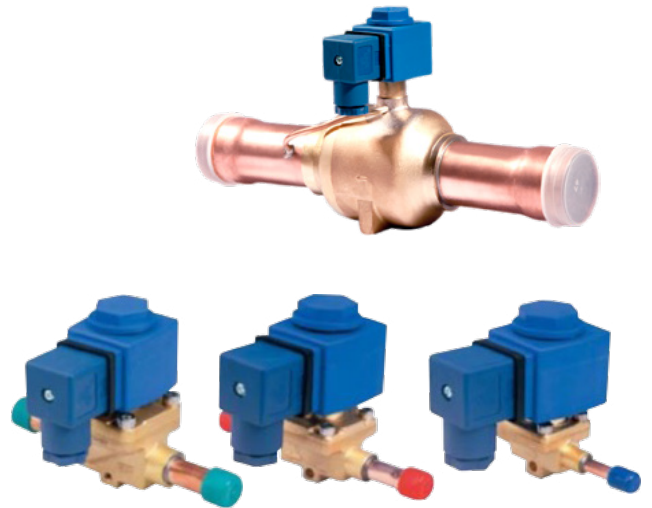


## MDF SERIES

# SOLENOID VALVE

**(Standard range:** for fluids GROUP 2 according to Directive 2014/68/EU or GROUP A1 according to ANSI-ASHRAE 34-2016).

MDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.



## FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD
- COILS ARE DOUBLE SEALED, WATER TIGHT AND SAFE
- QUICK INSTALLATION COIL MQ-A11 FOR FAST AND EASY INSTALLATION AVAILABLE

## GENERAL SPECIFICATIONS<sup>1)</sup>

- Applicable for all common HFC, HFO refrigerants such as: R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A
- Suitable for oil-free systems
- Maximum Operating Pressure:
  - MDF 2H...22H and MDF 2L...15L: 4,9 MPa (49 bar)
  - MDF 25H...40H: 4,5 MPa (45 bar)
- Medium temperature TS min./max.:
  - MDF 2H...22H and MDF 2L...15L: -30°C/105°C
  - MDF 25H...40H: -40°C/140°C
- Ambient temperature min./max.: -30°C / +55°C
- Relative humidity: 0 to 95% RH
- Installation position:
  - Liquid, suction and discharge line
  - Preferably coil upwards and flow direction corresponds to the arrow
- Declarations/Certification/Approvals: DoC acc. PED (2014/68/EU), LVD (2014/35/EU), UL approval



**TECHNICAL PARAMETERS OF VALVE BODY**

Valve Body		Usable Coils	Normal position	Actuation	Kv [m <sup>3</sup> /h]	MOP [Mpa]	Max. OPD [MPa] Air <sup>7)</sup>		Min. OPD <sup>7)</sup> [Mpa]
Solder	Flare						AC <sup>4)</sup> coil	DC <sup>5)6)</sup> coil	
MDF-A03-2H	MDF-A03-2L	AC + DC	NC <sup>1)</sup>	Direct	0,16	4,9	3,1	3,1	0,00
MDF-A03-3H	MDF-A03-3L				0,23				
MDF-A03-6H	MDF-A03-6L	AC		0,8	NP		NR		
MDF-D03-6H	MDF-D03-6H	DC							
MDF-A03-10H	MDF-A03-10L	AC		1,9	3,1		NR		
MDF-D03-10H	MDF-D03-10H	DC							
MDF-A03-15H	MDF-A03-15L	AC		2,3	3,1		NR		
MDF-D03-15H	MDF-D03-15L	DC							
MDF-A03-15H		AC		3,3	NR				
MDF-A03-20H									
MDF-A03-22H			5,9	3,1					
MDF-B03-25H		AC + DC							
MDF-B03-32H			10,0	Pilot (P) <sup>3)</sup>	15,0	4,5	3,1	3,1	0,02
MDF-B03-40H									

- Note:**
- 1) NC means: Normally closed valve
  - 2) Membrane operated
  - 3) Piston operated
  - 4) NP means: not permitted to use, select MDF-A03 model
  - 5) NR means: not recommended to use. Only possible with R134a and min. evaporation temp. / max. condensing temp. -15°C/+58°C, select MDF-D03 model
  - 6) Pressure values valid for 24V DC coil. Values for 12V DC coils on request
  - 7) Max. OPD at 85% Ue.(AC, Air); Max. OPD at 90% Ue.(DC, Air)

