



Thruster Oil Filter

CJC™ Filter Separator, PTU2

Filtration and Separation of Thruster Oil



January 2012

Clean Oil - Bright Ideas

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CLEAN OIL
BRIGHT IDEAS

CJC™ Filter Separator PTU2 27/27 PV-DE2H1PW

CJC™ Compendium

REMOVE WATER FROM THRUSTER SYSTEM OIL

Water in thruster gear oil systems is a serious problem costing offshore vessel owners thousands of dollars every year for thruster repairs, oil changes, down time and dockings.

According to an IMCA survey thruster malfunctions accounted for 15% of all lost positions from 1991-94 (not including computer and electrical failures). Another 1993 survey proved that azimuth thrusters failed an average of 7.65 times per year and tunnel thrusters failed an average of 2.80 times per year.

Water in the gear and hydraulic oil account for the majority of thruster breakdowns.

The water is mostly entering the systems through the thruster main seal and although there has been an impressive effort made to develop means to prevent this from occurring, it has not been enough to overcome the water ingress problem. Therefore, it is imperative to consider the means of separating and removing the water from the system oil.

C.C.JENSEN A/S has developed a special CJC™ Filter Separator for keeping thruster systems water free. The CJC™ Filter Separator is operated offline - circulating the oil continuously with its own pump. The filter is fitted with electrical pre-heaters for optimizing water separation from the oil and a fine depth filter retaining solid particles down to 0.8 micron in size.

Many offshore vessel operators world-wide vouch for the performance of the CJC™ Thruster Oil Filter... they have experienced reduced maintenance costs after only 6 months operation with the CJC™ Filter.

For additional information or quotation, please fill out the data sheet on the last page of this booklet and fax to C.C.JENSEN. We look forward to hearing from you.



*Thruster Oil Filter
CJC™ Filter Separator, PTU2*



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PTU2 27/27

CJC™ Off-line Filter Separator - HYDRAULIC

CJC™ Product Sheet

APPLICATION

The CJC™ Filter Separator PTU2 27/27 Hydraulic is used for **hydraulic oils, turbine lube oils and gear oils** with a specific weight lower than that of water. The PTU2 27/27 is ideal for **separation of water, removal of particles and degradation products**.

FUNCTION

The filter pump draws oil from the bottom of the tank and presses it through the filter insert. From the centre of the insert the oil flows down into the coalescer housing where water droplets - if any - adhere to the coalescer element. Here larger drops will form and settle in the bottom of the coalescer housing.

The filter outlet port is placed in the top of the coalescer housing. The filtered oil should be returned to the tank close to the suction pipe of the main system pump.

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

On the PTU with automatic water discharge, separated water is drained automatically. The discharge function can be monitored on the unit control box. The PTU models are also available with manual water discharge.

The pressure drop over the filter - and consequently the contaminant absorption of the filter insert - is monitored on the pressure gauge on the filter top.

THE FILTER PUMP

The filter pump is a CJC gear wheel pump. The electric motor can be supplied for all standard AC and DC voltages.

FILTER INSERT

The CJC™ Filter Inserts consist of several discs bonded together. The material is cotton linters (cellulose).

OPTIONS

- Preheater
- Tank
- Drip pan
- Automatic water discharger
- Control box

FILTRATION ABILITY

• Water Removal by Separation

The CJC™ Filter Separator removes water from oil to very low levels. The efficiency of water removal depends on the oil type and temperature.

• Particle Removal

All CJC™ Filter Inserts have the following filtration degree:

- **3 µm abs.:** 98.7% of all solid particles > 3 µm
- **0.8 µm nom:** 50% of all solid particles > 0.8 µm are retained in each pass.

The dirt holding capacity is 4 litres of evenly distributed solids.

• Degradation Products

Oxidation products, resin / sludge, and varnish are retained by the cellulose material, which will retain appr. 4 kgs of oil degradation products.

To achieve the most efficient water separation on high viscosity oils, **preheating the oil** before filter pass may be necessary.

Consult C.C.JENSEN A/S for further information.



