

Installation and operation instructions for KINEMAX® burners

Application requirements

View port

A view port to observe burner flame is essential to inspect the flame aspect. Locate the view port downstream of the flame, looking back to the burner block. Make sure the complete flame can be evaluated.

Supporting burner air and gas piping

The KINEMAX® burner shall not be used as support for the piping to the burner. Gas and air piping shall be supported in such way that no additional loads will be created on the burner.

Burner mounting flange loads

Check burner weight and reinforce burner mounting flange or combustion chamber/furnace back wall if necessary to take the complete burner weight.

Installation instructions

Storage of KINEMAX® burners

KINEMAX® burners shall be stored dry (inside). Burner blocks have been cured carefully before shipment and shall be kept dry. Wetting of the blocks could result in premature failures.

Handling of KINEMAX® burners

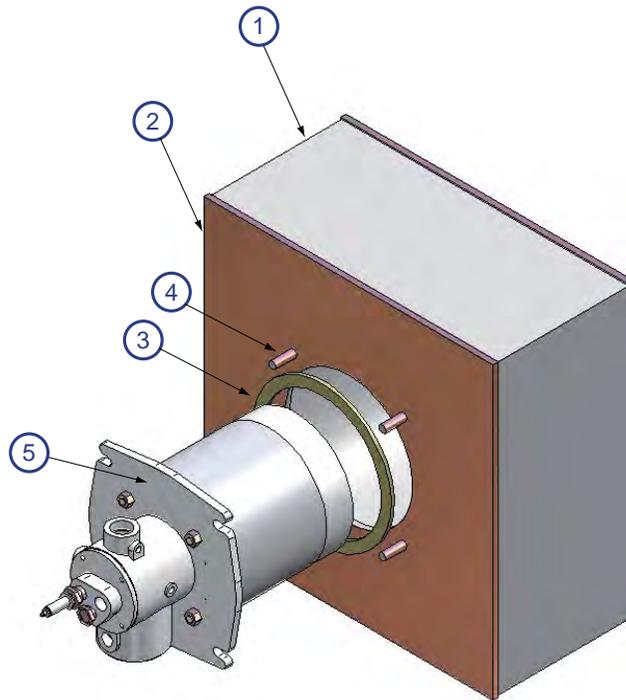
KINEMAX® burners are shipped as complete units. Handle burners with care, using proper equipment during unpacking, transport, lifting and installation. Any impact on the burner could result in damage. To prevent damage in transit, accessories such as flame rods, control valves, UV-scanners, may be packed separately and shipped loose.



Flange the burner to the installation

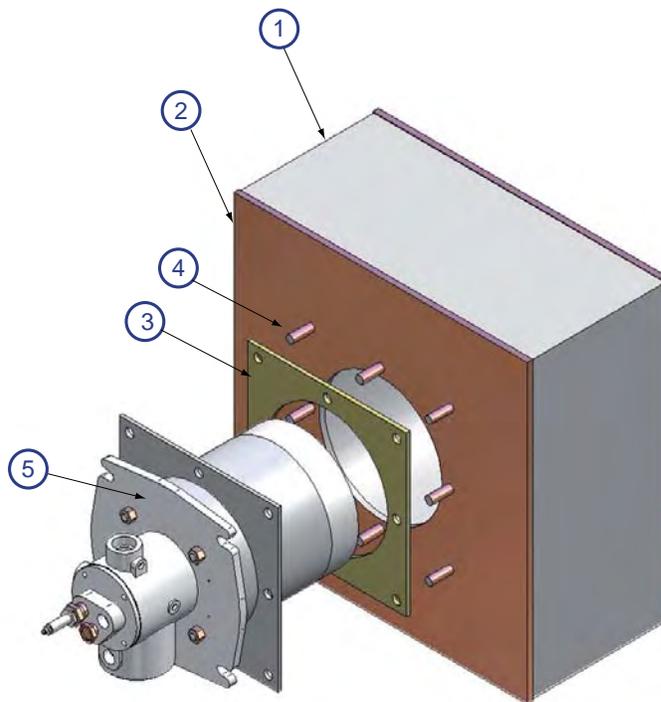
Bolt the burner to the installation's burner mounting flange. Use proper MAXON optional gaskets. Tighten the flange bolting with correct torque. Retighten all bolts after first firing and regularly after commissioning.

