

Monarch Manufacturing Works, Inc.

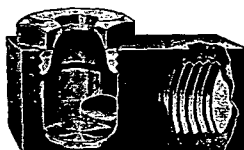
2509 E. Ontario St., Philadelphia 34, Pa.

SPRAY NOZZLES FOR WATER AND OIL

NON-CLOG AIR WASHER NOZZLES

Produce an exceptionally efficient, evenly distributed hollow cone spray. Single large tangential inlet to swirling chamber minimizes any possibility of clogging. Also available in $\frac{3}{8}$ in. to 1 in. pipe sizes inclusive, and of Brass, Stainless and Monel.

Fig. 631



Water Capacities: Gallons per Hour

Pipe Size and Fig. No.	Orifice	Lead	Operating Pressure: Lb per Square Inch							
			5	10	20	30	40	60	80	100
$\frac{1}{8}$ in. Fig. 629 or	69	69			2.7	3.3	3.8	4.7	5.4	6.0
	61	61			4.2	5.1	5.9	7.2	8.3	9.2
	61	53	2.7	3.7	5.3	6.5	7.5	9.2	10.5	11.8
	53	53	4.0	5.7	8.2	10.0	11.5	14.1	16.3	18.2
$\frac{1}{4}$ in. Fig. 629 or Fig. 631	49	49	5.6	7.9	11.1	13.6	15.7	19.3	22.2	24.8
	$\frac{3}{8}$	$\frac{3}{8}$	9.6	13.5	19.2	23.4	27.0	33.0	38.4	42.9
	$\frac{1}{2}$	$\frac{1}{2}$	12.2	17.3	24.4	29.9	34.6	42.4	49.0	54.9
	$\frac{3}{4}$	$\frac{3}{4}$	14.6	20.6	29.1	35.7	41.0	50.4	58.4	65.1
$\frac{1}{2}$ in. Fig. 631	$\frac{1}{2}$	$\frac{1}{2}$	15.9	22.5	31.9	39.2	45.1	55.2	63.7	71.5
	$\frac{3}{4}$	$\frac{3}{4}$	21.7	30.6	43.2	53.0	61.1	75.0	86.4	98.0

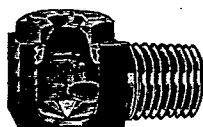


Fig. 629

AIR CONDITIONING AND OIL BURNER NOZZLES

Water Capacities: Gallons per Hour

Nozzle No.	Operating Pressure, Lb per Square Inch					Min. Pressure (PSI)
	25	40	60	80	100	
1.35		.57	.70	.81	.90	40
1.65		.75	.92	1.06	1.18	40
2.00		.94	1.14	1.32	1.49	35
2.50		1.13	1.39	1.60	1.80	30
3.00	1.00	1.27	1.55	1.79	2.00	25
3.50	1.30	1.64	2.01	2.32	2.60	25
4.00	1.50	1.90	2.33	2.69	3.00	20
4.50	1.90	2.40	2.94	3.40	3.80	20
5.00	2.20	2.78	3.41	3.94	4.40	20
5.50	2.40	3.04	3.72	4.30	4.80	15
6.00	2.60	3.28	4.03	4.66	5.30	15
7.00	3.00	3.80	4.65	5.37	6.00	15

Produce very effective breakup with direct pressure only. Capacities above are on water. "Nozzle No." is capacity on 34 second Saybolt viscosity oil at 100 lb pressure. Larger sizes up to 100.00 gph and smaller sizes down to 0.40 gph, on oil.

Furnished of all Brass for Water—Stainless Steel tip and disc for Oil. Standard with $\frac{1}{8}$ in. or $\frac{1}{4}$ in. female or $\frac{1}{4}$ in. male pipe Brass adapter and Monel gauze strainer.

