

HDF SERIES | *Solenoid Valve*



HDF series solenoid valves are piston type pilot operated solenoid valves, and are designed for use in all air conditioning and refrigeration systems. The HDF series can be installed in the discharge, liquid, or suction lines.

FEATURES

- COMPACT DESIGN, EASY TO INSTALL
- SUPERIOR PERFORMANCE IN THE PRESENCE OF IMPURITIES
- HIGH LIFE CYCLE PERFORMANCE; OVER 400,000 CYCLES
- WIDE REFRIGERANT TEMPERATURE RANGE
- HIGH MAXIMUM OPENING PRESSURE DIFFERENTIAL (MOPD)
- LOW ENERGY CONSUMPTION COILS ARE SUPPLIED WITH JUNCTION BOX

GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants
- Fluid temperature range: -40°F to +240°F
- Applicable ambient temperatures: -40°F to +131°F
- Relative Humidity: 0 to 95 percent
- Installation Position:
 - Liquid, suction and discharge line applications
 - Coil preferably on top with flow direction corresponding to the arrow
- Certifications: UL/CSA File No. MH25894
 - UL approved refrigerants: All A1,A2,A2L, and A3 refrigerants except for manual lift stem valves.
 - Manual lift stem valves are approved for A1 only.

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TECHNICAL PARAMETERS

Model Size & Features	Normal Position & Features	Operation	Cv	Max. Rated Press. (psig)	MOPD (psi)	Min. OPD (psi)
HDF2H	Normally Closed	Direct Acting	0.14	700	450	0.0
HDF3H			0.30			
HDF5H		Pilot Operated	0.58			1.0
HDF6H			0.93			
HDF9H			1.52			
HDF10H			2.22			
HDF15H			2.92			
HDF19H			4.67			
HDF25H			6.65			
HDF35H			13.54			
HDF43H			19.61			
HDF61HM	Normally Closed with Manual Lift Stem	Pilot Operated	0.84	700	450	1.0
HDF9HM			1.52			
HDF10HM			2.22			
HDF15HM			2.92			
HDF19HM			4.67			
HDF25HM			6.65			
HDF35HM			13.54			
HDF43HM			19.61			
HDF9HC	Normally Open	Pilot Operated	1.52	700	450	1.0
HDF10HC			2.22			
HDF15HC			2.92			
HDF19HC			4.67			
HDF25HC			6.65			
HDF35HC			13.54			
HDF43HC			19.61			

MODEL DESIGNATION

HDF 9H M 51K

SOLENOID VALVE MODEL _____

SIZE CODE _____

DIGITS FOR OTHER INFORMATION:

Connection sizes, special features, etc.

NORMAL POSITION/FEATURES:

Blank = Normally Closed

M = Normally Closed w/Manual Lift

C = Normally Open

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LIQUID FLOW CAPACITY

Model Size	R-404A/R-507 - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.31	0.44	0.54	0.62	0.69
HDF3H	0.67	0.95	1.16	1.34	1.50
HDF5H	1.29	1.82	2.23	2.58	2.88
HDF6H	2.06	2.91	3.57	4.12	4.61
HDF9H	3.35	4.74	5.80	6.70	7.49
HDF10H	4.89	6.92	8.48	9.79	10.9
HDF15H	6.44	9.11	11.2	12.9	14.4
HDF19H	10.3	14.6	17.8	20.6	23.0
HDF25H	15.5	21.9	26.8	30.9	34.6
HDF35H	29.9	42.3	51.7	59.8	66.8
HDF43H	43.3	61.2	74.9	86.5	96.8

Model Size	R-448A/R-449A - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.40	0.57	0.70	0.81	0.90
HDF3H	0.87	1.24	1.51	1.75	1.95
HDF5H	1.68	2.38	2.91	3.36	3.76
HDF6H	2.69	3.80	4.66	5.38	6.01
HDF9H	4.37	6.18	7.57	8.74	9.77
HDF10H	6.39	9.03	11.1	12.8	14.3
HDF15H	8.40	11.9	14.6	16.8	18.8
HDF19H	13.4	19.0	23.3	26.9	30.1
HDF25H	20.2	28.5	34.9	40.3	45.1
HDF35H	39.0	55.1	67.5	78.0	87.2
HDF43H	56.5	79.9	97.8	113	126

Model Size	R-407A/R-407F - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.40	0.57	0.70	0.81	0.90
HDF3H	0.87	1.23	1.51	1.74	1.95
HDF5H	1.68	2.37	2.91	3.35	3.75
HDF6H	2.68	3.80	4.65	5.37	6.00
HDF9H	4.36	6.17	7.55	8.72	9.75
HDF10H	6.37	9.01	11.0	12.7	14.3
HDF15H	8.39	11.9	14.5	16.8	18.8
HDF19H	13.4	19.0	23.2	26.8	30.0
HDF25H	20.1	28.5	34.9	40.3	45.0
HDF35H	38.9	55.0	67.4	77.8	87.0
HDF43H	56.4	79.7	97.6	113	126

Model Size	R-22 - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.45	0.64	0.78	0.91	1.01
HDF3H	0.98	1.39	1.70	1.96	2.19
HDF5H	1.89	2.67	3.27	3.77	4.22
HDF6H	3.02	4.27	5.23	6.03	6.75
HDF9H	4.90	6.93	8.49	9.81	11.0
HDF10H	7.17	10.1	12.4	14.3	16.0
HDF15H	9.43	13.3	16.3	18.9	21.1
HDF19H	15.1	21.3	26.1	30.2	33.7
HDF25H	22.6	32.0	39.2	45.3	50.6
HDF35H	43.7	61.9	75.8	87.5	97.8
HDF43H	63.4	89.6	110	127	142

LIQUID TEMPERATURE CORRECTION FACTORS ³

Refrigerant	Liquid Temperature (F)										
	40	50	60	70	80	90	100	110	120	130	140
R-404A/R-507	1.51	1.43	1.34	1.26	1.17	1.09	1.00	0.91	0.82	0.72	0.62
R-448A/R-449A	1.41	1.34	1.26	1.21	1.14	1.07	1.00	0.93	0.86	0.78	0.70
R-407A/R-407F	1.41	1.34	1.28	1.21	1.14	1.07	1.00	0.93	0.86	0.78	0.70
R-22	1.31	1.26	1.21	1.16	1.11	1.05	1.00	0.95	0.89	0.84	0.78

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P):
40°F Evap., 110°F Condensing, 100°F Liquid

² Nominal capacities are highlighted

³ Correction factors are based on 40°F evaporating temperature. Capacities, for the refrigerants listed above, reduced by approximately 1.5% for every 10°F reduction in evaporating temperature

