

Balcrank[®]

MR In-Line Meters & Control Handles



Model 3330-188 shown. See
page 3 for a full list of available
models

Thoroughly read and understand this manual before
installing, operating or servicing this equipment.

Operation, Installation,
Maintenance and Repair Guide

GENERAL SAFETY



IMPORTANT

Read these safety warnings and instructions in this manual completely, before installation and start up of the control handle. It is the responsibility

of the purchaser to retain this manual for reference. Failure to comply with the recommendations stated in this manual will damage the control handle and void factory warranty.



CAUTION

- 1) Always read and follow the fluid manufacturers's recommendations regarding the use of protective eye wear, clothing, gloves, and other personal equipment.
- 2) Never alter or modify any parts of this product; doing so may cause damage and/or personal injury.



WARNING

DANGER: Not for use with fluids that have a flash point below 100°F (38°C, examples: gasoline, alcohol). Sparking could result in an explosion which could result in death.



WARNING

Always use the following

Pressure Relief Procedure whenever shutting off, cleaning, or in any way checking or servicing the control handle:

- 1) Disconnect compressed air line or turn off power supply at the fluid pump.
- 2) Point the control handle outlet into a waste container and open trigger to relieve pressure.
- 3) Open any bleed-type supply air valves and fluid drain valves in the system.
- 4) Leave the drain valves open until you are ready to re-pressurize the system.



WARNING

Do not place your hand or fingers over the dispensing nozzle and/or aim the nozzle at a person at any time. Personal injury may result.



CALIFORNIA PROPOSITION 65

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling



WARNING

Airborne particles and loud noise hazards.

Wear ear and eye protection.



CAUTION

Maximum Fluid Pressure 1450 PSI (100 bar). Under no circumstances should the control handle be aimed at any person or your own body at anytime. Personal injury may result.

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PRODUCT DESCRIPTION

The MR Control Handle is designed specifically to dispense conventional and synthetic motor oils, mineral oils, automatic transmission fluid, antifreeze (Glycol) and antifreeze/water solution. The rugged polycarbonate based internal register and the single molded pointer guarantee maximum integrity of the meter against drops and impacts. A one piece molded register housing provides extra protection against humidity, making the MR control handle ideal for outdoor use. The trigger allows for progressive opening of the valve for better control of fluid delivery and incorporates a trigger lock to prevent accidental opening. The valve can also be locked in the open position by means of the trigger lock button. The MR's reset mechanism incorporates a safety clutch for integrity in case of wrong reset turn action. Depending upon the model selected, the MR Control Handle is available with a variety of extensions and tips, has models for dispensing in either quarts (totalize in gallons) or liters (totalize in liters) and the dial register can meter from 1 to 16 quarts or 1 to 10 liters. Inventory control is easily maintained with the non-resettable totalizing register. The MR is also available as an in-line meter, with the same features as the meter on the control handle.

MODELS AVAILABLE

Quarts Register (Gallons Totalizer)

Model	Description	Unit of measure
3330-185	MR Control Handle w/rigid extension & automatic tip	Quarts
3330-186	MR Control Handle w/flex 90 extension & automatic tip	Quarts
3330-187	MR Control Handle w/flex extension & automatic tip	Quarts
3330-188	MR Control Handle w/flex-memory extension & automatic tip	Quarts
3330-189	MR Control Handle w/rigid extension & 1/4 turn manual tip (Oil)	Quarts
3330-190	MR Control Handle w/flex 90 extension & 1/4 turn manual tip (Oil)	Quarts
3330-191	MR Control Handle w/flex extension & 1/4 turn manual tip (Oil)	Quarts
3330-192	MR Control Handle w/flex-memory extension & 1/4 turn manual tip (Oil)	Quarts
3330-194	MR Control Handle w/flex 90 extension & 1/4 turn manual tip (ATF)	Quarts
3330-196	MR Control Handle w/flex-memory extension & 1/4 turn manual tip (ATF)	Quarts

Liters Register (Liters Totalizer)

