

## Product profile

The third-generation KQDP/KQDQ light vertical multi-stage centrifugal pump is based on the concept of energy saving, environmental protection, safety and reliability, adopting a new industrial and hydraulic design method, and the latest independent research and development of a new generation of products. The product is suitable for different temperature, flow and pressure ranges. It can transport various media from tap water to industrial liquid. It is widely used in water supply, industrial pressurization, industrial liquid transportation, heating supply, irrigation and water treatment, The KQDQ can also be used in the fields of beverages, medicine and etc.. KQDP is suitable for non-corrosive liquids and KQDQ is suitable for mildly corrosive liquids.

This product complies with GB/T 5657-2013 "Technical Conditions for Centrifugal Pumps (III)".

## Product feature



**High efficiency, energy saving, green and environmental protection:** the efficiency index has reached the international leading level, and the energy efficiency index has reached  $MEI \geq 0.7$ .



**Compact, safe and reliable:** under the same flow head parameters, the pump has lower height, less vibration, lower noise, smaller footprint and lighter weight.



**Durable and easy to repair:** It adopts special configuration of cartridge mechanical seal to ensure smooth operation and no leakage in slight vibration and impact environment. At the same time, the machine seal position is designed with sufficient disassembly and assembly space, and the maintenance is convenient. When the machine seal is replaced, there is no need to disassemble the pump.

## Typical application



Water supply: secondary water supply for high-rise buildings, filtration, transportation, supercharged water

Industrial pressure: cleaning system, process water system, high pressure flushing system, fire fighting system

Industrial liquid transport: boiler feed water, condensing system, machine tool components

Heating supply: air conditioning system

Irrigation: farmland irrigation, sprinkler irrigation, drip irrigation

Water treatment: swimming pool, distillation system, etc.

## Working conditions



Liquid: Clean, thin, non-flammable, explosive and free of particles and fibers or liquids with physicochemical properties similar to water

Liquid temperature:  $-20\text{ }^{\circ}\text{C}$  to  $+105\text{ }^{\circ}\text{C}$

Ambient temperature: max.  $+40\text{ }^{\circ}\text{C}$

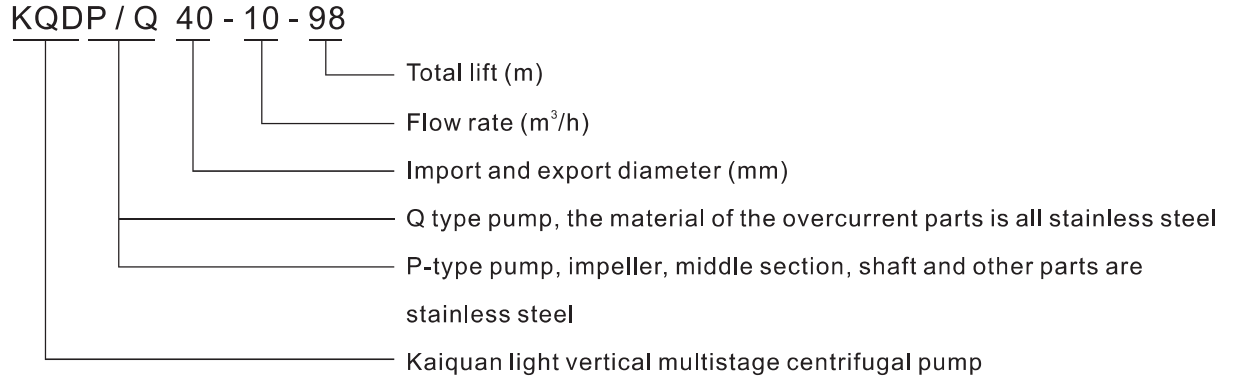
Altitude: height less than 1000m

Maximum operating pressure: KQDP, KQDQ type suction pressure + pump maximum pressure  $\leq 2.5\text{Mpa}$  and inlet pressure  $\leq 1.0\text{Mpa}$

Note: Please consult the technical department of the company if the temperature is higher than  $70\text{ }^{\circ}\text{C}$  or other special conditions.



## Specification



### Motor

Fully enclosed self-cooling squirrel-cage high-efficiency three-phase asynchronous motor, which is 2%~10% more efficient than ordinary motors. Motor bearings are equipped with SKF or NSK bearings.

Standard voltage: 3×380-415V Frequency: 50Hz

Protection level: Ip55

Insulation class: F

Installation form: B14 or V1

Note: Outdoor type, plateau type, explosion-proof motor, thermal protection and other special motor, the order will be explained separately

The matching motor is the national standard energy efficiency level 2 or 3, and is configured according to customer requirements.

### Suction and ischarge flange

The KQDP32 and 40 are equipped with an oval flange as standard. The factory is equipped with a pair of cast iron elliptical flanges (thread joints) and optional round flange connection.

KQDQ32 comes standard with external pipe thread connection, optional bayonet type and flange connection.

The KQDQ40 comes standard with a round flange and an optional bayonet coupling.

KQDP/Q50 and 65 are equipped with round flanges, of which KQDQ50 can be connected by bayonet.

