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MDFJ61Y-600Class 型

埋地节流截止放空阀使用说明书

**The Operating Manual of
MDFJ61Y-600Class Type Buried
Throttle Stop Venting Valve**

四川长仪油气集输设备股份有限公司

Sichuan Changyi Oil-gas gathering transportation equipment Co.,Ltd

地址: 中国·四川乐山市高新区南新路1089号

Add: Nanxin Road No.1089, High Tech Zone, Leshan, Sichuan, China

电话 Tel: +86 833-2032315 2030238

传真 Fax: +86 833-2032316 邮编 Zip Code: 614000

邮箱 E-mail: lscy@vip.163.com

网址 Website: <http://www.cyvalve.com>

1. 概述 Overview

MDFJ61Y 型埋地焊接式节流截止放空阀是我公司针对石油天然气工业的需要，在原产品基础上不断改进完善开发的新一代节流截止放空阀。该产品主要用于天然气输送管线装置在紧急情况下或检修时作放空用。投放市场近 20 年使用历史，为更好地满足不同工况条件的使用，本公司经过多次开发，不断改进完善，结构日臻完美，现已推出第五代多功能产品，具有节流、缓压、密封面自清扫、放空、截止、满足介质正反向流动，适用于高温、低温、含硫天然气等功能。其特性密封零泄漏，耐冲刷，耐腐蚀，放空效果显著，阀门埋地部分专业防腐和绝缘处理，使用寿命长。可广泛用于石油、天然气、化工、电力、冶金等行业。

Buried MMDFJ61Y type welded throttle stop venting valve is a new generation products which is continuous to improve and develop for oil and natural gas industry needs based on the obtain national patent in 1992 and 1999 by our company. The products are mainly used for venting the gas pipeline device under the emergency or maintenance condition. The products has been put into the market over 20 years, in order to further more meet the needs of different working conditions, from our company continuously improving and developing, the structure of the products getting more and more perfect. At the present, we have launched the fifth-generation multi-function products, which has the functions of throttle, relieving pressure, sealing surface self-cleaning, emptying, stopping and meeting the media in two conditions flowing, suiting for high-temperature, low temperature and sulfur-contained gas and so on. It owns the characteristics such as sealed zero leakage, erosion-resistant, corrosion-resistance, significant emptying effect, the buried part with long using life of professional anti-corrosion and insulation. This can be widely used in petroleum, natural gas, chemical, electric power, metallurgical and other industries.

2. 性能规格 Performance Specifications

2.1 适用介质：油品、天然气、及各种腐蚀性气液介质。

It applied for media: oil, natural gas, and all kinds of corrosive liquid

medium.

2.2 压力等级 Pressure Level: 600Class (10.0MPa)

2.3 公称通径 DN: NPS6"~16" (DN150~DN 400)

2.4 使用温度范围 Use temperature range: -46℃~130℃.

2.5 产品技术规范 Product technical specifications:

API6D、ASME B31.8、GB/T12235、GB/T12224

2.6 结构长度标准 The standard of the structure and the length:

ANSI B16.10、GB/T12221

2.7 试验与检验标准 Test and inspection standards:

API 598、GB/T13927、JB/T9092

2.8 阀门埋地部分（阀体及加长杆套筒等）防腐及绝缘处理，按 SY/T 0447 《埋地钢质管道环氧煤沥青防腐层技术标准》。

Valves buried part (body and increase pole sleeve, etc.) to processe with anti-corrosion and insulation, according to SY / T 0447 "Buried steel pipeline Epoxy coal tar anticorrosion level technology standards."

