8	6		
		kW	HP	F [N]	l/min	0	30	40	50	70	80	100		
QS4X.5-4	1810103041	0,37	0,5	1500	Total head in meters = H= dynamic total pressure	24,5	22,9	22	21	18,5	16,7	12,1	327	3,2
QS4X.5-6	1810103061	0,55	0,75	1500		36,8	34,4	33	31,5	27,7	25	18,2	392	3,6
QS4X.5-8	1810103081	0,75	1	1500		49,1	45,8	44	42	37	33,3	24,2	457	4
QS4X.5-13	1810103131	1,1	1,5	1500		79,7	74,5	71,5	68,3	60,1	54,2	39,4	620	5,1
QS4X.5-17	1810103171	1,5	2	2500		104,3	97,4	93,5	89,3	78,5	70,8	51,5	750	6
QS4X.5-21	1810103211	2,2	3	2500		128,8	120,3	115,5	110,3	97	87,5	63,6	880	6,8
QS4X.5-25	1810103251	2,2	3	2500		153,3	143,3	137,5	131,3	115,5	104,2	75,8	1010	7,6
QS4X.5-29	1810103291	3	4	2500		177,9	166,2	159,5	152,3	134	120,8	87,9	1172	8,7
QS4X.5-34	1810103341	3	4	2500		208,5	194,8	187	178,5	157,1	141,7	103	1335	9,8
QS4X.5-38	1810103381	4	5,5	4000		233,1	217,1	209	199,5	175,6	158,3	115,1	1497	11,2
QS4X.5-45	1810103451	4	5,5	4000		276	257,9	247,5	236,3	207,9	187,5	136,4	1725	13

Hydraulic parts series 8



- 4" NEMA standard dimensions
- Operating curves at: 2850 min⁻¹
- Performance limits: ISO 9906 – annex A, mass production pump section.



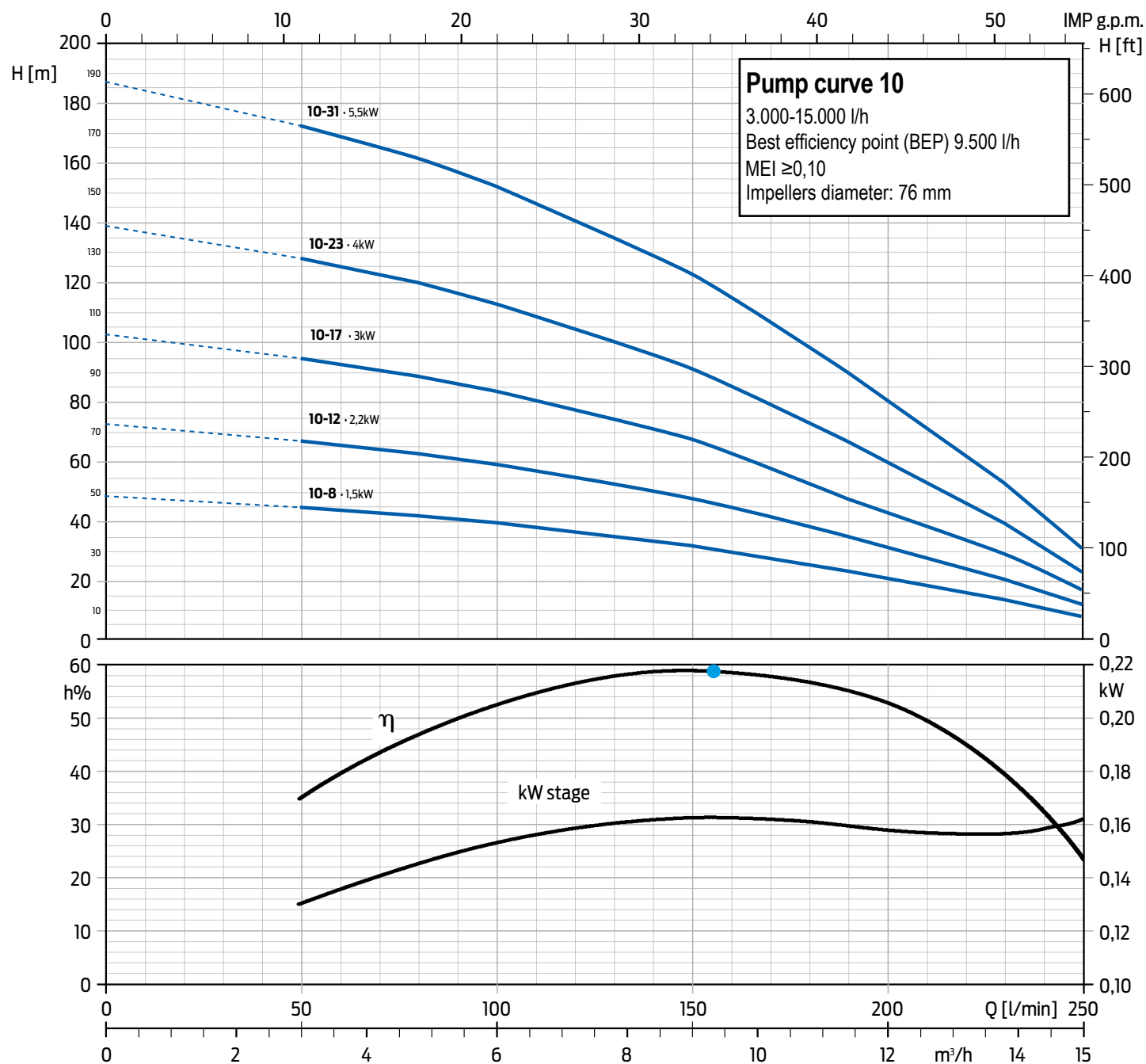
QS4X.8

Upper head and lower support in **STAINLESS STEEL**

HYDRAULIC INOX Pump curve 8	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)							L.	W.
					Delivery (Q) Ø Outlet diameter: 2" G-F								
		Power		Minimum Thrust	m³/h	0	3	4,8	6	9	11,4		
		kW	HP		F [N]	l/min	0	50	80	100	150	190	mm
QS4X.8-6	1810104061	0,75	1	1500	Total head in meters = H= dynamic total pressure	38,4	31,5	27,7	24,5	14,4	4,8	512	4,2
QS4X.8-8	1810104081	1,1	1,5	1500		51,2	42	36,9	32,7	19,2	6,4	617	4,8
QS4X.8-12	1810104121	1,5	2	1500		76,8	63	55,3	49	28,8	9,6	827	6,2
QS4X.8-17	1810104171	2,2	3	2500		108,8	89,3	78,4	69,4	40,8	13,6	1122	7,8
QS4X.8-20	1810104201	3	4	2500		128	105	92,2	81,7	48	16	1280	8,9
QS4X.8-23	1810104231	3	4	2500		147,2	120,8	106	93,9	55,2	18,4	1437	9,8
QS4X.8-27	1810104271	4	5,5	2500		172,8	141,8	124,5	110,2	64,8	21,6	1680	11,4
QS4X.8-31	1810104311	4	5,5	2500		198,4	162,8	142,9	126,6	74,4	24,8	1890	12,6
QS4X.8-36	1810104361	5,5	7,5	4000		230,4	189	166	147	86,4	28,8	2185	14,4
QS4X.8-42	1810104421	5,5	7,5	4000		268,8	220,5	193,6	171,5	100,8	33,6	2500	16,3

4" Hydraulic parts

Hydraulic parts series 10



- 4" NEMA standard dimensions
- Operating curves at: 2850 min⁻¹
- Performance limits: ISO 9906 – annex A, mass production pump section.



QS4X.10

Upper head and lower support in **STAINLESS STEEL**

4" Hydraulic parts

HYDRAULIC INOX Pump curve 10	Code	COUPABLE MOTORS 50Hz n~2850 min ⁻¹			HYDRAULIC CHARACTERISTICS (n~2850 min ⁻¹)									L.	W.
					Delivery (Q) Ø Outlet diameter: 2" G-F										
		Power		Minimum Thrust	m³/h	0	3	4,8	6	9	11,4	13,8	15		
		kW	HP		F [N]	l/min	0	50	80	100	150	190	230	250	mm
QS4X.10-8	1810105081	1,5	2	1500	Total head in meters = H= dynamic total pressure	48,2	44,4	41,6	39,2	31,6	23,1	13,6	7,9	617	4,8
QS4X.10-12	1810105121	2,2	3	1500		72,3	66,6	62,4	58,8	47,4	34,7	20,4	11,9	827	6,2
QS4X.10-17	1810105171	3	4	2500		102,4	94,4	88,4	83,3	67,2	47,1	28,9	16,8	1122	7,8
QS4X.10-23	1810105231	4	5,5	2500		138,6	127,7	119,6	112,7	90,9	66,4	39,1	22,8	1437	9,8
QS4X.10-31	1810105311	5,5	7,5	4000		186,8	172,1	161,2	151,9	122,5	89,5	52,7	30,7	1890	12,7



4" SUBMERSIBLE MOTORS





H2

4" 2-wire encapsulated water-cooled single-phase submersible motors

Electric motors from series H2 are 2 pole asynchronous single-phase submersible motors designed to **operate coupled to 4" ZDS hydraulic parts**. They are made of materials suitable for contact with water, and cooling and lubrication of the thrust block and bushes are guaranteed by a mixture of water and glycol. H2 motors are equipped with a special and unique start and run capacitor, which is designed to guarantee a long-life to the motor and avoid the installation of an external control panel. They also come with a special and manually resettable built-in thermal protection, which stops the motor when overheated.

Applications

H2 water-cooled motors ensure reliable working in 4" or larger diameter wells and are designed to be used for lifting, distribution, and pressurisation of water in water systems. H2 motors can be installed with a frequency inverter.

Characteristics

2 pole asynchronous 2-wire single-phase encapsulated water-cooled motor.

Special and long lasting integrated start and run capacitor. In case of need it can be easily replaced.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

Sand protection to guarantee optimal operation even with sand in the borehole.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

Power range:	0,37 - 1,5 kW
Voltage range:	1x220 - 230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U_N
Flange:	4" NEMA standard dimensions
Rotation:	CCW facing shaft end
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Thrust:	1.500 N; 3.000 N (according to ranges)
Allowed range of water PH:	6,4-8,0
Cable size:	3x1,5 mm ² (ACS approved)

Motor's protections

Special thermal protector, manually resettable, especially designed to ensure higher reliability and longer life.



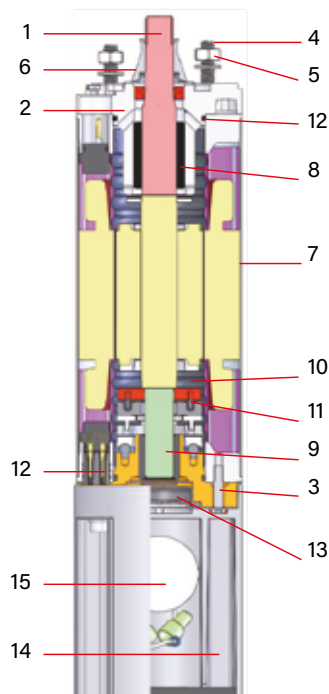
Thermal protection

which stops the motor in case of overheating because of an incorrect installation.



Current overload protection

which protects the motor in the case the submersible pump is partially or totally blocked.



Pos.	COMPONENTS	MATERIALS
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Stainless steel AISI 304
11	Segments	Stainless steel AISI 304
12	O-ring	NBR
13	Diaphragm	NBR
14	Capacitor Box	Technopolimer
15	Capacitor	-

H2 - 220-230 V - 2-WIRE SINGLE-PHASE WATER COOLED ENCAPSULATED MOTORS START AND RUN CONTROL PANEL NOT REQUIRED

Model	Code (no cable)	Code (short cable)	Code (with DRP)	Power		Thrust [N]	Cable (m)	n_N [min ⁻¹]	I_N [A]	I_{START} [A]	η_{eff} [%]	Cos Φ (P.f.)	T_{START} T_N	Lenght [mm]	W. [kg]
				[kW]	[HP]										
H2.037.15	196190010	196190010L	196190010S	0,37	0,5	1500	1,5	2850	3,0-3,1	9,5-11	58	0,97	0,8	390	9,7
H2.055.15	196190015	196190015L	196190015S	0,55	0,75	1500	1,5	2830	4,1-4,2	14,2-15,7	63	0,99	0,8	417	11
H2.075.15	196190020	196190020L	196190020S	0,75	1	1500	1,5	2830	5,5-5,6	18-20,3	63	0,99	0,9	434	12,2
H2.110.30	196190025	196190025L	196190025S	1,1	1,5	3000	1,5	2840	8,3-8,5	29-31,5	63	0,97	0,8	465	13,5
H2.150.30	196190030	196190030L	196190030S	1,5	2	3000	1,5	2840	10,6-10,7	35-36,5	66	0,99	0,7	556	15,4



H3

4" encapsulated water-cooled single-phase PSC submersible motors

Electric motors from series H3 are 2 pole asynchronous single-phase submersible motors designed to operate coupled to hydraulic parts with 4" Nema standard. They are made of materials suitable for contact with water, and cooling and lubrication of the thrust block and bushes are guaranteed by a mixture of water and glycol.

H3 motors require a start and run control box, which includes capacitor and manual reset amperometric protection.

Applications

H3 water-cooled motors ensure reliable working in 4" or larger diameter wells and are designed to be used for lifting, distribution, and pressurisation of water in water systems. H3 motors can be installed with a frequency inverter.

Characteristics

2 pole asynchronous single-phase encapsulated water-cooled motor.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

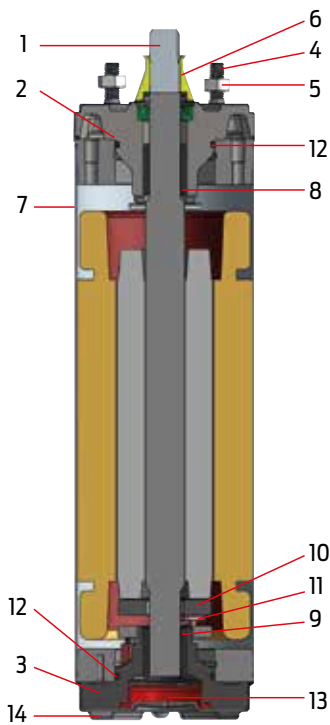
Sand protection to guarantee optimal operation even with sand in the borehole.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

Protection requirements for H3 motors without control box:	EN 60947-4-1 trip time < 10 sec. at 5xI _N
Power range:	0,37 - 2,2 kW
Voltage range:	1x220 -230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Flange:	4" NEMA standard dimensions
Rotation:	CCW facing shaft end
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	300 m
Thrust:	1.500 N; 3.000 N (according to ranges)
Allowed range of water PH:	6,4-8,0
Cable size:	4x1,5 mm ² (ACS approved)



Pos.	COMPONENTS	MATERIALS
1	Shaft End	Stainless steel AISI 420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Graphite
11	Segments	Stainless steel
12	O-ring	NBR
13	Diaphragm	NBR
14	Bottom Cover	Stainless steel AISI 304

H3 - 220-230 V - SINGLE-PHASE WATER COOLED ENCAPSULATED MOTORS

CONTROL PANEL NOT INCLUDED

Model	Code (no cable)	Code (short cable)	Code (with DRP)	Power		Thrust [N]	Cable (m)	n _N [min ⁻¹]	I _N [A]	I _{START} [A]	η eff [%]	CosΦ (P.f.)	T _{START} T _N	Lenght [mm]	W. [kg]
				[kW]	[HP]										
H3.037.15	196191010	196191010L	196191010S	0,37	0,5	1500	1,5	2850	3,1-3,2	9,5-10	57	0,97	0,8-0,8	280	9,2
H3.055.15	196191015	196191015L	196191015S	0,55	0,75	1500	1,5	2830	4,3-4,4	14,2-15,2	61	0,99	0,7-0,8	305	10,5
H3.075.15	196191020	196191020L	196191020S	0,75	1	1500	1,5	2830	5,6-5,7	17,5-18,2	62	0,99	0,8-0,9	320	11,7
H3.110.30	196191025	196191025L	196191025S	1,1	1,5	3000	1,5	2840	8,1-8,2	25-26	63	0,97	0,8-0,8	345	12,6
H3.150.30	196191030	196191030L	196191030S	1,5	2	3000	2,5	2840	10,5-10,6	35-36,5	66	0,99	0,65-0,7	390	14,6
H3.220.30	196191035	196191035L	196191035S	2,2	3	3000	2,5	2820	14,7-14,9	53-56	69	0,98	0,61-0,65	475	19,1



HT 4" encapsulated water-cooled three-phase submersible motors

Electric motors from series HT are 2 pole asynchronous three-phase submersible motors designed to operate coupled to hydraulic parts with 4" Nema standard. They are made of materials suitable for contact with water, and cooling and lubrication of the thrust block and bushes are guaranteed by a mixture of water and glycol. HT motors require a start, operation and protection system.

Applications

HT encapsulated water-cooled motors ensure reliable working in 4" or larger diameter wells and are designed to be used for lifting, distribution, and pressurisation of water in water systems. HT motors are equipped with phase separator which ensures optimal operation when the motor is used with frequency inverter.

Characteristics

2 pole asynchronous three-phase encapsulated watercooled motor.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

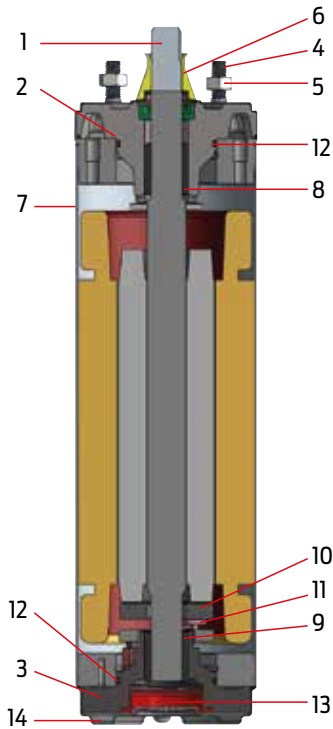
Sand protection to guarantee optimal operation even with sand in the borehole.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

For HT motors an overload protection must be installed according to:	EN 60947-4-1 trip time < 10 sec. at $5xI_N$
Power range:	0,37 - 3 kW
Voltage range:	3x380 - 415V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U_N
Flange:	4" NEMA standard dimensions
Rotation:	reversible
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	300 m
Thrust:	1.500 N; 3.000 N (according to ranges)
Allowed range of water PH:	6,4-8,0
Cable size:	4x1,5 mm ² (ACS approved)



Pos.	COMPONENTS	MATERIALS
1	Shaft End	Stainless steel AISI 420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Graphite
11	Segments	Stainless steel
12	O-ring	NBR
13	Diaphragm	NBR
14	Bottom Cover	Stainless steel AISI 304

HT - 380-415 V - THREE-PHASE WATER COOLED ENCAPSULATED MOTORS

Model	Code (no cable)	Code (short cable)	Code (with DRP)	Power		Thrust [N]	Cable (m)	η_N [min ⁻¹]	I_N [A]	I_{START} [A]	η_{eff} [%]	Cos Φ (P.f.)	T_{START} T_N	Lenght [mm]	W. [kg]
				[kW]	[HP]										
HT.037.15	184194010	184194010L	184194010S	0,37	0,5	1500	1,5	2850	1,1-1,1	6,5-7	69	0,80	3,4	250	8,5
HT.055.15	184194015	184194015L	184194015S	0,55	0,75	1500	1,5	2840	1,6-1,7	8-8,5	72	0,79	3,4	280	9,5
HT.075.15	184194020	184194020L	184194020S	0,75	1	1500	1,5	2840	2-2,1	10-12	73	0,77	3,1	305	10,8
HT.110.30	184194025	184194025L	184194025S	1,1	1,5	3000	1,5	2840	2,8-2,9	14-16	74	0,78	3,2	330	12,0
HT.150.30	184194030	184194030L	184194030S	1,5	2	3000	2,5	2820	4-4,2	20-22	74	0,74	3,4	355	13,5
HT.220.30	184194035	184194035L	184194035S	2,2	3	3000	2,5	2820	5,5-5,9	26-28	73	0,73	3,2	390	15,0
HT.300.30	184194040	184194040L	184194040S	3	4	3000	2,5	2820	7,8-8,2	37-39	73	0,73	3,2	465	18,7



O2

4" 2-wire single-phase oil-cooled submersible motors

Electric motors from series O2 are 2 pole asynchronous single-phase submersible motors, **designed to operate coupled to ZDS 4" hydraulic parts.**

Strong and reliable, they are made of materials suitable for contact with water and oil-cooled by FDA - Food Drug Administration approved dielectric fluid. O2 motors are equipped with a special and unique start and run capacitor, which is designed to guarantee a long-life to the motor and avoid the installation of an external control panel. They also come with a special and manually resettable built-in thermal protection, which stops the motor when overheated.

Applications

O2 oil-cooled motors ensure reliable working in 4" or larger diameter wells and are designed to be used for lifting, distribution, and pressurisation of water in water systems. O2 motors can be installed with a frequency inverter.

Characteristics

- 2 pole asynchronous 2-wire single-phase oil-cooled motor.
- Special and long lasting integrated start and run capacitor.
- Rewindable stator and rotor immersed in dielectric fluid (FDA approved).
- Oversized axial and radial oil-lubricated bearings to guarantee longer life to the motor.
- The pressure compensation inside the motor is ensured by a special internal diaphragm.
- Sand protection to guarantee optimal operation even with sand in the borehole.
- Motor bottom cover for extra protection and safety.
- Removable lead connector to make installation and maintenance easier.
- Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

Power range:	0,37 - 1,5 kW
Voltage range:	1x220 - 230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U_N
Flange:	4" NEMA standard dimensions
Rotation:	CCW facing shaft end
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 40° C
Required cooling flow:	min 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	100 m
Thrust:	1.500 N; 2.500 N (according to ranges)
Allowed range of water PH:	6,4-8,0
Cable size:	3x1,5 mm ² (ACS approved)

Motor's protections

Special thermal protector, manually resettable, especially designed to ensure higher reliability and longer life.



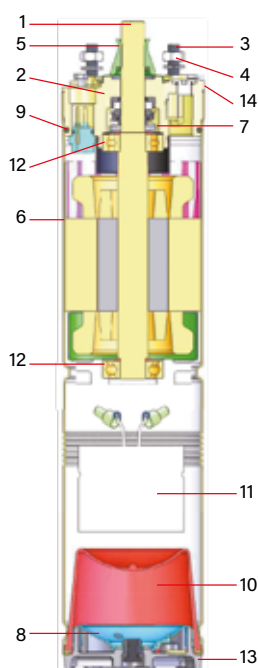
Thermal protection

which stops the motor in case of overheating because of an incorrect installation.



Current overload protection

which protects the motor in the case the submersible pump is partially or totally blocked.



Pos.	COMPONENTS	MATERIALS
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Capacitor	-
12	Bearing	Stainless Steel
13	Safety bottom cover	Technopolimer
14	Upper cover	Stainless steel AISI 304

O2 - 220-230 V - WIRE SINGLE-PHASE OIL-COOLED MOTORS

START AND RUN CONTROL PANEL NOT REQUIRED

Model	Code (no cable)	Code (short cable)	Code (with DRP)	Power		Thrust [N]	Cable (m)	η_N [min ⁻¹]	I_N [A]	I_{START} [A]	η_{eff} [%]	Cos Φ (P.f.)	T_{START} T_N	Lenght [mm]	W. [kg]
				[kW]	[HP]										
O2.037.15	197100010	197100010L	197100010S	0,37	0,5	1500	1,5	2855	3,3-3,5	9,8-10,7	52	0,99	0,85	389	8,5
O2.055.15	197100015	197100015L	197100015S	0,55	0,75	1500	1,5	2840	4,4-4,6	12,8-13,9	60	0,99	0,64	404	9,2
O2.075.15	197100020	197100020L	197100020S	0,75	1	1500	1,5	2855	5,8-6,1	17,9-19,1	62	0,99	0,7	429	10,3
O2.110.25	197100025	197100025L	197100025S	1,1	1,5	2500	1,5	2855	7,8-8	23,8-24,7	66	0,99	0,62	464	11,9
O2.150.25	197100030	197100030L	197100030S	1,5	2	2500	2,5	2855	10,1-11	33-34	65	0,99	0,6	518	13,7



O3

4" oil-cooled PSC single-phase submersible motors

Electric motors from series O3 are 2 pole asynchronous single-phase submersible motors designed to operate coupled to hydraulic parts with 4" Nema standard. Strong and reliable, they are made of materials suitable for contact with water and oil-cooled by FDA - Food Drug Administration approved dielectric fluid.

O3 motors require a start and run control panel CBO, which includes capacitor and manual reset amperometric protection.

Applications

O3 oil-cooled motors ensure reliable working in 4" or larger diameter wells and are designed to be used for lifting, distribution, and pressurisation of water in water systems. O3 motors can be installed with a frequency inverter.

Characteristics

2 pole asynchronous single-phase PSC oil-cooled motor.

Rewindable stator and rotor immersed in dielectric fluid (FDA approved).

Oversized axial and radial oil-lubricated bearings to guarantee longer life to the motor.

The pressure compensation inside the motor is ensured by a special internal diaphragm.

Sand protection to guarantee optimal operation even with sand in the borehole.

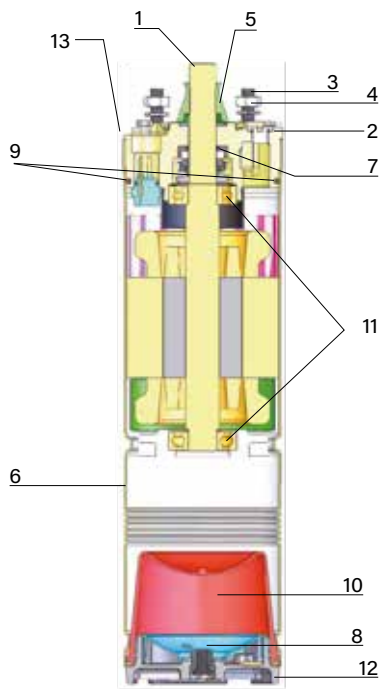
Motor bottom cover for extra protection and safety.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

Protection requirements for O3 motors without control panel:	N 60947-4-1 trip time < 10 sec. at 5 I _N
Power range:	0,37 - 2,2 kW
Voltage range:	1x220 - 230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Flange:	4" NEMA standard dimensions
Rotation:	CCW facing shaft end
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 40° C
Required cooling flow:	min 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Thrust:	1.500 N; 2.500 N; 4.500 N (according to ranges)
Allowed range of water PH:	6,4-8,0
Cable size:	4x1,5 mm ² (ACS approved)



Pos.	COMPONENTS	MATERIALS
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Bearing	Stainless steel
12	Safety bottom cover	Technopolimer
13	Upper cover	Stainless steel AISI 304

O3 - 220-230 V - SINGLE-PHASE PSC OIL-COOLED MOTORS

CONTROL PANEL NOT INCLUDED

Model	Code (no cable)	Code (short cable)	Code (with DRP)	Power		Thrust [N]	Cable (m)	η_N	I_N	I_{START}	η_{eff}	$\cos\Phi$	C450V	T_{START}	Lenght [mm]	W. [kg]
				[kW]	[HP]			[min ⁻¹]	[A]	[A]	[%]	(P.f.)	(μ F)	T_N		
O3.037.15	197101010	197101010L	197101010S	0,37	0,5	1500	1,5	2855	3,3-3,5	9,8-10,7	52	0,99	20	0,85	324	8,0
O3.055.15	197101015	197101015L	197101015S	0,55	0,75	1500	1,5	2840	4,4-4,6	12,8-13,9	60	0,99	25	0,64	339	8,7
O3.075.15	197101020	197101020L	197101020S	0,75	1	1500	1,5	2855	5,8-6,1	17,9-19,1	62	0,99	35	0,7	364	9,7
O3.110.25	197101025	197101025L	197101025S	1,1	1,5	2500	1,5	2855	7,8-8	23,8-24,7	66	0,99	40	0,62	399	11,3
O3.150.25	197101030	197101030L	197101030S	1,5	2	2500	2,5	2855	10,1-11	33-34	65	0,99	60	0,6	434	13,1
O3.150.45	197101035	197101035L	197101035S	1,5	2	4500	2,5	2855	10,1-11	33-34	65	0,99	60	0,6	457	13,7
O3.220.25	197101040	197101040L	197101040S	2,2	3	2500	2,5	2850	14-15,2	43-45	68	0,99	80	0,6	484	15,3
O3.220.45	197101045	197101045L	197101045S	2,2	3	4500	2,5	2850	14-15,2	43-45	68	0,99	80	0,6	507	15,8



OT 4" oil-cooled three-phase submersible motors

Electric motors from series OT are 2 pole asynchronous three-phase submersible motors designed to operate coupled to hydraulic parts with 4" Nema standard. Strong and reliable, they are made of materials suitable for contact with water and oil-cooled by FDA - Food Drug Administration approved dielectric fluid. OT motors require a start, operation and protection system.

Applications

OT oil-cooled motors ensure reliable working in 4" or larger diameter wells and are designed to be used for lifting, distribution, and pressurisation of water in water systems. OT motors can be installed with a frequency inverter.

Characteristics

2 pole asynchronous three-phase oil-cooled motor.

Rewindable stator and rotor immersed in dielectric fluid (FDA approved).

Oversized axial and radial oil-lubricated bearings to guarantee longer life to the motor.

The pressure compensation inside the motor is ensured by a special internal diaphragm.

Sand protection to guarantee optimal operation even with sand in the borehole.

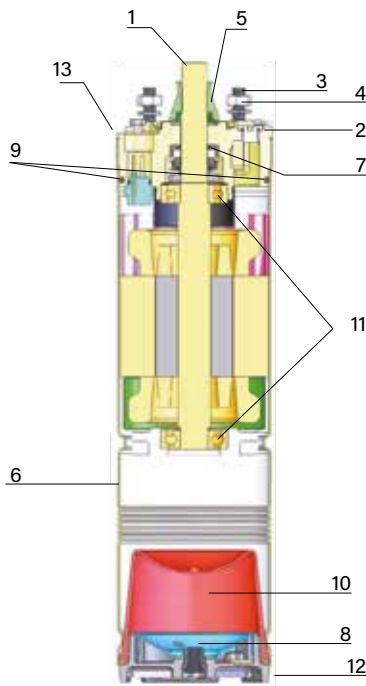
Motor bottom cover for extra protection and safety.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

For OT motors an overload protection must be installed according to:	EN 60947-4-1 trip time < 10 sec. at $5xI_N$
Power range:	0,37 - 5,5 kW
Voltage range:	3x380 - 415V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U_N
Flange:	4" NEMA standard dimensions
Rotation:	reversible
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 40° C
Required cooling flow:	min 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Thrust:	1.500 N; 2.500 N; 4.500 N (according to ranges)
Allowed range of water PH:	6,4-8,0
Cable size:	4x1,5 mm ² (ACS approved)



Pos.	COMPONENTS	MATERIALS
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Bearing	Stainless steel
12	Safety bottom cover	Technopolimer
13	Upper cover	Stainless steel AISI 304

OT - 380-415 V - THREE-PHASE OIL-COOLED MOTORS

Model	Code (no cable)	Code (short cable)	Code (with DRP)	Power		Thrust [N]	Cable (m)	n_N [min ⁻¹]	I_N [A]	I_{START} [A]	η eff [%]	Cos Φ (P.f.)	T_{START} [mm]	Lenght [mm]	W. [kg]
				[kW]	[HP]										
OT.037.15	184198010	184198010L	184198010S	0,37	0,5	1500	1,5	2865-2885	1,5-1,7	6,5-7,4	58	0,63-0,54	4,1	313	7,5
OT.055.15	184198015	184198015L	184198015S	0,55	0,75	1500	1,5	2820-2855	1,6-1,8	7,6-8,3	64	0,75-0,67	3	324	8
OT.075.15	184198020	184198020L	184198020S	0,75	1	1500	1,5	2820-2850	2,3-2,6	10,3-11,2	66	0,75-0,63	3,2	339	8,8
OT.110.25	184198025	184198025L	184198025S	1,1	1,5	2500	1,5	2815-2840	3,1-3,6	14-15,2	69	0,77-0,66	3,7	364	9,9
OT.150.25	184198030	184198030L	184198030S	1,5	2	2500	2,5	2815-2840	4,1-4,6	19,6-21,4	71	0,77-0,66	3,7	399	11,6
OT.150.45	184198035	184198035L	184198035S	1,5	2	4500	2,5	2815-2840	4,1-4,6	19,6-21,4	71	0,77-0,66	3,7	422	12,2
OT.220.25	184198040	184198040L	184198040S	2,2	3	2500	2,5	2832-2865	5,2-5,4	24,2-27	74	0,86-0,76	2,2	434	13,1
OT.220.45	184198045	184198045L	184198045S	2,2	3	4500	2,5	2832-2865	5,2-5,4	24,2-27	74	0,86-0,76	2,2	457	13,8
OT.300.25	184198050	184198050L	184198050S	3	4	2500	2,5	2820-2855	7,0-7,2	33,7-36,8	75	0,85-0,76	3,2	434	13,1
OT.300.45	184198055	184198055L	184198055S	3	4	4500	2,5	2820-2855	7,0-7,2	33,7-36,8	75	0,85-0,76	3,2	457	13,8
OT.400.25	184198060	184198060L	184198060S	4	5,5	2500	2,5	2825-2860	9,3-9,8	42,9-46,8	76	0,84-0,75	2,8	484	16,3
OT.400.45	184198065	184198065L	184198065S	4	5,5	4500	2,5	2825-2860	9,3-9,8	42,9-46,8	76	0,84-0,75	2,8	484	16,9
OT.550.45	184198070	184198070L	NOT AVAILABLE	5,5	7,5	4500	3,5	2820-2850	12,2-12,6	56,8-62	78	0,8-0,7	2,7	572	20,5



4" COMPLETE SUBMERSIBLE PUMPS



Plug&GO.evo

THE INNOVATIVE SOLUTION IN ONE BOX

AUTOMATIC PROTECTIONS



Protection against dry running and lack of water in the well or tank



Thermal protection



Protection against current overload



Protection against leaks in the installation and too frequent starts and stops



Protection against low/high voltage



Protection against voltage peaks



Check-valve working test



4" complete submersible pump, made of ZDS hydraulic part, ZDS 2-wire single-phase encapsulated water-cooled motor, supply cable in different lengths and Evo diagnostic device.

It is particularly recommended for domestic installations, since it is completely automatic and easy to install (it only needs a pressure tank to compensate for any leaks in the plant). The integrated electronics ensures the operation of the pump (pressure switch is not needed) and protects the pump against many other possible problems.

The **Evo** diagnostic device allows to continuously display the Plug&GO.Evo operation and to monitor the possible system faults, such as current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration.

Evo allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque.

Evo allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **Evo**, the Plug&Go.Evo submersible pump can work and be continuously protected also when actual supply voltage values are at tolerance limit, providing the effectiveness of the protection operation. In addition, Evo, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Hydraulic part

ZDS hydraulic part with integrated electronic.

Hydraulic part internal technology with floating ring and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

THE EASIEST 4" SUBMERSIBLE PUMP TO INSTALL

ADVANTAGES:

- ▶ **Integrated electronic protections**
- ▶ **Integrated pressure switch**
- ▶ **Monitoring and diagnostic of pump status**
- ▶ **Alarms diagnostic**
- ▶ **Soft Start**
- ▶ **No control panel required**

Motor

2 pole asynchronous 2-wire single-phase encapsulated water-cooled motor.

Special and long lasting integrated start and run capacitor. In case of need it can be easily replaced.

Soft start procedure.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

Sand protection to guarantee optimal operation even with sand in the borehole.

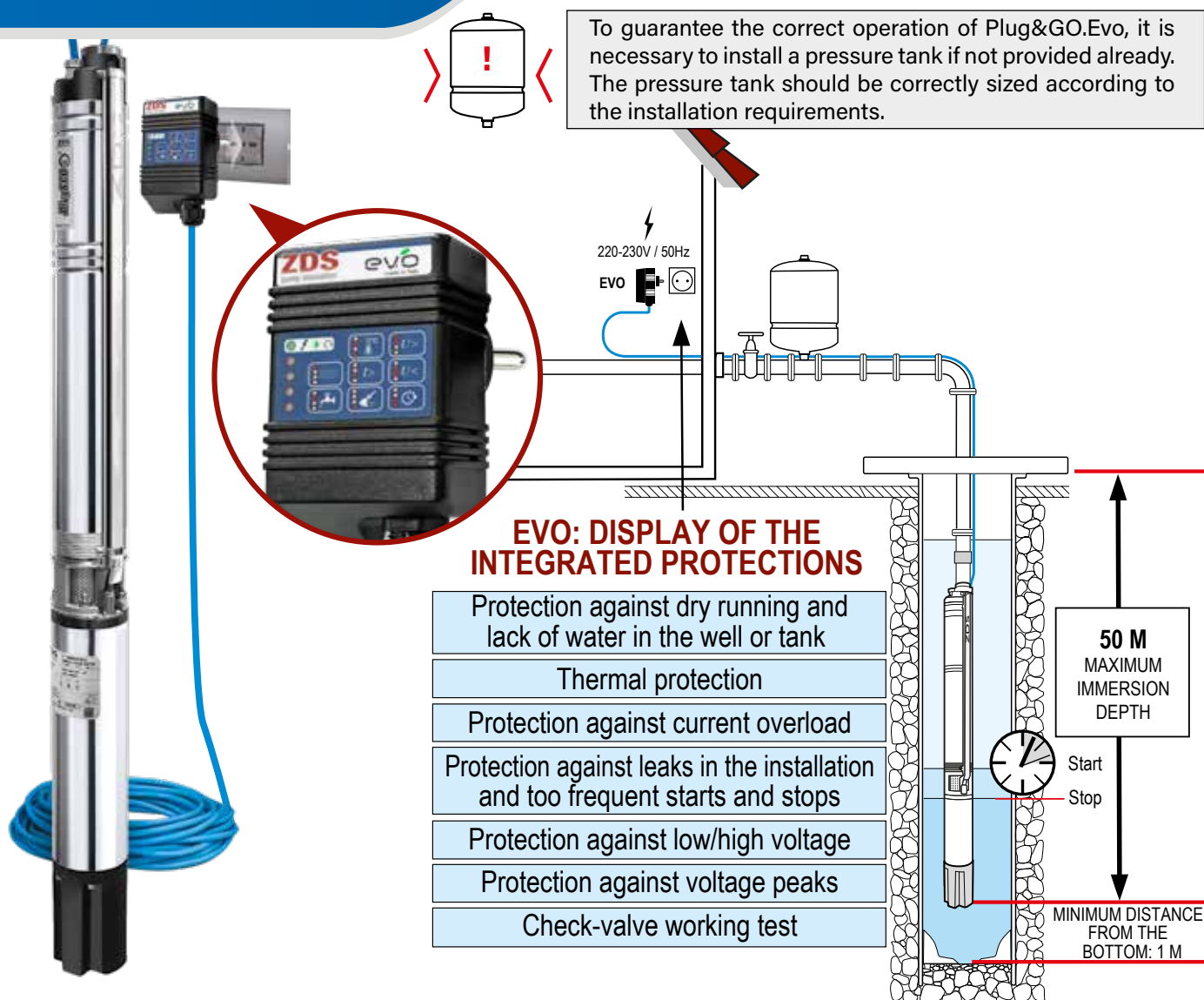
Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

Power range:	0,37 - 1,1 kW
Voltage range:	1x220-230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	20-50 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	6.000 l/h
Maximum head (H):	79 m

Example of installation





MONITORING AND PROTECTION DEVICE

Characteristics

Led interface for operation and protection's display

Alarm buzzer: audio signal during attempts and during stand-by

Ready to use, doesn't need any further calibration or setting up

Technical Specifications

Schuko plug:	Integrated
Casing:	Thermoplastic material
Voltage range:	1x220-230V +6% / -10% / 50 Hz
Degree of protection:	IP 40
Rated ambient temperature:	-10/+35° C
Size (cm):	7,6 x 13 x 5,5



Evo: Display of the integrated protections



Protection against dry running and lack of water in the well

The Plug&GO.Evo pump completely protects itself against lack of water in the well or tank, without the aid of other equipment (probes, cables, sensors, control panels etc.). In case of dry running, the Plug&GO.Evo pump automatically stops, to restart after a programmed cycle time.



Thermal protection

The Plug&GO.Evo pump is automatically protected against motor overheating due to an incorrect installation. In such cases, the thermal protection system stops the pump, which automatically restarts as soon as the correct working temperature parameters are restored.



Current overload protection

The Plug&GO.Evo pump is completely protected against overload. In case the pump is partially or totally blocked, the Plug&GO.Evo software, after some automatic restart attempts, makes the pump enter the stand-by mode.



Protection against leaks in the installation and too frequent starts and stops

The Plug&GO.Evo pump is automatically protected against leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged) and too frequent starts and stops (for example if the tank is of the incorrect size). In these cases, the Plug&GO. Evo automatically enters the stand-by mode.



Protection against low/high voltage

The Plug&GO.Evo pump is protected against low or high voltage, that can damage the motor. In these situations, in order to avoid potential damages, the pump stops running. A number of consecutive automatic attempts verifies if the operating parameters are correct; if they are not, the pump enters stand-by mode.



Protection against voltage peak

The Evo diagnostic device is equipped with internal filters, designed to prevent voltage peaks from damaging the electronic components integrated in the Plug&GO.Evo. The filters are replaceable and easy to access. It is designed to filter the voltage peaks, eventually by interrupting the power supply. Evo diagnostic device works automatically and does not need any scheduled maintenance.



