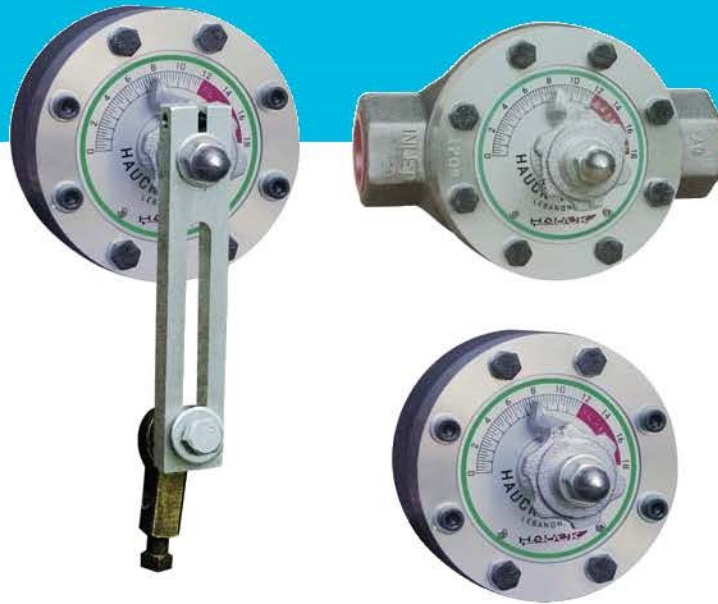


MCOV

Micro-Cam Oil Valves

MCOV-1
Edition 05-08



Hauck, a product brand
of the Elster Group



- Self-cleaning for clog-free operation
- Fast, easy setting of fuel oil flows
- Cold rolled steel construction for dependable service
- Factory flow tested for accurate, reproducible flow rates
- Manual or automatic control options

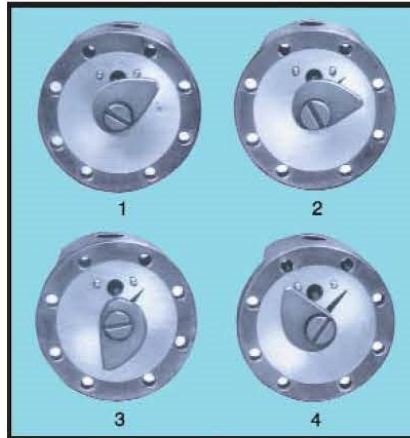
Hauck Micro-Cam valves provide accurate, reproducible flow control of fuel oil to any type of industrial process, thus making the operation of oil-fired heat processing equipment more dependable. Many thousands are in daily use on a wide variety of industrial heating applications. UL approved versions are available in most sizes.

Efficient Regulation of Oil.

Hauck's Micro-Cam oil valves improve combustion conditions and uniformity of heating. They also prevent smoke and reduce work spoiled due to improper control of oil supply to the burners.

Meters Oil Flow. The B valves produce linear flow control over the range of the valve and therefore can be used as a practical metering device once the flow in gallons/hr has been established. Each calibration on the dial indicates the same increment of oil flow day after day under equal conditions. The F, G and K valves are non-linear, therefore the flow is not directly proportional to the valve position. Once flow is established, however, each increment on the dial will indicate the same oil flow every day under equal conditions.

Uses Any Grade Fuel Oil. These valves will efficiently handle any grade of fuel oil, even the heaviest residual grades, provided that they are preheated to the proper viscosity and flow characteristics.



Cam movement over V-slot accurately determines oil flow from shutoff to full open flow.

Self-Cleaning. The valve's open V-slot design minimizes the clogging that so frequently occurs in the constricted peripheral openings of needle valves. The cam's knife edge easily cuts away any grit, dirt or carbon that may pass into the valve. This helps to reduce heating time and production losses and the inconvenience of shutdowns for removal of valves from the lines for cleaning.

Micro-Control. A turn of the handle from closed to fully open gives any graduated capacity in between. The degree of opening is governed by a cam with a knife edge which rotates against a V-slot in a flat plane and works with only slight bearing pressure. As shown on the open view from left to right, note that the cam movement over the triangular slot in the flat face produces any required oil flow from minimum to maximum.

The cam is ground to produce straight line discharge characteristics so that the flow is directly proportional to the area of the slot opening and to the number on the calibrated dial. With the Micro-Cam valve, the rate of flow can always be set instantly, accurately and with repeatability.

Durable and Dependable. The valve body and cam are made of cold rolled steel, hardened and ground to prevent scoring of working parts by foreign matter in the oil. Because the two flat surfaces operate against each other, a tight seal is always maintained without seizing or binding.

Manual or Automatic. For manual operation, the B series valves are available with a handwheel. The F, G and K series valves, though not normally used for manual control, can be supplied with a handwheel if required. For automatic control applications, all Micro-Cam series valves are supplied with a threaded wheel which accepts the optional adjustable radius control lever and connector.



