

# 20<sup>21</sup> Innovative Solutions

Safety, Comfort and Energy Savings



WATER HEATING



RENEWABLE ENERGIES



HEATING & VENTILATION



INDUSTRIAL



FOOD SERVICE



**coltherm**  
DEGREES OF EXCELLENCE

## COTHERM at your side

FOR OVER 70 YEARS COTHERM HAS DESIGNED AND PRODUCED INNOVATIVE SOLUTIONS FOR SAFETY, COMFORT AND ENERGY SAVING FOR MANUFACTURERS AND END-USERS OF APPLIANCES REQUIRING TEMPERATURE CONTROL.

### ► Wide range of applications

Our solutions are used in many different applications to enable full conformity to international standards, including sanitary hot water, space heating, industrial, pressure washing, spa, or food service equipment.

### ► Industrial scale

A culture of efficiency and entrepreneurship has traditionally driven our developments. As part of an international industrial group, we permanently adapt our processes to be at the forefront of industrial performance with a vision of sustainable development.

### ► Customer focus

Long term relationships with customers as partners allow us to better understand their requirements and to support them whatever their size with the targeted performance. Dedicated Cotherm teams bring more value to our customers in R&D, industrial support, quality, laboratory qualification and testing, logistics and planning, prototyping, sampling, and further continuous support all along the supply chain from product definition to delivery.

### ► International presence

Success of Cotherm at international is due to our services adapted shortening the distance with product matching each local market needs performance and regulation.



### ► Innovation and technologies

Over 5% of is invested in R&D and process innovation. Benefiting from group expertise and new technologies to create economies of scale, we provide added value to the market along with competitive and viable solutions with a high level of reliability.

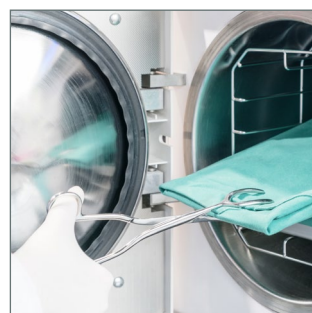
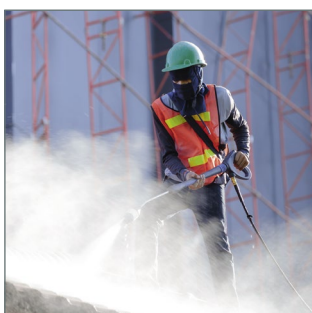
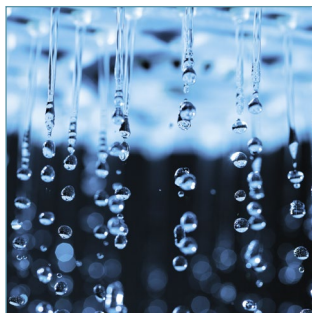
### ► Platform solution

With a large range of solutions, we propose both ready to use and highly customizable products fit for application. Our products include a complete range of temperature controls such as rod and capillary thermostats, combistats, electronic controls, hybrid solutions, safety limiters and heating elements adapted to market requirements and application standards.





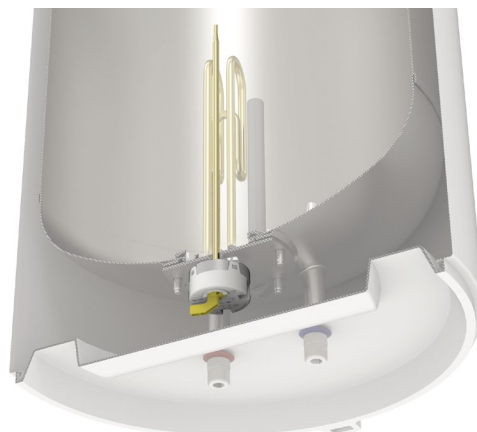
# APPLIANCES



## Direct plug-in Rod Thermostat

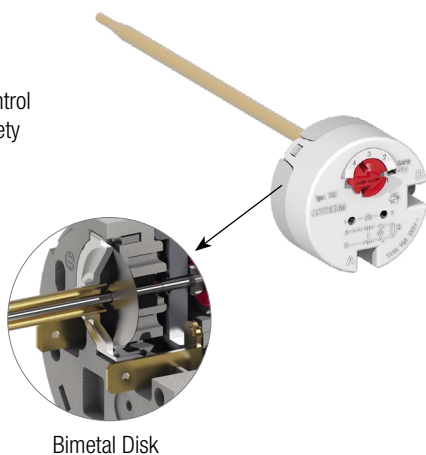
With temperature control and safety limiter specially designed to save assembly time.

