

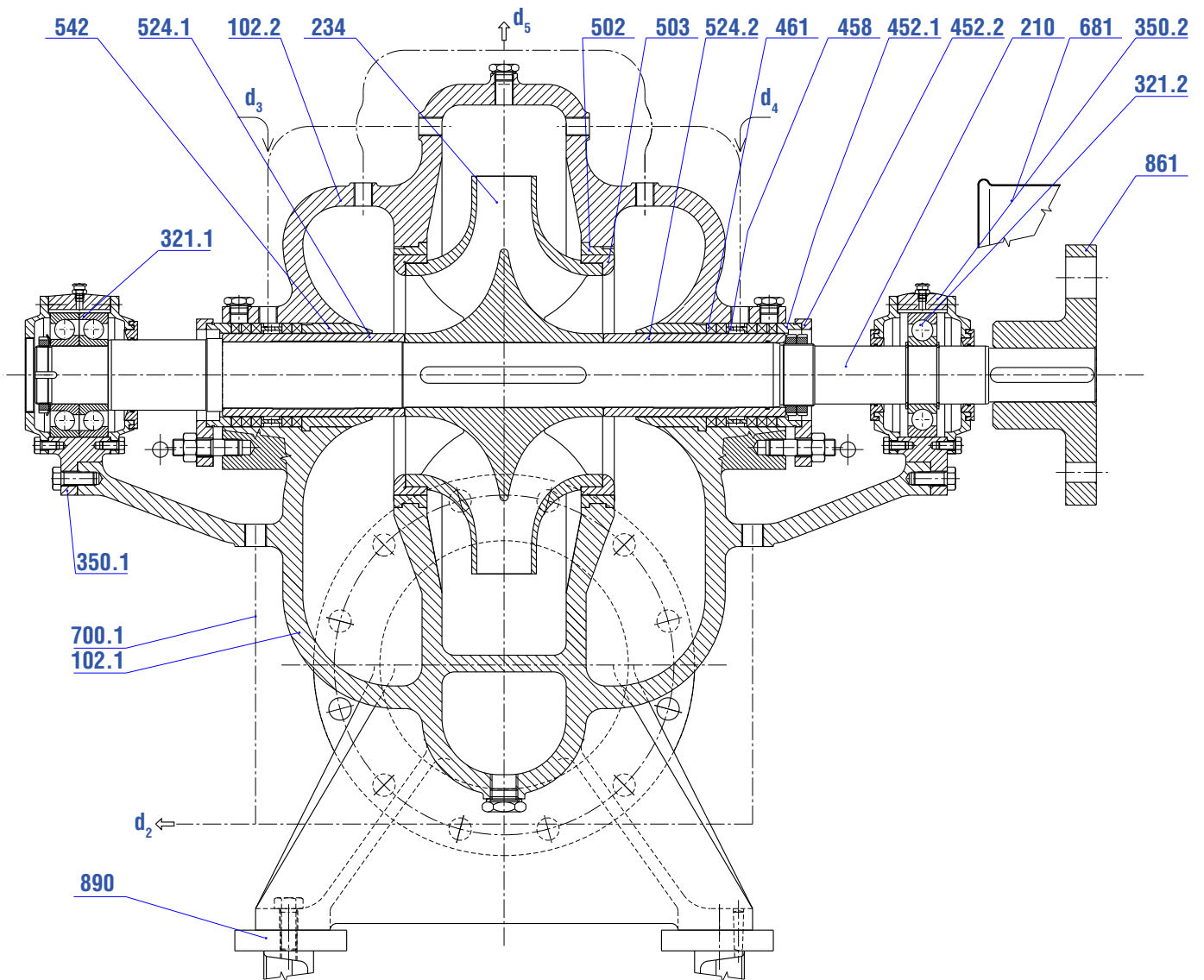
Centrifugal single-stage pumps QVD

Application

Pumps of QVD Series are intended for pumping clean and slightly polluted and even turbid water containing not more than 1 - 3 g of sand or others impurities per 1 dm³ water, with max. grain size 0.5 mm. A pumped stuff may be of slightly corrosive character. Values pH of a pumped liquid may range from 6 to 8.5. Maximal permissible temperature of a pumped water is 60 °C.