MCOV MICRO-CAM OIL VALVES B SERIES VALVES

The B series Micro-Cam Oil Valve capacities cover the normal range of most industrial combustion applications. These valves travel from 0 to 180°, i.e., closed to full open, and 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.

FULL OPEN VALVE CAPACITY

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												
B-1/2-12	1/2	20	44	63	77	89	100	110	118	126	134	141	173	200
B-1/2-16	1/2	30	70	98	116	134	150	164	177	189	201	212	260	300
B-1/2-18	1/2	38	89	120	147	170	190	207	224	239	255	268	329	380
B-1/2-20	1/2	50	116	156	192	222	248	271	292	312	332	349	428	495
B-1/2-24	1/2	67	157	211	260	300	335	366	395	422	449	472	580	670

F,G, & K SERIES VALVES

The F,G, & K series Micro-Cam Oil Valves are high capacity valves with the same basic construction and operating features as the B series except for minor design variations; 120° travel from closed to full open position to facilitate automatic control, and a non-linear flow curve at a constant differential pressure over the entire flow range. The non-linear flow curve indicates that the flow is not directly proportional to the valve position. For example, the flow at valve position 12 is not necessarily two times greater than at valve position 6.

FULL OPEN VALVE CAPACITY

MODEL NUMBER	PIPE SIZE NPT	PRESSURE DROP (psig)												
		1	5	10	15	20	25	30	35	40	45	50	75	100
		OIL CAPACITY (gph) @ 120° VALVE POSITION												
F-1/2-16	1/2	28	62	88	108	124	140	154	165	176	187	197	242	280
F-1/2-18	1/2	49	109	155	189	218	245	269	289	308	328	345	423	490
F-1/2-20	1/2	75	167	237	290	333	375	412	442	472	502	528	648	750
F-1/2-24	1/2	117	261	369	453	520	585	643	690	737	783	824	1012	1170
G-1-29	1	153	342	484	594	682	767	843	905	966	1027	1081	1326	1534
K-1-29	1	182	406	575	705	809	910	1001	1073	1146	1219	1283	1574	1820
K-1-38	1	245	547	774	949	1090	1225	1347	1445	1543	1641	1727	2119	2450

NOTES:

1. Capacities based on No. 2 fuel oil at .849 s.g. and 60°F.
2. Pressure drop across full open valve. Actual test data measured at **25 psig** pressure drop, all other capacities calculated.
3. When ordering, specify if valve is to be equipped with hand lever, hand wheel or adjustable radius lever for automatic control.

(OVER)



MCOV MICRO-CAM OIL VALVES

L-CAM SERIES VALVES

The L-Cam Series Micro-Cam Oil Valves are utilized by Hauck in select asphalt burner packaged systems. The BL-Cam Series travel from 0 to 180°, i.e., closed to full open, and the FL, GL, and KL-Cam series travel from 0 to 120°. These valves exhibit a non-linear flow curve over the entire flow range, but are specially designed to maintain low flow rates at the opening valve dial positions. This maintains a lean low fire to ensure flame stability on Hauck asphalt burner package systems.

Full Open Valve Capacity

MODEL NUMBER	PIPE SIZE NPT	PRESSURE DROP (psig)												
		1	5	10	15	20	25	30	35	40	45	50	75	100
OIL CAPACITY (gph) @ FULL OPEN VALVE POSITION														
BL-1/2-16	1/2	6.5	33	66	99	132	165	198	231	264	297	330	495	660
FL-1/2-20	1/2	16	81	162	243	324	405	486	567	648	729	810	1215	1620
FL-1/2-24	1/2	24	120	240	360	480	600	720	840	960	1080	1200	1800	2400
GL-1-29	1	29	144	288	432	576	720	864	1008	1152	1296	1440	2160	2880
KL-1-29	1	34	168	336	504	672	840	1008	1176	1344	1512	1680	2520	3360

NOTES:

1. Capacities based on No. 2 fuel oil @ 0.849 s.g. and 60°F.
2. Pressure drop across full open valve. Actual test data measured at **25 psig**, all other capacities calculated.
3. When ordering, specify if valve is to be equipped with hand lever, hand wheel or adjustable radius lever for automatic control.

METRIC CAPACITIES L-CAM SERIES VALVES

Full Open Valve Capacity

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) @ FULL OPEN VALVE POSITION														
BL-1/2-16	1/2	25	125	250	375	500	625	749	874	999	1124	1249	1874	2498
FL-1/2-20	1/2	61	307	613	920	1226	1533	1840	2146	2453	2759	3066	4599	6132
FL-1/2-24	1/2	91	454	908	1363	1817	2271	2725	3179	3634	4088	4542	6813	9084
GL-1-29	1	110	545	1090	1635	2180	2725	3270	3815	4360	4905	5450	8176	10900
KL-1-29	1	129	636	1272	1908	2544	3179	3815	4451	5087	5723	6359	9538	12720

