

Furnace Tracker®

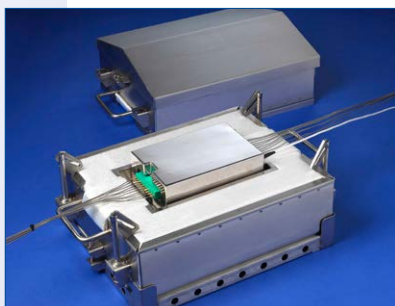
TB4500 and TB4600 Thermal Barrier Series

Designed and built for carburizing furnaces where high pressure gas cooling is critical, the DATAPAQ® 4500 and 4600 series thermal barriers have been designed to operate at high temperatures and 20 bar/290 PSI gas quench (helium and nitrogen).

These thermal barriers incorporate several new design features, including additional strengthening at critical points, removable gas quench deflector shields and taper lock catches. Internally, the thermal barrier incorporates gas flow vents that allow fast pressure equalization, as conditions change from vacuum to high pressure within a matter of seconds.



TB4500 with quench deflector



TB4600 with 20 channel logger



TB9840D

FEATURES AND BENEFITS

- Barrier strengthening on both lid and base minimizes barrier distortion at critical points, ensuring a positive barrier seal for maximum protection of the data logger
- Removable quench deflector shields minimize barrier distortion during rapid cooling periods
- Gas flow venting through insulation layers and heat sink holders instantly equalize pressure during a gas quench to prevent internal barrier damage
- 4600 series is built from high grade reinforced inconel casing for maximum protection
- Robust alumina-reinforced micro porous insulation allows repeated operation at high furnace temperatures (up to 1200°C/2192°F)
- 4500 series is built from high grade stainless steel to give prolonged life and maximum protection from carburizing atmospheres

TB9840D – HIGH PERFORMANCE HEAT SINK

This heat sink has been designed to operate with TB4500 and TB4600 thermal barriers. The new innovative construction design and manufacturing techniques used in the manufacture of the TB9840D make it capable of safely withstanding nitrogen and helium gas quenches up to 20 bar/290 PSI.

- Validated field operation – the heat sink is proven to work reliably in heat treatment processes employing gas quenches; helium up to 18 bar and nitrogen up to 20 bar
- Performance certification – every unit is individually tested as part of the manufacturing process; tests include crack inspection and helium leak down testing
- Traceable manufacture – the TB9840D is supplied with a unique serial number traceable back to phase change material fill records and a weld inspection report, guaranteeing quality performance

TECHNICAL SPECIFICATIONS

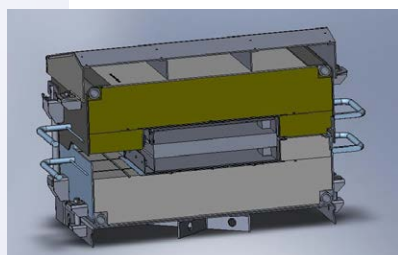
DIMENSIONS WITHOUT QUENCH DEFLECTORS

Thermal barrier	TB4538	TB4526	TB4533	TB4626	TB4633
Height	217 mm / 12 in	254 mm / 10 in	304 mm / 12 in	254 mm / 10 in	304 mm / 12 in
Width	290 mm / 11.5 in	363 mm / 14.3 in	410 mm / 16 in	363 mm / 14.3 in	410 mm / 16 in
Length (includes handles)	522 mm / 20.5 in	570 mm / 22.5 in	613 mm / 24 in	570 mm / 22.5 in	613 mm / 24 in
Weight (including heat sink)	30 kg / 67 lb	40.5 kg / 90 lb	44 kg / 97 lb	41.2 kg / 91 lb	54.5 kg / 120 lb

DIMENSIONS WITH QUENCH DEFLECTORS

Thermal barrier	TB4538-QD	TB4526-QD	TB4533-QD	TB4626-QD	TB4633-QD
Height	303 mm / 12 in	340 mm / 13.4 in	390 mm / 15.4 in	340 mm / 13.4 in	390 mm / 15.4 in
Width	303 mm / 12 in	370 mm / 14.6 in	422 mm / 16.6 in	370 mm / 14.6 in	422 mm / 16.6 in
Length (includes handles)	522 mm / 20.5 in	571 mm / 22.5 in	613 mm / 24 in	571 mm / 22.5 in	613 mm / 24 in
Weight (including heat sink)	37 kg / 82 lb	48 kg / 106 lb	52 kg / 115 lb	50.5 kg / 111 lb	67 kg / 150 lb

All barriers are available in dual exit version for 20 channel logger operation.



TB4500 series



DATAPAQ TP3 data loggers



Vacuum carburizing process

THERMAL PERFORMANCE

	TB4533	Vacuum	TB4526 Air	Vacuum	TB4538 Air	Vacuum
600 °C / 1112 °F	9.5	19	7.6	15.8	4.5	9
800 °C / 1472 °F	7.5	15	5	11	3.1	6.2
1000 °C / 1832 °F	6.25	11	4.1	7	2.1	3.3

DURATION INCLUDING FURNACE RAMP TIME IN NITROGEN (HRS)

	TB4626			TB4633		
	Furnace ramp time from ambient	Time @ temperature	Total duration	Furnace ramp time from ambient	Time @ temperature	Total duration
600 °C / 1112 °F	0:55:00	5:05:00	6:00:00	0:55:00	7:05:00	8:00:00
800 °C / 1472 °F	1:20:00	3:40:00	5:00:00	1:20:00	5:10:00	6:30:00
1000 °C / 1832 °F	1:30:00	2:36:00	4:06:00	1:30:00	4:30:00	6:00:00
1150 °C / 2102 °F	1:40:00	1:35:00	3:15:00	1:40:00	2:40:00	4:20:00
1200 °C / 2192 °F	1:50:00	1:10:00	3:00:00	1:50:00	2:10:00	4:00:00

DURATION INCLUDING FURNACE RAMP TIME IN VACUUM (HRS)

	TB4626			TB4633		
	Furnace ramp time from ambient	Time @ temperature	Total duration	Furnace ramp time from ambient	Time @ temperature	Total duration
600 °C / 1112 °F	0:55:00	7:05:00	8:00:00	0:55:00	10:05:00	11:00:00
800 °C / 1472 °F	1:20:00	4:40:00	6:00:00	1:20:00	7:10:00	8:30:00
1000 °C / 1832 °F	1:30:00	3:30:00	5:00:00	1:30:00	5:30:00	7:00:00
1150 °C / 2102 °F	1:40:00	1:50:00	3:30:00	1:40:00	3:10:00	4:50:00
1200 °C / 2192 °F	1:50:00	1:22:00	3:12:00	1:50:00	2:40:00	4:30:00

All barriers are available in different sizes. Contact DATAPAQ for further details.

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Worldwide Service

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