- 1) Insulation
- 2) Housing
- 3) Gasket (optional)
- 4) Mounting studs
- 5) Burner



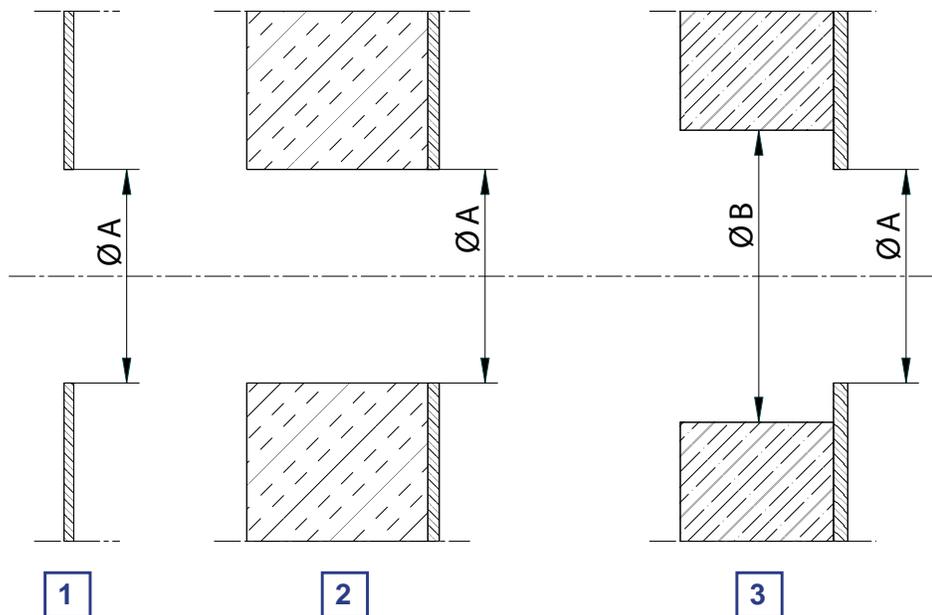
KINEMAX® with standard block

- 1) Insulation
- 2) Housing
- 3) Gasket (optional)
- 4) Mounting studs
- 5) Burner



KINEMAX® with optional mounting flange

Furnace / combustion chamber requirements



Sketch 1 : sheet metal combustion chamber/furnace without internal insulation. Flange/opening internal diameter shall be ØA

Sketch 2 : sheet metal combustion chamber/furnace with soft wall internal insulation.
Flange/opening internal diameter shall be ØA

Sketch 3 : furnace or ovens with brick walls: opening in brick wall shall be ØB (to be rammed with castable refractory)

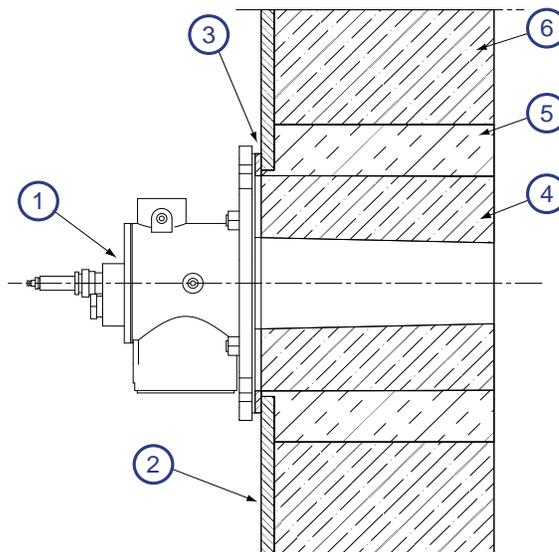
Dimensions in in. unless stated otherwise					
Burner size	1.5	2	3	4	6
KINEMAX® WITH REFRACTORY BLOCK					
Ø A	9	9	10.5	11.3	16.4
Ø B	14.5	14.5	16	16.8	21.9
KINEMAX® WITH OPTIONAL STAINLESS STEEL DISCHARGE SLEEVE					
Ø A	4.4	4.6	5.7	7.2	N/A
Ø B	9.9	10.1	11.2	12.7	N/A



Refractory wall : Standard blocks

KINEMAX® burners with standard blocks (without supporting sleeve) require supporting of the burner block by the furnace wall. Ram the gap between block and furnace with castable refractory.

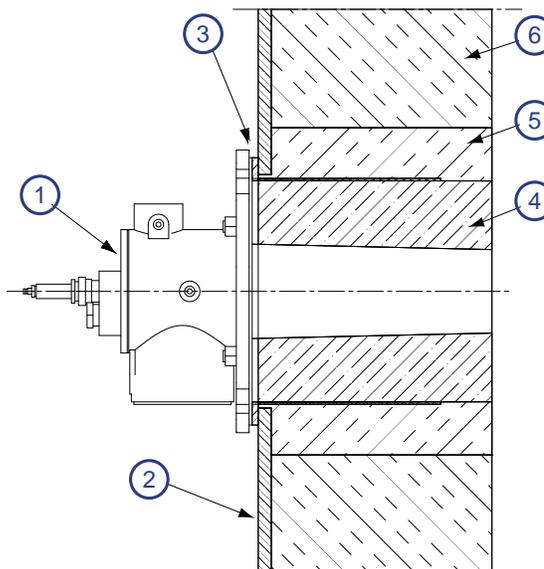
- 1) KINEMAX® burner with standard block
- 2) Furnace shell
- 3) MAXON gasket (optional)
- 4) Burner refractory block
- 5) Castable refractory, rammed into the space around the burner block
- 6) Furnace refractory wall



