Pioneering products. Passionately applied.

History of vacuum innovations

1850
Ernst Leybold founds the company that will bear his name

1863
Ernst Leybold takes over company

1870
Company lives on as "E. Leybold's Nachfolger"

1850

1905-1945
Physicist Wolfgang Gaede develops innovative pumps, paving the way for high-vacuum technology

Gaede's molecular pump is the foundation of today's turbomolecular pumps (TMP)

1908
Granting of the Check Valve for the Outlet of Vane Pumps for pumping Gases

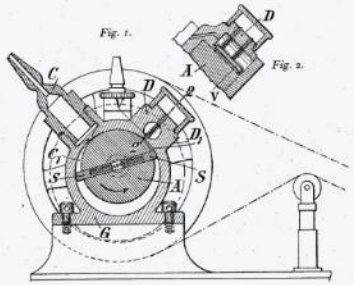
1909
Professor Gaede developed the world's first dry molecular vacuum pump

First rotary vane pump with oil-immersed exhaust valve

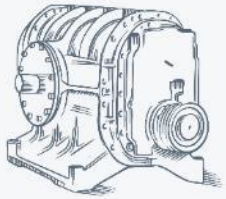
1915
Development of the diffusion pump

KAISERLICHES PATENTAMT.
PATENTSCHRIFT
— № 225286 —
KLASSE 27c. GRUPPE 2.
Dr. WOLFGANG GAEDE in FREIBURG i. Br.

1900



DEUTSCHES REICH
REICHSPATENTAMT
PATENTSCHRIFT
№ 702 480
KLASSE 27c GRUPPE 1m



1935
Granting of the single-stage or multi-stage vacuum pump for generating low pressures including the extraction of vapor and gas/vapor mixtures (patent for the gas ballast principle)

1936
First oil-sealed rotary vane pump with gas ballast technology invented by Wolfgang Gaede

Even today, our successful TRIVAC and SOGEVAC series pumps are outfitted with gas ballast technology

1946
Professor Auwärter leaves the vacuum-technology department at Heraeus and founded the Gerätebau-Anstalt Balzers with Emil Georg Bührle

1925

1954
Roots blower RUVAC introduced

1961
Creation of SOGEV (Sociéetée Géenéerale de Vide) in France

1962
Introduction of cryogenic pumps using liquid helium and liquid nitrogen

1967
Introduction of rotary vane pump TRIVAC A

Leybold merges with Heraeus Hochvakuum to form Leybold-Heraeus

1970
Leybold Heraeus acquires 70% of SOGEV (Société Générale de Vide) in France

1950

1975
Introduction of first Leybold magnetically levitated turbomolecular pump

1976
Introduction of COOLVAC refrigerated cryogenic pumps

1981
Introduction of TRIVAC B high-performance rotary vane pump

1987
Degussa AG becomes sole owner of Leybold-Heraeus, changing to Leybold AG

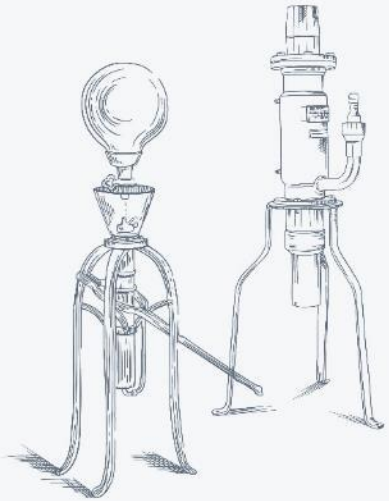
1989
Introduction of first turbomolecular pump with intelligent drive management

