

Silt Density Index Monitor

Safe → Convenient → Advanced

Silt Density Index Test Instructions

What is SDI?

SDI is an acronym for Silt Density Index and it is a measure of the amount of particulate contamination in a Sample of water. Another commonly used acronym for SDI is Fle.g. Fouling Index. Silt Density Index(SDI) testing is most often used to estimating the rate at which colloidal and suspended Matter fouling will occur in a water sample on RO membrane.

Why SDI?

- Suspended solids and colloidal materials cause membrane fouling in RO system. In order to take some measure of the degree of this fouling problem, SDI test is required.
- RO element specifications usually call for the SDI value to be below 5.
- Water sources in a RO system often change their water quality and this test often needs to be done weekly or monthly.

How is SDI calculated?

Using a 0.45-micron pore size membrane element filter, 47-mm in diameter, the SDI test measures the actual decay in flow rate through the filter. The 0.45-micron filter is chosen because it is more likely to clog from colloidal matter than from hard particles such as sand or scale, similar to the behavior of RO membrane.

Collect 500ml water sample respectively 5, 10 and 15 minutes after beginning of the test. Silt density index of water sample is defined by the measured time decrease percentage of equal water quantity. Time of 15 minutes is the correct and standard testing interval defined in the ASTM D4189-07. SDI values measured at 5 and 10 minutes are only used to evaluate the SDI value measured at 15 minutes. Calculate the silt density index(SDI) as follows:

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

Where

- $\%P_{30}$
 T = percent at 207 kPa (30 psi) feed pressure,
 t_i = total elapsed flow time, min (usually 15 min, see Note)
 t_f =initial time required to collect 500 ml of sample, s, and
 s =time required to collect 500 ml of sample after test time T(usually 15 min, see Note),s.

NOTE — For this test method, %P30 should not exceed 75%. If %P30 exceeds this value, use a shorter time for T ; that is 5 or 10-min measurements in 7.8. If %P30 exceeds 75% after 5 min, other test methods should be used to analyze for particulate matter.

Product Category

1 SECTION Manual SDI Kit



Aike® Manual SDI Kit - 110 / 120



Discpore® Manual SDI Kit - 110

2 SECTION Portable SDI Tester



Aike® Portable SDI Test Kit - 110/120
(booster pump added-on)



RizonSDI®
Portable Automatic SDI Tester -120

3 SECTION Automatic SDI Monitor



RizonSDI® AUTO SDI Monitor - 110 / 120

4 SECTION SDI Membrane Filter



Aike® Membrane Filter



RizonSDI® Membrane Filter Roll

1 SECTION
Manual SDI Kit

Aike® Manual SDI Kit

Common Water Application — HAK-110
Seawater Application — HAK-120



Specific overflow gap to ensure complete venting

Uniform water distribution and no damage to the membrane

Cost-effective

Application

- UF & RO System
- Sea water
- Common water
- On-site testing

Features

- According to the ASTM D4189-07 Norm
- Available in Seawater and Common Water Type
- In-Field flow calibration
- Uniform water distribution and complete venting
- Quick and convenient
- Easy installation and simple tools
- Lightweight and portable
- Special regulator for stable pressure
- Excellent seal of import O-ring

1 SECTION
Manual SDI Kit

Aike® Manual SDI Kit






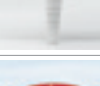

Common Water Application — HAK-110
Seawater Application — HAK-120

Main Parameters

Weight	0.75kg
Filter Diameter	47mm
Filter Area	13.8cm ²
Filtration Area (cm ²)	13.8
Applicable Membrane Filter Model	Aike®HAK-47-MCE
Testing Criteria	ASTM D4189-07
Water Inlet Pressure	2.4bar~5bar
Inlet & Outlet Size	1/4NPT



Aike® Manual SDI Kit Assembly (No.HAK-110/120)

Parts	HAK-110 (Common Water)	HAK-120 (Sea Water)	Pictures
Pressure Gauge	PTFE	non - metallic	
Pressure Regulator	Noryl / Brass	non - metallic	
Filter Holder	PP	PP	
Screw	PP	PP	
Manual Ball Valve	Stainless Steel / Brass	UPVC	
Flow Joint	PP	PP	
O-ring	Silicon Rubber	Silicon Rubber	
Tube	PU	PU	

