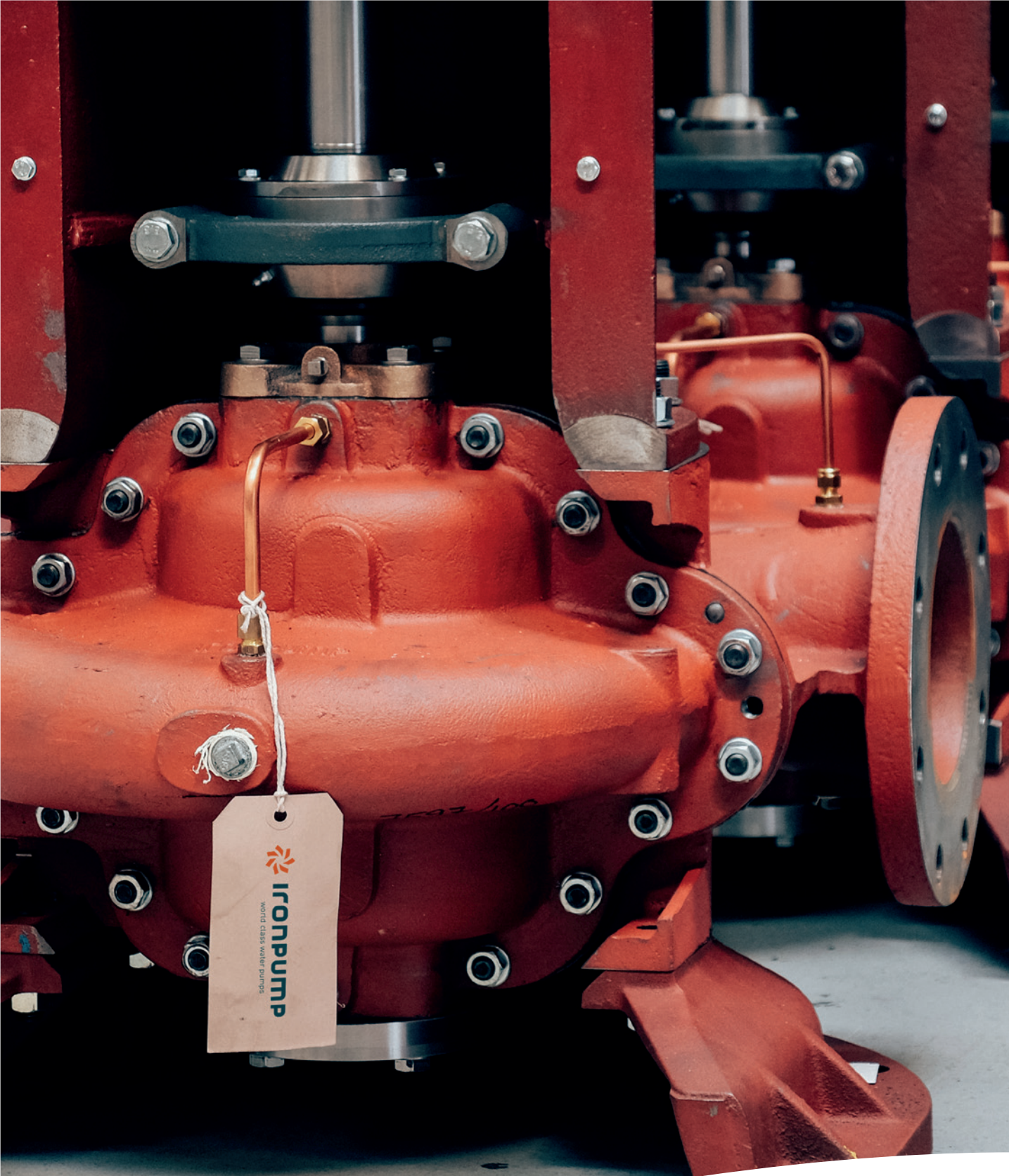


WaterPumps QH·QV·QVK



IRONPUMP

world class water pumps



Introduction

IRON Pump A/S was founded in 1906 and since then the company has manufactured a great variety of pumps covering both the marine and industrial markets.

Through the years the most popular pump type has been the split casing which has proven itself in many applications. It is impractical to cover all pump parameters in one brochure, so we have chosen only to describe models designed for fresh water and sea water within the marine and industrial markets.

If an actual pump specification does not correspond to the parameters described in this brochure – being pump medium, capacity, head, temperature, viscosity etc., – the problem can often be solved by altering the split casing pump or by choice of another pump type. Notably, many split casing pumps have been delivered for up to 25 bars of static pressure, for media temperatures up to 180°C or for aggressive process media.

Materials

Pump part	Application/Materials Code			
	Fresh Water		Sea Water	
	FW1	FW2	SW1	SW2
Casing	Cast Iron GJL-250	Nodular Cast Iron GJS-400-15	RG10 Bronze CuSn10Zn	Aluminium Bronze C95800
Impeller	Aluminium Bronze – C95800			
Wear Rings	Aluminium Bronze – JM-7			
Shaft	Stainless Steel, AISI 329, EN 1.4460			



QVK



QV



QH

Table of Contents

Pump size		Capacity	Pump Type	Max. pressure Bar material code				Page
DN		m3/h	No.	FW1	FW2	SW1	SW2	
100	4"	40...100	Q..4/300 Q..2-4/300	8 10	16 25	8 10	12 16	8
125	5"	80...150	Q..5/300 Q..2-5/300 Q..2-5/330	8 10 10	25 25 16	8 10 10	12 16 16	9
150	6"	125...250	Q..6/300 Q..6/350 Q..2-6/330 Q..2-6/400 Q..3-6/350	8 10 10 10 10	25 16 14 16 25	8 10 10 10 10	16 16 16 16 25	10
200	8"	200...400	Q..8/300 Q..2-8/350	8 10	25 16	8 10	16 16	11
250	10"	300...600	Q..10/300 Q..10/320 Q..10/350 Q..10/360 Q..2-10/350	8 10 8 8 10	25 25 12 12 16	8 6 8 8 10	16 10 12 12 16	12
300	12"	500...900	Q..12/320 Q..12/350 Q..12/360 Q..12/500 Q..12/630	10 8 8 10 10	25 12 12 16 16	6 8 8 10 10	10 12 12 16 16	13
350	14"	700...1300	Q..14/320 Q..14/350 Q..14/500 Q..14/630	6 10 10 10	10 16 16 16	6 10 10 10	10 16 16 16	14
400	16"	1000...1700	Q..16/400 Q..16/320 Q..16/350 Q..16/500 Q..16/630	4 6 10 10 10	7 10 16 16 16	4 6 10 10 10	7 10 16 16 16	15
450	18"		Q..18/320	6	10	6	10	
500	20"	1500...3000	Q..20/320 Q..20/450	6 10	10 16	6 6	10 10	16
600	24"		Q..24/450 Q..24/630	10 10	16 16	6 10	10 16	

Description

Type of pump

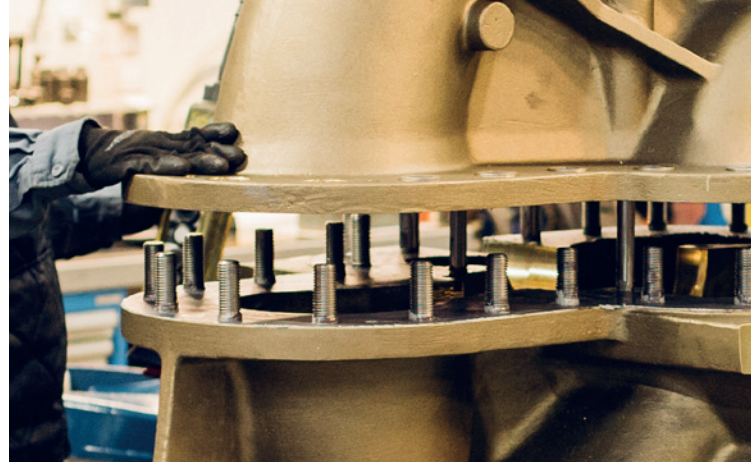
Horizontally or vertically mounted axial split casing centrifugal pump of single or multistage design.

Application

Fresh and sea water applications in maritime and industrial service e.g. cooling water, ballast, fire fighting, heeling, district heating, public water supply, irrigation etc.

Special features

- Easy pump service where connecting pipes, driver and related installations remain untouched.
- Low NPSH-value (good suction capability).
- Robust design with two outboard anti-friction bearings.
- Axially balanced rotating element giving longer bearing life.



Pump Lay-out

Impeller dimensioning

On pages 8-15 the various sizes of pumps are shown with curves of relevant speeds and at max. impeller diameter (on the conditions given).

To minimize power consumption and optimize the pump performance, all impellers are made to order with a diameter matching the desired duty point.

The correct diameter, resulting in the desired capacity and head, can be calculated.

With reasonable accuracy the following formula may be used:

Capacity	(m ³ /h):	Q2 = Q1	D2/D1
Head	(mLC):	H2 = H1	(D2/D1) ²
Power	(kW):	P2 = P1	(D2/D1) ³

Where as D1 is the original impeller diameter and D2 the new reduced diameter.

The same formula may be used by replacing the impeller diameters with the pump speed.

