



Introduction:
KLEENTEK: Electrostatic Oil Cleaner
with Dehydration (“EDH”)

Focus Machinery Pte Ltd, Singapore

x

Kleentek Corporation Inc., Japan

Today's Agenda – Discussion



1. Our Heritage, History and Expertise
2. Our knowledge in hydraulic fluid lubrication management
3. How we operate and work
4. Value proposition of using EDH
5. Working principle of EDH
6. EDH vs Traditional & Conventional Filters
7. What can EDH 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.

The logo for Kleentek, featuring a stylized red arrow pointing left followed by the word "KLEENTEK" in a bold, red, sans-serif font.

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

3. 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**; **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.

5. How We Operate and Works



**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

Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH") Primary Advantage and Features

Its primary advantage and feature of using **KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH")** lies in its ability to reduce the water contamination from <2,000ppm to <500ppm in a single pass - allowing the function of the **KLEENTEK: Electrostatic Oil Cleaner** to function and work normally.



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH") Primary Advantage and Features

Its primary advantage and feature of using **KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH")** lies in its ability to reduce the water contamination from <2,000ppm to <500ppm in a single pass - allowing the function of the **KLEENTEK: Electrostatic Oil Cleaner** to function and work normally.



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH")

Summary: Operating Principle and Features

Primary Use Case

The advantage of implementing KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH") Unit is it allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contaminations) in a single-pass manner.

Electrostatic Oil Cleaner ("EOC") or the Dehydrator ("DH") can independently or in combination by simply changing the configuration of a few valves.



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH")

Summary: Operating Principle and Features

Summary: Operating Principle

The advantage of implementing KLEENTEK: Electrostatic Oil Cleaner with Dehydration ("EDH") Unit is it allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and insoluble solid contamination) in a single-pass manner.

Electrostatic Oil Cleaner ("EOC") or the Dehydrator ("DH") can independently or in combination by simply changing the configuration of a few valves.



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point	Details
Application:	<ul style="list-style-type: none"> allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner where water contamination is persistent and continuous
Feature	<ul style="list-style-type: none"> Digital Countdown Timer Pressure Gauge Indicator Voltage/Ampere reading Hi/Low Volt – REV/OFF/NOR Pump Switch
Available in Following Models:	<ul style="list-style-type: none"> EDH-R25A; EDH-R50A-2B; EDH-R100A-2B; EDH-R100-3B
Model of Operation:	<ul style="list-style-type: none"> Electrostatic Oil Cleaning in Operation Only Electrostatic Oil Cleaning + Dehydration Only Dehydration Mode Only
Specification:	<ul style="list-style-type: none"> Pump Flow (lit/min) : 5.0 L/min @ 50Hz Dimension (L x W x H)(mm) : 535 x 375 x 940 Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point	Details
Application:	<ul style="list-style-type: none"> • allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner • where water contamination is persistent and continuous
Feature	<ul style="list-style-type: none"> • Digital Countdown Timer • Pressure Gauge Indicator • Voltage/Ampere reading • Hi/Low Volt – REV/OFF/NOR Pump Switch
Available in Following Models:	<ul style="list-style-type: none"> • EDH-R25A; EDH-R50A-2B; EDH-R100A-2B; EDH-R100-3B
Model of Operation:	<ul style="list-style-type: none"> • Electrostatic Oil Cleaning in Operation Only • Electrostatic Oil Cleaning + Dehydration Only • Dehydration Mode Only
Specification:	<ul style="list-style-type: none"> • Pump Flow (lit/min) : 5.0 L/min @ 50Hz • Dimension (L x W x H)(mm) : 535 x 375 x 940 • Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point	Details
Application:	<ul style="list-style-type: none"> • allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner • where water contamination is persistent and continuous
Feature	<ul style="list-style-type: none"> • Digital Countdown Timer • Pressure Gauge Indicator • Voltage/Ampere reading • Hi/Low Volt – REV/OFF/NOR Pump Switch
Available in Following Models:	<ul style="list-style-type: none"> • EDH-R25A; EDH-R50A-2B; EDH-R100A-2B; EDH-R100-3B
Model of Operation:	<ul style="list-style-type: none"> • Electrostatic Oil Cleaning in Operation Only • Electrostatic Oil Cleaning + Dehydration Only • Dehydration Mode Only
Specification:	<ul style="list-style-type: none"> • Pump Flow (lit/min) : 5.0 L/min @ 50Hz • Dimension (L x W x H)(mm) : 535 x 375 x 940 • Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point	Details
Application:	<ul style="list-style-type: none"> allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner where water contamination is persistent and continuous
Feature	<ul style="list-style-type: none"> Digital Countdown Timer Pressure Gauge Indicator Voltage/Ampere reading Hi/Low Volt – REV/OFF/NOR Pump Switch
Available in Following Models:	<ul style="list-style-type: none"> EDH-R25A; EDH-R50A-2B; EDH-R100A-2B; EDH-R100-3B
Model of Operation:	<ol style="list-style-type: none"> Electrostatic Oil Cleaning in Operation Only Electrostatic Oil Cleaning + Dehydration Only Dehydration Mode Only
Specification:	<ul style="list-style-type: none"> Pump Flow (lit/min) : 5.0 L/min @ 50Hz Dimension (L x W x H)(mm) : 535 x 375 x 940 Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point	Details
Application:	<ul style="list-style-type: none"> • allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner • where water contamination is persistent and continuous
Applicable Fluid:	<ul style="list-style-type: none"> • Water Glycol/Mineral Oil • Fatty Acid Ester • Wash Oil • Phosphate Ester Fluid
Environment:	<ul style="list-style-type: none"> • Automotive Industry/ ATF & CVTF Test Stand • Anti rust oil, Wash oil, • Processing line for bearing, precision component and coachbuilding
Consumable:	<ul style="list-style-type: none"> • Element, B-45 • Cartridge Collector, CC-RxxSP
Specification:	<ul style="list-style-type: none"> • Pump Flow (lit/min) : 5.0 L/min @ 50Hz • Dimension (L x W x H)(mm) : 535 x 375 x 940 • Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point

