Hunter Product Written Specification Template (MP)

**Part 1 – General**

* 1. General Description of Product and Function

The MP Rotator is a high-efficiency, multi-stream and multi-trajectory rotary nozzle designed with a viscous drive for rotation. The multiple streams of water allow for a slow application of water without misting in the pattern at a high distribution uniformity. The standard MP Rotator family, designated by the black canister, has a matched precipitation rate of approximately 0.4 in/hr across any arc and radius to better match soil intake rates and prevent runoff. The MP800 family, designated by the gray canister, has a matched precipitation rate of approximately 0.8 in/hr. MP Rotators have female threads for installation on male threaded pop-up sprinklers, and select models have the male-threaded option for installation on female threaded pop-up sprinklers. Each MP Rotator shall have a filter screen to prevent internal system debris from entering the nozzle and the patented double-pop feature to prevent external debris from falling into the nozzle. Each MP Rotator shall be color-coded for easy field identification.

**Part 2 – Parts and Material**

1. The MP Rotator shall be available in the following options:

Standard MP Rotator Series (approximately 0.4 in/hr precipitation rate)

MP-1000-90, MP-1000-210, MP-1000-360 for an 8-15 ft radius when operating at 30-55 psi.

MP-2000-90, MP-2000-210, MP-2000-360 for a 13-21 ft radius when operating at 25-55 psi.

MP-23000-90, MP-3000-210, MP-3000-360 for a 22-30 ft radius when operating at 25-55 psi.

MP-3500-90 for a 31-35 ft radius when operating at 25-55 psi.

MP-CORNER for an 8-15 ft radius when operating at 25-55 psi.

MP Rotator Strip Series (precipitation rate dependent on layout)

MP-LCS-515, MP-RCS-515, MP-SS-530 for 5 ft wide strip models.

MP800 Series (approximately 0.8 in/hr precipitation rate)

MP-800SR-90, MP-800SR-360 for 6-12 ft radius when operating at 30-55 psi.

MP-815-90, MP-815-210, MP-815-360 for 8-15ft radius when operating at 30-55 psi.

1. Plastic Material Description
2. The adjustable orifice shall be manufactured from polyurethane and acetal plastic materials for durability and adjustability.
3. The acetal material shall have UV stabilizers for outdoor applications.
4. Metal Component Materials
5. The radius adjustment screw, arc ring, spring, and internal collar shall be made of stainless steel.
6. The stator that drives the speed of rotation inside the silicone chamber shall be made of brass.
7. Filter Screen Description
8. Each MP Rotator shall come with a detachable filter screen.
9. The filter screens shall be made of polypropylene.
10. Screen mesh size shall be dependent on the MP Rotator model.
	1. 60 mesh: MP800SR90
	2. 40 mesh: MP1000, MP2000, MP Corner, MP Strips, MP800SR360, MP815
	3. 20 mesh: MP3000, MP3500
11. Color Description
	1. Each MP Rotator model shall have its own designated color scheme.
	2. Standard MP Rotators have a black canister and black top retainer.
		1. MP-1000-90 (maroon), MP-1000-210 (light blue), MP-1000-360 (olive)
		2. MP-2000-90 (black), MP-2000-210 (green), MP-2000-360 (red)
		3. MP-3000-90 (blue), MP-3000-210 (yellow), MP-3000-360 (gray)
		4. MP-3500-90 (tan)
		5. MP-Corner (turquoise)
		6. MP-LCS-515 (ivory), MP-RCS-515 (copper), MP-SS-530 (brown)
	3. The MP800 family has a gray canister and gray top retainer.
		1. MP-800SR-90 (orange), MP-800SR-360 (lime green)
		2. MP-815-90 (maroon), MP-815-210 (light blue), MP-815-360 (olive)
12. Nozzle Threads
13. Models MP1000, MP2000, MP3000, MP3500, MP Corner, MP Strips, MP800SR, and MP815 shall be able to be installed in pop-up bodies having a 5/8-27 UNS male threaded stem at all common pop-up heights.
14. Models MP1000HT, MP2000HT, MP3000HT, MP Corner HT, MP Strip HT shall be able to be installed in pop-up bodies having a 5/8-28 UNS female threaded stem at all common pop-up heights.
15. Viscous Drive
16. The viscous fluid used to maintain the speed of rotation of the MP Rotator shall be made of a silicone material.
17. The silicone chamber shall be sealed with EPDM rubber seals.
18. The brass stator inside the silicone chamber shall control the speed of rotation.
	1. Warranty
19. 3 year warranty period

**Part 3 – Function and Operation**

1. Operating Pressure
2. The MP Rotator shall operate between 25-55 psi (1.7-3.8 bar; 170-380 kPa).
3. The recommended operating pressure is 40 psi (2.8 bar; 280 kPa).
4. Flow Rates
5. The flow rates shall depend on the MP Rotator model.
6. As the arc and radius are adjusted, the flow rate shall change to maintain matched precipitation.
	1. Radius Description
7. The radius of throw shall depend on the MP Rotator model.
8. At the recommended 40 psi operating pressure, full or part circle sprinklers shall be capable of up to 25% radius reduction using a stainless steel radius adjustment screw.
9. The radius reduction screw shall have a slip clutch mechanism to prevent internal damage if turned past the minimum or maximum radius settings
10. The radius reduction screw shall reduce the pressure and flow upstream of the adjustable orifice thereby maintaining stream integrity.
11. Arc Adjustment
12. The part circle sprinkler shall have an infinitely adjustable arc from 45° to 105°, 90° to 210° or between 210° to 270° using the stainless steel arc ring depending on the model selected.
13. The full circle sprinkler shall irrigate a full 360°.
14. The 45° to 105° model shall not require coverage from adjacent sprinklers closer than 3’ from the head.
15. Arc adjustment shall be effective only while the sprinkler is popped up and shall be ineffective when the sprinkler is popped down.
16. When turned past the minimum or maximum arc limits the adjustment mechanism shall have a ratcheting action to prevent internal damage.
	1. Application Rate
		1. Models MP1000, MP2000, MP3000, MP3500, MP Corner, MP Strips shall produce and maintain a matched precipitation rate no greater than 0.6” per hour throughout the arc adjustment range and radius adjustment range, (up to 25% of radius reduction), when spaced at 50% of wetted diameter.
		2. Models MP800SR and MP815 shall produce and maintain a matched precipitation rate no greater than 1.0” per hour throughout the arc adjustment range and radius adjustment range, (up to 25% of radius reduction), when spaced at 50% of wetted diameter.
	2. Double-Pop
		1. When installed in a pop-up sprinkler body, the MP Rotator rotor shall pop-up after the body stem is fully extended. Upon decreasing pressure, the MP Rotator rotor shall retract before the retraction of the sprinkler body stem.
		2. The MP Rotator itself shall pop-up at approximately 15 psi (1.0 bar; 100 kPa).