FENWAL™
CONTROLS

...the name OEM's have trusted for over 80 years.
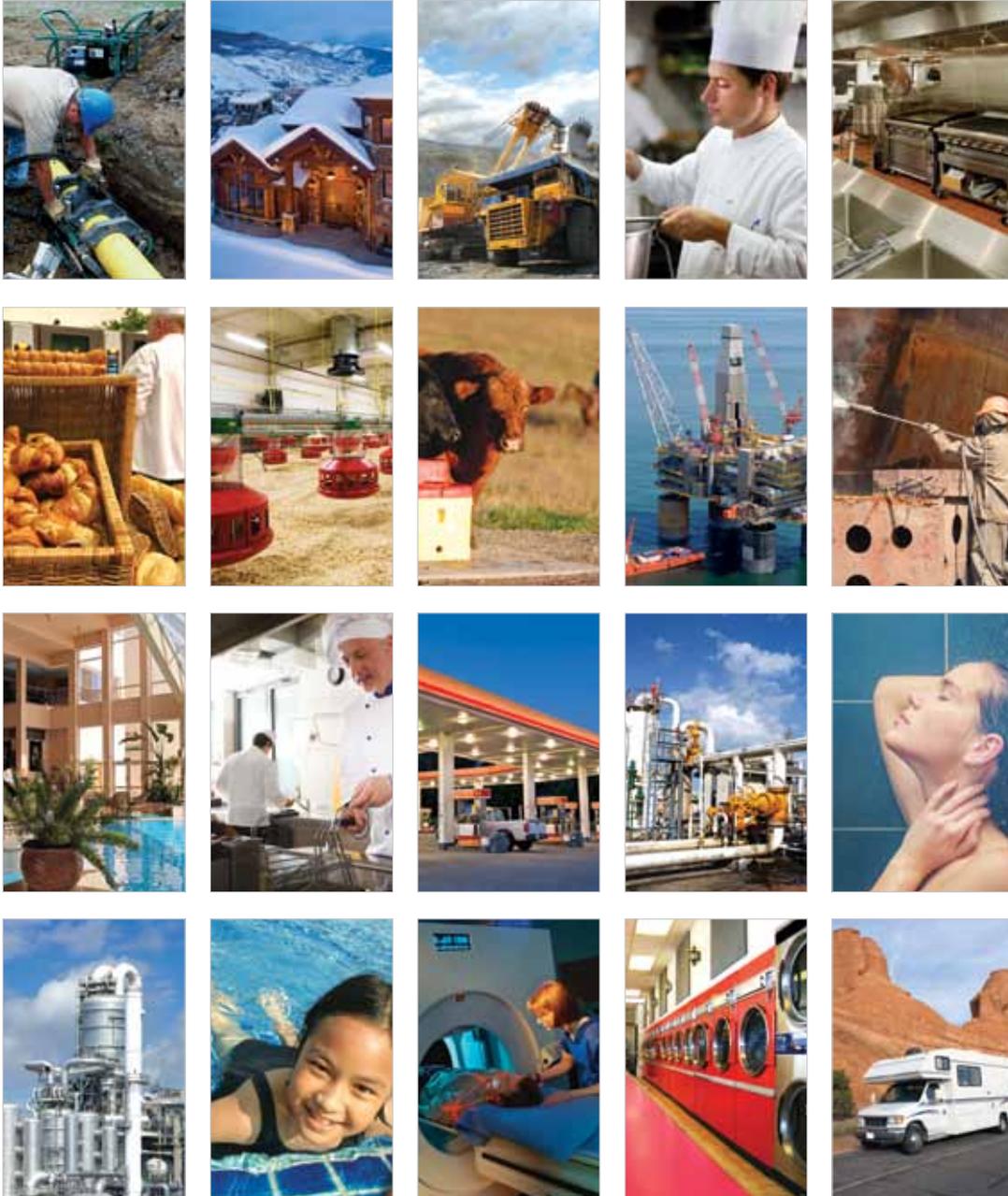
Fenwal was founded in 1935, and versions of our original THERMOSWITCH® control are still in production today. With over 80 years of expertise, we offer a broad range of gas ignition and temperature controls for applications such as HVAC, commercial cooking, industrial fire protection, medical and agriculture. Trust Fenwal to provide reliable and cost effective products custom configured to your needs.

