



SOLBERG[®]
Filtration & Separation

**Vacuum Filtration for Steel Degassing
Manufacturing Processes**
RX Series—Reverse Pulse Technology



Overview

Vacuum is an essential process in steel making. It enables rapid and effective removal of large volumes of dissolved contaminated gases such as Hydrogen, Nitrogen, and Carbon Monoxide from liquid steel.

Vacuum systems offer a multitude of advantages: reduced running costs, reduced green house emissions and maintenance costs, smaller installation space, and an increased operational flexibility.

For small to medium batches of steel production 2 vacuum processes are very common:

Vacuum Degassing (VD) - used for standard steel

Vacuum Oxygen Decarburization (VOD) used for stainless steel

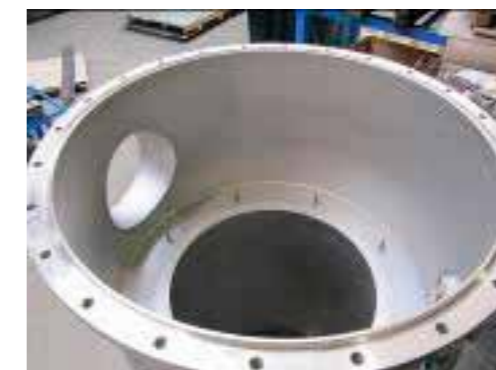
These processes of induction melting, precision casting and thermal processing generate metallic and ceramic dusts which both accumulate and pass through the high precision vacuum pumps. Such by-products of these processes cause significant wear and performance degradation and must be filtered prior to the vacuum pumps with highly engineered Reverse Pulse filtration systems. SOLBERG's RX series was developed to help make this vacuum solution a reality in steel making.



SOLBERG - A partner with know-how and experience

Solberg designs and manufactures state-of-the-art inlet vacuum filters that protect dry mechanical pumps from contamination. We have experience in VD, VOD and VIM applications using our innovative reverse pulse technology.

The filter system automatically uses compressed gas to knock dust from our TF/DT media elements. Debris and dirt drops to the bottom of the filter canister extending the filter elements overall life span while safely removing the ceramic and metallic dusts for proper disposal.



Reference 1: VD & VOD

Process Type: VD & VOD
 Heat Mass (Capacity): 6 metric tons
 Air Flow: 28,000 m³/h @ 0.67 mbara (VD)
 4,000 m³/h @ 200 mbara (VOD)
 Temperature : app. 110°C (VD)
 app. 150-250°C (VOD)
 at filter elements
 Filter Elements: 2 high-temperature, glass-backed PTFE media elements, 99.5% particle arrestance rate
 Filter Housing: 304 Stainless Steel, Bead Blast Finish, Silicone O-rings & Gaskets, Helium leak tested 9.0 x 10⁻⁶ mbar*I/sec
 Inlet/Outlet: DN400/PN10
 Cleaning: Reverse Pulse Nitrogen @ 1 BarA
 Units Installed: 2 total, 1 standby



Reference 2: Russia

Process Type: Titanium Manufacturing
 Heat Mass (Capacity): TBD
 Air Flow: 22,080 m³/h @ ATM
 Temperature : App. 99°C at filter elements
 Filter Elements: 12 Polyester-backed PTFE media elements, 99.5% particle arrestance rate
 Filter Housing: Carbon Steel, interior finish: Epoxy, exterior finish: Urethane, BUNA O-rings & Gaskets, Helium leak tested 4.0 x 10⁻⁶ mbar*I/sec
 Inlet/Outlet: DN500/PN10
 Cleaning: Reverse Pulse Air @ 1 BarA
 Units Installed: 2 total, 1 standby



Reference 3: VIM Continuous Ingot Casting

Process Type: VIM (Vacuum Induction Melting) Continuous Ingot Casting
 Chamber Volumes: 45 m³ Melt Chamber; 26 m³ Casting Chamber
 Air Flow: 33,000 m³/hr Total Flow @ 0.001 mbara (16,500 m³/hr @ 0.001 mbara per filter unit)
 Operating Pressure: 0.001 mbara
 Temperature : 135°C at filter unit inlet
 Filter Elements: TF475E ; PTFE with polyester backing, 99.5% particle arrestance rate
 Filter Housing: RX-TF475E(6)-DN400
 Cleaning: Pulse cleaned with 1.0 BarA Nitrogen
 Units Installed: 2 units in Russia



More Solberg Filter Technologies



Crystal Pulling / Vacuum Furnace



Crystal Pulling / Vacuum Furnace



Vapor Extraction in Vacuum Extrusion



Fan Assisted Oil Mist Eliminator Skid



SOLBERG®
Filtration • Separation • Silencing



Sales Office & Distribution Center

SOLBERG International Ltd.
Kapelanielaan 8 • 9140 Temse • BELGIUM
Tel: +32 (3774) 5211 • Fax: +32 (3) 886 93 71
besales@solbergmfg.com



Head Office:

SOLBERG International Ltd.
1151 Ardmore Avenue • Itasca IL 60143 • USA
Tel: +1 630 616 4900 • Fax: +1 630 773 2643
sales@solbergmfg.com