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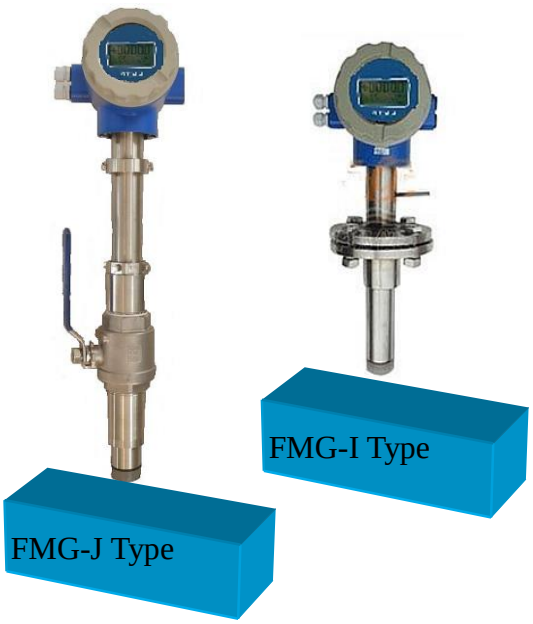
FMG-J&I SERIES

Insertion-Type Electromagnetic Flow Meter



Specifications

- Smart Intelligent LCD display function
- Display Interface: English or Chinese
- Easy to Setup and install/Variety of sizes range.
- High Accuracy:±1.5% of reading(RD)
- Flow direction function: Plus or Reverse
- Alarm Function: Excitation and No fluid tubes Alarm.
- Install Way: Adjustable and Fixed type.

Model		FMG-J	FMG-I
		Adjustable Type	Fixed Type
Size(mm)		100~3000	
Application		Raw Water,Pure Water,Waste Water,Liquid of Conductivity >50 μS/cm	
Peak flow rate		0.1~10.0 m/s	
Conductivity		to be more than 50 μS/cm	
Accuracy		± 1.5% of reading	
Repeatability		± 0.25% of reading	
Insertion tube size(mm)		ø32mm or ø50mm	
Material of signal electrode and grounding electrode		Mo-containing stainless steel,Hastelloy B,Hastelloy C,Titanium alloy,Tantalum alloy,Platinum-iridium alloy,Stainles-steel-coated wolfram	
Material of Piping		Carbon Steel、Stainless steel 304、No piping	
Material of sensor		Stainless steel 1Cr18Ni9Ti	
Max.Temperature with Lining material	Polytetrafluoroethylene	<70℃	
	Polyvinyl fluoride	<70℃	
	Fluorinated ethylene-propylene	<70℃	
	Polychloroprene rubber	<70℃	
	Polyurethane	<70℃	
Max.Pressure	DN100~DN3000	≦1.6Mpa	
Display Line		2 Line with LCD	
Protection		IP68 for Body and IP65 for Display	
Output		4~20 mA or 0~10mA or pulse	
Communication		RS485(Option)、RS232(Option)、Hart(Option) with lightning protection	
Parts	Vavle	With	Without
Power supply		AC 85~265V 45~63Hz or DC 11~40V	

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Sensor performance comparison:

Comparison item	Insertion Electromagnetic Flow Meter	Clip Ultrasonic Flow Meter
Measurement of fluid	Sewage, Normal Water, Waste Water, Chemical Liquid	No-hybrid Water
Install way	Insertion	Clip
Installation method	Openings can be inserted	Require precise distance measureme sensors
Accuracy	1.5%RD	3%FS
Bubble effect	No effect	Affected
Measurement Capability	Without full pipe flow as measured	Required full flow pipe detection
Contamination problems	No effect	Affected
Display	Compact installation	Separate installation
No fluid Alarm	With	Without

Comparison item	Insertion Electromagnetic Flow Meter	Rotor Flow meter
Measurement of fluid	Sewage, Normal Water, Waste Water, Chemical Liquid	No-hybrid Water
Install way	Insertion	Flange
Installation method	Openings can be inserted	Need to cut pipe installation
Accuracy	1.5%RD	3~5%FS
Bubble effect	No effect	No effect
Measurement Capability	Without full pipe flow as measured	Rotor measuring
Contamination problems	No effect	Affected
Display	Compact installation	Compact installation
Malfunction rate	Low	High
Life time	Long	Short
No fluid Alarm	With	Without

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Applications:

1. Public water conservancy Water Resources Monitoring

*Old pipeline installation solutions:
A large number of points on terror insertion electromagnetic flow meter solved easily and quickly do not need to cut pipe requirements

*Meter recording solutions:
Integrated installation to reduce floor space on different units borrows postulate problem ares.

2. The water plant raw water metering

*Old pipeline installation solutions:
A large number of points on terror insertion electromagnetic flow meter solved easily and quickly do not need to cut pipe requirements

*Meter recording solutions:
Integrated installation to reduce floor space on different units borrows postulate problem ares.

3. Sewage treatment and sewage meterin

*Sewage discharge solutions:
The installation of underground pipeline construction without flange interface,you can insert openings.

*Maintenance cleaning solutions:
Adjustable-type easy to clean removable sensor head.

*Metering discharge solutions:
No fluid Alarm to keep abreast of the situationand thesignal transmission via RS485 immediately understands the cumulative usage status.

4. Printing dyeing machine filling water metering

*Chemical liquid solutions:
Installation of protective liner type of acid sensing head is more suitable for use on liquid line

*Equipment solutions:
Before and after the end of the installation fo equipment in a clear understanding of effective energy-consuming equipment to assess the situation of the whole plant energy situation.

5. Steel, thermal power, petrochemical plant circulating water monitoring

*Uncertain quality mounting solutions:
Extensive use of protective liner grade, the single-type settlements of pipelines not transparent fluid situation

*Recycling water solution:
In recycling pipeline, meter reading directly in the field and central monitoring the cumulative recovery

6. Building property or Chilled water metering

* Building energy-saving solutions:
Access control air conditioning water quickly and easily improve the energy consumption of old constructional design

* Sublet use solutions:
After the distribution pipeline installation specific amount of users know the situation with the monitor to resolve user billing concerns

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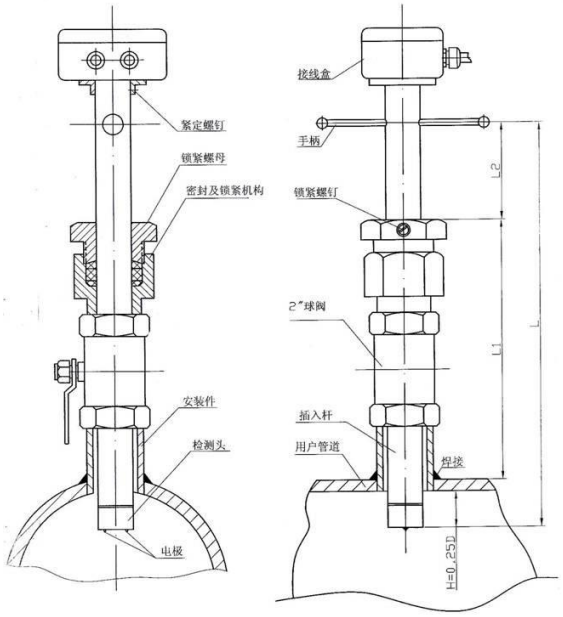
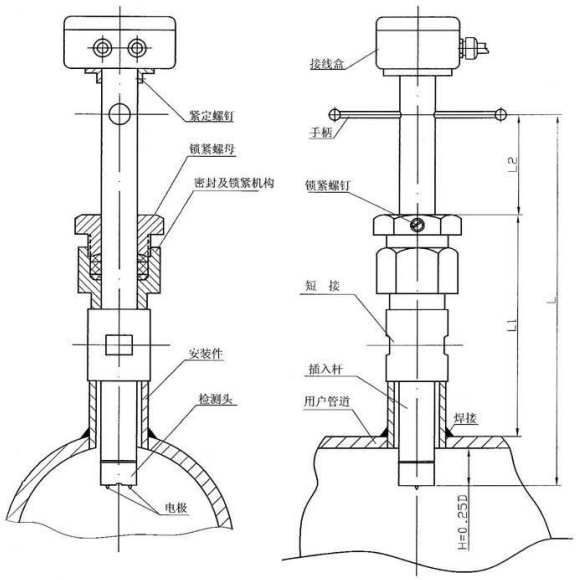
Flow range& Overall structure:



FMG-J Adjustable Type: with ball valve



FMG-I Fix-Type:without ball valve

DN	流量範圍(m3/h)										
(mm)	Qmin(0.5m/s)	Q(1.0m/s)	Q(2.0m/s)	Q(3.0m/s)	Q(4.0m/s)	Q(5.0m/s)	Q(6.0m/s)	Q(7.0m/s)	Q(8.0m/s)	Q(9.0m/s)	Qmax(10 m/s)
100	20	39	79	117	157	196	235	275	314	353	393
125	29	57	115	171	229	286	343	401	458	515	573
150	40	80	161	240	320	400	480	561	641	721	802
200	62	124	250	374	498	623	747	872	997	1121	1247
250	91	181	364	545	726	909	1090	1271	1454	1635	1818
300	127	254	509	763	1017	1272	1526	1780	2035	2289	2545
350	173	346	692	1039	1385	1731	2077	2423	2769	3116	3464
400	226	452	904	1356	1809	2261	2713	3165	3617	4069	4523
450	286	572	1145	1717	2289	2861	34347	4006	4578	5150	5725
500	353	707	1413	2120	2826	3533	4239	4946	5652	63559	7069
600	509	1017	2035	3052	4069	5087	6104	7122	8139	9156	10180
700	692	1385	2769	4154	5539	6924	8308	9693	11078	12463	13847
800	904	1809	3617	5426	7265	9043	10852	12660	14469	16278	18086
900	1145	2289	4578	6867	9156	11445	13734	16023	18312	20602	22891
1000	1413	2826	5652	8478	11304	14130	16956	19782	22608	25434	28260
1200	2035	4069	8139	12208	16278	20347	24417	28486	32556	36625	40694
1400	2769	5539	11078	16617	22156	27695	33234	38773	44312	49851	55390
1600	3617	7235	14469	22156	28938	36173	43407	50642	57876	65111	72346
1800	4578	9156	18312	28938	36625	45781	54937	64094	73250	82406	91562
2000	5652	11304	22608	33912	45216	56520	67824	79128	90432	101736	113040
2200	6839	13678	27356	41034	54711	68389	82067	95745	109423	123101	136778
2400	8139	16278	32556	48833	65111	81389	97667	113944	130222	146500	162778
2600	9552	19104	38208	57311	76415	955519	114623	133726	152830	171934	191038
2800	11078	22156	44312	66468	88623	110779	132935	155091	177247	199403	221558
3000	12717	25434	50868	76302	101736	127170	152604	178038	203472	228906	254340

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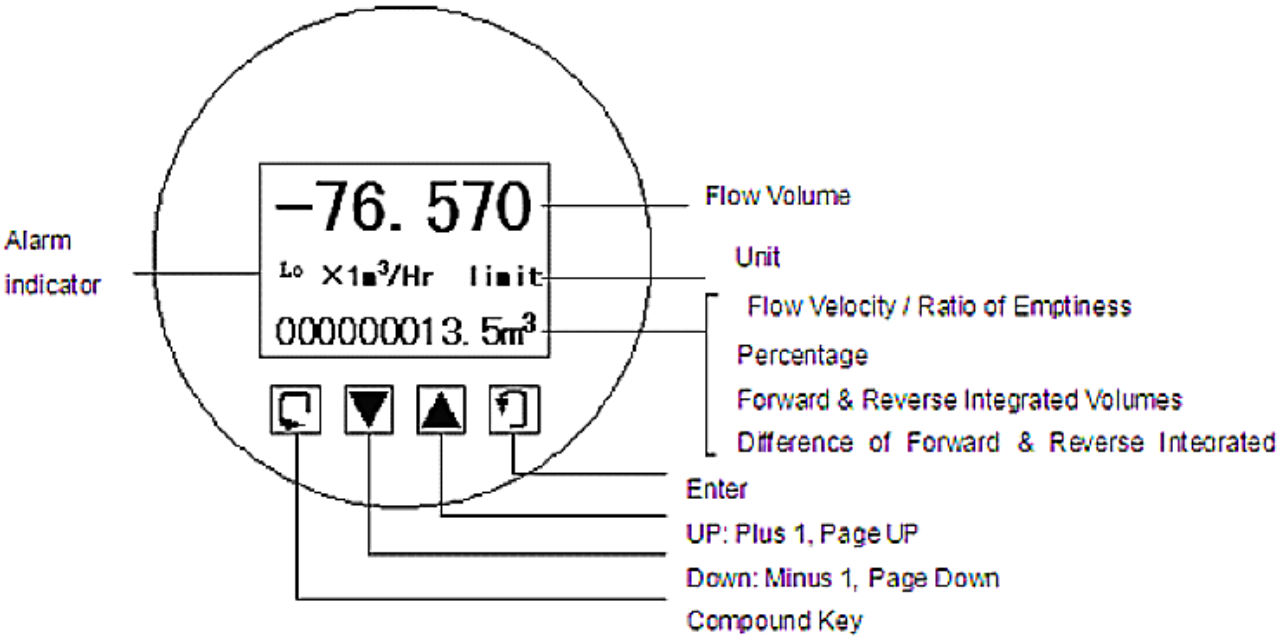
Panel display settings:



Continuous water situation installation method:

①The saddle points hydrant fixed on a pipe

②:Perforation drill set

③:The continuous water in the drilling pipe

④:Installation insert the flow meter

⑤:Loosen the screw flow meter

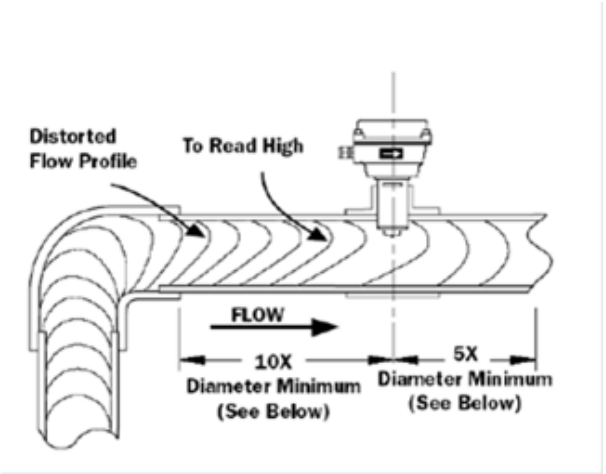
⑥:將The flow meter is inserted into the pipe

⑦:Wiring,and confirm the action

Pictured above described beat installation Purely on the installation method for the additional guidance adopted under drawings

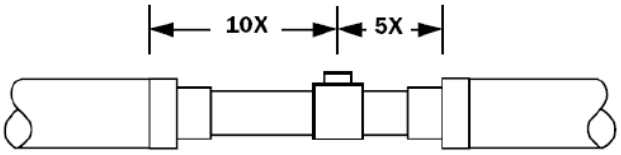
Installation location:

- Fluid to flow through the tube portion that is not directly cause instability spoiler
- So to test the meter installation location downstream straight pipe section shall retain a considerable multiple of the diameter, as eliminate the phenomenon of the role of spoiler; shown in Fig.