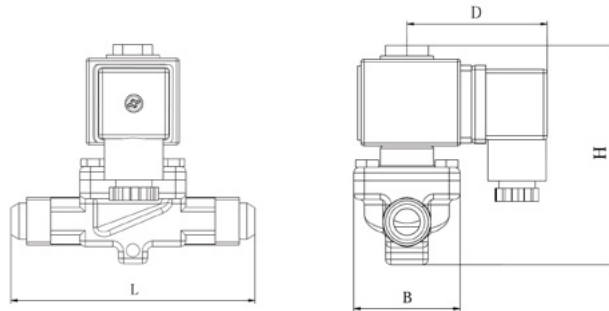
**SOLENOID VALVE**



**DIMENSIONS**

Valve Body

Thread Connection



Model Valve Body	Part Number <sup>1) 2)</sup>	SAE Flare Connection [inch]	Kv [m <sup>3</sup> /h]	PED Category Group 2	Dimensions [mm]			
					L	B	D	H
MDF-A03-2L 001	10125000102	1/4	0,16	4.3	59	30	53	82
MDF-A03-3L 001	10125009202	1/4	0,23	4.3	59	30	53	82
MDF-A03-3L 003	10125004402	3/8	0,23	4.3	70	30	53	82
MDF-A03-6L 001	10125009302	3/8	0,8	4.3	69	36	53	88
MDF-D03-6L 005	10125018002	3/8	0,8	4.3	69	36	53	88
MDF-A03-6L 003	10125004502	1/2	0,8	4.3	75	36	53	88
MDF-D03-6L 003	10125017802	1/2	0,8	4.3	75	36	53	88
MDF-A03-10L 003	10125005402	1/2	1,9	4.3	84	42	53	96
MDF-D03-10L 003	10125018902	1/2	1,9	4.3	84	42	53	96
MDF-A03-10L 001	10125009402	5/8	1,9	4.3	92	42	53	96
MDF-D03-10L 001	10125018702	5/8	1,9	4.3	92	42	53	96
MDF-A03-15L 001	10125009502	5/8	2,3	4.3	104	52	53	100
MDF-D03-15L 001	10125019302	5/8	2,3	4.3	104	52	53	100
MDF-A03-15L 003	10125004802	7/8	2,3	4.3	119	52	53	100
MDF-D03-15L 003	10125019502	7/8	2,3	4.3	119	52	53	100

- Note:** 1) Extent of delivery: valve body without coil  
 2) Available also as industrial package. Contact Sanhua for more details.  
 3) Please contact Sanhua if you need MDF15 with Kv value 3.3.