Furnace wall with soft insulation : Blocks with supporting sleeve

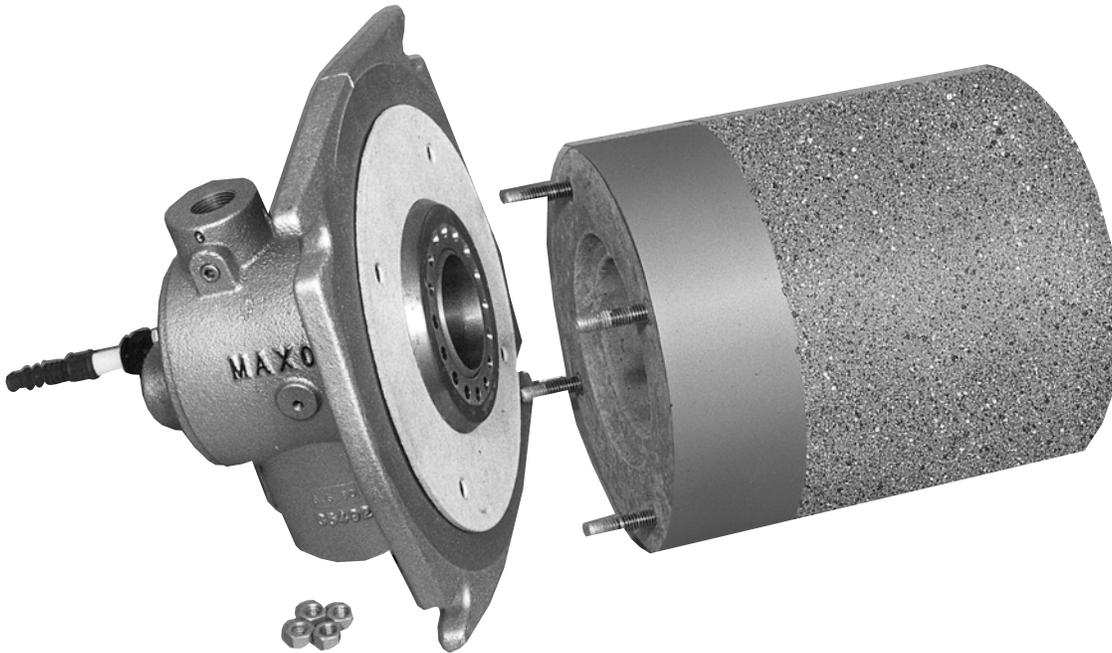
KINEMAX® burners which are mounted in a furnace wall with soft insulation, need to have a burner block sleeve (optional) specified. This sleeve makes the burner block self supporting. Remaining space between burner block and insulated wall should be packed tightly with ceramic fibre insulation.

- 1) KINEMAX® burner with block and optional block sleeve
- 2) Furnace shell
- 3) MAXON gasket (optional)
- 4) Burner refractory block with optional sleeve
- 5) Fibre insulation, fitted into the space around the burner block
- 6) Furnace fibre insulation



Installation of a replacement block sub-assembly

- Secure heat processing equipment from operation following manufacturer's instructions.
- Disconnect piping, etc. and remove KINEMAX® Burner from installation.
- Loosen and remove the nuts holding the burner body to the burner block.
- Remove old block assembly and remount new block assembly.
Be sure gasket between block and body is in place between the components.



Start-up instructions for KINEMAX® burners

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.

■ First firing or restart after shut-down

During first start-up of the burner, allow extended period at low firing range to minimize potential damage from accumulated and retained moisture in refractory burner block.

During cold starts, the temperature rise shall be limited – allow the burner to fire on low fire for some time to allow the parts to heat up slowly for maximum life.

■ Safety interlocks

Guarantee that all the required safety locks as described in the applicable local codes or regulations, or supplementary safety locks 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 valve is in the start position when lighting the main burner.

After ignition of main burner, allow some time on minimum capacity to allow the burner parts to heat up slowly.

■ Ratio adjustment

Once the main flame is ignited, adjust air/gas ratio of the burner to have the required combustion quality. Slowly increase capacity while observing the flame. Do not increase capacity too fast to avoid damage to burner parts or furnace due to excessive temperature gradient.



**Oil flames are highly radiant.
Use eye protection and avoid prolonged viewing.**

Maintenance and inspection

Safety requirements

Regular inspection, testing and recalibration of combustion equipment according to the installation's manual are 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, paying special attention to the refractory of the burner block (when applicable).
- 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) and burner flame shape and aspect are essential for safe operation.

Recommended spare parts

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

