

## 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.  $+40\text{ }^{\circ}\text{C}$

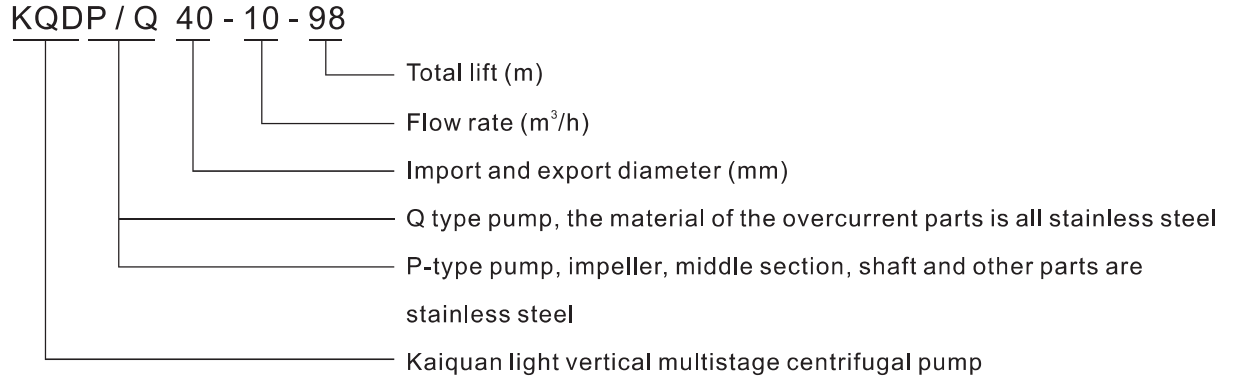
Altitude: height less than 1000m

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

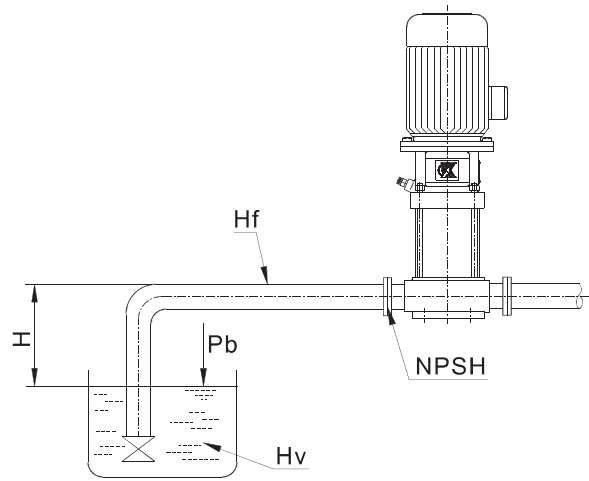
$$H = 1 \times 10.2 - 2 - 2.2 - 0.23 - 0.5 = 5.27 \text{ m (the larger the positive value, the less likely it is to cavitation)}$$

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

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

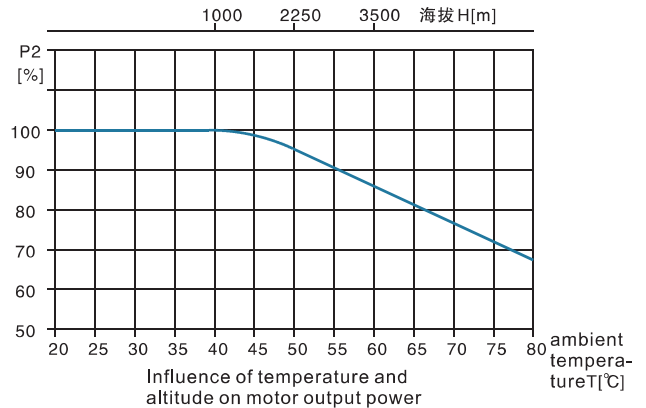
The temperature of the liquid delivered by the pump is inconsistent. When the other conditions of use of the pump are the same, the suction height is also different.

