baltur

TECNOLOGIE PER IL CLIMA

CE

cn en

- 燃烧器使用说明
- Instruction for burners model

BGN 40 LX / LX-V
BGN 60 LX / LX-V
BGN 120 LX / LX-V
BGN 200 LX / LX-V
BGN 300 LX / LX-V
BGN 390 LX / LX-V
BGN 540 LX / LX-V

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注　意

- 对燃烧器和系统的操作只能由合格的工作人员来执行。
- 启动燃烧器和进行维护保养前，请仔细阅读本说明手册。
- 在对燃烧器的电气系统进行操作前，请先切断供电电源。
- 如果操作及处理不当，可能会引起危险事故。

ATTENTION

- The works on the burner and on the system have to be carried out only by competent people.
- Read carefully the instructions before starting the burner and service it.
- The system electric feeding must be disconnected before starting working on it.
- If the works are not carried out correctly it is possible to cause dangerous accidents.

制造商声明

我公司生产的燃气、轻油、重油和混合（燃气/轻油或燃气/重油）燃烧器在制造上完全符合现行的CE-CEI-UNI标准。

BALTUR(百得)公司只对由BALTUR提供的，装有由BALTUR提供的符合“CE”标准的燃气阀组和燃气管道附件的燃烧器提供“CE”认证证书。

备注：关于CE和UNI标准中对燃气和混合（燃气/轻油或燃气/重油）燃烧器的规定，如果燃烧器在订购时因为用于上述标准中没有列出的特殊用途而符合CE和UNI标准，此时本声明无效。

MANUFATURER'S DECLARATION

We hereby declare that our gas, light oil, heavy oil, and combination (gas/light oil or gas/heavy oil) burners are manufactured in conformance with current CE, CEI and UNI standards.
BALTUR guarantees the "CE" certification provided that the burner is coupled to the "CE" gas train supplied by BALTUR and the "CE" gas line accessories (on request).

NOTE: This declaration is not valid with regard to EC or UNI Standards for gas burners or the gas part of duel fuel burners (gas/light oil or gas/heavy oil) when such burners have been ordered in non-compliance with the EC Standard or Italian UNI Standard because they are to be used for special purposes not provided for in the above-mentioned standards.

公司执行董事
Dott. Riccardo Fava

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TECNOLOGIE PER IL CLIMA

型号 MODEL			BGN 40 LX	BGN 60 LX	BGN 120 LX	BGN 200 LX	BGN 300 LX	BGN 390 LX	BGN 540 LX
热功率 THERMIC CAPACITY	最大 MAX	kW	400	720	1200	2150	3600	3950	5900
	最小 MIN	kW	60	80	150	250	400	400	600
电机 MOTOR	功率	kW	0.37	1.1	2.2	3	7.5	7.5	15
	转速	r.p.m.	2800	2800	2800	2870	2870	2870	2920
消耗电功率 ABSORBED ELECTRICAL POWER		kW	0.77	1.50	1.93	3.50	8.00	8.00	15.5
保险 / FUSES	电流	A	6	10	16	20	25	25	50
	电压	V	400	400	400	400	400	400	400
点火变压器 / IGNITION TRANSFORMER			8 kV - 30 mA						
电压 / VOLTAGE			3N ~ 400 V - 50 Hz						
火焰检测器 / FLAME DETECTOR			电离电极 / IONISATION PROBE						紫外线光电管 Photocell UV
天然气体积流率 NATURE GAS FLOW RATE	最大 MAX	m^3_n/h	40	72	120	216	362	397	593
	最小 MIN	m^3_n/h	6	8	15	25	40	40	60
供气压力 / GAS PRESSURE	最大 MAX	mbar	360	360	360	360	360	360	360

随机配件 / STANDARD ACCESSORIES

型号 MODEL	BGN 40 LX	BGN 60 LX	BGN 120 LX	BGN 200 LX	BGN 300 LX	BGN 390 LX	BGN 540 LX
燃烧器固定法兰 / BURNER FIXING FLANGE	1	1	1	1	1	1	1
隔热垫片 / ISOLATING GASKET	1	1	1	1	1	1	2
双头螺柱 / STUD BOLTS	3-M12	3-M12	3-M16	3-M16	3-M20	3-M20	6-M20
六角头螺母 / EXAGONAL NUTS	3-M12	3-M12	3-M16	3-M16	3-M20	3-M20	6-M20
平垫圈 / FLAT WASHERS	3-Ø12	3-Ø12	3-Ø16	3-Ø16	3-Ø30	3-Ø30	6-Ø20

型号 MODEL			BGN 40 LX-V	BGN 60 LX-V	BGN 120 LX-V	BGN 200 LX-V	BGN 300 LX-V	BGN 390 LX-V	BGN 540 LX-V
热功率 THERMIC CAPACITY	最大 MAX	kW	400	720	1200	2150	3600	3950	5900
	最小 MIN	kW	60	80	150	250	400	400	600
电机 MOTOR	功率	kW	0.37	1.1	2.2	3	7.5	7.5	15
	转速	r.p.m.	2800	2800	2800	2870	2870	2870	2920
消耗电功率 ABSORBED ELECTRICAL POWER		kW	0.77	1.50	1.93	3.50	8.00	8.00	15.5
保险 / FUSES	电流	A	-	6	10	10	16	16	35
	电压	V	400	400	400	400	400	400	400
点火变压器 / IGNITION TRANSFORMER			8 kV - 30 mA						
电压 / VOLTAGE			1N~230V - 50 Hz	3N ~ 400 V - 50 Hz					
火焰检测器 / FLAME DETECTOR			电离电极 / IONISATION PROBE						紫外线光电管 Photocell UV
天然气体积流率 NATURE GAS FLOW RATE	最大 MAX	m^3_n/h	40	72	120	216	362	397	593
	最小 MIN	m^3_n/h	6	8	15	25	40	40	60
供气压力 / GAS PRESSURE	最大 MAX	mbar	360	360	360	360	360	360	360

随机配件 / STANDARD ACCESSORIES

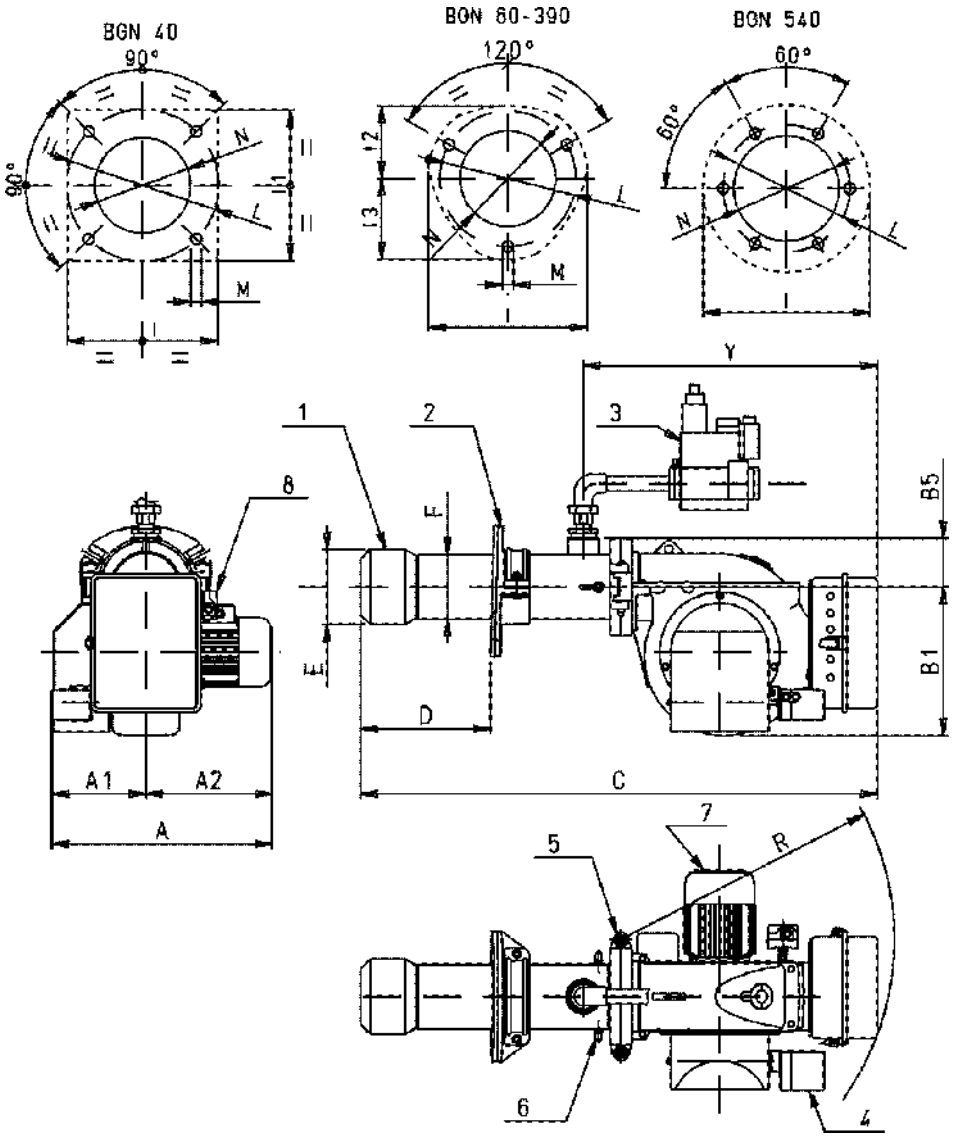
型号 MODEL	BGN 40 LX-V	BGN 60 LX-V	BGN 120 LX-V	BGN 200 LX-V	BGN 300 LX-V	BGN 390 LX-V	BGN 540 LX-V
燃烧器固定法兰 / BURNER FIXING FLANGE	1	1	1	1	1	1	1
隔热垫片 / ISOLATING GASKET	1	1	1	1	1	1	2
双头螺柱 / STUD BOLTS	3-M12	3-M12	3-M16	3-M16	3-M20	3-M20	6-M20
六角头螺母 / EXAGONAL NUTS	3-M12	3-M12	3-M16	3-M16	3-M20	3-M20	6-M20
平垫圈 / FLAT WASHERS	3-Ø12	3-Ø12	3-Ø16	3-Ø16	3-Ø30	3-Ø30	6-Ø20

cn 结构组成

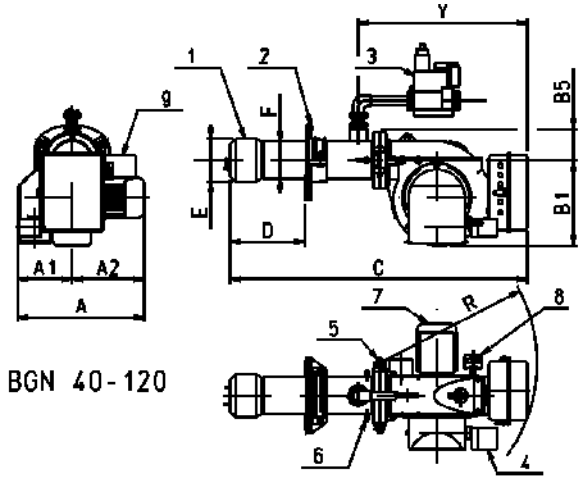
1) 燃烧头
2) 法兰
3) 比例调节式燃气阀组
4) 空气伺服电机
5) 铰链
6) 燃烧头调节手柄
7) 电机
8) 空气压力开关

en COMPONENT

1) Combustion head
2) Flange
3) Modulation valve
4) Air regulation servomotor
5) Hinge
6) Combustion head air control knob
7) Motor
8) Air pressure switch



型号 MODEL	A	A1	A2	B1	B5	C	D 最小 min	D 最大 max	E Ø	F Ø	I Ø	I1	I2	I3	L Ø	M	N Ø	R 最大 max.	Y
BGN 40 LX	455	205	250	295	102	1080	140	310	149	135	215	215	-	-	245	M12	180	620	620
BGN 60 LX	540	230	310	365	120	1270	190	380	184	160	320	-	150	170	290	M12	220	710	722
BGN 120 LX	630	265	365	450	137	1435	250	410	230	195	365	-	175	190	330	M16	265	810	840
BGN 200 LX	800	365	435	580	150	1740	280	480	300	220	440	-	205	230	410	M16	330	980	1025
BGN 300 LX	845	365	480	580	177	1740	270	450	316	275	550	-	260	290	520	M20	375	980	1045
BGN 390 LX	845	365	480	580	177	1740	270	450	316	275	550	-	260	290	520	M20	375	980	1045
BGN 540 LX	1155	470	685	695	283	2110	330	600	400	355	580	-	-	-	520	M20	430	1170	1270



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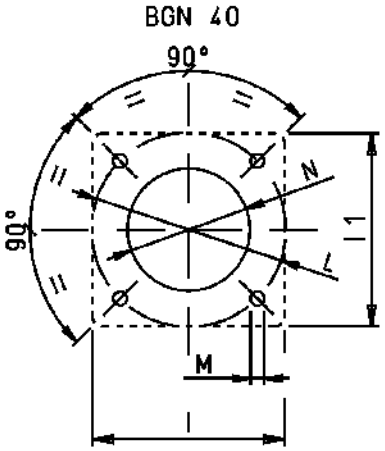

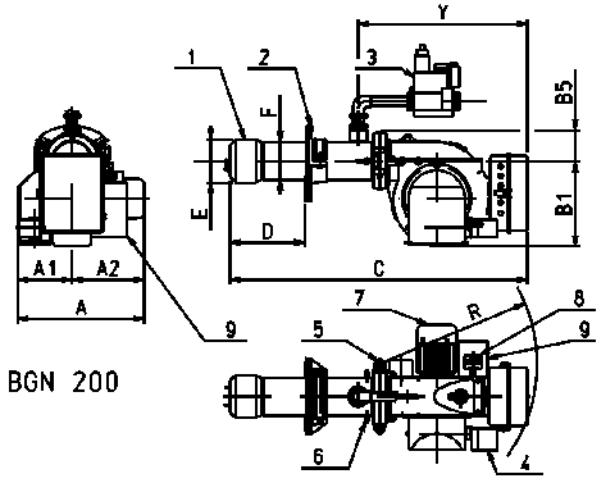

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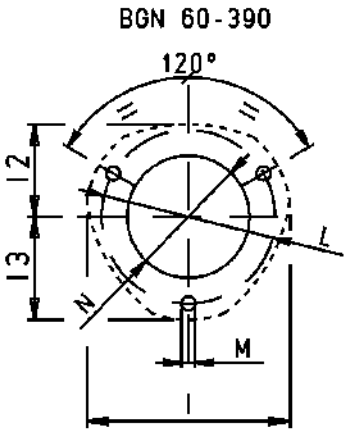

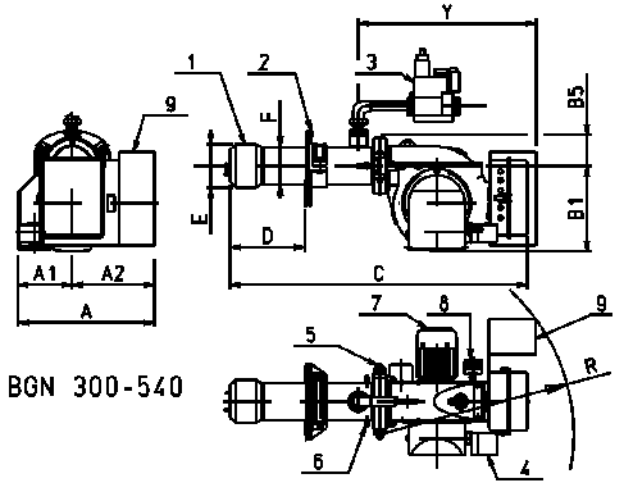

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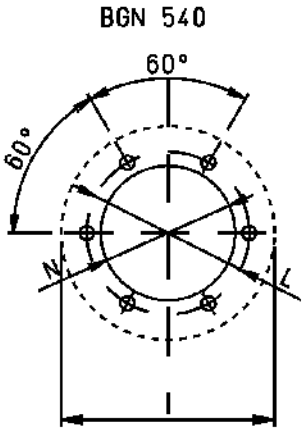


cn 结构组成

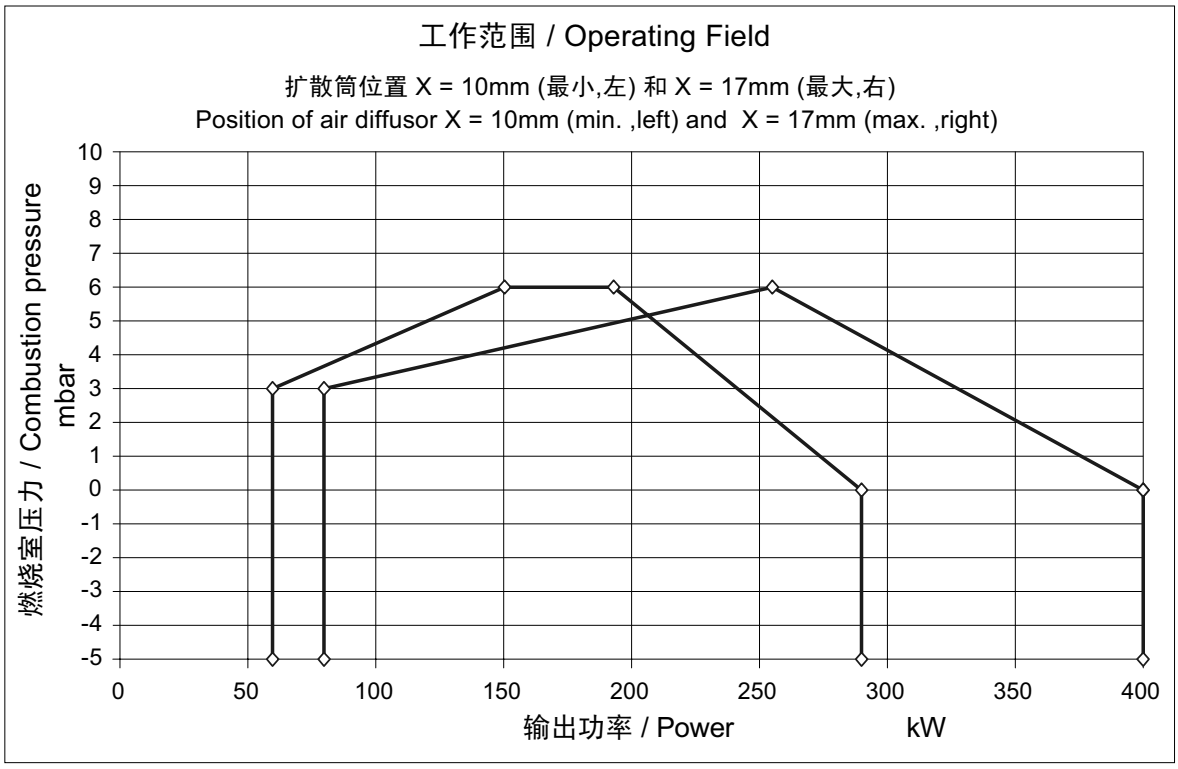
1) 燃烧头
2) 法兰
3) 比例调节式燃气阀组
4) 空气伺服电机
5) 铰链
6) 燃烧头调节手柄
7) 电机
8) 空气压力开关
9) 变频器

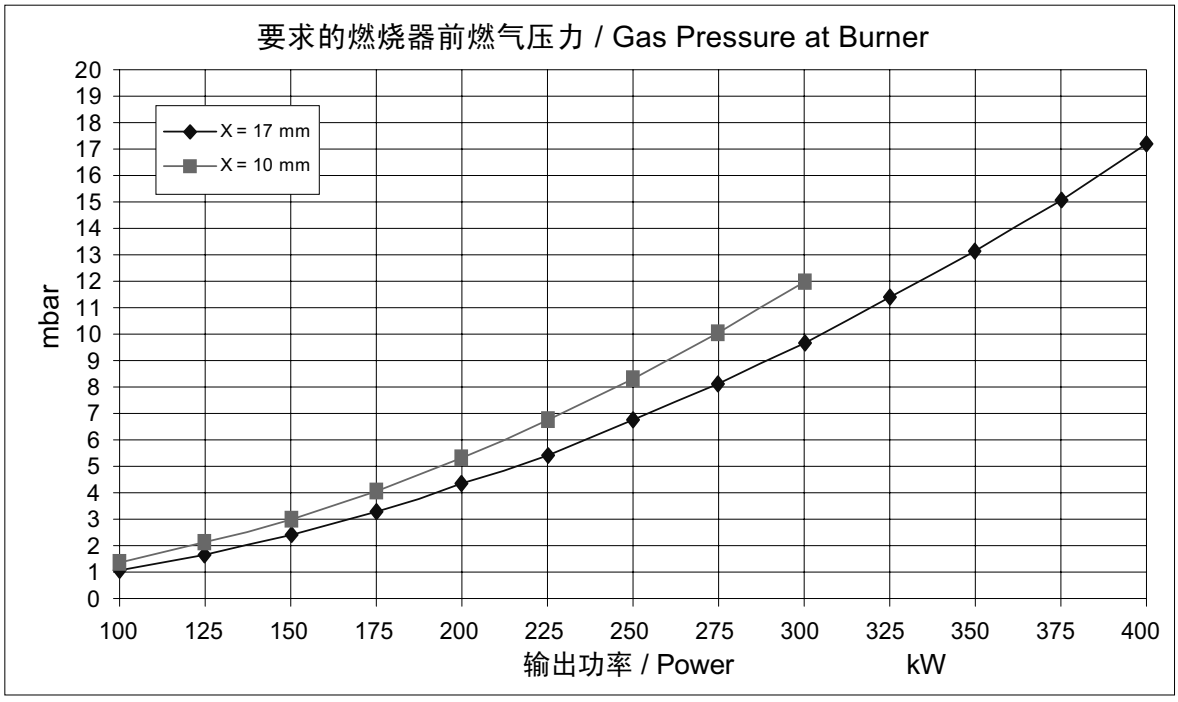
en **COMPONENT**

1) Combustion head
2) Flange
3) Modulation valve
4) Air regulation servomotor
5) Hinge
6) Combustion head air control knob
7) Motor
8) Air pressure switch
9) Frequency converter

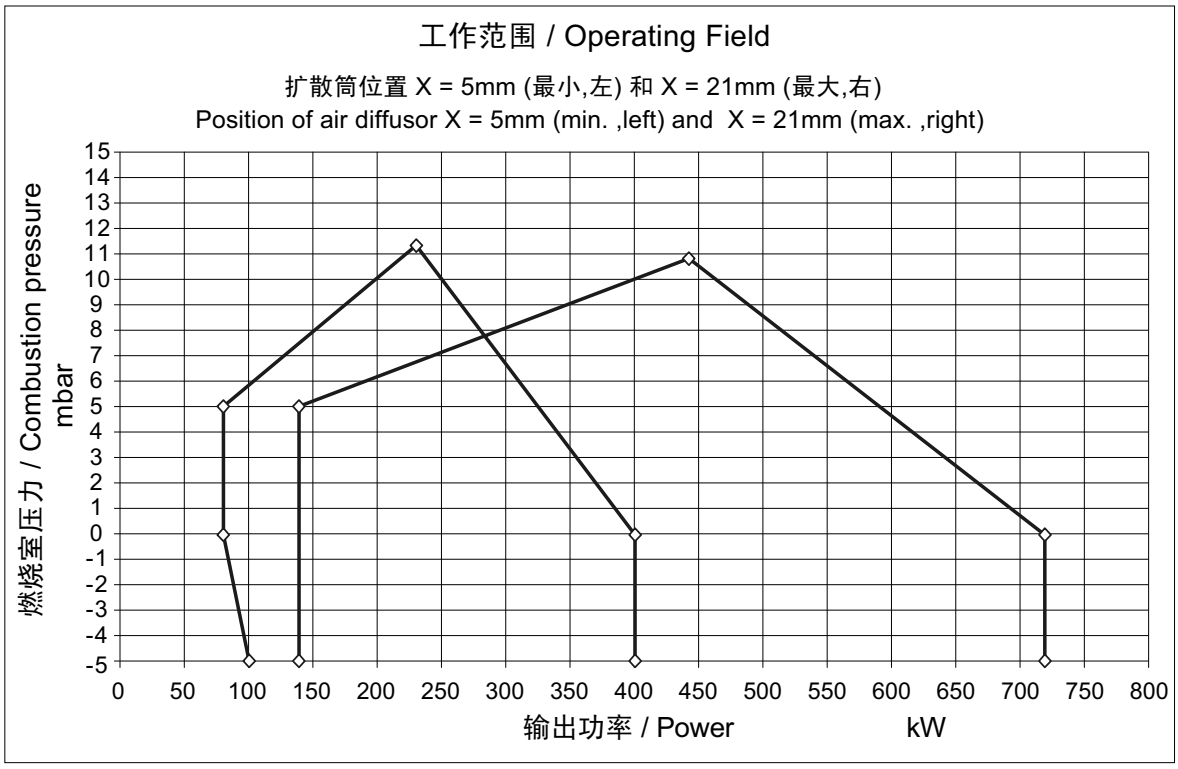
型号 **MODEL**	A	A1	A2	B1	B5	C	D 最小 min	D 最大 max	E Ø	F Ø	I Ø	I1	I2	I3	L Ø	M	N Ø	R 最大 max.	Y
BGN 40 LX-V	620	205	415	295	102	1080	140	310	149	135	215	215	-	-	245	M12	180	620	620
BGN 60 LX-V	521	230	291	365	120	1270	190	380	184	160	320	-	150	170	290	M12	220	710	722
BGN 120 LX-V	617	265	352	450	137	1435	250	410	230	195	365	-	175	190	330	M16	265	810	840
BGN 200 LX-V	800	365	435	580	150	1740	280	480	300	220	440	-	205	230	410	M16	330	980	1025
BGN 300 LX-V	840	365	475	580	177	1825	270	450	316	275	550	-	260	290	520	M20	375	1180	1130
BGN 390 LX-V	840	365	475	580	177	1825	270	450	316	275	550	-	260	290	520	M20	375	1180	1130
BGN 540 LX-V	1155	470	685	695	283	2165	330	600	400	355	580	-	-	-	520	M20	430	1360	1320

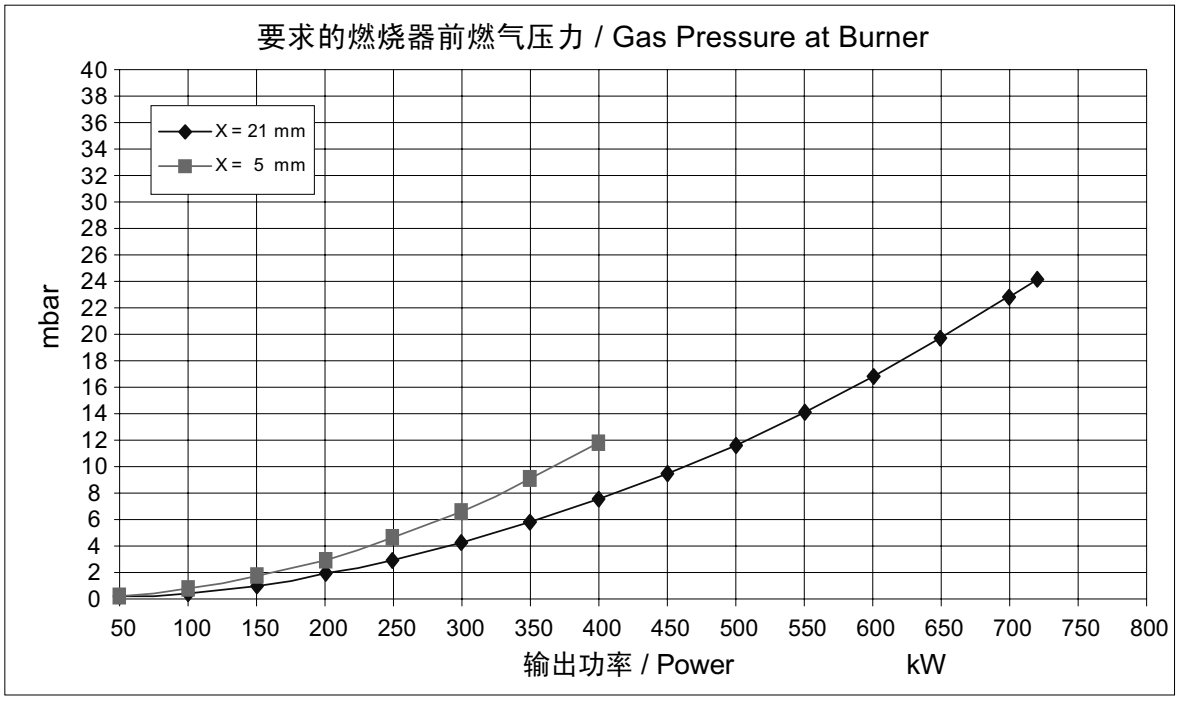
BGN 40 LX / LX-V


工作范围 / Operating Field
扩散筒位置 X = 10mm (最小,左) 和 X = 17mm (最大,右)
Position of air diffusor X = 10mm (min. ,left) and X = 17mm (max. ,right)
燃烧室压力 / Combustion pressure
mbar
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
0
50
100
150
200
250
300
350
400
输出功率 / Power
kW

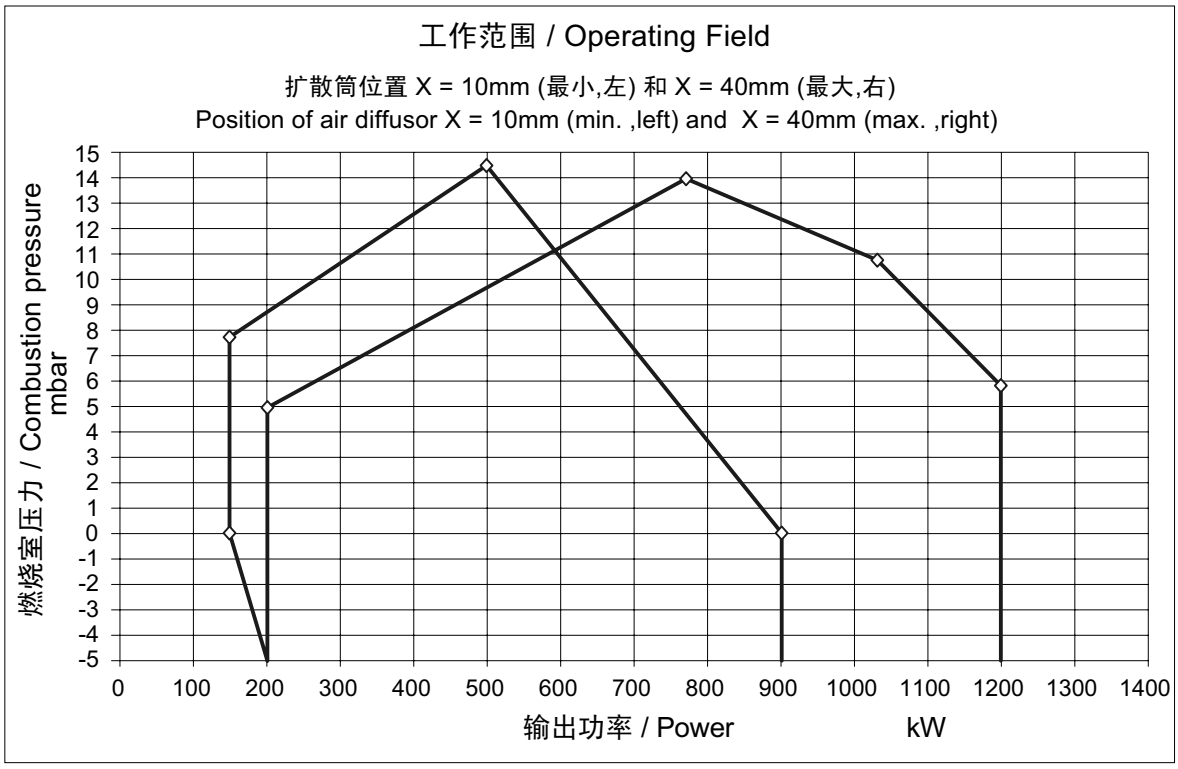

要求的燃烧器前燃气压力 / Gas Pressure at Burner
X = 17 mm
X = 10 mm
mbar
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
100
125
150
175
200
225
250
275
300
325
350
375
400
输出功率 / Power
kW

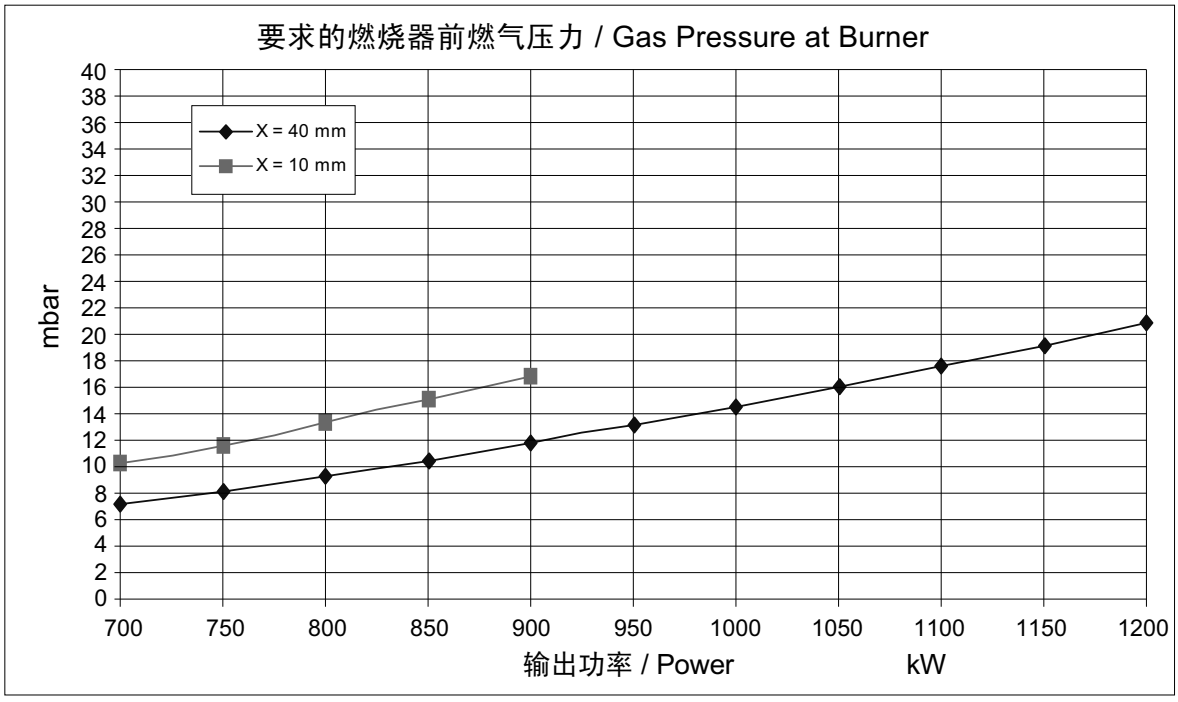
BGN 60 LX / LX-V


工作范围 / Operating Field
扩散筒位置 X = 5mm (最小,左) 和 X = 21mm (最大,右)
Position of air diffusor X = 5mm (min. ,left) and X = 21mm (max. ,right)
燃烧室压力 / Combustion pressure
mbar
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800
输出功率 / Power
kW

