Introduction:
Hydraulic Fluid Management
by
Kleentek: Dehydration Unit (“DH”)
Supplementary Unit

Focus Machinery Pte Ltd, Singapore

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Kleentek Corporation Inc., Japan

Today's Agenda – Discussion

1. Our heritage, our history and our expertise
2. Our knowledge in hydraulic fluid lubrication management
3. How we operate and work
4. Value proposition of using EOC
5. Working principle of EOC
6. EOC vs Traditional & Conventional Filters
7. What can EOC do?
8. Cost-Benefit Analysis ("CBA")
9. Case Study – Benefits of EOCs

1. Focus Machinery Pte Ltd, Singapore – Our History, Background and Heritage

Focus Machinery Pte Ltd, Singapore has been working with Kleentek Corporation, Inc in Japan since 1999.

We started off supplying equipment such as dehumidifier dryers and parts and components dealing with used injection machine for the export market.

We supply and support equipment and tools of various make within the Asia Pacific Region, such as Singapore, Malaysia and Indonesia – Batam.

We've successfully supplied and delivered many units of Kleentek, Electrostatic Oil Cleaners ("EOCs") previously also known as Electrostatic Liquid Cleaners ("ELCs") to various industries such as plastic injection moulding industries, Injection stretch blow moulding (PET bottles production) and power generation plants in the region of Singapore, Malaysia, Thailand and Indonesia – Batam.

2. Value Proposition of Focus Machinery Pte Ltd, Singapore

To provide our customer with a
cost effective
solution to their challenges
in the area of
hydraulic lubrication

2. Our Knowledge in Hydraulic Fluid Lubrication Management

Product/Services	Illustration
Used Oil Contamination Control Management	• Provide used oil contamination control management for some of the major industry within the market; e.g. plastic manufacturing; utilities – power generations; distribution of electricity via the power grid; automobile manufacturing and aviation • Designed in-house proprietary used oil contamination control management framework for one oil cleaner to multiple machine environment
Oil Analysis Performance Benchmarking	• Provide both independent and industry standard benchmarking for majority of the used oil analysis benchmarking. • e.g. **RULER** (“Remaining Useful Life Evaluation Routine”) Oil Analysis – measure the level of remaining antioxidant additive levels in lubricating oils – turbine oil and hydraulic oil; Total Acidic Number (TAN) and Total Base Number (“TBN”)
Technical Support	• All Kleentek products supplied comes with manufacturer warranty coverage support, including spare parts and components – therefore you are not just coverage with your consumable, but also you can have a peace of mind whenever your machine encounter any technical issue.
Kleentek Corp Inc., - Agent for Singapore, Malaysia and Indonesia – Batam	• We supplies all range of Kleentek product directly from Kleentek Corp Inc., Japan – therefore always remember to ask for your Certificate of Origin (C.O.I) upon any purchase, in order to ensure the product authenticity and validity.

4. Value Proposition of Kleentek: Electrostatic Oil Cleaner (“EOC”)

To promote **sustainable practice** through
the **reduced use of non-renewable** natural resource
by refocusing the use refined mineral oil
while ensuring **maximum uptime**;
reduce cost of maintenance
and **minimizing operational impact**.

3. How We Operate and Works

	Step 1	Step 2	Step 3	Step 4
Client, (You)	• initial contact • expression of interest • initial discussion	• benchmarking of oil performance (using Kleentek Oil Analysis report) • benchmarking of oil performance using independent laboratory	• taking delivery of Kleentek's Oil Cleaner • preparation of materials and resources	• taking delivery of oil cleaner • implementation of oil management control • perform oil top-up and replenishment based on Kleentek's recommendation
Focus Machinery Pte Ltd, Singapore	• understanding of technical background, application • collection of oil samples, (used/new) • membrane patch testing, internal	• negotiation of pricing and payment term • drafting of technical solution based on client's environment • placement of order with the maker	• commissioning, installation of system • boardroom presentation, on-site training	• performance measurement • regular interval oil performance measurement • yearly onsite visit with customer,
Kleentek Corp Inc., Japan	• maker informed of the client, enquiry • processing of oil samples • oil analysis report	• maker produce the Kleentek machine with accordance to technical requirement • tentative lead time: approxi. 3 months	• oil samples are sent back to Kleentek Corp Inc., Japan for oil analysis • provide recommendation based on the oil analysis	• feedback on the performance of client's environment • provide recommendation and feedback on client's environment

Summary:

Different Models of Dehydrator

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Kleentek: Dehydration Unit (DH)

Supplementary Unit

Different Techniques to Separate Water Content from the oil that has been contaminated with water (Water-Dehydration)

by water absorption technique

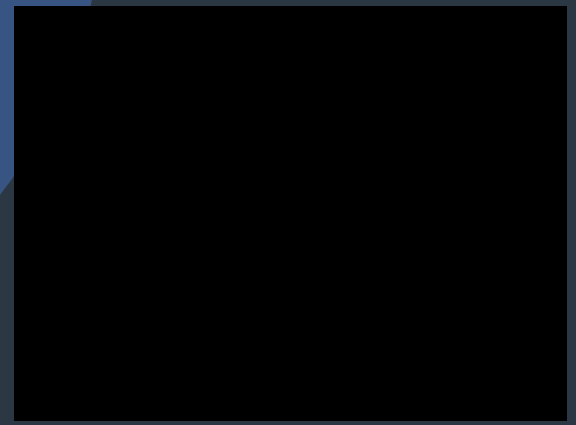
by water separation and water absorption technique

by water separation technique

DH-xB series

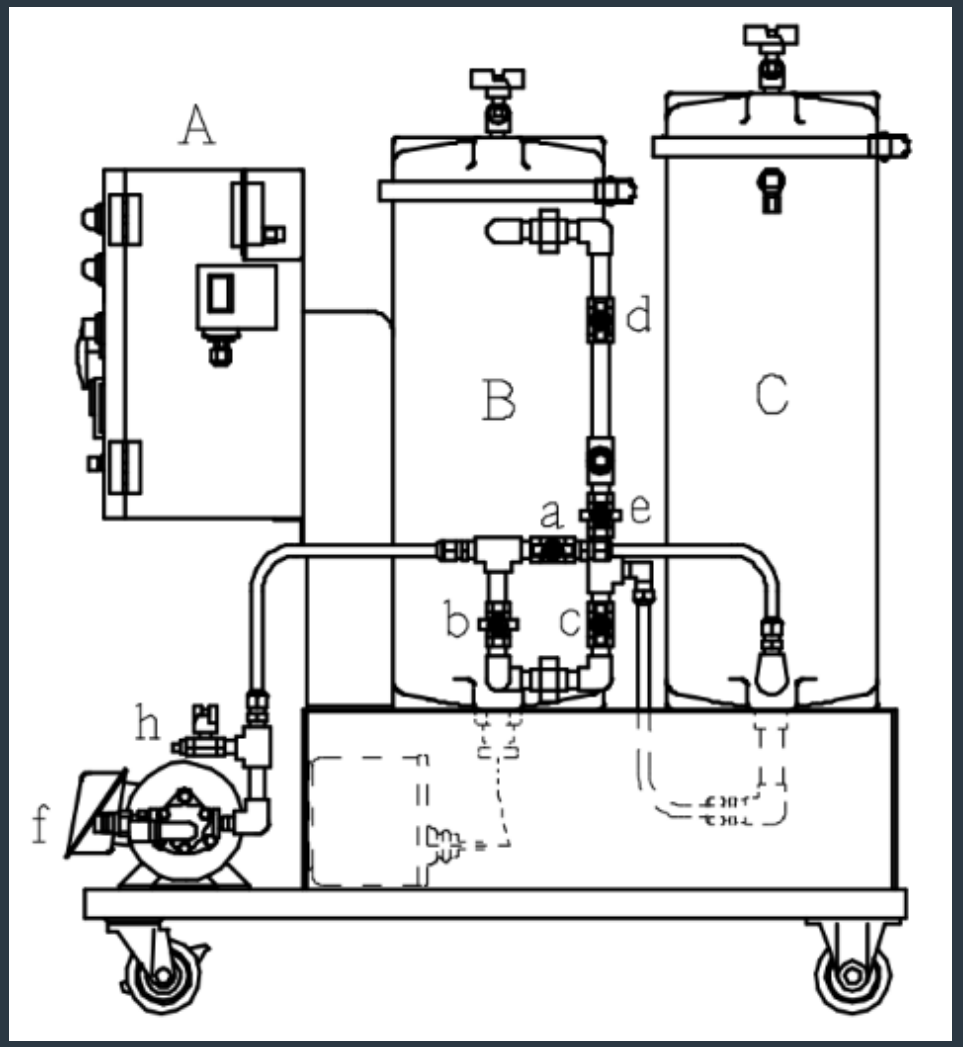
DH(DHS)-xKS series

DH-KS series



Different model with different cleaning capacities are also available, please speak to your local/regional sales representative