When the efficiency of the pump at duty point has been defined by using the actual standard pump curve the power consumption (at duty point) can be calculated using the following formula:

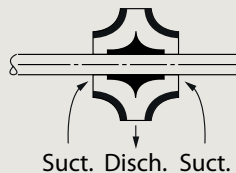
$$\text{Fresh Water: } P_{kW} = \frac{Q_{m^3/h} \times H_{mLC}}{3,67 \times \eta\%}$$

$$\text{Sea Water: } P_{kW} = P_{kW \text{ Fresh Water}} \times \text{Specific weight of the sea water}$$

Hydraulic balancing of split casing centrifugal pumps.

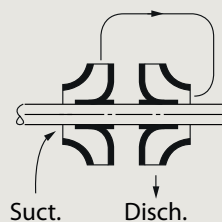
Single stage design

Axially balanced by double entry impeller design.



Two stage design

Axially balanced by back to back arrangement of two single entry impellers.





Before the size of the motor is defined the maximum power consumption of the pump must be taken into account.

Suction

In order to avoid cavitation it is important that the suction capability of the pump (NPSHr) is better than the total available suction head of the application (NPSHa)

For this reason the actual standard curve of each pump shows the theoretical or measured NPSHr-value of the pump, while the NPSHa-value for the suction pipe system has to be calculated as the difference between the barometric pressure and the geometric and hydraulic resistance together with the partial steam pressure of the water. If the NPSH-value of the pump is less than that of the suction pipe the system should work without cavitation.

In practice the NPSHr-value of the pump should be a minimum of 1 m_{Lc} less than the NPSHa-value of the system.

Priming

As conventional centrifugal pumps are not able to evacuate air from, e.g. a suction pipe, it should be taken into account that a pump system, not flooded, must be primed before start-up.

In all events caution should be taken not to start-up an empty pump as the shaft seals may be damaged.

Explanation of Pump Type No:

Example: QVP-2-4/300

First letter _____
Q=axial split casing type

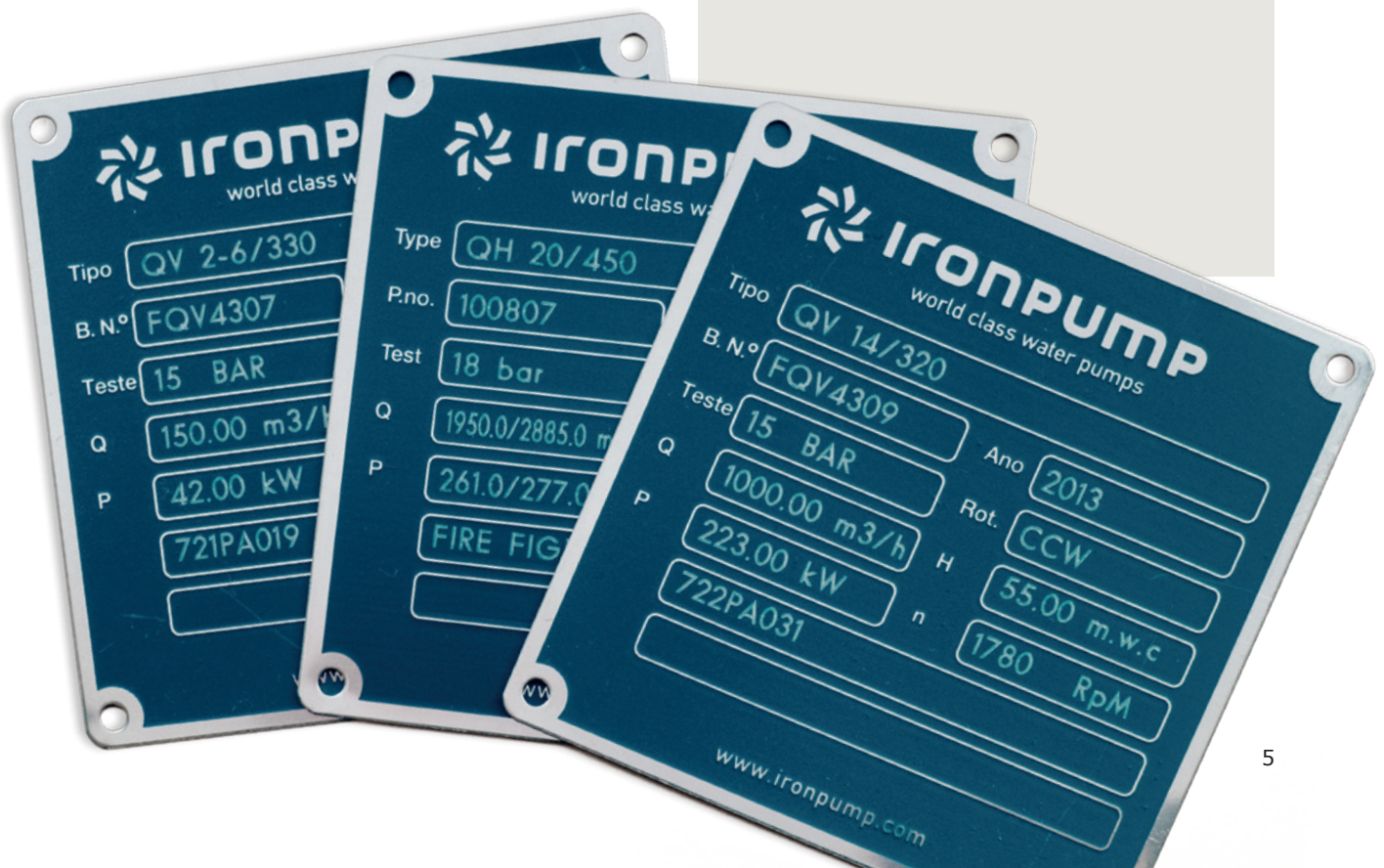
Second letter _____
V = vertical (shaft) mounting
H = horizontal (shaft) mounting

Third letter, if any _____
P = priming pump incorporated
K = vertical pump with the impeller(s) mounted between the bearings

Cipher here, if any _____
No cipher = one stage pump
Cipher 2 = two stage pump
Cipher 3 = three stage pump

Number before the oblique _____
4 = 4" flanges (DN100)
5 = 5" flanges (DN125)
-
24 = 24" flanges (DN600)

Number after the oblique _____
Nominal impeller diameter in mm (not the maximum diameter)



Design Elements

Shaft seal(s)

Pump type QV is equipped with one mechanical shaft seal while type QH and QVK contain two.

The standard mechanical shaft seals are of the single seat type with a rotating carbon or silicium ring cast into a FKM, NBR or EPDM rubber bellow and a stationary ceramic seat with a FKM, NBR og EPDM o-ring.

Spring and other metal parts are made of stainless steel.

Special shaft seals - mechanical types such as cartridge and balanced, or conventional types with a wear sleeve for packing - are available upon request.

Flexible coupling

The flexible coupling between motor and pump shafts is of the three part type, like a N-Eupex model A. The coupling, made from cast iron and with flexible rubber elements, can be disengaged and allows for removal of the rotating element with removing the motor or disconnecting the pump from the piping system.

Outboard bearings

The pump shaft is equipped with two ball bearings, make SKF/FAG, with external grease nipples.

The bearings are designed for a minimum life of 25.000 running hours, at nominal speeds.

Internal bearing bush

Pump types QV and QVP are for pumping head pressures above 60 mLc equipped with an internal, media lubricated, synthetic sleeve bearing.

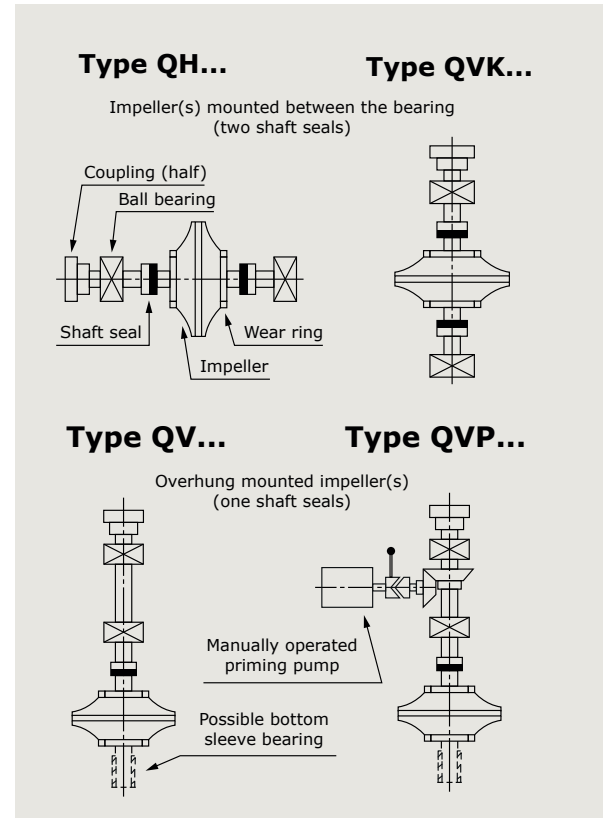
Electric motor

The pump design incorporates IEC standard motors from size 132 being the smallest on the 4" dia. pumps to size 400 as the largest on the 24" dia. pumps.

The motors are delivered according to the required power supply usually with IP55 protection and cooling according to IC 411.

Unless otherwise specified, the motor power will cover the maximum pump power consumption in accordance with EN 25199.

Arrangement of bearings and shaft seals in various types of split casing centrifugal pumps



Test

Pressure test

After machining, the casing parts are assembled and pressure tested with water, at a pressure minimum 150% of the duty pressure.

Unless otherwise specified, the connection flanges are drilled in accordance with DIN 2501.

Capacity test

Before delivery, the complete assembled pump and its driver is tested for capacity,

head and power consumption, in accordance with ISO 9906-2B.