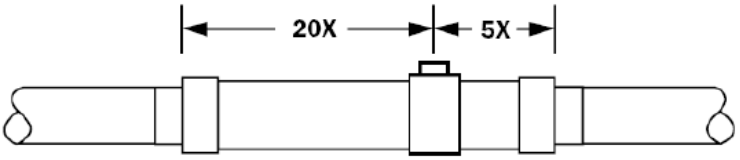


Multiple of the diameter of the straight pipe section (recommended):

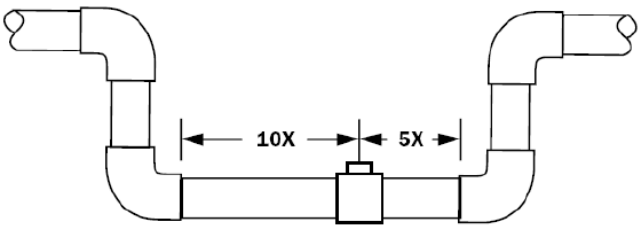
- The narrow diameter



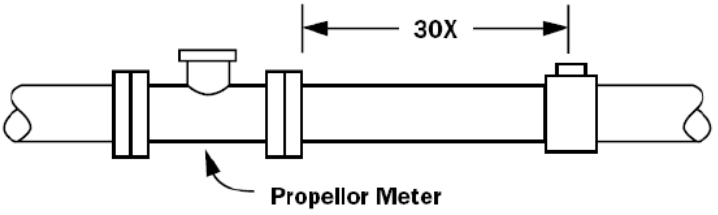
- The expanded diameter



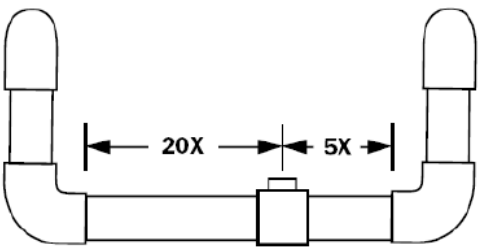
- On the same plane when two elbow



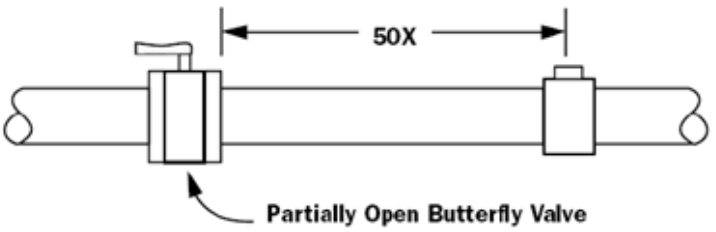
- Spiral flow is generated



- When two elbows in different planes



- The vortex / spoiler



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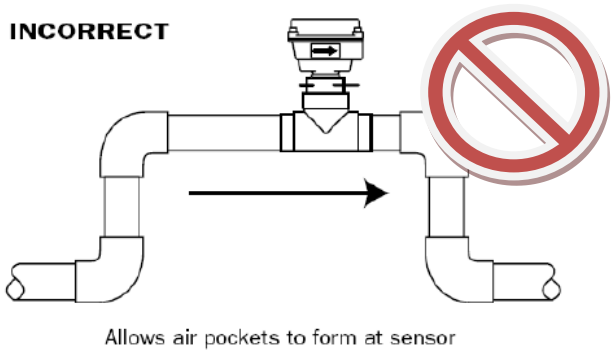
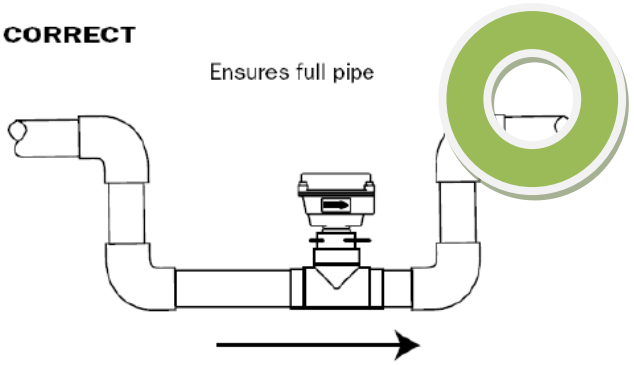
Full pipe installation(Be sure to follow):

- Incorrect (stack to allow fluid sensor)

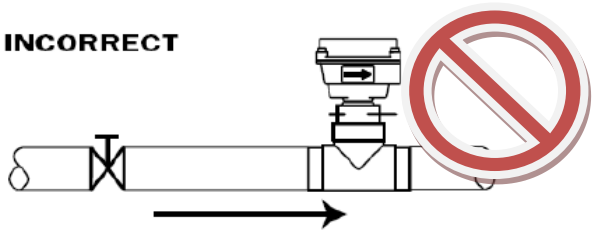


Allows air pockets to form at sensor

- Correct (to ensure full pipe)

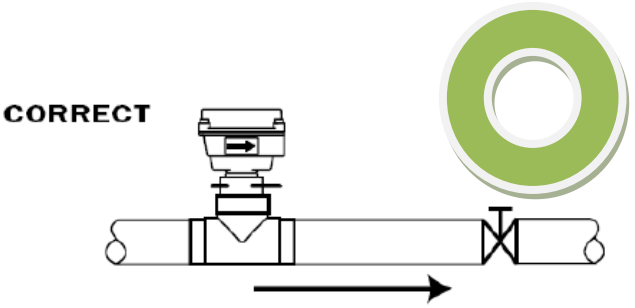


- Incorrect (no front valve of the fluid will cause the fluid Diego heap)



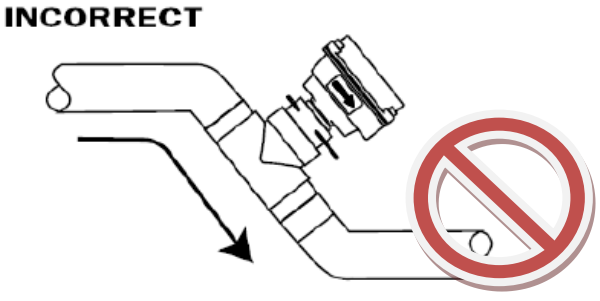
Post-valve cavitation can create air pocket

- correct (to maintain full pipe at the flow meter)



