



**SIT 820 NOVA**

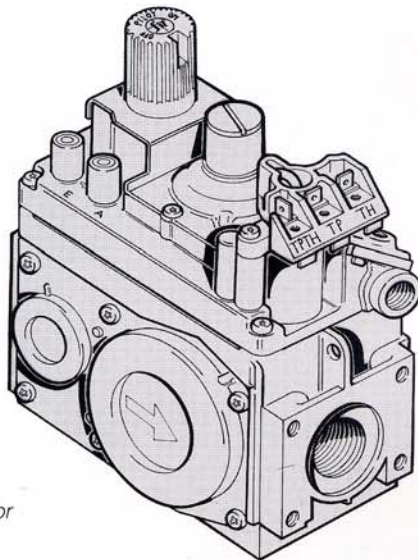




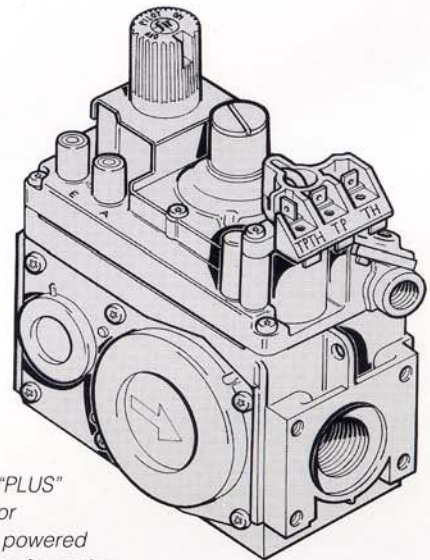
Combination Gas Control with version for Manual, 24VAC Automatic valve or self-generating Millivolt operation. Manual HI-LO flame adjustment is an optional feature for all versions. Additionally, full access to all features of the control is made available on the top face. This Control is for use with natural and liquefied petroleum gases and can be mounted in all positions except inverted.

## MAIN CHARACTERISTICS

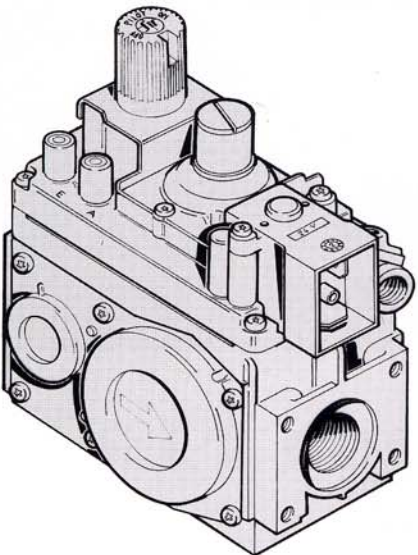
- Manual Shut-Off
- Thermoelectric flame failure device
- Latching device (Interlock) which prevents incorrect ignition
- Pilot outlet suitable for 3/16" and 1/4" tubing
- Pilot flame adjustment
- Servo pressure regulation
- 24V or Millivolt operator
- Step-opening device (optional)
- Manual HI-LO flame adjustment (optional)
- 3/8" or 1/2" NPT inlet and outlet
- Inlet and pilot filter
- Pressure test points Inlet/Outlet
- Connection for burner chamber pressure compensation (optional)



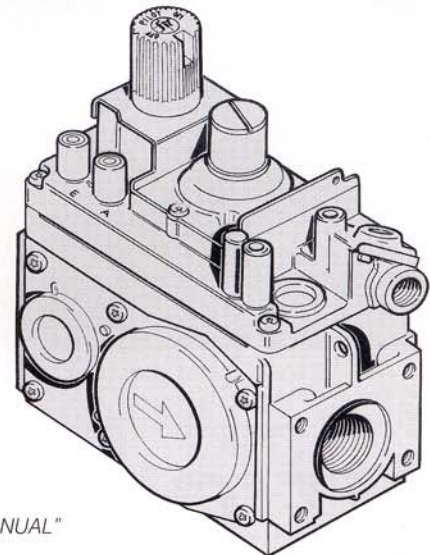
SIT 820 NOVA mV  
■ Millivolt operator



SIT 820 NOVA mV "PLUS"  
■ Millivolt operator  
■ Thermocouple powered thermoelectric safety valve



SIT 820 NOVA  
■ 24V operator

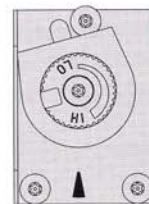


SIT 820 NOVA "MANUAL"

## MANUAL HI-LO FLAME ADJUSTMENT

This feature provides infinite adjustment of the flow rate to the main burner. The "HI" setting provides maximum input in accordance with specification of the appliance. Rotating the knob clockwise toward the "LO" setting will give a reduced input and therefore greater comfort control.