The test is made at 5-8 different duty points between 0 to 125-150% capacity, resulting in a pump performance curve.

The pump efficiency is calculated at relevant duty point.

Additional tests

Upon request the following additional tests can be arranged:

- Pressure test acc. to special standard.
- Capacity test acc. to special standard.
- Long run test (the time is specified by customer).
- NPSH-test.
- Sound pressure test (not standardized).
- Overspeed test (of impeller).
- Paint thickness measurement.



Painting

Factory standard painting

The surface treatment of the approved pump is as standard:

- Carefully cleaned.
- 1 x primer app. 30 μ water based.
- 1 x covering top coat app. 50 μ water based, grey (RAL 7011).

Special surface treatment

Acc. to customer wishes the pumps can be surface treated, e.g. Alkyd or Epoxy – internally as well as external – according to specification.

Documentation

Test certificates

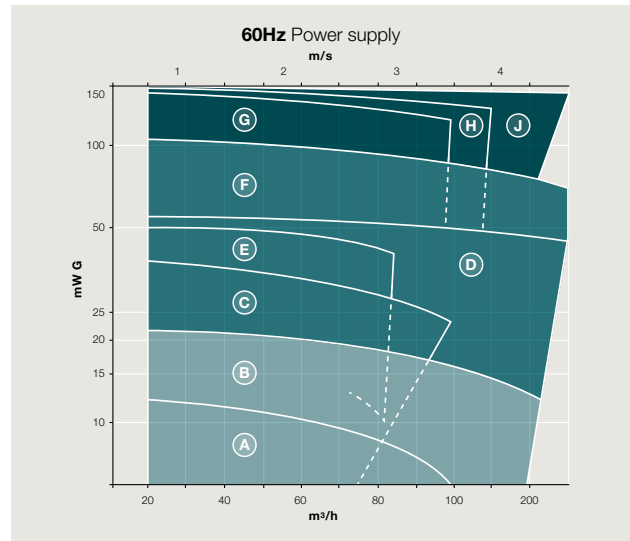
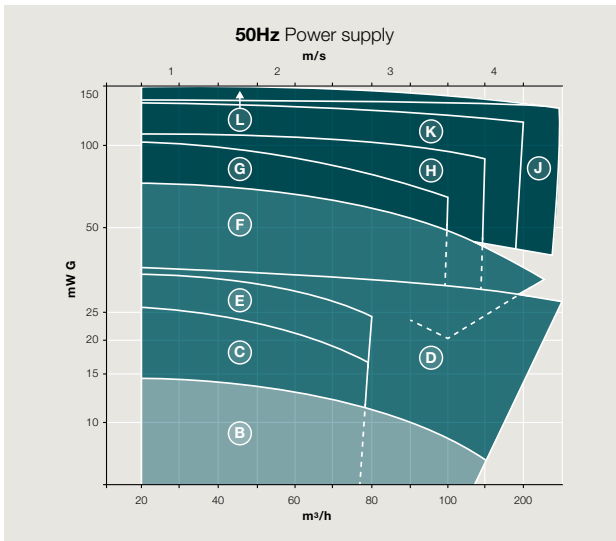
The results of the pressure, capacity and other tests are certified by the factory and the documents are delivered with the pumps together with other ordered certificates.

Manuals

As built manuals covering sectional drawing, spare part list and instructions for mounting, operation and repair are supplied in PDF format, unless otherwise specified upon order.

Capacity: 40 – 100 m³/h

DN 100 (4"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed power transmission [kW]				RpM	Max allowed power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..4/300						900	58		58	58
B	Q..4/300	1000	64		64	64	1200	77		77	77
C	Q..4/300	1500	96	96	96	96	1800	115	115	115	115
D	Q..4/300	1500	96	96	96	96	1800	115	115	115	115
E	Q..4/300	1500	96	96	96	96	1800	115	115	115	115
F	Q..2-4/300	1500	88*	56*		67	1800	105*	66*		80
G	Q..4/300	3000	130*	130*	130	130	3600	130*		130	130
H	Q..4/300	3000	130*	130*	130	130	3600	130*		130	130
J	Q..4/300	3000	130*	130*	130	130	3600	130*		130	130
K	Q..4/300	3000	130*	130*	130	130					
L	Q..4/300	3000	130*	110*		130					

*Valid for built-in bottom sleeve bearing only

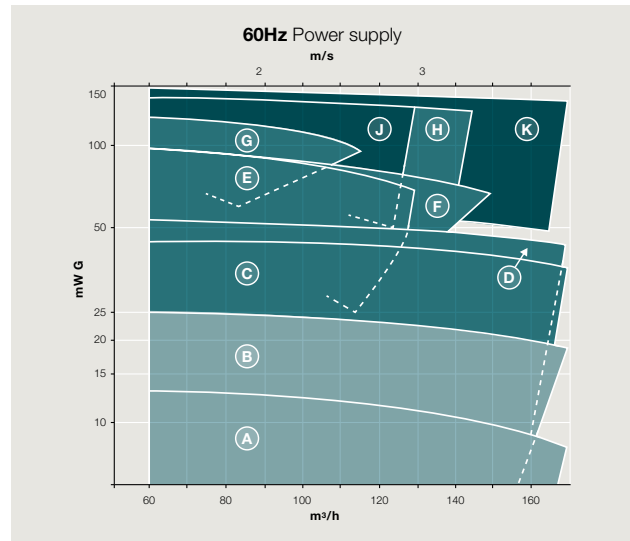
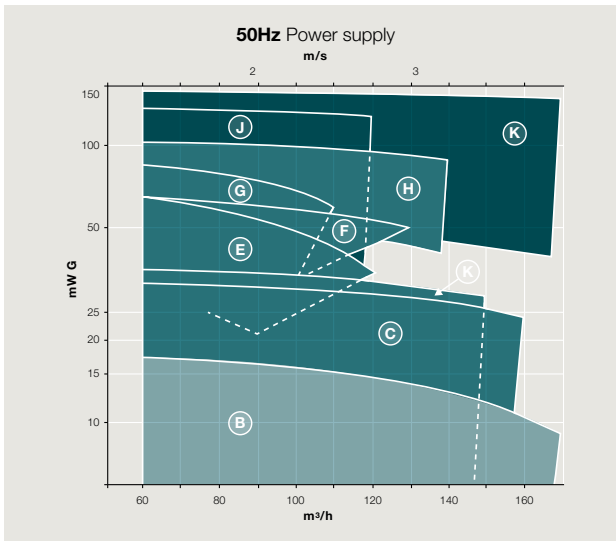
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter	
	Coupling end	Material Gauge	Max. test Pressure		Weight*		
	Ø mm	mm	Bar		kg		
QV-4/300	36	GJL-250	9		12	89	
QVP-4/300	36	GJS-400-15	9		24	89	
QVK-4/300	36	RG10	9		12	103	
QH-4/300	36	Al.Brz.	9		20	93	
QV-2-4/300	36	GJL-250	12		15	146	
QVP-2-4/300	36	GJS-400-15	12		37,5	146	
QVK-2-4/300	36	RG10	8		15	160	
QH-2-4/300	32	Al.Brz.	8		24	139	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 80 – 150 m³/h

DN 125 (5"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed power transmission [kW]				RpM	Max allowed power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..5/300						900	58		58	58
B	Q..5/300	1000	64		64	64	1200	77		77	77
C	Q..5/300	1500	96	96	96	96	1800	115	115	115	115
D	Q..5/300	1500	96	96	96	96	1800	115	115	115	115
E	Q..2-5/300	1500	88	56		67	1800	105*	66*		80
F	Q..2-5/300	1500	96	96	96	67	1800	115*	115*	115	80
G	Q..2-5/300	1500	96*	96*	96	67	1800	115*	115*	115	80
H	Q..2-5/300	1500	96*	96*	96	67	1800	115*	115*	115	80
J	Q..5/300	3000	130*	130*	130	130	3600	130*		130	130
K	Q..5/300	3000	130*	130*	130	130	3600	130*		130	130

*Valid for built-in bottom sleeve bearing only

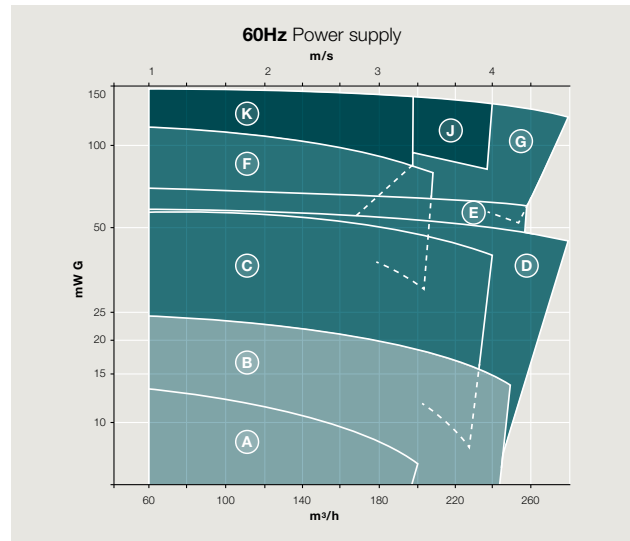
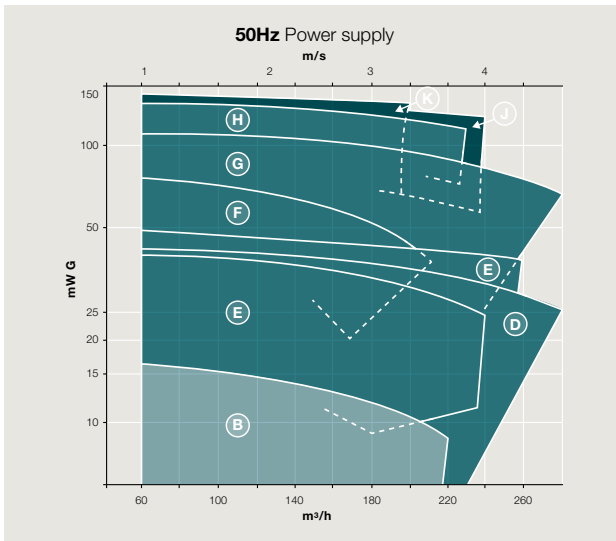
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test Pressure	Weight*		
	Ø mm	mm	Bar	Kg		
QV-5/300	36	GJL-250	9	12	98	
QVP-5/300	36	GJS-400-15	9	15	98	
QVK-5/300	36	RG10	9	12	112	
QH-5/300	36	Al.Brz.	9	15	100	
QV-2-5/300	36	GJL-250	12	15	146	
QVP-2-5/300	36	GJS-400-15	12	37,5	146	
QVH-2-5/300	32	RG10	8	15	183	
		Al.Brz.	8	24	159	
QV-2-5/330	36	GJL-250	12	15	240	
QVP-2-5/330	36	GJS-400-15	12	24	240	
QVK-2-5/330	36	RG10	12	15	266	
QVH-2-5/330	36	Al.Brz.	12	24	231	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 125 – 250 m³/h

