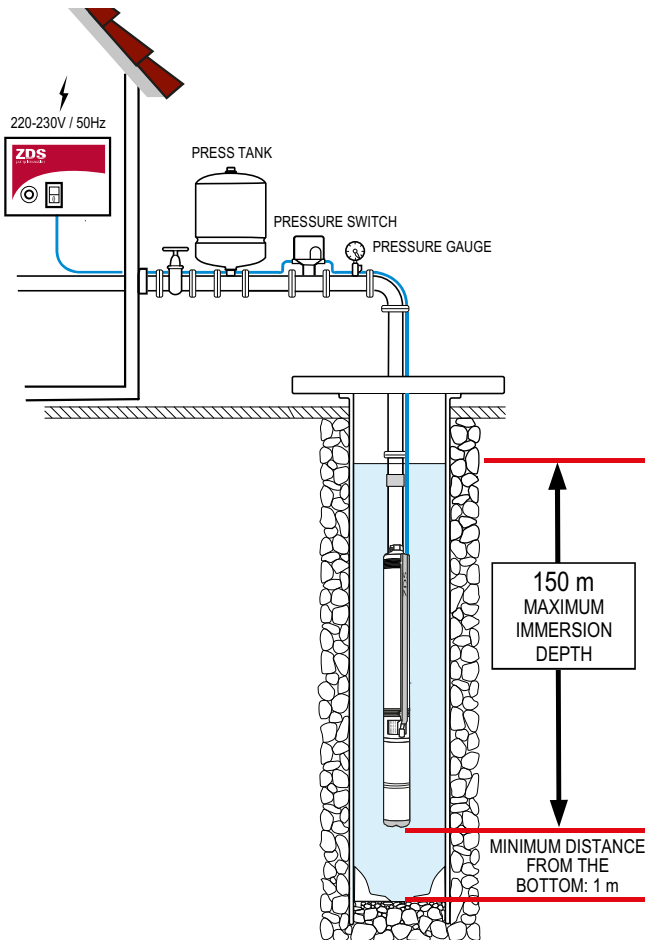




# P/X.03

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 can be protected against many possible installation or operation faults thanks to the DRP protection device.



## 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.

## TECHNICAL SPECIFICATIONS

<b>Power range:</b>	0,37 - 2,2 kW
<b>Voltage range:</b>	1x220-230V / 50 Hz
<b>Voltage tolerance 50Hz from nominal:</b>	+6% / -10% U <sub>N</sub>
<b>Degree of protection:</b>	IP 68
<b>Insulation:</b>	Cl. F
<b>Rated ambient temperature:</b>	max. 40° C
<b>Required cooling flow:</b>	min. 8 cm/sec
<b>Maximum quantity of suspended sand:</b>	120 g/m <sup>3</sup>
<b>Maximum starts/h:</b>	150, equally distributed
<b>Mounting:</b>	vertical/horizontal
<b>Maximum immersion depth:</b>	150 m
<b>Allowed range of water PH:</b>	6,4-8,0
<b>Outlet diameter:</b>	1" ¼ G-F - 2" G-F
<b>Maximum delivery (Q):</b>	15.000 l/h
<b>Maximum head (H):</b>	220 m

## OPTIONAL



DRP:  
INTEGRATED DRP -  
DRY RUNNING  
PROTECTION

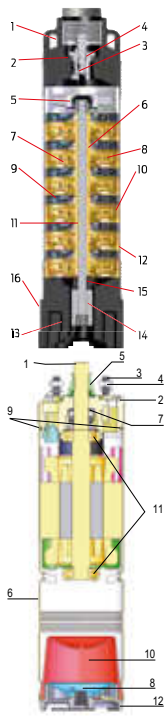


## CBO - Electric start panel

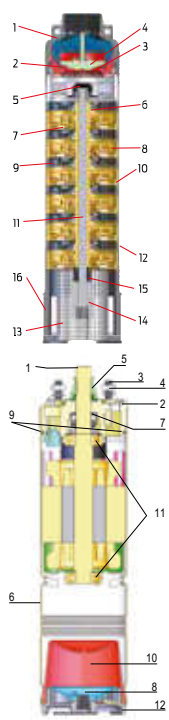
Motor start and operation system with capacitor, equipped with thermal amperometric protection against current overload, ON/OFF illuminated switch, terminal box, cable glands, power supply cable, mounting accessories.