Operating Principle of EDH-R25A
Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)



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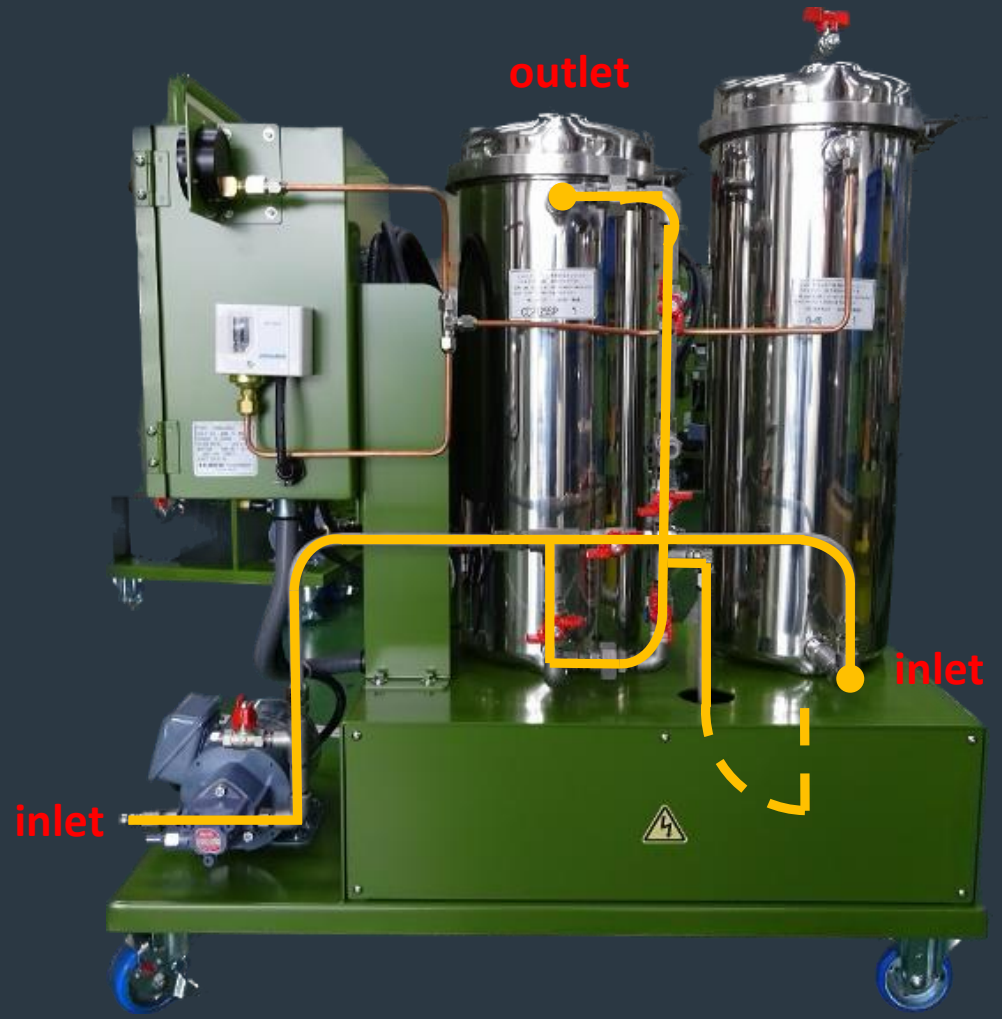

