MXEX-INST
Rev 9.0
04/2016

MX06 - MX100
OVAL GEAR FLOWMETER SERIES
APPROVED FOR USE IN HAZARDOUS AREAS

INSTRUCTION MANUAL

To the Owner

Please read and retain this instruction manual to assist you in the operation and maintenance of this product.

This manual contains connection and operating instructions for the MX series Flow Meters with Pulse outputs.

Liquid Crystal Displays have an additional LCD instruction manual supplied. If you need further assistance, contact your local representative or distributor for advice.

This Flow Meter has incorporated the oval gear principal into its design. This is proven to be a reliable and highly accurate method of measuring flow. Exceptional repeatability and high accuracy over a wide range of fluid viscosities and flow rates are features of the oval gear design.

With a low pressure drop and high pressure rating oval gear flow meters are suitable for both gravity and (in-line) pump applications.

Macnaught offer a comprehensive set web based support materials to compliment this instruction manual.

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index

Installation

Maintenance Procedure

Flowmeter Specifications

Service

General

IMPORTANT INFORMATION

NOTE

The information contained in this manual relating to installation is guideline and should be treated as such.
Please consult all relevant standards and conditions required by the governing bodies in area of installation prior to commissioning.

SAFETY BARRIER

This sensor must be installed with an approved safety barrier

GROUNDING

Improper grounding, poor ventilation, open flames or sparks can cause a hazardous condition and result in an explosion or fire and cause serious injury.

STATIC

If there is static sparking or if you feel an electric shock while using the meter, stop dispensing immediately. Identify and correct the problem before continuing.

FLUID COMPATABILITY

Before use, confirm the fluid to be used is compatible with the meter. Refer to Industry fluid compatibility charts or consult your local representative for advice.

STRAINER

To prevent damage from dirt or foreign matter it is recommended that a Y or Basket type mesh strainer be installed as close as possible to the inlet side of the meter.
When a strainer is installed it should be regularly inspected and cleaned. Failure to keep the strainer clean will dramatically effect flow meter performance.
Contact your local representative for advice.

AIR PURGE / LINE PRESSURE

To prevent damage caused by air purge slowly fill the meter with fluid.
To reduce pressure build-up turn off the pump at the end of each day.

NOTE

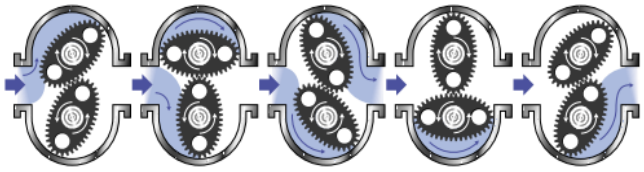
Equipment must be protected from impact at all times.

OPERATING PRINCIPLE

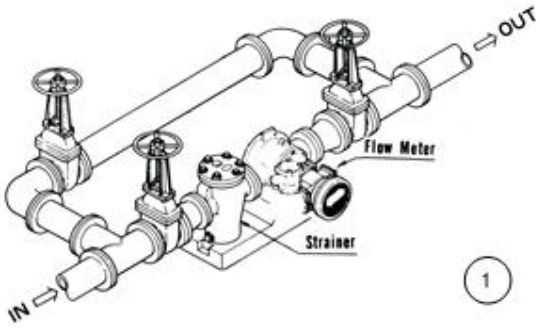
Fluid passing through the meter causes the rotors to turn, as shown below.
One of the rotors (the active rotor) is fitted with magnets.

The passing of the magnets are picked up by the Hall Effect inside the enclosed sensor.
The excitation of this switch provides a 'Raw Pulse Output' which relates to the K-Factor.
(*e.g. KF 36 = 36 pulses per litre of fluid passed*)

This Pulse Output Signal can either be fed directly to an external receiving element (e.g. Data Logger or PLC) or alternatively to an LC Display which conditions the Pulse input signal to display volume of fluid passed. *(e.g. Display 1 Litre per for every 36 pulses received*)



INSTALLATION PROCEDURE



1. It is recommended that when setting up pipe work for meter installations, a bypass line be included in the design. This provides the facility for a meter to be removed for maintenance without interrupt ing production. (*see figure above*)

2. Use a thread sealant on all pipe threads.
   Caution: *Thread tape must not enter flowmeter, stopping flow meters operation.*

3. For pump applications ensure pipe work and Meter have the appropriate working pressure rating to match the pressure output of the pump. Refer to Meter Specifications section for further details.

4. Install a wire mesh strainer, Y or basket type as close as possible to the inlet side of the meter.
   Meter 1/4" 74 micron / 200 mesh
   Meter 1/2"- 2" 250 micron / 60 mesh
   Meter 3"- 4" 400 micron / 40 mesh

5. Note: The Flowmeter can accept flow in any direction.

6. The meter can be installed in any orientation as long as the meter shafts are in a horizontal plane. (*Refer to diagram below for correct installation)*
   .
   Note: Incorrect installation can cause premature wear of meter components.

7. Do not over tighten meter connections.

8. ***It is important that after initial installation you fill the line slowly, high speed air purge could cause damage to the rotors.***

9. Test the system for leaks.
   Do not continue use if meter is leaking.

10. Check the strainer for swarf or foreign material, after the first 200 litres check periodically, particularly if the flow rate is noted to be decreasing.

MAINTENANCE PROCEDURE

Note: Inspection and maintenance of installations should only be carried out by experienced personnel, whose training has included instruction on the various types of protection and installation practices.

DISASSEMBLY

Note: Care should be taken not to drop, damage or impact equipment due to risk of spark.

Non sparking tools should be used.

Meter should be removed from explosive atmosphere when maintenance to any part of the meter is required, the meter must be isolated and the line pressure released.

Refer to the *exploded parts* diagram on pg.10 for item numbers.

Note: *It is advisable to mark all components with a marker pen before disassembly, to ensure all the components are replaced to their correct position during the reassembly process.*

1. Remove the meter cap by loosening the bolts on the underside of the meter body. (*see FIG 1)*

2. Remove the O-Ring from the O-Ring groove in the meter cap.
   Wipe clean of grease and store in clean place

3. Remove rotors from the meter body

4. Remove the shafts from the meter body.

REASSEMBLY

1. Before reassembling check the condition of the rotors and bushes (replace if necessary).

2. Replace the shafts and bushes into the meter body.

3. There are two Rotor Types. ***Active*** and ***Neutral.***
   The *Active Rotor* is fitted with the magnets. They can be identified by running a metal object over the face of the rotor (smooth side)

   Caution: The active rotor is always fitted nearest 'dimple' on the meter body
   (see FIG 3)

   Replace Active Rotor.
   Check the smooth side of the rotor is the *leading* face when fitting onto the shaft and into the meter body. (see Fig 2).

   Replace Neutral Rotor. Check that the smooth side of the rotor is the leading face when fitting onto the shaft. (*see FIG 2)*
   Fit the neutral rotor onto the shafts ensuring that the rotor pair are at 90 degrees to one another.
   (see *FIG 3)*

   Check their operation by turning either of the rotors. If the rotors are not in mesh correctly, or do not move freely, remove one of the rotors and replace correctly at 90 degrees to one another.

4. Check condition of O-Ring and bolts, replace if damaged.

   Smear the O-Ring with a light film of grease. Grease applied should meet the following requirements:
   Not harden with age.
   Not contain an evaporating solvent.
   Not cause corrosion of joint surfaces.

   Replace the O-Ring into groove in the meter cap. The O-Ring will need to be replaced if it has grown or is damaged in anyway.

5. Replace the meter cap.

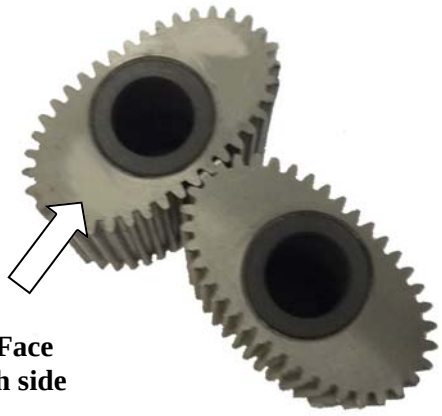
6. Insert the cap head screws and tighten in a diagonal sequence 1, 5, 7, 3, etc.
   (see **Meter Torque Ratings,** page 11)

7. Test the meter by turning the rotors with a finger or by applying very low air pressure (no more than a good breath) to one end of the meter, before returning the meter to service.

