

NORSOK STANDARD

SYSTEM REQUIREMENTS
BOP, DIVERTER AND DRILLING RISER SYSTEM

(SYSTEM NO.: 12-30, 12-40)

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1 FOREWORD

This standard has been developed by the NORSOK Standardisation Work Group.

2 SCOPE

3 NORMATIVE REFERENCES

- I API Spec. 16A (will be replaced by ISO 13533 in development)
SO 10423 (API 6A)
APISPEC 16D, 16E
API RP 53, 64
API Spec. 7 (will be replaced by ISO 10424 in development)
NACE MR-0175 for sour service

4 DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

4.2 Abbreviations

5 FUNCTIONAL REQUIREMENTS

5.1 General

The system shall ensure a fully controllable and monitorable well situation if the primary well barrier (the drilling fluid) fails its purpose.

5.2 Products and Services

5.3 Equipment/Schematic

The system shall comprise of the following main items:

- Single BOP stack
- Test stump
- Test pump
- Control system
- Drill string safety valves High pressure risers
- Low pressure risers
- Wellhead connectors
- Diverter housing
- Diverter spools

5.4 Performance/Capacities

	Range I	Range II
BOP stack		
<ul style="list-style-type: none"> • Annular • piperam • shearram • piperam 		
I Internal bore	18 3/4"	18 3/4"
Pressure rating (bar)		
Shear ram force	Shear drill pipe range 3 1/2"-6 5/8" all Commercial grades. Possibility for Assitional upgrade.	
High pressure riser		
<ul style="list-style-type: none"> • Internal bore • Pressure rating 	18 3/4" 345	18 3/4" 690
Lower pressure riser		
<ul style="list-style-type: none"> • Internal bore • Pressure rating 	18 3/4" 35	18 3/4" 35
Diverter		
<ul style="list-style-type: none"> • Internal bore, housing • Working pressure (bar) • Diverter line I.D.Min. 	30" 35 12"	

5.5 Regularity

N/A

5.6 Process/Ambient Condition

North Sea environmental conditions shall apply.

The system shall be designed for sour sevice (i.e. H₂S/SO₂) and all types of mud.

5.7 Operational Requirements

The system shall be designed for frequent testing and inspection. Testing and inspection shall not cause abnormal wear.

It shall be possible to operate the BOP system from the following locations:

- Control unit
- Drillers cabin
- Toolpushers office or another safe area.

A schematic of an 18 3/4" stack Fig. 1, is an example showing the location of kill and choke lines, low pressure mud lines and associated valves.

