



"S" AND "AS" SERIES SELF-CLEANING
MICRO OIL VALVE



S VALVE
Manual Control



AS VALVE
Manual Control



S VALVE
Automatic Control



WARNING

These instructions are intended for use only by experienced, qualified combustion start-up personnel.

Adjustment of this equipment and its components, by unqualified personnel, can result in fire, explosion, severe personal injury, or even death.

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These instructions are intended to serve as guidelines covering the installation, operation, and maintenance of Hauck equipment. While every attempt has been made to ensure completeness, unforeseen or unspecified applications, details, and variations may preclude covering every possible contingency. **WARNING: TO PREVENT THE POSSIBILITY OF SERIOUS BODILY INJURY, DO NOT USE OR OPERATE ANY EQUIPMENT OR COMPONENT WITH ANY PARTS REMOVED OR ANY PARTS NOT APPROVED BY THE MANUFACTURER.** Should further information be required or desired or should particular problems arise which are not covered sufficiently for the purchaser's purpose, contact Hauck Mfg. Co.



WARNING

This equipment is potentially dangerous with the possibility of serious personal injury and property damage. Hauck Manufacturing Company recommends the use of flame supervisory equipment and fuel safety shutoff valves. Furthermore, Hauck urges rigid adherence to National Fire Protection Association (NFPA) standards and insurance underwriter's requirements. Operation and regular preventative maintenance of this equipment should be performed only by properly trained and qualified personnel. Annual review and upgrading of safety equipment is recommended.

A. GENERAL INFORMATION

The Hauck Self-Cleaning Micro Oil Valve is designed to provide positive, accurate, graduated control of fuel oil flow to any type of burner. Flow control may be either manual or automatic. A large indicator dial provides a greater range of individual precision settings. This valve is specifically engineered to handle smaller oil capacities while providing a graduated flow through its range.

The Hauck Self-Cleaning Micro Oil Valve is intended for *flow control*; it is not designed to replace a shutoff valve. For tight shutoff, a ball type or solenoid shutoff valve must be provided in the fuel supply line. These valves will successfully and efficiently handle any grade of fuel oil, even heavy fuel oils, when preheated to the proper viscosity and flow characteristics.

B. RECEIVING AND INSPECTION

Upon receipt, check each item on the bill of lading and/or invoice to determine that all equipment has been received. A careful examination of all parts should be made to ascertain if there has been any damage in shipment.

IMPORTANT

If the installation is delayed and the equipment is stored outside, provide adequate protection as dictated by climate and period of exposure. Special care should be given to all motors and bearings, if applicable, to protect them from rain or excessive moisture.

C. CAPACITIES

MODEL NUMBER	PIPE SIZE NPT	PRESSURE DROP (psig)												
		1	5	10	15	20	25	30	35	40	45	50	75	100
		OIL CAPACITY (gph) @ 180° VALVE POSITION												
S-3-2	3/8	1.0	2.3	3.2	4.0	4.6	5.1	5.6	6.0	6.5	6.8	7.2	8.8	10.2
S-3-3	3/8	1.5	3.5	4.7	5.8	6.7	7.5	8.2	8.9	9.5	10.1	10.6	13.0	15.0
S-3-5	3/8	4.1	9.6	12.9	15.9	18.3	20.5	22.4	24.2	25.8	27.5	28.9	35.5	41.0
S-3-7	3/8	8.7	20.3	27.4	33.7	38.9	43.5	47.5	51.3	54.8	58.3	61.3	75.3	87.0
S-3-9	3/8	14.2	31.8	44.8	55	63.5	71	77.7	83.9	89.8	95.1	100	122	142
S-3-11	3/8	19.2	43	60.6	74.4	85.8	96	105	113	121	128	135	166	192
S-3-13	3/8	25.6	59.8	80.8	99.2	115	128	140	151	161	172	181	222	256
S-3-1610	3/8	39.8	92.9	126	154	178	199	218	235	251	267	281	345	398
AS-3-3	3/8	1.4	3.3	4.4	5.4	6.3	7.0	7.7	8.3	8.8	9.4	9.9	12.1	14.0
AS-3-5	3/8	4.4	10.3	13.9	17.1	19.7	22.0	24.1	26.0	27.7	29.5	31.0	38.1	44.0
AS-3-7	3/8	8.5	19.8	26.8	32.9	38.0	42.5	46.5	50.1	53.6	57.0	59.9	73.9	85.0
AS-3-9	3/8	12.5	28	39.5	48.5	55.9	62.6	68.5	74	79.1	83.8	88.5	108	125
AS-3-11	3/8	22.3	52.1	70.4	86.4	99.8	112	122	132	141	149	157	193	223

Table 1. Capacities

NOTES:

1. Capacities based on No. 2 fuel oil @ 0.849 s.g. and 60°F fluid temperature.
2. Pressure drop across full open valve. Actual test data measured at **25 psig** pressure drop, all other capacities calculated.
3. S-3-1610 capacity is not linear over the entire valve position range and does not have the self-cleaning feature.