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

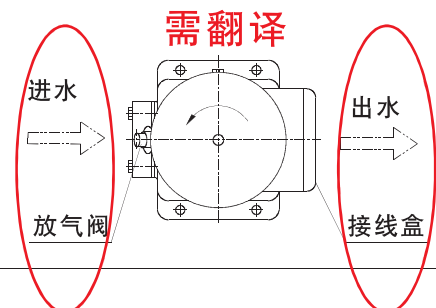
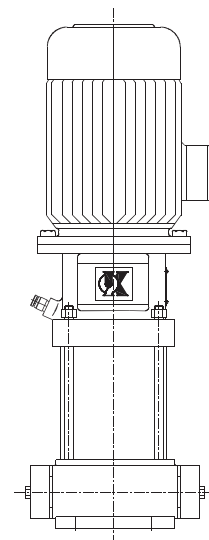
KQDP and KQDQ are rotated counterclockwise from the driver side (see the figure on the right)

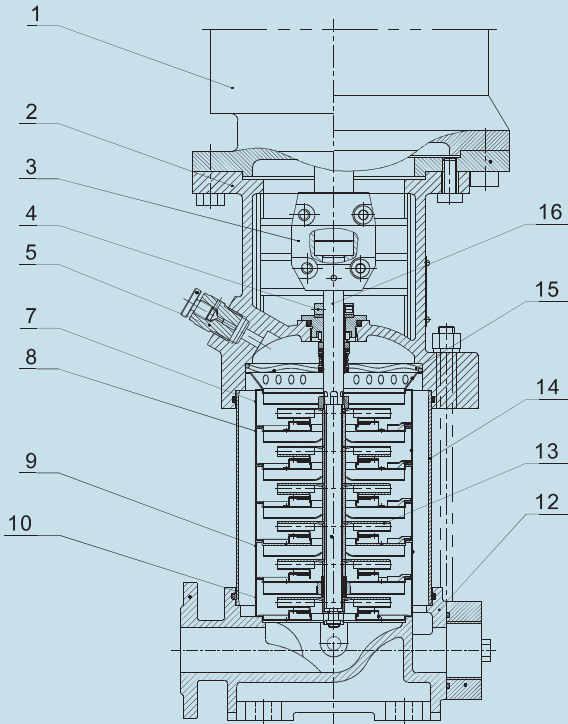
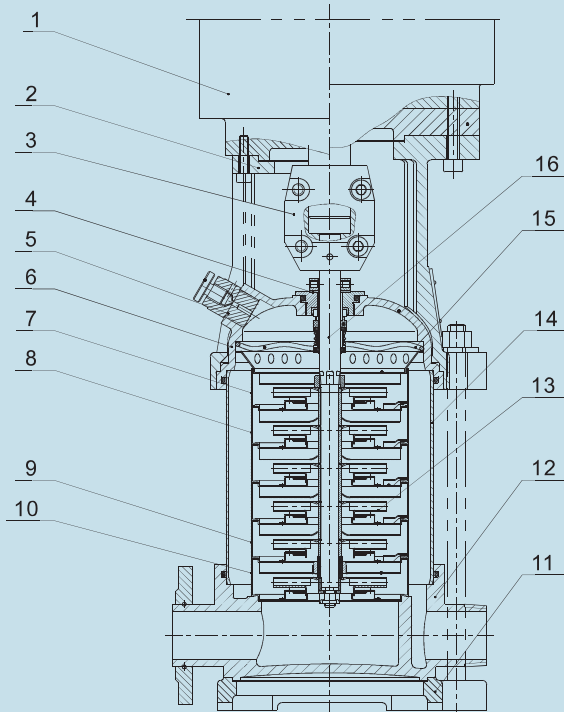
### Motor junction box

