



LT25/50/80/100调压器

说明书

和谐真诚

环保 · 创新 · 全心全意为客户



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



LT17系列调压器



LT30系列调压器

宁波力利智能控制设备有限公司

地址：宁波市北仑大碇科技工业园区茅洋山路527号(Add: #527 Maoyangshan Road, Technology Industrial Zone, Daqi, Beilun, Ningbo)

电话(Tel): 0574-86807387 86807375

传真(Fax): 0574-86807377

邮箱(E-mail): nblizk@126.com

网址(Web): www.liligas.com

邮编(Postcode): 315806

LT25/50/80/100SERIES PRESSURE REGULATORS

LT25/50/80/100 系列燃气调压器



概述

LT25/50/80/100 该系列调压器用于天然气长输管道分输站、城市燃气输配系统、大型工业用户的燃气调压计量系统，具有调压精度高，可靠性高的特点。该系列调压器由燃气介质控制。特别在工况条件变化很大的大型工业用户（如天然气发电厂等）的使用中，该系列调压器表现出良好的稳定性和高速的反应能力。另外，调压器非常适合要求调压站的压差非常小的工况，城市燃气输配系统经常出现这种瓶颈情况。调压器所需要的启动压差仅为 0.2bar。同时保证很高的精度，能使调压站内压力在限定的范围内保持平衡。

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

LT25/50/80/100 系列燃气调压器人工复位超压和低压切断阀

尺寸

见第四页尺寸图表

管径

采用法兰连接

流量

参照第 4~5 页流量表

最大进口压力/**P1max** 低压型.....6bar

AP/APA.....20bar

进口压力范围/ & **P1** 低压型.....0.5~5 bar

AP/APA.....0.75~19bar

出口压力范围/低压型 & **P2**15~500mbar

/AP & **P2**500~1000mbar

/APA & **P2**1000~3000mbar

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**.....见流量对照表

工作温度.....-20℃~+60℃

调压器性能.....符合 GB27790 要求

最大允许压力

阀体到 25bar 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

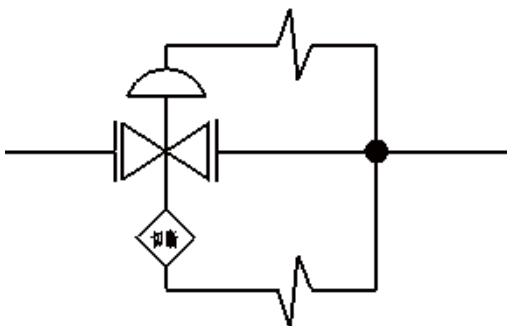
1. 使用调压器之前请仔细阅读说明书,错误的操作会导致产品损坏或引发危险事故。
2. 必须由专业人员进行安装与安装。
3. 安装完成后要对整个系统进行彻底检查校验。

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

信号管的连接



接头尺寸见表

接头	尺寸	管子直径(毫米)	功能
0	1/2" BSP	10	主调信号管
1	1/4" BSP	6	切断信号管



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

安装位置(图1)

在调压器出口段设信号管,信号管取压点与调压器出口的距离至少应为出口管道公称直径的4倍。信号管与下一个干扰元件(如末端阀门)的距离至少为出口管道公称直径的2倍。

根据调压器的重量,建议安装附加装置用于吊装。

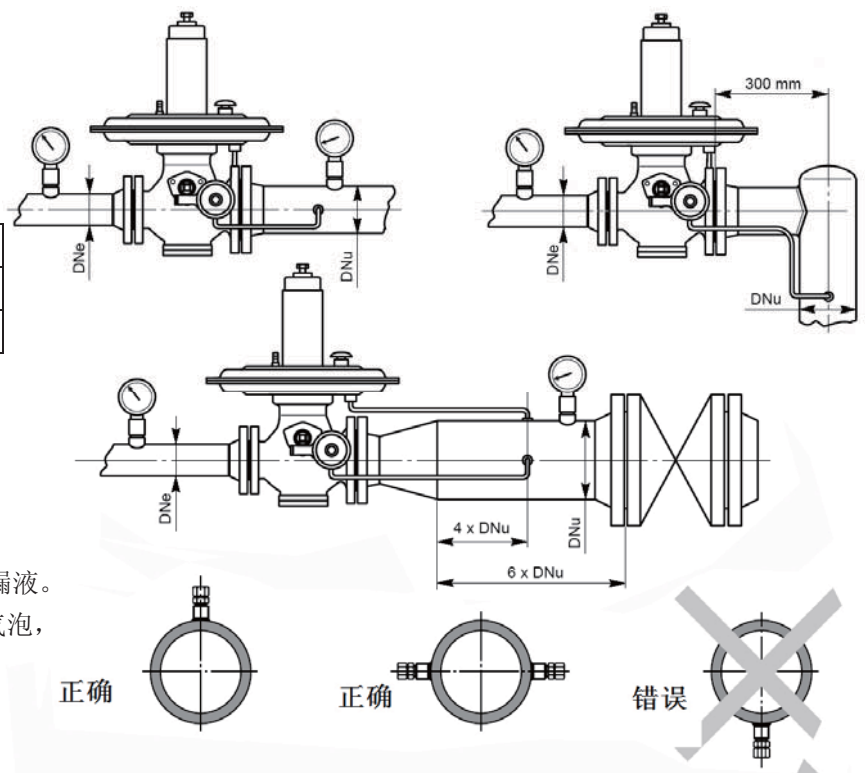
注: 信号管取压点不得设置在管道底部。

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。

法兰连接

- 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。
- 采用可靠的法兰密封材料连接,法兰应符合标准,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。



(图1)

调节



注意

通气和调节必须由专业人员来操作！

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. 用 24mm 标准开口扳手顺时针旋转主调调节杆（1）或者主调压帽（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）
2. 调整并记录出口压力值。

注：公司出厂已按客户需要调整了出口压力

更换弹簧

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

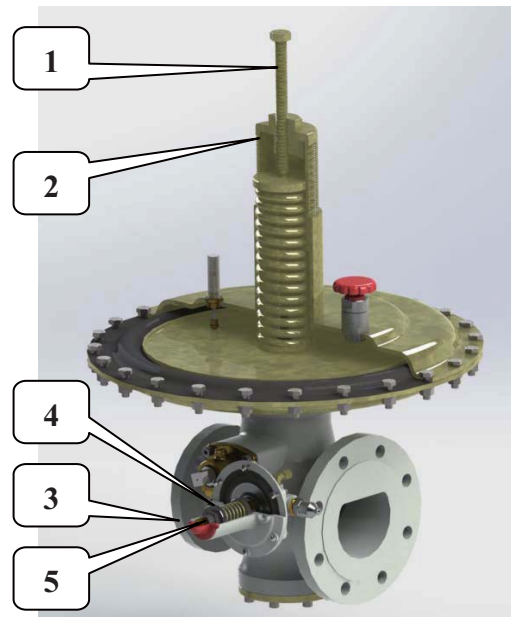
调压器切断压力的设定（图2）

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）

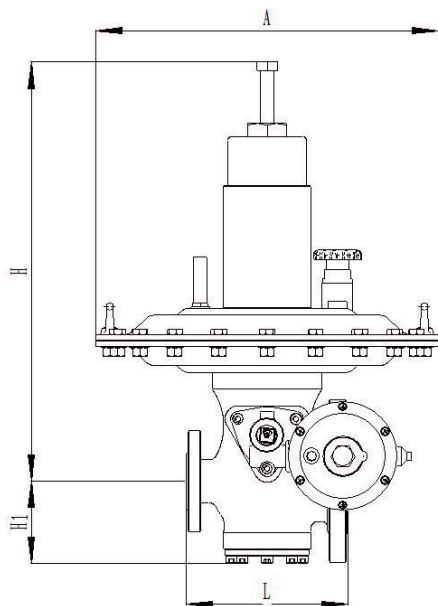
维护与保养

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

尺寸图标 (mm)