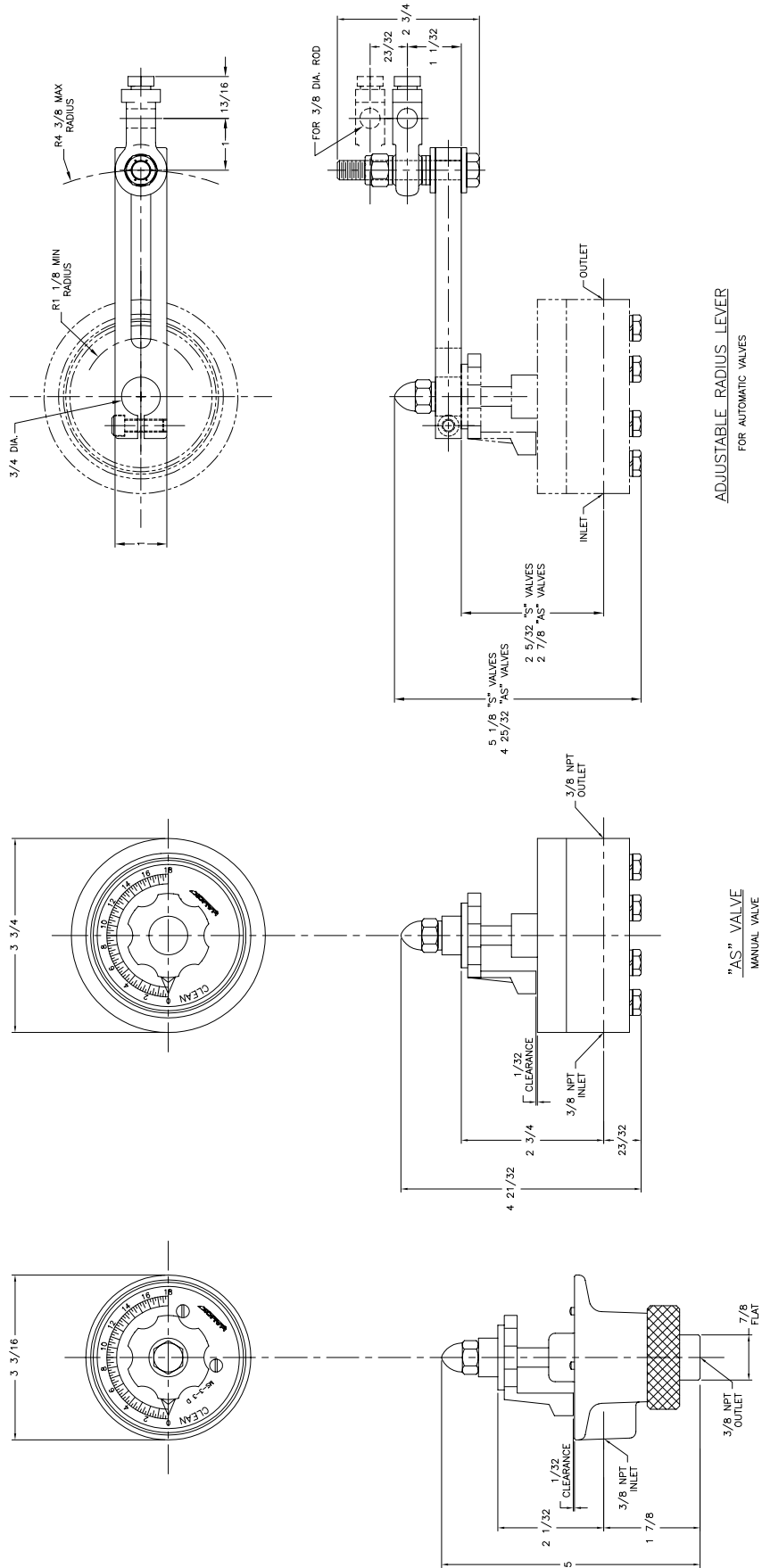
MODEL NUMBER	PIPE SIZE NPT	PRESSURE DROP (kPa)												
		6.9	35	69	103	138	172	207	241	276	310	345	517	690
		OIL CAPACITY (lph) @ 180° VALVE POSITION												
S-3-2	3/8	3.9	8.7	12.1	15.1	17.4	19.3	21.2	22.7	24.6	25.7	27.3	33.3	38.6
S-3-3	3/8	5.7	13.2	17.8	22.0	25.3	28.4	31.0	33.7	36.0	38.2	40.1	49.2	56.8
S-3-5	3/8	15.5	36.3	48.8	60.2	69.3	77.6	84.8	91.6	97.7	104	109	134	155
S-3-7	3/8	32.9	76.8	104	128	147	165	180	194	207	221	232	285	329
S-3-9	3/8	53.7	120	170	208	240	269	294	318	340	360	379	462	537
S-3-11	3/8	72.7	163	229	282	325	363	397	428	458	484	511	628	727
S-3-13	3/8	96.9	226	306	375	435	484	530	572	609	651	685	840	969
S-3-1610	3/8	151	352	477	583	674	753	825	889	950	1011	1064	1309	1506
AS-3-3	3/8	5.3	12.5	16.7	20.4	23.8	26.5	29.1	31.4	33.3	35.7	37.5	45.8	53.0
AS-3-5	3/8	16.7	39.0	52.6	64.7	74.6	83.3	91.2	98.4	105	112	117	144	167
AS-3-7	3/8	32.2	74.9	101	125	144	161	176	190	203	216	227	280	322
AS-3-9	3/8	47.3	106	150	184	212	237	259	280	299	317	335	409	473
AS-3-11	3/8	84.4	197	266	327	378	424	462	500	534	564	594	731	844