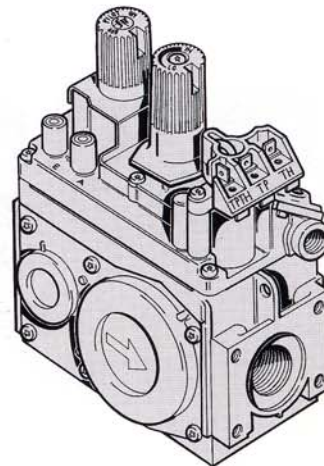
**CAUTION:** Check burner operation and ignition at both "HI" and "LO" settings.



## MAIN VERSIONS AVAILABLE

Codes	Inlet/Outlet	Operator	Press. regulator**
0.820.501	1/2"	24 V	LPG
0.820.502	1/2"	24 V	NG
0.820.503	3/8"	24 V	LPG
0.820.504	3/8"	24 V	NG
0.820.611	1/2"	mV	LPG
0.820.612	1/2"	mV	NG
0.820.613	3/8"	mV	LPG
0.820.614	3/8"	mV	NG
0.820.631	1/2"	mV	LPG HI-LO
0.820.632	1/2"	mV	NG HI-LO
0.820.633	3/8"	mV	LPG HI-LO
0.820.634	3/8"	mV	NG HI-LO
0.820.701	3/8"	Manual	NG
0.820.704	1/2"	Manual	LPG

**\*\* LEGEND:** LPG = LPG pressure regulator      NG = NG pressure regulator  
 HI-LO = With manual gas rate adjustment



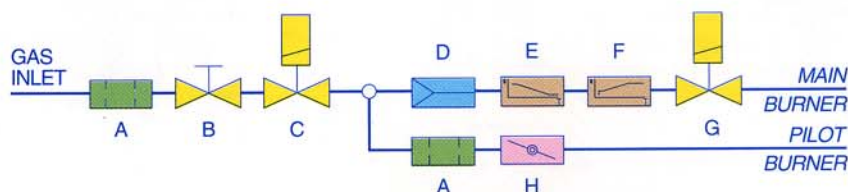
## ACCESSORIES

Main accessories available upon request:

- extension for ON-OFF knob
- extension for HI-LO knob
- piezo igniter
- bracket and fixing screw for piezo igniter
- HV cables for piezo igniter
- ignition electrodes
- pilot tubing Loxit Nut
- remote adaptor
- pilot for thermocouple and mV generator
- thermocouple
- conversion kit (not available for HI-LO versions)

## WORKING DIAGRAM

Version with step opening and manual gas rate adjuster



- A = Filter
- B = Manual shut-off
- C = Flame Failure Device
- D = Pressure Regulator
- E = HI-LO Adjustment
- F = Step Opening
- G = 24 V or Millivolt operator
- H = Pilot Adjustment

## WARNING

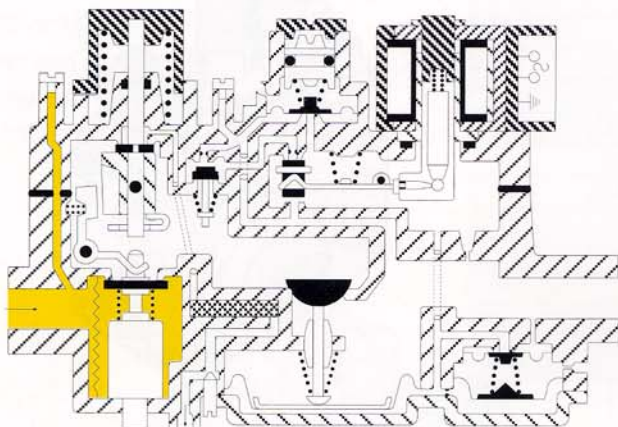
The control has an interlock device. After shutting off all gas flow, the pilot burner cannot be relit until the thermocouple has cooled, allowing the electromagnet to be released (approx. 60 sec.). The gas control knob is designed to be operated by hand. DO NOT use any tools during this operation. Damaged knobs may result in serious injury.