Those pumps may be applied to irrigation schemes of large areas with pumping raw water out of surface resources, inlet sewerage systems, and so on. Besides that, they are applicable in industrial and municipal pumping stations supplying service water, as well as in various water management systems for water re-pumping, circulating and cooling, and so on.

Informatory section through pump 250-QVD



102.1	Pump casing, lower part	452.1	Ring	542	Throttle bush	d ₂	Central drain for service waste of a pumped liquid
102.2	Pump casing, upper part	452.2	Flange	681	Coupling guard	d ₃	Supply of clean sealing water into the front seal (only with pumping a polluted water)
210	Shaft	458	Ring	700.1	Waste piping	d ₄	Supply of clean sealing water into the rear seal (only with pumping a polluted water)
234	Impeller	461	Gland packing	700.2	Vent piping	d ₅	Central connection for venting (evacuation)
321.1	Bearing	502	Casing wear ring	703	Seal flooding		
321.2	Bearing	503	Impeller wear ring	861	Half-coupling „BKN“		
350.1	Bearing cover	524.1	Seal bush - left	890	Washer		
350.2	Bearing housing	524.2	Seal bush - right				

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Description

Pumps of QVD Series are of volute-casing centrifugal single-stage horizontally-split type, with double-entry impeller and rotor shaft supported on rolling-contact bearings.

Pump casing being split in its longitudinal axis plane shall be provided with a double volute to make radial pressure reduction possible. At the casing bottom half in its centre there are both pump branches (the suction and discharge ones) arranged horizontally, which allows piping installation above a foundation.

Impeller is of symmetrical execution with axial double-sided entry of water and it is sealed against the pump casing with replaceable wear rings.

Bearings. Rotor is carried on either side in rolling-contact bearings. On request those pumps may be provided with thermal receptors for possibility of remote measurements of bearing temperatures.

Seals. Pump shaft is sealed on either side by shaft seals with soft cord-type packing. With pumping clean water there seals are provided with continuous hydraulic closure of a pumped liquid being supplied from the discharge space to prevent atmospheric air pumping-in, provided the pump works with suction (from vacuum). However, with pumping polluted water, there is supply of clean pressure water into seals from an external supply with overpressure 0.5 bar against pressure at the pump suction branch - see connections d_3 ; d_4 necessary for both seal hydraulic closure and wear protection due to leakage.

On request those pumps may be provided with a mechanical seal.

Venting. To allow venting with possible connection to automatic evacuation system the pump is provided with evacuation piping with a cut-off cock and the main connection.

Drive

Pumps of QVD Series are constructed for direct coupling with a driving electric motor. Transmission of the driving motor torque onto the pump is through a pin flexible coupling that allows dismantling without need of piping and/or the driving motor de-coupling.

As a standard the pump is supplied being placed on a separate plate. Driving motor is available on separate foundation blocks for setting in concrete.

Arrangement of branches

Suction branch is situated on the right side (position S-90), discharge branch on the pump left side (position T-270), as viewed from a driving motor.

Material options

The material option „LU“ may be considered as the standard one, with the pump main parts of following construction materials:

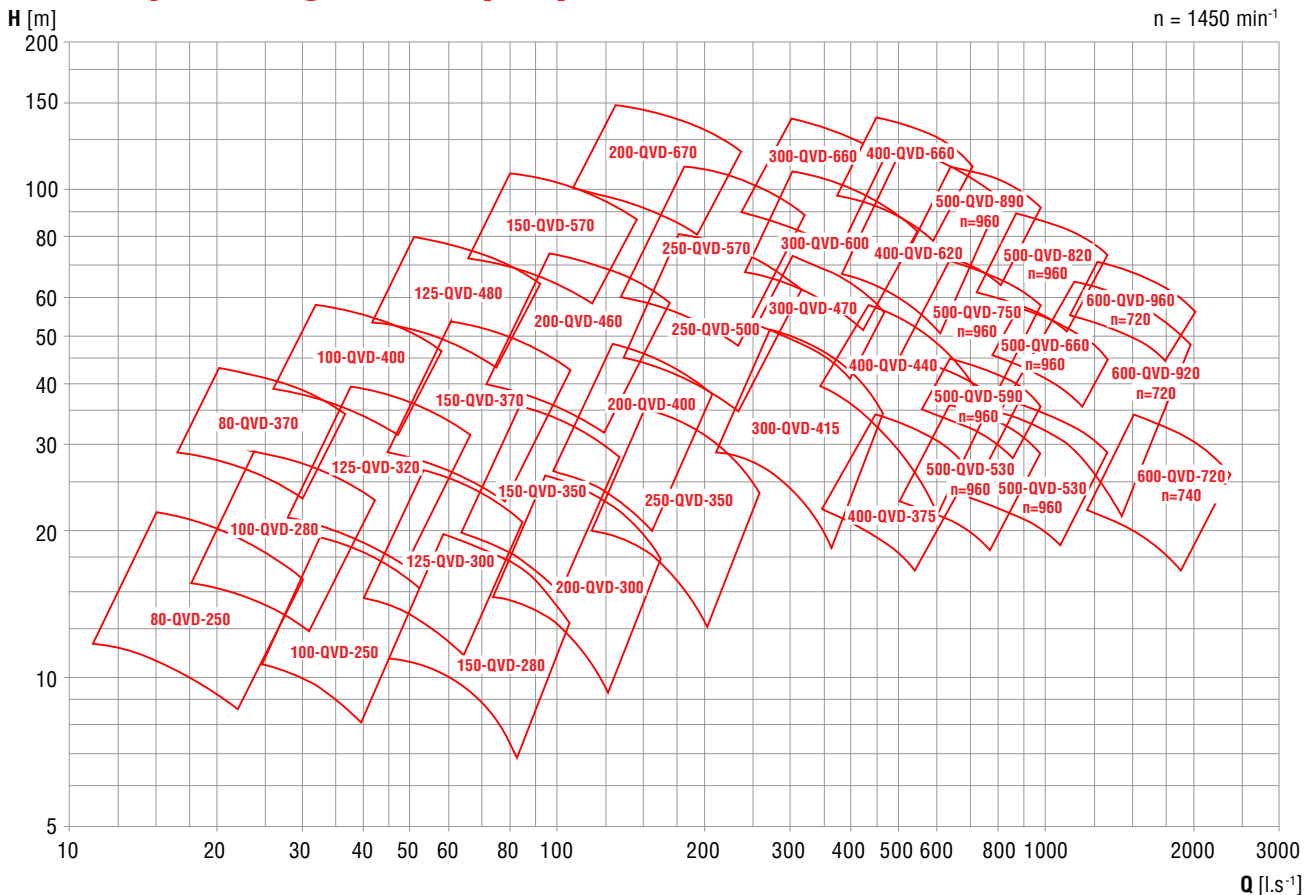
- volute casing with throttle bushes and bearing housings are of grey cast iron
- impeller with wear rings and shaft sleeves are of chrome steel
- shaft is of heat-treated carbon steel

Further material options on the customer request.