The CJC™ Filter Separator
PTU2 27/27 PV-E2W

TECHNICAL DATA

Model PTU2 - HYDRAULIC		PTU2 27/27	
		PV	PV-E2W
Pump flow, per hour (std.)	ltr/gal	45-120 / 12-32	
Pump type		PV4	
Pump inlet pressure, max.	bar/psi	0.5 / 7	
Filter Inserts 27/27, std.:	pcs.	1	
Power consumption, aver.	kW	0.18	0.4
Pressure drop, max.	bar/psi	1.8 / 26	
Oil temperature, max. *)	°C / °F	80 / 176	
Dirt holding capacity	ltr/gal	4.4 / 1.2	
Dry weight	kg/lb	60 / 132	72 / 159
Operating weight, wet	kg/lb	75 / 165	87 / 192
Design pressure, filter	bar/psi	4 / 58	
Ambient temperature, max.	°C / °F	40 / 104	
Water discharge		Manual	Automatic

*) Onboard ships: 60 °C / 140 °F

APPLICABLE FILTER INSERTS

Type	Application for
BLAT:	Hydraulic oils, turbine oils and gear oils, high water content.



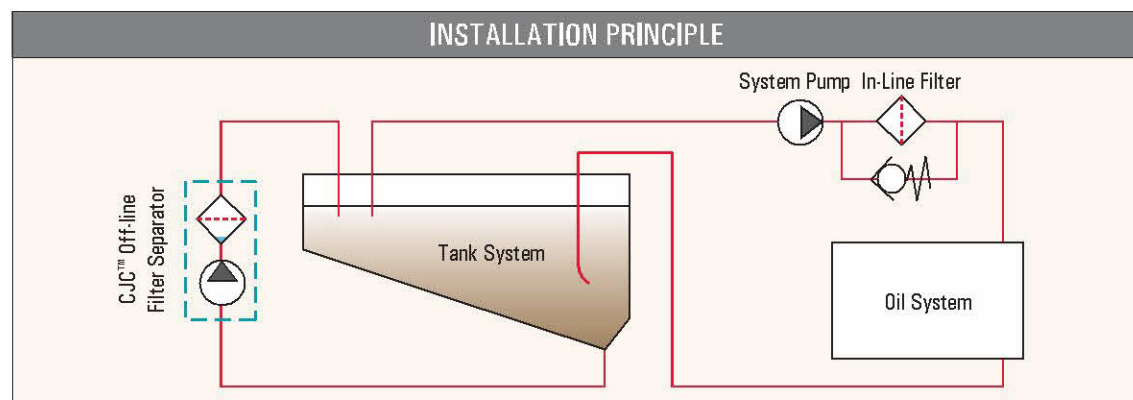
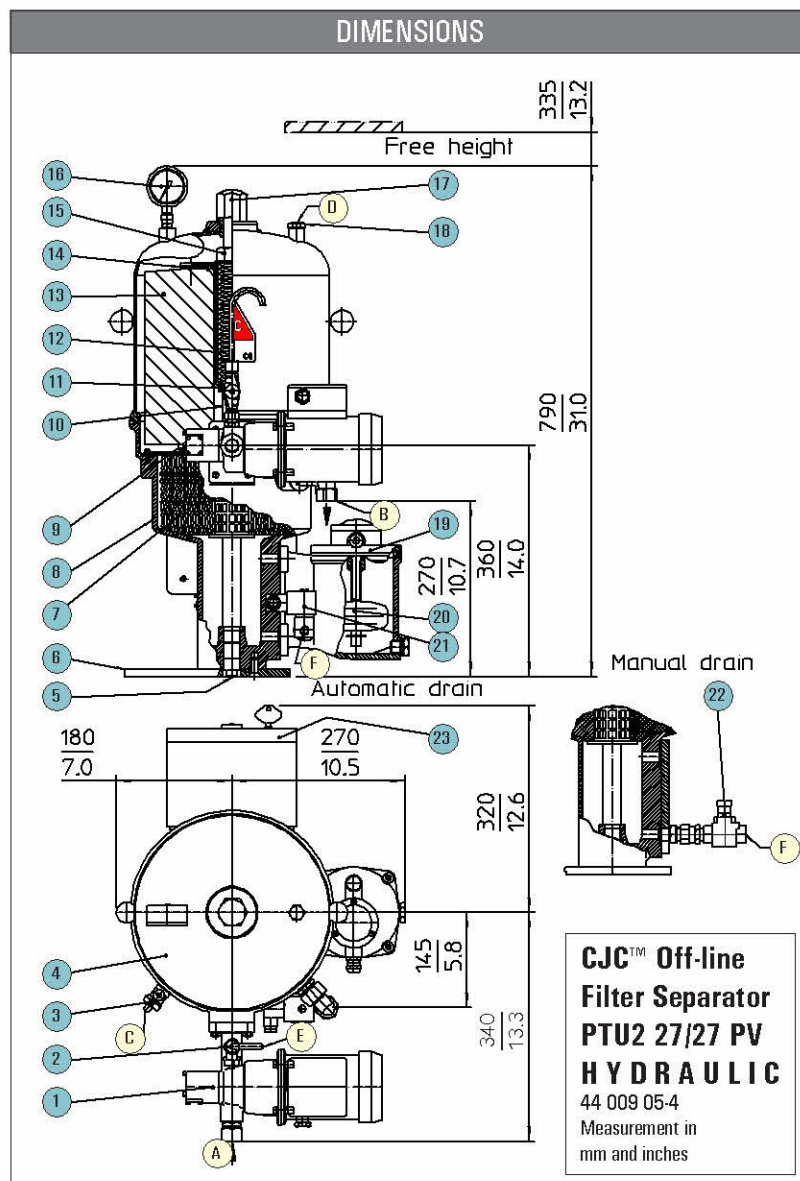
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PTU2 27/27