Table 2. Metric Capacities

NOTES:

1. Capacities based on No. 2 fuel oil @ 0.849 s.g. and 15.5°C fluid temperature.
2. Pressure drop across full open valve. Actual test data measured at **172 kPa** pressure drop, all other capacities calculated.
3. S-3-1610 capacity is not linear over the entire valve position range and does not have the self-cleaning feature.

D. DIMENSIONS

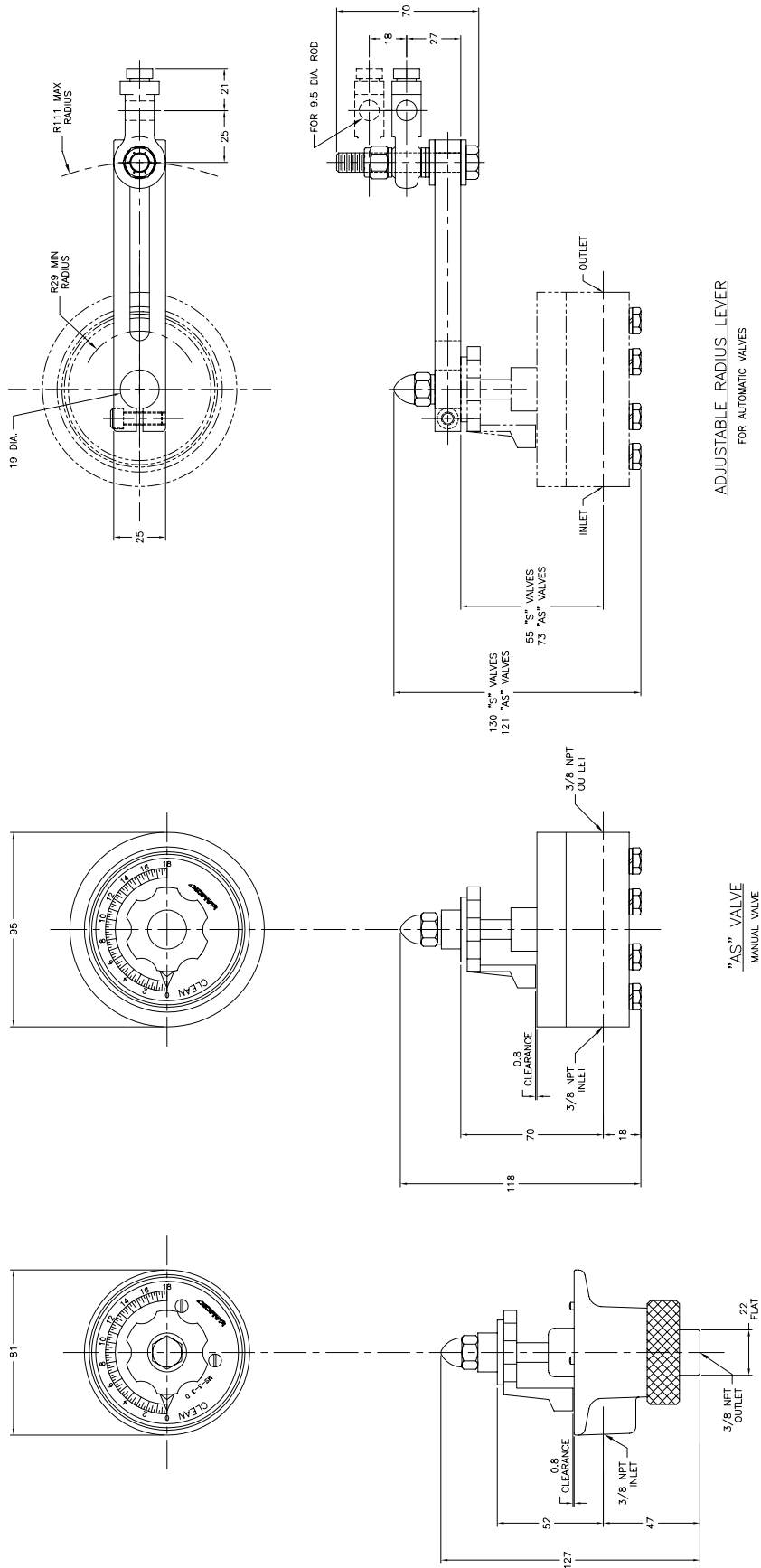


Y1389

NOTES:
1. DIMENSIONS ARE IN INCHES.

Figure 1. Dimensions

D. DIMENSIONS (Continued)



Y1389 METRIC

NOTES:
1. DIMENSIONS ARE IN MM.

Figure 2. Metric Dimensions

E. INSTALLATION

CAUTION

When installing or removing S-type Micro Oil Valves in piping, apply a wrench to the 1 inch (25.4mm) wrench flats located on the steel valve seat outlet. Do not attempt to hold Micro Oil Valve via the bronze valve body or knurled bronze valve seat nut as internal valve component damage may occur.

1. Using a high quality thread sealant (Loctite 565 or equal) on the fittings, install the oil control valve in the oil line in any position, at a convenient location as close to the burner as possible. To prevent air pocket formation in the burner oil supply line, mount the MOV at or below the burner centerline. The valve should be placed downstream of a shutoff valve and a filter. The shutoff valve makes it possible to clean the filter and service the burner and control valve without shutting down the oil supply system. The filter will help prevent clogging by removing any debris which is too large to pass through the control valve. All micro oil valves are provided with female connections threaded for standard pipe.
2. When an automatic operation is to be used, mount a control motor to some nearby rigid support. The valve's operating arm moves in a clockwise direction to open the valve over an arc of 180° at an adjustable radius ranging from 1-1/8" to 4-3/8" (29 to 111mm).
 - A. Connect the valve lever to the control motor arm by a 3/8" (9.5mm) rod through the snap connection pin on the valve lever. A set screw is provided on the snap pin to secure the rod at the proper point.
