شرکت فولاد امیرکبیر کاشان

اسناد مناقصه خرید مشعل COMTHERM

بهمراه متعلقات مربوطه

شرکت فولاد امیرکبیر کاشان
KASHAN AMIR KABIR STEEL CO.
شماره ملی : ۰۱۰۲۶۰۲۰۶۱۳۰ شماره ثبت : ۱۹۷۱

بسمه تعالی

کلیات و شرایط شرکت در مناقصه عمومی(دو مرحله‌ای)

شرکت فولاد امیرکبیر کاشان در نظر دارد تا از طریق برگزاری مناقصه عمومی دو مرحله ای نسبت به " خرید مشعل comtherm بهمراه متعلقات مربوطه" شرکت فولاد امیرکبیر کاشان واقع در کاشان ، کیلومتر ۱۴ جاده اردستان اقدام نماید.

موضوع مناقصه:

عبارت است از مناقصه عمومی خرید مشعل comtherm بهمراه متعلقات مربوطه شرکت فولاد امیرکبیر به شرح مشخصات پیوست

چگونگی ارائه پیشنهادات:

متقاضیان باید پیشنهادات خود را در سه پاکت جداگانه دربسته و مهر و امضاء شده که هر سه پاکت دیگری لاک و مهر شده باشد به شرح ذیل ارائه نمایند :

۱- پاکت الف (سپرده شرکت در مناقصه)

سپرده شرکت در مناقصه به مبلغ ۵٪ مبلغ کل برآورد پیمانکار بصورت ضمانت نامه بی قید و شرط بانکی با اعتبار حداقل سه ماه و قابل تمدید در وجه شرکت فولاد امیر کبیر کاشان .

۲- پاکت ب (اسناد مناقصه ، رزومه و مدارک فنی با مهر و امضا پیشنهاد دهنده

- تمامی صفحات اسناد مناقصه و نقشه ها با مهر و امضاء

پاکت (ج) :فرم پیشنهاد قیمت طبق جدول پیوست شماره دو

۳- پیشنهاد قیمت باید از هر حیث مشخص و بدون ابهام و با لحاظ کسورات قانونی و مالیات بر ارزش افزوده به عهده فروشنده و بدون قید و شرط باشد.

توجه: روی تمام پاکتها ذکر عبارت " مناقصه عمومی خرید مشعل comtherm بهمراه متعلقات مربوطه شرکت فولاد امیرکبیر کاشان " صراحتاً قید شده باشد و نیز ذکر شناسه پاکت (الف-ب - ج) ضروری است.

ماده ۱ : شرایط مناقصه :

۱- در صورتی که کمتر از ۳ شرکت کننده در مناقصه شرکت نمایند کارفرما اختیاردارد نسبت به تجدید مناقصه اقدام نماید.

۲- کارفرما در قبول یا رد یک یا کلیه پیشنهادات مختار است.

۳- کارفرما سپرده شرکت در مناقصه برنده و همچنین مناقصه‌گر حائز رتبه دوم مناقصه را تا زمان عقد قرارداد با برنده نگهداری خواهد نمود و در صورت انصراف برنده، در صورت تایید کارفرما ، معامله با مناقصه‌گر حائز رتبه دوم انجام خواهد شد.

۴- کارفرما سپرده شرکت در مناقصه برنده و مناقصه‌گر حائز رتبه دوم مناقصه را در صورتیکه حاضر به انجام معامله براساس پیشنهاد خود نشوند ضبط می نماید.

۵- شرکت در مناقصه و ارسال پاکات هیچ حقی برای مناقصه گر ایجاد نمی کند .

۶- شرکت در مناقصه به منزله پذیرش کلیه اختیارات، صلاحیت ها و تصمیمات دستگاه مناقصه گذار است.

۷- مواد و اصالت مواد توسط تامین کننده تضمین گردد .

۸- مرجع تایید کالای موضوع مناقصه ، واحد فنی شرکت فولاد امیرکبیر کاشان خواهد بود و هیچ مرجع ثالثی پذیرفته نخواهد شد .

۹- مدت اعتبار پیشنهاد حداقل ۲ هفته پس از پایان مهلت مناقصه باشد .

۱۰-مشعل Comtherm:RSP150 بهمراه کلیه متغلقات مربوطه اعم از تابلو و ... می باشد که طبق اسناد پیوست باید بطور کامل تامین گردد.

۱۱-کالای جایگزین ، کارکرده ، چینی ، غیر اورجینال ، تعمیری مورد تایید نیست و تنها مرجع تایید یا عدم تایید کالا ، واحد فنی شرکت فولاد امیرکبیر کاشان می باشد .

۱۲-هیچگونه تعدیل به مبالغ پیشنهادی تعلق نمی گیرد.

ماده ۲ : نحوه پرداخت :

۵۰ ٪ پیش پرداخت در قبال ضمانت نامه بانکی ، ۵۰٪ درصد مابقی پس از تخلیه و تحویل در انبار شرکت فولاد امیر کبیر کاشان با تایید دستگاه نظارت کارفرما انجام خواهد شد .

ماده ۵ : تعهدات کارفرما:

پرداخت به موقع صورت حساب پیمانکار مطابق با شرایط موافقت نامه

ماده ۶ : نحوه و زمان ارسال پاکات :

۱. شماره تلفنهای ۷-۵۵۵۰۳۸۴۱ -۰۳۱ داخلی ۳۶۵ واحد بازرگانی و ۲۷۰ واحد بهره برداری برای هرگونه سوالات و نمابر ۰۳۱-۵۵۵۰۳۸۶۵ آماده پاسخگویی میباشد.

۲. کارفرما در روزهای پنج شنبه و جمعه تعطیل بوده و از پذیرش پاکتها معذور است.

۳. **مهلت ارسال پیشنهادات حداکثر تا ساعت ۱۶ مورخ ۱۴۰۵/۰۳/۱۷ می باشد.**

۴. تذکر: کارفرما به پیشنهاداتی که بعد از مهلت مقرر در فوق، ارائه و یا از طریق پست ارسال شده باشد به هیچ وجه ترتیب اثر نخواهد داد .

۵. **محل تحویل پیشنهادات دبیرخانه شرکت فولاد امیر کبیر کاشان میباشد .**

تذکر : چنانچه پاکات پیشنهاد قیمت سهوا یا عمدا و بهر دلیل به غیر از آدرس مندرج در این بند ارسال و تسلیم گردد پیشنهادات مذکور تحویل نشده تلقی خواهد شد و هیچگونه مسئولیتی در این خصوص متوجه دستگاه مناقصه گزار نخواهد بود.

۶. شرکت کنندگان در مناقصه می توانند، جهت دریافت پاسخ سوالات احتمالی خود (در ارتباط با مسایل فنی – اجرائی) و یا کسب اطلاعات بیشتر از شرایط اجرای کار، حداکثر ظرف مدت یک هفته پس از دریافت اسناد مناقصه (به جزء پنجشنبه و ایام تعطیل) با شماره تماس و فاکس مندرج در بند ۱ مکاتبه نمایند .

۷. مسئولیت عملکرد کامل تجهیزات بعهده پیمانکار بوده و پیشنهاد دهندگان میبایست کلیه تجهیزات لازم جهت عملکرد کامل و صحیح تجهیز را حتی اگر در لیست تجهیزات و اسناد مناقصه آورده نشده است در پیشنهاد خود لحاظ نمایند . به هر حال هیچگونه هزینه ای از این بابت به پیمانکار پرداخت نخواهد شد .

۸. اینجانب/اینجانبان ..... دارنده/دارندگانامضای مجاز شرکت ..... ثبت شده به شماره ..... که دارای سمت ..... می باشم/می باشیم حق امضاء اسناد تعهدآور را دارا بوده و شرایط شرکت در مناقصه و پیوست آن را به دقت مطالعه نموده و از کم و کیف معامله و تمامی جزئیات آن اگاهی پیدا نموده و عالماً و عاملاً در مناقصه شرکت می نمایم / می نمائیم.

آدرس :

تلفن :

کدپستی :

تاریخ ..... امضاء صاحبان امضای مجاز و مهر شرکت

صاحبان امضاء مجاز براساس روزنامه رسمی			
ردیف	نام و نام خانوادگی	سمت	نمونه امضاء

شرکت فولاد امیرکبیر کاشان
KASHAN AMIR KABIR STEEL CO.
شماره ملی : ۰۱۰۲۶۰۲۰۶۱۳۰ شماره ثبت : ۱۹۷۱

پیوست یک

دیتاشیت و مشخصات فنی

دفتر تهران: خیابان ولیعصر، مقابل پارک ملت، خیابان سایه، خیابان مهرشاد، پلاک۵ (ساختمان صداقت) طبقه۳ کدپستی: ۱۹۶۷۷۱۳۶۵۹ www.amirkabirsteelco.ir
تلفن: ۲۲۶۵۸۳۵۱-۲۲۰۵۱۲۵۷-۰۲۱ فاکس: ۲۲۰۵۱۳۵۱-۰۲۱
کارخانه: کاشان، کیلومتر ۱٤ جاده اردستان، صندوق پستی ۱۵۳٤ تلفن: ۷-۵۵۵۰۳۸۴۱-۰۳۱ فاکس: ۵۵۵۰۳۸۴۸-۰۳۱ E-mail:info@amirkabirsteelco.ir

C12624

GTS CONTROLS

INSTALLATION, COMMISSIONING AND MAINTENANCE MANUAL

Comtherm Limited

RSP burner Instruction Manual

M1	General Specification
M2	General Description
M3	General Layout
M4	Control Valve System
M5	Electrical System
M6 ~ 1,2,3	Installation Notes
M7~1,2,3	Initial light up (Commissioning guidance)
M8~1,2,3,4,5,6	Fault Finding Guide
M9~1,2	Parts List (key)
M9~3	Parts Specification
-	Service schedule and record
-	Commissioning record
-	Nozzle flow chart

General Specification Sheet

Customer:	**GTS Controls**	**Customer O/No.**	**PO-59**
Fuel	**Natural gas**	**Fuel Pressure at Burner Gas Valve Inlet**	**Max = 300 mbar**
			Min = 20 mbar
Electrical Supply (Motors)	**415/3/50**	**Electrical Supply (Control Circuit)**	**230/1/50**

BURNER DATA

Serial Number	Burner Type	kW Rating	Electrical Diagram (M5)	Gas Valve System (M4)	General Layout (M3)
C12624-1	150RSP	465kW	M5-C12624-01	M4-C12624-01	

This manual is provided for the use of people who are competent to work on the equipment supplied. It therefore assumes that the user has a basic understanding of the machine. It cannot cover every eventuality. As part of this manual component data sheets are provided, these offer additional information and should be considered when working on the apparatus.

General Specification

The 'RSP' series of gas burners are pre-packaged fan assisted units designed to suit virtually all types of low temperature gas fired application; typical applications include the firing of industrial ovens and dryers.

The RSP burner range is manufactured with inner gas manifold designed to operate with a differential head pressure of approximately 10mbar on high fire to achieve design rating; this figure will vary slightly depending on type of fuel supply and actual required output rating of the specific burner, see enclosed nozzle flow chart for more details.

The RSP can be fitted into process air ducts having air velocities of 5 to 25m/sec. (recommended = 7.5m/sec) - Air flow should be uniform across the air duct, both upstream and downstream of the burner.

The burners can be installed in a process plant recirculation system where it is not possible to construct a combustion chamber and install a conventional type of burner assembly.

The 'RSP' burners consist of an 'in-line PH' type combustion head mounted on a side plate so as to fire parallel to the side plate in the direction of air flow.

All the air required for combustion is supplied by a combustion air fan mounted on the outside of the side plate - air is passed to the burner head via an integral air duct.

Process air temperatures up to 400C can be accepted upstream of the burner - downstream temperatures should be limited to 700C

A heat resistant viewing window and small access plate is fitted into the side plate and allows visual inspection of the flame during operation.

The nozzle mix design of the burner and the progressive air mixing feature of the combustion head ensure that burners can operate with high turn down capability; turndown ratios up to 40:1 are possible depending on burner applications and selection.

SPECIAL APPLICATIONS

The standard range of RSP burners are designed to be installed on the suction (negative) side of the oven/dryer process air fan.

Burners can be supplied fitted with higher pressure combustion air fans so that burners can be installed on the pressure side of the process air fan..

Burners supplied for installation into positive chamber/duct pressures are fitted with a three way solenoid valve system designed to ensure correct supervision of the combustion air fan pressure switch.

General Description

The burner consists of a gas manifold assembly having fuel and air jets designed to produce effective mixing of the fuel and combustion air hence providing good flame stability.

The manifold assembly is fitted with integral ignition and flame sensor facilities.

The unit comes complete with all the valves and controls required; forming a fully packed, safe burner assembly.

The valves and controls are pre-piped and mounted on the burner side plate, as illustrated diagrammatically on page M4. Pressure test points are fitted between valves where necessary.

The physical arrangement of the burner is shown in diagram form on page M3 (where applicable).

All the electrical equipment on the unit is pre-wired to a terminal enclosure on the assembly, as detailed in the burner wiring diagram M5.

The electrical operation of the burner is as follows:

When the electrical supply is switched on to the burner and all the control circuits are closed, the burner light up sequence is initiated.

The burner flame safety sequence control unit (unit A1) receives the electrical start signal and begins to cycle through an air pre-purge and light up sequence.

The air pre-purge is for a specified, preset time and allows for dilution of any fuel leakage; to safeguard against the possibility of explosive fuel/air mixture being present in the burner duct when the ignition is energized.

After the completion of the pre-purge, the ignition and flame proving period take place.

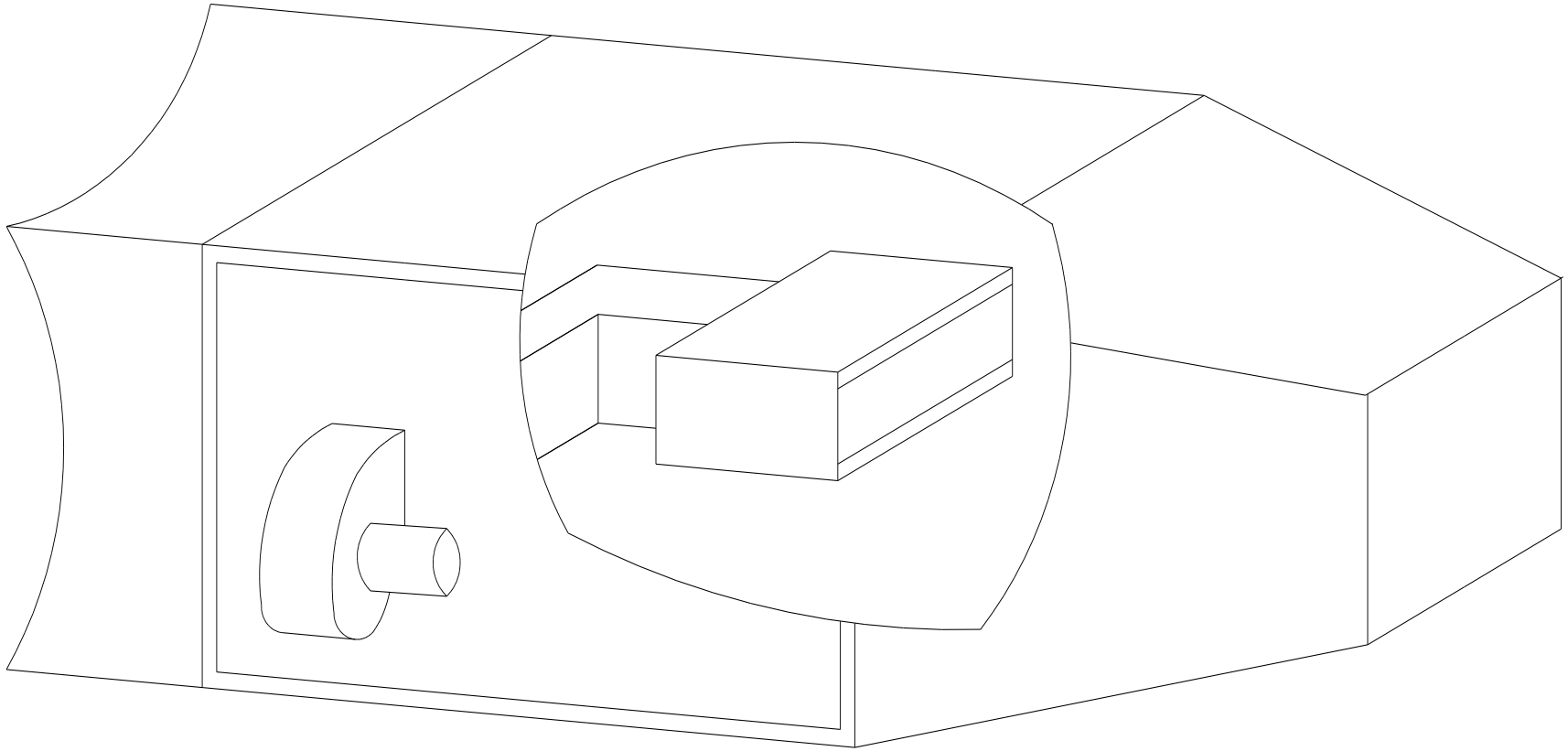
When the flame signal is proven, the burner sequence control remains in the operating position until any of the control circuit interlocks are broken or a flame failure (lockout) condition occurs.

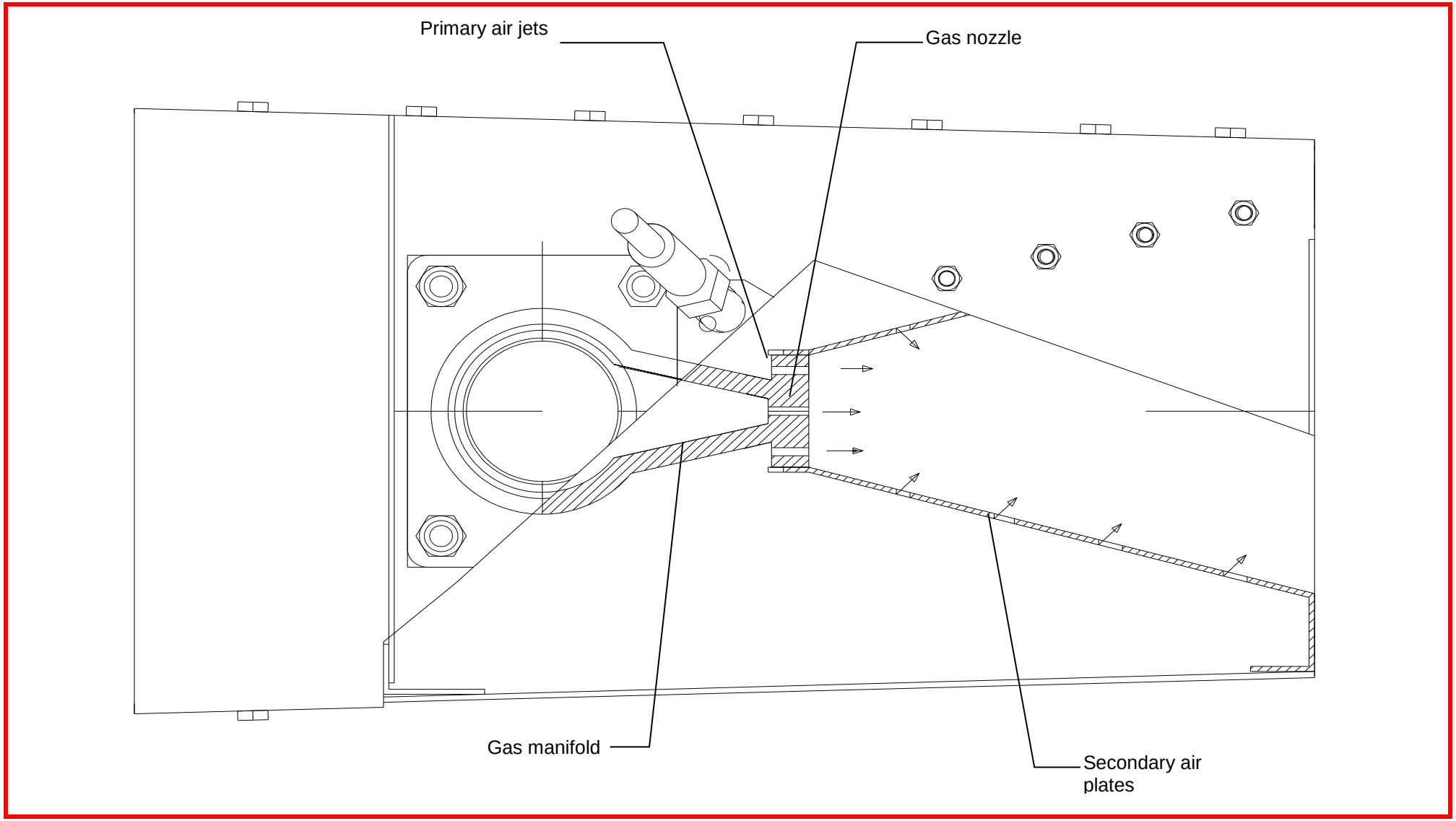
Complete details of the burner light-up sequence including the flame safety control unit (item A1) will be found in the component data sheet, enclosed.

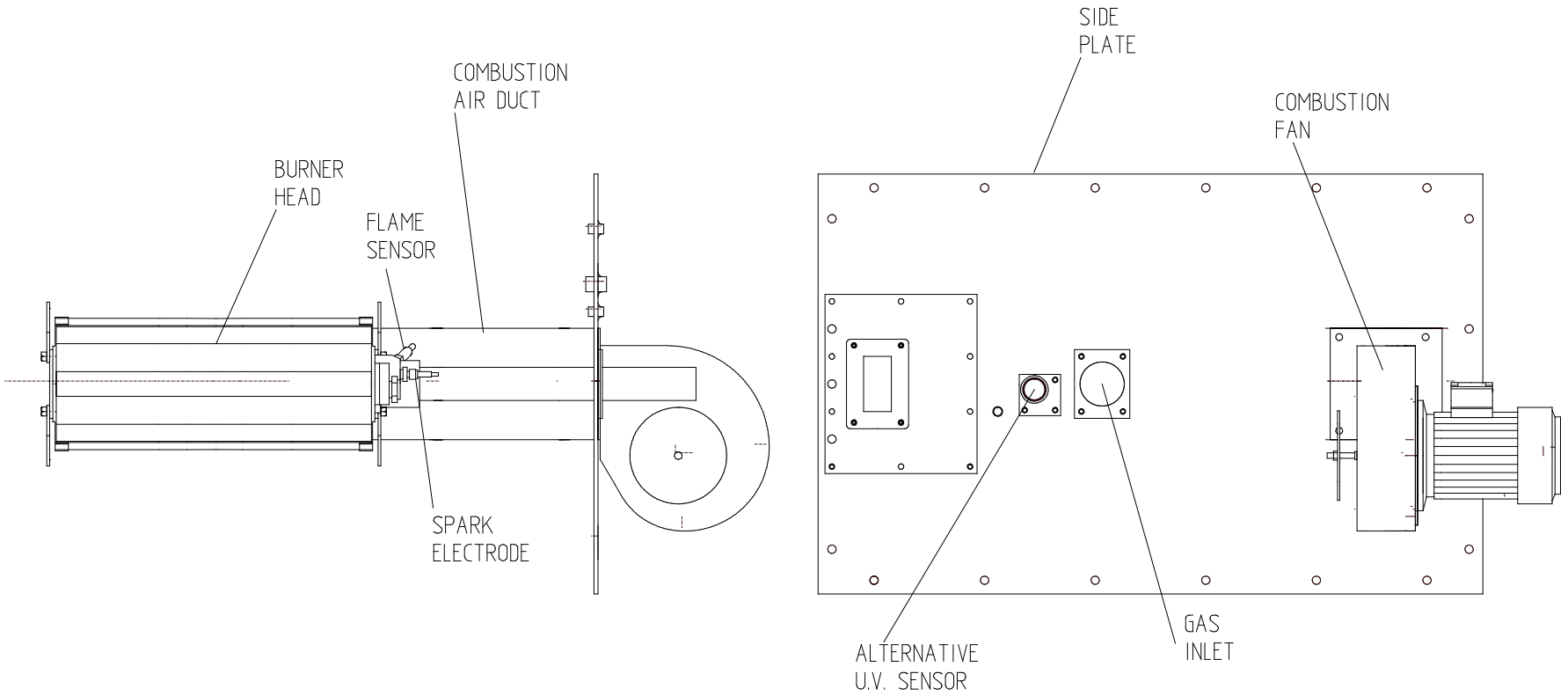
For details on installation and commissioning, refer to page M6-1-2-3.

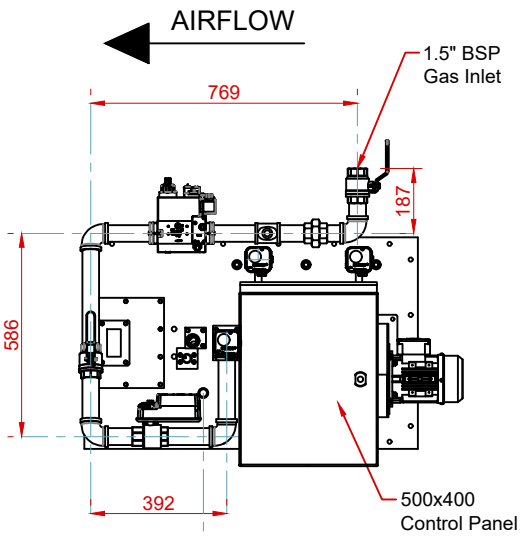
NOTE: -
Refer to M9-1 and M9-2 for key to items referred to throughout this manual.
Refer to M9-3 for specific component manufacturers used on this equipment.

RSP burner mounted in a section of process air duct.

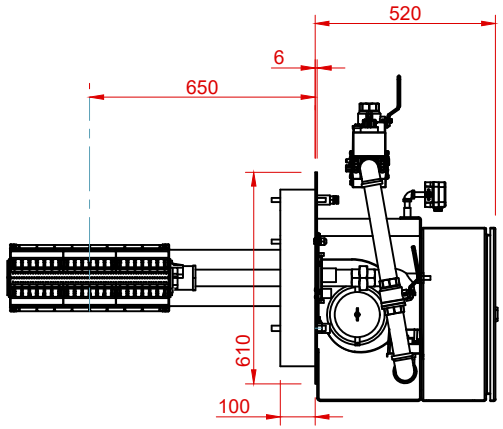



Primary air jets
Gas nozzle
Gas manifold
Secondary air plates


COMBUSTION
AIR DUCT
BURNER
HEAD
FLAME
SENSOR
SPARK
ELECTRODE
SIDE
PLATE
COMBUSTION
FAN
ALTERNATIVE
U.V. SENSOR
GAS
INLET

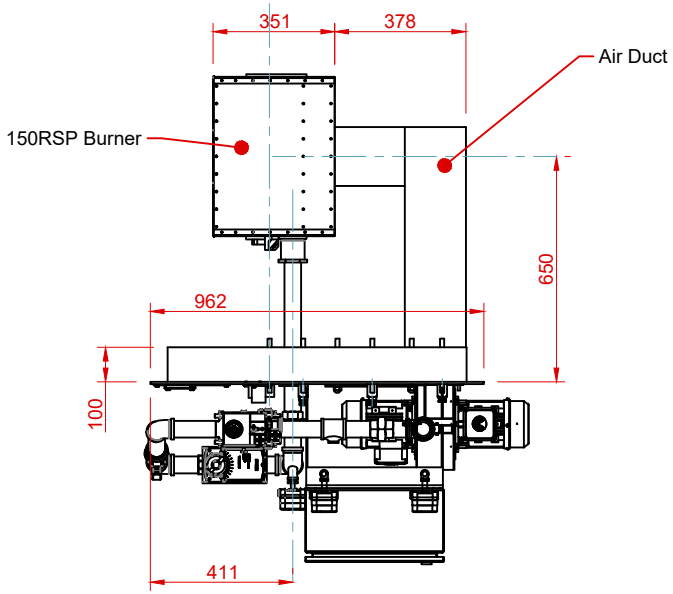


FRONT VIEW

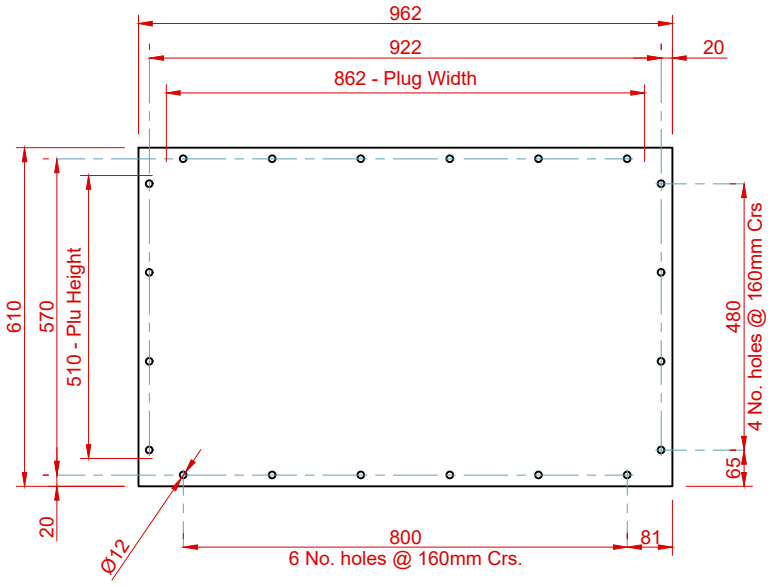


SIDE VIEW

APPROXIMATE WEIGHT - 205Kg



PLAN VIEW



MOUNTING DETAILS
SCALE 1:10

Comtherm Ltd

MATERIAL SPECIFICATION

NOTES ON FINISH

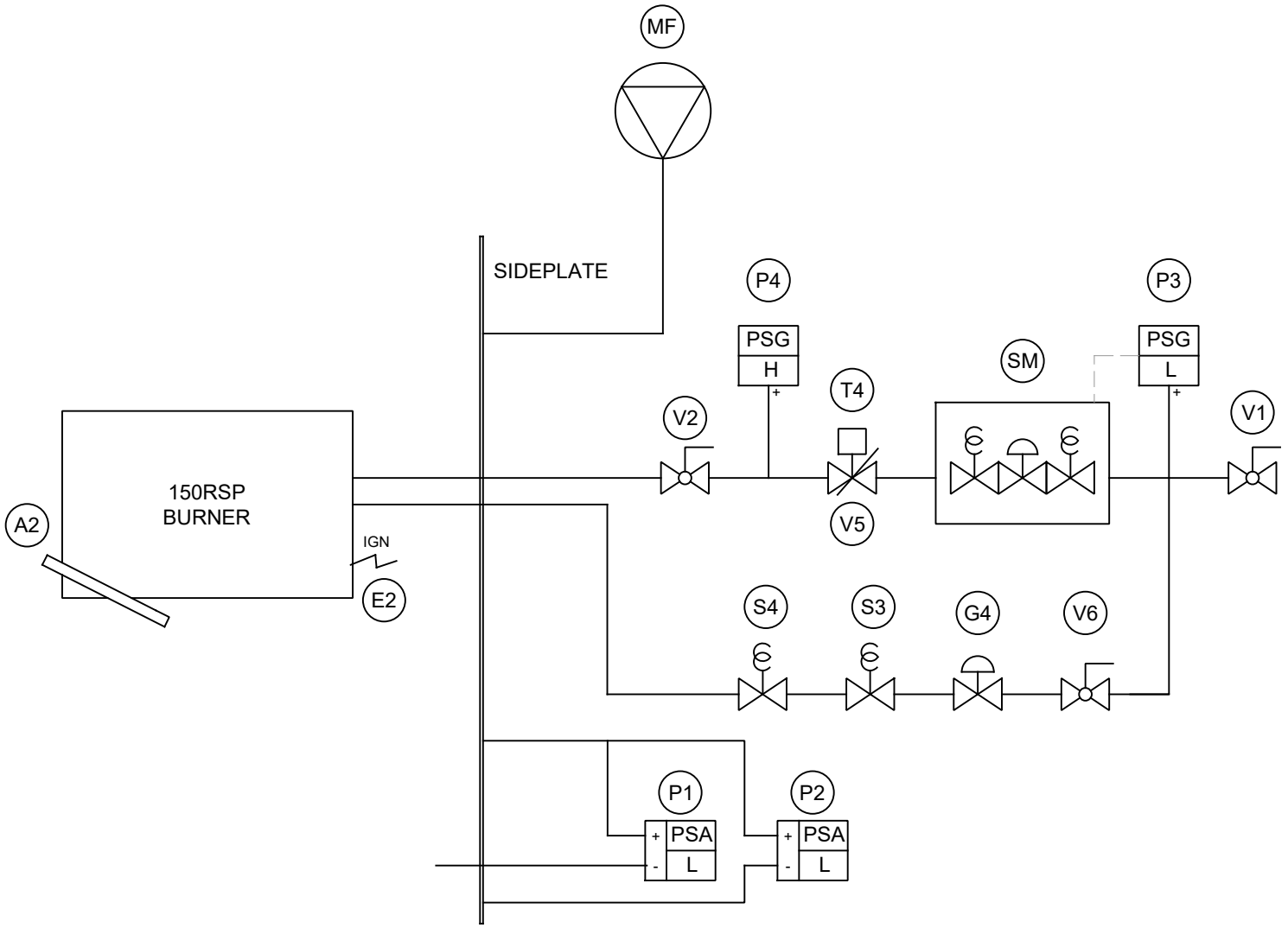
FIRST ANGLE PROJECTION

DESCRIPTION

RSP150 BURNER ARRANGEMENT FIRING RIGHT TO LEFT

DRAWN BY	S.DONNELLY		
CHECKED BY	S.WILLIAMS		
CONTRACT No.	C12624		
DATE	22.06.22	REVISION	C
DRAWING SIZE	A3	DRAWING SCALE	1:16

M3-C12624-01



COMPONENT KEY	
I.D	**DESCRIPTION**
V1	Manual Isolating Valve
P3	Low Gas Pressure Swtich
SM	Multibloc Valve
T4	Air Control Actuator
V5	Gas Control Valve
P4	High Gas Pressure Switch
V2	Manual Isolating Valve
V6	Pilot Manual Isolating Valve
G4	Pilot Gas Pressure Regulator
S3/S4	Pilot Gas Solenoid Valve
MF	Combustion Air Fan
P1	Combustion Air Pressure Switch
P2	Process Air Pressure Switch
E2	Ignition Plug
A2	Flame Sensing Electrode

Comtherm Ltd

MATERIAL SPECIFICATION
-

NOTES ON FINISH
-

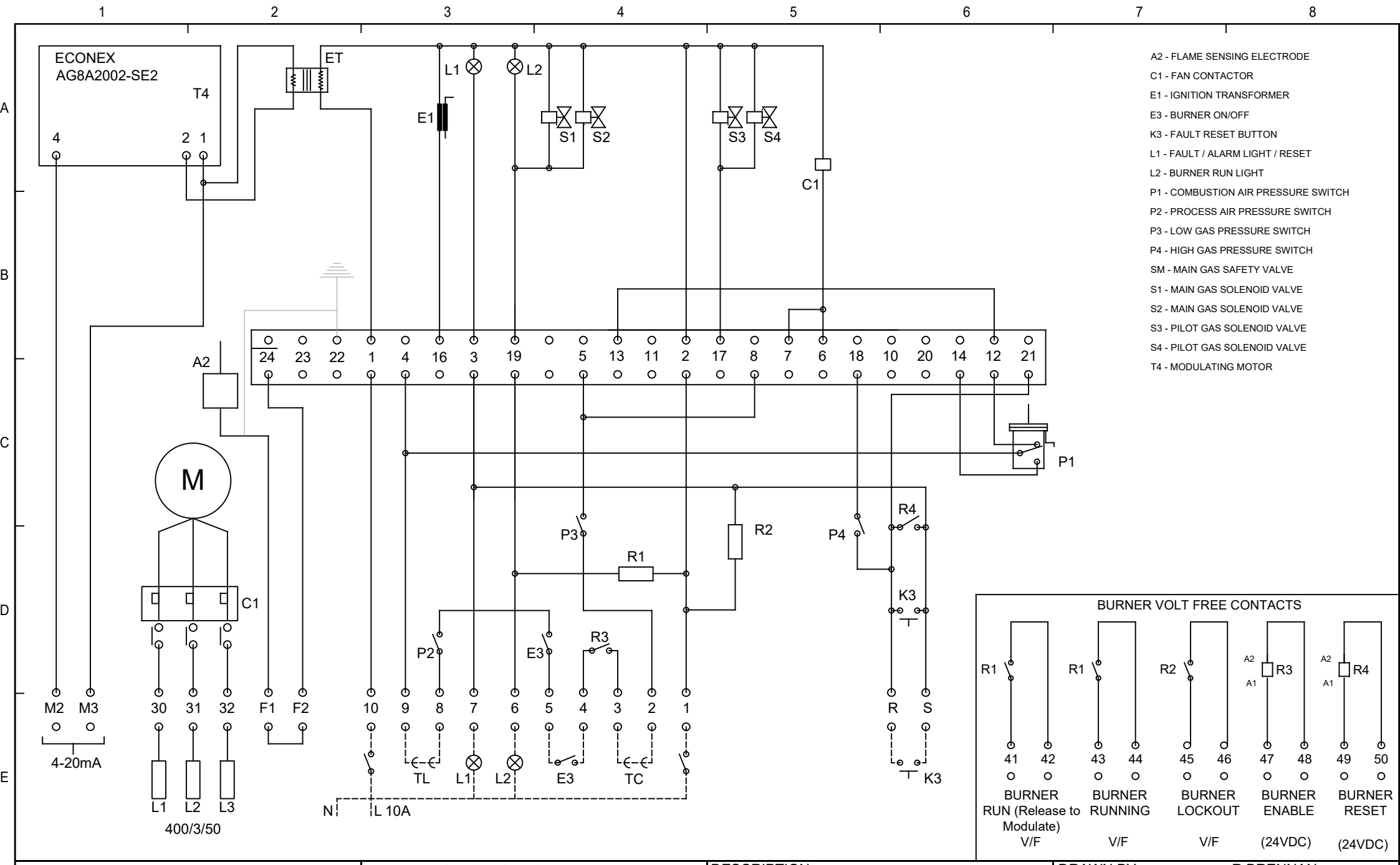
FIRST ANGLE PROJECTION

DESCRIPTION

GTS
150RSP BURNER - P & I.D

DRAWN BY		O.HOOPER	
CHECKED BY		C. GANDY	
CONTRACT No.		C12624	
DATE	04.05.2022	REVISION	-
DRAWING SIZE	A3	DRAWING SCALE	1:10

M4-C12624-01



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MATERIAL SPECIFICATION -	DESCRIPTION PANEL WIRING DIAGRAM
NOTES ON FINISH -	
FIRST ANGLE PROJECTION	

DRAWN BY	R.BRENNAN		
CHECKED BY	R.BRENNAN		
CONTRACT No.	C12624		
DATE	21.06.22	REVISION	A
DRAWING SIZE	A3	DRAWING SCALE	NTS

M5-C12624-01

Installation

Before proceeding with the installation of the burner, inspect the burner for any physical damage that may have occurred during transit, storage or off-loading. Any damage should be reported immediately.

The pipe work or gas valves on the burner should not be used for lifting under any circumstances, as this tends to pull fittings loose or damage valves, causing leaks during later operation.

Mount the burner in the firing position, making sure that adequate space is allowed around the burner for ventilation and that the combustion air inlet is not blocked. Ensure that an adequate fresh air supply is available for combustion and general ventilation.

Situations where gas from valve and pipe work leaks can collect and form pockets of combustible gas/air must be avoided.

Ensure that adequate space is allowed around the burner for easy access to all burner components, pressure switches, control operators etc.

The burner should be securely fixed and the transmission of vibration and heat should be minimised.

GAS SUPPLY:

Gas piping to the burner should be of sufficient size to provide the correct gas pressure at the burner valve assembly inlet (see specification on page M1).

If in any doubt concerning the size and design of the gas supply pipe work, consult the gas supply company.

The pressure loss in the gas supply pipe work should be such that the following pipeline velocities are not exceeded:

Unfiltered supply 20M/s (65.6ft.sec)

Filtered supply (250microns) 45M/s (148ft.sec)

The above stated velocities are based on the avoidance of excessive noise pollution and erosion.

For low-pressure supplies up to 25 mbar (10 w.c), the pressure drop between the meter and the burner inlet should normally not exceed 1mbar (0.4 w.c).

For high-pressure supplies, this pressure drop should not exceed 10% of the available gas pressure.

Installation (continued.)

A manual shut off valve followed by a union or flanged joint should be incorporated in the Gas supply pipe adjacent to the burner, this valve permits isolation of the supply and removal of the burner assembly for maintenance purposes.

The manual shut off valve should be easily accessible.

Do not use the burner valve assembly to support the gas supply pipe work. Suitable brackets or hangers should be used for this purpose.

Before connecting the gas supply check that the available gas pressure is correct (see specification on page M1).

Check that the gas supply system has been designed and installed to ensure that during fault conditions, pressures in excess of the maximum design rating of the equipment can not be reached.

If the burner is installed in a confined space consideration should be taken for the fitting of a vent pipe to the breather holes of governors.

Vents from governors must not be manifolded and should terminate in a safe place, preferably above roof level.

Any additional vent pipes that are required will be shown on page M4.

The gas supply pipe will be full of air and will require purging.

This purging should only be carried out by a suitably qualified gas engineer.

With regard to the soundness (leak) testing and purging of the supply pipe work ensure that a certificate exists stating that this work has been completed in accordance with technical publications EN 746-2.

After completion of the installation work, the procedure for testing for gas leaks on the burner detailed in the manual section M7-1, should be completed and any leaks repaired.

The burner should be left with the manual shut off valve (item V1) in the closed position until the plant is commissioned by a suitably qualified gas engineer.

Installation (continued.)

ELECTRICAL SUPPLY:

Burners can be supplied to suit almost all types of electrical power supply; including all common industrial three phase (50 or 60Hz) power supplies and with 110/120v or 220/240v control circuits. Burners to suit other electrical supply voltages can be supplied specially to suit specific application requirements.

All wiring on the burner should comply with the requirements of the local electrical codes of practice.

All conduits should be kept clear of heat zones.

Local means of electrical isolation should be installed close to the burner.

Ensure that the electrical voltage does not vary from the specified by more than 6%.

High temperature wire (tri-rated or better) should be used for all electrical connections.

The electrical connections to the burner shown on diagram M5-*** should be strictly adhered to.

Gas pipe work should not be used as an electrical earth.

Initial light up (Commissioning)

Please note: Without exception, burners should only be commissioned by suitably qualified personnel.
The following notes are intended as guidance and in no way negate the need for the equipment to be commissioned by suitably qualified personnel.

1. Examine the burner for physical damage.

2. Close all manual fuel valves.

3. Check that the electrical supply is switched off.

4. Check all electrical connections to ensure that the combustion air pressure switch (item P1) and the safety shut off valve (item S1**) are wired to the correct terminals in the burner safety control unit (see electrical diagram M5)

5. Check the incoming gas pressure (at V1) and verify that the inlet gas pressure is as specified (see page M1).Generally speaking, the inlet gas pressure, without the burner operating, will be somewhat higher than when the burner is in operation.

6. Ensure that the burner on/off switch is in the `off' position.

7. Switch the electrical supply on.

8. Check for gas leaks on the burner as follows:

   (a) Close the manual valve V1 and pilot manual valve V6.

   (b) Vent burner pipe work downstream of V1 by opening a suitably positioned test nipple.

   (c) Use a manometer test pressure downstream of V1 for 1.5 minutes. If no pressure builds up, valve V1 is not leaking.

   (d) Open valve V1.

   (e) Check for external leakage using a soap solution or gas detector on pipe work and valves, rectifying any leaks before proceeding.

   (f) Put temporary electrical supply onto valve S1.This will pressurise the space between S1 and S2. Open the test point downstream of S2 and connect the manometer (valve V2 must be closed); if no pressure builds up within 1.5 minutes then valve S2 is sound.

Initial light up (Commissioning).continued

(g) Disconnect the electrical supply to valve S1 and vent the space between valve S1 and S2, using the pressure test nipple. Using the manometer, check that no pressure builds up between the two valves; if no pressure is detected then valve S1 is sound

(h) Open pilot manual valve V6 and check by using the test nipple downstream of V1 that there is no pressure drop at this point. If no pressure drop is detected in 1.5 minutes then valve S3 is not leaking.

(i) Finally, check downstream of V2 and V3 with soap solution or gas detector (with burner running).

In cases where burners are fitted with main multi-block / combination safety valve units, the above procedure will vary; the valve should be energized to check for downstream pipe leakages and de-energised followed by venting of downstream pipe space to check for valve seat leakages.

9. Release the spring pressure on the gas governor (item G2).

10. Set the combustion air pressure switch (item P1) 25% below the specified air pressure required.

11. Start the fan supplying the combustion air and ensure that the fan rotation direction is correct.
Check the running current of the motor and crosscheck this with the data on the Motor label. Ensure that the motor overload protection is correctly set.

12. Ensure that valves V2 and V6 are closed.

13. Check that all pressure switches associated with the burner are in the correct position, Note that the burner combustion air pressure switch (item P1) should be in the ‘no air’ position and should only switch over after the combustion air fan has started

14. Check that all pressure switches associated with the burner are in the `on’ position calling for heat’ and switch the burner on. It may be necessary to reset the burner lockout fault button.

15. Allow the flame safety control unit (item A1) to cycle through the start up sequence; check that the pressure switch (P1) has changed over from the `no air’ to the air proved position. If it hasn’t, adjust the combustion air supply so as to provide satisfactory burner air pressure. Check that the ignition and pilot solenoid valves are electrically energised at the correct time and in the correct sequence. The burner flame safety control unit should then lockout.

16. Open the manual pilot valve (item V6)

17. Fit Micro-ammeter into circuit with the flame sensor.

Initial light up (Commissioning).continued.

18. Reset the burner lockout button; the burner will cycle and the pilot flame should light. It maybe necessary to start the light up sequence (reset) several times so as to remove air from the pilot line and to adjust the pilot flame to the correct size. Check the pilot flame signal on the micro-ammeter.

19. Note that the burner will go to lockout after each attempt to light the pilot.

20. Half open the manual test valve (item V2). Reset the burner lockout button. The burner should cycle and light up onto the main flame.

21. Slowly open up the manual test valve (item V2) to the full position and adjust the main gas governor (item G2) to produce the required flame size. With the burner on full fire (temperature control calling heat) check that the gas pressure at the nozzle is as specified for the required thermal/fuel rating, this will be indicated on the burner data label and can also be established from the nozzle flow graph included with this manual.

22. Check the main flame signal on the micro-ammeter.

23. Turn the combustion air pressure switch (item P1) upwards so that the burner shuts down. Note the adjustments in air pressure and reduce the switch setting by 25%.

24. Whilst the burner is operating remove the electrical connections from the flame sensor. Check that the burner flame safety control locks out immediately and that the gas supply is automatically shut off.

25. Whilst the burner is operating, block the combustion air supply so that the pressure switch P1 switches to the ‘no air’ position, checking that the burner shuts down.

26. Check the operation of all control and safety devices in the burner control circuits. In addition ensure that the burner operates correctly. Make a note of all control settings.

27. The low fire setting of the burner should be made in line with the process requirements whilst still maintaining a steady flame signal.

NOTE;-
Once correctly commissioned the burner settings should only be altered by suitably qualified personnel, and only when changes to the process requirements deem it necessary.
At no point should the settings of any safety device be altered to overcome changes in process conditions without the burner again being fully commissioned in line with those process conditions.

Fault Finding Guide

Symptom	Cause	Remedy
Burner light up sequence does not start	No electrical supply	Check electrical supply at local isolator Check the control fuse
	Burner electrical control circuits are not in 'start up' condition.	Check controls and switches in control circuit. Check all pressure switches and micro-switches. .
	Airflow pressure switch not made.	Check setting on switch, if this is correct check the airflow
	Low gas pressure switch not made	Check setting on switch. If this is correct check the gas pressure.
Start Cycle begins but burner locks out or shuts down before initiating the ignition sequence.	Low combustion air pressure differential	Reset burner pressure switch P1 If pressure switch P1 is set correctly open the air damper on the combustion air fan. Check that the combustion air fan motor is rotating in the correct direction. Check That the combustion air fan is running, if not check the overload or circuit breakers.

Fault Finding Guide (continued)

Symptom	Cause	Remedy
Pilot does not light	No spark	Check electrical supply to ignition transformer Check electrical connection to spark plug Check operation of ignition transformer. Check condition of spark plug and clean, reset or replace.
	No pilot gas	Check manual valve open Check that pilot solenoid valve opens Ensure gas is available at burner
	Not enough pilot gas	Check pilot gas flow adjuster and pilot gas regulator
	Pilot blown out	Reduce process air flow if possible Increase pilot gas rate
Pilot lights but locks out when ignition de-energised	Pilot gas rate too low	Adjust pilot gas rate
Pilot lights but the burner locks out before the main valves are energised	Flame sensor not detecting the flame	Check sensor for damage or moisture. Clean flame sensor Check flame sensor installation and position
	Faulty sensor	Replace sensor

Fault Finding Guide (continued)

Symptom	Cause	Remedy
Main flame does not light and burner locks out at the end of the pilot phase.	Faulty main shut off valve.	Check electrical supply to valve. Check condition of the valve, if faulty, replace.
	No main gas	Check manual valve open Check the adjustment of the gas control valve. Ensure gas is available at burner
	Not enough main gas	Check main gas flow adjuster and main gas regulator
Main flame lights but shuts down after a short period of time	Pilot gas rate too high	Adjust pilot gas rate
	Control circuit operating	Check control circuit, over temperature limits etc.
	Burner gas or air ports blocked	Check and clean. Identify source of blockage and rectify
	Flame sensor not detecting the flame	Over firing and flame is 'lifting off' reset main flame firing rate Check flame sensor installation and position Check the main gas pressure governor

Fault Finding Guide (continued)

Symptom	Cause	Remedy
Flame failure (lockout) during normal main flame operation.	Faulty main shut off valve.	Check electrical supply to valve. Check condition of the valve if faulty, replace.
	No main gas	Check manual valve open Check the adjustment of the gas control valve. Ensure gas is available at burner
	Not enough main gas	Check main gas flow adjuster and main gas regulator
	Low fire set too low	Check and adjust
	Control circuit operating	Check control circuit, over temperature limits etc.
	Burner gas or air ports blocked	Check and clean. Identify source of blockage and rectify
	Flame sensor not detecting the flame Combustion air failure	Over firing and flame is 'lifting off' reset main flame firing rate Check flame sensor installation and position Inspect combustion air fan for damage Check fan overloads Check air filter (if fitted) and clean if necessary

Fault Finding Guide (continued)

Symptom	Cause	Remedy
Flame failure (lockout) at low fire	Faulty low fire bypass valve (high low burners only).	Check electrical supply to valve. Check condition of the valve if faulty, replace.
	Low fire flame set too low.	Check the adjustment of the gas control valve. Ensure gas is available at burner
	Too much air	Check and reset air at high and low fire
	Low fire air set too low (modulating gas and air burners only)	Check and adjust
	Control circuit operating due to temperature ‘creep’	Check control circuit, over temperature limits and low fire settings.
	Flame sensor not detecting the flame	Check flame sensor installation and position
Main flame too long	Too much gas	Check main gas pressure and reset Check gas control valve and reset Check fuel type
	Combustion air set too low	Check air dampers, linkages and air filter (where fitted)

Fault Finding Guide (Indirect Heaters)

Symptom	Cause	Remedy
Comb' chamber Glows Red.	Low process airflow.	Reset air.
	Main flame too long.	Check the adjustment of the gas control valve.
	Combustion air set too low.	Check air dampers, linkages and air filter (where fitted).
Unit will not achieve temperature.	Too much process air.	Check and reset air.
	Burner input setting too low.	Check and reset Burner.
	Leakage of cold air into system.	Source and rectify.
Burner shuts down (see also sheets M8.1 to M8.4b).	Control circuit operating.	Check control circuit, process airflow switch, over temperature limits and low fire settings.
	Flame sensor not detecting the flame.	Check flame sensor installation and position.
	Too much pressure in chamber.	Check Flue.
Unit Produces condensation.	Burner turned down too low.	Check the adjustment of the gas control valve.
	Low process air volume.	Check and reset air.

Parts List (key)

A1: Flame control unit A2: Flame electrode A3: U.V. flame sensor A4: Valve proving unit B1: Burner combustion head B2: Peep sight B3: Viewing window B4: Inspection plate C1: Burner fan contactor/overload C2: Process air fan contactor/overload E1: Ignition transformer E2: Ignition plug E3: Burner on-off switch E4: Low fire position micro switch E5: High fire position micro switch E6: Closed position indicator switch E7: Isolator E8: Terminal box E9: Purge timer ET: 24v Control transformer EB: Alarm Bell EFS: Exhaust flow switch	FC: Control circuit fuse FB: Burner control fuse F1: Burner motor fuse F2: Process air fan fuse G1: Primary gas regulator (high pressure) G2: Main gas governor G3: Primary pilot gas governor (high pressure) G5: Over pressure slam shut valve G6: Pressure relief valve K1: Push button – burner start K2: Push button – burner stop K3: Push button – lockout reset K4: Push button – fault reset K5: Push button – alarm mute K6: Push button – valve proving fault reset K7: Push button – Flame signal test L1: Indication light – burner lockout L2: Indication light – burner run L3: Indication light – valve fault L4: Indication light – power on L5: Indication light – instruments on L6: Indication light – burner fan failure

Inclusion in this list does not imply that items are included in the particular equipment to which this refers: refer to sheets M3, M4, and M5 for details.

Some component designations may change to suit customer requirements

Refer to sheet M9-3 for actual complete parts specification.

Parts List (key)..continued

L7: Indication light – burner fan run	TC: Control instrument
L9: indication light – process fan run	TL: High limit thermostat or sensor
L10: indication light – exhaust fan run	T3: Valve positiner
MF: Burner fan	T4: Valve actuator
M1: Burner fan motor	T5: Control supply transformer
M2: Burner fan impellor	V1: Manual inlet valve
P1: Burner fan pressure switch	V2: Manual test valve
P2: Process air pressure switch	V3: Gas filter
P3: Low gas pressure switch	V4: Vent cock
P4: High gas pressure switch	V5: Gas control valve
P5: Valve proving pressure switch	V6: Pilot manual gas valve
P8: Gas pressure gauge	V7: Pilot gas adjustment
P9: Air pressure gauge	V8: Gauge cock
R: Electrical relay	V9: Air flow control valve
S1: First safety shut off valve	V10: Gas flow adjustment
S2: Second safety shut off valve	V11: Air flow adjustment
S3: First pilot/start gas solenoid valve	V12: Air filter
S4: Second pilot/start gas solenoid valve	V13: Oil filter
S5: Vent valve (normal open)	V14: Oil control valve
S6: Three way solenoid valve -burner air	V15: Gas orifice plate
SM: Solenoid/governor multi-bloc valve	

Inclusion in this list does not imply that items are included in the particular equipment to which this refers: refer to sheets M3, M4, and M5 for details.

Some component designations may change to suit customer requirements

Refer to sheet M9-3 for actual complete parts specification.

