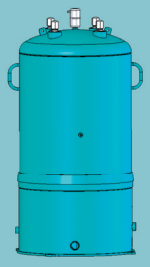
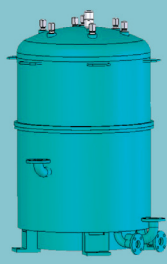
CLEAN OIL
BRIGHT IDEAS

CJC™ Wash Oil Filter

COMPENDIUM

CJC™ Filtration for the Automotive Industry





Clean Oil - Bright Ideas

www.cjc.dk

Why use CJC™ Filters on Transfer Press Lines and Blanking Presses

Wash oil systems become inherently dirty from the contamination carried on the steel "blank". The CJC™ Filters work on these systems, removing high quantities of dirt from the oil, and with high levels of filtration – it enables the oil to last longer in the system, and provides cleaner oil on the surface of the "blank".

The result:

- Super clean steel "blank" or plate
- Reduced imperfections on the steel blank
- Increased oil life and a cleaner wash oil system

"The oil from the washing oil system must always be clean!

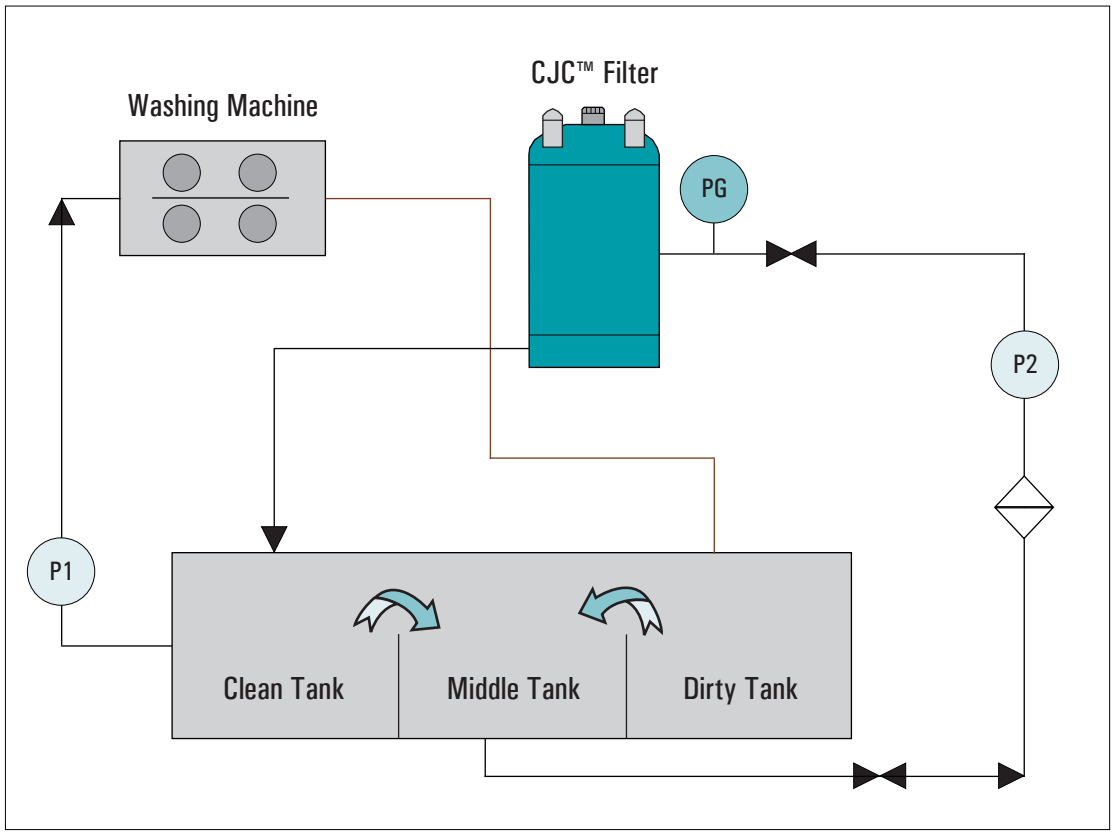
One CJC™ Filter should be adequate (for most presses), considering the excellent filtration, low cost and low power consumption"

Oil Distribution on the Plates of a Press Line

The function of the wash oil system is to wash the steel plate that is used for forming the body of the car washing the top and bottom to remove silicone, powdered iron, aluminium and zinc, which falls on the surface of the steel plate.

Here is where the CJC™ Filters play an important role maintaining the oil completely clean. In order to give a better result when the steel plates are passed to the steel press line. This is necessary because the iron powder can be one of the factors responsible for leaving defects on the surface of the steel plates after pressing.

Installation Principle



The HDU Filter must be installed between the middle tank and the clean tank. The flow of the pump HDU (P2) should be 30% higher than the main pump (P1). As the CJC™ Filter Inserts retain particles, the pressure increases and gradually when the pressures in the filter reaches 2 bar (0.2MPa) the Filter Inserts must be replaced.

CJC™ Filter Inserts

CJC™ Filter Inserts are produced from unbleached cotton and/or semi-chemical cellulose.

The CJC™ Filter Insert that is used in the CJC™ Wash Oil System is a CJC Filter Insert, type A, which is made from semi-chemical cellulose.

