baltur
TECNOLOGIE PER IL CLIMA

CE

en

- Instruction for burners model

BGN 40 DSPGN
BGN 60 DSPGN
BGN 100 DSPGN
BGN 120 DSPGN
BGN 150 DSPGN
BGN 200 DSPGN
BGN 250 DSPGN
BGN 300 DSPGN
BGN 350 DSPGN

Edition **2005/12**
Cod. 0006080458

Statement of Conformity

We hereby declare under our own responsibility, that our “CE” marked products

Series:

Sparkgas…; BTG…; BGN…; Minicomist…; Comist…; RiNOx…, BT…; BTL…; GI…; GI…Mist; PYR…; TS…

Description:
domestic and industrial blown air burners fired by gas, oil and dual fuel respect the minimal regulation of the European Directives:

- **90/396/EEC (G.A.D)**
- **92/42/EEC (B.E.D)**
- **89/336/EEC (E.M.C. Directive)**
- **73/23/EEC (Low Voltage Directive)**
- **98/37 EEC (Machinery Directive)**

and have been designed and tested in accordance with the European Standards:

- **EN 676 (gas and dual fuel, gas side)**
- **EN 267 (light oil and dual fuel, oil side)**
- **EN 60335-1, 2003**
- **EN 50165: 1997 + A1:2001**
- **EN 55014 -1** (1994) **and –2** (1997)

Surveillance accordingly Gas Appliances Directive 90/396/EEC made by:
CE0085 - DVGW

The Vice President and Managing Director:

Dr. Riccardo Fava

0006080197 Rev. 4/11/2005

- Read carefully the instructions before starting the burner and service it.

- The works on the burner and on the system have to be carried out only by competent people.

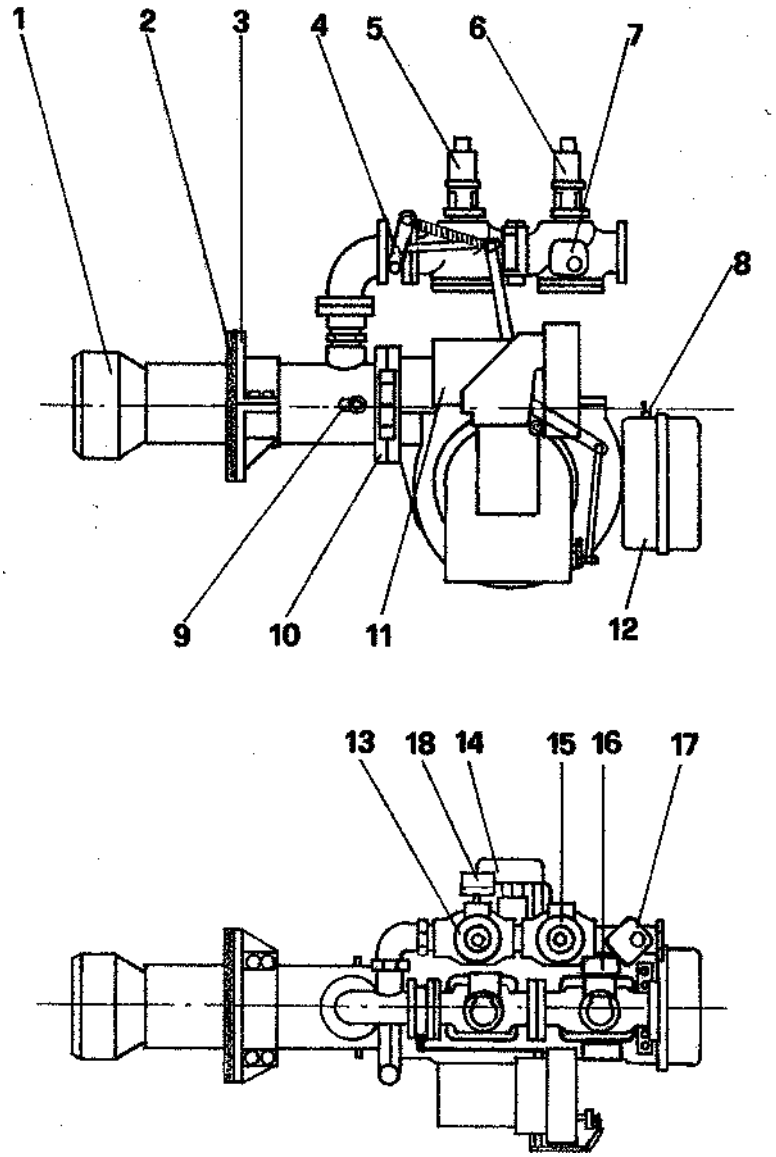
- The system electric feeding must be disconnected before starting working on it.

- If the woeks are not carried out correctly it is possible to cause dangerous accidents.

			BGN 40 DSPGN	BGN 60 DSPGN	BGN 100 DSPGN	BGN 120 DSPGN	BGN 150 DSPGN
POTENZA TERMICA / THERMIC CAPACITY PUISSANCE THERMIQUE	MAX MIN	kW kW	425 185	738 248	995 280	1200 350	1428 414
PORTATA (Gas naturale) FLOW RATE (Natural Gas) DEBIT (Gaz naturel)	MAX MIN	m³/h m³/h	43 19	75 25	101 28	121 35	144 42
PRESSIONE INGRESSO AL REGOLATORE (Gas naturale) Per ottenere la portata max REGULATOR INLET PRESSURE (Natural Gas) In order to obtain the maximum flow rate PRESSION A L'ENTREE DU REGULATEUR (Gaz Naturel) pour obtenir la capacité max.	MIN	mbar	20	22	30	40	27
MOTORE / MOTOR / MOTEUR		kW	0,37-50Hz 2800 r.p.m.	1,1-50Hz 2800 r.p.m.		1,5-50Hz 2800 r.p.m.	2,2-50Hz 2825 r.p.m.
TENSIONE / VOLTAGE / TENSION		Volt	3 N ~ 400				
TRASFORMATORE D'ACCENSIONE / GNITION TRANSFORMER / TRANSFORMATEUR D'ALLUMAGE			8 kV 30 mA				
APPARECCHIATURA / CONTROL BOX COFFRETS DE SECURITE			LFL 1.333				
RIVELAZIONE DI FIAMMA / FLAME DETECTOR DETECTION FLAMMA			SONDA DI IONIZZAZIONE / IONISATION PROBE / SONDE DE IONISATION				

			BGN 200 DSPGN	BGN 250 DSPGN	BGN 300 DSPGN	BGN 350 DSPGN
POTENZA TERMICA / THERMIC CAPACITY PUISSANCE THERMIQUE	MAX MIN	kW kW	2000 590	2500 490	3100 657	3500 924
PORTATA (Gas naturale) FLOW RATE (Natural Gas) DEBIT (Gaz naturel)	MAX MIN	m³/h m³/h	202 60	253 50	313 66	353 93
PRESSIONE INGRESSO AL REGOLATORE (Gas naturale) Per ottenere la portata max REGULATOR INLET PRESSURE (Natural Gas) In order to obtain the maximum flow rate PRESSION A L'ENTREE DU REGULATEUR (Gaz Naturel) pour obtenir la capacité max.	MIN	mbar	33	150	150	150
MOTORE / MOTOR / MOTEUR		kW	3 - 50 Hz 2800 r.p.m.	7,5 - 50 Hz 2800 r.p.m.		
TENSIONE / VOLTAGE / TENSION		Volt	3 N ~ 400			
TRASFORMATORE D'ACCENSIONE / GNITION TRANSFORMER / TRANSFORMATEUR D'ALLUMAGE			8 kV 30 mA			
APPARECCHIATURA / CONTROL BOX COFFRETS DE SECURITE			LFL 1.333			
RIVELAZIONE DI FIAMMA / FLAME DETECTOR DETECTION FLAMMA			SONDA DI IONIZZAZIONE / IONISATION PROBE / SONDE DE IONISATION			

COMPONENT LIST

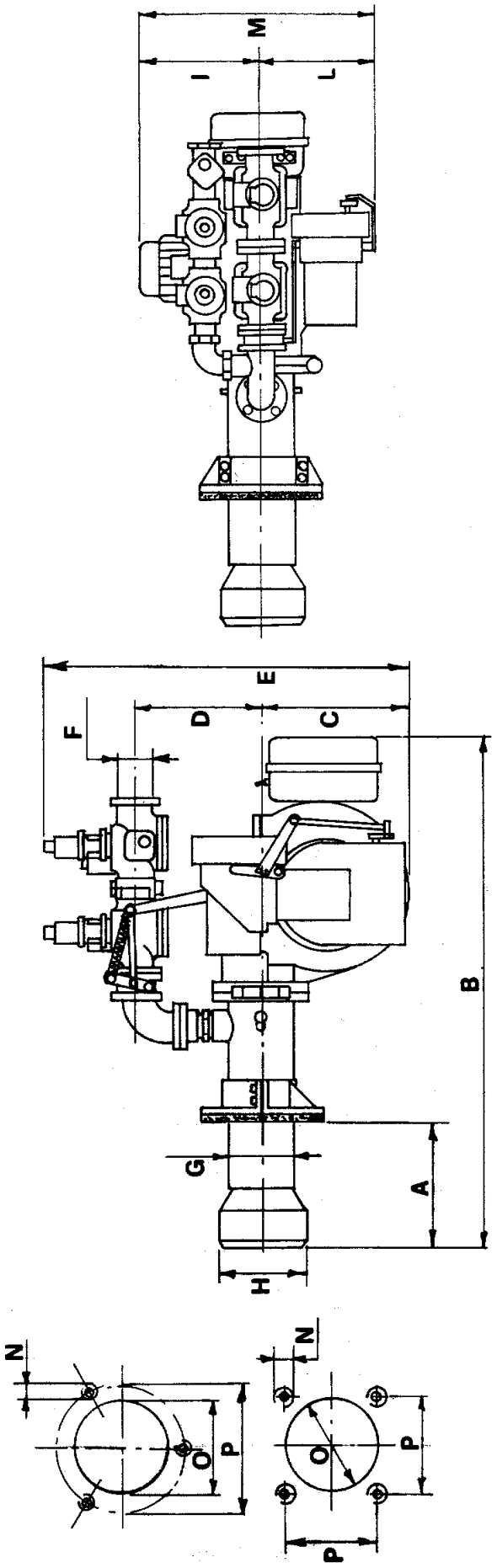


1) Combustion head
2) Gasket
3) Burner mounting flange
4) Butterfly valve
5) Operating valve
6) Safety valve
7) Gas pressure switch max.
8) Switch for the valve tightness control lock-out
9) Head air control knob
10) Hinge
11) Air control servomotor
12) Electric control panel
13) Pilot operating valve
14) Motor
15) Pilot safety valve
16) Gas pressure switch
17) Gas pressure switch pilot (only for BGN 300-350 M)
18) Pressure switch for the valve tinghtness control

STANDARD ACCESSORIES

	BGN 40 / 60 / 100 DSPGN	BGN 120 / 150 / 200 / BGN 250 DSPGN	BGN 300 / 350 DSPGN
FLANGIA ATT. BRUCIATORE / BURNER FIXING FLANGE / BRIDE DE FIXATION BRULEUR	*2*	*2*	-
GUARNIZIONE ISOLANTE / ISOLATING GASKET / JOINT ISOLANT	*1*	*1*	*2*
COLLARE ELASTICO ELASTIC COLLAR COLLIER ELASTIQUE	*1*	*1*	-
PRIGIONIERI STUD BOLTS / GOUJONS	*N°4 M12*	*N°4 M16*	*N°3 M20*
DADI ESAGONALI EXAGONAL NUTS / ECROUS	*N°8 M12*	*N°8 M16*	*N°3 M20*
RONDELLE PIANE / FLAT WASHERS / RONDELLES PLATES	*N°8 Ø12*	*N°8 Ø16*	*N°3 Ø20*

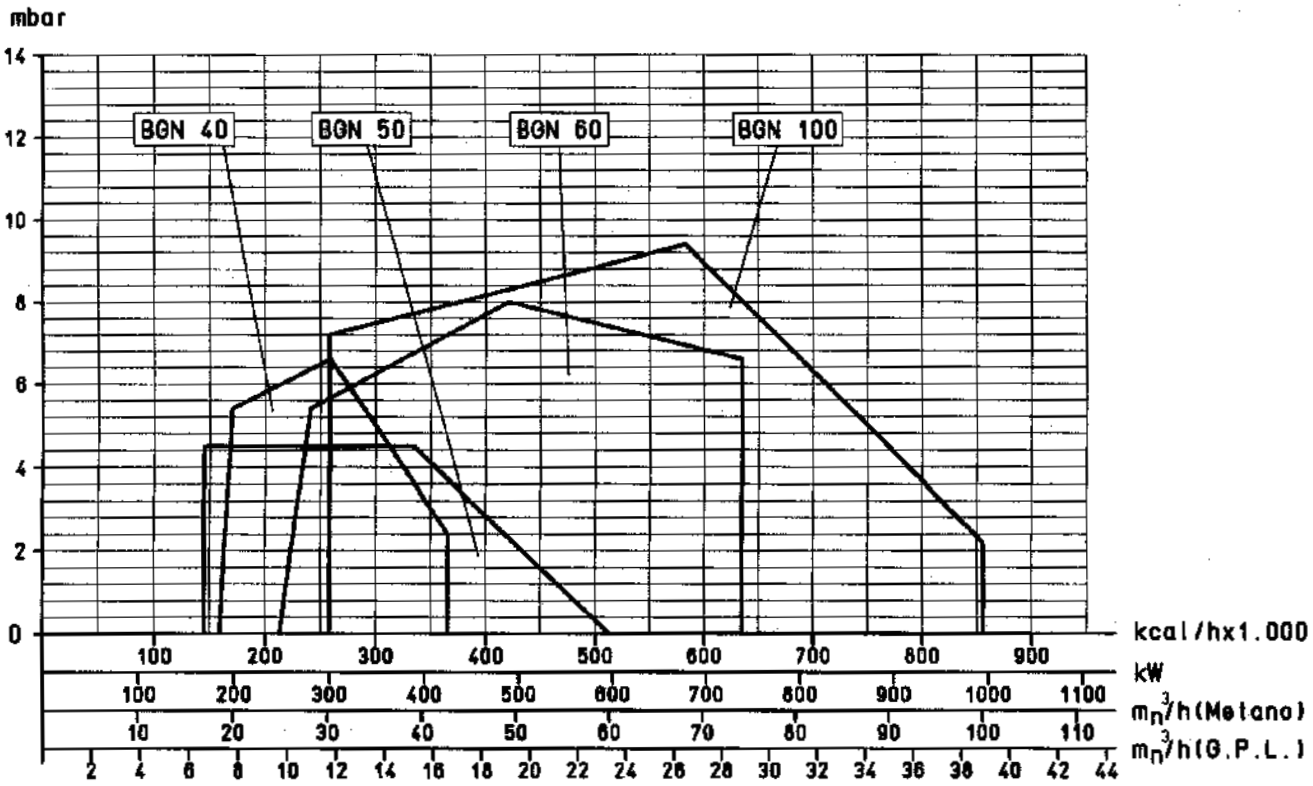
Dimensions



MOD.	A	A	B	C	D	E	F	G	H	I	L	M	N	O	P
	MIN	MAX					Ø	Ø	Ø						
BGN 40 DSPGN	150	350	1105	300	225	765	1" ½	133	155	250	270	520	M 12	165	150
BGN 60 DSPGN	180	400	1240	365	225	820	2"	159	205	315	300	615	M 12	190	165
BGN 100 DSPGN	220	460	1300	365	225	830	2"	159	230	315	300	615	M 12	190	165
BGN 120 DSPGN	220	440	1415	365	260	865	2"	193	270	315	300	615	M 16	220	195
BGN 150 DSPGN	220	440	1500	450	260	945	2"	193	270	370	330	700	M 16	220	195
BGN 200 DSPGN	300	620	1840	580	380	1265	DN65	216	320	430	405	835	M 16	240	240
BGN 250 DSPGN	300	620	1840	580	380	1265	DN65	216	320	480	400	880	M 16	240	240
BGN 300 DSPGN	275	490	1900	580	390	1280	DN65	275	356	480	400	880	M 20	390	490
BGN 350 DSPGN	275	490	1900	580	390	1280	DN80	275	356	480	400	880	M 20	390	490

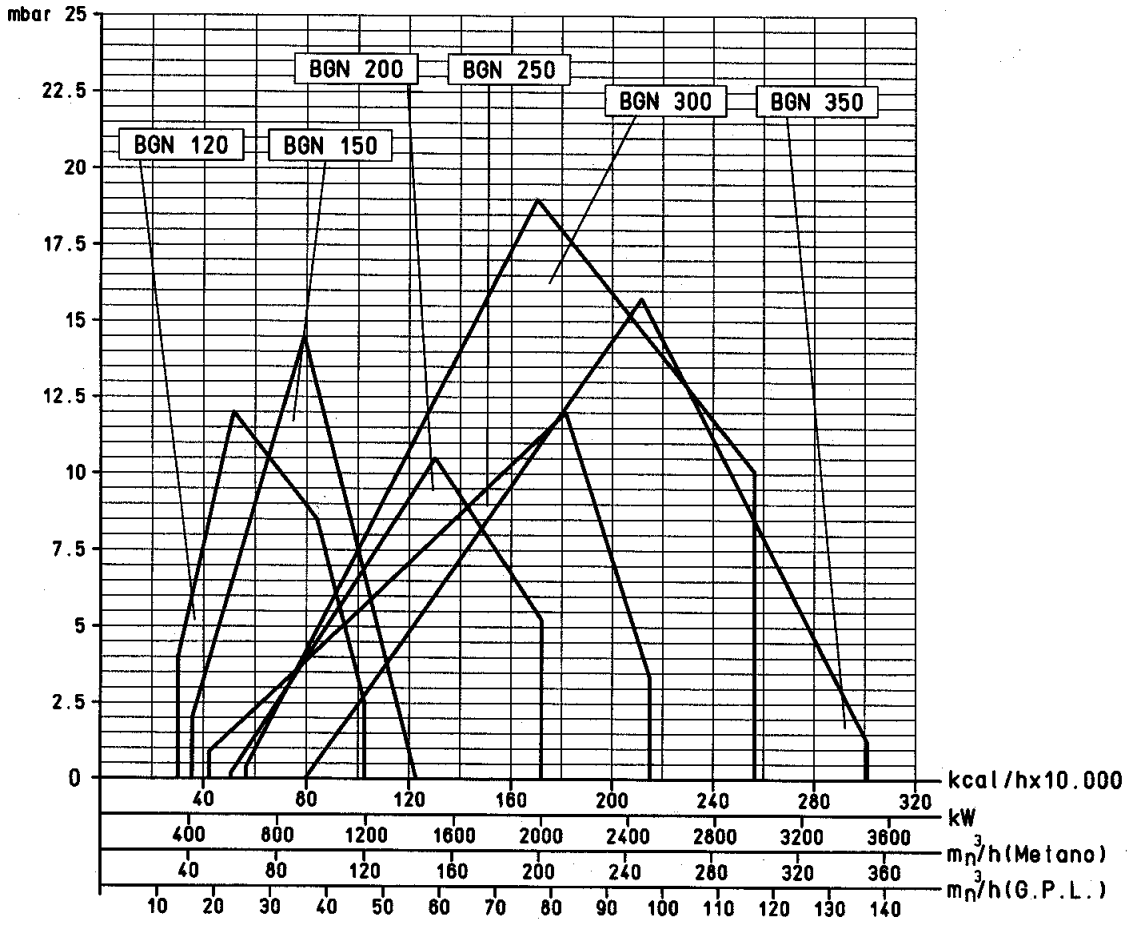
BGN 40 DSPGN ÷ 100 DSPGN

N° 7604-2
Rev. 02/02/96



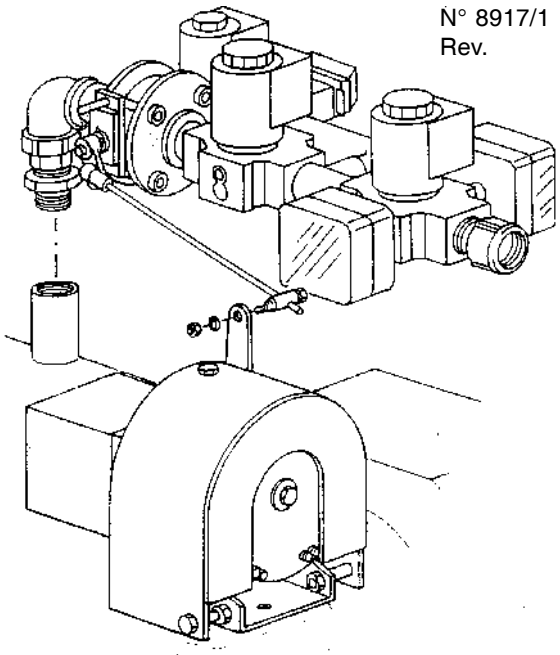
BGN 120 DSPGN ÷ 350 DSPGN

N° 7605-5
Rev. 17/11/97



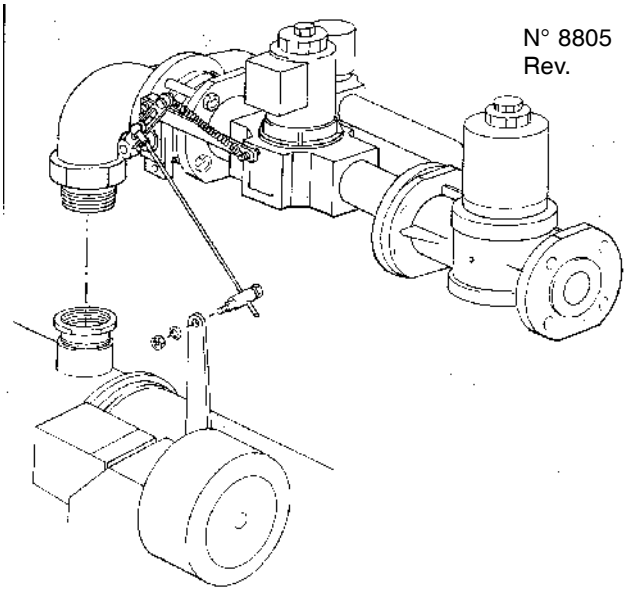
DRAWING SHOWING THE GAS TRAIN ASSEBBLY
BGN 40 - 60 - 100 - 120M - DSPGN
with SQN 30 401 A 2700 modulating servomotor

N° 8917/1
Rev.



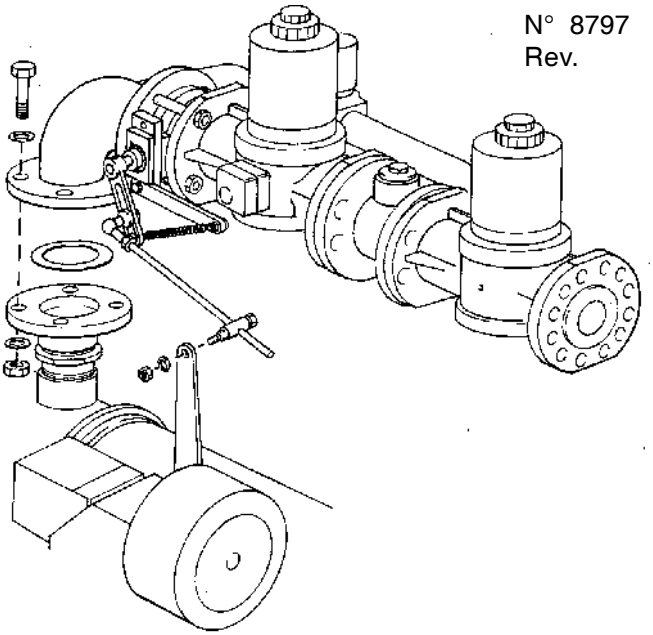
DRAWING SHOWING THE GAS TRAIN ASSEMBLY
BGN 40 - 60 - 100 - 120 - 150 M - DSPGN
COMIST 72 MM - MG - DSPGM

N° 8805
Rev.



