BASF
We create chemistry

Steam Cracking Coil-outlet Temperature Measurement

EXACTUS® technology enables increased profit through yield improvement, cost reduction and streamlined maintenance at your facility

Innovative optical measurement improves profitability and operational efficiencies

BASF *EXACTUS*® technology enables more profit from your existing facility by tightly measuring the coil-outlet temperature in the cracking process, optimizing yield and product mix, allowing longer run length, and eliminating maintenance of thermocouples and thermowells.

Optimize Profit by Maximizing Yields and Product Mix

- Achieve and maintain process temperature set-point more accurately while minimizing temperature swings to realize additional potential profits of $10K/furnace/day*
- Tighten process control leveraging our ultra-low drift of 0.1˚C, and our accuracy of ±0.15%
- More accurately measuring the coil-outlet temperature will enable longer run lengths and more production out of existing assets

Reduce Maintenance Costs

- Save over 100 labor hours per furnace per year by eliminating maintenance costs for thermocouple and thermowell replacement and typical thermowell rotation activities
- Tube skin measurements using our *EXACTUS*® technology do not require welding which will greatly decrease installation time and can be easily retrofitted while furnaces are operating

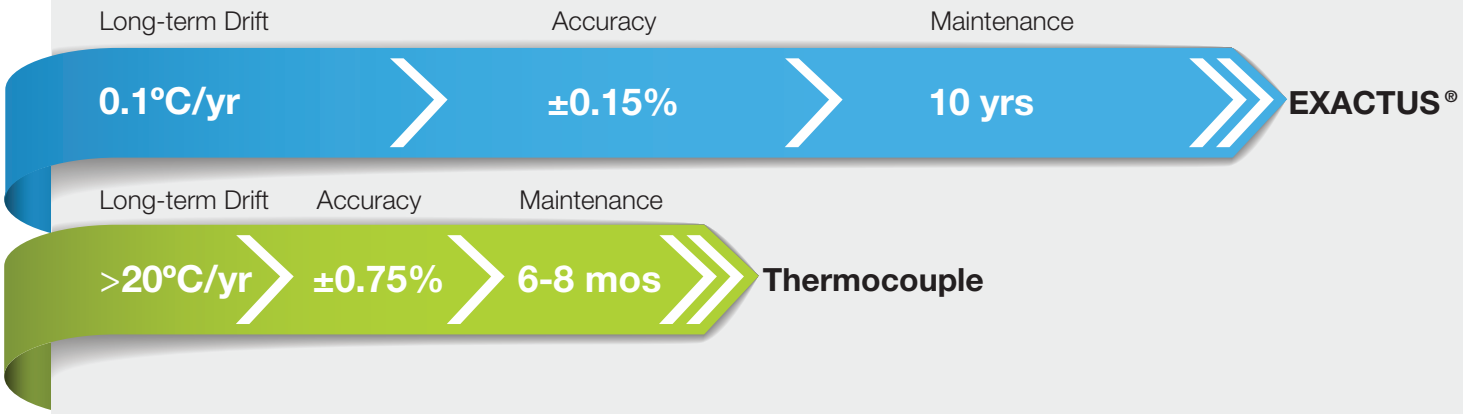
Improve Safety & Environmental Conditions

- *EXACTUS*® systems are not directly welded to the coil surface, which enhances operator safety and minimizes tube failures
- No active electronic components are exposed to the operating environment, minimizing the need for intrinsically safe requirements
- Accurately monitoring coil-outlet temperatures optimizes run lengths, which minimizes the volume of product delivered to flare, decreasing your emissions footprint

Low Risk Installation, Retrofit and Maintenance

- Easily evaluate *EXACTUS*® effectiveness against your existing thermocouples without changing control set-up
- Unique mounting design provides for simple installation and retrofit, meaning lower costs and lower risk
- Novel design does not require welding, allowing installation and routine maintenance while furnace is operating
- Multiplexing capability allows for simultaneous communications of up to eight sensors with a single output module

The EXACTUS® Competitive Advantage



EXACTUS® Specifications

Measurement ranges	100–1900˚C (1.55 µm measurement wavelength) 350–3000˚C (0.90 µm measurement wavelength)
Accuracy	Greater of 1.5˚C or 0.15% of reading
Resolution	Up to 0.01˚C
Repeatability	0.1˚C
Drift	0.1˚C/year
Speed	Up to 1000 readings per second, 1ms response time
Target size	Designed to 10mm or less
Maximum environment temperature without cooling	10-60˚C for electronics (lense assembly and high temperature fiber optic cable suitable for 250˚C)
Available Communications Profiles	Option User Configurable 0-10V, 4-20mA, 0-20mA *EXACTUS*® Mode (RS232, RS422, Ethernet TCP/IP)
Analog Output	Modbus RTU (RS232, RS422, RS485)
Digital Output	Modbus TCP Ethernet TCP/IP Other Field Bus Options Available

About BASF's Temperature Sensing Products

For over 60 years, BASF has supplied a wide range of industries, including semiconductor, glass, solar cell, chemical, crystal growth, heat treating, laser welding, gas turbine, bio-medical, and others with exceptionally high quality temperature-sensing products and temperature sensor calibration services to meet the demanding applications of our customers.

Metals -particularly those in the platinum group -are critical components of many products made by BASF such as contact thermocouples. The experience of our research and development group in precious metal and precious metal technologies is unmatched. From Fibro® platinum to Platinel® thermocouple wire, we have led the industry with breakthrough innovations. No one knows more about precious metals. Further information on BASF's Temperature Sensing products are available on the Internet at *www.exactus.basf.com*.

About BASF's Catalysts Division

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary catalyst and adsorbent solutions that drive customer success. Further information on BASF's Catalysts division is available on the Internet at *www.catalysts.basf.com*.

About BASF

At BASF, we create chemistry – and have been doing so for 150 years. Our portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. As the world's leading chemical company, we combine economic success with environmental protection and social responsibility. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society. Our products and solutions contribute to conserving resources, ensuring nutrition and improving quality of life. We have summed up this contribution in our corporate purpose: We create chemistry for a sustainable future. Further information on BASF is available on the Internet at *www.basf.com*.

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