

NITREX

N-EXT™ SERIES

PACKAGED SOLUTION FOR ALUMINUM EXTRUSION DIES

The N-EXT™ series is a plug-and-play solution package designed specifically for nitriding/nitrocarburizing aluminum extrusion dies. Its holistic design integrates all hardware components with the latest technology advances and proven recipes into a self-contained, skid-mounted platform.

As part of a turnkey system, the N-EXT™ furnace operates completely automatically and autonomously, with little human intervention. All phases of the process, including purging, heating, nitriding, and cooling are carried out in a single continuous cycle.

This turnkey approach means an integrated nitriding/nitrocarburizing system complete with Phase-Controlled NITREG® technology that delivers superior quality and reliability year after year while optimizing the performance of dies and cost efficiency of extrusion operations.

N-EXT™ 412 SYSTEM



N-EXT™ SERIES

- PRACTICAL
- DEPENDABLE
- EFFICIENT
- ECONOMICAL



Eco-friendly technology

MAIN FEATURES

- Fast heat-up rates and uniform temperature throughout the load
- Separate heating zones for accurate temperature control
- Light ceramic fiber insulation for fast and efficient heating as well as cooling
- Kanthal heating elements
- Retort made of refractory alloy
- Silicone cover/door seal for gas tight retort
- Automatic process control system

BENEFITS

- Phase-controlled NITREG®
- Preconfigured & factory-tested
- Pre-tested for metallurgical results
- Plug and Play
- Short startup period
- No cooling water required

SAVINGS

- Minimal space requirements
- Short startup period
- Low operating costs for processing low volume quantities
- No cooling water required

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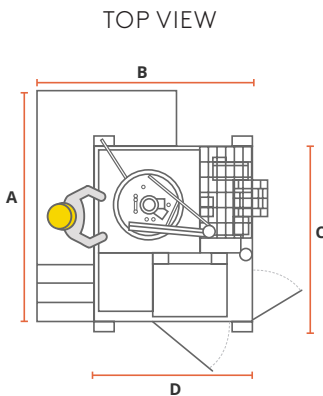
N-EXT™ SERIES

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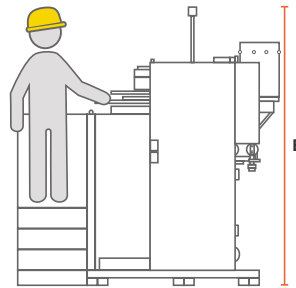
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Eco-friendly technology



SIDE VIEW



OPTIONS AVAILABLE

- Custom loading fixture
- Mezzanine

SPECIFICATIONS

NXK SERIES	NXK-409	NXK-412	NXK-609	NXK-612	NXK-812	NXK-815
Working Space	Ø 400 x 900 mm H Ø 15¾" x 35½" H	Ø 400 x 1,200 mm H Ø 15¾" x 47¼" H	Ø 600 x 900 mm H Ø 23½" x 35½" H	Ø 600 x 1,200mm H Ø 23½" x 47¼" H	Ø 800 x 1,200mm H Ø 31½" x 47¼"	Ø 800 x 1,500mm H Ø 31½" x 59"
Load Capacity max.	300 kg / 660 lbs	400 kg / 880 lbs	600 kg / 1,300 lbs	800 kg / 1,700 lbs	1,200 kg / 2,600 lbs	1,500 kg / 3,300 lbs
Max. Temperature	650 °C / 1,200 °F	650 °C / 1,200 °F	650 °C / 1,200 °F	650 °C / 1,200 °F	650 °C / 1,200 °F	650 °C / 1,200 °F
Dimensions (footprint)						
System – Length	1,880 mm / 74"	1,880 mm / 74"	2,080 mm / 82"	2,080 mm / 82"	2,280 mm / 90"	2,280 mm / 90"
System – Width	1,700 mm / 67"	1,700 mm / 67"	1,900 mm / 75"	1,900 mm / 75"	2,100 mm / 83"	2,100 mm / 83"
System – Height	2,300 mm / 91"	2,600 mm / 102"	2,300 mm / 91"	2,600 mm / 102"	2,600 mm / 102"	3,300 mm / 130"
Platform – Length	2,460 mm / 97"	2,460 mm / 97"	2,660 mm / 105"	2,660 mm / 105"	2,860 mm / 113"	2,860 mm / 113"
Platform – Width	2,325 mm / 92"	2,325 mm / 92"	2,525 mm / 99"	2,525 mm / 99"	2,725 mm / 107"	2,725 mm / 107"
Min. Height Clearance (floor to crane hook)	3,200 mm / 126"	3,800 mm / 150"	3,200 mm / 126"	3,800 mm / 150"	3,800 mm / 150"	4,700 mm / 185"

* Nitrex reserves the right to make changes without notice.