型号 TYPE	进口 Inlet(DN)	出口 outlet(DN)	外形尺寸				重量
			A	H	H1	L	
LT25	25	65	380	580	95	184	41
LT25-AP/APA	25	65	380	580	95	184	45
LT50	50	100	500	650	123	254	58
LT50-AP/APA	50	100	500	650	123	254	67
LT80	80	150	620	650	150	298	100
LT80-AP/APA	80	150	500	650	150	298	97
LT100	100	100	620	720	136	352	116
LT100-AP/APA	100	100	500	720	136	352	110

流量对照表

(注：表中流量单位为标准立方米/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)

LT25

出口压力 Outlet (bar)	进口压力 Inlet (bar)														
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.8	2.0	3.0	4.0	5.0
0.02	200	250	290	320	350	380	410	450	520	580	650	700	920	1000	1000
0.03	200	250	290	320	350	380	410	450	520	580	650	700	920	1000	1000
0.05	190	240	280	310	340	380	410	450	520	580	650	700	920	1000	1000
0.08	170	230	270	310	340	380	400	450	520	580	650	700	920	1000	1000
0.10	160	220	260	300	340	370	400	450	520	580	650	700	920	1000	1000
0.15	100	200	250	300	330	360	390	450	520	580	650	700	920	1000	1000
0.20	-	160	230	280	320	360	390	450	520	580	650	700	920	1000	1000
0.25	-	-	210	260	310	350	390	450	520	580	650	700	920	1000	1000
0.30	-	-	170	240	290	340	380	440	510	580	650	700	920	1000	1000
0.40	-	-	-	180	250	310	350	430	510	580	650	700	920	1000	1000
0.50	-	-	-	-	190	260	320	400	480	580	650	700	920	1000	1000

LT25-AP/APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)									
	0.75	1.0	1.5	2.0	3.0	5.0	8.0	12	16	19
0.4	330	430	570	700	930	1400	1400	1400	1400	1400
0.5	-	400	570	700	930	1400	1400	1400	1400	1400
0.6	-	380	560	690	930	1400	1400	1400	1400	1400
0.8	-	-	520	680	930	1400	1400	1400	1400	1400
1.0	-	-	470	650	900	1400	1400	1400	1400	1400
1.5	-	-	-	530	900	1400	1400	1400	1400	1400
2.0	-	-	-	-	800	1400	1400	1400	1400	1400
3.0	-	-	-	-	-	1300	1400	1400	1400	1400

LT50

出口压力 Outlet (bar)	进口压力 Inlet (bar)														
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.8	2.0	3.0	4.0	5.0
0.02	550	660	755	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.03	535	660	755	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.05	522	650	755	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.08	480	620	730	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.10	440	600	715	820	890	960	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.15	320	550	690	780	870	960	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.20	-	470	630	750	850	930	1000	1170	1290	1430	1600	1700	2290	2850	3430
0.25	-	-	600	720	820	920	1000	1170	1290	1430	1600	1700	2290	2850	3430
0.30	-	-	480	660	780	890	980	1170	1290	1430	1600	1700	2290	2850	3430
0.40	-	-	-	490	690	820	930	1100	1290	1430	1600	1700	2290	2850	3430
0.50	-	-	-	-	520	710	850	1050	1250	1430	1600	1700	2290	2850	3430

LT50-AP/APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)									
	0.75	1.0	1.5	2.0	3.0	5.0	8.0	12	16	19
0.4	870	1100	1400	1700	2200	3400	3500	3500	3500	3500
0.5	-	1000	1400	1700	2200	3400	3500	3500	3500	3500
0.6	-	1000	1400	1700	2200	3400	3500	3500	3500	3500
0.8	-	-	1300	1700	2200	3400	3500	3500	3500	3500
1.0	-	-	1200	1600	2200	3400	3500	3500	3500	3500
1.5	-	-	-	1400	2200	3400	3500	3500	3500	3500
2.0	-	-	-	-	2100	3400	3500	3500	3500	3500
3.0	-	-	-	-	-	3300	3500	3500	3500	3500

LT80

■ : H型/Versione H

出口压力 Outlet (bar)	进口压力 Inlet (bar)																					
	0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	1.25	1.5	2	3	4	5	6	7	8	10	11-19
0.02	470	750	950	1100	1350	1500	1700	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.03	390	720	900	1050	1300	1500	1700	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.05	-	620	850	1000	1300	1500	1650	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.08	-	400	740	950	1250	1450	1650	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.1	-	-	630	880	1200	1450	1600	1800	1900	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.2	-	-	-	650	920	1250	1500	1700	1900	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.25	-	-	-	-	680	1150	1400	1650	1850	2000	2300	2600	2900	3400	4600	5700	6900	8100	9200	10300	12000	12000
0.3	-	-	-	-	-	950	1300	1600	1800	1950	2250	2600	2850	3400	4600	5700	6900	8100	9200	10300	12600	12600
0.4	-	-	-	-	-	-	1000	1350	1650	1850	2200	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13500
0.5	-	-	-	-	-	-	-	1000	1400	1700	2150	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13800

LT80-AP/APA

■ : APA型/Versione APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)															
	0.5	0.6	0.7	0.8	1	1.25	1.5	2	3	4	5	6	7	8	10	11-19
0.4	1000	1350	1650	1850	2200	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13500
0.5	-	100	1400	1700	2150	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13800
0.6	-	-	1050	1450	2000	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13800
0.7	-	-	-	1100	1850	2400	2800	3400	4600	5700	6900	8100	9200	10300	12600	13800
0.8	-	-	-	-	1500	2250	2750	3400	4600	5700	6900	8100	9200	10300	12600	13800
1	-	-	-	-	-	1850	2500	3400	4600	5700	6900	8100	9200	10300	12600	13800
1.5	-	-	-	-	-	-	-	2850	4550	5700	6900	8100	9200	10300	12600	13800
2	-	-	-	-	-	-	-	-	4300	5700	6900	8100	9200	10300	12600	13800
2.5	-	-	-	-	-	-	-	-	3400	5500	6900	8000	9200	10300	12600	13800
3	-	-	-	-	-	-	-	-	-	5000	6800	8000	9100	10300	12600	13800