DN 150 (6"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed power transmission [kW]				RpM	Max allowed power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..6/300						900	58		58	58
B	Q..6/300	1000	64		64	64	1200	77		77	77
C	Q..6/300	1500	96	96	96	96	1800	115	115	115	115
D	Q..6/300	1500	96	96	96	96	1800	115	115	115	115
E	Q..6/350	1500			260	445	1800			319	535
F	Q..2-6/330	1500	96*	96*	96	67	1800	115*	115*	96	80
G	Q..2-6/400	1500	340			230	1800	410*			275
H	Q..3-6/350	1500			260	260					
J	Q..6/300	3000	130*	130*	130	130	3600	130*		130	130
K	Q..6/300	3000	130*	130*	130	130	3600	130*		130	130

*Valid for built-in bottom sleeve bearing only

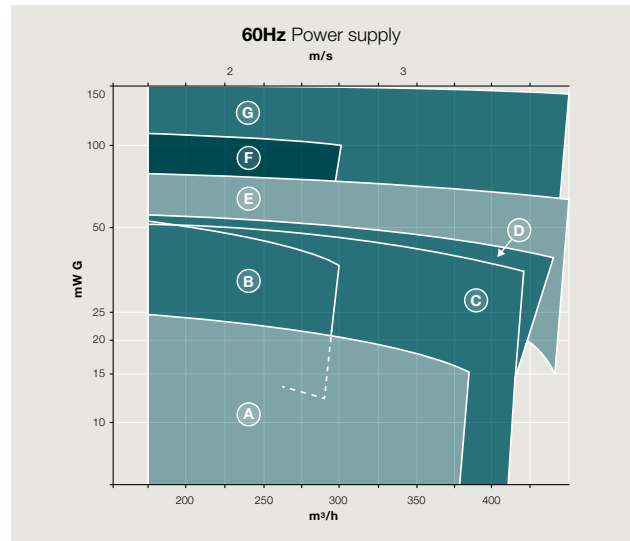
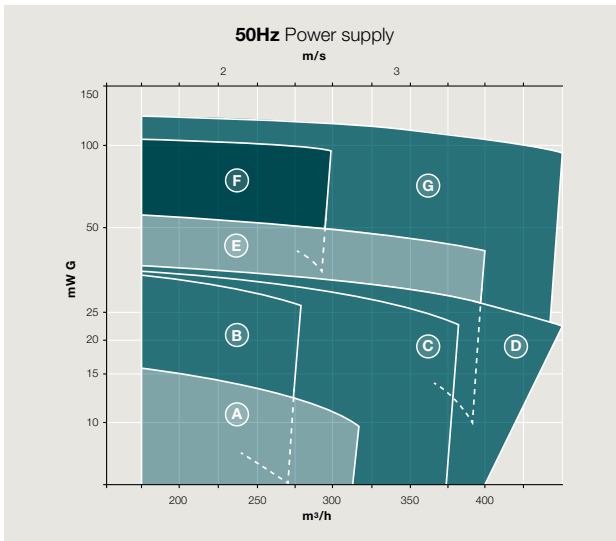
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test Pressure	Weight*		
	Ø mm	mm	Bar	Kg		
QV-6/300	36	GJL-250	9	12	98	
QVP-6/300	36	GJS-400-15	9	15	98	
QVK-6/300	36	RG10	9	12	114	
QH-6/300	36	Al.Brz.	9	15	102	
	36	GJS-400-15	14	37.5	130	
	36	Al.Brz.	14	24	115	
QV-2-6/330	36	GJL-250	12	15	240	
QVP-2-6/330	36	GJS-400-15	12	24	240	
QVK-2-6/330	36	RG10	12	15	266	
QH-2-6/330	36	Al.Brz.	12	24	231	
QVK-6-/350	50	GJL-250	12	15	190	
QH-6/350	60	GJS-400-15	12	24	190	
		RG10	12	15	227	
		Al.Brz.	12	24	197	
QV-2-6/400	50	GJL-250	12	15	275	
QH-2-6/400	48	GJS-400-15	12	24	275	
		RG10	12	15	329	
		Al.Brz.	12	24	286	
QVK-3-6/350	50	GJL-250	20	15	543	
QH-3-6/350	50	GJS-400-15	20	37,5	543	
		RG10	20	15	649	
		Al.Brz.	20	37,5	564	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 200 – 400 m³/h

DN 200 (8"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed power transmission [kW]				RpM	Max allowed power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..8/300	1000	64		64	64	1200	77		77	77
B	Q..8/300	1500	96	96	96	96	1800	115	115	115	115
C	Q..8/300	1500	96	96	96	96	1800	115	115	115	115
D	Q..8/300	1500	96	96	96	96	1800	115	115	115	115
E	Q..2-8/350	1000	265			230	1200	320*			275
F	Q..8/300	3000	130*	130*	130	130	3600	130*		130	130
G	Q..2-8/350	1500	400*			340	1800	480*			410

*Valid for built-in bottom sleeve bearing only

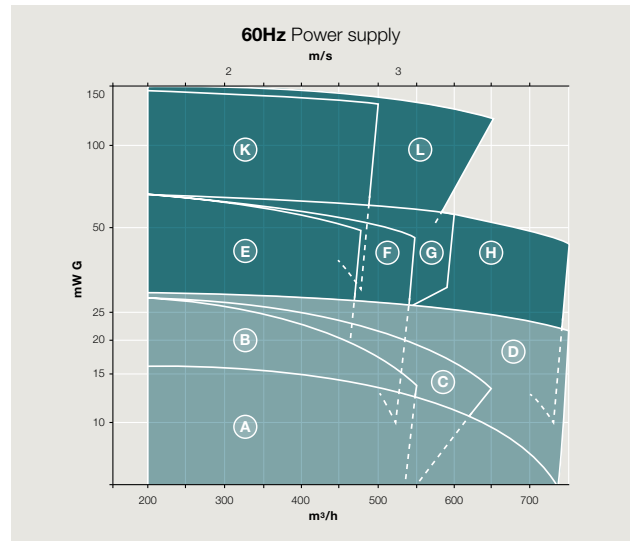
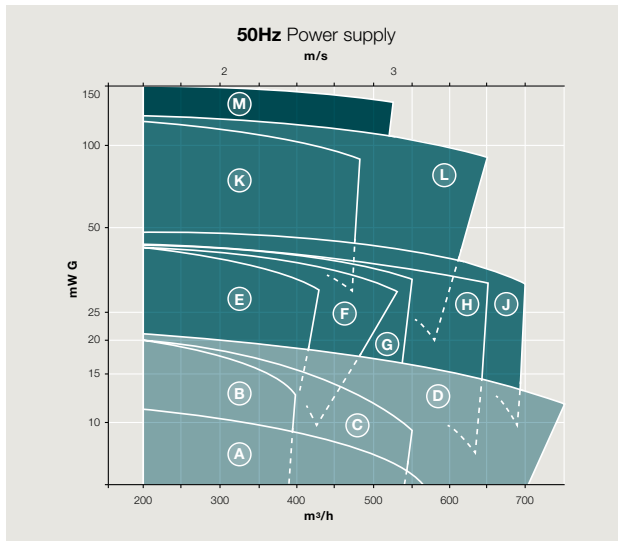
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test Pressure	Weight*		
	Ø mm	mm	Bar	Kg		
QV-8/300 QVP-8/300 QVK-8/300 QH-8/300	36	GJL-250	8	12	127	
		GJS-400-15	8	15	127	
		RG10	8	12	159	
		Al.Brz.	8	15	140	
		GJS-400-15	13	37.5	206	
QVK-8/350 QH-8/330	50 60	Al.Brz.	13	24	160	
		GJL-250	14	15	282	
		GJS-400-15	14	24	282	
		RG10	14	15	338	
QV-2-8/350 QH-2-8/350	60 55	Al.Brz.	14	24	294	
		GJL-250	18	15	485	
		GJS-400-15	18	24	485	
		RG10	18	15	531	
		Al.Brz.	18	24	462	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 300 – 600 m³/h

