

Controlling and regulating the nitriding potential under low pressure

- The K_N provides information on the quantity of nitriding potential available in the furnace atmosphere at all times. This increasing need for a reliable monitoring of the K_N comes from the requirements of the aerospace sector. In addition to its historic ALLNIT® process, BMI completed its offer with a monitoring and regulating probe.

- Used in various applications



Aeronautics



Aerospace



Automotive

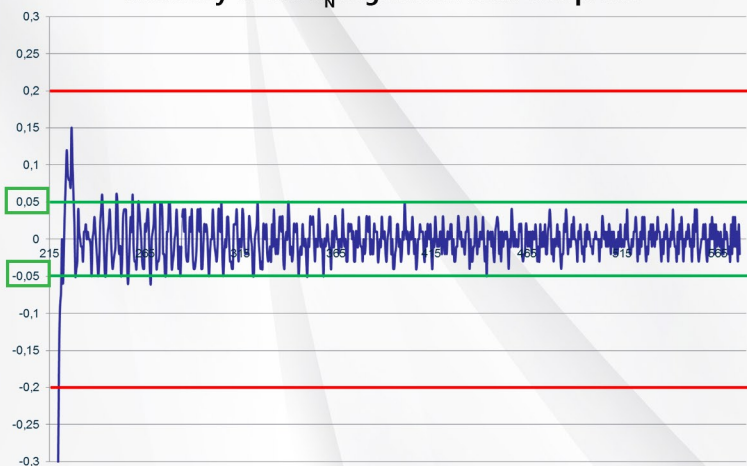


Tooling



Heat treatment workshops

Accuracy of the K_N regulation with BMI probe



— AMS 2759/10A requirement : +/- 0,2 points regulation gap.

— K_N gap with BMI probe : +/- 0,05 points.

Working principle

- The K_N is calculated by measuring the hydrogen level present in the furnace, formed by the ammonia cracking reaction.
- This K_N value is the quotient of the partial pressures of the ammonia and of the hydrogen.

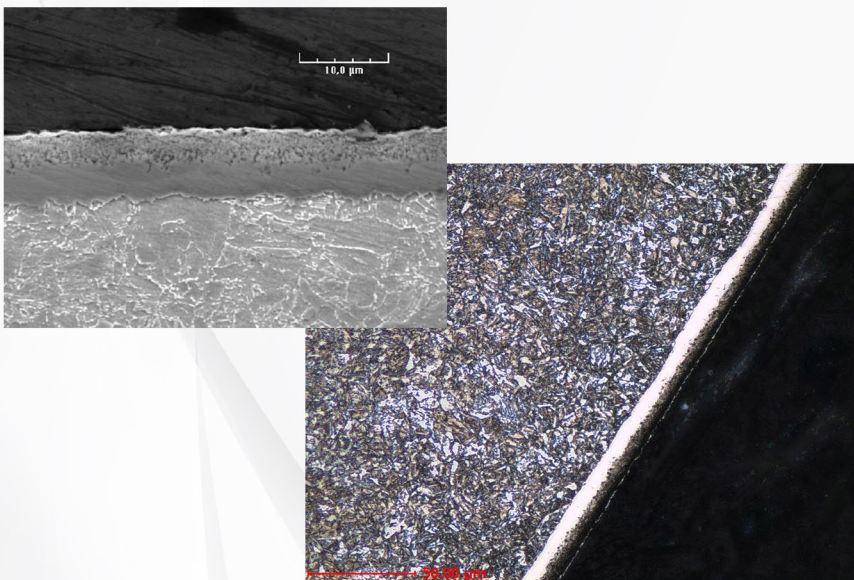
$$K_N = p(\text{NH}_3) / p^{3/2}\text{H}_2$$

- The higher the K_N value, the higher is the nitriding power.
- The higher the nitriding potential, the more likely the atmosphere will release nitrogen elements, allowing the nitriding to be done on the parts.

■ **B.M.I. offers standard and custom-made solutions, adapted to each customer's needs and complying to their industry's standards.**

■ **Benefits of using the K_N probe under low pressure (300 mbar to atm.)**

- Working under low pressure facilitates the increase of K_N values at the beginning of the cycle, compared to an atmosphere nitriding process
- Optimized gas consumption
- Cycle parameters can be defined regardless of the quantity of parts loaded into the furnace
- Reproducibility of results
- Continuous traceability of the furnace atmosphere
- Control of the white layers' growth



PROCESSES

- NITRIDING with or without white layer
- NITROCARBURISING

■ **The B5_RN range**

- Standard sizes or specific chamber design
- Working temperature under nitriding : from 450°C to 650°C
- K_N probe available as an option on our range of B5_RN furnaces
- Fast and monitored cooling at 1200 mbar
- Working under low pressure from 300 mbar to the atmospheric pressure
- Retrofit available on low pressure nitriding furnaces, type B5_RN

	Width (mm)	Height (mm)	Depth (mm)	Load (kg)
B53RN	450	450	600	200
B54RN	600	600	900	600
B55RN	900	700	1200	1000
B56RN	1000	1000	1500	1500

Other technical specifications on request.

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