Special note: 1. Elliptical flange connection withstand voltage rating of 1.6Mpa and below, greater than 1.6Mpa, please use round flange connection;

2. All standard flanges are designed according to GB/T17241.6-2008, and the pressure rating is PN 2.5 Mpa;

3. Paired flanges and pipe clamps for pipe connection, which must be ordered separately.

### Maximum suction height

When using the user, the influence of various factors on the use should be considered. The maximum suction height H should be lower than the calculated value (negative value is reversed). Otherwise, the pump will not work properly.

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

$P_b$  = local atmospheric pressure bar (sea level 1 bar) In a closed system,  $P_b$  is the system pressure bar

NPSH = NPSH m  $H_f$  = inlet line loss m

$H_v$  = liquid saturated vapor pressure m  $H_s$  = safety margin  $\geq 0.5$  m

Example: Assume atmospheric pressure  $P_b = 1$  bar, pump NPSH NPSH = 2m, suction line loss  $H_f = 2.2$  m

(1) When the liquid temperature is 20 °C, the saturated vapor pressure  $H_v = 0.23$  m

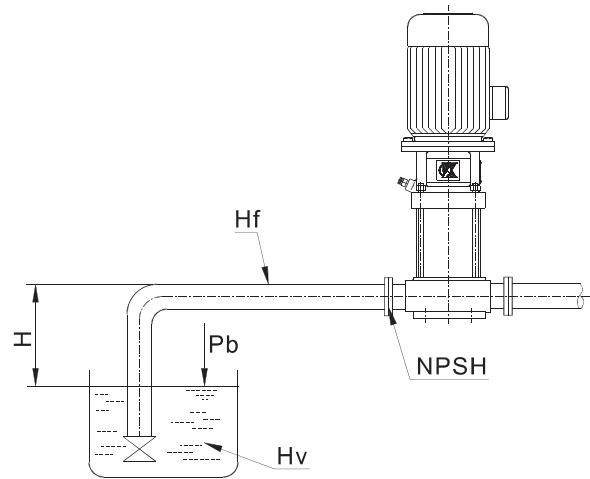
$$H = 1 \times 10.2 - 2 - 2.2 - 0.23 - 0.5 = 5.27 \text{ m (the larger the positive value, the less likely it is to cavitation)}$$

(2) When the liquid temperature is 85 °C, the saturated vapor pressure  $H_v = 5.89$  m

$$H = 1 \times 10.2 - 2 - 2.2 - 5.89 - 0.5 = -0.39 \text{ m (negative value means the pump needs to be poured, the inlet is pressurized)}$$

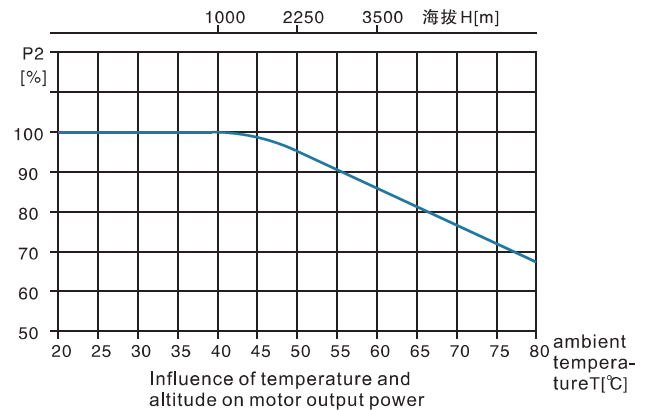
The temperature of the liquid delivered by the pump is inconsistent. When the other conditions of use of the pump are the same, the suction height is also different.

Water physical properties			
water temperature T/°C	Saturated vapor pressure Hv/m	Water temperature T/°C	saturated vapor pressure Hv/m
5	0.09	90	7.15
10	0.13	95	8.62
20	0.23	100	10.33
30	0.43	105	12.32
40	0.75	110	14.61
50	1.26	115	17.24
60	2.03	120	20.25
70	3.18	125	23.67
80	4.83	130	27.55
85	5.89	135	31.92



### Maximum ambient temperature and altitude

When the pump is operated under ambient temperature higher than 40 °C or altitude more than 1000 m, the motor output power P2 will be reduced due to low air density and poor cooling effect. Therefore, the power of the pump with the motor needs to be increased (see the following figure for details).



### Shaft seal

Mechanical seal: Cartridge-style maintenance-free mechanical seal for easy maintenance

Basic configuration: The rubber material is fluoro rubber, and the dynamic and static rings are made of hard alloy. The graphite is resistant to slight vibration and impact, which is more reliable.

