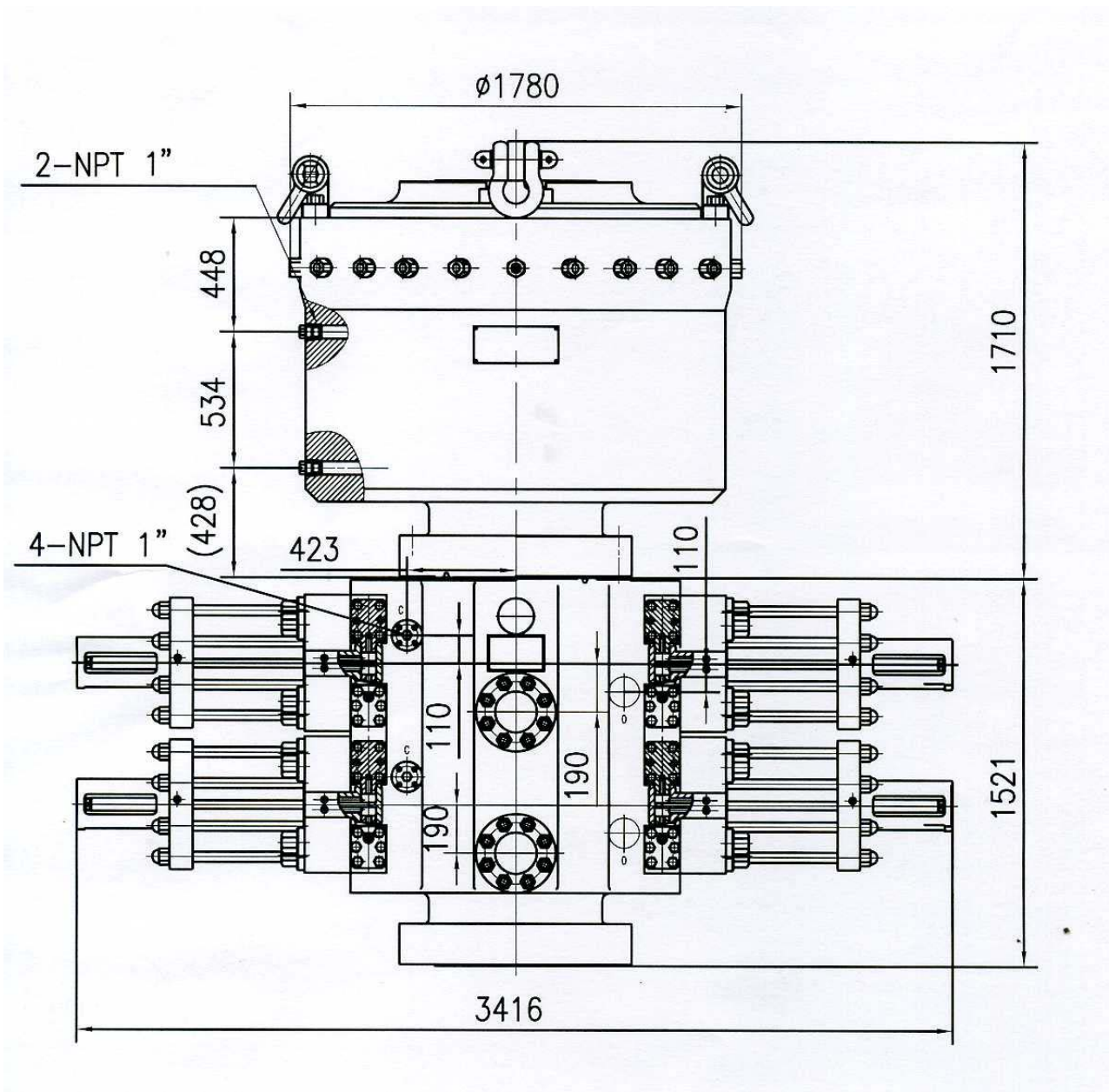

Technical Data

for

**BOP Stack 18-3/4”
(Double Ram & Annular)**

April 26, 2010



Design Drawing

I. Our supply

Item	Description and Specification	Qty.	Unit	Remark
1	18 3/4"-5000PSI Double Ram BOP (studded top / flanged bottom)	1	Set	
2	18 3/4"-5000PSI Annular BOP(studded top / flanged bottom)	1	set	
3	Manual gate valve 3-1/8"	2	set	
4	Hydraulic gate valve 3-1/8"	2	set	
5	Ram assembly: 5-7/8"	1	set	Shall be installed in the upper cavity of the double ram BOP
	Ram assembly: C.S.O	1	set	Shall be installed in the lower cavity of the double ram BOP
6	Spare rubber: C.S.O	1	set	
	Spare rubber: 5 7/8"	1	set	
7	Other free accessories (according to the configuration of the BOP stack)	1	set	Re. Appendix 1

