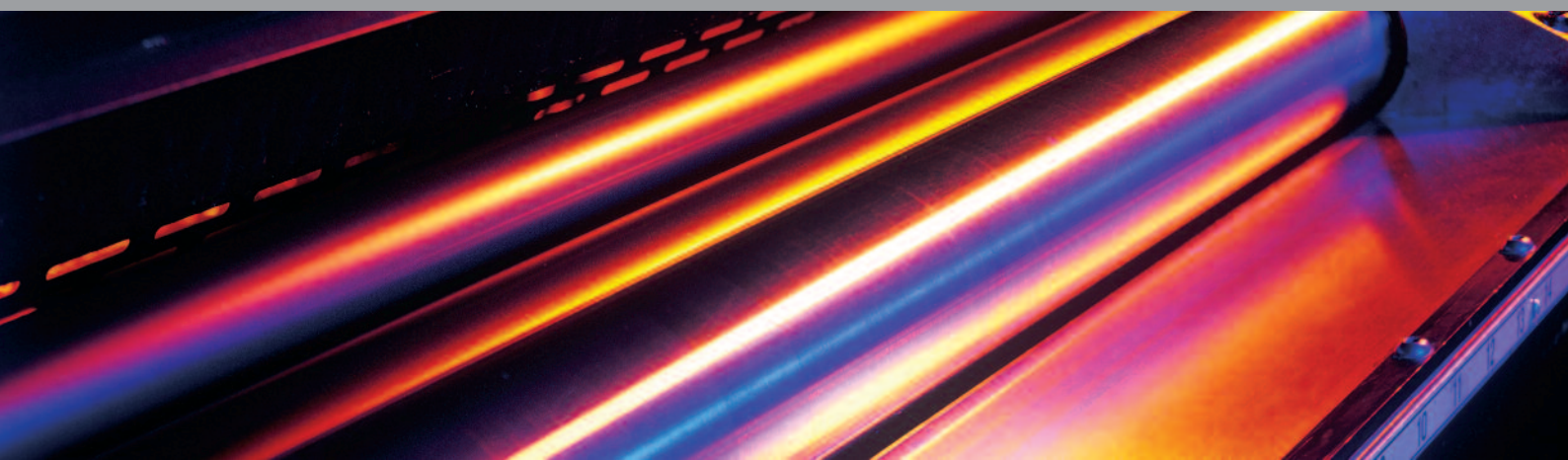# macnaught flow measurement

solvent flow meters

macnaught

flow meters   **solvent**

macnaught flow measurement

The **"S"** range of oval gear fuel and oil meters from **Macnaught** are positive displacement oval gear flowmeters that are **optimized for Solvent and High Temperature fuel and oil measurement** applications.

Macnaught Solvent Flowmeters are constructed utilizing a **robust cast aluminium body** suitable for use in the harshest environments. **Our 316SS and aluminium rotors** provide exceptionally **low pressure drop** and can even be used in **gravity fed applications as well as high temperature fuel & oil measurement.** The rotor design ensures minimal wear resulting in many **years of reliable service**. This approach has proven over time to provide consistently accurate flow measurement that is not affected by variations in temperature, viscosity, or pressure.

Another benefit of our unique rotor design is simplicity of repair. With only **2 moving parts**, our meters are **simple to repair**, require minimal repair parts stock, and can even be repaired inline, resulting in less downtime.

Oval gear Flowmeters also do not require any flow conditioning or straight pipe runs, resulting in a **simple, low cost, and compact installation.**

With **12 mechanical and digital display options** to choose from, Macnaught flowmeters are the perfect choice with outputs and displays to suit virtually any application requirement.