Parts List

Burner & VT components

Burner Type	Serial Number
150RSP	C12624-1

BoM Reference - 150RSP-OH-465-A-A-C-I-A-B

Part Code	Part Description	Fitted (*)
A2	Flame sensing electrode - PH150	*
A3	Ultra violet sensor - N/A	
A4	Valve testing control unit - N/A	
B1	Burner combustion head - N/A	
E2	Ignition electrode / plug - PH/MC	*
E4	Low fire micro switch - N/A	
E5	High fire micro switch - N/A	
E6	Closed position indicator switch - N/A	
G1	Primary high pressure regulator - N/A	
G2	Main gas governor - Part of SM	
G4	Pilot / start gas governor - Fag gov 30051 1/2"	*
MF	Burner combustion air fan - MFP146.F2.1616.037.3	
M1	Burner fan motor - 0.37kW 2 pole 3Ph 415v	*
M2	Fan impellor - 146 x 74 x 14mm	*
P1	Combustion air pressure switch - Econex PE003	*
P2	Combustion air pressure switch - Econex PE003	*
P3	Low gas pressure switch - Dungs GW 50 A5 (Part of SM)	
P4	High gas pressure switch - Dungs GW 50 A6	*
P8	Gas pressure gauge - N/A	
SM	Gas multibloc valve assembly - Dungs MBDLE 412 B01 230v	*
S1	First safety shut off valve - N/A	
S2	Second safety shut off valve - N/A	
S3	First pilot safety shut off valve - Econex VSARP515C 230v	*
S4	Second safety shut off valve - Econex VSARP515C 230v	*
S5	Vent solenoid valve - N/A	
S6	Three way air solenoid valve - N/A	
V1	Manual gas inlet valve - 1.5"	*
V2	Manual gas test valve - 1.5"	*
V3	Gas filter - N/A	
V5	Gas control valve – 1.5" Econex motorized ball valve	*
V6	Pilot / start gas valve - 1/2"	*
T4	Control valve actuator - Econex AG8A2002-SE2	*
		*

Parts List

Burner & VT components

Burner Type	Serial Number
150RSP	C12624-1

BoM Reference - 150RSP-OH-465-A-A-C-I-A-B

Part Code	Part Description	Fitted (*)
A1	Flame control unit - Fireye BP230UVFR-S3	*
	Flame control unit base - Fireye 60-2981-1	*
C1	Combustion fan contactor - Tele LC1K0910U7 230v	*
	Combustion fan overload - Tele LR2K0306 - 0.8-1.2A	*
	Enclosure - Eldon 500 x 400 x 210 - MAS0504021R5	
E1	Ignition transformer - TRS830P 230v	*
E3	Burner on-off switch - Tele ZB4BD2	*
	N/O auxiliary contact - Tele ZBE101	*
	Mounting adaptor - Tele ZB4BZ009	*
E7	Isolator - N/A	
E9	Purge timer - N/A	
ET	24v control transformer - 100-240VAC / 24vDC DIN Rail Panel Mount	*
FB	Burner control fuse - N/A	
	Burner control fuse holder - N/A	
K3/L1	Burner reset pushbutton/light - Tele ZB4BW143	*
	Burner lockout indication lamp block - Tele ZBVM1	*
	N/O auxiliary contact - Tele ZBE101	*
L2	Burner run indication light - Tele ZB5BV033	*
	Burner run indication lamp block - Tele ZBVM1	*
R1	Electrical relay - Schneider RXM2AB1P7 Non-Latching 230v ac	*
R2	Electrical relay - Schneider RXM2AB1P7 Non-Latching 230v ac	*
R3	Electrical relay - Schneider RXM2AB1BD Non-Latching Relay 24v dc	*
R4	Electrical relay - Schneider RXM2AB1BD Non-Latching Relay 24v dc	*
	Relay Base - Schneider Socket for use with Relais Series RSZ	*
	Spark plug H.T cap - SBO5E	*
	Bus bar - IEG/14 14mmx380	*
	Flame rod H.T cap - N/A	
	H.T lead - 7mm x 1m H.T silicon cable	*

COMTHERM LTD SUGGESTED SERVICE PROGRAM FOR THE "RSP" TYPE GAS BURNER

The exact timing of service work to the "RSP" burners can only be determined based on the ambient working environment of each specific installation; as a minimum however we would suggest that the following service points are covered at least on a half yearly basis **and should only be carried out by a suitably qualified or experienced person;**

1. Remove spark electrode, clean with wire brush and check plug gap setting of 2.5 to 3mm. Inspect plug ceramic for any cracks or damage.

2. a. Remove flame sensing electrode, clean electrode with emery paper and inspect plug ceramic for any cracks or damage.
   Or
   b. Remove U.V. cell and clean bulb with clean cloth; taking care to not touch the bulb itself.

3. Remove combustion fan motor and impellor, clear impellor blades of any blockage or build-up of material drawn in by the fan.

4. Clear fan inlet guard of any blockage or restriction, if the combustion air is ducted to the fan assembly then the duct should be removed to check for any blockage.

5. Clear burner body of any dirt or debris which has been drawn in by the combustion fan.

6. Condition of the burner air wings can be accessed from inside the combustion chamber / duct, if access to the inside of the oven or combustion chamber is restricted then the burner side plate should be removed from its fixings to inspect for serious damage to the burner air wings, small cracks and fishers or very slight distortion in the air wings would not be detrimental to the operation of the burner.

7. In the event that the burner air wings are found to be severely damaged then the burner head will need to be completely broken down to fit replacements.

8. All pressure switch impulse lines should be removed and checked for any blockage.

9. This down time with the burner should also be used to check the integrity and correct operation of safety pressure switches and solenoids.

10. The burner valve assembly should also be checked at this time for gas leaks.

11. Finally all burner gas and air settings should be checked against the last recorded commissioning or service settings; the burner should not be put back into operation until test firing has been carried out by the engineer performing the service.

If the ambient conditions are particularly dirty then we would suggest carrying out a full service on a quarterly basis.

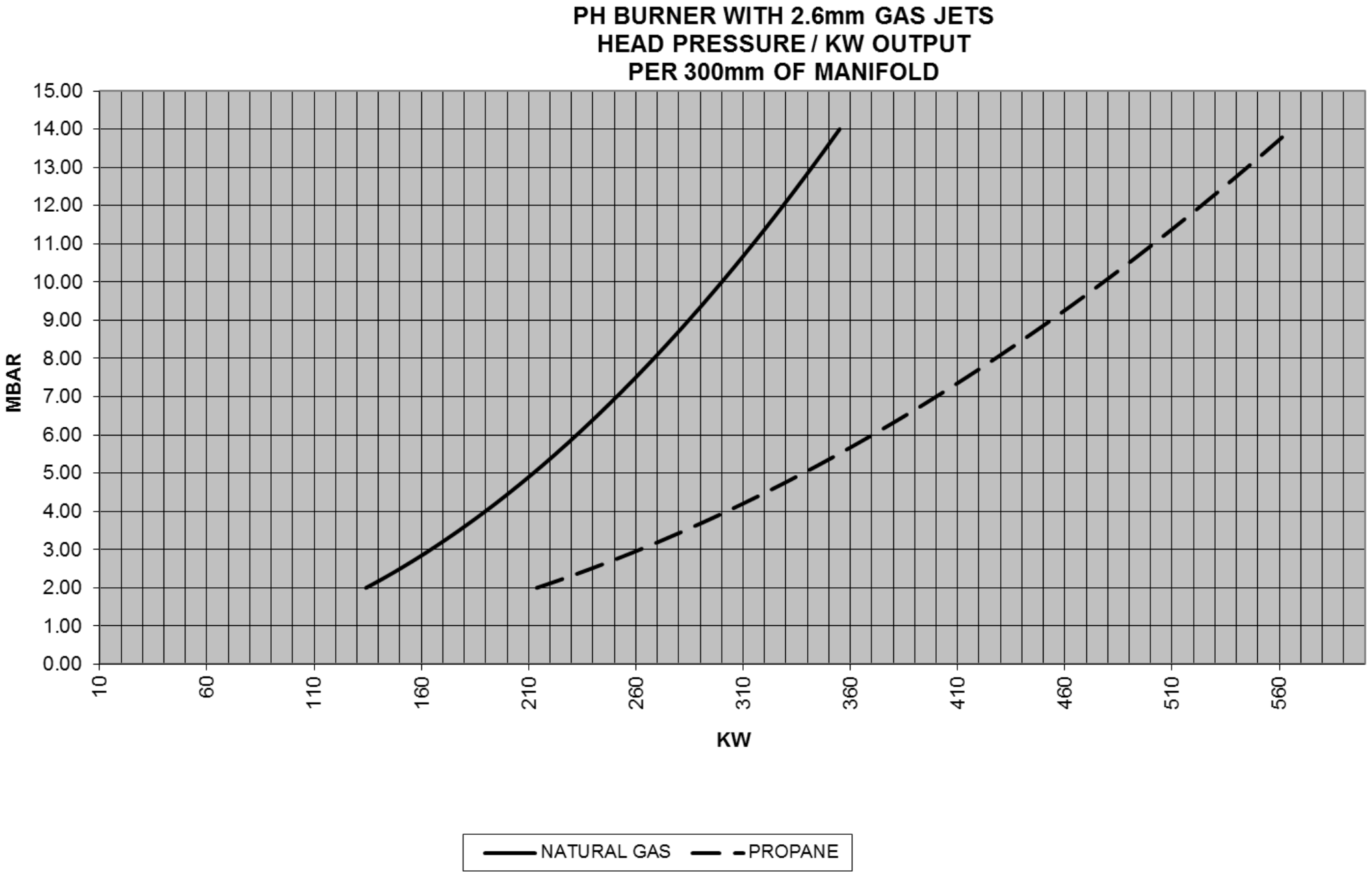
Burner Service record

Date of service	Service Company	Name of engineer	Date of next service

Burner commissioning record

Burner Commissioning Data.								
	Burner 1		Burner 2		Burner 3		Burner 4	
Burner location.								
Burner Manufacture								
Burner Type								
Burner serial No								
Fuel Type								
Gas supply pressure.								
Control voltage								
Combustion fan voltage								
Flame control unit								
Flame sensor								
Safety p/sw operation								
	Set	Of	Set	Off	Set	Off	Set	Off
Combustion fan p/sw								
Process air p/sw								
High gas p/sw								
Low gas p/sw								
Valve proving p/sw								
Exhaust p/sw								
Burner operating head pressures.								
Chamber pressure.								
High fire gas pressure								
Low fire gas pressure								
Combustion Analysis. where applicable								
O2.								
CO2.								
CO.								
CO:CO2								
Flue temperature.								

Additional commissioning notes


PH BURNER WITH 2.6mm GAS JETS
HEAD PRESSURE / KW OUTPUT
PER 300mm OF MANIFOLD
MBAR
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
10
60
110
160
210
260
310
360
410
460
510
560
KW
NATURAL GAS
PROPANE

A1

FIREYE® BurnerPRO™

MICROPROCESSOR-BASED INTEGRATED BURNER MANAGEMENT CONTROL

c UL us LISTED

DESCRIPTION

The Fireye BurnerPRO is a compact, microprocessor based, primary flame safeguard control system designed to provide the proper burner sequencing, ignition and continuous flame monitoring for on-off, multi-stage, or modulating burners used in commercial heating and process equipment firing oil and gas fuels. The system is designed for use in non-permanent operations that requires burner recycle at least once every 24 hours.

Flame monitoring for the UV version is accomplished by the built in amplifier and compatible UV scanner. Control functions and timings are factory set via unique micro controller firmware. Through seven SMART LEDs, the control provides current operating status and lockout information in the event of a safety shutdown. Refer to the BurnerPRO ordering information section later in this document for the various combinations of control functions and timings.

A complete BurnerPRO system includes the BP110/230, flame scanner and wiring base. The BurnerPRO performs a safety self-test on every start. If a flame is detected prior to a start or during the purge cycle, the fuel valves are not energized and the control locks out. The LEDs and alarm terminal is used to annunciate the presence of a lockout condition.

Additional functions of the BurnerPRO include:

- Non-volatile lockout capability
- Proof of fuel valve closure
- Air-flow proving
- A run/check feature allows the operator to stop the program sequence in different positions (Purge, Ignition, PTFI and MTFI)
- Remote and local Reset
- One second flame failure response time
- Smart LEDs provide on board diagnostic lockout information
- Real-time internal diagnostics for added safety integrity
- Extended temperature operation (-40°C to 60°C) with an over-temp inhibit feature
- High capacity relay contacts

TABLE OF CONTENTS

WARNING: The equipment described in this manual is capable of causing property damage, severe injury, or death. It is the responsibility of the owner or user to ensure that the equipment described is installed, operated and commissioned in compliance with the requirements of all national and local codes.

WARNING!!!

Boiler operation, maintenance, and troubleshooting shall only be conducted by trained personnel. Persons troubleshooting lockouts or resetting the control must respond properly to troubleshooting error codes as described in this product bulletin.

Jumpers being used to perform static test on the system must only be used in a controlled manner and must be removed prior to the operation of the control. Such tests may verify the external controllers, limits, interlocks, actuators, valves, transformers, motors and other devices are operating properly. Such tests must be conducted with manual fuel valves in the closed position only. Replace all limits and interlocks not operating properly, and do not bypass limits in interlocks. Failure to follow these guidelines may result in an unsafe condition hazardous to life and property.

BURNERPRO SYSTEM SPECIFICATION

Supply Voltage:

BP110 110 VAC (+20%, -15%) 50/60 Hz, single phase

BP230 230 VAC (+10%, -15%) 50/60 Hz, single phase

Power Consumption:

7 VA

Temperature Rating:

Operating: -40°C to +60°C (-40°F to 140°F)

Storage: -50°C to +85°C (-58°F to 185°F)

Protection Category:

IP40 standard version (with exception of wiring base)

IP44 for "F" version

Control Dimensions:

With wiring base (60-2944-1); 4.15" L x 4.15" W x 5.0" H (105mm x 105mm x 127mm)

Shipping Weight:

Approx. 2.5 lbs. (1.13kg)

OPERATING TEMPERATURE LIMITS

CONTROL	MAXIMUM		MINIMUM	
BP110, BP230	140°F	60°C	-40°F	-40°C
UV90L-1	194°F	90°C	-40°F	-40°C
UV1AL-3, -6	200°F	94°C	-40°F	-40°C
UV5-1	140°F	60°C	-4°F	-20°C

Relative Humidity:

90% R.H. (Non-Condensing)

LOAD RATINGS:

Terminal	Typical Load	Maximum Rating @120V-50/60 Hz	Maximum Rating @230V-50/60 Hz	Alternate Rating
6-7	Burner/Blower Motor	4 F.L.A. * 24 L.R.A.	4 F.L.A. * 24 L.R.A.	480 VA Pilot Duty (Motor Starter Coil)
9-10-11-20	Modulator	240 VA Pilot Duty		
16-17-18-19	Fuel/Igniton	240 VA Pilot Duty		
3	Alarm	125 VA Pilot Duty		
* F.L.A. = full load amps; L.R.A = locked rotor amps				

Maximum connected load must not exceed 2000VA.

ELECTRICAL RATINGS

VA ratings (not specified as pilot duty) permit the connection of transformers and similar devices whose inrush current is approximately the same as their running current.

VA Pilot Duty ratings permit the connection of relays, solenoid valves, lamps, etc. whose total operating load does not exceed the published rating and whose total inrush does not exceed 10 times the rating.

Running and locked rotor ratings are intended for motors. VA and VA Pilot Duty loads may be added to a motor load provided the total load does not exceed the published rating.

OPERATIONAL TIMINGS

The BurnerPRO is pre-programmed from the factory with a set of operational timings necessary for the safe operation of the burner system. The operational timings are governed by regional and local codes. It is important that the appropriate operational timing is selected for the burner application.

Table 1:

Times are in seconds		BURNERPRO SERIES (50Hz)			
TIMING	**DESCRIPTION**	**S1**	**S2**	**S3**	**S6**
t1	Purge time	36	31	37	30
t3'	Pre-ignition time (piloted)	4	6	2.5	0
TSA'	Ignition safety time (PTFI)	2	3	5.0	10
t6	Postpurge time	12	17	15	15
t9	Interval between Main Fuel Piloted and removal of Pilot (MTFI)	2	3	5	10
FFRT	Flame Failure Response Time (FFRT)	1.0			4.0

Times are in seconds		BURNERPRO SERIES (60Hz)			
TIMING	**DESCRIPTION**	**S1**	**S2**	**S3**	**S6**
t1	Purge time	30	25.8	30.8	30
t3'	Pre-ignition time (piloted)	3.3	5	2.1	0
TSA'	Ignition safety time (PTFI)	2.0	2.5	4.2	10
t6	Postpurge time	10	14.2	12.5	15
t9	Interval between Main fuel piloted and removal of pilot (MTFI)	1.7	2.5	4.2	10
FFRT	Flame Failure Response Time (FFRT)	1.0			4.0

See Table 7 on page 20 for expanded timing information.

NOTICE: This equipment generates and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial/ industrial environment.

PART NUMBERS AND APPROVALS

Table 2: Agency Approvals

Fireye Part Number	c UL us LISTED	CE	DIN DVGW	DIN Geprüft
Control				
BP110UV-S1	X			
BP110UV-S2	X			
BP110UV-S3	X			
BP110UV-S6	X			
BP110UVF-S1	X			
BP110UVF-S2	X			
BP110UVF-S3	X			
BP110UVF-S6	X			
BP230UV-S1				
BP230UV-S2				
BP230UV-S3				
BP230UVF-S1				
BP230UVF-S2				
BP230UVF-S3				
Wiring Base				
60-2944-1	X	X		
Scanners				
UV90L-1	X	X		
UV1AL-3	X	X		
UV1AL-6	X	X		
UV5-1	X	X		

X = CERTIFICATION IN HAND

APPROVAL/CERTIFICATION

UL: MCCZ File MP1537 Controls, Primary Safety - Listed
MCCZ7 File MP1537 Controls, Primary Safety Certified for Canada

Table 3: ORDERING INFORMATION:

Item	Part Number	Description
1	BP230UV-S1	BurnerPRO Single Burner Control, 230VAC 50/60Hz, Series 1 timings, with UV non-self check amplifier
2	BP230UVF-S1	BurnerPRO Single Burner Control, 230VAC 50/60Hz, Series 1 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**
3	BP230UV-S2	BurnerPRO Single Burner Control, 230VAC 50/60Hz, Series 2 timings, with UV non-self check amplifier
4	BP230UVF-S2	BurnerPRO Single Burner Control, 230VAC 50/60Hz, Series 2 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**
5	BP230UV-S3	BurnerPRO Single Burner Control, 230VAC 50/60Hz, Series 3 timings, with UV non-self check amplifier
6	BP230UVF-S3	BurnerPRO Single Burner Control, 230VAC 50/60Hz, Series 3 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**
7	BP110UV-S1	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 1 timings, with UV non-self check amplifier
8	BP110UVF-S1	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 1 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**
9	BP110UV-S2	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 2 timings, with UV non-self check amplifier
10	BP110UVF-S2	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 2 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**
11	BP110UV-S3	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 3 timings, with UV non-self check amplifier
12	BP110UVF-S3	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 3 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**
13	BP110UV-S6	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 6 timings, with UV non-self check amplifier
14	BP110UVF-S6	BurnerPRO Single Burner Control, 110VAC 50/60Hz, Series 6 timings, with UV non-self check amplifier, IP44 **(Recommended for new installations - Contact Factory)**

"F" in the part number field represents Fireye version and it's recommended for new installations

BurnerPRO Wiring Base	
60-2981-1	Standard base with terminal block and knockouts, 4.2”L x 4.2”W x 1.22”H
60-2944-1 (for “F” series only)	Special base with terminal block and knockouts, 4.2”L x 4.2”W x 1.22”H
61-7429-1	Grounding wire/leash, 10” length

SCANNER SELECTION

FIREYE P/N	DESCRIPTION	BULLETIN
UV90L-1	UV scanner, Front and side (90^0) lateral view, terminal block hook-up	SC-108
UV1AL-3, -6	UV scanner, 1/2” NPT connector, front view, 3ft/6ft cable, shielded leads	SC-108
4-742-1	Replacement UV tube for UV90L-1	
UV5-1	UV Scanner, front and side viewing, 6.5ft leads	SC-108

FIGURE 1.

CHASSIS/AMPLIFIER - LFL REPLACEMENT MODEL

110 VAC, 50/60 Hz
BP110UV

230 VAC, 50/60 Hz
BP230UV

FRONT VIEW

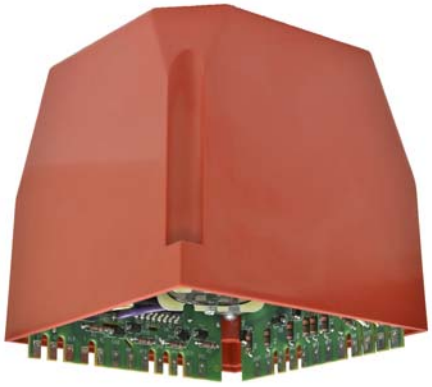
BOTTOM VIEW

CHASSIS/AMPLIFIER - NEW INSTALLATIONS

110 VAC, 50/60 Hz
BP110UVF

230VAC, 50/60 Hz
BP230UVF

FRONT VIEW



BOTTOM VIEW

"F" in the part number field represents Fireye version and it's recommended for new installations

WIRING BASE

60-2944-1

for "F" series only

INSTALLATION PROCEDURE

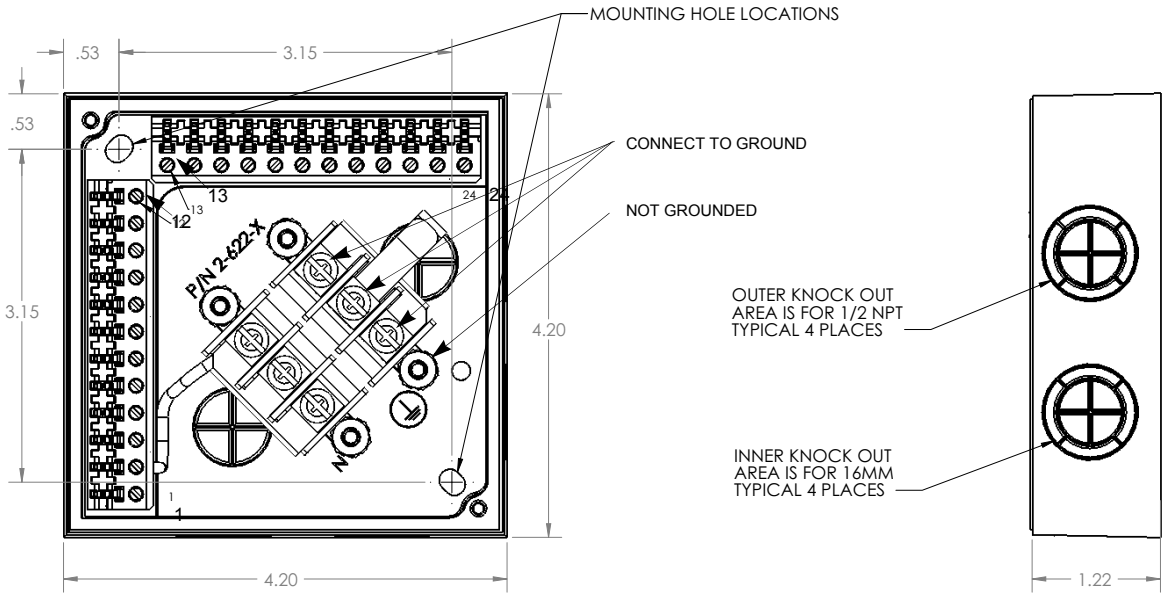
Wiring Base

Mounting of the base can be accomplished with 2 screws. The recommended screw sizes are #10 PAN HD x 5/8inch (5mm PAN HD x 16mm) and #10 PAN HD x 3/8 inch (5mm PAN HD x 10mm). Refer to Figure 2 for mounting dimensions.

Grounding Wire

Each BurnerPRO control is fitted with a grounding wire. Attach the open end of the grounding wire to a ground terminal on the wiring base (see figure 2 below). Undo the screw terminal with a screw-driver and place the ground lug over the terminal. Re-install the screw over the ground lug. Do not attach the grounding wire to a Neutral (N) terminal.

FIGURE 2.



Note: The location should be free from excessive vibration and within the ambient temperature rating.

NOTICE: Installation, setup, and commissioning of the BurnerPRO control must be done by authorized and trained personnel. The personnel must know the do's and don’ts of the particular burner and must have relevant experience in the theories and practices of combustion control. Fireye cannot accept any liability for any consequences resulting from inappropriate, negligent or incorrect installation, commissioning or adjustment of operating parameters of the equipment. BurnerPRO does not have any user serviceable parts. If the unit has a problem, return the unit to your local distributor, or contact Fireye directly.

Table 4: TERMINAL WIRING

Terminal No.	Type	Description	Rating
1	Power	Line voltage supply	110VAC (+20%, -15%), 50/60Hz 230VAC (+10%, -15%), 50/60Hz single phase
2	Power	Line voltage common	
3	Output	Alarm	See Load Ratings
4	Output	Lockout Limits	110/230 VAC, 1mA
5	Input	Recycle Limits	110/230 VAC, 1mA
6	Output	Combustion Air Blower	See Load Ratings
7	Output	Combustion Air Blower	
8	Input	Actuator Feedback	110/230 VAC, 1mA
9	Output	High Fire Purge (Open)	See Load Ratings
10	Output	Low Fire Purge (Minimum)	See Load Ratings
11	Output	Closed (Economy)	See Load Ratings
12	Input	Proof of Closure (FVES)	110/230 VAC, 1mA
13	Input	Combustion Air Switch Test	110/230 VAC, 1mA
14	Input	Combustion Air Prove	110/230 VAC, 1mA
15	N/A	Unused	
16	Output	Ignition	See Load Ratings
17	Output	Pilot	See Load Ratings
18	Output	Main Fuel Valve (Direct)	See Load Ratings
19	Output	Main Fuel Valve (Piloted)	See Load Ratings
20	Output	Release to Modulate (AUTO)	See Load Ratings
21	Input	Remote Reset	110/230 VAC, 3mA
22	Output	Flame Sensor (UVS1)	300 VDC, 3mA
23	Input	Flame Sensor Return(S2)	Sensor Common/return
24	N/A	Unused	
N	Power	Line Voltage Common	
⏚		Protective Earth	

CAUTION: Published load ratings assume that no contact be required to handle inrush current more often than once in 15 seconds. The use of control switches, solenoid, relays, etc. which chatter can lead to premature failure. It is important to run through a test operation (with fuel shut off) following the tripping of a circuit breaker, a blown fuse, or any known instance of chattering of any external current consuming devices.

Install the wiring base where the relative humidity never reaches the saturation point. The BurnerPRO is designed to operate in a maximum 90% relative humidity environment. Do not install the BurnerPRO where it can be subjected to vibration in excess of 0.5G continuous maximum vibration. Allow at least one inch clearance (2.5 cm) around control for service and installation.

1. Wiring must comply with all applicable codes, ordinances and regulations.
2. Wiring must comply with NEC Class 1 (Line Voltage) wiring or equivalent regional code.
3. Torque rating on terminal block screws is 4.4 in/lbs to 5.3 in/lbs.
4. Limits and interlocks must be rated to simultaneously carry and break current to the ignition transformer, pilot valve and main fuel valve(s).
5. Recommended wire routing of lead wires:
   a. Do not run high voltage ignition transformer wires in the same conduit with any other wires.
   b. Do not route flame detector lead wires in conduit with line voltage circuits. Use separate conduit where necessary.
6. Maximum wire lengths:
   a.The maximum lead wire length is 200ft. (61 meters) to terminal inputs (Operating limits, interlocks, valves, etc.).
   b. Flame Detector lead wires: see section on flame scanners
   c. Remote reset: The maximum length of wire is 500 feet (152 meters) to a normally open remote reset push-button, but should remain within sight and sound of the burner.

A good grounding system should be provided to minimize the effects of AC quality problems. A properly designed ground system meeting all the safety requirements will ensure that any AC voltage quality problems, such as spikes, surges and impulses have a low impedance path to ground. A low impedance path to ground is required to ensure that large currents involved with any surge voltages will follow the desired path in preferences to alternative paths, where extensive damage may occur to equipment.

WARNING: Controls require safety limits utilizing isolated mechanical contacts. Electronic limit switches may cause erratic operation and should be avoided.

BEFORE INSTALLING THE BURNERPRO CONTROL

CAUTION: Ensure that electric power is turned off. Refer to SN-100 for recommended grounding techniques. Ensure that wiring base terminal is connected to protective earth.

Be aware that power to some interlocks (operating controls, air flow switches, modulating circuits, etc.) may be derived from sources other than what is controlling the BurnerPRO.

LED INDICATOR LIGHTS

The BurnerPRO control module has seven (7) LED indicator lights to annunciate the operating status of the control, as well as provide the reason for the last lockout condition. The "Open Damper" and "Close Damper" LEDs provide easy set-up of the modulating motor end switches. Each LED has a graphic symbol to describe its function (see Table below).

Table 5:

	FAN	Lights when the blower motor is energized (terminal 6) and flashes when the RUN/CHECK switch is in the “CHECK” position during Minimum, Open, PTFI, and MTFI.
	OPEN DAMPER	Will blink when the modulator motor is being driven to the high fire position. Once the high purge switch closes, this LED will light constant. The LED provides the status of the purge sequence.
	CLOSE DAMPER	Will blink when the modulator motor is being driven to the low fire position. Once the low fire switch closes, this LED will light constant. This LED provides the status of the low fire start interlock circuit.
	AUTO	Will light when the control releases to automatic modulating control.
	IGNITION	Will blink during Pilot Trial For Ignition (PTFI). Will light constant during Main Trial For Ignition (MTFI).
	FLAME	Will light whenever flame is detected by the flame scanner.
	ALARM	In the event of a lockout condition, the Alarm LED is illuminated and the remaining LEDs will light up to indicate the lockout condition. See “Safety Lockout Codes.”

The “SMART” LEDs provide a flame strength display during check mode. In check mode, the status LED is yellow, the fan LED is blinking and LEDs 2-6 grow up from status forming a bar graph. Each LED lit represents 20% of the total flame signal. See Table 6, Note 1. (5 LEDs lit is 100%, 2 LEDs is 40%)

Table 6: LED Run-time Status Indicator

OPERATION LED ● = ON	FAN	OPEN DAMPER	CLOSED DAMPER	AUTO	IGNITION	FLAME	STATUS
ICON							
OFF / NO POWER							OFF
NOT READY / DIAGNOSTICS							Green
READY / STANDBY			●				Green
CHANGING (note 3)	●	OFF Blinking ● 	● Blinking OFF				Green
WAITING FOR AFS TO CLOSE	Blinking Green						Green
OPEN (before ignition)	●	●					Green
MINIMUM (before ignition)	●		●				Green
IGNITION	●		●		●		Green
PTFI	●		●		●	Blinking Green	Green
MTFI	●		●			●	Green
AUTO	●			●		●	Green
MINIMUM (During Flame)	●		●			●	Green
OPEN (During Flame)	●	●				●	Green
ECONOMY	●		●				Green
CHECK OPEN	Blinking	●					Yellow
CHECK MINIMUM	Blinking		●				Yellow
CHECK PTFI	Blinking	● Note 1	● Note 1	● Note 1	● Note 1	● Note 1	Yellow
CHECK MTFI	Blinking	● Note 1	● Note 1	● Note 1	● Note 1	● Note 1	Yellow
FAULT / LOCKOUT	● Note 2	● Note 2	● Note 2	● Note 2	● Note 2	● Note 2	Red
END OF CYCLE	●		●	●	●		Green

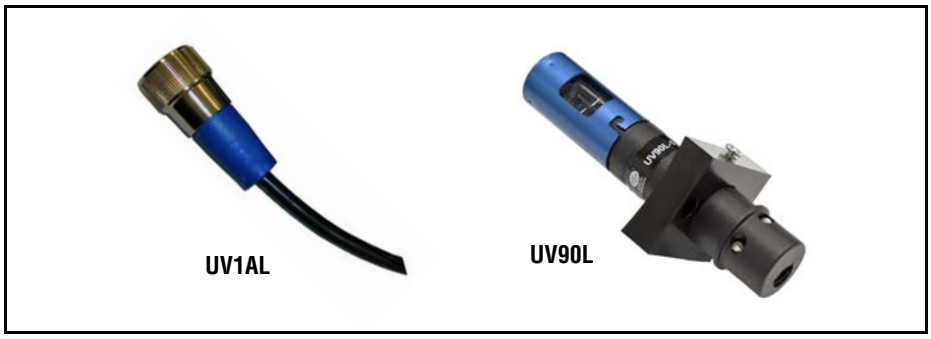
NOTES:

1.The LEDs form a progress bar indicating Flame Signal Strength for aiming sensors during commissioning (The LEDs "Grow" upwards away from Status at 20% intervals of flame strength.)

2.The LEDs indicate the error or lockout code for troubleshooting

3.The LEDs change from ON to BLINKING to OFF showing the modulator operation

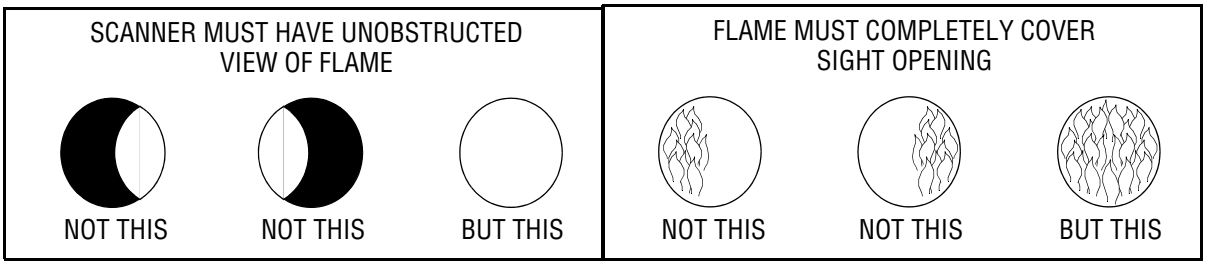
FLAME SCANNERS



INSTALLATION - UV SCANNERS

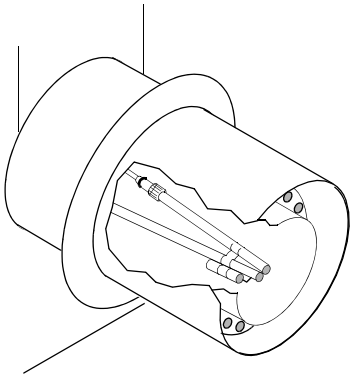
Where possible, obtain the burner manufacturer's instructions for mounting the scanner. This information is available for most standard burners. The scanner mounting should comply with the following general instructions:

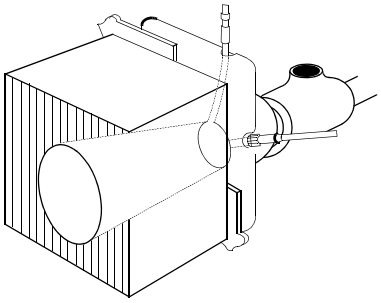
1. Position the UV1AL, UV90L or UV5 scanner within 39 inches (1 meter) of the flame to be monitored. Consult SC-108 bulletin for more information.
2. Select a scanner location that remains within the ambient temperature limits of the UV Scanner.
3. The UVlAL scanner is designed to seal off the sight pipe up to 1 PSI pressure. Higher furnace pressures must be sealed off. To seal off positive furnace pressure up to 50 PSI for the UV1AL scanner, install a quartz window coupling (#60-1257). Add cooling air to reduce the scanner sight pipe temperature.
4. Install the scanner on a standard NPT pipe (UV1AL: 1/2") whose position is rigidly fixed. If the scanner mounting pipe sights through the refractory, do not extend it more than halfway through. Swivel flanges are available if desired (P/N: 60-302). The sight pipe must permit an unobstructed view of the pilot and/or main flame, and both pilot and main flames must completely cover the scanner field of view.

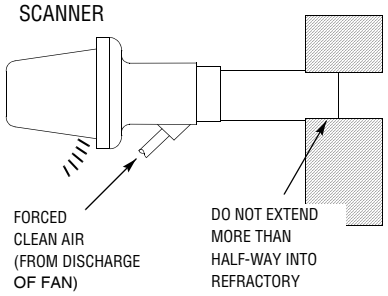


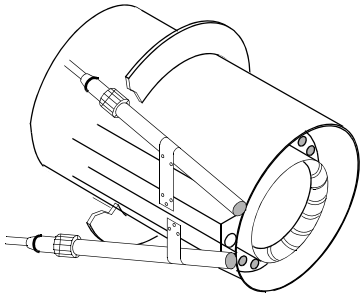
5. Smoke or unburned combustion gases absorb ultra-violet energy. On installations with negative pressure combustion chambers, a small hole drilled in the UV1AL sight pipe assists in keeping the pipe clean and free from smoke. For positive pressure furnaces, provide clean air to pressurize the sight pipe, if necessary.
6. Two UV Scanners may be installed on the burner if it is necessary to view two areas to obtain reliable detection of the flame. They must be wired in parallel.
7. To increase scanner sensitivity with UV1AL scanner, a quartz lens permits location of the scanner at twice the normal distance. Use 1/2" x 1 1/2" pipe nipple between UV1AL scanner and the coupling.
8. Request the assistance of any Fireye field office for recommendations of a proper scanner installation on a non-standard application.

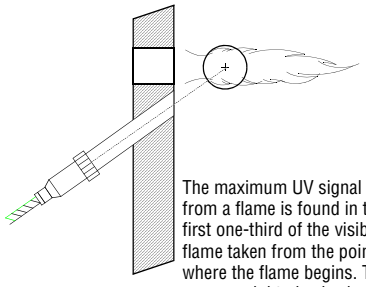
TYPICAL SCANNER INSTALLATIONS



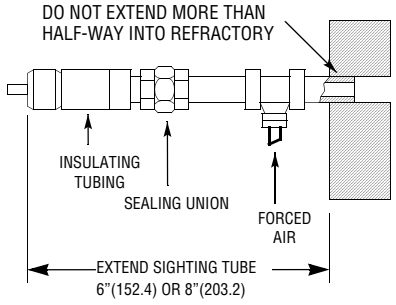








The maximum UV signal from a flame is found in the first one-third of the visible flame taken from the point where the flame begins. The scanner sight pipe is aimed at this area.



METHODS OF COOLING SCANNER

WIRING - UV SCANNERS

To connect the scanner to the control, the UV1AL scanner is supplied with 36" or 72" (0.9 m or 1.8 m) of flexible cable. The UV90L is supplied with a terminal block. Use two #18 AWG conductors to connect the UV90L to the control. The UV5 is supplied with 80” (2m) of flexible cable (detachable).

If it is necessary to extend the scanner wiring, the following instructions apply:

There is no polarity associated with the scanner wiring, except for the UV5. Scanner wires must be installed in a separate conduit. The wires from several scanners may be installed in a common conduit.

1. Selection of Wire

   a. Wiring: For extended scanner wiring up to 500 feet (152 M), and for shorter lengths to reduce signal loss, use a shielded wire (Belden 8254-RG62 coaxial cable, or equal) for each scanner wire. The ends of the shielding must be taped and not grounded.

   b. Avoid asbestos insulated wire.

   c. Multi-conductor cable is not recommended without prior factory approval.

2. High voltage ignition wiring must not be installed in the same conduit with flame detector wires.

SYSTEM OPERATION

The fixed series timings determine the functional operation of the BurnerPRO control (e.g. purge timing, trial for ignition timings, etc.) The BurnerPRO offers a single multi-functional button and its functions are as follows:

RESET

The BurnerPRO control provides two methods of resetting the control in the event of a safety lockout: The push button reset and terminal 21 remote reset. Both reset methods can be used to stop the control in its firing sequence at anytime to force a user/emergency lockout. A reset of the control can be accomplished by momentarily pressing the reset button or engaging the remote reset terminal.

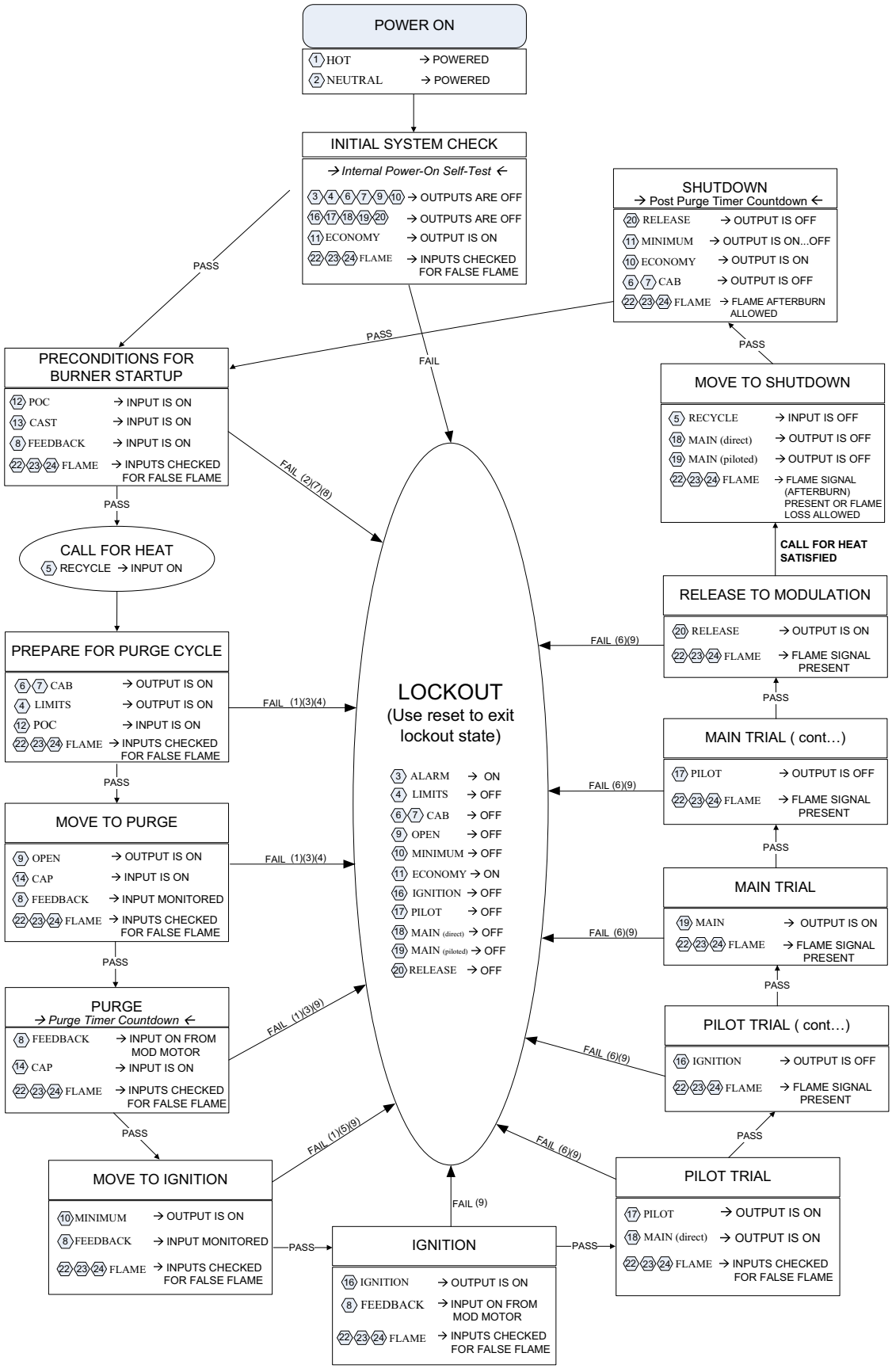
CHECK MODE

The push button reset switch has an added feature that allows the user to freeze the operational sequence at certain times (Purge, Ignition, PTFI, and MTFI). This is known as CHECK MODE and it is designed to aid in set-up, start-up and check-out of the burner and its associated interlocks. This feature is very useful in pilot aiming and adjustment during commissioning or maintenance.

The check mode rules are:

- If the push button reset is held for at least 3 seconds, the status LED changes from green to yellow to signal that the control is in check mode.
- Momentarily pressing the push button reset while in check mode transitions the control into normal operating sequence, thus disabling check mode.
- The control locks out during Purge, Ignition, or PTFI states if check mode is active longer than 30 minutes
- The control allows check mode in MTFI for 2 minutes. The control automatically cancels check mode after 2 minutes in MTFI state and resumes normal operation.
- When in check mode during PTFI or MTFI states, the control uses the *open, close, auto, ignition, and flame* LEDs to annunciate the flame signal strength. Every illuminated LED (starting with the flame LED) represents a 20% signal strength.

FIGURE 3. OPERATIONAL SEQUENCE



NOTES:

1)Presence of flame at this point results in a lockout.

2)When CAST (terminal 13) is open and POC (terminal 12) is open at this point, control locks out after 10 minutes. When CAST is open and POC is closed, control remains in same state indefinitely.

3)Control locks out if FEEDBACK (terminal 8) is not present after 10 minutes.

4)CAP (terminal 14) input is required to proceed. Otherwise, control locks out, after 10 minutes.

5)FEEDBACK (terminal 8) must remain present. Otherwise, control locks out, after 10 minutes.

6)Presence of real flame is mandatory. Otherwise, control locks out. Flame failure results in Post-Purge at lockout.

7)The control locks out if POC (FVES) cannot be proven closed upon call for heat.

EXPLANATION OF SEQUENCE STATES

1) POWER ON

This is the application of power to the control. It's important that a single phase (110/230 VAC 50/60 Hz) is applied to the control and the inputs to the control are sourced from the same phase.

2) INITIAL SYSTEM CHECK

During this state, the control undergoes an internal Power-On Self-Test (POST) to verify that the hardware and software are operating properly. The non-volatile lockout feature forces the control to move to lockout if the last lockout condition was not cleared prior to power off. The control further checks the critical input and output terminals to make sure they are in the proper state. The control expects the flame to be completely extinguished at this point.

3) PRECONDITIONS FOR BURNER STARTUP

The control verifies that the air-flow switch is in the Normally Closed position via the Combustion Air Switch Test (CAST) input and a verification of the main fuel shutoff valve (POC/FVES) is performed as well. Flame must not be present at this point. Failure to prove POC or CAST input will lead to a halt in the state sequence or the control will proceed to lockout.

4) CALL FOR HEAT

The recycle limit (terminal 5) is energized to alert the control to start a burner cycle.

5) PREPARE FOR PURGE CYCLE

The control turns on the combustion blower (terminals 6 & 7).

6) MOVE TO PURGE

The control commands the damper actuator to move to the OPEN (high fire) position. It expects the actuator to report a successful transition to the OPEN position by energizing the FEEDBACK input (terminal 8). The control also checks to make sure that the airflow switch is operating by monitoring the CAP input.

7) PURGE

The control purges the combustion vessel for a period of time (length of purge is based on the control series installed).

8) MOVE TO IGNITION

Upon successful purging, the control moves to ignition by energizing the MINIMUM output (terminal 10). It expects the actuator to report a successful transition to the MINIMUM (LOW FIRE) position by energizing the FEEDBACK input (terminal 8). Flame must not be present at this point.

9) IGNITION

The control energizes the ignition transformer by activating terminal 16. It's critical that the damper actuator remain at the MINIMUM (LOW FIRE) position during this state. Flame must not be present at this point.

10) PILOT TRIAL (1st safety time)

The control turns on the pilot flame by energizing terminal 17. The MAIN direct output (terminal 18) is also energized for systems that implement direct light-off of the main flame during pilot. The control doesn't check for flame during this phase as the flame may not be fully established.

11) PILOT TRIAL (1st safety time)

The ignition transformer is turned off. The pilot flame signal is proven during this phase. Failure to “see” a flame results in a lockout.

12) MAIN TRIAL (2nd safety time)

The main fuel valve (piloted) output (terminal 19) is energized to light-off the main flame. Flame signal must be present during this phase.

13) MAIN TRIAL (2nd safety time)

The pilot output (terminal 17) is turned off during this phase. Flame signal must remain present.

14) RELEASE TO MODULATION

After successfully establishing flame, the control proceeds to relinquish modulation control to the boiler management system. Flame signal must remain present. Terminal 20 is energized.

15) MOVE TO SHUTDOWN

Move to shutdown occurs when the load demand has been satisfied and the RECYCLE LIMIT (terminal 5) is open. This forces the control to close the main fuel valves by de-energizing MAIN_direct (terminal 18) and MAIN_piloted (terminal 19) outputs. The combustion air blower remains on for post-purge. Flame afterburn is allowed during this phase

16) SHUTDOWN

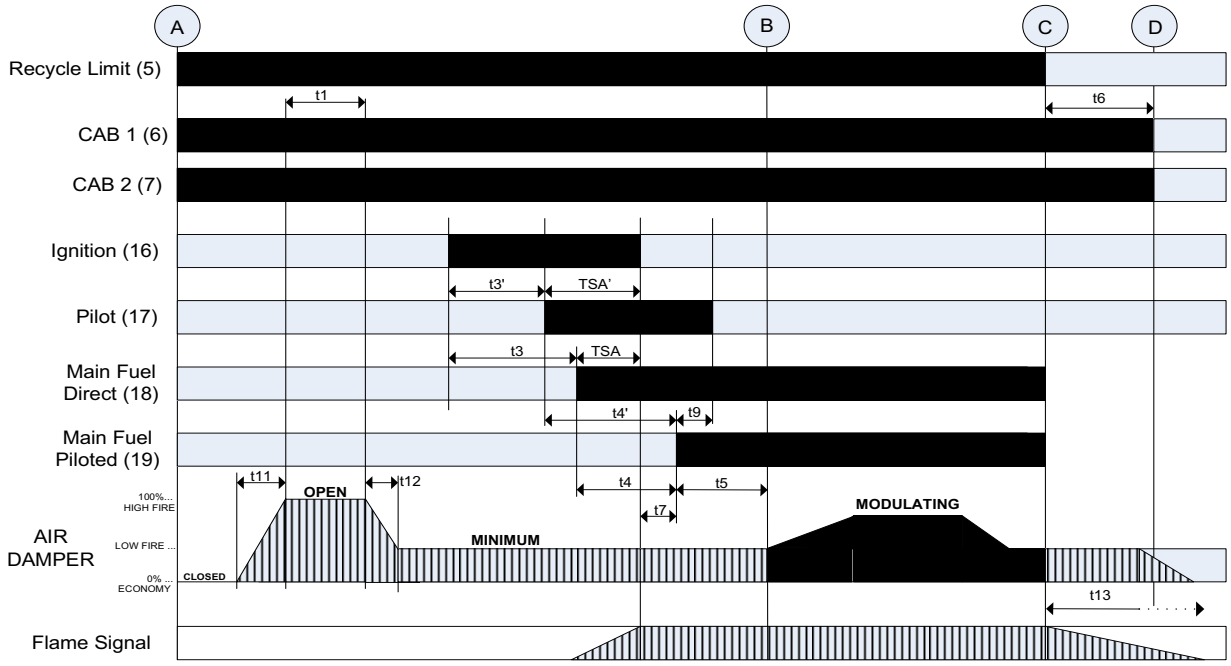
The control proceeds to purge the combustion chamber for a period of time (length of post-purge is based on the control series installed). Then it proceeds to the MINIMUM (low-fire) position and later to the ECONOMY (closed) position. After successfully completing a post-purge cycle, the control turns off the combustion air blower. Any flame afterburn is expected to be completed at the completion of post-purge.

17) LOCKOUT

The control proceeds to a lockout state when it detects an internal or external fault condition. The reset button and remote reset terminal can be used to exit the lockout state. However, the control will revert to lockout if the fault condition is not rectified.

FIGURE 4.

