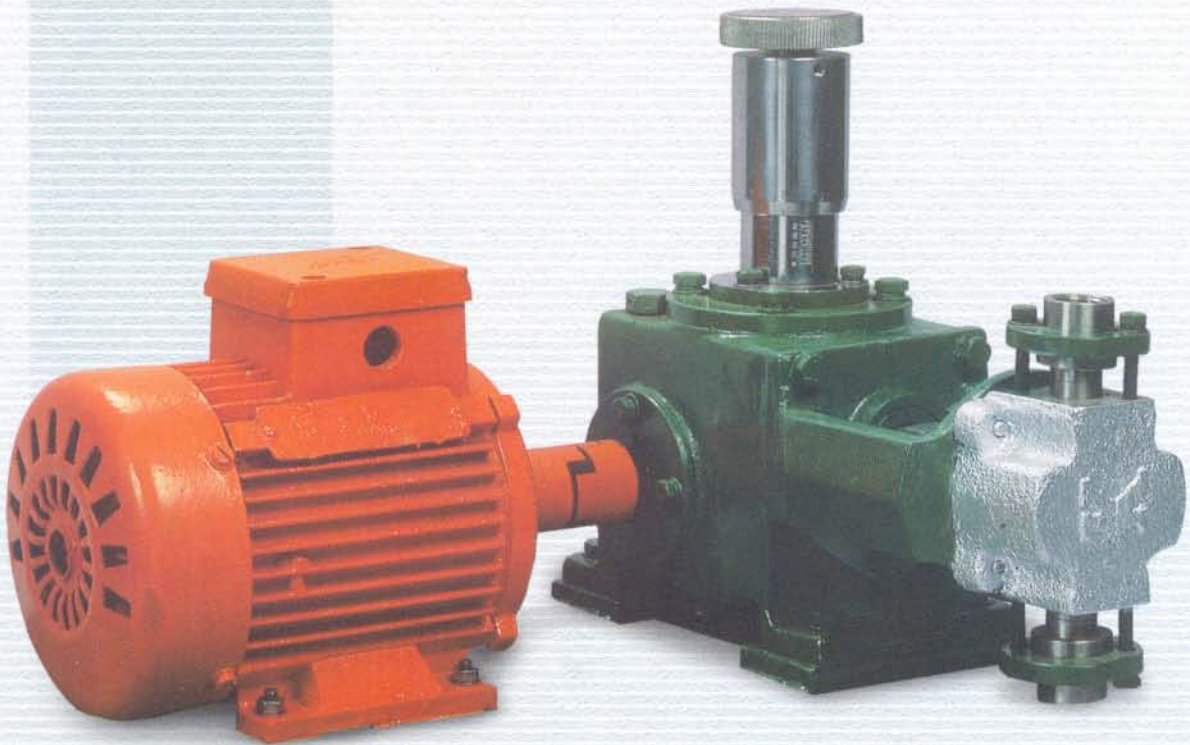


Multiflo

M E T E R I N G P U M P S



Pure precision from **PMSI**

PMSI

Multiflo

M E T E R I N G P U M P S



DIAPHRAGM METERING PUMPS

The MULTIFLO HD models comprise of hydraulically actuated diaphragm liquid heads incorporating Diaphragm Activated Replenishing System (DARS). These diaphragm heads are fitted on proven stroke length control mechanism of our multiflo series plunger type metering pumps, which have been in use for several years.

A Stroke length controllable plunger pressurises and pulses the oil in the hydraulic head. These pulses are transferred to the diaphragm which creates pumping action.

The diaphragm also acts as a perfect seal between the hydraulic oil and the liquid being pumped creating a hermetically sealed system making the pump safe for toxic/hazardous fluids, economical for costly fluids and ideal for slurries.

CONSTANT HYDRAULIC VOLUME

The diaphragm activated replenishing valve replenishes oil only when the diaphragm is in the extreme retracted position and can never overflow the hydraulic side. As this is a self-adjusting system, no manual field adjustments are required. This is a distinct advantage over conventional pressure operated refill mechanism.

LOW NPSH REQUIREMENT

As liquid passages are smooth and unrestricted, the NPSH requirement is lower than conventional pumps.