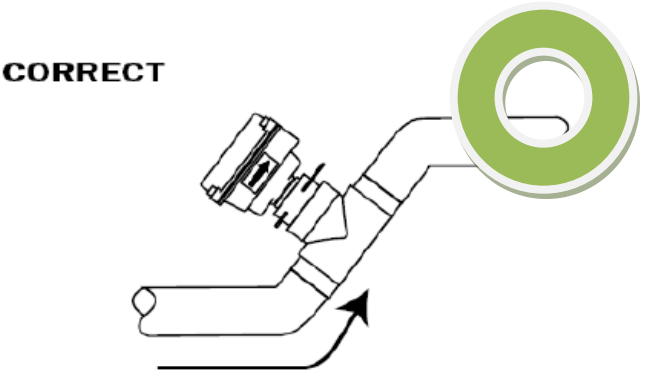
Keeps pipe full at sensor

- Incorrect (fluid discharge will be limited)



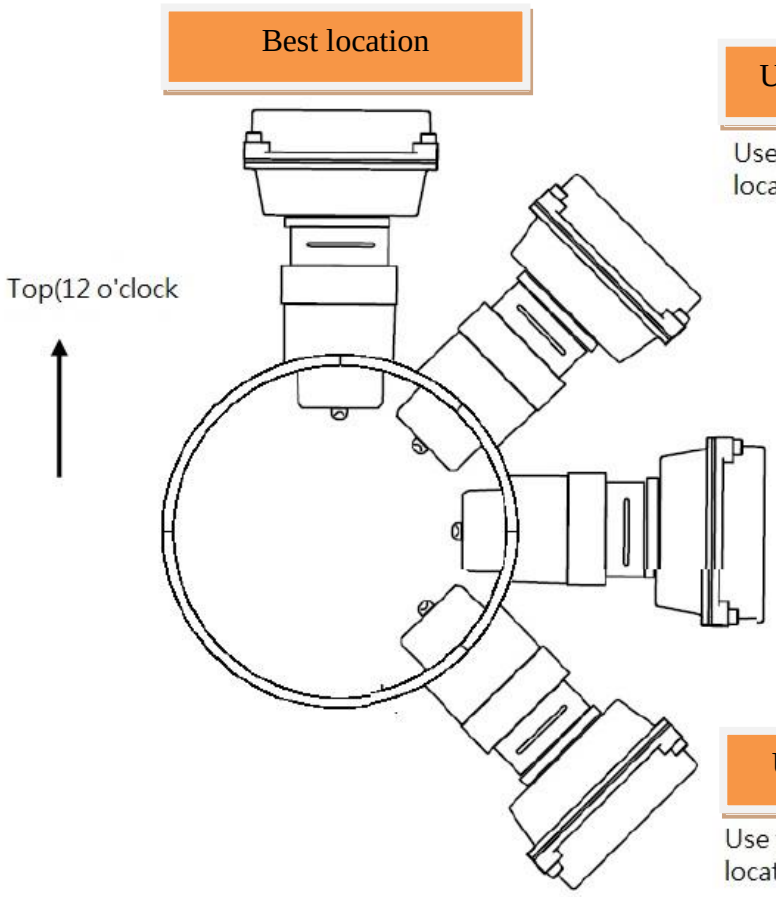
Air can be trapped

- Correct (fluid smoothly discharged)

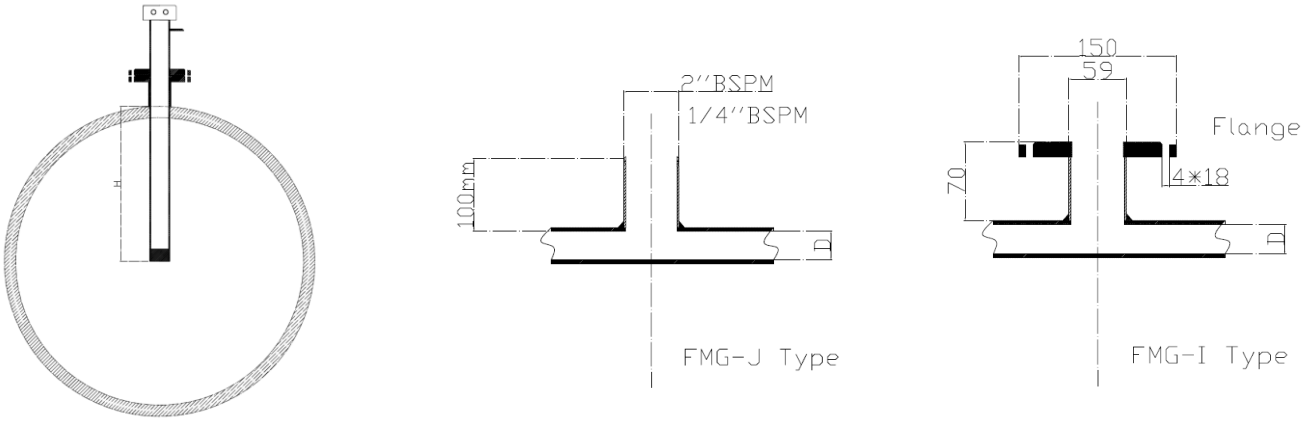


Allows air to bleed off

Installation angle description:



Insertion depth explanation:



Type	Size	Connection	Ball Valve	Insertion depth H	Online installation
FMG-J	DN50-DN100	1-1/4"BSPM	With	0.5D	Yes
	DN125-DN400	2"或 1-1/4"BSPM	With	0.5D	Yes
	DN500-DN700	2" BSPM	With	0.25D	Yes
	DN700-DN3000	2" BSPM	With	0.125D	Yes
FMG-I	DN100~DN400	DN50 Flange		0.5D	
	DN500~DN700	DN50 Flange		0.25D	
	DN800~DN3000	DN50 Flange		0.125D	

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Insertion Type Electromagnetic flowmeter FMG-J&I Series

Order Information

FMG	Code	Model Type
	J	Adjustable Type(Standard type)
	I	Fixed Type

Code	Electrode Type
N	Standard type

Code	Piping Type
XXXX	100~3000 mm

Code	电极材质
0	Mo-containing stainless steel(Standard Type)
1	Hastelloy B
2	Hastelloy C
3	Titanium(Ti)
4	Tantalum(Ta)
5	Platinum(Pt)

Code	Lining Material
0	No(Standard Type)
1	Polytetrafluoroethylene
2	Polyvinyl fluoride
3	Fluorinated ethylene-propylene
4	Polychloroprene rubber
5	Polyurethane

Code	Max.Pressure
0	1.6Mpa for DN100~DN3000(Standard Type)

Code	Output
A	4~20 mA (Standard Type)
P	Scale Pulse Output
R	RS-485 MODBUS Communication
C	RS-232 Communication
H	Hart Communcation

Code	Max Temperature
0	.~70 ℃ (Standard Type)

Code	Display Type
N	Traditional Chinese(Standard Type)
S	Simplified Chinese
I	English

Code	Connection Line
N	Compact-type without cable(Standard Type)