CJC™ Off-line Filter Separator - HYDRAULIC

CJC™ Product Sheet

COMPONENTS	
Item	Part
1	Pump
2	Sampling point
3	Drain
4	Filter housing
5	Plug
6	Foundation plan
7	Coalescer element
8	Filter base
9	Filter plate
10	Stay bolt
11	O-ring
12	Spring
13	Filter Insert
14	Spring guide
15	Nut for spring
16	Pressure gauge
17	Top nut
18	Vent screw
19	Water discharger, automatic
20	Floater
21	Solenoid valve
22	Water discharger, manual
23	Control box
A	ø18, Oil inlet
B	ø18, Oil outlet
C	3/8" BSP, Drain valve
D	1/4" BSP, Vent
E	Sampling point
F	1/2" BSP, Water outlet



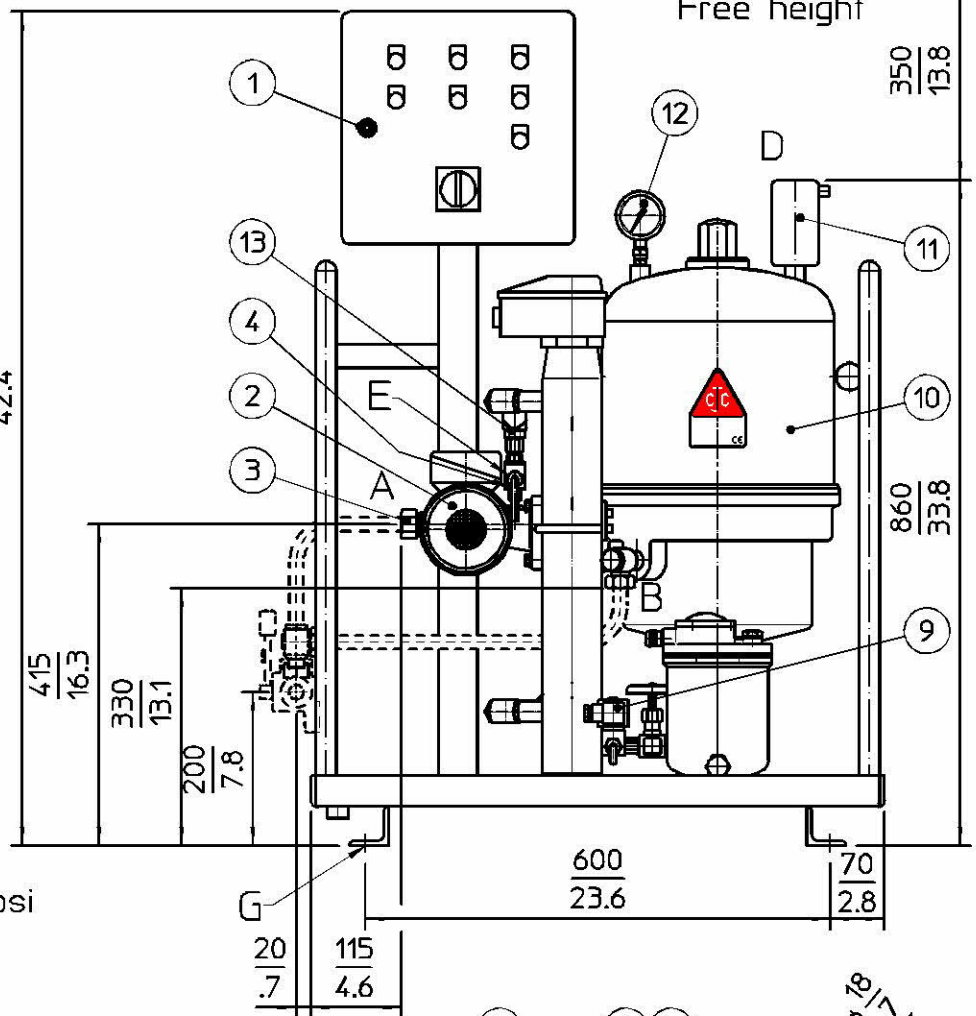
Execution
Voltage - Freq

Part no.: FA7600186-XY

X	Execution
A	With-out change-over valve
B	With change-over valve

Y	Voltage - Freq.
0	3 x 230/400V - 50Hz
2	3 x 275/480V - 60Hz
3	1 x 230V - 60Hz
4	1 x 230V - 50Hz
5	1 x 120V - 60Hz
6	1 x 110V - 50Hz

