

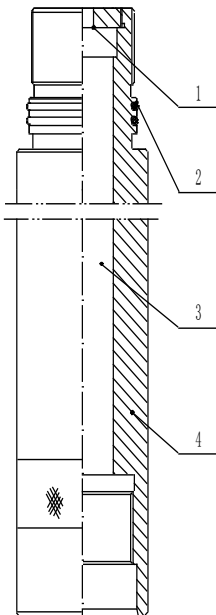
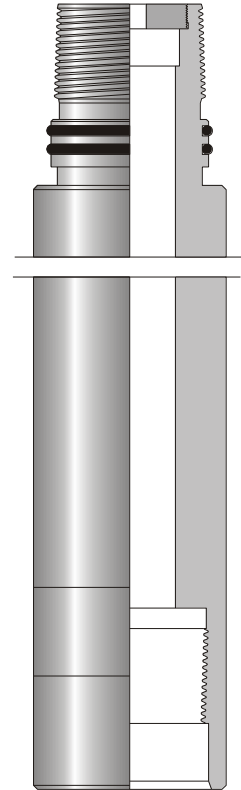
Time Delay Firing System

Description

Time delay firing device is used in TCP works to fire the gun after a certain period of time.

Benefits/Capabilities

- Can be used with many kinds of firing head together.
- Suitable for highly deviated wells, horizontal well, heavy mud well and multistage perforating.
- The time of delay can be adjusted under different practices.



Item	Description	Qty
1	Plug screw	1
2	O-ring	2
3	Time delay fuze	1
4	Case body	1

Time Delay Firing System (2)

Series of Time Delay Firing System

Item	Code	Length (mm)	O.D. (mm)	Input thread	Output thread	Delay time (min)
1	HgMp-28	374	Φ89	Tr65x4 (B)	Tr65x4 (P)	3、6
2	HgMp-28A-HY	387	Φ93	2 7/8-6Acme (B)	2 7/8-6Acme (P)	3、6
3	HgMp-28G	504	Φ86	2 7/8-6Acme (P)	2 7/8-6Acme (B)	10
4	HgMp-28GD	387	Φ86	2 7/8-6Acme (B)	2 7/8-6Acme (P)	3、6
5	HgMp-28-SC	374	Φ93	Tr65x4 (B)	Tr65x4 (P)	3、6
6	HgMp-28D	504	Φ93	2 7/8-6Acme (P)	2 7/8-6Acme (B)	10
7	HgMp-28K	484	Φ93	Tr75x4 (B)	Tr75x4 (P)	10
8	HgMp-28-DG	367	Φ89	2 3/8 TBG (B)	2 3/8 TBG (P)	3、6
9	HgMp-28-DGA	484	Φ89	2 3/8 TBG (B)	2 3/8 TBG (P)	10
10	HgMp-28SC-(3)6P	361	Φ93	3 1/16-6Acme (B)	Tr65x4 (P)	3、6
11	HgMp-28S	371.5	Φ89	3 1/16-6Acme (B)	3 1/16-6Acme (P)	3、6
12	HgMp-29	374	Φ93	Tr65x4 (B)	Tr65x4 (P)	3、6
13	HgMp-28E	374	Φ89	Tr65x4 (B)	Tr65x4 (P)	3、6
14	HgMp-28HB	449.5	Φ89	Tr65x4 (B)	2 7/8-6Acme (B)	3、6
15	HgMp-28TH	449.5	Φ93	2 7/8-6Acme (P)	2 7/8-6Acme (B)	3、6
16	HgMp-28B	361	Φ102	3 1/16-6Acme (B)	Tr65x4 (P)	3、6
17	HgMp-28A	374	Φ89	Tr65x4-6h (B)	3 1/16-6Acme (P)	3、6
18	HgMp-28F	374	Φ89	Tr65x4 (B)	Tr65x4 (P)	3、6
19	HgMp-28C	362	Φ102	3 1/16-6Acme (B)	3 1/16-6Acme (P)	3、6
20	HgMp-28D-HY	475	Φ89	2 7/8-6Acme (B)	2 7/8-6Acme (B)	3、6
21	HgMp-28T	374.5	Φ96	3 1/16-6Acme (B)	3 1/16-6Acme (P)	3、6
22	HgMp-28-HY	387	Φ93	2 7/8-6Acme (P)	2 7/8-6Acme (B)	3、6
23	HgMp-28G-HY	387	Φ93	2 7/8-6Acme (P)	2 7/8-6Acme (B)	3、6
24	HgMp-28Z	374	Φ93	Tr65x4 (B)	Tr65x4 (P)	3、6
25	HgMp-29G	508	Φ89	2 7/8-6Acme (P)	2 7/8-6Acme (B)	3、6
26	HgMp-28-SCX	374	Φ93	Tr60x3 (B)	Tr60x3 (P)	3、6

TCP Safety Impact Assembly

Description

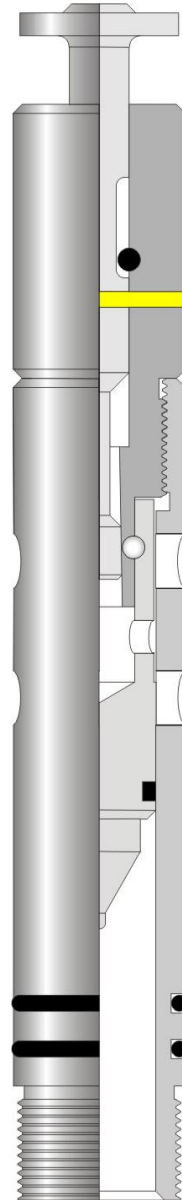
Safety impact Firing Assembly (LP) is used in TCP to detonate guns. The safety impact firing head require unlock the drop bar action and hydrostatic actuator. Without enough hydrostatic pressure (≤ 290 psi) acting on firing head, the impact detonator could not be detonated.

Benefits / Capabilities

- Electrical currents, natural or unexpected human action cannot detonate the Safety Impact Firing Heads.
- The firing head can be detonated with more than 435psi hydrostatic pressure.

Specifications

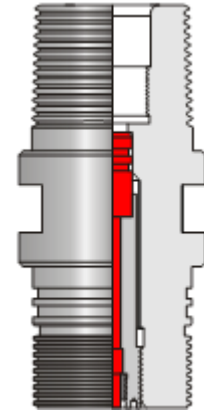
Code	AJ-3L/1-0	
O.D.	$\phi 38$ mm	1.5"
Make-up length	262mm	10.3"
Pressure rating	70MPa	10,150psi
Min. impact energy	2.655kg·m	20lb·ft.
Min. firing pressure	3MPa	435psi
Safety pressure	2MPa	290psi



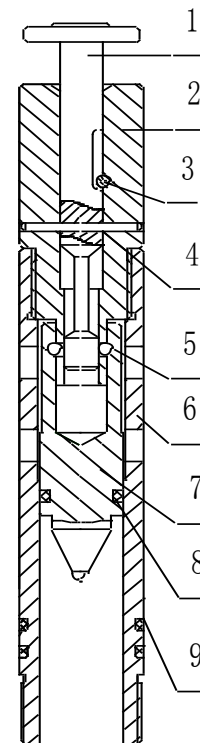
TCP Safety Impact Assembly (2)

Series of Sub-body

Code	O.D.	Thread
AJ-3L/0-01	φ93	2 7/8UP TBG (P) —3 1/16-6Acme (P)
AJ-3L I/0-01	φ93	2 7/8UP TBG (P) —Tr65×4 (P)
AJ-3D/0-01	φ89	M76×3 (P) —2 3/8 TBG (P)
AJ-3-73/0-02	φ73	M60×3 (P) —2 3/8 TBG (P)
AJ-3D2	φ73	M60×3 (P) —M54×2 (P)
AJ-3D1	φ89	M76×3 (P) —Tr76×4 (P)
AJ-3C	φ93	2 7/8 UP TBG (P) —3 1/16-6Acme(P)
AJ-1D	φ93	2 7/8 UP TBG(P)—2 7/8-6Acme (B)



Item	Description	Qty
1	Locking pin	1
2	Locking body	1
3	Located pin	1
4	Shear pin	1
5	Steel ball	4
6	Outside body	1
7	Piston	1
8	O-ring	1
9	O-ring	2



TCP Safety Impact Assembly (HP)

Description

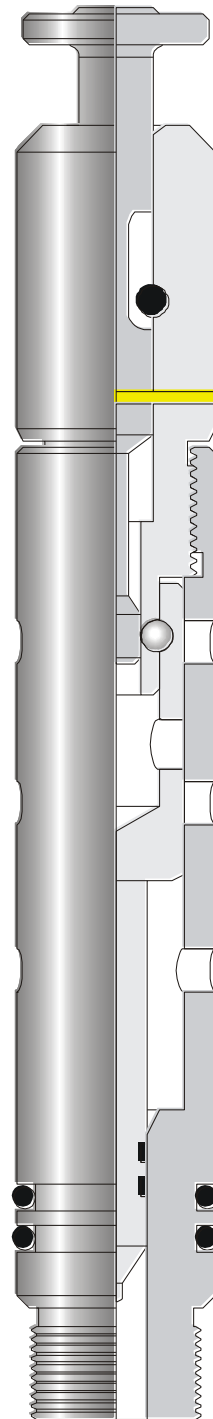
Safety impact Firing Assembly (HP) is used in TCP to detonate guns. The safety impact firing head require unlock the drop bar action and hydrostatic actuator. Without enough hydrostatic pressure ($\leq 1,450\text{psi}$) acting on firing head, the impact detonator could not be detonated.

Benefits / Capabilities

- Electrical currents, natural or unexpected human action cannot detonate the Safety Impact Firing Heads.
- The firing head can be detonated with more than 2,030psi hydrostatic pressure.
- Suitable for high pressure well.

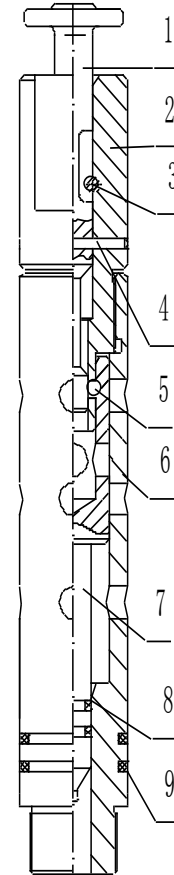
Specifications

Code	AJ-2/1-0	
O.D.	$\phi 38\text{mm}$	1.5"
Make-up length	262mm	10.3"
Pressure rating	140MPa	20,300psi
Min. impact energy	2.655kg·m	20lb·ft.
Min. firing pressure	14MPa	2,030psi
Safety pressure	10MPa	1, 450psi



TCP Safety Impact Assembly (HP) (2)

Item	Description	Qty
1	Locking pin	1
2	Locking body	1
3	Located pin	1
4	Shear pin	1
5	Steel ball	4
6	Outside body	1
7	Piston	1
8	O-ring	1
9	O-ring	2



Series of firing head body

Part number	O.D.	Thread
AJ-1/0-01	φ93	2 7/8UP TBG (P) —2 7/8-6Acme (B)
AJ-3L/0-01	φ93	2 7/8UP TBG (P) —3 1/16-6Acme (P)

TCP Safety Impact Assembly

Description

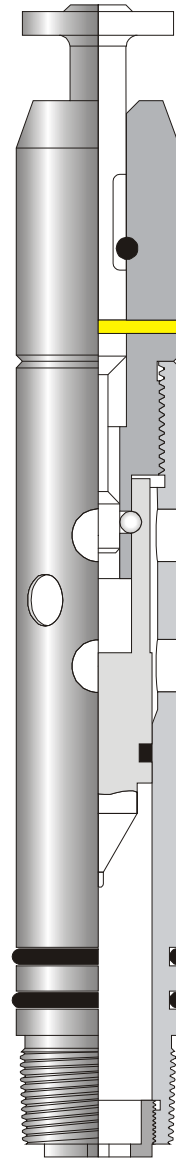
Safety impact Firing Assembly (LP) is used in TCP to detonate guns. The safety impact firing head require unlock the drop bar action and hydrostatic actuator. Without enough hydrostatic pressure (≤ 290 psi) acting on firing head, the impact detonator could not be detonated.

