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罗浮阀门集团有限公司
LUOFU VALVE GROUP CO.,LTD.

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美标系列安全阀

罗浮阀门集团有限公司



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**LFQH Pressure Relief
Valves Quick Changeover Valve**

LFQH 安全阀快速切换装置

Brief 企业简介

Introduction



罗浮阀门集团有限公司创建于1984年，位于中国泵阀之乡--美丽的瓯江北岸，浙江省永嘉县瓯北镇东瓯工业园区。原企业名称浙江罗浮锅炉附件厂。公司地理位置优越，陆、海、空交通便利。总注册资本10088万元人民币，总建筑面积6.5万m²。

公司主导产品有弹簧式直接载荷式安全阀、先导式安全阀、泄压阀、保温夹套式安全阀、高温高性能蒸汽安全阀、衬里安全阀和压力真空释放阀、紧急泄放阀等两类系列产品。安全阀系列产品结构分为美标、国标两大系列，压力等级：150Lb-2500Lb(PN1.6MPa~PN42MPa)，入口规格：1/2"~20" (DN15~DN500)。压力真空释放阀入口规格：2"~12" (DN50~DN300)，紧急泄放阀入口规格：16"~24" (DN400~DN600)。同时，公司还致力于满足用户要求，进行非标安全阀、呼吸阀产品的研发、设计、制造、验收。

公司始终以“立足质量、强化管理、持续改进、顾客至上”的企业方针，经过30多年的发展，构建了一套完整的、先进的和雄厚的安全阀的研发、制造、试验和检测体系。现有员工近200余人，其中技术人员共29人，中高级以上7人。公司拥有先进的机械加工中心、数控机床、普通机床、

铣床、钻床、氩弧焊机等设备200多台套。拥有金属材料理化试验室、机械性能力学试验室、安全阀全性能测试中心、低温冲击试验室、呼吸阀全性能试验装置，超声波测厚、无损探伤、光谱分析、金属热处理、弹簧拉压试验等专用设备。还新建了国内领先的安全阀低温试验台和具有超声波清洗的专业脱脂生产工段。

公司为了确保产品质量满足顾客要求，不断深化内部管理，全面提升全员质量意识。实行标准化、规范化、程序化管理，具有健全、完善和运行有效的质量管理体系。公司从1997年获得ISO9001质量管理体系认证开始，先后获取了“采用国际标准合格证”、“特种设备制造许可证”、美国工程师协会“ASME产品认证”、“欧盟CE认证”、“中国船级社(CCS)认证”、“API6D产品认证”、ISO14001环境管理体系和GB/T28001-2001职业健康安全管理体系认证。

公司从事阀门产品和储罐附件的设计与生产已有三十多年的历史，积累了丰富的设计和生产经验。在行业界已产生了积极的影响，树立了良好的口碑。现已成为中国石化集团物资装备公司资源市场成员单位、中国石油天然气集团公司一级网络供应商、能源一号网会员单位、中国海洋石油总公司网络供应商、中国蓝星(集团)总公司指定供应商、神华集团一级网络成员单位、中国化工集团合格供应商、惠生工程(中国)有限公司合格供应商等。胜利油田、中原油田勘探局、中国水

力电力物资公司、齐鲁石化供应公司等单位的物质资源市场供应网络成员，中国通用机械阀门行业协会、中国化工装备协会的成员单位。

公司产品已畅销全国，为石油、化工、煤化工、多晶硅、电力、医药等行业提供了质量可靠、价格合理的产品，受到广大用户的欢迎与好评。在国内各大城市已形成销售网络并树立了较高的知名度和信誉度，部分产品已远销欧美及中东等地区或国家。

我们坚持“过程精品，以人为本”的理念，以先进的技术、精细的管理、优质的质量、良好的售后服务，回报广大用户对我公司的厚爱。



Luofu Valve Group Co., Ltd was founded in 1984, situated in Dong'ou Ind. zone, Oubei Town, Yongjia country, Zhejiang which is a beautiful north bank of Oujiang River-The Chinese Capital of Pumps and Valves, and commands a favorable geographical location to offer nice transportation facilities by land, by sea or by air. Its original company name is Zhejiang Luofu Boiler Accessories Factory, and its total registered capital is CNY100.88 million with an overall construction area of 65 thousand sq.m.