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

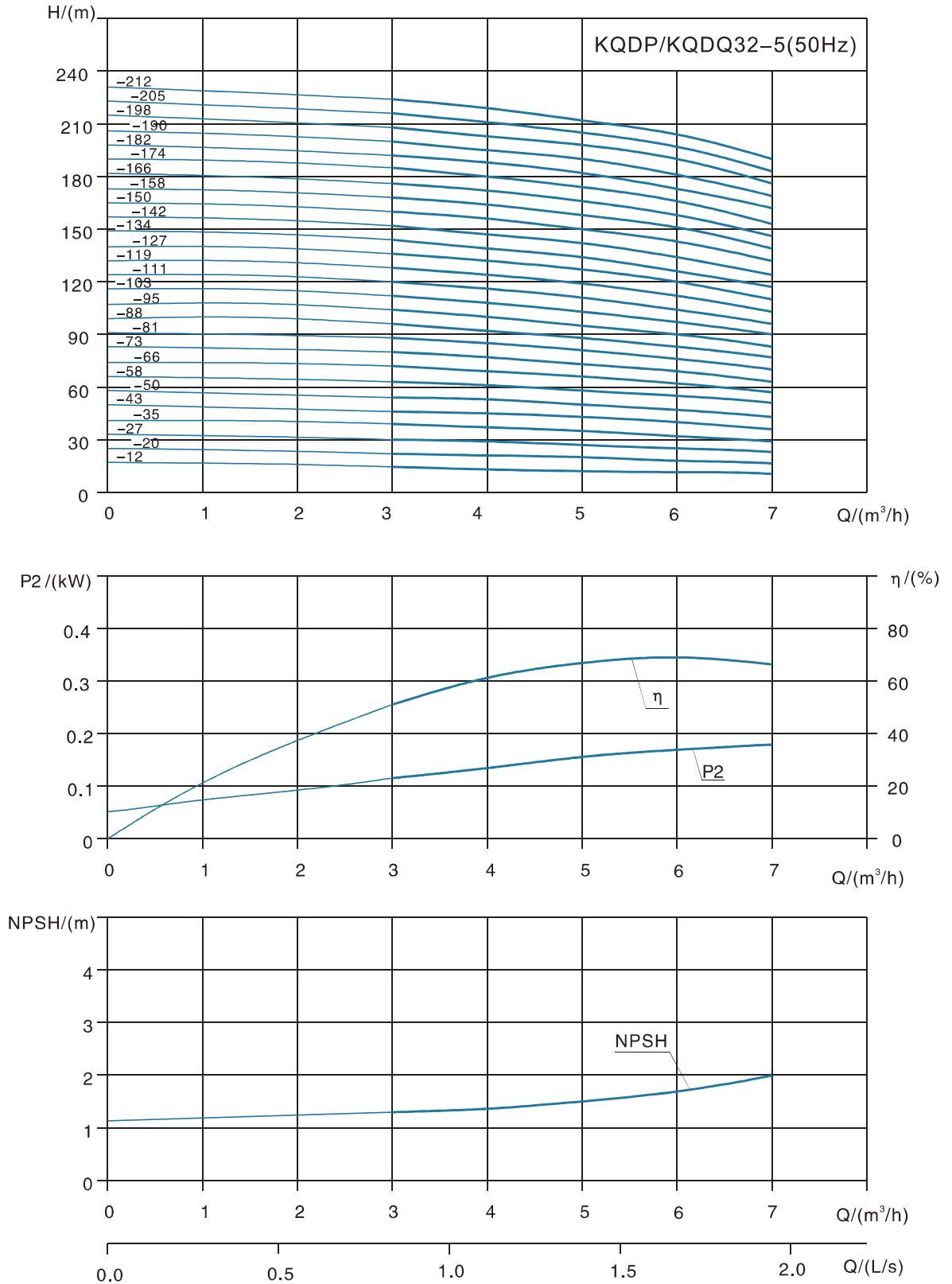
Remark: The installation position of the junction box can be replaced. If there is any demand, please indicate in the order information.

