INTELLIGENT

LT17调压器说明书

和谐真诚

环保 · 创新 · 全心全意为客户

LT17系列调压器

LT30系列调压器

LQ10/LQ25系列
调压器

LQ50/70/100系列
调压器

RX25/50/70/100系列
楼栋调压箱

LT25/50/80/100系列
调压器

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LT17 系列燃气调压器

概述

LT17 系列燃气调压器弹簧负载式调压器具有独立整体的阀座和内部平衡阀结构。这种特别设计的调压器具有体积小、材质优良、容易设定和压力调节准确的特点。尤其可以在线维护保养，不必将调压器拆离管线即可检验或更换阀座与密封圈，甚至整个调压器。

应用

调节空气或燃气的出口压力，适用于中型商业设施、区域调压的气体输配

适用气体的种类：

- 人工煤气
- 天然气
- 液化气
- 非腐蚀性气体
- 空气

技术参数

产品范围

LT17 系列燃气调压器口径为 RP1$^{1}/_{2}$"，人工复位超压和低压切断阀

尺寸

见第二页尺寸图表

管径

RP1$^{1}/_{2}$"采用内螺纹连接

流量

参照第 4 页流量表

最大进口压力/P1max……6bar

进口压力范围/ & P1 ……0.5~5 bar

出口压力范围/低压型 & P2 ……15~70mbar

/高压型 & P2 ……70~300mbar

稳压精度等级/AC……≤±8%

关闭压力等级/SG……≤20%

切断精度/AQ……≤±5%

响应时间/ta……≤1sec

最大流量（NG）/Qmax……300Nm^3/h

工作温度……-20℃～+60℃

重量/低压型……4.8KG

/高压型……6KG

调压器性能……符合 GB27790 要求

调压器流量系数 Cg……200

最大允许压力

阀体到 10bar 不损坏

腔膜体到 3.65bar 不损坏

密封件材料

NBR 丁腈橡胶

阀体材料

球墨铸铁、压铸铝合金

内部零件材料

黄铜、不锈钢、铝合金

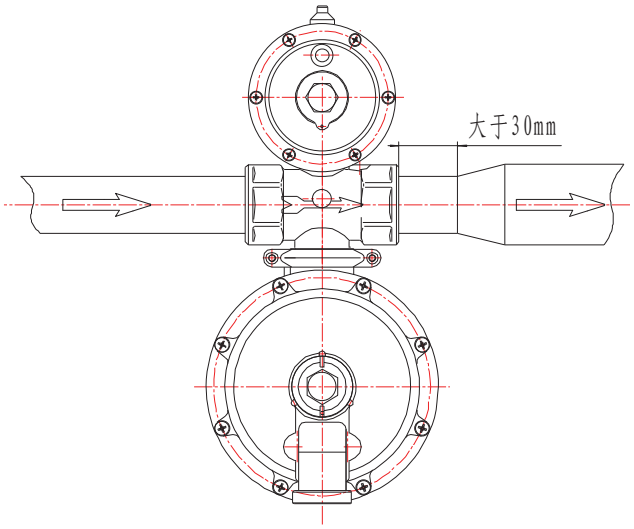
安装

注意事项

1. 使用调压器之前请仔细阅读说明书,错误的操作会导致产品损坏或引发危险事故。
2. 必须由专业人员进行安装与安装 。
3. 安装完成后要对整个系统进行彻底检查校验。

警告

- **安装前请关闭气源。**
- **安装调压器前，请不要将进气端和出气端的密封堵头拆下。**
- **气体流向与压力调压器阀体上的箭头方向保持一致**



（图 1）

安装位置（图 1）

为保证良好运行，调压器可安装在直立的或横卧的管线上，但气流方向应保持与调压器外的箭头方向相同。出口接管处 DN40 的直管段长度要大于 30mm。

安装场所

调压箱应安装在远离火源，震动，环境温度符合要求的场所，在环境温度较低的地区应对调压器前后管道和阀体采取伴热措施。

螺纹连接

- 注意在安装时不能有杂物进入调压器。
- 气体流向与压力调压器阀体上的箭头方向保持一致.
- 采用可靠的螺纹密封材料连接，螺纹应符合标准，连接管应清理干净。
- 连接管或连接头不允许过度旋紧，以免过滤器变形或损坏。
- 紧固连接管时，不允许利用调压器盖上部的弹簧套管作为着力杆，而应使用合适的扳手加力于调压器的接头处。

警告

安装后需进行密封泄漏检测

●在安装进出口连接处均匀的喷上检漏液。仔细观察是否有气泡产生，如在连接处发现气泡，则需要重新安装或更换调压器

尺寸图表（mm）

调节

注意

通气和调节必须专业人员来操作！

通气

1. 确认调压器进出口阀门已经关闭，切断阀处于切断状态。
2. 缓慢打开调压器的进口阀门。
3. 稍微打开一点调压器的出口阀门。
4. 缓慢拉起切断阀拉杆。
5. 待出口压力稳定后，完全拉起调压器切断阀，切断拉杆锁定。
6. 缓慢打开调压器的出口阀门。

调压器出口压力调节（图 2）

1. 旋下主调螺塞(1)
2. 用专用调试工具顺时针旋转主调螺母(2)来增加出口压力 P_2，逆时针旋转减小出口压力 P_2。（增大或减少出口压力需调节超压切断和低压的设定压力）
3. 调整并记录出口压力值。
4. 旋上主调螺塞(1)

注：公司出厂已按客户需要调整了出口压力

更换弹簧

1. 旋下主调螺塞(1)
2. 逆时针旋转并取下主调螺母(2)
3. 取出原先的弹簧，放入新弹簧
4. 旋回主调螺母(2)
5. 按照**调压器出口压力调节** 1-4 步骤调节调压器出口压力。

