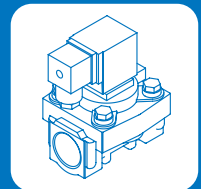
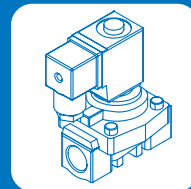
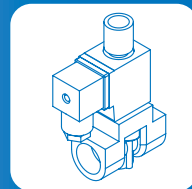
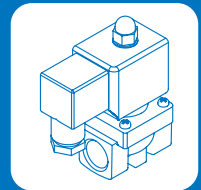
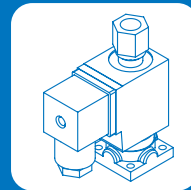
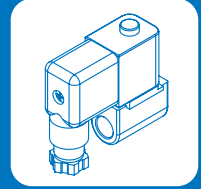
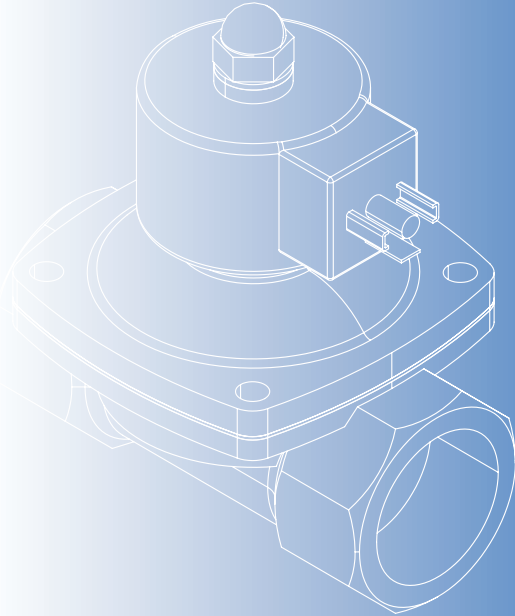


PROCESS VALVE



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2/2, 3/2 WAY SOLENOID VALVE

Selector table *Seal-code N NBR, J EPDM, V Viton, T Teflon, R RUBY, Z FFKM, S Silicon

Model	Inside structure			N.C.	N.O.	Fluid						Material		Port size	CV	
	Piston	Diaphragm	Plunger			Water / Air	Hot water	Steam	Light oil	Heavy oil	Gas	Vacuum	Body			Seal
MBS			○	●		●			●		●	●	Brass	N,J,V,T,Z	M5,1/8,1/4	0.03~0.40
MBD			○	●		●			●		●	●	Forged brass	N,V	1/4~1/2	0.14~0.95
MCS			○	●		●			●		●	●	Forged brass	N,J,V,T,R,Z	1/4~3/4	0.10~1.30
MED		○		●		●			●		●		Forged brass	N,J,V	1/4~1/2	1.1~2.2
MEP			○	●		●							Forged brass	N,J,V	3/8,1/2	2.4
MGA	○			●		●	●						Forged brass	N,J,V	3/8,1/2	1.9~2.6
MGS	○			●		●	●	●					Forged brass	T	3/8,1/2	1.9~2.6
MGD		○		●		●					●		Forged brass	N,J,V	3/8,2	2.0~31
MJS			○	●		●			●		●		Brass	N,J,V	—	0.08~0.32
MJR			○	●		●			●		●		Brass	N,J,V	—	0.10~0.42
MPD		○		●		●							PA (Nylon)	N,J,V	3/8~1	1.6~11
MPK		○		●		●							PA (Nylon)	N,J,V	3/8~1	1.6~11
MRB			○	●	●	●			●		●		Brass	V	1/8,1/4	0.05~0.09
MRC			○	●	●	●			●		●		Brass	N,J,V	1/8~3/8	0.10~0.31
MUCL (*1)			○	●		●			●		●		S.S.#303	N,J,V,T,Z	1/8,1/4	0.03~0.27
MUPH		○		●			Corrosive fluid					PVC / PTEF	T	1/4~3/4	0.11~2.5	
MUSC			○	●		●			●		●		S.S.#303	N,J,V,T,R,Z	1/8~3/8	0.03~1.30
MUSD		○		●		●			●		●		SCS14	N,J,V	1/2	2.0
MUSK				●		●								N,J,V	1/2	2.0
MUSL (*1)		○		●		●			●				SCS14	N,J,V	1/2	2.0
MWA	○			●		●			●		●		Forged brass	N	3/8~2	3.0~31
MWH	○			●		●			●				Forged brass	V	3/8~2	3.0~31
MWS	○			●		●	●	●					Forged brass	T	3/8~2	3.0~31
MWD		○		●		●					●		Forged brass	N,J,V	3/8~2	3.0~31
MWK		○		●		●			●		●		Forged brass	N,J,V	3/8~2	3.0~31
MYA	○			●		●	●						Forged brass	N,J,V	3/8,1/2	1.9~2.6
MYS	○			●		●	●	●					Forged brass	T	3/8,1/2	1.9~2.6
MZS			○	●		●		●	●		●		Forged brass	N,J,V,T,R,Z	1/8~1/2	0.12~0.83
MUD			○	●	●	●		●	●		●		Brass	N,J,V,S	1/8~1/2	0.18~0.79
MUS-6~10			○	●		●		●	●				Brass	T	1/8~3/8	0.23
MUDC		○		●		●	Hydrochloric acid, sulfuric acid					PVC / PTEF	T	1/4~1	0.28~4	
MSUS	○		○	●	●	●		●	●		●	●	S.S.#304	N,J,V,T,S	1/8~2	0.23~48
MUAO	○			●		●			●				Brass	N	1/4~1/2	2.5
MUW		○		●		●			●				Forged brass	N,J,V,S	3/8~2	4.5~48
MUW-NO		○		●	●	●			●		●		Forged brass	N,J,V,S	3/8~2	4.5~48
MUW-F		○		●	●	●			●				FC-20	N,J,V,S	1 1/4~4	22~180
MUG		○		●		●					●		Forged brass	N	3/8~2	4.5~48
MUV		○		●		●					●		Forged brass	N	3/8~2	4.5~48
MUAW	○			●		●							Cast bronze	N	1/2~2	4~48
MUS	○			●		●		●	●	●			Cast bronze	T	1/2~2	4~48
MUS-F	○			●		●		●	●				FC-20	J,V,T,S	1 1/4~4	22~175
MSUW		○		●	●	●			●		●		S.S.#304	N,J,V,S	1/2~2	4.5~48
MSUW-F		○		●		●			●		●		S.S.#304	N,J,V,S	1/2~2	4.5~48
MUPS	○			●		●		●	●				Cast bronze	J,V,T,S	1/2~1	4~12
MXAD			○	●		●			●		●		Forged brass	N,J,V,S	1/8~1/2	0.26~0.97
MXAD-AF		○		●		●			●		●		Forged brass	N,J,V,S	3/8~2	4.5~48
MXCD		○		●		●			●				Forged brass	N,V	1/4~1/2	2.4~2.7
MXPV		○		●		●			●				Forged brass	N,J,V,S	3/8~3/4	4.5~9.3

2/2 WAY

3/2 WAY

Model	Inside structure			N.C.	N.O.	Fluid						Material		Port size	CV	
	Piston	Diaphragm	Plunger			Water / Air	Hot water	Steam	Light oil	Heavy oil	Gas	Vacuum	Body			Seal
MCT			○	●		●			●		●	●	Forged brass	N,J,V,Z	1/4~3/4	0.02~0.65
MJT			○	●		●			●		●	●	Brass	N,J,V	—	0.10~0.42
MRJ			○		●	●			●		●	●	Brass	N,J,V	—	0.10~0.31
MUST			○	●		●			●		●	●	S.S.#303	N,J,V,Z	1/8~3/8	0.03~0.65
MUT			○	●	●	●			●	●			Forged brass	V	1/8~3/8	—
MZT			○	●		●			●		●	●	Forged brass	N,J,V,Z	1/8~1/2	0.05~0.65
MUA			○	●		●			●		●	●	Forged brass	N,V	1/4,3/8	0.1~0.12

*1. MUCL, MUSL are Latch valve.

Seal material

Code	Generic Name	Names	Features
N	NBR -5°C~80°C	Nitrile rubber	<ul style="list-style-type: none"> * Oil resistance and abrasion resistance, often apply to seal materials, particularly resistant to mineral oil for the best. * Not suitable for using in polar solvents, such as ketones, ozone, nitro hydrocarbons, MEK and chloroform.
T	PTFE (Teflon) -5°C~185°C	Polytetrafluoroethylene	<ul style="list-style-type: none"> * Able to withstand all the strong acid(including aqua regia), strong oxidants, reducing agents and various organic solvents except alkali metal fluoride, sodium hydroxide medium. * It is better than rubber almost in all physical properties except elasticity and it has the characteristics of a low coefficient friction.
J	EPDM -5°C~130°C	Ethylene propylene rubber	<ul style="list-style-type: none"> * Resistance to polar solvents (alcohols, ketones, ethylene glycol) of hydrochloric acid. With good ozone resistance, excellent water resistance and chemical resistance. * Not recommended for aromatic hydrogen.
V	VITON (FKM) (FPM) -5°C~130°C	Fluorocarbon rubber	<ul style="list-style-type: none"> * Premium chemical resistance and higher price are the two characteristics, can be resistant to most oils and solvents * Not recommended for ketones, esters and mixtures containing nitrate
R	RUBY -10°C~200°C	-	<ul style="list-style-type: none"> * The artificial ruby sheet is used as a seal to block the orifice, which is resistant to various corrosive and volatile fluids such as aromatic hydrocarbon fluids. But a slight gas leak is caused by the hardness of the ruby.
Z	FFKM -10°C~290°C	Perfluoroelastomer	<ul style="list-style-type: none"> * Excellent air tightness and optimum temperature and chemical resistance in all elastomer materials. * Resistant to corrosion from various chemical products such as strong acids, alkalis, ethers, ketones, esters, lubricants, fats, aromatics, nitrogenous compounds, hydrocarbons, alcohols, aldehydes, oils, vapors, amines, etc.
S	Silicone -5°C~130°C	Silicone rubber	<ul style="list-style-type: none"> * Excellent ozone ,oxides corrosion, and neutral solvent resistance * Not recommended for most concentrated solvents, oils, concentrated acid and dilution sodium hydroxide

* Please follow the recommended solenoid valve temperatures.

⊙: Outstanding ○: Resistant, unless otherwise specified △: Have no resistance ,Unless otherwise specified ×: Have no resistance

Oil, solvents		Rubber types					
		NBR	PTFE	EPDM	VITON	FFKM	Silicone
Engine oil	SAE#30	⊙	⊙	×	⊙	-	⊙
	SAE 10w-#30	⊙	⊙	×	⊙	-	○
Gear oil	For Vehicles	⊙	⊙	×	○	-	△
	Industrial second type (polarity) synthesis	⊙	⊙	△	○	-	△
Brake oil	DOT3(ethanol)	△	⊙	○	×	-	○
	DOT5(ethanol)	△	⊙	○	×	-	○
	DOT5(Silicon-based)	⊙	⊙	×	⊙	-	×
Machine oil (the 2nd axis lubricants)		○	⊙	×	⊙	-	×
Hydraulic operating oil (mineral oil-based)		⊙	⊙	×	⊙	-	△
Flame retardant hydraulic oil	Phosphate ester	×	⊙	×	△	-	⊙
	Water + diethanol Department	○	⊙	×	△	-	△
Consumers cut oil		△	⊙	×	⊙	-	⊙
Lubricating oil	Mineral oil-based	⊙	⊙	×	⊙	⊙	⊙
	Silicon-based	⊙	⊙	○	⊙	⊙	×
	Fluorine	⊙	⊙	×	×	⊙	⊙
Refrigerant	R12+Paraffinic	△	⊙	×	×	-	×
	R134a+Glycol	△	⊙	⊙	×	-	×
Gasoline, diesel oil		△	⊙	×	⊙	⊙	×
Light oil, kerosene		△	⊙	×	⊙	⊙	×
Heavy oil		△	⊙	×	⊙	-	×
Antifreeze (in ene glycol system)		○	⊙	⊙	×	-	△
Warm water		⊙	⊙	⊙	○	⊙	⊙
Sea water		△	⊙	⊙	○	-	×
Hot water, Steam (100°C)		×	⊙	⊙	△	○	○
Hydrochloric acid solution		△	⊙	⊙	○	-	○
30% Sulfuric acid solution		×	⊙	○	△	-	×
10% Nitric acid solution		×	⊙	○	△	-	×
40% Sodium hydroxide solution		△	⊙	⊙	×	-	×
Benzene		×	⊙	×	×	⊙	×
Alcohol		△	⊙	⊙	○	⊙	○
Butanone		×	⊙	×	×	⊙	△

M* Stability for various Chemical liquid to rubber & plastic



2/2, 3/2 WAY SOLENOID VALVE

mindman

⊙: Outstanding ○: Resistant, unless otherwise specified △: Have no resistance, Unless otherwise specified ×: Have no resistance

Oil, solvents		Rubber types					
		NBR	PTFE	EPDM	VITON	FFKM	Silicone
Organic acids	Acetic acid	△	⊙	⊙	○	⊙	⊙
Inorganic acid	Hydrochloric acid solution	△	⊙	⊙	○	⊙	⊙
	Sulfuric acid solution	-	⊙	⊙	⊙	⊙	○
	Nitric acid solution	×	⊙	○	△	⊙	○
Alkalies	Sodium hydroxide	△	⊙	⊙	○	⊙	○
	Ammonium hydroxide	△	⊙	⊙	○	⊙	⊙
Salt	Sodium chloride	△	⊙	⊙	⊙	-	⊙
	Sodium carbonate	△	⊙	⊙	○	-	⊙
Oxidizing agent	Sydrogen peroxide	△	⊙	○	⊙	⊙	⊙
	Sodium hypochlorite	×	⊙	○	⊙	⊙	○
Aliphatic carbohydrates	Trimethylpentane	△	⊙	×	⊙	⊙	×
Aromatic carbohydrate	Methylbenzene	△	⊙	×	⊙	⊙	△
Chlorination of carbohydrates	Trichloro ethylene	△	⊙	×	⊙	-	×
Alcohols	Methyl alcohol	△	⊙	⊙	△	⊙	⊙
	Ethyl alcohol	△	⊙	⊙	⊙	⊙	⊙
Ethers	Diethyl ether	△	⊙	△	×	⊙	×
Esters	Ethyl acetate	×	⊙	○	△	-	×
Ketone	Chloromethyl ethyl ketone	×	⊙	⊙	×	⊙	×
Aldehydes	Furfuraldehyde	△	⊙	⊙	×	⊙	×
Amine	Triethanolamine	△	⊙	⊙	×	-	×
Sulfur	Carbon disulfide	△	⊙	×	⊙	-	-



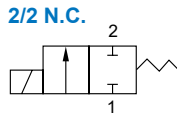
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~50°C
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8.0	5.3
DC (W)	6.0	6.8	5.2

Dimensions

Model	MBS				
	01	03	04	06	
Code Dimension (mm)	#2	51	51	51	51
	#3	54	54	54	54
	#2E	48	48	48	48
H	54	58	60	60	
H'	49	51	51	51	
L	22	22	35	35	
M	15	15	11	11	
W	#2	22	22	22	22
	#3, 2E	30	30	30	30
	#2E	0.16	0.17	0.20	0.18
N.W. (kg)	#3	0.21	0.22	0.25	0.23
	#2E	0.48	0.49	0.52	0.50

Order example

MBS - 03 - 2 - N - 2 - D - AC110 - □

MODEL

CODE

FIG.

COIL

VOLTAGE

PORT THREAD

01: M5
03: 1/8
04: 1/8
06: 1/4

1, 2, 3, 4,
5, 6, 7

2: #2
3: Bigger
2E: Explosion-Proof (*2)

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

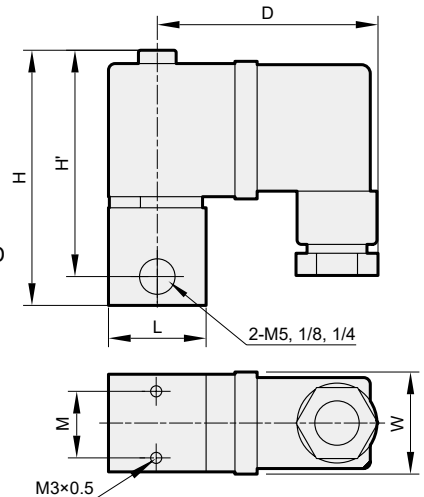
Blank: Rc thread
G: G thread
NPT: NPT thread

SEAL MAT'L

N: NBR
J: EPDM
V: Viton
T: Teflon (*1)
Z: FFKM

PLUG

Blank: DIN
D: LED
G: 1/2" NPT
Y: 2 wires (only for coil #2)



*1. When the seal material is (T) Teflon, the valve has slight leakage.
*2. Explosion-Proof (2E) coil with LED (D) plug is not applicable.

Specification

Model MBS: Brass body, mini 2/2 way N.C. for air, gas, water, vacuum, light oil (50cst down) etc.																						
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C										Max. O.P.D bar (Min. 0 bar)			CV	VAC. torr			
					Coil 2, 2E					Coil 3					Coil 2		Coil 3			Coil 2E		
					N	J	V	T	Z	N	J	V	T	Z	AC	DC	AC			DC	AC	DC
01(M5) 03(1/8) 04(1/8) 06(1/4)	1	N J V T Z	2 3 2E	1.0											30			0.03	10 ⁻²			
	2			1.3											30	24	30	30		30	30	0.05
	3			1.6	-5	-10	-20	-5	-10						30	20	30	30		24	0.09	
	4			2.0	~	~	~	~	~						16	11	22	20		17	14	0.14
	5			2.5	80	80	80	80	145						10	7	12	10		10	8	0.18
	6			3.0											6	4	8	8		7	5	0.27
	7*1			5.0											1	0.2	2	0.5	1	0.1	0.40	10

*1. Only for code 01(M5), 03(1/8).

*2. Connect air source to outlet port for vacuum application.



Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 100% ED coil
- PTB approval EExm II T4 coil

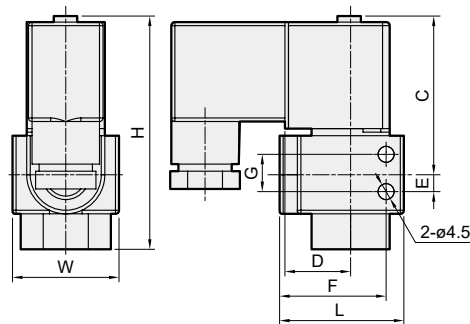
Dimensions

Model	MBD			
Code Dimension (mm)	6	9	10	15
L	36		46	
H	31		37	
W	69		91	
C	49		67	
D	21		28	
E	8.5		7	
F	30		41	
G	11			
N.W. (kg)	Coil 2	0.26	0.25	—
	Coil 3	0.30	0.29	—
	Coil 2E	0.66	0.65	—
	Coil 4	—	0.50	0.49
	Coil 5	—	0.59	0.58
Coil 3E	—	0.84	0.83	—

Order example

MBD - 09 - 2 - V - 3 - D - AC110 - □

MODEL: MBD
 CODE: 09 (1/4, 3/8, 3/8, 1/2)
 FIG.: 2 (1, 2, 3, 4, 5)
 SEAL MAT'L: V (NBR, Viton)
 COIL: 3 (2, 3, 2E, 4, 5, 3E)
 PLUG: D (Blank: DIN, 1/2" NPT, Y: 2 wires)
 VOLTAGE: AC110V (50/60)Hz (AC220V (50/60)Hz, DC24V)
 PORT THREAD: □ (Blank: Rc thread, G: G thread, NPT: NPT thread)



* Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.

Specification

Model MBD: Forged brass body, for water, air, gas, light oil, vacuum.														
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C			Working press. bar				CV		
					Coil 2, 2E		Coil 3	Coil 2		Coil 3			Coil 2E	
					N	V	N	V	AC	DC	AC		DC	AC
06(1/4) 09(3/8)	1	N V	2 3 2E	2.0	-10 ~ 90	-10 ~ 90	-10 ~ 145	13	5	20	10	14	8	0.14
	2			7				2.5	11	6	7	4	0.18	
	3			5				2	9	4	5	3		
	4			2				0.5	4	2	3	1	0.30	

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C		Working press. bar				CV		
					N	V	Coil 4		Coil 5			Coil 3E	
							AC	DC	AC	DC		AC	DC
10(3/8) 15(1/2)	1	N V	4 5 3E	3.5	-10 ~ 90	-10 ~ 160	20	16	25	20	16	16	0.45
	2			16			13	20	16	10	13	0.53	
	3			13			10	16	13	8	10		
	4			8			5	12	10	4	5	0.83	
	5			4.5			1.5	7	3	1.5	1.5	0.95	

* Connect air source to outlet port for vacuum application.

Power consumption

Coil power	2	3	2E
AC 50/60Hz (VA)	6.9	8.0	5.7
DC (W)	6.0	6.8	5.2

Coil power	4	5	3E
AC 50/60Hz (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0



Selection table



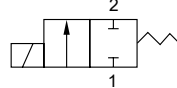
Seal material



Caution for safety
(Read before installing)



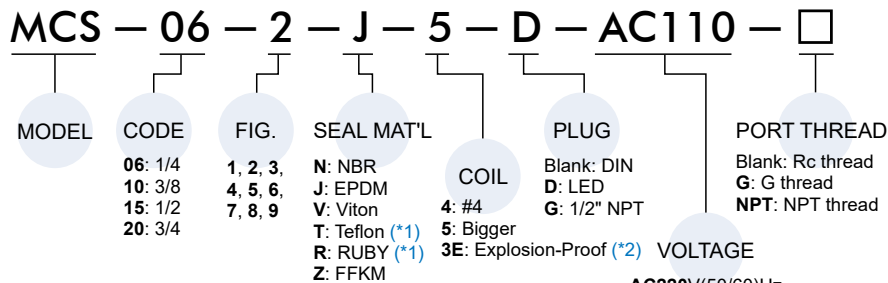
2/2 N.C.