The company engage in conventional pressure relief valve, balanced pressure relief valve, pilot operated pressure relief valve, pressure relief valve with jacket, high performance pressure relief valve for service steam, etc. and pressure/vacuum relief valve, emergency discharge valves, etc. The structure of Safety Valve series are divided into the ASME standard and the National standard. its pressure class is 150Lb-2500Lb(PN1.6MPa~PN42MPa), Inlet size: 1/2"~20" (DN15~DN500). Pressure/vacuum relief valve series'



We Enhance Competitive Force Through Innovative Technology

我们用创新科技提高竞争力

Inlet size: 2"~12" (DN50~DN300) while Emergency discharge valves is Inlet size: 16"~24" (DN400~DN600). In addition, the company is committed research, design, manufacture and inspection of non-standard Safety Valves and Pressure/vacuum Relief Valves in order to meet client satisfaction.

The company persists the enterprise policy "being based on quality, strengthening management, continuous improvement, and customer first", after more than 30 years of development to build a set of complete, advanced and strong research, manufacture, test and inspection system of safety valve series. It existing staff nearly 200 people, including 29 technicians and 7 senior technicians and owns CNC, CNC lathe, Lathe, Milling machine, Drilling machine, Tig welding machine etc.. and also owns metal material physical and chemical laboratory, mechanical properties of mechanics laboratory, relief valve performance testing center, low temperature impact test chamber, pressure/vacuum relief valve test device, ultrasonic thickness of metal heat treatment, nondestructive flaw detection, spectral analysis, spring tension and compression test. Also has built a safety valve of low temperature test rig and the ultrasonic cleaning equipment for skim.

The company constantly deepen the internal management and tries to enhance quality sense of all staff members in order to ensure the quality of products to meet client satisfaction. Therefore, the company conducts all round the standardization, normalization and routinization management based on a sound, impeccable and effective quality management system, it obtained successively the certifications of "International Standards Qualification", "Special Equipment Manufacturing License", the association of American engineers "ASME certification", "CE certification" "CCS certification", "API6D certification", "ISO4001 Environmental management system" and "GB/T28001-2001 occupational health and safety management system certification" since getting certified ISO9001 Quality system in 1997.

Over the past three decades the company has gained plenty of experience in design and production of valves and storage tank accessories, and has its positive influence and gets rewards in the valve industry. The company has become member of the resources market of Sinopec Supplies and Equipment Co., Ltd., Grade-A material supplier of CNPC (member of energyahead.com), CNOOC network provider, Grade-A member of Shenhua Group network, qualified supplier of China National Chemical Group, and qualified supplier of Wison Engineering (China) Co., Ltd. At the same time, our company has established good cooperative relations with Sinopec Luoyang Petrochemical Engineering Co., Ltd., PetroChina East China Investigation and Design Institute, China Tianchen Engineering Co., Ltd., China Chengda Engineering Co., Ltd., Hualu Engineering Technology Co., Ltd., East China Engineering Science and Technology Co., Ltd., Daqing Petrochemical Design Institute, Shengli Oil Institute, Fushun Petrochemical Design Institute and other relevant units, and signed strategic cooperation framework agreements with the refinery projects and ethylene projects of subordinate units of PetroChina, Sinopec, CNOOC.

The company's products have been sold well all over the country, to provide products with reliable quality, reasonable price for the petroleum, chemical industry, coal chemical industry, polysilicon, power, pharmaceutical and other industries, and was welcomed by the masses of clients. The sales network has been formed in major cities in the domestic and also set a higher visibility and credibility. The products have been exported to Europe, America and the Middle East etc.

We always adhere to the principle "Processing Excellence and Human Centered", and rebounding vast customers for their great kindness with advanced technology, scientific management, high quality and excellent after-sales service.