Note: When reassembling the meter , all joints should be thoroughly cleaned and smeared with a suitable grease to prevent corrosion and to assist weather-proofing.
Blind bolt holes should be kept clear of grease. Only non metallic scrapers and non corrosive cleaning fluids should be used to clean flanges.
(see IEC 60079-14)

FIG 1

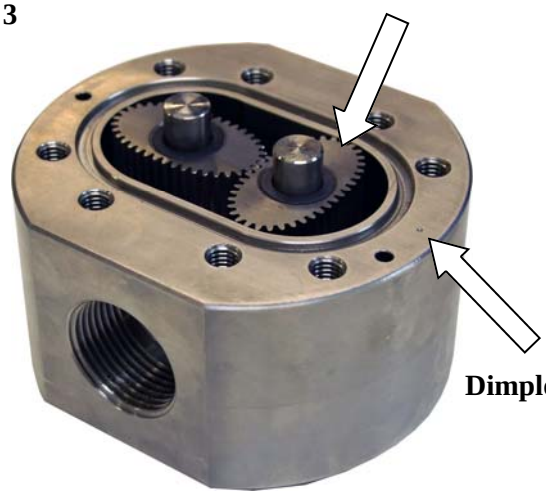
FIG 2



Rotor Face
Smooth side

Active Rotor

FIG 3



Dimple

FLOWMETER SPECIFICATIONS

series MX06		Metric	US
Flow Range	Below 5 cP	2 to 100 LPH	0.5 to 26 GPH
	5 to 1000 cP	0.5 to 100 LPH	0.13 to 26.4 GPH
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		6895 kPa	1000 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

series MX09		Metric	US
Flow Range	Below 5 cP	25 to 500 LPH	6.6 to 132 GPH
	5 to 1000 cP	15 to 500 LPH	4 to 132 GPH
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		6895 kPa	1000 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

series MX12		Metric	US
Flow Range	Below 5 cP	3 to 25 LPM	0.8 to 6.6 GPM
	5 to 1000 cP	2 to 30 LPM	0.5 to 8 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		13790 kPa	2000 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

series MX19		Metric	US
Flow Range	Below 5 cP	8 to 70 LPM	2 to 18.5 GPM
	5 to 1000 cP	3 to 80 LPM	0.8 to 21 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		13790 kPa	2000 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

FLOWMETER SPECIFICATIONS

series MX25		Metric	US
Flow Range	Below 5 cP	10 to 100 LPM	2.6 to 26 GPM
	5 to 1000 cP	6 to 120 LPM	1.6 to 32 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		13790 kPa	2000 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

series MX40		Metric	US
Flow Range	Below 5 cP	15 to 235 LPM	4 to 62 GPM
	5 to 1000 cP	10 to 250 LPM	2.6 to 66 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		10342 kPa	1500 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

series MX50		Metric	US
Flow Range	Below 5 cP	15 to 500 LPM	4 to 130 GPM
	5 to 1000 cP	15 to 500 LPM	4 to 130 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1]		8274 kPa	1200 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

. **Ambient Temperature: -20 °C - 65 °C** or **-4 °F - 149 °F**

FLOWMETER SPECIFICATIONS

series MX75		Metric	US
Flow Range	Below 5 cP	60 to 600 LPM	17 to 170 GPM
	5 to 1000 cP	20 to 733 LPM	5 to 194 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1] (*model **MX75S***)		1200 kPa	175 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

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series MX100		Metric	US
Flow Range	Below 5 cP	220 to 1000 LPM	60 to 250 GPM
	5 to 1000 cP	120 to 1200 LPM	30 to 300 GPM
K-Factor (Sensor Pulses per Unit of Measure)		Refer to Flowmeter Data Plate	
Max Process Temperature		-20° C - 85° C	-4° F - 185° F
Maximum Operating Pressure[1] (*model **MX100S***)		1200 kPa	175 psi
Accuracy of Reading		±0.5% (0.25% available with reduced range)	

1. Conforms to Directive 97/23/EC—Cat 1

. **Ambient Temperature: -20 °C - 65 °C** or **-4 °F - 149 °F**

High Viscosity Applications

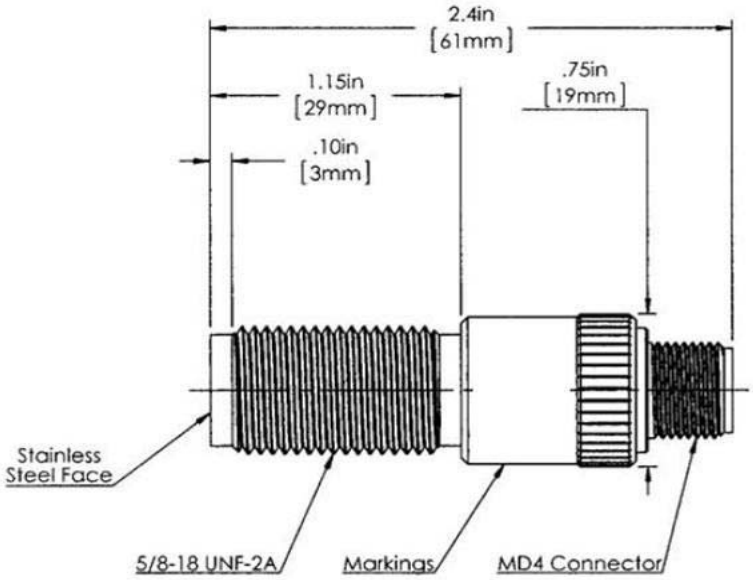
Ensure the Flowmeter is fitted with ‘High Viscosity Rotors’ if the fluid being metered is 1000 cP or above

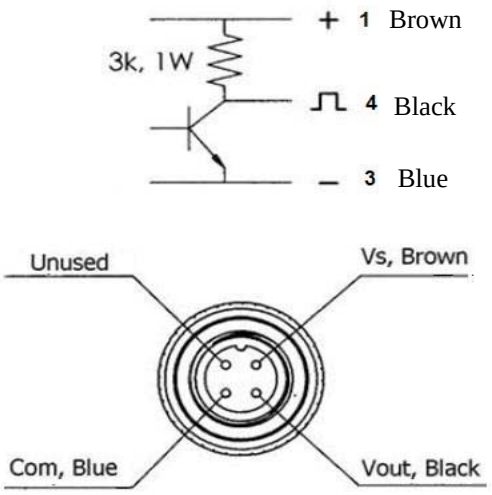
High Viscosity Rotors	For Fluids above 1000 Centipoise (cP)

CAUTION: This sensor must be installed with an approved safety barrier.

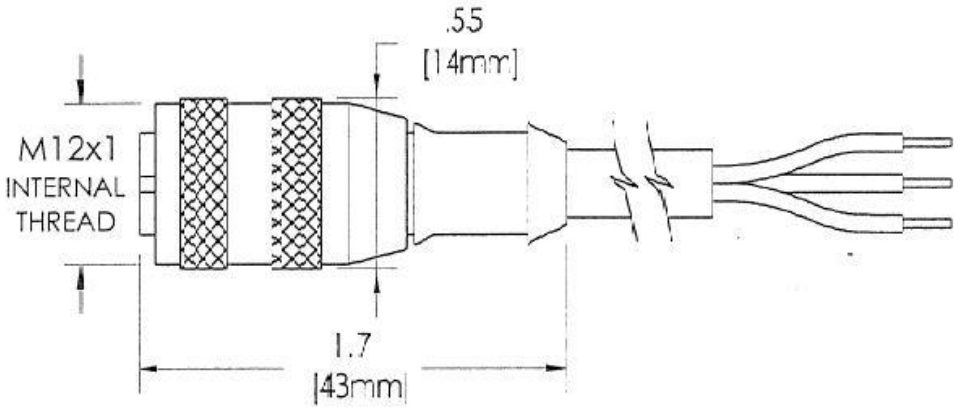
Pulser Specifications

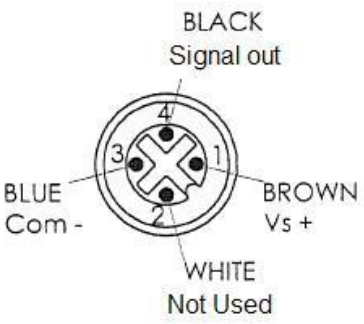
SENSOR TYPE	Omni Polar	Open-Collector NPN
SPECIFICATIONS	Classification	*Ex ia IIC/T6 Class 1 Zone 0*
	Construction	Stainless Steel Housing
	Operating Voltage	5V to 30V DC
	Maximum Current	15mA
	Temperature Range Process	-40 - 85°C or -40 - 185°F
	Temperature Range Ambient	-40 - 65°C or -40 - 149°F
	Approvals	ATEX, CSA, FM





