

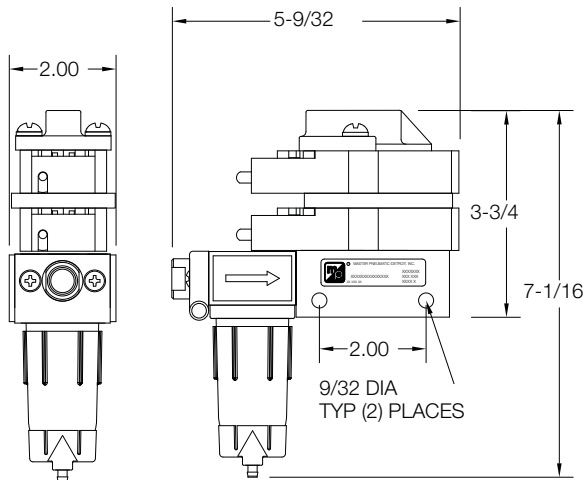
# SERVO-METER Controller

# PC100 Models Port Sizes: 1/4



Model Shown: PC100-2

The **PC100** controller has been designed to supply a consistent and accurate way of lubrication. This is done by providing an actuation every 1, 5, 10, 25, 50 or 100 pulses supplied off the inlet air. The inlet air must also be in the form of an on-off signal as would be received from downstream of an operating valve. This controller allows the pulse of air to be actuated at as little as 100 times in inlet air signal and is most often used to control lubrication in M/P's Serv-Oil systems.



## ORDERING INFORMATION

Change the letters in the sample model number below to specify the filter/regulator you want.

### PC100-2 W

#### PORT TYPE

- 1/4 NPTF ..... Leave Blank
- 1/4 BSPP ..... W

# SERVO-METER Controller

# PC110 Models Port Sizes: 1/4

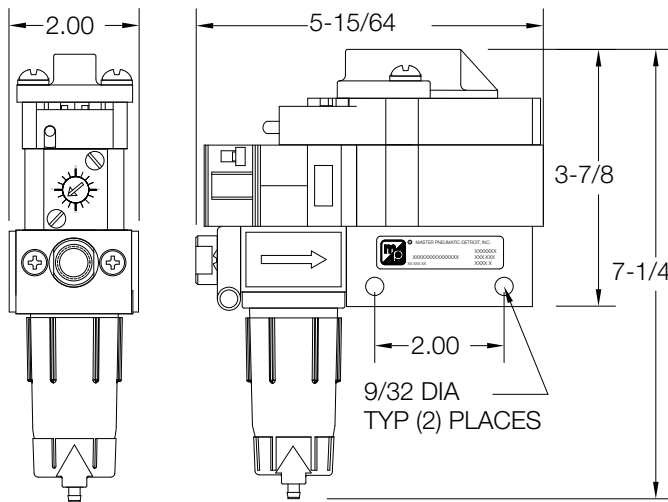


Model Shown: PC110-2

The **PC110** frequency controller has been designed for anyone that has a **constant inlet air supply** and needs an actuation every 1, 5 or 10 pulses of air (The pulse of air can be adjusted from 1 to 300 seconds.)

The **PC110** frequency controller is designed to take a constant air delivery and change it into a controllable pulse of air that will actuate attached counter and provide a range of air impulses from once a second to once every three hundred seconds or five minutes for consistent pulse. First, the frequency generator is adjusted clockwise with a stop watch. The sensitivity is most accurate between 1 to 60 seconds, according to M/P Engineering tests. The pneumatic counter is factory set at five but adjustable by forcing the pointer with a screwdriver into the alternate positions of one and ten. Multiply the frequency generator times (1, 5 or 10) the counter settings to get the range of air pulses. Counter settings: **1=1-30 seconds, 5=5-150 seconds, and 10=10-300 seconds.**

The frequency controller is supplied standard with one pneumatic counter, frequency generator and **FC10** coalescent filter to provide 0.3 micron air supply. A five micron air supply (*available with the standard Master pneumatic filters should provide to assure long life and cartridge in the coalescent filter.*)



## ORDERING INFORMATION

Change the letters in the sample model number below to specify the filter/regulator you want.

