2008

ZDS

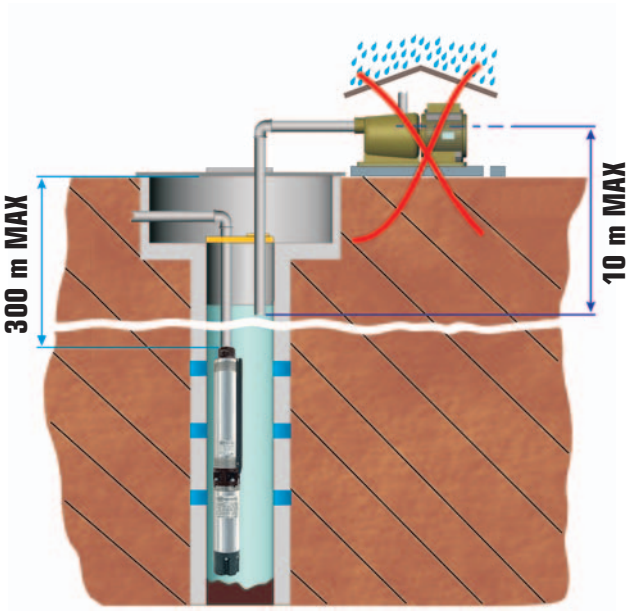
pump innovation

50 Hz / 2850 min^{-1}

Technical Catalogue

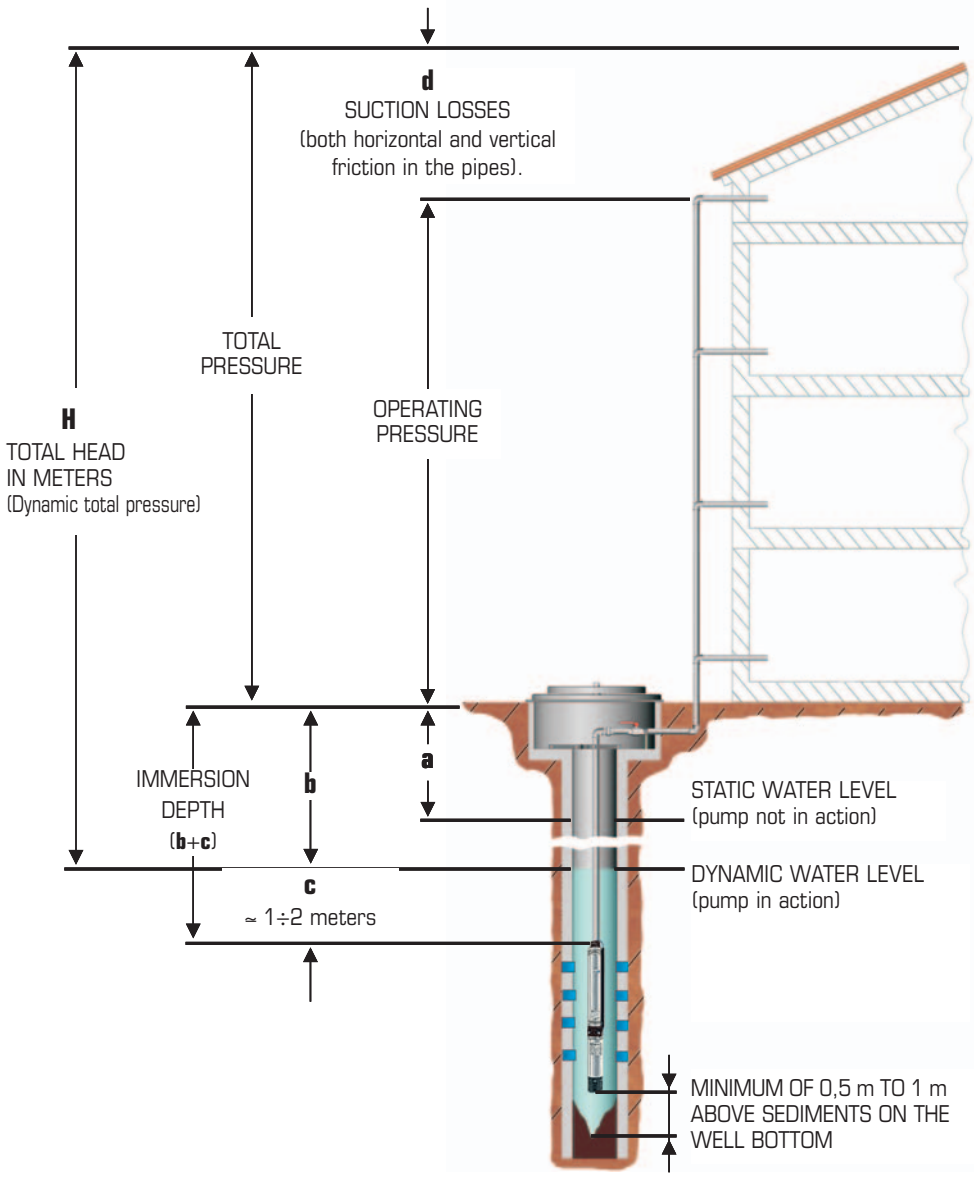
Why a submerged pump?

- No need for protection against atmospherics
- No problems with friction losses and suction depth
- No need for external installation
- Lower energy consumption
- Completely silent
- No danger of electric shock
- Easy to install
- Best hydraulic performance
- No freezing



Short instructions for selecting the correct submerged pump

- The drop cable cross section must be of the proper size, as shown in the table on page 27.
  Make sure that the electrical connections are executed correctly to ensure a proper current supply for the electric pump.
  ZDS accessories are highly recommended for the installation of ZDS pumps.
- ATTENTION: INCORRECT PUMP DIAMETER REDUCES PUMP PERFORMANCE! Be sure the section of pipe selected meets the technical specifications of the installation. The connecting pipe section has to at least the same diameter as the pump outlet.
- ATTENTION: THE ELECTRIC SUBMERGED PUMP SHOULD NEVER RUN DRY! During operations make sure that the dynamic water-level never falls under the pump-head level unless DRY RUNNING devices are installed.
- If using a fuel-driven generator, please be sure to note the following ratios:
  kVA (generator)—— 23kW (pumps).
  kVA (generator): the continuous absorption rate stated by the manufacturer
  kW (pump): rated power of the selected pump



Contents

To our knowledge, ZDS is the only pump manufacturer who truly offers a "No Quibble Guarantee" on the entire product portfolio. It simply means that regardless of what problem you or your client encounters, we will replace the product with no questions asked up until 24 months after purchase. ZDS knows your satisfaction comes from selling and installing pumps and not by pulling them back up again. Enjoy our quality!

4” Hydraulic parts, upper head and pump support in stainless steel

PRODUCT CHARACTERISTICS

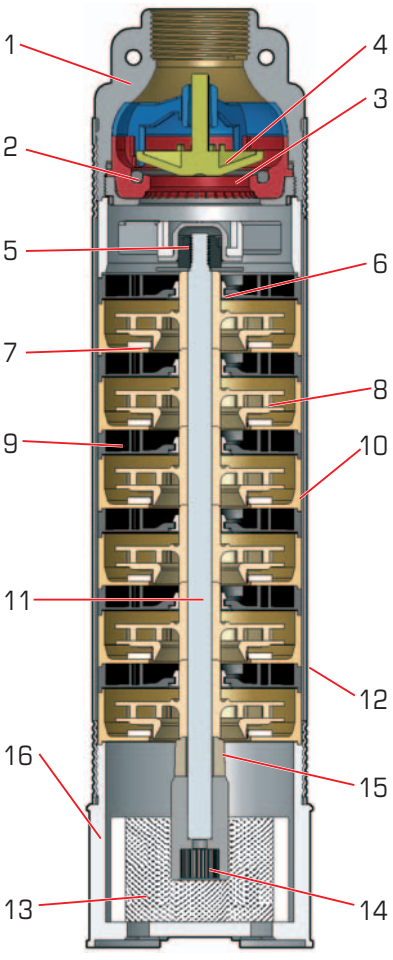
Each single part of QS4X has been designed with particular care. The check-valves made of resistant thermoplastic material have been tested to over 600.000 water hammers at 37 bar (370 m.c.w.) water pressure. The special design of the hydraulic parts, made in Noryl®, allows the pump to work even in heavy sand conditions. The pump requires a low starting-torque which enables longer life and greater reliability even under conditions of severe voltage drops.

- Pumps impellers and diffusers are made of Noryl®, a light material, to improve performance and efficiency and to resist corrosion.
- Stainless steel coupling shaft has been oversized to resist better mechanical torque.
- Thick cover cable in stainless steel, resistant and rigid, to protect wires from damaging during installation.
- Pump head and support in stainless steel.

SPECIFICATIONS

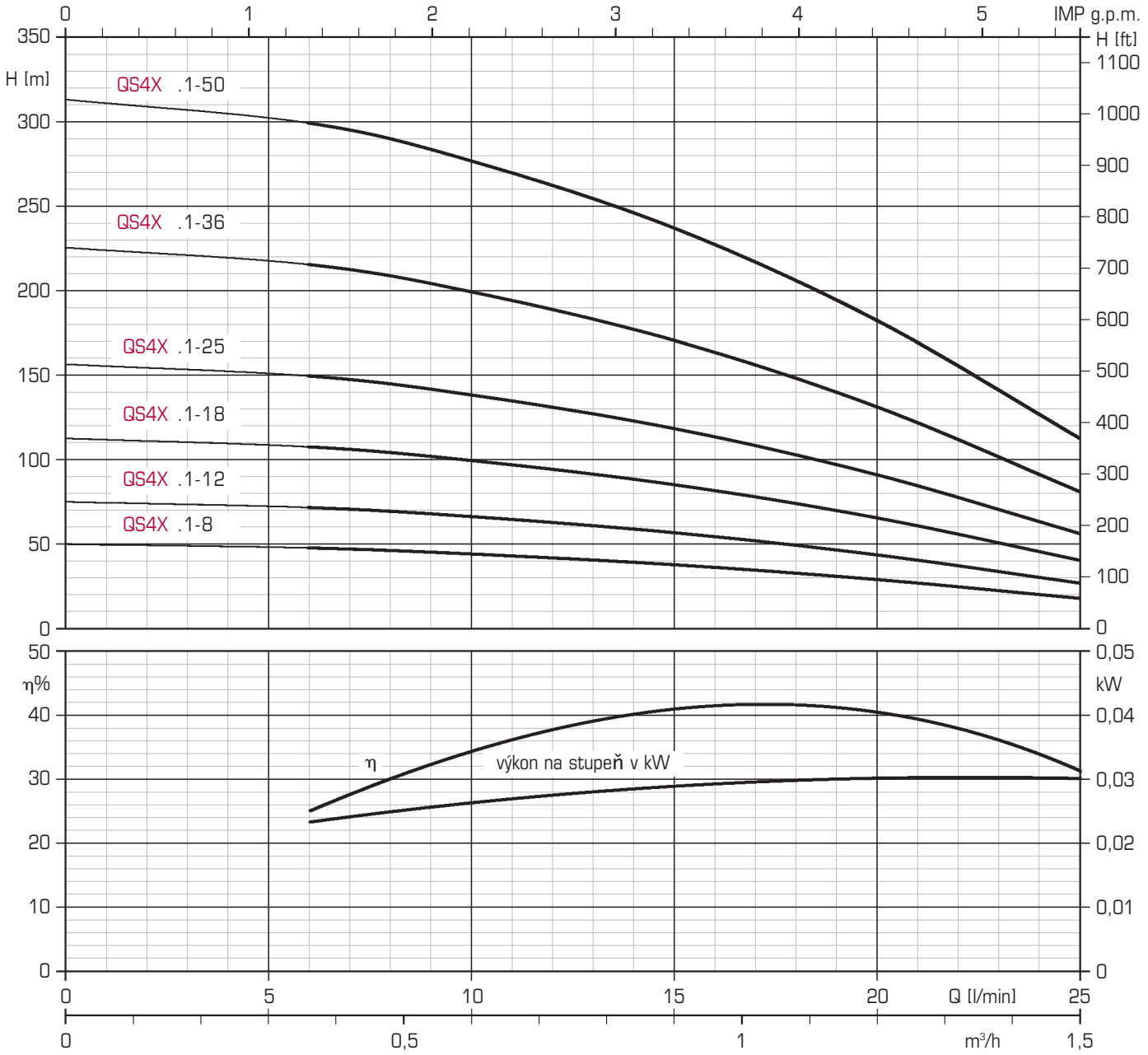
- QS4X.1 - *Max Delivery (Q)*: 25 l/min (1,5 m³/h), *Max Head (H):* 314 m, outlet diameter 1”1/4 - see page 2.
- QS4X.2 - *Max Delivery (Q)*: 40 l/min (2,4 m³/h), *Max Head (H):* 307 m, outlet diameter 1”1/4 - see page 3.
- QS4X.3 - *Max Delivery (Q)*: 70 l/min (4,2 m³/h), *Max Head (H):* 283 m, outlet diameter 1”1/4 - see page 4.
- QS4X.5 - *Max Delivery (Q)*: 100 l/min (6 m³/h), *Max Head (H):* 276 m, outlet diameter 1”1/4 - see page 5.
- QS4X.8 - *Max Delivery (Q)*: 190 l/min (11,4 m³/h), *Max Head (H):* 268 m, outlet diameter 2” - see page 6.
- QS4X.10 - *Max Delivery (Q)*: 250 l/min (15 m³/h), *Max Head (H):* 186 m, outlet diameter 2” - see page 7.
- *Maximum pump overall diameter*: 98 mm (cable cover included).
- *Maximum quantity of suspended sand*: 120 g/m³.

CONSTRUCTION CHARACTERISTICS



- Built with floating rings and bushes, which provide excellent resistance to abrasion.
- The check valve is integrated into the upper head to allow the weight of the water column and any water hammer to be discharged without damaging the impellers and diffusers.

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



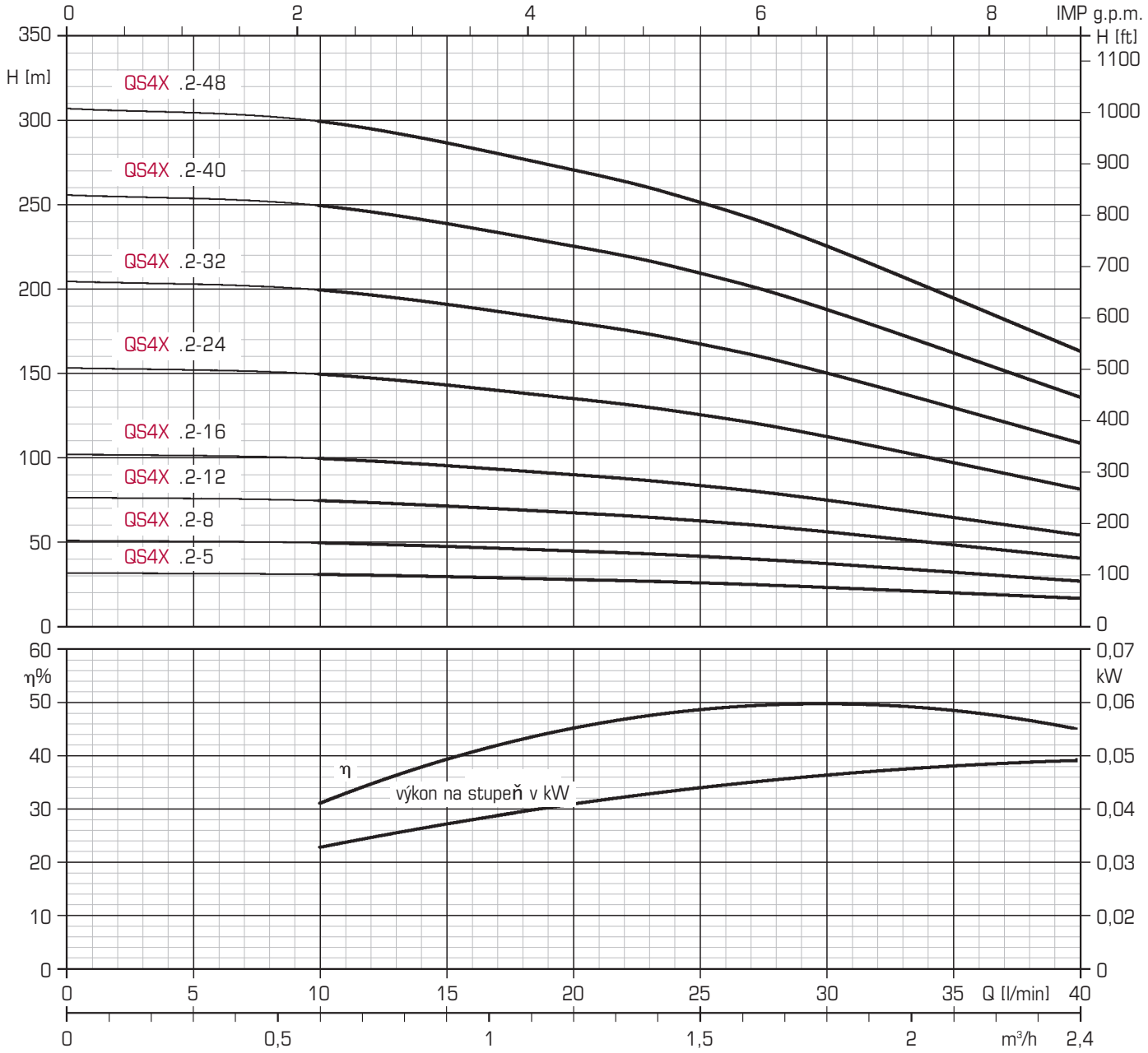
- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.1	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1" ¼ G-F					LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	0,36	0,6	1,2	1,5			Power		Minimum Druck
		l/min	0	6	10	20	25	[mm]	[Kg]	kW	HP	F[N]
QS4X .1-8	1810100081	H = total head in meters (dynamic total pressure)	50,2	48,0	44,4	29,2	18,0	357	3.4	0,25	0,33	1500
QS4X .1-12	1810100121		75,4	72,0	66,6	43,8	27,0	437	3.9	0,37	0,5	1500
QS4X .1-18	1810100181		113,0	108,0	99,9	65,7	40,5	557	4.7	0,55	0,75	1500
QS4X .1-25	1810100251		157,0	150,0	138,8	91,3	56,3	697	5.6	0,75	1	1500
QS4X .1-36	1810100361		226,1	216,0	199,8	131,4	81,0	950	7.1	1,1	1,5	2500
QS4X .1-50	1810100501		314,0	300,0	277,5	182,5	112,5	1230	8.9	1,5	2	3000

QS4X pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.