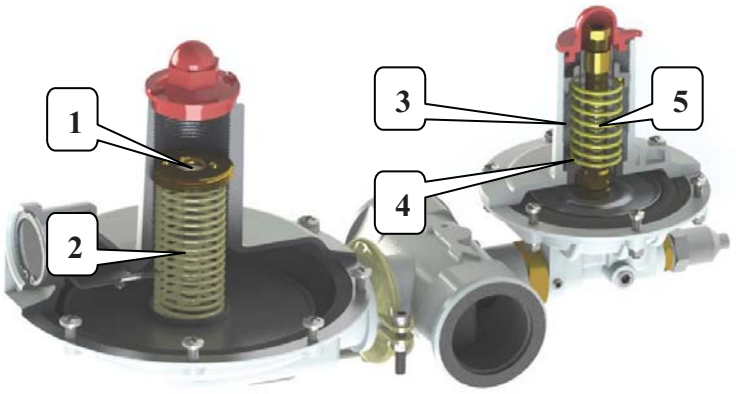
调压器切断压力的设定（图2）

1. 旋下球帽螺钉(3)
2. 用 22mm 标准套筒扳手顺时针旋转高压切断调节螺钉(4)来增加超压切断压力 P_b，逆时针旋转减小超压切断压力 P_b。
3. 调整并记录超压切断压力值。
4. 用 12mm 标准套筒扳手顺时针旋转低压切断调节螺栓(5)来增加低压切断压力 P_b，逆时针旋转减小低压切断压力 P_b。
5. 调整并记录低压切断压力值。
6. 旋上球帽螺钉(3)

注：公司出厂已按客户需要调整了切断压力值

最终安装检查

调整完成之后，运行设备几个循环，检查设备功能正常。



（图2）

维护与保养

1. 根据燃气的净化程度，定期检修调压器和过滤器。清理污物，更换薄膜、阀口垫等易损件。一般弹簧及膜片在1～2年更换一次，阀口垫及其它密封件在1年左右更换一次，过滤器内滤芯一般每半年清洗一次。

2. 调压箱管理维修人员应熟练掌握本调压器的工作原理及检修方法，及有关的安全操作过程。

3. 调压器应远离火源，避免潮湿和空气不通，若装在露天，则应加设防雨装置。

4. 若燃气中含有水分，应采取相应保温设施，避免阀口产生冰冻。

常见故障及排除方法

故障	原因	故障排除
出口压力降低	过滤器堵塞	清洗或更换滤芯
	主调弹簧变形	更换弹簧
	阀口内污物较多	清洗阀口
	超负荷运行	更换调压器
	主调膜片破损	更换主调膜片
出口压力升高	主调阀口变形	更换垫片
	阀口边缘污物较多	清洗阀口
	“O”型圈破损	更换相应的“O”型圈
外漏	相应的密封件破损	更换密封件

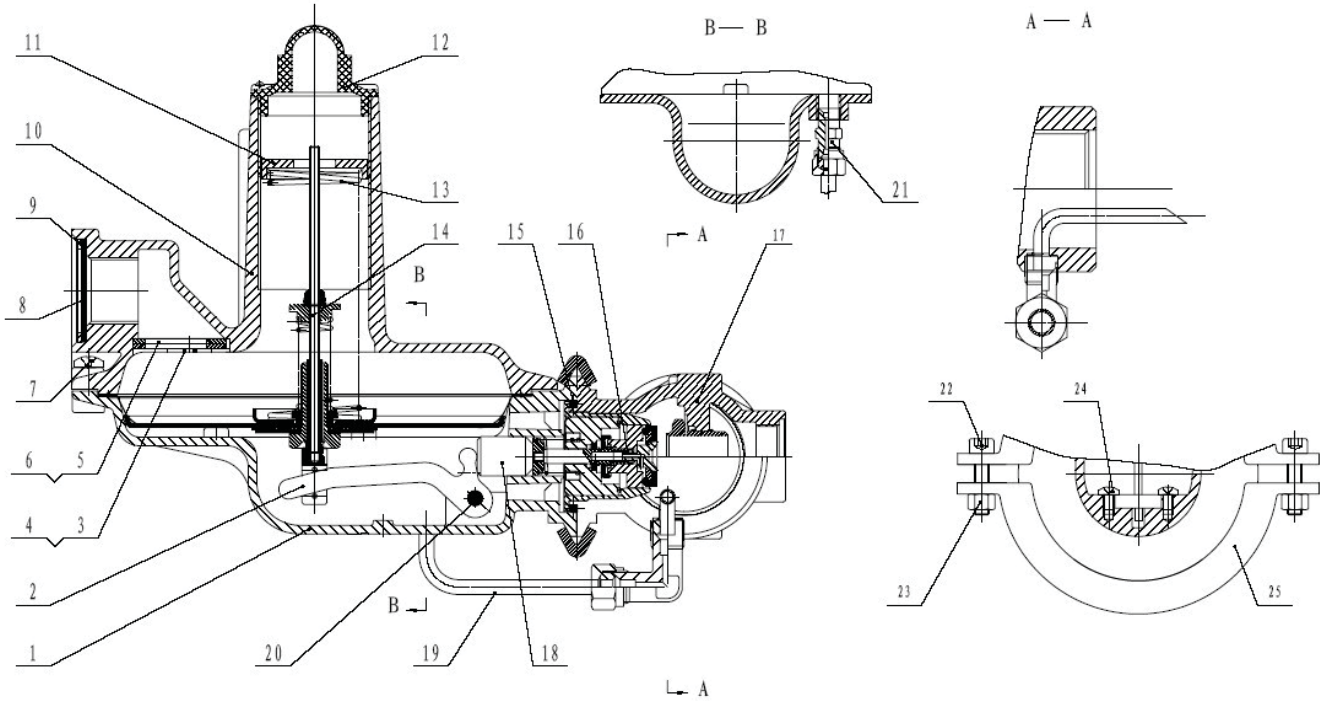
流量对照表

出口压力 Outlet(mbar)		进口压力Inlet(bar)															
		0.03	0.05	0.07	0.1	0.15	0.2	0.3	0.4	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0
低压型	15	12	15	20	30	40	50	65	80	100	120	120	170	200	250	250	300
	20	-	15	20	30	40	50	65	80	100	120	120	170	200	250	250	300
	30	-	12	20	30	40	50	65	80	100	120	120	170	200	250	250	300
	40	-	-	15	25	40	50	65	80	100	120	120	170	200	250	250	300
	50	-	-	15	20	40	50	65	80	100	120	120	170	200	250	250	300
高压型	75	-	-	-	15	30	45	60	80	100	120	120	170	200	250	250	300
	100	-	-	-	-	20	40	50	80	100	120	120	170	200	250	280	300
	150	-	-	-	-	-	30	40	70	100	120	120	170	200	250	280	300
	200	-	-	-	-	-	-	30	60	100	120	120	170	200	250	280	300
	300	-	-	-	-	-	-	-	50	80	110	110	170	200	250	280	300

