

QHBC

QHBC series vertical shaft fire pump



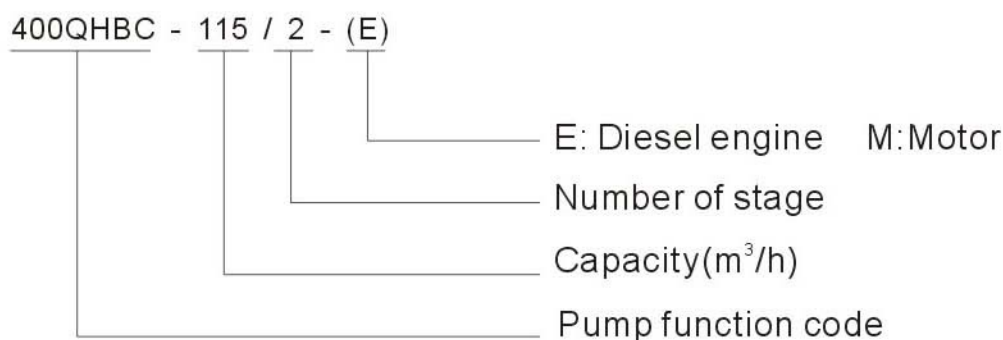
QHBC Series Vertical Shaft Fire Pump

1. OUTLINE

QHBC series vertical shaft fire pump, as multistage centrifugal pump, shall be specially used in all kinds of fire systems. The pump adopts international approved standard in designing and manufacturing, and also meets relevant China National Standards and China Classification Society (CCS) regulations. The pump had the honor to win the FM approval/UL listed and the certificate of type approval for marine by China Classification Society (CCS). The pump is suitable for a wide range of fire system such as off-shore platform, ship, power plant, factory, civil architecture, etc.

QHBC pump has two types of driving: motor driving and diesel engine driving which clients can be selected on the basis of the applied condition. There shall be a series of advantages, such as high reliability, long service life cycle, seawater resistance, compact structure, noiseless and easy to realize auto control etc.

2. TYPE DESCRIPTION



3. WORKING CONDITIONS

1. Medium: water, seawater or similar corrosive liquid. PH value should be 6.5~8.5.
2. Medium temperature: $\leq 35^{\circ}\text{C}$ or $\leq 90^{\circ}\text{C}$
3. Sand content (by weight): $\leq 3\%$
4. Ambient temperature: $- 25^{\circ}\text{C} \sim + 45^{\circ}\text{C}$
5. Relative humidity: $\leq 97\%$
6. Capacity: $Q \leq 2500\text{m}^3/\text{h}$
7. Head: $\leq 250\text{m}$
8. Class area: unclassified area or classified area
9. Power supply: 380V/460V/660V/1200V/3300V/6300, 50Hz/60Hz, 3Ph (suitable for motor driving)
10. Installation mode and location: Pump should be operated vertically, and pump body should be submerged operating in water. Its inlet should be submerged in a position (when ebb-tide) lower than 1.5m to moving sea level. The distance of inlet to sea bottom should not be less than 0.5m.

NOTE

When the actual application is beyond the above conditions, please contact with us. We shall adopt associated measures when designing in order to assure pump set to satisfy the application condition.

4. CONSTRUCTION CHARACTERISTIC DESCRIPTION

The fire pump usually consists of pump body, motor/diesel engine, driveshaft, right angle gear box (suitable for diesel engine driving), flexible coupling (suitable for diesel engine driving), column pipe assembly, controller and other parts etc. The concrete construction characteristic as follows:

(1). Pump body

QHBC series pump body consists of pump casing, pump shaft, impeller, shaft sleeve, bushing, wear ring, suction bell and other parts etc. The material of pump casing is normally Cast iron, Cu-Ni alloy or stainless steel, and Cu-Ni alloy or stainless steel of the other parts. The pump efficiency is high, and the cure of character is smooth. And the zone of efficiency is extensive. The pump is suitable for using in water and seawater.

(2). Motor / diesel engine

Motor (M)

PYCH series three-phase synchronous motor, which is matched with electric drive fire pump, is also our company product and consists of stator, rotor, non-reversed rotation device, bearing, space heater, connection chamber, base, end covers and so on. In the light of the difference of working condition, the motor shall be separated into hollow shaft motor and solid shaft motor. The non-reversed rotation device shall be used to prevent pump assemblies from damage by reverse rotation. The thrust bearings of the motor shall employ centripetal thrust ball bearings, which can carry reliably the entire weight of the rotating parts of the pump, plus the hydraulic thrust of the pump impellers. As to hollow shaft motor, the axial position of the pump impeller shall be adjusted with a spacer and an adjusting nut.

Diesel engine (E)

On the client requirements, we can adopt international famous fire pump diesel engines, such as Cummins, Caterpillar, Clarke and so on, and as requested we can use FM approved and UL listed diesel engine as fire pump driving device. The accessory of diesel engine such as silencer and battery shall arrange according to the customer requirements. The diesel engine shall be of the compression ignition type and could provide emergency starting function.