Details

Application:

- allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner
- where water contamination is persistent and continuous

Applicable Fluid:

- Water Glycol/Mineral Oil
- Fatty Acid Ester
- Wash Oil
- Phosphate Ester Fluid

Environment:

- Automotive Industry/ ATF & CVTF Test Stand
- Anti rust oil, Wash oil,
- Processing line for bearing, precision component and coachbuilding

Consumable:

- Element, B-45
- Cartridge Collector, CC-RxxSP

Specification:

- Pump Flow (lit/min) : 5.0 L/min @ 50Hz
- Dimension (L x W x H)(mm) : 535 x 375 x 940
- Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point

Details

Application:

- allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner
- where water contamination is persistent and continuous

Applicable Fluid:

- Water Glycol/Mineral Oil
- Fatty Acid Ester
- Wash Oil
- Phosphate Ester Fluid

Environment:

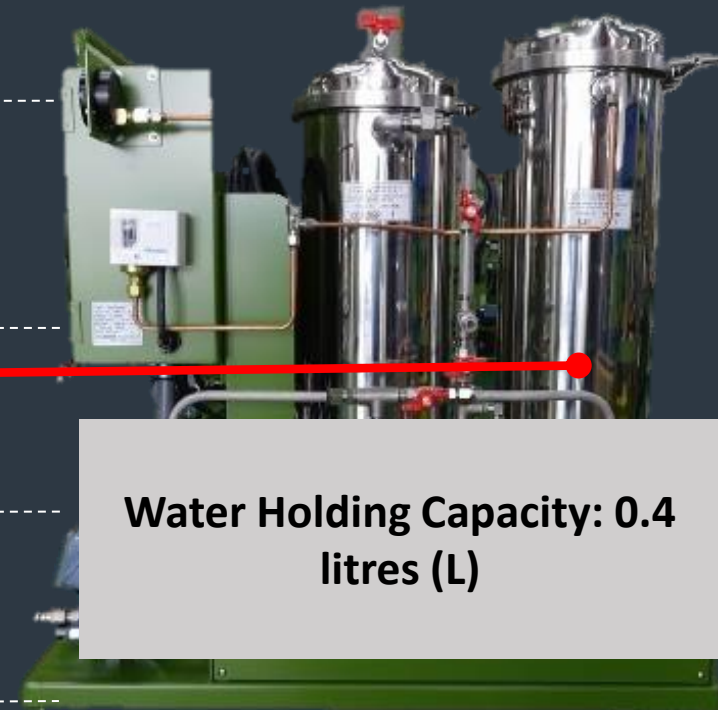
- Automotive Industry/ ATF & CVTF Test Stand
- Anti rust oil, Wash oil,
- Processing line for bearing, precision component and coachbuilding

Consumable:

- Element, B-45
- Cartridge Collector, CC-RxxSP

Specification:

- Pump Flow (lit/min) : 5.0 L/min @ 50Hz
- Dimension (L x W x H)(mm) : 535 x 375 x 940
- Weight (kilogram – kg) : 62



Water Holding Capacity: 0.4 litres (L)

Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

Main Point

Details

Application:

- allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner
- where water contamination is persistent and continuous

Applicable Fluid:

- Water Glycol/Mineral Oil
- Fatty Acid Ester
- Wash Oil
- Phosphate Ester Fluid

Environment:

- Automotive Industry/ ATF & CVTF Test Stand
- Anti Rust Oil, Wash Oil,
- Processing line for bearing, precision component and coachbuilding

Consumable:

- Element, B-45
- Cartridge Collector, CC-RxxSP

Specification:

- Pump Flow (lit/min) : 5.0 L/min @ 50Hz
- Dimension (L x W x H)(mm) : 535 x 375 x 940
- Weight (kilogram – kg) : 62



Introduction - KLEENTEK: Electrostatic Oil Cleaner with Dehydration (“EDH”)