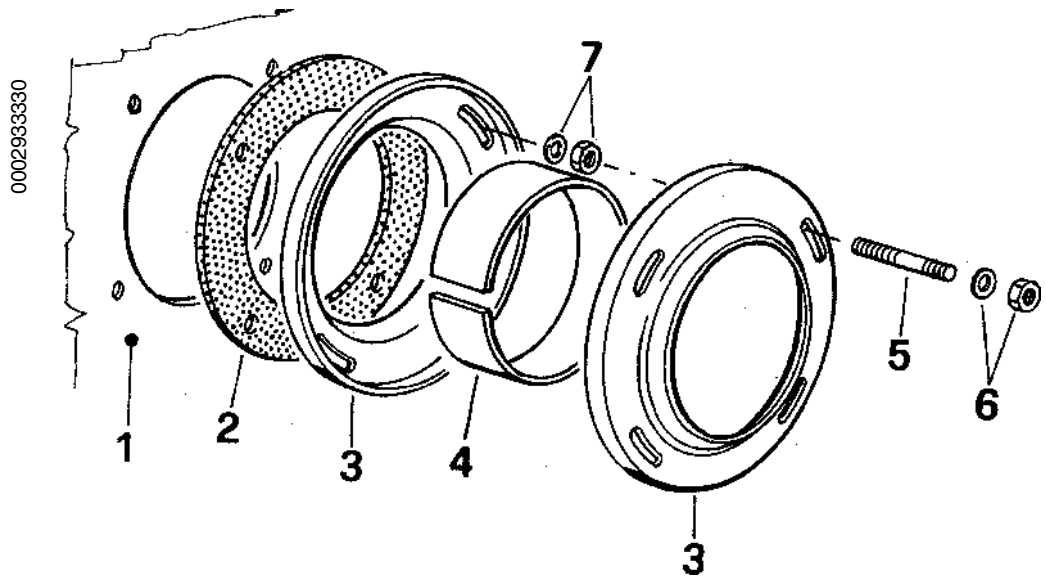
DRAWING SHOWING THE GAS TRAIN ASSEMBLY
BGN 200 - 250 - 300 - 350 M / DSP GN
COMIST 122 - 180 - 250 - 300 MM - MG - MNM
DSPGM DSPNM

N° 8797
Rev.



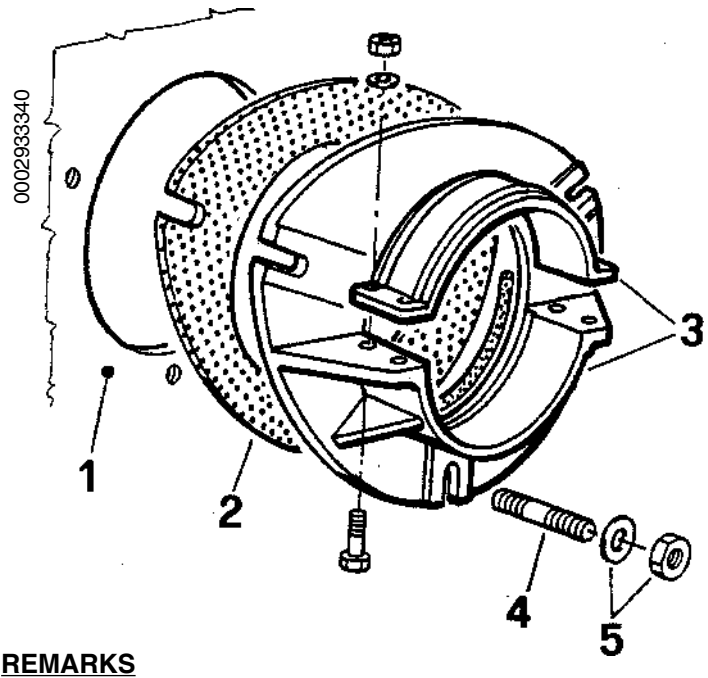
APPLICATION OF THE BURNER TO BOILER

for model **BGN 40 ÷ 250 DSPGN** (steel fixing flange)



1 - Boiler plate
2 - Insulating gasket
3 - Burner fixing flange
4 - Elastic collar
5 - Stud bolt
6 - Locking nut with washer
7 - Nut and washer for fastening the first flange

for model **BGN 300 - 350 DSPGN**



1 - Boiler plate
2 - Insulating gasket
3 - Burner fixing flange
4 - Stud bolt
5 - Locking nut with washer

REMARKS

When tightening the flange, it is important to do it evenly so that the inner faces are parallel between them. Since the locking system is highly efficient, do not tighten the nuts too much.
During this operation (tightening of the flange locking nuts) keep the body of the burner lifted so that the combustion head is kept in a horizontal position.

GAS FEED SYSTEM AT LOW PRESSURE (max. 400 mm.C.A)

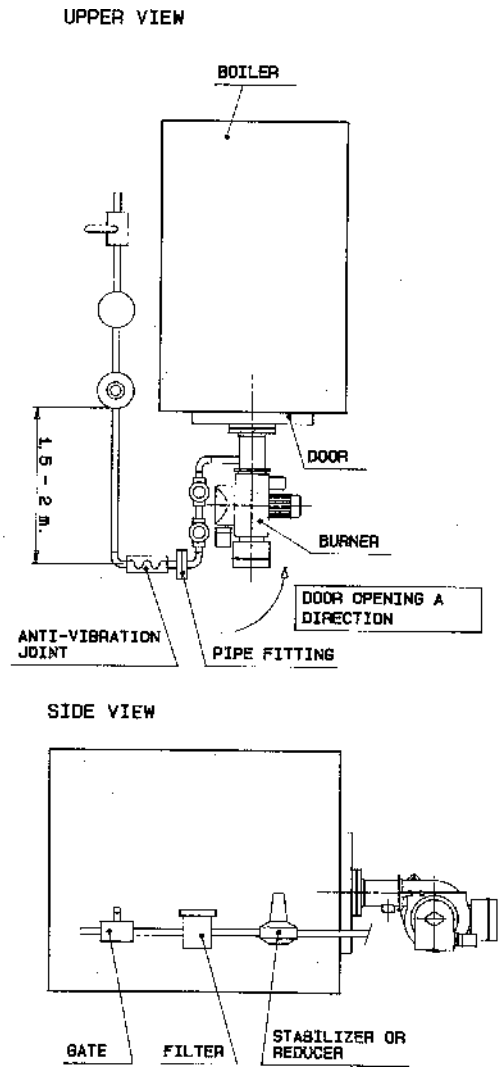
When the burner has been correctly fastened to the boiler, proceed with connecting it to the gas pipeline (see BT 8780). The dimension of the gas adduction pipeline should be in proportion to its length and to gas delivery and the load loss should not exceed 5 mm W. C. (see diagram). It must also be perfectly hermetic and adequately tested before the burner's general inspection. It is indispensable to install a proper fitting on the pipeline, in proximity to the burner, to allow for easy disassembling of the burner and/or opening of the boiler door.

In addition, the following should be installed: a cut -off cock, a gas filter, a stabilizer or a pressure regulator (when the feed pressure is superior to 400 mm W. C. = 0,04 Kg/cm^2), and an antivibration joint. These parts should be installed as described in our drawing (see BT 8780).

We consider it useful to give the following practical tips for installing the essential accessories on the gas pipeline near to the burner:

1) To avoid big drops in pressure on ignition, the length of the pipeline between the point where the stabilizer or reducer is fitted and the burner should be from 1,5 to 2 m. This pipe must have a diameter equal or superior to that of the burner attachment fitting.
2) The fitting must be applied on horizontal pipes. This is to avoid any impurities falling into the pipes or entering the stabilizer during cleaning.
3) To get the best performance out of the pressure stabilizer, it is advisable to fit it onto horizontal pipes, after the filter. In this way, the vertical movement of the entire mobile part (shutter) of the stabilizer is rapid. (If the movement of the mobile part were horizontal - with the stabilizer fitted into vertical pipes - friction to the guide bush/es of the pin to which the entire mobile part is fitted would delay movement).
4) We advise installing a bend directly onto the burner gas ramp before applying the removable fitting. This layout makes it possible to open the boiler door, if there is one, after the pipe fitting itself has been opened. The above information is clearly illustrated in drawing BT 8780.

GENERAL DIAGRAM FOR INSTALLATION OF GATE-FILTER-STABILIZER-ANTIVIBRATION JOINT OPENABLE PITTING N° BT 8780



GAS FEED SYSTEM AT AVERAGE PRESSURE a few bars (see BT 8058-BT 8530/1-8531/1)

When high delivery is required, the Gas Distributing Company requests the installation of a unit comprising a pressure reducer and a meter, and then connects it to the gas pipe network at average pressure (a few bars).

This unit can be supplied by the Gas Distributing Company or by the user, but should be according to the Gas Company's precise instructions.

The unit's pressure reducer should be large enough to supply the maximum gas delivery required by the burner at the rate of pressure normally estimated for it.

From experience, we would recommend utilising a large-scale reducer in order to attenuate the notable increase in pressure which occurs when the burner comes to a standstill, with a high delivery. (Regulations require that the gas valves close in less than one second).

As an indication, we would advise using a reducer capable of producing at delivery (m^3/h) about double that of the maximum amount estimated for the burner.

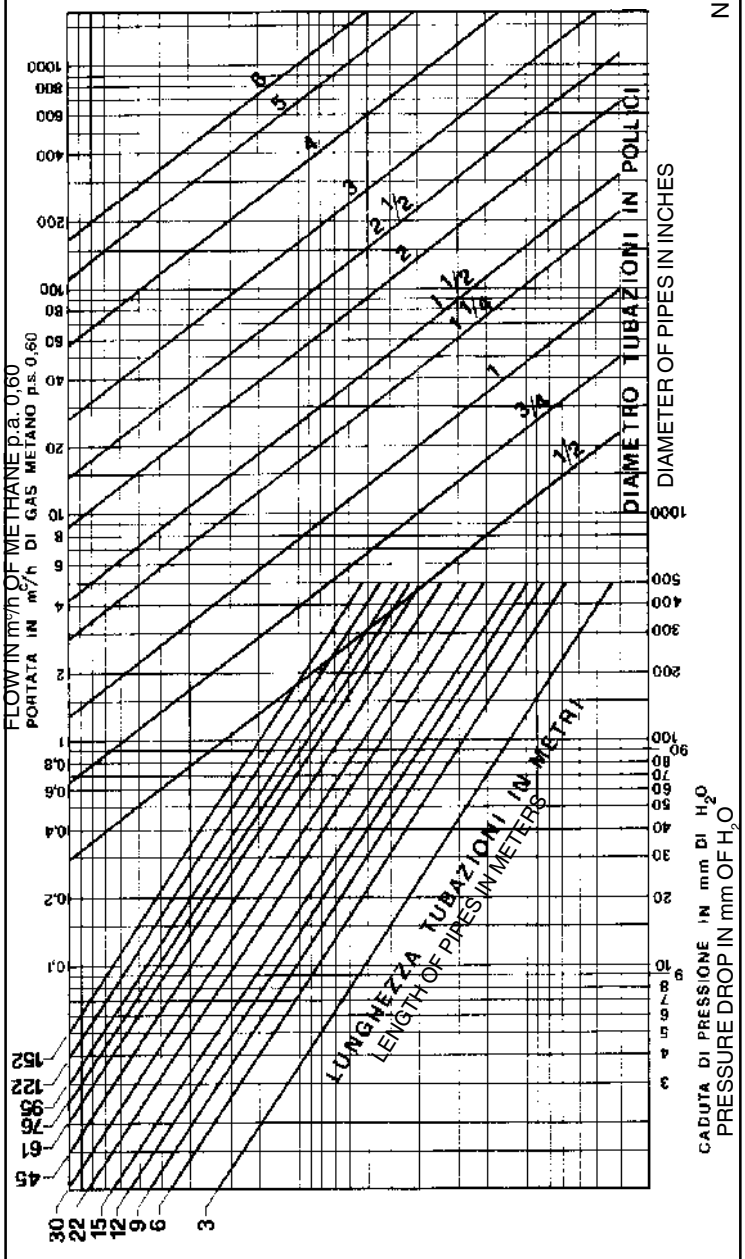
If several burners are to be used, each one should have its own pressure reducer; this will enable the gas feed pressure to the burner to be maintained at a constant level even if only one burner is operating at the time.

Consequently, it is possible to accurately regulate the delivery and therefore the combustion, and thus improve yield.

The dimension of the gas pipeline should be in function with the quantity of gas it has to deliver. We advise maintaining the load loss at a low level (not more than 10% of the gas pressure value at the burner); it should be kept in mind that the load loss is added to the pressure existing when the burner stops and therefore a subsequent start up will occur at a pressure that rises in accordance with an increase in the pipe's load loss.

DIAGRAM FOR CALCULATING THE DIAMETER OF THE PIPES IN RELATION TO THEIR LENGTH AND GAS FLOW

N° BT 8058



Should the gas pressure reach unacceptable values when the burner stops (rapid closure of the gas valves), it is necessary to install between the reducer and the first valve of the burner an automatic overflow valve and relative conveying pipe, of suitable section, in the open air.

The end of conveying pipe in the open air should terminate in a suitable place, be protected from rain and have a flame trap. The overflow valve should be regulated in such a way as to completely unload excessive pressure.

See diagram BT 8058 for gas pipeline dimensions.

Near to the burner should also be fitted a cut-off ball cock, a gas filter, an anti-vibration joint and a flanged fitting (see BT 8530/1 and BT 8531/1).

DIAGRAM OF CONNECTING MORE THAN ONE BURNER TO THE GAS PIPE NETWORK AT AVERAGE PRESSURE

N° BT 8530/1

1 - Measuring and reducing unit
2 - Interception
3 - Filter
4 - Reducer
5 - Meter
6 - Emergency interception (installed outside)
7 - Ball cock
8 - Filter
9 - Final reducer or stabilizer
10- Anti-vibration joint
11- A couple of flane
D = Distance between pressure stabilizer and valve about 1,5 ÷ 2 m

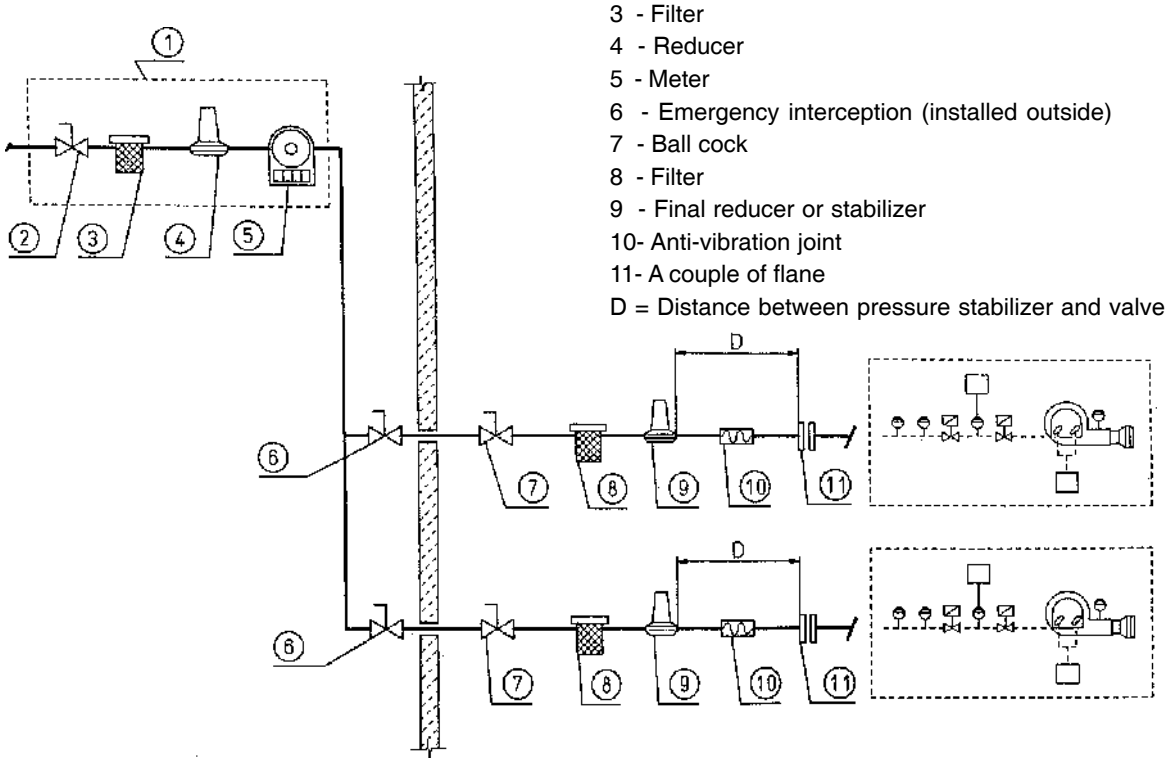
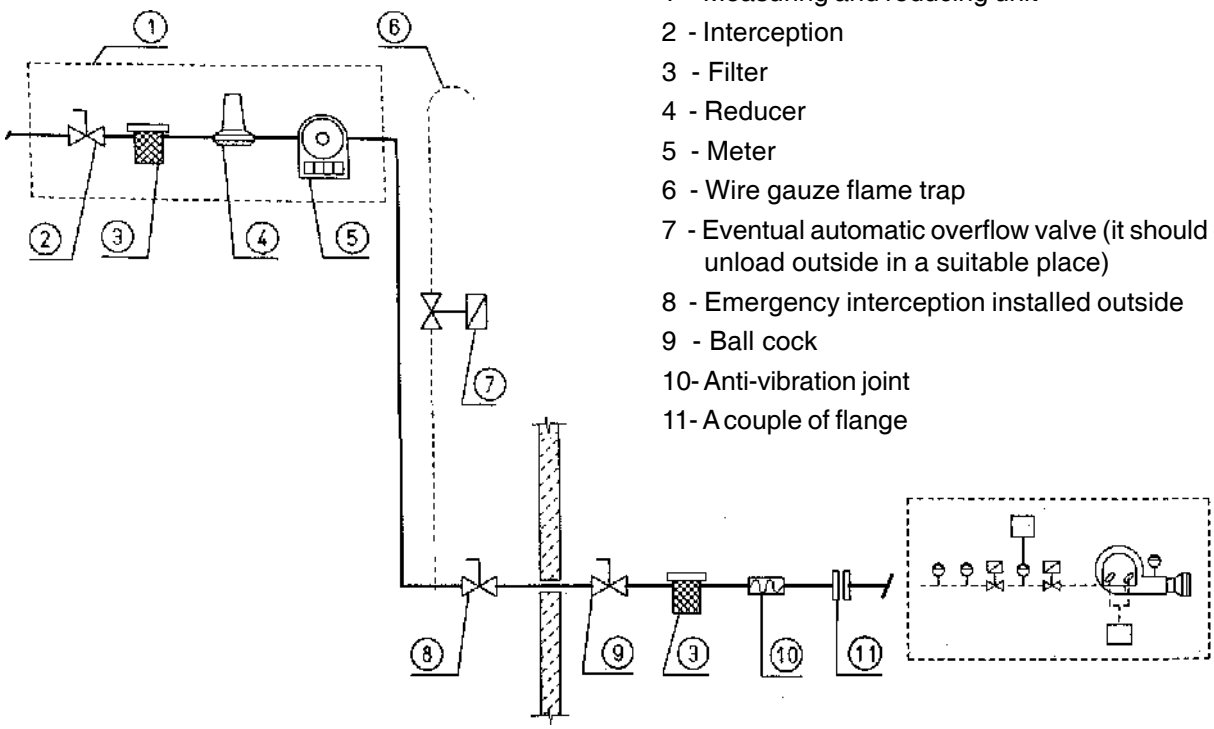


DIAGRAM OF CONNECTING A BURNER TI THE GAS PIPE NETWORK AT AVERAGE PRESSURE

N° BT 8531/1

1 - Measuring and reducing unit
2 - Interception
3 - Filter
4 - Reducer
5 - Meter
6 - Wire gauze flame trap
7 - Eventual automatic overflow valve (it should obviously unload outside in a suitable place)
8 - Emergency interception installed outside
9 - Ball cock
10- Anti-vibration joint
11- A couple of flange



ELECTRICAL CONNECTIONS

The three-phase or single-phase electric supply line of the minimum section, in proportion to the power absorbed by the burner, must be equipped with a fused switch. Furthermore, regulations require a switch on the burner's feed line which should be located outside the boiler room in an easily accessible position. All electric lines must be protected by flexible sheaths, be firmly secured and be laid a long way from high temperature parts.
For the electrical connections (line and thermostat) see the relevant diagram.

GENERAL INFORMATION

These burners are of the blown air type which have a mixture of gas/air at the combustion head. They are suitable for use with combustion chambers which are either raising high pressure or reducing pressure, according to the relative work curves. Together with excellent flame stability, these burners are safe and highly efficient.
It is equipped with a steel flange which slips on the burner head.
When fastening the burner to the boiler it is necessary to correctly position the flange so that the burner head enters the combustion chamber to the extent specified by the boiler manufacturer.

DESCRIPTION OF OPERATIONS FOR BGN...DSP GN (see BT 0002910611 and 0002910640)

This is referred to as a 2-stage progressive operation because the passage from the 1 st flame to the 2 nd flame (from the minimum rate to the maximum pre-established rate) takes place gradually. The amount of combustion air and fuel delivery are increased very gradually and this ensures stabilisation of the gas feed network pressure.
The field of variation in flow obtainable is from 1 to 1/3. The burner is fitted with an end-of-the-run switch (a micro-switch) which stops the burner starting up if the flow regulator is not in the minimum position.
Before ignition, a pre-ventilation of the combustion chamber occurs (according to Regulations) with air open. This lasts for about 120 seconds. At the end of the ventilation phase, if the air ventilation pressure switch has measured sufficient pressure, the ignition transformer will be connected and, after four seconds, the ignition flame (pilot) valves and the safety valve will open. Gas reaches the combustion head, mixes with air supplied by the fan, and is ignited.
Delivery is regulated by the regulator incorporated in the ignition flame (pilot) valve. The ignition transformer is disconnected two seconds after the ignition flame and safety valves are inserted. The burner is now operating with the ignition flame (pilot) only. Flame presence is detected by a relative control device (ionisation probe immersed in the flame, or UV Cell). The relay programmer passes the "shut down" position and gives voltage to the servomotor which regulates the delivery (gas/air); the burner is now operating at minimum output. If the boiler thermostat (or pressure switch) of the 2nd stage allows it (regulated at a temperature or pressure value superior to that existing in the boiler), the servomotor which regulates the gas/air delivery starts turning gradual increase in the gas delivery and in the relative combustion air until it reaches the maximum delivery value at which the burner has been regulated.

N.B. The "V" cam of the servomotor regulating gas/air delivery (see BT 8562/1) or the "V" cam of the air/gas delivery regulating servomotor (see drawing n° 0002931170) inserts almost immediately the principle gas valve, which in turn opens completely. Gas delivery is not determined by the principle valve but by the position of the gas delivery regulation valve (see BT 8816 BT 8813/1 and drawing n° 0002910060).

