

YSF20 型 Φ 130 压力释放阀

YSF20 type Φ 130 pressure relief valve

一. 型号、规格、结构、特点 (Model, specification, structure, characteristics)

YSF20 型 Φ 130, 专门为海上风电塔筒变压器或机舱变压器研发, 其特点为: 性能稳定、结构紧凑、耐环境防腐性能高, 阀体、阀罩、标准件均用 304 或 316 不锈钢材质。也可适用于大型油浸式电力变压器、电力电容器、电抗器等设备油箱内部压力超压时的压力释放。

当油浸式电力变压器油箱内部压力因事故急剧升高时, 此压力如不及时释放, 将造成油箱变形甚至爆裂。压力释放阀可在油箱压力升高到其开启压力值时, 立即开启, 使油箱内的压力迅速降低。当压力降到压力释放阀的关闭压力值时, 压力释放阀可以立即关闭, 使油箱内部永远保持正压, 有效地防止外部空气、水份及其他杂质进入油箱。带定向喷油装置的压力释放阀 (以下简称定向压力释放阀) 可将所压力释放的变压器油定向喷出, 并经导油管导入集油池, 防止变压器油飞溅, 以满足防火及环保要求。

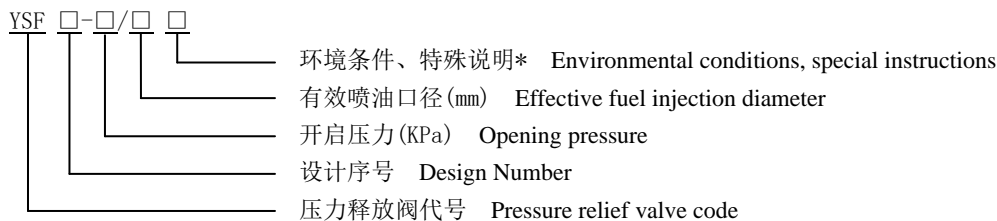
Φ 130mm 口径压力释放阀, 除带常规电气报警信号外, 还可增设计算机用电气报警信号功能, 即可实现双路电气信号输出, 且各自独立分别引出, 用户可在订购产品时根据需要选取。

YSF20 Φ 130 is specially developed for offshore wind power tower transformers or nacelle transformers. Its characteristics are: stable performance, compact structure, high environmental resistance and high corrosion resistance. The valve body, valve cover, and standard parts are all made of 304 or 316 stainless steel. It can also be applied to the pressure release of large oil-immersed power transformers, power capacitors, reactors and other equipment when the internal pressure of the oil tank is over pressured.

When the internal pressure of the oil tank of an oil-immersed power transformer rises sharply due to an accident, if the pressure is not released in time, the tank will deform or even burst. The pressure release valve can be opened immediately when the pressure of the fuel tank rises to its opening pressure value, so that the pressure in the fuel tank can be rapidly reduced. When the pressure drops to the closing pressure value of the pressure release valve, the pressure release valve can be closed immediately, so that the inside of the fuel tank always maintains positive pressure, effectively preventing external air, water and other impurities from entering the fuel tank. The pressure release valve with directional fuel injection device (hereinafter referred to as the directional pressure release valve) can spray the pressure-relieved transformer oil in a directional direction, and lead it into the oil collecting pool through the oil guide pipe to prevent the transformer oil from splashing, so as to meet the fire protection and environmental protection requirements.

Φ 130mm caliber pressure release valve, in addition to the conventional electrical alarm signal, it can also be equipped with a computer electrical alarm signal function, which can realize dual electrical signal output, and each is independently led out. The user can choose according to needs when ordering products.

1.1 型号及说明 Model and Description



***说明:** YSF-表示压力释放阀, K-表示带单电气信号, SK-表示带双路电气信号, J-表示带机械信号, TH-表示用于湿热带地区, B-表示带闭锁装置。

***Description:** YSF- indicates the pressure relief valve, K- indicates a single electrical signal, SK- indicates a dual electrical signal, J- indicates a mechanical signal, TH- indicates a wet tropical region, and B- indicates a locking device.

标注实例: YSF20-100/130DSKJTHB 即为第 20 次设计, 开启压力为 100kPa, 喷油口径为 Φ 130mm, 带定向喷油, 带双路电气报警信号, 带机械报警装置, 湿热带地区用, 带闭锁装置的压力释放阀。

Marking example: YSF20-100/130DSKJTHB is the 20 design, the opening pressure is 100kPa, the fuel injection caliber is Φ 130mm, with directional fuel injection, with dual-circuit electrical alarm signal, with mechanical alarm device, for humid tropical areas, with lock The pressure relief valve of the device.