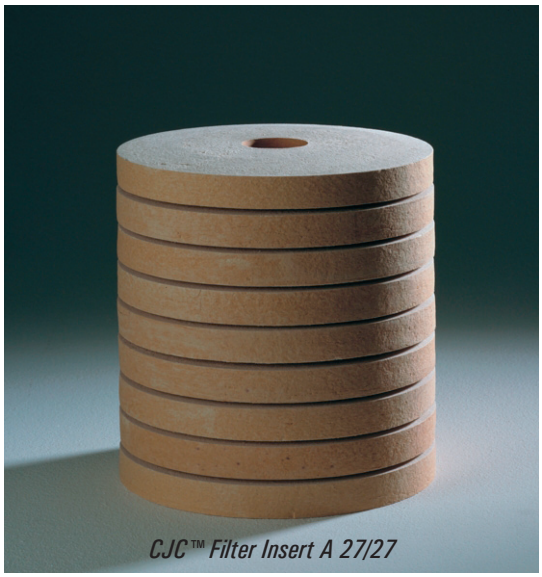
CJC™ Filter Inserts have outstanding oil-filtration characteristics with dirt and water-holding capacities of up to 4 L of dirt per insert.

All CJC™ Filter Inserts have an oil filtration degree of 3 μm (micron) absolute.

This means that 98.7% of all solid particles larger than 3 μm and approximately 50% of all particles larger than 0.8 μm are retained in one pass.

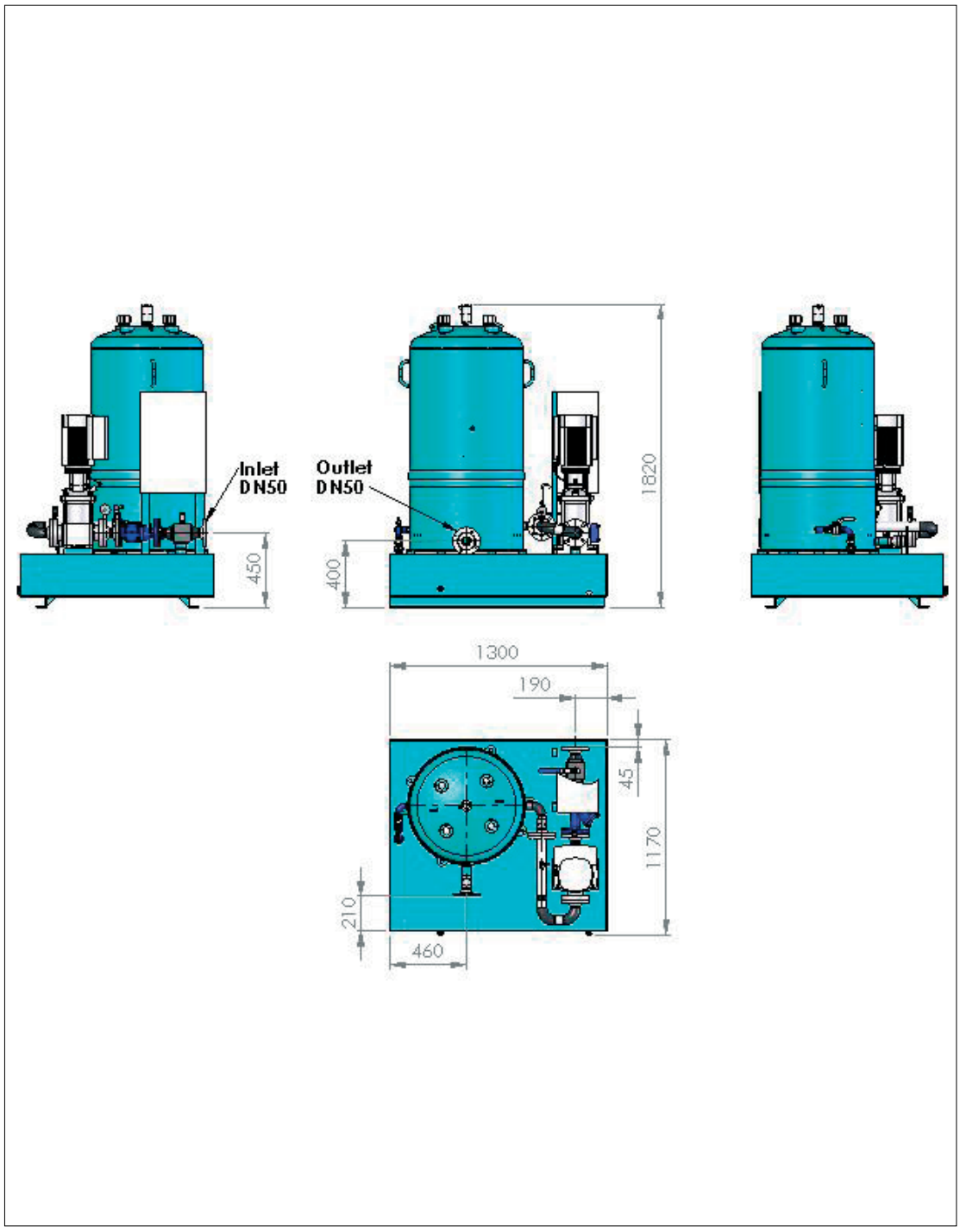
However the life of a filter insert could be lengthened or shortened depending on the following factors:

- The time of operation
- Status storage steel plate
- Type of anticorrosive
- Type of oil additive
- Atmospheric condition where the press is placed

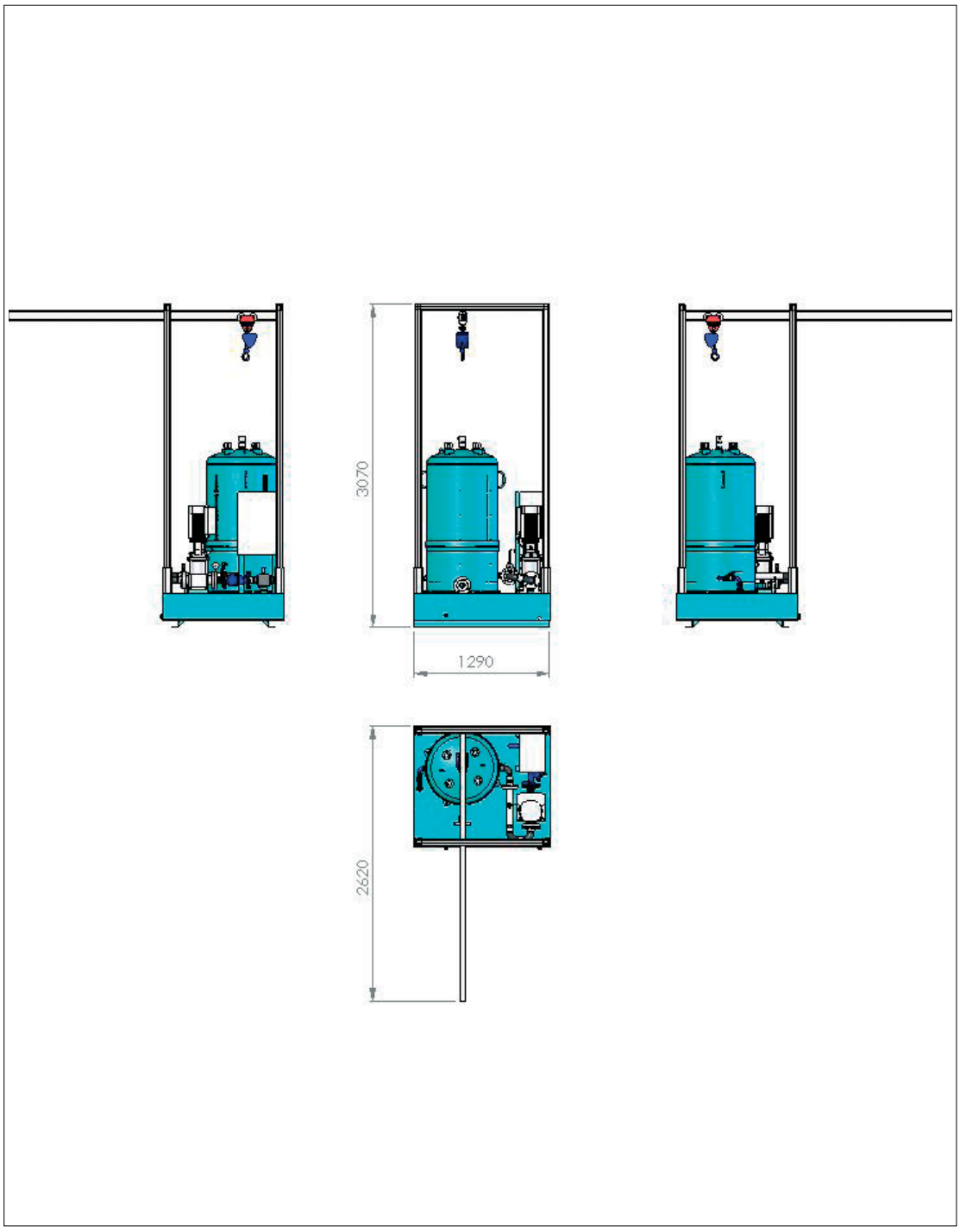


CJC™ Filter Insert A 27/27

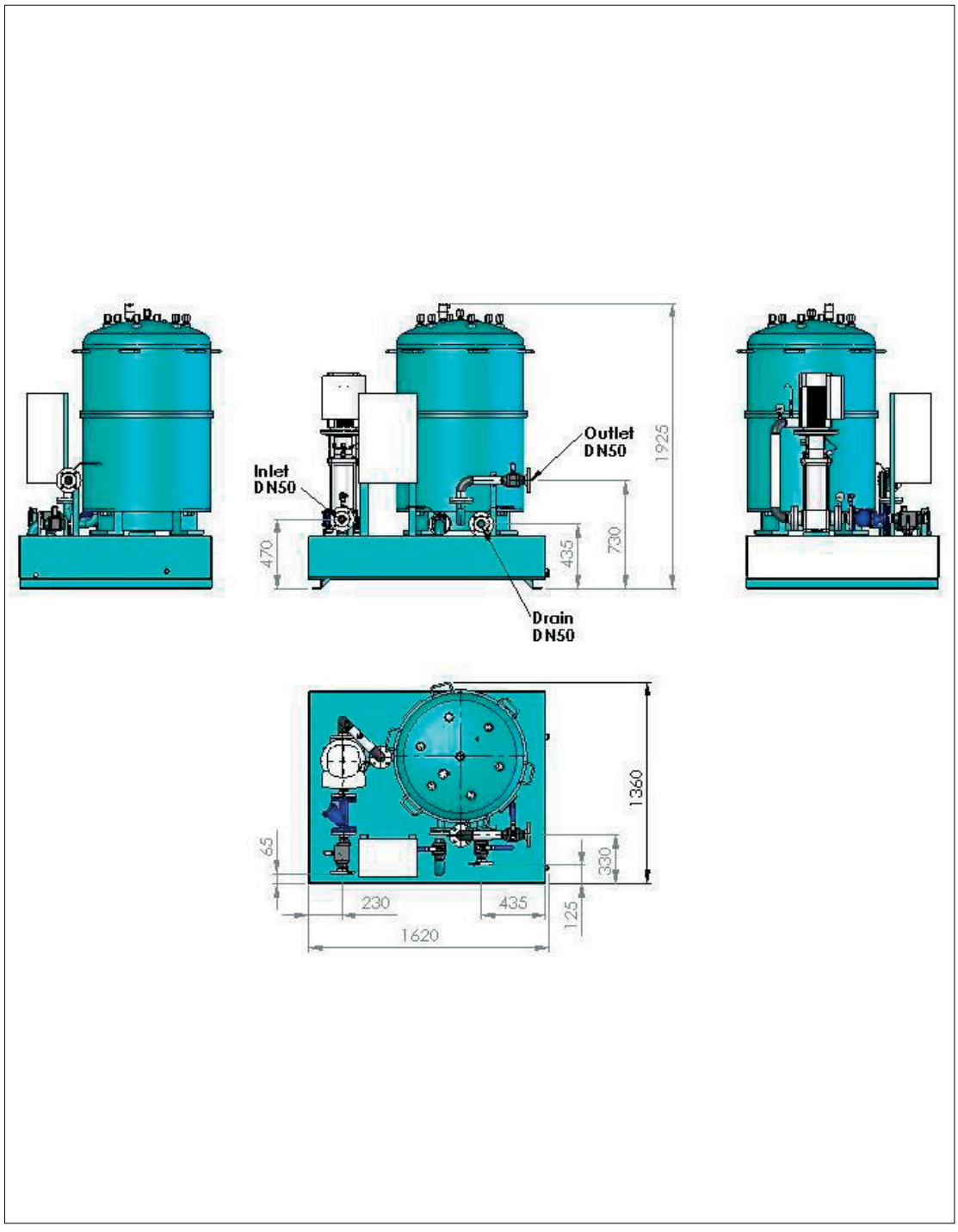
CJC™ Wash Oil Filter 427/108



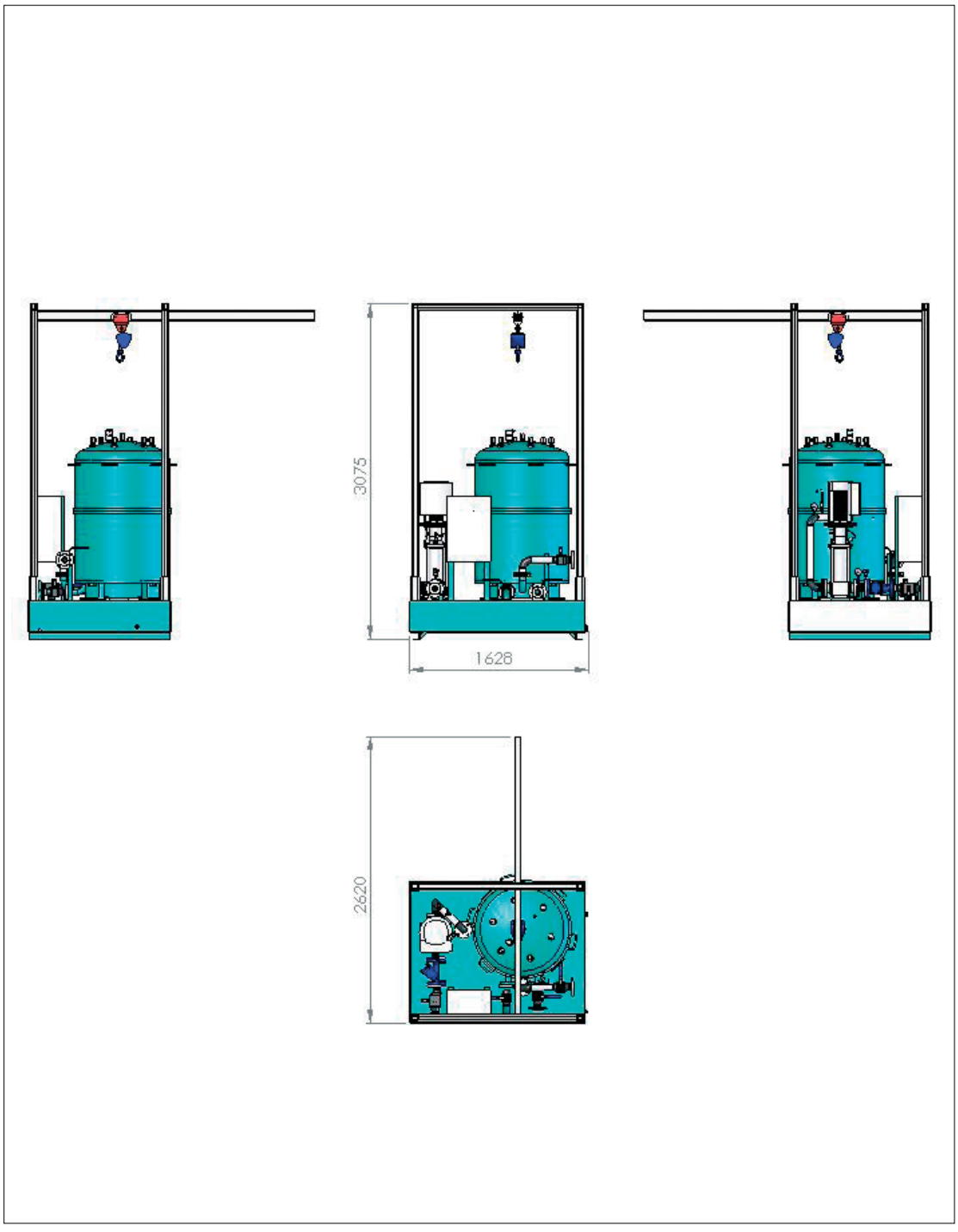
CJC™ Wash Oil Filter 427/108 with Crane



CJC™ Wash Oil Filter 727/108



CJC™ Wash Oil Filter 727/108 with Crane



How the CJC™ Wash Oil Filter works

The filter pump draws fluid from the system tank and presses it through the CJC™ Filter Insert.
From the centre of the inserts, the fluid flow through the filter base and returns to the tank. The pressure drop over the filter - and consequently, the contaminant absorption of the filter inserts is being monitored on the pressure gauge on the filter housing.

The CJC™ Filter maintains the wash oil to a high level of cleanliness, produces a cleaner film on the "blank/plate", increases and extends oil life and keeps the wash oil system in a cleaner condition.

Example:

Wash Oil with a Clean Tank		
Number of Particles (pcs/100 ml)	**Before Installing CJC™ Filter**	**After Installing the CJC™ Filter**
5 - 15 μm (micron)	2,432,710	7,910
15 - 25 μm (micron)	637,690	520
25 - 50 μm (micron)	18,280	70