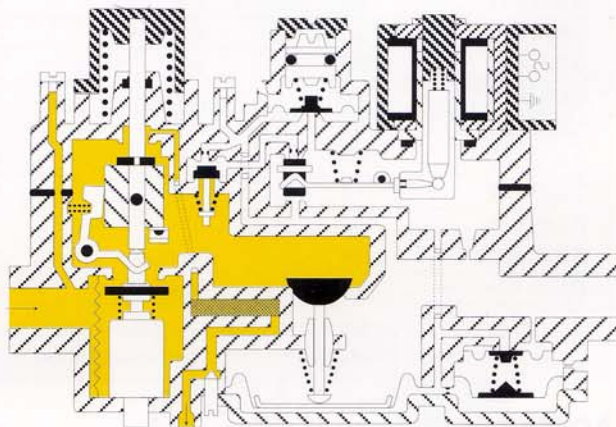
## START-UP PROCEDURE

- 1 Set the thermostat, if present, to the lowest level. Press slightly and turn the control knob clockwise to the OFF position (fig. 1) and wait 5 minutes; thus allowing any gases to escape which may have accumulated in the combustion chamber.

**Note:** LP gases do not vent upward. Then follow step 2 and 3 to establish pilot.

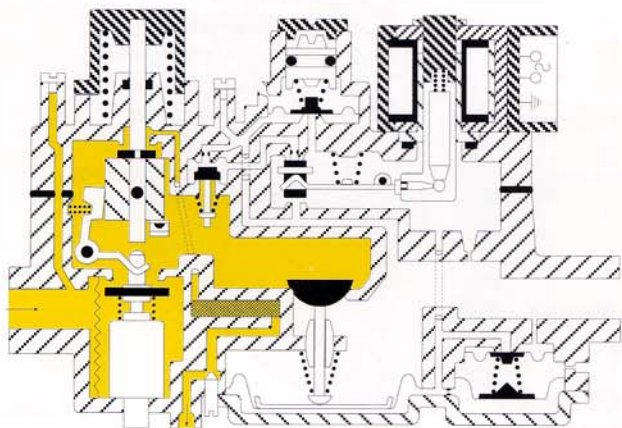
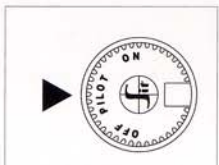


- 2 Press slightly and turn control knob counterclockwise to PILOT position (fig. 2); depress control knob and light pilot (venting of air may take place prior to flow of pilot gases). Once flame is established, hold knob depressed for approximately 60 sec.

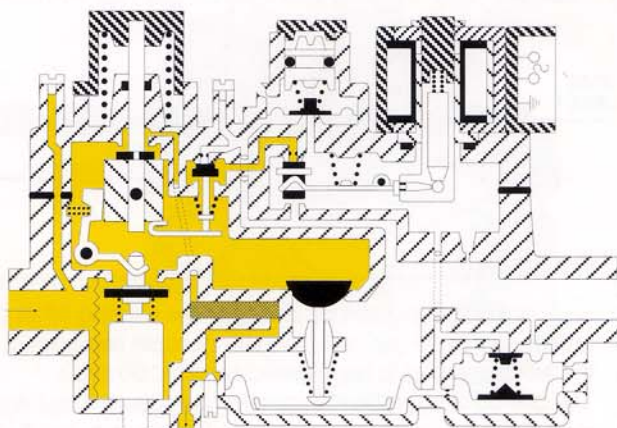
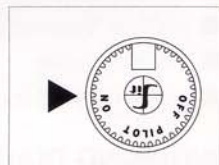


- 3 Release knob (fig. 3). If pilot should go out, turn the control knob to OFF position and repeat steps 1, 2 and 3.

**Note:** this will allow reset of INTERLOCK for proper lighting of pilot.

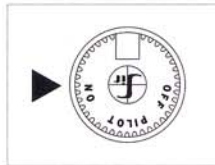


- 4 Press and turn control knob counterclockwise to ON position (fig. 4).