Our company also can provide right angle gear box, flexible coupling, base and other accessories at the same time.

(3). Right-angle gear box

Angle gear box only applies to diesel engine fire pumps. The main role is to transfer the level shaft power of diesel engine into the vertical shaft power of the pump. And at the same time it bears all the axial force of the pump and adjusts the axial position of pump impeller. Angle gear box is normally international brands such as FM approved or UL Listed. It has the advantages of high reliability, low noise, transmission smooth, high efficiency etc.

(4). Controller

Electric fire pump controller is generally our company product, which is specialized design for electric fire pump, with multiple protection and reliable quality. According to the specific requirements of customers, we can provide alarms of power break-off, reverse phase order and so on. In accordance with the requirements of the customer to start the motor, we can choose: direct start, Y- Δ start, soft start, converter start and so on. Customers can choose them according to the actual working conditions.

The controllers of diesel engine fire pumps are generally chosen the internationally renowned brands. According to the specific requirements of customers, it can provide the over-speed, cooling water overheating alarm signal, etc. The enclosure of controller can be different protective classification. The start-up method can be electric starting or air starting, and the battery voltage of diesel engine can select 12V or 24V. Controller can be set the duration of automatic inspection and test to allow the fire pump system to automatically test and record results at the set time. All the necessary sensors of ECM (electronic control module) are equipped with alternate sensors. When the primary sensor is failure, the alternate sensors can operate automatically. Controllers are also provided standard alarms. Except the necessary protection functions and control signals, it also includes the signals of power break-off, engine running and so on. The other alarms can consult with our company. The controller can be start-up in two ways: automatic and manual, and also provide emergency start-up mode. The above-mentioned controller can be FM approved/UL Listed or not. Customs can choose them according to the actual situation.

(5). Other parts

Other components include: column pipes, drive shaft, bearing spider, coupling, wellhead device, stuffing box, rubber seal, pump base, flow meter, relief valve, pressure gauge, standard parts, etc. Pump seal uses packing seal. Stuffing box is of the removable type, easy to repair and replace Stuffing.

Pump bearing is the polymer wear-resistant material suitable for pump start-up.

If fire pump is used in seawater systems, it is usual to install electrolyte dosing pipeline or bio-fouling preventing apparatus, centralizer and so on.

5. THE RANGE OF COMPLETE FIRE PUMP SUPPLY

(1). Electric fire pump unit

Electric fire pump unit: pump body, motor, controller, column pipes, drive shafts, couplings, wellhead device, piping, bolts and nuts, the base, other attachment (including: automatic vent valve, safety valve, pressure gauge, sensors, etc.).

(2). Diesel engine fire pump unit

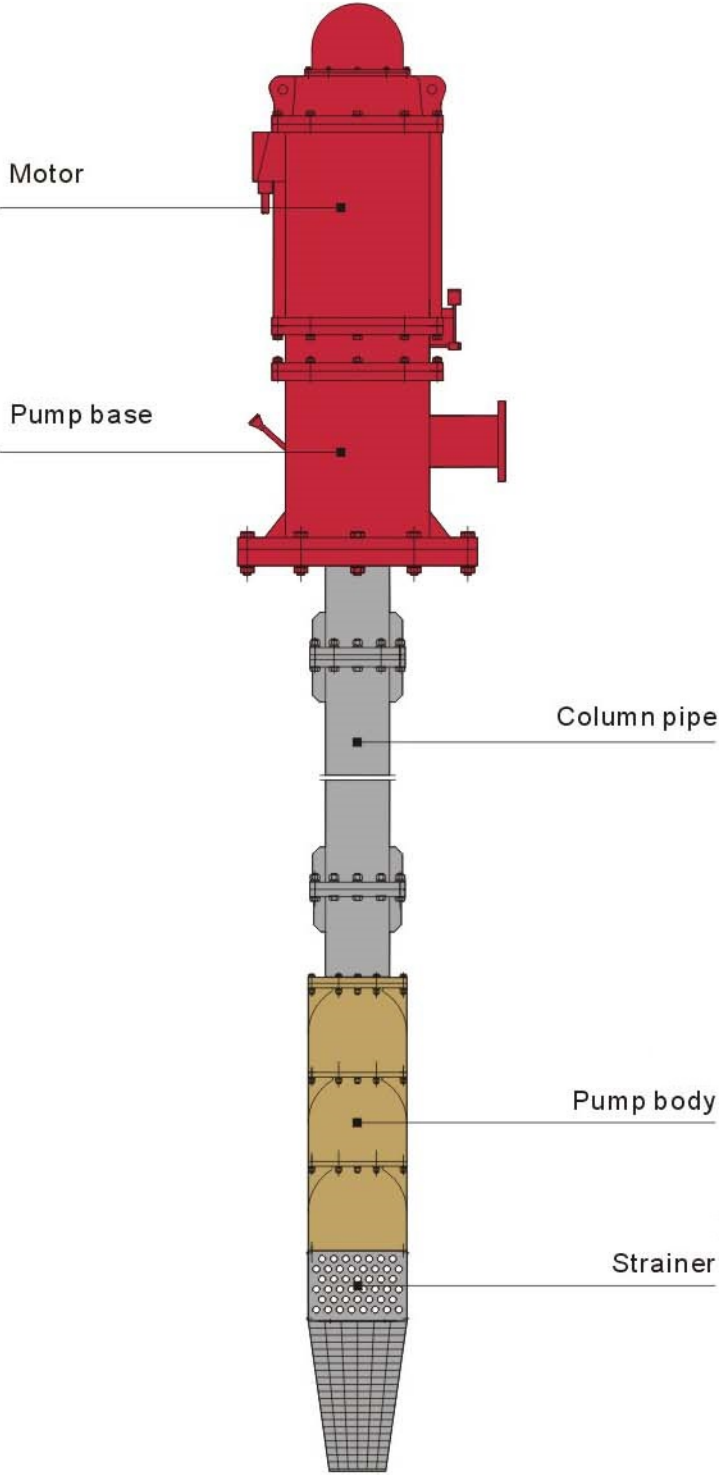
Diesel engine fire pump unit: pump body, diesel engine (accessory: battery, fuel tank, vent-pipe, silencer), drive shaft, coupling, wellhead device, bolts and nuts, controller, right gear box, flexible coupling, piping, the base and accessory (including: automatic vent valve, safety valve, pressure gauge, flow meter, sensors, etc.).

