## First Line of Safety:

# Farris Engineering

CURTISS WRIGHT
Flow Control Company
Farris Engineering

# Our Company

Farris Engineering, a business unit of Curtiss-Wright Flow Control Company, has been at the forefront of the design and manufacture of spring-loaded and pilot-operated pressure relief valves since the early 1940's. With over 70 years of proven performance, Farris has provided automatic and positive protection against overpressure situations in thousands of industrial plants and facilities. Our reputation as "the First Line of Safety" is a result of Farris innovations that have evolved into industry standards for pressure relief valve design.

Farris provides products and solutions serving many industries: hydrocarbon processing, refinery, petrochemical, fossil and nuclear power generation, natural gas production and transmission, pharmaceutical, and general processing.

Curtiss-Wright Flow Control Company is a worldwide leader in delivering solutions that improve safety, plant flexibility, reliability, and efficiency. The businesses of Curtiss-Wright Flow Control Company pioneer highly engineered solutions to deliver profound value to their customers and enable them to transform the way their business is done.

# Worldwide

Our headquarters are located in Brecksville, Ohio, USA, and support Farris' manufacturing, engineering, design and testing, including an ASME certified flow test facility. Farris provides the global marketplace with sales and operations support through our facilities in Canada, The United Kingdom, China, India, and Dubai. All manufacturing facilities are ISO 9000 certified. Products are manufactured to ASME design with capacity certification to ASME/NB Section I, III and VIII. Our valves meet API standards and hold PED/CE, ATEX, CSQL, CSA B51, GOST-R/RTN certificates as well as many other country, industry and customer specific approvals.

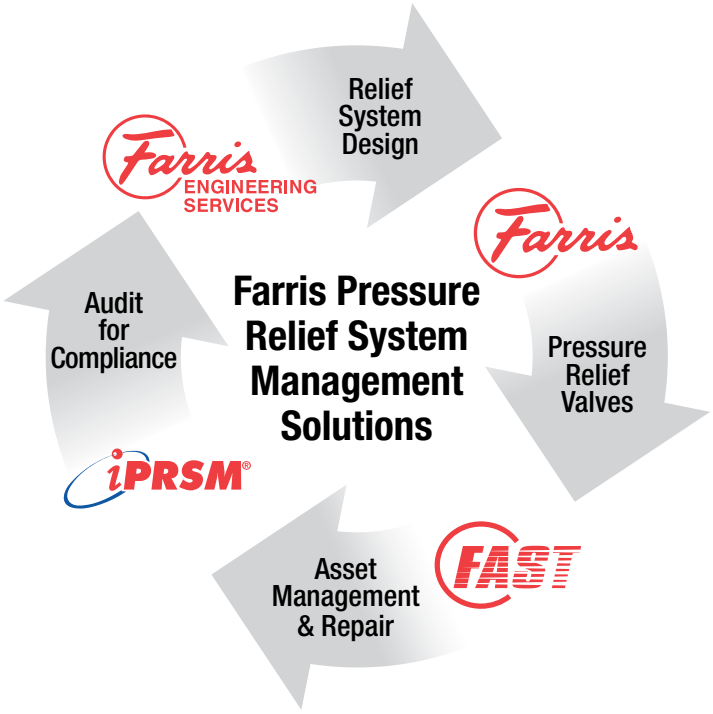
**Brecksville, OH, USA**

**Brantford, ON, Canada**




**Bridport, Dorset, UK**

**Tianjin, China**




# Farris Total Pressure Relief Management Solutions

In addition to a complete line of pressure relief valves, Farris provides total pressure system management solutions that support a facility's entire lifecycle.

**SizeMaster®** the first software of its kind, assists customers in the critical, time consuming process of sizing and selecting pressure relief valves.

Our patented, web-based **iPRSM®** software is a powerful engineering calculation and documentation repository tool designed to assist in meeting the pressure related requirements for PSM compliance. Together with iPRSM, our Farris Engineering Services team provides comprehensive pressure relief system design and audit services that help plants achieve a safe and hazard-free work environment.