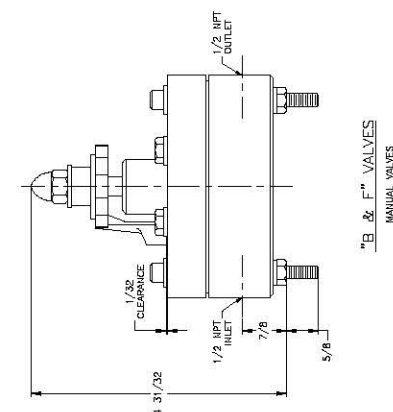
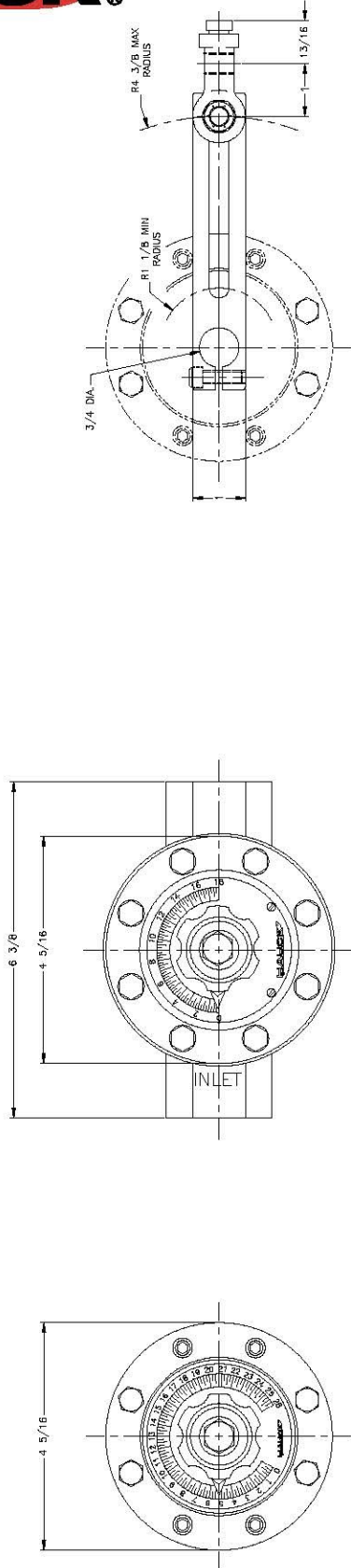
NOTES:

1. Capacities based on No. 2 fuel oil @ 0.849 s.g. and 15.5°C.
2. Pressure drop across full open valve. Actual test data measured at **172 kPa**, all other capacities calculated.
3. When ordering, specify if valve is to be equipped with hand lever, hand wheel or adjustable radius lever for automatic control.

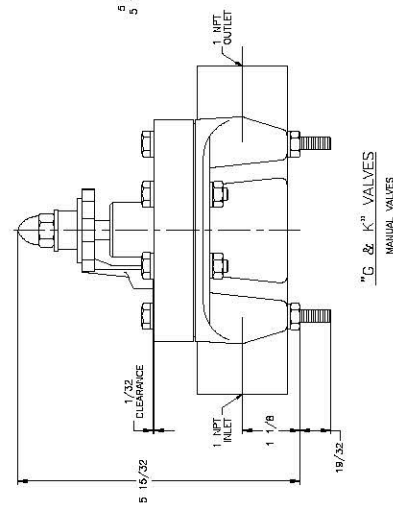


DIMENSIONS

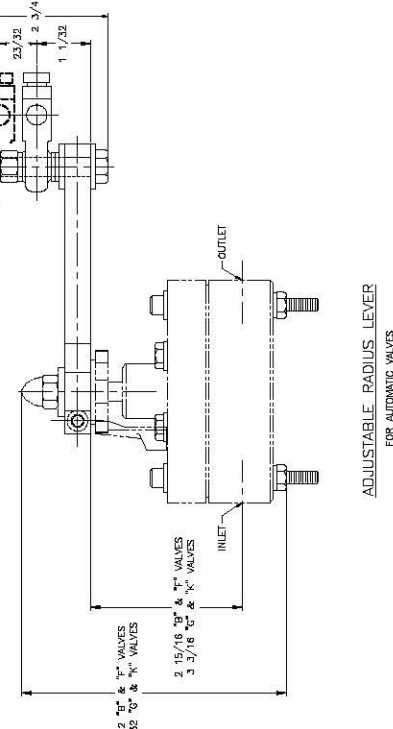
MCOV MICRO-CAM OIL VALVES



"B & F" VALVES
MANUAL VALVES



"G & K" VALVES
MANUAL VALVES



ADJUSTABLE RADIUS LEVER
FOR AUTOMATIC VALVES

NOTES:

1. DIMENSIONS ARE IN INCHES.

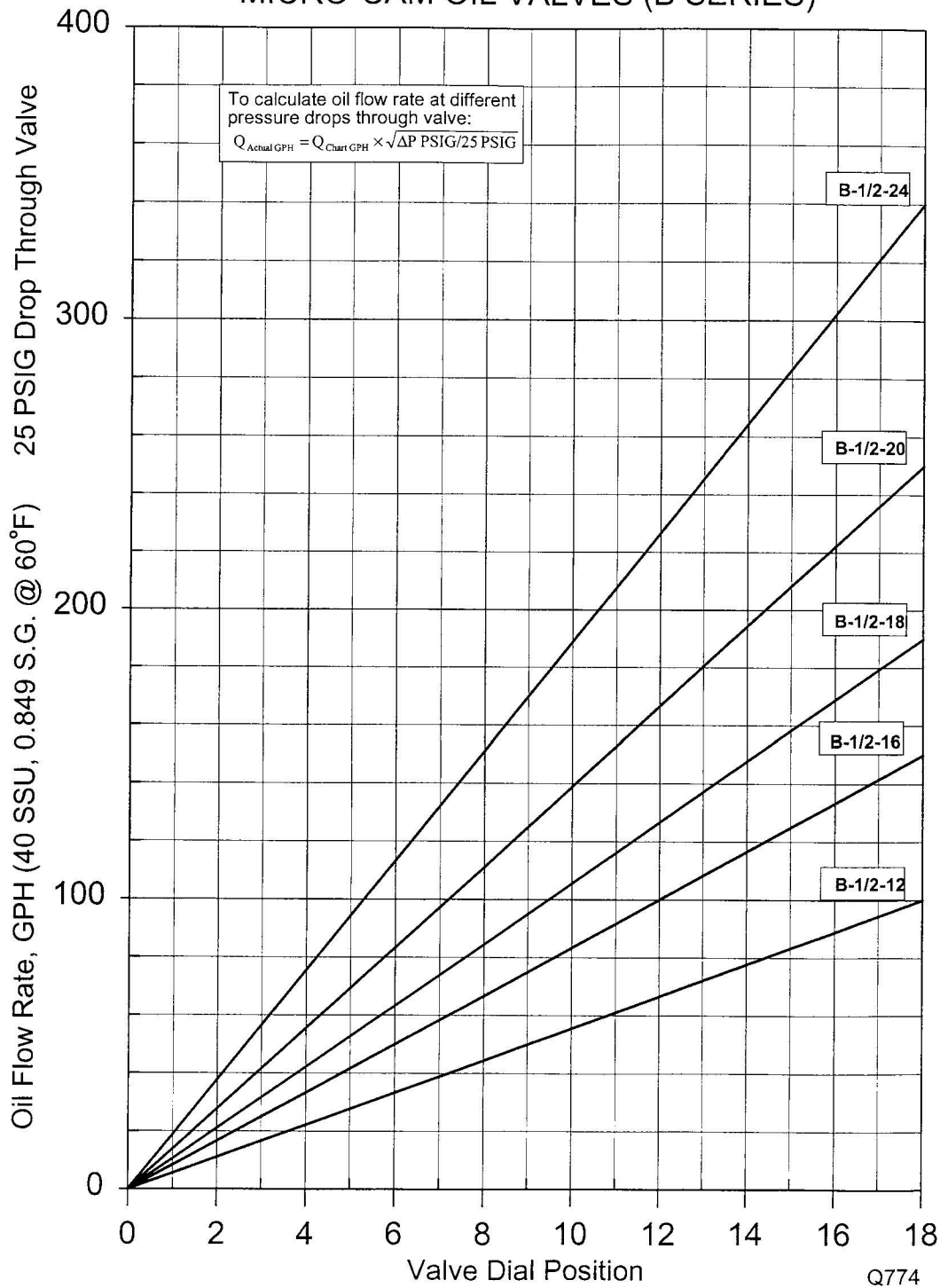
(See Reverse Side For Metric Dimensions)

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MCOV MICRO-CAM OIL VALVES

MICRO-CAM OIL VALVES (B SERIES)

