

PEM M 701-200
&
701-246 Nozzle
with LED Illumination
4 x 12VAC,5W RGB
Self Color Changing
Infra Red Control
MR16 Lamps
2.4m / 8' high













SPRAY APRON MODULES

PEM M701



PEM M 701-200

PEM M 701-300

For flush into surface installation of SPRAY APRONS / SPLASH PADS with stainless steel spray nozzle centered in the 15mm - 0.625" thick tempered boron silicate glass lens. Not for submersible (under water) use. Modules are surface self draining. Grout frame, fixture body & face ring are made of lead free cast bronze, all stainless steel fitted. Choice of 10 different spray effect, stainless steel nozzles with O ring seal. Vertical Sprayheight Adjustment & Alignment of spray effect up to 2° off vertical, after Installation above while spray is active. Installation & Winterizing Cover included.

Construction of Modules complies with U.S.CPSC requirement, of 2009. 02.10.for lead free materials accessible for children.

PEM M701-200 is available with a selection of 7 spray nozzles to create different spray effects up to 3.0-4.0m / 10' -13' sprayheight, brilliantly illuminated with 4 x high power LED Lamps, either in white, colored or RGB color changing with remote DMX or direct infra red adjustment.

PEM M701-300 with Water Switch is available with a selection of 3 nozzles to create spray effects activated by computer program(s), creating highly visible water displays up to 3.0-4.0m / 10' -13' sprayheight, brilliantly illuminated by 5W high power LED Lamps either in white, colored or RGB color changing with remote DMX control . Each unit (without affecting any other) can be individually and instantly activated for sequenced or dancing water displays.

USER RECOMMENDATION

Timed Fresh (City) Water use with smaller Nozzles is recommended, spent water to be collected as grey water for irrigation applications. For recirculating systems with direct on top of tank mounting or with remote tank, proper Water Sanitation & Suction Straining is required with flow size suction strainers PEM 71330 -7280-7290 - C - Series or equal.

PEM 701-200

Module only

PEM 701-210

M701-200 Module with PVC Casing

PEM 701-260

M701-200 Module with Stainless Steel Casing

PEM 701-300

Module only with Water Switch

PEM 701-340

M701-300 Module with PVC Casing & Water Switch

PEM 701-370

M701-300 Module with Stainless Steel Casing & Water Switch



PEM 701-340

Module with PVC Casing & Water Switch

ILLUMINATION

For NEMA application (UL) : 20W (4 x MR 16, 12 VAC, 5W) LED

For others:20W (4 x MR 16, 12VAC, 24VAC or 24VDC, 5W) LED

Lamps are NOT part of 701 Modules, to be ordered separately

PEM M 701-200 SPRAY APRON MODULE

Not for Water Switch !

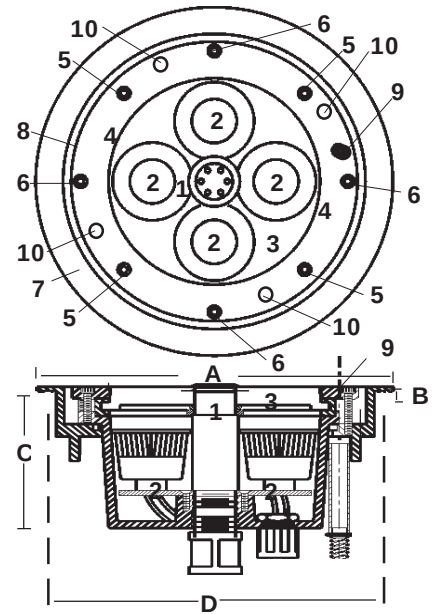


PARTS

1. Spray Nozzle (Choice of 7)
2. MR 16 LED Lamp (4)
3. 15mm / 0.600" x 143mm / 5.625" Lens
4. Face Plate
5. Face Plate Bolts (4)
6. Module Bolts to Grout Frame (4)
7. Grout Frame
8. Surface Drain Opening, 5mm/ 0.19"
9. Valve Key Access Opening (701-3)
10. Access Openings (4) for leveling

DIMENSIONS

- A - 222mm / 8.740"
B - 5mm / 0.200"
C - 112mm / 4.410"
D - 200mm / 8.000"



