



## P8261 - P8265 EXHAUST GAS CALORIMETERS

### FEATURES

- ◆ Can be utilised with a wide range of engines
- ◆ Fully instrumented

### APPLICATIONS

- ◆ Determination of heat content of exhaust
- ◆ Heat and energy balance studies

### DESCRIPTION

Cussons Exhaust Calorimeter comprise a multi-tube exhaust gas heat exchanger in which the exhaust gases pass through the tubes and the cooling water flows outside the tubes. An exhaust gas sampling point with shut off cock is provided. The cooling water circuit is fitted with a flowmeter on the inlet and a flow control valve on the outlet side. Note that the unit must be arranged for contra flow - that is the exhaust gas and cooling water must flow through the heat exchanger in opposite directions. Temperature measuring points are provided for exhaust gas inlet and outlet, and cooling water inlet and outlet. The instrumentation is sufficient to enable the heat content of the exhaust gases to be accurately determined.

### SPECIFICATIONS

#### HEAT EXCHANGER

Stainless steel shell and tube plates with 70/30 cupro nickel tubes and stainless steel end covers, with pressure release valve in water jacket.

#### COOLING WATER CONNECTIONS

Copper stub pipes, suitable for flexible hose.

P8261	-	22 mm
P8262	-	22 mm
P8263	-	42 mm
P8264	-	42 mm
P8265	-	42 mm

#### MEASURING COOLING WATER PRESSURE IN HEAT EXCHANGER

22 P.S.I.G. (1.5 bar)

#### TEMPERATURE MEASURING POINTS

Exhaust gas inlet	-	Thermocouple type K
Exhaust gas outlet	-	Thermocouple type K
Cooling water inlet	-	Thermocouple type K
Cooling water outlet	-	Thermocouple type K

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## TEMPERATURE MEASURING CUSTOMER SUPPLY

Exhaust gas temperature at engine manifold - thermocouple to 1200°C

Ambient air temperature - mercury in glass thermometer, thermocouple etc.

## COOLING WATER FLOWMETER

P8261	-	90 - 900 litres/hour
P8262	-	120 - 1200 litres/hour
P8263	-	180 - 1800 litres/hour
P8264	-	180 - 1800 litres/hour
P8265	-	300 - 3000 litres/hour

## EXHAUST CONNECTIONS

P8261	-	2" BSP male
P8262	-	2" BSP male
P8263	-	3" BSP male
P8264	-	4" BSP male
P8265	-	5" BSP male

## TYPICAL APPLICATIONS

P8261	Single cylinder 2 stroke and 4 stroke and diesel engines, 1100 and 1300cc 4 cylinder petrol engines, 1500 to 2000cc diesel engines, with power output ranges of 0 to 40kW
P8262	1600 to 2000cc 4 cylinder petrol engines, 2500 to 4000cc diesel engines, with power output ranges of 40 to 75kW
P8263	2800cc V6 petrol engines, 6000cc diesel engines, with power output ranges of 75 to 110kW
P8264	2.8 litre V6 fuel injection petrol, 6 litre 6 cylinder turbo-charged diesel engines, with power output ranges of 110 to 170kW
P8265	8 to 10 litre turbo-charged and naturally aspirated engines, with power output ranges of 170 to 300kW

The Cussons Exhaust Gas Calorimeters are designed to be used with the range of Cussons Engine Test Beds including E6 (P7002), Hydra (P8800), Single (P8160), Twin (P8170) and Multi-Cylinder (P8600) units where temperature measurement can be displayed on the Test Bed control console.

Should the calorimeter be for use with alternative Engine Test Beds, then a multipoint digital thermometer unit would be required.

## ACCESSORIES

### P8025 - Multipoint Digital Thermometer

The Cussons Multipoint Digital Thermometer provides the required display unit for the temperatures to be measured. The range is 0 -1199°C and the signals from the Ni-Cr/Ni-Al thermocouple probes can be selected by means of a selector switch and displayed on the instruments digital scale. The signal channel being monitored is shown on the instruments title panel.

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