



Why **TURBOVAC** i?

The Ultimate Vacuum Performance



Why TURBOVAC i?



Why use the Leybold TURBOVAC i/iX?

Designed to offer the best of turbomolecular pumps, the TURBOVAC i/iX series has a compact footprint and delivers lower initial and operating costs. With its exceptional features such as light gas pumping speeds of up to 60% above present reference products, and compression values that are approximately 100x higher than previous generation products, it is the right choice for all your applications.

Let's talk about facts!

✓ Stress-Free Operation

Robustness increases your productivity and system uptime.

- Proven reliability and consistent performance across a range of processes and demanding applications
- Unique pump stages design to deliver excellent performance also for process applications with increased gas flows
- Fit & Forget, user friendly and highly dependable installation and operation
- Robust against mechanical impact and harsh venting

✓ Unrivalled Performance

TURBOVAC i/iX has been designed to optimize both pumping speed performance and compression ratio.

- Light gas pumping speeds of up to 60% above present reference products
- Compression values 100 times higher than previous generation products
- Wide range of performance variants from 90 to 450 l/s
- Optimized rotor design for ISO 63, 100 and 160 for optimum pumping performance

✓ Minimal Application Impact

TURBOVAC i/iX is first and only mechanical turbomolecular pump with our unique oil-free hybrid bearing concept and lifetime-lubricated ball bearings.

- Low vibration design for reduced noise, mechanical stress and negative impact on vibration sensitive applications
- Clean oil-free bearings ensures maintenance free operation and zero contamination

That's why!



✓ Flexible Platform & Control Options

Wide choice of customer interfaces available across TURBOVAC i/iX range.

- Integrated electronics and a variety of options for communication and control
- Installation in any orientation for ease of system integration
- Variable rotor and drag stage configurations for perfect match to application requirements
- Flexible from port position to fully customized products

✓ The Leybold Promise

Our pioneering spirit and expertise shapes the future we build together.

- We are the reliable experts in vacuum and our sales and applications teams will help you specify the right solution
- Our commitment to continuous improvement and passion for exploring new ideas drives product innovation in the most advanced and complex applications
- Building long-lasting relationships since 1850

Why TURBOVAC i?

Research
Electron beam welders
Thin film technologies, photovoltaics
X-ray analysis
Surface analysis
Industrial a
Life sciences
MBE (Molecular Beam Epitaxy)
CD/DVD/Blu-Ray disc produ
Mass spectrometry
Transfer chambers
In
UHV systems
Production of high quality implants
Particle accele

Multitude of applications. Wide range of off the shelf solutions. That's why!

The Leybold TURBOVAC i/iX turbomolecular pumps are highly versatile and are suited for a wide range of applications in R&D, Analytical, Life Sciences and Industrial sectors.

The pump range consists of a large number of variants and accessories meeting the requirements of your process, always providing best performance.



Research & Development

PVD (Physical Vapour Deposition)

Electron microscopy

Leak detection

Handling systems

Applications

Gamma sterilization

Optical coatings

Function

Analytical

Proton therapy

Insulation vacuum

Industrial coatings

Laboratory coating systems

Generators

Load locks

Customised products delivered by our dedicated CFE team. That's Why!



When customised bespoke pumps are needed for integration into your instrument or volume application, the Leybold Customer Focus Engineering (CFE) team is dedicated to delivering products to your specification.

The team will manage all aspects of the process, from requirements gathering to prototype products in typically 12 weeks or less, and then to the availability of volume pump supply when you need it. The team is dedicated to making working with Leybold on customised products simple, fast and with high quality solutions to meet your needs.

Why TURBOVAC i?



All about the range. All about the benefits.

The Leybold TURBOVAC i/X turbomolecular pumps are highly versatile and are suited for a wide range of applications in R&D, Analytical, Life Sciences and Industrial sectors.