Summary: Operating Principle and Features

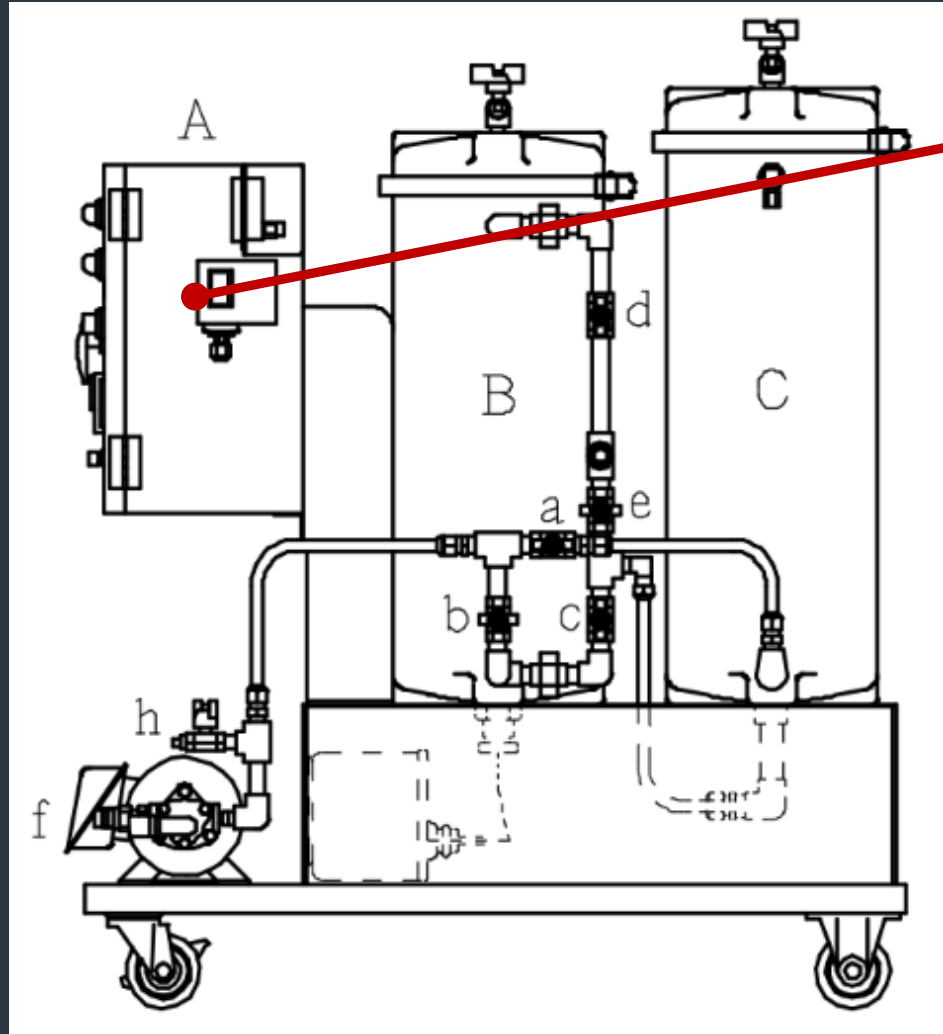
Main Point	Details
Application:	<ul style="list-style-type: none">• allow the removal of water contamination and oil oxidation product (e.g. varnish, oil oxidation product, and other insoluble solid contamination) in a single-pass manner• where water contamination is persistent and continuous
Applicable Fluid:	<ul style="list-style-type: none">• Water Glycol/Mineral Oil• Fatty Acid Ester• Wash Oil• Phosphate Ester Fluid
Environment:	<ul style="list-style-type: none">• Automotive Industry/ ATF & CVTF Test Stand• Anti Rust Oil, Wash Oil,• Processing line for bearing, precision component and coachbuilding
Consumable:	<ul style="list-style-type: none">• Element, B-45• Cartridge Collector, CC-RxxSP
Specification:	<ul style="list-style-type: none">• Pump Flow (lit/min) : 5.0 L/min @ 50Hz• Dimension (L x W x H)(mm) : 535 x 375 x 940• Weight (kilogram – kg) : 62



Lifespan: Approx. 2,000 hours

Parts Identification of EDH-R25A

Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)