KQDP, KQDQ



**Structure chart**
**Structure chart  
KQDP32-4、32-5**

**KQDQ32-4、32-5**

**Materiallist  
KQDP/Q32-4、32-5**

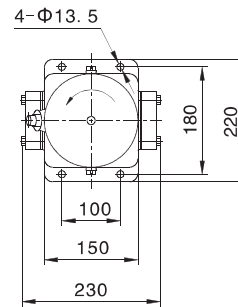
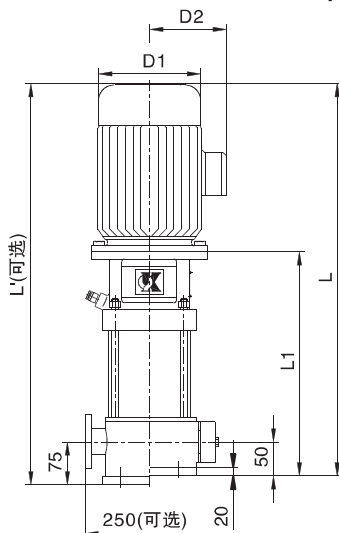
No.	Name	Material	AISI/ASTM
1	Motor		
2	Support	Castiron	ASTM25B
3	Clamped coupling	Powder metallurgy	
4	Modular mechanical seals	SIC/C/FPM	
5	Deflation valve		
7	Discharge middle-stage	Stainless steel	AISI304
8	Middle-stage	Stainless steel	AISI304
9	Bearing middle-stage	Stainless steel	AISI304
10	Inflow middle-stage	Stainless steel	AISI304
13	Impeller	Stainless steel	AISI304
14	Outer shell	Stainless steel	AISI304
15	Elastic ring	Stainless steel	AISI304
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/KQDQ32-5 Performance table								
No.	Type	Motor power (kW)	Q (m <sup>3</sup> /h)	3	4	5	6	7
1	32-5-12	0.37	H (m)	14.5	13	12	11.5	10.5
2	32-5-20	0.55		22	21	20	18	15
3	32-5-27	0.75		30	29	27	25	21
4	32-5-35	1.1		39	37	35	32	29
5	32-5-43			46	45	43	40	36
6	32-5-50	1.5		54	53	50	47	43
7	32-5-58			63	61	58	55	51
8	32-5-66	2.2		72	69	66	62	57
9	32-5-73			80	77	73	69	63
10	32-5-81			88	85	81	76	70
11	32-5-88	3		96	92	88	83	77
12	32-5-95			104	100	95	90	83
13	32-5-103			112	108	103	97	90
14	32-5-111			120	116	111	104	96
15	32-5-119	4		128	124	119	112	103
16	32-5-127			136	132	127	120	110
17	32-5-134			144	139	134	126	117
18	32-5-142	5.5		152	147	142	134	121
19	32-5-150			160	156	150	143	132
20	32-5-158			168	164	158	151	139
21	32-5-166			176	172	166	158	146
22	32-5-174	5.5		185	180	174	166	153
23	32-5-182			192	188	182	173	162
24	32-5-190			200	195	190	181	169
25	32-5-198			208	203	198	190	176
26	32-5-205			216	211	205	197	183
27	32-5-212			224	219	212	204	190

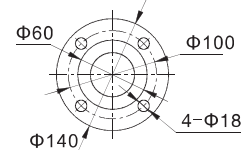
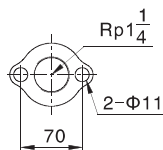
Installation drawing

KQDP32-5

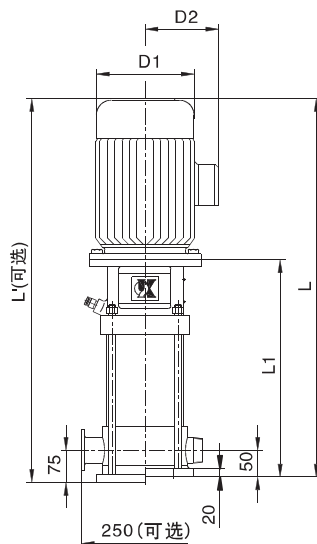
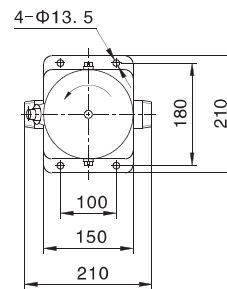


Dimensions for connection of inlet and outlet oval flanges standard configuration PN1.6Mpa

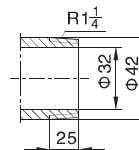
Dimensions of inlet and outlet flanges (optional) GB/T17241.6-2008 PN2.5Mpa