- DIRECT PLUG-IN TO HEATING ELEMENT
- DIRECT TEMPERATURE CONTROL OPTION BY END-USER
- CUSTOMIZED TEMPERATURE SAFETY LIMITER



### ► TSE

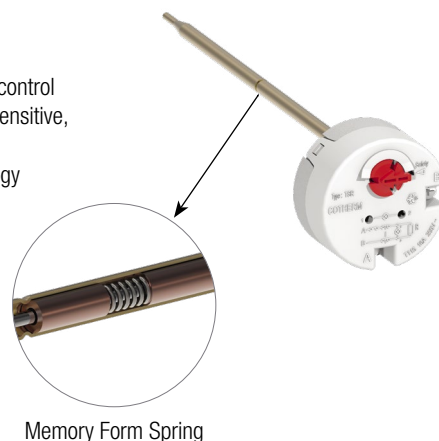
- . Temperature control
- . Bimetal disk safety limiter



Bimetal Disk

### ► TSR

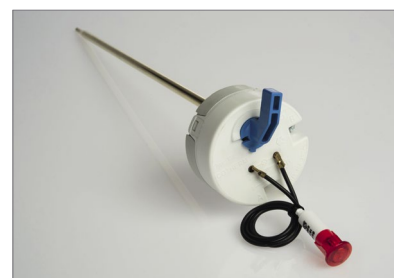
- . Temperature control
- . In tank high sensitive, safety limiter
- . MFS technology



Memory Form Spring



Lever control options



Light option

### TSE

### TSR

Type	Single pole stem control	
Temperature range	0°C to 115°C / 32°F to 240°F (Accuracy +5°K)	
Material	Brass- Invar	
Safety technology	2-poles bimetal disk	In stem Memory Spring
Safety limiter temperature	Fixed 65°C to 120°C / 150°F to 250°F	Fixed 80°C to 87°C / 175°F to 190°F
Length	180/270/350/450 mm or custom	
Terminals	Screw plates or brass faston	
Rating power (EU)	16A or 20A-250V	16A-250V / 10A-400V
Rating power (UL)	12A-120V to 240V	-
Approvals	CE, ENEC , UL, CSA	CE, ENEC

# Wired connected Rod Thermostat

Designed for various type of heating element, it's offer flexibility and easy installation.



- WIRE CONNECTED ROD THERMOSTAT
- IMMERSION HEATER, CERAMIC HEATER OR DRYTECH HEATER
- DIRECT TEMPERATURE CONTROL OPTIONS BY END USER

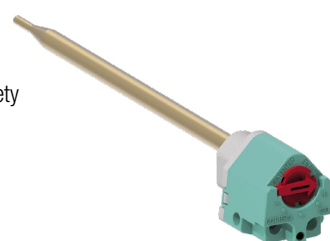
## ➤ TUS

- . Temperature control
- . 2-poles bimetal safety limiter
- . Lever control options



## ➤ TSD - TSDR

- . Temperature control
- . 1-pole MFS technology safety limiter (TSDR)



	TUS	TSR	TSDR
Type	Single pole stem control		
Temperature range	0°C to 160°C / 32°F to 320°F		0°C to 65°C / 32°F to 150°F
Material	Brass- Invar		
Safety technology	2-poles bimetal disk	-	1-pole Memory spring safety
Safety limiter temperature	Fixed 65°C to 120°C / 150°F to 250°F	-	Fixed 80°C to 87°C / 175°F to 190°F
Length	180/270/350/450 mm or custom		
Terminals	Screw plates or brass faston		Pillar terminals
Rating power (EU)	16A-250V / 10A-400V		20A-250V / 15A-400V
Approvals	CE, ENEC		



## Capillary Controls

Temperature control and safety limiter solutions designed for water heater.

Combined (BBS) or separated (GTL + SBL).