## Additional Overpressure Protection Products

Farris has negotiated strategic agreements and can supply the following products, allowing you to consolidate suppliers for pressure relief system equipment:

- Pressure/Vacuum Relief Valves
- Rupture Discs
- Changeover Valves
- Pressure Relief Valve Spacers

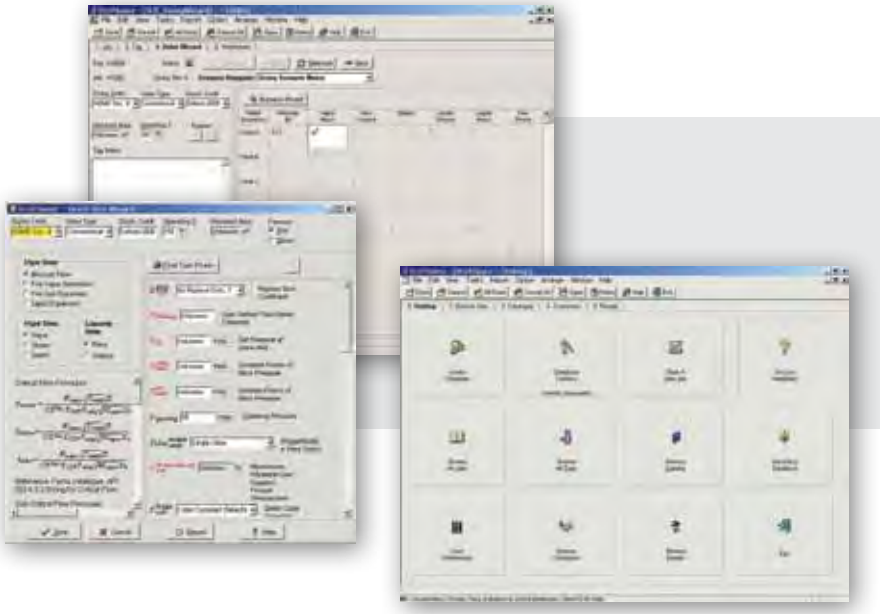
## First Class Service

To complete our solution package, Farris has established the Farris Authorized Service Team, or "FAST" Centers. Our FAST Centers are a network of independent valve assembly and repair facilities, offering ASME certified inventory, service, and asset management solutions to Farris customers around the globe.

## The FAST Centers:

- ASME certified to assemble, set and test new Farris pressure relief valves
- Maintain large inventory in sizes 1/2" to 8" and orifices D through T
- Certified by the National Board of Boiler and Pressure Vessel Inspectors to apply the "VR" repair stamp
- Provide 24 hour service, 7 days a week
- Employ expert staff to assist in all of your pressure relief valve needs
- Use factory certified technicians
- Use only OEM valves and parts
- Have field service capabilities in selected locations

FAST



# Software Solutions

## SizeMaster™ Mark IV Pressure Relief Valve Engineering Sizing & Selection Software

Now you can accurately size and select a pressure relief valve for any combination of process applications with SizeMaster™ Mark IV pressure relief valve engineering software. This program for Windows® (all versions) brings unprecedented integration of standard engineering practices to the task of sizing and selecting pressure relief valves. With SizeMaster™ Mark IV software, a scenario matrix allows you to define as few as one or as many as 64 different sizing scenarios including blocked flow, fire, thermal and tube rupture. Selection of the pressure relief valve is automatically based on the relief area of the worst case scenario. Various Wizards make the most complicated task simple; for instance, the Capacity Wizard allows you to determine accurate vapor generation for vessels of all types.

**iPRSM®** is a patented, web-enabled software for intelligent Pressure Relief System Management. iPRSM provides cost effective management of pressure relief system documentation and assures compliance with regulatory codes and company standards over your facility's lifecycle. iPRSM delivers features and benefits beyond anything available in industry today…

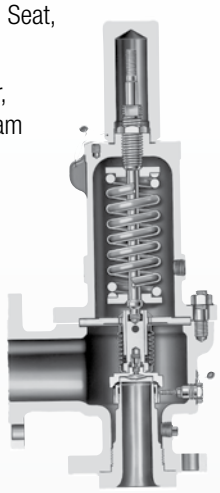
- Web Enabled/LAN Software Application
- Data Import/Export Capability
- Centralized Document Repository
- Integration to Flash Calculation Engine and Thermophysical Properties System
- Management of Change
- Cause of Overpressure Analysis
- Maintenance Database
- Navigation Through P&IDs
- Relief Load Calculations
- Inlet/Outlet Pipe Calculations
- Two-phase Flow Calculations
- Flare Header/Blow Down Systems