Model	Description	Unit of measure
3330-173	MR Control Handle w/rigid extension & automatic tip	Liters
3330-174	MR Control Handle w/flex 90 extension & automatic tip	Liters
3330-175	MR Control Handle w/flex extension & automatic tip	Liters
3330-176	MR Control Handle w/flex-memory extension & automatic tip	Liters
3330-177	MR Control Handle w/rigid extension & 1/4 turn manual tip (Oil)	Liters
3330-178	MR Control Handle w/flex 90 extension & 1/4 turn manual tip (Oil)	Liters
3330-179	MR Control Handle w/flex extension & 1/4 turn manual tip (Oil)	Liters
3330-180	MR Control Handle w/flex-memory extension & 1/4 turn manual tip (Oil)	Liters
3330-182	MR Control Handle w/flex 90 extension & 1/4 turn manual tip (ATF)	Liters
3330-184	MR Control Handle w/flex-memory extension & 1/4 turn manual tip (ATF)	Liters

In-Line Meters

Model	Description	Inlet / Outlet	Unit of measure
3120-121	MR In-Line Meter (Liters Totalizer)	1/2" NPT (F)*	Liters
3120-122	MR In-Line Meter (Gallons Totalizer)	1/2" NPT (F)*	Quarts

*Inlet and outlet have 90 degree orientation (see page 11)

TECHNICAL SPECIFICATIONS

Accuracy **	+/- 0.65%
Flow range*	0.26-8 Gal/min. (1-30 l/min.)
Max working pressure	1450 psi (100 bar)
Fluid viscosity range	50 - 50000 cSt
Weight	3.75 lbs (1.7 kg)
Inlet	1/2" NPT(F)
Outlet	1/2" NPT compatible
Operating temp. range	14°F - 140°F (-10°C - 60°C)
Totalizing register	5 digits (99,999 gallons)
Fluid compatibility	Oils (up to SAE 140), ATF, Anti-freeze (Glycol), Antifreeze/water solution
Wetted Parts	Aluminum, stainless steel, zinc alloy, NBR, zinc plated steel, brass

* Tested with SAE 30 oil. Minimum-maximum flow rates will vary with fluid viscosity.

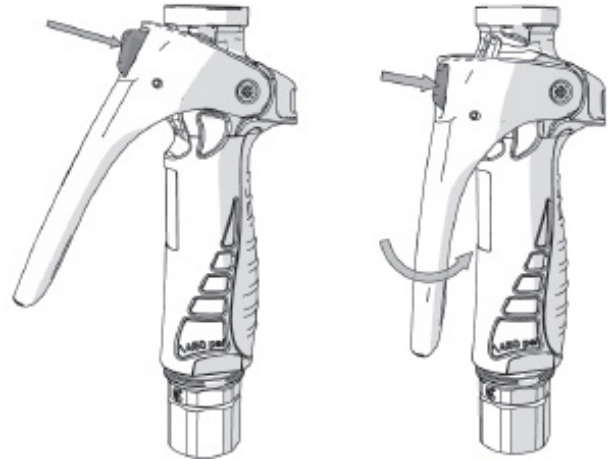
**Working with high or low viscosity fluids, as well high or very low rate (less than 98 gpm) may be less accuracy.



CAUTION

Do not leave the control handle unattended if using the trigger lock feature when dispensing, doing so could result in accidental overfill.

Fig. 1



INSTALLATION



NOTE

Use Teflon® tape (or suitable thread sealant) when installing the extension and when connecting the control handle to the supply line.

Ensure all screws on the control handle are tight. Install the extension on the outlet of the meter (use Teflon® tape or suitable thread sealant). Connect the inlet swivel to the supply line (use Teflon® tape or suitable thread sealant).

OPERATION

If needed, reset the batch total to zero by turning the pointer knob to zero in the direction indicated by the arrows on dial (counter-clockwise). If the knob cannot be turned easily, do not force it, inspect the meter looking for anomalies. To dispense fluid, press the locking button (Fig. 1) and squeeze the trigger handle (the locking button can be pressed again after fully squeezing the trigger to lock the valve open). Release the trigger when the pointer reaches the desired amount.

NOTE: If the valve is locked open using the trigger lock, pull in on the trigger, this will release the locking button and allow the valve to close.

Fig. 2



Totalizer

After delivery, reset the batch total to zero by turning the pointer knob to zero in the direction indicated by the arrows on dial (counter-clockwise).