Benefits / Capabilities

- Electrical currents, natural or unexpected human action cannot detonate the Safety Impact Firing Heads.
- The firing head can be detonated with more than 435psi hydrostatic pressure.

Specifications

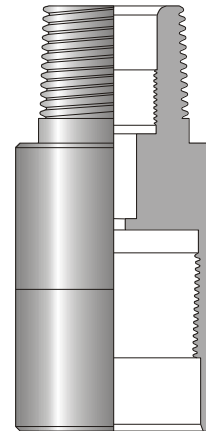
Code	AJ-1/1-0	
O.D.	$\phi 38$ mm	1.5"
Make-up length	265mm	10.4"
Pressure rating	70MPa	10,150psi
Min. impact energy	2.655kg·m	20lb·ft.
Min. firing pressure	3MPa	435psi
Safety pressure	2MPa	290psi



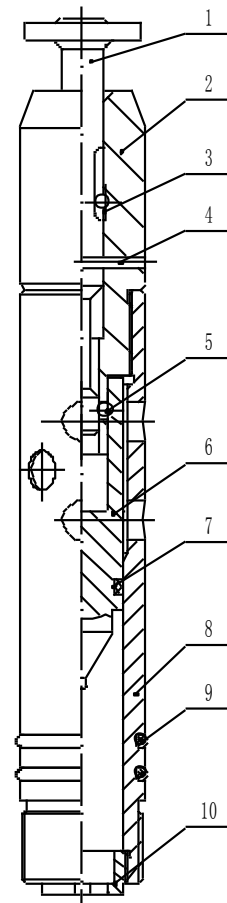
TCP Safety Impact Assembly (2)

Series of Sub-body

Code	O.D.	Thread
AJ-1/0-01	φ93	2 7/8UP TBG (P) —2 7/8-6Acme (B)
AJZ1-1	φ86	2 3/8UP TBG (P) —2 7/8-6Acme (B)



Item	Description	Qty
1	Locking pin	1
2	Locking body	1
3	Located pin	1
4	Shear pin	1
5	Steel ball	4
6	Piston	1
7	O-ring	1
8	Outside body	1
9	O-ring	2
10	Screw plug	1



Drop Bar-actuated Safety Firing Head

Description

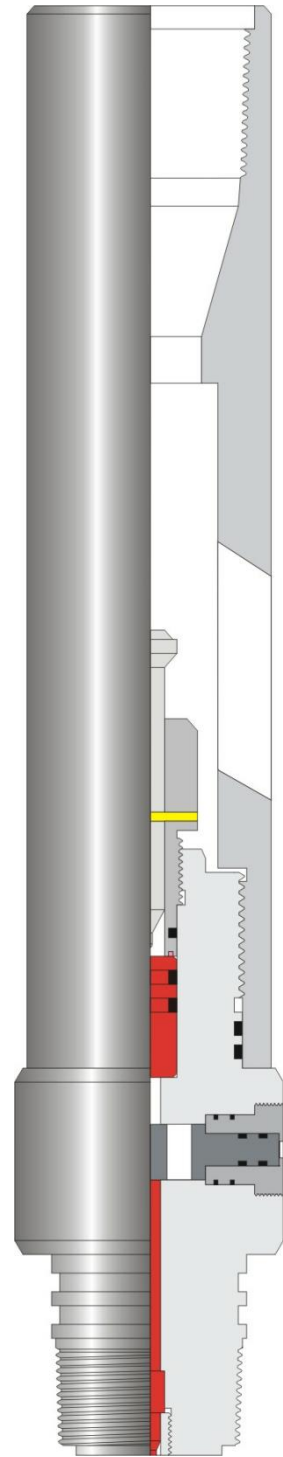
The debris proof firing head is designed to fire TCP guns. The safety piston can separate the boosting channel of explosive wave without liquid or under pressure level of less than 2MPa.

Benefits / Capabilities

- Guns cannot be detonated by the electrical current or accidental action.
- Arm the guns by hydrostatic pressure of 290psi.
- Must be used in light mud well and little deviated well.

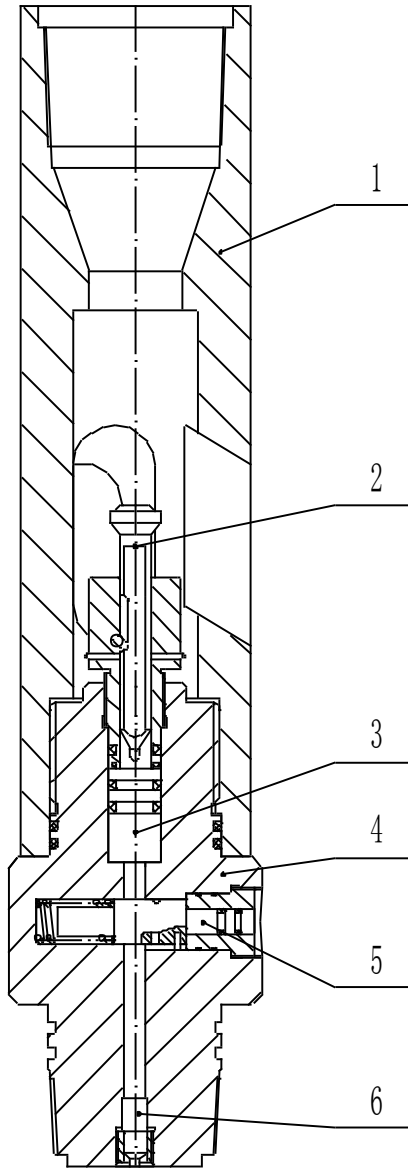
Specifications

Pressure rating	70MPa	10,150psi
Min. arm pressure	2MPa	290psi
Min. impact energy	2.655kg·m	20 lb·ft
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



Drop Bar-actuated Safety Firing Head (2)

Specifications (2)



Item	Description	Qty
1	Debris proof case body	1
2	Firing pin module	1
3	Percussion detonator	1
4	Lower sub	1
5	Safety body	1
6	Boost assembly	1

Drop Bar-actuated Safety Firing Head (3)

Series of drop bar-actuated safety firing head

Part number	Dimension	Thread
FS-1	φ98×447	2 7/8 TBG (B) —2 3/8 TBG (P)
FS-1(89model)	φ89×447	2 7/8 TBG (B) —2 3/8 TBG (P)
FS-2	φ98×447	2 7/8 TBG (B) —2 3/8 TBG (P)
FS-2A	φ98×467	2 7/8 TBG (B) —2 7/8-6Acme (P)
FS-4	φ89×447	2 7/8 TBG (B) —Tr65×4-6h (P)
FS-6	φ89×447	2 7/8 TBG (B) —Tr70×4 (P)
FS-6A	φ89×447	2 7/8 TBG (B) —M54×2 (P)
FS-7-89	φ89×521	2 7/8 TBG (B) —2 7/8-6Acme (B)
FS-7-93	φ93×535	2 7/8 UP TBG (B) —2 7/8-6Acme (B)
FS-7-102	φ102×521	2 7/8 TBG (B) —2 7/8-6Acme (B)
FS-4-HB	φ89×517	2 7/8 TBG(B)—2 7/8-6Acme(B)
FS-7-TY	φ93×563	2 7/8 UP TBG(B)—3 1/16-6Acme(P)
FS-7A-TY	φ93×563	2 7/8 UP TBG(B)—2 7/8-6Acme(P)
FS-11	φ89×524	Tr70×4(B)—M60×3(B)

Drop Bar-actuated Firing Head

Description

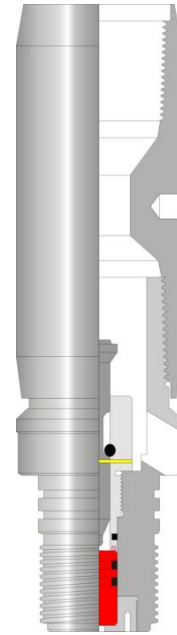
The debris proof firing head is designed to fire guns in TCP. Drop bar must be required.

Benefits / Capabilities

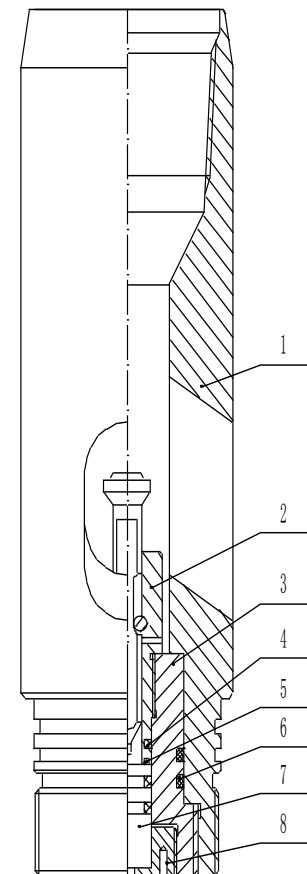
- Impact energy is applied by drop bar.
- Must be used in light mud well and little deviated well.

Specifications

Pressure rating	70MPa	10,150psi
Min. impact energy	2.655kg·m	20 lb·ft
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



Item	Description	Qty
1	Debris proof case body	1
2	Firing pin module	1
3	Screw sleeve	1
4	O-ring	3
5	Rectangle ring	1
6	O-ring	2
7	Percussion detonator	1
8	Screw plus	1



Series of drop bar-actuated firing head

Code	Dimension	Thread
FS-10	φ89×333	2 7/8 TBG(B)—3 1/16-
FS-10B	φ93×333	2 7/8 TBG(B)—3 1/16-

Drop Bar-actuated Firing Head

Description

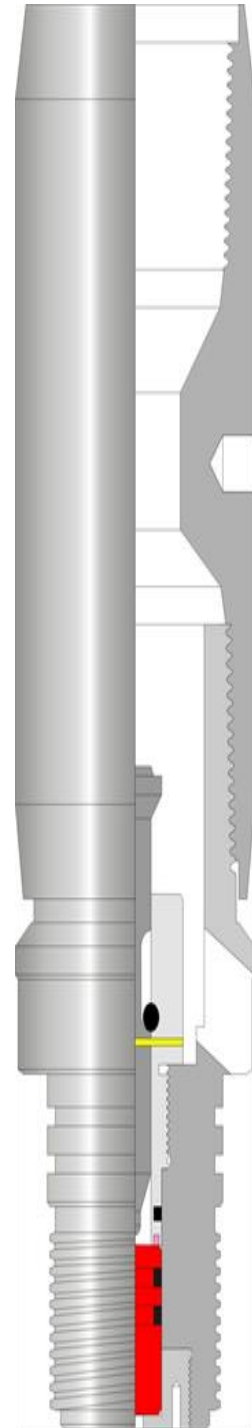
The debris proof firing head is designed to fire guns in TCP. Drop bar must be required.