Applications

- Industrial paints and coatings
- Ink blending & dispensing
- Sealants & adhesives manufacturing
- Agrochemical production
- Cleaning chemical manufacturing & production
- High Temperature fuel oil measurement for industrial and marine applications

Features

Designed and Manufactured in Australia
- Quality is controlled from concept to completion by Macnaught
- Shorter lead times and improved flexibility
- 2 year warranty

Mechanical Displays *(See Chart 1)*
- IP67 Versions for use in high pressure washdowns
- Low-cost version with plastic housing
- Enhanced Accuracy

Electronic Displays *(See Chart 1)*
- All displays have resettable and non-resettable totals
- 4-20ma and pulse output versions
- Batch controllers
- Meter mounted and remote displays
- Compact version for use with small meters or where space is limited
- Intrinsically safe for use in hazardous areas

316SS Rotors
- Low Pressure Drop
- Quiet Operation
- Simple Repairs
- High Temperature Operation (120C)

Modular End Connections *(See Chart 2)*
- Flexible Inventory for Faster Delivery
- Wide Variety of Connection Types
- Threaded Mounting Holes

Cast Aluminium Body
- Robust Design
- Suitable for use in the harshest outdoor environments

Meter Selection

Step 1 — Verify Fluid Compatibility & Application Conditions

Determine if your fluid is compatible with the wetted parts of the meter. All wetted parts are made from: Aluminium, FFKM, and 316SS. Also determine if the Pressure and Temperature are within the stated limits."

Tips: Solvent meters use a high temperature 316SS rotor and can be used on high temperature fuel oil applications as well. We also offer high pressure models in our industrial meter line if the operating pressure is beyond the limits of our Solvent meters.

Step 2 — Choose the model based on your flow rate *(see Flow Range Chart)*

Tips: If possible, choose a meter model where your expected flow rates fall between 20-80% of the maximum flow range for optimum performance. If you are measuring a high viscosity fluid (over 1000cp), the maximum flow range will be lower. You should consult the factory if you are unsure which model you need.

Step 3 — Choose your connection thread type

Tips: We also offer flange adaptor kits for all of our meters from F025 and larger (see step 5). We offer ANSI 150, DIN PN16, and JIS flange adaptors. Our adaptors can be fitted to any of our meters regardless of the threaded connection type. Flange adaptors are ordered separately in step 5. Please note that if you order a mechanical meter and want NPT threads with display in Litres, a type "3" connection should be specified. Also note that the S050 and larger meters do not include threaded connections. The adaptors must be ordered separately.

Step 4 — Choose Standard or High Viscosity Rotors

Tips: Choose high viscosity rotors if the fluid is above 1000cp. If the fluid is between 100 and 1000cp and the flow rate is over 50% of the maximum rated flow of the meter, high viscosity rotors can be used if lower pressure drop is required.

Step 5 — Choose Mechanical Display or Pulse Output options

Tips: Choose a pulse output if you want to use a digital display. The Digital displays are listed in the next step and can either be mounted on the meter or remotely. Our standard pulse output comes with both hall effect sensor and reed switch outputs. If you are installing the meter in a hazardous environment, you can choose option "2" which will give you 2 reed switches, which classifies the output of the meter as a "simple device".

Step 6 — Choose Accessories *(See Charts 1&2)*

Tips: All of our digital displays can be mounted either locally on the meter itself, remotely on a wall, on a panel, or nearby on the piping. Just choose the functions you need and the housing type you require.

If you are looking for flanged end connections, you can also order the appropriate flange type here. For models F050 and larger, adaptors must be ordered with the meter.

Technical Specifications

Materials of construction
- Meter Body
  - Aluminium
- Rotor Materials
  - Aluminium (Models *S040/S050/S075/S100*)
  - Stainless Steel (Models *S006/S009/S012/S019/S025*)
- Seal Material
  - Perfluoro Elastomer

Total Flow Range
- 0.008 – 1200 L/min
- 0.002 – 317 USG/min

Temperature Range
- -40 – 120ºC / -40 - 248 ºF

Display Options
- 12mm LCD digital display
- 17mm LCD digital display
- Analogue Mechanical Display
- 12mm Resettable Mechanical Totaliser
- 17mm Resettable Mechanical Totaliser