SEQUENCE TIMING:

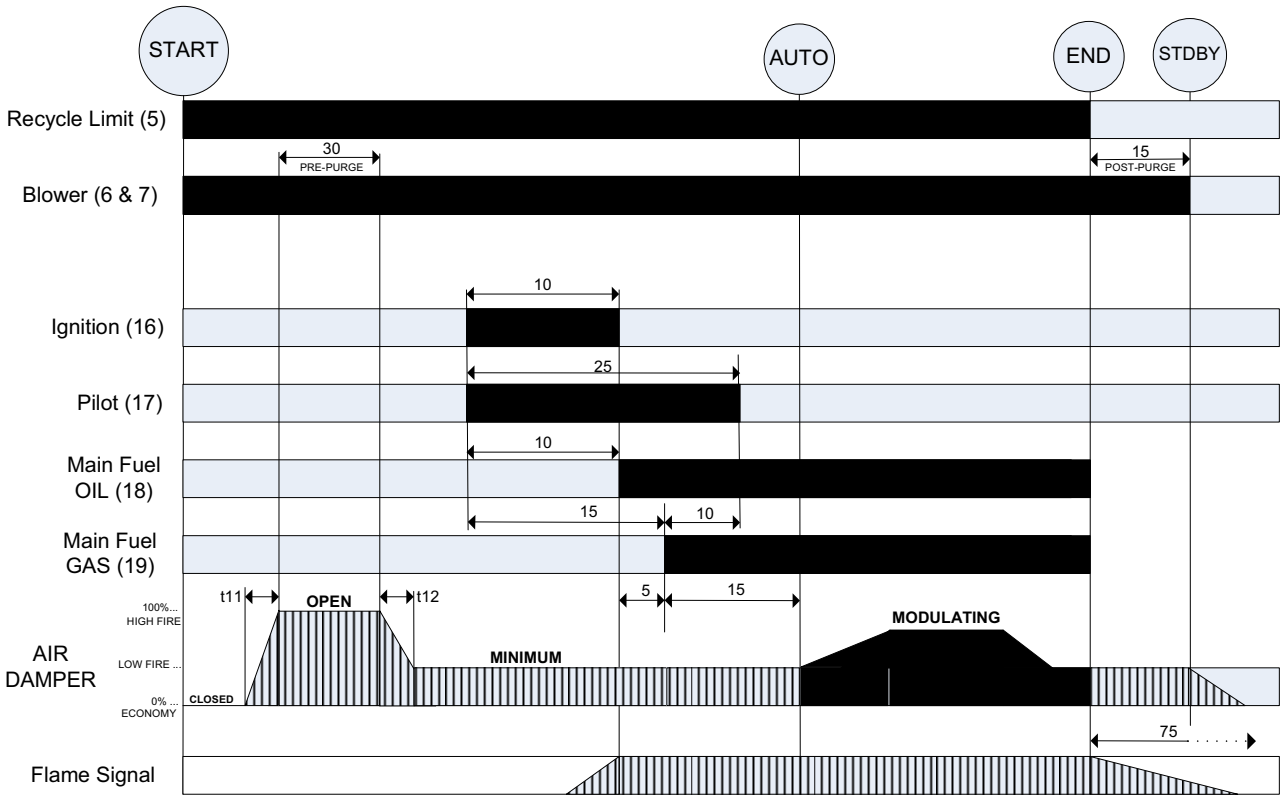


LEGEND

A – Start command (Call for Heat)
B – Release to modulation
C – End of burner fuel cycle
D – End of operating sequence

t1– Purge time
t3 – Pre-ignition time (direct fired)
t3' – Interval between Ignition and Pilot valve (piloted)
TSA' – Ignition safety time -- Interval between Pilot and Ignition (PTFI)
TSA – Ignition safety time -- Interval between Main Fuel Direct and Ignition
t4 – Interval between voltage on Pilot/Main Fuel Direct and Main Fuel Piloted
t4' – Internal between Pilot and the Main Fuel Piloted
t5 – Interval between Main Fuel Piloted and release to Modulation
t6 – Post-purge time
t7 – Pilot stabilization period
t9 – Interval between Main Fuel Piloted and removal of Pilot (MTFI)
t11 – Air damper running time to the HIGH FIRE position
t12 – Air damper running time to the LOW FIRE position
t13 – Permisible afterburn time

SEQUENCE TIMING S6:



LEGEND

A – Start command (Call for Heat)
B – Release to modulation
C – End of burner fuel cycle
D – End of operating sequence

t1– Purge time
t3 – Pre-ignition time (direct fired)
TSA' – PTFI
t4 – Interval between voltage Main Fuel Oil and Main Fuel Gas
t4' – Internal between Pilot and the Main Fuel Gas
t5 – Interval between Main Fuel Gas and release to Modulation
t6 – Post-purge time
t7 – Pilot stabilization period
t9 – MTFI
t11 – Air damper running time to the HIGH FIRE position
t12 – Air damper running time to the LOW FIRE position
t13 – Permissible afterburn time

TIMING	S6
t1	30
t3	10
TSA'	10
t4	5
t4'	15
t5	15
t6	15
t7	5
t9	10
t11	5[a]
t12	5[a]
t13	75
FFRT	**4.0**

NOTE:
a. Minimum time 5 seconds
Maximum time 10 minutes

Table 7:

Times are in seconds		BURNERPRO SERIES (50Hz)			
TIMING	**DESCRIPTION**	**S1**	**S2**	**S3**	**S6**
t1	Purge time	36[a]	31[a]	37[a]	30[a]
t3	Pre-ignition time (direct fired)	4	6	5	10
t3'	Pre-ignition time (piloted)	4	6	2.5	0
TSA	Ignition safety time (direct ignition)	2[b]	3[b]	2.5[b]	0[b]
TSA'	Ignition safety time (PTFI)	2[b]	3[b]	5[b]	10[b]
t4	Interval between voltage on Pilot/Main Fuel Direct and Main Fuel Piloted	10	11.5	12.5	5
t4'	Internal between start of TSA and the main fuel piloted	10	11.5	15	15
t5	Interval between Main Fuel Piloted and release to Modulation	10	11.5	12.5	15
t6	Postpurge time	12[a]	17[a]	15[a]	15[a]
t7	Pilot stabilization period	8	8.5	10	5
t9	Interval between Main Fuel Piloted and removal of Pilot (MTFI)	2	3	5	10
t11	Air damper running time to the HIGH FIRE position	OPTIONAL			
t12	Air damper running time to the LOW FIRE position	OPTIONAL			
t13	Permissible afterburn time (Post-purge + 30s)	42	47	45	75
FFRT	Flame Failure Response Time (FFRT)	1.0[b]			4.0[b]

Times are in seconds		BURNERPRO SERIES (60Hz)			
TIMING	**DESCRIPTION**	**S1**	**S2**	**S3**	**S6**
t1	Purge time	30[a]	25.8[a]	30.8[a]	30[a]
t3	Pre-ignition time (direct fired)	3.3	5	4.2	10
t3'	Pre-ignition time (piloted)	3.3	5	2.1	0
TSA	Ignition safety time (direct ignition)	2.0[b]	2.5[b]	2.1[b]	0[b]
TSA'	Ignition safety time (PTFI)	2.0[b]	2.5[b]	4.2[b]	10[b]
t4	Interval between voltage on Pilot/Main fuel direct and Main fuel piloted	8.3	9.6	10.4	5
t4'	Internal between start of TSA and the main fuel piloted	8.3	9.6	12.5	15
t5	Interval between Main fuel piloted and release to Modulation	8.3	9.6	10.4	15
t6	Postpurge time	10[a]	14.2[a]	12.5[a]	15[a]
t7	Pilot stabilization period	6.7	7.1	8.3	5
t9	Interval between Main fuel piloted and removal of pilot (MTFI)	1.7	2.5	4.2	10
t11	Air damper running time to the OPEN (HIGH FIRE) position	OPTIONAL			
t12	Air damper running time to the MINIMUM (LOW FIRE) position	OPTIONAL			
t13	Permissible afterburn time (Post-purge + 30s)	40	44.2	42.5	75
FFRT	Flame Failure Response Time (FFRT)	1.0[b]			4.0[b]

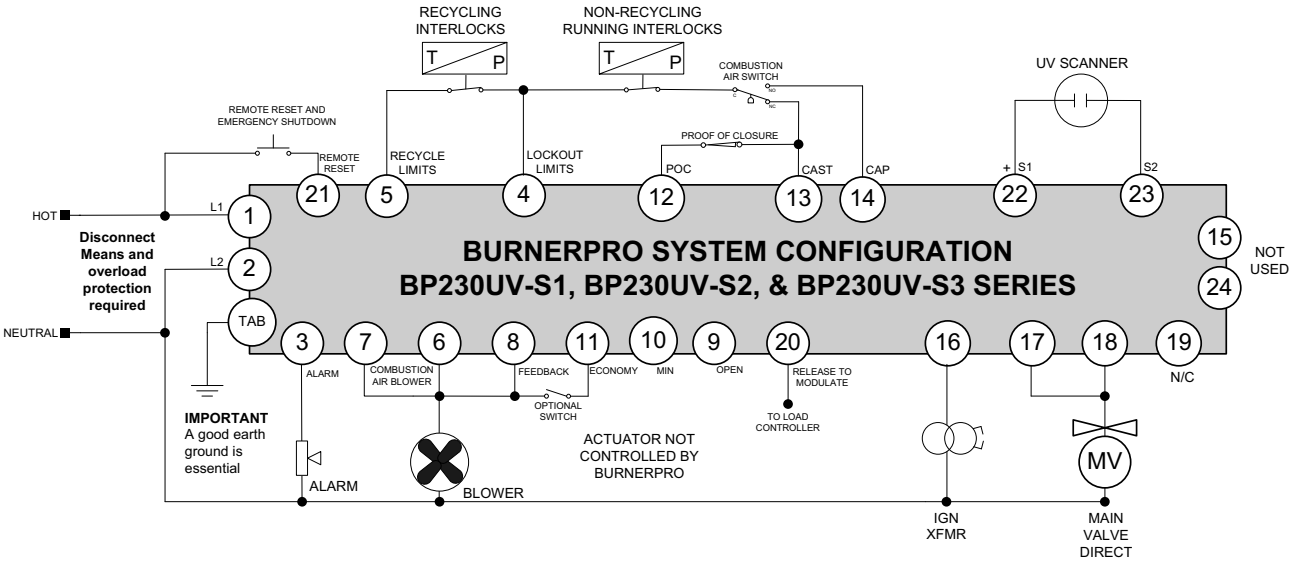
NOTE: unless stated as minimum or maximum, timings are nominal values.

a: Minimum time

b: Maximum time

FIGURE 5.

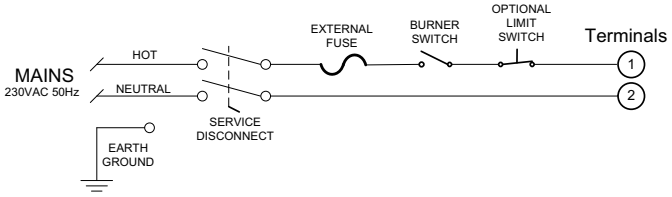
EXAMPLE WIRING DIAGRAM FOR SINGLE STAGE BURNER w/ DIRECT IGNITION



1. No Pilot -- Main flame is established shortly after Ignition transformer is energized (see timing table).
2. MIN represents the LOW FIRE position.
3. OPEN represents the HIGH FIRE position.
4. POC represents Proof of Closure – otherwise known as Fuel Valve End Switch.
5. Recycling Interlocks are general one or more limits switches in series (High/Low gas pressure, Oil temperature, etc) that are used to stop the burner when the limit switch opens and restart when the limit switch recloses.
6. Non-Recycling Interlocks are general one or more limits switches in series (High steam pressure, Low water, etc) that are used to stop the burner when the limit switch opens and prevent it from restarting until both the limit switch recloses and the manual/remote reset is activated.
7. CAST is defined as the Combustion Air Switch Test.
8. CAP is defined as the Combustion Air Prove.
9. Combustion Air Blower Terminals 6 & 7 are tied internally.

All wiring must comply with regional and local codes.

Typical Mains connection

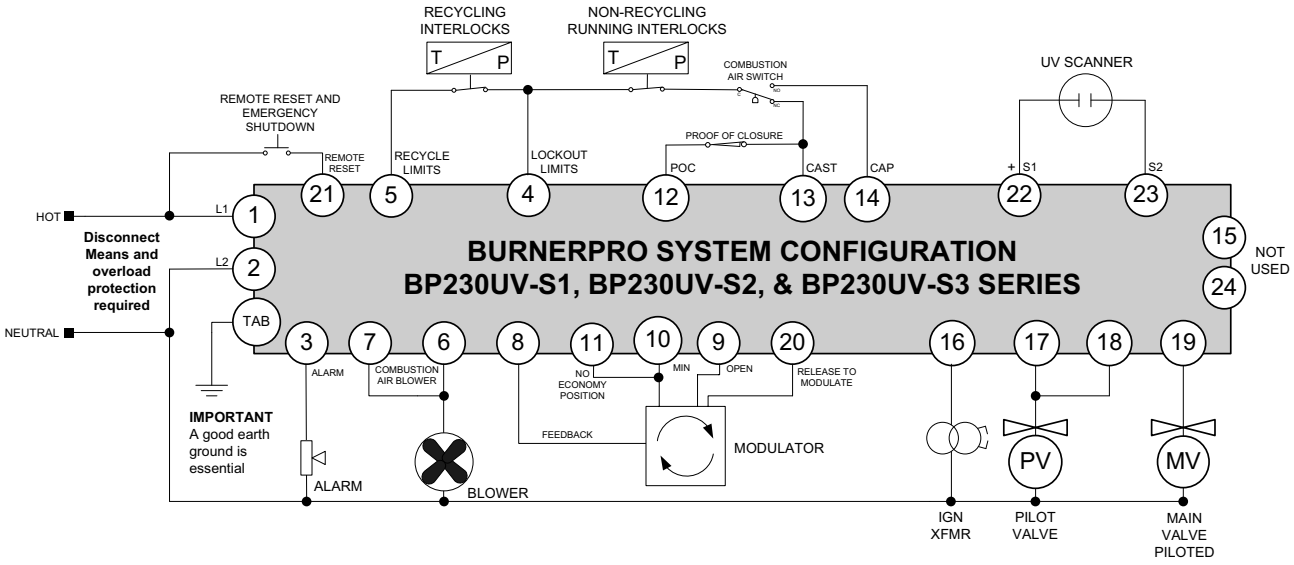


Caution: All safety limit switches should be approved as limit controls and should be wired directly in the circuit of the Flame Safeguard control. The use of electronic switches to close interlock circuits may cause erratic operation.

Proper grounding is necessary. Wiring base ground terminal should be attached to grounded bonding screw in cabinet

FIGURE 6.

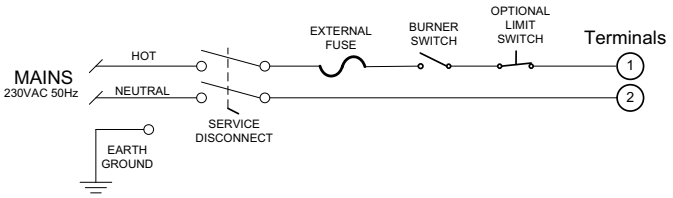
EXAMPLE WIRING DIAGRAM FOR MODULATING BURNER w/ INTERMITTENT PILOT



1. Pilot is on when burner is on.
2. MIN represents the LOW FIRE position.
3. OPEN represents the HIGH FIRE position.
4. POC represents Proof of Closure – otherwise known as Fuel Valve End Switch.
5. Recycling Interlocks are general one or more limits switches in series (High/Low gas pressure, Oil temperature, etc) that are used to stop the burner when the limit switch opens and restart when the limit switch recloses.
6. Non-Recycling Interlocks are general one or more limits switches in series (High steam pressure, Low water, etc) that are used to stop the burner when the limit switch opens and prevent it from restarting until both the limit switch recloses and the manual/remote reset is activated.
7. CAST is defined as the Combustion Air Switch Test.
8. CAP is defined as the Combustion Air Prove.
9. Combustion Air Blower Terminals 6 & 7 are tied internally.

All wiring must comply with regional and local codes.

Typical Mains connection

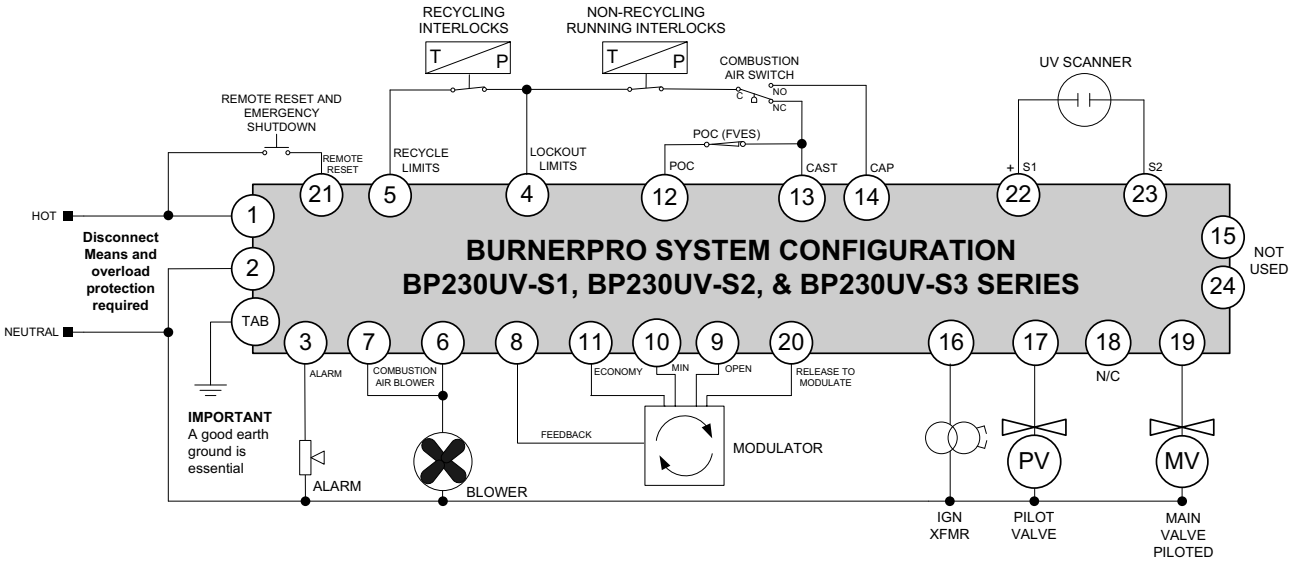


Caution: All safety limit switches should be approved as limit controls and should be wired directly in the circuit of the Flame Safeguard control. The use of electronic switches to close interlock circuits may cause erratic operation.

Proper grounding is necessary. Wiring base ground terminal should be attached to grounded bonding screw in cabinet

FIGURE 7.

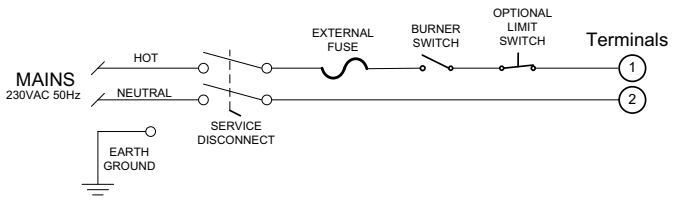
EXAMPLE WIRING DIAGRAM FOR MODULATING BURNER w/ INTERRUPTED PILOT



1. Pilot is only on during Ignition.
2. MIN represents the LOW FIRE position.
3. OPEN represents the HIGH FIRE position.
4. POC represents Proof of Closure – otherwise known as Fuel Valve End Switch.
5. Recycling Interlocks are general one or more limits switches in series (High/Low gas pressure, Oil temperature, etc) that are used to stop the burner when the limit switch opens and restart when the limit switch recloses.
6. Non-Recycling Interlocks are general one or more limits switches in series (High steam pressure, Low water, etc) that are used to stop the burner when the limit switch opens and prevent it from restarting until both the limit switch recloses and the manual/remote reset is activated.
7. CAST is defined as the Combustion Air Switch Test.
8. CAP is defined as the Combustion Air Prove.
9. Combustion Air Blower Terminals 6 & 7 are tied internally.
10. If equipped, the ECONOMY position may be used to fully close the air damper. Thus, reducing heat losses.

All wiring must comply with regional and local codes.

Typical Mains connection



Caution: All safety limit switches should be approved as limit controls and should be wired directly in the circuit of the Flame Safeguard control. The use of electronic switches to close interlock circuits may cause erratic operation.

Proper grounding is necessary. Wiring base ground terminal should be attached to grounded bonding screw in cabinet

DESCRIPTION OF FUNCTIONS OF OPERATING CONTROLS

1. **Limit Switches:** These are generally pressure, water level or temperature activated. There are two types which are:

   a. Recycle - when it is desired to start the burner or a call for heat is present, the limit switch closes causing the burner start-up sequence to begin. When it is desired to stop the burner or the setpoint has been satisfied, the limit switch opens causing the burner to stop. The recycle limit is connected between terminal 4 and 5.

   b. Non-Recycle/Lockout -when it is necessary to stop the burner when the limit switch opens and prevent it from starting until both the limit switch recloses and the manual reset is activated. The non-recycle limit is connected between terminals 4 and 14.

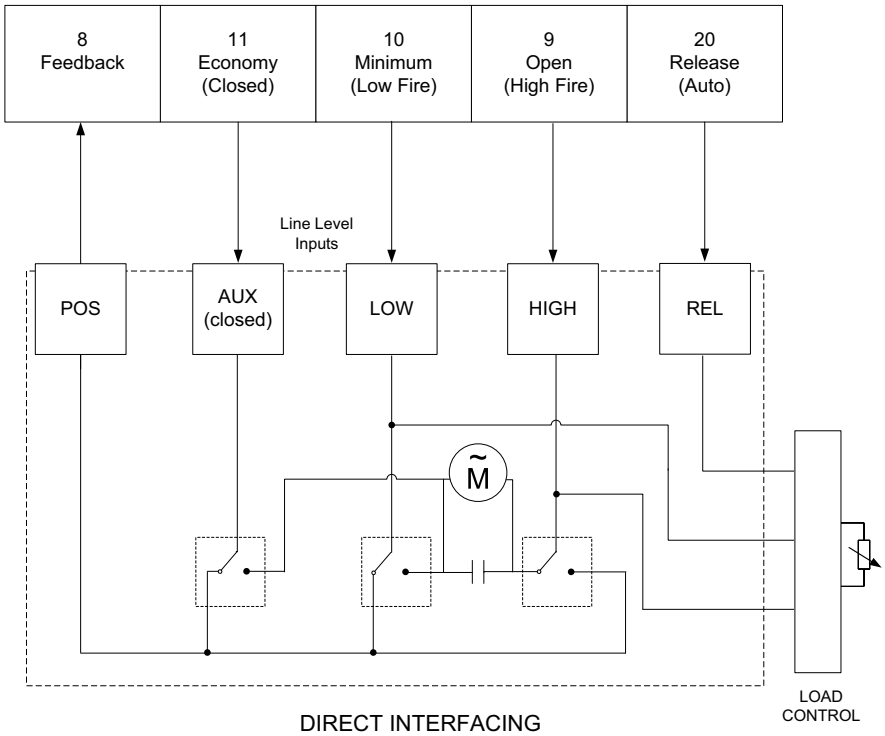
2. **Proof of Closure Interlock:** This is generally an integral switch mounted on the main fuel valve and activated by the valve stem. It is connected between Terminal 4 & 12 when burner is idle. The POC switch interlock prevents a burner start-up if the valve stem is not in the "valve closed" position. This interlock must remain closed while in STANDBY and until the start of PTFI.

3. **Purge Interlock:** Generally a firing rate motor linkage position switch or a differential air-pressure switch, that proves a maximum purge air flow rate. It is connected between Terminals 8 and 9. The purge interlock proves that the air damper is fully open and purge air flow rate is at maximum during the purge.

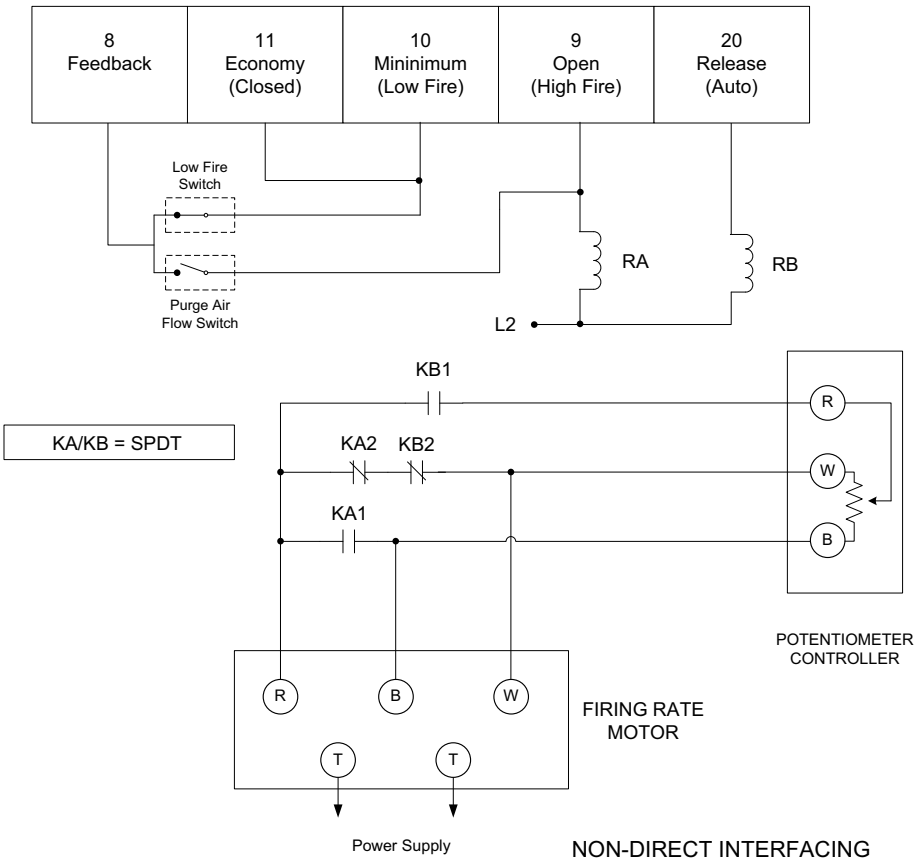
3. **Running Interlocks:** These generally are high and low fuel pressure switches, oil temperature switches, atomizing media pressure switches, and excess smoke density controls. These interlocks prove proper conditions for normal operation of the burner.

CONNECTION TO AN EXTERNAL ACTUATOR

BurnerPRO is designed to interface with an external actuator. It offers direct interfacing to common actuators that support line voltage signaling (see figure below). It can also be wired with low voltage actuators with the aid of interposing relays (see figure below).



DIRECT INTERFACING



NON-DIRECT INTERFACING

LOCKOUTS

When a safety shutdown occurs, the control LEDs indicate the reason for the lockout. The alarm circuit (Terminal "3") is energized. The non-volatile memory remembers the status of the control even if a power failure occurs. By momentarily depressing and releasing the manual reset button on the control or Terminal 21 remote reset, the control can be reset. The button must be held down for one second and then released. Very little force is required to do this. Do not press hard.

RESETTING THE CONTROL

The BurnerPRO system contains 2 methods of reset: Push button reset and remote terminal reset. The remote reset should be a normally open switch connected from line voltage to terminal 21 (see example wiring diagrams).

- Reset is required following a non-volatile lockout.
- Depressing the push button reset momentarily causes the system to recover from a lockout.
- Depressing and releasing the reset button during run mode causes the control to go into lockout.
- The BurnerPRO limits the amount of remote reset attempts to 5 tries in a 15 minutes window.

BURNERPRO LED ERROR / LOCKOUT CODES

During an alarm condition, the status LED turns solid red. The remaining LEDs are illuminated as a coded sequence identifying the reason for the lockout. The following table shows the various LED Lockout codes:

WARNING: The equipment described in this manual is capable of causing property damage, severe injury, or death. It is the responsibility of the owner or user to ensure that the equipment described is installed, operated and commissioned in compliance with the requirements of all national and local codes.

WARNING!!!

Boiler operation, maintenance, and troubleshooting shall only be conducted by trained personnel. Persons troubleshooting lockouts or resetting the control must respond properly to troubleshooting error codes as described in this product bulletin.

Jumpers being used to perform static test on the system must only be used in a controlled manner and must be removed prior to the operation of the control. Such tests may verify the external controllers, limits, interlocks, actuators, valves, transformers, motors and other devices are operating properly. Such tests must be conducted with manual fuel valves in the closed position only. Replace all limits and interlocks not operating properly, and do not bypass limits in interlocks. Failure to follow these guidelines may result in an unsafe condition hazardous to life and property.

Table 8: BurnerPRO LED ERROR / LOCKOUT CODES

NO	FAULT	LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	LED 7
	OPERATION LED ● = ON	FAN	OPEN DAMPER	CLOSED DAMPER	AUTO	IGNITION	FLAME	STATUS
	ICON							
1	MAIN MCU INPUT DIAG FAULT	●						RED
2	LOCAL RESET		●					RED
3	CAB_FAULT	●	●					RED
4	SUPERVISORY MCU INPUT DIAG FAULT			●				RED
5	RESET LIMIT CROSSED	●		●				RED
6	NOT USED							
7	SPI COMMUNICATION FAULT	●	●	●				RED
8	REMOTE RESET				●			RED
9	NOT USED							
10	MAIN PROGRAM SEQ FAULT		●		●			RED
11	RAM TEST	●	●		●			RED
12	SUPV PROGRAM SEQ FAULT			●	●			RED
13	INPUT READING FAULT	●		●	●			RED
14	TIMER2 FAULT		●	●	●			RED
15	CPU TEST FAIL	●	●	●	●			RED
16	FLAME LOSS PTFI	●				●		RED
17	CHECK WIRING FAULT		●			●		RED
18	SAFETY RELAY FAULT	●	●			●		RED
19	FUEL VALVE OPEN FAULT			●		●		RED
20	FLAME LOSS MTFI	●		●		●		RED
21	SAFETY RELAY WELDING FAULT		●	●		●		RED
22	SUPV SELF-TEST	●	●	●		●		RED
23	SUPV CS ROM FAIL				●	●		RED
24	FLAME LOSS AUTO	●			●	●		RED
25	SUPV RAM CHECK FAIL		●		●	●		RED
26	SUPV INTERNAL ERROR	●	●		●	●		RED
27	FLAME DETECTED SHUTDOWN MODE			●	●	●		RED
28	NOT USED							RED
29	SUPV TEMP RANGE FAULT		●	●	●	●		RED

NO	FAULT	LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	LED 7
30	ROM FAILURE	●	●	●	●	●		RED
31	NOT USED							
32	CHECK MODE TIMEOUT	●					●	RED
33	STANDBY FALSE FLAME		●				●	RED
34	NOT USED							
35	SW WDT RESET			●			●	RED
36	SW RESET	●		●			●	RED
37	INPUTS WAITING TIME FAULT		●	●			●	RED
38	SUPV SW WDT RESET	●	●	●			●	RED
39	SUPV SW RESET				●		●	RED
40	HARDWARE RESET	●			●		●	RED
41	SUPV HARDWARE RESET		●		●		●	RED
42	MAIN LOOP STUCK FAULT	●	●		●		●	RED
43	SUPV LOOP STUCK FAULT			●	●		●	RED
44	SUPV TIMER2 FAULT	●		●	●		●	RED
45	MAIN AC PEAK MISSING FAULT		●	●	●		●	RED
46	SUPV AC PEAK MISSING FAULT	●	●	●	●		●	RED
47	UV PULSE INPUT MISSMATCH					●	●	RED
48	SUPERVISORY MCU ADC FAULT	●				●	●	RED
49	MAIN MCU ADC FAULT		●			●	●	RED
50	IGNITION FEEDBACK FAULT	●	●			●	●	RED
51	PILOT_FEEDBACK_FAULT			●		●	●	RED
52	MAINP_FEEDBACK_FAULT	●		●		●	●	RED
53	FEEDBACK_WAITING_TIME_EXPIRE		●	●		●	●	RED
54	MAIND_FEEDBACK_FAULT	●	●	●		●	●	RED
55	INTERRUPT DIAG FAULT				●	●	●	RED
56	FALSE_FLAME_ERROR			●	●	●	●	RED
57	POWERON_FALSE_FLAME_ERROR	●		●	●	●	●	RED
58	OPEN_FEEDBACK_READING_FAULT		●	●	●	●	●	RED
59	ADJACENT PIN SHORT FAULT	●			●	●	●	RED
60	LOCAL RESET DEBOUNCE FAULT	●	●	●	●	●	●	RED
61	POC OPEN FAULT		●		●	●	●	RED
62	STRONG UV FLAME FAULT	●	●		●	●	●	RED
63	SPI CRC FAULT					●		RED

This table shows the various required LED error/lockout codes displayed on the BurnerPRO after a fault or error has occurred.

Table 9: LOCKOUT CODE EXPLANATION:

The following list provides error code explanations to help people in the field respond more effectively to issues that arise.

NO	FAULT	POSSIBLE REMEDY
1	MAIN MCU INPUT DIAG FAULT	Initial power diagnostic failure. Make sure inputs and outputs are in the proper state at power on.
2	LOCAL RESET	User initiated manual reset or faulty reset switch.
3	CAB_FAULT	Air Prove [terminal 14] signal did not prove at the end of ignition safety time or loss of Air Prove signal during burner operation
4	SUPERVISORY MCU INPUT DIAG FAULT	“System detected voltage on terminal 16, 17, 18, or 19 at the wrong time or voltage is not present when needed. Check wiring and make sure the system is operating on a single line phase (50/60Hz)”
5	RESET LIMIT EXCEEDED	Remote reset button pressed more than 5 times in 15 minutes. User should address lockout condition. Reset functionality will be re-established in a few minutes.
6	NOT USED	
7	SPI COMMUNICATION FAULT	Reset the system to continue normal operation. Contact distributor/factory if error persists.
8	REMOTE RESET	User pressed remote reset or erratic/bouncy remote switch.
9	NOT USED	
10	MAIN PROGRAM SEQ FAULT	Replace control. Contact distributor/factory.
11	RAM TEST	Replace control. Contact distributor/factory.
12	SUPV PROGRAM SEQ FAULT	Replace control. Contact distributor/factory.
13	INPUT READING FAULT	Please check wiring and make sure the system is operating on a single line phase (50/60Hz)
14	TIMER2 FAULT	Replace control. Contact distributor/factory.
15	CPU TEST FAIL	Replace control. Contact distributor/factory.
16	FLAME LOSS PTFI	Check scanner sighting and confirm that the pilot is established during PTFI. Check fuel delivery system.
17	CHECK WIRING FAULT	“System detected voltage on terminal 16, 17, 18, or 19 at the wrong time or voltage is not present when needed. Check wiring and make sure the system is operating on a single line phase (50/60Hz)”
18	SAFETY RELAY FAULT	Replace control. Contact distributor/factory.
19	FUEL VALVE OPEN FAULT	Check wiring for POC. Fuel valves may not be fully closed.
20	FLAME LOSS MTFI	Check scanner sighting and confirm that the main flame is established during MTFI. Check fuel delivery system.
21	SAFETY RELAY WELDING FAULT	Replace control. Contact distributor/factory.
22	SUPV SELF-TEST	Replace control. Contact distributor/factory.
23	SUPV CS ROM FAIL	Replace control. Contact distributor/factory.
24	FLAME LOSS AUTO	Check wiring. Check scanner. Check fuel delivery system
25	SUPV RAM CHECK FAIL	Replace control. Contact distributor/factory.
26	SUPV INTERNAL ERROR	Replace control. Contact distributor/factory.
27	FLAME DETECTED SHUTDOWN MODE	False flame detected after the permissible afterburn period. Check boiler and fuel delivery system.
28	NOT USED	
29	SUPV TEMP RANGE FAULT	Ambient temperature below -40oC or more than 70oC
30	ROM FAILURE	Replace control. Contact distributor/factory.
31	NOT USED	
32	CHECK MODE TIMEOUT	Check mode expiration window (30 minutes) elapsed.
33	STANDBY FALSE FLAME	False flame detected during Standby state. Check wiring. Check scanner.
34	NOT USED	
35	SW WDT RESET	Internal software reset by Microcontroller. Contact distributor/factory if error persists.
36	SW RESET	Internal software reset by Microcontroller. Contact distributor/factory if error persists.

NO	FAULT	POSSIBLE REMEDY
37	INPUTS WAITING TIME FAULT	System was unable to satisfy combustion air switch test and/or proof of closure during a burner sequence. Check wiring. Check air-flow switch.
38	SUPV SW WDT RESET	Internal software reset by Microcontroller. Contact distributor/factory if error persists.
39	SUPV SW RESET	Internal software reset by Microcontroller. Contact distributor/factory if error persists.
40	HARDWARE RESET	Replace control. Contact distributor/factory if error persists.
41	SUPV HARDWARE RESET	Replace control. Contact distributor/factory if error persists.
42	MAIN LOOP STUCK FAULT	Replace control. Contact distributor/factory.
43	SUPV LOOP STUCK FAULT	Replace control. Contact distributor/factory.
44	SUPV TIMER2 FAULT	Replace control. Contact distributor/factory.
45	MAIN AC PEAK MISSING FAULT	Check Mains voltage. Contact distributor/factory.
46	SUPV AC PEAK MISSING FAULT	Check Mains voltage. Contact distributor/factory.
47	UV PULSE INPUT MISSMATCH	Replace control. Contact distributor/factory.
48	SUPERVISORY MCU ADC FAULT	Replace control. Contact distributor/factory.
49	MAIN MCU ADC FAULT	Replace control. Contact distributor/factory.
50	IGNITION FEEDBACK FAULT	System detected voltage on terminal 16 at the wrong time or voltage is not present when needed. Check wiring and make sure grounding is adequate.
51	PILOT_FEEDBACK_FAULT	System detected voltage on terminal 17 at the wrong time or voltage is not present when needed. Check wiring and make sure grounding is adequate.
52	MAINP_FEEDBACK_FAULT	System detected voltage on terminal 19 at the wrong time or voltage is not present when needed. Check wiring and make sure grounding is adequate.
53	FEEDBACK_WAITING_TIME_EXPIRE	Loss of actuator feedback for more than 10 minutes. Check wiring. Check modulation equipment.
54	MAIND_FEEDBACK_FAULT	System detected voltage on terminal 18 at the wrong time or voltage is not present when needed. Check wiring and make sure grounding is adequate.
55	INTERRUPT DIAG FAULT	Replace control. Contact distributor/factory.
56	FALSE_FLAME_ERROR	False flame detected before Ignition. Check wiring. Check scanner. Make sure grounding is adequate.
57	POWERON_FALSE_FLAME_ERROR	False flame detected at power on. Check wiring. Check scanner. Make sure grounding is adequate.
58	OPEN_FEEDBACK_READING_FAULT	System detected voltage on terminal 8 at the wrong time or voltage is not present when needed. Check wiring and make sure grounding is adequate.
59	ADJACENT PIN SHORT FAULT	Replace control. Contact distributor/factory.
60	LOCAL RESET DEBOUNCE FAULT	Local reset button held for more than 10 seconds or reset button is stuck.
61	POC OPEN FAULT	Fuel valve is open at the wrong time OR check wiring
62	STRONG UV FLAME FAULT	Scanner too close to flame. Add distance between scanner and flame OR use orifice to reduce field of view.
63	SPI CRC FAULT	Replace control. Contact distributor/factory

NOTICE

When Fireye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireye warranty, as stated in its General Terms and Conditions of Sale, pertains only to the Fireye products and not to any other equipment or to the combined system or its overall performance.

WARRANTIES

FIREYE guarantees for *one year from the date of installation or 18 months from date of manufacture* of its products to replace, or, at its option, to repair any product or part thereof (except lamps and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order. **THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES AND FIREYE MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.** Except as specifically stated in these general terms and conditions of sale, remedies with respect to any product or part number manufactured or sold by Fireye shall be limited exclusively to the right to replacement or repair as above provided. In no event shall Fireye be liable for consequential or special damages of any nature that may arise in connection with such product or part.

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BP-1001
NOVEMBER 10, 2017
Supersedes October 24, 2017

E1

DATA SHEET

TRS830P

Description: **TR.S 230V 50Hz 1,5/1,6A 1x8kV 30mA 25% C.440 VIRAS**

GENERAL CHARACTERISTICS

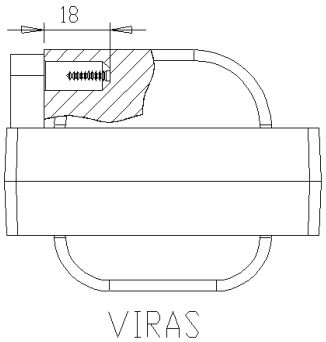
The ignition transformer is CE marked, It undergo to the European low voltage directives 2006/95/CE and in particular the directives EN61558-2-3:2011-04 and EN60730-2-5:2002; it is made in compliance with the electromagnetic compliance 2004/108/CE and the directive EN61000-3-2:2006/A2:2009 and EN61000-3-3:2008. By using the advised accessories the transformer is compliant with the prescription of the generic standard EN 55014-1:2006/A1:2009 and EN55014-2:1997/A2:2008. Every single transformer, at the end of its production cycle, is tested as reported on the table below.
The ignition transformer shall be used with a control unit.
An high voltage symbol with yellow color filling has to be applied outside of the device where the transformer is mounted.

RATED DATA

Primary Supply Voltage E [V]	**230 V**
Frequency [Hz]	**50 Hz**
Primary Current [A]	**1,5/1,6A A**
Apparent Power [VA]	**345/368 VA**
Secondary Voltage at open circuit RMS [kV]±10%	**1x8 kV**
Secondary Peak Voltage at open circuit [kV]	**11,31 kV**
Secondary Current in short circuit RMS [mA] ±10%	**30 mA**
Duty Cycle	**25% on 4'**
Approvals	CE

MECHANICAL DATA

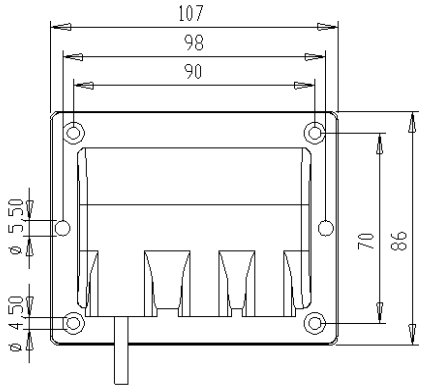
External enclosure	**Epoxy thermosetting resin**
High Voltage output	**VIRAS**
High Voltage connections	**Screws**
Ambient Temperature - Protection	**Ta 35°C - IP 00**
Packaging	**10 pcs box**
Weight [kg]	**1,944 Kg**

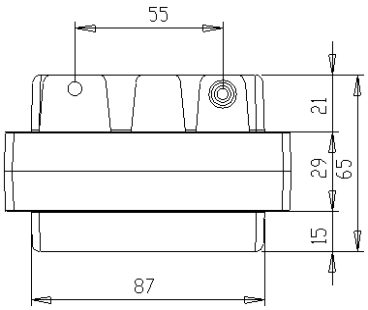


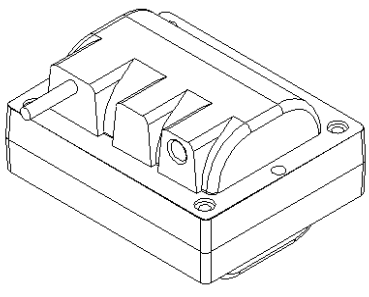
PRIMARY CONNECTIONS

Low Voltage connection	**Cable**
Actual cable L. [mm] **380 mm**	Description **SIL 3x0,50 3 END SPLICES TERMINALS**

DIMENSIONS







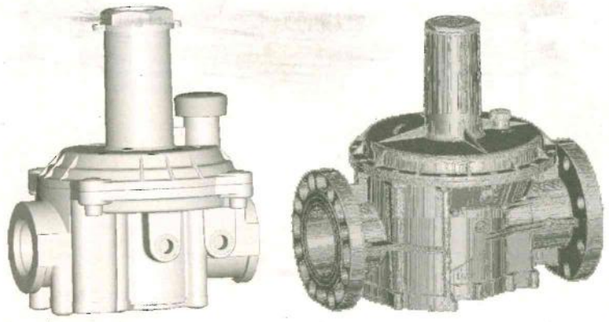
Note
Date **23/05/2013** **Paolo Comin**


G4

Cod. 940.00203.00.H

I MANUALE USO E MANUTENZIONE
GB AUS USE AND MAINTENANCE MANUAL
F MANUEL USAGE ET ENTRETIEN
E USO Y MANUTENCION MANUAL
D MANUELLER GEBRAUCH UND WARTUNG
P USO E MANUTENÇÃO MANUAIS
PL INSTRUKCJA UŻYTKOWANIA I KONSERWACJI
TR ELLE YAPILAN GIYMEK HER IKISI BAKIM
RUS РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ
RO PUNEREA IN FUNCTIUNE

GOVERNOR
CLASS: A - GROUP:2
GAS FAMILIES: 1°- 2°- 3°



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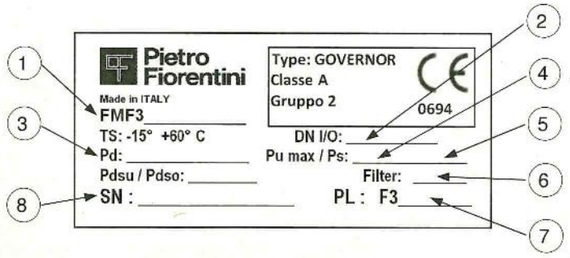
Tel +39.0444.968511 web site: www.fiorentini.com



1 Codice-Modello / Code-Model / Code-Modèle / Modelo / Código-Modelo / Model / Cod. Model / Code-Modell / Kod modelu / код модели

2 Raccordi / Unions / Raccords / Conexione / Racordes / Bağlantı / Racorduri / Armaturen / osprzęt / арматура

3 Pressione regolata / Outlet pressure / Pression reglee / Presión nominal de salida / Pressão regulada / Çıkış Basıncı / Presiunea la iesire / Ausgangsdruck / ciśnienie na wylocie / давление на выходе

4 Campo pressione di ingresso / Range on inlet pressure / Champ pression d'entree / Campo de presión de entrada / Gama de pressão de entrada / Çıkış Basınç Aralığı / Plaja presiunii la intrare / Bereich auf Vordruck / Zakres od ciśnienia wlotowego / Диапазон на входном давлении

5 Pressione ammissibile / Permitted operating pressure / Pression admissible / Presión admisible / Pressão admissível / İzin verilebilir Giriş Basınç Aralığı / Presiunea admisibila / zulässigen Druck / dopuszczalne ciśnienie / допустимое давление

6 Presenza del filtro / Filter presence / Présence du filtre / Presencia del filtro / Presença do filtro / Filitre Mevcudiyeti / Prezenta filtrului / Präsenzfilter / filtr obecność / фильтр присутствие

7 Lotto di fabbrica / Lot number / Lot de fabbricacion / Número de lote / Número de lote / Lot Numarası Nr. de Fabricatie al lotului / Fabrik viel / Wiele fabrycznie / Завод много

8 Numero di serie / Serial number / Numéro de série / Número de serie / Número série / Seri numarasi / Număr de serie / Seriennummer / numer seryjny / серийный номер

Per questa carta non è stato abbattuto nessun albero. Carta riciclata al 100% - For this paper it has not been pulled down any tree. Recycled paper to 100% - Pour cet article il n'a été on bas d'aucun arbre. Papier réutilisé à 100% Para este papel não se cortou nenhuma árvore. Papel reciclado a 100% - Para este papel no se ha derribado ningun árbol. Papel reciclado al 100%

DIAGRAMMA DI PORTATA - DIAGRAM FLOW RATE
GOVERNOR Pu max 0,5 - 1bar WITHOUT FILTER

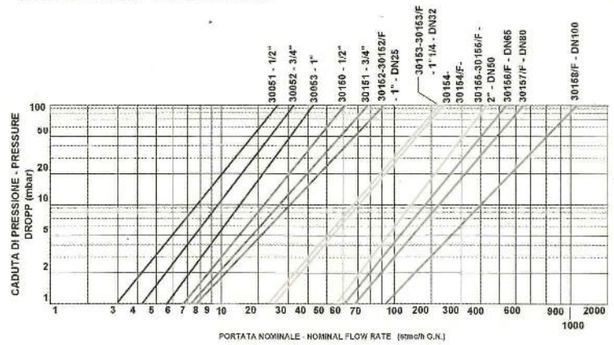


DIAGRAMMA DI PORTATA - DIAGRAM FLOW RATE
GOVERNOR Pu max 0,5 - 1bar WITH FILTER

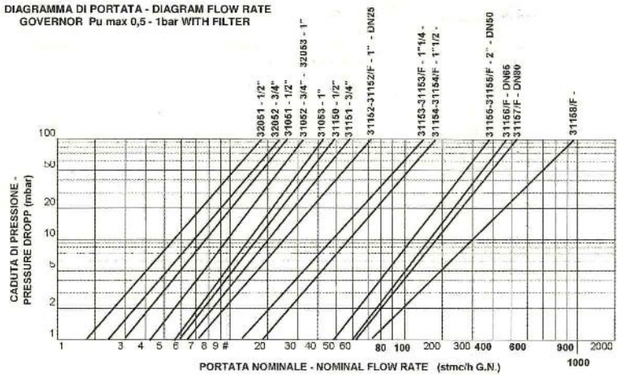


DIAGRAMMA DI PORTATA - DIAGRAM FLOW RATE
GOVERNOR Pu max 1bar WITHOUT FILTER
Inlet pressure <=350mbar (5 PSI)
and/or
Outlet pressure <=35mbar (0.5 PSI)

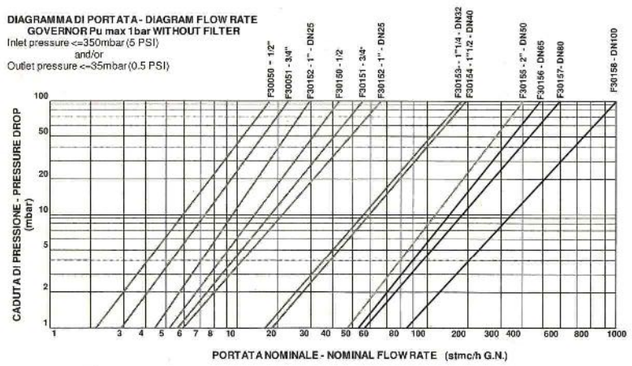
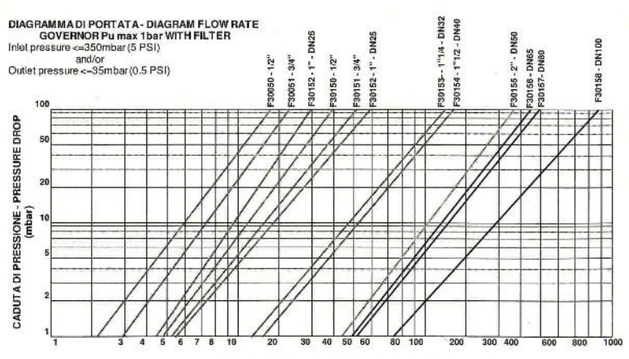


DIAGRAMMA DI PORTATA - DIAGRAM FLOW RATE
GOVERNOR Pu max 1bar WITH FILTER
Inlet pressure <=350mbar (5 PSI)
and/or
Outlet pressure <=35mbar (0.5 PSI)



I

1 VERIFICHE PRIMA DELLA MESSA IN GAS
- verificare che l'installazione sia eseguita secondo le norme vigenti e secondo le regole di buona tecnica. Verificare che i dati riportati in targa (Fig. 1) corrispondano a quanto richiesto da o dagli apparecchi di combustione collegati. Verificare che lo stabilizzatore sia installato secondo le indicazioni della presente, e in particolare verificare: presenza di almeno una valvola di intercettazione a monte e a valle; presenza a monte di un filtro specifico per il gas utilizzato e con portata adeguata; Rispettare la direzione del flusso come indicato dalla freccia sullo stabilizzatore; posizione corretta di montaggio dello stabilizzatore vedi schema A. Per eventuale collegamento del tubo di sfiato, rimuovere il tappo da 1/4" o 1/2" collegare con apposito raccordo un tubo da 1/2" e convogliarlo in una zona sicura.

2 MESSA IN GAS Aprire lentamente la valvola a monte. Aprire lentamente la valvola a valle del regolatore in modo di permettere un lento riempimento dell'intero impianto. Ad impianto in pressione aprire completamente la valvola di intercettazione a valle. Verificare che non ci siano fughe nel sistema. Spurgare l'impianto dall'aria contenuta. Verificare l'accensione degli apparecchi di combustione collegati. Verificare la pressione di funzionamento in fase dinamica con portate variabili e statica a portata nulla.

3 REGOLAZIONE DELLA PRESSIONE Gli stabilizzatori tarati direttamente in stabilimento ai valori richiesti dal Cliente, riportano i valori di taratura sulla targhetta. Per effettuare la taratura dello stabilizzatore eseguire quanto riportato di seguito. Rimuovere il tappo pos.1, ruotare la ghiera pos. 4 in senso orario per aumentare la pressione e antiorario per diminuirla. A taratura eseguita rimontare il tappo pos.1 ed eseguire eventuale piombatura.
Gli stabilizzatori garantiscono il lock-up (chiusura a portata nulla).

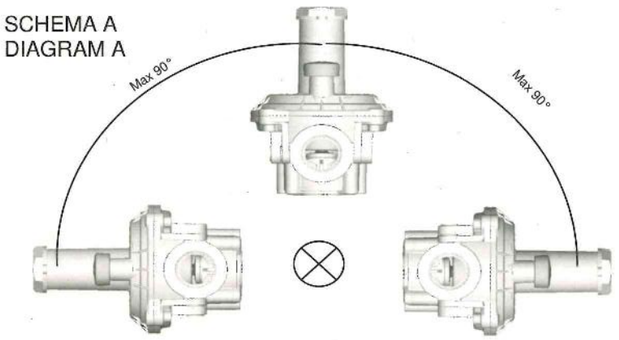
4 MODIFICA TARATURA CON CAMBIO MOLLA Scegliere la molla indicata in tabella. Svitare il tappo 1 e la ghiera 4,. Sostituire la molla esistente con quella scelta. Riposizionare tutti i componenti sopra descritti ed eseguire la nuova taratura come indicato nel paragrafo 3.

5 UTILIZZO DELLA PRESA DI PRESSIONE (OPTIONAL)
La presa di pressione posizionata in entrata ed uscita è protetta da un tappo in plastica. Prima di attivare la presa di pressione chiudere la valvola a monte e a valle e scaricare la pressione interna ello stabilizzatore. Effettuare un foro da 1.5mm sul fondo della filettatura e montare una presa di pressione o manometro con attacco da 1/8". (Optional). Aprire lentamente la valvola di monte e verificare la tenuta del componente installato. Ultimate le verifiche procedere alla messa in servizio dello stabilizzatore come paragrafo 2.

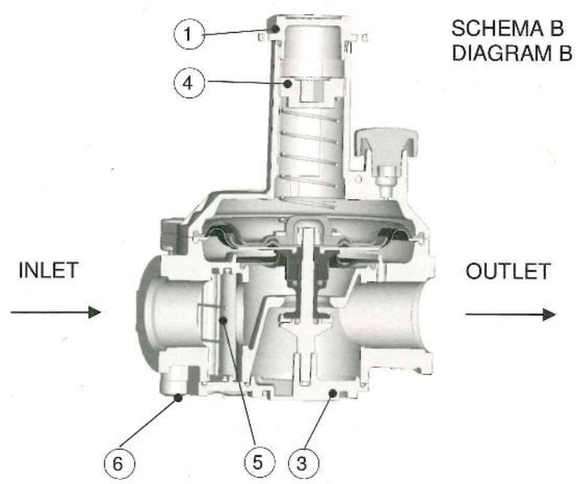
6 SOSTITUZIONE DELLA CARTUCCIA FILTRANTE (Versione con filtro)
Chiudere la valvola a monte e a valle e dello stabilizzatore, scaricare la pressione interna. Svitare le viti del coperchio inferiore pos.6 ASSICURANDOSI che all'interno del regolatore non vi sia pressione. Rimuovere il coperchio pos. 3, estrarre la cartuccia filtrante pos. 5 e sostituirla con la nuova posizionandola correttamente nella propria sede. Controllare scrupolosamente la guarnizione ed eventualmente sostituirla. Rimontare il coperchio avendo l'avvertenza di avvitare le viti seguendo la numerazione indicata sul coperchio. Aprire lentamente la valvola di monte e verificare la tenuta dello stabilizzatore. Ultimate le verifiche procedere alla messa in servizio dello stabilizzatore come paragrafo 2.

7 RACCOMANDAZIONI Non utilizzare il canotto del coperchio per compiere torsioni allo stabilizzatore. Verificare periodicamente l'impianto. Verificare periodicamente la pressione di valle. Verificare la tenuta di tutto il sistema. Eseguire periodicamente la manutenzione a tutte le apparecchiature di regolazione.
Temperatura di esercizio –15°C + 60°C
- NB il personale addetto alla manutenzione dovrà avere la necessaria competenza e utilizzare pezzi di ricambio originali. Verificare le condizioni di pulizia e integrità dei componentiin ingresso per evitare il deterioramento degli stessi.

SCHEMA A
DIAGRAM A



SCHEMA B
DIAGRAM B



F

1 VERIFICATION AVANT MISE EN GAZ Vérifier que l'installation est conforme aux règlementations en vigueur et aux règles de l'art; Vérifier que les indications de la plaque signalétique du régulateur (Fig.1), répondent aux besoins de l'installation; Vérifier que ce régulateur est installé conformément aux prescriptions ci-dessous, en particulier: Vérifier la présence d'un robinet d'arrêt à l'amont. Vérifier la présence d'un filtre adapté au débit demandé. Respecter la direction du flux comme indiqué par la flèche sur le stabilisateur. Pour le montage correct du stabilisateur se référer au schéma A. Pour le raccordement éventuel de l'évent, enlever le bouchon de 1/4" ou 1/2" assembler avec un raccord spécial un tuyau de 1/2" et l'acheminer dans une zone sûre.

2 MISE EN GAZ Ouvrir lentement le robinet d'arrêt. Ouvrir lentement la vanne d'alimentation de la canalisation aval. Quand le matériel est sous pression, ouvrir complètement la vanne. Vérifier qu'il n'y a pas de fuites dans le système. Vérifier la pression dynamique avec des débits variables et la pression statique à débit nul.

3 CONTRAINTES REGLEMENTAIRES Les stabilisateurs sont réglés en sortie d'usine à la valeur du débit indiquée par le client. Les variations possibles des valeurs sont indiquées sur la plaque signalétique. Pour ajuster cette valeur, il faut : dévisser la pièce 1, tourner dans le sens des aiguilles d'une montre la vis en laiton Rep 4 pour augmenter la pression et dans le sens inverse des aiguilles d'une montre la diminuer. Quand le réglage est terminé, revisser les bouchons rep1 et les sceller si nécessaire.
Les stabilisateurs assurent la fermeture a debit zero.

4 MODIFICATION DE L'ÉTALONNAGE PAR REMPLACEMENT DU RESSORT
Dévisser le bouchon 1 et la bague 4. Introduire le nouveau ressort. Remettre en place les composants sur mentionnés et exécuter le nouvel. Etalonnage comme décrit au paragraphe 3. Quand cette opération est terminée, visser le bouchon 1 et procéder à l'éventuel plombage.

5 UTILISATION DE LA PRISE DE PRESSION (Optionnel) La prise de pression positionnée en entrée et sortie est protégée par un bouchon en plastique. Avant d'activer la prise de pression fermer la vanne en amont et en aval et purger la pression intérieure du stabilisateur. Effectuer un trou de 1,5mm sur le fond du liseré et monter une prise de pression ou un manomètre avec filetage de 1/8." (optionnel). Ouvrir lentement la vanne en amont et vérifier la tenue du composant installé. Puis reprendre les instructions de mise en service du stabilisateur comme décrite au paragraphe 2.

6 REMPLACEMENT DE LA CARTOUCHE FILTRANTE Fermer la vanne en amont et en aval du stabilisateur, décharger la pression intérieure. Dévisser les vis du couvercle Rep.6 s'assurer qu'à l'intérieur du régulateur il y n'a de pas pression. Enlever le couvercle Rep. 7, extraire la cartouche filtrante. Rep 8 et la remplacer et la positionner correctement dans le siège. Contrôler la garniture scrupuleusement et éventuellement la remplacer. Remonter le couvercle en en vissant les vis en suivant la numération indiquée sur le couvercle. Ouvrir lentement la vanne en amont et vérifier la tenue du stabilisateur. Puis reprendre les instructions de mise en service du stabilisateur comme décrite au paragraphe 2.

