

Installation instructions

Application requirements

View port

A view port to inspect burner flame is essential to inspect flame aspect. It is recommended to install the view port downstream of the flame, such that the entire burner front can be observed, as well as the pilot burner.

Required ancillary equipment

Ensure that all required ancillary equipment for safe operation and correct performance of the DELTA-TE™ III burner is installed, as described in the applicable local codes and/or process-related instructions. An accurate control of the air/gas-ratio is essential for optimal operation of the burner.

Position of the burner in the process flow

MAXON DELTA-TE™ III burners are designed for heating of a process flow in motion. They should be mounted so as to direct their flames parallel to and in the same direction as the movement of the process flow.

A min. velocity of 6.5 ft/s, measured in the plane of the duct where the burners are mounted, is essential for good burner performance.



Do not mount the burner so that the movement of air is across the face of the burner, nor should it be mounted too near to a duct which causes the process flow to be directed at an angle over the burner.

Ensure that the process flow in the duct immediately upstream the burner is uniform. (max. deviation of velocity of approx. 15 % in each point of a plane immediately in front of the burners)

Duct

DELTA-TE™ III burners may have in specific operating conditions quite luminous and radiant flames.

Special attention should be paid to the part of the duct covering the flame (combustion chamber). Especially in narrow ducts with flames close to the wall, it is essential to use correct materials and proper construction-designs. Contact MAXON for more information.

Installation instructions

Storage

DELTA-TE™ III burners should be stored dry (inside). Prevent that water and/or dust can penetrate into the burner manifold during storage.

Handling

DELTA-TE™ III burners are shipped as complete units. Handle burner with care during unpacking, transport, lifting and installation. Use proper equipment. Any impact on the burner could result in damage.

Make use of the available lifting lugs on the mounting plate/plug and the pipe-support at the opposite end of the burner for handling.

Flange the burner to the installation

Each burner is equipped with a mounting plate or plug. Bolt this mounting plate/plug onto the combustion chamber's burner mounting flange. Use proper gasket, available as an option. Tighten the flange bolts with correct torque. Retighten all bolts after first firing and regularly after commissioning.

Refer to drawings on page 4-21.7-12 and further for requirements on the combustion chamber's burner mounting flange.

Burner support

Only use the DELTA-TE™ III burner support supplied by MAXON for supporting the burner at the opposite side of the mounting plate/plug.

The DELTA-TE™ III burner support is especially designed to give the burner sufficient flexibility during firing. Use of different kind of supports may damage or destroy the burner.

Refer to drawing on page 4-21.7-12 and further for correct position of the burner support.

Check that the burner is not vibrating in the support once mounted (with the process air blower in operation).

Orientation

DELTA-TE™ III burners can be mounted in any orientation. Refer to drawings on page 4-21.7-12 and further for instructions on position of mounting flange and burner support.

Note that orientations with the burner face vertically down-or upwards may affect the absolute minimum firing capacity.



Start-up instructions

Instructions provided by the company or individual responsible for the manufacture and/or overall installation of a complete system incorporating MAXON burners take precedence over the installation and operating instructions provided by MAXON. If any of the instructions provided by MAXON are in conflict with local codes or regulations, please contact MAXON before initial start-up of equipment.



Read the combustion system manual carefully before initiating the start-up and adjustment procedure. Verify that all of the equipment associated with and necessary to the safe operation of the burner system has been installed correctly, that all pre-commissioning checks have been carried out successfully and that all safety related aspects of the installation are properly addressed. Initial adjustment and light-off should be undertaken only by a trained commissioning engineer.

Safety interlocks

Guarantee that all the required safety locks as described in the applicable local codes or regulations, or supplementary requested for safe operation of the overall installation, are working properly and resulting in a positive safety-lock of the burner. Do not bypass any of these safety interlocks, this will result in unsafe operation.

Checks during and after start-up

During and after start-up, check the integrity of the system. Check all bolted connections after first firing (first time on temperature) and retighten if necessary.

Purge

For safety-reasons, it is required to purge the installation sufficiently long to ensure that all possible combustibles are evacuated before ignition. Refer to the applicable local codes and your specific application requirements to determine the purge time.

Pilot ignition

Adjust pilot air flow and pilot gas regulator to correct set point before pilot ignition attempt. Turn adjustable orifice screw out (counter-clockwise) several turns from its fully seated position. Refine during lighting of the pilot to a yellow/blue flame and/or strongest stable flame signal

Main burner ignition

Adjust the main gas regulator at the correct set-point before igniting the main burner. Ensure that the gas-air ratio control valve is in the start position when lighting the main burner.

Ratio adjustment

Once the main flame is ignited, adjust air/gas ratio of the burner to obtain the required combustion quality. Slowly increase capacity while observing the flame. Especially observe that the flame is well divided over the entire burner length, and going straight forward in the direction of the process air flow. Check that no damage is caused to duct walls or other equipment.

Maintenance and inspection

Safety requirements

Regular inspection, testing and recalibration of combustion equipment according to the installation's manual is an integral part of its safety. Inspection activities and frequencies shall be carried out as specified in the installation's manual.

Perform the following activities at least annually as part of a recommended preventative maintenance routine :

- Inspect burner internal parts for wear and oxidation.
- Inspect associated control instruments and devices for function with particular attention to all safety permissive switches.
- Perform leak tests on fuel shut-off valves according to any schedule established by the authority having jurisdiction.

Visual inspections

Regular visual inspection of all connections (air and gas piping to the burner, bolting of the burner mounting flange, burner support in the duct) and burner flame shape and aspect are essential for safe operation.

Recommended spare parts

Keep local stock of spark ignitor and protection plates. It is not recommended to keep local stock of other burner parts. Consult installation manual for burner spare parts and system accessories.