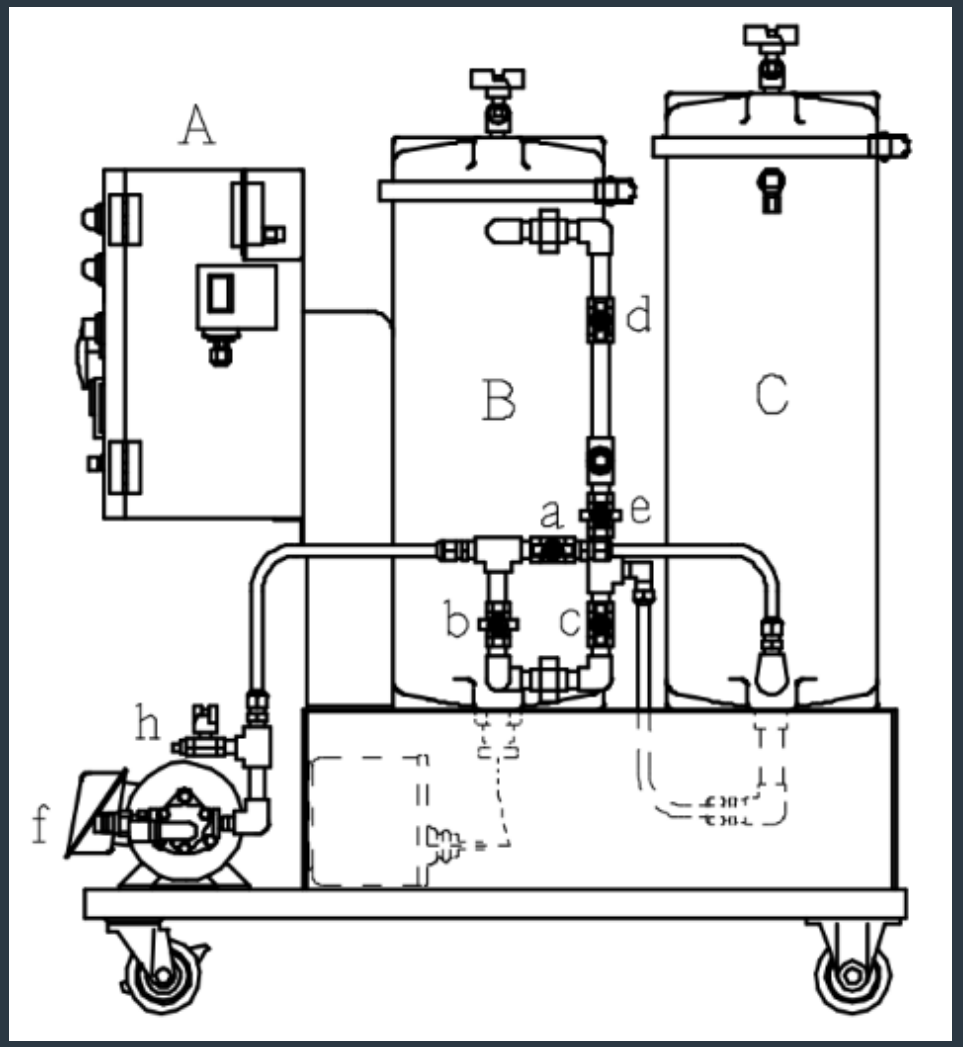

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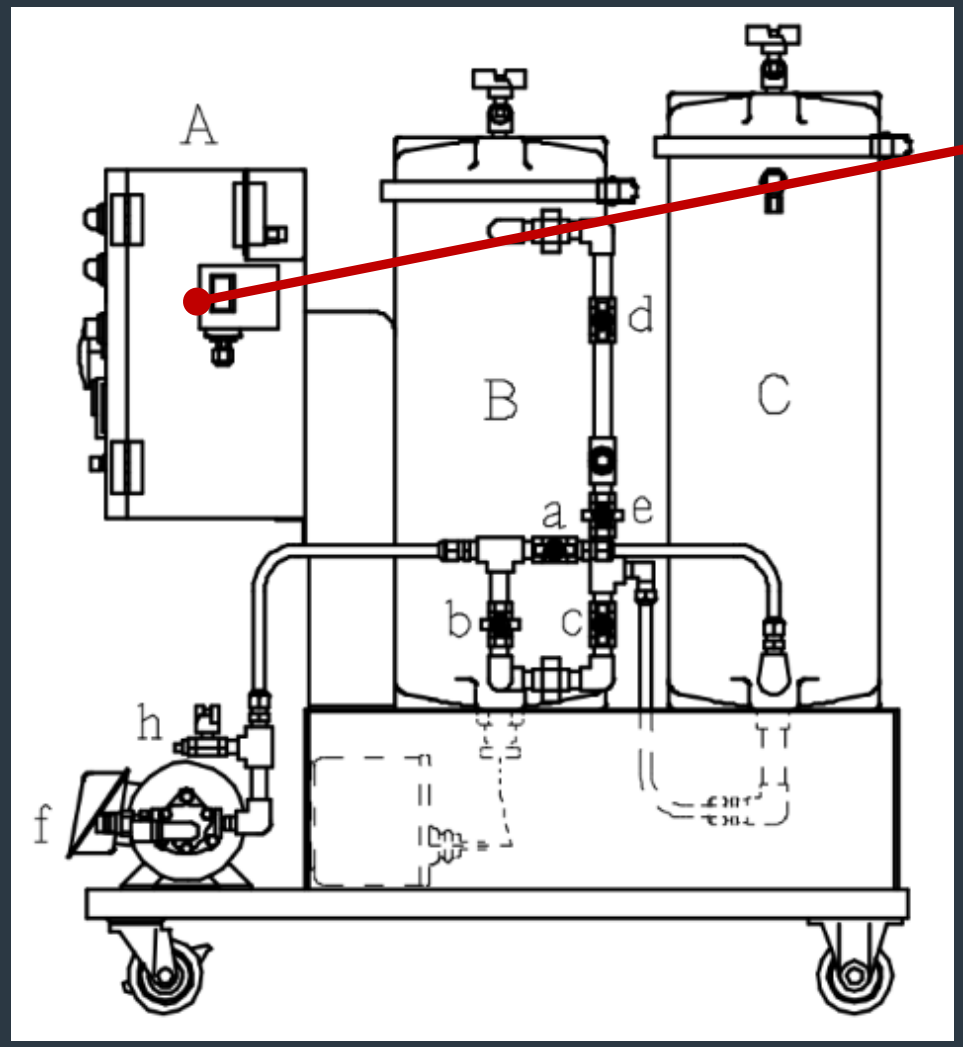

EDH Series: Product Parts Identification

- Electrical Control Box
- Oil Cleaning Chamber
- Dehydration Chamber
- Electric Pump Unit
- High-Voltage (“Hi-Volt”) Transformer

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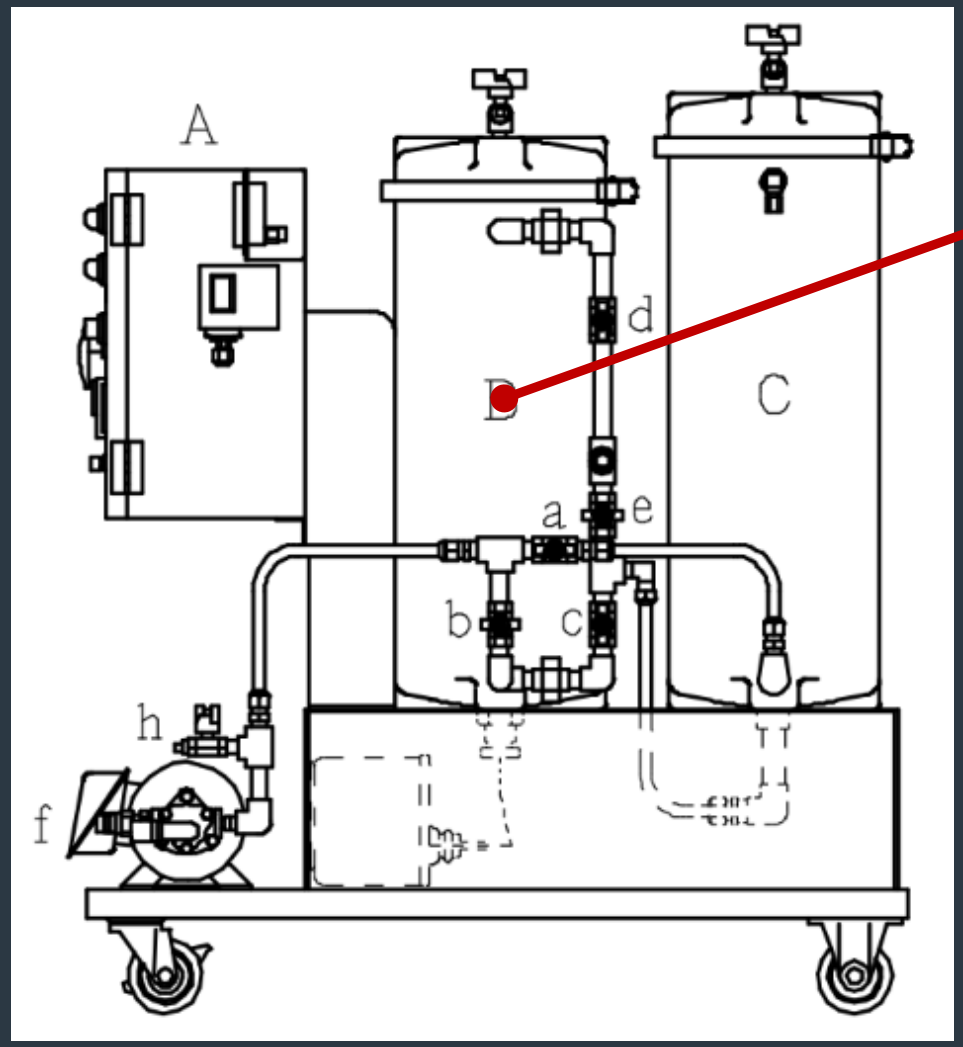

