



**Maximize Your Tooling Life**



**Increase Yields & Quality**



**Minimize Costs  
Enhance Productivity**

## PHILOS® SURFACE TREATMENT / PST™

## Nitrogen-Titanium Diffusion Technology

**Philos Surface Treatment is a revolutionary and manufacturing proven surface treatment for your tooling and components. A patented technology uniquely offered only by Philos Global Technologies and affiliated Philos Group Service Centers throughout the world, PST provides these features and benefits:**

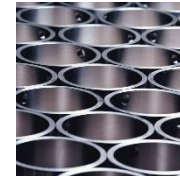


PST surface treatment penetrates deep into the tooling to harden its surface (HV1200~1450 up to 75~125µm)



With PST, all the key characteristics of your tooling are enhanced:

- High tensile strength
- Superior elasticity
- Increased resistance to heat checking, galling, corrosion and wear



With PST surface treatment, you get harder and stronger tooling that yield better quality parts and more output per tooling change



The eco-friendly, low temperature (430~670°C) process maintains the tooling's dimensional consistency with minimal distortion or size change



Your tooling lasts longer, you will need less tooling, spend less time and money on maintenance and tooling changes, and keep up more uptime



PST can be applied to a variety of materials, such as:

- Hot work tool steels: H13, H13-Modifieds
- Cold work tool steels: D2, D2-Modifieds
- High speed tool steels: M1-M42, M47
- PM tool steels
- Carbon steels: 1010-1050
- Stainless steels: 300-400 Series, 17-4

**Contact us today to get your tools and components treated with PST. Our sales engineers will explain to you the PST Process and demonstrate PST's superior technology with an initial proof-of-concept application at only a nominal cost to you.**



## PHILOS GLOBAL TECHNOLOGIES, INC.

## Leading the World of Surface Technology

At Philos Global Technologies, we are dedicated to the advancement of the manufacturing and metal forming industries of our customers. Through innovation and research, we have developed the revolutionary PST surface technology, a patented nitrogen-titanium diffusion process that uniquely enhances strength and resistance of steel tooling and components.



PST surface treatment and various process enhancements are protected by multiple patents and patent applications pending worldwide. We are continuously investing in new research and development to further improve PST technologies.



With a focused team of manufacturing and tooling engineers, Philos can provide you with engineering services on:

- Recommendation for optimum tooling design and implementation for PST treatment
- Proof-of-concept and cost-savings validation testing using PST.

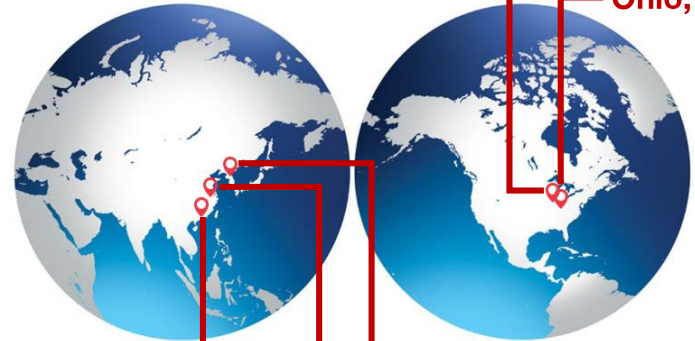
**Contact us today to get started with PST.**

### THE PHILOS GROUP LOCATIONS WORLDWIDE

To serve our customers worldwide, the Philos Group has nine different locations in North America and Asia. If you are interested in operating a PST Service Center in your area, please contact us.

**Headquarters in Illinois, USA**

**Ohio, USA**



**Shenzhen, China**  
**Shanghai, China**

**Seoul, Bucheon, Ulsan,**  
**Changwon, Kunsan, Korea**