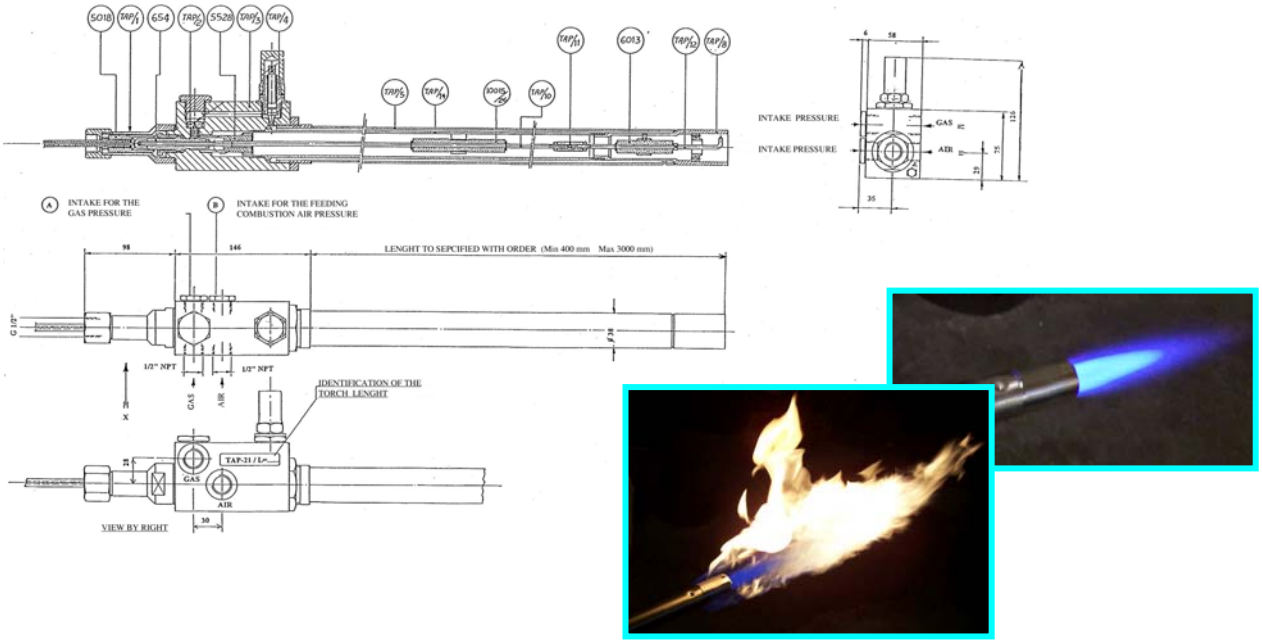
Fusar Bassini Astorre e C. Snc

TORCH IGNITER TAP 21



TYPE:	T A P - 21/ L=
LENGHT:	MIN 400 mm - MAX 3000 mm (lenght to be specified with order)
DIAMETER:	38 mm
GASES:	NATURAL GAS, LIQUID GAS (LPG)
IGNITION:	HIGH VOLTAGE (8000 V.)
CONSUMPTION NATURAL GAS:	
Total (MAX) (adjustable) :	22,6 Nm^3/h
PREMIXED-GAS:	2 ÷ 2,6 Nm^3/h
PURE GAS (adjustable):	2 ÷ 20 Nm^3/h
CONSUMPTION LIQUID GAS (LPG)	
Total (MAX) (adjustable) :	18 KG/h - 9 Nm^3/h
PREMIXED GAS:	2 KG/h - 1 Nm^3/h
PURE GAS (adjustable):	16 KG/h - 8 Nm^3/h
CONSUMPTION AIR	25 ÷ 30 Nm^3/h
GAS PRESSURE Each torch is supplied complete with 3 fuel injector in order to adapt the torch for the services at any one of the gas pressure ranger listed below	0,5 ÷ 2 KG/cm^2
*** injector Ø 1,1 mm**	1.3 KG/cm^2 ÷ 2,0 KG/cm^2
*** injector Ø 1,3 mm**	0,8 KG/cm^2 ÷ 1,2 KG/cm^2
*** injector Ø 1,5 mm**	0,5 KG/cm^2 ÷ 0,7 KG/cm^2
TORCH PRESSURE AIR	800 ÷ 1500 mm H_2O

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GAS BURNERS AND COMPONENTS FOR COMBUSTION SYSTEMS
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TORCH IGNITER TAP 21

GENERAL DESCRIPTION

a) **The premixer–separator group** where the incoming raw gas destined for the pilot head is separated from the gas to be premixed, and where the premixing of the later is accomplished. The group features two ½" NTP tappings. The rear tapping is utilized for the gas supply, whilst the front tapping is intended for the primary air–supply. Note–"Rear" is employed to denote the points nearest to the HT cable connection, and "front" the points nearest the pilot–head. Two similar tappings are provided on the apposite face of the premixer–separator group. These additional tappings are sealed by hexagonal–headed plugs, and are destined for the employment of suitable pressure–gauges during calibration of air and gas pressures.

Approximately 10% of the gas piped–in at the rear attachment passes through a calibrated jet to the mixing chamber.

The primary air is also piped to this chamber, where premixing is effected. The air/gas mixture is thence passed to the premixed gas tube (to be described later).

The remaining 90% of the raw gas passes through a needle valve (which we assume is fully open) to the raw–gas tube, which will be described later.

b) The premixed gas tube and pilot head

The premixed gas tube is the innermost of two concentric tubes, and is screw–threaded to the premixer group. The premixer gas from the premixing chamber is piped by this tube to the pilot head in which is incorporated the special flame retention ring. This ring features series of holes and slots which hold the premixed flame to the pilot head. The pilot head terminates down–stream of this ring, thus forming the ignition chamber.

