

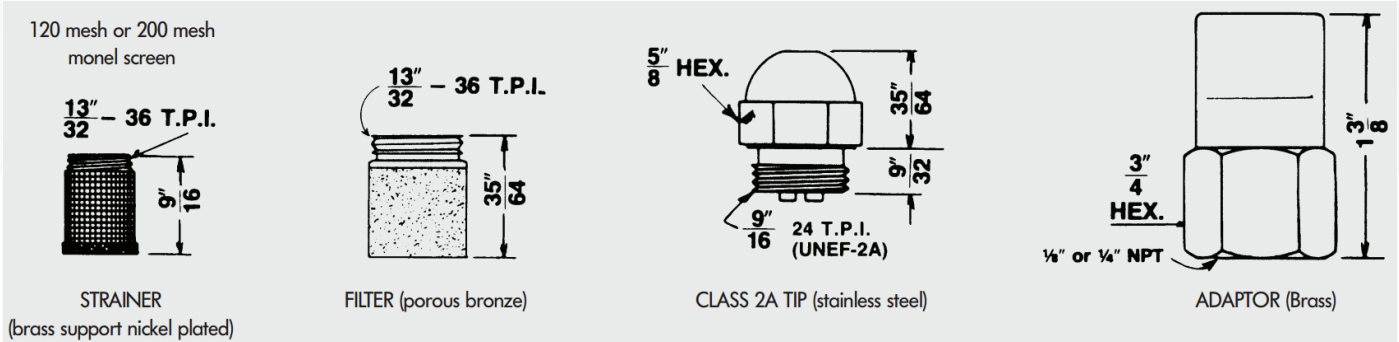


OIL BURNER NOZZLES

Atomizing Nozzle for a wide range of applications



OIL BURNER NOZZLE



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Monarch produces oil burner nozzles for all oils with viscosity to 5 mm²/s (cSt). Special nozzles can be used for oils with a viscosity up to 13 mm²/s (cSt).

All MONARCH nozzles are stamped with the following characteristics, subject to modification on adoption of CEN standards:

- the flow (in USGPH at 100 PSI = 6.895 bar), (soon, capacity at 10 bar and CEN references)
- spray angle
- letters to identify the series of spray patterns
- the reference MTD-92
- the MONARCH trade mark.

Each MONARCH MTD-92 nozzle is individually tested at several different production stages to assure perfect conformity with master nozzles of each series.

The spray patterns (i.e. hollowcone or solid cone) described below refer to the tests carried out with a 60° angle at a 75 mm distance from the nozzle orifice. In nozzles of a 60° spray angle or less, and for low flows in particular, the empty section of a hollow cone becomes smaller. The difference between hollow cone and solid cone practically disappears.

Solid Cone "R" Series: .40 to 3.50 USGPH

This is the series supplied regularly unless customer specifies otherwise. It is a good all-round nozzle suitable for most burners. Atomization of the oil is not quite as fine as with the "NS" series.

HollowCone "NS" Series: .50 to 2.00 USGPH

This Series works best on many burners due to its exceptionally fine atomization. Produces a quiet stable flame. Widely used in 80° and 90° on flame retention burners.

SpecialSolid Cone "AR" Series: .50 to 3.50 USGPH

This series has become widely used due to its success in obtaining quiet combustion in some flame retention head burners. Traditionally a "cure-all" replacement nozzle, it now is increasingly specified on original equipment.

Semi-SolidCone "PLP" Series: 2.25 to 100.00 USGPH

The standard nozzle for larger capacities. Fine atomization and "solid" spray pattern up to about 3.50 USGPH, gradually becoming more and more "hollow" in the larger sizes.

HollowCone "PL" Series: 2.25 to 50.00 USGPH

This series represents an extension of the "NS" type spray pattern to larger capacity sizes. Spray is not as finely atomized as the "PLP" series, but produces the best results in equipment specifying hollow cone nozzles.

NarrowSpray Angle "HV" Series: 1.65 to 60.00 USGPH

Used mostly for Semi-Industrial or Scotch Marine applications where narrow spray angle and high spray velocity is essential and some combustion noise is not objectionable.

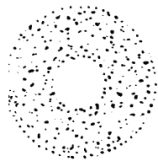
Heavy OilNozzle "HO" Series: 1.25 to 100.00 USGPH

Designed for use on 70 SSU (approx. 13 centistokes) operating viscosity oil at operating pressures ranging from 200-450 PSIG (13.8 to 31 bar).