# Farris Products

## Process Valves

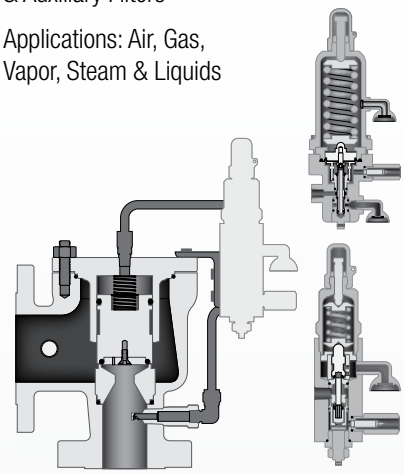
### SERIES 2600/2600L

- ASME NB Certified: Air, Steam and Water
- 2600L (Multimedia Design) Dual ASME NB Certified: Water and Air
- Conforms to API Standard 526
- CE Approved
- Sizes: 1" x 2" to 20" x 24"
- Pressure Range: 15 to 6000 psig, 1.0 to 413 barg
- Temperature Range: -450 to 1500 °F, -268 to 815 °C
- Materials: Carbon Steel, Stainless Steel, Low/High Temp. Alloy Steels, Monel®, Hastelloy C®, Duplex, & NACE Compliant Materials
- Options: Balanced Bellows, O-Ring Seat, Open Bonnet
- Applications: Air, Gas, Vapor, Steam & Liquids



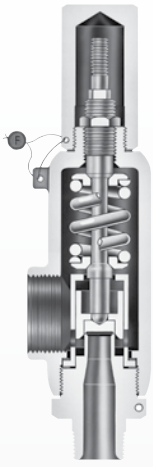
### SERIES 3800

- ASME NB Certified: Air, Steam & Water
- Conforms to API Standard 526
- CE Approved
- Sizes: 1" x 2" to 12" x 16"
- Pressure Range: 15 to 6170 psig, 1.0 to 425 barg
- Temperature Range: -450 to 500 °F, -268 to 260 °C
- Materials: Carbon Steel, Stainless Steel, Low/High Temp. Alloy Steels, Monel®, Hastelloy C®, Duplex, & NACE Compliant Materials
- Actuation: Snap or Modulating
- Options: Field Test Connections, Reverse Flow Preventer, Remote Depressurizing & Auxiliary Filters
- Applications: Air, Gas, Vapor, Steam & Liquids



### SERIES 2700

- ASME NB Certified: Air, Steam & Water
- CE Approved
- Sizes: 1/2" x 1" to 1-1/2" x 2-1/2"
- Pressure Range: 15 to 6500 psig, 1.0 to 448 barg
- Temperature Range: -450 to 750 °F, -268 to 399 °C
- Materials: Carbon Steel, Stainless Steel, Low/High Temp. Alloy Steels, Monel®, Hastelloy C®, Duplex, & NACE Compliant Materials
- Options: O-Ring Seat, Balanced Design, Flanged, Socket Weld, Welding Nipple & Sanitary Connections
- Applications: Air, Gas, Vapor, Steam & Liquids

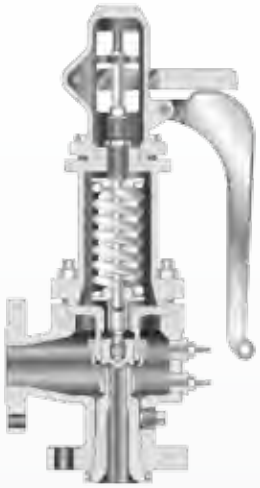


Optional materials of construction, pressure/temperature ranges, connections and accessories are available. Contact the factory with your special request.

## Steam Safety Valves

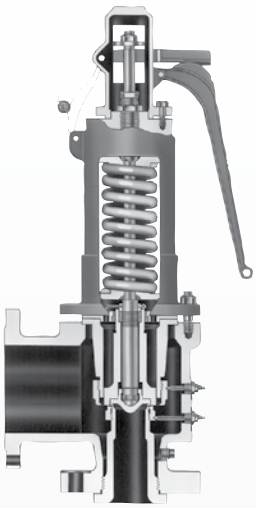
### SERIES 4200

- ASME NB Section I & VIII Certified: Air & Steam
- CE Approved
- Sizes: 1-1/4" x 1-1/2" to 6" x 8"
- Pressure Range: 15 to 1000 psig, 1.0 to 68.9 barg
- Temperature Range: -20 to 1000 °F, -29 to 538 °C
- Materials: Carbon Steel, Stainless Steel & Chrome-Moly
- Options: Test Gag
- Applications: Steam Service



### SERIES 6400/6600

- ASME NB Section I & VIII Certified: Air & Steam
- Sizes: 1" x 2" to 4" x 6"
- Pressure Range: 15 to 1500 psig, 1.0 to 103 barg
- Temperature Range: -20 to 1000 °F, -29 to 538 °C
- Materials: Carbon Steel, Stainless Steel & Chrome-Moly
- Options: Closed Bonnet (6600) & Test Gag
- Applications: Steam Service