DN 250 (10"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed Power transmission [kW]				RpM	Max allowed Power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..10/320	750	170		145	130	900	205		175	155
B	Q..10/300	1000	64		64	64	1200	77		77	77
C	Q..10/320	1000	230		190	170	1200	275		230	205
D	Q..10/320	1000	230		190	170	1200	275		230	205
E	Q..10/300	1500	96	96	96	96	1800	115	115	115	115
F	Q..10/300	1500	96	96	96	96	1800	115	115	115	115
G	Q..10/300	1500	96	96	96	96	1800	115	115	115	115
H	Q..10/320	1500	340		290	260	1800	410		350	310
J	Q..10/360	1500	96		96	96					
K	Q..2-10/350	1500	400*			340	1800	480*			410
L	Q..2-10/350	1500	400*			340	1800	480*			410
M	Q..10/350	3000			515	880					

*Valid for built-in bottom sleeve bearing only

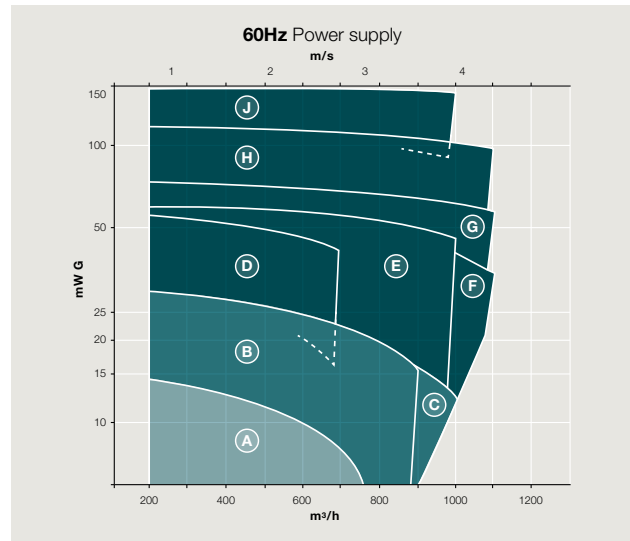
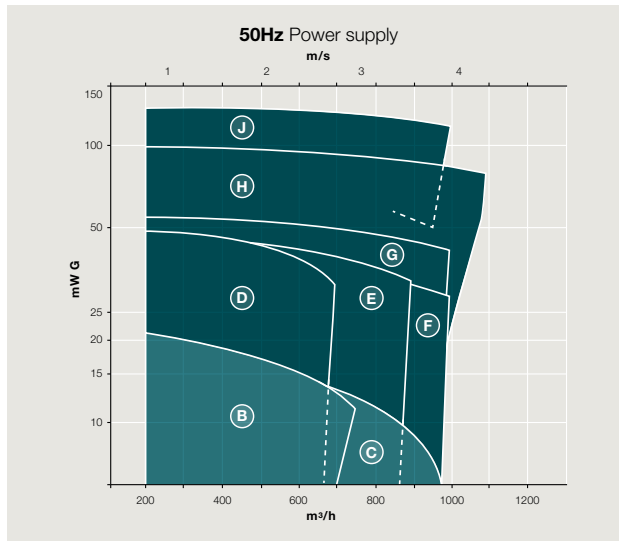
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test Pressure	Weight*		
	Ø mm	mm	Bar	kg		
QV-10/300	36	GJL-250	9	12	150	
QVP-10/300	36	GJS-400-15	9	18	150	
QVK-10/300	36	RG10	9	12	91	
QH-10/300	36	Al.Brz.	9	18	61	
	36	GJS-400-15	15	37.5	240	
QV-10/320	55	GJL-250	18	16	343	
QVK-10/320	55	GJS-400-15	18	37.5	343	
QH-10/320	50	RG10	10	10	327	
	50	Al.Brz.	10	16	284	
QVK-10/350	50	GJL-250	10	16	334	
QH-10/350	60	GJS-400-15	10	25	334	
	60	RG10	10	16	400	
	60	Al.Brz.	10	25	347	
QV-10/360	36	GJL-250	14	12	197	
QVP-10/360	36	GJS-400-15	14	37.5	197	
QVK-10/360	36	RG10	9	12	220	
QH-10/360	36	Al.Brz.	9	18	193	
QV-210/350	60	GJL-250	18	15	485	
QH-2-10/350	55	GJS-400-15	18	24	485	
		RG10	18	15	578	
		Al.Brz.	18	24	503	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 500 – 900 m³/h

DN 300 (12"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz				Data for continuous duty at 60 Hz			
		RpM	Max allowed power transmission [kW]			RpM	Max allowed power transmission [kW]		
			QV	QVK	QH		QV	QVK	QH
A	Q..12/320					900	205	175	155
B	Q..12/320	1000	230	190	170	1200	273	230	205
C	Q..12/320	1000	230	190	170	1200	273	230	205
D	Q..12/360	1500	96	96	96	1800	115	115	115
E	Q..12/320	1500	340	290	260	1800	410	350	310
F	Q..12/320	1500	340	290	260	1800	410	350	310
G	Q..12/350	1500	400		340	1800	480*		410
H	Q..12/500	1500		230	230	1800		275	275
J	Q..12/630	1500			1000	1800			1000

*Valid for built-in bottom sleeve bearing only

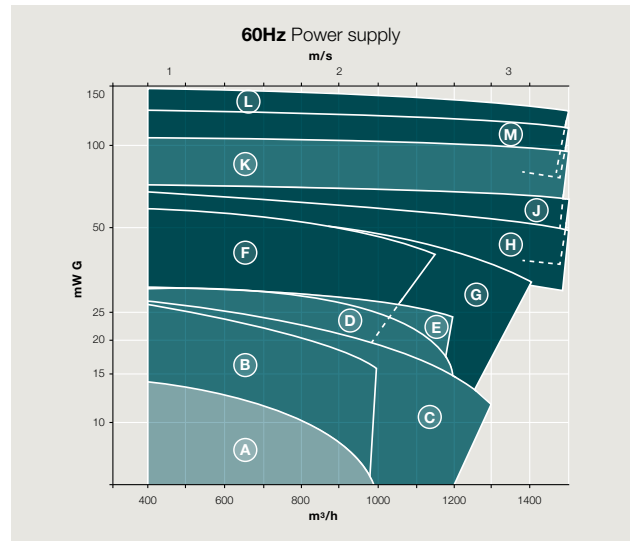
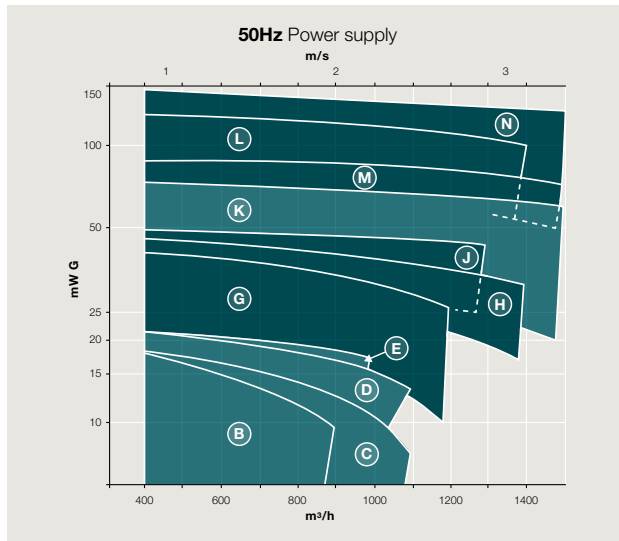
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test Pressure	Weight*		
	Ø mm	mm	Bar	kg		
QV-12/320 QVK-12/320 QH-12/320	55 55 50	GJL-250 GJS-400-15 RG10 Al.Brz.	15 15 10 10	15 37.5 10 15	368 368 348 303	
QV-12/350 QH-12/350	60 55	GJL-250 GJS-400-15 RG10 Al.Brz.	15 15 15 15	12 37.5 12 18	486 486 547 476	
QV-12/360 QVK-12/360 QH-12/360	36 36 36	GJL-250 GJS-400-15 RG10 Al.Brz.	14 14 9 9	12 37.5 12 18	197 197 220 193	
QVK-12/500 QH-12/500	48 48	GJL-250 GJS-400-15 RG10 Al.Brz.	14 14 14 14	15 24 15 24	712 712 850 739	
QH-12/630	95	GJL-250 GJS-400-15 RG10 Al.Brz.	16 16 16 16	15 37.5 15 24	927 927 1107 963	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 700 – 1300 m³/h

DN 350 (14"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed power transmission [kW]				RpM	Max allowed power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..14/320						900	240		175	155
B	Q..14/320	1000	270		190	170	1200	320		230	205
C	Q..14/320	1000	270		190	170	1200	320		230	205
D	Q..14/320	1000	270		190	170	1200	320		230	205
E	Q..14/350	1500	170			170	1200	205			205
F	Q..14/320						1800	480		350	310
G	Q..14/320	1500	400		190	260	1800	480		350	310
H	Q..14/320	1500	400		190	260	1800	480*		350	310
J	Q..14/350	1500	400			260	1800	480*			310
K	Q..14/630	1000				1175	1200				1410
L	Q..14/630	1500				1765	1800				2120
M	Q..14/500	1500			705	705	1800			850	850
N	Q..14/500	1500			705	705					

