

Turbomolecular Pump Systems

TURBOLAB 80, 350, 450



Turbomolecular pump system TURBOLAB 350 (top left), TURBOLAB 80 (down left) and TURBOLAB 350 Cart (right)

This new smart TURBOLAB generation is built on one basic design platform with the opportunity to create three different variants.

Each version can be customized to individual needs regarding add-ons like vacuum measurement devices, a choice of accessories, e.g. valves and heaters.

Basic Equipment

Turbomolecular pump

TURBOVAC i models from 80 l/s to 450 l/s including frequency converter

Backing pump

Dry or oil-sealed, 1 m³/h - 30 m³/h, 24 V DC/110-230 V

Backlight display

Every TURBOLAB comes with the Turbo Pressure Unit TPU for control, configuration and monitoring of the pump system

Built-in support for accessories

- Purge
- Vent
- Air or water cooling unit
- Flange heaters
- Two pressure gauges (1000 mbar to 1 x 10⁻⁹ mbar)
- Foreline safety valve

Built-in webserver

- Condition monitoring
- Data analysis
- Software updates

- Control, monitor and configure your TURBOLAB system

Easily relocate pump

away from the frame and on your chamber

Remote control

via the X1 Interface

- Configurable X1 Digital/Analog I/O
- Start/Stop
- Error
- Warning
- Analog Output

Advantage to the User

- Enhanced pump performance
- Compact mobile design
- Small foot print
- Easy to relocate pumps out and

away from the frame

- Backlight display (control/monitoring/configuration)
- Monitored data like frequency, temperature, current, pressure are automatically stored to a data log file in the TURBOLAB. Users easily view the log file with the TURBOLAB data viewer software tool which can be downloaded for free from the Leybold website or the last 512 data points can be viewed from the TURBOLAB data viewer in the web server
- Covering more applications with a full range of high vacuum and dry or wet forevacuum pumps to cover more high vacuum applications
- Benchmark turbostation offering dedicated ports for the connection of
 - six different accessories
 - two gauges
- Benchmark functionality, reliability and design
- Prepared for worldwide voltage coverage
- Price-to-performance ratio

Typical Applications

- Analytical Instruments
- Spectroscopy
- Tube manufacturing
- Beam guidance systems
- Micro balances
- Sputtering and evaporation systems
- Surface physics
- Laboratory pump systems