Ordering Conformation

Ordering Conformation		
Item No.	Product	Description
HAK110	Aike® Manual SDI Kit	For Common Water Application
HAK120	Aike® Manual SDI Kit	For Sea Water Application
Optional Accessories		
HAK-47-MCE	Aike®Membrane Filter	47mm, 0.45micron, 100/pkg
HAK-PU	Booster Pump	Water Inlet Pressure<2.4bar, Requiring Optional Booster Pump System

1 SECTION
Manual SDI Kit

Discpore® Manual SDI Kit

HDP-110



- Inlet Tube
- Shut-off Valve
- Pressure Gauge
- Pressure Regulator
- Screw
- Discpore Filter Holder
- Flow Joint

Application

- UF & RO System
- Common water
- On-site testing

More Stable






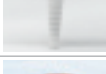

Main Parameters

- Maximum Pressure (bar) ----- 5.0
- Filter Diameter (mm) ----- 47
- Filtration Rate (m) ----- 0.45
- Filtration Area (cm²) ----- 13.8
- Weight (kg) ----- 0.11
- Inlet Size Φ 1/4" tube tie-in
- Outlet Size Φ 1/4" tube tie-in

Features

- According to the ASTM D4189-07 Norm
- In-Field flow calibration
- Uniform water distribution and complete venting
- Easy installation and simple tools
- Lightweight and portable
- Superior product quality

Discpore® Manual SDI Kit Assembly (No.HDP-110)

Parts	HDP-110	Pictures
Pressure Gauge	PTFE	
Pressure Regulator	Brass	
Discpore Filter Holder	PP	
Screw	PP	
Shut - off valve	UPVC	
Flow Joint	PP	
O-ring	Silicon Rubber	
Tube	PU	

Ordering Information

Item.No.	Product	Description
HDP -110	Discpore® Manual SDI Kit -110	For Common Water Application
HAK-47-MCE	Aike® Membrane Filter	47mm, 0.45micron, 100/pkg
D110-1	Pressure Gauge	-
D110-2	Pressure Regulator	-
HAK03	Filter Holder	-
HAK04	Screw	-
D110-5	Shut - off valve	-
HAK06	Flow Joint	-
HAK07	O-ring	-
HAK08	Tube	-
-	Package Size	27*18*18 (cm)
-	Weight	1.4kg

Aike® Portable SDI Test Kit

(booster pump added-on)
HAK-PU-110 HAK-PU-120



Application

- UF & RO System
- Sea water
- Common water
- Field operation
- Feed water pressure less than 2.4 bar.
- Lab

Features

- Completely assembled in a portable, compact case, ready for on-site testing
- Good precision with pressure buffer tank
- Special power adaptor applicable to most of power standards worldwide
- Easy and convenient operation
- Good choice for feed water pressure less than 2.4bar, even when the pressure is 0.
- Suitable for Laboratory application

Main Parameters

Power Supply Adaptor	220AC/24DC	Pressure Buffer Tank	Volume: 0.5L
Booster Pump	EC-202-200A	Operating Pressure:	0-10 bar
Power Transducer	EU/USA Standard	Inlet Joint	1/4" M PU
Instrument Box	300*280*300(mm)	Outlet Joint	1/4" F PU

Ordering Information

Item No	Product	Description
HAK-PU-110	Aike® Portable SDI Test Kit - 110	For Common Water Application
HAK-PU-120	Aike® Portable SDI Test Kit - 120	For Sea Water Application
HAK-47-MCE	Aike® Membrane Filter	47mm, 0.45micron, 100/pkg
A110-1	Pressure Gauge	For Common Water Application
A120-1	Pressure Gauge	For Sea Water Application
A110-2	Pressure Regulator	For Common Water Application
A120-2	Pressure Regulator	For Sea Water Application
HAK03	Filter Holder	-
HAK04	Screw	-
A110-05	Manual Valve	For common water application
A120-05	Manual Valve	For sea water application
HAK06	Flow Joint	-
HAK07	O-ring	-
HAK08	Tube	-
PU-E200A	Booster Pump	-
AP-B400	Instrument Box	-
AP-T005L	Pressure Buffer Tank	-
-	Package Size	40*30*16 (cm)
-	Weight	6kg

Aike® Portable SDI Test Kit Assembly (HAK-PU-110 / HAK-PU-120)