KQDP32-5 Dimension table							
No.	Type	L1	L	L'	D1	D2	Weight
	Style	(mm)	(mm)	(mm)	(mm)	(mm)	(kg)
1	32-5-12	283	503	528	135	86	21
2	32-5-20	310	530	555			22
3	32-5-27	337	592	617	148	96	26
4	32-5-35	364	619	644			27
5	32-5-43	391	646	671			28
6	32-5-50	418	718	743	166	115	33
7	32-5-58	445	745	770			34
8	32-5-66	472	772	797			36
9	32-5-73	499	799	824			37
10	32-5-81	526	826	851			38
11	32-5-88	553	853	878			38
12	32-5-95	590	915	940	191	128	49
13	32-5-103	617	942	976			50
14	32-5-111	644	969	994			50
15	32-5-119	671	996	1021			51
16	32-5-127	698	1023	1048	212	140	52
17	32-5-134	725	1080	1105			55
18	32-5-142	752	1107	1132			56
19	32-5-150	779	1134	1159			57
20	32-5-158	806	1161	1186	258	163	58
21	32-5-166	833	1188	1213			59
22	32-5-174	880	1310	1335			69
23	32-5-182	907	1337	1362			70
24	32-5-190	934	1364	1389			71
25	32-5-198	961	1391	1416			72
26	32-5-205	988	1418	1443	74		
27	32-5-212	1015	1445	1470	76		

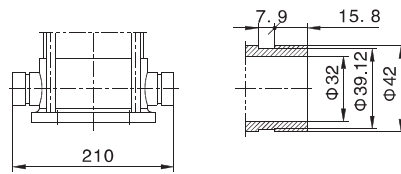
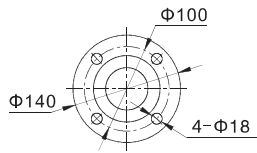
**Installation drawing**

**KQDQ32-5**


Connection dimensions for inlet and outlet threads  
(standard configuration)



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

Inlet and outlet bayonet coupling size (optional)