3. 结构型号及安装尺寸 Structural models and installation size

3.1 型号说明 Model explanation

型号说明 Model explanation	MDFJ 6 1 Y — 600Class
MD	表示埋地式 Buried type
FJ	表示节流截止放空阀 Buried throttle stop venting valve
6	表示焊接式 Welded
1	表示结构形式为直通 Direct connection structure
Y	表示硬质合金密封副 Hard alloy seal
600Class	表示压力等级 Pressure Level

3.2 安装外形尺寸和结构详见图 1

Installation dimensions and structural details, see Figure 1

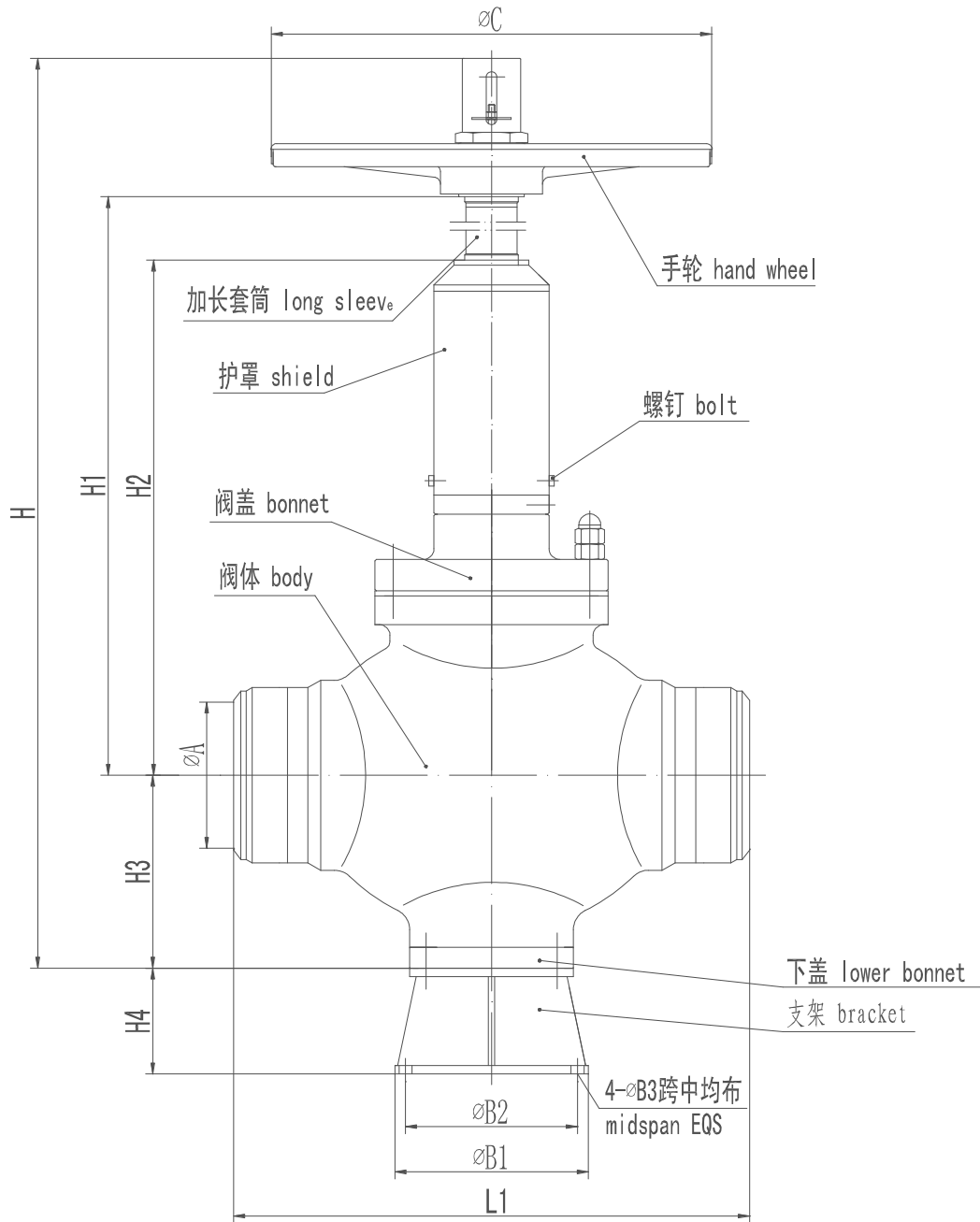


图 1、阀门安装外形尺寸和结构图

Figure 1, valves installed outside dimensions and structural plans

3.3 各阀门安装外形具体尺寸见表 1

The valve installation specific outline dimensions are shown in table 1

表 1 阀门安装外形具体尺寸

table 1 The valve installation specific outline dimensions

型号 TYPE	MDFJ61Y-600class 6"	MDFJ61Y-600class 12"	MDFJ61Y-600class 16"
L1	830	1380	1700
H	2904	3122	3248
H1	2500	2500	2500