PEM M701-210, MODULE & CASING

PEM M701-210 with 701-233 Nozzle



PEM M701 with Installation Cover

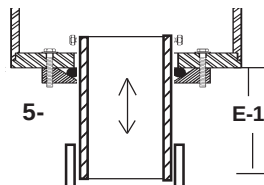


PARTS

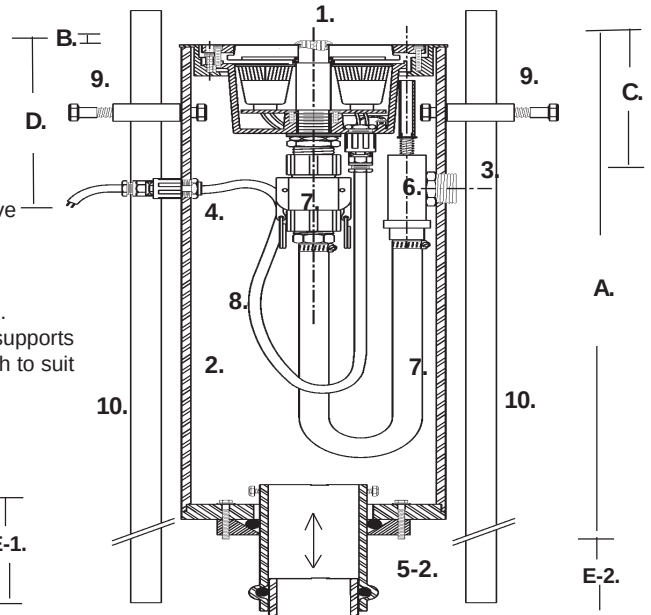
1. PEM 701-200 Module
2. Prefab Casing, 8" Pipe
3. 1" NPT/BSP Supply Connection
4. PEM J13-5 Cordseal for electrical cable entry
- 5-1. SAE , 3" PVC 80 Adjustable Casing Drain
- 5-2. Metric 75mm PVC, P10 Adjustable Drain Sleeve
6. Sprayheight adjustment valve
7. Flex Tube connecting valve to module with Quick Connect Coupling
8. Electrical cable connecting supply with Module.
9. (4) Rod Locks for temporary re-inforcing rod supports
10. (4) BY OTHERS, 20mm re-inforcing rods, length to suit to be removed after final, secured placement.

DIMENSIONS:

- A. 600mm / 23.620 "
B. 5mm / 0.200"
C. 182mm / 7.160"
D. 136mm / 5.350"
E-1 50 / 75mm (2" / 3") +
E-2 10 / 50mm +



SAE Drain Connection



Metric Drain Connection

M 701-200 NOZZLE PERFORMANCES

All Nozzles except M701-233 not for M701-300

M701-230			M701-231			M701-233			M701-244			M701-246			M701-255				M701-256				M E T R I C
V	FL	MC	V	FL	MC	V	FL	MC	V	FL	MC	V	FL	MC	V	FL	MC	H	V	FL	MC	H	
m	L	m	m	L	m	m	L	m	m	L	m	m	L	m	m	L	m	m	m	L	m	m	
1.0m	7.5	1.50	1.0m	24	5.7	1.0m	44	14.7	1.0m	14	3.8	1.0m	27	6	1.0m	15	3	0.4	1.0m	28	8	0.5	
1.5m	8.8	2.15	1.5m	27	7.9	1.5m	52	21.4	1.5m	16	5.1	1.5m	32	9	1.5m	16	5	0.6	1.5m	33	11	0.7	
2.0m	9.5	2.84	2.0m	30	9.3	2.0m	56	27.1	2.0m	18	6.0	2.0m	36	10	2.0m	18	6	0.8	2.0m	37	14	0.8	
3.0m	12.0	5.27	3.0m	34	12.8	3.0m	69	38.4	3.0m	22	11.0	3.0m	55	19	3.0m	23	11	1.1	3.0m	55	19	1.1	
4.0m	14.0	8.54	4.0m	38	18.5	4.0m	80	52.7	4.0m	26	15.0	4.0m	60	25	4.0m	27	18	1.2	4.0m	58	28	1.4	

M701-230			M701-231			M701-233			M701-244			M701-246			M701-255				M701-256				S A E
V	FL	MC	V	FL	MC	V	FL	MC	V	FL	MC	V	FL	MC	V	FL	MC	H	V	FL	MC	H	
F	G	F	F	G	F	F	G	F	F	G	F	F	G	F	F	G	F	F	F	G	F	F	
3'	2.2	5'	3'	6.1	18.1	3'	11.4	43	3'	3.7	12'	3'	7.2	23'	3'	4.0	10'	1.3'	3'	7.7	30'	1.7'	
5'	2.4	8'	5'	7.2	26.0	5'	13.8	69	5'	4.3	14'	5'	8.5	30'	5'	4.3	17'	2.0'	5'	8.8	43'	2.3'	
8'	3.0	15'	8'	8.5	35.8	8'	16.4	105	8'	4.8	16'	8'	9.6	48'	8'	5.6	29'	2.7'	8'	9.0	60'	2.7'	
10'	3.5	19'	10'	9.0	42.0	10'	18.3	112	10'	5.9	18'	10'	14.6	63'	10'	6.1	36'	3.6'	10'	14.6	69'	3.8'	
12'	4.0	29'	12'	9.8	54.5	12'	20.1	155	12'	6.9	20'	12'	15.9	78'	12'	6.9	59'	4.0'	12'	15.9	89'	4.6'	