1075
42.4



Design pressure 4 bar/60 psi

Design temp. 60°C/140°F

Weight 132 kg/290 lbs

A = $\varnothing 18$, Oil inlet

B = $\varnothing 18$, Oil outlet

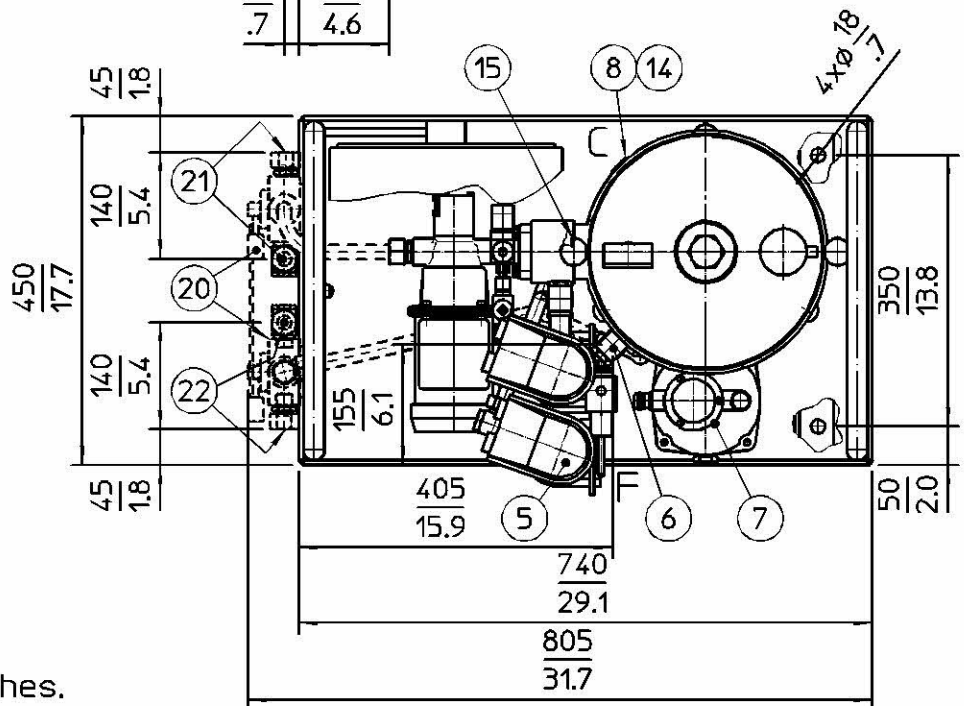
C = Drain

D = 1/4 BSP Vent

E = Sampling point

F = Water outlet

G = 3/4" BSP Drain, drip pan



Measurements in mm and inches.

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Project:	.		Drawn	JA	96.06.13
Ref.:	.		Appr.		
	.		Rev. 7	lu	03.07.09
	.	CJC Filter Separator PTU2 27/27 PV-DEH1PW Thruster unit General Arrangement		Drawing no.	76 001 86-6



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CJC Filter Separator
PTU2 27/27 PV-DEH1PW
Thruster unit
General Arrangement

CJC™ Marine Filter Separator
PTU2 27/27 PV-DEH1PW
Drawing No.: 76 001 86-6

Pos.	Description	Qty.
1	Electric control box 98462	1
2	Pump PV4-14-4	1
3	Profile ring tube fitting $\varnothing 18 \times 1/2"$	1
4	Sampling point	1
5	Preheater 1650W 3x230/400V 3x275/480V	2
6	Profile ring tube fitting $\varnothing 18 \times 1/2"$	1
7	Aut. water discharger	1
8	Drain plug 3/8"	1
9	Solenoid valve	1
10	CJC™ Filter separator PTU2	1
11	CJC™ aut air vent	1
12	Pressure gauge $\varnothing 63$ 0-4bar	1
13	Pressure switch Layher 2,3bar	1
14	Usitring 7,28x23,8-2 Nitrile	1
15	O-ring 28,17x3,53 Nitrile	1