

PUNJAB ENGINEERING COLLEGE (DEEMED TO BE UNIVERSITY), CHANDIGARH
CHEMISTRY DEPARTMENT

INVITATION FOR QUOTATIONS

PEC/CD/26/3046
Dated: 27/08/2026

Quotations are hereby invited for the purchase of the item mentioned below.

S.No.	Item Description	Quantity
1	Thermal Conductivity Detector (TCD) in Gas Chromatography (The detailed specifications are attached with this letter at Annexure A)	01

The quotation should be sent in a properly sealed envelope with transparent fixing tape, duly signed, and clearly super scribed on the top of the envelope as:

**"QUOTATION FOR PURCHASE OF THERMAL CONDUCTIVITY
DETECTOR (TCD) IN GAS CHROMATOGRAPHY"**

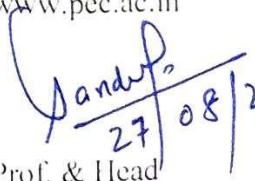
Period for submitting the quotation: The sealed quotations should reach to the office of the Head, Chemistry Department, Punjab Engineering College (Deemed to be University), Sector 12, Chandigarh. on or before 31.08.2026 by 10:00AM.

The quotations will be opened at 10:30 AM on the last day (31.08.2026, Monday) of submitting the quotations by the duly constituted committee in the presence of the bidders or their authorized representatives, if they wish to be present at the time of opening. The competent authority reserves the right to accept or reject any or all quotations without assigning any reason.

Necessary technical literature/brochures of the quoted equipment need to be enclosed with the quotation. The prices should be quoted on F.O.R. PEC, Chandigarh basis. The price should be in Indian currency and inclusive of all taxes. The validity of the quotation should be of 30 days.

No advance payment shall be made. 100% payment will be released after the successful delivery, verification of requisite specifications, installation and training of the equipment.

Note: The quotation notice may be downloaded from the institute website i.e. www.pec.ac.in


27/08/2026
Prof. & Head
Chemistry Department

Annexure A

Technical Specifications of Thermal Conductivity Detector (TCD) in Gas Chromatography

Parameter / Specification	Technical Specification	Value / Operational Range	Tolerance / Unit
Detector Design / Architecture	Dual-Channel Filament Cell (Sample & Reference)	-	Wheatstone bridge design; zero dead-volume coupling
Filament Material	Tungsten-Rhenium (W-Re) Passivated	-	Passivated against oxidative corrosion; high thermal response
Internal Cell Volume	100	μL	Micro-volume cell optimized for packed and capillary GC columns
Maximum Operating Temperature	450	$^{\circ}\text{C}$	Programmable thermal block with overheat shutoff protection
Minimum Detectable Level (MDL)	< 400	pg/mL	Tested with Tridecane under Helium carrier flow @ 200 $^{\circ}\text{C}$
Linear Dynamic Range	10^5	Ratio	High linearity across low ppm to percentage concentration levels
Detector Type / Operation Mode	Non-Destructive Bulk Detector	-	Allows downstream connection to FID, MS, or fraction collector
Filament Operating Current	20 to 200 (Digitally Adjustable)	mA	Constant current control mode; software selectable steps
Filament Protection Interlock	Automatic Carrier Low-Flow Cutoff	-	Hardware interlock cuts filament power if flow drops < 2 mL/min
Thermal / Temperature Stability	± 0.01	$^{\circ}\text{C}$	Ultra-stable temperature regulation prevents baseline drift
Data Acquisition Frequency	Up to 600	Hz	High frequency acquisition suitable for fast capillary chromatography
Signal Output Options	0–1 V / 0–10 V / 4–20 mA	Selectable	Compatible with external integrators and legacy data loggers
Communication / Digital Interface	Ethernet (RJ45), USB 3.0, RS-485	-	Direct workstation control via Chromatography Data System (CDS)
Pneumatics Control System	Dual-Channel EPC (Electronic Pneumatics)	-	Integrated pressure sensor with active baseline compensation
Carrier Pressure Operating Range	0 to 150 (Precision ± 0.001)	psi	Independent sample and reference pressure regulation
Recommended Carrier Flow Rate	10 to 100	mL/min	Recommended setting: 20–30 mL/min matched carrier gas
Carrier Gas Purity Requirement	≥ 99.999 (Grade 5.0)	%	Inline moisture (H_2O) and Oxygen (O_2) purification traps
Power Supply Requirements	100–240 V AC (50/60 Hz) / 24 V DC	V / Hz	Power consumption: Max 50 VA during thermal warm-up
Warm-Up / Baseline Stabilization	< 20	minutes	Time to achieve stable baseline drift (< 50 $\mu\text{V/hr}$)
Enclosure & Mounting Options	Panel/Rack Mountable Modular Chassis	-	Compact footprint; compatible with standard industrial GC frames

B.D. 21/8/26