



# METERING PUMP

SELECTION BROCHURE

## GMS, GBS series mechanical diaphragm metering p



GMS series mechanical diaphragm metering pump



GBS series mechanical diaphragm metering pump

### Main performance parameters

Maximum flow rate: 2040L/h

Maximum discharge pressure: 12bar

Adjustment range: 30%-100%, steady-state accuracy  $\pm 1\%$

The suction lifting height can reach up to 3m water column

Maximum ambient temperature: +40°C

Maximum inlet pressure: 2bar

### Main features

Driver end.

Variable eccentric mechanism is adjusted to ensure a gentle change in flow pulsation.

The enhanced structure design is suitable for the operating environment of the division.

Wear-resistant ball bearings make the work more stable.

Oil bath lubrication, long working life of drive components.

The suction lifting height can reach up to 3m water column

The flow rate can be adjusted during shutdown or operation, and the adjustment method can be manual, electric or frequency conversion.

Hydraulic end.

The diaphragm is mechanically driven, and there is no diaphragm guard plate on the material side to facilitate the passage of the material.

PVC, PVDF, 316SS, high viscosity, slurry and other pump head materials are suitable for conveying various materials.

Self-cleaning check valve structure, easy to maintain.

### Control mode

Electric stroke controller, accepts external control signals and adjusts the stroke length

Power supply: 220V/single phase, 50Hz

Input signal: 4-20mA analog signal

Output signal: 4-20mA/1-5V analog signal, for recording display and control system use

External control signals can be received by installing a frequency conversion controller to adjust the stroke speed

Power supply: 380V/three-phase, 220V/single-phase, 50Hz

Input signal: 4-20mA analog signal

Switch controller, control the three-phase motor in the "on/off" mode, "adjust the output flow

### Main application

Environmental protection, petrochemical industry, chemical industry, petroleum refining, electric power, metallurgy, medicine, food, water treatment and other fields.



## Attachment Annex

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Optional accessories such as: filter, correction column, pulsation damper, safety valve and back pressure valve, etc., including safety valve is required.

GMS0002-GMS0050 series PVC hydraulic end metering pump, in addition to the high viscosity pump head, with the metering pump Provide injection valve, bottom valve, counterweight and 6m hose.

## Motor performance parameters

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Power supply: 380V/three-phase, 220V/single-phase, 50Hz

Insulation grade: F grade

Protection class: IP55

All motors comply with the IEC standard of the International Electrotechnical Association or the NEC standard of the National Electrical Commission of the United States.

## Options available

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Double diaphragm pump head

Stroke count sensor

Double diaphragm rupture pressure gauge detection and pressure switch detection

PNP output/NPN output/relay output



Material of main components of liquids end

GMS0002-GMS0500						
Hydraulic end	Valve body	Valve seat	Valve ball	Diaphragm	Seal diagram	Connect
PVC	PVC	PVDF	Oxidation error	PTFE	FPM/EPDM*/Oxygen-coat*	PVC
PVDF	PVDF	PVDF	Oxidation error	PTFE	FPM/EPDM*/Oxygen-coat*	PVDF
316SS	316SS	316SS	316SS	PTFE	FPM/EPDM*/Oxygen-coat*	316SS

\*Optional item

GBS0080-GBS1200						
Hydraulic end	Valve body	Valve seat	Valve ball	Diaphragm	Seal diagram	Connect
PVC	PVC	PVDF	氧化锆	PTFE	FPM/EPDM*/Oxygen-coat*	PVC
PVDF	PVDF	PVDF	氧化锆	PTFE	FPM/EPDM*/Oxygen-coat*	PVDF
316SS	316SS	316SS	316SS	PTFE	FPM/4F/EPDM*/Oxygen-coat*	316SS

\*Optional item

GBS1500-GBS2000								
Hydraulic end	Valve body	Valve seat	Valve ball	Spring	Diaphragm	Seal diagram	Connect	
PVC	PVC	PVC	PVDF	PVC	HastelloyC-276	PTFE	FPM/EPDM*	PVC
PVDF	PVDF	PVDF	PVDF	PVDF	HastelloyC-276	PTFE	FPM/EPDM*	PVDF
316SS	316SS	316SS	316SS	316SS	HastelloyC-276	PTFE	4F	316SS