Benefits / Capabilities

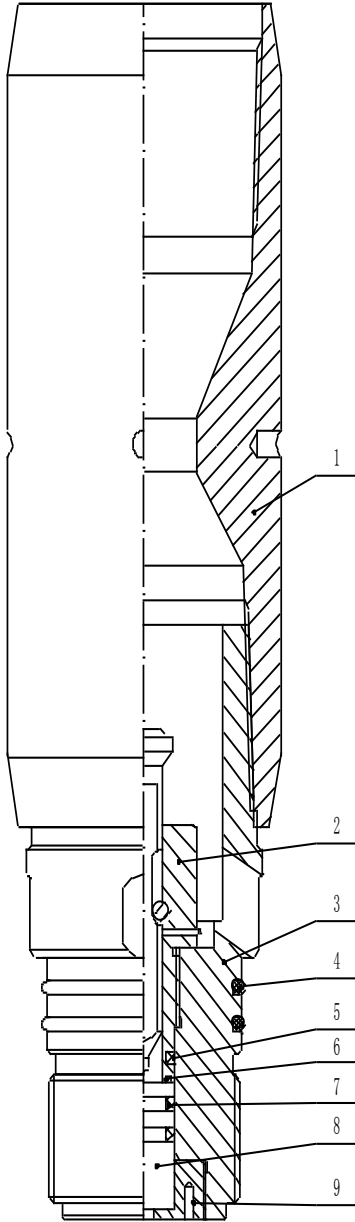
- Impact energy is applied by drop bar.
- Must be used in light mud well and little deviated well.

Specifications

Pressure rating	70MPa	10,150psi
Min. impact energy	2.655kg·m	20 lb·ft
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



Drop Bar-actuated Firing Head (2)



Item	Description	Qty
1	Debris proof case body	1
2	Firing pin module	1
3	Lower sub	1
4	O-ring	2
5	O-ring	1
6	Rectangle ring	1
7	O-ring	2
8	Percussion detonator	1
9	Screw plus	1

Drop Bar-actuated Firing Head (3)

Series of drop bar-actuated firing head

Code	Dimension	Thread
QBZ3-4	φ89×302	2 7/8TBG—Tr65×4(P)
QBZ3-4D	φ93×302	2 7/8 UP TBG(B)—2 7/8-6Acme(P)
QBZ3-4D1	φ89×338	2 7/8 TBG(B)—Tr70×4(P)
QBZ3-4D2	φ73×325	2 3/8 TBG(B)—M54×2(P)
QBZ3-4F	φ89×338	2 7/8 TBG(B)—2 7/8-6Acme(P)
QBZ3-1B	φ89×1560	2 7/8TBG(B)—2 7/8-6Acme(P)
QBZ3-1-SC	φ93×1645	2 7/8 UP TBG(B)—Tr65×4(P)
QBZ3-3	φ89×1530	2 7/8 TBG(B)—2 3/8TBG(P)
QBZ3-4-JL	φ89×310	2 7/8 TBG(B)—2 3/8 TBG(P)
QBZ3-4E	φ73×325	2 3/8TBG(B)—Tr65×4(P)
QBZ3-4C-SC	φ93×364	2 7/8UP TBG(B)—Tr65×4
QBZ3-4-SC	φ93×348	2 7/8UP TBG(B)—Tr65×4(P)
QBZ3-4G	φ93×446	2 7/8UPTBG(B)—2 7/8-6Acme(B)

TCP Pressure Activated Firing System

Description

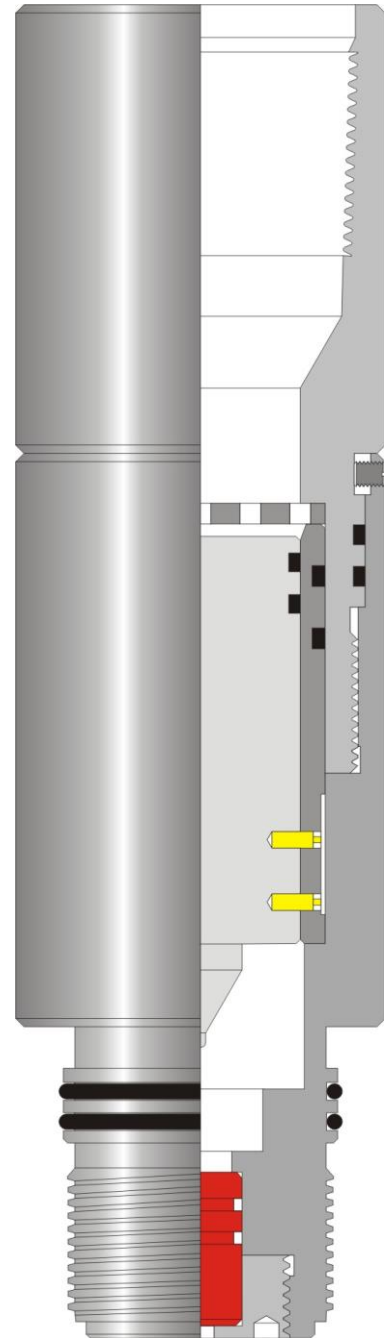
The Pressure Actuated Firing Head is designed to detonate TCP guns by pressure, and mainly used for highly deviated wells and horizontal wells. This kind of firing head can be used with time delay fuse and can be placed top or bottom of the TCP guns.

Benefits / Capabilities

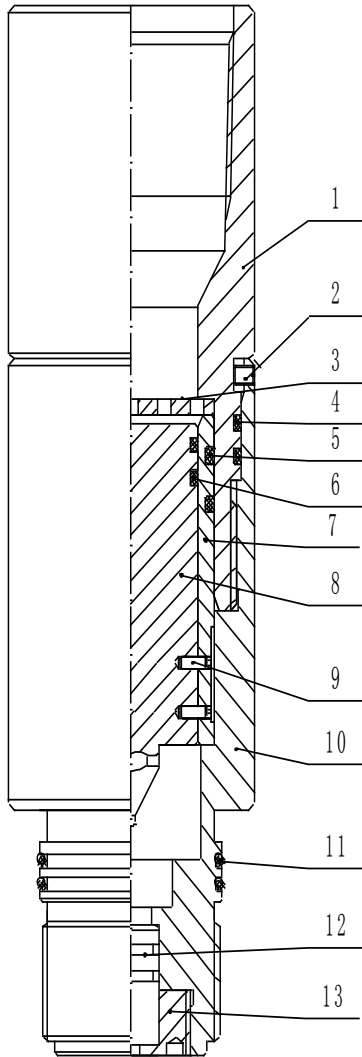
- Can be used with time delay firing head
- Can be placed on the top or bottom of guns
- Suitable for highly deviated wells and horizontal well
- Can be used in perforating and testing combine operation.

Specifications

Pressure rating	90MPa	13,050psi
Min. firing pressure	14. 7MPa	2, 128psi
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



TCP Pressure Activated Firing System (2)



Item	Description	Qty
1	Upper sub	1
2	Retain screw	1
3	Baffle	1
4	O-ring	2
5	O-ring	2
6	O-ring	2
7	Shear sleeve	1
8	Firing pin	1
9	Shear pin	24
10	Lower sub	1
11	O-ring	2
12	Percussion detonator	1
13	Screw plug	1

TCP Pressure Activated Firing System (3)

Series of TCP pressure activated firing system

Code	Dimension	Thread
YB1-1	φ89×321	2 7/8 TBG (B) —Tr65×4 (P)
YB1-1B	φ93×326	2 7/8 UP TBG (B) —2 7/8-6Acme (P)
YB1-1E	φ89×321	2 7/8 TBG (B) —Tr75×4 (P)
YB1-4	φ89×329	2 7/8 TBG (B) —2 3/8 TBG (P)
YB1-7	φ89×479	Tr65×4 (P×P)
YB1-7A	φ102×617	3 1/16-6Acme (P×P)
YB1-8A	φ102×307	2 7/8 UP TBG (B) —3 1/16-6Acme (P)
YB3-1	φ89×321	2 7/8 TBG (B) —3 1/16-6Acme (P)
YB3-1A	φ93×326	2 7/8 UP TBG (B) —3 1/16-6Acme (P)
YB1-6C	φ73×287	2 3/8 TBG (B) —Tr65×4 (P)
YB1-6-DQ	φ73×287	2 3/8 TBG (B) —Tr52×3 (P)
YB3-1H	φ93×314	2 7/8 TBG (B) —3 1/16-6Acme (P)

TCP Pressure Activated Firing System

Description

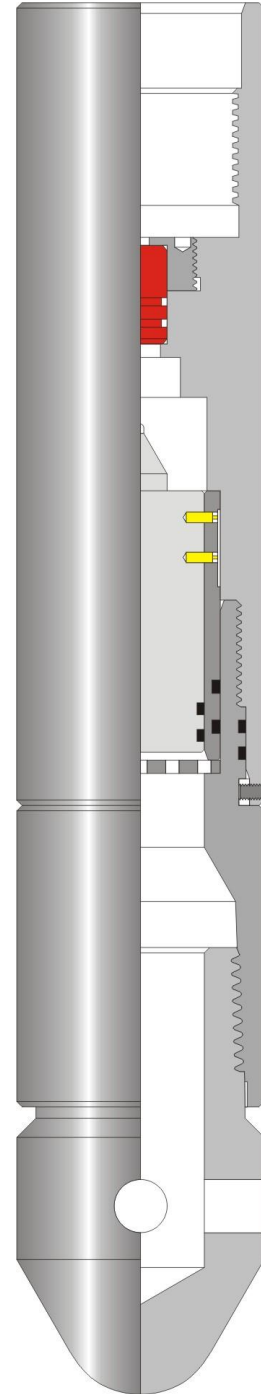
Pressure activated firing head is used to fire the guns in TCP, especially suitable for the perforations in the deviation wells and horizontal wells.