### Material

KQDQ type overcurrent parts are all 304, motor bracket is QT  
 KQDP type impeller, middle section over-current part is 304, inlet and outlet section, bracket is HT

### Water pump steering

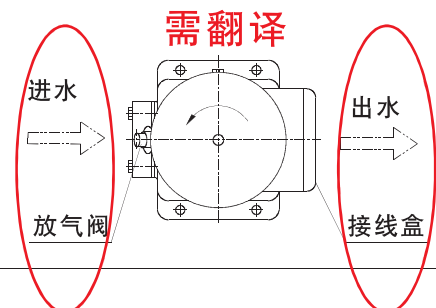
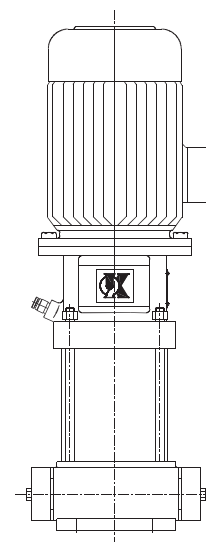
KQDP and KQDQ are rotated counterclockwise from the driver side (see the figure on the right)

### Motor junction box

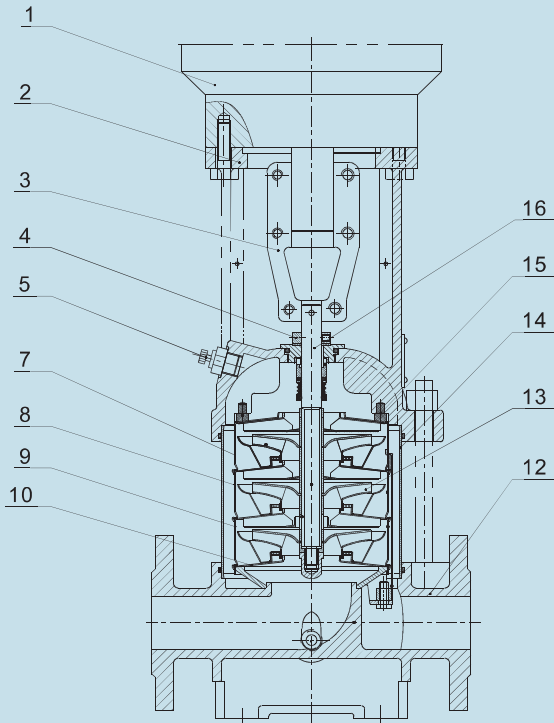
KQDP, KQDQ See from the motor end, the junction box is on the water outlet side

Remark: The installation position of the junction box can be replaced. If there is any demand, please indicate in the order information.