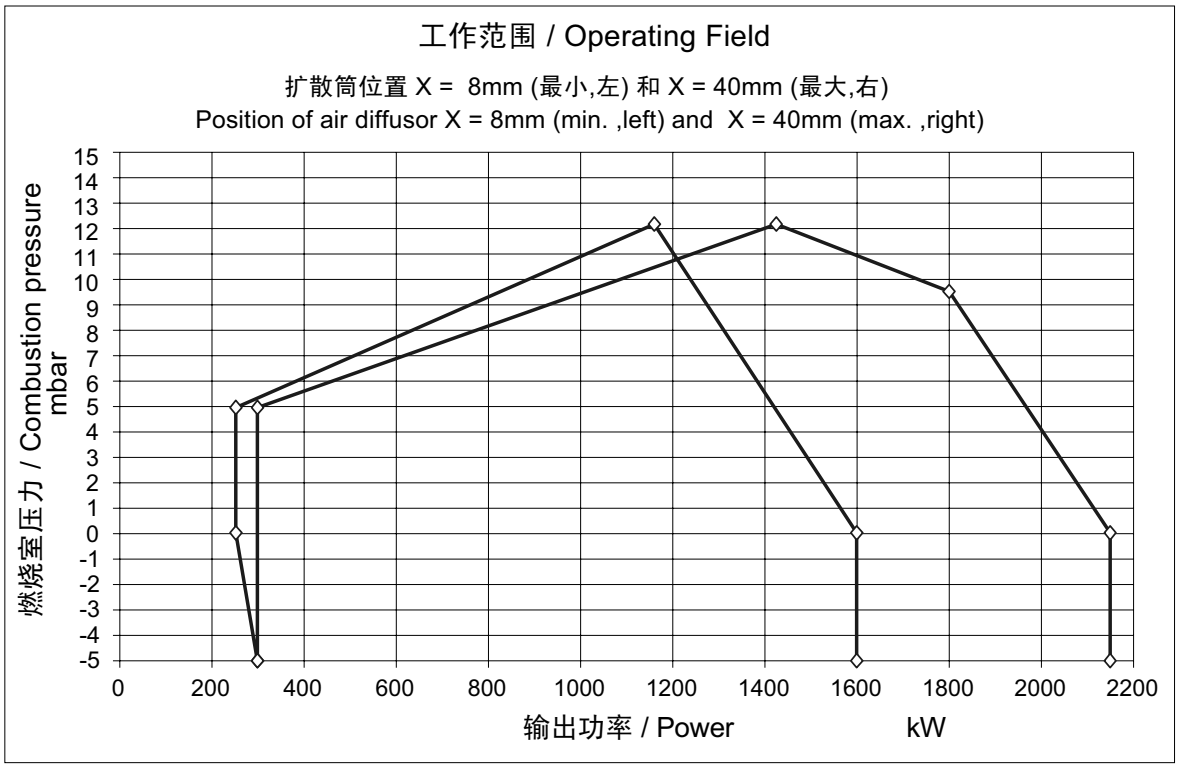

要求的燃烧器前燃气压力 / Gas Pressure at Burner
X = 21 mm
X = 5 mm
mbar
40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800
输出功率 / Power
kW

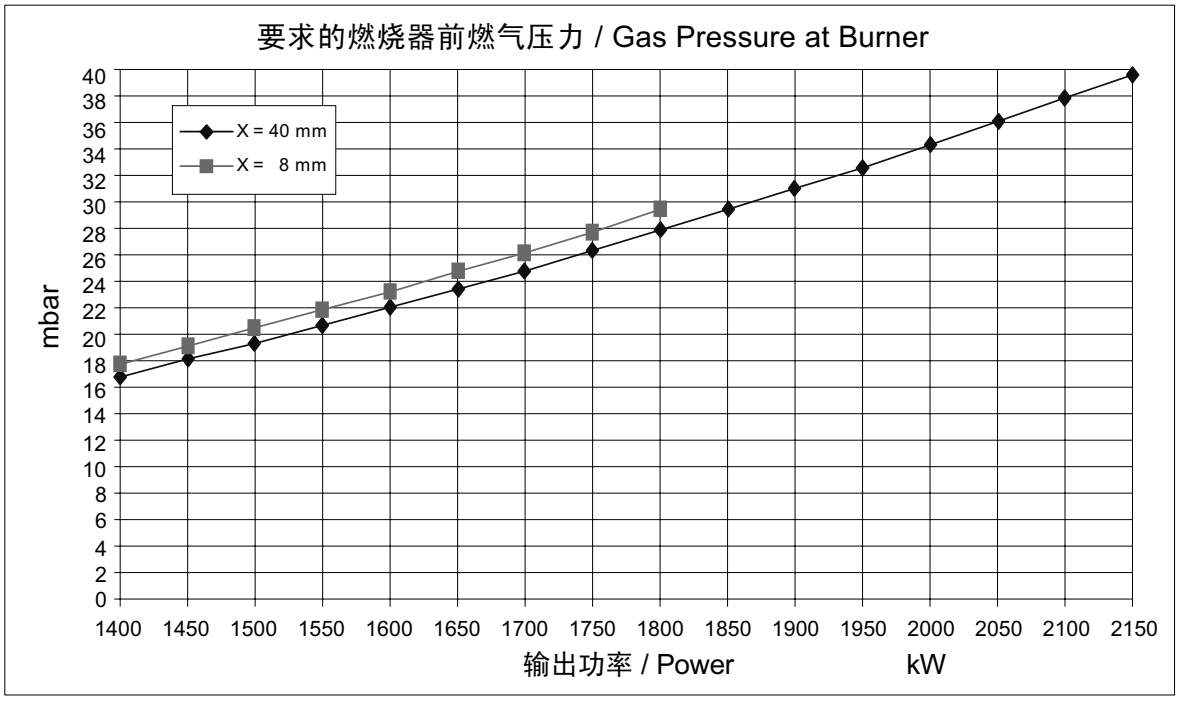
BGN 120 LX / LX-V





BGN 200 LX / LX-V





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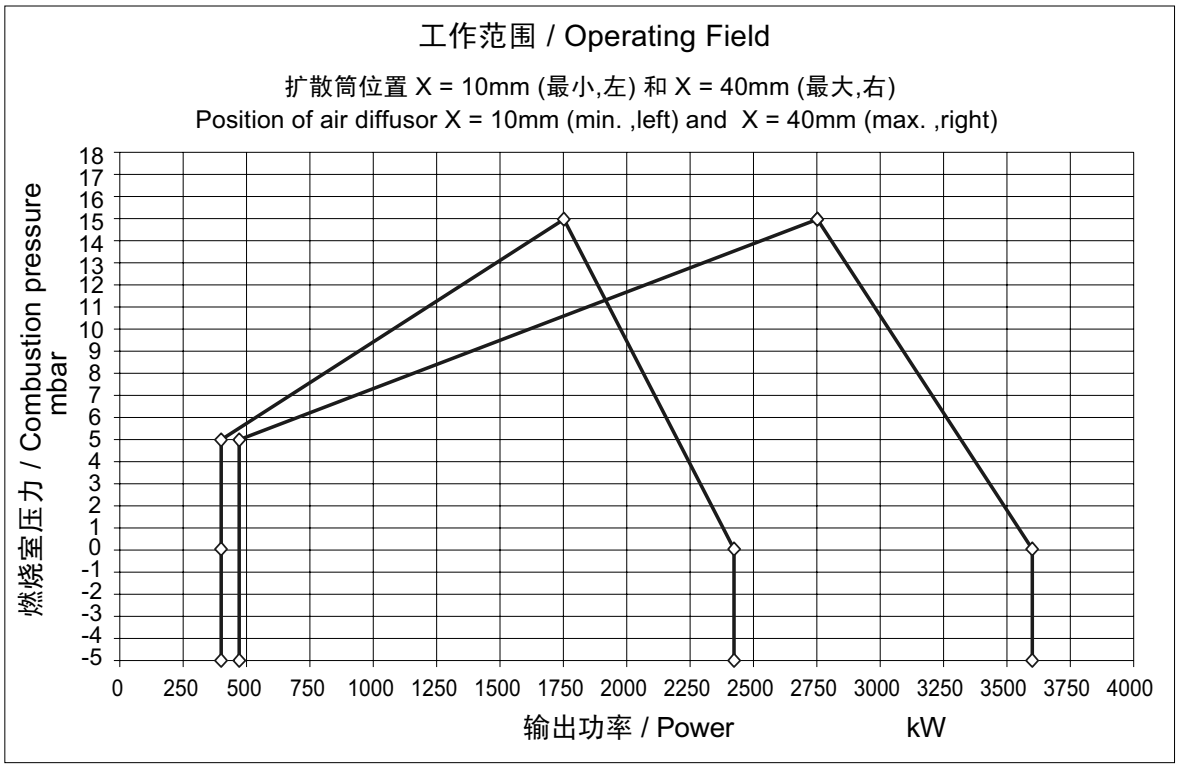

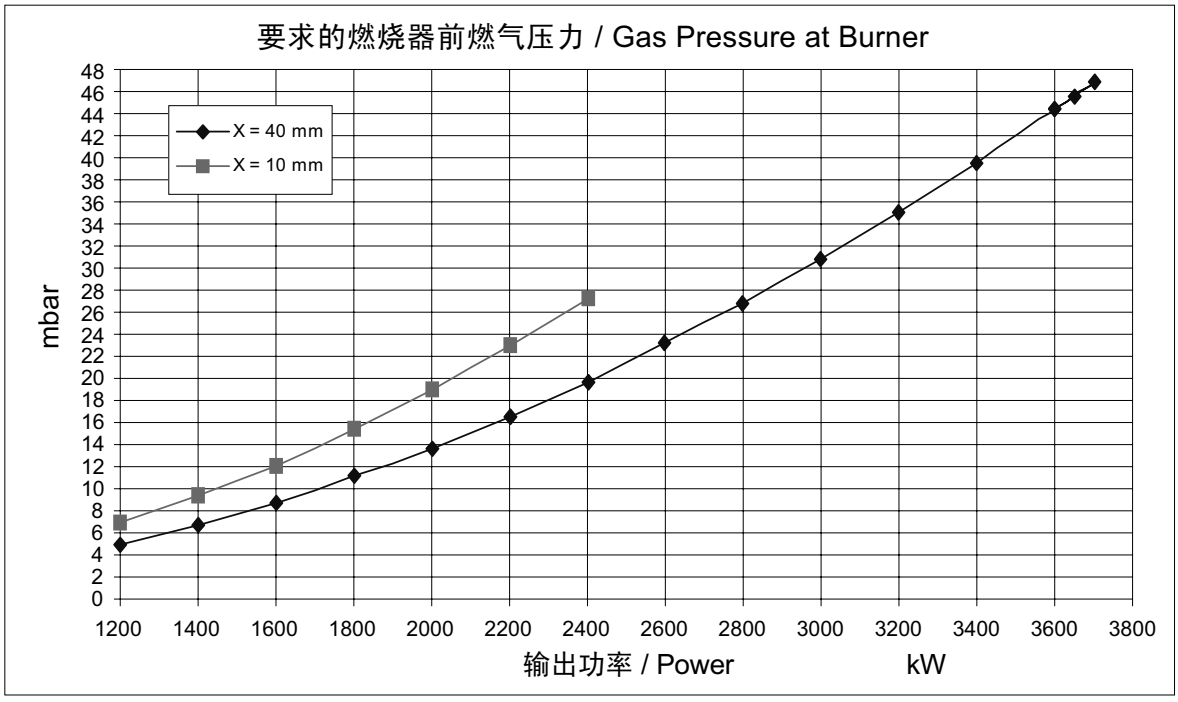

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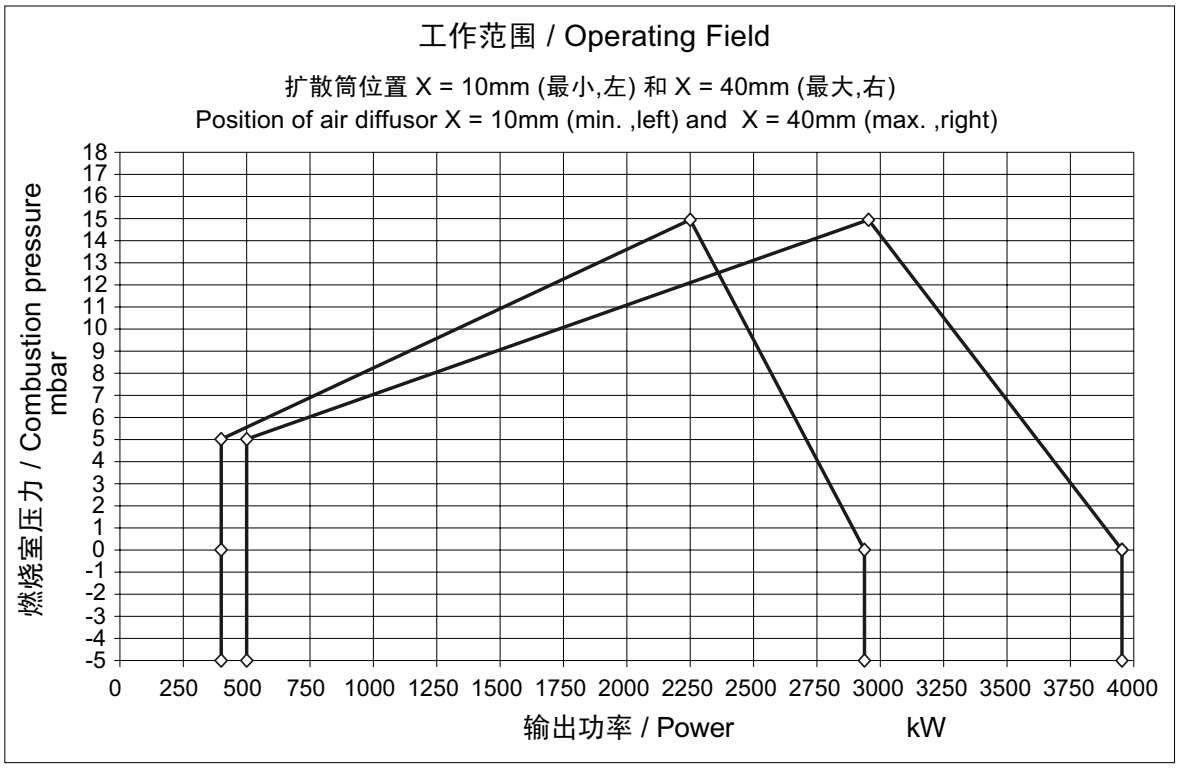
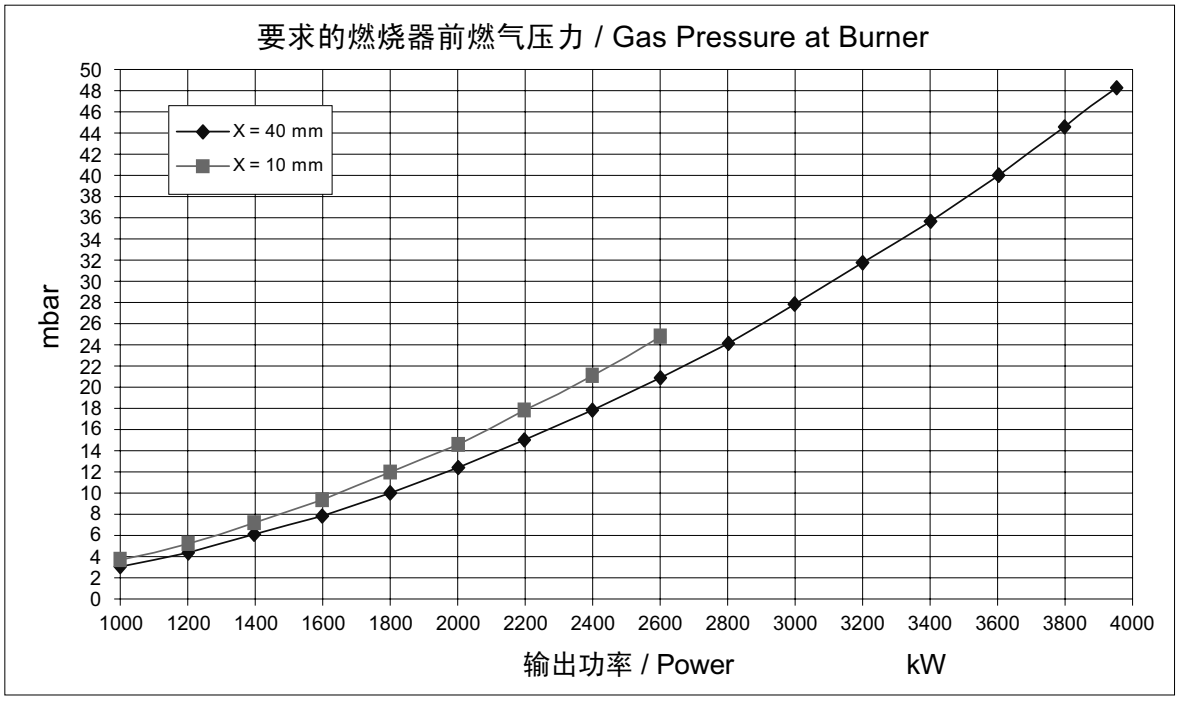
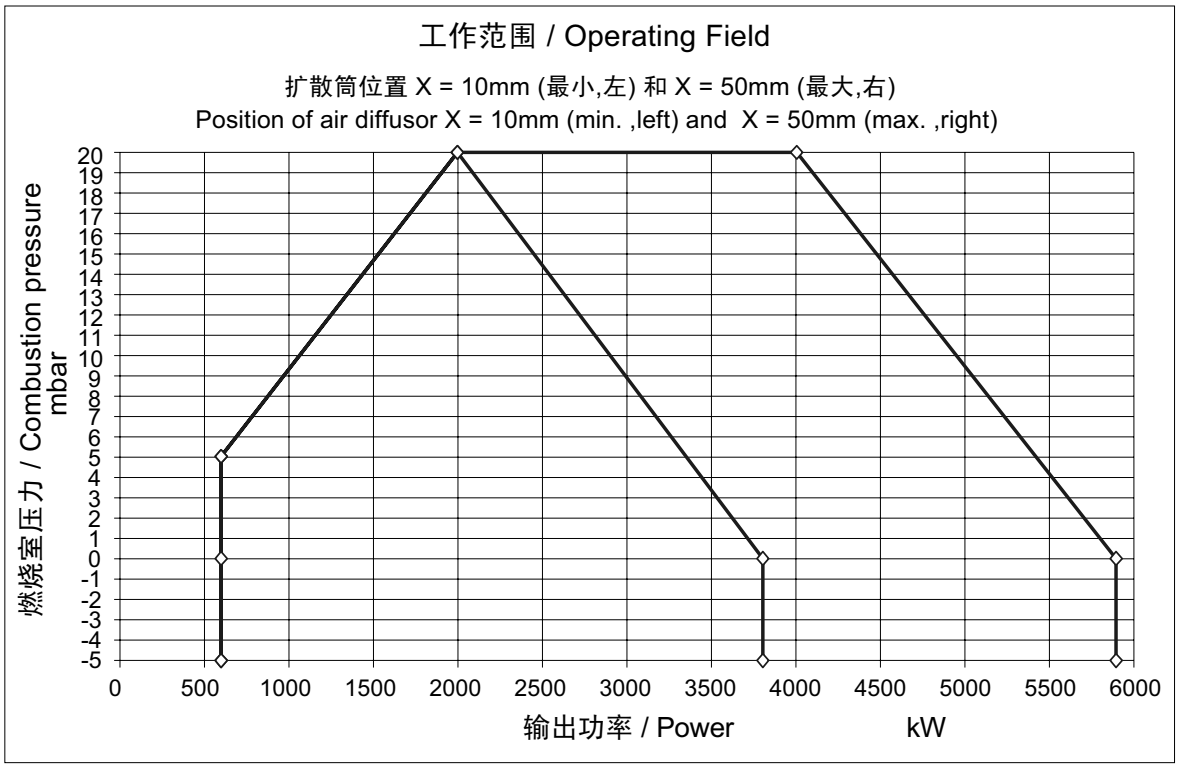
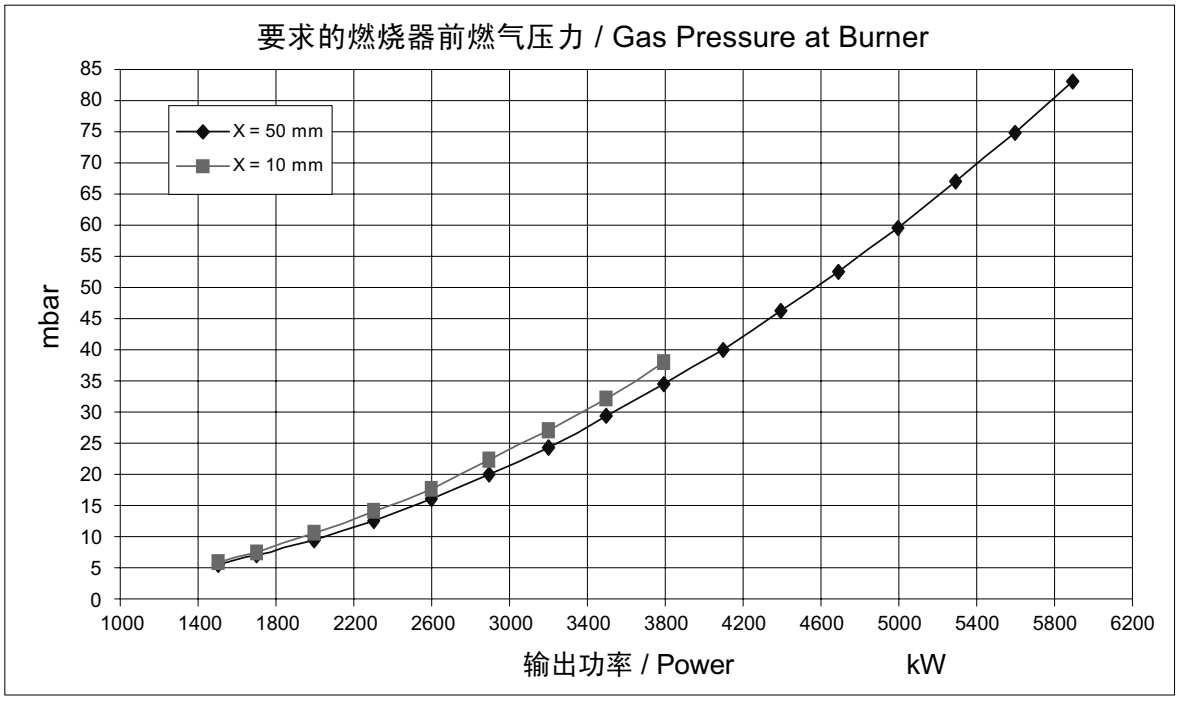




BGN 540 LX / LX-V





将燃烧器安装在锅炉上

把随机附带双头螺柱固定在锅炉联接铁板上后，一定要用联接法兰把燃烧器在锅炉上固定好。建议采用电焊将双头螺柱焊在锅炉铁板上，这样可以避免在拆卸燃烧器时把双头螺柱连同螺母都抽出来。隔热法兰一定要放在燃烧器安装法兰与锅炉的安装铁板之间。安装隔热法兰时要先拆下燃烧头的扩散筒。随机备有专用螺母和垫圈，用于燃烧器与锅炉的联接。建议先将锅炉的铁板固定，然后再安装燃烧器。如果锅炉上在开孔部位没有隔热措施，那么在燃烧器法兰与锅炉之间一定要放入厚度至少为10mm的隔热法兰。

锅炉上的联接铁板要按照我们的相关图纸来设计，且最小厚度为10mm，以避免部件过热变形。

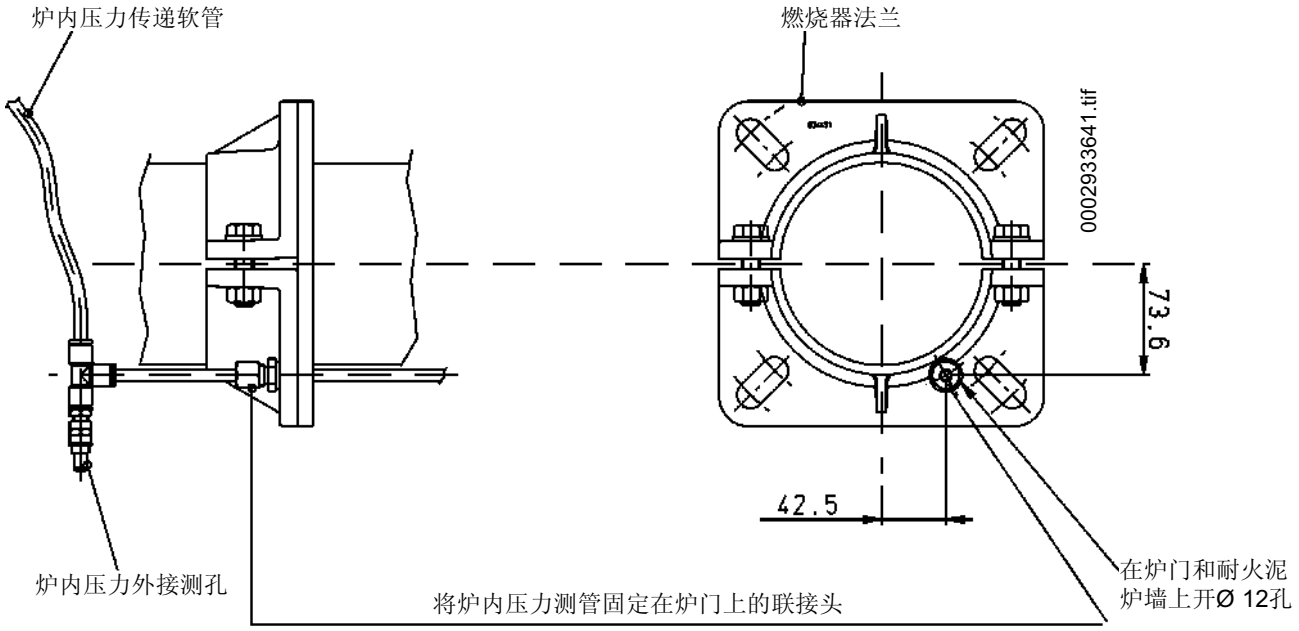
以上安装完成后，要根据供气压力范围和后面的图中的介绍，将供气管路与燃烧器联接起来。

燃烧室压力的测量

测量炉内压力的金属管需要穿过燃烧器法兰和炉门上的开孔才能测量炉内压力。如果炉门上安装燃烧器的炉门孔太小页并且在炉门上也没有观火孔页那么页就要在炉门上对应于燃烧器法兰第四象限(右下方)的位置另外开一个**Ø12**的孔页用来安装测量炉内压力的测压管(随机配件)。

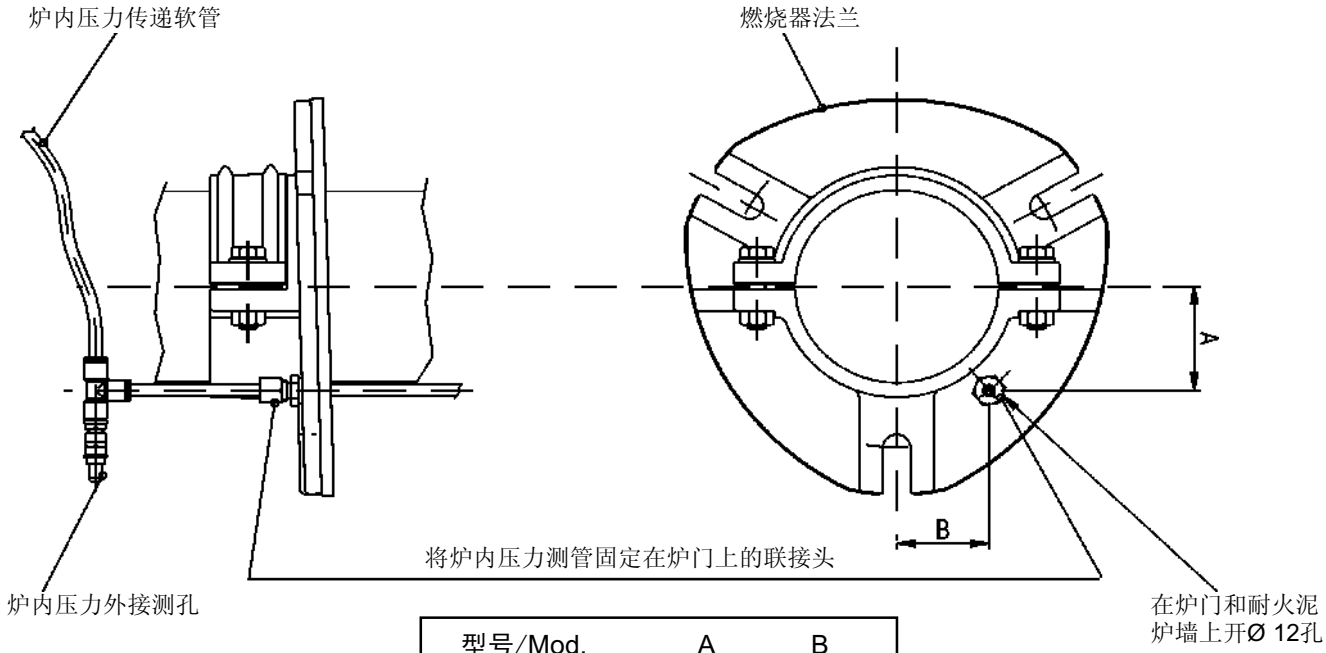
BGN 40 LX

N° 0002933641
Rev. 13/11/2002



BGN 60 LX ~ BGN 390 LX

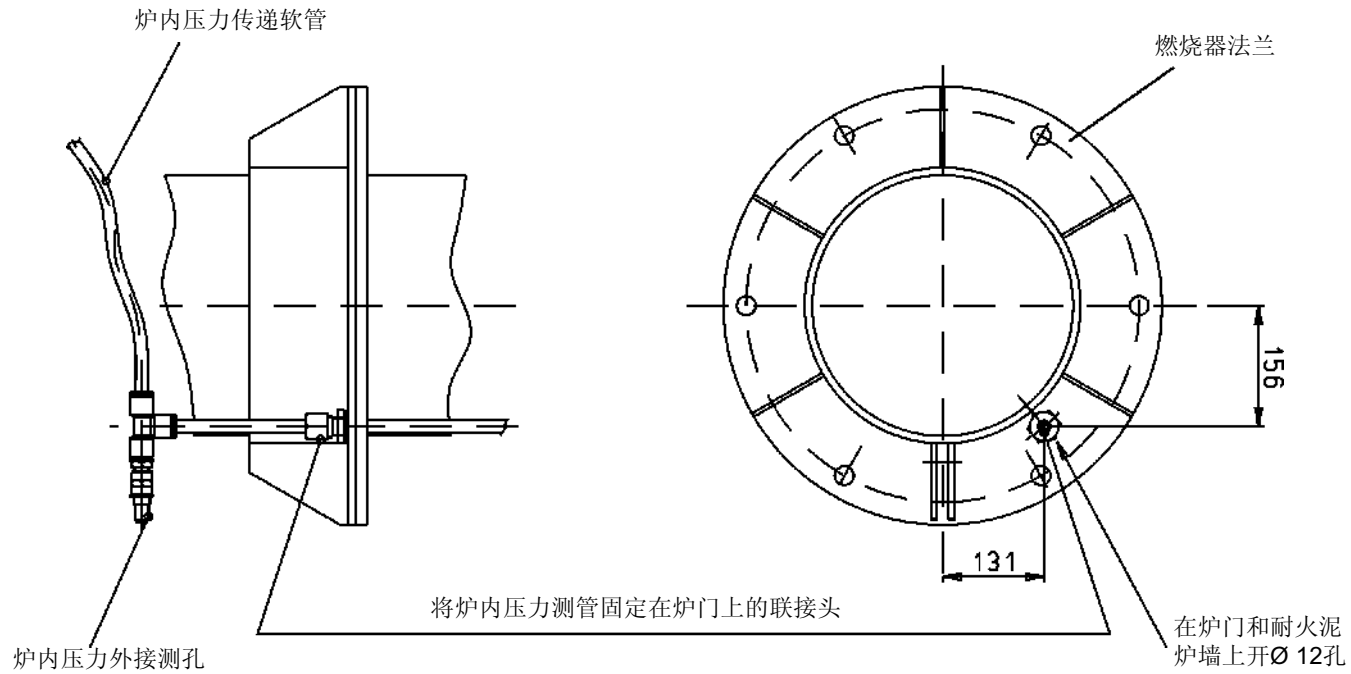
N° 0002933301
Rev. 13/11/2002



型号/Mod.	A	B
BGN 60 LX	80.5	67.5
BGN 120LX	108	62.5
BGN 200 LX	135	78
BGN 300 LX	150.5	87
BGN 390 LX	150.5	87

BGN 540 LX

N° 0002933821
Rev. 13/11/2002



低压供气系统 (压力不超过400毫米水柱)

将燃烧器在锅炉上安装好之后，必须将其与燃气供应管路相连(B8819)。供气管路上要有合适的联接件，并靠近燃烧器，以方便燃烧器的拆卸并/或打开锅炉孔。

必须安装以下部件：截止球阀、燃气过滤器和减震节。上述组件必须按照我们的图中所示进行安装。

燃气供应管的直径一定要根据和燃气流量来确定，而且启动燃烧器之前一定要密封好并进行正确的全面测试。建议按照如下规则安装燃气管路上靠近燃烧器的部件:

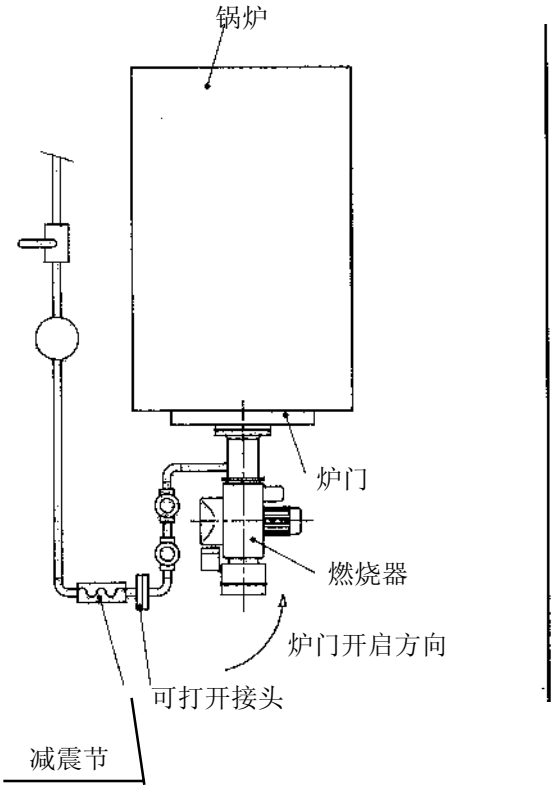
1) 燃气过滤器必须安装在水平管段上，以防进行清洁时过滤杂质落入管中。

2) 建议在联接可拆式接头前，先在燃烧器气路上直接安装一个弯头。这样打开这个弯头就可以打开锅炉。以上所述清楚地在以下图中表示出来。

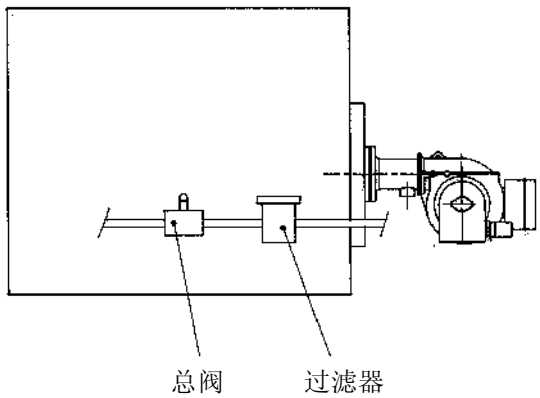
燃气总阀-过滤器-减震节-可打开接头的联接图

N° BT 8819

俯视图



侧视图



电气联接

三相或单相电源线必须能够保证可以承受燃烧器所需最大电流并且配备带保险丝的开关。另外，规则要求燃烧器供电线路上应有一个位于锅炉房外易于接触位置的开关。

所有电源线都应由软套保护，确保安全并且远离高温区域和部件。其它的电气联接请见相关电路图。

运行描述

如果温控器闭合，那么当主回路的开关闭合之后控制器得电。风机电机开始运行，对燃烧室进行预吹扫。同时调节空气风门挡板开度的伺服电机将风门调节到对应于最大出力的设置位置，即用最大负荷下的风量进行预吹扫。预吹扫结束后，风门回到点火位置。如果风压开关检测到的空气压力足够高，点火变压器就开始放出火花，同时燃气阀(主气阀和安全阀)打开，燃烧器就启动了。

点火气量(m^3/h)可通过调节风门伺服电机来控制(BGN 40 LX～BGN 390 LX请见图0002933220，BGN 540 LX请见图0002933490)。

注意：点火时的燃气流量大于最小出力时的燃气流量。

如果火焰出现并被火焰检测装置检测到，燃烧器就继续运行下去，同时点火过程结束，点火变压器停止工作。各负荷下的燃气流量需通过风门伺服电机来控制(见图0002933220和0002933490)。

注意：空气风门由一个专门的伺服电机驱动(参阅以下数页的专门说明)，谨记燃烧器停机时，由于温控器的作用，空气风门在伺服电机的控制下处于完全关闭的位置。

比例调节运行描述

燃烧器工作在最小负荷时，如果调节传感器允许(将炉内压力或温度调到更高的水平)，空气伺服电机就开始动作，逐渐增加空气的供应，因此，也就增加了燃气的供应，直到设定的最大出力。风压的变化由“MB-VEF...”或者“DMV-VEF...”燃气阀内的传感器检测，从而逐渐调节燃气的供应量。温度或者压力达到使调节传感器(温控器或者压力开关)动作的设定值之前，燃烧器将一直在最大出力下工作。一旦达到设定值，调节传感器就会干预，使空气伺服电机朝与前面位置相反的方向运转。

伺服电机的反转使得空气和燃气的流量降低。这种调节是为了使燃烧器的输出功率与锅炉需要的功率保持平衡。安装在锅炉上的调节探头探测到相应的参数变化，并自动地调节伺服电机的转向，从而增加或减少空气和燃气的供给。如果在最小出力下，仍然达到了设定的极限值(温度或压力)，那么燃烧器就会停下来。当温度或压力的值降到设定的极限值以下，燃烧器就重新启动，过程与前述相同。如果火焰未出现，控制器就会"锁定"(燃烧器完全停机，警告灯亮)。如果要解除"锁定"，须按专用按钮。

燃烧控制

正确的空气/燃气流量比，对于天然气来说，二氧化碳(CO_2)的含量，在最小出力下最小应为8%，最大出力下最大应为10%。我们建议不超过10%，这样可以避免运行中所供应的空气量过少以及燃烧产生的一氧化碳(CO)过多。**为保证不出现这种危险的情况页一定要经常用专门的仪器检测一氧化碳(CO)的体积百分含量页保证不超过0.1%。**

点火和燃气调节

1) 确认燃烧头已按照锅炉生产厂家的规定伸入燃烧室一定的距离。
检查燃烧头上的空气调节装置是否位于能够满足相应燃料供应量的要求(圆盘与燃烧头之间的气道在燃料输出减少时应相应减小；反之，当输出流量较高时，圆盘与燃烧头之间的气道应打开)的位置上。请参阅"燃烧头空气调节"一章的内容。
2) 如果将燃烧器与供气管路的联接还没有完成，须进行必要的检测并打开门窗，要先把供气管内的空气排空。打开燃烧器处与供气管的联接部位，打开截止阀，等到闻到燃气的气味将其关上。等到室内的燃气全部消散之后，在将燃烧器和供气管联接好。
3) 检查锅炉是否有水及设备的阀门是否打开。
4) 确认燃烧产物的排放畅通无阻(锅炉和烟囱的气门都已打开)。
5) 检查供电电压是否符合燃烧器的要求，并检查电气联接(电机和主线)已经预设为合适的电压。检查是否所有的现场接线均符合我们的接线图的要求。
6) 采用量程适当的压力表测量燃气调压器后的压力(如果可以，对于低压，最好用U型管之类的水柱压力计，不要用手持式设备)。
7) 按照后面所述的调节控制风门的电机的方法，来调节点火、最小出力和最大出力时的空气量。根据需要的最大和最小出力来设定相应工况时的风门位置。
8) 打开点火阀内置的流量调节器，预调到需要的流量。检查空气风门挡板开度是否合适。主阀组的燃气流量调节是通过调节“ME-VEF...”和“DMV-VEF...”上的特殊的调节螺丝实现。
9) 在燃烧器控制盘上的开关处于位置“O”及总开关接通的前提下，检查电机转动的方向是否正确。
如有必要，可将电机电源接线中的两根交换联接，使电机反转。
10) 至此，接通控制盘上的开关，将调节开关置于“MIN”(最小)和“MAN”(手动)位置。这样，控制器得电，然后就按照“运行描述”中介绍的程序启动燃烧器。

注意：预吹扫先要打开空气风门，在此过程中，伺服电机得电运转，直到将风门开到设定的最大位置。预吹扫结束后，伺服电机带动风门到点火位置，此时控制器才继续下面的程序，给点火变压器通电，打开气阀，开始点火。

在预吹扫期间，要确认空气压力开关的位置变化了(从没有压力的关闭位置到有压力的关闭位置)。如果空压开关没有检测的足够的压力(位置没有变化)，那么点火变压器和点火阀就不会动作，控制器停留在"锁定"位置。

需要指出的是，在开始阶段，出现一些"锁定"现象的是正常的，因为在气阀中仍然有空气存在，直到这些空气被完全排尽，才能形成稳定的火焰。

要想"解锁"，按"UNLOCK"(解锁)按钮。在开始阶段，还有一些因素可能引起"锁定"：

a) 燃气管路没有很好地排空空气，因此燃气量不足以致不能形成稳定火焰。
b) 有火焰出现时的“锁定”可能是因为在火焰探测区域的燃气/空气配比不好而导致的火焰不稳定，此时可以调节空气和/或燃气的供应量以得到良好的配比；也可能是由于空气和燃气在燃烧头内混合不好，此时可改变燃烧头内的空气流动，增大或减小燃烧头和火焰扩散盘之间的空气流通面积，从而调节空气出口的速度，使空气与燃气的混合得到改善。

11) 将燃烧器置于最小出力(伺服电机置为最小)，检查燃气流量和火焰质量，并做必要的调节：参阅“MB-VEF...”和“DMV-VEF...”燃气阀的说明。然后，读流量表检查燃气的流量。如有必要，按照前面所述调节燃气的流量及相应的空气流量。用专用的设备检查燃烧情况(参阅"燃烧控制"一章)。

12) 最小出力的燃烧调节好后，将调节开关置于"MAN"(手动)和"MAX"(最大)位置。空气伺服电机在"最大"位置，因此燃气的流量也达到"最大"。由燃气流量表读取此时的燃气流量。
一定要避免燃烧器的输出功率大于锅炉允许的最大热功率页以防对锅炉造成损害。因此页一般读取两个数值后应将燃烧器停下来。

13) 想改变燃烧器在最大负荷时的燃气流量，应调节空气的流量，因为燃气的流量是根据空气的流量而自动调节的。因此，改变空气伺服电机上凸轮的设定从而调节最大负荷时风门打开的位置(参见图0002933490)。风门的开度减小就减少了燃气的流量，相反就增大。要想调节燃气/空气的流量比，请参见“MB-VEF...”和“DMV-VEF...”燃气阀的说明。

14) 然后，如有必要，采用专门的仪器检查燃烧质量，测试烟气成分(含氧量及其它气体含量)。对于燃烧天然气，尾部烟气中的一氧化碳(CO)的体积含量应低于0.1％，二氧化碳(CO)的体积含量应低于10％(参见“**燃烧控制**”)。

15) 调节好最大负荷的燃烧后，一定要再检查一次最小负荷的情况，看是否有变化。

16) 要在最小负荷时设定燃烧空气 －燃气 － 伺服电机，把调节开关置为"MIN"。

17) 在最小负荷下设定好空气伺服电机后，要想调节燃气与空气的流量比，请参见燃气阀“MB-VEF...”和“DMV-VEF...”的说明。

18) 建议使用一些测试仪器来监控燃烧，如有必要，也可以检查一些中间点的设置。

19) 接下来，要检查燃烧器的自动调节功能是否正常。

20) 空气压力开关的作用是当空气压力值不正确时使控制器停机。因此，对空压开关的设置要保证当空气压力足够的水平时空压开关一定要闭合。如果空压开关不闭合(风机停或燃烧器内风压低)，控制器将将继续向下执行，但是点火变压器不会工作，燃气阀也不会打开，于是，燃烧器就会停机。**将燃烧器置于最小出力**，逐渐调高空压开关动作点的设置值，直到某一数值，使燃烧器停机。复位燃烧器，重新设定空压开关，使设定值与动作点之间有一定的空间，保证燃烧器在预吹扫期间能够检测到风压。空压开关的联接回路是自控的，即对于NC(常关)，通常是闭合的(例如风机没有启动因而燃烧器内的空气压力不够高)，或者控制器没启动的话(燃烧器停)，它一定要保持这种状态。

21) 燃气压力开关(最小和最大)的作用是当燃气压力不在设定的范围内时使燃烧器停机。最小燃气压力开关当燃气压力高于设定值时闭合，最大燃气压力开关当燃气压力低于设定值时闭合。
因此，最小和最大燃气压力开关的设置要根据燃烧器调试期间每次测定的压力值来确定。压力开关为串联方式，当任何一个压力开关断开时，燃烧器都应无法启动。在燃烧器运行过程中，如果压力开关断开，燃烧器应立即停机。在调试燃烧器的过程中，要确保压力开关的设定是正确的。调节相关的调节组件，来确认一旦压力开关断开，燃烧器就自动停机。

22) 检查火焰检测器是否正常。如果采用UV紫外线光电管检测火焰，在着火后1分钟左右，将其拔出。此时光电管"看"不到火焰，于是相关延迟开关掉电，燃烧器应该立即"锁定"。如果光电管存在即使很轻微油污，也会影响紫外线到达紫外线光电管的通道，从而使光电管无法正确地接收燃烧器正常运行所需的射线量。当光电管被轻油、重油或其它油类弄脏时，应对其进行彻底清洁。要注意，手指的轻微接触也会在光电管头上留下足可妨碍UV光电管正常工作的油迹。UV光电管的射线在日光或普通灯光下是无法看到的。可以用火焰(打火机，蜡烛)或普通的点火变压器电极间的电火花来检查光电管的敏感性。为确保正常运行，UV光电管的电流值必须稳定并不低于控制器所要求的最小值。可以通过在光电管座上移动(轴向移动或转动)来寻找最佳位置。

23) 检查锅炉的温控器或者压力开关是否工作正常(断开则燃烧器停机)。

燃烧头内空气流动的调节

注意：当燃烧器采用＂MB VEF...和DMV VEF...＂燃气阀时，改变燃烧头内的空气流动，自然地并且不可避免地会引起燃气流量的变化(参见＂MB VEF...和DMV VEF...燃气阀工作原理＂)。

在鼓风管内有一个扩散盘，移动该盘可以改变其与燃烧头之间的空气流通通道。关小通道，即使在空气流量很低时也会使火焰盘上游具有较高的压力，从而空气流动的速度和湍流度较高，使空气能更好地进入燃料之中，获得最佳的混合和稳定的火焰。扩散盘上游很高的空气压力，可以避免火焰发生强烈的脉动。在正压运行和/或负荷很高时，一定要这样调节。由以上说明可知，负责调节燃烧头内空气通道的装置一定要处于能够使火焰盘前一直保持比较高的空气压力的位置。一般建议关小燃烧头内的空气通道，而相应地开大风机入口的空气风门的开度。当然，当燃烧器工作在最大出力时一定要这样设置。实践中，开始调试的时候，一般把燃烧头内的空气通道放在中间的位置，然后启动燃烧器根据前面的介绍进行调试。当达到最大出力时，将燃烧体空气进口的风门挡板 尽量开大，然后前后移动燃烧头内控制空气通道的装置，使空气的流量与燃烧器的出力匹配。

注意：为便于燃烧头的调节，请参见图0002933200。

当减小燃烧头内空气流通面积时页一定要避免将通道全关。通道全关会使燃烧头因缺少足够的空气进行冷却而很快被烧毁。并且最好让火焰扩散盘在燃烧头内居中页否则燃烧质量可能不会很好页而且空气少的地方容易烧毁。可通过燃烧器上的观火孔观察并调节燃烧头与混合盘的相对位置，然后将燃烧头的调节螺丝拧紧。

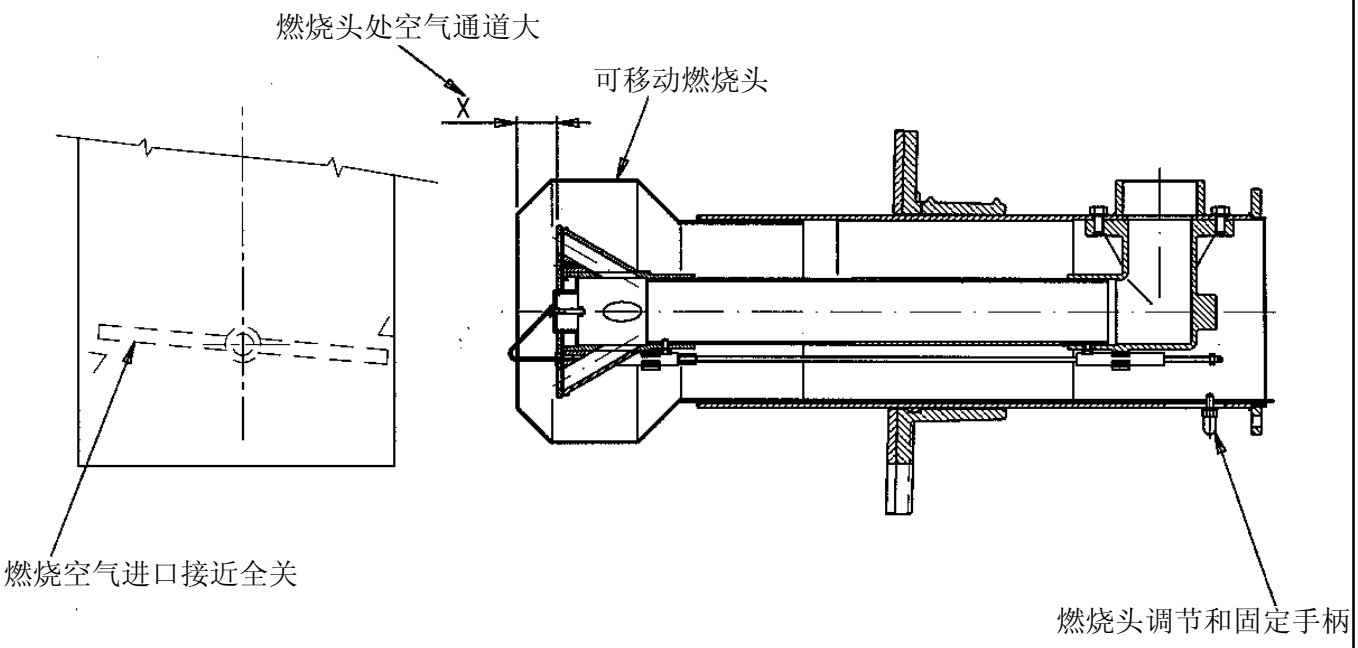
注意：检查点火是否正常，因为如果控制装置前移，出口的空气流速可能会过高而使点火困难。这时，要将控制装置向后移动，参照刻度尺，一格一格地移动，直到点火正常，将控制装置固定。

为使点火安全，建议点火时的空气流量尽量小。

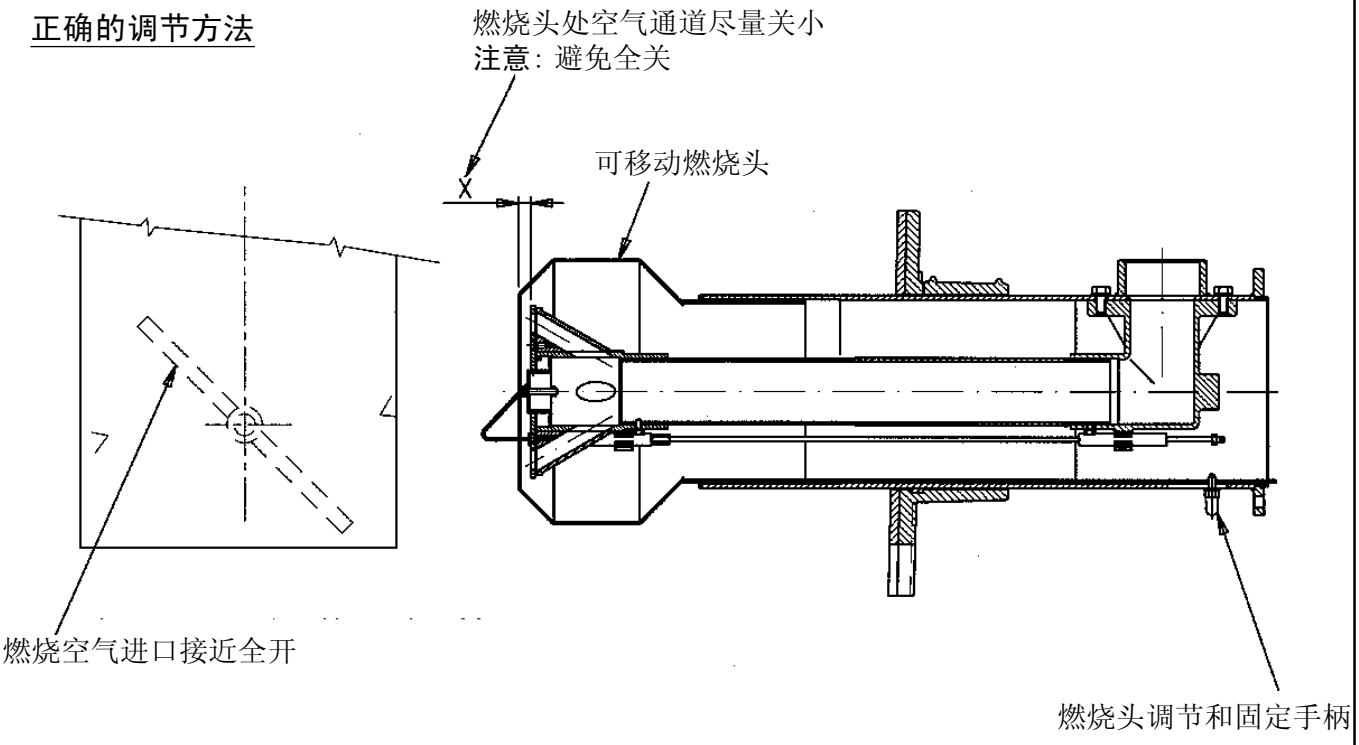
燃烧头内空气流动的调节

燃烧器不需要特别的维护，但是应当定期检查燃气过滤器是否清洁，以及电离电极是否工作正常。有时要检查燃烧头是否清洁。要检查燃烧头，就要拆下相应的燃烧头组件。重装燃烧头一定要谨慎小心，避免电极接地或者短路，以致燃烧器锁定。另外，还要检查点火火花是否只在电极和火焰盘之间产生。

错误的调节方法

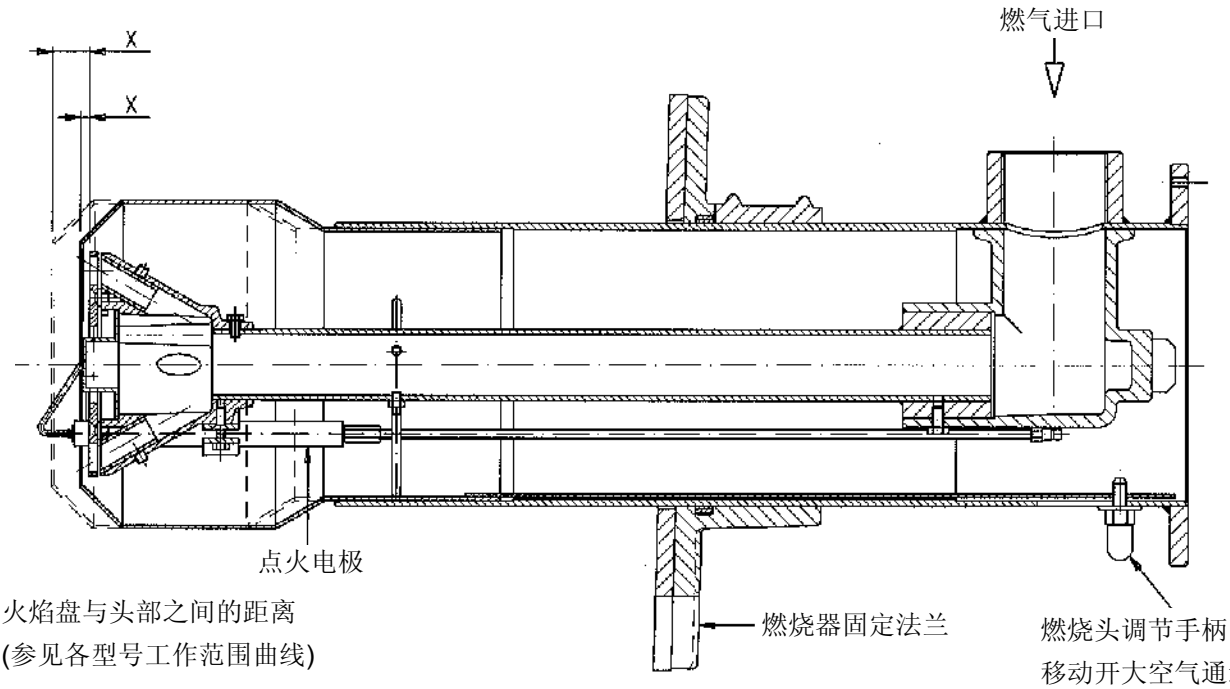


正确的调节方法



燃烧头的调节

N° 0002933200



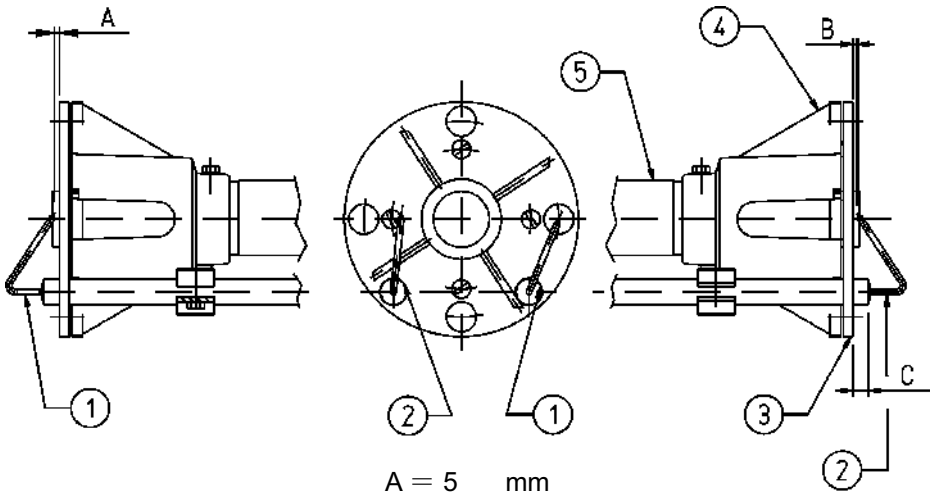
X = 火焰盘与头部之间的距离
(参见各型号工作范围曲线)

注意：减小 “X”， NOx的生成量会降低。
“X”的值不能超出工作范围曲线里给出的范围。

燃烧头调节手柄，向前移动开大空气通道，向后移动关小空气通道。

BGN 40 LX / LX-V电极的调节

N° 0002933196
Rev. 14/12/2004



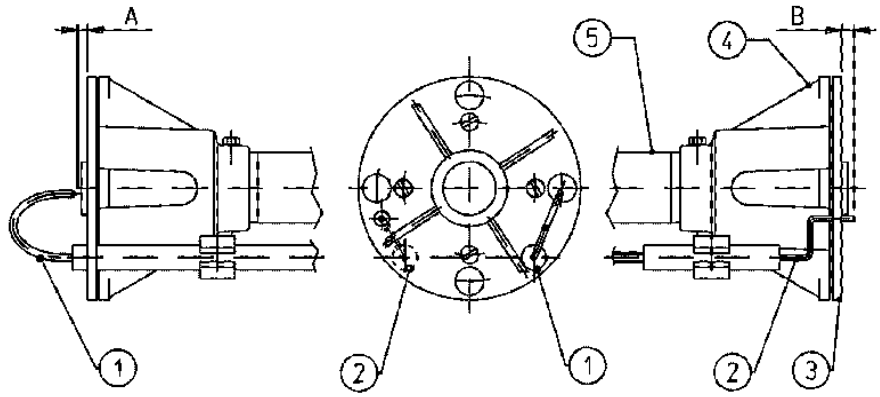
A = 5 mm

B= 2～3 mm

1 -电离电极
2 -点火电极
3 -火焰盘
4 -燃气均气器
5 -燃气供气管

BGN 60～390 LX / LX-V电极的调节

N° 0002934430
Rev. 23/09/2004



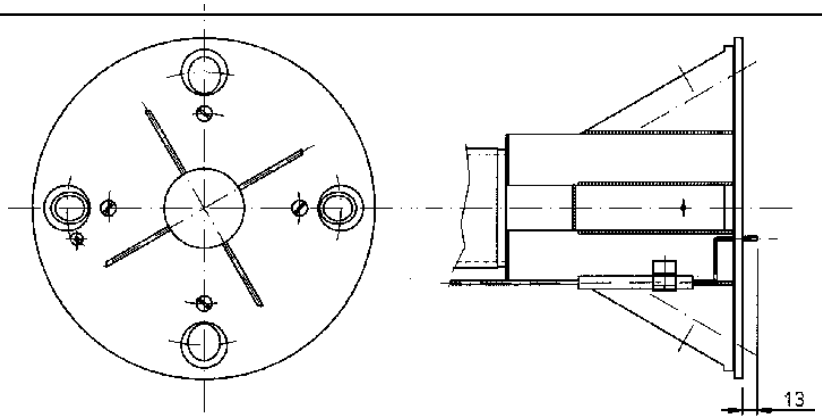
A = 5 mm

B = 5 mm

1 -电离电极
2 -点火电极
3 -火焰盘
4 -燃气均气器
5 -燃气供气管

BGN 540 LX / LX-V电极的调节

N° 0002933850
Rev. 12/06/2002



LFL 1...控制器介绍

N° 7451
Rev. 10/1997

适用于中等和大功率的强制性鼓风、间歇式运行(*)的单段火或两段火或比例调节式燃烧器。控制器均有CE标记，符合欧洲的燃气及电磁兼容标准。

* 为安全起见，每24小时至少进行一次控制性停机。

关于标准

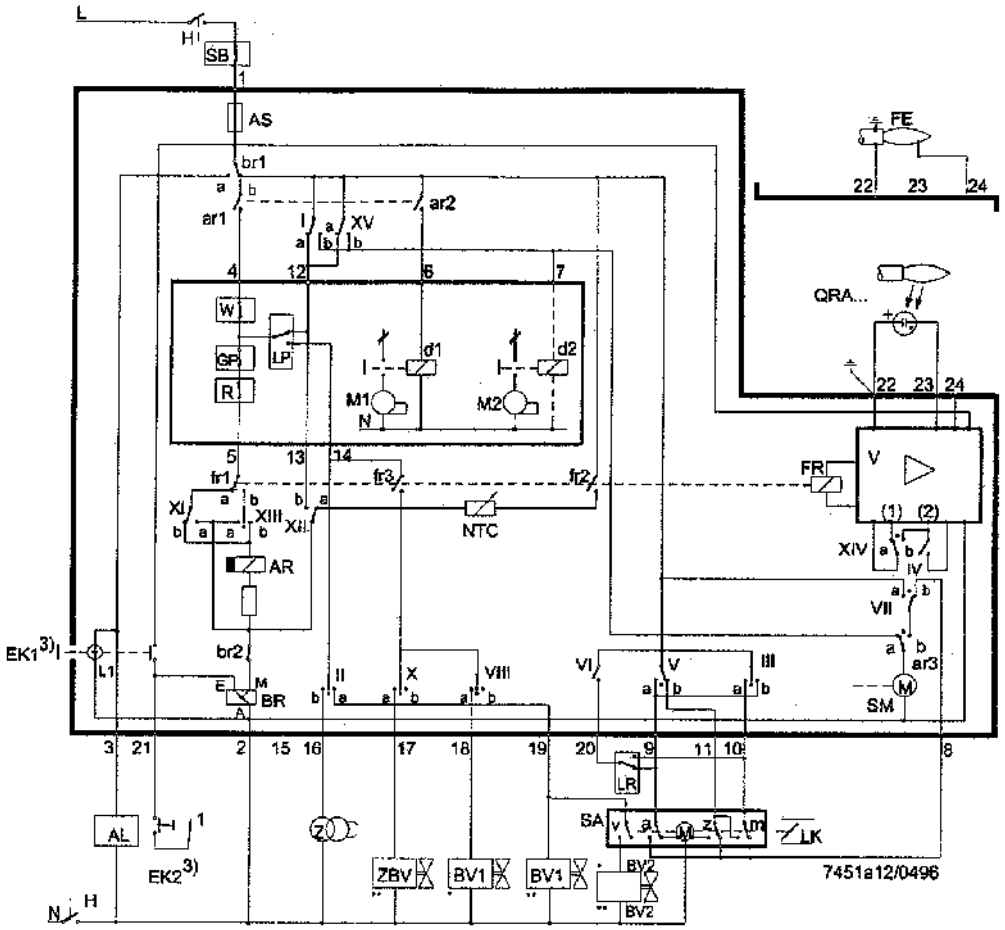
LFL1.....的以下特性均高于标准要求，具有非常高的安全水平：

- 停机时经过一定的时间后：火焰检测器立即开始工作，检测是否有假火存在；检查燃料阀，如果阀门处在打开状态或者关闭不严，则燃烧器锁定。以上的检查测试工作均在下次启动的预吹扫结束时完成。
- 在尾吹扫期间检查阀门接触点的磨损情况。
- 内置保险，以防任何过载对控制触点的损坏。

关于对燃烧器的控制

- 可进行带或不带尾吹扫运行。
- 可控制空气风门的动作，保证以额定工况的空气流量进行预吹扫。检查风门位置：全关或最小(启动时的点火位置)；预吹扫开始时全开，结束时为最小。如果伺服电机没有将风门调节到前面描述的位置，燃烧器将不会启动。
- 要求的最小电离电流 = 6μA
- UV光电管要求最小电流 = 70 μA
- 相线和中线不能接反。
- 可在任何场所和位置安装 (防护等级 IP40)。

