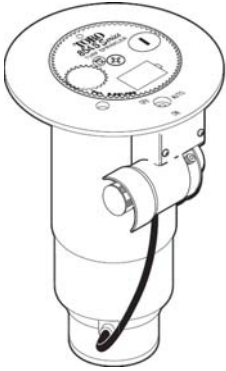


# FLEX800™ Series Sprinklers

## FLX54 - Dual Trajectory



<div style="display: flex; justify-content: space-around; align-items: center;"> <div>FLX54</div> <div>-</div> <div>XX</div> <div>X</div> <div>-</div> <div>X</div> <div>X</div> </div>					
Body Inlet	Arc	Nozzle	Pressure Regulation	Activation Types	Options
5-1½"	4-Full Circle	51 52 53 54 55 56 57 58 59	6-65 psi (4,5 Bar) 8-80 psi (5,5 Bar) 1-100 psi (6,9 Bar)	1-Standard Solenoid 2-Spike Guard Solenoid 3-Nickel-Plated Spike Guard Solenoid 4-DC Latching Solenoid (DCLS) 5-Integrated GDC Module w/DCLS	7-Effluent
<b>Example:</b> When specifying an FLX54 Sprinkler with #54 nozzle, pressure regulation at 65 psi (4,5 Bar) and a Spike Guard solenoid, use the following designation: <b>FLX54-546-2</b>					

**Note:** Not all models are available.

### Specifications

- Radius: 52'-99' (15,8-30,2m)
- Flow rate: 13.2-61.8 GPM (50-234 LPM)
- Arc: Full-circle (360°)
- Pilot valve selectable at 50, 65, 80 and 100 psi (3,5, 4,5, 5,5 and 6,9 Bar)
- Recommended operating pressure range: 65-100 psi (4,5-6,9 Bar)
- Maximum pressure: 150 psi (10,3 Bar)
- Minimum pressure: 40 psi (2,8 Bar)
- Activation types – Electric Valve-in-Head:
  - Standard Solenoid:
    - 24 VAC, 50/60 Hz
    - Inrush: 0.30 A
    - Holding 0.20 A
  - Spike Guard Solenoid:
    - 24 VAC, 50/60 Hz
    - Inrush: 0.12 A
    - Holding 0.10 A
  - Nickel-Plated Spike Guard Solenoid:
    - 24 VAC, 50/60 Hz
    - Inrush: 0.12 A
    - Holding 0.10 A
  - DC Latching Solenoid (DCLS):
    - Momentary low-voltage pulse
  - Integrated GDC Module w/DCLS:
    - Momentary low-voltage pulse
- Stator variations: 3
- Inlet size: 1½" (40mm) ACME
- Body height: 11⅜" (289mm)
- Body flange diameter: 7⅝" (194mm)
- Pop-up height to nozzle: 3¼" (83mm)
- Pop-up height (overall): 4⅜" (106mm)
- Weight:
  - 3.55 lbs. (1,6 kg)
  - 4.24 lbs. (1,9 kg) Integrated GDC Module

- Three opposing nozzles; rotating stream pattern
- Precipitation rates:
  - Minimum: 0.38"/hr. (9,7mm/hr.)
  - Maximum: 0.77"/hr. (19,6mm/hr.)
- Main nozzles: 9 (51, 52, 53, 54, 55, 56, 57, 58 and 59)
- Selectable nozzle trajectory: 15° or 25°
- Apex and Radius:

15°	25°
<b>65 psi (4,5 Bar)</b>	
51 - 6'(1,8m)@51'(15,5m)	13'(4m)@54'(16,4m)
52 - 6'(1,8m)@51'(15,5m)	11'(3,4m)@64'(19,5m)
53 - 7'(2,1m)@59'(18m)	13'(4m)@68'(16,5m)
54 - 8'(2,4m)@63'(19m)	15'(4,6m)@74'(22,6m)
55 - 9'(2,7m)@66'(20m)	15'(4,6m)@76'(23m)
<b>80 psi (5,5 Bar)</b>	
56 - 8'(2,4m)@75'(22,9m)	18'(5,5m)@83'(25,3m)
57 - 9'(2,7m)@74'(22,5m)	19'(5,8m)@82'(25m)
58 - 10'(3m)@82'(25m)	18'(5,5m)@87'(26,5m)
59 - 11'(3,4m)@81'(24,6m)	21'(6,4m)@91'(27,7m)

### Bidding Specifications

The full-circle sprinkler shall be a gear-driven rotary type. Rotation shall be accomplished by a water-lubricated planetary gear drive. The drive assembly shall be driven by a spring-loaded, poppet-type variable stator, sized to provide 3-minute, full-circle rotation speeds throughout the pressure range. The drive and stator assemblies shall be constructed of corrosion-proof plastic and stainless-steel components.