TOTALIZER

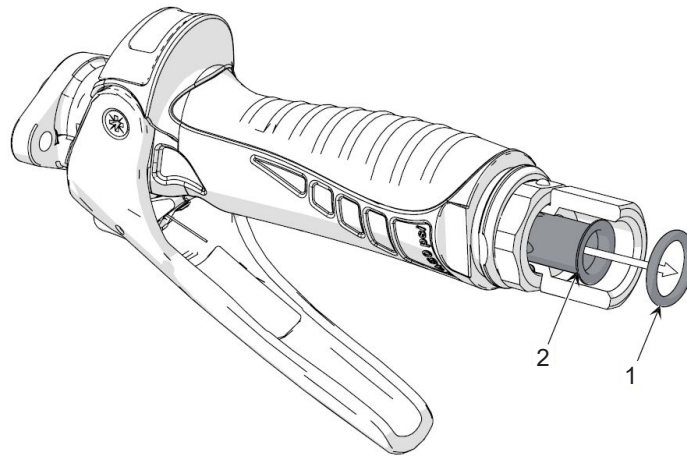
Depending upon the model selected, the totalizer registers in either gallons or liters (Fig. 2).

MAINTENANCE

The control handle remains pressurized until pressure is manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the dispenser or splashing fluid, always follow the "Pressure Relief Procedure" on page 2 of this service bulletin before performing any cleaning or maintenance.

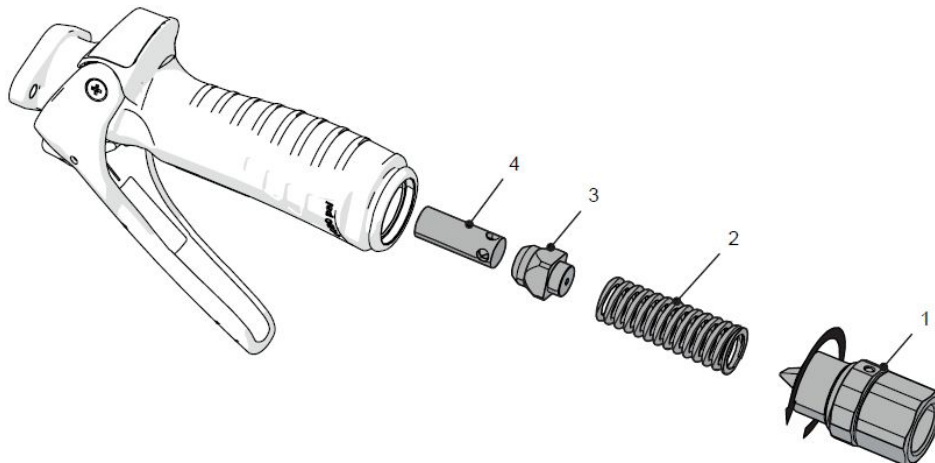
CLEANING / REPLACING THE FILTER SCREEN

1. Remove the o-ring (1) fixing the filter screen (2) and then remove the filter screen.
2. Inspect the filter and clean or replace it as necessary.
3. Replace the filter screen with the o-ring, install the swivel cover (optional), and re-connect the hose.



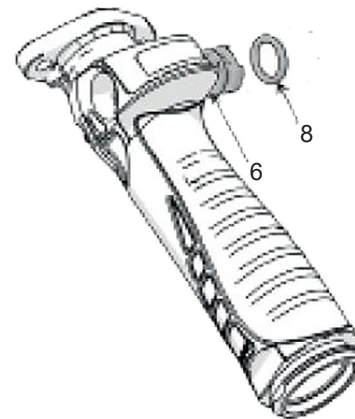
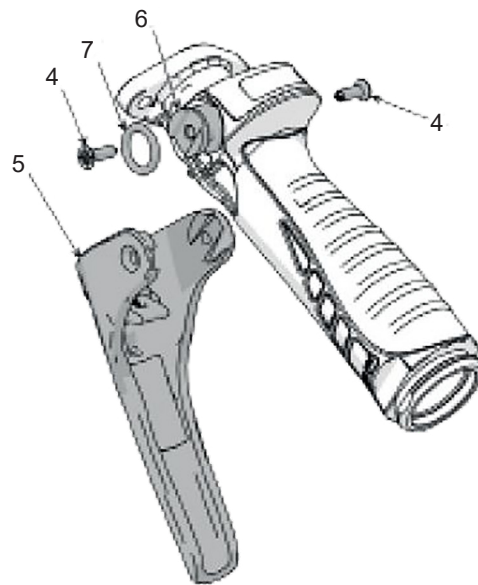
REPLACING THE VALVE ASSEMBLY

1. Loosen and remove the swivel (1), then remove the spring (2), the valve (3) and the rod (4).
2. Reassemble in reverse order.