Kidde-Fenwal Inc., Headquarters - Ashland, Massachusetts USA

Gas Ignition Controls

Fenwal pioneered automatic gas burner technology, and today offers a complete line of globally-approved gas ignition controls. Direct spark, hot surface and intermittent pilot configurations are available in a wide range of input voltages. Our microprocessor-based controls provide precise, repeatable and safe operation for all types of gas-fired equipment.

Temperature Controllers

Fenwal's long tradition started with the Fenwal THERMOSWITCH® controller, and has expanded to include both temperature controllers and bimetal thermostats for control and limiting applications. We specialize in high-precision, custom-configured products for both air-sensing and immersion-type applications.

Fire & Overheat Detection

Fenwal is a world leader in mechanical heat detectors. We offer rate-compensated heat detectors suitable for initiating an alarm or actuating a fire suppression system. Featuring a hermetically sealed, tamper-proof mechanism, our Fenwal DETECT-A-FIRE® heat detector provides reliable performance even under harsh environmental conditions.

Global Approvals

We offer a complete line of Globally Approved Gas Ignition and Temperature Sensing Controls conforming to the following standards where applicable:

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Gas Ignition Controls

Bimetal Thermostats, Hi-Limits, Temperature Limiting Switches

THERMOSWITCH® Temperature Controller

DETECT-A-FIRE® Fire & Overheat Detection

Resources

GAS IGNITION CONTROLS — 12 VDC, 24 VAC and 120 VAC

Advanced, microprocessor-based designs safely operate the gas valve and the ignition source while continually supervising the proper operation of the gas burner.

Features

Ignition types: Direct Spark (DSI), Hot Surface (HSI), Intermittent Pilot (IP)

- DETECT-A-FLAME™ technology for exceptional flame sensitivity
- Configurable timings to a wide range of gas-fired appliances & requirements.
- Optional Combustion Blower Relay with Airflow Monitoring
- On-board Diagnostic LED
- Remote or Local Flame Sense
- Flame Current Test Pins
- Optional one hour Automatic Reset
- EN298 Approved Models meet RoHS2

35-40 and 35-50 Series for 12 VDC/24DC

Ignition types: Direct Spark (DSI) and Hot Surface (HSI)

Typical Applications

- Mobile equipment such as RV water heaters and furnaces, construction heaters, fuel cells
- Commercial cooking, furnaces, gas appliances using universal power

SERIES NUMBER	TYPE	DESCRIPTION	ENCLOSURE	DIMENSIONS	APPROVALS
Without Combustion Blower Relay					
35-40	DSI	• SMT with Pin Connector • Non-volatile lockout with manual reset	Board Only Cover & Base	4.70" x 3.10" x 2.00" 5.32" x 3.29" x 2.00"	SP CE AGA
35-52	DSI	• Edge connector • No LED Diagnostics	Board Only	4.00" x 2.30" x 1.50"	SP UL
With Combustion Blower Relay					
35-535	DSI	• Edge or Pin connector • Airflow switch monitoring	Board Only Cover & Base	4.25" x 3.25" x 1.75" 4.42" x 3.42" x 1.94"	SP CE
35-533	DSI	• Small footprint • Advanced technology	Board Only	4.25" x 2.60" x 1.50"	SP

35-60 Series for 24 VAC

Ignition types: Direct Spark (DSI), Intermittent Pilot (IP) and Hot Surface (HSI)

Typical Applications
• Boilers, Furnaces, Water Heaters, Unit Heaters, Pool Heaters, Commercial Cooking Equipment