\*Optional item

GMS, GBS Series mechanical diaphragm metering pumps

series  flow rate  hydraulic end  interface  motor  adjust  base  option

Series

Encoding	Desc	Encoding	Desc
GMS	GMS series mechanical diaphragm metering pump	GBS	GBS series mechanical diaphragm metering pump

Flow

Encoding	Maximum flow rate (L/h)	Maximum pressure (bar)	Number of strokes (min3)	Motor power (kW)
GMS0002	2.25	12	36	0.25 ■
GMS0005	4.5			
GMS0010	9			
GMS0025	25			
GMS0050	50	10	144	0.37 ■
GMS0090	85	72		
GMS0120	115	7	72	0.55 ●
GMS0170	170		144	
GMS0240	235		144	
GMS0330	315	5	144	0.75 ●
GMS0400	400		144	
GMS0500	500		180	
GMS0080	82		36	
GBS0180	167	10	72	0.55 ●
GBS0250	237		102	
GBS0350	334		144	
GBS0450	416		180	
GBS0500	464	7	144	0.75 ●
GBS0600	583		180	
GBS0700	656		102	
GBS1000	946	3.5	144	0.75 ●
GBS1200	1200		180	
GBS1500	1500	3	180	0.75 ●
GBS1800	1800		206	
GBS2000	2040		206	

■ this power is used for three-phase constant speed motors ■ power is used for single-phase, explosion proof, frequency-conversion motors ● this power is used for three-phase constant-speed, explosion-proof motor

● this power is used for single-phase, frequency-conversion motors



## Liquid end

Encoding	Description	Encoding	Description
P	PVC hydraulic end	V	High viscosity application: PVC hydraulic end
S	316 hydraulic end	K	Rong material application: GMS0025-0500 316 hydraulic end; GBS PVC hydraulic end
T	PVDF hydraulic end	M	Mixture application: GMS: PVDF hydraulic terminal
F	Sodium hypoxite application: PVC hydraulic end <span style="color: red;">■</span>	Z	For special material hydraulic ends, please consult the factory and specify when ordering

■ GMS, GBS series: EPDM material O-shaped garden

## Connector

Encoding	Description	GMS0002-0050			GMS0090-0500			GBS0080-0450			GBS0500-1200			GBS1500-2000		
		PVC	PVDF	316	PVC	PVDF	316	PVC	PVDF	316	PVC	PVDF	316	PVC	PVDF	316
P	NPT threaded interface	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1/2"F	1"F	1"F	1"M	1-1/2"F	1-1/2"F	1-1/2"M
Q	Inner nozzle hard tube intubation interface	DN15	-----	-----	DN15	-----	-----	DN15	-----	-----	DN25	-----	-----	DN40	-----	-----
R	Hose interface	6x12 <span style="color: red;">■</span>	6.35x9.52 <span style="color: red;">■</span>	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
H	GMS hose 12x18 for high viscosity applications	12x18	-----	-----	20x28	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
X	Special interface	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Note: The parameter part of the red text is the standard configuration, high viscosity pump head V, complex material head K, mixture pump head M, if there is no special option, the interface will be selected according to the material of the hydraulic end.

■ PVC hose us 6 meters long/root; 1 hose is configured by default at the factory injection

■ Bottom valves, counterweight and tetraoxygen hose are not configured at the factory. Please order additional and inquire with the factory.