BENEFITS

	TURBOVAC i	TURBOVAC iX
Pumping speeds: 90, 250, 350, 450	✓	✓
High compression for all gases	✓	✓
Oil free sealed for bearings with long lifetime	✓	✓
Operation in any orientation	✓	✓
Convection, air or water cooling options	✓	✓
Full range of venting and purging option	✓	✓
24 V or 48 V DC supply and optional power supply	✓	✓
Customized products	✓	✓
Compatible with LeyAssit PC software	✓	✓
RS485, USB and digital IO interfaces	✓	✓
RS232, ProfiBUS, ProfiNET, Ethernet, EtherCAT etc.	✓*	✓
One accessory port for up to 2 accessories (via Y connector)	✓	✓
2 additional accessory ports - 3 accessories ports in total		✓
Smart backing pump control		✓
Gauge interface to collect and share pressure data and control the pump		✓
Programmable logic PLC		✓
Ability to function as a basic vacuum controller		✓

* Anybus extension flexibility for further interfaces

That's why!



One core platform. Two interface standards.

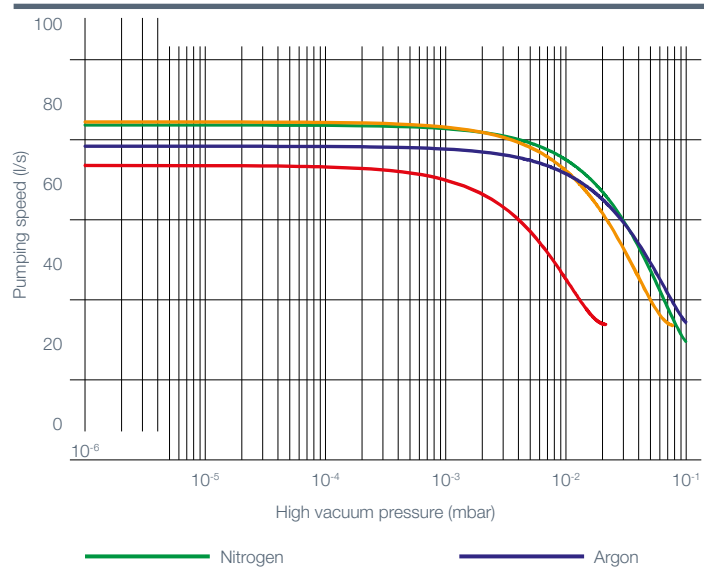
TURBOVAC i pumps are available with a basic interface offering the control of up to two accessories, basic RS485, USB and DIGITAL I/O control. The interface can also be mounted off the pump if required. This makes TURBOVAC i the perfect basic pump. With the Anybus extension third party protocols are possible.

TURBOVAC iX pumps offer an extended interface with multiple third party protocols, control of up to 6 accessories, gauge interface and backing pump control and also programmable logic. This enhanced feature set greatly extends the functionality of TURBOVAC iX compared to TURBOVAC i, and enables it to act as the controller in your vacuum system.