4” Hydraulic parts, upper head and pump support in stainless steel

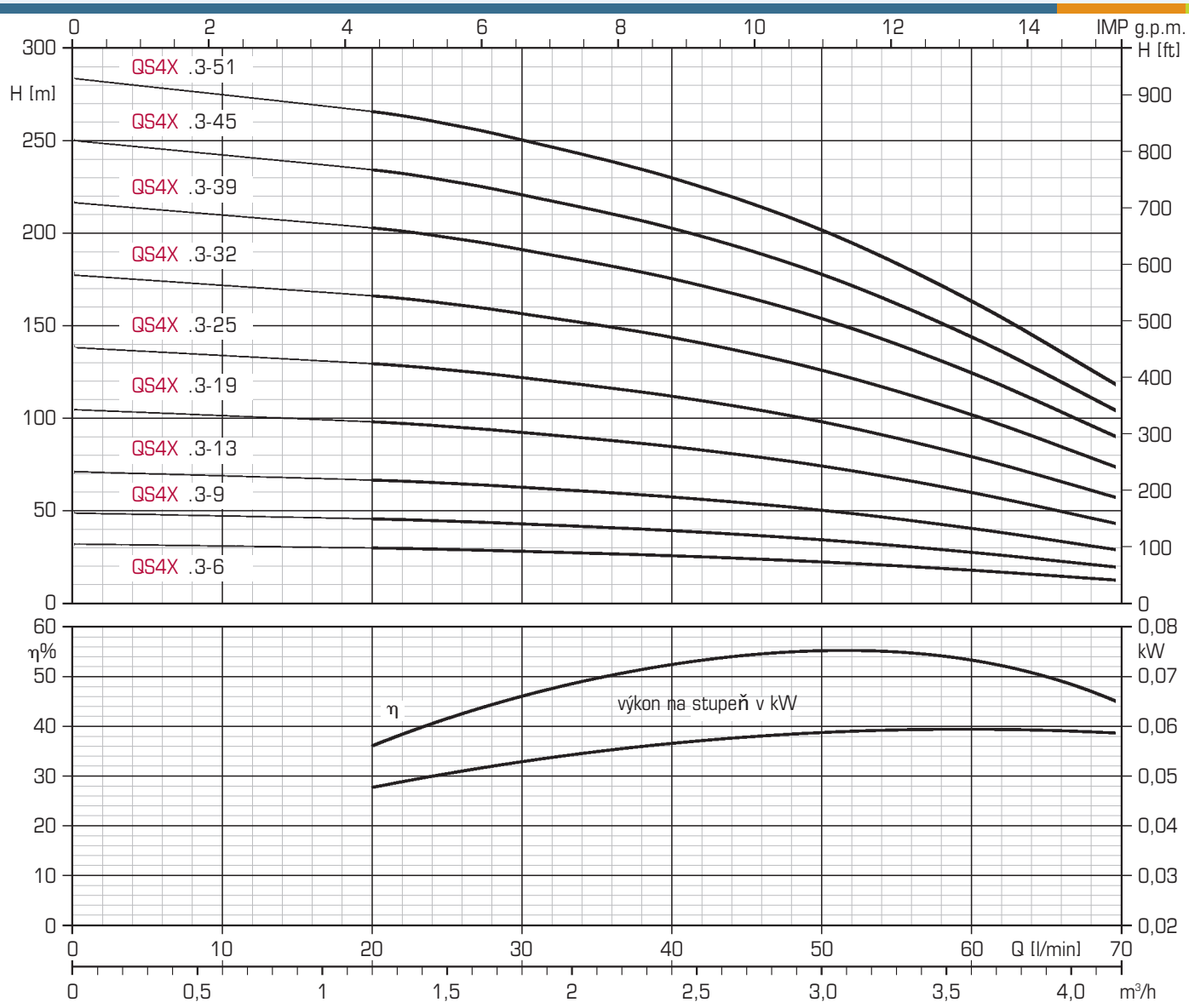


- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.2	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1” ¼ G-F							LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	0,6	1,2	1,5	1,8	2,4			Power		Minimum Druck
		l/min	0	10	20	25	30	40	[mm]	[Kg]	kW	HP	F[N]
QS4X.2-5	1810101051	H = total head in meters (dynamic total pressure)	32,0	31,2	28,2	26,2	23,5	17,0	310	3.1	0,25	0,33	1500
QS4X.2-8	1810101081		51,2	49,9	45.1	41.9	37.6	27.2	377	3.5	0,37	0,5	1500
QS4X.2-12	1810101121		76,8	74.9	67.7	62.9	56.4	40.8	467	4.1	0,55	0,75	1500
QS4X.2-16	1810101161		102,4	99.8	90.2	83.8	75.2	54.4	557	4.6	0,75	1	1500
QS4X.2-24	1810101241		153,6	149.8	135.4	125.8	112.8	81.6	737	5.8	1,1	1,5	2500
QS4X.2-32	1810101321		204,7	199.7	180.5	167.7	150.4	108.0	917	6.9	1,5	2	2500
QS4X.2-40	1810101401		255,9	249.6	225.6	209.6	188.0	136.0	1130	8.1	2,2	3	3000
QS4X.2-48	1810101481		307,1	299.5	270.7	251.5	225.6	163.2	1310	9.2	2,2	3	4000

QS4X pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.



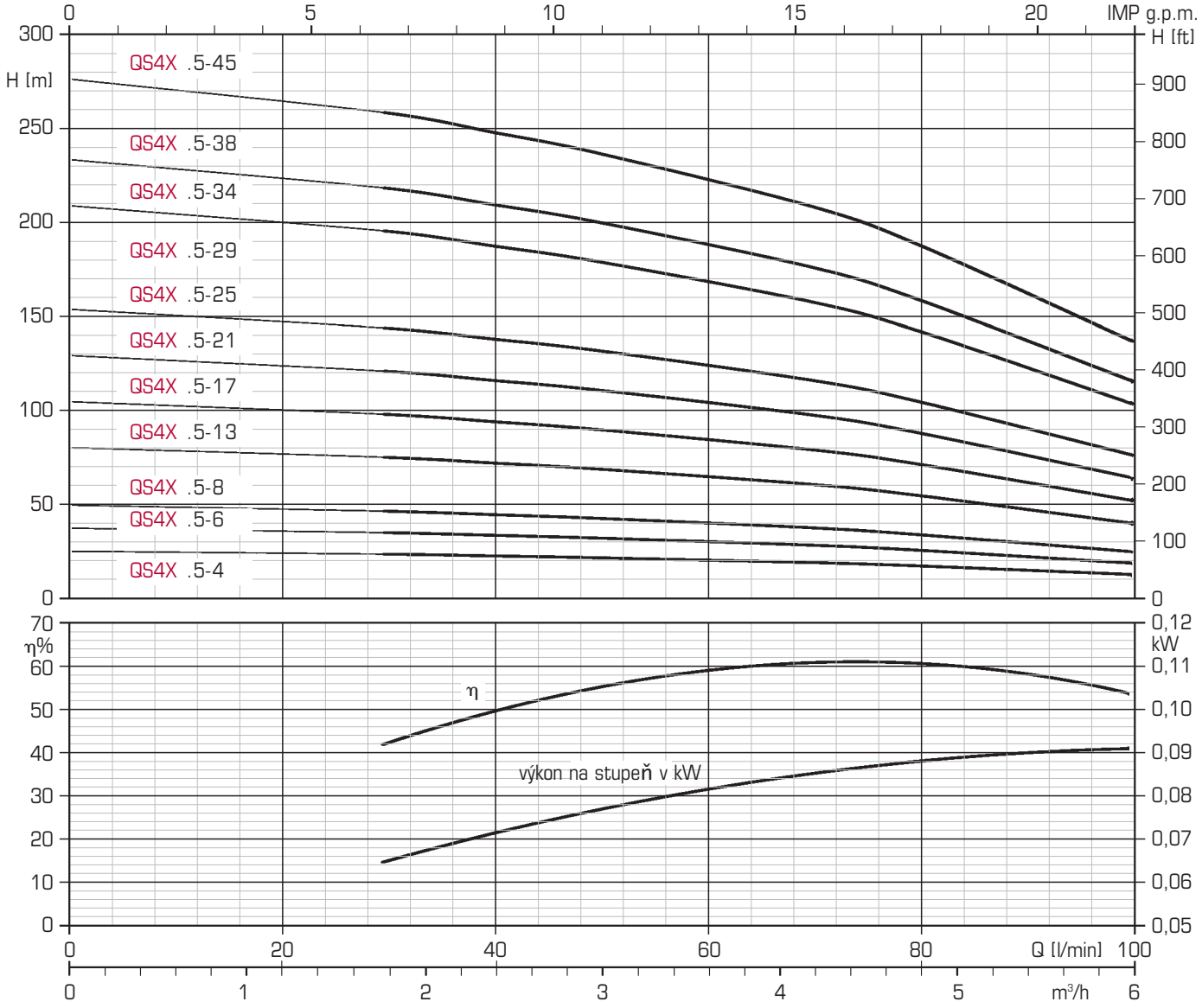
- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.3	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F							LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	1,2	1,5	1,8	2,4	3	4,2			Power		Minimum Druck
		l/min	0	20	25	30	40	50	70	[mm]	[Kg]	kW	HP	F[N]
QS4X.3-6	1810102061	H = total head in meters (dynamic total pressure)	33.3	31.2	30.4	29.4	27.0	23.7	13.7	392	3.6	0,37	0,5	1500
QS4X.3-9	1810102091		50.0	46.8	45.6	44.1	40.5	35.6	20.6	490	4.1	0,55	0,75	1500
QS4X.3-13	1810102131		72.2	67.6	65.9	63.7	58.5	51.4	29.8	620	4.9	0,75	1	1500
QS4X.3-19	1810102191		105.5	98.8	96.3	93.1	85.5	75.1	43.5	815	6.0	1,1	1,5	1500
QS4X.3-25	1810102251		138.8	130.0	126.8	122.5	112.5	98.8	57.3	1010	7.2	1,5	2	2500
QS4X.3-32	1810102321		177.6	166.4	162.2	156.8	144.0	126.4	73.3	1270	8.6	2,2	3	2500
QS4X.3-39	1810102391		216.5	202.8	197.7	191.1	175.5	154.1	89.3	1497	10.0	2,2	3	3000
QS4X.3-45	1810102451		249.8	234.0	228.2	220.5	202.5	177.8	103.1	1725	11.2	3	4	4000
QS4X.3-51	1810102511		283.1	265.2	258.6	249.9	229.5	201.5	116.8	1920	12.4	3	4	4000

QS4X pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.

4” Hydraulic parts, upper head and pump support in stainless steel

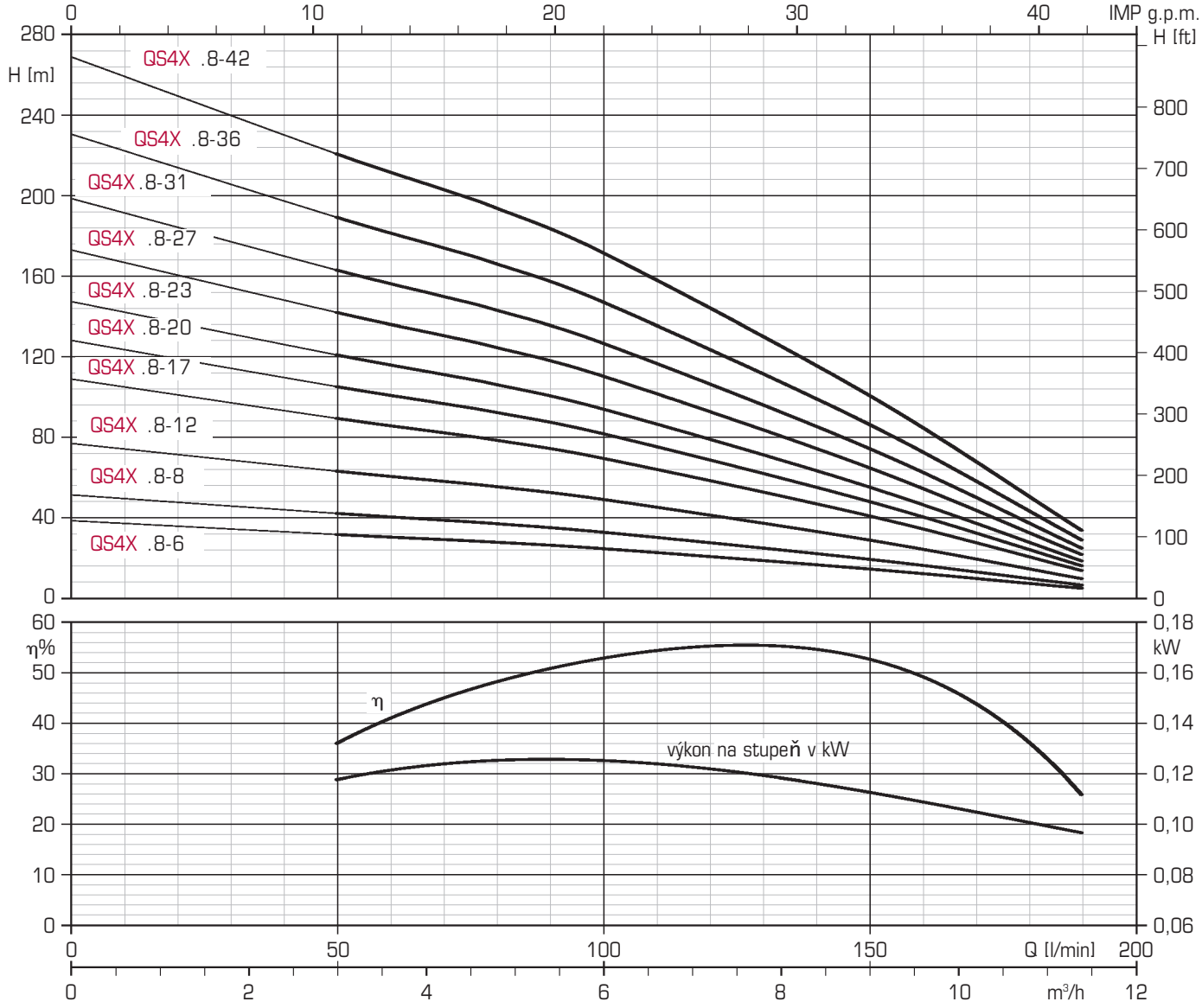


- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.5	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1” ¼ G-F							LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	1,8	2,4	3	4,2	4,8	6			Power		Minimum Druck
		l/min	0	30	40	50	70	80	100	[mm]	[Kg]	kW	HP	F[N]
QS4X.5-4	1810103041	H = total head in meters (dynamic total pressure)	24.5	22.9	22.0	21.0	18.5	16.7	12.1	327	3.2	0,37	0,5	1500
QS4X.5-6	1810103061		36.8	34.4	33.0	31.5	27.7	25.0	18.2	392	3.6	0,55	0,75	1500
QS4X.5-8	1810103081		49.1	45.8	44.0	42.0	37.0	33.3	24.2	457	3.9	0,75	1	1500
QS4X.5-13	1810103131		79.7	74.5	71.5	68.3	60.1	54.2	39.4	620	4.9	1,1	1,5	1500
QS4X.5-17	1810103171		104.3	97.4	93.5	89.3	78.5	70.8	51.5	750	5.6	1,5	2	2500
QS4X.5-21	1810103211		128.8	120.3	115.5	110.3	97.0	87.5	63.6	880	6.4	2,2	3	2500
QS4X.5-25	1810103251		153.3	143.3	137.5	131.3	115.5	104.2	75.8	1010	7.2	2,2	3	2500
QS4X.5-29	1810103291		177.9	166.2	159.5	152.3	134.0	120.8	87.9	1172	8.1	3	4	4000
QS4X.5-34	1810103341		208.5	194.8	187.0	178.5	157.1	141.7	103.0	1335	9.0	3	4	4000
QS4X.5-38	1810103381		233.1	217.1	209.0	199.5	175.6	158.3	115.1	1497	9.9	4	5,5	4000
QS4X.5-45	1810103451		276.0	257.9	247.5	236.3	207.9	187.5	136.4	1725	11.3	4	5,5	4000

✲ QS4X pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.