*Valid for built-in bottom sleeve bearing only

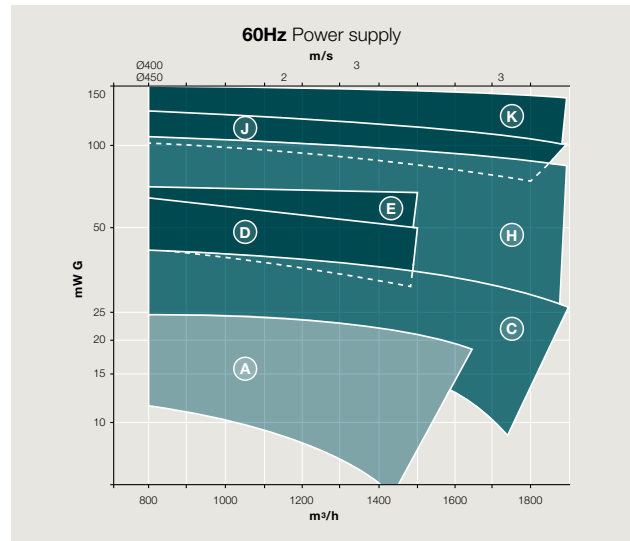
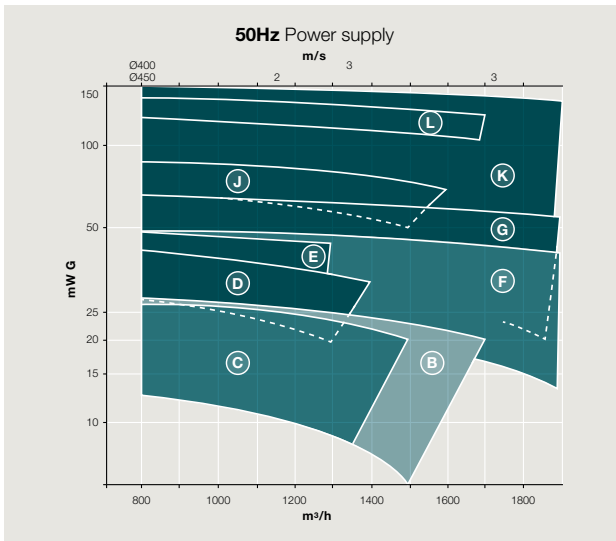
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end		Material Gauge	Max. test Pressure	Weight*	
	Ø mm		mm	Bar	Kg	
QV-14/320	55	GJL-250	10	10	364	
QVK-14/320	55	GJS-400-15	10	15	364	
QH-14/320	50	RG10	10	10	416	
		Al.Brz.	10	15	362	
QV-14/350	60	GJL-250	15	15	552	
QH-14/350	50	GJS-400-15	15	24	552	
		RG10	15	15	659	
		Al.Brz.	15	24	593	
QVK-14/500	70	GJL-250	20	15	1330	
QH-14/500	70	GJS-400-15	20	24	1330	
		RG10	20	15	1590	
		Al.Brz.	20	24	1385	
QH-14/630	95	GJL-250	16	15	927	
		GJS-400-15	16	24	927	
		RG10	16	15	1107	
		Al.Brz.	16	24	963	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 1000 – 1700 m³/h

DN 400/450 (16"/18"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz					Data for continuous duty at 60 Hz				
		RpM	Max allowed power transmission [kW]				RpM	Max allowed power transmission [kW]			
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..18/320						720	170		215	340
B	Q..18/320	750	170		220	350					
C	Q..18/320	1000	230		300	470	1200	275		355	565
D	Q..16/320	1500	400		290	260	1800	480		350	310
E	Q..16/350	1500	400			260	1800	480*			310
F	Q..18/320	1000	230		445	470					
G	Q..18/320	1500	340*		445	705					
H	Q..16/630						1200				1410
J	Q..16/500	1500			705	705	1800			850	850
K	Q..16/630	1500				1765	1800				2115
L	Q..16/500	1500			705	705					
M	Q..16/400	750	35		35	35	900	55		55	55
N	Q..16/400	1500	225		225	225	1800	390		390	390
O	Q..18/400						1200	130		130	130
P	Q..18/400	1500	225		225	225	1800	390		390	390

*Valid for built-in bottom sleeve bearing only

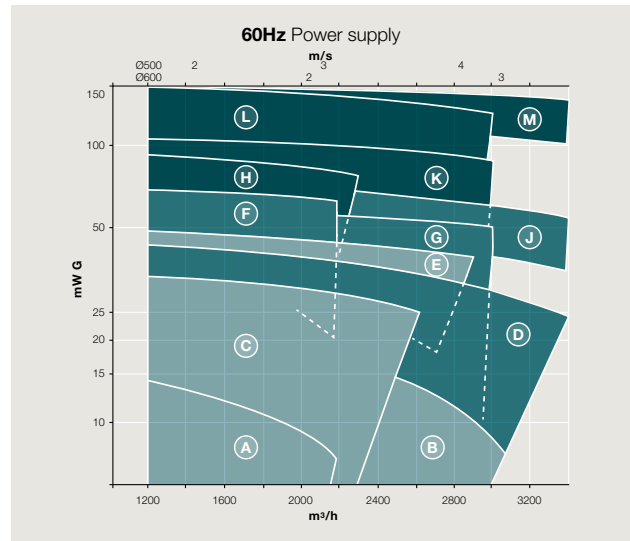
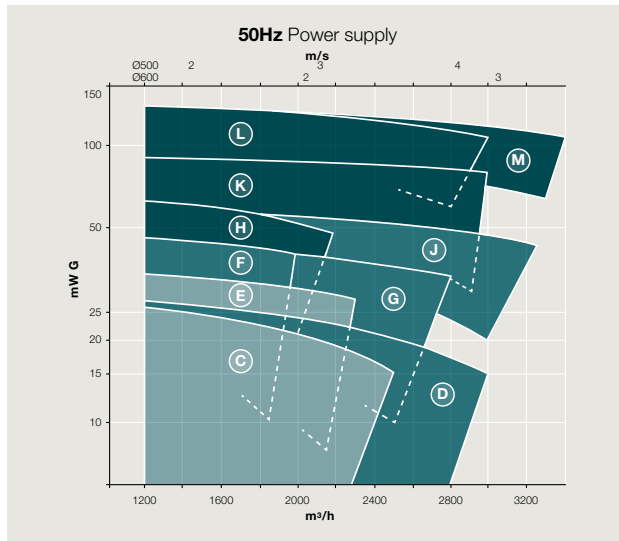
Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test Pressure	Weight*		
	Ø mm	mm	Bar	Kg		
QV-16/320 QVK-16/320 QH-16/320	55 55 50	GJL-250 GJS-400-15 RG10 Al.Brz.	10 10 10 10	10 15 10 15	382 382 429 373	
QV-16/350 QH-16/350	60 50	GJL-250 GJS-400-15 RG10 Al.Brz.	15 15 15 15	15 24 15 24	541 541 647 563	
QV-18/320 QVK-18/320 QH-18/320	55 70 70	GJL-250 GJS-400-15 RG10 Al.Brz.	12 12 12 12	10 15 10 15	963 963 857 846	
QV-.../400 QVK-.../400 QH-.../400	50	GJL-250 GJS-400-15 RG10 Al.Brz.	10 10 10 10	6 10 6 10	474 474 553 -	
QVK-16/500 QH-16/500	70 70	GJL-250 GJS-400-15 RG10 Al.Brz.	20 20 20 20	15 24 15 24	1330 1330 1590 1385	
QH-16/630	95	GJL-250 GJS-400-15 RG10 Al.Brz.	16 16 16 16	15 24 15 24	927 927 1107 965	

*Weight of the complete pump is indicated on pages 17 and 19

Capacity: 1500 – 3000 m³/h

DN 500/600 (20"/24"dia.) Flange connections



Identification of Pump Type No. And Curve Sheet No.

Index letter	Basic type no.	Data for continuous duty at 50 Hz				Data for continuous duty at 60 Hz					
		RpM	Max allowed power transmission [kW]			RpM	Max allowed power transmission [kW]				
			QV	QVP	QVK	QH		QV	QVP	QVK	QH
A	Q..20/450						720	215		340	415
B	Q..20/450						900	265		425	520
C	Q..20/450	750	220		350	435	900	265		425	520
D	Q..20/450	1000	300		470	580	1200	355		565	695
E	Q..20/450	750	220		350	435	900	265		425	520
F	Q..20/320	1000	230		300	470	1200	275*		355	565
G	Q..24/450	1000	300		470	580	1200	355		565	695
H	Q..20/320	1500	340*		445	705	1800	410*		540	845
J	Q..24/450	1000	295*		470	580	1200	355*		565	695
K	Q..20/320	1500	340*		445	705	1800	410*		540	845
L	Q..24/630	1500				1765	1800				2115
M	Q..24/630	1500				1765	1800				2115
N	Q..24/800	750				550	720				530
O	Q..24/800										

*Valid for built-in bottom sleeve bearing only

Data of Shaft and Pump Casing

Complete Pump type No.	Shaft data		Pump casing data			Noter
	Coupling end	Material Gauge	Max. test pressure	Weight*		
	Ø mm	mm	Bar	Kg		
QV-20/320 QVK-20/320 QH-20/320	55 70 70	GJL-250 GJS-400-15 RG10 Al.Brz.	12 12 12 12	10 37.5 10 15	963 963 888 772	
QV-20/450 QVK-20/450 QH-20/450	60 70 75	GJL-250 GJS-400-15 RG10 Al.Brz.	16 16 12 12	15 24 10 15	1630 1630 1347 1171	
QV-24/450 QVK-24/450 QH-24/450	60 70 75	GJL-250 GJS-400-15 RG10 Al.Brz.	16 16 12 12	15 24 10 15	1630 1630 1347 1171	
QH-24/630	95	GJL-250 GJS-400-15 RG10 Al.Brz.	21 21 16 16	15 24 10 21	3130 3130 3130 3130	
QH-24/800	-	RG10 Al.Brz.	16 16	10 21	-	