Code	Power Supply
N	AC 85~265V 45~63Hz(Standard Type)
R	DC 24

Code	Logo
F	FGT Logo(Standard Type)
N	Printing customer Logo

FMG													Complete Ordering Code

*Note:Using customer Logo launch to more than 100 united for one year

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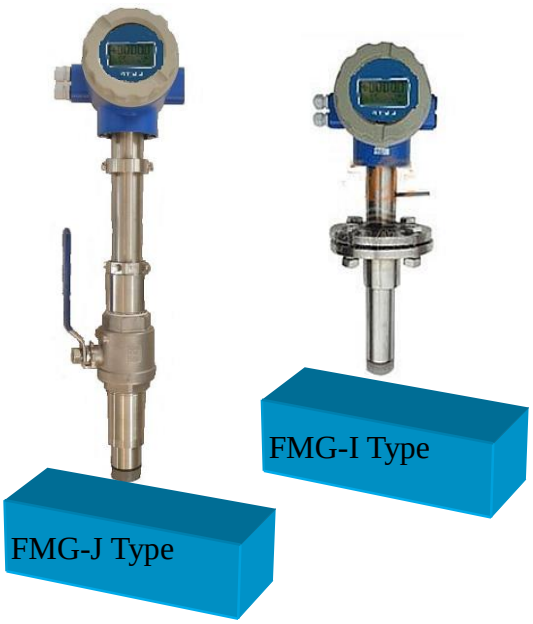
FMG-J&I 系列

插入式電磁式流量計

特性

- 智慧型 LCD 顯示功能.
- 顯示面板語言:英文 或 中文簡體或繁體
- 簡單設定安裝操作及多種尺寸範圍選擇.
- 高精度:±1.5% RD
- 流向調整機能:正向或逆向調整
- 警報能力:勵磁空管警報
- 安裝類型:伸縮式或固定式



型號		FMG-J 伸縮型	FMG-I 固定型
尺寸(mm)		100~3000	
應用類型		原水，純淨水，廢水，導電率>50 μs/cm的液體	
流速		0.1~10.0 m/s	
導電率		大於 50 μS/cm	
精度		± 1.5% of reading	
重複精度		± 0.25% of reading	
插入管口徑(mm)		ø32mm或ø50mm	
電極和接地電極的材質		含鉬不銹鋼、哈氏合金B、哈氏合金C、鈦、鉭、鉑銥合金	
測量管材質		碳鋼、不繡鋼304、無測量管	
感測器材質		不繡鋼 1Cr18Ni9Ti	
具保護襯材質最高耐溫	聚四氟乙烯	＜70℃	
	聚氟乙烯	＜70℃	
	氟化乙烯 - 丙烯	＜70℃	
	氯丁橡膠	＜70℃	
	聚氨酯	＜70℃	
最高耐壓	DN100~DN3000	≦1.6Mpa	
顯示面板		2 列式背光LCD顯示	
保護等級		IP68 測量管材質 及 IP65 顯示面板	
輸出訊號		4~20 mA 或 0~10mA 或 脈衝輸出	
通訊訊號		RS485(選購)、RS232(選購)、Hart(選購)	
配件	球閥	有	無
供應電源		交流 85~265V 45~63Hz 或 直流 11~40V	

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感測器性能應用比較:

比較項目	插入式電磁流量計	夾管式超聲波流量計
測量流體	污水,一般水,廢水,化學藥液	無雜值水
安裝方式	插入式	夾管式
安裝工法	開洞插入即可	需精確量測感測器距離
精度	1.5%RD	3%FS
氣泡影響	無影響	受影響
測量能力	不需滿管一樣測量	需滿管才可檢測
雜質問題	無影響	受影響
顯示器	一體型安裝	分離型安裝
空管警報	有	無

比較項目	插入式電磁流量計	渦輪式流量計
測量流體	污水,一般水,廢水,化學藥液	無雜值水
安裝方式	插入式	法蘭式
安裝工法	開洞插入即可	需裁管安裝
精度	1.5%RD	3~5%FS
氣泡影響	無影響	無影響
測量能力	不需滿管一樣測量	轉子轉動測量
雜質問題	無影響	受影響
顯示器	一體型安裝	一體型安裝
誤動作率	低	無
使用壽命	長	短
空管警報	有	無

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應用領域:

1. 公共水利水資源監測

*舊式管線安裝解決方案:
大量布制上插入式電磁流量計解決了方便快速不需要裁管的要求
*抄表記錄解決方案:
一體型安裝減少公設領域上不同單位借用場地空間問題

2. 自來水廠原水計量

*舊式管線安裝解決方案:
大量佈制上插入式電磁流量計解決了方便快速不需要裁管的要求
*抄表記錄解決方案:
一體型安裝減少公設領域上不同單位借用場地空間問題

3. 汙水處理及排污計量

*污水排放解決方案:
地下管道間施工上不需加裝法蘭介面,插入開洞即可
*維護清潔解決方案:
伸縮型方便可拆卸清潔感測器頭部
*排放計量解決方案:
空管警報隨時瞭解排放狀況及透過 RS485 訊號傳送隨即瞭解累積使用量狀況

4. 印染染整機加注水計量

*化學藥液解決方案:
加裝保護襯型的耐酸鹼感測頭更適合於藥液管線上採用
*設備解決方案:
於設備前後端加裝後明確瞭解設備耗能狀況有效評估整廠能源狀況

5. 鋼鐵、熱電、石化廠循環水監測

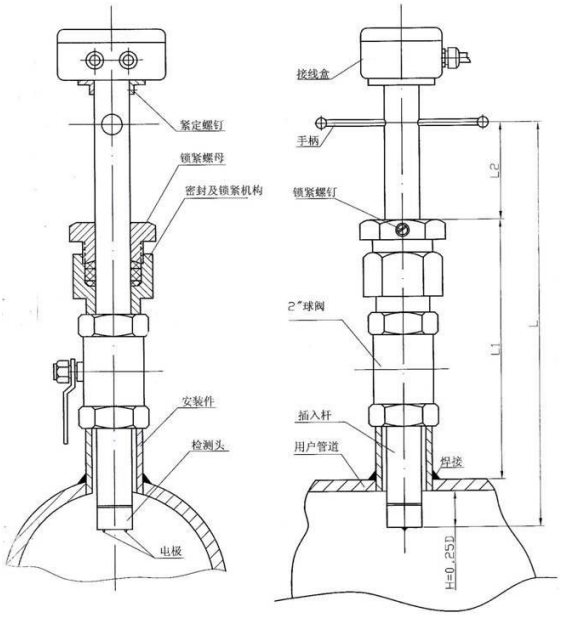
*不確定水質安裝解決方案:
大量採用保護襯等級下單一類型解決廠區管線不透明化流體情況
*回收水源解決方案:
迴圈回收管線現場直接讀表及中央監控累計回收率

6. 樓宇物業冷凍水計量

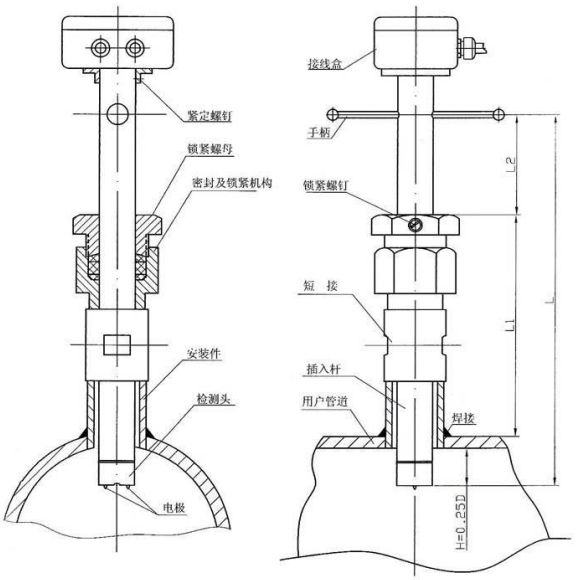
*樓宇節能解決方案:
空調用水進出控制快速方便改善舊建物能耗設計
*分租使用解決方案:
分配管線加裝後具體知道用戶使用量狀況搭配顯示器解決用戶計費疑慮

