Chemical Industry Solutions
Complete offering – products, solutions and services
usa.siemens.com/chemical

For chemical industry manufacturers, digitalization presents a challenge – and an opportunity. As industries around the world embrace the concept of the digital enterprise, the time is now to invest in future-proof solutions that enable you to stay competitive in the evolving digital era.

Siemens’ Digital Enterprise initiative is focused on two key concepts -- integrated engineering and integrated operation. Integrated engineering creates a digital twin of your plant across all disciplines using a common data model, providing up-to-date imaging of the entire lifecycle of your plant. Integrated operation supports plant optimization through increased data transparency from the field to the enterprise level. And Siemens solutions ensure data is secure across all levels in your plant.

Within these pages you’ll find the entire Siemens portfolio for the chemical industry – all designed to help you to embrace digitalization, so you can boost your competitiveness through increased innovation, performance, and agility.

**Automation Solutions**

**Distributed Control System (SIMATIC PCS 7)**
- Continuous, batch and sequential control
- Integrated asset management
- Advanced process control
- Scalable
- Flexible redundancy
- Integrated process safety
- Batch management

**Safety Systems**
- TUV certified to SIL 3
- Emergency shut down
- Burner management
- Machine safety
- Fire and gas

**Plant Engineering Software (COMOS)**
- Integrated data management over the entire plant life cycle
- Common database with object-oriented data management
- Process engineering, pipe specification and isometrics
- Electrical, instrumentation and control and control system engineering
- Project and plant documentation
- 3D virtual reality visualization

**Industrial Identification**
- 1D and 2D code reading systems
- HF and UHF RFID systems

**Industrial Power Supplies**
- The first PROFINET enabled power supplies
- Single phase and three phase power supplies
- 24VDC power supplies and power security

**Migration Solutions**
- Honeywell
- ABB/Bailey
- TI
- APACS
- Gateways for integration – CM104, CM105
- Rockwell
- Allen Bradley
- Siemens S5
- Teleperm XP
**Operations Intelligence Software (XHQ)**

- Aggregating, relating and presenting operational and business data
- Asset performance management, analytics and visualization solutions

**Process Instrumentation & Analytics**

**Analytical Products and Solutions**

- Process gas chromatographs
- Continuous gas analyzers
- In-situ laser spectroscopy
- Front End Engineering (FEE)
- Turnkey system integration
- Lifecycle customer support

**Pressure**

- Gauge
- Absolute
- Differential
- Hydrostatic

**Temperature**

- Head, rail and field mounted transmitters
- Temperature transmitters

**Level**

- Radar
- Ultrasonic
- Guided wave radar

**Flow**

- Coriolis
- Ultrasonic clamp-on
- Vortex
- Electromagnetic

**Valve Positioner**

- Digital
- Electro Pneumatic
- Pneumatic

**Factory Automation**

**Automation Controllers**

**Modular Controllers (SIMATIC Automation Controllers)**

- S7-1200 Basic controller / S7-1200F with safety
- S7-300 / S7-400 / S7-1500 Advanced controllers / S7-1500F with safety
- ET 200SP / ET 200S / ET 200pro CPU distributed controllers
- Software controllers for PC-based automation (S7-1500 software controller, WinAC)

**Sensors**

**Wireless transmitters**
Industrial Computers (IPC)

- Rack (IPC347D, IPC547E, IPC647D, IPC847D)
- Box (IPC227E, IPC427D, IPC627D, IPC827D)
- Panel (IPC277E, IPC477D, IPC677D, HMI panel PC Ex)
- Industrial monitors
- Thin clients
- PC-based controllers (S7-1500 software controller)
- Embedded bundles / software packages (box bundles, PC bundles, software packages)

Industrial Network Solutions

- Industrial ethernet switches and routers for transparent industrial ethernet communications (SCALANCE and RUGGEDCOM)
  - Fiber options integrated and modular
  - Extended temperature range, ATEX, UL hazloc, Class I Div 2
- IECex and IEC 61850
  - Integration support for PROFINET and Ethernet/IP
  - Durable wireless hardware for reliable communications
  - Security modules
  - Network management
  - Remote management solutions

Integrated Engineering (SIMATIC TIA Portal)

- SIMATIC TIA Portal
- SIMATIC distributed safety
- SIMATIC safety advanced

Operator Devices (Human Machine Interface – HMI)

Comfort panels
- Range of sizes: 4” to 22”
- High resolution
- Totally Integrated Automation (TIA) portal compatible

