

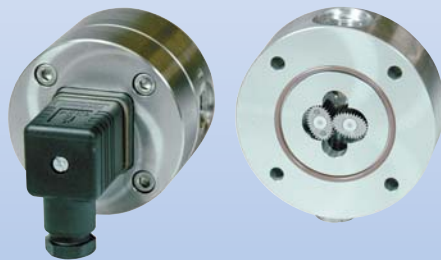


## Gear Wheel Flow Meter -for viscous liquids-



measuring  
•  
monitoring  
•  
analysing

**DISAI**  
Automatic Systems  
T: 962 448 450 [www.disai.net](http://www.disai.net)



- Measuring range:  
0,5-36 L/h... 150-2500 L/min
- Viscosity range: 0-1200 cP  
(higher on request)
- Accuracy:  $\pm 0,2\%$ ..1% of reading
- Material: Aluminium,  
Ductile iron or stainless steel
- $p_{\max}$ : 400 bar
- $t_{\max}$ : 120 °C
- Pulse output, LCD display  
with transmitter or  
mechanical register



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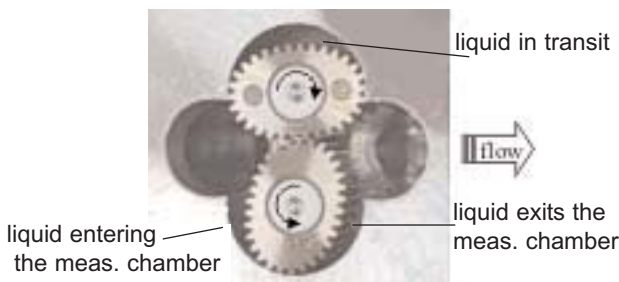
Model:  
DOM



**Principle of operation**

The Oval Gear meters are positive displacement flowmeters where the passage of liquid causes two oval gears to rotate within a precision measuring chamber and with each rotation a fixed volume of liquid passes through the meter. Magnets embedded within the gears initiate a high resolution pulse train output. The pulse output can be wired directly to process control and monitoring equipment or can be used as an input to instruments supplied with or fitted directly onto the meter.

The flowmeter is available as a blind transmitter with pulse output capable of interfacing to most monitoring and control instrumentation or the meter can be fitted with or supplied with instruments such as totalizers, rate totalizers or batch controllers. These instruments also have monitoring and control output options including 4-20mA, scaled pulse, flowrate alarms and batch control logic (preset metering).



This technology allows precise flow measurement and dispensing of most clean liquids regardless of their conductivity, with other liquid characteristics having no or minimal effect on meter performance. This metering technology does not require flow profile conditioning or straightline runs as required with alternative flow technologies making the installation relatively compact and low cost.

**Areas of application**

For all viscous, non abrasive clean liquids like: petroleum, grease, pastes etc.

Stainless Steel flowmeters are suited to most water based products and chemicals and aluminum meters are suitable for fuels, fuel oils & lubricating liquids.

**Technical specifications**

**Material:**

DOM-A05xxx...DOM-A15xxx

Body: Aluminium  
Gear wheels: st. st. 1.4401

Bearing: Ceramic

DOM-A20xxx...DOM-A60xxx

Body: Aluminium  
Gear wheels: Aluminium  
Bearing: Hardened steel rollers

DOM-Dxxxxxx

Body: Ductile iron  
Gear wheels: Aluminium  
Bearing: Hardened steel rollers

DOM-Sxxxxx/ DOM-Hxxxxx

Body: st. st. 1.4401  
Gear wheels: st. st. 1.4401  
Bearing: Ceramic

**O-Rings:**

FPM (standard): -15...+200 °C  
EPR (Ethylene Propylene Rubber): -150...+200 °C  
PTFE encapsulated FPM: -150...+200 °C  
NBR: -65...+100 °C

**Accuracy:**

± 1 % of reading (DOM-x05xxxx...DOM-x15xxxx)  
± 0,5 % of reading (DOM-x20xxxx...DOM-x35xxxx)  
± 0,2 % of reading (DOM-x40xxxx...DOM-x60xxxx  
turndown 15:1)

**Repeatability:** typ. ±0,03%

**Protection class:** IP66

**Temperature range:** -20 °C...+120 °C

**Maximum pressure** (threaded version):

Typ	maximum pressure (bar)			
	DOM-A..	DOM-S..	DOM-H..	DOM-D..
DOM-x05..	16	34	400	---
DOM-x10..	16	34	400	---
DOM-x15..	16	34	400	---
DOM-x20..	68	100	400	---
DOM-x25..	68	100	400	---
DOM-x30..	30	100	400	---
DOM-x35..	20	38	---	---
DOM-x40..	12	---	---	---
DOM-x45..	12	12	---	12
DOM-x50..	12	---	---	12
DOM-x55..	10	---	---	12
DOM-x60..	10	---	---	12

with flanges maximum PN 16

**Recommended filter**

DOM-x05...DOM-x15: 75 micron  
DOM-x20...DOM-x35: 150 micron  
DOM-x40...DOM-x60: 350 micron