SERIES NUMBER	TYPE	DESCRIPTION	ENCLOSURE	DIMENSIONS	APPROVALS
Without Combustion Blower Relay — QC Connections (unless noted)					
35-60	DSI	• Full-featured control suitable for any 24VAC DSI application • EN298 approved models available	Cover & Base	5.69" x 3.97" x 2.30"	(SA) CE (UL) (AGA)
			Board Only	5.50" x 3.75" x 1.98"	
35-608	DSI	• QC terminals or Pin Connector • Non-volatile lockout with manual reset • 5A gas valve relay	Board Only	5.00" x 3.73" x 2.50"	(SA) CE (AGA)
			Cover & Base	5.20" x 3.95" x 2.50"	
35-602 Mini	DSI	• Small footprint Model with multi-pin connector • No LED diagnostics	Board Only	4.00" x 2.30" x 2.33"	(SA)
			Potted Module	5.37" x 2.53" x 2.35"	
35-62	DSI	• Dual Point Ignition model with dual flame sensing • Ideal for many Commercial Cooking applications	Cover & Base	5.69 " x 5.31" x 2.30"	(SA)
			Board Only	5.5" x 5.12" x 1.84"	
35-63	IP	• Up to 90 seconds TFI for pilot applications • Mounts directly on 4" junction box	Cover & Base	5.69" x 3.97" x 2.30"	(SA) CE (UL) (AGA)
			Board Only	5.50" x 3.75" x 1.98"	
35-63J	IP	• Johnson Controls® form/fit/function replacement - All ¼" QC with Rajah HV terminal	Cover & Base	4.92" x 3.32" x 2.80"	(SA)
			Board Only	4.70" x 3.10" x 2.80"	
35-65	HSI	• Remote or Local Flame sensing in same unit • CSA, EN298 and FM approved models available • Optional dual 120/240 VAC model available	Cover & Base	5.69" x 3.97" x 1.62"	(SA) CE (FM APPROVED)
			Board Only	5.50" x 3.75" x 1.85"	
With Combustion Blower Relay — QC Connections					
35-61	DSI	• Airflow Switch monitoring and diagnostics • EN298 approved models available	Cover & Base	5.69" x 3.97" x 2.30"	(SA) CE (UL) (AGA)
			Board Only	5.50" x 3.75" x 1.98"	
35-66	HSI	• Airflow Switch monitoring • Optional Dual Speed Blower • Optional dual 120/240 VAC model available	Cover & Base	5.67" x 3.97" x 1.62"	(SA) CE (FM APPROVED)
			Board Only	5.50" x 3.75" x 1.85"	
35-67	HSI	• Proven Ignition applicable for 400K to 2.5 million BTU • Airflow Switch and Low-voltage monitoring • Manual or Automatic reset with CSD-1 versions available	Cover & Base	5.69" x 5.31" x 1.81"	(SA)

35-80 Series for 24 VAC

Ignition types: Direct Spark (DSI)

Typical Applications
• Space Heaters; Rooftop HVAC units, Furnaces

SERIES NUMBER	TYPE	DESCRIPTION	ENCLOSURE	DIMENSIONS	APPROVALS
35-80	DSI	• Integrated Indoor and combustion blower functions with airflow and limit switch monitoring • Heat/Cool or Heat Only models	Board Only	5.75"x4.50"x1.80"	(SA)

NOTE: For detailed product information and specifications, visit **www.fenwal.com**. If a specific design, capability, or combination of features is not shown, please contact us, as custom control solutions for OEMs are our daily business.

35-70 Series for 120 VAC

Ignition types: Direct Spark (DSI), Intermittent Pilot (IP) and Hot Surface (HSI)

Typical Applications
• Radiant and Infrared Heaters, Construction Heaters, Agricultural Equipment, Gas Lighting.

SERIES NUMBER	TYPE	DESCRIPTION	ENCLOSURE	DIMENSIONS	APPROVALS
Without Combustion Blower Relay					
35-70	DSI	• Multi-pin or quick-connect versions • Option for 24VAC thermostat signal	Cover & Base	5.11" x 3.55" x 2.00"	CSA UL FM APPROVED
			Board Only	4.92" x 3.37" x 1.99"	
			Potted Module	6.16" x 3.81" x 1.80"	
35-703	IP	• Intermittent Pilot operation • Multi-pin or quick-connect versions	Cover & Base	5.11" x 3.55" x 2.00"	CSA
			Board Only	4.92" x 3.37" x 1.99"	
			Potted Module	6.16" x 3.81" x 1.80"	
35-72	DSI	• Compact footprint • No LED diagnostics • Multi-pin connector	Board Only	4.00" x 2.30" x 2.33"	CSA
			Potted Module	5.37" x 2.53" x 2.35"	
35-72P	IP	• Ideal replacement for Mercury Flame switches • Pilot Re-lighter applications	Board Only	4.00" x 2.30" x 2.33"	CSA
			Potted Module	5.37" x 2.53" x 2.35"	
35-75	HSI	• Compact footprint • Multi-pin connector	Board Only	4.00" x 2.30" x 1.58"	CSA
			Potted Module	5.37" x 2.53" x 1.50"	
With Combustion Blower Relay					
35-71	DSI	• Airflow Switch monitoring and diagnostics • Multi-pin or quick-connect versions	Cover & Base	5.11" x 3.55" x 2.00"	CSA UL
			Board Only	4.92" x 3.37" x 1.99"	
			Potted Module	6.16" x 3.81" x 1.80"	