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~+50°C
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)
- The Max. Orifice for seal **T=4.0mm, R=2.5mm, Z=5.0mm.**
- Opening: 15~30 ms
Closing: 30~60 ms

Order example



*1. Teflon(T) and RUBY(R) seal have below 300cc/min. slight leakage, not suitable for vacuum.

*2. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Weight

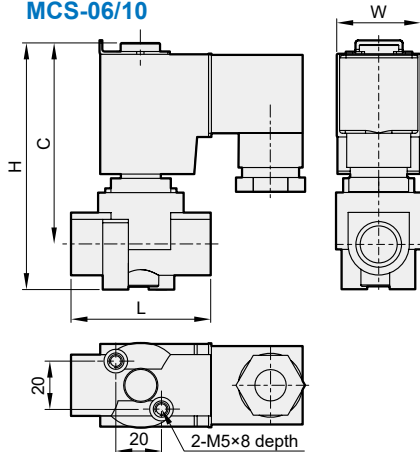
Unit: kg

Model	MCS		
Coil Code	4	5	3E
06	0.43	0.51	0.74
10	0.41	0.49	0.72
15	0.47	0.55	0.80
20	0.55	0.63	0.88
Coil power			
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

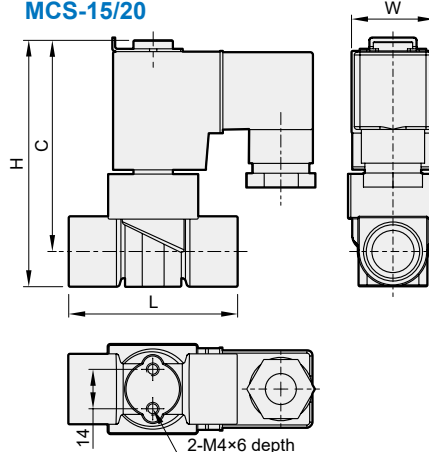
Dimensions

Code Dimension (mm)	06	10	15	20
L	49	55	60	
H	86	88	91	
C	71	74	74	
W	Coil 4	30	32	
	Coil 5	36	36	
	Coil 3E	36	36	

MCS-06/10



MCS-15/20



Model **MCS**: Forged brass body, 2/2 way N.C. Available fluid: water, air, gas, vacuum, light oil etc.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Seal temp. °C												Working pressure 0~ bar						CV	VAC. torr				
					Coil 4, 3E						Coil 5						Coil 4		Coil 5		Coil 3E							
					N	J	V	R	T	Z	N	J	V	R	T	Z	AC	DC	AC	DC	AC	DC						
06(1/4) 10(3/8) 15(1/2) 20(3/4)	1	N J V T R Z	4 5 3E	1.6																								
	2			2.0																								
	3			2.5																								
	4			3.0	-5	-10	-20	-5	-10	-20																		
	5			4.0	~	~	~	~	~	~																		
	6			5.0	80	145	160	80	145	185																		
	7			5.5																								
	8			7.5																								
	9			10.0																								

MCT series

3/2 WAY N.C. PLUNGER TYPE SOLENOID VALVE



Selection table



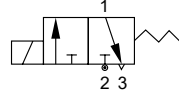
Seal material



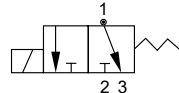
Caution for safety
(Read before installing)



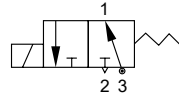
3/2 Function 1



3/2 Function 2



3/2 Function 3



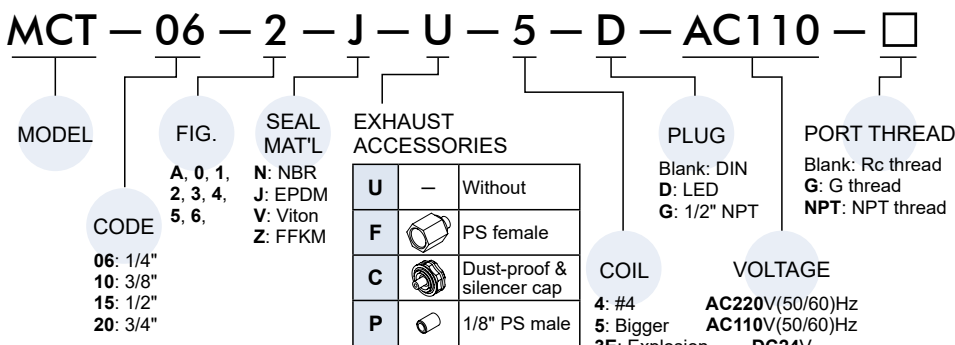
Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Ambient temp.: -15~50°C (No freezing)
- Voltage tolerance: ±8%
- Installing position is free. (You'd better put the coil upright)
- Opening: 20~60 ms
Closing: 40~120 ms

Power consumption

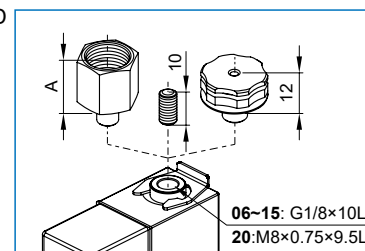
Coil power	4	5	3E
AC (VA)	19.5	23	9.2
DC (W)	15	18.5	10

Order example

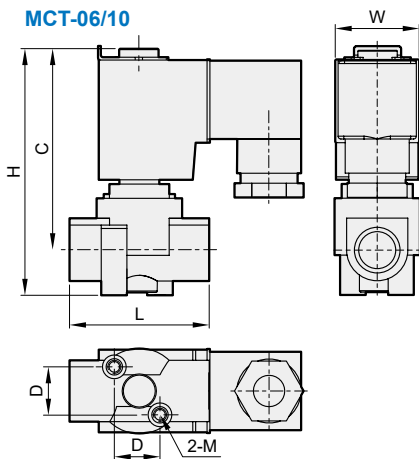


* Explosion-Proof (3E) coil with LED (D) plug is not applicable.

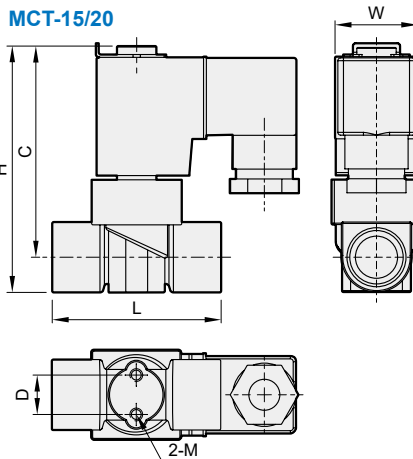
Exhaust accessories



MCT-06/10



MCT-15/20



Dimensions

Code Dimension (mm)	06	10	15	20
A	21	23	-	
C	71		74	
D	20	21	14	
H	86	88	91	
L	49	56	60	
M	M5			M4
W	4	31	32	
	5, 3E	36		
N.W (kg)	4	0.43	0.41	0.55
	5	0.51	0.49	0.63
	3E	0.76	0.74	0.88

Model MCT: Forged brass body, Available fluid: water, air, gas, vacuum, light oil (50 mm²/s down) etc. 3/2 way N.C.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C						Working pressure 0 ~ bar						CV	VAC. torr					
				Body	Tube	Coil 4, 3E			Coil 5			Coil 4			Coil 5					Coil 3E				
						N	JV	Z	N	JV	Z	1	2	3	1	2	3			1	2	3		
				AC/DC, Function																				
06(1/4) 10(3/8) 15(1/2) 20(3/4)	A	N J V Z	4 5 3E	1.0	1.6	-	-	-	-	-	-	1	2	3	1	2	1	2	3	1	2	3	0.02	10 ⁻²
	0			1.3								9	10	3	12	12	8	10	3	0.05				
	1			1.6								7	10	2	8.5	12	6	10	2	0.10				
	2			2.0								5.5	8	2	7	10	5	8	2	0.15				
	3			2.5								4	6.5	1	5.5	8	3	6.5	1	0.20				
	4			3.0								2.5	4.5	1	4	5.5	2	4.5	1	0.31				
	5			4.0								1.5	4.5	1	2.5	5.5	1.5	4.5	1	0.51				
	6			5.0								0.8	4.5	1	1.5	5.5	0.8	4.5	1	0.65				
																							10 ⁻¹	



Selection table



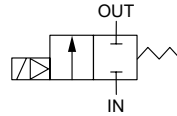
Seal material



Caution for safety
(Read before installing)



2/2 N.C.



Specification

- when using air and working pressure is over 5 bar, the operating cycle should keep under 10 times/min.
- Opening: 200~300 ms, Closing: 400~600 ms

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8.0	5.3
Last temp. °C	70.0	60.0	50.0
DC (W)	6.2	6.8	5.2
Last temp. °C	78.0	73.0	62.0
Coil ambient temp.	-15~50°C (No freezing)		

Dimensions

Model	MED				
Code Dimension (mm)	08	09	10	15	
D	50.0		50.0		
L	40.0		55.0		
H	72.0		76.5		
M	17.0		24.0		
W	32.0		38.0		
N.W. (kg)	Coil 2	0.25	0.24	0.33	0.31
	Coil 3	0.30	0.29	0.36	0.34
	Coil 2E	0.57	0.56	0.59	0.57

Order example

MED — 10 — □ — N — 2 — □ — AC110 — □

MODEL

Code	Fig.
08: 1/4	A: High pressure
09: 3/8	B: Big flow
Code	Orifice
10: 3/8	0: Standard
15: 1/2	

COIL

- 2: #2
- 3: Bigger
- 2E: Explosion-Proof (*)

VOLTAGE

- AC220V(50/60)Hz
- AC110V(50/60)Hz
- DC24V

PORT THREAD

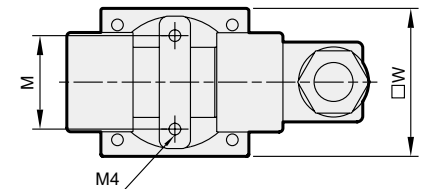
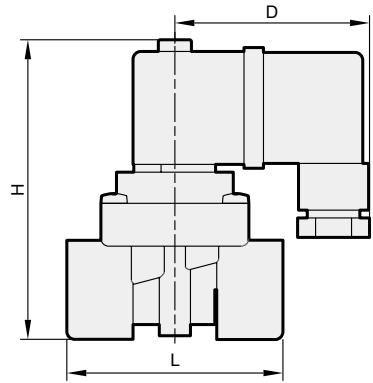
- Blank: Rc thread
- G: G thread
- NPT: NPT thread

SEAL MAT'L

- N: NBR
- J: EPDM
- V: Viton

PLUG

- Blank: DIN
- D: LED
- G: 1/2" NPT
- Y: 2 wires (only for coil #2)



* Explosion-Proof (2E) coil with LED (D) plug is not applicable.

Specification

* A: Air, L: Liquid

Model MED: Forged brass body, pressure forming S.S. plate, for water, air, gas, light oil. 2/2 way N.C.																					
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Working press. (0.3~ bar)								CV		
					Coil 2, 2E			Coil 3			Coil 2		Coil 3		Coil 2E						
					N	J	V	N	J	V	AC	DC	AC	DC	AC	DC					
08(1/4)	A	N	2	10	-5	-10	-5	-10	7	4	4	4	10	4	7	4	7	4	5	4	1.1
09(3/8)	B																				
10(3/8)	-	V	2E	15	80	80	80	120	6.5	5	5	4	10	7	7	5	5.5	4	4	3	2.2
15(1/2)																					



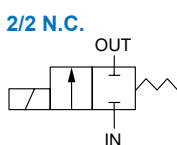
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 100% ED coil
- Opening: 5~20 ms, Closing: 10~40 ms

Power consumption

Coil power	4	5	3E
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

Weight

Model	MEP		
Code \ Coil	4	5	3E
N.W (kg)			
10	0.44	0.52	0.74
15	0.41	0.49	0.71

Order example

MEP - 10 - 0 - N - 4 - □ - AC110 - □

MODEL

CODE

10: 3/8
15: 1/2

SEAL MAT'L

N: NBR
J: EPDM
V: Viton

ORIFICE

0: Standard

COIL

4: #4
5: Bigger
3E: Explosion-Proof (*)

PLUG

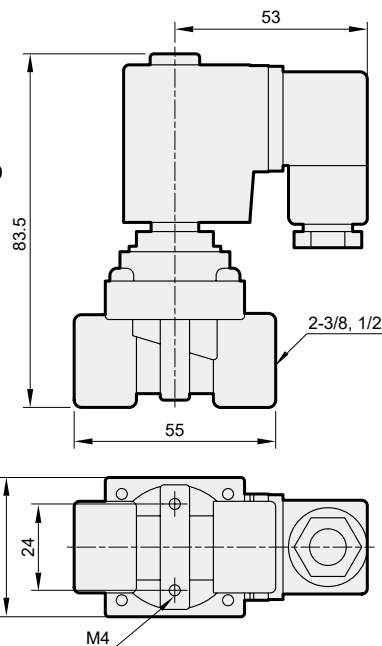
Blank: DIN
D: LED
G: 1/2" NPT

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread



* Explosion-Proof (3E) coil with LED (D) plug is not applicable.

Specification

Model **MEP**: Forged brass body, pressure forming S.S. plate, for water, air. 2/2 way N.C.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C						Working press. (0~ bar)						VAC. Torr						CV
				Coil 4		Coil 5		Coil 3E		Coil 4		Coil 5		Coil 3E		Coil 4		Coil 5		Coil 3E		
				N	J,V	N	J,V	N	J,V	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	AC	DC	
10(3/8) 15(1/2)	N J V	4 5 3E	15	-5 ~ 80	-10 ~ 90	-5 ~ 80	-10 ~ 145	-5 ~ 80	-10 ~ 145	0.5	0.2	1.2	0.5	0.2	0.1	400	600	10	400	600	700	2.4

MGA / MGS series

2/2 WAY N.C. PISTON TYPE SOLENOID VALVE



Selection table



Seal material



Caution for safety
(Read before installing)



Specification

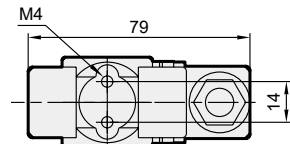
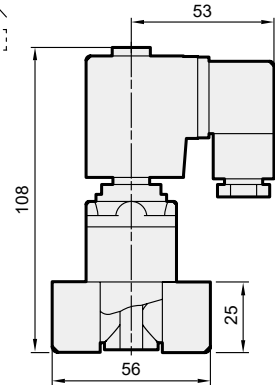
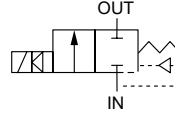
- Forged brass body.
- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

Coil power	4	5	3E
AC (VA)	17.6/15.4	33/23	9.2
DC (W)	15.0	18.5	10

Model	MGA / MGS	
Code	10	15
N.W (kg)	0.6	

2/2 N.C.



Order example

MGA - 10 - N - 4 - □ - AC110 - □

MODEL	CODE	SEAL MAT'L	COIL	PLUG	VOLTAGE	PORT THREAD
MGA	10: 3/8	N: NBR	4: #4	Blank: DIN	AC220V(50/60)Hz	Blank: Rc thread
MGS	15: 1/2	J: EPDM	5: Bigger	D: LED	AC110V(50/60)Hz	G: G thread
		V: Viton	3E: Explosion-Proof (*2)	G: 1/2" NPT	DC24V	NPT: NPT thread
		T: Teflon (*1)				

*1. When the seal material is (T) Teflon, the valve has slight leakage.

*2. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

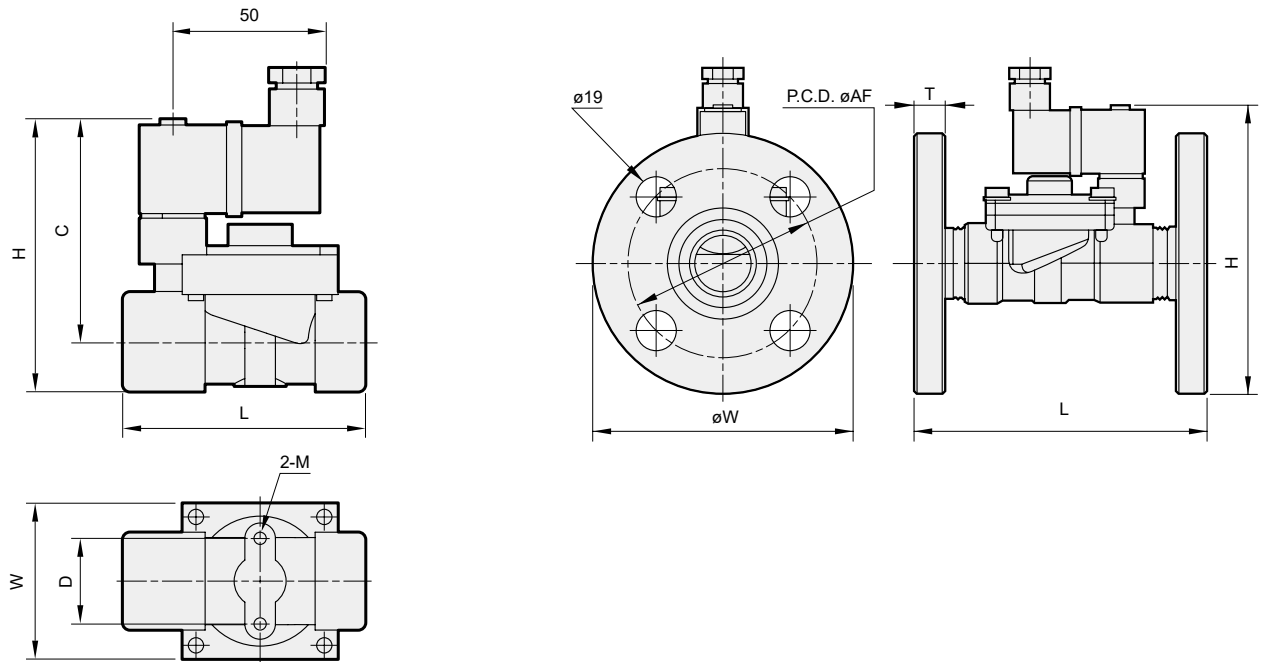
Specification

Model MGA : for water, air and higher temp. fluids. 2/2 way N.C.															
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C						Working press. bar					CV
				Coil 4			Coil 5, 3E			Coil 4		Coil 5		Coil 3E	
				N	J	V	N	J	V	AC	DC	AC	DC	AC/DC	
10(3/8)	N,J,V	4,5,3E	12	95	120		95	145		0.3~10	0.3~7	0.3~16	0.3~10	0.3~5	1.9
15(1/2)				2.6											

Model MGS : for steam and higher temp. fluids. 2/2 way N.C.										
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C				Working press. bar		CV
				Coil 4		Coil 5		Coil 4	Coil 5	
				N	J	N	J	AC	DC	
10(3/8)	T*	4, 5	12	158		185		0.3~5	0.3~10	1.9
15(1/2)				2.6						

* Teflon seal will have 400cc/min. down gas leakage.

F Flanged (JIS10K)



Dimensions & Weight

Model	MGD (Screwed)								MGD-F (Flanged)					
Code Dimension (mm)	10	15	20	25	32	40	45	50	25	32	40	45	50	
AF	—								90	100	105	105	120	
C	Coil 2, 3, 2E	68	68	72	76	91	91	99	99	—				
	Coil 4, 3E	79	79	83	87	102	102	110	110	—				
D	22	22	28	34	—					—				
H	Coil 2, 3, 2E	81	81	88	95.5	119.5	119.5	133	133	138	158	161	169	176
	Coil 4, 3E	92	92	99	106.5	130.5	130.5	144	144	149	169	172	180	187
L	64	64	80	90	102	102	123	123	138	155	155	175	177	
M	M5×0.8				—				M5×0.8	—				
T	—								14	16	16	16	16	
W	42	42	51	61	76	76	95	95	125	135	140	140	155	
N.W (kg)	Coil 2	0.50	0.47	0.71	0.92	1.95	1.68	3.48	2.90	3.31	5.07	5.13	6.92	7.02
	Coil 2E	0.77	0.74	0.98	1.19	2.22	1.95	3.75	3.17	3.58	5.33	5.40	7.20	7.28
	Coil 3	0.54	0.51	0.74	0.96	1.99	1.72	3.51	2.93	3.35	5.10	5.17	6.97	7.05
	Coil 4	0.60	0.57	0.81	1.03	2.07	1.80	3.62	3.04	3.42	5.19	5.26	7.07	7.16
	Coil 3E	0.91	0.88	1.11	1.32	2.36	2.09	3.90	3.32	3.71	5.48	5.54	7.36	7.45

MJ* / MRJ series

2/2, 3/2 WAY N.C., N.O. PLUNGER TYPE ACTUATOR VALVE



Selection table



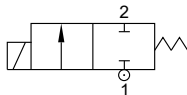
Seal material



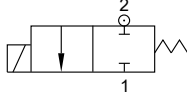
Caution for safety
(Read before installing)



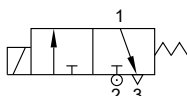
2/2 Function 1



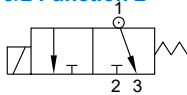
2/2 Function 2



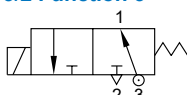
3/2 Function 1



3/2 Function 2



3/2 Function 3



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.
- MJS, MJR Opening: 15~30 ms, Closing: 30~60 ms
- MJT, MRJ Opening: 20~40 ms, Closing: 40~80 ms

Power consumption

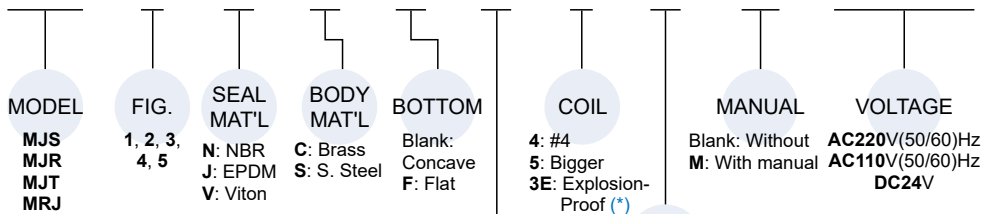
Coil power	4	5	3E
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0
Ambient temp.	-15~50°C (No freezing)		

Weight

Model		MJS / MJR / MJT / MRJ	
Body mat'l		C (Brass)	S (S.Steel)
Body weight (g)	Coil 4	318	326
	Coil 5	394	402
	Coil 3E	614	622

Order example of valve

MJS - 1 - N - C - F - U - 4 - D - □ - AC110



EXHUST ACCESSORIES (●: MJT, ○: MRJ only)

U	-	Without	●	○
F6		PS1/8" female	●	○
F8		PS1/4" female	●	○
F10		PS3/8" female	●	○
C		Dust-proof cap	●	○
P		1/8" PS male	●	○

PLUG
 Blank: DIN
 D: LED
 G: 1/2" NPT

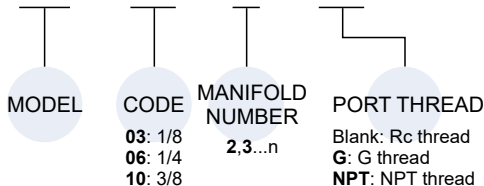
*1. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

Code	1/8"	1/4"	3/8"
A	20	21	23
Weight (g)	20	30	40

*2.

