

CATALOG



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Ram BOP

The Ram BOP manufactured by SANYI has U type, UM type, Mini U type and S type.

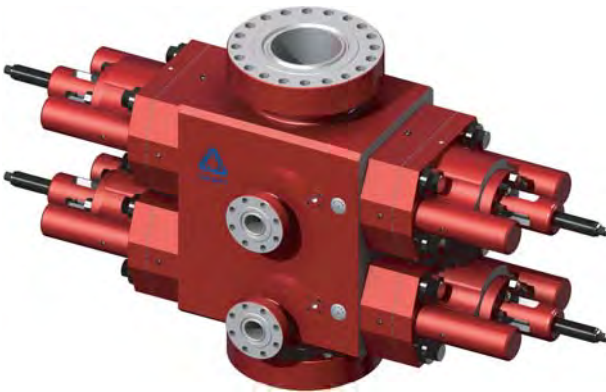
The design and manufacturing of Ram BOP meets the requirement of API 16A and GB/T20174. The Ram BOP is equipped with Ram of various kinds of size and specification.

U type Ram BOP adopts the most advanced ram structure of obround, all of its seals adopt high quality rubber, has good sealing performance. It has features of simple structure, beautiful appearance, easy operation, convenient maintenance.

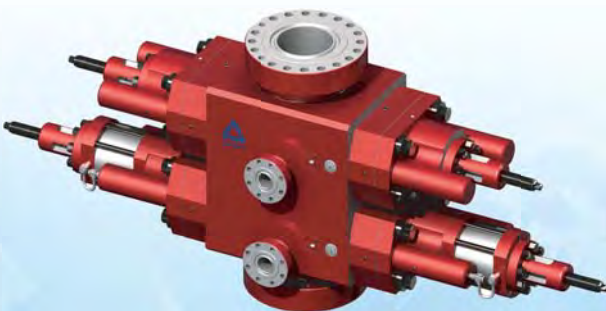
S type Ram BOP has the feature of small volume and light weight.



U type Single Ram BOP



U type Double Ram BOP



U type Double Ram BOP
Lower Cavity with tandem Booster

Features of U type, UM type and Mini U type Ram BOP:

- Pressure part is forging, has better strength and impact toughness, avoiding of the defects of casting;
- Intermediate flange adopts radial floating seal, open and close by hydraulic pressure, changing of ram is fast and convenient;
- Equipped with tandem booster, compared with traditional Ram BOP with shearing capacity, the new one is smaller and function of which is constant;
- Abundant reserve of ram packer, adopts self sealing;
- Manual Locking Device is standard configuration, ensure the ram keep closing in case of hydraulic pressure loss;
- Manual Locking Device, Hydraulic Locking Device, and Tandem Booster can be configured at corresponding place according to client's requirements, and its interchange is convenient.

U type Pipe Ram:



U type Shear Ram:



U type Variable Bore Ram:





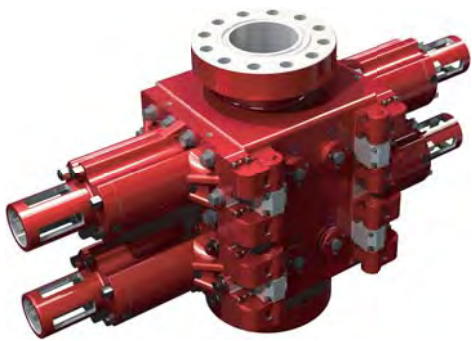
UM type Double Ram BOP



UM type Pipe Ram



Mini type Double Ram BOP



S type Double Ram BOP



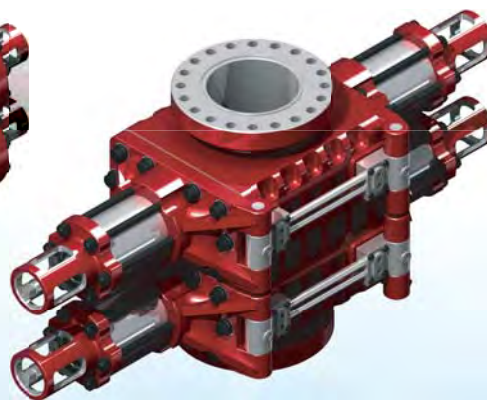
S type Pipe Ram



F type Pipe Ram



SL/SLX type Double Ram BOP



LWS type Double Ram BOP



HF type Pipe Ram



SB type Annular BOP



Sealing Element
SB type Annular BOP



Steel Segment Reinforce
Sealing Element
SB type Annular BOP



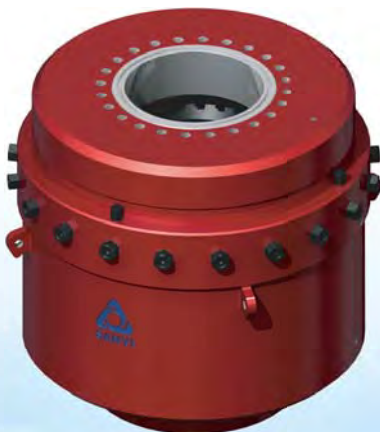
SW type Annular BOP



Sealing Element
SW type Annular BOP



Steel Segment Reinforce
Sealing Element
SW type Annular BOP



SL type Annular BOP



Sealing Element
SL type Annular BOP



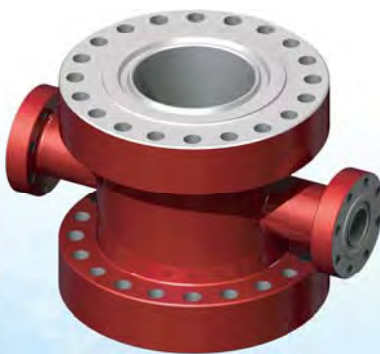
GK type Annular BOP
Screwed Head



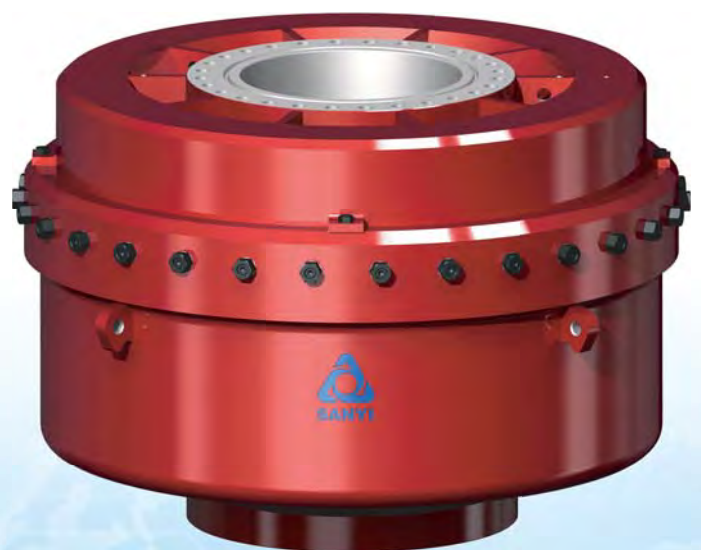
29.1/2" 500PSI Diverter



GK type Annular BOP
Latched Head



Drilling Spool



30" 1,000PSI Diverter

Rotating BOP

1) The Application of the Equipment

This equipment is a rotating diverter, which divert the drilling fluid from the drilling floor and set up a barrier between the annular space and drilling floor. The barrier can withstand some pressure while drilling, so that the under balanced drilling can be carried through. It can be widely applied in under balanced drilling, natural gas and air drilling, work over and normal drilling to effectively decrease cost, reduce damage on formation by mud and increase production of the oil well.