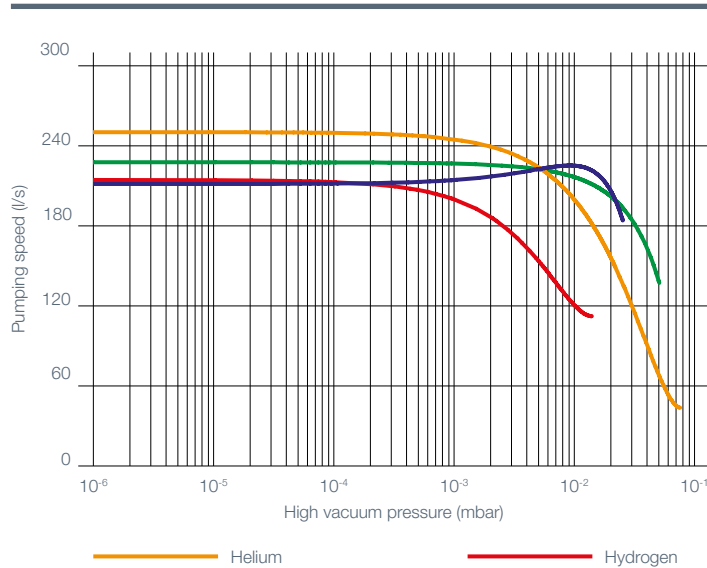


Technical specifications

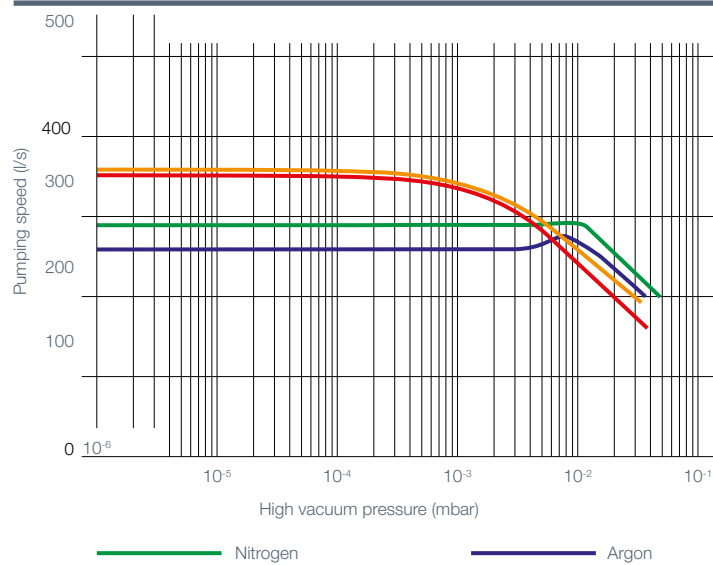
TURBOVAC 90 i/iX



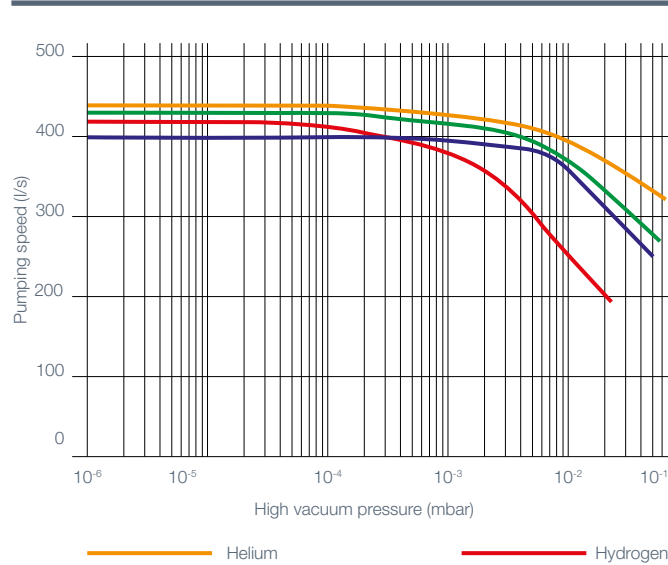
TURBOVAC 250 i/iX



TURBOVAC 350 i/iX



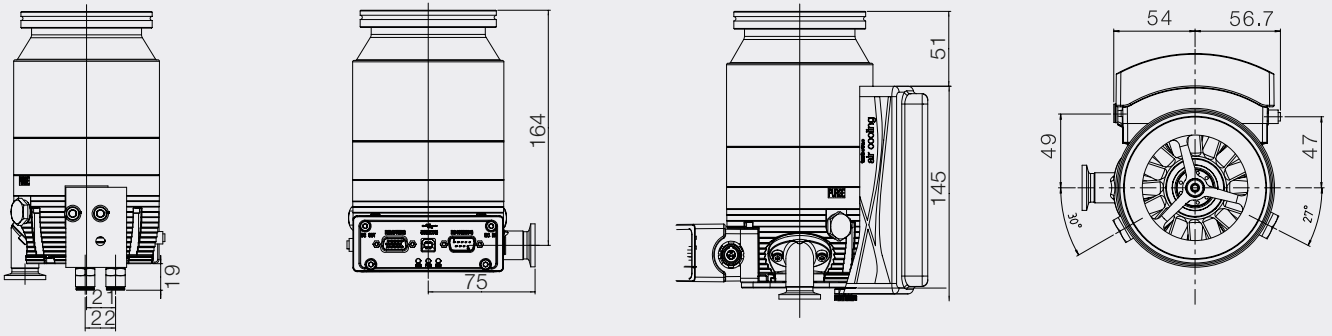
TURBOVAC 450 i/iX



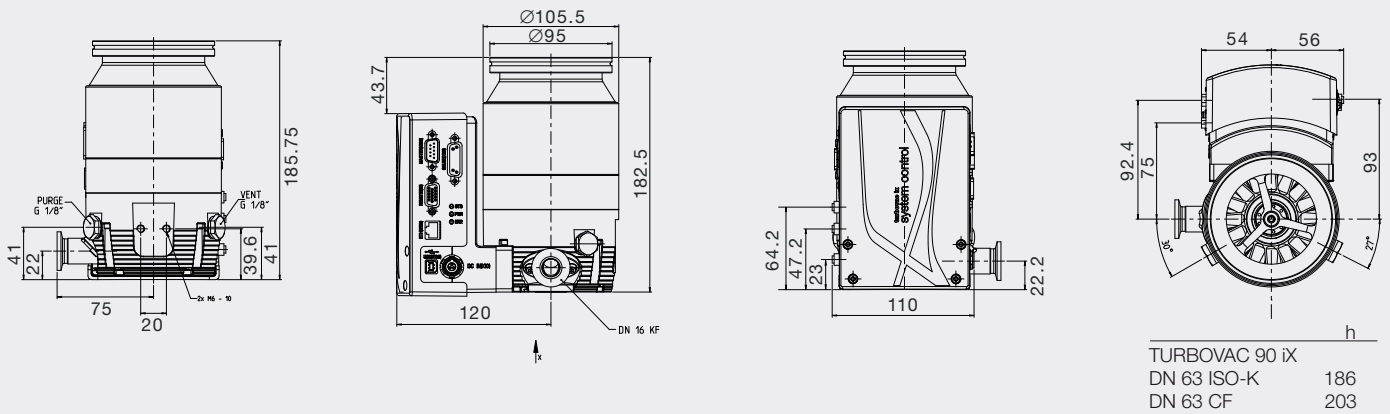
TURBOVAC		90 i/IX	250 i/IX	350 i/IX	450 i/IX
High-vacuum connection	DN	63 ISO-K / 63 CF	100 ISO-K / 100 CF	100 ISO-K / 100 CF	160 ISO-K / 160 CF
Fore-vacuum connection	DN	16 KF	16 KF	25 KF	25 KF
Pumping speed for					
N ₂		90	225	290	430
Ar	l · s ⁻¹	83	210	260	400
He		90	250	360	440
H ₂		78	210	350	420
Gas throughput					
N ₂		10	6	4.5	4.5
Ar	mbar · l · s ⁻¹	3	3	2.0	2.0
He		11	6	8.0	8.0
H ₂		11	> 10	8.0	8.0
Compression ratio					
N ₂		> 1 · 10 ¹¹	> 1 · 10 ¹¹	> 1 · 10 ¹¹	> 1 · 10 ¹¹
Ar		> 1 · 10 ¹¹	> 1 · 10 ¹¹	> 1 · 10 ¹¹	> 1 · 10 ¹¹