Performance Codes: V = Sprayheight, m = Meter, F = Feet, FL = Flow, L = L/min, G = USGPM, MC = Pressure, H = SprayDiameter

2 Spray Nozzles are supplied with O ring Seal. Selection of Spray nozzle(s) to be made with order.
If no selection is made; M 701-231 Nozzle will be included. Extra nozzle (s) can be purchased

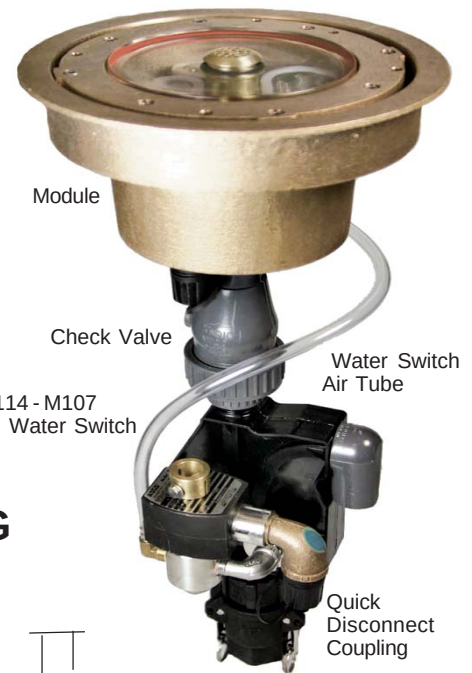
SPRAY APRON MODULE, PEM M 701-300 with PEM W 114-1 Water Switch

MODULE PARTS

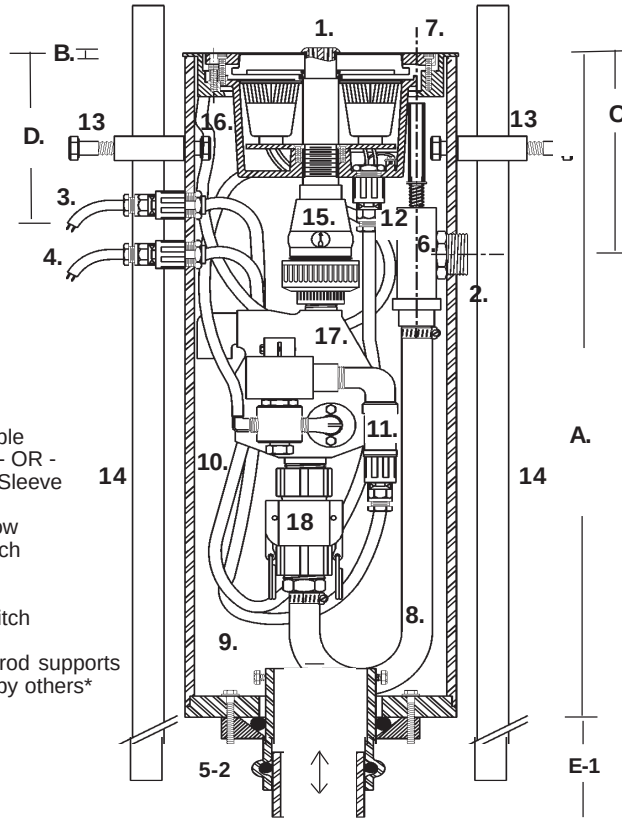
1. Nozzle (Choice of 3)
2. MR 16, 5 W LED Lamp (4)
3. 15mm / 0.600" x 143mm / 5.625" Lens
4. Face Plate
5. Face Plate Bolts (4)
6. Module Bolts to Grout Frame (4)
7. Grout Frame
8. Surface Drain Opening, 5mm/ 0.19"
9. Valve Key Access Opening (701-3)
10. Access Openings (4) for leveling
12. Electrical Plug in Connection of Illumination
15. Checkvalve
16. Air Tube of Water Switch
17. PEM W114 - M107 Special Water Switch
18. Quick Disconnect Pipe Coupling

DIMENSIONS

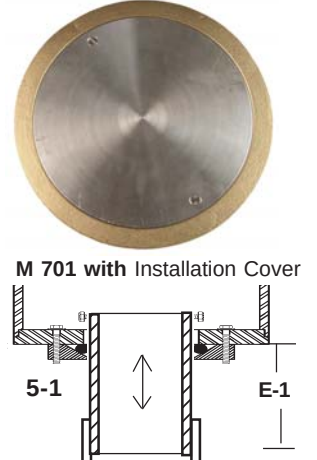
- AA 222mm / 8.740"
BB 5mm / 0.200"
CC 112mm / 4.410"
DD 200mm / 8.000"
EE 470mm / 18.500"