Order example of manifold

MJ - 03 - 2 - □



2/2 way N.C. Brass, stainless steel body. For water, low pressure steam, air, gas, oil(below 50 mm ² /s), vacuum etc.															
Model	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C		Working press. 0~ bar						CV	Torr
								Coil 4		Coil 5		Coil 3E			
				Coil 4, 3E, 5		Funtion 1									
N		J,V		AC	DC	AC	DC	AC	DC						
MJS	1	N J V	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	30	20	40	30	25	20	0.08	10 ⁻²	
	2			24			14	30	20	16	12				
	3			14			10	20	15	10	8	0.18			
	4			10			6	15	10	7	6	0.25			
	5			7			4	10	7	4.5	3.5	0.32			

2/2 way N.C. Brass, stainless steel body. For water, low pressure steam, air, gas, oil(below 50 mm ² /s), vacuum etc.															
Model	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C		Working press. 0~ bar						CV	Torr
								Coil 4		Coil 5		Coil 3E			
				Coil 4, 3E, 5		AC/DC, Funtion 1, 2									
N		J,V		1	2	1	2	1	2						
MJR	1	N J V	4 5 3E	1.6	-5 ~ 80	-10 ~ 145	20	7	30	8.5	20	6	0.08	10 ⁻²	
	2			14			5.5	20	7	12	5				
	3			10			4	15	5.5	8	3	0.18			
	4			6			2.5	10	4	6	2	0.25			
	5			4			1.5	7	2.5	3.5	1.5	0.32			

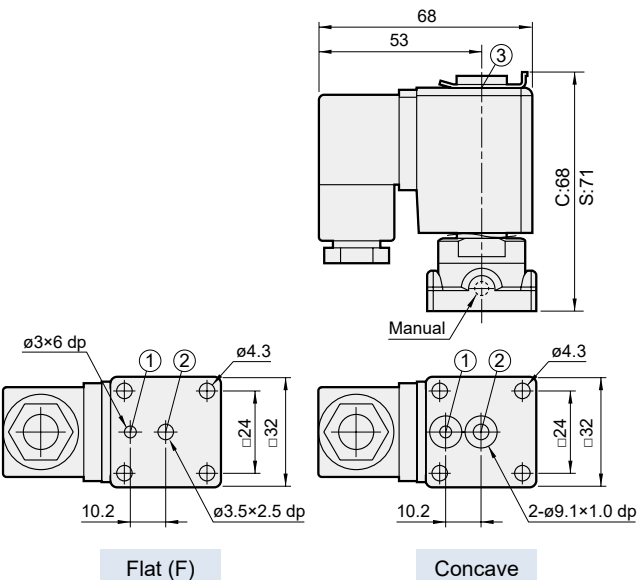
3/2 way N.C. Brass, stainless steel body. For water, low pressure steam, air, gas, oil(below 50 mm ² /s), vacuum etc.															
Model	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C		Working press. 0~ bar						CV	Torr
								Coil 4		Coil 5		Coil 3E			
				Coil 4, 3E, 5		AC/DC, Funtion 1, 2, 3									
N		J,V		1	2	3	1	2	1	2	3				
MJT	1	N J V	4 5 3E	1.3	-5 ~ 80	-10 ~ 145	9	5.5	3	12	6	8	5.5	3	0.05
	2			7			2		8.5	6		2		0.08	
	3			5.5			2		7	5		2		0.12	
	4			4			1		5.5	3		1		0.18	
	5			2.5			1		4	2		1		0.25	

3/2 way N.O. Brass, stainless steel body. For water, low pressure steam, air, gas, oil(below 50 mm ² /s), vacuum etc.													
Model	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C		Working press. 0~ bar				CV	Torr
								Coil 4, 3E		Coil 4			
				Body		Tube		N	J,V	AC/DC, Funtion 3			
MRJ	1	N J V	4 3E	1.3	-5 ~ 80	-10 ~ 145	12				0.08	10 ⁻²	
	2			10									
	3			8									
	4			6									
	5			4									

* Connect air source to outlet port for vacuum application.

MJ* / MRJ Dimensions

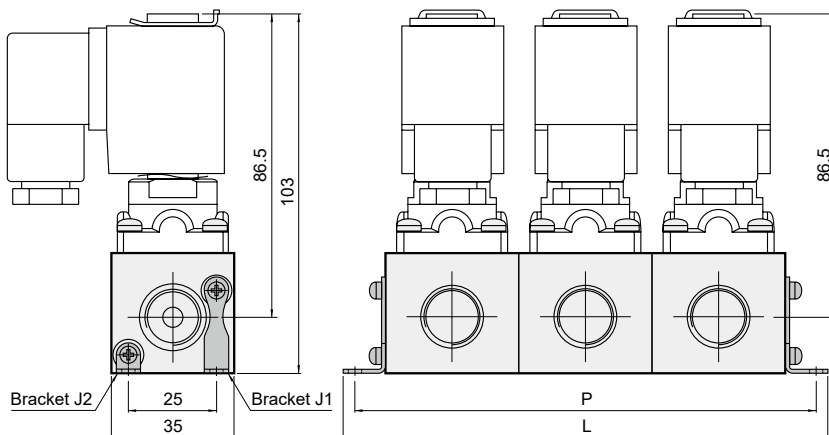
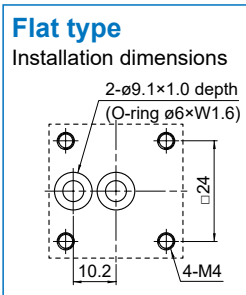
2/2, 3/2 WAY N.C., N.O. PLUNGER TYPE ACTUATOR VALVE



No. of stations	Code (mm)		MJS, MJR weight (kg)			MJT, MRJ weight (kg)		
	L	P	Coil 4	Coil 5	Coil 3E	Coil 4	Coil 5	Coil 3E
2	104	96	1.28	1.43	1.86	1.26	1.41	1.84
3	142	134	1.92	2.14	2.79	2.89	2.11	2.76
4	180	172	2.55	2.85	3.72	2.52	2.82	3.68
5	218	210	3.19	3.57	4.65	3.15	3.52	4.60
6	256	248	3.83	4.28	5.58	3.78	4.23	5.52
7	294	286	4.47	5.00	6.51	4.41	4.93	6.44
8	332	324	5.11	5.71	7.44	5.04	5.64	7.36
9	370	362	5.75	6.43	8.37	5.67	6.34	8.28
10	408	400	6.39	7.14	9.31	6.30	7.05	9.20
Bracket kit	-		0.02 [(J1+J2)×2]					

MJ Manifold

Material: Brass

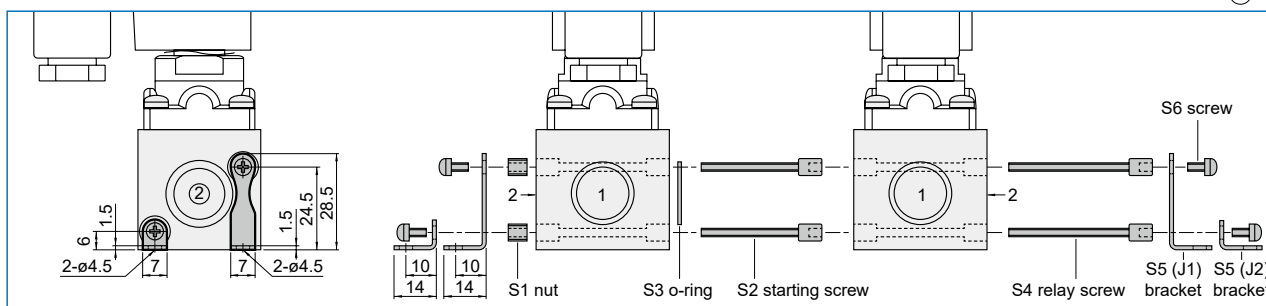


Manifold assembling

Manifold base could be added freely (only for brass material).
MJS/MRJ APPLICATION: Port ② is a common port.

MJS+MJ (2/2)

MRJ+MJ (3/2)



MPD / MPK series

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



Selection table



Seal material

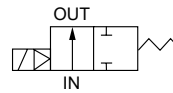


Caution for safety
(Read before installing)

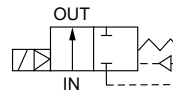


2/2 N.C.

Code 09,14



Code 10, 15~25



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ambient temperature: -15~50°C (No freezing).

Power consumption

Coil power	2	3	4	5
AC (VA)	6.9	8.0	18.0	—
DC (W)	6.2	6.8	—	18.5

Dimensions

Model		MPD / MPK					
Code	Dimension (mm)	09	14	10	15	20	25
C		65		93		98	
D		20		36		—	
H		78		109		121	
L		56		75		92	
M		ø3.5				—	
W		38		56		76	
N.W (g)	Coil 2,4	185	180	420	630	620	
	Coil 3,5	235	230	500	710	700	

Order example

MPD - 15 - J - 5 - D - AC110 - □

MODEL

MPD
MPK

CODE

09: 3/8
14: 1/2
15: 1/2
20: 3/4
25: 1

SEAL MAT'L

N: NBR
J: EPDM
V: Viton

COIL

2: #2
3: #3
4: #4
5: Bigger

PLUG

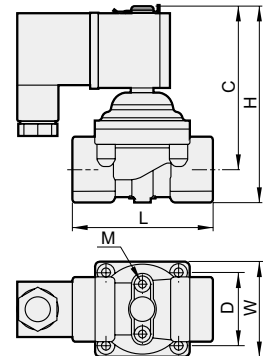
Blank: DIN
D: LED
G: 1/2" NPT
Y: 2 wires
(G, Y only for coil #2, #3)

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread



Specification

Model **MPD**: PA (Nylon) body, low pressure N.C., for water, air etc.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C				Work pressure 0.3~ bar (*1)				CV																																			
				N,J,V				Coil 2		Coil 3			0.2~ bar																																		
				Coil 2	Coil 3	Coil 4	Coil 5	AC	DC	AC	DC		Coil 4	Coil 5																																	
09(3/8)	N J V	2	15	4 ~ 60									1.6																																		
14(1/2)		3	15																			2.0																									
10(3/8)		4	18																												4.0																
15(1/2)			5																													18								4.0							
20(3/4)																																28															
25(1)			28																																												

Model **MPK**: PA (Nylon) body, zero pressure N.C., for water, air etc.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C				Work pressure 0~ bar (*1)				CV																																												
				N,J,V				Coil 2		Coil 3			Coil 4		Coil 5																																									
				Coil 2	Coil 3	Coil 4	Coil 5	AC	DC	AC	DC		AC	DC	AC	DC																																								
09(3/8)	N J V	2	15	4 ~ 60										1.6																																										
14(1/2)		3	15																						2.0																															
10(3/8)		4	18																																	4.0																				
15(1/2)			5																																		18										4.0									
20(3/4)																																					28																			
25(1)			28																																																					

*1. Standard value is for gas, () the value is for liquid.

MRB / MRC series

2/2 WAY N.C., N.O. PLUNGER TYPE SOLENOID VALVE



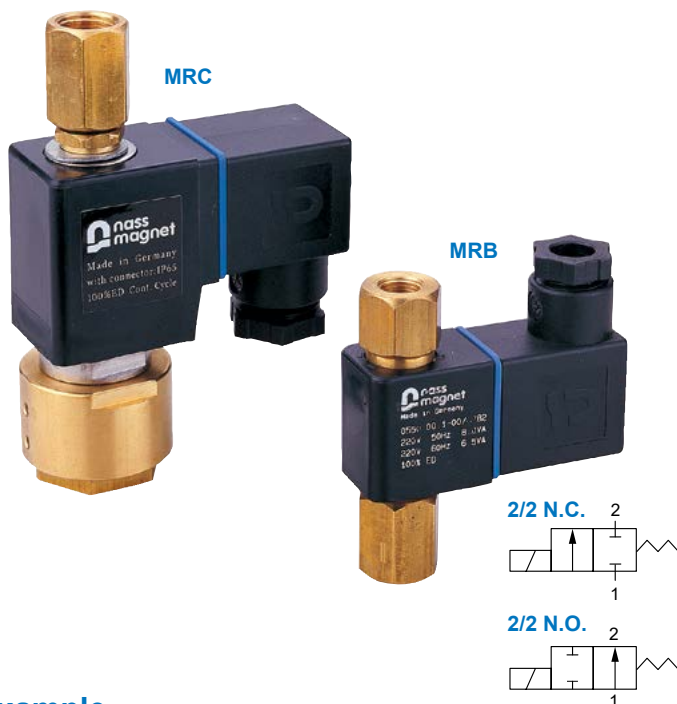
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.
- Opening: 5~20 ms, Closing: 10~40 ms

Power consumption

Coil power	2	2E	4	5	3E
AC (VA)	6.9	5.3	17.6/15.4	33/23	9.2
DC (W)	6.2	5.2	15	18.5	10
Ambient temp.	-15~50°C (No freezing)				

Dimensions

Model	MRB				MRC		
	03		06		03	06	10
Code Dimension (mm)	2	2E	2	2E			
L	77		78.6		98		
H	50				53		
W	22	30	22	30	34		
S	19.5				16		
S'	-				8		
N.W (g)	NC	138	406	140	409	-	
	NO	146	466	141	461	450	

Order example

MRB - 06 - 2 - NO - N - 2 - □ - AC110 - □

MODEL
MRB
MRC

CODE
03: 1/8
06: 1/4
10: 3/8

FIG.
1, 2, 3,
4, 5

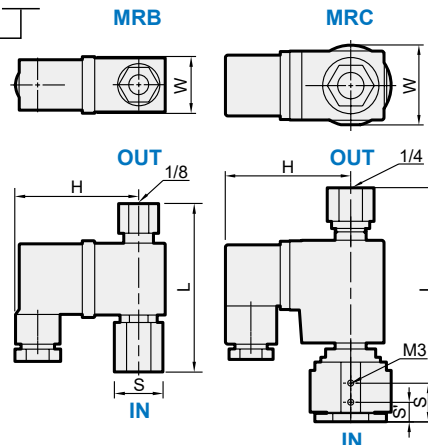
SEAL MAT'L
N: NBR
J: EPDM
V: Viton

COIL
2, 2E
4, 5, 3E
(*)

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PLUG
Blank: DIN
D: LED
G: 1/2" NPT
Y: 2 wires (only for coil #2)

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread



NC: Normally closed
NO: Normally open (MRB only)
Blank: Normally open (MRC only)

* Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.

Specification

Model **MRB**: Brass body, 2/2 way N.C., N.O., for water, air, gas, light oil, vacuum.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Seal temp. °C			Working press. 0~bar (AC/DC)			CV	VAC. torr
					Coil 2, 2E			Coil 2, 2E				
					V			NC	NO			
03(1/8)	1	V	2, 2E	1.3	-10~80			9	10		0.05	10 ⁻²
06(1/4)	2			5				8				

Model **MRC**: Brass body, 2/2 way N.O., for water, air, gas, light oil, vacuum.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Seal temp. 5~°C						Working press. bar			CV	VAC. torr					
					Coil 4, 3E			Coil 5			AC/DC									
					N	J	V	N	J	V	Coil 4	Coil 5	Coil 3E							
03(1/8) 06(1/4) 10(3/8)	1	N J V	4 5 3E	1.6	90			120			90			150			0~16	0~24	0~16	0.10
	2			2.0													0~13	0~20	0~13	0.15
	3			2.2													0~10	0~16	0~10	0.17
	4			2.5													0~7	0~10	0~7	0.20
	5			3.0													0~5	0~7	0~5	0.31



Selection table



Seal material



Caution for safety
(Read before installing)



Features

- Valve open when power on, then power shut off, valve still open. Change to opposite pole, valve close.
- Energy-saving, blocking hazardous fluid.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Open: 50~20ms, Close: 10~40ms

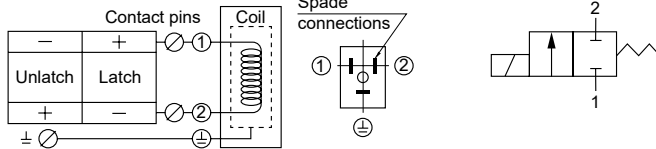
Power consumption

Coil power	2L
DC 6/12V (W)	6.9
DC 24V (W)	6.0

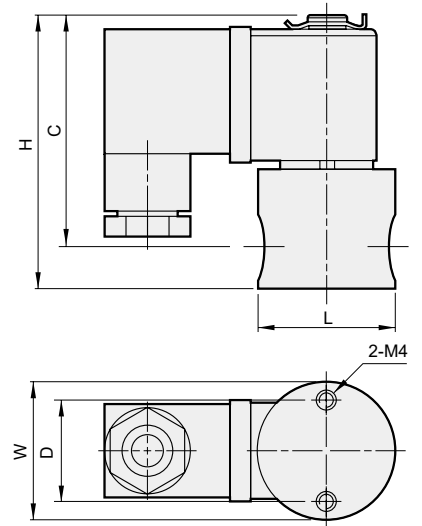
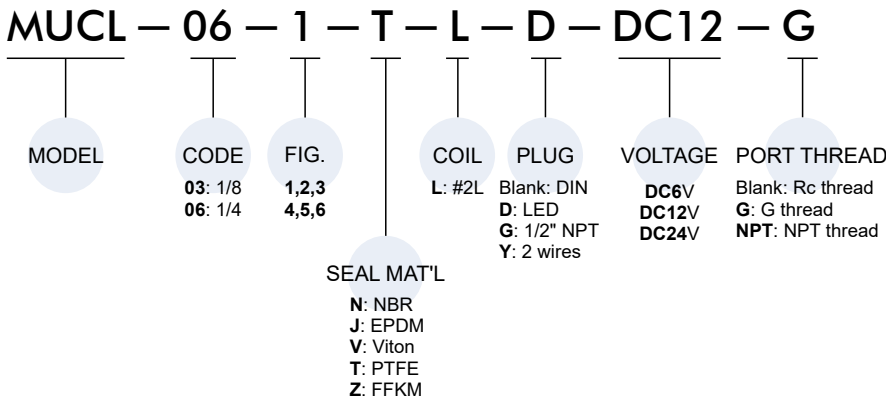
Dimensions

Model	MUCL	
Code	03	06
Dimension (mm)		
C	51	53
D	18	23
H	58	63
L	25	30
W	25	25
N.W (kg)	0.18	0.23

Circuit diagram



Order example



Specification

Model MUCL: SUS303 Body, For water, air, gas, light oil (below 50cst), vacuum etc. 2/2 way N.C.										
Code (Port)	Fig no.	Seal mat'l	Coil	Orifice mm	Temp. °C			Working press. (0~ bar)	CV	Torr
					N	J,V	T,Z			
03(1/8) 06(1/4)	1	N J V T Z	2L	1.0	-5 ~ 80	-10 ~ 80	-20 ~ 80	15	0.03	10 ⁻²
	2			1.3				12	0.05	
	3			1.6				10	0.07	
	4			2.0				6	0.11	10 ⁻¹
	5			2.5				5	0.18	
	6			3.0				4	0.27	

* Max. orifice: T-2.5mm

* PTFE seal has below 300cc/min. slight leakage, not suitable for vacuum.

MUPH series

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



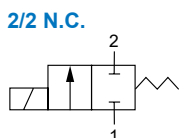
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Open: 50~200ms, Close: 100~400ms

Power consumption

Coil power	5	5K	6	6K
AC (VA)	-	21	-	30
DC (W)	18.5	-	25	-

Dimensions

Model	MUPH			
Code Dimension (mm)	06	10	15	20
C	79	80.5	102	105
D	25.5		41.7	
H	97		128	126
L	5, 5K	82		-
	6, 6K	-		99
M	M4		M5	
W	45		70	
N.W (kg)	5, 5K	0.46 (0.45)*		-
	6, 6K	-	0.97 (0.89)*	0.99 (0.91)*

* () The value for PVC body material.

Order example

MUPH - 15 - 1 - T - A - D - AC220

MODEL

CODE

FIG.