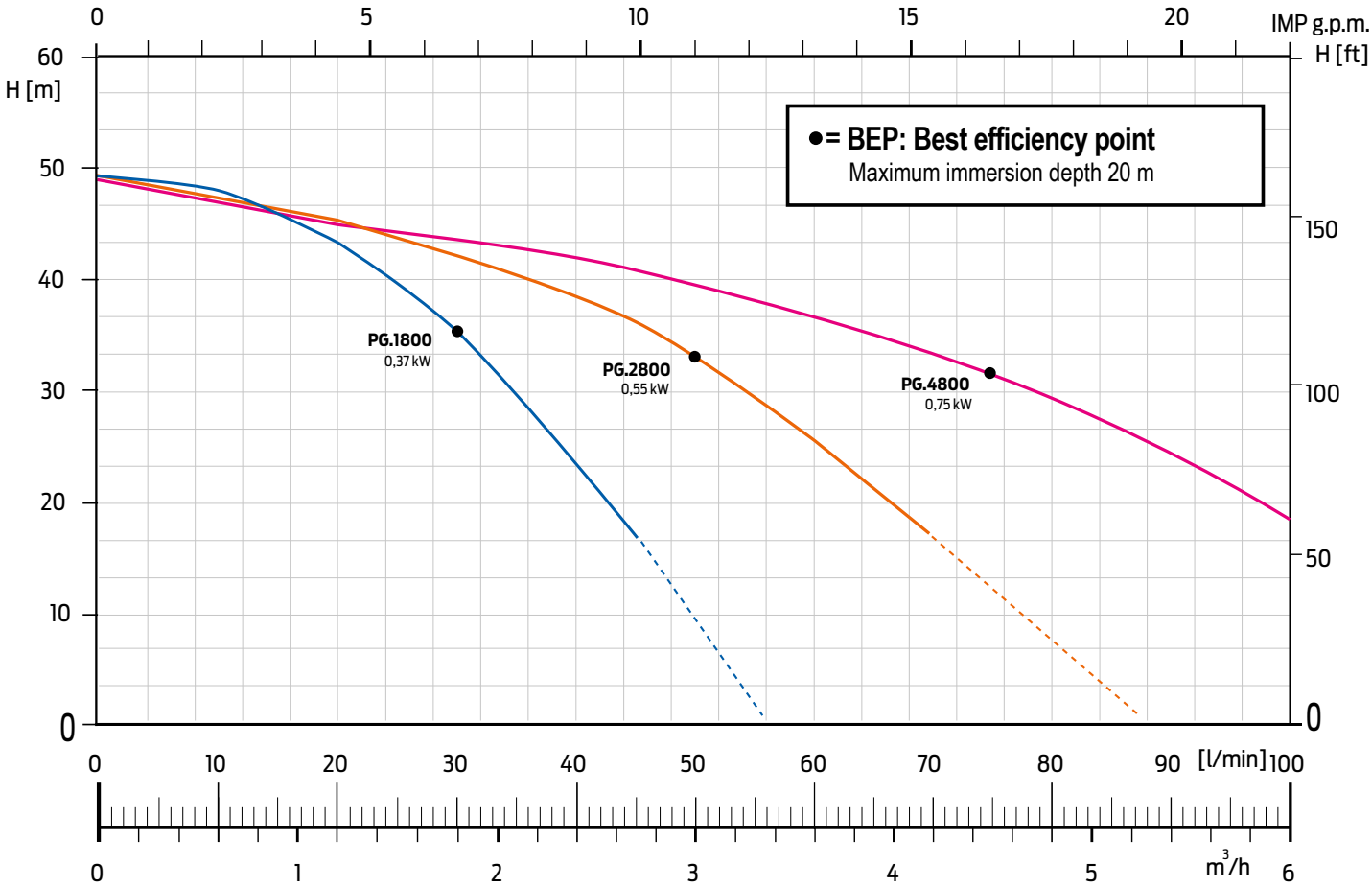
Check-valve working test

The Plug&GO.Evo pump regularly controls if the check valve works properly and if it is not clogged by any impurities. In case it is clogged, a special software procedure mechanically releases the check valve or makes the pump enter the stand-by mode.



Product codes and hydraulics performance chart

Water-Cooled complete 4" submersible pumps



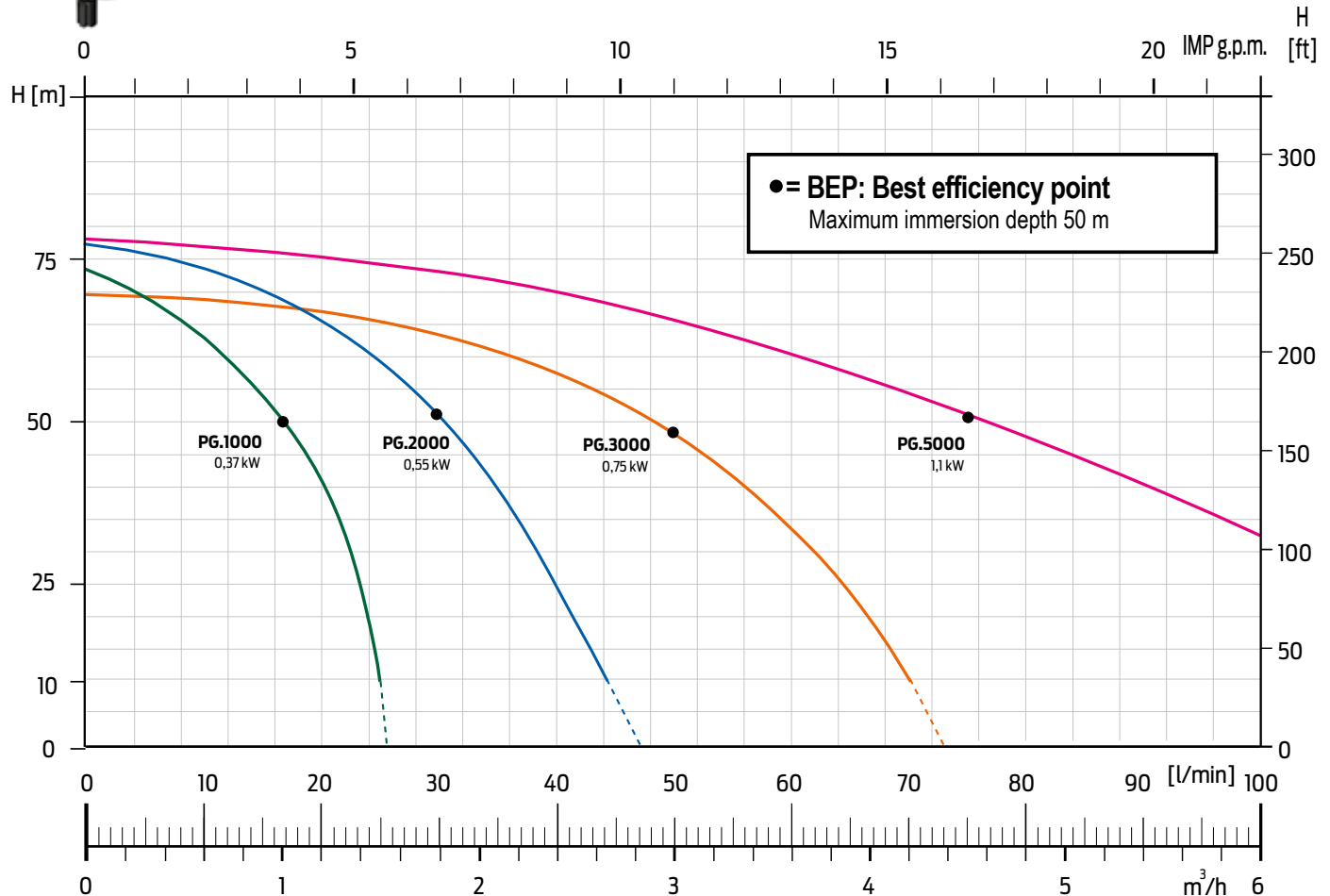
220-230V

Model	Power		P.C.*	C.C.**	Soft Start	Start	Hydraulic performance (n~2.850 min ⁻¹)												Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	L. mm	W. Kg
							m³/h	0	0,6	1,2	1,5	1,8	2,7	3,6	4,2	4,8	6,0							
	kW	HP	kW	(A) / I _n	A start I _n start	A start I _n start	l/min	0	10	20	25	30	45	60	70	80	100	Code	Code	Code	Code			
PG.1800.Evo	0,37	0,5	0,73	3,4	7,5	9,8		49,6	48,7	43,3	40	35,3	17,3					1960705200E	1960705200L	1960705200L1	1960705200L2	870	15,7	
PG.2800.Evo	0,55	0,75	0,93	4	10	13,5	H	48,5		45,7	44,3	42,2	36	25,6	17,3			1960705210E	1960705210L	1960705210L1	1960705210L2	1010	17,4	
PG.4800.Evo	0,75	1	1,23	5,7	13	17		49,2				44,3	41,2	36,9	33,2	29,5	19,1	1960705220E	1960705220L	1960705220L1	1960705220L2	1040	19,2	

*Power consumption **Current consumption - L=Lenght - W=Weight - Total head in meters = H= dynamic total pressure



Product codes and hydraulics performance chart



Water-Cooled complete 4" submersible pumps

220-230V

Model	Power		P.C.*	C.C.**	Soft Start	Start	Hydraulic performance (n~2.850 min ⁻¹)														Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	L. mm	W. Kg
							m³/h	0	0,3	0,6	1,2	1,5	1,8	2,7	3,6	4,2	4,8	6,0								
	kW	HP	kW	(A)/I _n	A start I ₁ start	A start I ₂ start	l/min	0	6	10	20	25	30	45	60	70	80	100	Code	Code	Code	Code				
PG.1000.Evo	0,37	0,5	0,69	3,3	7,5	9,8	H	71	68	63	41	24						1960705112E	1960705112L	1960705112L1	1960705112L2	955	16			
PG.2000.Evo	0,55	0,75	0,97	4,4	10	13,5		74,4		73	65	60	53	26					1960705212E	1960705212L	1960705212L1	1960705212L2	1010	17,4		
PG.3000.Evo	0,75	1	1,24	5,8	13	17		70			66	64	61	52	37	25			1960705313E	1960705313L	1960705313L1	1960705313L2	1230	19,4		
PG.5000.Evo	1,1	1,5	1,7	8,8	19	25		79,7						72	67	60	54	48	31	1960705513E	1960705513L	1960705513L1	1960705513L2	1260	20,7	

*Power consumption **Current consumption - L=Length - W=Weight - Total head in meters = H= dynamic total pressure

ZDJet



- ▶ **READY AND EASY TO INSTALL**
- ▶ **NO NEED FOR EXTERNAL CONTROL PANEL**
- ▶ **INTEGRATED CAPACITOR AND SPECIAL THERMAL PROTECTION**

▶ **4" complete submersible pump, made of ZDS hydraulic part, ZDS 2-wire single-phase encapsulated water-cooled H2 motor and supply cable in different lengths.**

Reliable, strong, easy to maintain and available in a wide range of models; it's ready to use as it doesn't require a start and run control panel.

It can be protected against many possible installation or operation faults thanks to the DRP (integrated in the power supply cable), the DRP-Plus (display monitoring protections), or the electronic control panel Z-Defender (with diagnostic and protections).

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous 2-wire single-phase encapsulated water-cooled H2 motor.

Special and long lasting integrated start and run capacitor. In case of need it can be easily replaced.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

Sand protection to guarantee optimal operation even with sand in the borehole.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Motor's protections

Special thermal protector, manually resettable, especially designed to ensure higher reliability and longer life.



Thermal protection

which stops the motor in case of overheating because of an incorrect installation.



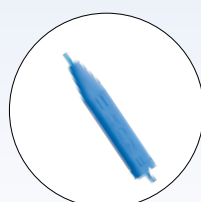
Current overload protection

which protects the motor in the case the submersible pump is partially or totally blocked.

Versions available



STANDARD



DRP
DRY RUNNING
PROTECTION



DRP-PLUS
DIAGNOSTIC AND
PROTECTION DEVICE

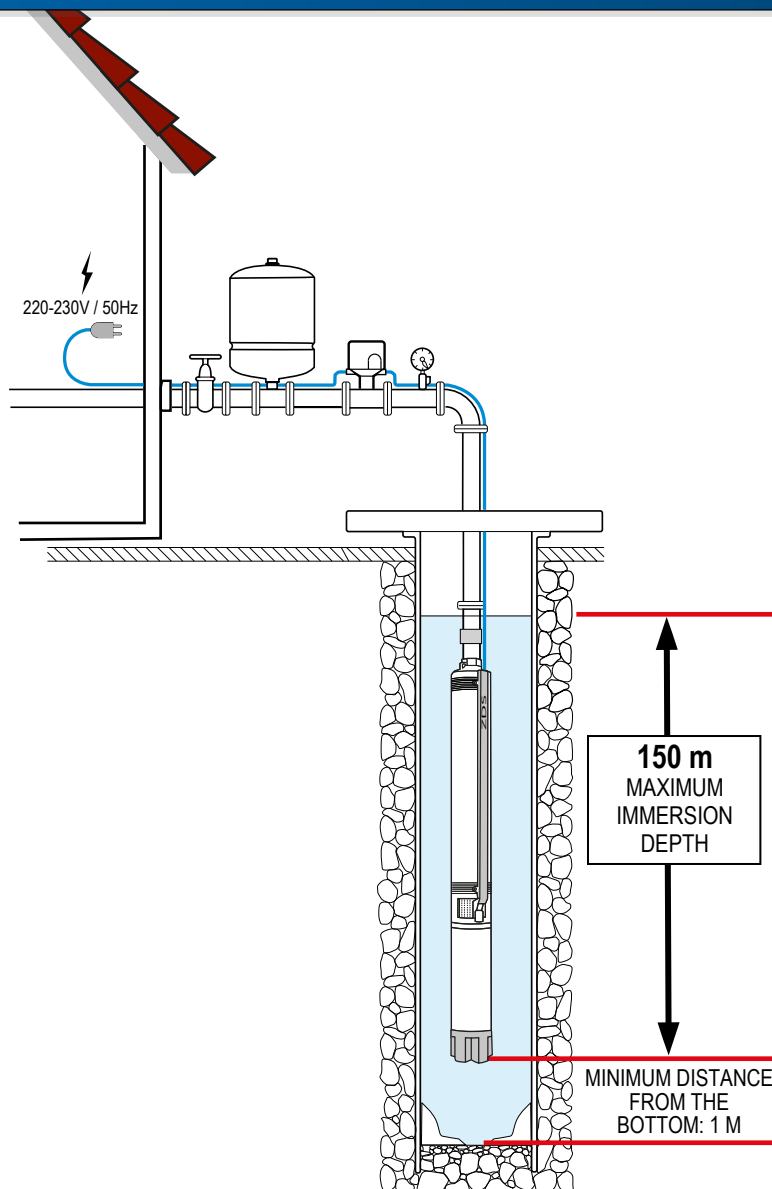


Z-DEFENDER
ELECTRONIC CONTROL PANEL
WITH DIAGNOSTIC
AND PROTECTION

Technical Specifications

Power range:	0,37 - 1,5 kW
Voltage range:	1x220-230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ²
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	220 m

Example of installation





DRP

**ELECTRONIC PROTECTION
DEVICE**

DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus the pump operation is directly proportional to the water supply for optimum efficiency. 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 submersible pump function autonomously in conditions of water shortage. The DRP is ready for use, integrated into the connection cable and needs no further installation.

Characteristics

Automatic programmed restarts in case of protection

Stand-by mode at maximum number of restart attempts overcoming

Ready to use, doesn't need any further calibration or setting up

DRP Protection



Protection against dry running and lack of water in the well

The DRP completely protects the submersible pump against lack of water in the well, without the aid of other equipment (probes, cables, sensors, control panels etc.). In case of dry running, the DRP automatically stops the pump. When the water level is restored in the well, the DRP restarts the pump after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

The DRP protects the submersible pump against leaks in the piping system (also when the pressure tank is exhausted or its membrane is defective, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system). In such cases to avoid potential damages, the DRP, after some automatic re-start attempts, makes the pump enter the stand-by mode.



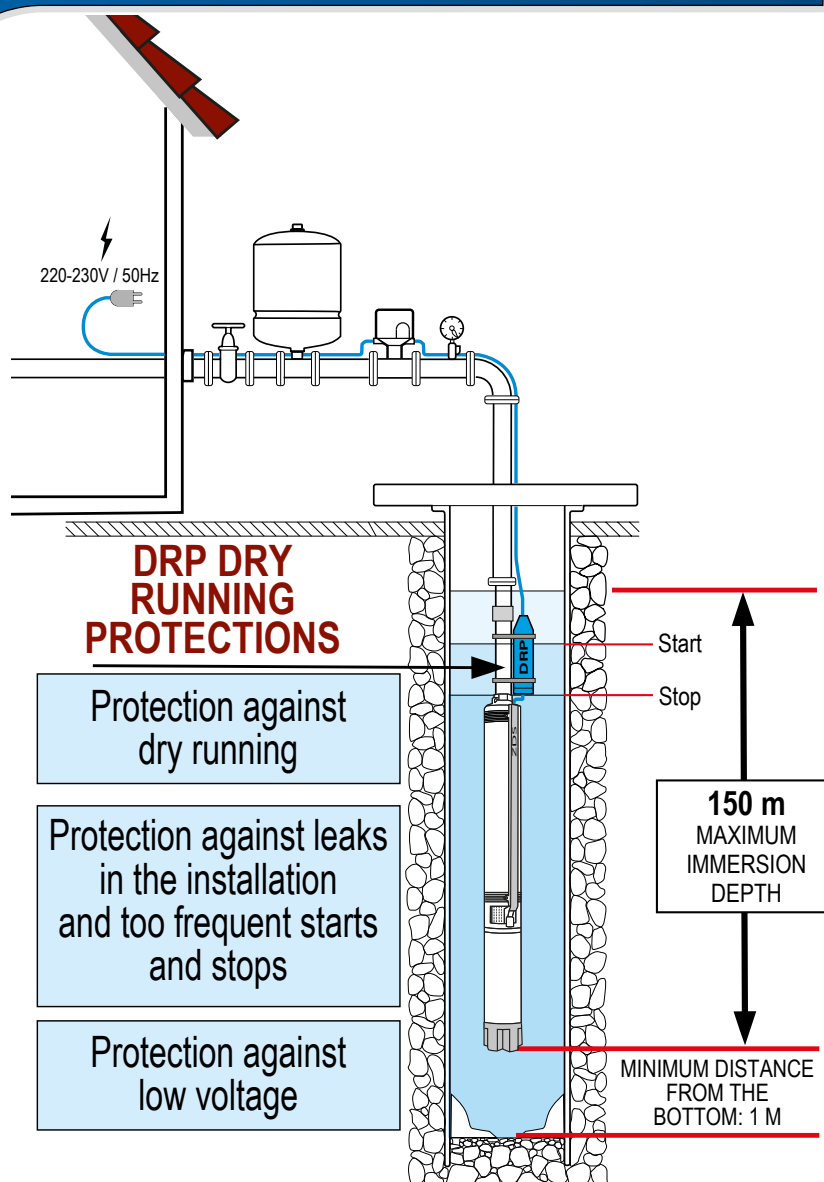
Protection against low voltage

The DRP protects the submersible pump against low voltage, that can damage the motor.

Technical Specifications

Casing:	Thermoplastic material
Voltage range:	1x220-230V +6% / -10% / 50 Hz
Degree of protection:	IP 68
Rated ambient temperature:	-10/+40° C
Size (cm):	33 x 5 x 3

Example of installation





DRP-Plus

DISPLAY MONITORING PROTECTIONS



DRP-Plus device is designed to guarantee an optimal protection of the ZDJet pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration. **DRP-Plus** allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque. **DRP-Plus** allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **DRP-Plus**, the ZDJet.DRP-Plus submersible pump can work and be continuously protected also when actual supply voltage values are at tolerance limit, providing the effectiveness of the protection operation. In addition, **DRP-Plus**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Characteristics

- LCD display for easy diagnostic
- Soft start technology
- Extra torque on start up when necessary
- Ready to use, doesn't need any further calibration or setting up
- Self-learning button for possible field approach

DRP-Plus Protection



Protection against dry running and lack of water in the well

The device automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

In case of leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system), **DRP-Plus** automatically makes the pump enter the stand-by mode showing an alarm on the display.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



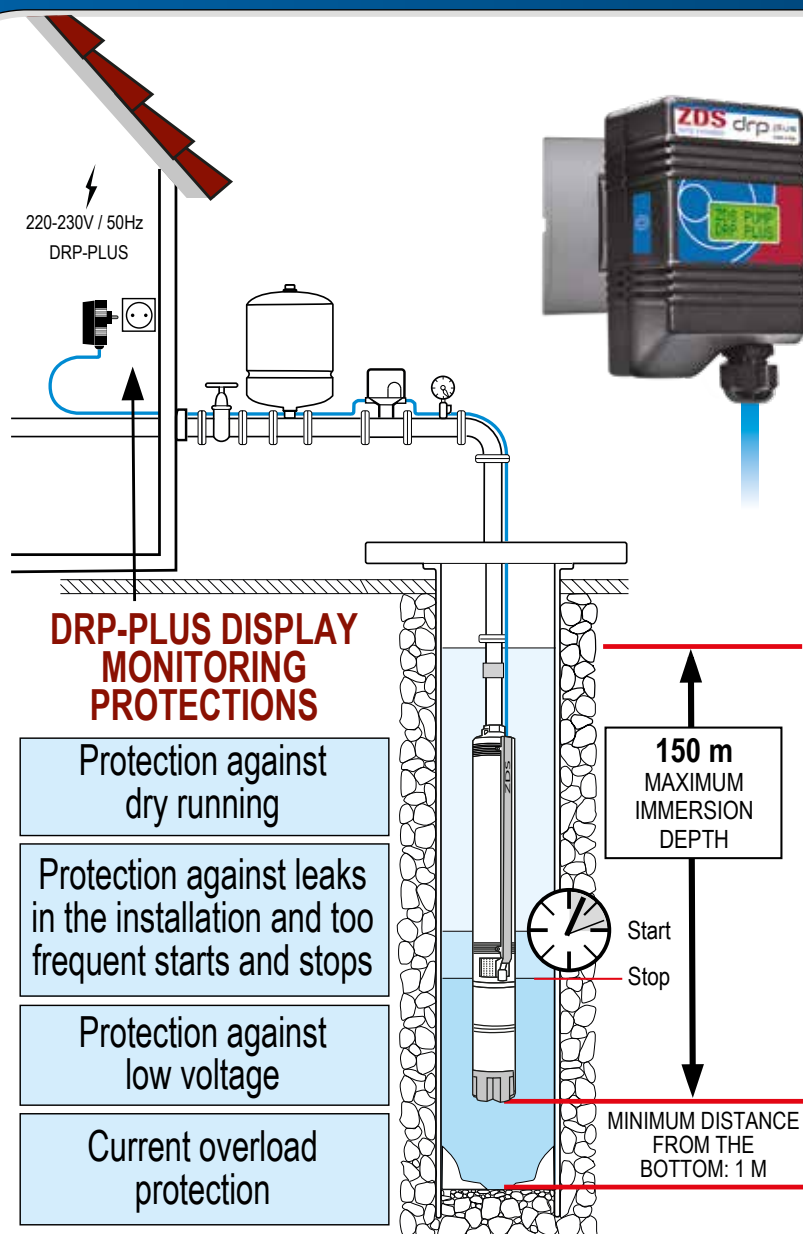
Current overload protection

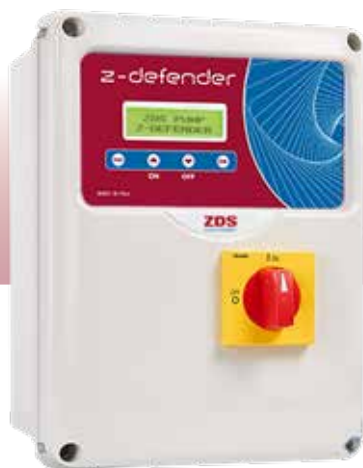
In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.

Technical Specifications

Schuko plug:	Integrated
Casing:	Thermoplastic material
Voltage range:	1x220-230V +6% / -10% / 50 Hz
Degree of protection:	IP 40
Rated ambient temperature:	-10/+35° C
Size (cm):	7,6 x 13 x 5,5

Example of installation





z-defender

Electronic control panel with protection and diagnostic for direct start and running of ZDS single-phase motors

Z-DEFENDER is an innovative electronic panel essential to start, run and protect the single-phase ZDS submersible pump against many possible installation and operation faults.

It's special and unique as it doesn't need any setting or self-learning, it's easy to install and ready to use, you only have to select the type of motor on the display and turn the pump on.

Z-DEFENDER is designed to guarantee an optimal protection of the submersible pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration.

Z-DEFENDER allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque.

Z-DEFENDER allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **Z-DEFENDER**, the ZDJet.Defender submersible pump can work and be continuously protected also when the supply voltage values are at tolerance limit, providing the effectiveness of the protection operation.

In addition, **Z-DEFENDER**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Z-DEFENDER also minimizes energy consumption when the pump is not running.

Thanks to its special and innovative ZDS technology, **Z-DEFENDER** combines, in a single device, protection, reliability and ease of installation.



Characteristics

Ready to use: doesn't need any further calibration or setting up, as it's only necessary to select the type of motor on the display

LCD display for easy diagnostic of running parameters or eventual protections

Soft start technology

Extra torque on start up when necessary

Sounder alarm in the event of a fault and in stand-by

When the pump is not used, even if it is in stand-by mode, weekly start-up will be commanded by the electronic, in order to avoid any blockage caused by natural sediments in the well

No energy consumption when in stand-by

Low voltage input for floats or pressure switches

Z-DEFENDER protections



Protection against dry running and lack of water in the well

The control panel automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

In case of leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system), the control panel automatically makes the pump enter the stand-by mode showing an alarm on the display.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



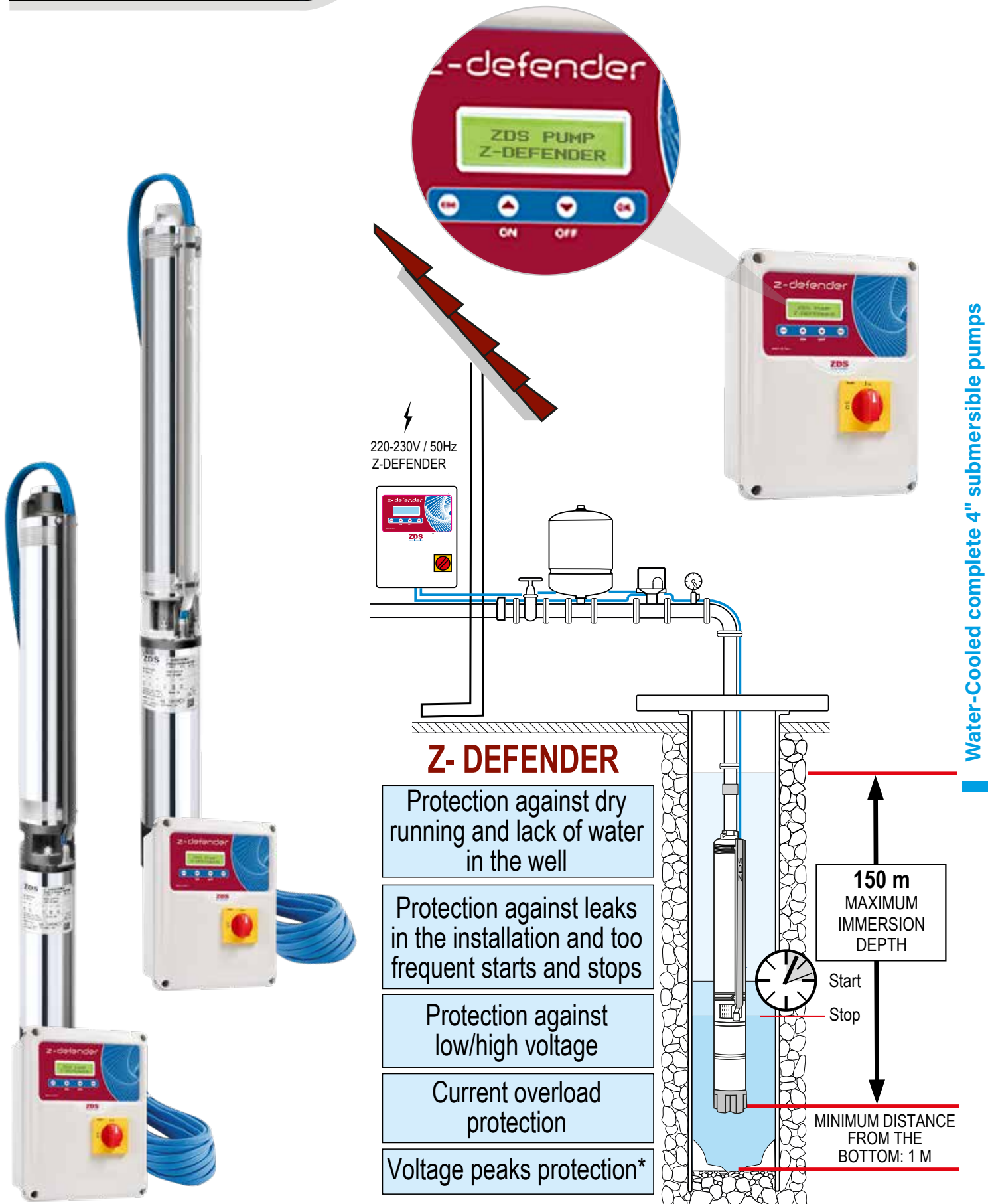
Voltage peaks protection*

Z-DEFENDER, on demand, can be equipped with internal filters designed to protect it from voltage peaks. Filters are replaceable and of easy access. *Optional

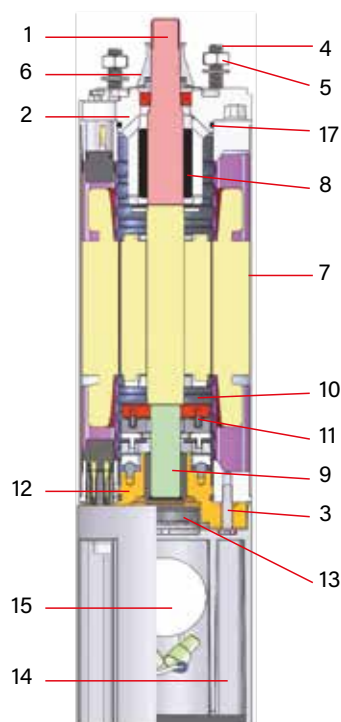
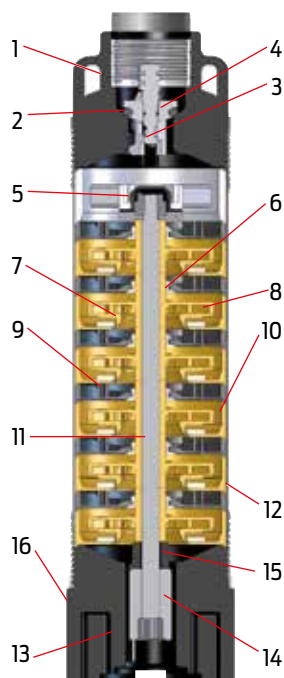
Technical Specifications

Casing:	Over-sized in ABS
Voltage range:	1x220-230 V +-10% 50 Hz
Power range:	0,37 - 1,5 kW
Degree of protection:	IP 55
Standard:	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	3 inputs multi-contact float/pressure switch (NO) (in low voltage)
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/ voltage/motor current/alarms/input status/power
Buttons Esc- ↑ - ↓ -Off-OK:	to query the system
Motor output:	relay
Contact output:	for alarm
Protection fuses:	included (1 for protection and 1 for electronic card)
Voltage peaks protection:	optional
Size (cm):	34 x 24 x 17
Weight:	1,5 Kg

Example of installation

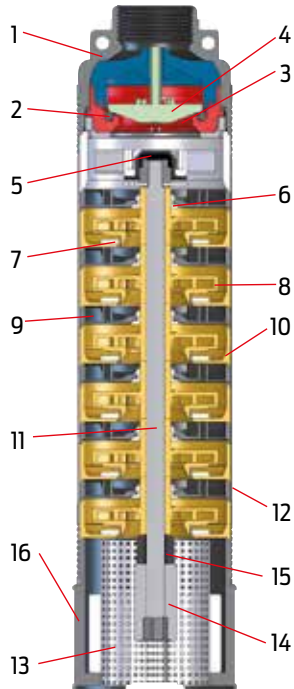


ZDJet.P

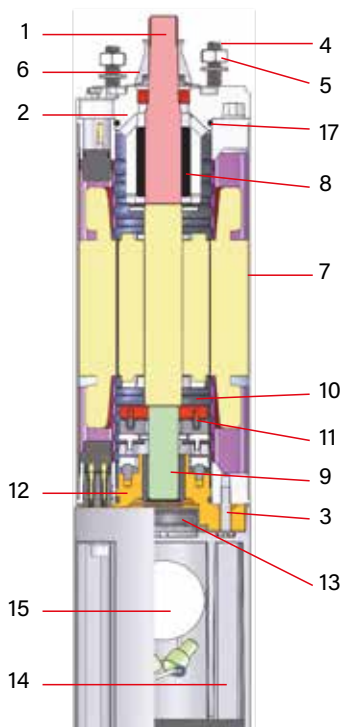


Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite HT 204
9	Lower bearing	Graphite HT 204
10	Rocking disk	Stainless steel AISI 304
11	Segments	Stainless steel AISI 304
12	O-ring	NBR
13	Diaphragm	NBR
14	Capacitor Box	Technopolimer
15	Capacitor	-

ZDJet.X



*Removable



Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter (removable)*	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite HT 204
9	Lower bearing	Graphite HT 204
10	Rocking disk	Stainless steel AISI 304
11	Segments	Stainless steel AISI 304
12	O-ring	NBR
13	Diaphragm	NBR
14	Capacitor Box	Technopolimer
15	Capacitor	-

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
	kW	HP			IN	m³/h	0	0	0,6	1,5	2,4	4,2					6
			(A)	l/min									0	6	10	25	
ZDJet.P.1-8	0,25	0,33	0,55	2,7		50,2	48	44,4	18				196025108	196025108L	196025108L1	196025108L2	
ZDJet.P.1-8.DRP													196025108S	196025108S1	196025108S2	196025108S3	
ZDJet.P.1-12	0,37	0,5	0,69	3,3			75,4	72	66,6	27				196025112	196025112L	196025112L0	196025112L2
ZDJet.P.1-12.DRP														196025112S	196025112S1	196025112S2	196025112S3
ZDJet.P.1-12.DRP-Plus					196025112P									196025112P1	196025112P2	196025112P3	
ZDJet.P.1-12.DEF					196025112D									196025112D1	196025112D2	196025112D3	
ZDJet.P.1-18	0,55	0,75	0,87	4		113	108	99,9	40,5				196025118	196025118L	196025118L1	196025118L2	
ZDJet.P.1-18.DRP													196025118S	196025118S1	196025118S2	196025118S3	
ZDJet.P.1-18.DRP-Plus													196025118P	196025118P1	196025118P2	196025118P3	
ZDJet.P.1-18.DEF													196025118D	196025118D1	196025118D2	196025118D3	
ZDJet.P.1-25	0,75	1	1,23	5,7		157	150	138,8	56,3				196025125	196025125L	196025125L1	196025125L2	
ZDJet.P.1-25.DRP													196025125S	196025125S1	196025125S2	196025125S3	
ZDJet.P.1-25.DRP-Plus													196025125P	196025125P1	196025125P2	196025125P3	
ZDJet.P.1-25.DEF													196025125D	196025125D1	196025125D2	196025125D3	
					Total head in meters = H= dynamic total pressure												
ZDJet.P.2-5	0,25	0,33	0,55	2,7		32		31,2	26,2	17				196025205	196025205L	196025205L1	196025205L2
ZDJet.P.2-5.DRP														196025205S	196025205S1	196025205S2	196025205S3
ZDJet.P.2-8	0,37	0,5	0,73	3,4		51,2		49,9	41,9	27,2				196025208	196025208L	196025208L0	196025208L2
ZDJet.P.2-8.DRP														196025208S	196025208S1	196025208S2	196025208S3
ZDJet.P.2-8.DRP-Plus														196025208P	196025208P1	196025208P2	196025208P3
ZDJet.P.2-8.DEF														196025208D	196025208D1	196025208D2	196025208D3
ZDJet.P.2-12	0,55	0,75	0,97	4,4		77		74,9	62,9	40,8				196025212	196025212L	196025212L0	196025212L2
ZDJet.P.2-12.DRP														196025212S	196025212S1	196025212S2	196025212S3
ZDJet.P.2-12.DRP-Plus														196025212P	196025212P1	196025212P2	196025212P3
ZDJet.P.2-12.DEF														196025212D	196025212D1	196025212D2	196025212D3
ZDJet.P.2-16	0,75	1	1,27	5,8		102		99,8	83,8	54,4				196025216	196025216L	196025216L1	196025216L2
ZDJet.P.2-16.DRP														196025216S	196025216S1	196025216S2	196025216S3
ZDJet.P.2-16.DRP-Plus														196025216P	196025216P1	196025216P2	196025216P3
ZDJet.P.2-16.DEF														196025216D	196025216D1	196025216D2	196025216D3
ZDJet.P.2-24	1,1	1,5	1,7	8,6			153,6		149,8	125,8	81,6			196025224	196025224L	196025224L1	196025224L2
ZDJet.P.2-24.DRP														196025224S	196025224S1	196025224S2	196025224S3
ZDJet.P.2-24.DRP-Plus														196025224P	196025224P1	196025224P2	196025224P3
ZDJet.P.2-24.DEF														196025224D	196025224D1	196025224D2	196025224D3

*Power consumption **Current consumption

ZDJet.P complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and
2-wire single-phase encapsulated water-cooled motor - 220-230V

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m
		kW	HP	kW	IN	m³/h	0	0	0,6	1,5	2,4	4,2	6	Code	Code	Code	Code
						l/min	0	6	10	25	40	70	100				
PUMP CURVE 3	ZDJet.P.3-6	0,37	0,5	0,7	3,2		33,3			30,4	27	13,7		196025306	196025306L	196025306L1	196025306L2
	ZDJet.P.3-6.DRP													196025306S	196025306S1	196025306S2	196025306S3
	ZDJet.P.3-6.DRP-Plus													196025306P	196025306P1	196025306P2	196025306P3
	ZDJet.P.3-6.DEF													196025306D	196025306D1	196025306D2	196025306D3
	ZDJet.P.3-9	0,55	0,75	0,93	4,2		50			45,6	40,5	20,6		196025309	196025309L	196025309L0	196025309L2
	ZDJet.P.3-9.DRP													196025309S	196025309S1	196025309S2	196025309S3
	ZDJet.P.3-9.DRP-Plus													196025309P	196025309P1	196025309P2	196025309P3
	ZDJet.P.3-9.DEF													196025309D	196025309D1	196025309D2	196025309D3
	ZDJet.P.3-13	0,75	1	1,24	5,8		72,2			65,9	58,5	29,8		196025313	196025313L	196025313L0	196025313L2
	ZDJet.P.3-13.DRP													196025313S	196025313S1	196025313S2	196025313S3
	ZDJet.P.3-13.DRP-Plus													196025313P	196025313P1	196025313P2	196025313P3
	ZDJet.P.3-13.DEF													196025313D	196025313D1	196025313D2	196025313D3
	ZDJet.P.3-19	1,1	1,5	1,66	8,1		105,5			96	85,5	43,50		196025319	196025319L	196025319L1	196025319L2
	ZDJet.P.3-19.DRP													196025319S	196025319S1	196025319S2	196025319S3
	ZDJet.P.3-19.DRP-Plus													196025319P	196025319P1	196025319P2	196025319P3
	ZDJet.P.3-19.DEF													196025319D	196025319D1	196025319D2	196025319D3
	ZDJet.P.3-25	1,5	2	2,34	10,6		138,8			126,8	112,5	57,3		196025325	196025325L	196025325L1	196025325L2
	ZDJet.P.3-25.DRP													196025325S	196025325S1	196025325S2	196025325S3
	ZDJet.P.3-25.DRP-Plus													196025325P	196025325P1	196025325P2	196025325P3
	ZDJet.P.3-25.DEF													196025325D	196025325D1	196025325D2	196025325D3
PUMP CURVE 5	ZDJet.P.5-4	0,37	0,5	0,72	3,3	Total head in meters = H= dynamic total pressure	24,5				22	18,5	12,1	196025504	196025504L1	196025504L2	196025504L3
	ZDJet.P.5-4.DRP													196025504S	196025504S1	196025504S2	196025504S3
	ZDJet.P.5-4.DRP-Plus													196025504P	196025504P1	196025504P2	196025504P3
	ZDJet.P.5-4.DEF													196025504D	196025504D1	196025504D2	196025504D3
	ZDJet.P.5-6	0,55	0,75	0,95	4,2		37				33	27,7	18,2	196025506	196025506L	196025506L1	196025506L2
	ZDJet.P.5-6.DRP													196025506S	196025506S1	196025506S2	196025506S3
	ZDJet.P.5-6.DRP-Plus													196025506P	196025506P1	196025506P2	196025506P3
	ZDJet.P.5-6.DEF													196025506D	196025506D1	196025506D2	196025506D3
	ZDJet.P.5-8	0,75	1	1,23	5,7		49,1				44	37	24,2	196025508	196025508L	196025508L0	196025508L2
	ZDJet.P.5-8.DRP													196025508S	196025508S1	196025508S2	196025508S3
	ZDJet.P.5-8.DRP-Plus													196025508P	196025508P1	196025508P2	196025508P3
	ZDJet.P.5-8.DEF													196025508D	196025508D1	196025508D2	196025508D3
	ZDJet.P.5-13	1,1	1,5	1,7	8,6		79,7				72	60,1	39,4	196025513	196025513L	196025513L0	196025513L2
	ZDJet.P.5-13.DRP													196025513S	196025513S1	196025513S2	196025513S3
	ZDJet.P.5-13.DRP-Plus													196025513P	196025513P1	196025513P2	196025513P3
	ZDJet.P.5-13.DEF													196025513D	196025513D1	196025513D2	196025513D3
	ZDJet.P.5-17	1,5	2	2,35	10,6		104,3				93,5	78,5	51,5	196025517	196025517L	196025517L1	196025517L2
	ZDJet.P.5-17.DRP													196025517S	196025517S1	196025517S2	196025517S3
	ZDJet.P.5-17.DRP-Plus													196025517P	196025517P1	196025517P2	196025517P3
	ZDJet.P.5-17.DEF													196025517D	196025517D1	196025517D2	196025517D3