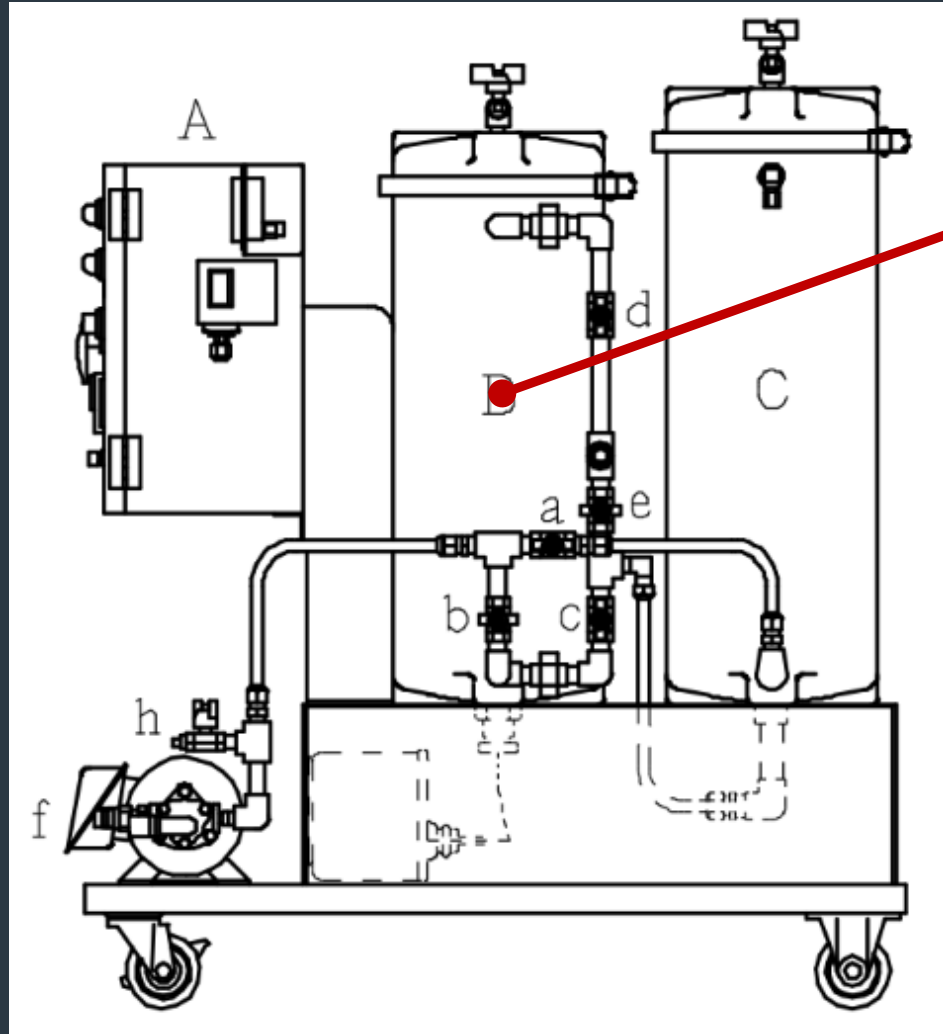


EDH Series: Product Parts Identification

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

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

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



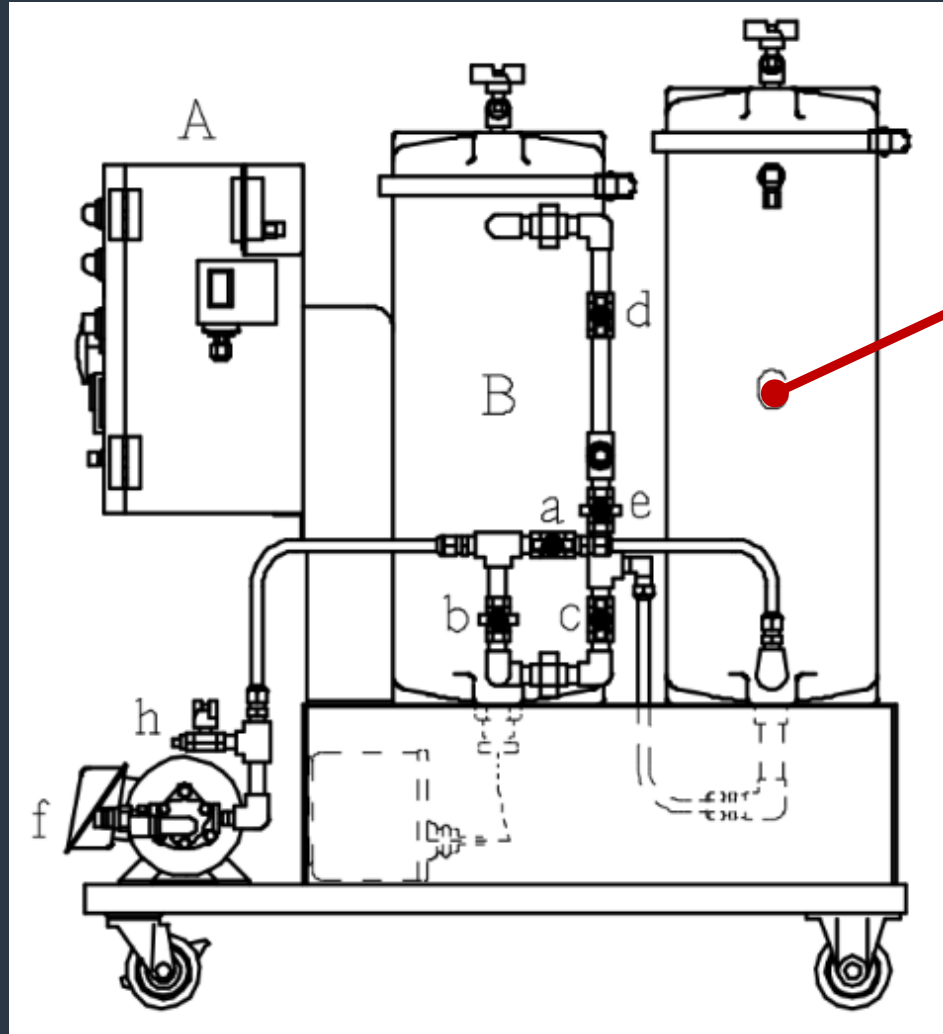
EDH Series: Product Parts Identification