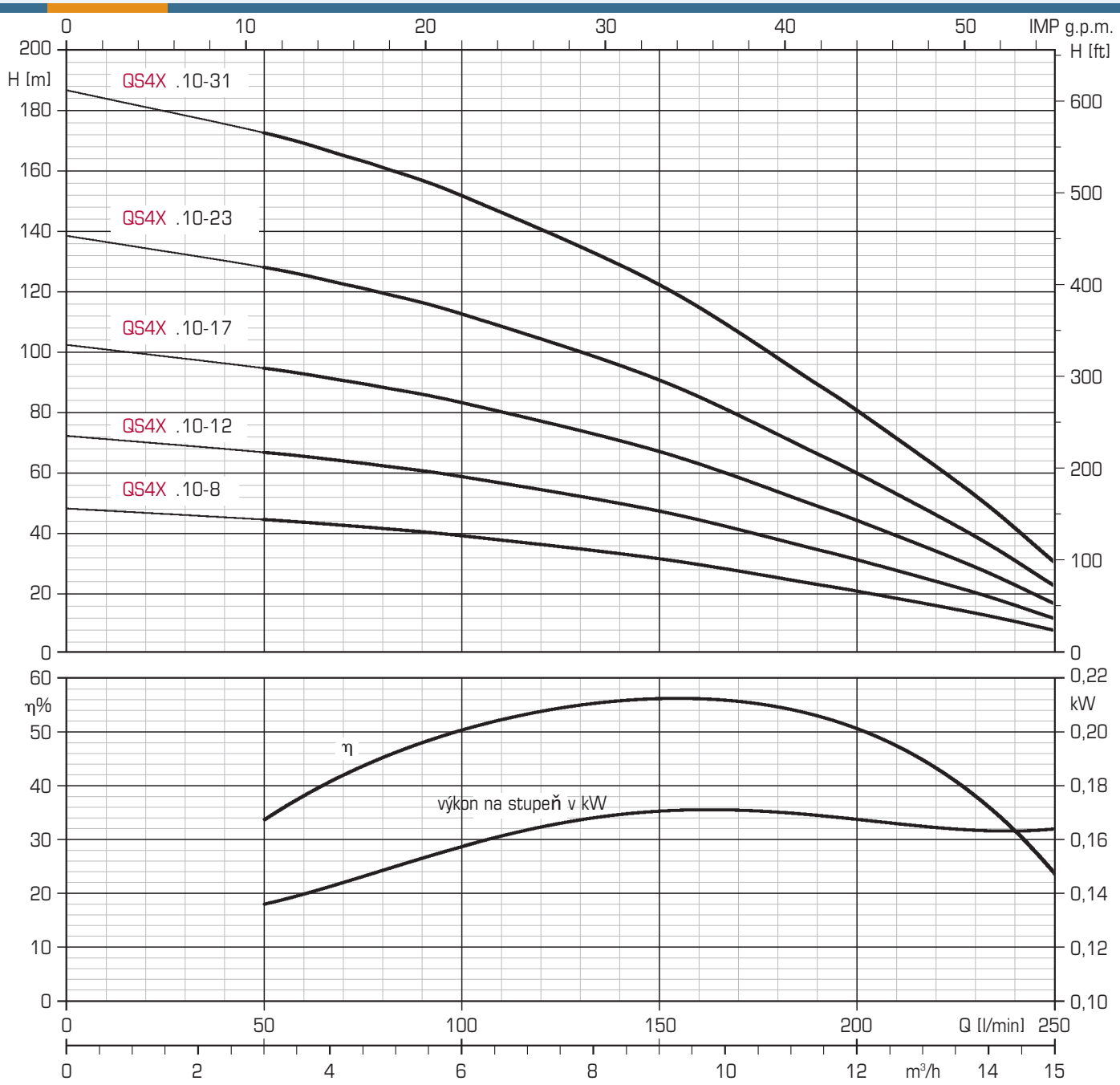
- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.8	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 2" G-F							LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	4,2	4,8	6,0	9,0	11,4			Power		Minimum Druck
		l/min	0	70	80	100	150	190	[mm]	[Kg]	kW	HP	F[N]
QS4X.8-6	1810104061	H = total head in meters (dynamic total pressure)	38.4	29.0	27.7	24.5	14.4	4.8	512	4.2	0,75	1	1500
QS4X.8-8	1810104081		51.2	38.6	36.9	32.7	19.2	6.4	617	4.8	1,1	1,5	1500
QS4X.8-12	1810104121		76.8	58.0	55.3	49.0	28.8	9.6	827	5.9	1,5	2	1500
QS4X.8-17	1810104171		108.8	82.1	78.4	69.4	40.8	13.6	1122	7.5	2,2	3	2500
QS4X.8-20	1810104201		128.0	96.6	92.2	81.7	48.0	16.0	1280	8.3	3	4	2500
QS4X.8-23	1810104231		147.2	111.1	106.0	93.9	55.2	18.4	1437	9.2	3	4	2500
QS4X.8-27	1810104271		172.8	130.4	124.5	110.2	64.8	21.6	1680	10.5	4	5,5	4000
QS4X.8-31	1810104311		198.4	149.7	142.9	126.6	74.4	24.8	1890	11.6	4	5,5	4000
QS4X.8-36	1810104361		230.4	173.9	166.0	147.0	86.4	28.8	2185	13.2	5,5	7,5	4000
QS4X.8-42	1810104421		268.8	202.9	193.6	171.5	100.8	33.6	2500	14.9	5,5	7,5	4000

✲ QS4X pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.

4” Hydraulic parts, upper head and pump support in stainless steel



- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC INOX QS4X.10	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 2” G-F								LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	4.2	4.8	6.0	9.0	11.4	13.8	15.0			Power		Minimum Druck
		l/min	0	70	80	100	150	190	230	250	[mm]	[Kg]	kW	HP	F[N]
QS4X.10-8	1810105081	H = total head in meters (dynamic total pressure)	48.2	42.6	41.6	39.2	31.6	23.1	13.6	7.9	617	4.8	1,5	2	1500
QS4X.10-12	1810105121		72.3	64.0	62.4	58.8	47.4	34.7	20.4	11.9	827	5.9	2,2	3	1500
QS4X.10-17	1810105171		102.4	90.6	88.4	83.3	67.2	491	28.9	16.8	1122	7.5	3	4	2500
QS4X.10-23	1810105231		138.6	122.6	119.6	112.7	90.9	66.4	39.1	22.8	1437	9.2	4	5,5	4000
QS4X.10-31	1810105311		186.8	165.2	161.2	151.9	122.5	89.5	52.7	30.7	1890	11.6	5,5	7,5	4000

✲ QS4X pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.

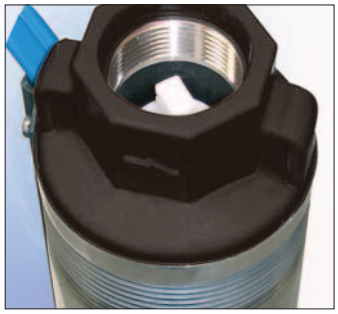
4” Hydraulic parts, upper head and pump support in technopolymer

PRODUCT CHARACTERISTICS

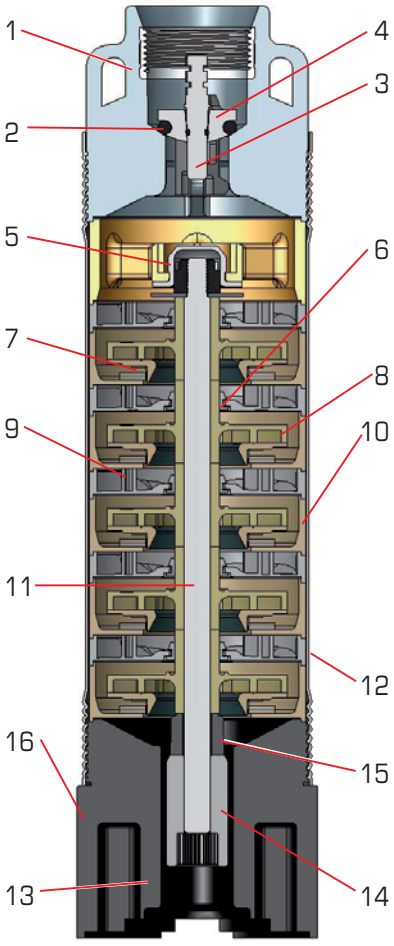
Each single part of QS4P has been designed with particular care. A stainless steel thread in the pump head allows the pump to be connected easily to any type of pipe. Check-valve made of resistant thermoplastic material have been tested to 600.000 water hammers at 37 bar (370 m.c.w.) water pressure. The special design of the hydraulic parts, made of Noryl®, allows the pump to work even in heavy sand conditions. The pump requires a low starting-torque which enables longer life and greater reliability even under conditions of severe voltage drops

- Pumps impellers and diffusers are made of Noryl®, a light material, to improve performance and efficiency and to resist corrosion.
- Stainless steel coupling shaft has been oversized to resist better to mechanical torque.
- Thick cover cable in technopolymer, resistant and rigid, to protect wires from being damaged during installation
- Head and pump support in technopolymer, strong and resistant to acid water corrosion (low pH value) and ferrous water.

SPECIFICATIONS



- QS4P.1 - *Max Delivery (Q)*: 25 l/min (1,5 m³/h), *Max Head (H):* 157 m - see pag 10.
- QS4P.2 - *Max Delivery (Q)*: 40 l/min (2,4 m³/h), *Max Head (H):* 153 m - see pag 11.
- QS4P.3 - *Max Delivery (Q)*: 70 l/min (4,2 m³/h), *Max Head (H):* 105 m - see pag 12.
- QS4P.5 - *Max Delivery (Q)*: 100 l/min (6 m³/h), *Max Head (H):* 79,7 m - see pag 13.
- *Maximum pump overall diameter*: 98 mm (cable cover included).
- *Maximum quantity of suspended sand*: 120 g/m³.
- *Outlet diameter 1”1/4 – radial impellers.*

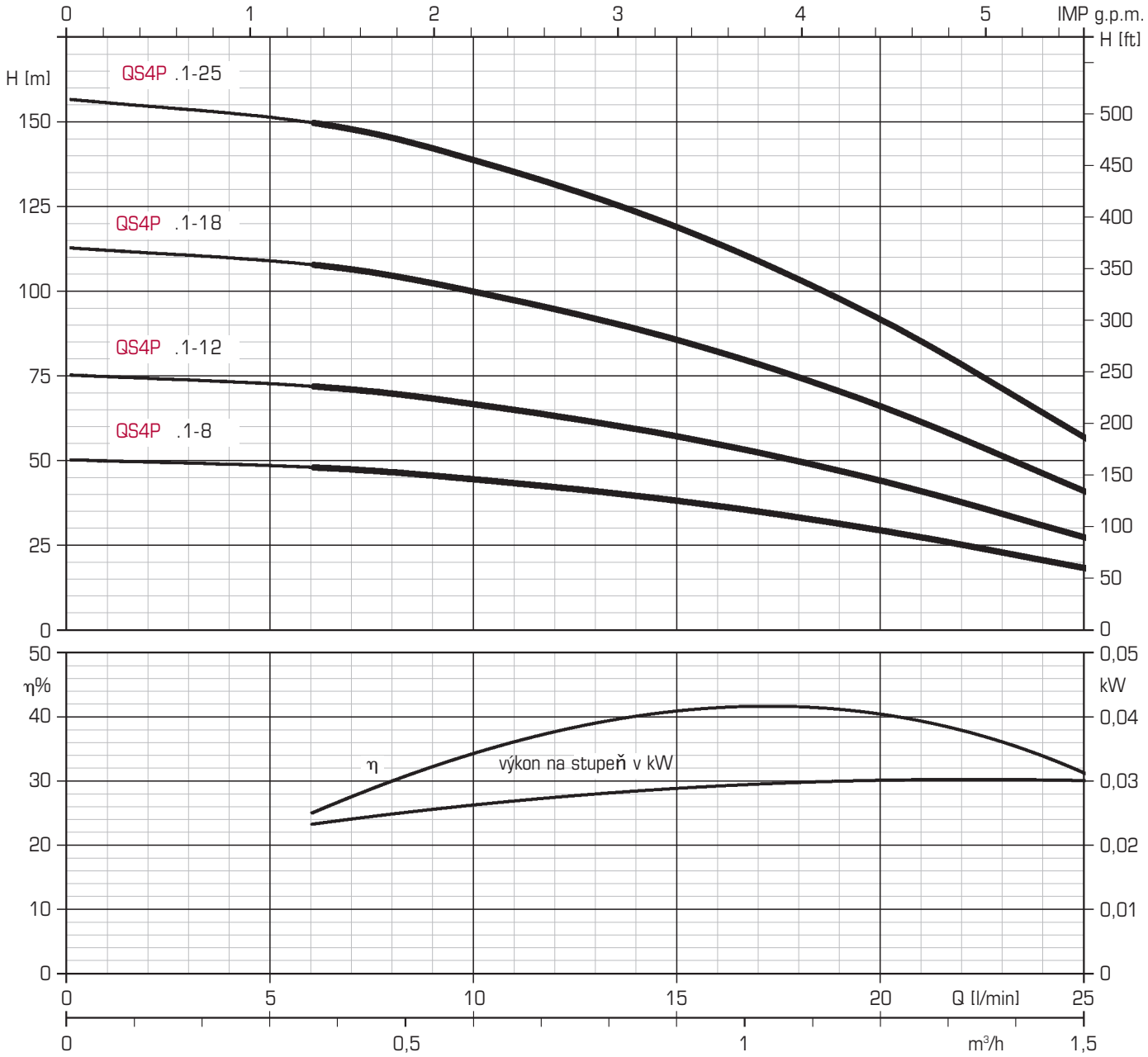


CONSTRUCTION CHARACTERISTICS

- Built with floating rings and bushes, which provide excellent resistance to abrasion.
- Check valve integrated into the upper head to allow the weight of the water column and any water hammer to be discharged without demaging the impellers and diffusers.