注：表中的流量单位是标准立方米/小时，是在标准状态下天然气相对密度0.6的流量。1bar=1000mbar=100kpa=0.1mpa

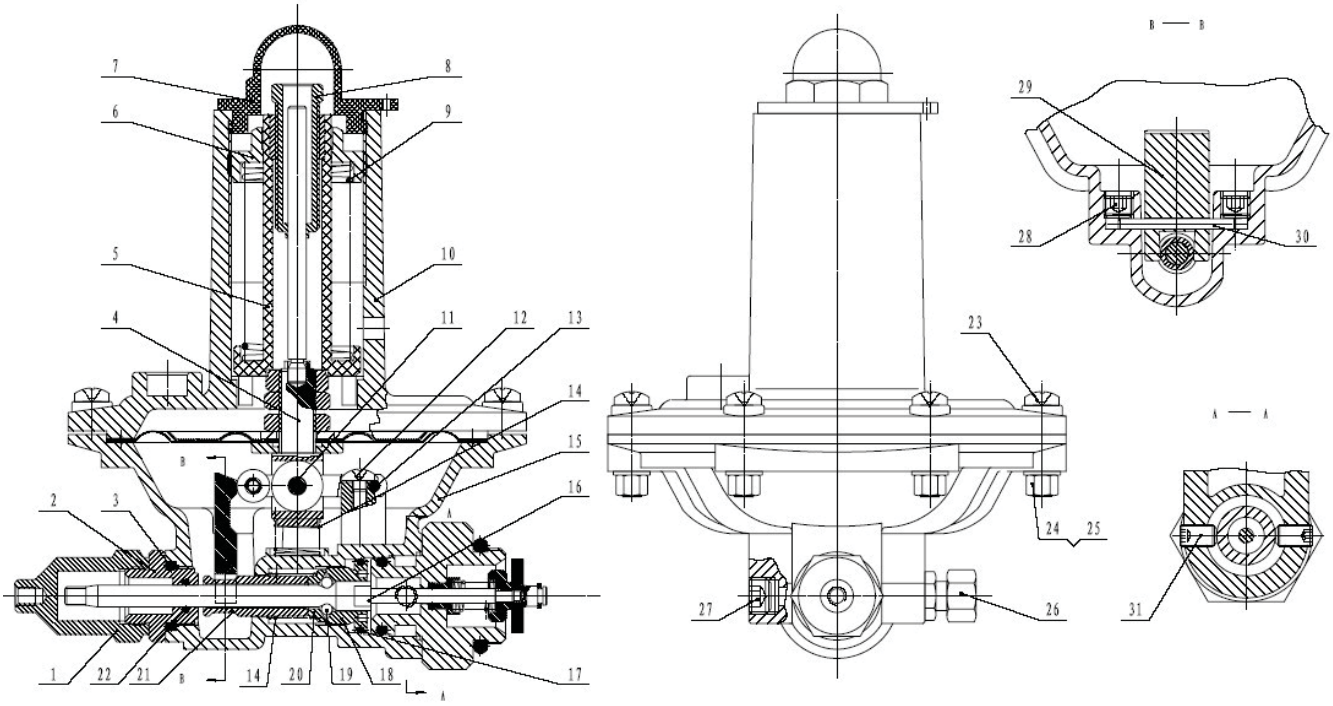
更多详情

LT17



序号	名称	序号	名称	序号	名称	序号	名称
1	下腔盖	8	过滤网	15	“O”形圈	22	内六角圆柱头螺钉
2	主调杠杆	9	孔用弹性挡圈	16	主调阀芯组件	23	M6 六角螺母
3	M3 六角螺母	10	上腔盖	17	Rp1.5"主阀体组件	24	十字槽盘头螺钉
4	平垫片	11	主调螺母	18	杠杆销 2	25	抱箍
5	弹簧片支架	12	主调螺塞	19	导流管		
6	弹簧片	13	主调弹簧	20	杠杆销 1		
7	十字槽盘头螺钉	14	主调膜片组件	21	卡套直通管接头		

OS-1



序号	名称	序号	名称	序号	名称	序号	名称
1	复位拉手	9	切断主调弹簧	17	“O”型圈	25	M5 六角螺母
2	拉杆密封螺钉	10	切断上腔盖	18	钢球调节螺钉	26	卡套式直通管接头
3	“O”形圈	11	杠杆组件	19	钢球	27	G1/8 堵头
4	切断膜片组件	12	十字槽盘头螺钉	20	钢球座	28	内六角平端紧定螺钉
5	导向螺母	13	圆柱销（B 型）	21	控制套	29	控制板
6	高压切断调节螺钉	14	复位弹簧	22	“O”形圈	30	圆柱销
7	球帽螺钉	15	切断下腔盖	23	十字槽盘头螺钉	31	内六角锥端紧定螺钉
8	低压切断调节螺栓	16	切断拉杆组件	24	平垫圈		

LT17 SERIES PRESSURE REGULATORS

BALANCED VALVE
FULL SEAL AT ZERO FLOW
OPTIONAL MAXIMUM AND/OR MINIMUM PRESSURE SLAM-SHUT VALVE
WIDE OUTLET-PRESSURE REGULATION RANGE
ACCURATE PRESSURE REGULATION

Construction and performance features make the **LT17 series** spring-loaded regulators the ideal choice in applications involving sudden changes in capacity or where the gas shut-off is solenoid-controlled as with domestic or industrial burners. These regulators can be employed with natural, manufactured, propane, air and other gases so long as they are duly filtered and do not contain high percentages of benzol .

