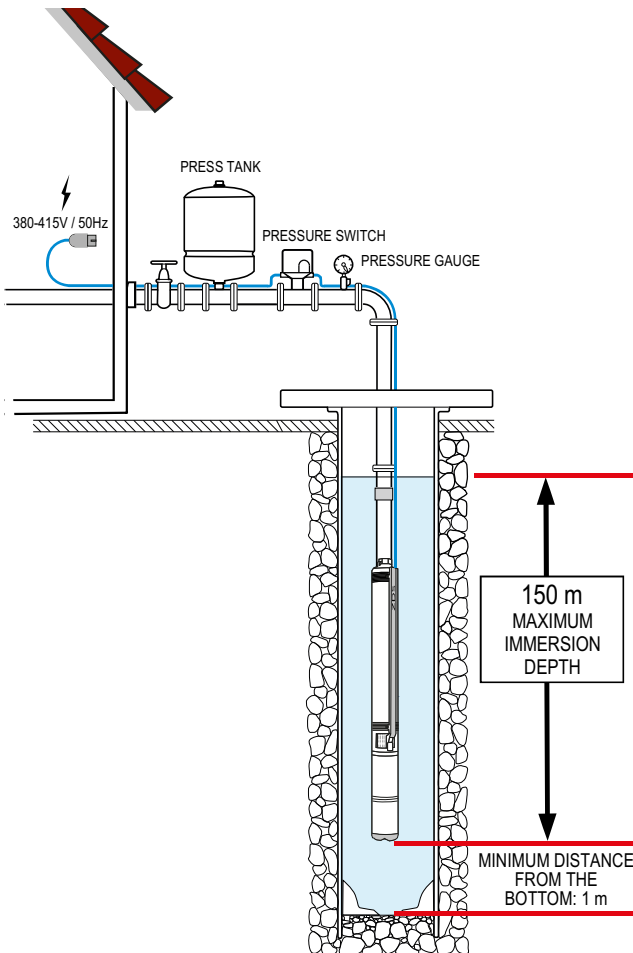




# P/X.OT

4" complete submersible pump, made of ZDS hydraulic part, ZDS three-phase oil-cooled OT motor and supply cable in different lengths. Reliable, strong and easy to maintain, it's available in a wide range of models. It can be protected against many possible installation or operation faults thanks to the DRP protection device. 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 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.

## TECHNICAL SPECIFICATIONS



<b>Overload protection requirements according to:</b>	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
<b>Required cooling flow:</b>	min. 8 cm/sec
Maximum quantity of suspended sand:	120 g/m <sup>3</sup>
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

## OPTIONAL



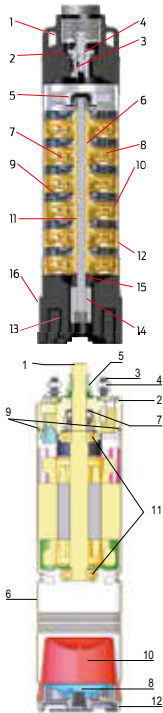
DRP:  
INTEGRATED DRP -  
DRY RUNNING PROTECTION

## APPLICATIONS



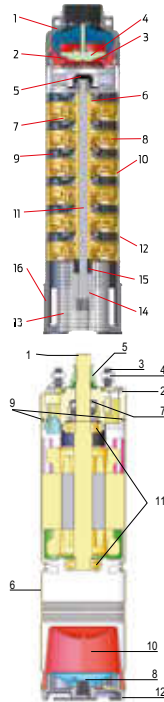
Submersible pump designed to be used in 4" boreholes (or larger) and tanks, for lifting, distribution, pressurization of water in water systems.