Mobile panels
- Maximum mobility and flexibility

Thin clients
- Range of sizes: 12” to 22”
- Industrial
- Integrated web
- Wide screen browser

Key panels
- 8 or 32 button keypad mobile panels
- Cabinet-less control and monitoring
Mechanical Drives

Helical, helical-bevel and planetary gear units and couplings
- Helical and helical-bevel gear units
  - Torques 25,000 – 12,400,000 in-lbs
- Planetary gear units
  - Torques 88,000 – 23,000,000 in-lbs
- Agitators and agitator tanks
- Coupling types
  - Flexible, gear, fluid and rigid

Drives, Motors and Motion Control

Low Voltage Drives

General Purpose Drives
- SINAMICS V (.16–20 hp)
- SINAMICS G (.5–250 hp)
- MICROMASTER (.16–350 hp)

High-Performance Vector and Servo Drives
- SINAMICS
  - S110 (.25–125 hp)
  - S120 (.25–1500 hp)

DC Drives
- SINAMICS
  - DC Master (5–24,000 hp)
  - Base Drive Panels (5–500 hp)
  - DC Master Control Modules

Enclosed (Cabinet) Drives
- SINAMICS
  - G150 NEMA-rated (150–800 hp)
  - G120E (150–1250 hp)
  - S150 (150–1250 hp)
  - S120 Cabinet Modules NEMA-rated (up to 5000 hp)

Medium Voltage Drives

- Engineered drives
- SINAMICS AC drives 250 HP -100,000 HP
  - SINAMICS GL150 LCI drives
  - SINAMICS GM150/SM150 NPC drives
  - SINAMICS PERFECT HARMONY GH180/GH150 drives
- DC drives

Motor Control Centers

tiastar™ Motor Control Centers
- Standard
  - High density units
- Smart
  - PROFIBUS, PROFINET

Communication
- SIMOCODE
  - Arc resistant

Installed components:
- Automation
- Control
- Power distribution devices
  - AC drives
  - Circuit breakers
  - NEMA starters
  - Pilot devices

SIMOCODE Pro – provides solid-state overload protection, local control and extensive data communication:
- SIMOCODE pro C
- SIMOCODE pro V
- SIMOCODE pro V (PN)
NEMA Control

- Contactors
- Non-combination starters
- Combination starters
- Reduced voltage starters
- Solid-state and thermal overload relays
- Pump controls
- Lighting and heating controls
- Manual starters and switches

High-Performance Motors – Inverter Duty

Low Voltage Motors
NEMA Induction Motors
- General Purpose 1 HP - 200 HP
- Severe Duty 1 HP - 400 HP
- Explosion Proof 1 HP - 300 HP
- Definite Purpose 3 HP - 250 HP

IEC Induction Motors
- General Purpose 0.18kW - 22.5kW
- Severe Duty 0.18kW - 200kW
- Explosion Proof 0.12kW - 460kW
- Definite Purpose 0.75kW - 200kW
- Flexible Duty 200kW - 1800kW

IEC Technology Motors
- Reluctance 7.5 – 40 HP
- Servomotors 0.06 – 92 lb-f t
- Torque Motors 74 – 5163 lb-f t
- Linear Motors 34 – 2332 lb-f t

Medium and High Voltage Motors
AboveNEMA Motors
- Horizontal and Vertical Motors ODP/WPI / TEAAC / TEWAC / WPII
- 200 HP - 18,000 HP
- Standard Specific API 541 / API 547 / IEEE 841
- IEC Trans Norm motor
- Asynchronous Squirrel Cage Motors 0.15 - 38MW
- Asynchronous Slip Ring Motors 0.3 - 8MW
- Synchronous Motors 2.1 - 100MW

Motion Controllers

- Drive-based (SIMOTION D)
- PC-based (SIMOTION P)
- Controller-based (SIMOTION C)
- Distributed level-event monitoring and power metering

Gear Motors

- Helical Bevel
- Parallel Shaft
- Helical In-line
- Available with integral induction or servo motors

Power Distribution and Controls

Switchboards/Panelboards/Medium-voltage Switchgear, Circuit Breakers and Controls

- Medium-voltage arc-resistant and non-arc-resistant, air-insulated switchgear up to 63 kA
- Medium-voltage arc-resistant, gas-insulated switchgear
- Medium-voltage arc-resistant and non-arc-resistant controllers up to 63 kA
- Power distribution center solutions to house various types of electrical equipment
- Medium-voltage outdoor distribution circuit breakers
- Integrated power switchboards
- Rugged panelboards with easy installation

