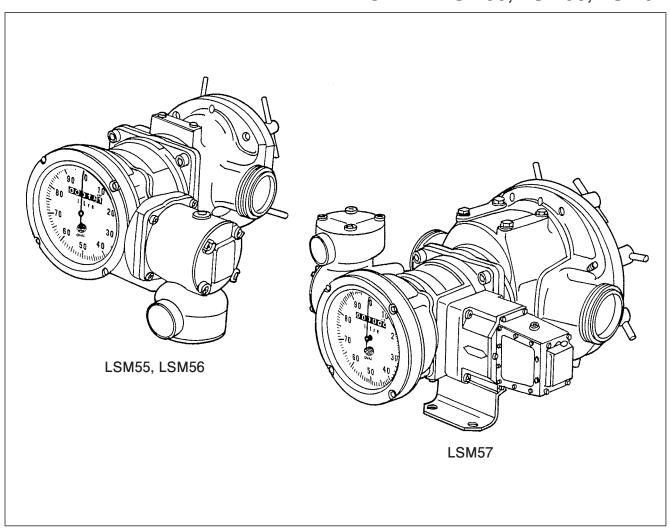


MILK METER

(OVAL flowmeters dedicated to liquefied foodstuffs)

MODEL: LSM55, LSM56, LSM57



Every OVAL flowmeter is fabricated, tested, inspected, and shipped from our factory under stringent quality control. In order to maintain its design performance throughout the life of this meter, this manual offers the operator the necessary installation, operation and maintenance information.

Be well familiar with these instructions before you place the meter in service and keep this manual at the field location for ready reference.

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The indications **NOTE**, **CAUTION**, and **WARNING** shown throughout this manual are to draw your attention to specific items:

NOTE:

Notes are separated from the general text to bring user's attention to important information.

!CAUTION:

Caution statements call attention to user about hazards or unsafe practices that could result in minor personal injury or property damage.

/ WARNING:

Warning statements call attention to user about hazards or unsafe practices that could result in serious personal injury or death.

1. GENERAL

OVAL Milk Meter has a structure in which the fluid does not remain in the measuring chamber. Together with selected material, internal construction, external finish, pipe connection, this special construction enables easy disassembly, sterilize cleaning, drying and re-assembly taking into account all essential conditions required for food hygiene management.

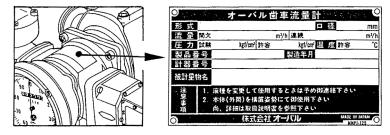
Furthermore, remote measurement systems have also been established and various measuring devices or transmitters can be mounted. As a versatile flowmeter, it is suitable for measurement of liquid foods, chemicals and pharmaceutical fluids. High reliability is ensured based on years of experience.

(FEATURES)

- 1. High measurement linearity: \pm 0.35%
- 2. Pocketless design of the measuring chamber simplifies disassembly and assembly for maximum ease of operations essential to maintaining sanitary conditions in cleaning, sterilization, drying, etc.
- 3. Capable of Clean-In-Place (CIP).
- 4. Internal design, selection of materials, exterior finish, and pipe connections conform to sanitation standards.
- 5. Direct-reading registers and remote-reading pulse generators can be mounted.

2. OPERATING CONDITIONS

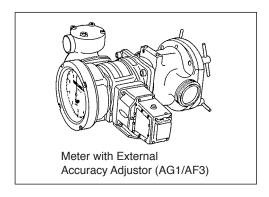
In order to maintain metering accuracy and long service life, it is essential that the operating conditions, such as flowrate, pressure, and temperature be held within the specified limits. These operating conditions can be found in the product tag and in the general specification. Do not fail to confirm these items before operation.



RELEVANT INSTRUCTION MANUALS

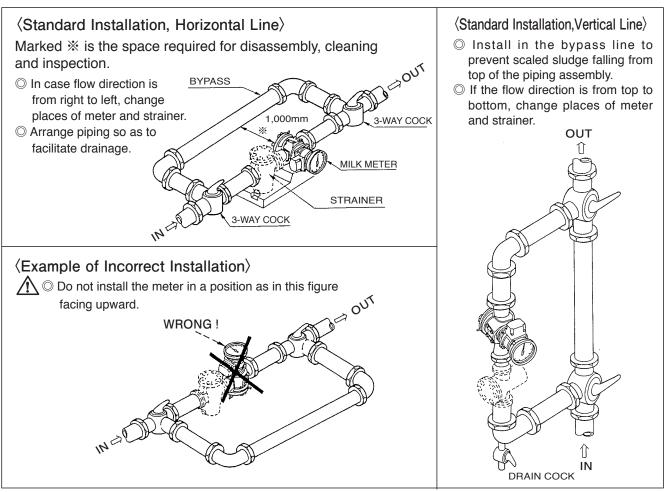
This manual (S-102-4-E) provides only information associated with the Milk Meter. For information on the subassemblies, such as pulse generators and registers, please refer to each individual instruction manuals:

- (1) Signal generators T (e.g. T-519) Instruction Manual
- (2) Registers Prefix R (e.g. R-401) Instruction Manual
- (3) Transmission Gear Box (external accuracy adjustors) ······Prefix G (e.g. G-003-AG1) Instruction Manual Transmission Gear Box (built-in accuracy adjustors) ·····Prefix G (e.g. G-003-TS) Instruction Manual



3. INSTALLATION

- 1. Avoid pipe strains when installing the meter.
- 2. The meter must be installed downstream of the pump.
- 3. In a header tank operation, head pressure greater than the pressure loss of the meter should be given.
- 4. The flow direction must conform to the arrow direction indicated on the meter body.
- 5. If the process fluid contains considerable amount of foreign matter, requiring a strainer, please install the strainer upstream and near to the flowmeter.
- Illustrated below are typical examples of meter installation.

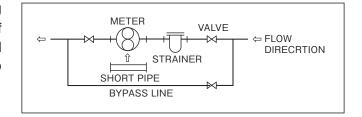


NOTE: As for outline dimensions and connecting pipe dimensions, refer to "13. OUTLINE DIMENSIONS", or to Spec & Drawings.

4. FLUSHING THE PIPING ASSEMBLY

(See diagram below.)

Do not fail to remove the meter from the piping assembly and install a short pipe in substitute of the meter. Flushing with the flowmeter installed may cause serious damage. Please make sure to have the flowmeter removed before flushing.



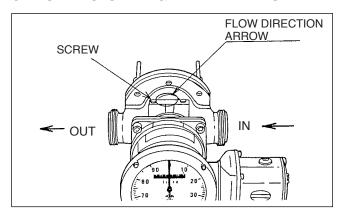
♠ Precautions for cleaning the piping assembly ♠

For flushing the internal walls of the piping assembly, never use steam or hot water exceeding 110°C. Use warm water below 110°C or sterilization solutions.

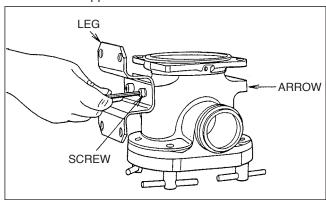
5. HOW TO CHANGE METER FLOW DIRECTIONS

■ NOTE:

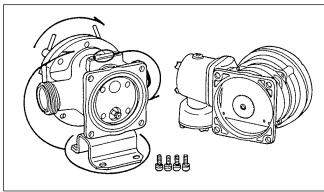
Size 56 is shown here. The same procedure applies to meters of other sizes.



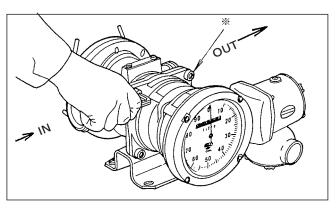
 Carefully remove the Milk Meter from the process line without detaching the transmission assembly or the register from the meter. Remove the flow direction arrow plate indicating the flow direction by unscrewing two screws.



2. Take off four (or two) screws securing the leg and remove the leg. Do not forget to note down the flow direction before this change.



Turn the meter body as shown in the figure to install the leg, arrow mark plate and blind bolts in the opposite position to those before the change.



 Remove four bolts securing the register, correctly adjust the register direction to the required flow direction, and re-install the register in place.

ACAUTION

Be careful not to bend or damage gears, shafts, etc.

CAUTION

(1) Changing Flow Rate

When changing flow rates, or when valve control is done by batch operation, do not expose the flowmeter to sudden change of flow.

Also, accuracy is not guaranteed for operation above the maximum permissible flow rate. In such case, product life may be shortened causing heat burn on the bearings or creating unwanted contact of rotors with the measurement chamber walls, etc.

(2) When temperature of measuring liquid change Do not expose the flowmeter to sudden temperature change. Keep the range of temperature change of the measuring liquid below 3°C /min. (except for CIP applicable model).

Especially during batch operation in piping that have no thermal insulation, please take extra caution when temperature of measuring liquid is different from ambient temperature.

If sudden temperature change is expected, be sure to keep the piping and flowmeter be warmed or cooled.

NOTE: CIP applicable specification can withstand sudden liquid temperature rise of up to 70°C.