**SOLENOID VALVE**



**DIMENSIONS**

Valve Body - Inch Solder Connection



Model Valve Body	Part Number <sup>1) 2)</sup>	Solder Connection ODF	Kv	PED Category Group 2	Dimensions [mm]			
		[inch]	[m <sup>3</sup> /h]		L	B	D	H
MDF-A03-2H 001	10125011202	1/4	0,16	4.3	102	30	53	82
MDF-A03-3H 001	10125011302	1/4	0,23	4.3	102	30	53	82
MDF-A03-3H 003	10125003602	3/8	0,23	4.3	117	30	53	82
MDF-A03-6H 001	10125011402	3/8	0,8	4.3	111	36	53	88
MDF-D03-6H 001	10125017402	3/8	0,8	4.3	111	36	53	88
MDF-A03-6H 003	10125004202	1/2	0,8	4.3	127	36	53	88
MDF-D03-6H 003	10125017502	1/2	0,8	4.3	127	36	53	88
MDF-A03-10H 001	10125011502	1/2	1,9	4.3	127	42	53	95
MDF-D03-10H 001	10125017202	1/2	1,9	4.3	127	42	53	95
MDF-A03-10H 003	10125006302	5/8	1,9	4.3	160	42	53	95
MDF-D03-10H 003	10125018402	5/8	1,9	4.3	160	42	53	95
MDF-A03-15H 005	10125003702	5/8	2,3	4.3	176	52	53	100
MDF-D03-15H 005	10125017102	5/8	2,3	4.3	176	52	53	100
MDF-A03-15H 003	10125005002	7/8	2,3	4.3	176	52	53	100
MDF-D03-15H 003	10125019002	7/8	2,3	4.3	176	52	53	100
MDF-A03-15H 051	MDFX0002102	5/8	3,3	4.3	176	52	53	100
MDF-A03-15H 052	MDFX0002202	7/8	3,3	4.3	176	52	53	100
MDF-A03-20H 001	10125011702	7/8	5	4.3	191	60	53	117
MDF-A03-22H 001	10125011802	7/8	5,9	4.3	281	60	53	117
MDF-A03-20H 003	10125005602	1-1/8	5	4.3	214	52	53	117
MDF-A03-22H 009	10125006202	1-1/8	5,9	4.3	281	60	53	117
MDF-B03-25H 003	10125006902	1-1/8	10	4.3	256	76	53	144
MDF-A03-22H 003	10125005102	1-3/8	5,9	4.3	281	60	53	117
MDF-B03-25H 004	10125006802	1-3/8	10	4.3	280	76	53	144
MDF-B03-32H 001	10125009102	1-3/8	15	4.3	281	76	53	144
MDF-B03-32H 002	10125007502	1-5/8	15	I	281	76	53	144
MDF-B03-40H 002	10125004302	1-5/8	25	I	281	84	53	152
MDF-B03-40H 004	10125007702	2-1/8	25	I	281	84	53	152

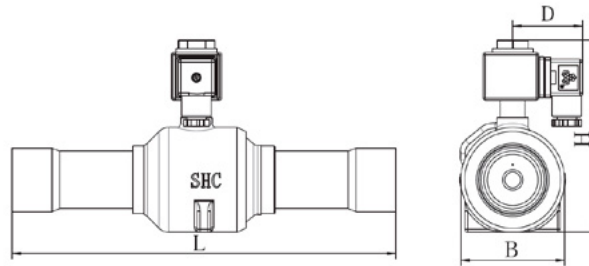
**Note:** 1) Extent of delivery: valve body without coil  
 2) Available also as industrial package. Contact Sanhua for more details.

**SOLENOID VALVE**



**DIMENSIONS**

Valve Body – Metrical Solder Connection



Model Valve Body	Part Number <sup>1) 2)</sup>	Solder Connection ODF	Kv	PED Category Group 2	Dimensions [mm]			
		[mm]	[m <sup>3</sup> /h]		L	B	D	H
MDF-A03-2H 003	10125006502	6	0,16	4.3	102	30	53	82
MDF-A03-3H 005	10125003802	6	0,23	4.3	102	30	53	82
MDF-A03-3H 007	10125003402	10	0,23	4.3	117	30	53	82
MDF-A03-6H 005	10125004102	10	0,8	4.3	111	36	53	88
MDF-D03-6H 005	10125016802	10	0,8	4.3	111	36	53	88
MDF-A03-6H 007	10125006702	12	0,8	4.3	127	36	53	88
MDF-D03-6H 007	10125018202	12	0,8	4.3	127	36	53	88
MDF-A03-10H 005	10125003502	12	1,9	4.3	127	42	53	95
MDF-D03-10H 005	10125017002	12	1,9	4.3	127	42	53	95
MDF-A03-10H 003	10125006302	16	1,9	4.3	160	42	53	95
MDF-D03-10H 003	10125018402	16	1,9	4.3	160	42	53	95
MDF-A03-15H 005	10125003702	16	2,3	4.3	176	52	53	100
MDF-D03-15H 005	10125017102	16	2,3	4.3	176	52	53	100
MDF-A03-15H 003	10125005002	22	2,3	4.3	176	52	53	100
MDF-D03-15H 003	10125019002	22	2,3	4.3	176	52	53	100
MDF-A03-15H 051	MDFX0002102	16	3,3	4.3	176	52	53	100
MDF-A03-15H 052	MDFX0002202	22	3,3	4.3	176	52	53	100
MDF-A03-20H 001	10125011702	22	5	4.3	191	52	53	117
MDF-A03-22H 001	10125011802	22	5,9	4.3	281	60	53	117
MDF-A03-20H 007	10125005702	28	5	4.3	214	52	53	117
MDF-A03-22H 011	10125000302	28	5,9	4.3	281	60	53	117
MDF-B03-25H 005	10125007002	28	10	4.3	256	76	53	144
MDF-A03-22H 003	10125005102	35	5,9	4.3	281	60	53	117
MDF-B03-25H 004	10125006802	35	10	4.3	280	76	53	144
MDF-B03-32H 001	10125009102	35	15	4.3	281	76	53	144
MDF-B03-32H 003	10125007102	42	15	I	281	76	53	144
MDF-B03-40H 003	10125007602	42	25	I	281	84	53	152
MDF-B03-40H 004	10125007702	54	25	I	281	84	53	152