End of Sensor



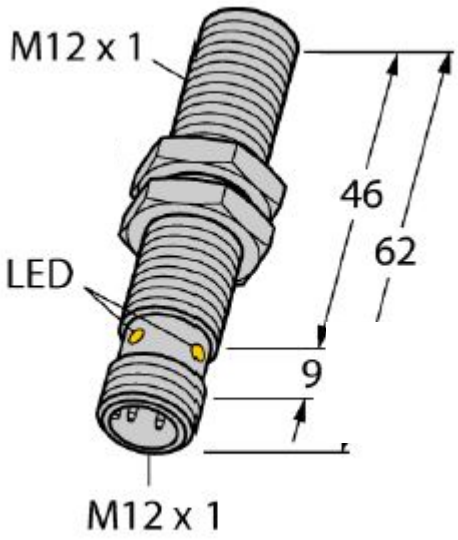


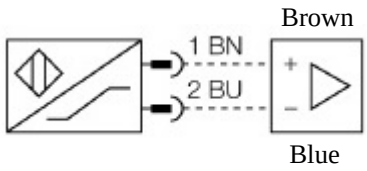
End of Mating Cable

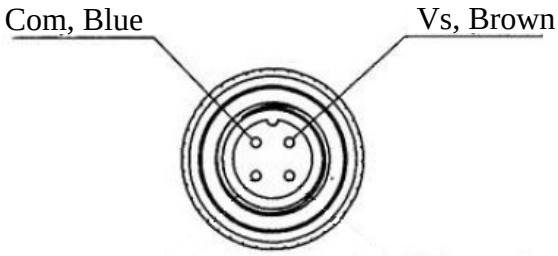
CAUTION: This sensor must be installed with an approved safety barrier.

Pulser Specifications

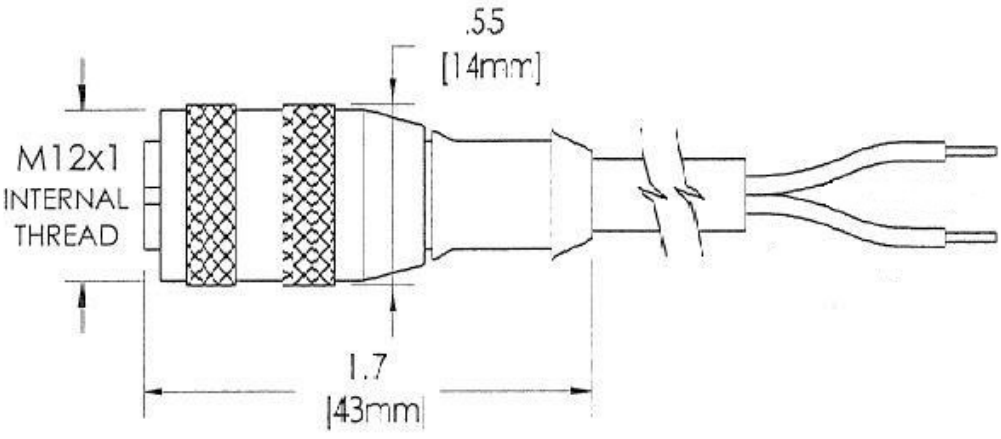
SENSOR TYPE	Magnet-inductive Proximity Sensor	NAMUR
SPECIFICATIONS	Classification	*II 1 G, EX zone 0, II 1 D Ex zone 20*
	Construction	Metal, CuZn, Chrome-plate
	Operating Voltage	8V to 15V DC
	Maximum Current	5mA
	Temperature Range Process	-40 - 85°C or -40 - 185°F
	Temperature Range Ambient	-25 - 70°C or -30 - 158°F
	Approvals	ATEX, IECEX

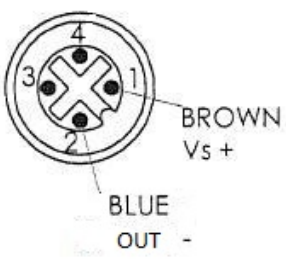






End of Sensor



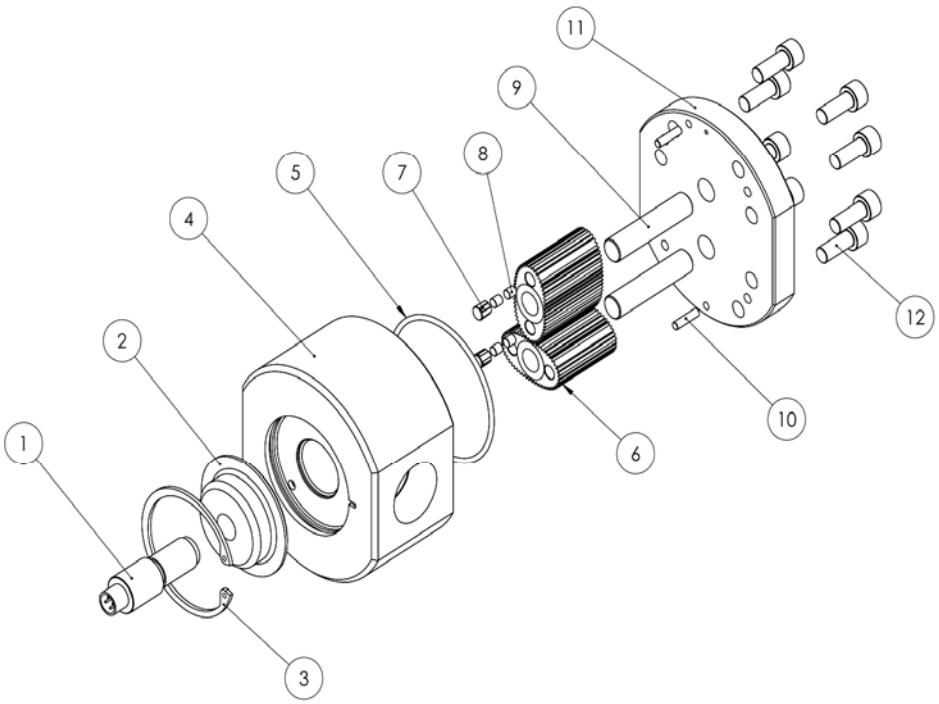


End of Mating Cable

TROUBLESHOOTING GUIDE

Problem	*Cause*	*Remedy*
Fluid will not flow through meter	a) Foreign matter blocking rotors b) Line strainer blocked c) Damaged rotors d) Meter connections over tightened e) Fluid is too viscous	a) Contact Macnaught b) Clean strainer c) Re-adjust connections d) See specifications for maximum viscosity
Reduced flow through meter	a) Strainer is partially blocked b) Fluid is too viscous	a) Clean strainer b) See specifications for maximum viscosity
Meter reading inaccurate	a) Fluid flow rate is too high or too low b) Air in fluid c) Excess wear caused by incorrect installation	a) See specifications for minimum and maximum flow rates b) Bleed air from system c) Check meter body and rotors. Replace as required. Refer to installation instructions
Meter not giving a pulse signal	a) Faulty sensor b) Magnets failed	a) Replace sensor b) Replace magnets