- SINGLE PHASE
- FRONT MOUNTING TEMPERATURE CONTROL
- DUAL POLE, FAILSAFE OR DISK SAFETY



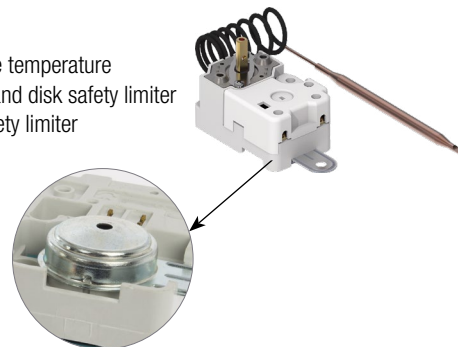
### ► BBSC - BBSC3

- Combine temperature control and capillary safety limiter
- Assembly time savings
- Simplified wire management



### ► BBSB

- Combine temperature control and disk safety limiter
- Disk safety limiter



### ► GTL

- Compact temperature control associated to independant safety limiter
- Flexible layout
- Limited space front panel
- Large option range



### ► SBL

- Failsafe capillary limiter
- Fast reaction time



	BBSC	BBSB	GTL	SBL
Type	Single pole capillary controls			-
Temperature range	0°C to 160°C / 32°F to 320°F		0°C to 320°C / 32°F to 660°F	-
Material	Copper			
Safety technology	2-poles failsafe	2-poles bimetal disk	-	2-poles failsafe
Safety limiter temperature	Fixed 65°C to 115°C / 150 to 240°F	Fixed 65°C to 115°C / 150 to 240°F	-	Fixed 65°C to 115°C / 150 to 240°F
Length	Up to 3000 mm/ Up to 118"			
Options	Shaft - fixing with brackets			
Terminals	Brass or nickel plated fastons, pillar terminals			Brass faston or pillar terminals
Changeover contact	BBSC3	-	GTLH3	-
Power rating (EU)	20A-240V/ 16A-400V		20A-250V	20A-250V / 10A-400V
Power rating (UL)	-	-	20A-240V / 15A-347V	-
Approvals	CE, ENEC			

# Capillary Controls

For high power various applications as water heater , pool and spa and industry

- 3 PHASES
- COMBINE TEMPERATURE CONTROL AND SAFETY LIMITER
- FRONT TEMPERATURE CONTROL



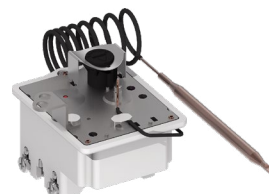
## ➤ BTS – GPC

- High temperature limiter, up to 350°C
- High power rating, up to 30A



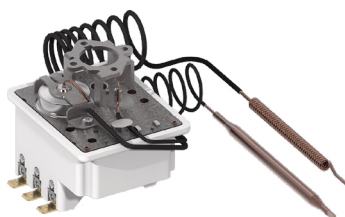
## ➤ BSD

- Bimetal disk safety



## ➤ BSDP – BSDP3

- Failsafe capillary safety limiter, up to 115°C



## ➤ Exemples of terminals option



6 fastons



3 fastons 45°  
3 screw plates terminals



6 screws plates  
terminals

	BTS - GPC	BSD	BSDP
Type	3-poles combistat with up to 350°C safety limiter	3-poles combistat with embedded bimetal disk safety	3-poles combistat with failsafe safety limiter up to 120°C
Temperature range	0°C to 320 °C / 32°F to 608°F	0°C to 160 °C / 32°F to 320°F	0°C to 320 °C / 32°F to 608°F
Material	Copper		
Safety technology	Liquid capillary	Bimetal disk	Saturated vapor
Safety limiter temperature	Fixed 70°C to 350°C / 160 to 660°F	Fixed 65°C to 115°C / 150 to 240°F	Fixed 65°C to 115°C / 150 to 240°F
Length	Up to 3000 mm/ Up to 118"		
Options	Shaft - Brackets - back/front reset	Shaft - Brackets	
Terminals	Brass fastons or screw plates terminals		
Power rating (EU)	BTS: 20A-240V / 16A-400V GPC: 30A - 240V	20A-240V / 15A-400V	BSDP: 20A-240V / 15A-400V BSDP3: 30A-240V
Approvals	CE, ENEC		

## Safety

Capillary limiter covering large range of temperatures up to 350°C, customizable to your applications

- COMPACT
- FLEXIBLE
- RELIABLE



### > SBL

- . 2-poles / Failsafe
- . Up to 115°C
- . 20A



SBL - Spiral sensor

**NEW**  
Patented design



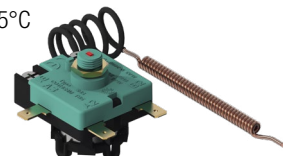
SBL - PCB version



SBL - Dual sensor for dual tank

### > SBS

- . 2-poles / Failsafe
- . Change over contact
- . Up to 115°C
- . 20A



### > BSDP

- . 3 poles / failsafe
- . Faston or screw terminals
- . Up to 115°C
- . Up to 30A