Outputs options
- 4-20mA (passive)
- Transistor
- Relay
- Pulse Output
- Alarm

Compliance (as applicable)
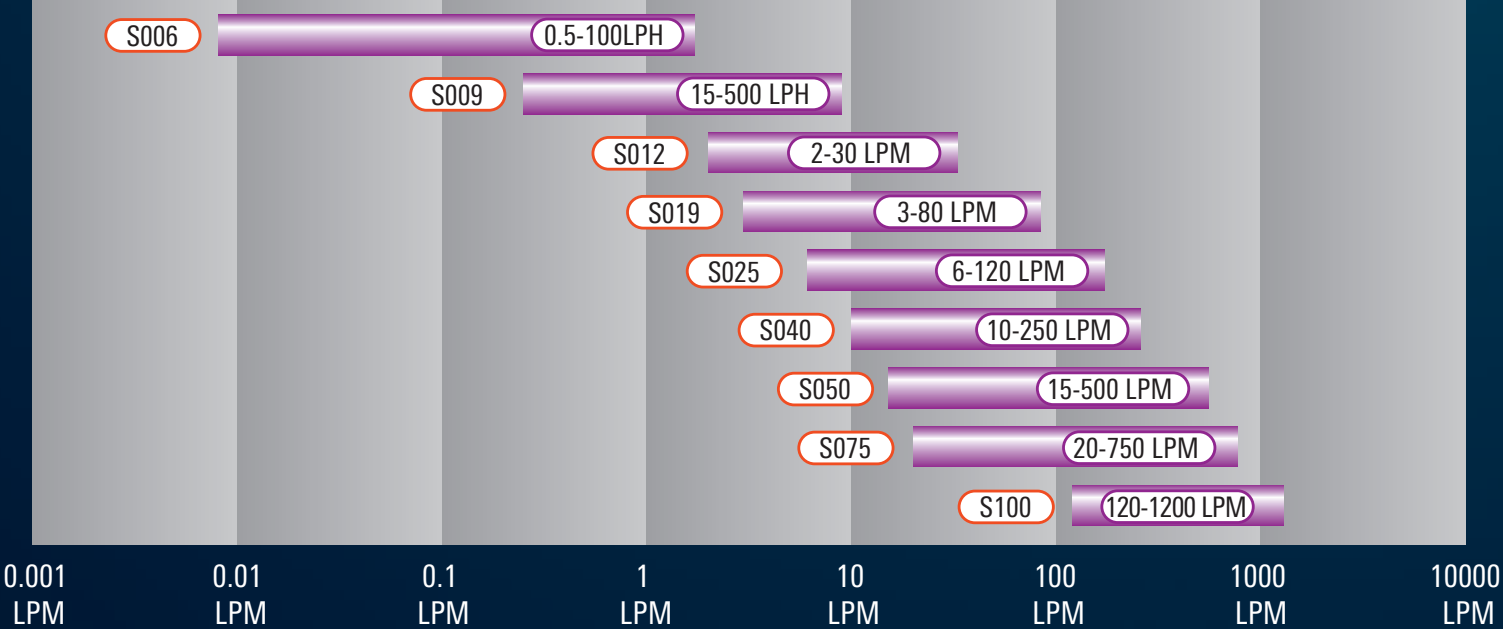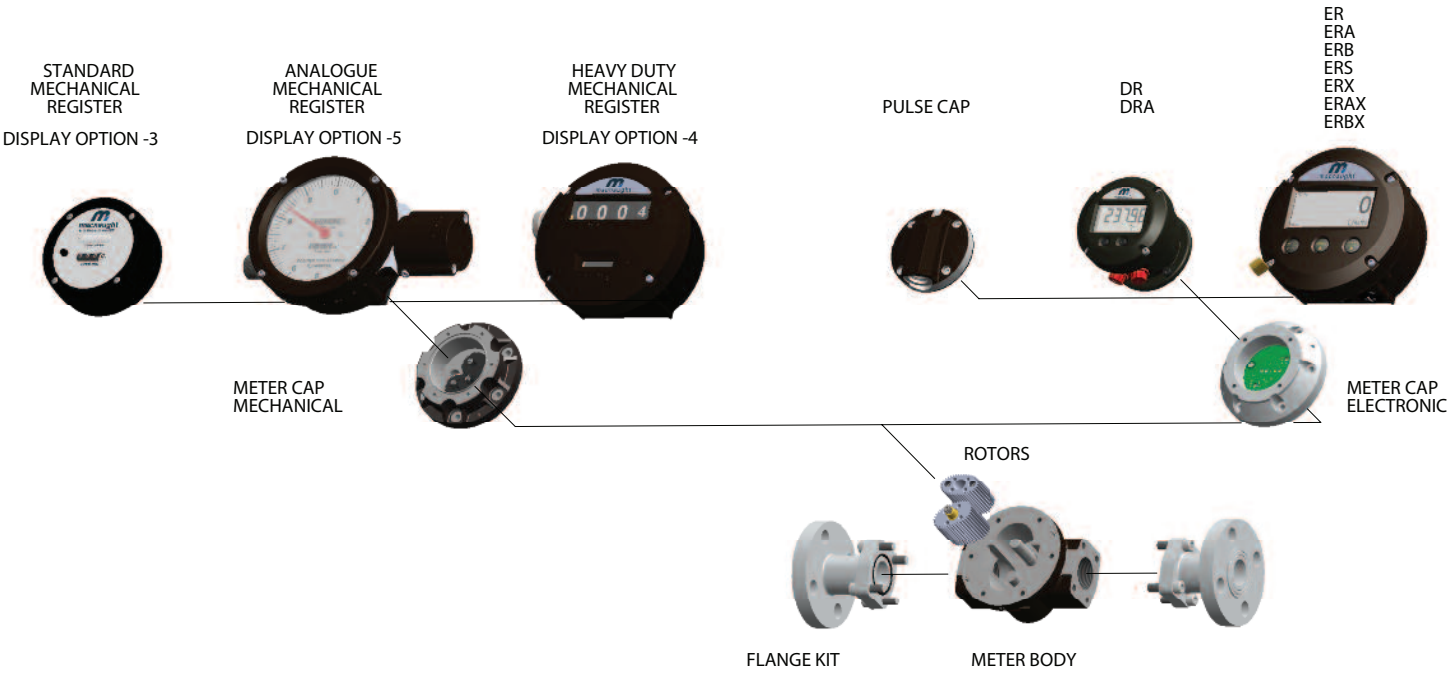- Meters
  - CE (Certificate of Conformity)
- Displays
  - ATEX
  - IECEx

