F-80-HO NOZZLE

The F-80-HO series is offered to meet the requirement for Nozzles to be used on higher viscosity oils at elevated operating pressures. It is a redesignation of the PLP-HO, PL-HO and R-HO series to simplify specifications for ordering. These Nozzles (as with all Monarch F-80 Nozzles) are stamped with their nominal flow rate at *100* PSIG on *#2 fuel oil* and are available in capacity sizes from 1.00 through 100.0 GPH.

200 PSI: When regular light oil Nozzles are used on more viscous oil, their sprays tend to "flutter", they produce a narrower spray angle and often develop streaks in the spray. Accordingly, the standard "HO" Nozzles are specially tested for spray quality and rated for spray angle at a pressure of 200 PSIG (14 bars) on 70 SSU (13 Centistoke) *operating viscosity* oil. This special testing assures that the Nozzles will perform properly under heavy oil operating conditions. The spray angle stamped on the Nozzle is the nominal spray angle at 200 PSIG operating pressure.

430 PSI: For *very high* pressure operation, the F-80-HO Nozzles are also available (at higher cost) tested for spray angle and spray quality at 430 PSIG (30 bars) on 70 SSU operating viscosity oil. In addition to the regular stamping, these Nozzles are stamped "430" to distinguish them from standard "HO" Nozzles, as standard Nozzles would not be satisfactory for use at such high operating pressures. The special additional testing is necessary to be sure that no streaks, voids, or flutter appear in the spray at these pressures that would not appear at 200 PSIG. The spray angle stamped on the Nozzle is the nominal Spray Angle at 430 PSIG operating pressure.

The accompanying chart shows approximate flow rates when operating from 200 PSIG through 450 PSIG on 70 SSU operating viscosity oil, specific gravity .846. Note that the nominal flow rates stamped on the Nozzles are based on 100 PSIG using U.S. No. 2 fuel oil, subject to a flow tolerance of plus or minus 5%. Flow rates shown at 300 PSIG on 70 SSU operating viscosity oil are from actual tests. Flow rates at higher and lower pressures are rates predicted from the 300 PSIG data. Actual flow rates may vary, depending on exact operating conditions.

Nozzles for operation at 200 PSIG are available in 45°, 60° and 80° spray angles in sizes of 2.25 GPH up to, and including 45.00 GPH, and sizes of 50.00 GPH and up are available only in 60° and 80°. Nozzles for operation at 430 PSIG are available in 45°, 60° and 80° in sizes 1.00 GPH up to and including 45.00 GPH. Sizes of 50.00 GPH and up are available only in 80°. Strainers are not included with Nozzles but 120 mesh Monel Strainers may be ordered separately. Strainers are specifically not recommended for use on sizes over 50.00 GPH, as restriction may occur.

Ordering: Specify flow rate, spray angle, desired test pressure (200 or 430 PSIG), Series (F-80-HO) and quantity desired. If adaptors or 120 mesh strainers are desired they must be ordered separately.

Specifications: Tip, disc and locknut fabricated of high chrome, heat resisting stainless steel.