**Pulse output**

**Reed Switch Pulse Output (...R0)**

The reed switch output is a two wire normally open SPST voltage free contact ideal for installations without power or for use in hazardous area locations when Intrinsically Safe (I.S.) philosophy is adopted. Note: when using the reed switch output the liquid temperature must not change at a rate greater than 10°C per minute. In general the reed switch life will exceed 2 billion actuations when switching less than 5Vdc@10mA. **Power supply:** max. 30 VDC, max. 200 mA

**Hall Effect Sensor Pulse Output (...H0)**

The Hall Effect Sensor is a high resolution solid state 3 wire device providing an unsourced, open collector, NPN transistor output. The term "un-sourced" means that no voltage is applied to the output from within the flowmeter, it must be pulled to a 'high' or 'on' state by between 4~24Vdc supplied from an external source, typically the receiving instrument. The pulse output between signal and -0V is a voltage square wave with the high level being the DC voltage available at the open collector and the low level being -0V.

The receiving instrument must incorporate a pull up resistor ( typically greater than 10K ohms in most instruments ) which ties the open collector to the available DC voltage level when the Hall sensor is not energized. When energized the open collector output is pulled to ground through the emitter (-0V).

**Power supply:** max. 4-24 VDC, max. 20 mA

**Quadrature Hall Effect Pulse Output (...D0)**

Two Hall Effect sensors arranged to give separate outputs out of phase with one another.

The Quadrature output is typically suited to custody transfer applications where signal integrity verification is required, it is also used for metering bi-directional flow.

**Power supply:** max. 8-30 VDC, max. 20 mA

**Ordering informations** (Example: DOM-A05H R1 1 R0)

Meas.-range (L/min)	Connec-tion female	Housing material				O-ring material	Electronic
		Aluminium	St. Steel		Cast Iron		
0,5-36 L/h	G 1/8	DOM-A05H R1...	DOM-S05H R1...	DOM-H05H R1...	---	..R0=pulse output (reed switch) ..H0=Hall ..D0= Quad Hall  ..Z1= dual LCD totaliser ..Z3= LCD totaliser with rate ..Z5= LCD totaliser with rate ..B1= LCD batch controller  ..M1= mech. totaliser 3-digit* ..M3= mech. totaliser 4-digit* * not for DOM-x05,-x10,-x15	
2-100 L/h	G 1/4	DOM-A10H R2...	DOM-S10H R2...	DOM-H10H R2...	---		
15-550 L/h	G 3/8	DOM-A15H R3...	DOM-S15H R3...	DOM-H15H R3...	---		
1-40	G 1/2	DOM-A20H R4...	DOM-S20H R4...	DOM-H20H R4...	---		
10-150	G 1	DOM-A25H R6...	DOM-S25H R6...	DOM-H25H R6...	---		
15-250	G 1 1/2	DOM-A30H R8...	DOM-S30H R8...	DOM-H30H R8...	---		
30-450	G 2	DOM-A35H R9...	DOM-S35H R9...	---	---		
50-580	G 2	DOM-A40H R9...	---	---	---		
35-750	G 3	DOM-A45H RB...	DOM-S45H RB...	---	DOM-D45H RB...		
50-1000	G 3	DOM-A50H RB...	---	---	DOM-D50H RB...		
75-1500	G 4	DOM-A55H RC...	---	---	DOM-D55H RC...		
150-2500	G 4	DOM-A60H RC...	---	---	DOM-D60H RC...		
DIN-flange connection change "DOM-xxx Rx..." into "DOM-xxx Fx..."							