LFXY 泄压式

- ◆ 规格：1/4B1/4~1D1
- ◆ 压力级：Class150~2500
- ◆ 温度：-196℃~427℃

LFGS 高性能蒸汽式

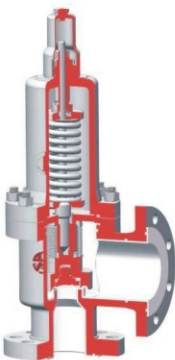
- ◆ 规范：ASME 第 I 卷
- ◆ 规格：1 1/2"~6"
- ◆ 压力级：Class300~2500
- ◆ 温度：-29℃~538℃

LFNJ 保温夹套式

- ◆ 规格：1D2~8T10
- ◆ 压力级：Class150~300
- ◆ 温度：-196℃~538℃

LFCL 衬里式

- ◆ 规格：1"~8"
- ◆ 压力级：Class150~300
- ◆ 温度：-29℃~260℃



执行标准

- ◆API RP520 炼油厂泄压设备尺寸确定、选型与安装
- ◆API std521 泄压和降压系统之指南
- ◆API std526 钢制法兰泄压阀
- ◆API std527 泄压阀阀座的密封性
- ◆ASME 美国机械工程师协会《锅炉与压力容器规范》第VIII卷《压力容器》
- ◆ASME 美国机械工程师协会《锅炉与压力容器规范》第I卷《动力锅炉》
- ◆ISO 4126-1 安全阀一般要求
- ◆API607 阀门检查与测试
- ◆API598 阀门的检验和测试
- ◆ASME PTC25 泄压装置性能试验规范
- ◆TSG ZF001-2006 安全阀安全技术监察规程

Execution Standard

- ◆ Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries
- ◆ Pressure-relieving and Depressuring systems
- ◆ Flanged Steel Pressure Relief Valves
- ◆ Seat Tightness of Pressure Relief Valves
- ◆ ASME Boiler and Pressure Vessel Code, Section I Division 1, Rules for Construction of Pressure Vessels
- ◆ ASME Boiler and Pressure Vessel Code, Section VIII Division 1, Rules for Construction of Power Boilers
- ◆ Safety Devices for Protection Against Excessive Pressure
- ◆ Valve Inspection and Test
- ◆ Valve Inspection and Test
- ◆ Pressure Relief Devices Performance Test Codes
- ◆ Safety Technical Supervision Regulations for Safety Valves

安全阀定径的公式和密封验收的标准

PRESSURE RELIEF VALVES SIZING FORMULA AND SEAL OF ACCEPTANCE CRITERIA

定径——摘自API Std 520 Sizing-Extract from API Std 520

1 气体和蒸汽的定径程序

首先要确定其流动状态，具体程序为：

- (1) 计算安全阀背压与额定排放压力绝压数值的比 P_b/P_{dr} ；
- (2) 按下式计算临界流动压力 P_{cf}/P_{dr} ：

$$\frac{P_{cf}}{P_{dr}} = \left[\frac{2}{k+1} \right]^{k/(k-1)}$$

- (3) 若 $\frac{P_b}{P_{dr}} > \frac{P_{cf}}{P_{dr}}$ ，则可确定流动为亚临界流动；
- 若 $\frac{P_b}{P_{dr}} \leq \frac{P_{cf}}{P_{dr}}$ ，则可确定流动为临界流动。

式中：

P_b	=	背压，即附加背压和排放背压的和，再加上大气压，MPa(a)
P_{dr}	=	额定排放压力，该压力等于整定压力加上允许超过压力，再加上大气压， $P_{dr} = P_s \times (1 + \Delta P_0) + P_{atm}$ ，MPa(a)
P_s	=	整定压力，MPa(g)
P_{atm}	=	大气压力，取0.103MPa
P_{cf}	=	出口临界流动压力
k	=	气体的比热比

Production Equipment 生产装备

With Elaborate Production Technology, Strict Quality Guarantee System, LUOFU Provides Solid Guarantee for Each Component.

