PACIFIC DESIGN TECHNOLOGIES, INC.

Thermal Management Solutions

Thermal Control Valves

Datasheet

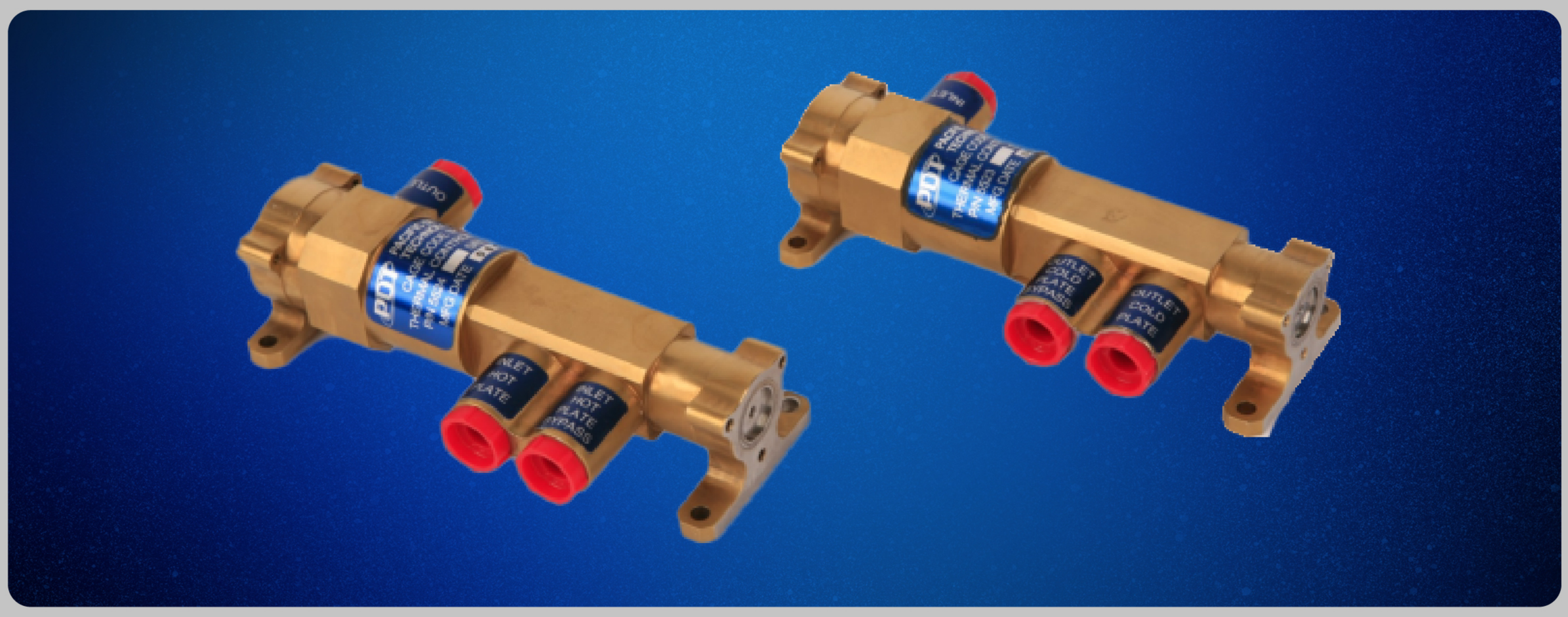






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Thermal Control Valves



Description

PDT Thermal Control Valves (TCV) are passive flow control devices which are qualified for space applications and have been used on three Mars Mission and various low Earth orbit applications. Each valve contains an actuator which senses fluid temperature and drives a spool linearly across a series of flow galleries. The TCVs can be designed in a mixing or diverting configuration de-pendent upon the intended application. As a mixing valve, fluid from hot and cold sources are blended internally to provide a controlled output temperature. As a diverter valve, there is a single inlet and the outlet flow is divided between two ports dependent upon the predeter-mined control points.