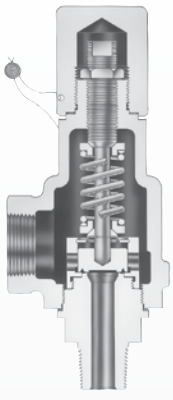
## Specialty Valves

### SERIES 1890

- ASME NB Certified: Air, Steam & Water
- Sizes: 1/2" x 1" & 3/4" x 1"
- Pressure Range: 15 psig to 800 psig
- Temperature Range: -20 to +750 °F
- Materials: Stainless Steel Body & Trim, Carbon Steel Bonnet
- Applications: Air, Steam Gas & Water

### SERIES 1896M

- ASME NB Certified: Air, Steam & Water
- Sizes: 1/2" x 3/4" & 3/4" x 3/4"
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -450 to +400 °F
- Materials: Brass Body & Trim, Bronze Bonnet
- Applications: Air, Steam Gas & Water

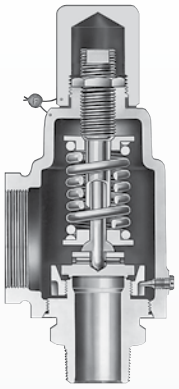


## SERIES 2850

- ASME NB Certified: Air & Steam
- Sizes: 3/4" x 1" to 1-1/2" x 2"
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -20 to +750 °F
- Materials: Stainless Steel Body & Trim, Carbon Steel Bonnet
- Applications: Air, Steam & Gas

## SERIES 2856

- ASME NB Certified: Air & Steam
- Sizes: 3/4" x 1-1/4" to 2" x 3"
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -450 to +400 °F
- Materials: Brass Body & Trim, Bronze Bonnet
- Applications: Air, Steam & Gas



## SERIES 560

- ASME NB Section I Certified: Steam
- Sizes 1/2" x 3/4" to 2-1/2" x 2-1/2"
- Pressure Range: 5 to 300 psig
- Materials: Brass
- Applications: Steam Service

# Farris Engineering Products and Services

## Process Pressure Relief Valves

| | |
|---|---|
| Series 2600 | ASME NB Certified for Air, Steam and Water |
| Series 2600L | ASME NB Dual Certified for Air and Water |
| Series 3800 | ASME NB Certified for Air, Steam and Water |
| Series 2700 | ASME NB Certified for Air, Steam and Water |
| Series 1890/1896M | ASME NB Certified for Air, Steam and Water |
| Series 2850/2856 | ASME NB Certified for Air and Steam |

## Steam Safety Valves

| | |
|---|---|
| Series 4200 | ASME NB Certified for Steam – Section I & VIII |
| Series 6400/6600 | ASME NB Certified for Steam – Section I & VIII |
| Series 560 | ASME NB Certified for Steam – Section I |

## Nuclear Pressure Relief Valves

| | |
|---|---|
| Series 4700/4700L | ASME NB Section III, Division 1 Class I, II & III |
| Series 2700/3700 | ASME NB Section III, Division 1 Class I, II & III |
| Series 2600/2600L | ASME NB Section III, Division 1 Class I, II & III |
| Series 3800 | ASME NB Section III, Division 1 Class I, II & III |

## The following is a list of Farris approvals currently on record:

- ASME “V”, “UV”, “NV”, and “NPT”
- National Board “NB” approval
- ISO 9001-2008
- US Coast Guard
- PED 97/23/EC (European Pressure Equipment Directive)
- ATEX 94/9/EC (European Potentially Explosive Atmospheres)
- CSA B51 (Canadian Registration)
- CSQL (China Safety Quality License)
- Russian GOST-R Certification and RTN Permit
- First Point Assessment Limited
- Nuclear – 10 CFR 50 Appendix B, NCA-4000, NQA-1, N285.0

## SizeMaster™ Mark IV

Pressure Relief Valve Engineering Software for Sizing and Selection

## FAST Centers (Farris Authorized Service Team)

- Worldwide Network of Service Centers with Factory Trained Technicians
- Local Inventory and Support, 24 Hours a Day, 7 Days a Week
- Access to Worldwide Farris Inventory through the Web
- ASME/National Board Approved Assembly, Repair & Test Facilities
- Application, Sizing & Selection Support

## PSM Engineering Services

- Pressure Relief System Design Services
- Pressure Relief System Audit Services
- iPRSM Pressure Relief System Management Software

CURTISS WRIGHT Flow Control Company
Farris Engineering

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**Offices Worldwide:** For a listing of our global sales network, visit our website at http://farris.cwfc.com.


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