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BELOW FLOW FLAT™ (BFF)

KISSS Below Flow FLAT optimizes the efficiency of current sub-surface irrigation hardware through the use of a specialized geotextile and plastic membrane. The result is a patented product that enables a highly uniform and cost effective application of water to turf and landscape. Through principles of capillarity the geotextile conveys water from pressure compensating emitters and saturates the entire fabric. Water travels through the geotextile many times faster than through most soils, hence the entire surface of the geotextile acts as 'one continuous emitter' to the surrounding soil media. This enables delivery of a uniform and continuous wetted front to the target root-zone.



Redding School of the Arts, Redding, CA

Applications:

- Turf
- Commercial Landscapes
- Parks and Recreation
- Athletic / Sports Fields
- Street Medians
- Green Roofs

Features:

- Pressure compensating emitters
- Low entry pressure (7.25 PSI) into pressure compensating mode
- Physical Root Barrier
- Capillary fabric is 4 inches (10cm) in width
- Polyethylene anti-percolation layer on underside
 - Emitter has large pre-entry filter area, screens particulate matter
 - Emitter has "self-flushing" action at beginning and end of irrigation event
 - Installed into existing turf by specially designed vibratory plow or conventional trenching

Operating Range:

- Pressure: 10-30 PSI (.6 - 2.06 bar)
- Flow rates: See Table 1
- Application Rates: See Table 2
- Required Filtration: 120 mesh

Specifications:

- Outside Diameter: 0.700" (17.78mm)
- Inside Diameter: 0.606" (15.39mm)
- Wall Thickness: 0.025" (24mm)
- Coil Length: 656 linear feet (200m)
- Use with KISSS BFF Fittings (Table 4, on back of this sheet)
- Available with Purple Identifier for non-potable water (Safety Flow)

Models:

- Below Flow Flat White (BFF-WHITE)
- Below Flow Flat Red (BFF-RED)
- Safety Flow Flat White (SFF-WHITE)
- Safety Flow Flat Red (SFF-RED)

Table 1: Flow Rates

Part Number	Flow Rate	Flow Rate	Emitter Flow (gal / hr.)	Emitter Spacing (in)	Emitter Flow (liter/hr.)	Max Length @ 30 PSI (ft.)
	gal / 100ft / min	liter / 100ft / min				
BFF-WHITE	0.537	2.03	0.423	15.7	1.6	554
BFF-RED	0.358	1.36	0.423	23.6	1.6	797

Table 2: Application Rates

BFF-WHITE						
Line Spacing	12"	14"	16"	18"	20"	
Application Rate (in/hr.)	0.519	0.445	0.389	0.346	0.311	
BFF-RED						
Line Spacing	12"	14"	16"	18"	20"	
Application Rate (in/hr.)	0.3445	0.296	0.259	0.23	0.207	

Table 3: Maximum Run Lengths

BFF-WHITE					
	Emitter Flow: .423 GPH / Emitter Spacing: 15.7 inches				
Operating Pressure	10 psi	15 psi	20 psi	25 psi	30 psi
Max Run Length (ft.)	269	334	410	482	554
BFF-RED					
	Emitter Flow: .423 GPH / Emitter Spacing: 23.6 inches				
Operating Pressure	10 psi	15 psi	20 psi	25 psi	30 psi
Max Run Length (ft.)	390	480	593	698	797



SPECIFICATION SHEET

Table 4: BFF Fittings

Part Number	Part Name	Notes:
BFF-RL01 KIT	BFF 90° Ring-Lock Start Connector Kit	Protrudes from the top of the header and footer piping - use of fitting allows headers and footers to be installed deeper than KISSS material
BFF-RL02 KIT	BFF Straight Ring-Lock Start Connector Kit	Protrudes from the side of the header and footer piping - recommended where soil depth is limited
BFF-RL04 KIT	BFF Ring-Lock Coupler	Connects BFF emitter tubing
BFF-RL06 KIT	Center Feed 8" Riser TEE Ring Lock Start Connector Kit	Use in areas with deep frost line - Kit includes 8" Riser and TEE Start Connector
BFF-RL08 KIT	End Feed 8" Riser Elbow Start Connector Kit	Use in areas with deep frost line - Kit includes 8" Riser and 90° Start Connector
BFF-RL01 KIT 90° Ring Lock Start Connector Kit	BFF-RL02 KIT Straight Ring-Lock Start Connector Kit	BFF-RL04 KIT Ring-Lock Coupler Kit
BFX-003 Ring Lock - Poly Tube Barb Adaptor	Center Feed: BFF-RL06 KIT End Feed: BFF-RL08 KIT 8" Riser Start Connector Kits	BFX-003 BFF Ring-lock → Poly Tube Barb Adaptor

Note: Headers / Footers shall be at minimum 1-1/2" Sch 40 or CL200 PVC or HDPE Pipe

KISSS Below Flow Flat Success Stories



Above, Left: Target Center, Minneapolis, MN **Above, Middle:** Redding School of the Arts, Redding, CA **Above, Right:** Oregon Health Science University, Portland, OR **Below Left:** Drew School of the Arts, San Francisco, CA, **Below Right:** Moorpark College, Moorpark, CA