COIL

VOLTAGE

06: 1/4
10: 3/8
15: 1/2
20: 3/4

1,2,3

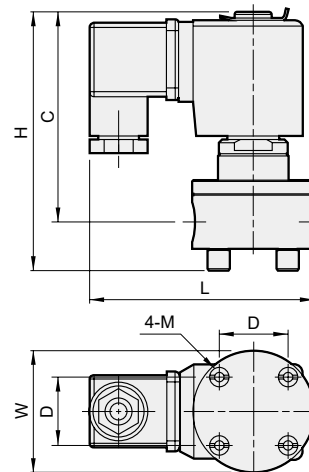
BODY MAT'L

T: PTFE
P: PVC

PLUG

Blank: DIN
D: LED
K: Rectifier
X: Rectifier w/ Lamp
(AC coil should have rectifier plug)

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V



Specification

Model **MUPH**: PTFE/PVC Body, for sulfuric acid, hydrochloric acid, chemically corrosive fluids.

Code (Port)	Fig no.	Body mat'l	Coil	Orifice mm	Temp. °C	Working press. (0~ bar)		CV	
						Coil 5,5K	Coil 6,6K		
06(1/4)	1	T P	5 5K	2.5	-5 ~ 80 (PTFE)	-	-	0.11	
	2			4				0.26	
	3			6				0.57	
10(3/8)	1			4				0.3	
	2			6				0.6	
	3			8				0.9	
15(1/2)	1		6 6K	6		-	-	1.8	0.8
	2			9				1.6	1.2
	3			12				0.4	1.6
20(3/4)	1	10		1.0	1.5				
	2	15		0.5	2.5				



Selection table



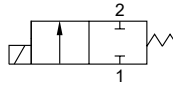
Seal material



Caution for safety
(Read before installing)



2/2 N.C.



Specification

- IP65 waterproof coil. • Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.
- Response time: 03,06 ON: 5~20ms, OFF: 10~40ms
08,10 ON: 15~30ms, OFF: 30~60ms

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	18	24	8.6
DC (W)	6.0	6.8	5.2	15.0	18.5	10.0
Ambient temp.	-15~50°C (No freezing)					

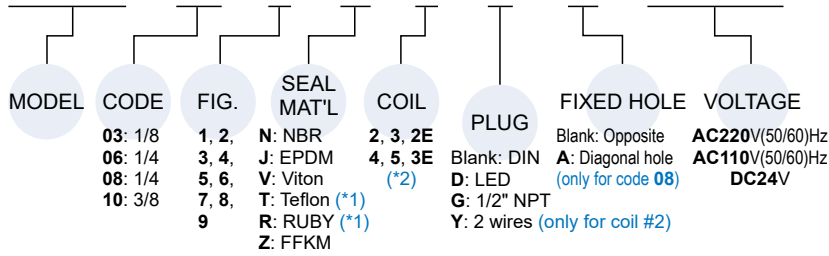
Dimensions

Model	MUSC											
	03			06			08			10		
Code Dimension (mm)	2	3	2E	2	3	2E	4	5	3E	4	5	3E
L	25			30			40			42		
W	25	30		25	30							
H	58			62			86			87		
C	51			53			75			75		
D	18			23			31			31		
F	50			50			53			53		
M	M4			M4			M5			M5		
A	-			-			22			-		
N.W (kg)	0.17	0.21	0.44	0.22	0.25	0.48	0.50	0.58	0.79	0.52	0.60	0.81

Order example

* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUSC-06-2-N-3-D-□-AC110



*1. When the seal material is (T) Teflon or (R) RUBY, the valve has slight leakage.
*2. Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.

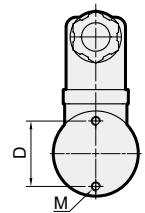
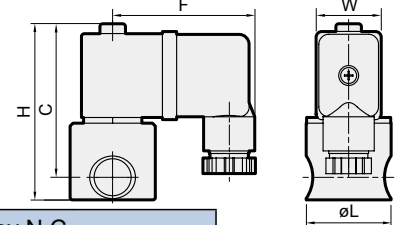
Specification

Model **MUSC**: 303 S.S. body, for water, air, gas, light oil (50cst down), vacuum. 2/2 way N.C.

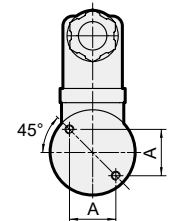
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Working pressuer 0~bar						CV	VAC. torr	
					Coil 2/2E			Coil 3			Coil 2		Coil 3		Coil 2E				
					N	JV	TZ	N	JVTZ	AC	DC	AC	DC	AC	DC				
03(1/8) 06(1/4)	1	N J V T Z	2 3 2E	1.0															
	2			1.3															
	3			1.6															
	4			2.0	-5	-10	-20	-5	-10	30	30	30	30	30	30	0.03	10 ⁻²		
	5			2.5	~	~	~	~	~	16	11	22	20	17	14	0.09			
	6			3.0	80	80	80	80	145	10	7	12	10	10	8	0.18			
	7			3.5						6	4	8	8	7	5	0.27			
	8			5.0						4	2	8	6	5	4	0.30			
							1	0.2	2	0.5	1	0.1	0.40	10					

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Max. O.P.D. bar (Min. 0 bar)						CV	VAC. torr	
					Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E				
					N	JV	TRZ	N	JV	TRZ	AC	DC	AC	DC	AC	DC			
08(1/4) 10(3/8)	1	N J V T R Z	4 5 3E	1.6															
	2			2.0															
	3			2.5															
	4			3.0	-5	-10	-20	-5	-10	30	30	40	30	25	20	0.10	10 ⁻²		
	5			4.0	~	~	~	~	~	24	14	30	28	16	12	0.15			
	6			5.0	80	145	160	80	145	185	17	10	24	20	10	8		0.20	
	7			5.5							10	6	16	13	7	6		0.31	
	8			7.5							8	4	12	8	4.5	3.5	0.54		
	9			10.0							6	2	9	5	2.5	2	0.80		
								4	2	7	4	2	2	0.95					
								2	0.8	3	2	1	1	1.10					
								0.8	0.4	1.6	0.8	0.4	0.4	1.30	10				

*1. Max. Orifice: 03/06 T=2.5mm, Z=3.0mm., 08/10 J=5.0mm, T=4.0mm, R=2.5mm, Z=5.0mm. *3. Connect air source to outlet port for vacuum application.
*2. Seal T and R might have below 300cc/min. slight leakage, so it is not suitable for vacuum.



A
Diagonal hole



MUSD series

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



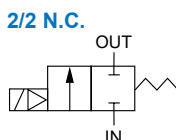
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.
- Response time: ON 100~200ms, OFF: 200~400ms

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8.0	5.3
DC (W)	6.2	6.8	5.2

Dimensions

Model	MUSD	
Code	15	
Dimension (mm)		
L	55	
H	77	
W	38	
C	65	
D	24	
N.W (kg)	Coil 2	0.30
	Coil 3	0.35
	Coil 2E	0.62

Order example

MUSD - 15 - 0 - J - 2 - D - C - AC110 - G

MODEL

CODE

ORIFICE

COIL

PLUNGER

PORT THREAD

SEAL MAT'L

PLUG

VOLTAGE

15: 1/2

0: Standard

2: #2
3: Bigger
2E: Explosion-Proof (*1)

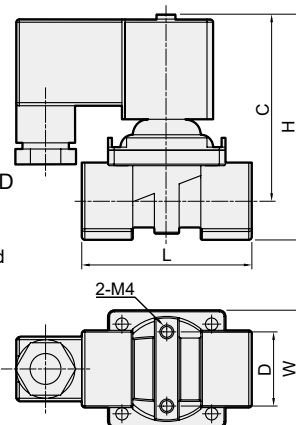
Blank: Standard
C: PTFE coating

Blank: Rc thread
G: G thread
NPT: NPT thread

N: NBR
J: EPDM
V: Viton

Blank: DIN
D: LED
G: 1/2" NPT
Y: 2 wires
(only for coil #2)

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V



*1. Explosion-Proof (2E) coil with LED (D) plug is not applicable.

Specification

* A: Air, L: Liquid

Model MUSD : SCS14 body, #304 cover, for water, air, gas, light oil. 2/2 way N.C.																						
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C						Working press. (0.3~ bar)												CV
				Coil 2, 2E			Coil 3			Coil 2				Coil 3				Coil 2E				
				N	J	V	N	J	V	AC		DC		AC		DC		AC		DC		
										A*	L*	A	L	A	L	A	L	A	L	A	L	
15(1/2)	N J V	2 3 2E	15	-5 ~ 60	-10 ~ 60	-5 ~ 60	-10 ~ 120	6.5	5	5	4	10	7	7	5	5.5	4	4	3	2		



Selection table



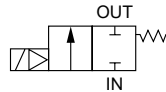
Seal material



Caution for safety
(Read before installing)



2/2 N.C.



Features

- Process valve for special environment.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Open: 100~200ms, Close: 200~400ms

Power consumption

Coil power	2	3	2E
AC (VA)	6.9	8	5.3
DC (W)	6.2	6.8	5.2

Dimensions

Model	MUSK		
Code Dimension (mm)	2	3	2E
C	65		
D	24		
H	77		
L	55		
W	38		
N.W (kg)	0.30	0.35	0.62

Order example

MUSK - 15 - 0 - J - 2 - D - C - DC24 - G

MODEL

CODE

ORIFICE

COIL

PLUNGER

PORT THREAD

15: 1/2

0: Standard

2: Standrad

3: Bigger

2E: Explosion-proof (*1)

Blank: Standard

C: PTFE coating

Blank: Rc thread

G: G thread

NPT: NPT thread

SEAL MAT'L

PLUG

VOLTAGE

N: NBR

J: EPDM

V: Viton

Blank: DIN

D: LED

G: 1/2" NPT

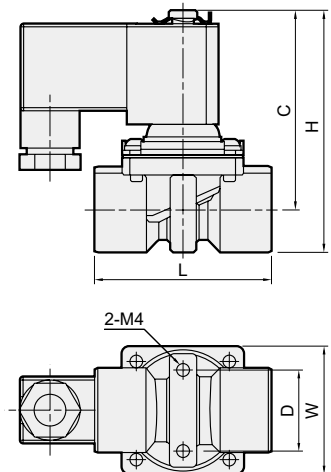
Y: 2 wires (Only for coil 2)

AC220V(50/60)Hz

AC110V(50/60)Hz

DC24V

*1. Explosion-Proof (2E) coil with LED (D) plug is not applicable.



Specification

* A: Air, L: Liquid

Model MUSK : SCS14 S.S. body, #304 cover, for water, air, gas, light oil, Vacuum etc. 2/2 way N.C.																					
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C				Working press. (0~ bar)												CV	Torr
				Coil 2,2E		Coil 3		Coil 2				Coil 3				Coil2E					
				N	J,V	N	J,V	AC		DC		AC		DC		AC		DC			
						A*	L*	A	L	A	L	A	L	A	L	A	L	A	L		
15(1/2)	N J V	2 3 2E	15	-5~60	-10~60	-5~60	-10~120	6.5	4.0	4.5	3.0	9.0	7.0	6.0	5.0	5.0	4.0	4.0	3.0	2.0	10 ⁻¹

MUSL series

2/2 WAY N.C. DIAPHRAGM TYPE LATCH VALVE



Selection table



Seal material



Caution for safety
(Read before installing)



Features

- Energy-saving, blocking hazardous fluid.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Open: 100~200ms, Close: 200~400ms

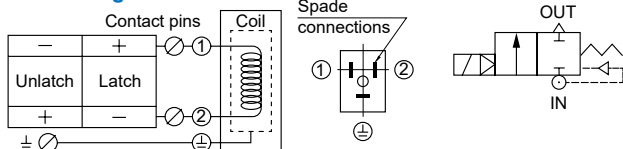
Power consumption

Coil power	2L
DC 6V/12 (W)	6.9
DC 24V (W)	6.0

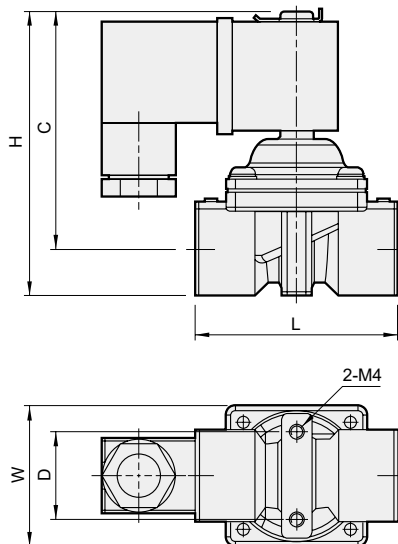
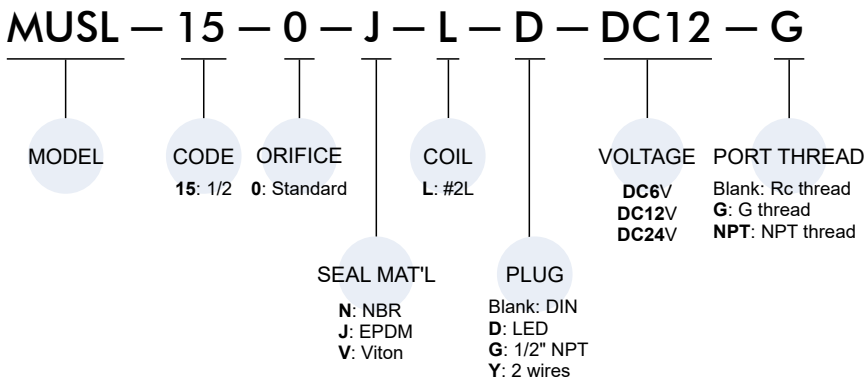
Dimensions

Model	MUSL
Code Dimension (mm)	15
C	65
D	24
H	77
L	55
W	38
N.W (kg)	0.30

Circuit diagram



Order example



Specification

Model MUSL : SCS14 S.S. body, #304 cover, for water, air, gas, light oil, vacuum etc. 2/2 way N.C.									
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C		Working press. (0~ bar)		CV	Torr
				Coil L		Coil L			
				N	J, V	gas	liquid		
15(1/2)	N J V	2L	15	-5 ~ 60	-10 ~ 60	5	3	2	10 ⁻¹



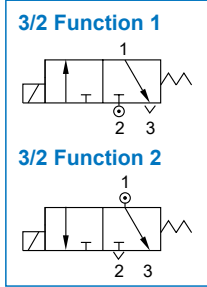
Selection table



Seal material



Caution for safety
(Read before installing)



* O.P.D. of function 1, 2 refer to specification table.

Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	18.0	24.0	8.6
DC (W)	6.2	6.8	5.2	15.0	18.5	10.0

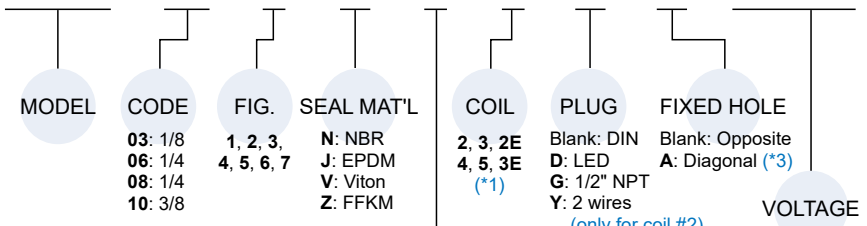
Dimensions

Model	MUST			
Code	03	06	08	10
Dimension (mm)				
L	25	30	40	42
W	2	25	25	-
	3, 2E	30	30	-
F	22	22	29	29
H	58	63	86	87
C	51	53	75	75
D	18	23	31	31
M	M4	M4	M5	M5
A	-	-	22	-
N.W (kg)	2, 4	0.18	0.23	0.52
	3, 5	0.23	0.28	0.58
	2E, 3E	0.50	0.55	0.83
				0.85

Order example

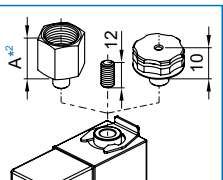
* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MUST - 06 - 2 - N - C - 5 - D - A - AC110



EXHUST ACCESSORIES

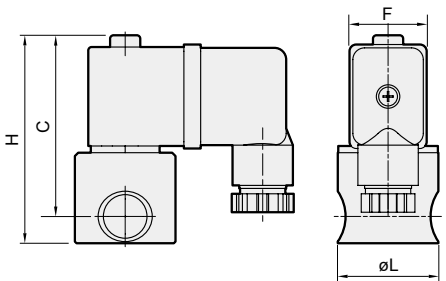
U	-	Without
F		PS female
C		Dust-proof & silencer cap
P		1/8" PS male



- *1. Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.
- *2. Code

Code	03	06	08	10
A	19	20	20	22
- *3. Only for code 08.

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

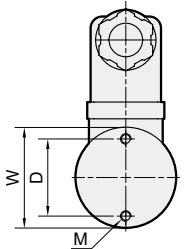


Specification

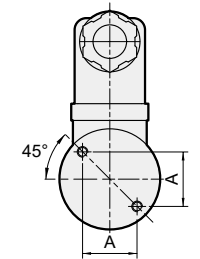
Model **MUST**: 303 S.S. bar body , for water, air, gas, light oil (50cst down) , vacuum. 3/2 way N.C., N.O.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C						Working pressure (0~ bar)						CV	Torr
						Coil 2, 2E			Coil 3			Coil 2		Coil 3		Coil 2E			
				Body	Tube	N	JV	Z	N	JVZ	1	2	1	2	1	2			
				Function															
03(1/8) 06(1/4)	2	N J V Z	2 3 2E	1.0	1.2	-5 ~ 80	-10 ~ 80	-20 ~ 80	-5 ~ 80	-10 ~ 145	6.5	7.0	8.0	5.5 4.8 3.5 2.0 0.8	5.5	0.03 0.05 0.09 0.14 0.18	10 ⁻¹		
	3			6.0							7.0		7.0					9.0	4.8
	4			4.0							5.5		3.5					2.0	3.5
	5			2.8							5.0		3.5					7.0	2.0
	5			1.2							1.5		2.0					3.5	0.8
	6			1.2							1.5		2.0					3.5	0.8

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C						Working pressure (0~ bar)						CV	Torr			
						Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E						
				Body	Tube	N	JV	Z	N	JV	Z	1	2	1	2	1	2					
				Function																		
08(1/4) 10(3/8)	1	N J V Z	4 5 3E	1.3	1.6	-5 ~ 80	-10 ~ 145	-20 ~ 160	-5 ~ 80	-10 ~ 145	-20 ~ 185	9.0	10	12	8.0	6.0	10	0.05 0.10 0.15 0.20 0.31 0.51 0.65	10 ⁻²			
	2			7.0								8.5		12						6.0		
	3			5.5								8.0		7.0						10	5.0	8.0
	4			4.0								6.5		5.5						8	3.0	6.5
	5			2.5								4.0		2.0						4.5	4.5	0.31
	6			1.5								4.5		2.5						5.5	1.5	4.5
	7			1.0								1.5		0.8						0.8	0.65	



A Diagonal hole





Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 or EEx ia II C T6 PTB approval.
- Response time: ON 5~20ms, OFF 10~40ms.

Power consumption

Coil power	2	3	2E	4	5	3E
AC (VA)	6.9	8.0	5.3	19.5	23.0	9.2
DC (W)	6.0	6.8	5.2	15.0	18.5	10.0

Dimensions

Model	MUT			
Code Dimension (mm)	03	06	08	10
C	48		65	
D	14		22	
E	25		29	
G	51		57	
H	69		87	
L	46		51	
M	M3		M4	
W	32		39	
N.W (kg)	2, 4	0.33	0.5	
	3, 5	0.31	0.6	
	2E, 3E	0.58	0.8	

Order example

MUT - 10 - 2 - 3 - □ - AC110 - □

MODEL

CODE

FIG.

COIL

VOLTAGE

PORT THREAD

03: 1/8
06: 1/4
08: 1/4
10: 3/8

1
2
3
4

2, 3, 2E
4, 5, 3E
(*)

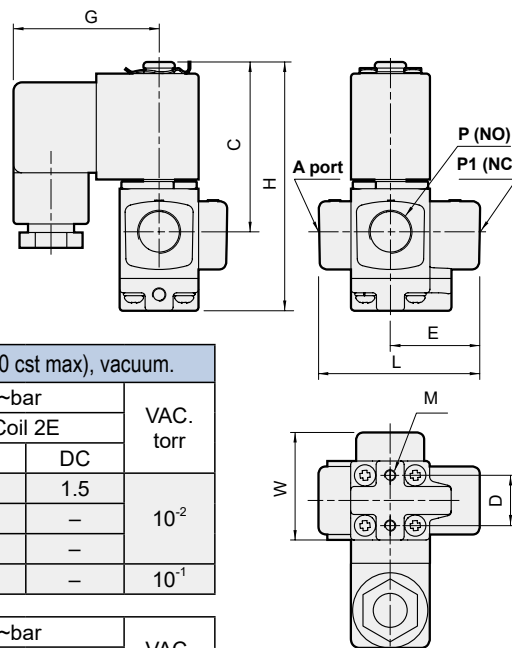
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: Rc thread
G: G thread
NPT: NPT thread

PLUG

Blank: DIN
D: LED
G: 1/2" NPT
Y: 2 wires (only for coil #2)

* Explosion-Proof (2E/3E) coil with LED (D) plug is not applicable.