7 RECOMMANDATIONS Périodiquement vérifier l'installation et la pression aval. Vérifier que le système entier fonctionne parfaitement (une odeur de gaz veut dire qu'une fuite est apparue). Périodiquement exécuter l'entretien de tout le matériel de régulation
Température d'exercice .-15°C + 60°C

NOTE: Les employés chargés de l'entretien doivent être compétents, avoir le niveau de connaissance requise et ne doivent utiliser que les pièces de rechange d'origines.
Vérifier l'état de propreté et l'intégrité des composants en entrée pour éviter leur détérioration.

GB

1 CHECK-IN BEFORE START UP
- Verify that the installation is performed according to the particular law in force and according to the valid technical rules; Verify that the data indicated on the regulator's type plate, (fig. 1) answer to the required terms from the instruments of combustion connected; Verify that regulator is installed according to the indications of this data sheet, and particularly: Verify the presence of an inlet and outlet stop valve; Verify the presence of a specific gas filter with suitable flow rate; Verify the correct assemblage position of governor. To respect the direction of the flow as pointed out by the arrow on the governor. For a correct assembly follow the mechanical diagram A. For any exhaust and/or vent pipes, remove the vent cap 1/4" or 1/2" on the cover, using the union provided, connect 1/2" pipe, being careful to locate the outlet in a safe place.

2 START UP Slowly open the inlet block valve; Slowly open the downstream valve partially, to allow a slow pressurizing of the downstream system; After the downstream system is pressurized, open completely the downstream block valve; Verify that there are no leakages in the system. Verify that the burner ignition is connected; Verify the working pressure at different flow rates and check lock up pressure at flow rate 0.

3 PRESSURE REGULATION ADJUSTMENT The governors are set ex works to the regulation pressure and flow rate value indicated by the client. The possible varying of the setting is indicated in the plate. For increasing or decreasing, please unscrew the cap 1, turning clockwise the ring nut 4 to increase the pressure and counterclockwise to decrease it. When the adjustment is finished, secure cap 1 and seal it if necessary.
The governors are able to lock-up at zero flow rate.

4 CHANGING THE SETTING BY SPRING REPLACEMENT
Choose the required type of spring as indicated on the table; unscrew the cap 1 and ring nut 4.
Fit the new spring, note the new setting value on the label. Reassemble the above parts and make a new setting as indicated in 3. When the adjustment is finished, secure cap 1 and seal it if necessary.

5 USE OF THE PRESSURE TEST POINT (Optional) Before any use of the test point close the inlet valve completely and depressurize the governor. Unscrew the centre bolt in the test plug and connect the plug to a gauge. Slowly open the inlet block valve and check tightness of the connected measuring equipment. (optional). Continue the start up as indicated in paragraph 2. Close and plug the test point when the measuring equipment is disconnected.

6 REPLACING THE FILTER CARTRIDGE Close the inlet and outlet valves and slowly depressurize the governor, ASSURE that there is no pressure inside the governor, then remove the screws on the cover. pos. 6. Remove the cover pos. 3, remove the filter cartridge pos. 5 and replace it with the new one. Place the new cartridge in its seat, and assure that the new cartridge fits perfectly inside the governor housing guide. CAREFULLY inspect the O-ring seal and replace it if necessary. Reassemble the cover, making sure that the cartridge fits perfectly in the cover seat, and tighten the screws crosswise. Pressurize the governor by SLOWLY open the inlet valve and check the seal around the cover and the screws, using foam or soapy water. After sucessful test, SLOWLY open the outlet valve.

7 RECOMMENDATIONS Do not use the governor as a lever. Check the equipment condition periodically. Check the downstream pressure periodically. Verify that the whole system works perfectly (the smell of gas odour indicates a leak). Perform periodical maintenance to all the regulation equipments.
Temperature of exercise .-15°C + 60°C

NOTE: The service people must be competent and should have the knowledge how to maintain the equipment correctly.
Check that the inlet components are clean undamaged to avoid the deterioration of the same.

E 1 VERIFICACIÓN ANTES DE LA PUESTA EN GAS

- verificar que la instalación ha sido realizada según las normas vigentes y las reglas de la buena técnica. Verificar que los datos indicados en la tarjeta (Fig. 1), corresponden a las necesidades de los aparatos de combustión conectados. Verificar que el estabilizador ha sido instalado según las indicaciones adjuntas y en particular verificar. La presencia de al menos una válvula de corte antes y después. La presencia de un filtro específico para el gas utilizado, antes del estabilizador con un caudal adecuado. Respetar la dirección de flujo que indica la flecha sobre el estabilizador. La posición correcta de montaje del estabilizador, (ver el esquema A). Para la eventual conexión del tubo de venteo, desmontar el tapón de 1/4" o 1/2" y conectar un racor con tubo de 1/2" y conducirlo a una zona segura.

2 PUESTA EN SERVICIO Abrir lentamente la válvula de entrada. Abrir lentamente la válvula aguas abajo del regulador que permita una lenta puesta en gas de la red interior. Una vez en presión, abrir completamente la válvula de entrada. Verificar que no hay fugas en la instalación. Purgar el aire de la instalación. Verificar el encendido de los aparatos de combustión conectados -Verificar la presión de funcionamiento en condiciones dinámicas con caudales variables y estática a caudal nulo.

3 REGULACIÓN DE LA PRESIÓN El estabilizador es tarado directamente de fábrica al valor solicitado, indicándose el valor de tarado en la tarjeta. Para efectuar el tarado del estabilizador proceder de la forma siguiente: Desmontar el tapón pos. 1, girar la tuerca pos. 4 en sentido horario para aumentar la presión y antihorario para disminuirla. Una vez tarado, montar el tapón pos. 1 y efectuar un eventual precintado.
Los estabilizadores aseguran el cierre a caudal cero.

4 MODIFICAR EL TARADO POR CAMBIO DE MUELLE Seleccionar el muelle en la tabla. Desmontar el tapón 1 y la tuerca 4, Sustituir el muelle existente por el seleccionado. Reponer todos los componentes arriba descritos y ajustar el nuevo tarado como se indica en el párrafo 3.

5 UTILIZACIÓN DE LAS TOMAS DE PRESIÓN (opcional) Las tomas de presión situadas en la entrada y salida están protegidas con un tapón de plástico. Antes de activar las tomas de presión, cerrar las válvulas de entrada y salida y eliminar la presión interna en el estabilizador. Efectuar un taladro de 1.5mm sobre el fondo y montar la toma de presión o manómetro con conexión de 1/8". (opcional). Abrir lentamente la válvula de entrada y verificar la estanquidad del elemento instalado. Finalizada la verificación proceder a la puesta en servicio del estabilizador según párrafo 2.

6 SUTITUCIÓN DEL CARTUCHO FILTRANTE (Versión con filtro) Cerrar la válvula de entrada al estabilizador, eliminar la presión interna. Desmontar los tornillos de la tapa inferior pos. 6 ASEGURANDOSE que en el interior del estabilizador no hay presión. Retirar la tapa pos. 3, extraer el cartucho filtrante pos. 5 y sustituirlo por uno nuevo, posicionándolo correctamente en su alojamiento. Controlar escrupulosamente la junta de estanquidad y eventualmente sustituirla. Montar la tapa, con la advertencia de montar los tornillos siguiendo la numeración indicada en la tapa. Abrir lentamente la válvula de entrada y verificar la estanquidad del estabilizador. Finalizada la verificación proceder a la puesta en servicio según el párrafo 2.

7 RECOMENDACIONES No utilizar el domo de la tapa para imprimir torsión al estabilizador. Verificar periódicamente la instalación. Verificar periódicamente la presión de salida. Verificar la estanquidad de todo el sistema. Realizar periódicamente el mantenimiento de todos los aparatos de regulación.
La temperatura de ejercicio –15°C +60°C
NB el personal de mantenimiento debe ser competente y utilizar recambios originales.
Compruebe el estado de limpieza e integridad de los componentes en entrada para evitar el deterioro de los mismos.

D 1 VOR INBETRIEBNAHME

Prüfen, ob das Gerät mit Prüfstutzen ausgerüstet ist. Bermerkung: Dies ist eine Bestelloption. Ist das Gerät ohne Prüfstutzen, sind die Gewindelöche 1/8" mit Kunststoffkappen geschützt. Die erforderlichen Prüfbohrungen, Durchmesser 1,5 mm können auch nachträglich am Ende des Gewindeloches gebohrt werden. In diesem Fall müssen diese Bohrungen durch entsprechende Stopfen 1/8" dicht verschlossen werden, bevor das Gerät in Betrieb gesetzt wird.
Prüfen, dass die Installation der geltenden Vorschriften und technischen Regeln entspricht
Prüfen, dass das Gerät für die Anwendung, die Versorgung des angeschlossenen Brenners geeignet ist. (Daten auf dem Typenschild). Prüfen, ob das Gerät gemäß den Angaben dieser Anweisung installiert ist. Sicherstellen, dass sich vor und nach dem Gerät Absperrarmaturen installiert sind. Sicherstellen, dass ein Gasfilter für die erforderlichen Drücke und Durchflüsse eingebaut ist. Korrekte Einbaulage sicherstellen (Schema A). Durchflussrichtung gemäß Pfeil auf Gehäuse. Für den Fall, dass Atmungsleitungen verlegt werden müssen, sind die Kunststoffkappen ¼" oder 1/2" zu entfernen und entsprechende Anschlussnippel sowie eine Atmungsleitung ½" zu installieren. Die Mündung dieser Atmungsleitung ist gemäß den geltenden Vorschriften und technischen Regeln anzuordnen. Das Eindringen von Schmutz und Feuchtigkeit (Regenwasser) ist durch geeignete Maßnahmen zu unterbinden.

2 INBETRIEBNAHME Absperrarmatur im Ausgang schließen. Absperrarmatur im Eingang langsam öffnen, um das Gerät und das nachfolgende Rohrleitungssystem unter Druck zu setzen und den Druckausgleich herzustellen. Nachdem der Druckausgleich in der Ausgangsleitung hergestellt ist, die Ausgangsabsperrarmatur ganz öffnen. Bitte überprüfen, ob keine Leckagen entstehen
Bitte überprüfen, ob der Zündbrenner angeschlossen ist. Regeldruck bei verschiedenen Durchflüssen prüfen und Nullabschluss überprüfen

3. UMSTELLEN DES REGELDRUCKES Das Gerät ist von Werk aus voreingestellt nach Bestellangabe. Der mögliche Einstellbereich bei Umstellung ist im Typenschild dokumentiert. Zum umstellen des Regeldruckes ist die Abschlusskappe 1 zu entfernen und der Justierring 4 bzw. die Justierschraube 2 im Uhrzeigersinn zu drehen, um den Regeldruck zu erhöhen bzw. entgegengesetzt zu drehen, um den Regeldruck zu senken. Nachdem der Regeldruck umgestellt wurde ist die Abschlusskappe 1 wieder aufzuschrauben.
Die Stabilisatoren sind mit Einsperrvorrichtungen ausgestattet, so dass sie das vollkommene Schließen gestatten.

4. WECHSEL DER REGELFEDER Gewünschte Feder aus Federtabelle auswählen. Sind die Abschlusskappe 1 und der Justierring 4 herauszuschrauben, Neue Feder einbauen und den neuen Konstantwert des gewünschten Regeldruckes auf dem Typenschild notieren. Gerät wieder zusammensetzen und gemäß Pos. 3 einstellen. Nachdem der gewünschte Regeldruck eingestellt wurde, ist die Abschlusskappe 1 wieder aufzuschrauben.

5 BENUTZUNG DES MESS- BZW. PRÜF-STUTZENS Bevor der Mess- bzw. Prüf-Stutzen verwendet wird ist sicherzustellen, dass die Eingangsabsperrarmatur geschlossen und die Leitung entlüftet wurde. Die Schraube am Mess-Stutzen herausdrehen und eine Verbindung zum Manometer herstellen. Langsam die Eingangsabsperrarmatur öffnen und die Dichtheit überprüfen
Inbetriebnahme durchführen gemäß Punkt 2. Schließen des Mess- bzw. Prüf-Stutzens nach entfernen der Manometerverbindung

6. AUSTAUSCH DES FILTEREINSATZES Ein- und Ausgangsabsperrarmaturen schließen, die Leitung drucklos machen und sicherstellen, dass sich kein Gas mehr im Regelgerät befindet. Danach die Schrauben 6 herausschrauben. Abnehmen des Deckels 3 und den Filtereinsatzes 5 austauschen, dabei überprüfen, dass der Filter richtig im Gehäuse sitzt. Überprüfen des O-Ringes - gegebenenfalls austauschen. Deckel wieder verschließen – dabei darauf achten, dass der Filter immer noch richtig im Gehäuse sitzt – und kreuzweise die Schrauben wieder eindrehen. Absperrarmatur im Eingang langsam öffnen, um das Gerät und das nachfolgende Rohrleitungssystem unter Druck zu setzen und den Druckausgleich herzustellen. Dabei die Dichtheit des Deckels und der Schraubverbindungen prüfen (abseifen oder mit Lecksuchspray) Nach erfolgreichem Test kann die Ausgangsabsperrarmatur geöffnet werden.

7. SICHERHEITSHINWEISE Den Regler nicht als Hebel benutzen. Gerätefunktion und Regeldruck in regelmäßigen Abständen überprüfen. Funktions- und Dichtheitsprüfung der gesamten Regelstrecke in regelmäßigen Abständen. Wartungen sind in regelmäßigen Abständen durchzuführen.
Temperatur von Übung –15°C + 60°C
HINWEIS: Wartungsarbeiten an dem Gerät dürfen nur von geschultem Fachpersonal durchgeführt werden. Die Sauberkeit und Unversehrtheit der Eingangskomponenten prüfen, um eine Verschlechterung der gleichen zu vermeiden.

PL 1.SPRAWDZENIE PRZED URUCHOMIENIEM

Sprawdzić czy instalacja jest wykonana zgodnie z obowiązującymi przepisami i dobrą praktyką inżynierską. Sprawdzić czy dane na tabliczce znamionowej(Fig. 1) odpowiadają wymaganiom przyłączonych urządzeń palnikowych. Sprawdzić czy stabilizator jest podłączony zgodnie z wymaganiami niniejszej instrukcji, a w szczególności: czy są zainstalowane zawory odcinające na wlocie i wylocie, czy jest zainstalowany filtr i czy jego przepustowość jest wystarczająca, czy stabilizator jest zainstalowany właściwie w stosunku do kierunku przepływu gazu oznaczonego strzałką na korpusie. Dla sprawdzenia prawidłowości instalacji stabilizatora patrz (DIAGRAM A). W celu ewentualnego podłączenia przewodu wydmuchowego należy usunąć gwintowaną osłonę otworu znajdującego się w górnej części pokrywy i w to miejsce podłączyć rurę ½" i wyprowadzić ją poza strefę zagrożenia wybuchem.

2. URUCHOMIENIE Powoli otworzyć wlotowy zawór odcinający, uchylić wylotowy zawór odcinający i pozwolić na powolne napełnienie gazem całej instalacji. Po napełnieniu instalacji otworzyć wylotowy zawór odcinający. Sprawdzić czy nie ma nieszczelności gazu w instalacji. Sprawdzić proces spalania przyłączonych urządzeń palnikowych, sprawdzić ciśnienie robocze w warunkach statycznych przy zerowym przepływie.

3. REGULACJA CIŚNIENIA Stabilizator jest fabrycznie wyregulowany na wartość ciśnienia określoną przez klienta w zamówieniu. Zakres możliwej regulacji jest podany na tabliczce znamionowej. W celu regulacji ciśnienia (DIAGRAM B) należy zdjąć zakrętkę poz. 1, podkręcając nakrętką poz. 4 zgodnie z ruchem wskazówek zegara zwiększamy ciśnienie wylotowe, przekręcając przeciwnie zmniejszamy ciśnienie wylotowe. Po osiągnięciu żądanej wartości należy ponownie założyć nakrętkę poz.1 i zaplombować, jeżeli to konieczne.
Stabilizatory są wyposażone w stałą blokadę, która zapewnia ich szczelne zamknięcie.

4. MODYFIKACJA ZAKRESU CIŚNIENIA POPRZEZ WYMIANĘ SPRĘŻYNY
Wybrać odpowiednią sprężynę z załączonej tabeli. Dla stabilizatorów 1/2" – 3/4" - 1" zdjąć zakrętkę poz. 1 i nakrętkę poz. 4. Instalując nową sprężynę nanieść uwagę na tabliczce znamionowej. Ponownie zamontować wszystkie uprzednio demontowane części i dokonać regulacji ciśnienia zgodnie z opisem w punkcie 3.

5. KORZYSTANIE Z PUNKTÓW POMIARU CIŚNIENIA (dowolny)
Punkty pomiaru ciśnienia wlotowego i wylotowego są zabezpieczone korkami z tworzywa sztucznego. Przed przystąpieniem do pomiaru należy najpierw zamknąć zawór wlotowy a następnie odgazować stabilizator. Udrażniając otwór o przekroju 1,5mm należy odkręci śrubę zabezpieczającą, a następnie nałożyć wąż podłączony do manometru lub zamontować manometr o przyłączu 1/8" (dowolny). Następnie należy powoli otworzyć wlotowy zawór odcinający, kontrolując jednocześnie szczelność całej instalacji. Po zakończeniu pomiaru ponownie uruchomić stabilizator jak opisano w punkcie 2.

6. WYMIANA WKŁADU FILTRACYJNEGO (tylko dla stabilizatorów z filtrem)
Zamknąć zawory wlotowe i wylotowe, odgazować stabilizator. Odkręcić śruby poz. 6) UPEWNIAJĄC SIĘ, że stabilizator nie znajduje się pod ciśnieniem. Zdjąć pokrywę poz. 3, wyjąć wkład filtracyjny poz. 5 i zastąpić go nowym, sprawdzić ułożenie wkładu filtracyjnego w gnieździe w korpusie. Bardzo dokładnie SPRAWDZIĆ stan pierścienia uszczelniającego o-ring, w razie potrzeby wymienić. Ponownie zamontować pokrywę upewniając się, że wkład prawidłowo ułożony jest w gnieździe w pokrywie. Powoli otworzyć zawór wlotowy, sprawdzić szczelność stabilizatora. Ponownie uruchomić stabilizator jak opisano w punkcie 2.

7. ZALECENIA Nigdy nie wykorzystywać stabilizatora jako wspornika. Regularnie kontrolować stan urządzenia, wartość ciśnienia wylotowego, stan kompletnej instalacji, wyczuwalny zapach gazu może być spowodowany nieszczelnością instalacji. Regularnie kontrolować prawidłowość pracy urządzeń redukujących ciśnienie. Temperatura pracy –15°C/+60°C.
Pracownicy wykonujący jakiekolwiek czynności obsługowe muszą być odpowiednio przeszkoleni i korzystać tylko i wyłącznie z oryginalnych części zamiennych.
Sprawdzić, czy elementy wejściowe są czyste i nieuszkodzone, aby zabezpieczyć je przed zużyciem.

P 1 - VERIFICAR ANTES DO ARRANQUE AO FUNCIONAMENTO

- Verificar que a instalação foi realizada segundo a lei e segundo as regras da boa prática. Verificar que os valores indicados na placa de características (Fig.1), satisfazem as necessidades de funcionamento dos equipamentos de combustão instalados. Verificar que o estabilizador está instalado segundo as indicações deste manual e em particular : Verificar a existência de, pelo menos, uma válvula de seccionamento a montante e jusante. Verificar a existência de um filtro especifico para gás e dimensionado para o caudal correcto. Respeitar a direcção do fluxo de gás como indicado na flecha do corpo do estabilizador. Posição correcta de montagem, ver esquema A. Para eventual ligação do tubo de descarga, remover o acessório de ¼" ou ½", montar um tubo de ½" e conduzir este tubo a uma zona segura.

2 - ARRANQUE AO FUNCIONAMENTO Abrir lentamente a válvula a montante. Abrir lentamente a válvula a jusante, permitindo o enchimento lento da instalação. Quando a instalação ficar completamente cheia, abrir totalmente a válvula de jusante. Verificar que não existem fugas na instalação. Purgar a instalação do ar acumulado no seu interior. Verificar a ignição do equipamento de combustão instalado. Verificar a pressão de funcionamento em regime dinâmico com variação de caudal, e estática a caudal nulo.

3 - REGULAÇÃO DA PRESSÃO Todos os estabilizadores são afinados em fábrica para os valores indicados pelo cliente. A variação possível está indicada na placa de características. Para variar a pressão de saída, proceder como indicado seguidamente. Desmontar o tampão pos. 1, rodar a peça pos. 4 no sentido dos ponteiros do relógio para aumentar a pressão e no sentido inverso para diminuir. Depois de ter efectuado a regulação, montar o tampão pos.1 e selar com chumbo se necessário.
Os estabilizadores estão equipados com sistema de bloqueio, permitindo assim o fecho total.

4 – VARIAR A REGULAÇÃO COM MUDANÇA DA MOLA Escolher o modelo da mola indicado na tabela. Desmontar o tampão 1 e a porca 4. Montar a nova mola e escrever na etiqueta os novos valores. Efectuar a remontagem das partes segundo os parágrafo anteriores e efectuar a regulação segundo o ponto 3. Depois de ter efectuado a regulação, montar o tampão pos.1 e selar com chumbo se necessário.

5 – UTILIZAÇÃO DAS TOMAS DE PRESSÃO (opcional) As tomas de pressão montadas à entrada e saída estão protegidas com um tampão em plástico. Antes de activar as tomas de pressão, fechar as válvulas a montante e a jusante e efectuar uma purga da pressão interna do estabilizador. Efectuar um furo de 1,5 mm no fundo roscado e montar uma toma de pressão ou manómetro com rosca 1/8". (opcional) Abrir lentamente a válvula a montante e verificar a estanqueidade dos componentes instalados. Depois da verificação, efectuar o arranque ao funcionamento segundo o ponto 2.

6 – SUBSTITUIÇÃO DO CARTUCHO FILTRANTE (Modelo com filtro) Fechar as válvulas a montante e a jusante e efectuar uma purga da pressão interna do estabilizador. Desapertar os parafusos da tampa pos. 6, ASSEGURANDO que não existe pressão no interior do estabilizador. Retirar a tampa pos. 3, retirar o cartucho filtrante pos. 5 e substituir por um novo inserindo-o na posição correcta. Controlar efectivamente o "O-Ring" e proceder à sua substituição se necessário. Remontar a tampa e garantir o aperto dos parafusos seguindo a numeração indicada. Abrir lentamente a válvula a montante e verificar a estanqueidade dos componentes instalados. Depois da verificação, efectuar o arranque ao funcionamento segundo o ponto 2.

7 - RECOMENDAÇÕES Não utilizar a parte superior cilíndrica do estabilizador para manobras de torção. Periodicamente inspeccionar a instalação. Periodicamente verificar a pressão a jusante. Verificar que a instalação não tem fugas. Realizar periodicamente a manutenção a todos os equipamentos de regulação. Efectuar periodicamente a manutenção a todos os equipamentos de regulação.
Temperatura de exercício -15°C + 60°C
NOTA, os técnicos de manutenção deverão possuir formação técnica adequada e utilizar peças de substituição originais..Verificar as condições de limpeza e integridade dos componentes recebidos para evitar a deterioração dos mesmos.

AUS 1 PRE COMMISSIONING OF REGULATOR

Ensure the installation is to all relevant standards and regulatory bodies' specifications and the regulator meets all the requirements of operation.
Preferably the regulator is to be mounted vertically with the pressure adjustment screw upright or at worst in the horizontal plane with the directional flow arrow facing the correct way.
Where required a gas filter with the correct flow rate is to be placed prior to the regulator.
For a correct assembly follow the mechanical diagram A.
If venting is required, fit a union and install vent line to atmosphere in accordance to all relevant standards and requirements.

2 COMMISSIONING OF REGULATOR
Ensure the new installation is approved, clear of all debris and is tested for soundness.
Slowly open the inlet valve to the regulator and check for leaks.
Partially open the outlet valve to pressurise the downstream section of the installation from the regulator. Once the presence of gas is detected at the outlet of the installation open the outlet valve completely and test the outlet connection of the regulator for leaks.
On operation of the burner check the operating pressure at differential flow rates and lock up pressure at a zero flow rate.

3 REGULATOR ADJUSTMENT
The regulators are supplied ex works to the nominated operating pressures of the client.
Variations of these settings are confined to the limitations as detailed on the badge plate of the regulator. To adjust the operating pressure the cap (No 1 of Diagram B) is to be removed exposing either the ring nut (No 4) or the centre adjusting shaft.
To make adjustment turn the ring nut clockwise to increase pressure or anticlockwise to reduce the pressure, at completion of adjustment replace the cap and test for leaks.
The governors are able to lock-up at zero flow rate.

4 SPRING REPLACEMENT
To replace the spring unscrew the cap (No 1) and the ring nut (No 4) and remove the existing spring and replace with alternative. Adjust the pressure setting as required and replace the cap and check for leaks. Note the new setting on the regulator badge plate.

5 PRESSURE TEST POINT (OPTIONAL)
Where test points are fitted on the regulator prior to checking any operating pressures turn off the supply to the regulator allowing the system to depressurise.
Remove the screw of the test point and place test equipment on exposed test point.
Slowly reopen the inlet valve, check for leaks, re-establish burner operation and make any necessary adjustments to pressure. At completion of adjustments turn off gas supply, allow for depressurisation of system, remove test equipment, seal test point, turn on gas supply and test for leaks.

6 REPLACING FILTER CARTRIDGE ON REGULATOR HAVING FILTER OPTION
Turn both the inlet and outlet valve on the regulator to the off position and allow the regulator to depressurize. To replace the filter cartridge unscrew the screws (No 6) from the filter cover (No 3) at the base of the regulator to expose and remove the existing filter cartridge.
On fitment of the new filter to its correct location replace the filter cover taking into account the condition of the O -ring seal and replace if necessary. Tighten the screws of the filter cover in a clockwise manner. Reopen the inlet valve slowly to pressurise the regulator and check for leaks.
At completion of test gradually open the outlet valve to pressurise the system downstream.

AUSTRALIA APPROVALS AGA Approval No. 6794. Regulator Class 3 Grade 20.Max inlet pressure 100 kPa. Outlet pressure range 0.5 to 50 kPa.

7 RECOMMENDATIONS
All work is to be carried out by authorised personnel using the correct tools and equipment to fit and adjust the regulator to all relevant standards and procedures.
Temperature of exercise -15°C + 60°C

NOTE: The service people must be competent and should have the knowledge how to maintain the equipment correctly.
Check that the inlet components are clean undamaged to avoid the deterioration of the same.

TR 1-) ÇALIŞTIRMADAN ÖNCEKİ KONTROL

Yapılan montajın, gaz kuruluşu standartlarına ve teknik kurallarına uygunluğunu kontrol ediniz . Governor etiketindeki değerlerin, istenilen basınç değerlerine uygunluğunu kontrol ediniz. Montajın bu el kitapçığındaki bilgilere göre yapıldığına emin olunuz; Regülatör giriş tarafında açma/kapama vanası olmalı. Akış debisine uygun kapasitede filtre olmalı (filtresiz olan tipler için). Akış yönün ün doğruluğu kontrol edilmeli. Şekil A 'da ki montaj sekline göre doğru montaj yapılmalı. Membran yırtılması dumunda , çıkan gazın güvenli bir şekilde dışarıya atılması için kapaktaki ¼ " ve ½" boşaltma tapasını, uygun boru ile dışarıya çıkarınız.

2-) İLK ÇALIŞTIRMA
Giriş vanası yavaşça açınız. Çıkış vanasını yavaşça açarak sistemin , istenen basınca kadar, gaz ile dolmasını sağlayın. Sistemin tamamen dolduğuna emin olduğunuzda, çıkış vanası tam açınız. Tesisatta herhangi bir kaçak olmadığı kontrol ediniz. Governor' un bağlı olduğu yakma sistemindeki yanmayı kontrol ediniz. Değişik gaz çekişlerinin olduğu ve gaz akışının olmadığı durumlar için gaz basınçlarını kontrol ediniz.

3-) BASINÇ AYARLAMASI
Governorun ilk basınç ayarları, etikette belirtilen akış debisinde, fabrikada yapılmıştır.
Mümkün olabilen çıkış basıncı aralığı etikette yazılmıştır.
Basıncı değiştirmek için 1 nolu kapağı çıkarın , 2 nolu sarı ayar vidasını , basıncı artırmak için saat yönünde sıkıp ; azaltmak için ise aksi yönde gevşetiniz.
Ayar işlemini bittikten sonra , 1 nolu kapağı yerine takın ve gerekirse mühürleyin.
Stabilizatörler kilitleme sistemine sahip olup tam olarak kapanır.

4-) YAY DEGİŞİMİ İLE BASINÇ AYARLAMASI
Tabloda gösterilen uygun yayı seçiniz. ½", Dn 100 Governorlar'da 1 nolu kapağı ve 4 .
Yeni yayı koyunuz ve ayar değerlerini etikette değiştiriniz. Diğer kapakları ve ayar vidasını yerine takınız , 3 nolu başlıkta anlatıldığı şekilde basıncı ayarlayınız . Ayar işlemini bittikten sonra 1 nolu kapağı yerine takın ve gerekirse mühürleyin.

5-) BASINÇ TEST NOKTALARININ KULLANILMASI
Giriş ve çıkış test noktaları tapalarla kapatılmıştır. Kullanmadan önce giriş vanasını kapatın ve çıkıştaki gazı boşaltın. Test noktaları 1/8" dişli olup delik yok ise 1.5 mm deliniz . Test noktalarına manometre veya test nipeli takınız . Giriş vanasını açın ve test nipelindeki basıncı gözleyerek gerekli ayarları (madde 3 'deki) yapınız.

6-) FİLİTRE KARTUJUNUN DEGİŞTRİLMESİ
Giriş ve çıkış vanalarını kapatın ve gazı boşaltın. Governor'daki gazın tamamen boşaltıldığını, alt kapaktaki 6 nolu tapayı gevşeterek kontrol ediniz. 3 nolu alt kapagı çıkarıp ,eski filitre elemanını yenisi ile değiştirin . Yeni filitre elemanın Governor içerisine ,yerine tam olarak oturdugunndan emin olunuz. Dikkatlice lastik contayı kontrol edip, gerekirse değiştirin . Alt kapağı yerine takınız ve filitre elmanın kapaktaki yerine oturduğuna emin olunuz .Takılmış olan alt kapağı civatalarından sıkıştırın. Giriş vanasını yavaşca açınız, köpük veya sabunlu su ile sökülen yerleri kontrol ediniz . Sızdırmazlık kontrolu yapıldıktan sonra çıkış vanasını YAVAŞÇA açınız

7-) TALİMATLAR
Governor'u mastar olarak kullanmayın
Peryodik olarak Governor'u ve çıkış basıncını kontrol ediniz
Peryodik olarak bakım yapınız
Bakım uzman kişi tarafından , orijinal yedek parça kullanılarak yapılmalıdır.
Sıcaklık Aralıgı STD –15°C – + 60° C

Aşınmalarını önlemek için giriş parçaların temizliğini ve bütünlüğünü kontrol ediniz.

RUS 1 ВХОДНОЙ КОНТРОЛЬ ПЕРЕД ЗАПУСКОМ

-Проверить, что установка выполнена в соответствии с действующим законодательством и техническими правилами; проверить, что данные, указанные на табличке типа регулятора (рис. 1), соответствуют требуемым условиям подсоединенных контрольно-измерительных приборов процесса внутреннего сгорания; проверить, что регулятор установлен в соответствии с указаниями настоящего листа технических данных, в частности: проверить наличие впускного и выпускного запорного вентиля; проверить наличие газового фильтра с подходящим расходом; проверить надлежащее монтажное положение регулятора. Необходимо соблюдать направление потока, указанное стрелкой на регуляторе. Для правильной сборки необходимо выполнять условия, показанные на схеме "A" механизма. При подключении любых выпускных и/или вентиляционных трубопроводов следует снять заглушку 1/4" или 1/2" с крышки, и, используя имеющийся штуцер, подсоединить трубопровод 1/2", соблюдая аккуратность, чтобы отвести выпускной трубопровод в безопасное место.

2 ЗАПУСК Медленно открыть впускную клиновую задвижку; медленно немного приоткрыть следующий вентиль, чтобы медленно создать давление в следующей системе; после создания давления в следующей системе полностью открыть следующую клиновую задвижку; проверить, что в системе отсутствует течь. Проверить, что подключено зажигание горелки; проверить рабочее давление при разных величинах расхода, а также проверить давление выключения при расходе, равном 0.

3 РЕГУЛИРОВКА ДАВЛЕНИЯ В регуляторах при отправке их заказчику с завода-изготовителя устанавливают давление регулировки и значение расхода, указанное клиентом. Возможные отклонения от этой регулировки указывают на табличке. Для увеличения или уменьшения регулировки следует отвернуть колпачок 1, повернуть кольцевую гайку 4 по часовой стрелке для увеличения давления или против часовой стрелки для уменьшения давления. После завершения регулировки необходимо завернуть колпачок 1 и при необходимости опломбировать его.
Стабилизаторы имеют замки, обеспечивающие герметичное закрытие.

4 ИЗМЕРЕНИЕ РЕГУЛИРОВКИ ПУТЕМ ЗАМЕНЫ ПРУЖИНЫ Выбрать требуемый тип пружины, указанный в таблице; отвернуть колпачок 1 и кольцевую гайку 4.
Установить пружину, записать новую величину регулировки на этикетке. Выполнить сборку в обратном порядке вышеуказанных частей и произвести новую регулировку, как указано в п. 3. После завершения регулировки необходимо завернуть колпачок 1 и при необходимости опломбировать его.

5 ПОЛЬЗОВАНИЕ ТОЧКОЙ КОНТРОЛЯ ДАВЛЕНИЯ (необязательно) Перед любым использованием контрольной точки следует полностью перекрыть впускную задвижку и сбросить давление из регулятора. Отвернуть центральный болт в контрольной пробке и подсоединить пробку к манометру. Медленно открыть впускную клиновую задвижку и проверить герметичность подсоединенного измерительного оборудования (необязательно). Продолжить запуск, как указано в п. 2. Закрыть и заглушить пробкой контрольную точку после отсоединения измерительного оборудования.

6 ЗАМЕНА ФИЛЬТРУЮЩЕГО ЭЛЕМЕНТА Перекрыть впускной и выпускной вентили и медленно сбросить давление из регулятора, УБЕДИТЬСЯ, что внутри регулятора нет давления, затем отвернуть винты на крышке, поз. 6. Снять крышку, поз. 3, снять фильтрующий элемент, поз. 5, и заменить его новым. Поместить новый фильтрующий элемент на седло, убедиться, что новый фильтрующий элемент точно вошел внутрь направляющего корпуса регулятора. АККУРАТНО проверить уплотнительное кольцо круглого сечения, при необходимости заменить его. Выполнить сборку крышки в обратном порядке, при этом убедиться, что фильтрующий элемент точно вошел в седло крышки, и затянуть винты по перекрестной схеме. Создать давление в регуляторе, для этого МЕДЛЕННО открыть впускной вентиль и проверить уплотнение по окружности крышки и на винтах, для этого нанести в эти места пену или мыльную воду. После успешной проверки МЕДЛЕННО открыть выпускной вентиль.

7 РЕКОМЕНДАЦИИ Запрещается использовать регулятор в качестве рычага. Периодически следует проверять состояние оборудования. Периодически следует проверять давление в следующем оборудовании. Проверить исправность работы всей системы (запах газа указывает наличие течи). Периодически следует выполнять техническое обслуживание всего регулирующего оборудования.
Диапазон рабочих температур: от –15°C до + 60°C

ПРИМЕЧАНИЕ. Специалисты по техническому обслуживанию должны быть компетентными и обладать знаниями о том, как правильно выполнять техническое обслуживание оборудования.
Проверить чистоту и целостность компонентов на входе, чтобы предотвратить их поруч.

RO 1 VERIFICAREA ÎNAINTE DE PORNIRE

Verificaţi ca instalarea să fie realizată conform reglementărilor în vigoare şi normelor tehnice adecvate. Verificaţi ca datele indicate pe plăcuţa de tip a regulatorului (fig. 1) să răspundă elementelor obligatorii ale instrumentelor de combustie conectate. Verificaţi ca regulatorul să fie instalat conform indicaţiilor acestei fişe de date şi, în special: verificaţi prezenţa unei supape de oprire pentru intrare şi ieşire. Verificaţi prezenţa unui filtru de gaze cu un debit adecvat. Verificaţi poziţia corectă de asamblare a guvernatorului, pentru a respecta direcţia de curgere conform săgeţii de pe guvernator. Pentru o asamblare corectă urmaţi diagrama mecanică A. Pentru ţevile de eşapament şi/sau ventilaţie, scoateţi căpăcelul supapei 1/4" sau 1/2" de pe capac, folosind îmbinarea furnizată, conectaţi ţeava 1/2", având grijă să amplasaţi ieşirea într-un loc sigur.

2 PORNIREA Deschideţi încet supapa de blocare a intrării. Deschideţi încet, parţial, supapa din aval, pentru a permite o presurizare lentă a sistemului din aval. După presurizarea sistemului din aval, deschideţi complet supapa de blocare din aval. Verificaţi ca sistemul să nu prezinte scurgeri. Verificaţi să fie conectată aprinderea arzătorului. Verificaţi presiunea de lucru la diferite debite şi verificaţi presiunea de blocare la debit 0.

3 AJUSTAREA REGLĂRII DE PRESIUNE Guvernatoarele sunt setate din fabrică la presiunea de reglare şi la debitul indicate de către client. Posibila modificare a setării este indicată pe plăcuţă. Pentru mărire sau micşorare, deşurubaţi căpăcelul 1, rotind în sens orar piuliţa înelară 4 pentru a mări presiunea şi în sens anti-orar, pentru a o reduce. Când s-a încheiat ajustarea, fixaţi căpăcelul 1 şi etanşaţi-l dacă este cazul. Stabilizatoarele sunt dotate cu încuietori, prin urmare sunt cu închidere totală.

4 MODIFICAREA SETĂRII PRIN ÎNLOCUIREA ARCULUI
Alegeţi tipul de arc necesar conform indicaţiilor din tabel. Deşurubaţi căpăcelul 1 şi piuliţa înelară 4. Montaţi noul arc, notaţi pe etichetă valoarea nouă a setării. Reasamblaţi pieselе de mai sus şi efectuaţi o nouă setare, conform indicaţiilor de la 3. Când s-a încheiat ajustarea, fixaţi căpăcelul 1 şi etanşaţi-l dacă este cazul.

5 UTILIZAREA PUNCTULUI DE TEST PENTRU PRESIUNE (opţional) Înainte de utilizarea punctului de test, închideţi complet supapa de intrare şi depresurizaţi guvernatorul. Deşurubaţi şurubul central al mufei de test şi conectaţi mufa la un aparat de măsură. Deschideţi încet supapa de blocare a intrării şi verificaţi etanşarea aparatului de măsură conectat (opţional). Continuaţi operaţiunea de pornire conform indicaţiilor de la punctul 2. Închideţi şi puneţi în priză punctul de test la deconectarea aparatului de măsură.

6 ÎNLOCUIREA CARTUŞULUI FILTRULUI Închideţi supapele de intrare şi ieşire şi depresurizaţi încet guvernatorul. ASIGURAŢI-VĂ că nu există presiune în interiorul guvernatorului, apoi scoateţi şuruburile capacului, poz. 6. Scoateţi capacul poz. 3, scoateţi cartuşul filtrului poz. 5 şi înlocuiţi-l cu unul nou. Puneţi cartuşul cel nou în locaş şi asiguraţi-vă că noul cartuş se potriveşte perfect în carcasa guvernatorului. Inspectaţi CU ATENŢIE inelul de etanşare şi înlocuiţi-l dacă este cazul. Reasamblaţi capacul, asigurându-vă că cartuşul se potriveşte perfect în carcasa capacului şi strângeţi bine şuruburile în cruce. Presurizaţi guvernatorul deschizând ÎNCET supapa de intrare şi verificaţi etanşarea capacului şi a şuruburilor folosind spumă sau apă cu săpun. După o verificare cu succes, deschideţi ÎNCET supapa de ieşire.

7 RECOMANDĂRI Nu folosiţi guvernatorul ca manetă. Verificaţi periodic starea echipamentului. Verificaţi periodic presiunea din aval. Verificaţi dacă întreg sistemul funcţionează perfect (mirosul a gaze indică o scurgere). Efectuaţi acţiuni de întreţinere periodică a tuturor echipamentelor de reglare.
Temperatura de lucru: -15°C + 60°C
NOTĂ: Personalul de service trebuie să fie competent şi să ştie să întreţină echipamentul în mod corect. Verificaţi starea de curăţenie şi integritate a componentelor de la intrare, pentru a evita deteriorarea acestora.

P1

P2

Pressure switch series PE - PED

Pressure switches and differential pressure switch of series PE are suitable for application on domestic and industrial combustion plants for detection of pressure of gas belonging to the first, second and third family and air.

They are normally applied on the most common combustion plants like furnaces, boilers, dryers and compact burners.

PE pressure switches are certified CE, according to norms EN 1854 .

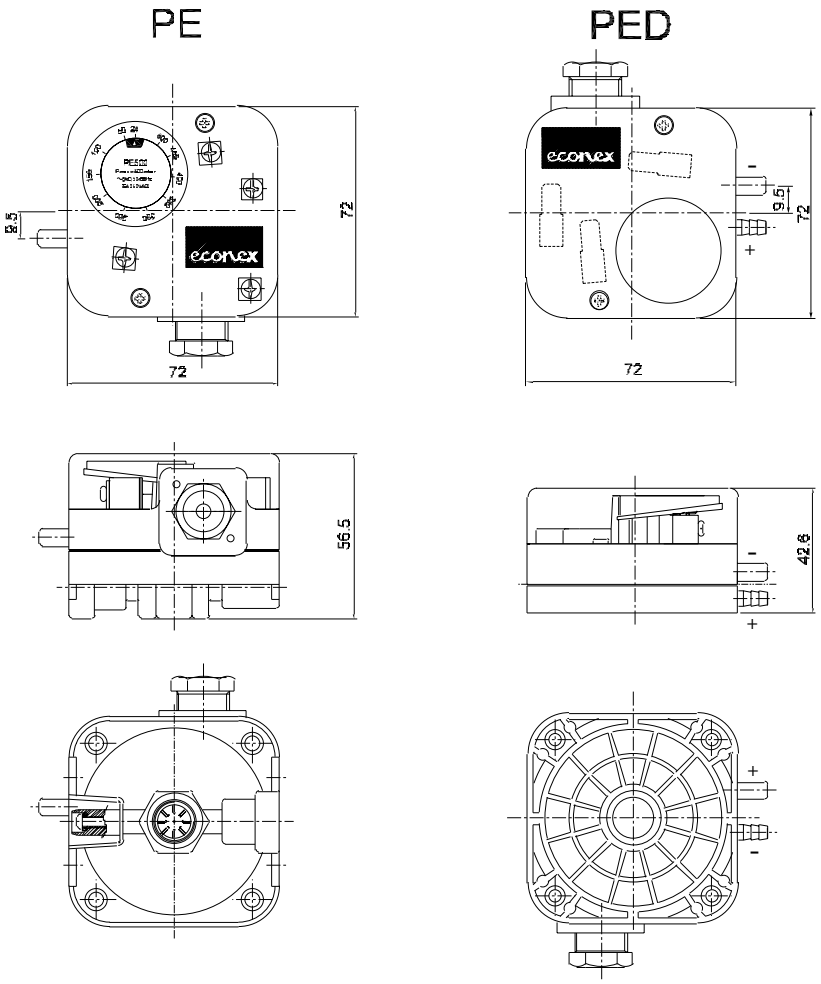
TECHNICAL FEATURES

Base support	Die-casted aluminium
Diaphragm	NBR
Housing	Brass
Switch part	Polycarbonate
Electrical rating	250V ac
Pressure connection	1/4" BSP
Ambient temperature	-15 ÷ +60 °C
Enclosure	IP54 - IP44 (differential)

FEATURES

- Installation in horizontal (preferred) or vertical position. In case of differential pressure switch PED mounted in horizonthal, the switching points will change by 0.25 mbar
- Max. pressure PE pressure switch: 500 mbar and 1 bar (only PE 500)
- Differential pressure switch PED max pressure 100 mbar
- Adjustable tolerance ± 15%
- Electrical connection : male fast-on 6.3 x 0.8 mm
- Air connection : silicone or polyamide, polyurethane hose Ø4 x Ø7 or Ø5 x Ø8 mm

DIMENSIONS



MODELS

PE PRESSURE SWITCH

Model	Pressure range	Max pressure
PE003	0.4 - 3.0 mbar	500 mbar
PE010	2.0 - 10 mbar	500 mbar
PE050	2.5 - 50 mbar	500 mbar
PE150	30 - 150 mbar	500 mbar
PE500	100 - 500 mbar	1 bar

PED DIFFERENTIAL PRESSURE SWITCH

Model	Pressure range	ΔP	Max pressure
PED002	0.2 - 2.0 mbar	≤ 0.4 mbar	100 mbar
PED003	0.3 - 3.0 mbar	≤ 0.5 mbar	100 mbar
PED005	0.5 - 5.0 mbar	≤ 0.6 mbar	100 mbar
PED010	1 - 10 mbar	≤ 0.8 mbar	100 mbar

All the reported data are subject to be changed without notice.

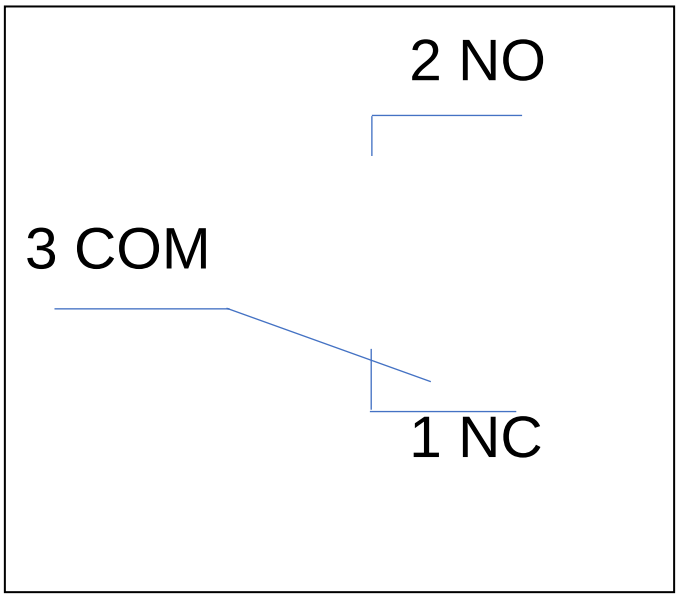
form140918

econex
Econex s.r.l. - Via Francesco De Sanctis, 53 - I-20141 Milano
Tel. +39 0289502912 - Fax +39 028463084 - www.econex.it - info@econex.it

ECONEX
PRESSURE SWITCH
SERIES PE – PED

Switching function
Whilst pressure is increasing
1 NC opens, 2 NO closes

Whilst pressure is decreasing
1 NC closes, 2 NO opens



P4

D GB F I

DUNGS®
Combustion Controls

Betriebs- und Montageanleitung

Gas- und Luftdruckwächter
GW…A6, GW…A6/1
Doppeldruckwächter
GW… /….A6

Operation and assembly instructions

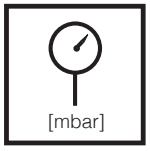
Gas and air pressure switch
GW…A6, GW…A6/1
Double pressure switch
GW… / …A6

Notice d´emploi et de montage

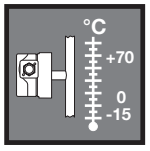
Pressostat pour le gaz et l'air
GW…A6, GW…A6/1
Pressostat double
GW… / …A6

Istruzioni di esercizio e di montaggio

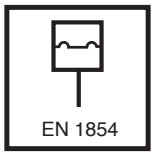
Pressostato Gas e aria
GW…A6, GW…A6/1
Pressostato doppio
GW… / …A6



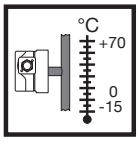
Max. Betriebsdruck / Max. operating pressure / Pression de service maxi
Max. pressione di esercizio
GW, 3/10/50/150 A6
$p_{max.}$ = 500 mbar (50 kPa)
GW 500 A6
$p_{max.}$ = 600 mbar (60 kPa)



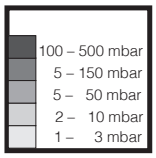
Umgebungstemperatur
Ambient temperature
Température ambiante
Temperatura ambiente
–15 °C … +70 °C



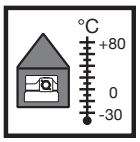
Druckwächter/ Pressure Switch/ Pressostat/ Pressostato
Typ/Type/Type/Tipo
GW…A6
nach / acc. / selon / secondo
EN 1854



Mediumstemperatur
Medium temperature
Température du fluide
Temperatura fluido
–15 °C … +70 °C



Einstellbereiche
Setting ranges
Plages de réglage
Campi di taratura



Lagertemperatur
Storage temperature
Température de stockage
Temperatura stoccaggio
–30 °C … +80 °C

~(AC) eff., min./mini 24 V,
~(AC) max. /maxi. 250 V
=(DC) min./mini. 24 V,
=(DC) max. /maxi. 48 V

Familie 1 + 2 + 3
Family 1 + 2 + 3
Famille 1 + 2 + 3
Famiglia 1 + 2 + 3

Nennstrom/nominal current/courant nominal/corrente nominale
GW 3 A6: ~(AC) 6 A
GW 10…500 A6: ~(AC) 10 A
Schaltstrom/current on contact/courant de commutation/corrente di intervento
GW 3 A6: ~(AC) 4 A cos φ 1
~(AC) 2 A cos φ 0,6
GW 10…500 A6:
~(AC) max./maxi. 6 A cos φ 1
~(AC) max./maxi. 3 A cos φ 0,6
GW 3…500 A6:
~(AC) eff., min./mini 20 mA,
=(DC) min./mini. 20 mA
=(DC) max./maxi. 1 A

Schutzart
Degree of protection
Protection
Protezione
IP 54 nach / acc. / selon / secondo
IEC 529 (EN 60529)

M/CD • Edition 01.16 • Nr. 229 318

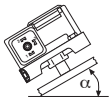
Einbaulage / Installation position / Position de montage / Posizione de montaggio

Standardeinbaulage; bei Abweichung Schaltpunktänderung beachten.
Standard installation position; in case of deviation, take the switch point change into account.
Position de montage standard ; en cas de divergence, veiller à la modification du point de commutation.
Posizione di montaggio standard, per altre posizioni di montaggio osservare il cambiamento del punto di intervento.

GW 3…50 A6	max. ± 0,6 mbar
GW 150 A6	max. ± 1 mbar
GW 500 A6	max. ± 3 mbar

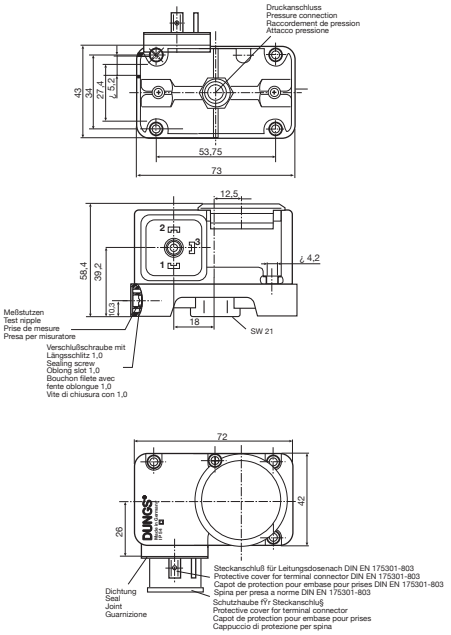
Bei waagerechtem Einbau schaltet der Druckwächter bei einem höheren Druck.
When installed horizontally, the pressure switch responds if the pressure is higher.
En position horizontale, le pressostat réagit à une pression supérieure.
Con montaggio orizzontale il pressostato scatta ad un aumento di pressione.

Bei Einbau waagerecht über Kopf schaltet der Druckwächter bei einem niedrigeren Druck.
When installed horizontally in an upside down position, the pressure switch responds if the pressure is lower.
En position horizontale à l'envers, le pressostat réagit à une pression inférieure.
Con montaggio orizzontale capovolto il pressostato scatta ad una diminuzione di pressione.

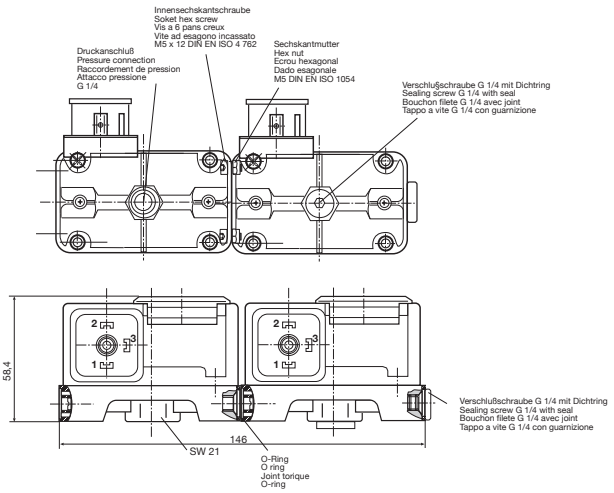


Bei Einbau in einer Zwischeneinbaulage schaltet der Druckwächter bei einem vom eingestellten Sollwert maximal höheren bzw. niedrigeren Druck.
When installed at an intermediate position, the pressure switch responds if there is maximum upper or lower pressure deviation w.r.t. the set pressure reference value.
En position de montage intermédiaire, le pressostat réagit à une pression maximale supérieure ou inférieure à la valeur de consigne réglée.
Con montaggio in una posizione intermedia il pressostato scatta ad una pressione diversa da quella nominale massima regolata.

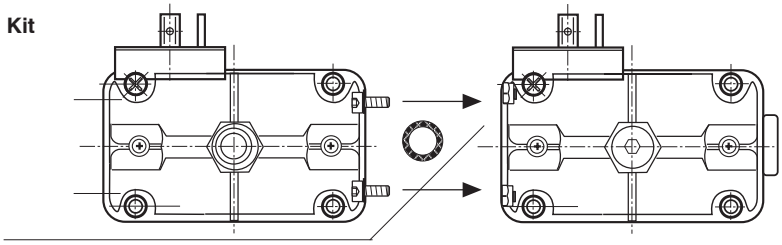
Einbaumaße / Dimensions
Cotes d'encombrement / Dimensioni [mm]
GW … A6 / GW … A6/1



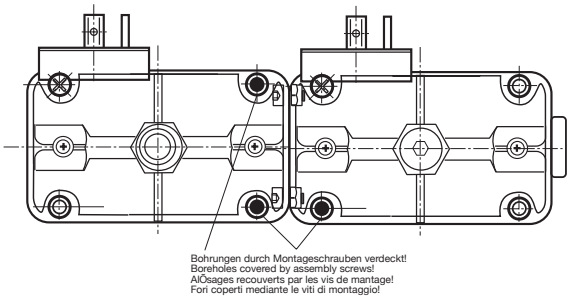
Einbaumaße / Dimensions
Cotes d´encombrement / Dimensioni [mm]
GW … / … A6



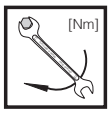
GW … A6 / GW … A6
Zusammenbauset Doppeldruckwächter
Double pressure switch: Side-By-Side Mounting Kit
Kit de montage pour pressostat double
Set di montaggio per il pressostato doppio



⚠ Vor Zusammenbau:
Schraube aus Meßstutzen entfernen.
Before assembly:
Remove the screw from the test nipple.
Avant assemblage :
retirer la vis de la prise de mesure.
Prima dell'assemblaggio
togliere la vite dal raccordo per misurazione.