He		1 · 10 ⁸	1 · 10 ⁸	1 · 10 ⁸	1 · 10 ⁸
H ₂		5 · 10 ⁷	2 · 10 ⁷	1 · 10 ⁶	1 · 10 ⁶
Ultimate pressure ISO-K/CF with 2-stage oil-sealed rotary vane pump	mbar	≤ 8 · 10 ⁻⁸ / ≤ 5 · 10 ⁻¹⁰			
Max. permissible fore-vacuum pressure for N ₂	mbar	14		10	
Operating speed	rpm	72 000			
Cooling standard		Convection			
Cooling optional		Air or water			
Weight ISO-K/CF	kg	3.5 / 5.3	4.5 / 7.1	7.5 / 11.5	7.7 / 12.5
Recommended fore-vacuum pumps	TRIVAC SCROLLVAC DIVAC	D 2,5 B / D 4 B SC 7 plus 3.8 HV3	D 2,5 B / D 4 B SC 7 /15 plus 3.8 HV3	D 4 B SC 7/15 plus 3.8 HV3	D 4 B SC 7 /15 plus 3.8 HV3
Supply voltage		24/48V DC ± 10 %			
Max. current consumption		10A at 24V DC			
Max. power consumption	W	240			
Interfaces	i Versions iX Versions	RS 485, USB, 15-pin digital I/O (additional on request) Optional RS 485, RS 232, Profibus (additional on request)			

