



KC-10 Turbo-TOC® Turbine Oil Conditioning System

The Turbo-TOC®(6) KC-10 is a 38 LPM turbine oil conditioning system that supports long-term turbine operation and significantly reduces the probability of oil related turbine failures or unscheduled maintenance due to contaminated turbine oil. It is designed for turbine oil reservoirs sizes up to 5,000 liters.

A major factor in power plant turbine oil reliability is the control and removal of undesired particulate and water. When contamination invades turbine oil, protection of the turbine bearing and journal surfaces are placed at risk and turbine performance is jeopardized. Studies have shown water contamination of 250 ppm can reduce bearing life by 50%.

Kaydon Filtration Turbo-TOC® turbine oil conditioning systems to remove harmful particulate and water from turbine lube oil used at steam, combustion, and hydroelectric power plants. The Kaydon Filtration Turbo-TOC® turbine oil conditioning system provides continuous and persistent fluid conditioning service during equipment uptime, and adds additional benefit during shutdown by quickly preparing the turbine oil for equipment start-up.



SPECIFICATIONS & DETAILS

System Flow	38 LPM (maximum flow)
Sizing	Oil Reservoirs up to 5,000 Liters
System Pressure	7 BAR (maximum)
Environmental Parameters	NEMA 4/IP54 Minimum Temperature: 0 C Maximum Temperature: 54 C
Operating Voltage	380 VAC / 3PH / 50Hz / 4 AMPS
Materials of Construction	Metals: Carbon Steel, Bronze, Stainless Steel Elastomers: Buna-N Paint: Acrylic Urethane Enamel
Pressure Vessel	Designed and Constructed in accordance with ASME Section VIII, Division I
Inlet/Outlet Connections	Type: ANSI B 16.5 Flanged Inlet: 38.1 mm Outlet: 25.4 mm
Pump/Motor Assembly	Pump Type: Gear - positive displacement Motor: 1.12 KW
Fluid Compatibility	ISO 32, ISO 46, and ISO 68 mineral base turbine oil
Filter Stages	Pump Protection Stage: 30 mesh strainer Pre-Filtration Stage (optional): particulate removal - 5 micron ⁽³⁾ Filtration and Water Removal Stage: particulate and water removal - 4 micron ⁽⁴⁾
Performance	Particulate: ISO Cleanliness Code 15/13/11 ⁽¹⁾ Water: removal to less than 100 ppm ⁽²⁾
Weight	725 kg approximate
Dimensions	1397 mm (L) x 1372 mm (W) x 1905 mm (H)

FEATURE AND BENEFIT OPTIONS

COALESCER/SEPARATOR ELEMENTS: Both water and particulate in the turbine oil is removed, preventing component failures, eliminating wear, and protecting bearing and journal surfaces.

ASME CODE FILTER VESSEL: The filter vessel is designed, built, and labeled in accordance with the latest revision of paragraph UW 12(c) of the ASME Pressure Vessel Code, Section VIII, Division I for 10.3 BAR design pressure and 121 degrees C design temperature.

CONTROL PANEL: Control panel provides operator easy-to-use start and stop control and includes system run light.

PRESSURE AND VACUUM GAUGE: The pump pressure and vacuum gauge give quick indication of the pump operating conditions.

FEATURE AND BENEFIT OPTIONS (CONTINUED)

DIFFERENTIAL PRESSURE GAUGE: Mounted on the coalescer vessel to monitor coalescer and separator element life.

SIGHT GLASS: Provides visual indication of the water accumulation in the filter vessel.

SAMPLE PORT: Allow for output oil sampling during system operation.

AUTOMATIC AIR RELEASE VALVE: Allows for the efficient removal of trapped air in the filter vessel. Elimination of air provides for complete oil filling of vessel, which permits complete use of element surface area.

EXPORT CRATING: Heavy duty and rugged crate for extra protection for overseas shipments.

AUTOMATIC WATER DRAIN AND WATER METER (optional): After the system has removed the water from the turbine oil, it will accumulate in the coalescer vessel. When it has accumulated to a preset level, a water float switch will activate, which will open the water drain solenoid valve to automatically discharge the water through the water meter. The water meter is located in the water drain line and this meter measures and records the water that has been removed from the turbine oil.

SKID MOUNTING (optional): Conveniently designed on a single skid, with forklift points for accessible system positioning, drip containment rim, skid drain port and mounting tabs. *Required with PRE-FILTER, HEATER, and PORTABILITY options.*

PRE-FILTER (optional): Pre-filter removes damaging particulate and debris before the turbine oil is passed to the coalescer/separator stage. The pre-filter vessel is equipped with a differential pressure gauge and automatic air release valve. Particulate filtration is rated at Beta (5.1) = 1000. *This option requires SKID MOUNTING.*

ISOLATION VALVES (optional): Allow for convenient way to isolate the system for filter changes.

OIL HEATER (optional): 15 KW oil heating assembly provides supplemental heating of oil before start-up. In addition to the oil heater, an oil temperature controller is installed to display oil temperature and allow operator adjustment of heater temperature set point. A safety oil flow switch is also added to ensure oil flow is occurring before the oil heater is activated. System current draw increases to 25 amperes. *This option requires SKID MOUNTING.*

VARNISH REMOVAL- BCA™ TECHNOLOGY (optional): BCA™ systems provide sub-micron removal from turbine oil and varnish removal from internal metal components within a turbine lube system.

PRESSURE RELIEF VALVE (optional): Set to ISO psig (10.3 BAR)

LIFTING LUGS (optional): Lifting lugs are added on the filter vessel cover and are designed to allow lifting of the assembly from above.

PORTABILITY KIT (optional): Includes four casters, inlet/outlet hoses, power cord (plug not provided), and tow connector. *This option requires SKID MOUNTING.*

SAFETY OVERFLOW SIGHT (accessory): The safety overflow sight allows convenient viewing of oil flow and helps operators maintain the desired level of turbine oil in the reservoir. The safety overflow sight features clear glass walls, cast iron body with a white enamel interior, and a metal top with a connection for venting back to the reservoir.

CONSUMABLES		
MODEL/ DESCRIPTION	QTY	PART NUMBER
PRE-FILTER ELEMENT ⁽³⁾ (Optional)	1	A910266
COALESCER ELEMENT	2	A910267
SEPARATOR ELEMENT ⁽⁴⁾	3	A910268
FILTER VESSELS SEAL KIT ⁽⁵⁾ (includes one gasket and one o-ring)	1	FSK-KL10

FOOTNOTES

- (1) As measured with inline automatic particle monitor calibrated to ISO 11171 and influent no greater than ISO 22/19/17
(2) Total Water content (free, emulsified and dissolved) as measured by ASTM D6304-04 (Karl Fischer method)
(3) Removes 99.9% of all particles 5.1 micron and larger per ISO 16889 (4) Removes 99.9% of all particles 4.2 micron and larger per ISO 16889 (5) Required for element changes. (6) Registered trademark and patented technology of Kaydon Filtration.

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OPTIONS	
Description	Part Number
Inlet Isolation Valve	16624
Outlet Isolation Valve	16623
Oil Heater	A400004
Varnish Removal Skid	D991005
Pressure Relief Valve	18085
Lifting Lugs	B211004
Portability Kit	D600158
Safety Overflow Sight	89869

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