The burner remains in the maximum delivery position until the temperature or pressure reaches the limit set for the intervention of the boiler thermostat (or pressure switch) of the 2nd stage and makes the servomotor regulating gas/air delivery rotate in the opposite sense of direction. Thus gas delivery and the relative combustion air are gradually reduced until they reach minimum value. Even with delivery at a minimum, if the limit (temperature or pressure at the shut down device (thermostat or pressure switch) has been regulated is reached, the burner will be brought to a standstill.
When the temperature or pressure drops below the intervention limit set on the shut down device, the burner will star up again, according to the programme previously described. During normal operations, the boiler thermostat (or pressure switch) of the 2nd stage fitted to the boiler detects the variations requested and automatically proceeds with adapting the fuel and combustion air delivery by inserting the servomotor which regulates delivery (gas/air). This will rotate in such a way as to obtain an increase or a decrease. With this manoeuvre, the gas/air delivery regulating system try's to equilibrate the quantity of heat supplied to the boiler with that which the boiler gives to be utilised.
If the flame does not appear within two seconds of the opening of the first flame valve (pilot), the control box goes to "shut down" (the burner stops completely and the relative indicator light is turned on).
To unblock the control box, press the appropriate push-button.

DESCRIPTION OF OPERATIONS FOR BGN...M (See 0002910611 and 0002910640)

The field of variation in flow obtainable is from 1 to 1/3.
The burner is fitted with an end-of-the-run switch (a micro-switch) which stops the burner starting up if the flow regulator is not in the minimum position. Before ignition, a pre-ventilation of the combustion chamber occurs (according to Regulations) with air open. This lasts for about 120 seconds).
At the end of the ventilation phase, if the air ventilation pressure switch has measured sufficient pressure, the ignition transformer will be connected and, after four seconds, the ignition flame (pilot) valves and the safety valve will open.
Gas reaches the combustion head, mixes with air supplied by the fan, and is ignited.
Delivery is regulated by the flow regulator incorporated in the ignition flame (pilot) valve.
The ignition transformer is disconnected two second after the ignition flame and safety valve are inserted. The burner is now operating with the ignition flame (pilot) only. Flame presence is detected by a relative control device (ionisation probe immersed in the flame, or UV Cell). The relay programmer passes the “shut down” position and gives voltage to the servomotor which regulates the delivery (gas/air); the burner is now operating at minimum output.
If the modulation probe allows it (regulated at a temperature or pressure value superior to that existing in the boiler), the servomotor which regulates the gas/air delivery starts turning and determines a gradual increase in the gas delivery and in the relative combustion air until it reaches the maximum delivery value at which the burner has been regulated.

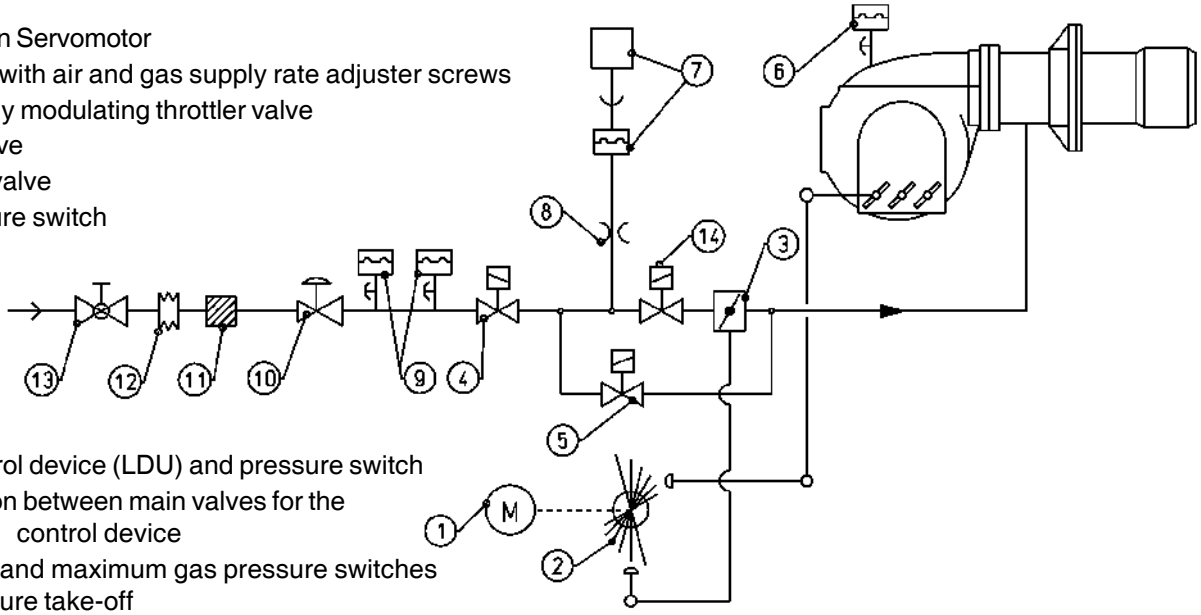
N.B. The “V” cam of the servomotor regulating air/gas delivery (see BT 8562/1) or the V cam of the air/gas delivery regulating servomotor (see drawing n° 0002931170) inserts almost immediately the principle gas valve, which in turn opens completely. Gas delivery is not determined by the principle valve but by the position of the gas delivery regulation valve (see BT 8816, BT 8813/1 and drawing n° 0002910060).

The burner remains at the maximum delivery position until the temperature or pressure reaches the limit set for the intervention of the modulation probe and makes the servomotor regulating gas/air delivery rotate in the opposite sense of direction. Thus gas delivery and the relative combustion air are gradually reduced until they reach minimum level.
Even with delivery at a minimum, if the limit (temperature or pressure) at which the shut down device (thermostat or pressure switch) has bee regulated is reached, the burner will be brought to a standstill.
When the temperature or pressure drops below the intervention limit set on the shut down device, the burner will start up again, according to the programme previously described.
During normal operations, the boiler modulation probe fitted to the boiler detects the variations requested and automatically proceeds with adapting the fuel and combustion air delivery by inserting the servomotor which regulates delivery (gas/air). This will rotate in such a way as to obstain an increase or a decrease.
With this manoeuvre, the gas/air delivery regulating system try’s to equilibrate the quantity of heat supplied to the boiler with that which the boiler gives to be utilised.
If the flame does not appear within two seconds of the opening of the first flame valve (pilot), the control box goes to “shut down” (the burner stops completely and the relative indicator light is turned on).
To unblock the control box, press the appropriate push-button.

DIAGRAM FOR MODULATING OR TWO-STAGE PROGRESSIVE GAS AND DUAL FUEL BURNERS AT NOMINAL THERMAL POWER > 2000 Kw

N° 0002910611

1 - Modulation Servomotor
2 - Deflector with air and gas supply rate adjuster screws
3 - Gas supply modulating throttler valve
4 - Safety valve
5 - Pilot gas valve
6 - Air pressure switch

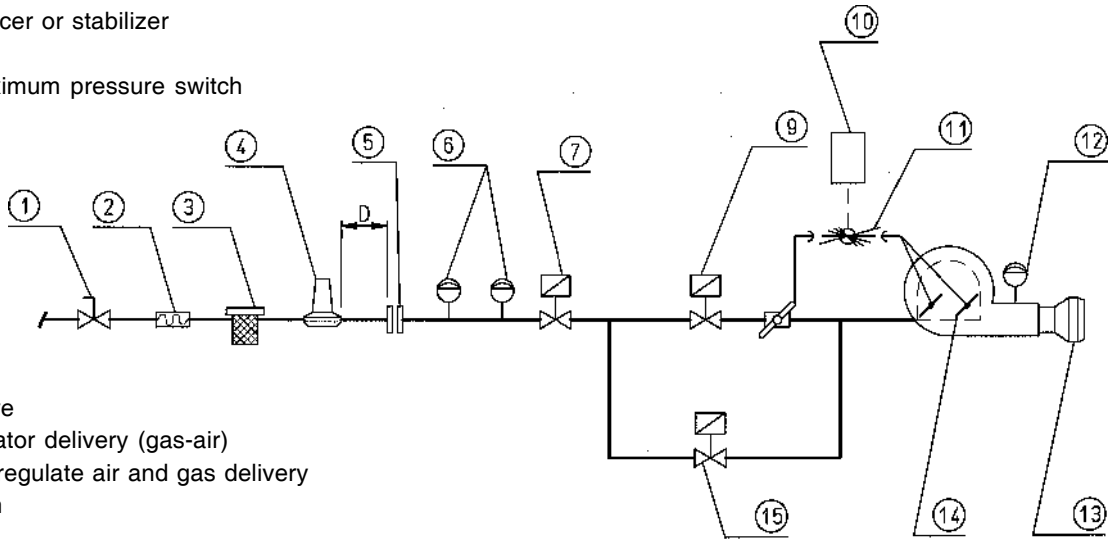


7 - Seal control device (LDU) and pressure switch
8 - Connection between main valves for the valve seal control device
9 - Minimum and maximum gas pressure switches with pressure take-off
10 - Gas pressure regulator
11 - Filter
12 - Anti-vibration joint
13 - Ball valve
14 - Main flame gas valve

DIAGRAM FOR MODULATING OR TWO-STAGE PROGRESSIVE GAS AND DUAL FUEL BURNERS AT NOMINAL THERMAL POWER ≤ 2000 Kw

N° 0002910640

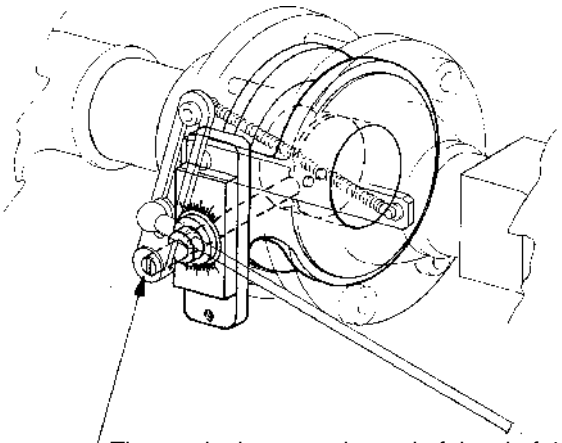
1 - Ball cock
2 - Anti-vibration joint
3 - Filter
4 - Gas pressure reducer or stabilizer
5 - A couple of flange
6 - Minimum and maximum pressure switch



7 - Safety valve
9 - Principle flame valve
10- Servomotore regulator delivery (gas-air)
11- Disc with screw to regulate air and gas delivery
12- Air pressure switsh
13- Combustion head
14- Air regulation shutter
15- Ignition flame valve (pilot) with delivery regulator
D = Distance between pressure stabilizer and flange about 1,5 ÷ 2 m

DETAILS ON THE REGULATION OF GAS DELIVERY
IN MODULATING BURNERS WITH THROTTLE VALVE
BGN 40 - 60 - 100 - 120 - 150 M / DSP GN
COMIST 72 - 122 MM / DSP GM / MG

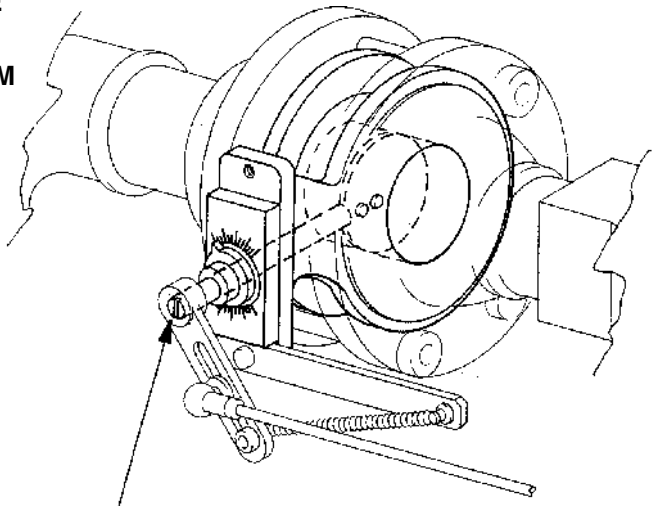
BT 8816/1



The notch shown on the end of the shaft indicates the position pf the throttle valve (shutter)

DETAILS ON THE REGULATION OF GAS DELIVERY
IN MODULATING BURNERS WITH THROTTLE VALVE
BGN 200 - 250 - 300 - 350 M / DSP GN
COMIST 180 - 250 - 300 MM / MNM / DSP GM / DSP NM

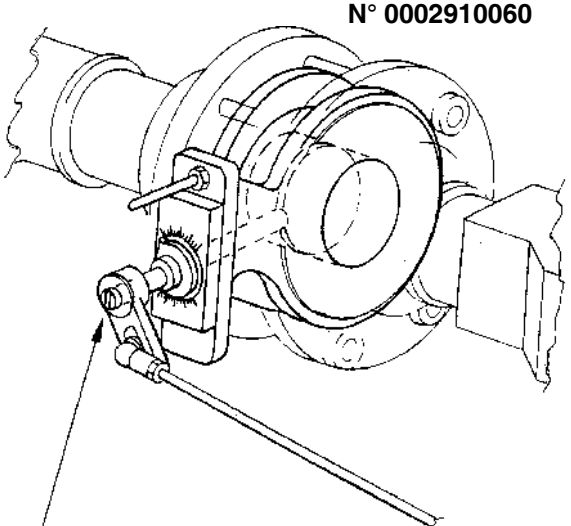
BT 8813/1



The notch shown on the end of the shaft indicates the position pf the throttle valve (shutter)

DETAILS ON THE REGULATION OF GAS DELIVERY
IN MODULATING BURNERS WHIT THROTTLE VALVE
BGN 40 - 60 - 100 - 120 M
WITH SQN 30 401 A2700 MODULATING SERVOMOTOR

N° 0002910060



The notch shown on the end of the shaft indicates the position pf the throttle valve (shutter)

STARTING UP AND REGULATION WITH METHANE

1) If not already done at the moment of connecting the burner to the gas pipeline, it is indispensable to carry out a purge of the air contained in the pipeline. As a precaution, special care should be taken and doors and windows should be opened. Open the pipe union on the pipeline situated near the burner and then open a little the gas cut-off cock (or cocks). When the characteristic odour of gas can be smelled, close the cut-off cock. Wait until the gas present in room has dispersed, and then reconnect the burner to the gas pipeline. Subsequently, re-open the gas cut-off cock.
2) Check that there is water in the boiler and that the system's gate valves are open.
3) Check, with absolute certainty that the discharge of combustion products can take place freely (boiler and chimney lock-gates should be open).
4) Make sure that the voltage of the electric line to which the burner is to be connected,corresponds to that required by the burner and that the electrical connections (motor and principle line) have been prepared to mach the voltage rating available. Also check that all the electrical connections carried out on the spot are in accordance with our electric wiring diagram.
5) Make sure that the combustion head is long enough to enter the furnace to the extent specified by the boiler manufacturer. Check that the device which regulates the air on the combustion head is in the position considered necessary for the fuel delivery required (air passage between the disk and the head should be considerably reduced when the fuel delivery is reduced; on the other hand, when the fuel delivery is fairly high, the air passage between the disk and the head should be relatively open). See Chapter "Air Regulation on the Combustion Head".
6) Apply a manometer with an adequate scale (if the entity of pressure forecast allows it is preferable to use a column of water instrument, do not use a pointer instrument for moderate pressure) to the pressure plug on the gas pressure switch.
7) Open, to the quantity considered necessary, the flow regulator incorporated in the ignition flame valve (s) (pilot). Check that the combustion air regulation shutter is in the right position; if necessary, modify it by operating the adjustable screws of the regulating disk.
8) Remove the protective cover from the disk on which are inserted the screws which regulate the gas and air delivery, and unloosen the locking screws.
9) With the switch on the burner's control panel in the "o" position and the main switch inserted check, by manually closing the relay, that the motor rotates in the right direction.
If it does not, exchange the places of two cables of the motor's supply line in order to invert its sense of rotation.
10) Now insert the switch on the command panel and put the modulating switches in the MIN (minimum) and MAN (manual) positions. The control box receives voltage in this way and the programmer turns on the burner as described in Chapter "Description of Operations.

Note: Pre-ventilation is carried out with air open and, during this phase, the servomotor regulating the delivery (gas/air) is inserted and completes the whole opening run until it reaches the "maximum" position. Subsequently, the servomotor which regulates delivery (gas/air) returns to the starting position (minimum). Only when modulation has returned to the "minimum" position, does the control box proceed with its ignition programme and insert the transformer and the gas ignition valves for ignition.

During the pre-ventilation phase check that the air pressure switch effects a changeover (it should pass from a closed position without measurement of pressure to a closed position with measurement of air pressure).
If the air pressure switch does not measure sufficient pressure (it will not effect the changeover) and neither the ignition transformer nor the gas ignition flame valves will be inserted and the control box will go to "shut down".
It should be pointed out that "shut downs" during the first ignition phase are considered normal.
This is because air still exists in the pipeline of the valve incline and must be expelled before it is possible to have a stable flame. To unblock the control box, press the relevant push-button.

Note: If gas flame detection is carried out with an ionisation electrode, the shut down (with flame presence) could be caused by flame instability in the ionisation zone. This fault can be eliminated by operating the combustion head regulator (move it backwards or forwards) until the necessary conditions to ensure flame stability and sufficient intensity and stability of the ionisation current are obtained. It could happen that the ionisation current is held up by the current of the ignition transformer (the two currents have to run the same course on the burner's earth) and so the burner goes to "shut down" due to insufficient ionisation. This can be remedied by inverting the input (230 V. Side) of the ignition transformer (change the places of two wires that take voltage to the transformer). A shut down with flame presence could also be caused by the burner's casing not being properly grounded. The minimum value of the ionisation current to ensure the working of the control box (LFL...) is 7 micro-amperes; normally the ionisation current is decidedly higher (this value is shown on the wiring diagram). To check the ionisation current, connect a microammeter with an adequate scale "in series" to the ionisation current. The high isolation wire that comes from the electrode must be inserted to the negative (sign -) of the microammeter.

UV CELL

If the flame detection is carried out with the UV Cell, the following should be taken into consideration. Even the slightest greasiness will compromise the passage of the ultraviolet rays through the UV photoelectric cell bulb, thus preventing the sensitive internal element from receiving the quantity of radiation necessary for it to function properly. Should the bulb be fouled by light oil, fuel oil, etc., it is indispensable to clean it thoroughly.
It should be pointed out that even by simply touching the bulb could compromise the working of the UV photoelectric cell. The UV Cell does not "see" daylight or light from an ordinary lamp. It is possible to verify its sensibility with a flame (or cigarette lighter or a candle) or with the electric spark that occurs between electrodes in an ordinary ignition transformer. To ensure that the UV Cell works properly, its current value should be sufficiently stable so as not to fall below the minimum value required for the specific control box.
It may be necessary to search experimentally for the best position by sliding (axial or rotation movement the body that contains the photoelectric dell in respect to the fastening clamp. An inspection can be carried out by inserting a microammeter, with an adequate scale, in series to one of the two UV photoelectric cell connection wires. It is obviously necessary to respect the polarity (+ and -). For the LFL control box, the value of the cell current should be from 70 microamperes to 630 microamperes (the value is shown in the wiring diagram).

11) With the burner operating at a minimum (ignition flame valve and safety valve open and servomotor which regulates delivery (gas/air) at a minimum), immediately check visually the entity and appearance of the flame and, if necessary, proceed with correcting it by operating the gas delivery regulator of the ignition flame (pilot) and/or the adjustable screws of the disk which regulates the gas and air delivery.
Subsequently, check the quantity of gas delivery by reading the meter. See Chapter "Reading the Meter".
If necessary, correct the gas and relative combustion air delivery by operating as described in point 7.
Then control combustion with the appropriate instruments. For a correct air/gas ratio, the percentage of Carbon Dioxide (CO_2) should increase together with the increase in delivery. As an indication, for methane gas, the percentage should be from at least 8% at minimum burner delivery to an optimum value of 10% for maximum delivery. We advise against exceeding the value of 10% to avoid operating with a rather limited excess of air which could cause (variation in atmospheric pressure, presence of dust particles in fan's air ducts) a considerable amount of Carbon Monoxide (CO).
It is indispensable to check, with the appropriate instrument, that the Carbon Monoxide (CO) present in the smoke does not exceed the maximum level permitted of 0,1%.

12) After having regulated at "minimum", put the modulation switches in the "MAN" (manual) and "MAX" (maximum) positions.

13) The servomotor regulating gas/air delivery starts up, the "V" cam contact closes (see BT 8652/1) and voltage arrives at the principle gas valve which then opens. Wait until the disk on which the regulating screws have been fitted, has reached an angle of about 12° (this corresponds to the space taken up by three scews), and then stop modulation and return the switch to the "O" position. Carry out a visual control of the flame and proceed, if necessary, with regulating the combustion air and the gas by operating the adjustable screws of the regulating disk. The operation described above should be repeated progressively (by moving forward the disk about 12° at a time) and modifying every time, if necessary, the fuel/air ratio during the whole modulation run. Make sure that the increase in fuel delivery occurs gradually and that maximum delivery is reached at the end of the modulation run. This is necessary in order to ensure that the modulation functions with good graduality. The positions of the screws that command the fuel may need to be modified in order to obtain the graduality required.

14) With the burner operating at maximum delivery required for the boiler, check combustion with the appropriate instruments and modify, if necessary, the previous regulation carried out after a visual control only (CO2 max. = 10% - CO max. = 0,1%).

15) We recommend controlling the combustion with the appropriate instruments and, if necessary, modify the previous regulation carried out, after a visual control only, also in a few intermediate points of the modulation run.

16) Check that modulation function automatically by putting the AUT - O - MAN switch in the "AUT" position and the MIN - O - MAX switch in the "O" position. In this way, modulation is activated exclusively by the automatic command of the boiler's probe, if the burner is a BGN...M (modulating) version, or on the command of the thermostat or pressure switch of the 2nd stage, if the burner is a BGN...DSP GN (two-stage progressive) version. (See instruction "Electronic Potentiality Regulator RWF ... for the modulating version).

17) The air pressure switch has the job of bringing the control box to a safety shut down if the air pressure is not at the correct value. Therefore, the air pressure switch must be regulated in such a way as to intervene by closing the contact (foreseen to by closed while working) when the air pressure in the burner has reached a sufficient level. The pressure switch is self-controlled and therefore it must close the contact (fan stops and consequently there is an absence of air pressure in the burner) if it does not, the control box will be inserted (the burner remains at a stadstill).It must be specified that if the contact is not closed during working (insufficient air pressure), the control box will carry out its cycle, but the ignition transformer will not be inserted and the gas pilot valves will not open. Consequently, the burner will go to "shut down". Check that the air pressure switch functions properly with burner at minimum delivery, increase the regulating value until it reaches intervention point and the burner should go to shut down. To unblock the burner, press the special push-button and return the pressure switch regulator to a sufficient value in order to measure the air pressure existing during the pre-ventilation phase.

18) The pressure switches which control the gas pressure (minimum and maximum) have the job of stopping the burner functioning when the gas pressure is not within the values specified. From the specific functions of the pressure switches, it is evident that the pressure switch controls the minimum pressure must make use of the contact, which is closed, when it measures a pressure which exceeds that at which it has been set.
The maximum pressure switch must make use of the contact, which is closed, when it measures a pressure below that at which it has been set. The minimum and maximum gas pressure switches should be regulated during the burner's general inspection and should be in function with the pressure found each time.
The pressure switches have been electrically connected in series and therefore theintervention (by this we mean the opening of the circuit) of any one of the gas pressure switches, will prevent the control box and thus the burner from starting up. When the burner is operating (flame lit), the intervention of the gas pressure switches (opening of the circuit) determines the immediate arrest of the burner. During the burner's general inspection, check the correct functioning of the pressure switches. By operating the respective regulating device, it is possible to control the pressure switch's intervention (opening of circuit) which causes the burner's arrest.