Water distribution shall be via three nozzles mounted in a 2¼" (57mm)-diameter plastic nozzle turret. The three nozzles shall be oriented in an opposing direction and elevate

3¼" (83mm) above the body when in operation. All of the sprinkler nozzles shall be a thread-in type accessible from the front, with no other disassembly required. All nozzles are color-coded for easy identification of radius and gallowage performance capabilities and are designed to allow any particle capable of passing through the riser screen to pass through the nozzle. The sprinkler shall be capable of accepting a fourth and fifth nozzle that can be installed inline with the main nozzle to provide additional coverage. These additional nozzle positions shall be manufactured with a factory-installed plug than can be removed to accept over 100 different inner and intermediate nozzle combinations. The sprinkler shall be capable of accepting 9 different color-coded main nozzles and 10 different color-coded inner/intermediate nozzles.

The main nozzle shall incorporate a selectable adjustment that provides main nozzle discharge angle adjustment at 15° and 25°. Close-in watering distribution shall be achieved with a patented helical restrictor inserted into the inner nozzle capable of adjusting the distribution profile to optimize uniformity. An optional radius reduction screw can be installed to break up the main nozzle stream. The cap shall identify the installed main nozzle size and the date of manufacture.

The Pilot Valve assembly shall incorporate one of five electrical activation types to control the ON-OFF operation of the sprinkler. It shall provide four pressure-

# FLEX800™ Series Sprinklers

## FLX54 - Dual Trajectory

point selections (50, 65, 80 and 100 psi; 3,5, 4,5, 5,5 and 6,9 Bar) with a vandal-resistant locking feature that ensures the desired setting is maintained. The pressure points shall be graphically illustrated in psi and kg/cm<sup>2</sup>. The pilot valve assembly shall include a pressure-regulation feature that continuously monitors the operating pressure inside the sprinkler body, making the necessary adjustments to ensure the desired and set regulation pressure is maintained. The pilot valve assembly shall incorporate a manual control feature that is accessible from the top and allows the sprinkler to be manually selected "ON", "OFF" or placed in the "AUTO" position, awaiting commands from the control device. The manual selector shall be red in color for enhanced visibility. The pilot valve assembly shall be stamped with the manufactured date code and shall be retained in the compartment with a single stainless-steel screw.

The sprinkler shall incorporate an electrical solenoid for activation of the integrated control valve in one of five activation types as described below.

### Standard Solenoid

The standard solenoid shall be suitable for 24 VAC, 50/60Hz service with inrush current of 0.30 A @ 50/60Hz, and holding current of 0.20 A @ 50/60Hz. and shall be capable of withstanding a voltage surge of up to 9k volts in the common and normal modes without failure.

### Spike Guard Solenoid

The Spike Guard solenoid shall be suitable for 24 VAC, 50/60Hz service with inrush current of 0.12 A @ 50/60Hz, and holding current of 0.10 A @ 50/60Hz. and shall be capable of withstanding a voltage surge of up to 20k volts in the common and normal modes without failure.

### Nickel-Plated Spike Guard Solenoid

The Nickel-Plated Spike Guard solenoid shall be suitable for 24 VAC, 50/60Hz service with inrush current of 0.12 A @ 50/60Hz, and holding current of 0.10 A @ 50/60Hz. and shall be capable of withstanding a voltage surge of up to 20k volts in the common and normal modes without failure. It shall also have a nickel-

plated core to provide additional corrosion-resistance in potable and non-potable water applications.

### DC Latching Solenoid

The DC latching solenoid shall be activated by a momentary low-voltage pulse that moves the plunger from the "OFF" position to the "ON" position where it is maintained by a permanent magnet in the solenoid. To deactivate, a second momentary low-volt pulse is applied to move the plunger from the "ON" to the "OFF" position. This activation type is generally used with a GDC module that is remotely located.