MODULE with CASING PEM M701-340



Metric Drain Connection



SAE Drain Connection

Module in Casing Parts:

1. PEM 701-300 Module
2. 1" NPT/BSP Supply Connection
3. PEM J13-5 Cordseal for light fixture cable
4. PEM J13-5 Cordseal for water switch cable
- 5-1. SAE, 3" PVC 80 Adjustable Casing Drain - OR -
- 5-2. Metric 75mm PVC, P10 Adjustable Drain Sleeve
6. Sprayheight adjustment valve
7. Access insert valve wrench to adjust flow
8. Flex Tube connecting valve & Water Switch
9. Electrical Cable from (3) to Module
10. Electrical cable from (4) to Water Switch
11. Electrical Plug in Connection of Water Switch
12. Electrical Plug in Connection of Illumination
13. (4) Rod Locks for temporary re-inforcing rod supports
14. (4) BY OTHERS, 20mm re-inforcing rods by others*
15. Checkvalve
16. Air Tube of Water Switch
17. PEM W114 - M107 Special Water Switch
18. Quick Disconnect Pipe Coupling

DIMENSIONS

- A 600mm / 23.620"
B 5mm / 0.200"
C 182mm / 7.160"
D 180mm / 7.080"
E-1 50 / 75mm (2" / 3") +
E-2 10 / 50mm +
- * (to be removed after final, secured placement)

PERFORMANCES M701-300 NOZZLES WITH WATER SWITCH

M701-233											M701-377											M701-389											M701-233											M701-377											M701-389																																																																																																																																																																				
V											FL											MC											V											FL											MC											V											FL											MC											H																																																																																																																								
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1.0m											46											20											1.0m											45											8											1.0m											49											10											0.6											3'											12.2											66											3'											12.0											27'											3'											13											33'											2.0										
1.5m											50											26											1.5m											50											15											1.5m											57											17											0.8											5'											13.3											79											5'											13.3											50'											5'											16											56'											2.6										
2.0m											51											32											2.0m											57											19											2.0m											63											23											1.1											8'											14.8											125											8'											17.0											82'											8'											17											96'											3.8										
3.0m											60											49											3.0m											73											33											3.0m											78											37											1.3											10'											15.9											161											10'											19.3											109'											10'											21											121'											4.4										
4.0m											67											63											4.0m											78											40											4.0m											83											50											1.7											12'											17.0											181											12'											20.4											132'											12'											23											148'											5.8										

Performance Codes: V = Sprayheight, m = Meter, F = Feet, FL = Flow, L = L/min, G = USGPM, MC = Pressure, H = SprayDiameter

Spray Nozzles are supplied with O ring Seal. Selection of Spray nozzle(s) to be made with order.

One (1) Spray Nozzle is included in Assembly. If no selection is made; M 701-333 Nozzle will be included. Extra nozzle (s) can be purchased. Use of M701-377 & M701-389 Nozzles in M701-210 Modules & use of M701-200 nozzles except M701-233 in M701-340 not recom-