LT100

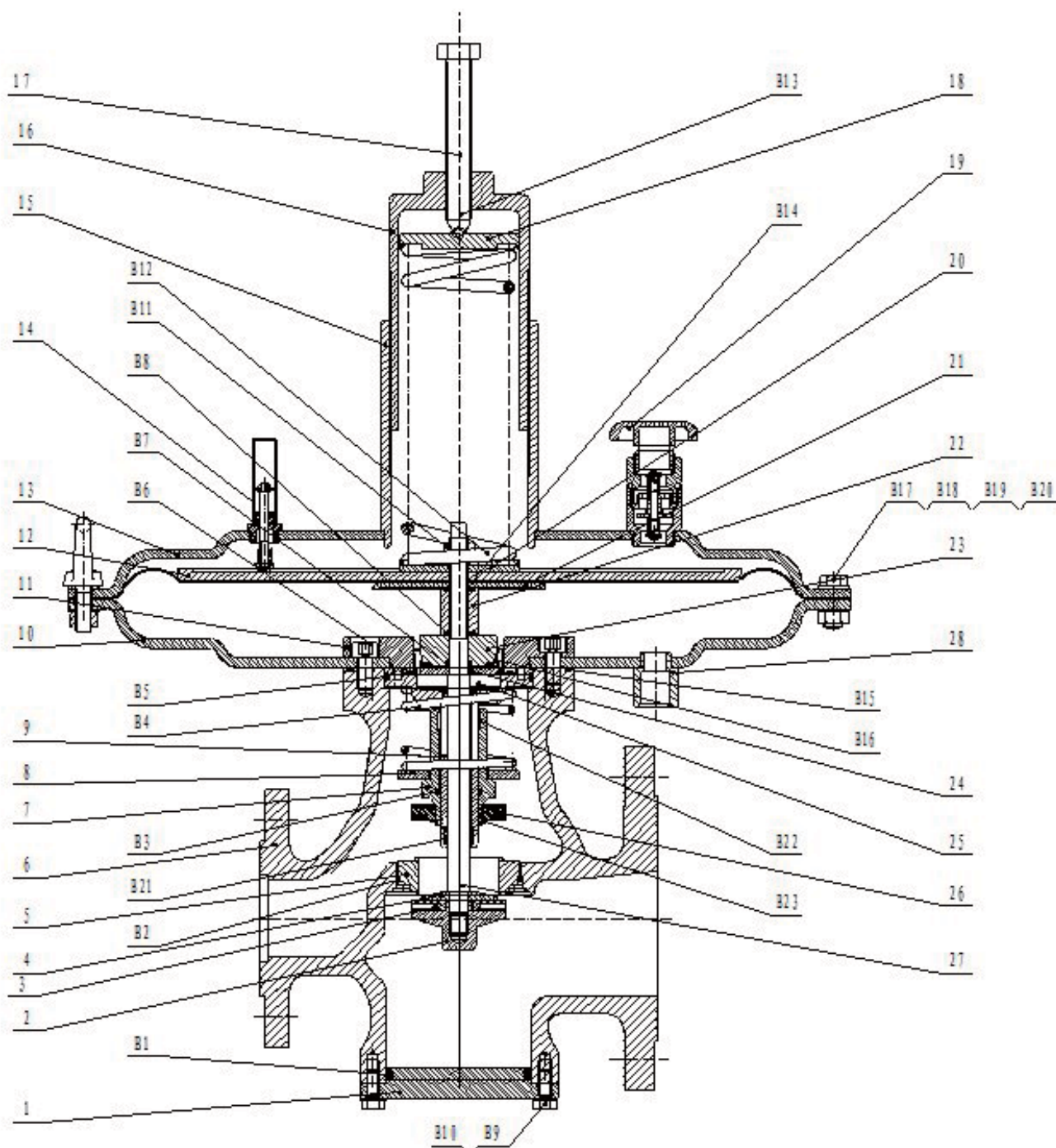
出口压力 Outlet (bar)	进口压力 Inlet (bar)														
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.8	2.0	3.0	4.0	5.0
0.02	1990	2410	2750	3030	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.03	1950	2350	2700	3000	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.05	1850	2320	2700	3000	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.08	1700	2240	2650	2950	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.10	1550	2150	2600	2900	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.15	1150	1950	2450	2850	3150	3400	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.20	-	1600	2250	2700	3050	3400	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.25	-	-	2050	2550	2950	3300	3650	4100	4650	5200	5800	6200	8000	8000	8000
0.30	-	-	1700	2350	2850	3200	3650	4100	4650	5200	5800	6200	8000	8000	8000
0.40	-	-	-	1800	2450	2950	3300	4100	4650	5200	5800	6200	8000	8000	8000
0.50	-	-	-	-	1850	2500	3000	3850	4650	5200	5800	6200	8000	8000	8000

LT100-AP/APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)									
	0.75	1.0	1.5	2.0	3.0	5.0	8.0	12	16	19
0.4	3100	4000	5200	6200	8000	8000	8000	8000	8000	8000
0.5	-	3800	5100	6200	8000	8000	8000	8000	8000	8000
0.6	-	3600	5100	6200	8000	8000	8000	8000	8000	8000
0.8	-	-	4900	6200	8000	8000	8000	8000	8000	8000
1.0	-	-	4500	6200	8000	8000	8000	8000	8000	8000
1.5	-	-	-	5100	8000	8000	8000	8000	8000	8000
2.0	-	-	-	-	8000	8000	8000	8000	8000	8000
3.0	-	-	-	-	-	8000	8000	8000	8000	8000