## PC110-2 W

### PORT TYPE

- 1/4 NPTF ..... Leave Blank
- 1/4 BSPP ..... W

# SERV-OIL Reservoirs Sight Dome

# M481R, 482R Models Port Sizes: 1/4



Model Shown: 482R

Servo-Meters can be supplied with oil by pressure systems (**up to 30 psig**) or gravity systems, although gravity systems are generally preferred. Remote reservoirs should be connected to the bottom port of the **SERV-OIL** equipment with a minimum 5/16" I.D. line.

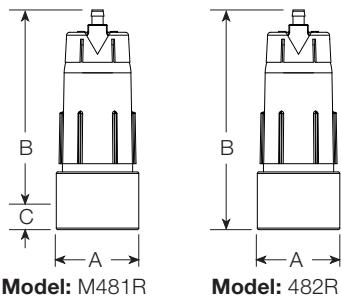
Stand-pipes should be installed from the top of the equipment and extend above the reservoir for gravity systems to prevent airlock of the Servo-Meters.

Sight domes are available to vent air from the system, and to confirm visually the presence of oil. Pressure-fill systems should be vented, or use low velocity recirculation of the oil supply.

For a detail explanation on operation and use, see pages 232 and 233.

### NOTE

For most applications Master Pneumatic recommends a light spindle oil that is not chemically aggressive. (150-1200 ssu viscosity).



Model: M481R

Model: 482R

### DIMENSIONS inches (mm)

Bowl	Port Location	A	B	C	Depth	Weight lb (kg)
M481R	1/4 (side)	1.6 (41)	3.9 (99)	0.4 (9.5)	1.6 (41)	0.33 (0.15)
482R	1/4 (Bottom)	1.6 (41)	4.3 (109)	---	1.6 (41)	0.33 (0.15)

### ORDERING INFORMATION

Change the letters in the sample model number below to specify the filter/regulator you want.

**M481R W**

#### PORT LOCATION AND SIZE

1/4-NPTF inlet/outlet ports size location ..... M481R  
 1/4-NPTF Port location bottom ..... 482R

#### PORT TYPE

1/4 NPTF ..... Leave Blank  
 1/4 BSPP ..... W

# SERV-OIL Reservoirs

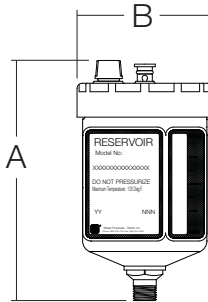
## Transparent container

# M476R Models

## Port Sizes: 1/4



Model Shown: M476R



Servo-Meters can be supplied with oil by pressure systems (**up to 30 psig**) or gravity systems, although gravity systems are generally preferred. Remote reservoirs should be connected to the bottom port of the **SERV-OIL** equipment with a minimum 5/16" I.D. line.

Stand-pipes should be installed from the top of the equipment and extend above the reservoir for gravity systems to prevent airlock of the Servo-Meters.

Sight domes are available to vent air from the system, and to confirm visually the presence of oil. Pressure-fill systems should be vented, or use low velocity recirculation of the oil supply.

### NOTE

For most applications Master Pneumatic recommends a light spindle oil that is not chemically aggressive. (150-1200 ssu viscosity).

### RESERVOIR DIMENSIONS

Part No.	Capacity	Dimensions inches (mm)		
		A	B	Depth
M476R	10 ounces	5.4 (137)	3.3 (84)	3.3 (84)
M476RP	10 ounces	5.0 (127)	3.3 (84)	3.3 (84)

### ORDERING INFORMATION

Change the letters in the sample model number below to specify the reservoir you want.

**M476R E W**

#### BOWL TYPE

- Polycarbonate 10 oz (0.3 l) bowl (**Standard**) ..... M476R (7970 drops) with manual vent and fill plug.
- Nylon Bowl 10 oz (0.3 l) bowl with manual vent and ..... M476RN fill plug.
- Polypropylene bowl, no fill plug, automatic vent ..... M476RP

#### PORT TYPE

- 1/4 NPTF ..... Leave Blank
- 1/4 BSPT ..... W

#### OPTIONS (More than one option can be chosen. Add in alphabetical order.)

- None ..... Leave Blank
- EPR O-rings ..... E
- Q-Cap ..... Q  
(Cannot be ordered with option 'P' under BOWL TYPE section)
- No label ..... U
- Viton O-rings ..... V

† One drop = 1/30 cc. Capacity in drops is at 90% of full capacity.