Sense of rotation

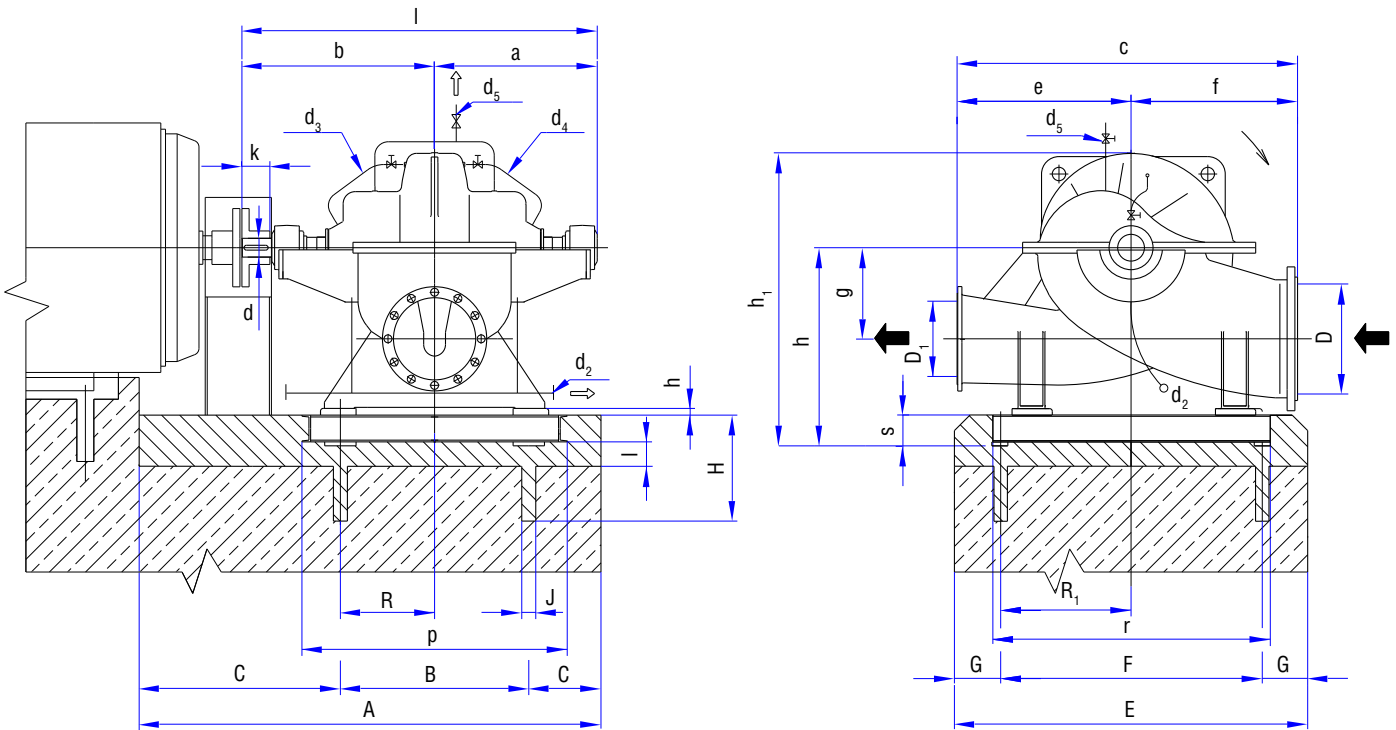
Pumps rotate clockwise, as viewed the pump from the drive side, on principle.