REPLACING THE CAM O-RINGS

1. Disassemble the valve as described In REPLACING THE VALVE ASSEMBLY on page 5.
2. Remove the #2 phillips screws (4) from the cam (6) and remove the trigger (5).
3. To avoid damaging the o-rings, push the cam (6) out on one side until only the o-ring (7) of that side is exposed.
4. Remove, replace, and lubricate the the o-ring (7). Carefully push the cam (6) through to the other side just until the o-ring (8) is exposed, remove, replace, and lubricate the o-ring (8), then carefully push the cam (6) back into its original position.
5. Re-install the trigger and screws.
6. Re-install the valve assembly.



CAUTION

Do not remove cam completely. The o-rings must be changed one at a time by pushing the cam to one side, replace and lubricate the o-ring then push through the handle to the other side and repeat the operation. If you remove the cam completely, when reinstalled, the o-ring that was installed first will be cut.

TROUBLESHOOTING

Symptom	Possible Cause	Remedy
The meter is inaccurate	The meter is working outside its field of application (see technical specifications).	Restore the working conditions (flow, viscosity, temperature...) to those required by the meter
	Debris in the fluid chamber	Clean the fluid chamber
	Worn or damaged gears	Replace the meter
No flow	Filter / strainer clogged	Clean or replace the filter / strainer
	Debris in the fluid chamber / jammed gears	Clean the fluid chamber
Reduced flow	Filter / strainer clogged	Clean or replace the filter / strainer
Valve leaks	Valve seal worn or damaged	Dissassemble the valve for inspection. If not damaged, clean and re-seat valve. If damaged, replace the valve
	Foreign material on valve seat	
Leak at trigger cam	O-ring worn or damaged	Replace the O-ring
Leak at swivel	Swivel is loose	Tighten swivel assembly
	Swivel O-ring worn or damaged	Replace the O-ring

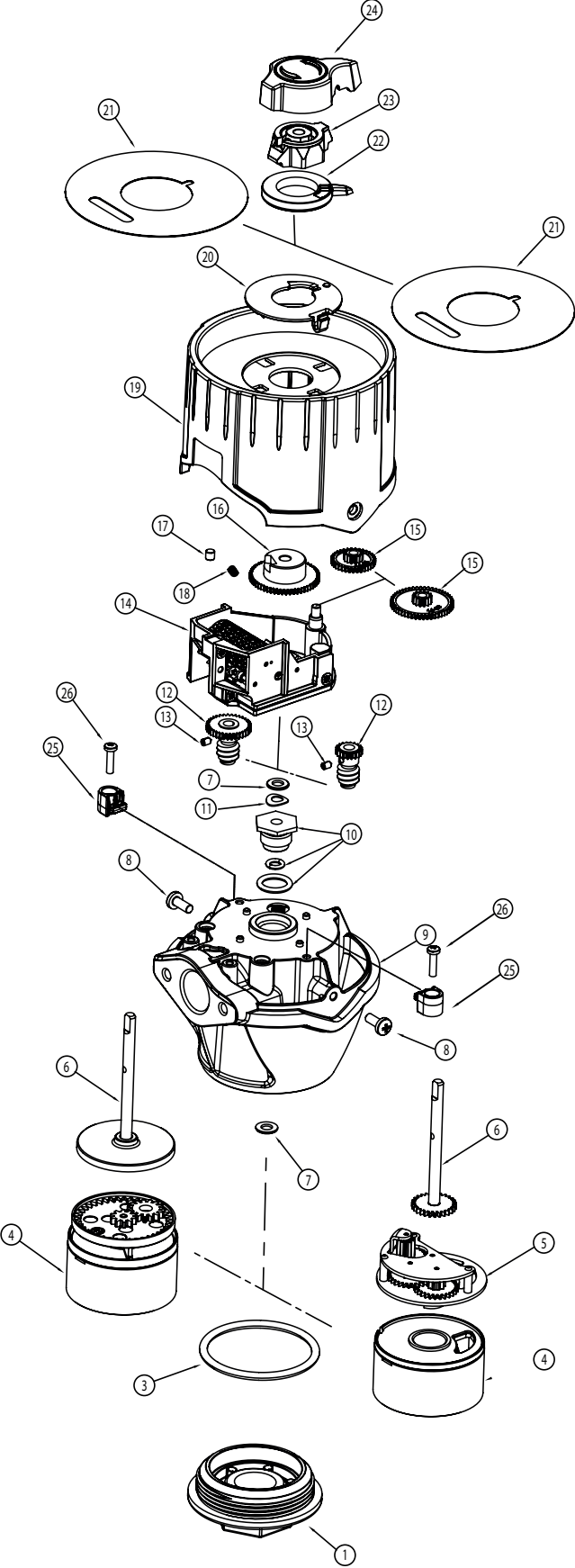
PARTS LIST (Meter)

