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RAJ-1.6~10.0 型系列 燃气安全切断阀说明书

RAJ-1.6 ~ 10.0 Series Gas safety Cut-off Valve Technical Manual



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RAJ-1.6~10.0 型燃气安全切断阀

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1. 产品简介 Brief Introduction

该产品结构与原理在传统安全截断阀的基础上有较大突破，不再使用机械杠杆脱扣结构方式，利用控制气室设定压力、开启阀芯面积、活塞受力面积及主阀气室面积压差的转换。解决了传统杠杆脱扣式安全切断阀不能满足高压（ $PN \geq 6.3\text{MPa}$ ），密封面易坏，稳定性和精度变差，切断噪音大，人工复位困难，使用寿命短的问题。

该产品由主阀和控制器构成，采用活塞阻尼背压平衡先导式控制器反馈、主阀台阶阀芯与阀套、复位弹簧与橡胶膜片、硬软双重密封副有机组合设计，结构紧凑、操作简单、安全可靠、使用寿命长。

The product structure and working principles have a major breakthrough on the traditional safety cut-off valve; mechanical lever release structure is no longer used. The pressure conversion inside the valve is realized through the balance amongst air control chamber set pressure, opened spool area, piston pressure and main valve pressure difference. The problems of traditional lever release valve, such as its inability to handle high differential pressure ($PN \geq 6.3\text{MPa}$, easily damaged seal surface, low stability and accuracy, big cut-off noise, manual reset difficulty and short service life are perfectly resolved.

The product mainly consists of main valve and regulating valve, the regulating valve adopts a damping piston backpressure controller. Main valve's spool and sleeve, reset spring and rubber diaphragm are designed and combined with soft & hard sealing. The valve characterized by its compact structure, easy & safe operation, reliability and long service life.

1.1 用途: RAJ 安全切断阀是一种用于燃气输配系统的新型安全保护装置,工作时无需外来能源,利用介质自身所具有的压能自动切断。当系统中的任何异常引起监控压力达到预定的警戒值(超压/失压)时该装置迅速自动切断气流,起到安全保护作用。

Usage: RAJ safety cut-off valve is a safety protection device used for gas transmission and distribution system, self cut-off is performed under its own medium pressure and doesn't require other energy resources. When the monitored pressure exceeds the set alarming value under abnormal situations, either over pressure or loss pressure, the valve will cut off the gas automatically through which the safety protection function is realized.

1.2 特点 Features:

- ◆ 切断精度高、响应速度快、无噪音。

High cut-off accuracy, instant response and no noise.

- ◆ 利用介质自身压力自动切断，可作超压切断。（如用户需要失压切断功能，我公司可特殊设计生产满足。）

Automatic over pressure cut-off under the medium pressure, if the customer needs loss pressure cut-off function, our special design can realize this operation.

- ◆ 硬软双重密封、关闭零泄漏、膜片使用寿命长。

Hard and soft double sealing, zero shut off leakage, long life diaphragm.

- ◆ 复位开启简单（关闭进气阀、开启排泄阀即可），无须专用工具。

Easy reset start-up by closing air inlet valve and opening discharge valve, does not need special tools.

- ◆ 克服了杠杆脱扣式结构切断阀阀头与阀座撞击对密封面的损坏，限位钩易磨损，稳定性和精度变差，人工复位困难的不足。

The problems of traditional lever release valve are mainly the damage on the sealing surface caused by the collision in-between the valve head and valve seat, wearing on the limit hook, deterioration of stability and accuracy and manual reset difficulty. These problems are well resolved with the new valve.

- ◆ 满足含 H₂S、CO₂、CL⁻ 等腐蚀性介质工况使用。

Meet the corrosive mediums such as H₂S, CO₂, and CL⁻ usage.

- ◆ 可选择远传控制、监控和报警。

Remote control, monitoring and alarming are all optional.

- ◆ 操作简便、易于在线维修。

Easy to operate & and on line maintenance.

- ◆ 结构紧凑、安装方便。

Compact structure, easy installation.

1.3 适用介质：净化天然气、含硫天然气、人工煤气、液化石油气、空气以及其它气体。当含腐蚀性介质时，选用抗腐蚀材料。

Suitable medium: Purified natural gas, Sulfur-contained natural gas, coal gas, liquefied petroleum gas, air and other gases. Corrosion-resistant materials should be used for the corrosive mediums.