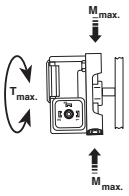
Bestell-Nr.
Order-No.
Réf. de commande
Nr. codice
213 910



max. Drehmomente / Systemzubehör max. torque / System accessories max. couple / Accessoires du système max. coppie / Accessorio di sistema	M 3	M4	ø 3,5	ø 5	G 1/4
	1,2 Nm	2,5 Nm	1,2 Nm	2 Nm	7 Nm

Geeignetes Werkzeug einsetzen!
Please use proper tools!
Utiliser des outils adaptés!
Impiegare gli attrezzi adeguati!

Gerät darf nicht als Hebel benutzt werden
Do not use unit as lever.
Ne pas utiliser le pressostat comme un levier.
L´apparecchio non deve essere usato come leva.



DN	**8**	
Rp	**1/4**	
$M_{max.}$	**35**	**[Nm] t ≤ 10 s**
$T_{max.}$	**20**	**[Nm] t ≤ 10 s**

Ersatzteile / Zubehör Spare parts / Accessories Pièces de rechange / access. Parti di ricambio / Accessori	Bestell-Nummer Ordering No. No. de commande Codice articolo
Leitungsdose grau GDMW **Power socket grey GDMW** **Connecteur gris GDMW** **Presa di corrente GDMW** **3-pol. + E**	210 318
Meßstutzen G 1/4 mit Dichtring (5 Stück) **G 1/4 test nipple and seal plug (5 pieces)** **Prise de mesure G 1/4 avec bague d'étanchéité (5 pièces)** **Attacco misuratore con anello di tenuta G 1/4 (5 pezzi)**	230 398
Verschlußschraube G 1/4 mit Dichtring (5 Stück) **Screw plug G 1/4 with sealing ring (5 pieces)** **Bouchon G 1/4 avec joint (5 pièces)** **Tappo a vite G 1/4 con anello di tenuta (5 pezzi)**	230 396

Ersatzteile / Zubehör Spare parts / Accessories Pièces de rechange / access. Parti di ricambio / Accessori	Bestell-Nummer Ordering No. No. de commande Codice articolo
Montage-Set Doppeldruckwächter **Mounting kit: Double pressure switch** **Kit de montage: Pressostat double** **Set di montaggio: Pressostato doppio**	213 910
Befestigungswinkel, Metall **Metal mounting bracket** **Equerre de fixation, métal** **Cantonale di fissaggio in metallo**	230 288
Montage-Set GW A6 (für Montage an SV) **Assembly set GW A6 (for fitting to SV)** **Kit de montage GW A6 (pour montage sur SV)** **Set di montaggio GW A6 (per montaggio a SV)**	242 771

Einbau
GW… A6

1. Der Druckwächter wird direkt auf einen Rohrstutzen mit R 1/4 Außengewinde aufgeschraubt. Bild 1.
2. Nach Einbau Dichtheits- und Funktionskontrolle durchführen.

⚠ **Auf vibrationsfreien Einbau achten! Bild 2.**

Installation of
GW… A6

1. Screw the pressure switch directly on a tube socket with R 1/4 outer thread (see Fig. 1).
2. After installation, perform a leakage and function test.

⚠ **Ensure that the pressure switch is installed free of vibration! (see Fig. 2).**

Montage
GW… A6

1. Le pressostat peut se visser directement sur un piquage R 1/4" Fig.1.
2. Après le montage contrôler la fonction et l'étanchéité.

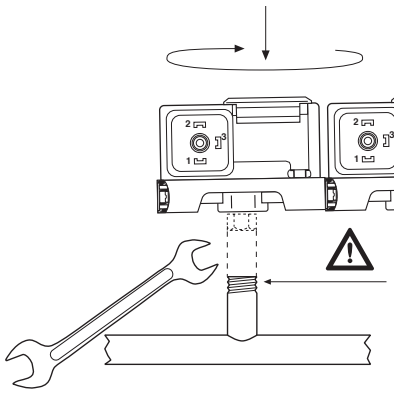
⚠ **Veiller à ce que l'appareil ne subisse pas de vibrations! Fig. 2.**

Installazione
GW… A6

1. Il pressostato viene avvitato direttamente su un tubo di sostegno con filetto esterno R 1/4 (Fig.1)
2. Dopo il montaggio effetture i controlli di tenuta e funzionalità.

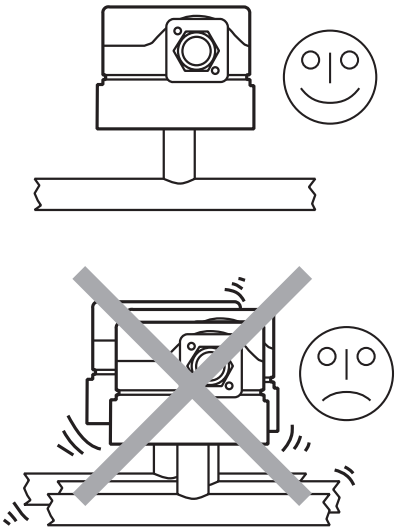
⚠ **Evitare possibilità di vibrazioni! Fig 2.**

1



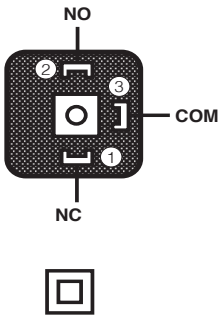
Geeignetes Dichtmittel einsetzen!
Use proper sealing compounds!
Utiliser une pâte à joint adaptée!
Impiegare materiale di tenuta adeguato!

2



Elektrischer Anschluß
Electrical connection
Raccordement électrique
Allacciamento elettrico
EN 60730

DIN EN 175 301-803



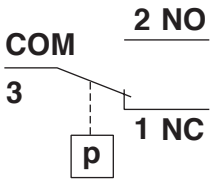
Zur Erhöhung der Schaltleistung wird bei DC-Anwendungen < 20 mA und 24 V der Einsatz eines RC-Gliedes empfohlen.

To increase the switching capacity, we recommend that you use a RC device for current values < 20 mA and 24 V d.c. applications.

Pour augmenter la puissance de rupture, l'utilisation d'un circuit RC est préconisée pour les applications à courant continu < 20 mA et 24 V.

Per aumentare la potenza d'inserimento con applicazioni DC < 20 mA e 24 V, consigliamo l'impiego di un elemento RC.

Schaltfunktion
Switching function
Schéma électrique
Funzione di commutazione pressostato
GW…A6



Bei steigendem Druck:
1 NC öffnet, 2 NO schließt.
Bei fallendem Druck:
1 NC schließt, 2 NO öffnet.

While pressure is increasing:
1 NC opens, 2 NO closes.
While pressure is decreasing:
1 NC closes, 2 NO opens.

Pression montante:
1 NC ouvre, 2 NO ferme.
Pression descendante:
1 NC ferme, 2 NO ouvre

Con pressione in salita:
1 NC apre, 2 NO chiude.
Con pressione in discesa:
1 NC chiude, 2 NO apre

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Einstellung des Gasdruckwächters

Haube mit geeignetem Werkzeug demontieren, Schraubendreher No. 3 bzw. PZ 2, Bild 1.
Haube abnehmen.

Setting the gas pressure switch

Dismount the hood using a suitable tool, e.g. screwdriver no. 3 or PZ 2, Fig. 1. Remove hood.

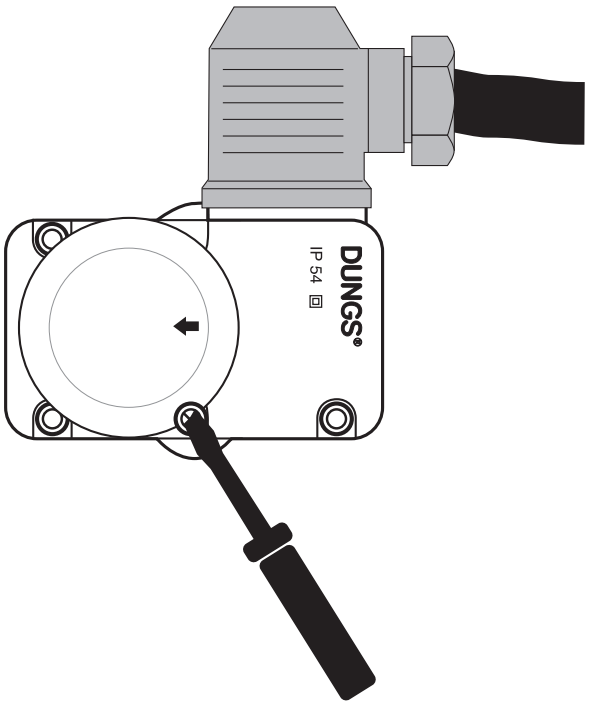
Réglage du pressostat

Elever les vis du capot en utilisant un tournevis N°3 respectivement PZ 2, Figure 1.
Enlever le capot.

Regolazione del pressostato gas

Smontare la calotta con un attrezzo adeguato, ossia cacciavite nr. 3 rispettiv PZ 2, figura 1. Togliere la calotta

1



Druckwächter am Einstellrad mit Skala auf vorgeschriebenen Drucksollwert einstellen, Bild 2.

⚠ Anleitung des Brennerherstellers beachten!

Druckwächter schaltet bei fallendem Druck: Einstellung ⬇.
Haube wieder montieren!

Set the pressure switch at the setting wheel to the specified pressure setpoint using the scale, Fig. 2.

⚠ Observe the burner manufacturer's recommendations!

Pressure switch switches as pressure reduces: Setting ⬇.
Remount hood!

Régler le pressostat avec son bouton sur la valeur désirée, Figure 2.

⚠ Respecter les recommandations du constructeur du brûleur!

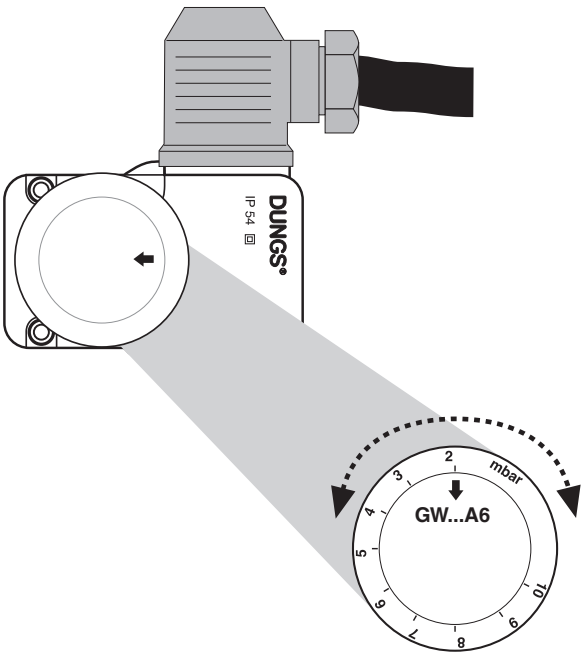
Le pressostat commute par pression descendante: Réglage ⬇.
Remonter le capot!

Tarare il pressostato, come in figura 2, sul valore di pressione nominale prescritto, agendo sulla rotella della scala graduata.

⚠ Prestare attenzione alle istruzioni indicate dal fabbricante del bruciatore!

Il pressostato scatta con pressione in discesa: Regolazione ⬇.
Rimontare la calotta.

2



Arbeiten am Druckwächter dürfen nur von Fachpersonal durchgeführt werden.

Work on the pressure switch may only be performed by specialist staff.

Seul du personnel spécialisé peut effectuer des travaux sur le pressostat.

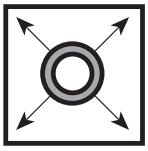
Qualsiasi operazione effettuata sul pressostato deve essere fatta da parte di personale competente.

Kondensat darf nicht in das Gerät gelangen. Bei Minustemperaturen, durch Vereisung Fehlfunktion/Ausfall möglich.

Do not allow condensate to flow into the equipment. In case of subzero temperatures, malfunction or equipment failure may be possible due to icing.

Eviter l'entrée de condensats dans le pressostat, une prise en glace par température négative nuirait à son fonctionnement.

Nell' apparecchio non deve infiltrarsi alcuna condensa. Alle temperature negative sarebbero possibili disfunzioni dovute a formazione di ghiaccio.



Rohrleitungsdichtheitsprüfung: Kugelhahn vor dem Druckwächter schließen.

Pipeline leakage test: close ball valve upstream of the pressure switch.

Contrôle de l´étanchéité de la conduite: fermer le robinet à boisseau sphèrique avant le pressostat.

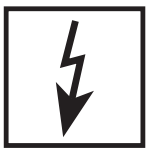
Per la prova di tenuta delle tubature: chiudere il rubinetto a sfera davanti al corpo pressostato.

Nach Abschluß von Arbeiten am Druckwächter: Dichtheitskontrolle und Funktionskontrolle durchführen.

On completion of work on the pressure switch, perform a leakage and function test.

Une fois les travaux sur le pressostat terminés, procéder toujours à un contrôle d´étanchéité et de fonctionnement.

Al termine dei lavori effettuati su un pressostato: predisporre un controllo sia della tenuta che del funzionamento.



Niemals Arbeiten durchführen, wenn Gasdruck oder Spannung anliegt. Offenes Feuer vermeiden. Örtliche Vorschriften beachten.

Never perform work if gas pressure or power is applied. No naked flame. Observe local regulations.

Ne jamais effectuer des travaux sous pression et sous tension. Eviter toute flamme ouverte. Observer les réglementations.

In nessun caso si debbono effettuare lavori in presenza di pressione gas o di tensione elettrica. Evitare i fuochi aperti e osservare le prescrizioni pubbliche.

Bei Nichtbeachtung der Hinweise sind Personen- oder Sachfolgeschäden denkbar.

If these instructions are not heeded, the result may be personal injury or damage to property.

En cas de non-respect de ces instructions, des dommages corporels ou matériels sont possible.

La non osservanza di quanto suddetto può implicare danni a persone o cose.

Silikonöle und flüchtige Silikonbestandteile (Siloxane) in der Umgebung vermeiden. Fehlfunktion / Ausfall möglich.

Avoid silicone oils and volatile silicones (siloxanes) in the environment. Malfunction/failure possible.

Eviter les huiles de silicone et les eléments de silicone volatils (siloxanes) dans l'environnement. Dysfonctionnement / panne possibles.

Evitare oli siliconici e componenti siliconici volatili (silossani) nell'ambiente. Possibile disfunzione / guasto.

Alle Einstellungen und Einstellwerte nur in Übereinstimmung mit der Betriebsanleitung des Kessel-/Brennerherstellers ausführen.

Any adjustment and application-specific adjustment values must be made in accordance with the appliance-/boiler manufacturers instructions.

Effectuer tous les réglages et réaliser les valeurs de réglage uniquement selon le mode d'emploi du fabricant de chaudières et de brûleurs.

Realizzare tutte le impostazioni e i valori impostati solo in conformità alle istruzioni per l'uso del costruttore della caldaia/ del bruciatore.

Die Druckgeräterichtlinie (PED) und die Richtlinie über die Gesamtenergieeffizienz von Gebäuden (EPBD) fordern eine regelmässige Überprüfung der Wärmeerzeuger zur langfristigen Sicherstellung von hohen Nutzungsgraden und somit geringster Umweltbelastung.
Es besteht die Notwendigkeit sicherheitsrelevante Komponenten nach Erreichen ihrer Nutzungsdauer auszutauschen:

The Pressure Equipment Directive (PED) and the Energy Performance of Buildings Directive (EPBD) require a periodic inspection of heat generators in order to ensure a high degree of efficiency over a long term and, consequently, the least environmental pollution.
It is necessary to replace safety-relevant components after they have reached the end of their useful life:

La directive concernant les chauffe-bains à pression (PED) et la directive sur la performance énergétique des bâtiments (EPBD) exigent une vérification régulière des générateurs de chaleur afin de garantir à long terme des taux d'utilisation élevés et par conséquent une charge environnementale minimum. **Il est nécessaire de remplacer les composants relatifs à la sécurité lorsqu'ils ont atteint la fin de leur vie utile:**

La direttiva per apparecchi a pressione (PED) e la direttiva per l'efficienza dell'energia totale per edifici (EPBD), esigono il controllo regolare degli generatori di calore per la garanzia a lungo termine di un alto grado di rendimento e con ciò di basso inquinamento ambientale.
Ciò rende necessaria la sostituzione di componenti rilevanti dal punto di vista della sicurezza alla scadenza della loro durata di utilizzazione:

Sicherheitsrelevante Komponente **Safety relevant component** **Composant relatif à la sécurité** **Componenti rilevanti dal punto di vista della sicurezza**	**Konstruktionsbedingte Lebensdauer** **Designed Lifetime** **Durée de vie prévue** **Durata di vita di progetto**		**CEN-Norm** **CEN-Standard** **CEN-Norme** **CEN-Norma**
	Zyklenzahl **Operating cycles** **Cycle d'opération** **Numero di cicli di funzionamento di progetto**	**Zeit [Jahre]** **Time [years]** **Durée [année]** **Periodo [anni]**	
Ventilprüfsysteme / Valve proving systems Systèmes de contrôle de vannes / Sistemi di controllo valvole	250.000	10	EN 1643
Gas/Gaz Druckwächter / Pressure switch / Manostat / Pressostati	50.000	10	EN 1854
Luft/Air/Aria Druckwächter / Pressure switch / Manostat / Pressostati	250.000	10	EN 1854
Gasmangelschalter / Low gas pressure switch Pressostat gaz basse pression /Pressostati gas di minima pressione	N/A	10	EN 1854
Feuerungsmanager / Automatic burner control Dispositif de gestion de chauffage / Gestione bruciatore	250.000	10	EN 298 (Gas/Gaz) EN 230 (Öl/Oil/ Mazout/Olio
UV-Flammenfühler[1] Flame detector (UV probes)[1] Capteur de flammes UV[1] Sensore fiamma UV[1]	N/A	10.000 Betriebsstunden Operating hours Heures de service Ore di esercizio	---
Gasdruckregelgeräte[1] / Gas pressure regulators[1] Dispositifs de réglage de pression du gaz[1] Regolatori della pressione del gas[1]	N/A	15	EN 88-1 EN 88-2
Gasventil mit Ventilprüfsystem[2] Gas valve with valve testing system[2] Vanne de gaz avec système de contrôle de vanne[2] Valvola del gas con sistema di controllo valvola[2]	nach erkanntem Fehler after error detection après détection d'erreur dopo segnalazione di errore		EN 1643
Gasventil ohne Ventilprüfsystem[2] Gas valve without valve testing system[2] Vanne de gaz sans système de contrôle de vanne[2] Valvola del gas senza sistema di controllo valvola[2]	50.000 - 200.000 abhängig von der Nennweite depends on diameter selon la taille a seconda della dimensione di connessione	10	EN 161
Gas-Luft-Verbundsysteme / Gas-air ratio control system Systèmes combinés gaz/air / Sistemi di miscelazione gas-aria	N/A	10	EN 12067-2 EN 88-1

[1] Nachlassende Betriebseigenschaften wegen Alterung / Performance decrease due to ageing
Réduction de performance due au viellissement / Riduzione delle prestazioni dovuta all'invecchiamento
[2] Gasfamilien II, III / Gas families II, III / Familles de gaz II, III / per i gas delle famiglie II, III
N/A nicht anwendbar / not applicable / ne peut pas être utilisé / non può essere usato

Änderungen, die dem technischen Fortschritt dienen, vorbehalten / We reserve the right to make modifications in the course of technical development.
Sous réserve de tout modification constituant un progrès technique / Ci riserviamo qualsiasi modifica tecnica e costruttiva

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S3

S4

DESCRIZIONE (I)

Elettrovalvole di intercettazione per gas automatiche normalmente chiuse che aprono quando la bobina viene alimentata elettricamente e chiudono quando viene tolta loro tensione.

Queste elettrovalvole possono essere comandate da pressostati, termostati, ecc.

Possono essere dotate di un regolatore di portata (modello VSARP...).

INSTALLAZIONE

L'elettrovalvola è conforme alla Direttiva 94/9/CE (denominata Direttiva ATEX 100 a) come apparecchio del gruppo II, categoria 3G e come apparecchio II, categoria 3D; come tale è idonea per essere installata nelle zone 2 e 22 come classificate nell'allegato I alla Direttiva 99/92/CE.

L'elettrovalvola non è idonea per l'utilizzo nelle zone 1 e 21 e, a maggior ragione, nelle zone 0 e 20 come definite nella già citata Direttiva 99/92/CE.

Per determinare la qualifica e l'estensione delle zone pericolose si veda la norma EN 60079-10.

L'apparecchio, se installato e sottoposto a manutenzione nel pieno rispetto di tutte le condizioni e istruzioni tecniche riportate nel presente documento, non costituisce fonte di pericoli specifici: in particolare, in condizioni di normale funzionamento, non è prevista, da parte dell'elettrovalvola, l'emissione in atmosfera di sostanza infiammabile con modalità tali da originare un'atmosfera esplosiva.

ATTENZIONE: le operazioni di installazione/cablaggio/manutenzione devono essere eseguite da personale qualificato.

- E' necessario chiudere il gas prima dell'installazione.
- Verificare che la pressione di linea **NON SIA SUPERIORE** alla pressione massima dichiarata sull'etichetta del prodotto.
- Devono essere installate con la freccia (indicata sul corpo (**4**) dell'apparecchio) rivolta verso l'utenza. Possono essere installate anche in posizione verticale senza che ne venga pregiudicato il corretto funzionamento. Non possono essere posizionate capovolte (con la bobina (**11**) rivolta verso il basso).
- Durante l'installazione evitare che detriti o residui metallici penetrino all'interno dell'apparecchio.
- Se l'apparecchio è filettato verificare che la lunghezza del filetto della tubazione non sia eccessiva per non danneggiare il corpo (**4**) dell'apparecchio in fase di avvitamento. Non usare la bobina (**11**) come leva per l'avvitamento ma servirsi dell'apposito utensile. Assemblare la valvola sull'impianto con tubi e/o raccordi le cui filettature siano coerenti con la connessione da assemblare.
- Se l'apparecchio è flangiato verificare che le controflange di ingresso e uscita siano perfettamente parallele per evitare di sottoporre il corpo a inutili sforzi meccanici, calcolare inoltre lo spazio per l'inserimento della guarnizione di tenuta. Se a guarnizioni inserite lo spazio rimanente è eccessivo non cercare di colmarlo stringendo eccessivamente i bulloni dell'apparecchio.
- In ogni caso dopo l'installazione verificare la tenuta dell'impianto.
- Nelle versioni con regolatore di portata (VSARP...) svitare il dado (**12**) e impostare il valore di portata di gas desiderato per mezzo della vite di regolazione (**13**). A operazione terminata riavvitare il dado (**12**) nella posizione originale.

COLLEGAMENTI ELETTRICI

- Prima di effettuare connessioni elettriche verificare che la tensione di rete corrisponda con la tensione di alimentazione indicata sull'etichetta del prodotto.
- Scollegare l'alimentazione prima di procedere al cablaggio.
- **DN 15 ÷ DN 50:** Cablare il connettore (**1**) con cavo tipo H05SS-K 3X0,75 mm², Ø esterno da 6,2 a 8,1 mm avendo cura di assicurare il grado IP65 del prodotto. Nel cablare il connettore (**1**) usare gli appositi terminali per cavi (vedere fig. 5).
- **DN 65 ÷ DN 100:** Cablare il connettore (**1**) con cavo tipo H05SS-K 3X1 mm², Ø esterno da 8,3 a 9,5 mm avendo cura di assicurare il grado IP65 del prodotto.
- Collegare all'alimentazione i morsetti 1 e 2 e il cavo di terra al morsetto ⏚ .
- **IMPORTANTE:** con alimentazioni 12 Vdc e 24 Vdc con Conn. Green rispettare la polarità.

La bobina (**11**) è idonea anche per alimentazione permanente. Il riscaldamento della bobina in caso di servizio continuo è un fenomeno del tutto normale. E' consigliabile evitare il contatto a mani nude con la bobina (**11**) dopo un alimentazione elettrica continua superiore a 20 minuti. In caso di manutenzione aspettare il raffreddamento della bobina o eventualmente usare idonee protezioni.

Per eventuali problemi o informazioni relativi alle operazioni di installazione/cablaggio/ manutenzione vedere indirizzo e recapiti telefonici riportati in ultima pagina.

CARATTERISTICHE TECNICHE

- Impiego : gas non aggressivi delle tre famiglie (gas secchi)
- Temperatura ambiente : -20 ÷ +60 °C
- Temperatura superficiale max * : 85 °C
- Tensioni di alimentazione : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Tolleranza su tensione di alimentazione : -15% ... +10%
- Cablaggio elettrico (DN 15 ÷ DN 50) : pressacavo PG 13,5
- Cablaggio elettrico (DN 65 ÷ DN 100) : pressacavo PG 11
- Cicli/ora : vedi tabella
- Potenza assorbita : vedi tabella
- Pressione massima di esercizio : 200 mbar o 360 mbar (vedi etichetta prodotto)
- Tempo di chiusura : <1 s
- Grado di protezione : IP65
- Classe : A
- Gruppo : 2
- Attacchi filettati Rp : (DN 15 ÷ DN 50) secondo EN 10226
- Attacchi flangiati PN 16 : (DN 65 ÷ DN 100) secondo ISO 7005
- Attacchi filettati NPT o flangiati ANSI : su richiesta

* La temperatura superficiale massima è calcolata alimentando l'elettrovalvola alla tensione nominale aumentata del 10% e alla temperatura ambiente massima.

MANUTENZIONE

In ogni caso prima di effettuare verifiche interne accertarsi che:

1. l'apparecchio non sia alimentato elettricamente
2. all'interno dell'apparecchio non vi sia gas in pressione

(vedi fig. 1, 2, 3 e 4) svitare la vite/dado (**12**) e sfilare la bobina (**11**). Svitare le viti di fissaggio (**9**) e con molta attenzione sfilare il coperchio (**10**) dal corpo valvola (**4**), quindi controllare l'otturatore (**5**) e, se necessario, sostituire l'organo di tenuta in gomma (**6**). Successivamente pulire o soffiare il filtro (**8**) o se necessario sostituirlo. Successivamente procedere al montaggio facendo a ritroso l'operazione di smontaggio.

⚠ **Le operazioni suddette devono essere eseguite esclusivamente da tecnici qualificati.**

DESCRIPTION (GB)

Gas interception automatic normally closed solenoid valves that open when the coil is powered and close when there is no tension.

These solenoid valves can be controlled by pressure switch, thermostat, etc.

They can be equipped of a flow regulator (model VSARP...).

INSTALLATION

The solenoid valve is in conformity with the Directive 94/9/CE (said Directive ATEX 100 a) as device of group II, category 3G and as device of group II, category 3D; for this reason it is suitable to be installed in the zones 2 and 22 as classified in the attachment I to the Directive 99/92/EC.

The solenoid valve is not suitable to be used in zones 1 and 21 and, all the more so, in zones 0 and 20 as classified in the already said Directive 99/92/EC.

To determine the qualification and the extension of the dangerous zones, see the norm EN 60079-10.

The device, if installed and serviced respecting all the conditions and the technical instructions of this document, is not source of specific dangers: in particular, during the normal working, is not forecast, by the solenoid valve, the emission in the atmosphere of inflammable substance in way to cause an explosive atmosphere.

WARNING: all installation/wiring/maintenance work must be carried out by skilled staff.

- The gas supply must be shut off before installation.
- Check that the line pressure **DOES NOT EXCEED** the maximum pressure stated on the product label.
- They must be installed with the arrow (on the body (**4**) of the device) facing towards the user appliance. They will function equally effectively if installed vertical. They must not be installed upside down (with the coil (**11**) underneath).
- During installation take care not to allow debris or scraps of metal to enter the device.
- If the device is threaded check that the pipeline thread is not too long; overlong threads may damage the body (**4**) of the device when screwed into place. Do not use the coil (**11**) for leverage when screwing into position; use the appropriate tool. Assemble pipe and fittings which are consistent with solenoid valve connection threads.
- If the device is flanged check that the inlet and outlet counterflanges are perfectly parallel to avoid unnecessary mechanical stresses on the body of the device. Also calculate the space needed to fit the seal. If the gap left after the seal is fitted is too wide, do not try to close it by over-tightening the device's bolts.
- Always check that the system is gas-tight after installation.
- In the version with flow regulator (VSARP...) unscrew the nut (**12**) and set the wanted value of the gas flow by the regulation screw (**13**). Then rescrew the nut (**12**) in the original position.

ELECTRICAL CONNECTIONS

- Before making electrical connections, check that the mains voltage is the same as the power supply voltage stated on the product label.
- Disconnect the power supply before wiring.
- **DN 15 ÷ DN 50:** Wire the connector (**1**) with H05SS-K 3X0.75 mm² cable outside Ø from 6.2 a 8.1 mm, taking care to ensure that the device has IP65 protection. Use cable terminals when wiring the connector (**1**) (see fig. 5).
- **DN 65 ÷ DN 100:** Wire the connector (**1**) with H05SS-K 3X1 mm² cable outside Ø from 8.3 a 9.5 mm, taking care to ensure that the device has IP65 protection.
- Connect the power supply to terminals 1 and 2 and the ground wire to terminal ⏚ .
- **IMPORTANT:** with tension 12 Vdc and 24 Vdc with Conn. Green observe the polarity.

The coil (**11**) is also suitable for permanent power supply. In case of continuous duty, it is absolutely normal for the coil to heat up. The coil (**11**) should not be touched with bare hands after it has been continuously powered for more than 20 minutes. Before maintenance work, wait the coil temperature decreases or use suitable protective equipment.

For any problems or information concerning installation/wiring/maintenance operations, see address and telephone numbers on the back page.

TECHNICAL DATA

- Use : not aggressive gases of the three families (dry gases)
- Environment temperature : -20 ÷ +60 °C
- Max. superficial temperature * : 85 °C
- Power supply voltage : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Power supply voltage tolerance : -15% ... +10%
- Electric connection (DN 15 ÷ DN 50) : cable gland PG 13,5
- Electric connection (DN 65 ÷ DN 100) : cable gland PG 11
- Cycles/hour : see table
- Power absorption : see table
- Max. working pressure : 200 mbar or 360 mbar (see product label)
- Closing time : < 1 s
- Degree of protection : IP65
- Class : A
- Group : 2
- Threaded connections Rp : (DN 15 ÷ DN 50) according to EN 10226
- Flanged connections PN 16 : (DN 65 ÷ DN 100) according to ISO 7005
- Threaded connections NPT or flanged ANSI : on request

* The maximum superficial temperature is calculated powering the solenoid valve at the nominal tension increased of 10% and at the maximum environmental temperature.

SERVICING

In all cases, before performing any internal checks make sure that:

1. the power supply to the device is disconnected
2. there is no pressurised gas inside the device

(see fig. 1, 2, 3 and 4) unscrew the screw/nut (**12**) and remove the coil (**11**). Unscrew the fixing screws (**9**) and, with care, take the cover (**10**) off the body (**4**) of the valve, then control the obturator (**5**) and if it is necessary change the rubber made seal component (**6**). Then clean or blow the filter (**8**) or change it if necessary. Then assemble doing backward the same operation.

⚠ **The above-said operations must be carried out only by qualified technicians.**

DESCRIPTION (F)

Electrovannes d'arrêt pour gaz, automatiques, normalement fermées, qui s'ouvrent lorsque la bobine est alimentée électriquement et se ferment lorsqu'on interrompt l'alimentation.

Ces électrovannes peuvent être commandées par pressostats, thermostats, etc.

Elles peuvent être munies d'un régulateur de débit (modèle VSARP...).

INSTALLATION

L'électrovanne est conforme à la Directive 94/9/CE (appelée Directive ATEX 100 a) comme appareil du groupe II, catégorie 3G et comme appareil du groupe II, catégorie 3D; comme telle elle peut être installée dans les zones 2 et 22, comme classée dans l'annexe I de la Directive 99/92/CE.

L'électrovanne n'est pas adaptée pour l'utilisation dans les zones 1 et 21 et, encore moins, dans les zones 0 et 20 comme définies dans la Directive 99/92/CE déjà citée.

Pour déterminer la qualification et l'extension des zones dangereuses, se reporter à la norme EN 60079-10.

L'appareil, s'il est installé et soumis à l'entretien en respectant toutes les conditions et les instructions techniques reportées dans ce document, ne constitue pas une source de dangers spécifiques: en particulier, dans des conditions de fonctionnement normal, il n'est pas prévu que l'électrovanne émette dans l'atmosphère des substances inflammables qui pourraient provoquer une atmosphère explosible.

ATTENTION: les opérations d'installation/câblage/entretien doivent être exécutées par du personnel qualifié.

- Fermer le gaz avant l'installation.
- Vérifier que la pression de ligne **NE SOIT PAS SUPÉRIEURE** à la pression maximum déclarée sur l'étiquette du produit.
- Elle doivent être installées avec la flèche (indiquée sur son corps (**4**)) tournée vers l'appareil. Elles peuvent aussi être installées en position verticale sans que cela empêche leur fonctionnement correct. Elles ne peuvent pas être positionnées retournées (avec la bobine (**11**) tournée vers le bas).
- Pendant l'installation, éviter que des détritus ou des résidus métalliques pénètrent dans l'appareil.
- Si l'appareil est fileté, vérifier que le filet de la tuyauterie ne soit pas trop long pour ne pas endommager le corps (**4**) de l'appareil lors du vissage. Ne pas utiliser la bobine (**11**) comme levier pour le vissage mais se servir de l'outil approprié. Assembler la vanne sur le système avec les tuyaux et/ou raccords compatibles avec les système.
- Si l'appareil est bridé, vérifier que les contre-brides d'entrée et de sortie soient parfaitement parallèles pour éviter de soumettre le corps à des efforts mécaniques inutiles; par ailleurs, calculer l'espace pour l'introduction du joint d'étanchéité. Si, lorsque les joints sont introduits, l'espace restant est excessif, ne pas essayer de le combler en serrant trop fort les boulons de l'appareil.
- De toute façon, après l'installation vérifier l'étanchéité de l'installation.
- Dans les versions avec régulateur de débit (VSARP...), dévisser l'écrou (**12**) et introduire la valeur de débit de gaz désirée à l'aide de la vis de réglage (**13**). Lorsque l'opération est terminée, revisser l'écrou (**12**) dans sa position d'origine.

BRANCHEMENTS ÉLECTRIQUES

- Avant d'effectuer les connexions électriques, vérifier que la tension de réseau corresponde avec la tension d'alimentation indiquée sur l'étiquette du produit.
- Avant le câblage, interrompre l'alimentation.
- **DN 15 ÷ DN 50:** Câbler le connecteur (**1**) avec un câble type H05SS-K 3X0,75 mm², Ø extérieur de 6,2 à 8,1mm en ayant soin d'assurer le degré IP65 du produit. Pour câbler le connecteur (**1**), utiliser les bornes spéciales pour câbles (voir fig. 5).
- **DN 65 ÷ DN 100:** Câbler le connecteur (**1**) avec un câble type H05SS-K 3X1 mm², Ø extérieur de 8,3 à 9,5mm en ayant soin d'assurer le degré IP65 du produit.
- Connecter à l'alimentation les bornes 1 et 2 et le câble de terre à la borne ⏚ .
- **IMPORTANT:** avec les alimentations 12 Vdc et 24 Vdc avec Conn. Green, respecter la polarité

La bobine (**11**) est également appropriée pour une alimentation permanente. Le réchauffement de la bobine en cas de service continu est un phénomène absolument normal. Il est conseillé d'éviter le contact à mains nues avec la bobine (**11**) après une alimentation électrique continue supérieure à 20 minutes. Lors de l'entretien, attendre le refroidissement de la bobine ou, si nécessaire, utiliser des protections appropriées.

Pour des problèmes éventuels ou pour une demande d'informations relatives aux opérations d'installation/câblage/entretien, voir l'adresse et les numéros de téléphone en dernière page.

CARACTERISTIQUES TECHNIQUES

- Emploi : gaz non agressifs des trois familles (gaz secs)
- Température ambiante : -20 ÷ +60 °C
- Température superficielle maximum * : 85 °C
- Tension d'alimentation : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Tolérance sur tension d'alimentation : -15% ... +10%
- Câblage électrique (DN 15 ÷ DN 50) : presse-étoupe PG 13,5
- Câblage électrique (DN 65 ÷ DN 100) : presse-étoupe PG 11
- Cycles / heure : voir tableau
- Puissance absorbée : voir tableau
- Pression maximale en exercice : 200 mbar ou 360 mbar (voir étiquette du produit)
- Temps de fermeture : < 1 s
- Degré de protection : IP65
- Classe : A
- Groupe : 2
- Fixations filetees Rp : (DN 15 ÷ DN 50) selon EN 10226
- Fixations bridees PN 16 : (DN 65 ÷ DN 100) selon ISO 7005
- Fixations filetees NPT ou bridees ANSI : à la demande

* La température superficielle maximale est calculée en alimentant l'électrovanne à la tension nominale augmentée de 10% et à la température ambiante maximale.

MANUTENTION

Avant de faire des vérifications internes, s'assurer:

1. que l'appareil n'est pas alimenté électriquement
2. qu'il n'y ait pas de gaz sous pression dans l'appareil

(voir fig. 1, 2, 3 et 4) dévisser la vis/écrou (**12**) et extraire la bobine (**11**). Dévisser les vis de fixation (**9**) et, en faisant très attention, extraire le couvercle (**10**) du corps de la vanne (**4**), puis contrôler l'obturateur (**5**) et, si nécessaire, remplacer la pièce d'étanchéité en caoutchouc (**6**). Ensuite, nettoyer ou souffler le filtre (**8**) ou, si nécessaire, le remplacer. Puis effectuer le montage en faisant les opérations dans l'ordre inverse du démontage.

⚠ **Les opérations susmentionnées ne doivent être exécutées que par des techniciens qualifiés.**

BESCHREIBUNG (D)

Automatische Gasabsperrventile in Öffner-Version, die sich öffnen, wenn die Spule aktiviert ist und sich schließen, wenn die Stromzufuhr ausbleibt.

Die Steuerung dieser Magnetventile kann über Druckschalter, Thermostate etc. erfolgen.

Die Magnetventile können mit einem Durchflussregler (Modell VSARP...) ausgestattet sein.

EINBAU

Das Magnetventil entspricht der Richtlinie 94/9/CE (Richtlinie ATEX 100 a genannt) als Gerät der Gruppe II, Kategorie 3G und als Gerät der Gruppe II, Kategorie 3D. Als solches eignet es sich für die Installation in den Bereichen 2 und 22, wie sie in der Anlage I zu der Richtlinie 99/92/CE klassifiziert sind.

Das Magnetventil eignet sich nicht für die Verwendung in den Bereichen 1 und 21 und um so mehr in den Bereichen 0 und 20, wie sie in der bereits genannten Richtlinie 99/92/CE festgelegt sind.

Für die Bestimmung der Bezeichnung und Ausdehnung der gefährdeten Bereiche siehe Norm EN 60079-10.

Wenn das Gerät installiert und unter Einhaltung aller Bedingungen und technischen, in der vorliegenden Unterlage angegebenen Anweisungen der Wartung unterzogen worden ist, stellt es keine besondere Gefahrenquelle dar: insbesondere ist unter normalen Betriebsbedingungen keine Emission einer entflammbaren Substanz von Seiten des Magnetventils vorgesehen, wodurch eine explosive Atmosphäre entstehen könnte.

ACHTUNG: Die Installations-, Verkabelungs- und Wartungsarbeiten müssen stets von qualifiziertem Fachpersonal ausgeführt werden.

- Vor der Installation muss das Gas abgestellt werden.
- Prüfen, ob der Leitungsdruck **NICHT ÜBER** dem auf dem Produktschild angegebenen Höchstdruck liegt.
- Sie müssen mit zum Verbraucher gerichtetem Pfeil (auf dem Körper (**4**) des Magnetventils abgebildet) installiert werden. Die Installation ist auch in senkrechter Position möglich, ohne dass die korrekte Funktionsweise hierbei beeinträchtigt wird. Sie dürfen nicht umgedreht (mit nach unten gerichteter Spule (**11**)) positioniert werden.
- Während der Installation ist sicherzustellen, dass keine Fremdteile oder Metallrückstände in das Gerät gelangen können.
- Ist das Gerät mit Gewinde versehen, muss überprüft werden, ob die Länge des Rohrgewindes nicht zu groß ausfällt, um das Gehäuse (**4**) des Geräts beim Einschrauben nicht zu beschädigen. Beim Einschrauben auf keinen Fall die Spule (**11**) als Hebel verwenden, sondern stets das vorgesehene Werkzeug einsetzen. Montieren Sie nur Rohre und Anschlussteile, welche mit den Anschlussgewinden der Ventile übereinstimmen.
- Ist das Gerät geflanscht, muss überprüft werden, ob die Gegenflansche am Ein- und Ausgang einwandfrei parallel zueinander liegen, damit das Gehäuse nicht unnötigen mechanischen Belastungen ausgesetzt wird; zudem ist der Platzbedarf für das Einfügen der Dichtung zu berücksichtigen. Ist nach dem Einbau der Dichtungen der verbleibende Raum zu groß, darf er nicht durch übermäßiges Anziehen der Schrauben des Geräts ausgefüllt werden.
- Nach der Installation ist auf jeden Fall die Dichtheit der Anlage zu überprüfen.
- Bei den Versionen mit Durchflussregler (VSARP...) die Mutter (**12**) abschrauben und den gewünschten Gasdurchflusswert über die Regelschraube (**13**) eingeben. Nach erfolgter Einstellung die Mutter (**12**) erneut aufschrauben.

ELEKTRISCHE ANSCHLÜSSE

- Vor der Ausführung von elektrischen Anschlüssen ist zu prüfen, ob die Netzspannung mit der auf dem Produktschild angegebenen Versorgungsspannung übereinstimmt.
- Vor der Verkabelung muss die Stromversorgung unterbrochen werden.
- **DN 15 ÷ DN 50:** Den Verbinder (**1**) mit einem Kabel des Typs H05SS-K 3X0,75mm², Außen-Ø zwischen 6,2 und 8,1 mm, versehen und hierbei entsprechende Maßnahmen ergreifen, um die Schutzart IP65 des Produkts sicherzustellen. Für die Verkabelung des Verbinders (**1**) sind entsprechende Endstücke für Kabel zu verwenden (siehe Abb. 5).
- **DN 65 ÷ DN 100:** Den Verbinder (**1**) mit einem Kabel des Typs H05SS-K 3X1mm², Außen-Ø zwischen 8,3 und 9,5 mm, versehen und hierbei entsprechende Maßnahmen ergreifen, um die Schutzart IP65 des Produkts sicherzustellen.
- Die Stromversorgungsleiter an die Klemmen 1 und 2 und das Erdungskabel an Klemme ⏚ anschließen.
- **WICHTIG:** Bei einer Versorgung mit 12 Vdc und 24 Vdc mit Conn. Green die Pole beachten.

Die Spule (**11**) ist auch für den Betrieb mit Dauerversorgung ausgelegt. Die Erwärmung der Spule bei Dauerbetrieb ist eine völlig normale Erscheinung. Es wird davon abgeraten, die Spule (**11**) mit ungeschützten Händen zu berühren, nachdem sie länger als 20 Minuten mit Strom versorgt wurde. Zur Ausführung von Wartungsarbeiten die Abkühlung der Spule abwarten oder eventuell geeignete Schutzvorrichtungen verwenden.

Bei eventuellen Problemen oder Informationsbedarf zu den Installations-, Verkabelungs- und Wartungsarbeiten ist die letzte Seite mit der Anschrift und den Telefonnummern zu konsultieren.

TECHNISCHE EIGENSCHAFTEN

- Einsatz : nicht agressive Gase der drei Familien (trockene Gase)
- Raumtemperatur : -20 ÷ +60 °C
- Max. Oberflächentemperatur * : 85 °C
- Spannungen Stromversorgung : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Toleranzbereich für Versorgungsspannung : -15% ... +10%
- Elektrische Verkabelung (DN 15 ÷ DN 50) : Kabelhalterung PG 13,5
- Elektrische Verkabelung (DN 65 ÷ DN 100) : Kabelhalterung PG 11
- Zyklen / Stunde : siehe tabelle
- Stromverbrauch : siehe tabelle
- Höchstarbeitsdruck : 200 mbar oder 360 mbar (Siehe Produktetikett)
- Verschlusszeit : < 1 s
- Schutzgrad : IP65
- Klasse : A
- Gruppe : 2
- Betresste Anschlüsse Rp : (DN 15 ÷ DN 50) laut EN 10226
- Geflanschte Anschlüsse PN 16 : (DN 65 ÷ DN 100) laut ISO 7005
- Betresste Anschlüsse NPT oder Betresste ANSI : auf Anfrage

* Die maximale Oberflächentemperatur wird berechnet, indem das Magnetventil bei der um 10% erhöhten Nominalspannung und der höchsten Umgebungstemperatur gespeist wird.

WARTUNG

Auf jeden Fall ist vor der Ausführung von internen Überprüfungen Folgendes sicherzustellen:

1. Die elektrische Versorgung des Geräts muss deaktiviert sein.
2. Innerhalb des Geräts darf kein unter Druck stehendes Gas vorhanden sein.

(siehe Abb. 1, 2, 3 und 4) Mutter (**12**) abschrauben und Spule (**11**) herausziehen. Die Befestigungsschrauben (**9**) abschrauben und die Abdeckung (**10**) vorsichtig aus dem Ventilkörper (**4**) herausziehen, danach die Verschlussvorrichtung (**5**) kontrollieren und ggf. das Dichtungsteil aus Gummi (**6**) ersetzen. Anschließend die Montage in umgekehrter Reihenfolge der Demontage ausführen.

⚠ **Die oben beschriebenen Arbeitsgänge sind ausschließlich qualifiziertem Fachpersonal halten.**

DESCRIPCIÓN (E)

Electroválvulas de interceptación gas de tipo automático, normalmente cerradas, que se abren cada vez que la bobina es alimentada eléctricamente y se cierran una vez interrumpida la tensión.

Estas electroválvulas pueden ser gobernadas mediante presostatos, termostatos, etc.

Pueden estar provistas de un regulador de caudal (modelo VSARP...).

INSTALACIÓN

La electroválvula es conforme a la Directiva 94/9/CE (denominada Directiva ATEX 100 a) como aparato del grupo II, categoría 3G y como aparato del grupo II, categoría 3D; como tal, resulta adecuada para su instalación en las zonas 2 y 22, según están clasificadas en el documento adjunto I a la Directiva 99/92/CE.

La electroválvula no es adecuada para su utilización en las zonas 1 y 21 y, aún menos, en las zonas 0 y 20, según se definen en la citada Directiva 99/92/CE.

Para determinar la calificación y extensión de las zonas peligrosas, ver la norma EN 60079-10.

El aparato, si se instala y somete a mantenimiento respetando todas las condiciones e instrucciones técnicas referidas en el presente documento, no da lugar a riesgos particulares: concretamente, en condiciones de funcionamiento normales, la electroválvula no provoca la emisión a la atmósfera de sustancias inflamables con características tales que puedan provocar deflagraciones.

ATENCIÓN. Las operaciones de instalación, cableado y mantenimiento deben ser efectuadas por personal cualificado.

- Antes de iniciar las operaciones de instalación es necesario cerrar el gas.
- Verificar que la presión de la línea **NO SEA SUPERIOR** a la presión máxima indicada en la etiqueta del producto.
- Normalmente deben instalarse en posición previa a los órganos de regulación, con la flecha (que aparece en el cuerpo (**4**) del aparato) dispuesta hacia el dispositivo utilizador. También pueden instalarse en posición vertical, puesto que ello no perjudica su correcto funcionamiento. No deben posicionarse volcadas (con la bobina (**11**) dispuesta hacia abajo).
- Durante la instalación prestar atención a fin de evitar que detritos o residuos metálicos se introduzcan en el aparato.
- En el caso de aparato roscado será necesario verificar que la longitud de la rosca de la tubería no sea excesiva dado que, durante el enroscado, podría provocar daños en el cuerpo (**4**) del aparato mismo. La bobina (**11**) no debe utilizarse como palanca para el enroscado: utilizar para ello la respectiva herramienta. Montar la válvula en un sistema que sea compatible con el diámetro de la tubería y/o de la conexiòn de la válvula.
- En el caso de aparato embridado, será necesario controlar que las contrabridas de entrada y de salida queden perfectamente paralelas a fin de evitar que el cuerpo quede sometido a fuerzas mecánicas inútiles. Calcular además el espacio para la introducción de la junta de estanqueidad. Si una vez introducidas las juntas el espacio restante es excesivo, no apretar demasiado los pernos del aparato para intentar reducirlo.
- De todas formas, verificar la estanqueidad del sistema una vez efectuada la instalación.
- En las versiones provistas de regulador de caudal (VSARP...), desenroscar la tuerca (**12**) y programar el valor del caudal de gas deseado, operando para ello con el tornillo de regulación (**13**). Una vez concluida la operación, enroscar nuevamente la tuerca (**12**) hasta disponerla en su posición original.

CONEXIONES ELÉCTRICAS

- Antes de efectuar conexiones eléctricas controlar que la tensión de red corresponda a la tensión de alimentación indicada en la etiqueta del producto.
- Desconectar la alimentación antes de efectuar el cableado.
- **DN 15 ÷ DN 50:** Cablear el conector (**1**) mediante cable de tipo H05SS-K 3X0,75 mm², Ø externo entre 6,2 y 8,1 mm, prestando atención a fin de garantizar el grado IP65 del producto. Al efectuar el cableado del conector (**1**) utilizar los respectivos terminales para cables (ver fig. 5).
- **DN 65 ÷ DN 100:** Cablear el conector (**1**) mediante cable de tipo H05SS-K 3X1 mm², Ø externo entre 8,3 y 9,5 mm, prestando atención a fin de garantizar el grado IP65 del producto.
- Conectar la alimentación a los bornes 1 y 2 y el cable de tierra al borne ⏚ .
- **IMPORTANTE**. Con tensiones de 12 Vdc y 24 Vdc con Conn. Green respetar la polaridad

La bobina (**11**) también es adecuada para alimentación permanente. En caso de servicio continuo el calentamiento de la bobina es un fenómeno del todo normal. Evítese el contacto de las manos desnudas con la bobina (**11**) después de una alimentación eléctrica continua superior a 20 minutos. Para efectuar tareas de mantenimiento esperar el enfriamiento de la bobina o usar medios adecuados de protección.

Para solucionar eventuales problemas o para obtener mayor información relativa a las operaciones de instalación, cableado y mantenimiento, consúltense la dirección y los números telefónicos que se exponen en la última página.

CARACTERISTICAS TECNICAS

- Utilizaciòn : gases combustibles de las 3 familias (secos y no agresivos)
- Temperatura ambiente : -20 ÷ +60 °C
- Temperatura superficial máxima * : 85 °C
- Alimentación eléctrica : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Tolerancia de tensión de alimentación : -15% ... +10%
- Cableado eléctrico (DN 15 ÷ DN 50) : tomacable PG 13,5
- Cableado eléctrico (DN 65 ÷ DN 100) : tomacable PG 11
- Ciclos / hora : ver tabla
- Potencia absorbida : ver tabla
- Presión máxima de trabajo : 200 mbar o 360 mbar (ver etiqueta producto)
- Tiempo de cierre : <1 s
- Grado de protecciòn : IP65
- Clase : A
- Grupo : 2
- Conexiones roscadas Rp : (DN 15 ÷ DN 50) según EN 10226
- Conexiones de brida PN 16 : (DN 65 ÷ DN 100) según ISO 7005
- Conexiones roscadas NPT o de brida ANSI : a pedido

* La temperatura superficial máxima se calcula alimentando la electroválvula con la tensión nominal incrementada en un 10% y con la máxima temperatura ambiente.

MANTENIMIENTO

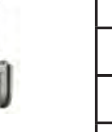
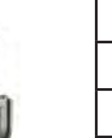
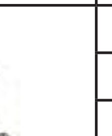
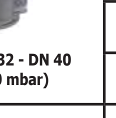
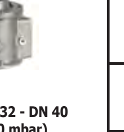
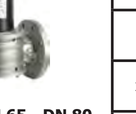
De todas formas, antes de efectuar verificaciones internas, controlar que:

1. el aparato no esté alimentado eléctricamente
2. en su interior no haya gas en presión.

(véanse figs. 1, 2, 3 y 4) desenroscar los tornillos/tuerca (**12**) y extraer la bobina (**11**). Desenroscar los tornillos de fijación (**9**) y retirar cuidadosamente el tapón (**10**) presente en el cuerpo válvula (**4**). A continuación controlar el obturador (**5**) y, de ser necesario, sustituir el elemento de retención en goma (**6**). Por último, efectuar el montaje ejecutando para ello en orden y sentido inverso la operación de desmontaje.