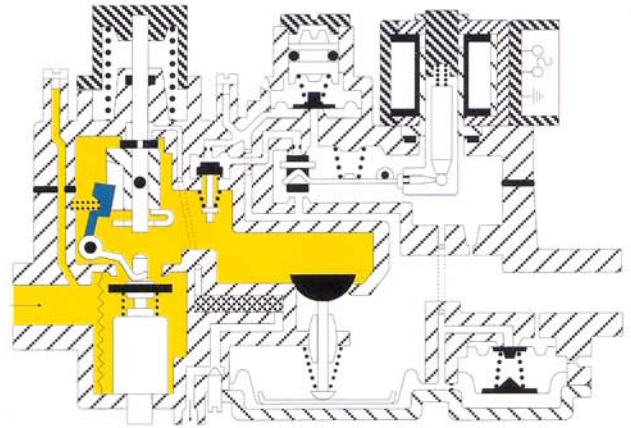
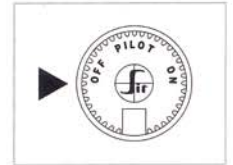
**5** Turn Thermostat to the desired comfort level or turn ON/OFF switch to the ON position (fig. 5).



**6** To turn off the main burner only, set the thermostat to the lowest setting or turn switch to OFF. Press and turn the knob clockwise to PILOT position (fig. 3).

### COMPLETE SHUT-DOWN PROCEDURE

Press and turn the knob clockwise to the OFF position (fig. 6).



## INSTALLATION

SIT 820 NOVA valves conform to all current safety standards. All operations of installation, calibration and regulation must be undertaken exclusively by qualified personnel following the instructions specified in this catalog and those in the instruction manual of the appliance in which the valve is installed. Any other operation should be avoided.

### WARNING

This control is not field serviceable, all adjustments must be done in the O.E.M. factory.

## MECHANICAL CONNECTIONS

### General recommendations:

Do not tamper with sealed parts. Do not loosen assembly screws. Do not remove labels. Avoid shocks to valve (impact, falls, etc.). Remove inlet/outlet dust caps only at the moment of installation. Do not exceed recommended torques. Ensure that gas flow follows arrow on valve body. Prevent foreign matter from entering valve during mounting. In particular, check that inlet and outlet pipes are clean. Mounting of the valve is to be done using the fixing holes. Grip valve by inlet and outlet bosses only, with appropriate sized wrenches or tools. Serious damage and injury will result if control body is gripped at any other point.

### Main gas connection

Connections must be made using properly reamed pipes with 3/8" or 1/2" NPT thread according to the control version. Properly apply a moderate amount of good quality pipe dope. Do not over-torque as this could cause distortion of pipe, leakage and or malfunction of control.

### Pilot gas connection

Connect pilot gas tubing using proper 1/4" or 3/16" Loxit nut. Tighten finger tight plus one (1) turn with wrench to assure good seal.

### Thermocouple connection

Insert threaded end of thermocouple into control. Tighten finger tight plus 1/4 turn with wrench to assure a good electrical connection.

After all connections have been made, check seals for leaks, set appliance into operation to assure it is functioning properly.



## ELECTRICAL CONNECTIONS

### General precautions

All electrical connections must be made in accordance with current electrical standards. Check that the voltage and frequency of the coils, given on the valve, are correct. Check that all connections are made properly.

#### 24V OPERATOR

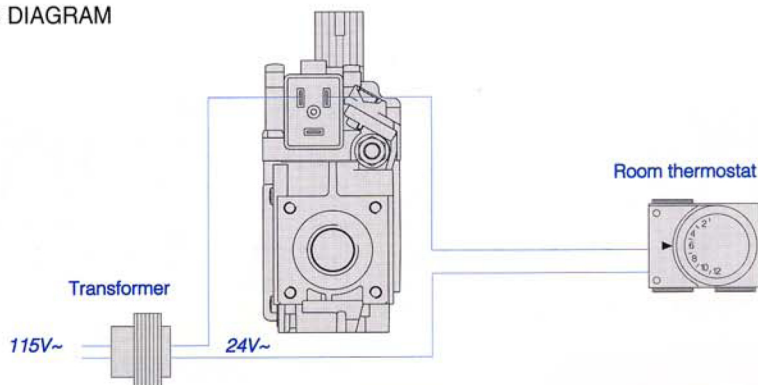
Voltage (AC)	Consumption (mA)
24V 60Hz	220

