CLEAN OIL
BRIGHT IDEAS

Varnish Removal Unit, VRU 27-108

CJC™ Offline Fine Filter

CJC™ Product Sheet

APPLICATION

The **CJC™ Varnish Removal Unit, VRU** is designed for **efficient filtration/removal of soluble varnish** from:

- Gas turbines with combined lube and control oil system
- Base loaded gas or steam turbines operating at high oil temperature
- Highly stressed and hot running lube oil or hydraulic oil systems

FUNCTION

The warm oil is drawn from the lowest point of the system tank to the VRU by means of the transfer pump. The oil is cooled inside the VRU unit and the combined effect of a heat exchanger and air cooler ensures optimal filtration conditions at a low continuous operation cost. Since the VRU utilizes the "CJC™ Offline to Offline" principle, the oil that passes through the system is filtered several times in one pass of the VRU, thus ensuring a high efficiency of the VRU. The oil passing through the VRU is filtered using the CJC™ Varnish Removal Insert, VRi 27/27 specially designed for the process of varnish removal.

The special flow, characteristic of the CJC™ VRU, ensures crystallisation of soluble varnish from the oil. This process creates a "zebra like" pattern of oxidation products often visible on the used inserts.

Note that the return point preferably should be non-pressurized. Contact us in case this is not possible.

FILTER INSERT

The **CJC™ Varnish Removal Insert, VRi 27/27** consist of bonded double discs made of a cellulose blend. Three different types of cellulose fibres have been specially selected to obtain a filter that is efficient at removing soluble varnish.

BENEFITS

- No turbine trips or sticking valves due to varnish
- Prevent uncontrolled shut downs and reduces maintenance costs
- Extends the lifetime of both oil and components
- No need for system flushing and tank cleaning
- MPC values at safe levels

The CJC™ Varnish Removal Unit, VRU 27/108

TECHNICAL DATA

Model: Varnish Removal Unit		VRU 27/108
Pump flow, per week	ltr/gal	7560 / 2000
Pump type		PV/ED
Pump inlet pressure, max.	bar/psi	0.5 / 7
Full load current, max	A	3.5
Filter Insert VRi 27/27	pcs.	4
Power consumption, aver.	kW	2.4 (2.0 typical)
Pressure drop, max.	bar/psi	2.5 / 36
Oil reservoir volume, max.	ltr/gal	45,000 / 11,900
Oil temperature, max.*)	°C/°F	105 / 221
Varnish holding capacity, up to	kg/lb	8 / 18
Dry weight	kg/lb	245 / 540
Operating weight, wet	kg/lb	300 / 665
Design pressure, filter	bar/psi	4 / 58
Ambient temperature, max.	°C/°F	42 /107

*) Higher temperatures will reduce the efficiency of the VRU

APPLICABLE FILTER INSERTS

Type	Application for
VRi	Gas and steam turbines, lube oil and hydraulic oil systems

FILTRATION ABILITY

Degradation Products
Oxidation products, resin/sludge, and varnish are retained by the cellulose material, which will retain approximately **2 kg** of soluble oil degradation products.