The HT spark ignites the air/gas mixture in this chamber, at a predetermined point where gas stream characteristics favour istantaneous light–off. Reliable ignition is dependant on the form of this chamber and on the exact point where the spark is discharged, and the actual chamber–form and spark–electrode length are the fruit of careful study and prolonged trials.

c) The raw gas, or outer tube

This tube surrounds the inner or premixed gas tube, and is threaded to the premixer/separator group. The tube is utilized to pipe the raw gas to a point slightly behind the pilot–head. The outer tube does not actually touch the pilot head, so that the raw gas is free to issue from the annular slot between raw gas tube and rear of pilot head. Since the inner or rear part of the pilot head is bevelled, the raw gas, which impinges on the bevelled portion of the head tends to fan–out through the slot. The raw gas is ignited by the premixed gas flame, which, thanks to it's extreem stability, keeps the raw gas flame "on".

INSTALLATION

Due to the ever increasing number of types and makes of burners available, and to the variations in wind-box, furnace and draught conditions encountered, it is impossible to lay-down hard and fast rules valid for every type of application, and the burner or boiler or furnace manufacturer should be consulted where possible. The following suggestions, however, will prove helpfull.

1) Where possible, the torch-igniter should be installed inside the burner register.

2) In the case of burners having a central oil gun or gas-spud, the pilot should be installed close-in to the gun or spud, and the axis of the torch should converge slightly with the axis of the burner.

3) Large gas ring-burners or multi-spud burners may call for application in a peripherical position in which case care should be taken to ensure that the igniter body does not interfere with air-register movement.

4) The pilot head should be slightly behind the main burner gun, spud or ring, but torch igniter flame during all light-off conditions must extend well into the fuel "rose" or envelope. In order to meet these requirements the pilot head will normally be from 1 to 6 inches behind the gun or spud, depending on the size and type of burner, the wind-box pressure, the draught and turbulence. It is sound practice, (if in doubt as to degree of immersion) to order the pilot slightly longer than deemed necessary, since it is usually possible to retract the pilot, if, in practice, this is found to be desirable, whilst on the other hand, there is no remedy if the pilot should prove too short.

5) If flame detectors are employed, the influence of draught through the burner register and/or through the impeller or swirler must be taken into account in chosing the position for the torch and photocell. The photocell must be positioned in such a way that the eventual torch flame deviation is in the direction of the photocell.

GAS SUPPLY

1) In the case of multi burner applications a common gas header should be provided for the torch igniters.
2) If gas to the torch header is not at the prescribed pressure, a suitable pressure reducer must be installed.
3) Header diameter should be based on fuel consumption of the number of torches employed simultaneously for light-up (usually one only) and not on the total consumption of all torches.
4) The branch-line for each single torch should include a suitable manual fuel shut-off valve, mounted up-stream of the solenoid shut-off valve.
5) The connection between the pilot valve and torch-ignitor should be effected by means of an approved-type of flexible hose. The length of the hose should be sufficient to permit a reasonable amount of movement of the torch (from the fully advanced to the normally retracted position).

COMBUSTION AIR SUPPLY

1) Header should normally be dimensioned so as to supply sufficient air for all torches since continuous air flow to all pilots at all times is advisable in order to continuosly purge and cool the torches.
2) Dry, clean, compressed air is accetable if pressure is suitably reduced but a suitable fan will usually prove more economical as regards running costs.
3) Air pressure should be from 30.0 inches to 60.0 inches water column. It is possible to specify a hard and fast pressure value since pilot-head may be influenced in some cases, by back-pressure on the one hand, or strong dinamic pressure on the other, which in the first case will substantially reduce torch combustion air flow, and in the later case, substantially increase it. In either of these two cases, torch combustion air pressure must be suitably adjusted to ensure correct air flow. Some means of regulating air pressure over the specified range should thus be provided.
4) As in the case of the gas line, flexible hose should be employed for the final connection to the torch ignitor.

PURGE AND COOLING AIR

In some cases, purge and cooling air to the torches may be desirable in order to reduce maintenance.
In such cases, the air header must be dimensioned so as to supply 30 Nm^3/h of combustion air for torch employed on a given light-up cycle, plus cooling air for the remaining torches.
If, for example, the system comprises six torches, but only one torch is employed at a time, header must supply 30 Nm^3/h (1,060 cu ft/h) for combustion purposes plus cooling air for 5 torches.
Cooling and purge air consumption as low as 50 cu.ft/h per torch will prove sufficient in many cases. If cooling and purge air is required, a normally closed solenoid shut-off valve with an orificed by-pass, as illustrated in Fig.1, provides automatic change-over from combustion to cooling air. In this case, the solenoid air-valve is wired-up in parallel to the solenoid pilot gas valve.

HT SPARK IGNITER CIRCUIT

1) The spark-igniter system requires a HT spark, supplied by an ignition transformer having a secondary outlet of at least 8000 Volts.
2) The ignition transformer should be mounted as close to the torch as possible in order to avoid excessively long HT leads.
3) A relatively cool spot must be chosen, and remote mounting on a base plate supported by 4 distance pieces in order to provide an air flow under and around the transformer may be advisable.
4) A ½" NTP attachment at the pilot base is provided to enable the use of suitably insulated, outer, flexible hose, as a protection for the HT cable.
5) HT hose and lead must be heat-resistant.
For instructions regarding the connection of the HT lead see SECTION 5