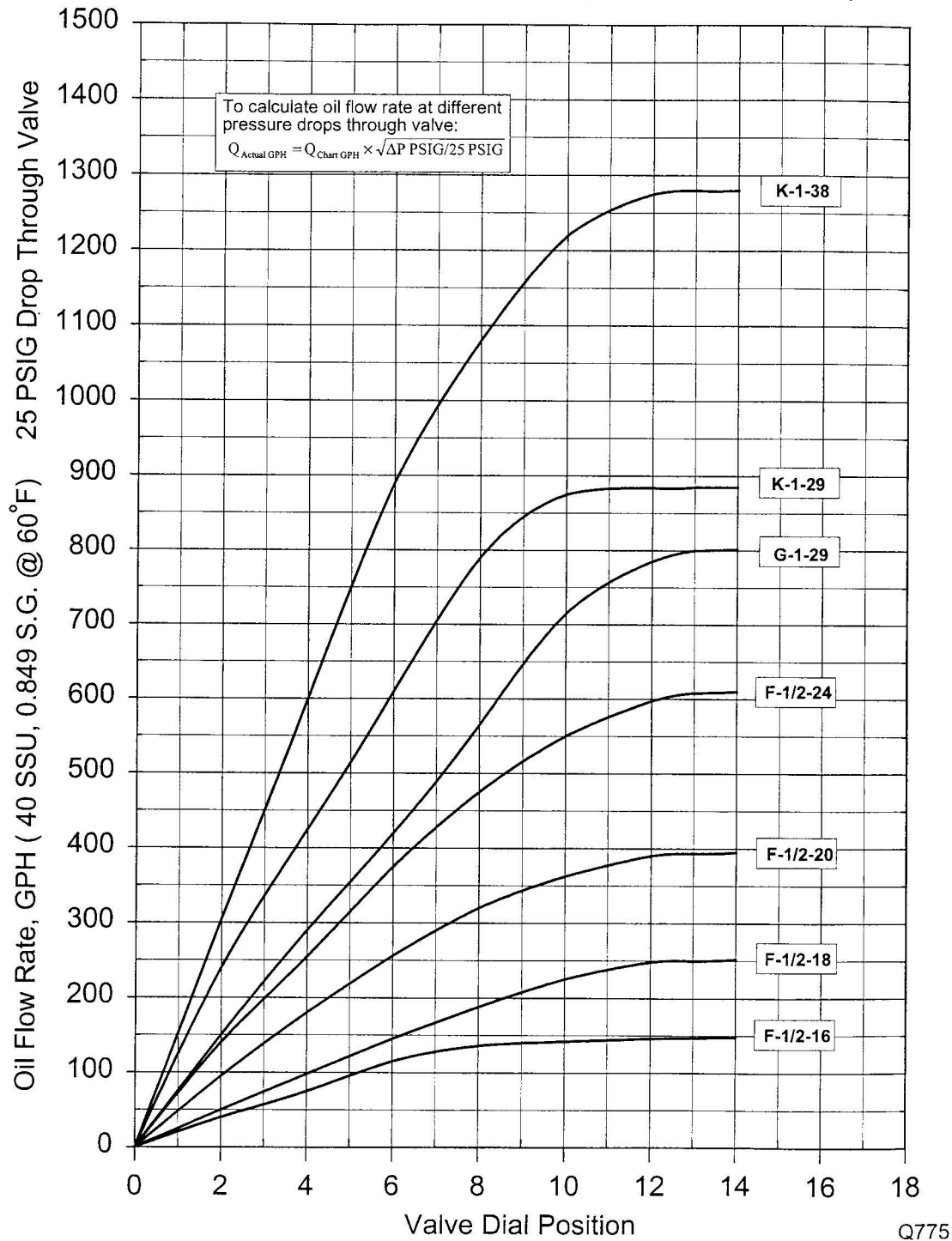


(See Reverse Side For Metric Data)



MCOV MICRO-CAM OIL VALVES

MICRO-CAM OIL VALVES (F, G, & K SERIES)