SPRAY POND NOZZLES

For recooling condenser water, etc. Operate on pressures from 5 lb upward. Made of Cast Red Brass and in pipe sizes $\frac{3}{4}$ in., 1 in., $1\frac{1}{2}$ in., 2 in., $2\frac{1}{2}$ in. and 3 in. Capacities from 4.1 to 134 gpm at 7 lb pressure.

Write for Detailed Catalogs

Fig. B-8

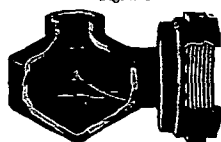


Fig. F-80

International Heating & Air-Conditioning Exposition

Permanent Address—480 Lexington Ave., New York 17, N. Y.

EXPOSITIONS HELD

Philadelphia, 1959; Chicago, 1957; Philadelphia, 1955; Chicago, 1953; Philadelphia, 1951; Chicago, 1949; New York, 1948; Cleveland, 1947-1940; New York, 1938; Chicago, 1936; New York, 1934; Cleveland, 1932; Philadelphia, 1930.

FUTURE SCHEDULE

15th International Heating & Air-Conditioning Exposition—International Amphitheatre, Chicago—Feb. 13-16, 1961.

UNDER AUSPICES OF A.S.H.R.A.E.

These biennial Expositions are held coincident with the semi-annual meetings of American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., and under their auspices. Management is by International Exposition Company with permanent headquarters at 480 Lexington Ave., New York 17, N. Y.

EXHIBITORS

Comprise leading firms in each phase of the industry; number has varied from 150 to more than 500 exhibitors.

EXHIBITS

These range from and comprise all the types of articles discussed or advertised in this copy of THE ASHRAE GUIDE.

1. **The COMBUSTION Group:**
Furnaces, burners (coal, oil and gas), grates, stokers, boilers, radiators (various types), refractories and auxiliaries.

2. **The OIL BURNER Group:**

3. **The HYDRAULIC Group:**
Water feeders, water heaters, pumps, traps, valves, piping, fittings, expansion joints, pipe hangers, etc.

4. **The STEAM HEATING Group:**
Vapor heating, steam specialties.

5. **The HOT WATER HEATING Group:**

6. **The AIR Group:**
Warm Air furnaces and stoves, registers and grilles, cooling towers, air filters, motors, fans, blowers, conditioning equipment, ventilators (room and industrial types), unit heaters, etc.

7. The AIR CONDITIONING Group:

Equipment which circulates and filters the air, in summer dehumidifies and cools; in winter heats and humidifies, and does all these in proper season for complete, all year-round air conditioning.

8. The CONTROL Group:

Instruments of precision for indicating, controlling or recording temperature, pressure, volume, time, flow, draft or any other function to be measured.

9. The REFRIGERATING Group:

Compressors, condensers, cooling apparatus, contingent apparatus and refrigerants.

10. The CENTRAL HEATING Group:

Apparatus and materials especially designed or adapted to the uses of central heating and central heating station supplies.

11. The INSULATING Group:

Structural insulators (refractory and cellulose materials), asbestos, magnesia clays and combinations thereof, pipe and conduit covering, etc., weather-stripping, adhesives etc.

12. The MISCELLANEOUS Group:

Electric Heaters, boiler and pipe repair alloys, liquids and compounds, tools of all kinds, and equipment not specifically included in the above groups, but related thereto.

13. The MACHINERY AND GENERAL EQUIPMENT Group.

14. BOOKS AND PUBLICATIONS

VISITOR ATTENDANCE

Attendance is by invitation and registration only, thereby presenting a selected audience. Included are engineers, contractors, dealers, jobbers, supply houses, industrial users, professional and service organizations, public utilities, real estate management concerns, etc. A detailed analysis of registered attendance is available on request.

Industrial Expositions in America lead the expositions of the world in style, business effectiveness, industrial influence and educational value. This Exposition stands among the leaders in Industrial Expositions in America. It is an educational institution which brings together the research developments and improvements in equipment and materials for use in heating, refrigerating, ventilating and air conditioning all types of buildings.