Once you have determined the most suitable Flow-meter according to your requirements, please contact macnaught to obtain your detailed 'product specification datasheet.

Part Number Selection

S	Solvent Meters				
	Model	**Nominal Size**	**Flow Range**	**Max Pressure**	
	006	1/4"	0.5-100 lph/ 0.13-26.4 gph	10 Bar/150 PSI	
	009	1/4"	15-500 lph/ 4-132 gph	10 Bar/150 PSI	
	012	1/2"	2-30 lpm/ 0.5-8 gpm	55 Bar/800 PSI	
	019	3/4	3-80 lpm/ 0.8-21 gpm	55 Bar/800 PSI	
	025	1"	6-120 lpm/ 1.6-32 gpm	138 Bar/2000PSI	
	040	1.5"	10-250 lpm/ 2.64-66 gpm	138 Bar/2000PSI	
	050	2"	15-500 lpm/ 4-130 gpm	55 Bar/800 PSI	
	075	3"	20-733 lpm/ 5-194 gpm	12 Bar/175 PSI	
	100	4"	120-1200 lpm/ 31.7-317 gpm	12 Bar/175 PSI	
		Port Type			
		1	BSP (Rp)	(Port adaptors MUST be ordered separately on models 050 and larger)	
		2	NPT	(Port adaptors MUST be ordered separately on models 050 and larger)	
		3	NPT-Litre Calibration	(Port adaptors MUST be ordered separately on models 050 and larger)	
			Rotor Type		
			T	Standard	
			V	High Viscosity (S009 and Larger)	
				Display Type	
				1 Electronic Pulse Meter- Reed Switch and Hall-Effect Outputs	
				2 Reed Switch Only- for Hazardous Location Service	
				3 Standard Duty Mechanical Register (35 Bar/500 PSI)	(models S025,S040, and S050)
				4 Heavy Duty Mechanical Register (35 Bar/500 PSI)	(models S025 and larger only)
				5 Analogue Mechanical Register (35 Bar/500 PSI)	(models S025 and larger only)
S	025-	1	T	1 example part number *(S025-1T1)*	