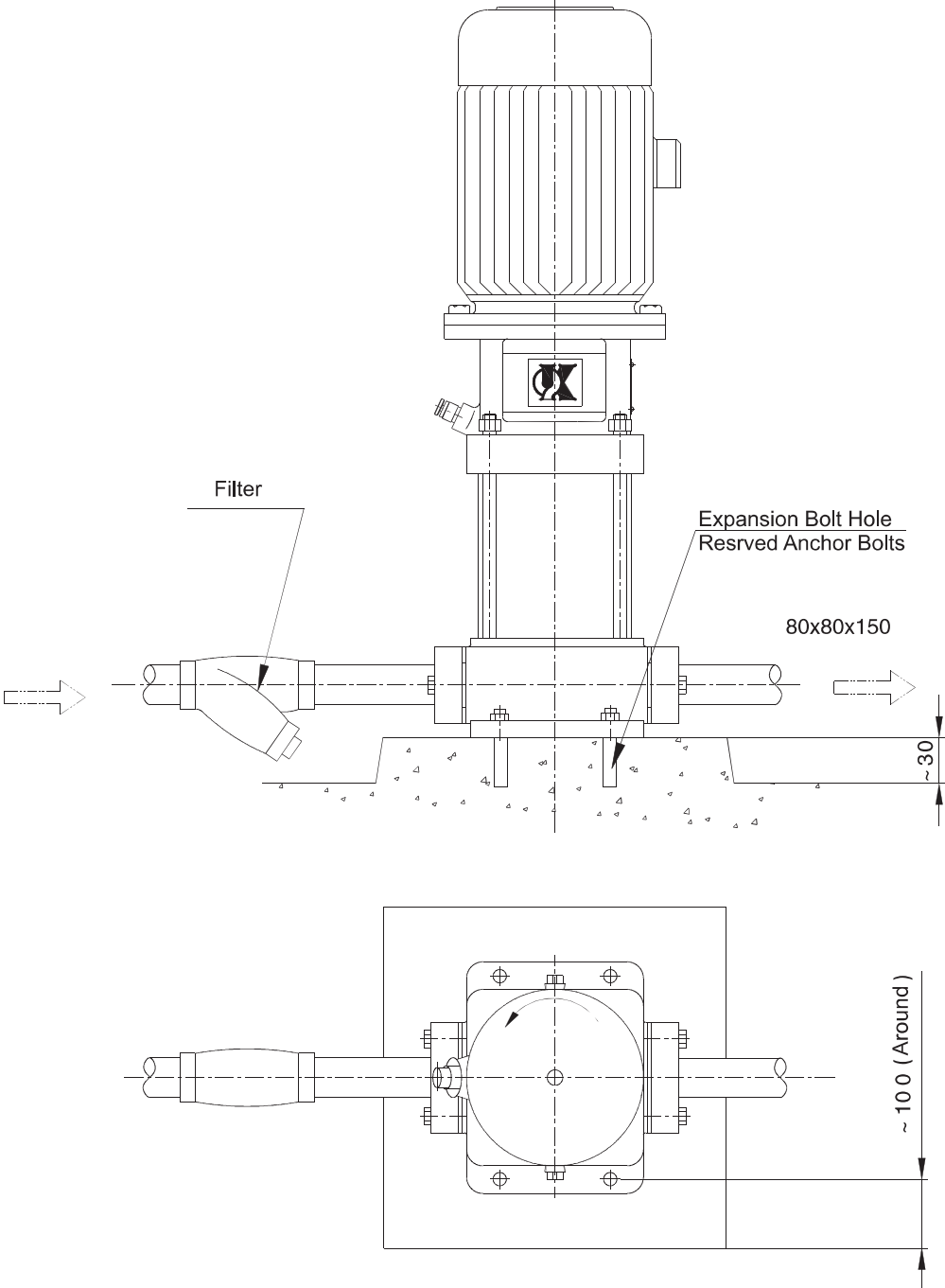


KQDQ32-5 Dimension table							
No.	Type	L1	L	L'	D1	D2	Weight
	Style	(mm)	(mm)	(mm)	(mm)	(mm)	
1	32-5-12	290	510	535	135	86	21
2	32-5-20	317	537	562			22
3	32-5-27	344	599	624			148
4	32-5-35	371	626	651	27		
5	32-5-43	398	653	678	166	115	28
6	32-5-50	425	725	750			33
7	32-5-58	452	752	777			34
8	32-5-66	479	779	804			36
9	32-5-73	506	806	831			37
10	32-5-81	533	833	858			38
11	32-5-88	560	860	885			38
12	32-5-95	597	922	947	191	128	49
13	32-5-103	624	949	974			50
14	32-5-111	651	976	1001			50
15	32-5-119	678	1003	1028			51
16	32-5-127	705	1030	1055	212	140	52
17	32-5-134	732	1087	1112			55
18	32-5-142	759	1114	1139			56
19	32-5-150	786	1141	1166			57
20	32-5-158	813	1168	1193			58
21	32-5-166	840	1195	1220			59
22	32-5-174	887	1317	1342	258	163	69
23	32-5-182	914	1344	1369			70
24	32-5-190	941	1371	1396			71
25	32-5-198	968	1398	1423			72
26	32-5-205	995	1425	1450			74
27	32-5-212	1022	1452	1477			76