2) Product Development Strategy

Rotating BOP is also named as rotating control head, which is the indispensable equipment to implement the under balanced drilling. As the requirement of environmental drilling is becoming more and more severe, Rotating BOP will be applied to normal drilling. Rotating control head installs on Annular BOP or Ram BOP, to seal off rotating drilling tool and divert fluid when implementing under balanced drilling. After assembling with hydraulic BOP, check valve, gas separator and pressure balance pipe tripping pressure device, which can implement under balanced drilling and pressure balance pipe tripping safely. Rotating BOP plays an important role in liberating hydrocarbon zone, preventing drilling, gasified liquid drilling and pressure balance workover. At present, most of Rotating BOPs used by China oilfields are imported

from abroad, the price is expensive. In order to promote widely using of under balanced drilling in China and satisfy requirement of different oilfields, SANYI and Zhongyuan Oilfield joined efforts in developing series of rotating BOP (dual packer control head and single packer control head). Among of which, FXB20/35-17.5/35 Rotating BOP can pass through 51/2" drilling tool (This equipment is always an engrossment of abroad, only rent and unsold to China, which results in the cost of oilfield on a high level. When bidding abroad, China oilfield is always at a disadvantage because high quoted price.). The emergence of FXB20/35-17.5/35 Rotating BOP supply a gap of domestic equipment, accordingly take out patent, making a contribution to China oilfields.

3) Specification List of Series Product

FXB18/35-17.5/35-35	FXB18/35-14/21-35
FXB18/35-17.5/35-70	FXB18/35-14/21-70
FXB20/35-17.5/35-35	FXB18/35-7/14-35
FXB20/35-17.5/35-70	FXB18/35-7/14-70



Control System for Surface Mounted BOP Stacks

The FKQ series surface control system will be designed, manufactured, and inspected as per API Spec 16D, and SY/T5053.2-2001. The corresponding surface control devices here are available for all specs of BOP stacks, main components of Triplex Plunger Pump, pneumatic pump, 3-position 4-way hydraulic switch valve, manual pneumatic regulating valve can be produced in machining center, the above products are of compact structure, low noise, good sealing stability, and easy operation, providing safety and security equipments for oil field.

Principle Description

A wide range of models of surface control devices with full function can be manufactured by SANYI, volume of accumulator is from 125L to 1440L, and controlled objects are 2 to 14, besides the normal products function of all components, we can design special types according to client's requirement. The BOP control system is also suitable for atrocious weather.

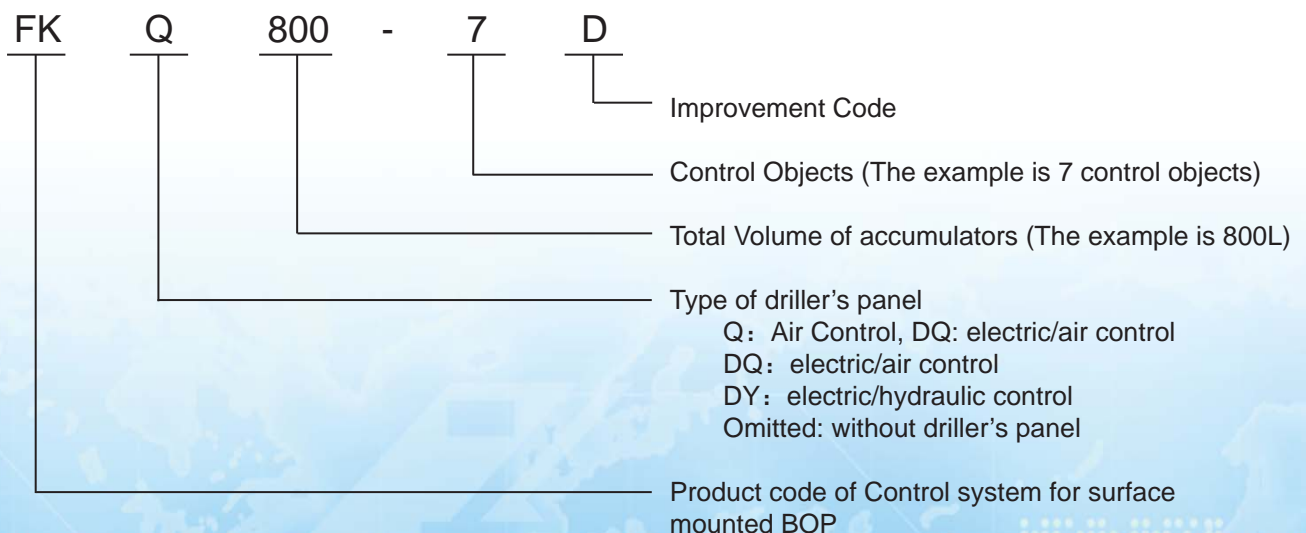
The system is equipped with two independent pump groups. According to number of controlled objects, we provide electric, pneumatic, or manual pump with different flow rate. Accumulator unit is designed to meet the requirement of closing all BOP stacks and opening hydraulic valve, (in case of a group of accumulator units fails to work, the total loss will not exceed 25%). We can offer accumulator with ASME Mark that complies with the requirement of API 16D. The pressure of annular preventer circuit in control system may be adjusted by pneumatic regulator. It characters reverse adjusting. In case of sudden failure of air supply, the pressure can be reset to the present value automatically. The control manifold of the remote control panel is equipped with an orifice as an inlet of the pressure source. For example, the spare nitrogen system offered by SANYI provides emergent auxiliary energy. If accumulator or pump can not provide the control manifold with enough power fluid, the spare nitrogen system may be used to provide high pressure air to close the preventer. The spare nitrogen system may provide emergency air supply for the driller's panel and the auxiliary control panel.

The system can be equipped with an alarm device. It monitors the accumulator pressure, air supply pressure and the liquid level in the oil reservoir. When the above parameters exceed the alarm limits, the audible and visual signal will appear timely.

The auxiliary control panel which adopts pneumatic control can be equipped with to monitor the remote control panel with air hose bundle or cable. Therefore, the system can be operated and monitored by both driller's panel and auxiliary control panel.

The system can also be equipped with electric heating device of oil reservoir and air hose bundle. The system can also be equipped with a metal enclosure with exposing-proof electric heating board and explosion-proof air-conditioner.

Model Illustrations



Specifications for BOP Control System

Model	Number of Controlled Objects				Accumulators Sets			Volume of Oil Reservoir (L)	Motor Power (Kw)	Flow Volume of Pump		
	Annular	Ram	Choke	Spare	Nominal Volume (L)	Effective Volume (L)	Alignment			Electric Pump (L / min)	Pneumatic Pump (ml / stroke)	Manual Pump (ml / stroke)
FKQ1440-14	1	4	7	2	60 x 24	720	Rear	2300	18.5 x 2	46 x 2	60 x 4	
FKQ1280-8	1	3	3	1	80 x 16	640	Side	1650	18.5 x 2	46 x 2	60 x 2	
FKQ960-8	1	3	3	1	60 x 16	480	Side	1650	18.5 x 2	46 x 2	60 x 2	
FKQ840-8	1	3	3	1	60 x 14	420	Side	1650	18.5	46	60 x 2	
FKQ1280-7B	1	3	2	1	80 x 16	640	Side	1600	18.5 x 2	46 x 2	60 x 2	
FKQ800-7	1	3	2	1	40 x 20	400	Side	1600	18.5	46	60 x 2	
FKQ800-7B	1	3	2	1	80 x 10	400	Side	1600	18.5	46	60 x 2	
FKQ800-7C	1	3	2	1	40 x 20	400	Rear	1600	18.5	46	60 x 2	
FKQ800-7D	1	3	2	1	40 x 20	400	Side	1600	18.5	46	60 x 2	
FKQ800-7E	1	3	2	1		400	Side	1600	18.5	46	60 x 2	
FKQ720-6	1	3	2	-	60 x 12	360	Side	1290	18.5	46	60 x 2	
FKQ720-6C	1	3	2	-	60 x 12	360	Rear	1290	18.5	46	60 x 2	
FKQ720-6D	1	3	2	-	60 x 12	360	Side	1290	18.5	46	60 x 2	
FKQ640-6	1	3	2	-	40 x 16	320	Side	1290	18.5	46	60 x 2	
FKQ640-6B	1	3	2	-	80 x 8	320	Side	1290	18.5	46	60 x 2	
FKQ640-6C	1	3	2	-	40 x 16	320	Rear	1290	18.5	46	60 x 2	
FKQ640-6D	1	3	2	-	40 x 16	320	Side	1290	18.5	46	60 x 2	
FKQ640-6E	1	3	2	-		320	Side	1290	18.5	46	60 x 2	
FKQ480-5	1	3	1	-	40 x 12	200	Side	1100	18.5	46	60 x 2	
FKQ480-5B	1	3	1	-	80 x 6	200	Side	1100	18.5	46	60 x 2	
FKQ480-5C	1	3	1	-	40 x 12	200	Rear	1100	18.5	46	60 x 2	
FKQ480-5E	1	3	1	-		200	Side	1100	18.5	46	60 x 2	
FKQ320-4	1	2	1	-	40 x 8	160	Side	790	11	35	60 x 1	
FKQ320-4C	1	2	1	-	40 x 8	160	Rear	790	11	35	60 x 1	
FKQ320-4C	1	2	1	-		160	Side	790	11	35	60 x 1	
FKQ240-3C	1	1	1	-	40 x 6	120	Rear	550	11	35	60 x 1	
FK240-4	1	2	1	-	40 x 6	120	Rear	550	11	20		14 / 28
FK240-4E	1	2	1	-		120	Rear	550	11	20		14 / 28
FK240-3	1	1	1	-	40 x 6	120	Rear	550	11	20		14 / 28
FK125-3	1	1	1	-	25 x 5	62.5	Rear	440	7.5	20		14 / 28
FK125-3E	1	1	1	-		62.5	Rear	440	7.5	20		14 / 28
FK125-2	-	1	1	-	25 x 5	62.5	Rear	440	7.5	20		14 / 28
FK125-2E	-	1	1	-		62.5	Rear	440	7.5	20		14 / 28