# P.O.T



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

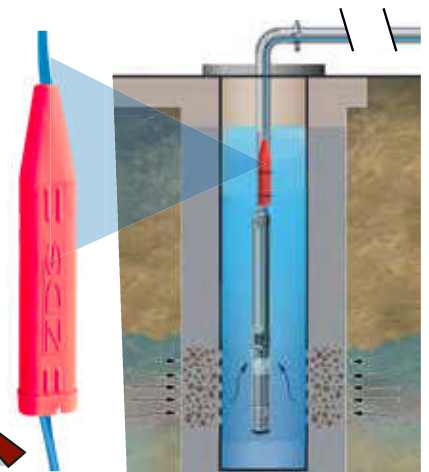
# X.O.T



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

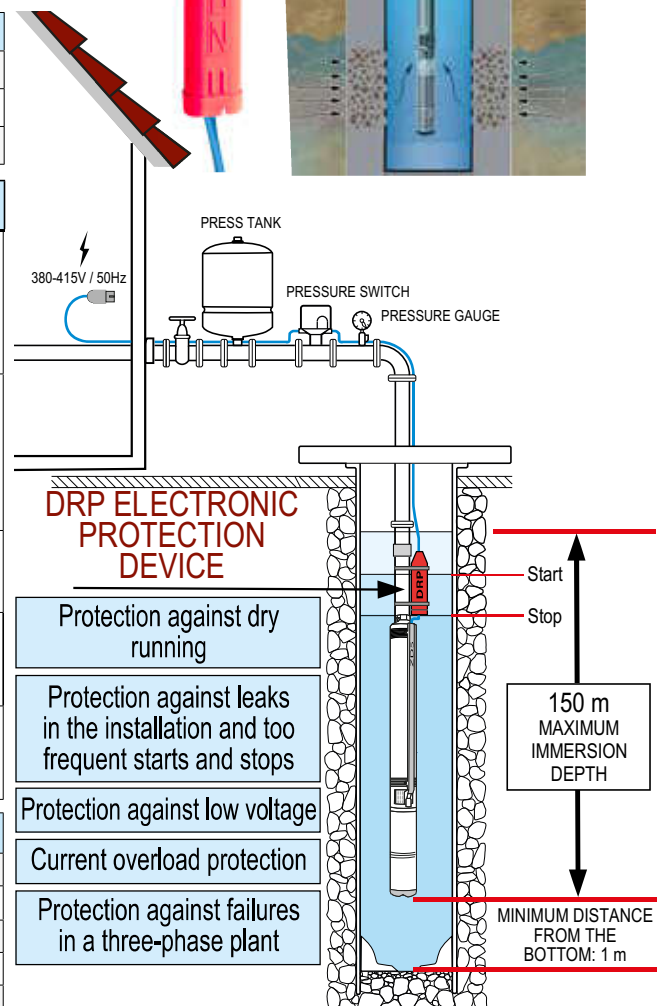
DRP is an electronic device that guarantees optimal protection of the submersible pump from dry running, positioned in the pump supply cable just above the pump. In case of water shortage, the DRP stops the pump immediately, the water drops below the DRP to allow water to flow into the bore hole. Thus 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	
	<b>Protection against dry running and lack of water in the well</b> 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.
	<b>Protection against leaks in the installation and too frequent starts and stops</b> 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.
$U <$	<b>Protection against low voltage</b> The DRP protects the submersible pump against low voltage, that can damage the motor.
$I >$	<b>Current overload protection</b> In case the submersible pump is partially or totally blocked, after some restart attempts it enters the stand-by mode.
	<b>Protection against failures in a three-phase plant</b> 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