**Note:** 1) Extent of delivery: valve body without coil  
 2) Available also as industrial package. Contact Sanhua for more details.

SOLENOID VALVE



TECHNICAL PARAMETERS OF COIL

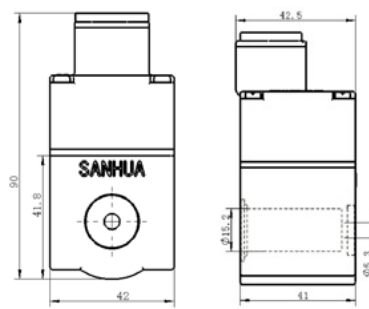
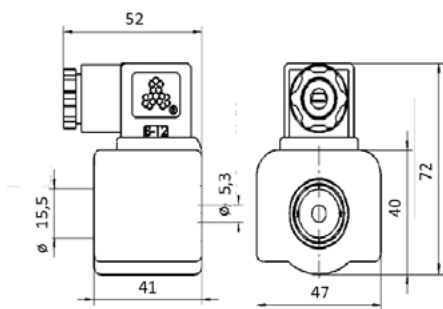
Model Coil <sup>1)</sup>	Part Number <sup>2)</sup>	Plug type	Supply	Rated Voltage [V]	Power [W]	Voltage Tolerance	Insulation Class	Protection Class (w/plug)	UL Approval	
MQ-A03024-000001	10820009902	DIN Plug	AC	24	10,5W (50Hz)	-15% +10%	F	IP67	NO	
MQ-A03024-000018	10820013702				8,5W (60Hz)			IP65	YES	
MQ-A0311A-000001	10820010102			110 to 120	12W (50Hz)			IP67	NO	
MQ-A0311A-000005	10820016502				10W (60Hz)			IP65	YES	
MQ-A0322G-000001 <sup>4)</sup>	10820010002			220 to 240	12W (50Hz)			IP67	NO	
MQ-A0322G-000024	10820015002				10W (60Hz)			IP65	YES	
MQ-A11024-000001	10820009402	Quick Install Plug <sup>3)</sup>	AC	24	9,5 (50Hz)			IP67	OR <sup>5)</sup>	
MQ-A1111A-000001	10820009202			110 to 120	11,5 (50Hz)				10,0 (60Hz)	OR
MQ-A1122G-000001	10820009002			220 to 240	11 (50Hz)				9,5 (60Hz)	OR
MQ-D03012-000002	10820001302	DIN Plug	DC	12	15	±10%		IP67	NO	
MQ-D03024-000002	10820001002			24					NO	
MQ-D03110-000003	OR			110					NO	

- Note:**
- 1) Match with valve body: Please respect information in table "Technical Parameters of valve body". See page 2 of this document
  - 2) Extent of delivery: coil body, fastening screw for the coil body, plug for electrical connection incl. Gaskets and fastening screws
  - 3) Outer cable diameter: 7,1 to 9,7mm and cable core 0,75 to 2,5mm<sup>2</sup>
  - 4) Coil MQ-A0322G-000001 is third party certified for usage with flammable refrigerants (A2L, A3). Usage of the other coils (only without UL approval) with flammable refrigerants - please contact Sanhua.
  - 5) OR: On Request

DIMENSIONS - COILS

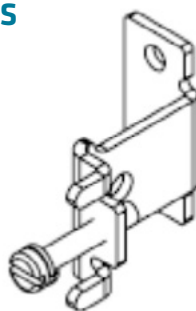
MQ-A03 and MQ-D03 (Coils with DIN Plug):

MQ-11 (Coils with Quick Install Plug):