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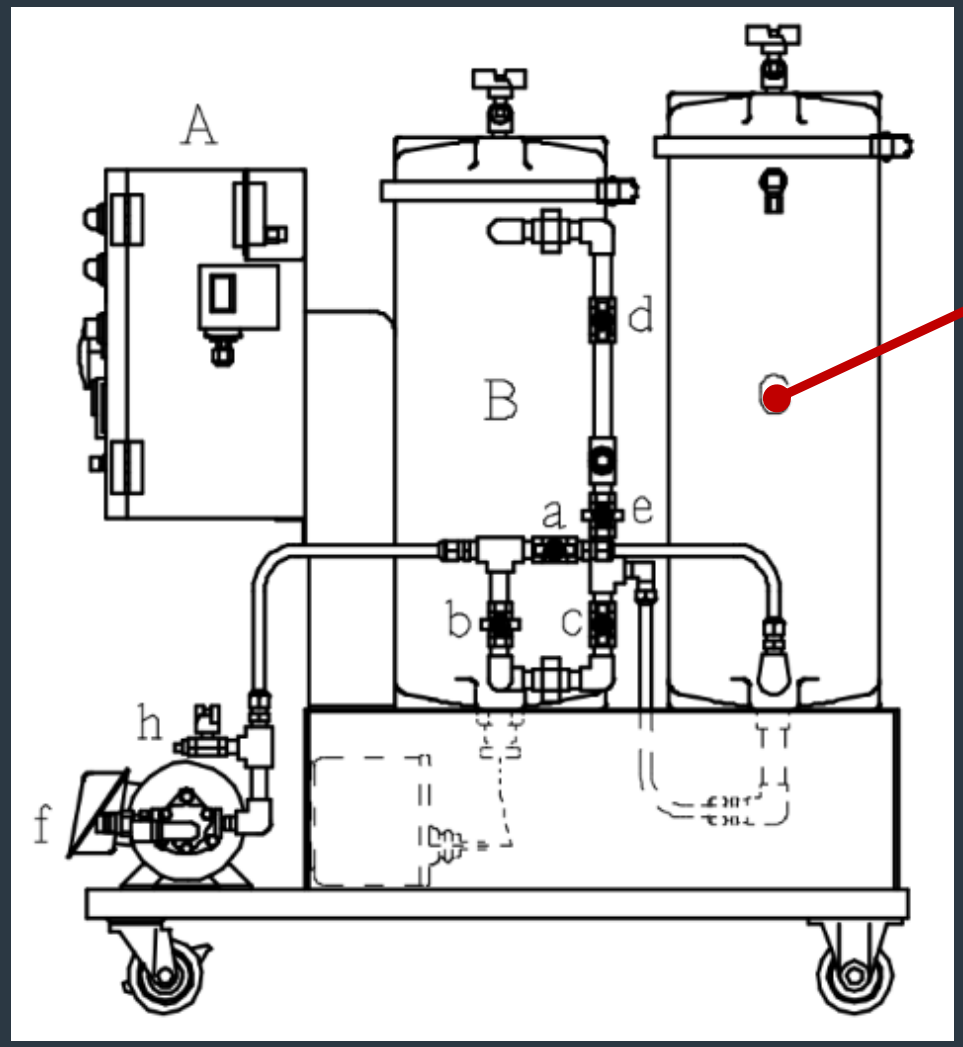

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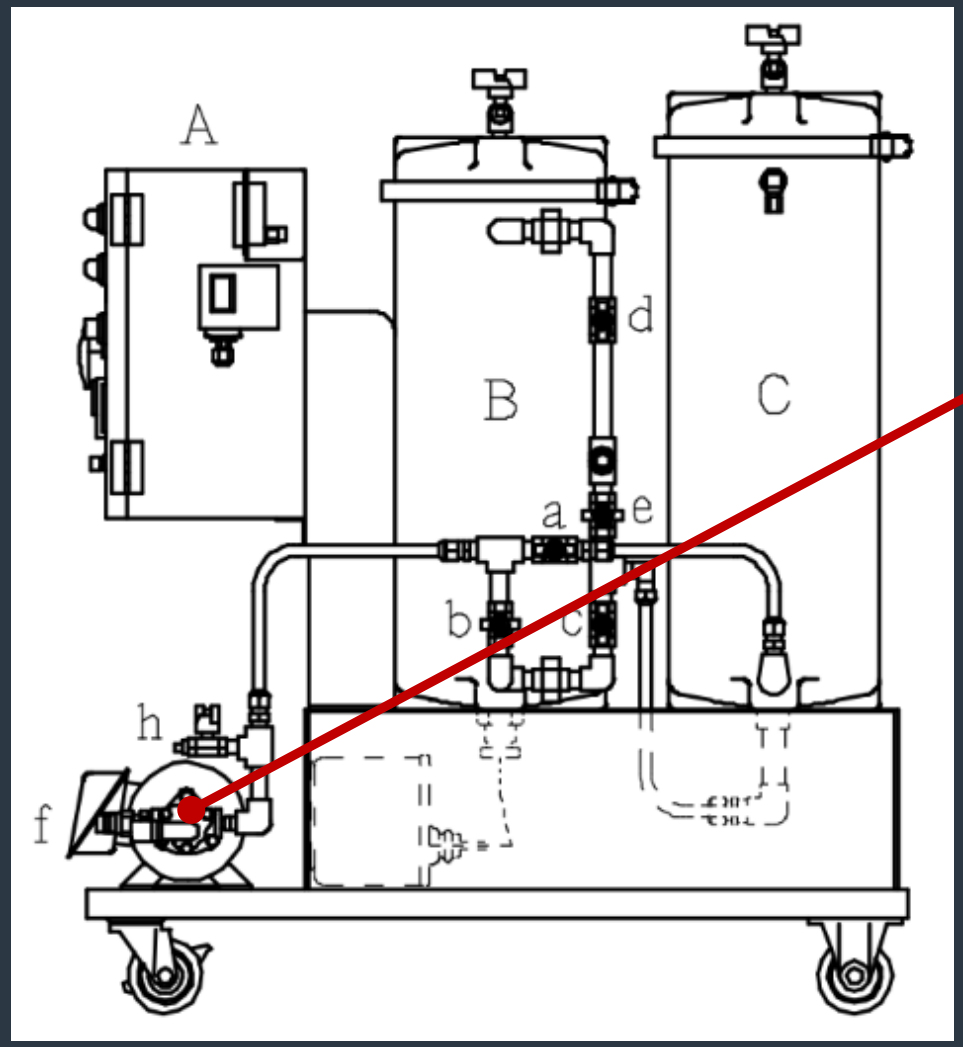

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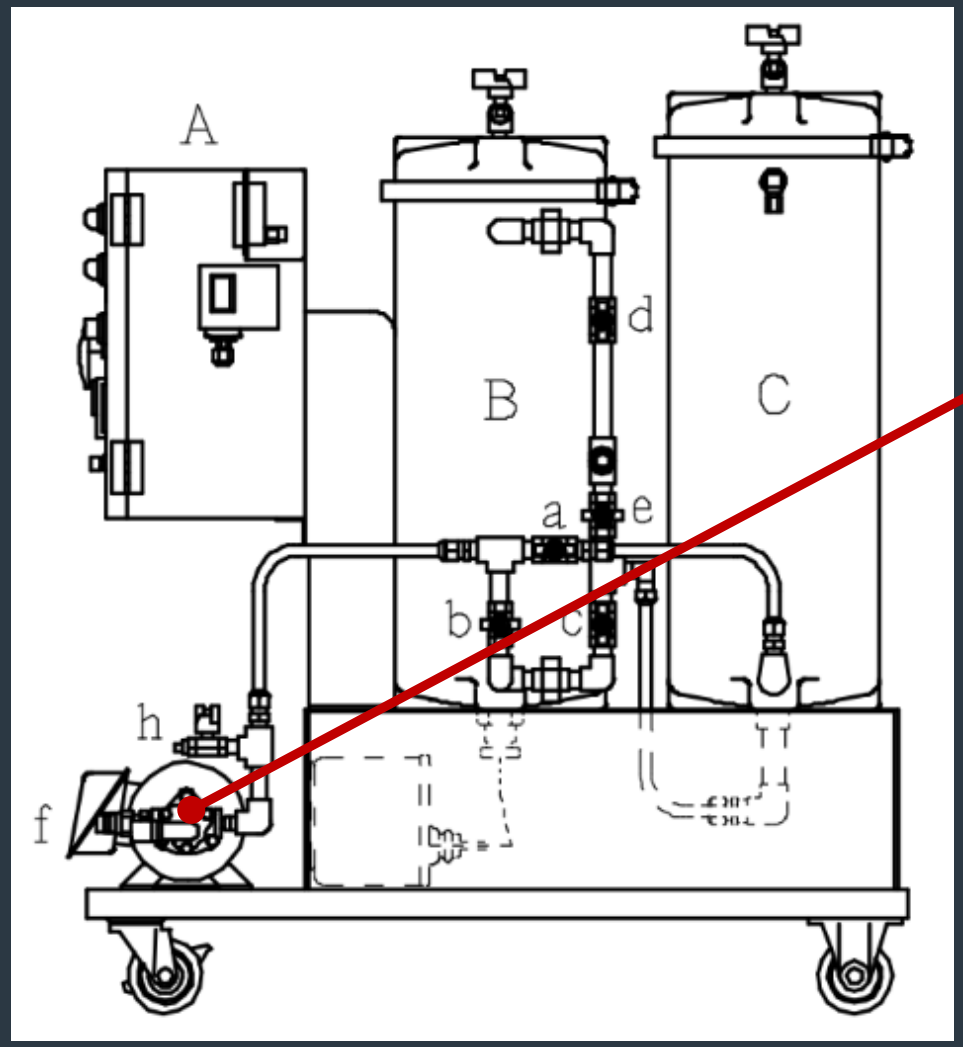