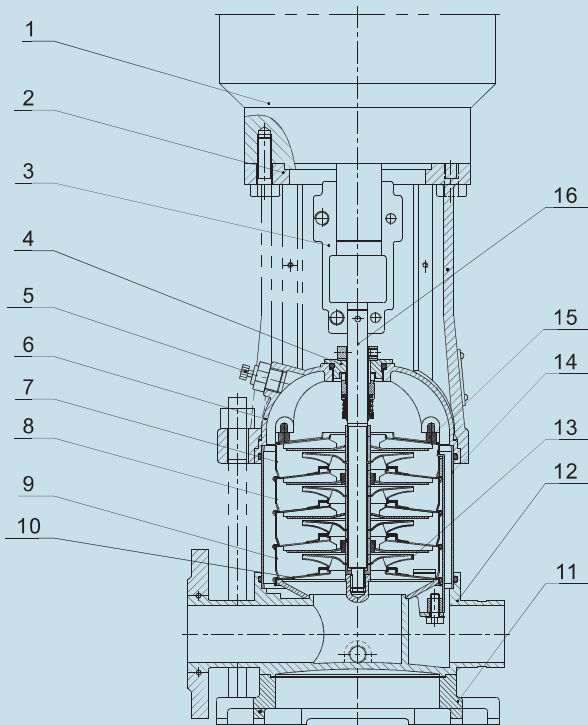
KQDP, KQDQ



**Structure chart**  
**KQDP50-15、50-16、50-20**



**KQDQ50-15、50-16、50-20**

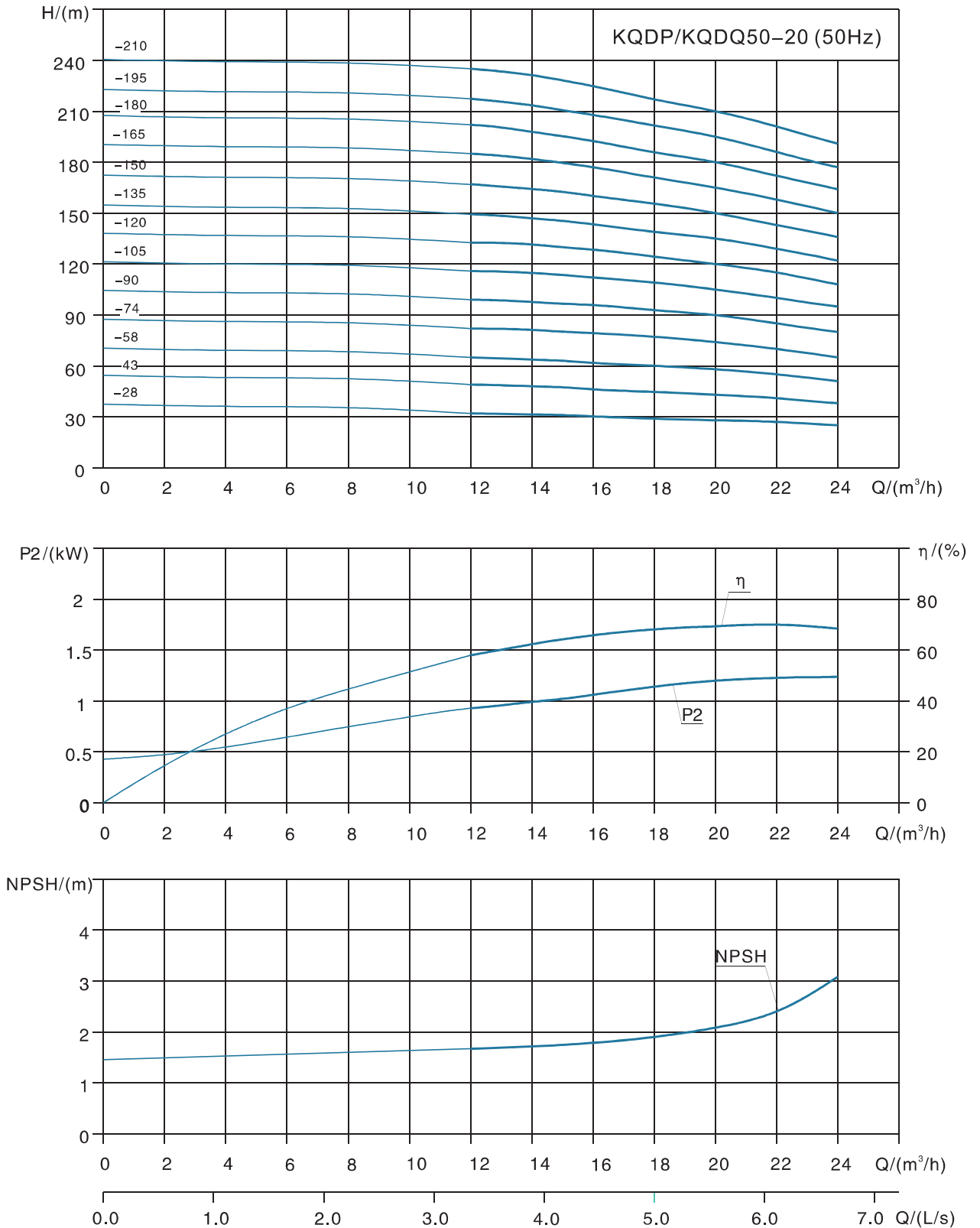


**Materiallist**

**KQDP/Q50-15、50-16、50-20**

No.	Name	Material	AISI/ASTM
1	Motor		
2	Support	Cast iron	ASTM25B
3	Clamped coupling	Powder metallurgy	
4	Modular mechanical seals	SIC/C/FPM	
5	Deflation valve	Stainless steel	AISI304
7	Discharge middle-stage	Stainless steel	AISI304
8	Middle-stage	Stainless steel	AISI304
9	Bearing middle-stage	Stainless steel	AISI304
10	Inflow middle-stage	Stainless steel	AISI304
13	Impeller	Stainless steel	AISI304
14	Outer shell	Stainless steel	AISI304
15	Elastic ring	Stainless steel	
16	Shaft	Stainless steel	AISI304
<b>KQDP</b>			
12	Inflow discharge stage	Cast iron	ASTM25B
<b>KQDQ</b>			
6	Pump cover	Stainless steel	AISI304
11	Baseboard	Cast iron	ASTM25B
12	Inflow discharge stage	Stainless steel	AISI304

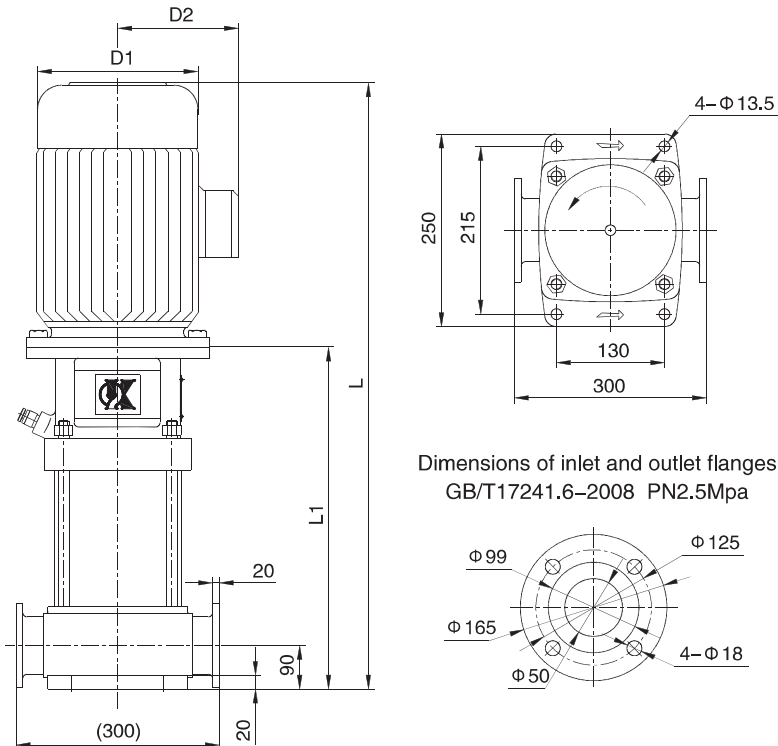
Performance curve



KQDP/KQDQ50-20 Performance table								
No.	Type	Motor power (kW)	Q (m <sup>3</sup> /h)	12	15	20	22	24
1	50-20-28	3	H (m)	32	31	28	27	25
2	50-20-43	4		49	47	43	41	38
3	50-20-58	5.5		65	63	58	55	51
4	50-20-74	7.5		82	80	74	70	65
5	50-20-90	11		99	96	90	85	80
6	50-20-105	11		116	113	105	100	95
7	50-20-120	11		133	129	120	115	108
8	50-20-135	15		150	145	135	129	122
9	50-20-150	15		168	162	150	143	136
10	50-20-165	15		185	178	165	158	150
11	50-20-180	18.5		202	194	180	172	164
12	50-20-195	18.5		218	210	195	186	177
13	50-20-210	18.5		235	227	210	201	191