SPRAY PATTERNS



R



NS



AR



PLP



PL



HV



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OIL BURNER NOZZLE

| Minimum Capacity: Gallons Per Hour | | | | | | | |
|------------------------------------|-----|-----|------|------|------|------|------|
| Size | 15 | 75 | 100 | 125 | 150 | 175 | 200 |
| 0,4 | - | - | 0,4 | 0,4 | 0,5 | 0,5 | 0,6 |
| 0,5 | - | - | 0,4 | 0,5 | 0,5 | 0,6 | 0,6 |
| 0,5 | - | - | 0,5 | 0,6 | 0,6 | 0,7 | 0,7 |
| 0,6 | - | - | 0,5 | 0,6 | 0,7 | 0,7 | 0,8 |
| 0,6 | - | - | 0,6 | 0,7 | 0,7 | 0,8 | 0,8 |
| 0,7 | - | - | 0,6 | 0,7 | 0,8 | 0,8 | 0,9 |
| 0,8 | - | - | 0,7 | 0,8 | 0,9 | 1,0 | 1,0 |
| 0,9 | - | - | 0,8 | 0,9 | 1,0 | 1,1 | 1,2 |
| 1,0 | 0,4 | 0,9 | 1,0 | 1,1 | 1,2 | 1,3 | 1,4 |
| 1,1 | 0,4 | 0,9 | 1,1 | 1,2 | 1,3 | 1,4 | 1,5 |
| 1,2 | 0,4 | 1,0 | 1,2 | 1,3 | 1,4 | 1,6 | 1,7 |
| 1,3 | 0,5 | 1,1 | 1,2 | 1,4 | 1,5 | 1,6 | 1,7 |
| 1,4 | 0,5 | 1,2 | 1,3 | 1,5 | 1,6 | 1,8 | 1,9 |
| 1,5 | 0,6 | 1,3 | 1,5 | 1,7 | 1,8 | 1,9 | 2,1 |
| 1,7 | 0,6 | 1,4 | 1,6 | 1,7 | 2,0 | 2,1 | 2,3 |
| 1,8 | 0,7 | 1,5 | 1,7 | 1,9 | 2,1 | 2,3 | 2,4 |
| 2,0 | 0,7 | 1,7 | 2,0 | 2,2 | 2,4 | 2,6 | 2,8 |
| 2,3 | 0,8 | 1,9 | 2,2 | 2,5 | 2,7 | 2,9 | 3,1 |
| 2,5 | 0,9 | 2,1 | 2,5 | 2,8 | 3,0 | 3,3 | 3,5 |
| 3,0 | 1,1 | 2,5 | 3,0 | 3,3 | 3,6 | 3,9 | 4,2 |
| 3,5 | 1,3 | 3,0 | 3,4 | 3,8 | 4,2 | 4,6 | 4,9 |
| 4,0 | 1,5 | 3,4 | 3,9 | 4,4 | 4,8 | 5,2 | 5,6 |
| 4,5 | 1,7 | 3,8 | 4,4 | 5,0 | 5,4 | 5,9 | 6,2 |
| 5,0 | 1,9 | 4,3 | 4,9 | 5,5 | 6,0 | 6,5 | 6,9 |
| 5,5 | 2,0 | 4,7 | 5,4 | 6,1 | 6,6 | 7,2 | 7,6 |
| 6,0 | 2,2 | 5,1 | 5,9 | 6,6 | 7,2 | 7,8 | 8,3 |
| 6,5 | 2,4 | 5,5 | 6,4 | 7,2 | 7,8 | 8,5 | 9,0 |
| 7,0 | 2,6 | 6,0 | 6,9 | 7,7 | 8,5 | 9,1 | 9,8 |
| 7,5 | 2,8 | 6,4 | 7,4 | 8,2 | 9,0 | 9,8 | 10,4 |
| 8,0 | 3,0 | 6,8 | 7,9 | 8,8 | 9,6 | 10,5 | 11,1 |
| 8,5 | 3,1 | 7,2 | 8,4 | 9,4 | 10,3 | 11,1 | 11,9 |
| 9,0 | 3,3 | 7,7 | 8,8 | 9,9 | 10,8 | 11,7 | 12,5 |
| 9,5 | 3,5 | 8,1 | 9,4 | 10,4 | 11,5 | 12,4 | 13,3 |
| 10,0 | 3,7 | 8,5 | 9,8 | 11,0 | 12,1 | 13,0 | 13,9 |
| 10,5 | 3,9 | 8,9 | 10,3 | 11,5 | 12,7 | 13,7 | 14,7 |
| 11,0 | 4,1 | 9,4 | 10,8 | 12,1 | 13,3 | 14,3 | 15,3 |