Technical specifications

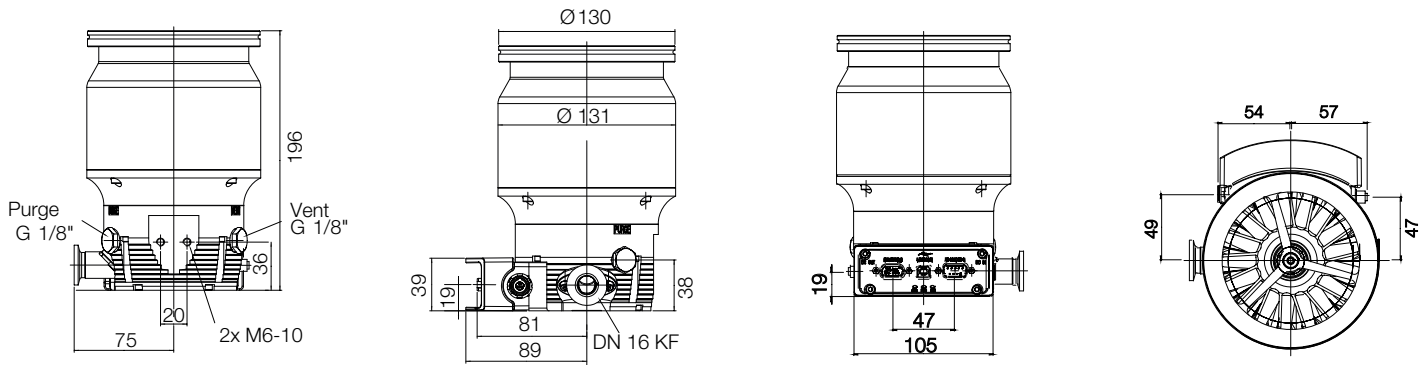
TURBOVAC 90 i



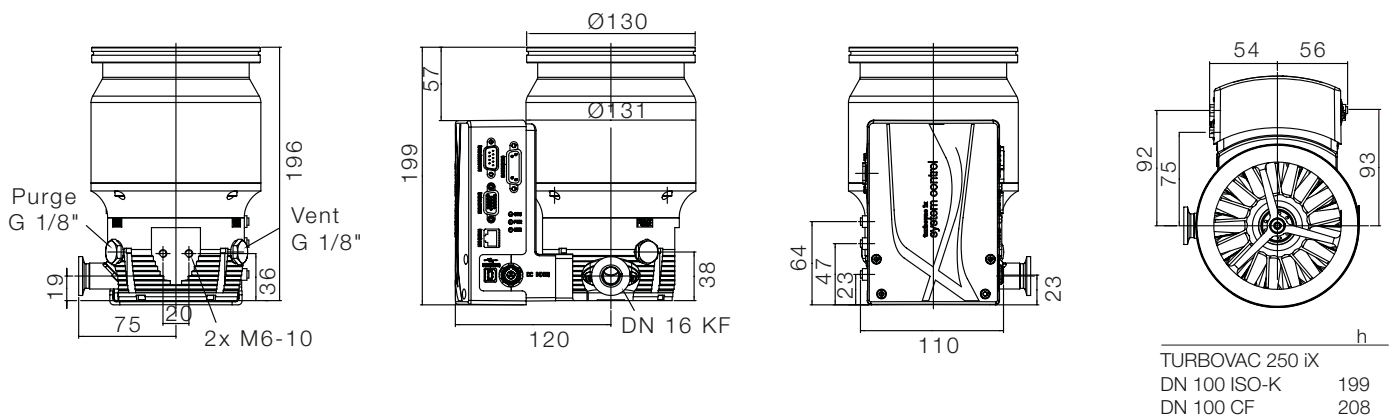
TURBOVAC 90 iX



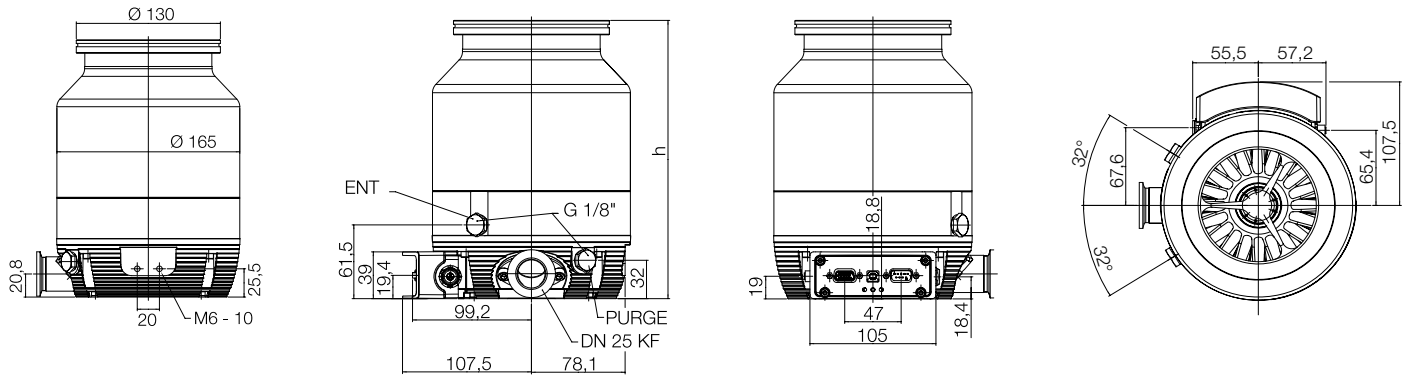
TURBOVAC 250 i