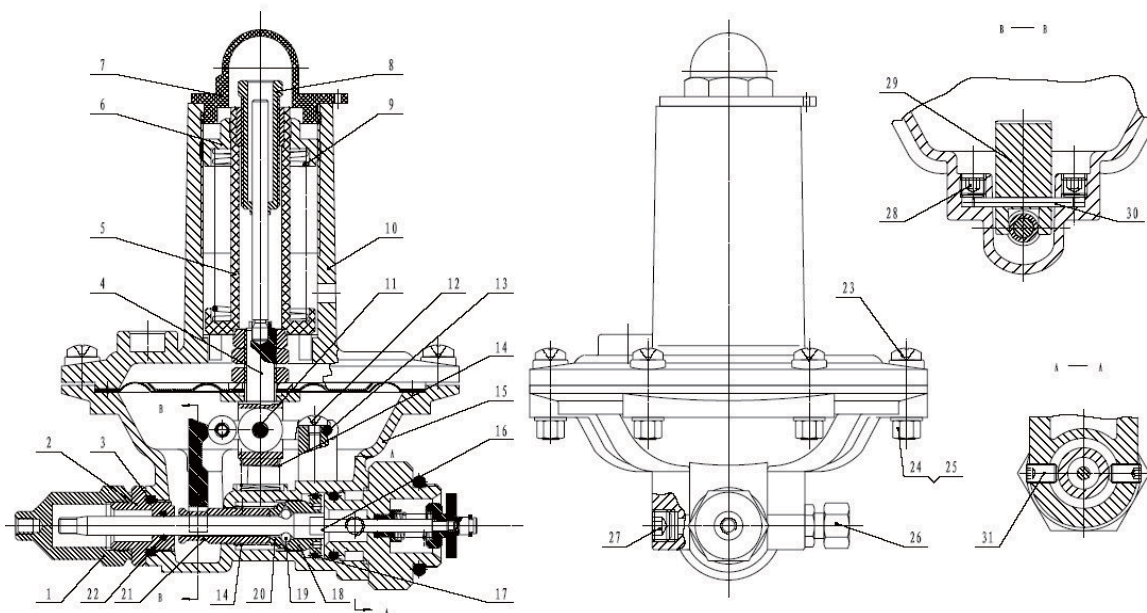
更多详情

LT25/50/80/100



序号	名称	序号	名称	序号	名称	序号	名称
1	尾盖	14	指示装置	27	主调阀杆	B12	主调弹簧
2	垫片并紧帽	15	主调套筒	28	信号管接头	B13	钢球
3	主调阀口垫片	16	主调压帽	B1	密封圈	B14	皮膜
4	主调阀口垫垫片	17	主调调节杆	B2	密封圈	B15	密封圈
5	阀口	18	弹簧定位架 1#	B3	密封圈	B16	平衡膜片
6	阀体	19	LT30 放散帽组件	B4	切断弹簧	B17	六角螺栓
7	滑套	20	LT50 弹簧定位架 2#	B5	密封圈	B18	平垫片
8	切断挡板	21	托盘	B6	内六角螺钉	B19	弹簧垫圈
9	滑套导架	22	平衡螺母	B7	密封圈	B20	六角螺母
10	膜下体	23	平衡压块	B8	密封圈	B21	导架衬垫
11	压板	24	平衡垫片	B9	内六角圆柱头螺钉	B22	滑套衬垫
12	托盘	25	活塞衬套	B10	平垫片	B23	轴用挡圈
13	膜上体	26	切断阀口垫片	B11	六角锁紧螺母		

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		

LT25/50/80/100 SERIES PRESSURE REGULATORS

FAIL-TO-OPEN REGULATOR

HIGH FLOW COEFFICIENT

BALANCED VALVE

PRECISION CONTROL

EASY SERVICING WITHOUT REMOVING UNIT FROM LINE

OPTIONAL MINIMUM OR MAXIMUM PRESSURE SLAM -SHUT VALVE

FULL SEAL AT ZERO FLOW

WIDE PRESSUREREGULATION RANGE



Their technical and operational features make the **LT25/50/80/100 Series** spring-loaded regulators the choice of preference in those applications requiring sudden changes in capacity or where gas shut-off is solenoid-controlled as with domestic or industrial burners. These regulators can be employed with natural, manufactured, propane, other gases and air so long as these are duly filtered and do not contain high percentages of benzol.



SPECIFICATIONS

The LT25/50/80/100 Series regulators are spring-controlled and feature plain seat and balanced valve. They are designed for easy servicing. You no longer have to take them off the line: simply remove bottom (T, Fig. 1) to check or replace seat and seals. All versions can be supplied complete with integral slam shut valve. The LT25/50/80/100 Series regulators can be fitted with an integral slam shut valve. Mechanically independent of the regulator, it rapidly shuts off gas flow should outlet pressure reach its trip point because of malfunction. The presence of the slam-shut valve in no way alters the features and operation described heretofore.

AVAILABLE DIAMETERS

DN 25 – DN 50 – DN80– DN 100

IMPULSE CONNECTION

For DN 25 to 150 – impulse connection fitted externally, downstream of regulator.

FLANGES

Standard versions: ANSI 150 RF.

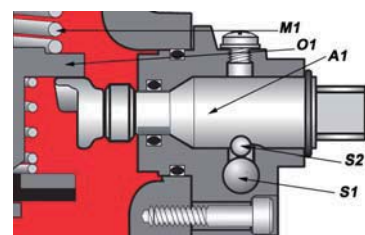
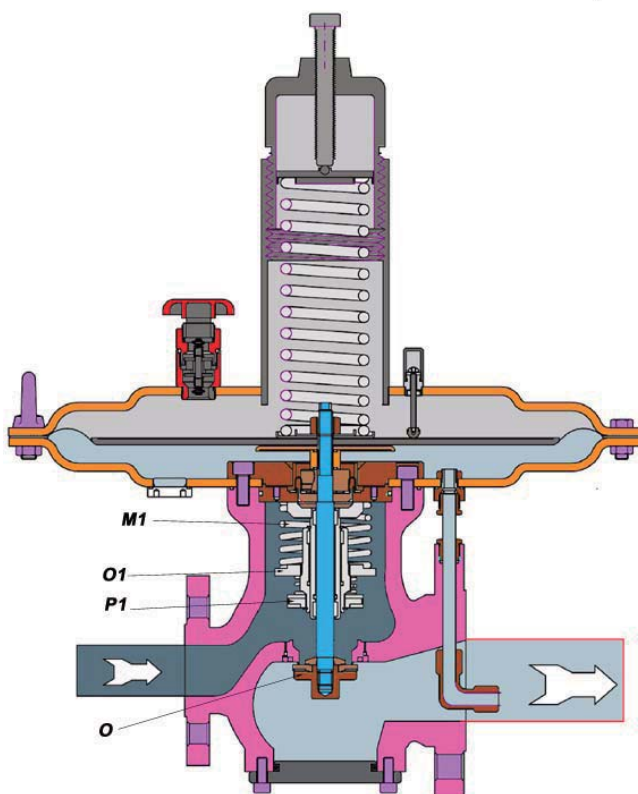
On request: PN 16 UNI 2240 or PN 40 UNI 2242.

Inlet flange diameter as per regulator diameter (DN).

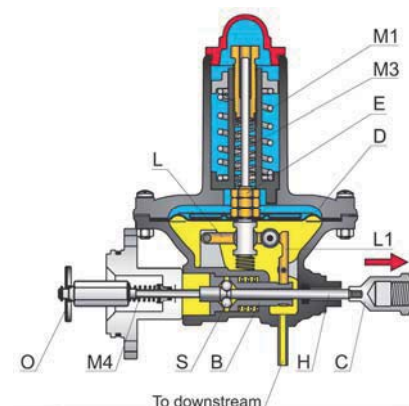
Outlet flange diameter greater than inlet flange diameter

OPERATION

The slam-shut comprises valve (O1) with pad (P1), pilot and key-activated reset assembly. Valve (O1) is controlled by cam on shaft (A), which rotates causing the valve to open. The alignment of balls (S1 and S2), which is maintained by spring (M5) and shaft A's machined relief, prevents shaft rotation and keeps valve open. The control pressure (outlet pressure) acting on diaphragm (D1) is opposed by the load of maximum pressure spring (M2) and overcomes the action of minimum pressure spring (M3). The system is now balanced and the pilot reset, i.e. lever (L) is aligned with the relief of lever (L1) and the balls (S3), held in their seat by bush (B), keep stem (H) in reset position. Any change in outlet pressure beyond admissible value will alter this balance and cause lever (L) to move. Thus lever (L1), no longer held in place, releases balls (S3), causing stem (H) to move ball (S2) under thrust of spring (M4) and release



Detail of reset assembly



shaft (A). This allows valve (O1) to close under the force of spring (M1).

**PERIODIC CHECKS**

Periodic regulator efficiency checks are highly recommended.

Regulator Checking Procedures

First slowly close the outlet shut-off valve and then check the pressure in the pipe length between the regulator and the valve. Before outlet pressure stabilizes, a slight increase in pressure will occur due to shut-off overload. In case of faulty sleeve seal, outlet pressure will continue to increase. In this event, the inlet valve must be closed and maintenance effected.