Options

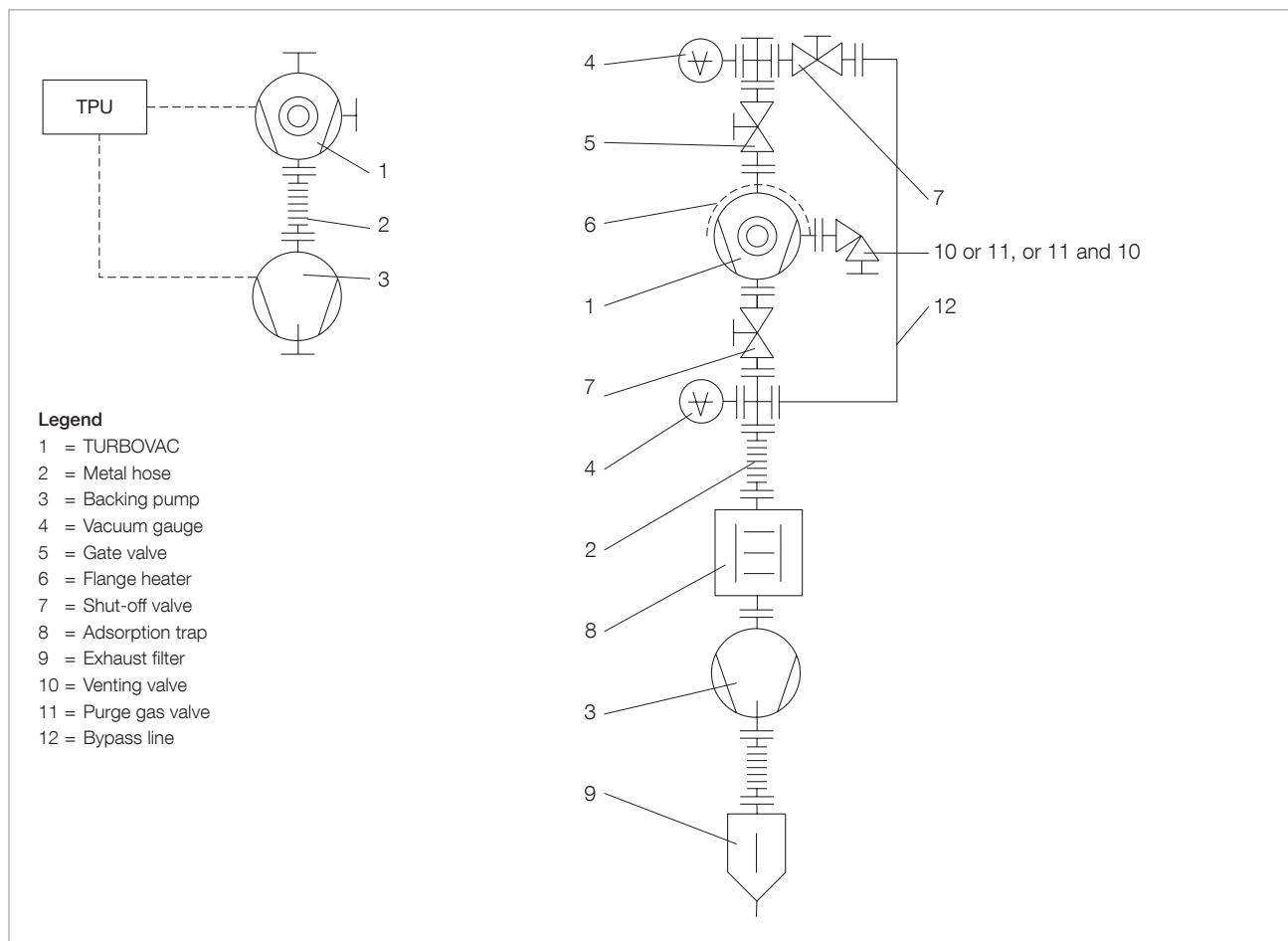
- Alternatively ISO-K or CF connection
- The Cart version comprises a base-plate, mounting column, castors or a benchtop frame with rubber feet
- Relocation kits available to relocate the pumps away from the frame and onto your chamber

The pump system can be upgraded with further components:

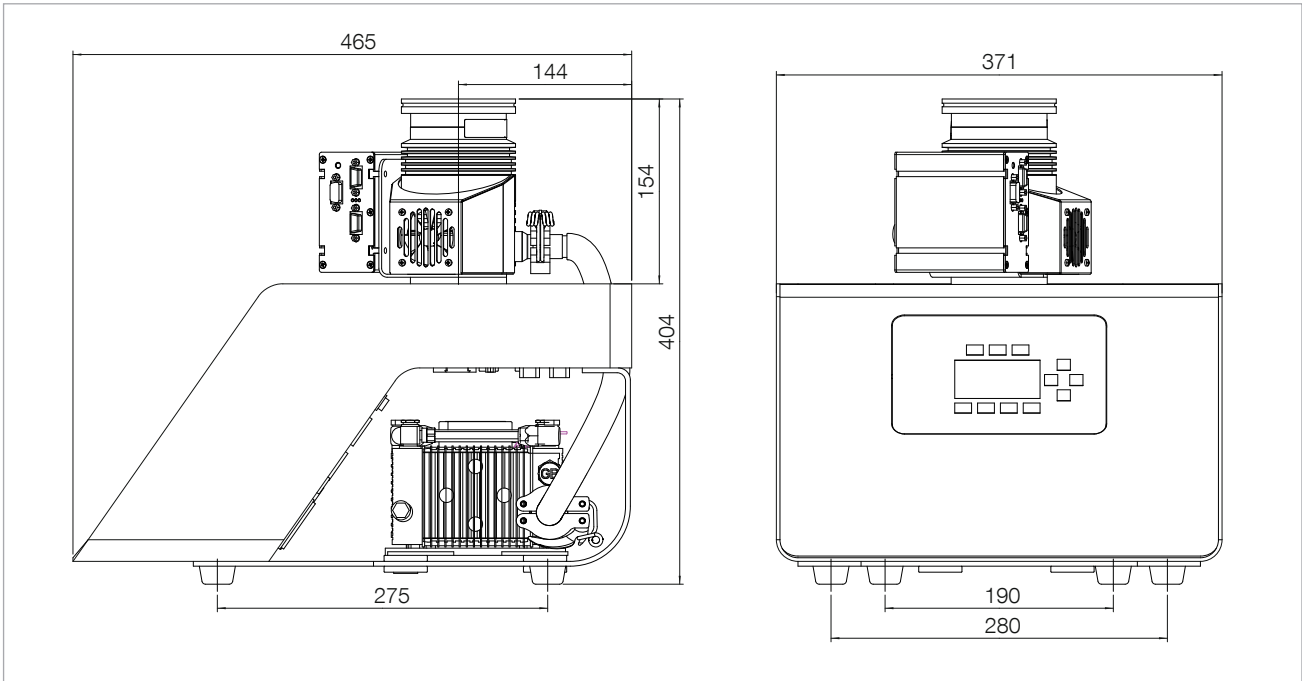
- Vacuum gauges: TTR 91 (N), TTR 101 (N), PTR 91 (N). Simultaneous operation of two gauges is possible
- Adsorption trap
- Exhaust filter
- Air cooling unit
- Water cooling unit
- Flange heater
- Venting valve
- Purge gas valve
- Foreline venting valve
- Vacuum safety valve SECUVAC DN 15/25/40 ISO-KF