H2	1700	1680	1750
H3	215	366	453
H4	150	150	200
A	150	290	380
B1	250	360	400
B2	210	310	350
B3	20	24	24
C	550	750	800

说明：1、表中各数值尺寸单位为 mm。
2、接管尺寸 ϕA 和定货单位的接管尺寸相配。

NOTE: 1、In the table 1, the numerical size of the unit is mm.
2、The size of the takeover of ϕA and order the unit over suitable size.

4. 工作原理 Working Principle

4.1 关闭状态：阀芯硬密封端面紧压在阀座的端面上形成一道硬质密封副，同时 O 形橡胶圈紧贴在阀芯底端面形成第二道软密封副。硬软双质密封副保证了气体介质零泄漏。

Closed status: Spool hard seal pressed tightly on the end of the seat to form a rigid seal deputy, and at the same time the rubber O-ring closely pasted to the bottom surface of the spool to form a second soft sealing deputy. The hard and soft double sealed deputy guarantee non-leakage of gas medium.

4.2 缓压状态：阀门开启阀芯底端离开阀座端面，底端面又接近阀芯套开槽处底边缘时，缓压轴与阀座内径，阀芯外径与阀芯套内径形成一道密封副，此时介质没有直接放空泄压，起到缓压作用。

Relieve pressure status: When the valve is under the opening condition, the bottom of the spool leaves the end of the valve seat, the bottom surface is also near the edge of spool sets slotted department, the out diameter and the sets of the spool form a seal deputy, then the media has no directly relief, to play the role of relieving pressure.

4.3 节流状态：阀芯上移，放空时高速流体经缓压后直接冲刷缓压轴底侧、阀芯底端与阀芯套开槽处形成的窗口流道，由于阀芯套窗口边缘是节流面，高压气体主要冲刷节流通道的，阀芯底端面因介质流向改变产生涡流，减缓了介质对阀芯底端面的冲刷，从而开槽处下部的阀座密封副避开了介质的直接冲刷。

Throttle status: Moving up of the spool, when emptying high-speed fluid directly scour the bottom of erosion finale after alleviating and the window flow formed slotted department between the spool end spool sets, as the spool sets window face is the throttle face, the high-pressure gas main channel scouring expenditure, the bottom surface of the spool generate eddy current due to media flow changes, slowed the scour on the spool bottom from the media, thus the valve seat seal Department deputy can avoid direct scouring from the media at the lower part of slotting.

4.4 全开状态: 阀芯上移至阀芯套开槽处上端时, 放空处于中后期, 压力降低, 流体在阀门中阻力较小, 缩短了放空时间, 提高了放空效果。

Full opening status: When the spool moving to the top of spool sets slotted area, the emptying is in the middle and late period , the pressure is reducing, the fluid in the valves meet smaller resistance, so that to shorter emptying time and the increase the emptying effect .

5. 性能特点 Performance and Features

5.1 密封可靠: 阀芯、阀座采用硬软双质密封副, 满足高压气、液介质“零泄漏”。

Reliable Seal: The spool and the seat have hard and soft seals, which can meet the requirement of high-pressure gas and liquid media “zero leakage”.

5.2 节流降压: 阀门内部增设缓压轴, 放空时缓压轴随阀芯移动同步工作。缓压轴与阀座内腔形成第一级节流; 阀芯与阀芯套形成第二级节流。两级节流降压功能, 改善了硬软双质密封副的工作条件, 减缓了介质对密封面的冲刷, 保证了大通径高压力节流截止放空阀密封可靠。

Throttle and Decompression: Additional pressure-relief shaft is added inside the valve, the pressure-relief shaft work together with the movement of the spool synchronously while discharging. Alleviate the shaft with the valve seat cavity formation of the first-class cutting expenditure; Spool valve core and forming the second-class sets reduce expenditure. Antihypertensive two functions to cut expenditure and improve the quality of soft-sealed deputy working conditions, slowed the medium on the sealing surface erosion, Chase drive ensure that the pressure to cut expenditure as high as emptying valve

seal.

