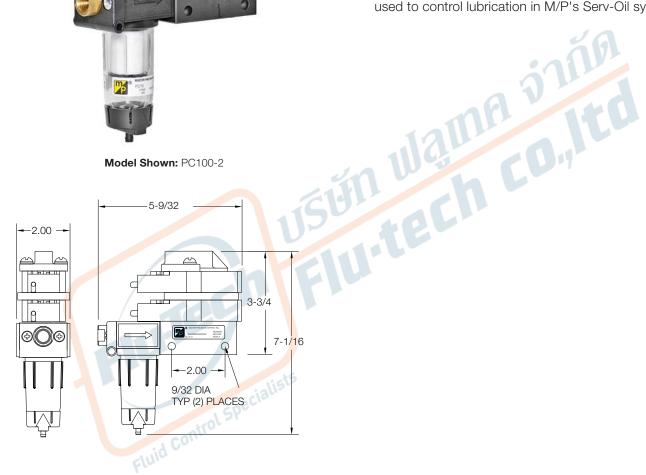
SERVO-METER

Controller

PC100 Models Port Sizes: 1/4

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.

Model Shown: PC100-2



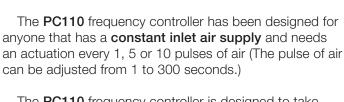
ORDERING INFORMATION

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

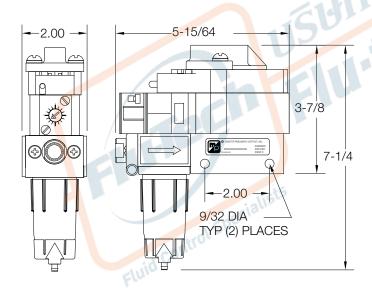
Port Sizes: 1/4

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.



Model Shown: PC110-2



ORDERING INFORMATION

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





SERV-OIL Reservoirs Sight Dome



Model Shown: 482R

M481R, 482R Models Port Sizes: 1/4

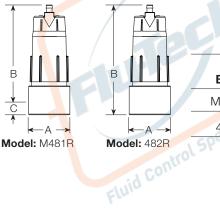
Servo-Meters can be supplied with oil by pressure systems (up to 30 psig) or gravity systems, although gravity systems are generally preferred. Remote reservoirs should be connected to the bottom port of the SERV-OIL equipment with a minimum 5/16" I.D. line.

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 explaination on operation and use, see pages 232 and 233.

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



3 11 11	Bowl	
	M481R	<u> </u>
—A →	482R	1.

DIMENSIONS inches (mm)

Bowl	Port Location	Α	В	С	Depth	Weight Ib (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.

PORT TYPE

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

1/4 NPTF Leave Blank 1/4 BSPP W



PORT LOCATION AND SIZE .

SERV-OIL Reservoirs

Transparent container



Model Shown: M476R

M476R Models Port Sizes: 1/4

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

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

ORDERING INFORMATION

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

SKN

Change the letters in the sample model num		
M476R		
BOWL TYPE		
Polycarbonate 10 oz (0.3 l) bowl (Standard)		
(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		

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

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 labelU

Viton O-ringsV



SERV-OIL ReservoirsTransparent container



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.

M570R Models Port Sizes: 1/4

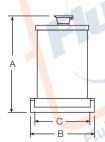
Sight domes are available to vent air from the system, and to confirm visually the presence of oil. Pressure-fill systems should be vented, or use low velocity recirculation of the oil supply.

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).

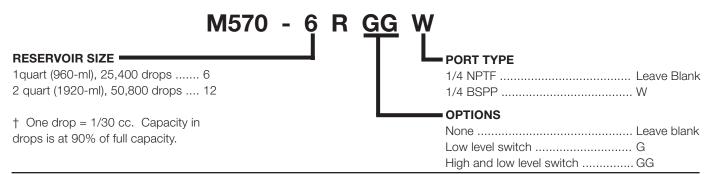


RESERVOIR DIMENSIONS

	lists		Dimensions	inches (mm)	
Part No.	Capacity	Α	В	С	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.





845/3-4 หมู่ 3 ก.เทพารักษ์ ต.เทพารักษ์ อ.เมือง จ.สมุทรปราการ 10270

SERV-OIL Reservoirs Metal container



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.

473R, 477R, 479R ModelsPort Sizes: 3/4

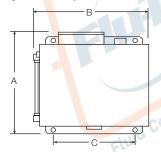
Sight domes are available to vent air from the system, and to confirm visually the presence of oil. Pressure-fill systems should be vented, or use low velocity recirculation of the oil supply.

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).

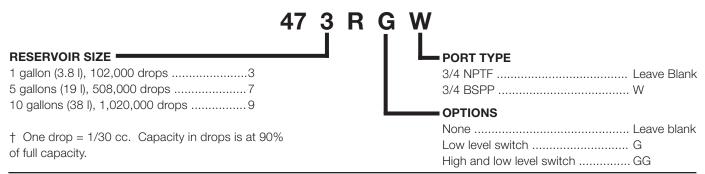


RESERVOIR DIMENSIONS

Dimensions inch				inches (mm)	
Part No.	Capacity	Α	В	С	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.