Scope of delivery

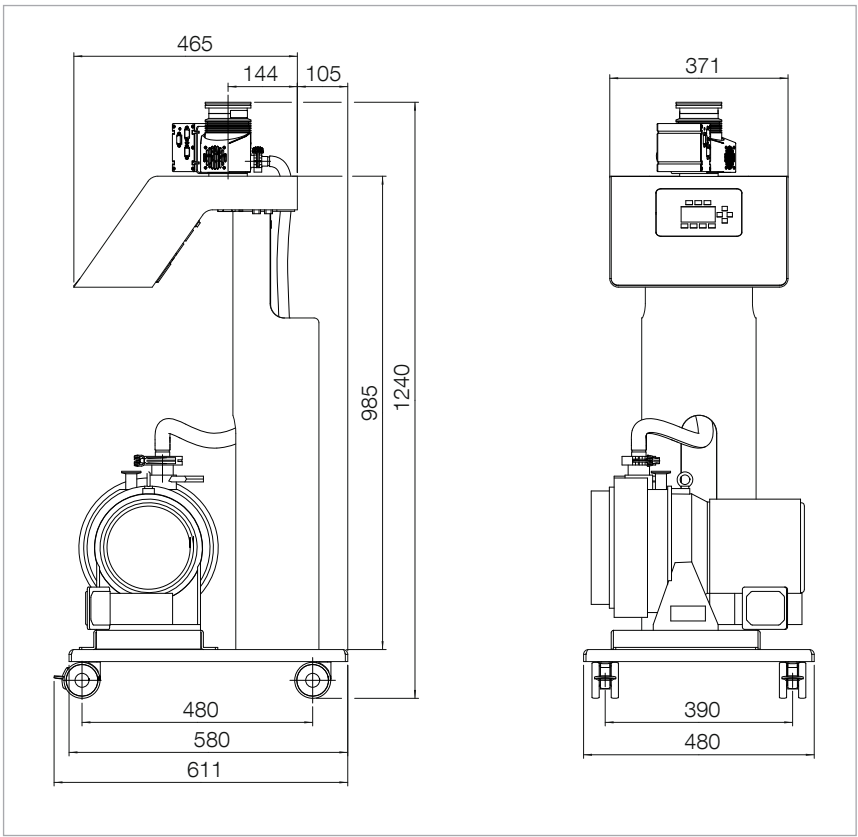
- Transport lock at the high vacuum flange by way of a Plexiglas disc
- Covering caps for the threads of the transport lock
- Exhaust side: centering ring and clamping ring
- Documentation
- The TRIVAC and SOGEVAC are filled with LVO oil