⚠ **Las siguientes operaciones deben ser realizadas por técnicos cualificados.**

Bobine e connettori - Coils and connectors - Bobines et connecteurs - Spulen und anschlüsse - Bobinas y conectores

Modello Model Modèle Modell Modelo	Tensione Tension Tension Spannung Tensión	Codice bobina Coil code Code bobine Spulenkode Códice bobina	Timbratura bobina Coil stamping Timbrage bobine Spulenstempel Timbre bobina	Codice connettore Connector code Code conecteur Anschlusskode Códice conector	Energy Saving	Potenza assorbita Powwer absorption Puissance absorbée Kraftverbrauch Potencia absorbida	Max. Cicli / ora Max Cycles/hour Max Cycles / heure Max. Zyklen / Stunde Max Ciclos / hora	Tempo OFF min (s) Min OFF time (s) Min temps OFF OFF minimale Zeit Tiempo mín de OFF
 **VSAR..2 DN 15 - DN 20 (P.max 200 mbar)**	12 Vdc	BO-0400	BO-0400 12 VDC 17W	CN-0010	NO	16 VA	1800	1
	12 V/50 Hz	BO-0400	BO-0400 12 VDC 17W	CN-0050	NO	12 VA	1800	1
	24 Vdc	BO-0410	BO-0410 24 VDC 17W	CN-0010	NO	17 VA	1800	1
	24 V/50 Hz	BO-0410	BO-0410 24 VDC 17W	CN-0050	NO	14 VA	1800	1
	110 V/50-60 Hz	BO-0420	BO-0420 110 V RAC 17W	CN-0045	NO	17 VA	1800	1
	230 V/50-60 Hz	BO-0430	BO-0430 230 V RAC 17W	CN-0045	NO	18 VA	1800	1
 **VSAR..3 DN 15 - DN 20 (P.max 360 mbar)** **VSAR..2 DN 25 (P.max 200 mbar)**	12 Vdc	BO-0510	BO-0510 12 VDC 28W	CN-2100	YES	23 VA Conn. Green 6 VA	400	1
	12 V/50 Hz	BO-0510	BO-0510 12 VDC 28W	CN-2110	YES	20 VA Conn. Green 6 VA	400	1
	24 Vdc	BO-0520	BO-0520 24 VDC 28W	CN-2100	YES	27 VA Conn. Green 7 VA	400	1
	24 V/50 Hz	BO-0520	BO-0520 24 VDC 28W	CN-2110	YES	24 VA Conn. Green 7 VA	400	1
	110 V/50-60 Hz	BO-0530	BO-0530 110 V RAC 28W	CN-2130	YES	29 VA Conn. Green 9 VA	400	1
	230 V/50-60 Hz	BO-0540	BO-0540 230 V RAC 28W	CN-2130	YES	30 VA Conn. Green 9 VA	400	1
 **VSAR..3 DN 25 (P.max 360 mbar)**	12 Vdc	BO-0407	BO-0407 12V RAC ES	CN-2100	YES	56 VA Conn. Green 16 VA	400	1
	12 V/50 Hz	BO-0407	BO-0407 12V RAC ES	CN-2110	YES	56 VA Conn. Green 16 VA	400	1
	24 Vdc	BO-0417	BO-0417 24V RAC ES	CN-2100	YES	56 VA Conn. Green 16 VA	400	1
	24 V/50 Hz	BO-0417	BO-0417 24V RAC ES	CN-2110	YES	56 VA Conn. Green 16 VA	400	1
	110 V/50-60 Hz	BO-0427	BO-0427 110V RAC ES	CN-2130	YES	63 VA Conn. Green 20 VA	400	1
	230 V/50-60 Hz	BO-0437	BO-0437 230V RAC ES	CN-2130	YES	54 VA Conn. Green 18 VA	400	1
 **VSAR..2 DN 32 - DN 40 (P.max 200 mbar)**	24 Vdc	BO-0355	BO-0355 24 V RAC ES	CN-2100	YES	68 VA Conn. Green 18 VA	400	1
	24 V/50 Hz	BO-0355	BO-0355 24 V RAC ES	CN-2110	YES	68 VA Conn. Green 18 VA	400	1
	110 V/50-60 Hz	BO-0365	BO-0365 110 V RAC ES	CN-2130	YES	77 VA Conn. Green 23 VA	400	1
	230 V/50-60 Hz	BO-0375	BO-0375 230 V RAC ES	CN-2130	YES	89 VA Conn. Green 25 VA	400	1
 **VSAR..3 DN 32 - DN 40 (P.max 360 mbar)** **VSAR..2 - VSAR..3 (P.max 200 - 360 mbar)**	24 Vdc	BO-0355	BO-0355 24 V RAC ES	CN-2100	YES	68 VA Conn. Green 18 VA	400	1
	24 V/50 Hz	BO-0355	BO-0355 24 V RAC ES	CN-2110	YES	68 VA Conn. Green 18 VA	400	1
	110 V/50-60 Hz	BO-0365	BO-0365 110 V RAC ES	CN-2130	YES	77 VA Conn. Green 23 VA	400	1
	230 V/50-60 Hz	BO-0375	BO-0375 230 V RAC ES	CN-2130	YES	89 VA Conn. Green 25 VA	400	1
 **VSAR..3 DN 65 - DN 80 (P.max 360 mbar)**	24 Vdc	BO-1110	24 Vdc DN 65 - 80	CN-2005	YES	185 VA Conn. Green 50 VA	120	2
	24 V/50 Hz	BO-1115	24 Vac DN 65 - 80	CN-2010	YES	185 VA Conn. Green 50 VA	120	2
	110 V/50-60 Hz	BO-1120	110 Vac DN 65 - 80	CN-2020	YES	260 VA Conn. Green 70 VA	120	2
	230 V/50-60 Hz	BO-1130	230 Vac DN 65 - 80	CN-2030	YES	290 VA Conn. Green 75 VA	120	2
 **VSAR..3 DN 100 (P.max 360 mbar)**	24 Vdc	BO-1210	24 Vdc DN 100	CN-2005	YES	130 VA Conn. Green 40 VA	120	2
	24 V/50 Hz	BO-1215	24 Vac DN 100	CN-2010	YES	120 VA Conn. Green 35 VA	120	2
	110 V/50-60 Hz	BO-1220	110 Vac DN 100	CN-2020	YES	270 VA Conn. Green 70 VA	120	2
	230 V/50-60 Hz	BO-1230	230 Vac DN 100	CN-2030	YES	270 VA Conn. Green 70 VA	120	2

Tipo connettore / Connector type / Type connecteur / Anschlusstype / Tipo conector

CN-0010 = Normale / Normal / Normal / Normal / Normal
CN-0045 = (230 Vac, 110 Vac) = Raddrizzatore / Rectifier / Reddresseur / Gleichrichter / Retificador
CN-0050 = (24 Vac, 12 Vac) = Raddrizzatore / Rectifier / Reddresseur / Gleichrichter / Retificador
CN-2100 = Conn. Green 12 Vdc - 24 Vdc
CN-2110 = Conn. Green 12 Vac - 24 Vac
CN-2130 = Conn. Green 110 Vac - 230 Vac

CN-2005 = Conn. Green 24 Vdc
CN-2010 = Conn. Green 24 Vac
CN-2020 = Conn. Green 110 Vac
CN-2030 = Conn. Green 230 Vac

fig. 1 - fig. 1 - fig. 1 - Abb. 1 - fig. 1

VSAR... / VSARP...
DN 15 - DN 20 - DN 25
P.max 200 - 360 mbar

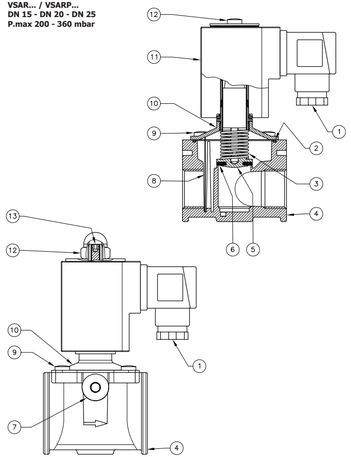
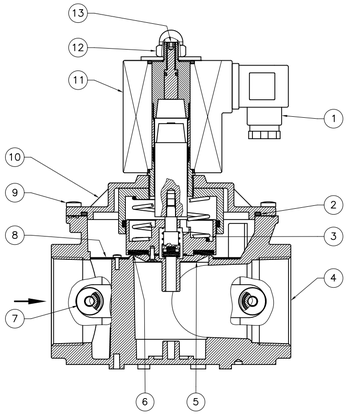


fig. 3 - fig. 3 - fig. 3 - Abb. 3 - fig. 3

VSAR... / VSARP...
DN 50
P.max 200 - 360 mbar



I

fig. 1, 2, 3 e 4

1. Connettore elettrico
2. O-Ring di tenuta
3. Molla di chiusura
4. Corpo valvola
5. Otturatore
6. Rondella di tenuta
7. Tappo G 1/4"
8. Filtro
9. Viti di fissaggio
10. Coperchio / Fondello
11. Bobina elettrica
12. Dado o vite fissaggio bobina
13. Vite di regolazione portata (versione VSARP...)

GB

fig. 1, 2, 3 and 4

1. Electrical connector
2. Seal O-Ring
3. Closing spring
4. Body valve
5. Obturator
6. Seal washer
7. G 1/4" cap
8. Filter
9. Fixing screws
10. Cover / Bottom
11. Electrical coil
12. Coil fixing nut or screw
13. Flow calibration screw (VSARP... version)

D

Abb. 1, 2, 3 und 4

1. Elektroanschluss
2. O-Ring Siegel
3. Verschlussfeder
4. Ventilkörper
5. Verschluss
6. Siegelscheibe
7. Verschluß G 1/4"
8. Filterorgan
9. Fixierschrauben
10. Deckel / Boden
11. Elektrospule
12. Befestigungsmutter der Spule
13. Durchflussregelschraube (Modell VSARP...)

F

fig. 1, 2, 3 et 4

1. Connecteur électrique
2. Joint torique
3. Ressort de fermeture
4. Corps soupape
5. Obturateur
6. Rondelle d'étanchéité
7. Bouchon G 1/4"
8. Composant filtrant
9. Vis de fixation
10. Couvercle / Basement
11. Bobine électrique
12. Écrou ou vis de fixation de la bobine
13. Vis de réglage du débit (version VSARP...)

E

fig. 1, 2, 3, y 4

1. Conector eléctrico
2. Junta tórica de estanqueidad
3. Muelle de cierre
4. Cuerpo válvula
5. Obturador
6. Arandela de estanqueidad
7. Tapón G 1/4"
8. Elemento filtrante
9. Tornillos de fijación
10. Tapa / Fondo
11. Bobina eléctrica
12. Tuerca o tornillo fijación bobina
13. Tornillo de regulación caudal (version VSARP...)

Dimensioni di ingombro in mm Overall dimensions in mm Mesures d'encombrement en mm Raumbefarmasse in mm Dimensiones en mm				
Attacchi Connections Fixations Anschlüsse Conexiones	**A**	**B**		**C**
		VSAR	**VSARP**	
VSAR2... / VSAR3... DN 15 - DN 20 - DN 25 P. max 200 - 360 mbar	70	137	150	74
VSAR2... DN 32 - DN 40 P. max 200 mbar	160	185	200	140
VSAR3... DN 32 - DN 40 P. max 360 mbar	160	210	225	140
VSAR2... / VSAR3... DN 50 P. max 200 - 360 mbar	160	210	225	140
VSAR3... DN 65 P. max 360 mbar	290	321	321	211
VSAR3... DN 80 P. max 360 mbar	310	328	328	211
VSAR3... DN 100 P. max 360 mbar	350	389	389	254

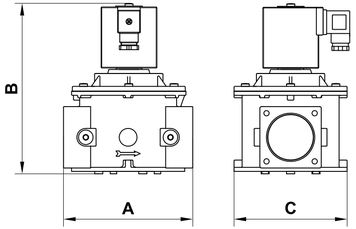
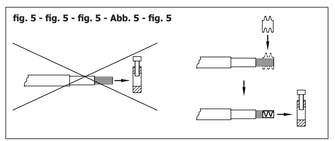


fig. 5 - fig. 5 - fig. 5 - Abb. 5 - fig. 5



ELETTROVALVOLA NORMALMENTE CHIUSA AUTOMATICA PER GAS
AUTOMATIC NORMALLY CLOSED SOLENOID VALVE FOR GAS
ELECTROVANNE NORMALEMENT FERMEE AUTOMATIQUE POUR GAZ
ELEKTROVENTILE AUTOMATISCHES NORMALVERSCHLUSS FUER GAS
ELECTROVÁLVULA NORMALMENTE CERRADA AUTOMÁTICA PARA GAS

VSAR2... / VSARP2...
VSAR3... / VSARP3...

Omologazione CE secondo EN 161, conforme Direttiva Gas 2009/142/CEE
EN 161 EC approved, in conformity with Gas Directive 2009/142/EEC
Homologation CE selon EN 161, conforme à la Directive Gaz 2009/142/CEE
EG-Zulassung gemäß EN 161, Im Einklang mit Gas Richtlinie 2009/142/EWG
Homologación CE según EN 161, conforme Directiva Gas 2009/142/CEE

II 3G - II 3D
ECONEX-01

CE 0051

MADE IN ITALY

fig. 2 - fig. 2 - fig. 2 - Abb. 2 - fig. 2

VSAR... / VSARP...
DN 32 - DN 40
P.max 200 mbar

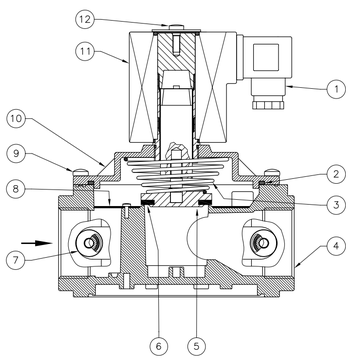


fig. 4 - fig. 4 - fig. 4 - Abb. 4 - fig. 4

VSAR... / VSARP...
P.max 360 mbar
DN 65 - DN 80 - DN 100

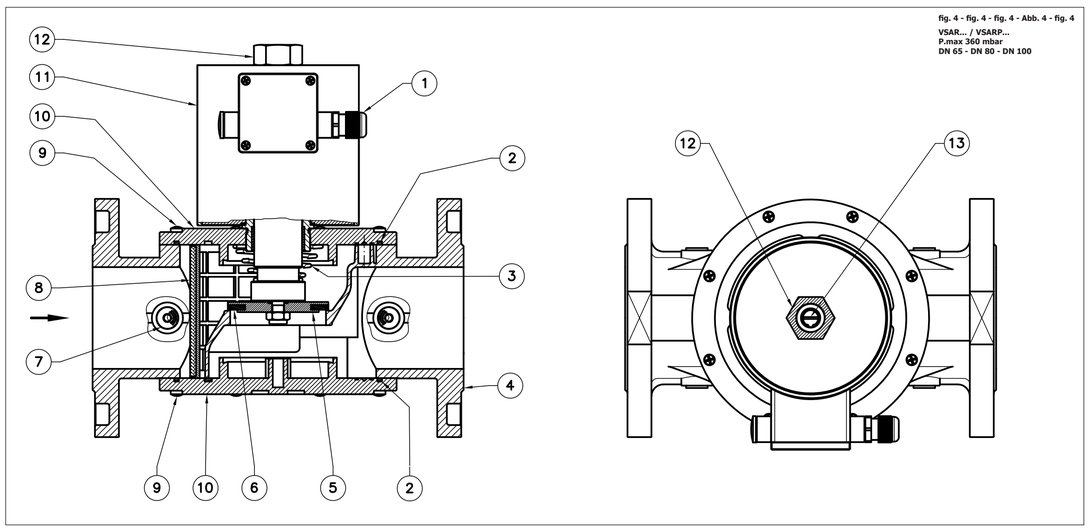
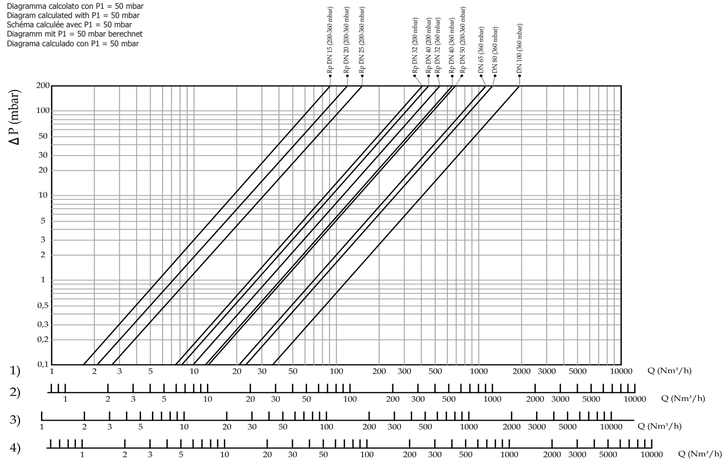


DIAGRAMMA PERDITE DI CARICO - LOAD LOSS DIAGRAM - DIAGRAMME PERTES DE CHARGE - DRUCKVERLUST-DIAGRAMM - DIAGRAMMA PERDIDAS DA CARGA

Diagramma calcolato con P1 = 50 mbar
Diagram calculated with P1 = 50 mbar
Schéma calculée avec P1 = 50 mbar
Diagramm mit P1 = 50 mbar berechnet
Diagrama calculado con P1 = 50 mbar



1) metano - methane - méthane - methan - metano 2) aria - air - air - luft - aire
3) gas di città - town gas - gaz de ville - stadtgas - gas de ciudad 4) gpl - lpg - gaz liquide - flüssiggas - gas líquido

Mod. IT244 00

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DESCRIZIONE

I

Elettrovalvole di intercettazione per gas automatiche normalmente chiuse che aprono quando la bobina viene alimentata elettricamente e chiudono quando viene tolta loro tensione.
Queste elettrovalvole possono essere comandate da pressostati, termostati, ecc.
Possono essere fornite nelle seguenti versioni:

VSALS... : con apertura lenta regolabile + regolazione scatto rapido
VSALP... : con apertura lenta regolabile + regolazione portata
VSALSP... : con apertura lenta regolabile + regolazione scatto rapido + regolazione portata
VSAL... : con apertura lenta regolabile

INSTALLAZIONE

L'elettrovalvola è conforme alla Direttiva 94/9/CE (denominata Direttiva ATEX 100 a) come apparecchio del gruppo II, categoria 3G e come apparecchio II, categoria 3D; come tale è idonea per essere installata nelle zone 2 e 22 come classificate nell'allegato I alla Direttiva 99/92/CE.
L'elettrovalvola non è idonea per l'utilizzo nelle zone 1 e 21 e, a maggior ragione, nelle zone 0 e 20 come definite nella già citata Direttiva 99/92/CE.
Per determinare la qualifica e l'estensione delle zone pericolose si veda la norma EN 60079-10.

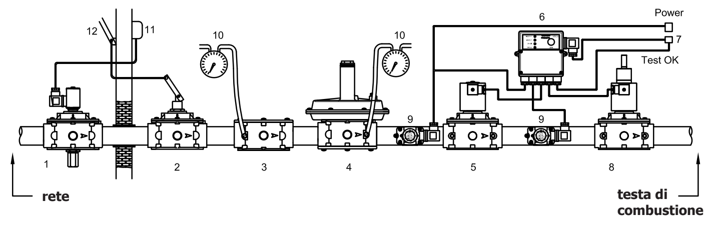
L'apparecchio, se installato e sottoposto a manutenzione nel pieno rispetto di tutte le condizioni e istruzioni tecniche riportate nel presente documento, non costituisce fonte di pericoli specifici: in particolare, in condizioni di normale funzionamento, non è prevista, da parte dell'elettrovalvola, l'emissione in atmosfera di sostanza infiammabile con modalità tali da originare un'atmosfera esplosiva.

ATTENZIONE: le operazioni di installazione/cablaggio/manutenzione devono essere eseguite da personale qualificato.

- E' necessario chiudere il gas prima dell'installazione.
- Verificare che la pressione di linea **NON SIA SUPERIORE** alla pressione massima dichiarata sull'etichetta del prodotto.
- Devono essere installate con la freccia (indicata sul corpo (**6**) dell'apparecchio) rivolta verso l'utenza. Possono essere installate anche in posizione verticale senza che ne venga pregiudicato il corretto funzionamento. Non possono essere posizionate capovolte (con la bobina (**2**) rivolta verso il basso).
- Durante l'installazione evitare che detriti o residui metallici penetrino all'interno dell'apparecchio.
- Se l'apparecchio è filettato verificare che la lunghezza del filetto della tubazione non sia eccessiva per non danneggiare il corpo (**6**) dell'apparecchio in fase di avvitamento. Non usare la bobina (**2**) come leva per l'avvitamento ma servirsi dell'apposito utensile. Assemblare la valvola sull'impianto con tubi e/o raccordi le cui filettature siano coerenti con la connessione da assemblare.
- Se l'apparecchio è flangiato verificare che le controflange di ingresso e uscita siano perfettamente parallele per evitare di sottoporre il corpo a inutili sforzi meccanici, calcolare inoltre lo spazio per l'inserimento della guarnizione di tenuta. Se a guarnizioni inserite lo spazio rimanente è eccessivo non cercare di colmarlo stringendo eccessivamente i bulloni dell'apparecchio.
- In ogni caso dopo l'installazione verificare la tenuta dell'impianto.

ESEMPIO DI INSTALLAZIONE

1. Elettrovalvola a riarmo manuale M16/RM N.C.
2. Valvola a strappo SM
3. Filtro gas FE2.. - FE6..
4. Regolatore di pressione RG/2MC
5. Elettrovalvola automatica tipo VSAR...
6. Dispostivo controllo tenuta
7. Dispositivo di comando elettrovalvole
8. **Elettrovalvola automatica tipo VSAL...2 - VSAL...3**
9. Pressostato di minima pressione
10. Manometro
11. Rivelatore gas
12. Leva comando a distanza valvola a strappo SM



COLLEGAMENTI ELETTRICI

- Prima di effettuare connessioni elettriche verificare che la tensione di rete corrisponda con la tensione di alimentazione indicata sull'etichetta del prodotto.
- Scollegare l'alimentazione prima di procedere al cablaggio.
- **DN 15 ÷ DN 50:** Cablare il connettore (**3**) con cavo tipo H05SS-K 3X0,75 mm², Ø esterno da 6,2 a 8,1 mm avendo cura di assicurare il grado IP65 del prodotto. Nel cablare il connettore (**3**) usare gli appositi terminali per cavi (vedere fig. 5).
- **DN 65 ÷ DN 100:** Cablare il connettore (**3**) con cavo tipo H05SS-K 3X1 mm², Ø esterno da 8,3 a 9,5 mm avendo cura di assicurare il grado IP65 del prodotto.
- Collegare all'alimentazione i morsetti 1 e 2 e il cavo di terra al morsetto ⏚ .
- **IMPORTANTE:** con alimentazioni 12 Vdc e 24 Vdc rispettare la polarità.

La bobina (**2**) è idonea anche per alimentazione permanente. Il riscaldamento della bobina in caso di servizio continuo è un fenomeno del tutto normale. E' consigliabile evitare il contatto a mani nude con la bobina (**2**) dopo un alimentazione elettrica continua superiore a 20 minuti. In caso di manutenzione aspettare il raffreddamento della bobina o eventualmente usare idonee protezioni.

REGOLAZIONI

- Per la regolazione della velocità di apertura dell'otturatore agire sulla vite (**1**). La velocità di apertura aumenta progressivamente avvitando la vite (**1**) in senso orario. **N.B.** Variazioni della pressione di ingresso e della temperatura ambiente possono influire sul tempo di apertura della valvola.
- Per la regolazione dello scatto rapido agire sulla vite (**14**). Avvitandola in senso onti-orario fino a fine corsa, l'apertura della valvola sarà subito lenta, avvitandola in senso orario si ha una prima fase ad apertura veloce ed una seconda fase lenta.
- Per la regolazione della portata svitare completamente l'eventuale coperchietto di protezione (**16**) e agire sulla vite (**15**). Avvitare in senso orario per diminuire la portata, in senso antiorario per aumentarla.

Per eventuali problemi o informazioni relativi alle operazioni di installazione/cablaggio/manutenzione vedere indirizzo e recapiti telefonici riportati in ultima pagina.

CARATTERISTICHE TECNICHE

- Impiego : gas non aggressivi delle tre famiglie (gas secchi)
- Temperatura ambiente : -20 ÷ +60 °C
- Temperatura superficiale max * : 85 °C
- Tensioni di alimentazione (vedi tabella) : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Tolleranza su tensione di alimentazione : -15% ... +10%
- Cablaggio elettrico (DN 15 ÷ DN 50) : pressacavo PG 13,5
- Cablaggio elettrico (DN 65 ÷ DN 100) : pressacavo PG 11
- Cicli/ora : vedi tabella
- Potenza assorbita : vedi tabella
- Pressione massima di esercizio : VSAL...2 200 mbar - VSAL...3 360 mbar
- Tempo di chiusura : <1 s
- Regolazione tempo di apertura : da 0,5 a 30 s ± 20% (ta= 25 °C - V=Vn)
- Grado di protezione : IP65
- Classe : A
- Gruppo : 2
- Attacchi filettati Rp : (DN 15 ÷ DN 50) secondo EN 10226
- Attacchi flangiati PN 16 : (DN 65 ÷ DN 100) secondo ISO 7005
- Attacchi filettati NPT o flangiati ANSI : su richiesta

* La temperatura superficiale massima è calcolata alimentando l'elettrovalvola alla tensione nominale aumentata del 10% e alla temperatura ambiente massima.

MANUTENZIONE

In ogni caso prima di effettuare verifiche interne accertarsi che:

1. l'apparecchio non sia alimentato elettricamente
2. all'interno dell'apparecchio non vi sia gas in pressione

(vedi fig. 1, 2, 3, e 4) svitare il kit apertura lenta (**13**) e sfilare la bobina (**2**). Svitare le viti di fissaggio (**11**) e con molta attenzione sfilare il coperchio (**12**) dal corpo valvola (**6**), quindi controllare l'otturatore (**7**) e se necessario sostituire l'organo di tenuta in gomma (**8**). Successivamente pulire o soffiare il filtro (**10**) o se necessario sostituirlo. Quindi procedere al montaggio facendo a ritroso l'operazione di smontaggio.

⚠ **Le operazioni suddette devono essere eseguite esclusivamente da tecnici qualificati.**

DESCRIPTION

GB

Gas interception automatic normally closed solenoid valves that open when the coil is powered and close when there is no tension.
These solenoid valves can be controlled by pressure switch, thermostat, etc.
We can supplied the following versions:

VSALS... : with adjustable slow opening + adjustable rapid stroke
VSALP... : with adjustable slow opening + flow regulation
VSALSP... : with adjustable slow opening + adjustable rapid stroke + flow regulation
VSAL... : with adjustable slow opening

INSTALLATION

The solenoid valve is in conformity with the Directive 94/9/CE (said Directive ATEX 100 a) as device of group II, category 3G and as device of group II, category 3D; for this reason it is suitable to be installed in the zones 2 and 22 as classified in the attachment I to the Directive 99/92/EC.
The solenoid valve is not suitable to be used in zones 1 and 21 and, all the more so, in zones 0 and 20 as classified in the already said Directive 99/92/EC.
To determine the qualification and the extension of the dangerous zones, see the norm EN 60079-10.

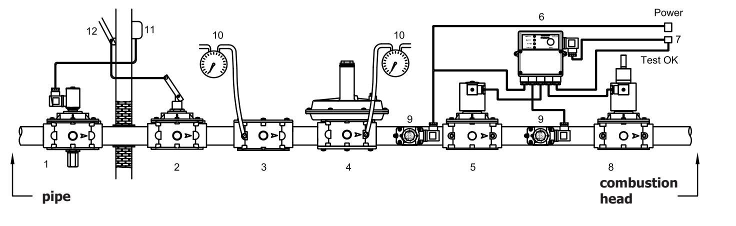
The device, if installed and serviced respecting all the conditions and the technical instructions of this document, is not source of specific dangers: in particular, during the normal working, is not forecast, by the solenoid valve, the emission in the atmosphere of inflammable substance in way to cause an explosive atmosphere.

WARNING: all installation/wiring/maintenance work must be carried out by skilled staff.

- The gas supply must be shut off before installation.
- Check that the line pressure **DOES NOT EXCEED** the maximum pressure stated on the product label.
- They must be installed with the arrow (on the body (**6**) of the device) facing towards the user appliance. They will function equally effectively if installed vertical. They must not be installed upside down (with the coil (**2**) underneath).
- During installation take care not to allow debris or scraps of metal to enter the device.
- If the device is threaded check that the pipeline thread is not too long; overlong threads may damage the body (**6**) of the device when screwed into place. Do not use the coil (**2**) for leverage when screwing into position; use the appropriate tool. Assemble pipe and fittings which are consistent with solenoid valve connection threads.
- If the device is flanged check that the inlet and outlet counterflanges are perfectly parallel to avoid unnecessary mechanical stresses on the body of the device. Also calculate the space needed to fit the seal. If the gap left after the seal is fitted is too wide, do not try to close it by over-tightening the device's bolts.
- Always check that the system is gas-tight after installation.

EXAMPLE OF INSTALLATION

1. M16/RM N.C. manual reset solenoid valve
2. SM series jerk handle ON/OFF valve
3. Gas filter type FE2.. - FE6..
4. Gas pressure regulator type RG/2MC
5. Automatic solenoid valve type VSAR...
6. Valve testing system
7. Solenoid valves control device
8. **Automatic solenoid valve type VSAL...2 - VSAL...3**
9. Pressure switch of minimum pressure
10. Manometer
11. Gas detector
12. Lever for remote SM ON/OFF valve control



ELECTRICAL CONNECTIONS

- Before making electrical connections, check that the mains voltage is the same as the power supply voltage stated on the product label.
- Disconnect the power supply before wiring.
- **DN 15 ÷ DN 50:** Wire the connector (**3**) with H05SS-K 3X0.75 mm² cable outside Ø from 6.2 a 8.1 mm, taking care to ensure that the device has IP65 protection. Use cable terminals when wiring the connector (**3**) (see fig. 5).
- **DN 65 ÷ DN 100:** Wire the connector (**3**) with H05SS-K 3X1 mm² cable outside Ø from 8.3 a 9.5 mm, taking care to ensure that the device has IP65 protection.
- Connect the power supply to terminals 1 and 2 and the ground wire to terminal ⏚ .
- **IMPORTANT:** with tension 12 Vdc and 24 Vdc observe the polarity.

The coil (**2**) is also suitable for permanent power supply. In case of continuous duty, it is absolutely normal for the coil to heat up. The coil (**2**) should not be touched with bare hands after it has been continuously powered for more than 20 minutes. Before maintenance work, wait the coil temperature decreases or use suitable protective equipment.

CALIBRATIONS

- To regulate the opening speed of the obturator operate on the screw (**1**). The opening speed increases gradually screwing clockwise the screw (**1**). **WARNING:** Inlet pressure and environment temperature changes can influence the valve opening time.
- To regulate the rapide stroke operate on the screw (**14**). Screwing counterclockwise till the limit, the opening of the valve will be slow at first, screwing it clockwise we have a first fast opening strokes and a second slow one.
- To regulate the flow unscrew completely the possible protective small cap (**16**) and operate on the screw (**15**). Screwing it clockwise in order to decrease the flow, counterclockwise in order to increase it.

For any problems or information concerning installation/wiring/maintenance operations, see address and telephone numbers on the back page.

TECHNICAL DATA

- Use : not aggressive gases of the three families (dry gases)
- Environment temperature : -20 ÷ +60 °C
- Max. superficial temperature * : 85 °C
- Power supply voltage (see table) : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Power supply voltage tolerance : -15% ... +10%
- Electric connection (DN 15 ÷ DN 50) : cable gland PG 13,5
- Electric connection (DN 65 ÷ DN 100) : cable gland PG 11
- Cycles/hour : see table
- Power absorption : see table
- Max. working pressure : VSAL...2 200 mbar - VSAL...3 360 mbar
- Closing time : < 1 s
- Regulation opening time : from 0.5 to 30 s ± 20% (ta= 25 °C - V=Vn)
- Degree of protection : IP65
- Class : A
- Group : 2
- Threaded connections Rp : (DN 15 ÷ DN 50) according to EN 10226
- Flanged connections PN 16 : (DN 65 ÷ DN 100) according to ISO 7005
- Threaded connections NPT or flanged ANSI : on request

* The maximum superficial temperature is calculated powering the solenoid valve at the nominal tension increased of 10% and at the maximum environmental temperature.

SERVICING

In all cases, before performing any internal checks make sure that:

1. the power supply to the device is disconnected
2. there is no pressurised gas inside the device

(see fig. 1, 2, 3, and 4) unscrew the slow opening kit (**13**) and remove the coil (**2**). Unscrew the fixing screws (**11**) and, with care, take the cover (**12**) off the body (**6**) of the valve, then control the obturator (**7**) and if it is necessary change the rubber made seal component (**8**). Then clean or blow the filter (**10**) or change it if necessary. Then assemble doing backward the same operation.

⚠ **The above-said operations must be carried out only by qualified technicians.**

DESCRIPTION

F

Electrovannes d'arrêt pour gaz, automatiques, normalement fermées, qui s'ouvrent lorsque la bobine est alimentée électriquement et se ferment lorsqu'on interrompt l'alimentation.
Ces électrovannes peuvent être commandées par pressostats, thermostats, etc.
Dans les versions suivantes peuvent être fournis:

VSALS... : avec réglage vitesse ouverture + réglage déclenchement rapide
VSALP... : avec réglage vitesse ouverture + réglage débit
VSALSP... : avec réglage vitesse ouverture + réglage déclenchement rapide + réglage débit
VSAL... : avec réglage vitesse ouverture

INSTALLATION

L'électrovanne est conforme à la Directive 94/9/CE (appelée Directive ATEX 100 a) comme appareil du groupe II, catégorie 3G et comme appareil du groupe II, catégorie 3D; comme telle elle peut être installée dans les zones 2 et 22, comme classée dans l'annexe I de la Directive 99/92/CE.
L'électrovanne n'est pas adaptée pour l'utilisation dans les zones 1 et 21 et, encore moins, dans les zones 0 et 20 comme définies dans la Directive 99/92/CE déjà citée.
Pour déterminer la qualification et l'extension des zones dangereuses, se reporter à la norme EN 60079-10.

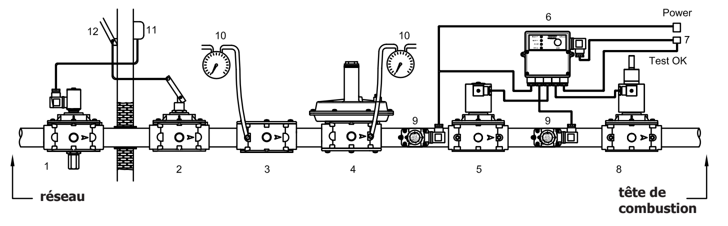
L'appareil, s'il est installé et soumis à l'entretien en respectant toutes les conditions et les instructions techniques reportées dans ce document, ne constitue pas une source de dangers spécifiques: en particulier, dans des conditions de fonctionnement normal, il n'est pas prévu que l'électrovanne émette dans l'atmosphère des substances inflammables qui pourraient provoquer une atmosphère explosible.

ATTENTION: les opérations d'installation/câblage/entretien doivent être exécutées par du personnel qualifié.

- Fermer le gaz avant l'installation.
- Vérifier que la pression de ligne **NE SOIT PAS SUPÉRIEURE** à la pression maximum déclarée sur l'étiquette du produit.
- Elle doivent être installées avec la flèche (indiquée sur son corps (**6**)) tournée vers l'appareil. Elles peuvent aussi être installées en position verticale sans que cela empêche leur fonctionnement correct. Elles ne peuvent pas être positionnées retournées (avec la bobine (**2**) tournée vers le bas).
- Pendant l'installation, éviter que des détritus ou des résidus métalliques pénètrent dans l'appareil.
- Si l'appareil est fileté, vérifier que le filet de la tuyauterie ne soit pas trop long pour ne pas endommager le corps (**6**) de l'appareil lors du vissage. Ne pas utiliser la bobine (**2**) comme levier pour le vissage mais se servir de l'outil approprié. Assembler la vanne sur le système avec les tuyaux et/ou raccords compatibles avec les système.
- Si l'appareil est bridé, vérifier que les contre-brides d'entrée et de sortie soient parfaitement parallèles pour éviter de soumettre le corps à des efforts mécaniques inutiles; par ailleurs, calculer l'espace pour l'introduction du joint d'étanchéité. Si, lorsque les joints sont introduits, l'espace restant est excessif, ne pas essayer de le combler en serrant trop fort les boulons de l'appareil.
- De toute façon, après l'installation vérifier l'étanchéité de l'installation.

EXEMPLE D'INSTALLATION

1. Electrovanne à réarmement manuel M16/RM N.C.
2. Soupape à déchirement SM
3. Filtre à gaz FE2.. - FE6..
4. Régulateur de pression RG/2MC
5. Electrovanne automatique de type VSAR...
6. Dispositif de contrôle de l'étanchéité
7. Dispositif de commande des électrovannes
8. **Electrovanne automatique de type VSAL...2 - VSAL...3**
9. Pressostat de pression minimum
10. Manomètre
11. Révélateur de gaz
12. Levier de comande à distance soupape à déchirement SM



BRANCHEMENTS ÉLECTRIQUES

- Avant d'effectuer les connexions électriques, vérifier que la tension de réseau corresponde avec la tension d'alimentation indiquée sur l'étiquette du produit.
- Avant le câblage, interrompre l'alimentation.
- **DN 15 ÷ DN 50:** Câbler le connecteur (**3**) avec un câble type H05SS-K 3X0,75 mm², Ø extérieur de 6,2 à 8,1mm en ayant soin d'assurer le degré IP65 du produit. Pour câbler le connecteur (**3**), utiliser les bornes spéciales pour câbles (voir fig. 5).
- **DN 65 ÷ DN 100:** Câbler le connecteur (**3**) avec un câble type H05SS-K 3X1 mm², Ø extérieur de 8,3 à 9,5mm en ayant soin d'assurer le degré IP65 du produit.
- Connecter à l'alimentation les bornes 1 et 2 et le câble de terre à la borne ⏚ .
- **IMPORTANT:** avec les alimentations 12 Vdc et 24 Vd, respecter la polarité

La bobine (**2**) est également appropriée pour une alimentation permanente. Le réchauffement de la bobine en cas de service continu est un phénomène absolument normal. Il est conseillé d'éviter le contact à mains nues avec la bobine (**2**) après une alimentation électrique continue supérieure à 20 minutes. Lors de l'entretien, attendre le refroidissement de la bobine ou, si nécessaire, utiliser des protections appropriées.

RÉGLAGES

- Pour le réglage de la vitesse d'ouverture de l'obturateur agir sur la vis (**1**). La vitesse d'ouverture augmente progressivement en vissant la vis (**1**) dans le sens des aiguilles d'une montre. **N.B.** Les variations de la pression d'entrée et de la température ambiante peuvent influencer le temps d'ouverture de la soupape.
- Pour le réglage du déclenchement rapide agir sur la vis (**14**). En le vissant dans le sens contraire des aiguilles d'une montre jusqu'à la fin de course, l'ouverture de la soupape sera immédiatement lente, en la vissant dans le sens des aiguilles d'une montre il y a une première phase d'ouverture rapide et une seconde phase lente.
- Pour le réglage du débit dévisser complètement l'éventuel petit couvercle de protection (**16**) et agir sur la vis (**15**). Visser dans le sens des aiguilles d'une montre pour diminuer le débit, dans le sens contraire des aiguilles d'une montre pour l'augmenter.

Pour des problèmes éventuels ou pour une demande d'informations relatives aux opérations d'installation/câblage/entretien, voir l'adresse et les numéros de téléphone en dernière page.

CARACTERISTIQUES TECHNIQUES

- Emploi : gaz non agressifs des trois familles (gaz secs)
- Température ambiante : -20 ÷ +60 °C
- Température superficielle maximum * : 85 °C
- Tension d'alimentation (voir tableau) : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Tolérance sur tension d'alimentation : -15% ... +10%
- Câblage électrique (DN 15 ÷ DN 50) : presse-étoupe PG 13,5
- Câblage électrique (DN 65 ÷ DN 100) : presse-étoupe PG 11
- Cycles / heure : voir tableau
- Puissance absorbée : voir tableau
- Pression maximale en exercice : VSAL...2 200 mbar - VSAL...3 360 mbar
- Temps de fermeture : < 1 s
- Réglage du temps d'ouverture : de 0,5 à 30 s ± 20% (ta= 25 °C - V=Vn)
- Degré de protection : IP65
- Classe : A
- Groupe : 2
- Fixations filetees Rp : (DN 15 ÷ DN 50) selon EN 10226
- Fixations bridees PN 16 : (DN 65 ÷ DN 100) selon ISO 7005
- Fixations filetees NPT ou bridees ANSI : à la demande

* La température superficielle maximale est calculée en alimentant l'électrovanne à la tension nominale augmentée de 10% et à la température ambiante maximale.

MANUTENTION

Avant de faire des vérifications internes, s'assurer:

1. que l'appareil n'est pas alimenté électriquement
2. qu'il n'y ait pas de gaz sous pression dans l'appareil

(voir fig. 1, 2, 3, and 4) dévisser Kit d'Ouverture Lente (**13**) et extraire la bobine (**2**). Dévisser les vis de fixation (**11**) et, en faisant très attention, extraire le couvercle (**12**) du corps de la vanne (**6**), puis contrôler l'obturateur (**7**) et, si nécessaire, remplacer la pièce d'étanchéité en caoutchouc (**8**). Ensuite, nettoyer ou souffler le filtre (**10**) ou, si nécessaire. Puis effectuer le montage en faisant les opérations dans l'ordre inverse du démontage.

⚠ **Les opérations susmentionnées ne doivent être exécutées que par des techniciens qualifiés.**

BESCHREIBUNG

D

Automatische Gasabsperrventile in Öffner-Version, die sich öffnen, wenn die Spule aktiviert ist und sich schließen, wenn die Stromzufuhr ausbleibt.
Die Steuerung dieser Magnetventile kann über Druckschalter, Thermostate etc. erfolgen.
Können in den folgenden Versionen geliefert werden:

VSALS... : mit Einstellung der Öffnungsgeschwindigkeit + Einstellung der Schnellauslösung
VSALP... : mit Einstellung der Öffnungsgeschwindigkeit + Einstellung des Durchsatzes
VSALSP... : mit Einstellung der Öffnungsgeschwindigkeit + Einstellung der Schnellauslösung + Einstellung des Durchsatzes
VSAL... : mit Einstellung der Öffnungsgeschwindigkeit

EINBAU

Das Magnetventil entspricht der Richtlinie 94/9/CE (Richtlinie ATEX 100 a genannt) als Gerät der Gruppe II, Kategorie 3G und als Gerät der Gruppe II, Kategorie 3D. Als solches eignet es sich für die Installation in den Bereichen 2 und 22, wie sie in der Anlage I zu der Richtlinie 99/92/CE klassifiziert sind.
Das Magnetventil eignet sich nicht für die Verwendung in den Bereichen 1 und 21 und um so mehr in den Bereichen 0 und 20, wie sie in der bereits genannten Richtlinie 99/92/CE festgelegt sind.
Für die Bestimmung der Bezeichnung und Ausdehnung der gefährdeten Bereiche siehe Norm EN 60079-10.

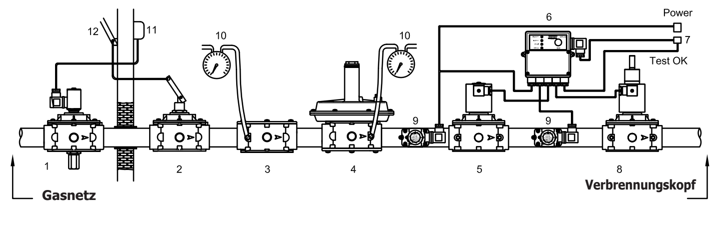
Wenn das Gerät installiert und unter Einhaltung aller Bedingungen und technischen, in der vorliegenden Unterlage angegebenen Anweisungen der Wartung unterzogen worden ist, stellt es keine besondere Gefahrenquelle dar: insbesondere ist unter normalen Betriebsbedingungen keine Emission einer entflammbaren Substanz von Seiten des Magnetventils vorgesehen, wodurch eine explosive Atmosphäre entstehen könnte.

ACHTUNG: Die Installations-, Verkabelungs- und Wartungsarbeiten müssen stets von qualifiziertem Fachpersonal ausgeführt werden.

- Vor der Installation muss das Gas abgestellt werden.
- Prüfen, ob der Leitungsdruck **NICHT ÜBER** dem auf dem Produktschild angegebenen Höchstdruck liegt.
- Sie müssen mit zum Verbraucher gerichtetem Pfeil (auf dem Körper (**6**) des Magnetventils abgebildet) installiert werden. Die Installation ist auch in senkrechter Position möglich, ohne dass die korrekte Funktionsweise hierbei beeinträchtigt wird. Sie dürfen nicht umgedreht (mit nach unten gerichteter Spule (**2**)) positioniert werden.
- Während der Installation ist sicherzustellen, dass keine Fremdteile oder Metallrückstände in das Gerät gelangen können.
- Ist das Gerät mit Gewinde versehen, muss überprüft werden, ob die Länge des Rohrgewindes nicht zu groß ausfällt, um das Gehäuse (**6**) des Geräts beim Einschrauben nicht zu beschädigen. Beim Einschrauben auf keinen Fall die Spule (**2**) als Hebel verwenden, sondern stets das vorgesehene Werkzeug einsetzen. Montieren Sie nur Rohre und Anschlussteile, welche mit den Anschlussgewinden der Ventile übereinstimmen.
- Ist das Gerät geflanscht, muss überprüft werden, ob die Gegenflansche am Ein- und Ausgang einwandfrei parallel zueinander liegen, damit das Gehäuse nicht unnötigen mechanischen Belastungen ausgesetzt wird; zudem ist der Platzbedarf für das Einfügen der Dichtung zu berücksichtigen. Ist nach dem Einbau der Dichtungen der verbleibende Raum zu groß, darf er nicht durch übermäßiges Anziehen der Schrauben des Geräts ausgefüllt werden.
- Nach der Installation ist auf jeden Fall die Dichtheit der Anlage zu überprüfen.

EINBAUBEISPIEL

1. Elektroventil Manualaufrüstung M16/RM N.C.
2. Abrissventil SM
3. Gasfilter Serie FE2.. - FE6..
4. Gasregler Serie RG/2MC
5. Automatisches Elektroventil Serie VSAR...
6. Kontrollvorrichtung für Dichtungen
7. Schaltvorrichtung für Magnetventile
8. **Automatisches Elektroventil Serie VSAL...2 - VSAL...3**
9. Niederdruckschalter
10. Druckmesser
11. Gasdetektor
12. Fernsteuerungshebel Ruckventil SM



ELEKTRISCHE ANSCHLÜSSE

- Vor der Ausführung von elektrischen Anschlüssen ist zu prüfen, ob die Netzspannung mit der auf dem Produktschild angegebenen Versorgungsspannung übereinstimmt.
- Vor der Verkabelung muss die Stromversorgung unterbrochen werden.
- **DN 15 ÷ DN 50:** Den Verbinder (**3**) mit einem Kabel des Typs H05SS-K 3X0,75mm², Außen-Ø zwischen 6,2 und 8,1 mm, versehen und hierbei entsprechende Maßnahmen ergreifen, um die Schutzart IP65 des Produkts sicherzustellen. Für die Verkabelung des Verbinders (**3**) sind entsprechende Endstücke für Kabel zu verwenden (siehe Abb. 5).
- **DN 65 ÷ DN 100:** Den Verbinder (**3**) mit einem Kabel des Typs H05SS-K 3X1mm², Außen-Ø zwischen 8,3 und 9,5 mm, versehen und hierbei entsprechende Maßnahmen ergreifen, um die Schutzart IP65 des Produkts sicherzustellen.
- Die Stromversorgungsleiter an die Klemmen 1 und 2 und das Erdungskabel an Klemme ⏚ anschließen.
- **WICHTIG:** Bei einer Versorgung mit 12 Vdc und 24 Vdc die Pole beachten.

Die Spule (**2**) ist auch für den Betrieb mit Dauerversorgung ausgelegt. Die Erwärmung der Spule bei Dauerbetrieb ist eine völlig normale Erscheinung. Es wird davon abgeraten, die Spule (**2**) mit ungeschützten Händen zu berühren, nachdem sie länger als 20 Minuten mit Strom versorgt wurde. Zur Ausführung von Wartungsarbeiten die Abkühlung der Spule abwarten oder eventuell geeignete Schutzvorrichtungen verwenden.

EINSTELLUNGEN

- Für die Einstellung der Öffnungsgeschwindigkeit der Klappe, wirkt man auf die Schraube (**1**) ein. Die Öffnungsgeschwindigkeit wird schrittweise erhöht, indem man die Schraube (**1**) im Uhrzeigersinn dreht. **N.B.** Änderungen des Eingangsdrucks und der Raumtemperatur können sich auf die Öffnungszeit des Ventils auswirken.
- Für die Einstellung der Schnellauslösung, wirkt man auf die Schraube (**14**) ein. Dreht man sie entgegen dem Uhrzeigersinn bis zum Anschlag, ist die Öffnungsgeschwindigkeit des Ventils sofort langsam, dreht man sie dagegen im Uhrzeigersinn ist die erste Öffnungsphase schnell und die zweite langsam.
- Zur Regulierung der Durchflussmenge den eventuell vorhandenen Schutzdeckel (**16**) vollständig abschrauben und auf Schraube (**15**) einwirken. Im Uhrzeigersinn anschrauben, um die Durchflussmenge zu verringern und gegen den Uhrzeigersinn schrauben, um sie zu erhöhen.

Bei eventuellen Problemen oder Informationsbedarf zu den Installations-, Verkabelungs- und Wartungsarbeiten ist die letzte Seite mit der Anschrift und den Telefonnummern zu konsultieren.

TECHNISCHE EIGENSCHAFTEN

- Einsatz : nicht agressive Gase der drei Familien (trockene Gase)
- Raumtemperatur : -20 ÷ +60 °C
- Max. Oberflächentemperatur * : 85 °C
- Spannungen Stromversorgung (siehe tabelle) : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Toleranzbereich für Versorgungsspannung : -15% ... +10%
- Elektrische Verkabelung (DN 15 ÷ DN 50) : Kabelhalterung PG 13,5
- Elektrische Verkabelung (DN 65 ÷ DN 100) : Kabelhalterung PG 11
- Zyklen / Stunde : siehe tabelle
- Stromverbrauch : siehe tabelle
- Höchstarbeitsdruck : VSAL...2 200 mbar - VSAL...3 360 mbar
- Verschlusszeit : < 1 s
- Einstellung der Öffnungszeit : von 0,5 bis 30 s ± 20% (ta= 25 °C - V=Vn)
- Schutzgrad : IP65
- Klasse : A
- Gruppe : 2
- Betresste Anschlüsse Rp : (DN 15 ÷ DN 50) laut EN 10226
- Geflanschte Anschlüsse PN 16 : (DN 65 ÷ DN 100) laut ISO 7005
- Betresste Anschlüsse NPT oder Betresste ANSI : auf Anfrage

* Die maximale Oberflächentemperatur wird berechnet, indem das Magnetventil bei der um 10% erhöhten Nominalspannung und der höchsten Umgebungstemperatur gespeist wird.

WARTUNG

Auf jeden Fall ist vor der Ausführung von internen Überprüfungen Folgendes sicherzustellen:

1. Die elektrische Versorgung des Geräts muss deaktiviert sein.
2. Innerhalb des Geräts darf kein unter Druck stehendes Gas vorhanden sein.

(siehe Abb. 1, 2, 3, and 4) Bausatz Langsames Öffnen (**13**) und Spule (**2**) herausziehen. Die Befestigungsschrauben (**11**) abschrauben und die Abdeckung (**12**) vorsichtig aus dem Ventilkörper (**6**) herausziehen, danach die Verschlussvorrichtung (**7**) kontrollieren und ggf. das Dichtungsteil aus Gummi (**8**) ersetzen. Anschließend den Filter (**10**) reinigen oder durchblasen oder ggf. ersetzen. Anschließend die Montage in umgekehrter Reihenfolge der Demontage ausführen.

⚠ **Die oben beschriebenen Arbeitsgänge sind ausschließlich qualifiziertem Fachpersonal halten.**

DESCRIPCIÓN

E

Electroválvulas de interceptación gas de tipo automático, normalmente cerradas, que se abren cada vez que la bobina es alimentada eléctricamente y se cierran una vez interrumpida la tensión.
Estas electroválvulas pueden ser gobernadas mediante presostatos, termostatos, etc.
Pueden suministrarse en las siguientes versiones:

VSALS... : con regulación velocidad apertura + regulación disparo rápido
VSALP... : con regulación velocidad apertura + regulación caudal
VSALSP... : con regulación velocidad apertura + regulación disparo rápido + regulación caudal
VSAL... : con regulación velocidad apertura

INSTALACIÓN

La electroválvula es conforme a la Directiva 94/9/CE (denominada Directiva ATEX 100 a) como aparato del grupo II, categoría 3G y como aparato del grupo II, categoría 3D; como tal, resulta adecuada para su instalación en las zonas 2 y 22, según están clasificadas en el documento adjunto I a la Directiva 99/92/CE.
La electroválvula no es adecuada para su utilización en las zonas 1 y 21 y, aún menos, en las zonas 0 y 20, según se definen en la citada Directiva 99/92/CE.
Para determinar la calificación y extensión de las zonas peligrosas, ver la norma EN 60079-10.

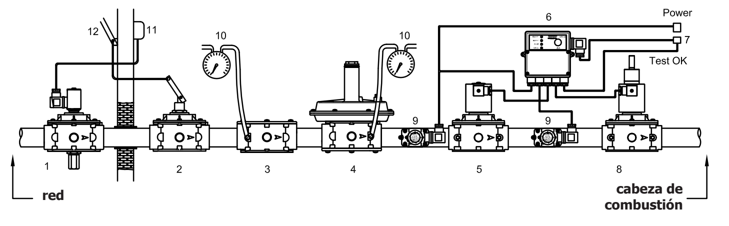
El aparato, si se instala y somete a mantenimiento respetando todas las condiciones e instrucciones técnicas referidas en el presente documento, no da lugar a riesgos particulares: concretamente, en condiciones de funcionamiento normales, la electroválvula no provoca la emisión a la atmósfera de sustancias inflamables con características tales que puedan provocar deflagraciones.

ATENCIÓN. Las operaciones de instalación, cableado y mantenimiento deben ser efectuadas por personal cualificado.

- Antes de iniciar las operaciones de instalación es necesario cerrar el gas.
- Verificar que la presión de la línea **NO SEA SUPERIOR** a la presión máxima indicada en la etiqueta del producto.
- Normalmente deben instalarse en posición previa a los órganos de regulación, con la flecha (que aparece en el cuerpo (**6**) del aparato) dispuesta hacia el dispositivo utilizador. También pueden instalarse en posición vertical, puesto que ello no perjudica su correcto funcionamiento. No deben posicionarse volcadas (con la bobina (**2**) dispuesta hacia abajo).
- Durante la instalación prestar atención a fin de evitar que detritos o residuos metálicos se introduzcan en el aparato.
- En el caso de aparato roscado será necesario verificar que la longitud de la rosca de la tubería no sea excesiva dado que, durante el enroscado, podría provocar daños en el cuerpo (**6**) del aparato mismo. La bobina (**2**) no debe utilizarse como palanca para el enroscado: utilizar para ello la respectiva herramienta. Montar la válvula en un sistema que sea compatible con el diámetro de la tubería y/o de la conexiòn de la válvula.
- En el caso de aparato embridado, será necesario controlar que las contrabridas de entrada y de salida queden perfectamente paralelas a fin de evitar que el cuerpo quede sometido a fuerzas mecánicas inútiles. Calcular además el espacio para la introducción de la junta de estanqueidad. Si una vez introducidas las juntas el espacio restante es excesivo, no apretar demasiado los pernos del aparato para intentar reducirlo.
- De todas formas, verificar la estanqueidad del sistema una vez efectuada la instalación.

EJEMPLO DE INSTALACIÓN

1. Electroválvula a rearme manual M16/RM N.C.
2. Válvula de corte SM
3. Filtro gas serie FE2.. - FE6..
4. Regulador gas serie RG/2MC
5. Electroválvula automática serie VSAR...
6. Dispositivo de control hermeticidad
7. Dispositivo de mando electroválvulas
8. **Electroválvula automática serie VSAL...2 - VSAL...3**
9. Presostato de presión mínima
10. Manómetro
11. Revelador gas
12. Palanca para actuación de la válvula de corte SM



CONEXIONES ELÉCTRICAS

- Antes de efectuar conexiones eléctricas controlar que la tensión de red corresponda a la tensión de alimentación indicada en la etiqueta del producto.
- Desconectar la alimentación antes de efectuar el cableado.
- **DN 15 ÷ DN 50:** Cablear el conector (**3**) mediante cable de tipo H05SS-K 3X0,75 mm², Ø externo entre 6,2 y 8,1 mm, prestando atención a fin de garantizar el grado IP65 del producto. Al efectuar el cableado del conector (**3**) utilizar los respectivos terminales para cables (ver fig. 5).
- **DN 65 ÷ DN 100:** Cablear el conector (**3**) mediante cable de tipo H05SS-K 3X1 mm², Ø externo entre 8,3 y 9,5 mm, prestando atención a fin de garantizar el grado IP65 del producto.
- Conectar la alimentación a los bornes 1 y 2 y el cable de tierra al borne ⏚ .
- **IMPORTANTE**. Con tensiones de 12 Vdc y 24 Vdc respetar la polaridad

La bobina (**2**) también es adecuada para alimentación permanente. En caso de servicio continuo el calentamiento de la bobina es un fenómeno del todo normal. Evítese el contacto de las manos desnudas con la bobina (**2**) después de una alimentación eléctrica continua superior a 20 minutos. Para efectuar tareas de mantenimiento esperar el enfriamiento de la bobina o usar medios adecuados de protección.

AJUSTES

- Para la regulación de la velocidad de apertura, accione el tornillo (**1**). La velocidad de apertura aumenta progresivamente ajustando el tornillo (**1**) en sentido horario. **Nota:** Las variaciones de la presión de entrada y de la temperatura ambiente pueden influir en el tiempo de apertura de la válvula.
- Para regular el disparo rápido, accione el tornillo (**14**). Ajustándola en sentido contrario a las agujas del reloj hasta el fin de carrera, la apertura de la válvula será de inmediato lenta, ajustándola en sentido horario se tiene primero una fase de apertura veloz y una segunda fase lenta.
- Para regular el caudal, destornillar completamente la eventual tapa de protección (**16**) y accione el tornillo (**15**). Ajuste en sentido horario para disminuir el caudal, en sentido contrario a las agujas del reloj para aumentarla.

Para solucionar eventuales problemas o para obtener mayor información relativa a las operaciones de instalación, cableado y mantenimiento, consúltense la dirección y los números telefónicos que se exponen en la última página.