MAINTENANCE**1 Important**

Servicing should be carried out by qualified, skilled personnel. For further information, please contact our Technical Assistance Department or our authorized dealers.

Before servicing, make sure there is no gas under pressure in the regulator body by first cutting off inlet and outlet gas in the line being serviced and then letting it out via the appropriate bleed cock.

When carrying out routine maintenance, all rubber parts should be replaced. For this purpose, use only the parts included in LILI'S spare parts kit. Note: Servicing does not require removal of valve from the line.

2 Replacing seal pad

A) Loosen adjusting screw (16); unscrew adjusting cap (15) and slide out main spring (B12); remove bottom (1).

Note: for the Monitor versions remove completely the counterbalance system included main stem (26).

B) Lock main stem (26) by inserting a suitable wrench in the appropriate slots.

C) Hold stem locked and unscrew seal nut (2). This operation must be carried out with extreme care in order to avoid damage to the balancing assembly.

D) Replace valve seat (3) and reassemble parts by carrying out the above steps in reverse order.

Note: During this procedure, seat ring (4) and O-ring (B2) can be checked and replaced, if required. In order to do this, open slam-shut valve sleeve and keep it open while unscrewing the seat with the appropriate wrench. With the slam-shut valve sleeve still kept open, mount a new seat.

3 General Maintenance

A) Remove both seal pad (see steps described in part 2 above) and reset assembly (screws).

B) Loosen and remove hexagon head bolt (B11) to take off cover.

C) Lock main stem (26) by inserting a suitable wrench in the appropriate slots and unscrew hexagon head nut (B11). Remove and check diaphragm and replace where required.

D) Loosen and remove the two hexagon socket cap screws (B6) and slide out board (10).

E) Remove the balancing stem/diaphragm assembly and then unscrew balancing nut (21) and disassemble the various parts. Check balancing diaphragm (B16) and O-rings (B7/B8).

F) Replace the two hexagon socket cap screws (B6) with longer screws and loosen and remove the remaining screws which hold lower casing (9) and stem guide seat (24) in place. Progressively unload spring of shut-off spring (B4) and remove assembly. Check O-ring (B5) and sliding gasket (B12).

Note: In case of the stem guide seat (24) being clogged due to oxidation or dust, remove by inserting a puller in the appropriate threaded holes.

G) Remove retaining ring for shaft (B23) and disassemble the various parts. Then check shut-off valve seat (25), O-ring (B3) and sliding gasket (B22). Replace where required.

H) By using the appropriate wrench, unscrew seat ring (4) and check O-ring (B2).

I) Clean the various parts with petrol and dry with compressed air. Replace worn parts.

RESETTING

The slam-shut valve incorporates a by-pass for easy resetting even in case of high inlet pressure. Proceed as follows:

- a) Remove the cap (R), screw it to stem (H) and pull outwards.
 - b) While keeping stem (H) pulled out, use the appropriate wrench to turn shaft (A) anticlockwise. Wait until inlet pressure has flowed downstream.
 - c) Complete rotation of shaft (A) until balls (S2 and S1) are felt to be properly and fully engaged, and then release shaft, checking that the slam-shut valve remains open.
 - d) Wait till outlet pressure stabilizes before releasing stem (H) and remounting cap (R) in its original position.
- CAUTION:** If these steps are carried out too rapidly, pressure peaks can occur that can trip the valve. If this happens, repeat steps with greater care.

SETTING

The maximum and minimum pressure trip values are independently set by springs M2 and M3, respectively. To set for maximum pressure only, remove spring (M3).

TROUBLE-SHOOTING

- 1 Gas not flowing downstream of regulator can be due to:
 - A) Insufficient inlet gas flow.
 - B) Clogged inlet filter.
 - C) Tripped pilot.
- 2 A decrease in regulator outlet pressure can be due to:
 - A) Insufficient inlet gas flow.
 - B) Gas demand being higher than regulator capacity.
 - C) Clogged inlet filter.
 - D) Broken spring.
- 3 An increase in regulator outlet pressure can be due to:
 - A) Worn valve seat (3) or seat ring (4).
 - B) Dirt being deposited on the seal pad, thus preventing regular sleeve positioning.
 - C) Damaged or broken main diaphragm (B14).

SELECTING THE REGULATOR

Selection should be based on maximum capacity demanded by working conditions. A good rule of thumb, especially for ON-OFF uses, is always to factor in a 10% increase over the actual demand value. **LT25/50/80/100** Series regulator outlet flanges are larger than the inlet flanges so as to facilitate gas expansion and to prevent having to use expansion cones, as is often required. It is to be recalled here that the gas flow rate in the section fitted with the control connection must be less than 40 m/sec so as to prevent excessive turbulence determining poor regulator performance. In some models, the impulse connection is incorporated in the outlet flange. Maximum capacity in these models is limited by speed of gas flow. Capacity in these cases can be calculated as a function of actual outlet pressure as shown in the chart in Fig. 3.

The outlet pressure-capacity chart can be used for quickly checking that capacity demand falls within regulator operating range. If capacity demand is greater than regulator operating range, an expansion cone will have to be fitted and the control connection shifted beyond the cone (see Fig. 6).

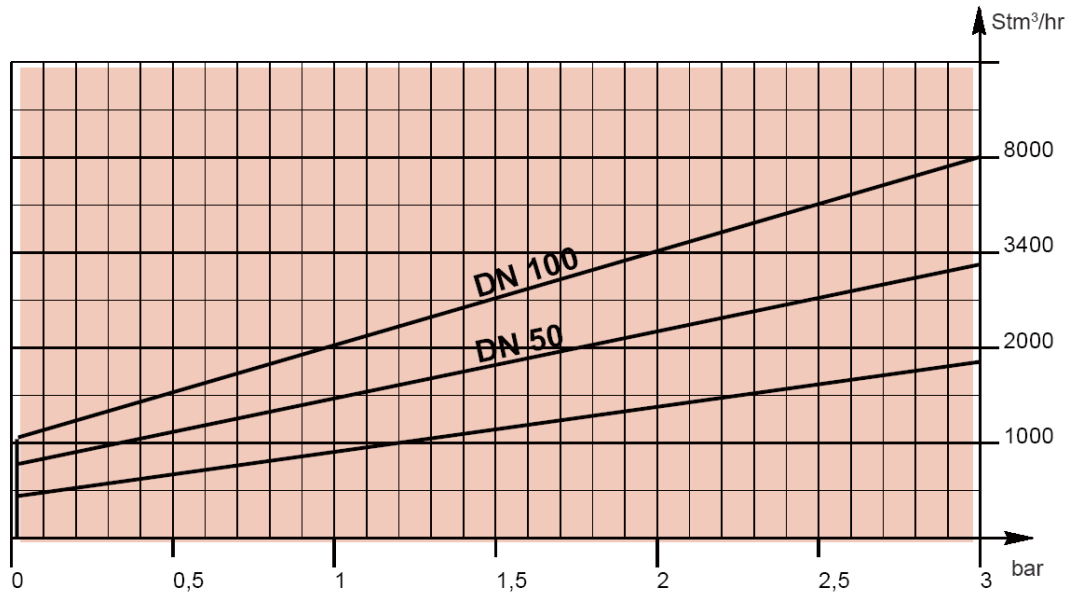


图 3调压器出口压力与流量对照表

FIG. 3 Outlet pressure-capacity chart applicable to models with in-built impulse connection.