1991
Introduction of KEPLA rotor blade coating for corrosion protection in etching processes

1994
Oerlikon-Bührle acquires Leybold Group and merges it with Balzers to become Balzers & Leybold

1996
Manufacturing in China begins

1975



2005
Introduction of SOGEVAC SV 630 B

2006
Rebranding to Oerlikon Leybold Vacuuum

Cryo pump production begins in Dresden, Germany

2007
Introduction of SOGEVAC SV 300 B

Introduction of SCREWLINE pump for robust applications

2008
Extension of manufacturing in Tianjin, China

2009
Introduction of a series of products for photovoltaic applications

Introduction of a new RUVAC WH product range

Despite worldwide economic problems, continued investment in future technologies

2015
Shift of service competencies to the Dresden facilities and launch of several innovative TRIVAC T series products

2016
Introduction of new TURBOVAC i pump members

Introduction of new TURBOLAB generation

Atlas Copco acquires Oerlikon Leybold Vacuum GmbH and changes the company's name to Leybold GmbH

2017
Introduction of the ECODRY plus

Introduction of the New PHOENIX 4

2018
Introduction of the VARODRY series and NEO D

2019
Introduction of the NOVADRY ND series

175 YEARS

2025
Leybold celebrates 175 Years Anniversary

2000 **2005** **2010** **2015** **2020** **2025**

2001
Introduction of SCREWLINE dry-compressing vacuum pump

2004
The opening of the new Cologne production facility for high vacuum technology allowed Leybold to meet increased requirements in research and development work

Rebranding to Leybold Vacuum

2010
New generation of DRYVAC screw-type pumps with complementary modular concept, in particular with RUVAC WH

Introduction of SOGEVAC SV 65 BI FC, completing the SV BI families

2011
Introduction of MAGiNTEGRA high vacuum pump for coating and solar markets

2014
Introduction of TURBOVAC i turbomolecular pump series

Red Dot Product Design Award for PHOENIX L 500 I leak detector

Inauguration of a new logistics hub in Cologne, Germany

2020
Extension of the ECODRY series

Introduction of CLAWVAC dry claw vacuum pump for rough vacuum

Leybold celebrates 170 Years Anniversary

2021
Introduction of THERMOVAC TTR-RN series for robust and compact filament pirani gauges

2023
New generation of TURBOVAC iR model series for R&D, medical and industrial applications

Introduction of new PTR90RN and PTR225RN gauges

Introduction of new SCROLLVAC 3/3S plus scroll pumps for clean dry pumping solutions