19) Check the efficiency of the flame detector (ionisation electrode) by detaching the wire coming from the electrode and by turning on the burner. The control box should carry out completely its cycle and two seconds after the ignition flame (pilot) is formed, it should go to "shut down". This control should also be carried out when the burner is already operating. By detaching the wire that comes from the ionisation electrode, the control box should go immediately to "shut down".
In the case of the UV photoelectric cell, slide the wire out of its seat on the burner and verify the "shut down".

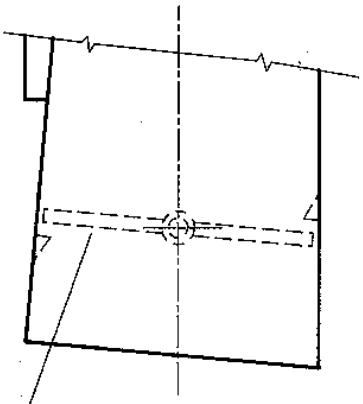
20) Check the efficiency of the boiler thermostats and pressure switches (this should result in the burner coming to a standstill).

ADJUSTEMENT OF THE AIR FLOW TO THE BURNER HEAD (see BT 8769/1)

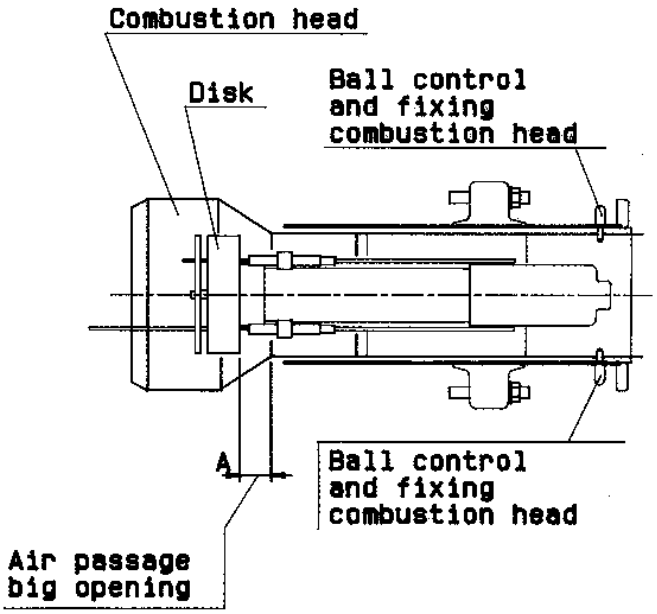
The burner head is fitted with a regulator control, which closes or open the air passage between the disk and the head. By closing the air passage, a high pressure on the disk can be achieved, for low rates as well. The increased speed and turbulence of the air makes it penetrate with increased force, thus giving a better mixture and greater flame stability. It may be essential to have high air pressure at the disk, to stop flame pulsation. This condition is practically indispensable when the burner is working on a pressurized boiler and/or a high thermic load. It is clear from the above description that the device that closes the air to the burner head must be taken to a position where it always obtains a level behind the disk that is much higher than the air pressure level. It is recommended to set the device with the air to the head closed off, so that a sizable opening is required on the air shutter that controls the flow to the burner fan intake.
Obviously, this condition must occur when the burner is working at the maximum desidered delivery rate.
In practice, the setting operation shuld be started with the device that closed the air to the burner head at an intermediate position, and the burner should be started up for a trial setting procedure, as described previously.
When the maximum desired delivery rate is reached, adjust the position of the device that closes the air to the burner head, moving it forwards or backwards in order to achieve an adequate air flow in delivery, with the intake air control shutter well open. When reducing the size of the air passage to the burner head, avoid closing it completely.
Ensure that the burner head is perfectly centered in relation to the disk. If it is not perfectly centered, the flame may burn badly and overheat the head, causing rapid deterioration. The centering can be checked by looking from the inspection hole on the rear part of the burner and then fully tightening the screws (if present) that hold in position the device that controls the air flow to the burner head.

N.B. Check that the ignition occurs in a regular manner; if the passage between the head and the disk is closed, it may occur that the speed of the mixture (combustible air) is so high that ignition is made difficult. If this occurs, then the regulator must be opened gradually until it is in a position where the ignition occurs in a regular manner, and this position must be accepted as the set position. Remember that, for the first flame, it is preferable to limit the quantity of air to the bare minimum necessary for a safe ignition, even in the most demanding cases.

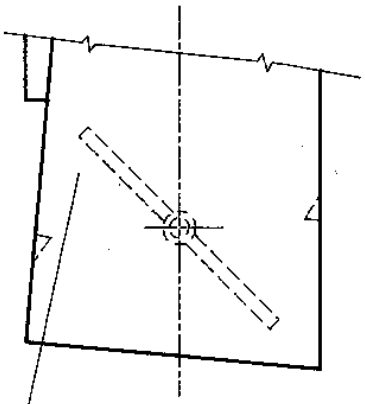
NOT CORRECT ADJUSTMENT



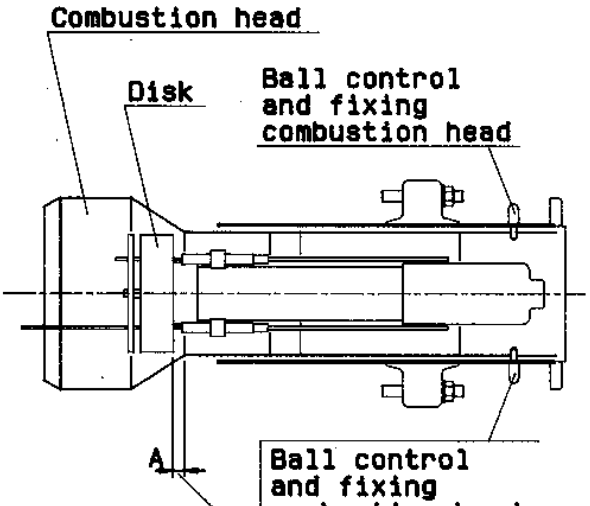
Air combustion in-let
gate very closed



CORRECT ADJUSTMENT



AIR combustion in-let
gate considerably opened



MAINTENANCE

The burner does not need particular maintenance, it will be otherwise better to check periodically that the gas filter is clean and the ionisation electrode efficient. The cleaning of the combustion head may result necessary.
For this reason it's necessary to disassemble the head's components.
The reassemble operation must be done carefully so as to avoid the electrode's earthing or in short circuit with following burner's lock. It must be verified that the ignition electrode's sparkle happens only between the same and the drilled plate disc. To verify the ionisation stream, connect a micro-ammeter with adequate scale "in sequence" to the ionisation circuit. The high insulation cable coming out from the electrode must be connected in negative (- indication) of the micro-ammeter. The minimum value of secure the control box working is reported on the specific electric diagram.

READING GAS (METHANE) METER

When the burner is operating at maximum output, check that the quantity of gas delivered is necessary for the boiler's needs. The low calorific value for methane gas is about 8550 kcal/m^3.
To find out the low calorific values of other types of gas, contact the Gas Distributing Company. Delivery per hour should be taken at the meter. When checking delivery make sure that gas is not being consumed by other users.
If the gas delivery pressure at the meter is not above 400 mm.w.c., take into consideration the value indicated by the meter without correcting it.
For a first indication, turn on the burner and when it arrives at nominal delivery, measure the gas output in one minute exactly (the difference between the two readings should be one minute exactly from one to the other.
Multiply this value by 60 in order to obtain the output for 60 minutes (one hour).
The output measured is considered the actual value if the meter reads a pressure below 400 mm.w.c. If the pressure is more than 400 mm.w.c., the value read must be multiplied by a correction coefficient, as previously described. Subsequently, multiply the delivery per hour (m^3/h) by the gas calorific value to obtain the potentiality delivered in kcal/h; this should correspond or be very near to that requested for the boiler (low calorific value for methane gas = 8550 kcal/m^3).
Do not allow the burner to operate for a long time (only a few minutes) if the output exceeds the maximum allowed for the boiler, to avoid possible damage to it; it would be timely to stop the burner immediately after having taken the two meter readings.

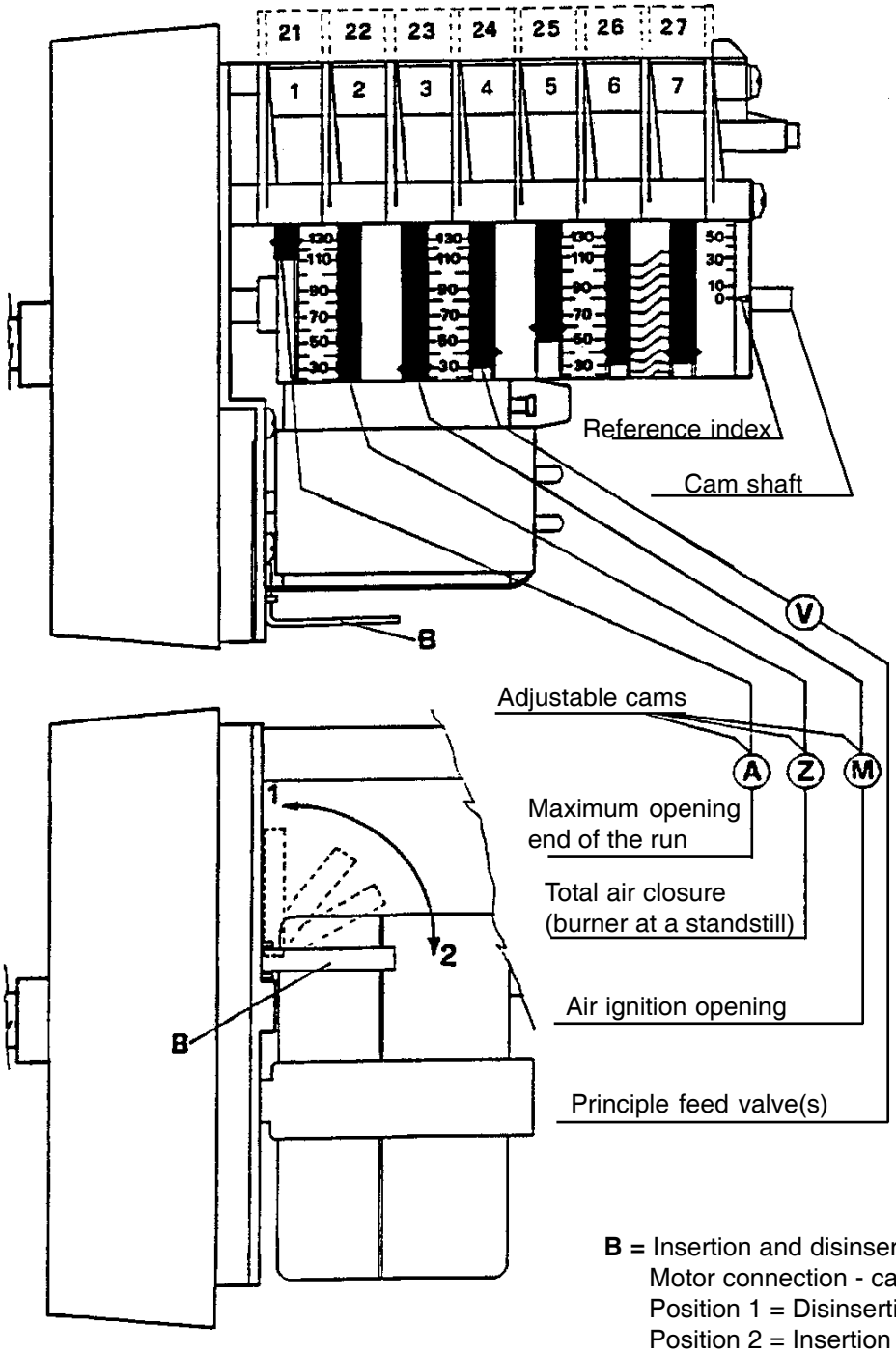
Correcting the value indicated by the meter If the meter measures the gas delivery at a pressure above 400 mm.w.c., it is necessary to multiply the value by a correction coefficient. As an indication, the correction coefficient values to be adopted in function with the gas pressure existing at the meter, can be determined in the following way: Add to number 1 (one) the number which expresses the gas pressure value in bar, existing at the meter.

Example n°1
Gas pressure at the meter = 2 bar, the multiplication coefficient is 1 + 2 = 3. Therefore, if the meter reads a delivery of 100 m^3/h, multiply it by 3 to obtain the actual output which is 100 m^3/h x 3 = 300 m^3/h.

Example n°2
Gas pressure at the meter = 1,2 bar, the multiplication coefficient is 1 + 1,2 = 2,2. Therefore, if the meter reads a delivery of 100 m^3/h, multiply it by 2,2 to obtain the actual output which is 100 m^3/h x 2,2 = 220 m^3/h.

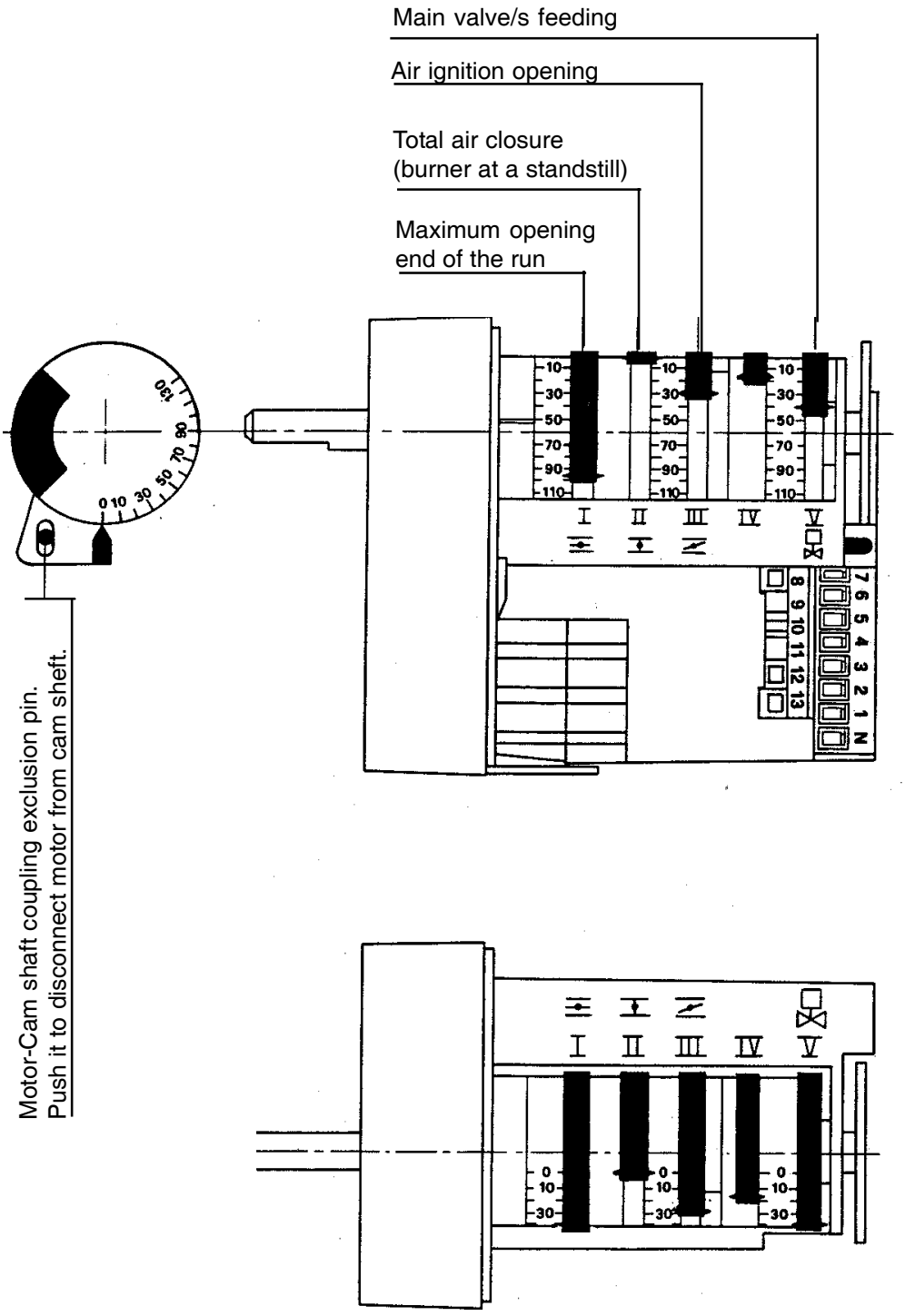
Example n° 3
Gas pressure at the meter = 0,3 bar, (3000 mm.w.c.), the multiplication coefficient is 1 + 0,3 = 1,3. Therefore, if the meter reads a delivery of 100 m^3/h, multiply it by 1,3 to obtain the actual output which is 130 m^3/h.

Example n°4 Gas pressure at the meter = 0,3 bar, (600 mm.w.c.), the multiplication coefficient is 1 + 0,06 = 1,06. Therefore, if the meter reads a delivery of 100 m^3/h, multiply it by 1,06 to obtain the actual output which is 100 m^3/h x 1,06 = 106 m^3/h.



B = Insertion and disinsertion lever
Motor connection - camshaft
Position 1 = Disinsertion
Position 2 = Insertion

To modify the regulation of the cams utilized, operate the respective red rings (A - Z - M - V).
By pushing with enough force, in the direction desired, each red ring will rotate with respect to the reference scale.
The index of the red ring indicates on the respective reference scale the rotation angle taken up foe each cam.



To change cam position, operate the respective red rings.
By pushing hard enough in the desired direction, all the red rings can rotate around the reference scale.
The pointer of the red ring indicates in its reference scale the rotation angle set for each cam.

Mod. MVD....

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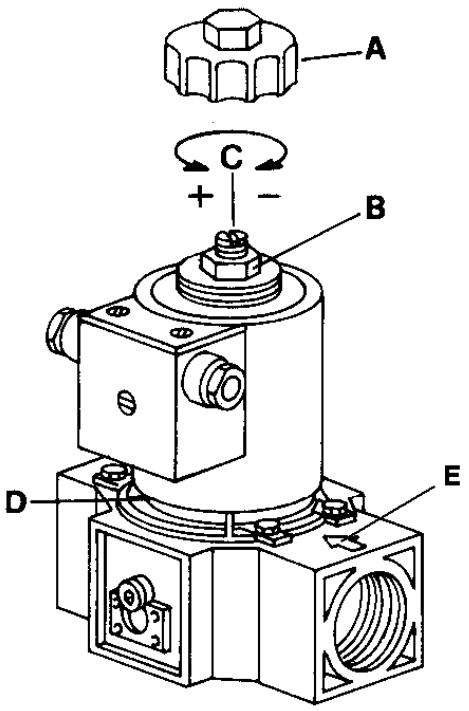
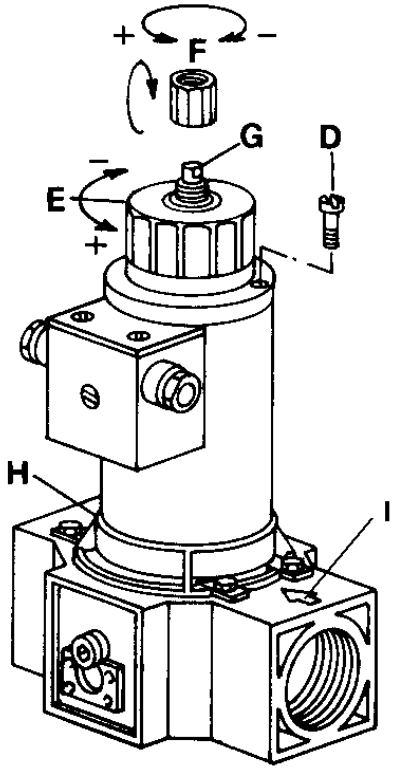


D = Identification plate
E = Flow direction indicator

Mod. MVDLE....



H = Identification plate
I = Flow direction indicator

The MVD gas valves open and close rapidly.
To regulate the gas flow, unscrew and remove cap “A” and loosen nut “B”.
Then, using a screwdriver turn screw “C”. Unscrewing it increases the gas flow, tightening it decreases the flow.
After regulating, lock nut “B” in place and reposition cap “A”.

HOW THE VALVE FUNCTIONS mod. MVDLE

The gas valve has a rapid initial trip (opening can be adjusted from 0 to 40% using pin “G”). Full opening from that point on takes place slowly over approximately 10 seconds.

N.B. There will not be sufficient supply for ignition if the flow feed device “E” is set at its minimum position. Therefore, it is essential to open the maximum flow rate control device “E” sufficiently to ensure ignition.

Setting the initial rapid release trip

To set the initial rapid release, unscrew the protection cap “F” and use the back of this cap as a tool to turn pin “G”.
Turning clockwise decreases the gas flow, turning counter-clockwise increases it.
This done, return cap “F” to its original position.

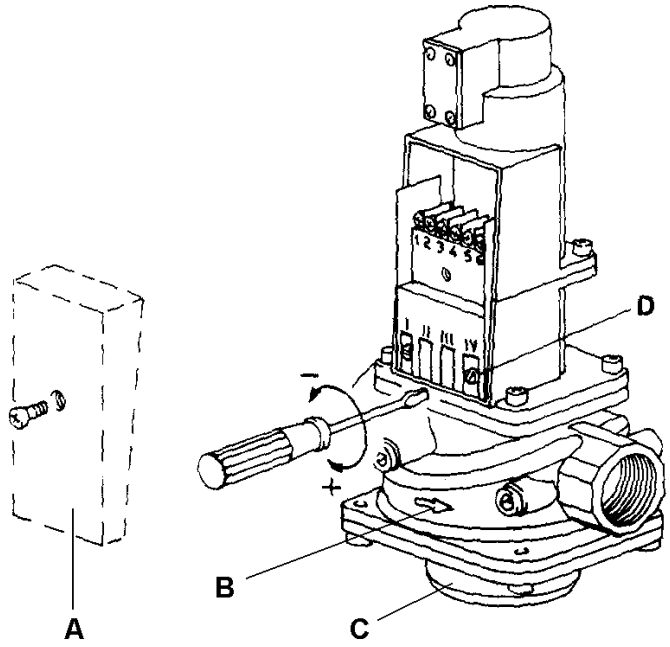
Setting maximum gas flow

To adjust the gas flow rate, loosen screw “D” and turn knob “E”. Turning clockwise decreases the gas flow, turning counter-clockwise increases it.
This done, tighten screw “D”.

DESCRIPTION OF HOW THE VALVE OPERATES

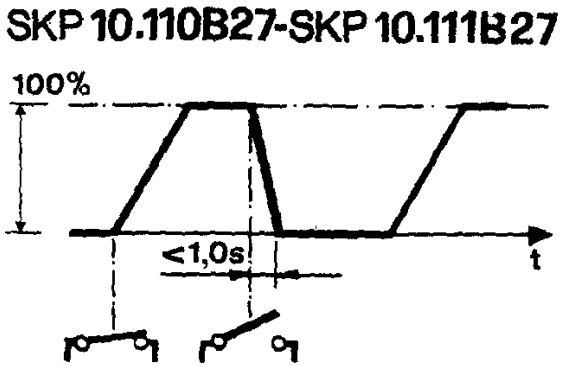
Single-stage valves

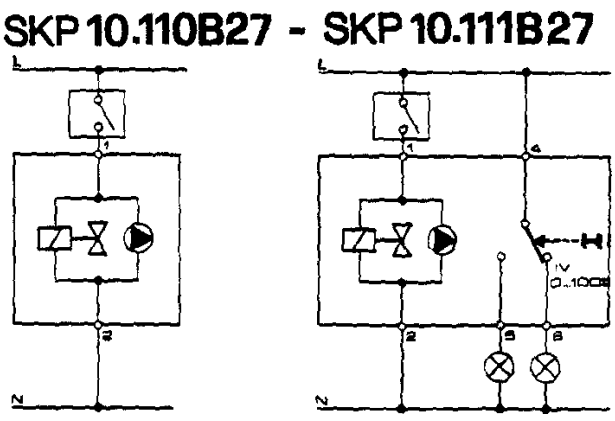
When the valve receives the signal to open, the pump cuts in and the magnetic valve closes. The pump transfers the oil from under the piston to above it, forcing the piston downward, which compresses the closure return spring with the rod and plate. The valve remains in the open position while the pump and magnetic valve remain powered.
When the unit receives the signal to close (or if power supply is cut off) the pump shuts down, the magnetic valve opens decompressing the chamber above the piston. The plate is closed both by the return spring and by gas pressure.
The flow rate for this valve is calculated to ensure full closure in less than one second.