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

4” Hydraulic parts, upper head and pump support in technopolymer

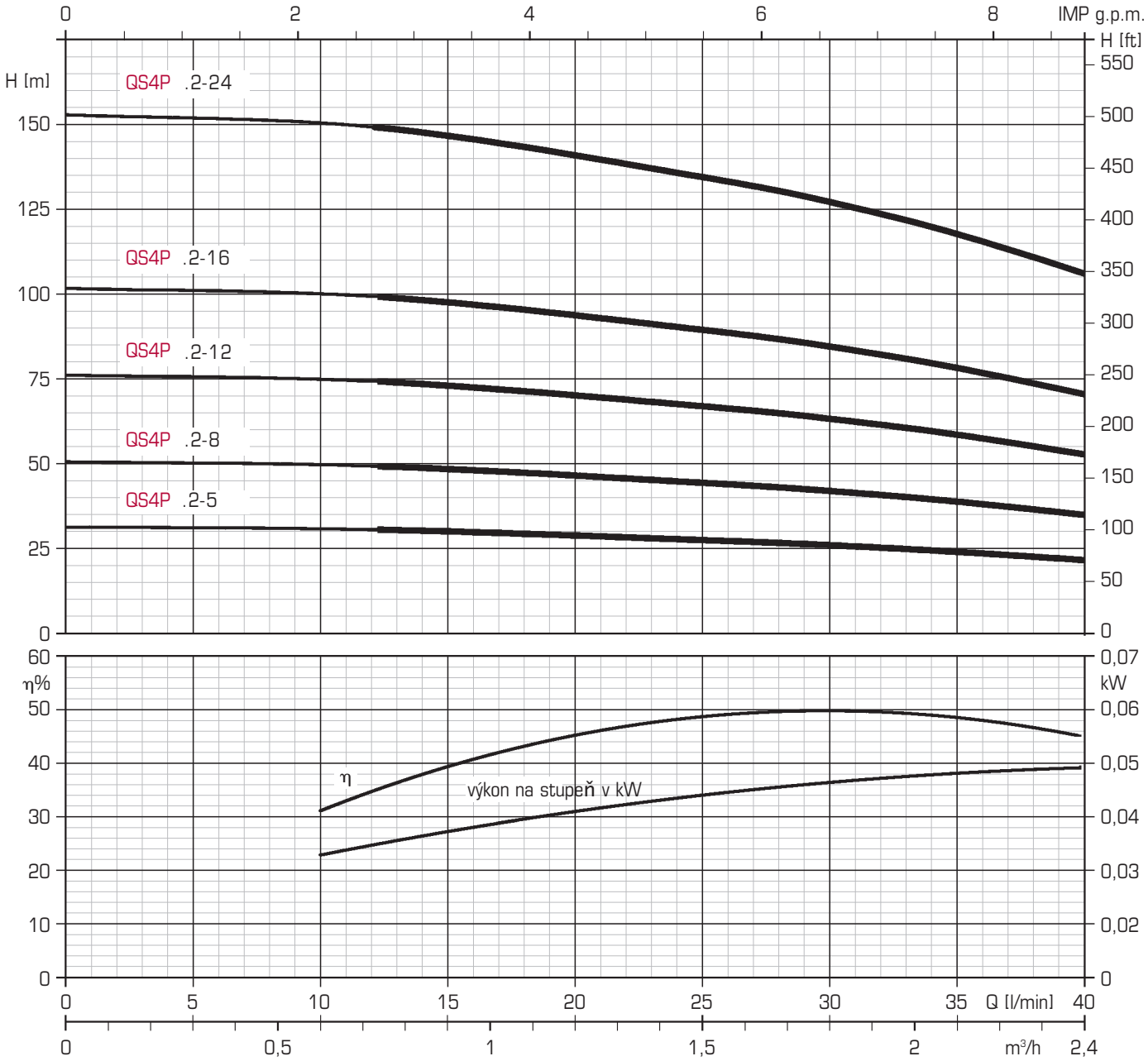


- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.1	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1” ¼ G-F						LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	0,36	0,6	1,2	1,5			Power		Minimum Druck
		l/min	0	6	10	20	25	[mm]	[Kg]	kW	HP	F[N]
QS4P.1-8	181005008	H = total head in meters (dynamic total pressure)	50,2	48,0	44,4	29,2	18,0	357	3.4	0,25	0,33	1500
QS4P.1-12	181005012		75,4	72,0	66,6	43,8	27,0	437	3.9	0,37	0,5	1500
QS4P.1-18	181005018		113,0	108,0	99,9	65,7	40,5	557	4.7	0,55	0,75	1500
QS4P.1-25	181005025		157,0	150,0	138,8	91,3	56,3	697	5.6	0,75	1	1500

✲ QS4P pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.



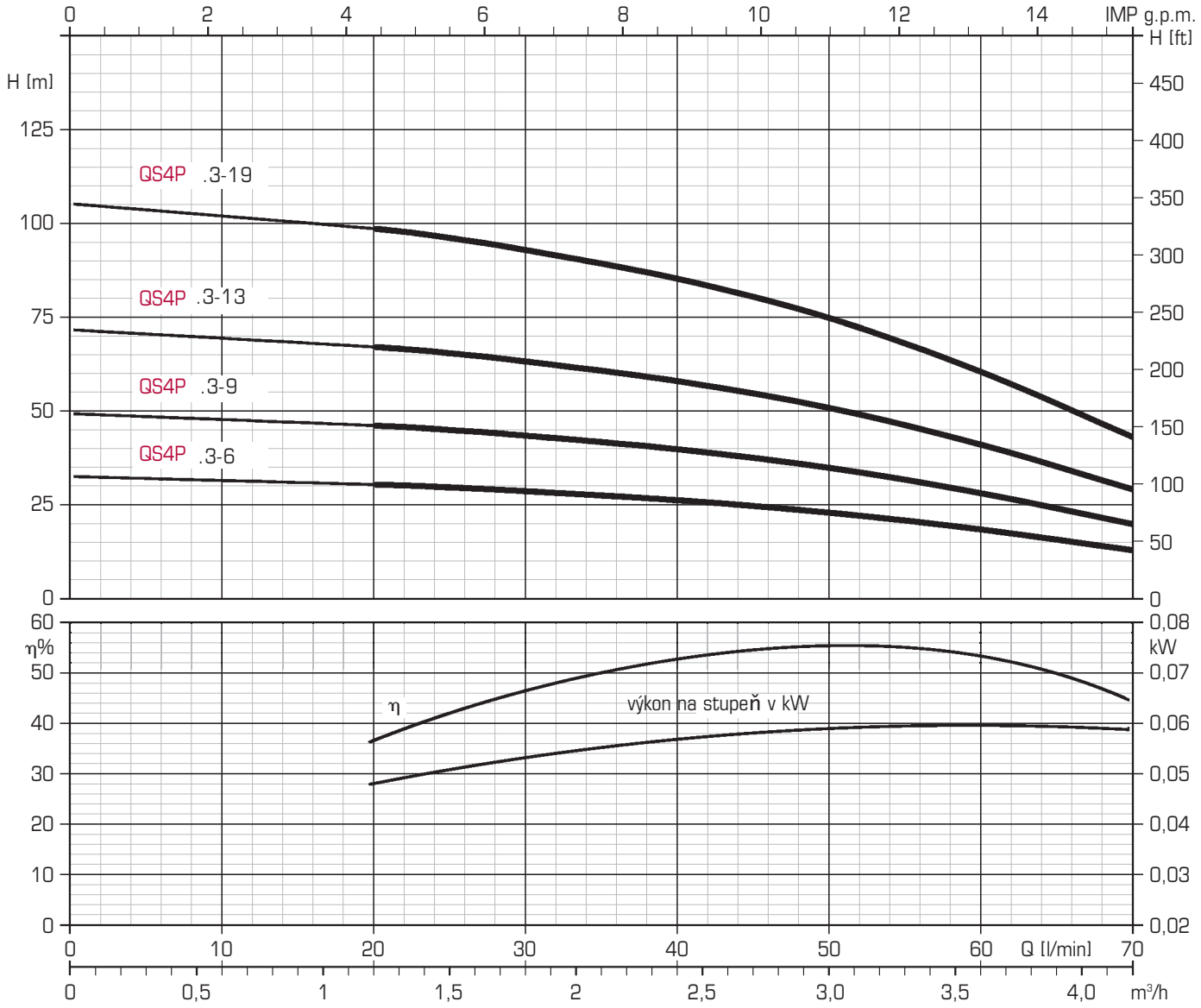
- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.2	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1" 1/4 G-F							LENGTH	WEIGHT	COUPABLE MOTORS ✲ 50Hz n~2850 min^{-1}		
		m³/h	0	0,6	1,2	1,5	1,8	2,4			Power		Minimum Druck
		l/min	0	10	20	25	30	40	[mm]	[Kg]	kW	HP	F[N]
QS4P.2-5	181005105	H = total head in meters (dynamic total pressure)	32,0	31,2	28,2	26,2	23,5	17,0	310	3.1	0,25	0,33	1500
QS4P.2-8	181005108		51,2	49,9	45.1	41.9	37.6	27.2	377	3.5	0,37	0,5	1500
QS4P.2-12	181005112		76,8	74.9	67.7	62.9	56.4	40.8	467	4.1	0,55	0,75	1500
QS4P.2-16	181005116		102,4	99.8	90.2	83.8	75.2	54.4	557	4.6	0,75	1	1500
QS4P.2-24	181005124		153,6	149.8	135.4	125.8	112.8	81.6	737	5.8	1,1	1,5	2500

✲ QS4P pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.

4” Hydraulic parts, upper head and pump support in technopolymer

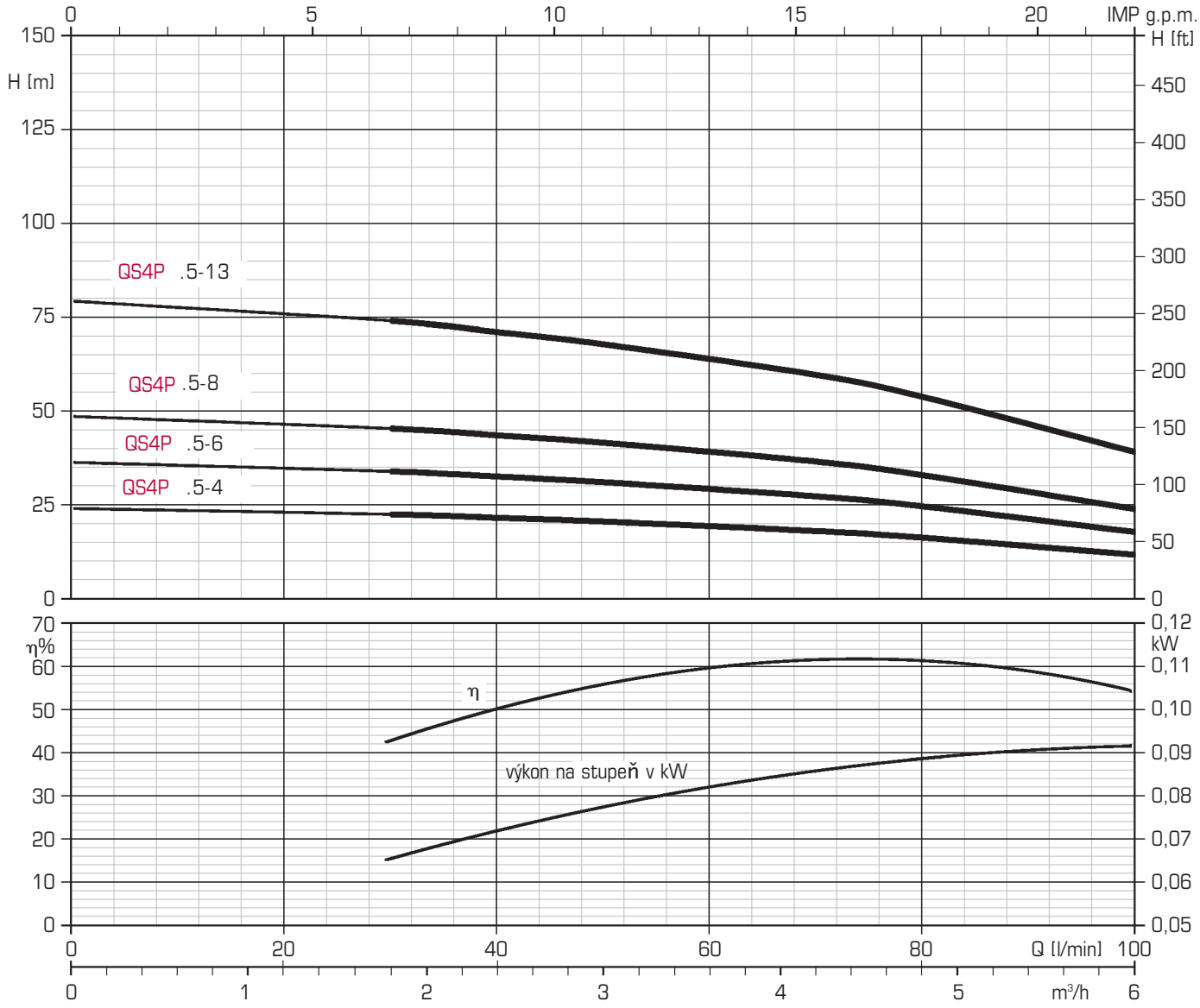


- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.3	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1” ¼ G-F								LENGTH	WEIGHT	COUPABLE MOTORS 50Hz n~2850 min^{-1}		
		m³/h	0	1,2	1,5	1,8	2,4	3	4,2			Power		Minimum Druck
		l/min	0	20	25	30	40	50	70	[mm]	[Kg]	kW	HP	F[N]
QS4P.3-6	181005206	H = total head in meters (dynamic total pressure)	33.3	31.2	30.4	29.4	27.0	23.7	13.7	392	3.6	0,37	0,5	1500
QS4P.3-9	181005209		50.0	46.8	45.6	44.1	40.5	35.6	20.6	490	4.1	0,55	0,75	1500
QS4P.3-13	181005213		72.2	67.6	65.9	63.7	58.5	51.4	29.8	620	4.9	0,75	1	1500
QS4P.3-19	181005219		105.5	98.8	96.3	93.1	85.5	75.1	43.5	815	6.0	1,1	1,5	1500

QS4P pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.



- Operating curves at: 2850 min^{-1}
- Performance limits: ISO 9906 – annex A, mass production pump section.

HYDRAULIC TECHNO-POLYMER QS4P.5	Code	HYDRAULIC CHARACTERISTICS (n~2850 min^{-1}) Delivery (Q) – Ø Outlet diameter: 1" ¼ G-F								LENGTH	WEIGHT	COUPABLE MOTORS ✲ 50Hz n~2850 min^{-1}		
		m³/h	0	1,8	2,4	3	4,2	4,8	6			Power		Minimum Druck
		l/min	0	30	40	50	70	80	100	[mm]	[Kg]	kW	HP	F[N]
QS4P .5-4	181005304	H = total head in meters (dynamic total pressure)	24.5	22.9	22.0	21.0	18.5	16.7	12.1	327	3.2	0,37	0,5	1500
QS4P .5-6	181005306		36.8	34.4	33.0	31.5	27.7	25.0	18.2	392	3.6	0,55	0,75	1500
QS4P .5-8	181005308		49.1	45.8	44.0	42.0	37.0	33.3	24.2	457	3.9	0,75	1	1500
QS4P .5-13	181005313		79.7	74.5	71.5	68.3	60.1	54.2	39.4	620	4.9	1,1	1,5	1500

✲ QS4P pump ends can be fitted with:
- water-cooled motors: single-phase H2 page 14, single-phase H3 page 14, three-phase Franklin HTF page 16;
- oil cooled motors: single-phase O2 page 18, single-phase O3 page 18, three-phase OT page 20.

The values of power and minimum druck of a coupled motor must match the ones in the table.

4” Single-phase encapsulated motors, water-cooled - H2: 2-wire

APPLICATION

H2 2-wire and **H3** PSC are ZDS single phase submersible motors, encapsulated water cooled, suitable for 4” wells or larger. They are designed to face critical conditions such as those of low voltage supply or high starting torque. • Water cooled motors are designed with water lubricated bearings suitable for radial and axial druck loads. This configuration is a maintenance-free technical solution • The motor is cooled with a special fluid, providing frost protection until –15°C • A special elastic diaphragm ensures pressure compensation inside the motor.