### Installation drawing

#### KQDP50-20

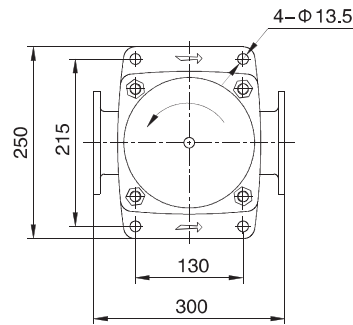
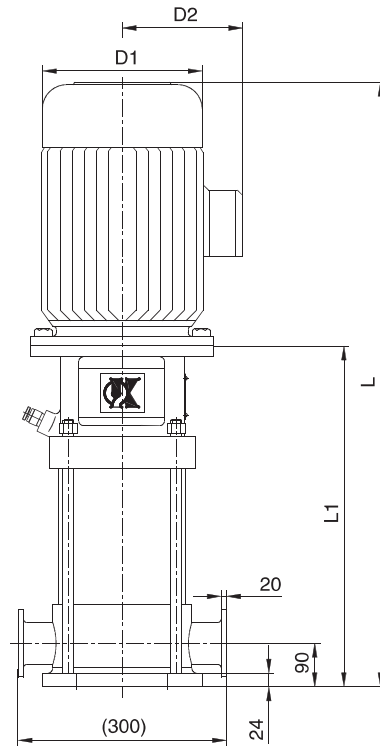


Dimensions of inlet and outlet flanges  
GB/T17241.6-2008 PN2.5Mpa

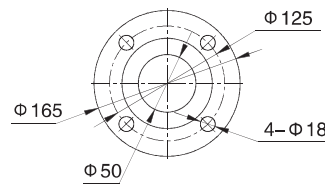
KQDP50-20 Dimension table						
No.	Type	L1	L	D1	D2	Weight (kg)
	Style	(mm)	(mm)	(mm)	(mm)	
1	50-20-28	424	749	191	128	58
2	50-20-43	469	824	212	140	66
3	50-20-58	544	974	258	163	88
4	50-20-74	589	1019			97
5	50-20-90	702	1200	314	251	133
6	50-20-105	747	1245			135
7	50-20-120	792	1290			141
8	50-20-135	837	1335			153
9	50-20-150	882	1380			155
10	50-20-165	927	1425			157
11	50-20-180	972	1470			168
12	50-20-195	1017	1515			170
13	50-20-210	1062	1560			172

Installation drawing

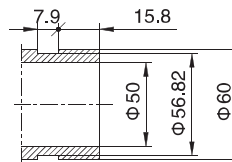
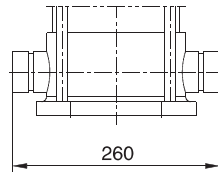
KQDQ50-20



Dimensions of inlet and outlet flanges (standard configuration)  
GB/T17241.6-2008 PN2.5Mpa