## Motor

	GMS	GBS
1	0.25kW, IEC71, three-phase 380V, 50Hz, 1440rpm, IP55/F	0.55kW, IEC80, three-phase 380V, 50Hz, 1440rpm, IP55/F
2	-----	-----
3	0.37kW, IEC71, three-phase explosion-proof 380V, 50Hz, 1440rpm, IP55/F	0.55kW, IEC80, three-phase explosion-proof 380V, 50Hz, 1440rpm, IP55/F, dII BT4
4	0.37kW, IEC71, three-phase 380V, 50Hz, 1440rpm, IP55/F	0.75kW, IEC80, three-phase 380V, 50Hz, 1440rpm, IP55/F
5	0.25kW, IEC71, single-phase 220V, 50Hz, 1440rpm, IP55/F	0.75kW, IEC80, three-phase explosion-proof 380V, 50Hz, 1440rpm, IP55/F, dII BT4
6	0.25kW, IEC71, three-phase frequency conversion 380V, 50Hz, 1440rpm, IP55/F, IC416	0.55kW, IEC80, single-phase 220V, 50Hz, 1440rpm, IP55/F
7	0.37kW, IEC71, three-phase frequency conversion 380V, 50Hz, 1440rpm, IP55/F, IC416	0.75kW, IEC80, single-phase 220V, 50Hz, 1440rpm, IP55/F
8	-----	-----
9(5)	The pump not equipped with a motor at the factory, and the IEC71 interface is retained.	The pump is not equipped with a motor at the factory, and the IEC71 interface is retained.
9(6)	0.37kW, IEC71, single-phase 220V, 50Hz, 1440rpm, IP55/F	-----
9(8)	-----	The pump is not equipped with a motor at the factory, and the IEC80 interface is retained.
9	For other motors, please consult the factory	For other motors, please consult the factory

Note: Single-phase motor cannot be used at the same time as switch controllers.

## Regulate

Encoding	Describe GMS	Describe GBS	Remarks
M	Manual stroke adjustment	Manual stroke adjustment	Standard configuration
N	Electric stroke adjustment, 4-20mA, 1PH-50Hz-220V	Electric stroke adjustment, 4-20mA, 1PH-50Hz-220V	-----
E	-----	Electric stroke adjustment, 4-20mA, 1PH-50Hz-220V, Ex.Proof	-----
F	Frequency conversion control	Frequency conversion control	-----

## Pedestal

Encoding	Describe GMS	Describe GBS	Remarks
N	No base	No base	Standard configuration
Y	Has a base	Has a base	-----

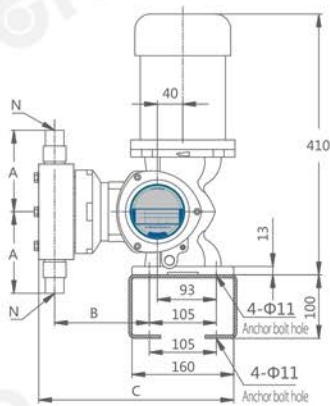


### Option

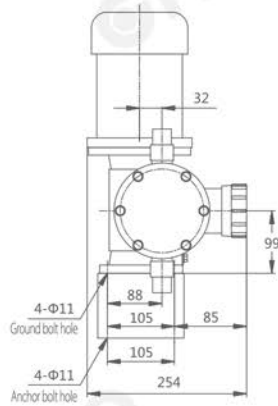
Encoding	Describe GMS	Describe GBS	Remarks
N	No option	No option	-----
B	Diaphragm rupture detection and pressure gauge	Diaphragm rupture detection and pressure gauge	-----
C	Diaphragm rupture detection and pressure gauge, pressure switch ■	Diaphragm rupture detection and pressure gauge, pressure switch ■	With non-explosion-proof pressure switch and pressure gauge, including base
D	Diaphragm rupture detection and pressure gauge, explosion-proof pressure switch ■	Diaphragm rupture detection and pressure gauge, explosion-proof pressure switch ■	Explosion-proof pressure switch and pressure gauge, including base
X	For others, please consult the factory	For others, please consult the factory	Please specify the special configuration in the contract

■ When the GMS and GBS series choose a double diaphragm with pressure switch, the default is to have a base, and the option for the base part should be "Y"

### GMS Series Dimensions

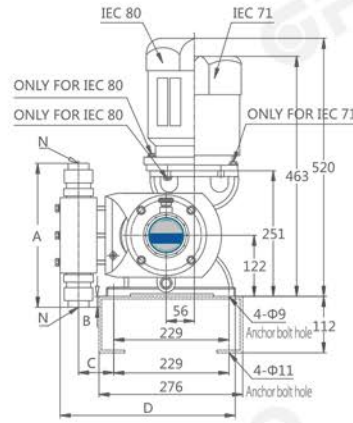


GMS series size chart (including base)