FGT

流量範圍&整體結構圖:



FMG-J伸縮型:帶球閥整體結構圖

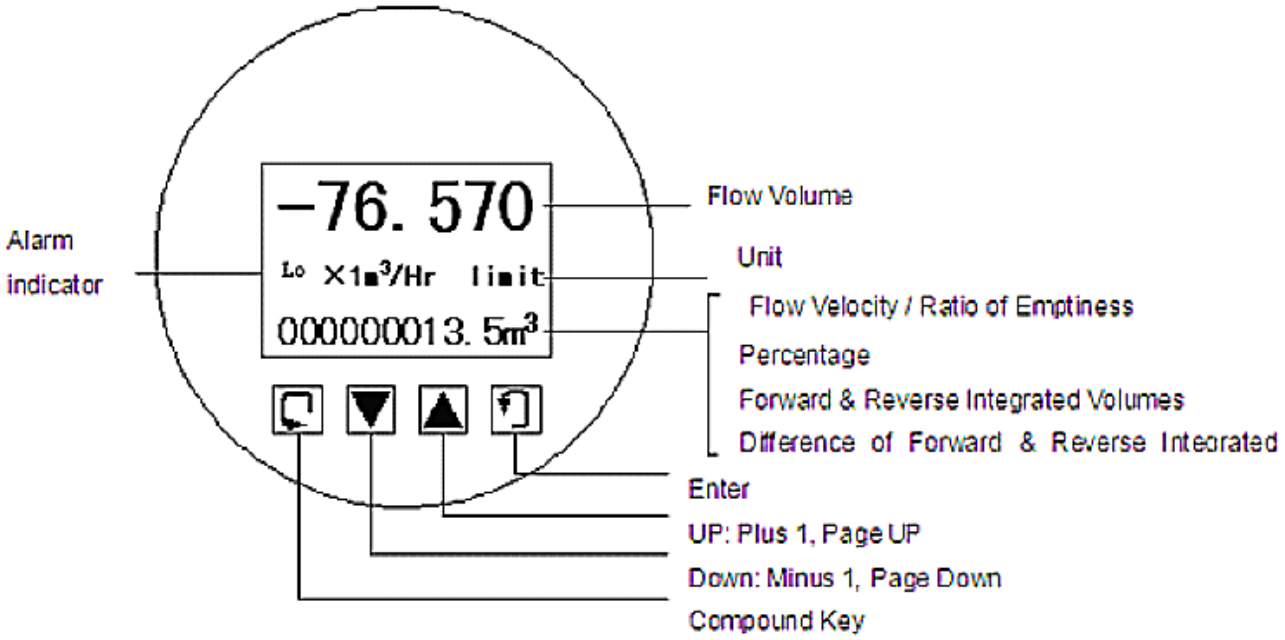


FMG-I固定型:不帶球閥整體結構圖

DN	流量範圍(m3/h)										
(mm)	Qmin(0.5m/s)	Q(1.0m/s)	Q(2.0m/s)	Q(3.0m/s)	Q(4.0m/s)	Q(5.0m/s)	Q(6.0m/s)	Q(7.0m/s)	Q(8.0m/s)	Q(9.0m/s)	Qmax(10 m/s)
100	20	39	79	117	157	196	235	275	314	353	393
125	29	57	115	171	229	286	343	401	458	515	573
150	40	80	161	240	320	400	480	561	641	721	802
200	62	124	250	374	498	623	747	872	997	1121	1247
250	91	181	364	545	726	909	1090	1271	1454	1635	1818
300	127	254	509	763	1017	1272	1526	1780	2035	2289	2545
350	173	346	692	1039	1385	1731	2077	2423	2769	3116	3464
400	226	452	904	1356	1809	2261	2713	3165	3617	4069	4523
450	286	572	1145	1717	2289	2861	34347	4006	4578	5150	5725
500	353	707	1413	2120	2826	3533	4239	4946	5652	63559	7069
600	509	1017	2035	3052	4069	5087	6104	7122	8139	9156	10180
700	692	1385	2769	4154	5539	6924	8308	9693	11078	12463	13847
800	904	1809	3617	5426	7265	9043	10852	12660	14469	16278	18086
900	1145	2289	4578	6867	9156	11445	13734	16023	18312	20602	22891
1000	1413	2826	5652	8478	11304	14130	16956	19782	22608	25434	28260
1200	2035	4069	8139	12208	16278	20347	24417	28486	32556	36625	40694
1400	2769	5539	11078	16617	22156	27695	33234	38773	44312	49851	55390
1600	3617	7235	14469	22156	28938	36173	43407	50642	57876	65111	72346
1800	4578	9156	18312	28938	36625	45781	54937	64094	73250	82406	91562
2000	5652	11304	22608	33912	45216	56520	67824	79128	90432	101736	113040
2200	6839	13678	27356	41034	54711	68389	82067	95745	109423	123101	136778
2400	8139	16278	32556	48833	65111	81389	97667	113944	130222	146500	162778
2600	9552	19104	38208	57311	76415	955519	114623	133726	152830	171934	191038
2800	11078	22156	44312	66468	88623	110779	132935	155091	177247	199403	221558
3000	12717	25434	50868	76302	101736	127170	152604	178038	203472	228906	254340

FGT

面板操作顯示設定:



不斷水情況下安裝工法:

①.將鞍型分水栓固定在配管上

②.設置好穿孔鑽頭

③.在不斷水的情況下在配管上打孔

④.安裝插入流量計

⑤.鬆開流量計的固定螺絲

⑥.將流量計插入到配管

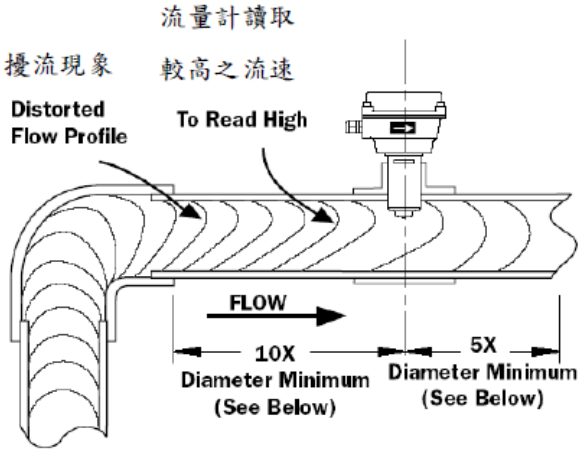
⑦.進行佈線,並確認動作

以上采圖為說明安裝使用
純屬為安裝工法上補充指導下採納圖面

安裝位置說明

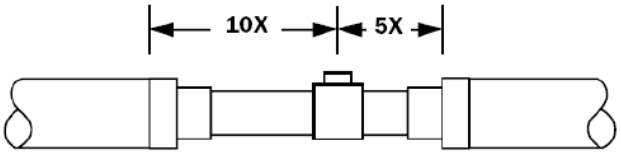
- 流體於流經非直管部位即會產生不穩定擾流

  如圖所示;因此於流量計安裝位置上下流測均須保留一定相當管徑倍數之直管部，以作為消去擾流現象之作用

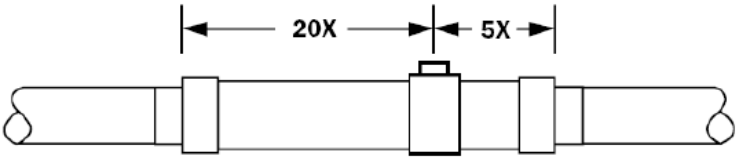


管徑倍書之直管部(建議值):

