

VISCOSITY FACTOR

To achieve the lowest possible pressure drop, a range of special cut high viscosity optional rotors is available for the MX09/M2, MX12/M4, MX19/M7, MX25/M10, MX40/M40 & MX50/M50 meter models.

The MX and M-SERIES™ range of oval gear type Positive Displacement Flow Meters has a distinct advantage in measuring extremely viscous materials with the pressure drop being the only limiting factor.

With fluids above 1000cP, meter sizing and required flow rate become important decisions.

For example:

With SAE90 gear oil @ 20°C/68°F with a viscosity of 1000cP, the maximum pressure drop of an M10 at its maximum flow rate (120lpm/32USGM) would be 100kPa/14.5psi/1BAR. However, the pressure drop with the M40 or M50 meters, at the same flow rate would be

M40: Max 50kPa/7.2psi/0.5BAR

M50: Max 35kPa/5.0psi/0.35BAR

To approximately determine the expected maximum flow rate for different high fluid viscosities for each M-SERIES™ model at a 100kPa/14.5psi/1BAR pressure drop using high viscosity rotors, the following coefficient factors are applied and Macnaught has created the table at the bottom of this page as a guide:

COEFFICIENT VISCOSITY FACTOR		MX09/M2		MX12/M4		MX19/M7		MX25/M10		MX40/M40		MX50/M50	
		L/Hr	GPH	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM	L/min	GPM
1	<2500cP	500	132.09	30	7.93	80	21	120	31.70	250	66.04	350	92.5
0.9	<3000cP	450	118.88	27	7.13	72	19	108	28.53	225	59.44	324	86
0.8	<4000cP	400	105.67	24	6.34	64	17	96	25.36	200	52.83	280	74
0.7	<5000cP	350	92.46	21	5.55	48	13	84	22.19	175	46.23	245	65
0.6	<8000cP	300	79.25	18	4.76	40	11	72	19.02	150	39.63	210	56
0.5	<12000cP	250	66.04	15	3.96	24	6.3	60	15.85	125	33.02	175	46
0.4	<25000cP	200	52.83	12	3.17	16	4.2	48	12.68	100	26.42	140	37
0.3	<40000cP	150	39.63	9	2.38	8	2.1	36	9.51	75	19.81	105	28
0.2	<95000cP	100	26.42	6	1.59	4	1.06	24	6.34	50	13.21	70	18.5
0.1	<450000cP	50	13.21	3	0.79	-	-	12	3.17	25	6.60	35	9.25
0.05	<1000000cP	25	6.60	1.5	0.40	-	-	6	1.59	12.5	3.30	17.5	4.6