

CRANE[®]

CRANE ChemPharma Flow Solutions™



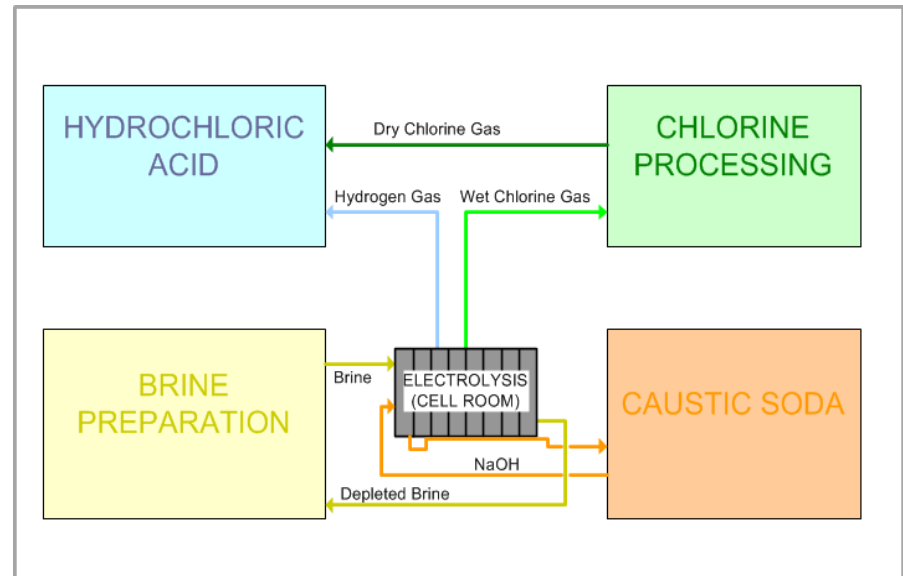
Introduction to the Chlor-Alkali Industry

January 2012

- CRANE ChemPharma is focused on key chemical industries:

Chlor-Alkali

Phosphate Fertilizer
Nitrogen Fertilizer
BioPharm
Silicone
Acetic Acid



- Our superb customer focus is made possible by our industry focus:
 - Manufacturing processes
 - Valve and piping challenges
 - Product applications
- Knowledge, experience, and a history of success enables ChemPharma to provide optimal solutions for our customers

Brands you trust.



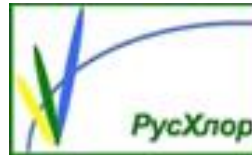
ChemPharma:



Energy:



Our products are designed to the highest standards for superior performance in applications that are corrosive and where external emissions are highly regulated.



ДЕ 01



Environment

- Hazardous Chemicals
- Corrosive (Internal/External)
- Thermal Cycling
- Particulates in media stream

