

#### **Features**

- Standard models from 5 to 400 GPM
- No moving parts
- Compact size minimizes floor space requirements
- Integral flash mixing and flocculation tanks for increased efficiency
- Heavy duty 1/4" steel construction, welds are dye penetrant tested
- Structure is sandblasted and two coats of epoxy applied to ensure full coverage and superior chemical resistance
- 1/4" PVC removable settling plates
- Dual sludge outlet flanges
- \* Large side-access hatch
- Sludge sampling ports

### **Options**

- Mixers for flash & flocculation tanks
- Coal-tar epoxy interior coating (other coatings and materials are available)
- Influent feed and sludge discharge pumps
- Custom designs available
- PolyMark™ polymer delivery systems

#### M.W. Watermark™

M.W. Watermark™ is a leading supplier of water and wastewater equipment, parts, and service. We serve both muncipal and industrial markets globally.

Our team strives to provide unmatched service and value to customers, helping reduce their costs while keeping the environment clean.

## Slant Plate Clarifier



CLARIFIER DATA TABLE	SPC 5	SPC 10	SPC 20	SPC 40	SPC 80	SPC 150	SPC 200	SPC 300	SPC 400
Design Flow Maximum (GPM)	5	10	20	40	80	150	200	300	400
Flash Mix Tank Volume (gal)	4.4	4.5	38	50	79	110	110	186	186
Flocculation Tank Volume (gal)	6.5	20.5	62	99	189	316	316	742	742
Total Pre-Treatment Volume (gal)	10.9	25	100	149	268	426	426	928	928
Effluent Piping Connection (Class 150 Flange)	1"	3"	4"	4"	4"	6"	6"	8"	8"
Solids Discharge Connection (Class 150 Flange)	1"	3"	4"	4"	4"	4"	4"	6"	6"
Sludge Capacity (gallons)	17	42	88	150	275	469	611	834	960
Plate Area (ft²)	19	38	91	198	345	728	1,153	1,339	1,633
Projected Plate Area (ft²)	8.9	20	49	107	189	400	633	747	911
Empty Shipping Weight (lb)	765	1,400	2,065	3,600	4,800	7,400	11,000	11,800	16,500
Full Operating Weight (lb)	1,325	2,875	5,310	9,000	15,480	22,900	32,760	56,550	60,320
Liquid Volume (gal)	67	177	389	648	1,280	1,859	2,609	5,366	5,900
Overall Length	45"	56"	70"	87"	104"	135"	163"	179"	210"
Overall Width	23"	44"	60"	60"	73"	77"	77"	90"	100"
Overall Height	51"	64"	94"	104"	129"	147"	147"	147"	143"
Design Solids Removal (200ppm influent)	95%+	95%+	95%+	95%+	95%+	95%+	95%+	95%+	95%+



# System Design

Influent is fed into the top of the clarifier (A) and flows under a baffle to the integral flash mixing tank (B). The flash mixing tank is where flocculant may be added with a PolyMark™ polymer blending system and blended with the fluid using an optional high speed mixer.

From the flash mix tank, the fluid flows over a baffle into the integral flocculation tank (C), which may include an optional low speed mixer.

From the flocculation tank, the fluid flows downward through the feed channel between the two plate stacks to the sludge chamber at the bottom of the clarifier. At this point, the fluid velocity decreases and large particles drop out of suspension.

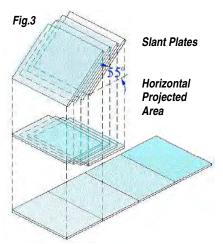
The flow then enters the bottom of the plate stacks and flows between the settling plates. Between each of the plates, the fluid has a low velocity, laminar flow profile which encourages the remaining solids to settle on the surface of the lower plate and flow downward to the sludge holding tank.

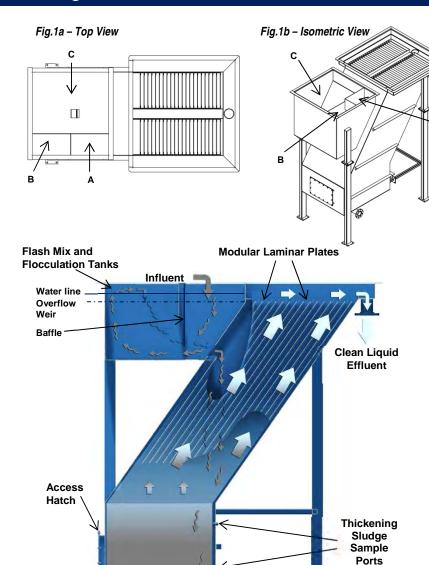
As the solids are settling along the plate surfaces, the fluid is moving upward through the plate stacks, over the weirs, and into the discharge trough.

Clarified effluent is then discharged through a flanged pipe connection at the bottom of the trough. Sludge is periodically drawn off the bottom of the sludge holding tank at the bottom of the clarifier.

Sample ports are provided to assist with determining the sludge level, which is periodically pumped to a batch storage tank for further liquid-solid separation via an M.W. Watermark™ Filter Press for eventual disposal.

#### Floor Space Requirement Horizontal vs. Slant Plate Clarifier





## **Equipment Design**

M.W. Watermark™ Slant Plate Clarifiers are designed to provide efficient solids removal from a wide range of waste and process liquids. The settling plates are inclined at an angle of 55° with 2-inch spacing. The slope of the plates allows the solids to settle by gravity while the fluid moves upward through the plate stack.

Sludge Removal

Stacking the plates reduces the floor space required by the clarifier compared to a horizontal clarifier. The inclined plate design allows the total gravity settling area to be as much as ten times the floor space occupied by the clarifier.

Fig. 3 illustrates the floor space reduction resulting from stacked plates.

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