

Ultra velocity burner SFSV



GUANGZHOU SINON COMBUSTION

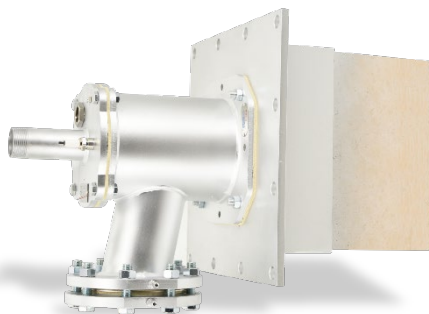
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CHARACTERISTICS

- Gas burner SFSV is an ultra-high velocity burner, with a maximum flame 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 adopts a pilot burner for ignition and flame detection. 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	400	600	800	1100	1400
Flame length/mm	250	300	330	500	560	700	900	1100	1250	1500	1700
Flame diameter/mm	50	50	75	100	125	150	180	200	300	350	360
Flame outlet velocity/ $\text{m} \cdot \text{s}^{-1}$	120	120	130	120	110	150	190	160	155	165	160

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% O₂) 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

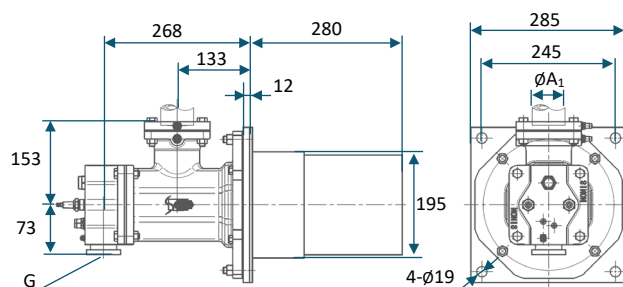
Type	SFSV	250	N	-280	M
Rated capacity	30 55 85 135 180 250				
/kW	400 600 800 1100 1400				
Fuel	N: Natural gas P: LPG				
Burner length	280: 280 mm				
Burner tube*	M: Metal C: Ceramic No: Burner block				

**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

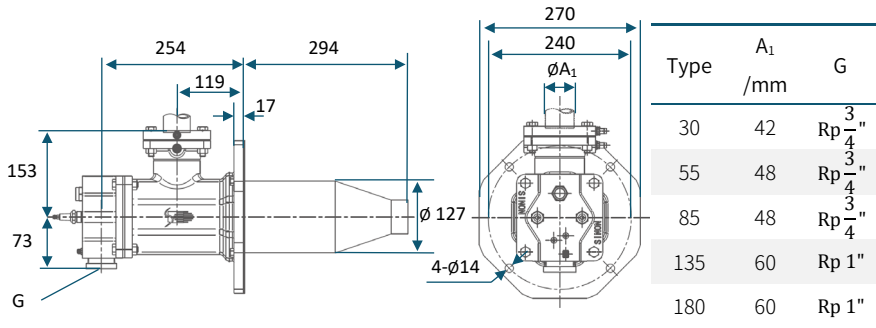
SFSV 30N~180N

Burner block:

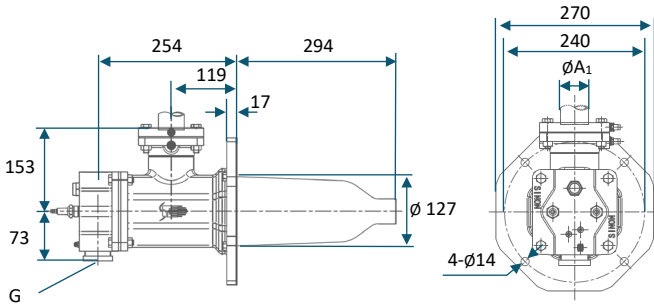


Unit: mm

Metal burner tube:

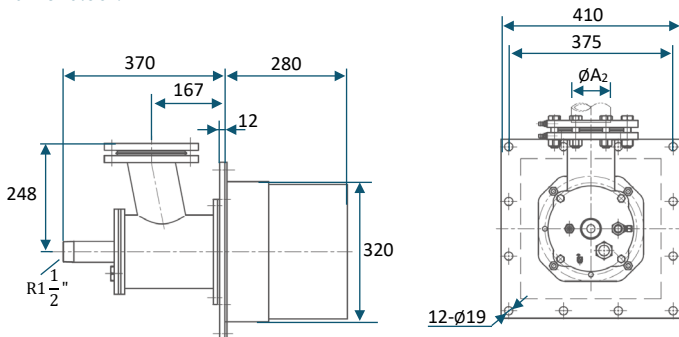


Ceramic burner tube:



SFSV 250N~600N

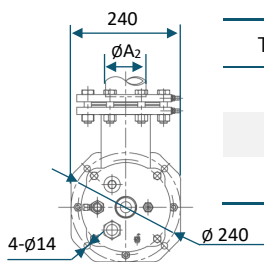
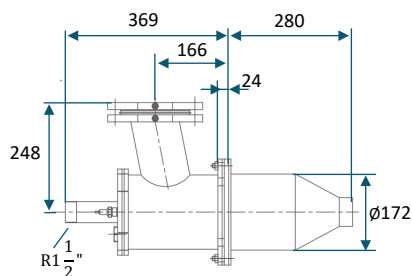
Burner block:



Unit: mm

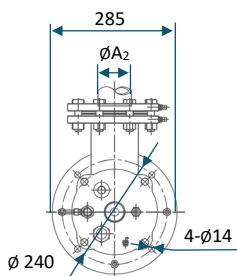
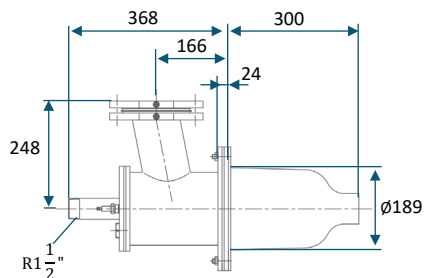
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Metal burner tube:



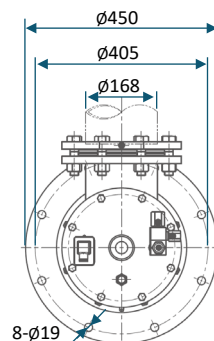
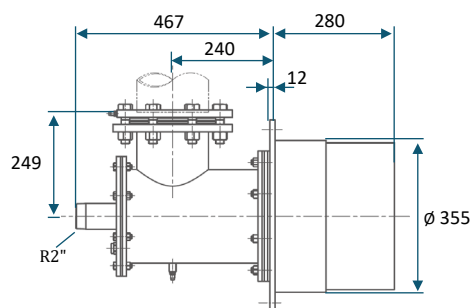
Type	A ₂ /mm
250	76
400	89
600	114

Ceramic burner tube:



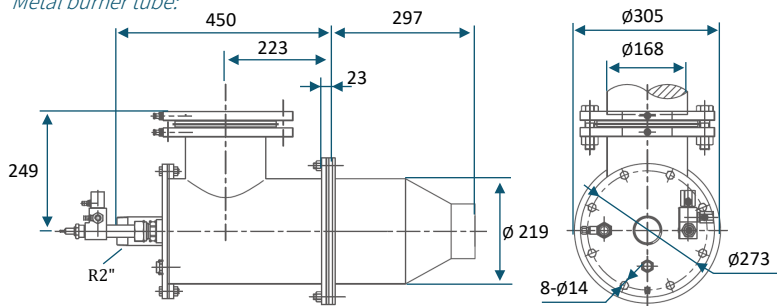
SFSV 800N~1400N

Burner block:

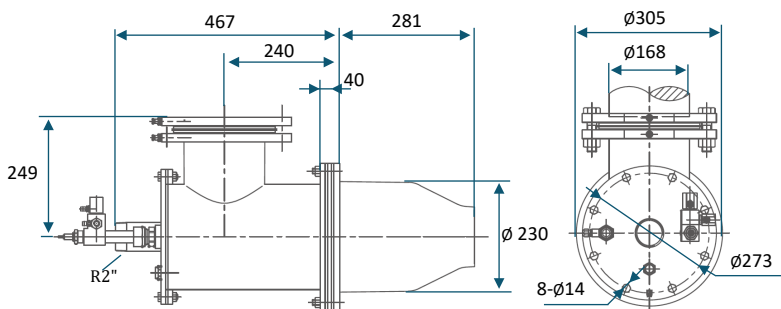


Unit: mm

Metal burner tube:



Ceramic burner tube:



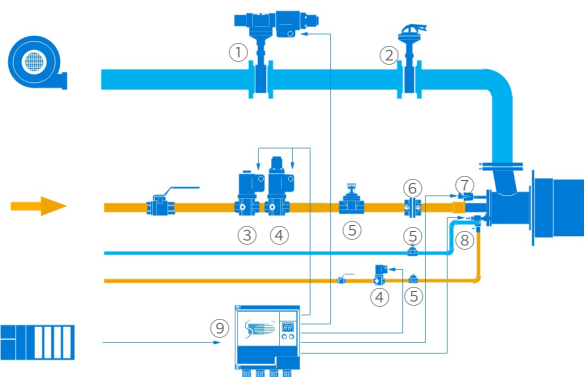
Unit: mm

The standard outlet diameter of the burner block is shown in the table below :

Type	30	55	85	135	180	250	400	600	800	1100	1400
Diameter/mm	21	28	34	44	54	54	60	80	95	108	124

SOLUTIONS

Pulse control (with pilot burner)

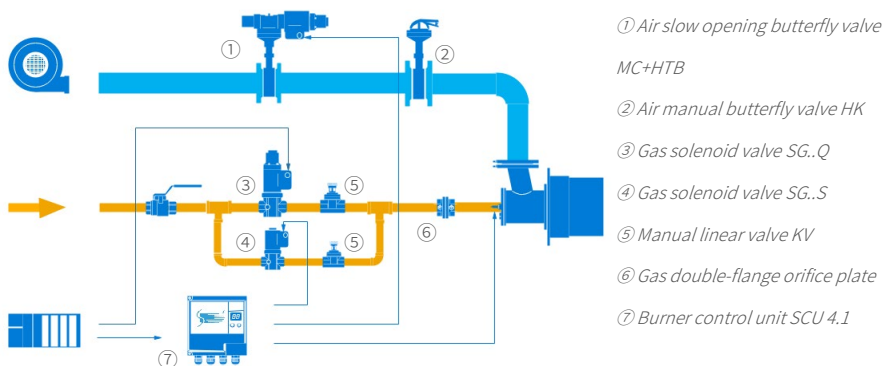


- ① Air slow opening butterfly valve
MC+HTB
- ② Air manual butterfly valve HK
- ③ Gas solenoid valve SG..Q
- ④ Gas solenoid valve SG..S
- ⑤ Manual linear valve KV
- ⑥ Gas double-flange orifice plate
- ⑦ UV sensor SUV
- ⑧ Pilot burner
- ⑨ Burner control unit SCU 4.2

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- 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



- High/low pulse control. Two gas branch line: open one gas solenoid valve for ignition and low fire rate, two for high fire rate.
- The SFSV can also be operated by double-cross limit flow control, or use continuous proportional control mode with proportional valve GRC. Select the suitable valves according to the control method.

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 $5 \times DN$ without other resistance elements. And the pipe in front of and behind the gas orifice plate shall also be straight in the length of $5 \times DN$ without other resistance elements.
- The pipelines must be purged before connected to the burner to prevent any welding slag or other foreign matter 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.

Required pressure at the connection

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

- The capacity of burner would reduce when the air preheating temperature increases.

Maintenance

- Checking and cleaning the burner and electrode regularly, at least once every six months.
- Increase the times of maintenance, as appropriate.