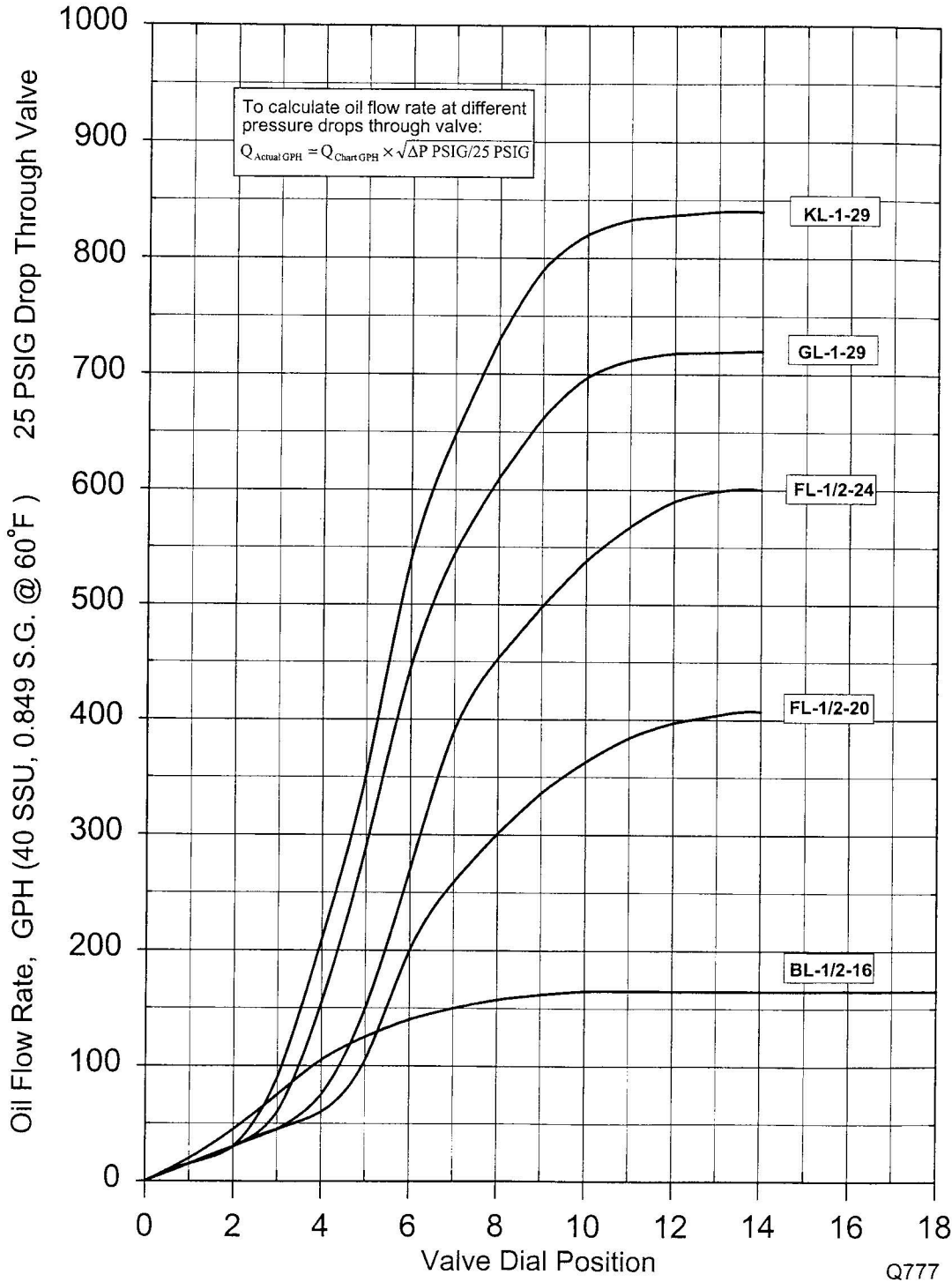
Q775

(See Reverse Side For Metric Data)



MCOV MICRO-CAM OIL VALVES

MICRO-CAM OIL VALVES (L-CAM)



To calculate oil flow rate at different pressure drops through valve:
 $Q_{Actual\ GPH} = Q_{Chart\ GPH} \times \sqrt{\Delta P\ PSIG / 25\ PSIG}$

(See Reverse Side For Metric Data)

In accordance with Hauck's commitment to Total Quality Improvement, Hauck reserves the right to change the specifications of products without prior notice.

MOV

Self-Cleaning Micro Oil Valves

MOV-1
Edition 07-08



Hauck, a product brand
of the Elster Group

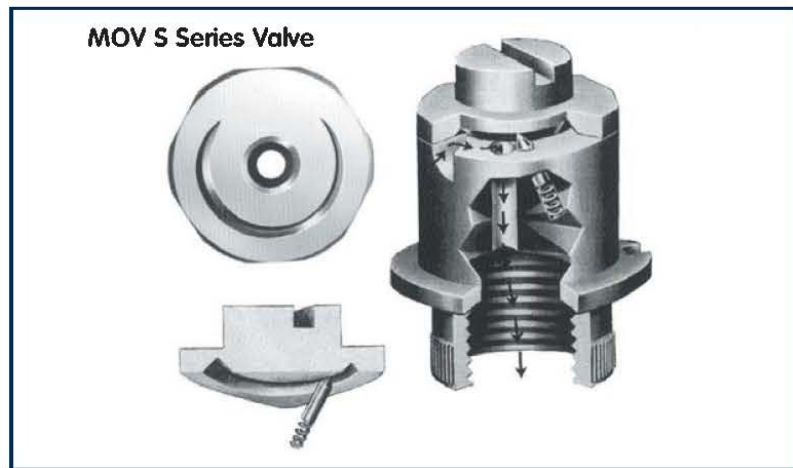
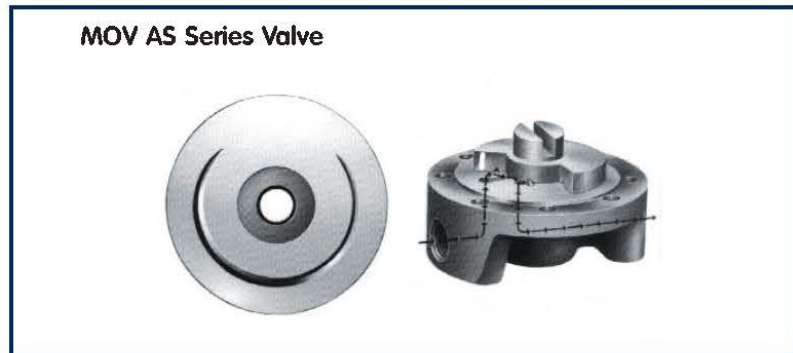


- Self-cleaning for clog-free operation
- Suitable for No. 1 through No. 6 fuel oil
- Available with manual or automatic flow control
- Factory flow tested for accurate, reproducible flow rates
- Linear flow characteristic
- Case hardened metering components
- All S series valves are UL listed
- UL listed valves pressure rated to 300 psig (2070 kPa)

Hauck's Self-Cleaning Micro Oil Valves are engineered to produce accurate, reproducible linear flow control of oil to any type of industrial process. The MOV valves are available in two model series. The AS Series is used for straight through piping applications while the S Series is employed where an angle valve is required. All S Series valves are UL listed. This valve is intended for flow control. It is not designed to replace a shutoff valve. For tight shutoff, a ball or solenoid valve should be provided in the fuel supply line.