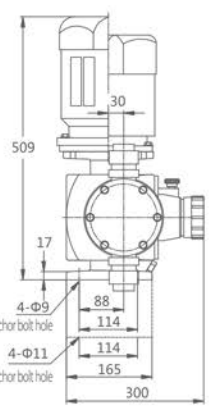


GMS series size chart (including base)

### GBS Series Dimensions



GBS series size chart (including base)



GBS series size chart (including base)

### GMS series installation dimensions

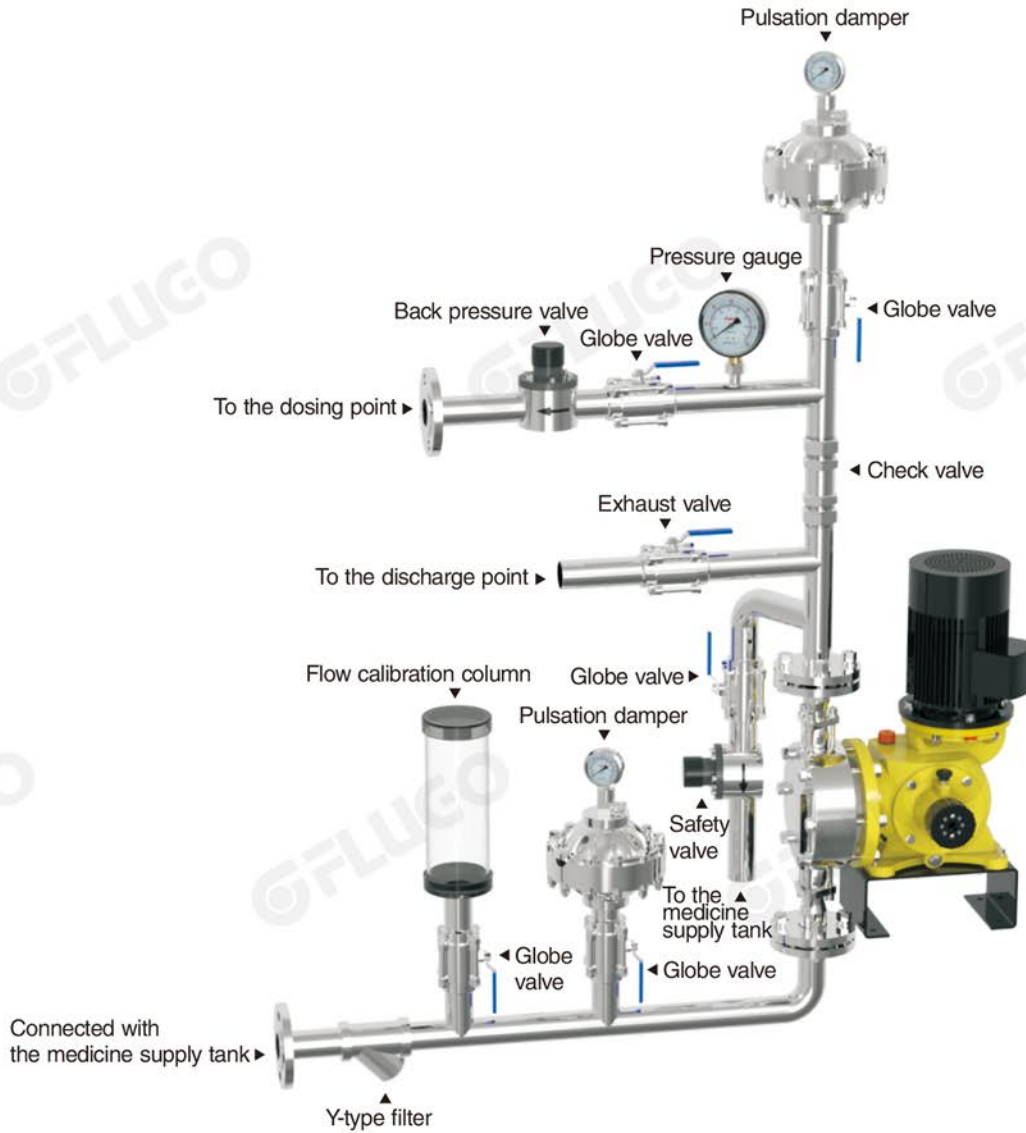
GMS0002-GMS0050					GMS0090-GMS0500				
Pump head material	Interface code	A(mm)	B(mm)	C(mm)	Pump head material	Interface code	A(mm)	B(mm)	C(mm)
PVC	R	100	102	250	PVC	P	127	150	307
PVDF	P	100			PVDF	P	131		
316	P	101			316	P	131		