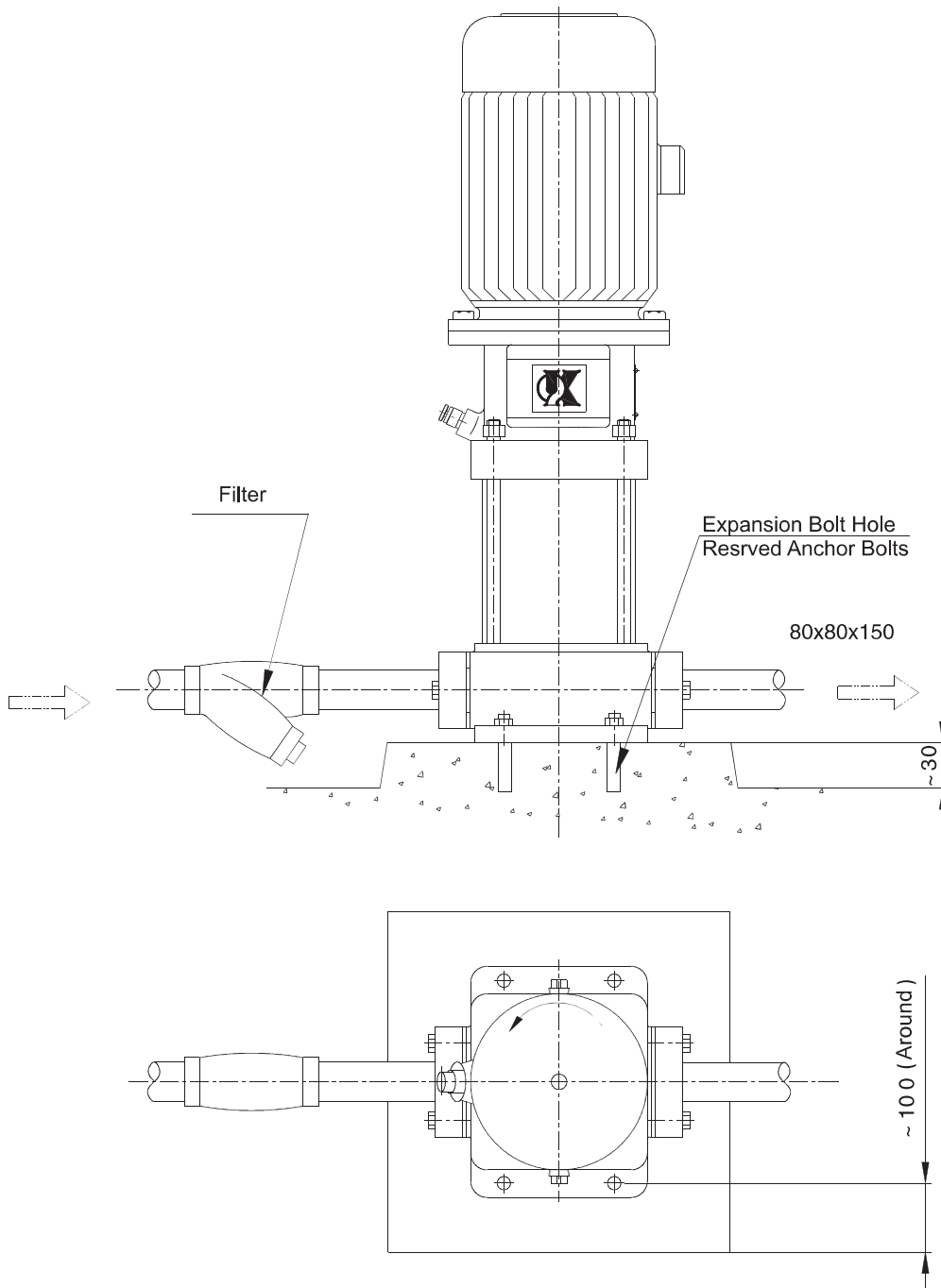
Dimensions of inlet and outlet bayonet (optional)



KQDQ50-20 Dimension table						
No.	Type	L1 (mm)	L (mm)	D1 (mm)	D2 (mm)	Weight (kg)
	Style					
1	50-20-28	423	748	191	128	58
2	50-20-43	468	823	212	140	66
3	50-20-58	543	973	258	163	88
4	50-20-74	588	1018			97
5	50-20-90	701	1199	314	251	133
6	50-20-105	746	1244			135
7	50-20-120	791	1289			141
8	50-20-135	836	1334			153
9	50-20-150	881	1379			155
10	50-20-165	926	1424			157
11	50-20-180	971	1513			168
12	50-20-195	1016	1558			170
13	50-20-210	1061	1603			172

Basic size installation

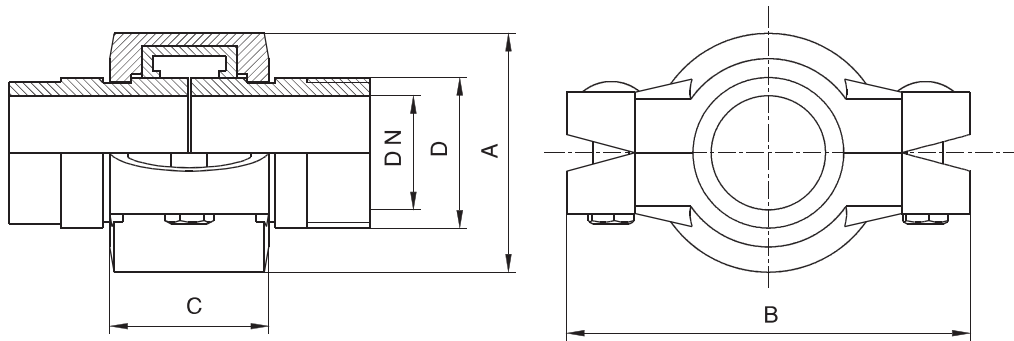
KQDP、KQDQ Installation drawing



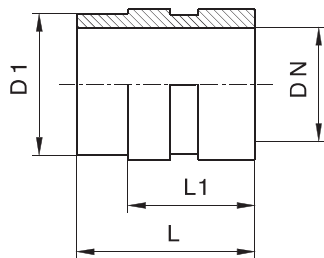


**Optional Attachment:**
**Flexible tube card**

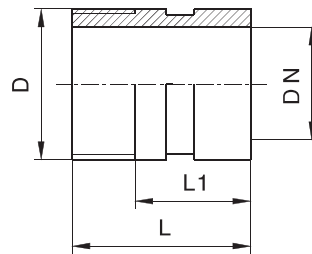
The relative dislocation and angle deviation are allowed, and the gap between the two ends can be adapted to the expansion and contraction of the pipeline.