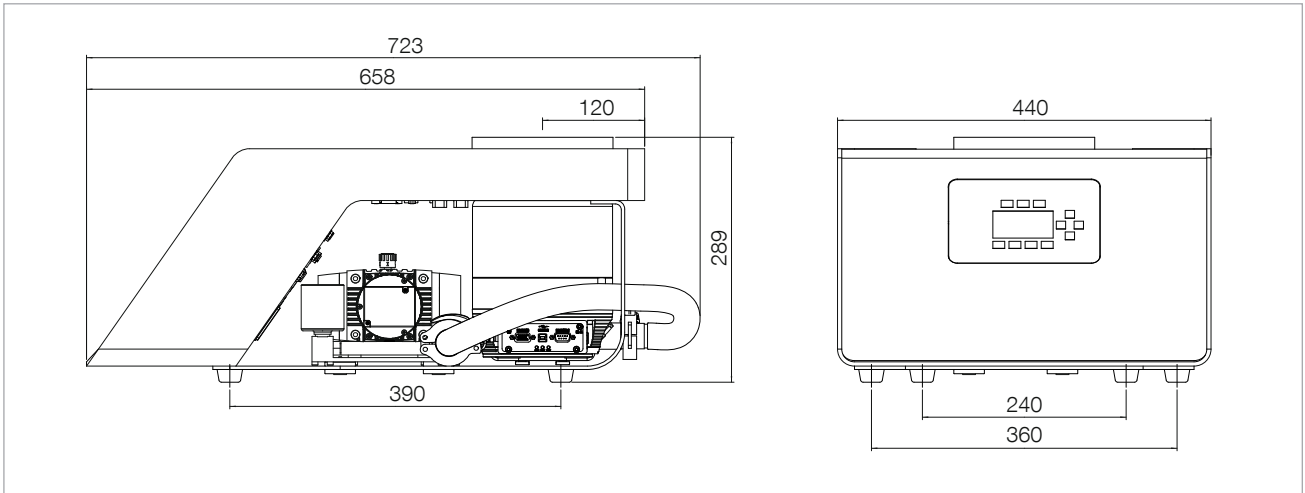
Schematic diagram of the turbomolecular pump systems TURBOLAB (left basic version, right equipment with accessories (TPU not shown))



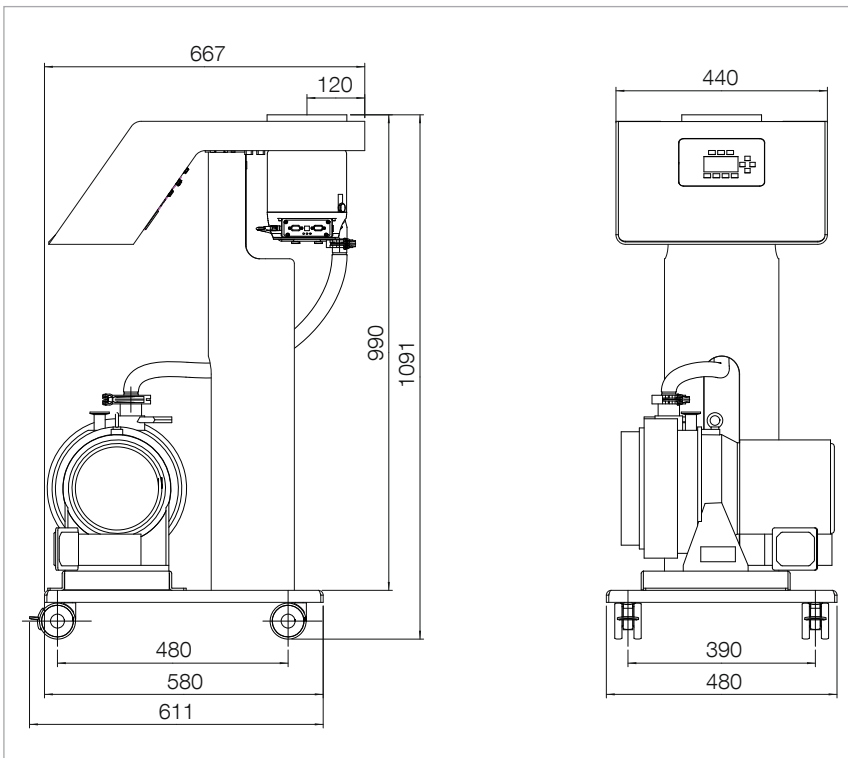
Dimensional drawing TURBOLAB 80, dimensions in mm