## APPLICATIONS

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



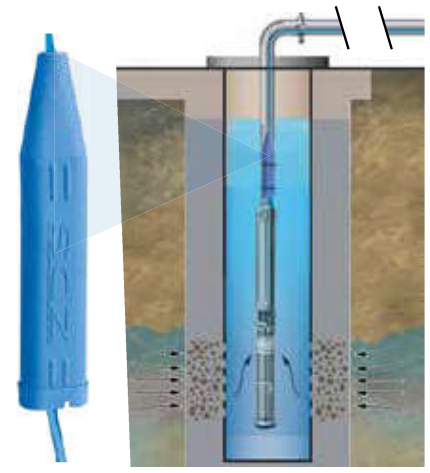
Pos.	COMPONENTS	MATERIALS
1	Upper head	PA 6.6
2	O-Ring	NBR
3	Complete valve	POM
4	Plate valve	POM
5	Shaft guide	NBR
6	Bearing	TPU
7	Floating ring	TPU
8	Impeller	Noryl and stainless steel
9	Diffuser	Noryl
10	Stage box	Noryl
11	Pump shaft	Stainless steel AISI 304 (DIN 1.4301)
12	Outer sleeve	Stainless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



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 - cathaphoretic 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

## DRP ELECTRONIC PROTECTION DEVICE

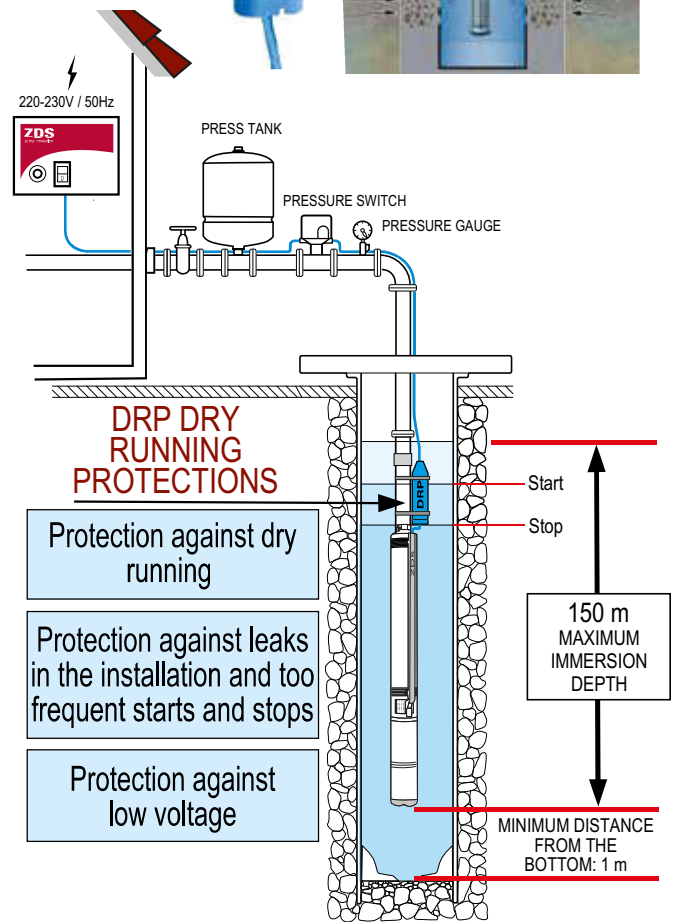
DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus 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