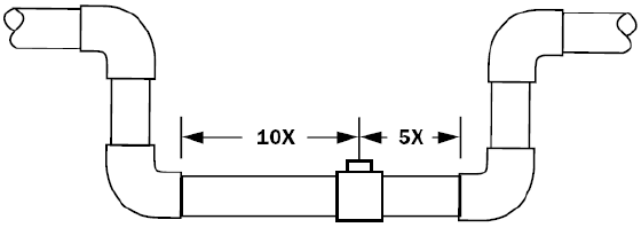
- 縮小管徑時



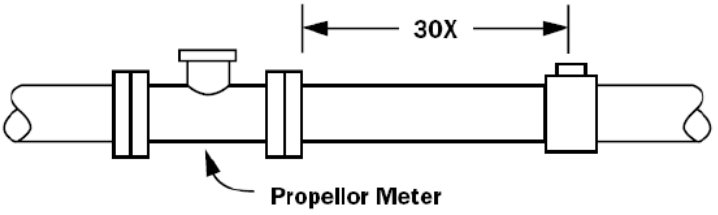
- 擴大管徑時



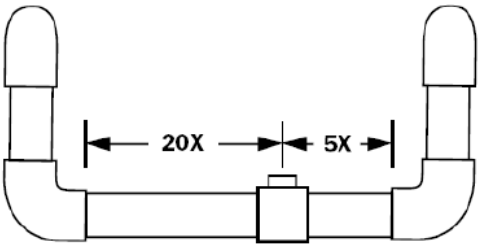
- 於同一平面
  兩個彎頭時



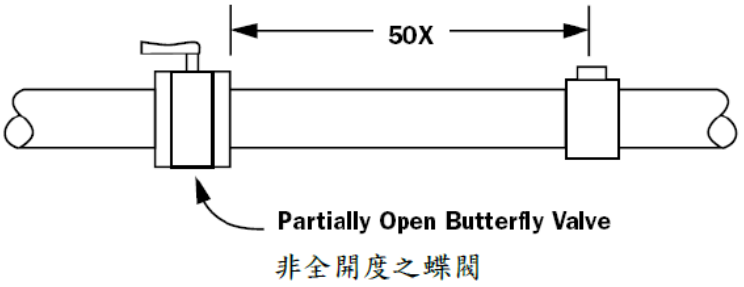
- 產生螺旋流時



- 於不同平面
  兩個彎頭時

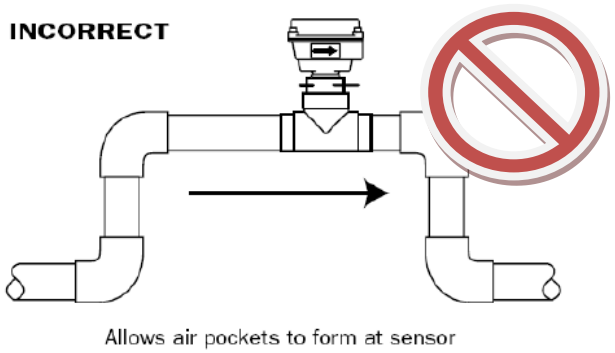


- 產生渦流/擾流時

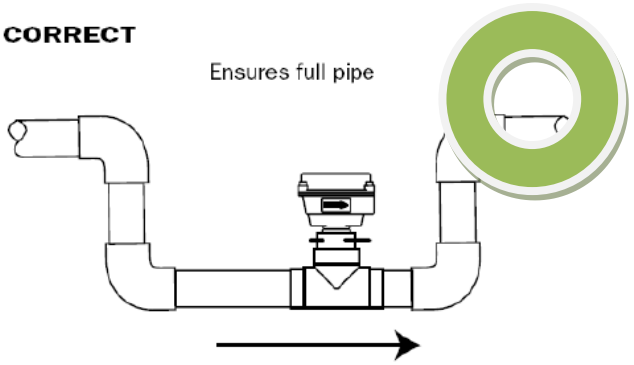


滿管安裝方式(請務必遵行):

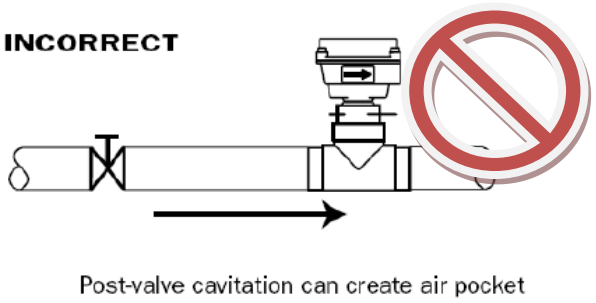
- 不正確(允許流體疊堆於感測器)



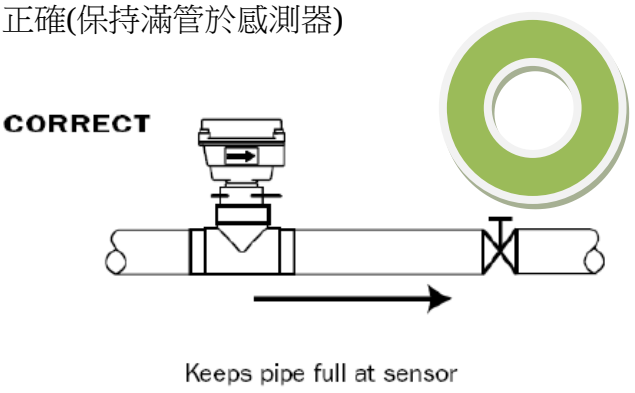
- 正確(確保滿管)



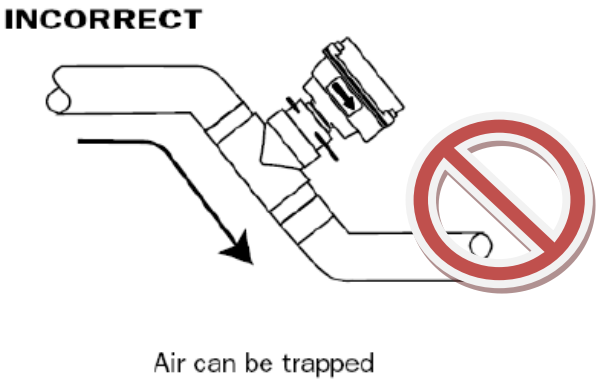
- 不正確(前置閥之空管現象將導致流體迭堆)