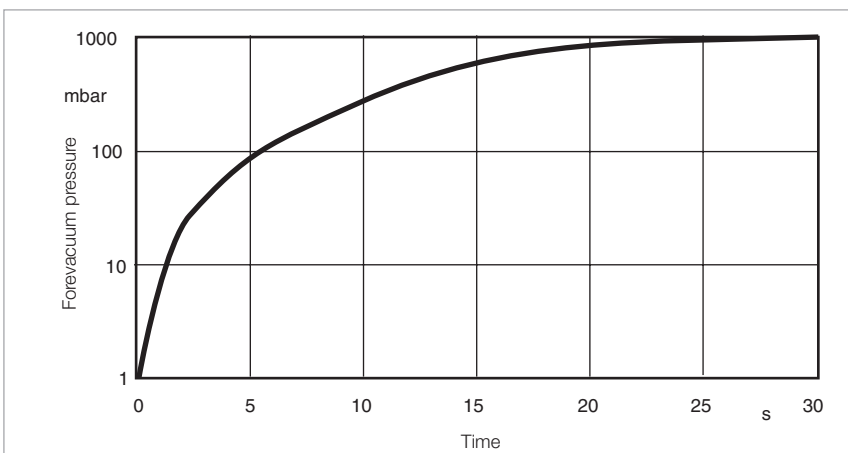
Dimensional drawing TURBOLAB 80 Cart, dimensions in mm



Dimensional drawing TURBOLAB 350/450, dimensions in mm



Dimensional drawing TURBOLAB 350/450 Cart, dimensions in mm



Maximum rise in pressure

Technical Data Pump system

TURBOLAB

		80		350		450	
Inlet flange	DN	63 ISO-K	63 CF	100 ISO-K	100 CF	160 ISO-K	160 CF
Forevacuum connection	DN	16 ISO-KF		25 ISO-KF		25 ISO-KF	
Pumping speed	$l \cdot s^{-1}$	65		290		430	
Ultimate pressure	mbar	10^{-7}	10^{-7}	10^{-8}	10^{-10}	10^{-8}	10^{-10}
Mains Supply 50/60 Hz	V AC	$110 \pm 10\%$	$230 \pm 10\%$	$110 \pm 10\%$	$230 \pm 10\%$	$110 \pm 10\%$	$230 \pm 10\%$
Power consumption, max.	VA	1760	3680	1760	3680	1760	3680
Weight (ISO-KF / CF)	kg						
Table top unit		20		35		35	
Cart		100		110		110	
Number of accessories, max.		6		6		6	
Number of gauges, max.		2		2		2	
CBM		Internal condition monitoring		Internal condition monitoring		Internal condition monitoring	
Software		Internal webserver (no software to install)		Internal webserver (no software to install)		Internal webserver (no software to install)	

Technical Data Backing pumps

Diaphragm vacuum pump	DIVAC	0.8 T		3.0			
Pumping speed	$m^3 \cdot s^{-1}$	0.7		3.0			
Exhaust connection	DN	Silencer		Silencer			
Noise level	dB(A)	49		54			
Scroll vacuum pump	SCROLLVAC	SC 5 D		SC 15 D		SC 30 D	
Pumping speed	$m^3 \cdot s^{-1}$	5.4		15.0		30.0	
Exhaust connection	DN	16 ISO-KF		16 ISO-KF		25 ISO-KF	
Noise level	dB(A)	52		58		62	
Rotary vane vacuum pump	TRIVAC	D 4 B		D 8 B			
Pumping speed	$m^3 \cdot s^{-1}$	4.8		9.7			
Exhaust connection	DN	16 ISO-KF		16 ISO-KF			
Noise level	dB(A)	52		52			
Rotary vane vacuum pump	SOGEVAC	SV 16 D					
Pumping speed	$m^3 \cdot s^{-1}$	16.0					
Exhaust connection	G	1/2"					
Noise level	dB(A)	59					

Ordering Information

TURBOLAB 80

	Part. No.	Part. No.
Pump system with TURBOVAC SL 80 H and frequency converter TD 400	230 V, 50/60 Hz	110 V, 50/60 Hz
Table top unit with DIVAC 0.8 T DN 63 ISO-K DN 63 CF	501592V02000000 501592V03000000	
DIVAC 3.0 DN 63 ISO-K DN 63 CF	501592V02001000 501592V03001000	
SCROLLVAC SV 5 D DN 63 ISO-K DN 63 CF	501592V02020000 501592V03020000	501592V02030000 501592V03030000
SCROLLVAC SV 15 D DN 63 ISO-K DN 63 CF	501592V02040000 501592V03040000	501592V02050000 501592V03050000
SCROLLVAC SV 30 D DN 63 ISO-K DN 63 CF	501592V02060000 501592V03060000	501592V02070000 501592V03070000
TRIVAC D 4 B DN 63 ISO-K DN 63 CF	501592V02120000 501592V03120000	501592V02080000 501592V03080000
TRIVAC D 8 B DN 63 ISO-K DN 63 CF	501592V02130000 501592V03130000	501592V02090000 501592V03090000
SOGEVAC SV 16 D DN 63 ISO-K DN 63 CF	501592V02100000 501592V03100000	