*Power consumption **Current consumption

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)									Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m
						IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4				
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250				
PUMP CURVE 1	ZDJet.X.1-8	0,25	0,33	0,55	2,7		50,2	44,4	18					196020108	196020108L	196020108L1	196020108L2	
	ZDJet.X.1-8.DRP													196020108S	196020108S1	196020108S2	196020108S3	
	ZDJet.X.1-12	0,37	0,5	0,69	3,3		75,4	66,6	27				196020112	196020112L	196020112L1	196020112L2		
	ZDJet.X.1-12.DRP												196020112S	196020112S1	196020112S2	196020112S3		
	ZDJet.X.1-12.DRP-Plus												196020112P	196020112P1	196020112P2	196020112P3		
	ZDJet.X.1-12.DEF												196020112D	196020112D1	196020112D2	196020112D2		
	ZDJet.X.1-18	0,55	0,75	0,87	4		113	99,9	40,5				196020118	196020118L	196020118L1	196020118L2		
	ZDJet.X.1-18.DRP												196020118S	196020118S1	196020118S2	196020118S3		
	ZDJet.X.1-18.DRP-Plus												196020118P	196020118P1	196020118P2	196020118P3		
	ZDJet.X.1-18.DEF												196020118D	196020118D1	196020118D2	196020118D3		
	ZDJet.X.1-25	0,75	1	1,23	5,7		157	138,8	56,3					196020125	196020125L	196020125L1	196020125L2	
	ZDJet.X.1-25.DRP													196020125S	196020125S1	196020125S2	196020125S3	
	ZDJet.X.1-25.DRP-Plus													196020125P	196020125P1	196020125P2	196020125P3	
	ZDJet.X.1-25.DEF													196020125D	196020125D1	196020125D2	196020125D3	
	ZDJet.X.1-36	1,1	1,5	1,69	8,4		226,1	199,8	81					196020136	196020136L	196020136L1	196020136L2	
	ZDJet.X.1-36.DRP													196020136S	196020136S1	196020136S2	196020136S3	
ZDJet.X.1-36.DRP-Plus	196020136P													196020136P1	196020136P2	196020136P3		
ZDJet.X.1-36.DEF	196020136D													196020136D1	196020136D2	196020136D3		
ZDJet.X.2-5	0,25	0,33	0,55	2,7		32	31,2	26,2	17					196020205	196020205L	196020205L1	196020205L2	
ZDJet.X.2-5.DRP														196020205S	196020205S1	196020205S2	196020205S3	
ZDJet.X.2-8	0,37	0,5	0,73	3,4		51,2	49,9	41,9	27,2					196020208	196020208L	196020208L1	196020208L2	
ZDJet.X.2-8.DRP														196020208S	196020208S1	196020208S2	196020208S3	
ZDJet.X.2-8.DRP-Plus														196020208P	196020208P1	196020208P2	196020208P3	
ZDJet.X.2-8.DEF														196020208D	196020208D1	196020208D2	196020208D3	
ZDJet.X.2-12	0,55	0,75	0,97	4,4		76,8	74,9	62,9	40,8					196020212	196020212L	196020212L1	196020212L2	
ZDJet.X.2-12.DRP														196020212S	196020212S1	196020212S2	196020212S3	
ZDJet.X.2-12.DRP-Plus														196020212P	196020212P1	196020212P2	196020212P3	
ZDJet.X.2-12.DEF														196020212D	196020212D1	196020212D2	196020212D3	
ZDJet.X.2-16	0,75	1	1,27	5,8		102,4	99,8	83,8	54,4					196020216	196020216L	196020216L1	196020216L2	
ZDJet.X.2-16.DRP														196020216S	196020216S1	196020216S2	196020216S3	
ZDJet.X.2-16.DRP-Plus														196020216P	196020216P1	196020216P2	196020216P3	
ZDJet.X.2-16.DEF														196020216D	196020216D1	196020216D2	196020216D3	
ZDJet.X.2-24	1,1	1,5	1,7	8,6		153,6	149,8	125,8	81,6					196020224	196020224L	196020224L1	196020224L2	
ZDJet.X.2-24.DRP														196020224S	196020224S1	196020224S2	196020224S3	
ZDJet.X.2-24.DRP-Plus														196020224P	196020224P1	196020224P2	196020224P3	
ZDJet.X.2-24.DEF														196020224D	196020224D1	196020224D2	196020224D3	
ZDJet.X.2-32	1,5	2,0	2,25	10,5		204,7	199,7	167,7	108					196020232	196020232L	196020232L1	196020232L2	
ZDJet.X.2-32.DRP														196020232S	196020232S1	196020232S2	196020232S3	
ZDJet.X.2-32.DRP-Plus														196020232P	196020232P1	196020232P2	196020232P3	
ZDJet.X.2-32.DEF														196020232D	196020232D1	196020232D2	196020232D3	

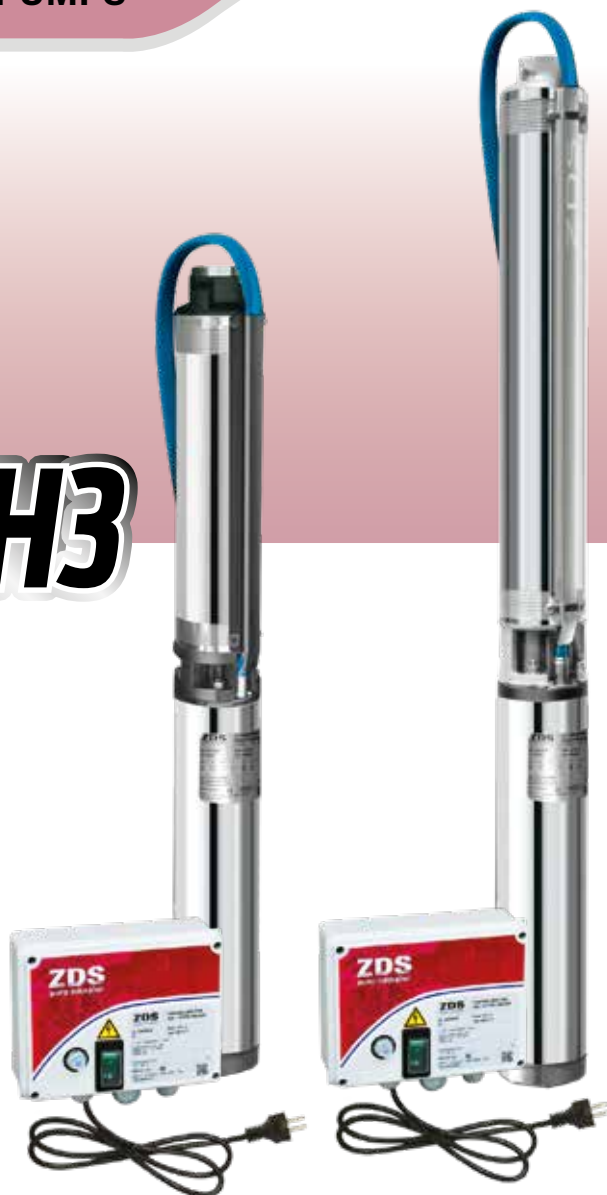
*Power consumption **Current consumption

ZDJet.X complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and
2-wire single-phase encapsulated water-cooled motor - **220-230V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m		
						IN	m³/h	0	0,6	1,5	2,4	4,2	6					11,4	15
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code	Code	
PUMP CURVE 3	ZDJet.X.3-6	0,37	0,5	0,7	3,2		33,3		30,4	27	13,7			196020306	196020306L	196020306L1	196020306L2		
	ZDJet.X.3-6.DRP													196020306S	196020306S1	196020306S2	196020306S3		
	ZDJet.X.3-6.DRP-Plus													196020306P	196020306P1	196020306P2	196020306P3		
	ZDJet.X.3-6.DEF													196020306D	196020306D1	196020306D2	196020306D3		
	ZDJet.X.3-9	0,55	0,75	0,93	4,2		50		45,6	40,5	20,6				196020309	196020309L	196020309L1	196020309L2	
	ZDJet.X.3-9.DRP														196020309S	196020309S1	196020309S2	196020309S3	
	ZDJet.X.3-9.DRP-Plus														196020309P	196020309P1	196020309P2	196020309P3	
	ZDJet.X.3-9.DEF														196020309D	196020309D1	196020309D2	196020309D3	
	ZDJet.X.3-13	0,75	1	1,24	5,8		72,2		65,9	58,5	29,8				196020313	196020313L	196020313L1	196020313L2	
	ZDJet.X.3-13.DRP														196020313S	196020313S1	196020313S2	196020313S3	
	ZDJet.X.3-13.DRP-Plus														196020313P	196020313P1	196020313P2	196020313P3	
	ZDJet.X.3-13.DEF														196020313D	196020313D1	196020313D2	196020313D3	
	ZDJet.X.3-19	1	2	1,66	8,1		105,5		96,3	85,5	43,5				196020319	196020319L	196020319L1	196020319L2	
	ZDJet.X.3-19.DRP														196020319S	196020319S1	196020319S2	196020319S3	
	ZDJet.X.3-19.DRP-Plus														196020319P	196020319P1	196020319P2	196020319P3	
	ZDJet.X.3-19.DEF														196020319D	196020319D1	196020319D2	196020319D3	
	ZDJet.X.3-25	1,5	2	2,34	10,6		138,8		126,8	112,5	57,3				196020325	196020325L	196020325L1	196020325L2	
	ZDJet.X.3-25.DRP														196020325S	196020325S1	196020325S2	196020325S3	
	ZDJet.X.3-25.DRP-Plus														196020325P	196020325P1	196020325P2	196020325P3	
	ZDJet.X.3-25.DEF														196020325D	196020325D1	196020325D2	196020325D3	
PUMP CURVE 5	ZDJet.X.5-4	0,37	0,5	0,72	3,3	Total head in meters = H = dynamic total pressure	24,5			22	18,5	12,1			196020504	196020504L	196020504L1	196020504L2	
	ZDJet.X.5-4.DRP														196020504S	196020504S1	196020504S2	196020504S3	
	ZDJet.X.5-4.DRP-Plus														196020504P	196020504P1	196020504P2	196020504P3	
	ZDJet.X.5-4.DEF														196020504D	196020504D1	196020504D2	196020504D3	
	ZDJet.X.5-6	0,55	0,75	0,95	4,2		36,8			33	27,7	18,2				196020506	196020506L	196020506L1	196020506L2
	ZDJet.X.5-6.DRP															196020506S	196020506S1	196020506S2	196020506S3
	ZDJet.X.5-6.DRP-Plus															196020506P	196020506P1	196020506P2	196020506P3
	ZDJet.X.5-6.DEF															196020506D	196020506D1	196020506D2	196020506D3
	ZDJet.X.5-8	0,75	1	1,23	5,7		49,1			44	37,0	24,2				196020508	196020508L	196020508L1	196020508L2
	ZDJet.X.5-8.DRP															196020508S	196020508S1	196020508S2	196020508S3
	ZDJet.X.5-8.DRP-Plus															196020508P	196020508P1	196020508P2	196020508P3
	ZDJet.X.5-8.DEF															196020508D	196020508D1	196020508D2	196020508D3
	ZDJet.X.5-13	1,1	1,5	1,7	8,6		79,7			71,5	60,1	39,4				196020513	196020513L	196020513L1	196020513L2
	ZDJet.X.5-13.DRP															196020513S	196020513S1	196020513S2	196020513S3
	ZDJet.X.5-13.DRP-Plus															196020513P	196020513P1	196020513P2	196020513P3
	ZDJet.X.5-13.DEF															196020513D	196020513D1	196020513D2	196020513D3
	ZDJet.X.5-17	1,5	2	2,35	10,6		104,3			93,5	78,5	51,5				196020517	196020517L	196020517L1	196020517L2
	ZDJet.X.5-17.DRP															196020517S	196020517S1	196020517S2	196020517S3
	ZDJet.X.5-17.DRP-Plus															196020517P	196020517P1	196020517P2	196020517P3
	ZDJet.X.5-17.DEF															196020517D	196020517D1	196020517D2	196020517D3
PUMP CURVE 8	ZDJet.X.8-6	0,75	1	1,26	5,8			38,4				29	25	5		196020806	196020806L	196020806L1	196020806L2
	ZDJet.X.8-6.DRP															196020806S	196020806S1	196020806S2	196020806S3
	ZDJet.X.8-6.DRP-Plus															196020806P	196020806P1	196020806P2	196020806P3
	ZDJet.X.8-6.DEF															196020806D	196020806D1	196020806D2	196020806D3
	ZDJet.X.8-8	1,1	1,5	1,65	8,1			51,2				39	33	7		196020808	196020808L	196020808L1	196020808L2
	ZDJet.X.8-8.DRP															196020808S	196020808S1	196020808S2	196020808S3
	ZDJet.X.8-8.DRP-Plus															196020808P	196020808P1	196020808P2	196020808P3
	ZDJet.X.8-8.DEF															196020808D	196020808D1	196020808D2	196020808D3
	ZDJet.X.8-12	1,5	2	2,25	10,4			76,8				58	49	9,6		196020812	196020812L	196020812L1	196020812L2
	ZDJet.X.8-12.DRP															196020812S	196020812S1	196020812S2	196020812S3
	ZDJet.X.8-12.DRP-Plus															196020812P	196020812P1	196020812P2	196020812P3
	ZDJet.X.8-12.DEF															196020812D	196020812D1	196020812D2	196020812D3
C. S. 10	ZDJet.X.10-8	1,5	2	2,4	11		48,2					39,2		7,9	196020906	196020906L	196020906L1	196020906L2	
	ZDJet.X.10-8.DRP														196020906S	196020906S1	196020906S2	196020906S3	
	ZDJet.X.10-8.DRP-Plus														196020906P	196020906P1	196020906P2	196020906P3	
	ZDJet.X.10-8.DEF														196020906D	196020906D1	196020906D2	196020906D3	

P/X-H3



**RELIABILITY
AND LONGER LIFE**

4" complete submersible pump, made of ZDS hydraulic part, ZDS single-phase PSC water-cooled encapsulated H3 motor, supply cable in different lengths and ZDS CBH electrical start panel (which includes on/off switch, start and run capacitor and overload protector).

Reliable, strong, easy to maintain and available in a wide range of models; it's ready to use as it doesn't require a start and run control panel. It can be protected against many possible installation or operation faults thanks to the DRP (integrated in the power supply cable), or the electronic control panel Z-Defender (with diagnostic and protections).

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous single-phase PSC encapsulated water-cooled H3 motor.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

Sand protection to guarantee optimal operation even with sand in the borehole.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

CBH Electric start panel

Motor start and operation system with capacitor, equipped with thermal amperometric protection against current overload, ON/OFF illuminated switch, terminal box, cable glands, power supply cable, mounting accessories.



Versions available



STANDARD



DRP
DRY RUNNING
PROTECTION

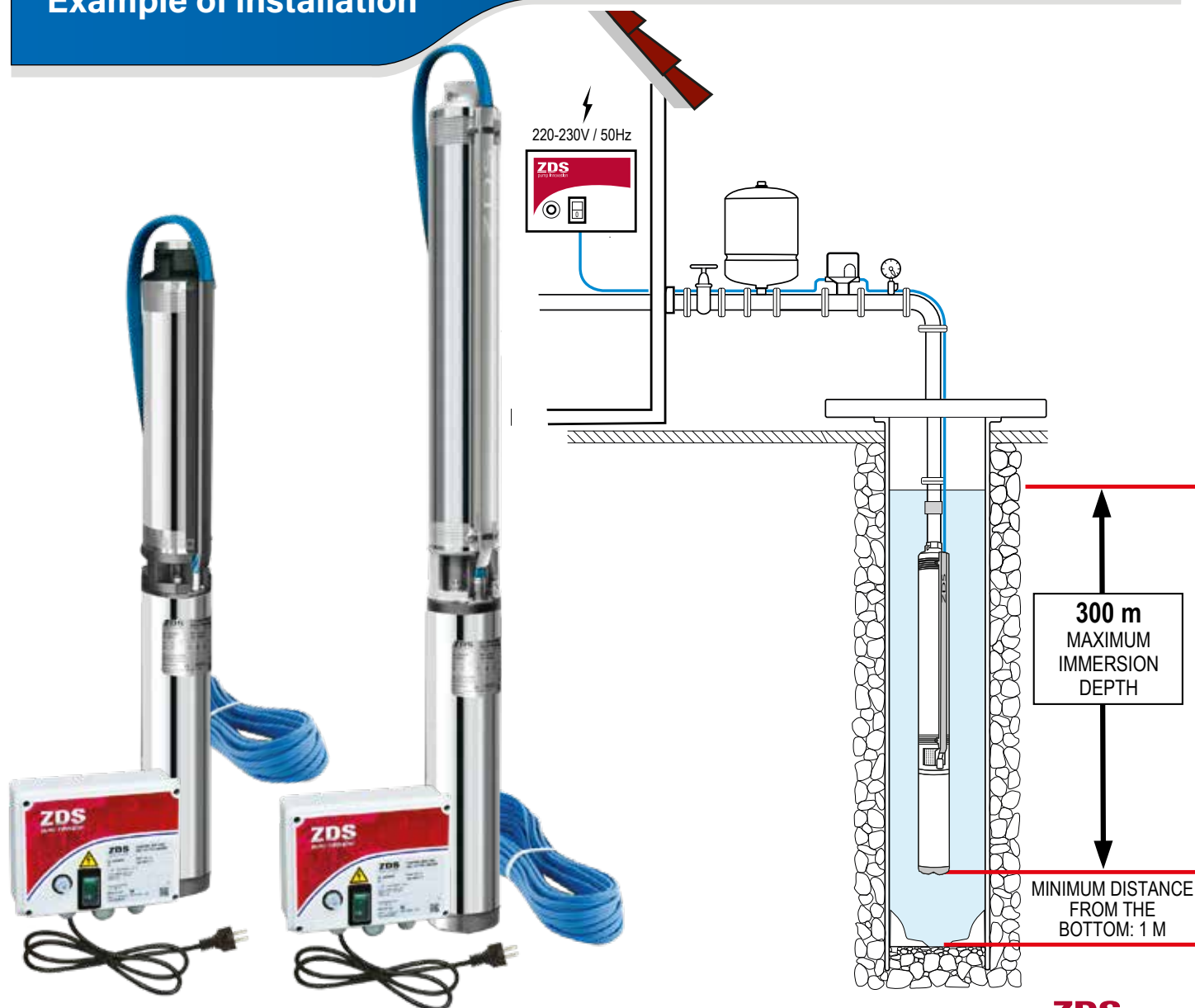


Z-DEFENDER
ELECTRONIC CONTROL PANEL WITH
DIAGNOSTIC AND PROTECTION

Technical Specifications

Power range:	0,37 - 2,2 kW
Voltage range:	1x220-230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	300 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	220 m

Example of installation



DRP

ELECTRONIC PROTECTION DEVICE



DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus the pump operation is directly proportional to the water supply for optimum efficiency. 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 submersible pump function autonomously in conditions of water shortage. The DRP is ready for use, integrated into the connection cable and needs no further installation.

Characteristics

Automatic programmed restarts in case of protection

Stand-by mode at maximum number of restart attempts overcoming

Ready to use, doesn't need any further calibration or setting up

DRP Protection



Protection against dry running and lack of water in the well

The DRP completely protects the submersible pump against lack of water in the well, without the aid of other equipment (probes, cables, sensors, control panels etc.). In case of dry running, the DRP automatically stops the pump. When the water level is restored in the well, the DRP restarts the pump after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

The DRP protects the submersible pump against leaks in the piping system (also when the pressure tank is exhausted or its membrane is defective, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system). In such cases to avoid potential damages, the DRP, after some automatic re-start attempts, makes the pump enter the stand-by mode.



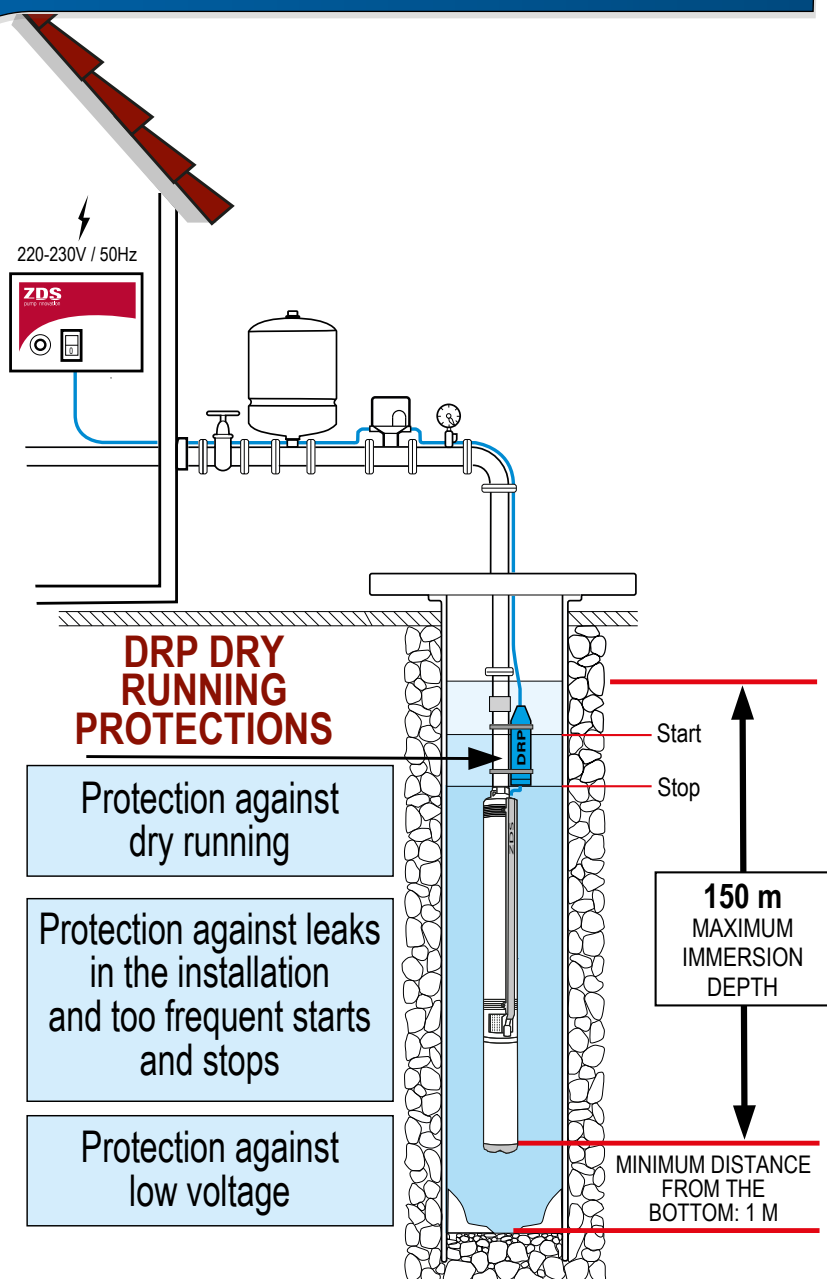
Protection against low voltage

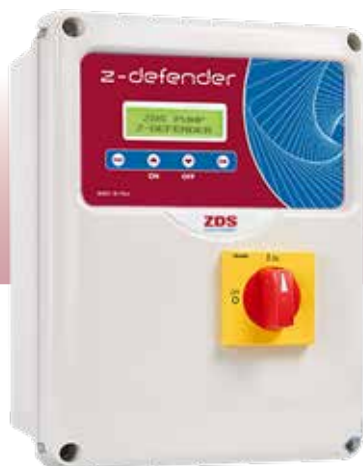
The DRP protects the submersible pump against low voltage, that can damage the motor.

Technical Specifications

Casing:	Thermoplastic material
Voltage range:	1x220-230V +6% /-10% / 50 Hz
Degree of protection:	IP 68
Rated ambient temperature:	-10/+40° C
Size (cm):	33 x 5 x 3

Example of installation





z-defender

Electronic control panel with protection and diagnostic for direct start and running of ZDS single-phase motors

Z-DEFENDER is an innovative electronic panel essential to start, run and protect the single-phase ZDS submersible pump against many possible installation and operation faults.

It's special and unique as it doesn't need any setting or self-learning, it's easy to install and ready to use, you only have to select the type of motor on the display and turn the pump on. **Z-DEFENDER** is designed to guarantee an optimal protection of the submersible pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration.

Z-DEFENDER allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque.

It's equipped with 2 capacitors: the first capacitor does guarantee a higher starting torque to the motor, the second capacitor optimizes the motor's efficiency during its operation.

Z-DEFENDER allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **Z-DEFENDER**, the submersible pump can work and be continuously protected also when the supply voltage values are at tolerance limit, providing the effectiveness of the protection operation. In addition, **Z-DEFENDER**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Z-DEFENDER also minimizes energy consumption when the pump is not running.

Thanks to its special and innovative ZDS technology, **Z-DEFENDER** combines, in a single device, protection, reliability and ease of installation.



Characteristics

Ready to use: doesn't need any further calibration or setting up, as it's only necessary to select the type of motor on the display

LCD display for easy diagnostic of running parameters or eventual protections

Soft start technology

Extra torque on start up when necessary

Sounder alarm in the event of a fault and in stand-by

Double capacitor predisposition: one for more starting torque and one for running

When the pump is not used, even if it is in stand-by mode, weekly start-up will be commanded by the electronic, in order to avoid any blockage caused by natural sediments in the well

No energy consumption when in stand-by

Low voltage input for floats or pressure switches

Z-DEFENDER protections



Protection against dry running and lack of water in the well

The control panel automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

In case of leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system), the control panel automatically makes the pump enter the stand-by mode showing an alarm on the display.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



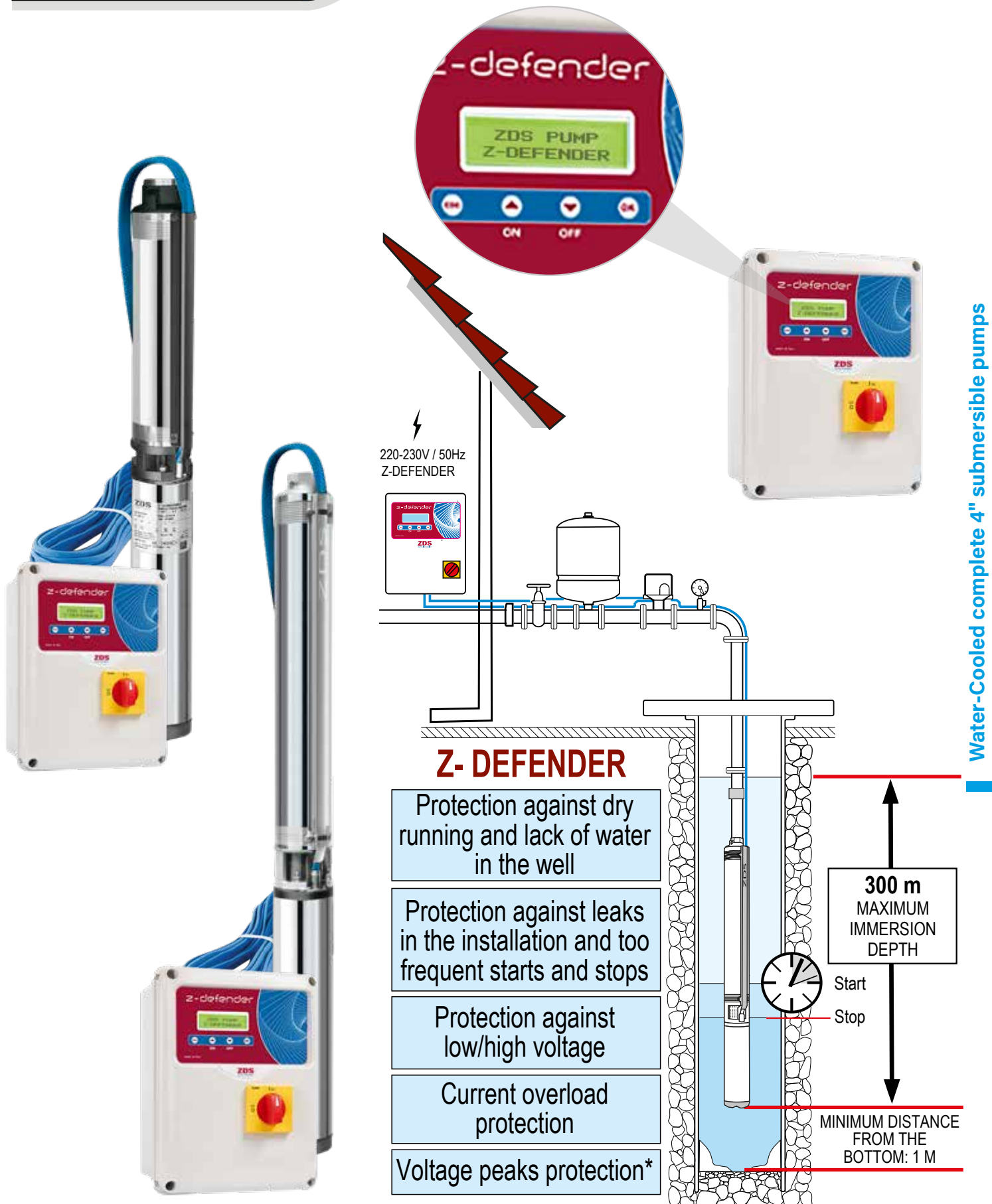
Voltage peaks protection*

Z-DEFENDER, on demand, can be equipped with internal filters designed to protect it from voltage peaks. Filters are replaceable and of easy access. *Optional

Technical Specifications

Casing:	Over-sized in ABS
Voltage range:	1x220-230 V +-10% 50 Hz
Power range:	0,37 - 2,2 kW
Degree of protection:	IP 55
Standard:	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	3 inputs multi-contact float/pressure switch (NO) (in low voltage)
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/voltage/motor current/alarms/stato ingressi/Power
Buttons Esc-↑-↓-Off-OK:	to query the system
Motor output:	relay
Contact output:	for alarm
Run capacitor predisposition:	included
Extra starting torque capacitor predisposition:	included
Protection fuses:	included (1 for protection and 1 for electronic card)
Voltage peaks protection:	optional
Size (cm):	34 x 24 x 17
Weight:	1,5 Kg

Example of installation

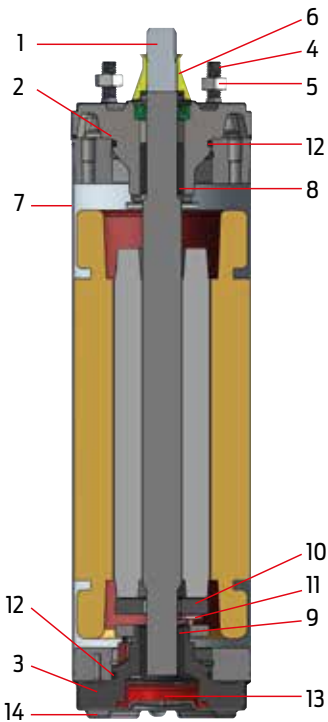
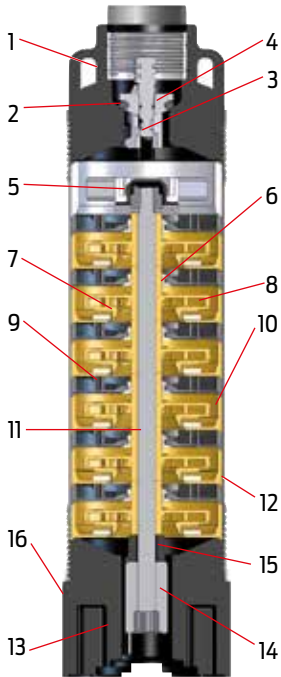


4" SINGLE-PHASE
SUBMERSIBLE PUMPS



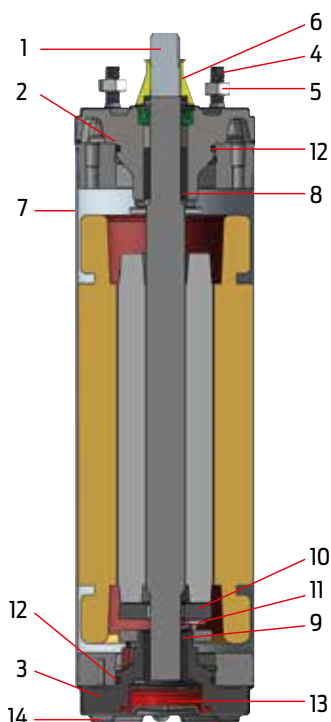
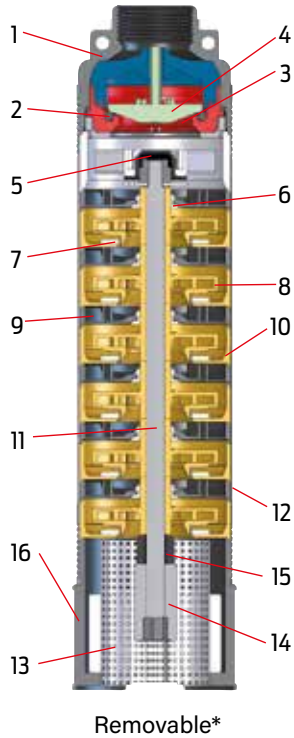
P.H3

Water-Cooled complete 4" submersible pumps



Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC
1	Shaft End	Stainless steel AISI 420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Graphite
11	Segments	Stainless steel
12	O-ring	NBR
13	Diaphragm	NBR
14	Bottom Cover	Stainless steel AISI 304

X.H3



Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter (removable)*	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)
1	Shaft End	Stainless steel AISI 420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Graphite
11	Segments	Stainless steel
12	O-ring	NBR
13	Diaphragm	NBR
14	Bottom Cover	Stainless steel AISI 304

4" SINGLE-PHASE SUBMERSIBLE PUMPS

P.H3 complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and
PSC single-phase encapsulated water-cooled motor - **220-230V**

Water-Cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)						Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m			
					IN	m³/h	0	0,6	1,5	2,4					4,2	6	
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	Code	Code	Code	Code	
P.1-8.H3	0,25	0,33	0,55	2,7	Total head in meters = H= dynamic total pressure	50,2	44,4	18				196030108	196030108L	196030108L1	196030108L2		
P.1-8.H3.DRP												196030108S	196030108S1	196030108S2	196030108S3		
P.1-12.H3	0,37	0,5	0,69	3,3		75,4	66,6	27				196030112	196030112L	196030112L1	196030112L2		
P.1-12.H3.DRP												196030112S	196030112S1	196030112S2	196030112S3		
P.1-12.H3.DEF												196030112D	196030112D1	196030112D2	196030112D3		
P.1-18.H3	0,55	0,75	0,87	4,0		113	100	41					196030118	196030118L	196030118L1	196030118L2	
P.1-18.H3.DRP													196030118S	196030118S1	196030118S2	196030118S3	
P.1-18.H3.DEF													196030118D	196030118D1	196030118D2	196030118D3	
P.1-25.H3	0,75	1	1,23	5,7		157	139	56					196030125	196030125L	196030125L1	196030125L2	
P.1-25.H3.DRP													196030125S	196030125S1	196030125S2	196030125S3	
P.1-25.H3.DEF													196030125D	196030125D1	196030125D2	196030125D3	
P.2-5.H3	0,25	0,33	0,55	2,7		Total head in meters = H= dynamic total pressure	32	31,2	28,2	17			196030205	196030205L	196030205L1	196030205L2	
P.2-5.H3.DRP													196030205S	196030205S1	196030205S2	196030205S3	
P.2-8.H3	0,37	0,5	0,73	3,4			51,2	49,9	41,9	27,2				196030208	196030208L	196030208L1	196030208L2
P.2-8.H3.DRP														196030208S	196030208S1	196030208S2	196030208S3
P.2-8.H3.DEF														196030208D	196030208D1	196030208D2	196030208D3
P.2-12.H3	0,55	0,75	0,97	4,4			76,8	74,9	62,9	40,8				196030212	196030212L	196030212L1	196030212L2
P.2-12.H3.DRP														196030212S	196030212S1	196030212S2	196030212S3
P.2-12.H3.DEF														196030212D	196030212D1	196030212D2	196030212D3
P.2-16.H3	0,75	1	1,27	5,8			102,4	99,8	83,8	54,4				196030216	196030216L	196030216L1	196030216L2
P.2-16.H3.DRP														196030216S	196030216S1	196030216S2	196030216S3
P.2-16.H3.DEF														196030216D	196030216D1	196030216D2	196030216D3
P.2-24.H3	1,1	1,5	1,7	8,6			153,6	149,8	125,8	81,6				196030224	196030224L	196030224L1	196030224L2
P.2-24.H3.DRP														196030224S	196030224S1	196030224S2	196030224S3
P.2-24.H3.DEF														196030224D	196030224D1	196030224D2	196030224D3

*Power consumption **Current consumption

P.H3 complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and
PSC single-phase encapsulated water-cooled motor - **220-230V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)						Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
		IN	m³/h			0	0,6	1,5	2,4	4,2	6					
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	Code	Code	Code	Code
PUMP CURVE 3	P.3-6.H3	0,37	0,5	0,7	3,2		33,3		30,4	27	13,7		196030306	196030306L	196030306L1	196030306L2
	P.3-6.H3.DRP												196030306S	196030306S1	196030306S2	196030306S3
	P.3-6.H3.DEF												196030306D	196030306D1	196030306D2	196030306D3
	P.3-9.H3	0,55	0,75	0,93	4,2		50		45,6	40,5	20,6		196030309	196030309L	196030309L1	196030309L2
	P.3-9.H3.DRP												196030309S	196030309S1	196030309S2	196030309S3
	P.3-9.H3.DEF												196030309D	196030309D1	196030309D2	196030309D3
	P.3-13.H3	0,75	1	1,2	5,8		72,2		65,9	58,5	29,8		196030313	196030313L	196030313L1	196030313L2
	P.3-13.H3.DRP												196030313S	196030313S1	196030313S2	196030313S3
	P.3-13.H3.DEF												196030313D	196030313D1	196030313D2	196030313D3
	P.3-19.H3	1,1	1,5	1,66	8,1		105,5		96,3	85,5	43,5		196030319	196030319L	196030319L1	196030319L2
	P.3-19.H3.DRP												196030319S	196030313S1	196030313S2	196030313S3
	P.3-19.H3.DEF												196030319D	196030319D1	196030319D2	196030319D3
	P.3-25.H3	1,5	2	2,3	10,6		138,8		126,8	112,5	57,3		196030325	196030325L	196030325L1	196030325L2
	P.3-25.H3.DRP												196030325S	196030325S1	196030325S2	196030325S3
	P.3-25.H3.DEF												196030325D	196030325D1	196030325D2	196030325D3
PUMP CURVE 5	P.5-4.H3	0,37	0,5	0,72	3,3		24,5			22	18,5	12,1	196030504	196030504L	196030504L1	196030504L2
	P.5-4.H3.DRP												196030504S	196030504S1	196030504S2	196030504S3
	P.5-4.H3.DEF												196030504D	196030504D1	196030504D2	196030504D3
	P.5-6.H3	0,55	0,75	0,95	4,2		36,8			33	27,7	18,2	196030506	196030506L	196030506L1	196030506L2
	P.5-6.H3.DRP												196030506S	196030506S1	196030506S2	196030506S3
	P.5-6.H3.DEF												196030506D	196030506D1	196030506D2	196030506D3
	P.5-8.H3	0,75	1	1,23	5,7		49,1			44	37	24,2	196030508	196030508L	196030508L1	196030508L2
	P.5-8.H3.DRP												196030508S	196030508S1	196030508S2	196030508S3
	P.5-8.H3.DEF												196030508D	196030508D1	196030508D2	196030508D3
	P.5-13.H3	1,1	1,5	1,7	8,6		79,7			71,5	60,1	39,4	196030513	196030513L	196030513L1	196030513L2
	P.5-13.H3.DRP												196030513S	196030513S1	196030513S1	196030513S2
	P.5-13.H3.DEF												196030513D	196030513D1	196030513D2	196030513D3
	P.5-17.H3	1,5	2	2,35	10,6		104,3			93,5	78,5	51,5	196030517	196030517L	196030517L1	196030517L2
	P.5-17.H3.DRP												196030517S	196030517S1	196030517S2	196030517S3
	P.5-17.H3.DEF												196030517D	196030517D1	196030517D2	196030517D3
P.5-21.H3	2,2	3	2,9	13,5		128,8			115,5	97	63,6	196030521	196030521L	196030521L2	196030521L3	
P.5-21.H3.DRP												196030521S	196030521S1	196030521S2	196030521S3	
P.5-21.H3.DEF												196030521D	196030521D1	196030521D2	196030521D3	

*Power consumption **Current consumption

4" SINGLE-PHASE SUBMERSIBLE PUMPS

X.H3 complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and
PSC single-phase encapsulated water-cooled motor - **220-230V**

Water-Cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)										Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
				IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4	15						
	kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code	Code		
X.1-8.H3	0,25	0,33	0,55	2,7	Total head in meters = H = dynamic total pressure	50,2	44,4	18						196035108	196035108L	196035108L1	196035108L2		
X.1-8.H3.DRP														196035108S	196035108S1	196035108S2	196035108S3		
X.1-12.H3	0,37	0,5	0,69	3,3										75,4	66,6	27			
X.1-12.H3.DRP						196035112S	196035112S1	196035112S2	196035112S3										
X.1-12.H3.DEF						196035112D	196035112D1	196035112D2	196035112D3										
X.1-18.H3	0,55	0,75	0,87	4,0		113	99,9	40,5							196035118	196035118L	196035118L1	196035118L2	
X.1-18.H3.DRP															196035118S	196035118S1	196035118S2	196035118S3	
X.1-18.H3.DEF															196035118D	196035118D1	196035118D2	196035118D3	
X.1-25.H3	0,75	1	1,23	5,7		157	138,8	56,3							196035125	196035125L	196035125L1	196035125L2	
X.1-25.H3.DRP															196035125S	196035125S1	196035125S2	196035125S3	
X.1-25.H3.DEF															196035125D	196035125D1	196035125D2	196035125D3	
X.1-36.H3	1,1	1,5	1,7	8,4		226,1	199,8	91							196035136	196035136L	196035136L1	196035136L2	
X.1-36.H3.DRP															196035136S	196035136S1	196035136S2	196035136S3	
X.1-36.H3.DEF															196035136D	196035136D1	196035136D2	196035136D3	
X.2-5.H3	0,25	0,33	0,55	2,7		Total head in meters = H = dynamic total pressure	32	31,2	28,2	17						196035205	196035205L	196035205L1	196035205L2
X.2-5.H3.DRP																196035205S	196035205S1	196035205S2	196035205S3
X.2-8.H3	0,37	0,5	0,73	3,4			51,2	49,9	41,9	27,2						196035208	196035208L	196035208L1	196035208L2
X.2-8.H3.DRP																196035208S	196035208S1	196035208S2	196035208S3
X.2-8.H3.DEF																196035208D	196035208D1	196035208D2	196035208D3
X.2-12.H3	0,55	0,75	0,97	4,4			76,8	74,9	62,9	40,8						196035212	196035212L	196035212L1	196035212L2
X.2-12.H3.DRP																196035212S	196035212S1	196035212S2	196035212S3
X.2-12.H3.DEF																196035212D	196035212D1	196035212D2	196035212D3
X.2-16.H3	0,75	1	1,27	5,8			102,4	99,8	83,8	54,4						196035216	196035216L	196035216L1	196035216L2
X.2-16.H3.DRP																196035216S	196035216S1	196035216S2	196035216S3
X.2-16.H3.DEF																196035216D	196035216D1	196035216D2	196035216D3
X.2-24.H3	1,1	1,5	1,7	8,6			153,6	149,8	125,8	81,6						196035224	196035224L	196035224L1	196035224L2
X.2-24.H3.DRP																196035224S	196035224S1	196035224S2	196035224S3
X.2-24.H3.DEF																196035224D	196035224D1	196035224D2	196035224D3
X.2-32.H3	1,5	2	2,3	10,5			204,7	199,7	167,7	108						196035232	196035232L	196035232L1	196035232L2
X.2-32.H3.DRP																196035232S	196035232S1	196035232S2	196035232S3
X.2-32.H3.DEF																196035232D	196035232D1	196035232D2	196035232D3