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LIQUID FLOW CAPACITY (CONTINUED)

Model Size	R-410A - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.43	0.61	0.75	0.87	0.97
HDF3H	0.94	1.33	1.63	1.88	2.11
HDF5H	1.81	2.56	3.14	3.62	4.05
HDF6H	2.90	4.10	5.02	5.80	6.48
HDF9H	4.71	6.66	8.16	9.42	10.5
HDF10H	6.89	9.74	11.9	13.8	15.4
HDF15H	9.06	12.8	15.7	18.1	20.3
HDF19H	14.5	20.5	25.1	29.0	32.4
HDF25H	21.7	30.7	37.7	43.5	48.6
HDF35H	42.0	59.4	72.8	84.1	94.0
HDF43H	60.9	86.1	105	122	136

Model Size	R-32 - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.62	0.88	1.07	1.24	1.39
HDF3H	1.34	1.90	2.33	2.69	3.00
HDF5H	2.58	3.65	4.47	5.17	5.77
HDF6H	4.13	5.84	7.16	8.26	9.24
HDF9H	6.71	9.50	11.6	13.4	15.0
HDF10H	9.81	13.9	17.0	19.6	21.9
HDF15H	12.9	18.3	22.4	25.8	28.9
HDF19H	20.7	29.2	35.8	41.3	46.2
HDF25H	31.0	43.8	53.7	62.0	69.3
HDF35H	59.9	84.7	104	120	134
HDF43H	86.8	123	150	174	194

Model Size	R-454B - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.51	0.72	0.88	1.02	1.14
HDF3H	1.10	1.56	1.91	2.20	2.46
HDF5H	2.12	2.99	3.67	4.23	4.73
HDF6H	3.39	4.79	5.86	6.77	7.57
HDF9H	5.50	7.78	9.53	11.00	12.30
HDF10H	8.04	11.37	13.93	16.08	17.98
HDF15H	10.58	14.96	18.33	21.16	23.66
HDF19H	16.93	23.94	29.32	33.86	37.85
HDF25H	25.39	35.91	43.98	50.79	56.78
HDF35H	49.09	69.43	85.03	98.19	109.78
HDF43H	71.10	100.55	123.15	142.20	158.98

LIQUID TEMPERATURE CORRECTION FACTORS ³

Refrigerant	Liquid Temperature (F)											
	40	50	60	70	80	90	100	110	120	130	140	
R-410A	1.42	1.35	1.28	1.22	1.15	1.07	1.00	0.92	0.85	0.76	0.67	
R-32	1.33	1.28	1.22	1.17	1.11	1.06	1.00	0.94	0.88	0.81	0.74	
R-454B	1.37	1.31	1.25	1.19	1.13	1.06	1.00	0.93	0.87	0.79	0.72	

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P):
40°F Evap., 110°F Condensing, 100°F Liquid

² Nominal capacities are highlighted

³ Correction factors are based on 40°F evaporating temperature. Capacities, for the refrigerants listed above, reduced by approximately 1.0% for every 10F reduction in evaporating temperature

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LIQUID FLOW CAPACITY (CONTINUED)

Model Size	R-134A - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.43	0.61	0.75	0.86	0.96
HDF3H	0.93	1.32	1.61	1.86	2.08
HDF5H	1.79	2.54	3.11	3.59	4.01
HDF6H	2.87	4.06	4.97	5.74	6.41
HDF9H	4.66	6.59	8.07	9.32	10.4
HDF10H	6.81	9.63	11.8	13.6	15.2
HDF15H	8.96	12.7	15.5	17.9	20.0
HDF19H	14.3	20.3	24.8	28.7	32.1
HDF25H	21.5	30.4	37.3	43.0	48.1
HDF35H	41.6	58.8	72.0	83.2	93.0
HDF43H	60.2	85.2	104	120	135

Model Size	R-450A - Liquid Capacity (tons ¹)				
	Pressure Drop (psi) ²				
	1	2	3	4	5
HDF2H	0.40	0.57	0.70	0.80	0.90
HDF3H	0.87	1.23	1.51	1.74	1.95
HDF5H	1.67	2.37	2.90	3.35	3.74
HDF6H	2.68	3.79	4.64	5.36	5.99
HDF9H	4.35	6.16	7.54	8.71	9.74
HDF10H	6.36	9.00	11.0	12.7	14.2
HDF15H	8.37	11.8	14.5	16.7	18.7
HDF19H	13.4	18.9	23.2	26.8	30.0
HDF25H	20.1	28.4	34.8	40.2	44.9
HDF35H	38.9	54.9	67.3	77.7	86.9
HDF43H	56.3	79.6	97.5	113	126

LIQUID TEMPERATURE CORRECTION FACTORS³

Refrigerant	Liquid Temperature (F)										
	40	50	60	70	80	90	100	110	120	130	140
R-134a	1.36	1.30	1.24	1.18	1.12	1.06	1.00	0.94	0.88	0.81	0.75
R-450A	1.37	1.31	1.25	1.19	1.12	1.06	1.00	0.94	0.87	0.81	0.74

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 40°F Evap., 110°F Condensing, 100°F Liquid

² Nominal capacities are highlighted

³ Correction factors are based on 40°F evaporating temperature. Capacities, for the refrigerants listed above, reduced by approximately 2.0% for every 10F reduction in evaporating temperature

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SUCTION GAS CAPACITY

Model Size	R-404A/R-507 - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.06	0.04	0.03	0.03	0.02
HDF3H	0.12	0.10	0.08	0.06	0.04
HDF5H	0.23	0.19	0.15	0.11	0.08
HDF6H	0.37	0.30	0.23	0.18	0.13
HDF9H	0.61	0.48	0.38	0.29	0.21
HDF10H	0.89	0.71	0.55	0.42	0.31
HDF15H	1.17	0.93	0.73	0.55	0.41
HDF19H	1.87	1.49	1.16	0.89	0.66
HDF25H	2.80	2.23	1.74	1.33	0.99
HDF35H	5.42	4.31	3.37	2.57	1.91
HDF43H	7.85	6.25	4.88	3.72	2.77

Model Size	R-448A/R-449A - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.06	0.05	0.04	0.03	0.02
HDF3H	0.13	0.11	0.08	0.06	0.05
HDF5H	0.26	0.20	0.16	0.12	0.09
HDF6H	0.41	0.33	0.26	0.20	0.15
HDF9H	0.66	0.53	0.42	0.32	0.24
HDF10H	0.97	0.77	0.61	0.46	0.35
HDF15H	1.28	1.02	0.80	0.61	0.46
HDF19H	2.04	1.63	1.28	0.98	0.73
HDF25H	3.06	2.45	1.92	1.47	1.09
HDF35H	5.92	4.73	3.71	2.84	2.11
HDF43H	8.58	6.85	5.37	4.11	3.06