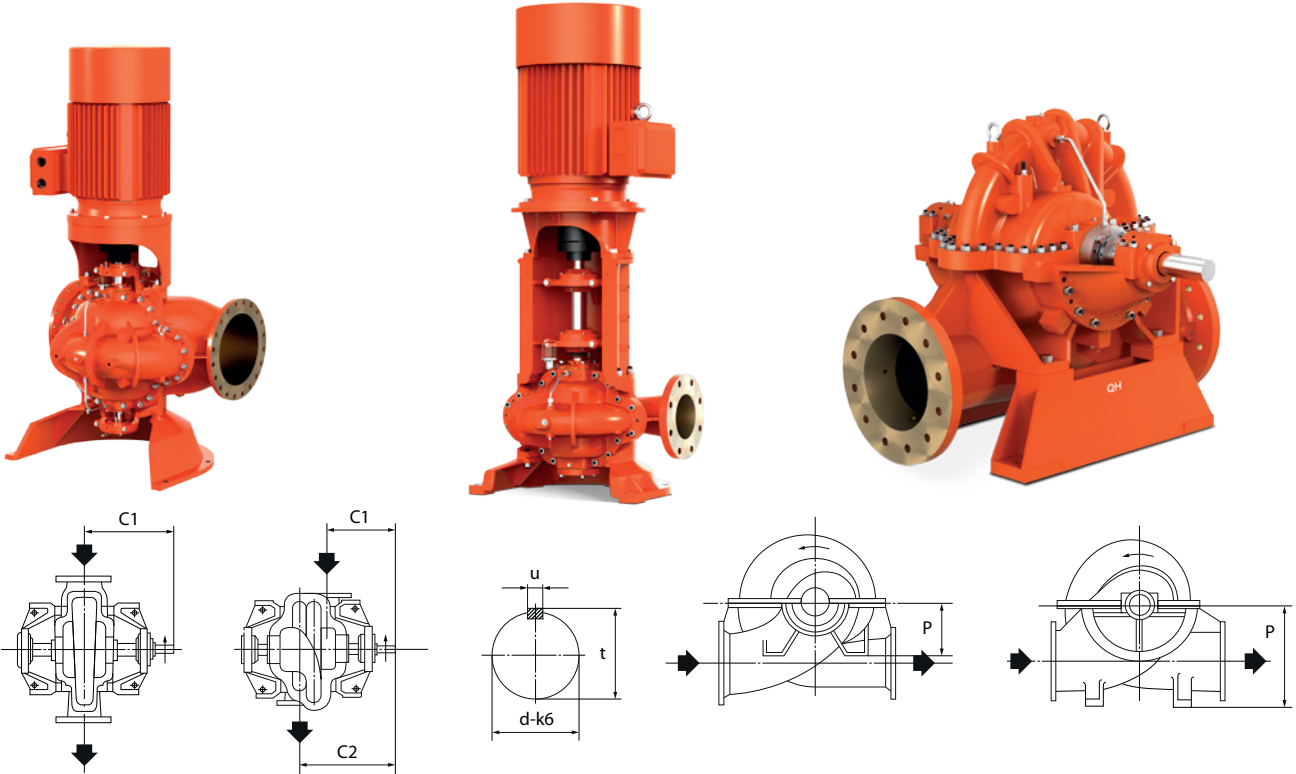
*Weight of the complete pump is indicated on pages 17 and 19

Dimensions

Horizontally mounted pumps

The dimensions given are for guidance only. Manufactured drawings are delivered with each order.

Dimensions of pump connection flanges and length of motors Lm, see page 14.



All dimensions are given in mm

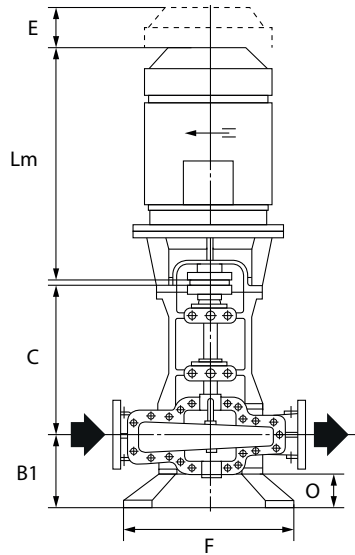
The shaft drive end shown is standard. Drive at the opposite end can be specified with order.

Pump type No.	Flangers DN Suct/Disch	A1/A2	C1/C2	G	Happ	J	K	L	M	N	O	P	I	d	t	u	Weight kg	Model (feet)
QH-4/300	100	260	385	180	365	215	170	705	400	480	145	355	60	36	39	10	200	A
QH-5/300	125	290	385	210	335	225	180	705	400	480	145	355	60	36	39	10	200	A
QH-6/300	150	290	385	210	335	225	180	705	400	480	145	355	60	36	39	10	210	A
QH-8/300	200	350	385	213	332	245	180	705	400	480	145	355	60	36	39	10	230	A
QH-10/300	250	400	385	255	290	270	200	705	400	480	145	355	60	36	39	10	240	A
QH-10/360	250	400	430	255	290	280	190	795	400	480	190	355	60	36	39	10	290	A
QH-12/360	300	400	430	255	290	280	190	795	400	480	190	355	60	36	39	10	290	A
QH-2-4/300	100	250	296/416	190	240	260	170	705	400	500	130	355	60	32	35	10	330	A
QH-2-5/300	125	275	296/416	190	240	260	170	705	400	500	130	355	60	32	35	10	330	A
QH-2-5/330	125	320	273/477	245	300	335	200	755	400	612	104	355	60	36	39	10	420	A
QH-2-6/330	150	320	173/477	245	300	355	200	755	400	612	104	355	60	36	39	10	420	A
QH-2-6/400	150	350	405/545	260	370	360	200	910	510	700	160	290	110	48	51.5	14	460	A
QH-3-6/330	150	350	491/831	260	270	360	200	1135	500	920	175	355	100	50	54	14	800	A
QH-2-8/350	200	425	420/655	260	490	410	210	1060	600	500	340	500	110	55	59	16	550	C
QH-2-10/350	250	425	420/655	260	490	410	210	1060	600	500	340	500	110	55	59	16	550	C
QH-6/350	150	380	500	260	300	280	200	875	500	670	165	290	120	60	64	18	450	A
QH-8/350	200	425	500	275	285	330	210	875	500	670	165	290	120	60	64	18	560	A
QH-10/350	250	425	500	275	285	330	210	875	500	670	165	290	120	60	64	18	580	A
QH-12/350	300	500	595	320	420	380	230	1070	600	500	345	560	110	55	59	16	750	C
QH-14/350	350	550	625	350	430	390	230	1100	700	600	325	625	100	50	54	14	750	C
QH-16/350	400	550	625	350	430	390	230	1100	700	600	325	625	100	50	54	14	750	C
QH-10/320	250	400	570	270	360	330	190	1020	500	820	160	290	95	50	54	14	400	A
QH-12/320	300	400	570	270	360	330	190	1020	500	820	160	290	95	50	54	14	400	A
QH-14/320	350	475	610	300	360	350	230	1100	500	900	160	290	95	50	54	14	500	A
QH-16/320	400	475	610	300	360	350	300	1100	500	900	160	290	95	50	54	14	500	A
QH-18/320	450	630	820	400	590	450	300	1465	820	870	385	400	140	70	74.5	20	1000	B
QH-20/320	500	630	820	400	590	450	300	1465	820	870	385	400	140	70	74.5	20	1000	B
QH-16/400	400	560/500	670	340		350	250				290	105	50	53.5	14	1050		
QH-18/400	450	560/500	670	340		350	250				290	105	50	53.5	14	1050		
QH-20/450	500	820/580	680	525	725	600	330	1260	900	830	265	945	140	75	79.5	20	1450	C
QH-24/450	600	820/580	680	525	725	600	330	1260	900	830	265	945	140	75	79.5	20	1450	C
QH-12/500	300	630	650	355	375	430	290	1190	660	640	330	330	110	48	51.5	14	950	B
QH-14/500	400/350	800/630	800	500	360	580	290	1450	800	800	400	500	140	70	74.5	20	1350	B
QH-16/500	400/350	800/630	800	500	360	580	290	1450	800	800	400	500	140	70	74.5	20	1350	B
QH-12/630	350/300	630	810	355	405	440	330	1420	660	740	440	330	140	95	100	25	1250	B
QH-14/630	350	630	810	355	405	440	330	1420	660	740	440	330	140	95	100	25	1250	B
QH-16/630	400/350	630	810	355	405	440	330	1420	660	740	440	330	140	95	100	25	1250	B
QH-24/630	600/500	1000/850	950	630	550	750	320	1720	1100	1160	370	630	170	95	100	25	3700	B
QH-24/800	600/500	1000/850	1060	630		750	400				630	170	90	95.4	25	-		

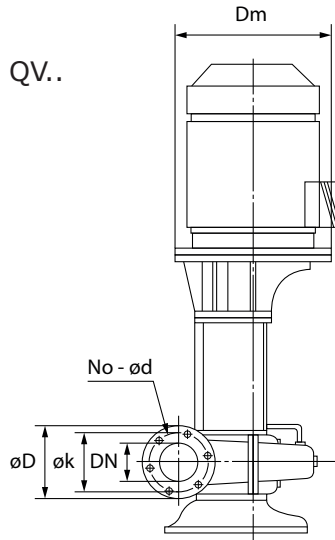
Dimensions

Vertically mounted pumps

The dimensions given are for guidance only. Manufactured drawings are delivered with each order.