电路图

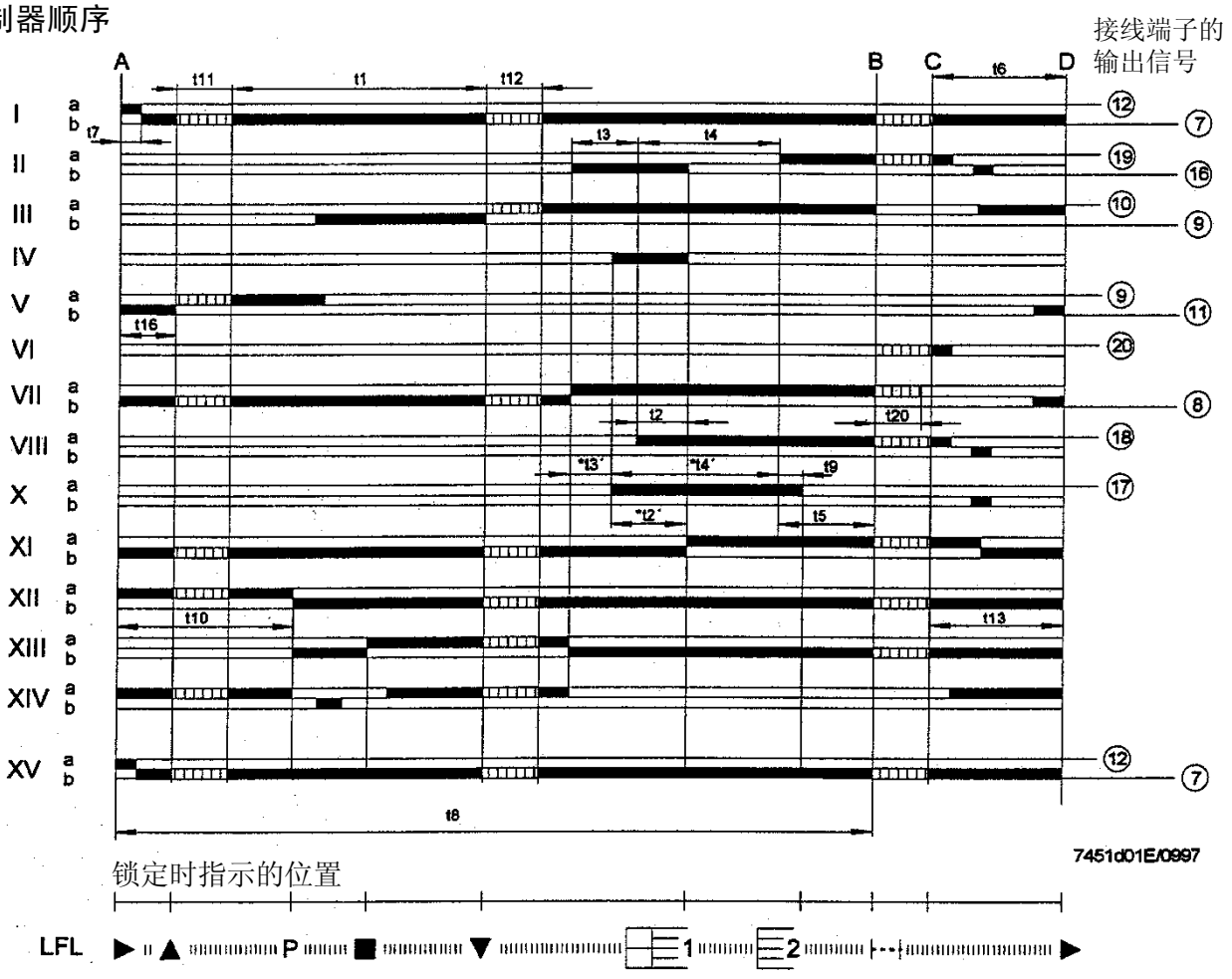


燃烧器制造商的图对带泄压阀的联接是有效的

图例

a	空气风门打开位置限位开关
AL	锁定停机远程信号(警报)
AR	带有“ar...”触点的主继电器(运行继电器)
AS	设备保险
BR	带“br...”触点的锁定继电器
BV	燃料阀
bv...	燃气阀关闭位置的控制触点
d...	远程控制开关或继电器
EK	复位按钮
FE	电离电极
FR	带“fr...”的火焰继电器
GP	燃气压力开关
H	主开关
L1	故障指示灯
L3	准备运行指示灯
LK	空气风门挡板
LP	空气压力开关
LR	出力调节器
m	空气风门最小位置辅助触点
M...	风机或燃烧器电机
NTC	NTC电阻
QRA..	UV紫外线光电管
R	温控器或压力探头
RV	可连续调节的燃料阀
S	保险
SA	空气风门挡板伺服电机
SB	安全限制器(温度，压力，等)
SM	程序控制器同步电机
v	对伺服电机：依风门挡板位置而定的燃料阀集中辅助触点
V	火焰信号放大器
W	温控器或安全压力开关
z	对伺服电机：风门挡板关闭位置的限位开关触点
Z	点火变压器
ZBV	点火燃料阀
	适用于强制性鼓风式燃烧器
	适用于间歇运行的点火式燃烧器
(1)	UV探针的电压升高输入端(测试探针)
(2)	火焰监控电路(触点XIV)运行测试期间和安全时间t2(触点IV)火焰继电器强制激励输入点
3)	**按下EK时请勿超过10秒钟**

控制器注释
控制器顺序



时间图例

时间 (50 Hz) 秒		
31.5	t1	预吹扫时间
3	t2	安全时间
-	t2'	安全时间或点火式燃烧器的安全时间
6	t3	短预点火时间 (端子16的点火变压器)
-	t3'	长预点火时间 (端子15的点火变压器)
12	t4	t2开始与端子19的阀动作的时间间隔
-	t4'	t2 开始与端子19的阀动作的时间间隔
12	t5	t4结束与出力调节器或端子20上的阀动作的时间间隔
18	t6	尾吹扫时间 (带M2)
3	t7	开始启动与端子7得电的时间间隔 (风机电机延迟启动)
72	t8	启动持续时间 (不包括t11和t12)
3	t9	采用点火燃烧器的燃烧器的第二安全时间
12	t10	启动到空压开关动作的时间 (不包括风门打开的动作时间)
	t11	风门挡板打开的动作时间
	t12	空气风门挡板打开到最小火的动作时间
18	t13	允许的尾吹扫时间
6	t16	空气风门打开的初始延迟时间
27	t20	燃烧器启动后到控制器机构自动关闭为止的时间间隔

注意：在60Hz的电压下启动，时间将减少 20%.

t2´, t3´, t4´:
这些时间仅对01系列或者LFL 1.335， LFL 1.635，LFL 1.638燃烧器控制器和指令设备。
因为032系列是同时激活凸轮X和凸轮VIII，所以也没有这些时间。

工作

前面的图给出了联接的回路和控制程序的顺序机制。

A 装有温控器或者压力开关“R”的启动。

A-B 启动程序。

B-C 燃烧器正常运行 (以“LR”出力调节器控制命令为基础)。

C 由“R”控制的停机。

C-D 尾吹扫，控制器回到启动位置。
燃烧器不工作的时候，只有命令输出口11和12有电，空气挡板在关闭位置，由空气挡板伺服机的限位开关“z”决定。在火焰检测器检测火焰和假火焰测试期间，火焰监测测试也是带电的(端子22/23或者22/24)。

安全标准

如果采用QRA，端子22就必须接地。
采用的电缆符合国家和地方标准。
LFL...是安全设备，禁止打开或者改造它。
启动系统前或者断路之后一定要检查所有的安全功能。
避免使其遭受电击。要按照装配说明操作。
在运行和维护期间，要避免有水进入指令和控制设备。
一定要检查要使用的设备上的电磁泄漏情况。

如果出现问题而停机页控制程序会指示停机的位置。

作为一项规则，在任何情况下停机时，都应该立即切断燃料的供应。同时，控制器以及开关位置指示器均保持静止。指示器上的的可视符号具有默认的含义。

◀ **没启动**，因为触点没有闭合，或者因为外部存在光亮(例如，火焰没有完全熄灭，燃料阀泄漏，火焰控制回路出错等)而导致在控制程序执行当中或结束时的锁定。

▲ **启动过程停机**，因为“打开”的指令没有被限位开关触点“a”送到端子8。错误解除前，端子6，7和15将一直保持有电。

P **锁定停机**，因为没有空气压力信号。
此时检测空气压力页从这时开始页如果空气压力低则随时会锁定停机。

■ **锁定停机**，因为火焰检测回路故障。

▼ **启动过程停机**，因为最小火焰的位置信号没有被辅助开关触点“m”送到端子8。错误解除前，端子6，7和15将一直保持有电。

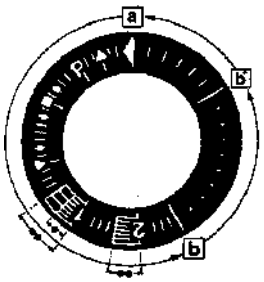
1 **锁定停机**，因为第一安全时间结束后没有火焰信号。

2 **锁定停机**，因为第二安全时间结束后没有火焰信号(间歇运行点火式燃烧器的主火焰信号)。

| **锁定停机**，因为在燃烧器运行中失去火焰信号。

如果锁定停机是发生在启动和预点火之间而没有指示符号，这通常是由于已经有火焰或者错误的信号引起的，例如，UV光电管自燃。

停机指示



LFL1..., 系列 01

LFL1..., 系列 02

a-b 启动程序

b-b “过程” (没有触点来确认)

b(b)-a 尾吹扫程序

1 – 工作范围

设置最大值		
最大值范围		
0.15 - 3 秒	>> 3 秒*	刻度
1.5 - 30 秒	>> 30 秒	黄色
15 - 300 秒	>> 300 秒	
1.5 - 30 分	>> 30 分	
15 - 300 分	>> 300 分	
1.5 - 30 小时	>> 30 小时	
15 - 300 小时	>> 300 小时	
0.05 - 1 秒	>> 1 秒*	刻度
0.5 - 10 秒	>> 10 秒	白色
5 - 100 秒	>> 100 秒	

* 该范围内绿色LED液晶显示不闪烁。

2 – 选定范围时间的设置的绝对值刻度

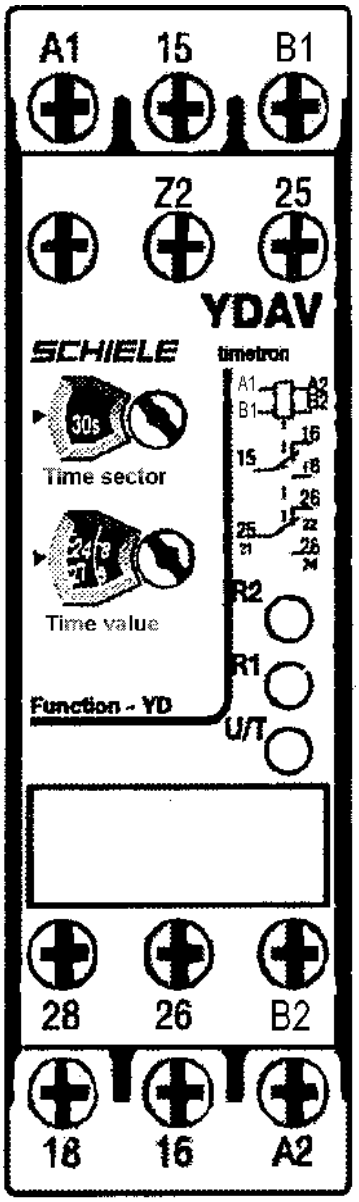
3 – LED液晶显示状态

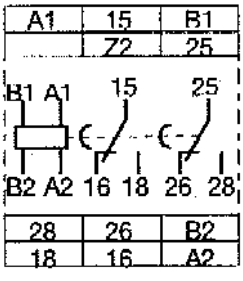
U/T电源电压
LED 显示亮 = 已用时间或已停止的时间;
LED 闪烁 = 过程的延迟时间.

4 – 接线图

15/16/18 = 第一个开关触点
25(21)26(22)28(24) = 第二个开关触点
(实时)

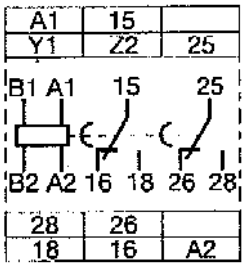
触点标记符合 EN 50005





电压:

- A2, B1 : 24 V AC/DC
- A2, B2 : 42...48 V AC/DC
- A1, A2 : 110...240 V AC

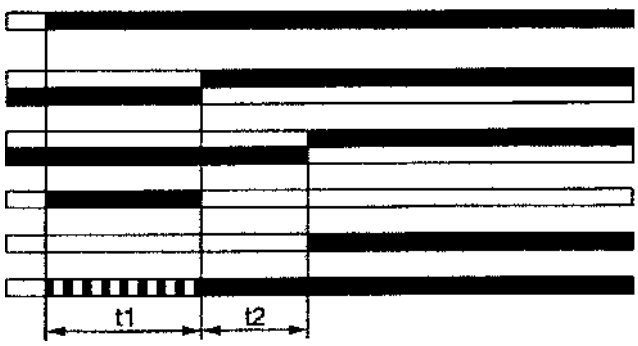


电压:

- A1, A2 : 380 ... 440 V AC

带双嵌入延迟的星 – 三角启动

t1 = 星启动时间
t2 = 固定的切换时间, 约50毫秒(ms)



故障及解决

故障	可能原因	解决
燃烧过程中有火焰情况下控制器“锁定”(红色指示灯亮)，火焰检测回路故障。	1) 电离第电流受点火变压器干扰。 2) UV紫外线光电管故障。 3) UV紫外线光电管位置不正确。 4) 电离电极或相应电线接地。 5) UV紫外线光电管电源断开。 6) 通风不良或烟气管路阻塞。 7) 火焰盘或燃烧头脏或损坏。 8) UV紫外线光电管脏或有油污。 9) 控制器故障。 10) 没有电离电流	1) 交换点火变压器电源接线(230V侧)并用微安计检测。 2) 更换火焰传感器(UV紫外线光电管)。 3) 校正UV紫外线光电管位置并用微安计检查是否正常。 4) 目测检查。 5) 回复电源联接。 6) 检查锅炉烟气通道及烟囱联接是否通畅。 7) 目测检查，必要时更换。 8) 清洁。 9) 更换。 10) 如果是＂接地＂设备工作不正常，则不用检查电离电流。应检查相关设备＂接地＂端子和电气系统的＂接地＂联接。
控制器“锁定”，燃气已流入燃烧室，但没有火焰，(红色指示灯亮)。点火回路故障。	1) 点火电路故障。 2) 点火变压器电线接地了。 3) 点火变压器电源线断开。 4) 点火变压器故障。 5) 点火电极与接地部位之间的距离不当。 6) 绝缘体脏，电极向地面放电。	1) 检查点火变压器电源(230V)和高压回路(锁定端子下的电极接地或者绝缘体损坏)。 2) 更换。 3) 联接。 4) 更换。 5) 改正位置。 6) 清洁或者更换绝缘体和电极。
控制器“锁定”，燃气已流入燃烧室，但没有火焰，(红色指示灯亮)。	1) 空气/燃气的配比不好。 2) 燃气管未排空空气(开始阶段)。 3) 燃气压力过低或过高。 4) 燃烧头内空气流通面积过小。	1) 调节到合适的空燃比。 2) 排空管道内的空气，要小心。 3) 点火时检查燃气最大压力(最好采用水柱式压力计)。 4) 逐渐调节到合适的空气流通面积(调节火焰盘位置）。

FIXING THE BURNER TO THE BOILER

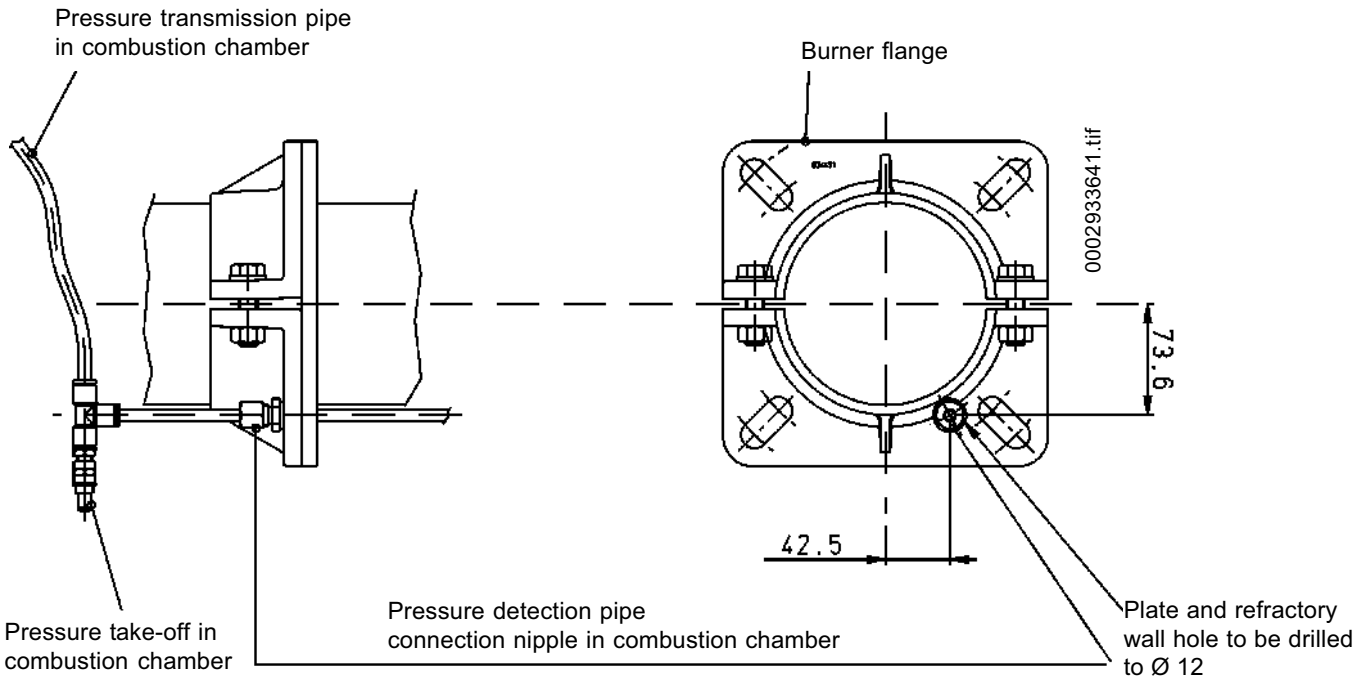
The burner must be applied to the boiler iron plate after having fixed the supplied stud bolts according to the drilling template. It is advisable to electrically weld the stud bolts inside the plate so as to prevent them from being extracted jointly with the burner check nuts if the burner is dismantled.
To insert the insulating flange, which must be placed between the burner and the boiler plate, dismantle the end part of the combustion head. To connect the burner to the boiler, the special nuts and relevant washers are supplied with the burner. The burner is equipped with cylindrical combustion head; it is advisable to first fix the boiler plate, and then the burner. An insulating protection having a minimum thickness of 10 mm must be placed between plate and boiler when the boiler port is not provided with thermal insulation.
The boiler plate must be designed according to our drawings, with a minimum thickness of 10 mm. so as to prevent possible deformations. Before applying the burner to the boiler, the sliding flange must be arranged so as to allow the burner head to penetrate in the combustion chamber by the amount required by the manufacturer.
Once this operation has been finished, connect the burner to the gas pipes as explained in the following pages, based on the available type of gas supply (low pressure or mean pressure).

MEASURING THE PRESSURE IN THE COMBUSTION CHAMBER

If the hole in the door is too small to allow the hose to pass and the door has no flame inspection window it will be necessary to make a Ø 12 hole at the site of the 1/4" connection for the insertion of the pressure take up hose in the combustion chamber (provided with the burner)

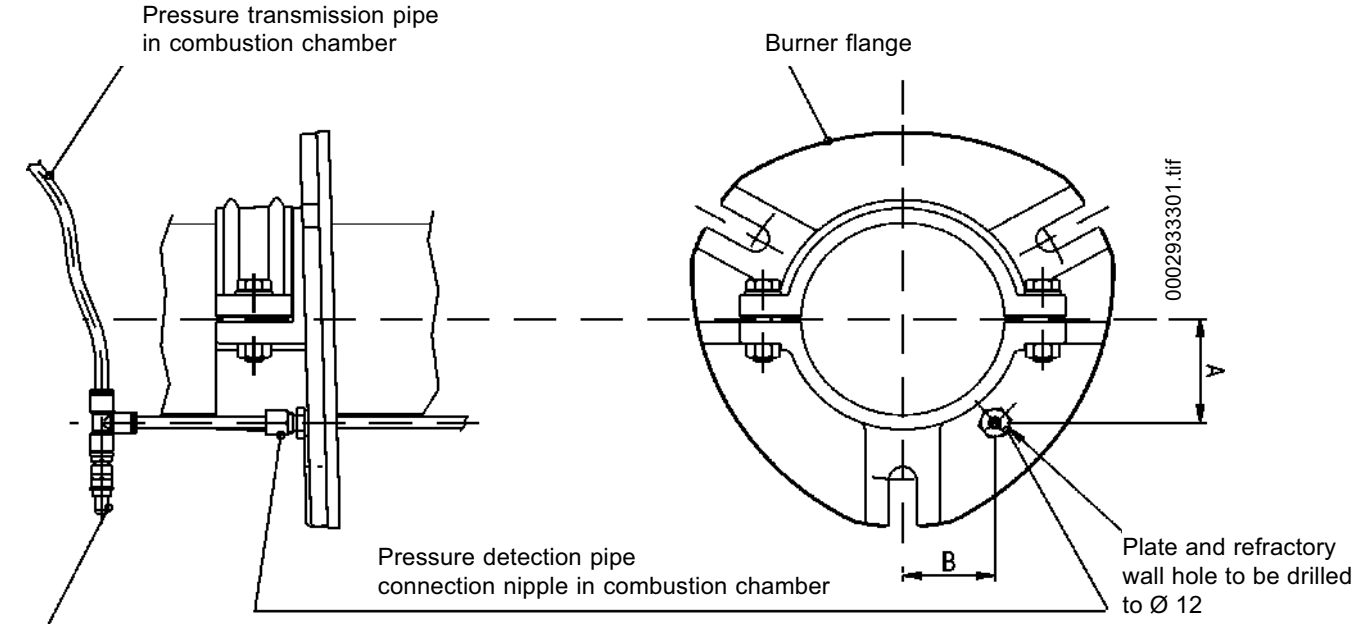
FOR MODEL BGN 40 LX

N° 0002933641
Rev. 13/11/2002



FOR MODELS BGN 60 LX ~ BGN 390 LX

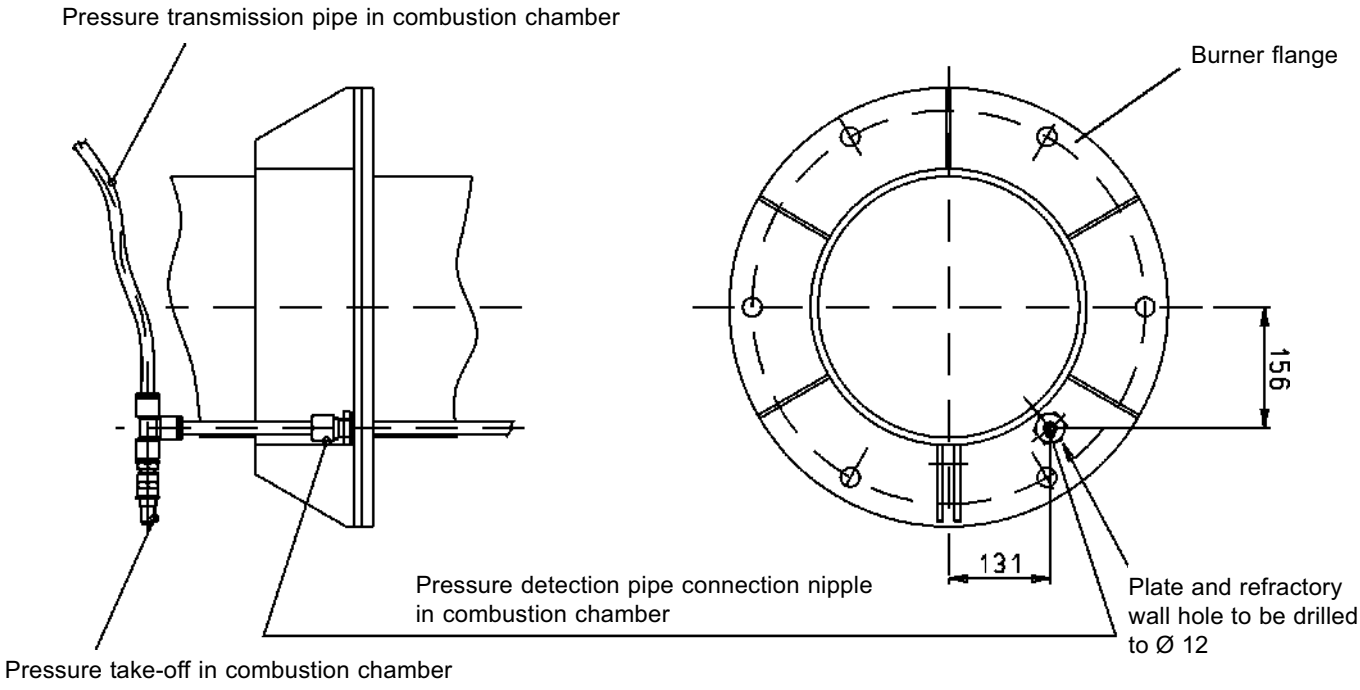
N° 0002933301
Rev. 13/11/2002



Mod.	A	B
BGN 60 LX	80,5	67,5
BGN 120LX	108	62,5
BGN 200 LX	135	78
BGN 300 LX	150,5	87
BGN 390 LX	150,5	87

CHAMBER FOR MODEL BGN 540 LX

N° 0002933821
Rev. 13/11/2002



LOW-PRESSURE GAS SUPPLY SYSTEM (max. 400 mm.W.C.)

After having correctly applied the burner to the boiler, it must be connected to the gas pipes (see BT 8819). A suitable pipe fitting must be installed on these pipes, close to the burner, so as to allow an easy dismantling of the burner and/or the opening of the boiler port. **The following must also be installed: ball stop cock, gas filter and vibration-damping joint. Said components must be installed as shown in our drawing.**
The gas supply pipes must be sized according to the gas length and feed, and they must be perfectly sealed and properly tested before carrying out the burner general test and inspection. We suggest that you follow the recommendations below relating to the installation of the necessary accessories on the gas pipes close to the burner.

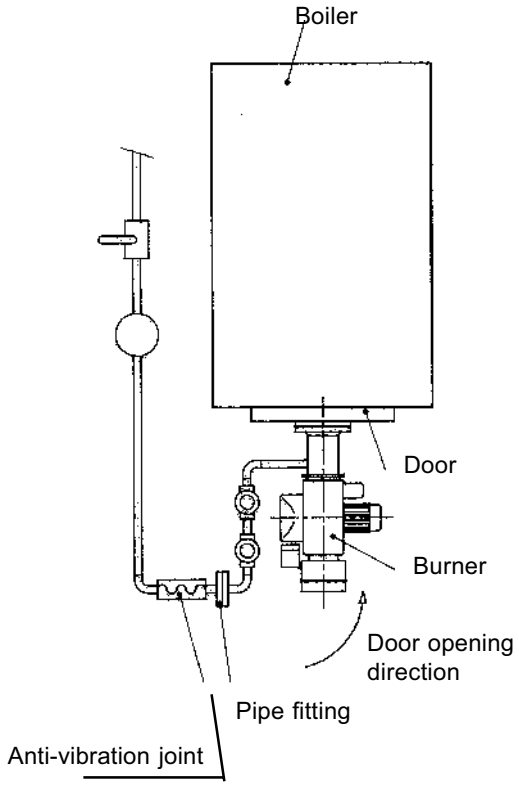
1) The gas filter must be arranged on a horizontal piping, so as to prevent possible impurities from entering into the piping during the cleaning of the same.
2) It is advisable to install an elbow directly on the burner gas train before applying the removable union. This allows opening the boiler port after opening the same union. What said above is clearly shown in the following drawing.

Note: If the burner is equipped with gas valves, model SKP 70 ....., the pressure regulator needs not be installed since in its normal operation the above valve also functions as pressure regulator.

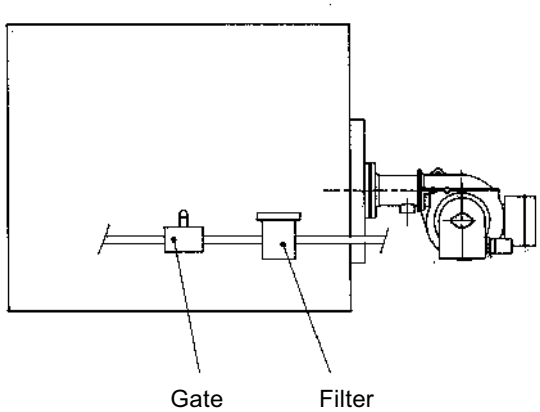
GENERAL DIAGRAM FOR INSTALLATION OF GATE - FILTER ANTIVIBRATION JOINT OPENABLE PITTING

N° BT 8819

UPPER VIEW



SIDE VIEW



ELECTRICAL CONNECTIONS

The three-phase or single-phase power supply line of the minimum suitable size for the power absorbed by the burner must be provided with fuse switch. In addition, according to the Standards, a switch on the burner supply line is required, arranged outside the boiler room in an easily reachable position.
All electrical lines must be protected with a flexible sheath, be firmly fixed and pass far from high-temperature elements. See the diagrams for the electrical connections (line and thermostats).

DESCRIPTION OF THE OPERATION

In the burner, by closing the main circuit breaker if the thermostats are off, the control box is supplied. The fan motor is thus enabled, and its operation determines the pre-ventilation of the combustion chamber. At the same time, the combustion air damper control motor opens the air damper in the position corresponding to the maximum set.
The combustion chamber pre-ventilation step thus occurs with air damper in the high flame position. At the end of the pre-ventilation step, the combustion air damper is restored to the ignition flame position. If the ventilation air pressure control switch detects a sufficient pressure, the ignition transformer is started and the gas valves (main and safety) are opened. The burner starts.

The quantity of gas (m^3/h) supplied with the ignition flame can be regulated by operating on the air damper control servomotor (see N° 0002933220 from BGN 40LX to BGN 390LX) (see N° 0002933490 for BGN 540LX).

Note: The ignition flame has a higher gas flow rate than the minimum modulation flow rate.

The flame is thus present and, detected by its control device, it allows continuing and ending the ignition step by disabling the ignition transformer. The quantity of gas supplied with the high flame must be regulated by operating on the air damper control servomotor (see dr. n° 0002933220 - 0002933490).
In case of absence of ignition flame, the control box stops in “safety lock”. In case of “safety lock” the valves are closed immediately. To unlock the control box from the safety position, press the luminous button on the control box.

Note: For the gas valve regulation, see the specific instructions in the following pages. The air damper is actuated by a special electrical motor (see specific instructions in the following pages), note that as the burner is shut down by the thermostat enable, the air damper is restored to the total closure position by the control motor.

DESCRIPTION OF THE MODULATION OPERATION

When the burner is on at the minimum flow rate, if the modulation sensor allows it (adjusted to a higher pressure or temperature value than that in the boiler), the air regulation servomotor start running, thus determining a gradual increase of the combustion air supply, and consequently, of gas, until the maximum supply at which the burner is regulated is reached. The air pressure increase in the ventilator is detected by the gas valve sensor, model MB-VEF.. or DMV-VEF.., which gradually adjusts the gas supply to the also gradual air pressure variation.
The burner remains in the maximum supply position until the temperature or pressure reaches a sufficient valve to determine the intervention of the modulation sensor, which makes the air regulation servomotor run in the reverse direction with respect to the previous one. The backward rotation and the air and gas supply reduction occur at short time intervals. With this operation, the modulation system attempts to balance the quantity of heat supplied to the boiler with that yielded by the same during use. The modulation probe applied to the boiler detects the request variations and automatically provides to adjusting the fuel and the combustion air supply by enabling the air regulation servomotor with increasing or decreasing rotation. If the limit value (temperature or pressure) is reached also with minimum supply to which the total shut down device is set (thermostat or pressure switch), the burner is shut down by the intervention of the same. As the temperature or pressure fall below the shut down device enable value, the burner is started again according to the previously described program. If the flame does not appear, the control box “locks” (total burner shut down and lighting of the relevant warning light). To “unlock” the control box, press the special push button.

COMBUSTION CONTROL

For a correct air/gas ratio, the methane carbon dioxide (CO_2) value must be at least 8% at the minimum burner supply, up to an optimum value of 10% for maximum supply. It is advisable not to exceed a 10% value so as to prevent operation with too limited air excess, which could cause (atmospheric pressure variation, presence of dust in the air ducts) a sensible CO (carbon oxide) quantity. **To prevent dangerous situations, the carbon oxide (CO) percentage in the flue gas must always measured with the special instrument to make sure that it does not exceed the maximum admissible value of 0.1%.**

IGNITION AND GAS REGULATION (METHANE)

1) **Make sure that the combustion head penetrates into the combustion chamber by the quantity required by the manufacturer.** Check that the device that turning off the air on the combustion head is in the proper position for the required fuel supply (the air passage between disk and head must be sensibly reduced in case of low fuel supply. In the contrary case, if the fuel supply is quite high, the air passage between disk and head must be opened). See chapter “Combustion head regulation”.
2) If not already done when connecting the burner to the gas pipes, taking the necessary measures and opening doors and windows, it is necessary to bleed the air contained in the pipes. Open the union on the pipes close to the burner, and slightly open the gas stop cock(s). Wait until you smell the typical gas smell, and then close the cock. Wait for the necessary time, according to the specific conditions, until the gas present in the room is dispersed outside and then restore the connection of the burner to the gas piping.
3) **Check that there is water in the boiler and that the plant dampers are open.**
4) **Make sure that the combustion product discharge can occur freely (boiler and chimney dampers open).**
5) Check that the electrical line voltage corresponds to that required for the burner, and that the electrical connections (motor and main line) are preset for the available voltage value. Check that all electrical connections implemented on the spot are properly executed as per our wiring diagram.
6) Apply a pressure gauge with suitable scale to the gas pressure take-off to measure the regulation value (if the expected pressure rate allows it, it is preferable to use a water column instrument, **do not** use hand instruments for low pressures).
7) Regulate the air for the ignition flame, for minimum flame and high flame, following the instructions for regulating air damper control electrical motor shown in the following pages. In practice, set the low flame and high flame air regulation cams to the suitable positions according to the desired thermal power for low and high flame.
8) By acting on the special screw for adjusting the gas and air pressure ratio, on the gas valve mod. MB-VEF.., DMV-VEF.., set the desired value (see the specific instructions for the gas valve MB-VEF.., DMV-VEF.. in the following pages).
9) With the burner panel switch set to “0” and main circuit breaker on, manually turn the contactor off and check that the motor runs in the correct direction. If necessary, invert the place of two cables of the line supplying the three-phase motor to reverse the direction of rotation.
10) Now enable the control panel switch and set the modulation switches to **MIN** (minimum) and **MAN** (manual). The control box thus receives voltage, and the programmer determines the enable of the burner as described in chapter “description of the operation”.