TECHNICAL SPECIFICATIONS

Versions: **H2** *2-wire single-phase from 0,25 to 1,1 kW • 1x220-240 V~ 50 Hz*
H3 *PSC single-phase from 0,25 to 1,1 kW • 1x220-240 V~ 50 Hz*
H3 *PSC single-phase from 1,5 to 2,2 kW • 1x220-230 V~ 50 Hz*
H3 *PSC single-phase from 1,5 to 2,2 kW • 1x230-240 V~ 50 Hz*

Stainless steel motor casing • Water lubricated radial and druck bearing • Shaft projection and coupling dimensions to 4" NEMA standards • Corrosion resistant materials • Capacitor and thermal cut-out with automatic built in reset • Hermetically sealed stator in resin with high dielectric power • Non-contaminating water-cooled design • Maximum starts/stops per hour equally distributed: 150 • Maximum immersion depth H2 and H3: 150 m • Protection: IP 68 • Insulation class: F • Maximum ambient temperature: 30 °C • Lip seal • Maximum supply voltage variations: +6% / -10% • Installation: for correct motor operation must be guaranteed a flow of water around the motor casing of at least 8 cm/s • Mounting: vertical / horizontal position • 100% of motors are fully tested to all specifications.

The H2 does not require a control box either to start or for running

– In the **H2** 2-wire single-phase motor capacitor and thermal cut-out with automatic built in reset in the motor.

The H3 does require a control box for starting and running (available on request)

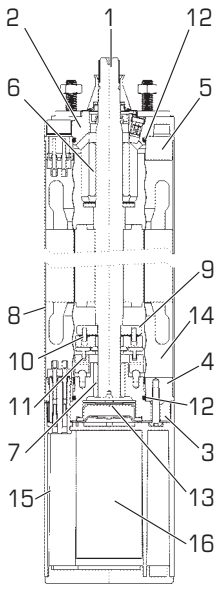
– The **H3** PSC single-phase motor does require a **CBH** control box with a permanent split capacitor, see page 25.

50Hz n~2850 min^{-1}	H2 – 2-WIRE SINGLE-PHASE WATER-COOLED. Does NOT require control box.													
	Code	V	Power		Druck	N_N	I_N	I_{START}	ηeff	Cos ϕ	C 450V	T_{START}	L	W
			[kW]	[HP]	[N]	[min $^{-1}$]	[A]	[A]	[%]	(P.f)	[μF]	T_N	[mm]	[kg]
H2.025	196190005	220-240	0,25	0,33	1500	2855	2,2 - 2,3	7,0 - 8,5	53	0,96	-	1,0 - 1,1	369	8,7
H2.037	196190010	220-240	0,37	0,5	1500	2850	3,0 - 3,1	9,5 - 11,0	58	0,97	-	0,8 - 0,8	390	9,7
H2.055	196190015	220-240	0,55	0,75	1500	2830	4,1 - 4,2	14,2 - 15,7	63	0,99	-	0,7 - 0,8	417	11,0
H2.075	196190020	220-240	0,75	1	1500	2830	5,5 - 5,6	18,0 - 20,3	63	0,99	-	0,8 - 0,9	434	12,2
H2.110	196190025	220-240	1,1	1,5	3000	2840	8,3 - 8,5	29,0 - 31,5	63	0,97	-	0,8 - 0,8	465	13,5

50Hz n~2850 min^{-1}	H3 – PSC SINGLE-PHASE WATER-COOLED. Requires control box.													
	Code	V	Power		Druck	N_N	I_N	I_{START}	ηeff	Cos ϕ	C 450V	T_{START}	L	W
			[kW]	[HP]	[N]	[min $^{-1}$]	[A]	[A]	[%]	(P.f)	[μF]	T_N	[mm]	[kg]
H3.025	196191005	220-240	0,25	0,33	1500	2855	2,2 - 2,3	7,0 - 8,5	53	0,96	12,5	1,0 - 1,1	252	7,7
H3.037	196191010	220-240	0,37	0,5	1500	2850	3,0 - 3,1	9,5 - 11,0	58	0,97	16,0	0,8 - 0,8	272	8,7
H3.055	196191015	220-240	0,55	0,75	1500	2830	4,1 - 4,2	14,2 - 15,7	63	0,99	20,0	0,7 - 0,8	297	10,0
H3.075	196191020	220-240	0,75	1	1500	2830	5,5 - 5,6	18,0 - 20,3	63	0,99	30,0	0,8 - 0,9	317	11,2
H3.110	196191025	220-240	1,1	1,5	3000	2840	8,3 - 8,5	29,0 - 31,5	63	0,97	40,0	0,8 - 0,8	347	12,5
H3.150	196191030	220-230	1,5	2	3000	2855	10,7 - 11,0	38,0 - 40,0	65	0,98	50,0	0,71-0,77	392	14,7
H3.151	196191035	230-240	1,5	2	3000	2855	10,0 - 10,2	37,0 - 39,0	65	0,98	50,0	0,71-0,77	392	14,7
H3.220	196191040	220-230	2,2	3	4000	2850	14,7 - 14,8	54,0 - 56,0	66	0,98	70,0	0,69-0,75	477	18,4
H3.221	196191045	230-240	2,2	3	4000	2830	13,5 -14	53,0 - 55,0	66	0,98	70,0	0,69-0,75	477	18,4

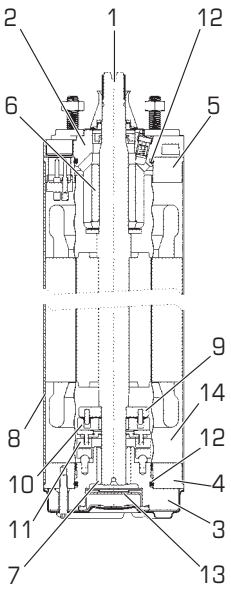
Motors with other power supply and frequency are available on request.

H2



Pos.	COMPONENTS	MATERIAL
1	Shaft	Stainless steel AISI 303
2	Top bracket	Nickel-plated Cast Iron
3	Bottom bracket	Cast Iron G20
4	Upper bracket	Carbon steel A 105
5	Lower bracket	Carbon steel A 105
6	Upper bearing	Graphite HT 204
7	Lower bearing	Graphite HT 204
8	Motor casing	Stainless steel AISI 304
9	Leading ring	Stainless steel AISI 304
10	Druck disk	Graphite HT 204
11	Bearings	Stainless steel AISI 440 C
12	O-Ring	NBR
13	Diaphragm	NBR
14	Cooling liquid	Distilled water + antifreeze
15	Capacitor box	Technopolymer
16	Capacitor	–

H3



All the rubber, synthetic and technopolymer components are suitable for usage with foodstuffs in accordance with the codes required by local authorities.

4” Three-phase Franklin encapsulated motors, water-cooled

APPLICATION

Franklin submersible motors are manufactured with materials selected to ensure easy installation, high reliability and optimum performance."

TECHNICAL SPECIFICATIONS

Versions: **HTF** *three-phase Franklin from 0,37 to 7,5 kW • 3x380-415 V~, 50 Hz*
HTF *three-phase Franklin from 0,37 to 5,5 kW • 3x220-230 V~, 50 Hz*

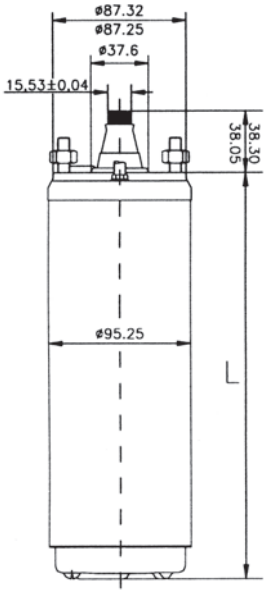
Hermetically sealed stator • Stainless steel outer shell • Water lubricated radial and druck bearing • Shaft projection and coupling dimensions to 4” NEMA standards • Corrosion resistant materials • Anti track, self healing stator resin prevents motor burn out • High efficiency electrical design • Non-contaminating water-filled design • Maximum starts/stops per hour equally distribuited: 150 • Maximum immersion depth: 350 m • Protection: IP 68 • Insulation: class B • Maximum ambient temperature: 30 °C • Lip seal • Installation: for correct motor operation a flow of water around the jacket of at least 8 cm/sec must be guaranteed • Mounting: Vertical / Horizontal position.

– On three-phase Franklin **HTF** motor for starting, running and overload protection must be provided by users.
– Motor protection must be guaranteed in accordance with EN60947-4-1 trip time <10 s a 5 x I_N norms.

50Hz n~2850 min^{-1}	HTF – THREE-PHASE FRANKLIN WATER-COOLED													
	Code	V	Power		Druck	N_N	I_N	I_{START}	ηeff	Cos ϕ	T_{START}	T_N	L	W
			[kW]	[HP]	[N]	[min $^{-1}$]	[A]	[A]	[%]	(P.f)	[Nm]	[Nm]	[mm]	[kg]
HTF.037	184192010	380-415	0,37	0,5	1500	2850	1,1 - 1,2	4,4 - 4,9	66	0,76 - 076	2,5	1,2	252	7,7
HTF.055	184192015	380-415	0,55	0,75	1500	2850	1,6 - 1,7	6,0 - 6,6	67	0,80 - 0,80	3,5	1,9	272	8,7
HTF.075	184192020	380-415	0,75	1	1500	2850	2,1 - 2,2	8,9 - 9,8	69	0,79 - 0,71	5,3	2,5	297	10,0
HTF.110	184192025	380-415	1,1	1,5	3000	2850	3,0 - 3,1	13,8 - 15,3	73	0,81 - 0,72	10,6	3,7	317	11,2
HTF.150	184192030	380-415	1,5	2	3000	2850	3,9 - 4,1	18,6 - 20,2	73	0,81 - 0,72	12,6	5,0	332	12,5
HTF.220	184192035	380-415	2,2	3	4000	2850	5,8 - 6,3	28,7 - 30,8	75	0,81 - 0,69	23,6	7,5	362	14,7
HTF.300	184192040	380-415	3	4	4000	2850	7,5 - 8,2	39,9 - 43,3	76	0,81 - 0,70	31,5	9,9	437	17,7
HTF.400	184192045	380-415	4	5,5	6500	2850	9,8 - 10,3	55,0 - 60,0	78	0,84 - 0,73	46,1	13,7	587	25,2
HTF.550	184192050	380-415	5,5	7,5	6500	2850	13,5 - 14,2	72,0 - 79,0	76	0,84 - 0,74	51,8	18,7	701	30,6
HTF.750	184192055	380-415	7,5	10	6500	2850	18,3 - 17,4	96,0 - 102	74	0,84 - 0,79	89,9	25,1	780	34,2
HTF.038	197192010	220-230	0,37	0,5	1500	2850	1,9 - 2,0	7,7 - 8,2	66	0,76 - 0,74	2,5	1,2	252	7,7
HTF.056	197192015	220-230	0,55	0,75	1500	2850	2,8 - 2,9	10,4 - 11,1	67	0,80 - 0,76	3,5	1,9	272	8,7
HTF.076	197192020	220-230	0,75	1	1500	2850	3,6 - 3,7	15,4 - 16,2	69	0,79 - 0,75	5,3	2,5	297	10,0
HTF.111	197192025	220-230	1,1	1,5	3000	2850	5,2 - 5,3	23,8 - 25,2	73	0,81 - 0,76	10,4	3,7	317	11,2
HTF.151	197192030	220-230	1,5	2	3000	2850	6,8 - 6,9	32,1 - 33,0	73	0,81 - 0,76	12,6	5,0	332	12,5
HTF.221	197192035	220-230	2,2	3	4000	2850	10,0 - 10,2	49,9 - 50,3	75	0,81 - 0,75	23,6	7,5	362	14,7
HTF.301	197192040	220-230	3	4	4000	2850	13,0 - 13,5	67,5 - 69,4	76	0,81 - 0,75	32,8	9,9	437	17,7
HTF.401	197192045	220-230	4	5,5	6500	2850	17,1 - 17,3	95,0 - 99,0	78	0,84 - 0,78	46,1	13,7	587	25,2
HTF.551	197192050	220-230	5,5	7,5	6500	2850	23,3 - 24,5	125 - 129	76	0,84 - 0,79	53,6	18,6	701	30,6

Motors with other power supply and frequency are available on request.

COMPONENTS	MATERIAL
Motor casing	Stainless steel AISI 304
Shaft end	Stainless steel AISI 303
Upper bracket	Cast iron claded
Lower bracket	Cast iron G20
Shaft seal	Lip seal NBR
Elastomers	NBR
Diaphragm	NBR
Lower protection	Stainless steel AISI 304 for motor up to 3 kW, AISI 303 over 3 kW
Bearings	Graphite
Cooling liquid	Distilled water + antifreeze



4” Single-phase motors, oil-cooled - 02: 2-wire

APPLICATION

02 2-wire and **03** PSC are ZDS single-phase submersible motors, rewindable cooled by non toxic high dielectric liquid suitable for 4" wells or larger. They are designed to face critical conditions such as those of low voltage supply or high starting torque. A special elastic diaphragm ensures pressure compensation inside the motor.

TECHNICAL SPECIFICATIONS

Versions: **02** *2-wire single-phase from 0,25 to 1,1 kW • 1x220-240 V~, 50 Hz*
03 *PSC single-phase from 0,25 to 2,2 kW • 1x220-240 V~, 50 Hz*

Rewindable stator • High starting torque • Stainless steel motor casing • Ball bearings for axial and radial druck • Shaft projection and coupling dimensions to 4” NEMA standards • Corrosion resistant materials • Capacitor and thermal cut-out with automatic reset, built in the motor for 02 version • Maximum starts/stops per hour equally distribuited: 150 • Maximum immersion depth 02 and 03: 100 m • Protection: IP 68 • Insulation class: F • Maximum ambient temperature: 40°C • Mechanical seal • Maximum supply voltage variations: +6% / -10% • Installation: for correct motor operation there must be a continuous flow of water around the motor casing of at least 8 cm/s • Mounting: vertical / horizontal position • 100% of motors are fully tested to all specifications.

The 02 does not require control box for starting and running

– In the **02** 2-wire single-phase motor the capacitor and the thermal cut-out with automatic built in reset in the motor.