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N-EXT™ TECHNOLOGY

PHASE-CONTROLLED NITREG®/NITREG®-C

Phase-Controlled NITREG®/NITREG®-C is a completely new approach to gaseous nitriding/nitrocarburizing.

This proprietary technology provides for complete control of the nitrogen or nitrogen and carbon content in the white layer throughout the nitriding or nitrocarburizing cycle. Improved distribution of nitrogen/carbon throughout the case results in optimal die characteristics.

HOW CAN PHASE-CONTROLLED NITREG®/NITREG®-C IMPROVE YOUR EXTRUSION OPERATIONS?

→ ENHANCES DIE LIFE

Improved friction characteristics and sub-surface strength mean longer extrusion cycles between each re-nitriding operations.

→ INCREASES NUMBER OF RENITRIDES

Renitriding characteristics are improved, while defects such as nitride networks and the corner effect are avoided. Decarburization is prevented, and die life is extended.

→ IMPROVES HIGH-TEMP STRENGTH/THERMAL STABILITY

Phase-controlled NITREG®-C introduces carbon into the white layer to improve the stability of white layer phases. As a result, treated dies can withstand the stresses of high extrusion temperatures better.

→ RESISTS FLAKING BETTER

With phase-controlled NITREG® or NITREG®-C, the nitrogen and carbon distribution is optimized, so brittleness and flaking are greatly reduced.

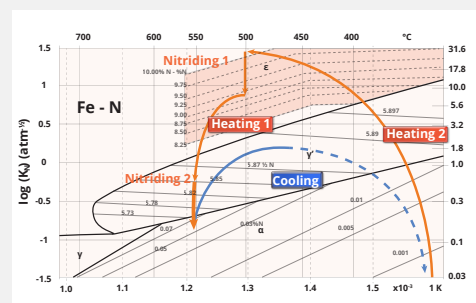
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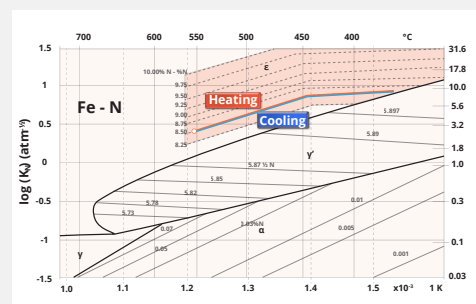
Eco-friendly technology

CONVENTIONAL NITRIDING



The blue and red lines show the changes of the nitriding potential (K_N) vs temperature. The nitrogen concentration is not controlled, causing the white layer to change structure and its properties.

PHASE-CONTROLLED NITREG®



The same nitrogen concentration is maintained throughout the process resulting in the ideal white layer and case – and therefore longer lasting dies!

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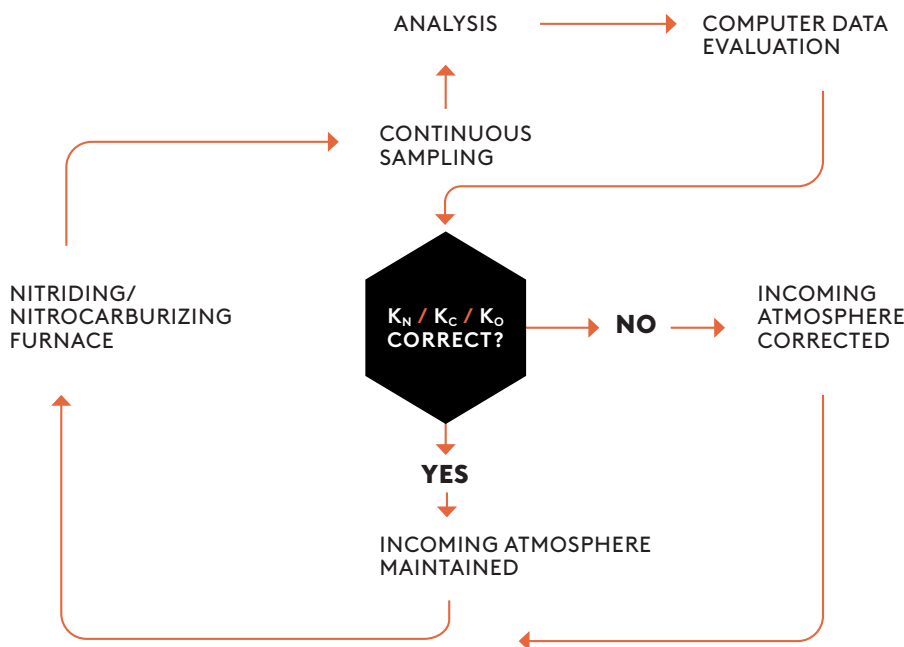
EXPERT CONTROL SOFTWARE & NITREG® FAMILY OF TECHNOLOGIES