Steel tube		Pressure MPa	Allow maximum deflection angle	Shape Size mm		
Caliber DN	Outer diameter D mm			A	B	C
1 1/4"	42.2	3.5	3°	67	113	44.5
1 1/2"	48.3	3.5	3°	79	114	44.5
2"	60.3	3.5	3°	89	130	48

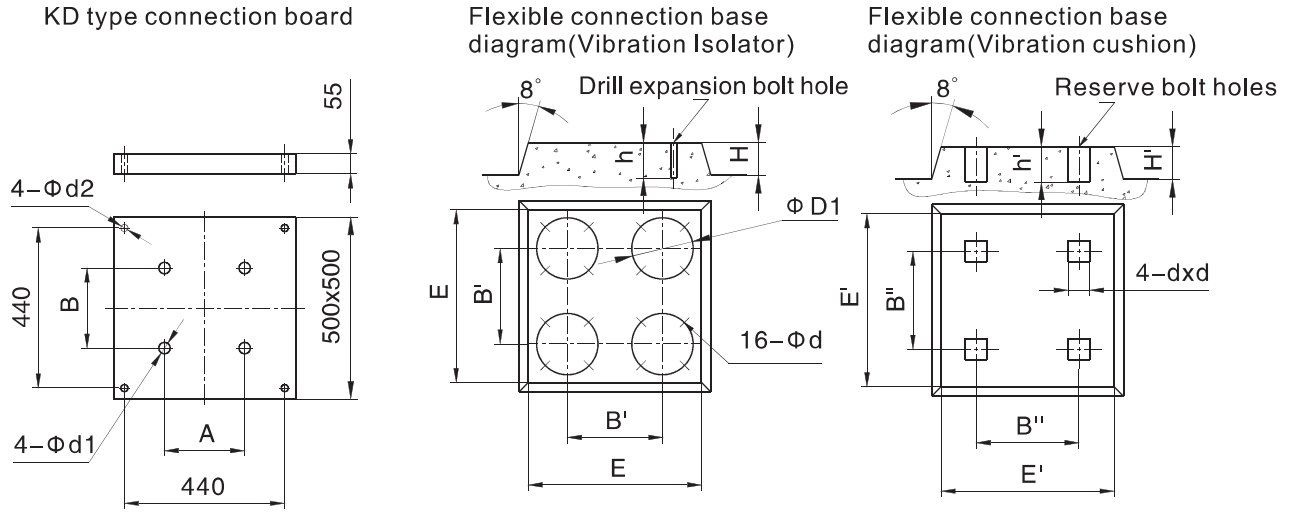
**Welding joint**


Caliber DN	D1	L	L1
1 1/4"	38	40	30
1 1/2"	45	40	32
2"	57	45	35

**Thread pipe joint**


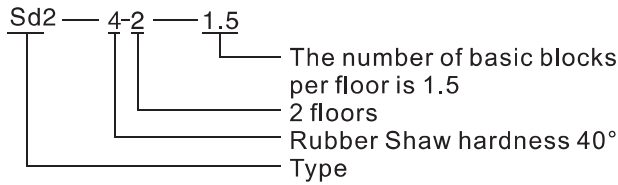
Caliber DN	D1	L	L1
1 1/4"	ZG1 1/4"	53	30
1 1/2"	ZG1 1/2"	55	32
2"	ZG2"	58	35

### Flexible Installation Foundation Size Chart



KD type connection board size					Flexible connection base diagram (Vibration Isolator)						Flexible connection base diagram (Vibration cushion)				
型号	A	B	Φd1	Φd2	H	E	B'	D1	Φd	h	H'	E'	B''	dxd	h'
KD-1/KQDP32	100	180	13	14	150	750	440	Vibration Isolator ΦD1	14	100	150	750	440	90	250
KD-1/KQDP40	130	215	13	14											
KD-1/KQDP50	130	215	13	17.5											
KD-1/KQDP65	170	240	14	17.5											