Benefits / Capabilities

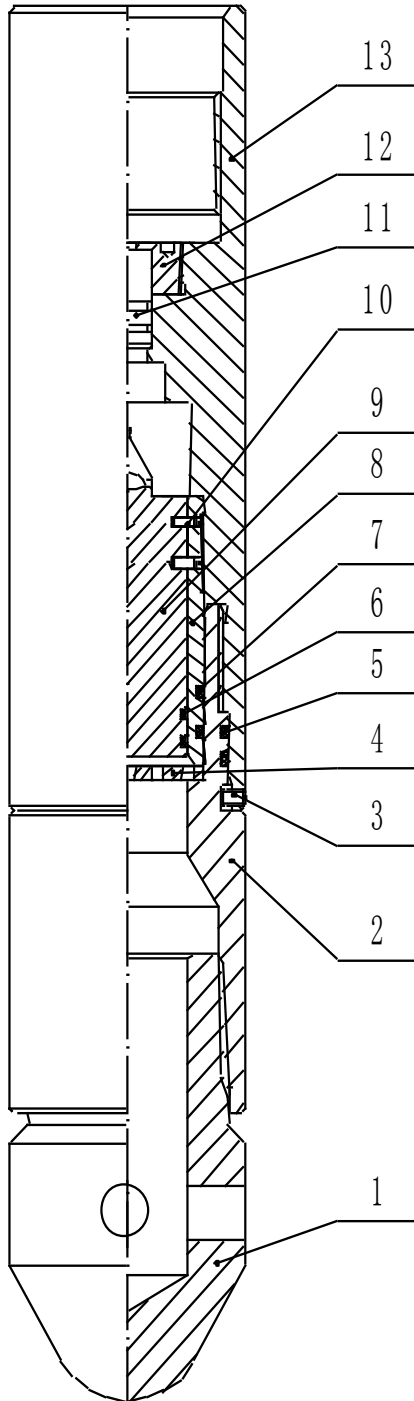
- Connect bottom of guns.
- Can be used with time delay firing head.

Specifications

Pressure rating	90MPa	13,050psi
Min. firing pressure	14.7MPa	2,128psi
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



TCP Pressure Activated Firing System (2)



Item	Description	Qty
1	Gun nose	1
2	Upper sub	1
3	Set Screw	2
4	Baffle	1
5	O-ring	2
6	O-ring	2
7	O-ring	2
8	Piston Sleeve	1
9	Firing pin	1
10	Shear Pin	24
11	Percussion detonator	1
12	Screw plug	1
13	Lower sub	1

Series of TCP pressure activated firing system

Code	Dimension	Thread
YB4-1	φ93×545	2 7/8-6Acme
YB4-2	φ86×510	2 7/8-6Acme

TCP Pressure Activated Firing System

Description

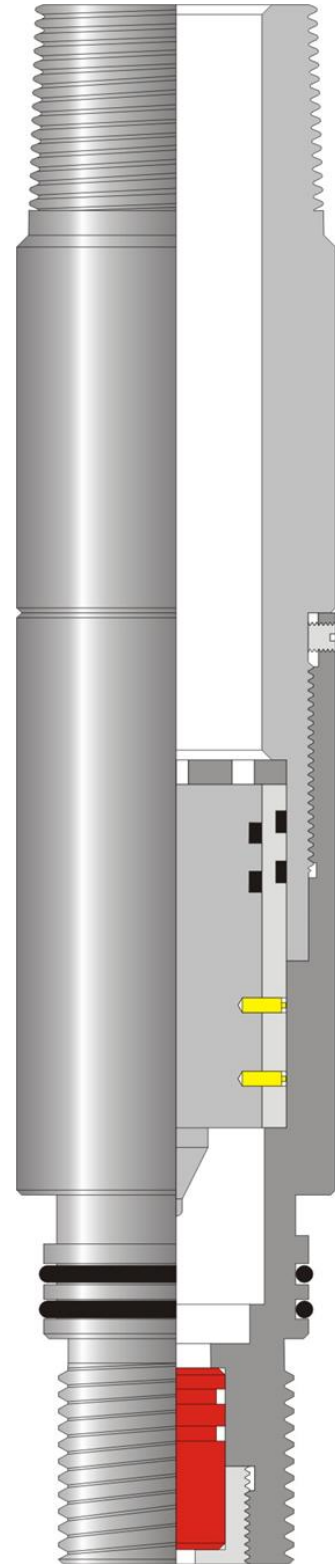
Pressure activated firing head is used to fire the guns in TCP, especially for the perforations in the deviation wells and horizontal wells.

Benefits / Capabilities

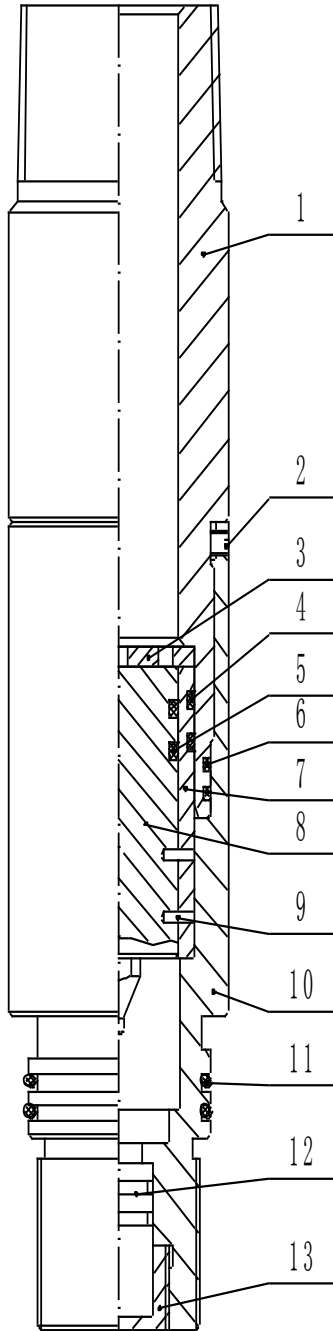
- Can be used with time delay firing head.
- Can be placed on the top or bottom of guns.
- Can be used in perforating and testing combined operation.

Specifications

Code	YB1-6A	
Conn. thread	Upper end	2 3/8 TBG(P)
	Lower end	M48×2(P)
O.D.	φ65mm	2.6"
Pressure rating	90MPa	13,050psi
Output energy	Can detonate explosive serial consist of booster and detonating	
Tensile strength	>P-110	



TCP Pressure Activated Firing System (2)



Item	Description	Qty
1	Upper sub	1
2	Set screw	2
3	Baffle	1
4	O-ring	2
5	O-ring	2
6	O-ring	2
7	Piston sleeve	1
8	Firing pin	1
9	Shear pin	24
10	Lower sub	1
11	O-ring	2
12	Percussion detonator	1
13	Plug screw	1

TCP High Pressure Activated Firing System

Description

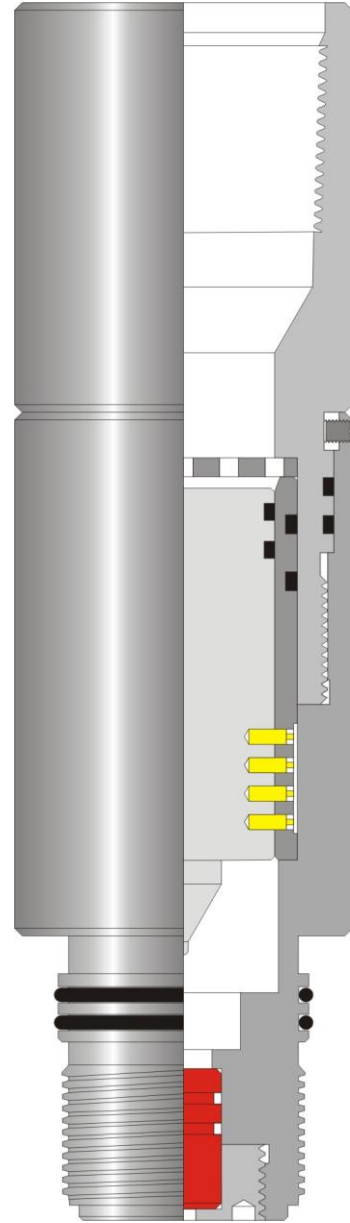
The high pressure-actuated firing head is designed to detonate TCP guns by pressure in high pressure well. It is mainly used for highly deviated wells and horizontal wells.

Benefits / Capabilities

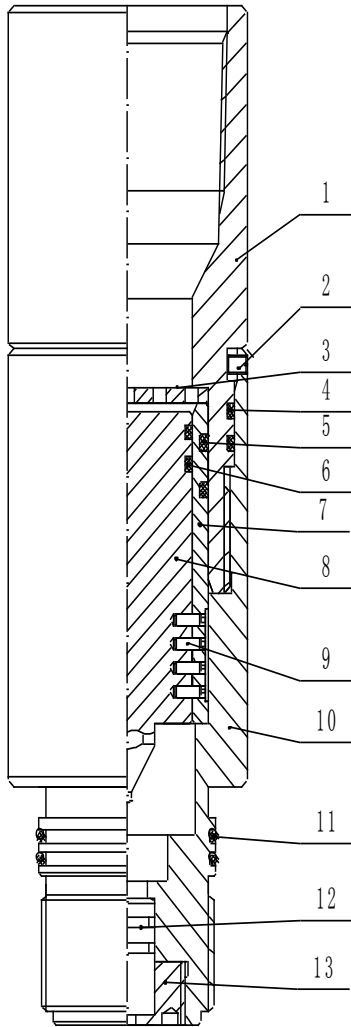
- Can be used with time delay firing head.
- Can be placed on the top or bottom of guns.
- Can be used in perforating and testing combined operation.

Specifications

Pressure rating	140MPa	20, 300psi
Min. firing pressure	14. 7MPa	2, 128psi
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



TCP High Pressure Activated Firing System (2)



Item	Description	Qty
1	Upper sub	1
2	Retain screw	1
3	Baffle	1
4	O-ring	2
5	O-ring	2
6	O-ring	2
7	Shear sleeve	1
8	Firing pin	1
9	Shear pin	48
10	Lower sub	1
11	O-ring	2
12	Percussion detonator	1
13	Screw plug	1

TCP High Pressure Activated Firing System (3)

Series of TCP high pressure activated firing system

Code	Dimension	Thread
YB1-4H	φ89×329	2 7/8 TBG (B) —2 3/8 TBG (P)
YB1-5-SC	φ93×326	2 7/8 UP TBG (B) —Tr65×4 (P)
YB1-5-TY	φ96×286	2 7/8 UP TBG (B) —3 1/16-6Acme (P)
YB1-9A	φ93×315	2 7/8 UP TBG (B) —3 1/16-6Acme (P)
YB1-10	φ93×404	2 7/8 UP TBG (B) —2 7/8-6Acme (B)
YB1-10D	φ93×326	2 7/8 UP TBG (B) —2 7/8-6Acme (P)
YB3-1H-ZY	φ93×326	2 7/8 UP TBG (B) —3 1/16-6Acme (P)
YB1-6D	φ73×278	2 3/8 TBG (B) —Tr60×3 (P)

Direct Pressure Vent / Firing Head

Description

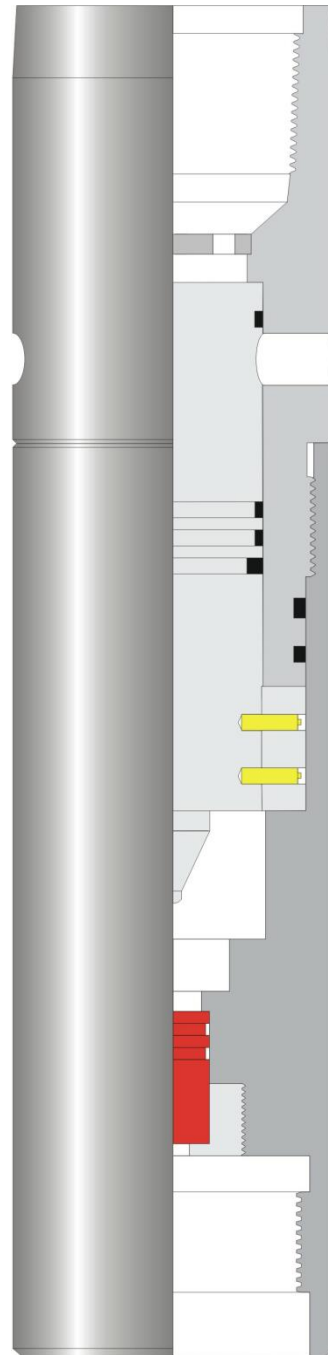
The pressure activated vent firing head is used in TCP to detonate the guns and balance tubing and annulus.