18 3/4" BOB STACK

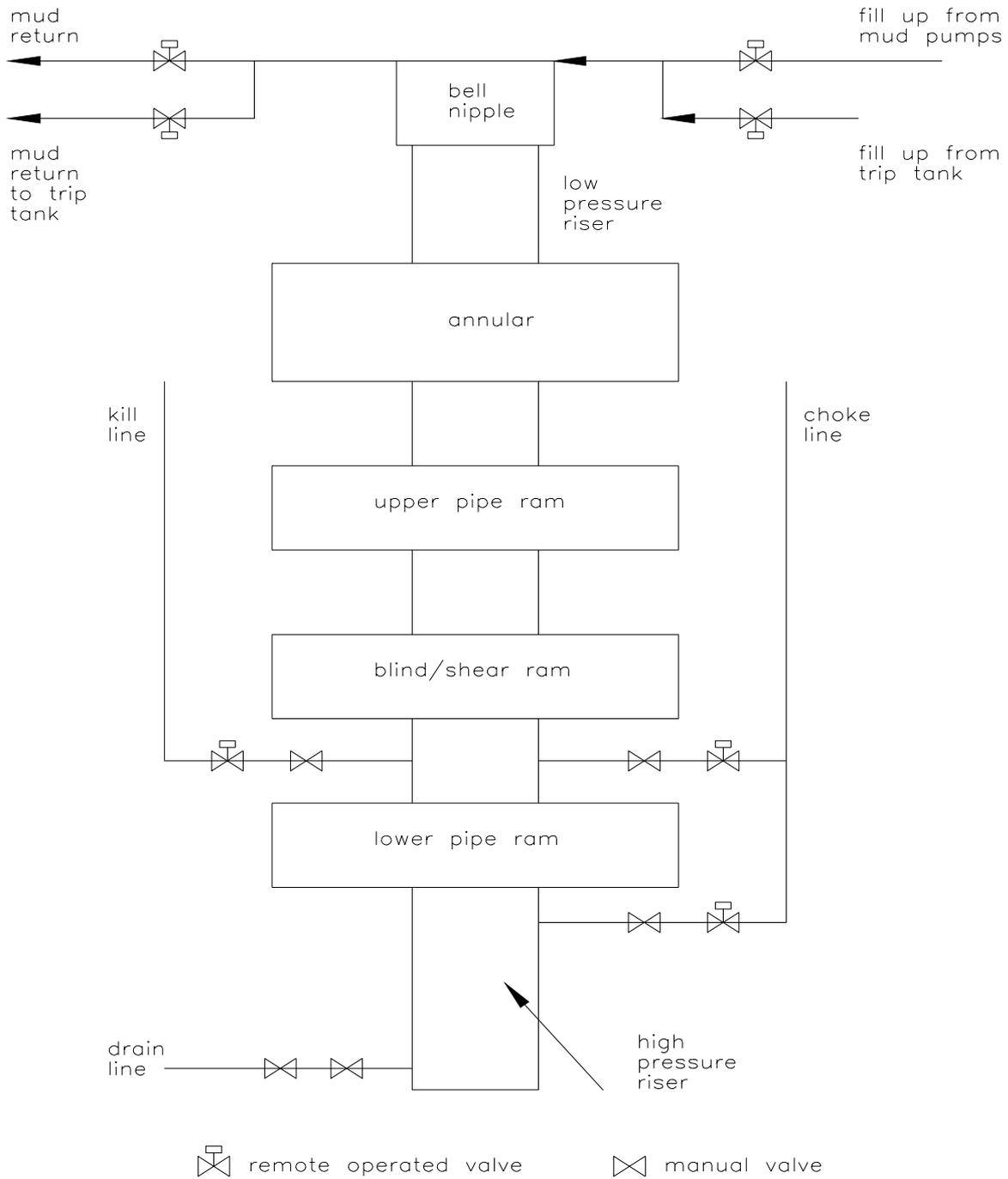


Fig. 1, Schematic BOP stack.

BOP stack:

- Ring grooves inlay (inconel)
- The outer set of kill/choke valves shall be remote operated and spring close assisted Mechanical locking device for the rams in closed position.

The BOP main control unit shall be placed in a safe area, in order to avoid exposure in the event of a well control situation. Routing of BOP control lines with conplings and seals shall be out of harms way and fireresistant.

The drillers cabin control panel shall:

- Clearly indicate whether the valves are open or closed. Furthermore it must indicate pressure/volume for the individual functions/operations.
- Be fitted with a securing device against unintentional operation of essential functions.
- Have an alarm for low accumulator pressure, loss of power supply and low level of control fluid.

The accumulator shall have sufficient capacity for three operations (closing, opening, closing) of all installed BOP valves plus 25% of the volume of one closing operation for each of the said blowout preventers. In calculating accumulator capacity, the minimum permissible operating pressure is 14 bar (200 psi) above normal preloading pressure for propellant gas.

There must be a remaining accumulator pressure sufficient to carry out cutting of the drillstring after having used a volume corresponding to:

- closing and opening of one annular preventer;
- closing, opening and closing of one pipe ram preventer.

Alternatively a dedicated shear ram auxiliary pressure system may be installed for cutting of the drillstring. Regulators in the system shall remain unaffected in the event of loss of power supply (e.g. loss of compressed air);

The response time for closing of annullar and rams is 30 seconds, except for annullars above 20", which have a response time of up to 45 seconds.

The BOP/diverter/riser system shall be designed for optimal/efficient rigging and testing.

5.8 Maintenance Requirements

5.9 Isolation and Sectioning

5.10 Layout Requirements

5.11 Interface Requirements

5.12 Commisioning Requirements