CONSTRUCTION FEATURES

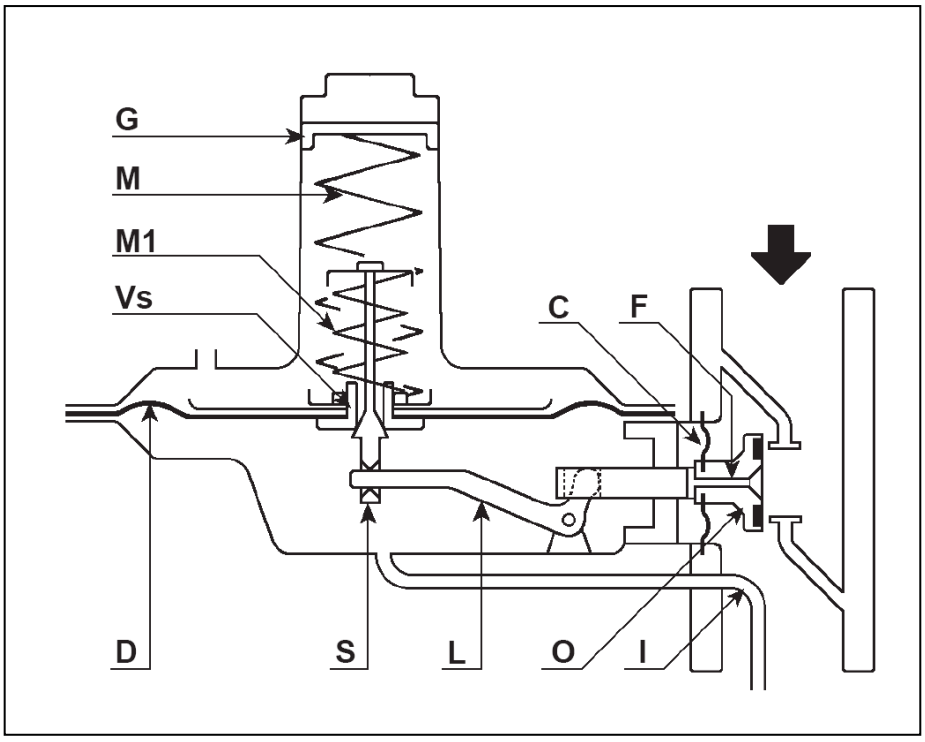
The **LT17** series spring-loaded regulators feature plain seat and balanced valve. Compact size, high-quality materials, easy setting and accurate pressure regulation are all distinctive features of these specially designed regulators. In particular, they have been constructed for maximum ease of maintenance: access to the valve seat and to the seals for inspection or replacement can be gained without removing the regulator from the line. The regulators come both in standard and high-pressure (**AP**) models:

LT17and LT17-AP - with the addition of an outlet pressure relief valve

All models in the series are fitted with DN50 PN16 flanged connections.

OPERATION

The movements of diaphragm (D) are relayed via stem (S) and lever (L) to valve disc (O). The outlet pressure acts on diaphragm (D) via impulse connection (I), generating a force that is countered by spring (M). The pressure exerted by the gas on the diaphragm works to close the valve while the pressure of the spring works to open it. Under steady gas flow conditions, the balance thus achieved between the two contrasting actions, ensures positioning of the valve disc so as to guarantee constant pressure outlet-gas flow. Any capacity variation causing a relative increase or decrease in pre-set pressure activates the moving parts of the valve until a new balance is achieved, thus restoring desired pressure. The valve disc is kept in perfect balance by diaphragm(C), activated by the inlet pressure of the gas delivered via orifice (F). In this way, outlet pressure is kept constant and not affected by any variation of inlet pressure. In regulators fitted with internal relief valve, stem (S) and diaphragm (D) are held together by spring (M1). When regulator is closed, any increase in outlet pressure over and above spring (M1) set-point causes diaphragm (D) to move upwards, thus opening the internal relief valve (Vs) itself, which releases small quantities of excess gas into the atmosphere. In regulators fitted with slam-shut valve, any pressure variation
over and above valve set-point trips the valve, thus shutting off gas flow.



SETTING

Turn the register (G) clockwise to increase outlet pressure and anticlockwise in order to decrease it. Next, check pressure value by using either a master gauge with appropriate scale or a water column. With relief valve (Vs) fitted regulators, adjustment of triggering pressure is effected by means of the spring (M1) adjusting nut. Regulators are fully factory tested and set at the values shown on the data plate, which correspond to those specified in client order.

COMMISSIONING

Proceed as follows:

Slightly open the outlet shut-off valve, and then slightly and very slowly open the inlet shut-off valve. Next, reset the slam-shut valve (when fitted) and wait for outlet pressure to stabilize, then fully and very slowly open the outlet valve.

PERIODICAL CHECKS

It is recommended that the regulator be periodically checked in order to ensure its proper functioning.

1. Checking regulator

Slowly close the outlet shut-off valve and check pressure in the length of pipe between the regulator and the valve. If the system is functioning properly, an increase in outlet pressure will be noticed due to lock-up pressure, after which pressure will stabilize. If, on the contrary, outlet pressure continues increasing, the system is not functioning properly due to improper valve disc tightness. In this case, close the valve located upstream of regulator and carry out maintenance procedures as set out in general maintenance below.

2. Checking relief valve (when fitted)

Close the valve located downstream of regulator. Next, connect a manual pump or other similar device to a previously fitted impulse connection between the regulator and the valve and raise the pressure until relief valve is activated, i.e. until gas is released from vent.

GENERAL MAINTENANCE

1. Warning

Maintenance should be carried out only by qualified, skilled personnel. If required, please contact our Technical Department or authorized dealers.

Before carrying out maintenance procedures, make sure that no gas under pressure is trapped in the regulator body. In order to release all gas from the regulator, first close inlet and outlet valves and then release gas from the line by opening the appropriate vent tap.

When carrying out general maintenance, replace all rubber parts. For this purpose, use only the spare parts included in LILI'S spare parts kit.