*Power consumption **Current consumption

X.H3 complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and
PSC single-phase encapsulated water-cooled motor - **220-230V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)										Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m
		kW	HP			IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4	15				
PUMP CURVE 3	X.3-6.H3	0,37	0,5	0,7	3,2		33,3		30,4	27	13,7			196035306	196035306L	196035306L1	196035306L2		
	X.3-6.H3.DRP													196035306S	196035306S1	196035306S2	196035306S3		
	X.3-6.H3.DEF													196035306D	196035306D1	196035306D2	196035306D3		
	X.3-9.H3	0,55	0,75	0,93	4,2		50		45,6	40,5	20,6			196035309	196035309L	196035309L1	196035309L2		
	X.3-9.H3.DRP													196035309S	196035309S1	196035309S2	196035309S3		
	X.3-9.H3.DEF													196035309D	196035309D1	196035309D2	196035309D3		
	X.3-13.H3	0,75	1	1,2	5,8		72,2		65,9	58,5	29,8			196035313	196035313L	196035313L1	196035313L2		
	X.3-13.H3.DRP													196035313S	196035313S1	196035313S2	196035313S3		
	X.3-13.H3.DEF													196035313D	196035313D1	196035313D2	196035313D3		
	X.3-19.H3	1,1	1,5	1,66	8,1		105,5		96,3	85,5	43,5			196035319	196035319L	196035319L1	196035319L2		
	X.3-19.H3.DRP													196035319S	196035319S1	196035319S2	196035319S3		
	X.3-19.H3.DEF													196035319D	196035319D1	196035319D2	196035319D3		
	X.3-25.H3	1,5	2	2,3	10,6		138,8		126,8	112,5	57,3			196035325	196035325L	196035325L1	196035325L2		
	X.3-25.H3.DRP													196035325S	196035325S1	196035325S2	196035325S3		
	X.3-25.H3.DEF													196035325D	196035325D1	196035325D2	196035325D3		
PUMP CURVE 5	X.5-4.H3	0,37	0,5	0,72	3,3	Total head in meters = H = dynamic total pressure	24,5			22	18,5	12,1			196035504	196035504L	196035504L1	196035504L2	
	X.5-4.H3.DRP														196035504S	196035504S1	196035504S2	196035504S3	
	X.5-4.H3.DEF														196035504D	196035504D1	196035504D2	196035504D3	
	X.5-6.H3	0,55	0,75	0,95	4,2		36,8		33	27,7	18,2			196035506	196035506L	196035506L1	196035506L2		
	X.5-6.H3.DRP													196035506S	196035506S1	196035506S2	196035506S3		
	X.5-6.H3.DEF													196035506D	196035506D1	196035506D2	196035506D3		
	X.5-8.H3	0,75	1	1,23	5,7		49,1		44	37	24,2			196035508	196035508L	196035508L1	196035508L2		
	X.5-8.H3.DRP													196035508S	196035508S1	196035508S2	196035508S3		
	X.5-8.H3.DEF													196035508D	196035508D1	196035508D2	196035508D3		
	X.5-13.H3	1,1	1,5	1,7	8,6		79,7		71,5	60,1	39,4			196035513	196035513L	196035513L1	196035513L2		
	X.5-13.H3.DRP													196035513S	196035513S1	196035513S2	196035513S3		
	X.5-13.H3.DEF													196035513D	196035513D1	196035513D2	196035513D3		
	X.5-17.H3	1,5	2	2,35	10,6		104,3		93,5	78,5	51,5			196035517	196035517L	196035517L1	196035517L2		
	X.5-17.H3.DRP													196035517S	196035517S1	196035517S2	196035517S3		
	X.5-17.H3.DEF													196035517D	196035517D1	196035517D2	196035517D3		
X.5-21.H3	2,2	3	2,9	13,5	128,8			115,5	97	63,6			196035521	196035521L	196035521L1	196035521L2			
X.5-21.H3.DRP													196035521S	196035521S1	196035521S2	196035521S3			
X.5-21.H3.DEF													196035521D	196035521D1	196035521D2	196035521D3			
PUMP CURVE 8	X.8-6.H3	0,75	1	1,26	5,8		38,4				29	24,5	4,8			196035806	196035806L	196035806L1	196035806L2
	X.8-6.H3.DRP															196035806S	196035806S1	196035806S2	196035806S3
	X.8-6.H3.DEF															196035806D	196035806D1	196035806D2	196035806D3
	X.8-8.H3	1,1	1,5	1,65	8,1		51,2		38,6	32,7	6,4			196035808	196035808L	196035808L1	196035808L2		
	X.8-8.H3.DRP													196035808S	196035808S1	196035808S2	196035808S3		
	X.8-8.H3.DEF													196035808D	196035808D1	196035808D2	196035808D3		
	X.8-12.H3	1,5	2	2,25	10,4		76,8		58	49	9,6			196035812	196035812L	196035812L1	196035812L2		
	X.8-12.H3.DRP													196035812S	196035812S1	196035812S2	196035812S3		
	X.8-12.H3.DEF													196035812D	196035812D1	196035812D2	196035812D3		
	X.8-17.H3	2,2	3	3,05	15		108,8		82,1	69,4	13,6			196035817	196035817L	196035817L1	196035817L2		
	X.8-17.H3.DRP													196035817S	196035817S1	196035817S2	196035817S3		
	X.8-17.H3.DEF													196035817D	196035817D1	196035817D2	196035817D3		
C. S. 10	X.10-8.H3	1,5	2	2,4	11,0	48,2				42,6	39,2	23,1	7,9	196035908	196035908L	196035908L1	196035908L2		
	X.10-8.H3.DRP													196035908S	196035908S1	196035908S2	196035908S3		
	X.10-8.H3.DEF													196035908D	196035908D1	196035908D2	196035908D3		
	X.10-12.H3	2,2	3	2,9	15	72,3		64	58,8	34,7	11,9	196035912	196035912L	196035912L1	196035912L2				
	X.10-12.H3.DRP											196035912S	196035912S1	196035912S2	196035912S3				
	X.10-12.H3.DEF											196035912D	196035912D1	196035912D2	196035912D3				

P/X-HT



**RELIABILITY AND
LONGER LIFE**

**4" complete submersible
pump, made of ZDS
hydraulic part,
ZDS three-phase
water-cooled
encapsulated HT motor
and supply cable in
different lengths.**

Reliable, strong, easy to maintain and available in a wide range of models; it's ready to use as it doesn't require a start and run control panel.

It can be protected against many possible installation or operation faults thanks to the DRP (integrated in the power supply cable), or the electronic control panel Z-Defender.3 (with diagnostic and protections).

It requires a start, operation and protection system.

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous three-phase encapsulated water-cooled HT motor.

Axial and radial water-lubricated bearings allow for maintenance-free operation.

Hermetically sealed stator by 304L stainless steel flanges, internal and external casings, filled by resin to guarantee optimal cooling capacity of temperature during operation.

Rotor set on Kingsbury thrust block equipped with carbon clearance ring and oscillating pads in high-strength stainless steel to sustain high axial loads.

Pre-filled with non-contaminating antifreeze lubricant liquid.

Sand protection to guarantee optimal operation even with sand in the borehole.

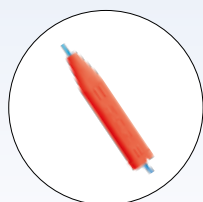
Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Versions available



STANDARD



DRP
 DRY RUNNING PROTECTION

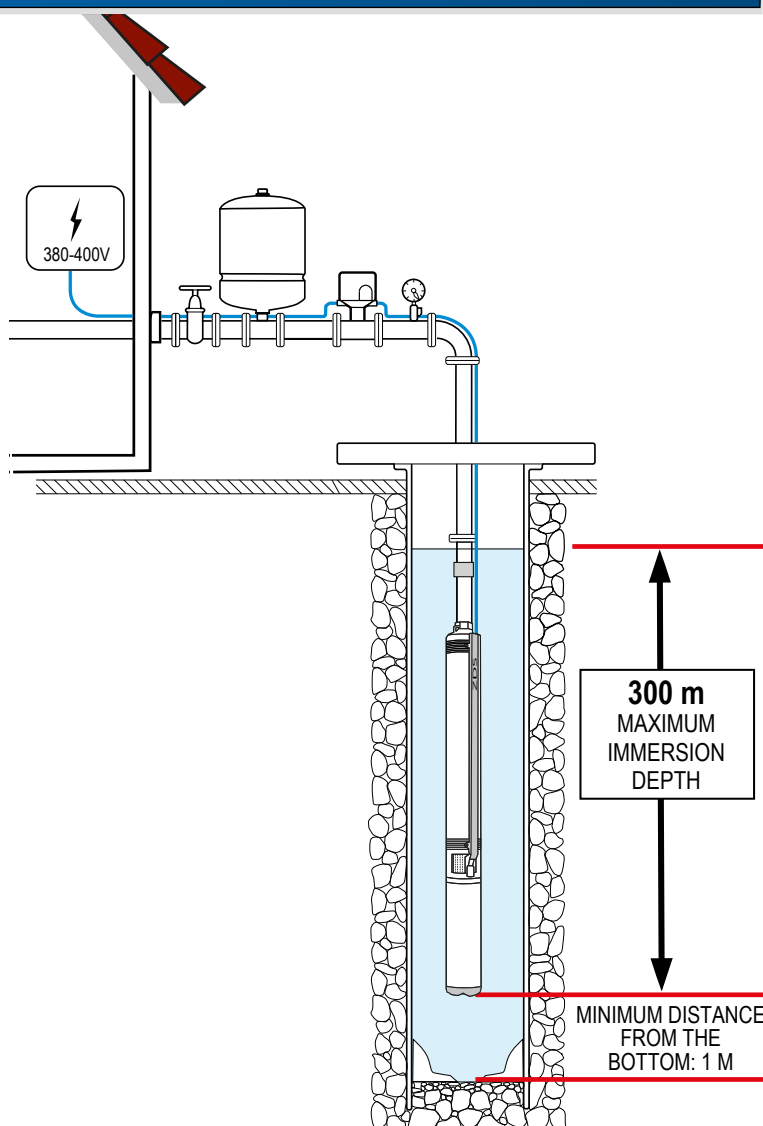


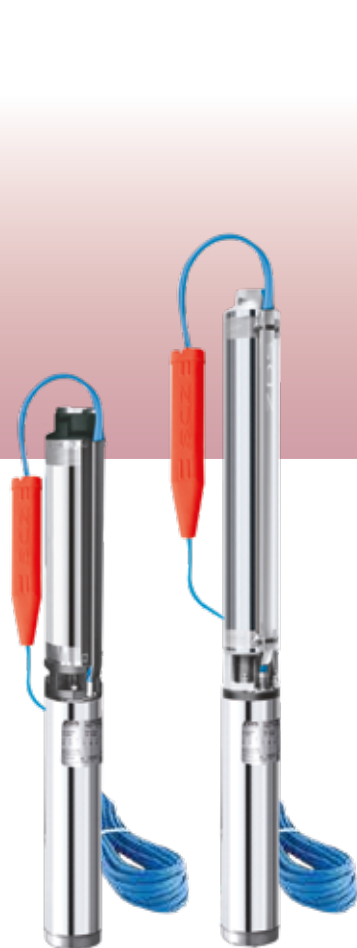
Z-DEFENDER.3
 ELECTRONIC CONTROL PANEL WITH
 DIAGNOSTIC AND PROTECTION

Technical Specifications

Overload protection requirements according to:	EN 60947-4-1 trip time < 10 sec. at $5xI_N$
Power range:	0,37 - 2,2 kW
Voltage range:	3x380-415V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U_N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 35° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	300 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	220 m

Example of installation





DRP

**ELECTRONIC
PROTECTION DEVICE**

DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus the pump operation is directly proportional to the water supply for optimum efficiency. 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 submersible pump function autonomously in conditions of water shortage. The DRP is ready for use, integrated into the connection cable and needs no further installation.

Characteristics

Automatic programmed restarts in case of protection

Stand-by mode at maximum number of restart attempts overcoming

Ready to use, doesn't need any further calibration or setting up

DRP Protection



Protection against dry running and lack of water in the well

The DRP completely protects the submersible pump against lack of water in the well, without the aid of other equipment (probes, cables, sensors, control panels etc.). In case of dry running, the DRP automatically stops the pump. When the water level is restored in the well, the DRP restarts the pump after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

The DRP protects the submersible pump against leaks in the piping system (also when the pressure tank is exhausted or its membrane is defective, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system). In such cases to avoid potential damages, the DRP, after some automatic re-start attempts, makes the pump enter the stand-by mode.



Protection against low voltage

The DRP protects the submersible pump against low voltage, that can damage the motor.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



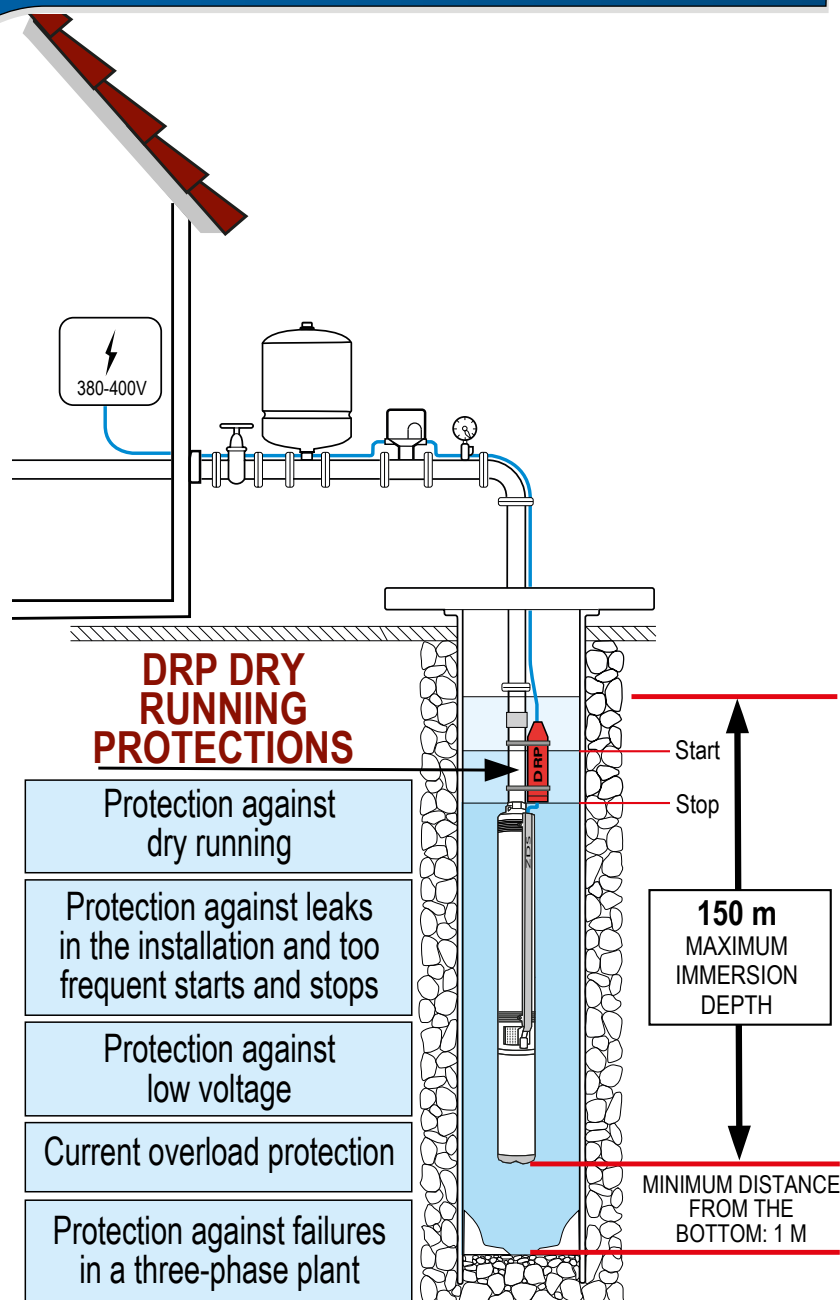
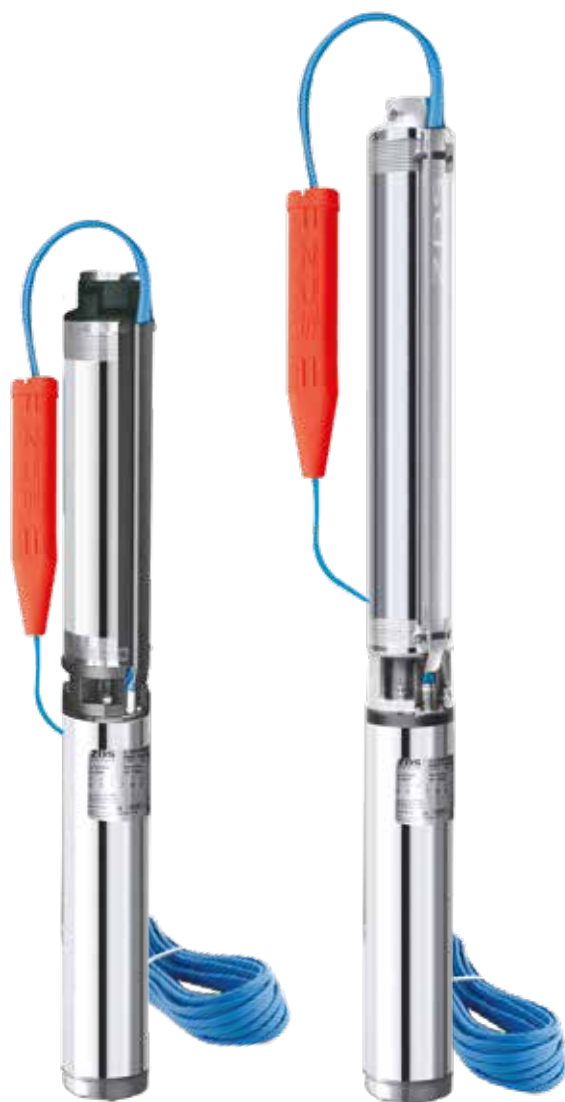
Protection against failures in a three-phase plant

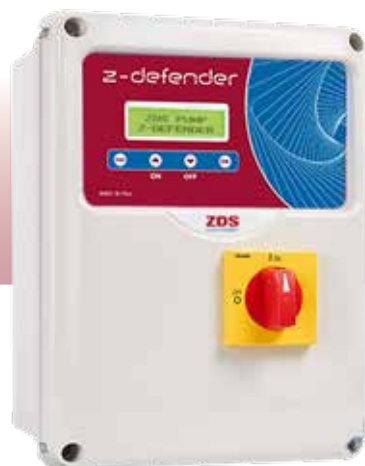
The submersible pump is protected against phase-loss (caused by a brake of a fuse). The DRP protects the motor against damaging.

Technical Specifications

Casing:	Thermoplastic material
Voltage range:	3x380-415V +6% / -10% / 50 Hz
Degree of protection:	IP 68
Rated ambient temperature:	-10/+40° C
Size (cm):	33 x 5 x 3

Example of installation





z-defender.3

Electronic control panel with protection and diagnostic for direct start and running of ZDS three-phase motors

Z-DEFENDER.3 is an innovative electronic panel essential to start, run and protect the three-phase ZDS submersible pump against many possible installation and operation faults.

Z-DEFENDER.3 is designed to guarantee an optimal protection of the submersible pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running, phase missing or phase imbalance; ensuring a high degree of automation and restoration.

Z-DEFENDER.3 allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions.

With **Z-DEFENDER.3**, the submersible pump can work and be continuously protected also when the supply voltage values are at tolerance limit, providing the effectiveness of the protection operation.

In addition, **Z-DEFENDER.3**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Thanks to its special and innovative ZDS technology, **Z-DEFENDER.3** combines, in a single device, protection, reliability and ease of installation.



Characteristics

LCD display for easy diagnostic of running parameters or eventual protections

Protection against dry running and lack of water in the well

Current overload protection

Protection against low/high voltage

Phase sequence input control

Protection against failures in a three-phase plant

Z-DEFENDER.3 protections



Protection against dry running and lack of water in the well

The control panel automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



Protection against failures in a three-phase plant

The submersible pump is protected against phase-loss (caused by a brake of a fuse).
The control panel protects the motor against damaging.



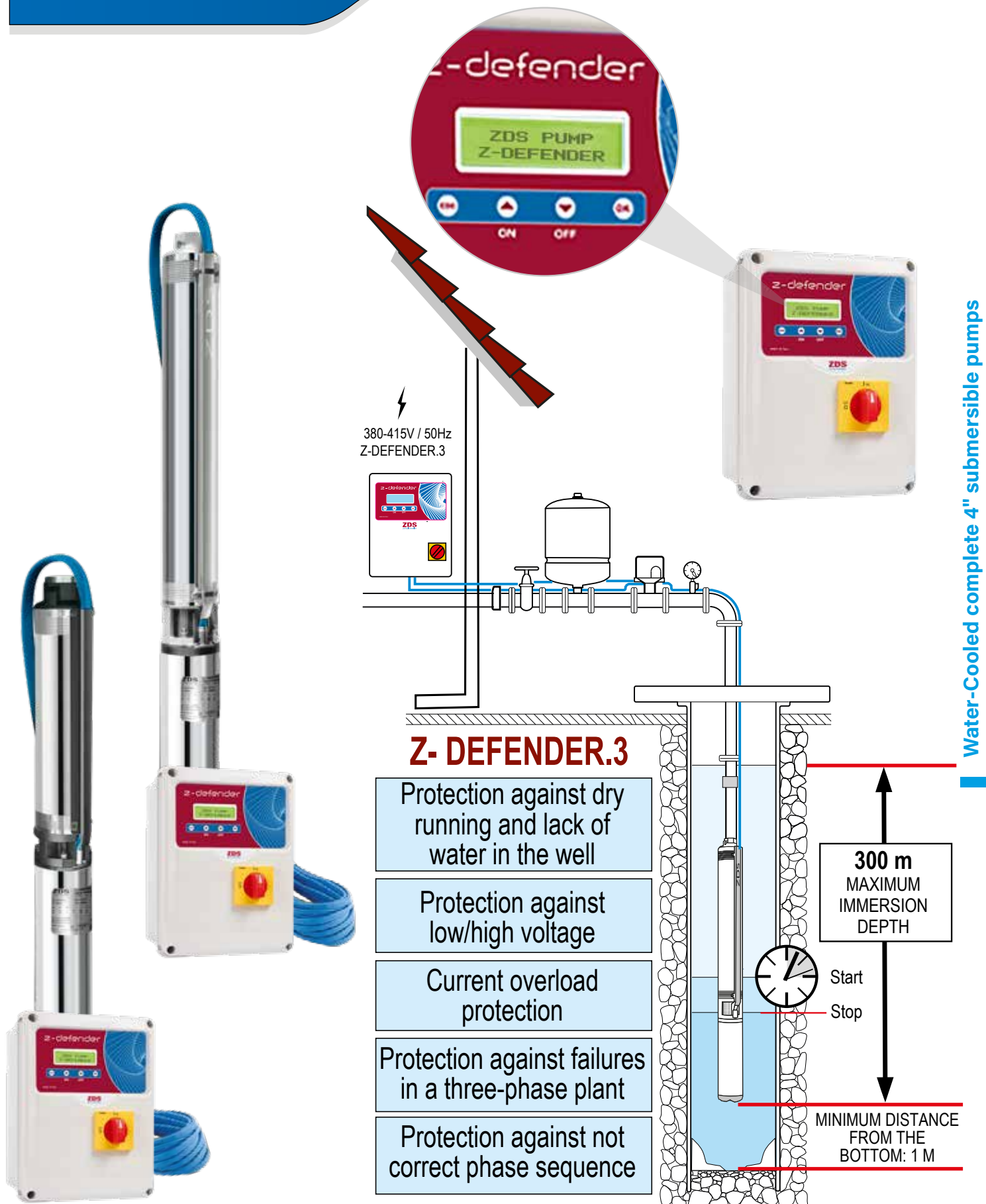
Protection against not correct phase sequence

Z-Defender.3 will detect any faulty electric connection, protecting the motor from potential damage.

Technical Specifications

Casing:	Over-sized in ABS
Voltage range:	3x380-415 V +-10% 50 Hz
Power range:	0,37 - 2,2 kW
Degree of protection:	IP 55
Standard:	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	1 input multi-contact float/pressure switch (NO) (in low voltage)
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/voltage/motor current/alarms
Buttons Esc-↑-↓-Off-OK:	to query the system
Contact output:	for alarm
Protection fuses:	included (1 for protection and 1 for electronic card)
Size (cm):	34 x 24 x 17
Weight:	1,5 Kg

Example of installation

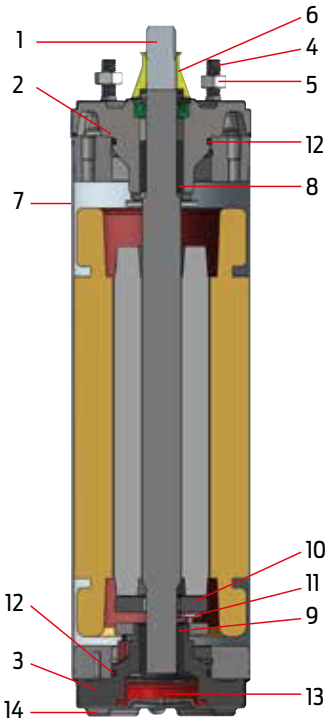
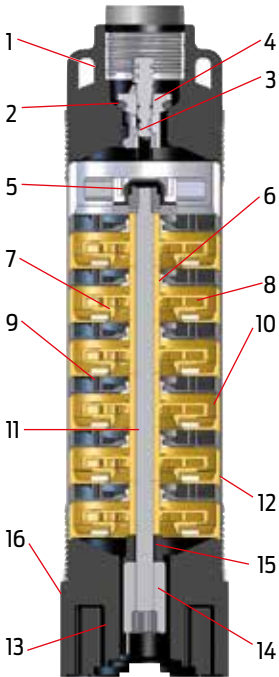


4" THREE-PHASE
SUBMERSIBLE PUMPS



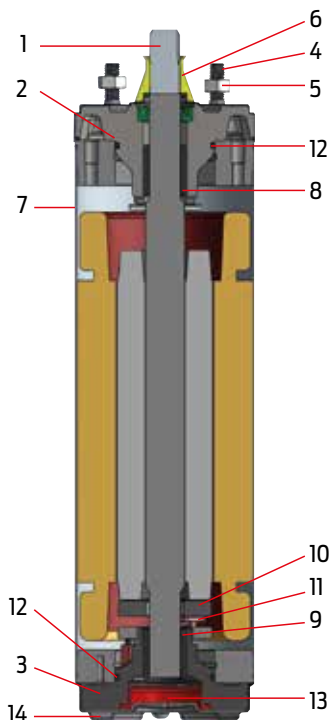
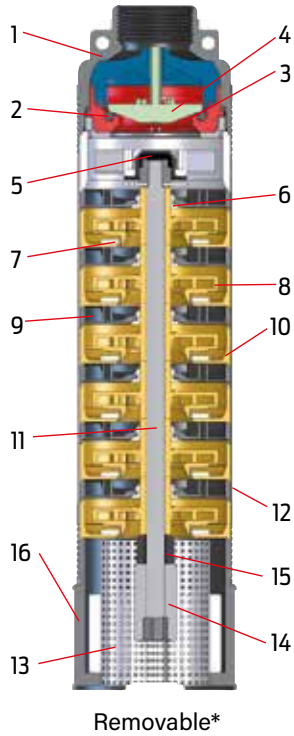
P.H.T

Water-Cooled complete 4" submersible pumps



Pos.	COMPONENTS	MATERIALI
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Stainless steel
11	Segments	NBR
12	O-ring	NBR
13	Bottom cover	Stainless steel AISI 304

X-HT



Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter (removable) *	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Lower bracket	G20 Cast Iron - cataphoretic treatment
4	Stud	Stainless steel AISI 304
5	Nut	Stainless steel AISI 304
6	Rotating Sand Guard	NBR
7	Outer sleeve	Stainless steel AISI 304
8	Upper bearing	Graphite
9	Lower bearing	Graphite
10	Rocking disk	Stainless steel
11	Segments	NBR
12	O-ring	NBR
13	Bottom cover	Stainless steel AISI 304

4" SINGLE-PHASE SUBMERSIBLE PUMPS

P.H.T complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and three-phase encapsulated water-cooled motor - **380-415V**

Water-Cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)							Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
					IN	m³/h	0	0,6	1,5	2,4	4,2					6
	kW	HP	kW	(A)	l/min	0	10	25	40	70	100	Code	Code	Code	Code	
P.1-8.HT	0,25	0,33	0,37	0,7	Total head in meters = H= dynamic total pressure	50	44,4	18				184025108	184025108L	184025108L1	184025108L2	
P.1-8.HT.DRP												184025108S	184025108S1	184025108S2	184025108S3	
P.1-12.HT	0,37	0,5	0,56	1,1		75,4	66,6	27				184025112D	184025112L	184025112L1	184025112L2	
P.1-12.HT.DRP												184025112S	184025112S1	184025112S2	184025112S3	
P.1-12.HT.DEF												184025112D	184025112D	184025112D2	184025112D3	
P.1-18.HT	0,55	0,75	0,81	1,6		113	99,9	40,5				184025118	184025118L	184025118L1	184025118L2	
P.1-18.HT.DRP												184025118S	184025118S1	184025118S2	184025118S3	
P.1-18.HT.DEF												184025118D	184025118D	184025118D2	184025118D3	
P.1-25.HT	0,75	1	1,07	2,1		157	138,8	56,3				184025125	184025125L	184025125L1	184025125L2	
P.1-25.HT.DRP												184025125S	184025125S1	184025125S2	184025125S3	
P.1-25.HT.DEF												184025125D	184025125D	184025125D2	184025125D3	
P.2-5.HT	0,25	0,33	0,37	0,7		Total head in meters = H= dynamic total pressure	32,0	31,2	28,2	17			184025205	184025205L	184025205L1	184025205L2
P.2-5.HT.DRP													184025205S	184025205S1	184025205S2	184025205S3
P.2-8.HT	0,37	0,5	0,59	1,2			51,2	49,9	41,9	27,2			184025208	184025208L	184025208L1	184025208L2
P.2-8.HT.DRP													184025208S	184025208S1	184025208S2	184025208S3
P.2-8.HT.DEF													184025208D	184025208D1	184025208D2	184025208D3
P.2-12.HT	0,55	0,75	0,86	1,7			76,8	74,9	62,9	40,8			184025212	184025212L	184025212L1	184025212L2
P.2-12.HT.DRP													184025212S	184025212S1	184025212S2	184025212S3
P.2-12.HT.DEF													184025212D	184025212D1	184025212D2	184025212D3
P.2-16.HT	0,75	1	1,11	2,1			102,4	99,8	83,8	54,4			184025216	184025216L	184025216L1	184025216L2
P.2-16.HT.DRP													184025216S	184025216S1	184025216S2	184025216S3
P.2-16.HT.DEF													184025216D	184025216D1	184025216D2	184025216D3
P.2-24.HT	1,1	1,5	1,6	3			153,6	149,8	125,8	81,6			184025224	184025224L	184025224L1	184025224L2
P.2-24.HT.DRP													184025224S	184025224S1	184025224S2	184025224S3
P.2-24.HT.DEF													184025224D	184025224D1	184025224D2	184025224D3

*Power consumption **Current consumption

P.HT complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and three-phase encapsulated water-cooled motor - **380-415V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)						Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
		kW	HP			IN	m³/h	0	0,6	1,5	2,4					4,2
				kW	(A)							l/min	0	10	25	
PUMP CURVE 3	P.3-6.HT	0,37	0,5	0,54	1,0	33,3		30,4	27	13,7		184025306	184025306L	184025306L1	184025306L2	
	P.3-6.HT.DRP											184025306S	184025306SI	184025306S2	184025306S3	
	P.3-6.HT.DEF											184025306D	184025306DI	184025306D2	184025306D3	
	P.3-9.HT	0,55	0,75	0,77	1,5	50		45,6	40,5	20,6		184025309	184025309L	184025309L1	184025309L2	
	P.3-9.HT.DRP											184025309S	184025309SI	184025309S2	184025309S3	
	P.3-9.HT.DEF											184025309D	184025309DI	184025309D2	184025309D3	
	P.3-13.HT	0,75	1	1,07	2	72,2		65,9	58,5	29,8		184025313	184025313L	184025313L1	184025313L2	
	P.3-13.HT.DRP											184025313S	184025313SI	184025313S2	184025313S3	
	P.3-13.HT.DEF											184025313D	184025313DI	184025313D2	184025313D3	
	P.3-19.HT	1,1	1,5	1,49	2,8	105,5		96,3	85,5	43,5		184025319	184025319L	184025319L1	184025319L2	
	P.3-19.HT.DRP											184025319S	184025319SI	184025319S2	184025319S3	
	P.3-19.HT.DEF											184025319D	184025319DI	184025319D2	184025319D3	
	P.3-25.HT	1,5	2	2,00	3,8	139		127	113	57,3		184025325	184025325L	184025325L1	184025325L2	
	P.3-25.HT.DRP											184025325S	184025325SI	184025325S2	184025325S3	
	P.3-25.HT.DEF											184025325D	184025325DI	184025325D2	184025325D3	
						Total head in meters = H= dynamic total pressure										
P.5-4.HT	0,37	0,5	0,56	1,1	24,5					22	18,5	12,1	184025504	184025504L	184025504L1	184025504L2
P.5-4.HT.DRP													184025504S	184025504SI	184025504S2	184025504S3
P.5-4.HT.DEF													184025504D	184025504DI	184025504D2	184025504D3
P.5-6.HT	0,55	0,75	0,81	1,6	36,8				33	27,7	18,2	184025506	184025506L	184025506L1	184025506L2	
P.5-6.HT.DRP												184025506S	184025506SI	184025506S2	184025506S3	
P.5-6.HT.DEF												184025506D	184025506DI	184025506D2	184025506D3	
P.5-8.HT	0,75	1	1,03	1,9	49,1				44	37	24,2	184025508	184025508L	184025508L1	184025508L2	
P.5-8.HT.DRP												184025508S	184025508SI	184025508S2	184025508S3	
P.5-8.HT.DEF												184025508D	184025508DI	184025508D2	184025508D3	
P.5-13.HT	1,1	1,5	1,63	3,1	79,7				71,5	60,1	39,4	184025513	184025513L	184025513L1	184025513L2	
P.5-13.HT.DRP												184025513S	184025513SI	184025513S2	184025513S3	
P.5-13.HT.DEF												184025513D	184025513DI	184025513D2	184025513D3	
P.5-17.HT	1,5	2	2,2	4	104,3				93,5	78,5	51,5	184025517	184025517L	184025517L1	184025517L2	
P.5-17.HT.DRP												184025517S	184025517SI	184025517S2	184025517S3	
P.5-17.HT.DEF						184025517D						184025517DI	184025517D2	184025517D3		
P.5-21.HT	2,2	3	2,55	4,8	128,8			115,5	97	63,6	184025521	184025521L	184025521L1	184025521L2		
P.5-21.HT.DRP											184025521S	184025521SI	184025521S2	184025521S3		
P.5-21.HT.DEF											184025521D	184025521DI	184025521D2	184025521D3		

*Power consumption **Current consumption

4" SINGLE-PHASE SUBMERSIBLE PUMPS

X.HT complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and three-phase encapsulated water-cooled motor - **380-415V**

Water-Cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)									Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m
					IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4				
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code
PUMP CURVE 1	X.1-8.HT	0,25	0,33	0,37	0,7		50	44,4	18					184020108	184020108L	184020108L1	184020108L2
	X.1-8.HT.DRP													184020108S	184020108S1	184020108S2	184020108S3
	X.1-12.HT	0,37	0,5	0,56	1,1		75,4	66,6	27					184020112	184020112L	184020112L1	184020112L2
	X.1-12.HT.DRP													184020112S	184020112S1	184020112S2	184020112S3
	X.1-12.HT.DEF													184020112D	184020112D1	184020112D2	184020112D3
	X.1-18.HT	0,55	0,75	0,81	1,6		113	99,9	40,5					184020118	184020118L	184020118L1	184020118L2
	X.1-18.HT.DRP													184020118S	184020118S1	184020118S2	184020118S3
	X.1-18.HT.DEF													184020118D	184020118D1	184020118D2	184020118D3
	X.1-25.HT	0,75	1	1,07	2,1		157	138,8	56,3					184020125	184020125L	184020125L1	184020125L2
	X.1-25.HT.DRP													184020125S	184020125S1	184020125S2	184020125S3
	X.1-25.HT.DEF													184020125D	184020125D1	184020125D2	184020125D3
	X.1-36.HT	1,1	1,5	1,49	2,9		226,1	199,8	91					184020136	184020136L	184020136L1	184020136L2
	X.1-36.HT.DRP													184020136S	184020136S1	184020136S2	184020136S3
	X.1-36.HT.DEF													184020136D	184020136D1	184020136D2	184020136D3
PUMP CURVE 2	X.2-5.HT	0,25	0,33	0,37	0,7	Total head in meters = H = dynamic total pressure	32,0	31,2	28,2	17				184020205	184020205L	184020205L1	184020205L2
	X.2-5.HT.DRP													184020205S	184020205S1	184020205S2	184020205S3
	X.2-8.HT	0,37	0,5	0,59	1,2		51,2	49,9	41,9	27,2				184020208	184020208L	184020208L1	184020208L2
	X.2-8.HT.DRP													184020208S	184020208S1	184020208S2	184020208S3
	X.2-8.HT.DEF													184020208D	184020208D1	184020208D2	184020208D3
	X.2-12.HT	0,55	0,75	0,86	1,7		76,8	74,9	62,9	40,8				184020212	184020212L	184020212L1	184020212L2
	X.2-12.HT.DRP													184020212S	184020212S1	184020212S2	184020212S3
	X.2-12.HT.DEF													184020212D	184020212D1	184020212D2	184020212D3
	X.2-16.HT	0,75	1	1,11	2,1		102,4	99,8	83,8	54,4				184020216	184020216L	184020216L1	184020216L2
	X.2-16.HT.DRP													184020216S	184020216S1	184020216S2	184020216S3
	X.2-16.HT.DEF													184020216D	184020216D1	184020216D2	184020216D3
	X.2-24.HT	1,1	1,5	1,6	3		153,6	149,8	125,8	81,6				184020224	184020224L	184020224L1	184020224L2
	X.2-24.HT.DRP													184020224S	184020224S1	184020224S2	184020224S3
	X.2-24.HT.DEF													184020224D	184020224D1	184020224D2	184020224D3
	X.2-32.HT	1,5	2	2,16	4,1		204,7	199,7	167,7	108				184020232	184020232L	184020232L1	184020232L2
X.2-32.HT.DRP	184020232S					184020232S1								184020232S2	184020232S3		
X.2-32.HT.DEF	184020232D					184020232D1								184020232D2	184020232D3		

*Power consumption **Current consumption

Hydraulic part with upper head and lower support in **stainless steel** and three-phase encapsulated water-cooled motor - **380-415V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m		
		kW	HP	kW	(A)	IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4	15	Code	Code	Code	Code
						l/min	0	10	25	40	70	100	190	250					
PUMP CURVE 3	X.3-6.HT	0,37	0,5	0,54	1,0		33,3		30,4	27	13,7			184020306	184020306L	184020306L1	184020306L2		
	X.3-6.HT.DRP													184020306S	184020306S1	184020306S2	184020306S3		
	X.3-6.HT.DEF													184020306D	184020306D1	184020306D2	184020306D3		
	X.3-9.HT	0,55	0,75	0,77	1,5		50		45,6	40,5	20,6			184020309	184020309L	184020309L1	184020309L2		
	X.3-9.HT.DRP													184020309S	184020309S1	184020309S2	184020309S3		
	X.3-9.HT.DEF													184020309D	184020309D1	184020309D2	184020309D3		
	X.3-13.HT	0,75	1	1,07	2		72,2		65,9	58,5	29,8			184020313	184020313L	184020313L1	184020313L2		
	X.3-13.HT.DRP													184020313S	184020313S1	184020313S2	184020313S3		
	X.3-13.HT.DEF													184020313D	184020313D1	184020313D2	184020313D3		
	X.3-19.HT	1,1	1,5	1,49	2,8		105,5		96,3	85,5	43,5			184020319	184020319L	184020319L1	184020319L2		
	X.3-19.HT.DRP													184020319S	184020319S1	184020319S2	184020319S3		
	X.3-19.HT.DEF													184020319D	184020319D1	184020319D2	184020319D3		
	X.3-25.HT	1,5	2	2,00	3,8		139		127	113	57,3			184020325	184020325L	184020325L1	184020325L2		
	X.3-25.HT.DRP													184020325S	184020325S1	184020325S2	184020325S3		
	X.3-25.HT.DEF													184020325D	184020325D1	184020325D2	184020325D3		
	PUMP CURVE 5	X.5-4.HT	0,37	0,5	0,56	1,1	Total head in meters = H= dynamic total pressure	24,5			22	18,5	12,1		184020504	184020504L	184020504L1	184020504L2	
X.5-4.HT.DRP		184020504S													184020504S1	184020504S2	184020504S3		
X.5-4.HT.DEF		184020504D													184020504D1	184020504D2	184020504D3		
X.5-6.HT		0,55	0,75	0,81	1,6	36,8				33	27,7	18,2		184020506	184020506L	184020506L1	184020506L2		
X.5-6.HT.DRP														184020506S	184020506S1	184020506S2	184020506S3		
X.5-6.HT.DEF														184020506D	184020506D1	184020506D2	184020506D3		
X.5-8.HT		0,75	1	1,03	1,9	49,1				44	37	24,2		184020508	184020508L	184020508L1	184020508L2		
X.5-8.HT.DRP														184020508S	184020508S1	184020508S2	184020508S3		
X.5-8.HT.DEF														184020508D	184020508D1	184020508D2	184020508D3		
X.5-13.HT		1,1	1,5	1,63	3,1	79,7				71,5	60,1	39,4		184020513	184020513L	184020513L1	184020513L2		
X.5-13.HT.DRP														184020513S	184020513S1	184020513S2	184020513S3		
X.5-13.HT.DEF														184020513D	184020513D1	184020513D2	184020513D3		
X.5-17.HT		1,5	2	2,2	4	104,3				93,5	78,5	51,5		184020517	184020517L	184020517L1	184020517L2		
X.5-17.HT.DRP														184020517S	184020517S1	184020517S2	184020517S3		
X.5-17.HT.DEF														184020517D	184020517D1	184020517D2	184020517D3		
X.5-21.HT		2,2	3	2,55	4,8	128,8				115,5	97	63,6		184020521	184020521L	184020521L1	184020521L2		
X.5-21.HT.DRP	184020521S						184020521S1							184020521S2	184020521S3				
X.5-21.HT.DEF	184020521D						184020521D1							184020521D2	184020521D3				
PUMP CURVE 8	X.8-6.HT	0,75	1	1,07	2,1	Total head in meters = H= dynamic total pressure	38,4				29	24,5	4,8	184020806	184020806L	184020806L1	184020806L2		
	X.8-6.HT.DRP													184020806S	184020806S1	184020806S2	184020806S3		
	X.8-6.HT.DEF													184020806D	184020806D1	184020806D2	184020806D3		
	X.8-8.HT	1,1	1,5	1,37	2,6		51,2				39	32,7	6,4	184020808	184020808L	184020808L1	184020808L2		
	X.8-8.HT.DRP													184020808S	184020808S1	184020808S2	184020808S3		
	X.8-8.HT.DEF													184020808D	184020808D1	184020808D2	184020808D3		
	X.8-12.HT	1,5	2	2,06	3,9		76,8				58	49	9,6	184020812	184020812L	184020812L1	184020812L2		
	X.8-12.HT.DRP													184020812S	184020812S1	184020812S2	184020812S3		
	X.8-12.HT.DEF													184020812D	184020812D1	184020812D2	184020812D3		
	X.8-17.HT	2,2	3	2,85	5,3		108,8				82,1	69,4	13,6	184020817	184020817L	184020817L1	184020817L2		
	X.8-17.HT.DRP													184020817S	184020817S1	184020817S2	184020817S3		
	X.8-17.HT.DEF													184020817D	184020817D1	184020817D2	184020817D3		
C. S. 10	X.10-8.HT	1,5	2	1,89	3,5	Total head in meters = H= dynamic total pressure	48,2					42,6	39,2	23,1	7,9	184020908	184020908L	184020908L1	184020908L2
	X.10-8.HT.DRP															184020908S	184020908S1	184020908S2	184020908S3
	X.10-8.HT.DEF															184020908D	184020908D1	184020908D2	184020908D3
	X.10-12.HT	2,2	3	2,8	5,2		72,3				64	58,8	34,7	11,9	184020512	184020512L	184020512L1	184020512L2	
	X.10-12.HT.DRP														184020512S	184020512S1	184020512S2	184020512S3	
	X.10-12.HT.DEF														184020512D	184020512D1	184020512D2	184020512D3	

*Power consumption **Current consumption

QPGo



- ▶ **READY AND EASY TO INSTALL**
- ▶ **NO NEED FOR EXTERNAL CONTROL PANEL**
- ▶ **INTEGRATED CAPACITOR AND SPECIAL THERMAL PROTECTION**

- ▶ **4" complete submersible pump, made of ZDS hydraulic part, ZDS 2-wire single-phase oil-cooled O2 motor and supply cable in different lengths.**

Reliable, strong, easy to maintain and available in a wide range of models; it's ready to use as it doesn't require a start and run control panel.