### Integrated GDC Module

The Integrated GDC Module activation type incorporates the GDC module inside the compartment of the sprinkler and includes a DC latching solenoid for activation of the control valve. The DC latching solenoid shall be activated by the Integrated GDC Module with a momentary low voltage pulse that moves the plunger from the "OFF" to the "ON" position where it is maintained by a permanent magnet in the solenoid. To deactivate, a second momentary low-volt pulse is applied to move the plunger from the "ON" to the "OFF" position.

The internal valve assembly shall be a piston-type that vents to atmosphere, providing valve friction loss of less than 5 psi (0,34 Bar). The sprinkler shall be designed to provide smooth valve closure in excess of two seconds to minimize damage resulting from surges and water hammer. All valve seals shall be constructed of natural rubber. The valve seat seal shall be constructed of fabric-reinforced natural rubber. The electric valve assembly shall incorporate a 100-mesh stainless-steel screen for the control water, preventing entry of foreign materials into the pilot valve assembly.

The sprinkler body and cap shall be injection-molded from ABS – a corrosion-proof, impact-resistant, UV-resistant, heavy-duty, engineering-grade plastic material. The cap and nozzle base shall incorporate a pull-up feature that provides improved serviceability of nozzles and riser. The sprinkler shall have two plastic filter screens – a top-serviceable coarse rock screen in the body inlet sized to prevent entry of larger

foreign material from entering the body, and a finer screen threaded into the riser, sized to prevent foreign material from clogging the nozzle.

The sprinkler shall have a riser/body seal assembly that regulates flushing during pop-up and retraction to clear any debris from around the riser, and a heavy-duty stainless-steel spring to ensure positive retraction. The riser is sealed by a durable, over-molded urethane ring on the seal retainer. Sprinkler flush rate shall not exceed 5 GPM (18,9 LPM).

The sprinkler shall be capable of identifying the use of effluent water via a lavender-colored marking. The sprinkler cap shall indicate model designation, nozzle number and manufacturing date code.

The sprinkler shall be a pop-up design with an overall height of 11-<sup>3</sup>/<sub>8</sub>" (289mm), a compartment cover diameter of 7-5/<sub>8</sub>" (194mm), a cap diameter of 3-5/<sub>8</sub>" (92mm) and a pop-up stroke of 4-3/<sub>16</sub>" (106mm). The sprinkler shall have a 1½" (40mm) ACME female-threaded inlet. The sprinkler shall be capable of covering \_\_\_\_ feet radius at \_\_\_\_ pounds per square inch pressure with a discharge rate of \_\_\_\_ gallons per minute.

The sprinkler shall be developed and manufactured by an ISO 9001-certified facility. The sprinkler shall be model number \_\_\_\_\_ and shall be manufactured by The Toro Company, Irrigation Division.

### Recommended Installation Procedures

The FLX54 sprinkler is designed specifically for turf areas requiring \_\_\_\_ coverage. These products offer the most economical method of irrigation where flows and system pressures are available to support a greater radius.

The FLX54 sprinklers should be specified for installation on a Toro swing joint. The swing joint should be specified as a triple-swing type, allowing movement up, down, laterally, and at an angle-to-grade. The sprinkler should be installed with the body cover at grade.

Individual sprinkler head control is accomplished using a single FLX54 valve-in-



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## FLX54 - Dual Trajectory

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head sprinkler per controller station. Use of the valve-in-head model will allow individual station control, and is particularly useful for irrigating distinct turf regions at unique application rates.

FLX54 sprinklers are engineered to provide a smooth, consistent curtain of water across the arc, with provision made for head-to-head coverage. For proper spacing, ensure that system design and installation accounts for prevailing wind conditions and body cover angle-to-grade.

It is recommended that sprinklers are installed 2" (5cm) from hardscaping and 6"-12" (15, 2-30, 5cm) from buildings or other vertical impediments to allow for normal maintenance procedures and to minimize overspray on buildings. Where possible, sprinkler heads should be installed in a manner that will minimize nozzle stream contact with trees, controller enclosures, shrubbery or other obstructions.