Model	Power		P.C.*	C.C.** I <sub>n</sub> (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	25	40	70	100																												
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	Not available																																	
	P.1-8.OT.DRP													184086008S	184086008S1	184086008S2	Not available																																	
	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	184086012S1																										
	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.1-25.OT	0,75	1	1,16	2,35																								157	138,9	56,3						184086024	184086024L	184086024L1	18408624L2										
P.1-25.OT.DRP	184086024S					184086024S1	184086024S2	18408624S3																																										
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	Not available										
	P.2-5.OT.DRP													184086104S	184086505S	184086505S1	Not available																																	
	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.2-12.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.2-16.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.2-24.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																																										
PUMP CURVE 3	P.3-6.OT	0,37	0,5	0,68	1,7	Total head in meters = H = dynamic total pressure	33,3		30,4	27	13,7																																			184086205	184086206	184086206L	Not available	
	P.3-6.OT.DRP													184086205S	184086206S	184086206S1	Not available																																	
	P.3-9.OT	0,6	0,8	0,8	1,7									50		45,6	40,5	20,6																												184086208	184086209	184086209L	184086209L1	
	P.3-9.OT.DRP																				184086208S	184086209S	184086209S1	184086209S2																										
	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.3-19.OT	1,1	1,5	1,6	3,2																								105,5		96,3	85,5	43,5													184086218	184086218L	184086219	184086219L	
	P.3-19.OT.DRP																																					184086218S	184086218S1	184086219S	184086219S1									
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										
PUMP CURVE 5	P.5-4.OT	0,37	0,5	0,7									1,7	Total head in meters = H = dynamic total pressure	24,5			22	18,5	12,1																		184086303	184086304	184086304L	Not available									
	P.5-4.OT.DRP																																					184086303S	184086304S	184086604S1	Not available									
	P.5-6.OT	0,6	0,8	0,9									1,8								36,8			33	27,7	18,2												184086305	184086306	184086306L	Not available									
	P.5-6.OT.DRP																																					184086305S	184086306S	184086306S1	Not available									
	P.5-8.OT	0,8	1	1,2									2,3																49,1			44	37	24,2				184086307	184086308	184086308L	184086308L1									
	P.5-8.OT.DRP																																					184086307S	184086308S	184086308S1	184086308S2									
	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.5-17.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.5-21.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		