Model	Power		P.C.*	C.C.** In (A)	Hydraulic performance (n~2.850 min <sup>-1</sup> )						Cable 1,5 m		Cable 15 m		Cable 30 m		Cable 45 m	
	kW	HP			m <sup>3</sup> /h	0	0.6	1.5	2.4	4.2	6	Code	Code	Code	Code			
																l/min	0	10
PUMP CURVE 1 P.1-8.03 P.1-8.03.DRP P.1-12.03 P.1-12.03.DRP P.1-18.03 P.1-18.03.DRP P.1-25.03 P.1-25.03.DRP	0,25	0,33	0,59	2,9	Total head in meters = H= dynamic total pressure	50,2	44,4	18				197500108L	197500108L1	197500108L2	Not available			
						197500108S	197500108S1	197500108S2	Not available									
	0,37	0,5	0,72	3,3		75,4	66,6	27				197500112L	197500112L1	197500112L2	197500112L3			
						197500112S	197500112S1	197500112S2	197500112S3									
	0,55	0,75	0,95	4,4		113	100	40				197500118L	197500118L1	197500118L2	197500118L3			
						197500118S	197500118S1	197500118S2	197500118S3									
	0,75	1	1,24	5,8		157	139	56				197500125L	197500125L1	197500125L2	197500125L3			
197500125S					197500125S1	197500125S2	197500125S3											
PUMP CURVE 2 P.2-5.03 P.2-5.03.DRP P.2-8.03 P.2-8.03.DRP P.2-12.03 P.2-12.03.DRP P.2-16.03 P.2-16.03.DRP P.2-24.03 P.2-24.03.DRP	0,25	0,33	0,59	2,9	32	31,2	28,2	17				197500205L	197500205L1	197500205L2	Not available			
					197500205S	197500205S1	197500205S2	Not available										
	0,37	0,5	0,73	3,3	51,2	49,9	41,9	27,2				197500208L	197500208L1	197500208L2	197500208L3			
					197500208S	197500208S1	197500208S2	197500208S3										
	0,55	0,97	4,4	113	76,8	74,9	62,9	40,8				197500212L	197500212L1	197500212L2	197500212L3			
					197500212S	197500212S1	197500212S2	197500212S3										
	0,75	1	1,27	5,8	102,4	99,8	83,8	54,4				197500216L	197500216L1	197500216L2	197500216L3			
					197500216S	197500216S1	197500216S2	197500216S3										
	1,1	1,5	1,7	7,8	153,6	149,8	125,8	81,6				197500224L	197500224L1	197500224L2	197500224L3			
197500224S					197500224S1	197500224S2	197500224S3											
PUMP CURVE 3 P.3-6.03 P.3-6.03.DRP P.3-9.03 P.3-9.03.DRP P.3-13.03 P.3-13.03.DRP P.3-19.03 P.3-19.03.DRP P.3-25.03 P.3-25.03.DRP	0,37	0,5	0,7	3,3	33,3		30,4	27	13,7			197500306L	197500306L1	197500306L2	Not available			
					197500306S	197500306S1	197500306S2	Not available										
	0,55	0,75	0,93	4,4	50		45,6	40,5	20,6			197500309L	197500309L1	197500309L2	197500309L3			
					197500309S	197500309S1	197500309S2	197500309S3										
	0,75	1	1,24	5,8	72,2		65,9	58,5	29,8			197500313L	197500313L1	197500313L2	197500313L3			
					197500313S	197500313S1	197500313S2	197500313S3										
	1,1	1,5	1,66	7,8	100,5		96,38	85,5	43,5			197500319L	197500319L1	197500319L2	197500319L3			
					197500319S	197500319S1	197500319S2	197500319S3										
	1,5	2	2,23	10,1	138,8		126,8	112,5	57,3			197500325L	197500325L1	197500325L2	Not available			
197500325S					197500325S1	197500325S2	Not available											
PUMP CURVE 5 P.5-4.03 P.5-4.03.DRP P.5-6.03 P.5-6.03.DRP P.5-8.03 P.5-8.03.DRP P.5-13.03 P.5-13.03.DRP P.5-17.03 P.5-17.03.DRP P.5-21.03 P.5-21.03.DRP	0,37	0,5	0,72	3,3	24,5			22	18,5	12,1		197500504L	197500504L1	197500504L2	Not available			
					197500504S	197500504S1	197500504S2	Not available										
	0,55	0,75	0,95	4,4	36,8			33	27,7	18,2		197500506L	197500506L1	197500506L2	Not available			
					197500506S	197500506S1	197500506S2	Not available										
	0,75	1	1,23	5,8	49,1			44	37	24,2		197500508L	197500508L1	197500508L2	197500508L3			
					197500508S	197500508S1	197500508S2	197500508S3										
	1,1	1,5	1,7	7,8	79,7			71,5	60,1	39,4		197500513L	197500513L1	197500513L2	197500513L3			
					197500513S	197500513S1	197500513S2	197500513S3										
	1,5	2	2,3	10,1	104,3			93,5	78,5	51,5		197500517L	197500517L1	197500517L2	Not available			
					197500517S	197500517S1	197500517S2	Not available										
2,2	3	2,75	13,1	128,8			115,5	97	63,6		197500521L	197500521L1	Not available	Not available				
				197500521S	197500521S1	Not available	Not available											