Gas Ignition Control Accessories
• A wide variety of electrodes, flame sense rods and cable assemblies custom configured to OEM applications

DESCRIPTION	SPECIFICATIONS	OPTIONS	APPROVALS
• 05 and 22 Series • Spark Electrodes • Flame Sensors	• High temperature electrode materials (1,400°C) • Alumina Ceramic Insulators	• Bracket Mounting Styles • Cable Extensions • Quick Connects • Rajah Connectors	CSA
• 05 Series • Cable Assemblies	• High Voltage Cables • Suppression Cables • Multi-pin Harnesses	• Boot Styles • Quick Connects • Multi-Pin Connectors • Agency Listed Components	

MODULATING COMBUSTION AND SYSTEM CONTROL

The FENWAL® PIM® Control series integrates gas burner control, modulation, temperature control, Hi-limit control and system wiring onto one platform. Suitable for HVAC, Commercial Cooking or any appliance that requires demand-driven modulation, the Fenwal PIM is a flexible, scalable solution for a broad range of applications.

Features

- DETECT-A-FLAME® technology for exceptional flame sensitivity
- Supports all popular ignition formats
- Operating temperature control
- PWM and 4-20ma modulating outputs
- UL-353 Hi-Limit
- RS485/Modbus communications
- Seven temperature sensor inputs
- Three discrete proving inputs
- Local and remote diagnostics
- Non-volatile lockout with manual reset
- Three assignable 5A relays
- Master/Member capability
- 0-10V or 4-20ma direct drive capability
- Compatible with tekmar® BTC-II controllers

Boiler Application

Fryer Application

35-9X Series for 24VAC

Typical Applications
- Premix modulating boilers, water heating, commercial cooking

SERIES NUMBER	TYPE	DESCRIPTION	ENCLOSURE	DIMENSIONS	APPROVALS
35-91	DSI	• Integrated Hi-Energy Spark Output • Feature optimized versions available for commercial cooking or modulating burners	Cover & Base	8.50" x 6.50" x 2.50"	⑤ CE AGA
35-92	DSI	• External Spark Transformer model	Cover & Base	8.50" x 6.50" x 2.50"	⑤ CE AGA
35-96	HSI	• Flame sensing by igniter or remote rod	Cover & Base	8.50" x 6.50" x 2.50"	⑤ CE AGA
35-97	HSI	• Proven Ignition	Cover & Base	8.50" x 6.50" x 2.50"	⑤ CE AGA

NOTE: For detailed product information and specifications, visit **www.fenwal.com**. If a specific design, capability, or combination of features is not shown, please contact us, as custom control solutions for OEMs are our daily business.

Bimetal Temperature Limiting Thermostats

Fixed setting devices designed specifically for temperature limiting applications.

Features

Snap Action Switching, Hermetically Sealed (Probe Style), Tamper-proof, Pre-set Temperatures, Automatic Reset, Shock and Vibration Resistant

08-80 and 08-81 — Probe style

Typical Applications
• Commercial Equipment: Cooking, Medical, Plastics Processing, Refrigeration, Boilers

TEMPERATURE RANGE	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
08-81 Series 35 to 350°F (2 to +176°C)	5A Resistive @ 120/240VAC 120/240VA Pilot Duty 3A Resistive @ 30VDC	SPST contacts — opens OR closes on temperature rise	ⓈⒶ CE ⓊⓁ	• Mounting Threads • Terminations
08-80 Series 240 to 500°F (116 to 260°C)	3A Resistive @ 120/240VAC 120/240VA Pilot Duty 3A Resistive @ 30VDC			