This type of valve cannot regulate the gas flow rate (closure/opening).
Screw “D” on terminal “IV” sets the “clean contact” position which can be used for an outside signal.

A = Driver identification plate
B = Flow direction indicator
C = Valve body identification plate





baltur
TECNOLOGIE PER IL CLIMA

INSTRUCTIONS FOR HONEYWELL GAS VALVES UNIVERSAL GAS VALVES TYPE: VE 4000A1 (....A .... = Opening - Closure, rapid)

N° 0002910370
Rev. 25/06/96

The VE 4000A1 valves are Class A solenoid valves, normally closed. They may be used as ON/OFF valves in the supply trains with Natural Gas, Manufactured Gas or GPL, on burners or combustion installations.
They are provided with M.I. and CE Approval for EN161.

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FEATURES

- Valves normally closed
- Without flow regulator
- Rapid opening and closing

INSTRUCTIONS FOR HONEYWELL GAS VALVES UNIVERSAL GAS VALVES TYPE: VE 4000B1 (....B.... = Opening - Closure, rapid. Flow regulator)

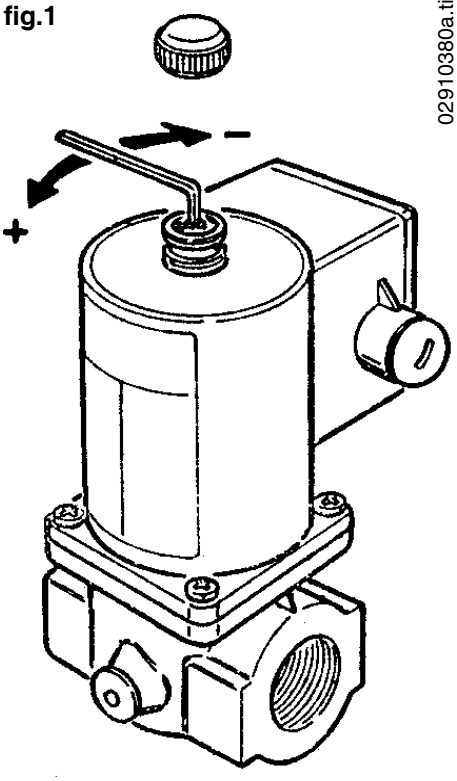
N° 0002910380
Rev. 13/10/95

FEATURES

- Valve normally closed
- With flow regulator
- Rapid opening and closing

The VE4000B1 valves are Class A solenoid valves, normally closed. They may be used as ON/OFF valves in the supply trains with Natural Gas, Manufactured Gas or GPL, on burners or combustion plants.
They are provided with M.I. and CE Approval for EN 161.

fig.1



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ADJUSTMENT
For models VE 4000B1 (see fig. 1)

Adjustment to the flow
- Remove the cover from the upper section of the coil.
- Insert a hexagonal Allen key into the central section at the top.
- Turn clockwise to decrease the flow or anti-clockwise to increase it.
- Replace the cover and tighten it.

ATTENTION
- The adjustment must only be carried out by qualified personnel.
- For closing the valve, the tension to the coil's terminals must be 0 Volt
- The flow regulator of the VE 4100 valve series is situated in the lower section.

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

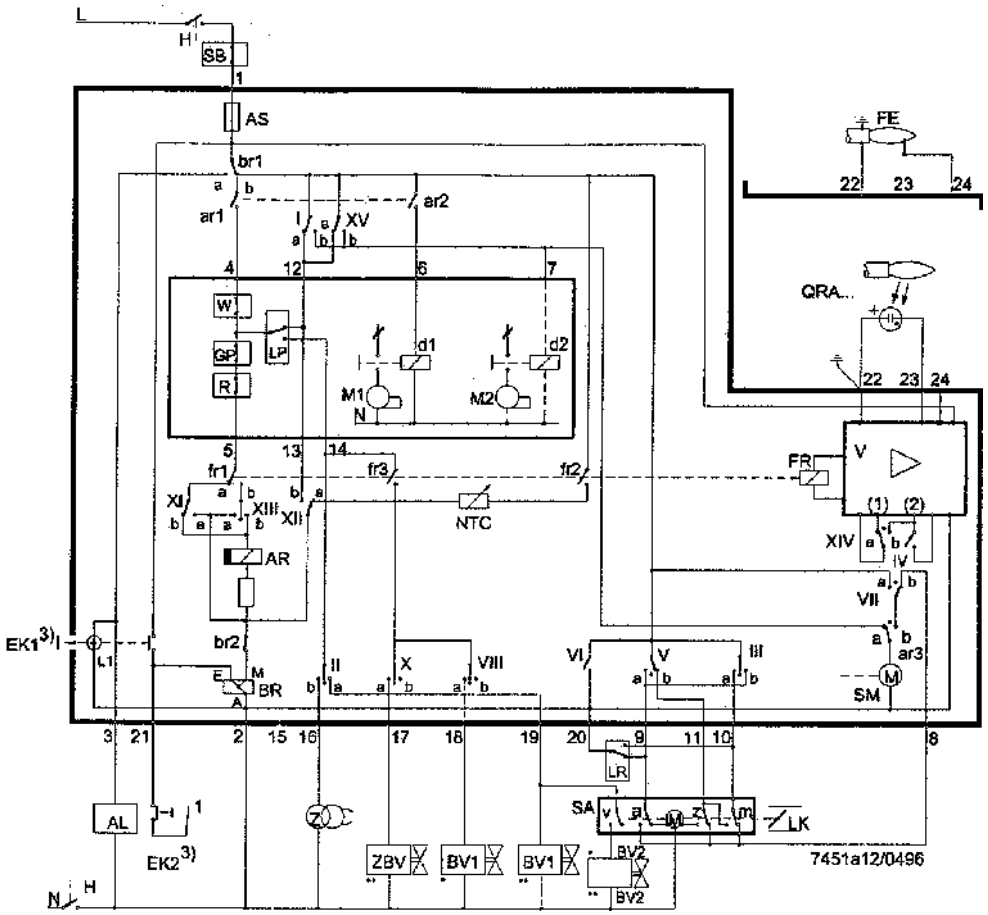
The following LFL1… features exceed the standards, offering a high level of additional safety:

- 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 valveconnections.

LEGEND

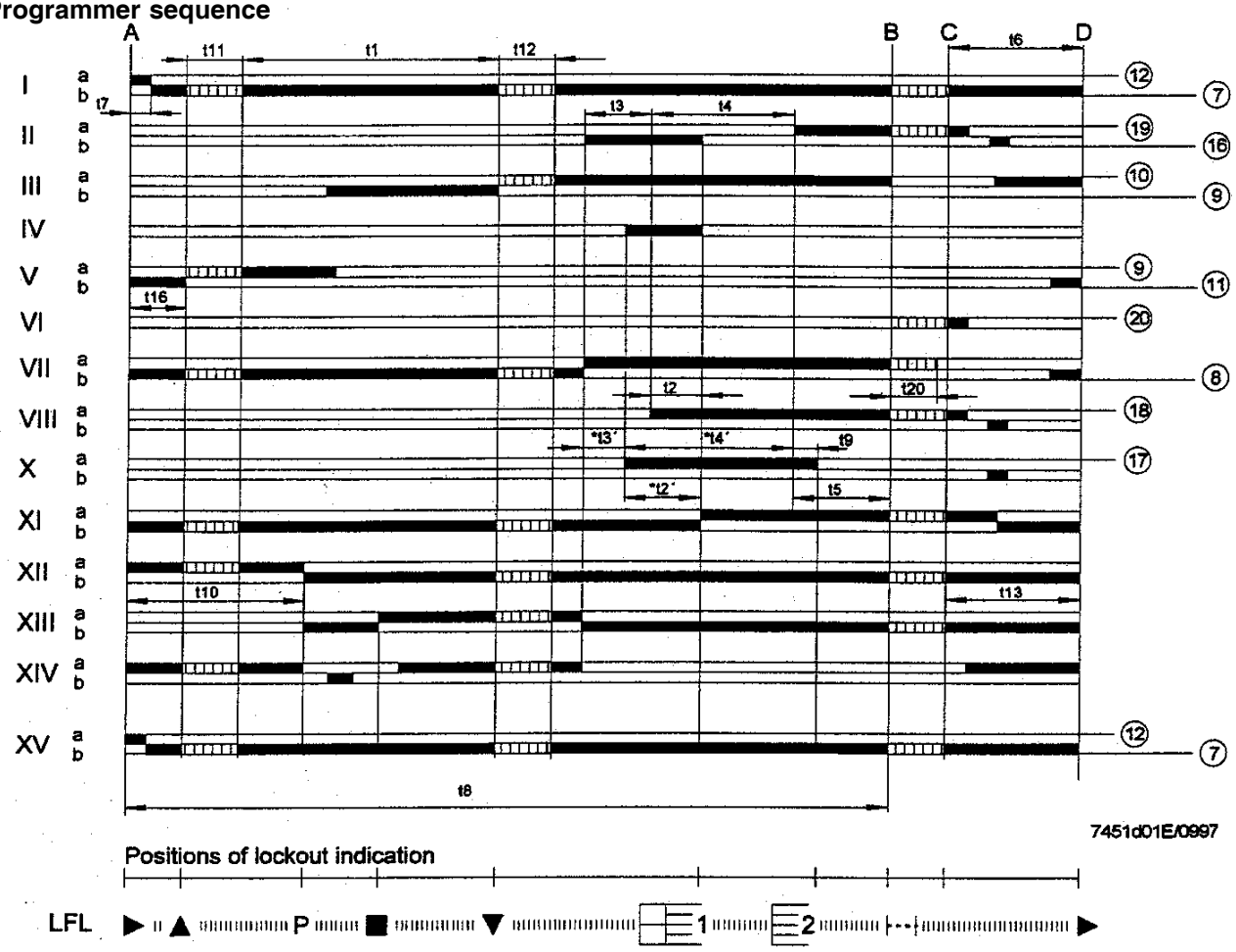
For the entire catalogue sheet

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

Output signals on terminal



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.

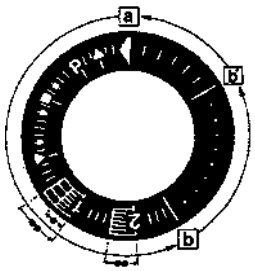
1 **Lock-out stop**, due to lack of flame signal at the end of the first safety time.

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

LDU 11.. GAS VALVE TIGHTNESS CONTROL EQUIPMENT

Use

LDU 11 equipment is used to verify tightness of valves on natural gas burners.
The LDU 11 combined with a normal pressure switch automatically verifies tightness of natural gas burners valves, before every start up and immediately after each stop.
Tightness control is carried out by two-stage verification of gas circuit pressure in the section between the two burner valves.

Operation

During the first stage of the tightness control (TEST 1), the pipeline between the valves being checked must be at atmospheric pressure. In plant without atmospheric pressure setting pipes, this pressure is achieved by tightness control equipment. The latter opens the valve on the furnace side for 5 seconds during "**t4**" time.
When the 5 seconds are up, the furnace side valve is closed.
During the first phase (**TEST 1**) the control equipment ensures that atmospheric pressure in the pipes is kept constant.
Surveillance is carried out by the "**DW**" thermostat.
If there is blow-by in the safety valve while closing, pressure increases and as a result the "**DW**" pressure switch operates. For this reason, in addition to indicating pressure, the equipment goes into fault state and the position indicator stops blocked in the "**TEST 1**" position (red pilot lamp lit).
Vice-versa, if pressure does not increase because there is no blow-by in the relief valve as it closes, the equipment immediately programmes the second stage "**TEST 2**".
Under these conditions, the relief valve opens for 5 seconds during "**t3**" time and introduces gas pressure into the pipeline ("filling operation"). During the second verification stage, this pressure must remain constant.
Should it drop, this means that the burner on the furnace side has a blow-by (fault) when closing.Therefore the "**DW**" pressure switch operates and the tightness control equipment prevents burner start-up and stops in blocked state (red pilot lamp lit). If second stage verification is positive, the LDU 11 equipment closes the internal control circuit between terminals **3** and **6** (terminal **3** - contact **ar2** - outer cross-connection for terminals **4** and **5** - contact **III** - terminal **6**).
This is the circuit that usually enables the equipment start-up control circuit. After circuit between terminals **3** and **6** has closed, the LDU 11's programmer returns to rest position and stops. This means it enables fresh verification without changing the position of the programmer's control contacts.

N.B. Adjust the "**DW**" pressure switch to about half the pressure of the gas supply network.

Key to symbols :

} Start-up = operating position

▭ In plants without a bleed valve = test circuit put under atmospheric pressure by opening of valve on the furnace side of the burner.

TEST 1 "TEST 1" pipeline at atmospheric pressure (blow-by verification at closure of relief valve)

▬ Putting test circuit gas under pressure by opening of relief valve

TEST 2 "TEST 2" pipeline at gas pressure (blow-by verification of valve on furnace side of burner)

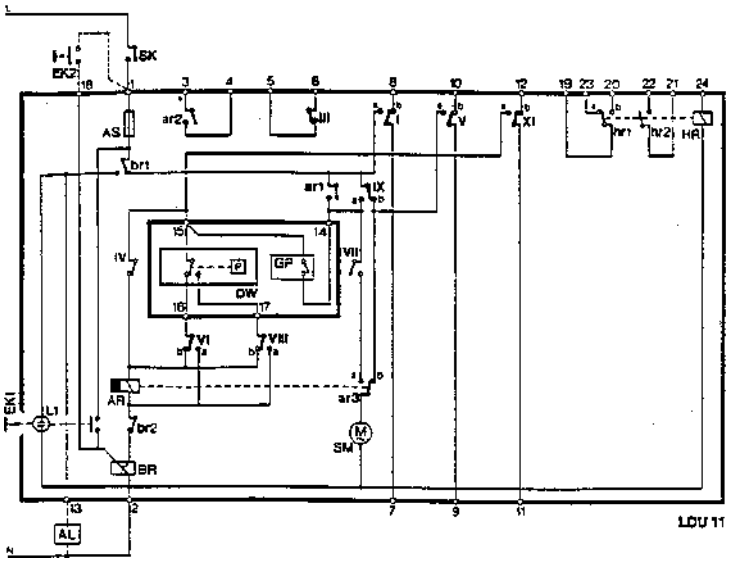
III Automatic zero (or inoperative mode) reset of programmer

} Operation = set for new blow-by verification

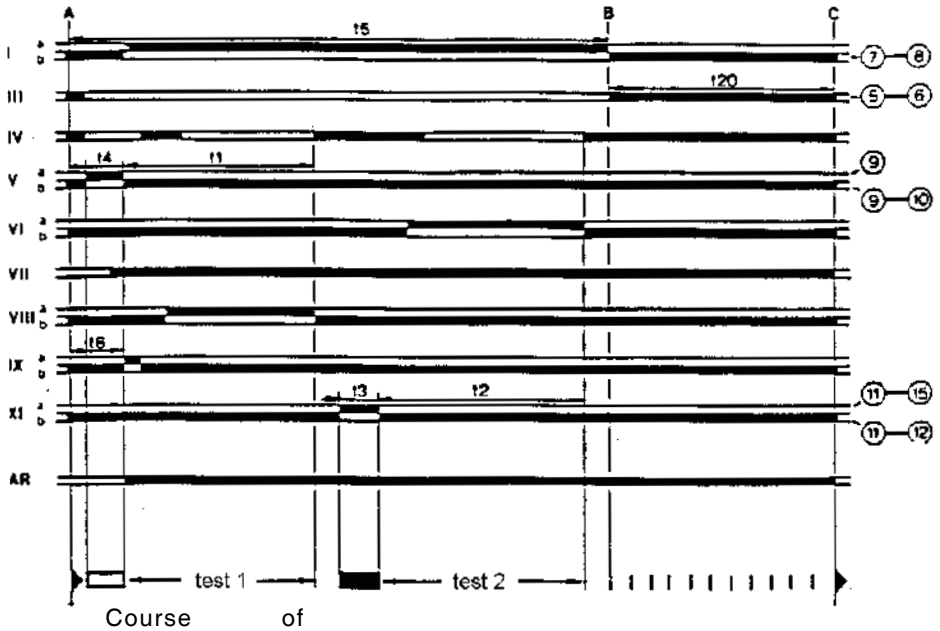
If trouble is signalled, there is no voltage in all control equipment terminals excepting terminals **13** which gives remote, visual indication of trouble.
When verification is over, the programmer automatically returns to rest position, and is ready to carry out a further

Control programme

t_4	**5s**	Putting control circuit under atmospheric pressure
t_6	**7,5s**	Time between start-up and energizing of main "**AR**" relay
t_1	**22,5s**	1st verification stage at atmospheric pressure
t_3	**5s**	Putting control circuit gas under pressure
t_2	**27,5s**	2nd verification stage at gas pressure
t_5	**67,5s**	Total time of tightness control, up to burner operation consent
t_{20}	**22,5s**	Return of programmer to rest position = fresh verification is enabled



AL	remote alarm signalling
AR	main relay with "ar" contacts
AS	equipment fuse
BR	blocking relay with "ar" contacts
DW	outer pressure switch (tightness control)
EK...	unblocking button
GP	outer pressure switch (for mains gas pressure)
HR	auxiliary relay with "ar" contacts
L1	equipment trouble signalling lamp
SK	line switch
I...XI	programmer cam contacts



Course of programme

Terminals activated by equipment or by electric connections

NOTES ON USE OF PROPANE (L.P.G.)

We think it would be useful to inform you on a few points regarding use of liquid propane gas (L.P.G.).

1) Approximate evaluation of running costs

a) 1 m^3 of liquid gas in gaseous state has heating power inferior by about 22.000 Kcal.

b) to obtain 1 m^3 of gas about 2 Kg of liquid gas are required. This is equal to about 4 litres of liquid gas.

According to the above, it can be deduced that by using liquid gas (L.P.G.) the following approximate equivalence is obtained:
22.000 kcal = 1 m^3 (in gaseous state) = 2 Kg of L.P.G. (liquid) = 4 litres L.P.G. (liquid). From this, running costs can be calculated.

2) Safety measures

Liquid gas (L.P.G.) has, in it gaseous state, a specific gravity superior to that of air (specific gravity of propane gas in relation to air = 1,56) and therefore does not disperse in air like natural gas, which has a lower specific gravity (specific gravity of natural gas in relation to air = 0,60), but precipitates and spreads at ground level as if it were a liquid. In view of the above principle, the Ministero dell'Interno (Home Office) has set limitations for use of Liquid Gas in circular n° 412/4183 of 6 February 1975. We will look into the points we think most important:

a) Liquid Gas (L.P.G.) for burners and/or boilers can only be used in rooms above ground and overlooking open spaces. Installations using liquid gas in basements or cellars are not permitted.

b) Rooms where liquid gas is used must have ventilation inlets without closing devices, located on external walls with a surface of at least 1/15 of the room's area and a minimum of 0,5 m^2.
At least one third of the entire surface of these inlets must be located in the lower part of the external wall, flush with the floor.

3) Requirements for liquid gas plant to ensure correct operation and safety

Natural gasification, from cylinder unit or tank, can only be used for low power plant. Supply capacity at gaseous stage, depending on tank dimensions and minimum external temperature, is shown in the following table but only as a rough guide.

Minimum temperature	- 15 °C	- 10 °C	- 5 °C	- 0 °C	+ 5 °C
Tank 990 l.	1,6 Kg/h	2,5 Kg/h	3,5 Kg/h	8 Kg/h	10 Kg/h
Tank 3000 l.	2,5 Kg/h	4,5 Kg/h	6,5 Kg/h	9 Kg/h	12 Kg/h
Tank 5000 l.	4 Kg/h	6,5 Kg/h	11,5 Kg/h	16 Kg/h	21 Kg/h

4) Burner

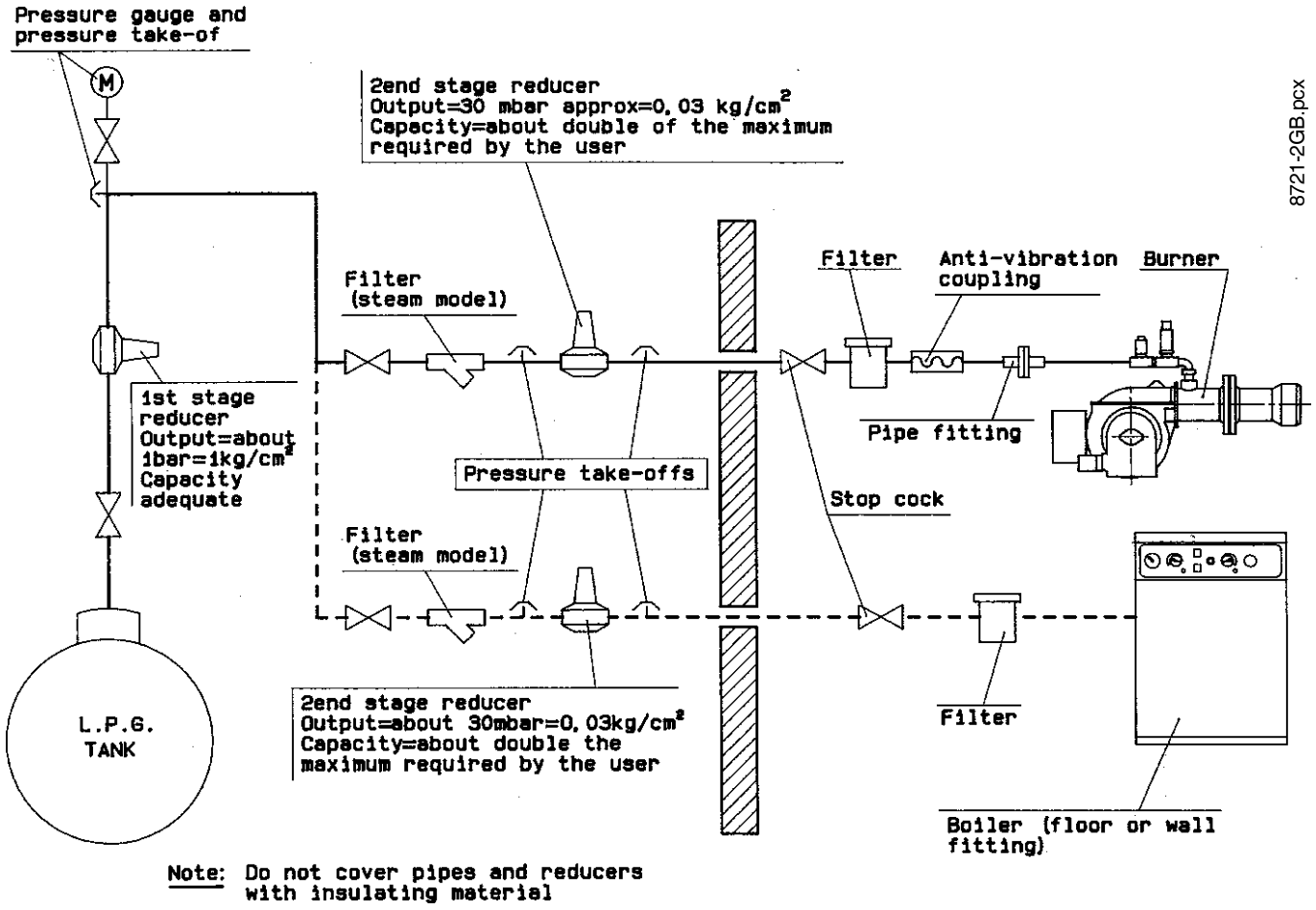
The burner must be ordered specifically for use with liquid gas (L.P.G.) so that it is equipped with gas valves of sufficient dimensions to ensure correct ignition and gradual regulation.
Our valves have dimension is planned for use at a supply pressure of about
300 mm.W.C. We suggest gas pressure be checked at the burner by using a water column pressure gauge.