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

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

Parts Identification of EDH-R25A

Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)



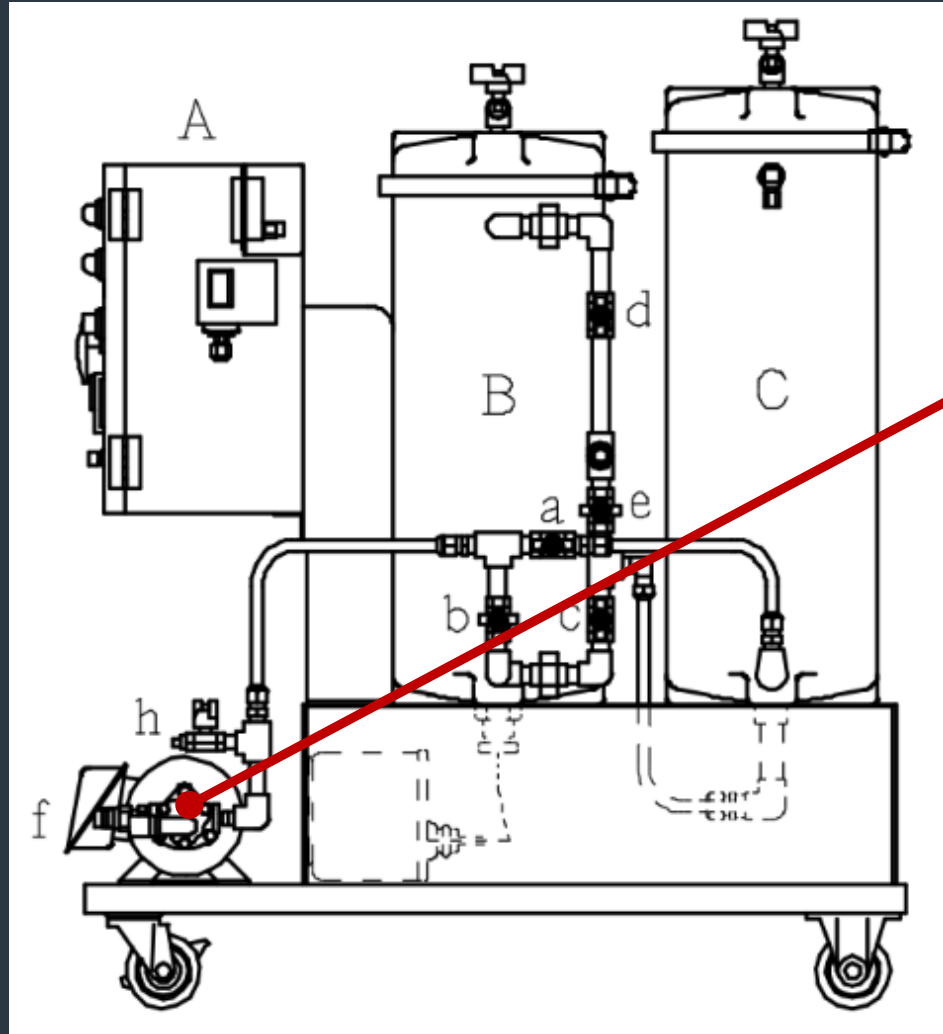
EDH Series: Product Parts Identification

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

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

Parts Identification of EDH-R25A

Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)



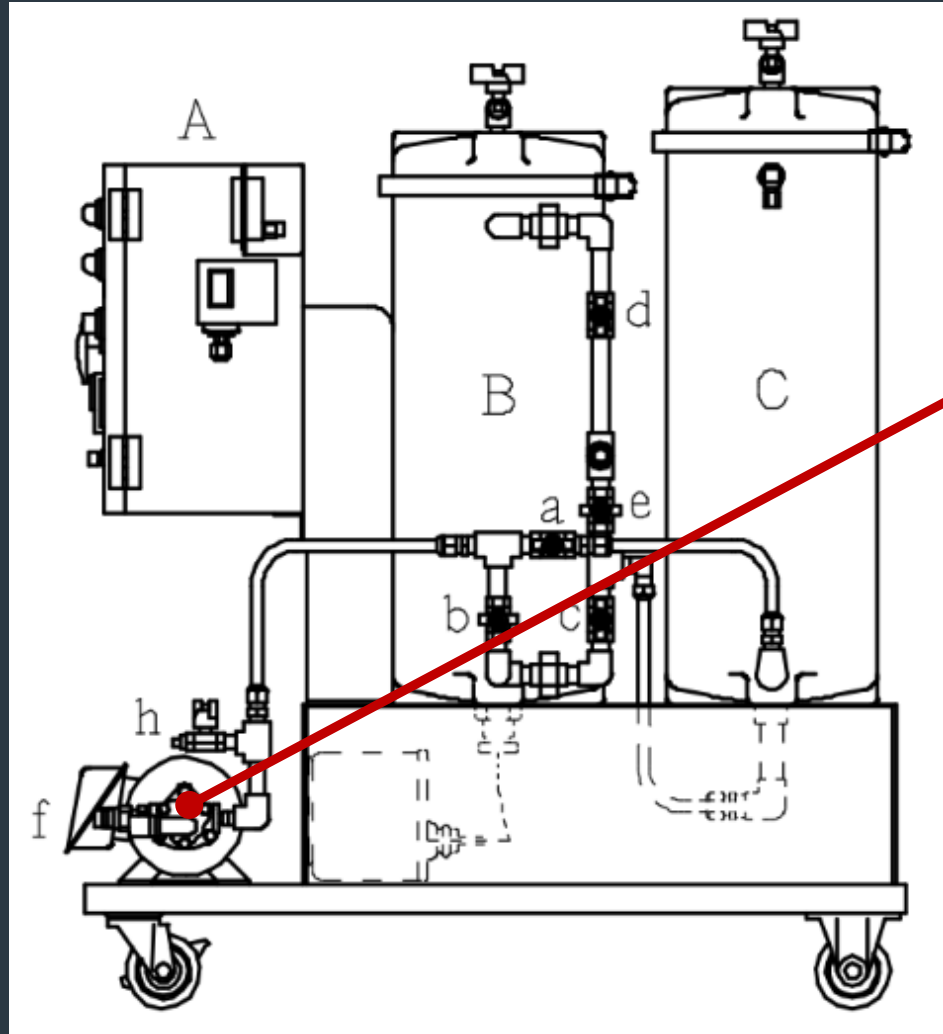
EDH Series: Product Parts Identification

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

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

Parts Identification of EDH-R25A

Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)

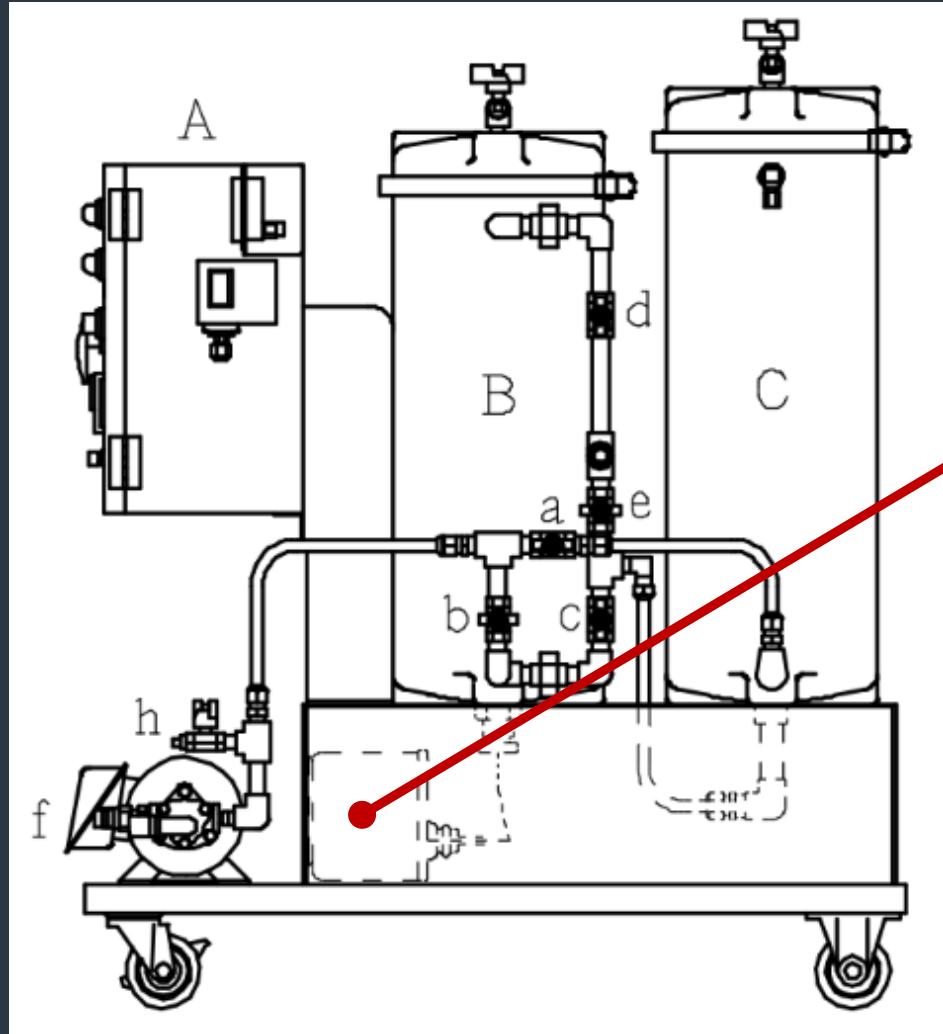


EDH Series: Product Parts Identification

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

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

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

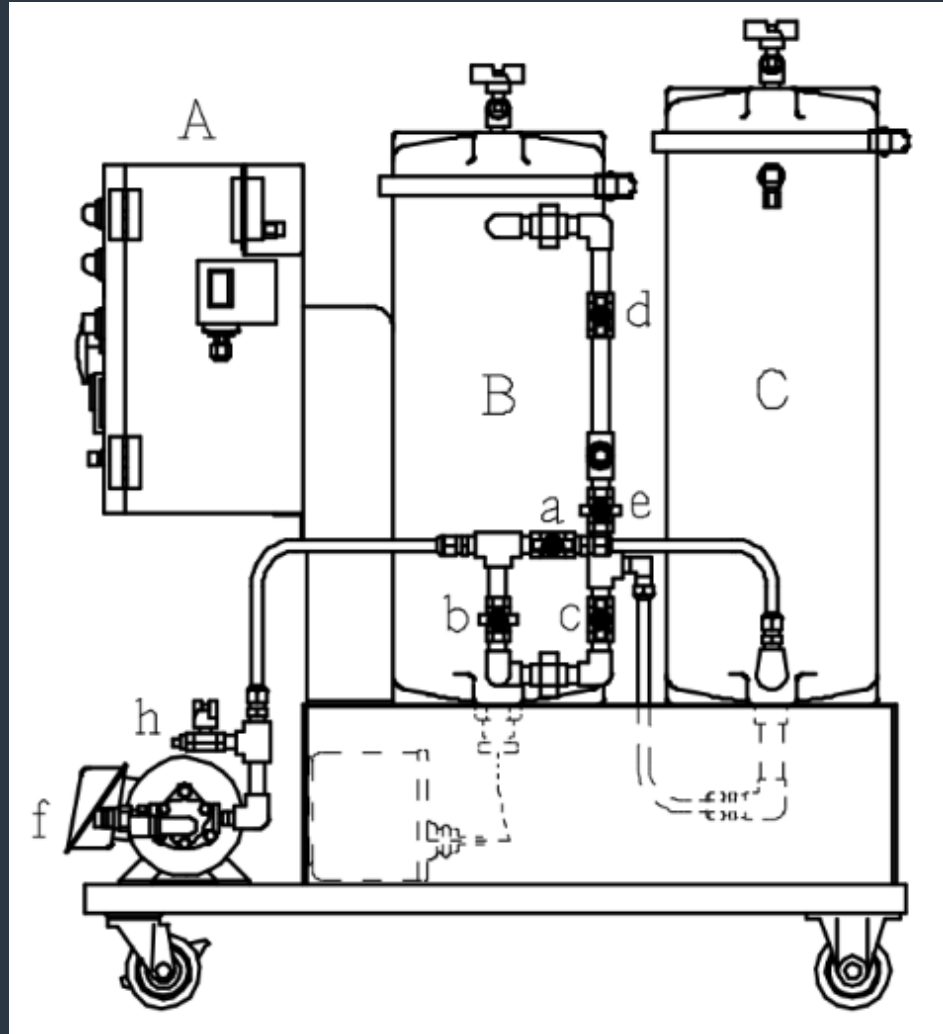


EDH Series: Product Parts Identification

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

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

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

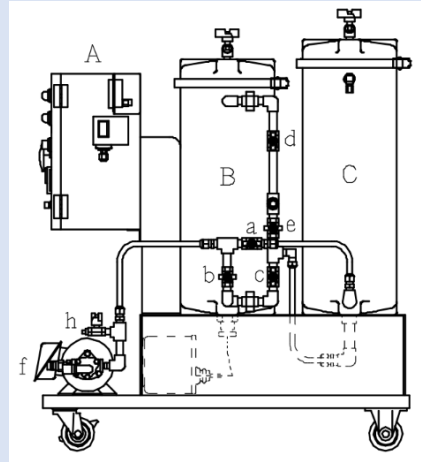


EDH Series: Product Specification

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

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

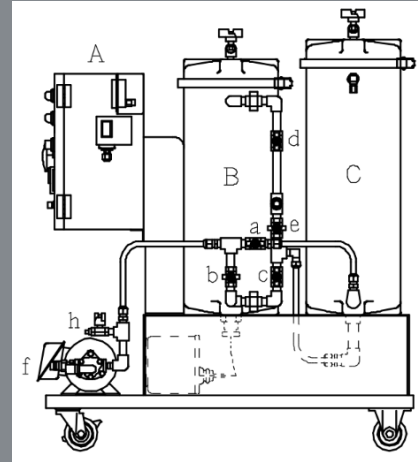
Different mode of operation for different level of water contamination level: EDH-R25A Summary: Operating Parameters



Case I

water contamination
< 0.1%

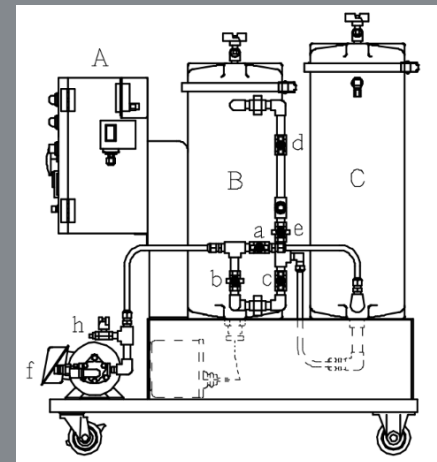
Chamber B &
Chamber C
continuously



Case II

water contamination
> 0.1%

Chamber C
continuously
only



Case III

water contamination
< 0.05%

Chamber B
only

**Level of Water
Contamination**

**Chamber where oil is
being processed**

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

Summary: EDH-R25A




Different Mode of Operation to cater to different level of water contamination:

Level of Water Contamination	<p>Case I</p> <p>water contamination < 0.1%</p>	<p>Case II</p> <p>water contamination > 0.1%</p>	<p>Case III</p> <p>water contamination < 0.05%</p>
Chamber where oil is being processed	<p>chamber B & chamber C continuously</p>	<p>chamber C continuously only</p>	<p>chamber B continuously only</p>
Valve Setting: (open/close)	<p>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</p>	<p>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</p>	<p>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</p>
	<p>Oil flow directly into chamber “B” via chamber “C”</p>	<p>Oil flow directly into chamber “C” only</p>	<p>Oil flow directly into chamber “B” only</p>

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

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 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).

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

Different Power Supply Configuration of EDH-R25A Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)

Available in Power Supply:

- 1P/120V/50Hz
- 1P/230V/50Hz
- 1P/240V/50Hz
- 3P/318V/50Hz
- 3P/400V/50Hz

Available in the following capacities:

- EDH-R25A-1B;
- EDH-R50A-2B;
- EDH-R100A-2B;
- EDH-R100A-3B.

Consumable Required:

- B-45, Dehydration Element
- CC-R25SP, Cartridge Collector



Different Power Supply Configuration of EDH-R25A Electrostatic Oil Cleaner (“EOC”) with Dehydration Unit (“DH”)

Available in Power Supply:

- 1P/120V/50Hz
- 1P/230V/50Hz
- 1P/240V/50Hz
- 3P/318V/50Hz
- 3P/400V/50Hz

Available in the following capacities:

- EDH-R25A-1B;
- EDH-R50A-2B;
- EDH-R100A-2B;
- EDH-R100A-3B.

Consumable Required:

- B-45, Dehydration Element
- CC-R25SP, Cartridge Collector



Frequently Asked Question (FAQ)

Machine Operating FAQ

Question: What's the amount of water that the B-45 element can hold?
Answer: Each piece of B-45 element is designed to contain 4.0 litres ("L") of water

Question: How do we know when the dehydration element should be change? Or is due for replacement?

Answer: The pressure alarm lamp turns ("**RED**") is lighted up
When the pressure gauge on the machine is greater than **0.3MPa**
- please see photo on the right

Question: Can the dehydration element and the cartridge collector be changed independently?

Answer: Yes, the cartridge collector and the dehydration element can be changed independently of each upon reaching its lifespan



Frequently Asked Question (FAQ)

Machine Operating FAQ

Question: What's the amount of water that the B-45 element can hold?
Answer: Each piece of B-45 element is designed to contain 4.0 litres ("L") of water

Question: How do we know when the dehydration element should be change? Or is due for replacement?

Answer: The pressure alarm lamp turns ("**RED**") is lighted up
When the pressure gauge on the machine is greater than **0.3MPa**
- please see photo on the right

Question: Can the dehydration element and the cartridge collector be changed independently?

Answer: Yes, the cartridge collector and the dehydration element can be changed independently of each upon reaching its lifespan



Frequently Asked Question (FAQ)

Machine Operating FAQ

Question: How should we know when should the dehydration element should be change?

Answer:

- [1] When the dehydration (DH) element is saturated with water, the pressure switch works ->
- [2] the pump will automatically stop and the pressure alarm lamp (“**RED**”) will be lighted ->
- [3] the pump is stopped by the actuation of the pressure switch when the pressure in the cleaning chamber is **0.3MPa**.

For more information, you may reach us at:



WRITE TO US

sales@focusmachinery.com.sg
enquiry@focusmachinery.com.sg



VISIT US ONLINE

www.focusmachinery.com.sg



Virtual Meeting

[Book a meeting with Benjamin Yong | Focus Machinery Pte Ltd](#)