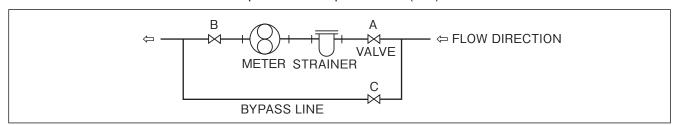
6. OPERATING INSTRUCTIONS

- 1. Before any operation, carefully read the information stated on the name plate and make sure that the operating conditions meet the specifications.
- 2. Follow the valve operation procedure given as below (refer to the piping diagram):
 - (1) Close valves (A) and (B).
 - (2) Gradually open valve (C) to allow fluid in the bypass line.
 - (3) Slightly open valves (A) and (B). If necessary, slightly close valve (C). The flowrate at this point is just as small as to only move the register pointer slightly.
 - (4) In applications where temperature exceeds 80°C , run the meter at least for 10 minutes in the condition of (3) to ensure uniform heat distribution in the measurement chamber.
 - (5) After preheating is done, gradually close valve (C) of the bypass line and gradually open valve(A). After seeing the valves (C) and (A) closed and opened respectively, gradually open valve(B) until the flow reach operating flow rate.
 - (6) Flowrate shall be regulated by valve (B) downstream of the meter and flowrate shall be held within the guaranteed range.
- 3. Strainer net shall be inspected and cleaned periodically on a regular basis. Especially on a new installation, inspection of the strainer net shall be conducted daily at first, and judging by the clogging condition, reduce the inspection cycle to once every 2~3days or longer afterwards.

How to Measure Flowrate

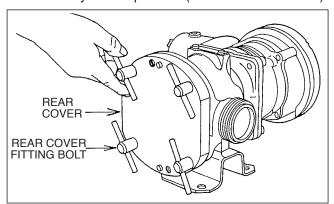
When totalizer counter is used, flowrate is determined by the formula below, using a stopwatch:

Flowrate Q (L/h) = $\frac{3600 \times \text{Total volume per one pointer revolution} = 10 \text{L or } 100 \text{L}}{\text{Time required for one pointer rev. (sec)}}$

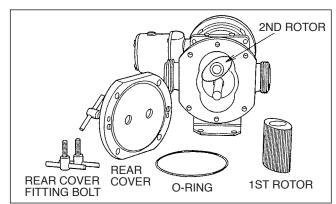


7. CLEANING THE MEASURING CHAMBER

After use, if cleaning of the measuring chamber is necessary, please take below procedures referring to section 9. "Disassembly and Inspection" (When fluid do not flow).



 Upstream and downstream valves must be completely shut off. Prepare a receptacle to receive the residual fluid when loosening the rear cover fitting bolts and allowing space between the rear cover and the meter body. When measuring chamber is emptied with residual fluid, remove the bolts and dismantle the rear cover from the meter body.



Carefully pull out the rotors for cleaning.

⚠CAUTION

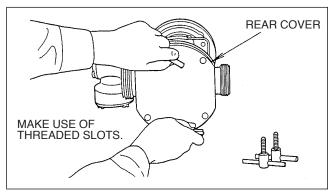
For cleaning the measuring chamber and rotors, be sure to use warm water that does not exceed 110°C or sterilization solution.

8. TROUBLESHOOTING

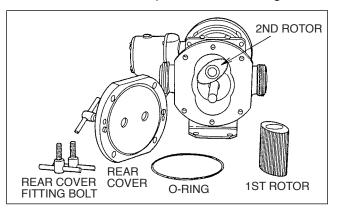
SYMPTOM	TREATMENT
Process fluid suddenly fails to flow.	Disassemble the meter body (measuring chamber) for inspection.
After the register (with cooling fin) is removed, the internal transmission gear train fails to rotate even while fluid is flowing.	Disassemble the magnetic coupling (following magnet) assembly for inspection.
The input gear in the transmission gear box will not turn or is difficult to rotate by hand.	Disassemble the register assembly and
The input shaft will turn but the pointer and the totalizer counter drum fails to move.	transmission gear box for inspection.

9. DISASSEMBLY AND INSPECTION

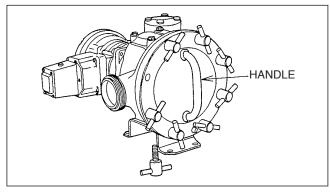
- OAlthough it depends on individual operating conditions, periodic disassembly and inspection should be performed at least once a year.
- ▶ When fluid will not flow…When foreign matters cling to the rotors and fail to rotate properly, clogging the flowmeter.



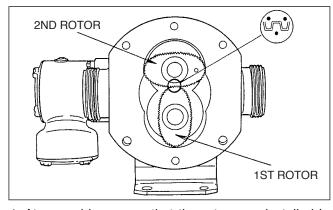
- 1. Take off the rear cover fitting bolts and remove the rear cover.
- NOTE: If you find it difficult to remove the rear cover of meter sizes 55 and 56, make use of the threaded slots provided for removing cover.



3. After the rotors are taken out, remove all foreign matters adhered to the rotor teeth and to the measuring chamber of the body.



- 2. If your meter size is 57, remove the rear cover using the handle on the rear cover.
- NOTE: If you find it difficult to remove the rear cover, make use of threaded slots provided for removing cover.



- 4. At assembly, ensure that the rotors are installed in the proper place with match marks as shown.
- NOTE: The 1st rotor has a single dot (·) and the 2nd rotor two (\cdots).