Maintenance operations do not require removal of valve body from the line.

2. General Maintenance

A. Remove screws (46) and clamp (45) in order to take off diaphragm case.

B. Remove bush (19) and balancing unit from diaphragm case (21).

C. Remove centering unit (26) and spring carrier (16) and strip all parts down. Carefully clean all parts with petrol and replace those which are found to be worn out.

D. Check pad holder (27).

E. By means of the appropriate tool, unscrew seat (25) and check O-ring (24). Replace seat if worn or scored.

F. Remove cap (1), ring nut (2) and spring (3), taking care to mark the exact position of the ring nut for remounting.

G. Remove screws (15) and take off cover (9).

H. Remove the diaphragm assembly from the diaphragm case.

I. Check diaphragm (13). Replace diaphragm if worn or damaged. In the models fitted with relief valve, unscrew register nut (4) and then remove spring (6), taking care to mark the height of the preloaded spring in order to reassemble it in its original position, thus ensuring proper setting of the relief valve. For all other models, simply remove screw (55).

J. Check seals (17 and 22).

3. Reassembling

Reassemble parts by carrying out the steps outlined in part 2 above in reverse order. Upon reassembling, make sure that each part moves freely. Moreover, take care that:

A. Take care of all the seals. Use utmost care to ensure against any damage during reassembling.

B. Diaphragm (13) is properly reassembled by lubricating it with some grease and by carefully fitting it into the case (34).

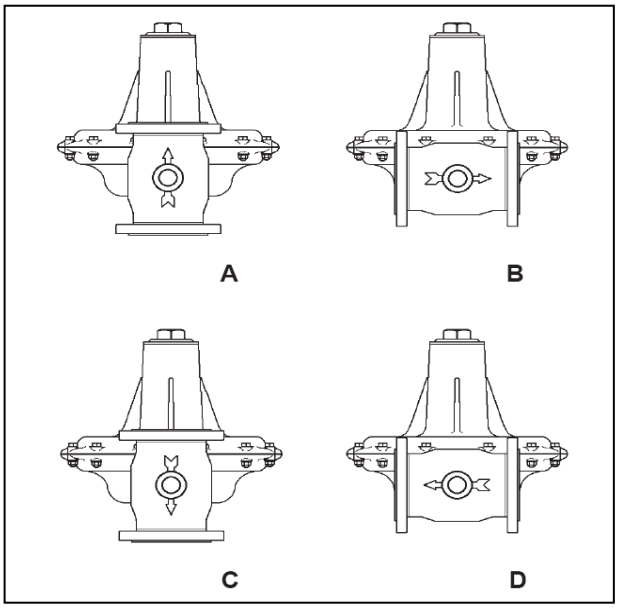
C. All screws are duly tightened in order to ensure proper sealing.

D. There are no leaks, by using soapy water.

INSTALLATION

The standard version of the **LT17** series regulators features specifications as illustrated in Fig. B. Non-standard versions are supplied on request. All versions, whether standard or non-standard, can be mounted both on horizontal or vertical piping. In all cases, gas flow direction as indicated by arrow on regulator casing must be scrupulously observed.

IMPORTANT: Impulse pipe must be fitted into appropriate coupling upon installation.



PROBLEMS AND SHOTS

1. In case of no gas flowing downstream of regulator, check that:

   A. Gas is being regularly fed into the regulator.

   B. The actuator is properly latched (only in models fitted with slam-shut valve).

2. In case of gas pressure decreasing on the outlet side of the regulator, check that:

   A. Sufficient gas is being fed into the regulator.

   B. Regulator capacity is compatible with desired flow rate.

   C. The inlet filter is not clogged.

   D. The spring is not broken.

3. In case of gas pressure increasing on the outlet side of the regulator or safety devices (relief valve or slam-shut valve) being activated, check that:

   A. Seal pad (27) or seat (25) is not worn.

   B. The seal pad is properly clean as dirt build-up may prevent regular functioning of the valve.

   C. The diaphragm (13) is not damaged or broken.

SAFETY DEVICE

The **LT17**series pressure regulators can be fitted with an slam-shut valve. This safety device operates independently of the regulator and, according to customer request, can be made to trigger by any pressure variation, whether above or below set point, or by both.

MATERIALS

Actuator casing	Die-cast aluminum
Cover	Die-cast aluminum
Valve casing*	Cast-iron
Valve disc	Brass
Valve seat	Brass
Diaphragm	NBR rubber
Seals	NBR rubber

* Steel valve casing available on request

TECHNICAL DATA

Inlet pressure	Max. = 5 bar	
Outlet pressure	Standard version	Max. = 75 mbar Min. = 10 mbar
	H.P. version	Max. = 300 mbar Min. = 50 mbar
Operating temperature	-20 ℃ to +60 ℃	
Capacity coefficients	C1 = 28 Cg = 390 for inlet pressures between：0.03 and 3 bar Cg = 300 for inlet pressures between：3 and 5 bar	

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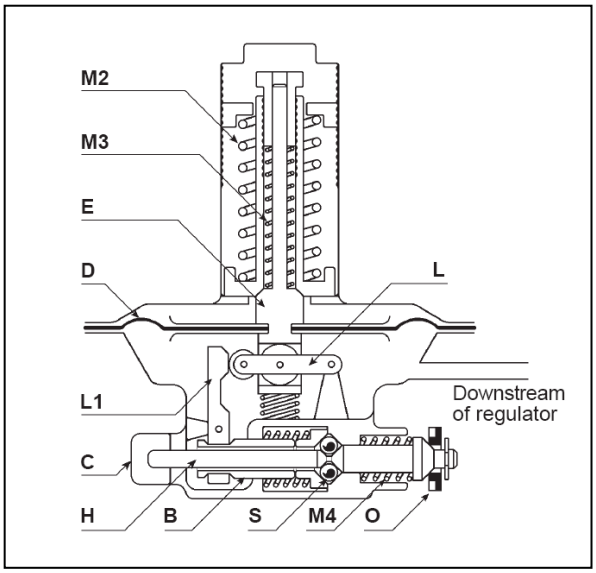