Specification

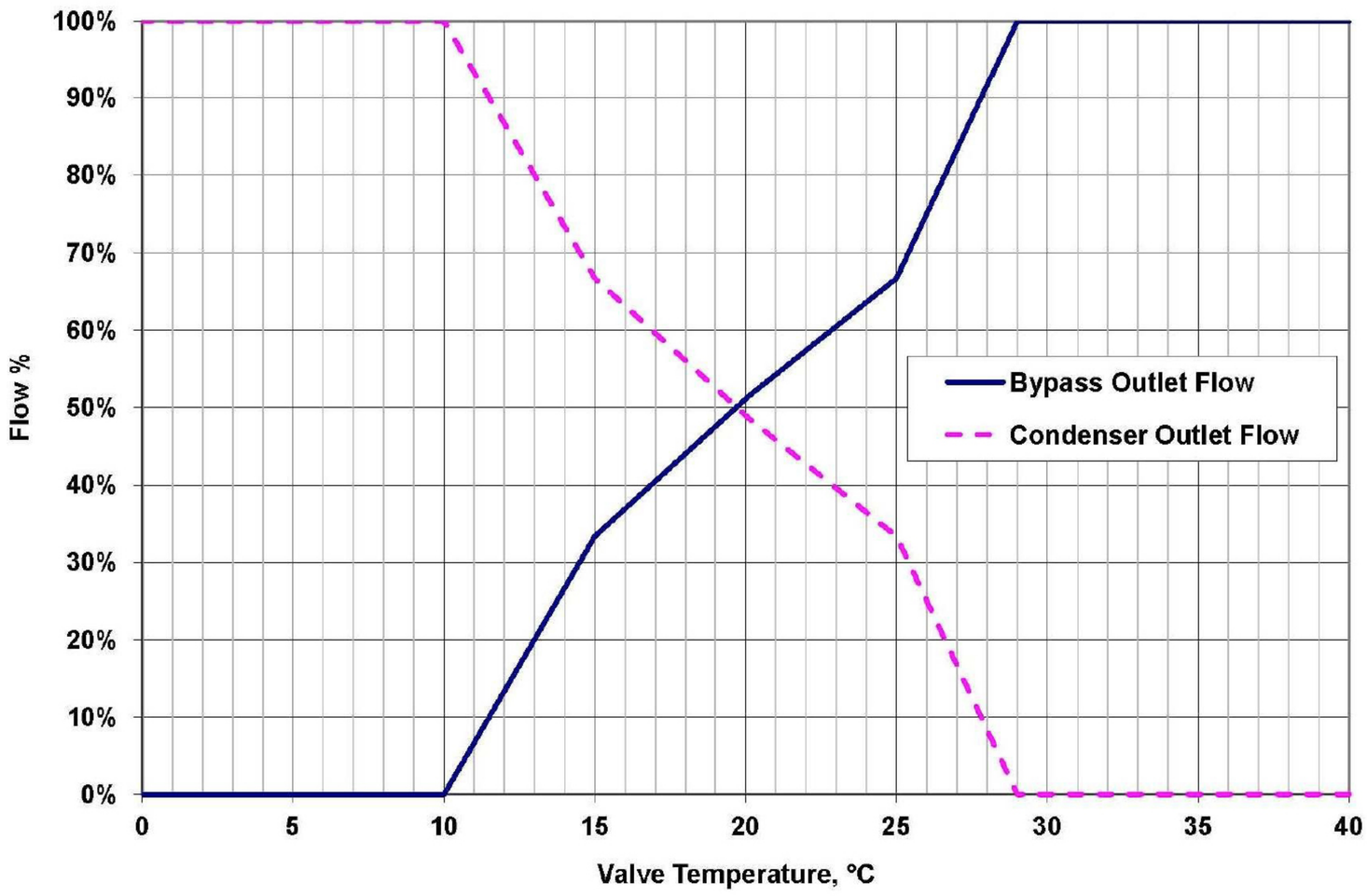
Pump Parameters

Fluids:	Refrigerant R-11, Propylene, Ammonia or Gaseous Nitrogen
Flow:	Rated Performance: 0.20 gpm @ 1.0 psid max @ +10°C
Temperature:	Operating: -55°C to +90°C Control Range: Activation will occur over a 20°C range, selectable between –10 and 30°C
Pressure:	Proof: 375 psig Burst: 500 psig
Dry Weight:	1.8 lbs max (dry)
Leak Rate, External:	<1 x 10-9 sccs of Helium at 200 psig internal pressure