It can be protected against many possible installation or operation faults thanks to the DRP (integrated in the power supply cable), the DRP-Plus (display monitoring protections), or the electronic control panel Z-Defender (with diagnostic and protections).

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous 2-wire single-phase oil-cooled motor.

Special and long lasting integrated start and run capacitor.

Rewindable stator and rotor immersed in dielectric fluid (FDA approved).

Oversized axial and radial oil-lubricated bearings to guarantee longer life to the motor.

The pressure compensation inside the motor is ensured by a special internal diaphragm.

Sand protection to guarantee optimal operation even with sand in the borehole.

Motor bottom cover for extra protection and safety.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Motor's protections

Special thermal protector, manually resettable, especially designed to ensure higher reliability and longer life.



Thermal protection

which stops the motor in case of overheating because of an incorrect installation.



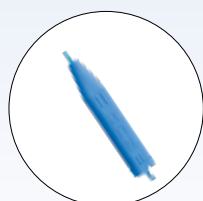
Current overload protection

which protects the motor in the case the submersible pump is partially or totally blocked.

Versions available



STANDARD



DRP
DRY RUNNING
PROTECTION



DRP-PLUS
DIAGNOSTIC AND
PROTECTION
DEVICE

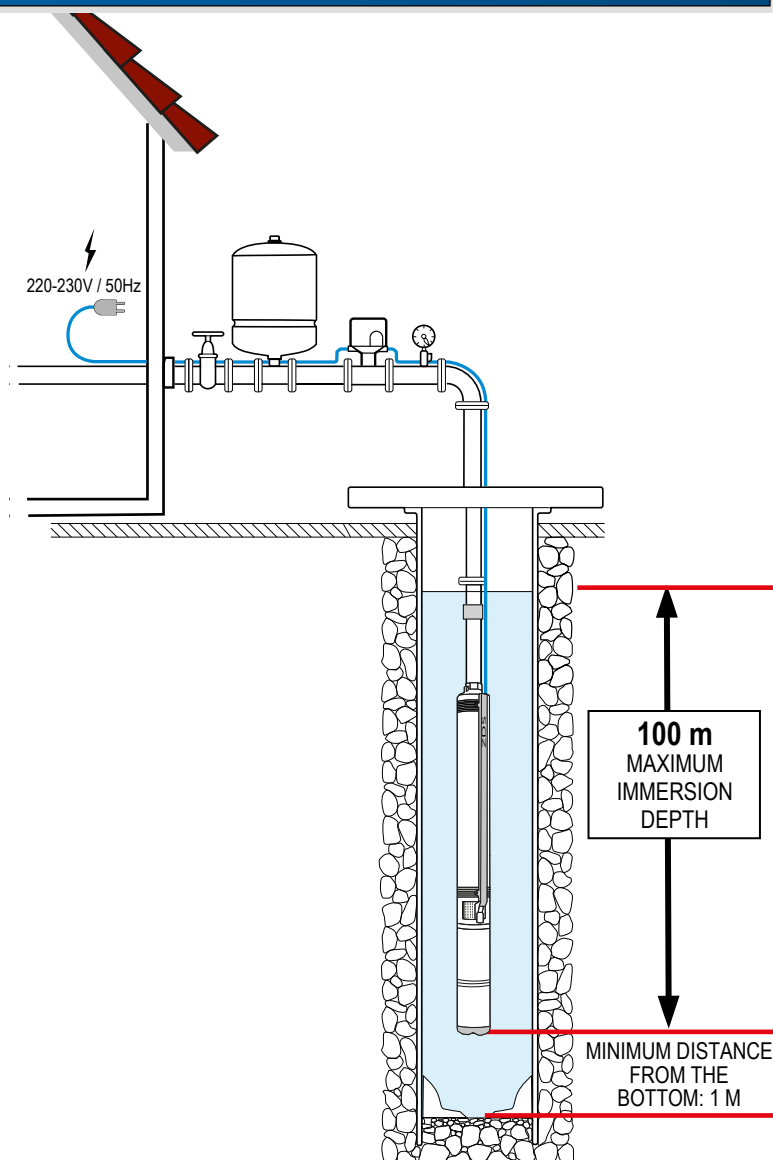


Z-DEFENDER
ELECTRONIC CONTROL PANEL
WITH DIAGNOSTIC AND
PROTECTION

Technical Specifications

Power range:	0,37 - 1,5 kW
Voltage range:	1x220-230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 40° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	100 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	220 m

Example of installation



DRP

**ELECTRONIC
PROTECTION DEVICE**



DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus the pump operation is directly proportional to the water supply for optimum efficiency. 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 submersible pump function autonomously in conditions of water shortage. The DRP is ready for use, integrated into the connection cable and needs no further installation.

Characteristics

Automatic programmed restarts in case of protection

Stand-by mode at maximum number of restart attempts overcoming

Ready to use, doesn't need any further calibration or setting up

DRP Protection



Protection against dry running and lack of water in the well

The DRP completely protects the submersible pump against lack of water in the well, without the aid of other equipment (probes, cables, sensors, control panels etc.).

In case of dry running, the DRP automatically stops the pump. When the water level is restored in the well, the DRP restarts the pump after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

The DRP protects the submersible pump against leaks in the piping system (also when the pressure tank is exhausted or its membrane is defective, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system). In such cases to avoid potential damages, the DRP, after some automatic re-start attempts, makes the pump enter the stand-by mode.



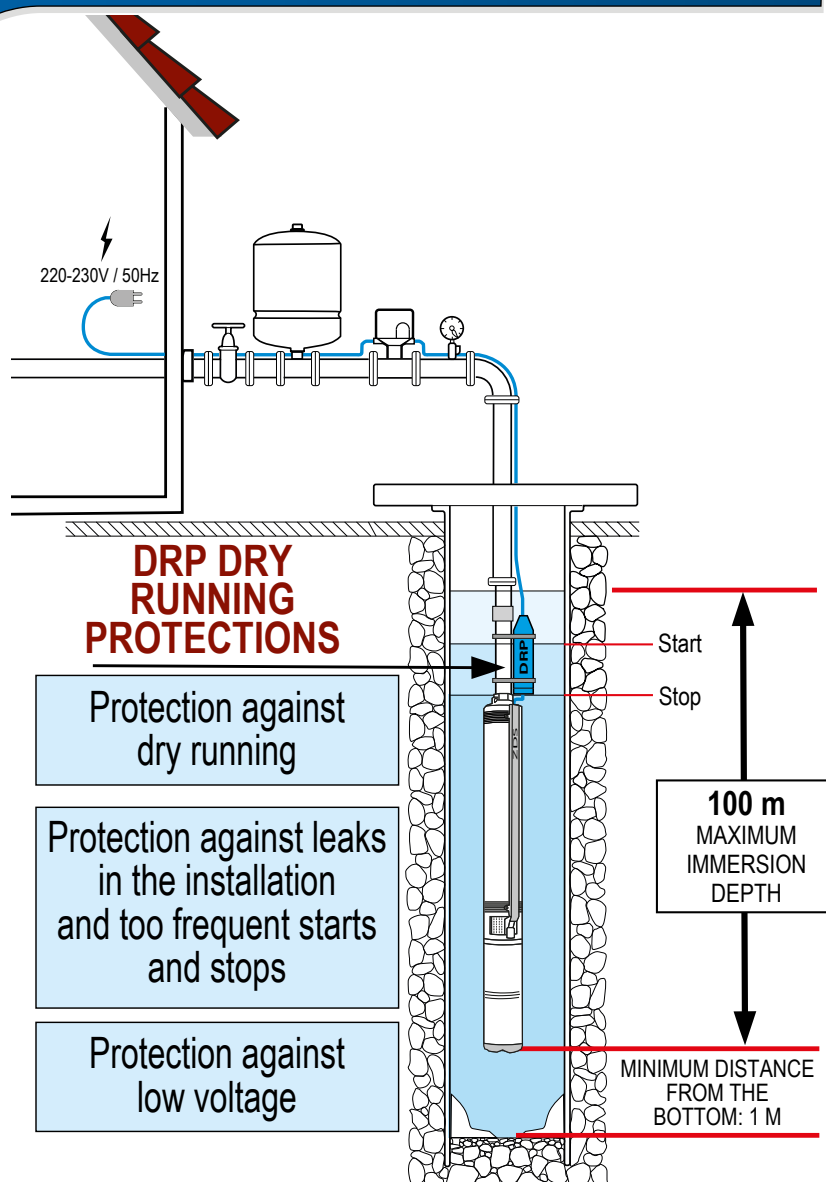
Protection against low voltage

The DRP protects the submersible pump against low voltage, that can damage the motor.

Technical Specifications

Casing:	Thermoplastic material
Voltage range:	1x220-230V +6% / -10% / 50 Hz
Degree of protection:	IP 68
Rated ambient temperature:	-10/+40° C
Size (cm):	33 x 5 x 3

Example of installation



DRP-Plus

DISPLAY MONITORING PROTECTIONS



DRP-Plus device is designed to guarantee an optimal protection of the QPGo pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration. **DRP-Plus** allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque. **DRP-Plus** allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **DRP-Plus**, the QPGo.DRP-Plus submersible pump can work and be continuously protected also when actual supply voltage values are at tolerance limit, providing the effectiveness of the protection operation. In addition, **DRP-Plus**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Characteristics

- LCD display for easy diagnostic
- Soft start technology
- Extra torque on start up when necessary
- Ready to use, doesn't need any further calibration or setting up
- Self-learning button for possible field approach

DRP-Plus Protection



Protection against dry running and lack of water in the well

The device automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

In case of leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system), **DRP-Plus** automatically makes the pump enter the stand-by mode showing an alarm on the display.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



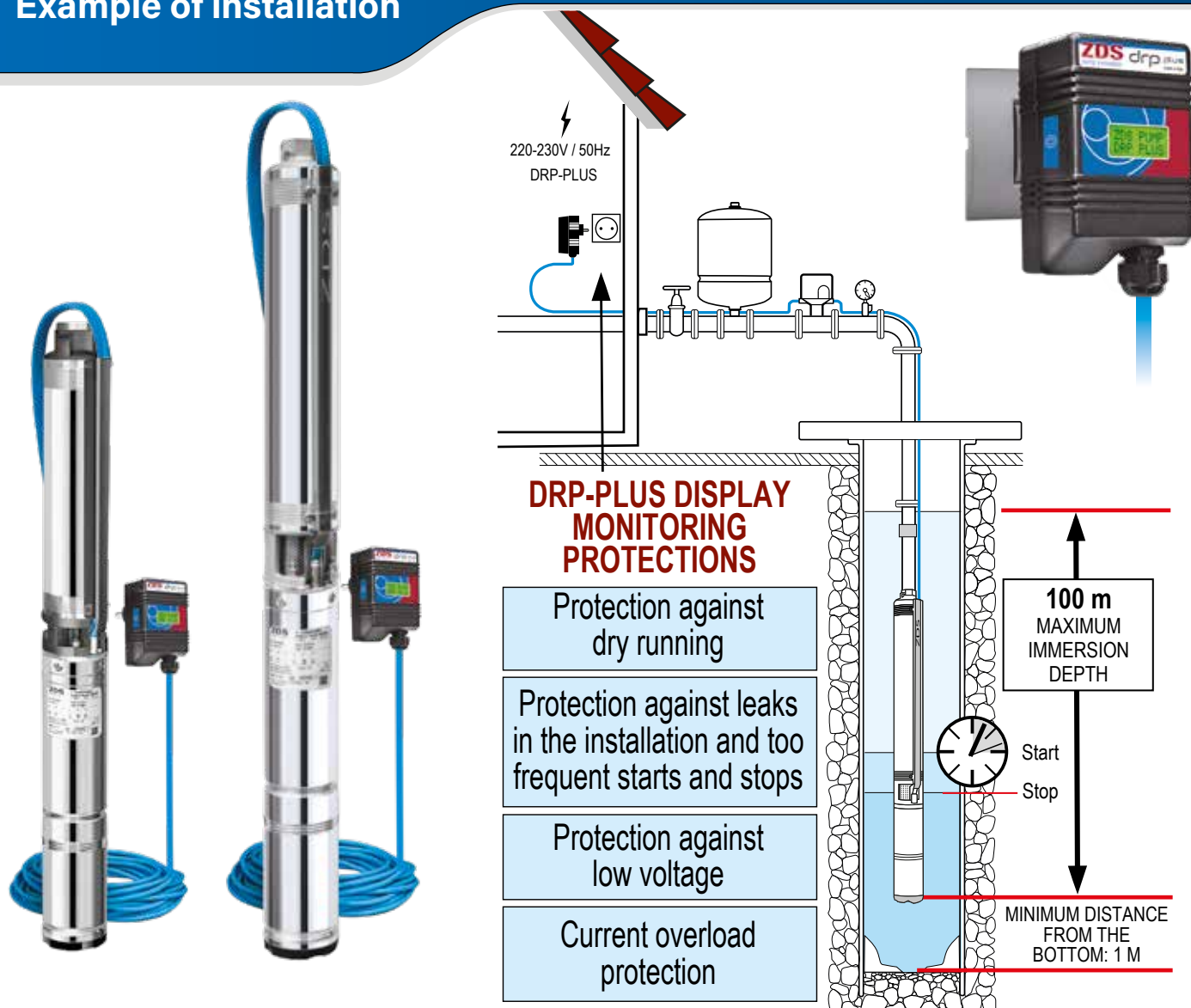
Current overload protection

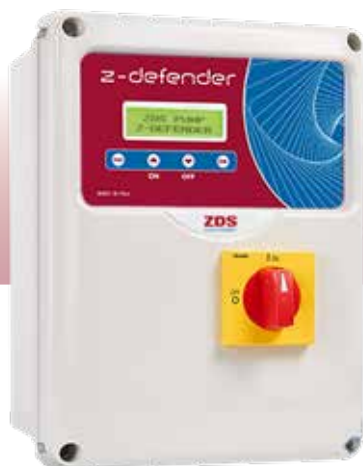
In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.

Technical Specifications

Schuko plug:	Integrated
Casing:	Thermoplastic material
Voltage range:	1x220-230V +6% / -10% / 50 Hz
Degree of protection:	IP 40
Rated ambient temperature:	-10/+35° C
Size (cm):	7,6 x 13 x 5,5

Example of installation





z-defender

Electronic control panel with protection and diagnostic for direct start and running of ZDS single-phase motors

Z-DEFENDER is an innovative electronic panel essential to start, run and protect the single-phase ZDS submersible pump against many possible installation and operation faults.

It's special and unique as it doesn't need any setting or self-learning, it's easy to install and ready to use, you only have to select the type of motor on the display and turn the pump on.

Z-DEFENDER is designed to guarantee an optimal protection of the submersible pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration.

Z-DEFENDER allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque.

Z-DEFENDER allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **Z-DEFENDER**, the QPGo.Defender submersible pump can work and be continuously protected also when the supply voltage values are at tolerance limit, providing the effectiveness of the protection operation.

In addition, **Z-DEFENDER**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Z-DEFENDER also minimizes energy consumption when the pump is not running.

Thanks to its special and innovative ZDS technology, **Z-DEFENDER** combines, in a single device, protection, reliability and ease of installation.



Characteristics

Ready to use: doesn't need any further calibration or setting up, as it's only necessary to select the type of motor on the display

LCD display for easy diagnostic of running parameters or eventual protections

Soft start technology

Extra torque on start up when necessary

Sounder alarm in the event of a fault and in stand-by

When the pump is not used, even if it is in stand-by mode, weekly start-up will be commanded by the electronic, in order to avoid any blockage caused by natural sediments in the well

No energy consumption when in stand-by

Low voltage input for floats or pressure switches

Z-DEFENDER protections



Protection against dry running and lack of water in the well

The control panel automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

In case of leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system), the control panel automatically makes the pump enter the stand-by mode showing an alarm on the display.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



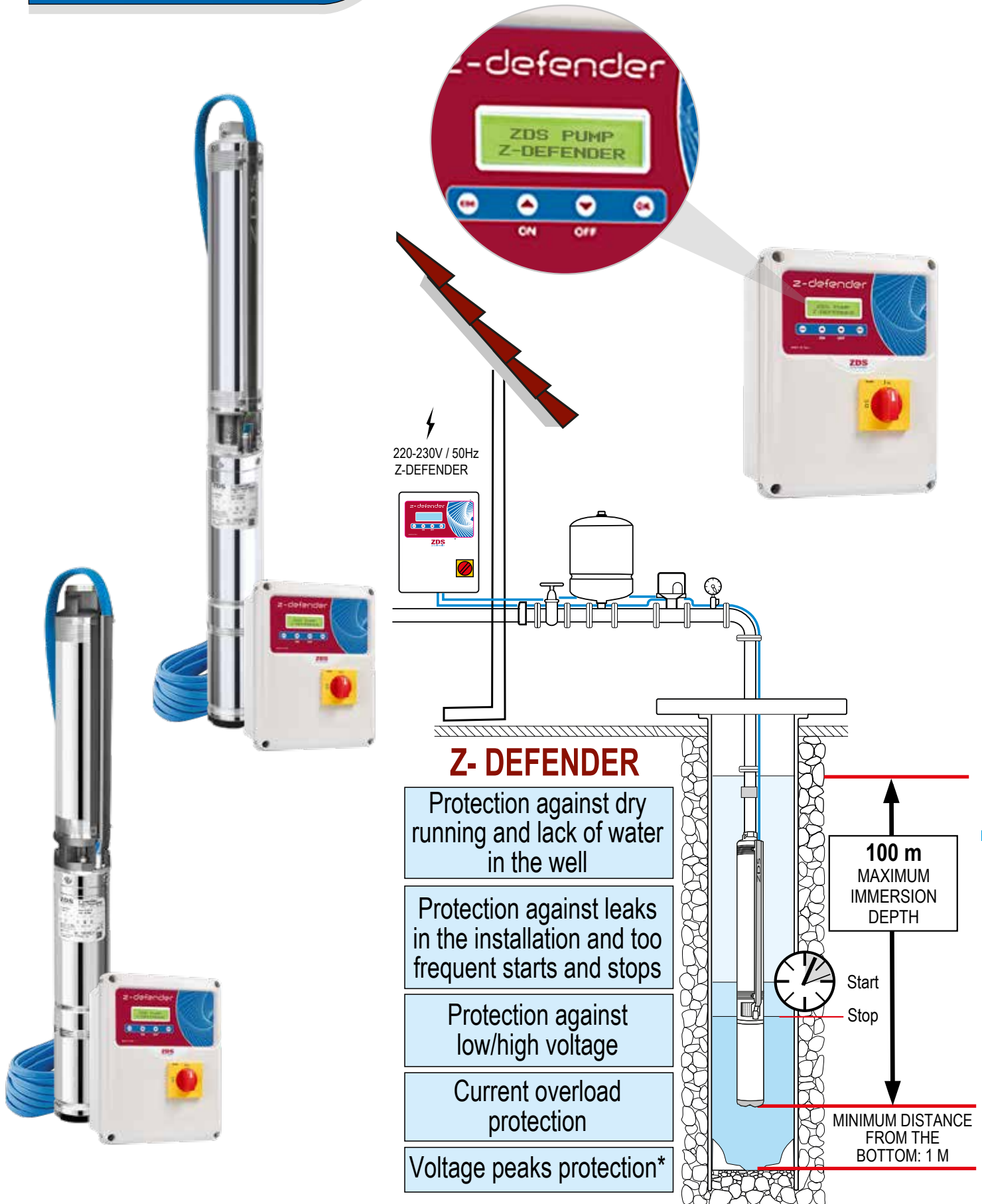
Voltage peaks protection*

Z-DEFENDER, on demand, can be equipped with internal filters designed to protect it from voltage peaks. Filters are replaceable and of easy access. *Optional

Technical Specifications

Casing:	Over-sized in ABS
Voltage range:	1x220-230 V +-10% 50 Hz
Power range:	0,37 - 1,5 kW
Degree of protection:	IP 55
Standard:	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	3 inputs multi-contact float/pressure switch (NO) (in low voltage)
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/voltage/motor current/alarms/stato ingressi/Power
Buttons Esc- ↑-↓-Off-OK:	to query the system
Motor output:	relay
Contact output:	for alarm
Protection fuses:	included (1 for protection and 1 for electronic card)
Voltage peaks protection:	(*optional)
Size (cm):	34 x 24 x 17
Weight:	1,5 Kg

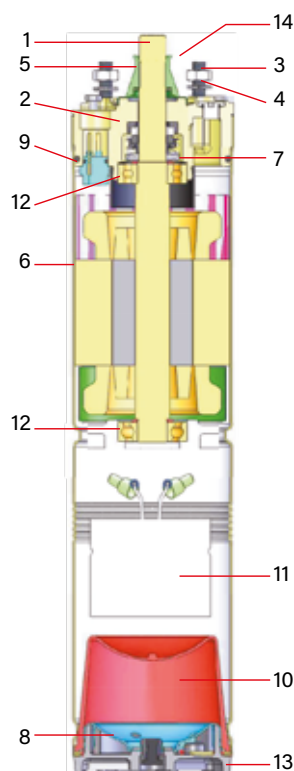
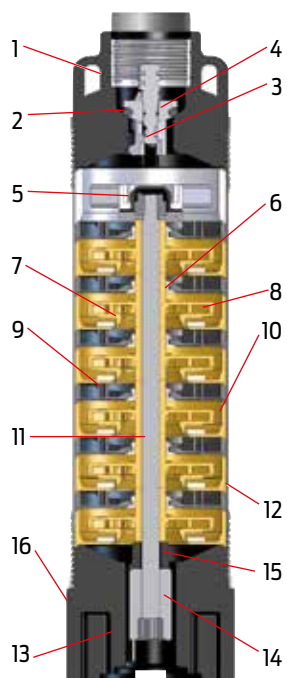
Example of installation



Oil-cooled complete 4" submersible pumps

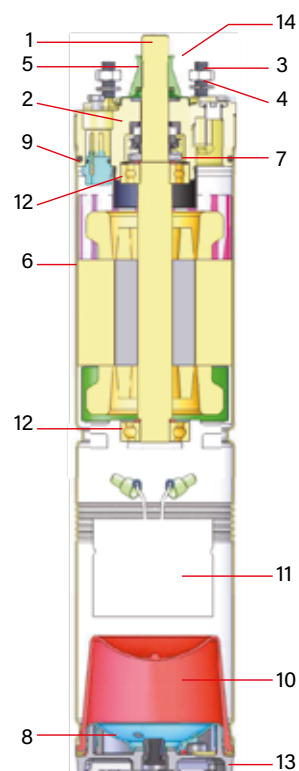
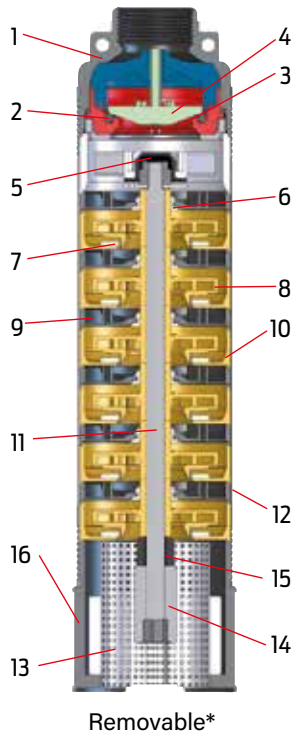


QPGo.P



Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Capacitor	-
12	Bearing	Stainless steel
13	Safety bottom cover	Technopolimer
14	Upper cover	Stainless steel AISI 304

QPGo.X



Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter (removable)*	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Capacitor	-
12	Bearing	Stainless steel
13	Safety bottom cover	Technopolimer
14	Upper cover	Stainless steel AISI 304

4" SINGLE-PHASE SUBMERSIBLE PUMPS

QPGo.P complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and
2-wire single-phase encapsulated water-cooled motor - **220-230V**

Oil-cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m													
	kW	HP			IN	m³/h	0	0	0,6	1,5	2,4	4,2					6												
			(A)	l/min									0	6	10	25		40	70	100	Code	Code	Code	Code					
PUMP CURVE 1	QPGo.P1-8	0,25	0,33	0,59	2,9		50,2	48	44,4	18				197300108L	197300108L1	197300108L2	197300108L3												
	QPGo.P1-8.DRP																197300108S	197300108S1	197300108S2	197300108S3									
	QPGo.P1-12	0,37	0,5	0,72	3,3			75,4	72	66,6				27															
	QPGo.P1-12.DRP																												
	QPGo.P1-12.DRP-Plus																												
	QPGo.P1-12.DEF																												
	QPGo.P1-18	0,55	0,75	0,95	4,4		113	108	99,9	40,5																			
	QPGo.P1-18.DRP																												
	QPGo.P1-18.DRP-Plus																												
	QPGo.P1-18.DEF																												
	QPGo.P1-25	0,75	1	1,24	5,8		157	150	138,8	56,3																			
	QPGo.P1-25.DRP																												
	QPGo.P1-25.DRP-Plus																												
	QPGo.P1-25.DEF																												
	QPGo.P2-5	0,25	0,33	0,59	2,9	Total head in meters = H = dynamic total pressure	32		31,2	26,2	17				197300205L	197300205L1	197300205L2	197300205L3											
QPGo.P2-5.DRP																	197300205S	197300205S1	197300205S2	197300205S3									
QPGo.P2-8	0,37	0,5	0,73	3,3	51,2			49,9	41,9	27,2							197300208L	197300208L1	197300208L2	197300208L3									
QPGo.P2-8.DRP																													
QPGo.P2-8.DRP-Plus																													
QPGo.P2-8.DEF																													
QPGo.P2-12	0,55	0,75	0,97	4,4	76,8			74,9	62,9	40,8							197300212L	197300212L1	197300212L2	197300212L3									
QPGo.P2-12.DRP																													
QPGo.P2-12.DRP-Plus																													
QPGo.P2-12.DEF																													
QPGo.P2-16	0,75	1	1,27	5,8	102,4			99,8	83,8	54,4							197300216L	197300216L1	197300216L2	197300216L3									
QPGo.P2-16.DRP																													
QPGo.P2-16.DRP-Plus																													
QPGo.P2-16.DEF																													
QPGo.P2-24	1,1	1,5	1,7	7,8	153,6			149,8	125,8	81,6							197300224L	197300224L1	197300224L2	197300224L3									
QPGo.P2-24.DRP																													
QPGo.P2-24.DRP-Plus																													
QPGo.P2-24.DEF																													

*Power consumption **Current consumption

QPGo.P complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and
2-wire single-phase encapsulated water-cooled motor - **220-230V**

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
	kW	HP			IN	m³/h	0	0	0,6	1,5	2,4	4,2					6
			(A)	l/min	0	6	10	25	40	70	100	Code	Code	Code	Code		
PUMP CURVE 3																	
QPGo.P.3-6	0,37	0,5	0,7	3,3		33,3			30,4	27	13,7		197300306L	197300306L1	197300306L2	197300306L3	
QPGo.P.3-6.DRP													197300306S	197300306S1	197300306S2	197300306S3	
QPGo.P.3-6.DRP-Plus													197300306P	197300306P1	197300306P2	197300306P3	
QPGo.P.3-6.DEF													197300306D	197300306D1	197300306D2	197300306D3	
QPGo.P.3-9	0,55	0,75	0,93	4,4		50			45,6	40,5	20,6		197300309L	197300309L1	197300309L2	197300309L3	
QPGo.P.3-9.DRP													197300309S	197300309S1	197300309S2	197300309S3	
QPGo.P.3-9.DRP-Plus													197300309P	197300309P1	197300309P2	197300309P3	
QPGo.P.3-9.DEF													197300309D	197300309D1	197300309D2	197300309D3	
QPGo.P.3-13	0,75	1	1,24	5,8		72,2			65,9	58,5	29,8		197300313L	197300313L1	197300313L2	197300313L3	
QPGo.P.3-13.DRP													197300313S	197300313S1	197300313S2	197300313S3	
QPGo.P.3-13.DRP-Plus													197300313P	197300313P1	197300313P2	197300313P3	
QPGo.P.3-13.DEF													197300313D	197300313D1	197300313D2	197300313D3	
QPGo.P.3-19	1,1	1,5	1,66	7,8		105,5			96,3	85,5	43,5		197300319L	197300319L1	197300319L2	197300319L3	
QPGo.P.3-19.DRP													197300319S	197300319S1	197300319S2	197300319S3	
QPGo.P.3-19.DRP-Plus													197300319P	197300319P1	197300319P2	197300319P3	
QPGo.P.3-19.DEF													197300319D	197300319D1	197300319D2	197300319D3	
QPGo.P.3-25	0,37	0,5	0,72	3,3		138,8			126,8	112,5	57,3		197300325L	197300325L1	197300325L2	197300325L3	
QPGo.P.3-25.DRP													197300325S	197300325S1	197300325S2	197300325S3	
QPGo.P.3-25.DRP-Plus													197300325P	197300325P1	197300325P2	197300325P3	
QPGo.P.3-25.DEF													197300325D	197300325D1	197300325D2	197300325D3	
					Total head in meters = H= dynamic total pressure												
QPGo.P.5-4	0,55	0,75	0,95	4,4			24,5				22	18,5	12,1	197300504L	197300504L1	197300504L2	197300504L3
QPGo.P.5-4.DRP														197300504S	197300504S1	197300504S2	197300504S3
QPGo.P.5-4.DRP-Plus														197300504P	197300504P1	197300504P2	197300504P3
QPGo.P.5-4.DEF														197300504D	197300504D1	197300504D2	197300504D3
QPGo.P.5-6	0,75	1	1,23	5,8			36,8				33	27,7	18,2	197300506L	197300506L1	197300506L2	197300506L3
QPGo.P.5-6.DRP														197300506S	197300506S1	197300506S2	197300506S3
QPGo.P.5-6.DRP-Plus														197300506P	197300506P1	197300506P2	197300506P3
QPGo.P.5-6.DEF														197300506D	197300506D1	197300506D2	197300506D3
QPGo.P.5-8	0,75	1	1,23	5,8			49,1				44	37	24,2	197300508L	197300508L1	197300508L2	197300508L3
QPGo.P.5-8.DRP														197300508S	197300508S1	197300508S2	197300508S3
QPGo.P.5-8.DRP-Plus														197300508P	197300508P1	197300508P2	197300508P3
QPGo.P.5-8.DEF														197300508D	197300508D1	197300508D2	197300508D3
QPGo.P.5-13	1,1	1,5	1,7	7,8			79,7				71,5	60,1	39,4	197300513L	197300513L1	197300513L2	197300513L3
QPGo.P.5-13.DRP														197300513S	197300513S1	197300513S2	197300513S3
QPGo.P.5-13.DRP-Plus														197300513P	197300513P1	197300513P2	197300513P3
QPGo.P.5-13.DEF														197300513D	197300513D1	197300513D2	197300513D3
QPGo.P.5-17	1,5	2	2,25	10,4			104,3				93,5	78,5	51,5	197300517L	197300517L1	197300517L2	197300517L3
QPGo.P.5-17.DRP														197300517S	197300517S1	197300517S2	197300517S3
QPGo.P.5-17.DRP-Plus					197300517P									197300517P1	197300517P2	197300517P3	
QPGo.P.5-17.DEF					197300517D									197300517D1	197300517D2	197300517D3	
PUMP CURVE 5																	

*Power consumption **Current consumption

4" SINGLE-PHASE SUBMERSIBLE PUMPS

QPGo.X complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and
2-wire single-phase encapsulated water-cooled motor - **220-230V**

Oil-cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)									Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
					IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4					15
	kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code	Code	
PUMP CURVE 1	QPGo.X.1-8	0,25	0,33	0,59	2,9		50,2	44,4	18					197200108L	197200108L1	197200108L2	197200108L3	
	QPGo.X.1-8.DRP												197200108S	197200108S1	197200108S2	197200108S3		
	QPGo.X.1-12	0,37	0,5	0,72	3,3		75,4	66,6	27					197200112L	197200112L1	197200112L2	197200112L3	
	QPGo.X.1-12.DRP													197200112S	197200112S1	197200112S2	197200112S3	
	QPGo.X.1-12.DRP-Plus													197200112P	197200112P1	197200112P2	197200112P3	
	QPGo.X.1-12.DEF													197200112D	197200112D1	197200112D2	197200112D3	
	QPGo.X.1-18	0,55	0,75	0,95	4,4		113	99,9	40,5					197200118L	197200118L1	197200118L2	197200118L3	
	QPGo.X.1-18.DRP													197200118S	197200118S1	197200118S2	197200118S3	
	QPGo.X.1-18.DRP-Plus													197200118P	197200118P1	197200118P2	197200118P3	
	QPGo.X.1-18.DEF													197200118D	197200118D1	197200118D2	197200118D3	
	QPGo.X.1-25	0,75	1	1,24	5,8		157	138,8	56,3					197200125L	197200125L1	197200125L2	197200125L3	
	QPGo.X.1-25.DRP													197200125S	197200125S1	197200125S2	197200125S3	
	QPGo.X.1-25.DRP-Plus													197200125P	197200125P1	197200125P2	197200125P3	
	QPGo.X.1-25.DEF													197200125D	197200125D1	197200125D2	197200125D3	
	QPGo.X.1-36	1,1	1,5	1,66	7,8		226,1	199,8	81					197200136L	197200136L1	197200136L2	197200136L3	
	QPGo.X.1-36.DRP													197200136S	197200136S1	197200136S2	197200136S3	
	QPGo.X.1-36.DRP-Plus													197200136P	197200136P1	197200136P2	197200136P3	
	QPGo.X.1-36.DEF													197200136D	197200136D1	197200136D2	197200136D3	
	PUMP CURVE 2	QPGo.X.2-5	0,25	0,33	0,59	2,9	Total head in meters = H= dynamic total pressure	32	31,2	26,2	17					197200205L	197200205L1	197200205L2
QPGo.X.2-5.DRP														197200205S	197200205S1	197200205S2	197200205S3	
QPGo.X.2-8		0,37	0,5	0,73	3,3	51,2		49,9	41,9	27,2					197200208L	197200208L1	197200208L2	197200208L3
QPGo.X.2-8.DRP															197200208S	197200208S1	197200208S2	197200208S3
QPGo.X.2-8.DRP-Plus															197200208P	197200208P1	197200208P2	197200208P3
QPGo.X.2-8.DEF															197200208D	197200208D1	197200208D2	197200208D3
QPGo.X.2-12		0,55	0,75	0,97	4,4	76,8		74,9	62,9	40,8					197200212L	197200212L1	197200212L2	197200212L3
QPGo.X.2-12.DRP															197200212S	197200212S1	197200212S2	197200212S3
QPGo.X.2-12.DRP-Plus															197200212P	197200212P1	197200212P2	197200212P3
QPGo.X.2-12.DEF															197200212D	197200212D1	197200212D2	197200212D3
QPGo.X.2-16		0,75	1	1,27	5,8	102,4		99,8	83,8	54,4					197200216L	197200216L1	197200216L2	197200216L3
QPGo.X.2-16.DRP															197200216S	197200216S1	197200216S2	197200216S3
QPGo.X.2-16.DRP-Plus															197200216P	197200216P1	197200216P2	197200216P3
QPGo.X.2-16.DEF															197200216D	197200216D1	197200216D2	197200216D3
QPGo.X.2-24		1,1	1,5	1,7	7,8	153,6		149,8	125,8	81,6					197200224L	197200224L1	197200224L2	197200224L3
QPGo.X.2-24.DRP															197200224S	197200224S1	197200224S2	197200224S3
QPGo.X.2-24.DRP-Plus															197200224P	197200224P1	197200224P2	197200224P3
QPGo.X.2-24.DEF															197200224D	197200224D1	197200224D2	197200224D3
QPGo.X.2-32		1,5	2,0	2,25	10,5	204,7		199,7	167,7	108					197200232L	197200232L1	197200232L2	197200232L3
QPGo.X.2-32.DRP															197200232S	197200232S1	197200232S2	197200232S3
QPGo.X.2-32.DRP-Plus	197200232P						197200232P1								197200232P2	197200232P3		
QPGo.X.2-32.DEF	197200232D						197200232D1								197200232D2	197200232D3		

*Power consumption **Current consumption

QPGo.X complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and
2-wire single-phase encapsulated water-cooled motor - **220-230V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
						IN	m³/h	0	0,6	1,5	2,4	4,2	6					11,4
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code	Code
PUMP CURVE 3	QPGo.X.3-6	0,37	0,5	0,7	3,3		33,3		30,4	27	13,7				197200306L	197200306L1	197200306L2	197200306L3
	QPGo.X.3-6.DRP														197200306S	197200306S1	197200306S2	197200306S3
	QPGo.X.3-6.DRP-Plus														197200306P	197200306P1	197200306P2	197200306P3
	QPGo.X.3-6.DEF														197200306D	197200306D1	197200306D2	197200306D3
	QPGo.X.3-9	0,55	0,75	0,93	4,4		50		45,6	40,5	20,6				197200309L	197200309L1	197200309L2	197200309L3
	QPGo.X.3-9.DRP														197200309S	197200309S1	197200309S2	197200309S3
	QPGo.X.3-9.DRP-Plus														197200309P	197200309P1	197200309P2	197200309P3
	QPGo.X.3-9.DEF														197200309D	197200309D1	197200309D2	197200309D3
	QPGo.X.3-13	0,75	1	1,24	5,8		72,2		65,9	58,5	29,8				197200313L	197200313L1	197200313L2	197200313L3
	QPGo.X.3-13.DRP														197200313S	197200313S1	197200313S2	197200313S3
	QPGo.X.3-13.DRP-Plus														197200313P	197200313P1	197200313P2	197200313P3
	QPGo.X.3-13.DEF														197200313D	197200313D1	197200313D2	197200313D3
	QPGo.X.3-19	1,1	1,5	1,66	7,8		105,5		96,3	85,5	43,5				197200319L	197200319L1	197200319L2	197200319L3
	QPGo.X.3-19.DRP														197200319S	197200319S1	197200319S2	197200319S3
	QPGo.X.3-19.DRP-Plus														197200319P	197200319P1	197200319P2	197200319P3
	QPGo.X.3-19.DEF														197200319D	197200319D1	197200319D2	197200319D3
	QPGo.X.3-25	1,5	2	2,23	10,1		138,8		126,8	112,5	57,3				197200325L	197200325L1	197200325L2	197200325L3
	QPGo.X.3-25.DRP														197200325S	197200325S1	197200325S2	197200325S3
	QPGo.X.3-25.DRP-Plus														197200325P	197200325P1	197200325P2	197200325P3
	QPGo.X.3-25.DEF														197200325D	197200325D1	197200325D2	197200325D3
PUMP CURVE 5	QPGo.X.5-4	0,37	0,5	0,72	3,3	Total head in meters = H= dynamic total pressure	24,5			22	18,5	12,1			197200504L	197200504L1	197200504L2	197200504L3
	QPGo.X.5-4.DRP														197200504S	197200504S1	197200504S2	197200504S3
	QPGo.X.5-4.DRP-Plus														197200504P	197200504P1	197200504P2	197200504P3
	QPGo.X.5-4.DEF														197200504D	197200504D1	197200504D2	197200504D3
	QPGo.X.5-6	0,55	0,75	0,95	4,4		36,8			33	27,7	18,2			197200506L	197200506L1	197200506L2	197200506L3
	QPGo.X.5-6.DRP														197200506S	197200506S1	197200506S2	197200506S3
	QPGo.X.5-6.DRP-Plus														197200506P	197200506P1	197200506P2	197200506P3
	QPGo.X.5-6.DEF														197200506D	197200506D1	197200506D2	197200506D3
	QPGo.X.5-8	0,75	1	1,23	5,8		49,1			44	37	24,2			197200508L	197200508L1	197200508L2	197200508L3
	QPGo.X.5-8.DRP														197200508S	197200508S1	197200508S2	197200508S3
	QPGo.X.5-8.DRP-Plus														197200508P	197200508P1	197200508P2	197200508P3
	QPGo.X.5-8.DEF														197200508D	197200508D1	197200508D2	197200508D3
	QPGo.X.5-13	1,1	1,5	1,7	7,8		79,7			71,5	60,1	39,4			197200513L	197200513L1	197200513L2	197200513L3
	QPGo.X.5-13.DRP														197200513S	197200513S1	197200513S2	197200513S3
	QPGo.X.5-13.DRP-Plus														197200513P	197200513P1	197200513P2	197200513P3
	QPGo.X.5-13.DEF														197200513D	197200513D1	197200513D2	197200513D3
	QPGo.X.5-17	1,5	2	2,25	10,4		104,3			93,5	78,5	51,5			197200517L	197200517L1	197200517L2	197200517L3
	QPGo.X.5-17.DRP														197200517S	197200517S1	197200517S2	197200517S3
	QPGo.X.5-17.DRP-Plus														197200517P	197200517P1	197200517P2	197200517P3
	QPGo.X.5-17.DEF														197200517D	197200517D1	197200517D2	197200517D3
PUMP CURVE 8	QPGo.X.8-6	0,75	1	1,23	5,8	38,4				29	25	5		197200806L	197200806L1	197200806L2	197200806L3	
	QPGo.X.8-6.DRP													197200806S	197200806S1	197200806S2	197200806S3	
	QPGo.X.8-6.DRP-Plus													197200806P	197200806P1	197200806P2	197200806P3	
	QPGo.X.8-6.DEF													197200806D	197200806D1	197200806D2	197200806D3	
	QPGo.X.8-8	1,1	1,5	1,71	7,8		51,2			39	33	7		197200808L	197200808L1	197200808L2	197200808L3	
	QPGo.X.8-8.DRP													197200808S	197200808S1	197200808S2	197200808S3	
	QPGo.X.8-8.DRP-Plus													197200808P	197200808P1	197200808P2	197200808P3	
	QPGo.X.8-8.DEF													197200808D	197200808D1	197200808D2	197200808D3	
	QPGo.X.8-12	1,5	2	2,25	10,1		76,8			58	49	9,6		197200812L	197200812L1	197200812L2	197200812L3	
	QPGo.X.8-12.DRP					197200812S								197200812S1	197200812S2	197200812S3		
QPGo.X.8-12.DRP-Plus	197200812P					197200812P1								197200812P2	197200812P3			
QPGo.X.8-12.DEF	197200812D					197200812D1								197200812D2	197200812D3			
C. S. 10	QPGoX.10-8	1,5	2	2,35	10,8		48,2					39,2		7,9	197200906L	197200906L1	197200906L2	197200906L3
	QPGoX.10-8.DRP														197200906S	197200906S1	197200906S2	197200906S3
	QPGoX.10-8.DRP-Plus														197200906P	197200906P1	197200906P2	197200906P3
	QPGoX.10-8.DEF														197200906D	197200906D1	197200906D2	197200906D3

P/X.03



4" complete submersible pump, made of ZDS hydraulic part, ZDS single-phase PSC oil-cooled O3 motor, supply cable in different lengths and ZDS CBO electrical start panel (which includes on/off switch, start and run capacitor and overload protector).