#### MILLIVOLT OPERATOR

Use millivoltage generator with two leads

Open circuit voltage	$\geq 370 \text{ mV}$
Closed circuit voltage	$\geq 145 \text{ mV}$
Operator resistance	$2.2 \Omega$

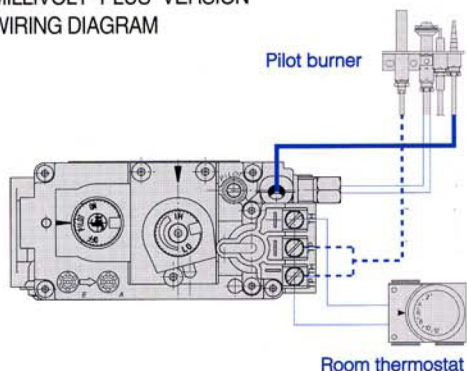
#### 24 V WIRING DIAGRAM



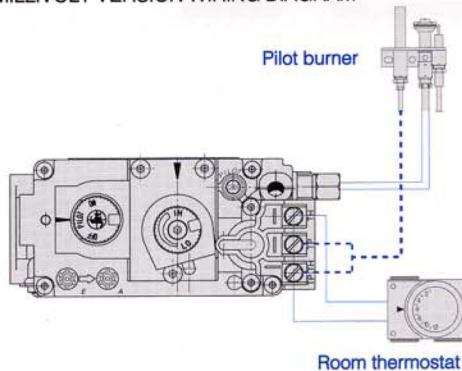
24V~



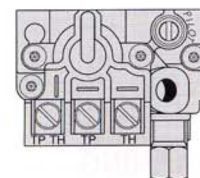
#### MILLIVOLT "PLUS" VERSION WIRING DIAGRAM



#### MILLIVOLT VERSION WIRING DIAGRAM

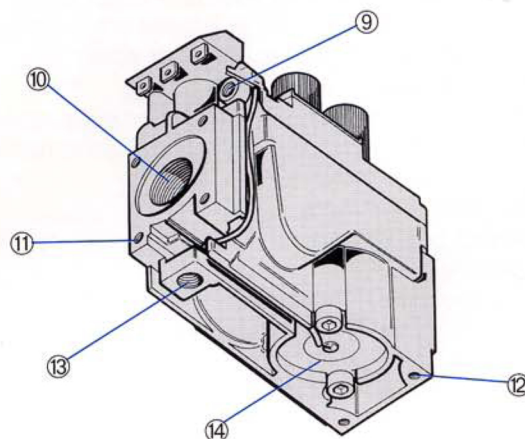
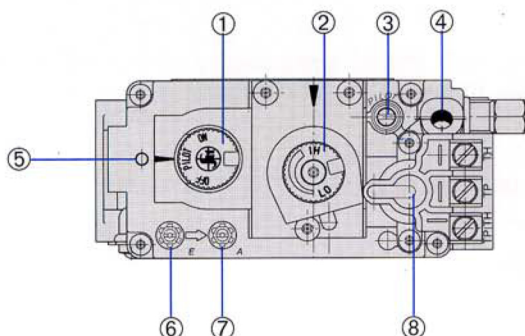


TP = thermogenerator  
TH = thermostat



## VALVE DESCRIPTION

- |  |                              |                                   |
|--|------------------------------|-----------------------------------|
| ① Gas cock knob  | ⑥ Inlet pressure test point  | ⑪ Flange securing screw holes     |
| ② Manual HI-LO adjustment or pressure regulator adjustment | ⑦ Outlet pressure test point | ⑫ Additional valve mounting hole  |
| ③ Pilot adjustment   | ⑧ Main operator              | ⑬ Alternative TC connection point |
| ④ Termocouple connection                                   | ⑨ Pilot outlet               | ⑭ Thermoelectric unit             |
| ⑤ Mounting for piezo & bracket                             | ⑩ Main gas outlet            |                                   |





## SETTINGS AND ADJUSTMENTS

### General recommendations

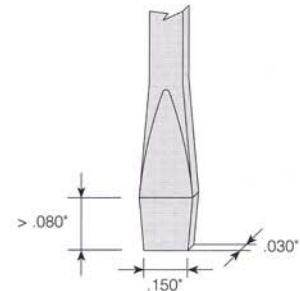
All adjustments must be made on the basis of the specific characteristics of the appliance. Prevent foreign matter from getting into the valve during any operation. Ensure cleanliness of the environment. Check inlet and outlet pressure using the pressure test points provided. After testing, carefully seal test points.