精湛的生产工艺严格的质保体系，罗浮为任一零件提供严格的保障



In excellent equipment and strict quality management, based on the condensation of the technology and the essence of wisdom, has been engaged in the development of industrial fluid control and manufacturing. In the era of environment, and strive to even or half-step ahead of the technology, while the "entrepreneurial spirit, innovation" as the goal to meet customer needs to carry out fluid control research and development activities. We hope that through our comprehensive design, manufacturing and after-sales

service, to ensure effective use of each product in full play during the design of performance indicators. We have advanced manufacturing methods, complete testing facilities. Full implementation of computer-aided manufacturing, to ensure product quality and efficiency. Application of digital technology direct dialogue programming, the implementation of drilling, cutting, milling, grinding process on the key components such as mechanical processing, ensure extreme accuracy.

在设备优良和严格质量管理的基础上，凝结睿智的技术和精髓，一直投身于工业流体控制的研发和制造中。在时代环境下，力争哪怕是领先一步或半步的技术优势，同时以“创业精神、技术革新”为目标，开展能满足客户需求的流体控制研发活动。我们希望通过我们完善的设计、制造和售后服务，确保每一台产品在有效使用期内充份发挥各项设计性能指标。我们拥有先进的制造手段，完备的检测设施。全面推行计算机辅助制造，确保产品质量及工效。应用数字技术进行直接对话式编程，实施钻、削、铣、磨等工艺对关键部件进行机械加工，确保产品极限精度。

气体和蒸汽的定径公式

A = (13.16 * W) / (C * Kdr * Pdr * Kb * Kc) * sqrt(TZ / M) (1)

式中：

A	=	所需的有效排放面积，mm²
W	=	所需泄流量，kg/h
C	=	根据气体或蒸气在入口排放条件下的比热比 (k = Cp/Cv) 确定的系数，由下面公式确定 C = 520 * sqrt(2 / (k * ((k+1)/(k-1))^(k+1)/(k-1)))
Kdr	=	额定排量系数
Pdr	=	额定排放压力，该压力等于整定压力加上允许超过压力， 再加上大气压， Pdr = Ps × (1 + ΔP0) + Patm，MPa(a)
Kb	=	排量的背压修正系数 对于常规式和先导式泄压阀，当为临界流动时，Kb 等于1.0；当为亚临界流动时，Kb = sqrt(2 * [(r)^(2/k) - r^(k+1/k)] / ((k-1) * (2/(k+1))^(k+1)/(k-1)))，其中r为背压对上游排放压力的比值，Pb / Pdr 对于平衡波纹管式泄压阀，超压21%时，且Pb/Ps小于等于50%时，Kb等于1.0；超压10%和16%时，由图1确定
Kc	=	当泄压阀上游装有爆破片时的联合修正系数
	=	当不安装爆破片时，取1.0
	=	当爆破片与泄压阀联合安装，取0.9
T	=	入口气体或蒸气的排放温度，K(°C+273)
Z	=	压缩因子
M	=	气体和蒸气在入口排放状态下的摩尔质量，kg/kmole

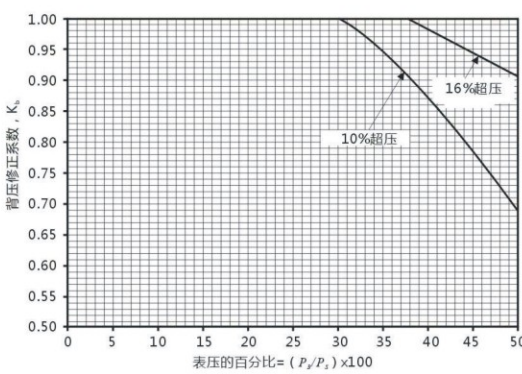


图1- 平衡波纹管式泄压阀（蒸汽和气体）的背压修正系数，Kb。

2 蒸汽的定径程序

A = W / (5.25 * Pdr * Kdr * Kb * Kc * KN * KSH) (2)