Benefits / Capabilities

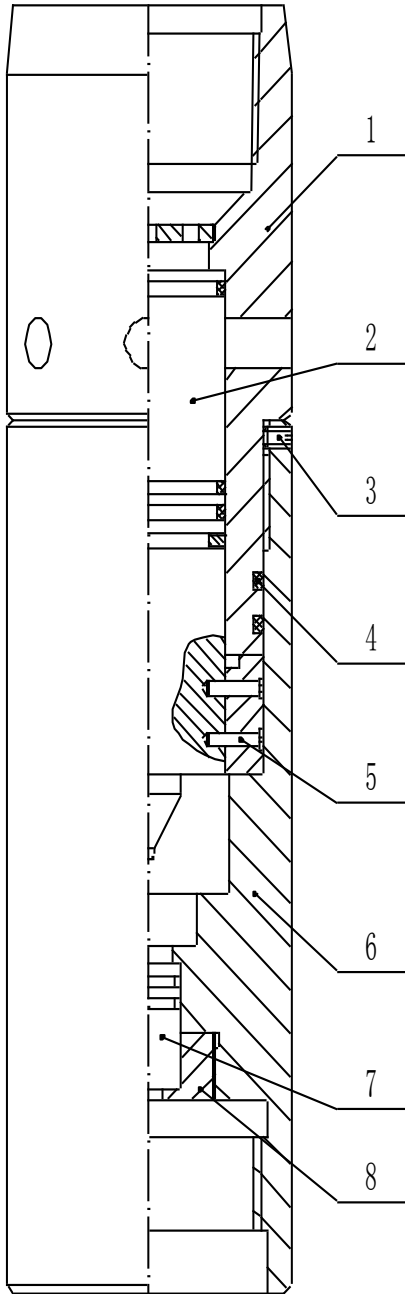
- Can be used with time delay assembly.
- Can balance tubing and annulus immediately.
- Suitable for vertical wells, highly deviated wells and horizontal wells.
- Can be used in perforating and testing combined operations.

Specifications

Pressure rating	90MPa	13,050psi
Min. firing pressure	14.7MPa	2,128psi
Diameter holes	6 holes- ϕ 16mm or 4 holes- ϕ 23mm	
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



Direct Pressure Vent / Firing Head (2)



Item	Description	Qty
1	Top sub	1
2	Piston module	1
3	Set screw	2
4	'O'ring	2
5	Shear pin	24
6	Bottom sub	1
7	Percussion detonator	1
8	Screw plug	1

Direct Pressure Vent / Firing Head (3)

Series of drop bar-actuated safety firing head

Code	Dimension	Thread
YBK1-1	Φ93×321	2 3/8 TBG (B) —M82×2(P)
YBK1-2	Φ89×332	2 7/8 TBG (B) —2 3/8 TBG (P)
YBK1-3	Φ93×321	2 7/8 UP TBG (B) —3 1/16-6Acme (P)
YBK1-3A	φ93×349	2 7/8 UP TBG (B) —Tr65×4 (P)
YBK1-4	Φ73×310	2 3/8 TBG (B) —2 3/8 TBG (P)
YBK1-4A	φ73×317	2 3/8 TBG (B) —Tr40×4(P)
YBK1-4B	φ73 ×302	2 3/8 TBG (B) —M65×2
YBK1-4C	φ60.3 ×301	2 3/8 TBG (P) —特 M54×2
YBK1-5-102	φ102×412	2 7/8 TBG (B) —2 7/8-6Acme (B)
YBK1-6A	φ93×340	2 7/8 TBG (B) —2 7/8-6Acme (P)
YBK1-7	φ93×338	2 7/8 TBG (B) —3 1/16-6Acme (P)
YBK1-4-TY	Φ89×353	2 7/8 TBG (B) —2 7/8-6Acme (P)
YBK1-6	φ86×426	2 7/8 UP TBG (B) —2 7/8-6Acme (B)
YBK1-6HY	φ86×434	2 3/8 UP TBG(B)—2 7/8-6Acme (B)

43 TCP Pressure Vent / Firing Head

Description

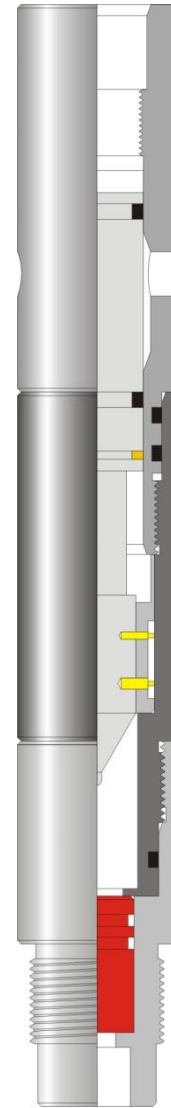
The firing head is designed to detonate guns in coiled tubing operation, and balance the pressure between tubing and casing immediately.

Benefits / Capabilities

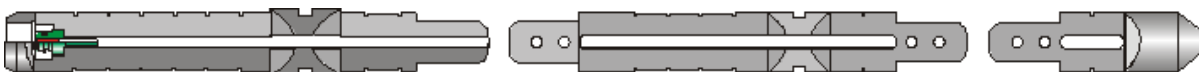
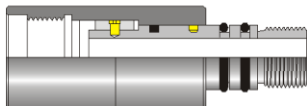
- Used with coiled tubing.
- Balance tubing and casing immediately.
- Can be used to perforate through tubing.
- Mud, feculence and wax may disturb circulation.

Specifications

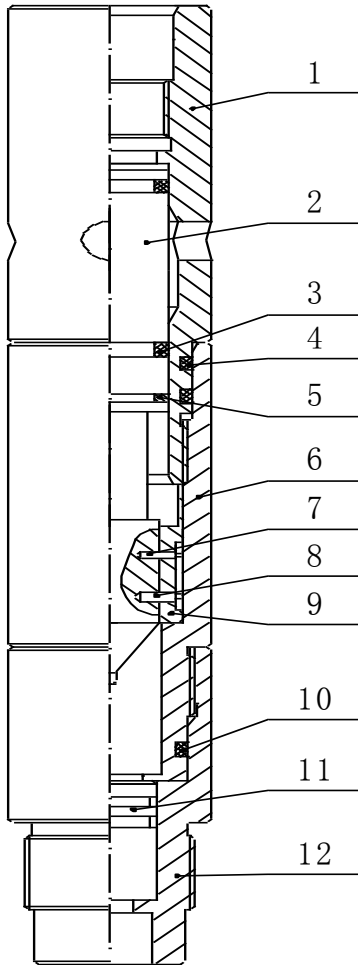
Code	YBK1-8	
Conn. thread	Upper end	M25×1.5(B)
	Lower end	M36×1.5(P)
O.D.	φ43mm	1.69"
Make-up Length	299mm	11.77"
Pressure rating	90MPa	10,150psi
Diameter holes (4 holes)	10mm	0.39"
Output energy	Can detonate explosive serial consist of booster and detonating cord	



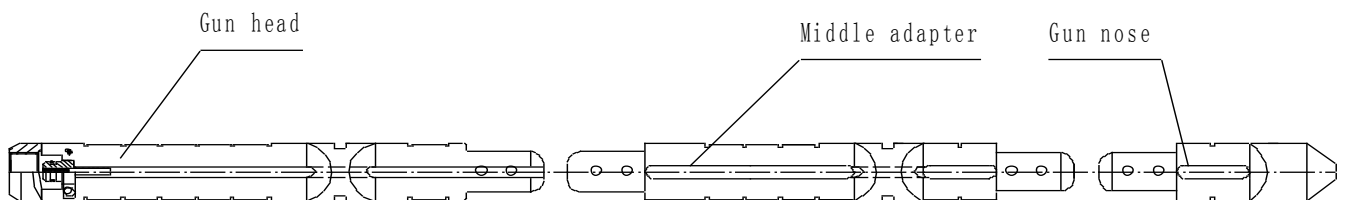
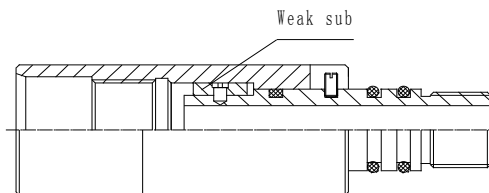
Note: Accessory tool of 43 pressure activated firing head: Weak sub、gun adapter assembly。



43 TCP Pressure Vent/Firing Head (2)



Item	Description	Qty
1	Upper sub	1
2	Firing pin	1
3	O-ring	2
4	O-ring	2
5	Back up ring	1
6	Case body	1
7	φ2 shear pin	8
8	φ3 shear pin	6
9	Shear sleeve	1
10	O-ring	1
11	Percussion detonator	1
12	Lower sub	1



Differential Firing Head Assembly

Description

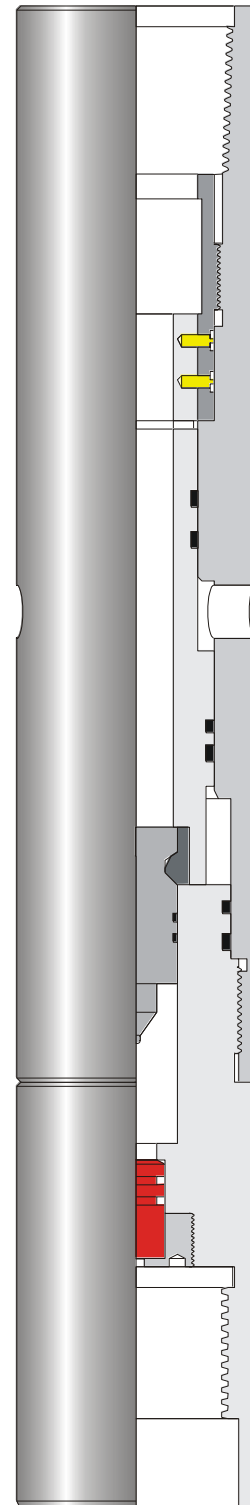
The Differential Firing Head can be used in TCP and be actuated by pressure.

Benefits / Capabilities

- Under-balanced perforating in horizontal wells without a packer.
- Balance pressure when run in hole for improving safety & reliability.
- Can be detonating by annulus when combined with the Annulus Pressurizing Device.
- Can be used with time delay assembly.