\*Power consumption \*\*Current consumption

# Product codes and hydraulics performance data

## 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 <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 l/min	0	0,6	1,5	2,4	4,2	6	11,4	15	Code	Code	Code	Code					
							0	10	25	40	70	100	190	250									
PUMP CURVE 1	X.1-8.OT	0,25	0,33	0,57	1,65	50,2	44,4	18						184068008	184068008L	184068008L1	Not available						
	X.1-8.OT.DRP								184068008S	184068008S1	184068008S2	Not available											
	X.1-12.OT	0,37	0,5	0,7	1,7	75,4	66,6	27						184068011	184068011L	184068012	184068012L						
	X.1-12.OT.DRP								184068011S	184068011S1	184068012S2	184068012S1											
	X.1-18.OT	0,55	0,75	0,87	1,75	113	99,9	40,5						184068017	184068017L	184068018	184068018L						
	X.1-18.OT.DRP								184068017S	184068017S1	184068018S2	184068018S1											
	X.1-25.OT	0,75	1	1,16	2,35	157	138,8	56,3						184068024	184068024L	184068024L1	184068024L2						
	X.1-25.OT.DRP								184068024S	184068024S1	184068024S2	184068024S3											
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												
PUMP CURVE 2	X.2-5.OT	0,25	0,33	0,57	1,65	32	31,2	28,2	17					184068104	184068105	184068105L	Not available						
	X.2-5.OT.DRP								184068104S	184068105S	184068105S1	Not available											
	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.2-12.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	184068112S2	184068112S1											
	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	184068116S2	184068116S1											
	X.2-24.OT	1,1	1,5	1,71	3,3	153,6	149,8	125,8	81,6					184068124	184068124L1	184068124L2	184068124L3						
	X.2-24.OT.DRP								184068123S	184068123S1	184068123S2	184068123S3											
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												
PUMP CURVE 3	X.3-6.OT	0,37	0,5	0,68	1,7	33,3	30,4	27	13,7					184068205	184068206	184068206L	Not available						
	X.3-6.OT.DRP								184068205S	184068206S	184068206S1	Not available											
	X.3-9.OT	0,55	0,75	0,85	1,7	50	45,6	40,5	20,6					184068208	184068209	184068209L	184068209L1						
	X.3-9.OT.DRP								184068208S	184068209S	184068209S1	184068209S2											
	X.3-13.OT	0,75	1	1,16	2,35	72,2	65,9	58,5	29,8					184068212	184068212L	184068213	184068213L						
	X.3-13.OT.DRP								184068212S	184068212S1	184068213S2	184068213S1											
	X.3-19.OT	1,1	1,5	1,64	3,25	105,5	96,3	85,5	43,5					184068218	184068218L	184068219	184068219L						
	X.3-19.OT.DRP								184068218S	184068218S1	184068219S2	184068219S1											
X.3-25.OT	1,5	2	2,1	4,3	138,8	126,8	112,5	57,3					197069225L	197069225L1	197069225L2	197069225L3							
X.3-25.OT.DRP								197069225S	197069225S1	197069225S2	197069225S3												
PUMP CURVE 5	X.5-4.OT	0,37	0,5	0,7	1,7	24,5		22	18,5	12,1				184068303	184068304	184068304L	Not available						
	X.5-4.OT.DRP								184068303S	184068304S	184068304S1	Not available											
	X.5-6.OT	0,55	0,75	0,87	1,75	36,8		33	27,7	18,2				184068305	184068306	184068306L	Not available						
	X.5-6.OT.DRP								184068305S	184068306S	184068306S1	Not available											
	X.5-8.OT	0,75	1	1,15	2,3	49,1		44	37	24,2				184068307	184068308	184068308L	184068308L1						
	X.5-8.OT.DRP								184068307S	184068308S	184068308S1	184068308S2											
	X.5-13.OT	1,1	1,5	1,71	3,3	79,7		71,5	60,1	39,4				184068311S	184068311L	184068313	184068313L						
	X.5-13.OT.DRP								184068311S	184068311S1	184068313S2	184068313S1											
	X.5-17.OT	1,5	2	2,17	4,4	104,3		93,5	78,5	51,5				184068317	184068318	184068318L	184068318L1						
	X.5-17.OT.DRP								184068317S	184068318S	184068318S1	184068318S2											
X.5-21.OT	2,2	3	2,6	4,9	128,8		115,5	97	63,6				184068321	184068322	184068322L	184068322L1							
X.5-21.OT.DRP								184068321S	184068322S	184068322S1	184068322S2												
PUMP CURVE 8	X.8-6.OT	0,75	1	1,16	2,35	38,4		29	24,5	4,8				184068406	184068407	184068407L	Not available						
	X.8-6.OT.DRP								184068406S	184068407S	184068407S1	Not available											
	X.8-8.OT	1,1	1,5	1,52	3	51,2		38,6	32,7	6,4				184068408	184068409	184068409L	184068409L1						
	X.8-8.OT.DRP								184068408S	184068409S	184068409S1	184068409S2											
	X.8-12.OT	1,5	2	2,12	4,3	76,8		58	49	9,6				184068412	184068413	186068413L	186068413L1						
	X.8-12.OT.DRP								184068412S	184068413S	184068413S1	184068413S2											
	X.8-17.OT	2,2	3	2,9	5,2	109		82,1	69,4	13,6				184068417	184068417L	184068417L1	184068417L2						
X.8-17.OT.DRP	184068417S								184068417S1	184068417S2	184068417S3												
P.C.10	X.10-8.OT	1,5	2	1,94	4	48,2		42,6	39,2	23,1	7,9			184068508	184068509	184068509L	184068509L1						
	X.10-8.OT.DRP								184068508S	184068509S	184068509S1	184068509S2											
	X.10-12.OT	2,2	3	2,76	5	72,3		64	58,8	34,7	11,9			184068512	184068513	184068513SL	184068513L11						
	X.10-12.OT.DRP								184068512S	184068513S	184068513S1	184068513S2											

Total head in meters = H = dynamic total pressure

\*Power consumption \*\*Current consumption