# SERV-OIL Reservoirs

## Transparent container

# M570R Models

## Port Sizes: 1/4



Model Shown: M570-6R

Model Shown: M570-12R

Servo-Meters can be supplied with oil by pressure systems (**up to 30 psig**) or gravity systems, although gravity systems are generally preferred. Remote reservoirs should be connected to the bottom port of the **SERV-OIL** equipment with a minimum 5/16" I.D. line.

Stand-pipes should be installed from the top of the equipment and extend above the reservoir for gravity systems to prevent airlock of the Servo-Meters.

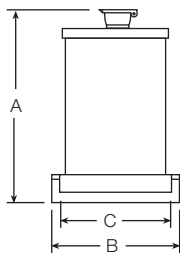
Sight domes are available to vent air from the system, and to confirm visually the presence of oil. Pressure-fill systems should be vented, or use low velocity recirculation of the oil supply.

M570R transparent reservoirs are available in, 1-quart (960-ml), and 2-quart (1920-ml) capacities.

**Level Switches.** When the reservoir is located where the oil level cannot easily be determined visually, electrical oil level switches can be used. Both low-level and high-level switches are available. The switches can be connected to a remote electrical control for automatic filling.

**NOTE**

For most applications Master Pneumatic recommends a light spindle oil that is not chemically aggressive. (150-1200 ssu viscosity).



### RESERVOIR DIMENSIONS

Part No.	Capacity	Dimensions inches (mm)			
		A	B	C	Depth
M570-6R	1 quart	7.6 (193)	5.4 (137)	4.6 (117)	4.8 (122)
M570-12R	2 quarts	13.6 (345)	5.4 (137)	4.6 (117)	4.8 (122)

### ORDERING INFORMATION

Change the letters in the sample model number below to specify the reservoir you want.

M570 - 6 R GG W

**RESERVOIR SIZE**

- 1 quart (960-ml), 25,400 drops ..... 6
- 2 quart (1920-ml), 50,800 drops .... 12

† One drop = 1/30 cc. Capacity in drops is at 90% of full capacity.

**PORT TYPE**

- 1/4 NPTF ..... Leave Blank
- 1/4 BSPP ..... W

**OPTIONS**

- None ..... Leave blank
- Low level switch ..... G
- High and low level switch ..... GG

# SERV-OIL Reservoirs

## Metal container

# 473R, 477R, 479R Models

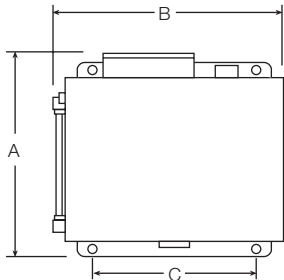
## Port Sizes: 3/4



Model Shown: M473R

Servo-Meters can be supplied with oil by pressure systems (**up to 30 psig**) or gravity systems, although gravity systems are generally preferred. Remote reservoirs should be connected to the bottom port of the **SERV-OIL** equipment with a minimum 5/16" I.D. line.

Stand-pipes should be installed from the top of the equipment and extend above the reservoir for gravity systems to prevent airlock of the Servo-Meters.



Sight domes are available to vent air from the system, and to confirm visually the presence of oil. Pressure-fill systems should be vented, or use low velocity recirculation of the oil supply.

Metal reservoirs in 1-gallon (3.8-liter), 5-gallon (18.9-liter), and 10-gallon (38-liter) capacities. Metal reservoirs have an internal oil filter, sight tube, and filter breather fill cap. All reservoirs have quick-fill fittings.

**Level Switches.** When the reservoir is located where the oil level cannot easily be determined visually, electrical oil level switches can be used. Both low-level and high-level switches are available except for 10-ounce reservoirs. The switches can be connected to a remote electrical control for automatic filling.

### NOTE

For most applications Master Pneumatic recommends a light spindle oil that is not chemically aggressive. (150-1200 ssu viscosity).