### > GTHLR

- . 1 pole
- . Faston or screw terminals
- . Up to 350°C
- . Up to 20A



	SBL	SBS	BSDP	GTHLR
Type	2-poles (DPST)	1-pole (SPST) or 2-poles (DPST) with changeover contact	3-poles (3PST)	1 pole (SPST)
Technology	Failsafe capillary with manual reset			Manual or automatic reset
Temperature range	70°C to 115°C / 158°F to 240°F			Up to 350°C / Up to 660°F
Material	Copper			Copper or Stainless steel
Capillary length	Up to 2000 mm / up to 78" Protection sleeves options			Up to 3000 mm / up to 118" Protection sleeves options
Sensor	1 sensor /spiral or bent - 2 sensors bent			Bulb 3 to 8 mm / 1/8" to 5/16"
Terminals	Screw plates or fastons	Screw plates	Fastons or screw plates	Fastons or pillars
Power rating (EU)	20A-250V / 10A-400V	20A-250V	20A-250V / 15A-400V	20A-250V
Options	Direct PCB mounting version	1 pole or 2-poles with changeover contact	30A-250V (BSDP3)	Retrofit brackets
Approvals	CE, ENEC			CE, ENEC, UL, CSA



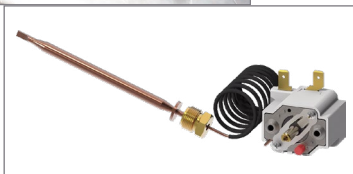
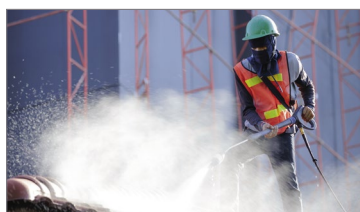
## Universal Capillary Control

### ► GTL

- . Universal control
- . Fix or adjustable temperature
- . High accuracy, up to  $\pm 1,5^{\circ}\text{C}$
- . International UL-CE
- . Options for personalization
- . Custom design



### ► Examples of customized solutions



### GTLH

Type	Single pole single throw (SPST) or with changeover contact (GTLH3 : SPDT)
Temperature range	-35°C to 350°C / -31°F to 660°F
Material	Copper, stainless steel 304, 316L
Capillary length	Up to 3000mm / Up to 118"
Shaft length	Up to 30 mm
Sensing elements diameters	3 to 8mm - 1/8" to 5/16"
Terminals	Brass or nickel plated fastons, pillar terminals
Power rating (EU)	20A-250V
Power rating (UL)	25A-250V / 14A-347V
Options	Faston angles, fixing brackets, extra Earth faston, waterproof stuffing gland, passivation treatments, insulation sleeves, shaft length
Approvals	CE, ENEC mark, UL, CAN/CSA

## Heating elements

Offer a large choice of technologies (copper, incoloy, ceramic), that may be associated with best fitted thermostat for optimised performances in water heaters.

- HIGH QUALITY MATERIALS AND PROCESSES
- LAB EFFICIENCY TESTING
- CERTIFIED CE, UL



### ► REB

- . Flange heating elements
- . Fast assembly with plug-in for rod thermostat



### ► ELE

- . Incoloy
- . Immersion heaters
- . With bipolar safety limiter and thermal control



### ► REV

- . Screw copper heating elements
- . Fast assembly with plug-in for rod thermostat



### ► RES

- . Ceramic heating elements



	REB	REV	RES	ELE
Type	Flange	Screw	Cylinder	Screw
Material	Copper		Ceramic	Incoloy
Power	1000 to 3000 W	1000 to 2500W	600 to 3600 W	3000 W
Terminals	Female Faston		Screw	Female Faston
Diameter	Ø48 mm	1" 1/4	Ø32 to 50 mm	1" 1/4 - 2"
Power rating (EU)	230V, Single phase		1 or 3 phases	-
Options	-	Straigh or bent	Mono bloc or multi elements	Incoloy 800 or 825
Approvals	CE/UL			CE, BEAB

# SMART HOME

## Energy transition

Energy transition is a global new challenge for each country to reduce carbon emission and develop sustainable activities for new generations. Reduction of fossil fuels for energy production, evolution of technologies, and new behaviors are some of the levers to achieve the 2050 zero carbon emission objective.