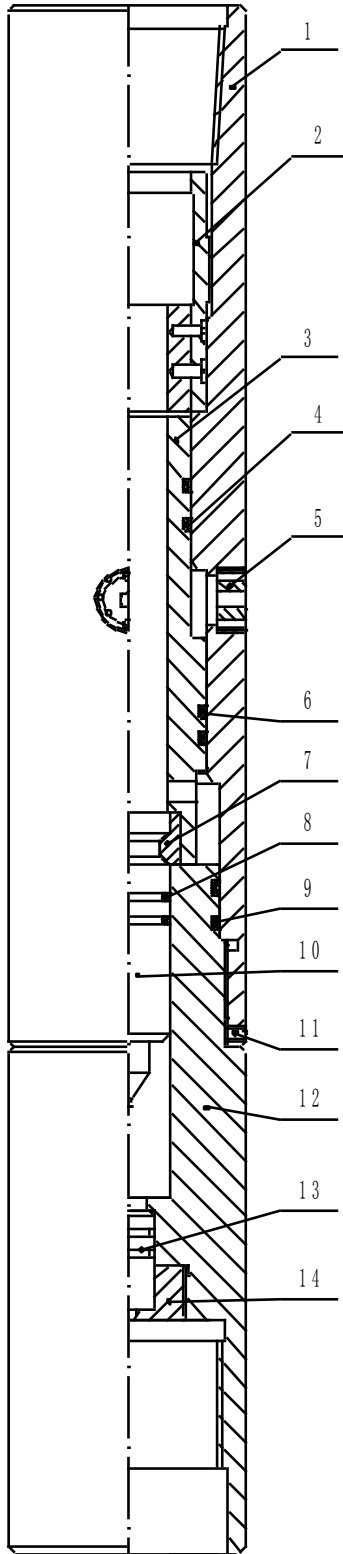
Specifications

O.D.	90MPa	13,050psi
Min. firing differential	2MPa	290psi
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	>P-110	



Differential Firing Head Assembly (2)

Specifications



Item	Description	Qty
1	Case body	1
2	Shear module	1
3	Sliding sleeve module	1
4	O-ring	2
5	Filter screw	4
6	O-ring	2
7	Locking body	4
8	O-ring	2
9	O-ring	2
10	Firing pin	1
11	Set screw	2
12	Lower sub	1
13	Percussion detonator	1
14	Plug screw	1

Differential Firing Head Assembly (3)

Series of differential firing head

Code	Dimension	Thread
YCE-1	φ89×472	2 7/8 TBG (B) —Tr65×4 (P)
YCE-1A	φ102×476	2 7/8 UP TBG (B) —Tr65×4 (P)
YCE-1B	φ89×640	2 7/8 REG (B) —2 3/8 TBG (P)
YCE-1C	φ89×690	2 7/8 UP TBG—2 7/8-6Acme
YCE-2	φ93×529	2 7/8UP TBG (B) —2 7/8-6Acme (B)
YCE-3	φ89×472	2 7/8 TBG (B) —3 1/16-6Acme (B)
YCE-10D	φ93×471	2 7/8 UP TBG (B) —2 7/8-6Acme (P)
YCE-1H	φ89×475	2 7/8 TBG(B)—2 3/8 TBG(P)
YCE1-1	φ102×540	2 7/8 UP TBG(B)—Tr75×4(B)
YCE2-1	φ102×558	2 7/8 UP TBG(B)—Tr75×4(B)
YCE-3A	φ89×467	2 7/8 TBG(B)—3 1/16-6Acme(P)

Redundant Annulus Pressure Firing System

Description

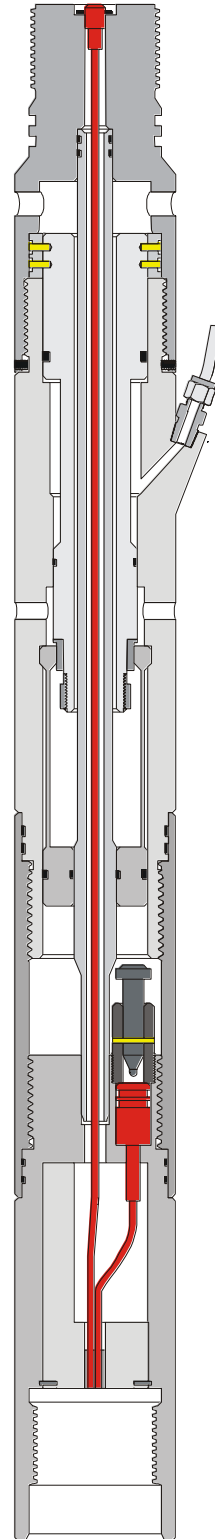
Redundant Annulus Pressure Firing System is used in TCP. It has two independent firing methods at the same time, one is annulus pressure, and another is drop bar.

Benefits / Capabilities

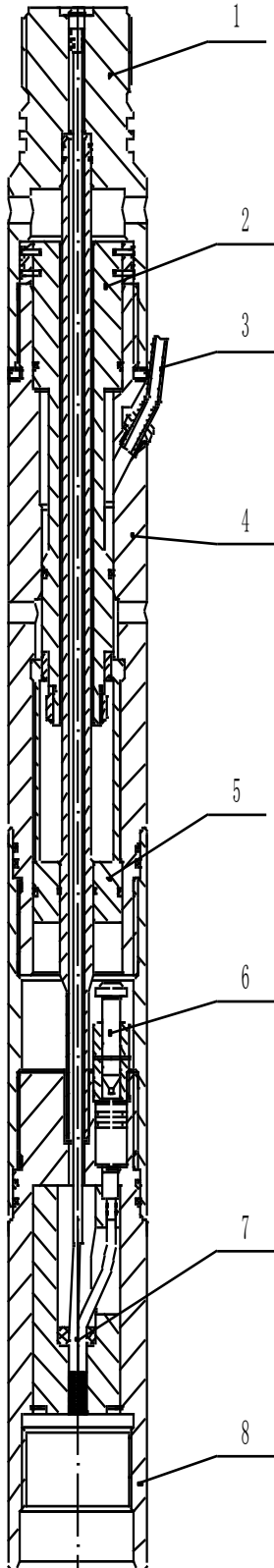
- Used with Packer By Pass System.
- Can be used with special shock absorber, reduce the length of pipe string.
- Can be fired by annulus pressure and drop bar.
- Can be used in combined Perforate-testing operations.
- Connect with AJ-1 Safety Impact Firing Assembly or Drop Bar Firing Head.
- Enhances system reliability.

Specifications

Code	DFH2-1	
Conn. thread	Upper end	2 7/8-6Acme(P)
	Lower end	2 7/8-6Acme(B)
O.D.	φ114mm	4.50"
Make-up length	887mm	34.90"
Pressure rating	90 MPa	13,050psi
Tensile strength	>P-110	



Redundant Annulus Pressure Firing System (2)



Item	Description	Qty
1	Upper sub	1
2	Shear module	1
3	Pressurize tube	1
4	Case body	1
5	Impact piston	1
6	Firing pin module	1
7	Boosting module	1
8	Bottom sub	1

Redundant Annulus Pressure Firing System

Description

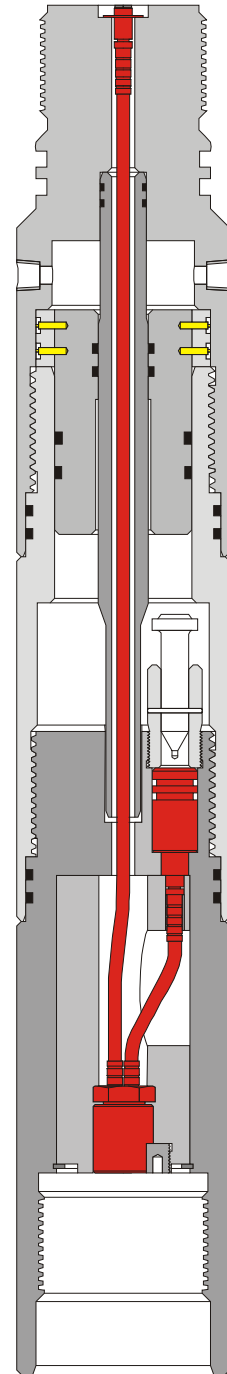
Redundant Annulus Pressure Firing System is used in TCP. It has two independent firing methods at the same time, one is annulus pressure, and another is drop bar.

Benefits / Capabilities

- Used with Packer By Pass System.
- Can be used with special shock absorber, reduce the length of pipe string.
- Can be fired by annulus pressure and drop bar.
- Can be used in combined Perforate-testing operations.
- Connect with AJ-1 Safety Impact Firing Assembly or Drop Bar Firing Head.
- Enhances system reliability.

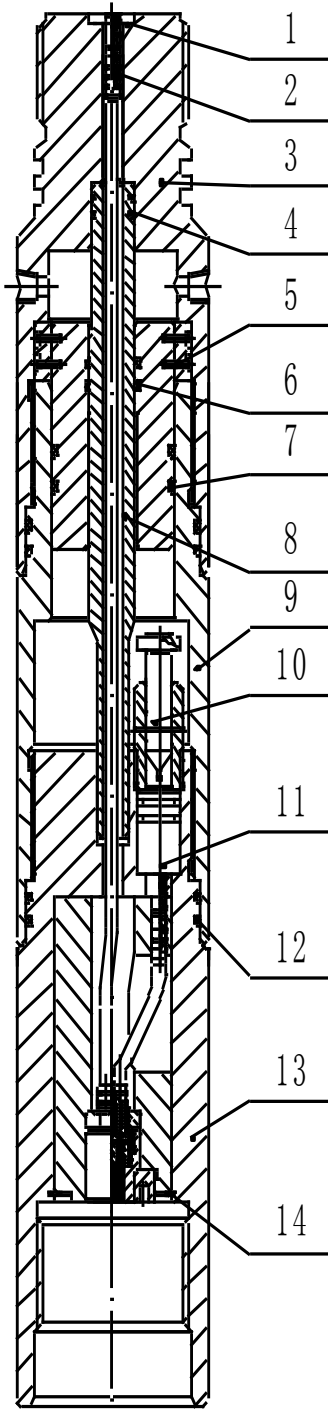
Specifications

Code	DFH3-1	
Conn. thread	Upper end	2 7/8-6Acme(P)
	Lower end	2 7/8-6Acme(B)
O.D.	φ93mm	3.66"
Make-up length	598mm	23.54"
Pressure rating	90 MPa	13,050psi



Redundant Annulus Pressure Firing System (2)

Specifications



Item	Description	Qty
1	Check ring	1
2	Output module	1
3	Upper sub	1
4	O-ring	2
5	Shear module	1
6	O-ring	2
7	O-ring	2
8	Middle tube	1
9	Case body	1
10	Firing pin module	1
11	Percussion detonator	1
12	O-ring	4
13	Lower sub	1
14	Check ring	1

Redundant Bypass Pressure System

Description

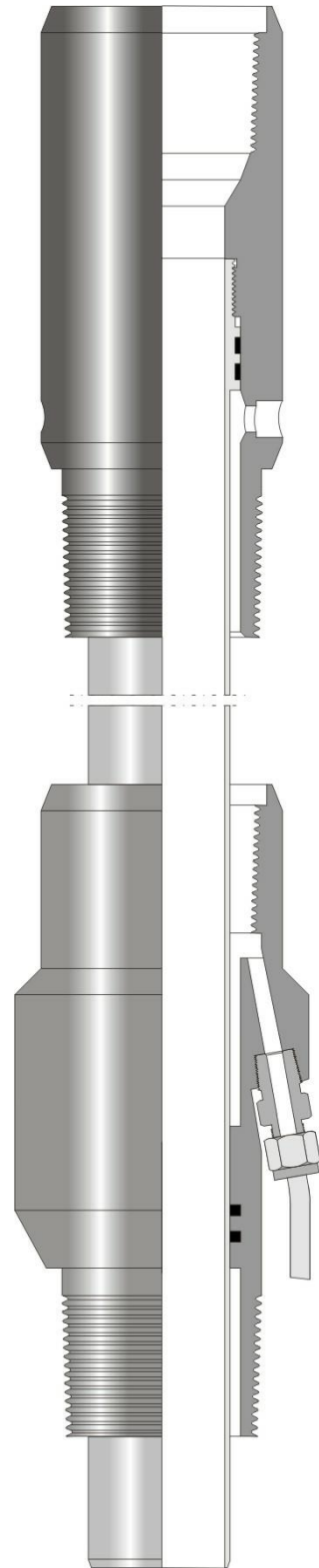
The device is used with Redundant Pressure Firing Head to allow annulus pressure above the packer to by-pass the packer.