    Note: Pre-ventilation is carried out with open air and thus, during the same, the regulation servomotor is enabled, and it runs a complete opening stroke up to the “maximum” set. Only when the regulation servomotor returns to the “ignition” position, the control box continues its ignition program by enabling the transformer and the ignition gas valves.

    During the pre-ventilation step, make sure that the air pressure control switch changes position (from off position without pressure detection it must switch to the off position with air pressure detection). If the air pressure switch does not detect the sufficient pressure (it does not switch position), the ignition transformer and the flame gas valves are not enabled, and thus the control box “locks”. Note that some “locks” at the first stage are normal since in the valve ramp pipes there is still air that must be discharged before having a stable flame.
    To “unlock”, press the “unlock” push button. At the first stage there may occur further “locks” due to:

    a) The gas pipes have not been sufficiently air-bled, and thus the gas quantity is not sufficient to allow a stable flame.

    b) The “lock” with presence of flame may be caused by instability of the same in the ionisation zone for an incorrect air/gas ratio. Remedy is by varying the quantity of supplied air and/or gas so as to find the correct ratio. The same problem may be caused by a wrong air/gas distribution in the combustion head. Remedy is by operating on the combustion head regulation device, by adjusting the closing or opening of the air passage between head and gas diffuser.

11) Set the burner to minimum flame (modulation servomotor set to minimum), check the quantity and appearance of the flame making the necessary adjustments: see instructions elating to the gas valve model MB-VEF.., DMV-VEF.. Afterwards, check the supplied gas quantity by reading the meter. If necessary, adjust the gas output and the relevant combustion air by operating as described above. Then, check the combustion with the special instruments (see chapter "Combustion control".

12) After adjusting the "minimum", set the modulation switches to **MAN** (manual) and **MAX** (maximum) position. The air regulation servomotor sets to "maximum" and as a consequence, also the gas supply reaches the "maximum". The quantity of supplied gas is then checked by reading the meter. With burner ignited at the maximum existing output, measure the gas flow rate by calculating the difference between two reads performed after one minute from one another. By multiplying the measured value by sixty, a sixty-minute flow rate – that is, one hour – is obtained. By multiplying the hourly output (m^3/h) by the gas heat value, you obtain the delivered power in Kcal/h, which must correspond or be very close to that required by the burner (lower heat value for methane = 8550 Kcal/h). **Avoid operating the burner if the flow rate is more than the admissible for the boiler so as to prevent possible damages to the same. Shut down the burner after the two meter reads.**

13) To change the maximum gas output, operate on the air flow rate regulator since the gas flow rate automatically adjust to the air supply. Then, operate on the cam regulating the air damper maximum aperture position (see dr. n° 0002933220 - 0002933490). Reduce the aperture angle of the air damper to reduce the gas flow rate, and vice versa. To change the gas/air ratio, see instruction of gas valve MB-VEF.., DMV-VEF..

14) Afterwards, check the combustion with the special instruments and if necessary, check the existing regulation (air and optionally gas). **Check with the special instruments that the carbon oxide (CO) percentage in the flue gas does not exceed the maximum admissible value of 0.1% and that CO_2 does not exceed 10% for methane. (See chapter "Combustion control")**

15) After adjusting the operation to the high flame (maximum) you must operate so that the air regulation servomotor sets to the minimum to perform the control also in this position.

16) To set the air – and thus gas – regulation servomotor to the minimum, set the modulation switch to **MIN**.

17) When the air servomotor is set to minimum, and it is necessary to change the combustion conditions (gas/air), see the instructions for regulating gas valves model MB-VEF.., DMV-VEF..

18) It is advisable to perform the combustion control using the instruments and, if necessary, change the previous regulation also in some intermediate points of the modulation stroke.

19) Now, check the correct automatic modulation operation.

20) **The air pressure switch** has the function of locking the control box if the air pressure is not correct. The pressure switch must thus be set to start by closing the contact (a normally open contact) when air pressure in the burner reach a sufficient value. Note that if the normally open contact does not close (insufficient air pressure), the control box performs its cycle but the ignition transformer does not start, the gas valves do not open and as a consequence, the burner stops in lock. To check the correct operation of the air pressure switch, **set the burner to the minimum output,** increase the regulation value so as to check when it should start to immediately "lock" the burner. Unlock the burner by pressing the special push button and restore the pressure switch regulation to a sufficient value to detect the existing air pressure during the pre-ventilation step. The pressure switch connection circuit provides for the automatic control; thus, the contact provided to be closed when at rest (fan off, and thus, absence of air pressure in the burner) must implement this condition, or the control box does not start (the burner remains off).

21) **The gas pressure control switches** (minimum and maximum), if installed, have the function of preventing the burner from operating when gas pressure does not range in the expected values. From the specific function of the pressure switches, it is evident that the minimum pressure control switch must used the contact that is closed when it detects a higher pressure than that to which it is set, the maximum pressure control switch must use the contact that is closed when it detects a lower pressure than that to which it is set. Therefore, the gas maximum and minimum pressure switch regulation must be performed during the burner general test and inspection, based on the pressure measured each time. Pressure switches are electrically connected in series; thus, the start (intended as circuit opening) of any one of the gas pressure switches does not allow starting the control box and thus, the burner. When the burner is operating (flame on), the start of the gas pressure switches (circuit opening) causes the immediate shut down of the burner. Upon the general test and inspection of the burner, it is necessary to check the correct operation of the pressure switches. By suitably acting on the respective regulation members, make sure that the pressure switch starts (circuit opening), thus shutting down the burner.

22) In case of UV photoelectric cell, after at least one minute from ignition extract the photoelectric cell from its housing. When the UV photoelectric cell is extracted from its housing, it cannot “see” the ultraviolet radiation emitted by the flame and thus, the relevant relay de-energises. The burner immediately shuts down in “lock”. A light greasiness strongly affects the passage of ultraviolet beams through the UV photoelectric cell bulb, thus preventing the internal photosensitive element from receiving the necessary radiation for a correct operation. If the bulb is dirty with light oil, heavy oil, etc., clean it accurately. Note that a simple finger contact can cause a light greasiness, sufficient to impair the UV photoelectric cell operation. The UV photoelectric cell does not “see” daylight or the light of a common candle. A possible sensibility check can be made with a flame (lighter, candle) or with the electrical discharge occurring between the electrodes of a common ignition transformer. To ensure a correct operation, the UV photoelectric cell current value must be sufficiently stable, and must not decrease below the minimum value required for the specific control box. Said value is shown in the wiring diagram. It may be necessary to experimentally search the best position by making the body containing the photoelectric cell slide (axial or rotation movement) with respect to the fixing clamp.

23) Check the efficiency of the boiler thermostats or pressure switches (their start must shut down the burner).

AIR REGULATION ON COMBUSTION HEAD (See dr. n° 0002933310)

Warning: When, as in this case, the burner is provided with gas valves model MB-VEF.., DMV-VEF.., by moving the air regulation device on the combustion head there **automatically and unavoidably** occurs a gas output variation (see chapter Valve operation principle, model MB-VEF.., DMV-VEF..).

The combustion head is equipped with a regulation device, so as to open or close the air passage between disk and head. By closing the passage, it is thus possible to obtain a high pressure upstream of the disk also for low flow rates. The high air speed and turbulence allows a better penetration of the same into the fuel and therefore, an excellent mixture and flame stability. It may be necessary to have a high air pressure upstream of the disk, so as to prevent flame pulses. This condition is indispensable when the burner operates on pressurised combustion chamber and/or with high heating load. From what said above it is evident that the device closing the air on the combustion head must be set to such position as to **always** obtain, behind the disk, a very high air pressure value. It is advisable to regulate so as to have such air closure on the head as to require the opening of the air damper regulating the flow of the burner ventilator suction. Of course, this condition must only occur when the burner is operating at the maximum desired output. In practice, the regulation must start with the device that closes the air on the combustion head in an intermediate position, igniting the burner for an indicative regulation as explained above.

When the **maximum desired output** is reached, correct the position of the device closing the air on the combustion head by moving it forwards or backwards so as to have a suitable air flow for the output, **with suction air regulation damper sensibly open (see dr. n° 0002933310).**

N.B. To facilitate the combustion head regulation, see table (dr. n° 0002933200)

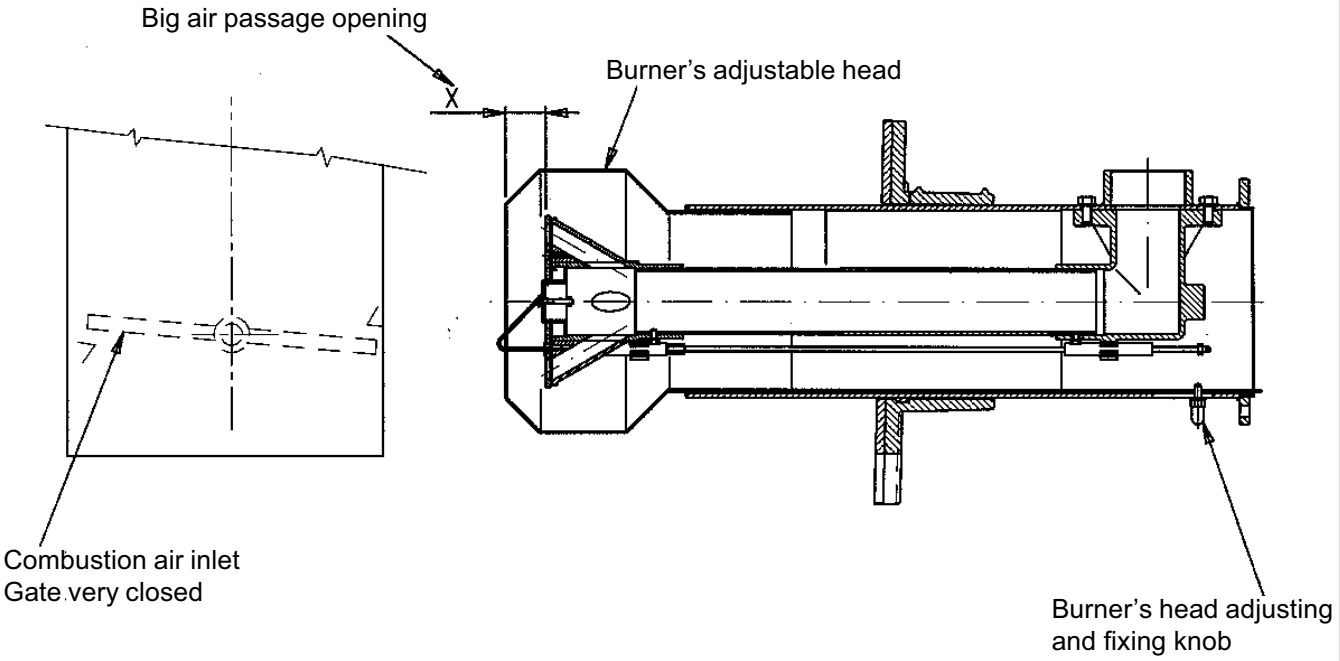
When reducing the air passage on the combustion head, avoid closing it completely, which may cause an excessive heating of the head with a consequent quick deterioration. Perfectly adjust to central position with respect to the disk. Note that if not perfectly centred with respect to the disk may cause a wrong combustion and an excessive head heating, with a consequent quick deterioration. The check is carried out by looking through the inspection hole on the rear side of the burner. Afterwards, tighten the screws locking the position of the air regulation device on the combustion head.

N.B. Check that ignition is regular because if the controller has been moved forward, the output air speed could be so high as to make ignition difficult. In such a case, it is necessary to move backwards, degree by degree, the regulator until reaching the position in which the ignition is regular and accept this new position as definitive. We still remind you that it is preferable, for the small flame, to limit the air quantity to the minimum indispensable to have a safe ignition even in the most demanding case.

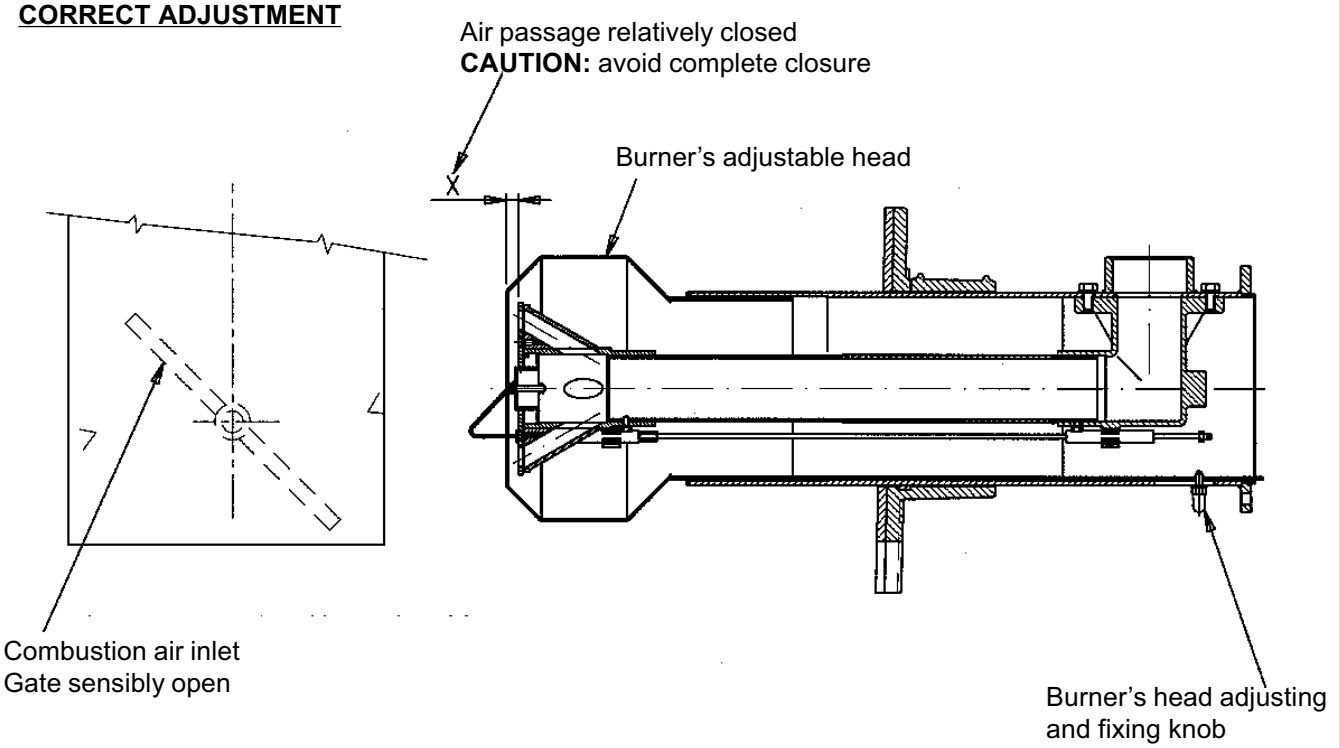
MAINTENANCE

The burner does not need special maintenance. However, it is advisable to check that the gas filter is clean. It may also be necessary to clean the combustion head. In this case, dismantle the components of the mouth.
Be careful when assembling again, so as to prevent the electrodes from to earth or in short circuit.
Also check that the ignition electrode spark only occurs between the same and the drilled plate disk.

NOT CORRECT ADJUSTMENT

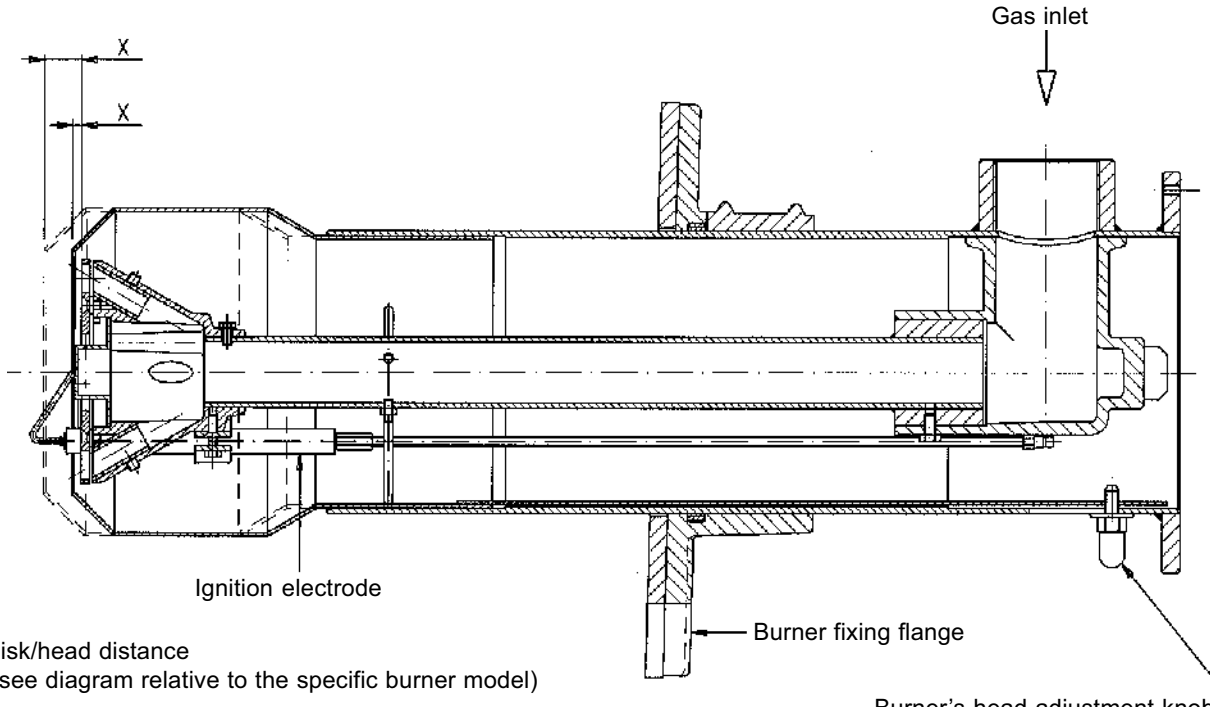


CORRECT ADJUSTMENT



COMBUSTION HEAD ADJUSTMENT DIAGRAM

N° 0002933200

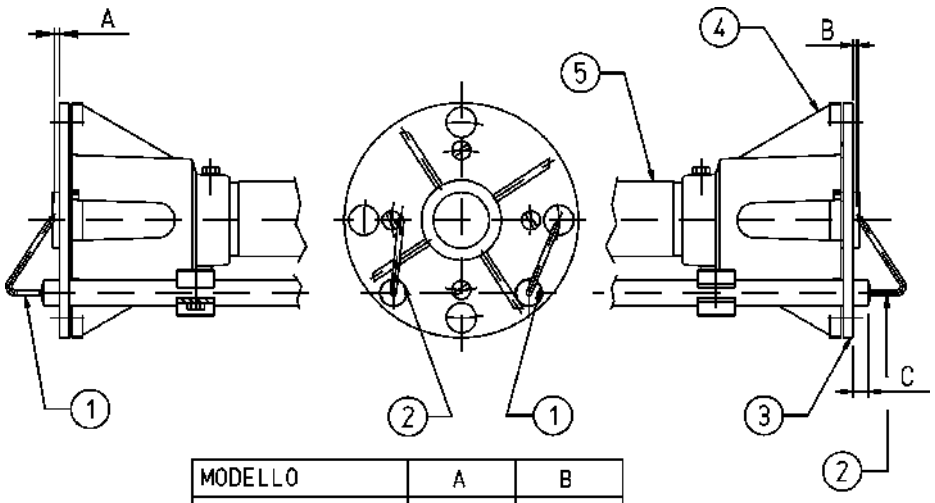


X = Disk/head distance
(see diagram relative to the specific burner model)

NOTE: if the distance "X" is reduced the NOx emissions value falls. Always adjust the distance "X" between the minimum and maximum valuesspecified in the work field.

BGN 40 LX / LX-V ELECTRODES ADJUSTMENT DIAGRAM

N° 0002933196
Rev. 14/12/2004

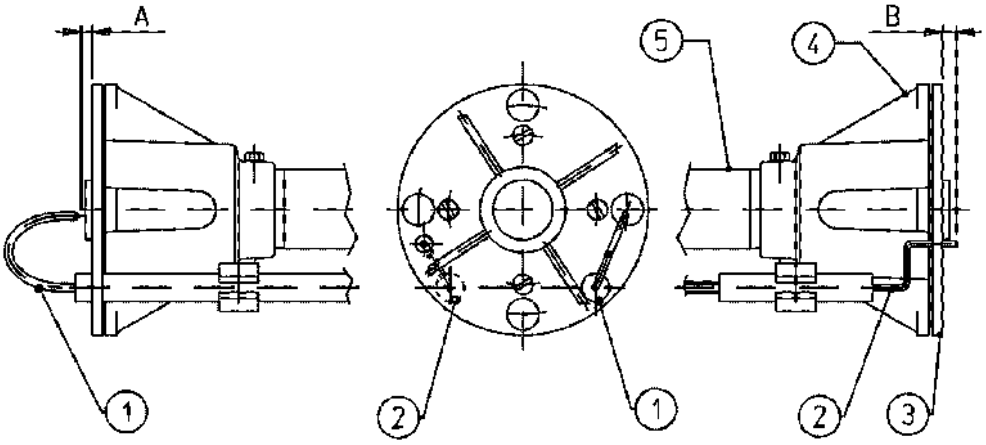


MODELLO	A	B
SPARKGAS 20 Lx	5	2 ÷ 3
SPARKGAS 30 Lx	5	2 ÷ 3
BGN 40 Lx	5	2 ÷ 3

1 - Ionisation electrode
2 - Ignition electrode
3 - Flame disk
4 - Gas diffuser
5 - Gas delivery pipe

BGN 60 ~ 390 LX / LX-V ELECTRODES ADJUSTMENT DIAGRAM

N° 0002934430
Rev. 23/09/2004

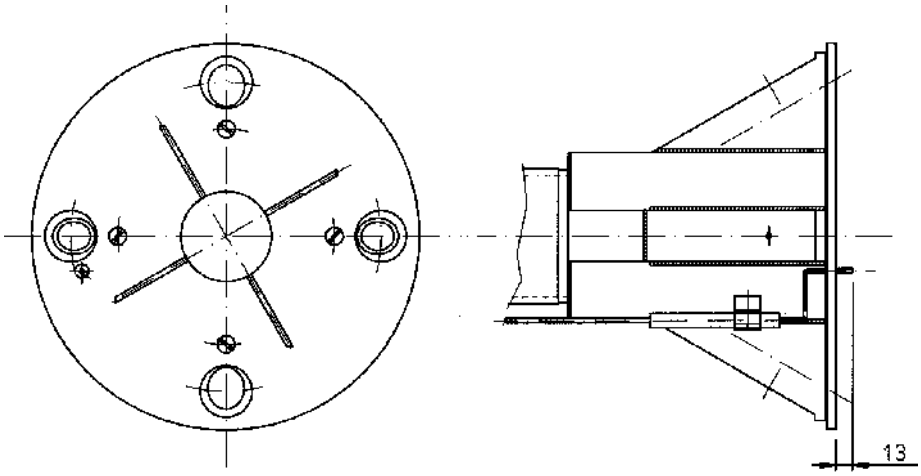


1 - Ionisation electrode
2 - Ignition electrode
3 - Flame disk
4 - Gas diffuser
5 - Gas delivery pipe

MOD.	A	B
BGN 60 LX/LX-V	5	5
BGN 120 LX/LX-V	5	5
BGN 200 LX/LX-V	5	5
BGN 300 LX/LX-V	5	5
BGN 390 LX/LX-V	5	5

BGN 540 LX / LX-V ELECTRODES ADJUSTMENT DIAGRAM

N° 0002933850
Rev. 12/06/2002



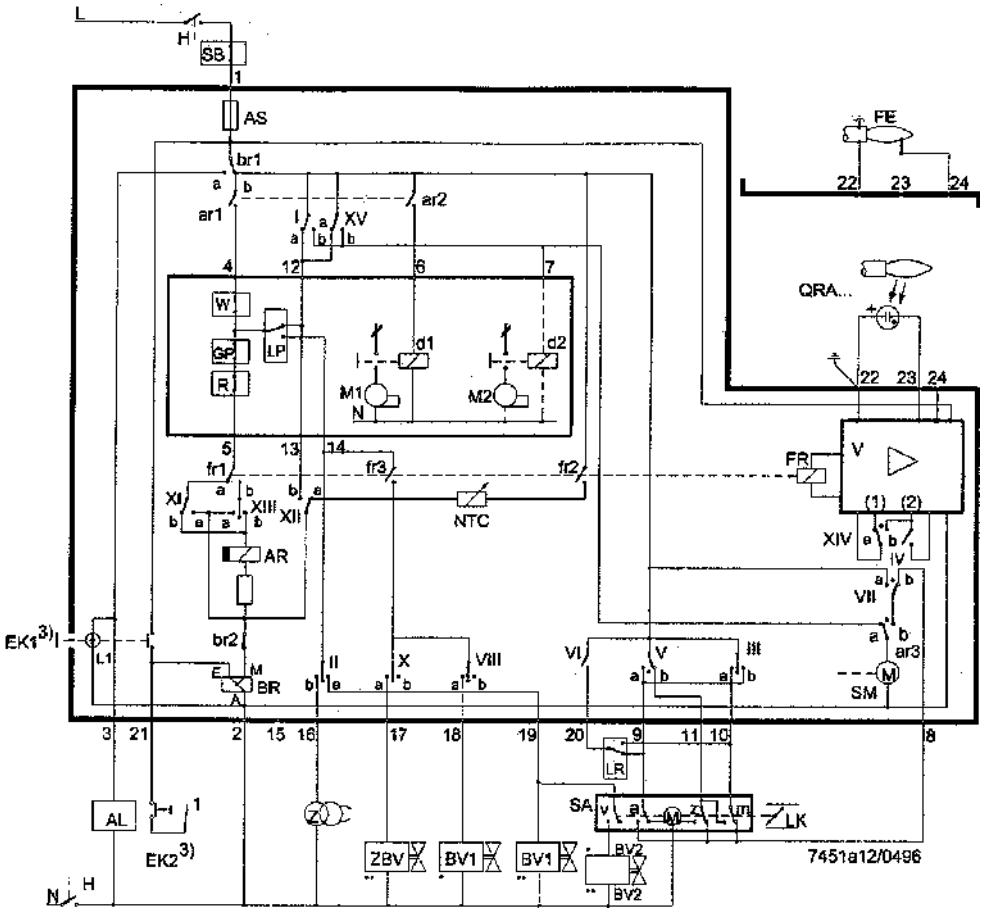
INSTRUCTIONS LFL 1.... CONTROL BOX

N° **7**451
Rev. 10/1997

Control box for burners of average and high power, with forced draught, intermittent service (*), 1 or 2 stages, or modulating types, with supervision of the air pressure for controlling the air damper.
This control box bears the EC mark, in accordance with the Gas and Electromagnetic Compatibility Directive.
* For reasons of safety, it is necessary to make at least one controlled stop every 24 hours!
As regards the standards
The following LFL1… features exceed the standards, offering a high level of additional safety:
- The flame detector test and false flame test start immediately after the tolerated post-combustion time. If the valves remain open, or do not close completely after adjustment stops, a lock-out stop is triggered at the end of the tolerated post-combustion period. The tests will end only at the end of the pre-ventilation time of the next start-up.
- The validity of working of the flame control circuit is checked each time the burner starts up.
- The fuel valve control contacts are checked for wear during the post-ventilation time.
- A built-in fuse in the appliance protects the control contacts from any overloads that may occur.

As regards the burner control
- The equipment allows operation with or without post-ventilation.
- Controlled activation of the air damper to ensure pre-ventilation with nominal airflows. Positions checked: CLOSED or MIN (position of ignition flame on start-up); OPEN at the beginning and MIN at the end of the pre-ventilation time. If the servomotor does not position the air damper at the points described, the burner does not start-up.
- Ionization current minimum value = 6mA
- UV cell current minimum value = 70mA
- Phase and neutral must not be inverted.
- Any place may be used for installation and assembly (IP40 protection).

Electrical connections



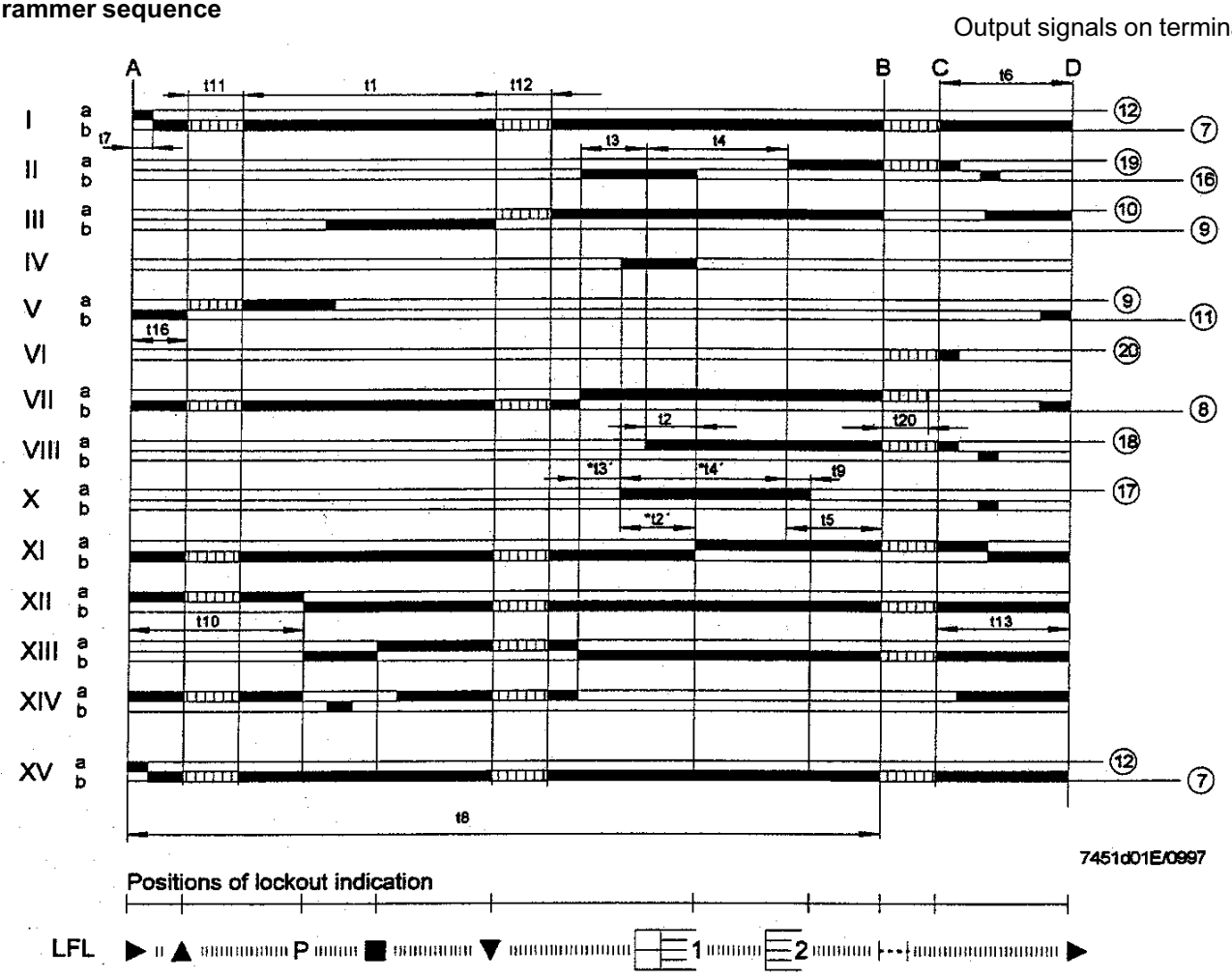
The burner manufacturer's diagram is valid for the relief valve connections.

LEGEND

For the entire catalogue sheet

a	Limit switch commutation contact for air damper OPEN position
AL	Remote signalling of lock-out stop (alarm)
AR	Main relay (operating relay) with "ar…" contacts
AS	Appliance fuse
BR	Lock-out relay with "br…" contacts
BV	Fuel valve
bv...	Control contact for gas valve CLOSED position
d…	Remote control switch or relay
EK…	Lock-out push-button
FE	Ionization current probe electrode
FR	Flame relay with "fr…" contacts
GP	Gas pressure switch
H	Main switch
L1	Fault indicator light
L3	Ready for operation indicator
LK	Air damper
LP	Air pressure switch
LR	Power regulator
m	Auxiliary commutation contact for air damper MIN position
M…	Motor fan or burner
NTC	NTC resistor
QRA..	UV probe
R	Thermostat or pressure probe
RV	Fuel valve with continuous regulation
S	Fuse
SA	Air damper servomotor
SB	Safety limiter (temperature, pressure, etc.)
SM	Programmer synchronous motor
v	In the case of servomotor: auxiliary contact for consensus for fuel valve depending on air damper position
V	Flame signal amplifier
W	Thermostat or safety pressure switch
z	In the case of servomotor: limit switch commutation contact for air damper CLOSED position
Z	Ignition transformer
ZBV	Pilot burner fuel valve
•	Valid for forced draught burners, with obe tube
••	Valid for pilot burners with intermittent operation
(1)	Input for increasing operating voltage for UV probe (probe test)
(2)	Input for forced energizing of flame relay during functional test of flame supervision circuit (contact XIV) and during safety time t2 (contact IV)
3)	**Do not press EK for more than 10 seconds**

Notes on the programmer
Programmer sequence



Times Legend

time (50 Hz) in seconds

31.5	t1	Pre-ventilation time with air damper open
3	t2	Safety time
-	t2'	Safety time or safety time with burners that use pilot burners
6	t3	Short pre-ignition time (ignition transformer on terminal 16)
-	t3'	Long pre-ignition time (ignition transformer on terminal 15)
12	t4	Time between beginning of t2' and valve consensus on terminal 19 with t2
-	t4'	Time between beginning of t2' and valve consensus on terminal 19
12	t5	Time between end of t4 and consensus at power regulator or at valve on terminal 20
18	t6	Post-ventilation time (with M2)
3	t7	Time between consensus for start-up and voltage at terminal 7 (start delay for fan motor M2)
72	t8	Start-up duration (without t11 and t12)
3	t9	Second safety time for burners that use pilot burners
12	t10	Time from start-up to beginning of air pressure control without air damper travel time
	t11	Air damper opening travel time
	t12	Air damper in flow flame position (MIN) travel time
18	t13	Permitted post-combustion time
6	t16	Initial delay of consensus for air damper OPENING
27	t20	Time up to automatic closure of programmer mechanism after burner start-up

NOTE: With voltages at 60 Hz, the times are reduced by about 20%.

t2', t3', t3':
These times are valid **only** for **series 01** or LFL1.335, LFL1.635, LFL1.638 burner control and command equipment.
They are not valid for types of Series 032, since they involve **simultaneous activation of cams X and VIII**.