Type of service		Lubricants				Antifreeze			
Dial		1-10 Liters		4-16 Quarts		1-10 Liters		4-16 Quarts	
Totalizer		Liters		Gallons		Liters		Gallons	
Item	Description	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty
1	Housing Cap	-	1	-	1	-	1	-	1
2	NOT USED	-	N/A	-	N/A	-	N/A	-	N/A
3	O-Ring	-	1	-	1	-	1	-	1
4	Metering Chamber Assembly	833392	1	833391	1	833740	1	833768	1
5	Gear Train Assembly		1		-		1		-
6	Register Spindle		1		1		1		1
7	Spacer	833389 or 833392	2	833388 or 833391	2	833389 or 833392	2	833388 or 833391	2
8	Set Screw, Register Housing	833387	2	833386	2	833387	2	833386	2
9	Meter Housing	-	1	-	1	-	1	-	1
10	Packing Gland Kit	833393	1	833393	1	833393	1	833393	1
11	Spring Washer	833389	1	833388	1	833389	1	833388	1
12	Worm, Gears & Pinions		1		1		1		1
13	Set Screw, Worm		1		1		1		1
14	Totalizer Assembly	833390	1	833390	1	833390	1	833390	1
15	Intermediate Gear	833389	1	833388	1	833389	1	833388	1
16	Gear, Inner Pointer Drive		1		1		1		1
17	Clutch Roller		1		1		1		1
18	Spring, Clutch Roller		1		1		1		1
19	Register Housing	833387	1	833386	1	833741	1	833742	1
20	Dial, Zero Position		1		1		1		1
21	Dial		1		1		1		1
22	Pointer, Inner Dial	833389	1	833388	1	833389	1	833388	1
23	Reset Mechanism, Clutch	833385	1	833385	1	833385	1	833385	1
24	Pointer Knob		1		1		1		1
25	Pin, Totalizer Assembly	833390	2	833390	2	833390	2	833390	2
26	Set Screw, Totalizer Assembly		2		2		2		2

PARTS KITS

Part #	Description	Included Items
833385	KIT, KNOB, MR METER	23,24
833386	KIT, SHROUD, MR METER, QUARTS	8,19,20,21
833387	KIT, SHROUD, MR METER, LITERS	8,19,20,21
833388	KIT, GEAR & INNER DIAL, MR METER, QUARTS	7,11,12,13,15,16,17,18,22
833389	KIT, GEAR & INNER DIAL, MR METER, LITERS	7,11,12,13,15,16,17,18,22
833390	KIT, TOTALIZER, MR METER	14,25,26
833391	KIT, METERING CHAMBER, MR METER, QUARTS	4,6,7
833392	KIT, METERING CHAMBER, MR METER, LITERS	4,5,6,7
833393	KIT, PACKING GLAND, HOUSING, MR METER	10
833740	KIT, METERING CHAMBER, MR METER, LITERS, ANTI-FREEZE	4,5,6,7
833741	KIT, SHROUD, MR METER, LITERS, ANTI-FREEZE	8,19,20,21
833768	KIT, METERING CHAMBER, MR METER, QUARTS, ANTI-FREEZE	4,6,7
833742	KIT, SHROUD, MR METER, QUARTS, ANTI-FREEZE	8,19,20,21

PARTS DIAGRAM (Meter)