### RESERVOIR DIMENSIONS

Part No.	Capacity	Dimensions inches (mm)			
		A	B	C	Depth
473R	1 gallon (3.8 l)	9.9 (251)	10.9 (276)	8.0 (203)	6.1 (154)
477R	5 gallons (18.9 l)	17.9 (455)	14.9 (378)	12.0 (305)	6.1 (154)
479R	10 gallons (38-l)	25 (635)	16.9 (429)	13.5 (343)	7.1 (180)

### ORDERING INFORMATION

Change the letters in the sample model number below to specify the reservoir you want.

**47 3 R G W**

#### RESERVOIR SIZE

- 1 gallon (3.8 l), 102,000 drops .....3
- 5 gallons (19 l), 508,000 drops .....7
- 10 gallons (38 l), 1,020,000 drops .....9

† One drop = 1/30 cc. Capacity in drops is at 90% of full capacity.

#### PORT TYPE

- 3/4 NPTF ..... Leave Blank
- 3/4 BSPP ..... W

#### OPTIONS

- None ..... Leave blank
- Low level switch ..... G
- High and low level switch ..... GG

# SERV-OIL SPL Tool and Downstream Single Point Lubricator

# Used with A600, A640, D600, & D640

To realize the maximum benefits of the Single Point Lubricator (SPL), an internal oil capillary tube must be connected to the outlet of the SPL and terminate with a check valve to insure a solid column of oil.



**Model Shown:** Located on page 337

(See **TUBING** section for the available part numbers)

The capillary tubing is sold by the meter with **(A00942M)** and without oil **(00942M)**. It is to be attached to a Single Point Lubricator on one end and have the **420-160** Check Valve installed on the other end. This tubing is to be installed inside the hose or pipe connecting the **SPL** to the pneumatic device being lubricated.



**Model Shown:** 456-148

(The check valves shown are not supplied with this part)

The **456-148** tool is to be used with the **456-147M** Pliers for installing the **420-160** Check Valve on the oil capillary tubing. It is also used to hold the brass barb (remove from the outlet of the Single Point Lubricator) to attach the oil capillary tubing, for ease of installation in the **SPL**.



**Model Shown:** 456-147M

The bent-nose pliers shown **(456-147M)** are specially designed for attaching the oil capillary tubing to the brass barb in the outlet port of the Single Point Lubricator and the Check Valve that needs to be installed on the end of the oil capillary tubing. They have a slot milled into the jaws to hold the tubing without crushing it.

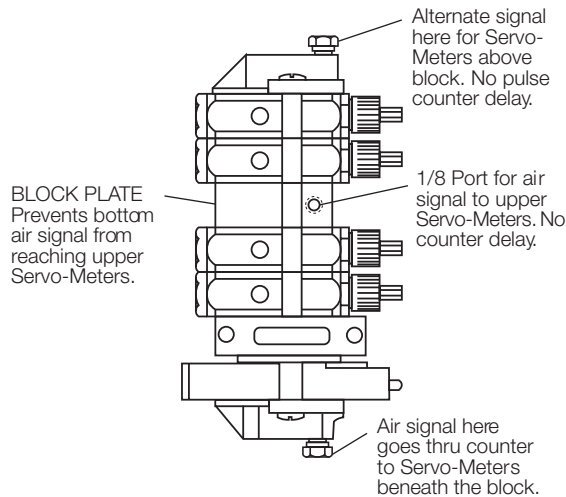


**Model Shown:** 420-160

The **420-160** Check Valves are to be installed on the end of the oil filled capillary tube. This holds the oil in the tubing until the Single Point Lubricator is operated, dispensing a precise amount of fluid in to the airstream near the inlet of the pneumatic device to be lubricated.

# SERV-OIL Accessories

**BLOCK PLATE.** Used between Servo-Meters in a stack to block air signals. Different actuating air signals can then be used for the two groups of Servo-Meters separated by the block plate. The oil supply, however, is not blocked by the plate.



Block Plate Kit with **NPT** threads .....K474-07T  
Includes all necessary seals and assembly hardware. For **BSP** threads add suffix W to part number.

**CHECK VALVES.** Used at lubrication point to keep air out of oil lines. **NPT** threads, Nitrile seals. For **BSP** threads add suffix W to the part number; for Viton seals add suffix letter V. Both straight check valves and right-angle elbow valves are available.