Accumulators (gal)	Electric Pump	Air Pump	Manual Pump	Alarm Device	Spare Nitrogen System	Housing	Air Conditioner	Tank Steam Heating	Tank Electric Heating	Driller's Panel	Auxiliary Panel	Pipe Lines
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
11 x 20	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
11 x 16	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
11 x 8	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
11 x 8	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
	●	●	○	○	○	●	○	○	○	●	○	○
11 x 6	●	●	○	○	○	●	○	○	○	○	○	○
	●	●	○	○	○	●	○	○	○	○	○	○
	●	●	○	○	○	●	○	○	○	○	○	○
11 x 3	●	●	○	○	○	●	○	○	○	○	○	○
	●	●	○	○	○	●	○	○	○	○	○	○
11 x 3	●	●	○	○	○	●	○	○	○	○	○	○

Note: 1. The products list above are standard, “●” means equipped with, “○” means optional.
 2. Features list in or not list in should be confirm as per order.
 3. Other features may be provide as per special order.



FKDQ320-4 BOP Control System



Driller's Panel
FKDQ320-4 BOP Control System



Auxiliary Driller's panel
FKDQ320-4 BOP Control System



FKQ640-6 BOP Control System



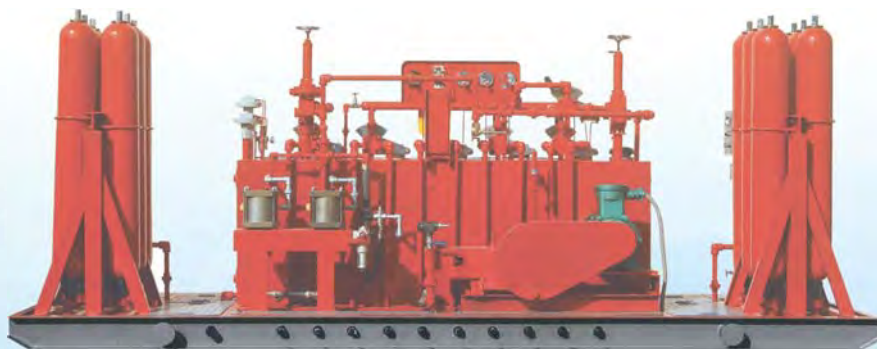
Driller's Panel
FKQ640-6 BOP Control System



Housing, FKQ640-6 BOP Control System



FKQ640-6 BOP Control System (Front)



FKQ640-6 BOP Control System (Rear)

Gate Valve

Gate valve manufactured by Yancheng Sanyi Petrochemical Machinery Co., Ltd. are available in temperature classes L, P, R, S, T, U type specified in API Spec 6A. Gate valve to be used in 350°C or 650°C for high temperature service can be supplied on request. Fire-proof gate valves also can be supplied to API 6A. Gate valves manufactured by our company are available in 2000psi, 3000psi, 5000psi, 10000psi and 15000psi working pressure, material classes from AA through FF, product specification levels (PSL) from 1 through 3 and performance requirement (PR) 1~2.



Manual Gate Valve – Rising Stem



Manual Gate Valve – non-rising stem



Hydraulic Gate Valve



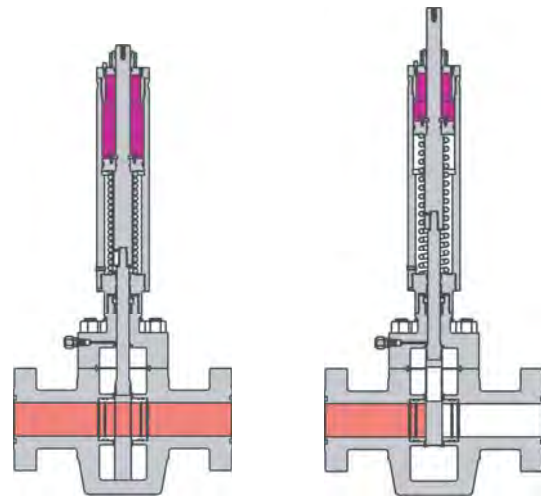
Hydraulic Gate Valve – manual locking

Features

- Simple structure and renewable gate and seat assembly.
- One-piece and dual-acting gate with long service life.
- Thrust bearing with large load capacity and composite rubber-plastic stem lip packing minimize operational torque.
- Threaded packing gland allows removal of bearings and stem packing under pressure.
- New type of closed groove seal ring installed between the valve body and bonnet, bolted connection is simple and reliable.
- Bearing cap is provided with a grease cup to make it easy to inject lubricating grease in the field.
- The sealing surfaces of the gate and seat are spray welding with special hard alloy for wear and corrosion resistance.
- Wave springs are installed between the body and seat and between the gate and seat. The gate and seat still maintain a positive metal to metal seal under low pressure.
- Floating gate design requests the hand wheel to be backed off 1/4 turn after its rotation can go no further.

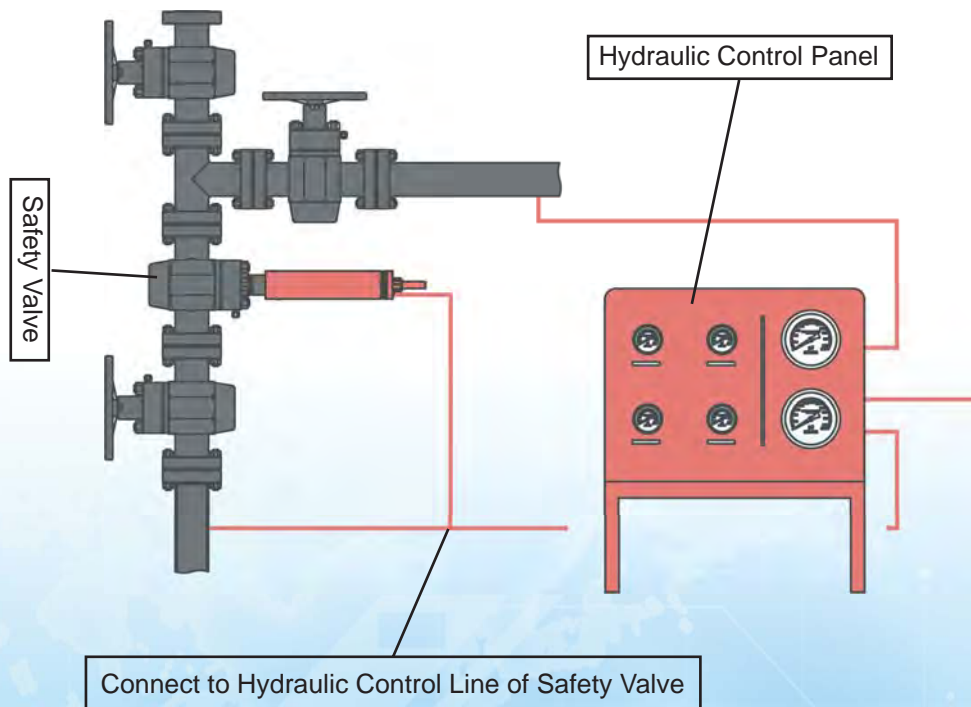
Hydraulic Operated Safety Valve

Hydraulic Operated Safety Valve mainly includes preparation valve and hydraulic operator, is the execution unit of well safety system. High pressure oil enter into the empty cavity of upper operator, and compress the spring of lower operator to open the valve, when the wellhead equipments suffer from dangerous pressure, control system relief the pressure of cylinder after receiving the signal sent by sensor, spring push stem to close valve and wellhead equipments, ensure the equipment safety.