ACCESSORIES

Bracket



Model <sup>1)</sup>	Part Number	Applicable Valve Models	
		Solder	Flare
MDF-A03-033001	20125000902	MDF-A03-2H	MDF-A03-2L
		MDF-A03-3H	MDF-A03-3L
		MDF-A03-6H	MDF-A03-6L
		MDF-A03-10H	MDF-A03-10L
		MDF-A03-15H	MDF-A03-15L

**Note:** 1) Extent of delivery: bracket and screw

FOR SERVICE PURPOSE PERMANENT MAGNET COIL AVAILABLE

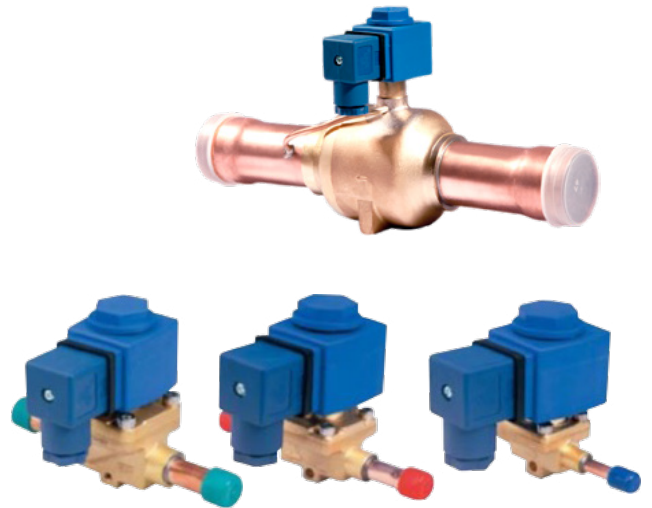
Coil Model	Part Number
KCT01	10108000102

## MDF SERIES

# SOLENOID VALVE

**(GreenTech range:** for fluids GROUP 1 according to Directive 2014/68/EU or GROUP A3/A2L according to ANSI-ASHRAE 34-2016).

MDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.



## FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD
- COILS ARE DOUBLE SEALED, WATER TIGHT AND SAFE

## GENERAL SPECIFICATIONS<sup>1)</sup>

- Applicable for HC, HFC/HFO, HFO refrigerants such as: R290, R1234ze(E), R1234yf, R447A, R452B, R454B, R454C, R455A
- Suitable for oil-free systems
- Maximum Operating Pressure:
  - MDF 2H...22H: 4,9 MPa (49 bar)
  - MDF 25H...40H: 4,5 MPa (45 bar)
- Medium temperature TS min./max.:
  - MDF 2H...22H: -30°C/105°C
  - MDF 25H...40H: -40°C/140°C
- Ambient temperature min./max.: -30°C / +55°C
- Relative humidity: 0 to 95% RH
- Installation position:
  - Liquid, suction and discharge line
  - Preferably coil upwards and flow direction corresponds to the arrow
- Declarations/Certification/Approvals:
  - DoC acc. PED (2014/68/EU), LVD (2014/35/EU)
  - Certification acc. EN60335-2-24/40/89 as "not source of ignition"; EN60730
  - Certification acc. PED Cat II: EN ISO 21922-2021 (for models in PED Cat. II)



**TECHNICAL PARAMETERS OF VALVE BODY**

Valve Body	Normal position	Actuation	Kv [m <sup>3</sup> /h]	MOP [MPa] Air	Max. OPD [Mpa]	Min. OPD [Mpa]
Solder						
MDF-A03-2H	NC <sup>1)</sup>	Direct	0,16	4,9	3,1 <sup>3)</sup>	0,00
MDF-A03-3H			0,23			
MDF-A03-6H			0,8			
MDF-A03-10H		Pilot <sup>2)</sup>	1,9			0,005
MDF-A03-15H			2,3			
MDF-A03-15H			3,3			
MDF-A03-20H			5,0			
MDF-A03-22H			5,9			
MDF-B03-25H			Pilot (P) <sup>3)</sup>	10,0		
MDF-B03-32H		15,0				
MDF-B03-40H		25,0				

- Note:**
- 1) NC means: Normally closed valve
  - 2) Membrane operated
  - 3) Piston operated
  - 4) Max. OPD at 85% Ue.(Air). Other coils on request

