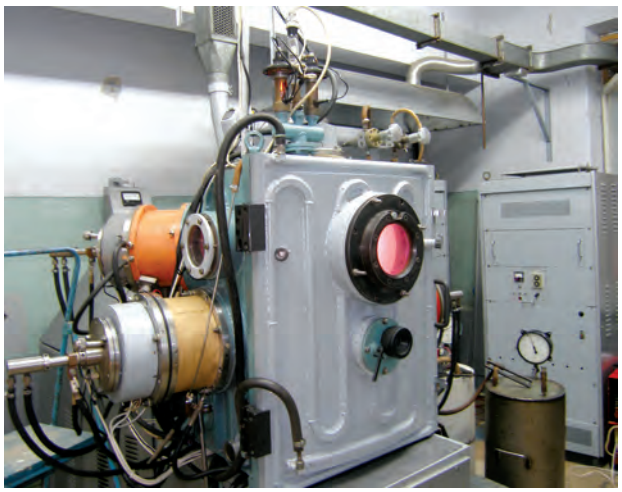
COMPREHENSIVE ION PLASMA TECHNOLOGY FOR SURFICIAL REINFORCEMENT (NITROGEN HARDENING + COATING) OF STEEL PARTS



Ion-plasma equipment for surficial reinforcement

Areas of Application

The technology is designed to reinforce parts of machines and mechanists in turbine- and machine-building industries

Specification

Weight of treated part, kg	≤20
Nitrogen hardening mode at an ion current density, mA/cm^2	≤2
Pressure inside vacuum chamber, torr	~$2 \cdot 10^{-3}$
Rate of nitride coating deposition, μm/h	≤20
Coating thickness, μm	~10
Nitrogen hardening depth (steel 25H1MF: t ≥100 μm at N≥5GPa), μm	≥100
Treatment duration	≤3

Advantages

Ensures a high adhesion of protective coating and base modified by the ion-plasma method. One process consists of two process operations, nitrogen hardening and application of coatings. The full cycle of hardening is one order shorter than the duration of furnace (atmospheric) nitrogen hardening. The technology extends 1.5—2 times the service life of friction couples of turbine steam distribution units

Stage of Development. Suggestions for Commercialization

IRL6, TRL6
Reinforcement works.
Manufactured upon request

IPR Protection

IPR1

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