Parts	HAK - PU -110	HAK - PU -120
Pressure Gauge	PTFE / Brass	non - metallic
Pressure Regulator	Noryl / Brass	non - metallic
Filter Holder	PP	PP
Screw	PP	PP
Manual Valve	UPVC	UPVC
Flow Joint	PP	PP
O-ring	Silicon Rubber	Silicon Rubber
Tube	PU	PU
Booster Pump	Nylon	Nylon
Instrument Box	ABS	ABS
Pressure Buffer Tank	PP	PP

2 SECTION
Portable SDI Tester

RizonSDI® Portable Automatic SDI Tester

HRSP -120



Features

- Produced according to ASTM D4189-07
- Booster pump added-on, applied to different feed water pressure, even when pressure is 0
- No need for stopwatches, graduated cylinders, calculators and tedious labour
- Automatically test and calculation of SDI value
- Easy operation, button controlled, with LCD screen
- Power-down protection calendar, Date/Time stamping on every test
- The data will automatically be stored in memory
- Non-volatile memory for 99 complete test results

RizonSDI® Portable Automatic SDI Tester Assembly (HRSP-120)

Parts	Material
Cover Case	PC
Anti Corrosion Filter Plate	PP
Pressure Guage	SS
Pressure Regulator	SS/PVDF
Flow Sensor	PVDF
Water Tank	PP
Booster Pump	Nylon
Tube	PU
Power Adaptor	-
Self-control system	-

Application

- UF & RO System
- Sea water
- Common water
- Field operation
- Feed water pressure less than 2.4 bar.
- Lab

Main Parameters

Basic Information	
Size	350mm*270mm*150mm
Weight	3.5kg
Working Temperature	5~40°C
SDI Range	0~20
SDI Testing Time	1~15 min
Testing Criteria	ASTM D4189-07
Water Inlet Pressure	2.4 bar~5bar
Electrical Power Selection	220VAC. 10%,50-60HZ
Working Voltage	DC12V
Inlet & Outlet Size	Φ6mm quick joint
Applicable Membrane Filter Model	ΦAike®HAK-47-MCE

Ordering Information

Item No.	Product	Description
HOST10	Rizon®SDI Automatic Portable SDI Tester	Standard Configuration: 1-Channel Input
Optional Accessories		
HOST-PU	Booster Pump	Water Inlet Pressure<2.4Bar, Optional
HAK-47-MCE	Aike®membrane filter	47mm,0.45micron,100/pkg

RizonSDI[®] AUTO SDI Monitor

RizonSDI[®] -110/120



Application

- RO system on-line testing
- Sea Water Desalination
- Common Water Treatment
- Large scale plants that unattended operation is required



Features

- According to the ASTM D4189-07 Norm and its global generality property
- Up to 3-channel input
- With automatic, precise and infallible routine
- a complete self-contained system meant for unattended operation
- With extensive reliability and with advanced fault analysis and warning
- The operational display panel provides the operator with interface and on-line control to the analyzer control functions
- Real-time monitoring and display the SDI value, functions, and fault detection by LCD
- Rugged, spray proof (IP 53) self-contained, wall mountable system
- Analogue output (4~20 mA) for remote reading of SDI value
- Superior anti-interference ability by power-down protection and digital filtration technique
- Alarms for temperature, abnormal pressure of air supply, membrane supplement and SDI over-limit
- Print testing results by connecting external equipment
- Automatic transport of filter paper after each measurement for a total of 80~100 measurements out of one paper roll
- Booster Pump is supplied if inlet pressure is less than 35 psi

3 SECTION
Automatic SDI Monitor

RizonSDI® AUTO SDI Monitor

RizonSDI® -110/120



Main Parameters

Basic Information	
Housing Size	350mm*270mm*640mm
Working Humidity	<85%RH, No Corrosive Gas
Working Temperature	5~40°C
Precision	±2%
SDI Range	0~20
SDI Testing Time	1~15 min
Output Signal	4~20 mA
Testing criteria	ASTM D4189-07
Applicable Membrane Filter Roll model	HSDI-0645-MCE
Environmental Protection	IP 53
Operating Conditions	
Air Intake pressure	4.0~8.0 bar
Water Inlet Pressure	2.4~5.0 bar or 35-73psi
External Power	220VAC, 10%,50~60HZ
Water Inlet & Outlet Size	Φ 6mm quick joint
Air Intake Size	Φ 6mm quick joint