Product portfolio

Product portfolio

High vacuum products

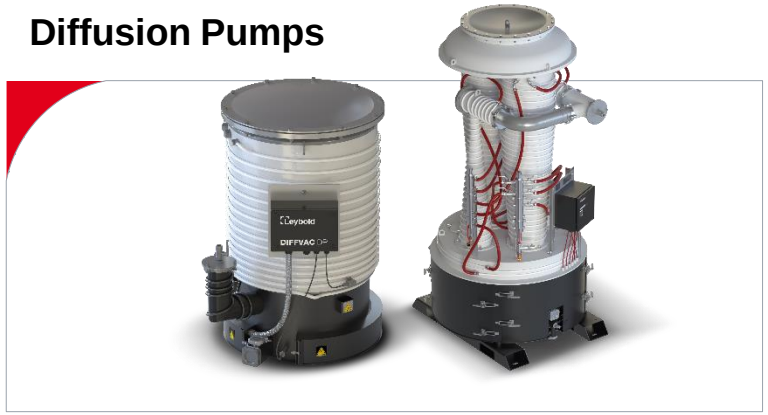
High vacuum turbopumps

Magnetically levitated turbo pumps

Multi Inlet

Cryogenic Systems

Diffusion Pumps



UHV Pumps

Product portfolio

Leak detection, valves and measuring instruments, Controller

PHOENIX Leak detectors

LEYSPEC Residual gas analyzer

Multi-VAControl Rough vacuum electronics

Gauges

Valves and Flanges

GRAPHIX Controller

Product portfolio

Fore vacuum products

SCROLLVAC plus Scroll vacuum pumps

DRYVAC Dry screw pumps

ECODRY plus Multi-stage roots

NOVADRY Dry screw pumps

SCREWLINE Dry screw pumps

VARODRY Dry screw pumps

Product portfolio

Systems + Solutions

Calibration system

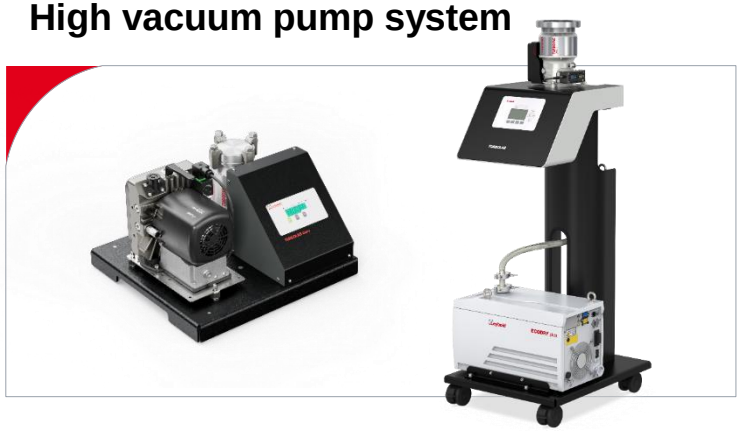
Leak detection system

UNIVEX Space simulation system

Dry fore vacuum system

UNIVEX Coating system

High vacuum pump system



Trainings

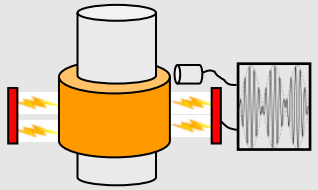
Seminars / Courses / Certification

- Fundamentals of Vacuum Technology (2 days)
- Fundamentals of Leak Detection (2 days)
- Leak test Certificate according to DIN EN ISO 9712 (Certified recognition by the German Accreditation Body (DAkks))
  - LT 1 (6 days)
  - LT 2 (10 days)
  - LT 3 (6 days)