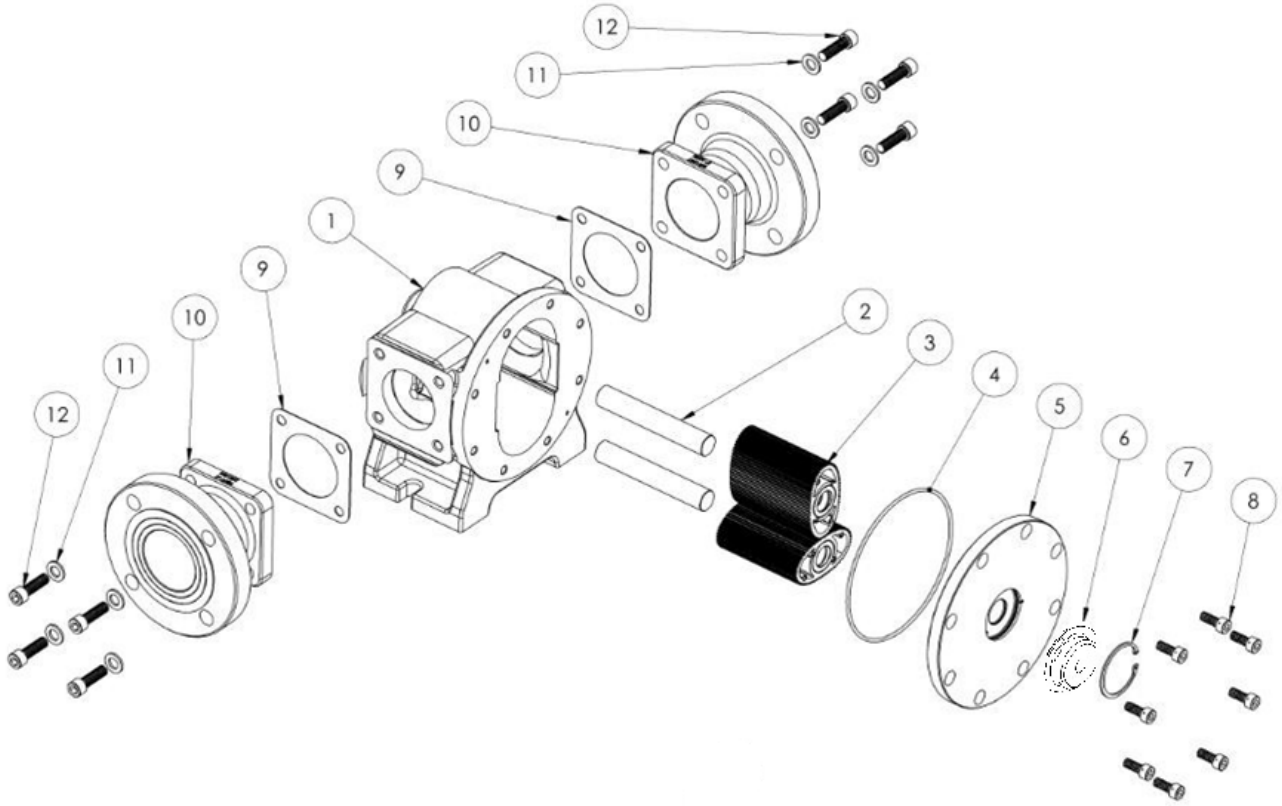
EXPLODED DIAGRAM models MX06-MX50



PARTS IDENTIFICATION

METER COMPONENTS	ITEM NO.
SENSOR	1
CIRCLIP	2
CAM	3
METER BODY	4
METER CAP O-RING	5
ROTORS	6
MAGNET HOUSING	7
MAGNETS	8
ROTOR SHAFTS	9
LOCATING PIN	10
METER CAP	11
METER CAP SCREWS	12

EXPLODED DIAGRAM models MX75-MX100



PARTS IDENTIFICATION

METER COMPONENTS	ITEM NO.
METER BODY	1
ROTOR SHAFTS	2
ROTORS	3
METER CAP O-RING	4
METER CAP	5
CAM	6
CIRCLIP	7
METER CAP BOLTS	8
FLANGE SEALS	9
PROCESS CONNECTION (FLANGED OR THREADED)	10
FLANGE WASHERS	11
FLANGE BOLTS	12

METER TORQUE

Meter Torque Ratings			
Series	**Pressure (psi)**	**Torque (Nm)**	**Lubrication -**
MX06	1000	6.5 Nm	Yes
MX09	1000		
MX12	2000		
MX19	2000	15 Nm	Yes
MX25	2000		
MX40	1500	33 Nm	Yes
MX50	1200		
MX75	175		
MX100	175		

SPARE PARTS KITS

Spare Kit options, for both Flowmeter and Pulser modules, are available as replacement components.

- **Pulser Kit**

  - Replacement Intrinsically safe sensor.

- **Rotor Kit**

  - Rotor assembly (includes Meter Cap bolts and O-Ring)

- **Seal Kit**

  - O-Rings/Gaskets (includes Meter Cap Bolts)

spare kits Series MX06		MX06P	MX06S
ROTOR KIT	***Standard***	MXS06P-HTrotor	MXS06S-rotor
SEAL KIT		MXS06P-seal	MXS06S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

spare kits Series MX09		MX09P	MX09S
ROTOR KIT	***Standard***	MXS09P-HTrotor	MXS09S-rotor
	High Viscosity	MXS09P-HVrotor	MXS09S-HVrotor
SEAL KIT		MXS09P-seal	MXS09S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

spare kits Series MX12		MX12P	MX12S
ROTOR KIT	***Standard***	MXS12P-HTrotor	MXS12S-rotor
	High Viscosity	MXS12P-HVrotor	MXS12S-HVrotor
SEAL KIT		MXS12P-seal	MXS12S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

spare kits Series MX19		MX19P	MX19S
ROTOR KIT	***Standard***	MXS19P-HTrotor	MXS19S-rotor
	High Viscosity	MXS19P-HVrotor	MXS19S-HVrotor
SEAL KIT		MXS19P-seal	MXS19S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

spare kits Series MX25		MX25P	MX25S
ROTOR KIT	***Standard***	MXS25P-HTrotor	MXS25S-rotor
	High Viscosity	MXS25P-HVrotor	MXS25S-HVrotor
SEAL KIT		MXS25P-seal	MXS25S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

spare kits Series MX40		MX40P	MX40S
ROTOR KIT	***Standard***	MXS40P-HTrotor	MXS40S-rotor
	High Viscosity	MXS40P-HVrotor	MXS40S-HVrotor
SEAL KIT		MXS40P-seal	MXS40S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

SPARE PARTS KITS

spare kits Series MX50		MX50P	MX50S
ROTOR KIT	***Standard***	MXS50P-HTrotor	MXS50S-rotor
	High Viscosity	MXS50P-HVrotor	MXS50S-HVrotor
SEAL KIT		MXS50P-seal	MXS50S-seal
PULSER KIT	NPN	MXD-BS	MXD-BS
	NAMUR	MXD-NS	MXD-NS

spare kits Series MX75		MX75S
ROTOR KIT	***Standard***	MXS75S-rotor
	High Viscosity	MXS75S-HVrotor
SEAL KIT		MXS75S-seal
PULSER KIT	NPN	MXD-BS
	NAMUR	MXD-NS

spare kits Series MX100		MX100S
ROTOR KIT	***Standard***	MXS100S-rotor
	High Viscosity	MXS100S-HVrotor
SEAL KIT		MXS100S-seal
PULSER KIT	NPN	MXD-BS
	NAMUR	MXD-NS

WETTED PARTS

Wetted parts series MX06	MX06P	MX06S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	St.St
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

Wetted parts series MX09	MX09P	MX09S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	St.St
High Viscosity	St.St	St.St.
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

Wetted parts series MX12	MX12P	MX12S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	St.St
High Viscosity	St.St	St.St.
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

WETTED PARTS

Wetted parts series MX19	MX19P	MX19S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	St.St
High Viscosity	St.St	St.St.
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

Wetted parts series MX25	MX25P	MX25S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	St.St
High Viscosity	St.St	St.St.
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

Wetted parts series MX40	MX40P	MX40S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	Alum
High Viscosity	St.St	Alum
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

WETTED PARTS

Wetted parts series MX50	MX50P	MX50S
METER BODY	St.St	Alum
METER CAP	St.St	Alum
ROTORS	St.St	Alum
High Viscosity	St.St	Alum
ROTOR SHAFTS	St.St	St.St
ROTOR BUSHES	CA	CA
O-RINGS	K	K

Wetted parts series MX75	MX75S
METER BODY	Alum
METER CAP	Alum
ROTORS	Alum
High Viscosity	Alum
ROTOR SHAFTS	St.St
ROTOR BUSHES	CA
O-RINGS	K

Wetted parts series MX100	MX100S
METER BODY	Alum
METER CAP	Alum
ROTORS	Alum
High Viscosity	Alum
ROTOR SHAFTS	St.St
ROTOR BUSHES	CA
O-RINGS	K

