

EXPANITE®



BEYOND SURFACE

SERVING CUSTOMERS ACROSS NORTH AMERICA

Advanced Surface Hardening for Stainless Steel & Titanium



ISO 9001:2015 Certified



FDA Compliant

CHOOSE EXPANITE, INC.

Key Advantages

FAST LEAD TIMES

Rapid turnaround with 9-12 working days and 3-5 working days for express service.

BATCH PROCESSING

Flexible loading options for complex shapes and production volumes.

SUSTAINABLE PROCESS

Clean, gas-based treatment with no harsh chemicals.

TIGHT TOLERANCES

Maintains critical dimensions with negligible dimensional change.

CORROSION RESISTANCE PRESERVED

Improves surface durability while preserving the properties of the base material.

ENHANCED WEAR & GALLING RESISTANCE

Extends component life in demanding, high-wear environments.

INDUSTRIES WE SERVE

Proven Surface Performance



CORE PROCESSES

Expante Technology Solutions

SuperExpante®

Combines **ExpanteHigh-T** and **ExpanteLow-T** to deliver **stainless steel** with surface hardness **up to 1300HV**, proven **100x wear** reduction, exceptional galling resistance, and maximum load-bearing performance.

ExpanteHigh-T

High-temperature solution nitriding for **stainless steel**, creating deep nitrogen diffusion zones for enhanced load-bearing performance.

ExpanteLow-T

Low-temperature nitrocarburizing process for **stainless steel and nickel-based alloys**, establishing a nitrogen and carbon-enriched diffusion zone.

ExpanteHard-Ti

Diffusion hardening process for **titanium** without forming titanium nitrides, delivering surface hardness up to **1000HV** while maintaining corrosion resistance and fatigue strength.

ExpantePureLow-T

Low-temperature diffusion process for specific **stainless steels**, forming a **15-25µm** expanded austenite layer with surface hardness exceeding **900HV** while preserving corrosion resistance and dimensional stability.

Heat treatment

Surface hardening

Classic heat treatment

Stainless steels

- Austenitic
- Martensitic
- Ferritic
- Duplex
- Precipitation

Nickel-based

- Inconel®
- Hastelloy®
- Monel

Titanium

- Pure, grade 1-4
- Alloyed, grade 5

Non-stainless steels

- Unalloyed
- Quenched and tempered

ExpanteHard-Ti

ExpanteFNC

- SuperExpante
- ExpanteHigh-T
- ExpanteLow-T
- ExpantePureLow-T

NORTH AMERICAN TREATMENT CENTER

Furnace Capabilities



High-Temperature Vacuum Furnace

Chamber: 24" x 24" x 36"
(60cm x 60cm x 90cm)

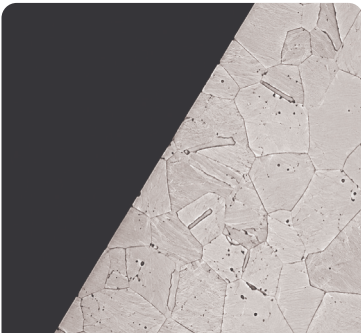


Low-Temperature Atmospheric Furnace

Chamber: 16" x 16" x 24"
(40cm x 40cm x 60cm)

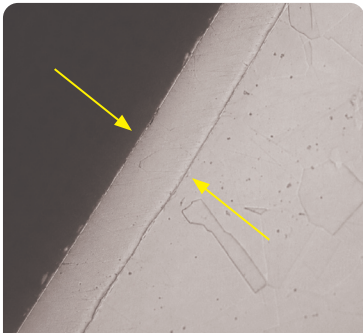
UNDER THE MICROSCOPE

Untreated vs Treated



Untreated 316

- Surface hardness 200HV
- No hardened zone visible



SuperExpanite® Treated

- Surface hardness **1200HV**
- Case depth **20µm (at 40x)**

TECHNICAL REFERENCE

Material & Process Capabilities Matrix

MATERIAL/ALLOY	EXPANITE® PROCESS	SURFACE HARDNESS	CASE DEPTH	CORE HARDNESS
Austenitic Stainless Steel e.g. 303, 304, 316 and 316L	SuperExpanite®: ExpaniteLow-T: ExpanitePureLow-T:	1100-1300HV 1100-1300HV 900-1300HV	7-33µm 7-23µm 15-25µm	"as annealed" "as delivered" "as delivered"
Martensitic Stainless Steel e.g. 410, 420, 440C and 17-4PH	SuperExpanite®: ExpaniteHigh-T: ExpaniteLow-T:	1100-1300HV 550-1050HV 900-1300HV	7-13µm 3-13µm	300-900HV 300-900HV "as delivered"
Duplex Stainless Steel e.g. 2205, 2304, 2507 and LDX 2101®	SuperExpanite®: ExpaniteLow-T:	1100-1300HV 900-1300HV	10-20µm 10-20µm	"as annealed" "as delivered"
Ferritic Stainless Steel e.g. 416 and 430	SuperExpanite®: ExpaniteHigh-T: ExpaniteLow-T:	1100-1300HV 550-800HV 1100-1300HV	7-13µm 7-13µm	150-350HV 100-350HV 100-300HV
Titanium e.g. Grade 1, 2, 5, 7, 12, 23 and 37	ExpaniteHard-Ti:	800-1000HV	7-90µm	"as delivered" or "as heat treated"
Inconel®, Hastelloy® and Monel®	ExpaniteLow-T:	400-1200HV		"as delivered"

Inconel®, Hastelloy®, LDX 2101® and Monel® are registered trademarks of their respective owners.

Hardness Reference
1200HV ≈ 70+ HRC



8250 Boyle Parkway
Twinsburg, Ohio 44087
USA

SHARE YOUR CHALLENGE

Contact Us

- info@expanite.com
- +1 (330) 998-7385
- expanite.com