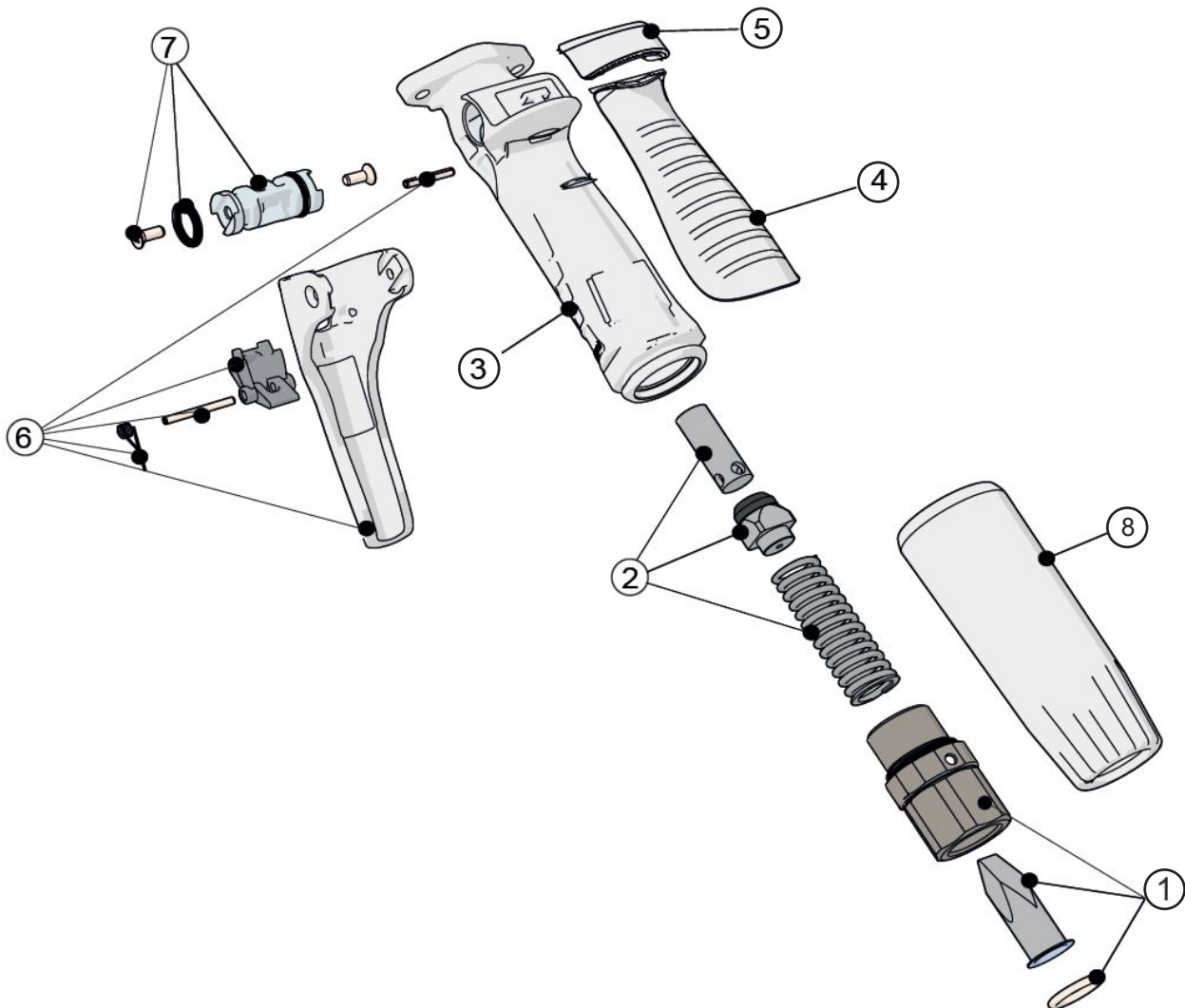


PARTS LIST (Control Handle)

Item	Part No.	Description	Qty.
1	833306	O-ring	1
		Strainer	1
		Swivel	1
2	833308	Spring	1
		Valve	1
		Rod	1
3	-	Body	1
4	-	Grip	1
5	-	Cover	1