CLEAN OIL
BRIGHT IDEAS

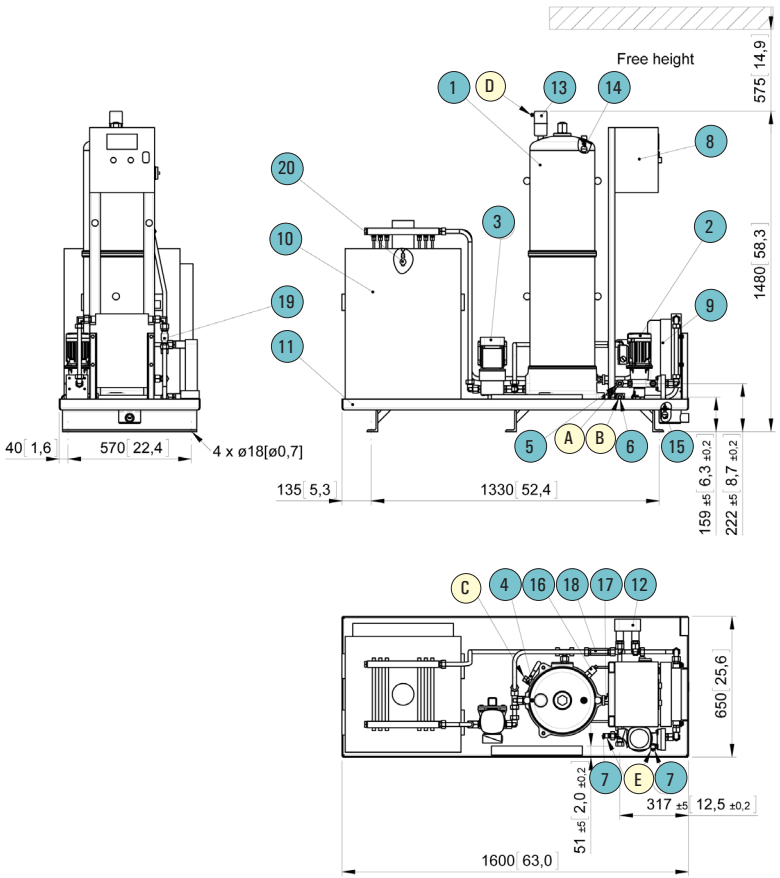
Varnish Removal Unit, VRU 27-108

CJC™ Offline Fine Filter

CJC™ Product Sheet

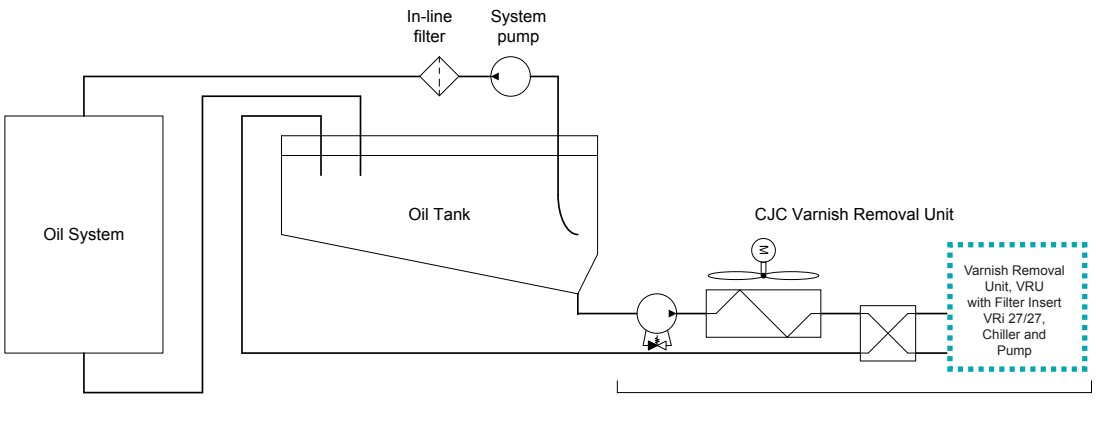
COMPONENTS	
Item	**Part**
1	Filter housing
2	Supply pump
3	Circulation pump
4	Drain valve
5	Connector, inlet
6	Connector, outlet
7	Test coupling
8	Control box
9	Air blast cooler
10	Chiller
11	Drip pan
12	Heat exchanger
13	Automatic vent
14	Level switch
15	Level switch
16	Pressure transmitter
17	Temperature transmitter
18	Non return valve
19	Non return valve
20	Level switch
A	ø18, Oil inlet
B	ø18, Oil outlet
C	1/2" BSP Drain valve
D	1/4" BSP Aut. vent
E	Sampling point

DIMENSIONS



CJC™ Varnish Removal Unit, VRU
Measurements in mm and inches

INSTALLATION PRINCIPLE



C.C.JENSEN A/S
Løvholmen 13 • DK-5700 Svendborg • Denmark
Phone: +45 6321 2014 • Fax: +45 6222 4615
filter@cjc.dk • www.cjc.dk