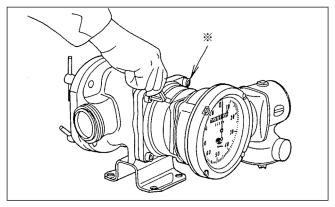
♠ Precautions when setting rotors ♠

When installing the rotors in the measuring chamber, observe the following: If the flow direction is from right to left as viewed from the register side, the first rotor (with a single punched mark ".") should come under the second rotor (with a double punched mark "··").

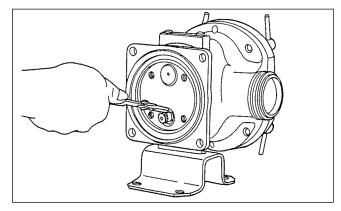
When pointer do not rotate, or when rotation is not smooth

··· A malfunction at the transmission gear box or at the accuracy adjustor.

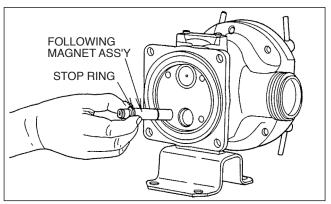
Inspection on the Following Magnet Assembly



 Take off the four bolts (marked **) holding the transmission gear box and then carefully remove the transmission gear box together with the register.

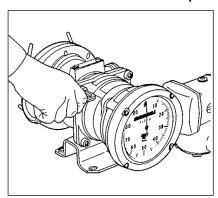


2. Remove the stop ring, using a stop ring plier.

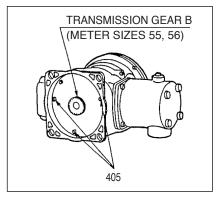


3. Pull the following magnet assembly out and inspect whether the rotation is smooth with no flaw.

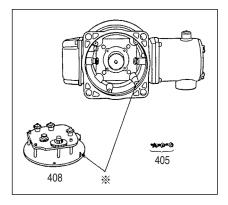
Transmission Gear Box Inspection



 Take off the four bolts (marked%) holding the transmission gear box and register with both hands, carefully remove them from the meter body.

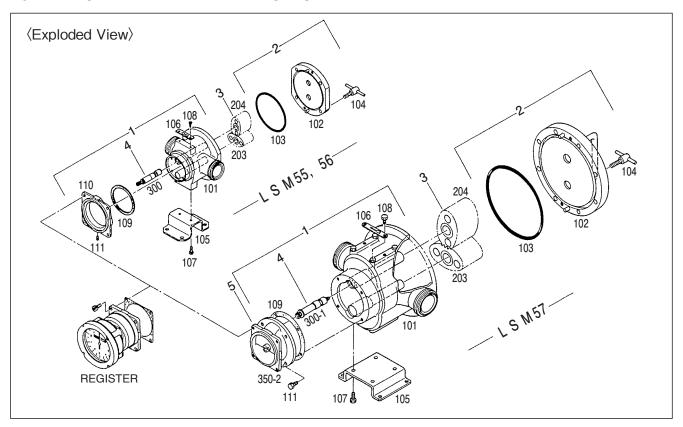


2. By hand rotating the transmission gear B (for size 55,56), inspect to see the pointer rotation is smooth or not.



3. To inspect the transmission gear box (408), unscrew the 3 set screws (405), and by holding the transmission gear B, pull out the transmission gear box. At assembly, observe the location of a dowel pin (marked*) for polarization.

10. EXPLODED VIEW AND PARTS LIST



⟨PARTS LIST⟩

1. LSM55, LSM56

Ass'y.	Sym.No.	Part Name	Q'ty	Remarks
		Basic Mete	1set	
	101	Meter Body	1	
	105	Support Leg	1	
	106	Arrow Mark plate	1	
	107	Hex Socket Head Screw, Support Leg	2	
1	108	Fitting Bolt, Arrow Mark plate	2	
	109	Gasket	1	
	110	Adaptor	1	
	111	Adaptor Fitting Screw	4	
	201	First Rotor Shaft	1	Furnished in body
	202	Second Rotor Shaft	1	"
		Rear Cover Assembly	1set	
2	102	Rear Cover	1	With locating pin
~	1 03	O-Ring	1	
	104	Fitting Bolt, Rear Cover	4	
		Rotor Assembly	1set	
	203	First Rotor	1	
3	205	Drive Magnet	1	Furnished in 1st rotor
٦	207	First Rotor Bearing	1	"
	204	Second Rotor	1	
	208	Second Rotor Bearing	1	Furnished in 2nd rotor
4	300	Following Magnet Assembly	1set	