**DIMENSIONS**

Valve Body - Inch Solder Connection, Models with MOP 45 bar

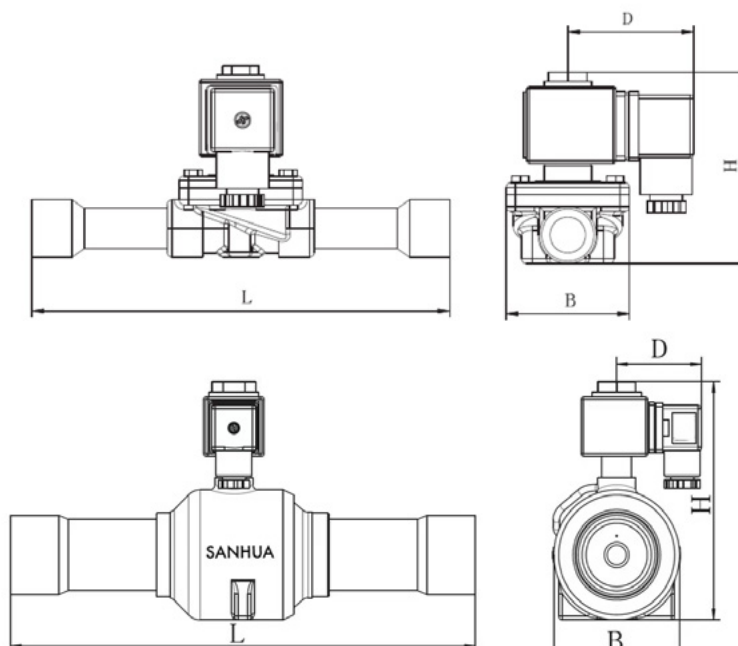
Model Valve Body	Part Number <sup>1) 2)</sup>	SAE Flare Connection [inch]	Kv [m <sup>3</sup> /h]	PED Category Fluid Group I	Dimensions [mm]			
					L	B	D	H
MDF-A03-2H 001	10125011202	1/4	0,16	4.3	102	30	53	82
MDF-A03-3H 001	10125011302	1/4	0,23	4.3	102	30	53	82
MDF-A03-3H 003	10125003602	3/8	0,23	4.3	117	30	53	82
MDF-A03-6H 001	10125011402	3/8	0,8	4.3	111	36	53	88
MDF-A03-6H 003	10125004202	1/2	0,8	4.3	127	36	53	88
MDF-A03-10H 001	10125011502	1/2	1,9	4.3	127	42	53	95
MDF-A03-10H 003	10125006302	5/8	1,9	4.3	160	42	53	95
MDF-A03-15H 005	10125003702	5/8	2,3	4.3	176	52	53	100
MDF-A03-15H 003	10125005002	7/8	2,3	4.3	176	52	53	100
MDF-A03-15H 051	MDFX0002102	5/8	3,3	4.3	176	52	53	100
MDF-A03-15H 052	MDFX0002202	7/8	3,3	4.3	176	52	53	100
MDF-A03-20H 001	10125011702	7/8	5	4.3	191	52	53	117
MDF-A03-22H 001	10125011802	7/8	5,9	4.3	281	60	53	117
MDF-A03-20H 003	10125005602	1-1/8	5	4.3	214	52	53	117
MDF-A03-22H 009	10125006202	1-1/8	5,9	II	281	60	53	117
MDF-B03-25H 003	10125006902	1-1/8	10	II	256	76	53	144
MDF-A03-22H 003	10125005102	1-3/8	5,9	II	281	60	53	117
MDF-B03-25H 004	10125006802	1-3/8	10	II	280	76	53	144
MDF-B03-32H 001	10125009102	1-3/8	15	II	281	76	53	144
MDF-B03-32H 002	10125007502	1-5/8	15	II	281	76	53	144
MDF-B03-40H 002	10125004302	1-5/8	25	II	281	84	53	152
MDF-B03-40H 004	10125007702	2-1/8	25	II	281	84	53	152