Specification

Model MUT: Forged brass body, 3/2 way N.C., N.O., for water, air, gas, light oil, heavy oil (120 cst max), vacuum.												
Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Mat'l Temp.°C V	Working pressure 0~bar				VAC. torr		
						Coil 2		Coil 3			Coil 2E	
						AC	DC	AC	DC		AC	DC
03(1/8) 06(1/4)	1	V*	2 3 2E	1.0	-5~95	6	6	5.5	1.5	10 ⁻²		
	2			5		5	4.5	-				
	3			2.5		2	2	-				
	4			1.5		0.7	1.5	-	10 ⁻¹			
08(1/4) 10(3/8)	1	V*	4 5 3E	1.3	-5~95	Coil 4		Coil 5		Coil 3E		10 ⁻²
	2			AC/DC		AC/DC	AC	DC				
	10			14		8	7					
	7			12		7	4					
	6			10		5	2					
4	5	8	5	1.5	10 ⁻¹							

* V: Viton (FKM)

MWA / MWH / MWS series

2/2 WAY N.C. PISTON TYPE SOLENOID VALVE



Selection table



Seal material



Caution for safety
(Read before installing)

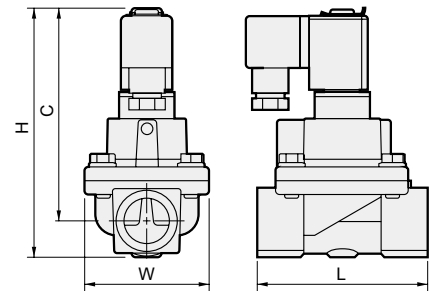
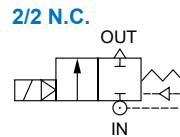


Specification

- IP65 waterproof coil.
- Ex coil is EExm II T4 PTB approval.
- Ambient temp.: -15~50°C
- Voltage tolerance: ±8%
- Installing position is free.
(You'd better put the coil upright)
- Pilot piston series.
- Opening: 100~300 ms, Closing: 300~2000 ms

Power consumption

Coil power	4	5	3E
AC (VA)	19.5	23	9.2
DC (W)	15	18.5	10



Order example

* Standard port thread: Rc thread.
G and NPT thread please contact our sales.

MWA - 10 - N - 4 - □ - F - AC110

MODEL

MWA
MWH
MWS

CODE

10, 15, 20, 25,
32, 40, 45, 50

COIL

4: #4
5: Bigger
3E: Explosion-
Proof (*2)

CONN.

Blank: Screwed
F: Flanged

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

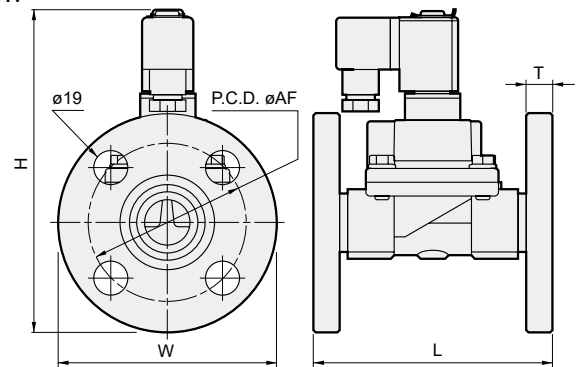
SEAL MAT'L

N: NBR
V: Viton
T: Teflon (*1)

PLUG

Blank: DIN
D: LED
G: 1/2" NPT

F Flanged (JIS10K)



*1. When the seal material is (T) Teflon, the valve has slight leakage.
*2. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

Dimensions

Model	MWA / H / S (Screwed)									MWA / H / S (Flanged)				
	Code	10	15	20	25	32	40	45	50	25	32	40	45	50
Code Dimension (mm)														
AF										90	100	105	105	120
C		116	117	122	137	151								
L		77	82	96	102	123				138	155	155	175	175
H		130	134	142	165	185				185	204	207	221	228
T										14	16	16	16	16
W		51	61	72	76	95				125	135	140	140	155
N.W (kg)	4	1.14	1.11	1.34	1.82	2.88	2.62	4.80	4.23	4.21	5.99	6.07	8.25	8.35
	5	1.22	1.19	1.42	1.89	2.95	2.69	4.88	4.31	4.29	6.07	6.15	8.33	8.43
	3E	1.44	1.41	1.63	2.11	3.17	2.91	5.09	4.52	4.51	6.29	6.37	8.55	8.65

Specification

Model MWA: Forged brass body, 2/2 way N.C. for air, water, light oil, gas etc.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C		Working pressure 0.5 ~ bar						CV
				Coil 4, 5, 3E		Coil 4		Coil 5		Coil 3E		
				N		AC	DC	AC	DC	AC	DC	
10(3/8)	N	4 5 3E	15	-5 ~ 80	8	6	15	10	7	5	3.0	
15(1/2)			8		6	15	10	7	5	4.0		
20(3/4)			8		6	15	10	7	5	6.8		
25(1)			6		4	12	7	4	3	11.0		
32(1 1/4)			6		4	12	7	4	3	16.0		
40(1 1/2)			6		4	12	7	4	3	21.0		
45(1 1/2)			4		3	10	5	3	2	26.0		
50(2)			4		3	10	5	3	2	31.0		

Model MWH: Forged brass body, 2/2 way N.C. for light oil, heavy oil, high viscosity fluids (Max. 120 cst) etc.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C		Working pressure 0.5 ~ bar						CV
				Coil 4, 5, 3E		Coil 4		Coil 5		Coil 3E		
				V		AC	DC	AC	DC	AC	DC	
10(3/8)	V	4 5 3E	15	-10 ~ 145	8	6	15	10	7	5	3.0	
15(1/2)			8		6	15	10	7	5	4.0		
20(3/4)			8		6	15	10	7	5	6.8		
25(1)			6		4	12	7	4	3	11.0		
32(1 1/4)			6		4	12	7	4	3	16.0		
40(1 1/2)			6		4	12	7	4	3	21.0		
45(1 1/2)			4		3	10	5	3	2	26.0		
50(2)			4		3	10	5	3	2	31.0		

Model MWS: Forged brass body, 2/2 way N.C. for steam, high temp fluid, etc. (Internal leakage)

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C		Working pressure 0.5 ~ bar						CV
				Coil 4,3E	Coil 5	Coil 4		Coil 5		Coil 3E		
				T		AC	DC	AC	DC	AC	DC	
10(3/8)	T	4 5 3E	15	-10 ~ 155	-10 ~ 185	8	6	15	10	7	5	3.0
15(1/2)			8			6	15	10	7	5	4.0	
20(3/4)			8			6	15	10	7	5	6.8	
25(1)			6			4	12	7	4	3	11.0	
32(1 1/4)			6			4	12	7	4	3	16.0	
40(1 1/2)			6			4	12	7	4	3	21.0	
45(1 1/2)			4			3	10	5	3	2	26.0	
50(2)			4			3	10	5	3	2	31.0	

MWD / MWK series

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 waterproof coil.
- Continuous cycle, 100% ED.
- Ex coil is EExm II T4 PTB approval.
- Opening: 200~500 ms
- Closing: 1000~4000 ms

Power consumption

Coil power	4	5	3E
AC (VA)	19.5	23.0	9.2
DC (W)	15.0	18.5	10.0

Order example

MWD - 15 - J - 5 - G - □ - M - AC110 - □

MODEL
MWD
MWK

CODE
10, 15, 20, 25,
32, 40, 45, 50

COIL
4: #4
5: Bigger
3E: Explosion-Proof (*)

SEAL MAT'L
N: NBR
J: EPDM
V: Viton

PLUG
Blank: DIN
D: LED
G: 1/2" NPT

CONN.
Blank: Thread
F: Flanged

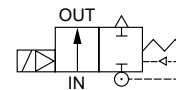
MANUAL
Blank: Without
M: With

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread
(Not suitable for flanged)

* Explosion-Proof (3E) coil with LED (D) plug is not applicable.

2/2 N.C.



Specification

Model **MWD**: Forged brass body, 2/2 way N.C., for water, air, LPG, light oil etc.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C			Working press. (0.2~ bar)										CV		
				Coil 4, 5, 3E			Coil 4				Coil 5				Coil 3E				
				N	J	V	AC		DC		AC		DC		AC			DC	
							Gas	Liquid	Gas	Liquid	Gas	Liquid	Gas	Liquid	Gas	Liquid		Gas	Liquid
10(3/8)	N J V	4 5 3E	18	-10 ~ 80	-10 ~ 145	12	10	1.5	1.5	13	12	5	5	5	2	1	1	3.2	
15(1/2)			12			10	1.5	1.5	13	12	5	5	5	2	1	1	4.2		
20(3/4)			10			8	1.5	1.5	12	10	5	5	5	2	0.7	0.7	8.0		
25(1)			9			8	1.2	1.2	12	10	4	4	5	2	0.5	0.5	11.0		
32(1 1/4)			9			8	1	1	12	10	3	3	4	2	-	-	16.0		
40(1 1/2)			9			8	1	1	12	10	3	3	4	2	-	-	21.0		
45(1 1/2)			8			3	-	-	10	7	1	1	4	0.1	-	-	26.0		
50(2)			8			3	-	-	10	7	1	1	4	0.1	-	-	31.0		

Model **MWK**: Forged brass body, 2/2 way N.C., for vacuum, water, air, gas, light oil etc.

Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. °C			Working press. (0~ bar)								CV	VAC. torr
				Coil 4, 5, 3E			Coil 4		Coil 5		Coil 3E					
				N	J	V	AC		AC		DC		AC			
							Gas	Liquid	Gas	Liquid	Gas	Liquid	Gas	Liquid		
10(3/8)	N J V	4 5 3E	18	-10 ~ 80	-10 ~ 145	10	7	12	10	4	4	7	2	3.2	10 ⁻²	
15(1/2)			10			7	12	10	4	4	7	2	4.2			
20(3/4)			9			7	11	10	3.5	3.5	7	1.5	8.0			
25(1)			9			6.5	11	10	3	3	7	1.2	11.0			
32(1 1/4)			8			5.5	10	10	2	2	7	0.8	16.0			
40(1 1/2)			8			5.5	10	10	2	2	7	0.8	21.0			
45(1 1/2)			7			3.5	10	5.5	1	1	1	0.2	26.0	10 ⁻¹		
50(2)			7			3.5	10	5.5	1	1	1	0.2	31.0			

* Connect air source to outlet port for vacuum application.

MWD / MWK Dimensions & Weight

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



Solenoid Valve

Process Valve

Pilot & Mechanical Valve

Air Treatment Unit

Pressure Switch

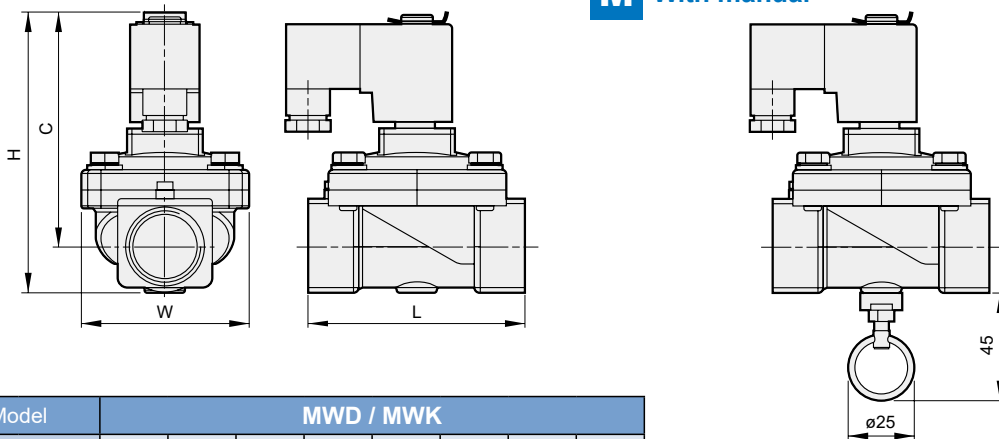
Compressed Air Dryer

Auxiliary Equipment

PISCO®

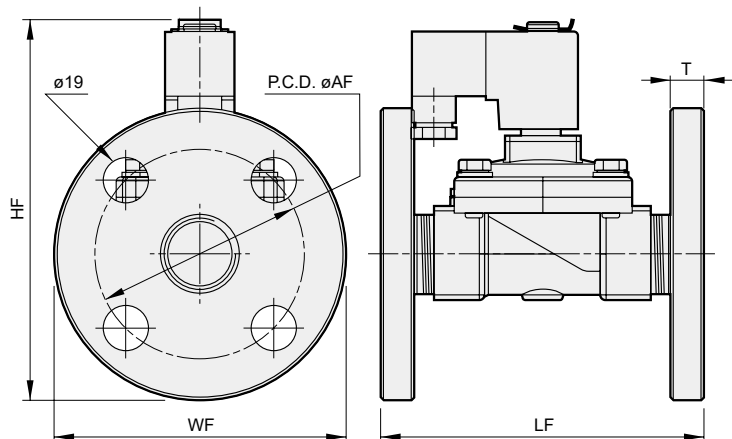
PLC Control System

M With manual



Model	MWD / MWK								
Code Dimension (mm)	10	15	20	25	32	40	45	50	
C	93	95	99	107	107	118	118		
L	77	82	96	102	102	123	123		
H	107	112	119	135	135	152	152		
W	51	61	72	76	76	95	95		
N.W (kg)	Coil 4	0.86	0.83	1.02	1.42	2.10	1.85	3.80	3.22
	Coil 5	0.95	0.92	1.10	1.51	2.18	1.93	3.88	3.30
	Coil 3E	1.15	1.12	1.30	1.71	2.38	2.13	4.08	3.51

F Flanged (JIS10K)



Model	MWD-F / MWK-F					
Code Dimension (mm)	25	32	40	45	50	
AF	90	100	105	105	120	
HF	161	174	177	188	195	
LF	138	155	155	175	175	
T	14	16	16	16	16	
WF	125	135	140	140	155	
N.W (kg)	Coil 4	3.82	5.21	5.30	7.25	7.34
	Coil 5	3.90	5.30	5.38	7.34	7.43
	Coil 3E	4.10	5.50	5.59	7.54	7.63

MYA / MYS series

2/2 WAY N.C. PISTON TYPE SOLENOID VALVE



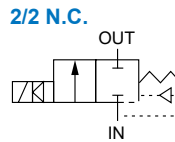
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- Y type forged brass body.
- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

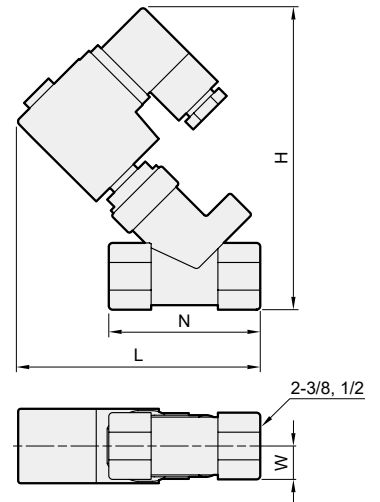
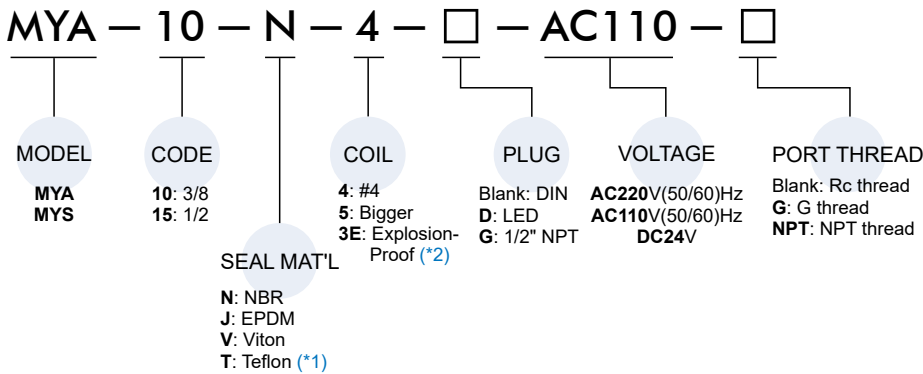
Power consumption

Coil power	4	5	3E
AC (VA)	17.6/15.4	33/23	9.2
DC (W)	15	18.5	10

Dimensions

Model	MYA / MYS	
Code Dimension (mm)	10	15
H	118.0	
L	95.0	
N	59.0	
W	13.0	
N.W (kg)	0.55	

Order example



*1. When the seal material is (T) Teflon, the valve has slight leakage.
*2. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

Model MYA: for water, air and high temp. fluids.													
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C				Working press. bar				CV	
				Coil 4		Coil 5, 3E		Coil 4		Coil 5			Coil 3E
				N	J, V	N	J, V	AC	DC	AC	DC		
10(3/8)	N, J, V	4, 5, 3E	12	95	120	95	145	0.3~16	0.3~10	0.3~20	0.3~12	0.3~5	1.9
15(1/2)			12	95	120	95	145	0.3~16	0.3~10	0.3~20	0.3~12	0.3~5	2.6

Model MYS: for steam and high temp. fluids.											
Code (Port)	Seal mat'l	Coil	Orifice mm	Temp. 5~°C		Working press. bar				CV	
				Coil 4, 3E	Coil 5	Coil 4		Coil 5			Coil 3E
				T	T	AC	DC	AC	DC		
10(3/8)	T*	4, 5, 3E	12	158	185	0.3~5	0.3~2	0.3~10	0.3~7	0.3~5	1.9
15(1/2)			12	158	185	0.3~5	0.3~2	0.3~10	0.3~7	0.3~5	2.6

* Teflon seal will have 400 cc/min. down gas leakage.



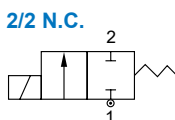
Selection table



Seal material



Caution for safety
(Read before installing)



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

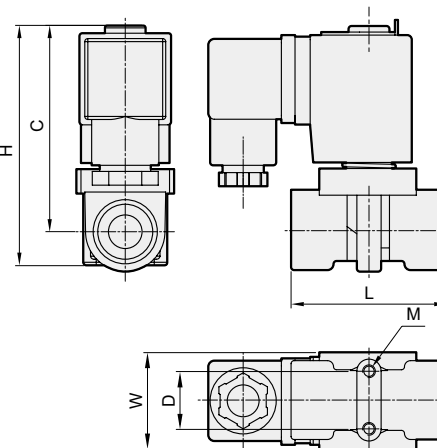
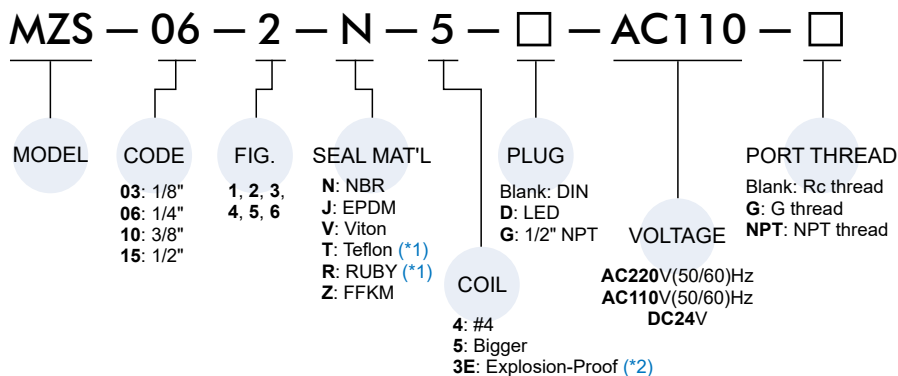
Power consumption

Coil power	4	5	3E
AC (VA)	18.0	24.0	8.6
DC (W)	15.0	18.5	10.0

Dimensions

Model	MZS				
	Code	03	06	10	15
Dimension (mm)					
L		41		51.5	
W	Coil 4		32		
	Coil 5		36		
	Coil 3E		36		
H		74.5		80.5	
C		66		68	
D		16		19	
M		M3×0.5		M4×0.7	
N.W (kg)	Coil 4	0.37	0.36	0.45	0.43
	Coil 5	0.45	0.44	0.53	0.51
	Coil 3E	0.67	0.66	0.75	0.73

Order example



*1. When the seal material is (T) Teflon or (R) RUBY, the valve has slight leakage.
*2. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

Model **MZS**: Forged brass body, 2/2 way N.C., for water, air, gas, light oil (50cst down), vacuum etc.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm	Temp. °C						Max. O.P.D. bar (Min. 0 bar)						CV	VAC. torr			
					Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E						
					N	JV	TRZ	N	JV	TRZ	AC	DC	AC	DC	AC	DC					
03(1/8) 06(1/4) 10(3/8) 15(1/2)	1	N J V T R Z	4 5 3E	1.6								30	20	40	30	25	20	0.10	10 ⁻²		
	2			2.0									24	14	30	28	16			12	0.15
	3			2.5									17	10	24	20	10			8	
	4			3.0	80	145	160	80	145	185	10	6	16	13	7	6	6	0.31			
	5			4.0							8	4	12	8	4.5	3.5	0.54				
	6			5.0							6	2	9	5	2.5	2	0.80	10 ⁻¹			

* The max. orifice for seal T = 4.0mm, R = 2.5mm.
* Seal T and R will have slight leakage, so it will not be suitable for vacuum.



Selection table



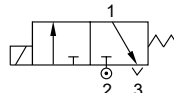
Seal material



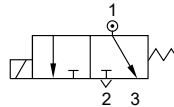
Caution for safety
(Read before installing)



3/2 Function 1



3/2 Function 2



Specification

- IP65 100% ED coil.
- PTB approval EExm II T4 coil.