WETTED PARTS

K - *FEP/PTFE Encapsulated*

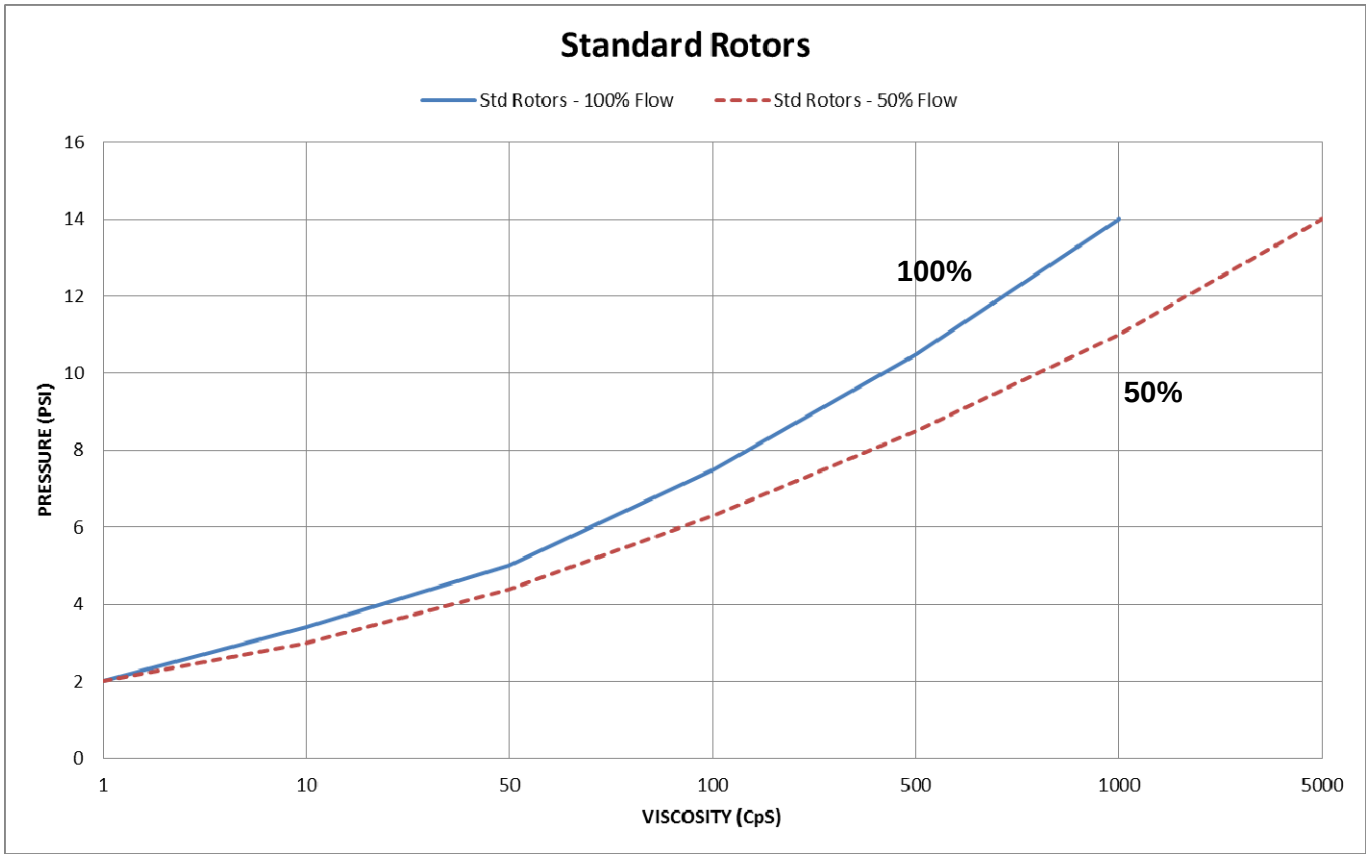
SS - *Stainless Steel 316*

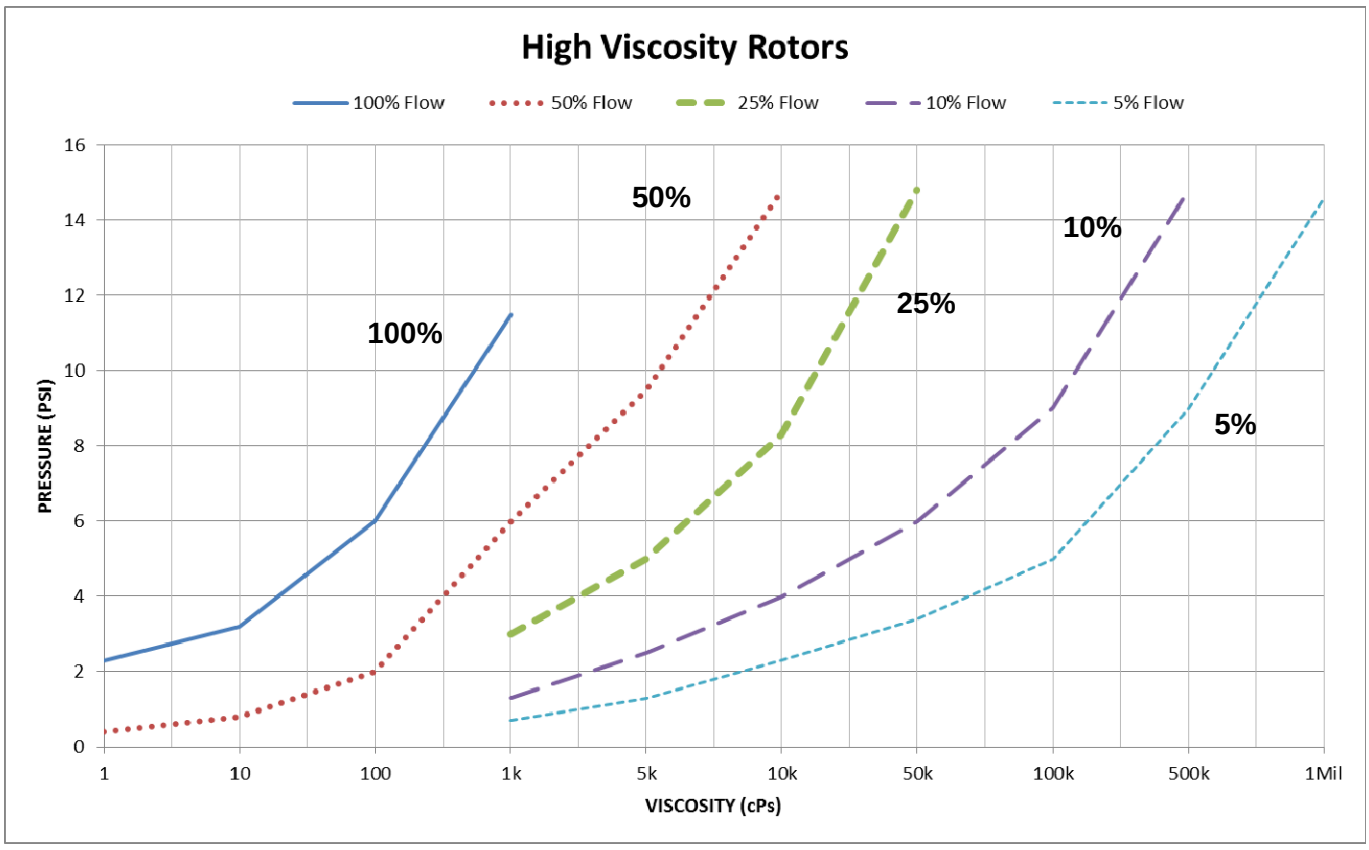
Al - *Aluminium AA610*

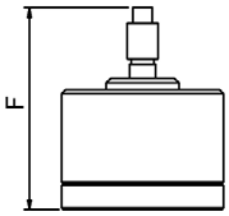
CA - *Carbon*

NOTE: *No PPS parts will be supplied for hazardous area applications.*

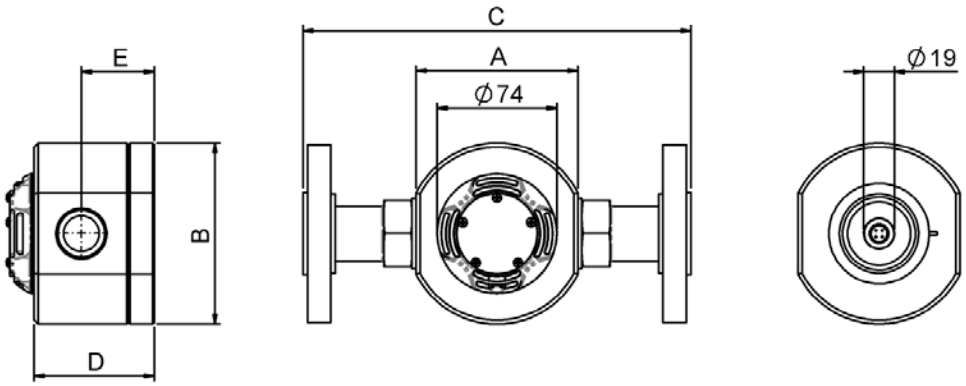
PRESSURE DROP v VISCOSITY