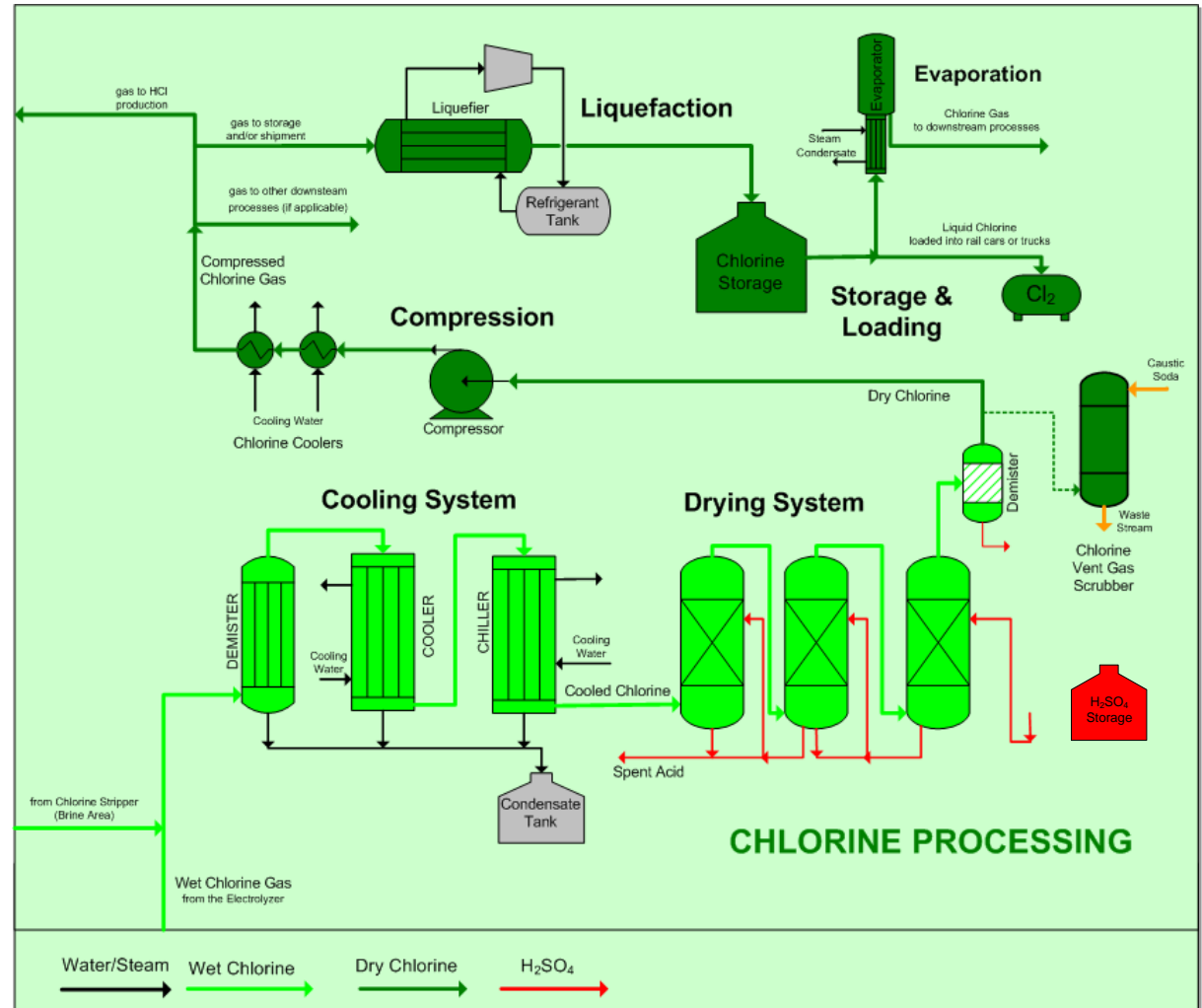
Major Problems

- Corrosion (internal/external/high temp)
- External emissions
- Leakage (downstream and from abrasion)
- High cost and difficulty of maintenance



Pain Points:

- Corrosion
- Maintenance Difficulty
- Lining permeation
- External emissions
- Downstream leakage
- Ingress of water causing dendrite formation
- Thermal Cycling
- Storage transfer hose leakage



- **ChemPharma provides solutions for the wet chlorine areas of the plant:**
Cooling System
Drying System
- **Our primary products for these applications include:**



XOMOX Lined Valve Products

Fully lined plug, ball, and butterfly valves have coatings that extend over shafts to prevent corrosion. Ball check and swing check valves are available for spec break applications.



Resistoflex Lined Pipe

Super smooth bore finish resists molecular penetration. Custom shapes and branches reduce potential leak paths. Full vacuum rated piping



Saunders Diaphragm Valves

Diaphragm seals around solids (tight shutoff)
PTFE lining available for corrosion resistance



WTA Bellows Sealed Globe Valve

Protected bellows made of Hastelloy C276 to protect against corrosion and achieve zero leakage. Safety gland packing to prevent ingress of water

- **ChemPharma provides solutions for dry chlorine areas of the plant:**

Drying System

Liquefaction

Compression

Storage & Loading

Evaporation

Downstream Processes (VCM/PVC, Phosgene)

- **Our primary products for these applications include:**



XOMOX Sleeved Plug Valve

Externally and internally leak tight
Severe Service Valve (SSV) design has additional protection against external leakage.



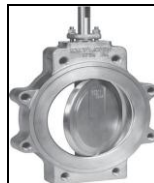
Saunders Diaphragm Valves

Working parts isolated from line media by the diaphragm.



