

BQLV
Vertical mixed flow pumps

VERTICAL MIXED FLOW PUMPS

BQLV

APPLICATION

Pumps BQLV are intended for pumping clean and slightly polluted water up to 0.75 volume percent of impurities. Max. content of solids may be 0.1 percent up to grain sizes 0.25 mm. Dimensions of soft and fibrous impurities in a pumped liquid may be specified by the manufacturer for the pump individual sizes according to general operating conditions.

Max. temperature of pumped liquid	50 °C
Permissible pH values range of pumped liquid	6,5–9 pH

Pumps BQLV are available for water works, power generation plants, water management and technological processes of various industrial branches, and so on.

DESIGN

According to the general arrangement, these pumps are produced in following version:

Wet sump version: basic version for direct pumping from a water supply, with arrangement of discharge branch „TEE“ under the floor or „TEV“ above the machine room floor.

Wet sump version with intermediate floor: where the water level in the sump can increase and flood the room under the machine room floor, there the pump with intermediate floor for max. upward pressure up to 1.6 bar may be supplied. **The closure is solid non-movable, and ensures at the same time sealing and anchoring of the pump unit stator within intermediate floor.** On the closure there is the discharge branch „TEE“ placed. Sizes 800–BQLV and 1000–BQLV are supplied in that version solely.

Dry sump version: for possibility of installation into a „dry“ sump (with pumping from a separate water space) there the pump with a foot-type elbow may

be installed. Suction elbow sits at the bottom of a pump pit on adjustable supports facilitating both dismantling and access to the pump-set hydraulic part just in a sump. Arrangement of the discharge branch may be both „TEE“ and „TEV“.

Pump-set consists of following main parts:

- Hydraulic part – the pump itself
- Column pipe
- Discharge elbow
- Bearing suspension assembly
- Electric motor

Hydraulic part is represented by a single-stage pump with mixed-flow shrouded impeller. Shaft is supported on journal bearing mounted in a diffuser and lubricated with a pumped water.

Column pipe connecting the hydraulic part with the discharge elbow and bearing support is of steel flanged pipes where the pump-set shaft is conducted. Shaft is carried in guide bearings. Guide bearings at the wet end are of plain type, lubricated with a pumped water, at the dry end of piping there are bearings of rolling-contact type mounted, being grease-lubricated. Seal is gland packing one mounted in the branch elbow.

Bearing suspension assembly bears the pump-set and an electric motor and shall take up the rotor axial thrust through a tapered roller bearing, oil lubricated.