Part No.	Type	Inlet	Outlet
A01242	Elbow	1/8 Female	1/8 Male
A01242L *	Elbow	1/8 Female	1/8 Male
A01244	Elbow	1/8 Female	1/4 Male
A01242S	Straight	1/8 Female	1/8 Male
A01242SL *	Straight	1/8 Female	1/8 Male
A01244S	Straight	1/8 Female	1/4 Male
A01284S	Straight	1/4 Female	1/4 Male
A01284SL *	Straight	1/4 Female	1/4 Male

\* = Lower cracking pressure.



**Type:** Straight  
**Model Shown:** A01242S



**Type:** Elbow  
**Model Shown:** A01242

**PULSE COUNTER KIT for MPLs.** A pulse counter can be set to actuate Servo-Meters on every operating cycle, every 5th cycle, or every 10th cycle. Counter Kit KA418-04M includes a counter, and all necessary seals and hardware for mounting.

# Used with MPLs

## CONNECTORS for TUBING

Connector Part No.	Description	Usage
00142W	1/8" NPT x 1/8"	Nylon or Copper Oil Delivery Lines
00182W	1/8" NPT x 1/4"	Nylon or Copper Oil Delivery Lines
001124W	1/4" NPT x 3/8"	Nylon or Copper Air Signal or Oil Delivery Lines
02942M	Double Barbed Connector for Splicing 1/8" Tubing	Oil Delivery Lines

Note: Tube fittings are not available with **BSP** threading

**TUBING.** Tubing lengths should be specified as shown below:

Tubing Part No.	Description	Usage
<b>NON-FILLED TUBING</b>		
00942M-*	1/8" O.D. Nylon	Oil Delivery Lines
B00942M-@	1/8" O.D. Nylon	Oil Delivery Lines
B00942F-#	1/8" O.D. Nylon	Oil Delivery Lines
00984M	1/4" O.D. Nylon	Air Signal Lines
<b>PRE-FILLED TUBING</b> (tubing is filled and capped)		
A00942M-@	1/8" O.D. Nylon,	Oil Delivery Lines
A00942F-#	1/8" O.D. Nylon,	Oil Delivery Lines

\* = 1 inch of tubing. Ex: -12 = 12 inches.

@ = 1 meter of tubing. Ex: -12 = 12 meters

# = 1 Foot of tubing. Ex: -12 = 12 feet.

**CHECK VALVE FOR TUBING** (Check valve is necessary for proper function): 420-160

## REPLACEMENT KITS for SERV-OIL.

Seals for the air end are Nitrile; seals for the oil end are available in three different materials: Nitrile, Viton, or Ethylpropylene. For satisfactory service it is recommended that replacement kits can be installed on both the air end and the oil end.

Servo-Meter	Buna-N Seals for Air End	Buna-N† Seals for Oil End
1/2 Drop, Non-shutoff	KA457-37M-5	KA457-12-5I
1/2 Drop, Shutoff	KA457-38M-5	KA457-12-5I
1 Drop, Non-shutoff	KA457-37M-1	KA457-12-1I
1 Drop, Shutoff	KA457-38M-1	KA457-12-1I
2 Drops, Non-shutoff	KA457-37M-2	KA457-12-2I
2 Drops, Shutoff	KA457-38M-2	KA457-12-2I

† For Oil End Seals only: Add suffix V for Viton seals. Add suffix E for EPR seals.



# **Dascool 2357 COOLANT CONCENTRATE** for **SCORPION SYSTEMS**

**DasCool 2357** is a semi-synthetic, water-soluble coolant concentrate specially formulated for **Scorpion** systems. It has effective pressure- and friction-reducing properties for the optimum balance of cooling and lubrication. It also provides rust protection and reduces tool wear by reducing friction and temperature. These same features also increase machining accuracy by reducing thermal expansion of tool and workpiece.

**DasCool 2357** can be used with all types of metals, but is especially effective with aluminum alloys. It is available in one-gallon and five-gallon containers, and is very economical because of the precision delivery of **Scorpion** systems.

