Desorber/Filter Combi Unit, D10

Water, salt and particle removal from lube oils, emulsified oils and Environmentally Acceptable Lubricants (EALs) / Biodegradable Oils

Product Sheet

APPLICATION

CJC® Desorber/Filter Combi Unit, D10, a combined product used for maintenance of oils. The unit **removes large amounts of water,** salt and particles from a wide range of lubricants including emulsified oils and **EAL's (Environmentally Acceptable Lubricants) / biodegradable lubricants** in applications such as:

Marine applications:

- thrusters
- stern tubes
- rudders
- stabiliser fins
- controllable pitch propeller
- hydraulic applications

EAL's / biodegradable oils:

- Esters
- PAG'S
- PAO'S
- emulsified oils

CUSTOMER BENEFITS

The CJC® Desorber/Filter Combi Unit, D10 is one unit solving problems with both water, salt and particles. One inlet and one outlet, plug-and-play type easy to install, has a small footprint area and ready to work in less than 30 minutes.

- Removal of large amounts of water - even from emulsified lubricants, preventing formation of acid and microbial growth
- Removal of particles
- Removal of salt (seawater)
- Reduced corrosion and wear/tear of rubber made sealings
- Extended lifetime of both oil and components by a factor 3 to 4
- Prevents uncontrolled shutdowns and reduces maintenance costs
- Compact in size
- Environmentally friendly solution

FUNCTION

The water separation ability of the CJC® Desorber/Filter Combi Unit, D10 is unaffected by viscosity and additive package. The Desorber treats mineral oils as well as synthetic fluids, even the new kind of EAL's (Environmentally Acceptable Lubricants) / biodegradable lubricants and is able to break stable emulsions. The CJC® Desorber/Filter Combi Unit, D10 is able to maintain the water and salt content within systems to very low levels. Furthermore, particles are continuously removed from the oil system by passing through the CJC® Oil Filter placed on top of the CJC® Desorber. The filter has a filtration rating at 3 micron absolute and 0.8 micron nominally. The unit is equipped with a pressure switch function to notify when the CJC® Filter Insert needs a replacement. The frame is made of stainless steel. Furthermore, the unit delivers external signals, such as: a running alarm and a common alarm.

DESORBER PRINCIPLES

The desorption process is based on the principle that heated air can effectively hold large quantities of water. In the Desorber, the oil is preheated to 60°C and met by a counter flow of cold dry air. The air is heated rapidly by the hot oil and absorbs any water present in the oil, until the air is saturated. The warm, moist air is then chilled to condense the water out using a drainpipe.

FILTRATION PRINCIPLES

The filtration process is performed by the separate pump drawing oil from the main system and passing it through the fine filter, exiting from the filter base and back to the main system.

The CJC ® Desorber/Filter Combi Unit, D10

FACTS

Water in oil leads to change in viscosity, reduced filter ability, reduced lubricity, formation of rust and bacterial growth and increased degradation of the oil - all factors that lead to reduced lifetime of both system components and the oil.

DNV-GL

The Classification Society, DNV-GL, in their Technical e-Newsletter of June 12th 2013 has stated that, for their Clean Design Class Notification:

"If a biodegradable oil is used, an arrangement shall be in place to keep the water content of the oil under control".

TECHNICAL DATA

Voltage	V/Hz	1x208	1x230		3x400	3x440-480
Frequency		60	50	60	50	60
Power consump.	kW	2.7	2.9		3.2	
Current	A	15.5	12.5		5.1	
Flow inlet	L/h gal/h	55 14.5	45 11,9	55 14.5	45 11,9	55 14.5
Viscosity range		ISO VG 32-150				
Ambient operation temperature, max	°C °F	5-45 41-113				
Design Temperature	°C °F	60 140				
Dimensions WxDxH	mm in	570 x 570 x 1635 22.4 x 22.4 x 64.4				
Weight	kg/lb	170 / 375				
System pressure	bar psi	0.5 (PV) or 3.5 (PVM) inlet pressure, max 7 (PV) or 51 (PVM) inlet pressure, max				
Applicable Filter Insert		BLA 27/27				
Article no.		FA9601328 FA9601339				

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and Environmentally Acceptable Lubricants (EALs) / Biodegradable Oils