Model Size	R-407A/R-407F - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.06	0.05	0.04	0.03	0.02
HDF3H	0.13	0.10	0.08	0.06	0.05
HDF5H	0.25	0.20	0.16	0.12	0.09
HDF6H	0.40	0.32	0.25	0.19	0.14
HDF9H	0.65	0.52	0.40	0.31	0.23
HDF10H	0.95	0.76	0.59	0.45	0.33
HDF15H	1.25	1.00	0.78	0.59	0.44
HDF19H	2.00	1.59	1.24	0.95	0.70
HDF25H	3.00	2.39	1.87	1.42	1.05
HDF35H	5.81	4.62	3.61	2.75	2.04
HDF43H	8.41	6.69	5.22	3.98	2.95

Model Size	R-22 - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.06	0.05	0.04	0.03	0.03
HDF3H	0.14	0.11	0.09	0.07	0.05
HDF5H	0.27	0.22	0.17	0.14	0.11
HDF6H	0.43	0.35	0.28	0.22	0.17
HDF9H	0.69	0.56	0.45	0.36	0.27
HDF10H	1.01	0.83	0.66	0.52	0.40
HDF15H	1.33	1.09	0.87	0.68	0.53
HDF19H	2.13	1.74	1.39	1.10	0.84
HDF25H	3.19	2.61	2.09	1.64	1.26
HDF35H	6.18	5.04	4.04	3.18	2.44
HDF43H	8.94	7.30	5.86	4.60	3.53

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 65°F Suctin Vapor, 110°F Condensing, 100°F Liquid, 1 psi ΔP

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SUCTION GAS CAPACITY (CONTINUED)

Model Size	R-410A - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.08	0.06	0.05	0.04	0.03
HDF3H	0.17	0.14	0.11	0.09	0.07
HDF5H	0.33	0.27	0.21	0.17	0.13
HDF6H	0.52	0.43	0.34	0.27	0.21
HDF9H	0.85	0.69	0.56	0.44	0.34
HDF10H	1.24	1.01	0.81	0.64	0.49
HDF15H	1.63	1.33	1.07	0.84	0.65
HDF19H	2.61	2.13	1.71	1.35	1.03
HDF25H	3.92	3.20	2.57	2.02	1.55
HDF35H	7.57	6.18	4.96	3.90	3.00
HDF43H	11.0	8.95	7.19	5.65	4.34

Model Size	R-32 - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.10	0.08	0.07	0.05	0.04
HDF3H	0.22	0.18	0.14	0.12	0.09
HDF5H	0.41	0.34	0.28	0.22	0.17
HDF6H	0.66	0.55	0.45	0.36	0.28
HDF9H	1.08	0.89	0.72	0.58	0.45
HDF10H	1.57	1.30	1.06	0.85	0.66
HDF15H	2.07	1.71	1.39	1.11	0.87
HDF19H	3.31	2.74	2.23	1.78	1.39
HDF25H	4.97	4.11	3.35	2.67	2.08
HDF35H	9.61	7.95	6.47	5.16	4.02
HDF43H	13.9	11.5	9.37	7.47	5.83

Model Size	R-454B - Suction Gas Capacity (tons ¹)				
	Evaporating Temperature				
	40°F	20°F	0°F	-20°F	-40°F
HDF2H	0.08	0.07	0.06	0.04	0.03
HDF3H	0.18	0.15	0.12	0.09	0.07
HDF5H	0.35	0.29	0.23	0.18	0.14
HDF6H	0.56	0.46	0.37	0.29	0.22
HDF9H	0.90	0.74	0.60	0.47	0.37
HDF10H	1.32	1.08	0.87	0.69	0.53
HDF15H	1.74	1.43	1.15	0.91	0.70
HDF19H	2.78	2.28	1.84	1.45	1.12
HDF25H	4.18	3.42	2.76	2.18	1.69
HDF35H	8.07	6.62	5.34	4.22	3.26
HDF43H	11.7	9.59	7.73	6.11	4.72

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 65°F Suction Vapor, 100°F Condensing, 100°F Liquid, 1 psi ΔP

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SUCTION GAS CAPACITY (CONTINUED)

R-134a - Suction Gas Capacity (tons ¹)			
Model Size	Evaporating Temperature		
	40°F	20°F	0°F
HDF2H	0.05	0.04	0.03
HDF3H	0.11	0.09	0.07
HDF5H	0.21	0.16	0.13
HDF6H	0.33	0.26	0.20
HDF9H	0.54	0.43	0.33
HDF10H	0.79	0.62	0.48
HDF15H	1.04	0.82	0.63
HDF19H	1.67	1.31	1.01
HDF25H	2.51	1.97	1.52
HDF35H	4.85	3.81	2.94
HDF43H	7.02	5.52	4.25

R-450A - Suction Gas Capacity (tons ¹)			
Model Size	Evaporating Temperature		
	40°F	20°F	0°F
HDF2H	0.05	0.04	0.03
HDF3H	0.10	0.08	0.06
HDF5H	0.19	0.15	0.11
HDF6H	0.30	0.24	0.18
HDF9H	0.49	0.38	0.29
HDF10H	0.72	0.56	0.43
HDF15H	0.94	0.74	0.56
HDF19H	1.51	1.18	0.90
HDF25H	2.27	1.77	1.35
HDF35H	4.38	3.42	2.62
HDF43H	6.35	4.96	3.79

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 65°F Suctin Vapor, 100°F Condensing, 100°F Liquid, 1 psi ΔP

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DISCHARGE GAS CAPACITY

Model Size	R-404A/R-507 - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.12	0.20	0.28	0.44	0.62	0.76	0.87
HDF3H	0.27	0.42	0.60	0.95	1.34	1.64	1.89
HDF5H	0.51	0.81	1.15	1.82	2.57	3.15	3.64
HDF6H	0.82	1.30	1.84	2.91	4.12	5.04	5.82
HDF9H	1.34	2.12	2.99	4.73	6.69	8.19	9.46
HDF10H	1.96	3.09	4.37	6.91	9.78	12.0	13.8
HDF15H	2.57	4.07	5.75	9.09	12.9	15.8	18.2
HDF19H	4.12	6.51	9.20	14.6	20.6	25.2	29.1
HDF25H	6.17	9.76	13.8	21.8	30.87	37.8	43.7
HDF35H	11.9	18.9	26.7	42.2	59.68	73.1	84.4
HDF43H	17.3	27.3	38.7	61.1	86.4	106	122