5.3 满足介质正反向流动: 缓压轴使放空初始高压差受力点由阀套窗口节流处转移到缓压轴与阀座配合处, 克服了高压介质在放空初始瞬间对阀座软密封副的负压吸力, 使其不易被拉脱, 能满足特殊工况条件下介质的正反向流动。

Meet the pros and cons mobile media: Alleviate the finale so that the initial venting of high pressure differential force of valve sets from the window cut expenditure transferred to the Department relief valve seat tie with a grand finale, overcome the high pressure in the media as emptying the initial moment of soft seat sealing the vacuum suction deputy, it is not easy dragged delinking can meet the special working conditions under the pros and media mobile.

5.4 振动小、噪声低: 两级节流降压, 大大降低了放空时产生的压差; 阀芯开设平衡孔, 改变了阀芯受到的不平衡力, 从而使阀门工作时震动小、噪声低。

Small vibration, low noise: Two throttles reduce pressure, greatly reducing the evacuation of pressure. Spool has a balance hole, changed the spool by the imbalance, so that when the valve small vibration, low noise.

5.5 自动除渣: 阀芯设有两道 O 形圈, 且在两道 O 形圈间设有贮渣槽, 贮渣槽下端 O 形圈使阀芯在阀套内上下移动实现自动除渣。

Auto Cleaner: Spool has two O-rings with a storage tank for residue and the O-ring at the bottom of the storage tank makes the spool to move up and down in the bolt-sleeve so as to automatically clean the residue.

5.6 阀芯开设平衡孔和贮渣槽, 启闭力矩小, 开启轻便灵活。

Spool with balance hole and slag storage slot, hoist torque small, open flexible and light.

5.7 阀杆填料函密封填料间设置了 O 形密封圈与聚四氟乙烯填料交叉作用, 保证阀杆处不泄漏和延长阀杆使用寿命。

Packed in a sealed set up between the O-ring PTFE packing and cross-role, we do not guarantee that stem leakage and extend the life of stem.

6. 主要零部件材料表 The main components of materials table

零件名称 Part name	材料 Material
阀体、阀盖 Valve body and Bonnet	ASTM A352/LCB、LCC; ASTM A216/WCB、WCC

阀芯、阀座 Needle base	2Cr13 密封面堆焊 Stellite 合金 2Cr13 trim overlay welding Stellite alloy
阀杆 Stem	2Cr13
软密封 Soft seal	低温 O 形橡胶圈 Low-temperature rubber O-ring
填料 Padding	聚四氟乙烯 PTFE
阀杆螺母 Stem nut	铜合金 Aldary
手轮 Handwheel	20 Steel
护罩 Shields	Q235-A
加长套筒 Long sleeve	20 Steel
焊接圈 Welding ring	ASTM A350/LF2
螺栓 bolt	ASTM A193 B7/35CrMoA
螺母 nut	ASTM A194 2H/35、30CrMo
其余内件 The rest of the internal parts	不锈钢 Stainless steel

7. 放空阀安装、调试和维护保养 Valve installation, commissioning and maintenance

7.1 安装操作要求 The installation of operating requirements

7.1.1 放空阀为常闭阀门，使用于紧急放空及其他常闭工作条件。

Emptying valve is closed valves, used in emergency empty and other closed working conditions.

7.1.2 放空阀可在室内外安装，介质单向流动。阀门安装时应注意阀体上的介质流动方向，阀体上的介质流动箭头标识应与管道介质流动方向一致。

Emptying valve can be installed indoor and outdoor, media flows in one direction. When installing the valve should pay attention to the flow direction of medium on the valve body, medium flow arrow logo on the valve should be consistent with flow direction of pipeline medium.

7.1.3 安装位置应保证维修、检查、操作有足够的空间。

The Installation location should ensure the enough room for maintenance, inspection, and operation.