Ordering Information

TURBOLAB 350

	Part. No.	Part. No.
Pump system with TURBOVAC 350 i	230 V, 50/60 Hz	110 V, 50/60 Hz
Table top unit with DIVAC 3.0 DN 100 ISO-K DN 100 CF	501592V04001000 501592V05001000	
SCROLLVAC SV 5 D DN 100 ISO-K DN 100 CF	501592V04020000 501592V05020000	501592V04030000 501592V05030000
SCROLLVAC SV 15 D DN 100 ISO-K DN 100 CF	501592V04040000 501592V05040000	501592V04050000 501592V05050000
SCROLLVAC SV 30 D DN 100 ISO-K DN 100 CF	501592V04060000 501592V05060000	501592V04070000 501592V05070000
TRIVAC D 4 B DN 100 ISO-K DN 100 CF	501592V04120000 501592V05120000	501592V04080000 501592V05080000
TRIVAC D 8 B DN 100 ISO-K DN 100 CF	501592V04130000 501592V05130000	501592V04090000 501592V05090000
SOGEVAC SV 16 D DN 100 ISO-K DN 100 CF	501592V04100000 501592V05100000	

Ordering Information

TURBOLAB 450

	Part. No.	Part. No.
Pump system with TURBOVAC 450 i	230 V, 50/60 Hz	110 V, 50/60 Hz
Table top unit with DIVAC 3.0 DN 160 ISO-K DN 160 CF	501592V06001000 501592V07001000	
SCROLLVAC SV 5 D DN 160 ISO-K DN 106 CF	501592V06020000 501592V07020000	501592V06030000 501592V07030000
SCROLLVAC SV 15 D DN 160 ISO-K DN 160 CF	501592V06040000 501592V07040000	501592V06050000 501592V07050000
SCROLLVAC SV 30 D DN 160 ISO-K DN 160 CF	501592V06060000 501592V07060000	501592V06070000 501592V07070000
TRIVAC D 4 B DN 160 ISO-K DN 160 CF	501592V06120000 501592V07120000	501592V06080000 501592V07080000
TRIVAC D 8 B DN 160 ISO-K DN 160 CF	501592V06130000 501592V07130000	501592V06090000 501592V07090000
SOGEVAC SV 16 D DN 160 ISO-K DN 160 CF	501592V06100000 501592V07100000	