Model Size	R-448A/R-449A - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.14	0.22	0.31	0.49	0.69	0.84	0.97
HDF3H	0.30	0.47	0.66	1.05	1.49	1.82	2.10
HDF5H	0.57	0.90	1.28	2.02	2.86	3.50	4.04
HDF6H	0.91	1.45	2.05	3.23	4.57	5.60	6.47
HDF9H	1.49	2.35	3.32	5.25	7.43	9.10	10.5
HDF10H	2.17	3.43	4.86	7.68	10.9	13.3	15.4
HDF15H	2.86	4.52	6.39	10.1	14.3	17.5	20.2
HDF19H	4.57	7.23	10.2	16.2	22.9	28.0	32.3
HDF25H	6.86	10.8	15.3	24.3	34.3	42.0	48.5
HDF35H	13.3	21.0	29.7	46.9	66.3	81.2	93.8
HDF43H	19.2	30.4	42.9	67.9	96.0	118	136

Model Size	R-407A/R-407F - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.14	0.21	0.30	0.48	0.68	0.83	0.96
HDF3H	0.29	0.46	0.66	1.04	1.47	1.80	2.08
HDF5H	0.57	0.89	1.26	2.00	2.83	3.46	4.00
HDF6H	0.90	1.43	2.02	3.20	4.52	5.54	6.40
HDF9H	1.47	2.32	3.29	5.20	7.35	9.00	10.4
HDF10H	2.15	3.40	4.80	7.60	10.7	13.2	15.2
HDF15H	2.83	4.47	6.32	10.0	14.1	17.3	20.0
HDF19H	4.52	7.15	10.1	16.0	22.6	27.7	32.0
HDF25H	6.78	10.7	15.2	24.0	33.9	41.5	48.0
HDF35H	13.1	20.7	29.3	46.4	65.6	80.3	92.8
HDF43H	19.0	30.0	42.5	67.2	95.0	116	134

Model Size	R-22 - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.14	0.22	0.31	0.48	0.69	0.84	0.97
HDF3H	0.30	0.47	0.66	1.05	1.49	1.82	2.10
HDF5H	0.57	0.90	1.28	2.02	2.86	3.50	4.04
HDF6H	0.91	1.45	2.04	3.23	4.57	5.60	6.46
HDF9H	1.49	2.35	3.32	5.25	7.43	9.10	10.5
HDF10H	2.17	3.43	4.85	7.68	10.9	13.3	15.4
HDF15H	2.86	4.52	6.39	10.1	14.3	17.5	20.2
HDF19H	4.57	7.23	10.2	16.2	22.9	28.0	32.3
HDF25H	6.86	10.8	15.3	24.2	34.3	42.0	48.5
HDF35H	13.3	21.0	29.6	46.9	66.3	81.2	93.7
HDF43H	19.2	30.4	42.9	67.9	96.0	118	136

EVAPORATOR TEMPERATURE CORRECTION FACTORS ³

Liquid Temperature (F)								
40	30	20	10	0	-10	-20	-30	-40
1.00	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 40°F Evap., 65°F Suction Vapor, Isentropic Compression plus 50°F, 110°F Condensing, 100°F Liquid

² Nominal capacitices are highlighted

HDF SERIES | Solenoid Valve

DISCHARGE GAS CAPACITY (CONTINUED)

Model Size	R-410A - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.17	0.26	0.37	0.59	0.83	1.02	1.18
HDF3H	0.36	0.57	0.81	1.28	1.80	2.21	2.55
HDF5H	0.69	1.10	1.55	2.45	3.47	4.25	4.91
HDF6H	1.11	1.76	2.48	3.93	5.55	6.80	7.85
HDF9H	1.80	2.85	4.03	6.38	9.02	11.0	12.8
HDF10H	2.64	4.17	5.90	9.32	13.2	16.1	18.6
HDF15H	3.47	5.49	7.76	12.3	17.3	21.2	24.5
HDF19H	5.55	8.78	12.4	19.6	27.8	34.0	39.3
HDF25H	8.33	13.2	18.6	29.4	41.6	51.0	58.9
HDF35H	16.1	25.5	36.0	56.9	80.5	98.6	114
HDF43H	23.3	36.9	52.1	82.4	117	143	165

Model Size	R-32 - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.21	0.33	0.46	0.73	1.03	1.26	1.45
HDF3H	0.45	0.70	1.00	1.58	2.23	2.73	3.15
HDF5H	0.86	1.36	1.92	3.03	4.29	5.25	6.06
HDF6H	1.37	2.17	3.07	4.85	6.86	8.40	9.70
HDF9H	2.23	3.52	4.98	7.88	11.1	13.6	15.8
HDF10H	3.26	5.15	7.28	11.5	16.3	19.9	23.0
HDF15H	4.29	6.78	9.58	15.2	21.4	26.2	30.3
HDF19H	6.86	10.8	15.3	24.2	34.3	42.0	48.5
HDF25H	10.3	16.3	23.0	36.4	51.4	63.0	72.7
HDF35H	19.9	31.4	44.5	70.3	99.4	122	141
HDF43H	28.8	45.5	64.4	102	144	176	204

Model Size	R-454B - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²						
	2	5	10	25	50	75	100
HDF2H	0.18	0.28	0.40	0.63	0.88	1.08	1.25
HDF3H	0.38	0.61	0.86	1.35	1.92	2.35	2.71
HDF5H	0.74	1.16	1.65	2.60	3.68	4.51	5.21
HDF6H	1.18	1.86	2.64	4.17	5.89	7.22	8.34
HDF9H	1.92	3.03	4.28	6.77	9.58	11.7	13.5
HDF10H	2.80	4.43	6.26	9.90	14.0	17.1	19.8
HDF15H	3.68	5.82	8.24	13.0	18.4	22.6	26.0
HDF19H	5.89	9.32	13.2	20.8	29.5	36.1	41.7
HDF25H	8.84	14.0	19.8	31.3	44.2	54.1	62.5
HDF35H	17.1	27.0	38.2	60.4	85.5	105	121
HDF43H	24.8	39.1	55.4	87.5	124	152	175

EVAPORATOR TEMPERATURE CORRECTION FACTORS ³

Liquid Temperature (F)								
40	30	20	10	0	-10	-20	-30	-40
1.00	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 40°F Evap., 65°F Suction Vapor, Isentropic Compression plus 50°F, 110°F Condensing, 100°F Liquid

² Nominal capacities are highlighted

HDF SERIES | Solenoid Valve

DISCHARGE GAS CAPACITY (CONTINUED)