Flow Range Chart
flow rate liters per minute

STANDARD MECHANICAL REGISTER
DISPLAY OPTION -3

ANALOGUE MECHANICAL REGISTER
DISPLAY OPTION -5

HEAVY DUTY MECHANICAL REGISTER
DISPLAY OPTION -4

PULSE CAP

DR
DRA

ER
ERA
ERB
ERS
ERX
ERAX
ERBX

METER CAP MECHANICAL

METER CAP ELECTRONIC

ROTORS

FLANGE KIT

METER BODY

Accessories
(see specification sheets for part numbers)

Chart 1

Meter Mounted Displays	Mechanical Registers			Digital Displays								
	M	MR	MA	DR	DRA	ER	ERA	ERB	ERS	ERX	ERAX	ERBX
Total	■	■	■	■	■	■	■	■	■	■	■	■
Resettable Total	■	■	■	■	■	■	■		■	■	■	
Flow Rate Display				■	■	■	■	■	■	■	■	
Pulse Output					■		■			■		■	
4-20 ma Output (Passive)					■		■			■		■	
Alarm Outputs					■								
Batch Control (Transistor Out)									■				■
Net Use Function										■			
Intrinsic Safety											■	■	■
Aluminium Housing IP67		■	■	■	■	■	■	■	■	■	■	■
Plastic Housing	■											
Digit Size (mm/ in.)	5mm	17mm	5mm	12mm	12mm	17mm	17mm	17mm	17mm	17mm	17mm	17mm

Chart 2 Strainers and Flange Adaptor Kits
when flange adaptors are used, pressure rating reverts to flange rating

	F006	F009	F012	F019	F025	F040	F050	F075	F100
SS Y-Strainer	■	■	■	■	■	■	■		
Aluminium Strainer/Air eliminator			■	■	■	■	■		
ANSI					■	■	■	■	■
DIN					■	■	■	■	■
JIS					■	■	■	■	■
BSP (Rc)					■	■	■	■	■
NPT							■	■	■

Trust Macnaught

Established in 1948, Macnaught has a 60 year tradition of excellence in manufacturing. Macnaught began marketing flowmeters in 1965 and has been manufacturing oval gear flowmeters since the early 1990's. Our decades of experience have resulted in a simple, robust, and highly accurate family of flowmeters that are optimized to suit a broad range of applications and markets. Macnaught offers optimized solutions for Fuel and Oil measurement, Bulk Fuel Custody Transfer, Corrosive Chemicals, Solvents, and a wide variety of other industrial liquids.

With full ISO 9001 and 14001 accreditation, you can be secure in the knowledge that quality and environmental responsibility are at the forefront of every decision at Macnaught.

Trust Macnaught to deliver the performance, value, and reliability required in today's most demanding environments. With distributors in over 60 countries and global sales support, Macnaught has become a global leader in fluid management solutions. Our focus on oval gear flow measurement reflects our commitment to excellence in providing optimized solutions for fluid management applications.

Head Office - Sydney
Macnaught Pty Ltd
41-49 Henderson St, Turrella
Sydney NSW 2205 Australia
Ph: +61-2-9567 0401
Fax: +61-2-9597 7773
email: info@macnaught.com.au
website: www.macnaught.com.au

Quality Endorsement applicable to
Macnaught Head Office Sydney Only

Macnaught USA
Macnaught USA, Inc.
614 South Ware Boulevard
Dock 14A (for deliveries)
Tampa, FL 33619
Ph: 813-628-5506
Fax: 509-694-8495
email: info@macnaughtusa.com
website: www.macnaughtusa.com

Certified System ™
Environment
ISO 14001
SAI GLOBAL

Certified System ™
Quality
ISO 9001
SAI GLOBAL

macnaught.com.au

macnaught
flow meters | solvent