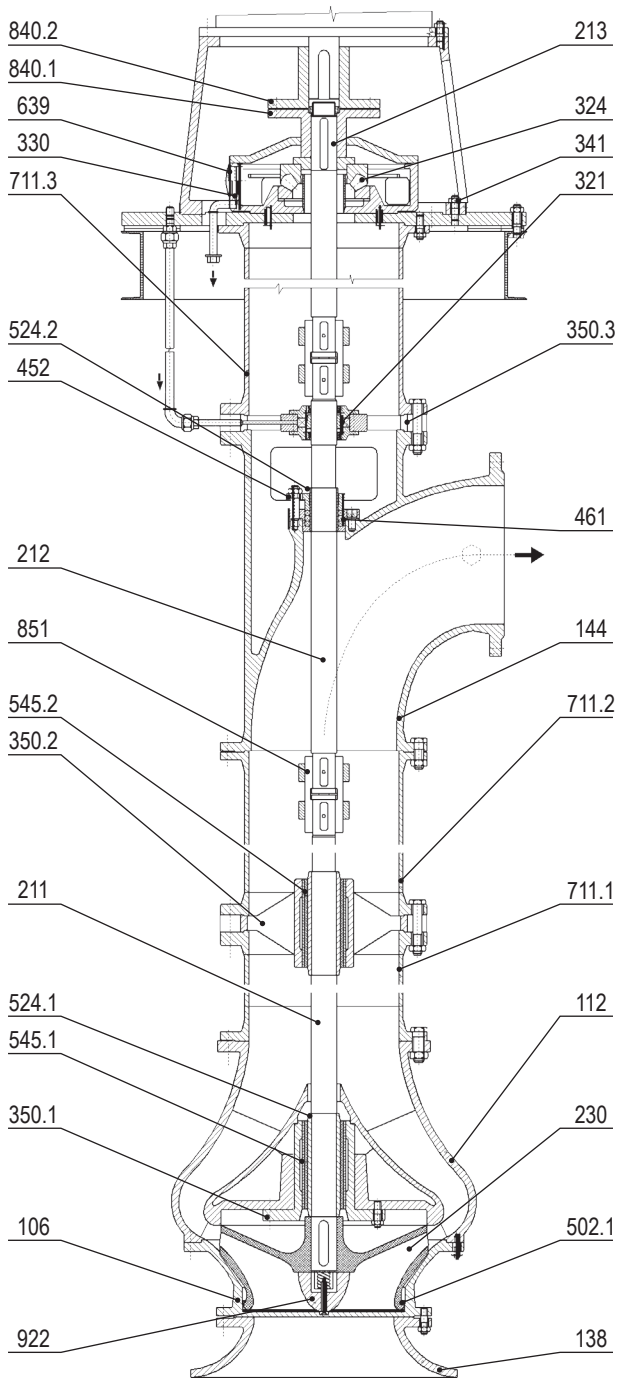
MATERIAL OPTIONS

Pump main parts are of following materials:

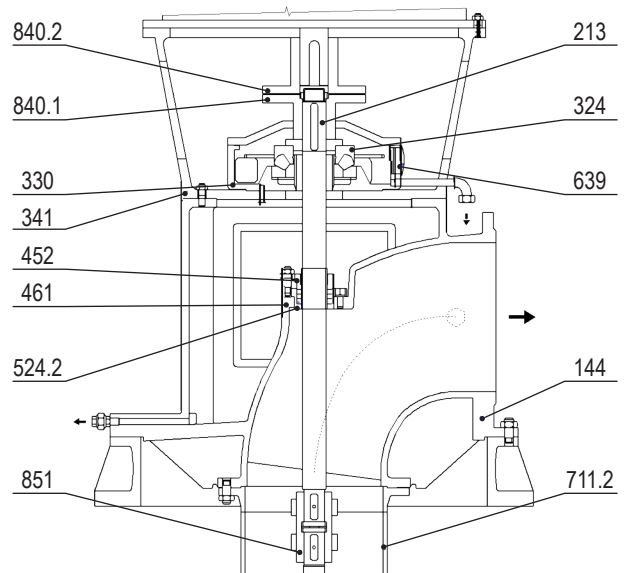
Diffuser, suction cover, suction bell	grey cast iron
Discharge casing, impeller	grey cast iron
Impeller wear ring	bronze
Shaft sleeves	corrosion-proof steel
Shaft	carbon steel
Plain guide bearings	bearing rubber
Column pipe	steel

PUMP CROSS-SECTION

Informatory cross-section of pump 300-BQLV in basic version, with discharge branch „TEE“ above floor



Partial cross-section with discharge branch „TEV“ above floor (pump other parts are the same)



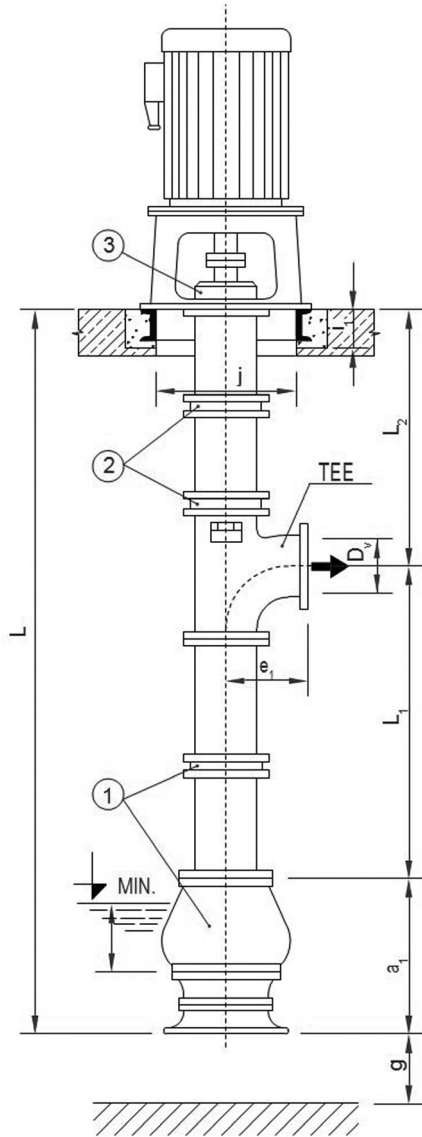
NUMBERING OF POSITIONS ACCORDING TO DIN 24 250