Item	Part No.	Description	Qty.
6	833307	Pin 3 x 20	1
		Lock / unlock button	1
		Trigger spring	1
		Pin 3 x 30	1
		Trigger	1
		Self tapping screw	1
7	833309	Cam	1
		Outlet flange O-ring (for meter assembly)	1
		O-ring	2
		Self tapping screw	2
8	833354	Swivel cover	1

PARTS DIAGRAM (Control Handle)

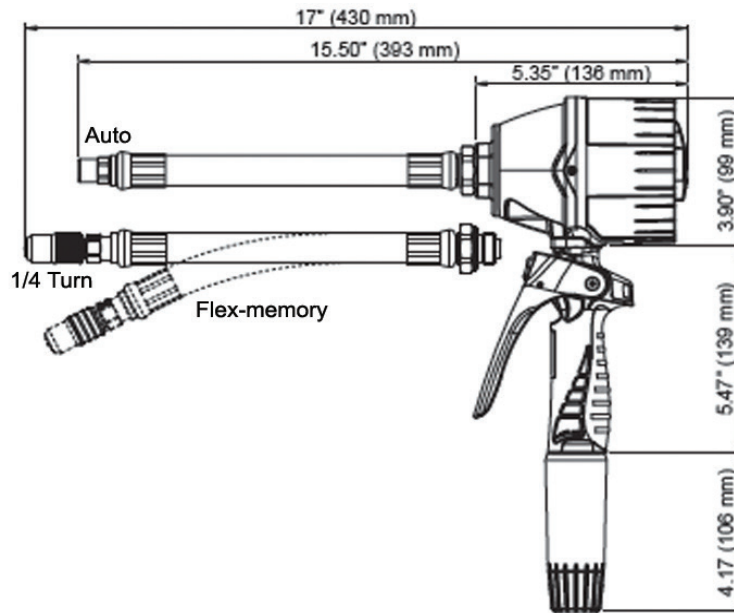


EXTENSIONS/TIPS

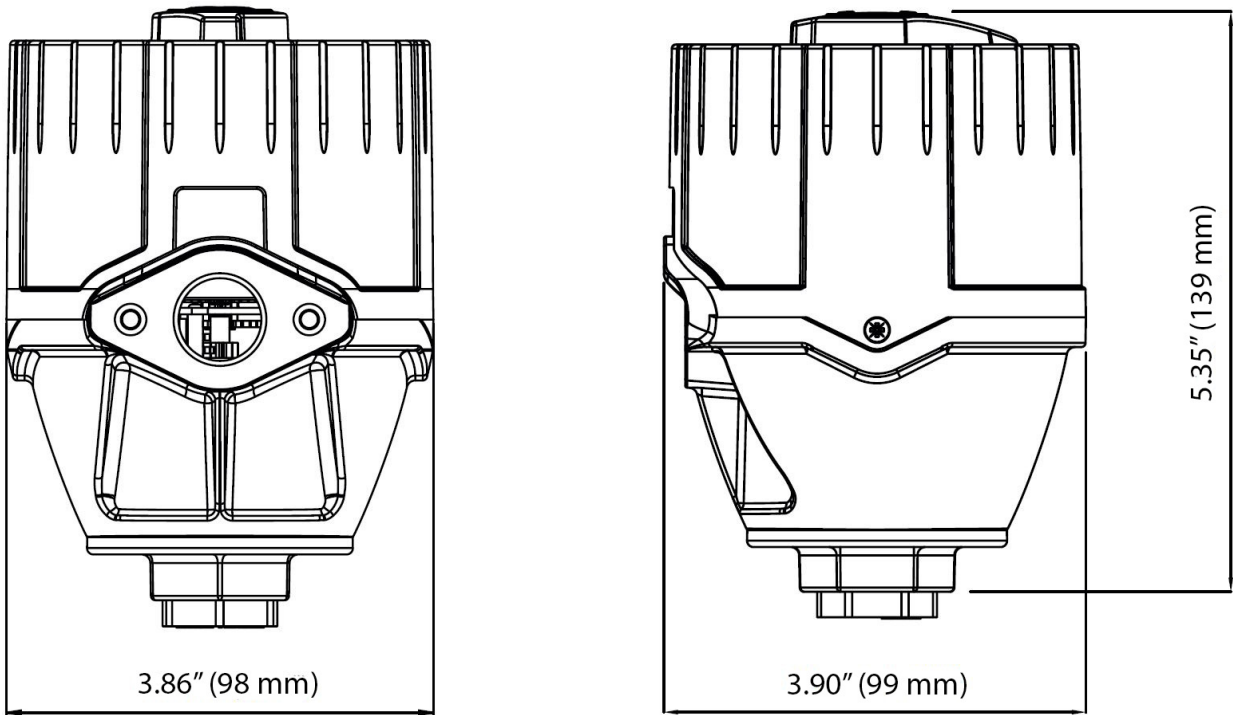
Control Handle Model	Extension - Tip Type	Extension Part No.*	Nozzle/Tip Part No.
3330-185 / 3330-173	Rigid - automatic	3332-098	3332-097
3330-186 / 3330-174	Flex 90 - automatic	3332-094	
3330-187 / 3330-175	Flex - automatic	3332-095	
3330-188 / 3330-176	Flex-memory - automatic	3332-099	
3330-189 / 3330-177	Rigid - 1/4 turn manual (Oil)	3332-091	3332-096
3330-190 / 3330-178	Flex 90 - 1/4 turn manual (Oil)	3332-092	
3330-191 / 3330-179	Flex - 1/4 turn manual (Oil)	3332-100	
3330-192 / 3330-180	Flex-memory - 1/4 turn manual (Oil)	3332-093	
3330-194 / 3330-182	Flex 90 - 1/4 turn manual (ATF)	3332-102	3332-105
3330-196 / 3330-184	Flex-memory - 1/4 turn manual (ATF)	3332-104	