08-02 and 08-03 — Surface Mount Style

Typical Applications
• Commercial Equipment: Cooking, Packaging, Food Processing, Plastic Processing, Communications, Solar Heating, Refrigeration Compressors, Power Supplies

TEMPERATURE RANGE	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
08-02 Series 35 to 350°F (2 to 176°C)	12A @ 240VAC	SPST contacts — opens OR closes on temperature rise	ⓈⒶ CE ⓊⓁ	• Mounting Brackets • Terminations
08-03 Series 240 to 550°F (116 to 288°C)	10A @ 240VAC			

08-05 and 08-06 — Surface Mount Style

Typical Applications
• Boilers, Pool Heaters, Domestic Hot Water Systems, Hi-Limit and Automatic Gas Shut-off

TEMPERATURE RANGE	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
08-05 Series 110 to 210°F (43 to 95°C)	1A @ 30VDC 1A Resistive @ 120VAC	SPST contacts — opens on temperature rise	cⓈⒶus	• Mounting Brackets • Mounting Threads • Terminations
08-06 Series 300 to 450°F (148 to 252°C)	0.5A @ 50VDC 15A Resistive @ 120VAC Manual Reset			

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THERMOSWITCH® Controller

Slow make-break devices for immersion and flat surface temperature control applications that require close temperature control. Differential expansion between the internal struts and external shell provides fast response and close control.

Probe Style Features

Adjustable, Narrow Differential,
Extreme Sensitivity, Vibration Resistant,
No Power Supply Required,
Brass or Stainless Steel Shell

Surface Mount Features

Fully Adjustable, Narrow Temperature Differential,
Compact Size, Factory Preset Temperature Settings

17000/18000 Series — Probe Style Models, Slow Make and Break

Typical Applications
- Commercial Equipment: Cooking, Dishwashing, Medical, Packaging, Laminating, Heat Transfer Systems, Agricultural Equipment

TEMPERATURE RANGE	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
Two overlapping ranges from -100°F to 600°F (-73° to 316°C)	10A @ 120VAC 5A @ 240VAC Resistive	SPST Contacts Open OR Close on temperature rise	(up to 500°F)	• Various Mounting Styles • Factory Temperature Settings • Extended Wire Leads • Extended Shell Lengths

80016 Series — Thermowell for Hazardous Locations

Typical Applications
- To be used with 17000 Series THERMOSWITCH®
- Explosion-proof well assembly: Class I, Group D and Class II, Groups E, F, and G, Division 1 and 2 locations.

30000 Series — Surface Sensing Models, Slow Make and Break

Typical Applications
- Commercial Equipment: Cooking, Dental, Packaging, Laminating, Hot Stamping, Pressure Washing, Steam Cleaning, Vending Machines, Water Heaters

TEMPERATURE RANGE	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
Two overlapping ranges from 50° to 600°F	10A @ 10VAC 5A @ 240VAC Resistive	SPST contacts Opens on Temperature Rise		• Temperature Preset • Adjusting Screw Lengths • Mounting Brackets

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DETECT-A-FIRE® — Fire & Overheat Detection

The world standard in mechanical heat detectors.

Rate-compensated heat detectors suitable for initiating alarm systems to provide precise and quick response.

Features

Hermetically Sealed, Tamper-proof, Pre-set Temperatures, Shock and Vibration Resistant

Horizontal Mount

Typical Applications
• Protection of Commercial, Industrial, and Public Facilities, Vehicle Protection

TEMPERATURE SETTINGS	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
6 Fixed Settings from 140° F to 325°F	5 A @ 125VAC 0.5 A @ 125VDC 1A @ 48VDC	SPST Contacts open or close on temperature rise	UL cUL FM APPROVED	• Mounting for exposed or concealed wiring

Vertical Mount

Typical Applications
• Protection of Commercial, Industrial and Public Facilities, Range Hoods, Paint Spray Booths, Vehicles, Hazardous or Explosive Environments, Offshore Oil Rigs, Service Stations

TEMPERATURE SETTINGS	CURRENT RATING	CONTACT ACTION	APPROVALS	OPTIONS
12 Fixed Settings from 140° F to 725°F	5.0 A @ 125VAC 0.5 A @ 125VDC 1A @ 48VDC	SPST Contacts open or close on temperature rise	UL cUL FM APPROVED	• Hex or coupling head mounting • Brass or stainless steel head

For other listings and approvals please consult factory.