| Minimum Capacity: Gallons Per Hour | | | | | | | |
|------------------------------------|------|------|------|-------|-------|-------|-------|
| Size | 15 | 75 | 100 | 125 | 150 | 175 | 200 |
| 11,5 | 4,3 | 9,8 | 11,3 | 12,6 | 13,9 | 15,0 | 16,0 |
| 12,0 | 4,4 | 10,3 | 11,8 | 13,2 | 14,5 | 15,7 | 16,7 |
| 12,5 | 4,6 | 10,7 | 12,3 | 13,7 | 15,1 | 16,3 | 17,4 |
| 13,0 | 4,8 | 11,1 | 12,8 | 14,3 | 15,7 | 16,9 | 18,1 |
| 13,5 | 5,0 | 11,5 | 13,3 | 14,8 | 16,3 | 17,6 | 18,9 |
| 14,0 | 5,2 | 11,9 | 13,8 | 15,4 | 16,9 | 18,2 | 19,5 |
| 14,5 | 5,4 | 12,4 | 14,3 | 15,9 | 17,5 | 18,9 | 20,2 |
| 15,0 | 5,6 | 12,8 | 14,8 | 16,5 | 18,1 | 19,5 | 20,9 |
| 15,5 | 5,8 | 13,2 | 15,3 | 17,1 | 18,6 | 20,2 | 21,5 |
| 16,0 | 5,9 | 13,6 | 15,8 | 17,6 | 19,2 | 20,9 | 22,3 |
| 17,0 | 6,2 | 14,3 | 16,7 | 18,7 | 20,5 | 22,2 | 23,8 |
| 17,5 | 6,5 | 14,8 | 17,2 | 19,3 | 21,1 | 22,8 | 24,4 |
| 18,0 | 6,7 | 15,3 | 17,7 | 19,9 | 21,6 | 23,4 | 25,0 |
| 19,0 | 7,1 | 16,3 | 18,7 | 20,9 | 23,0 | 24,8 | 26,6 |
| 19,5 | 7,2 | 16,6 | 19,2 | 21,5 | 23,5 | 25,4 | 27,2 |
| 20,0 | 7,4 | 17,1 | 19,7 | 22,0 | 24,1 | 26,0 | 27,8 |
| 20,5 | 7,6 | 17,5 | 20,2 | 22,5 | 24,8 | 26,7 | 28,5 |
| 21,0 | 7,8 | 17,9 | 20,6 | 23,0 | 25,4 | 27,4 | 29,3 |
| 21,5 | 8,0 | 18,3 | 21,2 | 23,6 | 26,0 | 28,0 | 29,9 |
| 22,0 | 8,2 | 18,7 | 21,6 | 24,2 | 26,5 | 28,6 | 30,6 |
| 23,0 | 8,5 | 19,7 | 22,6 | 25,3 | 27,7 | 30,0 | 32,0 |
| 24,0 | 8,9 | 20,5 | 23,6 | 26,4 | 28,9 | 31,3 | 33,5 |
| 25,0 | 9,3 | 21,4 | 24,5 | 27,5 | 30,1 | 32,3 | 34,8 |
| 28,0 | 10,4 | 23,8 | 27,6 | 30,8 | 33,7 | 36,4 | 39,0 |
| 29,0 | 10,8 | 24,7 | 28,5 | 31,9 | 35,0 | 37,7 | 40,4 |
| 30,0 | 11,1 | 25,6 | 29,5 | 33,1 | 36,2 | 39,1 | 41,8 |
| 35,0 | 13,0 | 29,8 | 34,5 | 38,5 | 42,2 | 45,6 | 48,7 |
| 40,0 | 14,9 | 34,1 | 39,4 | 44,0 | 48,2 | 52,2 | 55,6 |
| 45,0 | 16,7 | 38,4 | 44,3 | 49,7 | 54,3 | 58,6 | 62,7 |
| 50,0 | 18,5 | 42,6 | 49,2 | 55,0 | 60,3 | 65,1 | 69,6 |
| 55,0 | 20,5 | 46,9 | 54,1 | 60,5 | 66,3 | 71,6 | 76,5 |
| 60,0 | 22,4 | 51,2 | 59,0 | 65,9 | 72,3 | 78,1 | 82,7 |
| 70,0 | 26,1 | 59,6 | 66,3 | 77,0 | 84,3 | 91,0 | 97,4 |
| 80,0 | 29,8 | 68,1 | 78,7 | 88,0 | 96,5 | 104,3 | 111,7 |
| 90,0 | 33,5 | 76,6 | 88,6 | 99,3 | 108,7 | 117,3 | 125,5 |
| 100,0 | 37,3 | 85,1 | 98,4 | 110,1 | 120,6 | 130,2 | 139,2 |