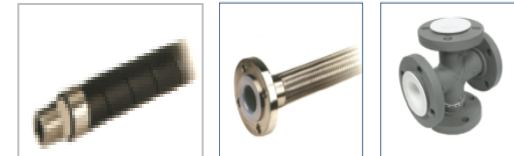
WTA Bellows Sealed Globe Valve

Protected bellows made of Hastelloy C276 to protect against corrosion and achieve zero leakage. Safety gland packing to prevent ingress of water and formation of Dendrites



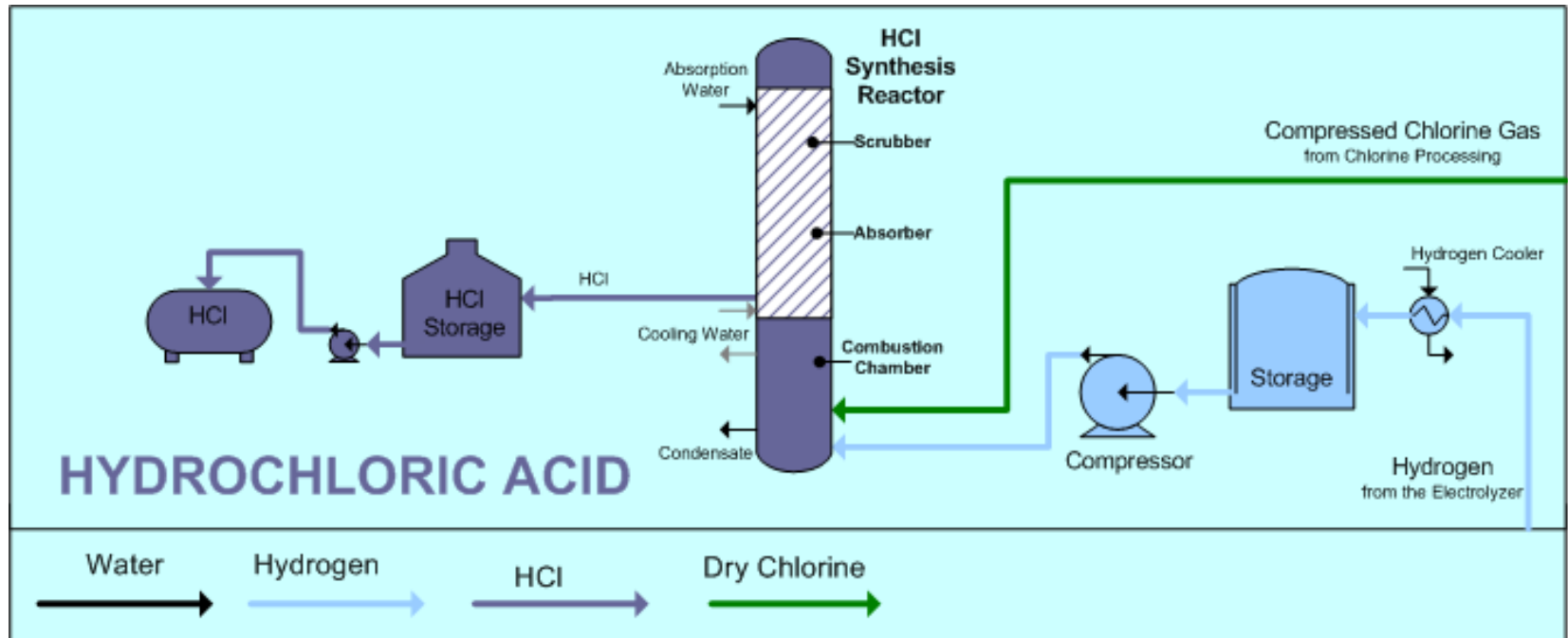
XOMOX High Performance Butterfly Valves

Designed specifically for dry chlorine service. Hastelloy disc and stem provide extended sealing integrity and tolerate moisture infiltration. Closed bottom decreases leak paths. Live-loaded, double packing with optional monitoring port to minimize emissions.



Resistoflex Lined Hoses

Super smooth bore finish resists molecular penetration. Transfer hoses specifically designed for chlorine service, with heavy PTFE liner and Kynar braid.



Pain Points:

- Internal Corrosion
- Downstream Leakage
- High Maintenance Costs
- External Emissions
- Storage Transfer Hose Leakage

- **ChemPharma provides solutions for the hydrochloric Acid areas of the plant:**
 - HCl Synthesis Reactor
 - Transfer & Storage
- **Our primary products for these applications include:**



XOMOX Lined Valve Products

Fully lined plug, ball, and butterfly valves have coatings that extend over shafts to prevent corrosion. Ball check and swing check valves are available for spec break applications



Resistoflex Lined Pipe and Transfer Hoses

Lining thickness meets or exceeds ASTM F1545 standards. Custom shapes and branches reduce potential leak points. High Integrity Flange (HIF) allows virtually leak-free joints.