Open

Close



Ball Screw Operator Gate Valve

Ball screw structure of operating effectively lower operating movement, and can achieve 1/3 of common valve.

Gate valve structure:

- Stem structure has the function of pressure balance and switch indication.
- Apply to the structure of big bore high pressure valve.
- Working Pressure: 2000PSI ~ 20000PSI
- Nominal Bore: 1-13/16" ~ 9"
- Working Medium: oil, natural gas, mud and gas containing H₂S, CO₂
- Working Temperature: L U
- Material Class: AA ~ FF
- Product Specification level: PSL 1 ~ 4
- Performance Requirement: PR 1 ~ 2



Studded end



Flanged end

Choke Valve

The choke valve, a main component of Christmas tree, is design to control production rate of the oil well, with working pressure up to 20000psi. Choke valves can be classified as follows: adjustable choke valves and positive choke valves. By rotating hand wheel to move the stem, the adjustable choke valve is designed to adjust the effective area available for the flow to accomplish control of production rate. The positive choke valve is design to accomplish control of production rate by changing flow beans.

Features:

- The coupling nut used for connecting the bonnet and body allows fast make-up and break-out.
- Stem tip and bean adaptor are fabricated from special carbide alloys for corrosion and abrasion resistance.
- Indicator lens with scale marks allows the operator to know stem's position and actual orifice area.
- Turn hand wheel counter-clockwise and the valve will open; turn hand wheel clockwise and the valve will close.

Main technical data

- Working Pressure: 2,000 ~ 20,000psi
- Nominal Bore: 2-1/16" ~ 7-1/16"
- Working Temperature: P U
- Product Specification Levels: PSL 1~4
- Performance Requirement: PR 1 ~2
- Material Class: AA ~ FF
- Working Medium: crude oil, natural gas, drilling fluid

Adjustable choke valve

- Valve needle and spool are made of tungsten carbide, with sufficient corrosion resistant, anti-eroding and wearable capacity.
- The two kinds of adjustable choke, needle type and external sleeve type could apply to wellheads & X-mas tree and choke manifold.

Positive choke valve

- Material of choke bean is fabricated from ceramic and tungsten carbide, with sufficient corrosion resistant, anti-eroding and wearable capability.
- It adopts union bonnet so as to change choke quickly.
- It has application in wellhead & X-mas tree and choke line.



Manual Choke Valve

Hydraulic Choke Valve

Positive Choke Valve

Orifice Choke Valve

Orifice choke valve is molded of two pieces of special carbon tungsten plates with rather ability of erosion resistance, one of which rotates to alter the concentricity between the upper orifice and lower orifice of two plates so as to adjust the flow-rate of fluid or gas.

The valve is used for manifold such as drilling, fracture, mud circuit, ground high pressure gas injection / production, it has a outstanding feature that the pressure difference between inlet and outlet, as closing, can press both of the plates fast together so as to put into effect of sealing cutting, especially in the case that the pressure suddenly rises or falls, the pre-set sign-rate of high/low pressure sensor can be helpful for automatic closing / shut so as to avoid heavy accident.

It is outstanding advantage that it has long working life and ability of erosion/corrosion resistance in comparing with other choke valves.



Full Open



Half Open



Full Close

Unique design of choke plate

Plate is molded of two pieces of special carbon tungsten, grinding by Diamond Bruting Wheel. Rotate stem to adjust the opening size of plate.

Positive closure

A 17° overlap type sealing tape beyond the full-close position is designed to ensure closure even if the plate has abrasion, as the sudden rising of pressure, for the special design of plate, the sealing effect will not be affected.

Tungsten-carbide Wear Bushing

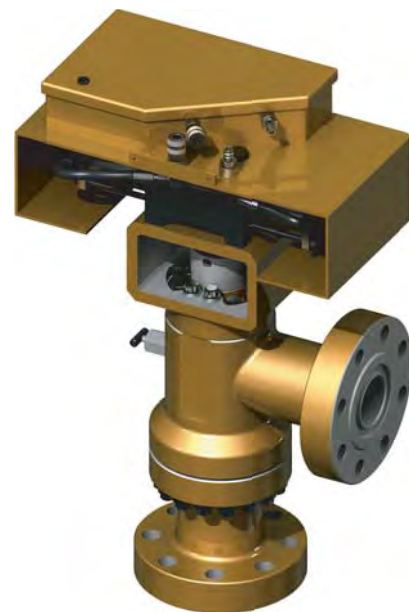
Overlay on the face of wear bushing increases its service life. Extensibility of wear bushing is available to bear the abrasive downstream turbulence, especially during under balanced drilling operations.

Versatile

Controls can be operated from either remote or onsite manual during onshore and offshore operation.



Manual Orifice Choke Valve



Hydraulic Orifice Choke Valve

Features:

- Built for oilfield
- Precision manufacturing
- Design of one-way plate to plate
- Tungsten-carbide Wear Bushing increases its service life
- Versatile for onshore and offshore operation
- Remote control or onsite manual control

Mud Valve

Mud valve manufactured by sanyi has the features of reliability, safety, heavy load and corrosion resistance, which is used for a number of oilfield applications. There are two models of sealing mechanism adopted in sanyi mud valve, which of metal to metal seal and rubber seal.

Features of metal to metal seal mud valve

- Spray coating the seal face of gate and seat with hard alloy, which has long service life
- Easy to check the status of valve due to rising stem structure
- change stem packing without removal of bonnet
- on site maintenance design allows checking the situation of internal parts by opening bonnet and changing valve parts without removing it from pipeline.



Metal to metal seal mud valve – welded end



2" 5,000psi rubber seal mud valve
Welded end



2" 5,000psi rubber seal mud valve
Threaded end



Metal to metal seal mud valve – union end



4" 5,000psi rubber seal mud valve
Welded end



4" 5,000psi rubber seal mud valve
Threaded end

Features of rubber seal mud valve

- All parts are interchangeable with DEMCO gate valve manufactured by Cameron
- On site repair ability:
The bonnet is easily removed for internal parts inspection and/or replacement without removing the valve from the line; this simple design permits fast and easy service without the need of special tools
- Design of floating gate:
A slab gate with T slot stem connection allows the gate to float to the seat providing a tighter pressure seal.

Check Valve

Check valve effects seal between valve core and body by fluid pressure, the higher the fluid pressure, the better seal effected. The cavity could contain pressure in pipes all the time.

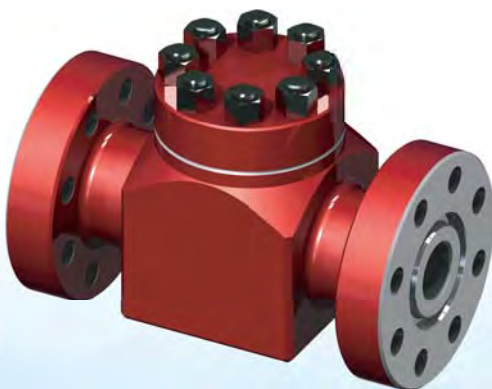
The body is made of forging alloy steel, with good mechanical property, pressure endurance, safety and reliability.

Bonnet is connected with valve body with bolts. It has seals on bonnet and inner wall of body. Fitting space between bonnet and body is designed to zero so as to minimize loading on bolts and the corrosive of bolts and holes.