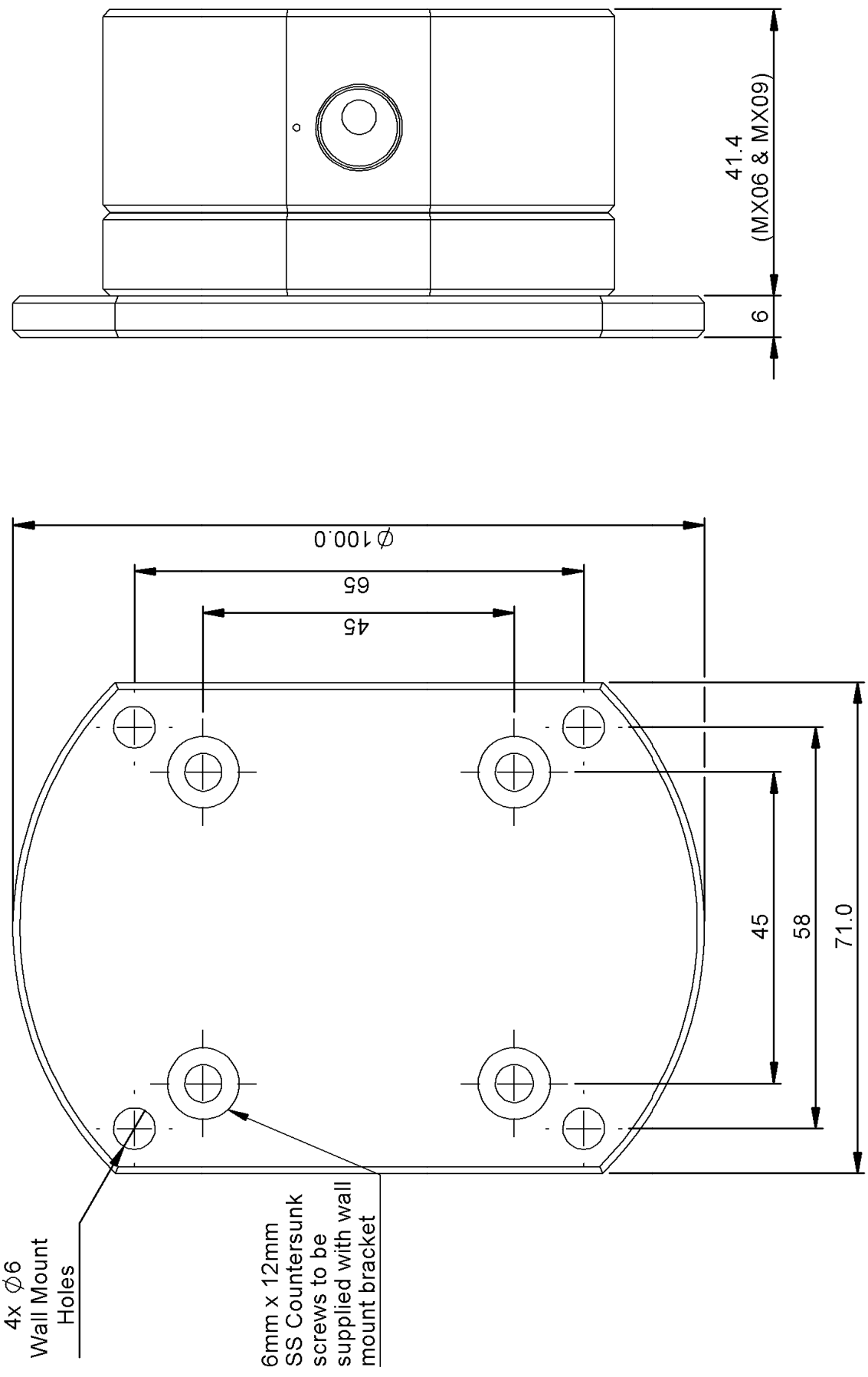


PULSER - Exia

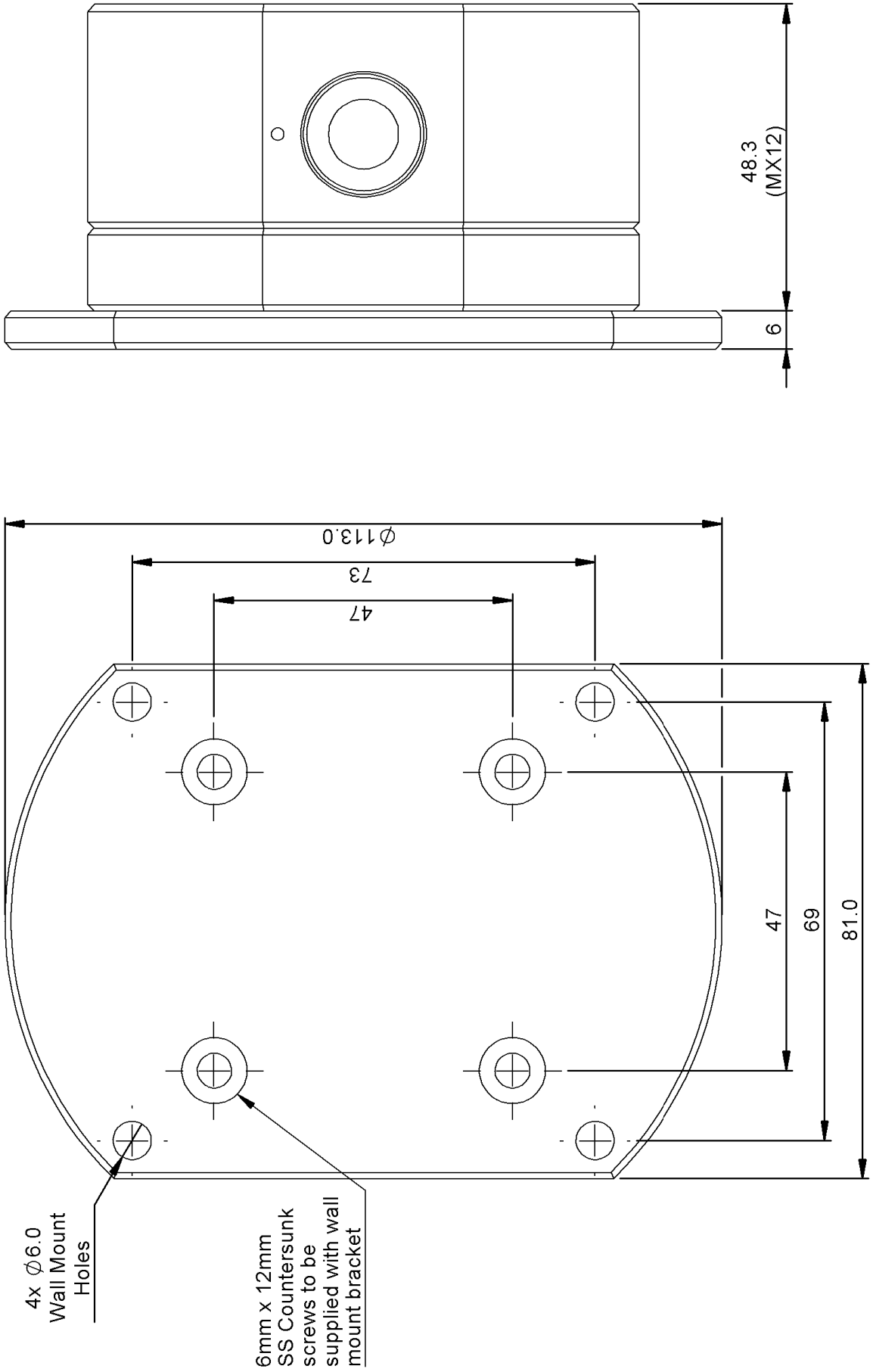


Model	METER AND FLAMGE DIMENSIONS						HEIGHT
	Port Size	A	B	C	D	E	F
MX06	¼”	71	74	-	42	25	93
MX09	¼”	71	74	-	42	25	93
MX12	½”	81	87	-	49	28	100
MX19	¾”	100	112	-	62	37	113
MX25	1”	100	112	240	75	45	126
MX40	1 ½”	120	137	240	103	61	154
MX50	2”	140	163	264	124	72	175