2. LSM57

Ass'y.	Sym.No.	Part Name	Q'ty	Remarks
		Basic Mete	1set	
	101	Meter Body	1	
	105	Support Leg	1	
	106	Arrow Mark plate	1	
	107	Hex Socket Head Screw, Support Leg	4	
1	108	Fitting Bolt, Arrow Mark plate	4	
	109	Gasket	1	
	110	Adaptor	1	
	111	Adaptor Fitting Screw	4	
	201	First Rotor Shaft	1	Furnished in body
	202	Second Rotor Shaft	1	Ш
		Rear Cover Assembly	1set	
2	102	Rear Cover	1	With locating pin
-	▲ 103	O-Ring	1	
	104	Fitting Bolt, Rear Cover	8	
		Rotor Assembly	1set	
	203	First Rotor	1	
3	205	Drive Magnet	1	Furnished in 1st rotor
"	207	First Rotor Bearing	1	II
	204	Second Rotor	1	
	208	Second Rotor Bearing	1	Furnished in 2nd rotor
4	300-1	Following Magnet Assembly	1set	
5	350-2	Transmission Gear Box	1set	

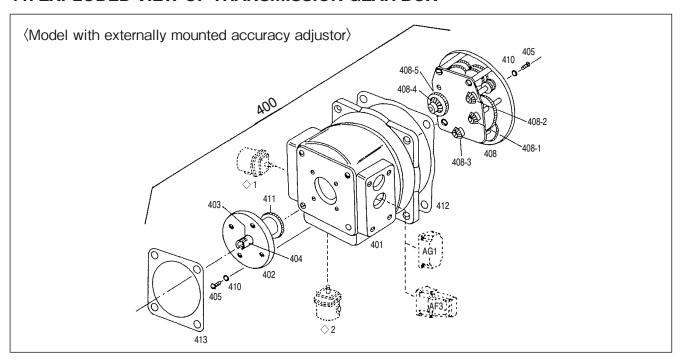
^{▲ :} Recommended spare parts

• Make sure to specify meter model, serial number (written in the name plate), instruction manual number, parts symbol number, parts name and quantity when ordering replacement parts.

Parts which are assembled as units may need to be ordered in an assembly unit.

Rotors are supplied in a set assembly: 1st rotor 203 (with 205,207) and 2nd rotor 204 (with 208).

11. EXPLODED VIEW OF TRANSMISSION GEAR BOX



SYM.No.	PART NAME	Q'TY
400	Transmission Gear Box	1set
401	Housing, Transmission Gear Box	1
402	Bearing Retainer	1
403	Output Shaft	1
404	Coupling	1
405	Plate Holder Setscrew	7
※ 408	Transmission Gear Train	1set
408-1	AG1 Input Bevel Gear	1
408-2	AG1 Output Bevel Gear	1
408-3		1
408-4		1
408-5	Output Gear	1
410	Washer	7
411	Gear, Output Shaft	1
412	Gasket A	1
413	Gasket B	1

* Type varies depending on specifications. Please confirm and advise the information engraved on the back of the plate when replacement is required.

1 : Equipped with factored pulse generator (For remote totalizer)

2 : Equipped with unfactored pulse generator (For remote indicator)

AG 1: Accuracy adjustor gear unit (No. G003 AG-1)

AF 3 : Continuous accuracy adjustor unit (No. G003 F3)

For details of each units above, please refer to respective instruction manuals.

12. LUBRICATION

CAUTION: Be sure to use the following brand or an equivalent lubricating oil shown below.

Lube Point	Fluid Tomporatura	Gears		Bearings	
Lube Point	Fluid Temperature	Spur	Bevel	Flat	Ball
Following Magnet Assembly	-10 to +110°C	G2			L3
Transmission Gear Box	-10 to +110°C	L3	G2	L3	L3

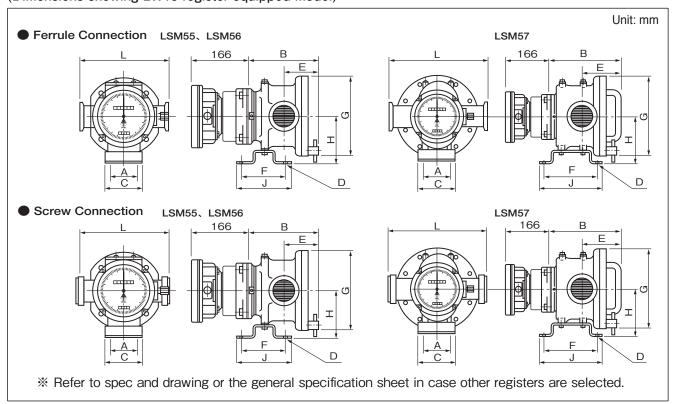
Lubrication Oil Specifications and reference brand

Symbol	Viscosity or Consistency	Pour Point or Drop Point	Reference brand
L3	36.4cSt/30℃	− 37.5°C	Launa 40 (Nippon Oil Co., Ltd.)
G2	300/25°C	300℃~	Jun BG Grease (Nihon Tokushu-koyu Co., Ltd.)