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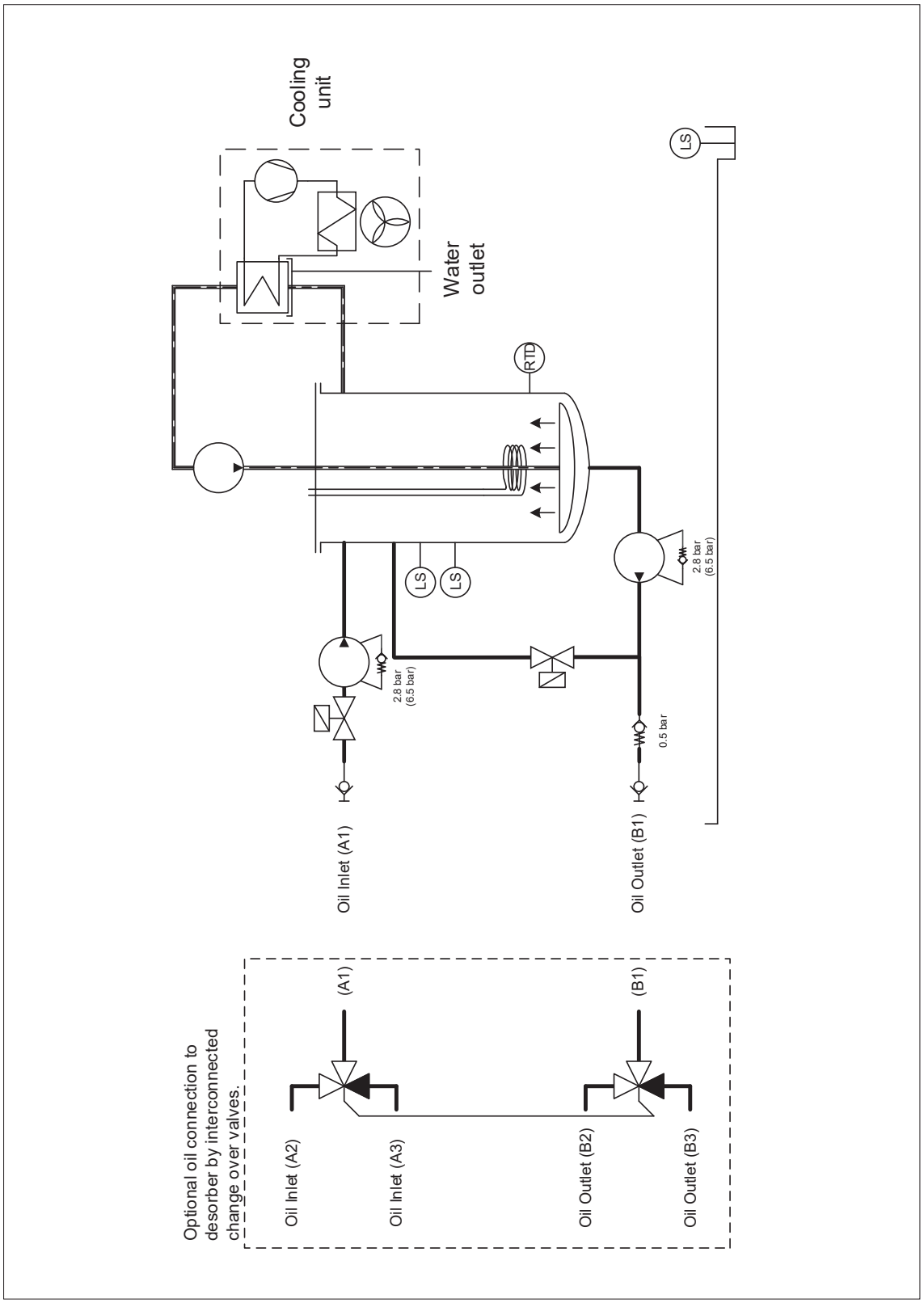

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Product Sheet

CJC®Filter Inserts, type BLA

Specially designed for filtration of water containing oils & fluids

CJC® BLA FILTER INSERTS

The CJC® BLA Filter Inserts are designed for fine filtration of lubricants containing water. The BLA Filter Inserts will allow water to pass through, but will retain particles and varnish.
The BLA Filter Inserts are mainly used in CJC® Fine Filter HDU series, but also in CJC® Filter Separators PTU 15/- series.
A CJC® Desorber can, if required, remove the water from the specialised lubricant.

