Leybold

TURBOVAC MAG DIGITAL

Magnetically levitated Turbomolecular Pumps for Harsh Semiconductor Applications

175.46.02

MAG DIGITAL

Most reliable product line for industrial and harsh semiconductor applications

The High Vacuum Technology Experts

As a vacuum technology pioneer, Leybold has a broad spectrum of innovative vacuum components.

Based on many decades of our engineering and application expertise we develop and manufacture solutions which perfectly match the customer requirements.

Quality, high reliability and excellent performance data are an integral part of our portfolio.

Comprehensive application consulting, a customer-oriented after sales service and vacuum technology training courses complete our product line.

MAG DIGITAL Turbomolecular Pumps

With the market introduction of the first magnetically levitated turbomolecular pumps worldwide in the year 1975 and the long success story of the TURBOVAC TMP 340 M, Leybold presents itself as a specialist for low-vibration turbomolecular pumps.

The TURBOVAC MAG DIGITAL line are flexible, vibration-free and low-maintenance turbomolecular pumps with separate frequency converter, well-proven in the semiconductor and display industry.

The customized rotor design provides vacuum performance optimized to the different process requirements.

Digital technology allows the use of one controller for the different pump models and enables a precise control of the rotor position regardless to process influences. This proven design is still the most robust available in the industry guaranteeing lowest cost of ownership.

Various Models

MAG DIGITAL pumps are available in the following sizes:

- MAG W 830 C
- MAG W 1300 C
- MAG W 2000 C/CT
- MAG W 2200 C/CT
- MAG W 2800 C/CT
- MAG W 3200 C/CT

Customer Benefits

- Low vibration and noise-less drive concept for utmost reliability and efficiency
- Stable system performance capability; offering the highest pumping speed and compression rates for all process gases
- Maintenance-free
- High resistance to corrosive gases, particles and deposits
- High foreline pressure tolerance
- Patented KEPLA coating for rotor and stator to prevent corrosion
- Integrated purge valve with pressure regulator providing constant purge flow within 1.5 bar to 6 bar (N_2 inlet pressure)
- Integrated temperature management system (TMS) to avoid deposition and accumulation of etch products inside the pumps. The TMS guarantees very homogeneous temperature distribution inside the pump
- Application specific design

Typical Applications

- Industrial coating systems
- All major semiconductor processes such as Etch, CVD, PVD and Ion Implantation

CF Versions are suitable for particle accelerators and research applications

40 Years of Experience ...

with Maglev Turbomolecular Pumps!

The Benchmark for Maintenance-free Systems

Design Features

- Installation in any orientation
- Customized rotor design for specific applications
- Maximum performance by use of intelligent power control system (PCS)
- No tuning - no matched sets of pump, cables, and controller
- Lowest weight and size in their class
- Integrated peripherals (TMS, purge/vent)
- No batteries required in case of power failures (generator mode)
- Selectable speed and TMS temperature
- Low vibration during ramp-up and operation
- Automatic compensation of rotor unbalance
- Storage of operation parameters, warnings and alarm in an integrated memory device

Rugged Design

The turbomolecular pumps from the MAG DIGITAL line withstand typical accidents and events occuring in an industrial environment.

- Shock-vent proof
- Self protection under overload conditions
- Robust design of emergency shut-down bearings for safe pump run-down
- Generator mode in case of power failures
- Less sensitivity to external shocks
- Warning and alarm signals in case of operation outside the specification

Vacuum Technology Performance Portfolio

- Broad product range comprising components, accessories and services - all from a single source
- Vacuum engineering and design of tailor-made vacuum systems for any application
- Worldwide application support through engineers with practical experience from many industrial branches
- “Customer Care” programme, i.e. tailor-made full coverage service packages
- Worldwide sales and service network
- Decontamination
- Calibration of measurement systems in our DAkkS (former DKD) certified laboratories

Technical Data
Ordering information

Turbomolecular Pump*		MAG W 2000 C/CT	MAG W 2200 C/CT	MAG W 2800 C/CT	MAG W 3200 C/CT
High vacuum connection	DN	250 ISO-F	250 ISO-F / CF	250 ISO-F / CF	320 ISO-F
Pumping speed					
N_2	l/s	1760	2000	2650	3200
Ar	l/s	1650	1900	2450	3000
He	l/s	1800	1980	2650	3000
H_2	l/s	1500	1930	2100	2250
Compression, max.					
N_2		1.0×10^8	1.0×10^8	1.0×10^8	1.0×10^8
Ultimate pressure	mbar	$< 10^{-8}$	$< 10^{-8}$	$< 10^{-8}$	$< 10^{-8}$
Weight (CF)	kg	68	48 (60)	64 (75)	65

Ordering Information*		MAG W 2000 C/CT	MAG W 2200 C/CT	MAG W 2800 C/CT	MAG W 3200 C/CT
TURBOVAC MAG W (C/CT) with separate Frequency Converter and Compound Stage	DN ISO-F	400047V0002	400081V0023	400000V0002	400003V0002
	DN CF	-	400081V0061	400006V0071	-
Electronic frequency converter					
MAG.DRIVE digital		400035V0011	400035V0011	400035V0011	400035V0011
MAG.DRIVE digital, Profibus		400035V0013	400035V0013	400035V0013	400035V0013
MAG.DRIVE digital, RS 232 C interface		400035V0014	400035V0014	400035V0014	400035V0014
Plug-in control		121 36	121 36	121 36	121 36
Connecting cable converter – pump					
01.5 m (5.25 ft) DRIVE/BEARING		400036V0001	400036V0001	400036V0001	400036V0001
01.5 m (5.25 ft) TMS		400037V0001	400037V0001	400037V0001	400037V0001
05.0 m (17.5 ft) DRIVE/BEARING		400036V0004	400036V0004	400036V0004	400036V0004
05.0 m (17.5 ft) TMS		400037V0004	400037V0004	400037V0004	400037V0004
10.0 m (35.0 ft) DRIVE/BEARING		400036V0002	400036V0002	400036V0002	400036V0002
10.0 m (35.0 ft) TMS		400037V0002	400037V0002	400037V0002	400037V0002
Forevacuum pump TRIVAC D 65 B 3 phase motor; 230/400 V, 50 Hz / 250/440 V, 60 Hz		112 96	112 96	112 96	112 96
Purge gas and venting valve		121 33	121 33	121 33	121 33

* Example. For detailed specifications and the complete product range please refer to the Leybold full line catalog, chapter turbomolecular pumps.

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