\*Power consumption \*\*Current consumption

CBO included in the price

# Product codes and hydraulics performance data

## 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 <sup>-1</sup> )											Cable 1,5 m		Cable 15 m		Cable 30 m		Cable 45 m	
	kW	HP			In (A)	m <sup>3</sup> /h	0	0,6	1,5	2,4	4,2	6	11,4	15	Code	Code	Code	Code					
																			l/min	0	10	25	40
PUMP CURVE 1	X.1-8.O3	0,25	0,33	0,59	2,9	50,2	44,4	18					197400108L	197400108L1	197400108L2	Not available							
	X.1-8.O3.DRP												197400108S	197400108S1	197400108S2	Not available							
	X.1-12.O3	0,37	0,5	0,72	3,3	75,4	66,6	27					197400112L	197400112L1	197400112L2	197400112L3							
	X.1-12.O3.DRP												197400112S	197400112S1	197400112S2	197400112S3							
	X.1-18.O3	0,55	0,75	0,95	4,4	113	99,9	40,5						197400118L	197400118L1	197400118L2	197400118L3						
	X.1-18.O3.DRP													197400118S	197400118S1	197400118S2	197400118S3						
	X.1-25.O3	0,75	1	1,24	5,8	157	138,8	56,3						197400125L	197400125L1	197400125L2	197400125L3						
	X.1-25.O3.DRP													197400125S	197400125S1	197400125S2	197400125S3						
X.1-36.O3	1,1	1,5	1,66	7,8	226,1	199,8	91						197400136L	197400136L1	197400136L2	197400136L3							
X.1-36.O3.DRP													197400136S	197400136S1	197400136S2	197400136S3							
PUMP CURVE 2	X.2-5.O3	0,25	0,33	0,59	2,9	32	31,2	28,2	17				197400205L	197400205L1	197400205L2	Not available							
	X.2-5.O3.DRP												197400205S	197400205S1	197400205S2	Not available							
	X.2-8.O3	0,37	0,5	0,73	3,3	51,2	49,9	41,9	27,2				197400208L	197400208L1	197400208L2	197400208L3							
	X.2-8.O3.DRP												197400208S	197400208S1	197400208S2	197400208S3							
	X.2-12.O3	0,55	0,75	0,97	4,4	76,8	74,9	62,9	40,8					197400212L	197400212L1	197400212L2	197400212L3						
	X.2-12.O3.DRP													197400212S	197400212S1	197400212S2	197400212S3						
	X.2-16.O3	0,75	1	1,27	5,8	102,4	99,8	83,8	54,4					197400216L	197400216L1	197400216L2	197400216L3						
	X.2-16.O3.DRP													197400216S	197400216S1	197400216S2	197400216S3						
	X.2-24.O3	1,1	1,5	1,7	7,8	153,6	149,8	125,8	81,6					197400224L	197400224L1	197400224L2	197400224L3						
	X.2-24.O3.DRP													197400224S	197400224S1	197400224S2	197400224S3						
X.2-32.O3	1,5	2	2,3	10,1	204,7	199,7	167,7	108					197400232L	197400232L1	197400232L2	Not available							
X.2-32.O3.DRP													197400232S	197400232S1	197400232S2	Not available							
PUMP CURVE 3	X.3-6.O3	0,37	0,5	0,7	3,3	33,3	30,4	27	13,7				197400306L	197400306L1	197400306L2	Not available							
	X.3-6.O3.DRP												197400306S	197400306S1	197400306S2	Not available							
	X.3-9.O3	0,55	0,75	0,93	4,4	50	45,6	40,5	20,6				197400309L	197400309L1	197400309L2	197400309L3							
	X.3-9.O3.DRP												197400309S	197400309S1	197400309S2	197400309S3							
	X.3-13.O3	0,75	1	1,24	5,8	72,2	65,9	58,5	29,8				197400313L	197400313L1	197400313L2	197400313L3							
