

TOTAL SAFETY SYSTEM "TSS 24"



Total safety system designed to guarantee totally safe boiler operation in compliance with the new European Directive in matter of boiler operation without supervision for 24 hours. This system – CE certified by Notified Body as a unit complying with the European Directive 97/23/EC – consists of a series of equipments fitted and tested at our factory, comprising:

Pressure control composed by:

- pressure transmitter 4-20 mA for burner ON/OFF, high/low or modulating control and high pressure pre-alarm and burner lockout
- safety pressure switch "fail safe" CE marked according to 97/23/EC Directive for high pressure alarm and burner lockout

Water level control composed by:

- capacitance probe for feed pump ON/OFF or modulating control, low level pre-alarm and burner stop and high level pre-alarm and pump stop
- two completely independent low level safety probes "fail safe" CE marked according to the 97/23/EC Directive, directly fitted in the boiler shell, connected to two separate self-monitoring level controllers in the control panel

Blowdown automatic control composed by:

- quick shut-off blow-down stop valve, cast steel ball type
- pneumatic actuator, spring-to-close on air/power failure, complete with compressed air solenoid valve and micro switches for signaling valve position

Electronic control system with PLC for the management of the above equipment.

Operation of the system also provides for:

- pre-alarm after 20 hours of continuous unsupervised boiler operation
- permanent alarm after 24 hours
- boiler lockout after 28 hours. Reset subject to a check procedure of all safety devices by the operator.

Safety system certified for the management of the safety chains comprising:

- SAFETY MODULE: "fail safe" electronic device with internal logics for verifying in every moment the integrity of the whole safety system. It provides redundancy and double safety circuit for a total safety
- SAFETY CARD: interconnected between measurement instrument and safety module, it features a further independent diagnostic mode to open the safety circuit
- POWER SUPPLY MODULE "fail safe": a current limiter is provided to protect the relays of the safety circuits from permanent fusion

Operator panel for setting and display of statuses and alarms including:

- boiler ON
- presence of power
- display of boiler pressure
- display of boiler water level
- display of pump status
- high pressure alarm and boiler lockout
- low level alarm and boiler lockout
- blowdown valve failure alarm
- burner running
- burner lockout for lack of fuel
- burner lockout for absence of flame

The electrical wiring complies with the strictest European safety rules, i.e.:

- Directive 97/23/CE
- Directive 73/23/CE
- Directive 89/336/CE
- European Guide Lines 8/15
- Norm EN 12953
- Norm EN 954 50156 60730 60204 61010 61508

TOTAL SAFETY SYSTEM "TSS 72"



Global safety system designed to guarantee totally safe boiler operation in compliance with the new European Directive in matter of boiler operation without supervision for 72 hours. This system – CE certified by Notified Body as a unit complying with the European Directive 97/23/EC – consists of a series of equipments fitted and tested at our factory, comprising:

Pressure control composed by:

- pressure transmitter 4-20 mA for burner ON/OFF, high/low or modulating control and high pressure pre-alarm and burner lockout
- safety pressure switch "fail safe" CE marked according to 97/23/EC Directive for high pressure alarm and burner lockout

Water level control composed by:

- capacitance probe for feed pump ON/OFF or modulating control, low level pre-alarm and burner stop and high level pre-alarm and pump stop
- two completely independent low level safety probes "fail safe" CE marked according to the 97/23/EC Directive, directly fitted in the boiler shell, connected to two separate self-monitoring level controllers in the control panel
- one single high level safety probe "fail safe" CE marked according to the 97/23/EC Directive, directly fitted in the boiler shell, connected to a self monitoring level controller in the control panel

Blowdown automatic control composed by:

- quick shut-off blow-down stop valve, cast steel ball type
- pneumatic actuator, spring-to-close on air/power failure, complete with compressed air solenoid valve and micro switches for signaling valve position

TDS automatic control composed by:

- conductivity probe with integral sensor and compensation for scaling
- blow-down stop valve with cast steel body and stainless steel internals
- pneumatic actuator with air solenoid valve, spring-to-close on air/power failure (electric actuator as optional)
- sample cooler for boiler water analysis

Electronic control system with PLC (Siemens SIMATIC S7200) for the management of the above equipment. Operation of the system also provides for:

- pre-alarm after 68 hours of continuous unsupervised boiler operation
- permanent alarm after 72 hours
- boiler lockout after 76 hours. Reset subject to a check procedure of all safety devices by the operator.

Safety system certified for the management of the safety chains comprising:

- SAFETY MODULE: "fail safe" electronic device with internal logics for verifying in every moment the integrity of the whole safety system. It provides redundancy and double safety circuit for a total safety
- SAFETY CARD: interconnected between measurement instrument and safety module, it features a further independent diagnostic mode to open the safety circuit
- POWER SUPPLY MODULE "fail safe": a current limiter is provided to protect the relays of the safety circuits from permanent fusion

Operator panel for setting and display of statuses and alarms including:

- boiler ON
- power
- boiler pressure
- boiler water level
- pump status
- high pressure alarm and boiler lockout
- low level alarm and boiler lockout
- blowdown valve failure alarm
- burner running
- burner lockout for lack of fuel
- burner lockout for absence of flame

The electrical wiring complies with the strictest European safety rules, i.e.:

- Directive 97/23/CE
- Directive 73/23/CE
- Directive 89/336/CE
- European Guide Lines 8/15
- Norm EN 12953
- Norm EN 954 50156 60730 60204 61010 61508

TOTAL SAFETY SYSTEM "TSSL 24"



Total safety system designed to guarantee totally safe boiler operation in compliance with the new European Directive in matter of boiler operation without supervision for 24 hours. This system – CE certified by Notified Body as a unit complying with the European Directive 97/23/EC – consists of a series of equipments fitted and tested at our factory, comprising:

Pressure control composed by:

- pressure transmitter 4-20 mA for burner ON/OFF, high/low or modulating control and high pressure pre-alarm and burner lockout
- safety pressure switch "fail safe" CE marked according to 97/23/EC Directive for high pressure alarm and burner lockout

Water level control composed by:

- capacitance probe for feed pump ON/OFF or modulating control, low level pre-alarm and burner stop and high level pre-alarm and pump stop
- two completely independent low level safety probes "fail safe" CE marked according to the 97/23/EC Directive, directly fitted in the boiler shell, connected to two separate self-monitoring level controllers in the control panel

Blowdown automatic control composed by:

- quick shut-off blow-down stop valve, cast steel ball type
- pneumatic actuator, spring-to-close on air/power failure, complete with compressed air solenoid valve and micro switches for signaling valve position

Electronic control system with PLC for the management of the above equipment.

Operation of the system also provides for:

- pre-alarm after 20 hours of continuous unsupervised boiler operation
- permanent alarm after 24 hours
- boiler lockout after 28 hours. Reset subject to a check procedure of all safety devices by the operator.

Safety system certified for the management of the safety chains comprising:

- SAFETY MODULE: "fail safe" electronic device with internal logics for verifying in every moment the integrity of the whole safety system. It provides redundancy and double safety circuit for a total safety
- SAFETY CARD: interconnected between measurement instrument and safety module, it features a further independent diagnostic mode to open the safety circuit
- POWER SUPPLY MODULE "fail safe": a current limiter is provided to protect the relays of the safety circuits from permanent fusion

Operator panel for setting and display of statuses and alarms including:

- boiler ON
- presence of power
- display of boiler pressure
- display of boiler water level
- display of pump status
- high pressure alarm and boiler lockout
- low level alarm and boiler lockout
- blowdown valve failure alarm
- burner running
- burner lockout for lack of fuel
- burner lockout for absence of flame

The electrical wiring complies with the strictest European safety rules, i.e.:

- Directive 97/23/CE
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TOTAL SAFETY SYSTEM "TSSL 72"



Global safety system designed to guarantee totally safe boiler operation in compliance with the new European Directive in matter of boiler operation without supervision for 72 hours. This system – CE certified by Notified Body as a unit complying with the European Directive 97/23/EC – consists of a series of equipments fitted and tested at our factory, comprising:

Pressure control composed by:

- pressure transmitter 4-20 mA for burner ON/OFF, high/low or modulating control and high pressure pre-alarm and burner lockout
- safety pressure switch "fail safe" CE marked according to 97/23/EC Directive for high pressure alarm and burner lockout

Water level control composed by:

- capacitance probe for feed pump ON/OFF or modulating control, low level pre-alarm and burner stop and high level pre-alarm and pump stop
- two completely independent low level safety probes "fail safe" CE marked according to the 97/23/EC Directive, directly fitted in the boiler shell, connected to two separate self-monitoring level controllers in the control panel
- one single high level safety probe "fail safe" CE marked according to the 97/23/EC Directive, directly fitted in the boiler shell, connected to a self monitoring level controller in the control panel

Blowdown automatic control composed by:

- quick shut-off blow-down stop valve, cast steel ball type
- pneumatic actuator, spring-to-close on air/power failure, complete with compressed air solenoid valve and micro switches for signaling valve position

TDS automatic control composed by:

- conductivity probe with integral sensor and compensation for scaling
- blow-down stop valve with cast steel body and stainless steel internals
- pneumatic actuator with air solenoid valve, spring-to-close on air/power failure (electric actuator as optional)
- sample cooler for boiler water analysis

Electronic control system with PLC (Siemens SIMATIC S7200) for the management of the above equipment. Operation of the system also provides for:

- pre-alarm after 68 hours of continuous unsupervised boiler operation
- permanent alarm after 72 hours
- boiler lockout after 76 hours. Reset subject to a check procedure of all safety devices by the operator.

Safety system certified for the management of the safety chains comprising:

- SAFETY MODULE: "fail safe" electronic device with internal logics for verifying in every moment the integrity of the whole safety system. It provides redundancy and double safety circuit for a total safety
- SAFETY CARD: interconnected between measurement instrument and safety module, it features a further independent diagnostic mode to open the safety circuit
- POWER SUPPLY MODULE "fail safe": a current limiter is provided to protect the relays of the safety circuits from permanent fusion

Operator panel for setting and display of statuses and alarms including:

- boiler ON
- power
- boiler pressure
- boiler water level
- pump status
- high pressure alarm and boiler lockout
- low level alarm and boiler lockout
- blowdown valve failure alarm
- burner running
- burner lockout for lack of fuel
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The electrical wiring complies with the strictest European safety rules, i.e.:

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