L: Lubricating oil G: Grease

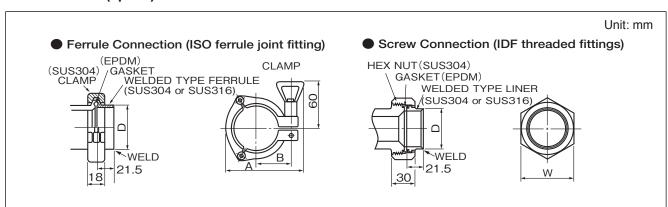
13. OUTLINE DIMENSIONS

(Dimensions showing LW15 register equipped model)



MODEL	L	В	E	Н	G	D	А	С	F	J	Weight,kg (w/LW15)
LSM55	180	140	69	105	φ 146	4- φ 12	70	100	100	130	18
LSM56	210	169	84	120	φ 176	4- φ 12	70	100	100	130	22
LSM57	300	225	124	150	φ 240	4- φ 12	70	100	165	195	43

Accessories (option)



Nominal Dimensions (ISOIDF compliant)

MODEL	Nom.Dia.	D	А	В	W
LSM55	40 (11/2")	38.1	88	37	61
LSM56	50 (2")	50.8	102	45	76
LSM57	65 (2 1/2")	63.5	116	52	91

Ite	em	Description					
Model		LSM55	LSM55 LSM56				
Applicable Fluid		Liquid-state foods (dairy prod	ucts, brewed products, oils and fats,	fresh water, soft drinks, etc.)			
Linearity			Within \pm 0.15% or \pm 0.35%				
Max. Operating	Pressure		0.98MPa				
Nominal Dia.		40mm (1 1 / 2")	50mm (2")	65mm (2 1 / 2")			
Pipe Connection	ıs	Clamp connection (standard) or screw connection [ISO (IDF) standard]					
Operating Temp	. Range	$-10 \text{ to } +60 ^{\circ}\text{C} \text{ (CIP spec. } -10 ^{\circ}\text{C to } +110 ^{\circ}\text{C})$					
Matariala	Meter Body	SCS14A (rear cover SUS316)					
Materials	Rotors		SUS316				
Painting Color		Meter body: Sanitary finish Frame: Munsell N5 Register housing: Munsell 2.5G 8/2					
Register		Direct reading totalizer (LW11) / direct reading totalizer with a zero reset counter (LW15)					
Rdg. per Output	Shaft Revolution	10L, 100L					
Options		A set of clamp fittings or a set of screw fittings					

15. FLOW RANGES

■ Linearity ±0.35% at temperatures: -10 to +60°C

Units: m3/h

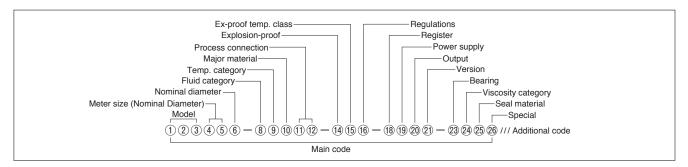
Meter	Nom.Dia.	Nom.Dia. Operating	Viscosity mPa·s				
Size (mm)		Cond.	0.8 or more and less than 2	2 or more and less than 5	5 or more and less than 2000	2000 or more and less than 4000	Water
55	40	Contin.	1 to 5	0.4 to 5	0.26 to 5	0.1 to 4.6	1 to 5
55	40	Intermit.	1 to 7	0.4 to 7	0.26 to 7	0.1 to 5.8	1 to 7
56	50	Contin.	2 to 10	0.9 to 10	0.6 to 10	0.2 to 9.2	2 to 10
36		Intermit.	2 to 14	0.9 to 14	0.6 to 14	0.2 to 11	2 to 14
F.7	65	Contin.	4 to 20	2 to 20	1.2 to 20	0.5 to 18	4 to 20
57		Intermit.	4 to 30	2 to 30	1.2 to 30	0.5 to 23	4 to 30

- Linearity \pm 0.35%: ① when CIP cleaning will be performed (temperatures: 10°C to +110°C)
 - ② when CIP cleaning will not be performed (temperatures: $+60^{\circ}$ C to $+110^{\circ}$ C)

Units: m3/h

		_				,	
Matau	Nom.Dia. (mm)	Onentina	Viscosity mPa·s				
Meter Size		Operating Cond.	0.8 or more and less than 2	2 or more and less than 5	5 or more and less than 2000	2000 or more and less than 4000	Water
55	40	Contin.	1.5 to 5	0.6 to 5	0.4 to 5	0.22 to 4.6	1.5 to 4
55		Intermit.	1.5 to 7	0.6 to 7	0.4 to 7	0.22 to 5.8	1.5 to 5
56	50	Contin.	3 to 10	1.4 to 10	0.9 to 10	0.45 to 9.2	3 to 8
50		Intermit.	3 to 14	1.4 to 14	0.9 to 14	0.45 to 11	3 to 10
57	65	Contin.	6 to 20	3 to 20	2 to 20	1.1 to 18	6 to 16
37		Intermit.	6 to 30	3 to 30	2 to 30	1.1 to 23	6 to 20