Used for maintenance of below oils and fluids:

- EALs, MorgOils, paper machine lube oils
- Water glycol-based fluid (PEG)
- Water based fire resistant fluid (HFA, HFB)
- Water based machine tooling fluid

BLA 15/12 *BLA 15/25* *BLA 27/27*

CONTAMINATION CAPACITY

Based on field experience we have observed that the total Dirt Holding Capacity (DHC) is dependent on shape and density of particles and other variables within an oil system.

When saturated, the total weight of accumulated contamination depends on the application, the combination of contaminants, as well as the density of the captured contamination.

Contamination Capacities	Size		
	15/12	15/25	27/27
Solids, kg	1	2	4
Varnish, kg	0.5	1	4

COMPONENTS

CJC® Filter Inserts consist of cellulose bonded discs, **made of natural cellulose fibres.**

DISPOSAL OF USED CJC® FILTER INSERTS

CJC® Oil Filters are green solutions, and at C.C.JENSEN one of our objectives is caring for the environment. Therefore, please arrange proper disposal of used filter inserts in accordance with your own local legislation.

IDENTIFICATION

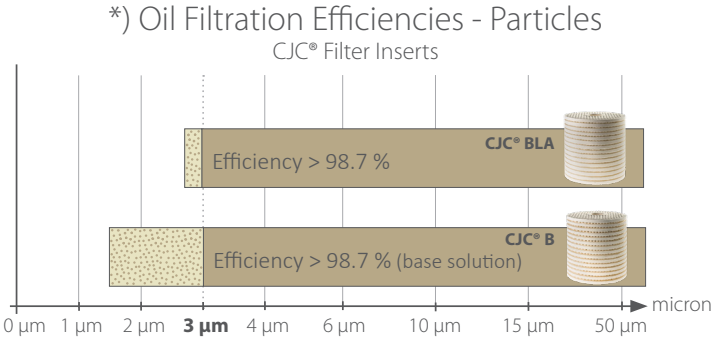
To order the BLA Filter Inserts, please use:

Article No.:

- 1 x BLA 15/12: PA5601327
- 1 x BLA 15/25: PA5601326
- 1 x BLA 27/27: PA5601320

FILTRATION TECHNOLOGIES

- **Oil filtration degree**
  *Particles can be removed according to the illustration below *)*
  For offline oil filtration, the dirt holding capacity is paramount because the offline process will have time to remove contaminants, unlike in-line filtration. Our focus is on removing the smallest and most harmful particles.
- **Oxidation and oil degradation products**
  The cellulose material retains oxidation by-products, resins, sludge, and varnish. The huge surface area of the filter media removes contamination through absorption and adsorption. By effectively removing contaminants we can slow down the rate of oil degradation.
- **Water resistancy**
  BLA Filter Inserts are designed to let water pass through. After the initial absorption of some water, the filter insert will allow water to pass through without increasing the differential pressure.
- **Acidity stabilisation**
  Acidity is a natural part of the oil degradation process and will be retained by the CJC® Filter Insert using absorption technology.



CJC® **BLA** Filter Insert:

- water resistant
- high efficiency
- pressure drop does not increase with water

CJC® **B** Filter Insert: (base solution)

- best balance between fine filtration efficiency and high dirt holding capacity

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BENEFITS in general

C.C.JENSEN DEPTH FILTER EFFICIENCY TEST

CJC® Filter Inserts are designed to last for one year, therefore testing of a high density depth filter for a few hours does not make sense. The C.C.JENSEN test is inspired by a modified ISO 16889, using finer test dust (UFTD), which resembles real dust and wear particles better than the coarse MTD test dust used in the standard Multi-pass test - designed for thin pleated filter media. The test modification also includes a much longer test time to get close to a real-life application scenario. The main advantage of CJC® Filter Inserts is the huge surface area, which distributes the oil flow and particles evenly and ensures stable low velocity for optimum retention of contamination. The large filter mass makes this unmatched high dirt holding capacity possible.