Informatory working zone of pumps



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Dimensions of pumps



Pump model	Pump									Shaft end		Bed plate			Branches		Foundation											
	a	b	c	e	f	g	h	h ₁	l	d	k	p	r	s	D	D ₁	A	B	C	E	F	G	H	I	I ₁	R	R ₁	J
80-QVD-250	260	325	560	300	260	140	420	590	585	30	65	530	630	150	150	80	940	300	320	910	570	170	300	20	30	150	285	4x70x70
80-QVD-370	345	430	640	320	320	190	540	790	775	45	85	530	630	150	125	80	940	300	320	910	570	170	300	20	30	150	285	4x70x70
100-QVD-250	300	363	660	330	330	135	430	605	663	34	63	530	630	150	200	100	940	300	320	910	570	170	300	20	30	150	285	4x70x70
100-QVD-280	295	360	660	360	300	160	450	640	655	34	65	530	630	150	200	100	940	300	320	910	570	170	300	20	30	150	285	4x70x70
100-QVD-400	375	460	760	380	380	205	570	840	835	50	85	530	630	150	150	100	940	300	320	910	570	170	300	20	30	150	285	4x70x70
125-QVD-300	360	445	760	380	380	160	490	700	805	40	85	530	630	150	250	125	940	300	320	910	570	170	300	20	30	150	285	4x70x70
125-QVD-320	345	410	780	420	360	180	490	710	755	38	65	530	760	150	200	125	940	300	320	1060	700	180	300	20	30	150	350	4x70x70
125-QVD-480	450	535	860	430	430	250	655	980	985	55	85	530	630	150	200	125	940	300	320	910	570	170	300	20	30	150	285	4x70x70
150-QVD-280	430	515	860	430	430	215	580	840	945	45	85	660	930	150	250	150	1080	400	340	1250	870	190	300	20	30	200	435	4x70x70
150-QVD-350	420	505	900	450	450	190	545	790	925	48	85	530	760	150	300	150	940	300	320	1060	700	180	300	20	30	150	350	4x70x70
150-QVD-370	390	475	920	500	420	210	540	800	865	45	85	530	760	150	250	150	940	300	320	1060	700	180	300	20	30	150	350	4x70x70
150-QVD-570	530	635	1000	500	500	295	750	1130	1165	65	105	660	760	150	200	150	1080	400	340	1060	700	180	300	20	30	200	350	4x70x70
200-QVD-300	460	545	1000	500	500	230	605	880	1005	50	85	660	930	150	300	200	1080	400	340	1250	870	190	300	20	30	200	435	4x70x70
200-QVD-400	480	565	1000	500	500	215	600	880	1045	55	85	660	930	150	350	200	1080	400	340	1250	870	190	300	20	30	200	435	4x70x70
200-QVD-460	495	580	1050	550	500	260	640	960	1075	55	85	660	930	150	300	200	1080	400	340	1250	870	190	300	20	30	200	435	4x70x70
200-QVD-670	625	730	1200	600	600	345	855	1300	1355	75	105	830	760	150	250	200	1240	500	370	1060	700	180	300	20	30	250	350	4x70x70
250-QVD-350	535	622	1140	570	570	270	680	1000	1157	56	87	830	930	150	350	250	1240	500	370	1250	870	190	300	20	30	250	435	4x70x70
250-QVD-500	598	733	1100	550	550	270	710	1058	1331	65	130	830	930	150	350	250	1240	500	370	1250	870	190	300	20	30	250	435	4x70x70
250-QVD-570	598	733	1300	700	600	325	750	1150	1331	65	130	830	1130	150	350	250	1240	500	370	1500	1070	215	400	20	30	250	535	4x70x70

Dimensions of the foundation for the whole pump-set (pump + electric motor) are affectable with dimensions of a driving motor being selected individually. That is why the pump-set dimensional sketch may be worked up on request, after technical clearing-up factual business, both of tenders or orders. Thickness of foundation shall be specified by an engineer of a projection company.

Suction branch „D“ for PN 10, with raised face

Discharge branch D₁ for PN 10, PN 16 or PN 25, always with raised face - according to individual types given in a Table of Performance Data

