

NORAM
SULFURIC ACID
Products and Services

NORAM SX[®] ACID COOLERS



One of the greatest improvements in acid cooler design is the introduction of the alloy shell and tube acid coolers.

NORAM SX® Acid Coolers provide a very simple, reliable and low maintenance solution for acid cooling since the excellent corrosion resistance of NORAM SX® eliminates the need for anodic protection. In combination with other carefully selected alloys it also allows for the use of a variety of other cooling media.



Operation is considerably simplified without any electronics to monitor or control. The risk of acid cooler failures resulting from malfunction or operational problems with the electronic passivation system is completely eliminated.

Maintenance cost is minimized by eliminating the need for inspection and maintenance of the anodic protection system, as well as for the associated spare parts.

The excellent properties of the material allows NORAM SX® acid coolers to be designed for an optimal thermal performance, without the limitations on acid velocity and acid temperature as is typical for anodically protected coolers and plate and frame coolers. The benefit is a compact design with a large operating flexibility.



Every alloy acid cooler is individually designed and optimized to meet the specific process conditions and preferences of the client. The performance is well proven and the team at NORAM has more than 25 years experience in the design and operation of shell and tube acid coolers.

The alloy acid cooler is the perfect alternative for replacement acid coolers, particularly in cases of increased capacity as well as for new installations. The long life, reliable and simple operation results in a low life cycle cost.

Offered equipment includes:

- Drying Tower, Absorption Tower, Final Absorption Tower and Product Acid Coolers
- Boiler feed water heaters
- Sea water Acid Coolers



NORAM ENGINEERING AND CONSTRUCTORS LTD.

Suite #1800 – 200 Granville Street
Vancouver, British Columbia, Canada, V6C1S4
Tel: 604-681-2030 Fax: 604-683-9164

E-mail: acid@noram-eng.com Website: www.noram-eng.com

Ask about the products and services
NORAM supplies to the sulfuric acid industry:

NORAM PLANTS, PROCESSES, SYSTEMS, AND PROCESS EQUIPMENT

NORAM PLANT UPGRADE AND DEBOTTLENECKING ENGINEERING STUDIES
NORAM/CPPE HYBRID SULFURIC ACID PROCESS (HSAP)
NORAM CLEAN START™ PROCESS
NORAM PLANT PREHEATING SYSTEMS
NORAM'S TURBOSCRUBBER FOR GAS SCRUBBING
NORAM STAINLESS STEEL CATALYTIC CONVERTERS
NORAM RF™ RADIAL FLOW GAS-TO-GAS HEAT EXCHANGERS
NORAM SF™ SPLIT FLOW GAS-TO-GAS HEAT EXCHANGERS
NORAM BRICK-LINED ACID TOWERS
NORAM SULFUR & SPENT ACID BURNERS
NORAM CELLCHEM SULFUR BURNERS
NORAM ANODICALLY PROTECTED ACID COOLERS
NORAM SX® ACID COOLERS
NORAM SX® TOWERS AND NORAM SX® PUMP TANKS

NORAM EQUIPMENT INTERNALS, PERIPHERALS AND ANCILLARY EQUIPMENT

NORAM HP™ SADDLE PACKING FOR ACID TOWERS
NORAM SMART™ ACID DISTRIBUTORS FOR ACID TOWERS
NORAM TROUGH ACID DISTRIBUTORS FOR ACID TOWERS
NORAM SX® CHIPGUARD CG™ ACID STRAINER
NORAM ENTRAINMENT MITIGATION DEVICE (EMD)
NORAM ACID DILUTION SYSTEMS
NORAM SX® MATERIAL
NORAM SX® ACID DISTRIBUTORS
NORAM SX® PIPING
NORAM SX® VALVES
NORAM GAS DUCTING
NORAM DAMPER
NORAM SULFUR GUNS

NORAM ENGINEERING AND CONSTRUCTORS LTD.

Suite #1800 – 200 Granville Street
Vancouver, British Columbia, Canada, V6C1S4
Tel: 604-681-2030 Fax: 604-683-9164
E-mail: acid@noram-eng.com Website: www.noram-eng.com