式中：

A	=	所需的有效排放面积，mm²
W	=	所需泄流量，kg/hr
Pdr	=	额定排放压力，该压力等于整定压力加上允许超过压力， 再加上大气压， Pdr = Ps × (1 + ΔP0) + Patm，MPa(a)
Kdr	=	额定排量系数
Kb	=	排量的背压修正系数 对于常规式和先导式泄压阀，当为临界流动时，Kb 等于1.0； 当为亚临界流动时，Kb = sqrt(2 * [(r)^(2/k) - r^(k+1/k)] / ((k-1) * (2/(k+1))^(k+1)/(k-1)))，其中r为背压对上游排放压力 的比值，Pb / Pdr。对于平衡波纹管式泄压阀，超压21%时，且Pb/Ps小于等于 50%时，Kb等于1.0；超压10%和16%时，由图1确定
Kc	=	当泄压阀上游装有爆破片时的联合修正系数
	=	当不安装爆破片时，取1.0
	=	当爆破片与泄压阀联合安装，取0.9
KN	=	Napier公式的修正系数
	=	当 Pdr ≤ 10.339MPa(a) 时，取1；
	=	P1> 10,339MPa(a)且≤22,057MPa(a)时，为 (27.64 * Pdr - 1000) / (33.24 * Pdr - 1061)
KSH	=	过热蒸汽修正系数，见下表：

Inspection And Test 检测试验

**Rigorous, Efficient
Pragmatic, Innovation**
高效 务实 严谨 创新

本着“质量是企业的生命，信誉是企业的根本”这一理念，全面强化质量管理，建立质量保证体系，对产品实行全过程的质量控制。罗浮拥有自己的一整套质量控制程序，从原材料、外协件进厂到零部件加工、成品最终出厂检验，都应用计算机网络管理系统，建立产品质量档案，实现产品可追溯性管理。我们坚持“经顾客为中心，实现顾客零抱怨；以体系为基础，追求产品零缺陷”的质量方针，推行用户满意工程，满足顾客的需求和期望。

Based on the conception of quality is the life of the enterprise and reputation is the base of the enterprise, our company establishes quality guarantee system to carry out whole-course quality control for the products. Luofu has a whole set of quality control procedures of its own. From the incoming of raw materials and outsourcing parts, the machining of parts to the outgoing quality control of finished production, the computer network management system is applied and product quality files are established so as to realize product traceability management. By insisting on the quality policy of customer centered to realize zero complaint of customers, based on system to seek for zero defect of products, we are pushing forward customer satisfactory project so as to satisfy customer demands and expects.



1、金相分析 Metallographic Analysis



2、硬度仪 Hardness Tester



3、碳硫分析仪 Carbon and Sulfur Analyzer



4、机械性能试验 Mechanical Test



5、UT检测仪 UT Detector



6、低温冲击 Low Temperature Impact Test

Quality is Represented by the Incomparable Reliability and Performance of Products.
品质表现在产品无与伦比的可靠性



7、MT检测仪 MT Detector



8、光谱仪 Mobile Spectrometer



9、防火试验 Fire Test



10、低温试验 Low Temperature Test



11、化学分析 Chemical Analysis



LFQH PRESSURE RELIEF VALVES QUICK CHANGEOVER VALVE

切换阀尺寸 Dimension of Crossover Valve mm

法兰尺寸 Flange Size		法兰代号 Flange Code	Sr	L	B	H1	H2	近似重量 Approximate (Kg)
NPS,In	DN							
1"	25	01	180	404	260	100	200	28.5
		03	180	404	260	100	200	35
		06	240	425	260	100	200	36
1.5"	40	01	200	459	360	135	270	38.5
		03	200	459	360	135	270	48
		06	280	505	360	135	270	51
2"	50	01	240	504	390	145	290	63.5
		03	240	504	390	145	290	77
		06	320	575	390	145	290	78
3"	80	01	320	601	480	200	400	107
		03	320	601	480	200	400	126
		06	400	690	480	225	450	152
4"	100	01	400	753	580	230	460	195
		03	400	753	580	230	460	225
		06	450	820	580	280	560	285
6"	150	01	500	947	715	285	570	280
		03	500	947	715	285	570	335
		06	500	1080	715	310	620	505
8"	200	01	500	1081	830	330	660	340
		03	500	1081	830	330	660	445