CALCULATING CAPACITY

The capacity of a fully open regulator is calculated by the following formulae, given the working outlet (P_v) and minimum inlet (P_m) pressures:

When $P_v > \frac{P_m}{2}$ use the following formula

$$Q = K \cdot C_g \cdot P_m \cdot \sin \left(\frac{3417}{C_1} \cdot \sqrt{\frac{P_m - P_v}{P_m}} \right)^\circ$$

When $P_v \leq \frac{P_m}{2}$ use the following formula

$$Q = K \cdot C_g \cdot P_m$$

Note: The sine argument is expressed in sexagesimal degrees.

Q = Capacity (Stm³/hr)

P_m = Absolute inlet pressure (bar)

P_v = Absolute outlet pressure (bar)

C_g = Gas coefficient (see table)

C_g and C_1 COEFFICIENTS for all versions

DN	C_g	C_1
50	1100	25
100	4000	25
150	4500	25

$C_1 = C_g/C_v$ (see table)

K = 0.52 for natural gas, 0.31 for propane
0.27 for butane, 0.39 for nitrogen and air

If an outlet pressure within $\pm 5\%$ of set-point (RG5), for capacities ranging from 10 to 100 per cent, and a closing overpressure less than or equal to 10% of the set point (SG10) are required, capacity values obtained by applying the above formulae must be reduced by about 30%.

INSTALLATION

Mount regulator on a pipe segment with horizontal axis. For proper performance, it is recommended to install a filter

upstream of the regulator. Proceed as follows for proper installation:

- Make sure unit has not been damaged in transport.
- Clean and bleed pipes of any foreign matter (sand, welding residues, etc.).



- c) Make sure pipes can bear regulator's weight. If not, brace with adequate supports.
- d) Install shut-off valves, pressure gauges and impulse connections both upstream and downstream of regulator.
- e) Make sure that regulator is mounted in flow direction as shown by the arrow embossed on its body.
- f) In models featuring internal impulse connection, connect the sensing line to the appropriate connection located at the centre of the outlet flange.

LINKING CONTROL CONNECTIONS

Check that gas flow speed in the control connection fitted section of the pipe is less than 40 metres a second.

For horizontal pipes, control connections should be linked up as shown in Fig. 6. Vertical pipes do not require any particular link-up configuration.

In the versions with internal slam-shut valve, pilot impulse connection must be fitted downstream (Figs 4 and 5).

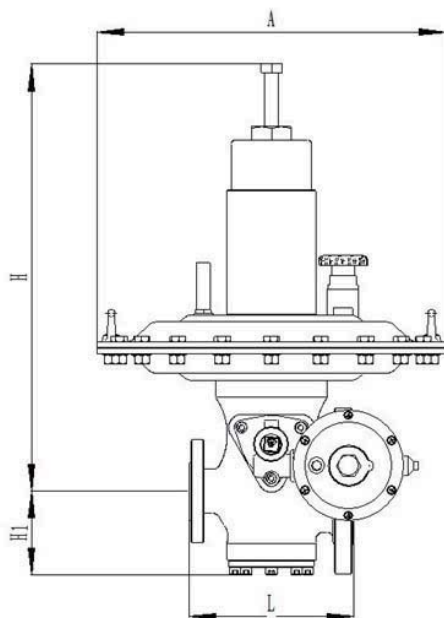
In models with external impulse connection, link-up must be made downstream of regulator (Fig. 5).

In models featuring internal impulse connection, connect the sensing line prior to regular being installed onto the line. In case of values exceeding those shown in the "OUTLET PRESSURE- CAPACITY" table, these models require an external impulse connection (see Fig. 5).

OUTLET PIPE CAPACITY

While the LT25/50/80/100 Series regulators are classified as "prompt response" types, a properly sized amount of gas must be present between the regulator and the burner when ON-OFF feed control is employed. This will dampen the pressure peaks due to sudden swings in capacity.

Said amount of gas should be at least 1/1000 of capacity as expressed in Stm^3/hr , especially for low-pressure utilities.



TYPE	Inlet (DN)	Outlet (DN)	Dimensions				Weight (kg)
			A	H	H1	L	
LT25	25	65	380	580	95	184	41
LT25-AP/APA	25	65	380	580	95	184	45
LT50	50	100	500	650	123	254	58
LT50-AP/APA	50	100	500	650	123	254	67
LT80	80	150	620	650	150	298	100
LT80-AP/APA	80	150	500	650	150	298	97
LT100	100	100	620	720	136	352	116
LT100-AP/APA	100	100	500	720	136	352	110