106	Suction casing	452	Gland
112	Diffuser	461	Gland packing
138	Suction bell	502.1	Wear ring
144	Discharge elbow	524.1	Shaft sleeve
211	Pump shaft	524.2	Stuffing box sleeve
212	Discharge elbow shaft	545.1	Diffuser bearing bush
213	Suspension shaft	545.2	Plain bearing
230	Impeller	639	Oil level gauge
321	Rolling-contact bearing	711.1	Column pipe, wet end
324	Thrust bearing	711.2	Column pipe, wet end
330	Oil pool	711.3	Column pipe, dry end
341	Motor stool	840.1	Pump coupling
350.1	Diffuser bearing housing	840.2	Motor coupling
350.2	Plain bearing housing	851	Rigid coupling
350.3	Diffuser box sleeve	922	Impeller nut

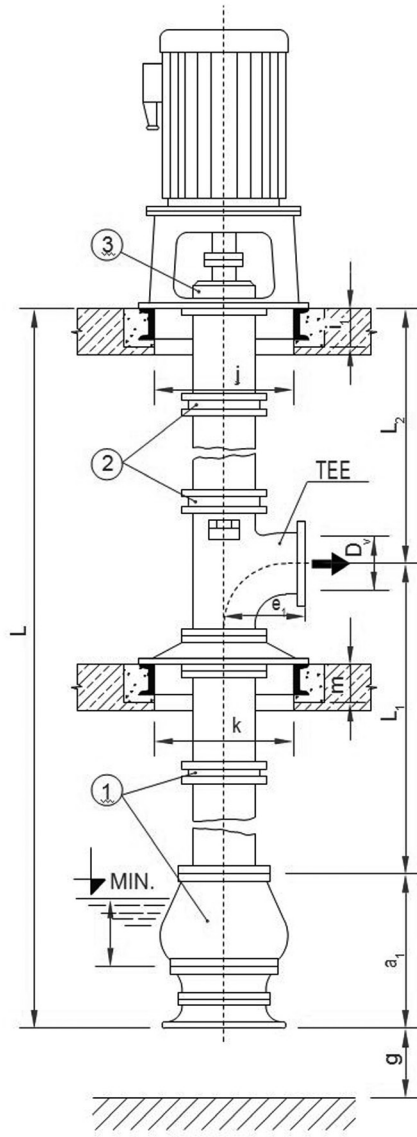
PUMP VERSIONS AND DIMENSIONS

BQLV

Basic version for wet sump



Version for wet sump with intermediate floor

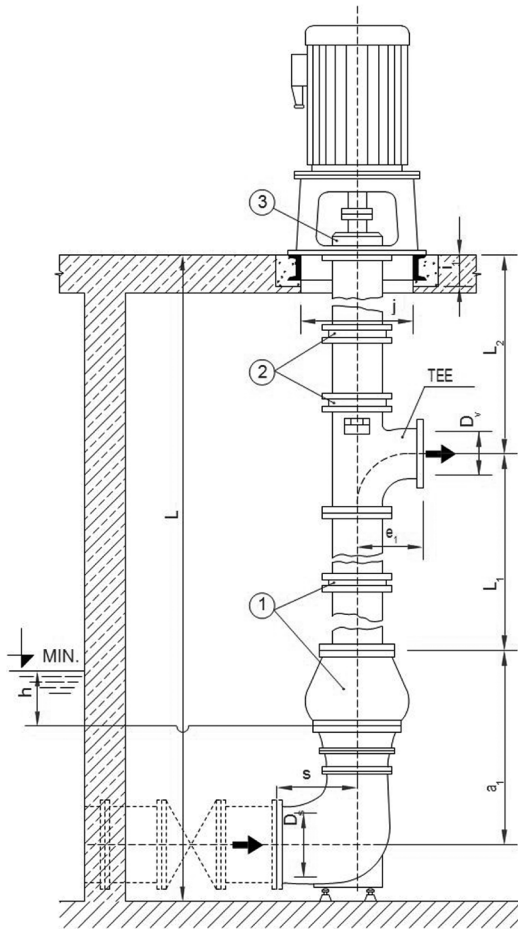


DIMENSIONS

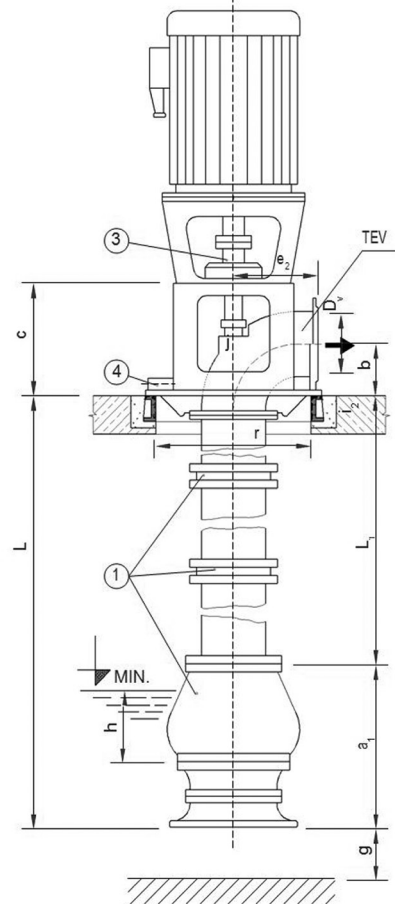
Pump type	300-BQLV	500-BQLV	600-BQLV	800-BQLV	1000-BQLV
a ₁	750	1140	1345	1640	1580
a ₂	1250	1865	1820	2850	*)
b	250	380	700	950	*)
c	500	750	1150	1450	*)
D _v DN/PN	400/6;10	700/6;10	700/6;10	1000/6	*)
D _v DN/PN	300/6;10	500/6;10	600/6;10	800/6	1000/6
e ₁	400	600	700	900	1100