## PRESSURE READINGS

Inlet pressure can be checked by turning captured screw (6) counter clockwise 2 or 3 turns and then placing tubing to gauge over test point. Outlet pressure can be checked in the same manner above using captured screw (7). Closing torque of captured screws: 9 in.lbs.

### WARNING

After taking pressure readings, be sure to turn captured screws clockwise firmly to reseal. Do not over torque. Use an appropriate screw driver with .150" x .030" blade.



### Adjustment of the outlet pressure (non HI-LO models only)

Remove the protective cap (A)

By turning the adjusting screw (B) clockwise, the outlet pressure increases.

After completing the adjustment:

Re-install the protective cap (A).

### Converting the appliance from LPG to NG or vice versa

(Does not apply to the versions with Manual HI-LO adjustment)

Remove the protective cap (A), the adjusting screw (B) and the spring (C).

Install the spring and the adjusting screw included in the conversion kit.

0.907.042 (for converting the appliance to NG use)

0.907.043 (for converting the appliance to LPG use).

Set the outlet pressure in accordance with the instructions stated above.

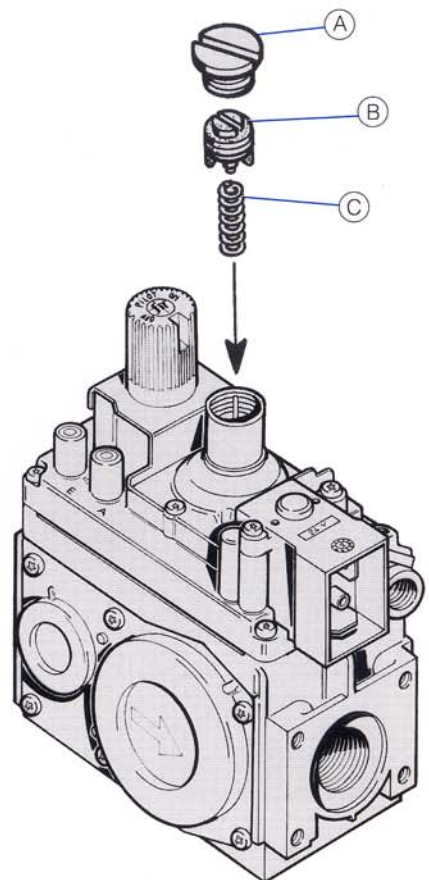
Install the new protective cap (red for LPG - plain for NG). Recommended torque: 9 in.lbs. Apply the new label included in the kit.

### Adjustment of gas flow to the pilot burner

Turn the "Pilot" adjusting screw clockwise to reduce the gas flow.

### WARNING

At the end of all setting and adjustment operations, check electrical insulation, gas seals and operation of the appliance. After carrying out all adjustments, fit the provided seals and/or block setting screws with paint, taking care not to obstruct the vent orifice of the pressure regulator.



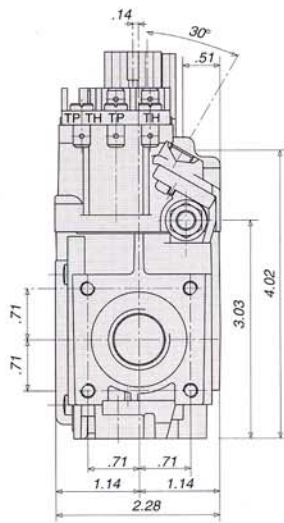
## TECNICAL SPECIFICATIONS

Inlet	3/8 or 1/2 NPT Female
Outlet	3/8 or 1/2 NPT Female
Maximum Working Pressure	1/2 PSI
Working Temperature	32°F to 175°F
1.0" Pressure Drop Capacity	3/8 100,000 Btu/hr Nat (*) 1/2 145,000 Btu/hr Nat (*)
Max. Regulated Capacity	3/8 195,000 Btu/hr Nat (*)
Min. Regulated Capacity	3/8 5,000 Btu/hr Nat (*)
Max. Regulated Capacity	1/2 250,000 Btu/hr Nat (*)
Min. Regulated Capacity	1/2 5,000 Btu/hr Nat (*)
Pilot Flow Rate	3 ft³/hr at 0.5" Pressure Drop
Weight	2 lb.

