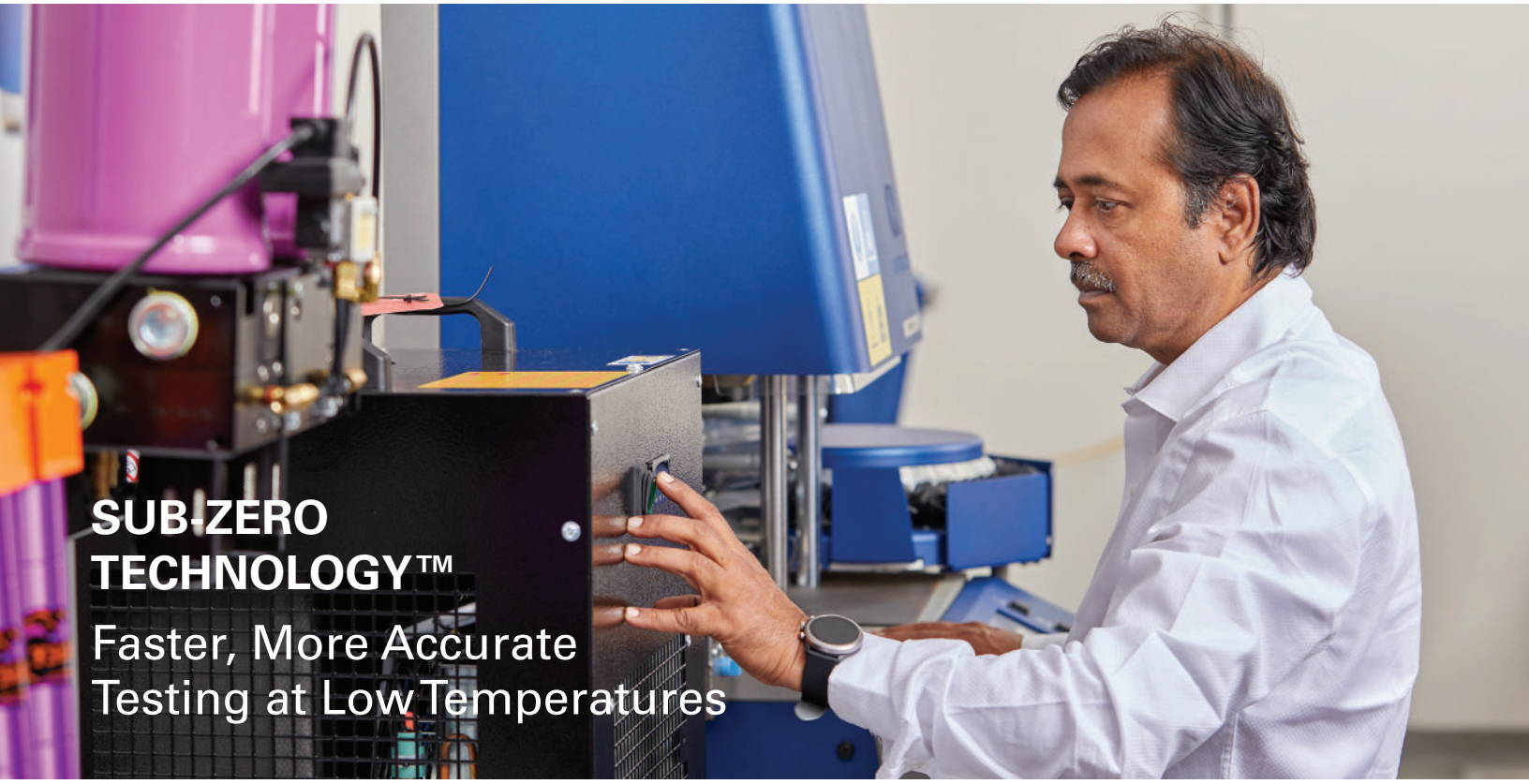

SUB-ZERO TECHNOLOGY™

Faster, More Accurate Testing at Low Temperatures

Predict performance characteristics at temperatures down to -25°C.

For years, a Dynamic Mechanical Analyzer (DMA) was the tool to measure cured rubber specimens in tension for tire performance predictors. But, a DMA is expensive – both cost of equipment and trained technicians to run it – and slow. A DMA is not capable of keeping up in a quality release or production environment. Fortunately, Premier™ RPA with Sub-Zero Technology is able to provide 11 key performance predictors, in a single test, in about 23 minutes.