### GBS series installation dimensions

Model	GBS0080-0450		GBS0500-0600		GBS0700-1200		GBS1500-2000	
	Plastic	Metal	Plastic	Metal	Hope	Metal	Plastic	Metal
A	256	264	286	348	362	423	419	458
B	6	10	21	52	59	89.5	87.5	107
C	71	65	71	79	96	100	96	100
D	350	332	350	350	373	370	373	370
N	1/2" F NPT	1/2" F NPT	1" F NPT	1" M NPT	1" F NPT	1" M NPT	1-1/2" F NPT	1-1/2" M NPT
	DN15 (PVC pump head only)	-----	DN25 (PVC pump head only)	-----	DN25 (PVC pump head only)	-----	DN40 (PVC pump head only)	-----



## Typical Installation Diagram of Metering Pump



## Diagram of Metering Pump Spare Parts

• PTFE diaphragm



• PTFE composite diaphragm



• Check valve



## Diagram of Metering Pump Spare Parts

### Y-type filter

Function: filtering the impurities in the pump inlet pipeline



### Pulsation damper

Function: The pressure gauge provided with the damper can display the pipeline pressure, and this component can slow down the pulse impact on the pipeline and system, as well as the pulse vibration generated when the pump discharges the medium, commonly known as buffer.



### Flow calibration column

Function: Calibrate the output flow and improve the measurement accuracy.



### Float calibration column

Function: Display the output flow.



### Back pressure valve

Function: Stabilize the flow rate of the pump, keep a certain constant pressure in the pump outlet during working, as to prevent the liquid from flowing or siphoning under the action of gravity. When used in conjunction with the buffer, it can reduce the pressure fluctuation in the system pipeline.



### Safety valve

Function: to prevent the pump and system pipeline from being damaged by overpressure.