2. 本阀与传统切断阀技术比较

Comparison between RAJ Safety Cut-off Valve & Traditional Cut-off Valve

2.1 传统杠杆脱扣式结构安全切断阀的执行器与切断机构的杠杆保持扣上，使主阀开启，采用的是机械挂钩式，时间久后造成限位钩磨损，使主阀完全开启的稳定性和精度产生变差，且使用寿命也不长。而本阀的气体介质进入控制气室后，主阀控制气室压力差增大，破坏了正常状态下的

动态平衡，使阀芯下移贴紧阀座，迅速切断气流，达到“超压即关”，密封零泄漏的效果，可靠性和使用寿命大大提高。

2.1 The cut off lever clips with the actuator in the traditional safety cut-off valve to open the main valve, mechanical hanger is used but the limit hanger will be worn out after a period of time which will have a negative impact on the stability and precision of the main valve when its fully opened, and its service life will be shortened. Comparatively, when air enters and increases the pressure difference in the air control chamber, then the dynamic pressure balance will be destroyed which will force the valve spool down and closely adhere to the valve seat, the air will be cut off immediately. This is how the over pressure cut-off and zero leakage rate are realized. Also, its reliability and life span is maximized.

2.2 传统安全切断阀脱扣后，阀头在主弹簧作用下切断气流，由于弹簧力很大，阀头与阀座猛烈撞击对密封面损坏，且噪音大；本阀主阀控制气室的气压是逐渐增大的，阀芯向下关闭阀门的动作也是很平缓的，无噪音、密封面使用寿命长。

When the clip-off cut is performed by traditional valve, the valve head cuts off the air under the force of the main spring, the spring release force is comparably strong and causes fierce collision between valve head and valve seat with big noise; whereas the pressure climbs up gradually in the control chamber of our RAJ valve, the valve shut off action is gently performed as the spool moves downwards with no noise and longer service life of the seal surface.

2.3 传统安全切断阀的复位开启须用专用工具使限位钩与杠杆扣上，由于机械磨损的原因，人工复位困难，稍不注意无法扣牢；阀头落下撞击阀座会发出很大的噪声，影响操作者的身心健康。而本阀复位开启只需关闭截止阀手柄、开启排泄阀手柄，即可恢复正常工作，简单易行。

The reset opening of traditional cut-off valve requires special tool to clip the lever with limit hanger, due to mechanical wearing it will be harder to reset as the operation proceeds, little carelessness can result in bad clip; When the valve seat is hit by the valve head, big and unpleasant noise will be generated which will affect the physical and mental health of the operator; whereas our RAJ valve can be reset and restarted by simply close the handle of the cut-off valve and open the handle of discharge valve.

3.产品执行标准

3.1 ANSI B16.10 《阀门的端面尺寸》

ANSI B16.10 "Face Dimensions of Valves"

3.2 ANSI B16.5 《钢制法兰和法兰管件》

ANSI B16.5 "Steel Flanges and Flange Fittings"

3.3 API 598 《阀门检验与测试》

API 598 "valve Inspection and Testing"

3.4 GB/T12224-2005 《钢制阀门一般要求》

GB/T12224-2005 "General Requirements for Steel Valves"

3.5 GB50350-2005 《油气集输设计规范》

GB50350-2005 "oil & gas Assembly and Transferring Regulation"

3.6 GB50028-2006 《城镇燃气设计规范》

GB50028-2006 "City Gas Design Regulation"

3.7 SY/T0599-2006 《天然气地面设施抗硫化物应力开裂和抗应力腐蚀开裂的金属材料要求》

SY/T0599-2006 "Ground Natural Gas Facilities Sulfide Stress Cracking Resistance and Stress Corrosion Cracking Resistance Metal Materials Requirements"

3.8 GB/T13927-2008 《通用阀门压力试验》

GB/T13927-2008 "Universal Valve Pressure Test"

3.9 JB/T9092-99 《阀门的检验与试验》

JB/T9092-99 "valve Inspection and Testing"

4. 主要技术参数 Main Technical Parameters

4.1 公称压力 Nominal pressure: PN1.6~10.0MPa (ANSI150Class~600Class)

4.2 公称口径 Nominal diameter: DN25~DN200 mm (NPS1"~8")

4.3 切断压力 Cutting pressure: 0.1MPa~0.5MPa; 0.4MPa~0.8MPa; 0.7MPa~1.3MPa;
1.2MPa~1.7MPa; 1.6MPa~2.6MPa; 2.5MPa~4.0MPa;
4.0MPa~6.3MPa。

(控制器采用膜片式结构, 可满足切断压力 $P_q < 0.4\text{MPa}$)

(Controller with diaphragm structure can meet the cut off pressure $P_q < 0.4\text{MPa}$)