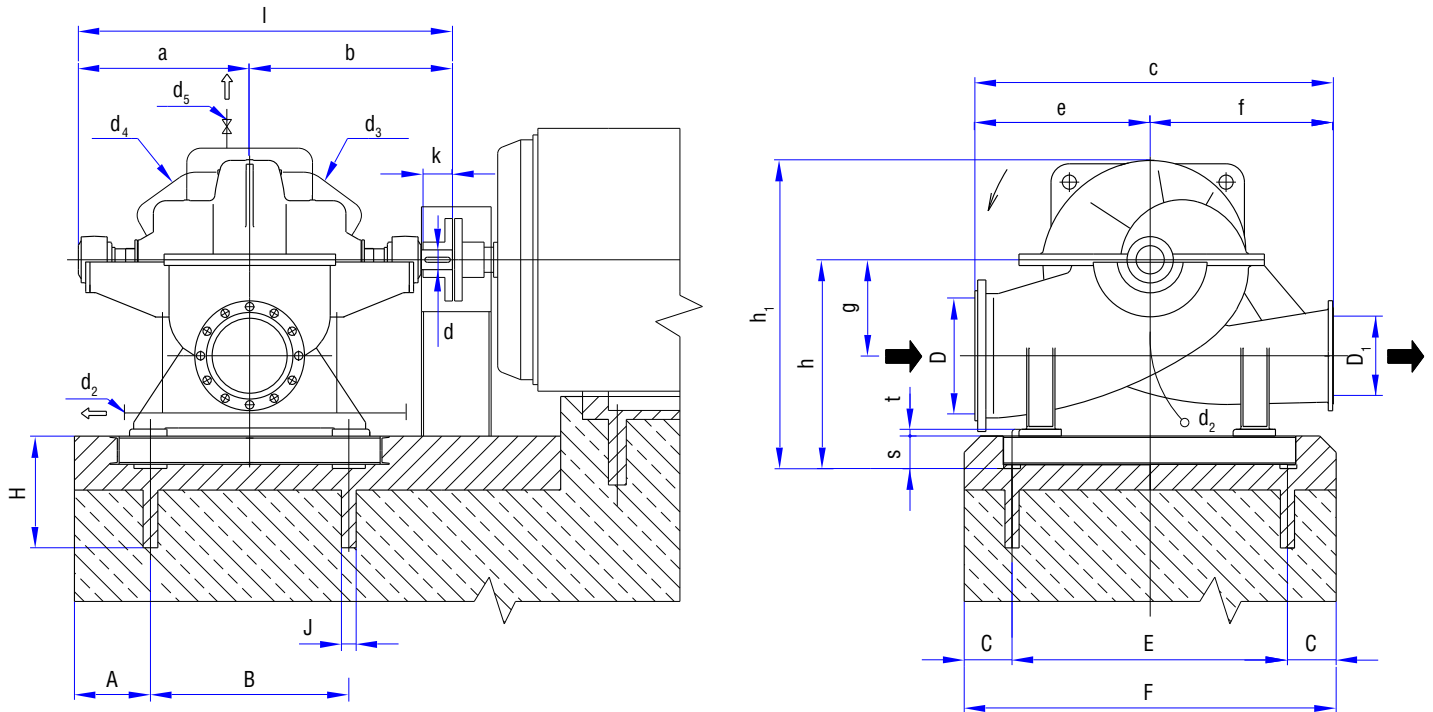
d₂ central drain for waste water from seals. Connection consists of union nut G 1 1/4"

d₃, d₄ Clean water supply from an external supply for hydraulic closure of seals (only in case of pumping polluted water). Separate connection consists of union nut G 1/2"

d₅ Venting (evacuation) of pump. Main connection consists of union nut G 3/4".

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Dimensions of pumps



Pump model	Pump										Shaft end		Bed plate		Branches		Foundation							
	a	b	c	e	f	g	h	h ₁	i	d	k	s	t	D	D ₁	A	B	C	E	F	H	J		
300-QVD-415	623	755	1400	700	700	320	850	1240	1378	65	130	180	40	400	300	300	640	250	1080	1580	400	4x70x70		
300-QVD-470	605	740	1620	870	750	400	950	1445	1355	75	135	160	40	400	300	300	740	180	1380	1700	400	4x70x70		
300-QVD-600	672	850	1400	700	700	320	800	1220	1522	78	160	140	30	400	300	250	660	260	1080	1600	400	4x70x70		
300-QVD-660	670	880	1400	700	700	350	870	1600	1550	80	170	160	40	400	300	300	700	180	1050	1410	400	4x70x70		
400-QVD-375	800	980	1600	800	800	370	950	1320	1780	85	170	180	40	500	400	300	720	180	1340	1700	400	4x70x70		
400-QVD-440	685	880	1600	800	800	350	900	1305	1565	75	160	160	30	500	400	300	700	180	1340	1700	400	4x70x70		
400-QVD-620	880	1075	1600	800	800	430	1000	1455	1955	90	170	160	40	500	400	300	820	180	1340	1700	400	4x70x70		
400-QVD-660	750	1000	1600	800	800	400	1000	1450	1750	90	170	160	40	500	400	300	760	180	1340	1700	400	4x70x70		
500-QVD-530	870	1050	2000	1000	1000	450	1120	1630	1920	98	170	180	40	600	500	300	940	210	1580	2000	400	4x70x70		
500-QVD-530	1100	1320	2000	1000	1000	450	1250	1900	2420	115	210	200	40	600	500	300	1000	230	1780	2240	400	4x70x70		
500-QVD-590	940	1120	2060	1030	1030	470	1150	1710	2060	98	170	180	40	600	500	300	980	210	1580	2000	400	4x70x70		
500-QVD-660	800	1000	2000	1000	1000	450	1120	1820	1800	100	170	180	40	600	500	300	900	210	1580	2000	400	4x70x70		
500-QVD-750	900	1100	2400	1300	1100	600	1360	2090	2000	110	210	200	40	600	500	300	1100	250	1950	2450	500	6x100x100		
500-QVD-820	995	1215	2650	1450	1200	660	1475	2280	2210	125	210	200	40	700	500	300	1300	250	2100	2600	500	6x100x100		
500-QVD-890	1010	1190	2100	1050	1050	480	1165	1795	2200	98	170	180	40	600	500	300	1000	210	1580	2000	400	4x70x70		
600-QVD-720	1485	1765	3000	1500	1500	550	1635	2510	3250	150	270	240	40	800	600	300	1340	260	2330	2850	500	6x100x100		
600-QVD-920	1070	1325	2600	1300	1300	600	1460	2230	2395	140	270	240	40	800	600	250	1040	265	2170	2700	500	6x100x100		
600-QVD-960	1230	1510	3250	1750	1500	820	1815	2810	2740	150	270	240	40	800	600	300	1620	280	2580	3140	500	6x100x100		