50 - 100 μm (micron)	1,370	0
> 100 μm (micron)	120	0
Contaminated quality	2.9%	0.4%

HDU 427/54-108

CJC™ Off-line Fine Filter

CJC™ Product Sheet

APPLICATION

The **HDU 427/- series of CJC™ Off-line Fine Filters** are used for the maintenance of fluids for **power transmission, lubrication, cooling and quenching.** The HDU 427/54-108 is ideal for removal of **degradation products, particles, and water.**

FUNCTION

The filter pump draws fluid from the system tank (at lowest point) and presses it through the filter insert. From the centre of the inserts the fluid flow through the filter base and returns to the tank.
The pressure drop over the filter - and consequently the contaminant absorption of the filter inserts - are monitored on the pressure gauge on the filter housing.
The filter outlet port is placed in the filter base. The filtered fluid 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.

THE FILTER PUMP

The filter pump is a 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 either cellulose or cotton linters depending on the fluid to be filtered.

OPTIONS

- Preheater
- Tank
- Drip pan
- Control box
- Pressure switch

FILTRATION ABILITY

- **Particle Removal**
  All CJC™ Filter Inserts have the following filtration degree:
  - **3 μm absolute:**
    98.7% of all solid particles $> 3\ \mu$m
  - **0.8 μm nominal:**
    50% of all solid particles $> 0.8\ \mu$m

  are retained in each pass.
  The dirt holding capacity is 32-64 litres of evenly distributed solids.
- **Degradation Products**
  Oxidation products, resin / sludge, and varnish are retained by the cellulose material, which will retain appr. 32-64 kgs of oil degradation products.
- **Water Removal**
  The water absorption potential is up to 50% (i.e. 16,000-32,000 mL H_2O) of the total contaminant holding capacity.

The CJC™ Fine Filter HDU 427/108

TECHNICAL DATA

Model HDU:		427/54	427/81	427/108
Pump flow, per hour (std.)	ltr/gal	200 - 8000 / 53 - 2113		
Pump type		P/MZ/GP/GRN		
Pump inlet pressure, max.	bar/psi	0.5 / 7		
Filter Inserts 27/27	pcs.	8	12	16
Power consumption, aver.	kW	0.25 - 2.2		
Pressure drop, max.	bar/psi	1.8 / 26		
Oil temperature, max.*)	°C/°F	80 / 176		
Dirt hold. capacity, appr.	ltr/gal	32/8.5	48/12.6	64/16.9
Water absorption capacity	ltr/gal	16/4.2	24/6.3	32/8.5
Dry weight	kg/lb	430/948	490/1080	555/1224
Operating weight, wet	kg/lb	537/1184	645/1422	755/1664
Design pressure, filter	bar/psi	3 / 44		
Ambient temperature, max.	°C/°F	40/104		

*) The standard filters are designed for a max. temp. of 80°C / 176°F.
Other conditions, please contact us.

