

Summary Specification	
BIL. SEBUTHARGA/QUOTATION REF.:	UBD/Q/244/2025 (FIT) - [T]
TARIKH DIIKLANKAN :	30 December 2025 [Selasa]
TARIKH TUTUP :	03 Februari 2026 [Selasa] JAM: 2 Petang
DOCUMENT FEE :	B\$ 10.00

**IMPORTANT**

The Official PDF quotation/tender form will be send via email once UBD Official receipt issued and send to vendors/supplier for confirmation of payment received.

Please take note that the document fee for each of the New and Extended quotations will be BND 10.00 each

a) Quotations or tenders under Universiti Brunei Darussalam (Kerajaan) can be identified by the letter [G] at the end of the quotation/tender reference number.

Example: UBD/Q/123/2023 – [G]

b) Quotations or tenders under Universiti Brunei Darussalam (Tabung UBD) can be identified by the letter [T] at the end of the quotation/tender reference number.

Example: UBD/Q/123/2023 – [T]

Please ensure that your company makes payment to the correct account:

For [G] references → Kerajaan Account

For [T] references → Tabung Universiti Account

Account numbers and detailed payment steps are available on the Universiti Brunei Darussalam website under the section "Mode of Payment."

**Important Note:** Please ensure that you provide the correct details when making the payment.

Please email proof of the above payment to [helpdesk.epay@ubd.edu.bn](mailto:helpdesk.epay@ubd.edu.bn), [finance@ubd.edu.bn](mailto:finance@ubd.edu.bn), [eprocurement.support@ubd.edu.bn](mailto:eprocurement.support@ubd.edu.bn).

TITLE :		<u>TO SUPPLY, DELIVER, CUSTOMIZE, INSTALL, TEST AND COMMISSION CUSTOMIZE MICROWAVE PYROLYSIS SYSTEM FOR UBD FIT.</u>
No.	Quantity	SPECIFICATIONS
1	1 lot	To Supply, Deliver, Customize, Install, Test and Commission Customize Microwave Pyrolysis System for UBD FIT, that includes the following: -  <b>Microwave chemical reactor</b> Specifications: <ul style="list-style-type: none"><li>• Microwave output power: 0–750 W (adjustable)</li><li>• Microwave frequency: 2450 MHz</li><li>• Temperature range: Room temp → 250 °C</li><li>• Temperature accuracy: ±1 °C</li><li>• Power supply: AC 220 V, 50 Hz</li><li>• Heating mode: Continuous (non-pulsed)</li><li>• Control system:<ul style="list-style-type: none"><li>- LCD display</li><li>- Constant temperature / constant power modes</li><li>- Up to 5 programmable steps</li></ul></li><li>• Stirring: Built-in magnetic stirrer, adjustable speed</li><li>• Atmosphere: Supports inert gas inlet (e.g., N<sub>2</sub>, Ar)</li><li>• Safety: Door interlock, overheat protection</li><li>• Dimensions: Approx. 400 × 510 × 470 mm</li><li>• Reaction chamber: Approx. 330 × 330 × 230 mm</li></ul>
1.2	1 unit	<b>Quartz 3 necks flat bottom flask, 500ml, socket 24/40</b> Specifications: <ul style="list-style-type: none"><li>• Product: Quartz glass</li><li>• Capacity: 500 mL</li><li>• Material: High-purity Quartz glass</li><li>• Design<ul style="list-style-type: none"><li>- 3 necks (1 center, 2 side necks)</li><li>- All joints: standard taper 24/40</li><li>- Flat bottom for stable placement</li></ul></li><li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li><li>• Please see the attached design</li></ul>

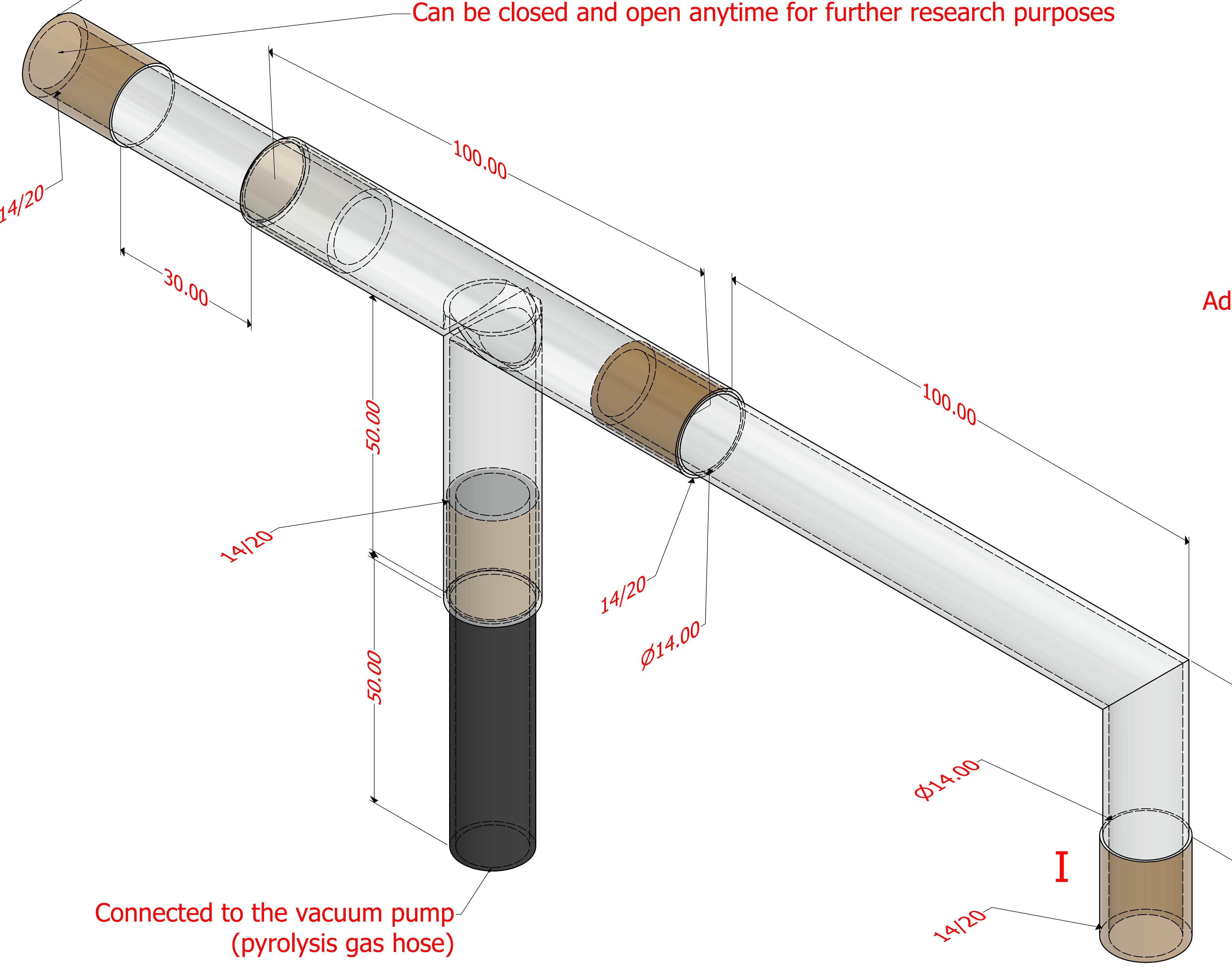
TITLE :		<u>TO SUPPLY, DELIVER, CUSTOMIZE, INSTALL, TEST AND COMMISSION</u> <u>CUSTOMIZE MICROWAVE PYROLYSIS SYSTEM FOR UBD FIT.</u>
No.	Quantity	SPECIFICATIONS
1.3	1 unit	<p><b>Quartz 3 neck glass pipe</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> <li>• Neck Details</li> </ul> <p><b>Top Neck (Thermocouple Port):</b></p> <ul style="list-style-type: none"> <li>- Taper joint: 30/40</li> <li>- Outer Diameter: Ø30 mm</li> <li>- Note: Needs a custom stopper with center hole for thermocouple.</li> </ul> <p><b>Left Neck (Nitrogen Gas Inlet)</b></p> <ul style="list-style-type: none"> <li>- Taper Joint: 14/20</li> <li>- Outer Diameter: Ø14 mm</li> </ul> <p><b>Side Neck (To Liebig Condenser)</b></p> <ul style="list-style-type: none"> <li>- Taper Joint: 24/40</li> <li>- Outer Diameter: Ø24 mm</li> <li>- Horizontal Length: 50 mm</li> </ul>
		<p><b>Bottom Neck</b></p> <ul style="list-style-type: none"> <li>- Taper Joint: 30/40</li> <li>- Outer Diameter: Ø30 mm</li> </ul> <p><b>Main Body</b></p> <ul style="list-style-type: none"> <li>- Vertical main tube length: ≈ 200 mm</li> <li>- Main body outer diameter: Ø30 mm</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>- Top neck: Insert thermocouple</li> <li>- Left neck: Nitrogen inlet</li> <li>- Side neck: Connection to Liebig condenser</li> <li>- Bottom neck: Main outlet/connection</li> <li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li> <li>• Please see the attached design</li> </ul>
1.4	1 unit	<p><b>Additional pipe for pump -Quartz</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> <li>• <b>Taper Joints</b></li> <li>- All connections: 14/20 standard taper</li> <li>- Outer diameter: Ø14 mm</li> </ul> <p><b>Dimensions</b></p> <ul style="list-style-type: none"> <li>- Horizontal tube section 1: 100 mm</li> <li>- Horizontal tube section 2: 100 mm</li> <li>- Short side horizontal segment: 30 mm</li> <li>- Vertical tube (to vacuum pump): 50 mm</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>- Vertical tube: Connects to vacuum pump (pyrolysis gas hose)</li> <li>- All ports: Can be opened/closed using a stopper for research flexibility</li> <li>- Stopper/Lid required: For sealing any unused 14/20 ports</li> <li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li> <li>• Please see the attached design</li> </ul>
1.5	1 unit	<p><b>Quartz connecting tube to condenser</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> </ul> <p><b>Dimensions</b></p> <ul style="list-style-type: none"> <li>- Total length: 135 mm</li> <li>- Both ends: 34/45 standard taper joints</li> <li>- Taper Joint outer diameter: Ø34 mm</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li> <li>• Please see the attached design</li> </ul>
1.6	1 unit	<p><b>Quartz connecting tube to reactor</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> <li>- Max temperature: ~1100°C (continuous)</li> </ul> <p><b>Dimensions:</b></p> <ul style="list-style-type: none"> <li>- Total length: 260 mm</li> <li>- Outer diameter: 30 mm</li> <li>- Inner diameter: 24 mm</li> <li>- Thickness: 3 mm</li> </ul> <p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li> <li>• Please see the attached design</li> </ul>

TITLE :		<u>TO SUPPLY, DELIVER, CUSTOMIZE, INSTALL, TEST AND COMMISSION</u> <u>CUSTOMIZE MICROWAVE PYROLYSIS SYSTEM FOR UBD FIT.</u>
No.	Quantity	SPECIFICATIONS
1.7	1 unit	<p><b>L-shape connector - Quartz</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> <li>• <b>Dimensions</b> <ul style="list-style-type: none"> <li>- Horizontal arm: 50 mm</li> <li>- Vertical arm: 50 mm</li> <li>- Both ends: 24/29 standard taper joints</li> <li>- Outer diameter: Ø24 mm</li> </ul> </li> <li>• <b>Function</b> <ul style="list-style-type: none"> <li>- 90° L-shaped connector for joining two 24/29 joints</li> <li>- Used to redirect gas flow or connect perpendicular components</li> <li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li> <li>• Please see the attached design</li> </ul> </li> </ul>
1.8	3 pcs	<p><b>Quartz U-shape connector (3 pcs)</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> <li>• <b>Dimensions (2 pcs)</b> <ul style="list-style-type: none"> <li>- Total height (each vertical leg): 200 mm</li> <li>- Bottom horizontal length: 100 mm</li> <li>- Bend radius: 25 mm</li> </ul> </li> <li>• <b>Dimensions (1 pc)</b> <ul style="list-style-type: none"> <li>- Total height (each vertical leg): 100 mm</li> <li>- Bottom horizontal length: 100 mm</li> <li>- Bend radius: 25 mm</li> </ul> </li> <li>• <b>Tube Diameters</b> <ul style="list-style-type: none"> <li>- Main tube outer diameter: Ø16 mm</li> <li>- Inner tube diameter: Ø12 mm</li> </ul> </li> <li>• <b>Taper joint Types</b> <ul style="list-style-type: none"> <li>- Both top ends: 24/40 standard taper joints</li> <li>- Joint outer diameter: Ø24 mm</li> </ul> </li> <li>• The taper size for each neck can be adjusted by the manufacturer as long as it fits.</li> <li>• Please see the attached design</li> </ul>
1.9	1 unit	<p><b>Vacuum pump</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• <b>Type</b> <ul style="list-style-type: none"> <li>- Oil-free diaphragm laboratory vacuum pump (Clean, no oil mist, low maintenance)</li> </ul> </li> <li>• <b>Performance</b> <ul style="list-style-type: none"> <li>- Flow rate: ~20 L/min</li> <li>- Ultimate vacuum: ~0.09 MPa (≈ 90 kPa negative pressure)</li> <li>- Noise level: ≤ 65 dB</li> </ul> </li> <li>• <b>Electrical</b> <ul style="list-style-type: none"> <li>- Power: ~35 W</li> <li>- Voltage: AC 110–220 V, 50 Hz</li> </ul> </li> <li>• <b>Design</b> <ul style="list-style-type: none"> <li>- Compact &amp; portable</li> <li>- Low vibration with rubber shock-absorbing feet</li> <li>- Adjustable vacuum/flow control</li> <li>- Corrosion-resistant housing</li> </ul> </li> </ul>
1.10	1 unit	<p><b>Quartz glass beaker</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>• Material: Quartz glass</li> <li>• <b>Dimensions</b> <ul style="list-style-type: none"> <li>- Outer diameter: 130 mm</li> <li>- Radius: 65 mm</li> <li>- Height: 115 mm</li> </ul> </li> <li>• <b>Capacity</b> <ul style="list-style-type: none"> <li>- 1.5/2 liters</li> <li>• Please see the attached design</li> </ul> </li> </ul>
1.11	1 unit	Glass beaker, 1L (Standard)
1.12	1 unit	Lab beaker tripod stand, stainless steel, self-assembled (Standard)

TITLE :		<u>TO SUPPLY, DELIVER, CUSTOMIZE, INSTALL, TEST AND COMMISSION CUSTOMIZE MICROWAVE PYROLYSIS SYSTEM FOR UBD FIT.</u>
No.	Quantity	SPECIFICATIONS
1.13	1 unit	Conical flask with side arm, 250mL (Standard)
1.14	1 unit	Liebig condenser tube (Standard)

# Provide stopper / lid

Can be closed and open anytime for further research purposes



Connected to the vacuum pump  
(pyrolysis gas hose)

Additional pipe for pump

DRAWN	Dr. Amal Fadhilah	5/26/2025	FIT, UBD
CHECKED			
QA			
MFG			
APPROVED			
SIZE	3.1	DWG NO	additional pipe for pump
SCALE	1:1	REV	1
SHEET	1	OF	1