Power consumption

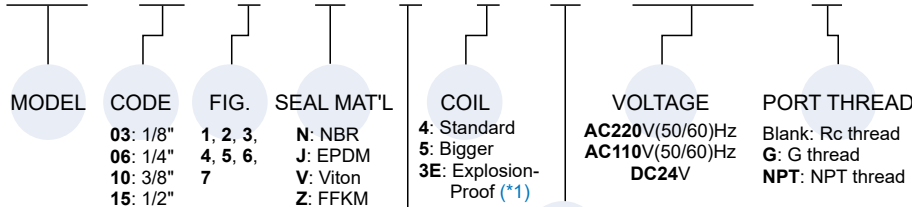
Coil power	4	5	3E
AC (VA)	18	24.0	8.6
DC (W)	15	18.5	10.0

Dimensions

Model	MZT				
	Code	03	06	10	15
Code Dimension (mm)					
L		41		51.5	
W	Coil 4		32		
	Coil 5		36		
	Coil 3E		36		
H		74.5		80.5	
C		66		68	
D		16		19	
M		M3×0.5		M4×0.7	
N.W (kg)	Coil 4	0.37	0.36	0.45	0.43
	Coil 5	0.45	0.44	0.53	0.51
	Coil 3E	0.70	0.69	0.78	0.76

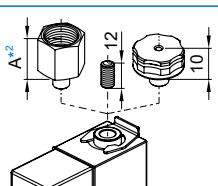
Order example

MZT - 06 - 2 - N - C - 5 - D - AC110 - □



EXHAUST ACCESSORIES

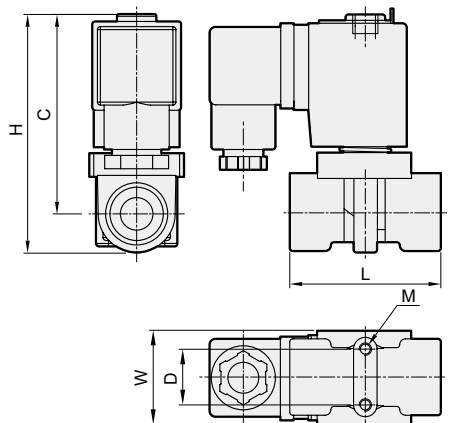
U	-	Without
F		PS female
C		Dust-proof & silencer cap
P		1/8" PS male



PLUG
Blank: DIN
D: LED
G: 1/2" NPT

*1. Explosion-Proof (3E) coil with LED (D) plug is not applicable.

*2. Code	03	06	10	15
A	19	20	22	-



Model MZT: Forged brass body, 3/2 way N.C., for water, air, gas, vacuum, light oil (50cst down) etc.

Code (Port)	Fig. no.	Seal mat'l	Coil	Orifice mm		Temp. °C						Max. O.P.D bar (Min. 0 bar)						CV	VAC. torr	
				Body	Top	Coil 4, 3E			Coil 5			Coil 4		Coil 5		Coil 3E				
						N	JV	Z	N	JV	Z	1	2	1	2	1	2			
				AC/DC, Function																
03(1/8)	1	N J V Z	4 5 3E	1.3	1.6							1	2	1	2	1	2	0.05	10 ⁻²	
	2			1.6	1.6							9	10	12	12	8	10	0.10		
	3			2.0	2.0							7	8.5	8.5	12	6	10	0.15		
06(1/4)	4			2.5	2.5	~	~	~	~	~	~	~	~	~	~	~	~	~		0.20
10(3/8)	5			3.0	3.0	80	145	160	80	145	185	5.5	8	7	10	5	8	0.31		
15(1/2)	6			4.0	3.0							4	6.5	5.5	8	3	6.5	0.51		
	7			5.0	3.0							2.5	4	4	5.5	2	4.5	0.65		
										1.5	4.5	2.5	5.5	1.5	4.5					
										1	1	1.5	1.5	0.8						

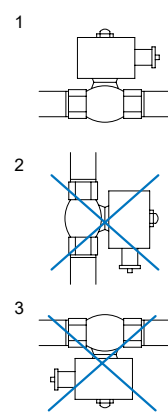
Quick reference chart normally closed & normally open

The spot indicated on the effective area present the more the better, ●●● the best, ●● better, good.

Model	MUD / MUS	MUA	MUDC	MSUS	MUAO	MUW	MUW-NO	MUW-F
Photograph								
Port size	1/8"~3/8"	1/4", 3/8"	1/4"~1"	1/8"~2"	1/4"~1/2"	3/8"~2"	3/8"~2"	1 1/4"~4"
Operating pressure (MPa)	0~2	0~1	0~0.1	0~1	0.05~1.5	0~2	0~0.7	0.02~0.8
Fluid temp. °C	-5~+130°C	-5~+80°C	-5~+80°C	-5~+185°C	-5~+80°C	-5~+80°C	-5~+80°C	-5~+80°C
Steam	●●			●●●				
Water	●●●	●●●	●●●	●●●	●●	●●●	●●●	●●●
Air	●●●	●●●	●●	●●●	●●●	●●●	●●●	●●●
Oil	●●			●●	●●●	●●	●●	●●
Gas	●●			●●			●●	
Vacuum	●●	●●		●●			●●	

Model	MUG / MUV	MUAW	MUS / MUS-F	MSUW	MSUW-F	MUPS
Photograph						
Port size	3/8"~2"	1/2"~2"	1/2"~4"	1/2"~2"	1/2"~2"	1/2"~1"
Operating pressure (MPa)	0~0.7	0.05~1.5	0.05~1	0~2	0~2	0.05~1
Fluid temp. °C	-5~+80°C	-5~+80°C	-5~+185°C	-5~+80°C	-5~+80°C	-5~+185°C
Steam			●●●			●●●
Water	●●	●●●	●●●	●●●	●●●	●●●
Air	●●	●●●	●●●	●●●	●●●	●●●
Oil			●●	●●	●●	●●
Gas	●●●					
Vacuum	●●●			●●	●●	

Prohibition vertical operation



Caution

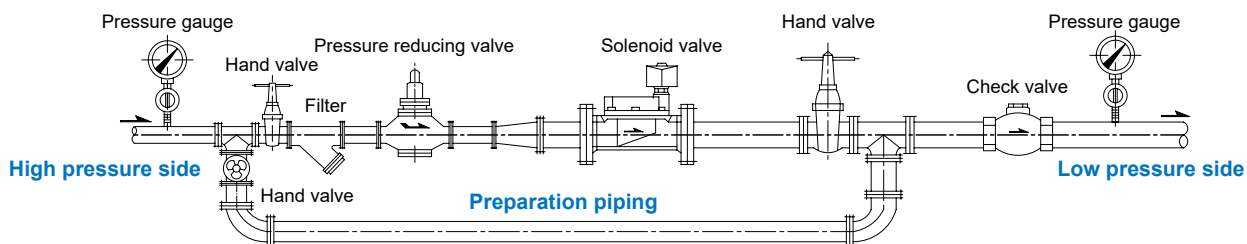
1. Pipes must be washed neat and clean before fitted.
2. A Y-strainer has to installed in the front of solenoid valve, that is best for long life.
3. Before installation, be sure what type of fluid, voltage, pressure and fluid temperature used.

Remark Wire color of outlet coil

Voltage	AC110V	AC220V	Other
Color	Blue	Red	Blue+Red

Standard voltage: AC 110V/220V (50/60)Hz

Detailed description of diagram



Type	XL type				L type				M type				S type			
Dimension (mm)																
	D1	D2	D3	H	D1	D2	D3	H	D1	D2	D3	H	D1	D2	D3	H
	ø60.7	ø23	ø63.2	53.1	ø42.3	ø11.6	ø44.4	42.1	ø42.5	ø16.5	ø44.4	34.4	ø37.3	ø14.2	ø37.5	29.2
Model	MUAW-15~50 MUS-15~50 MUDC(TF)-20~25				MUD-15 MUD-10(8mm)				MUA-10 MUS-10 MUD-10(H)(NO) MSUS-10 MUAO-8~15 MUDC-8~15(TF) MUW(F)-10~25(NO) MUW(F)-35-1~50-1(NO) MUV-10~50 MUG-10~50 MSUW(F)-10~25(NO) MSUW(F)-35-1~50-1(NO) MUPS(F)-15~25 MSUS(F)-15~50(NO) MUW-35F~100F(NO)				MUA-8 MUD-6~8(H) MUD-6 NO~8 NO MSUS-6 NO~8 NO			

Waterproof coil

Type	S type			M type				DIN 63650					NASS DIN 63650		
Dimension (mm)															
	D	L	H	D	D1	L	H	D	D1	L	H	H1	D	L	H
	ø14.1	50.5	32.4	ø16.3	ø56	69.3	38.2	ø16.3	ø56	97	38.2	52	ø14.6	71.1	42.3
Model	MUA-8 MUS-6~8 MSUS-6~8 MUD-6~8(H)			MUA-10 MUS-10 MUD-10(H)(NO) MSUS-10 MUAO-8~15 MUDC-8~15(TF) MUW(F)-10~25(NO) MUW(F)-35-1~50-1(NO)				MUV-10~50 MUG-10~50 MSUW(F)-10~25(NO) MSUW(F)-35-1~50-1(NO) MUPS(F)-15~25 MSUS(F)-15~50(NO) MUW-35F~100F(NO)					MUD-10 MSUS-10 MUW(F)-10~25 MUG-10~25 MUV-10~25 MSUW(F)-10~25 MUPS(F)-10~25 MSUS(F)-15~50		

MUD / MUS series

2/2 WAY N.C., N.O. PLUNGER TYPE SOLENOID VALVE



Selection table



MU* Reference table



Seal material

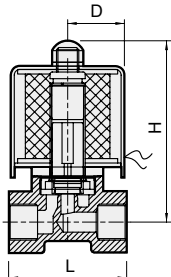


Caution for safety
(Read before installing)

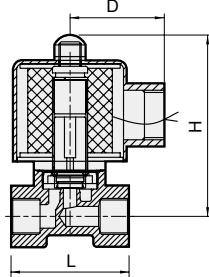
2 way normally closed / normally open solenoid valve.
Available fluid: Water, air, steam, light oil, gas & vacuum.



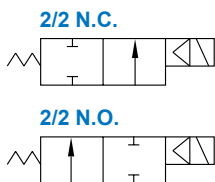
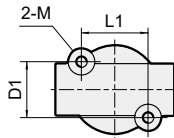
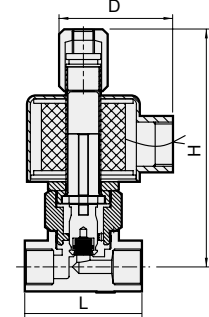
MUD/MUS-6,8



MUD-10,15/MUS-10



MUD-NO



Specification

- Direct acting, conductive and N.C. / N.O.
- Able to be operated under no pressure.
- MUD: Acceptable for customization: Viton(130°C), Silicon(130°C), EPDM(130°C) for seal plug.
- AC (DC) voltage tolerance: ±10% (±1%)

Material

Parts name	MUD	MUS
Body	Brass	
Coil	Special copper wire (H class)	
Tube	Stainless steel	
Spring	Stainless steel	
Core	Stainless steel	
Plug	NBR	PTFE (Teflon)
O-ring	NBR	PTFE (Teflon)

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- MUD: Viscosity over 20 cst.
- MUS: Viscosity over 50 cst.
- The temperature over 130°C, the waterproof coil casing is prone to deformation.

Order example

MUD - 6 H - NO - □ - G - AC110 - G

MODEL
MUD
MUS

PORT SIZE
6: 1/8"
8: 1/4"
10: 3/8"
15: 1/2"

Blank: Normally closed
NO: Normally open
Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

COIL

FLUID	
W	Water, air
G	Gas
LO	Light oil (*2)
VA	Vacuum

(Only for MUD)

T	Steam
---	-------

(Only for MUS)

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

OPERATING PRESSURE

Blank: Standard
H: High pressure

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressure range (MPa)					Vacuum Torr	Dimensions (mm)						Weight (kg)
						Water	Air	Steam	Light oil	Gas		L	H	D	L1	D1	M	
MUD-6	◎	Rc1/8"	0.23	2.5	-5~+80	0~0.7	0~0.7	—	0~0.7	0~0.7	0~10 ⁻³	41	66	21.5	23	19.3	M4×0.7	0.32
MUD-8	◎	Rc1/4"	0.23	2.5	-5~+80	0~0.7	0~0.7	—	0~0.7	0~0.7	0~10 ⁻³	41	66	21.5	23	19.3	M4×0.7	0.31
MUD-8	◎	Rc1/4"	0.58	4.0	-5~+80	0~0.3	0~0.3	—	0~0.3	0~0.3	0~10 ⁻³	41	66	21.5	23	19.3	M4×0.7	0.31
MUD-8		Rc1/4"	0.79	6.0	-5~+80	0~0.1	0~0.1	—	0~0.1	0~0.1	0~10 ⁻³	41	66	21.5	23	19.3	M4×0.7	0.31
MUD-8H		Rc1/4"	0.18	1.2	-5~+130	0~2	0~2	—	0~2	0~2	0~10 ⁻³	41	66	21.5	23	19.3	M4×0.7	0.31
MUD-10	●	Rc3/8"	0.58	4.0	-5~+80	0~1	0~1	—	0~1	0~1	0~10 ⁻³	53	75	48	20	21.0	M5×0.8	0.53
MUD-10		Rc3/8"	0.79	8.0	-5~+80	0~0.3	0~0.5	—	0~0.3	0~0.5	0~10 ⁻³	53	90	48	20	21.0	M5×0.8	0.65
MUD-10H	●	Rc3/8"	0.45	2.0	-5~+130	0~2	0~2	—	0~2	0~2	0~10 ⁻³	53	75	48	20	21.0	M5×0.8	0.54
MUD-15		Rc1/2"	0.58	8.0	-5~+80	0~0.3	0~0.5	—	0~0.3	0~0.5	0~10 ⁻³	53	90	48	20	21.0	M5×0.8	0.64
MUS-6	◎	Rc1/8"	0.23	2.5	-5~+185	—	—	0~0.7	—	—	—	41	66	21.5	—	—	—	0.32
MUS-8	◎	Rc1/4"	0.23	2.5	-5~+185	—	—	0~0.7	—	—	—	41	66	21.5	23	19.3	M4×0.7	0.32
MUS-10	●	Rc3/8"	0.23	4.0	-5~+185	—	—	0~1	—	—	—	53	75	48	20	21.0	M5×0.8	0.54
MUD-6-NO		Rc1/8"	0.23	2.5	-5~+80	0~0.7	0~0.7	—	0~0.7	—	0~10 ⁻³ Torr	41	87	21.5	23	19.3	M4×0.7	0.44
MUD-8-NO		Rc1/4"	0.23	2.5	-5~+80	0~0.7	0~0.7	—	0~0.7	—	0~10 ⁻³ Torr	41	87	21.5	23	19.3	M4×0.7	0.43
MUD-8-NO		Rc1/4"	0.58	4.0	-5~+80	0~0.3	0~0.3	—	0~0.3	—	0~10 ⁻³ Torr	41	87	21.5	23	19.3	M4×0.7	0.43
MUD-8-NO		Rc1/4"	0.79	6.0	-5~+80	0~0.1	0~0.1	—	0~0.1	—	0~10 ⁻³ Torr	41	87	21.5	23	19.3	M4×0.7	0.43
MUD-8H-NO		Rc1/4"	0.18	1.2	-5~+130	0~2	0~2	—	0~2	—	0~10 ⁻³ Torr	41	87	21.5	23	19.3	M4×0.7	0.43
MUD-10-NO	●	Rc3/8"	0.58	4.0	-5~+80	0~1	0~1	—	0~1	—	0~10 ⁻³ Torr	53	105	48	20	21.0	M5×0.8	0.7

* ◎ The D/I waterproof coil is customization and requires a separate quotation.

* Connect air source to outlet port for vacuum application.

* MUD-6,8-NO: Voltage at DC24V, H: 79.5mm.

3/2 WAY N.C. PLUNGER TYPE SOLENOID VALVE



2 way normally closed solenoid valve
Available fluid: Water, air, vacuum.

Selection table



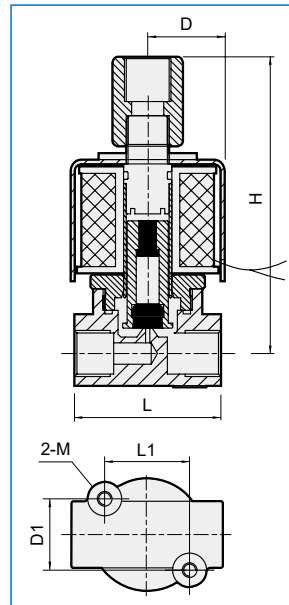
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- MUA series is direct acting, conductive and normal close.
- Able to be operated under no differential pressure.
- Applied to the equipment need to exhaust after power-off.
- Acceptable for customization : Viton (130°C) for seal plug.
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$

Material

Parts name	Material
Body	Forge brass
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
O-ring	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- Temperature over 80°C.

Order example

MUA — 8 — □ — □ — AC110 — G

MODEL PORT SIZE FLUID VOLTAGE PORT THREAD

8: 1/4"
10: 3/8"

W: Water, air
VA: Vacuum

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: Standard iron shell coil
D: DIN terminal (under 130°C)
I: Waterproof terminal (under 130°C)

Blank: Rc thread
G: G thread
NPT: NPT thread

* D/I coil please order according to the specification sheet.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressuer range (MPa)		Vacuum Torr	Dimensions (mm)						Weight (kg)
						Water	Air		L	H	D	L1	D1	M	
MUA-8	•	Rc1/4"	0.10	1.2	-5~+80	0~1	0~1	0~10 ⁻³	41	87	21.5	23	19.3	M4×0.7	0.38
MUA-10	•	Rc3/8"	0.12	1.5	-5~+80	0~1	0~1	0~10 ⁻³	53	93	48	20	21	M5×0.8	0.57

* Please consult your sales representative for other customization requirement.

MSUS series Low flow



2/2 WAY N.C., N.O. PLUNGER TYPE SOLENOID VALVE

mindman



2 way normally closed / normally open solenoid valve.
Available fluid: Water, air, steam, gas, light oil & vacuum.

Selection table



MU* Reference table



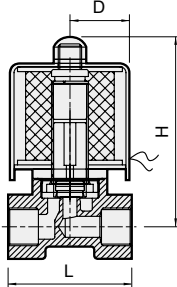
Seal material



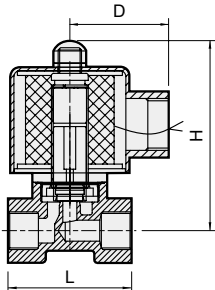
Caution for safety
(Read before installing)



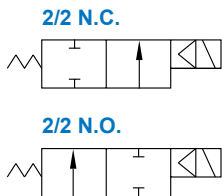
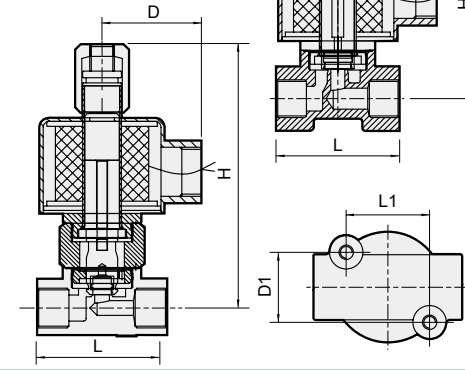
MSUS-6~8



MSUS-10



MSUS-*-NO



Specification

- Direct acting, conduct and normally closed / normally open
- Able to be operated under no differential pressure.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug.
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$

Material

Parts name	MSUS	MSUS-NO
Body	Stainless steel #304 (option #316)	
Coil	Special copper wire (H class)	
Core	Stainless steel	
Tube	Stainless steel	
Spring	Stainless steel	
Plug	PTFE, NBR	Viton
O-ring	PTFE, NBR	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- N.C.: Viscosity over 50 cst.
N.O.: Viscosity over 20 cst.
- The temperature over 130°C, the waterproof coil casing is prone to deformation.

Order example

MSUS - 8 - NO - □ - G - AC110 - G

MODEL

PORT SIZE

Blank: Normally closed
NO: Normally open

FLUID

VOLTAGE

PORT THREAD

6: 1/8"
8: 1/4"
10: 3/8"

COIL

T: Steam
G: Gas
LO: Light oil (*2)
VA: Vacuum
W: Water, air

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: Rc thread
G: G thread
NPT: NPT thread

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressuer range (MPa) (*1)					Vacuum Torr	Dimensions (mm)						Weight (kg)
						Water	Air	Steam	Light oil	Gas		L	H	D	L1	D1	M	
NC	MSUS-6	• Rc1/8"	0.23	2.5	-5~+185	0~0.7	0~0.7	0~0.7	0~0.7	0~0.7	0~10 ⁻³	41	68	21.5	23	19.3	M4×0.7	0.34
	MSUS-8	• Rc1/4"	0.23	2.5	-5~+185	0~0.7	0~0.7	0~0.7	0~0.7	0~0.7	0~10 ⁻³	41	68	21.5	23	19.3	M4×0.7	0.33
	MSUS-10	• Rc3/8"	0.58	4.0	-5~+185	0~1	0~1	0~1	0~1	0~1	0~10 ⁻³	53	83	48	20	21	M5×0.8	0.54
NO	MSUS-6-NO	• Rc1/8"	0.23	2.5	-5~+130	0~0.7	0~0.7	-	0~0.7	0~0.7	0~10 ⁻³	41	87	21.5	23	19.3	M4×0.7	0.34
	MSUS-8-NO	• Rc1/4"	0.23	2.5	-5~+130	0~0.7	0~0.7	-	0~0.7	0~0.7	0~10 ⁻³	41	87	21.5	23	19.3	M4×0.7	0.33
	MSUS-10-NO	• Rc3/8"	0.58	4.0	-5~+130	0~1	0~1	-	0~0.7	0~1	0~10 ⁻³	53	105	48	20	21	M5×0.8	0.54

*1. When the fluid is steam or light oil, the plug material is PTFE; When the fluid is gas or vacuum, the plug material is NBR.

When the fluid is water or air, the plug material is PTFE or NBR. When the plug material is NBR, the Fluid temp. is -5~+80°C.

*2. Connect air source to outlet port for vacuum application.

*3. Please consult your sales representative for other customization requirement.

MSUS series High flow

2/2 WAY N.C., N.O. PISTON TYPE SOLENOID VALVE



2 way normally closed / normally open solenoid valve.
Available fluid: Water, air, steam & light oil.