e ₂	400	520	700	900	*)
~g	300	500	550	600	660
h	According to operating conditions				

Pump type	300-BQLV	500-BQLV	600-BQLV	800-BQLV	1000-BQLV
i ₁	160	220	220	280	310
i ₂	150	200	200	220	*)
j	770x770	1310x1310	1310x1310	2000x2000	2200x2200
k	800	1100	1100	1700x1700	1900
L _{min}	1950	2790	3455	4190**)	4780**)
~L _{max}	8000	10000	10000	12000	15000
L _{1 min}	400	600	700	1150	1100
~L _{2 max}	800	1050	1410	1400	2100
m	150	200	200	220	250
r	800	1100	1300	1500	*)
s	500	800	800	1100	*)

Version for dry sump



Version for wet sump, with branch „TEV“



Above given dimensions are of informatory character. More detailed and binding information is available with individual particular offers or orders after preceding technical clarification of a contract.

*)	Pump 1000-BQLV has not been manufactured in dry sump or wet sump with branch „TEV“ versions yet.
**)	Pumps 800-BQLV and 1000-BQLV are supplied with intermediate floor only.

h	Minimum water level for the pump reliable operation. That indication is specified individually according to operating parameters.
L ₁	Length of „wet“ column pipe.
L ₂	Length of „dry“ column pipe.