Substations and Transformers

- High, medium and low voltage distribution and protection
- Complete transformer rewind, remanufacture or replacement
- New transformer sales and installation, oil immersed or cast resin
### MVS Relays (SiPROTEC) and SCADA
- MV protection and control, motor, feeder, transformer protection, arc flash sensing
- Automatic transfer schemes, fast load shedding, remote breaker operation, automatic fault record retrieval and analysis, asset monitoring

### Power Distribution Solutions Energy Management
- Ethernet / MODBUS / PR PROFIBUS / PROFINET meters
- Energy and power monitoring and control software

### Industrial Controls
- SIRIUS IEC power control
  - Starters
  - Contactors
  - Motor starter protectors
  - Busbar systems up to 1400A
- Solid state relays and contactors
- Solid state soft starters
- Pilot devices
- Relays
- Stack lights/signal beacons

### Circuit Protection
- Molded case circuit breakers
- VL-150-1600A frame, global ratings and up to 100Kaic interrupt ratings
- G Frame- 125A and less and interrupt ratings to 65Kaic
- Supplementary protection
- UL489- 5SJ- power circuit protection
- UL 1066- 5SY-control circuit protection

### Industry Services
- Support and consulting services
- Training services
- Plant data services
- Spare parts services
- Repair services
- Field and maintenance services
- Retrofit and modernization services
- Service programs and agreements

### Building Technologies
#### Building Comfort
- HVAC
- Building automation
- Energy management

### Power Monitoring
- Power quality meter with web technology
- High accuracy measurement
- Energy and demand tracking
- Historical trending and harmonic distortion
- Analyzer and controller
- PROFIBUS, Ethernet and MODBUS

### Fire Protection
- Fire safety systems
Electronic Security
- Access control
- Intrusion detection
- Command and control
- Perimeter intrusion control
- Remote video
- Visitor management solutions
- Video management systems
- Video analytics

Steam Turbines, Water Cooled Condensers
- Power generation for chemical plants including petrochemical, refineries and waste heat recovery
- Variable speed turbines for compressor drives and pump drives
- Water cooled condensers with optimized design high efficient heat transfer, small footprint and low maintenance requirements
- Water cooled condensers for all kinds of cooling water and all cooling water conditions
- Widest range of process steam conditions and highest flexibility for process steam extraction for optimized plant operation
- Durable solutions for low pressure saturated steam expansion at high efficiency especially suitable for chemical process heat utilization (e.g. PTA process)
- Customized process steam solutions
- Steam turbines and water cooled condensers for revamps, upgrades and de-bottlenecking projects

Industrial Power Generation

Gas Turbines
- Power between 4MW and 66MW for electrical power generation or as mechanical drive and heat with overall process efficiencies up to 90% for petrochemical plants, oil & gas, pharmaceutical plants, pulp & paper processing, food & beverage and sugar & ethanol plants, textile mills, automotive plants, hospitals, universities and district heating as well as grid support, heat and power for petrochemical plants, oil & gas, pharmaceutical plants, pulp & paper processing, food & beverage plants, textile mills, automotive plants, hospitals, and universities.

Medium-Voltage Generator Switchgear for 100MW to 400 MW Machines
- Siemens offers a fully customizable stationary type vacuum, generator circuit breaker switchgear tested to IEEE C37.013. Each design is engineered to meet the specific electrical and mechanical application requirements of the project. All medium-voltage switching components, including the vacuum generator circuit breaker, are mounted on a removable, fully-integrated, compact switching module for each pole. The switchgear has continuous current ratings of 6,300 A, 8,000 A, 10,000 A and 12,500 self-cooled, interrupting ratings of 80 kA and 100 kA, and maximum design voltage up to 24 kV.

Compressors
- Turboexpanders, reciprocating compressors and expanders for the Chemical industry as well as for refineries, petrochemical plants and further industrial applications
- Industrial as well as aero derivative gas turbines, steam turbines, reciprocating engines and e-drives to serve our customer needs
- Leading technology in PTA application securing future plant potential higher than 1.2 MTPA
- Process air compressor with highest efficiencies in the market for Ammonia production
- Integrally geared compressors for urea production plants offering a high efficiency due to inter cooling stages
- CO2 compression solutions for various range of applications with volume flows of 140,000 Nm³/h and pressures up to 200 bar
- More than 50 years of experience in chemical processes

For more information, please contact our Customer Support Center.
Phone: 1-800-241-4453
E-mail: info.us@siemens.com
usa.siemens.com/chemical
Order No: PCFL-OEMCV-0816
Printed in U.S.A.
© 2016 Siemens Industry, Inc.

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.