

SYSTEM OF MEASUREMENT SDI MODEL SDI MANUAL USER MANUAL



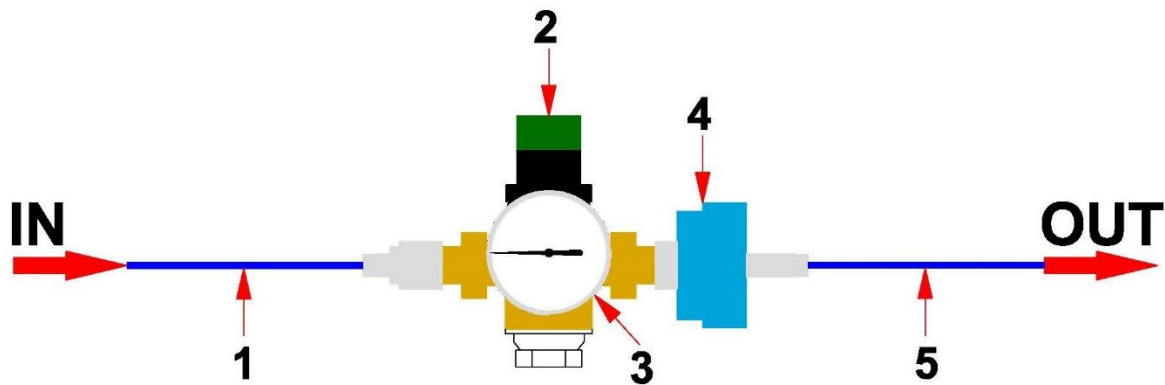
SDI Meter

The Silt Density Index (SDI) is used to evaluate the tendency of a water to become dirty due to the content in colloids and suspended solids, and is a crucial parameter for verifying the good functioning of a pretreatment system, particularly when it is placed upstream of a Reverse Osmosis. Generally an acceptable SDI value is 3 but some manufacturers/plant engineers require SDI values below 1.

The measurement of SDI is obtained by evaluating the decrease in flow through a filter, under the pressure of a constant pressure (ASME D 4189) as shown below.

Measuring instrument

The measuring instrument consists of (see figure):



- Supply line (1)
- Pressure regulator comprising:
 - Manual control valve (2)
 - Pressure gauge (3)
- Filtering system composed of:
 - Polypropylene filter holder (4)
 - Filter 0.45 μ m, 47 mm (to be inserted inside the filter holder (4))
- Outlet pipe (5)

Preparation and measurement

Connect the adduction pipe (1) to the inlet fitting ensuring that a pressure of at least 4 bar is available. Let the water flow through the filter holder (4) open. Adjust the pressure via (2) and (3) to 2.1 bar. Stop the water flow and insert the filter into the filter holder housing (4). Close the filter holder.

Resume the water flow and measure the time taken to flow 500 ml through the filter (time T0), checking that the pressure indicated by the pressure gauge is always 2.1 bar (if not, act on the valve (2)).

Leave the system undisturbed, always checking the pressure at 2.1 bar and measure the flow time (time T1), always for 500 ml, after 5 minutes, 10 minutes and 15 minutes from the start of the measurement.

Ensure that the temperature during the measurement has not changed by more than 1 °C.

SDI calculation

Use the following notation and formula:

$$SDI_T = \frac{\left[1 - \frac{T_0}{T_1} \right] \times 100}{T}$$

where:

- T is the time, in minutes, elapsed before the measure T1 (so 5, 10 or 15)
- T0 is the time, in seconds, of the first passage of the 500 ml
- T1 is the time, in seconds, of the second passage of the 500 ml

IMPORTANT: normally the measurement used is 15 minutes. If the filter closes completely before 15 minutes, use 10 or 5 minutes. If the filter closes before 5 minutes, place T=occlusion time and SDIT=100/T

Example 1

T0=10 sec, after 15 minutes T1=25 sec: SDI15= 4

Example 2

T0=20 sec, after 5 minutes T1= 80 sec, occlusion after 7 minutes:
SDI5=15

Example 3

T0=30 sec, total occlusion

after 4 minutes:

SDI4=25