PEM M701 MODULES, CASINGS & PARTS

90701200	M 701-200	M701-200 MODULE FOR 8" / 200mm PIPE CASING Including: Cast bronze body, lead free cast bronze Facing and Grout Frame 1 selected Stainless Steel Spray Nozzle, Nozzle Wrench (1 per complete order), 3/4" NPT / BSP Connection, 3.0m/10' Illumination cable, Aluminum Installation / Winter Cover, Not for Water Switch installation. With limited max 2° vertical adjustment after installation. Lamps are not included - must be ordered separately
90701300	M 701-300	M701-300 MODULE WITH WATER SWITCH FOR 8" / 200mm PIPE CASING Including: Cast bronze body, lead free cast bronze Facing and Grout Frame 1 selected Stainless Steel Spray Nozzle, Nozzle Wrench (1 per complete order), 3/4" NPT / BSP Connection, 3.0m/10' Illumination cable, Aluminum Installation / Winter Cover. With limited max 1.5° vertical adjustment after installation. Lamps are not included - must be ordered separately W 114-m701 Water Switch, 12VAC, 24VAC or 24VDC Solenoid Coil, 3.0m/10' Electrical cable. 3/4" Vertical Ball Check Valve, 1" Quick Pipe Coupling for Water Switch
90701210	M 701-210	FACTORY FITTED CASINGS FOR ABOVE M 701 MODULES Module M701-200 fitted to 8" / 225mm PVC pipe casing Module M701-260 fitted to 8" / 225mm 304 Stainless Steel casing Module M701-300 with Water Switch fitted to 8" / 225mm PVC pipe casing Module M701-300 with Water Switch fitted to 8" / 225mm 304 Stainless Steel casing
90701260	M 701-260	
90701340	M 701-340	
90700370	M 701-370	
		FITTINGS INSTALLED INTO FACTORY SUPPLIED CASINGS OR REQUIRED FOR SELF SUPPLIED & FITTED PVC CUSTOM CASINGS FOR PEM 701 MODULES Lamps are not included - must be ordered separately
90701221	M 701-221	Spray adjustment valve, with J13-7 bulkhead seal, 1" NPT / BSP
90701222	M 701-222	Valve wrench (200mm / 8" x 4mm / 0.187" hex) 1 per complete order
90701223	M 701-223	1/2" / 3/4" NPT / BSP, J13-5 Type Bulk Head Seal for illumination cable with plug in at module,
90701224	M 701-224	25mm / 1.000" O.D. x 1.0m / 39.37" of flex tube
90701225	M 701-225	Long Handle Drain Compression Wrench (1 per complete order)
90701227	M 701-227	1/2" / 3/4" NPT / BSP, J13-5 Type Bulk Head Seal for Water Switch cable
90701228	M 701-228	Set of 4 x Holding Clamps for Casing Installation
90701334	M 701-334	W 114 Water Switch, 12VAC, 24VAC or 24VDC Solenoid Coil, 3.0m/10' Electrical cable,
90701335	M 701-335	3/4" Vertical Ball Check Valve for Water Switch
90701339	M 701-339	1" NPT/BSP Quick Pipe Coupling for Water Switch
		Casing Drain Options (Must be specified with order)
90701414	M 701-014	3" / 75mm, Adjustable PVC Adjustable Metric Drain (Also for Stainless Steel Casing)
90701415	M 701-015	3" / 75mm, Adjustable PVC SAE Drain (Also for Stainless Steel Casing)
		Bottom Plate with Drain for self supplied PVC casings. Exact I.D. of PVC pipe casing must be given with order!
90701416	M 701-016	8" / 200mm, PVC Bottom Plate with 3" / 75mm, Adjustable Metric Drain
90701417	M 701-017	8" / 250mm, PVC Bottom Plate with 3" / 75mm, Adjustable SAE Drain
		SPRAY NOZZLE SELECTION - Select Nozzle for module ordered. (Without selection M701-233 is supplied) For 701 - 200 Modules , Solid Jet, 6 mm orifice, 5° jet directional adjustable after installation For 701 - 200 Modules , Solid Jet, 9 mm orifice For 701 - 200 Modules , Solid Jet, 12 mm orifice For 701 - 200 Modules , Soft Column, to 25mm / 1.0", with 6 x 3mm orifices For 701 - 200 Modules , Soft Column, to 30mm / 1.3", with 12 x 3mm orifices For 701 - 200 Modules , Bouquet of sprays with 6 x 3mm x 2.0° orifices For 701 - 200 Modules , Bouquet of sprays with 12 x 3mm x 2.0° orifices For 701 - 300 Modules only , Solid Jet, 12 mm, 0.5" orifice, for use with 701-300 only For 701 - 300 Modules only , Soft Column, to 40mm / 1.5", with 18 x 3mm orifices, for use with 701-300 only For 701 - 300 Modules only , Bouquet of sprays with 18 x 3mm x 2.0° orifices, for use with 701-300 only

WaterSwitch Voltages:

Maximum operating voltage
variance of rated voltage:

+/-10%

Verify at each Water Switch with
PEM 003 Voltage Test Device

12 VAC

5.8 AMP. Inrush

3.4 AMP. Holding

24 VAC

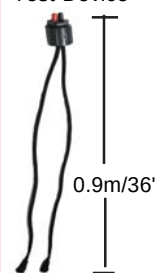
2.9 AMP. Inrush

1.7 AMP. Holding

24 DC

0.48 AMP

PEM 00-03
Low Voltage
Test Device



ILLUMINATION

For NEMA application (UL) : 20W (4 x MR 16, 12 VAC, 5W) LED

For others: 20W (4 x MR 16, 12VAC, 24VAC or 24VDC, 5W) LED

Lamps are NOT part of 701 Modules, to be ordered separately

90400061	M 701-61	1 x (4 required) LED Lamp, MR16, 12VAC, 5W, White
90400062	M 701-62	1 x (4 required) LED Lamp, MR16, 12VAC, 5W, Color Red, Green, Blue or Yellow
90400066	M 701-66	1 x (4 required) LED Lamp, MR16, 12VAC, 5W, RGB Color changing with infra red adjustment
90400067	M 701-67	Remote Infra Red Illumination Adjustment (with AAA Batteries) for infra red adjusted LED lamps.
90400082	M 701-82	1 x (2 required) Halogen Lamp, MR16, 12VAC, 20W, White. <u>Must be flow switch protected !</u>
90400085	M 701-85	1 x (2 required) Halogen Lamp, MR16, 12VAC, 20W, 15°, White. <u>Must be flow switch protected !</u>
90400087	M 701-87	1 x (2 required) Halogen Lamp, MR16, 12VAC, 20W, 15°, Color (Specify). <u>Must be flow switch protected !</u>
90400088	M 701-88	1 x (4 required) Philips RGB LED Lamps, MR16, 24VDC, 5W RGB, require DMX controlled power supply
90400091	M 701-91	Philips RGB Color Changing remote DMX power supply (for up to 14 x 24VDC, Philips RGB, MR16 Lamps) Lamps & Power Supply also available more favorable from manufacturer or wholesaler, are supplied without warranty!

ADDITIONAL & EXTRA EQUIPMENT

376-51101	A 470	Deck Box (Junction Box) to connect Module to power supply
378-0150	J 13-5	Deck Box Conduit Cordseal, 1/2" / 3/4" NPT / BSP, for 10mm O.D. cable
378-0170	J 13-7	Deck Box Conduit Cordseal, 1" / 3/4" NPT / BSP, for 17mm O.D. cable
420-0003	00 - 03	PEM Low Voltage Test Device, One required per project. Required to test plug-in low voltage cable connections.

M 701 SPRAYS

PERFORMANCE ILLUSTRATIONS

At spray heights of 1.0m (3.28'), 2.0m (6.67') & 3.0m (10.0')
For description of nozzles see page 4



M 701-230



M 701-231



M 701-244



M 701-246



M 701-377

SELECTION OF SPRAY NOZZLES FOR M701-200 / 210 (Do not use M701-300 Series Nozzles, except # 233 / 333 !)

Select 200 /210 Series Spray Nozzle with order, without selection; M 701-244 Nozzle will be supplied. Extra nozzle (s) sold separately



M 701-255



M 701-256



M 701-389

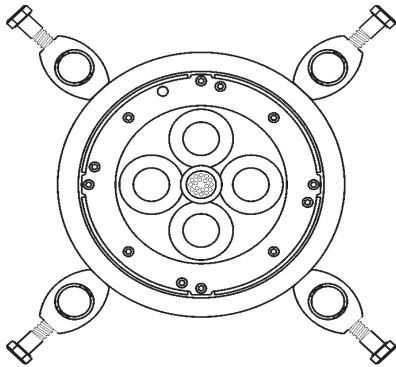


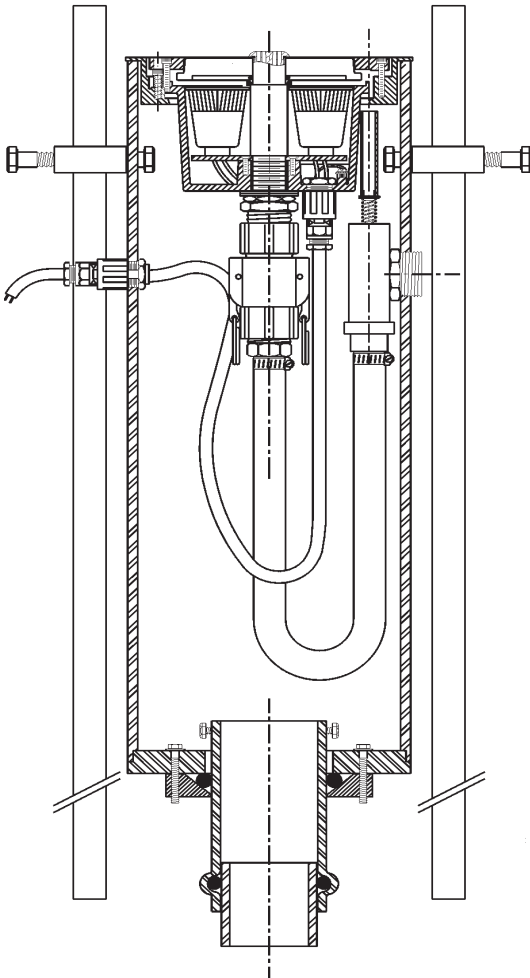
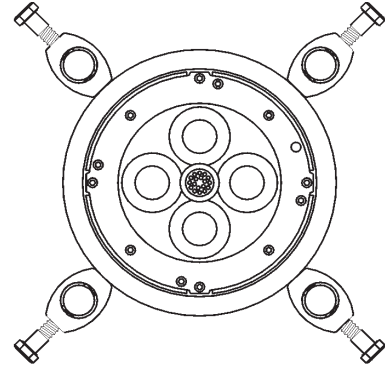
M 701-233/333-A

SELECTION OF SPRAY NOZZLES FOR M701-300 / 340 (Do not use M701-200 Nozzles, except # 701-233 / 333 !)