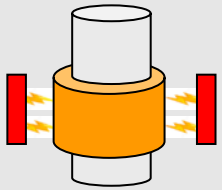
Product Overview Turbomolecular Pumps

175

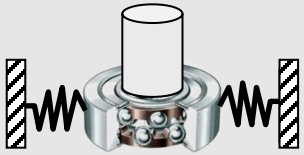
Active magnetic bearing



Passive magnetic bearing



Mechanical bearing



MAG integra

300 l/s – 3200 l/s

TURBOVAC i / iR

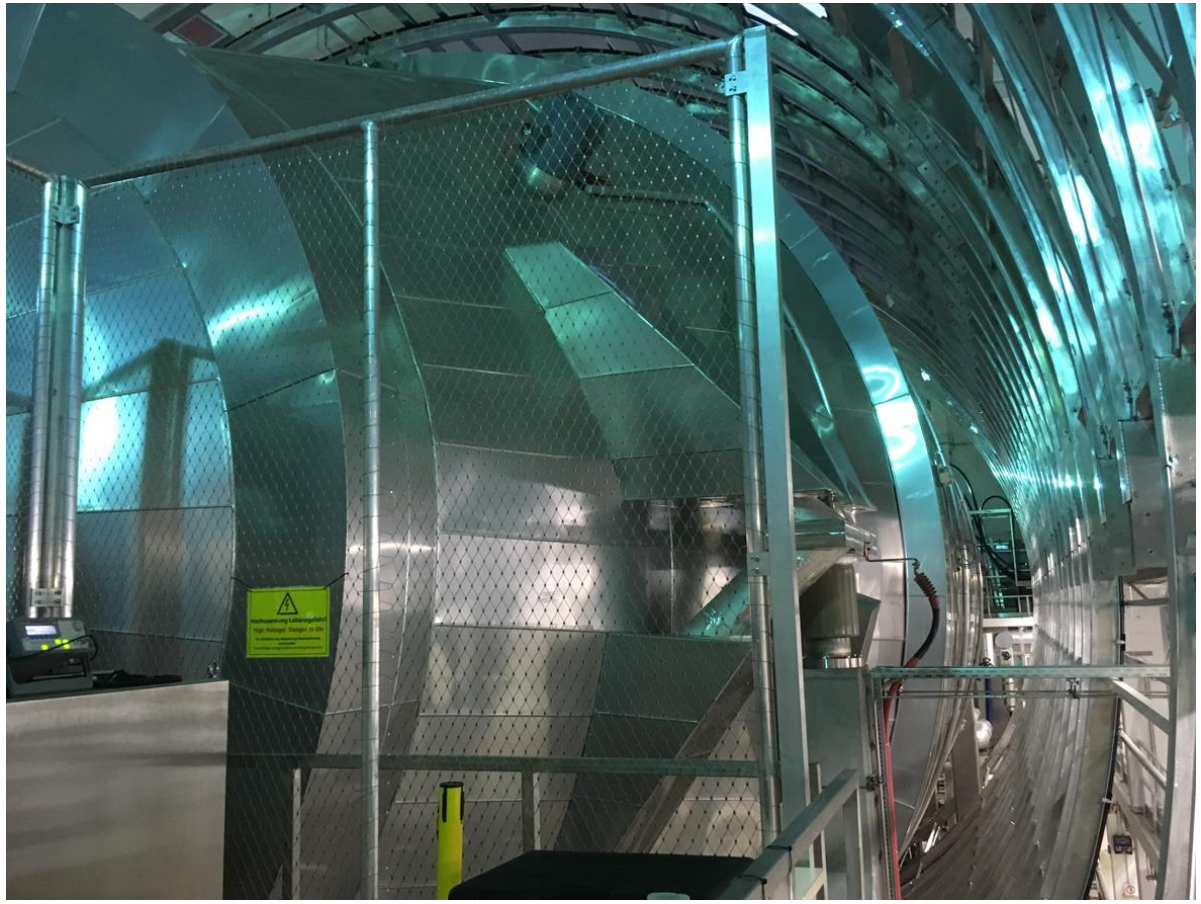
90 l/s – 1300 l/s

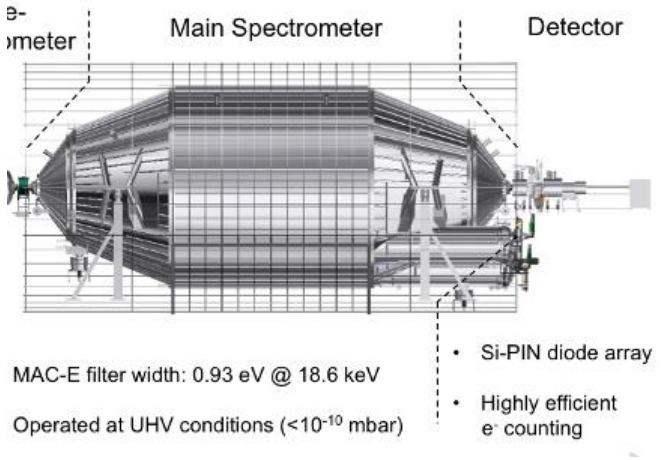
TURBOVAC SL 80

40 l/s – 80 l/s

Leybold

Application Examples: UHV Chambers





https://www.katrin.kit.edu/689.php

Product Overview: Cryogenic System

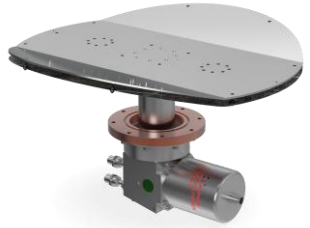
System Components

Helium compressor

Cold head

always in combination

Pumping



Cooling

Cryo Components

Compressor – Leybold COOLPAK e

- Variable speed drive
  - Maximize cooling performance (up to 25%)
  - Reduce energy demand (up to 40%)
- Increased maintenance interval