Model Size	R-134A - Discharge Gas Capacity (tons ¹)							Model Size	R-450A - Discharge Gas Capacity (tons ¹)						
	Pressure Drop (psi) ²								Pressure Drop (psi) ²						
	2	5	10	25	50	75	100		2	5	10	25	50	75	100
HDF2H	0.12	0.19	0.26	0.41	0.59	0.72	0.83	HDF2H	0.11	0.17	0.24	0.38	0.54	0.66	0.76
HDF3H	0.25	0.40	0.57	0.90	1.27	1.55	1.79	HDF3H	0.23	0.37	0.52	0.82	1.16	1.42	1.64
HDF5H	0.49	0.77	1.09	1.73	2.44	2.99	3.45	HDF5H	0.45	0.71	1.00	1.58	2.23	2.73	3.15
HDF6H	0.78	1.23	1.75	2.76	3.90	4.78	5.52	HDF6H	0.71	1.13	1.60	2.52	3.57	4.37	5.05
HDF9H	1.27	2.01	2.84	4.49	6.34	7.77	8.97	HDF9H	1.16	1.83	2.59	4.10	5.80	7.10	8.20
HDF10H	1.85	2.93	4.15	6.56	9.27	11.4	13.1	HDF10H	1.70	2.68	3.79	5.99	8.48	10.4	12.0
HDF15H	2.44	3.86	5.46	8.63	12.2	14.9	17.3	HDF15H	2.23	3.53	4.99	7.89	11.2	13.7	15.8
HDF19H	3.90	6.17	8.73	13.8	19.5	23.9	27.6	HDF19H	3.57	5.64	7.98	12.6	17.8	21.9	25.2
HDF25H	5.86	9.26	13.1	20.7	29.3	35.9	41.4	HDF25H	5.35	8.46	12.0	18.9	26.8	32.8	37.9
HDF35H	11.3	17.9	25.3	40.0	56.6	69.3	80.1	HDF35H	10.3	16.4	23.1	36.6	51.7	63.4	73.2
HDF43H	16.4	25.9	36.7	58.0	82.0	100	116	HDF43H	15.0	23.7	33.5	53.0	74.9	91.8	106

EVAPORATOR TEMPERATURE CORRECTION FACTORS³

Liquid Temperature (F)								
40	30	20	10	0	-10	-20	-30	-40
1.00	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75

¹ Rated in accordance with ANSI/AHRI Standard 760 (I-P): 40°F Evap., 65°F Suction Vapor, Isentropic Compression plus 50°F, 110°F Condensing, 100°F Liquid

² Nominal capacities are highlighted

HDF SERIES | Solenoid Valve

DIMENSIONS - NORMALY CLOSED

Model	Corrections	Figure	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	Weight (lbs)
HDF2H52K	1/4" ODF	1	2.74	1.02	4.63	0.63	2.32	0.39
HDF3H51K			2.74	1.02	4.63	0.63	2.32	0.39
HDF5H53K			2.76	1.02	4.63	0.63	2.32	0.39
HDF2H51K	3/8" ODF	1	2.74	1.02	4.63	0.63	2.32	0.40
HDF3H52K			2.74	1.02	4.57	0.63	2.28	0.40
HDF5H51K			2.76	1.02	4.57	0.63	2.28	0.41
HDF6H52K			2.76	1.02	4.63	0.63	2.32	0.41
HDF9H53K			3.06	1.34	6.54	1.02	3.27	0.65
HDF3H53K	1/2" ODF	1	2.74	1.02	4.57	0.63	2.28	0.41
HDF5H52K			2.76	1.02	4.72	0.63	2.36	0.42
HDF6H51K			2.76	1.02	5.00	0.63	2.50	0.42
HDF9H52K			3.06	1.34	5.00	1.02	2.50	0.66
HDF10H52K			3.06	1.34	5.00	1.02	2.50	0.66
HDF9H51K	5/8" ODF	1	3.06	1.34	6.54	1.02	3.27	0.73
HDF10H51K			3.06	1.34	6.54	1.02	3.27	0.72
HDF15H51K			3.25	1.46	6.89	1.14	3.45	0.88
HDF19H02K			3.94	2.24	6.89	1.18	3.45	1.59
HDF15H52K	7/8" ODF	1	3.25	1.46	6.89	1.14	3.45	0.96
HDF19H01K			3.94	2.24	7.13	1.18	3.57	1.54
HDF25H01K			3.94	2.24	7.50	1.18	3.75	1.90
HDF25H02K	1-1/8" ODF	1	3.94	2.24	7.50	1.18	3.73	2.03
HDF35H01K		2	5.65	3.02	10.10	-	5.05	5.45
HDF35H02K	1-3/8" ODF	2	5.65	3.02	11.10	-	5.65	5.75
HDF43H01K	1-5/8" ODF	2	6.50	3.45	11.10	-	5.55	7.89
HDF43H02K	2-1/8" ODF	2	6.50	3.45	11.10	-	6.65	8.62

FIGURE 1

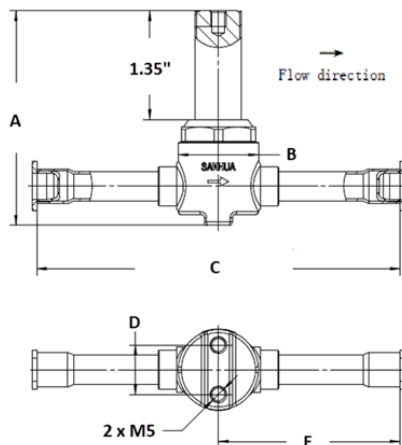
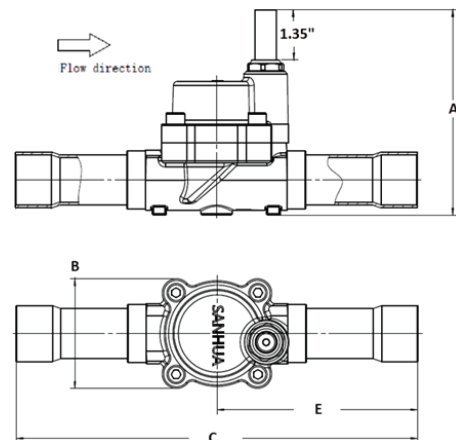


FIGURE 2



HDF SERIES | Solenoid Valve

DIMENSIONS (CONTINUED)