4.4 切断精度: 根据不同的供气压力和条件, 精度为: $\pm 1\% \sim \pm 3\%$

Cutting accuracy: according to different gas pressures and conditions, accuracy: $\pm 1\% \sim \pm 3\%$

4.5 工作温度: $-29^\circ\text{C} \sim +130^\circ\text{C}$ (可根据用户特殊温度要求设计生产)

Operating temperature: $-29^\circ\text{C} \sim +130^\circ\text{C}$ (product can be produced according to the special temperature requirement of the customer)

5. 型号说明 Model Explanation

示例 Example: (K)RAJ—600CL—4/G(S)	字母含义说明 Note the letters meaning
K	类型代号 (“K”表示抗硫) Model code (K = anti-sulfur)
RA	燃气安全切断阀 Gas safety cut-off valve
J	结构形式 (J 间接作用式) Structure (J= indirect contact)
600CL	公称压力等级 Nominal pressure level (150CL~600 CL)
4	NPS4 (NPS1~NPS8)
G(S)	G-超压切断, S-失压切断

6. 主要结构 The Main Structures

如图 1 所示:

RAJ 系列安全切断阀由主阀和控制器组成, 主阀采用高进低出, 介质不直接冲刷密封面。主阀由阀体、阀座、阀芯、阀杆、阀套、膜垫、橡胶膜片等部件组成。阀体的下端由下盖封闭, 阀体的上端连接上阀盖, 并和橡胶膜片组成控制气室, 主阀的橡胶薄膜为传动机构, 阀杆、阀芯、阀座为执行机构。控制器由阀体、阀芯、中阀盒、上阀盖、弹簧、进气阀、排泄阀等元件组成。控制器设计成迷宫阻尼活塞结构, 密封采用硬软双质密封。正常工作时, 主阀常开, 控制器进气阀手柄常开、排泄阀手柄常闭。

Figure 1:

RAJ series safety shut-off valve consists of main valve and regulating valve, the medium enters the main valve at higher position and exits at a lower position with no flushing on the seal surface. The main valve consists of valve body, valve seat, valve stem, valve sleeve, membrane pad and rubber diaphragm. Valve bottom is sealed with bottom cover; the upper part of valve body is connected with bonnet which forms a air control chamber with the rubber diaphragms underneath. The main valve and rubber diaphragm are the driving devices, valve stem, valve spool and valve seat are the actuators. The regulating valve consists of valve body, valve spool, valve mid-box, bonnet, spring, gas inlet and gas outlet. The regulating valve adopts a piston damper design with hard and soft sealing. Under normal operation, the main valve and regulating valve gas inlet handle are normally opened, whereas the gas outlet handle is always closed.