SAFETY DEVICE OPERATION

Outlet pressure acting upon diaphragm (D) is counteracted by maximum pressure spring (M2), thus overcoming the action of the minimum pressure valve (M3). Under such conditions, the moving part (E) of the valve is held in balance so that lever (L) is aligned with the projecting part of lever (L1). In addition, the balls (S) are held in their seat by bush (B) and, in turn, these hold the valve disc (O) open. Any outlet pressure variation over and above preset value breaks the existing balance. In fact, in case of an increase in outlet pressure, spring (M2) load is overcome by pressure load; in case of a decrease in outlet pressure, spring (M3) load overcomes pressure load. In both cases, moving part (E) is activated, causing lever (L) to move with it so

that lever (L) is no longer aligned with lever (L1). In this way, lever (L1) releases balls (S), thereby allowing valve disc (O) to close under the action of spring (M4).

SAFETY DEVICE RESETTING

The safety device is fitted with an internal by-pass for easy resetting even in case of high inlet pressure. For resetting, proceed as follows: Remove rear cap (C), screw it to stem (H) and pull outwards. Allow a few moments for inlet pressure to flow downstream. Next, pull cap fully outwards. Allow a few moments for outlet pressure to stabilize. Next, release cap and make sure that device remains in the reset position. If not, repeat the above steps. Once reset, replace cap in its initial position.

PRESSURE SETTING

The maximum and minimum trip values are independently set by springs (M2) and (M3), respectively.

SLAM-SHUT VALVE SETTING RANGE

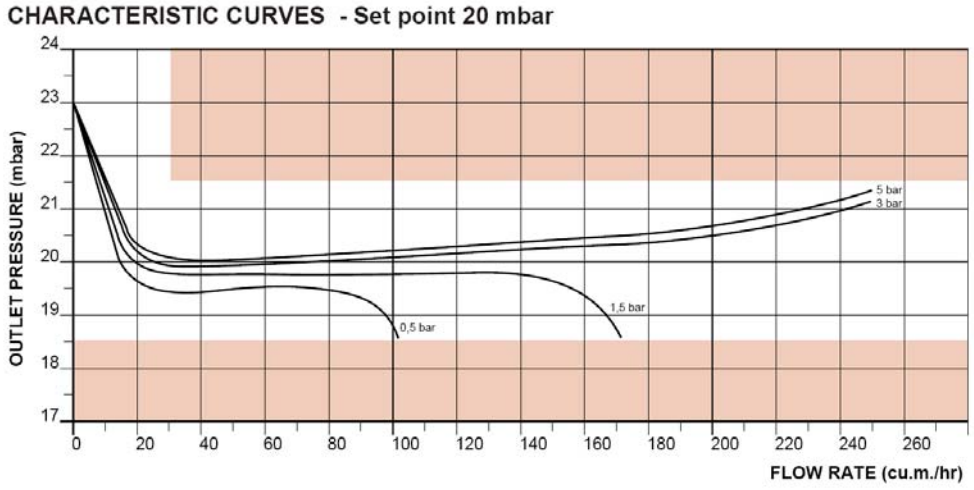
Overpressure trip range (mbar)	Underpressure trip range (mbar)
25 to 500	7 to 400

CAPACITY CHART

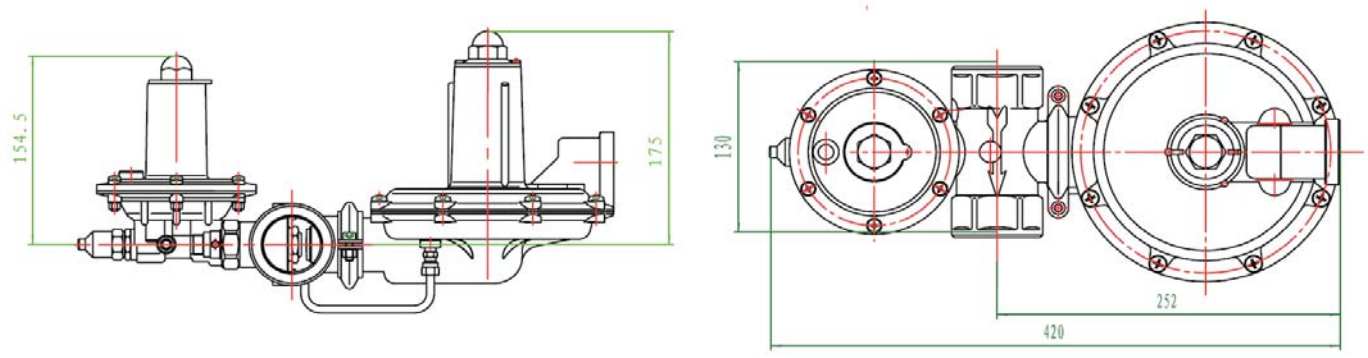
CAPACITY CHART

	Outlet pressure (mbar)	Inlet pressure (bar)															
		0.03	0.05	0.075	0.1	0.15	0.2	0.3	0.4	0.5	0.75	1	1.5	2	3	4	5
STANDARD	15	12	15	20	30	40	50	65	80	100	120	120	170	200	250	250	250
	20	—	15	20	30	40	50	65	80	100	120	120	170	200	250	250	250
	30	—	12	20	30	40	50	65	80	100	120	120	170	200	250	250	250
	40	—	—	15	25	40	50	65	80	100	120	120	170	200	250	250	250
	50	—	—	15	20	40	50	65	80	100	120	120	170	200	250	250	250
	75	—	—	—	15	30	45	60	80	100	120	120	170	200	250	250	250
A.P.	100	—	—	—	—	20	40	50	80	100	120	120	170	200	250	280	300
	150	—	—	—	—	—	30	40	70	100	120	120	170	200	250	280	300
	200	—	—	—	—	—	—	30	60	100	120	120	170	200	250	280	300
	300	—	—	—	—	—	—	—	50	80	110	110	170	200	250	280	300