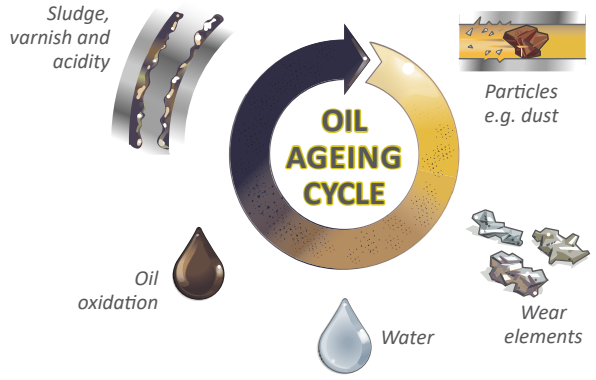
DIRT HOLDING CAPACITY CREATES VALUE

Competitive Filter Insert costs divided by dirt holding in kg:

3-micron filtration	Example 1	Example 2
Filter Insert type	Competitive pleated filter	CJC® cellulose depth media
Cost of element vs. Filter Insert	1 x €	4 x €
Dirt holding capacity	0.100 kg	4 kg
Cost per kg removed contamination	10 x € per kg	1 x € per kg

SLOW DOWN OIL AGEING

By removing all four contamination types (particles, water, acidity, and varnish), the CJC® Filter Inserts can slow down the oil ageing process and prolong the oil lifetime (see ill. 1). CJC® often results in 2-5 times longer oil lifetime, leading to considerable savings and reduction of CO_2 emissions. Field experiences show that removing particles of 3 µm and below with CJC® Filter Inserts has a significant effect on oil and component lifetime.



ill. 1)

CJC® Filter Inserts remove all catalyst in the "oil ageing cycle" and will slow down the oil degradation process. If contaminants are not removed, a vicious circle starts and the oil degradation process speeds up.

YOUR BENEFITS WITH CJC®

CJC® Filter Inserts have the highest dirt holding capacity on the market due to special cellulose-based material. Furthermore, the unique construction of the bonded discs, creates a large filtration area (see ill. 2) resulting in reduced costs of ownership. The CJC® Filter Inserts are a modular design, which allows them to fit any applications and requirements.

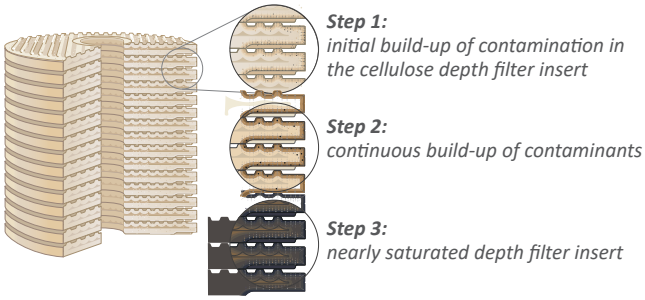
1. **The CJC® Filter Insert features:**
   a. Depth media of moulded cellulose
   b. Highest Dirt Holding Capacities (DHC)
   c. **100% natural cellulose fibres**

2. **Removal of contaminants, 4-in-1:**
   a. **Particles:**
   Lifetime of both oil and component are increased considerably.
   b. **Oil degradation products:**
   Avoid sticking valves, lacquering, and varnish on metal surfaces.
   c. **Water:**
   Reduce the risk of micro-pitting, bacterial growth, sludge etc.
   d. **Acidity/TAN:**
   Reduce oil ageing and wear on equipment.

3. **OEM requirements**
   Experience and application knowledge of C.C.JENSEN ensure that CJC® solutions can meet specifications from OEMs on oil cleanliness.

All helping to minimise further degradation of the oil.

CJC® DEPTH FILTRATION EFFICIENCY



ill. 2)

This graphic describes the technology and the efficiency of depth Filter Inserts removing contaminants by adsorption & absorption.

MAINTENANCE RECOMMENDATIONS

To achieve the highest possible oil cleanliness level, the CJC® Filter Inserts need to be changed at least once a year. Because of accumulated oil degradation products (oxidation, acids, and varnish) no matter what the pressure gauge indicates the used Filter Inserts should be replaced annually. Leaving filter media in service for longer than one year will result in decreased oil filtration efficiency and increased risk of breakdowns and component wear.

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