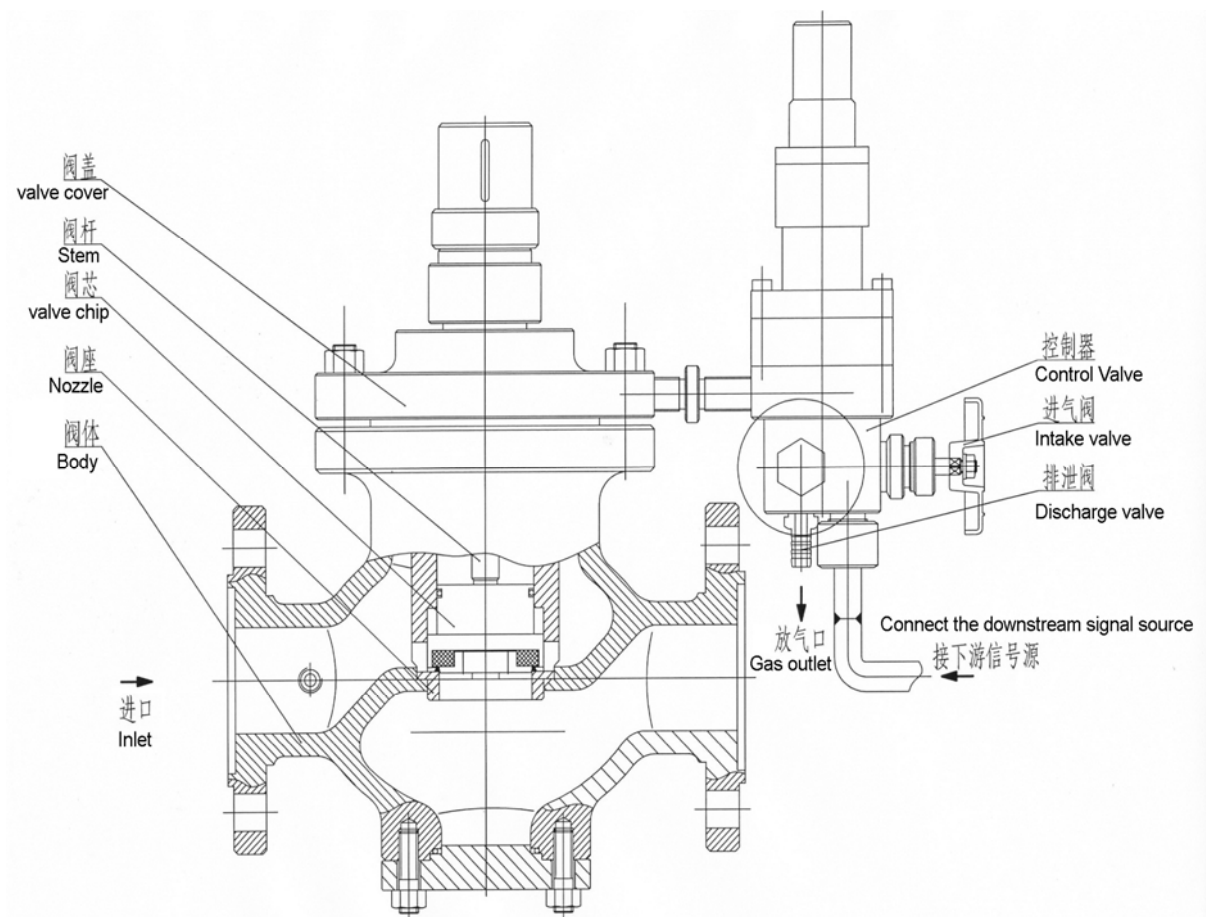


图 1 RAJ 安全切断阀结构示意图

Figure 1 RAJ Safety Cut-off Valve Structure Diagram

7. 工作原理 Working Principle:

作为一种保证调压器以及燃气用户安全的安全保护装置，当监控处的气体压力高于或低于相应的设定的切断压力时，安全切断阀迅速动作以切断气流，防止事故发生。

The product is to ensure the safety of regulator users and gas users, when the gas pressure is higher or lower than the set cut-off pressure at the monitoring point, the safety-cut off will cut off the gas flow instantly to prevent accident from happening.

如图 1 所示，切断阀正常运行情况下，下游监控处气体的压力 P_2 通过信号管反馈作用在控制器阀芯上的压力低于预先设定的弹簧力，控制器处于关闭密封状态，无气体进入主阀膜片上腔控制气室，上膜室无介质压力（压力接近 0 值），主阀阀芯在介质压力和复位弹簧向上作用力下，一直处于完全开启状态。

Shown in Figure 1, when the cut off valve is under normal operating condition, dominated by the signal tube, the downstream pressure P_2 onto the regulating valve spool is lower than the pre-set spring force, the regulating valve is in a closed status where no air enters into the control chamber at the top of main valve diaphragm. There is no medium pressure in the upper diaphragm chamber (the pressure is almost zero), under the medium pressure and upward

spring reset force, the main valve spool is in a fully open status.

当由设备故障或其它原因引起下游气体压力 P_2 升高至设定切断压力时, P_2 作用在控制器阀芯上的压力与弹簧力不平衡, 阀芯开启。气体介质经导压管进入主阀上腔控制气室, 在气室作用下, 主阀膜片和阀杆带动阀芯迅速关闭切断气流。此时主阀指示盘刻度显示关闭位置。

Contributing to equipment failure or other causes the downstream gas pressure P_2 raises up to the cut-off pressure, P_2 onto the regulating valve spool will be unbalanced with the spring force; the spool will be then opened. The gas enters upper diaphragm chamber of the main valve through guiding press pipe. As a result of pressure change in the chamber, main valve diaphragm and stem drives the spool to cut off the gas flow instantly, then the pointer on the main valves indicator disc points to shut-off position.

当设备故障排除, 切断阀需要复位恢复正常工作时, 关闭进气阀手柄, 缓慢开启排泄阀手柄, 排泄口与主阀控制气室相通, 排放控制气室的气体, 气室介质压力排放到很低时, 作用在主阀阀芯上的介质力 P_2 和弹簧力 F 推动阀芯向上, 主阀打开, 又恢复到正常工作状态。此时主阀指示盘升起, 处于上方开位置。与此同时, 主阀控制气室的气体一部份流入控制器活塞的上腔, 使活塞上下两端产生面积压差失去平衡, 在较小弹簧力作用下, 控制器阀芯关闭密封。至此整个复位过程结束, 安全切断阀又恢复正常工作。