	X.3-13.O3.DRP												197400313S	197400313S1	197400313S2	197400313S3							
	X.3-19.O3	1,1	1,5	1,66	7,8	105,5	96,3	85,5	43,5				197400319L	197400319L1	197400319L2	197400319L3							
	X.3-19.O3.DRP												197400319S	197400319S1	197400319S2	197400319S3							
X.3-25.O3	1,5	2	2,23	10,1	138,8	126,8	112,5	57,3				197400325L	197400325L1	197400325L2	Not available								
X.3-25.O3.DRP												197400325S	197400325S1	197400325S2	Not available								
PUMP CURVE 5	X.5-4.O3	0,37	0,5	0,72	3,3	24,5		22	18,5	12,1			197400504L	197400504L1	197400504L2	Not available							
	X.5-4.O3.DRP												197400504S	197400504S1	197400504S2	Not available							
	X.5-6.O3	0,55	0,75	0,95	4,4	36,8		33	27,7	18,2			197400506L	197400506L1	197400506L2	Not available							
	X.5-6.O3.DRP												197400506S	197400506S1	197400506S2	Not available							
	X.5-8.O3	0,75	1	1,23	5,8	49,1		44	37	24,2			197400508L	197400508L1	197400508L2	197400508L3							
	X.5-8.O3.DRP												197400508S	197400508S1	197400508S2	197400508S3							
	X.5-13.O3	1,1	1,5	1,7	7,8	79,7		71,5	60,1	39,4			197400513L	197400513L1	197400513L2	197400513L3							
	X.5-13.O3.DRP												197400513S	197400513S1	197400513S2	197400513S3							
	X.5-17.O3	1,5	2	2,3	10,4	104,3		93,5	78,5	51,5			197400517L	197400517L1	197400517L2	Not available							
	X.5-17.O3.DRP												197400517S	197400517S1	197400517S2	Not available							
X.5-21.O3	2,2	3	2,75	13,5	128,8		115,5	97	63,6			197400521L	197400521L1	Not available	Not available								
X.5-21.O3.DRP												197400521S	197400521S1	Not available	Not available								
PUMP CURVE 8	X.8-6.O3	0,75	1	1,23	5,8	38,4		29	24,5	4,8			197400806L	197400806L1	197400806L2	Not available							
	X.8-6.O3.DRP												197400806S	197400806S1	197400806S2	Not available							
	X.8-8.O3	1,1	1,5	1,71	7,8	51,2		38,6	32,7	6,4			197400808L	197400808L1	197400808L2	197400808L3							
	X.8-8.O3.DRP												197400808S	197400808S1	197400808S2	197400808S3							
	X.8-12.O3	1,5	2	2,25	10,1	76,8		58	49	9,6			197400812L	197400812L1	197400812L2	Not available							
	X.8-12.O3.DRP												197400812S	197400812S1	197400812S2	Not available							
	X.8-17.O3	2,2	3	3,05	14	108,8		82,1	69,4	13,6			197400817L	197400817L1	Not available	Not available							
X.8-17.O3.DRP	197400817S												197400817S1	Not available	Not available								
P.C.10	X.10-8.O3	1,5	2	2,6	10,1	48,2		42,6	39,2	23,1	7,9		197401008L	197401008L1	197401008L2	Not available							
	X.10-8.O3.DRP												197401008S	197401008S1	197401008S2	Not available							
	X.10-12.O3	2,2	3	2,9	14	72,3		64	58,8	34,7	11,9		197401012L	197401012L1	Not available	Not available							
	X.10-12.O3.DRP												197401012S	197401012S1	Not available	Not available							

Total head in meters = H = dynamic total pressure

\*Power consumption \*\*Current consumption

CBO included in the price