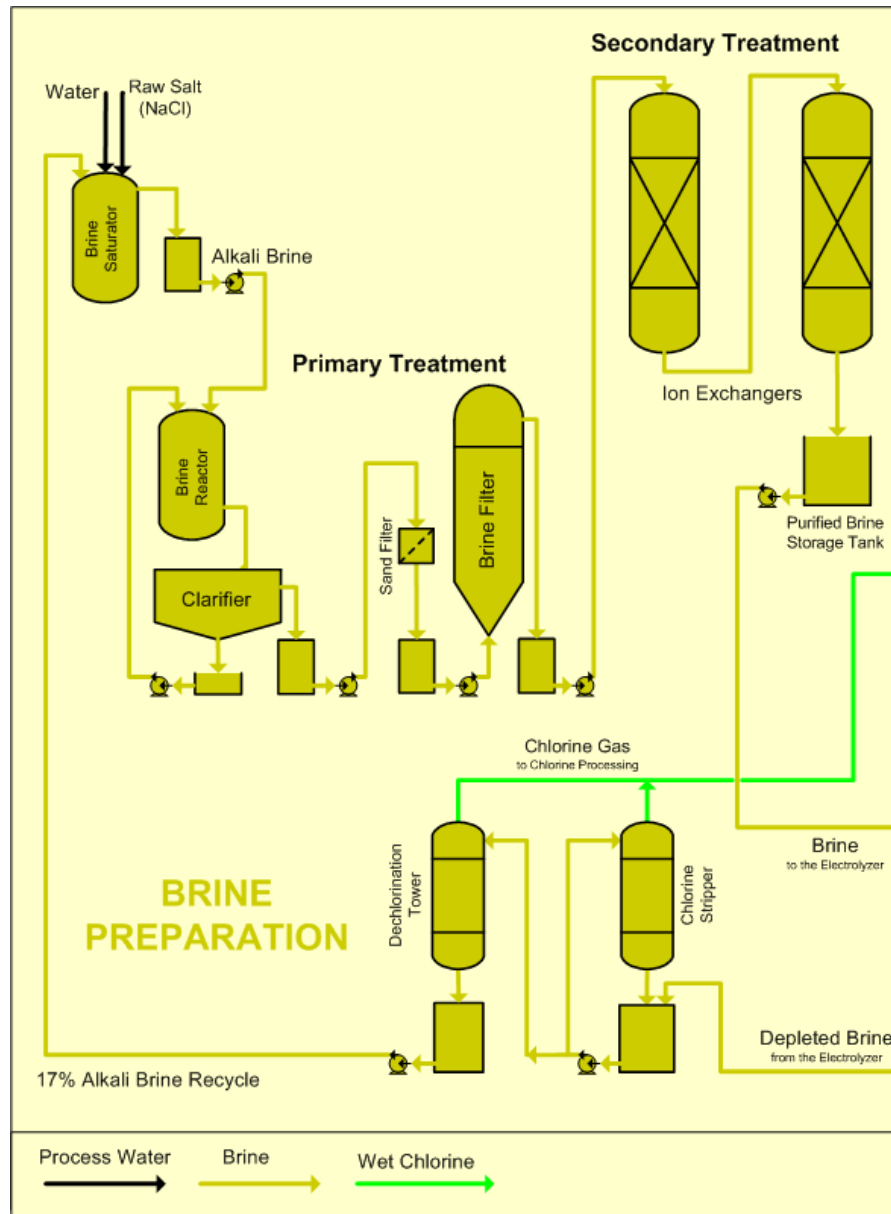


WTA Bellows Sealed Globe Valve

Protected bellows made of Hastelloy C276 to protect against corrosion and achieve zero leakage. Safety gland packing to prevent ingress of water

Pain Points:

- Particulate Abrasion
- Internal Corrosion
- Valves Jamming
- Scaling/Downstream Leakage



- **ChemPharma provides solutions for the brine preparation areas of the plant:**
 - Brine Separator
 - Dechlorination
 - Primary & Secondary Treatment

- **Our primary products for these applications include:**



XOMOX Lined Valve Products

Fully lined plug, ball, and butterfly valves have coatings that extend over shafts to prevent corrosion. Ball check and swing check valves are available for spec break applications. Plug valve designed to scrape off scaling on plug seat.



Saunders Diaphragm Valves

Diaphragm seals around solids (tight shutoff)
New XA Diaphragm for corrosive and abrasive media.