(\*) Based on 1,000 Btu/ft³ 0.64 s.g. Natural gas

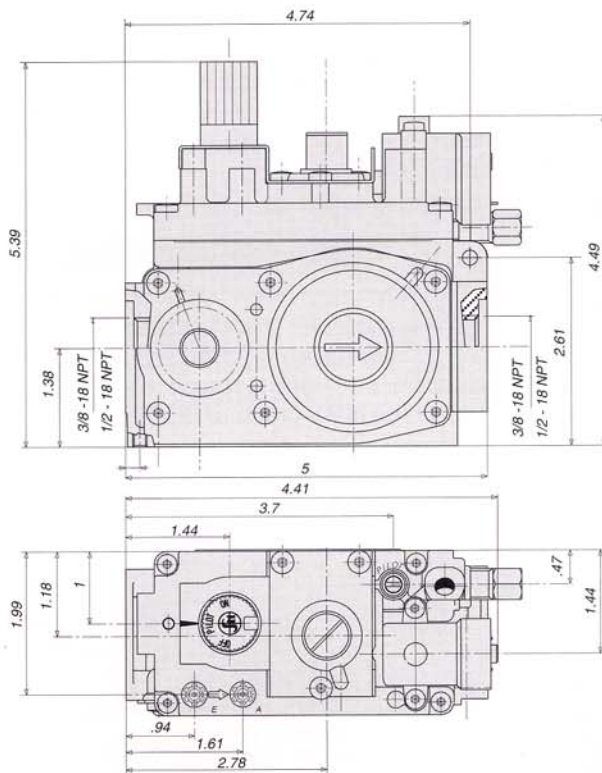
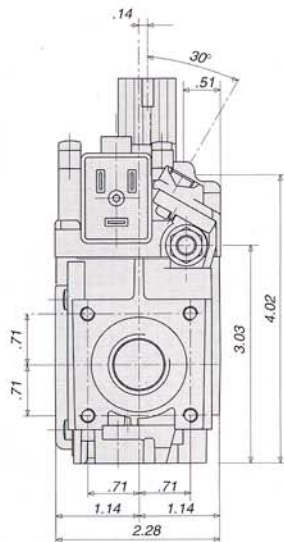
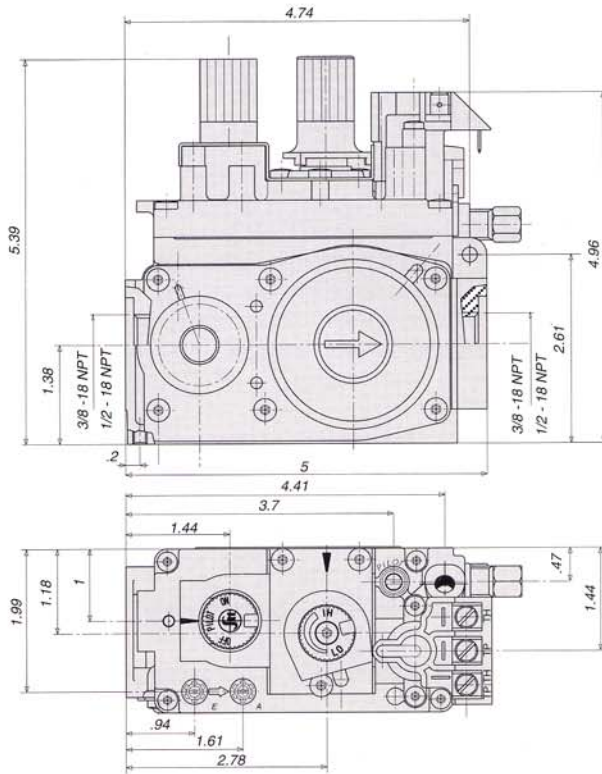


## DIMENSIONS



*SIT 820 NOVA mV "HI-LO"*

*SIT 820 NOVA*



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