## Anticorrosion Performance Table

Conveying liquid	Concentration	Fluoroplastic			PVC		FPM			EPDM			304SS/316SS		
		25°C	50°C	100°C	25°C	60°C	25°C	50°C	100°C	25°C	50°C	100°C	25°C	50°C	100°C
Ammonia	s	A	A	A	A	A	B	B	X	A	A	A	S	S	S
Ammonia+sulfuric acid	10%	A	A	A	A	A	X	X	X	A	A	A	A	B	X
Aniline	100%	A	A	A	X	X	A	B	X	B	B	X	S	S	S
Phenylhydrazine (hydrazine)	100%	A	A	A	X	X	A	A	B	X	B	X	S	S	S
Propionic acid	25%	A	A	A	A	A	B	B	X	A	A	A	A	A	A
Propionic acid	80%	A	A	A	B	B	B	B	X	A	A	B	A	A	A
Acetone	s	A	A	A	X	X	X	X	X	B	B	X	S	S	S
Oxalate	s	A	A	A	A	A	A	A	B	A	A	A	A	B	X
Acetic acid	s	A	A	A	A	A	B	X	X	B	X	X	A	A	A
Ammonium acetate	s	A	A	A	A	A	B	B	X	A	A	A	S	S	S
Xylene	100%	A	A	A	X	X	B	B	X	X	X	X	S	S	S
Toluene	100%	A	A	A	X	X	B	B	X	X	X	X	S	S	S
Glycerin	100%	A	A	A	A	B	A	A	A	A	B	B	S	S	S
Methanol	100%	A	A	A	A	B	X	X	X	B	B	B	S	S	S
Formaldehyde (ant aldehyde)	s	A	A	A	A	C	C	C	X	A	A	A	S	S	S
Ureophil	s	A	A	A	A	A	A	A	C	A	A	A	A	X	X
Citric acid	50%	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Citric acid	100%	A	A	A	A	A	A	A	A	A	A	B	A	X	X
Gasoline	100%	A	A	A	A	X	A	A	A	X	X	X	S	S	S
Ethanol (ethyl alcohol)	100%	A	A	A	A	A	A	A	A	B	B	B	S	S	S
Ethylene glycol	100%	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Hypochlorous acid	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Calcium hypochlorite	10%	A	A	A	A	A	B	B	B	A	A	A	S	S	S
Calcium hypochlorite	20%	A	A	A	A	A	B	B	B	A	A	A	A	X	X
Sodium hypochlorite+sodium chloride	10%	A	A	A	A	A	B	B	B	A	A	A	X	X	X
Potassium permanganate	10%	A	A	A	A	A	B	B	C	A	A	A	A	A	A
Orthosilicic acid	s	A	A	A	A	A	A	A	B	B	B	B	A	A	A
Sodium peroxide	10%	A	A	A	A	B	A	A	B	A	A	A	S	S	S
Hydrogen peroxide	90%	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Phosphoric acid	85%	A	A	A	A	A	A	A	A	A	A	A	S	A	A
Aluminium phosphate	s	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Sodium phosphate	s	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Iron phosphate	s	A	A	A	A	A	A	A	A	A	A	A	S	A	A
Sulfuric acid	50%	A	A	A	A	A	A	A	A	B	X	X	B	X	X
Sulfuric acid	98%	A	A	A	C	X	A	A	B	X	X	X	A	B	B
Ammonium sulfate	s	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Aluminium sulfate	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Sodium hydrogen sulfate	s	A	A	A	A	A	A	A	A	A	A	A	S	X	X
Ferric sulfate	s	A	A	A	A	A	A	A	A	A	A	A	S	X	X
Copper sulfate	s	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Ferrous sulfate	s	A	A	A	A	A	A	A	A	A	A	A	B	X	X
Chloroform	100%	A	A	A	X	X	B	B	B	X	X	X	A	A	B
Aluminium chloride	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Ferric chloride	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Ferrous chloride	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Chlorine water	s	A	A	A	B	C	A	A	A	A	A	A	X	X	X
Chloric acid	10%	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Chloric acid	20%	A	A	A	A	B	A	A	A	A	A	A	X	X	X
Sodium chlorate	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Boric acid	s	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium hydroxide	s	A	A	A	A	A	B	X	X	A	A	A	S	S	S
Carbonic acid	s	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Ammonium carbonate	40%	A	A	A	A	A	A	A	A	A	A	A	S	A	A
Sodium carbonate	s	A	A	A	A	A	A	A	A	A	A	A	S	A	A
Ammonium bicarbonate	s	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium bicarbonate	s	A	A	A	A	A	A	A	A	A	A	A	S	S	S
Aqua regia	100%	A	A	A	X	X	B	B	C	X	X	X	X	X	X
Nitric acid	50%	A	A	A	A	C	A	A	A	B	B	C	S	A	A
Nitric acid	95%	A	A	A	X	X	X	X	X	X	X	X	S	X	X
Sulphurous acid	s	A	A	A	A	A	A	A	B	X	X	X	S	A	A
Sodium sulfite	s	A	A	A	A	A	A	A	B	A	A	A	S	A	A
Sodium hydrogen sulfite	s	A	A	A	A	A	A	A	B	A	A	A	S	B	B
Sodium nitrite	s	A	A	A	A	A	A	A	B	A	A	A	S	S	S
Saline water	s	A	A	A	A	A	A	A	A	A	A	A	X	X	X
Muriatic acid	30%	A	A	A	A	A	A	A	B	B	C	C	X	X	X
Muriatic acid	38%	A	A	A	A	A	B	B	B	C	C	C	X	X	X

**Remarks:** S": Excellent antiseptic effect    A": Light corrosion and good anti-corrosion effect.    B": Available, but obviously corroded.    X": Seriously corroded and unusable.    C": The same kind of materials may be different in formula and corrosion resistance. Please make careful selections.  
 The only purpose of information in the table is for reference. Please consult before placing an order in case of other special circumstances and questions about the selection of materials.





Authorized Distributor