NORMALLY CLOSED WITH MANUAL LIFT STEM

Model	Corrections	Figure	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	Weight (lbs)
HDF6HM51K	3/8" ODF	3	3.64	1.04	4.63	0.63	2.32	0.44
HDF9HM53K		3	4.12	1.34	4.63	1.02	2.32	0.71
HDF6HM52K	1/2" ODF	3	3.64	1.04	5.00	1.02	2.50	0.46
HDF9HM51K		3	4.12	1.34	5.00	1.02	2.50	0.72
HDF10HM52K		3	4.12	1.34	5.00	1.02	2.50	0.71
HDF9HM52K	5/8" ODF	3	4.12	1.34	6.54	1.02	3.27	0.78
HDF10HM51K		3	4.12	1.34	6.54	1.02	3.27	0.77
HDF15HM51K		3	4.30	1.46	6.89	1.14	3.45	0.94
HDF19HM02K		3	5.17	2.24	6.89	1.18	3.45	1.65
HDF15HM52K	7/8" ODF	3	4.30	1.46	6.89	1.14	3.45	1.01
HDF19HM01K		3	5.17	2.24	7.13	1.18	3.57	1.61
HDF25HM01K		3	5.17	2.24	7.50	1.18	3.75	1.94
HDF19HM03K	1-1/8" ODF	3	5.17	2.24	7.50	1.18	3.73	1.72
HDF25HM02K		3	5.17	2.24	8.50	1.18	4.25	2.09
HDF35HM01K		4	6.74	3.02	10.10	-	5.05	5.80
HDF35HM02K	1-3/8" ODF	4	6.74	3.02	11.10	-	5.65	5.49
HDF43HM01K	1-5/8" ODF	4	7.64	3.45	11.10	-	5.55	7.76
HDF43HM02K	2-1/8" ODF	4	7.64	3.45	11.10	-	5.65	8.49

FIGURE 3

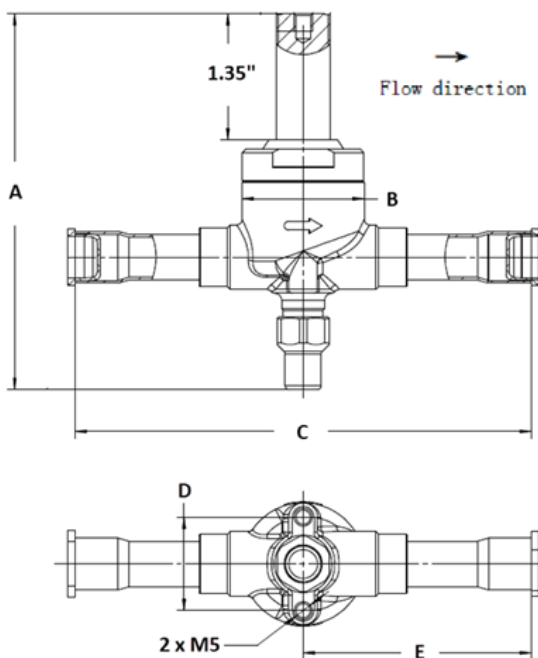
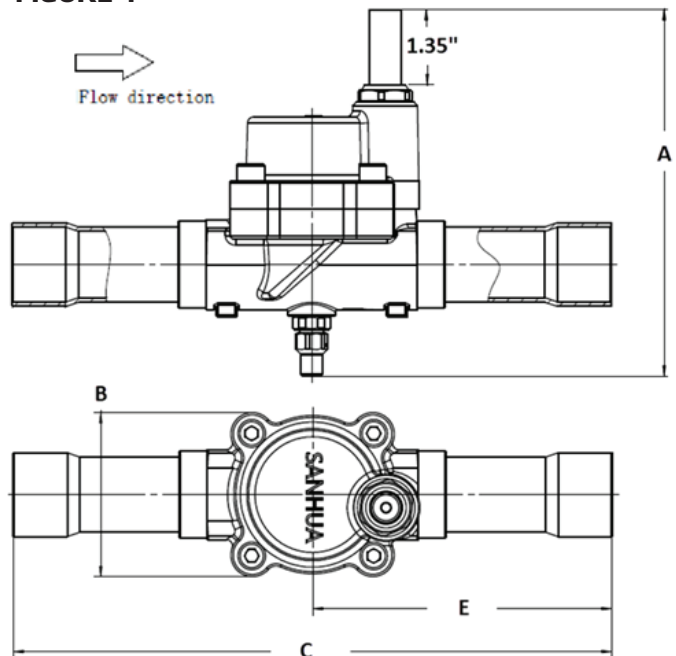


FIGURE 4



HDF SERIES | Solenoid Valve

DIMENSIONS (CONTINUED)

NORMALLY OPEN

Model	Corrections	Figure	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	Weight (lbs)
HDF9HC03K	3/8" ODF	5	3.85	1.34	4.63	1.02	2.32	0.72
HDF9HC01K	1/2" ODF	5	3.85	1.34	5.00	1.02	2.50	0.73
HDF10HC02K		5	3.85	1.34	5.00	1.02	2.50	0.72
HDF9HC02K	5/8" ODF	5	3.85	1.34	6.54	1.02	3.27	0.79
HDF10HC01K		5	3.85	1.34	6.54	1.02	3.27	0.78
HDF15HC01K		5	4.04	1.46	6.89	1.14	3.45	0.96
HDF19HC02K	7/8" ODF	5	4.73	2.24	7.13	1.18	3.57	1.65
HDF25HC01K		5	4.73	2.24	7.50	1.18	3.75	1.96
HDF25HC02K	1-1/8" ODF	5	4.73	2.24	8.50	1.18	4.25	1.72
HDF35HC01K		6	6.57	3.02	10.10	-	5.05	5.58
HDF35HC02K	1-3/8" ODF	6	6.57	3.02	11.10	-	5.65	5.27
HDF43HC01K	1-5/8" ODF	6	7.42	3.45	11.10	-	5.55	7.94
HDF43HC02K	2-1/8" ODF	6	7.42	3.45	11.10	-	5.65	8.60