Carbide sealing surface has good anti-abrasion and corrosion resistance, the material of valve core is fabricated of anti-sulfide steel, the other parts is made with method of limiting hardness, the valve is suitable for H2S service.

Main Technical Parameters

- Working Pressure: 2,000psi ~ 15,000psi
- Nominal Bore Diameter: 2.1/16" ~ 7.1/16"
- Temperature Class: K ~ V
- Product Specification Level: 1 ~ 4
- Performance Requirement: 1 ~ 2
- Material Class: AA ~ FF
- Working Medium: petroleum, natural gas



Plug Valve

Plug valve is a necessary part that is applied to high pressure manifold in well cementing and fracture service, also selected for high pressure fluid control system. It is excellent for its compact structure, easy maintenance, low torque, and rapid operation, which make it to be the most ideal valve for cementing and fracturing manifold.

The inlet and outlet of plug valve are Fig1502 union connections (other connections on request), cylinder fits between body and seal segment, and seal rings are inlaid into outside of seal segment for good sealing.

Between seal segment and plug is cylindrical metal sealing, has the feature of high matching precision and reliable sealing.

Main Technical Parameters

- Working Pressure: 2,000psi ~ 15,000psi
- Nominal Bore Diameter: 2", 3"
- Temperature Class: K ~ V
- Product Specification Level: 1 ~ 4
- Performance Requirement: 1 ~ 2
- Material Class: AA ~ EE
- Working Medium: petroleum, natural gas



Ball Valve

Ball valve uses a ball with circular hole as opening and closing device, ball rotate around center line of valve body with stem, so as to open and close valve.

I. series of ball valve

Ball valve has two types of structure, which of split body and three-piece body. Besides small fluid resistance, fast opening and closing, simple structure, has the following features:

1. Ball valve with FEP lining has high chemical stability, can be applicable for any strong corrosive medium except molten alkali metal and fluorine
2. The structure of full bore, floating ball can close under full pressure without leakage, is also convenient for pipeline pigging and pipeline maintenance.
3. Compact structure and smallest space of valve cavity reduced medium retention. In addition, special molding process make the sealing face has good sealing, plus the PTFE packing, the valve can realize no leakage.
4. Structure of split body and three-piece body could be applicable for pipeline system of any requirements and services, in which valve of three-piece body allows main valve body to separate from valve body of two sides; can realize quick replacement and maintenance on site.

II. Design specification

As per standard of GB 12237/ API 608/ API 6D

III. Drive mode

Manual, worm gear, pneumatic, hydraulic



Choke Manifold

1. Application

Choke manifold is necessary device to control the well kick successfully and execute the pressure control technology on oil/gas well in the course of drilling, as it is, the device is adopted to execute new drilling-well's technique of balance pressure, which can prevent the pollution oil-layer, improve the speed of drilling and control blowout effectively. One end of the device connects with the side flange of BOP spool. When BOP closes, it can control the finite pressure from casing by adjusting the choke valve's opening, so balanced drilling can work under minimum pressure-difference.



2. Assembly & structure

Choke manifold consists of choke valve, gate valve, pipeline, fittings and pressure gauge etc.

3. Working Principle

When the pressure rising in well, fluid in well can be released in utilization of the choke valve opening / closing in choke manifold to control casing pressure, which can directly blow out through gate valve when the casing pressure is quite high.



4. Specification

Pressure level is divided into five levels, i.e. 2000psi, 3000psi, 5000psi, 10000psi, 15000psi; it can be designed according to requirement of client.

Choke manifold is according to the requirements of API Spec 16C

Working Pressure: 2,000psi ~ 15,000psi

Nominal Bore Size: 2.1/16" ~ 4.1/16"



Kill Manifold

1. Application

In case of increase in well head pressure, the kill manifold can provide a means of pumping heavy drilling fluid into the well to balance bottom hole pressure so that well kick and blowout can be prevented. In this case, by using blow down lines connected to the kill manifold, the increasing well head pressure also can be released directly for bottom hole pressure release, or water and extinguishing agent can be injected into the well by means of the kill manifold. The check valves on the kill manifold only allow injection of kill fluid or other fluids into the well bore through themselves, but do not allow any backflow so as to perform the kill operation or other operations.

2. Structure

The kill manifold consists of check valves, gate valves, pressure gauges and pipelines. The one end of the kill manifold is connected to the drilling spool and the other end is connected to the pump. The kill manifold and choke manifold are both designed to API 16C and can be used together. The kill manifold is available from 14Mpa, 21Mpa, 35Mpa and 70 Mpa pressure ratings.



Standpipe Manifold

1. Vertical structure: could stand on deck with smaller occupation.
2. Proper match: it is assembly of choke manifold and two sets of kill line, fabricated with two layers of drilling floor for easy operation.
3. Full function: available with full function of the horizontal model manifold. The hard supporting frame is totally enclosed and corrosion prevention.
4. Easy assembly: it is designed to combination with four components for ease of transportation.

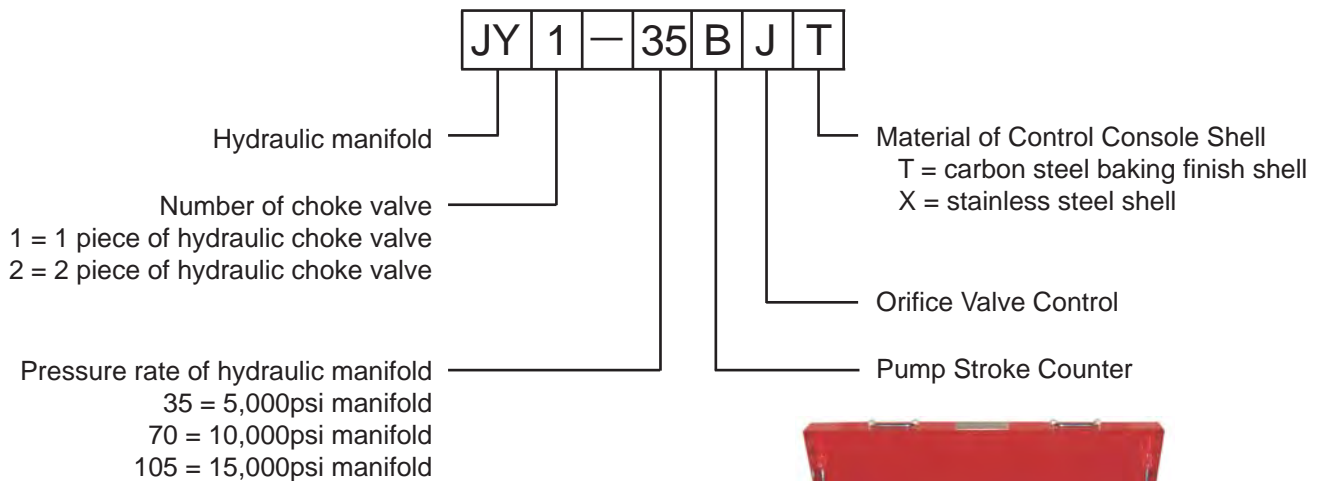


Choke Manifold Control Console

1. Usage

Choke manifold control console as a control assembly in hydraulic choke manifold, can remote control the open/close of hydraulic choke valve for a long distance and the control panel can indicate the standpipe pressure, casing pressure and the opening/closing condition of hydraulic choke valve as well as the pulse number and frequency of the mud pump if pump stroke counter equipped, which can keep the pressure under well and is a necessary device to control kick and blowout and perform the pressure control technology in oil/gas well.

2. Illustration of type



3. Technology Parameter

- (1) Gas source pressure: 0.6MPa
- (2) Ambient Temperature: -20°C ~ +60°C
- (3) Working Pressure: 3Mpa
- (4) Size of quick connector in gas line: M16 x 1.5
- (5) Size of quick connector in oil line: M22 x 1.5
- (6) Specification of hydraulic oil: anti-cryogenic hydraulic oil
- (7) Length x width x height: 960 x 600 x 1300
- (8) Weight: 300kg



3,000 ~ 15,000PSI Choke Manifold Control Console

High Pressure Standpipe Manifold

High Pressure Standpipe Manifold consists of Z23Y100-5000psi & Z23Y50-5000psi mud valve, high pressure spherical union, high pressure core union, tee, high pressure hose, elbow, pressure gauge, spool etc.