# For more information visit
our website at: www.fenwal.com

Your complete resource for:

- Datasheets
- Cross reference and conversion guides
- Frequently asked questions
- Sales representatives
- Worldwide distribution

Sales and support contact:

PLACE BUSINESS CARD OR STICKER HERE.

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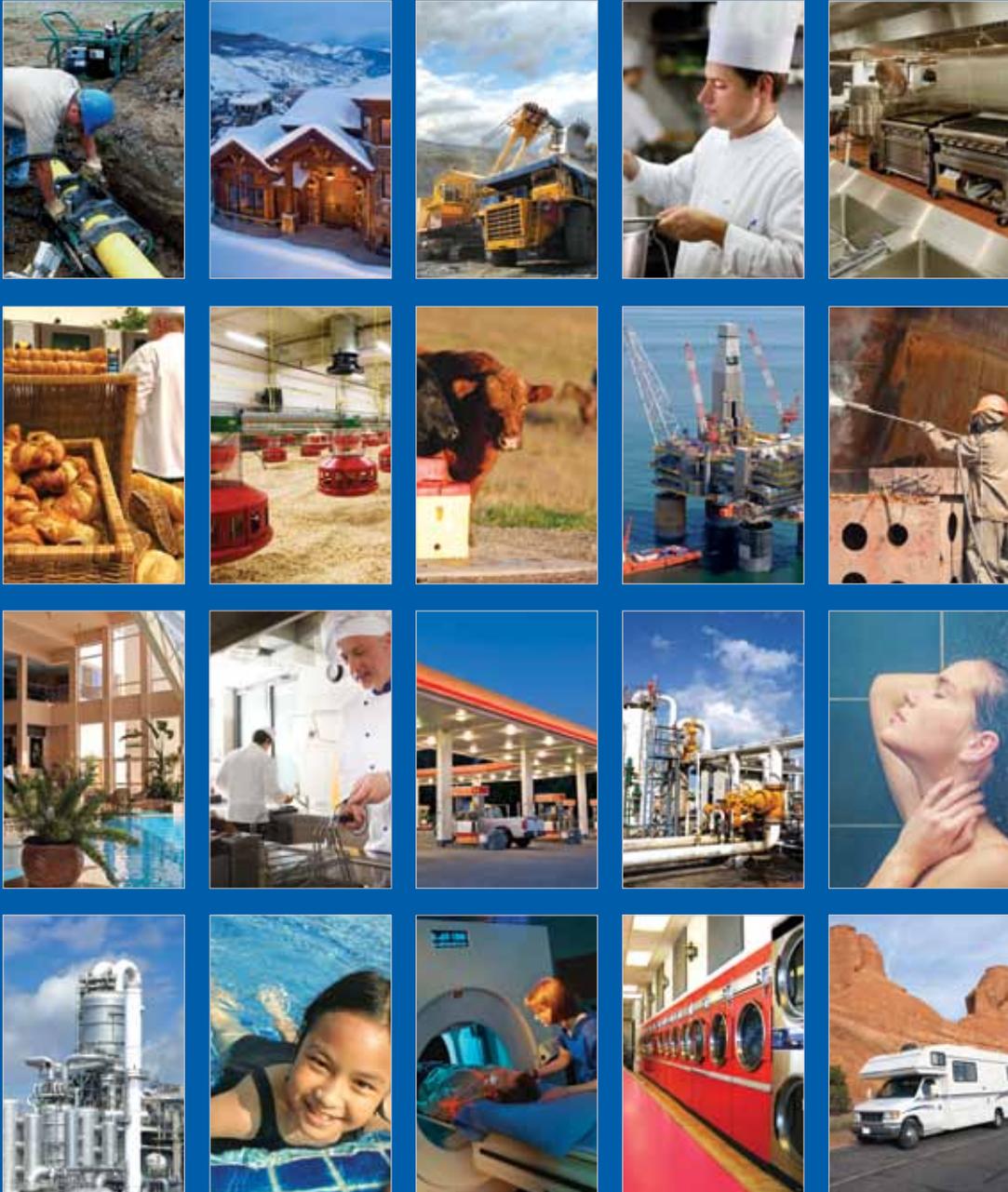
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