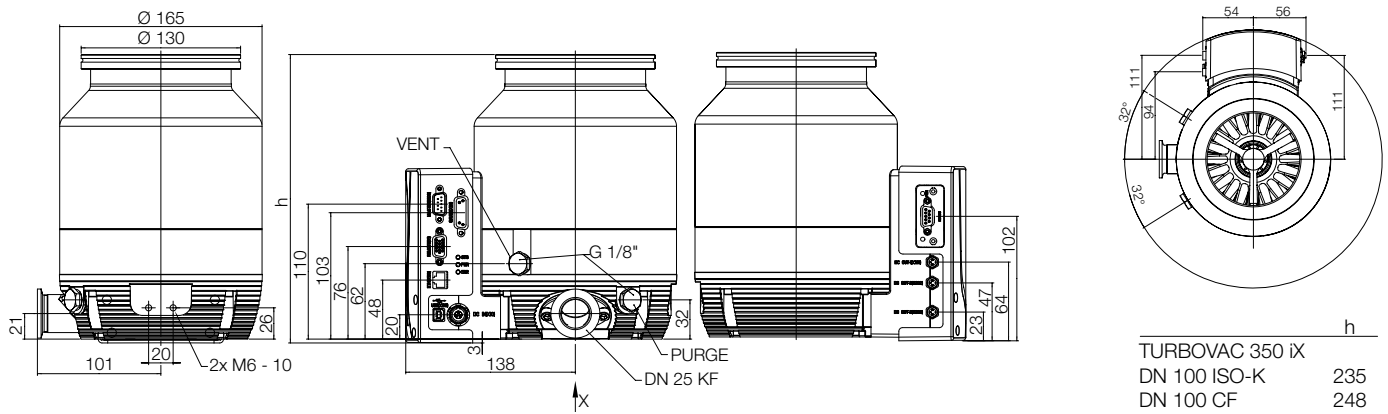
TURBOVAC 250 iX



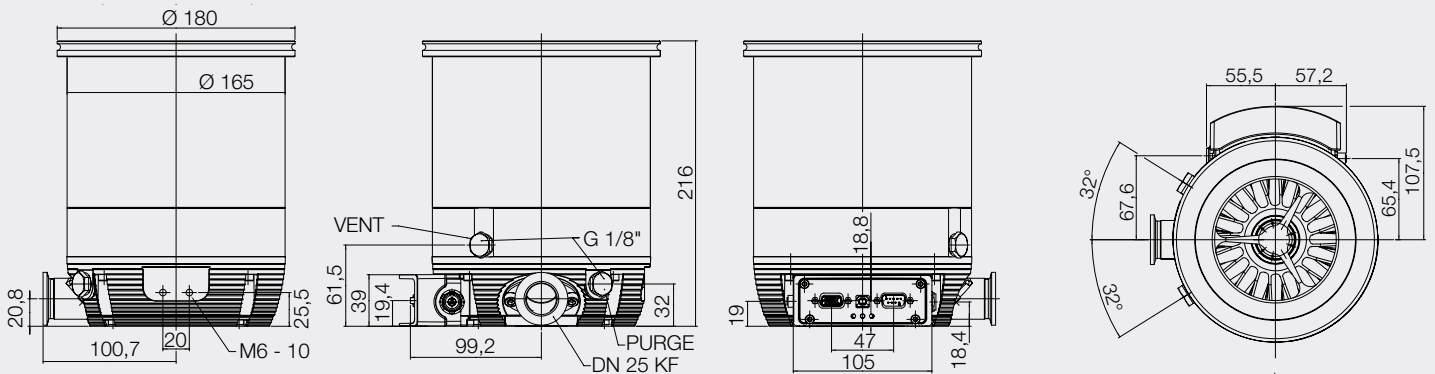
TURBOVAC 350 i



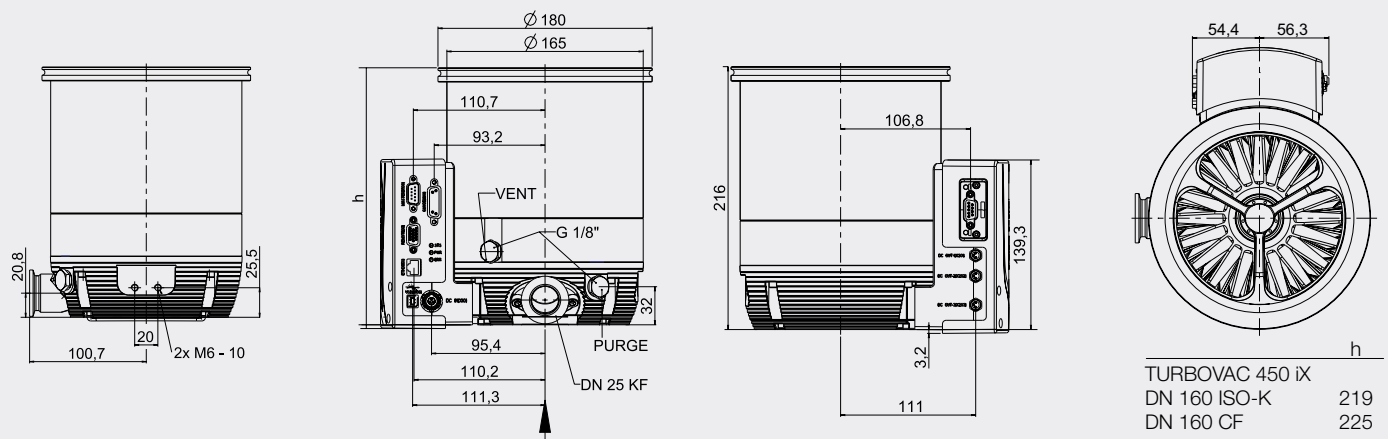
TURBOVAC 350 iX



TURBOVAC 450 i



TURBOVAC 450 iX



Order information

For operating a TURBOVAC i/iX, a suitable fore vacuum pump, a power supply as well as a DC/mains cable are mandatory. Further accessories might be required depending on the application and operating conditions.