RizonSDI® AUTO SDI Monitor -110/120 Assembly and Material list

Parts	Material	
	RizonSDI® -110 (Common water)	RizonSDI® -120 (Sea water)
Main Material	Metal, PVC, ABS	Metal, PVC, ABS
Housing	Metal	PVC; ABS;
Tube	PU	PU
Gas Pressure Regulator	aluminum alloy	aluminum alloy
Water Pressure Regulator	aluminum alloy	non-metalic
Gas Pressure Guage	Brass	Brass
Water Pressure Guage	Brass	non-metalic
Gas Solenoid Valve	PA	PA
Water Solenoid Valve	Brass	PVDF
O-ring	Silicon Rubber	Silicon Rubber
Filter Holder Plate	PP	PP
Booster Pump	Nylon	Nylon

Ordering Information

Ordering Conformation		
Item No.	Product	Description
HAST-10	RizonSDI®AUTO SDI Moitor	Standard Configuration: For Common Water,1-Channel Input, Seawater Needs HAST-VA Solenoid Valve Configuration.
HAST-20	RizonSDI®AUTO SDI Moitor	Standard Configuration: For Common Water,2-Channel Input, Seawater Needs HAST-VA Solenoid Valve Configuration.
HAST-30	RizonSDI®AUTO SDI Moitor	Standard Configuration: For Common Water,3-Channel Input, Seawater Needs HAST-VA Solenoid Valve Configuration.
HAST-40	RizonSDI®AUTO SDI Moitor	Standard Configuration: For Common Water,4-Channel Input, Seawater Needs HAST-VA Solenoid Valve Configuration.
HAST-VA	Solenoid Valve	For Seawater Configuration.
Optional Accessories		
HAST-PU	Booster Pump	Water Inlet & Outlet Pressure<2.4 Bar Optional
HSDI-0645-MCE	RizonSDI®Membrane Filter Roll	6 M/Roll, 0.45 Microns, with Usual Measures of Time Up to 80-100.

4 SECTION
SDI Membrane Filter

Aike® Membrane Filter



Application

- Aike® Manual SDI Kit -110/120
- Discpore® Manual SDI Kit-110
- Aike® Portable SDI Test Kit - 110/120
- RizonSDI Portable Automatic SDI Tester -120

Main Parameters

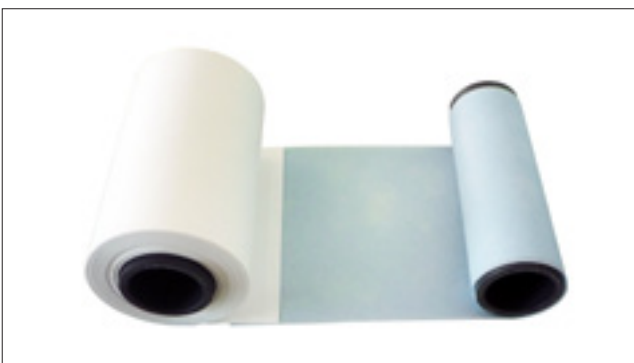
- Diameter: 47mm
- Filtration Rating: 0.45 micron
- Filtration Area: 13.8cm²
- White disc hydrophilic membrane filters
- Filter Material: Cellulose acetate
- 100pcs per package
- Package: a plastic seal box

Ordering Information

Product	Description	Item No.
Aike® Membrane Filter	47mm, 0.45micron, 100/pkg	HAK-47-MCE

4 SECTION
SDI Membrane Filter

RizonSDI® Membrane Filter Roll



Application

RizonSDI® AUTO SDI Monitor -110/120

Main Parameters

- Filter pore size: 0.45 micron
- Filter Length: 6m
- Time of measures: 80~100
- Filter Material: Cellulose acetate
- Package: 10 roll per box

Ordering Information

Product	Description	Item No.
RizonSDI® Membrane Filter Roll	0.45um/L=6M- 80~100 times measures	HSDI-0645-MCE



Company Profile

Horizon LTD is a specialized environmental science and technology enterprise. We focus on the development, production and extension of products and technology in water treatment area and product technical sales.

On the basis of powerful technology and abundant capital, Horizon has developed various high-quality, good-performance and cost-effective products over the years, Our diverse production lines can supply many key components which cover a wide range of plant types, BWRO and SWRO.

We believe
Horizon is your
best choice !



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