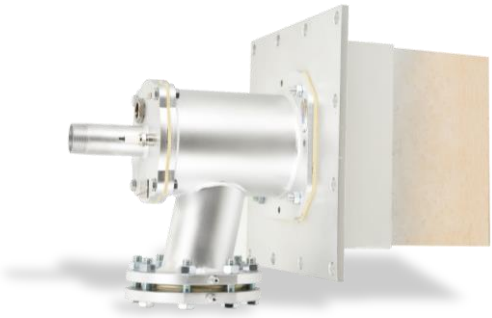
Ultra velocity burner SFSV



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CHARACTERISTICS

- Gas burner SFSV is an ultra-high velocity burner, with a maximum flame outlet velocity of 180 m/s. 11 specifications are available within the capacity range of 30 ~ 1400 kW.
- The SFSV adopts a delayed mixing structure to delay the mixing process of air and gas in the combustion chamber and reduce the flame temperature in combustion chamber. At the same time, the high velocity flame recirculates a large amount of flue gas in the furnace and effectively reduces the generation of NOx.
- Excess air coefficient: 0.7 ~ 60; Turndown ratio: 1:20.
- Fuel: LPG, COG, natural gas and other fuel gas.

APPLICATIONS

SFSV is applicable for heat treatment furnace and heating furnace with air preheating temperature below 450 °C and chamber temperature range 500～1650 °C. Especially for wide-chamber trolley

heat treatment furnace and other furnace which needs high excess air coefficient, high turndown ratio or chamber atmosphere composition regulation.

CONFIGURATION

- The SFSV is composed of a burner insert, an air housing and a combustion chamber.
- The burner can be ignited by electrode directly at low-capacity state, and the burner with capacity higher than 250 kW can adopt a pilot burner to ignite and detect. The ignition electrode and pilot burner are installed on the burner insert, a double-flange orifice plate must be installed in gas pipeline separately for measurement.
- The burner insert is installed on air housing, and a double-flange orifice plate has been installed on the air inlet by default. If the air is preheated, the air housing shall be applied with external insulation.
- The combustion chamber of SFSV could be burner block, metal tube or SiC ceramic tube according to various applications, and the furnace wall blocks attached the burner could be omitted. Pay attention to the load-bearing of internal furnace wall insulation.

SPECIFICATION

Parameters

Flame parameters

Capacity (kW)	30	55	85	135	180	250
Flame length (mm)	250	300	330	500	560	700
Flame diameter (mm)	50	50	75	100	125	150

Capacity (kW)	400	600	800	1100	1400
Flame length (mm)	900	1100	1250	1500	1700
Flame diameter (mm)	180	200	300	350	360

The visible flame length is related to ambient brightness, for reference only.

NOx parameters

- The NOx in flue gas is less than 150 mg/m³ (ref. 8% O_2) while chamber temperature is 900 °C and air preheating temperature is below 300 °C.
- Please contact us if lower NOx emission is demanded.

Type table

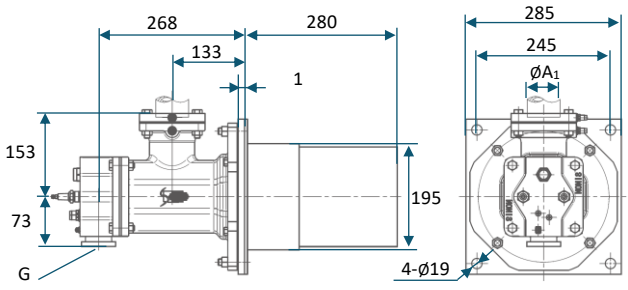
Type		SFSV	250	N	-280	M
Rated capacity /kW	30 55 85 135 180 250 400 600 800 1100 1400					
Fuel	N: natural gas P: LPG					
Burner length	280: 280 mm					
Burner tube*	M: metal C: ceramic No: burner block					

The type of burner tube depends on furnace temperature. For metal burner tube, ceramic burner tube and burner block, the maximum applicable furnace temperature is 900 °C, 1250 °C and 1650 °C respectively.

Dimensions

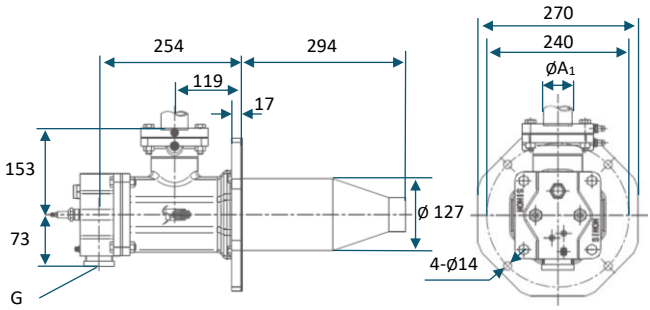
SFSV 30N～180N

Burner block:



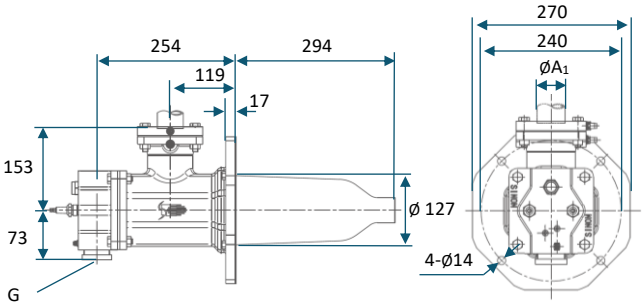
Unit: mm

Metal burner tube:



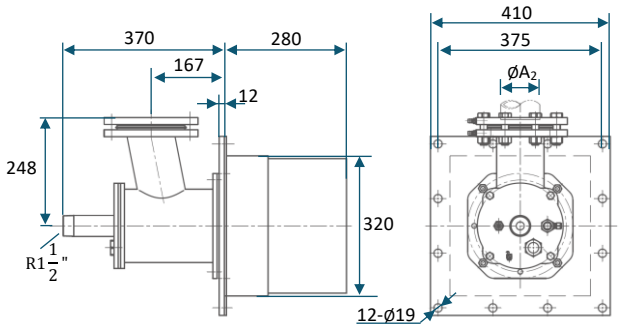
Type	A1 /mm	G
30	42	Rp $\frac{3}{4}$"
55	48	Rp $\frac{3}{4}$"
85	48	Rp $\frac{3}{4}$"
135	60	Rp 1"
180	60	Rp 1"

Ceramic burner tube:



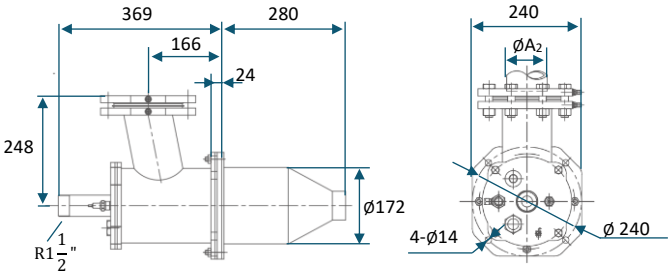
SFSV 250N～600N

Burner block:



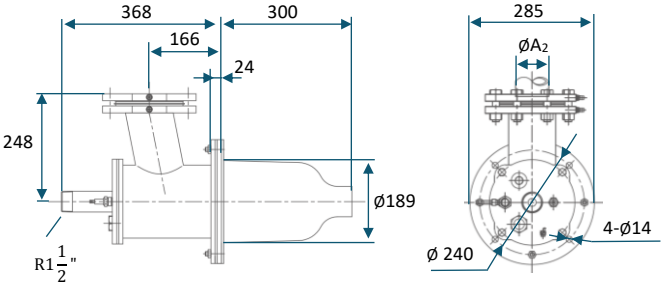
Unit: mm

Metal burner tube:



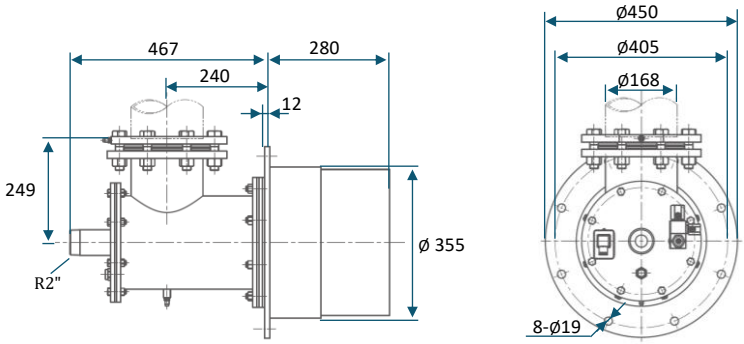
Type	A2/mm
250	76
400	89
600	114

Ceramic burner tube:



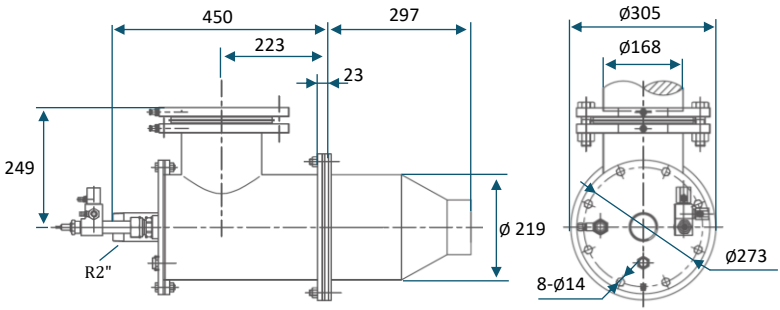
SFSV 800N～1400N

Burner block:

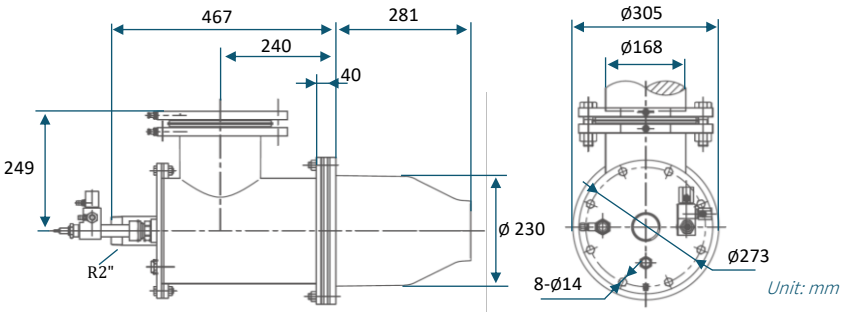


Unit: mm

Metal burner tube:



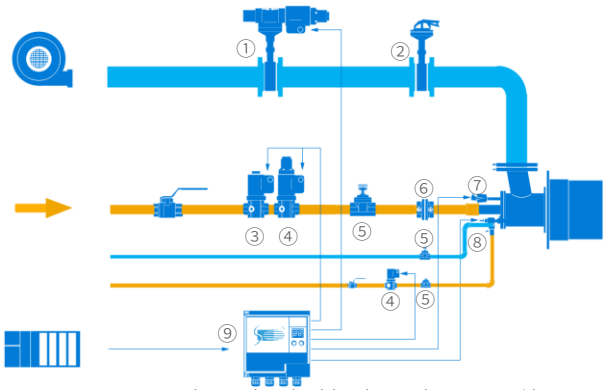
Ceramic burner tube:



Unit: mm

SOLUTIONS

Pulse control (with pilot burner)



① Air slow opening butterfly valve

② Air manual butterfly valve

③ Gas solenoid valve SG..Q

④ Gas solenoid valve SG..S

⑤ Manual linear valve KV

⑥ Gas double-flange orifice plate

⑦ UV sensor SUV

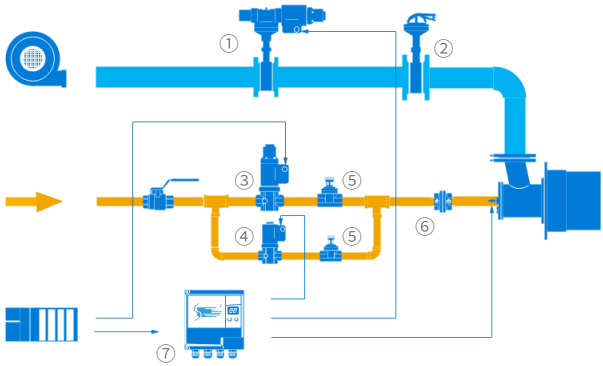
⑧ Pilot burner

⑨ Burner controller SCU 4.2

- SFSV 30～180 adopts the double-electrode ignition/detection and pulse control mode, UV sensor, pilot burner and the pipelines connected to pilot burner are not required.

- For SFSV 250～1400, UV sensor detection with electrode ignition (at low capacity) and pilot burner with flame detection are optional, the main burner adopts pulse control.

High/low fire rate pulse control



① Air slow opening butterfly valve *② Air manual butterfly valve* *③ Gas quick opening solenoid valve*
④ Gas slow opening solenoid valve *⑤ Manual linear valve KV* *⑥ Gas double-flange orifice plate*
⑦ Burner controller SCU 4.1

- The SFSV can also be operated by double-cross limit flow control, or use continuous proportional control mode with proportional valve GRC. The use of specific valves depends on the actual control system.

INSTALLATION

- To ensure the accuracy of orifice plate measurement, the pipe connected to the air inlet on burner must be straight in the length of 5*DN without other resistance elements. And the pipe in front of and behind the gas orifice plate shall also be straight in the length of 5*DN.
- The pipelines must be purged before connected to the burner to prevent any welding slag or other foreign matters from entering the burner. If a pipe welding is required after the connection between burner and pipeline, ensure that there is no welding slag or molten substance falls into the pipe or burner.

OPERATION

Attention

- Select the type of burner reasonably to avoid using the burner beyond its capacity range or air-gas ratio range.
- When heating the furnace with external heat source, it is necessary to open the air blower to ensure that there is more than 5% of air enters the furnace to prevent the furnace chamber gas backflow, internal condensation or other conditions affecting the burner.
- If the burner needs to shut off during operation, keep the air blower operating to ensure that there is about 5% of air enters the burner to cool the components. Recommend to use solenoid butterfly valve MC+HTB to control air supply.
- The capacity of burner would reduce when the air preheating temperature increases.

Access pressure

Access	Pressure /mbar
Main burner air inlet	50
Main burner gas inlet	50
Pilot burner air inlet	60
Pilot burner gas inlet	50

Maintenance

- Maintenance: SiC ceramic tubes, spark insert, flame state and others.
- At least once every six months. Increase the times of maintenance, as appropriate.