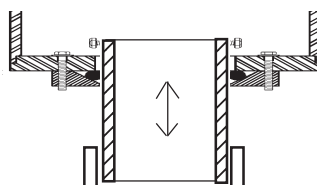
Select 300 Series Spray Nozzle with order, without selection; M 701-333 Nozzle will be supplied. Extra nozzle (s) sold separately

Remove Module from groutframe & lock same onto casing (3 set bolts to lock) before starting. Holding Rods (4) with maximum O.D. of 15mm/ 0.625", (by others), usually steel re-inforcing bars for concrete work. Length of rods depends on actual ground conditions, either be driven deep enough into open ground until they will hold up the casing or cut to length when placed upon concrete sub surface. Use a heavy grease to cover fin concrete length rods so that cement cannot hold them (for removing). DO NOT hit horizontal drain pipe. Use PEM 701-225 Long Handle Compression to unlock PVC drain pipe to place drain and only when fitted while casing is levelled and being held by rods, PVC cement (glue) in connection, then lock in with compression wrench. After levelling and drain connection of casing, install aluminum installation cover into groutframe to commence cement work. Use holding rods to hold up casing in position for placing of cement around base of casing up to holding clamps. When cement is cured, unlock and pull out rods.(Leave clamps in place to serve as anchors). Then complete cement work (grouting) and surface finish around grout frame.