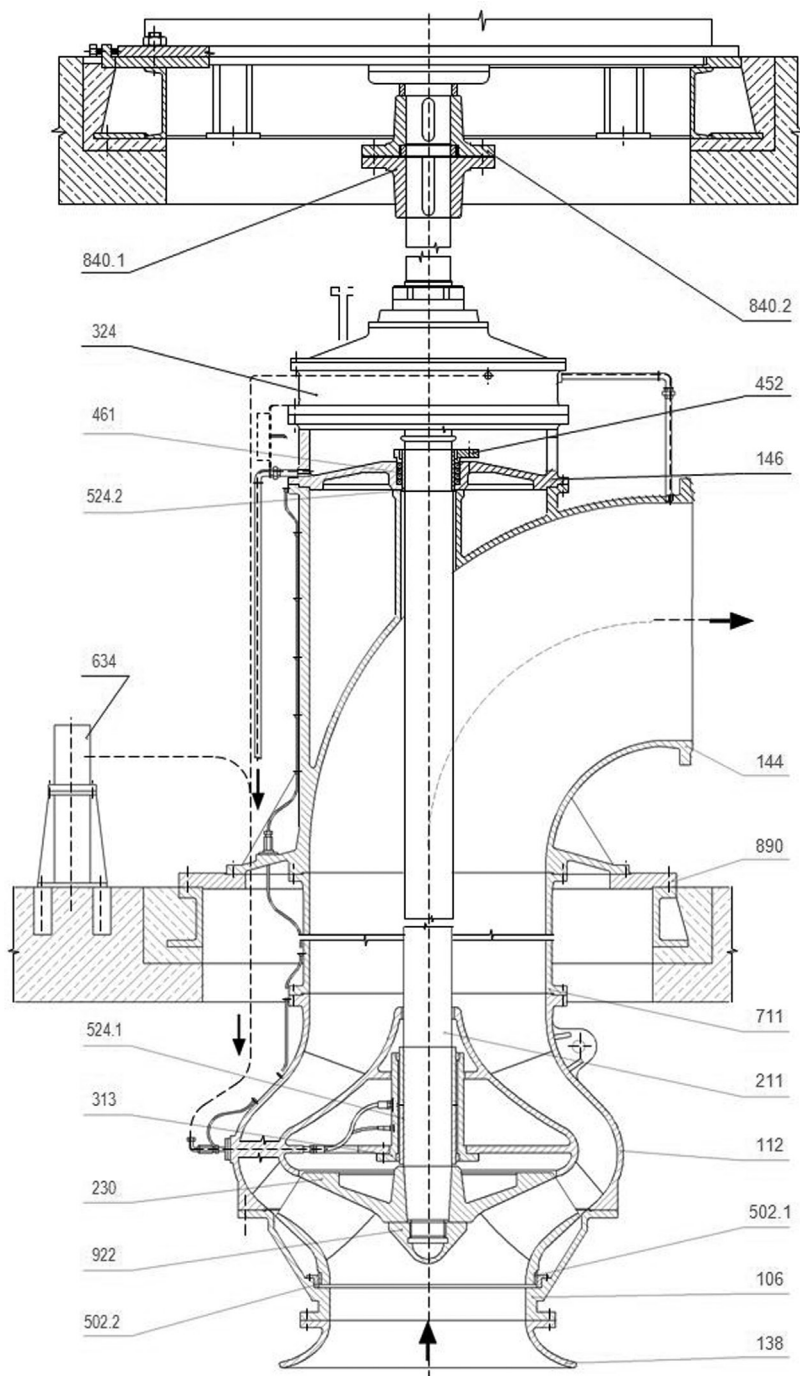
Lengths L₁ and L₂ in basic workmanship for wet sumps are given in the Table as minimal ones. With smaller sizes there are modular arrangement by 250 mm used, greater sizes may be designed individually, according to operating conditions.

1	Journal bearings in column pipe of „wet“ end and in a diffuser are lubricated with a pumped water.
2	Rolling-contact bearings in column pipe of „dry“ end are grease-lubricated at intervals with a hand-operated grease gun.
3	Thrust bearing of suspension assembly is oil-lubricated.
4	Drain from a seal leakage – connection consists of pipe union G 1/2“.

Flanges of suction branch and discharge one are intended for PN 6 or PN 10, with raised face.