After the equipment failure is eliminated and the cut-off valve needs to be put back into normal operation, close gas inlet handle and slowly open gas outlet handle, the gas outlet is connected with air control chamber of the main valve; discharge the gas inside the control chamber. When the pressure reading of the control chamber is really low, the gas pressure on the main valve spool P_2 and spring force F will push the spool upwards to open the main valve. Then the cut-off is recovered to normal working condition. At this time the main valve indicator disc raises and part of the gas from gas control chamber flows into upper part of the regulator piston and unbalances it by creating pressurized area difference at both ends of the piston. Under relatively smaller spring force, the regulating valve spool closes and seals. At this stage the whole reset process is finished and the safety cut-off valve is again under normal working condition.

8. 安装尺寸(见图 2、表 1~表 7) Installation Dimensions (see Figure 2, Table 1 to Table 7)

法兰标准及密封面型式可按用户订货要求。

Flange and sealing surface can be designed according to purchase request.

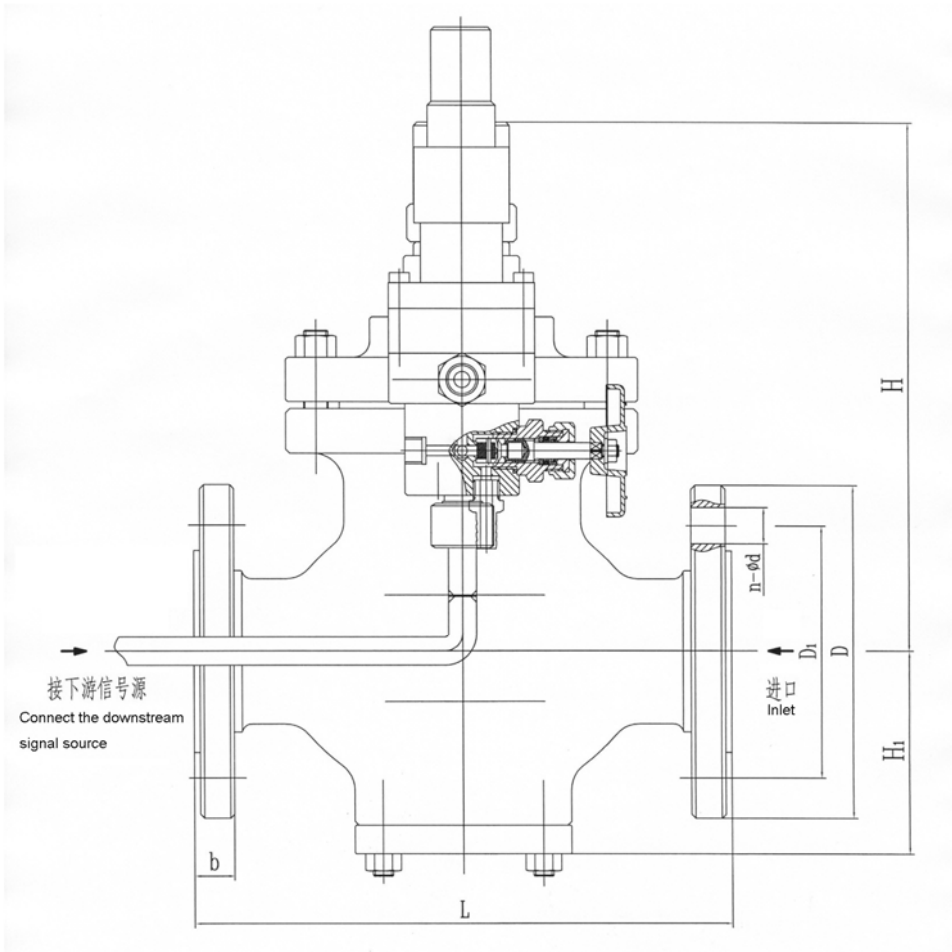


图 2 RAJ 安全切断阀安装外形图

Figure 2 RAJ Safety Cut-off Valve Installation Outline

表 Table 1

(K) RAJ-150Class

ANSI 150Class

公称通径 (NPS)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
1	184	108	79.5	14	310	86	4-16	ANSI B16.5 RF
2	254	152	120.5	16	400	110	4-18	
3	298	190	152.5	19	459	127	8-18	
4	352	229	190.5	24	475	163	8-18	
6	451	279	241.5	26	600	220	8-22	
8	543	343	298.5	26	715	292	8-22	