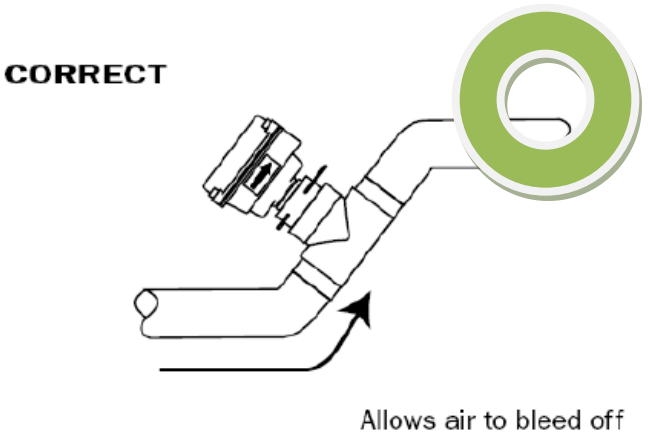
- 正確(保持滿管於感測器)



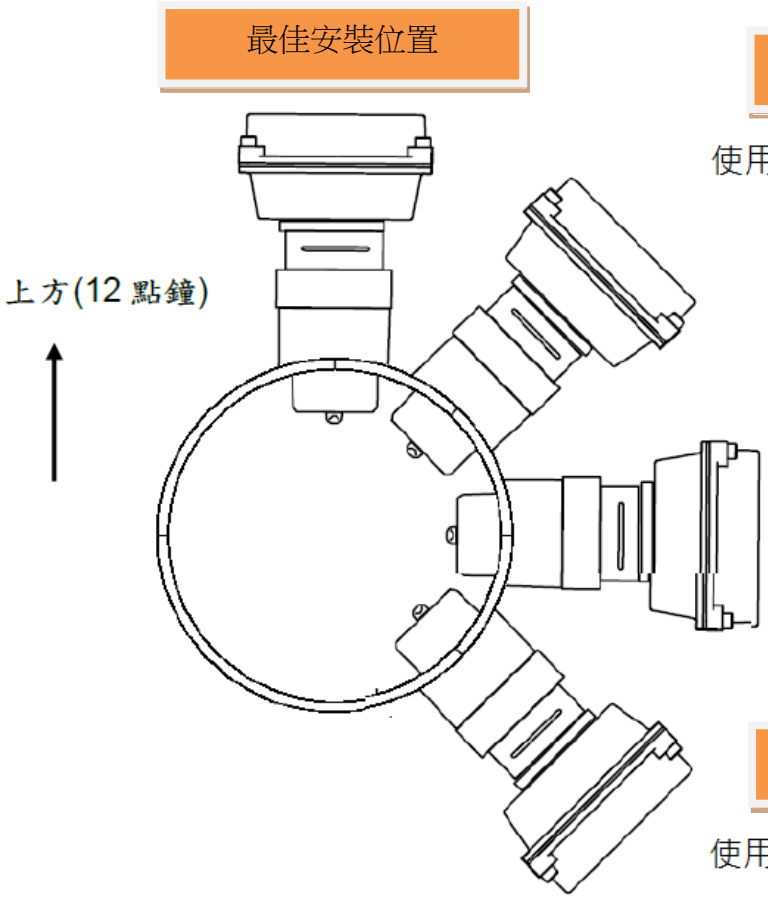
- 不正確(流體排放將受限)



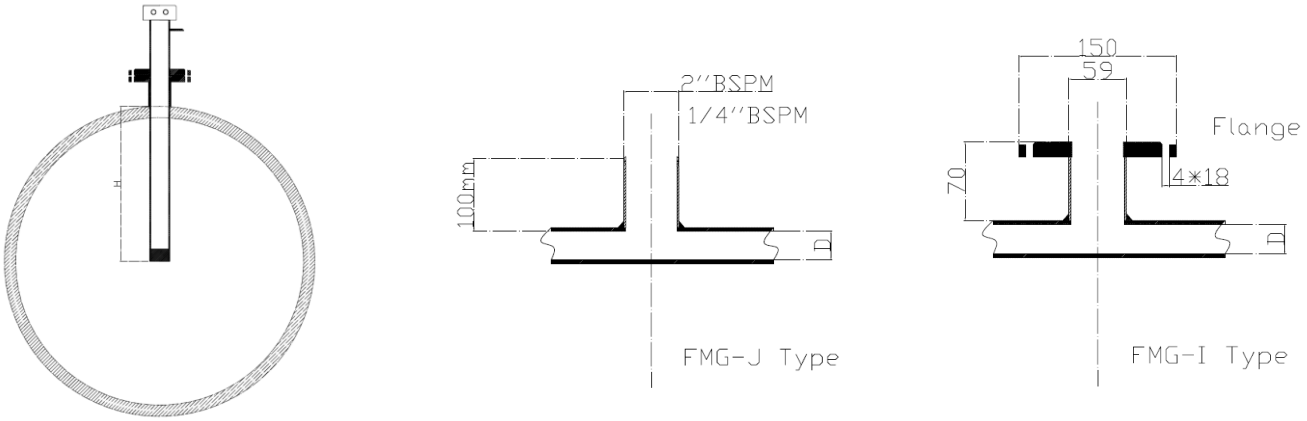
- 正確(流體順利排出)



安裝角度說明:



插入深度說明:



類型	口徑	連接方式	是否帶球閥	插入深度 H	線上安裝
FMG-J	DN50-DN100	1-1/4"BSPM	球閥	0.5D	可以
	DN125-DN400	2"或 1-1/4"BSPM	球閥	0.5D	可以
	DN500-DN700	2" BSPM	球閥	0.25D	可以
	DN700-DN3000	2" BSPM	球閥	0.125D	可以
FMG-I	DN100~DN400	DN50 法蘭		0.5D	
	DN500~DN700	DN50 法蘭		0.25D	
	DN800~DN3000	DN50 法蘭		0.125D	

插入式電磁式流量計　FMG-J&I系列

訂購資訊

FMG	編碼	型號類型
	J	伸縮型(標準型)
	I	固定型

編碼	電極類型
N	標準型

編碼	尺寸
XXXX	100~3000 mm

編碼	電極材質
0	含鉬不銹鋼(標準型)
1	哈氏合金B
2	哈氏合金C
3	鈦(Ti)
4	鉭(Ta)
5	鉑銥合金(Pt)

編碼	保護襯材質
0	無(標準型)
1	聚四氟乙烯
2	聚氟乙烯
3	氟化乙烯 - 丙烯
4	氯丁橡膠
5	聚氨酯

編碼	Pressure
0	1.6Mpa for DN100~DN3000(標準型)

編碼	輸出訊號
A	4~20 mA (標準型)
P	脈衝輸出
R	RS-485 MODBUS 通訊
C	RS-232 通訊
H	Hart 通訊

編碼	溫度
0	-70 ℃(標準型)

編碼	面板介面
N	中文繁體(標準型)
S	中文簡體
I	英文

編碼	連接線
N	一體型不帶線(標準型)

編碼	供應電源
N	交流 85~265V 45~63Hz(標準型)
R	直流24

編碼	廠牌
F	FGT 廠牌(標準型)
N	客制化廠牌

FMG													完整下單型號

＊注意:使用客制化廠牌年購單需達100組以上