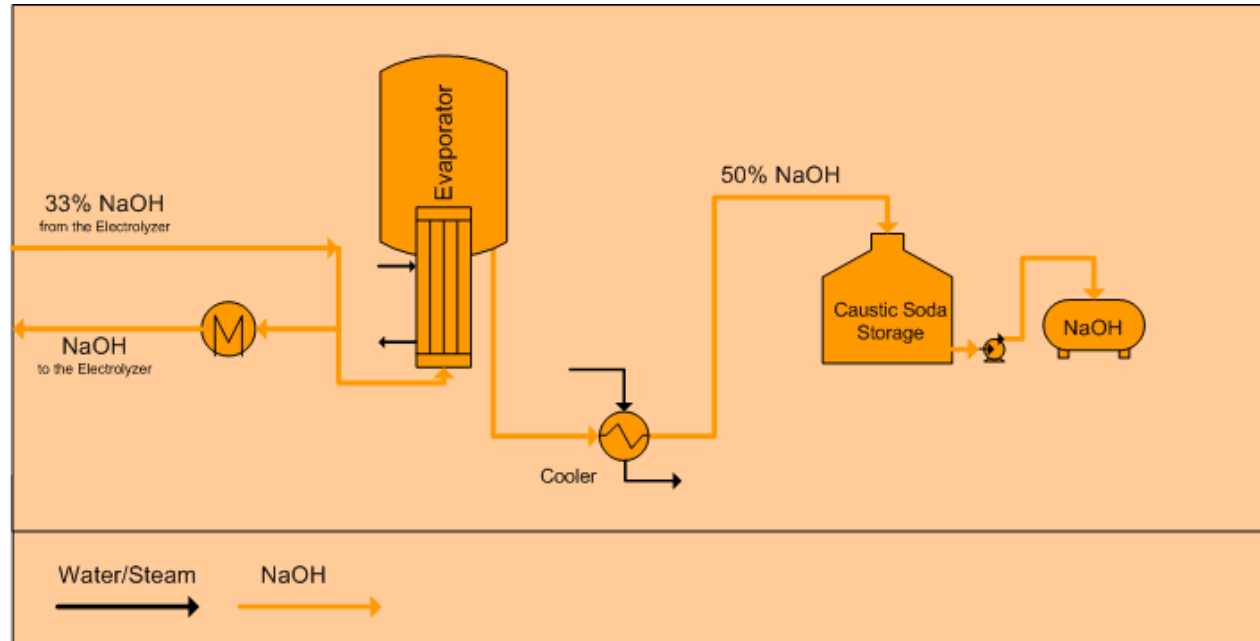


Resistoflex Lined Pipe & Fittings

Provides excellent corrosion resistance.
Custom shapes, branches, and bends to reduce potential leak points.

Pain Points:

- External Leakage
- High Temperature Corrosion
- Scaling / Downstream Leakage



- **ChemPharma provides solutions for the caustic soda areas of the plant:**
Evaporator
Transfer and Storage
- **Our primary products for these applications include:**



XOMOX Sleeved Plug Valve

Externally and internally leak tight
Port lips protect sleeve from abrasion
Sleeve design negates the effect of thermal cycling



Saunders Diaphragm Valves

Diaphragm seals around solids (tight shutoff)
New XA Diaphragm for abrasive media.



XOMOX High Performance Butterfly Valves

Retainer ring protects against abrasion.

***Stainless Steel, Alloy 20, or Nickel are used depending on the media concentration**

- ChemPharma provides products for several processes that are downstream of a Chlor-Alkali plant

VCM & PVC

Phosgene

TDI/MDI

- Our primary products for these applications include:



XOMOX Sleeved Plug Valve

Externally and internally leak tight
Port lips protect sleeve from abrasion
Sleeve design negates the effect of thermal cycling



Saunders Diaphragm Valves

Diaphragm seals around solids (tight shutoff)
New XA Diaphragm for abrasive media



XOMOX High Performance Butterfly Valves

Retainer ring protects against abrasion.

CRANE products are present in over 170 Chlor-Alkali plants worldwide.



- **Knowledge:** CRANE ChemPharma's industry knowledge enables us to:
 - Understand your valve and piping challenges
 - Leverage our internal applications expertise
 - Improve our products
- **Solutions:** Our sales and applications team can customize optimal solutions for your Chlor-Alkali facilities
- **Global Support:** Our global team will support you with purchasing, installation, best practices, and long-term maintenance
- **Commitment to Quality:** With our portfolio of well-known brands and products, ChemPharma can meet the needs of your demanding applications

DEPA®


KROMBACH
ARMATURENFSI
VALVE - PIPING - SYSTEMSSaunders®
the science inside 

ELRO®

RESISTOFLEX®



XOMOX®

wta®
THE VALVE COMPANY

CRANE®