Product Overview: Gamma IGPs

Tall Profile Ion Pumps

150TV
300TV
600TV

Small Ion Pumps

MINI (0.2)
3S
10S
25S
45S
75S

Low Profile Ion Pumps

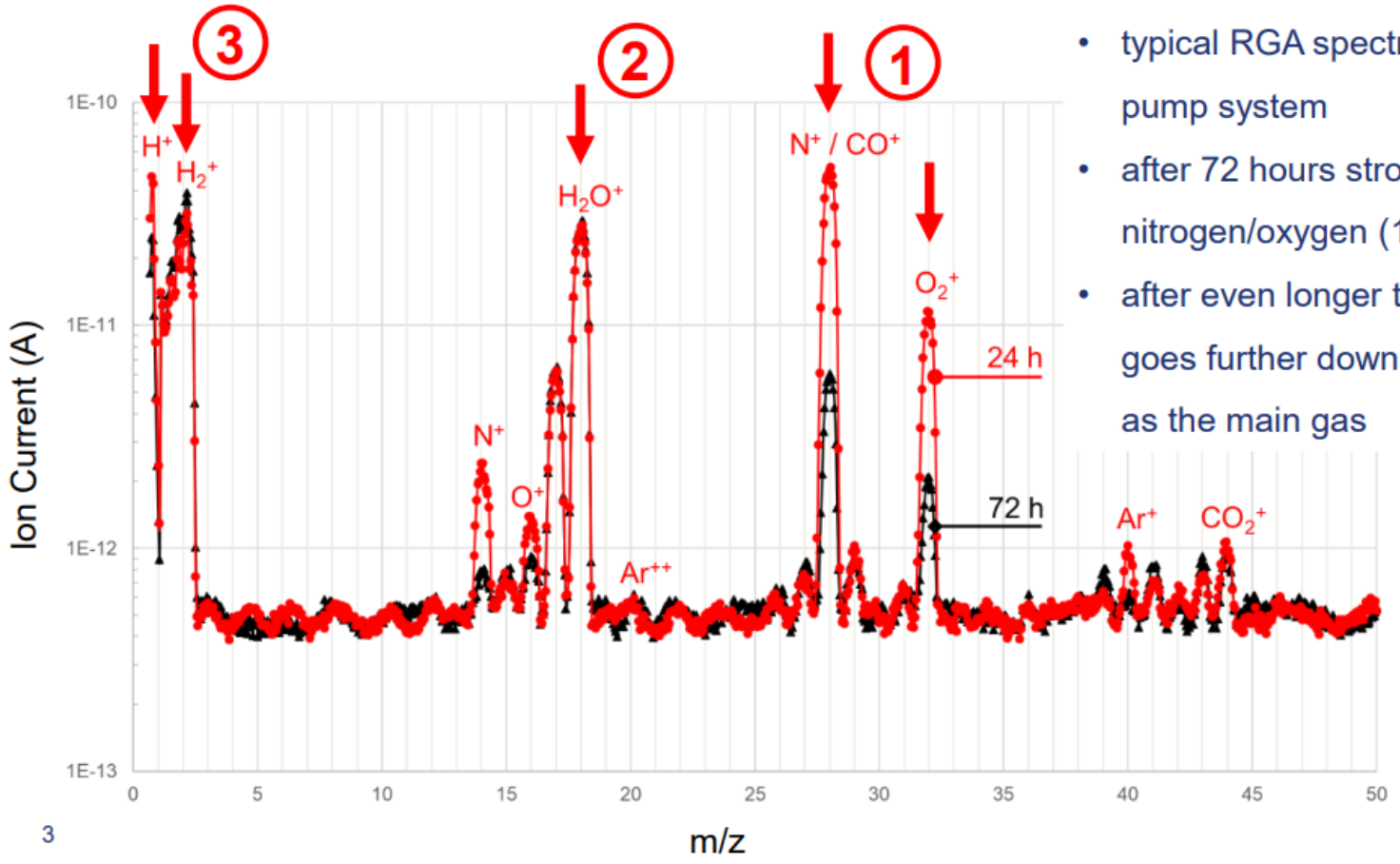
100L
200L
300L
400L
400LX
600L
600LX
800LX
1200LX