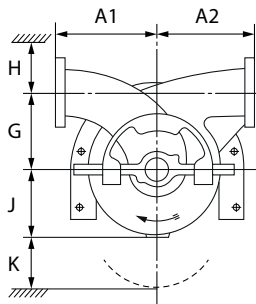


Type QV..



Motor dimensions

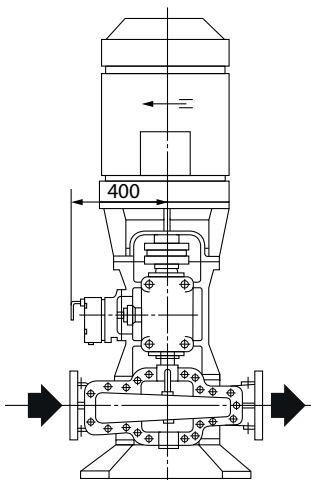
IEC Size	Length Lm	Flange-diameter	Weight kg
132S	530	300	50
132M	570	300	60
160M	590	350	80
160L	640	350	120
180M	655	350	140
180L	690	350	150
200S	740	400	200
200L	760	400	220
225S	820	450	290
225M	860	450	320
250M	930	550	400
280S	990	550	540
280M	1045	550	600
315S	1120	660	800
315M	1165	660	900
315L	1215	660	1400
355S	1350	800	1600
355M	1400	800	1800
355L	1500	800	2000
400M	1635	1000	2700
400L	1940	1000	2900



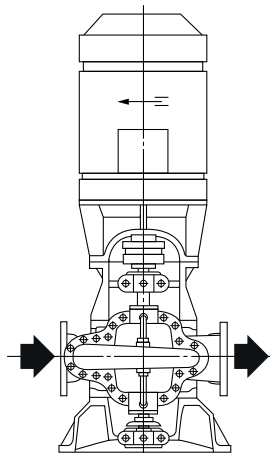
Flange dimensions

Nominal pressure		Connection flanges – Nominal diameter DN										
ISO PN	Dimension mm	(4") DN100	(5") DN125	(6") DN150	(8") DN200	(10") DN250	(12") DN300	(14") DN350	(16") DN400	(18") DN450	(20") DN500	(24") DN600
10	øD	220	250	285	340	395	445	505	565	615	670	780
	øk	180	210	240	295	350	400	460	515	565	620	725
16	No.-ød	8-18	8-18	8-22	8-22	12-22	12-22	16-22	16-26	20-26	20-26	20-30
	øD	220	250	285	340	405	460	520	580	640	715	840
16	øk	180	210	240	295	355	410	470	525	585	650	770
	No.-ød	8-18	8-18	8-22	8-22	12-26	12-26	16-26	16-30	20-30	20-33	20-36

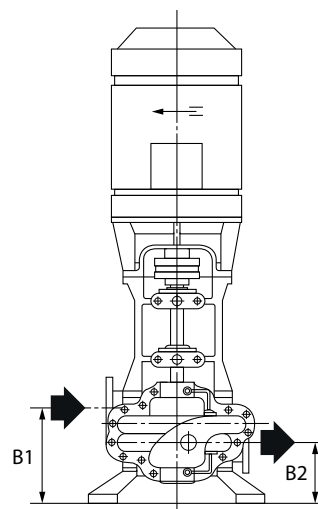
Type QVP..



Type QVK..



Type QV-2(3)



The shown direction of flow, left to right, is standard. Opposite flow direction (and rotation) is available if specified upon order.

All dimensions are given in mm

Pump type No.	Flangers DN Suct/Disch	A1/A2	B1/B2	C	Emin	F	G	Hmin	J	K	M	N	O	P1/P2	Q	R	Weight Kg
QV-4/300	100	260	250	581	140	620	180	130	215	170	200	370	120	305	190	488	270
QV-5/300	125	290	250	581	140	620	210	125	225	180	200	370	120	305	190	488	275
QV-6/300	150	290	250	581	140	620	210	145	225	180	200	370	120	305	190	488	280
QV-8/300	200	350	250	581	140	620	213	170	245	180	200	370	120	305	190	488	300
QV-10/300	250	400	250	581	140	620	255	210	270	200	200	370	120	305	190	488	345
QV-10/360	250	400	295	626	140	620	255	210	280	190			120				400
QV-12/360	300	400	295	626	140	620	255	230	280	190			120				410
QV-2-4/300	100	250	335/215	496	140	620	190	125	260	170	200	370	120	221/341	190	488	350
QV-2-5/300	125	275	335/215	496	140	620	190	125	260	170	200	370	120	221/341	190	488	375
QV-2-5/330	125	320	446/239	500	140	620	245	125	335	200	200	370	120	224/428	190	586	440
QV-2-6/330	150	320	446/239	500	140	620	245	145	335	200	200	370	120	224/428	190	586	460
QV-2-6/400	150	350	468/328	663	170	760	245	145	360	200			165				600
QV-2-8/350	200	425	565/330	717	200	1000	260	250	410	210			140				830
QV-2-10/350	200	425	565/330	717	200	1000	260	250	410	210			140				830
QV-12/350	300	500	400	895	170	1000	320	230	380	230			140				1020
QV-14/350	350	550	450	945	170	1000	350	260	400	230			140				1270
QV-16/350	400	550	450	945	170	1000	350	2290	400	230			140				1300
QV-16/400	400	560/500	525	890	170	760	340	290	350	250			165				770
QV-18/400	450	560/500	525	890	170	760	340	310	350	250			165				700
QV-10/320	250	400	425	830	170	760	270	210	330	190			165				470
QV-12/320	300	400	425	830	170	760	270	230	330	190			165				480
QV-14/320	350	475	465	870	170	760	300	260	350	230			165				570
QV-16/320	400	475	465	870	170	760	300	290	350	300			165				580
QV-18/320	450	630	730	970	170	1200	400	320	450	300			330				1020
QV-20/320	500	630	730	970	170	1200	400	360	450	300			330				1070
QV-20/450	500	820/580	555	1050	250	1000	525	360	600	330			140				1860
QV-24/450	600	820/580	555	1050	250	1000	525	420	600	330			140				1880
QVP-4/300	100	260	250	581	140	620	180	130	215	170	250	350	120	355	300	538	300
QVP-5/330	125	290	250	581	140	620	210	125	225	180	250	350	120	355	300	538	305
QVP-6/300	150	290	250	581	140	620	210	145	225	180	250	350	120	355	300	538	310
QVP-8/300	200	350	250	581	140	620	210	130	245	180	250	350	120	355	300	538	330
QVP-10/300	250	400	250	581	140	620	255	210	270	200	250	350	120	355	300	538	345
QVP-2-4/300	100	250	335/215	496	140	620	190	125	260	170	250	350	120	271/391	300	538	380
QVP-2-5/300	125	275	335/215	496	140	620	190	125	260	170	250	350	120	271/391	300	538	405
QVP-5-5/330	125	320	446/239	500	140	620	245	125	335	200	250	350	120	274/478	300	636	470
QVP-2-6/300	150	320	446/239	500	140	620	245	145	335	200	250	350	120	274/478	300	636	490
QVK-4/300	100	260	320	370	140	620	180	130	215	170			190				250
QVK-5/300	125	290	320	370	140	620	210	125	225	180			190				255
QVK-6/330	150	290	320	370	140	620	210	145	225	180			190				260
QVK-8/330	200	350	320	370	140	620	213	170	245	180			190				280
QVK-10/300	250	400	320	370	140	620	255	210	270	200			190				325
QVK-10/360	250	400	365	415	140	620	255	210	280	190			190				380
QVK-12/360	300	400	365	415	140	620	255	230	280	190			190				390
QVK-6/350	150	380	395	487	170	800	260	145	280	200			220				450
QVK-8/360	200	425	395	487	170	800	275	170	330	210			220				500
QVK-10/350	250	425	395	487	170	800	275	200	330	210			220				550
QVK-2-5/330	125	320	516/309	289	140	620	245	125	335	200			190				440
QVK-2-5/330	150	320	516/309	289	140	620	245	145	335	200			190				460
QVK-3-6/350	150	360	724/384	464	200	800	260	145	360	200			220				960
QVK-10/320	250	400	425	500	200	760	270	210	330	190			165				520
QVK-12/320	300	400	425	500	200	760	270	230	330	190			165				530
QVK-14/320	350	475	465	540	200	760	300	260	350	230			165				600
QVK-16/320	400	475	765	540	200	760	300	290	350	300			165				630
QVK-18/320	450	630	730	640	230	1200	400	320	450	300			330				1070
QVK-20/320	500	630	730	640	230	1200	400	360	450	300			330				1120
QVK-16/400	400	560/500	525	865	170	760	340	290	350	300			-				-
QVK-18/400	450	560/500	525	865	170	760	340	310	350	300			-				.
QVK-20/450	500	820/580	663	748	250	1430	525	360	600	330			248				1890
QVK-24/450	600	820/580	663	748	250	1430	525	420	600	330			248				1900
QVK-12/500	300	630	616	650	230	1200	500	230	430	290			330				1200
QVK-14/500	400/350	800/630	700	800	230	1200	500	260	580	290			330				1900
QVK-16/500	400/350	800/630	700	800	230	1200	500	290	580	325			330				1950



Manufactured in Denmark