Ground valve group adopts goose type tee with compact structure, little fluid resistance and large power effectuality.

Adaptor spool adopted on rigid valve group can be directly used as single pipe on site.

High pressure union made of high strength alloy steel and heat treatment can create quick strip. As for being manufactured with special machining tool, it can create seal under fine sphere and core matched with sealing ring.

The gate and valve seat of Z23Y-5000psi mud valve are welded with carbide against erosion and corrosion, so that it can enlarge the working life, little operating torque.

Elbow, adaptor, tee and cross are made of high strength alloy steel, with suited wall thickness and fine heat treatment, so it can meet the requirement on strength and corrosion.

The part required at high precision, should be machined with special technique to ensure the manufacture quality, and the pressure part should be hydrostatic tested on strength and sealing property to ensure the quality.

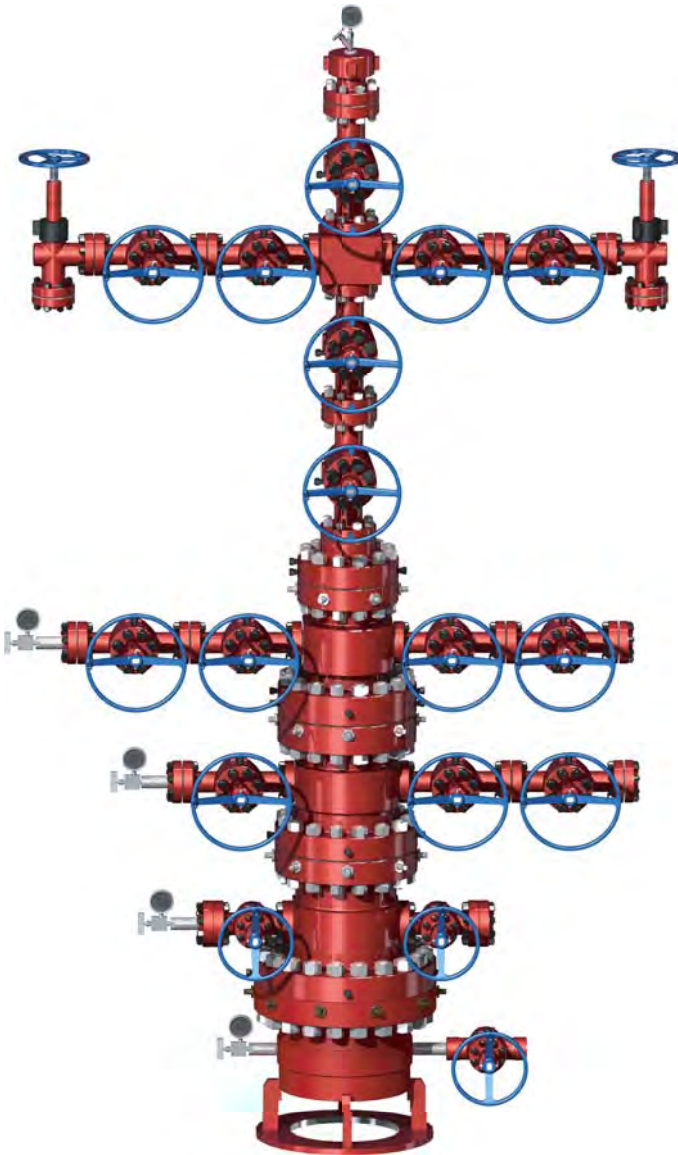
Installation

1. First to clean up each sealing face and sealing groove of union and coat it with grease and get rid of dirt from the pipeline.
2. Check whether each joint is fastened or not.
3. As for shipping, to disassemble into parts, clean up pipes, coat the connections with grease and then, to be wrapped well up to avoid foreigner entrance and sealing surface damage.

Operation note and maintenance

1. Regularly inject mud gate valve with grease to maintain the gate valve;
2. Regularly check whether all connecting position and fixing bolts are loose;
3. If leak around sealing position, the seal should be replaced immediately;
4. Keep the outer surface of the manifold clean and paint it against rust regularly.





Typical Multilayer Casing Head

Jiangsu Sanyi Petroleum Equipment Co., Ltd. supplies wellhead and Christmas tree suitable for inland and offshore applications to explore, develop and produce oil. Design, produce, manufacture, test and quality control are all according to API 6A latest edition. Our company has got API spec 6A license and API monogram certification. The main pressure containing parts of these products are made of forgings or specially smelted low alloy steel (stainless steel), having high bearing strength. Wellheads manufactured by our company are available in 20,000psi maximum working pressure and 500 tons maximum suspending capacity, material classes from AA through FF, temperature classes from L through V, produce specification levels from 1 through 4 and PR1-2, and are in accordance with NACE Standard MR0175.

Wellheads supplied by Jiangsu Sanyi Petroleum Equipment Co., Ltd. have many different kinds of configurations, meeting requirements of all kinds of bore frames and casing programs, providing service in different working conditions. Christmas trees and auxiliary equipments are available at your option. Wellheads also can be designed and manufactured to client's requirement.

The wellheads and Christmas trees have won great acclaim from the customers, thereinto, patented product "TFZ35-70A" casing head series was honored with a golden medal at "The Ninth China Patent New Technical & New Product Fair". The products export in bulk the world marketing of USA, Saudi Arabia, Iran, Uzbekistan, Syria, Indonesia, India, Australia and Kuwait.

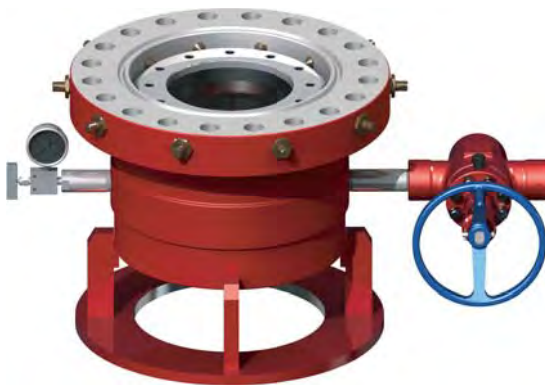
Scope of supply

- Working Pressure: 2,000psi ~ 15,000psi
- Nominal Bore Diameter: 7-1/16" ~ 21-1/4"
- Working Medium: petroleum, natural gas, mud, H₂S, CO₂
- Temperature Class: -46°C ~ 121°C (LU Class)
- Material Class: AA ~ FF
- Product Specification Level: 1 ~ 4
- Performance Requirement: 1 ~ 2
- Can install (pneumatic) hydraulic safety valve

Casing Head

The casing head is a kind of part connecting casings and wellheads. It is used as supporting the weight of technical casing and production casing, sealing the annular space between the casings, and installing BOP stacks. It provides a transition joint for the tubing head, Christmas tree and other wellheads. It can also supply cement, monitor & control well's sinking, and inject balance liquids etc by the two side outlets on the casing head housing.

The casing head manufactured by our company is a standard structure, the casing hanger produced fits well with the casing housing, and the casing hanger of different sizes are available according to the casing procedure and the change of well head conditions. The standard casing head's top connection is API 6B or API 6BX flange.



Casing Head – Threaded or Welded Bottom



Casing Head – Slip Bottom

The options of the casing head as follows

- The bottom connection of the casing head is either API round box thread and API buttress box thread; it can also be slip type connection.
- It can be provided with weld supporting base plate.
- Side outlets could be pipe line thread or studded, studded side outlet is machined with female thread for connecting R1.1/2" reversing valve.