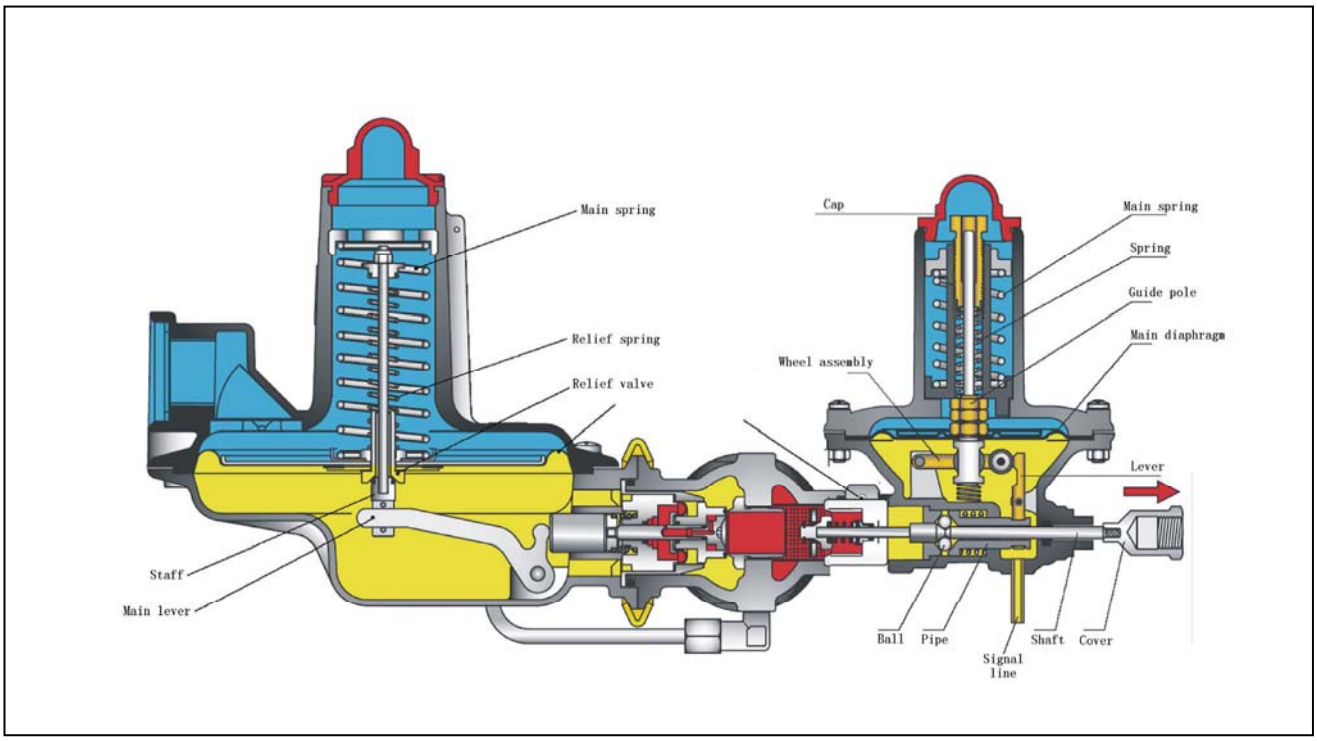
Capacities (cu.m./hr) are applicable to natural gas with a specific gravity of 0.702. For other gases, the values shown in the chart below must be multiplied by 0.595 for propane, 0.518 for butane, 0.755 for nitrogen and 0.744 for air.



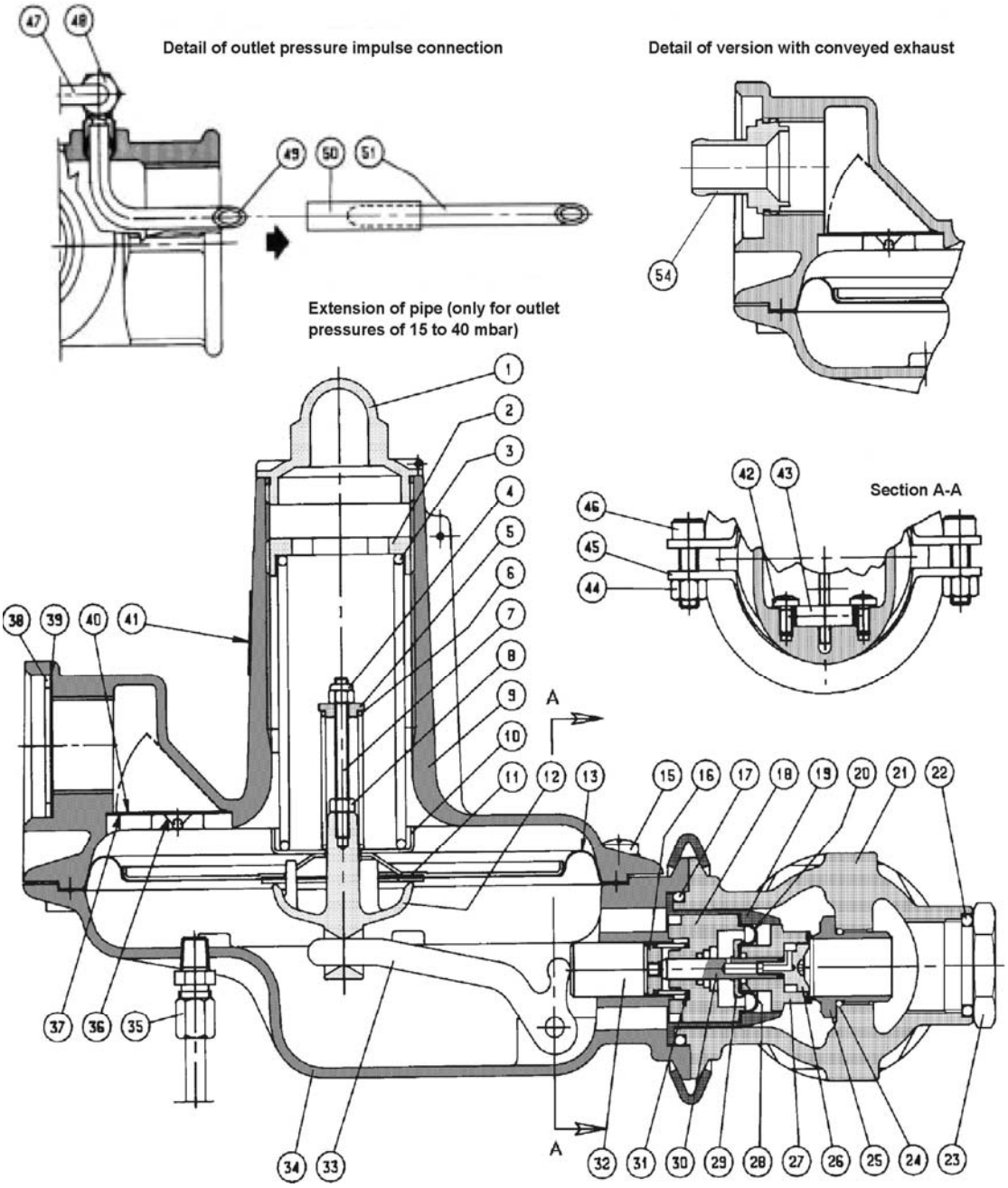
OUTLINE DIMENSIONS (mm)