845/3-4 หมู่ 3 ถ.เทพารักษ์ ต.เทพารักษ์ อ.เมือง จ.สมุทรปราการ 10270

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 desgned 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.

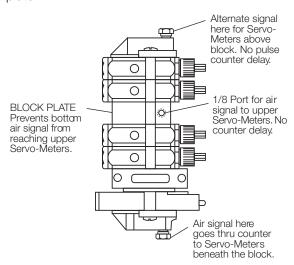


Model Shown: 420-160

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.



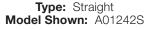
Block Plate Kit with **NPT** threadsK474-07T Includes all necessary seals and assembly hardware. For BSPP threads add suffix W to part number.

CHECK VALVES. Used at lubrication point to keep air out of oil lines. **NPT** threads, Nitrile seals. For **BSPP** 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 N <mark>o</mark> .	Type	Inlet	Outlet
A0124 <mark>2</mark>	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: 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" Tubir	Oil Delivery Lines

Note: Tube fittings are not available with BSPP threading

TUBING. Tubing lengths should be specified as shown below:

Part No.	Description	Usage
NON-FILLE	D TUBING	
0004214 *	1/9" O.D. Nivlon	Oil Dolivon Lin

Tubing

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

PRE-FILLED TUBING (tubing is filled and capped)

A00942M-@ A00942F-#	1/8" O.D. Nylon, 1/8" O.D. Nylon,	Oil Delivery Lines Oil Delivery Lines	
* - 1 inch		10 – 10 inches	_

* = 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 KITS for SERVO-METERS.

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 replacment 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:	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.

Parts of Water to One Part of DasCool 2357 **Machining Operation**

Boring, Drilling, Sawing, Reaming,	20-30
Milling, Planing, Gear Cutting	
Threading, Broaching	10-20
Grinding	30-60
Metalforming	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-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)







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



Model: 70E01104B (Bolts and washers not shown)



AW





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

70 0 01 10 4 B -

EXTRA PORTING and MICRO DIAL OPTIONS

Series **710** and **720**

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 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

SERVO-METER HOUSING MATERIAL

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



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 SERV-OIL ELECTRONICALLY CONTROLLED MULTIPLE-POINT INJECTION LUBRICATORS.

Series 7A0	70	Ō	01	<u>10</u>	4	B	-	W				
EXTRA PORTING and M	ICRO DIAL=					1		L ,	PORT TY	PΕ		
OPTIONS								١	NPTF			 . Remove '-'
Standard Servo-Meter no	options		0					Е	BSPP			 . W
Micro Dial			G								. 1	
SERVO-METER RATING												
Half drop		. 05										
Full drop		. 10										
Two drops		. 20										
SERVO-METER HOUSIN	IG MATERIA	L —										
Brass housing		B										
Aluminum housing												
Nickle plated housing												
					1							

SERVO-METER KITS FOR AUTOMATION PACS

70 0 01 10 4 B - A W Series 730 EXTRA PORTING and MICRO DIAL **OPTIONS** NPTF Leave Blank Standard Servo-Meter no options 0 BSPP W M5 x 0.8H tapped air hole on breather end of D **OPTIONS** (More than one option can be housing 456-138 brass plug and SOLID chosen. Add in alphabetical order) washers. None (remove dash) Leave Blank M5 x 0.8H tapped air hole on breather end of E Servo-meter shutoff A housing 456-139 90 degree fitting and SOLID Non-shutoff Leave Blank Oil end seals (EPR) E M5 x 0.8H tapped air hole on breather end of F Oil end seals (Neoprene) N housing 456-140 Straight fitting and SOLID Oil end seals (Viton)V washers. Oil end seals (Buna N standard)Leave Blank 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 **SERVO-METER HOUSING MATERIAL** Brass housing.....B



Aluminum housing A
Nickle plated housing N

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 DIALOPTIONS Standard Servo-Meter no options	PORT TYPE NPTF Leave Blank BSPP W OPTIONS Oil end seals (EPR) Leave Blank (Add E using other OPTION) Oil end seals (Viton)V
M5 x 0.8H tapped air hole on breather end of F housing 456-140 Straight fitting and SOLID washers. Micro Dial	OPTIONS (More than one option can be chosen. Add in alphabetical order) None (remove dash)
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	tech
	ETMASTER LIQUID DISPENSERS 5 B - E S V
EXTRA PORTING and MICRO DIALOPTIONS Standard Servo-Meter no options	OPTIONS Oil end seals (EPR) Leave Blank (Add E using other OPTION) Oil end seals (Viton)V
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	OPTIONS (More than one option can be chosen. Add in alphabetical order) None (remove dash)
washers. Micro Dial	Oil end seals (EPR) E SERVO-METER HOUSING MATERIAL Brass housing
SERVO-METER RATING 05 Half drop 10 Two drops 20	