HD = SINGLE DIAPHRAGM
SD = SANDWICH DIAPHRAGM

NO DIAPHRAGM SUPPORT PLATES

The DARS eliminates contoured diaphragm support plates with small perforation, which are necessary in the conventional mechanism. The elimination of contour plates increases the pump capability to handle liquid with slurries and also high viscosity fluids as extra pressure drop and material build-up problem associated with contour plates are nonexistent.

VOLUMETRIC AIR BLEEDING

Pressure independent constant volume air bleeding system purges hydraulic fluid continuously and automatically, thereby ensuring metering accuracy unlike conventional design which have pressure dependent air bleed system.

LONGER DIAPHRAGM LIFE

The DARS System keeps the Diaphragm under constant balanced pressure thereby increasing Diaphragm life.

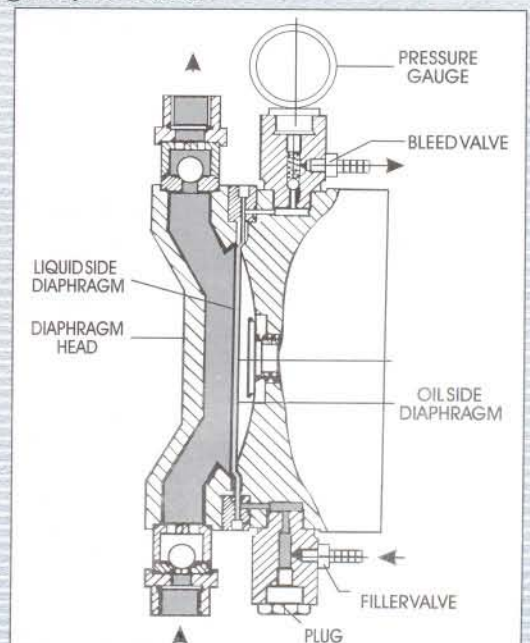
FAIL SAFE OPERATION

Pump can run under cavitating conditions without over-stressing the diaphragm or overheating the oil. Built-in safety relief protects drive from damage if discharge pressure exceeds pump rated pressure.

OPTIONAL

SANDWICH DIAPHRAGM

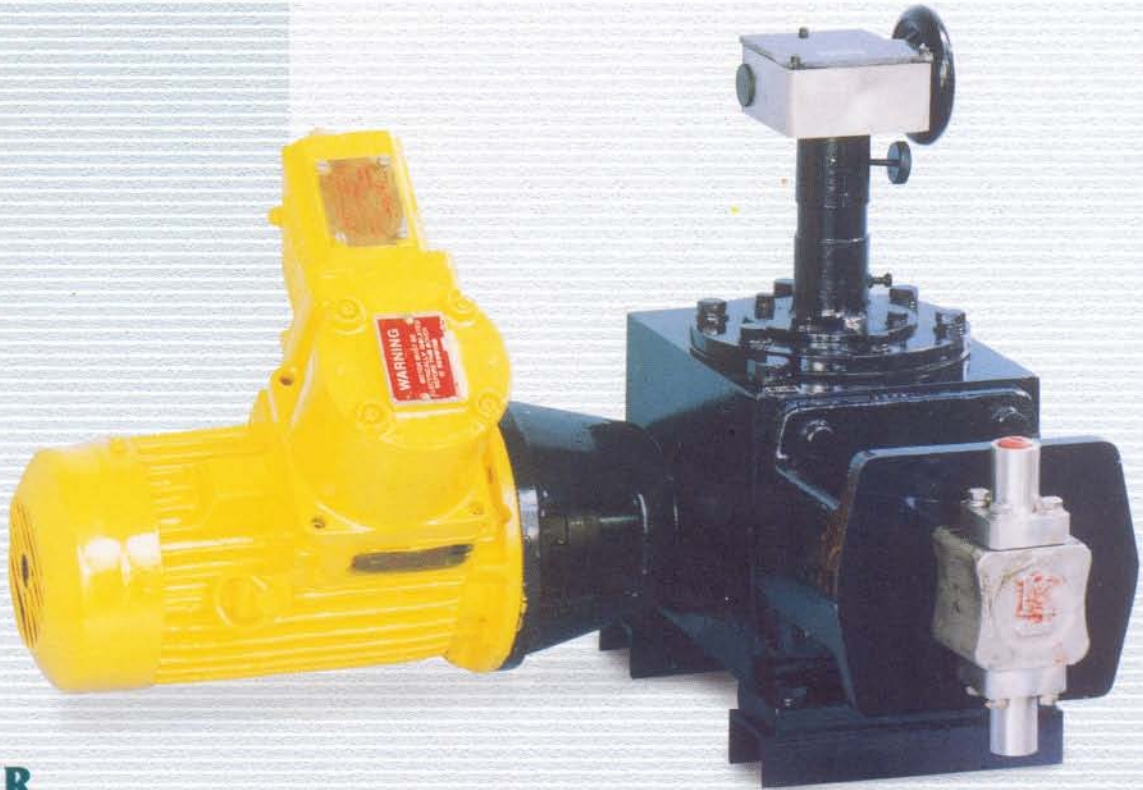
Two diaphragms are in close proximity with each other with practically no pressure in the intermediate gap. On diaphragm rupture, process or hydraulic fluid enters into the gap between the diaphragms. Pressure in this gap will rise to the pump discharge pressure which can be sensed either by Pressure Gauge or by means of Electric Pressure Sensor with contacts. This replaces conventional Double Diaphragm liquid Heads.