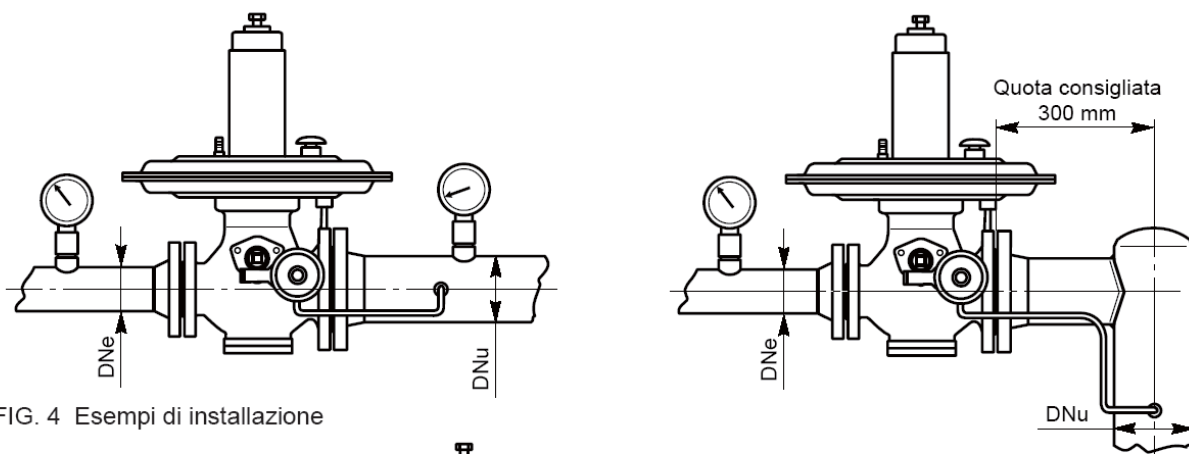


FIG. 4 Esempi di installazione

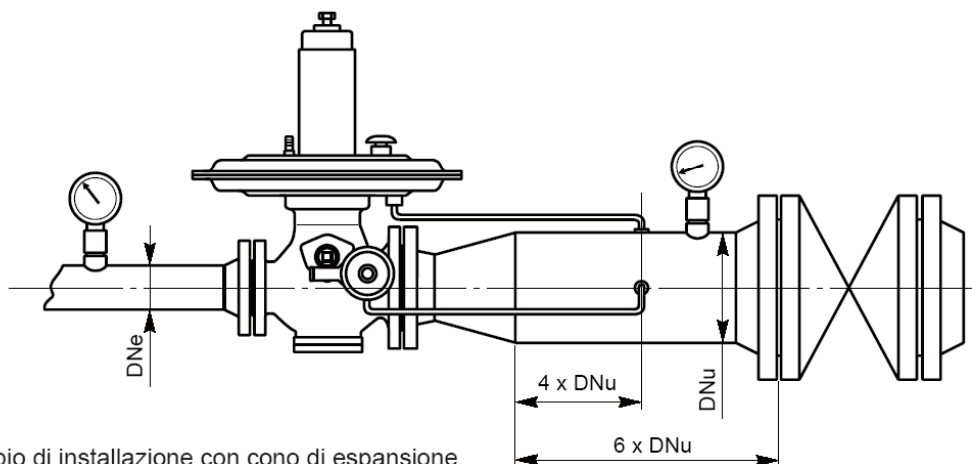
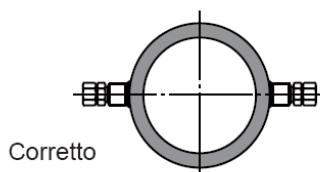


FIG. 5 Esempio di installazione con cono di espansione



Corretto



Corretto



Errato

FIG. 6 Collegamento presa di controllo

NOTE: The flow unit is Nm^3/h . The flow of natural gas is relative density of 0.6 under standard conditions.

LT25

出口压力 Outlet (bar)	进口压力 Inlet (bar)														
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.8	2.0	3.0	4.0	5.0
0.02	200	250	290	320	350	380	410	450	520	580	650	700	920	1000	1000
0.03	200	250	290	320	350	380	410	450	520	580	650	700	920	1000	1000
0.05	190	240	280	310	340	380	410	450	520	580	650	700	920	1000	1000
0.08	170	230	270	310	340	380	400	450	520	580	650	700	920	1000	1000
0.10	160	220	260	300	340	370	400	450	520	580	650	700	920	1000	1000
0.15	100	200	250	300	330	360	390	450	520	580	650	700	920	1000	1000
0.20	-	160	230	280	320	360	390	450	520	580	650	700	920	1000	1000
0.25	-	-	210	260	310	350	390	450	520	580	650	700	920	1000	1000
0.30	-	-	170	240	290	340	380	440	510	580	650	700	920	1000	1000
0.40	-	-	-	180	250	310	350	430	510	580	650	700	920	1000	1000
0.50	-	-	-	-	190	260	320	400	480	580	650	700	920	1000	1000



LT25-AP/LT25-APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)									
	0.75	1.0	1.5	2.0	3.0	5.0	8.0	12	16	19
0.4	330	430	570	700	930	1400	1400	1400	1400	1400
0.5	-	400	570	700	930	1400	1400	1400	1400	1400
0.6	-	380	560	690	930	1400	1400	1400	1400	1400
0.8	-	-	520	680	930	1400	1400	1400	1400	1400
1.0	-	-	470	650	900	1400	1400	1400	1400	1400
1.5	-	-	-	530	900	1400	1400	1400	1400	1400
2.0	-	-	-	-	800	1400	1400	1400	1400	1400
3.0	-	-	-	-	-	1300	1400	1400	1400	1400

LT50

出口压力 Outlet (bar)	进口压力 Inlet (bar)														
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.8	2.0	3.0	4.0	5.0
0.02	550	660	755	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.03	535	660	755	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.05	522	650	755	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.08	480	620	730	840	900	975	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.10	440	600	715	820	890	960	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.15	320	550	690	780	870	960	1030	1170	1290	1430	1600	1700	2290	2850	3430
0.20	-	470	630	750	850	930	1000	1170	1290	1430	1600	1700	2290	2850	3430
0.25	-	-	600	720	820	920	1000	1170	1290	1430	1600	1700	2290	2850	3430
0.30	-	-	480	660	780	890	980	1170	1290	1430	1600	1700	2290	2850	3430
0.40	-	-	-	490	690	820	930	1100	1290	1430	1600	1700	2290	2850	3430
0.50	-	-	-	-	520	710	850	1050	1250	1430	1600	1700	2290	2850	3430

LT50-AP/LT50-APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)									
	0.75	1.0	1.5	2.0	3.0	5.0	8.0	12	16	19
0.4	870	1100	1400	1700	2200	3400	3500	3500	3500	3500
0.5	-	1000	1400	1700	2200	3400	3500	3500	3500	3500
0.6	-	1000	1400	1700	2200	3400	3500	3500	3500	3500
0.8	-	-	1300	1700	2200	3400	3500	3500	3500	3500
1.0	-	-	1200	1600	2200	3400	3500	3500	3500	3500
1.5	-	-	-	1400	2200	3400	3500	3500	3500	3500
2.0	-	-	-	-	2100	3400	3500	3500	3500	3500
3.0	-	-	-	-	-	3300	3500	3500	3500	3500

LT80

■ : H型/Versione H

出口压力 Outlet (bar)	进口压力 Inlet (bar)																					
	0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1	1.25	1.5	2	3	4	5	6	7	8	10	11-19
0.02	470	750	950	1100	1350	1500	1700	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.03	390	720	900	1050	1300	1500	1700	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.05	-	620	850	1000	1300	1500	1650	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.08	-	400	740	950	1250	1450	1650	1800	1950	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.1	-	-	630	880	1200	1450	1600	1800	1900	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.2	-	-	-	650	920	1250	1500	1700	1900	2050	2300	2600	2900	3400	4600	5700	6900	-	-	-	-	-
0.25	-	-	-	-	680	1150	1400	1650	1850	2000	2300	2600	2900	3400	4600	5700	6900	8100	9200	10300	12000	12000
0.3	-	-	-	-	-	950	1300	1600	1800	1950	2250	2600	2850	3400	4600	5700	6900	8100	9200	10300	12600	12600
0.4	-	-	-	-	-	-	1000	1350	1650	1850	2200	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13500
0.5	-	-	-	-	-	-	-	1000	1400	1700	2150	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13800



LT80-AP/LT80-APA

■ : APA型/Versione APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)															
	0.5	0.6	0.7	0.8	1	1.25	1.5	2	3	4	5	6	7	8	10	11-19
0.4	1000	1350	1650	1850	2200	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13500
0.5	-	100	1400	1700	2150	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13800
0.6	-	-	1050	1450	2000	2550	2850	3400	4600	5700	6900	8100	9200	10300	12600	13800
0.7	-	-	-	1100	1850	2400	2800	3400	4600	5700	6900	8100	9200	10300	12600	13800
0.8	-	-	-	-	1500	2250	2750	3400	4600	5700	6900	8100	9200	10300	12600	13800
1	-	-	-	-	-	1850	2500	3400	4600	5700	6900	8100	9200	10300	12600	13800
1.5	-	-	-	-	-	-	-	2850	4550	5700	6900	8100	9200	10300	12600	13800
2	-	-	-	-	-	-	-	-	4300	5700	6900	8100	9200	10300	12600	13800
2.5	-	-	-	-	-	-	-	-	3400	5500	6900	8000	9200	10300	12600	13800
3	-	-	-	-	-	-	-	-	-	5000	6800	8000	9100	10300	12600	13800