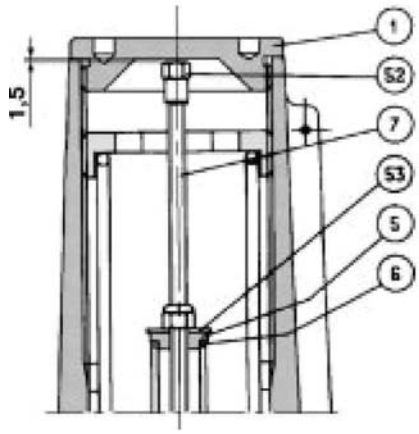


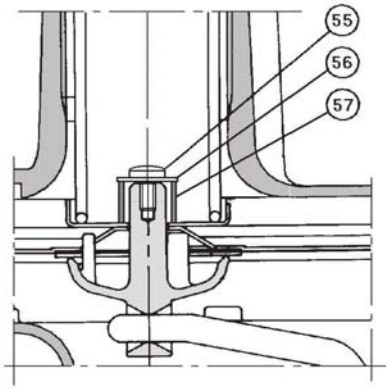
SECTIONAL DRAWING

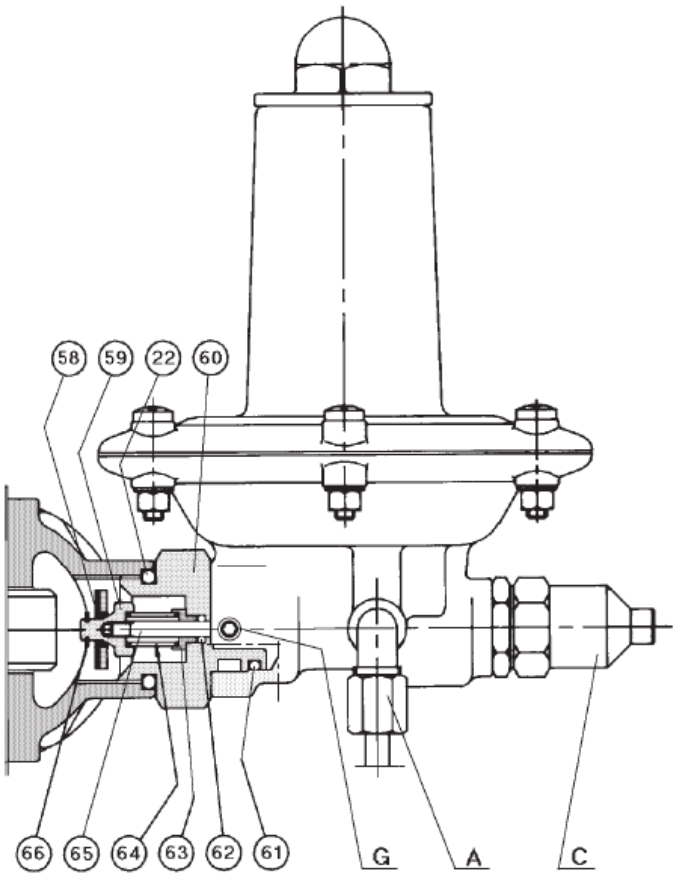


MORE DETAILS









NO.	NAME	NO.	NAME	NO.	NAME
1	**Cap**	23	**Plug**	45	**Clamp**
2	**Adjusting nut**	24	**O-Ring**	46	**Screw**
3	**Main spring**	25	**Seat**	47	**Pipe**
4	**Nut**	26	**Centering**	48	**Connection**
5	**Relief spring seat upper**	27	**Pad holder**	49	**Pipe**
6	**Relief spring**	28	**O-Ring**	50	**Pipe**
7	**Stem**	29	**O-Ring seat**	51	**Extension pipe**
8	**Relief airproof nut**	30	**Shaft**	52	**Pawl**
9	**Casing upper**	31	**Reposition spring**	53	**Washer**
10	**Main spring seat**	32	**Lever2**	54	**Conveyed**
11	**Diaphragm disk**	33	**Main lever**	55	**Screw**
12	**Relief nut**	34	**Casing lower**	56	**Washer**
13	**Main Diaphragm**	35	**Connection**	57	**Spacer**
14	**-**	36	**Washer**	58	**Pad unit**
15	**Screw**	37	**Frame**	59	**Pad holder**
16	**Reposition spring seat**	38	**Snap ring**	60	**Plug**
17	**O-Ring**	39	**Net**	61	**O-Ring**
18	**Hub unit**	40	**Lid**	62	**O-Ring**
19	**Bushing**	41	**Data plate**	63	**Spring carrier**
20	**Balancing diaphragm**	42	**Screw**	64	**Shut off spring**
21	**Body**	43	**Pin**	65	**Shaft**
22	**O-Ring**	44	**Nut**	66	**Snap ring**