Working
The above diagrams illustrate both the connection circuit and the sequencer mechanism control program.

A Consensus for start-up by means of installation thermostat or pressure switch “R”.

A-B Start-up program

B-C Normal burner operation (on the basis of “LR” power regulator control commands)

C Stop controlled by “R”

C-D Return of programmer to start-up position “A”, post-ventilation.
During periods of inactivity of the burner, only the command outputs 11 and 12 are powered, and the air damper is in the CLOSED position, determined by limit switch “z” of the air damper servo motor. During the probe test and false flame test, the flame supervision test is also powered (terminals 22/23 and 22/24).

Safety standards

- In association with the use of QRA…, earthing of terminal 22 is compulsory.
- The power cables must conform to existing national and local standards.
- LFL1… is a safety device, and it is therefore forbidden to open it, tamper with it or modify it!
- The LFL1… device must be completely insulated from the mains before carrying out any operations on it!
- Check all the safety functions before activating the unit or after replacing a fuse!
- Provide protection against electric shock on the unit and all electric connections. This is ensured by following the assembly instructions correctly!
- During operation and maintenance, prevent infiltration of condensate into the command and control equipment.
- Electromagnetic discharges must be checked on the application plan.

Control program in the event of stopping, indicating position of stop
As a rule, in the event of any kind of stop, the fuel flow is cut off immediately. At the same time, the programmer remains immobile, as does the switch position indicator. The symbol visible on the indicator reading disk indicates the type of fault.

◀ **No start-up,** because of failure in closing of a contact or lock-out stop during or at the end of the command sequence because of external lights (for example: flames not extinguished, loss at the level of the fuel valve, defects in the flame control circuit, etc.)

▲ **Start-up sequence stops**, because the OPEN signal was not sent to terminal 8 by limit switch contact “a”. Terminals 6, 7 and 15 remain powered until the defect is eliminated.

P **Lock-out stop**, because of lack of air pressure signal.
Any lack of pressure from this moment onwards will cause a lock-out stop!

■ **Lock-out stop** because of flame detection circuit malfunction.

▼ **Start-up sequence stops**, because the position signal for low flame was not sent to terminal 8 by auxiliary switch “m”. Terminals 6, 7 and 15 remain powered until the fault is eliminated.

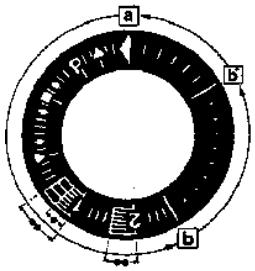
1 **Lock-out stop**, due to lack of flame signal at the end of the first safety time.

2 **Lock-out stop**, because no flame signal was received at the end of the second safety time (main flame signal with pilot burners at intermittent operation).

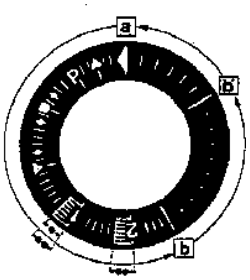
| **Lock-out stop**, due to lack of flame signal during burner operation.

If a lock-out stop occurs at any moment between the start and pre-ignition without a symbol, the cause is generally to be attributed to a premature or abnormal flame signal caused, for example, by self-ignition of a UV tube.

Stop indications



LFL …, Series 01



LFL …, Series 02

a-b Start-up program

b-b’ “Trips” (without contact confirmation)

b(b’)-a Post-ventilation program

1 - Timer fields - setting maximum

Maximum field value

0.15	- 3 s	>> 3 s* Scale
1.5	- 30 s	>> 30 s yellow
15	- 300 s	>> 300 s
1.5	- 30 4min	>> 30 4min
15	- 300 4min	>> 300 4min
1.5	- 30 h	>> 30 h
15	- 300 h	>> 300 h
0.05	- 1 s	>> 1 s* Scale
0.5	- 10 s	>> 10 s white
5	- 100 s	>> 100 s

* Green Led does not flash in these fields.

2 - Scale of absolute values for setting the time inside the selected field.

3 - Status display LED

U/T Electrical supply tension

LED on = time passed or stopped;

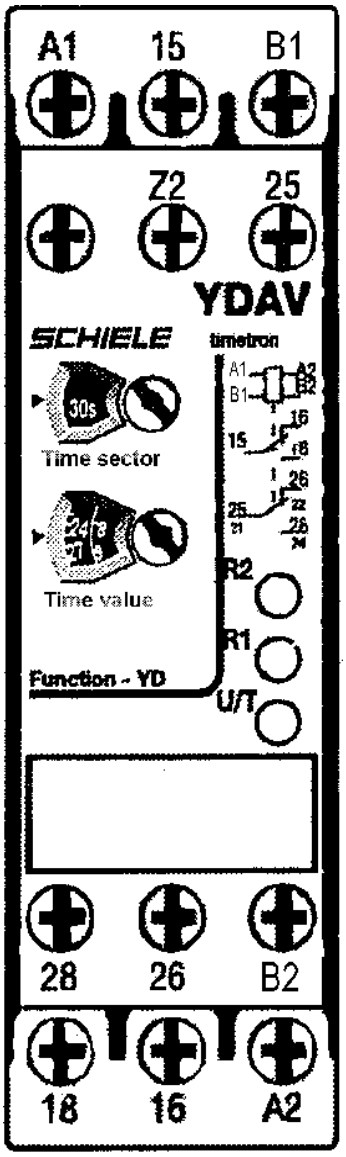
LED flashing = time delay in course.

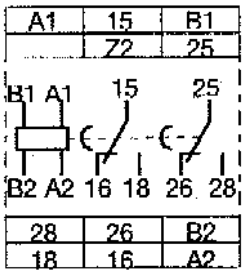
4 - Wiring diagram

15/16/18 = 1st switching contact

25(21)26(22)28(24) = 2nd switching contact (instant)

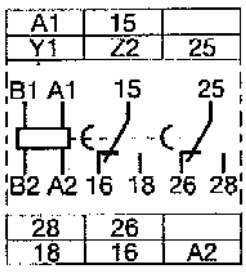
Contact sign in accordance with EN 50005





Electrical supply tension:

- A2, B1 : 24 V AC/DC
- A2, B2 : 42...48 V AC/DC
- A1, A2 : 110...240 V AC



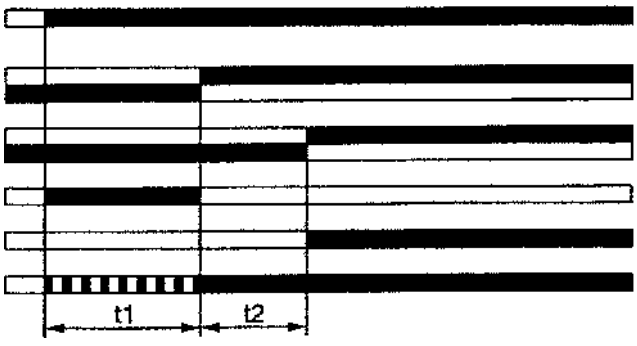
Electrical supply tension:

- A1, A2 : 380...440 V AC

Star to delta switching with double insertion delay

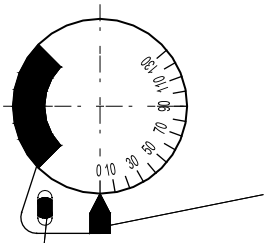
t1 = Time set for star start up.

t2 = Fixed switching time of about 50 ms.



TWO-STAGE GAS BURNERS: TROUBLE-SHOOTING GUIDE

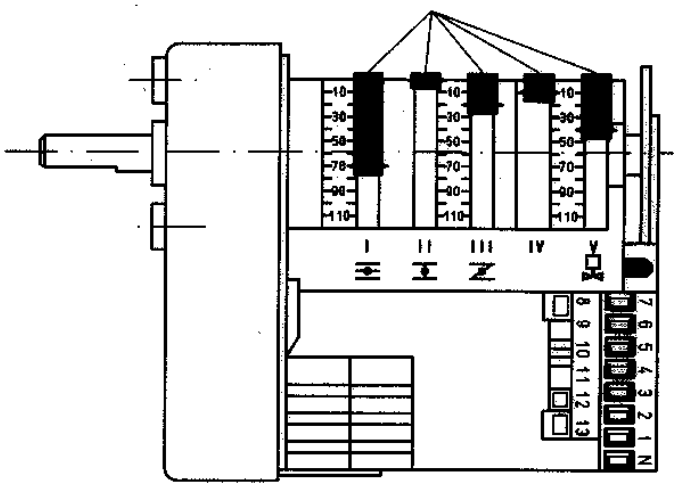
DETAILS OF PROBLEM	POSSIBLE CAUSE	SOLUTION
The apparatus goes into "lock-out" with the flame (red light on). Fault restricted to flame control device.	1) Disturbance to ionization current from ignition transformer. 2) Flame sensor (ionization probe or UV cell) inefficient. 3) Flame sensor (ionization probe or UV cell) position incorrect. 4) Ionization probe or relative earth cable. 5) Electrical connection cut-off by flame sensor. 6) Inefficient draught or fumes passage blocked. 7) Flame disk or combustion heads dirty or worn. 8) UV cell dirty or greasy. 9) Equipment fault. 10) No ionization.	1) Invert the ignition transformer power supply (230V side) and check using an analog micro-ammeter. 2) Replace flame sensor. 3) Correct the position of the flame sensor, and then check its efficiency by inserting the analog micro-ammeter. 4) Check visually and using the instrument. 5) Restore the connection. 6) Ensure that the boiler fumes passage and chimney connection are free. 7) Visually check and replace, if necessary. 8) Clean **carefully** 9) Replace. 10) If the "earth" of the apparatus is not efficient, do not check the ionization current. Check the efficiency of the "earth" at the terminal concerned of the apparatus and at the "earth" connection of the electric system.
The apparatus goes into "lock-out", gas flows out, but there is no flame (red light on). Fault restricted to ignition circuit.	1) Fault in ignition circuit. 2) Ignition transformer cable discharges to earth. 3) Ignition transformer cable disconnected. 4) Ignition transformer faulty. 5) The distance between electrode and earth is incorrect. 6) Isolator dirty, so electrode discharges to earth.	1) Check the ignition transformer power supply (230V) and high voltage circuit (electrode to earth or isolator broken under locking terminal). 2) Replace. 3) Connect. 4) Replace. 5) Position at the correct distance. 6) Clean or replace isolator and electrode.
The apparatus goes into "lock-out", gas flows out, but there is no flame (red light on).	1) air/gas ratio incorrect. 2) Gas pipe has not been properly bled of air (in the case of first ignition). 3) The gas pressure is insufficient or excessive. 4) Air flow between disk and head too narrow.	1) Correct the air/gas ratio (there is probably too much air or very little gas). 2) Bleed the gas pipe again, taking great care. 3) Check the maximum gas pressure value **at the time of ignition** (use a water pressure gauge, if possible). 4) Adjust the disk/head opening.

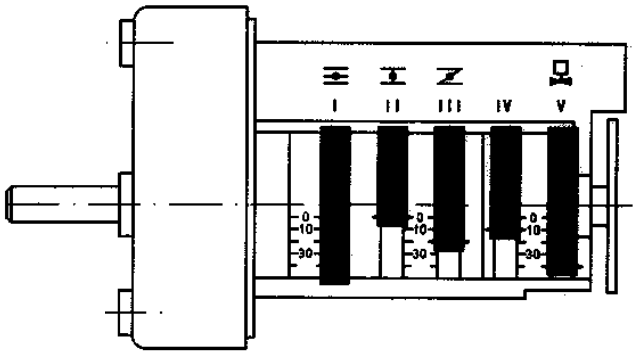


指示标记
REFERENCE INDEX

离合控制钮：压下时凸轮与轴分离，弹起时凸轮与轴结合
INSERTION AND DISINSERTION LEVER
MOTOR CONNECTION CAMSHAFT

可调凸轮
ADJUSTABLE CAMS





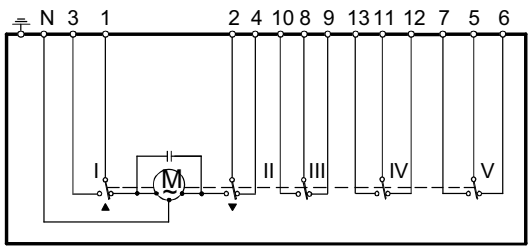
I - 最大出力风门开度
I - MAXIMUM AIR OPENING

II - 全关 (停机时风门开度)
II - TOTAL AIR CLOSURE (BURNER AT STANDSTILL)

III - 点火时风门开度 (大于凸轮IV)
III - AIR OPENING FOR IGNITION (MORE THAN CAM IV)

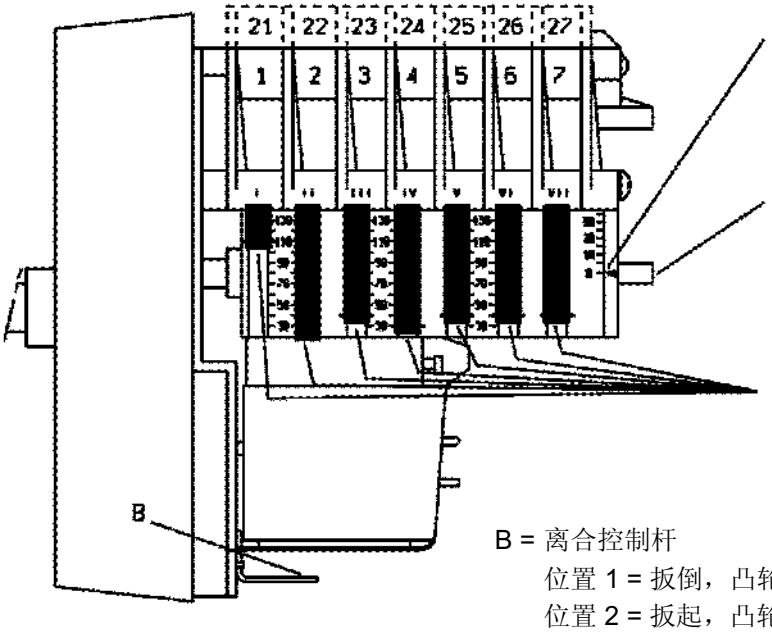
IV - 最小出力风门开度 (小于凸轮III)
IV - MINIMUM AIR OPENING (LESS THAN CAM III)

V - 未使用凸轮
V - CAM NOT USED



SQN30.401 A2700

调节时即调节对应的凸轮(I - II - III...)。用力推红色的环，让它转动，直到上面的指示标记达到想要的刻度为止，调节完成。
TO MODIFY THE REGULATION OF THE CAMS UTILIZED, OPERATE THE RESPECTIVE RED RINGS (I - II - III...), THE INDEX OF THE RED RING INDICATE ON THE RESPECTIVE REFERENCE SCALE. THE ROTATION ANGLE TAKEN UP FOR EACH CAM.



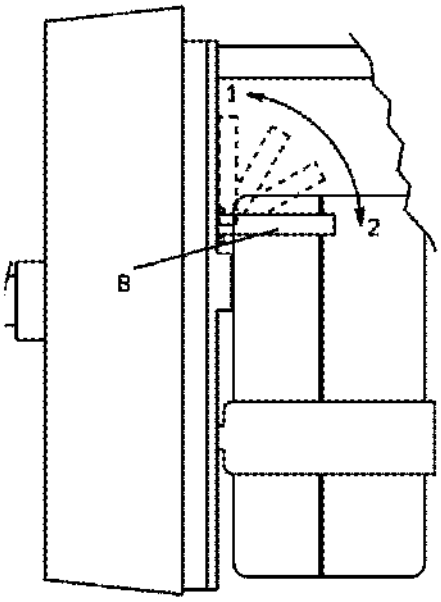
指示标记
REFERENCE INDEX

凸轮轴
CAMSHAFT

可调凸轮
ADJUSTABLE CAMS

B = 离合控制杆
位置 1 = 扳倒，凸轮与轴分离
位置 2 = 扳起，凸轮与轴结合

B = CAMSHAFT
1 = DISINSERTION
2 = INSERTION



I - 最大出力风门开度
I - MAXIMUM AIR OPENING

II - 全关 (停机时风门开度)
II - TOTAL AIR CLOSURE (BURNER AT STANDSTILL)

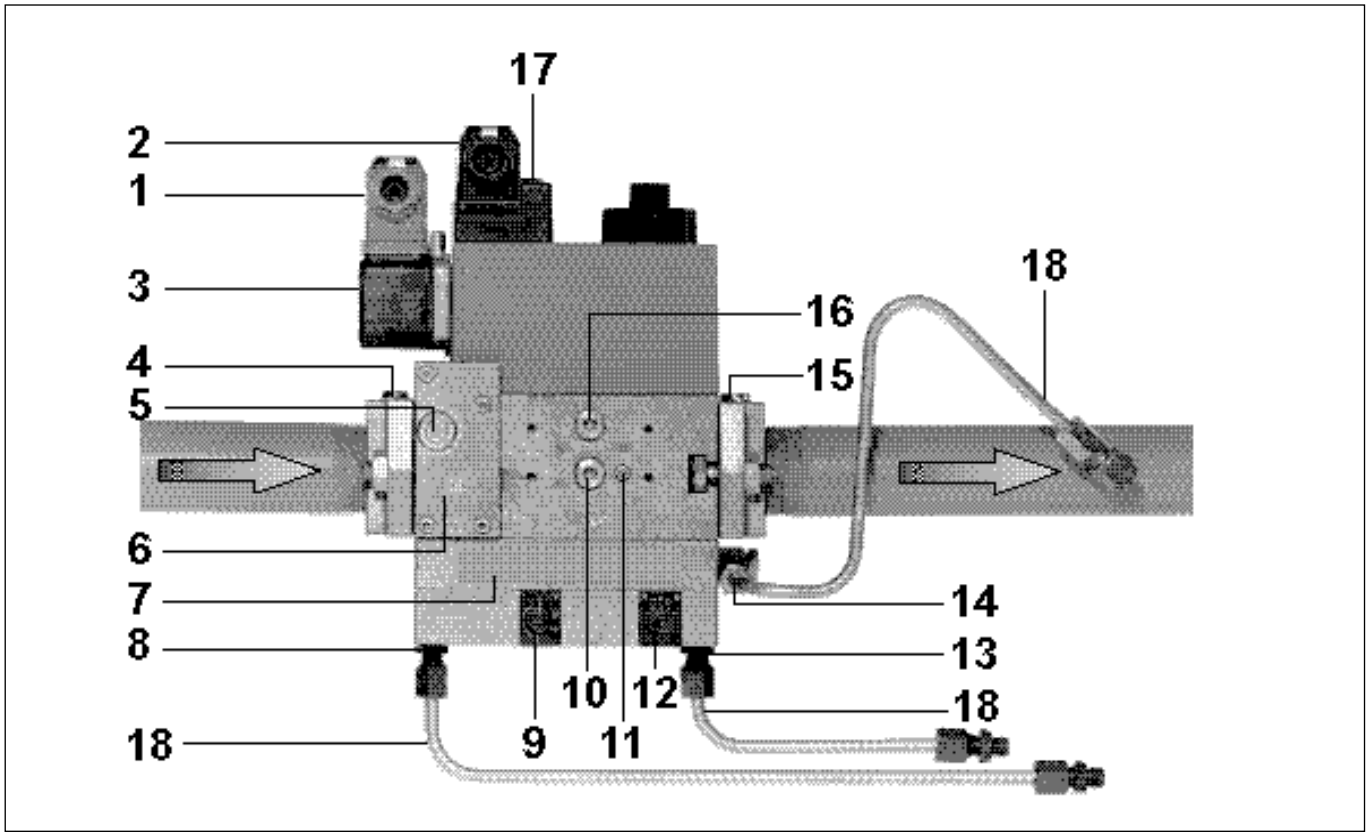
III - 点火时风门开度 (大于凸轮IV)
III - AIR OPENING FOR IGNITION (MORE THAN CAM IV)

IV - 最小出力风门开度 (小于凸轮III)
IV - MINIMUM AIR OPENING (LESS THAN CAM III)

使用了其中的三个凸轮，其作用见图。
调节时即调节对应的凸轮(I - II - III...)。用力推红色的环，让它转动，直到上面的指示标记达到想要的刻度为止，调节完成。

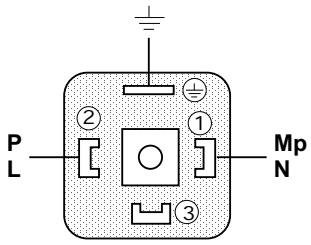
TO MODIFY THE REGULATION OF THE CAMS UTILIZED, OPERATE THE RESPECTIVE RED RINGS (I - II - III...), THE INDEX OF THE RED RING INDICATE ON THE RESPECTIVE REFERENCE SCALE. THE ROTATION ANGLE TAKEN UP FOR EACH CAM.

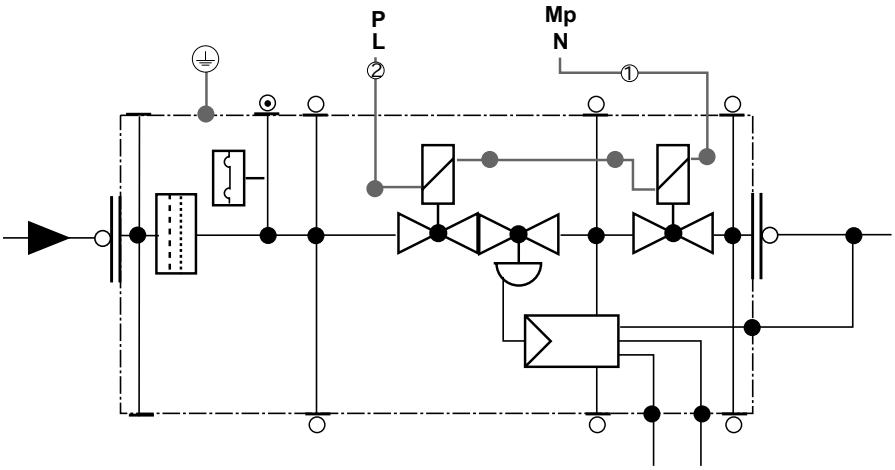
空燃比控制一体式燃气阀介绍
INSTRUCTIONS FOR MONOBLOC VALVE GAS-AIR-RATIO CONTROL

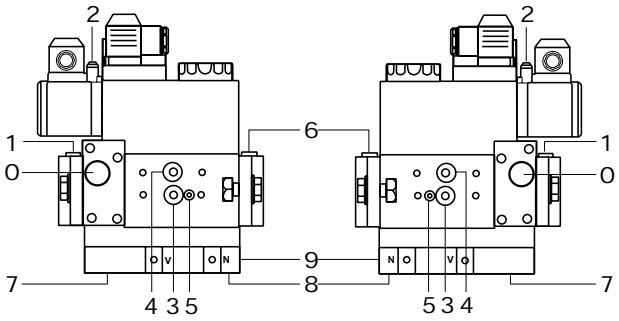


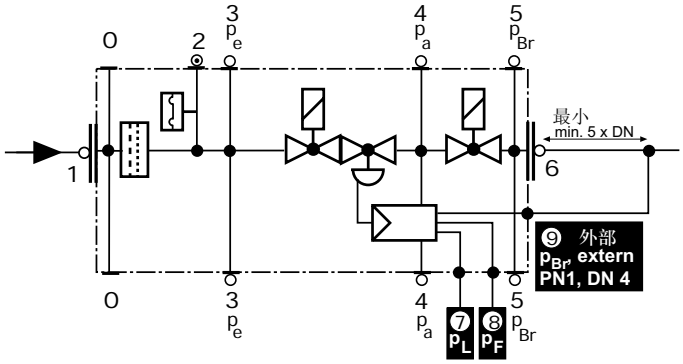
1	压力开关的电气联接 (DIN 43650)	Electrical connection for pressure switch (DIN 43650)
2	气阀的电气联接 (DIN 43650)	Electrical connection for valves (DIN 43650)
3	压力开关	Pressure switch
4	进口法兰	Input flange
5	过滤器前测点联接，G 1/8，两侧均可	Test point connection G 1/8 up-stream of filter, possible of both sides
6	过滤器(在里面)	Filter (below cover)
7	铭牌	Type plate
8	风机出口压力P_L联接，G 1/8	G 1/8 pressure connection for P_L blower pressure
9	比例V的调节螺丝	Setting screw, ratio V
10	过滤器后测点联接，G 1/8，两侧均可	Test point connection G 1/8 down-stream of filter, possible of both sides
11	阀2后的测点联接，M4	Test point connection M4 down-stream of V2
12	零点N的调节螺丝	Setting screw, zero point adjustment N
13	炉膛压力P_F联接，G 1/8	G 1/8 pressure connection for P_F furnace pressure
14	燃烧器燃气压力P_{Br}联接，G 1/8	G 1/8 pressure connection for P_{Br} burner pressure
15	出口法兰	Output flange
16	阀1后的测点联接，G 1/8，两侧均可	Test point connection G 1/8 down-stream of V1, possible on both sides
17	阀1和阀2的运行显示(选用)	Operation display V1, V2 (optional)
18	压力传递管	Pulse line

电气联接	根据当地有关规定接地
Electrical connection	Grounding acc. local regulations



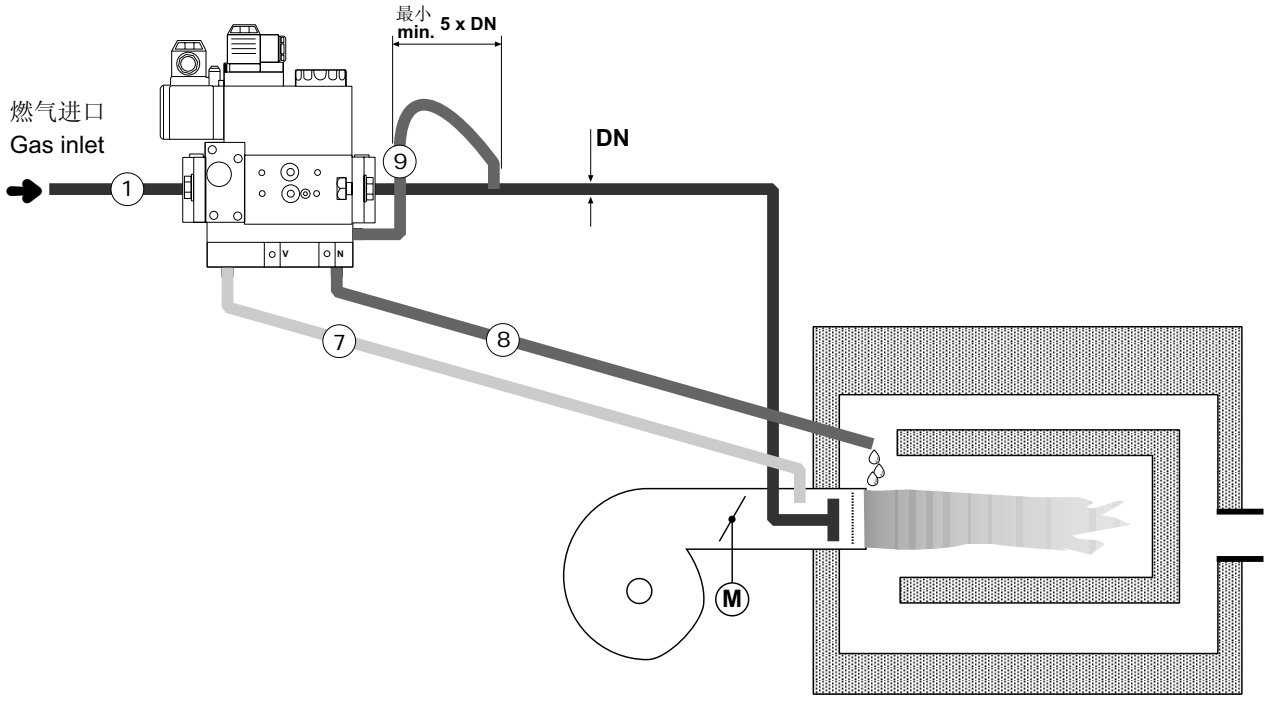






1,3,4,6	G 1/8 螺纹联接	**1,3,4,6**	G 1/8 screwed sealing plug
2	测压口	**2**	Measuring nozzle
5	M4 螺纹联接	**5**	M4 screwed sealing plug
7,8,9	G 1/8 内螺纹 用于测 p_L, p_F和p_{Br}	**7,8,9**	G 1/8 female thread for p_L p_F,p_{Br} pulse lines
0	过滤器	**0**	Filter cup

测压管的联接
Installation of pulse lines



1 p_e: 燃气阀进气压力
S10: 5 - 100 mbar
S30:100 - 360 mbar

7 p_L: 风机出口燃烧空气压力
0.4 - 100 mbar

8 p_F: 燃烧室压力
– 2 mbar … + 5 mbar

9 p_{Br}: 气阀出口、燃烧器前燃气压力
0.5 - 100 mbar

1 p_e: Gas inlet pressure
S10: 5 - 100 mbar
S30:100 - 360 mbar

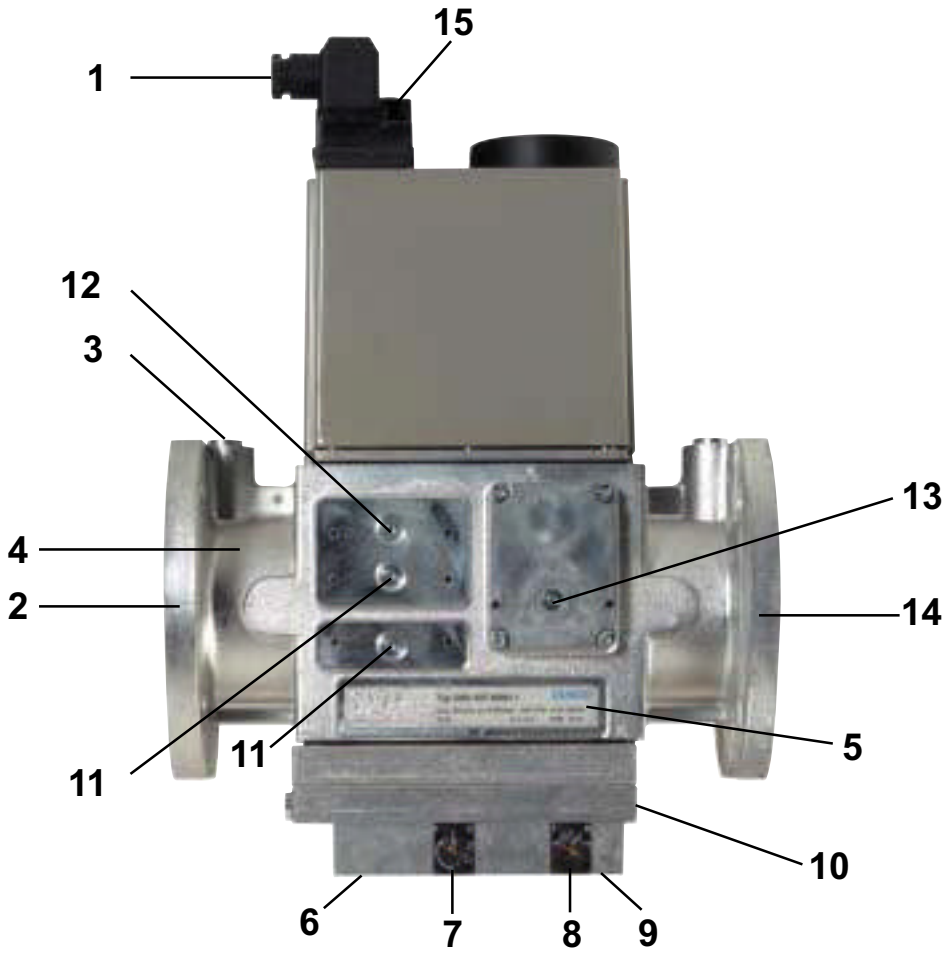
7 p_L: Blower pressure, air
0,4 - 100 mbar

8 p_F: Combustion chamber pressure
– 2 mbar … + 5 mbar

9 p_{Br}: Burner pressure, gas
0,5 - 100 mbar

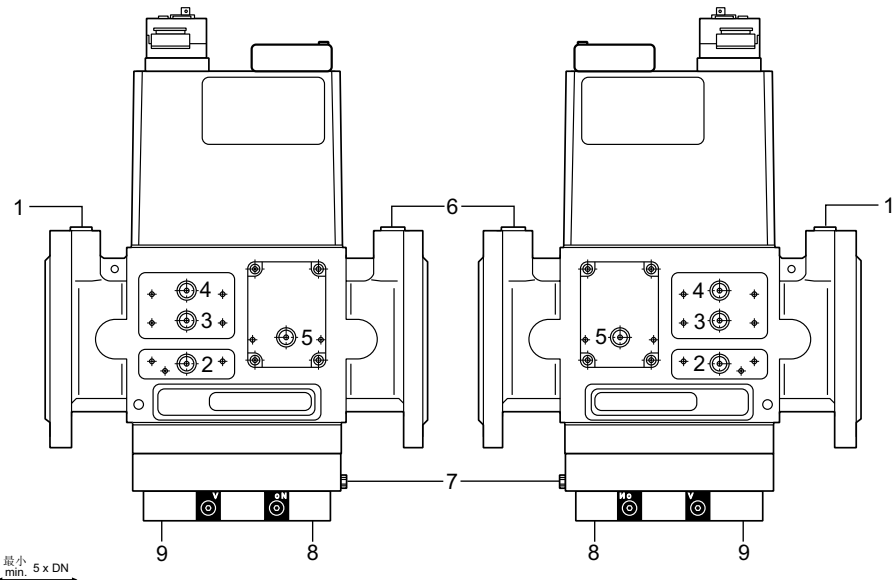
空气比控制双电磁阀介绍

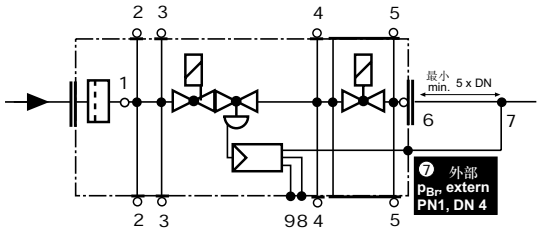
INSTRUCTIONSFORDOUBLE SOLENOID VALVE GAS-AIR-RATIO CONTROL



1	阀的电气联接 (DIN 43650)	Electrical connection for valves (DIN43650)
2	进口法兰	Input flange
3	G1/4压力联接	G1/4 pressure connection
4	过滤器	Sieve
5	铭牌	Type plate
6	风机出口压力P_L联接，G 1/8	G1/8 pressure connection for P_L blower pressure
7	比例V的调节螺丝	Setting screw, ratio V
8	零点N的调节螺丝	Setting screw, zero point adjustment N
9	炉膛压力P_F联接，G 1/8	G1/8 pressure connection for P_F furnace pressure
10	燃烧器燃气压力P_{Br}联接，G 1/8	G1/8 pressure connection for P_{Br} burner pressure
11	过滤器后测点联接，G 1/8，两侧均可	Test point connection G1/8 down-stream of filter, possible of both sides
12	阀1后的测点联接，G 1/8，两侧均可	Test point connection G1/8 down-stream of V1, possible on both sides
13	阀2后的测点联接，G 1/8，	Test point connection G1/8 down-stream of V2
14	出口法兰	Output flange
15	运行显示	Operation display