CARACTERISTICAS TECNICAS

- Utilizaciòn : gases combustibles de las 3 familias (secos y no agresivos)
- Temperatura ambiente : -20 ÷ +60 °C
- Temperatura superficial máxima * : 85 °C
- Alimentación eléctrica (ver tabla) : 12 Vdc - 12 V/50 Hz - 24 Vdc - 24 V/50 Hz 110 V/50-60 Hz - 230 V/50-60 Hz
- Tolerancia de tensión de alimentación : -15% ... +10%
- Cableado eléctrico (DN 15 ÷ DN 50) : tomacable PG 13,5
- Cableado eléctrico (DN 65 ÷ DN 100) : tomacable PG 11
- Ciclos / hora : ver tabla
- Potencia absorbida : ver tabla
- Presión máxima de trabajo : VSAL...2 200 mbar - VSAL...3 360 mbar
- Tiempo de cierre : <1 s
- Regulación tiempo de apertura : entre 0,5 y 30 s ± 20% (ta= 25 °C - V=Vn)
- Grado de protecciòn : IP65
- Clase : A
- Grupo : 2
- Conexiones roscadas Rp : (DN 15 ÷ DN 50) según EN 10226
- Conexiones de brida PN 16 : (DN 65 ÷ DN 100) según ISO 7005
- Conexiones roscadas NPT o de brida ANSI : a pedido

* La temperatura superficial máxima se calcula alimentando la electroválvula con la tensión nominal incrementada en un 10% y con la máxima temperatura ambiente.

MANTENIMIENTO

De todas formas, antes de efectuar verificaciones internas, controlar que:

1. el aparato no esté alimentado eléctricamente
2. en su interior no haya gas en presión.

(véanse figs. 1, 2, 3 and 4) desenroscar Kit de Apertura Lenta (**13**) y extraer la bobina (**2**). Desenroscar los tornillos de fijación (**11**) y retirar cuidadosamente el tapón (**12**) presente en el cuerpo válvula (**6**). A continuación controlar el obturador (**7**) y, de ser necesario, sustituir el elemento de retención en goma (**8**). Sucesivamente se deberá limpiar el filtro, soplarlo (**10**) o -en caso de ser necesario- sustituirlo. Por último, efectuar el montaje ejecutando para ello en orden y sentido inverso la operación de desmontaje.

⚠ **Las siguientes operaciones deben ser realizadas por técnicos cualificados.**

Bobine e connettori - Coils and connectors - Bobines et connecteurs - Spulen und anschlüsse - Bobinas y conectores

Modello Model Modèle Modell Modelo	Tensione Tension Tension Spannung Tensión	Codice bobina Coil code Code bobine Spulenkode Códice bobina	Timbratura bobina Coil stamping Timbrage bobine Spulenstempel Timbre bobina	Codice connettore Connector code Code conecteur Anschlusskode Códice conector	Conn. Green	Potenza assorbita Powwer absorption Puissance absorbée Kraftverbrauch Potencia absorbida	Max. Cicli / ora Max Cycles/hour Max Cycles / heure Max. Zyklen / Stunde Max Ciclos / hora	Tempo OFF min (s) Min OFF time (s) Min temps OFF OFF minimale Zeit Tiempo mín de OFF
 VSAL (P-S-SP) DN 15 - DN 20 - DN 25 (P.max 200 - 360 mbar)	12 Vdc	BO-0407	BO-0407 12V RAC ES	CN-2101	YES	56 VA Conn. Green 16 VA	50	2
	12 V/50 Hz	BO-0407	BO-0407 12V RAC ES	CN-2111	YES	56 VA Conn. Green 16 VA	50	2
	24 Vdc	BO-0417	BO-0417 24V RAC ES	CN-2101	YES	56 VA Conn. Green 16 VA	50	2
	24 V/50 Hz	BO-0417	BO-0417 24V RAC ES	CN-2111	YES	56 VA Conn. Green 16 VA	50	2
	110 V/50-60 Hz	BO-0427	BO-0427 110V RAC ES	CN-2131	YES	63 VA Conn. Green 20 VA	50	2
	230 V/50-60 Hz	BO-0437	BO-0437 230V RAC ES	CN-2131	YES	54 VA Conn. Green 18 VA	50	2
 VSAL (P-S-SP) DN 32 - DN 40 (P.max 200 mbar)	24 Vdc	BO-0355	BO-0355 24 V RAC ES	CN-2101	YES	68 VA Conn. Green 18 VA	50	2
	24 V/50 Hz	BO-0355	BO-0355 24 V RAC ES	CN-2111	YES	68 VA Conn. Green 18 VA	50	2
	110 V/50-60 Hz	BO-0365	BO-0365 110 V RAC ES	CN-2131	YES	77 VA Conn. Green 23 VA	50	2
	230 V/50-60 Hz	BO-0375	BO-0375 230 V RAC ES	CN-2131	YES	89 VA Conn. Green 25 VA	50	2
 VSAL (P-S-SP) DN 32 - DN 40 (P.max 360 mbar) VSAL (P-S-SP) DN 50 (P.max 200 - 360 mbar)	24 Vdc	BO-0355	BO-0355 24 V RAC ES	CN-2101	YES	68 VA Conn. Green 18 VA	50	2
	24 V/50 Hz	BO-0355	BO-0355 24 V RAC ES	CN-2111	YES	68 VA Conn. Green 18 VA	50	2
	110 V/50-60 Hz	BO-0365	BO-0365 110 V RAC ES	CN-2131	YES	77 VA Conn. Green 23 VA	50	2
	230 V/50-60 Hz	BO-0375	BO-0375 230 V RAC ES	CN-2131	YES	89 VA Conn. Green 25 VA	50	2
 VSAL (P-S-SP) DN 65 - DN 80 (P.max 360 mbar)	24 Vdc	BO-2110	24 Vdc DN 65 - 80	CN-2001	YES	185 VA Conn. Green 50 VA	35	5
	24 V/50 Hz	BO-2115	24 Vac DN 65 - 80	CN-2011	YES	185 VA Conn. Green 50 VA	35	5
	110 V/50-60 Hz	BO-2120	110 Vac DN 65 - 80	CN-2021	YES	260 VA Conn. Green 70 VA	35	5
	230 V/50-60 Hz	BO-2130	230 Vac DN 65 - 80	CN-2031	YES	290 VA Conn. Green 75 VA	35	5
 VSAL (P-S-SP) DN 100 (P.max 360 mbar)	24 Vdc	BO-2210	24 Vdc DN 100	CN-2001	YES	130 VA Conn. Green 40 VA	35	5
	24 V/50 Hz	BO-2215	24 Vac DN 100	CN-2011	YES	120 VA Conn. Green 35 VA	35	5
	110 V/50-60 Hz	BO-2220	110 Vac DN 100	CN-2021	YES	270 VA Conn. Green 70 VA	35	5
	230 V/50-60 Hz	BO-2230	230 Vac DN 100	CN-2031	YES	270 VA Conn. Green 70 VA	35	5

Tipo connettore / Connector type / Type connecteur / Anschlusstype / Tipo conector

CN-2101 = Conn. Green 12 Vdc - 24 Vdc
CN-2111 = Conn. Green 12 Vac - 24 Vac
CN-2131 = Conn. Green 110 Vac - 230 Vac

CN-2001 = Conn. Green 24 Vdc
CN-2011 = Conn. Green 24 Vac
CN-2021 = Conn. Green 110 Vac
CN-2031 = Conn. Green 230 Vac

fig. 1 - Abb. 1
VSA... (L-LS) DN 15 - DN 20 - DN 25
P.max 200-360 mbar

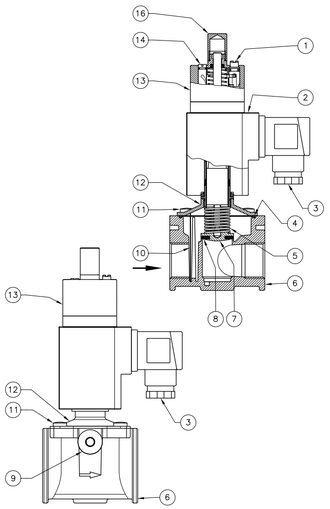
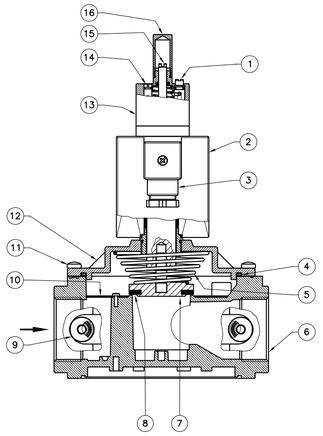


fig. 2 - Abb. 2
VSA... (LP-LSP) DN 32 - DN 40
P.max 200 mbar



I

fig. 1, 2, 3, e 4

1. Regolazione velocità apertura
2. Bobina elettrica
3. Connettore elettrico
4. O-Ring di tenuta
5. Molla di chiusura
6. Corpo valvola
7. Otturatore
8. Rondella di tenuta
9. Tappo G 1/4"
10. Organo filtrante
11. Viti di fissaggio coperchio
12. Coperchio
13. Kit apertura lenta
14. Regolazione scatto rapido
15. Regolazione portata
16. Coperchio di protezione (optional)

GB

fig. 1, 2, 3, and 4

1. Opening speed regulation
2. Electrical coil
3. Electrical connector
4. Seal O-Ring
5. Closing spring
6. Body Valve
7. Obturator
8. Seal washer
9. G 1/4" cap
10. Filtering component
11. Cover fixing screws
12. Cover
13. Slow opening kit
14. Rapid stroke calibration
15. Flow regulation
16. Protective cap (optional)

F

fig. 1, 2, 3 et 4

1. Réglage de la vitesse d'ouverture
2. Bobine électrique
3. Connecteur électrique
4. Joint torique
5. Ressort de fermeture
6. Corps soupape
7. Obturateur
8. Rondelle d'étanchéité
9. Bouchon G 1/4"
10. Composant filtrant
11. Vis de fixation du couvercle
12. Couvercle
13. Kit d'Ouverture Lente
14. Réglage du déclenchement rapid
15. Régulation de portée
16. Couvercle de protection (optionnelle)

D

Abb. 1, 2, 3 und 4

1. Öffnungsgeschwindigkeit
2. Elektrospule
3. Elektroanschluss
4. O-Ring Siegel
5. Verschlussfeder
6. Ventilkörper
7. Verschluss
8. Siegelscheibe
9. Verschluß G 1/4"
10. Filterorgan
11. Deckel Fixierschrauben
12. Deckel
13. Bausatz Langsames Öffnen
14. Schnellauslösung
15. Flußregler
16. Schutzabdeckung (fakultativ)

E

fig. 1, 2, 3 y 4

1. Regulación de la velocidad de apertura
2. Bobina eléctrica
3. Conector eléctrico
4. Junta tórica de estanqueidad
5. Muelle de cierre
6. Cuerpo válvula
7. Obturador
8. Arandela de estanqueidad
9. Tapón G 1/4"
10. Elemento filtrante
11. Tornillos de fijación tapa
12. Tapa
13. Kit de Apertura Lenta
14. Regulación del disparo rápido
15. Tornillo de regulación caudal
16. Tapa de protección (opcional)

I

VSALS... : con apertura lenta regolabile + regolazione scatto rapido
VSALP... : con apertura lenta regolabile + regolazione portata
VSALSP... : con apertura lenta regolabile + regolazione scatto rapido + regolazione portata
VSAL... : con apertura lenta regolabile

GB

VSALS... : with adjustable slow opening + adjustable rapid stroke
VSALP... : with adjustable slow opening + flow regulation
VSALSP... : with adjustable slow opening + adjustable rapid stroke + flow regulation
VSAL... : with adjustable slow opening

F

VSALS... : avec réglage vitesse ouverture + réglage déclenchement rapide
VSALP... : avec réglage vitesse ouverture + réglage débit
VSALSP... : avec réglage vitesse ouverture + réglage déclenchement rapide + réglage débit
VSAL... : avec réglage vitesse ouverture

D

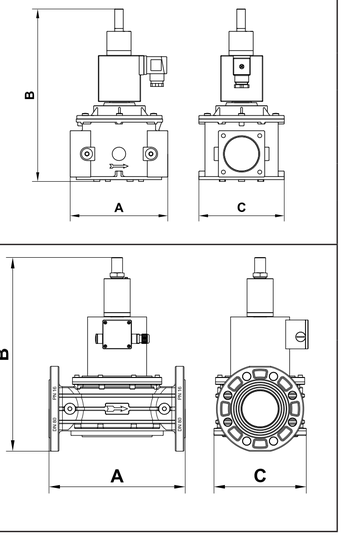
VSALS... : mit Einstellung der Öffnungsgeschwindigkeit + Einstellung der Schnellauslösung
VSALP... : mit Einstellung der Öffnungsgeschwindigkeit + Einstellung des Durchsatzes
VSALSP... : mit Einstellung der Öffnungsgeschwindigkeit + Einstellung der Schnellauslösung + Einstellung des Durchsatzes
VSAL... : mit Einstellung der Öffnungsgeschwindigkeit

E

VSALS... : con regulación velocidad apertura + regulación disparo rápido
VSALP... : con regulación velocidad apertura + regulación caudal
VSALSP... : con regulación velocidad apertura + regulación disparo rápido + regulación caudal
VSAL... : con regulación velocidad apertura

Dimensioni di ingombro in mm - Overall dimensions in mm - Mesures d'encombrement en mm - Raumbefarfmasse in mm - Dimensiones en mm

Attacchi filettati Threaded connections Fixations filetees Betreste Anschlüsse Conexiones roscadas	Attacchi flangiati Flanged connections Fixations brides Gefanschte Anschlüsse Conexiones de brida	P. max (mbar)	A	B	C
VSAL... Rp DN 15 - Rp DN 20	-	200 / 360	70	190	74
VSAL... Rp DN 25	-	200 / 360	70	190	74
VSAL... Rp DN 32 - Rp DN 40	-	200	160	260	140
VSAL... Rp DN 50	-	200	160	285	140
VSAL... Rp DN 32 - Rp DN 40 Rp DN 50	-	360	160	285	140
-	VSAL... DN 65	360	290	436	211
-	VSAL... DN 80	360	310	444	211
-	VSAL... DN 100	360	350	507	254



ELETTROVALVOLA NORMALMENTE CHIUSA AUTOMATICA PER GAS
AUTOMATIC NORMALLY CLOSED SOLENOID VALVE FOR GAS
ELECTROVANNE NORMALEMENT FERMEE AUTOMATIQUE POUR GAZ
ELEKTROVENTILE AUTOMATISCHES NORMALVERSCHLUSS FUER GAS
ELECTROVÁLVULA NORMALMENTE CERRADA AUTOMÁTICA PARA GAS

VSA...(L-LS-LP-LSP)

Omologazione CE secondo EN 161, conforme Direttiva Gas 2009/142/CEE
EN 161 EC approved, in conformity with Gas Directive 2009/142/EEC
Homologation CE selon EN 161, conforme à la Directive Gas 2009/142/CEE
EG-Zulassung gemäß EN 161, Im Einklang mit Gas Richtlinie 2009/142/EWG
Homologación CE según EN 161, conforme Directiva Gas 2009/142/CEE

CE Ex II 3G - II 3D
MADAS-01

CE 0051

MADE IN ITALY

fig. 3 - Abb. 3
VSA... (LP-LSP) DN 32 - DN 40 P.max 360 mbar
VSA... (LP-LSP) DN 50 P.max 200-360 mbar

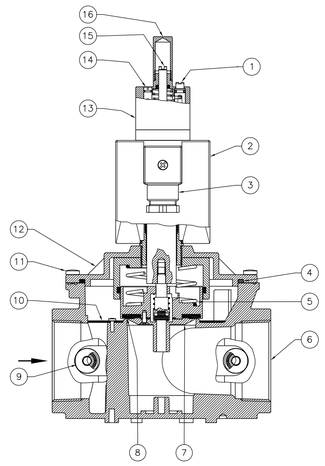


fig. 4 - Abb. 4
VSA... (LP-LSP) DN 65 - DN 80 - DN 100
P.max 360 mbar

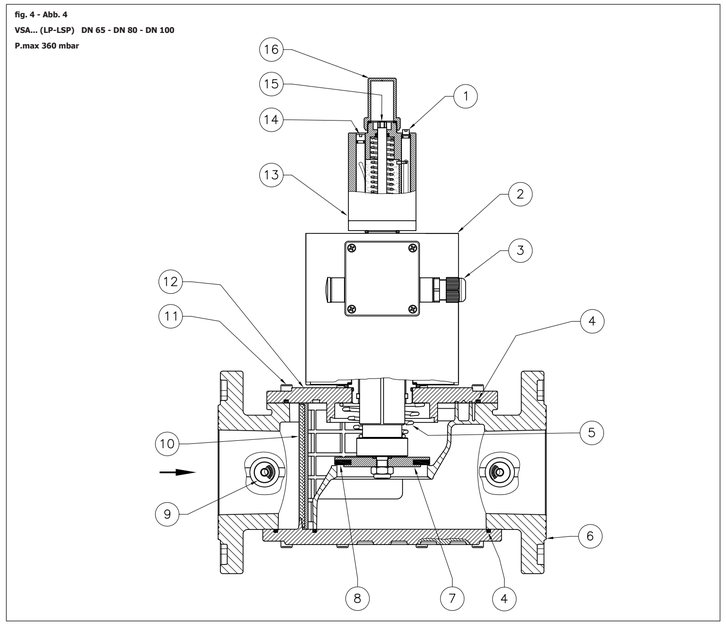
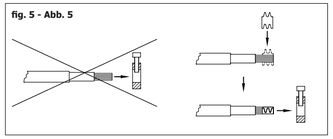


fig. 5 - Abb. 5



VISTA DALL'ALTO
VIEW FROM ABOVE
VUE DU HAUT
DRAUFSICHT
VISTA SUPERIOR

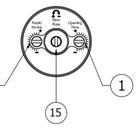
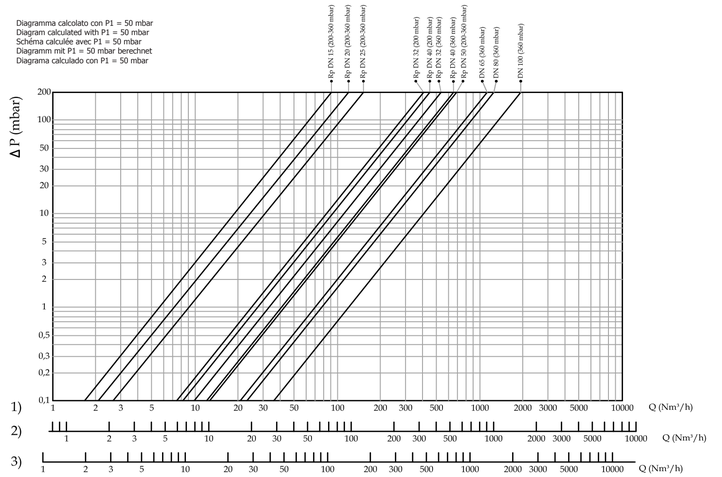


DIAGRAMMA PERDITE DI CARICO - LOAD LOSS DIAGRAM - DIAGRAMME PERTES DE CHARGE - DRUCKVERLUST-DIAGRAMM - DIAGRAMMA PERDIDAS DA CARGA

1) metano - methane - méthane - methan - metano
2) aria - air - air - luft - aire
3) gas di città - town gas - gaz de ville - stadtgas - gas de ciudad
4) gpl - lpg - gaz liquide - flüssiggas - gas líquido

Diagramma calcolato con P1 = 50 mbar
Diagram calculated with P1 = 50 mbar
Schéma calculée avec P1 = 50 mbar
Diagramm mit P1 = 50 mbar berechnet
Diagrama calculado con P1 = 50 mbar



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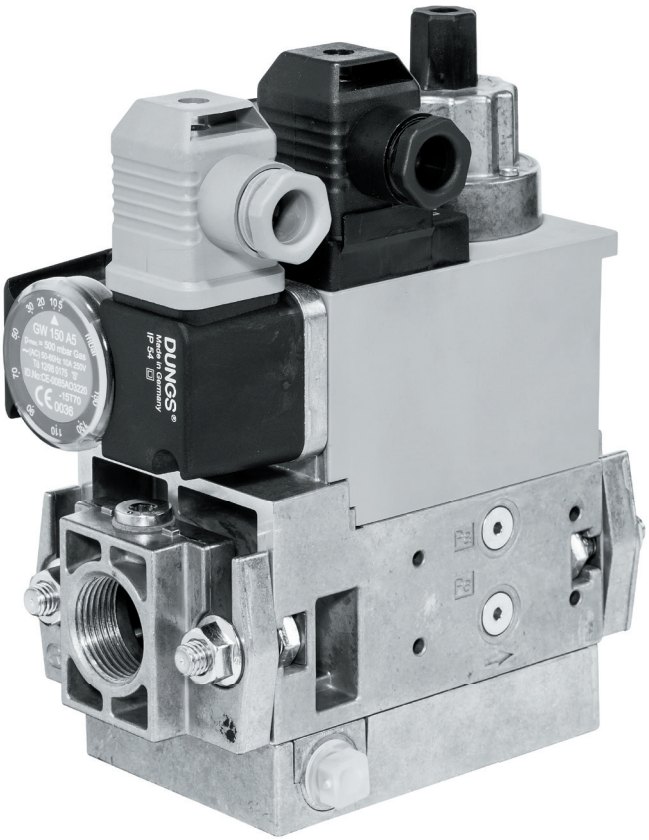
Mod. IT245.01

SM

D GB F I

DUNGS®
Combustion Controls

EU-Konformitäts-erklärung Gebrauchs-anleitung	EU-Declaration of conformity Instructions	Déclaration de conformité EU Notice d'utilisation	Dichiarazione di conformità EU Istruzioni di esercizio e di montaggio
MB-D (LE) B01			
GasMultiBloc® einstufige Betriebsweise	GasMultiBloc® single stage mode	MultiBloc® gaz à une allure	GasMultiBloc® monostadio
Nennweiten Nominal diameters Diamètres nominaux Diametri nominali		Rp ½ - Rp 1¼	



MB-D (LE) B01
219 502

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DUNGS®
Combustion Controls

EU-Konformitäts-erklärung	EU Declaration of conformity	Déclaration de conformité EU	Dichiarazione di conformità EU
Produkt / Product Produit / Prodotto	**MB-D (LE) B01**	**GasMultiBloc® einstufige Betriebsweise GasMultiBloc® single stage mode MultiBloc® gaz à une allure GasMultiBloc® monostadio**	
Hersteller / Manufacturer Fabricant / Produttore	**Karl Dungs GmbH & Co. KG Karl-Dungs-Platz 1 D-73660 Urbach, Germany**		
bescheinigt hiermit, dass die in dieser Übersicht genannten Produkte einer **EU-Baumusterprüfung** unterzogen wurden und die wesentlichen Sicherheitsanforderungen der:	certifies herewith that the products named in this overview were subjected to an **EU Type examination** and meet the essential safety requirements:	certifie par la présente que le produit mentionné dans cette vue d'ensemble a été soumis à **un examen de type de l'UE** et qu'il est conforme aux exigences en matières de sécurité des dernières versions en vigueur de :	Con la presente si certifica che i prodotti citati in questa panoramica sono stati sottoposti a una prova di **omologazione UE** e che i requisiti di sicurezza essenziali:
EU-Gasgeräteverordnung 2016/426	**EU Gas Appliances Regulation 2016/426**	**l'ordonnance de l'UE relative aux appareils au gaz 2016/426**	**regolamento UE sugli apparecchi a gas 2016/426**
EU-Druckgeräterichtlinie 2014/68	**EU Pressure Equipment Directive 2014/68**	**à la directive UE « Équipements sous pression » 2014/68**	**direttiva UE sulle attrezzature a pressione 2014/68**
in der gültigen Fassung erfüllen.	as amended.		sono soddisfatti nella versione valida.
Bei einer von uns nicht freigegebenen Änderung des Gerätes verliert diese Erklärung ihre Gültigkeit.	In the event of an alteration of the equipment not approved by us this declaration loses its validity.	Ce communiqué n'est plus valable si nous effectuons une modification libre de l'appareil.	In caso di modifica dell'apparecchio non ammessa, questa dichiarazione perde di validità.
Prüfgrundlage der EU-Baumusterprüfung Specified requirements of the EU Type examination Base d'essai de l'examen de type de l'UE Criteri di prova dell'omologazione UE		**EN 126 ISO 23551-8**	
Gültigkeitsdauer/Bescheinigung Term of validity/attestation Validité/certificat Durata della validità/Attestazione		**2024-07-14 CE0036**	**2028-04-09 CE-0123CT1012**
Notifizierte Stelle Notified Body Organisme notifié Organismo notificato		**2014/68/EU TÜV SÜD Industrie Service GmbH** Westendstraße 199 D-80686 München Germany Notified Body number: 0036	**(EU) 2016/426 TÜV SÜD Product Service GmbH Zertifizierstellen** Ridlerstraße 65 D-80339 München Germany Notified Body number: 0123
Überwachung des QS-Systems Monitoring of the QA system Contrôle du système d'assurance qualité Monitoraggio del sistema QS		Gewähltes Konformitätsverfahren Modul B+D Conformity process adopted: Module B+D Procédure de conformité sélectionnée : module B+D Procedura di conformità selezionata: modulo B+D	

Dr.-Ing. Karl-Günther Dalsaß,
Geschäftsführer / Chief Operating Officer
Directeur / Amministratore
Urbach, 2018-04-21

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

EU-Baumusterprüfbescheinigung

Nr. C5A 18 04 22629 015

Zertifikatsinhaber: **Karl Dungs GmbH & Co. KG**
Karl-Dungs-Platz 1
73660 Urbach
DEUTSCHLAND

Produkt: **Ausrüstungen (Gas)**
Mehrfachstellgerät

Modell(e): **Baureihe MB- ... 4... B..**

Kenndaten: Gültig ab 21.04.2018
PIN CE-0123CT1012

alle weiteren Kenndaten siehe Anhang

Geprüft nach:
DIN EN 126:2012
DIN EN 161:2013
DIN EN 88-1:2016
DIN EN 13611:2011
ISO 23551-8:2016
ISO 23551-1:2012
ISO 23551-2:2006
ISO 23550:2011

Die Zertifizierstelle von TÜV SÜD Product Service GmbH bestätigt gemäß Anhang III (Modul B) die Übereinstimmung des bezeichneten Produktes mit den wesentlichen Anforderungen gemäß Anhang I der Verordnung (EU) 2016/426 über Geräte zur Verbrennung gasförmiger Brennstoffe. Prüfgrundlage ist ausschließlich das zur Prüfung und Zertifizierung vorgestellte Prüfmuster sowie dessen technische Dokumentation. Umseitige Hinweise sind zu beachten.

Prüfbericht Nr.: V-M 1534-03/18

Gültig bis: 2028-04-09

721676

Datum, 2018-04-10 (Norbert Hörmann)

TÜV SÜD Product Service GmbH ist notifizierte Stelle gemäß der Verordnung (EU) 2016/426 über Geräte zur Verbrennung gasförmiger Brennstoffe mit der Kennnummer 0123.

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

TÜV®

MC • Edition 03.19 • Nr. 219 502
A1 / 07.17

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

EU-Type Examination Certificate

No. C5A 18 04 22629 015

Holder of Certificate: **Karl Dungs GmbH & Co. KG**
Karl-Dungs-Platz 1
73660 Urbach
GERMANY

Product: **Fittings (Gas)**
Multifunctional control

Model(s): **Series MB- ... 4... B..**

Parameters: Valid from 2018-04-21
PIN CE-0123CT1012

for further information see annex

Tested according to:
DIN EN 126:2012
DIN EN 161:2013
DIN EN 88-1:2016
DIN EN 13611:2011
ISO 23551-8:2016
ISO 23551-1:2012
ISO 23551-2:2006
ISO 23550:2011

The Certification Body of TÜV SÜD Product Service GmbH confirms according to Annex III (Module B) that the listed product complies with the relevant provisions according to Annex I of Regulation (EU) 2016/426 on appliances burning gaseous fuels. It refers only to the sample submitted for testing and certification and on its technical documentation. See also notes overleaf.

Test report no.: V-M 1534-03/18

Valid until: 2028-04-09

721677

Date, 2018-04-10 (Norbert Hörmann)

TÜV SÜD Product Service GmbH is Notified Body according to Regulation (EU) 2016/426 on appliances burning gaseous fuels with identification No. 0123.

TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

TÜV®

A1 / 07.17

MC • Edition 03.19 • Nr. 219 502

D GB F I

DUNGS®
Combustion Controls

Betriebs- und Montageanleitung

GasMultiBloc® einstufige Betriebsweise
Typ MB-D (LE) B01
Nennweiten
Rp 1/2 - Rp 1 1/4

Operation and assembly instructions

GasMultiBloc® single-stage functional description
Type MB-D (LE) B01
Nominal diameters
Rp 1/2 - Rp 1 1/4

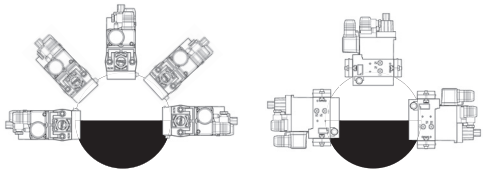
Notice d'emploi et de montage

MultiBloc® gaz à une allure
Typ MB-D (LE) B01
Diamètres nominaux
Rp 1/2 - Rp 1 1/4

Istruzioni di esercizio e di montaggio

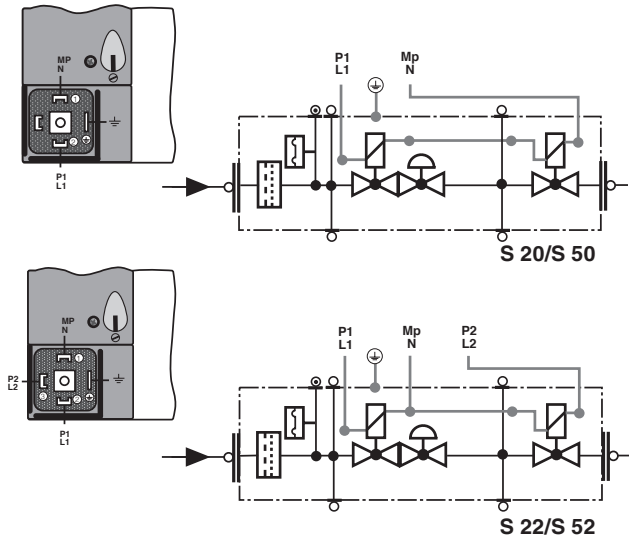
GasMultiBloc® monostadio
Tipo MB-D (LE) B01
Diametri nominali
Rp 1/2 - Rp 1 1/4

Einbaulage
Installation position
Position de montage
Posizione di montaggio



Elektrischer Anschluß
Electrical connection
Raccordement électrique
Allacciamento elettrico
IEC 730-1 (VDE 0631 T1)

Erdung nach örtlichen Vorschriften
Grounding acc. local regulations
Mise à la terre selon normes locales
Messa a terra secondo prescrizioni locali



[mbar]

Max. Betriebsdruck
Max. operating pressure
Pression de service maxi.
Max. pressione di esercizio
$p_{max.}$ = 360 mbar (36 kPa)

EN 161

V1+V2 **Klasse A, Gruppe 2**
V1+V2 **Class A, Group 2**
V1+V2 **Classe A, Groupe 2**
V1+V2 **Classe A, Gruppo 2**
nach / acc. / selon / a norme
EN 161

[V]

U_n ~(AC) 220 V-15 % ...- 230 V+10 %
Einschaltdauer/Switch-on duration/ Dureé de mise sous tension/ Durata inserzione **100 %**

IEC 529

Schutzart
Degree of protection
Protection
Protezione
IP 54 nach / acc. / selon / a norme
IEC 529 (DIN 40 050)

EN 88

Klasse A, Gruppe 2
Class A, Group 2
Classe A, Groupe 2
Classe A, Grupo 2
nach / acc. / selon / a norme
EN 88

Gas Gaz
EN 161

Familie 1 + 2 + 3
Family 1 + 2 + 3
Famille 1 + 2 + 3
Famiglia 1 + 2 + 3

Feinsieb
Fine-mesh sieve
Tamis fin
Setaccio fine

p_{Br}
0,5 - 100 mbar

Ausgangsdruckbereich
Output pressure range
Pression de sortie
Campo pressione in uscita
S 20 / S 22: 4 - 20 mbar (0,4 - 2 kPa)
S 50 / S 52: 4 - 50 mbar (0,4 - 5 kPa)

°C +70
0
-15

Umgebungstemperatur
Ambient temperature
Température ambiante
Temperatura ambiente
-15 °C ... +70 °C

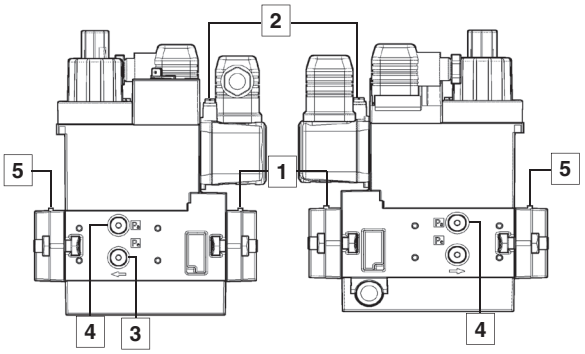
EN 1854

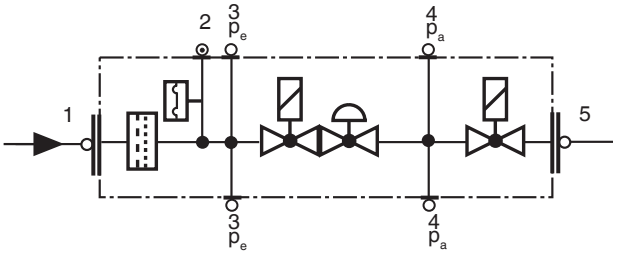
Druckwächter/ Pressure Switch/ Pressostat/ Pressostato
Typ/Type/Type/Tipo
GW...A5, GW...A2, NB...A2, ÜB...A2
nach / acc. / selon / a norme
EN 1854

EN 549

In Flüssiggasanlagen den MB-D... nicht unter 0°C betreiben. Nur für gasförmiges Flüssiggas geeignet, flüssige Kohlenwasserstoffe zerstören die Dichtwerkstoffe.
Do not operate the MB-D... below 0°C in liquid gas systems. Only suitable for gaseous tiquid gas, liquid hydrocarbons destroy the sealing materials.
Les multiblocs MB-D... ont été conçus pour être utilisés avec des GPL à l'état gazeux et à des températures supérieures à 0°C. Les joints d'étanchéité se détériorent en présence d'hydrocarbure liquide.
Negli impianti a gas liquido, non si dovrà far funzionare il MultiBloc MB-D... al di sotto di 0°C. Esso è adatto soltanto per gas liquido gassoso, gli idrocarburi liquidi distruggono i materiali solidi.

Druckabgriffe
Pressure taps
Prises de pression
Manopola a pressione



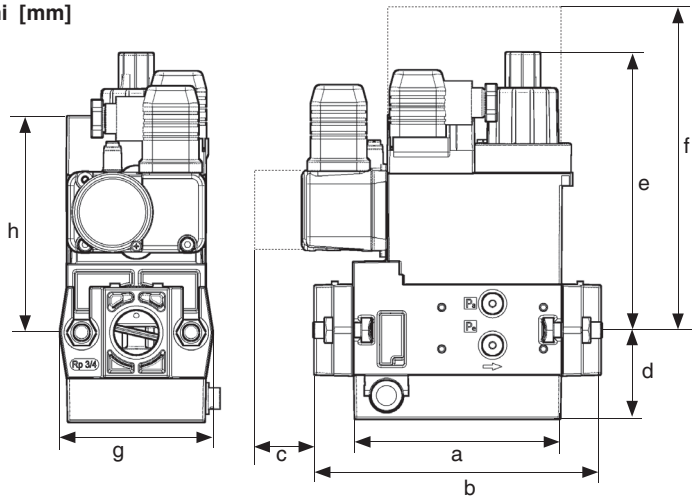


1,3,4,5	Verschlußschraube G 1/8	**1,3,4,5**	Bouchon G 1/8
2	Meßstutzen	**2**	Prise de pression
1,3,4,5	G 1/8 screwed sealing plug	**1,3,4,5**	Tappo a vite G 1/8
2	Measuring nozzle	**2**	Presa per misuratore

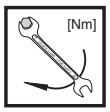
Einbaumaße / Dimensions / Cotes d'encombrement / Dimensioni [mm]

c = Platzbedarf für Deckel des Druckwächters
c = space requirement for pressure switch cover
c = encombrement pour couvercle du pressostat
c = ingombro per il coperchio del pressostato

f = Platzbedarf für Magnetwechsel
f = space requirements for fitting solenoid
f = encombrement pour changement de l´électroaimant
f = Ingombro per sostituzione bobina

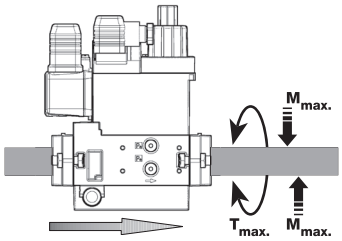


Typ Type Type Tipo	Rp	Öffnungszeit Opening time Temps d'ouverture Tempo apertura	Einbaumaße / Dimensions / Cotes d'encombrement / Dimensioni [mm] a	b	c	d	e	f	g	h	Gewicht Weight Poids Peso [kg]
MB-D 405 B…/407 B…	Rp 1/2	< 1 s	110	151	40	46	100	185	74	115	2,5
MB-DLE 405 B…/407 B…	Rp 3/4	< 20 s	110	151	40	46	140	185	74	115	2,6
MB-D 410 B…/412 B…	Rp 1	< 1 s	140	185	40	55	125	245	90	135	4,9
MB-DLE 410 B…/412 B…	Rp 1 1/4	< 20 s	140	185	40	55	160	245	90	135	5,0



max. Drehmomente / Systemzubehör max. torque / System accesories max. couple / Accessoires du système max. coppie / Accessorio di sistema	M 3	M 4	M 5	M 6	M 8	M 10	G ⅛	G ¼	G ½	G ¾
	1,2 Nm	2,5 Nm	5 Nm	7 Nm	15 Nm	25 Nm	5 Nm	7 Nm	10 Nm	15 Nm

Geeignetes Werkzeug einsetzen!	**Schrauben kreuzweise anziehen!**
Please use proper tools!	**Tighten screws crosswise!**
Utiliser des outils adaptés!	**Serrer les vis en croisant!**
Impiegare gli attrezzi adeguati!	**Stringere le viti incrociate!**



Gerät darf nicht als Hebel benutzt werden
Do not use unit as lever.
Ne pas utiliser la vanne comme un levier.
L'apparecchio non deve essere usato come leva.

DN	10	15	20	25	32	
Rp	3/8	1/2	3/4	1	1 1/4	
$M_{max.}$	70	105	225	340	475	[Nm] t ≤ 10 s
$T_{max.}$	35	50	85	125	160	[Nm] t ≤ 10 s

Gewindeflanschausführung
MB- … B01
(DN 10 - DN 32)
Ein- und Ausbau

1. Mutter A, B, C und D lösen Bild 1 und 2
2. GasMultiBloc zwischen den Gewindeflanschen (nach oben) herausziehen, Bild 3 und 4
3. Nach Einbau Dichtheits- und Funktionskontrolle

Threaded flange version
MB- … B01
(DN 10 - DN 32)
Mounting and dismounting

1. Loosen screws A, B, C, and D Figs 1 and 2
2. Remove GasMultiBloc between the threaded flanges, Figs 3 and 4
3. After mounting, perform leakage and functional tests

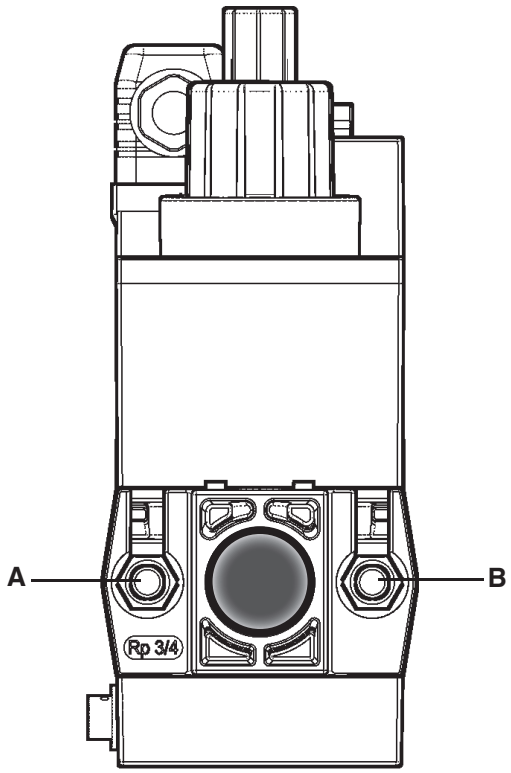
Version à bride filetée
MB- … B01
(DN 10 - DN 32)
Pose et dépose

1. Desserrer les vis A, B, C et D Figures 1 et 2
2. Extraire le MultiBloc gaz entre les brides filetées, Figures 3 et 4
3. Après pose, procéder à un contrôle de l'étanchéité

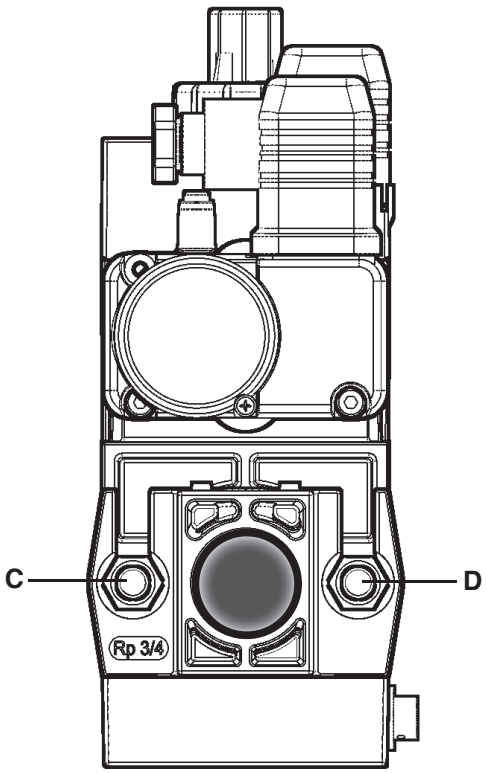
Esecuzione con flangia filettata
MB- … B01
(DN 10 - DN 32)
Montaggio e Smontaggio

1. Allentare le viti A, B, C e D Figure 1 e 2
2. Tirare fuori il GasMultiBloc fra le flange filettate, Figure 3 e 4
3. Dopo il montaggio, effettuare il controllo di tenuta e di funzionamento.

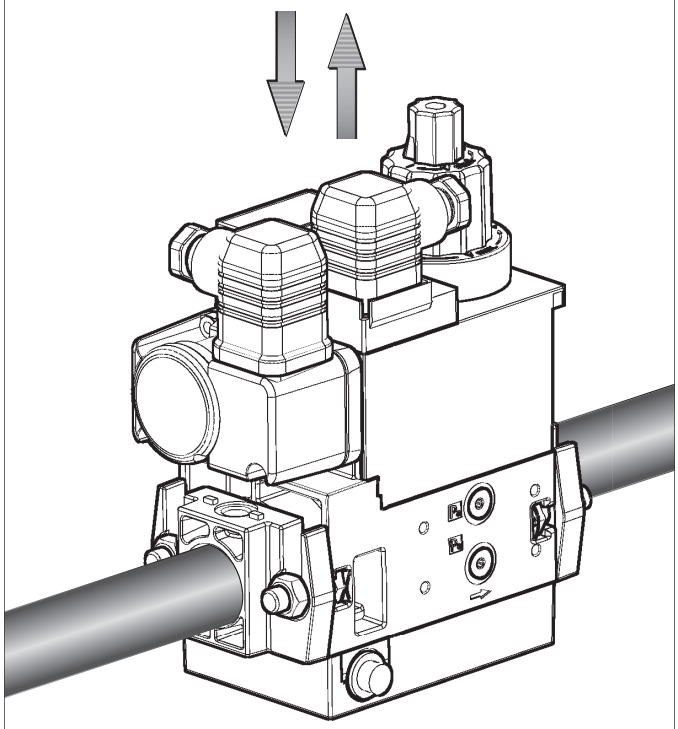
1



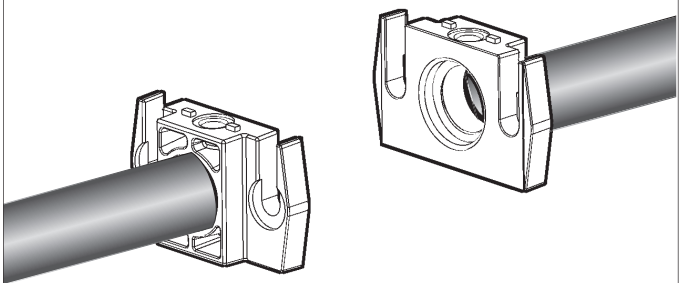
2



3



4



Einstellung des Gasdruckwächters

Haube mit geeignetem Werkzeug demontieren, Schraubendreher No. 3 bzw. PZ 2, Bild 1.
Haube abnehmen.

Setting the gas pressure switch

Dismount the hood using a suitable tool, e.g. screwdriver no. 3 or PZ 2, Fig. 1. Remove hood.

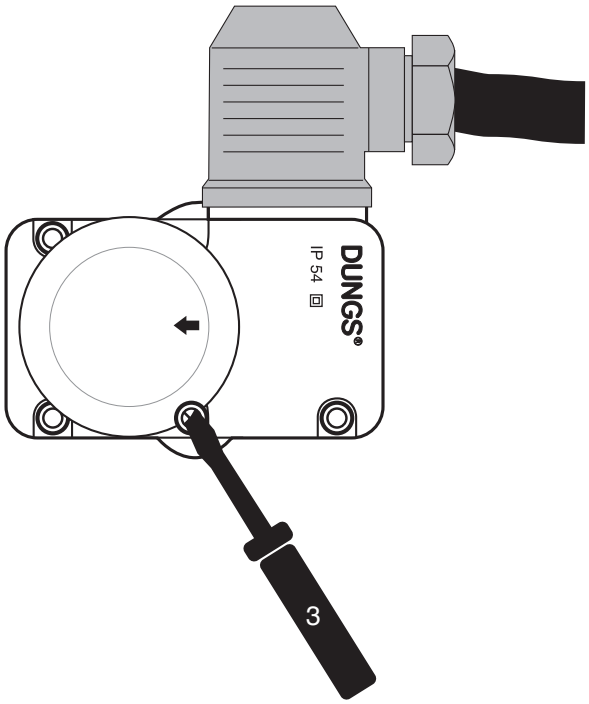
Réglage du pressostat

Elever les vis du capot en utilisant un tournevis N°3 respectivement PZ 2, Figure 1.
Enlever le capot.

Regolazione del pressostato gas

Smontare la calotta con un attrezzo adeguato, ossia cacciavite nr. 3 rispettiv, PZ 2, figura 1. Togliere la calotta

1



Druckwächter am Einstellrad mit Skala auf vorgeschriebenen Drucksollwert einstellen, Bild 2.

⚠ Anleitung des Brennerherstellers beachten!

Druckwächter schaltet bei fallendem Druck: Einstellung auf ⬇.
Haube wieder montieren!

Set the pressure switch at the setting wheel to the specified pressure setpoint using the scale, Fig. 2.

⚠ Observe the burner manufacturer's recommendations!

Pressure switch switches as pressure reduces: Set to ⬇.
Remount hood!

Régler le pressostat avec son bouton sur la valeur désirée, Figure 2.

⚠ Respecter les recommandations du constructeur du brûleur!

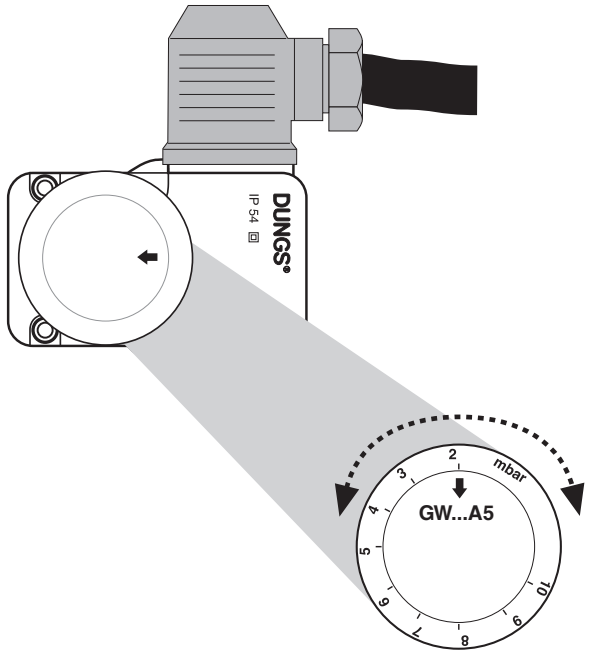
Le pressostat commute par pression descendante: régler sur ⬇.
Remonter le capot!

Tarare il pressostato, come in figura 2, sul valore di pressione nominale prescritto, agendo sulla rotella della scala graduata.

⚠ Prestare attenzione alle istruzioni indicate dal fabbricante del bruciatore!

Il pressostato scatta con pressione in discesa: regolazione sulla ⬇.
Rimontare la calotta.

2



MB-… B01
Einstellung des Druckregelteils

1. Schutzklappe 1 öffnen.
2. Druckregelteil durch Drehen der Einstellschraube mit Schraubendreher No. 3 auf gewünschten Ausgangsdruck p_a einstellen, Bild 1. Mögliche Ausgangsdruckbereiche 4-20 mbar bzw. 4-50 mbar. Druckmessung an Druckabgriff Nr. 6.

MB-… B01
Setting the pressure regulator

1. Open protective valve 1.
2. Set pressure controller to the desired output pressure p_a using the screwdriver no. 3, Fig. 1. Possible output pressure ranges: 4-20 mbar or 4-50 bar. Pressure measurement at pressure taps no. 6.

MB-… B01
Réglage du régulateur de pression

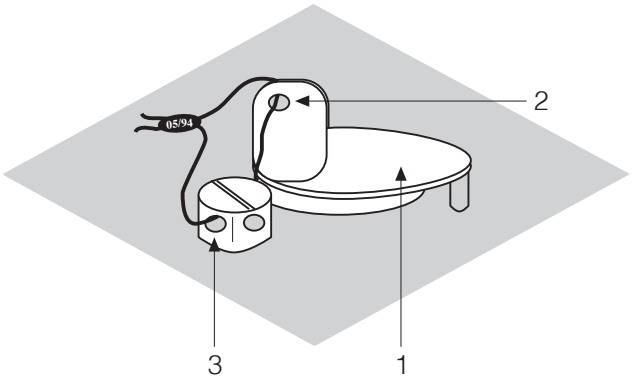
1. Oter le capuchon 1.
2. Réglage du régulateur de pression en tournant la vis de réglage avec un tournevis N°3 jusqu'à l'obtention de la pression désirée en p_a. Figure 1, dans la limite de pression de sortie 4-20 mbar ou 4-50 mbar. Contrôle de la pression sur la prise N°6.

MB-… B01
Regolazione della pressione

1. Aprire il coperchietto 1.
2. Tarare la parte che regola la pressione ruotando la vitina di regolazione con un cacciavite nr. 3 e portandolo sulla pressione di uscita p_a desiderata, come in Fig.1. Possibili campi di regolazione pressione in uscita 4-20 mbar e rispettivamente 4-50 mbar. Misuranzione pressione sulla presa no. 6.

1

2



Plombierung

Plombierungsöse 2 in der Verschlußklappe Ø 1,5 mm. Plombierungsöse 3 in der Kreuzlochschraube Ø 1,5 mm.

Nach Einstellung des gewünschten Drucksollwertes.
1. Schutzklappe 1 schließen.
2. Draht durch 2 und 3 ziehen, (Bild 2)
3. Plombe um Drahtenden drücken, Drahtschlaufe kurz halten.

Lead seal

Lead seal eye 2 in 1.5 mm dia. sealing valve. Lead seal eye 3 in 1.5 mm capstan headed screw.

After setting the required pressure setpoint:
1. Close protective valve 1.
2. Route wire through 2 and 3, (Fig. 2)
3. Press lead around wire ends, keep wire loop short.

Plombage

Oeillet de plombage 2 Ø 1,5 dans le capuchon. Oeillet de plombage 3 Ø 1,5 mm dans la vis à tête percée.

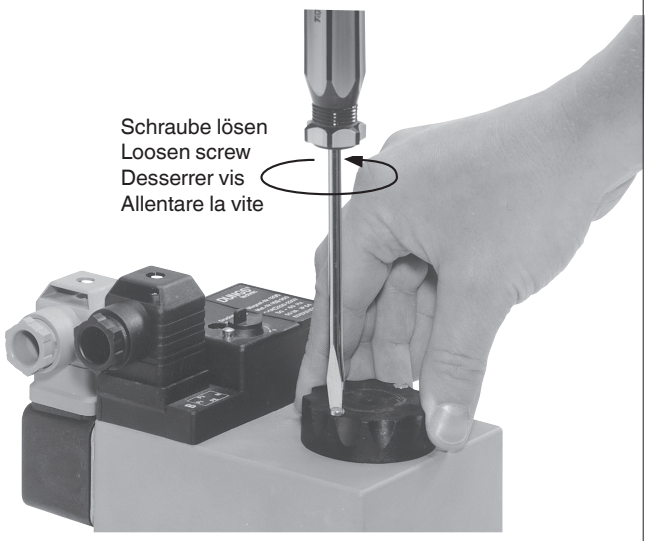
Après le réglage de la pression de sortie.
1. Remettre le capuchon 1.
2. Passer le fil de plombage dans les trous 2 et 3 Figure 2.
3. Plomber en laissant une petite boucle.

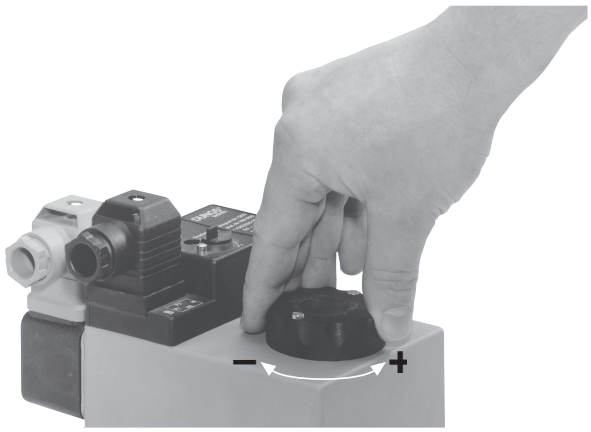
Piombatura

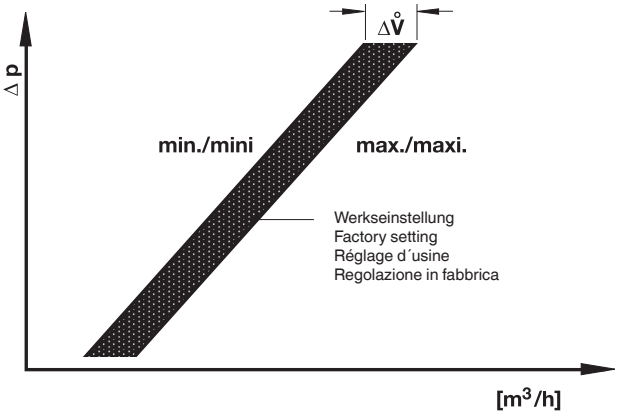
Occhiello per piombatura nel coperchietto Ø 1,5 mm. Occhiello per piombatura nella vite a testa tonda forata Ø 1,5 mm.