The 03 does require a control box for starting and operating (available on request)

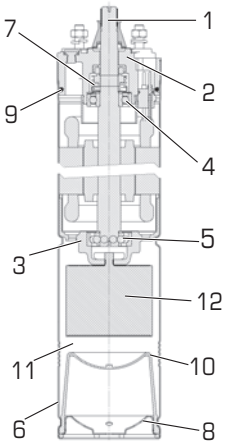
– In the **03** PSC single-phase motor is required a control box CBO for starting and running. (pag.25)

50Hz n~2850 min^{-1}	02 – 2-WIRE SINGLE-PHASE OIL-COOLED - Does NOT require control box.													
	Code	V	Power		Druck	N_N	I_N	I_{START}	η eff	Cos ϕ	C 450V	T_{START}	L	W
			[kW]	[HP]	[N]	[min $^{-1}$]	[A]	[A]	[%]	(P.f)	[μF]	T_N	[mm]	[kg]
02.025.15	196195005	220-240	0,25	0,33	1500	2855	2,4 - 2,6	7,2 - 8,0	50	0,96	-	0,80 - 0,85	389	8,5
02.037.15	196195010	220-240	0,37	0,5	1500	2855	3,5 - 3,7	9,8 - 10,7	52	0,97	-	0,85 - 0,95	389	8,5
02.055.15	196195015	220-240	0,55	0,75	1500	2850	4,5 - 4,8	12,8 - 13,9	60	0,94	-	0,64 - 0,70	404	9,1
02.075.25	196195020	220-240	0,75	1	1500	2850	5,9 - 6,2	17,9 - 19,1	62	0,97	-	0,70 - 0,78	429	10,2
02.110.25	196195025	220-240	1,1	1,5	2500	2855	7,7 - 7,9	23,8 - 24,8	66	0,98	-	0,62 - 0,68	464	11,7

50Hz n~2850 min^{-1}	03 – PSC SINGLE-PHASE OIL-COOLED - Requires control box.													
	Code	V	Power		Druck	N_N	I_N	I_{START}	*h* eff	Cos ϕ	C 450V	T_{START}	L	W
			[kW]	[HP]	[N]	[min $^{-1}$]	[A]	[A]	[%]	(P.f)	[μF]	T_N	[mm]	[kg]
03.025.15	196196005	220-240	0,25	0,33	1500	2855	2,4 - 2,6	7,2 - 8,0	50	0,96	20	0,80 - 0,85	324	7,5
03.037.15	196196010	220-240	0,37	0,5	1500	2855	3,5 - 3,7	9,8 - 10,7	52	0,97	20	0,85 - 0,95	324	7,5
03.055.15	196196015	220-240	0,55	0,75	1500	2850	4,5 - 4,8	12,8 - 13,9	60	0,94	25	0,64 - 0,70	339	8,1
03.075.15	196196020	220-240	0,75	1	1500	2850	5,9 - 6,2	17,9 - 19,1	62	0,97	35	0,70 - 0,78	364	9,2
03.110.25	196196025	220-240	1,1	1,5	2500	2855	7,7 - 7,9	23,8 - 24,8	66	0,98	40	0,62 - 0,68	399	10,7
03.150.25	196196030	220-240	1,5	2	2500	2855	10,6 - 10,8	33,0 - 34,0	65	0,97	60	0,60 - 0,64	434	12,7
03.150.45	196196035	220-240	1,5	2	4500	2855	10,6 - 10,8	33,0 - 34,0	65	0,97	60	0,60 - 0,64	457	13,3
03.220.25	196196040	220-240	2,2	3	2500	2850	14,2 - 14,5	43,0 - 45,0	68	0,97	80	0,60 - 0,64	484	15,1
03.220.45	196196045	220-240	2,2	3	4500	2850	14,2 - 14,5	43,0 - 45,0	68	0,97	80	0,60 - 0,64	507	15,7

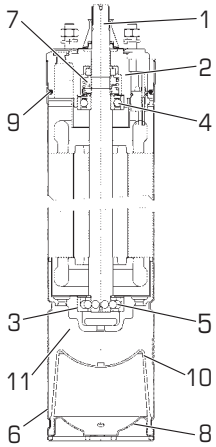
**Motors with other power supply and frequency are available on request.*

02



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

03



All the rubber, synthetic and technopolymer components are suitable for usage with foodstuffs in accordance with the codes required by local authorities.

4” Three-phase motors, oil-cooled

APPLICATION

ZDS three-phase motors cooled by non-toxic dielectric liquid are suitable for 4" wells or larger They are designed to face critical conditions such as those of low voltage supply or high starting torque. A special elastic diaphragm ensures pressure compensation inside the motor.

TECHNICAL SPECIFICATIONS

Versions: **OT** *three-phase from 0,37 to 5,5 kW • 3x380-415 V~, 50 Hz*
OT *three-phase from 0,37 to 5,5 kW • 3x220-240 V~, 50 Hz*

- Rewindable stator • High starting torque.
- Stainless steel outer shell • Ball bearings for axial and radial druck.
- Shaft projection and coupling dimensions to 4” NEMA standards • Corrosion resistant materials.
- Maximum starts/stops per hour equally distribuited: 150. • Maximum immersion depth: 100 m.
- Protection: IP 68 • Insulation class: F • Maximum ambient temperature: 40°C • Mechanical seal.
- Maximum supply voltage variations: +6% / -10%
- Installation: for correct motor operation there must be a continuous flow of water around the motor casing of at least 8 cm/s
- Mounting: vertical / horizontal position • 100% of motors are fully tested to all specifications

– For the three phase **OT** motor a control unit to start and run it and also overload protection needs to be provided by the user.
– Motor protection must be guaranteed in accordance with EN60947-4-1 trip time <10 s a 5 x I_N norms.

OT

THREE-PHASE

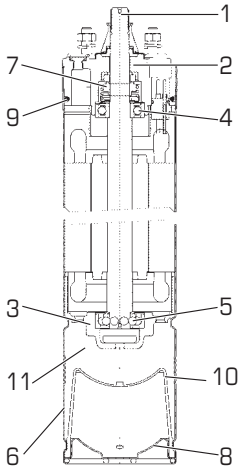
REQUIRE A PROTECTION PROVIDED BY USERS

ZDS pump innovation

50Hz n~2850 min^{-1}	OT – THREE-PHASE OIL-FILLED												
	Code	V	Power		Druck	N_N	I_N	I_{START}	ηeff	Cos ϕ	T_{START}	L	W
			[kW]	[HP]	[N]	[min $^{-1}$]	[A]	[A]	[%]	(P.f)	T_N	[mm]	[kg]
OT.037.15	184198010	380-415	0,37	0,5	1500	2865 - 2885	1,5 - 1,7	6,5 - 7,4	58	0,66 - 0,56	4,1	313	6,0
OT.055.15	184198015	380-415	0,55	0,75	1500	2820 - 2855	1,7 - 1,9	7,6 - 8,3	64	0,77 - 0,67	3	324	7,5
OT.075.25	184198020	380-415	0,75	1	1500	2820 - 2850	2,3 - 2,6	10,3 - 11,2	66	0,75 - 0,63	3,2	339	8,1
OT.110.25	184198025	380-415	1,1	1,5	2500	2815 - 2840	3,1 - 3,6	14,0 - 15,2	69	0,76 - 0,64	3,7	364	9,2
OT.150.25	184198030	380-415	1,5	2	2500	2815 - 2840	4,1 - 4,6	19,6 - 21,4	71	0,77 - 0,66	3,7	399	10,7
OT.150.45	184198035	380-415	1,5	2	4500	2815 - 2840	4,1 - 4,6	19,6 - 21,4	71	0,77 - 0,66	3,7	422	11,3
OT.220.25	184198040	380-415	2,2	3	2500	2832 - 2865	5,2 - 5,4	24,2 - 27,0	74	0,86 - 0,76	2,2	434	12,7
OT.220.45	184198045	380-415	2,2	3	4500	2832 - 2865	5,2 - 5,4	24,2 - 27,0	74	0,86 - 0,76	2,2	457	13,3
OT.300.25	184198050	380-415	3	4	2500	2820 - 2855	7,0 - 7,2	33,7 - 36,8	75	0,85 - 0,76	3,2	434	13,0
OT.300.45	184198055	380-415	3	4	4500	2820 - 2855	7,0 - 7,2	33,7 - 36,8	75	0,85 - 0,76	3,2	457	13,6
OT.400.25	184198060	380-415	4	5,5	2500	2825 - 2860	9,3 - 9,8	42,9 - 46,8	76	0,84 - 0,75	2,8	484	15,4
OT.400.45	184198065	380-415	4	5,5	4500	2825 - 2860	9,3 - 9,8	42,9 - 46,8	76	0,84 - 0,75	2,8	507	16,0
OT.550.45	197198070	380-415	5,5	7,5	4500	2820 - 2850	12,5 - 13,0	56,8 - 62,0	78	0,80 - 0,70	2,7	572	19,2
OT.038.15	197198010	220-240	0,37	0,5	1500	2865 - 2885	2,6 - 2,9	11,2 - 12,8	58	0,66 - 0,56	4,1	313	6,0
OT.056.15	197198015	220-240	0,55	0,75	1500	2820 - 2855	2,9 - 3,3	13,1 - 14,4	64	0,77 - 0,67	3,0	324	7,5
OT.076.25	197198020	220-240	0,75	1	1500	2820 - 2850	4,0 - 4,5	17,8 - 19,4	66	0,75 - 0,63	3,2	339	8,1
OT.111.25	197198025	220-240	1,1	1,5	2500	2815 - 2840	5,4 - 6,2	24,2 - 26,3	69	0,76 - 0,64	3,7	364	9,2
OT.151.25	197198030	220-240	1,5	2	2500	2815 - 2840	7,1 - 8,0	33,9 - 37,0	71	0,77 - 0,66	3,7	399	10,7
OT.151.45	197198035	220-240	1,5	2	4500	2815 - 2840	7,1 - 8,0	33,9 - 37,0	71	0,77 - 0,66	3,7	422	11,3
OT.221.25	197198040	220-240	2,2	3	2500	2832 - 2865	9,0 - 9,3	41,9 - 45,8	74	0,86 - 0,76	2,2	434	12,7
OT.221.45	197198045	220-240	2,2	3	4500	2832 - 2865	9,0 - 9,3	41,9 - 45,8	74	0,86 - 0,76	2,2	457	13,3
OT.301.25	197198050	220-240	3	4	2500	2820 - 2855	12,1 - 12,5	58,3 - 63,7	75	0,85 - 0,76	3,2	434	13,0
OT.301.45	197198055	220-240	3	4	4500	2820 - 2855	12,1 - 12,5	58,3 - 63,7	75	0,85 - 0,76	3,2	457	13,6
OT.401.25	197198060	220-240	4	5,5	2500	2825 - 2860	16,1 - 17,0	74,2 - 81,0	76	0,84 - 0,75	2,8	484	15,4
OT.401.45	197198065	220-240	4	5,5	4500	2825 - 2860	16,1 - 17,0	74,2 - 81,0	76	0,84 - 0,75	2,8	507	16,0
OT.551.45	197198070	220-240	5,5	7,5	4500	2820 - 2850	21,6 - 22,5	98,3 - 107,3	78	0,80 - 0,70	2,7	572	19,2

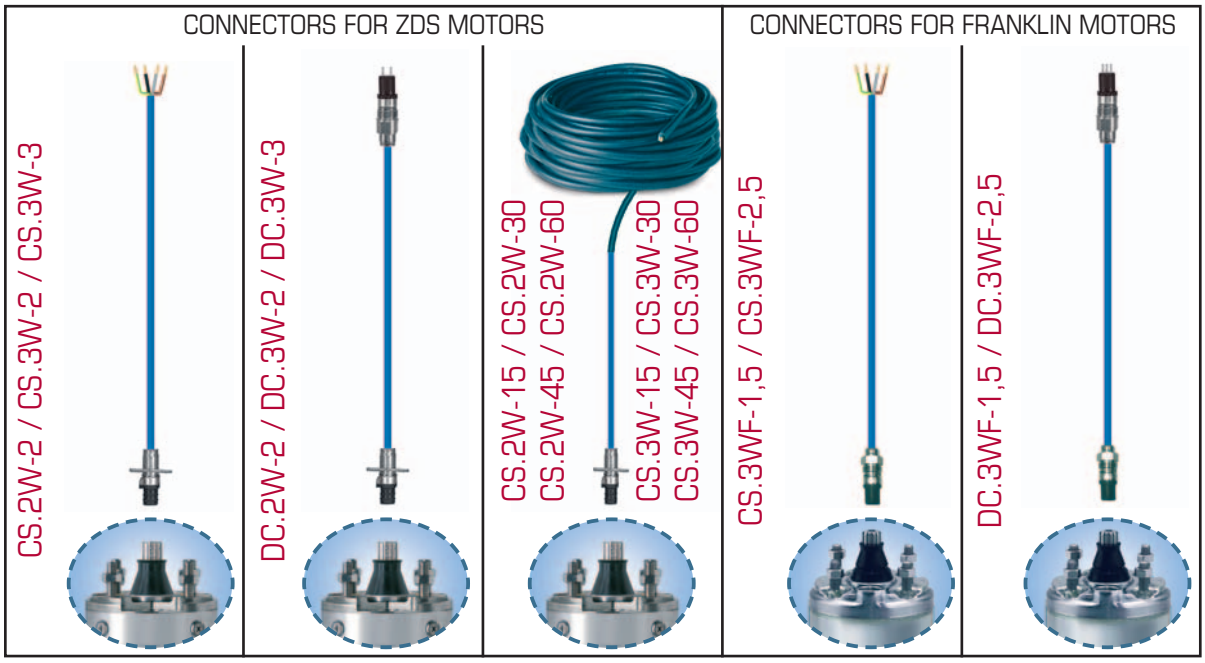
Motors with other power supply and frequency are available on request.

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



All the rubber, synthetic and technopolymer components are suitable for usage with foodstuffs in accordance with the codes required by local authorities.

Connectors for 4” submerged motors

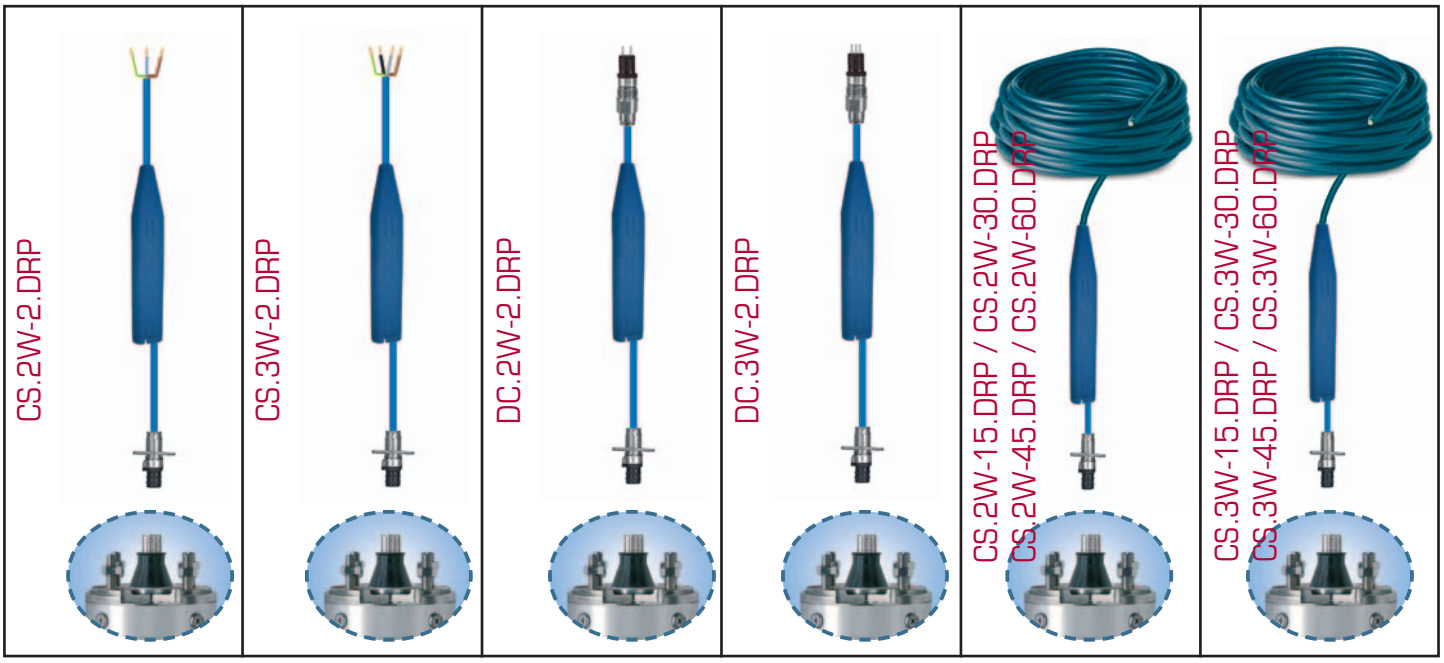


CONNECTORS FOR 4” MOTORS SINGLE PHASE 2-WIRE H2 AND O2		
Model	Code	Description
CS.2W-2	081510100	Simple motor connector plus 2m of motor cable
DC.2W-2	081510202DC	Double motor connector plus 2m of motor cable
CS.2W-15	081510133	Set of motor connector plus 15m of lead cable H07 3x1
CS.2W-30	081510136	Set of motor connector plus 30m of lead cable H07 3x1
CS.2W-45	081510137	Set of motor connector plus 45m of lead cable H07 3x1,5
CS.2W-60	081510138	Set of motor connector plus 60m of lead cable H07 3x1,5