FIGURE 5

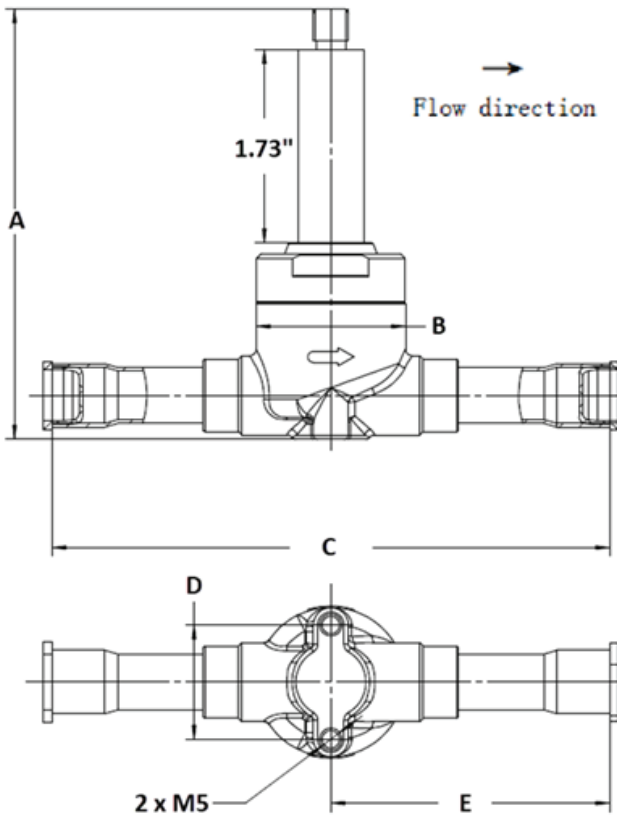
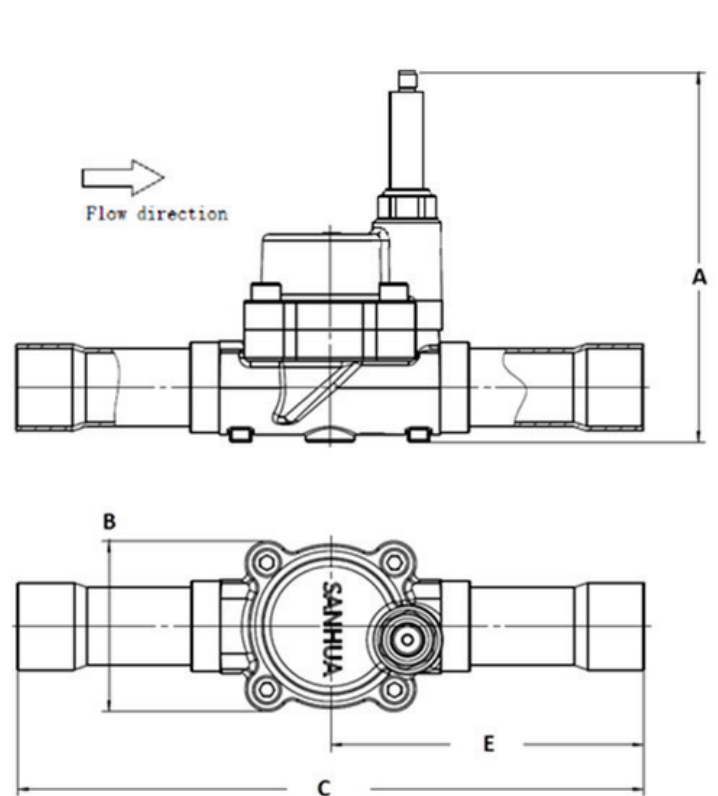


FIGURE 6



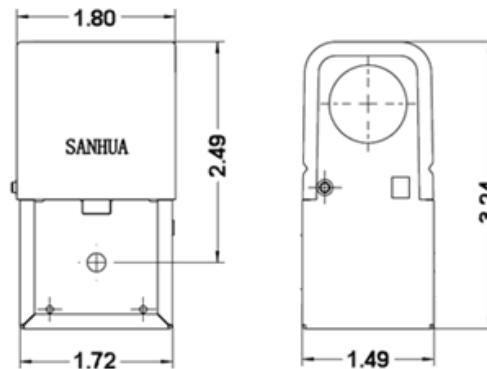
HDF SERIES | Solenoid Valve

TECHNICAL PARAMETERS OF COIL

Coils with Junction Box

Model (Coil)		Rated Voltage	Power		Freq.	Insulation Class	Ingress Protection
Normally Closed (N.C.)	Normally Open (N.C.)		Normally Closed (N.C.)	Normally Open (N.C.)			
MQ-A14120-000001	MQ-A17120-000001	120 VAC	9.0 W (50Hz) 8.0 W (60Hz)	11.0 W (50Hz) 9.0 W (60Hz)	50/60 Hz	F	IP67 (coil molding)
MQ-A14024-000001	MQ-A17024-000001	24 VAC					
MQ-A1420E-000001	MQ-A1720E-000001	208-240 VAC					
MQ-A1022S-000001	-	120/240 VAC - DUAL					

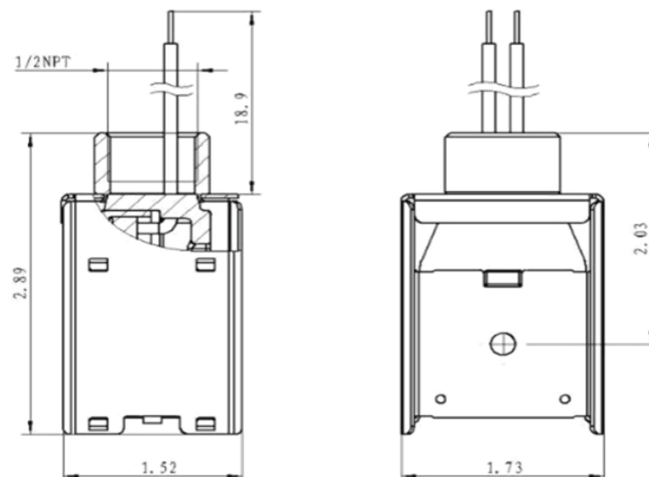
DIMENSIONS



Coils with Conduit Boss

Model (Coil)		Rated Voltage	Power		Freq.	Insulation Class	Ingress Protection
Normally Closed (N.C.)	Normally Open (N.C.)		Normally Closed (N.C.)	Normally Open (N.C.)			
MQ-A14120-000701	MQ-A17120-000701	120 VAC	9.0 W (50Hz) 8.0 W (60Hz)	11.0 W (50Hz) 9.0 W (60Hz)	50/60 Hz	F	IP67 (coil molding)
MQ-A14024-000701	MQ-A17024-000701	24 VAC					
MQ-A1420E-000701	MQ-A1720E-000701	208-240 VAC					