Dopo la regolazione del valore di pressione nominale desiderato.
1. Chiudere il coperchietto 1.
2. Tirare il filo attraverso i punti 2 e 3 (Fig.2)
3. Piombare le estremità del filo lasciando corto l'anello passante.

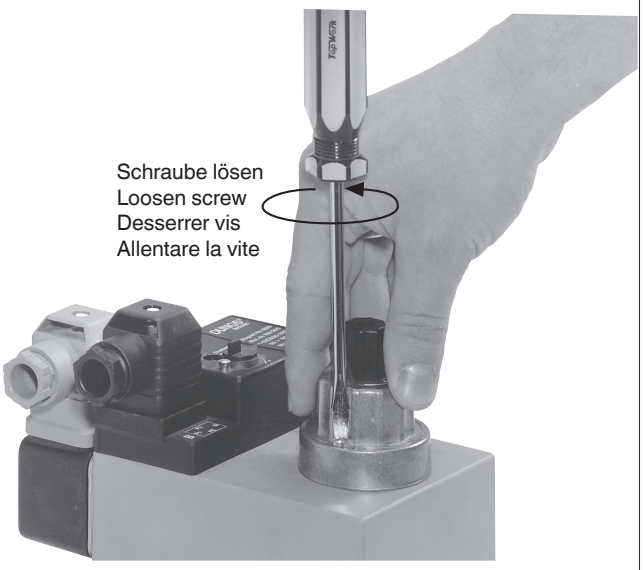
MB-D ... B01
Hauptmengeneinstellung nur an V2 möglich.
Main flowsetting only possible at V2.
Réglage du débit principal possible uniquement sur V2.
Regolazione portata prinzipale possibile solo su V2.

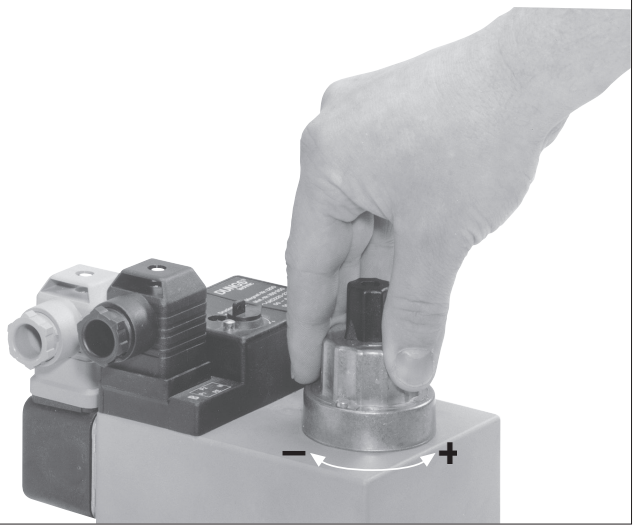






MB-DLE ... B01
Hauptmengeneinstellung nur an V2 möglich.
Main flowsetting only possible at V2.
Réglage du débit principal possible uniquement sur V2.
Regolazione portata principale possibile solo su V2.





⚠ **Hauptmengeneinstellung bei Lieferung: (offen) max. Einstellung durch Lack sichern. Einstellung bei MB- ... und MB-LE... nicht möglich.**

⚠ **Le débit principal est réglé au maximum (ouvert) à la livraison. Protéger le réglage avec un point de laque. Les MB-… et MB-LE… ne sont pas réglables.**

⚠ **Main flow setting on delivery: (open) max. Secure setting by applying varnish. Setting of MB-… and MB-LE… not possible.**

⚠ **Regolazione portata principale alla consegna: (aperto) max. Fissare la regolazione con vernice. Non è possibile la regolazione su MB… e MB-LE…**

MB-DLE ... B01
MB-LE ... B01
Schnellhubeinstellung $\mathring{V}_{start}$

Werkseinstellung MB-DLE ... B01, MB-LE ... B01:
Schnellhub nicht eingestellt

1. Einstellkappe E von der Hydraulik abschrauben,.
2. Einstellkappe drehen und als Werkzeug benutzen.
3. Linksdrehen = Vergrößerung des Schnellhubes (+).

MB-DLE ... B01
MB-LE ... B01
Rapid stroke adjustment $\mathring{V}_{start}$

Factory setting MB-DLE ... B01, MB-LE ... B01:
Rapid stroke not adjusted

1. Unscrew the adjustment cap E from the hydraulic brake.
2. Turn the adjustment cap and use as a tool.
3. Turn a-clockwise = increase rapid stroke (+).

MB-DLE ... B01
MB-LE ... B01
Réglage course rapide $\mathring{V}_{start}$

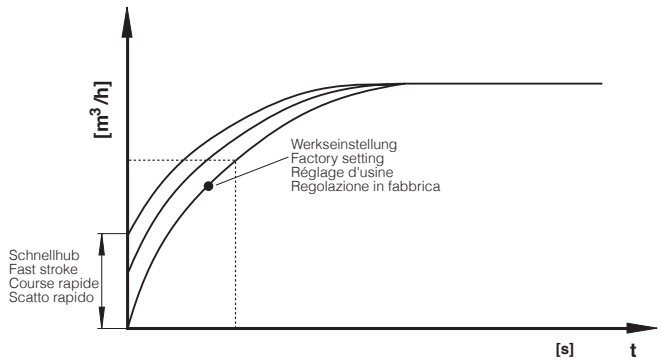
Réglage en usine MB-DLE…B01, MB-LE…B01:
Course rapide non réglée

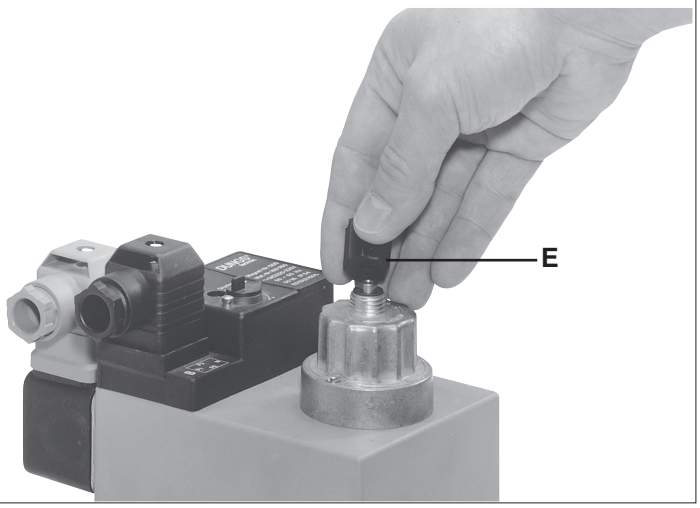
1. Dévisser le capuchon de réglage E du frein hydraulique.
2. Tourner le capuchon de réglage et l'utiliser comme outil.
3. Rotation à gauche = augmentation de la course rapide (+).

MB-DLE ... B01
MB-LE ... B01
Regolazione scatto rapido $\mathring{V}_{start}$

Regolazione in fabbrica del MB-DLE ... B01, MB-LE ... B01:
Scatto rapido non regolato

1. Svitare dall'idraulico la farfalla E.
2. Fare ruotare la valvola a farfalla utilizzandola come attrezzo.
3. Rotazione antioraria = aumento dello scatto rapido (+).





Austausch Hydraulik oder Einstellteller

1. Anlage ausschalten.
2. Sicherungslack über der Senkkopfschraube A entfernen.
3. Senkkopfschraube A ausschrauben.
4. Zylinderkopfschraube B ausschrauben.
5. Einstellteller C bzw. Hydraulik D abheben.
6. Einstellteller C bzw. Hydraulik D austauschen.
7. Senk- und Zylinderkopfschraube wieder eindrehen. Senkkopfschraube nur so festziehen, daß Hydraulik noch gedreht werden kann.
8. Senkkopfschraube A mit Sicherungslack überziehen.
9. **Dichtheitsprüfung über Druckabgriff Verschlußschraube 4**
   $p_{max.}$ = 360 mbar.
10. Funktionskontrolle durchführen.
11. Anlage einschalten

Replacing hydraulic brake unit or adjustment plate

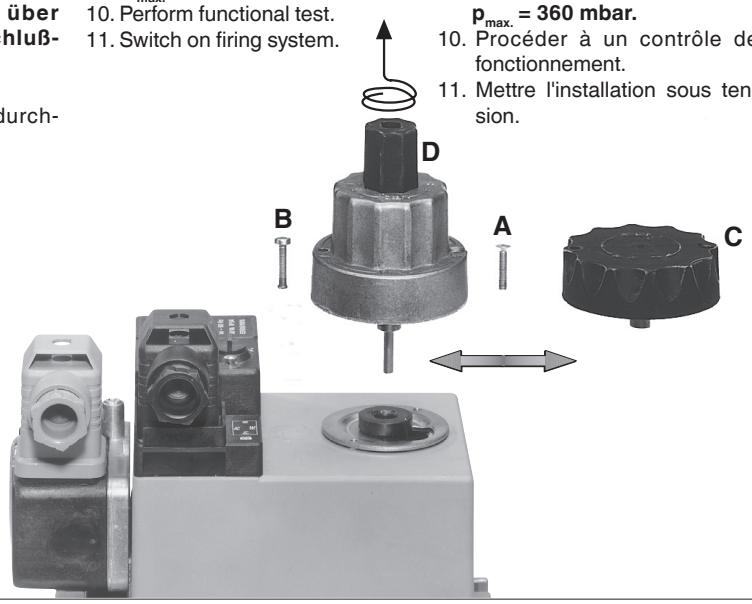
1. Switch off firing system.
2. Remove locking varnish from countersunk screw A.
3. Unscrew countersunk screw A.
4. Unscrew socket head screw B.
5. Raise adjustment plate C or hydraulic brake D.
6. Exchange adjustment plate C or hydraulic brake D
7. Screw in countersunk and socket head screw.
   Only tighten socket head screw so that hydraulic brake can just be turned.
8. Coat countersunk screw A with locking varnish.
9. **Leakage test: Pressure tap at sealing plug 4**
   $p_{max.}$ = 360 mbar.
10. Perform functional test.
11. Switch on firing system.

Remplacement du frein hydraulique ou du disque de réglage

1. Mettre l´installation hors tension.
2. Eliminer le vernis de blocage au-dessus de la vis à tête fraisée A.
3. Dévisser la vis à tête fraisée A.
4. Dévisser la vis à tête cylindrique B.
5. Soulever le disque de réglage C ou le frein hydraulique D.
6. Remplacer le disque de réglage C ou le frein hydraulique D.
7. Revisser les vis à tête fraisée et à tête cylindrique. Serrer la vis à tête fraisée.
8. Enduire la vis à tête fraisée A de vernis de blocage.
9. **Contrôle d'étanchéité via la prise de pression bouchon fileté 4**
   $p_{max.}$ = 360 mbar.
10. Procéder à un contrôle de fonctionnement.
11. Mettre l'installation sous tension.

Sostituzione dell'idraulico o del piattello di regolazione

1. Disinserire l'impianto
2. Rimuovere la lacca di sigillo sopra la vite a testa svasata A.
3. Svitare la vite a testa svasata A.
4. Svitare la vite a testa cilindrica B.
5. Sollevare il piattello C o l'idraulico D.
6. Sostituire il piattello C o l'idraulico D.
7. Riavvitare la vite a testa cilindrica e stringere la vite a testa svasata soltanto fino a che l'idraulico possa ancora essere fatto ruotato.
8. Sigillarre con la lacca la vite a testa svasata A.
9. **Prova di tenuta attraverso il tappo a su presa di pressione 4**
   $p_{max.}$ = 360 mbar.
10. Effettuare la prova di funzionamento.
11. Reinserire l'impianto.



MB- ... B01
Filterkontrolle

⚠ **Filterkontrolle** mindestens einmal jährlich!
⚠ **Filterwechsel,** wenn Δp zwischen Druckanschluß 1 und 3 > 10 mbar. Gerät ausbauen, siehe Seite 3. O-Ring und Filter austauschen.
⚠ **Filterwechsel,** wenn Δp zwischen Druckanschluß 1 und 3 im Vergleich zur letzten Kontrolle doppelt so hoch ist.

MB- ... B01
Filter check

⚠ **Check the filter** at least once a year!
⚠ **Change the filter,** if Δp between pressure connection 1 and 3 > 10 mbar. Dismount device, see page 3. Replace O-ring and filter.
⚠ **Change the filter,** if Δp between pressure connection 1 and 3 is twice as high compared to the last check.

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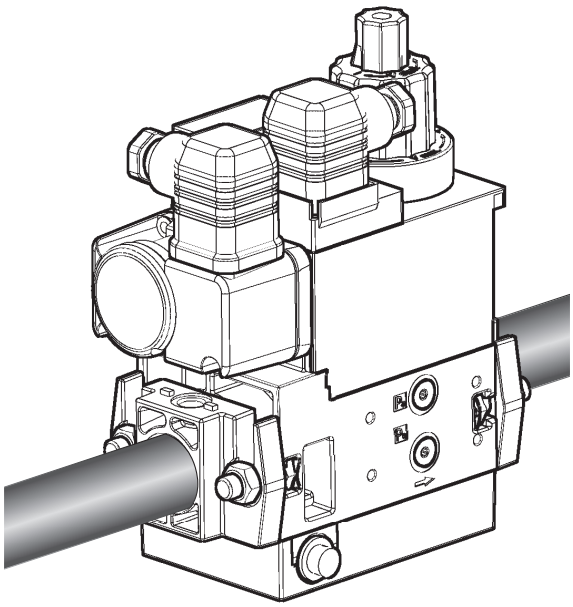
MB- ... B01
Vérification du filtre

⚠ **Vérification du filtre** au moins une fois par an.
⚠ **Remplacement du filtre:** si le Δp entre prise de pression 1 et 3 est > 10 mbar. Démonter l'appareil, voir page 3. Remplacer le joint torique et le filtre.
⚠ **Remplacement du filtre:** le Δp entre prise de pression 1 et 3 a doublé par rapport à la dernière mesure.

MB- ... B01
Controllare il filtro

⚠ **Controllare** il filtro almeno una volta l'anno!
⚠ **Cambiare** il filtro se il Δp fra gli attacchi pressione 1 e 3 è > di 10 mbar. Smontare l'apparecchio, vedi pagina 3. Sostituire anello torico e filtro.
⚠ **Cambiare** il filtro se il Δp fra gli attacchi pressione 1 e 3 al confronto con l'ultimo controllo è raddoppiato

1



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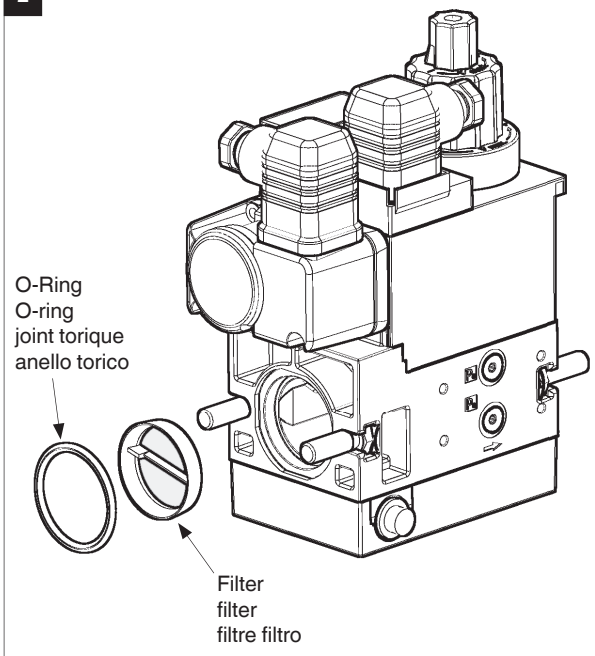
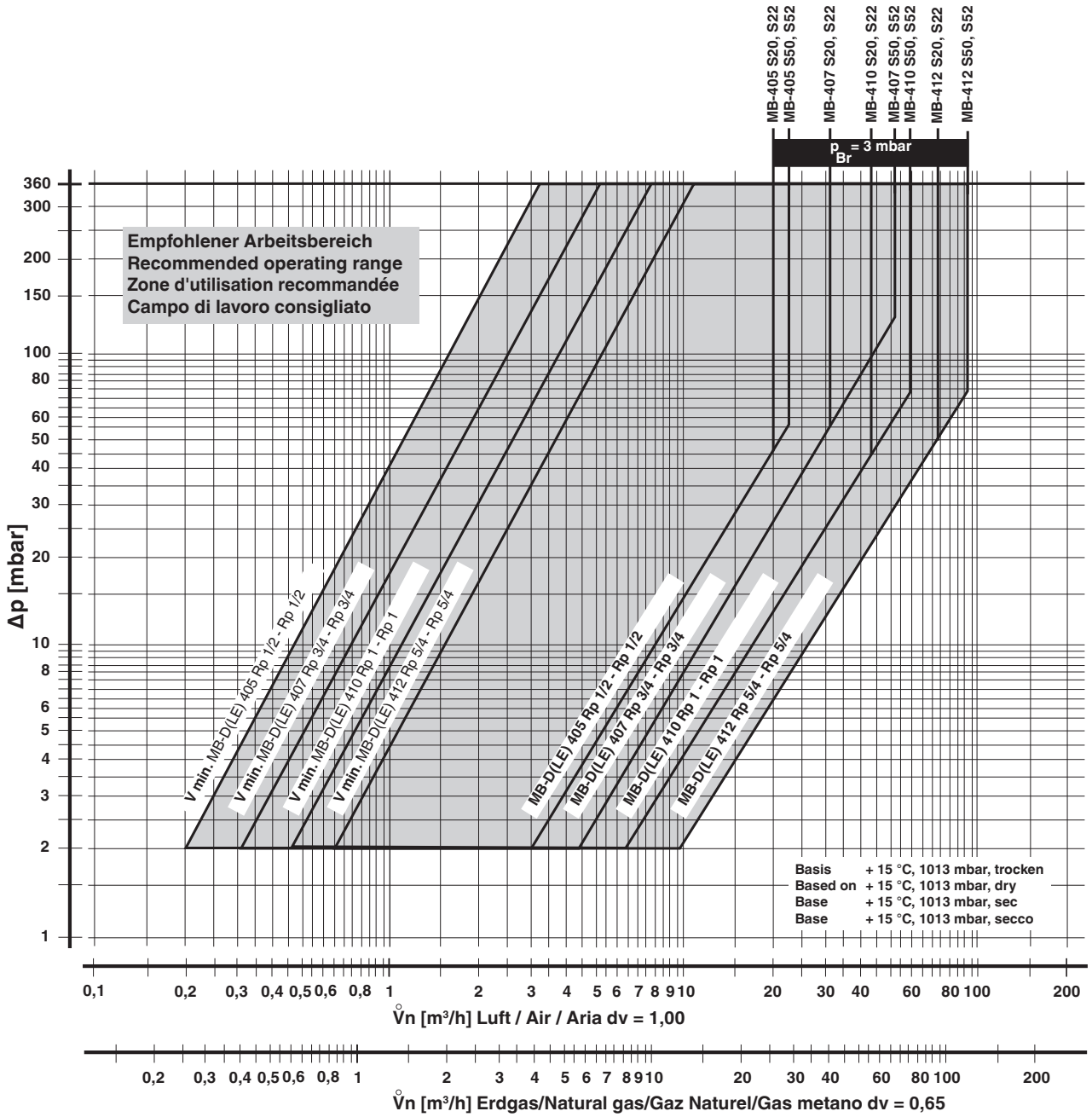
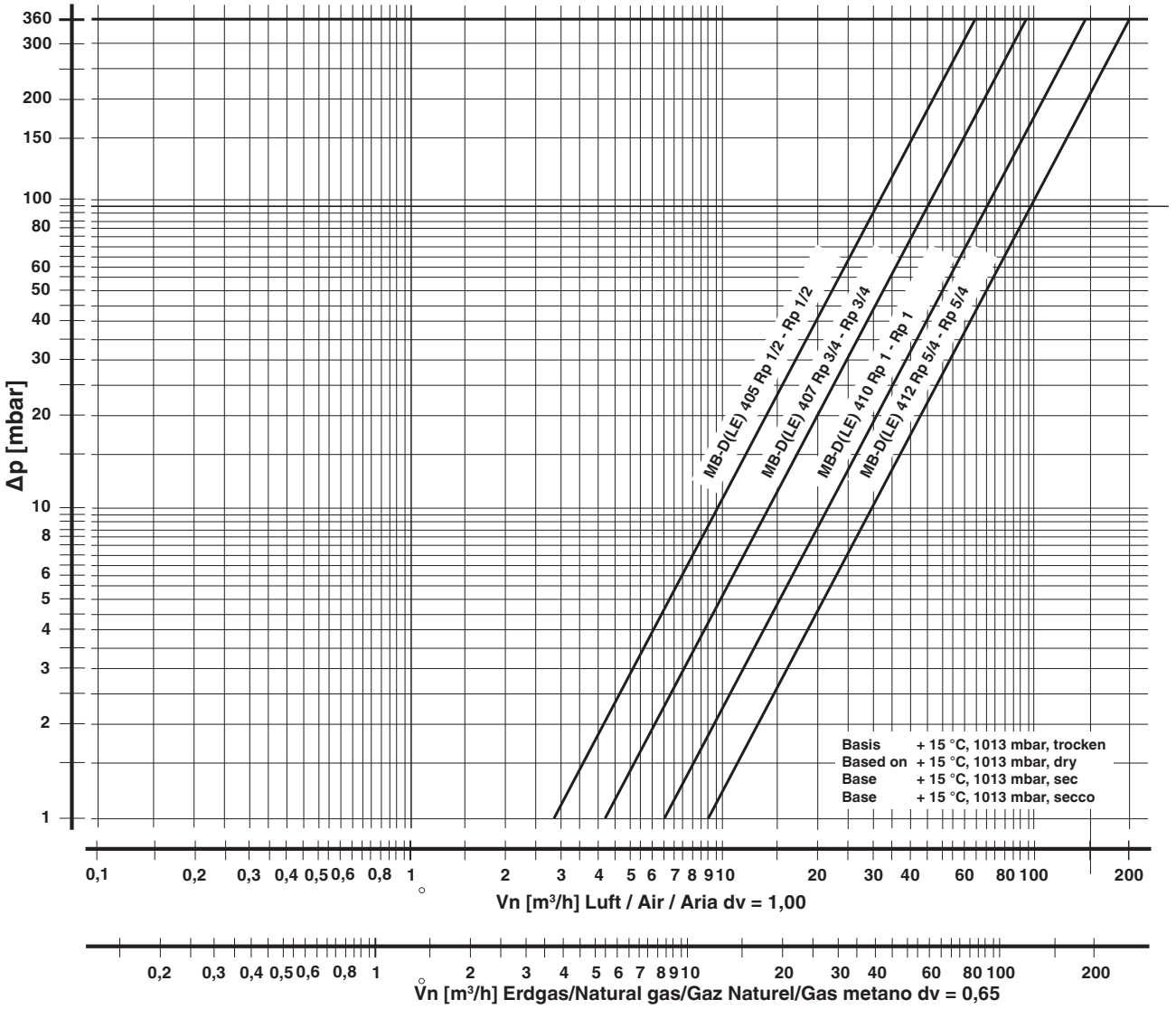


Durchfluß-Diagramm1 / Flow Diagram1 / Courbe des débits 1 / Diagramma di portata 1
Kurven für Geräteauswahl MB- 405/412 (im eingeregelten Zustand), mit Normfilter
Curves for equipment selection MB 405/412 (in regulated state), with standard filter
Courbes pour la sélection des MB 405/412 (réglage effectué) avec filtre aux normes
Curve per la scelta del tipo di apparecchio MB 405/412 (in condizioni già preregolate), con filtro normale



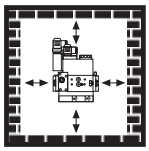
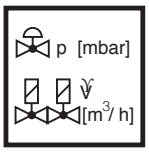
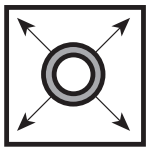
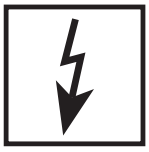
Durchfluß-Diagramm 2 / Flow Diagram 2 / Courbe des débits 2 / Diagramma di portata 2
mechanisch offen / mit Normfilter / für Geräteauswahl MB- Durchflußdiagramm 1 anwenden
Mechanically open/ with standard filter/use flow diagram 1 for MB equipment selection
Mécaniquement ouvert/ avec filtre aux normes/ Pour la sélection des MultiBlocs utiliser la courbe de débits 1
Aperto meccanicamente/ Con filtro normale/ Per la scelta del tipo di appareccio MB utilizzare il diagramma di portata 1



$$\dot{V}_{\text{verwendetes Gas/gas used/ gaz utilisé/gas utilizzato}} = \dot{V}_{\text{Luft/air/air/aria}} \times f$$

$$f = \sqrt{\frac{\text{Dichte Luft / Density air / Densité de l'air / Densità aria}}{\text{Spez. Gweicht des verwendeten Gases / Spec. weight of gas used / Poids spécifique du gaz utilisé / Peso specifico del gas utilizzato}}}$$

Gasart / Type of gas / Type de gaz / Tipo di gas	Dichte / Density / Densité / Densità [kg/m³]	dv	f
Erdgas/Nat.Gas/ Gaz naturel/Gas metano	0.81	0.65	1.24
Stadtgas/City gas/ Gaz de ville/Gas città	0.58	0.47	1.46
Flüssiggas/LPG/ Gaz liquide/Gas liquido	2.08	1.67	0.77
Luft/Air/ Air/Aria	1.24	1.00	1.00

	Arbeiten am GasMultiBloc dürfen nur von Fachpersonal durchgeführt werden.	Work on the GasMultiBloc may only be performed by specialist staff.	Seul du personnel spécialisé peut effectuer des travaux sur le GazMultiBloc.	Qualsiasi operazione effettuata sulle GasMultiBloc deve essere fatta da parte di personale competente.
	Flanschflächen schützen. Schrauben kreuzweise anziehen. Auf spannungsfreien Einbau achten!	Protect flange surfaces. Tighten screws crosswise. Make sure that the device is mounted free of strain!	Protéger les surfaces de brides. Serrer les vis en croisant. Lors du montage il faut eviter de tirer sur les vis du MultiBloc!	Proteggere le superfici della flangia. Stringere le viti in modo incrociato. Provvedere a che il montaggio sia fatto senza tensione meccanica!
	Direkter Kontakt zwischen GasMultiBloc und dem aushärtendem Mauerwerk, Betonwänden, Fußböden ist nicht zulässig.	Do not allow any direct contact between the GasMultiBloc and hardened masonry, concrete walls or floors.	Eviter tout contact direct entre GazMultiBloc et la maçonnerie, les cloisons en béton et planchers en cours de séchage.	Non é consentito il contatto diretto fra la GasMultiBloc e murature invecchiate, pareti in calcestruzzo, pavimenti.
	Nennleistung bzw. Drucksollwerte grundsätzlich am Gasdruckregelteil einstellen. Leistungsspezifische Drosselung über das 2. Ventil.	Always adjust nominal output or pressure setpoints on the gas pressure regulator and performance-specific throttling using the MB-…	Régler toujours le débit nominal ou les pressions de consigne sur le régulateur de pression. Limitation au niveau de MB-…, en fonction du débit.	Effettuare in linea di massima la regolazione di potenza nominale e valori nominali di pressione sul regolatore di pressione gas. La regolazione specifica di potenza va fatta attraverso la MB-…
	Grundsätzlich nach Teileausbau/-umbau neue Dichtungen verwenden.	Always use new seals after dismounting and mounting parts.	Après un démontage ou une modification, utiliser toujours des joints neufs.	In linea di massima, dopo lo smontaggio e il rimontaggio di alcune parti, utilizzare nuove guarnizioni.
	Rohrleitungsdichtheitsprüfung: Kugelhahn vor dem GasMultiBloc schließen.	Pipeline leakage test: close ball valve upstream of GasMultiBloc.	Contrôle de l'étanchéité de la conduite: fermer le robinet à boisseau sphèrique avant les GazMulti-Blocs.	Per la prova di tenuta delle tubature: chiudere il rubinetto a sfera davanti ai corpi GasMultiBloc
	Nach Abschluß von Arbeiten am GasMultiBloc: Dichtheitskontrolle und Funktionskontrolle durchführen.	On completion of work on the GasMultiBloc, perform a leakage and function test.	Une fois les travaux sur GazMultiBloc terminés, procéder toujours à un contrôle d'étanchéité et de fonctionnement.	Al termine dei lavori effettuati su una GasMultiBloc: predisporre un controllo sia della tenuta che del funzionamento.
	Niemals Arbeiten durchführen, wenn Gasdruck oder Spannung anliegt. Offenes Feuer vermeiden. Öffentliche Vorschriften beachten.	Never perform work if gas pressure or power is applied. No naked flame. Observe public regulations.	Ne jamais effectuer des travaux lorsque la pression ou la tension sont présentes. Eviter toute flamme ouverte. Observer les réglementations.	In nessun caso si debbono effettuare lavori in presenza di pressione gas o di tensione elettrica. Evitare i fuochi aperti e osservare le prescrizioni pubbliche.
	Alle Einstellungen und Einstellwerte nur in Übereinstimmung mit der Betriebsanleitung des Kessel-/Brennerherstellers ausführen.	Any adjustment and application-specific adjustment values must be made in accordance with the appliance-/boiler manufacturers instructions.	Effectuer tous les réglages et réaliser les valeurs de réglage uniquement selon le mode d'emploi du fabricant de chaudières et de brûleurs.	Realizzare tutte le impostazioni e i valori impostati solo in conformità alle istruzioni per l'uso del costruttore della caldaia/ del bruciatore.
	Bei Nichtbeachtung der Hinweise sind Personen- oder Sachfolgeschäden denkbar.	If these instructions are not heeded, the result may be personal injury or damage to property.	En cas de non-respect de ces instructions, des dommages corporels ou matériels sont possible.	La non osservanza di quanto suddetto può implicare danni a personne o cose.

Die Druckgeräterichtlinie (PED) und die Richtlinie über die Gesamtenergieeffizienz von Gebäuden (EPBD) fordern eine regelmässige Überprüfung der Wärmeerzeuger zur langfristigen Sicherstellung von hohen Nutzungsgraden und somit geringster Umweltbelastung.
Es besteht die Notwendigkeit sicherheitsrelevante Komponenten nach Erreichen ihrer Nutzungsdauer auszutauschen:

The Pressure Equipment Directive (PED) and the Energy Performance of Buildings Directive (EPBD) require a periodic inspection of heat generators in order to ensure a high degree of efficiency over a long term and, consequently, the least environmental pollution.
It is necessary to replace safety-relevant components after they have reached the end of their useful life:

La directive concernant les chauffe-bains à pression (PED) et la directive sur la performance énergétique des bâtiments (EPBD) exigent une vérification régulière des générateurs de chaleur afin de garantir à long terme des taux d'utilisation élevés et par conséquent une charge environnementale minimum. **Il est nécessaire de remplacer les composants relatifs à la sécurité lorsqu'ils ont atteint la fin de leur vie utile:**

La direttiva per apparecchi a pressione (PED) e la direttiva per l'efficienza dell'energia totale per edifici (EPBD), esigono il controllo regolare degli generatori di calore per la garanzia a lungo termine di un alto grado di rendimento e con ciò di basso inquinamento ambientale.
Ciò rende necessaria la sostituzione di componenti rilevanti dal punto di vista della sicurezza alla scadenza della loro durata di utilizzazione:

Sicherheitsrelevante Komponente **Safety relevant component** **Composant relatif à la sécurité** **Componenti rilevanti dal punto di vista della sicurezza**	**Konstruktionsbedingte Lebensdauer** **Designed Lifetime** **Durée de vie prévue** **Durata di vita di progetto**		**CEN-Norm** **CEN-Standard** **CEN-Norme** **CEN-Norma**
	Zyklenzahl **Operating cycles** **Cycle d'opération** **Numero di cicli di funzionamento di progetto**	**Zeit [Jahre]** **Time [years]** **Durée [année]** **Periodo [anni]**	
Ventilprüfsysteme / Valve proving systems Systèmes de contrôle de vannes / Sistemi di controllo valvole	250.000	10	EN 1643
Gas/Gaz Druckwächter / Pressure switch / Manostat / Pressostati	50.000	10	EN 1854
Luft/Air/Aria Druckwächter / Pressure switch / Manostat / Pressostati	250.000	10	EN 1854
Gasmangelschalter / Low gas pressure switch Pressostat gaz basse pression /Pressostati gas di minima pressione	N/A	10	EN 1854
Feuerungsmanager / Automatic burner control Dispositif de gestion de chauffage / Gestione bruciatore	250.000	10	EN 298 (Gas/Gaz) EN 230 (Öl/Oil/ Mazout/Olio
UV-Flammenfühler[1] Flame detector (UV probes)[1] Capteur de flammes UV[1] Sensore fiamma UV[1]	N/A	10.000 Betriebsstunden Operating hours Heures de service Ore di esercizio	---
Gasdruckregelgeräte[1] / Gas pressure regulators[1] Dispositifs de réglage de pression du gaz[1] Regolatori della pressione del gas[1]	N/A	15	EN 88-1 EN 88-2
Gasventil mit Ventilprüfsystem[2] Gas valve with valve testing system[2] Vanne de gaz avec système de contrôle de vanne[2] Valvola del gas con sistema di controllo valvola[2]	nach erkanntem Fehler after error detection après détection d'erreur dopo segnalazione di errore		EN 1643
Gasventil ohne Ventilprüfsystem[2] Gas valve without valve testing system[2] Vanne de gaz sans système de contrôle de vanne[2] Valvola del gas senza sistema di controllo valvola[2]	50.000 - 200.000 abhängig von der Nennweite depends on diameter selon la taille a seconda della dimensione di connessione	10	EN 161
Gas-Luft-Verbundsysteme / Gas-air ratio control system Systèmes combinés gaz/air / Sistemi di miscelazione gas-aria	N/A	10	EN 88-1 EN 12067-2

[1] Nachlassende Betriebseigenschaften wegen Alterung / Performance decrease due to ageing
Réduction de performance due au viellissement / Riduzione delle prestazioni dovuta all'invecchiamento
[2] Gasfamilien II, III / Gas families II, III / Familles de gaz II, III / per i gas delle famiglie II, III
N/A nicht anwendbar / not applicable / ne peut pas être utilisé / non può essere usato

Änderungen, die dem technischen Fortschritt dienen, vorbehalten / We reserve the right to make modifications in the course of technical development.
Sous réserve de tout modification constituant un progrès technique / Ci riserviamo qualsiasi modifica tecnica e costruttiva

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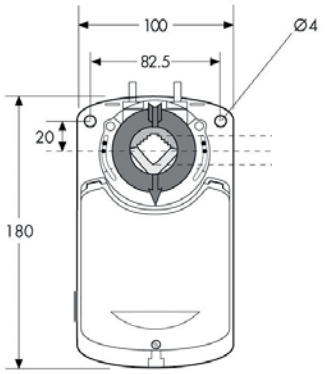
T4

AG8A2002-SE2
AG8C2002-SE2
Instructions
Istruzioni

1



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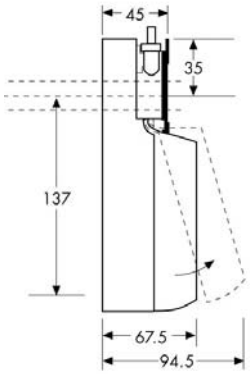

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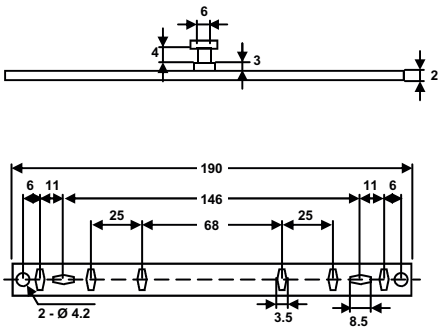

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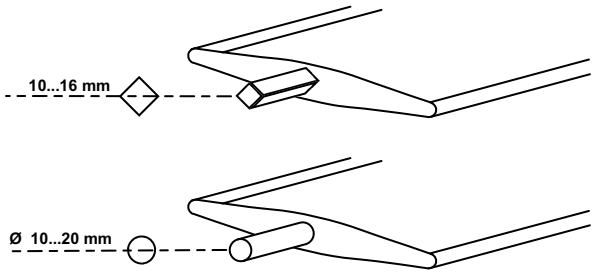
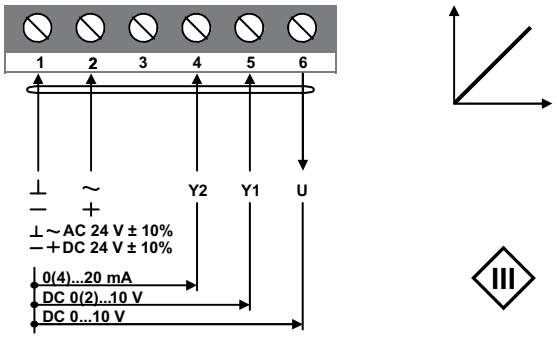
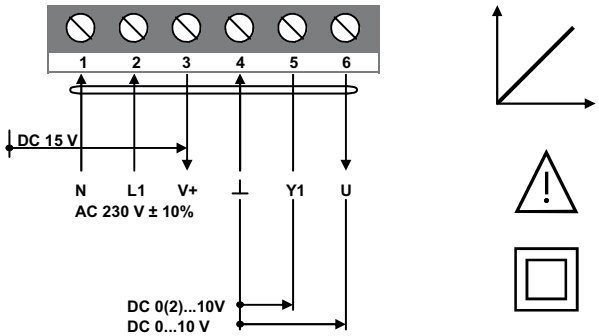


5 AG8A2002-SE2



6 AG8C2002-SE2



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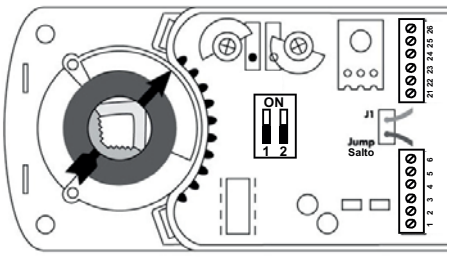

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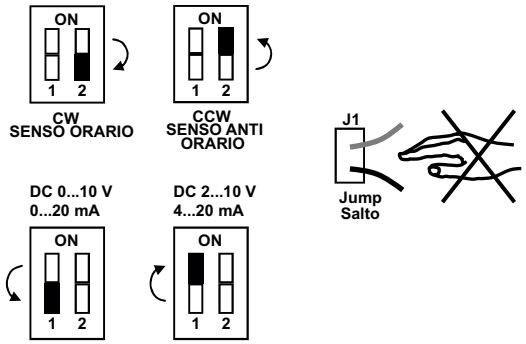

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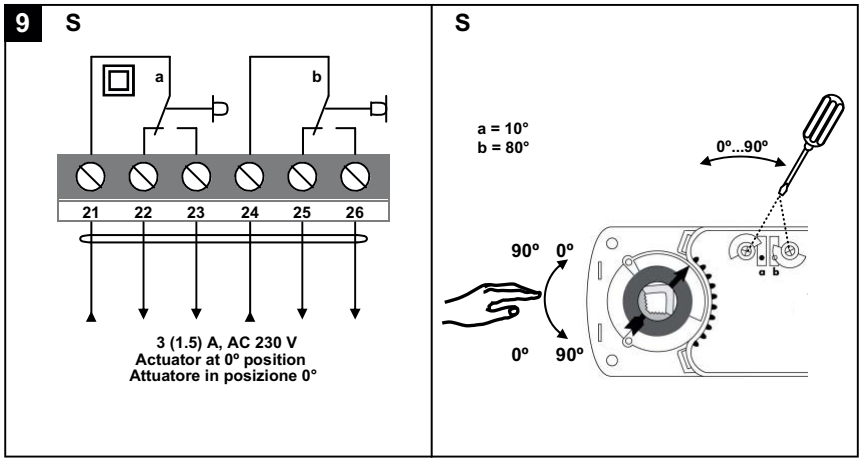
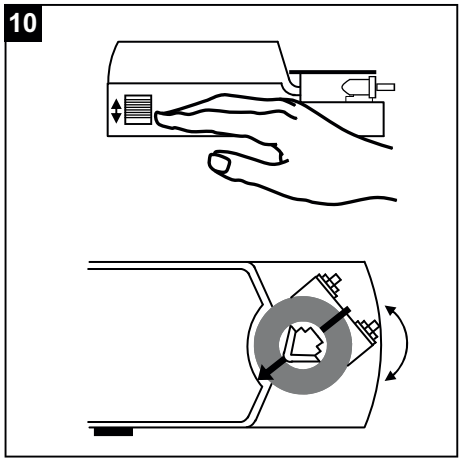
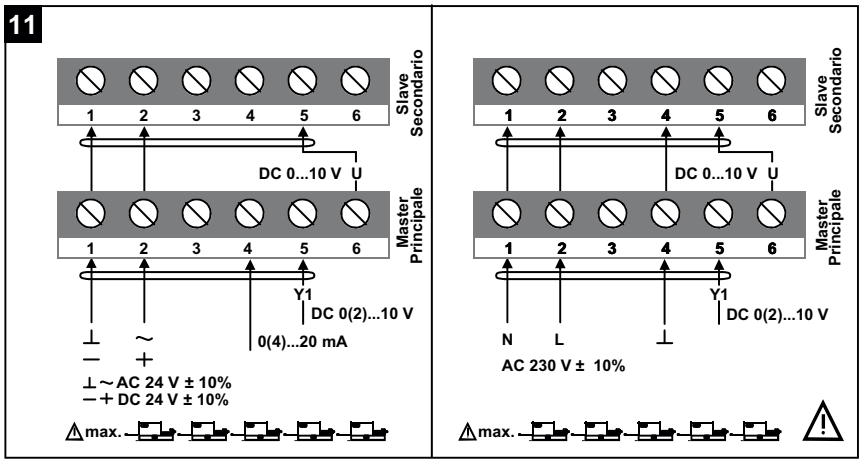
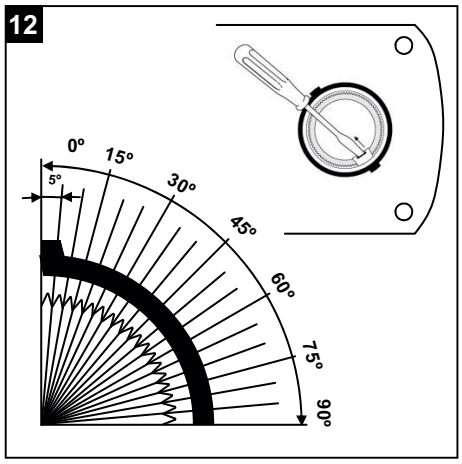
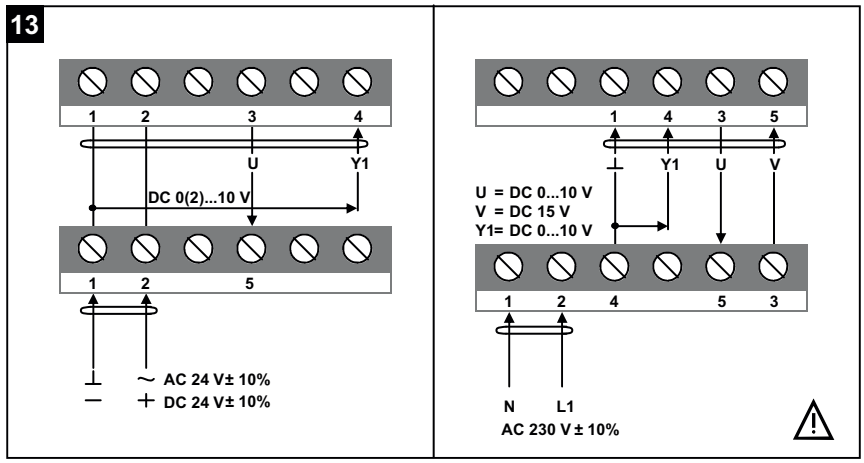
Instructions
Istruzioni

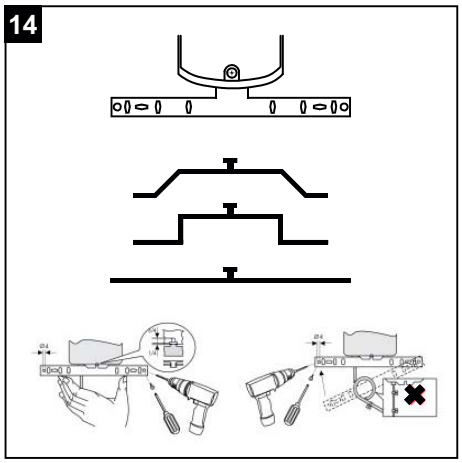










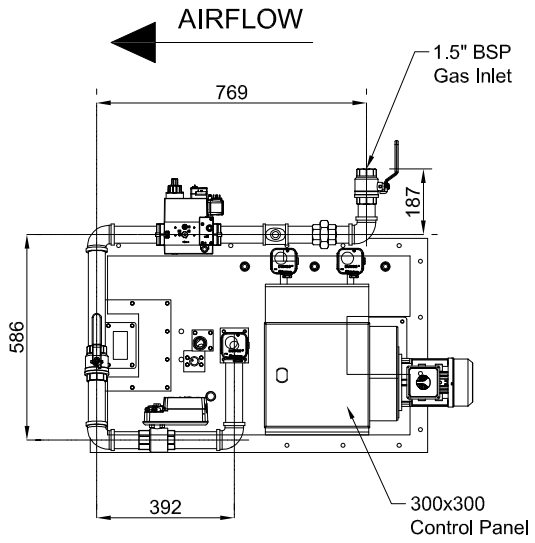


IP54	**The combination of IP54 means, that the product is dust protected (No. 5x) and protected against splash water (No. x4). Guaranteed for front mounting only.** L'attuatore è protetto contro la polvere (grado 5x) e contro gli spruzzi d'acqua (grado 4x) secondo le Norme IP54. La garanzia è valida solo per montaggio frontale.
	This actuator includes electrical and electronic components and may not be disposed as household garbage. Please consider the local valid legislation. Questa apparecchiatura contiene parti elettriche ed elettroniche. Non smaltire come comune rifiuto urbano, ma in base alla legislazione vigente in loco.
	AC / DC 24 V: **Connect via safety isolating transformer.** **AC 230 V:** **To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductor (with at least 3 mm contact gap)** 24 Vac / Vcc : Connettere utilizzando il trasformatore d'isolamento di sicurezza. 230 Vac : Per isolare l'apparecchiatura dal voltaggio principale, il sistema deve avere un dispositivo che disconnetta la fase (distanza minima contatti 3 mm).

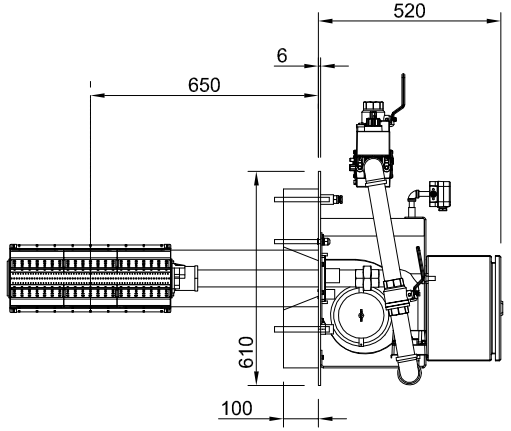
The performance specifications are nominal and conform to acceptable industry standards.
Le specifiche d'esercizio sono nominali e in conformità agli standard industriali in uso.
Econex S.r.l. shall not be liable for damages resulting from misapplication or misuse of its products.
Econex S.r.l. non è responsabile per danni derivanti da un'errata applicazione o uso improprio dei suoi prodotti.
All the reported data are subject to be changed without notice.
Tutti i dati riportati nel presente bollettino possono essere variati senza preavviso.

Form 121115

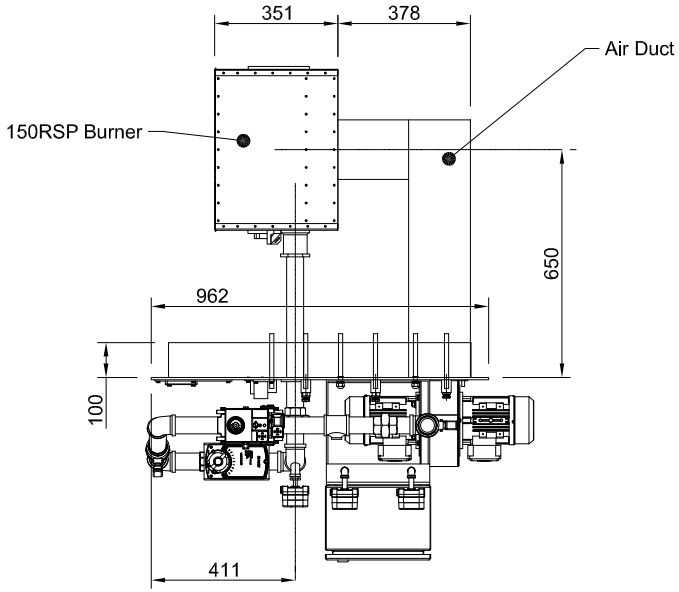
Econex s.r.l. - Via Francesco de Sanctis, 53 - I-20141 Milano
Tel. +39 0289502912 - Fax +39 028463084 - www.econex.it - info@econex.it



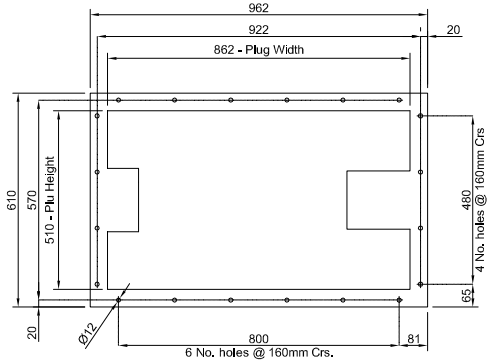
FRONT VIEW



SIDE VIEW



PLAN VIEW



MOUNTING DETAILS
SCALE 1:10

	NAME	SIGN	DATE
DRAWN	RKV		11.07.2022
CHECKED	SBD		11.07.2022
APPROVED	GVS		11.07.2022

PROJECT NO.

SCALE:- --

SIZE A3

ALL DIMENSIONS ARE IN mm

SHEET : 1 OF 1

GTS CONTROLS & ENERGY SYSTEMS PVT. LIMITED
web: www.gtscontrolsenergy.com
1210, Centrum, Plot no. C8, Near Satkar Hotel,
Wagle Industrial estate, MIDC, Thane (W)

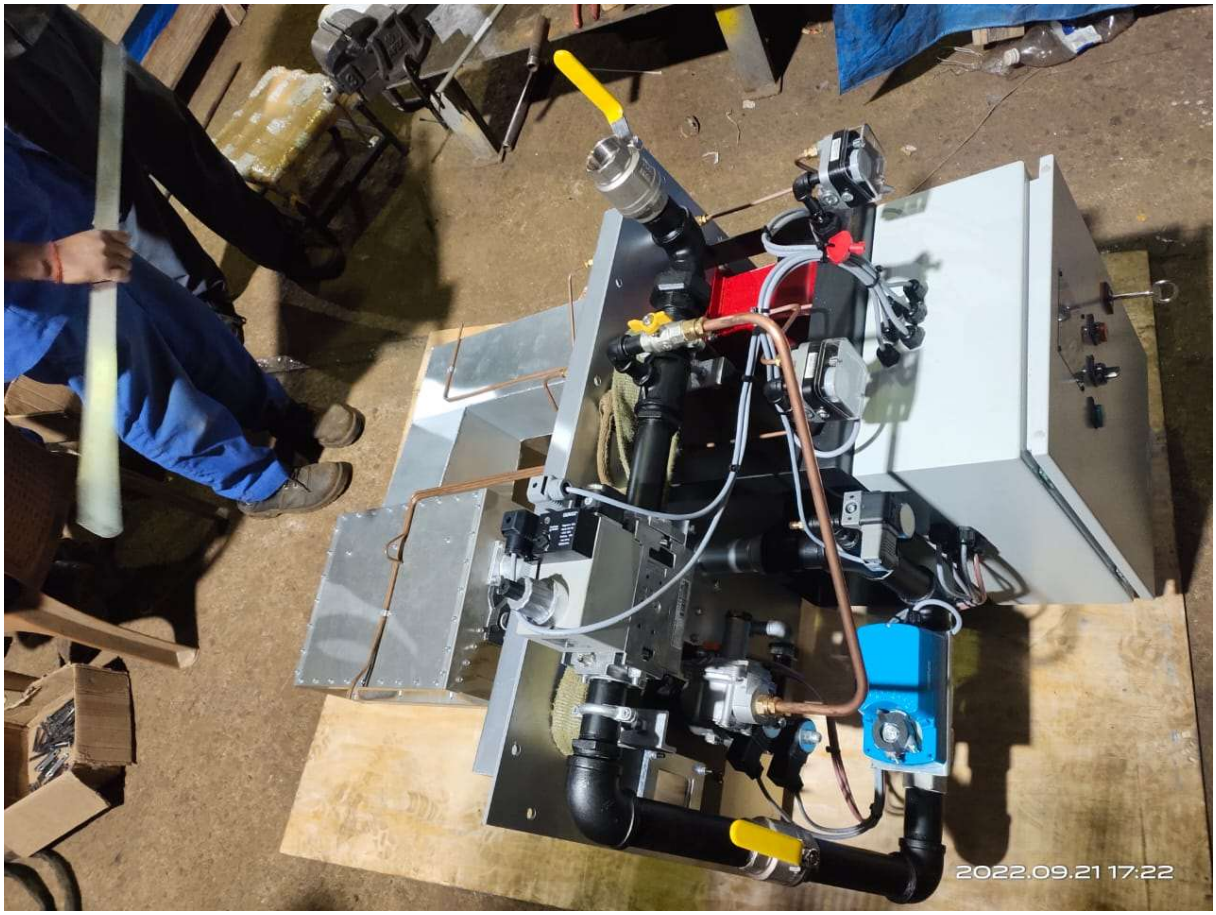
CUSTOMER :- **NBS ENGINEERING SOLUTIONS PVT.LTD**

EQUIPMENT :- **RSP150 BURNER**

TITLE :- **BURNER ARRANGMENT FIRING RIGHT TO LEFT**

DWG NO. :- **GTS-01-22-30-BNR-00**

REV **0**


2022.09.21 17:22

شرکت فولاد امیرکبیر کاشان
KASHAN AMIR KABIR STEEL CO.
شماره ملی : ۰۱۰۲۶۰۲۰۶۱۳۰ شماره ثبت : ۱۹۷۱

پیوست دو

جدول پیشنهاد مالی

دفتر تهران: خیابان ولیعصر، مقابل پارک ملت، خیابان سایه، خیابان مهرشاد، پلاک۵ (ساختمان صداقت) طبقه۳ کدپستی: ۱۹۶۷۷۱۳۶۵۹ www.amirkabirsteelco.ir
تلفن: ۲۲۶۵۸۳۵۱-۲۲۰۵۱۲۵۷-۰۲۱ فاکس: ۲۲۰۵۱۳۵۱-۰۲۱
کارخانه: کاشان، کیلومتر ۱٤ جاده اردستان، صندوق پستی ۱۵۳٤ تلفن: ۷-۵۵۵۰۳۸۴۱-۰۳۱ فاکس: ۵۵۵۰۳۸۴۸-۰۳۱ E-mail:info@amirkabirsteelco.ir

مدت اعتبار:

تاریخ:

قیمت پیشنهادی مشعل Comtherm بهمراه متعلقات			
ردیف	**شرح**	**مقدار (مجموعه)**	**مبلغ پیشنهادی (ریال)**
۱	**مشعل comtherm بهمراه متعلقات مربوطه**	**۱**	
مبلغ کل به عدد (بدون احتساب ارزش افزوده)			
مبلغ کل به حروف (بدون احتساب ارزش افزوده)			

۱- قیمت ها ریالی باشند .