Selection table



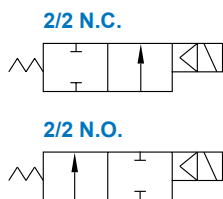
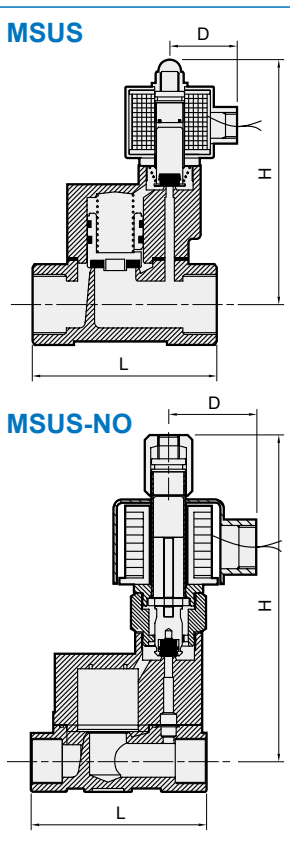
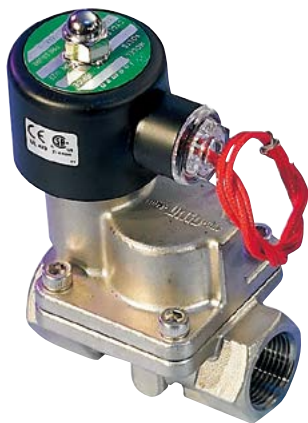
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- MSUS series is multiplex acting, piston guide, conductive normal close / normal open.
- Acceptable for customize Viton , Silicone and EPDM for seal plug.
- AC voltage tolerance: $\pm 10\%$,
DC voltage tolerance: $\pm 1\%$

Material

Parts name	MSUS	MSUS-NO
Body	Stainless steel #304 (option #316)	
Coil	Special copper wire (H class)	
Tube	Stainless steel	
Spring	Stainless steel	
Core	Stainless steel	
Plug	PTFE (Teflon)	Viton
Piston spring	Stainless steel	
Piston	Stainless steel	
Piston plug	PTFE (Teflon)	

Caution

- Min pressure to open (N.C.): over 0.05~0.1 MPa
Min pressure to close (N.O.): over 0.05~0.1 MPa
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- The temperature over 130°C, the waterproof coil casing is prone to deformation.

Order example

MSUS - 35 - NO - □ - W - AC110 - G

MODEL

PORT SIZE

Blank: Normally closed
NO: Normally open

FLUID

T: Steam
LO: Light oil (*2)
W: Water, air

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

COIL

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

*1. Please order according to the specification sheet.

*2. Note, if diesel fuel or gasoline.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressure range (MPa)				Dimensions (mm)			Weight (kg)
						Water	Air	Steam	Light oil	L	H	D	
NC	MSUS-15	• Rc1/2"	4	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	84	115	48	1.38
	MSUS-20	• Rc3/4"	6	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	84	120	48	1.43
	MSUS-25	• Rc1"	12	22	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	98	132	48	1.88
	MSUS-35	• Rc1 1/4"	18	30	-5~+185	0.1~1	0.1~1	0.1~1	0.1~1	123	142	48	2.62
	MSUS-40	• Rc1 1/2"	22	30	-5~+185	0.1~1	0.1~1	0.1~1	0.1~1	123	146	48	2.72
	MSUS-50	• Rc2"	48	50	-5~+185	0.1~1	0.1~1	0.1~1	0.1~1	167	173	48	5.45
NO	MSUS-15-NO	• Rc1/2"	4	17	-5~+130	0.05~1	0.05~1	-	0.05~0.8	84	147	48	1.52
	MSUS-20-NO	• Rc3/4"	6	17	-5~+130	0.05~1	0.05~1	-	0.05~0.8	84	151	48	1.58
	MSUS-25-NO	• Rc1"	12	22	-5~+130	0.05~1	0.05~1	-	0.05~0.8	98	162	48	2.0
	MSUS-35-NO	• Rc1 1/4"	18	30	-5~+130	0.1~1	0.1~1	-	0.05~0.8	123	173	48	2.8
	MSUS-40-NO	• Rc1 1/2"	22	30	-5~+130	0.1~1	0.1~1	-	0.05~0.8	123	175	48	2.9
	MSUS-50-NO	• Rc2"	48	50	-5~+130	0.1~0.8	0.1~0.8	-	0.05~0.8	167	203	48	5.7

* Please consult your sales representative for other customization requirement.

2/2 WAY N.C. PISTON TYPE SOLENOID VALVE



2-WAY normally closed solenoid valve.
Available fluid: Water, air, & oil.

Selection table



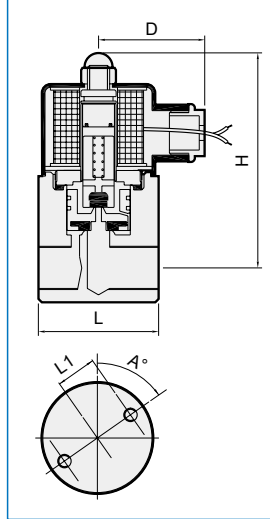
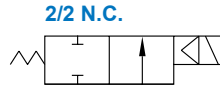
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- Multiplex acting, piston guide, conductive normal close.
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$
- Applied to sand blasting machine and high-pressure air and oil injection system.

Material

Parts name	Material
Body	Brass
Coil	Special copper wire (H class)
Tube	Stainless steel
Spring	Stainless steel
Core	Stainless steel
Plug	NBR
Piston	Brass
Piston plug	NBR

Caution

- Min pressure to open: over 0.05 MPa
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.
- Temperature over 80°C.

Order example

MUAO — 8 — □ — HO — AC110 — G

MODEL

PORT SIZE

8: 1/4"
10: 3/8"
15: 1/2"

FLUID

W: Water, air
HO: Heavy oil (*2)

COIL

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

*1. Please order according to the specification sheet.

*2. Please indicate the kind.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressuer range (MPa)			Dimensions (mm)					Weight (kg)	
						Water	Air	Heavy oil	L	H	D	L1	A		M
MUAO-8	•	Rc1/4"	2.5	10	-5~+80	0.05~1.5	0.05~1.5	0.05~1.5	50	95	48	18	55°	M6×1.0	1.13
MUAO-10	•	Rc3/8"	2.5	10	-5~+80	0.05~1.5	0.05~1.5	0.05~1.5	50	95	48	18	55°	M6×1.0	1.10
MUAO-15	•	Rc1/2"	2.5	10	-5~+80	0.05~1.5	0.05~1.5	0.05~1.5	54	100	48	18	55°	M6×1.0	1.23

* Please consult your sales representative for other customization requirement.



2-WAY normally closed solenoid valve.
Available fluid: Water, air & light oil.

Selection table



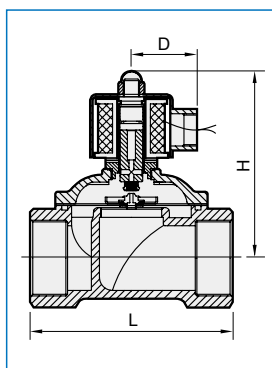
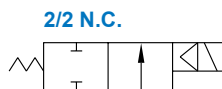
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- Direct and multiplex acting, connected diaphragm, N.O.
- Can be operated directly under low pressure.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- AC voltage tolerance: ±10%, DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Forged brass
Coil	Special copper wire (H)
Tube	Stainless steel
Spring	Stainless steel
Core	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Pipes must be washed neat and clean before fitted.
- A Y-STRAINER has to be installed in the front of solenoid valve, that is best for long life.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUW — 20 □ — □ — LO — AC110 — G

MODEL PORT SIZE PRESSURE TYPE FLUID VOLTAGE PORT THREAD

10: 3/8"
15: 1/2"
20: 3/4"
25: 1"
35-1: 1 1/4"
40-1: 1 1/2"
50-1: 2"

Blank: Standard type
H: High pressure type

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

W: Water, air
LO: Light oil (*2)

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: Rc thread
G: G thread
NPT: NPT thread

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressurer range (MPa)			High pressure type		Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Water	Air	L	H	D	
MUW-10	•	Rc3/8"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	70	100	48	1.01
MUW-15	•	Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	70	100	48	1
MUW-20	•	Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	73	107	48	1.14
MUW-25	•	Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	100	112	48	1.7
MUW-35-1	•	Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	125	113	48	2.32
MUW-40-1	•	Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	125	118	48	2.53
MUW-50-1	•	Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	167	125	48	4.32

* High pressure type use N/O coil.

* Please consult your sales representative for other customization requirement.

MUW-NO series



2/2 WAY N.O. DIAPHRAGM TYPE SOLENOID VALVE

mindman



2-WAY normally open solenoid valve.
Available fluid: Water, air, light oil, gas & vacuum.

Selection table



MU* Reference table



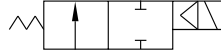
Seal material



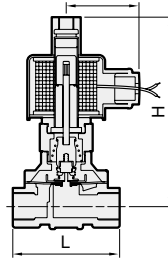
Caution for safety
(Read before installing)



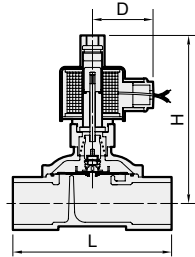
2/2 N.O.



MUW-10~25-NO



MUW-35~50-NO



Specification

- Direct and multiplex acting, connected diaphragm, normal open.
- Can be operated directly under low pressure.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$

Material

Parts name	Material
Body	Forge brass
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUW - 20 - NO - □ - G - AC110 - G

MODEL

PORT SIZE

NO:
Normally open

COIL

FLUID

VOLTAGE

PORT THREAD

10: 3/8"
15: 1/2"
20: 3/4"
25: 1"
35-1: 1 1/4"
40-1: 1 1/2"
50-1: 2"

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

W: Water, air
G: Gas
LO: Light oil (*2)
VA: Vacuum

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: Rc thread
G: G thread
NPT: NPT thread

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressuer range (MPa)				Vacuum	Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Gas		L	H	D	
MUW-10-NO	•	Rc3/8"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	70	128	48	1
MUW-15-NO	•	Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	70	128	48	0.98
MUW-20-NO	•	Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	73	133	48	1.12
MUW-25-NO	•	Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	100	138	48	1.7
MUW-35-1-NO	•	Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	125	139	48	2.5
MUW-40-1-NO	•	Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	125	145	48	2.9
MUW-50-1-NO	•	Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	0~10 ⁻³ Torr	167	156	48	4.5

* Connect air source to outlet port for vacuum application.

* Please consult your sales representative for other customization requirement.

MUW-F series

2/2 WAY N.C., N.O. DIAPHRAGM TYPE SOLENOID VALVE



Selection table



MU* Reference table



Seal material

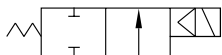


Caution for safety
(Read before installing)

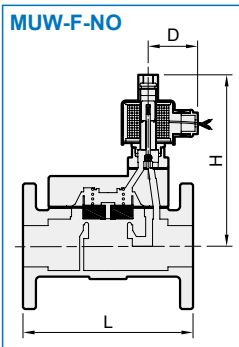
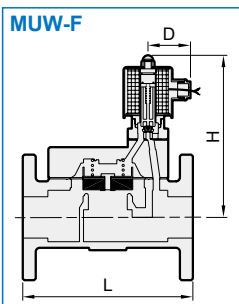
2-WAY normally closed and normally open solenoid valve.
Available fluid: Water, air, light oil.



2/2 N.C.



2/2 N.O.



Specification

- Multiplex acting, piston guiding, conductive and normal close / normal open.
- Acceptable for customize Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- Flange: JIS 10K (Option: ANSI 150LB or PN-16)
- AC voltage tolerance: ±10%, DC voltage tolerance: ±1%

Material

Parts name	Material
Body	FC-20
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Min pressure to open (N.C.): over 0.05 MPa
Min pressure to close (N.O.): over 0.05 MPa
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MUW - 40F - NO - □ - W - AC110

MODEL

PORT SIZE

Blank: Normally closed
NO: Normally open

COIL

FLUID

W: Water, air
LO: Light oil (*2)

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

	Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressure range (MPa)			Dimensions (mm)			Weight (kg)
							Water	Air	Light oil	L	H	D	
NC	MUW-35F	•	Rc1 1/4"	22	35	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	200	164	48	8.9
	MUW-40F	•	Rc1 1/2"	30	40	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	200	164	48	9.6
	MUW-50F	•	Rc2"	40	50	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	210	170	48	11.3
	MUW-65F	•	Rc2 1/2"	68	65	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	240	177	48	15.6
	MUW-80F	•	Rc3"	102	80	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	300	191	48	20.8
	MUW-100F	•	Rc4"	180	100	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	340	207	48	31.7
NO	MUW-35F-NO	•	Rc1 1/4"	22	35	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	200	195	48	9.1
	MUW-40F-NO	•	Rc1 1/2"	30	40	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	200	195	48	9.8
	MUW-50F-NO	•	Rc2"	40	50	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	210	208	48	11.5
	MUW-65F-NO	•	Rc2 1/2"	68	65	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	240	213	48	15.8
	MUW-80F-NO	•	Rc3"	102	80	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	300	222	48	21.0
	MUW-100F-NO	•	Rc4"	180	100	-5~+80	0.05~0.8	0.05~0.8	0.05~0.5	340	238	48	31.9

* Please consult your sales representative for other customization requirement.

MUG / MUV series



2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE

mindman



2-WAY normally closed solenoid valve.
Available fluid: Gas, vacuum.

Selection table



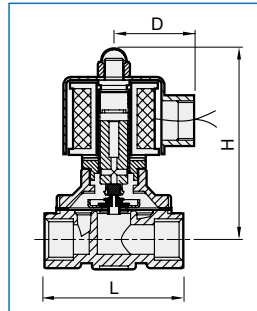
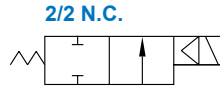
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- Direct and multiplex acting, connected diaphragm, normal close.
- Can be operated under no differential pressure.
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$

Material

Parts name	MUG	MUV
Body	Forge brass	
Coil	Special copper wire (H)	
Core	Stainless steel	
Tube	Stainless steel	
Spring	Stainless steel	
Plug	NBR	
Diaphragm	NBR for gas use	NBR

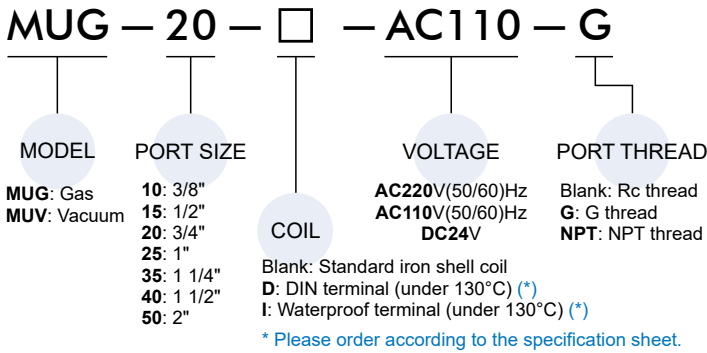
Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example



Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressure range (MPa) for Gas	Vacuum Torr	Dimensions (mm)			Weight (kg)
								L	H	D	
MUG/V-10	•	Rc3/8"	4.5	15	-5~+80	0~0.7	0~10 ⁻³	70	100	48	1.01
MUG/V-15	•	Rc1/2"	4.5	15	-5~+80	0~0.7	0~10 ⁻³	70	100	48	1.00
MUG/V-20	•	Rc3/4"	8.6	20	-5~+80	0~0.7	0~10 ⁻³	73	102	48	1.13
MUG/V-25	•	Rc1"	12.0	25	-5~+80	0~0.7	0~10 ⁻³	100	112	48	1.70
MUG/V-35	•	Rc1 1/4"	24.0	35	-5~+80	0~0.7	0~10 ⁻³	125	113	48	2.32
MUG/V-40	•	Rc1 1/2"	28.0	40	-5~+80	0~0.7	0~10 ⁻³	125	118	48	2.53
MUG/V-50	•	Rc2"	48.0	50	-5~+80	0~0.7	0~10 ⁻³	167	125	48	4.32

* Connect air source to outlet port for vacuum application.

* Please consult your sales representative for other customization requirement.



2-WAY normally closed solenoid valve.
Available fluid: Water, air.

Selection table



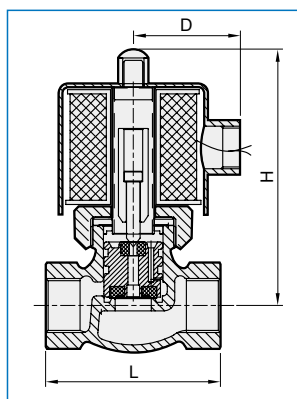
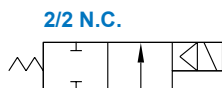
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- MUAW series is multiplex acting, piston guide, conductive and normal close.
- AC voltage tolerance: $\pm 10\%$,
DC voltage tolerance: $\pm 1\%$

Material

Parts name	Material
Body	Cast bronze
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	PTFE+15%GF
Piston	Brass
Piston plug	NBR

Caution

- Min pressure to open: over 0.05~0.1 MPa.
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.
- Temperature over 80°C.

Order example

MUAW – 25 – AC110 – G

MODEL

PORT SIZE

VOLTAGE

PORT THREAD

- 15: 1/2"
- 20: 3/4"
- 25: 1"
- 35: 1 1/4"
- 40: 1 1/2"
- 50: 2"

- AC220V(50/60)Hz
- AC110V(50/60)Hz
- DC24V

- Blank: Rc thread
- G: G thread
- NPT: NPT thread

Model	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressuer range (MPa)		Dimensions (mm)			Weight (kg)
					Water	Air	L	H	D	
MUAW-15	Rc1/2"	4.0	17	-5~+80	0.05~1	0.05~1.5	82	125	58	1.60
MUAW-20	Rc3/4"	6.0	17	-5~+80	0.05~1	0.05~1.5	82	125	58	1.67
MUAW-25	Rc1"	12.0	22	-5~+80	0.05~1	0.05~1.5	91	133	58	2.02
MUAW-35	Rc1 1/4"	18.0	30	-5~+80	0.1~1	0.1~1.5	111	141	58	3.08
MUAW-40	Rc1 1/2"	22.0	30	-5~+80	0.1~1	0.1~1.5	111	144	58	3.10
MUAW-50	Rc2"	48.0	50	-5~+80	0.1~1	0.1~1.5	163	175	58	6.82

MUS / MUS-F series



2/2 WAY N.C. PISTON TYPE SOLENOID VALVE



2-WAY normally closed solenoid valve.
Available fluid: Water, air, steam, light oil & heavy oil.

Selection table



MU* Reference table



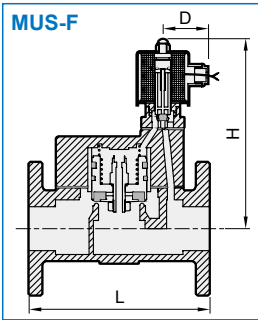
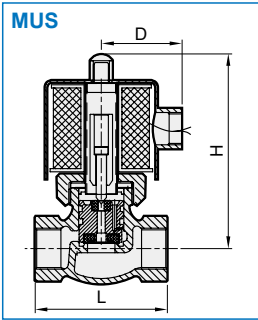
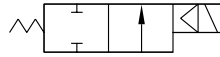
Seal material



Caution for safety
(Read before installing)



2/2 N.C.



Specification

- MUS/MUS-F series is multiplex-drive, piston guide, connected normal close.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug.
- Flange: JIS 10K (Option: ANSI 150LB or PN-16)
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$

Material

Model Parts name	MUS	MUS-F
Body	Cast bronze	Cast Iron (FC-20)
Coil	Special copper wire (H class)	
Tube	Stainless steel	
Spring	Stainless steel	
Core	Stainless steel	
Plug	PTFE+15%GF	PTFE (Teflon)
Piston	Brass	
Piston plug	PTFE (Teflon)	

Caution

- Min pressure to open 0.05 MPa (over 1 1/4" is 0.1 MPa)
- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- Temperature over 185°C.
- The temperature over 130°C, the waterproof coil casing is prone to deformation.

Order example

MUS – 35 F – □ – □ – AC110 – G

MODEL

PORT SIZE

- 15: 1/2"
- 20: 3/4"
- 25: 1"
- 35: 1 1/4"
- 40: 1 1/2"
- 50: 2"
- 65: 2 1/2"
- 80: 3"
- 100: 4"

COIL

- Blank: Standard iron shell coil
- D: DIN terminal (under 130°C) (*1)
- I: Waterproof terminal (under 130°C) (*1)

VOLTAGE

- AC220V(50/60)Hz
- AC110V(50/60)Hz
- DC24V

TYPE

Blank: Standard

F: Flange



FLUID

- T: Steam
- LO: Light oil (*2)
- HO: Heavy oil (*3)
- W: Water, air

PORT THREAD

- Blank: Rc thread
- G: G thread
- NPT: NPT thread (Only for standard type)

*1. Please order according to the specification sheet.

*2. Note, if diesel fuel or gasoline.

*3. Please indicate the kind.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressurer range (MPa)				Dimensions (mm)			Weight (kg)
						Steam	Water, air	Heavy oil	Light oil	L	H	D	
MUS-15		Rc1/2"	4.0	17	-5~+185	0.05~1	—	0.05~1	—	82	125	58	1.60
MUS-20		Rc3/4"	6.0	17	-5~+185	0.05~1	—	0.05~1	—	82	125	58	1.67
MUS-25		Rc1"	12.0	22	-5~+185	0.05~1	—	0.05~1	—	91	133	58	2.02
MUS-35		Rc1 1/4"	18.0	30	-5~+185	0.1~1	—	0.1~1	—	111	141	58	3.08
MUS-40		Rc1 1/2"	22.0	30	-5~+185	0.1~1	—	0.1~1	—	111	144	58	3.10
MUS-50		Rc2"	48.0	50	-5~+185	0.1~1	—	0.1~1	—	163	175	58	6.82
MUS-35F	•	1 1/4"	22	35	-5~+185	0.1~1	0.1~1	—	0.1~1	200	189	48	10.7
MUS-40F	•	1 1/2"	30	40	-5~+185	0.1~1	0.1~1	—	0.1~1	200	189	48	10.9
MUS-50F	•	2"	40	50	-5~+185	0.1~1	0.1~1	—	0.1~1	210	202	48	13.2
MUS-65F	•	2 1/2"	68	65	-5~+185	0.1~1	0.1~1	—	0.1~1	240	209	48	19.2
MUS-80F	•	3"	100	80	-5~+185	0.1~1	0.1~1	—	0.1~1	300	228	48	27.0
MUS-100F	•	4"	175	100	-5~+185	0.1~1	0.1~1	—	0.1~1	340	244	48	38.7

* Please consult your sales representative for other customization requirement.