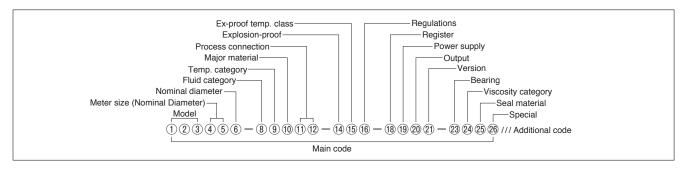
- ※ : Above 200mPa⋅S in viscosity, rotors with special cut grooves are used.
- * : In case measurement fluid viscosity falls under two adjacent viscosity ranges shown on above chart, the lower viscosity range classification will be applied.
- * : In the operating condition column, "Contin." means continuous operation; "Intermit." means operation within 8 hours a day.
- % : Please contact OVAL for flow range with higher linearity of \pm 0.15%.



Main code

	Main code											
1	② ③ Model											
L	S M Milk Meter											
4	⑤ Capacity (Nominal Diameter)											
5	5 40mm (1·1/2") ND (Large)											
5	6 50mm (2") ND (Large)											
_	7 65mm (2·1/2") ND (Large)											
5	(Special cut gears with grooves are standard)											
6												
4	Nominal diameter (Large)											
7	<u> </u>											
8	Fluid category											
L	Liquid											
9	Temp. category											
0	60℃ and lower											
Ν	Over 60°C up to 80°C											
1	Over 60°C up to 110°C											
10	Major material											
С	SCS14A (SUS316)											
Z	Special											
11)	Process connection											
Н	S ISO Ferrule											
S	S IDF Screw											
Z	9 Special											
13												
14)	Explosion-proof											
0	Non-explosionproof (no pulse generator)											
D	JIS explosionproof											
15)	Ex-proof temp. class											
0	Non-explosionproof (no pulse generator)											
4	G4 Ignitability											
16	Regulations											
0	Standard											
F	w/Material test certificate											
Z	Special											
17	_											
18	Register											
1	LW11 AG1 ± 0.5% RD											
2	LW11 AF3 ± 0.2% RD											
3	LW15 AG1 ± 0.5% RD											
4	LW15 AF3 ± 0.2% RD											

(19)	Unfactored pulse generator									
0	No pulse generator									
20	Factored pulse generator									
0	No pulse generator									
В	Factored pulse PG30EP									
С	Factored pulse PG30SEP									
K	Factored pulse PG20EP									
L	Factored pulse PG30DEP									
Z	Special									
21)	Version code									
Α	Version code : A									
22	_									
23	Bearing									
0	Standard (carbon bearing)									
24)	Viscosity category									
5	Below 200mPa.s (sintered rotors inapplicable) Cut out solid rotors									
6	200mPa.s and over (sintered rotors inapplicable) Special cut on gear (Cut out solid rotors)									
7	Below 1000mPa.s (sintered rotors inapplicable) R3 Cut out solid rotors									
8	1000mPa.s and over (sintered rotors inapplicable) R3 Special cut on gear (Cut out solid rotors)									
25	Seal material									
F	O-ring (FKM), gasket (T#1120)									
С	O-ring (IIR), gasket (T#1120)									
Т	O-ring (PTFE), gasket (V7020)									
Р	O-ring (PTFE), gasket (V7035)									
Z	Special									
26	Special specification and accessories (refer to page 11)									
0	Standard (Accessories not attached)									
1	For ISO ferrule joints (a welded type ferrule, clamp, complete set of gasket)									
2	For IDF threaded fittings (a welded type liner, hex nut, complete set of gasket)									
Z	Special									
$\overline{}$	l.									



Additional code

- Additional code													
Category of High Pressure Gas													
Н	Р	0	Other than High Pressure Gas										
Н	Р	1	Toxic gas and flammable gas										
Н	Р	2	Toxic gas										
Н	Р	3	Flammable gas										
Н	Р	P 4 Special											
A	Accuracy												
R	0	5	± 0.50% RD										
L	0	1	± 0.15% LINEARITY										
L	0	3	± 0.35% LINEARITY										
R	0	2	± 0.20% RD										
R	9	9	Special										
O	per	ati	ng condition										
F	С	0	Continuous										
F	М	0	Intermittent										
Sı	oec	ial	test (Calibration test)										
Α	2	0	Certified measurer										
А	6	0	Standard oil meter According to the JMIF standard (bore: 80 mm or more)										
Α	9	9											
	-	_	rection										
F	R	_	R→L										
F	L	-	L→R										
F	U	0	T → B : Electric conduit connection to be faced down										
F	D	0	B → T : Electric conduit connection to be faced down										
		_	paint on body										
В			Corrosion proof										
В	-		Salt proof, acid proof Only for 120°C and lower										
\vdash	Х		Customer										
			paint on transmitter										
S			Corrosion proof Special										
S	D	\vdash	Salt proof										
S	E		Acid proof Special										
S	X	-	Customer specified paint Special										
_	lea												
	W		Oil free and water free treatment										
Т	W	1	Oil free and water free treatment equivalent										
T	F		Food cleansing										
T	Α	-	Nuclear cleansing										
T	С	0											
	Name plate												
N	Р	_	Name plate (Japanese)										
Ľ	i.	<u> </u>	p.2.0 (00pa.1000)										