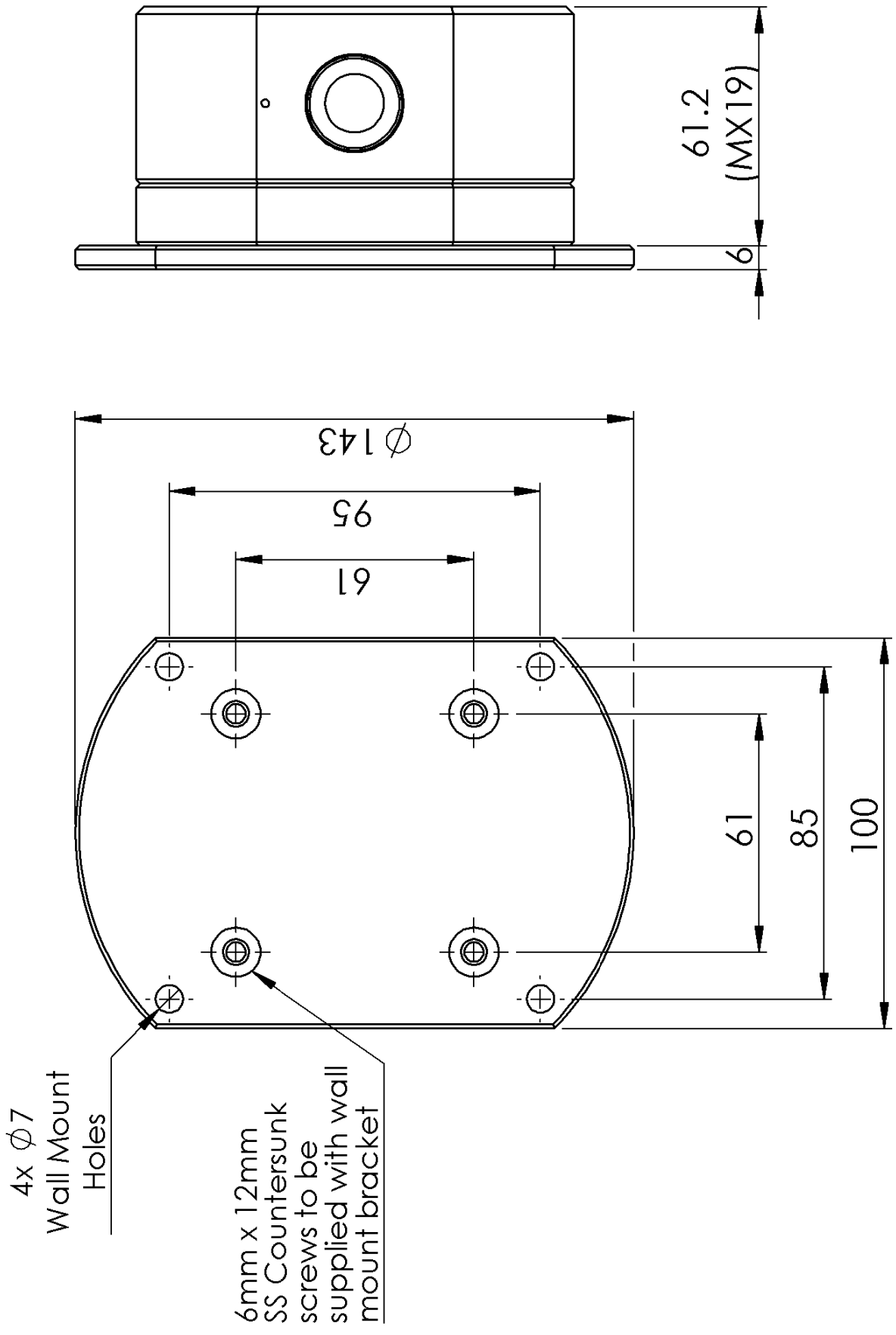
Aluminium Wall Mount bracket to suit model MX06-MX09



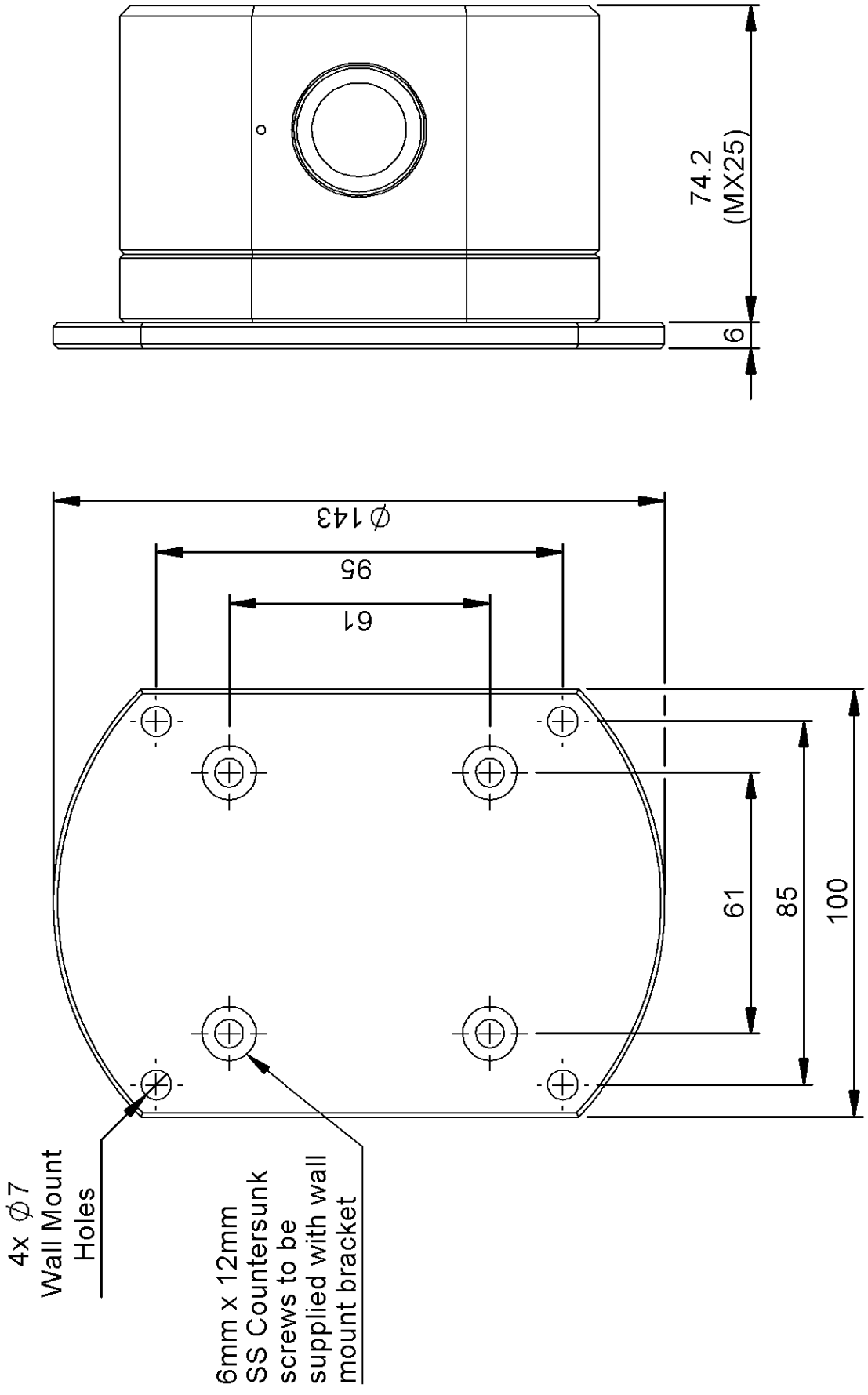
Aluminium Wall Mount bracket to suit model MX12