使用范围(Use range):

(a). 安装位置: 油箱盖上、升高座上或油箱上部侧壁上; (b). 环境温度: $-30^{\circ}\text{C}\sim+70^{\circ}\text{C}$ (可根据用户需求定制最高可支持 $-45^{\circ}\text{C}\sim+70^{\circ}\text{C}$), 工作环境要求: $-30^{\circ}\text{C}\sim+125^{\circ}\text{C}$ (可根据用户需求定制最高可支持 $-45^{\circ}\text{C}\sim+125^{\circ}\text{C}$); (c). 相对湿度: $+20^{\circ}\text{C}$ 时, 不大于 95%; (d). 防护等级: IP55 (可根据用户需求定制)。适用范围: 海拔 $0\sim 4000\text{m}$; (e). 工频耐压: 常开接点 2000V, 1min, 常闭接点或单刀双掷接点: 相间 1000V, 1min, 对地 2000V, 1min; (f). 绝缘性能: 常开接点 2500V, $1000\text{M}\Omega$, 常闭接点或单刀双掷接点: 相间 1000V, $500\text{M}\Omega$, 对地 2500V, $1000\text{M}\Omega$ 。

(a). Installation position: on the fuel tank cap, on the raised seat or on the upper side wall of the fuel tank; (b). Environmental requirements: -30°C to $+70^{\circ}\text{C}$ (can be customized according to user needs to support up to -45°C to $+70^{\circ}\text{C}$); Work environment requirements: $-30^{\circ}\text{C}\sim+125^{\circ}\text{C}$ (customizable according to user needs, can support up to $-45^{\circ}\text{C}\sim+125^{\circ}\text{C}$); (c). Relative humidity: no more than 95% at $+20^{\circ}\text{C}$; (d). Protection level: IP55 (Customizable according to user requirements). Scope of application: Altitude $0\sim 4000\text{m}$; (e) Power frequency withstand voltage: normally open contact 2000V, 1min, normally closed contact or single pole double throw contact: phase to phase 1000V, 1min, ground 2000V, 1min; (f) Insulation performance: normally open contact 2500V, $1000\text{M}\Omega$, normally closed contact or single pole double throw contact: phase to phase 1000V, $500\text{M}\Omega$, ground 2500V, $1000\text{M}\Omega$ 。

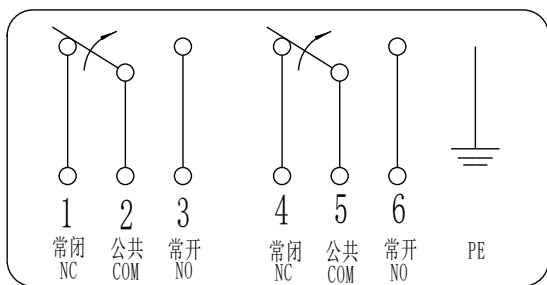
1.2 信号开关接线图及电气参数 Signal switch wiring diagram and electrical parameters:

图 1 SPDT 双接点压力释放阀接线原理图

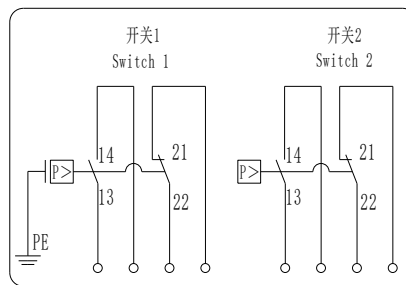
Figure 1 SPDT double contact pressure relief valve wiring schematic diagram