Cotherm, as a technology and solution provider for HVAC industry, anticipates the future and actively develop technologies to make the products more intelligent, more energy efficient and consistent with the environment evolution. We setup a policy of increasing our contribution to collaborative research and innovation program at local, European and international levels. We actively participate as a partner to ambitious research programs with field tests for new business models combining products and services.

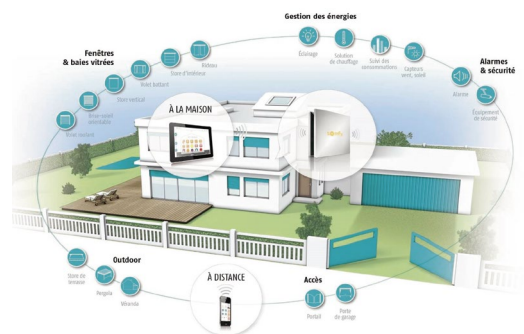
### SMART BUILDING



**Smart algorithms to improve energy management in the households**



**bpi**france



### SMARTGRID



**SmartGrid in real time controlling water heaters to facilitate direct contribution to intermittent energy increase in the energy mix.**



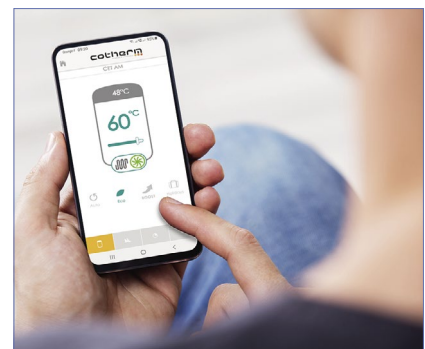
Project supported by the Futur Investment Program operated by ADEME

### SMART HOME

**New technologies and standard protocols evolutions enable a larger deployment of connected solutions**



**Wireless  
Standard  
communication  
protocols**



➤ **iQuaFlex controllers** + ➤ **Cloud services** + ➤ **Smartphone App**



## ERP energy class

EcoFlex® solutions enhance your product energy efficiency with limited investment

- **SELECTABLE ECO POSITION**
- **OPTIMIZED ENERGY LABEL**
- **ENHANCED LIFE TIME**

### SELECTABLE ECO POSITION



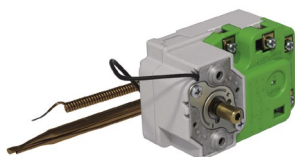
### ► TSX - TRX

- **Rod combistat**
- High grade alloy
- +/-3°C
- Bimetal safety



### ► BBX

- **Capillary combistat**
- Fast reaction time
- Failsafe capillary safety
- +/-2°C



### ► GTLX

- **Capillary thermostat**
- Fast reaction time
- +/-2°C



### ► BSDX

- **3-poles combistat**
- Failsafe capillary safety
- +/-4° C

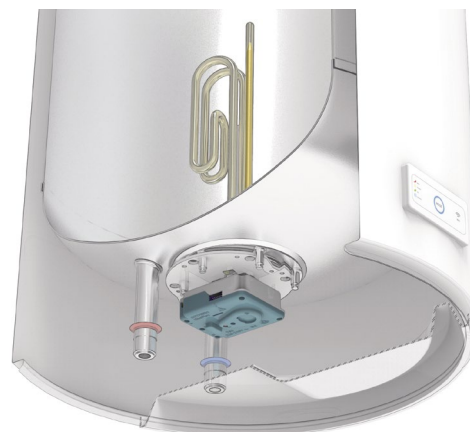


	TSX	TRX	GTLX	BBX	BSDX
Type	Single pole stem control		Single pole capillary control		
Temperature range	0°C to 115 °C / 32°F to 240°F (Accuracy +-5°K)		0°C to 320 °C / 32°F to 660°F		
Material	Brass- Invar		Copper		
Safety technology	2-poles bimetal disk	In stem Memory Spring	-	2-poles failsafe	3-poles failsafe
Safety limiter temperature	Fixed 65°C to 120°C / 150 to 250°F	Fixed 80°C to 87°C / 75 to 190°F	-	Fixed 65°C to 115°C / 150°F to 240°F	
Length	180/270/350/450 mm or custom		Up to 3000 mm/ Up to 118"		
Terminals	Screw plates or brass faston		Brass or nickel plated fastons, pillar terminals		
Power rating (EU)	16A or 20A-250V	16A-250V / 10A-400V	20A-250V	20A-250V/ 16A-400V	20A-250V/ 15A-400V
Power rating (UL)	-		20A-250V / 15A-347V	-	
Approvals	CE, ENEC , UL, CSA	CE, ENEC	CE, ENEC, UL	CE, ENEC	