CONNECTORS FOR 4” ZDS MOTORS SINGLE PHASE PSC H3 AND O3 OR THREE-PHASE OT MOTORS		
Model	Code	Description
CS.3W-2	081510102	Simple motor connector plus 2m of motor cable up to 2,2 kW
CS.3W-3	081510030	Simple motor connector plus 3m of motor cable above 2,2 kW
DC.3W-2	081510200DC	Double motor connector plus 2m of motor cable up to 2,2 kW
DC.3W-3	081510030DC	Double motor connector plus 3m of motor cable above 2,2 kW
CS.3W-15	081510035	Set of motor connector plus 15m of lead cable H07 4x1,5
CS.3W-30	081510036	Set of motor connector plus 30m of lead cable H07 4x1,5
CS.3W-45	081510037	Set of motor connector plus 45m of lead cable H07 4x1,5
CS.3W-60	081510038	Set of motor connector plus 60m of lead cable H07 4x1,5

CONNECTORS FOR 4” FRANKLIN MOTORS THREE-PHASE HTF, SINGLE-PHASE PSC AND 3-WIRE		
Model	Code	Description
CS.3WF-1,5	081510020	Simple motor connector plus 1,5m of motor cable up to 2,2 kW
CS.3WF-2,5	081510021	Simple motor connector plus 2,5m of motor cable above 2,2 kW
DC.3WF-1,5	081510020DC	Double motor connector plus 1,5m of motor cable up to 2,2 kW
DC.3WF-2,5	081510021DC	Double motor connector plus 2,5m of motor cable above 2,2 kW

** Other combinations and other cables type are available on request.*



DRY RUNNING PROTECTORS FOR 4" ZDS MOTORS SINGLE PHASE 2-WIRE H2 AND O2		
Model	Code	Description
CS.2W-2.DRP	081510100X	Simple motor connector plus 2m of motor cable with dry running protector DRP
DC.2W-2.DRP	081510202DCX	Double motor connector plus 2m of motor cable with dry running protector DRP
CS.2W-15.DRP	081510133X	Set of motor connector plus 15m of lead cable H07 3x1 with dry running protector DRP
CS.2W-30.DRP	081510136X	Set of motor connector plus 30m of lead cable H07 3x1 with dry running protector DRP
CS.2W-45.DRP	081510137X	Set of motor connector plus 45m of lead cable H07 3x1,5 with dry running protector DRP
CS.2W-60.DRP	081510138X	Set of motor connector plus 60m of lead cable H07 3x1,5 with dry running protector DRP

DRY RUNNING PROTECTORS FOR 4" ZDS MOTORS SINGLE PHASE PSC H3 AND O3		
Model	Code	Description
CS.3W-2.DRP	081510102X	Simple motor connector plus 2m of motor cable with dry running protector DRP
DC.3W-2.DRP	081510200DCX	Double motor connector plus 2m of motor cable with dry running protector DRP
CS.3W-15.DRP	081510035X	Set of motor connector plus 15m of lead cable H07 4x1,5 with dry running protector DRP
CS.3W-30.DRP	081510036X	Set of motor connector plus 30m of lead cable H07 4x1,5 with dry running protector DRP
CS.3W-45.DRP	081510037X	Set of motor connector plus 45m of lead cable H07 4x1,5 with dry running protector DRP
CS.3W-60.DRP	081510038X	Set of motor connector plus 60m of lead cable H07 4x1,5 with dry running protector DRP

DRP - Dry Running Protector (only for single-phase motors)

DRP (Dry Running Protector) is an electronic system that optimizes the operation of the submerged pump in the case of water shortage. The device registers the presence of water and automatically manages the pump. In case of water shortage, it stops the pump and automatically restarts it after a set period of time, without a manual reset being needed.

In contrast to traditional solutions, no additional sensors and cables are needed. DRP is compact, extremely reliable, robust and easy to install. The current entry is 220V-240V, the frequency 50/60 Hz. To manage the inductive load of a single-phase motor, the maximum motor power is limited to 1.1 kW (9 Ampere).

Important installation tip: If the electronic DRP is used in boreholes of 100mm diameter, you need to use the special bent pipe connection RSD, available on request.

Cod. 902175005 Price € 24

Cables SDC: cable sections complete with connector for an easy connection to the double connector DC

DENOMINATION OF CABLE SECTION

SDC.2W-H07-3x1-L30

- Denomination
- Number and cross section of conductors
- Length of cable in meters

Model - 50 Hz	Code	Power single-phase 220 - 240V			Power single-phase 110 - 130V			Power three-phase 380 - 415V			Power three-phase 220 - 240V		
		kW	HP	[A]	kW	HP	[A]	kW	HP	[A]	kW	HP	[A]
CABLES FOR DOUBLE CONNECTOR DC (2WIRE SINGLEPHASE MOTORS H2-02)													
SDC.2W-H07-3x1-L15	081510050	1,1	1,5	8,5	0,55	0,75	9,6	/	/	/	/	/	/
SDC.2W-H07-3x1-L30	081510051	1,1	1,5	8,5	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1-L45	081510052	0,75	1	6,2	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1-L60	081510053	0,55	0,75	4,8	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1-L90	081510049	0,25	0,33	2,6	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1,5-L45	081510107	1,1	1,5	8,5	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1,5-L60	081510057	0,75	1	6,2	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1,5-L90	081510058	0,55	0,75	4,8	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x1,5-L120	081510059	0,37	0,5	3,5	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x2,5-L60	081510063	1,1	1,5	8,5	0,25	0,33	5,2	/	/	/	/	/	/
SDC.2W-H07-3x2,5-L90	081510064	0,75	1	6,2	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x2,5-L120	081510065	0,55	0,75	4,8	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x4-L90	081510070	1,1	1,5	8,5	/	/	/	/	/	/	/	/	/
SDC.2W-H07-3x4-L120	081510071	1,1	1,5	8,5	/	/	/	/	/	/	/	/	/
CABLES FOR DOUBLE CONNECTOR DC (SINGLEPHASE H3-03-3W AND THREEPHASE HTF-OT)													
SDC.3W-H07-4x1-L15	081510080	1,1	1,5	8,5	0,55	0,75	9,6	3	4	8,2	1,5	2	8
SDC.3W-H07-4x1-L30	081510081	1,1	1,5	8,5	/	/	/	3	4	8,2	1,5	2	8
SDC.3W-H07-4x1-L45	081510082	0,75	1	6,2	/	/	/	3	4	8,2	1,5	2	8
SDC.3W-H07-4x1-L60	081510083	0,55	0,75	4,8	/	/	/	3	4	8,2	0,75	1	4,5
SDC.3W-H07-4x1-L90	081510108	0,25	0,33	2,6	/	/	/	2,2	3	6,3	0,55	0,75	3,3
SDC.3W-H07-4x1-L120	081510109	/	/	/	/	/	/	1,5	2	4,6	0,37	0,5	2,9
SDC.3W-H07-4x1,5-L15	081510084	2,2	3	14,8	0,75	1	12,4	5,5	7,5	14,2	3	4	13,5
SDC.3W-H07-4x1,5-L30	081510085	1,5	2	11	0,37	0,5	7,2	5,5	7,5	14,2	3	4	13,5
SDC.3W-H07-4x1,5-L45	081510086	1,1	1,5	8,5	/	/	/	5,5	7,5	14,2	2,2	3	10,2
SDC.3W-H07-4x1,5-L60	081510087	0,75	1	6,2	/	/	/	5,5	7,5	14,2	1,5	2	8
SDC.3W-H07-4x1,5-L90	081510088	0,55	0,75	4,8	/	/	/	4	5,5	10,3	0,75	1	4,5
SDC.3W-H07-4x1,5-L120	081510089	0,37	0,5	3,5	/	/	/	2,2	3	6,3	0,75	1	4,5
SDC.3W-H07-4x2,5-L15	081510090	2,2	3	14,8	1,1	1,5	17	5,5	7,5	14,2	5,5	7,5	24,5
SDC.3W-H07-4x2,5-L30	081510091	2,2	3	14,8	0,75	1	12,4	5,5	7,5	14,2	5,5	7,5	24,5
SDC.3W-H07-4x2,5-L45	081510092	2,2	3	14,8	0,37	0,5	7,2	5,5	7,5	14,2	4	5,5	17,3
SDC.3W-H07-4x2,5-L60	081510093	1,5	2	11	0,25	0,33	5,2	5,5	7,5	14,2	3	4	13,5
SDC.3W-H07-4x2,5-L90	081510094	0,75	1	6,2	/	/	/	5,5	7,5	14,2	2,2	3	10,2
SDC.3W-H07-4x2,5-L120	081510095	0,55	0,75	4,8	/	/	/	4	5,5	10,3	1,1	1,5	6,2
SDC.3W-H07-4x4-L15	081510096	2,2	3	14,8	1,1	1,5	17	5,5	7,5	14,2	5,5	7,5	24,5
SDC.3W-H07-4x4-L30	081510097	2,2	3	14,8	1,1	1,5	17	5,5	7,5	14,2	5,5	7,5	24,5
SDC.3W-H07-4x4-L45	081510098	2,2	3	14,8	0,75	1	12,4	5,5	7,5	14,2	5,5	7,5	24,5
SDC.3W-H07-4x4-L60	081510099	2,2	3	14,8	0,55	0,75	9,6	5,5	7,5	14,2	5,5	7,5	24,5
SDC.3W-H07-4x4-L90	081510105	1,5	2	11	0,25	0,33	5,2	5,5	7,5	14,2	3	4	13,5
SDC.3W-H07-4x4-L120	081510106	1,1	1,5	8,5	/	/	/	5,5	7,5	14,2	2,2	3	10,2

ATTENTION: Should be in accordance with the specifications in the tables. Using conductor cross sections below the specified grades will damage the motor. Other cable types are available on request.

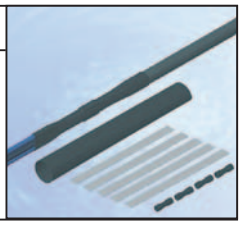
CABLES WITHOUT CONNECTORS FOR 2-WIRE SINGLE-PHASE 4" MOTORS H2 AND O2, TO BE CONNECTED TO THE 2 m MOTOR CABLE CS.2W-2 WITH THE HEAT SHRINKING CABLE CONNECTION KIT GTR1

Model	Code	Description
H07 – 3x1 mm²	081510001	Section 3x1 mm²
H07 – 3x1,5 mm²	081510002	Section 3x1,5 mm²
H07 – 3x2,5 mm²	081510003	Section 3x2,5 mm²
H07 – 3x4 mm²	081510004	Section 3x4 mm²

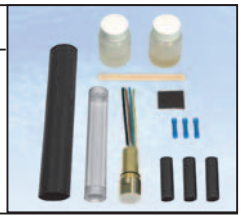
CABLES WITHOUT CONNECTORS FOR PSC SINGLE-PHASE 4" MOTORS H3 AND O3, AS WELL AS FOR THREE-PHASE MOTORS HTF AND OT,TO BE CONNECTED TO THE 2 m MOTOR CABLE CS……. WITH THE HEAT SHRINKING CABLE CONNECTION KIT GTR1

Model	Code	Description
H07 – 4x1 mm²	081510010	Section 4x1 mm²
H07 – 4x1,5 mm²	081510011	Section 4x1,5 mm²
H07 – 4x2,5 mm²	081510012	Section 4x2,5 mm²
H07 – 4x4 mm²	081510013	Section 4x4 mm²

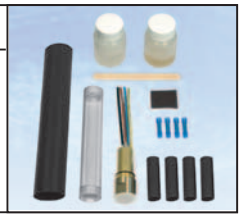
Model	Code	Description
KIT GTR1	081505010	Heat shrinking cable connection kit for connection to the simple 2 m motor cable



Model	Code	Description
KIT GRC1 - 2W/4	081505051	Resin-filled cable connection kit for connection to the cable H07 3x… to be used with the double connector motor cable for 2-Wire motors, types H2 and O2



Model	Code	Description
KIT GRC1 - 3W/4	081505052	Resin-filled cable connection kit for connection to the cable H07 4x… to be used with the double connector motor cable for single-phase PSC motors, H3 and O3, single-phase 3-WIRE motors and three-phase motors HTF and OT



CONTROL-BOX FOR STARTING AND PROTECTING SINGLE-PHASE 4" PSC SUBMERGED MOTORS

• Electromechanical control box in thermoplastic shell, protection standard IP 55 • Power inlet 1×230 V~ ±10% 50 Hz and starter capacitor • 1,5 m cable with European plug included • Inlet for connection to pressure switches or floating valves • Manually reset-table thermic overload cut-off • Environmental temperature during use: from –10°C to +40°C.

Model	Code	Power	Thermic protection	Capacitor
		kW	I_{max} [A]	[µF]
MODEL CBH FOR WATER-COOLED MOTORS PSC H3				
CBH.025	082515028	0,25	4	12,5
CBH.037	082515040	0,37	4	16
CBH.055	082515058	0,55	5	20
CBH.075	082515078	0,75	6	30
CBH.110	082515113	1,1	10	40
CBH.150	082515153	1,5	12	50
CBH.220	082515223	2,2	18	70
MODEL CBO FOR MOTORS OIL-COOLED PSC O3				
CBO.025	082515029	0,25	4	20
CBO.037	082515041	0,37	4	20
CBO.055	082515059	0,55	5	25
CBO.075	082515079	0,75	7	35
CBO.110	082515114	1,1	10	40
CBO.150	082515154	1,5	12	60
CBO.220	082515224	2,2	18	80

CBH

CBO

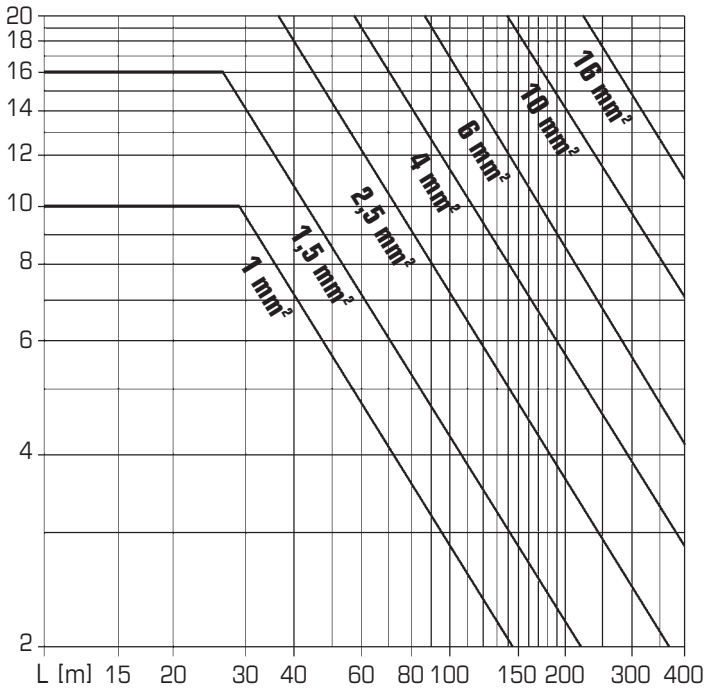
ATTENTION: All control-boxes supplied with European plugs. Other plugs available on request.