So, instead of spending a lot of money on a DMA, you can run the same test on Alpha's Premier RPA. And you already have them in your quality and R&D labs… right?

Add Sub-Zero Technology to your Premier RPA and enter a whole new world.

Alpha's Sub-Zero Technology offers sub-ambient capabilities for performance predictor testing for tires, anti-vibration systems, sealing technologies and other polymer applications. Utilizing a drier, chiller and proprietary technology your Premier RPA is capable of cooling the dies down to -25°C without the use of liquid nitrogen. You'll be amazed at the data it can deliver.

For example, in the case of winter traction a lower elastic modulus is desirable – meaning the material should be soft enough at low temperatures to allow for full contact of the tread. With Sub-Zero Technology your Premier RPA is able to add tests wet/ice traction and rolling resistance at the end of a standard RPA release test that measures uncured processing, cure/scorch and physicals.

The result is eleven or more release criteria in about 23 minutes. And with the addition of Alpha's Sample Automation systems, even more rigorous release testing can be performed 24/7 without the need for a trained technician or operator.

For us, accuracy is everything.

Under sub-zero temperatures, your sample contracts and the dies come a bit closer together, which can alter the data. Other instruments just sort of shrug and say, "that's life." We say, "that's not accurate enough." That's why Alpha's exclusive Precision Dynamic Modulus (PDM) measure the die gap throughout the test to within 0.01 mm. PDM constantly maintains the cavity pressure and measure the actual die gap for greater accuracy, repeatability and reproducibility than any other rheometer on the market.

For Alpha, accuracy is about more than dollars and cents. It's giving our customers peace of mind, knowing they're meeting the highest standards of safety. It's about ensuring we're doing our part to keep people safe while on the road.

SPECIFICATIONS

PARAMETER	VALUE
Frequency:	0.0016 to 50 Hz (0.1 to 3000 cpm)
Strain:	± 0.07% to ±1255% (±0.005° to ±90°)
Torque Range:	0.01 – 225 dN-m
Temperature:	-25°C to 230°C (-31°F to 446°F)
Max Temp. Ramp Rate:	1oC/sec (1.8°F /sec)
Max Die cooling Rate:	0.5°C/sec (0.9°F/sec)
Sub ambient cooling:	-7.5°C/min from 60°C to 30°C -5.5°C/min from 30°C to 0°C -2.5°C/min from 0°C to -25°C
Sub ambient stability:	± 0.2oC
Measured data:	Torque, temperature, frequency, strain.
Calculated data:	G′, G″, G*, J′, J″, J*, S′, S″, S*, tanδ, η′, η″, and η*
Data storage:	SQL database
Testing standards:	Meets ASTM D1053, D5289, D6048, D6204, D6601, D7050, D7605, and D8059
Reproducibility:	Less than 10% at sub-zero temperatures
Repeatability:	Average repeatability at -25°C on stiff compounds is < 6%
Chiller Dimensions:	Width: 17 in (43 cm), Height: 18 in (46 cm), Depth: 19.6 in (50 cm)
Chiller Weight:	82lbs.[37.2kg]
Air Flow rate (compressed air supply):	50 CFM (1416 l/min) [Clean, Dry, Oil-free Class 3 (per DIN ISO 8573-1)]
Regenerative Dryer dimensions:	Width: 24 in (61 cm), Height: 24 in (61 cm), Depth: 15 in (38 cm)
Weight:	75lbs.[34.0kg]

There's a lot to like about every Premier Instrument.

- Custom Electronics that are matched to the instrument. Better control. Better resolution.
- Custom Designed Heating Control System that ramps up heating cycles faster and maintains control for more accurate cure times and more efficient production.
- Efficient die cooling that gets your instrument ready for the next test.
- Smart Alignment and Dynamic Symmetry means you get on-target, parallel die closing, high stiffness and constant closing force.
- Cast Aluminum Frame that's lighter… stronger… stiffer.

For more information scan the QR code or visit alpha-technologies.com/premier-rpa.

There's a lot riding on our testing.™

ALPHATECHNOLOGIES

Rheologists and Engineers

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