Benefits/Capabilities

- Pressurize tube can be protected.
- It is simple to connect with packer.

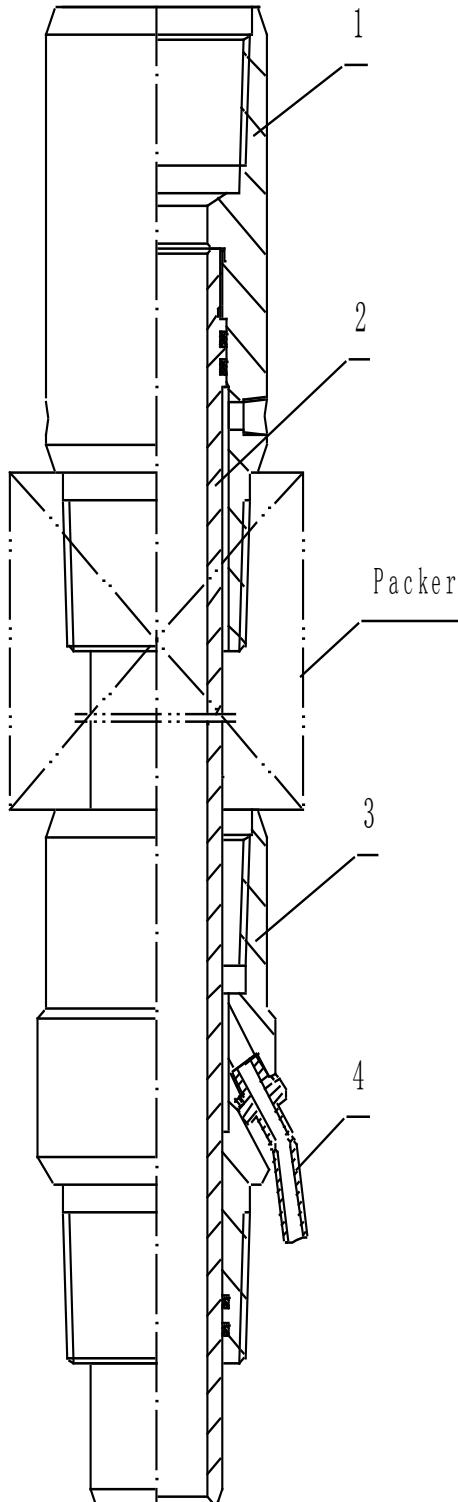
Specifications

O.D	$\phi 127$ mm	5"
Make-up length	Can be adjusted according to the length of pressurizing tube	
Max. differential	70MPa	10,150psi
I.D	$\phi 48$ mm	1.88"
Tensile strength	>P-110	



Redundant Bypass Pressure System (2)

Specifications



Item	Description	Qty
1	Upper sub	1
2	Center tube	1
3	Lower sub	1
4	Pressurize tube	1

Double Firing Head

Description

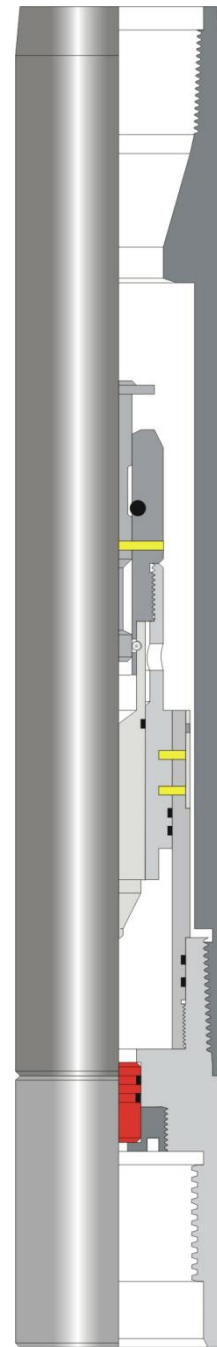
The Double Firing Head is used in TCP, it have two firing methods: Drop bar and pressurizing activator.

Benefits /Capabilities

- Min. firing pressure is 3MPa.
- Fired by drop bar or pressurizing through tubing.
- Can be used in combined Perforating-testing operation.

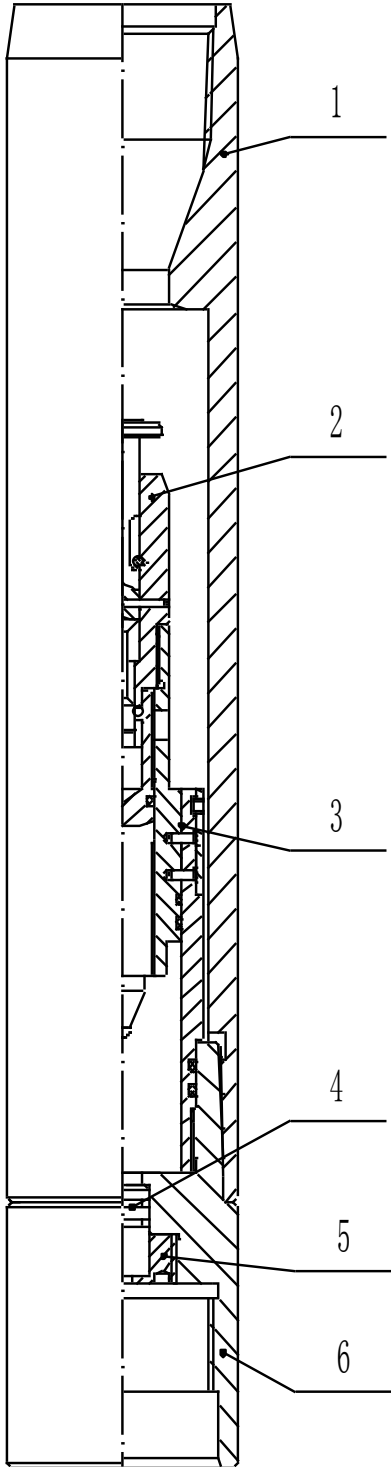
Specifications

O.D.	φ93	3.66"
Make-up length	622mm	24.5"
Pressure rating	90 MPa	13, 050psi
Tensile strength	>P-110	



Double Firing Head (2)

Specifications



Item	Description	Qty
1	Case body	1
2	Firing pin assembly	1
3	Shear pin assembly	1
4	Percussion detonator	1
5	Plug screw	1
6	Lower sub	1

Hydraulic Delay Firing System

Description

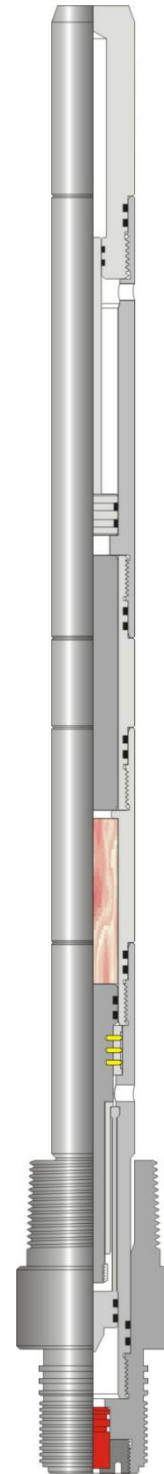
Hydrostatic delay firing head is designed to detonate guns. Delay mechanism is activated by pressure of wellhead, and hydrostatic activated fire mechanism.

Benefits /Capabilities

- Hydrostatic activates the firing head.
- The delay time can be adjusted.
- Suitable for perforating and testing combined operation.

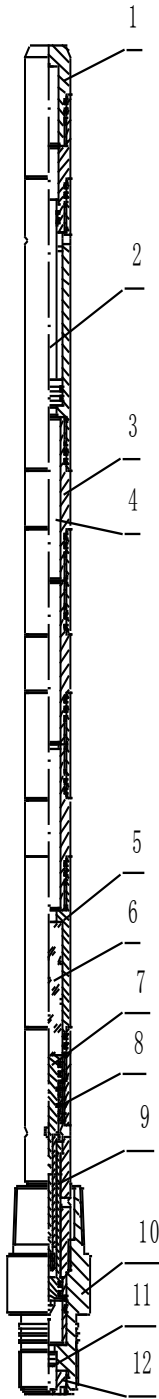
Specifications

O.D	φ93mm	3.66"
Make-up length	1, 200mm	47.24"
Pressure rating	140MPa	20,300psi
Time delay	15min~4h	
Tensile strength	>P-110	



Hydraulic Delay Firing System (2)

Specifications (2)



Item	Description	Qty
1	Plug	1
2	Compensate piston	1
3	Valve sleeve	3
4	Delay valve	3
5	Oil cylinder	1
6	Delay oil	
7	Shear piston	1
8	Shear pin	40
9	Firing pin	1
10	Lower sub	1
11	Percussion detonator	1
12	Plug screw	1

Full Bore Drop Bar-actuated Firing Head

Description

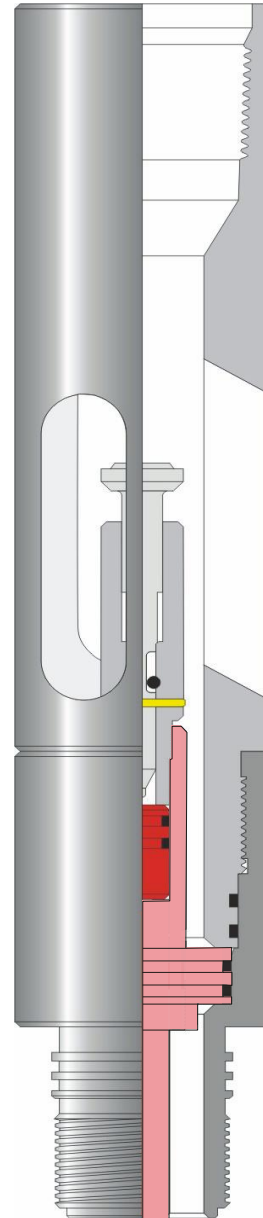
Full bore drop bar firing head is designed to detonate gun by drop bar, and generate $\Phi 48$ full bore.