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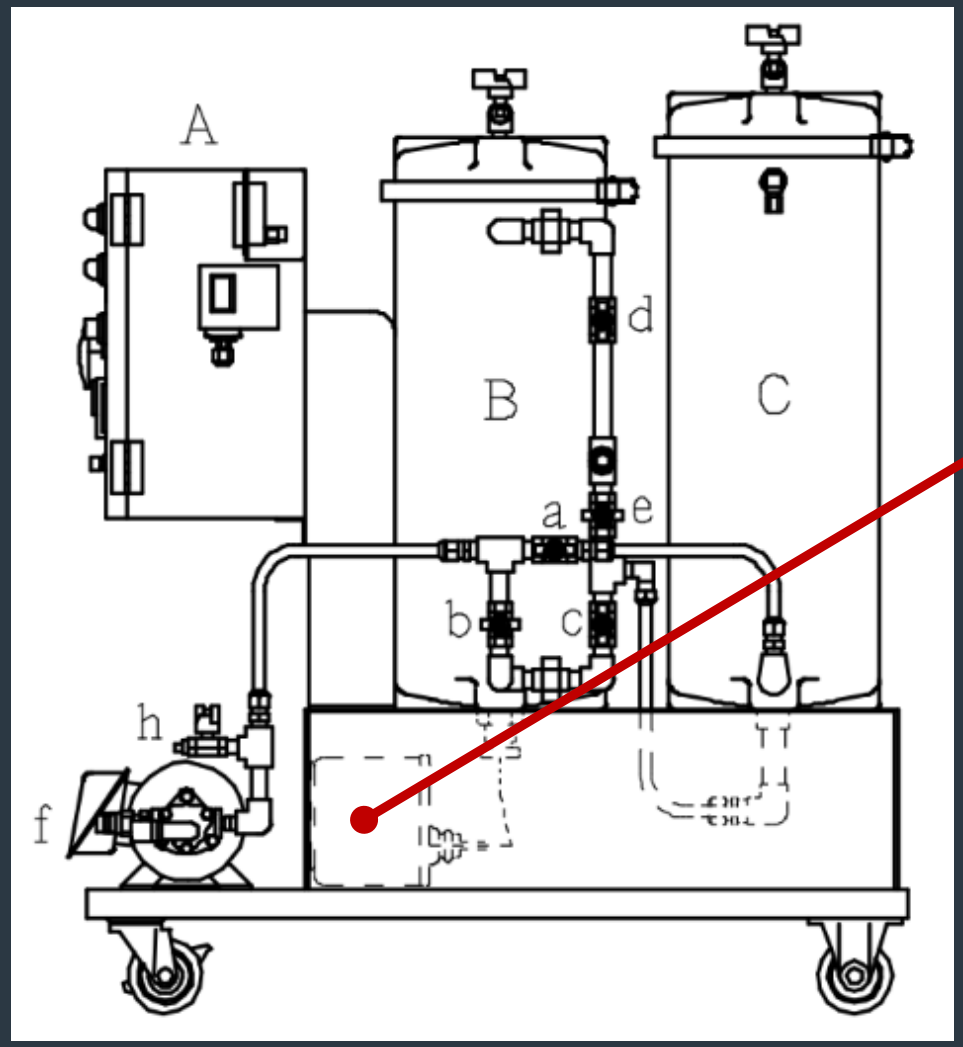

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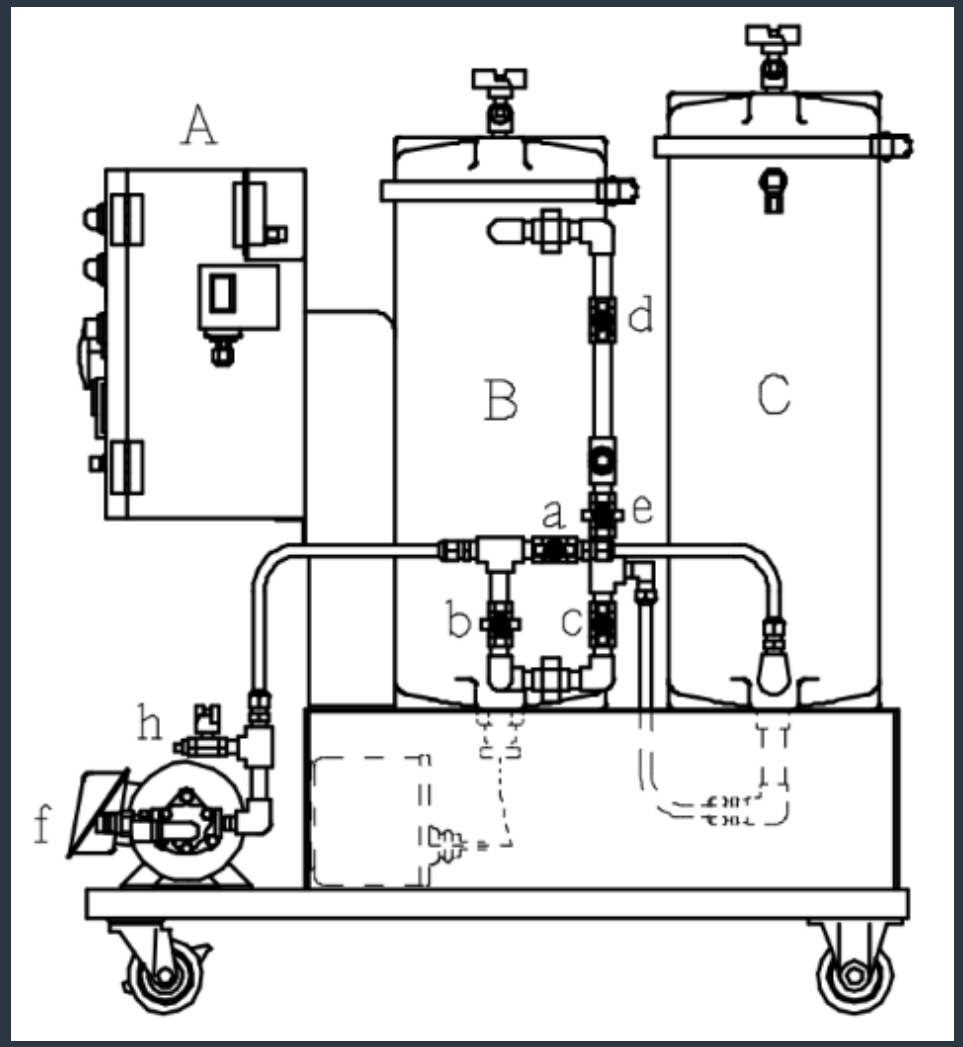

EDH Series: Product Specification

- Capacity of Oil Cleaning Chamber
- Capacity of Dehydration Chamber
- # of Valve
- Electric Pump Unit
- High-Voltage (“Hi-Volt”) Transformer