LT100

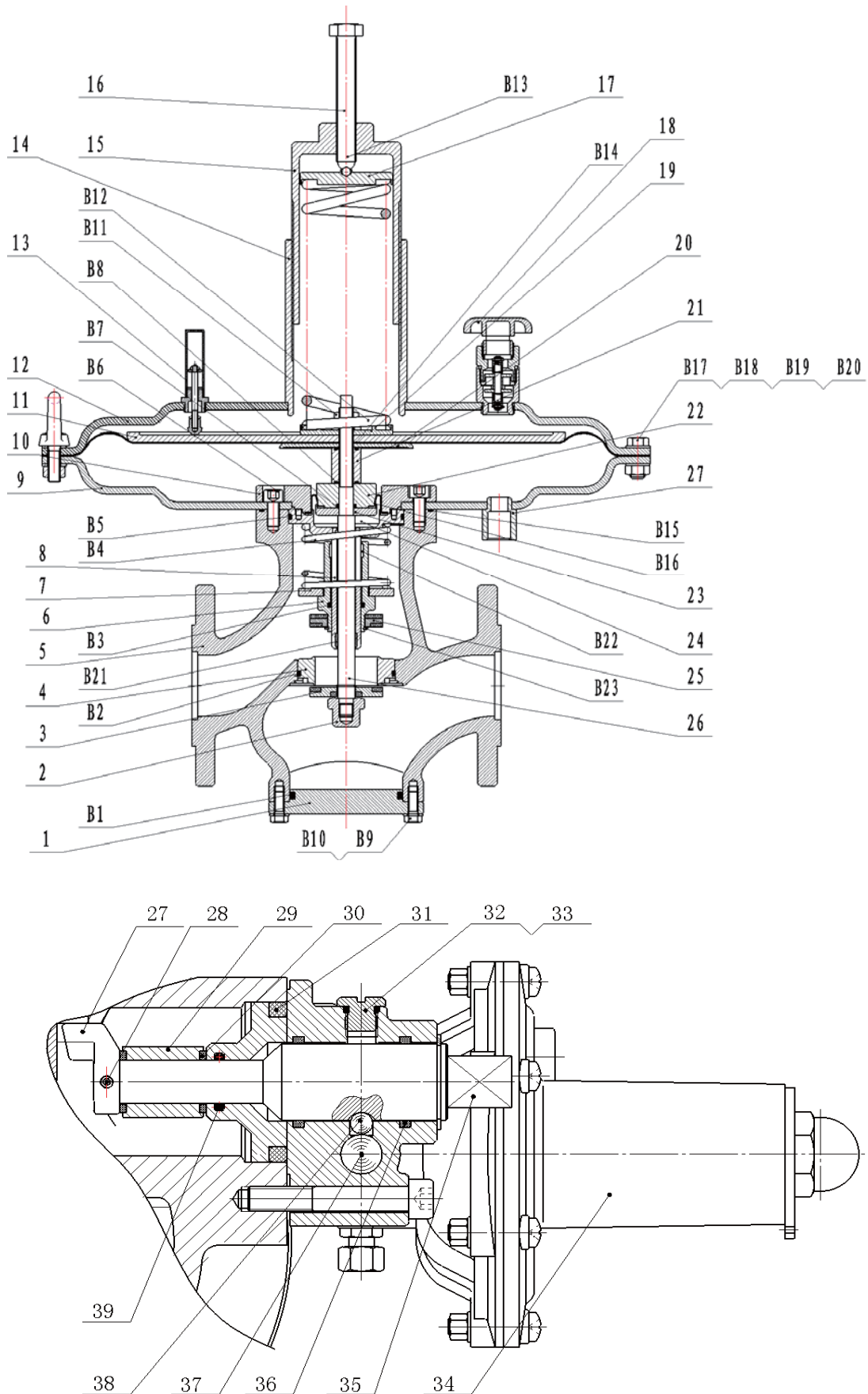
出口压力 Outlet (bar)	进口压力 Inlet (bar)														
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.25	1.5	1.8	2.0	3.0	4.0	5.0
0.02	1990	2410	2750	3030	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.03	1950	2350	2700	3000	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.05	1850	2320	2700	3000	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.08	1700	2240	2650	2950	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.10	1550	2150	2600	2900	3250	3500	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.15	1150	1950	2450	2850	3150	3400	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.20	-	1600	2250	2700	3050	3400	3700	4100	4650	5200	5800	6200	8000	8000	8000
0.25	-	-	2050	2550	2950	3300	3650	4100	4650	5200	5800	6200	8000	8000	8000
0.30	-	-	1700	2350	2850	3200	3650	4100	4650	5200	5800	6200	8000	8000	8000
0.40	-	-	-	1800	2450	2950	3300	4100	4650	5200	5800	6200	8000	8000	8000
0.50	-	-	-	-	1850	2500	3000	3850	4650	5200	5800	6200	8000	8000	8000

LT100-AP/LT100-APA

出口压力 Outlet (bar)	进口压力 Inlet (bar)									
	0.75	1.0	1.5	2.0	3.0	5.0	8.0	12	16	19
0.4	3100	4000	5200	6200	8000	8000	8000	8000	8000	8000
0.5	-	3800	5100	6200	8000	8000	8000	8000	8000	8000
0.6	-	3600	5100	6200	8000	8000	8000	8000	8000	8000
0.8	-	-	4900	6200	8000	8000	8000	8000	8000	8000
1.0	-	-	4500	6200	8000	8000	8000	8000	8000	8000
1.5	-	-	-	5100	8000	8000	8000	8000	8000	8000
2.0	-	-	-	-	8000	8000	8000	8000	8000	8000
3.0	-	-	-	-	-	8000	8000	8000	8000	8000



MORE DETAILS





N	NAME	N	NAME	N	NAME
1	Bottom	26	Main stem	B11	Hexagon head nut
2	Seal nut	27	Cam	B12	Main spring
3	Valve seat	28	Spring pin	B13	Ball
4	Seat ring	29	Limit ring	B14	Main diaphragm
5	Regulator body	30	PTFE washer	B15	O ring
6	Sliding	31	O ring	B16	Balancing diaphragm
7	Baffle	32	Bolt	B17	Hexagon head bolt
8	Stem guide	33	O ring	B18	Flat washer
9	Lower casing	34	Shut off valve	B19	Split washer
10	Board	35	Shaft	B20	Hexagon head nut
11	Diaphragm disk 360	36	Shaft gasket	B21	Guide gasket
12	Upper casing	37	Ball	B22	Sliding gasket
13	Indication organ	38	Ball	B23	Retaining ring for shaft
14	Sleeve	39	O ring		
15	Adjusting cap	B1	O ring		
16	Adjusting screw	B2	O ring		
17	Main spring seat upper	B3	O ring		
18	Breather	B4	Shut off spring		
19	Main spring seat lower	B5	O ring		
20	Diaphragm disk 110	B6	Hexagon socket cap screw		
21	Balancing nut	B7	O ring		
22	Balancing piece	B8	O ring		
23	Balancing washer	B9	Hexagon socket cap screw		
24	Stem guide seat	B10	Flat washer		
25	Shut off valve seat				