There is no chlorine, phosphorus, active sulphur, silicones, phenols, or nitrates in **DasCool 2357**. Highly concentrated **DasCool 2357** must be diluted with water before use. Recommended dilutions for various machining operations are shown below.

<b>Machining Operation</b>	<b>Parts of Water to One Part of DasCool 2357</b>
----------------------------	---

Boring, Drilling, Sawing, Reaming, .....	20-30
Milling, Planing, Gear Cutting	
Threading, Broaching .....	10-20
Grinding .....	30-60
Metalfforming .....	0-5

Order **DasCool 2357** by the following part numbers:

1 Gallon .....	PC-1GAL
5 Gallon .....	PC-5GAL

An 8-ounce sample is included with each **Scorpion** unit.

**Model Shown:** PC-1GAL



**Model Shown:** PC-8oz



**Model Shown:** PC-5GAL

# SERVO-METERS

## Add-on injectors / replacement kits



Model: 70001104B (Bolts and washers not shown)



Model: 70001104A (Bolts and washers not shown)



Model: 70G01104A (Bolts and washers not shown)



456-138



456-139



456-140

Fittings above are shown attached to housings that have the M5 x 0.8-6h tapped hole on side on unit.



Model: 70E01104B (Bolts and washers not shown)



Standard end cap



Solid end cap



Micro Dial

### SERVO-METER KITS FOR SERV-OIL MULTIPLE-POINT INJECTION LUBRICATORS.

Series 710 and 720

**70 0 01 10 4 B - A W**

#### EXTRA PORTING and MICRO DIAL OPTIONS

- Standard Servo-Meter no options ..... 0
- M5 x 0.8H tapped air hole on breather end of ..... D housing **456-138** brass plug and **SOLID** washers.
- M5 x 0.8H tapped air hole on breather end of ..... E housing **456-139** 90 degree fitting and **SOLID** washers.
- M5 x 0.8H tapped air hole on breather end of ..... F housing **456-140** Straight fitting and **SOLID** washers.
- Micro Dial ..... G
- M5 x 0.8H tapped air hole on breather end of ..... H housing **456-139** 90 degree fitting and **SOLID** washers. Micro Dial.

#### SERVO-METER RATING

- Half drop ..... 05
- Full drop ..... 10
- Two drops ..... 20

#### SERVO-METER HOUSING MATERIAL

- Brass housing..... B
- Aluminum housing ..... A
- Nickle plated housing ..... N

#### PORT TYPE

- NPTF ..... Leave Blank
- BSPF ..... W

#### OPTIONS (More than one option can be chosen. Add in alphabetical order)

- None (remove dash) ..... Leave Blank
- Servo-meter shutoff ..... A
- Non-shutoff ..... Leave Blank
- Oil end seals (**EPR**) ..... E
- Oil end seals (**Neoprene**) ..... N
- Oil end seals (**Viton**) ..... V
- Oil end seals (**Buna N standard**) .... Leave Blank

# SERVO-METERS

## Add-on injectors / replacement kits

### SERVO-METER KITS FOR SERV-OIL ELECTRONICALLY CONTROLLED MULTIPLE-POINT INJECTION LUBRICATORS.

Series 7A0

**70 0 01 10 4 B - W**

**EXTRA PORTING and MICRO DIAL OPTIONS**

Standard Servo-Meter no options ..... 0  
 Micro Dial ..... G

**SERVO-METER RATING**

Half drop ..... 05  
 Full drop ..... 10  
 Two drops ..... 20

**SERVO-METER HOUSING MATERIAL**

Brass housing.....B  
 Aluminum housing ..... A  
 Nickle plated housing ..... N

**PORT TYPE**

NPTF ..... Remove '-'  
 BSPP ..... W

### SERVO-METER KITS FOR AUTOMATION PACS

Series 730

**70 0 01 10 4 B - A W**

**EXTRA PORTING and MICRO DIAL OPTIONS**

Standard Servo-Meter no options ..... 0  
 M5 x 0.8H tapped air hole on breather end of ..... D housing **456-138** brass plug and **SOLID** washers.  
 M5 x 0.8H tapped air hole on breather end of ..... E housing **456-139** 90 degree fitting and **SOLID** washers.  
 M5 x 0.8H tapped air hole on breather end of ..... F housing **456-140** Straight fitting and **SOLID** washers.  
 Micro Dial ..... G  
 M5 x 0.8H tapped air hole on breather end of ..... H housing **456-139** 90 degree fitting and **SOLID** washers. Micro Dial.