## Smart controllers for water heaters

automatically adapt hot water production

- ENERGY SAVING
- PLUG AND PLAY TO LARGE RANGE OF WATER HEATERS
- STANDALONE SOLUTION OR WITH CUSTOMIZABLE DISPLAY



**iFG120**  
LED display



**iFG220**  
LCD display



**iFG320**  
24H timer display



**iFG400**  
Wifi display

### > ITS

- Direct plug-in to heating element
- 2-poles safety bimetal disk
- Standalone or with display



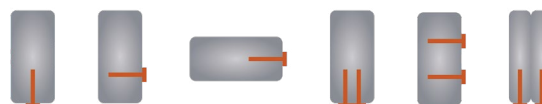
Custom display

### > IBD

- Single or dual tank
- Single or dual heating element
- 2-poles failsafe capillary safety



### Multi-tank layout



- Market approved smart algorithm with up to 15% energy saving.
- B class for S, M profile
- Auto adaptative to water heater layout
- Plug and Play

	iTS 02x	iTS 12x	iTS 400	iBD 120	IBD 400
Type	Single relais with disk safety			Dual Relais with failsafe capillary safety	
User Interface	Standalone -knob	Choice of displays (iFG)	Wifi Display (iFG400)	Choice of displays (iFG)	Wifi Display (iFG400)
Temperature range	45-55-65-75°C	Up to 75°C	Up to 75°C	Up to 75°C	Up to 75°C
Safety technology	2-poles bi-metal disk			2-poles failsafe	
Safety limiter temperature	Fixed 65°C to 120°C / 150°F to 250°F			70°C to 120°C / 158°F to 250°F	
Sensor Length	270/350/450 mm				
Terminals	Pil ar terminals			Fastons	
Rating power (EU)	14A-220V/240V			20A-220/240V Max total - 16A per relais	
Approvals	CE, ENEC				



## Heat pump water heater controllers

- HYBRID HIGH PERFORMANCE CONTROLLERS
- ENERGY SAVINGS
- MULTI-SYSTEM INTEGRATION
- CONNECTIVITY



### ► iHPC100/120 – Compact electronic controller

- Essential controller
- Monobloc design
- Energy consumption
- Indoor / outdoor / solar thermodynamic
- 1x speed fan
- Smartphone connectivity option (Wifi)

**NEW**



### ► Safety for back-up heating element

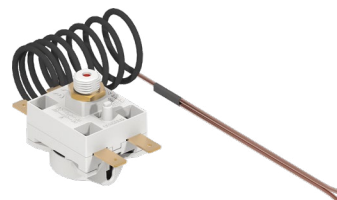
#### ► TSES

- 2-poles direct plug-in safety for back-up heating element controlled by electronic
- Accessory to iHPC100/120 controller
- Fixed 65° to 120°C
- 16 to 20A – 250V
- 15A – 400V



#### ► SBL

- Failsafe capillary for backup heating element
- On PCB board safety of iHPC200 and iHPC500
- Option for iHPC100





# Heat pump water heater controllers



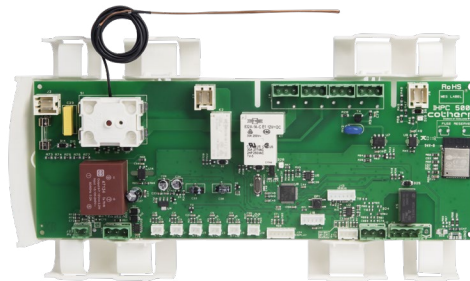
## ➤ iHPC200 – High performance controller with integrated safety limiter

- Smart learning function
- Energy consumption
- Reduce assembly time
- LCD display



## ➤ iHPC500 – Multi energy source controller with integrated safety limiter

- Modbus communication protocol
- Smart learning function
- Energy consumption
- Gas boiler interface



**iFH500**  
Touch key LCD  
display

	iHPC 100/120	iHPC 200	iHPC 500
Type	Monobloc controller	Controller with display	
Safety	Separated	Failsafe capillary on PCB board 60°C to 115°C	
NTC sensor inputs	3	4	5
Fan control	1 speed	2 speeds	Continuous 10V- PWM
Electroval control	Yes		
Compressor/Heating element outputs	30A-230V -1 kW / 16A-230V-2 kW		
Offpeak input	Yes		
Smart Algorhythm	No	Yes	
Smartgrid	PV ready	PV/SG ready	
Wifi option	iHPC 120	-	
Rating power (EU)	12A-230V		
Approvals	CE, ENEC		