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Informatory main performance data

Pump model	Branches DN/PN		Speed (min ⁻¹)	Total consumption of sealing water for seals - l/s	Moment of inertia l kgm ²	Weight kg		
	suction	discharge						
80-QVD-250	150/10	80/10	1450	0.16 - 0.20	0,013	150		
80-QVD-370	125/10	80/10			0,257	240		
100-QVD-250	200/10	100/10			0,015	170		
100-QVD-280	200/10	100/10			0,021	195		
100-QVD-400	150/10	100/10			0,358	300		
125-QVD-300	250/10	125/10			0,033	260		
125-QVD-320	200/10	125/10			0,038	265		
125-QVD-480	200/10	125/10			0,786	405		
150-QVD-280	250/10	150/10			0,478	525		
150-QVD-350	300/10	150/10			0,063	370		
150-QVD-370	250/10	150/10			0,070	370		
150-QVD-570	200/10	150/16			1,645	580		
200-QVD-300	300/10	200/10			1450	0.16 - 0.20	0,644	620
200-QVD-400	350/10	200/10					0,113	505
200-QVD-460	300/10	200/10	0,179	610				
200-QVD-670	250/10	200/25	3,296	815				
250-QVD-350	350/10	250/10	1,250	880				
250-QVD-500	350/10	250/10	0,294	840				
250-QVD-570	350/10	250/16	0,450	1000				
300-QVD-415	400/10	300/10	2,600	1300				
300-QVD-470	400/10	300/16	1,450	1800				
300-QVD-600	400/10	300/16	3,600	1350				
300-QVD-660	400/10	300/25	4,800	1900				
400-QVD-375	500/10	400/10	2,000	3,000			1150	
400-QVD-440	500/10	400/10					1300	
400-QVD-620	500/10	400/25					7,680	2090
400-QVD-660	500/10	400/25					5,900	2100
500-QVD-530	600/10	500/10	960	0.25 - 0.33			6,680	2000
500-QVD-530	600/10	500/10					4,450	2420
500-QVD-590	600/10	500/10					11,800	2920
500-QVD-660	600/10	500/16			6,500	3800		
500-QVD-750	600/10	500/16			10,700	4360		
500-QVD-820	700/10	500/16			15,750	5400		
500-QVD-890	600/10	500/25			19,620	3350		
600-QVD-720	800/10	600/10			740	16,550	4950	
600-QVD-920	800/10	600/10	720	40,000	7440			
600-QVD-960	800/10	600/16		31,000	8780			

Moment of inertia has been specified for a pump with a complete flexible coupling „BKN“. Weight has been specified for a pump being provided with its own bed plate.