N.B. Maximum and minimum burner pressure (kcal/h) obviously remains that of the original natural gas burner (L.P.G. has heating power superior to that of natural gas. Therefore, in order to burn fully, it requires air quantity in proportion to the thermal power created).

5) Combustion control

To limit consumption and avoid serious trouble, adjust combustion by using the appropriate instruments.
It is absolutely essential to check that the percentage of carbon monoxide (CO) does not exceed maximum permitted value of 0,1 % (use a phial analyser or other similar instrument). Please note that our guarantee does not cover burners operating on liquid gas (L.P.G.) in plant for which the above measures have not been taken.

GENERAL DIAGRAM FOR TWO-STAGE L.P.G. PRESSURE REDUCTION FOR BURNER OR BOILER



Note: Do not cover pipes and reducers with insulating material

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SCHALTPLAN BGN 40-60-100-120 DSPGN MIT LFL1.322/1.333
ESQUEMA ELECTRICO BGN 40-60-100-120 DSPGN CON LFL1.322/1.333

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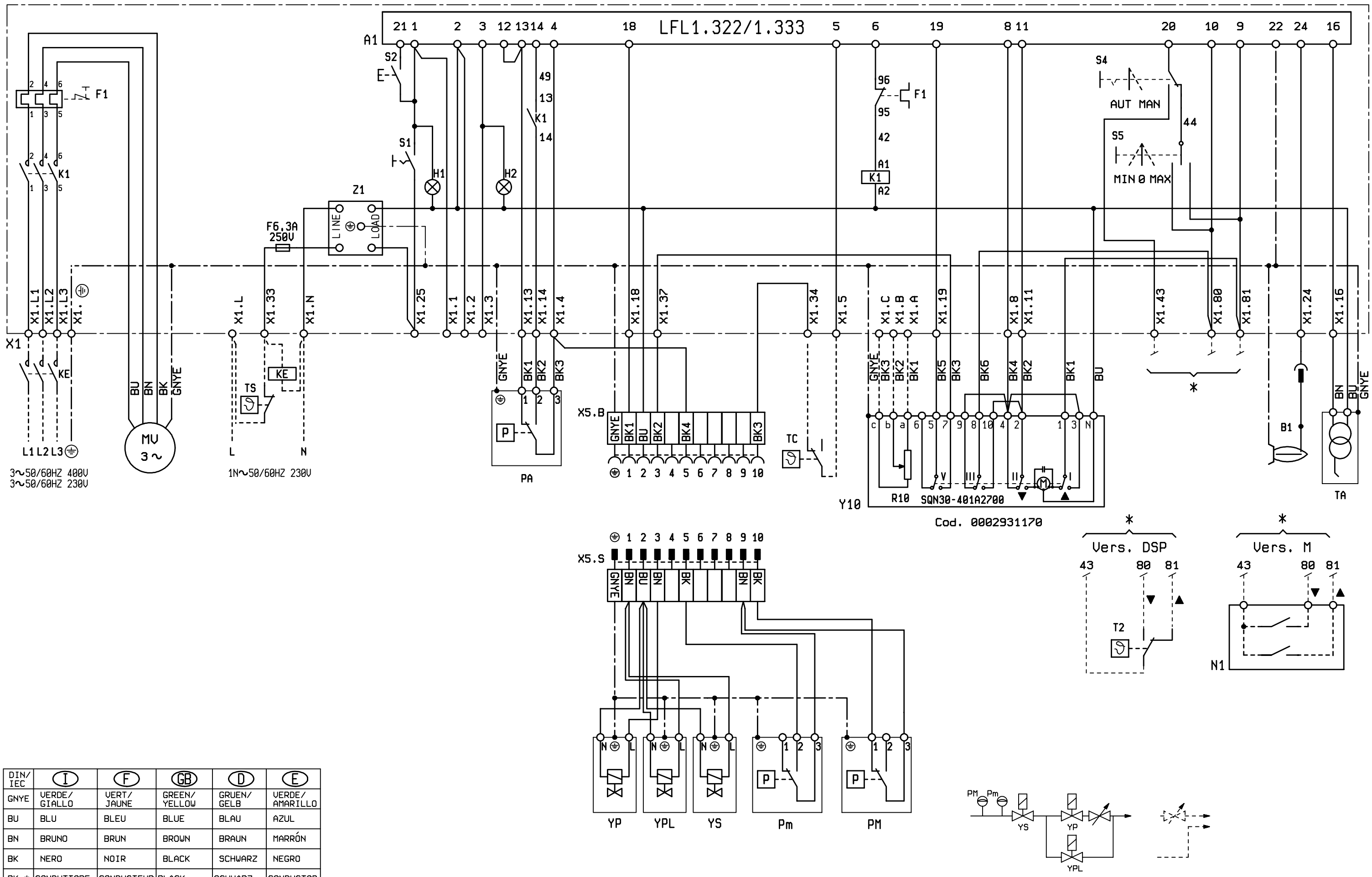

DIN/ IEC	(I)	(F)	(GB)	(D)	(E)
GNYE	VERDE/ GIALLO	VERT/ JAUNE	GREEN/ YELLOW	GRUEN/ GELB	VERDE/ AMARILLO
BU	BLU	BLEU	BLUE	BLAU	AZUL
BN	BRUNO	BRUN	BROWN	BRAUN	MARRÓN
BK	NERO	NOIR	BLACK	SCHWARZ	NEGRO
BK *	CONDUTTORE NERO CON SOVRASTAMPA	CONDUCTEUR NOIR AVEC IMPRESSION	BLACK WIRE WITH IMPRINT	SCHWARZ ADER MIT AUFDRUCK	CONDUCTOR NEGRO CON IMPRESIÓN

A1 -APPARECCHIATURA / APPAREILLAGE / CONTROL BOX / STEURGERAT / CAJA ELECTRÓNICA
B1 -ELETTRODO IONIZZAZIONE / ELECTRODE D'IONISATION / IONISATION ELECTRODE / IONISATIONSELEKTRODE / ELETTRODO IONIZACION
F1 -RELE' TERMICO / RELAIS THERMIQUE / THERMAL RELAY / THERMISCHES RELAIS / RELÉ TÉRMICO
H1 -SPIA DI FUNZIONAMENTO / LAMPE MARCHE / OPERATION LIGHT / BETRIEBSLAMPE / LUZ INDICADORA DE FUNCIONAMIENTO
H2 -SPIA DI BLOCCO / LAMPE DE BLOCAGE / LOCK-OUT SIGNAL LAMP / BLOCKKONTROLLAMPE / LUZ INDICADORA DE BLOQUEO
K1 -CONTATTORE MOTORE VENTOLA / CONTACTEUR MOTEUR VENTILATEUR / FAN MOTOR CONTACTOR / MOTORSCHUTZ / CONTACTOR MOTOR VENTILADOR
KE -CONTATTORE ESTERNO / CONTACTEUR EXTERIEUR / EXTERNAL CONTACTOR / EXTERNESCHUTZ / CONTACTOR EXTERIOR
MV -MOTORE / MOTEUR / MOTOR / MOTOR / MOTOR
N1 -REGOLATORE ELETTRONICO / ELECTRONIC REGULATOR /
REGULATEUR ELECTRONIQUE / ELEKTRONISCHER REGLER / REGULADOR ELECTRÓNICO
PA -PRESSOSTATO ARIA / PRESSOSTAT AIR / AIR PRESSURE SWITCH / LUFT DRUCKWACHTER / PRESÓSTATO AIRE
Pm -PRESSOSTATO DI MINIMA / PRESSOSTAT MIN. / GAS MIN. PRESSURE SWITCH / MIN. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÍN
PM -PRESSOSTATO DI MASSIMA / PRESSOSTAT MAX. / GAS MAX. PRESSURE SWITCH / MAX. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÁX
R10 -POTENZIOMETRO / POTENTIMETRE / POTENTIOMETER / POTENZIOMETER /POTENZIOMETRO
S1 -INTERRUTTORE MARCIA ARRESTO / INTERRUPTEUR MARCHE ARRET / ON-OFF SWITCH / EIN AUS SCHALTER / INTERRUPTOR ENCENDIDO-APAGADO
S2 -PULSANTE SBLOCCO / BOUTON DE DEBLOCAGE / RE-SET PUSH BUTTON / ENTSPERRKNOPF / PULSADOR DE DESBLOQUEO
S4 -SELETTORE AUT-MAN / SELETEUR AUT-MAN / AUT-MAN SELECTOR / UMSCHALTER AUT HAND / CONMUTADOR AUTOMÁTICO-MANUAL
S5 -COMMUTATORE MIN-MAX / COMMUTATEUR MIN-MAX / MIN-MAX COMMUTATOR / SCHALTER MIN-MAX / CONMUTADOR MÍN-MÁX
TA -TRASFORMATORE D'ACCENSIONE GAS / TRASFORMATEUR D'ALLUMAGE GAZ /
GAS IGNITION TRASFORMER / ZUNDUNGSTRASFORMATOR GAS / TRANSFORMADOR DE GAS
TC -TERMOSTATO CALDAIA / THERMOSTAT CHAUDIERE / BOILER THERMOSTAT / KESSELTHERMOSTAT / TERMOSTATO DE LA CALDERA
TS -TERMOSTATO DI SICUREZZA / THERMOSTAT DE SURETE / SAFETY THERMOSTAT / SICHERHEITSTHERMOSTAT / TERMOSTATO DE SEGURIDAD
T2 -TERMOSTATO 2° STADIO / THERMOSTAT 2° ETAGE / 2° STAGE THERMOSTAT / THERMOSTAT 2° STUFE / TERMOSTATO 2 ETAPA
X1. -MORSETTIERA BRUCIATORE / BORNES DE RACCORD / BURNER TERMINAL / ANSCHLUSSKLEMMEN / REGLETA DE BORNES DEL QUEMADOR
X5.B,X5.S-CONNETTORE MOBILE RAMPA GAS PRINCIPALE / CONNECTEUR MALE MOBILE RAMPE A GAZ PRINCIPALE /
MAIN GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MÓVIL GAS PRINCIPAL TREN
YS -ELETTROVALVOLA DI SICUREZZA / ELECTROVANNE DE SURETE / SAFETY VALVE / SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD
YP -ELETTROVALVOLA PRINCIPALE / ELECTROVANNE PRINCIPAL GAZ / MAIN ELECTROVALVE / GASHAUPTVENTIL / ELECTROVÁLVULA PRINCIPAL
YPL -ELETTROVALVOLA GAS PILOTA / ELECTROVANNE PILOTE GAZ / PILOT ELECTROVALVE / ZÜNDGASVENTIL / ELECTROVÁLVULA GAS PILOTO
Y10 -SERVOMOTORE ARIA / SERVOMOTEUR DE L'AIR / AIR SERVOMOTOR / STELLMOTOR / SERVOMOTOR CLAPETA DEL AIRE
Z1 -FILTRO / FILTRE / FILTER / FILTER / FILTRO

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ESQUEMA ELECTRICO BGN 40-60-100-120 DSPGN CON LFL1.322/1.333

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Dis. V.B.
Visto S.M.

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TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 40-60-100-120 DSPGN CON LFL1.322/1.333, LDU11
SCHEMA ELECTRIQUE BGN 40-60-100-120 DSPGN AVEC LFL1.322/1.333, LDU11
ELECTRIC DIAGRAM FOR BGN 40-60-100-120 DSPGN WITH LFL1.322/1.333, LDU11
SCHALTPLAN BGN 40-60-100-120 DSPGN MIT LFL1.322/1.333, LDU11
ESQUEMA ELECTRICO BGN 40-60-100-120 DSPGN CON LFL1.322/1.333, LDU11

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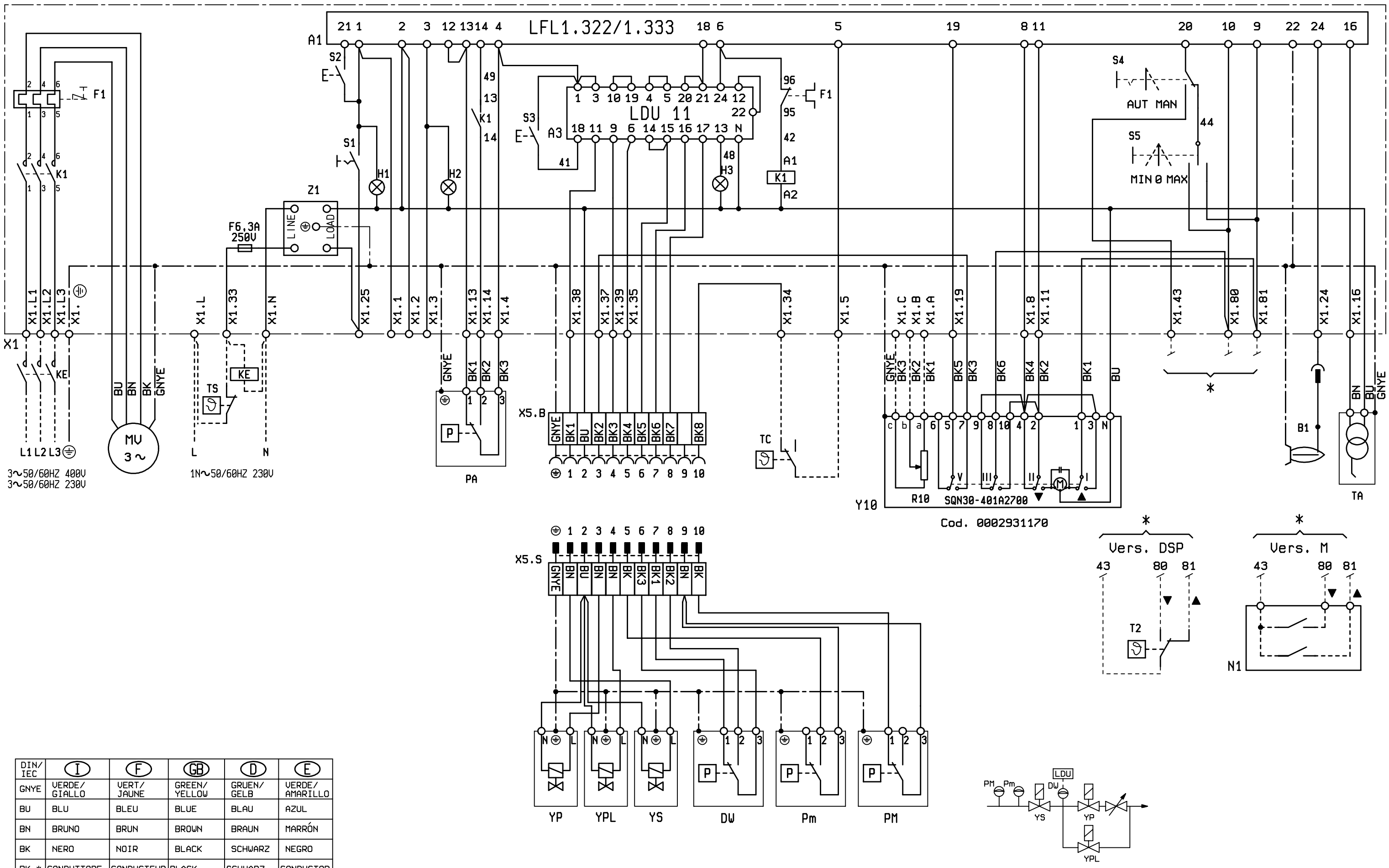


DIN/ IEC	(I)	(F)	(GB)	(D)	(E)
GNYE	VERDE/ GIALLO	VERT/ JAUNE	GREEN/ YELLOW	GRUEN/ GELB	VERDE/ AMARILLO
BU	BLU	BLEU	BLUE	BLAU	AZUL
BN	BRUNO	BRUN	BROWN	BRAUN	MARRÓN
BK	NERO	NOIR	BLACK	SCHWARZ	NEGRO
BK *	CONDUTTORE NERO CON SOVRASTAMPA	CONDUCTEUR NOIR AVEC IMPRESSION	BLACK WIRE WITH IMPRINT	SCHWARZ ADER MIT AUFDRUCK	CONDUCTOR NEGRO CON IMPRESIÓN

A1 -APPARECCHIATURA / APPAREILLAGE / CONTROL BOX / STEURGERAT / CAJA ELECTRÓNICA
A3 -CONTROLLO TENUTA VALVOLE / CONTROLE D'ETAINCHEITE DES VANNES / VALVES TIGHTNESS CONTROL / DICHTHEITSKONTROLLE / CONTROL ESTANQUEITAD VÁLVULAS
B1 -ELETTRODO IONIZZAZIONE / ELECTRODE D'IONISATION / IONISATION ELECTRODE / IONISATIONSELEKTRODE / ELETTRODO IONIZACION
DW -PRESSOSTATO CONTROLLO TENUTA VALVOLE / PRESSOSTAT POUR CONTROLE ETAINCHEITE VANNES / PRESSURE SWITCH FOR VALVE TIGHTNESS CONTROL / DRUCKWACHTER DICHTHEITSKONTROLLE / PRESÓSTATO DE CONTROL ESTANQUEIDAD VÁLVULAS GAS
F1 -RELE' TERMICO / RELAIS THERMIQUE / THERMAL RELAY / THERMISCHES RELAIS / RELÉ TÉRMICO
H1 -SPIA DI FUNZIONAMENTO / LAMPE MARCHE / OPERATION LIGHT / BETRIEBSLAMPE / LUZ INDICADORA DE FUNCIONAMIENTO
H2 -SPIA DI BLOCCO / LAMPE DE BLOCAGE / LOCK-OUT SIGNAL LAMP / BLOCKKONTROLLAMPE / LUZ INDICADORA DE BLOQUEO
H3 -SPIA DI BLOCCO LDU11 / LAMPE DE BLOC POUR LDU11 / LDU11 BLOCK LAMP / AUSSERE STORANZEIGE FUR LDU11 / LUZ INDICADORA DE BLOQUEO LDU11
K1 -CONTATTORE MOTORE VENTOLA / CONTACTEUR MOTEUR VENTILATEUR / FAN MOTOR CONTACTOR / MOTORSCHUTZ / CONTACTOR MOTOR VENTILADOR
KE -CONTATTORE ESTERNO / CONTACTEUR EXTERIEUR / EXTERNAL CONTACTOR / EXTERNESCHUTZ / CONTACTOR EXTERIOR
MV -MOTORE / MOTEUR / MOTOR / MOTOR / MOTOR
N1 -REGOLATORE ELETTRONICO / ELECTRONIC REGULATOR / REGULATEUR ELECTRONIQUE / ELEKTRONISCHER REGLER / REGULADOR ELECTRÓNICO
PA -PRESSOSTATO ARIA / PRESSOSTAT AIR / AIR PRESSURE SWITCH / LUFT DRUCKWACHTER / PRESÓSTATO AIRE
Pm -PRESSOSTATO DI MINIMA / PRESSOSTAT MIN. / GAS MIN. PRESSURE SWITCH / MIN. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÍN
PM -PRESSOSTATO DI MASSIMA / PRESSOSTAT MAX. / GAS MAX. PRESSURE SWITCH / MAX. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÁX
R10 -POTENZIOMETRO / POTENTIMETRE / POTENTIOMETER / POTENZIOMETER /POTENZIOMETRO
S1 -INTERRUTTORE MARCIA ARRESTO / INTERRUPTEUR MARCHE ARRET / ON-OFF SWITCH / EIN AUS SCHALTER / INTERRUPTOR ENCENDIDO-APAGADO
S2 -PULSANTE SBLOCCO / BOUTON DE DEBLOCAGE / RE-SET PUSH BUTTON / ENTSPERRKNOPF / PULSADOR DE DESBLOQUEO
S3 -PULSANTE SBLOCCO LDU11 / BOUTON DE DEBLOCAGE POUR LDU11 / LDU11 RE-SET PUSH BUTTON / ENTSPERRKNOPF FUR LDU11 / PULSADOR DE DESBLOQUEO LDU11
S4 -SELETTORE AUT-MAN / SELETEUR AUT-MAN / AUT-MAN SELECTOR / UMSCHALTER AUT HAND / CONMUTADOR AUTOMÁTICO-MANUAL
S5 -COMMUTATORE MIN-MAX / COMMUTATEUR MIN-MAX / MIN-MAX COMMUTATOR / SCHALTER MIN-MAX / CONMUTADOR MÍN-MÁX
TA -TRASFORMATORE D'ACCENSIONE GAS / TRASFORMATEUR D'ALLUMAGE GAZ / GAS IGNITION TRASFORMER / ZUNDUNGSTRASFORMATOR GAS / TRANSFORMADOR DE GAS
TC -TERMOSTATO CALDAIA / THERMOSTAT CHAUDIERE / BOILER THERMOSTAT / KESSELTHERMOSTAT / TERMOSTATO DE LA CALDERA
TS -TERMOSTATO DI SICUREZZA / THERMOSTAT DE SURETE / SAFETY THERMOSTAT / SICHERHEITSTHERMOSTAT / TERMOSTATO DE SEGURIDAD
T2 -TERMOSTATO 2° STADIO / THERMOSTAT 2° ETAGE / 2° STAGE THERMOSTAT / THERMOSTAT 2° STUFE / TERMOSTATO 2 ETAPA
X1. -MORSETTIERA BRUCIATORE / BORNES DE RACCORD / BURNER TERMINAL / ANSCHLUSSKLEMMEN / REGLETA DE BORNES DEL QUEMADOR
X5.B,X5.S-CONNETTORE MOBILE RAMPA GAS PRINCIPALE / CONNECTEUR MALE MOBILE RAMPE A GAZ PRINCIPALE / MAIN GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MÓVIL GAS PRINCIPAL TREN
Y10 -SERVOMOTORE ARIA / SERVOMOTEUR DE L'AIR / AIR SERVOMOTOR / STELLMOTOR / SERVOMOTOR CLAPETA DEL AIRE
YP -ELETTROVALVOLA PRINCIPALE / ELECTROVANNE PRINCIPAL GAZ / MAIN ELECTROVALVE / GASHAUPTVENTIL / ELECTROVÁLVULA PRINCIPAL
YPL -ELETTROVALVOLA GAS PILOTA / ELECTROVANNE PILOTE GAZ / PILOT ELECTROVALVE / ZÜNDGASVENTIL / ELECTROVÁLVULA GAS PILOTO
YS -ELETTROVALVOLA DI SICUREZZA / ELECTROVANNE DE SURETE / SAFETY VALVE / SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD
Z1 -FILTRO / FILTRE / FILTER / FILTER / FILTRO

baltur
CLIMATIZZAZIONE
TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 40-60-100-120 DSPGN,LFL1.322/1.333,LDU11
SCHEMA ELECTRIQUE BGN 40-60-100-120 DSPGN,LFL1.322/1.333,LDU11
ELECTRIC DIAGRAM BGN 40-60-100-120 DSPGN,LFL1.322/1.333,LDU11
SCHALTPLAN BGN 40-60-100-120 DSPGN,LFL1.322/1.333,LDU11
ESQUEMA ELECTRICO BGN 40-60-100-120 DSPGN,LFL1.322/1.333,LDU11