## Electronic controllers for space heating

Radiator and towel rail

- SMART LEARNING
- CUSTOM DESIGN
- APPLICATION TESTING



### ► ERD320/330

- Compact control display
- Triac or relay
- Energy consumption indicator
- Open window detection
- Babycare function
- Energy consumption meter
- IR remote control



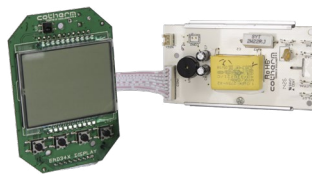
### ► ERD500

- Contactless NFC controller with APP
- Manual setting knob
- Open Window detection
- Baby care
- Energy consumption meter



### ► ERD340

- Large control display
- Energy consumption indicator
- Open window detection
- Babycare function
- Energy consumption meter
- Connectivity option
- Presence detector option



### ► ERD510

- Contactless NFC controller with APP
- LCD display
- Open Window detection
- Baby care
- Energy consumption meter
- Kids lock

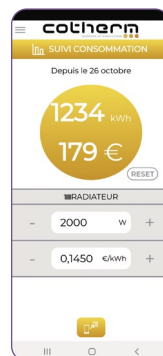


### ► TRD300

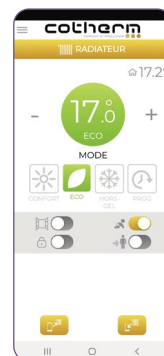
- IR remote control for ERD



Program



Consumption



Mode setting



# LABORATORY SERVICES

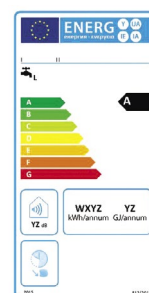
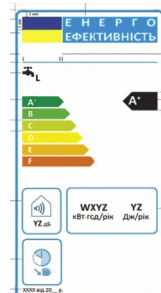
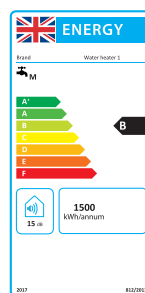
## For water heater, heat pump and space heater

- ENERGY EFFICIENCY MEASUREMENTS
- ERP COMPLIANCE SOLUTIONS
- ACCREDITED



ACCREDITATION N° 1-6619  
ACCREDITATION N°

Portée d'accréditation  
disponible sur  
Scope is available on  
WWW.cofrac.fr



### ► ADDITIONAL SERVICES

- R&D testing
- Product improvement
- Cross testing
- On-line field test supervision



### ► FULL ERP COMPLIANCE

- EN 60379
- EN 60675
- EN 50440
- EN 16147
- Ecodesign 814 / 2013
- Ecolabelling 812 / 2013
- Smart
- Efficiency
- COP
- Standing losses
- V40