Flow Rates

NOMINAL RATING #2 FUEL OIL @ 100 PSIG	U.S. Gallons Per Hour on 70 SSU Operating Viscosity Oil Line Pressure (PSIG)						
	200	250	300	350	400	430	450
1.00	Not Recommended		1.91	2.06	2.21	2.29	2.34
1.20			2.14	2.31	2.47	2.56	2.62
1.25			2.45	2.60	2.80	2.90	3.00
1.35			2.70	2.90	3.10	3.25	3.30
1.50			2.90	3.15	3.35	3.50	3.55
1.65			3.15	3.40	3.65	3.80	3.85
1.75			3.50	3.80	4.05	4.20	4.30
2.00	2.90	3.25	3.55	3.85	4.10	4.25	4.35
2.25	3.90	4.35	4.75	5.15	5.50	5.70	5.80
2.50	4.10	4.60	5.05	5.45	5.80	6.00	6.15
3.00	4.85	5.45	5.95	6.45	6.85	7.10	7.30
3.50	5.80	6.45	7.10	7.65	8.20	8.50	8.65
4.00	6.60	7.40	8.10	8.75	9.35	9.70	9.95
4.50	6.75	7.55	8.25	8.90	9.55	9.90	10.10
5.00	7.45	8.35	9.15	9.85	10.55	10.95	11.20
5.50	8.3	9.3	10.2	11.0	11.8	12.2	12.5
6.00	9.5	10.6	11.6	12.5	13.4	13.9	14.2
6.50	10.0	11.3	12.3	13.3	14.2	14.8	15.1
7.00	10.6	11.8	12.9	14.0	14.9	15.5	15.9
7.50	11.3	12.6	13.9	15.0	16.0	16.6	17.0
8.00	11.4	12.8	14.0	15.1	16.2	16.8	17.1
8.50	11.7	13.1	14.3	15.4	16.5	17.1	17.5
9.00	12.7	14.1	15.5	16.7	17.9	18.6	19.0
9.50	13.6	15.2	16.6	17.9	19.2	19.9	20.3
10.50	14.1	15.8	17.3	18.7	20.0	20.7	21.2
12.00	15.8	17.7	19.4	20.9	22.4	23.2	23.7
13.50	18.3	20.4	22.4	24.2	25.9	26.8	27.4
15.50	21.2	23.7	26.0	28.1	30.0	31.1	31.8
17.50	25.5	28.5	31.2	33.7	36.1	37.4	38.2
19.50	27.0	30.2	33.1	35.8	38.2	39.7	40.6
21.50	30.0	33.5	36.7	39.7	42.4	44.0	45.0
24.0	35.1	39.3	43.0	46.5	49.7	51.5	52.7
28.0	41.7	46.6	51.0	55.1	58.9	61.1	62.5
30.0	45.0	50.3	55.1	59.5	63.6	66.0	67.5
35.0	49.7	55.5	60.8	65.7	70.2	72.8	74.5
40.0	59.1	66.1	72.4	78.2	83.6	86.6	88.6
45.0	65.2	72.9	79.9	86.3	92.2	95.6	97.8
50.0	66.5	74.4	81.5	88.0	94.1	97.6	99.8
55.0	74.5	83.5	91.5	99.0	105.5	109.5	112.0
60.0	85.5	95.5	104.5	113.0	120.5	125.0	128.0
70.0	97.5	109.0	119.5	129.0	137.5	143.0	146.0
80.0	107.5	120.5	132.0	142.5	152.5	158.0	161.5
90.0	119.0	133.0	145.5	157.0	168.0	174.0	178.0
100.0	135.0	151.0	165.0	178.5	190.5	198.0	202.5

Test Oil Specifications: U.S. No. 2 FUEL OIL: 34-36 SSU @ 100°F, 32-38 API Gravity @ 60°F
HEAVY OIL: 66-77 SSU Operating Viscosity Oil, 34-36 API Gravity @ 60°F

Flow Tolerance: ± 5% from stamped nominal rating @ 100 PSIG on U.S. No. 2 Fuel Oil as specified above.

AIR MIXING EQUIPMENT Cast Iron Air Cones and Aluminum Four Blade Stabilizers

F-57

$3\frac{1}{2} \times 2\frac{3}{8}$ $4\frac{1}{2} \times 3$
$3\frac{7}{8} \times 2\frac{7}{8}$ $4\frac{1}{2} \times 3\frac{1}{2}$
$4 \times 2\frac{1}{2}$ $4\frac{3}{4} \times 3$
4×3 $4\frac{3}{4} \times 3\frac{1}{4}$
$4 \times 3\frac{1}{4}$ $5 \times 3\frac{1}{4}$
$4\frac{1}{4} \times 3$ $5 \times 3\frac{1}{2}$
$4\frac{1}{4} \times 3\frac{1}{2}$ 6×5

F-88

$3\frac{1}{2} \times 2\frac{1}{2}$
$3\frac{7}{8} \times 2\frac{3}{4}$
$4 \times 2\frac{1}{2}$
$4 \times 2\frac{3}{4}$
$4\frac{1}{4} \times 2\frac{1}{2}$
$4\frac{1}{4} \times 2\frac{3}{4}$

F-124

$3\frac{7}{8} \times 1\frac{7}{8}$, $3\frac{7}{8} \times 2\frac{1}{4}$
$4 \times 1\frac{7}{8}$, $4 \times 2\frac{1}{4}$, $4 \times 2\frac{3}{4}$

F-124-A

$3\frac{7}{8} \times 2\frac{5}{8}$ $4 \times 2\frac{5}{8}$

H-215-R

$3\frac{1}{2}$ $4\frac{1}{2}$
$3\frac{7}{8}$ $4\frac{3}{4}$
4 6
$4\frac{1}{4}$

H-451-L

$3\frac{1}{2}$
$3\frac{7}{8}$
4
$4\frac{1}{4}$
$4\frac{1}{2}$
$4\frac{3}{4}$
5

H-660

$3\frac{7}{8}$ L
4 L