Self-Cleaning. As the valve flow indicator is moved, the action of the cleaning pin clears foreign obstructions from the crescent-shaped V groove of the valve disk. This feature ensures thorough cleaning of the controlling orifice without the need to dismantle the valve. Unlike conventional valves, there is no constricted flow orifice to cause valve clogging or reduced burner firing capacity.

Precision Machined Flow Path. All Hauck S and AS micro valves are designed to ensure linear flow control. With a constant pressure drop across the valve, each increasing division on the dial will give a proportional increase in flow. The operator can quickly adjust the oil flow to any desired capacity, since every dial position corresponds to a specific discharge rate - assuming the same pressure drop and viscosity.



Manual or Automatic. A hand wheel provides easy manual adjustments over the entire 180° range of the dial. For automatic control, an adjustable radius lever is supplied. When using automatic control, the range of operation is limited by that of the control motor - typically 0 to 90°.

Use Any Grade Fuel Oil. These valves will efficiently handle any grade of fuel oil, even the heaviest residual grades, provided that they are preheated to the proper viscosity and flow characteristics.

Reproducible Settings. These valves are designed to allow accurate reproduction of desired flow rates. Once the system has been balanced and the settings recorded, it is then possible to check and exactly reset the valve if it has been altered.



MOV MICRO OIL VALVES SELF-CLEANING

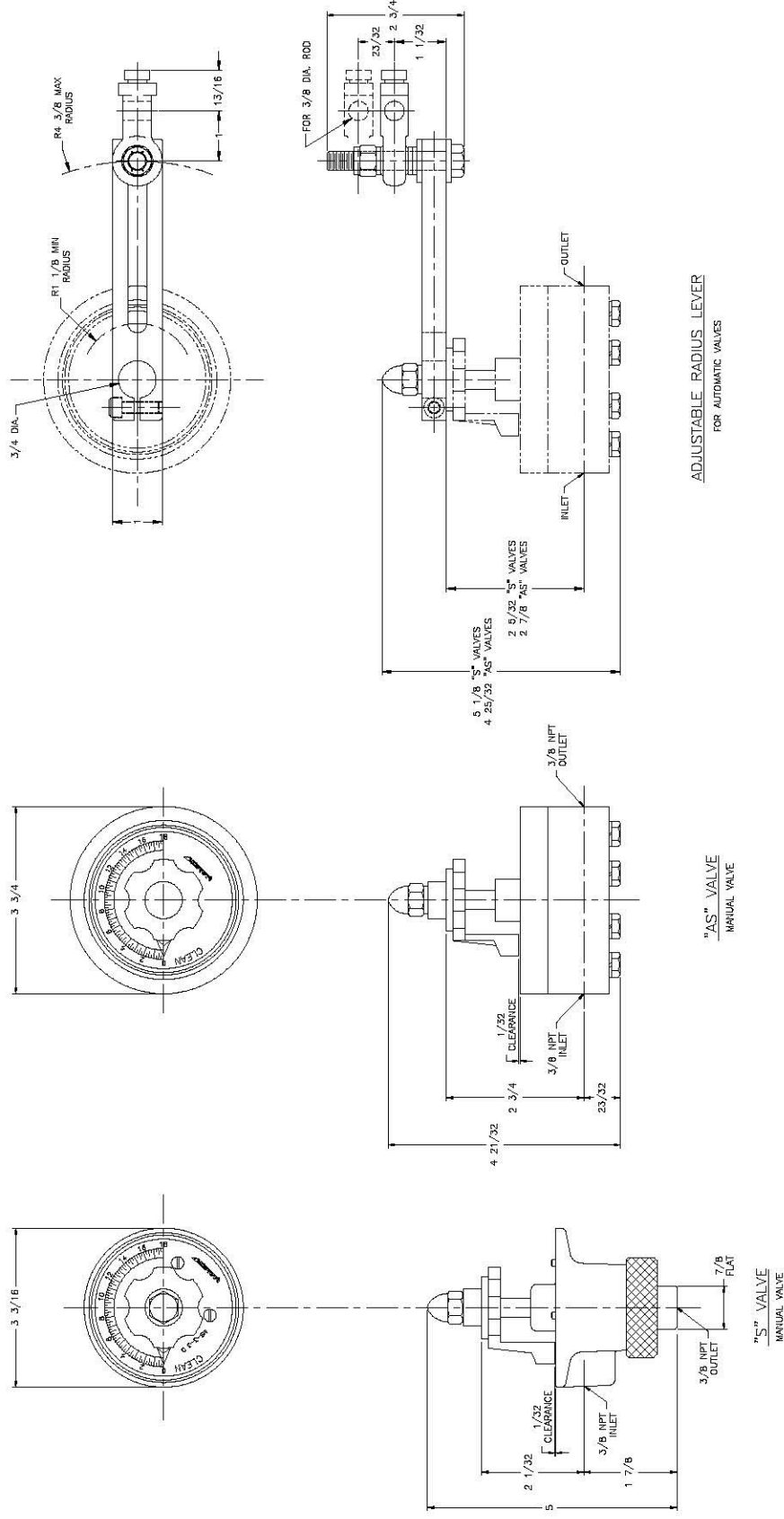
FULL OPEN VALVE CAPACITY

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

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.