CE

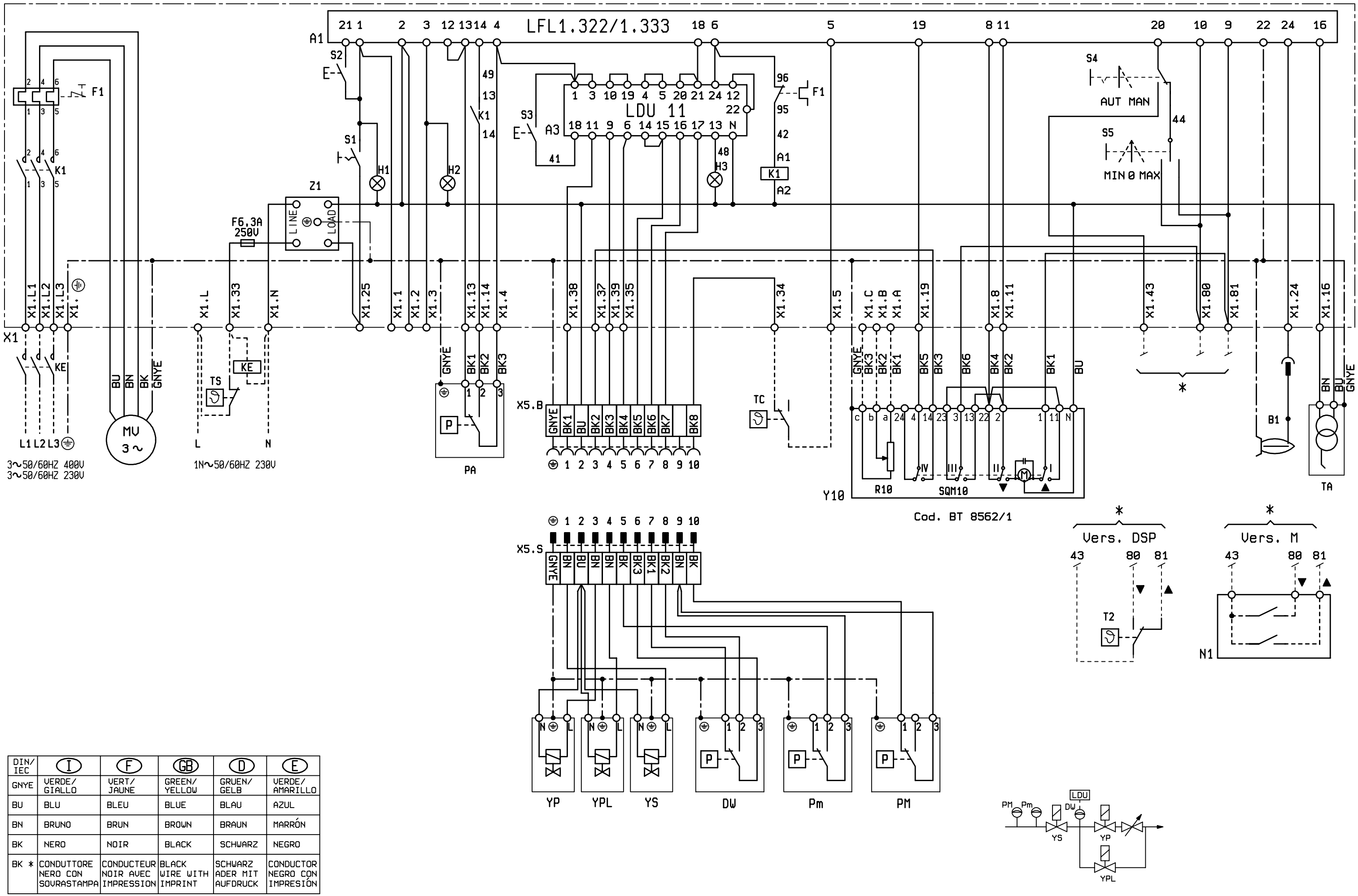
N° 0002430093
foglio N. 2 di 2
data 10-05-00
Dis. V.B.
Visto S.M.

baltur
CLIMATIZZAZIONE
TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 150-200-250-300-350 DSPGN CON LFL1.322/1.333, LDU11
SCHEMA ELECTRIQUE BGN 150-200-250-300-350 DSPGN AVEC LFL1.322/1.333, LDU11
ELECTRIC DIAGRAM FOR BGN 150-200-250-300-350 DSPGN WITH LFL1.322/1.333, LDU11
SCHALTPLAN BGN 150-200-250-300-350 DSPGN MIT LFL1.322/1.333, LDU11
ESQUEMA ELECTRICO BGN 150-200-250-300-350 DSPGN CON LFL1.322/1.333, LDU11

CE

N° 0002430114
foglio N. 1 di 2
data 11-05-00
Dis. V.B.
Visto S.M.



DIN/ IEC	(I)	(F)	(GB)	(D)	(E)
GNYE	VERDE/ GIALLO	VERT/ JAUNE	GREEN/ YELLOW	GRUEN/ GELB	VERDE/ AMARILLO
BU	BLU	BLEU	BLUE	BLAU	AZUL
BN	BRUNO	BRUN	BROWN	BRAUN	MARRÓN
BK	NERO	NOIR	BLACK	SCHWARZ	NEGRO
BK *	CONDUTTORE NERO CON SOVRASTAMPA	CONDUCTEUR NOIR AVEC IMPRESSION	BLACK WIRE WITH IMPRINT	SCHWARZ ADER MIT AUFDRUCK	CONDUCTOR NEGRO CON IMPRESIÓN

A1 -APPARECCHIATURA / APPAREILLAGE / CONTROL BOX / STEURGERAT / CAJA ELECTRÓNICA
A3 -CONTROLLO TENUTA VALVOLE / CONTROLE D'ETAINCHEITE DES VANNES / VALVES TIGHTNESS CONTROL / DICHTHEITSKONTROLLE / CONTROL ESTANQUEITAD VÁLVULAS
B1 -ELETTRODO IONIZZAZIONE / ELECTRODE D'IONISATION / IONISATION ELECTRODE / IONISATIONSELEKTRODE / ELETTRODO IONIZACION
DW -PRESSOSTATO CONTROLLO TENUTA VALVOLE / PRESSOSTAT POUR CONTROLE ETAINCHEITE VANNES / PRESSURE SWITCH FOR VALVE TIGHTNESS CONTROL / DRUCKWACHTER DICHTHEITSKONTROLLE / PRESÓSTATO DE CONTROL ESTANQUEIDAD VÁLVULAS GAS
F1 -RELE' TERMICO / RELAIS THERMIQUE / THERMAL RELAY / THERMISCHES RELAIS / RELÉ TÉRMICO
H1 -SPIA DI FUNZIONAMENTO / LAMPE MARCHE / OPERATION LIGHT / BETRIEBSLAMPE / LUZ INDICADORA DE FUNCIONAMIENTO
H2 -SPIA DI BLOCCO / LAMPE DE BLOCAGE / LOCK-OUT SIGNAL LAMP / BLOCKKONTROLLAMPE / LUZ INDICADORA DE BLOQUEO
H3 -SPIA DI BLOCCO LDU11 / LAMPE DE BLOC POUR LDU11 / LDU11 BLOCK LAMP / AUSSERE STORANZEIGE FUR LDU11 / LUZ INDICADORA DE BLOQUEO LDU11
K1 -CONTATTORE MOTORE VENTOLA / CONTACTEUR MOTEUR VENTILATEUR / FAN MOTOR CONTACTOR / MOTORSCHUTZ / CONTACTOR MOTOR VENTILADOR
KE -CONTATTORE ESTERNO / CONTACTEUR EXTERIEUR / EXTERNAL CONTACTOR / EXTERNESCHUTZ / CONTACTOR EXTERIOR
MV -MOTORE / MOTEUR / MOTOR / MOTOR / MOTOR
N1 -REGOLATORE ELETTRONICO / ELECTRONIC REGULATOR / REGULATEUR ELECTRONIQUE / ELEKTRONISCHER REGLER / REGULADOR ELECTRÓNICO
PA -PRESSOSTATO ARIA / PRESSOSTAT AIR / AIR PRESSURE SWITCH / LUFT DRUCKWACHTER / PRESÓSTATO AIRE
Pm -PRESSOSTATO DI MINIMA / PRESSOSTAT MIN. / GAS MIN. PRESSURE SWITCH / MIN. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÍN
PM -PRESSOSTATO DI MASSIMA / PRESSOSTAT MAX. / GAS MAX. PRESSURE SWITCH / MAX. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÁX
R10 -POTENZIOMETRO / POTENTIMETRE / POTENTIOMETER / POTENZIOMETER /POTENZIOMETRO
S1 -INTERRUTTORE MARCIA ARRESTO / INTERRUPTEUR MARCHE ARRET / ON-OFF SWITCH / EIN AUS SCHALTER / INTERRUPTOR ENCENDIDO-APAGADO
S2 -PULSANTE SBLOCCO / BOUTON DE DEBLOCAGE / RE-SET PUSH BUTTON / ENTSPERRKNOPF / PULSADOR DE DESBLOQUEO
S3 -PULSANTE SBLOCCO LDU11 / BOUTON DE DEBLOCAGE POUR LDU11 / LDU11 RE-SET PUSH BUTTON / ENTSPERRKNOPF FUR LDU11 / PULSADOR DE DESBLOQUEO LDU11
S4 -SELETTORE AUT-MAN / SELETEUR AUT-MAN / AUT-MAN SELECTOR / UMSCHALTER AUT HAND / CONMUTADOR AUTOMÁTICO-MANUAL
S5 -COMMUTATORE MIN-MAX / COMMUTATEUR MIN-MAX / MIN-MAX COMMUTATOR / SCHALTER MIN-MAX / CONMUTADOR MÍN-MÁX
TA -TRASFORMATORE D'ACCENSIONE GAS / TRASFORMATEUR D'ALLUMAGE GAZ / GAS IGNITION TRASFORMER / ZUNDUNGSTRASFORMATOR GAS / TRANSFORMADOR DE GAS
TC -TERMOSTATO CALDAIA / THERMOSTAT CHAUDIERE / BOILER THERMOSTAT / KESSELTHERMOSTAT / TERMOSTATO DE LA CALDERA
TS -TERMOSTATO DI SICUREZZA / THERMOSTAT DE SURETE / SAFETY THERMOSTAT / SICHERHEITSTHERMOSTAT / TERMOSTATO DE SEGURIDAD
T2 -TERMOSTATO 2° STADIO / THERMOSTAT 2° ETAGE / 2° STAGE THERMOSTAT / THERMOSTAT 2° STUFE / TERMOSTATO 2 ETAPA
X1. -MORSETTIERA BRUCIATORE / BORNES DE RACCORD / BURNER TERMINAL / ANSCHLUSSKLEMMEN / REGLETA DE BORNES DEL QUEMADOR
X5.B,X5.S-CONNETTORE MOBILE RAMPA GAS PRINCIPALE / CONNECTEUR MALE MOBILE RAMPE A GAZ PRINCIPALE / MAIN GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MÓVIL GAS PRINCIPAL TREN
Y10 -SERVOMOTORE ARIA / SERVOMOTEUR DE L'AIR / AIR SERVOMOTOR / STELLMOTOR / SERVOMOTOR CLAPETA DEL AIRE
YP -ELETTROVALVOLA PRINCIPALE / ELECTROVANNE PRINCIPAL GAZ / MAIN ELECTROVALVE / GASHAUPTVENTIL / ELECTROVÁLVULA PRINCIPAL
YPL -ELETTROVALVOLA GAS PILOTA / ELECTROVANNE PILOTE GAZ / PILOT ELECTROVALVE / ZÜNDGASVENTIL / ELECTROVÁLVULA GAS PILOTO
YS -ELETTROVALVOLA DI SICUREZZA / ELECTROVANNE DE SURETE / SAFETY VALVE / SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD
Z1 -FILTRO / FILTRE / FILTER / FILTER / FILTRO

baltur
CLIMATIZZAZIONE
TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 150-350 DSPGN, LFL1.322/1.333, LDU11
SCHEMA ELECTRIQUE BGN 150-350 DSPGN, LFL1.322/1.333, LDU11
ELECTRIC DIAGRAM BGN 150-350 DSPGN, LFL1.322/1.333, LDU11
SCHALTPLAN BGN 150-350 DSPGN, LFL1.322/1.333, LDU11
ESQUEMA ELECTRICO BGN 150-350 DSPGN, LFL1.322/1.333, LDU11

CE

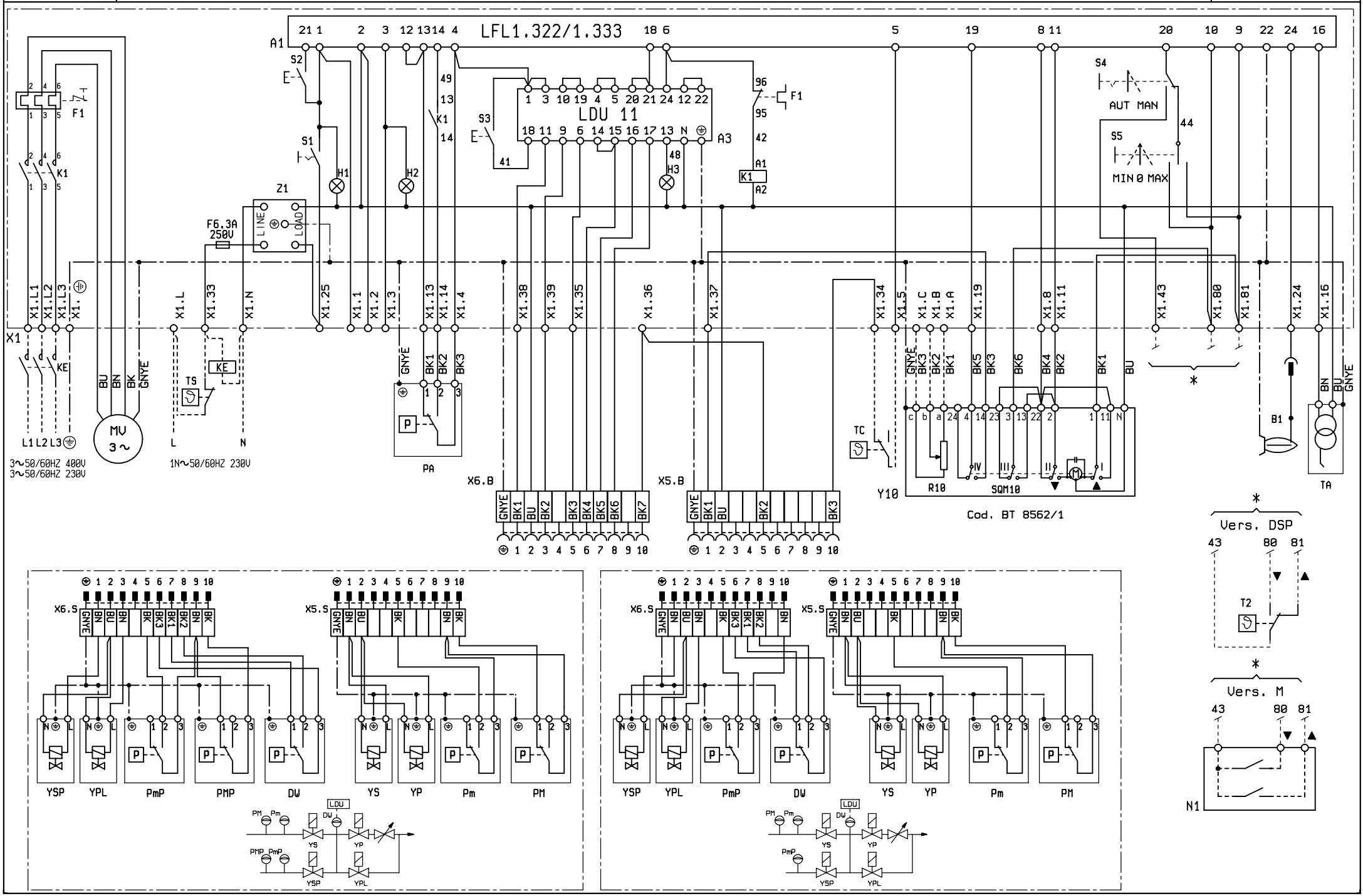
N° 00024301 14
foglio N. 2 di 2
data 11-05-00
Dis. V.B.
Visto S.M.

baltur

CENTO (FE)

SCHEMA ELETTRICO BGN 250-300-350 DSPGN UNI
SCHEMA ELECTRIQUE BGN 250-300-350 DSPGN UNI
ELECTRIC DIAGRAM FOR BGN 250-300-350 DSPGN UNI
SCHALTPLAN BGN 250-300-350 DSPGN UNI
ESQUEMA ELECTRICO BGN 250-300-350 DSPGN UNI

N° 0002430124N1
foglio N. 1 di 2
data 09/05/2000
Dis. V.B.
Visto S.M.



A1 -APPARECCHIATURA / APPAREILLAGE / CONTROL BOX / STEURGERAT / CAJA ELECTRÓNICA
A3 -CONTROLLO TENUTA VALVOLE / CONTROLE D'ETAINCHEITE DES VANNES / VALVES TIGHTNESS CONTROL / DICHTHEITSKONTROLLE / CONTROL ESTANQUEITAD VÁLVULAS
B1 -ELETTRODO IONIZZAZIONE / ELECTRODE D'IONISATION / IONISATION ELECTRODE / IONISATIONSELEKTRODE / ELETTRODO IONIZACION
DW -PRESSOSTATO CONTROLLO TENUTA VALVOLE / PRESSOSTAT POUR CONTROLE ETAINCHEITE VANNES / PRESSURE SWITCH FOR VALVE TIGHTNESS CONTROL / DRUCKWACHTER DICHTHEITSKONTROLLE / PRESÓSTATO DE CONTROL ESTANQUEIDAD VÁLVULAS GAS
F1 -RELE' TERMICO / RELAIS THERMIQUE / THERMAL RELAY / THERMISCHES RELAIS / RELÉ TÉRMICO
H1 -SPIA DI FUNZIONAMENTO / LAMPE MARCHE / OPERATION LIGHT / BETRIEBSLAMPE / LUZ INDICADORA DE FUNCIONAMIENTO
H2 -SPIA DI BLOCCO / LAMPE DE BLOCAGE / LOCK-OUT SIGNAL LAMP / BLOCKKONTROLLAMPE / LUZ INDICADORA DE BLOQUEO
H3 -SPIA DI BLOCCO LDU11 / LAMPE DE BLOC POUR LDU11 / LDU11 BLOCK LAMP / AUSSERE STORANZEIGE FUR LDU11 / LUZ INDICADORA DE BLOQUEO LDU11
K1 -CONTATTORE MOTORE VENTOLA / CONTACTEUR MOTEUR VENTILATEUR / FAN MOTOR CONTACTOR / MOTORSCHUTZ / CONTACTOR MOTOR VENTILADOR
KE -CONTATTORE ESTERNO / CONTACTEUR EXTERIEUR / EXTERNAL CONTACTOR / EXTERNESCHUTZ / CONTACTOR EXTERIOR
MV -MOTORE / MOTEUR / MOTOR / MOTOR / MOTOR
N1 -REGOLATORE ELETTRONICO / ELECTRONIC REGULATOR / REGULATEUR ELECTRONIQUE / ELEKTRONISCHER REGLER / REGULADOR ELECTRÓNICO
PA -PRESSOSTATO ARIA / PRESSOSTAT AIR / AIR PRESSURE SWITCH / LUFT DRUCKWACHTER / PRESÓSTATO AIRE
Pm -PRESSOSTATO DI MINIMA / PRESSOSTAT MIN. / GAS MIN. PRESSURE SWITCH / MIN. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÍN
PM -PRESSOSTATO DI MASSIMA / PRESSOSTAT MAX. / GAS MAX. PRESSURE SWITCH / MAX. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÁX
PMP -PRESSOSTATO DI MASSIMA PILOTA / PRESSOSTAT DE MAX. PILOTE / PILOT MAX GAS PRESSURE SWITCH / PILOT MAX. GAS DRUCKWACHTER / PRESÓSTATO DE MÁX PILOTO
PmP -PRESSOSTATO DI MINIMA PILOTA / PRESSOSTAT DE MIN. PILOTE / PILOT MIN GAS PRESSURE SWITCH / PILOT MIN. GAS DRUCKWACHTER / PRESÓSTATO DE MÍN PILOTO
R10 -POTENZIOMETRO / POTENTIMETRE / POTENTIOMETER / POTENZIOMETER /POTENZIOMETRO
S1 -INTERRUTTORE MARCIA ARRESTO / INTERRUPTEUR MARCHE ARRET / ON-OFF SWITCH / EIN AUS SCHALTER / INTERRUPTOR ENCENDIDO-APAGADO
S2 -PULSANTE SBLOCCO / BOUTON DE DEBLOCAGE / RE-SET PUSH BUTTON / ENTSPERRKNOPF / PULSADOR DE DESBLOQUEO
S3 -PULSANTE SBLOCCO LDU11 / BOUTON DE DEBLOCAGE POUR LDU11 / LDU11 RE-SET PUSH BUTTON / ENTSPERRKNOPF FUR LDU11 / PULSADOR DE DESBLOQUEO LDU11
S4 -SELETTORE AUT-MAN / SELETEUR AUT-MAN / AUT-MAN SELECTOR / UMSCHALTER AUT HAND / CONMUTADOR AUTOMÁTICO-MANUAL
S5 -COMMUTATORE MIN-MAX / COMMUTATEUR MIN-MAX / MIN-MAX COMMUTATOR / SCHALTER MIN-MAX / CONMUTADOR MÍN-MÁX
TA -TRASFORMATORE D'ACCENSIONE GAS / TRASFORMATEUR D'ALLUMAGE GAZ / GAS IGNITION TRASFORMER / ZUNDUNGSTRASFORMATOR GAS / TRANSFORMADOR DE GAS
TC -TERMOSTATO CALDAIA / THERMOSTAT CHAUDIERE / BOILER THERMOSTAT / KESSELTHERMOSTAT / TERMOSTATO DE LA CALDERA
TS -TERMOSTATO DI SICUREZZA / THERMOSTAT DE SURETE / SAFETY THERMOSTAT / SICHERHEITSTHERMOSTAT / TERMOSTATO DE SEGURIDAD
T2 -TERMOSTATO 2° STADIO / THERMOSTAT 2° ETAGE / 2° STAGE THERMOSTAT / THERMOSTAT 2° STUFE / TERMOSTATO 2 ETAPA
X1. -MORSETTIERA BRUCIATORE / BORNES DE RACCORD / BURNER TERMINAL / ANSCHLUSSKLEMMEN / REGLETA DE BORNES DEL QUEMADOR
X5.B,X5.S-CONNETTORE MOBILE RAMPA GAS PRINCIPALE / CONNECTEUR MALE MOBILE RAMPE A GAZ PRINCIPALE / MAIN GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MÓVIL GAS PRINCIPAL TREN
X6.B,X6.S-CONNETTORE MOBILE RAMPA GAS PILOTA / CONNECTEUR MALE MOBILE RAMPE A GAZ PILOTA PILOT GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MOVIL GAS PILOTO TREN
Y10 -SERVOMOTORE ARIA / SERVOMOTEUR DE L'AIR / AIR SERVOMOTOR / STELLMOTOR / SERVOMOTOR CLAPETA DEL AIRE
YP -ELETTROVALVOLA PRINCIPALE / ELECTROVANNE PRINCIPAL GAZ / MAIN ELECTROVALVE / GASHAUPTVENTIL / ELECTROVÁLVULA PRINCIPAL
YPL -ELETTROVALVOLA GAS PILOTA / ELECTROVANNE PILOTE GAZ / PILOT ELECTROVALVE / ZÜNDGASVENTIL / ELECTROVÁLVULA GAS PILOTO
YS -ELETTROVALVOLA DI SICUREZZA / ELECTROVANNE DE SURETE / SAFETY VALVE / SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD
YSP -ELETTROVALVOLA SICUREZZA PILOTA / ELECTROVANNE SECURITE PILOTE / PILOT SAFETY VALVE / PILOT SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD PILOTO
Z1 -FILTRO / FILTRE / FILTER / FILTER / FILTRO

baltur
CENTO (FE)