TURBOVAC	90 iX	250 iX	350 iX	450 iX
High vacuum flange	63 ISO-K	100 ISO-K	100 ISO-K	160 ISO-K
Part Number *)	810031V3300	820051V3300	830051V3300	830071V3300
High vacuum flange	63 CF	100 CF	100 CF	160 CF
Part Number *)	810041V3300	820061V3300	830061V3300	830081V3300

TURBOVAC	90 i	250 i	350 i	450 i
High vacuum flange	63 ISO-K	100 ISO-K	100 ISO-K	160 ISO-K
Part Number *)	810031V1000	820051V1000	830051V1000	830071V1000
High vacuum flange	63 CF	100 CF	100 CF	160 CF
Part Number *)	810041V1000	820061V1000	830061V3300	830081V1000

* all part numbers with USB+, 15 pin digital I/O and RS485 interface; other interfaces upon request.

Accessories

Power supply, cables and accessories

800100V0003 – TURBO.POWER integra (TPI) incl. cable 0.3 m

800100V0005 – Mounting kit TPI - TURBOVAC i/iX 90 - 250

800096V0100 – Cable TURBOVAC i/iX – TURBO.POWER integra, 1 m

800096V0300 – Cable TURBOVAC i/iX – TURBO.POWER integra, 3 m

800096V0500 – Cable TURBOVAC i/iX – TURBO.POWER integra, 5 m

800102V0002 – Mains cable for power supplies, 3 m, EC plug

800102V0003 – Mains cable for power supplies, 3 m, UK plug

800102V1002 – Mains cable for power supplies, 3 m, US plug

800110V0016 – Accessory cable TURBOVAC i, M8-M8, 2m

800110V0020 – Y cable TURBOVAC i/iX, M8

800110V0021 – Start stop switch for TURBOVAC i/iX

800110V0108 – USB cable 2.0 Type A/B, 1.8 m

800110V0030 – Relay box for fore vacuum pump, 1-phase, 10A
incl. 2 m M8-M8 cable

Control

800100V0004 - TURBO.CONTROL i

800110V0028 - Table top housing

800110V0027 - Power supply 24 VDC / 1.5 A

Cooling

800136V0007 – Air cooling radial TURBOVAC 90 i/iX

800136V0009 – Air cooling radial TURBOVAC 250 i/iX

800136V0005 – Air cooling radial TURBOVAC 350-450 i/iX

800136V0008 – Air cooling axial TURBOVAC 90-250 i/iX

800136V0006 – Air cooling axial TURBOVAC 350-450 i/iX

800135V0005 – Water cooling TURBOVAC i/iX

800135V0006 – Water cooling TURBOVAC i/iX, G 1/4"

Heating

800137V0003 – Flange heating DN 63 CF, 230 V

800137V0004 – Flange heating DN 63 CF, 115 V

800137V0005 – Flange heating DN 100 CF, 230V

800137V0006 – Flange heating DN 100 CF, 115V

800137V0007 – Flange heating DN 160 CF, 230V

800137V0008 – Flange heating DN 160 CF, 115V

Venting and Purge

800120V0012 – Venting valve, 24 V DC, G 1/8"

800120V0013 – Purge gas valve, 24V DC, 24 sccm, G 1/8"

800120V0014 – Purge gas throttle, 24 sccm, G 1/8"

800120V0022 – Power failure venting valve, 24V DC, G 1/8"

800110V0022 – Air filter, G 1/8"



Pioneering products. Passionately applied.