Reliable, strong, easy to maintain and available in a wide range of models; it's ready to use as it doesn't require a start and run control panel.

It can be protected against many possible installation or operation faults thanks to the DRP (integrated in the power supply cable), or the electronic control panel Z-Defender (with diagnostic and protections).

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous single-phase PSC oil-cooled motor O3.

Rewindable stator and rotor immersed in dielectric fluid (FDA approved).

Oversized axial and radial oil-lubricated bearings to guarantee longer life to the motor.

The pressure compensation inside the motor is ensured by a special internal diaphragm.

Sand protection to guarantee optimal operation even with sand in the borehole.

Motor bottom cover for extra protection and safety.

Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

CBO Electric start panel

Motor start and operation system with capacitor, equipped with thermal amperometric protection against current overload, ON/OFF illuminated switch, terminal box, cable glands, power supply cable, mounting accessories.



Versions available



STANDARD



DRP
DRY RUNNING
PROTECTION

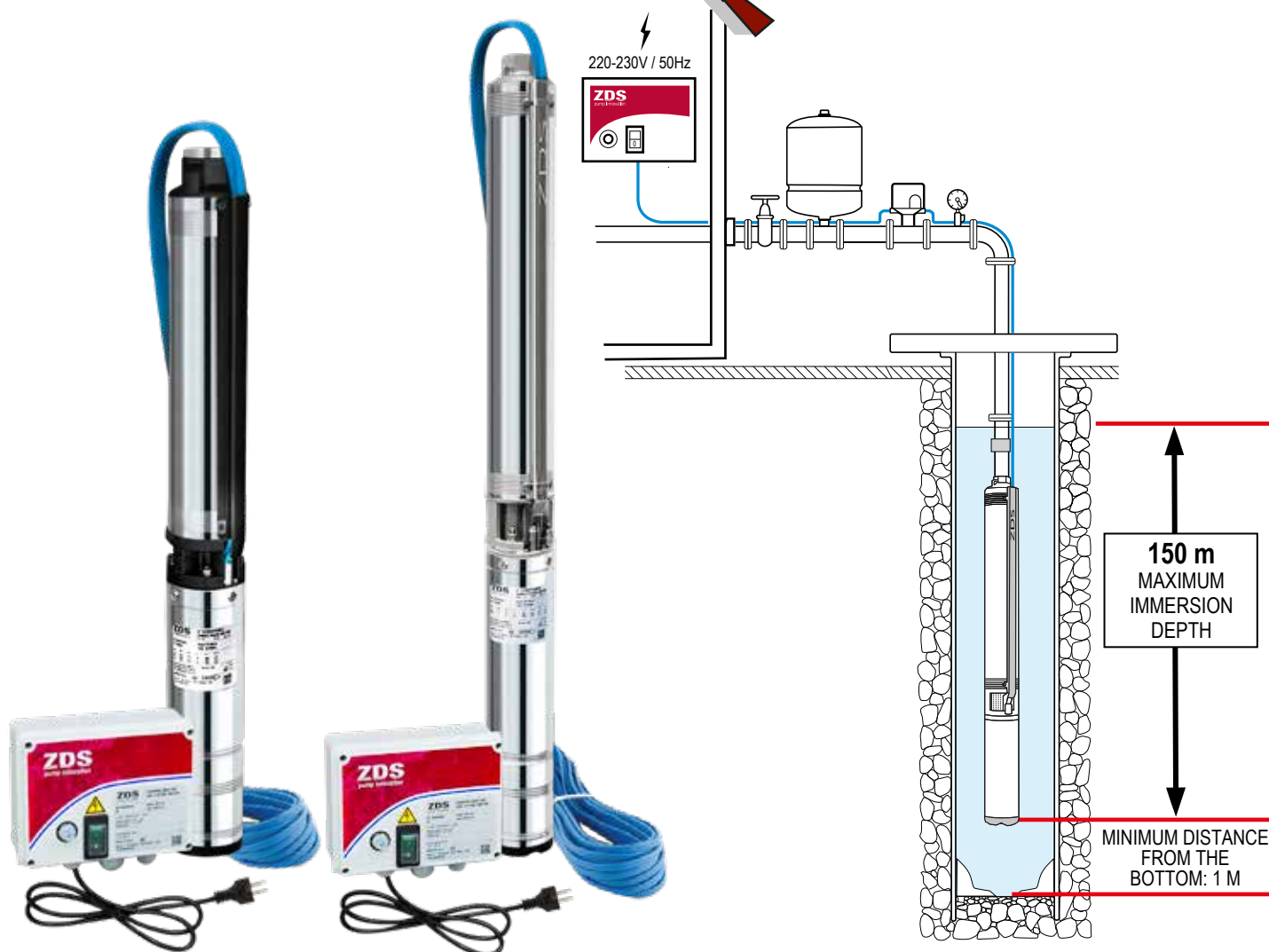


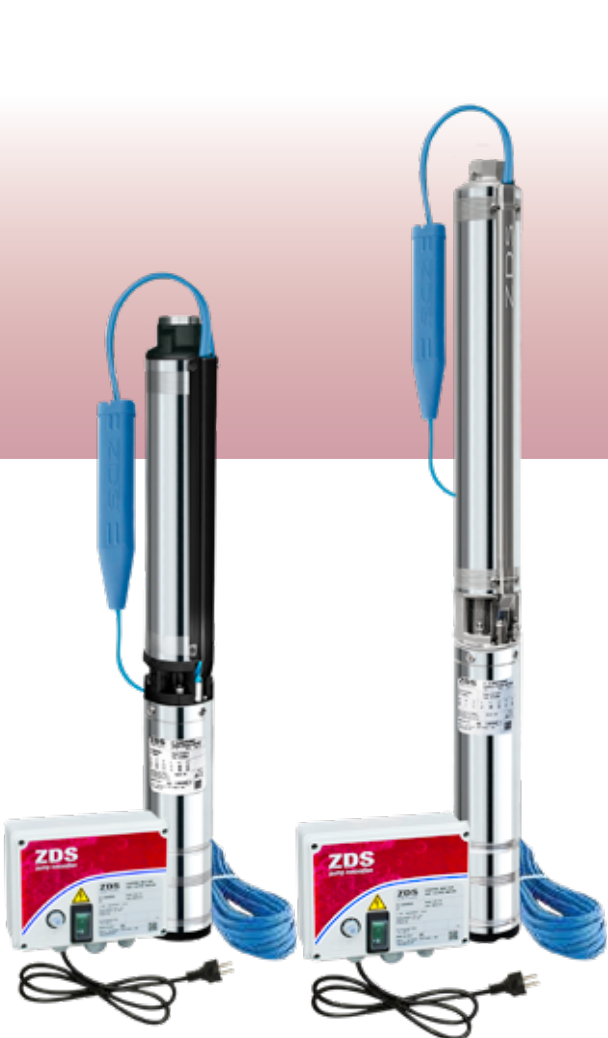
Z-DEFENDER
ELECTRONIC CONTROL PANEL WITH
DIAGNOSTIC AND PROTECTION

Technical Specifications

Power range:	0,37 - 2,2 kW
Voltage range:	1x220-230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 40° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	220 m

Example of installation





DRP

**ELECTRONIC
PROTECTION DEVICE**

DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus the pump operation is directly proportional to the water supply for optimum efficiency. 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 submersible pump function autonomously in conditions of water shortage. The DRP is ready for use, integrated into the connection cable and needs no further installation.

Characteristics

Automatic programmed restarts in case of protection

Stand-by mode at maximum number of restart attempts overcoming

Ready to use, doesn't need any further calibration or setting up

DRP Protection



Protection against dry running and lack of water in the well

The DRP completely protects the submersible pump against lack of water in the well, without the aid of other equipment (probes, cables, sensors, control panels etc.).

In case of dry running, the DRP automatically stops the pump. When the water level is restored in the well, the DRP restarts the pump after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

The DRP protects the submersible pump against leaks in the piping system (also when the pressure tank is exhausted or its membrane is defective, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system). In such cases to avoid potential damages, the DRP, after some automatic re-start attempts, makes the pump enter the stand-by mode.



Protection against low voltage

The DRP protects the submersible pump against low voltage, that can damage the motor.

Technical Specifications

Casing: Thermoplastic material

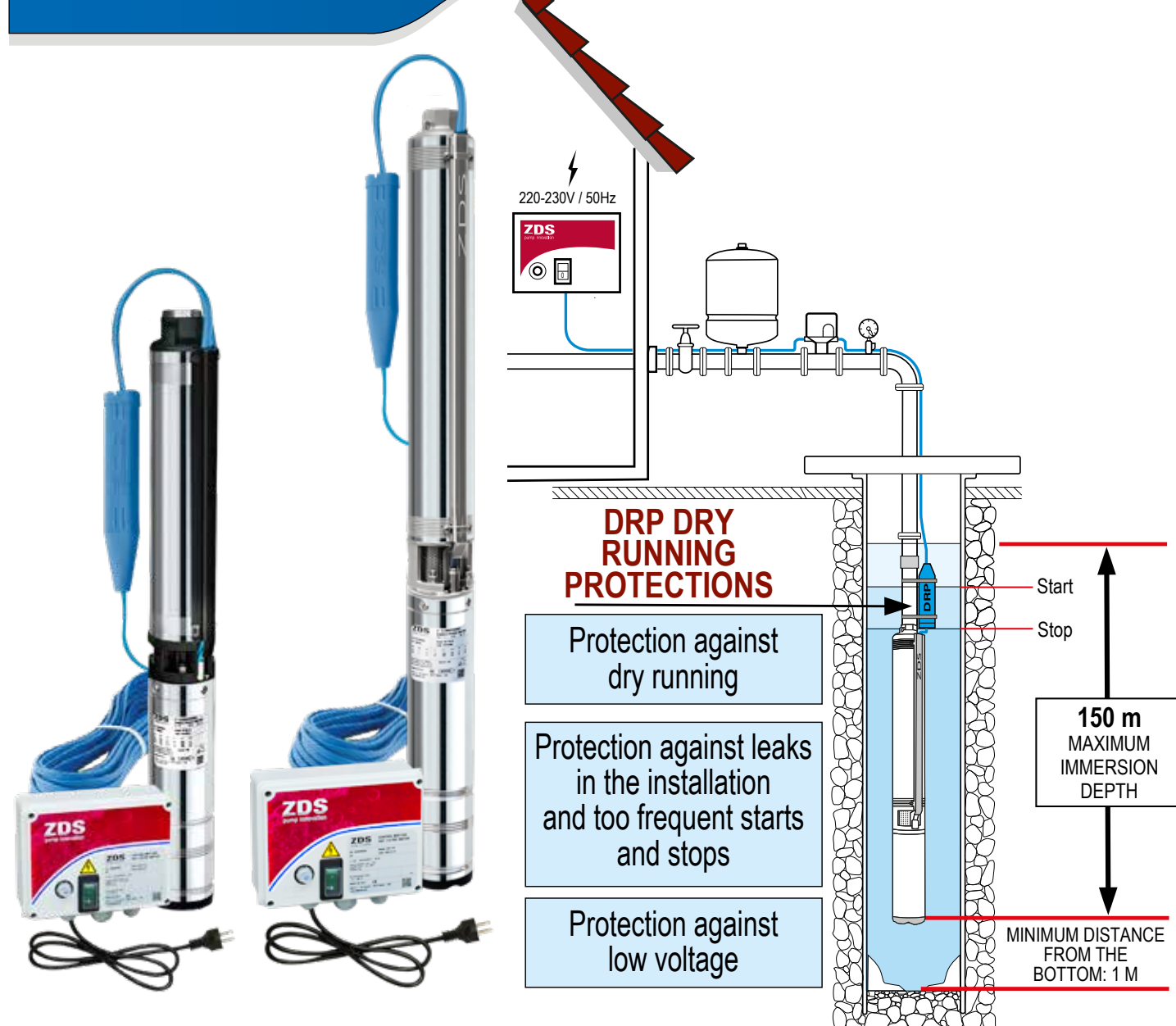
Voltage range: 1x220-230V +6% /-10% / 50 Hz

Degree of protection: IP 68

Rated ambient temperature: -10/+40° C

Size (cm): 33 x 5 x 3

Example of installation





z-defender

Electronic control panel with protection and diagnostic for direct start and running of ZDS single-phase motors

Z-DEFENDER is an innovative electronic panel essential to start, run and protect the single-phase ZDS submersible pump against many possible installation and operation faults.

It's special and unique as it doesn't need any setting or self-learning, it's easy to install and ready to use, you only have to select the type of motor on the display and turn the pump on. **Z-DEFENDER** is designed to guarantee an optimal protection of the submersible pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running; ensuring a high degree of automation and restoration.

Z-DEFENDER allows to continuously monitor the submersible pump, guaranteeing its operation in the most efficient way through a Soft start procedure (first start attempt with low starting torque) and if needed, a Strong start procedure to benefit of more starting torque.

It's equipped with 2 capacitors: the first capacitor does guarantee a higher starting torque to the motor, the second capacitor optimizes the motor's efficiency during its operation.

Z-DEFENDER allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions. With **Z-DEFENDER**, the submersible pump can work and be continuously protected also when the supply voltage values are at tolerance limit, providing the effectiveness of the protection operation. In addition, **Z-DEFENDER**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Z-DEFENDER also minimizes energy consumption when the pump is not running.

Thanks to its special and innovative ZDS technology, **Z-DEFENDER** combines, in a single device, protection, reliability and ease of installation.



Characteristics

Ready to use: doesn't need any further calibration or setting up, as it's only necessary to select the type of motor on the display

LCD display for easy diagnostic of running parameters or eventual protections

Soft start technology

Extra torque on start up when necessary

Sounder alarm in the event of a fault and in stand-by

Double capacitor predisposition: one for more starting torque and one for running

When the pump is not used, even if it is in stand-by mode, weekly start-up will be commanded by the electronic, in order to avoid any blockage caused by natural sediments in the well

No energy consumption when in stand-by

Low voltage input for floats or pressure switches

Z-DEFENDER protections



Protection against dry running and lack of water in the well

The control panel automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

In case of leaks in the piping system (also when the pressure tank is exhausted or its membrane is damaged, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system), the control panel automatically makes the pump enter the stand-by mode showing an alarm on the display.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



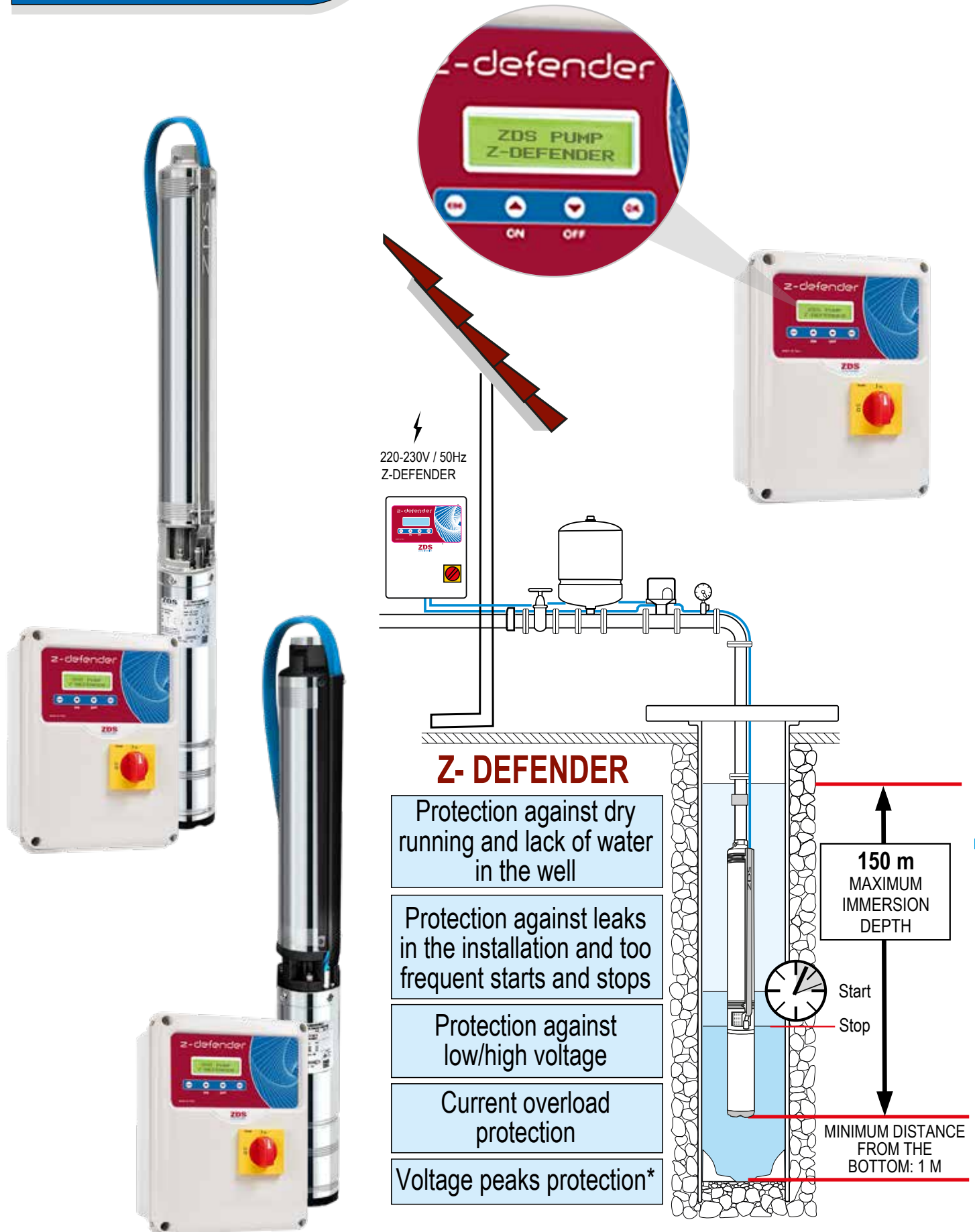
Voltage peaks protection*

Z-DEFENDER, on demand, can be equipped with internal filters designed to protect it from voltage peaks. Filters are replaceable and of easy access. *Optional

Technical Specifications

Casing:	Over-sized in ABS
Voltage range:	1x220-230 V +-10% 50 Hz
Power range:	0,37 - 2,2 kW
Degree of protection:	IP 55
Standard:	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	3 inputs multi-contact float/pressure switch (NO) (in low voltage)
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/voltage/motor current/alarms/status ingressi/Power
Buttons Esc- ↑ - ↓ - Off-OK:	to query the system
Motor output:	relay
Contact output:	for alarm
Run capacitor predisposition:	included
Extra starting torque capacitor predisposition:	included
Protection fuses:	included (1 for protection and 1 for electronic card)
Voltage peaks protection:	optional
Size (cm):	34 x 24 x 17
Weight:	1,5 Kg

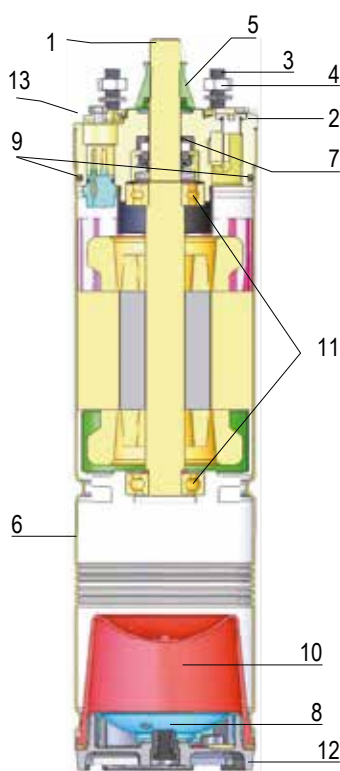
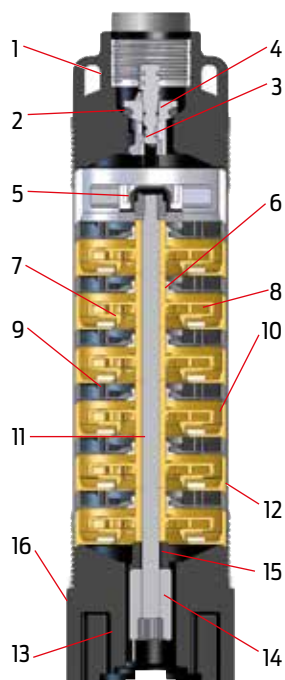
Example of installation



Oil-cooled complete 4" submersible pumps

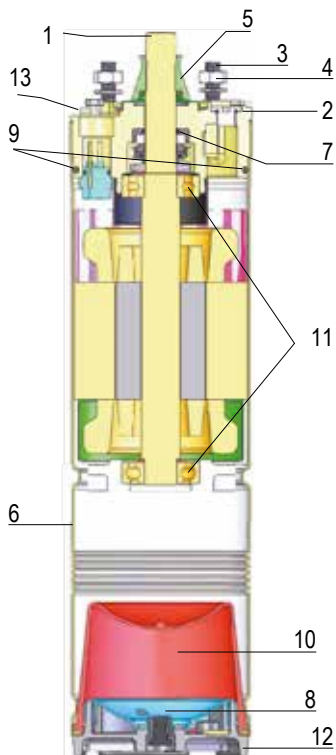
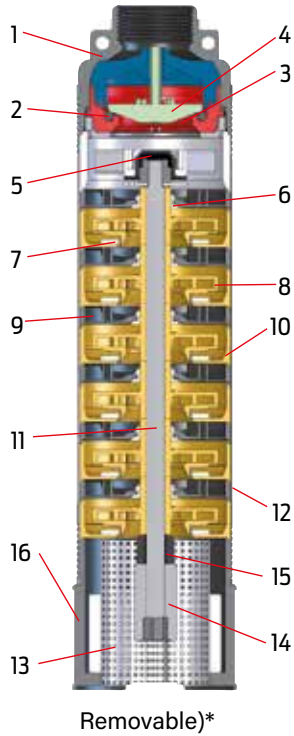
4" SINGLE-PHASE SUBMERSIBLE PUMPS

P.03



Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Bearing	Stainless steel
12	Safety bottom cover	Technopolimer
13	Upper cover	Stainless steel AISI 304

X.03



Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter (removable)*	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Bearing	Stainless steel
12	Safety bottom cover	Technopolimer
13	Upper cover	Stainless steel AISI 304

4" SINGLE-PHASE SUBMERSIBLE PUMPS

P.03 complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and single-phase PSC oil-cooled motor - **220-230V**

Oil-cooled complete 4" submersible pumps

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)						Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m			
						IN	m³/h	0	0,6	1,5	2,4					4,2	6	
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	Code	Code	Code	Code		
PUMP CURVE 1	P.1-8.03	0,25	0,33	0,59	2,9	Total head in meters = H= dynamic total pressure	50,2	44,4	18				197500108L	197500108L1	197500108L2	197500108L3		
	P.1-8.03.DRP												197500108S	197500108S1	197500108S2	197500108S3		
	P.1-12.03	0,37	0,5	0,72	3,3		75,4	66,6	27				197500112L	197500112L1	197500112L2	197500112L3		
	P.1-12.03.DRP												197500112S	197500112S1	197500112S2	197500112S3		
	P.1-12.03.DEF												197500112D	197500112D1	197500112D2	197500112D3		
	P.1-18.03	0,55	0,75	0,95	4,4		113	100	41				197500118L	197500118L1	197500118L2	197500118L3		
	P.1-18.03.DRP												197500118S	197500118S1	197500118S2	197500118S3		
	P.1-18.03.DEF												197500118D	197500118D1	197500118D2	197500118D3		
	P.1-25.03	0,75	1	1,24	5,8		157	139	56				197500125L	197500125L1	197500125L2	197500125L3		
	P.1-25.03.DRP												197500125S	197500125S1	197500125S2	197500125S3		
	P.1-25.03.DEF												197500125D	197500125D1	197500125D2	197500125D3		
PUMP CURVE 2	P.2-5.03	0,25	0,33	0,59	2,9		Total head in meters = H= dynamic total pressure	32	31,2	28,2	17			197500205L	197500205L1	197500205L2	197500205L3	
	P.2-5.03.DRP													197500205S	197500205S1	197500205S2	197500205S3	
	P.2-8.03	0,37	0,5	0,73	3,3			51,2	49,9	41,9	27,2				197500208L	197500208L1	197500208L2	197500208L3
	P.2-8.03.DRP														197500208S	197500208S1	197500208S2	197500208S3
	P.2-8.03.DEF														197500208D	197500208D	197500208D	197500208D
	P.2-12.03	0,55	0,75	0,97	4,4			76,8	74,9	62,9	40,8				197500212L	197500212L1	197500212L2	197500212L3
	P.2-12.03.DRP														197500212S	197500212S1	197500212S2	197500212S3
	P.2-12.03.DEF														197500212D	197500212D	197500212D	197500212D
	P.2-16.03	0,75	1	1,27	5,8			102,4	99,8	83,8	54,4				197500216L	197500216L1	197500216L2	197500216L3
	P.2-16.03.DRP														197500216S	197500216S1	197500216S2	197500216S3
	P.2-16.03.DEF														197500216D	197500216D	197500216D	197500216D
	P.2-24.03	1,1	1,5	1,7	7,8			153,6	149,8	125,8	81,6				197500224L	197500224L1	197500224L2	197500224L3
	P.2-24.03.DRP														197500224S	197500224S1	197500224S2	197500224S3
P.2-24.03.DEF	197500224D					197500224D									197500224D	197500224D		

*Power consumption **Current consumption

P.03 complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and single-phase PSC oil-cooled motor - **220-230V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)						Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
		IN	m³/h			0	0,6	1,5	2,4	4,2	6					
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	Code	Code	Code	Code
PUMP CURVE 3	P.3-6.03	0,37	0,5	0,7	3,3		33,3		30,4	27	13,7		197500306L	197500306L1	197500306L2	197500306L3
	P.3-6.03.DRP												197500306S	197500306S1	197500306S2	197500306S3
	P.3-6.03.DEF												197500306D	197500306D1	197500306D2	197500306D3
	P.3-9.03	0,55	0,75	0,93	4,4		50		45,6	40,5	20,6		197500309L	197500309L1	197500309L2	197500309L3
	P.3-9.03.DRP												197500309S	197500309S1	197500309S2	197500309S3
	P.3-9.03.DEF												197500309D	197500309D1	197500309D2	197500309D3
	P.3-13.03	0,75	1	1,24	5,8		72,2		65,9	58,5	29,8		197500313L	197500313L1	197500313L2	197500313L3
	P.3-13.03.DRP												197500313S	197500313S1	197500313S2	197500313S3
	P.3-13.03.DEF												197500313D	197500313D1	197500313D2	197500313D3
	P.3-19.03	1,1	1,5	1,66	7,8		105,5		96,3	85,5	43,5		197500319L	197500319L1	197500319L2	197500319L3
	P.3-19.03.DRP												197500319S	197500319S1	197500319S2	197500319S3
	P.3-19.03.DEF												197500319D	197500319D1	197500319D2	197500319D3
P.3-25.03	1,5	2	2,23	10,1		138,8		126,8	112,5	57,3		197500325L	197500325L1	197500325L2	197500325L3	
P.3-25.03.DRP												197500325S	197500325S1	197500325S2	197500325S3	
P.3-25.03.DEF												197500325D	197500325D1	197500325D2	197500325D3	
PUMP CURVE 5	P.5-4.03	0,37	0,5	0,72	3,3		24,5			22	18,5	12,1	197500504L	197500504L1	197500504L2	197500504L3
	P.5-4.03.DRP												197500504S	197500504S1	197500504S2	197500504S3
	P.5-4.03.DEF												197500504D	197500504D1	197500504D2	197500504D3
	P.5-6.03	0,55	0,75	0,95	4,4		36,8			33	27,7	18,2	197500506L	197500506L1	197500506L2	197500506L3
	P.5-6.03.DRP												197500506S	197500506S1	197500506S2	197500506S3
	P.5-6.03.DEF												197500506D	197500506D1	197500506D2	197500506D3
	P.5-8.03	0,75	1	1,23	5,8		49,1			44	37	24,2	197500508L	197500508L1	197500508L2	197500508L3
	P.5-8.03.DRP												197500508S	197500508S1	197500508S2	197500508S3
	P.5-8.03.DEF												197500508D	197500508D1	197500508D2	197500508D3
	P.5-13.03	1,1	1,5	1,7	7,8		79,7			71,5	60,1	39,4	197500513L	197500513L1	197500513L2	197500513L3
	P.5-13.03.DRP												197500513S	197500513S1	197500513S2	197500513S3
	P.5-13.03.DEF												197500513D	197500513D1	197500513D2	197500513D3
	P.5-17.03	1,5	2	2,3	10,1		104,3			93,5	78,5	51,5	197500517L	197500517L1	197500517L2	197500517L3
	P.5-17.03.DRP												197500517S	197500517S1	197500517S2	197500517S3
	P.5-17.03.DEF												197500517D	197500517D1	197500517D2	197500517D3
P.5-21.03	2,2	3	2,75	13,1		128,8			115,5	97	63,6	197500521L	197500521L1	197500521L2	197500521L3	
P.5-21.03.DRP												197500521S	197500521S1	197500521S2	197500521S3	
P.5-21.03.DEF												197500521D	197500521D1	197500521D2	197500521D3	

*Power consumption **Current consumption

4" SINGLE-PHASE SUBMERSIBLE PUMPS

X.03 complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and single-phase PSC oil-cooled motor - **220-230V**

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)									Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m		
					IN	m³/h	0	0,6	1,5	2,4	4,2	6	11,4					15	
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code	Code	
PUMP CURVE 1	X.1-8.03	0,25	0,33	0,59	2,9	Total head in meters = H = dynamic total pressure	50,2	44,4	18					197400108L	197400108L1	197400108L2	197400108L3		
	X.1-8.03.DRP													197400108S	197400108S1	197400108S2	197400108S3		
	X.1-12.03	0,37	0,5	0,72	3,3		75,4	66,6	27					197400112L	197400112L1	197400112L2	197400112L3		
	X.1-12.03.DRP													197400112S	197400112S1	197400112S2	197400112S3		
	X.1-12.03.DEF													197400112D	197400112D1	197400112D2	197400112D3		
	X.1-18.03	0,55	0,75	0,95	4,4		113	99,9	40,5						197400118L	197400118L1	197400118L2	197400118L3	
	X.1-18.03.DRP														197400118S	197400118S1	197400118S2	197400118S3	
	X.1-18.03.DEF														197400118D	197400118D1	197400118D2	197400118D3	
	X.1-25.03	0,75	1	1,24	5,8		157	138,8	56,3							197400125L	197400125L1	197400125L2	197400125L3
	X.1-25.03.DRP															197400125S	197400125S1	197400125S2	197400125S3
	X.1-25.03.DEF															197400125D	197400125D1	197400125D2	197400125D3
	X.1-36.03	1,1	1,5	1,66	7,8		226,1	199,8	91							197400136L	197400136L1	197400136L2	197400136L3
	X.1-36.03.DRP															197400136S	197400136S1	197400136S2	197400136S3
	X.1-36.03.DEF															197400136D	197400136D1	197400136D2	197400136D3
PUMP CURVE 2	X.2-5.03	0,25	0,33	0,59	2,9	Total head in meters = H = dynamic total pressure	32	31,2	28,2	17					197400205L	197400205L1	197400205L2	197400205L3	
	X.2-5.03.DRP														197400205S	197400205S1	197400205S2	197400205S3	
	X.2-8.03	0,37	0,5	0,73	3,3		51,2	49,9	41,9	27,2					197400208L	197400208L1	197400208L2	197400208L3	
	X.2-8.03.DRP														197400208S	197400208S1	197400208S2	197400208S3	
	X.2-8.03.DEF														197400208D	197400208D1	197400208D2	197400208D3	
	X.2-12.03	0,55	0,75	0,97	4,4		76,8	74,9	62,9	40,8					197400212L	197400212L1	197400212L2	197400212L3	
	X.2-12.03.DRP														197400212S	197400212S1	197400212S2	197400212S3	
	X.2-12.03.DEF														197400212D	197400212D	197400212D2	197400212D3	
	X.2-16.03	0,75	1	1,27	5,8		102,4	99,8	83,8	54,4					197400216L	197400216L1	197400216L2	197400216L3	
	X.2-16.03.DRP														197400216S	197400216S1	197400216S2	197400216S3	
	X.2-16.03.DEF														197400216D	197400216D1	197400216D2	197400216D3	
	X.2-24.03	1,1	1,5	1,7	7,8		153,6	149,8	125,8	81,6					197400224L	197400224L1	197400224L2	197400224L3	
	X.2-24.03.DRP														197400224S	197400224S1	197400224S2	197400224S3	
	X.2-24.03.DEF														197400224D	197400224D1	197400224D2	197400224D3	
X.2-32.03	1,5	2	2,3	10,1	204,7	199,7	167,7	108					197400232L	197400232L1	197400232L2	197400232L3			
X.2-32.03.DRP													197400232S	197400232S1	197400232S2	197400232S3			
X.2-32.03.DEF													197400232D	197400232D1	197400232D2	197400232D3			

*Power consumption **Current consumption

Oil-cooled complete 4" submersible pumps

123

P/X.OT



**4" complete
submersible pump,
made of ZDS hydraulic
part, ZDS three-phase
oil-cooled OT motor and
supply cable in different
lengths.**

Reliable, strong, easy to maintain and available in a wide range of models; it's ready to use as it doesn't require a start and run control panel.

It can be protected against many possible installation or operation faults thanks to the DRP (integrated in the power supply cable), or the electronic control panel Z-Defender.3 (with diagnostic and protections).

It requires a start, operation and protection system.

Applications

Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous three-phase oil-cooled OT motor.

Rewindable stator and rotor immersed in dielectric fluid (FDA approved).

Oversized axial and radial oil-lubricated bearings to guarantee longer life to the motor.

The pressure compensation inside the motor is ensured by a special internal diaphragm.

Sand protection to guarantee optimal operation even with sand in the borehole.

Motor bottom cover for extra protection and safety.

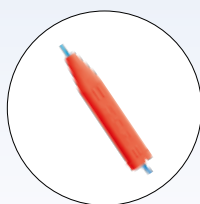
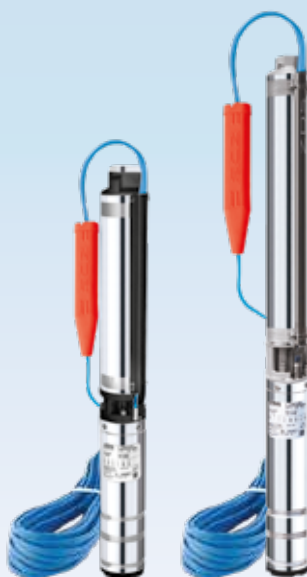
Removable lead connector to make installation and maintenance easier.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Versions available



STANDARD



DRP
 DRY RUNNING
 PROTECTION

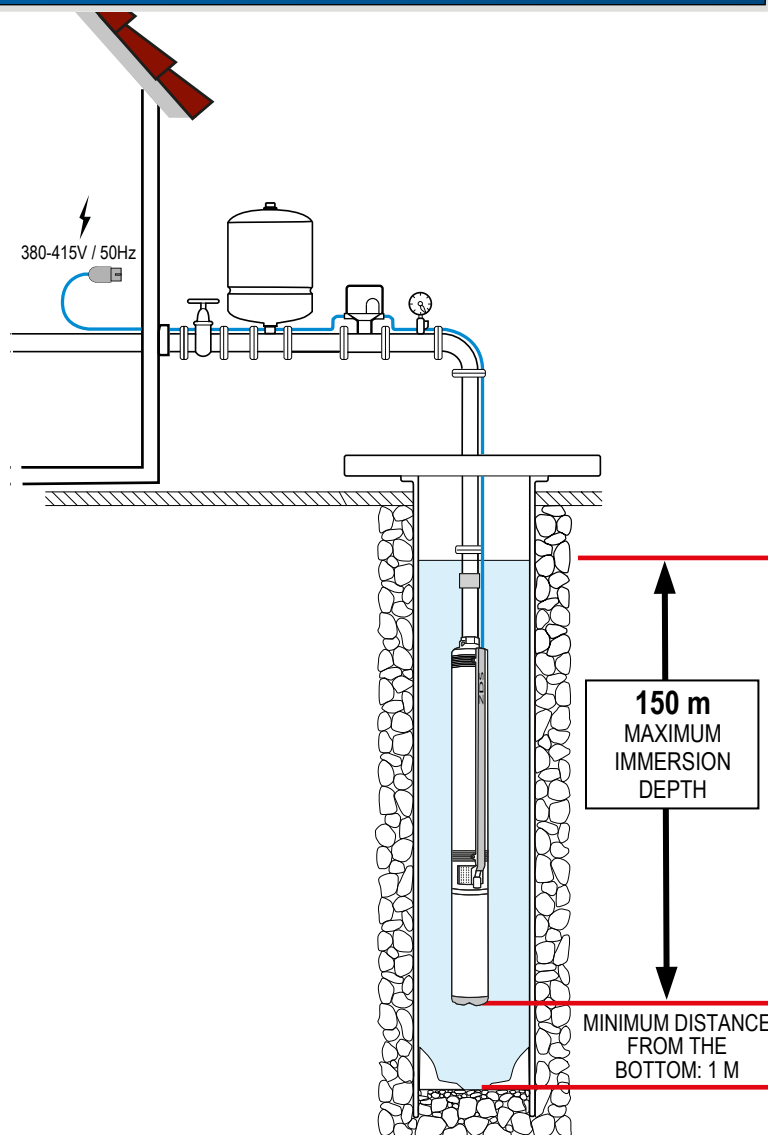


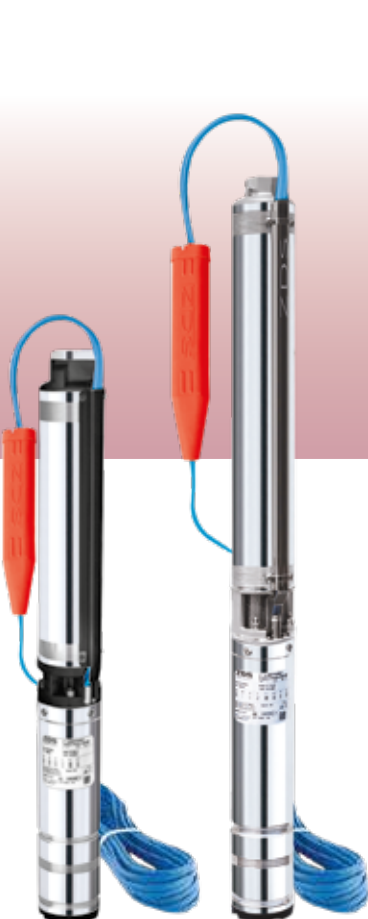
Z-DEFENDER.3
 ELECTRONIC CONTROL PANEL
 WITH DIAGNOSTIC
 AND PROTECTION

Technical Specifications

Overload protection requirements according to:	EN 60947-4-1 trip time < 10 sec. at 5xI _N
Power range:	0,37 - 2,2 kW
Voltage range:	3x380-415V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 40° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	150, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F - 2" G-F
Maximum delivery (Q):	15.000 l/h
Maximum head (H):	220 m

Example of installation





DRP

**ELECTRONIC
PROTECTION DEVICE**

DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus the pump operation is directly proportional to the water supply for optimum efficiency. 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 submersible pump function autonomously in conditions of water shortage. The DRP is ready for use, integrated into the connection cable and needs no further installation.

