

NORSOK STANDARD

SYSTEM REQUIREMENTS
**WELLHEAD CONTROL AND
HYDRAULIC POWER**

I-SR-001
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CONTENTS

1. FOREWORD	2
2. SCOPE	2
3. NORMATIVE REFERENCES	2
4. DEFINITIONS AND ABBREVIATIONS	2
4.1 Definitions	2
4.2 Abbreviations	2
5. FUNCTIONAL REQUIREMENTS	2
5.1 General	2
5.2 Products and Services	2
5.3 Equipment/Schematic	3
5.4 Performance	3
5.5 Regularity	3
5.6 Process/Ambient Conditions	3
5.7 Operational Requirements	4
5.8 Maintenance Requirements	4
5.9 Isolation and Sectioning	5
5.10 Layout Requirements	5
5.11 Interface Requirements	5
5.12 Commissioning Requirements	5

1 FOREWORD

This Design Standard has been developed by the NORSOK Standardisation Work Group.

2 SCOPE

3 NORMATIVE REFERENCES

NORSOK standards.

4 DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

4.2 Abbreviations

5 FUNCTIONAL REQUIREMENTS

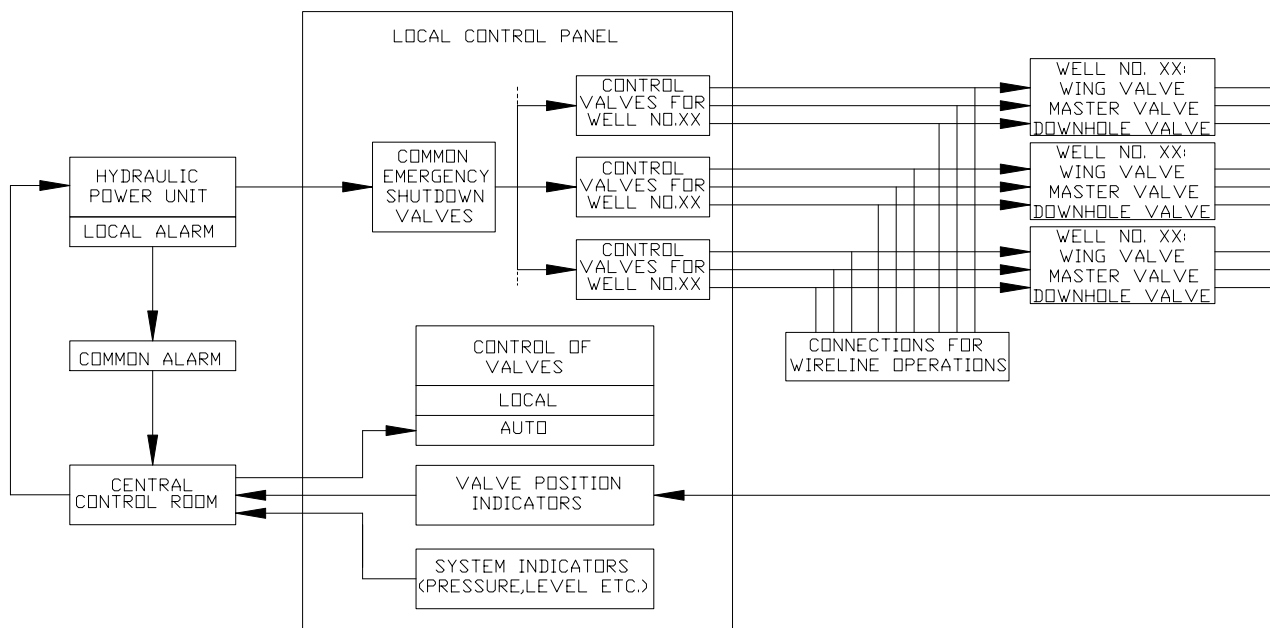
5.1 General

The wellhead control system and hydraulic power unit shall supply hydraulic fluid to all wellhead actuators/downhole valves and control and monitor all wellhead/downhole functions.

5.2 Products and Services

N/A

5.3 Equipment/Schematic



5.4 Performance

Capacity:

Basis for flow capacity calculations of the hydraulic power unit shall be the maximum acceptable start-up time for the wells after a shut down. Pumps should be electro - hydraulic. All other components as pipes, tubes, valves etc. shall have a capacity based on maximum flow and reasonable pressure losses.

There shall be two pressure systems; one 200 bar and one high pressure system where maximum hydraulic pressure is determined according to well pressure requirements.

Reservoir fluid capacity shall allow for all accumulator and actuator fluid x 2. Possible water and gas contents in return oil from downhole valve must be considered in reservoir or return line design. Accumulator capacity shall be calculated according to internal system leakages and pump control philosophy.

5.5 Regularity

99,9%

5.6 Process/Ambient Conditions

Ambient temperature:

Humidity:

5.7 Operational Requirements

- Control valves : All control valves in hydraulic control lines should be fail safe and electrically operated.
- Oil cleanliness : The hydraulic system shall have a cleanliness level according to NAS 1638 class 6.
- Valve closing sequence : Wing valve shall close first, then master valve and last downhole valve.
- Closing time : It shall be possible to regulate closing time for wing and master valve.
- Emergency shutdown : There shall be common fail-safe emergency shutdown valves for each well area.
- Control and monitoring : The system shall be controlled and monitored from local control panels and from central control room as follows:

	P		T		LEV		A		CA	LC	CC
	L	C	L	C	L	C	L	C	C		
Pressure headers	X	X							X		
Hydraulic power unit, reservoir(s)			X		X	X			X		
Hydraulic power unit, filters	X								X		
Actuators							X	X			
Open/close wing valve										X	X
Open/close master valve										X	X
Manual open downhole valve										X	
Autom. close downhole valve											X
Open/close well										X	X
Close all wells										X	X
Reset well (ready to open)										X	

P = pressure
T = temperature
L = local control panel

A = actuator position
LEV = level
C = central control room

CC = central activation
LC = local activation
CA = common alarm

5.8 Maintenance Requirements

Regular maintenance (pumps, motors, filters, pressure safety valves, control valves, instruments) shall be possible without system shut down.

5.9 Isolation and Sectioning

It shall be possible to isolate each well from the main supply.
The system must be prepared for isolation and connections for wireline operations.

Regular maintenance shall be possible without system shuw down.

5.10 Layout Requirements**5.11 Interface Requirements**

Interface shall be as spesified in other NORSOK standards.

5.12 Commisioning Requirements

All functions and logic should be tested together with software before installation offshore.