APPLICABLE FILTER INSERTS

Type	Application for
A:	Low flow (small system fluid volumes).
B:	Higher flow (larger system fluid volumes).
F:	Quenching oils. **)
BLA:	Water-based fluids and emulsions.**)

**) Does not hold water permanently.

CLEAN OIL
BRIGHT IDEAS

HDU 727/108

CJC™ Offline Fine Filter

CJC™ Product Sheet

APPLICATION

The **CJC™ HDU 727/108 Offline Fine Filter** is used for the maintenance of fluids for **steel pressing systems, power transmission, lubrication, cooling and quenching.**
The HDU 727/108 is ideal for removal of **degradation products, particles and water.**

FUNCTION

The filter pump draws fluid from the system tank (at lowest point) and pumps it through the filter insert. From the centre of the insert the fluid flows through the filter base and returns to the tank.
The pressure drop across the filter insert - and consequently the contaminant absorption of the filter inserts - is monitored on the pressure gauge on the filter housing.
The filter outlet port is placed in the filter base. The filtered fluid is to be returned to the tank close to the suction pipe of the main system pump.
Note that the return point should be non-pressurized. Contact us if this is not possible.

THE FILTER PUMP

The filter pump is a gear wheel pump. The electric motor can be supplied as standard AC motors.

FILTER INSERT

The CJC™ Filter Inserts consist of several discs bonded together. Depending on the fluid to be filtered, the material is either cellulose or cotton linters.

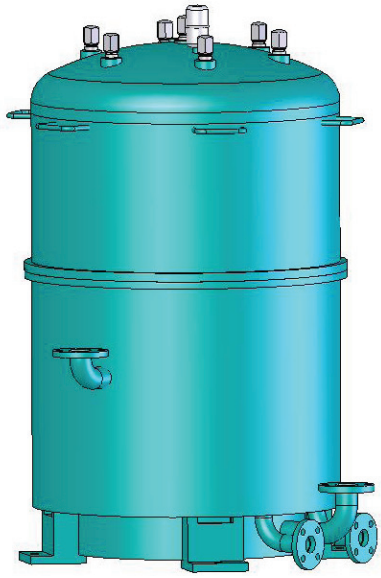
OPTIONS

- Preheater
- Drip pan
- Aut. air vent
- Tank
- Control box

FILTRATION ABILITY

- **Particle Removal**
  All CJC™ Filter Inserts have the following filtration degree:
  - **3 µm absolute:**
    98.7% of all solid particles > 3 µm
  - **0.8 µm nominal:**
    50% of all solid particles > 0.8 µm

  are retained in each pass.
  The dirt holding capacity is 112 L of evenly distributed solids.
- **Degradation Products**
  Oxidation products, resin / sludge, and varnish are retained by the cellulose material, which will retain appr. 112 kgs of oil degradation products.
- **Water Removal**
  The water absorption potential is up to 50% (i.e. 56,000 mL H_2O) of the total contaminant holding capacity.



The CJC™ Fine Filter
HDU 727/108

TECHNICAL DATA

Model:		HDU 727/108
Pump flow, per hour (std.)	L/gal	2500-12000 / 660-3170
Pump type		KR / GP / CRN
Pump inlet pressure, max.	bar/psi	0.5 / 7
Filter Inserts 27/27	pcs.	28
Power consumption, aver.	kW	up to 5
Pressure drop, max.	bar/psi	1.8 / 26
Oil temperature, max.*)	°C/°F	80 / 176
Dirt hold. capacity, appr.	L/gal	112 / 30
Water absorption capacity	L/gal	56 / 14
Dry weight	kg/lb	975 / 2150
Operating weight, wet	kg/lb	1350 / 2976
Design pressure, filter	bar/psi	3 / 44
Ambient temperature, max.	°C/°F	40 / 104

*) The standard filters are designed for a max. temp. of 80°C / 176°F.
Other conditions, please contact us.

APPLICABLE FILTER INSERTS

Type	Application for
A:	Low flow (small system fluid volumes)
B:	Higher flow (larger system fluid volumes)
F:	Quenching oils **)
BLA:	Water-based fluids and emulsions **)

