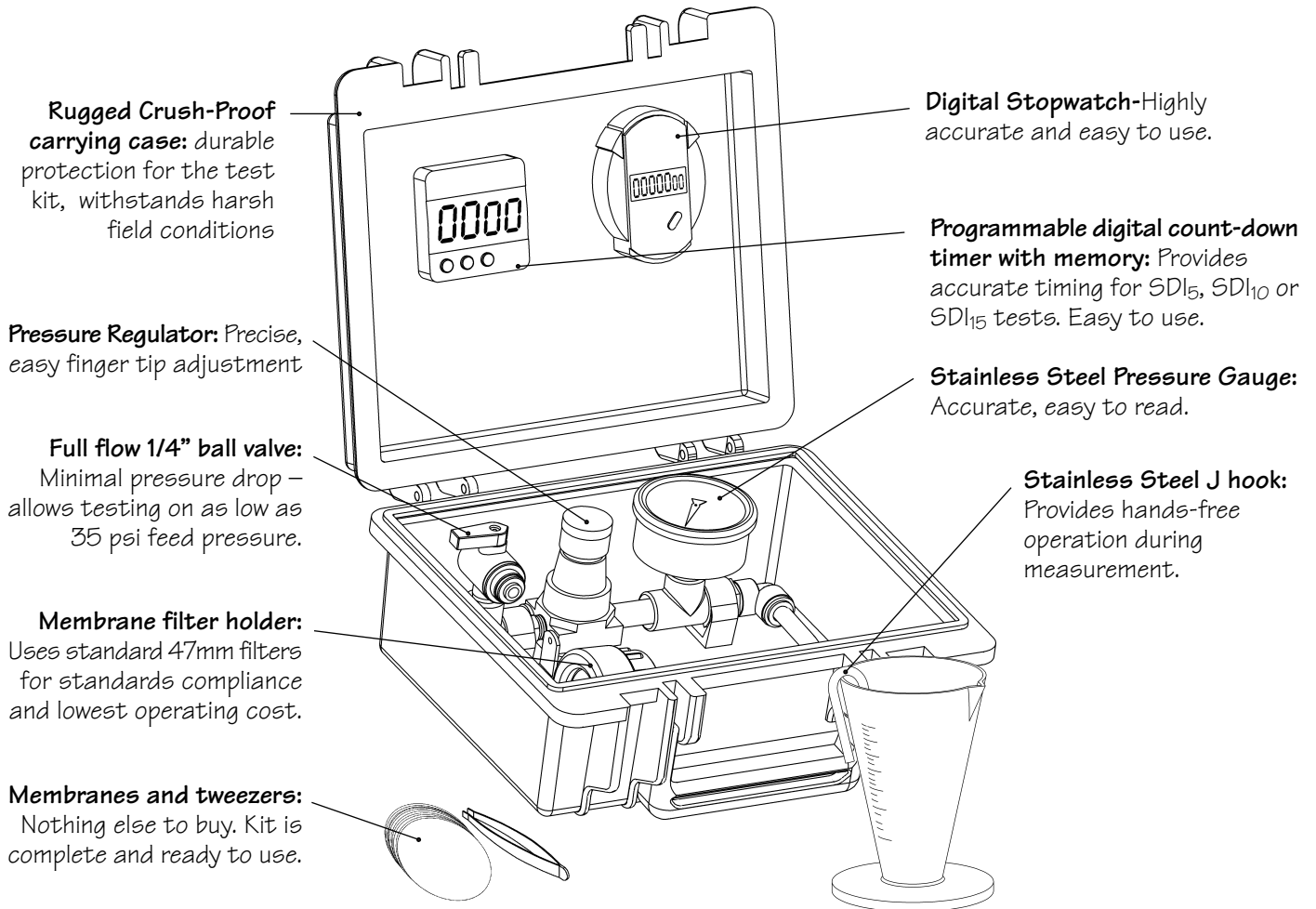


Prevent Membrane Fouling with *simpleSDI:manual*.



Why SDI?

“The factor which has the greatest influence on the membrane system design is the fouling tendency of the feed water. . . . The Silt Density Index (SDI) value of the pretreated feed water correlates fairly well with the amount of fouling material present”.

Filmtec® Membranes Technical Bulletin
Membrane System Design Guidelines

Why simpleSDI:manual?

- Includes everything needed for performing SDI measurements.
- Complies with (ASTM D 4189-95)
- Compact, light-weight and rugged; for true portability. Conduct tests anywhere.
- Uses standard 47 mm membrane filters – for lower consumable cost and worldwide availability
- Completely self contained, all components are housed in the rugged carrying case.
- High quality components for accurate results.

What is SDI?

The Silt Density Index (SDI) test is a means of quantifying the amount of particulate contamination in a water source. The test was specifically developed as a means of predicting the rate of colloidal and particulate fouling of Reverse Osmosis (RO) membranes.

Description of the test

The test described in ASTM 4189-95 is performed using a .45 micron, 47mm diameter filter. The water to be tested is supplied to the filter at a constant pressure of 30 psi. The test involves measuring the time it takes to collect a 500 ml sample through the filter at the start of the test and comparing it with the time it takes to collect a 500ml sample after water has flowed through the filter (at 30psi) for 15 minutes. The sample times are applied to the formula below to obtain the SDI₁₅ value.

SDI Calculation

$$SDI_T = \frac{\% P_{30}}{T} = \frac{\left[1 - \frac{t_i}{t_f}\right] 100}{T}$$

where %P30 = percent @ 30 psi feed pressure (see note 1)

T = total elapsed flow time (see note 1)

t_i = initial time required to collect 500 ml sample.

t_f = time required to collect 500 ml sample after test time T. (see note 1)

Note 1. The value %P₃₀ is commonly referred to as the “plugging factor”. %P₃₀ (plugging factor) should not exceed 75%. If you obtain values higher than 75%, the test should be conducted using a shorter time for T, that is 5 or 10 minute measurements for T. If %P₃₀ exceeds 75% on a 5 minute test, you have water that needs further treatment before a meaningful SDI result can be obtained.

The resulting value, SDI₁₅, indicates the plugging of the membrane in percent-per-minute. Accordingly, the maximum SDI₁₅ value is 6.7. (100÷15=6.7) An SDI₁₅ value greater than 5 is generally considered too high to be meaningful (75% plugging). On waters with high SDI, it's often useful to measure the SDI at 5 and 10 minute intervals. The resulting values, SDI₅ and SDI₁₀ can provide a better indication of the rate at which the membrane is plugging. For example, if you obtain an SDI₅ of 15, there's no point in taking the time it takes for an SDI₁₅ test since you've already achieved 75% plugging (15 x 5=75). In this case, the water being tested is simply too high in colloidal or particulate matter to obtain a meaningful result.

Specifications

Dimensions		Inch (mm)	Water
Width	Deep	High	<ul style="list-style-type: none"> Pressure: 35-100 psi Temperature: 35-100°F Solids: Free of solids. Filter to 50 microns minimum. Inlet: 1/4" OD tubing.
10.75 (273)	9.75 (248)	5 (127)	
Weight 3 lbs, (1.4 kg)			

simple SDI: auto

simple SDI: auto, a microprocessor controlled, automated silt density index measurement tool, is also available. Call or visit us on the web at www.simplesdi.com for more information.

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