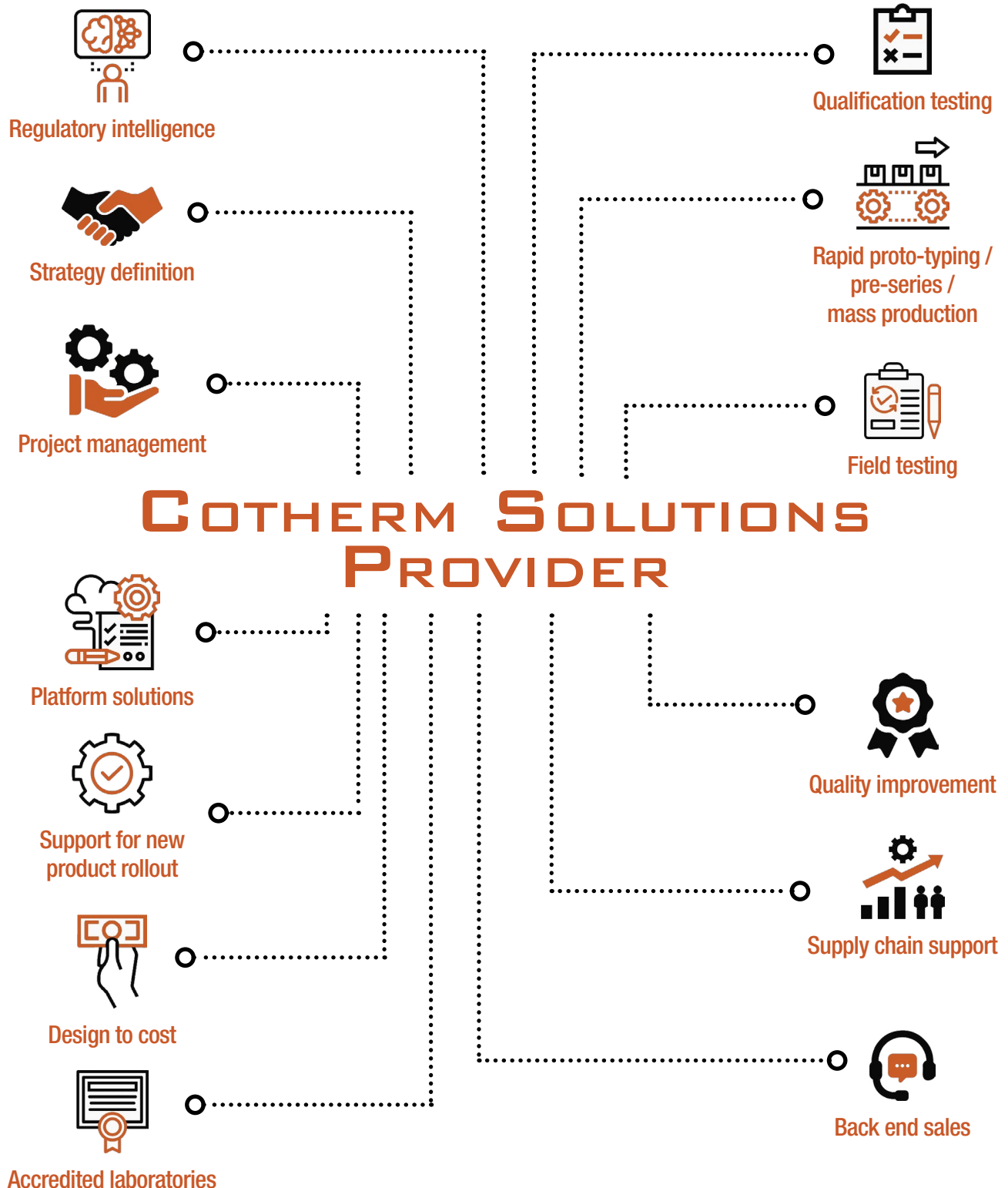




# SUPPORT

Our partnership strategy includes services to accompany our customers in all step of product life cycle.

All within the highest quality standards reach to sales success in providing end customers with sustainable solutions.



# QUALITY & ENVIRONMENT

Cotherm expertise developed over the last 70 years is a major asset for an outstanding level of quality.

Working in quality is a daily effort to continuously improve products and processes beyond the industry accepted standards and certifications.

In today's rapidly evolving industry and regulatory context, special care is dedicated to reaching the highest standards of excellence.

## ► Approvals and Certifications

- Our standard products have a certified life cycle up to 100 00 cycles.



Our standard products have a certified life cycle > 100 000 cycles

## ► Quality and Environment



Consistent with its strategy, COTHERM has a system of Management of Quality and Environment certified ISO9001 and ISO14001)

## ► WEEE Compliance



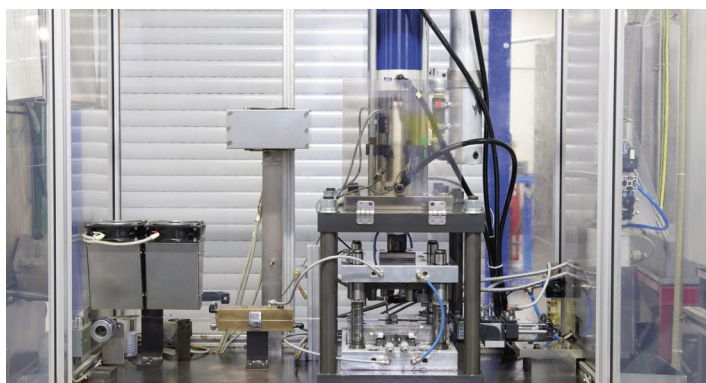
COTHERM is an environmentally responsible company. As part of this responsibility we are committed to ensuring our compliance with the Waste Electrical and Electronic Equipment (WEEE).

## IoT Connectivity



## Energy transition

## Energy efficiency



## Reliability

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