7.1.4 安装时注意保护阀门法兰连接部位表面不要碰伤、划伤，确保连接密封可靠。

Pay attention to protecting the connecting surface parts of the valve flange do not be bumped, scratched and ensure the connection reliable and sealed when installing.

7.1.5 管线清扫和试压时，放空阀应处于关闭状态，防止污物杂质损坏密封面。

When cleaning pipeline and testing pressure, the emptying valve should be closed to preventing dirt impurities damaging sealing surface.

7.1.6 试压后用空气扫线排除积水时，应采取其它办法将管道内的较大杂物（如木块、木条、手套、橡胶皮等）事先清除，通过放空阀.杂质、脏物不可太大。

Excluding the water after the air pressure test through scan lines should clean the bigger pipeline debris (such as wood, wood, gloves, rubber, etc.) by other approach at first, impurities and dirt can not be too big by emptying valve.

7.1.7 调试阀门时，首先应反时针缓慢转动手轮，使阀门达到最大行程，然后顺时针旋转手轮，使阀门达到最小行程，感觉开启是否轻便灵活，密封是否可靠。

When debugging the valve, firstly should slowly anti-clockwise the switch hands to reach the maximum valve distance, and then clockwise rotate the hand wheel to reach the minimize valve distance, to ensure whether the switch is flexible and the seal is reliable.

7.1.8 我公司放空阀阀芯开设有平衡孔，启闭力矩小，操作轻便灵活。建议现场操作我公司阀门请不要使用加力杆，避免用力过大损坏阀内件。若出现阀门关闭不严的情况，主要是阀芯和阀座密封面粘附有杂质，或软密封被划伤，这时应拆开阀门检查，清理/清洗密封面或更换软密封。

Emptying valve of our company has a balanced spool hole, hoist torque is small and operation is lightweight and flexible. We advice not use the afterburner valve rod to avoid excessive force damaging valve pieces when operating the valve. If the valve is in the case of close lax, mainly because of adhesion impurities on spool and valve seat sealing surface or soft seal was scratched .when in this condition, the valve should be opened to inspect, cleanse or cleaning or replace the soft sealing surface

7.1.9 特殊工况需反向使用，反向压力应小于正向压力，若反向压力过高需倒流后再反向操作。反向操作时注意缓慢开启阀门，防止负压力作用损坏软密封圈。

Special working conditions required to reverse use, the reverse pressure should be less than positive pressure, if the reverse pressure is too high it should be back and then reverse operation. Pay attention that during the reverse operation should open the valve slowly to preventing negative pressure damaging the soft ring.

7.2 使用维护保养 The using maintenance

7.2.1 阀门未开箱前不要在露天堆放。

Do not stack the valve in the open air before the valve is still in the box.

7.2.2 拆卸检查时，应注意阀体及阀座间的软密封、O形圈是否损坏，若有则须更换。

Pay attention to the soft seal and the O-ring between the valve body and the seat is damaged or not when demoliting to inspecte, if it is, must be replaced.

7.2.3 阀门在使用中如出现内漏，可旋转手轮连续启闭几次，让介质吹扫阀芯阀座密封面，保证密封面清洁，再投入使用。

In case of leakage when using the valves, can rotate handwheel sluicegate consecutive times and use the media purge spool valve sealing surface to ensure the sealing surface clean, and then put into use.

7.2.4 如吹扫后仍然存在内漏，则切断气源，松开拆卸上盖的紧固螺母，整体将阀芯总成抽出，然后检查阀芯阀座密封面是否有杂质粘附，阀座软密封 O形圈是否损坏。如有请及时清洁或更换。

If there is still inner leakage after purge, cut off the gas source, loose nut fastening the demolition of the superstructure, pull out the overall assembly spool, and then check whether there is any impurities adhesion on the spool valve sealing surface and wether valves soft block O-ring seal damage,or request cleaning or replacement timely.