Valve Body – Metrical Solder Connection, Models with MOP 45 bar

Model Valve Body	Part Number <sup>1) 2)</sup>	SAE Flare Connection [mm]	Kv [m <sup>3</sup> /h]	PED Category Fluid Group I	Dimensions [mm]			
					L	B	D	H
MDF-A03-2H 003	10125006502	6	0,16	4.3	102	30	53	82
MDF-A03-3H 005	10125003802	6	0,23	4.3	102	30	53	82
MDF-A03-3H 007	10125003402	10	0,23	4.3	117	30	53	82
MDF-A03-6H 005	10125004102	10	0,8	4.3	111	36	53	88
MDF-A03-6H 007	10125006702	12	0,8	4.3	127	36	53	88
MDF-A03-10H 005	10125003502	12	1,9	4.3	127	42	53	95
MDF-A03-10H 003	10125006302	16	1,9	4.3	160	42	53	95
MDF-A03-15H 005	10125003702	16	2,3	4.3	176	52	53	100
MDF-A03-15H 003	10125005002	22	2,3	4.3	176	52	53	100
MDF-A03-15H 051	MDFX0002102	16	3,3	4.3	176	52	53	100
MDF-A03-15H 052	MDFX0002202	22	3,3	4.3	176	52	53	100
MDF-A03-20H 001	10125011702	22	5	4.3	191	52	53	117
MDF-A03-22H 001	10125011802	22	5,9	4.3	281	60	53	117
MDF-A03-20H 007	10125005702	28	5	4.3	214	52	53	117
MDF-A03-22H 011	10125000302	28	5,9	4.3	281	60	53	117
MDF-B03-25H 005	10125007002	28	10	II	256	76	53	144
MDF-A03-22H 003	10125005102	35	5,9	II	281	60	53	117
MDF-B03-25H 004	10125006802	35	10	II	280	76	53	144
MDF-B03-32H 001	10125009102	35	15	II	281	76	53	144
MDF-B03-32H 003	10125007102	42	15	II	281	76	53	144
MDF-B03-40H 003	10125007602	42	25	II	281	84	53	152
MDF-B03-40H 004	10125007702	54	25	II	281	84	53	152

**Note:** 1) Extent of delivery: valve body without coil  
 2) Available also as industrial package. Contact Sanhua for more details





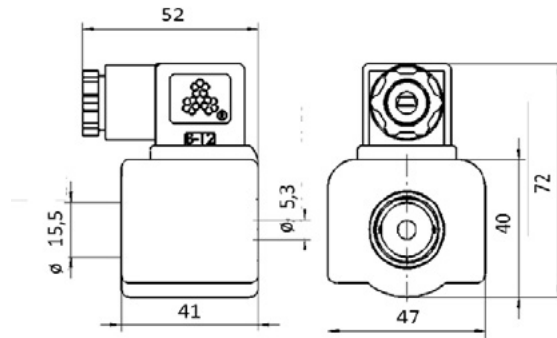
**TECHNICAL PARAMETERS OF COIL**

Model Coil <sup>1)</sup>	Part Number	Plug type	Supply	Rated Voltage [V]	Power [W]	Voltage Tolerance	Insulation Class	Protection Class (w/plug)	UL Approval
MQ-A03024-000001	10820009902			24	10,5 (50Hz) 8,5 (60Hz)			IP67	NO
MQ-A0311A-000001	10820010102	DIN	AC	110 to 120	12 (50Hz) 10 (60Hz)	-15% +10%	F	IP67	NO
MQ-A0322G-000001	10820010002			220 to 240	12 (50Hz) 10 (60Hz)			IP67	NO

**Note:** 1) Extent of delivery: coil body, fastening screw for the coil body, plug for electrical connection incl. Gaskets and fastening screws

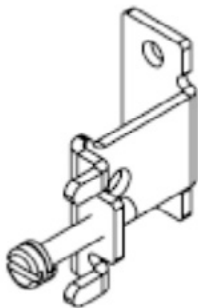
**DIMENSIONS - COILS**

MQ-A03 (Coil with DIN Plug):



**ACCESSORIES**

Bracket



Model <sup>1)</sup>	Part Number	Applicable Valve Models
		Solder
MDF-A03-033001	20125000902	MDF-A03-2H
		MDF-A03-3H
		MDF-A03-6H
		MDF-A03-10H
		MDF-A03-15H

**Note:** 1) Extent of delivery: bracket and screw

**FOR SERVICE PURPOSE PERMANENT MAGNET COIL AVAILABLE**

Coil Model	Part Number
KCT01	10108000102