图 2 双接点压力释放阀接线原理图

Figure 2 Double contact pressure relief valve wiring schematic diagram

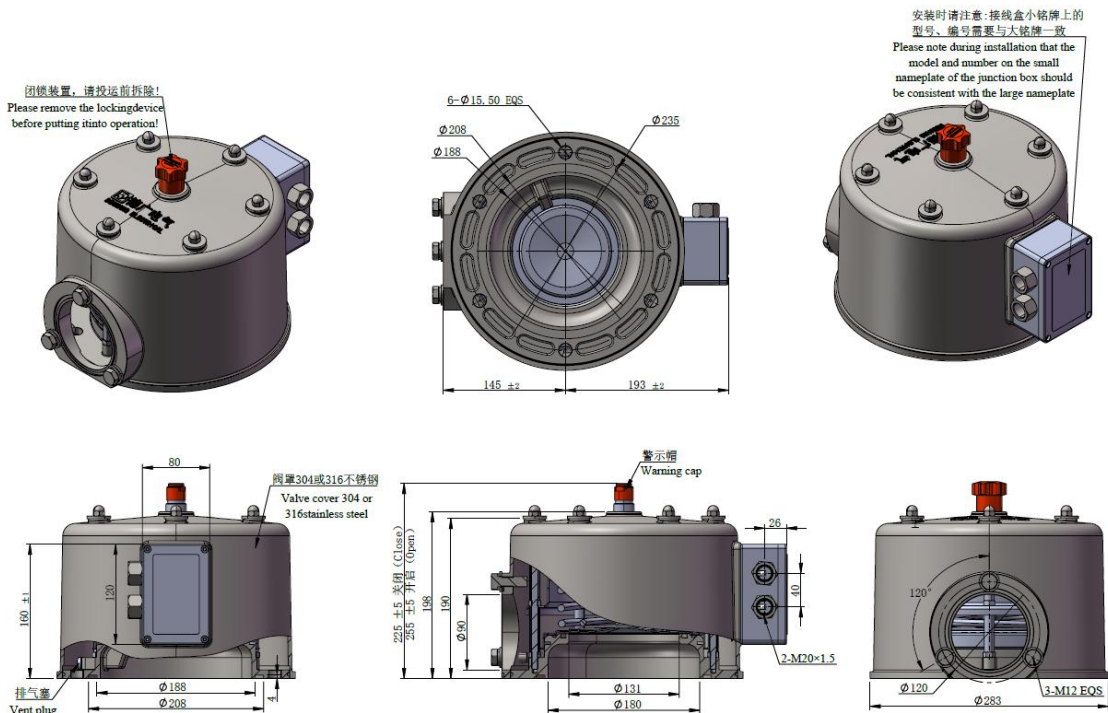
电源种类 Type of power supply	电压(V) Voltage	电流 Electric current A	
		电阻负载 Resistive load	感性负载 Inductive
AC	220V	5	$3(\cos\phi=0.4)$
DC		0.3	$0.05(T=7\text{ms})$

表 1 信号开关基本参数(带电气接点的压力释放阀)

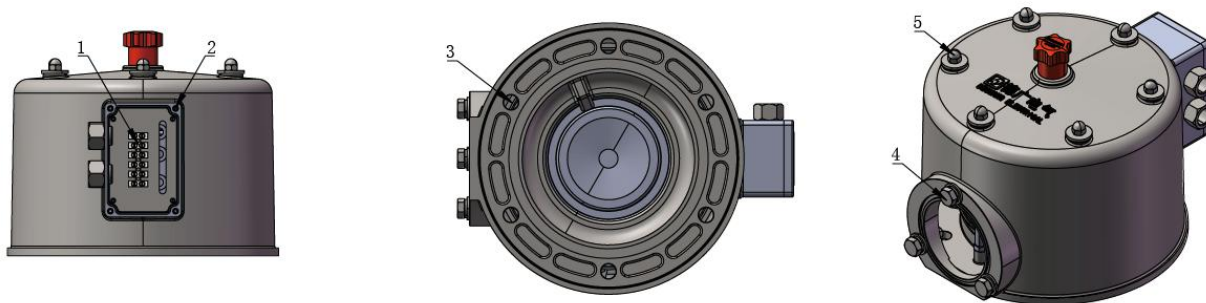
Table 1 Basic Parameters of Signal Switch (Pressure Relief Valve with Electrical Contact)






1.3、性能参数 Performance parameters

有效口径 (mm) Effective caliber	$\Phi 130\text{ mm}$				
开启压力 (kPa) Opening pressure	55	70	85	100	138
极限偏差 (kPa) limit deviation	± 5				± 10
关闭压力 (kPa) Closing pressure	29.5	37.5	45.5	54	74
密封压力 (kPa) Sealing pressure	33	42	51	60	82.8

二 外形及安装尺寸图 Outline and installation dimension diagram


色卡编号 Color card No	颜色 Color	可选性 Optionality of choice
RAL7035	浅灰色 Light grey	默认 (Default)



序号 Number	装配位置 Assembly position	螺纹规格 Thread specification	推荐扭矩 Recommended torque	装配工具规格 Assembly tool specifications	备注 Notes
1	接线端子 Connecting terminal	M3	0.5~1Nm		建议手动安装 Suggest manual installation
2	接线盒盖 Terminal box cover	M4	1.5~2Nm		建议手动安装 Suggest manual installation
3	法兰安装孔 Flange installation hole	M14 螺栓 bolt	55~65Nm		
4	定向导油口 Directional oil inlet	M12	35~40Nm		
5	电气罩 Electrical hood	M8	11~14Nm		

 3
 扭矩参考表

Torque Reference Table