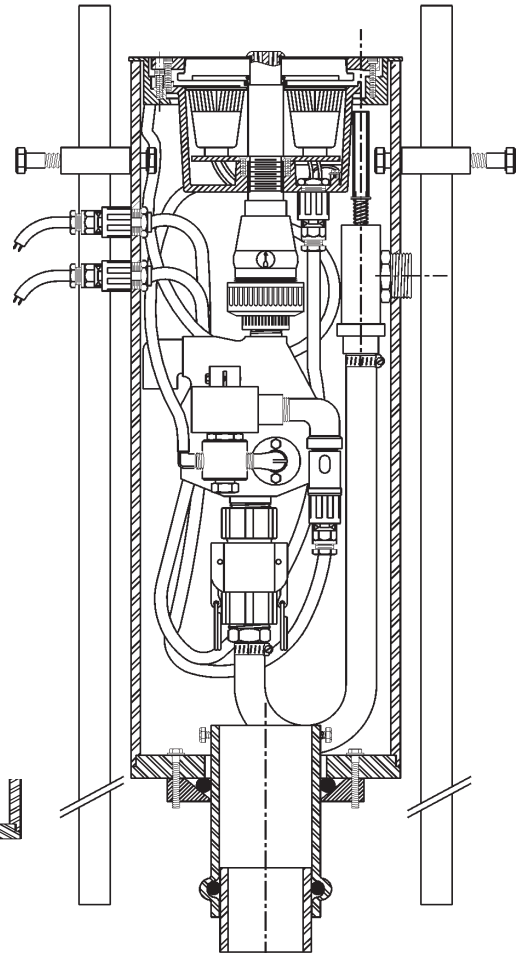




Metric 75mm, PVC, P10, Half Coupling
Height adjustable
Drain Connection



SAE, 3" PVC, Schedule 80
Height adjustable
Drain Connection



Metric 75mm,PVC,P10 Half Coupling
Height adjustable
Drain Connection

PEM M701 MODULE FEATURES

MAJOR FUNCTIONS

Vertical alignment adjustment



Spray Height adjustment



Removal of Module from Frame -1



Removal of Module from Frame -2



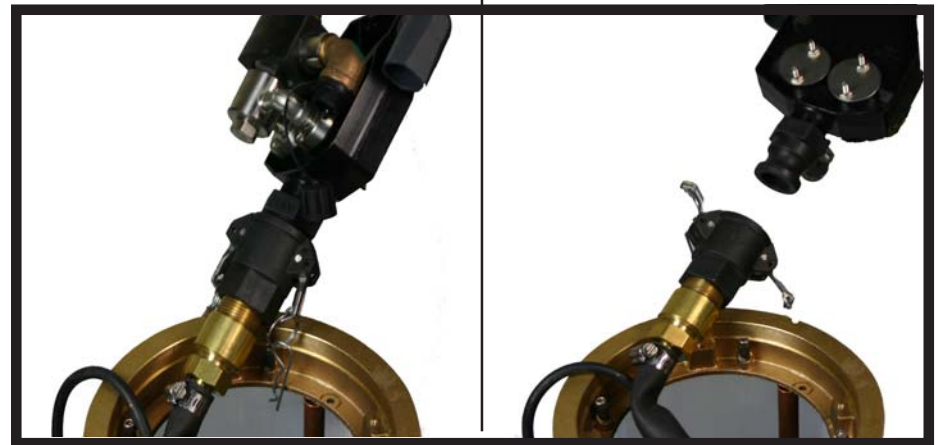
Removal of Module from Frame -3



PEM M 701-210 WITH QUICK CONNECT



PEM M 701-340 WITH WATER SWITCH & QUICK CONNECT



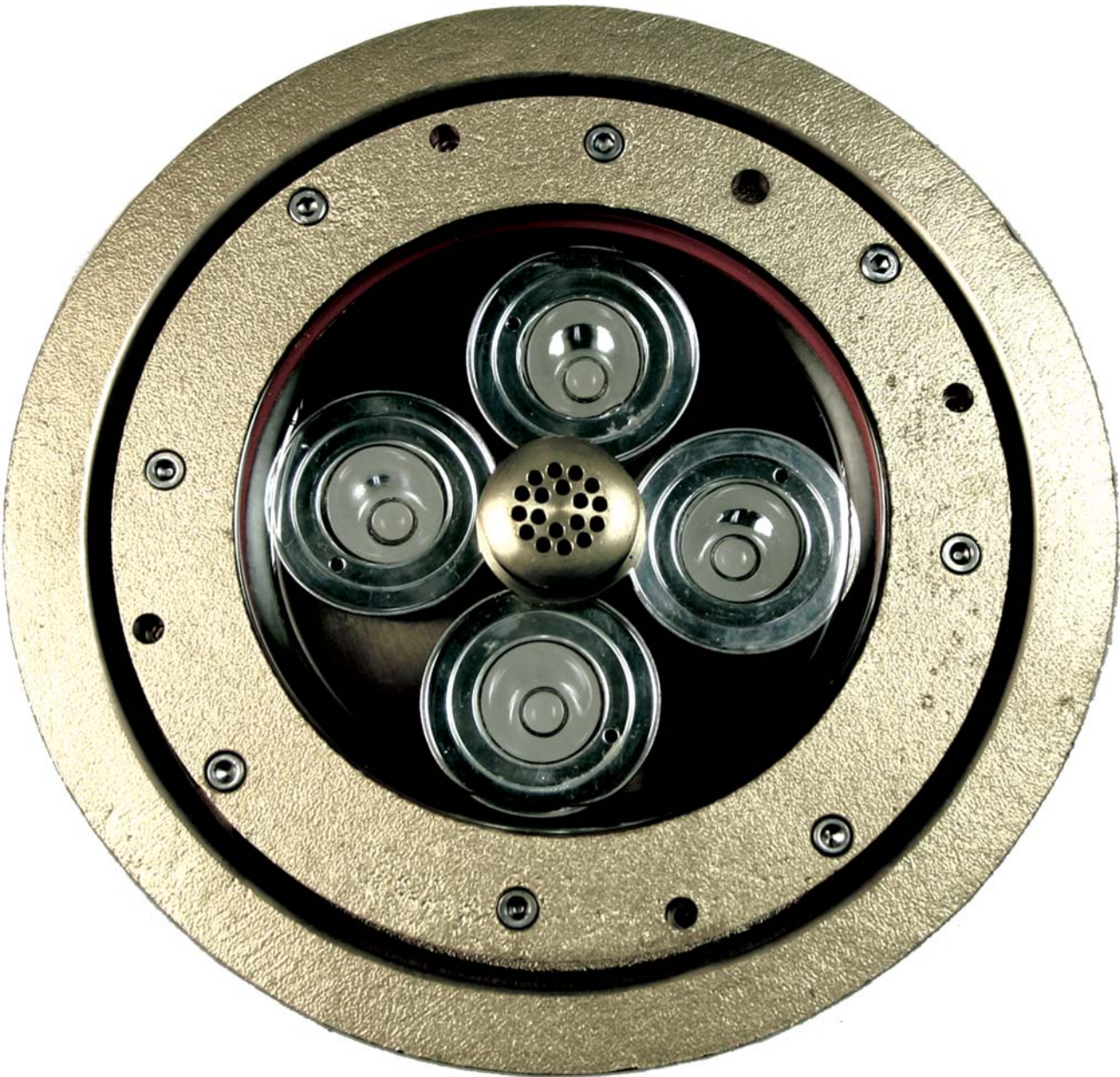
RE-LAMPING ACCESS



PEM M701

Edition 2009 - 02 - 07, superceding all previous editions

SPRAY APRON MODULES & ASSEMBLIES



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