测压管联接
Pressure taps
DMV-VEF 5065/11 - 5125/11

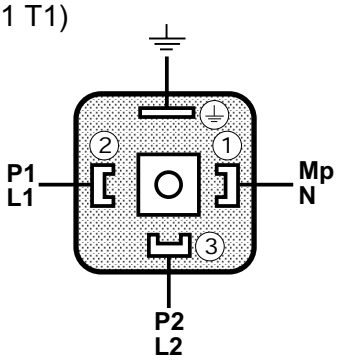


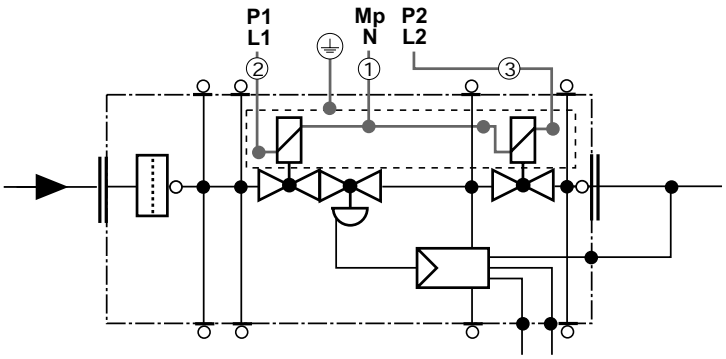


1, 6	**2, 3, 4, 5**	**7**	**8,9**
G 1/4 螺纹密封接头	G 1/8 螺纹密封接头	燃气压力管p_{Br}，已接好	G 1/8
G 1/4 screw seal plug	G 1/8 screw seal plug	Pulse line p_{Br}	G 1/8

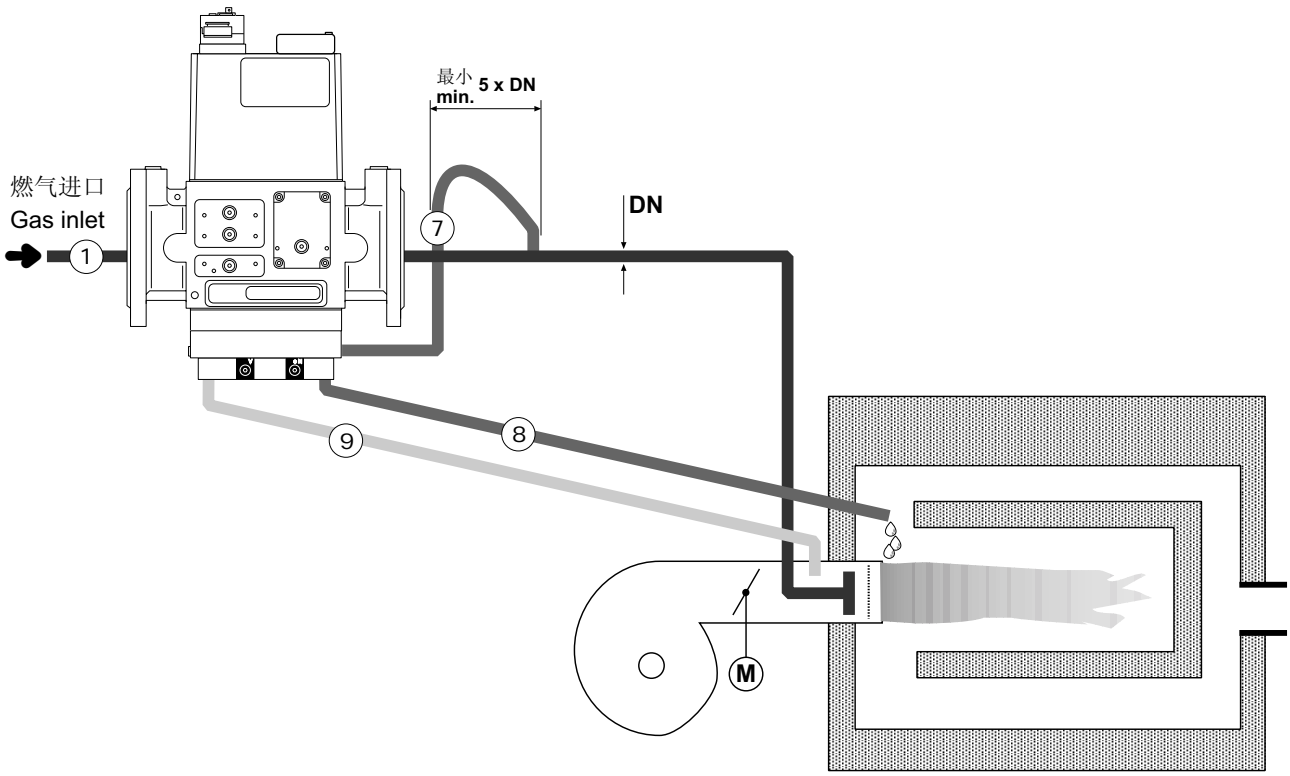
电气联接
Electrical connection
IEC 730-1 (VDE 0631 T1)

根据当地有关规定接地
Grounding acc. local regulations





测压管的联接
Installation of pulse lines



1 **p_e:** 燃气阀进气压力
DN 65
S10: 5 - 100 mbar
S30:100 - 360 mbar
DN 80
5 - 360 mbar

7 **p_{Br}:** 气阀出口、燃烧器前燃气压力
0.5 - 100 mbar

8 **p_F:** 燃烧室压力
– 2 mbar … + 5 mbar

9 **p_L:** 风机出口燃烧空气压力
0.4 - 100 mbar

1 **p_e: Gas inlet pressure**
DN 65
S10: 5 - 100 mbar
S30:100 - 360 mbar
DN 80
5 - 360 mbar

7 **p_{Br}: Burner pressure, gas**
0,5 - 100 mbar

8 **p_F: Combustion chamber pressure**
– 2 mbar … + 5 mbar

9 **p_L: Blower pressure, air**
0,4 - 100 mbar

压力设置及调节单元

压力调节单元出厂前已经预设页在现场应根据系统实际需要进行设置。

MB-VEF B01和DMV-VEF比例调节式燃气阀的功能是，当空气的流量增加时，自动增加燃气的流量；当空气的流量减小时，自动减小燃气的流量。这样燃气流量的调节是根据空气流量而定的，空气流量在“最小”和“最大”之间变化时，燃气流量也随之在“最小”和“最大”之间变化。通过调节空气伺服电机上的两个“凸轮”来设定最小和最大出力。建议按如下的程序来调节和设置燃烧器。将燃烧器置于最小出力状态(燃气阀开度为最小)，检测尾部烟气中的二氧化碳(CO2)或者氧气(O2)和一氧化碳(CO)的含量，如果有必要，就调节螺丝“N”通过平移阀的性能曲线(见曲线图)来得到正确的燃气/空气比率。

注意： 为了降低空燃比(空气/燃气流量比)，从而增加烟气中二氧化碳(CO_2)的含量，应该向增加的方向(+)调节螺丝(N)。相反，要加大空燃比，减少烟气中二氧化碳(CO_2)的含量，就向减小的方向(-)调节螺丝(N)。

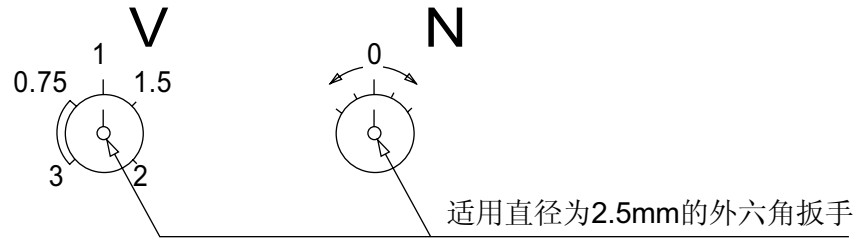
将燃烧器调到最大出力，检测尾部烟气中的二氧化碳(CO_2)或者氧气(O_2)和一氧化碳(CO)的含量，如果有必要，就调节螺丝“V”来修正以前所设定的空燃比直到需要的最佳值。

注意： 为了降低空燃比(空气/燃气流量比)，从而增加烟气中二氧化碳(CO_2)的含量，应该向增加的方向(+)调节螺丝(V)。相反，要加大空燃比，减少烟气中二氧化碳(CO_2)的含量，就向减小的方向(-)调节螺丝(V)。

完成了在最大出力的设置后，再将燃烧器切换到最小出力，检查该条件下的设置是否有变化。如有必要，调节螺丝“N”重新修正零点的设置。

注意： 在最小出力通过平移变化来获得所需工作曲线以得到良好的二氧化碳(CO_2)或者氧气(O_2)值之后，有必要再一次设定燃气/空气比率，此时可以调“V”。

零点“N”和燃气/空气比率“V”的调节螺丝



警告： 如上所述，很明显，如果通过调节燃烧头来改变空气的流量，同时也改变了燃烧器内的空气压力，从而自动地不可避免地使燃气的流量发生变化。

例如： 降低燃烧头与混合盘之间的空气的流量，使得燃烧器内的空气压力增大了，因此流入燃烧器的空气量减少了。这时，MB-VEF B01阀检测到空气压力上升，因此加大了燃气的流量。这时，就必须调节燃气阀组来修正(减小)燃气的供应量。

Setting the pressure – adjustment unit

The pressure – adjustment unit is factory set. Settings should then be adapted on site to suit the needs of the system.

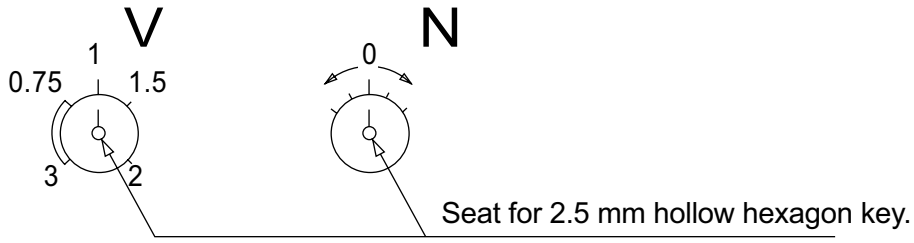
The MB-VEF B01 modulating valve works by automatically increasing the gas supply if the air supply increases and automatically reducing the gas supply in the event of a reduction in the air supply. For this reason, the supply of gas at burner “minimum” and “maximum” should only be regulated by adjusting combustion air “minimum” and “maximum”. This is basically achieved by setting the two “cams” that regulate the minimum and maximum of the air adjustment servomotor. Keeping this principle in mind, we recommend adopting the following procedure for adjusting the burner. Switch on and keep the burner at modulation minimum (modulating valve open to minimum), check the content of CO_2, or O_2 and CO in the flue gas and if necessary use adjuster screw ”N” to correct the gas/air ratio that is obtained by parallel displacement of performance curves (see diagram).

NB: In order to reduce the amount of air compared to gas and thus increase the percentage of CO_2, move adjuster screw N” towards positive values (+). In order to increase the amount of air compared to gas and thus reduce the percentage of CO_2, move adjuster screw N” towards negative values (-). Take the burner to modulation maximum, measure the content of CO_2 or O_2 and CO in the flue gas and if necessary use adjuster screw “V” to correct the ratio previously set until an optimum reading is obtained.

NB: In order to reduce the amount of air compared to gas and thus increase the percentage of $C0_2$, move adjuster screw “V” towards higher ratios. In order to increase the amount of air compared to gas and thus reduce the % of CO_2, move adjuster screw “V” towards lower ratios (see diagram). Once the maximum modulation has been set, return to the minimum position and check the adjustments previously carried out. If necessary, correct “0” point again with adjuster screw “N”.

NB: When a parallel change to the performance curve has been required in order to obtain good CO_2 or O_2 values at low loads (modulation at minimum), it is necessary to recheck the setting of the gas/air ratio and alter if required using adjuster screw “V”.

ADJUSTER SCREWS - ZERO POINT “N” AND GAS/AIR RATIO “V”



WARNING: It can clearly be seen from that stated above that the change in burner air pressure obtained by using the device controlling the flow of air to the combustion head (by varying the air flow area) automatically and inevitably causes a change to the gas supply.

Example: By reducing the air flow area between head and disk,an increase is obtained in burner air pressure and a reduction in the combustion chamber air supply. As a result, the MB-VEF B01 gas valve detects the increase in pressure and increases the gas supply, thus meaning that correction (reduction) of the gas supply becomes essential using the relative devices fitted to the valve.

p_L 空气AIR

p_L 最大/max. = 100 mbar
p_L 最小/min. = 0.4 mbar

p_{Br} 燃气GAS

p_{Br} 最大/max. = 100 mbar
p_{Br} 最小/min = 0.5 mbar

p_F 燃烧室 Combustion atmosfere

p_F 最大/max. = +5 mbar
p_F 最小/min = -2 mbar

V 最小/min 最大/min

V = p_{Br}: p_L
V 最大/min = 3:1
V 最小/min = 0.75:1

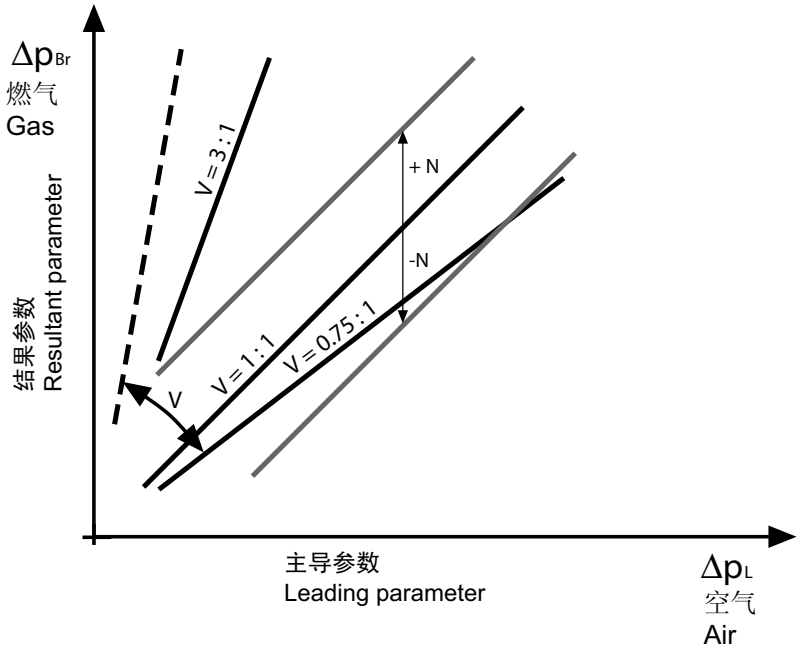
N ± 1 mbar

零点调节范围 ± 1 mbar
Zero point adjustement ± 1 mbar

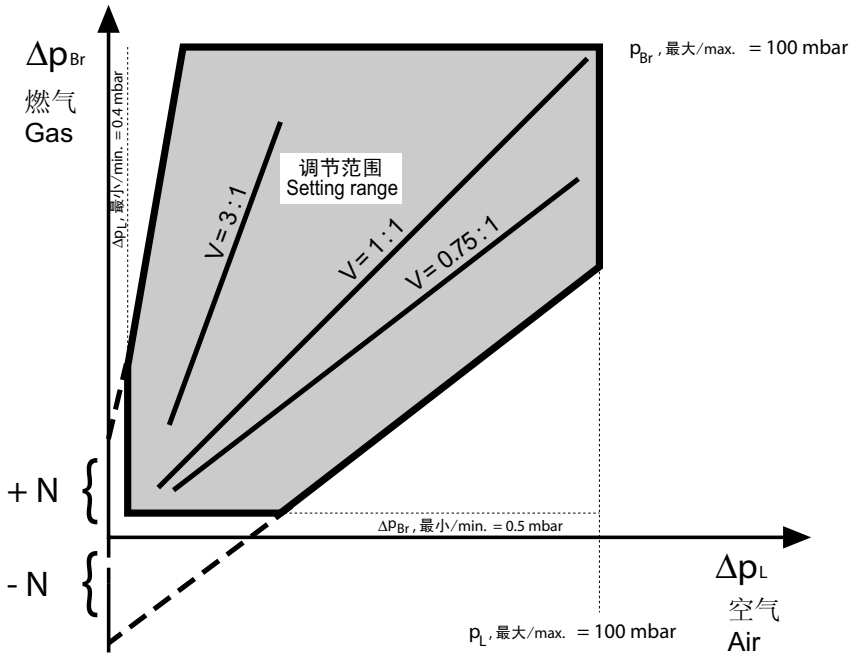
调节范围
Setting range

⚠ 燃气有效压力
$\Delta P_{Br} = P_{Br} - P_F$

⚠ 风机有效压力
$\Delta P_L = P_L - P_F$



调节范围
Setting range

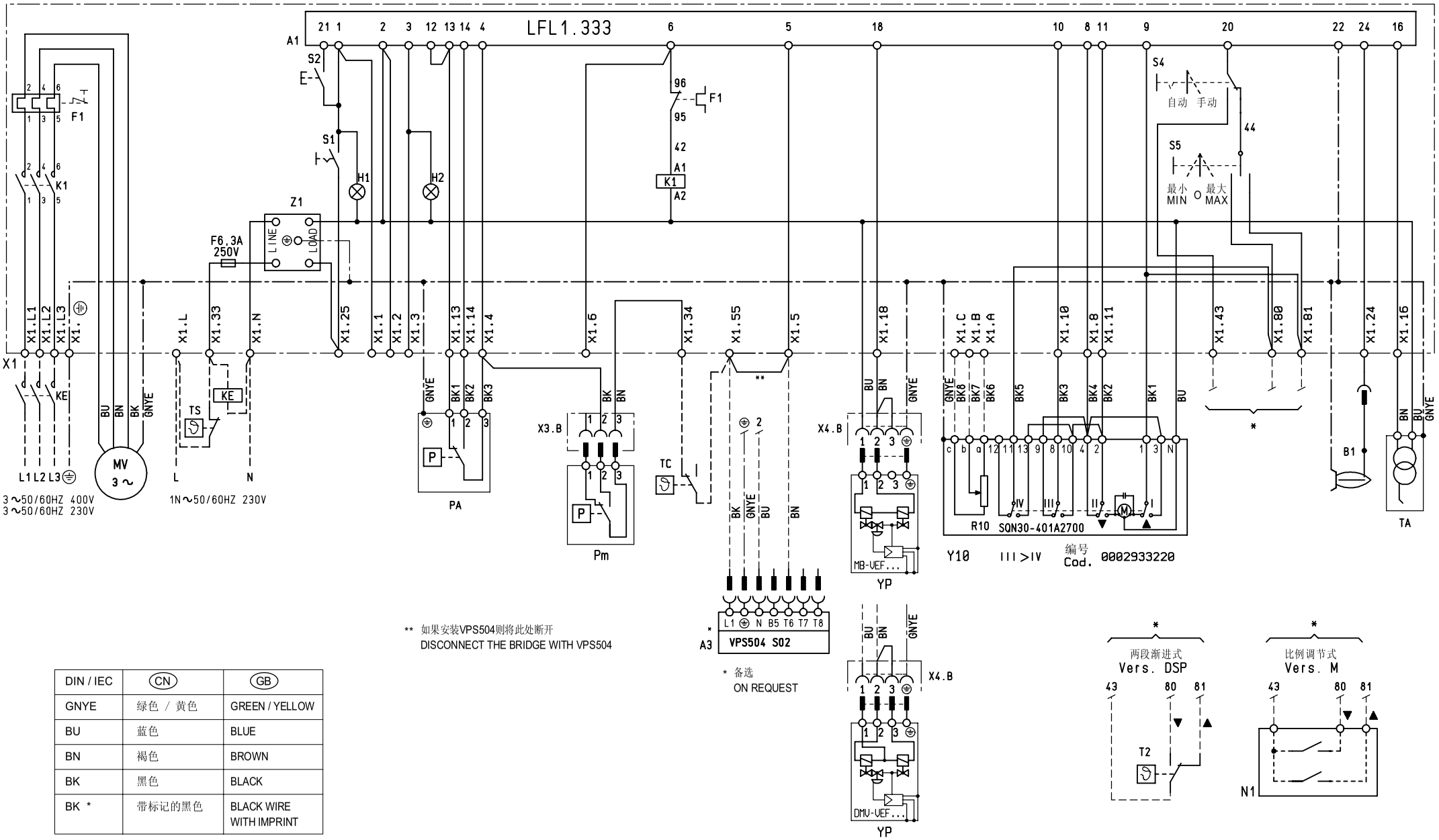


baltur
CENTO (FE)

BGN 40 - 60 - 120 - 200 - 300 - 390 LX 电路图
BGN 40 - 60 - 120 - 200 - 300 - 390 LX ELECTRIC DIAGRAM

CE

N° 0002430371N1
foglio N. 1 di 2
data 25/09/2001
Dis. V.B.
Visto S.M.



** 如果安装VPS504则将此处断开
DISCONNECT THE BRIDGE WITH VPS504

* 备选
ON REQUEST

DIN / IEC	(CN)	(GB)
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

X1. - 燃烧器终端 / BURNER TERMINAL
X3.B - Pm联接 / CONNECTOR Pm
X4.B - YP联接 / CONNECTOR YP
S1 - 启-停开关 / ON-OFF SWITCH
S2 - 复位按钮 / RE-SET PUSH BUTTON
S4 - 自动-手动选择器 / AUT-MAN SELECTOR
S5 - 最小-最大选择器 / MIN-MAX SELECTOR
H1 - 运行指示灯 / OPERATION LIGHT
H2 - 故障指示灯 / BLOCK LAMP
F1 - 热延迟继电器 / THERMAL RELAY
K1 - 电机接触器 / MOTOR CONTACTOR
KE - 外部接触器 / EXTERNAL CONTACTOR
B1 - 电离电极 / IONISATION ELECTRODE
PA - 空气压力开关 / AIR PRESSURE SWITCH
MV - 电机 / MOTOR
N1 - 电子调节器 / ELECTRONIC REGULATOR
TA - 点火变压器 / IGNITION TRANSFORMER
Pm - 最小燃气压力开关 / GAS MIN. PRESSURE SWITCH
TS - 安全温控器 / SAFETY THERMOSTAT
TC - 锅炉温控器 / BOILER THERMOSTAT
T2 - 第二段温控器 / 2º STAGE THERMOSTAT
YP - 主电磁阀 / MAIN ELECTROVALVE
Z1 - 过滤器 / FILTER
A1 - 控制器 / CONTROL BOX
A3 - 检漏装置 / VALVES TIGHTNESS CONTROL
Y10 - 空气伺服电机 / AIR SERVOMOTOR
R10 - 电位计 / POTENTIOMETER

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CENTO (FE)

BGN 540 LX 电路图

BGN 540 LX ELECTRIC DIAGRAM

CE

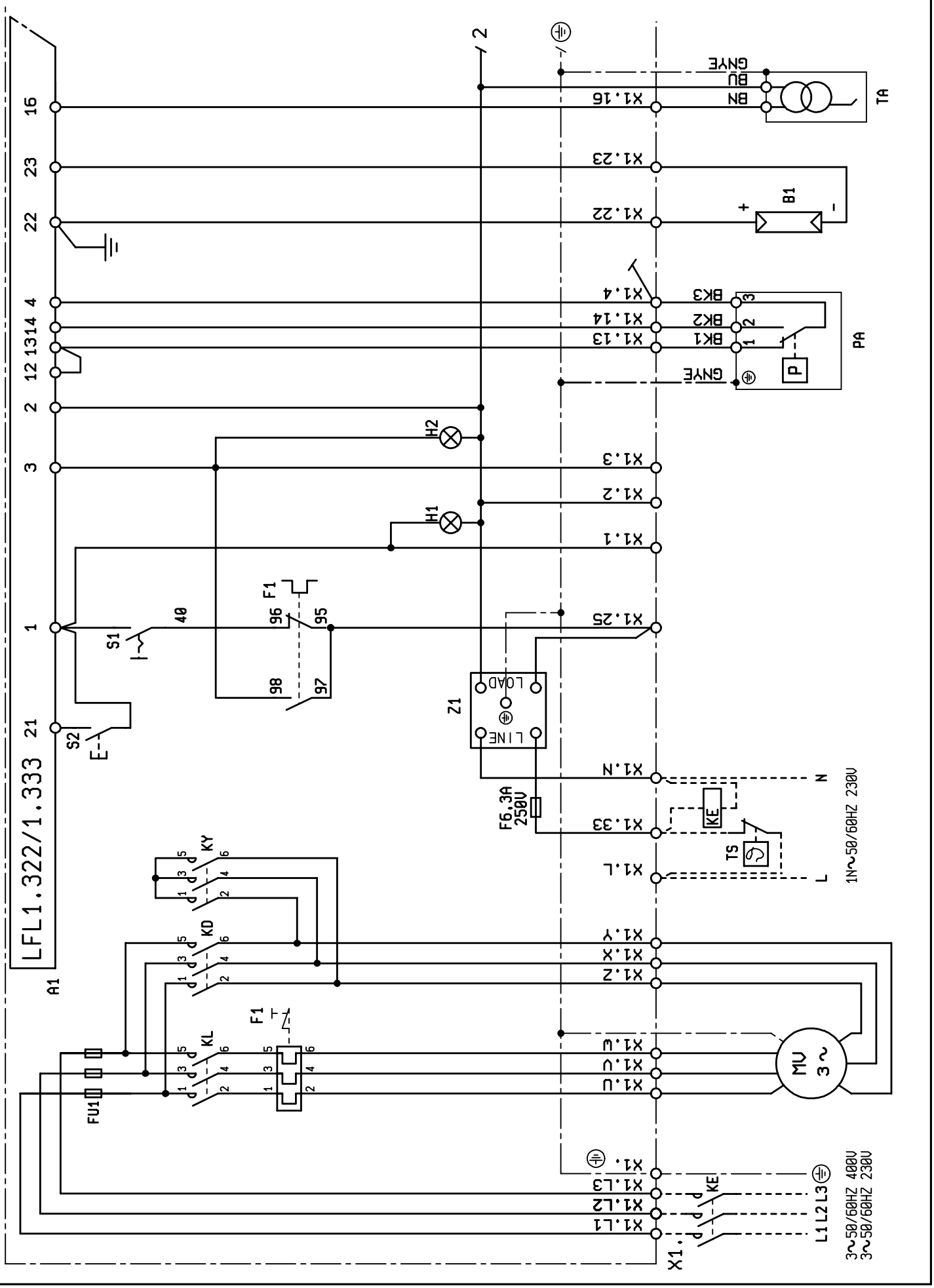
N° 0002430430N1

foglio N. 1 di 4

data 14/02/2001

Dis. V.B.

Visto S.M.



baltur

CENTO (FE)

BGN 540 LX 电路图

BGN 540 LX ELECTRIC DIAGRAM

CE

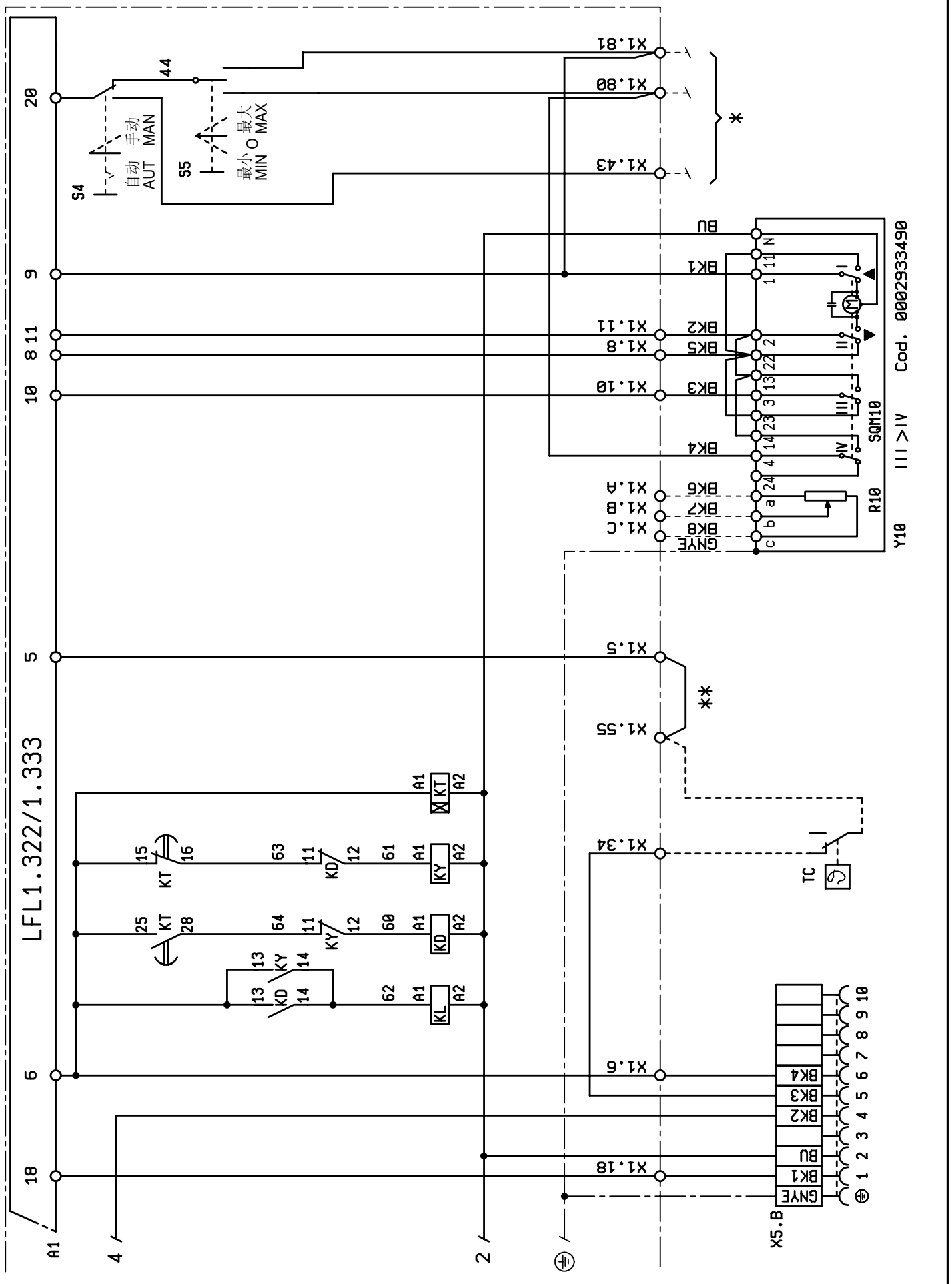
N° 0002430430N2

foglio N. 2 di 4

data 14/02/2001

Dis. V.B.

Visto S.M.