**SERVO-METER RATING**

Half drop ..... 05  
 Full drop ..... 10  
 Two drops ..... 20

**SERVO-METER HOUSING MATERIAL**

Brass housing.....B  
 Aluminum housing ..... A  
 Nickle plated housing ..... N

**PORT TYPE**

NPTF ..... Leave Blank  
 BSPP ..... W

**OPTIONS** (*More than one option can be chosen. Add in alphabetical order*)

None (*remove dash*) ..... Leave Blank  
 Servo-meter shutoff ..... A  
 Non-shutoff ..... Leave Blank  
 Oil end seals (**EPR**) ..... E  
 Oil end seals (**Neoprene**) ..... N  
 Oil end seals (**Viton**) ..... V  
 Oil end seals (**Buna N standard**) ....Leave Blank

# SERVO-METERS

## Add-on injectors / replacement kits

### SERVO-METER KITS FOR LIQUID DISPENSERS

Series 740 and 770

**70 0 01 10 4 B - A L V W**

**EXTRA PORTING and MICRO DIAL OPTIONS**

- Standard Servo-Meter no options ..... 0
- M5 x 0.8H tapped air hole on breather end of ..... D housing **456-138** brass plug and **SOLID** washers.
- M5 x 0.8H tapped air hole on breather end of ..... E housing **456-139** 90 degree fitting and **SOLID** washers.
- M5 x 0.8H tapped air hole on breather end of ..... F housing **456-140** Straight fitting and **SOLID** washers.
- Micro Dial ..... G
- M5 x 0.8H tapped air hole on breather end of ..... H housing **456-139** 90 degree fitting and **SOLID** washers. Micro Dial.

**SERVO-METER RATING**

- Half drop ..... 05
- Full drop ..... 10
- Two drops ..... 20

**SERVO-METER HOUSING MATERIAL**

- Brass housing..... B
- Aluminum housing ..... A
- Nickle plated housing ..... N

**PORT TYPE**

- NPTF ..... Leave Blank
- BSPP ..... W

**OPTIONS**

- Oil end seals (**EPR**) ..... Leave Blank  
*(Add E using other OPTION)*
- Oil end seals (**Viton**) ..... V

**OPTIONS** *(More than one option can be chosen. Add in alphabetical order)*

- None *(remove dash)* ..... Leave Blank
- Servo-meter shutoff ..... A
- Non-shutoff ..... Leave Blank
- Oil end seals (**EPR**) ..... E

### SERVO-METER KITS FOR JETMASTER LIQUID DISPENSERS

Series 750 and 760

**70 0 01 10 5 B - E S V**

**EXTRA PORTING and MICRO DIAL OPTIONS**

- Standard Servo-Meter no options ..... 0
- M5 x 0.8H tapped air hole on breather end of ..... D housing **456-138** brass plug and **SOLID** washers.
- M5 x 0.8H tapped air hole on breather end of ..... E housing **456-139** 90 degree fitting and **SOLID** washers.
- M5 x 0.8H tapped air hole on breather end of ..... F housing **456-140** Straight fitting and **SOLID** washers.
- Micro Dial ..... G
- M5 x 0.8H tapped air hole on breather end of ..... H housing **456-139** 90 degree fitting and **SOLID** washers. Micro Dial.

**SERVO-METER RATING**

- Half drop ..... 05
- Full drop ..... 10
- Two drops ..... 20

**OPTIONS**

- Oil end seals (**EPR**) ..... Leave Blank  
*(Add E using other OPTION)*
- Oil end seals (**Viton**) ..... V

**OPTIONS** *(More than one option can be chosen. Add in alphabetical order)*

- None *(remove dash)* ..... Leave Blank
- Servo-meter shutoff ..... A
- Non-shutoff ..... Leave Blank
- Oil end seals (**EPR**) ..... E

**SERVO-METER HOUSING MATERIAL**

- Brass housing..... B
- Aluminum housing ..... A
- Nickle plated housing ..... N