MSUW / MSUW-NO series

2/2 WAY N.C., N.O. DIAPHRAGM TYPE SOLENOID VALVE



2-WAY normally closed / normally open solenoid valve.
Available fluid: Water, air, light oil, gas and vacuum.

Selection table



MU* Reference table



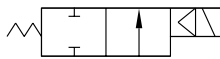
Seal material



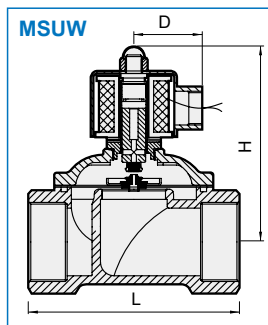
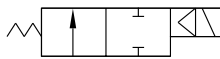
Caution for safety
(Read before installing)



2/2 N.C.

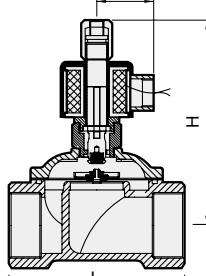
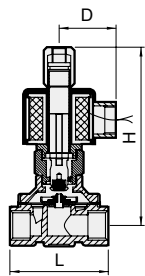


2/2 N.O.



MSUW-15~25-NO

MSUW-35~50-NO



Specification

- Direct and multiplex drive, connected diaphragm, normal close / normal open.
- Can be operated directly under low pressure.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- AC voltage tolerance: ±10%
- DC voltage tolerance: ±1%

Material

Parts name	Material
Body	Stainless steel #304 (option #316)
Coil	Special copper wire (H class)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MSUW — 20 □ — NO — □ — W — AC110 — G

MODEL

PORT SIZE

Blank: Normal close
NO: Normal open

FLUID

VOLTAGE

PORT THREAD

- 15: 1/2"
- 20: 3/4"
- 25: 1"
- 35: 1 1/4"
- 40: 1 1/2"
- 50: 2"

OPERATING PRESSURE

Blank: Standard type
H: High pressure type

COIL

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

- W: Water, air
- G: Gas
- LO: Light oil (*)
- VA: Vacuum

- AC220V(50/60)Hz
- AC110V(50/60)Hz
- DC24V

- Blank: Rc thread
- G: G thread
- NPT: NPT thread

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.

Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressure range (MPa)				High pressure type (MPa)		Vacuum Torr	Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Gas	Water	Air		L	H	D	
NC	MSUW-15	• Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	0~10 ⁻³	70	100	48	1.0
	MSUW-20	• Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	0~10 ⁻³	76	100	48	1.1
	MSUW-25	• Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	0~10 ⁻³	100	115	48	1.65
	MSUW-35	• Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	0~10 ⁻³	123	112	48	2.33
	MSUW-40	• Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	0~10 ⁻³	123	112	48	2.54
	MSUW-50	• Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	—	0.05~1	0.05~2	0~10 ⁻³	167	125	48	4.59
NO	MSUW-15-NO	• Rc1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	0~10 ⁻³	70	126	48	1.0
	MSUW-20-NO	• Rc3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	0~10 ⁻³	76	132	48	1.1
	MSUW-25-NO	• Rc1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	0~10 ⁻³	100	139	48	1.65
	MSUW-35-NO	• Rc1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	0~10 ⁻³	123	140	48	2.5
	MSUW-40-NO	• Rc1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	0~10 ⁻³	123	140	48	2.7
	MSUW-50-NO	• Rc2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0~0.7	—	—	0~10 ⁻³	167	150	48	4.73

* High pressure type use N.O. coil. * Connect air source to outlet port for vacuum application.
* Please consult your sales representative for other customization requirement.

MSUW-F series

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



2-WAY normally closed solenoid valve.
Available fluid: Water, air, light oil, gas & vacuum.

Selection table



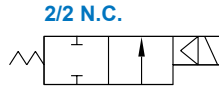
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- MSUW-F series is direct multiplex acting, connected diaphragm, normal close.
- Able to be operated under low pressure.
- Acceptable for customization Viton (130°C), Silicone (130°C) and EPDM (130°C) for seal plug and diaphragm.
- Flange: JIS 10K (Option: ANSI 150LB or PN-16)
- AC voltage tolerance: $\pm 10\%$
DC voltage tolerance: $\pm 1\%$

Material

Parts name	Material
Body	Stainless steel
Coil	Special copper wire (H)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	NBR
Diaphragm	NBR

Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.

Order example

MSUW — 20F□ — □ — W — AC110

MODEL

PORT SIZE

OPERATING PRESSURE

FLUID

VOLTAGE

- 15: 1/2"
- 20: 3/4"
- 25: 1"
- 35: 1 1/4"
- 40: 1 1/2"
- 50: 2"

Blank: Standard type
H: High pressure type

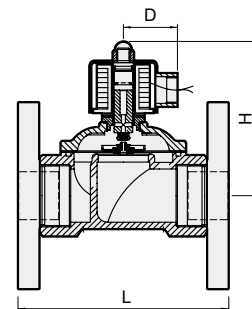
COIL

Blank: Standard iron shell coil
D: DIN terminal (under 130°C) (*1)
I: Waterproof terminal (under 130°C) (*1)

- W: Water, air
- G: Gas
- LO: Light oil (*2)
- VA: Vacuum

- AC220V(50/60)Hz
- AC110V(50/60)Hz
- DC24V

*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.



Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressure range (MPa)			High pressure type (MPa)		Vacuum Torr	Dimensions (mm)			Weight (kg)
						Water	Air	Light oil	Water	Air		L	H	D	
MSUW-15F	•	1/2"	4.5	15	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	0~10 ⁻³	110	100	48	2.2
MSUW-20F	•	3/4"	8.6	20	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	0~10 ⁻³	120	100	48	2.5
MSUW-25F	•	1"	12.0	25	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	0~10 ⁻³	150	115	48	4.1
MSUW-35F	•	1 1/4"	24.0	35	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	0~10 ⁻³	170	138	48	6.1
MSUW-40F	•	1 1/2"	28.0	40	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	0~10 ⁻³	170	138	48	6.7
MSUW-50F	•	2"	48.0	50	-5~+80	0~0.5	0~0.7	0~0.5	0.05~1	0.05~2	0~10 ⁻³	210	156	48	9.51

* High pressure type use N.O. coil.

* Connect air source to outlet port for vacuum application.

* Please consult your sales representative for other customization requirement.



2-WAY normally closed solenoid valve.
Available fluid: Water, air, steam & light oil.

Selection table



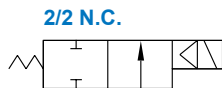
MU* Reference table



Seal material



Caution for safety
(Read before installing)



Specification

- MUPS series is multiplex acting, piston guide, conductive normal close.
- Acceptable for customization Viton , Silicone and EPDM for seal plug.
- Minimum pressure to open: over 0.05 MPa.
- AC voltage tolerance: $\pm 10\%$,
DC voltage tolerance: $\pm 1\%$

Material

Parts name	Material
Body	Cast bronze
Coil	Special copper wire (H)
Core	Stainless steel
Tube	Stainless steel
Spring	Stainless steel
Plug	PTFE (Teflon)
Piston Spring	Stainless steel
Piston	Brass
Piston plug	PTFE (Teflon)

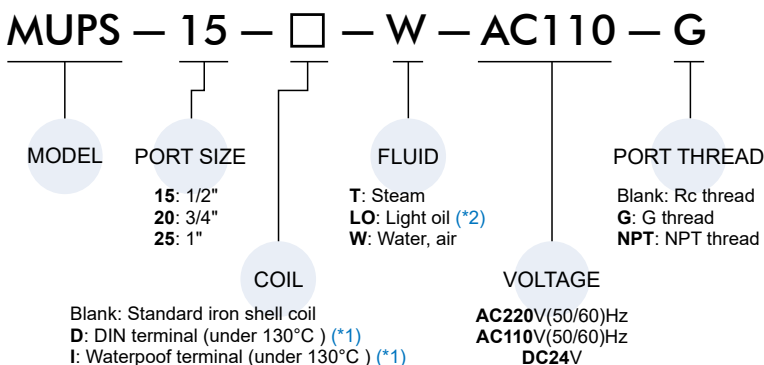
Caution

- Before pipelining, the pipe line must be very clean without any contaminants or impurity.
- To extend the lifetime, Y-line filter should be installed in the front end of solenoid valve.
- It should be installed horizontally; vertical installation is not advisable.

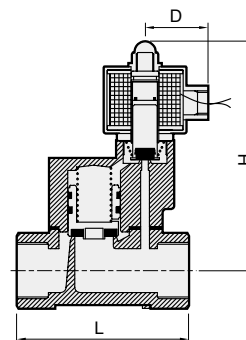
Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 20 cst.
- Temperature over 185°C.
- The temperature over 130°C, the waterproof coil casing is prone to deformation.

Order example



*1. Please order according to the specification sheet.
*2. Note, if diesel fuel or gasoline.



Model	D / I coil	Port size	CV	Orifice (mm)	Fluid temp. °C	Operating pressuer range (MPa)				Dimensions (mm)			Weight (kg)
						Water	Air	Steam	Light oil	L	H	D	
MUPS-15	•	Rc1/2"	4	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	82	118	48	1.32
MUPS-20	•	Rc3/4"	6	17	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	82	120	48	1.44
MUPS-25	•	Rc1"	12	22	-5~+185	0.05~1	0.05~1	0.05~1	0.05~1	100	135	48	2.13

* Please consult your sales representative for other customization requirement.

MXAD series

2/2 WAY N.C. PLUNGER TYPE DIRECT ACTING SOLENOID VALVE



Selection table



Seal material



Caution for safety
(Read before installing)



Caution

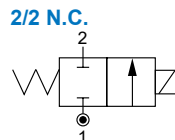
- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within $\pm 10\%$.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: $-10\sim+80^{\circ}\text{C}$ (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

Model	MXAD			
Code Dimension (mm)	6A/B/C	8A/B/C	10A/B/C	12A/B
A	41		50	55
B	19		25	27
C	90		94	98
D	78		87	87
E	37		42	42
F	58		64.5	64.5
G	15		15	—
H	10.5		11.7	13
N.W (kg)	0.49	0.47	0.73	0.78



Order example

MXAD \square - 6A - V - G - A - AC110 - G

MODEL

BODY MAT'L

Blank: Brass
S: S.Steel (*1)

PORT SIZE

6A, 6B, 6C,
8A, 8B, 8C,
10A, 10B, 10C,
12A, 12B

SEAL MAT'L

N: NBR
V: Viton
S: Silicon
J: EPDM

COIL

G: Square DIN

FLUID

W: Water
A: Air
G: Gas
LO: Light oil (*2)
VA: Vacuum

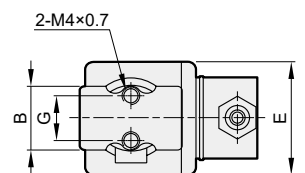
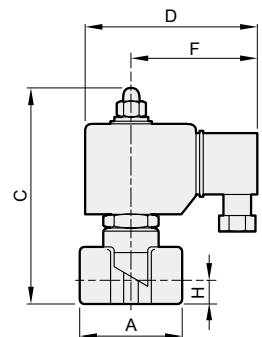
VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

*1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.



Specification

Model MXAD: Forged brass body, for water, air, gas, naphtha, vacuum.

Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)						CV
			Water	Air	Gas	Naphtha	Vacuum	acid & alkali(S.Steel)	
6A(1/8")	N S J V	3	0~10	0~10	0~10	0~7	0~10 ^e Torr	0~10	0.26
6B(1/8")		4	0~7	0~7	0~7	0~5	0~10 ^e Torr	0~7	0.58
6C(1/8")		5	0~5	0~5	0~5	0~3	0~10 ^e Torr	0~5	0.64
8A(1/4")		3	0~10	0~10	0~10	0~7	0~10 ^e Torr	0~10	0.26
8B(1/4")		4	0~7	0~7	0~7	0~5	0~10 ^e Torr	0~7	0.58
8C(1/4")		5	0~5	0~5	0~5	0~3	0~10 ^e Torr	0~5	0.64
10A(3/8")		4	0~10	0~10	0~10	0~7	0~10 ^e Torr	0~10	0.58
10B(3/8")		6	0~5	0~5	0~5	0~3	0~10 ^e Torr	0~5	0.79
10C(3/8")		8	0~2	0~2	0~2	0~1	0~10 ^e Torr	0~2	0.97
12A(1/2")		6	0~5	0~5	0~5	0~3	0~10 ^e Torr	0~5	0.79
12B(1/2")		8	0~2	0~2	0~2	0~1	0~10 ^e Torr	0~2	0.97

* Connect air source to outlet port for vacuum application.

MXAD-AF series

2/2 WAY N.C. DIAPHRAGM TYPE DIRECT ACTING SOLENOID VALVE



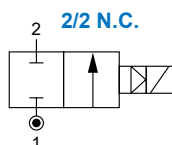
Selection table



Seal material



Caution for safety
(Read before installing)



Caution

- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within $\pm 10\%$.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: $-10\sim+80^{\circ}\text{C}$ (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

Model	MXAD						
Code Dimension (mm)	14	15	20	25	35	40	50
A	75	75	85	100	120	120	150
B	52	52	60	70	90	90	120
C	107	107	116	122	142.5	142.5	160
G	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
H	14.5	14.5	18	23	33	33	40.5
N.W (kg)	1.03	1.06	1.24	1.51	2.87	2.77	4.81

Order example

MXAD - 35 - V - G - A - AC110 - G

MODEL

BODY MAT'L

Blank: Brass
S: S.Steel (*1)

SEAL MAT'L

N: NBR
V: Viton
S: Silicon
J: EPDM

FLUID

W: Water
A: Air
G: Gas
LO: Light oil (*2)
VA: Vacuum

COIL
G: Square DIN

VOLTAGE

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

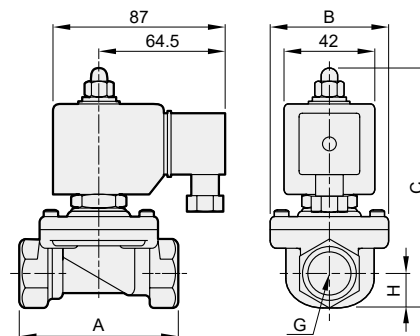
PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

PORT SIZE	CODE
14	3/8"
15	1/2"
20	3/4"
25	1"
35	1 1/4"
40	1 1/2"
50	2"

Blank: Standard
AF: Flange end (JIS 10K)

- *1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.



Dimensions

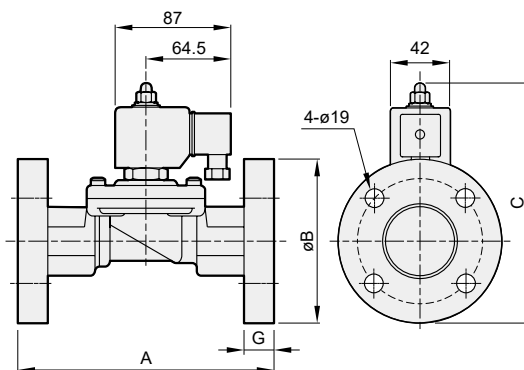
Model	MXAD-**AF			
Code Dimension (mm)	25AF	35AF	40AF	50AF
A	130	160	160	200
B	125	135	140	155
C	165	177	180	195
G	14	16	16	16
N.W (kg)	5.35	7.75	8.0	11.0

Specification

Model MXAD: Forged brass body, for water, air, gas, naphtha, Vacuum.

Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)						CV
			Water	Air	Gas	Naphtha	Vacuum (Torr)	acid & alkali (S.Steel)	
14(3/8")	N S J V	15	0~10	0~10	0~10	0~10	0~10 ⁻⁶	0~10	4.5
15(1/2")		15	0~10	0~10	0~10	0~10	0~10 ⁻⁶	0~10	4.5
20(3/4")		20	0~10	0~10	0~10	0~10	0~10 ⁻⁶	0~10	9.3
25(1")		25	0~10	0~10	0~10	0~10	0~10 ⁻⁶	0~10	13.2
35(1 1/4")		35	0~10	0~10	0~10	0~10	0~10 ⁻⁶	0~10	26
40(1 1/2")		35	0~10	0~10	0~10	0~10	0~10 ⁻⁶	0~10	26
50(2")		50	0~7	0~7	0~7	0~5	0~10 ⁻⁶	0~7	48

* Connect air source to outlet port for vacuum application.





Selection table



Seal material



Caution for safety
(Read before installing)



Caution

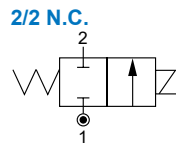
- In order to prolong operating life, it is better to allocate pipe horizontally and coil to face upward.
- Voltage drop range is within $\pm 10\%$.
- Pressure of voltage DC is 70% of voltage AC only.
- Combined diaphragm design assures no breaking.
- Fluid temp.: $-10\sim+80^{\circ}\text{C}$ (Naphtha 120°C)

Not for fluid of

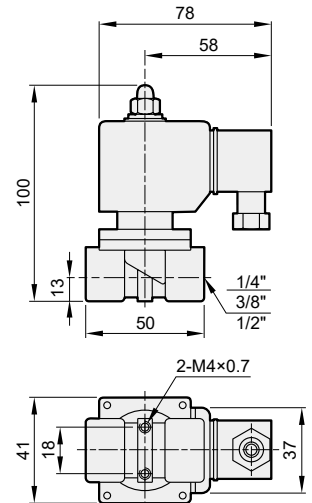
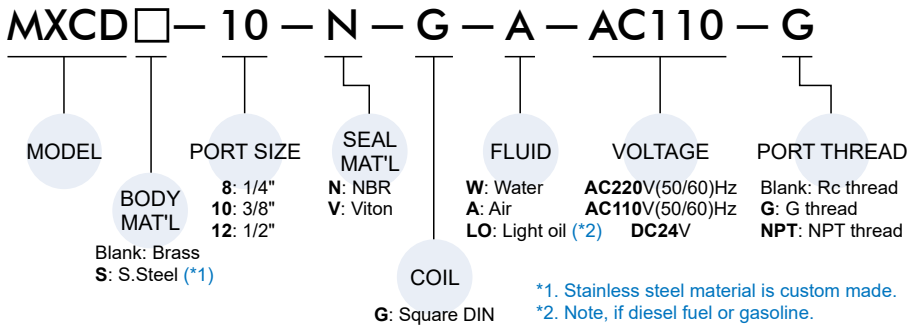
- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Weight

Model	MXCD		
Code	8	10	12
N.W (kg)	0.61	0.6	0.59



Order example



Specification

Model MXCD: Forged brass body, for water, air, naphtha.							
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)				CV
			Water	Air	Naphtha	acid & alkali (S.Steel)	
8(1/4")	N V	11	0.3~20	0.3~20	0.3~20	0.2~20	2.4
10(3/8")		12	0.3~20	0.3~20	0.3~20	0.2~20	2.7
12(1/2")		12	0.3~20	0.3~20	0.3~20	0.2~20	2.7

MXPV series

2/2 WAY N.C. DIAPHRAGM TYPE SOLENOID VALVE



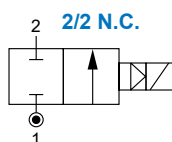
Selection table



Seal material



Caution for safety
(Read before installing)



Caution

- Direct-acting valves are ideally suited to allocate at any angle.
- Voltage drop range is within $\pm 10\%$.
- Pressure of voltage DC is 70% of voltage AC only.
- Fluid temp.: $-10\sim+80^{\circ}\text{C}$ (Naphtha 120°C)

Not for fluid of

- Liquid when heat, solid when cool.
- Corrosive fluid.
- Viscosity over 50 cst.

Dimensions

Model	MXPV		
Code Dimension (mm)	14	15	20
A	75	85	
B	52	60	
C	104	113	
H	14.5	18	
G	3/8"	1/2"	3/4"
N.W (kg)	0.85	0.88	1.06

Order example

MXPV - 20 - V - G - W - AC110 - G

MODEL

PORT SIZE

SEAL MAT'L

FLUID

VOLTAGE

BODY MAT'L
14: 3/8"
15: 1/2"
20: 3/4"
Blank: Brass
S: S.Steel (*1)

N: NBR
S: Silicon
J: EPDM
V: Viton

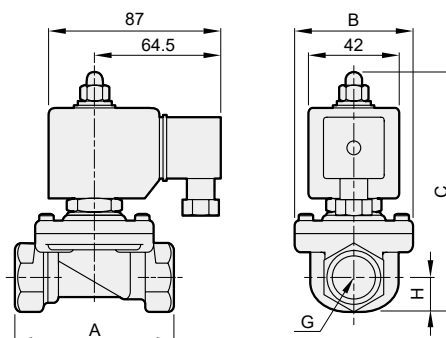
W: Water
A: Air
LO: Light oil (*2)

AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

COIL
G: Square DIN

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

*1. Stainless steel material is custom made.
*2. Note, if diesel fuel or gasoline.



Specification

Model MXPV: Forged brass body, for water, air, naphtha.							
Code (Port size)	Seal Mat'l	Orifice mm	Max. operating pressure diff. (0~bar)				CV
			Water	Air	Naphtha	acid & alkali (S.Steel)	
14(3/8")	N, S J, V	15	0.5~10	0.5~10	0.5~10	0.2~20	4.5
15(1/2")		15	0.5~10	0.5~10	0.5~10	0.2~20	4.5
20(3/4")		20	0.5~10	0.5~10	0.5~10	0.2~20	9.3