 - B. Adjust the length of the control motor arm so that the valve pointer moves through the desired range on the valve dial. Since the maximum travel of most control motors is only 90°, the full capacity of the valve cannot be obtained. Be sure that the control motor does not move the valve lever beyond the stops on the dial as this can damage the valve if sufficient force is applied.
3. The valve is now in place and ready for either automatic or manual operation.

F. OPERATION

All Hauck Self-Cleaning Micro Oil Valves are designed to efficiently handle any grade of fuel oil, even the heaviest residues. The heavy grades must be preheated to achieve the proper viscosity for atomization, normally 90 SSU ($1.84 \times 10^{-5} \text{ m}^2/\text{sec}$).

The large, easily readable indicator dial enables the valve to be set, or reset, to any setting required by the application.

All Hauck S and AS series Micro Oil Valves, with the exception of S-3-1610, have a linear flow curve at a constant differential pressure over the entire flow range. For example, the flow at valve position 18 is two times greater than at valve position 9. Once the flow has been established, the valve becomes a metering device. The operator can quickly adjust the oil flow to any desired capacity, since every dial position directly corresponds to a specific discharge rate.

G. MAINTENANCE

All Hauck Self-Cleaning Micro Oil Valves are designed for maintenance free operation. Under normal usage, no service should be necessary.

To clean any debris that might be lodged in the "v-groove" metering section of the Micro Oil Valve, slowly rotate the aluminum pointer from full open position 18 to the word "CLEAN" on the valve dial plate. Repeat this procedure several times.

NOTE

Due to the critical nature of the alignment of the valve's internal components, and its operating pressures, **Hauck does not recommend disassembly of Micro Oil Valves.** Such disassembly will void warranty.