DIMENSIONS



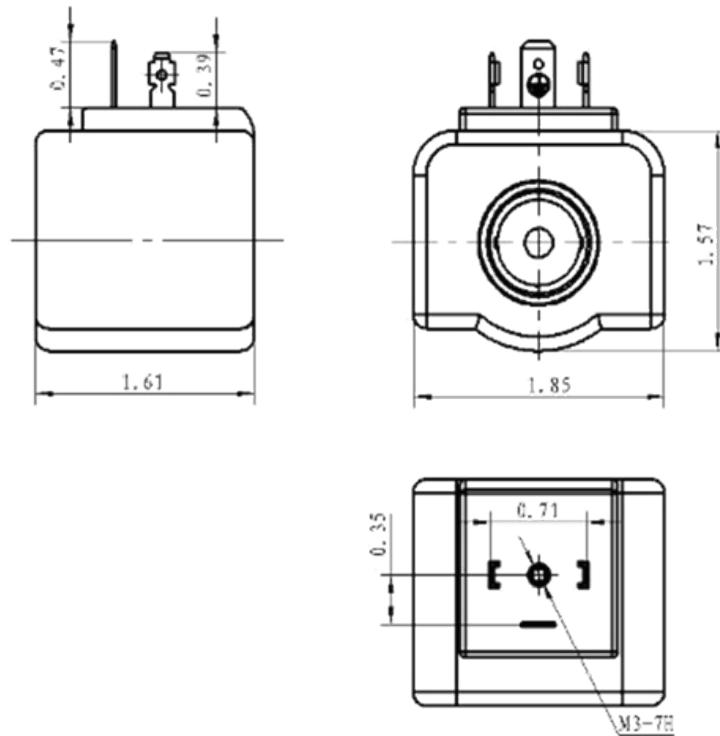
HDF SERIES | Solenoid Valve

TECHNICAL PARAMETERS OF COIL (CONTINUED)

Coils with DIN Connector

Model (Coil)		Rated Voltage	Power		Freq.	Insulation Class	Ingress Protection
Normally Closed (N.C.)	Normally Open (N.C.)		Normally Closed (N.C.)	Normally Open (N.C.)			
MQ-A0311A-011003	-	120 VAC	10.0 W (50Hz) 9.0 W (60Hz)	11.0 W (50Hz) 9.0 W (60Hz)	50/60 Hz	F	IP67 (coil molding)
MQ-A03024-011003	-	24 VAC					
MQ-A0322G-011003	-	208-240 VAC					

DIMENSIONS



HDF SERIES | Solenoid Valve

CROSS -REFERENCE

LEGACY HDF SERIES (HERMETIC) VS NEW HDF SERIES

Normally Closed

Connections	Legacy Model	New Model
1/4" ODF		HDF2H52K
	HDF3H01	HDF3H51K
		HDF5H53K
3/8" ODF		HDF2H51K
	HDF3H02	HDF3H52K
	HDF6H15	HDF5H51K
	HDF6H02	HDF6H52K
1/2" ODF		HDF9H53K
		HDF5H52K
	HDF6H03	HDF6H51K
	HDF10H19	HDF9H52K
	HDF10H01	HDF10H52K
5/8" ODF		HDF9H51K
	HDF10H02	HDF10H51K
	HDF15H01	HDF15H51K
	HDF20H07	HDF19H02K
7/8" ODF		HDF15H52K
	HDF20H01	HDF19H01K
	HDF22H01	HDF25H01K
1-1/8" ODF	HDF22H03	HDF25H02K
1-1/8" ODF		HDF35H01K
1-3/8" ODF		HDF35H02K
1-5/8" ODF		HDF43H01K
2-1/8" ODF		HDF43H02K

Normally Closed with Manual Lift Stem

Connections	Legacy Model	New Model
3/8" ODF	HDF6HM02	HDF6HM51K
		HDF9HM53K
1/2" ODF	HDF6HM03	HDF6HM52K
		HDF9HM51K
	HDF10HM01	HDF10HM52K
5/8" ODF		HDF9HM52K
	HDF10HM02	HDF10HM51K
	HDF15HM01	HDF15HM51K
	HDF20HM02	HDF19HM01K
7/8" ODF	HDF15HM02	HDF15HM52K
	HDF20HM01	HDF19HM02K
	HDF22HM01	HDF25HM01K
1-1/8" ODF	HDF20HM03	HDF19HM03K
	HDF22HM02	HDF25HM02K
		HDF35HM01K
1-3/8" ODF		HDF35HM02K
1-5/8" ODF		HDF43HM01K
2-1/8" ODF		HDF43HM02K

Normally Open

Connections	Legacy Model	New Model
3/8" ODF		HDF9HC03K
1/2" ODF		HDF9HC01K
		HDF10HC02K
5/8" ODF		HDF9HC02K
		HDF10HC01K
		HDF15HC01K
7/8" ODF	HDF20HC01K	HDF19HC02K
	HDF22HC01K	HDF25HC01K
1-1/8" ODF	HDF22HC02K	HDF25HC02K
		HDF35HC01K
1-3/8" ODF		HDF35HC02K
1-5/8" ODF		HDF43HC01K
2-1/8" ODF		HDF43HC02K

HDF SERIES | Solenoid Valve

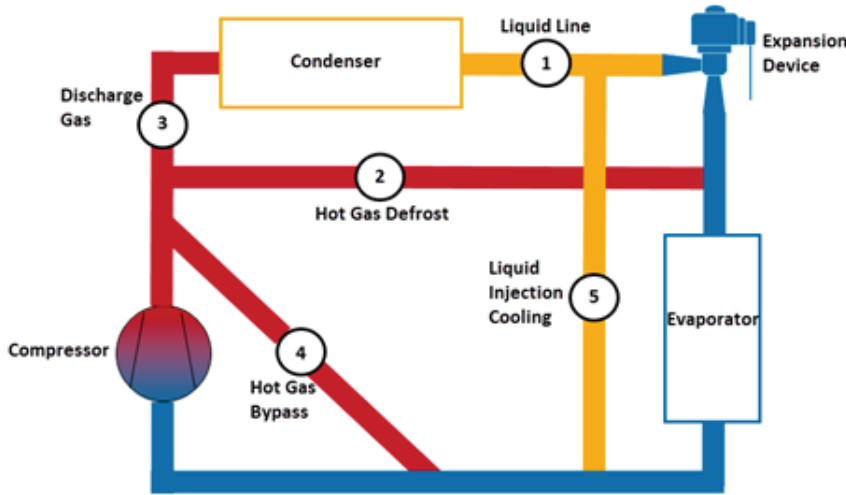
NECESSARY INFORMATION FOR CUSTOMIZING SOLENOID HDF VALVES

Solenoid Valve Request Form - HDF Series

Customer Name:

System Refrigerant:

Installation Position:



System Conditions:

Evaporator Capacity:

Evaporator Temperature:

Liquid Temperature:

Condensing Temperature:

Suction Vapor Temperature:

MOPD REQUIREMENT:

AMBIENT TEMPERATURE:

Coil Parameters:

Rated Power: 220-240VAC 120VAC 24VDC 24VDC Other:

Insulation Class: "E" Level "B" Level "F" Level "H" Level

IP Level: IP65 IP67 Other

Valve Configuration/Options: Angle Straight Through Normally Closed Normally Open Manual Lift Stem

Connection Sizes/Type (ODF, SAE Flare or Other) Inlet: Outlet:

Certifications Required: UL VDE TUV CQE Other:

Please arrange a discussion with Sanhua R&D if the valve is used in an oil system or oil recycle.

EAU: