



भारतीय प्रौद्योगिकी संस्थान  
INDIAN INSTITUTE OF TECHNOLOGY  
(काशी हिन्दू विश्वविद्यालय)  
(BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY  
(उच्चावुशीलन केन्द्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)  
(CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)  
(वाराणसी - 221004) Varanasi - 221005

Mobile. No.: +91-(979) 539 6580; +91-(926) 099 7137

e-mail: [jpc.che@iitbhu.ac.in](mailto:jpc.che@iitbhu.ac.in)

Ref. No.: IIT(BHU)/ChE/2023-24/JPC/02

Dated: 16.07.2024

CORRIGENDUM

Tender ID: 2024\_IITBHU\_XX\_1

Corrigendum Title: Modification in Technical Specifications

Tender Ref. No.: IIT(BHU)/ChE/2023-24/JPC/01

Tender Title: Biomass Pyrolysis Setup

With reference to the above-mentioned tender, the technical specifications have been modified (in order to accommodate biomass with widely variable properties) and the modified "Technical Specifications" under "Schedule of Requirements" is mentioned below:

SCHEDULE OF REQUIREMENTS

I. TECHNICAL SPECIFICATIONS

Design Consideration of Biomass Pyrolysis Setup

Sr. No	Item	Qty	Description	MOC
Technical Specification of the Biomass Pyrolysis Reactor				
1	Furnace	01	Cylindrical type split tube furnace single zone	SS
		Unit	Technical Specification details below	316
			Parameter	Value
			Model:	Any make
			Furnace overall Dimensions (Height)	400 mm
			Nos of hot zone	Single zones
			Furnace hot zone length	300 mm per zone
			Constant/uniform heated length	300 mm
			Working zone	300 mm
			Heating with non-heating zone	400 mm
			Max Supply Power	Vender to suggest

*J*  
16/7/24



भारतीय प्रौद्योगिकी संस्थान  
**INDIAN INSTITUTE OF TECHNOLOGY**  
 (काशी हिन्दू विश्वविद्यालय)  
 (BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
**DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY**  
 (उच्चावुशीलन केन्द्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)  
 (CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)  
 (वाराणसी - 221004) Varanasi - 221005

			Power supply	220-240 volts, single phase AC supply	
			Heating Elements	Kanthal A-1	
			Inner Chamber	Ceramic Refractory / Board	
			Maximum temp. of operation	1000 °C	
			Continuous temp. of operation	800 °C	
			Heating Rate	4-8°C/min approx.	
			Temperature accuracy	± 10°C, or better	
			Insulation classification temp.	As per furnace temp. ratings	
			Skin temperature	Less than 100°C	
			Thermocouple well Quantity	01 Number {3/8" OD} in build furnace.	
			Furnace Weight	Vendor to suggest	
2	Reactor	01 No.	Reactor type:	Tube reactor	INC625
			Reactor Volume	1543 ML (Biomass: 20Gm @ 150 kg/m <sup>3</sup> density) approx.	
			Reactor dimension ID:	62.68 x OD 70.3 x L 500 mm Flange end type	
			Design Pressure:	10 bar	
			Operating pressure:	1 bar	
			Design: Temperature:	1000 °C.	
			Operating Temperature:	800 °C.	
Outlet Module					

2  
16/7/24



भारतीय प्रौद्योगिकी संस्थान  
**INDIAN INSTITUTE OF TECHNOLOGY**  
 (काशी हिन्दू विश्वविद्यालय)  
 (BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
**DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY**  
 (ऊच्चानुशीलन केन्द्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)  
 (CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)  
 (वाराणसी - 229004) Varanasi - 221005

1	Cyclone Separator	1	Design Pressure: 10 bar Operating Pressure: 1 bar	INC625
2	Condenser	1	Condenser shell & tube type End Connection: 1/4" OD Design Pressure: 10 bar Operating Pressure: 1 Bar Operating Temperature: 250° C	SS 316
3	Gas Liquid Separator (GSL)	1	Gas Liquid Separator: Capacity: 1 L Type: Closed end at the top, torispherical dish end at the bottom Design Pressure: 10 bar Operating Pressure: 1 bar Operating Temperature: Ambient	SS 316
<b>Gas Feed Assembly Module</b>				
1	RM N2	1	Rotameter Controller Gases: Nitrogen Gas (N2) Details for Rotameter Design Pressure: 10 bar Operating Pressure: 1 bar Gas Flow: 0 to 15 L/min Operating Temperature: Ambient End Connection: 1/4" OD	SS 316
2	PM	1	Pre-Mixer: For Gases Type: Tube type closed End	SS 316

*2*  
16/7/24



Fax (फैक्स): 091-0542-2368092; Email : head.che@itbhu.ac.in

☎ 0542-2368092, 6702029, 6702024



भारतीय प्रौद्योगिकी संस्थान  
INDIAN INSTITUTE OF TECHNOLOGY  
(काशी हिन्दू विश्वविद्यालय)  
(BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY  
(ऊच्चानुशीलन केन्द्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)  
(CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)  
(वाराणसी - 221005) Varanasi - 221005

			ID-27.5 x OD-33.4 x Length – 400 mm Design Pressure: 10 Bar Operating Pressure: 1 Bar Design Temperature: 400° C Operating Temperature: 300 ° C	
3	Pad Heater	1	Ceramic Band Heater: Split type Power: 1.5 KW/zone, & Volts: 220 Design Temperature: 400 °C. Operating temperature: 300 °C.	-
4	Insulation	1	Insulation as per requirement	-
Instruments Safety Devices				
1	PG	2	Pressure gauge: (Back & Bottom Mounting) Pressure Range: 0-10 bar Dial Size: 63 mm	SS 316
2	Thermocouple	3	Temperature Element: Type: K-type Temperature Range: 0 -1000°C Size: 1/8" x 500mm	Alloy 625
3	PT	1	Pressure Transmitter: Pressure Range: 0-10 bar	SS 316
4	PSV	1	Pressure Safety Valve Pressure Range: 0-10 bar End Connection: ¼ inch OD	SS 316
5	BPCV	1	Back Pressure Control Valve Type: manually Pressure Range: 0-10 bar	SS316

2  
16/7/24



भारतीय प्रौद्योगिकी संस्थान  
INDIAN INSTITUTE OF TECHNOLOGY

(काशी हिन्दू विश्वविद्यालय)

(BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग

DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY

(उच्चानुशीलन केंद्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)

(CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)

(वाराणसी - 221004) Varanasi - 221005

			End connection: 1/4-inch OD	
6	RD	1	Rupture disks Bursting Range: 10 bar Temperature: 260°C End Connection: ¼ inch OD	SS316
PID based Control Panel Module				
1	CP	1	Control Panel: PID based control panel Pre-heater, Pre-Mixer heating assembly, Reactor temperature controller, gas flow controller & pressure indication, with suitable high temperature and high-pressure safety Alarms and interlocking.	-
Tubing & Fitting Module				
1	Adapter	Required for our scheme	¼" OD male connector precision quality	-
2	BHU	Required for our scheme	Bulk Head Union precision quality	-
3	Four ways	Required for our scheme	¼" OD male connector four ways precision quality	-
4	Tee	Required for our scheme	¼" OD male connector Tee precision quality	-
5	Elbow	Required	¼" OD male connector Elbow precision quality	-

15/7/24



Fax (फैक्स): 091-0542-2368092; Email : head.che@itbhu.ac.in

☎ 0542-2368092, 6702029, 6702024



भारतीय प्रौद्योगिकी संस्थान  
**INDIAN INSTITUTE OF TECHNOLOGY**  
 (काशी हिन्दू विश्वविद्यालय)  
 (BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
**DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY**  
 (उच्चावुशीलन केन्द्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)  
 (CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)  
 (वाराणसी - 221004) Varanasi - 221005

		for our scheme		
6	Reducer	Required for our scheme	¼" OD x 1/8" male connector precision quality	-
<b>Installation &amp; Commissioning</b>				
1	A L Charges	Required for our scheme	Assembly Labouré Charges of the Biomass Pyrolysis Reactor	-
2	P/F	Required for our scheme	Packing & Forwarding of Biomass Pyrolysis Reactor	-
3	FOR	Required for our scheme	F.O.R. Charges of the Biomass Pyrolysis Reactor destination of the Indian Institute of Technology (BHU), Varanasi	-
4	Installation	Required for our scheme	Installation & commissioning charges of the Biomass Pyrolysis Reactor Indian Institute of Technology (BHU), Varanasi	-
<b>Structure Module</b>				
1	Structure	1	MS squire tube skid profile. Squire Beam 40 x 40 mm 16-gauge Height 1735 mm Width 650 mm Length 1355 mm Fabricated as per approval drawing.	-
<b>Training</b>				
1	Onsite Training	-	As per Requirement	-

*[Signature]*  
16/7/24



भारतीय प्रौद्योगिकी संस्थान  
INDIAN INSTITUTE OF TECHNOLOGY  
(काशी हिन्दू विश्वविद्यालय)  
(BANARAS HINDU UNIVERSITY)

रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
DEPARTMENT OF CHEMICAL ENGINEERING & TECHNOLOGY  
(ऊच्चानुशीलन केन्द्र एवं डी एस टी प्रायोजित 'फिस्ट' विभाग)  
(CENTRE OF ADVANCED STUDY & DST DEPARTMENT UNDER FIST)  
(वाराणसी - 221004) Varanasi - 221005

**Bid submission end date and Bid opening date:**

The bid submission end date has been extended till 22-07-2024 by 04:00 PM and the bid opening date will be 23-07-2024 at 04:00 PM. All other contents of the aforementioned tender document shall remain unchanged.

The inconvenience caused in this regard is regretted.

*Handwritten signature and date: 16/7/24*

Dr. JP Chakraborty (Principal Investigator)  
Associate Professor  
Department of Chemical Engineering  
IIT(BHU) Varanasi, UP, India

Associate Professor  
रासायनिक अभियांत्रिकी एवं प्रौद्योगिकी विभाग  
Deptt. of Chemical Engg. & Tech.  
भारतीय प्रौद्योगिकी संस्थान  
Indian Institute of Technology  
काशी हिन्दू विश्वविद्यालय  
Banaras Hindu University  
वाराणसी/Varanasi-221005



Fax (फैक्स): 091-0542-2368092; Email : head.che@itbhu.ac.in

☎ 0542-2368092, 6702029, 6702024