REPLACES DOUBLE DIAPHRAGM DESIGN

PMSI Multiflo

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PLUNGER METERING PUMPS

The integral speed reduction unit consists of a worm and wheel. The worm wheel transmits the rotary motion to the main drive shaft, which converts this into the reciprocating motion of the crosshead, through the eccentric and connecting rod. The crank can be moved up or down by means of the control knob. This changes the eccentricity of the crank and consequently the stroke length. This is indicated as a percentage of the full stroke on the micrometer / digital scale.

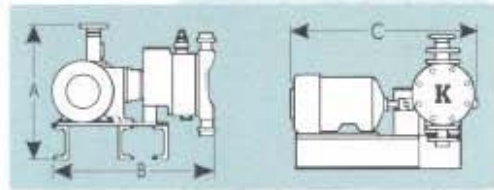
DESIGN FEATURES

- Positive return variable stroke mechanism. Linear relationship between control setting and stroke length.
- Capacity is continuously adjustable from zero to maximum, both while pump is stopped or running.
- Metering accuracy of $\pm 1\%$ of pump output at any single setting From 10% to 100% of capacity. Multiplexing facility allows coupling of several pumps, driven by one common motor.
- Flow of each pump can be independent set, or stopped, as required.
- Drive side mechanism totally enclosed and running in oil bath.
- Wetted parts standard is AISI-304/AISI-316 Stainless Steel. Also available, wetted parts in Alloy 20, Hastelloy 'B' or 'C'.
- Pump performance generally in accordance with API 675 / Hydraulic Institute Standards.

OPTIONAL ACCESSORIES / FEATURES AVAILABLE

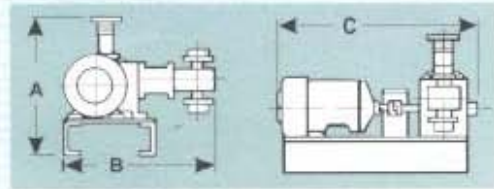
- Coupling, Base Plate and Foundation bolts
- Drive motors in TEFC/flame proof enclosures
- Pressure Relief Valves in Stainless Steel
- Suction Strainers in Stainless Steel
- Back Pressure Valves in Stainless Steel
- Pulsation Dampeners
- Remote headed pumps
- Gland flushing arrangement for abrasive liquids
- Jacketing of liquid end for heating / cooling arrangement
- Spare parts kit for 2 years normal operation
- Electronic / Pneumatic Remote Stroke Control, for flow adjustment.

DIAPHRAGM METERING PUMPS



MODEL	A	B	C	Weight approx Kg
PR-10HD	362	333	488	27
	362	476	488	50
PR-20HD	404	531	513	91
	404	504	513	106
PR-35HD	587	673	62	225
	587	743	762	310
PR-50HD	587	724	762	195
	587	686	762	230
PR-60HD	587	758	762	315
	780	878	994	293
PR-60HD	780	845	994	338
	780	915	994	398
	780	983	994	500

PLUNGER METERING PUMPS



MODEL	A	B	C	Weight approx Kg
PR-10	385	452	446	30
PR-20	450	472	544	60
PR-35	553	716	662	145
PR-50	553	716	662	145
PR-60	750	900	894	245

NOTES

- Weights are for pump and base plate but without motor.
- Dimensions A & C are for standard TEFC motor and will vary with motor frame size.
- These dimension are approximate and are only for guidance.

