



### SHAM – Features

- Uses most commercial fuel gases
- High air or gas entrainment
- Requires no combustion air fan
- Single valve control
- Manual or automatic operation
- Easy to adjust
- Ideal for portable burner applications
- Efficient – simple – rugged

The high pressure air Venturi mixers are used with low pressure gas and high pressure air to supply premixed gas and air to burners or flame retention nozzles for use on industrial furnaces, ovens, kilns; for ladle heating and drying, launder heating and a host of other applications.

The mixer design uses a needle type orifice through which the high pressure air is injected into the gas jet, inspiring gas around the air stream. Only a small amount of high pressure air is required. The full air requirement for combustion is drawn in by Venturi action through the adjustable/lockable air shutter arrangement.

### Options

The SHAM is available with local high pressure air and gas isolating valves fitted as an optional extra.

### Ordering Information

In order to determine the correct mixer for the application, the following information is required:

- a) Maximum capacity per mixer
- b) Available air pressure at the mixer
- c) Fuel analysis (SG and CV)

- d) Number and type of burner nozzles to be used with each mixer.
- e) Furnace pressure
- f) Application temperature
- g) Type of furnace and production rate

### Maintenance

The SHAM series of mixers is designed and manufactured to a fine tolerance. There are no internal moving parts, eliminating misalignment or jamming. As a result this range of air/gas mixers is relatively maintenance free. It is recommended that the gas spud orifice be cleaned at regular intervals to ensure optimum performance of the SHAM mixer. The orifice can be cleaned by simply removing the air valve and inserting a wire into the air tube and spud.

### Spares

Due to the simple design of the SHAM there are limited spares available for the series of inspirator. Refer to FNAC.

## Capacities

### For natural gas – CV8320 Kcal/Nm<sup>3</sup> – S.G. 0.56

Model No.	Air Pressure (bar)	0.70	1.41	2.11	2.81	3.52	4.22	4.92	5.62	6.33	7.03	7.73	8.44
SHAM 15	Gas Capacity kW	7.03	9.67	12.02	13.78	15.53	17.00	18.17	19.64	20.81	21.98	22.86	23.74
	Air Capacity Nm <sup>3</sup> /h	1.02	1.36	1.7	2.04	2.21	2.38	2.72	2.89	3.06	3.23	3.40	3.50
	Burner Port Area cm <sup>2</sup>	0.43	0.6	0.74	0.85	0.95	1.05	1.13	1.21	1.28	1.35	1.41	1.46
SHAM 20	Gas Capacity kW	12.30	17.29	21.10	24.32	27.25	29.90	32.24	34.58	36.64	38.87	40.45	41.91
	Air Capacity Nm <sup>3</sup> /h	1.70	2.55	3.06	3.57	3.91	4.42	4.76	4.93	5.27	5.61	5.95	6.12
	Burner Port Area cm <sup>2</sup>	0.75	1.06	1.30	1.51	1.69	1.85	2.00	2.14	2.26	2.39	2.50	2.59
SHAM 25	Gas Capacity kW	19.92	28.13	34.29	39.86	43.96	48.35	52.46	55.69	58.62	62.72	65.65	68.87
	Air Capacity Nm <sup>3</sup> /h	2.89	4.08	5.1	5.78	6.46	7.14	7.65	8.16	8.67	9.18	9.52	10.03
	Burner Port Area cm <sup>2</sup>	1.26	1.74	2.13	2.52	2.77	3.03	3.29	3.55	3.68	3.94	4.13	4.39
SHAM 32	Gas Capacity kW	39.60	57.15	70.34	82.06	90.85	97.89	105.5	112.5	120.2	126.0	131.9	137.7
	Air Capacity Nm <sup>3</sup> /h	5.95	8.33	10.2	11.72	13.08	14.1	15.29	16.31	17.33	18.35	19.2	19.88
	Burner Port Area cm <sup>2</sup>	2.52	3.61	4.45	5.16	5.74	6.19	6.58	7.10	7.55	7.94	8.32	8.71
SHAM 40	Gas Capacity kW	67.40	93.80	117.2	134.8	146.5	161.2	175.9	187.6	199.3	209.5	221.3	230.0
	Air Capacity Nm <sup>3</sup> /h	9.69	13.59	16.82	19.37	21.41	23.45	25.49	27.19	28.89	30.59	32.11	33.30
	Burner Port Area cm <sup>2</sup>	4.26	5.94	7.35	8.45	9.23	10.13	11.10	11.81	12.58	13.23	13.94	14.52
SHAM 50	Gas Capacity kW	108.5	158.3	190.5	222.7	252.1	272.6	293.0	313.6	334.1	351.7	369.3	383.9
	Air Capacity Nm <sup>3</sup> /h	16.31	22.94	28.04	32.28	37.38	39.42	42.48	45.54	48.43	50.98	53.35	56.07
	Burner Port Area cm <sup>2</sup>	6.84	9.94	12	14	15.81	17.1	18.39	19.74	20.97	22.13	23.23	24.13
SHAM 80	Gas Capacity kW	167.0	234.5	287.2	331.2	372.2	404.5	439.6	468.9	498.2	524.6	548.0	571.5
	Air Capacity Nm <sup>3</sup> /h	24.64	33.98	42.48	46.73	56.07	58.45	63.55	67.97	72.22	76.46	79.86	83.26
	Burner Port Area cm <sup>2</sup>	10.52	14.71	18.06	20.77	23.42	25.48	27.74	29.48	31.29	33.03	34.52	35.94

All of the above capacities are based upon the mixer supplying a burner of the proper size which is operated without back pressure or draught. Back pressure will decrease the capacity of the mixer and burner as much as 50% and draught will increase the capacity to 150% and more.