INFORMATORY CROSS-SECTION ARRANGEMENT OF PUMP

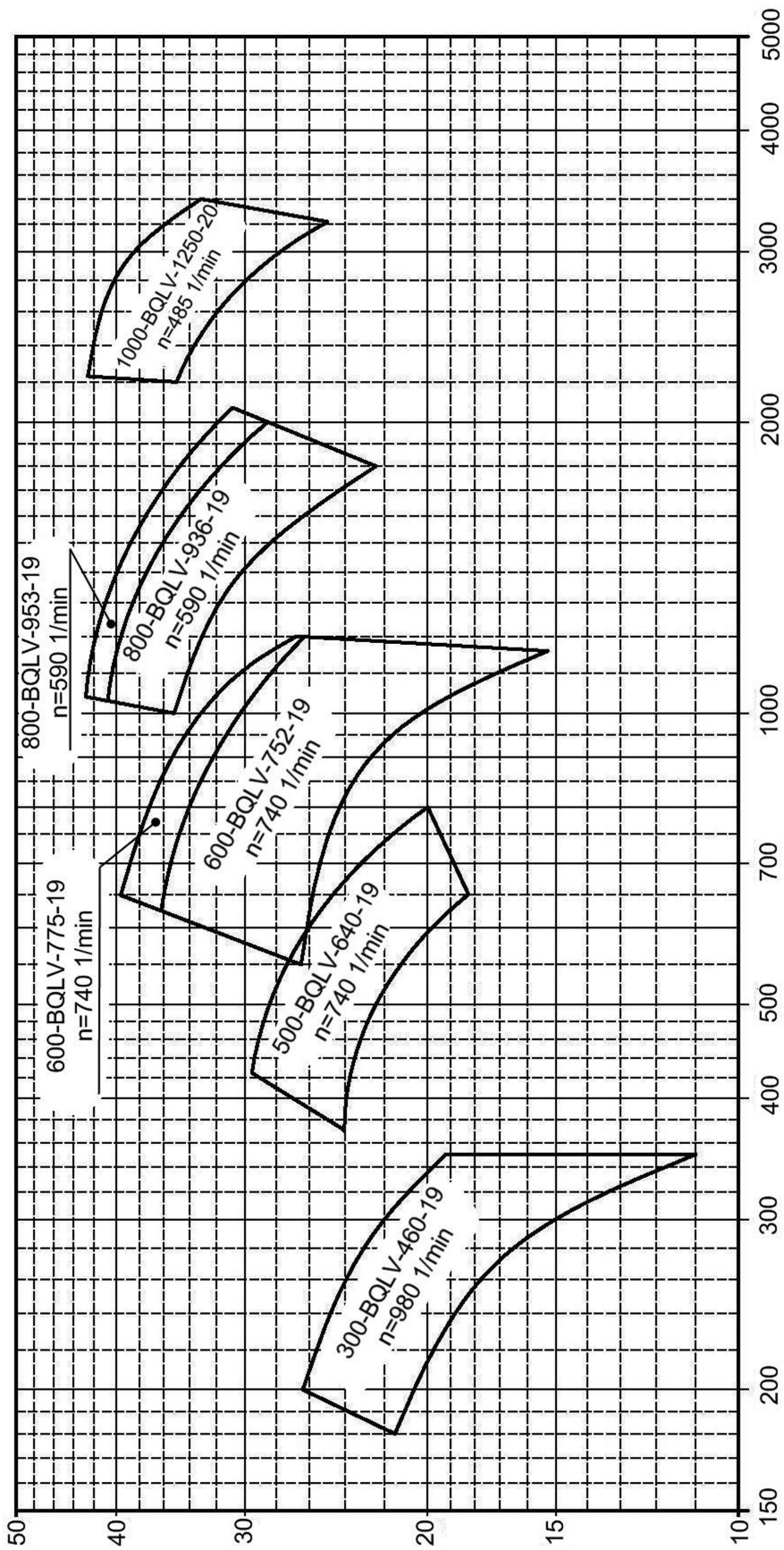
1000-BQLV



NUMBERING OF POSITIONS ACCORDING TO DIN 24 250

106	Suction cover
112	Diffuser
138	Suction bell
144	Discharge elbow
146	Discharge elbow cover
211	Pump shaft
230	Impeller
313	Bearing housing
324	Thrust bearing
452	Gland
461	Gland packing
502.1	Impeller wear ring
502.2	Wear ring
524.1	Shaft sleeve
524.2	Stuffing box sleeve
634	Grease gun
711	Column pipe
840.1	Pump coupling
840.2	Motor coupling
890	Intermediate floor base plate
922	Impeller nut

INFORMATORY SELECTION CHART OF BQLV PUMPS





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