*All extension models include the tip

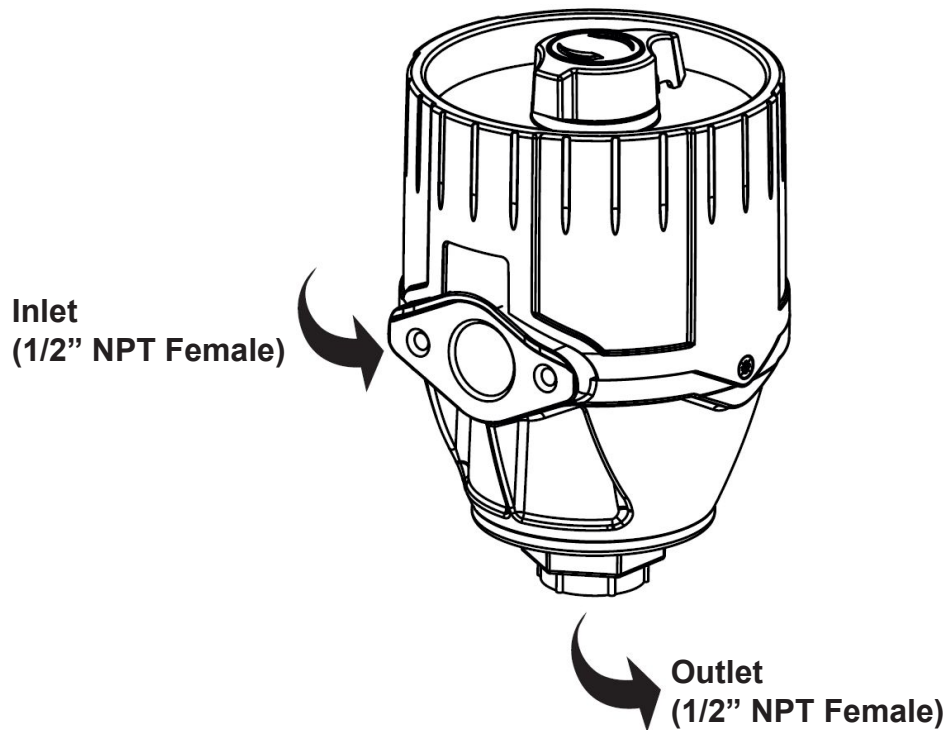
DIMENSIONS



IN-LINE METER DIMENSIONS



IN-LINE METER INLET / OUTLET



**For Warranty Information Visit
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Revision Log:

Rev. A - Release
Rev. B - Added meter repair parts (page 7)
Rev. C - Added in-line meter models
Rev. D - Added in-line meter models
Rev. E - Added Calif. Prop 65 statement, removed models
from pg. 3 & 10, added kits