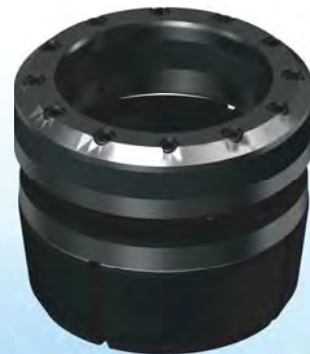
WE type Casing Hanger



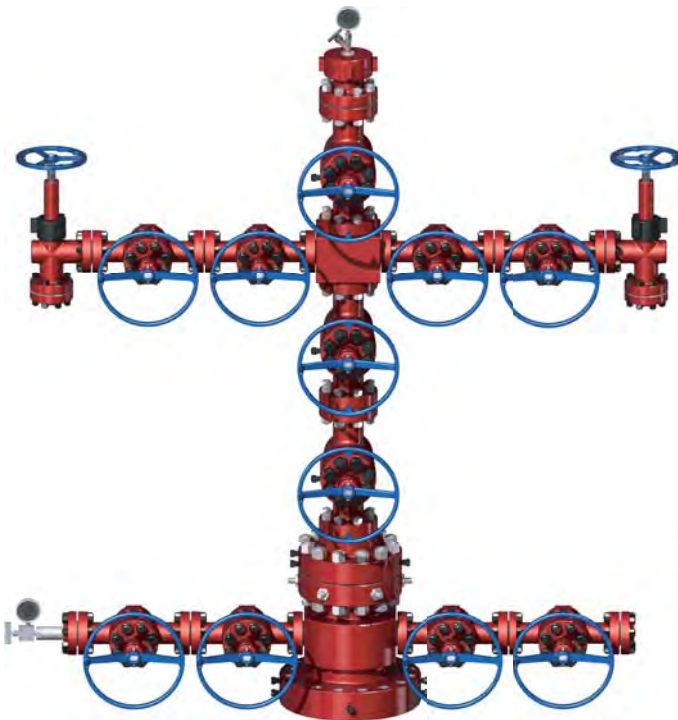
W type Casing Hanger



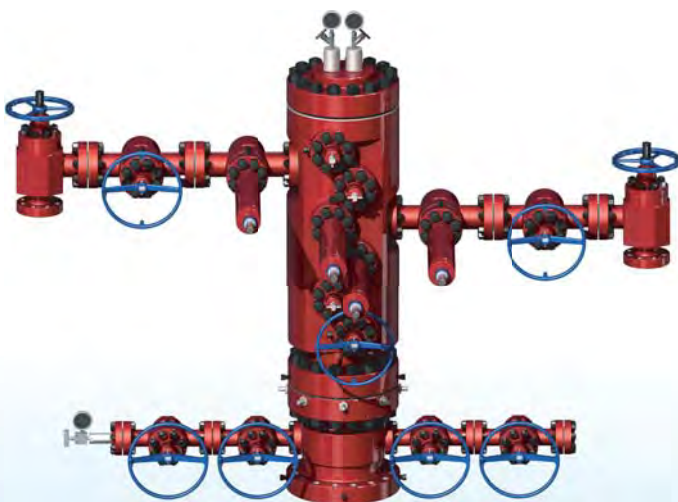
WD type Casing Hanger



C type Casing Hanger



Typical Christmas tree



Dual tubing integral type Christmas tree

The Christmas tree is an assembly of valves, spools and fittings for an oil well, and to design to direct and control formation fluids from the well. It can provide inlet for production tubing strings, including all components above the tubing head adaptor. Christmas tree assemblies can constitute many different kinds of combinations in order to meet any special requirement. Based on their different functions, Christmas trees can be classified into such special Christmas trees as oil production (flowing and artificial lift) Christmas trees, gas (natural gas and various sour gas) production Christmas trees, water injection Christmas trees, thermal recovery Christmas trees, fracturing Christmas trees and acidizing Christmas trees. Different pressure ratings serialize Christmas trees.

The gas production Christmas tree and tubing head are mainly used to produce gas and inject gas. The relative density of natural gas is low and gas column pressure is low, while well head pressure is high and liable to leakage regardless of gas production and gas injection. Sometimes natural gas contains corrosive media such as H_2S and CO_2 . Therefore, the gas production Christmas tree calls for rigid requirements on both its materials and its sealing characteristics. For the sake of safety, two gate valves are used on the tubing and casing respectively. Some gate valves to be used on high pressure and ultra-high pressure gas wells are integrated valves manufactured from high quality forged steel.

The pressurization parts of the Christmas trees and tubing spools manufactured by Jiangsu Sanyi Petroleum Equipment Co., Ltd. are made of forged or special smelted forging, so it is high-pressurization safety and so on.

Scope of supply

- Working Pressure: 2,000psi ~ 20,000psi
- Nominal Bore Diameter: 2-1/16" ~ 5-1/8"
- Working Medium: petroleum, natural gas, mud, H_2S , CO_2
- Temperature Class: $-46^{\circ}C \sim 121^{\circ}C$ (LU Class)
- Material Class: AA ~ FF
- Product Specification Level: 1 ~ 4
- Performance Requirement: 1 ~ 2
- To complete with pneumatic or hydraulic safety valve at option

Tubing Spool

1. Structure of Tubing Head

Tubing head is usually a spool with both flanged ends, which is set on the top flange of casing head to hang tubing hanger and seal the annular space between the tubing string and oil-layer casing and which consists of tubing head spool and tubing hanger.

2. Functions:

- 1) Hang the tubing string inside well;
- 2) Seal the annular space between tubing and casing;
- 3) Give a crossover to connect casing head downwards and to connect Christmas tree upwards;
- 4) Provide both side outlets in tubing head spool body through which to execute injection and well-wash operation.

3. Tubing hanger

Tubing hanger is an assembly to support tubing string and seal the annular space between tubing and casing, which is connected with tubing and seated into tubing hanger spool by tubing gravity. It is convenient to operate and replace wellhead so that it is widely used for intermediate depth well and common well.

Design features

- Fabricated with BT secondary seal, and could be field mounted by cutting casing pipe to accommodate the seal height.
- Tubing hanger and top flange are designed to run cable through.
- Several control ports are available for connecting pipeline.

Sanyi manufactures tubing head spool in full accordance with API 6A, the body is made of forged or special smelt steel, providing high bearing strength, safety and reliability. Side outlets could be pipe line thread or studded, studded side outlet is machined with 1.1/2" female thread.



Tubing Head Spool – single Tubing



Tubing Head Spool– Dual Tubing



Tubing Head Spool– c/w Cable Penetrator



Tubing Hanger
– Single Tubing



Tubing Hanger
– Double Tubing



Tubing Hanger – c/w Cable Penetrator

Wear Bushing

Wear bushing is applied to operation of well drilling and work over for protecting casing head and casing head spool. It could be loaded into casing head or casing head spool via pressure test running & retrieve tool, then to be held down by the top flange on casing head or casing head spool.



Wear Bushing

Testing Plug & Retrieve Tool

The tool manufactured by Sanyi is typical and dual-action with fewer components. The tool could be kept in casing head or casing spool, and when in drilling or work over service, BOP, manifold can be press tested through drilling pipe regardless of whether drill tools in hole or not.



Testing Plug & Retrieve Tool

Back Pressure Valve

There are two kinds of BPV, one-way and two-way. The one-way BPV provide circulating drill fluids downwards and shutting off pressure from down hole. When coming to pressure test for Christmas tree under tubing hanger.

BPV adopts special short buttress thread, and it is of high strength, independence, long service time, etc.

BPV could be assembled and disassembled by using its running & retrieve tool to control well pressure effectively and quickly.



One-way BPV



Two-way BPV



Running & retrieve tool for BPV

Union

High pressure union, importing international advanced technology, is forged with high-strength alloy steel, strict heat treatment process can ensure that the nipple have uniform metallurgical structure and pressing ability and the material meets ASTM and AISI Standard and the technology indexes conform to API Spec 6A, the product adopts some end connections of pipeline thread, tubing head, butt-weld and compress-seal.

The type mainly consists of: 100#, 200#, 206#, 207#, 211#, 400#, 600#, 602#, 1002#, 1003#, 1502# and 2002#.