**) Does not hold water permanently

CLEAN OIL
BRIGHT IDEAS

HDU 727/108

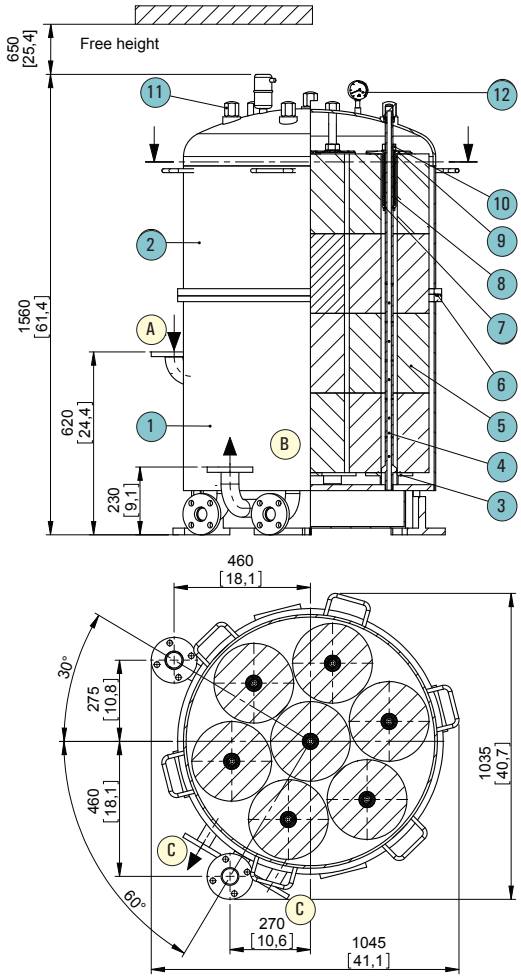
CJC™ Offline Fine Filter

CJC™ Product Sheet

COMPONENTS

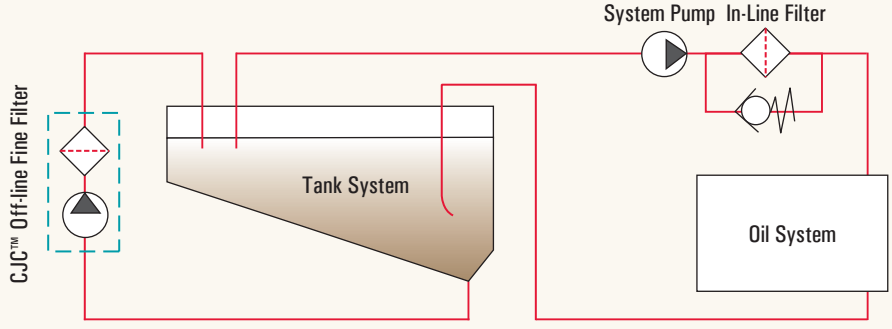
Item	Part
1	Filter base
2	Filter housing
3	Filter plate
4	Stay bolt
5	Filter Insert
6	O-ring (filter)
7	O-ring (spring guide)
8	Spring
9	Spring guide
10	Nut for spring
11	Top nut
12	Pressure gauge
A	Oil inlet, flange DN50 JIS B 2223 16K
B	Oil outlet, flange DN50 JIS B 2223 16K
C	Drain, flange DN40 JIS B 2223 16K

DIMENSIONS



CJC™ Offline Fine Filter
HDU 727/108
Measurements in mm and inches

INSTALLATION PRINCIPLE



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CLEAN OIL
BRIGHT IDEAS

Wash Oil
Steel Plate, Press Machine

CJC™ Application Study

Application Study written by:

Tetsu Nakazato
Ameroid Japan
Service Co. Ltd.
Japan

in cooperation with:
C.C.JENSEN A/S
Denmark

2008

CUSTOMER
TOYOTA CORPORATION, Japan

THE SYSTEM
Washing system at stack feeder machine on press line or stamping line.

Oil type: Wash oil
Oil volume: 3,000 L

THE FUNCTION OF THE WASH SYSTEM
Before the steel plates are pressed into shape, they are wash by oil to ensure a clean surface. The steel plate that is used to forming the body of the car, is washed in the press line in order to remove the silicone, powdered iron, aluminium and zinc, which falls on the surface of the steel plate. This is necessary because the iron powder can be one of the factors responsible for the defects surface of the steel plate being pressed.

THE PROBLEM
The customer wanted to decrease the number of steel plates, which did not live up to contaminated oil. The customer also wanted to extend the life time of the oil.

THE SOLUTION
A **CJC™ Fine Filter HDU 727/108** with a Grundfos Pump was installed with **CJC™ Filter Insert type A** with a filtration ratio of 3 μm absolute and 0,8 μm nominal and a flow rate of 175 L/min.

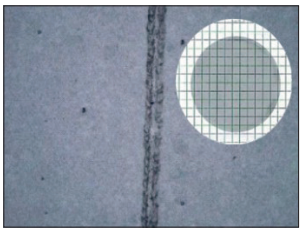
The flow rate of the filter is 20-30% more than the supply pump of the washing machine. The filter pump draws oil from the dirty tank, and passes the oil through the filter insert. The oil is returned to the clean tank. The oil overflows from the clean tank to the dirty tank.

THE RESULT
Since the CJC™ Fine Filter installation, no steel plates have been rejected due to quality standards.

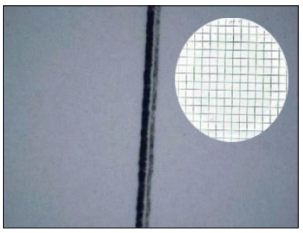
The customer has increased oil life-time from 12 months to 36 months.