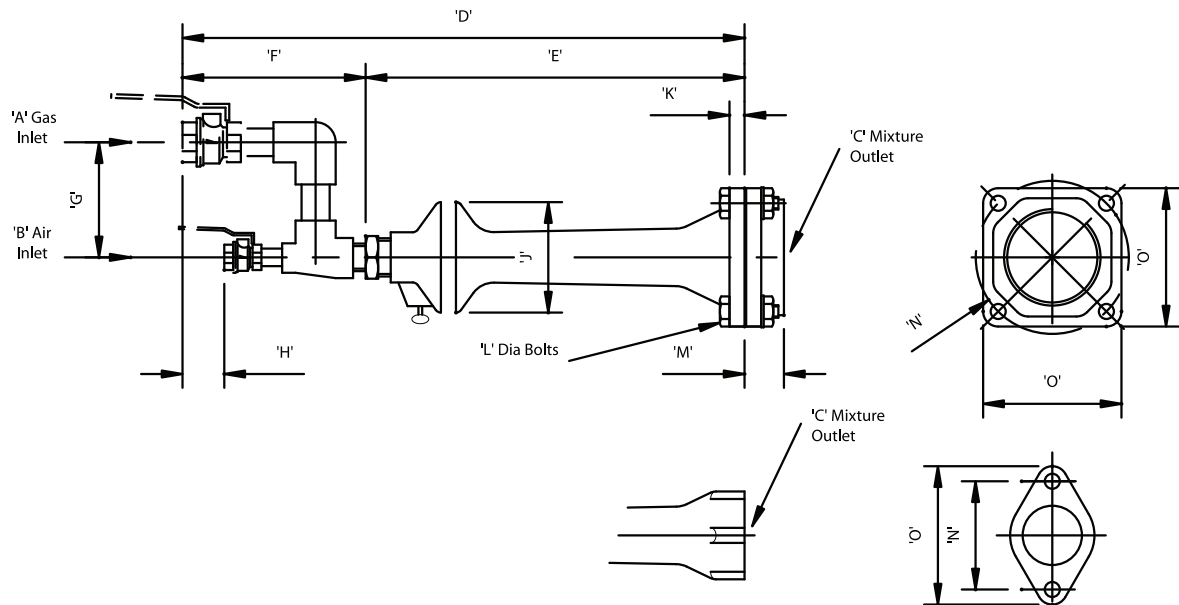
### Correction factors for other gases (multiply above capacity)

Specific Gravity	Factor	Specific Gravity	Factor	Specific Gravity	Factor	Specific Gravity	Factor	Specific Gravity	Factor
0.44	1.13	0.52	1.04	0.60	0.96	0.68	0.90	0.90	0.79
0.46	1.10	0.54	1.02	0.62	0.95	0.70	0.89	1.00	0.74
0.48	1.08	0.56	1.00	0.64	0.93	0.75	0.86	1.52p	0.603
0.50	1.06	0.58	0.98	0.66	0.92	0.80	0.83	2.07b	0.52

p = propane

b = butane

## SHAM Air/Gas Mixer Dimensions



Model No.	Part No.	A	B	C*	D	E	F	G	H	J	K	L	M	N	O	Weight (kg)
SHAM.15	3.28.006	Rc1/2	Rc3/8	Rc1/2*	360	203	157	73	3	59	-	-	-	-	40	1.65
SHAM.20	3.28.007	Rc1/2	Rc3/8	Rc3/4*	360	203	157	73	3	59	-	-	-	-	40	1.40
SHAM.25	3.28.008	Rc3/4	Rc3/8	Rc1*	410	254	156	76	12	72	-	-	-	-	57	3.90
SHAM.32	3.28.009	Rc1	Rc3/8	Rc1 1/4*	455	273	182	84	40	84	-	-	-	-	65	3.15
SHAM.40	3.28.010	Rc1 1/4	Rc1/2	Rc1 1/2*	500	292	208	92	50	84	-	-	-	-	73	4.40
SHAM.50	3.28.011	Rc1 1/2	Rc1/2	Rc2	570	340	230	105	53	114	11	8	22	90	122	9.50
SHAM.80	3.28.012	Rc2	Rc3/4	Rc3	700	454	246	115	90	116	11	10	35	143	124	19.50

\* Threaded connection only on these sizes

**WARNING:** The data outlined is for information only and does not form part of any contract. Our policy is one of continuous improvement and we therefore reserve the right to modify specifications or dimensions without prior warning. Situations dangerous to personnel and property can develop from incorrect installation and operation of combustion equipment. Fives North American Combustion UK, Ltd urges compliance with International, National and Local Safety Standards and that installation is carried out by properly qualified personnel.

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