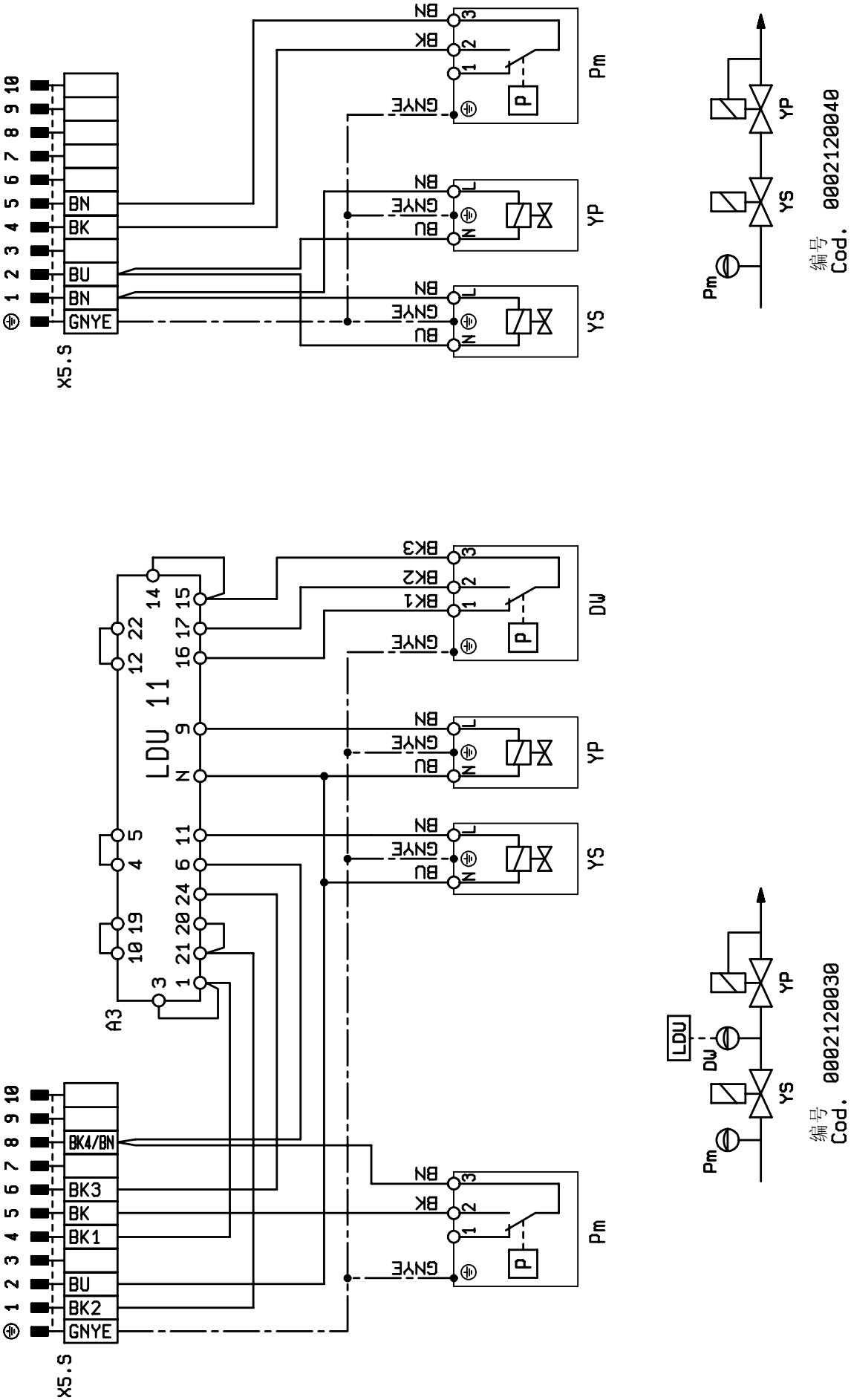


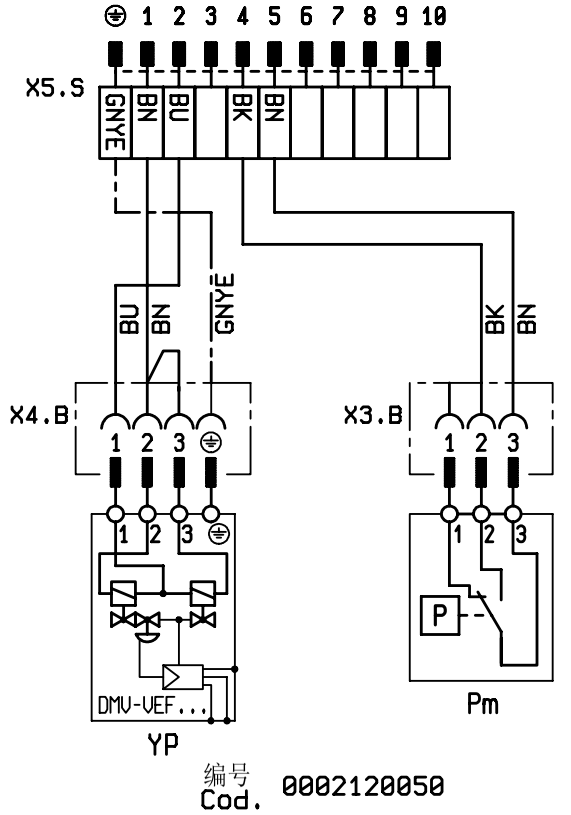
baltur
CENTO (FE)

BGN 540 LX 电路图
BGN 540 LX ELECTRIC DIAGRAM

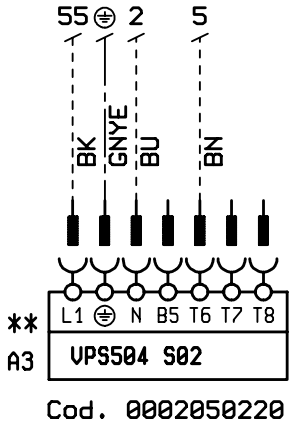
CE

N° 0002430430N3
foglio N. 3 di 4
data 14/02/2001
Dis. V.B.
Visto S.M.



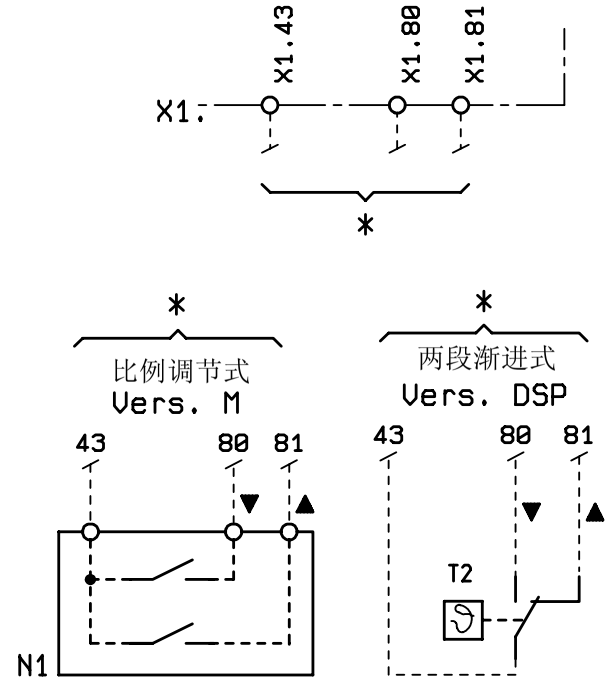


编号
Cod. 0002120050



Cod. 0002050220

** 备选
ON REQUEST



A1 - 控制器 / CONTROL BOX
A3 - 检漏装置 / VALVES TIGHTNESS CONTROL
B1 - UV紫外线光电管 / UV PHOTOCELL
DW - 检漏用压力开关 / PRESSURE SWITCH FOR VALVE TIGHTNESS CONTROL
F1 - 热延迟继电器 / THERMAL RELAY
FU1 - 保险 / FUSES
H1 - 运行指示灯 / OPERATION LIGHT
H2 - 故障指示灯 / BLOCK LAMP
KE - 外部接触器 / EXTERNAL CONTACTOR
KL - 线接触器 / LINE CONTACTOR
KD - 三角形启动接触器 / TRIANGLE CONTACTOR
KY - 星形启动接触器 / STAR CONTACTOR
KT - 计时器 / TIMER
MV - 电机 / MOTOR
N1 - 电子调节器 / ELECTRONIC REGULATOR
PA - 空气压力开关 / AIR PRESSURE SWITCH
Pm - 最小燃气压力开关 / GAS MIN. PRESSURE SWITCH
R10 - 电位计 / POTENTIOMETER
S1 - 启-停开关 / ON-OFF SWITCH
S2 - 复位按钮 / RE-SET PUSH BUTTON
S4 - 自动-手动选择器 / AUT-MAN SELECTOR
S5 - 最小-最大选择器 / MIN-MAX SELECTOR
T2 - 第二段温控器 / 2° STAGE THERMOSTAT
TA - 点火变压器 / IGNITION TRANSFORMER
TC - 锅炉温控器 / BOILER THERMOSTAT
TS - 安全温控器 / SAFETY THERMOSTAT
X1. - 燃烧器控制盘终端 / PANEL TERMINAL BOARD
X5.B, X5.S - 主阀组可移动式插头 / MAIN GAS TRAIN FLOATING PLUG
Y10 - 空气伺服电机 / AIR SERVOMOTOR
YP - 主电磁阀 / MAIN ELECTROVALVE
YS - 安全阀 / SAFTY VALVE
Z1 - 过滤器 / FILTER

DIN / IEC	(CN)	(GB)
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

baltur
CENTO (FE)

BGN 540 LX 电路图
BGN 540 LX ELECTRIC DIAGRAM

CE

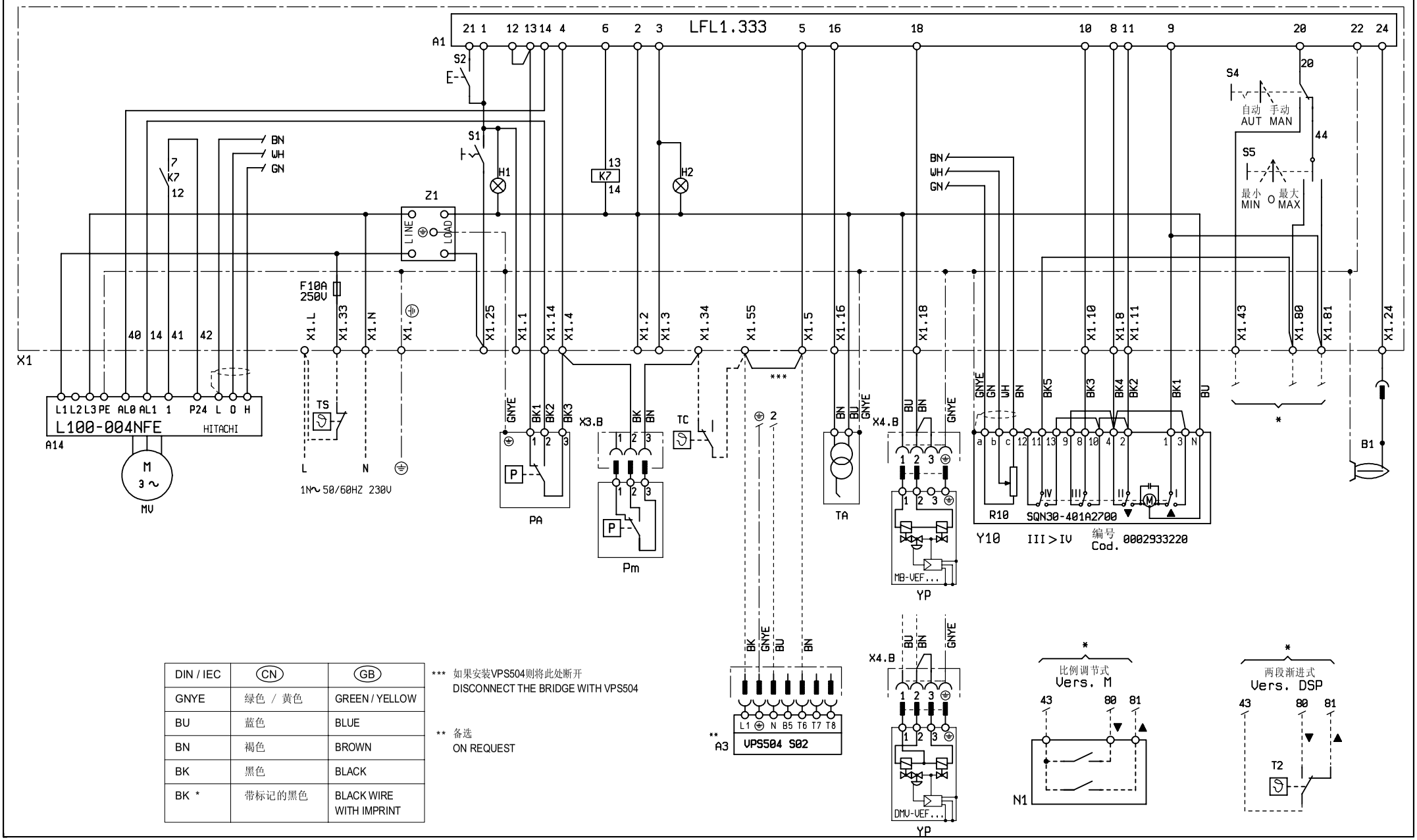
N° 0002430430N4
foglio N. 4 di 4
data 14/02/2001
Dis. V.B.
Visto S.M.

baltur
CENTO (FE)

BGN 40 LX-V 电路图,带变频器
BGN 40 LX-V ELECTRIC DIAGRAM, WITH INVERTER

CE

N° 0002430720N1
foglio N. 1 di 2
data 19/01/2004
Dis. V.B.
Visto S.M.



DIN / IEC	CN	GB
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

*** 如果安装VPS504则将此处断开
DISCONNECT THE BRIDGE WITH VPS504

** 备选
ON REQUEST

baltur CENTO (FE)	BGN 40 LX-V 电路图页带变频器 BGN 40 LX-V ELECTRIC DIAGRAM, WITH INVERTER	CE N° 0002430720N2 foglio N. 2 di 2 data 19/01/2004 Dis. V.B. Visto S.M.

A1 - 控制器 / CONTROL BOX
A3 - 检漏装置 / VALVES TIGHTNESS CONTROL
A14 - 变频器 / INVERTER
B1 - 电离电极 / IONISATION ELECTRODE
H1 - 运行指示灯 / OPERATION LIGHT
H2 - 故障指示灯 / BLOCK LAMP
K7 - 电机辅助延时继电器 / MOTOR AUX. RELAY
MV - 电机 / MOTOR
N1 - 电子调节器 / ELECTRONIC REGULATOR
PA - 空气压力开关 / AIR PRESSURE SWITCH
Pm - 最小燃气压力开关 / GAS MIN. PRESSURE SWITCH
R10 - 电位计 / POTENTIOMETER
S1 - 启-停开关 / ON-OFF SWITCH
S2 - 复位按钮 / RE-SET PUSH BUTTON
S4 - 自动-手动选择器 / AUT-MAN SELECTOR
S5 - 最小-最大选择器 / MIN-MAX SELECTOR
T2 - 第二段温控器 / 2º STAGE THERMOSTAT
TA - 点火变压器 / IGNITION TRANSFORMER
TC - 锅炉温控器 / BOILER THERMOSTAT
TS - 安全温控器 / SAFETY THERMOSTAT
X1. - 燃烧器终端 / BURNER TERMINAL
X3.B - Pm联接 / CONNECTOR Pm
X4.B - YP联接 / CONNECTOR YP
Y10 - 空气伺服电机 / AIR SERVOMOTOR
YP - 主电磁阀 / MAIN ELECTROVALVE
Z1 - 过滤器 / FILTER

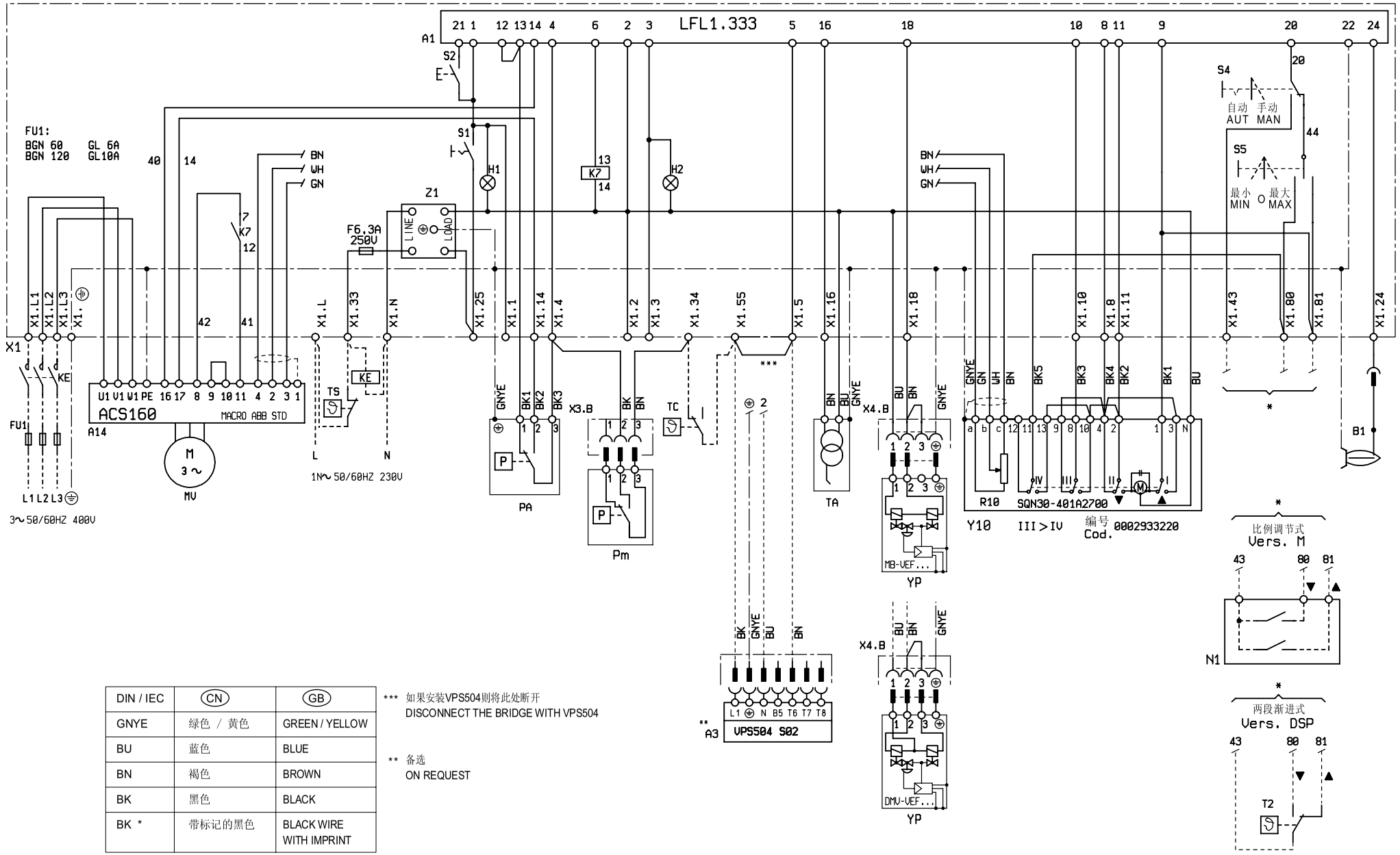
baltur

CENTO (FE)

BGN 60 - 120 LX-V 电路图,带变频器
BGN 60 - 120 LX-V ELECTRIC DIAGRAM, WITH INVERTER

CE

N° 0002430660N1
foglio N. 1 di 2
data 19/01/2004
Dis. SM
Visto V.B.



DIN / IEC	CN	GB
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

*** 如果安装VPS504则将此处断开
DISCONNECT THE BRIDGE WITH VPS504

** 备选
ON REQUEST

A1 - 控制器 / CONTROL BOX
A3 - 检漏装置 / VALVES TIGHTNESS CONTROL
A14 - 变频器 / INVERTER
B1 - 电离电极 / IONISATION ELECTRODE
FU1 - 保险 / FUSES
H1 - 运行指示灯 / OPERATION LIGHT
H2 - 故障指示灯 / BLOCK LAMP
K7 - 电机辅助延时继电器 / MOTOR AUX. RELAY
KE - 外部接触器 / EXTERNAL CONTACTOR
MV - 电机 / MOTOR
N1 - 电子调节器 / ELECTRONIC REGULATOR
PA - 空气压力开关 / AIR PRESSURE SWITCH
Pm - 最小燃气压力开关 / GAS MIN. PRESSURE SWITCH
R10 - 电位计 / POTENTIOMETER
S1 - 启-停开关 / ON-OFF SWITCH
S2 - 复位按钮 / RE-SET PUSH BUTTON
S4 - 自动-手动选择器 / AUT-MAN SELECTOR
S5 - 最小-最大选择器 / MIN-MAX SELECTOR
T2 - 第二段温控器 / 2º STAGE THERMOSTAT
TA - 点火变压器 / IGNITION TRANSFORMER
TC - 锅炉温控器 / BOILER THERMOSTAT
TS - 安全温控器 / SAFETY THERMOSTAT
X1. - 燃烧器终端 / BURNER TERMINAL
X3.B - Pm联接 / CONNECTOR Pm
X4.B - YP联接 / CONNECTOR YP
Y10 - 空气伺服电机 / AIR SERVOMOTOR
YP - 主电磁阀 / MAIN ELECTROVALVE
Z1 - 过滤器 / FILTER

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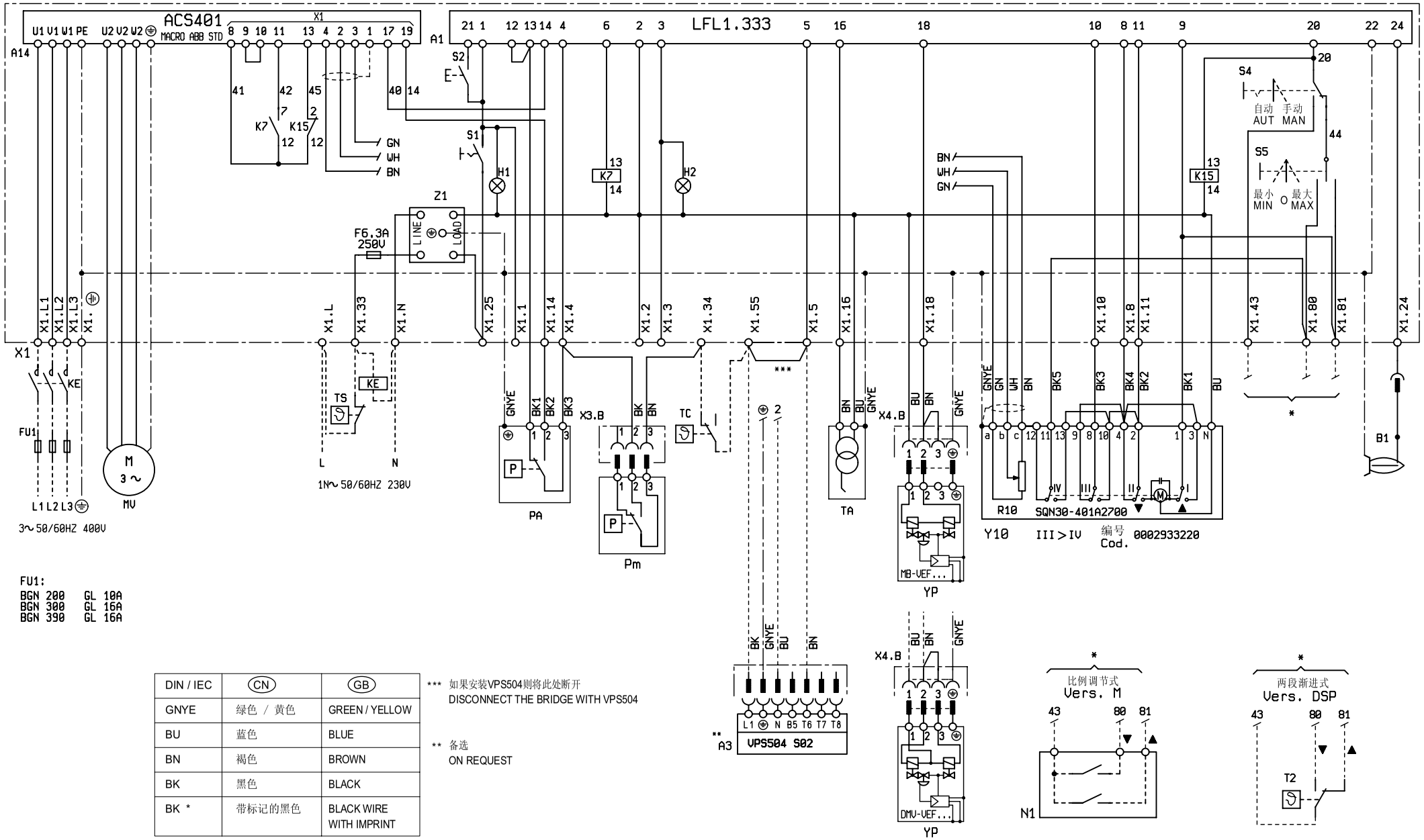
CENTO (FE)

BGN 200 - 300 - 390 LX-V 电路图,带变频器
BGN 200 - 300 - 390 LX-V ELECTRIC DIAGRAM, WITH INVERTER

CE

N° 0002430700N1
foglio N. 1 di 2
data 19/01/2004
Dis. SM
Visto V.B.



FU1:
BGN 200 GL 10A
BGN 300 GL 16A
BGN 390 GL 16A

DIN / IEC	CN	GB
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

*** 如果安装VPS504则将此处断开
DISCONNECT THE BRIDGE WITH VPS504

** 备选
ON REQUEST

BGN 200 - 300 - 390 LX-V 电路图页带变频器
BGN 200 - 300 - 390 LX-V ELECTRIC DIAGRAM, WITH INVERTER

CE

A1 - 控制器 / CONTROL BOX
A3 - 检漏装置 / VALVES TIGHTNESS CONTROL
A14 - 变频器 / INVERTER
B1 - 电离电极 / IONISATION ELECTRODE
FU1 - 保险 / FUSES
H1 - 运行指示灯 / OPERATION LIGHT
H2 - 故障指示灯 / BLOCK LAMP
K7 - 电机辅助延时继电器 / MOTOR AUX. RELAY
K15 - 比例调节辅助延时继电器 / MODULATION AUX. RELAY
KE - 外部接触器 / EXTERNAL CONTACTOR
MV - 电机 / MOTOR
N1 - 电子调节器 / ELECTRONIC REGULATOR
PA - 空气压力开关 / AIR PRESSURE SWITCH
Pm - 最小燃气压力开关 / GAS MIN. PRESSURE SWITCH
R10 - 电位计 / POTENTIOMETER
S1 - 启-停开关 / ON-OFF SWITCH
S2 - 复位按钮 / RE-SET PUSH BUTTON
S4 - 自动-手动选择器 / AUT-MAN SELECTOR
S5 - 最小-最大选择器 / MIN-MAX SELECTOR
T2 - 第二段温控器 / 2º STAGE THERMOSTAT
TA - 点火变压器 / IGNITION TRANSFORMER
TC - 锅炉温控器 / BOILER THERMOSTAT
TS - 安全温控器 / SAFETY THERMOSTAT
X1. - 燃烧器终端 / BURNER TERMINAL
X3.B - Pm联接 / CONNECTOR Pm
X4.B - YP联接 / CONNECTOR YP
Y10 - 空气伺服电机 / AIR SERVOMOTOR
YP - 主电磁阀 / MAIN ELECTROVALVE
Z1 - 过滤器 / FILTER

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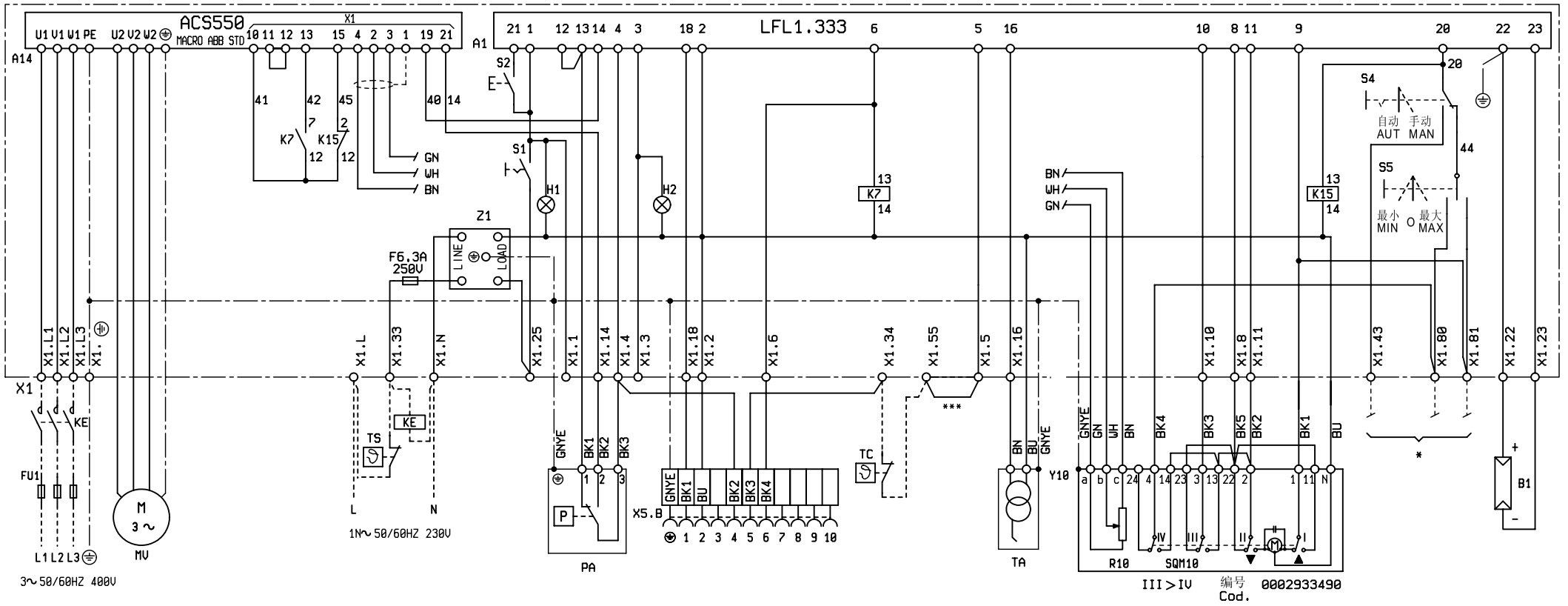
CENTO (FE)

BGN 540 LX-V 电路图,带变频器
BGN 540 LX-V ELECTRIC DIAGRAM, WITH INVERTER

CE

N° 0002430911N1
foglio N. 1 di 2
data 23/09/2005
Dis. SM
Visto V.B.

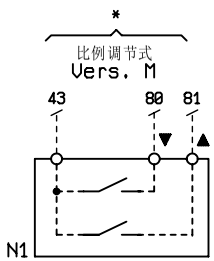


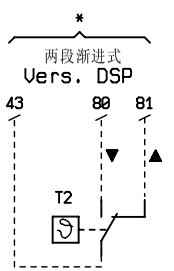
FU1:
BGN 540 GL 35A

DIN / IEC	CN	GB
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

*** 如果安装VPS504则将此处断开
DISCONNECT THE BRIDGE WITH VPS504

** 备选
ON REQUEST



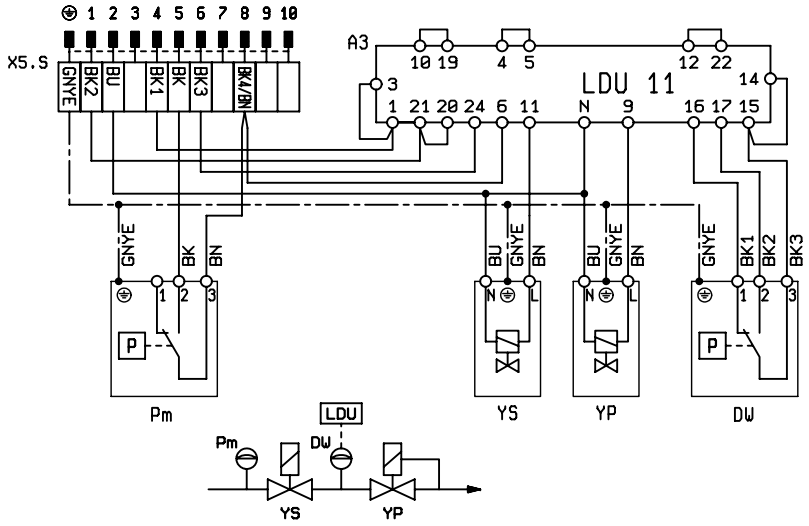


baltur
CENTO (FE)

BGN 540 LX-V 电路图,带变频器
BGN 540 LX-V ELECTRIC DIAGRAM, WITH INVERTER

CE

N° 0002430911N2
foglio N. 1 di 2
data 23/09/2005
Dis. SM
Visto V.B.



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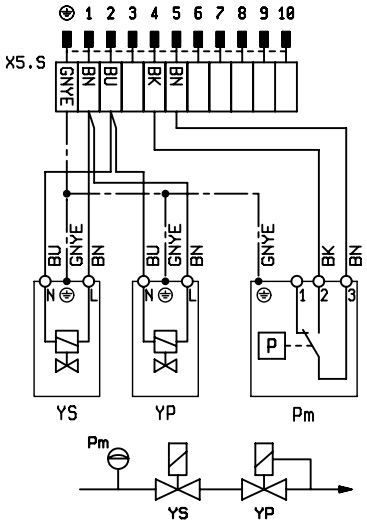

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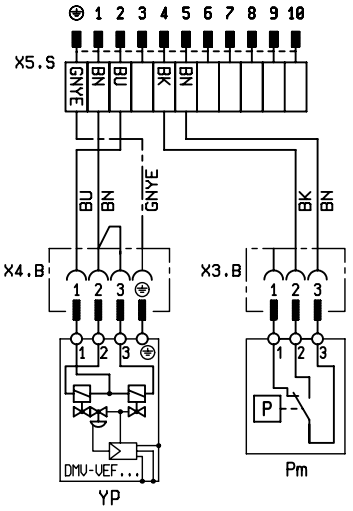

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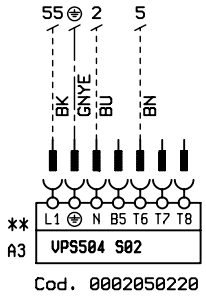

Cod. 0002050220

** 备选
ON REQUEST

A1	-	控制器 / CONTROL BOX
A3	-	检漏装置 / VALVES TIGHTNESS CONTROL
A14	-	变频器 / INVERTER
B1	-	UV紫外线光电管 / UV PHOTOCELL
DW	-	检漏用压力开关 / PRESSURE SWITCH FOR VALVE TIGHTNESS CONTROL
FU1	-	保险 / FUSES
H1	-	运行指示灯 / OPERATION LIGHT
H2	-	故障指示灯 / BLOCK LAMP
KE	-	外部接触器 / EXTERNAL CONTACTOR
K7	-	电机辅助延时继电器 / MOTOR AUX. RELAY
K15	-	比例调节辅助延时继电器 / MODULATION AUX. RELAY
MV	-	电机 / MOTOR
N1	-	电子调节器 / ELECTRONIC REGULATOR
PA	-	空气压力开关 / AIR PRESSURE SWITCH
Pm	-	最小燃气压力开关 / GAS MIN. PRESSURE SWITCH
R10	-	电位计 / POTENTIOMETER
S1	-	启-停开关 / ON-OFF SWITCH
S2	-	复位按钮 / RE-SET PUSH BUTTON
S4	-	自动-手动选择器 / AUT-MAN SELECTOR
S5	-	最小-最大选择器 / MIN-MAX SELECTOR
T2	-	第二段温控器 / 2° STAGE THERMOSTAT
TA	-	点火变压器 / IGNITION TRANSFORMER
TC	-	锅炉温控器 / BOILER THERMOSTAT
TS	-	安全温控器 / SAFETY THERMOSTAT
X1.	-	燃烧器终端 / BURNER TERMINAL
X3.B	-	Pm联接 / CONNECTOR Pm
X4.B	-	YP联接 / CONNECTOR YP
X5.B, X5.S	-	主阀组可移动式插头 / MAIN GAS TRAIN FLOATING PLUG
Y10	-	空气伺服电机 / AIR SERVOMOTOR
YP	-	主电磁阀 / MAIN ELECTROVALVE
YS	-	安全阀 / SAFTY VALVE
Z1	-	过滤器 / FILTER

DIN / IEC	(CN)	(GB)
GNYE	绿色 / 黄色	GREEN / YELLOW
BU	蓝色	BLUE
BN	褐色	BROWN
BK	黑色	BLACK
BK *	带标记的黑色	BLACK WIRE WITH IMPRINT

baltur
TECNOLOGIE PER IL CLIMA

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