表 Table 2

(K) RAJ-300Class

ANSI 300Class

公称通径 (NPS)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
1	197	124	89	18	310	86	4-18	ANSI B16.5 RF
2	267	165	127	23	400	115	8-18	
3	318	210	168.5	29	459	127	8-22	
4	368	254	200	32	475	163	8-22	
6	473	318	270	37	600	220	12-22	
8	568	381	330	42	715	292	12-26	

表 Table 3

(K) RAJ-600Class

ANSI 600Class

公称通径 (NPS)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
1	210	124	89	18	315	86	4-18	ANSI B16.5 RF
2	286	165	127	26	405	120	8-18	
3	337	210	168	32	459	127	8-22	
4	394	273	216	38	480	169	8-26	
6	508	356	292	48	615	230	12-30	
8	610	419	349	56	730	305	12-33	

表 Table 4

(K) RAJ-16

PN1.6MPa

公称通径 Nominal diameter DN (mm)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
25	216	115	85	14	310	86	4-14	JB/T79.1-94 RF
50	267	160	125	16	400	110	4-18	
80	356	195	160	20	459	127	8-18	
100	356	215	180	20	475	163	8-18	
150	480	280	240	24	600	220	8-23	
200	559	335	295	26	715	292	12-23	

表 Table 5

(K) RAJ-25

PN2.5MPa

公称通径 Nominal diameter DN (mm)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
25	216	115	85	16	310	86	4-14	JB/T79.1-94 RF
50	267	160	125	20	400	110	4-18	
80	356	195	160	22	459	127	8-18	
100	406	230	190	24	475	163	8-23	
150	495	300	250	30	600	220	8-25	
200	600	360	310	34	715	292	12-25	

表 Table 6

(K) RAJ-40

PN4.0MPa

公称通径 Nominal diameter DN (mm)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
25	216	115	85	16	310	86	4-14	JB/T79.2-94 MF
50	267	160	125	20	400	110	4-18	
80	356	195	160	22	459	127	8-18	
100	406	230	190	24	475	163	8-23	
150	495	300	250	30	600	220	8-25	
200	600	375	320	38	715	292	12-30	

表 Table 7

(K) RAJ-63

PN6.3MPa

公称通径 Nominal diameter DN (mm)	连接尺寸 (mm) Connecting dimension							法兰标准 Flange standard
	L	D	D1	b	H	H1	n-φd	
25	230	135	100	22	315	86	4-18	JB/T79.2-94 MF
50	267	175	135	26	405	120	4-23	
80	356	210	170	30	463	129	8-23	

100	406	250	200	32	480	169	8-25
150	550	340	280	38	615	230	8-34
200	650	405	345	44	730	305	12-34

9. 主要零部件材料 Key Parts Materials

零部件名称 Name of part	材料名称 Name of material
主阀体、阀盖 The main valve body, valve cover	铸 钢 cast steel: ASTM A216 WCB、WCC; ASTM A352 LCB、LCC 不锈钢 stainless steel: CF8、CF8M、CF3、CF3M 、304、304L、316、316L
阀芯、阀座 valve spool, valve seat	不锈钢+硬质合金 Stainless steel and hard alloy
阀 杆 Stem	不锈钢 Stainless steel
弹 簧 Spring	弹簧钢/不锈钢 Spring steel/stainless steel
膜 片 Rubber diaphragm	丁腈橡胶/氟橡胶 Nitrile rubber / Fluorine rubber
膜 垫 membrane cushion	不锈钢 Stainless steel
密封件 Sealing parts	丁腈橡胶/氟橡胶 nitrile rubber / Fluorine rubber
控制器 Regulating valve	不锈钢组合件 Stainless steel assembly parts

10. 安装与操作使用 Installation and Operation

10.1 安装 Valve Installation

10.1.1 安装前应仔细核对安全切断阀型号、技术参数与使用要求是否相符。

Carefully check and make sure the safety-cut off valve code and technical parameters comply with usage requirement prior installation.

10.1.2 检查安全切断阀上的气流箭头是否与安装管线的气流一致。

Check and make sure the arrow direction on the safety shut-off valve is consistent with the flow direction of its pipelines.

10.1.3 切断阀前应采用过滤器进行清洁，避免承压零部件的腐蚀和磨损，以免产生安全隐患。

A filter should be installed before the cut-off valve, this is to avoid the pressurized parts from corrosion and wearing and cause potential production hazards.

10.1.4 在切断阀上游和下游管道应装设相应量程的压力表。

A pressure gauge of relevant measurement range should be installed at the upstream and downstream pipelines of the cut-off valve.

10.1.5 应将前后的管道吹扫干净后，方可将安全切断阀就位安装。

The pipelines before and after the cut-off valve should all be blown clean before positioning and installing the valve.