Fig 100 Union
1,000psi (69bar) cold working pressure



Fig 200 Union
2,000psi (138bar) cold working pressure



Fig 206 Union
2,000psi (138bar) cold working pressure



Fig 207 Union
2,000psi (138bar) cold working pressure



Fig 211 Union
2,000psi (138bar) cold working pressure



Fig 400 Union
cold working pressure
1"- 4" 4,000PSI (276bar)
5"-12" 2,500PSI (172bar)



Fig 600 Union
6,000psi (414bar) cold working pressure

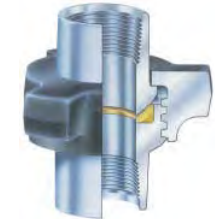


Fig 602 Union
6,000psi (414bar) cold working pressure

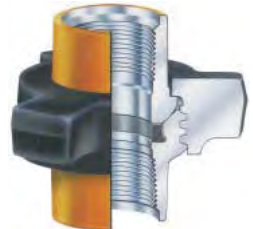


Fig 1002 Union
10,000psi (690bar) cold working pressure



Fig 1003 Union
10,000psi (690bar) cold working pressure

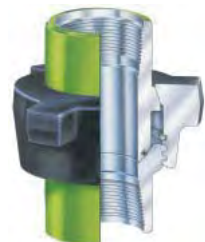


Fig 1502 Union
15,000psi (1034bar) cold working pressure

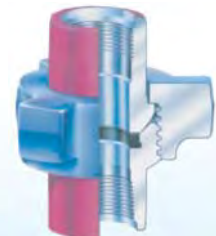
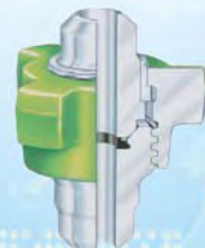


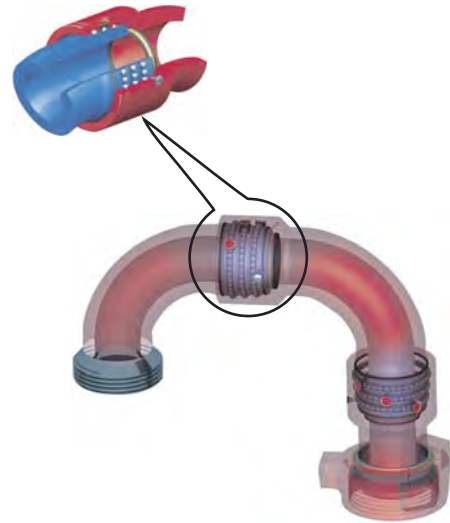
Fig 2002 Union
20,000psi (1380bar) cold working pressure



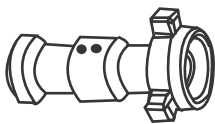
Swivel Joints

Swivel joints manufactured by Yancheng Sanyi Petrochemical Machinery Co., Ltd. is a metal pipe joint with integral ball bearing, with sizes ranging from 1" to 4" and rated WP ranging from 2,000psi ~ 20,000psi. Various types of repair kits are available, which is suitable for normal or low temperature, or H2S environments

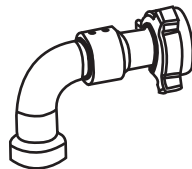
Swivel joint can be classified into long and short radius swivel joints. Long radius swivel joints can minimize fluid shock, and has better performance of resistance for scouring and erosion. We also need to use short radius swivel joints for low pressure operation due to limited installation space.



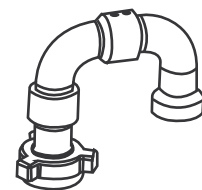
Swivel Joints



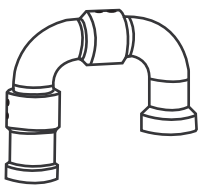
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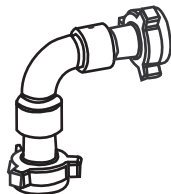
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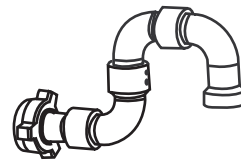
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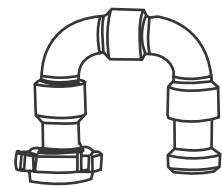
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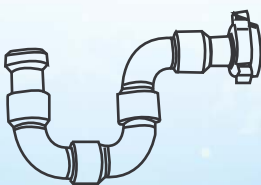
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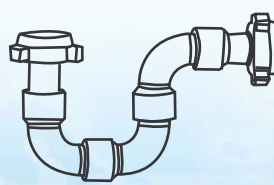
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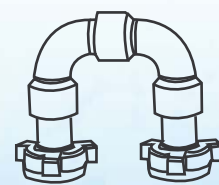
Style 10 F x M



Style 100 F x M



Style 100 M x M



Style 10 M x M

High Pressure Fluid Component

The high pressure fluid component designed and manufactured by Yancheng Sanyi Petrochemical Machinery Co., Ltd. is strictly as per API Spec 6A, API Spec 16C, API 5L, ANSI/ASME Pressure Pipe Standard, NACE MR 0175.

The high pressure fluid product manufactured by Yancheng Sanyi Petrochemical Machinery Co., Ltd. has features of superior performance, high pressure bearing, good sealing, long servicing life and stable quality, all the end connection sizes of outlets are British system, can be connected to international products.



Union Crossovers (F x F)



Union Crossove (M x F)



Union Crossove (M x M)



Union Cross



Union Elbow



Y type union Nipple



Chiksans

Inside Blowout Preventer Tool

The inside blowout preventer manufactured by Yancheng Sanyi Petrochemical Machinery Co., Ltd. has Kelly Cock Valve, Arrow Shaped Check Valve, Drop-in Check Valve.

Kelly Cock Valve is divided into Upper Kelly Cock Valve and Lower Kelly Cock Valve. Upper Kelly Cock Valve connects to the top of Kelly; Lower Kelly Cock Valve connects to the bottom of Kelly. Upper Kelly Cock Valve is left-hand thread, Lower Kelly Cock Valve is right-hand thread, and the structures of them are the same, which are all ball valve.

Both Arrow Shaped Check Valve and Drop-in Check Valve belong to drill tool check valve.



Kelly Cock Valve



Drop-in Check Valve

Test Manifold

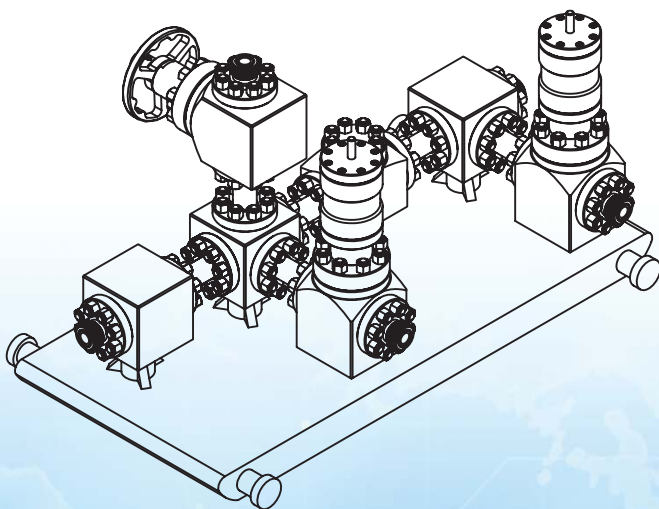
SYJYGH-105 test manifold manufactured by Sanyi is a matched assembly for hydraulic test and is a necessary equipment to achieve control of pressure.

Main Technical Data

- Working Pressure: 105MPa
- Working Medium: water & oil
- Working Temp: -29°C ~ 121°C
- Nominal Bore Diameter: Φ25mm
- Connection Type: Union
- Material Class: EE
- Product Specification Level: PSL3



Grease Gun



Test Manifold

Test Pump

Pneumatic test pump, based on the working principle of pneumatic test pump imported from abroad and considering the realities of China, is a new test assembly.

For compressed air as power supply and pneumatic pump as pressure source and proportionality of output-fluid pressure with air-supply pressure, the pneumatic can adjust the air-supply pressure and get relevant fluid pressure, as there's balance between the air-pressure and fluid pressure, pressurization of air pneumatic pump ceases, the outpt-fluid pressure stays at the pressure pre-adjusted, pressure-rise speed control depends on air-inout rate control, so it features explosion-proof, output pressure being adjusted, pressure-rise speed being control, small volume, light weight, simple operation, reliable property, wide usage range and so on, it is specifically available for the high-pressure and super-pressure inspection for pressed equipments such as blowout protection equipment in oilfield drilling project, valve, pipeline, connector and pressure vessel, as well as measurement tools for science & development department and examination administration.



Test Pump