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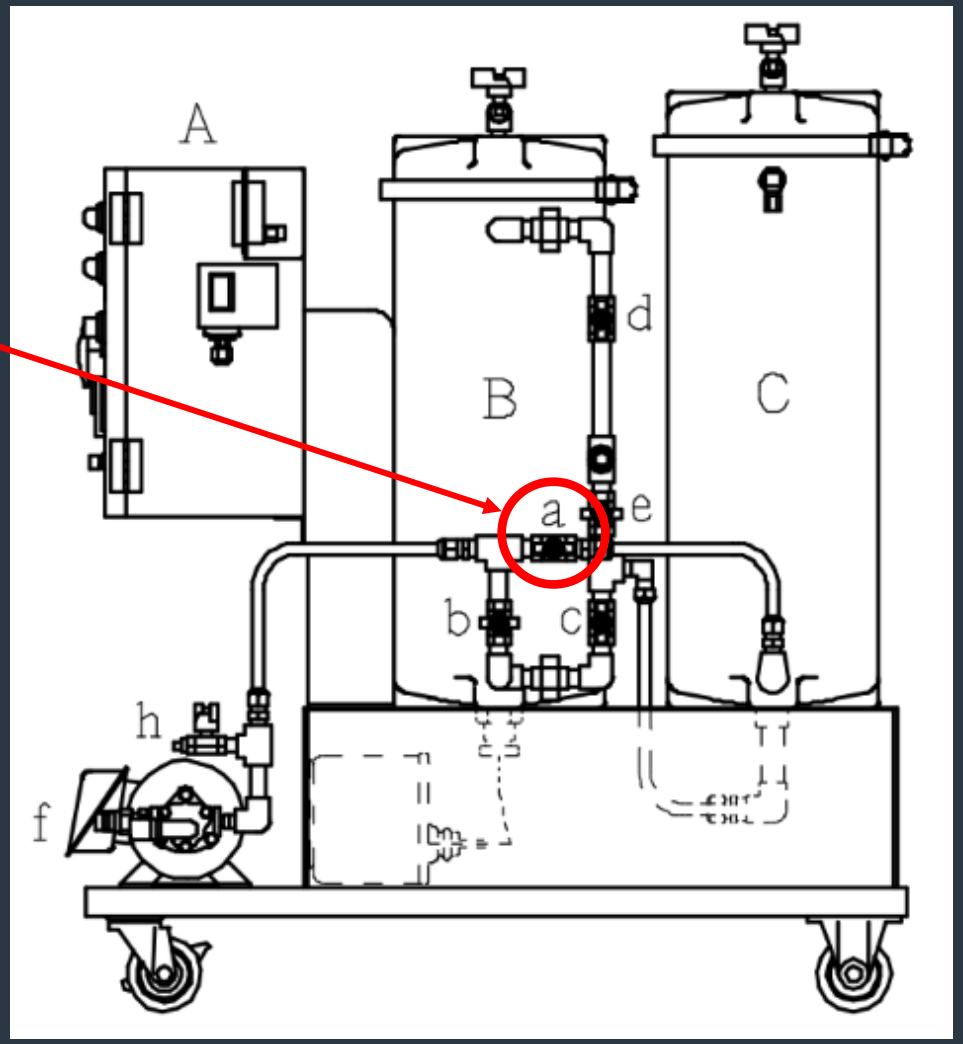
Operating Principle of EDH-R25A
Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)

EDH Series: Stop Valve Identification

Stop valve “a” (V1) – open/close
Stop valve “b” (V2) – open/close
Stop valve “c” (V3) – open/close
Stop valve “d” (V4) – open/close
Stop valve “e” (V5) – open/close



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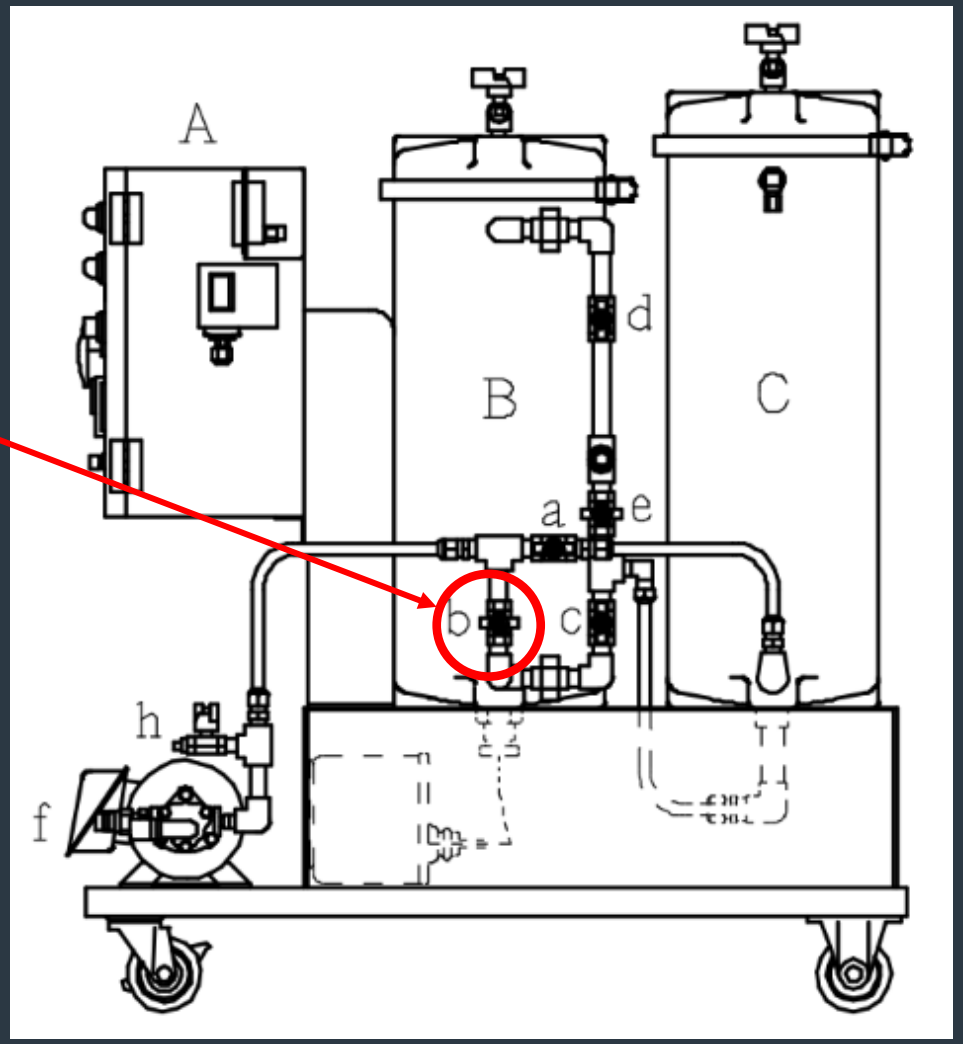