Characteristics

Automatic programmed restarts in case of protection

Stand-by mode at maximum number of restart attempts overcoming

Ready to use, doesn't need any further calibration or setting up

DRP Protection



Protection against dry running and lack of water in the well

The DRP completely protects the submersible pump against lack of water in the well, without the aid of other equipment (probes, cables, sensors, control panels etc.). In case of dry running, the DRP automatically stops the pump. When the water level is restored in the well, the DRP restarts the pump after a programmed cycle time.



Protection against leaks in the installation and too frequent starts and stops

The DRP protects the submersible pump against leaks in the piping system (also when the pressure tank is exhausted or its membrane is defective, or when there is a defective pressure switch) and too frequent starts and stops (for example if the tank is too small for the system). In such cases to avoid potential damages, the DRP, after some automatic re-start attempts, makes the pump enter the stand-by mode.



Protection against low voltage

The DRP protects the submersible pump against low voltage, that can damage the motor.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



Protection against failures in a three-phase plant

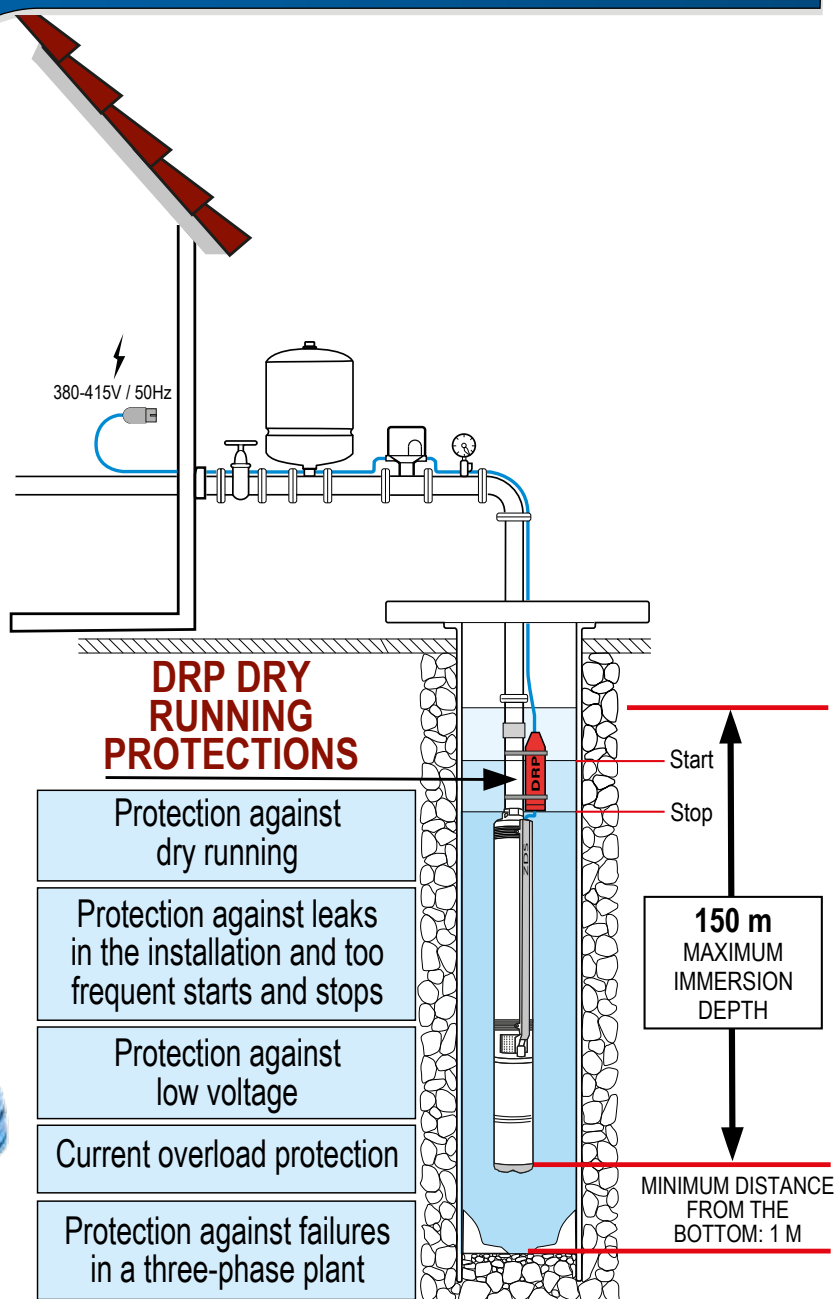
The submersible pump is protected against phase-loss (caused by a brake or a fuse). The DRP protects the motor against damaging.

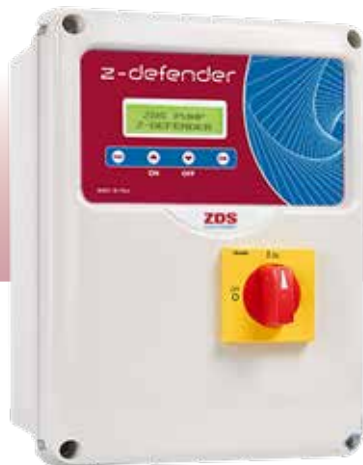
Technical Specifications

Casing:	Thermoplastic material
Voltage range:	3x380-415V +6% / -10% / 50 Hz
Degree of protection:	IP 68
Rated ambient temperature:	-10/+40° C
Size (cm):	33 x 5 x 3

Example of installation

Oil-cooled complete 4" submersible pumps





z-defender.3

Electronic control panel with protection and diagnostic for direct start and running of ZDS three-phase motors

Z-DEFENDER.3 is an innovative electronic panel essential to start, run and protect the three-phase ZDS submersible pump against many possible installation and operation faults.

Z-DEFENDER.3 is designed to guarantee an optimal protection of the submersible pump against many possible installation and operation faults: an alarm will be shown on the display in case of current overload, low voltage or high voltage, too frequent starts and stops and dry running, phase missing or phase imbalance; ensuring a high degree of automation and restoration.

Z-DEFENDER.3 allows to continuously detect and monitor in real time the power: the electrical parameters obtained are processed by a special software, which will efficiently guarantee the correct working conditions.

With **Z-DEFENDER.3**, the submersible pump can work and be continuously protected also when the supply voltage values are at tolerance limit, providing the effectiveness of the protection operation.

In addition, **Z-DEFENDER.3**, thanks to a "smart software" at variable time and automatic restart, can ensure the optimization of water withdrawal from the borehole or tank when the pump is dry running.

Thanks to its special and innovative ZDS technology, **Z-DEFENDER.3** combines, in a single device, protection, reliability and ease of installation.



Characteristics

LCD display for easy diagnostic of running parameters or eventual protections

Protection against dry running and lack of water in the well

Current overload protection

Protection against low/high voltage

Phase sequence input control

Protection against failures in a three-phase plant

Z-DEFENDER.3 protections



Protection against dry running and lack of water in the well

The control panel automatically stops the submersible pump showing an alarm on the display, to restart it after a programmed cycle time.



Protection against low/high voltage

Avoid motor damages caused by too low or too high power supply voltages.



Current overload protection

In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.



Protection against failures in a three-phase plant

The submersible pump is protected against phase-loss (caused by a break of a fuse).
The control panel protects the motor against damaging.



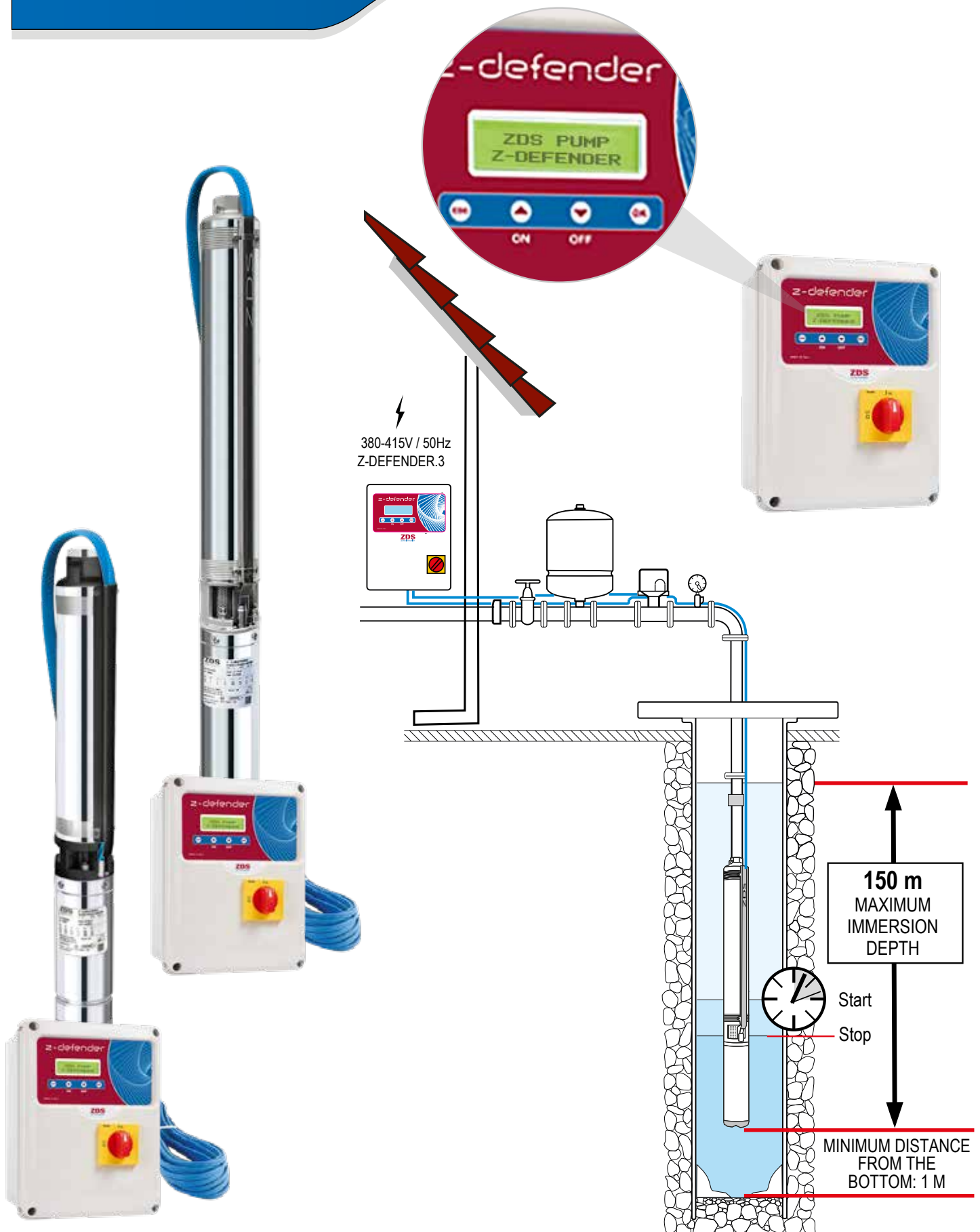
Protection against not correct phase sequence

Z-Defender.3 will detect any faulty electric connection, protecting the motor from potential damage.

Technical Specifications

Casing:	Over-sized in ABS
Voltage range:	3x380-415 V +-10% 50 Hz
Power range:	0,37 - 2,2 kW
Degree of protection:	IP 55
Certificazione	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	1 input multi-contact float/pressure switch (NO) (in low voltage)
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/voltage/motor current/alarms
Buttons Esc- ↑ -↓ -Off-OK:	to query the system
Contact output:	for alarm
Protection fuses:	included (1 for protection and 1 for electronic card)
Size (cm):	34 x 24 x 17
Weight:	1,5 Kg

Example of installation

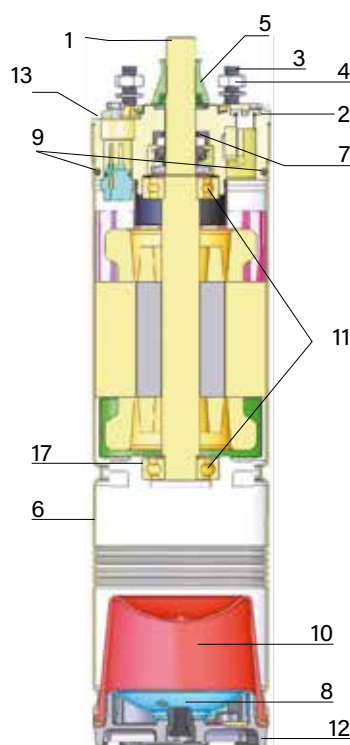
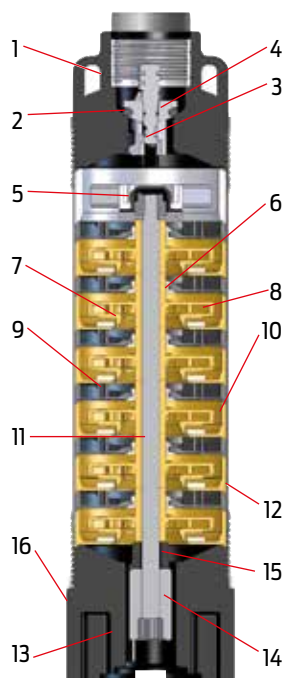


Oil-cooled complete 4" submersible pumps

4" THREE-PHASE SUBMERSIBLE PUMPS

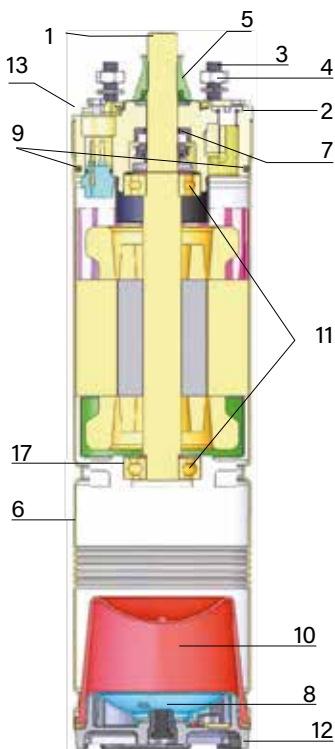
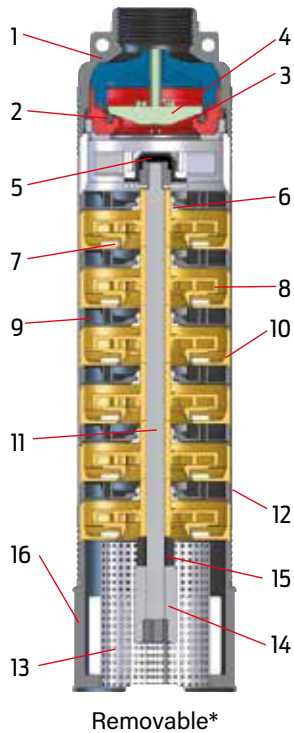


P.OT



Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter	PA 6.6
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	PA 6.6
-	Cable cover	PVC
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Bearing	Stainless steel
12	Safety bottom cover	Technopolimer
13	Upper cover	Stainless steel AISI 304

X.OT



Pos.	COMPONENTS	MATERIALS
1	Upper head	Stainless steel AISI 304 (DIN 1.4301)
2	O-Ring	NBR
3	Complete valve	PA 6.6
4	Plate valve	PA 6.6
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless steel AISI 304 (DIN 1.4301)
13	Filter (removable)*	Stainless steel AISI 304 (DIN 1.4301)
14	Coupling	Stainless steel AISI 304 (DIN 1.4301)
15	Spacer	Noryl
16	Pump support	Stainless steel AISI 304 (DIN 1.4301)
-	Cable cover	Stainless steel AISI 304 (DIN 1.4301)
1	Shaft End	Stainless steel AISI 304/420
2	Top bracket	G20 Cast Iron - cataphoretic treatment
3	Stud	Stainless steel AISI 304
4	Nut	Stainless steel AISI 304
5	Rotating Sand Guard	NBR
6	Outer sleeve	Stainless steel AISI 304
7	Mechanical seal	Graphite/Ceramic
8	Bottom cover	Stainless steel AISI 304
9	O-Ring	NBR
10	Diaphragm	NBR
11	Bearing	Stainless steel
12	Safety bottom cover	Technopolimer
13	Upper cover	Stainless steel AISI 304

4" SINGLE-PHASE SUBMERSIBLE PUMPS

P.OT complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and three-phase oil-cooled motor - **380-415V**

Oil-cooled complete 4" submersible pumps

Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)							Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m	
	kW	HP			IN	m³/h	0	0,6	1,5	2,4	4,2					6
			(A)	l/min	0	10	25	40	70	100	Code	Code	Code	Code		
PUMP CURVE 1	P.1-8.OT	0,25	0,33	0,57	1,65	Total head in meters = H= dynamic total pressure	50,2	44,4	18				184086008	184086008L	184086008L1	184086008L2
	P.1-8.OT.DRP												184086008S	184086008S1	184086008S2	184086008S3
	P.1-12.OT	0,37	0,5	0,7	1,7		75,4	66,6	27				184086011	184086011L	184086012	184086012L
	P.1-12.OT.DRP												184086011S	184086011S1	184086012S	184086012S2
	P.1-12.OT.DEF												184086011D	184086011D1	184086011D2	184086011D3
	P.1-18.OT	0,55	0,75	0,87	1,75		113	99,9	40,5				184086017	184086017L	184086018	184086018L
	P.1-18.OT.DRP												184086017S	184086017S1	184086018S	184086018S1
	P.1-18.OT.DEF												184086017D	184086017D1	184086018D	184086018D1
	P.1-25.OT	0,75	1	1,16	2,35		157	138,8	56,3				184086024	184086024L	184086024L1	184086024L2
	P.1-25.OT.DRP												184086024S	184086024S1	184086024S2	184086024S3
	P.1-25.OT.DEF												184086025D	184086025D1	184086025D2	184086025D3
PUMP CURVE 2	P.2-5.OT	0,25	0,33	0,57	1,65	Total head in meters = H= dynamic total pressure	32	31,2	28,2	17			184086104	184086105	184086105L	184086105L1
	P.2-5.OT.DRP												184086104S	184086505S1	184086505S	184086505S3
	P.2-8.OT	0,37	0,5	0,71	1,7		51,2	49,9	41,9	27,2			184086107	184086108	184086108L	184086108L1
	P.2-8.OT.DRP												184086107S	184086108S	184086108S1	184086108S2
	P.2-8.OT.DEF												184086107D	184086107D1	184086108D	184086108D1
	P.2-12.OT	0,55	0,75	0,88	1,75		76,8	74,9	62,9	40,8			184086111	184086111L	184086112	184086112L
	P.2-12.OT.DRP												184086111S	184086111S1	184086112S	184086112S1
	P.2-12.OT.DEF												184086111D	184086112D1	184086112D	184086112D1
	P.2-16.OT	0,75	1	1,21	2,4		102,4	99,8	83,8	54,4			184086115	184086115L	184086116	184086116L
	P.2-16.OT.DRP												184086115S	184086115S1	184086116S	184086116S1
	P.2-16.OT.DEF												184086115D	184086115D1	184086116D	184086116D1
	P.2-24.OT	1,1	1,5	1,71	3,3		153,6	149,8	125,8	81,6			184086124L	184086124L1	184086124L2	184086124L3
P.2-24.OT.DRP	184086123S					184086123S1							184086123S2	184086123S3		
P.2-24.OT.DEF	184086124D					184086124D1							184086124D2	184086124D3		

*Power consumption **Current consumption

P.OT complete submersible pump

Hydraulic part with upper head and lower support in **technopolymer** and three-phase oil-cooled motor - **380-415V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)						Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m
		IN	m³/h			0	0,6	1,5	2,4	4,2	6				
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	Code	Code	Code
PUMP CURVE 3	P.3-6.OT	0,37	0,5	0,68	1,7	33,3		30,4	27	13,7		184086205	184086206	184086206L	184086206L1
	P.3-6.OT.DRP											184086205S	184086206S	184086206S1	184086206S2
	P.3-6.OT.DEF											184086205D	184086206D	184086206D1	184086206D2
	P.3-9.OT	0,55	0,75	0,85	1,7	50		45,6	40,5	20,6		184086208	184086209	184086209L	184086209L1
	P.3-9.OT.DRP											184086208S	184086209S	184086209S1	184086209S2
	P.3-9.OT.DEF											184086208D	184086209D	184086209D1	184086209D2
	P.3-13.OT	0,75	1	1,16	2,35	72,2		65,9	58,5	29,8		184086212	184086212L	184086213	184086213L
	P.3-13.OT.DRP											184086212S	184086212S1	184086213S	184086213S1
	P.3-13.OT.DEF											184086212D	184086212D1	184086213D2	184086213D3
	P.3-19.OT	1,1	1,5	1,6	3,3	105,5		96,3	85,5	43,5		184086218	184086218L	184086219	184086219L
	P.3-19.OT.DRP											184086218S	184086218S1	184086219S	184086219S1
	P.3-19.OT.DEF											184086219D	184086219D1	184086219D	184086219D1
	P.3-25.OT	1,5	2	2,1	4,3	138,8		126,8	112,5	57,3		184086225	184086225L	184086225L1	184086225L2
	P.3-25.OT.DRP											184086225S	184086225S1	184086225S2	184086225S3
	P.3-25.OT.DEF											184086225D	184086225D1	184086225D2	184086225D3
PUMP CURVE 5	P.5-4.OT	0,37	0,5	0,7	1,7	24,5			22	18,5	12,1	184086303	184086304	184086304L	184086304L1
	P.5-4.OT.DRP											184086303S	184086304S	184086604S1	184086604S2
	P.5-4.OT.DEF											184086303D	184086304D	184086304D	184086304D
	P.5-6.OT	0,55	0,75	0,87	1,8	36,8			33	27,7	18,2	184086305	184086306	184086306L	184086306L1
	P.5-6.OT.DRP											184086305S	184086306S	184086306S1	184086306S2
	P.5-6.OT.DEF											184086305D	184086306D	184086306D1	184086306D2
	P.5-8.OT	0,75	1	1,15	2,3	49,1			44	37	24,2	184086307	184086308	184086308L	184086308L1
	P.5-8.OT.DRP											184086307S	184086308S	184086308S1	184086308S2
	P.5-8.OT.DEF											184086307D	184086308D	184086308D1	184086308D2
	P.5-13.OT	1,1	1,5	1,7	3,3	79,7			71,5	60,1	39,4	184086311	184086311L	184086313	184086313L
	P.5-13.OT.DRP											184086311S	184086311S1	184086313S	184086313S1
	P.5-13.OT.DEF											184086311D	184086311D1	184086313D	184086313D1
	P.5-17.OT	1,5	2	2,2	4,4	104,3			93,5	78,5	51,5	184086317	184086317L	184086317L1	184086317L2
	P.5-17.OT.DRP											184086317S	184086317S1	184086317S2	184086317S3
	P.5-17.OT.DEF											184086317D	184086317D1	184086317D2	184086317D3
P.5-21.OT	2,2	3	2,6	4,9	128,8			115,5	97	63,6	184086321	184086321L	184086321L1	184086321L2	
P.5-21.OT.DRP											184086321S	184086321S1	184086321S2	184086321S3	
P.5-21.OT.DEF											184086321D	184086321D1	184086321D2	184086321D3	

*Power consumption **Current consumption

4" SINGLE-PHASE SUBMERSIBLE PUMPS

X.OT complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and three-phase oil-cooled motor - **380-415V**

Oil-cooled complete 4" submersible pumps

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)								Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m																			
						IN	m³/h	0	0,6	1,5	2,4	4,2	6					11,4	15																	
		kW	HP	kW	(A)	l/min	0	10	25	40	70	100	190	250	Code	Code	Code	Code																		
PUMP CURVE 1	X.1-8.OT	0,25	0,33	1,65	1,65	Total head in meters = H = dynamic total pressure	32	31,2	28,2	17				184068008	184068008L	184068008L1	184068008L2																			
	X.1-8.OT.DRP													184068008S	184068008S1	184068008S2	184068008S3																			
	X.1-12.OT	0,37	0,5	1,7	1,7									75,4	66,6	27					184068011	184068011L	184068012	184068012L												
	X.1-12.OT.DRP																				184068011S	184068011S1	184068012S2	184068012S1												
	X.1-12.OT.DEF																				184068011D	184068011D1	184068012D	184068012D1												
	X.1-18.OT	0,55	0,75	1,75	1,75									113	99,9	40,5							184068017	184068017L	184068018	184068018L										
	X.1-18.OT.DRP																						184068017S	184068017S1	184068018S	184068018S1										
	X.1-18.OT.DEF																						184068017D	184068017D1	184068018D	184068018D2										
	X.1-25.OT	0,75	1	2,35	2,35									157	138,8	56,3								184068024	184068024L	184068024L1	184068024L2									
	X.1-25.OT.DRP																							184068024S	184068024S1	184068024S2	184068024S3									
	X.1-25.OT.DEF																							184068024D	184068024D1	184068024D2	184068024D3									
	X.1-36.OT	1,1	1,5	1,64	3,25									226,1	199,8	91								184068016	184068016L	184068016L1	184068016L2									
	X.1-36.OT.DRP																							184068016S	184068016S1	184068016S2	184068016S3									
	X.1-36.OT.DEF																							184068016D	184068016D1	184068016D2	184068016D3									
PUMP CURVE 2	X.2-5.OT	0,25	0,33	0,57	1,65									Total head in meters = H = dynamic total pressure	32	31,2	28,2	17				184068104	184068105	184068105L	184068105L1											
	X.2-5.OT.DRP																					184068104S	184068105S	184068105S1	184068105S2											
	X.2-8.OT	0,37	0,5	0,71	1,7																	51,2	49,9	41,9	27,2							184068107	184068108	184068108L	184068108L1	
	X.2-8.OT.DRP																															184068107S	184068108S	184068108S1	184068108S2	
	X.2-8.OT.DEF																															184068107D	184068108D	184068108D1	184068108D2	
	X.2-12.OT	0,55	0,75	0,88	1,75																	76,8	74,9	62,9	40,8								184068111	184068111L	184068112	184068112L
	X.2-12.OT.DRP																																184068111S	184068111S1	184068112S	184068112S1
	X.2-12.OT.DEF																																184068111D	184068111D1	184068112D	184068112D1
	X.2-16.OT	0,75	1	1,21	2,4																	102,4	99,8	83,8	54,4								184068115	184068115L	184068116	184068116L
	X.2-16.OT.DRP																																184068115S	184068115S1	184068116S	184068116S1
	X.2-16.OT.DEF																																184068115D	184068115D	184068116D1	184068116D2
	X.2-24.OT	1,1	1,5	1,71	3,3																	153,6	149,8	125,8	81,6								184068124L	184068124L1	184068124L2	184068124L3
	X.2-24.OT.DRP																																184068123S	184068123S1	184068123S2	184068123S3
	X.2-24.OT.DEF																																184068124D	184068124D1	184068124D2	184068124D3
X.2-32.OT	1,5	2	2,17	4,4	204,7																	199,7	167,7	108								197069132	197069132L	197069132L1	197069132L2	
X.2-32.OT.DRP																																197069132S	197069132S1	197069132S2	197069132S3	
X.2-32.OT.DEF						197069132D	197069132D1	197069132D2	197069132D3																											

*Power consumption **Current consumption

X.OT complete submersible pump

Hydraulic part with upper head and lower support in **stainless steel** and three-phase oil-cooled motor - **380-415V**

	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)									Cable 1,5 m	Cable 15 m	Cable 30 m	Cable 45 m
		kW	HP	kW	(A)	m³/h	0	0,6	1,5	2,4	4,2	6	11,4	15	Code	Code	Code	Code
						l/min	0	10	25	40	70	100	190	250				
PUMP CURVE 3	X.3-6.0T	0,37	0,5	0,68	1,7		33,3		30,4	27	13,7			184068205	184068206	184068206L	184068206L1	
	X.3-6.0T.DRP													184068205S	184068206S	184068206S1	184068206S2	
	X.3-6.0T.DEF													184068205D	184068206D	184068206D1	184068206D2	
	X.3-9.0T	0,55	0,75	0,85	1,7		50		45,6	40,5	20,6			184068208	184068209	184068209L	184068209L1	
	X.3-9.0T.DRP													184068208S	184068209S	184068209S1	184068209S2	
	X.3-9.0T.DEF													184068208D	184068209D	184068209D1	184068209D2	
	X.3-13.0T	0,75	1	1,16	2,35		72,2		65,9	58,5	29,8			184068212	184068212L	184068213	184068213L	
	X.3-13.0T.DRP													184068212S	184068212S1	184068213S	184068213S1	
	X.3-13.0T.DEF													184068212D	184068212D1	184068213D	184068213D1	
	X.3-19.0T	1,1	1,5	1,64	3,25		105,5		96,3	85,5	43,5			184068218	184068218L	184068219	184068219L	
	X.3-19.0T.DRP													184068218S	184068218S1	184068219S	184068219S1	
	X.3-19.0T.DEF													184068218D	184068218D1	184068219D	184068219D2	
	X.3-25.0T	1,5	2	2,1	4,3		138,8		126,8	112,5	57,3			197069225L	197068225L1	197068225L2	197069225L3	
	X.3-25.0T.DRP													197069225S	197068225S1	197068225S2	197069225S3	
	X.3-25.0T.DEF													197069225D	197069225D1	197069225D2	197069225D3	
PUMP CURVE 5	X.5-4.0T	0,37	0,5	0,7	1,7	Total head in meters = H = dynamic total pressure	24,5				22	18,5	12,1		184068303	184068304	184068304L	184068304L1
	X.5-4.0T.DRP														184068303S	184068304S	184068304S1	184068304S2
	X.5-4.0T.DEF														184068303D	184068304D	184068304D1	184068304D2
	X.5-6.0T	0,55	0,75	0,87	1,75		36,8			33	27,7	18,2		184068305	184068306	184068306L	184068306L1	
	X.5-6.0T.DRP													184068305S	184068306S	184068306S1	184068306S2	
	X.5-6.0T.DEF													184068305D	184068306D	184068306D1	184068306D2	
	X.5-8.0T	0,75	1	1,15	2,3		49,1			44	37	24,2		184068307	184068308	184068308L	184068308L1	
	X.5-8.0T.DRP													184068307S	184068308S	184068308S1	184068308S2	
	X.5-8.0T.DEF													184068307D	184068308D	184068308D1	184068308D2	
	X.5-13.0T	1,1	1,5	1,71	3,3		79,7			71,5	60,1	39,4		184068311	184068311L	184068313	184068313L	
	X.5-13.0T.DRP													184068311S	184068311S1	184068313S	184068313S1	
	X.5-13.0T.DEF													184068311D	184068311D1	184068313D	184068313D1	
	X.5-17.0T	1,5	2	2,17	4,4		104,3			93,5	78,5	51,5		184068317	184068318	184068318L	184068318L1	
	X.5-17.0T.DRP													184068317S	184068318S	184068318S1	184068318S2	
	X.5-17.0T.DEF													184068317D	184068318D	184068318D1	184068318D2	
X.5-21.0T	2,2	3	2,6	4,9	128,8			115,5	97	63,6		184068321	184068322	184068322L	184068322L1			
X.5-21.0T.DRP												184068321S	184068322S	184068322S1	184068322S2			
X.5-21.0T.DEF												184068321D	184068322D	184068322D1	184068322D2			
PUMP CURVE 8	X.8-6.0T	0,75	1	1,16	2,35	38,4					29,0	24,5	4,8		184068406	184068407	184068407L	184068407L1
	X.8-6.0T.DRP														184068406S	184068407S	184068407S1	184068407S2
	X.8-6.0T.DEF														184068406D	184068407D	184068407D1	184068407D2
	X.8-8.0T	1,1	1,50	1,52	3	51,2				38,6	32,7	6,4		184068408	184068409	184068409L	184068409L1	
	X.8-8.0T.DRP													184068408S	184068409S	184068409S1	184068409S2	
	X.8-8.0T.DEF													184068408D	184068409D	184068409D1	184068409D2	
	X.8-12.0T	1,5	2	2,12	4,3	76,8				58,0	49	9,6		184068412	184068413	184068413L	184068413L1	
	X.8-12.0T.DRP													184068412S	184068413S	184068413S1	184068413S2	
	X.8-12.0T.DEF													184068412D	184068413D	184068413D1	184068413D2	
	X.8-17.0T	2,2	3	2,9	5,2	109				82,1	69,4	13,6		184068417	184068417L	184068417L1	184068417L2	
X.8-17.0T.DRP	184068417S													184068417S1	184068417S2	184068417S3		
X.8-17.0T.DEF	184068417D													184068417D1	184068417D2	184068417D3		
C. S. 10	X.10-8.0T	1,5	2	1,94	4	48,2					42,6	39,2	23,1	7,9	184068508	184068509	184068509L	184068509L1
	X.10-8.0T.DRP														184068508S	184068509S	184068509S1	184068509S2
	X.10-8.0T.DEF														184068508D	184068509D	184068509D1	184068509D2
	X.10-12.0T	2,2	3	2,76	5	72,3					64	58,8	34,7	11,9	184068512	184068513	184068513SL	184068513L11
	X.10-12.0T.DRP														184068512S	184068513S	184068513S1	184068513S2
X.10-12.0T.DEF	184068512D														184068513D	184068513D1	184068513D2	

P/X-H3H



Single-phase submersible pump for installation in open circuit systems for heat pumps

4" complete submersible pump, made of ZDS hydraulic part, Franklin single-phase encapsulated PSC water-cooled motor, supply cable in different lengths and ZDS CBH electrical start panel (which includes start and run capacitor).

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous single-phase PSC encapsulated water-cooled Franklin motor.

Axial and radial water-lubricated bearings.

Hermetically resin sealed stator.

Pre-filled with non-contaminating antifreeze lubricant liquid.

Removable lead connector.

Supply cable according to drinking water regulations (ACS), available in different lengths.

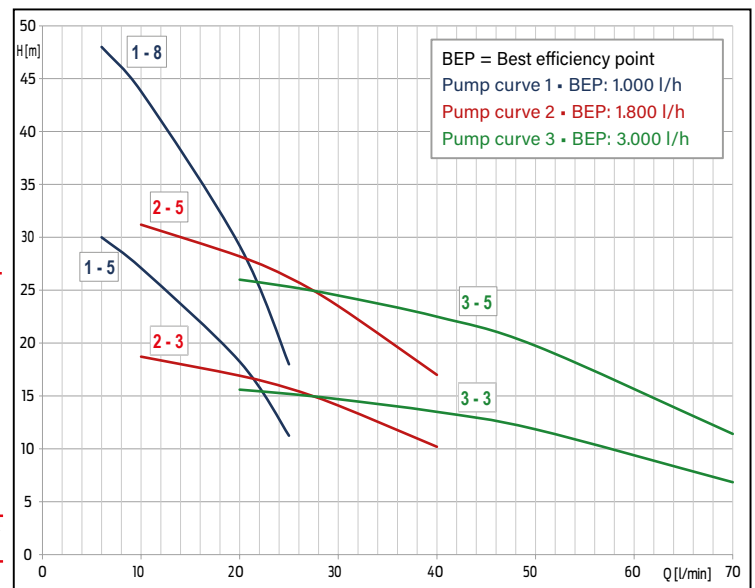
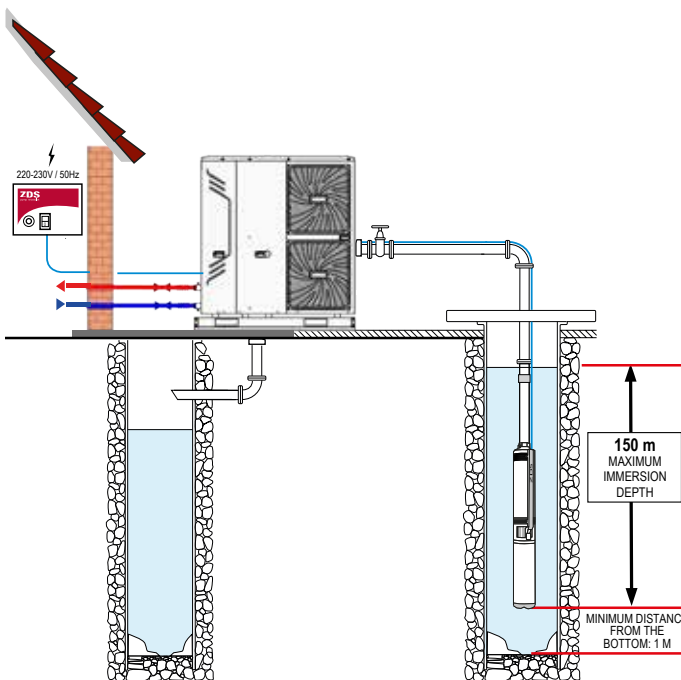
CBH Electric start panel

Motor start and operation system with capacitor, equipped with thermal amperometric protection against current overload, ON/OFF illuminated switch, terminal box, cable glands, power supply cable, mounting accessories.



Technical Specifications

Power range:	0,25 kW
Voltage range:	1x220-230V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U _N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 30° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	20, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F
Maximum delivery (Q):	4.200 l/h
Maximum head (H):	50 m



Submersible pumps for heating pumps

220-230 V	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)										Cable 1,5 m	Cable 15 m	Cable 30 m
		kW	HP			W	In	m³/h	0	0,36	0,6	1,2	1,5	1,8	2,4			
				(A)	l/min											0	6	10
Upper head and lower support in STEEL	X.1-5.H3H	0,25	0,33	366	2	Total head in meters = H = dynamic total pressure	31,4	30	27,8	18,3	11,3					196100105	196100105L	196100105L1
	X.1-8.H3H	0,25	0,33	480	2,3		50,2	48	44,4	29,2	18					196100108	196100108L	196100108L1
	X.2-3.H3H	0,25	0,33	366	2		19,2		18,7	16,9	15,7	14,1	10,2			196100203	196100203L	196100203L1
	X.2-5.H3H	0,25	0,33	480	2,3		32		31,2	28,2	26,2	23,5	17			196100205	196100205L	196100205L1
	X.3-3.H3H	0,25	0,33	420	2,1		16,7			15,6	15,2	14,7	13,5	11,9	6,9	196100303	196100303L	196100303L1
Upper head and lower support in TECHNOPOLYMER	P.1-5.H3H	0,25	0,33	366	2		31,4	30	27,8	18,3	11,3					196101105	196101105L	196101105L1
	P.1-8.H3H	0,25	0,33	480	2,3		50,2	48	44,4	29,2	18					196101108	196101108L	196101108L1
	P.2-3.H3H	0,25	0,33	366	2		19,2		18,7	16,9	15,7	14,1	10,2			196101203	196101203L	196101203L1
	P.2-5.H3H	0,25	0,33	480	2,3		32		31,2	28,2	26,2	23,5	17			196101205	196101205L	196101205L1
	P.3-3.H3H	0,25	0,33	420	2,1		16,7			15,6	15,2	14,7	13,5	11,9	6,9	196101303	196101303L	196101303L1

*Power consumption **Current consumption

P/X.HTH



Three-phase submersible pump for installation in open circuit systems for heat pumps

4" complete submersible pump, made of ZDS hydraulic part, Franklin three-phase encapsulated water-cooled motor and supply cable in different lengths. It requires a start, operation and protection system.

Hydraulic part

QS4P technopolymer or QS4X stainless steel ZDS hydraulic part, with floating ring technology and reinforced impeller.

Great reliability with the integrated non-return valve.

Special design and selected materials to ensure optimal resistance against sand and other abrasives.

Improved impellers design, which requires less starting torque to the motor.

Motor

2 pole asynchronous three-phase encapsulated water-cooled Franklin motor.

Axial and radial water-lubricated bearings.

Hermetically resin sealed stator.

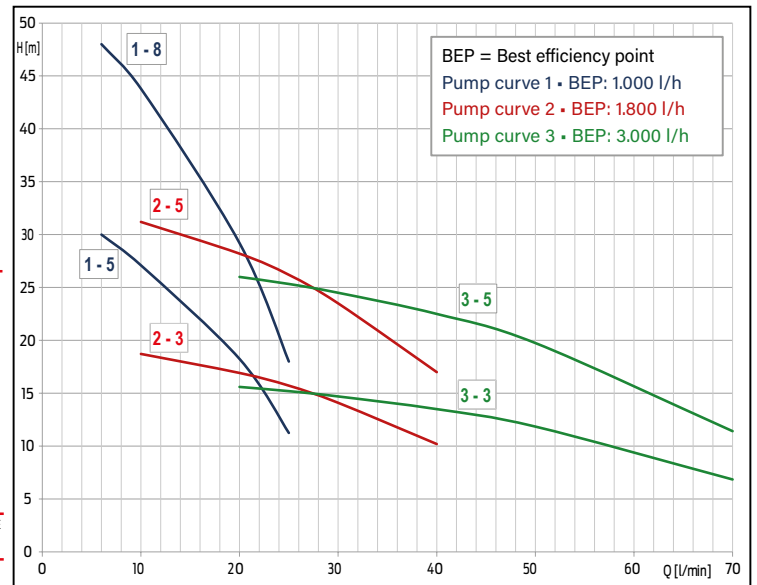
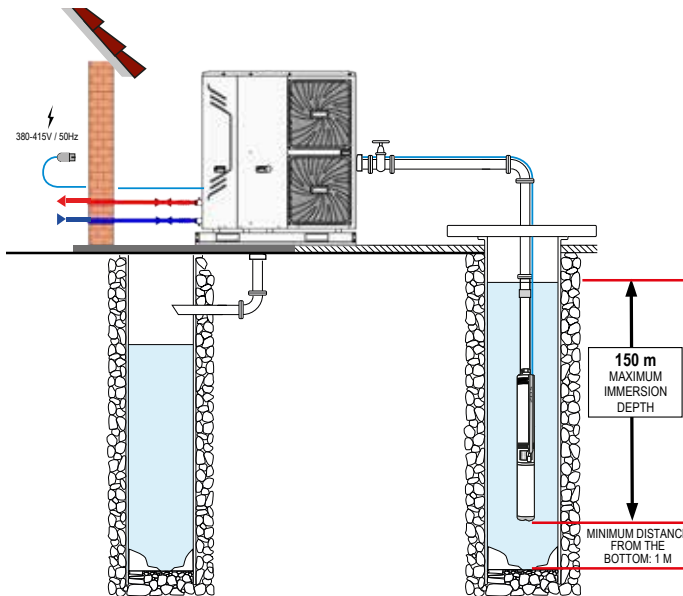
Pre-filled with non-contaminating antifreeze lubricant liquid.