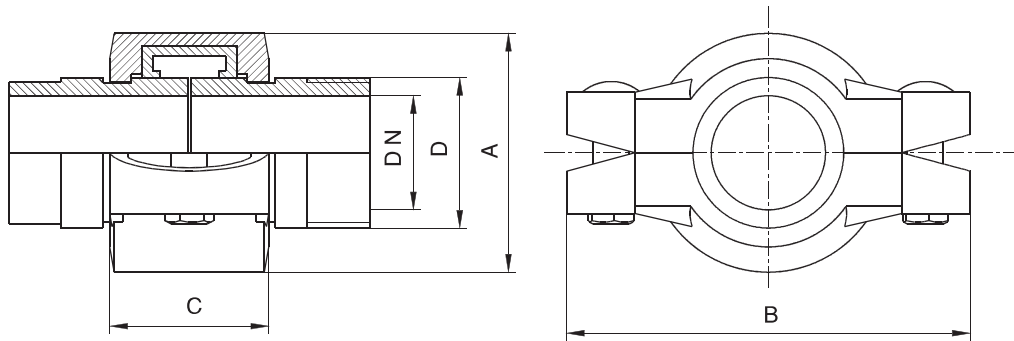
Basic size installation

KQDP、KQDQ Installation drawing

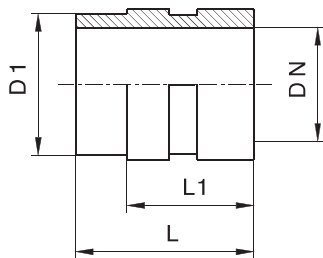


**Optional Attachment:**
**Flexible tube card**

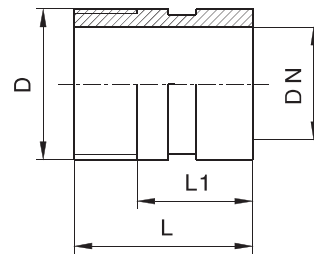
The relative dislocation and angle deviation are allowed, and the gap between the two ends can be adapted to the expansion and contraction of the pipeline.



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

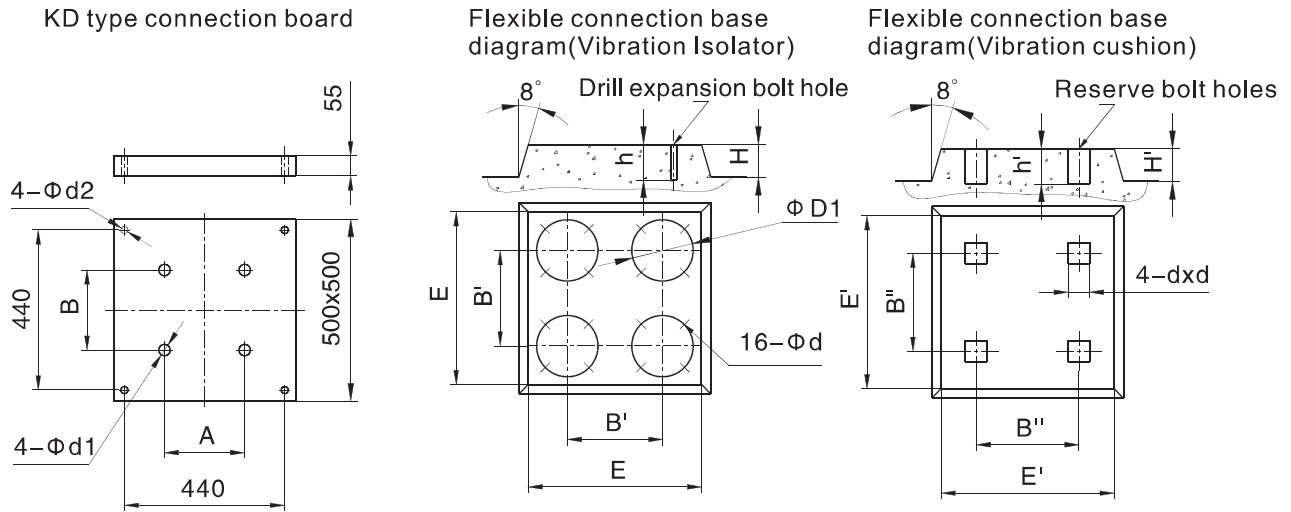
**Welding joint**


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

**Thread pipe joint**


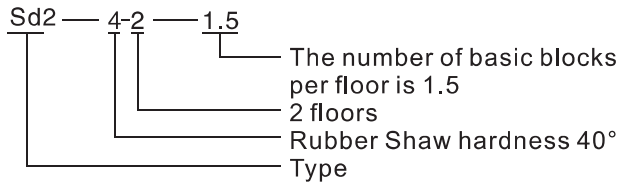
Caliber DN	D1	L	L1
1 1/4"	ZG1 1/4"	53	30
1 1/2"	ZG1 1/2"	55	32
2"	ZG2"	58	35