10.2 典型安装方式见图 3、图 4（供参考）

Typical installation methods are shown in Figure 3, Figure 4 (for reference)

10.2.1 一般常用于对气体压力调节器的工作情况进行监控（图 3）

Commonly used to monitor the working condition of gas pressure regulators (Figure 3)

10.2.2 对管线压力直接监控（图 4）

Direct monitoring of the pipeline pressure (Figure 4)

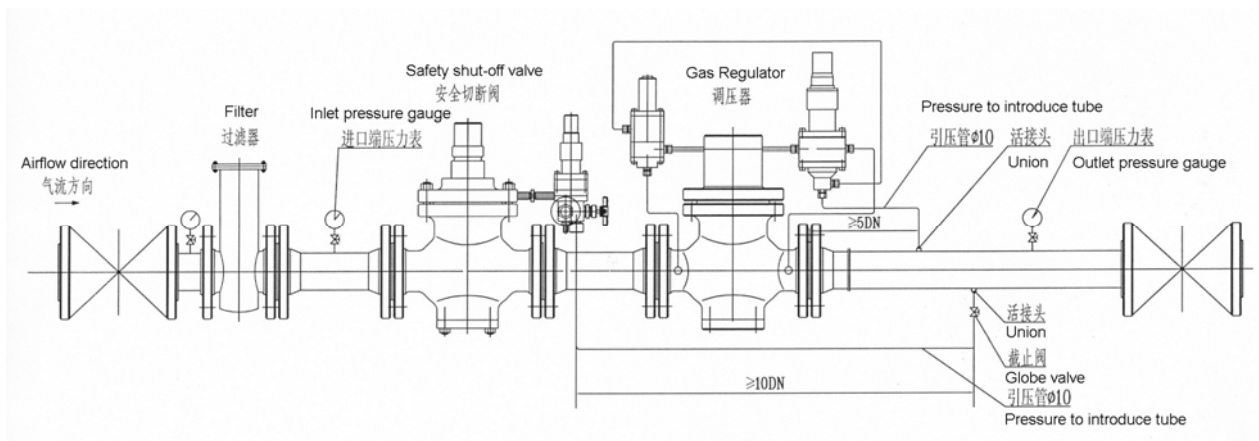


图 3 Figure 3

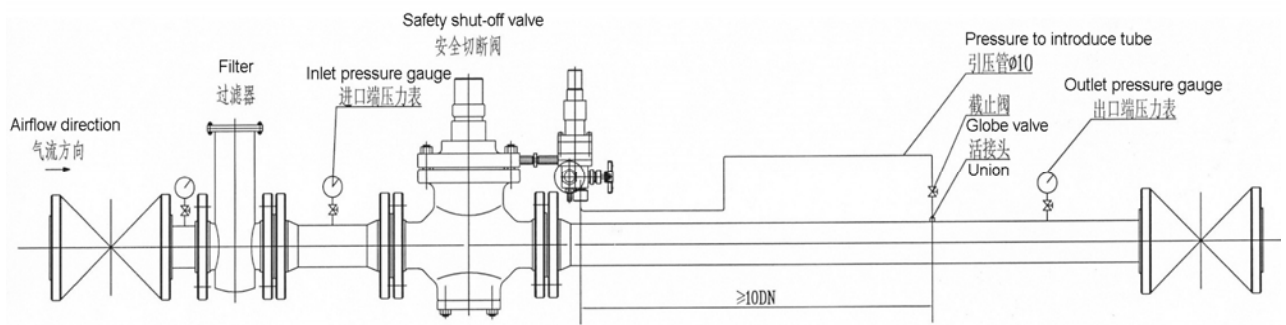


图 4 Figure 4

10.3 操作使用 Valve Operation

RAJ 系列安全切断阀为自动切断，手动复位开启。开启状态，主阀阀芯行程指示盘处于上方开位置；切断状态，主阀阀芯行程指示盘处于下方关位置。

RAJ series safety cut-off valve is an auto cut-off valve and it needs to be manually reset and opened. Under opened-status, the main valve spool indicator disc is at the upper opening position; under closed-status, the main valve spool indicator disc is at the bottom closing position.

10.3.1 安全切断阀的启动 Safety Cut-off Valve Start:

(1) 确认切断阀处于开启状态。(如切断阀处于切断状态，须复位开启。)

Ensure the valve is opened. (If the valve is in a cut-off status, resets and open.)

(2) 确认各部位压力正确后，缓慢开启控制器进气阀手柄，切断阀即可正常使用。

Upstream and downstream ventilation: After the pressure of different parts of the valve is confirmed correct, slowly open the gas inlet handle of the regulating valve, and then the cut-off valve can be used.