Size selection of electric cable

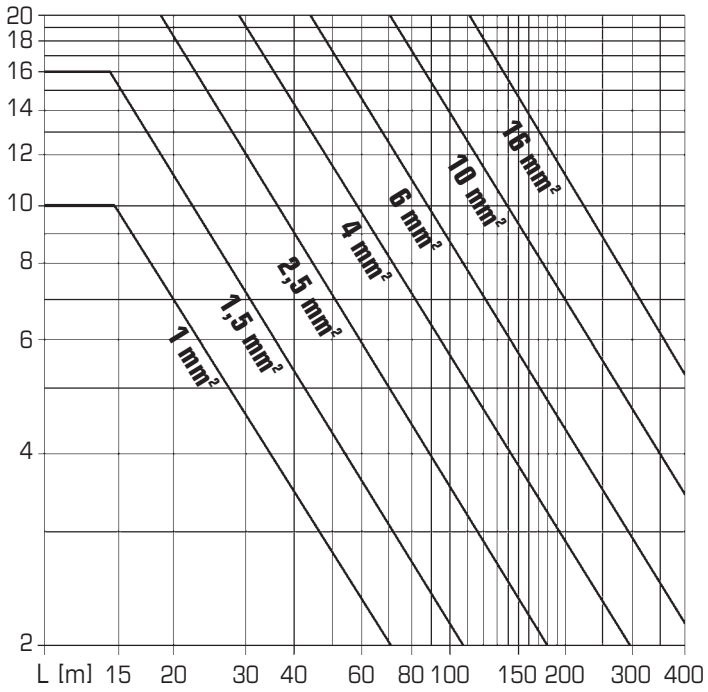
L [m] = Distance in meters between the main power supply and the motors • I_N [A] = Current in Amperè, measured while the motor is running.
The same value is indicated also in the catalogue as well on in the Technical Data Label attached to the motor.
The diagrams mentioned below are considered purely as an indication and refer to average value calculations
• Voltage drop: ΔU = 4% • Cosϕ = 0,9 for single-phase motor - Cosϕ = 0,8 for three phase motor • Cable specific resistance: ρ = 0,0178 Ω mm²/m • Inductive resistance: X_L = 0,078 × 10^{-3} [Ω/m] • Environmental temperature: 30°C

SINGLE-PHASE MOTORS

I_N [A] Voltage **1×220-240 V~** direct electric starting

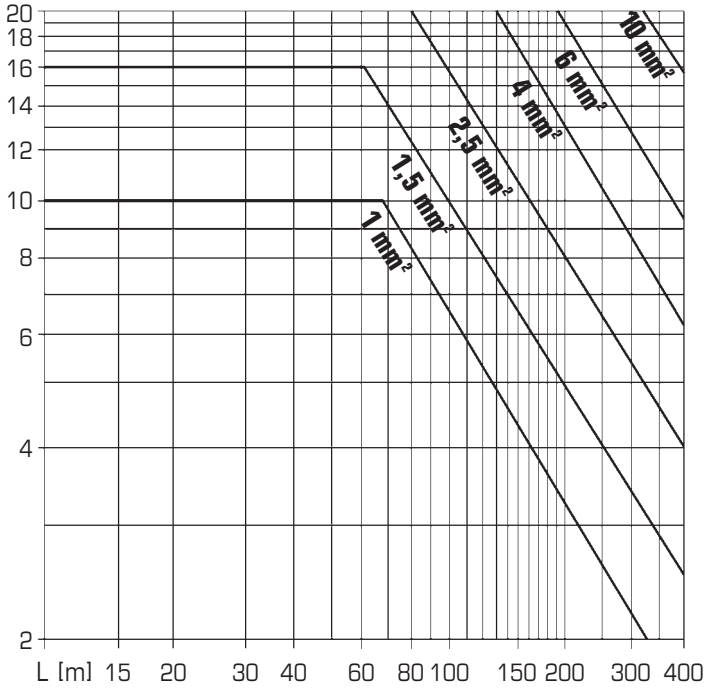


I_N [A] Voltage **1×115 V~** direct electric starting

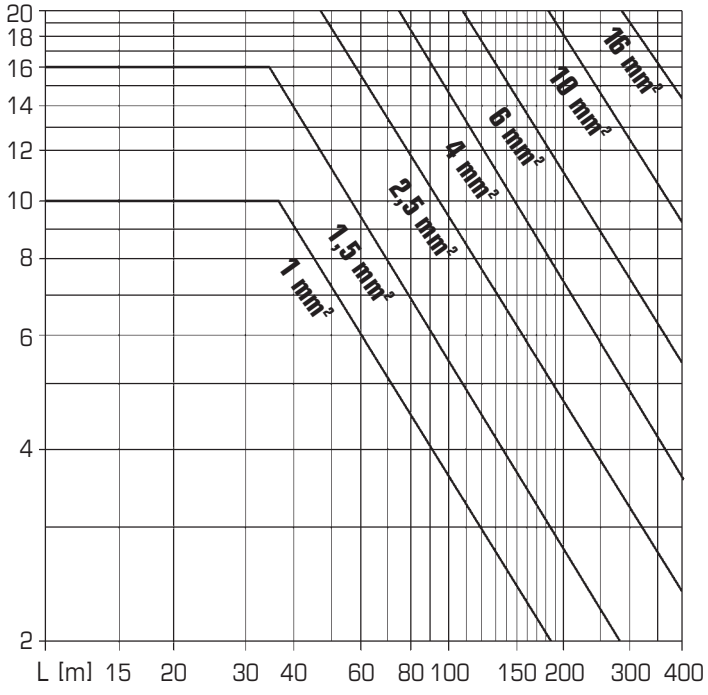


THREE-PHASE MOTORS

I_N [A] Voltage **3×380-415 V~** direct electric starting



I_N [A] Voltage **3×220-240 V~** direct electric starting



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 • Cosϕ = Power parameter • ρ = Specific resistance [Ωmm²/m] • q = Cable conductor section [mm²] • X_L = Inductive resistance [Ω/m]

Quick guide for the selection of the electric lead cable depending on cable lenght and motor power

ZDS pump innovation

MOTOR CABLE, 2-WIRE SINGLE-PHASE							1X220-240 V~, 50 HZ
kW	HP	15 m	30 m	45 m	60 m	90 m	120 m
0,25	0,33	3x1 mm²	3x1 mm²	3x1 mm²	3x1 mm²	3x1 mm²	3x1,5 mm²
0,37	0,5	3x1 mm²	3x1 mm²	3x1 mm²	3x1 mm²	3x1,5 mm²	3x1,5 mm²
0,55	0,75	3x1 mm²	3x1 mm²	3x1 mm²	3x1 mm²	3x1,5 mm²	3x2,5 mm²
0,75	1	3x1 mm²	3x1 mm²	3x1 mm²	3x1,5 mm²	3x2,5 mm²	3x4 mm²
1,1	1,5	3x1 mm²	3x1 mm²	3x1,5 mm²	3x2,5 mm²	3x4 mm²	3x4 mm²

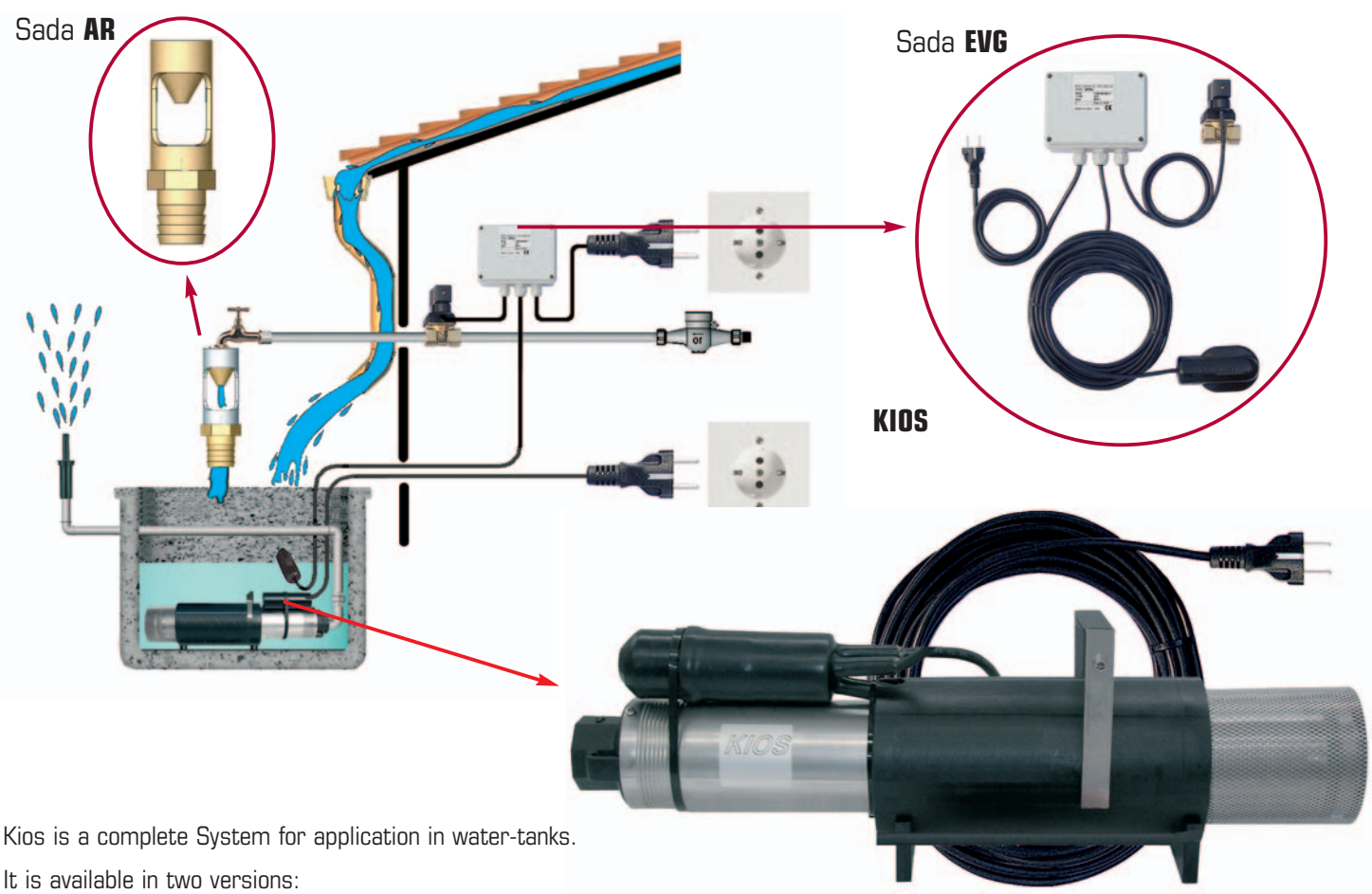
PSC MOTOR CABLE, SINGLE-PHASE							1x220-240 V~, 50 Hz
kW	HP	15 m	30 m	45 m	60 m	90 m	120 m
0,25	0,33	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²
0,37	0,5	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x1,5 mm²
0,55	0,75	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x2,5 mm²
0,75	1	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x2,5 mm²	4x4 mm²
1,1	1,5	4x1 mm²	4x1 mm²	4x1,5 mm²	4x2,5 mm²	4x4 mm²	4x4 mm²
1,5	2	4x1,5 mm²	4x1,5 mm²	4x2,5 mm²	4x2,5 mm²	4x4 mm²	4x6 mm²
2,2	3	4x1,5 mm²	4x2,5 mm²	4x2,5 mm²	4x4 mm²	4x6 mm²	4x10 mm²

MOTOR CABLE, THREE-PHASE							3x380-415 V~, 50 Hz
kW	HP	15 m	30 m	45 m	60 m	90 m	120 m
0,37	0,5	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²
0,55	0,75	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²
0,75	1	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²
1,1	1,5	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²
1,5	2	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²
2,2	3	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²
3	4	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x2,5 mm²
4	5,5	4x1,5 mm²	4x1,5 mm²	4x1,5 mm²	4x1,5 mm²	4x1,5 mm²	4x2,5 mm²
5,5	7,5	4x1,5 mm²	4x1,5 mm²	4x1,5 mm²	4x1,5 mm²	4x2,5 mm²	4x4 mm²

MOTOR CABLE, THREE-PHASE							3x220-240 V~, 50 Hz
kW	HP	15 m	30 m	45 m	60 m	90 m	120 m
0,37	0,5	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²
0,55	0,75	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²
0,75	1	4x1 mm²	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x1,5 mm²
1,1	1,5	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x2,5 mm²	4x2,5 mm²
1,5	2	4x1 mm²	4x1 mm²	4x1 mm²	4x1,5 mm²	4x2,5 mm²	4x4 mm²
2,2	3	4x1,5 mm²	4x1,5 mm²	4x1,5 mm²	4x2,5 mm²	4x2,5 mm²	4x4 mm²
3	4	4x1,5 mm²	4x1,5 mm²	4x2,5 mm²	4x2,5 mm²	4x4 mm²	4x6 mm²
4	5,5	4x2,5 mm²	4x2,5 mm²	4x2,5 mm²	4x4 mm²	4x6 mm²	4x6 mm²
5,5	7,5	4x2,5 mm²	4x2,5 mm²	4x4 mm²	4x4 mm²	4x6 mm²	4x10 mm²

ATTENTION: Should be in accordance with the specifications in the tables. Using conductor cross sections below the specified grades will damage the motor. Other cable types are available on request.

The water supply system from rain water tanks



Kios is a complete System for application in water-tanks.

It is available in two versions:

- Kios **H3** with a water-cooled motor
- Kios **O3** with an oil-cooled motor

Both versions are supplied as a complete set with a starting and running device, a system against dry running and a 20 m lead cable with a plug and a watertight connector that allows for easy removal

Model	Code	Power		I_N	Hydraulic data (n~2850 min^{-1})											Length	Weight
					Delivery (Q) – Ø Outlet diameter: 1 1/4 G-F												
		kW	HP	[A]	m^3/h	0	0,36	0,6	1,2	1,5	1,8	2,4	3,0	4,2	4,8	6,0	[mm]	[Kg]
					l/min	0	6	10	20	25	30	40	50	70	80	100		
WITH MOTOR H3 - RESIN-SEALED, WATER-COOLED, SINGLE-PHASE: 1×220-240 V~, 50 Hz																		
KIOS.1.8-H3.025	110191001	0,25	0,33	2,2-2,3	Head in meters	50	48	44	29	18							632	10,5
KIOS.2.8-H3.037	110191005	0,37	0,5	3,0-3,1		51		50	45	42	37	27					672	11,5
KIOS.3.9-H3.055	110191009	0,55	0,75	4,1-4,2		50			47	46	44	41	36	21			810	14,5
KIOS.5.8-H3.075	110191013	0,75	1	5,5-5,6		49					46	44	42	37	33	24	797	15,0
WITH MOTOR O3 - OIL-COOLED, SINGLE-PHASE: 1×220-240 V~, 50 Hz																		
KIOS.1.8-O3.025	110196001	0,25	0,33	2,4-2,6	H = Dynamic total pressure	50	48	44	29	18							704	10,3
KIOS.2.8-O3.037	110196005	0,37	0,5	3,5-3,7		51		50	45	42	37	27					724	10,3
KIOS.3.9-O3.055	110196009	0,55	0,75	4,5-4,8		50			47	46	44	41	36	21			852	12,6
KIOS.5.8-O3.075	110196013	0,75	1	5,9-6,2		49					46	44	42	37	33	24	844	13,0

Model	Code	Description
Kit AR	010180005	Backflow preventer for connection to the water feed pipe.
Kit EVG	018515005	Kit for water tanks connected to the water feed pipe, with electric valve and floating cut-off valve that operates at low voltage (24 V) for better safety.

1 – ORDERS AND ORDERS ACCEPTANCE

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

2 – SHIPMENT

When delivery is organized by ZDS srl. the products are at the risk of ZDS srl. The client must report incorrect delivery within 7 days upon receipt of products, otherwise the shipment will be considered delivered correctly and is then at the risk of the client. When shipment is coordinated by the client the products are at the risk of the client when they leave the factory. Goods may leave from other locations than its principal place of business.

3 – DELIVERY TERMS

The Date of Shipment specified on the order confirmation is the date when goods are ready for shipment. ZDS srl. shall not be responsible for failure to deliver Products on time or to fill orders when such delay or failure results from causes beyond ZDS's control. ZDS is obliged to inform the client about any delayed deliveries and once accepted by client a delay in delivery does not authorize the client to cancel or modify the order. At delivery, the client shall check and inspect the incoming goods and potential damages must be notified to the carrier by making a note on the shipment documents. ZDS srl. must be informed in writing within 7 days from receipt of the goods.

4 – WARRANTY

The whole range of ZDS products is covered by a 24 months warranty. In case any data with delivery time is missing, the manufacturers date written on the product's label will be used. The warranty covers design faults and it implies the faulty part replacement or repair.

The warranty is not valid in case the following has occurred:

– If the product has been tampered with

– If the damage has been caused by missing or not proper protection or wrong electrical connection

– If the damage has been caused by incorrect installation

– If the damage has been caused by using corrosive liquids and/or liquids not mentioned in our documents

– If the equipment has been overloaded with reference to rating plate specifications.

5 – PRICES

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

6 – TERMS OF PAYMENT

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

7 – DOCUMENTS AND DRAWINGS

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

8 – ORDER CANCELLATION

Kupující může nést odpovědnost za problémy způsobené zrušením nebo změnou objednávky a v žádném případě není možné zrušení nebo změnu považovat za platnou bez písemného potvrzení od společnosti ZDS.

9 – OBLAST JURISDIKCE

V případě jakéhokoli sporu o interpretaci smlouvy a/nebo její plnění je oblastí jurisdikce výhradně Rovigo.