### 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



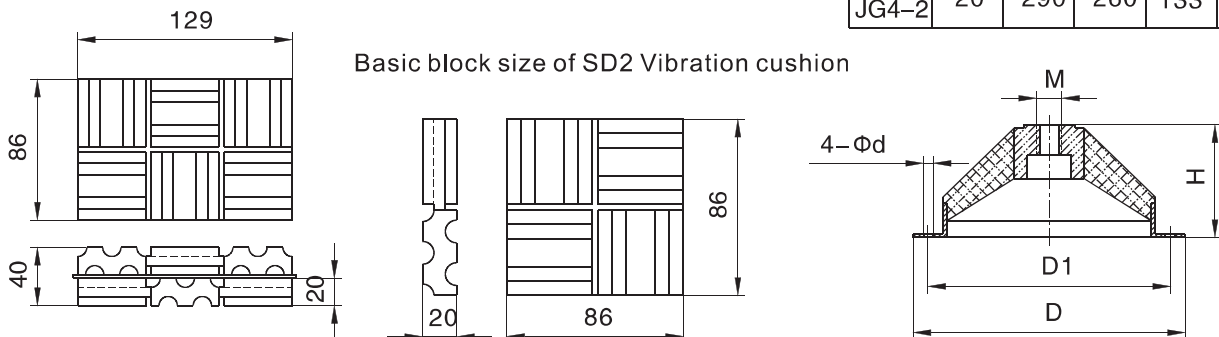
Type Description

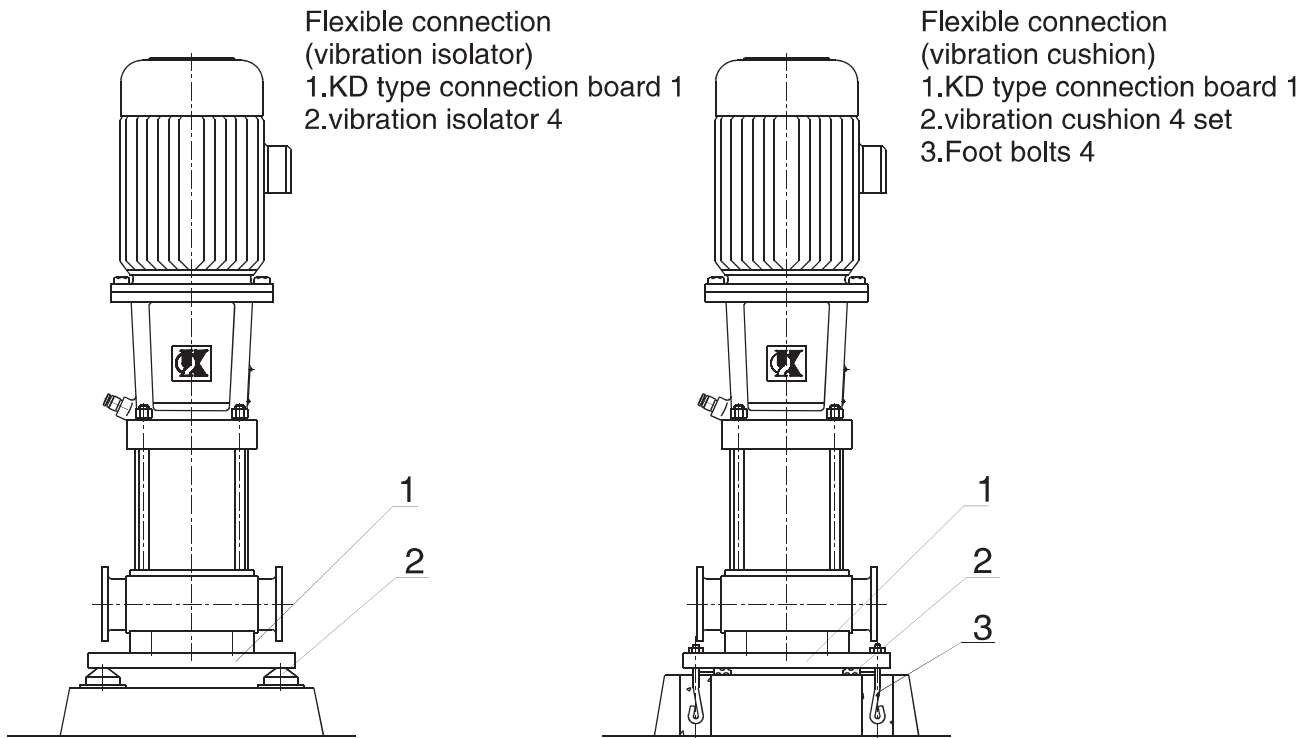
Rubber hardness in type; 4 acts for 40°、6 acts for 60°、8 acts for 80°。

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		