Ordering Information

TURBOLAB 80

TURBOLAB 350 / 450

	Part. No.	Part. No.
Accessories		
Mains cable TURBOLAB 230 V, 5.0 m 110 V, 5.0 m 230 V, UK, 5,0 m	800103V0030 800103V0031 800103V0037	800103V0030 800103V0031 800103V0037
Accessory cable TURBOVAC i (air cooling & valve connection) M 8 - M 8, 0,3 m M 8 - M 8, 2,0 m	800103V0001 800110V0016	800103V0001 800110V0016
Y cable TURBOVAC i, M 8	800110V0020	800110V0020
Start stop switch for connection to X1 Remote	800110V0021	800110V0021
USB cable 2.0, Type A/B, 1.8 m	800110V0108	800110V0108
Accessory cable TURBOLAB M 8 - M 8, 0,3 m (air cooling & valve connection) M 8 - M 8, 5,0 m (air cooling & valve connection) M 12 - M 12, 5,0 m (DIVAC 0,8, 3,0) C13 - C14, 5,0 m (SOGEVAC) C14 - NEMA, 5,0 m (SCROLLVAC 110 V) C14 - Schuko, 5,0 m (SCROLLVAC 230 V) C14 - C16-1 (230 V), 5,0 m (TRIVAC 230 V) C14 - C16-1 (110 V), 5,0 m (TRIVAC 110 V)	800103V0001 800103V0003 800103V0005 800103V0017 800103V0008 800103V0011 800103V0014 800103V0016	800103V0001 800103V0003 800103V0005 800103V0017 800103V0008 800103V0011 800103V0014 800103V0016
Accessory cable TURBOLAB TURBOVAC i, 5,0 m (24 V DC voltage supply) TD 400, 5,0 m (24 V DC voltage supply)	— 800103V0023	800103V0020 —
Communication TURBOLAB - TMP 5.0 m 1.0 m	800103V0029 800103V0027	800103V0029 800103V0027
Mains cable backing pump TURBOLAB C13 - C14, 1,8 m C14 - NEMA, 0,5 m C14 - Schuko, 0,5 m C14 - C16-1 (230 V), 1,8 m C14 - C16-1 (110 V), 5,0 m	800103V0015 800103V0006 800103V0009 800103V0012 800103V0013	800103V0015 800103V0006 800103V0009 800103V0012 800103V0013
Mains cable TURBOLAB - TURBOVAC 350 i, 0,55 m TURBOLAB - TD 400, 0,55 m	— 800103V0021	800103V0018 —
Connection cable Typ A 1.5 m 5.0 m	800103V0032 12426	800103V0032 12426
Connection cable C14 - valve plug, 1,8 m (Control 110/230 V AC SECUVAC valve)	800103V0033	800103V0033
Connection cable C14 - valve plug, 5 m (Control 110/230 V AC SECUVAC valve)	800103V0035	800103V0035
Connection cable C14 - valve plug, 1,8 m (Control 24 V DC SECUVAC valve)	800103V0034	800103V0034
Connection cable C14 - valve plug, 5 m (Control 24 V DC SECUVAC valve)	800103V0036	800103V0036
LEYASSIST software for TMPs	230439V01	230439V01
Air cooling (incl. 4 screws M4x10, DIN 912)	800136V0001	—
Air cooling TURBOVAC 350/450 i radial	—	800136V0005
Water cooling TURBOVAC 350/450	—	800135V0005
Water cooling with G 1/8"connections (incl. 2 hose nipples G 1/8", outer Ø 8 mm for water hose, 2 sealing rings approx. 10x4x1, screws)	800135V0001	—

¹⁾ For space reasons, when the frequency converter is installed at the side, only either the air-cooler or a purge gas valve can be connected

Ordering Information

TURBOLAB 80

TURBOLAB 350 / 450

	Part. No.	Part. No.
Accessories		
Venting valve 24 V DC, G 1/8"	-	800120V0012
Power failure venting valve 24 V DC, G 1/8"	-	800120V0022
Purge gas valve 24 V DC, G 1/8", 24 sccm	-	800120V0013
Purge gas throttle G 1/8", 24 sccm	-	800120V0014
Air filter for TMP G 1/8"	-	800110V0022
Purge gas and venting valve 0.4 mbar·l/s at 1 bar, 24 V DC DN 10 KF – G1/4"	800152V0013	-
Pump connection: Adapter M8 – DN-16-KF incl. O-Ring 9.25 x 1.78 and adapter centering ring DN 10/16 KF with sinter filter	800110V0011	-
Gas side connection: G1/4-in. adapter with filter Including O-ring and gasket	800110V0012	-
Connection cable: Accessory cable M8 – bare wire ends	800110V0017	-
Venting valve 24 V DC	800120V0011	-
Power failure venting valve 24 V DC	800120V0021	-
Spare filter	E 200 18 517	-
Flange heater DN 63 CF, 230 V	85404	-
DN 63 CF, 110 V	85407	-
DN 100 CF, 230 V	-	800137V0005
DN 100 CF, 115 V	-	800137V0006
DN 160 CF, 230 V	-	800137V0007
DN 160 CF, 115 V	-	800137V0008
Vibration absorber DN 100 ISO-K other flange sizes	- on request	800131V1100 on request
Centering ring with protection screen DN 100 ISO-K	-	800133V0021
DN 160 ISO-K	-	800133V0031
with splinter guard DN 100 ISO-K	-	800133V0022
DN 160 ISO-K	-	800133V0032
Splinter guard DN 63 ISO-K	E20017170	-
DN 63 CF	E20017171	-
DN 100 ISO-K (coarse)	-	800132V0101
DN 100 ISO-K (fine)	-	800132V0102
DN 100 CF (0.8 mm)	-	800132V0022
DN 160 CF (0.8 mm)	-	800132V0032
Protection screen DN 100 CF (3.2 mm)	-	800132V0021
DN 160 CF (3.2 mm)	-	800132V0031

¹⁾ For space reasons, when the frequency converter is installed at the side, only either the air-cooler or a purge gas valve can be connected