II. Technical parameters

Items	Double ram BOP	Annular BOP
Model	2FZ48-35	FH48-35
Upper connection	Studded	Studded
Lower connection	Flange	Flange
Locking mode	Manual operation	
Weight(Kg)	16920	16320
Height(mm)	1521	1710
Bore	476.25 mm (18 3/4")	476.25 mm 18-3/4"
Rated working pressure	35 MPa (5,000psi)	35 MPa (5,000psi)
Rated working pressure in hydraulic control system	21 MPa (3,000psi)	21 MPa (3,000psi)
Recommended hydraulic control operating pressure	8.4~10.5MPa(1,200~1,500psi)	8.4~10.5MPa (1,200~1,500psi)
The oil mass for opening one set of ram	53 L	172L
The oil mass for closing one of ram	62 L	220L
Interface thread of hydraulically controlled pipelines	NPT 1	NPT 1
Specification of outlets	2*3 1/8"-5,000psi on the same side of the shell	
Temperature class	T20(-29~121℃)	T20(-29~121℃)
Material	ZG25CrNiMo	ZG25CrNiMo

Note:

- ① The above blow - out preventers are designed and manufactured in strict accordance with API Spec.16A standard.
- ② For those parts immersed in the well fluid shall be anti - H₂S stress corrosion and meet NACE MR 0175 requirement.

III. Technical requirement

A: All connecting threads of BOP and flanges are in British system.

B: The upper cavity of the double ram BOP is equipped with 5 7/8" ram assembly, and the lower cavity with C.S.O assembly.

C: The seal groove of the gasket is build-up welded with stainless steel.

D: All rams shall go through parkerizing.

E: All bolts and nuts shall go through galvanization.

F: In view of security, iron cases are adopted for all.

G: For those parts immersed in the well fluid shall be anti-H₂S stress corrosion and meet NACE MR 0175 requirement.

H: The top of the annular BOP is equipped with a top flange, with which and the top cap, there's an O-ring.

I: The test, inspection and installation for BOP bore, pressure level, external connecting dimension, material, mechanical property shall be performed in strict accordance with API16A.

J: Enough specialized tools and free accessories shall be provided in accordance with real need.

K: Red finish paint shall be adopted.

L: With API monogram, all nameplates are designed in both Chinese and English languages; in both metric system and British system.

Complements:

1. Metal material temperature class: T-20 (-29°C ~ 121°C)

2. The right quantity of bolts, nuts and gaskets shall be provided in accordance with

criterion.

3. The quality control shall observe:

ISO9001

API spec Q1 system

API Spec 16A

All quality records shall be filed and available whenever is required.

4. List of technical material:

- | | |
|--|--------|
| 1) BOP Ex-work inspection certificate (English-Chinese) | 2 sets |
| 2) Conformity certificate (English-Chinese) | 2 sets |
| 3) Operation and maintenance manual of BOP stack (English-Chinese) | 2 sets |
| 4) Free accessories and list of tools (English-Chinese) | 2 sets |
| 5) Qualification certificates | 2 sets |

IV. PICTURES



Appendix 1 Free accessories

Item	P/N	Name	Qty.	Remark
1	Free accessories for 18-3/4"annular BOP (per unit)			
1.1	RS11845.05.00	Seal ring for piston	2	
1.2	RS11845.06.00	Lower seal ring for shell	1	
1.3	RS11845.07	Upper seal ring for shell	1	
1.4	RS11845.08.00	Lower inner seal ring of dust ring	1	
1.5	RS11845.09	Upper inner seal ring of dust ring	1	
1.6	GB3452.1-92	O ring ϕ 53x5.3	20	
1.7	GB3452.1-92	O ring ϕ 25x2.65	20	
1.8	RS11845.12	O ring ϕ 1072x9.5	1	
1.9	RS11845.13	O ring ϕ 1366x9.5	1	
1.10	RS11845.19	O ring ϕ 1383x9.5	1	
1.11	BX163	Gasket	1	
1.12	RS11709.15.04	Full thread bolt M52X3X295	20	
1.13	RS11706.15	Nut M52X3	20	
1.14		Free tools	1 set	
2	Free accessories for double ram BOP (Per unit)			
2.1		Ram shaft packing:		
2.1.1	RS11814.16	Support ring	8	
2.1.2	RS11814.17.00	Seal ring I assembly	4	
2.1.3	RS11814.19.00	Seal ring II assembly	4	
2.2	Locking shaft seal ring:			
2.2.1	F751.14.20	W-shaped seal ring	12	
2.2.2	F751.14.19	Clamping ring	4	
2.2.3	F751.14.17	Dust ring	4	
2.3	Bonnet Seal Ring:			
2.3.1	RS11843.08.01	Rubber spring	8	
2.3.2	RS11843.08.03	O ring	8	
2.3.3	RS11814.10.00	Piston seal ring assembly	8	
2.3.4	340×7	O ring	8	
2.3.5	115×5.3	O ring	4	
2.3.6	32.5×3.55	O ring	8	
2.3.7	53.5×3.55	O ring	16	
2.3.8	43.7×3.55	O ring	4	
2.3.9	26.5X3.55		16	
2.3.10	RS11709.15.09	Full thread bolt M52X3X442	20	
2.3.11	RS11706.15	Nuts M52X3	40	
2.3.12	BX163	gasket	1	
2.3.13		Free tools	1 set	