The CJC™ Fine Filter HDU 727/108 on the Press Machine

OIL SAMPLES



Oil sample **before** filter test start



Oil sample **after 12 days** of CJC™ Filtration

THE RESULT

Filtration Date	21.05.01	24.06.01
Particles > 5 μm	12.357	261
Particles > 15 μm	17	11
ISO 4406 Code	21/11	15/11
Color of membrane	Dark	White

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Updated: 12.03.2009

CJC™ Wash Oil Filter

Customer	CJC™ Product	Fluid type
Araco- Yoshimara	CJC 727/108AW	Wash Oil
BCC - Thai	CJC427/108A	Wash Oil
Central Motor Co., Ltd	CJC 727/108AS	Wash Oil
Daihatsu Motors Co., Ltd - Ikeda	CJC 727/108A	Wash Oil
Daihatsu Motors Co., Ltd - Oita	CJC 427/108AS	Wash Oil
	CJC 727/108AS	Wash Oil
DMET - Thai	CJC 727/108AS	Wash Oil
Fuji Heavy Industries Ltd. - Yashima	CJC 727/108AS	Wash Oil
Hero. Tec. Inc. - Hiroshima	CJC 727/81AS	Wash Oil
Hino Motors Co., Ltd. - Hamura	CJC 727/108A	Wash Oil
Honda Motor Co. Ltd. - Alabama	CJC 727/108AS	Wash Oil
Honda Motor Co. Ltd. - Sayama	CJC 727/108AS	Wash Oil
Honda Motor Co. Ltd - UK	CJC 727/108AS	Wash Oil
HPM - Indonesia	CJC 27/108AW	Wash Oil
Hyundai Motor Company - USA	CJC 727/81AWS	Wash Oil
Isuzu Motors Limited - Fujisawa	CJC 427/108AS	Wash Oil
	CJC 27/108AK	Wash Oil
Isuzu Motors Limited - Tochigi	CJC 427/108AS	Wash Oil
KANTO Auto Works, Ltd. - Higashi-Fuji	CJC 427/108AS	Wash Oil
KANTO Auto Works, Ltd. - Iwate	CJC 727/108AWS	Wash Oil
	CJC 27/108A4S	Wash Oil
	CJC 27/108AWK	Wash Oil
Mitsubishi Motors Corporation -Indonesia	CJC 427/108A	Wash Oil

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CJC™ Wash Oil Filter

Customer	CJC™ Product	Fluid type
Mitsubishi Motors Corporation - Okazaki	CJC 27/108A4S	Wash Oil
	CJC 427/108AS	Wash Oil
Mitsubishi Motors Corporation - USA	CJC 727/108AS	Wash Oil
MKM - Indonesia	CJC 727/108AS	Wash Oil
PERODUA – Malaysia	CJC 727/108A	Wash Oil
	CJC 727/108AS	Wash Oil
	CJC 27/108AWK	Wash Oil
Peugeot - France	CJC 427/108A	Wash Oil
PROTON - Malaysia	CJC 727/108AS	Wash Oil
	CJC 727/108AS	Wash Oil
S-RAB - Thai	CJC 727/81A	Wash Oil
SIA - USA	CJC 727/81AS	Wash Oil
STC – Thai	CJC 727/108A	Wash Oil
Suzuki Motor Corporation - Kosai	CJC 27/108A8S	Wash Oil
	CJC 27/108A46	Wash Oil
	CJC 27/81 A5S	Wash Oil
	CJC 27/81AWK	Wash Oil
Torre Corporation - USA	CJC 7427/108AS	Wash Oil
Toyota Auto Body Co., Ltd. - Inabe	CJC 727/81 AWS	Wash Oil
Toyota Auto Body Co., Ltd - China	CJC 727/81AWS	Wash Oil
Toyota Kyushu Co.,Ltd	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - Australia	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - Brasil	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - China	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - Czech Republic	CJC 727/108AWS	Wash Oil

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CJC™ Wash Oil Filter

Customer	CJC™ Product	Fluid type
Toyota Motor Co.,Ltd. - France	CJC 727/108AS	Wash Oil
	CJC 727/108AWS	Wash Oil
Toyota Motor Co.,Ltd. - India	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - Motomachi-Tutumi	CJC 727/108AS	Wash Oil
	CJC 727/1088AS	Wash Oil
Toyota Motor Co.,Ltd. - South Africa	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - Tahara	CJC 27/108AWK	Wash Oil
	CJC 727/108AK	Wash Oil
Toyota Motor Co.,Ltd. - Taiwán	CJC 727/108AS	Wash Oil
Toyota Motor Co.,Ltd. - Takota	CJC 727/108AS	Wash Oil
	CJC 27/108ATS	Wash Oil
	CJC 27/108AWK	Wash Oil
	CJC 27/108AK	Wash Oil
Toyota Motor Co.,Ltd. - Turkey	CJC 727/108AS	Wash Oil
Wash Oil Honda Motor Co. Ltd - China	CJC 727/84AW	Wash Oil

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CLEAN OIL
BRIGHT IDEAS

C.C.JENSEN all over the World

The CJC™ Off-line Filters are distributed through our own international sales organization and designated distributors

CJC™ stands for Reliable Supply all over the World

Manufacturer

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C.C.JENSEN A/S - 30. March 2009

Clean Oil - Bright Ideas

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