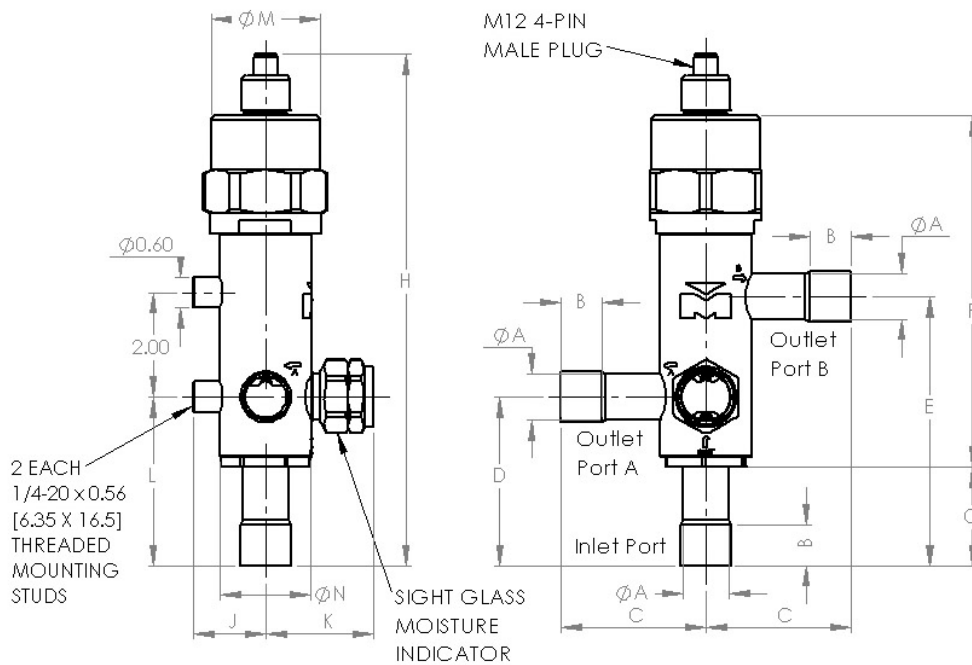




**Features:**

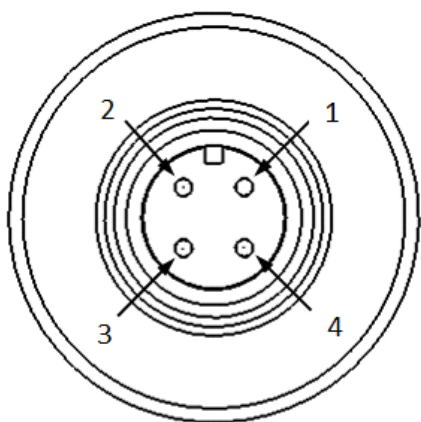
- 12,000+ steps of resolution provide more precise tracking and flow control
- 40% higher flow rates for equivalent size valves providing more efficient operation
- Gradual opening and closing on 7/8" and 1 1/8" sized valves provide a more controllable flow curve
- Mounting studs for screw attachment are available as an option and allow for mounting to a panel or bracket
- Optional sight glass allows viewing the movement of the internal mechanism and provide moisture content
- Simplicity of valve mechanism and seals provides extended reliable cycle life
- Electrical M12 male connection
- Inherently balanced spool allows for operation with large MOPD

Three way modulating valves are used in applications such as heat reclaim, dehumidification, and hot gas reheat. Flow enters the inlet and exits through either one or two outlets, depending on the position of the spool. Flow is inversely proportional between the two outlets and flow can be directed to the appropriate condenser as deemed necessary by the application and conditions.



Part Number	A		B		C		D		E		F		G		H		J		K		L		M		N	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
MHR-5	0.62	16	0.53	13	2.59	66	3.03	77	4.03	102	6.60	168	1.82	46	9.59	244	1.25	32	1.95	50	3.52	89	2.10	53	1.50	38
MHR-7	0.87	22	0.78	20	2.78	71	3.24	82	5.16	131	6.74	171	1.89	48	9.81	249	1.38	35	2.06	52	3.24	82	2.10	53	1.75	44
MHR-9	1.12	28	0.90	23	3.70	94	4.13	105	6.31	160	6.77	172	2.62	67	10.57	268	1.56	40	2.23	57	4.31	109	2.10	53	2.13	54

Specifications	MHR-5	MHR-7	MHR-9
Certification	UL, CE and CRN		
Motor Type	Permanent magnet bipolar internal (wet) motor		
Compatibility	Common HCFC, HFC & HFO refrigerants and oils		
Supply Voltage (VDC) (unless current limite	12		
Cable	male M12 receptacle, or fixed cable		
Phase Resistance (ohms)	75 +/- 10%		
Stepping Current (mA/pole)	160		
Holding Current (mA/pole)	0		
Step Rate (steps/sec.)	200 to 400		
Overdriving	one time at 10% overdrive closed in approximately 24 hour time period		
MRP/MAP/MWP (psig)	700 (48.3 bar)		
MOPD (psid)	700 (48.3 bar)		
Max Internal Leakage (cc/min @ 100 psid N	200		
Max External Leakage (oz/yr)	0.10		
Max Fluid Temperature Range °F / °C	-40 to 200°F (-40 to 93°C)		
Ambient Temperature Range °F / °C	-40 to 140°F (-40 to 60°C)		
Installation Maximum Temperature °F / °C	240°F (116°C) for 15 minutes (wet rag required for brazing)		
Relative Humidity (%)	0 to 100% (condensing)		
Mounting Orientation	Motor head above horizontal		
Flow Direction	Forward flow into bottom inlet/ heat pump will vary		
Certification	UL, CE and CRN		
Nominal Capacity (tons) (R410a)	5.5	10	20
Inductance (mH/pole)	62 +/- 20%	60.7 +/- 20%	60.7 +/- 20%
Number of Full Steps per Full Stoke (steps/s	12,772	12,772	15,965
Full Stroke Time (sec.)	64 to 32	64 to 32	80 to 40
Initialization (steps closing) (at either port A	14,000	14,000	18,000
Stroke to Begin Flow (% of full stroke)	15	6	6
Weight (lbs.)	3.68	4.24	5.19



### BIOPOLAR DRIVE SEQUENCE

PIN #	3	1	2	4
STEP	COIL 1	COIL 1	COIL 2	COIL 2
1	HIGH	LOW	HIGH	LOW
2	HIGH	LOW	LOW	HIGH
3	LOW	HIGH	LOW	HIGH
4	LOW	HIGH	HIGH	LOW
1	HIGH	LOW	HIGH	LOW

The drive will work the same at any 90° position of the mating female M12 plug

### ALTERNATE BIOPOLAR DRIVE SEQUENCE

PIN #	3	1	2	4
STEP	COIL 1	COIL 1	COIL 2	COIL 2
1	HIGH	LOW	HIGH	LOW
2	LOW	HIGH	HIGH	LOW
3	LOW	HIGH	LOW	HIGH
4	HIGH	LOW	LOW	HIGH
1	HIGH	LOW	HIGH	LOW

The drive will work the same at any 90° position of the mating female M12 plug