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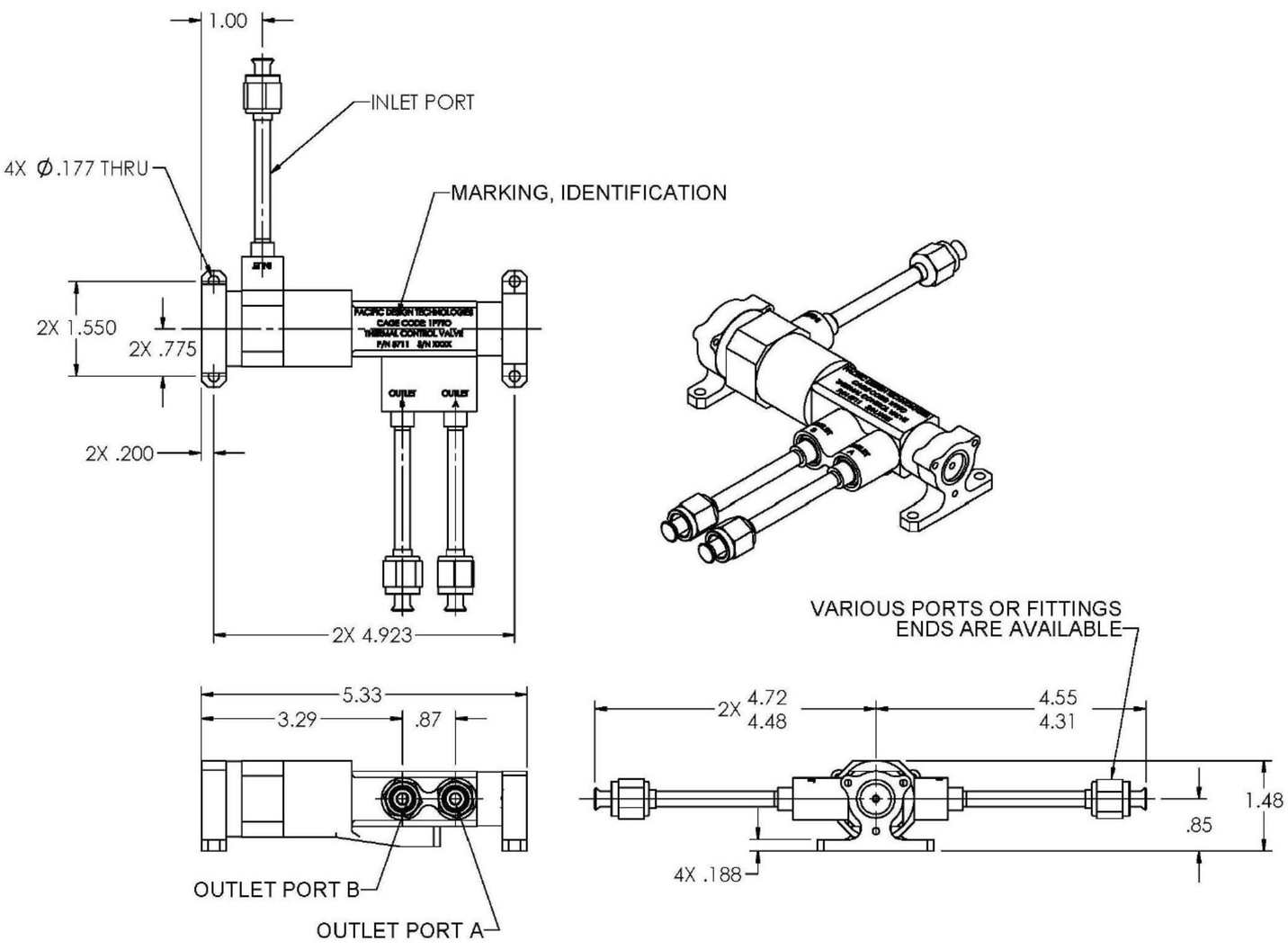
Thermal Control Valves

Performance Graph



The operating range of the thermal control valve can be adjusted to meet system control needs. PDT has delivered valves with actuation temperatures from –10°C to 30°C. The typical control band is less than 20°C.

Envelope









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