Do	Document											
D	S	J	Spec and drawing (Japanese)									
D	S	Ε	Spec and drawing (English)									
D	R	0	Re-submission of Spec and drawing									
D	С	J	Final drawing (Japanese)									
D	С	Ε	Final drawing (English)									
D	Р	۲	Strength calculation sheet (Japanese)									
D	Р	Ε	Strength calculation sheet (English)									
S	Ε	J	Inspection certificate (Calibration test report) (Japanese)									
S	Ε	Ε	Inspection certificate (Calibration test report) (English)									
S	Т	J	Pressure test report (Japanese)									
S	Т	Ε	Pressure test report (English)									
S	Α	J	Airtight test report (Japanese)									
S	Α	Ε	Airtight test report (English)									
D	D	J	Dimensional check record (Japanese)									
D	D	Ε	Dimensional check record (English)									
S	Р	J	Penetrant test report (Japanese) Welded section of pressure vessel									
S	Р	Ε	Penetrant test report (English) Welded section of pressure vessel									
S	М	J	Magnetic particle inspection (Japanese) Welded section of pressure vessel									
S	М	Ε	Magnetic particle inspection (English) Welded section of pressure vessel									
S	R	J										
S	R	Ε	Radiographic inspection (English) Welded section of pressure vessel									
S	U	J	Ultrasonic inspection (Japanese) Welded section of pressure vessel									
S	U	Ε	Ultrasonic inspection (English) Welded section of pressure vessel									
S	Х	J	PMI test report (Japanese)									
S	Х	Ε	PMI test report (English)									
S	S	J	Impact test report (Japanese)									
S	S	Ε	Impact test report (English)									
D	Υ	J	WPS/PQR (Japanese)									
D	Υ	Ε	WPS/PQR (English)									
D	9	J	Photo (Japanese)									
D	9	Е	Photo (English)									
D	Т	J	Inspection procedure (Japanese)									
D	Т	Ε	Inspection procedure (English)									
С	Α	J	Traceability certificate: A set Only Japanese									
С	В	J	Traceability certificate: B set Only Japanese									
С	С	J	Traceability certificate: C set Only Japanese									
С	D	J	Traceability certificate: D set Only Japanese									
W	Witness test by customer											
٧	1	0	Required									

N P E Name plate (English)

《EXPLANATION OF THE OLD PRODUCT CODE》

Product code has been renewed on April 2017.

Old product code will not be updated after April 2017.

Please consult OVAL if you need to maintain using old product code due type approval.

ITENA		CODE													DECORPTION.	
ITEM	1	2	3	4	(5)	6	7	_	8	9	10	_	11)	12	DESCRIPTION	
Model	L	S	М												Milk Meter	
	5 5														Nominal dia. 40mm (1½″)	
Meter S	Size	ize 5 6													Nominal dia. 50mm (2")	
				5	7										Nominal dia. 65mm (2½″)	
Wetted	Wetted Parts Material C														SCS14A (SUS316)	
Connoc	0														Clamp (ferrule) connection (standard)	
Connec	Connection Style 5 — 5														Screw connection	
	1 1														Direct-reading totalizer counter (LW11)	
Registe	Register Assembly 1 5									5					Direct-reading totalizer counter with reset pointer and counter (LW15)	
											1	-			AG1	
Accura	21.6	۸ ماند ۱	otor		ماند	aa f	in				2	-			Accuracy adjustor AF3 provided (Linearity: ± 0.15%)	
Accura	Jy I	Auju	Stor	, 00	JOIII	ıg ı	Ш				5	_			AG1+Cooling fin (See NOTE)	
											6	_			Cooling fin + Accuracy adjustor AF3 provided	
													0	0	Pulse generator not provided (Register: LW11,LW15)	
	0												0	5	PG30EP Exprosionproof,noncontact pulse	
Pulse G	Pulse Generator												0	7	PG30SEP Exprosionproof,noncontact pulse	
													0	В	PG20EP Exprosionproof,contact-closure pulse	
	0 D												0	PG30DEP Exprosionproof, contact-closure pulse (24V,2-wire)		

NOTE: In applications where a meter provided with pulse generator PG30 or PG30S is used at process fluid temperature above 80°C, a cooling fin is installed between the flowmeter body and the register to protect the pulse generator against heat.

All specifications are subject to change without notice for improvement.

2025.02 Revised 2019.04 Revised △ 1997.07 Released S-102-7-E (2)



OVAL Corporation