Example



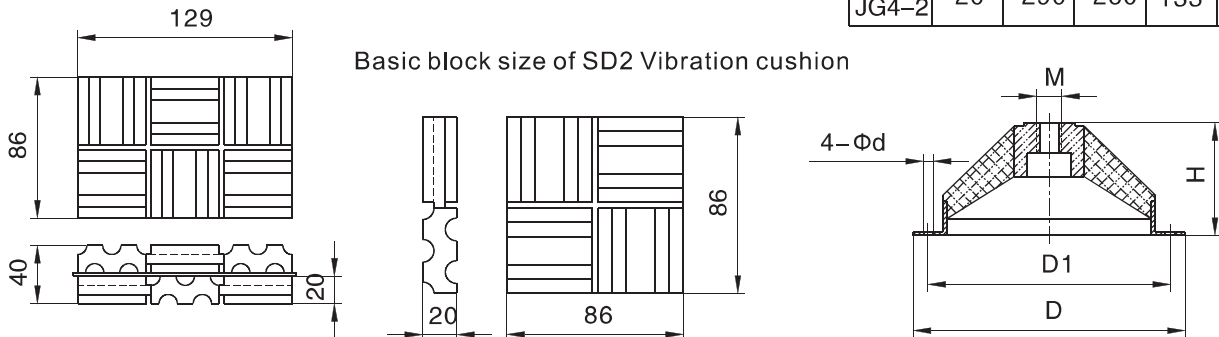
Type Description

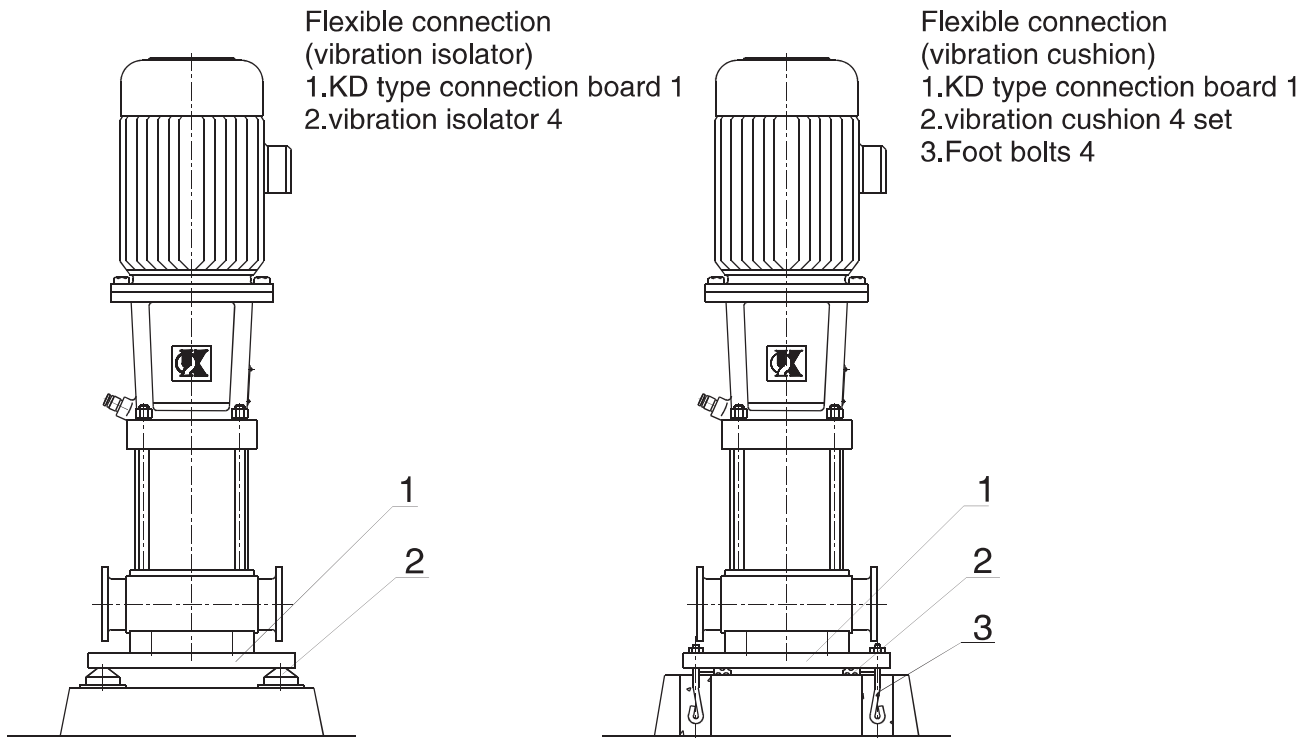
Rubber hardness in type; 4 acts for 40°、6 acts for 60°、8 acts for 80°。

JG type vibration Isolator mounting dimensions

Type	M	D	D1	H	d
JG1-1 JG1-2	10	100	80	43	8.5
JG2-1 JG2-2	12	150	130	65	8.5
JG3-1 JG3-2	16	200	170	87	12.5
JG4-1 JG4-2	20	290	260	133	12.5

Basic block size of SD2 Vibration cushion





KQDP(Q) Vibration Isolator configuration table						
Type	Head	KD type connection board	vibration isolator	vibration cushion	foot bolts	
KQDP (Q) 32-4	17~92	KD-1/KQDP32	JG2-1	SD2-4-1-0.5	M10x150 4	
	101~217		JG2-2	SD2-6-1-0.5		
KQDP (Q) 32-5	12~73		JG2-1	SD2-4-1-0.5		
	81~212		JG2-2	SD2-6-1-0.5		
KQDP (Q) 40-8	23~176		KD-1/KQDP40	JG2-2		SD2-6-1-0.5
KQDP (Q) 40-10	21~166					
KQDP (Q) 50-12	25~94					
KQDP (Q) 50-15	29~102					
KQDP (Q) 50-16	28~100					
KQDP (Q) 50-20	28~74					
KQDP (Q) 40-8	188~236	KD-1/KQDP50	JG3-1	SD2-6-1-1		
KQDP (Q) 40-10	178~226					
KQDP (Q) 50-12	107~196					
KQDP (Q) 50-15	117~212					
KQDP (Q) 50-16	115~206					
KQDP (Q) 50-20	90~195					
KQDP (Q) 65-32	14~106	KD-1/KQDP65	JG3-1	SD2-6-1-1	M12x200 4	
	123~220		JG3-2	SD2-6-1-1.5		