Benefits / Capabilities

- Can be used in vertical well, high deviated well or horizontal well.
- Can be run with logging apparatus.

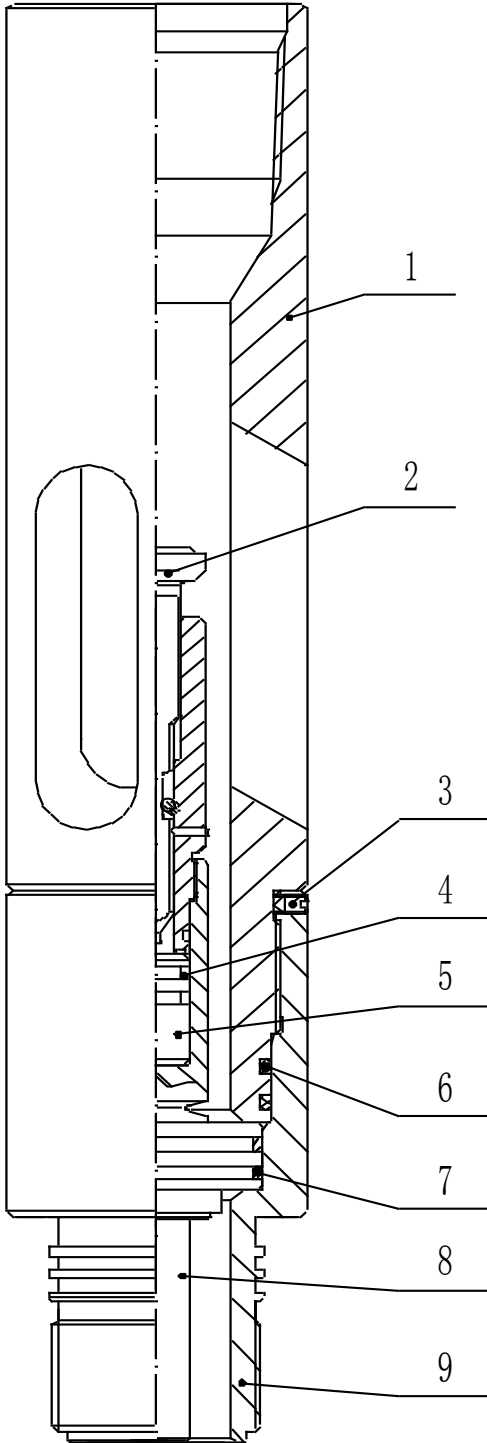
Specifications

O.D.	$\phi 93\text{mm}$	3.66"
Make-up length	476mm	18.74"
Pressure rating	90MPa	13, 050psi
Min. impact energy	2.655kg·m	20 lb·ft
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	} P-110	



Full Bore Drop Bar-actuated Firing Head (2)

Specifications



Item	Description	Qty
1	Upper sub	1
2	Firing pin	1
3	Set screw	2
4	O- ring	3
5	Percussion detonator	1
6	O- ring	2
7	O- ring	2
8	Explosive module	1
9	Lower sub	1

Full Bore Pressure-actuated Firing Head

Description

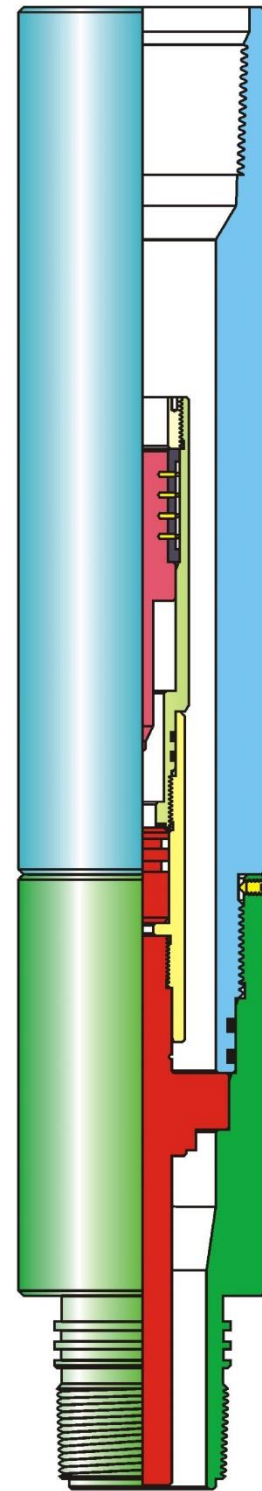
Full bore pressure activated firing head is designed to detonate gun by pressurizing the wellhead, and generate $\Phi 48$ full bore.

Benefits / Capabilities

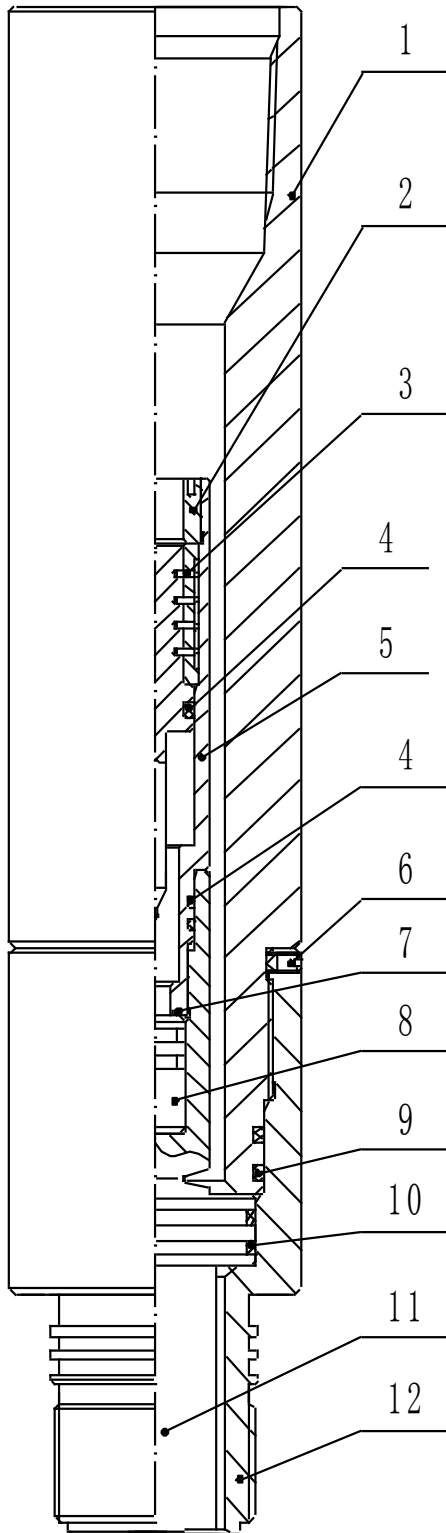
- Can be used in vertical well, high deviated well or horizontal well.
- Can be run with logging apparatus.

Specifications

O.D.	$\phi 93\text{mm}$	3.66"
Make-up length	476mm	18.74"
Pressure rating	90MPa	13, 050psi
Min. firing pressure	14.5 MPa	2, 102psi
Output energy	Can detonate explosive serial consist of booster and detonating cord	
Tensile strength	> P-110	



Full Bore Pressure-actuated Firing Head (2)



Item	Description	Qty
1	Upper sub	1
2	Stop plug	1
3	Shear assembly	1
4	O-ring	3
5	Sleeve tube	1
6	Set screw	2
7	Rectangle ring	1
8	Percussion detonator	1
9	O-ring	2
10	O-ring	2
11	Explosive module	1
12	Lower sub	1

Multi-stage Bar-actuated Firing Head

Description

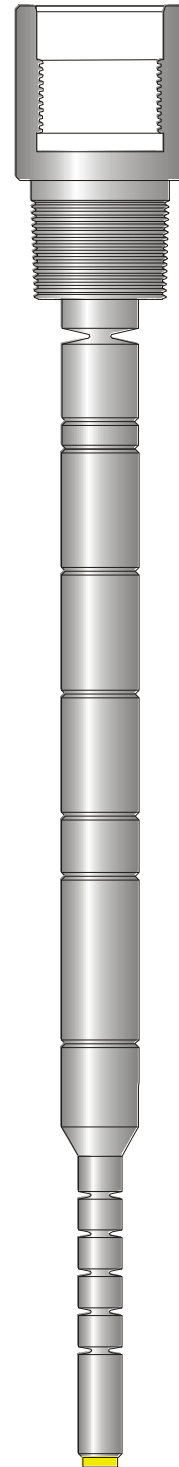
The multi-stage bar firing head is designed to detonate TCP guns in long blank layer. The guns can be detonated separately for multiple zones.

Benefits / Capabilities

- Can be used in long interlayer TCP.
- The drop bar can self-destruct.
- Delay time is 1.5~2min.

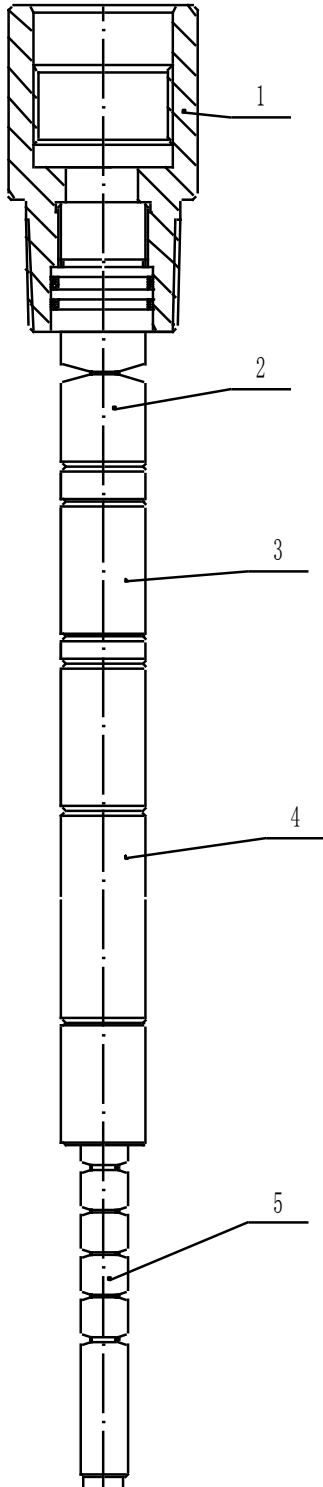
Specifications

Pressure rating	90MPa	13,050psi
Temperature rating	160°C/48h	
Tensile strength	>P-110	



Multi-stage Bar-actuated Firing Head (2)

Specifications (2)



Item	Description	Qty
1	Upper sub	1
2	Explosive bolt	1
3	Time delay assembly	1
4	Drop bar	1
5	Head of drop bar	1

Series of multi-stage bar-actuated firing head

Code	Dimension	Thread
DJTB2-1	φ89×1374	Tr65×4(B)
DJTB2-1B	φ93×1361	3 1/16-6Acme(B)