Removable lead connector.

Supply cable according to drinking water regulations (ACS), available in different lengths.

Technical Specifications

Power range:	0,25 kW
Voltage range:	3x380 - 415V / 50 Hz
Voltage tolerance 50Hz from nominal:	+6% / -10% U_N
Degree of protection:	IP 68
Insulation:	Cl. F
Rated ambient temperature:	max. 30° C
Required cooling flow:	min. 8 cm/sec
Maximum quantity of suspended sand:	150 g/m ³
Maximum starts/h:	20, equally distributed
Mounting:	vertical/horizontal
Maximum immersion depth:	150 m
Allowed range of water PH:	6,4-8,0
Outlet diameter:	1" ¼ G-F
Maximum delivery (Q):	4.200 l/h
Maximum head (H):	50 m
Overload protection requirements according to:	EN 60947-4-1 trip time < 10 sec. at 5xI _N



Submersible pumps for heating pumps

380-415 V	Model	Power		P.C.*	C.C.**	Hydraulic performance (n~2.850 min ⁻¹)										Cable 1,5 m	Cable 15 m	Cable 30 m	
		kW	HP	W	In (A)	m³/h l/min	0	0,36	0,6	1,2	1,5	1,8	2,4	3	4,2				
							0	6	10	20	25	30	40	50	70				Code
Upper head and lower support in STAINLESS STEEL	X.1-5.HTH	0,25	0,33	240	0,55	Total head in meters = H= dynamic total pressure	31,4	30	27,8	18,3	11,3						184100105	184100105L	184100105L1
	X.1-8.HTH	0,25	0,33	360	0,70		50,2	48	44,4	29,2	18						184100108	184100108L	184100108L1
	X.2-3.HTH	0,25	0,33	240	0,55		19,2		18,7	16,9	15,7	14,1	10,2				184100203	184100203L	184100203L1
	X.2-5.HTH	0,25	0,33	360	0,70		32		31,2	28,2	26,2	23,5	17				184100205	184100205L	184100205L1
	X.3-3.HTH	0,25	0,33	270	0,59		16,7			15,6	15,2	14,7	13,5	11,9	6,9		184100303	184100303L	184100303L1
	X.3-5.HTH	0,25	0,33	425	0,77		27,8				26	25,3	24,5	22,5	19,8	11,4		184100305	184100305L
Upper head and lower support in TECHNO-POLYMER																			
	P.1-5.HTH	0,25	0,33	240	0,55	31,4	30	27,8	18,3	11,3							184101105	184101105L	184101105L1
	P.1-8.HTH	0,25	0,33	360	0,70	50,2	48	44,4	29,2	18							184101108	184101108L	184101108L1
	P.2-3.HTH	0,25	0,33	240	0,55	19,2		18,7	16,9	15,7	14,1	10,2					184101203	184101203L	184101203L1
	P.2-5.HTH	0,25	0,33	360	0,70	32		31,2	28,2	26,2	23,5	17					184101205	184101205L	184101205L1
	P.3-3.HTH	0,25	0,33	270	0,59	16,7			15,6	15,2	14,7	13,5	11,9	6,9			184101303	184101303L	184101303L1
	P.3-5.HTH	0,25	0,33	425	0,77	27,8			26	25,3	24,5	22,5	19,8	11,4			184101305	184101305L	184101305L1

*Power consumption **Current consumption

ACCESSORIES



CONNECTOR CABLES FOR ZDS SINGLE-PHASE O2 AND H2 MOTORS (QPGO AND ZDJET SERIES)

Model	Code	Description
CS.2W-1,5	081510100	1,5 m cable connector (3x1,5 section)
CS.2W-15/1	081510133	15 m cable connector (3x1 section, 0,37-1,1 kW)
CS.2W-30/1 (0,37-1,1 kW)	081510136	30 m cable connector (3x1 section, 0,37-1,1 kW)
CS.2W-45/1 (0,37-0,75 kW)	081510134	45 m cable connector (3x1 section, 0,37-0,75 kW)
CS.2W-45/1,5 (0,37 - 1,1 kW)	081510137	45 m cable connector (3x2 section, 1,1 kW)
CS.2W-15/1,5 (0,37-1,5 kW)	081510131	15 m cable connector (3x1,5 section, 1,5 kW*)
CS.2W-30/1,5 (0,37-1,5 kW)	081510132	30 m cable connector (3x1,5 section, 1,5 kW*)
CS.2W-45/2 (1,5 kW)	081510154	45 m cable connector (3x2 section, 1,5 kW)

* upon request for 1-50 model



CONNECTOR CABLES WITH PUMP PROTECTOR DRP FOR ZDS SINGLE-PHASE O2 AND H2 MOTORS (QPGO AND ZDJET SERIES)

Model	Code	Description
CS.2W-2.DRP	081510100X	1,5 m DRP cable connector (3x1,5 section)
CS.2W-15.DRP/1 (0,37-1,1 kW)	081510133X	15 m DRP cable connector (3x1 section, 0,37-1,1 kW)
CS.2W-30.DRP/1 (0,37-1,1 kW)	081510136X	30 m DRP cable connector (3x1 section, 0,37-1,1 kW)
CS.2W-45.DRP/1 (0,37-0,75 kW)	081510141X	45 m DRP cable connector (3x1 section, 0,37-0,75 kW)
CS.2W-45.DRP/1,5 (1,1 kW)	081510137X	45 m cable connector (3x2 section, 1,1-1,5 kW)
CS.2W-15.DRP/1,5 (1,5 kW)	081510131X	15 m DRP cable connector (3x1,5 section, 1,5 kW*)
CS.2W-30.DRP/1,5 (1,5 kW)	081510132X	30 m DRP cable connector (3x1,5 section, 1,5 kW*)
CS.2W-45.DRP/2,5 (1,5 kW)	081510144X	45 m DRP cable connector (3x2,5 section, 1,5 kW)

* upon request for 1-50 model



CONNECTOR CABLES FOR ZDS SINGLE-PHASE O3-H3 MOTORS AND THREE-PHASE OT-HT MOTORS

Model	Code	Description
CS.3W-1,5	081510102	1,5 m cable connector (4x1,5 section, up to 1,1 kW)
CS.3W-2,5	081510030	2,5 m cable connector (4x1,5 section, above 1,1 kW)
CS.3W-15/1,5	081510035	15 m cable connector (4x1,5 section)
CS.3W-30/1,5	081510036	30 m cable connector (4x1,5 section, *O3-H3 = 0,37-1,5 kW)
CS.3W-45/1,5	081510105	45 m cable connector (4x1,5 section, *O3-H3 = 0,37-1,1 kW)
CS.3W-45/2	081510222	45 m cable connector (4x2 section, *O3-H3 = 1,5 kW)



CONNECTOR CABLES WITH PUMP PROTECTOR DRP FOR ZDS SINGLE-PHASE PSC O3-H3 MOTORS

Model	Code	Description
CS.3W-1,5.DRP (0,37-1,1 kW)	081510102X	1,5 m DRP cable connector (4x1,5 section, up to 1,1 kW)
CS.3W-2,5.DRP (1,5 kW)	081510104X	2,5 m DRP cable connector (4x1,5 section, 1,5 kW)
CS.3W-2,5.DRP (2,2 kW)	081510103X	2,5 m DRP cable connector (4x1,5 section, 2,2 kW)
CS.3W-15.DRP/1,5 (0,37-1,1 kW)	081510105X	15 m DRP cable connector (4x1,5 section, 0,37-1,1 kW)
CS.3W-15.DRP/1,5 (1,5 kW)	081510108X	15 m DRP cable connector (4x1,5 section, 1,5 kW)
CS.3W-30.DRP/1,5 (0,37-1,1 kW)	081510106X	30 m DRP cable connector (4x1,5 section, 0,37-1,1 kW)
CS.3W-30.DRP/1,5 (1,5 kW)	081510109X	30 m DRP cable connector (4x1,5 section, 1,5 kW)
CS.3W-15.DRP/1,5 (2,2 kW)	081510110X	15 m DRP cable connector (4x1,5 section, 2,2 kW)
CS.3W-30.DRP/2,5 (2,2 kW)	081510111X	30 m DRP cable connector (4x2,5 section, 2,2 kW)



CONNECTOR CABLES WITH PUMP PROTECTOR DRP FOR ZDS THREE-PHASE OT AND HT MOTORS

Model	Code	Description
CS.3W.T037.DRP	081510165	2 m DRP cable connector (4x1,5 section, 0,37 kW)
CS.3W-15.T037.DRP	081510198	15 m DRP cable connector (4x1 section, 0,37 kW)
CS.3W-30.T037.DRP	081510199	30 m DRP cable connector (4x1 section, 0,37 kW)
CS.3W-45.T037.DRP	081510200	45 m DRP cable connector (4x1 section, 0,37 kW)
CS.3W.T055.DRP	081510167	2 m DRP cable connector (4x1,5 section, 0,55 kW)
CS.3W-15.T055.DRP	081510201	15 m DRP cable connector (4x1 section, 0,55 kW)
CS.3W-30.T055.DRP	081510202	30 m DRP cable connector (4x1 section, 0,55 kW)
CS.3W-45.T055.DRP	081510203	45 m DRP cable connector (4x1 section, 0,55 kW)
CS.3W.T075.DRP	081510169	2 m DRP cable connector (4x1,5 section, 0,75 kW)
CS.3W-15.T075.DRP	081510204	15 m DRP cable connector (4x1 section, 0,75 kW)
CS.3W-30.T075.DRP	081510205	30 m DRP cable connector (4x1 section, 0,75 kW)
CS.3W-45.T075.DRP	081510206	45 m DRP cable connector (4x1 section, 0,75 kW)
CS.3W.T110.DRP	081510171	2 m DRP cable connector (4x1,5 section, 1,1 kW)
CS.3W-15.T110.DRP	081510207	15 m DRP cable connector (4x1 section, 1,1 kW)
CS.3W-30.T110.DRP	081510208	30 m DRP cable connector (4x1 section, 1,1 kW)
CS.3W-45.T110.DRP	081510209	45 m DRP cable connector (4x1 section, 1,1 kW)
CS.3W.T150.DRP	081510173	3 m DRP cable connector (4x1,5 section, 1,5 kW)
CS.3W-15.T150.DRP	081510210	15 m DRP cable connector (4x1 section, 1,5 kW)
CS.3W-30.T150.DRP	081510211	30 m DRP cable connector (4x1 section, 1,5 kW)
CS.3W-45.T150.DRP	081510212	45 m DRP cable connector (4x1 section, 1,5 kW)
CS.3W.T220.DRP	081510175	3 m DRP cable connector (4x1,5 section, 2,2 kW)
CS.3W-15.T220.DRP	081510213	15 m DRP cable connector (4x1 section, 2,2 kW)
CS.3W-30.T220.DRP	081510214	30 m DRP cable connector (4x1 section, 2,2 kW)
CS.3W-45.T220.DRP	081510215	45 m DRP cable connector (4x1 section, 2,2 kW)
CS.3W.T300.DRP	081510177	3 m DRP cable connector (4x1,5 section, 3 kW)
CS.3W-15.T300.DRP	081510216	15 m DRP cable connector (4x1 section, 3 kW)
CS.3W-30.T300.DRP	081510217	30 m DRP cable connector (4x1 section, 3 kW)
CS.3W-45.T300.DRP	081510218	45 m DRP cable connector (4x1 section, 3 kW)
CS.3W.T400.DRP	081510179	3 m DRP cable connector (4x1,5 section, 4 kW)
CS.3W-15.T400.DRP	081510219	15 m DRP cable connector (4x1,5 section, 4 kW)
CS.3W-30.T400.DRP	081510220	30 m DRP cable connector (4x1,5 section, 4 kW)
CS.3W-45.T400.DRP	081510221	45 m DRP cable connector (4x1,5 section, 4 kW)



CONNECTOR CABLES FOR PLUG&GO.EVO SUBMERSIBLE PUMP SERIES

Model	Code	Description
L3x1,5 - 1,5	081510330	1,5 m cable connector (3x1,5 section)
L3x1,5 - 15	081510332	15 m cable connector
L3x1,5 - 30	081510334	30 m cable connector
L3x1,5 - 45	081510310	45 m cable connector



Cables per meter

PRICE PER METER OF CUSTOMIZED LENGHT CABLES

Model	Code	Description	P (kg/m)
H07 - 3x1 mm ² WRAS	081510001D	Section 3x1 mm ²	0,11
H07 - 3x1,5 mm ² WRAS	081510002D	Section 3x1,5 mm ²	0,13
H07 - 3x2,5 mm ² WRAS	081510003D	Section 3x2,5 mm ²	0,20
H07 - 3x4 mm ² WRAS	081510004D	Section 3x4 mm ²	0,28
H07 - 4x1 mm ² WRAS	081510010D	Section 4x1 mm ²	0,13
H07 - 4x1,5 mm ² WRAS	081510011D	Section 4x1,5 mm ²	0,17
H07 - 4x2,5 mm ² WRAS	081510012D	Section 4x2,5 mm ²	0,24
H07 - 4x4 mm ² WRAS	081510013D	Section 4x4 mm ²	0,34



Heat-Shrink kit

Model	Code	Description
KIT GTR1	081505010	Heat-Shrink connection kit for 1-4 mm ² motor cable
KIT GTR2	081505015	Heat-Shrink connection kit for 6-10 mm ² motor cable



Guide for the selection of the correct size and lenght of the cable:

2-WIRE & PSC SINGLE-PHASE - 1X220-240 V~, 50 HZ

kW	HP	A	3/4 x 1 mm ²	3/4 x 1,5 mm ²	3/4 x 2,5 mm ²	3/4 x 4 mm ²	3/4 x 6 mm ²	3/4 x 10 mm ²
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	7,7	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
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 ²	4 x 1,5 mm ²	4 x 2,5 mm ²	4 x 4 mm ²	4 x 6 mm ²	4 x 10 mm ²
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
7,5	10	17,6	-	-	88 m	141 m	210 m	348 m

THREE-PHASE - 3X220-230 V~, 50 HZ

kW	HP	A	4 x 1 mm ²	4 x 1,5 mm ²	4 x 2,5 mm ²	4 x 4 mm ²	4 x 6 mm ²	4 x 10 mm ²
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: $\Delta U = 4\% \cdot \cos\phi = 0,99$ for single-phase motor - $\cos\phi = 0,80$ for three phase motor • Cable specific resistance: $r = 0,0178 \Omega \text{ mm}^2/\text{m}$
- Inductive resistance: $X_l = 0,078 \text{ } 3 \text{ } 10^{-3} [\Omega/\text{m}]$ • Environmental temperature: 30°C - In case of specific installation or for a precise cable selection the following calculation is recommended:
- U = Nominal Voltage [V] • ΔU = Voltage drop [%] • I = Current [A] • a = Coefficient 2,0 for single phase motor - Coefficient 1,73 for three phase motor
- $\cos\phi$ = Power parameter • r = Specific resistance [$\Omega\text{mm}^2/\text{m}$] •
- q = Cable conductor section [mm^2]
- X_l = Inductive resistance [Ω/m]

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

CBO/CBH

Single-phase submersible motor start and operation electric panel



Electric panel made of:

Casing material in thermoplastic, ON/OFF illuminated switch with anti-humidity protection, thermal switch for motor protection, start and run capacitor, terminal box, cable glands, power supply cable, mounting accessories.

Technical Specifications

Over-sized thermoplastic casing

Power inlet 1x230 V $\pm 10\%$ 50Hz

Start and run capacitor included

Degree of protection: IP 55

1,5 m cable with European plug

Standard: IEC 60439-1:2010

Inlet for connection to pressure switches or floats

Over-sized terminal box

Manually resettable amperometric protection cut-off

Cable glands of 3 different sizes

Rated ambient temp.: from -10°C to $+40^{\circ}\text{C}$

Size (cm): 23,8 x 19 x 9

CBO FOR PSC SINGLE-PHASE OIL-COOLED MOTORS

Model	Code	Power	Amperometric protection	Capacitor	W.
		kW	$I_{\max}$ [N]	$[\mu\text{F}]$	[kg]
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

CBH FOR PSC ENCAPSULATED SINGLE-PHASE WATER-COOLED MOTORS

Model	Code	Power	Amperometric protection	Capacitor	W.
		kW	$I_{\max}$ [N]	$[\mu\text{F}]$	[kg]
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	7	30	0,8
CBH.110	082515113	1,1	10	40	0,8
CBH.150	082515153	1,5	12	50	1
CBH.220	082515223	2,2	18	70	1,1

z-defender

Electronic control panel with protection and diagnostic for direct start and running of ZDS single-phase or three-phase motors

► **Z-DEFENDER** can be used with all single-phase ZDS motors (oil-cooled or water-cooled, with or without integrated capacitor) of all sizes, and with all three-phase ZDS motors (oil-cooled or water-cooled) of all sizes.



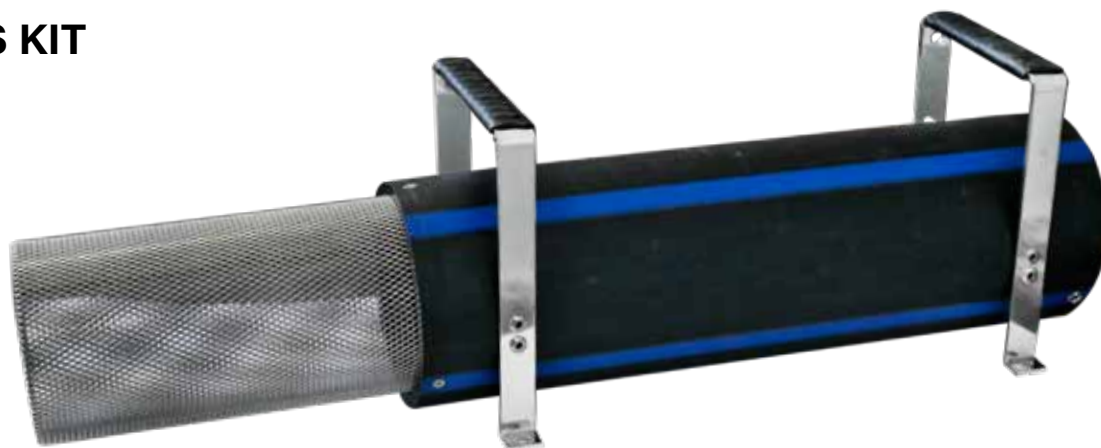
Technical Specifications

Single-phase voltage range:	1x220-230 V +-10% 50 Hz
Three-phase voltage range:	3x380-415 V +-10% 50 Hz
Power range:	0,37 - 2,2 kW Single-phase 0,37 - 5,5 kW Three-phase
Degree of protection:	IP 55
Standard:	IEC 60439-1:2010
Rated ambient temperature:	from -5°C to +40° C
Inputs:	3 inputs multi-contact float/pressure switch (NO) (in low voltage) for single-phase/ 1 input contact float/pressure switch (NO) (in low voltage) for three-phase
Over-sized terminal box:	Over-sized terminal box to help big size cables connections
Cable glands:	6 different sizes
Main switch:	with door interlock to avoid involuntary accesses
Multifunction display:	with display of electrical parameters/ voltage/motor current/ alarms/input status/power(monofase)
Buttons Esc-↑-↓-Off-OK:	to query the system
Motor output:	relay (single-phase)
Contact output:	for alarm
Run capacitor predisposition:	included (single-phase)
Extra starting torque capacitor predisposition:	included (single-phase)
Protection fuses:	included (1 for protection and 1 for electronic card for single-phase, 3 fuses for electronic card for three-phase)
Voltage peaks protection:	optional, for single-phase

Model	Code	V	Power		Current	Size (mm)			Weight	Casing
		50/60 Hz	kW	Hp	Nx [range] A	Height	Lenght	Width	[kg]	Type
Z-DEFENDER	082515430	1~230V	0,37~2,2	0,5~3	1x [2~16]	340	240	170	1,5	ABS
Z-DEFENDER.3	082515431	3~400V	0,37~5,5	0,5~7,5	1x [2~16]	340	240	170	1,5	ABS

Spare parts	Code	Description
Single-phase repair kit	082515432	2 fuses
Three-phase repair kit	082515433	4 fuses
Voltage peaks protection: optional, for single-phase	082515434	Varistor

KIOS KIT



The Kios Kit is a cooling sleeve normally used to ensure the proper cooling of the 4" submersible pump. It can be installed in vertical or horizontal position. The KIOS kit can be set on any surfaces and it features comfortable handles for easy carrying. It comes with an oversized filter to avoid blockage by leaves, small stones or other impurities. It is recommended in all those applications where the required cooling flow to the motors is not guaranteed: water flowing through the Kios Kit will guarantee a better operation of the motor, as it allows the dispersion of the heat generated by its normal functioning.

Applications

- Boreholes with diameter bigger than 4"
- Tanks, harvesting tanks, collection tanks, reservoir, lakes, irrigation channels.
- If the submersible pump is installed below the incoming borehole's flow of water.
- When a large number of solids and impurities are in the borehole.

COMPONENTS	MATERIALS
Filter	Stainless Steel Aisi 304
Pipe	Polyethylene
Handles	Stainless Steel Aisi 304
Gasket	SBR

KIOSKIT 1

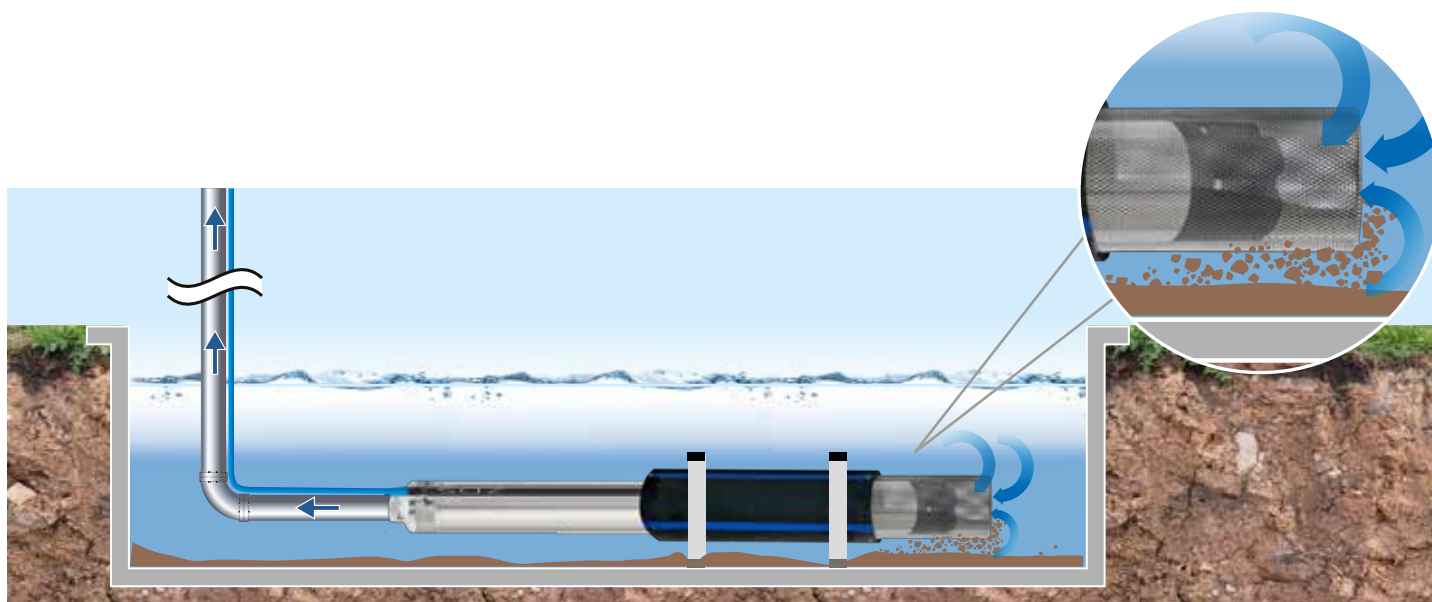
Model	Code	Length	Height	Width	Weight
KIOSKIT 1	081190010	600 mm	180 mm	140 mm	1,4 kg

Compatible with:	kW
QPGO - Plug&GO.Evo	up to 1,1 kW
ZDJet	up to 0,75 kW
P/X.O3 - O3	up to 1,5 kW
P/X.H3 - H3 - P/X.H3F - H3F	up to 2,2 kW
P/X.OT/HT - OT/HT - P/X.HTF - HTF	up to 3 kW

KIOSKIT 2

Model	Code	Length	Height	Width	W.
KIOSKIT 2	081190015	900 mm	180 mm	140 mm	2,3 kg

Compatible with:	kW
QPGO	1,5 kW
ZDJet	1,1 kW - 1,5 kW
P/X.O3 - O3	2,2 kW
OT	4 kW - 5,5 kW
HTF	4 kW - 5,5 kW - 7,5 kW



Mechanical pressure switch Telemecanique



Mechanical pressure switch to automatically adjust start and stop of the submersible pump.

Technical specifications:

- Ambient air temperature for operation: from -25° C to +70° C
- IP degree of protection: IP 54
- Maximum power: 1,5 kW
- Outlet Ø: ¼ G-F



Model	Code	Code Telemecanique	Working	Settings (bar)	Contacts	Entry
PRV0-6	082515099	XMPA06B2131	Single-phase	0 - 6	2 NC snap action 1,5 kW / 11A	2 entries PG 13,5
PRV6-12	082515100	XMPA12B2131	Single-phase	6 - 12	2 NC snap action 1,5 kW / 11A	2 entries PG 13,5
PRV0-6	082515121	XMPA06C2141	Three-phase	0 - 6	2 NC snap action 1,5 kW / 11A	2 entries PG 13,5
PRV6-12	082515122	XMPA12C2141	Three-phase	6 - 12	2 NC snap action 1,5 kW / 11A	2 entries PG 13,5

Manometer



Manometer to measure hydraulic pressure. Vertical, horizontal or sidelong installation.

Model	Code	Working range (bar)	Diameter (mm)	Connection	Casing material
MAN0-6	082515115	0 - 6 (precision 2,5)	63	Radial ¼"	ABS
MAN0-12	082515116	0 - 12 (precision 2,5)	63	Radial ¼"	ABS

Press tanks GWS



Single diaphragm design - Internal polypropylene capsule - Water inlet connection in stainless steel - Certificate NSF. Standard 61, CE/PED, WRAS, ACS, GOST - Does not require any maintenance - Shell: carbon steel internally coated with powder for alimentary purposes - Fixed membrane: butyl, for alimentary purposes

Model	Code	Code GWS	Capacity (lt)	Diameter (mm)	Height (mm)	W. (kg)	Connections (mm)	Max working pressure
PRESS TANK 2	481500002	PWB	2	127	183	1	1" G	10 bar
PRESS TANK 8	481500008	PWB	8	203	314	2,6	1" G	10 bar
PRESS TANK 18	481500018	PWB	18	280	368	4,3	1" G	10 bar
PRESS TANK 24	481500024	PWB	24	320	450	4,3	1" G	10 bar
PRESS TANK 60	481500060	PWB	60	388	730	12,3	1" G	10 bar
PRESS TANK 100	481500100	PWB	100	431	804	18,9	1" G	10 bar
PRESS TANK 200	481500200	PWB	200	450	1060	35	1" G	10 bar
PRESS TANK 300	481500300	PWB	300	540	1520	48	1" G	10 bar

Protection anode for 4" oil-cooled ZDS motors



Corrosion protection anode for 4" oil-cooled ZDS motors, manufactured with an alloy suitable for contact with drinking water. It can be easily fit to the lower extremity of ZDS motors to protect them from corrosion in the presence of irregular currents or particularly aggressive waters, greatly increasing the life of the motor components.

Model	Code
Anode for 4" ZDS oil-cooled motors	081505059

Wessoclean - Ecological well regeneration

Product suitable for periodic cleaning of the well, which easily removes from the submersible pump the common incrustations, restoring the correct water quality.

EASY TO USE:

1. Open the well
2. Pour WESSOCLEAN AQUA Typ 1 into the well
3. Wait for 12 hours
4. Pump WESSOCLEAN AQUA Typ 1 out of the well

No heavy equipment is required and the pump can stay inside the well.



Model	Code	Description	Weight
WESSOCLEAN AQUA TYP 1	081505063	Suitable to clean from: iron-oxides, manganese-oxides, lime, biofilms. All clogging in the well, in the filter gravel and the surrounding soil is dissolved within 12 hours. 4 kg dissolved in a 4" borehole treat a water column of 10 m circa (80 l circa).	4 kg

Capacitors



Model	Code	Capacity μF	Tension (V)
12,5 μF uf capacitor	000010012	12,5	450
16 μF uf capacitor	000010016	16	450
20 μF uf capacitor	000010020	20	450
25 μF uf capacitor	000010025	25	450
35 μF uf capacitor	000010035	35	450
40 μF uf capacitor	000010040	40	450
50 μF uf capacitor	000010050	50	450
60 μF uf capacitor	000010060	60	450
70 μF uf capacitor	000010070	70	450
80 μF uf capacitor	000010080	80	450

Safety rope



Model	Code
15 mt safety rope	082515118
30 mt safety rope	082515119
45 mt safety rope	082515120

Evo diagnostic device spare parts



Model	Code	Description
Evo diagnostic device	082515298	Complete device
Repair kit	082515300	Fuses, varistor

DRP-Plus device spare parts



Model	Code	Description
DRP-Plus.ZDJet.037	082515310	DRP-Plus complete device for 0,37 kw ZDJet.DRP-Plus
DRP-Plus.ZDJet.055	082515312	DRP-Plus complete device for 0,55 kw ZDJet.DRP-Plus
DRP-Plus.ZDJet.075	082515314	DRP-Plus complete device for 0,75 kw ZDJet.DRP-Plus
DRP-Plus.ZDJet.110	082515316	DRP-Plus complete device for 1,1 kw ZDJet.DRP-Plus
DRP-Plus.ZDJet.150	082515318	DRP-Plus complete device for 1,5 kw ZDJet.DRP-Plus
DRP-Plus.QPGGo.037	082515320	DRP-Plus complete device for 0,37 kw QPGGo.DRP-Plus
DRP-Plus.QPGGo.055	082515322	DRP-Plus complete device for 0,55 kw QPGGo.DRP-Plus
DRP-Plus.QPGGo.075	082515324	DRP-Plus complete device for 0,75 kw QPGGo.DRP-Plus
DRP-Plus.QPGGo.110	082515326	DRP-Plus complete device for 1,1 kw QPGGo.DRP-Plus
DRP-Plus.QPGGo.150	082515328	DRP-Plus complete device for 1,5 kw QPGGo.DRP-Plus

GENERAL CONDITIONS OF SALE

1. Subject.

These general conditions of sale (hereinafter, "Conditions") apply to all sales made by ZDS Srl with registered office in Padua, Via Grecia n° 8, VAT number 04141260283 (hereinafter, the "Seller" or "ZDS") to the Customer (hereinafter, the "Purchaser") of goods produced and marketed by the Seller (hereinafter the "Products"). Every offer, order confirmation and delivery by the Seller shall be governed by these Conditions, save when otherwise agreed in writing by the parties.

2. Sale.

A sale is made when: (a) the order confirmation is countersigned by the Purchaser, (b) the order confirmation is accepted by the purchaser with a written notice sent by e-mail, text message, whatsapp or similar methods, (c) the order confirmation is accepted by the Purchaser by means of a notice sent by facsimile. Any cancellations or amendments of the order by the Purchaser shall not be effective if they were not previously authorised or are not subsequently accepted in writing by the Seller. The execution of the sales agreement is conventionally established to take place at the Seller's premises.

3. Terms of delivery.

Save when otherwise agreed in writing, the delivery terms shall be set out in writing in the order confirmation from time to time. The Seller undertakes to deliver the products within the agreed term. However, the term shall be extended in the event of the occurrence of causes not directly attributable to the Seller, such as, for example, force majeure, epidemics and pandemics, problems in the supply of raw materials, blockades and shutdowns ordered by the authorities. The Seller shall promptly notify the Purchaser in writing of such events and in such cases the Seller shall be entitled to withdraw from the contract without the Purchaser being entitled to any compensation. In other cases, in which the delivery delay depends on the production cycle, the Seller shall promptly inform the Purchaser of a new delivery term. In this case, the Purchaser shall cooperate in good faith and to the fullest extent in order to enable the Seller to deliver within the new term indicated. If the Purchaser fails to cooperate, the Seller may withdraw from the contract. In any case, the Seller shall not be liable for ordinary negligence. In the event that the delivery does not take place due to the Purchaser's fault/ non-fulfilment, the Seller is entitled to charge the Purchaser a sum of money as reimbursement for the transport costs incurred and the storage costs to be borne. In case the goods (i) are delivered with the seals broken or removed, (ii) are delivered in quantities other than those ordered, (iii) or show signs of tampering with boxes/pallets, the Purchaser must accept the goods with reserve, putting it in writing for the carrier in the relevant transport document, then report it in writing to the Seller within 8 days from the receipt of the goods, during which time the Purchaser shall have checked the goods.

4. Price.

Save when otherwise agreed in writing, the Seller's list prices at the time of order confirmation shall apply to each order. The prices indicated in the Seller's official price list are net of all taxes and do not include packaging, transport, insurance and similar costs, which shall be borne by the Purchaser. In the event of a delay in the delivery of the goods attributable to the Purchaser, any price increases occurring after the order confirmation shall be borne exclusively by the latter.

5. Method of payment.

Save when otherwise agreed in writing, payment of the price of the goods shall be made by bank transfer in advance. Payments must be documented by sending proof of payment by fax or e-mail. In the absence of such proof, the material will not be shipped and the order will be cancelled after 30 days. Any instalments must be paid punctually on the due date indicated on the invoice. It is in any case understood that payment is made conventionally at the Vendor's domicile in Padua, Italy.

6. Non-payment.

In the event of non-payment or partial payment, the Seller shall have the right to suspend production and delivery until full payment has been received or the right to terminate the contract, at its sole discretion, without prejudice to its right to compensation for damages.

7. Limitation of the admissibility of exceptions and late payments.

Under no circumstances may the Purchaser suspend or delay payment of the price of the goods, nor may any exception be validly raised before the price of the supply has been paid in full. In case of late payment, the Seller shall be entitled to receive the amount indicated on the invoice (without deduction of any discounts) in addition to the default interest provided for by Legislative Decree No. 231/2002 and compensation for any further damages. The Seller may, in any case, withdraw from the contract with regard to the goods not yet delivered and/or delay the execution of the order in progress, postponing the delivery of the Products until all outstanding debts have been settled.

8. Termination by the Seller.

The Seller may terminate the contract at any time, at its sole discretion, or demand guarantees for the execution of the same, should there be a change in the solvency and/or liquidity conditions of the Purchaser (inability, dissolution or transformation, changes in the purchasing company, suspension of payments, protests, etc.) without prejudice to the right of the Seller to compensation for any damages.

9. Complaints and Warranty.

All ZDS products are tested before being sold in order to guarantee perfect function and long service life, and to offer a better and comprehensive service to the Purchaser. The warranty on ZDS products covers failures due to defects in the raw materials and workmanship and is valid for 24 months from the date of purchase, as evidenced by the sales documents. The warranty on products sold through distributors, also valid for 24 months, shall commence on the date of purchase by the end user, as evidenced by the sales documents, up to a maximum of 48 months from the date of manufacture of the product. For complete ZDS electric pumps of the QPGo, ZDIjet, Plug&Go.Evo, P/X.03, P/X.0T series (all versions), the warranty is extended to 36 months from the date of purchase, as evidenced by the sales documents. Franklin products are covered by Franklin's standard warranty of up to 24 months from the date of purchase as evidenced by the sales documents. In the absence of the purchase documents, a warranty of 30 months from the date of manufacture of the product shall apply. The Purchaser may exercise the warranty rights as set forth below. To claim the warranty, you must fill in the "Warranty claim form" inside the product box and send it to the place of purchase within 8 days of discovery, under penalty of forfeiture. Alternatively, you can fill in this form online at www.zdsgroup.com/it/report. A copy of the product purchase document must be attached to the form. Your dealer will either remedy the problem himself or will promptly forward the customer's "Warranty Claim Form" (or online at www.zdsgroup.com/it/report) to ZDS along with the relevant copies of the purchase document. ZDS will instruct its service department to assist the Purchaser or authorise the return shipment of the product if necessary. In the event of a product return authorisation, it is normally expected that the product claimed as "defective" will be sent complete and appropriately packaged by the customer to the point of purchase, and the replacement with a new product or repair, if any, will take place only after the ZDS technical assessment. Warranties not authorised by ZDS in advance will not be accepted by the ZDS technicians. If no defects are found after the inspection and the product is then functional, the costs of the inspection will be charged to the customer. After the ZDS audit and the notification of the diagnosis to the customer, the tested material, whether functional or not, will be kept at the customer's disposal for up to 6 months. After the 6-month period has expired without any feedback from the customer, the tested material will be disposed of. All transport costs are normally borne by the Purchaser.

The warranty does not apply in the following cases:

- a. if the product received does not match the information provided in the "Warranty Request Form";
- b. if the product has been tampered with, disassembled or is incomplete of some parts;
- c. if the damages are caused by the transport carried out by the Purchaser;
- d. when the damage is caused by a failure to follow the installation and operating instructions supplied with the product;
- e. if the installation is not carried out by experienced and qualified technical personnel;
- f. in the event of incorrect electrical or hydraulic connections;
- g. if the damage is caused by incorrect sizing of the power cable when it is extended;
- h. if the application is not permitted by the technical specifications of the product;
- i. if the product is used with liquids other than those indicated and therefore incompatible with its construction materials;
- j. if the product is used with an excessive amount of sand or other foreign bodies in the liquid;
- k. when damage is caused by stray galvanic currents;
- l. if the product is damaged by use with inappropriate or unauthorised equipment, such as inverters or generators;
- m. if unauthorised technical modifications are made;
- n. if the electrical or hydraulic characteristics of the system are not suitable for the product;
- o. if the electrical protection is inadequate or insufficient;
- p. for normal wear of the materials over time;
- q. for abnormal or excessive use of the product;
- r. in the event of incorrect technical choice of the product;
- s. damage caused by installations that do not comply with current regulations;
- t. in the event of damage caused by natural events or calamities (such as lightning, fire, etc.).

With the sole exclusion of cases of fraud and gross negligence on the part of the Seller, the latter's sole liability to the Purchaser for the supply of products is limited to the obligation to repair and/or replace defective and/or non-conforming products and, at its sole discretion, to the supply of new products (or new parts) to replace the defective ones (or defective parts). The Seller therefore undertakes to remedy any defects in the products only if they are attributable to him, provided that such defects are not due to normal wear and tear and/or inappropriate use and/or incorrect maintenance by the Purchaser, as better indicated above, and provided they have been notified in writing to the Seller within 8 days from the date of delivery or, if hidden, from their discovery. The warranty provided (obligation to repair or replace the products) includes and replaces any other warranty and the Seller's liability or entitlement shall on no account extend to direct, indirect, incidental, or consequential damages or losses suffered by the Purchaser due to defects and/or lack of conformity of the products. As specified above in detail, any claims or complaints made by the Purchaser with respect to the Products shall not entitle the Purchaser to suspend or in any way delay payments for such Products, nor for any other supplies.

10. Returns.

The Seller shall only accept returns that have been authorised in advance and that bear the Seller's authorisation number on the transport document and on the outer packaging; the returned goods must be undamaged and adequately packaged. The Seller shall examine the returned goods to verify that the defect exists and is attributable to the Seller's responsibility and only in this case shall the Seller replace the goods acknowledged as defective. Products returned without authorisation shall not entitle the Purchaser to issue debit notes. In any case, the costs and risks deriving from the return of the goods are borne fully by the Purchaser.

11. Seller's limited liability.

The Seller's warranties and liabilities are limited to those expressly set forth in these Conditions, except as provided by mandatory rules which the parties cannot waive. Except in cases of fraud and/or gross negligence, the Seller shall not be liable to the Purchaser for any loss of profit, incidental or consequential damages, direct or indirect losses of any kind. In any event, the maximum total liability of the Seller in respect of each supply shall not exceed the value thereof.

12. Confidentiality, non-disclosure, industrial and intellectual property rights.

The Purchaser undertakes to consider all the data, documents, materials and, in any case, all the information, received or obtained from the Seller in any form or by any means, as strictly private and confidential and as the exclusive material and intellectual property of the Seller's, and therefore to adopt all the necessary measures not to cause damage to the Seller and not to prejudice the confidentiality, secrecy and privacy of the aforesaid data, documents, materials and information. Such information includes past, present or future activities concerning the company, research & development, commercial activities, non-profit activities, products, services, technical knowledge, but also information on customers, projects, plans, organisation of the same and commercial projects. The Purchaser shall not disclose or communicate any information received from the Seller in any way or form. Confidential information and knowledge shall not be copied or reproduced in whole or in part except for operational needs strictly related to the purchase of the Seller's goods/products. The technical data, details and performance characteristics of the products stated in all official ZDS documents are purely indicative and not binding. However, ZDS reserves the right to change the documentation without prior notice. ZDS reserves the right to change products, designs, workmanship, components and materials of the products at any time and as often as necessary without prior notice to the Purchaser.

13. Unforeseeable circumstances and force majeure.

The Seller shall not be liable to the Purchaser for any non-performance, including non-delivery or delayed delivery, caused by events beyond its reasonable control or otherwise attributable to chance or force majeure, such as, but not limited to, non-delivery or delayed delivery of work materials by suppliers, strikes and other industrial action, acts of terrorism, suspension of electricity or transport difficulties.

14. Governing Law and Competent Jurisdiction.

These Conditions shall be governed by the 1980 Vienna Convention on Contracts for the International Sale of Goods. For matters and sales not covered by the above convention, Italian law shall apply. The Courts of Padua shall have exclusive jurisdiction over all disputes relating to the sale of the Products. Alternatively, the Seller has the right to refer to the Purchaser's Court of competent jurisdiction. Exclusively with regard to credit collection, the Seller is also entitled to request a European injunction if the Purchaser has its registered office in a European Union state.



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