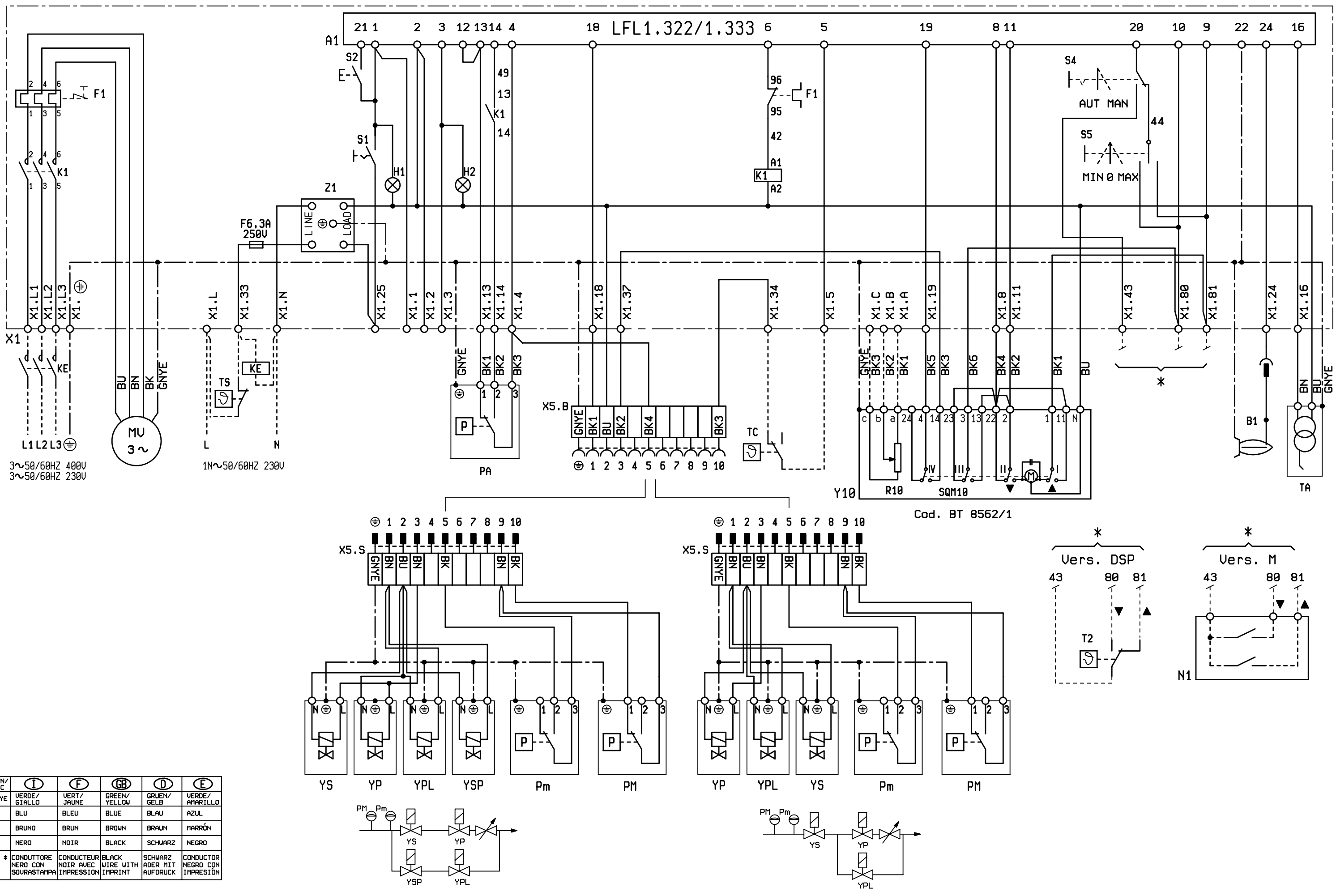
SCHEMA ELETTRICO BGN 250-300-350 DSPGN UNI
SCHEMA ELECTRIQUE BGN 250-300-350 DSPGN UNI
ELECTRIC DIAGRAM FOR BGN 250-300-350 DSPGN UNI
SCHALTPLAN BGN 250-300-350 DSPGN UNI
ESQUEMA ELECTRICO BGN 250-300-350 DSPGN UNI

N° 00024301124N2
foglio N. 2 di 2
data 09/05/2000
Dis. V.B.
Visto S.M.

CLIMATIZZAZIONE
TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 150-200-250-300-350 DSPGN CON LFL1.322/1.333
SCHEMA ELECTRIQUE BGN 150-200-250-300-350 DSPGN AVEC LFL1.322/1.333
ELECTRIC DIAGRAM FOR BGN 150-200-250-300-350 DSPGN WITH LFL1.322/1.333
SCHALTPLAN BGN 150-200-250-300-350 DSPGN MIT LFL1.322/1.333
ESQUEMA ELECTRICO BGN 150-200-250-300-350 DSPGN CON LFL1.322/1.333

N° 0002430154
foglio N. 1 di 2
data 09-05-00
Dis. V.B.
Visto S.M.



DIN/IEC	I	F	GB	D	E
GNYE	VERDE/GIALLO	VERT/JAUNE	GREEN/YELLOW	GRUEN/GELB	VERDE/AMARILLO
BU	BLU	BLEU	BLUE	BLAU	AZUL
BN	BRUNO	BRUN	BROWN	BRAUN	MARRÓN
BK	NERO	NOIR	BLACK	SCHWARZ	NEGRO
BK *	CONDUTTORE NERO CON SOVRASTAMPA	CONDUCTEUR NOIR AVEC IMPRESSION	BLACK WIRE WITH IMPRINT	SCHWARZ ADER MIT AUFDRUCK	CONDUCTOR NEGRO CON IMPRESIÓN

A1 -APPARECCHIATURA / APPAREILLAGE / CONTROL BOX / STEURGERAT / CAJA ELECTRÓNICA
B1 -ELETTRODO IONIZZAZIONE / ELECTRODE D'IONISATION / IONISATION ELECTRODE / IONISATIONSELEKTRODE / ELETTRODO IONIZACION
F1 -RELE' TERMICO / RELAIS THERMIQUE / THERMAL RELAY / THERMISCHES RELAIS / RELÉ TÉRMICO
H1 -SPIA DI FUNZIONAMENTO / LAMPE MARCHE / OPERATION LIGHT / BETRIEBSLAMPE / LUZ INDICADORA DE FUNCIONAMIENTO
H2 -SPIA DI BLOCCO / LAMPE DE BLOCAGE / LOCK-OUT SIGNAL LAMP / BLOCKKONTROLLAMPE / LUZ INDICADORA DE BLOQUEO
K1 -CONTATTORE MOTORE VENTOLA / CONTACTEUR MOTEUR VENTILATEUR / FAN MOTOR CONTACTOR / MOTORSCHUTZ / CONTACTOR MOTOR VENTILADOR
KE -CONTATTORE ESTERNO / CONTACTEUR EXTERIEUR / EXTERNAL CONTACTOR / EXTERNESCHUTZ / CONTACTOR EXTERIOR
MV -MOTORE / MOTEUR / MOTOR / MOTOR / MOTOR
N1 -REGOLATORE ELETTRONICO / ELECTRONIC REGULATOR /
REGULATEUR ELECTRONIQUE / ELEKTRONISCHER REGLER / REGULADOR ELECTRÓNICO
R10 -POTENZIOMETRO / POTENTIMETRE / POTENTIOMETER / POTENZIOMETER /POTENZIOMETRO
PA -PRESSOSTATO ARIA / PRESSOSTAT AIR / AIR PRESSURE SWITCH / LUFT DRUCKWACHTER / PRESÓSTATO AIRE
Pm -PRESSOSTATO DI MINIMA / PRESSOSTAT MIN. / GAS MIN. PRESSURE SWITCH / MIN. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÍN
PM -PRESSOSTATO DI MASSIMA / PRESSOSTAT MAX. / GAS MAX. PRESSURE SWITCH / MAX. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÁX
S1 -INTERRUTTORE MARCIA ARRESTO / INTERRUPTEUR MARCHE ARRET / ON-OFF SWITCH / EIN AUS SCHALTER / INTERRUPTOR ENCENDIDO-APAGADO
S2 -PULSANTE SBLOCCO / BOUTON DE DEBLOCAGE / RE-SET PUSH BUTTON / ENTSPERRKNOPF / PULSADOR DE DESBLOQUEO
S4 -SELETTORE AUT-MAN / SELETEUR AUT-MAN / AUT-MAN SELECTOR / UMSCHALTER AUT HAND / CONMUTADOR AUTOMÁTICO-MANUAL
S5 -COMMUTATORE MIN-MAX / COMMUTATEUR MIN-MAX / MIN-MAX COMMUTATOR / SCHALTER MIN-MAX / CONMUTADOR MÍN-MÁX
TA -TRASFORMATORE D'ACCENSIONE GAS / TRASFORMATEUR D'ALLUMAGE GAZ /
GAS IGNITION TRASFORMER / ZUNDUNGSTRASFORMATOR GAS / TRANSFORMADOR DE GAS
TC -TERMOSTATO CALDAIA / THERMOSTAT CHAUDIERE / BOILER THERMOSTAT / KESSELTHERMOSTAT / TERMOSTATO DE LA CALDERA
TS -TERMOSTATO DI SICUREZZA / THERMOSTAT DE SURETE / SAFETY THERMOSTAT / SICHERHEITSTHERMOSTAT / TERMOSTATO DE SEGURIDAD
T2 -TERMOSTATO 2° STADIO / THERMOSTAT 2° ETAGE / 2° STAGE THERMOSTAT / THERMOSTAT 2° STUFE / TERMOSTATO 2 ETAPA
YS -ELETTROVALVOLA DI SICUREZZA / ELECTROVANNE DE SURETE / SAFETY VALVE / SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD
YSP -ELETTROVALVOLA DI SICUREZZA PILOTA / ELECTROVANNE DE SURETE RAMPE PILOTE / SAFETY ELECTROVALVE OF PILOT TRAIN /
ELEKTRISCHES SICHERHEITSVENTIL DER PILOTRAMPE / ELECTROVALVULA DE SEGURIDAD PILOTO
YPL -ELETTROVALVOLA GAS PILOTA / ELECTROVANNE PILOTE GAZ / PILOT ELECTROVALVE / ZÜNDGASVENTIL / ELECTROVÁLVULA GAS PILOTO
YP -ELETTROVALVOLA PRINCIPALE / ELECTROVANNE PRINCIPAL GAZ / MAIN ELECTROVALVE / GASHAUPTVENTIL / ELECTROVÁLVULA PRINCIPAL
X1. -MORSETTIERA BRUCIATORE / BORNES DE RACCORD / BURNER TERMINAL / ANSCHLUSSKLEMMEN / REGLETA DE BORNES DEL QUEMADOR
X5.B,X5.S-CONNETTORE MOBILE RAMPA GAS PRINCIPALE / CONNECTEUR MALE MOBILE RAMPE A GAZ PRINCIPALE /
MAIN GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MÓVIL GAS PRINCIPAL TREN
Y10 -SERVOMOTORE ARIA / SERVOMOTEUR DE L'AIR / AIR SERVOMOTOR / STELLMOTOR / SERVOMOTOR CLAPETA DEL AIRE
Z1 -FILTRO / FILTRE / FILTER / FILTER / FILTRO

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CLIMATIZZAZIONE
TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 150-200-250-300-350 DSPGN, LFL1.322/1.333
SCHEMA ELECTRIQUE BGN 150-200-250-300-350 DSPGN, LFL1.322/1.333
ELECTRIC DIAGRAM BGN 150-200-250-300-350 DSPGN, LFL1.322/1.333
SCHALTPLAN BGN 150-200-250-300-350 DSPGN, LFL1.322/1.333
ESQUEMA ELECTRICO BGN 150-200-250-300-350 DSPGN, LFL1.322/1.333

N° 00024301 54
foglio N. 2 di 2
data 09-05-00
Dis. V.B.
Visto S.M.

CLIMATIZZAZIONE
TECNOLOGIE FUTURE

SCHEMA ELETTRICO BGN 250-300-350 DSPGN CON LFL1.322/1.333
SCHEMA ELECTRIQUE BGN 250-300-350 DSPGN AVEC LFL1.322/1.333
ELECTRIC DIAGRAM FOR BGN 250-300-350 DSPGN WITH LFL1.322/1.333
SCHALTPLAN BGN 250-300-350 DSPGN MIT LFL1.322/1.333
ESQUEMA ELECTRICO BGN 250-300-350 DSPGN CON LFL1.322/1.333

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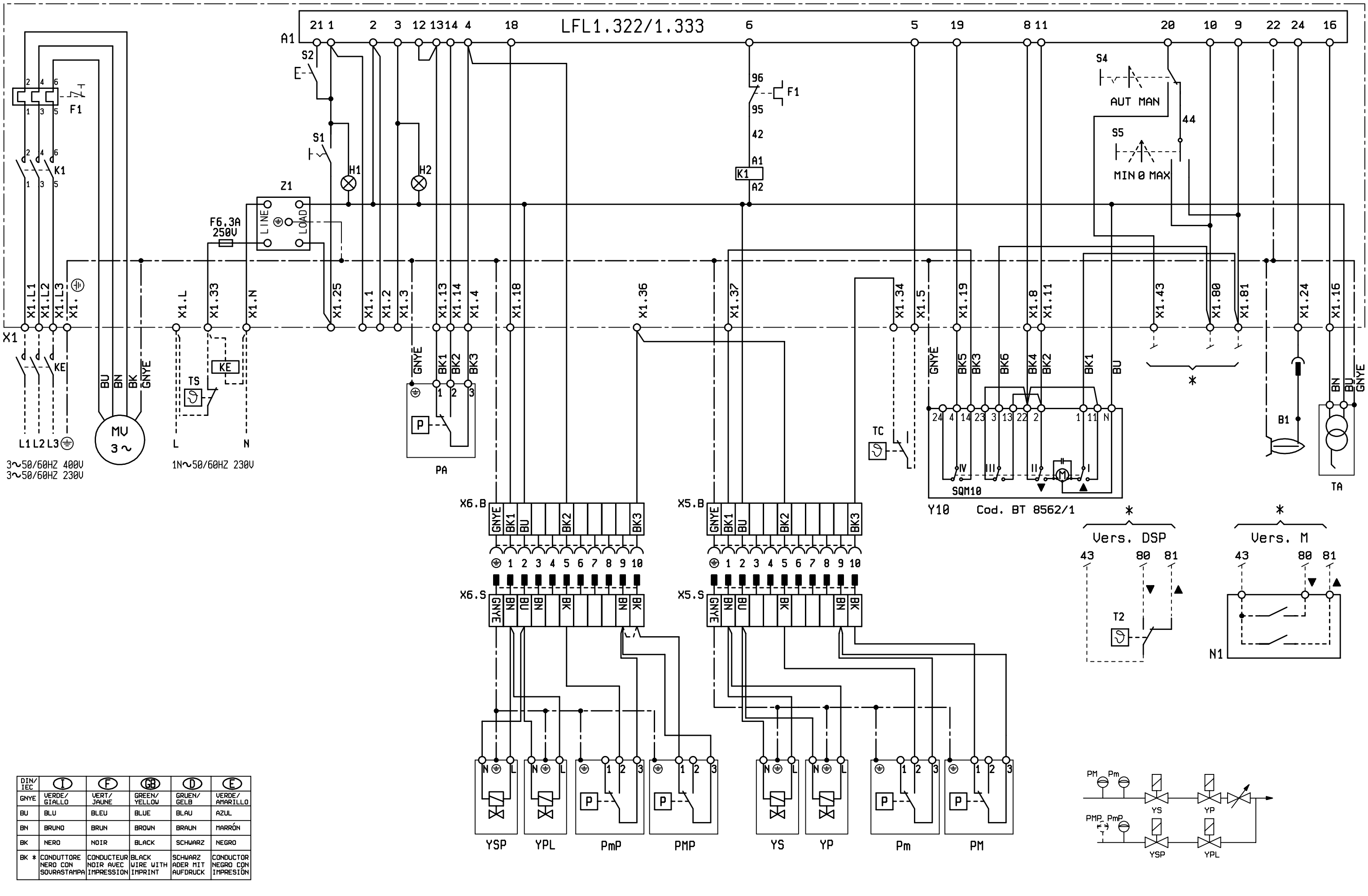
foglio N. 1 di 2
data 11-05-00
Dis. V.B.
Visto S.M.



DIN/IEC	(I)	(F)	(GB)	(D)	(E)
GNYE	VERDE/GIALLO	VERT/JAUNE	GREEN/YELLOW	GRUEN/GELB	VERDE/AMARILLO
BU	BLU	BLEU	BLUE	BLAU	AZUL
BN	BRUNO	BRUN	BROWN	BRAUN	MARRÓN
BK	NERO	NOIR	BLACK	SCHWARZ	NEGRO
BK *	CONDUTTORE NERO CON SOVRASTAMPA	CONDUCTEUR NOIR AVEC IMPRESSION	BLACK WIRE WITH IMPRINT	SCHWARZ ADER MIT AUFDRUCK	CONDUCTOR NEGRO CON IMPRESIÓN

A1 -APPARECCHIATURA / APPAREILLAGE / CONTROL BOX / STEURGERAT / CAJA ELECTRÓNICA
B1 -ELETTRODO IONIZZAZIONE / ELECTRODE D'IONISATION / IONISATION ELECTRODE / IONISATIONSELEKTRODE / ELETTRODO IONIZACION
F1 -RELE' TERMICO / RELAIS THERMIQUE / THERMAL RELAY / THERMISCHES RELAIS / RELÉ TÉRMICO
H1 -SPIA DI FUNZIONAMENTO / LAMPE MARCHE / OPERATION LIGHT / BETRIEBSLAMPE / LUZ INDICADORA DE FUNCIONAMIENTO
H2 -SPIA DI BLOCCO / LAMPE DE BLOCAGE / LOCK-OUT SIGNAL LAMP / BLOCKKONTROLLAMPE / LUZ INDICADORA DE BLOQUEO
K1 -CONTATTORE MOTORE VENTOLA / CONTACTEUR MOTEUR VENTILATEUR / FAN MOTOR CONTACTOR / MOTORSCHUTZ / CONTACTOR MOTOR VENTILADOR
KE -CONTATTORE ESTERNO / CONTACTEUR EXTERIEUR / EXTERNAL CONTACTOR / EXTERNESCHUTZ / CONTACTOR EXTERIOR
MV -MOTORE / MOTEUR / MOTOR / MOTOR / MOTOR
N1 -REGOLATORE ELETTRONICO / ELECTRONIC REGULATOR / REGULATEUR ELECTRONIQUE / ELEKTRONISCHER REGLER / REGULADOR ELECTRÓNICO
PA -PRESSOSTATO ARIA / PRESSOSTAT AIR / AIR PRESSURE SWITCH / LUFT DRUCKWACHTER / PRESÓSTATO AIRE
Pm -PRESSOSTATO DI MINIMA / PRESSOSTAT MIN. / GAS MIN. PRESSURE SWITCH / MIN. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÍN
PM -PRESSOSTATO DI MASSIMA / PRESSOSTAT MAX. / GAS MAX. PRESSURE SWITCH / MAX. GAS DRUCKWÄCHTER / PRESÓSTATO DE MÁX
PMP -PRESSOSTATO DI MASSIMA PILOTA / PRESSOSTAT DE MAX. PILOTE / PILOT MAX GAS PRESSURE SWITCH / PILOT MAX. GAS DRUCKWACHTER / PRESÓSTATO DE MÁX PILOTO
PmP -PRESSOSTATO DI MINIMA PILOTA / PRESSOSTAT DE MIN. PILOTE / PILOT MIN GAS PRESSURE SWITCH / PILOT MIN. GAS DRUCKWACHTER / PRESÓSTATO DE MÍN PILOTO
S1 -INTERRUTTORE MARCIA ARRESTO / INTERRUPTEUR MARCHE ARRET / ON-OFF SWITCH / EIN AUS SCHALTER / INTERRUPTOR ENCENDIDO-APAGADO
S2 -PULSANTE SBLOCCO / BOUTON DE DEBLOCAGE / RE-SET PUSH BUTTON / ENTSPERRKNOPF / PULSADOR DE DESBLOQUEO
S4 -SELETTORE AUT-MAN / SELETEUR AUT-MAN / AUT-MAN SELECTOR / UMSCHALTER AUT HAND / CONMUTADOR AUTOMÁTICO-MANUAL
S5 -COMMUTATORE MIN-MAX / COMMUTATEUR MIN-MAX / MIN-MAX COMMUTATOR / SCHALTER MIN-MAX / CONMUTADOR MÍN-MÁX
T2 -TERMOSTATO 2° STADIO / THERMOSTAT 2° ETAGE / 2° STAGE THERMOSTAT / THERMOSTAT 2° STUFE / TERMOSTATO 2 ETAPA
TA -TRASFORMATORE D'ACCENSIONE GAS / TRASFORMATEUR D'ALLUMAGE GAZ / GAS IGNITION TRASFORMER / ZUNDUNGSTRASFORMATOR GAS / TRANSFORMADOR DE GAS
TC -TERMOSTATO CALDAIA / THERMOSTAT CHAUDIERE / BOILER THERMOSTAT / KESSELTHERMOSTAT / TERMOSTATO DE LA CALDERA
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X5.B,X5.S-CONNETTORE MOBILE RAMPA GAS PRINCIPALE / CONNECTEUR MALE MOBILE RAMPE A GAZ PRINCIPALE / MAIN GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MÓVIL GAS PRINCIPAL TREN
X6.B,X6.S-CONNETTORE MOBILE RAMPA GAS PILOTA / CONNECTEUR MALE MOBILE RAMPE A GAZ PILOTA PILOT GAS TRAIN FLOATING PLUG / STECKERTEIL FLIEGEND GASRAMPE / CONECTOR MOVIL GAS PILOTO TREN
Y10 -SERVOMOTORE ARIA / SERVOMOTEUR DE L'AIR / AIR SERVOMOTOR / STELLMOTOR / SERVOMOTOR CLAPETA DEL AIRE
YP -ELETTROVALVOLA PRINCIPALE / ELECTROVANNE PRINCIPAL GAZ / MAIN ELECTROVALVE / GASHAUPTVENTIL / ELECTROVÁLVULA PRINCIPAL
YPL -ELETTROVALVOLA GAS PILOTA / ELECTROVANNE PILOTE GAZ / PILOT ELECTROVALVE / ZÜNDGASVENTIL / ELECTROVÁLVULA GAS PILOTO
YS -ELETTROVALVOLA DI SICUREZZA / ELECTROVANNE DE SURETE / SAFETY VALVE / SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD
YSP -ELETTROVALVOLA SICUREZZA PILOTA / ELECTROVANNE SECURITE PILOTE / PILOT SAFETY VALVE / PILOT SICHERHEITSVENTIL / ELECTROVÁLVULA DE SEGURIDAD PILOTO
Z1 -FILTRO / FILTRE / FILTER / FILTER / FILTRO

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TECNOLOGIE FUTURE

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ESQUEMA ELECTRICO BGN 250-300-350 DSPGN CON LFL1.322/1.333

N° 00024301163
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