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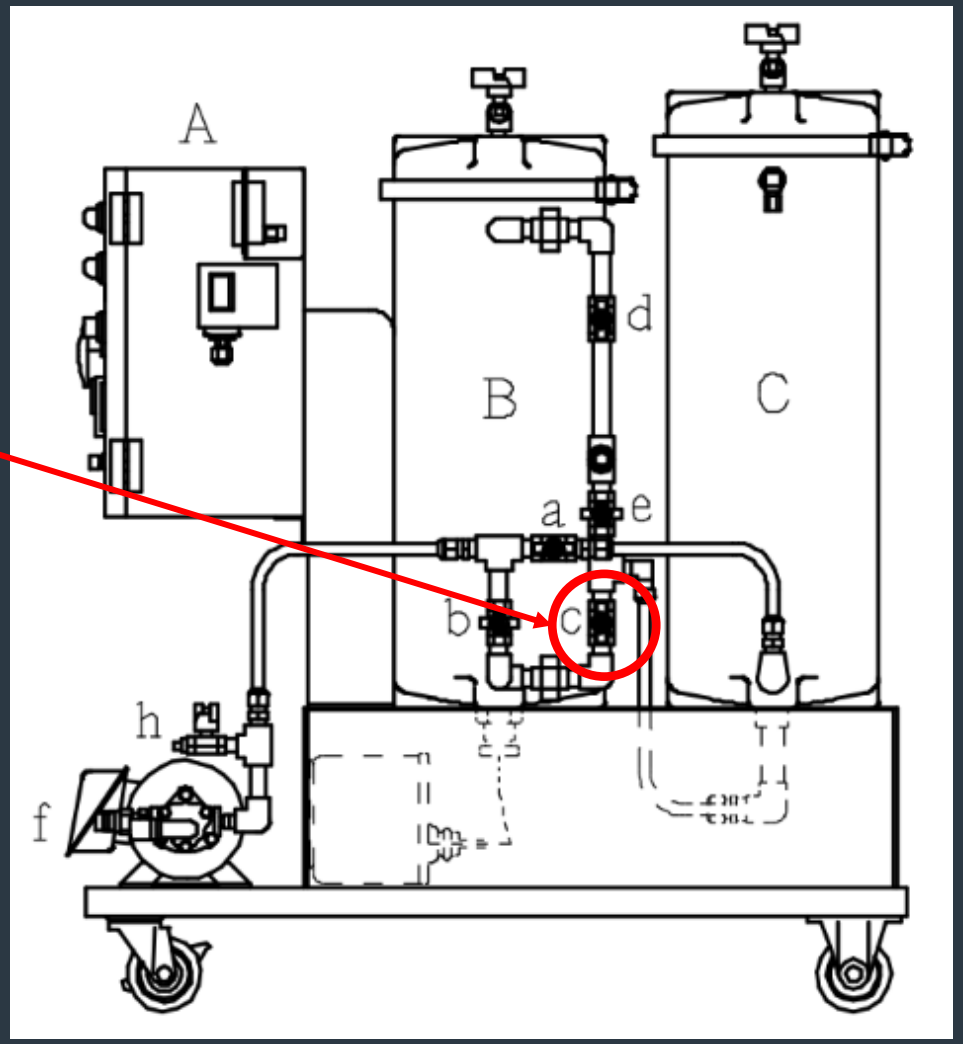

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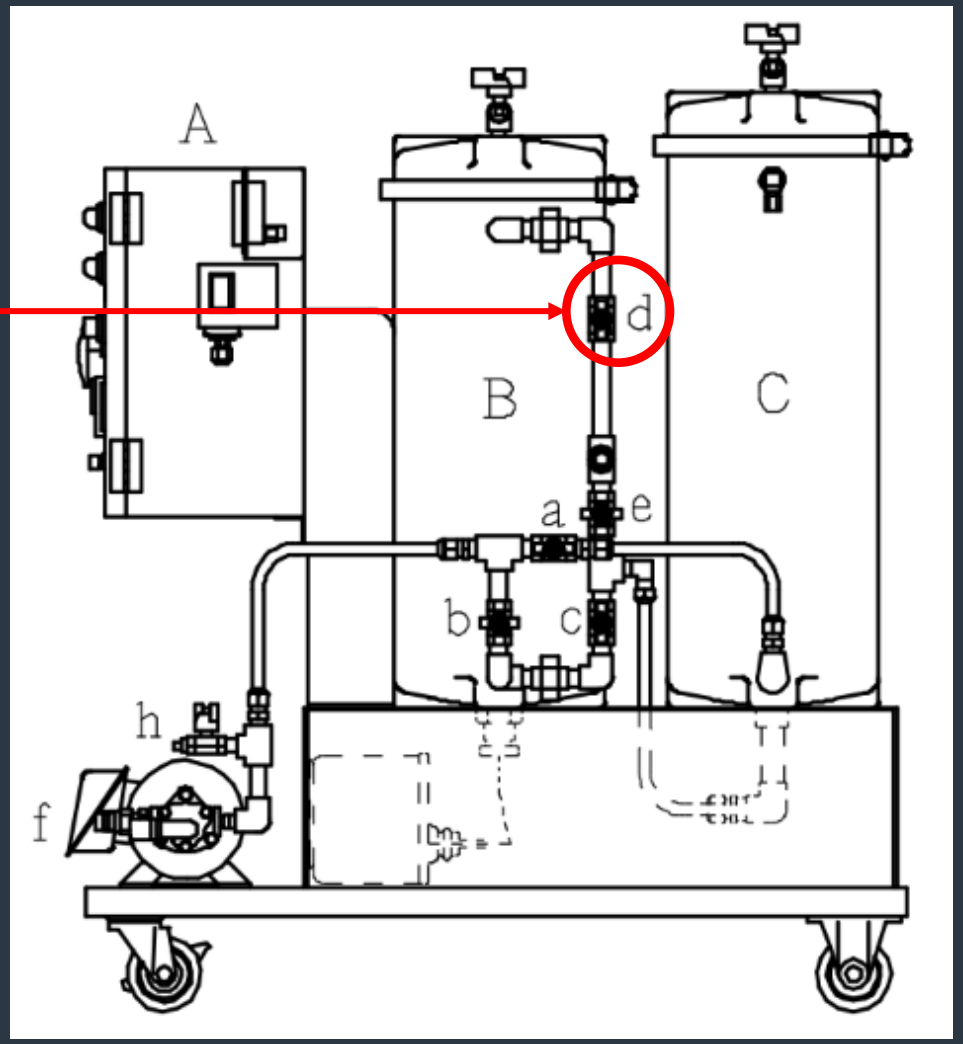

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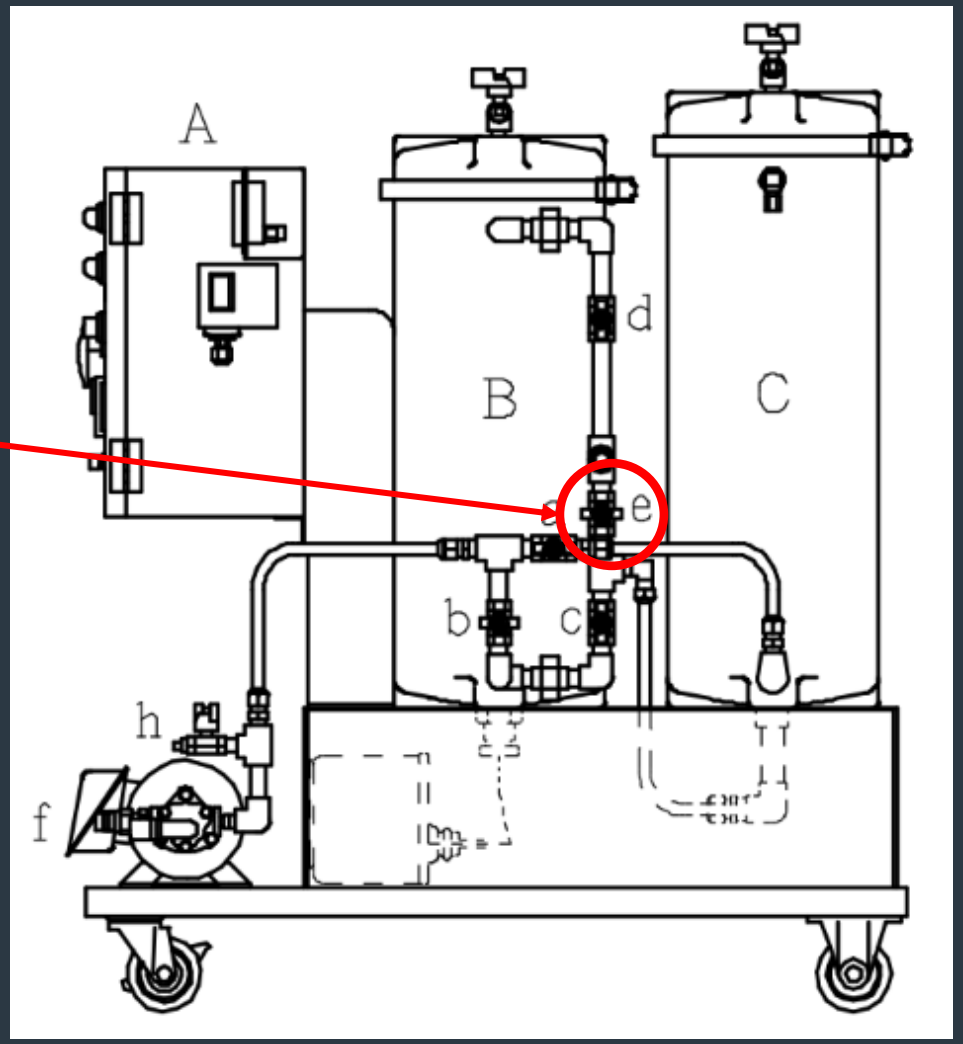