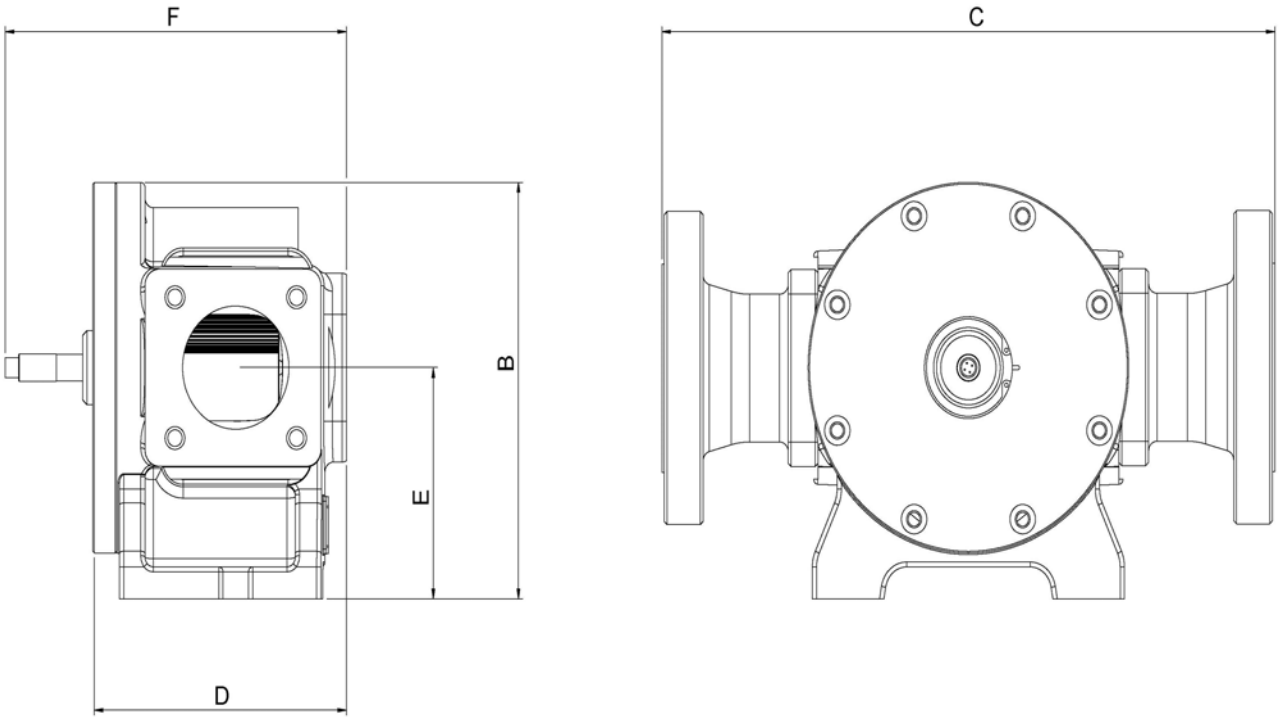


Aluminium Wall Mount bracket to suit model MX19



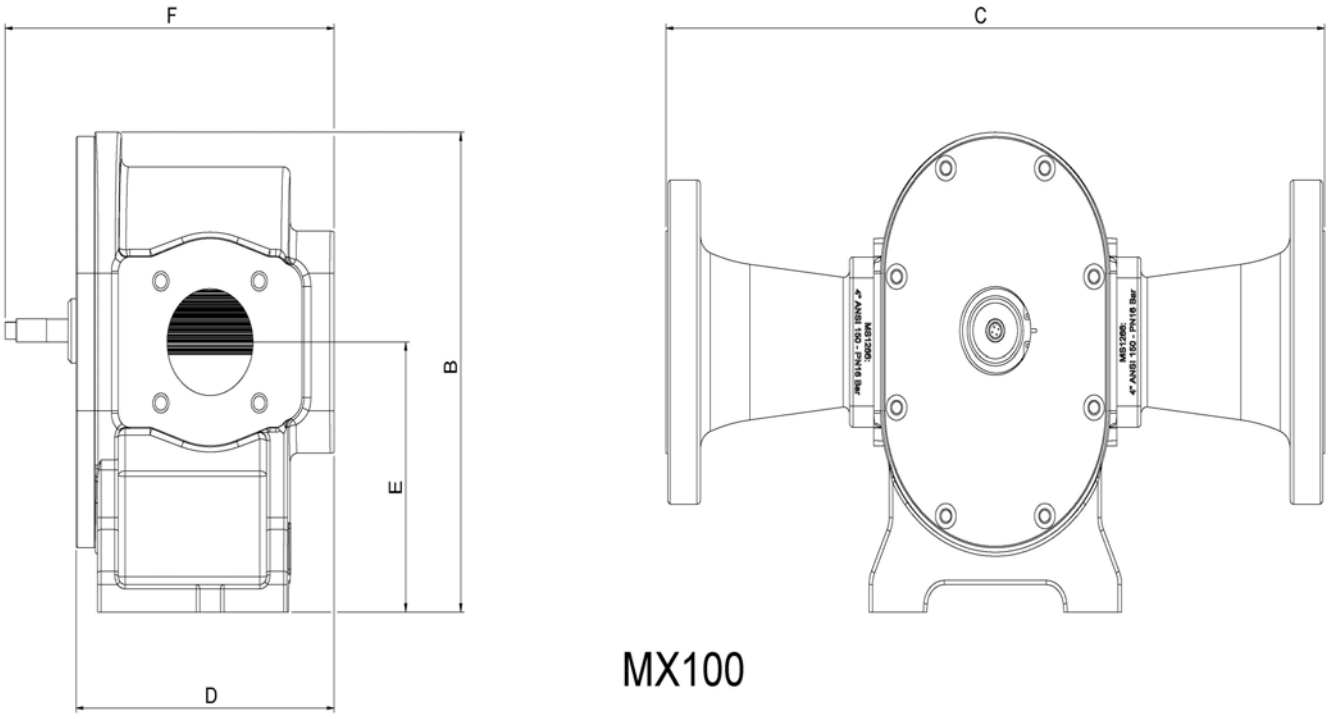
Aluminium Wall Mount bracket to suit model MX25





MX75

Model	METER AND FLAMGE DIMENSIONS						HEIGHT
		Port Size	B	C	D	E	F
MX75 Aluminium	ANSI	3”	254	436	179	179	230
	DIN			436			
	JIS			436			
	Rp			302			
	NPT			302			



Model	METER AND FLAMGE DIMENSIONS						HEIGHT
		Port Size	B	C	D	E	F
MX100 Aluminium	ANSI	4”	340	583	225	191	242
	DIN	4”		583			
	JIS	4”		583			
	Rp	3”		301			
	NPT	3”		301			

Notes

EC-Conformity Declaration (94/9/EC)

Macnaught Pty Limited, 41-49 Henderson St, Turrella NSW 2205 Sydney Australia, herewith confirm that the unit mentioned below complies with the basic safety and health requirements of the relevant EC directives concerning design, construction and putting the model into circulation. This declaration is no longer valid if the unit is modified without agreement from Macnaught.

Description of the unit

Oval wheel flow meter

Type of unit

MX Series

Explosion Protection

-Fulfilling of non-electrical explosion protection requirements for the oval wheel meter.
The evaluation of hazards of ignition by means of a risk analysis shows that there is no own potential source of ignition during normal operation. The oval gear rotors are contained within a suitable body which contains the process fluid. The body & rotors can be made of Aluminium or Stainless Steel. The instruments mentioned in this document comply with the requirements of DIN EN 13463-1 and DIN EN 13463-8 and can be used in hazardous areas requiring devices of Category 2. As these devices have no own energy sources, leading to an increase in temperature, the process fluid temperature can be taken as surface temperature.

Explosion Protection for additional units

- Pulse pick-up
  - Explosive atmospheres: Equipment protection by intrinsic safety "i"

Equipment	Standard Applied	Notified Body	Certificate Number	Marking
Electronic Sensor (MX7)	• EN55011 • EN50022-2	FM Approvals	FM08ATEX0066X	II 1 G Ex ia IIC T5 @ -40°C ≤ T_{amb} ≤ +85°C T6 @ -40°C ≤ T_{amb} ≤ +65°C
Electronic Sensor (MX7N)	• EN60079-0: 2012 • EN60079-11: 2012 • EN60079-26:2007	DEKRA	KEMA02ATEX1090X	II 1 G Ex ia IIC T6 Ga/II 1 D Ex ia IIIC T115 °C Da (max. Ui = 20 V, Ii = 20 mA, Pi = 200 mW)
Non-electrical (Body)	• EN13463-1:2009 • EN1463-8:2003	SIRA	SIRA15XT063	II 2 G k TX* * See Manual

FM: 270 Central Avenue • P.O. Box 7500 • Johnston, RI 02919-4923 USA - http://www.fmglobal.com
DEKRA: Witzlebenstrasse 7, 45472 Mulheim an der Ruhr, Germany - http://www.dekra.com/en/home
SIRA: Sira Test and Certification Ltd, Rake Lane, Eccleston, Chester, Cheshire, CH4 9JN, England - http://www.siracertification.com/

Steven Gavin, Director of Operations

Wally Rose, Quality Manager

Adam Alamade, Ex Authorised Person

CERTIFICATES

Certificates for Approved Switches can be downloaded at:

www.macnaughtflowmeasurement.com.au/downloads/

See Certificates Tab.

WEEE Directive - Waste Electrical and Electronic Equipment

The WEEE Directive requires the recycling of waste electrical and electronic equipment in the European Union.

Whilst the WEEE Directive does not apply to some of Macnaught's products, we support its policy and ask you to be aware of how to dispose of this product.

The crossed out wheelie bin symbol illustrated and found on our products signifies that this product should not be disposed of in general waste or landfill.

Please contact your local dealer national distributor or Macnaught Technical Services for information on product disposal.

Macnaught Pty Limited
ABN 66 000 075 785

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