10.3.2 安全切断阀的复位开启 Reset Opening of The Safety Cut-off Valve

(1) 排除故障，确认下游监控处气体压力正常。

Problem eliminating, make sure gas pressure monitored at downstream is normal.

(2) 关闭控制器的进气阀手柄，缓慢开启排泄阀手柄，排放主阀上腔气室的气体，主阀重新开启，切断阀即可投入正常使用。

Close gas inlet handle of the regulating valve, slowly open the gas outlet handle to discharge the gas from the upper chamber of the main valve, when the main valve reopens, the cut-off valve can be put into regular use.

10.3.3 切断阀切断压力的设定 Cut-off Pressure Set

切断压力通过控制器调节螺杆设定，用扳手工具顺时针旋转调节螺杆，切断阀动作压力设定值增高，反之则降低。用户可根据需要在该型号控制器弹簧压力设定值范围内自行调整设定监控压力。如超出调整范围，则需更换控制器或弹簧。

The cut off pressure is set by adjusting the elevating screw of the regulating valve, use the spanner and turn the screw clockwise, the cut-off pressure will increase, otherwise it will reduce. Users can set the monitoring pressure within the set pressure range of the spring according to their needs. If beyond the adjustment range, the regulating valve or spring needs to be replaced.

11. 维护与维修 Maintenance and Repair

11.1 须由有经验的熟练人员进行维护与维修，如需任何信息、服务可与我公司联系。

Only experienced and skilled personnel are to maintain and repair, if any information or service is needed, please contact our company.

11.2 建议对切断阀进行定期维护检查，主要是各部件的灵活性和密封性，其周期可比同等条件下使用的切断阀周期延长 1~2 倍。

It is highly recommended to carry out regular PM and inspection to the cut-off valve, mainly the flexibility and sealing ability. The PM frequency can be 1 to 2 times longer than ordinary cut off valves.

12. 开箱与储存 Unpacking and Storage

12.1 开箱前应检查外部包装的完整性，开箱后根据装箱清单核对箱内产品的规格型号、数量、完整性和备件配置情况。

Prior to unpacking, ensure the integrity of the external packing. After unpacking, check the products in accord with packing list in terms of their types, numbers, integrity and spare parts configurations.

12.2 随机文件 Accompanying Documents:

12.2.1 产品使用说明书 Product Manual

12.2.2 产品合格证 Product Quality Certificate

12.2.3 检验证书 Inspection Certificate

12.2.4 装箱清单 Packing List

12.3 切断阀的存放条件 Cut-off valve Storage Conditions:

12.3.1 防雨防潮 Rain and Moisture Proof

12.3.2 不应有明显的振动 No Obvious Vibration

12.3.3 环境温度 Environment Temperature: $-20^{\circ}\text{C}\sim+60^{\circ}\text{C}$

12.3.4 相对湿度: 不大于 75% Relative Humidity: No more than 75%

12.3.5 环境不含腐蚀性气体 Non-corrosive Gas Environment

13. 售后服务 After-sales Service

13.1 本公司设有售后服务部门, 负责本公司产品的跟踪和维修。

Our company has after sale service department, responsible for product tracking and maintenance.

13.2 设备安装调试完毕投入正常使用 12 个月内为质量保证期。

The quality guarantee period is defined as the first 12 months after the product is installed and commissioned.

13.3 质量保证期结束以后, 本公司负责提供有偿服务, 更换设备配件、技术工程师服务、交通、培训人员等费用单独计算。

After the end of the quality guarantee period, our company is responsible to provide paid services including replacement of equipment parts, technical engineer services, fees for transportation and personnel training are not included.

13.4 设备出现故障后, 如用户不能处理, 请及时与本公司联系, 我们将派专业维修人员服务。

If the equipment failures and the user can not handle, please contact our company, we will send specialized maintenance personnel to the site providing the service.

13.5 我们的各类零配件充足, 能确保用户需求。

We have sufficient spare parts and can ensure our customers' needs are all met.

14. 订货须知 Order Notice

用户在订货时须提供以下参数:

Users shall provide the following parameter when the purchase order is made:

a. 气体种类、特性、组份;

Gas types, characteristics and components;

b. 公称进口压力等级;

Nominal inlet pressure level;

c. 切断压力范围;

Cut off pressure range;

d. 所需公称口径或最大流量;

The required nominal diameter or maximum flow rate;

e. 温度范围：包括介质温度和环境温度；

Temperature Range: includes media temperature and environment temperature;

f. 用户的其它要求。

Other requirements of the customer.