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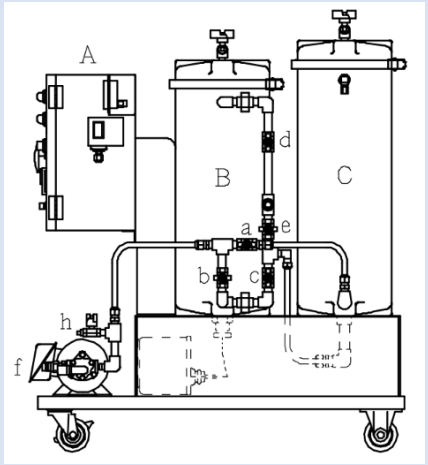
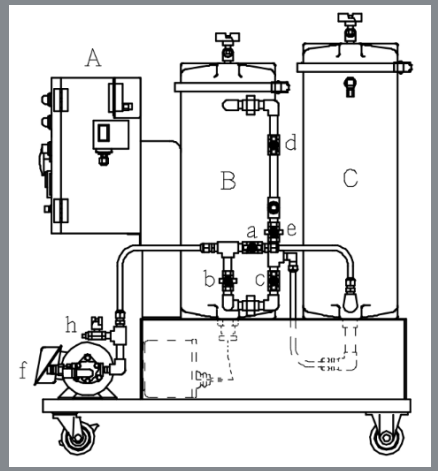
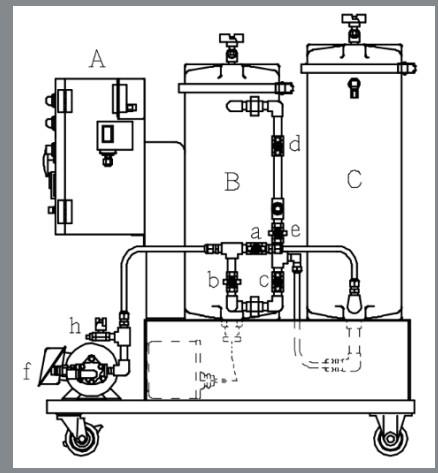
Summary: EDH-R25A
Different Mode of Operation to Cater to Different Level of Water Contamination:

	Case I	Case II	Case III
			
Level of Water Contamination	water contamination < 0.1%	water contamination > 0.1%	water contamination < 0.05%
Chamber where oil is being processed	Chamber B & Chamber C continuously	Chamber C continuously only	Chamber B only

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	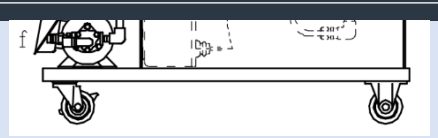 Case I	 Case II	 Case III
Level of Water Contamination	water contamination < 0.1%	water contamination > 0.1%	water contamination < 0.05%
Chamber where oil is being processed	chamber B & chamber C continuously	chamber C continuously only	chamber B continuously only
Valve Setting: (open/close)	Stop valve “a” (V1) – open Stop valve “b” (V2) – close Stop valve “c” (V3) – open Stop valve “d” (V4) – open Stop valve “e” (V5) – close Oil flow directly into chamber “B” via chamber “C”	Stop valve “a” (V1) – open Stop valve “b” (V2) – close Stop valve “c” (V3) – close Stop valve “d” (V4) – close Stop valve “e” (V5) – open Oil flow directly into chamber “C” only	Stop valve “a” (V1) – open Stop valve “b” (V2) – close Stop valve “c” (V3) – open Stop valve “d” (V4) – open Stop valve “e” (V5) – close Oil flow directly into chamber “B” only

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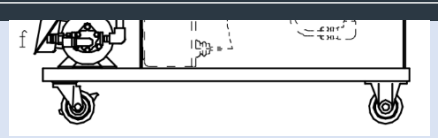
Different Mode of Operation to cater to Different Level of Water Contamination:

	 Case I	 Case II	 Case III
Level of Water Contamination	water contamination < 0.1%	water contamination > 0.1%	water contamination < 0.05%
Chamber where oil is being processed	chamber B & chamber C continuously	chamber C continuously only	chamber B continuously only
Application:	when the level of water contamination in the oil is greater than 0.05% (500ppm) but lesser than 0.1% (1,000ppm)	when the water contamination in the system is over 2,000ppm (dynamic environment – where is the oil is flowing consistency). It works by reducing the water contamination to 1,000ppm	when the level of water contamination within the oil is 2,000 part per million (ppm) (static, consistency – stable), before it is reduce to 0.05% (500ppm).

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Frequently Asked Questions (“FAQ”)
Questions and Answer (“Q&A”)

Question: What’s the typical lifespan of unit of Kleentek: Electrostatic Oil Cleaner (“EOC”)?

Answer: Kleentek: Electrostatic Oil Cleaner (“EOC”) typically have a very long lifespan, however with all machinery – it comes with components that experiences wear-and-tear such as seals and High-Voltage (Hi-Volt) Transformer. Each High-Voltage Transformer (HVT) can last for between 5-7 years before it need to be replaced with accordance to the manufacturer guideline.

Question: Do I still need to perform, carry-out oil change with the implementation of Kleentek: Dehydration Unit (“DH”) with Electrostatic Oil Cleaner (“EOC”) ?

Answer: With the implementation of Kleentek: Electrostatic Oil Cleaner (“EOC”) in a standalone manner or in combination with any of the supplementary unit (e.g. Kleentek; Dehydration Unit (“DH”) or Kleentek Filter (“KF”)), no oil change is required, with the exception if the oil is not severe damage due to prolong use under very severe operation condition (very high operation temperature – above and beyond the oil supplier recommendation, extreme level of water contamination, and mixture of different grade, viscosity, brand and type of lubricant and hydraulic oil).

However we continue to recommend regular top-up of small percentage of oil in order to replenish the level of oil additive – in order to ensure that your existing lubrication continue to receive properties such as anti-foaming, anti-misting agents.

Frequently Asked Questions (“FAQ”)
Questions and Answer (“Q&A”) (“cont.”)

Question: When should the B-45 element (consumable) be replaced?

Answer: When the B-45 element (“consumable”) should be replaced when it completely saturated with water.
The pressure gauge indicator found on the oil cleaner indicating the dehydration chamber has reached 0.3MPa and
When the pressure alarm lamp (“**RED**”) is lighted – indicating that the B-45 element found in dehydration chamber has reached its maximum capacity

Question: How often should the B-45 element be replaced?

Answer: Each piece of B-45 element can hold 4.5 litres (“4.5L”) of water.