井口控制盘
Wellhead control panel

设备简介/ Introduction

- 井口安全控制系统（井口控制盘）(Wellheadcontrol panel简称：WHCP)，也称为井口/井下安全阀控制系统，设备按控制井口数可分为单井口控制盘和多井口控制盘。
- 井口安全控制系统（井口控制盘）主要应用于油、气井地面及井下安全阀的控制，为野外无人值守环境的油（气）井提供安全保护，可有效的防止或者减少油气井事故。
- 适用于陆地、海洋平台、人工岛、沙漠等各种野外环境的高压、高产、高危油（气）井。
- 设备具有紧急关断，远程关断，工艺关断，火灾关断等功能，动力可采用仪表风、天然气、氮气、太阳能、交流电、直流电。

- Wellhead Safety Control System (Wellhead Control Panel, abbreviated as WHCP), also referred to as the Wellhead /Downhole Safety Valve Control System, is categorized into single-well and multi-well control panels based on the number of controlled wellheads.
- The Wellhead Safety Control System (WHCP) is primarily used for controlling surface and downhole safety valves in oil and gas wells. It provides safety protection for unmanned oil/gas wells in remote environments, effectively preventing or reducing accidents.
- This system is suitable for high-pressure, high-yield, and high-risk oil/gas wells in various harsh environments, including onshore sites, offshore platforms, artificial islands, and deserts.
- The equipment features emergency shutdown (ESD), remote shutdown, process shutdown, and fire shutdown capabilities. It can be powered by instrument air, natural gas, nitrogen, solar energy, AC (alternating current), or DC (direct current).

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主要参数/ Main parameters

控制井数/Number of Controlled Wells	单井/多井；（常用1-20井） Single well/multiple wells; (usually 1-20 wells)
控制阀门类型/Type of Controlled Valves	井下安全阀(SCSSV)、地面安全阀(SSV)、ESDV、其它液动或气动阀门; Downhole safety valve (SCSSV), surface safety valve (SSV), ESDV, other hydraulic or pneumatic valves;
压力输出范围/Pressure Output Range	0~30000PSI;
环境温度/Ambient Temperature	-40~60C;
易熔塞熔化温度/Fusible Plug Melting Temperature	160°F(71°C)~281°F(138°C)可选;
防爆等级/Explosion-Proof Rating	不低于ExdIIBT4;
防护等级/Protection Rating	不低于IP65;
柜体材质/Cabinet Material	不锈钢（304/316/316L)可选; Stainless steel (304/316/316L) optional;
驱动方式/Drive Method	气动/手动/电动/太阳能 Pneumatic/Manual/Electric/Solar

可选配置与功能：
压力采集；温度采集；H2S气体探测；
可燃气体浓度探测；RTU；太阳能供电系统；氮气气源。

Optional configuration and functions:
Pressure acquisition; temperature acquisition; H2S gas detection;
Combustible gas concentration detection; RTU; solar power supply system; nitrogen gas source.

参考执行标准:/ Reference implementation standards:

- SY/T 7603 石油天然气钻采设备井口安全控制系统；
- APISPEC6A 井口装置与采油树设备规范；
- APISPEC14A 井下安全阀设备规范；
- APISPEC14D 海上用井口上部安全阀和水下安全阀规范；
- APIRP14B 井下安全阀系统的设计，安装，修理和操作；
- APIRP14C 海上生产平台地面安全系统的分析、设计、安装和测试；
- APIRP500 石油装置用电气设备位置分类的推荐规程；
- APIRP55 如何操作含硫化氢的石油天然气生产装置及气体加工厂；
- IEC60529 外壳防护等级(IP代码）；
- IEC60079 电气防爆规范；
- SY/T0310 滩海石油工程仪表与自动控制技术规范；
- ASMEVIII 压力容器建造规则;
- ASMEB 31.3 工艺管道。

- SY/T 7603 Wellhead safety control system for oil and gas drilling equipment;
- APISPEC6A Wellhead equipment and Christmas tree equipment specifications;
- APISPEC14A Downhole safety valve equipment specifications;
- APISPEC14D Offshore wellhead upper safety valve and subsea safety valve specifications;
- APIRP14B Design, installation, repair and operation of downhole safety valve systems;
- APIRP14C Analysis, design, installation and testing of ground safety systems for offshore production platforms;
- APIRP500 Recommended practice for location classification of electrical equipment for petroleum installations;
- APIRP55 How to operate oil and gas production equipment and gas processing plants containing hydrogen sulfide;
- IEC60529 Enclosure protection level (IP code);
- IEC60079 Electrical explosion-proof specifications;
- SY/T0310 Technical specifications for instrumentation and automatic control of offshore oil engineering;
- ASMEVIII Pressure vessel construction rules;
- ASMEB 31.3 Process piping.

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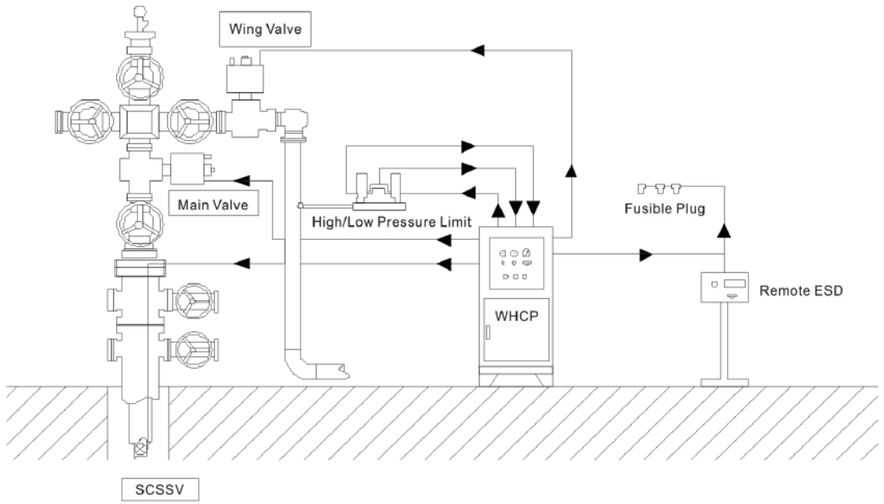
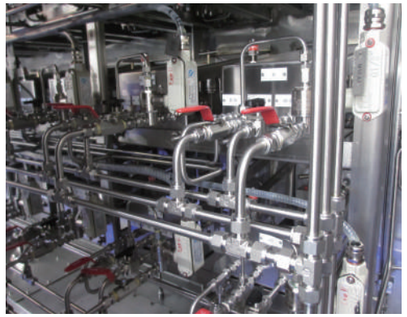
系统原理图/ System Schematic



参考图片/ Reference images



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