The NITREG® family of technologies applies individually customized processes to different applications and materials for optimum results. The process is carried out in a closed-loop circuit, which enables the control system to respond automatically to the changes in nitriding conditions that occur during the process cycle.

The control system continuously samples and analyzes the furnace atmosphere, and based on the data extracted, it adjusts the process parameters in order to maintain the preset value of the K_N , K_C and K_O .

CLOSED-LOOP PROCESS CONTROL

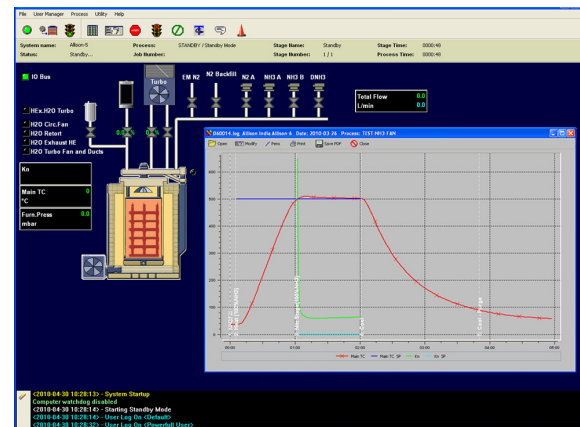
This closed-loop process control enables the system to respond automatically to the changes in nitriding/nitrocarburizing conditions that occur during the process cycle.



NITREG® TECHNOLOGY
offers customized
processes for a variety
of applications & materials
with optimum results.

INTUITIVE USER INTERFACE

The user interface contains data points on the furnace, on processes, jobs, and stages, displaying variables such as temperature, flows, power output, nitriding potential, as well as the actual status of the nitriding process and system equipment.



- Intuitive control interface contains all information on the furnace
- Over 30 signal sensing points are continuously displayed on the control screen
- The control software includes troubleshooting, emergency and calibration menus

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AUXILIARY EQUIPMENT

EVERYTHING FOR YOUR NITREX SYSTEM

A Nitrex system is not complete without the right auxiliary equipment to support, enhance, and optimize the nitriding/nitrocarburizing process and operational efficiency.

All equipment is properly sized and vetted to ensure maximum performance from your Nitrex system.

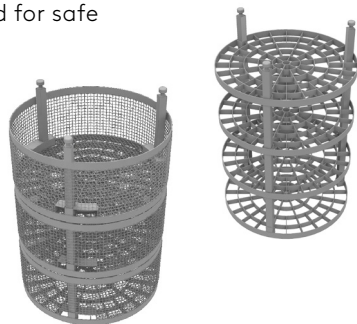
AUXILIARY EQUIPMENT
designed to enhance
the functionality of a
Nitrex nitriding system
and ensure optimum
performance



Eco-friendly solutions

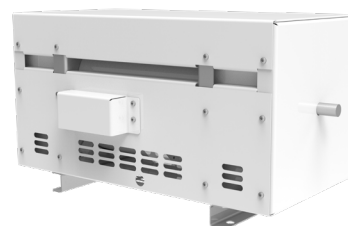
RACKING

Easy-to-assemble Inconel baskets and trays constructed for safe and easy loading.



AMMONIA DISSOCIATOR

Economical and safe supply of dissociated ammonia.



EFFLUENT NEUTRALIZER

Eliminates residual ammonia and/or other pollutant gases from nitriding/nitrocarburizing system exhaust.



WATER COOLING

Recirculates clean cooling water to prolong the longevity of furnace elements.



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