8. 放空阀存放条件及维护 Storage conditions and maintenance of the valve

为了不让阀门在保管中损坏或降低质量。对阀门的存放要求作如下说明：

In order not to damage or lower quality of the valve in the custody. Storage requirements of the valve as follows:

8.1 阀门存放维护 Valve storage maintenance

8.1.1 阀门吊运/搬运时不要损坏了包装箱（物），保管应存放于仓库室内，堆码应防潮，存放阀门的仓库要保持清洁干燥。环境相对湿度 $\leq 70\%$ （达不到须增加除湿设备），室内温度保持在 0-50℃。若临时放置室外的阀门，必须盖上油毡或苫布之类防雨、防尘设施等设施，避免阳光直晒。

Do not damage the packing (material) when lifting or carrying the valve, custody should be kept in storage room, storage warehouse should be moisture-proof to maintain valve clean and dry. Relative humidity $\leq 70\%$ (can not be increased dehumidification equipment), room temperature should be maintained at 0 to 50 °C. If place valves outdoor provisional, must cover them with linoleum or thatch cloth like rain-proof and dust-proof facilities to avoid direct exposure.

8.1.2 阀门存放保管应井井有条，不能乱堆乱垛，不要堆叠过高，在库房按类别整齐排列，最好用木板与地面隔开，不要让法兰密封面接触地面，以保护阀门不致碰坏。由于保管和搬运不当，手轮损伤，阀杆碰歪，手轮与阀杆的固定螺母松脱丢失等等，这些不必要的损失，应该避免。

The custody of the valve should be kept in good order, do not in chaos or huddle, do not stack too high, arranged neatly by category in the warehouse, it is better to separate it from ground with wooden planks. To preventing the valve not butting bad, do not let flange sealing surface contact with the ground, these unnecessary losses, for example, the result of improper storage and handling, hand-round injury, stem touch askew, loss or loose nut between hand wheel and stem, should be avoided.

8.1.3 对刚进库的阀门，要进行检查，看是否运输过程中进了雨水、污物或损坏，检查阀门的外表面漆层，并擦拭干净，再予存放。每隔半年检查外表面漆层是否脱落，视情况修补。

For the entered valve, it is necessary to check if there is the rain, dirt or damage during the transport process, to check the outer painting surface of the valve and clean, then deposited. Check whether the outer painting surface is off every six months and repair it depending on the circumstances.

8.1.4 阀门入库后，进出口法兰密封面要定期涂敷长效防锈油加以保护，可根据保管条件的实际情况，建议每隔 3 个月或半年涂敷一次；阀门进出口要用防护盖封住，以防脏物进入。

After valve warehousing, in and out flange sealing surface should be protected by coating regular long-acting anti-rust oil, it is recommended coating every three months or six months according to the conditions under the custody of the actual situation; in and out of the valve should use protective

covers sealed to preventing dirt entering.

7.1.5 随机配件软密封 O 型橡胶圈、聚四氟乙烯垫圈等，用塑料袋密封包装后存放于货架（柜），防潮、防尘，并标识清楚。

Random accessories such as soft rubber O-ring seals, PTFE gaskets and should be sealed in plastic bags stored in the shelves after packaging (cabinet), should be moisture-proof, dust-proof and identify clearly.

7.1.6 本阀门的内件材料全部为不锈钢，不受环境气候的影响。

All the materials of the valve are stainless steel, can not be impacted by environmental climate.

8.2 填料检查 The filler check valve stem

检查阀门的密封填料，本阀采用氟橡胶 O 形圈和聚四氟乙烯圈交叠密封。出库前检查一次，必要时可重新装一次。重装压紧填料时，要同时转动阀杆，以保持四周均匀，并防止太死，拧紧压盖要用力均匀，不可倾斜。

Check valve seal packing, the valve used fluoroelastomers and PTFE O-ring seal overlapping circles. Check out before carrying out of warehouses, it can be reloaded if necessary. When re-fill pressed, it is necessary to rotate the stem at the same time in order to maintain the around uniform and not too much death, tightening screw cap with uniform forcefully pressed, not tilted.

9. 订货须知：订货时请注明以下内容

Ordering Information: When ordering please specify the following

9.1 阀门设计压力、工作压力、公称通径、连接尺寸；

Valve design pressure, the pressure of work DN connecting size;

9.2 使用介质及组成、材质要求；

The use of media and composition of material requirements;

9.3 工作温度； Operating temperature;

9.4 其它特殊要求。 Other special requirements.