Product Overview: Gamma TSP & NEG

TSP FILAMENT CARTRIDGE | **LIQUID** CRYSHROUD | **AMBIENT SPUTTER** SHIELD

HyTan: Small Ion Pump - NEG Pump Combination

Hydrogen is the Most Important Gas Type in UHV

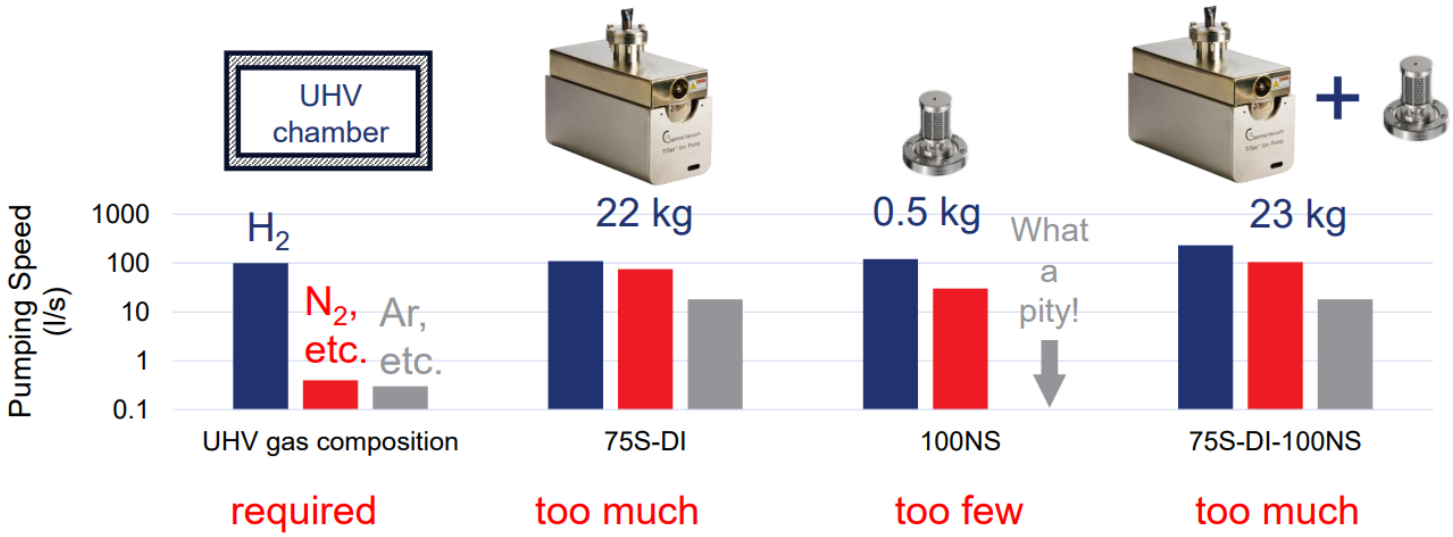


- typical RGA spectrum of a turbomolcular pump system
- after 72 hours strongly reduced nitrogen/oxygen (1) peaks
- after even longer time: water vapour (2) goes further down, leaving hydrogen (3) as the main gas

HyTan: Small Ion Pump - NEG Pump Combination

Where's the Ideal Pump?

- NEGs are the best pumps for hydrogen, but they do not pump noble gases



Pioneering products. Passionately applied.