**Electronic with LCD display**

Type	...Z1	..Z3	...Z5	...B1
<b>Function</b>	Dual totalizer	Rate totalizer	Rate totalizer	Batch controller
<b>Power source</b>				
batterypowered	yes	yes	yes	no
8-24 VDC external	no	yes	no	no
<b>LCD display</b>				
-line 1	1x7.5 mm	1x9 mm	1x17 mm	1x9 mm
-line 2	1x3.6 mm	---	1x7 mm	---
selectable units	yes	yes	yes	yes
decimal point	yes	yes	yes	yes
subscripts displayed	yes	yes	yes	yes
accumulative total	yes	yes	yes	yes
resettable total	yes	yes	yes	no
rate display	yes	yes	yes	no
backlighting	no	no	yes	no
<b>Input type</b>				
un-powered sensors	reed switch			
powered sensors	open collector			
<b>Outputs</b>				
4-20 mA (750 Ohm)	no	yes	no	no
high/low flow alarm	NPN/PNP	NPN/PNP	NPN	NPN/PNP
batch end & ontrl	no	no	no	NPN/PNP
scalable pulse	NPN/PNP	NPN/PNP	no	NPN/PNP
scaled puls	NPN/PNP	NPN/PNP	NPN	NPN/PNP
<b>Installation</b>				
IP 66	yes	yes	yes	yes
cable entries	1xgland	3xM20	3xM16	3xM20
intrinsic safe (option)	yes	yes	no	no
mounting	meter mount, wall, pipe or panel mounting			
temperature range	-10..+80 °C (Option: -10..+120 °C)			

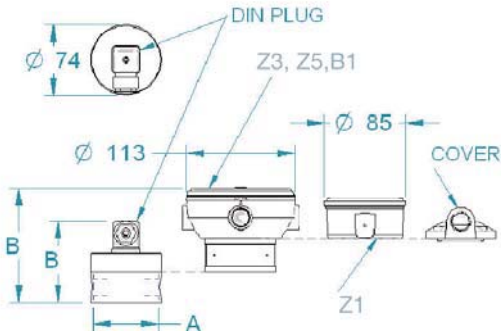
**Mechanical totaliser (...M1 and ..M3)**

The flowmeters type DOM-x20...up to DOM-x60 are available with a mechanical totaliser with either 3- or 4.digit rese- table totaliser and indication of accumulated total value. The motion of the rotors is transmitted to the mechanical register totaliser via an interfacing reduction gear train and dynamic seal assembly.

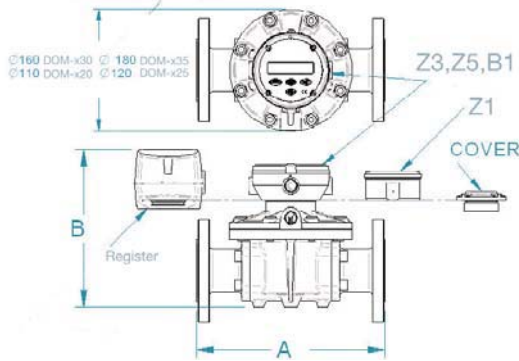


**Dimensions**

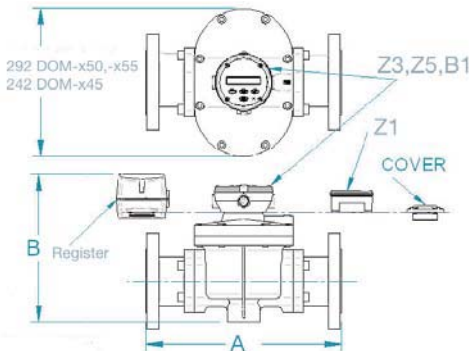
**DOM-x05 .... DOM-x15**



**DOM-x20 .... DOM-x35**



**DOM-x40 .... DOM-x60**



Type	A (mm)			B (mm)			
	G - conn.	flange conn.	DIN plug	Cover	..Z1	..Z3, Z5, B1	Mech
DOM-x05	68	---	79	92	103	112	---
DOM-x10	68	---	79	92	103	112	---
DOM-x15	68	---	86	99	110	119	---
DOM-x20	112	---	---	106	135	144	167
DOM-x25	177	243	---	117	146	155	178
DOM-x30	208	272	---	163	192	201	224
DOM-x35	212	278	---	170	199	208	231
DOM-x40	212	278	---	225	254	263	286
DOM-x45	260	354	---	213	242	251	276
DOM-x50	294	382	---	230	260	270	295
DOM-x55	294	382	---	275	304	313	338
DOM-x60	320	414	---	352	391	399	425

**Output pulse resolution**

Type	Measuring range (L/min)	pulse / litre		
		Reed switch	Hall-sensor	Quadr. Halls.
DOM-x05...	0,5-36 L/h	2890	2890	2890
DOM-x10...	2-100 L/h	2100	2100	2100
DOM-x15...	15-550 L/h	355	710	710
DOM-x20...	1-40	83	166	166
DOM-x25...	10-150	27	107	53.5
DOM-x30...	15-250	13	52.6	26.3
DOM-x35...	30-450	6.5	26	13
DOM-x40...	50-580	4.93	19.73	9.86
DOM-x45...	35-750	2.32	9.3	4.65
DOM-x50...	50-1000	1.55	6.2	3.1
DOM-x55...	75-1500	1.1	4.4	2.2
DOM-x60...	150-2500	0.56	2.24	1.12

**Accuracy and pressure drop**