Owing to continuous product improvements specifications are liable to change



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SELECTION CHART FOR DIAPHRAGM METERING PUMPS

MODEL	Plunger Dia (mm)	Max pr Kg/cm ²	Capacity LPH at SPM		
			100	200	
PR-10HD	8	100	1.5	2.8	
	10	100	4.2	7.8	
	18	94	11	20	
	20	80	17	31	
	24	41	24	45	
	32	23	43	80	
	40	14	68	126	
	56	7	133	246	
PR-20HD	20	99	34	68	
	24	69	49	98	
	32	38	87	174	
	40	25	136	271	
	62	10	326	652	
	65	9	358	716	
	83	5	584	1168	
	PR-35HD	20	200	59	119
24		155	86	171	
32		87	152	304	
40		56	238	475	
48		39	342	684	
54		31	433	866	
62		23	571	1142	
72		17	770	1540	
PR-50HD	20	200	85	170	
	24	155	122	244	
	32	87	217	434	
	40	56	339	679	
	54	31	619	1238	
	62	23	815	1630	
	72	17	1100	2200	
	90	11	1718	3436	
PR-60HD	20	200	102	204	
	24	200	147	294	
	32	143	261	522	
	40	92	407	814	
	48	64	587	1174	
	62	38	978	1956	
	72	28	1320	2640	
	83	21	1754	3508	
PR-10	16	94	11	20	
	20	60	17	31	
	24	42	24	45	
	40	15	68	125	
	50	9	106	196	
	PR-20	20	99	34	68
		24	69	49	98
		40	25	136	271
48		17	195	391	
62		10	326	652	
70		8	415	831	
PR-35		20	222	59	119
		32	87	152	304
	48	39	342	684	
	62	23	571	1142	
	72	17	770	1540	
	83	13	1023	2046	
	90	11	1203	2406	
	102	9	1545	3090	
PR-50	20	222	85	170	
	32	87	217	434	
	48	39	489	978	
	62	23	815	1630	
	72	17	1100	2200	
	83	13	1461	2922	
	90	11	1718	3436	
	102	9	2206	4412	
PR-60	20	366	102	204	
	32	143	261	522	
	48	64	586	1172	
	62	38	978	1956	
	72	28	1320	2640	
	83	21	1754	3508	
	90	18	2062	4124	
	102	14	2649	5498	

NOTE :

- Standard Plunger sizes are shown in the Table. These sizes are preferred for quicker delivery of the pumps.
- Capacities shown are for simplex pumps (Single Head). Our pump design allows multiple pumps to be coupled to each other and driven by one motor. In such cases, the capacity of multiple units will be No. of Heads x Capacity, to give the total flow.
- To suit specific requirement, pumps can be manufactured in other Plunger Diameters and / or speeds other than 100/200 SPM.
- For Model PR-10 the nominal speed is 185 SPM instead of 200 SPM.

SELECTION CHART FOR PLUNGER METERING PUMPS

MODEL	Plunger Dia (mm)	Max pr Kg/cm ²	Capacity LPH at SPM		
			100	200	
PR-10	16	94	11	20	
	20	60	17	31	
	24	42	24	45	
	40	15	68	125	
	50	9	106	196	
	PR-20	20	99	34	68
		24	69	49	98
		40	25	136	271
48		17	195	391	
62		10	326	652	
70		8	415	831	
PR-35		20	222	59	119
		32	87	152	304
	48	39	342	684	
	62	23	571	1142	
	72	17	770	1540	
	83	13	1023	2046	
	90	11	1203	2406	
	102	9	1545	3090	
PR-50	20	222	85	170	
	32	87	217	434	
	48	39	489	978	
	62	23	815	1630	
	72	17	1100	2200	
	83	13	1461	2922	
	90	11	1718	3436	
	102	9	2206	4412	
PR-60	20	366	102	204	
	32	143	261	522	
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	72	28	1320	2640	
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