**MOV MICRO OIL VALVES
SELF-CLEANING**



Y1389

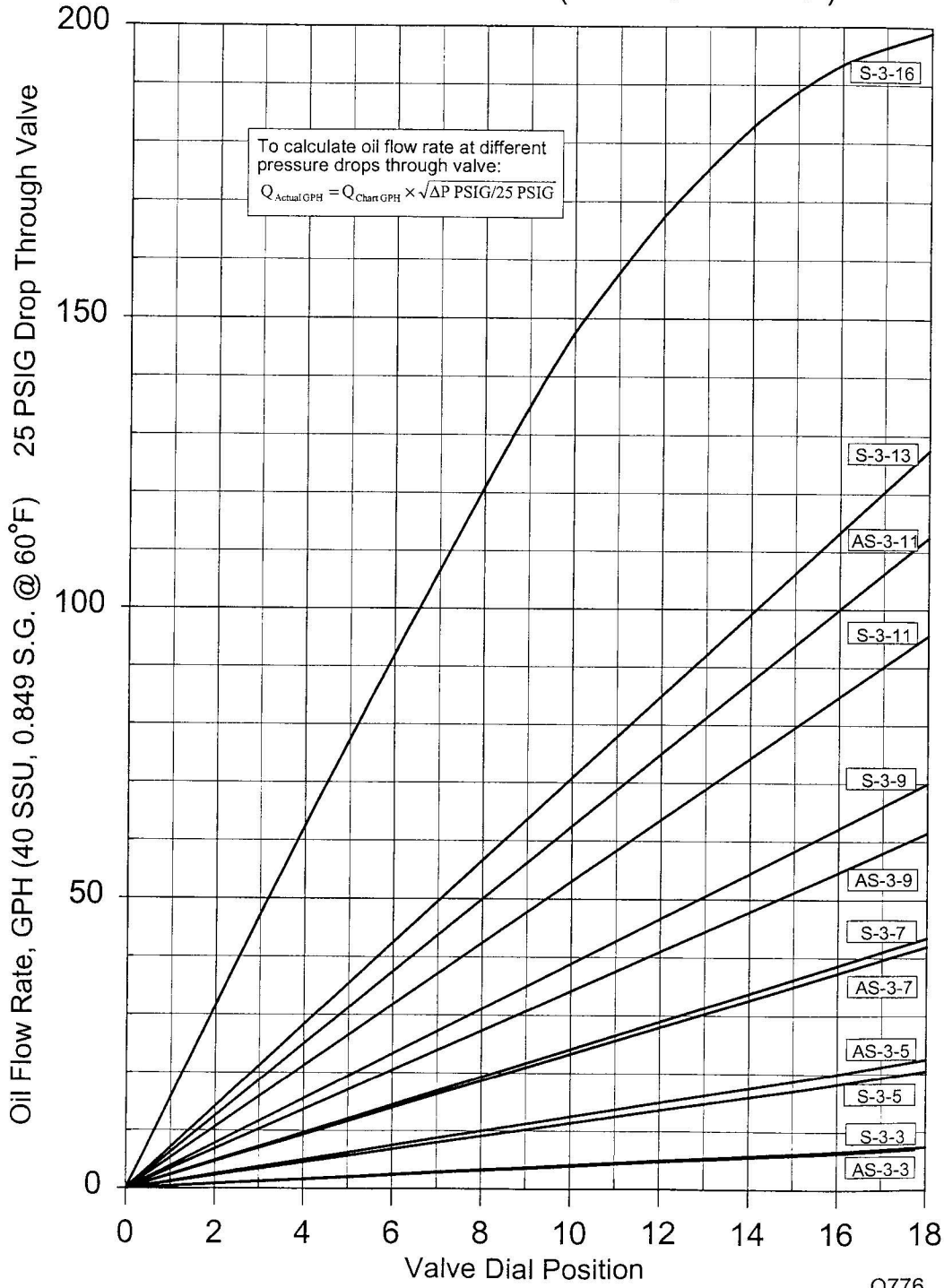
NOTES:
1. DIMENSIONS ARE IN INCHES.

(See Reverse Side For Metric Dimensions)



MOV MICRO OIL VALVES SELF-CLEANING

MICRO OIL VALVES (AS & S SERIES)



Q776

(See Reverse Side For Metric Data)