6. ORDER INFORMATION

Please determine the following parameter when ordering, so that we can recommend the suit product.

- (1). The actual working condition
- (2). The required capacity and head
- (3). The drive modes of fire pump (electromotor or diesel engine). If you choose the electromotor mode, please offer voltage and frequency of the locale power.
- (4). The working media and temperature, medium solids content and the largest particles, containing corrosive ingredients etc.
- (5). The range of set
- (6). If FM Approved/UL listed Pump needed, please contact us for the Performance parameters.

Electric Fire Pump Set Schematic



Performance parameters of Table

NO .	Type	Capacity m ³ /h (gpm)	Speed (r/min)	Stage	kPa (psi)
1	350QHBC	115(500)	1490	2-10	310-1605 (45-233)
2	350QHBC	170(750)	1490	2-10	285-1480 (41-215)
3	350QHBC	170(750)	1790	2-7	450-1560 (65-226)
4	350QHBC	227(1000)	1490	2-10	275-1375 (40-200)
5	350QHBC	227(1000)	1790	2-7	405-1427 (59-208)
6	400QHBC	285(1250)	1490	2-8	393-1572 (57-228)
7	350QHBC	285(1250)	1790	2-7	373-1306 (59-208)
8	450QHBC	285(1250)	1490	1-5	295-1545 (43-224)
9	400QHBC	340(1500)	1490	2-9	330-1570 (48-228)
10	400QHBC	340(1500)	1790	2-6	530-1590 (77-231)
11	450QHBC	340(1500)	1490	1-5	285-1505 (41-215)
12	450QHBC	340(1500)	1790	1-4	462-1848 (67-268)
13	450QHBC	454(2000)	1490	1-5	275-1415 (40-205)
14	400QHBC	454(2000)	1790	2-6	481-1442 (70-209)
15	450QHBC	454(2000)	1790	1-4	427-1710 (62-248)
16	500QHBC	568(2500)	1490	1-4	483-1931 (70-280)
17	650QHBC	680(3000)	1490	1-2	635-1270 (92-184)
18	650AQHBC	680(3000)	1490	1-2	517-1441 (75-209)
19	650QHBC	795(3500)	1490	1-2	605-1210 (88-176)
20	650AQHBC	795(3500)	1490	1-2	510-1407 (74-204)
21	650QHBC	909(4000)	1490	1-2	600-1200 (87-174)
22	650AQHBC	909(4000)	1490	1-2	496-1372 (72-199)
23	650QHBC	1022(4500)	1490	1-3	580-1740 (84-252)
24	650AQHBC	1022(4500)	1490	1-2	476-1317 (69-191)
25	650AQHBC	1022(4500)	1790	1-2	634-1751 (92-254)
26	650QHBC	1135(5000)	1490	1-3	560-1680 (81-243)
27	650AQHBC	1135(5000)	1790	1-2	593-1648 (86-239)

QUALIFICATION



The marine products have the certificates of type approval for marine products by China Classification Society (CCS).



The fire products have the certificates of FM approval by USA Factory Mutual Research Corporation (FM).



The related products have the certificates of UL listed by Underwriters Laboratories Inc (UL).



The mining products have the safety certificate of approval for mining products by Mining Products Safety Approval and Certification Center (MA).



The explosion-protected products have the certificates of conformity by China National Quality Supervision and Test Center for Explosion Protected Electrical Products (CQST).



The low-voltage switchgears have the CCC certificates by China Quality Certification Centre (CCC).