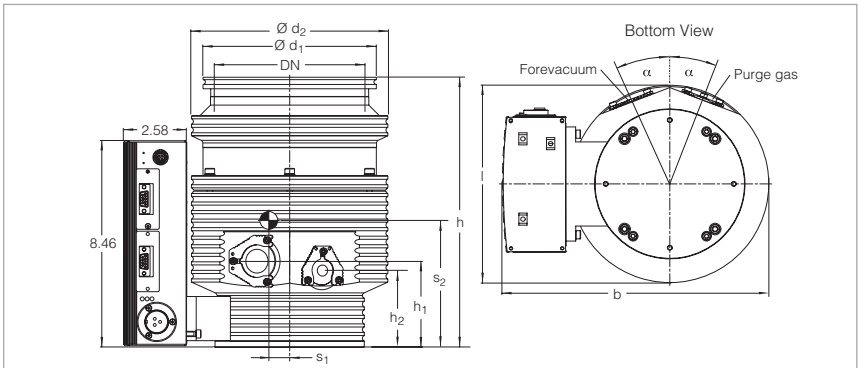
MAG INTEGRA – Magnetic Rotor Suspension with integrated Frequency Converter, with Compound Stage

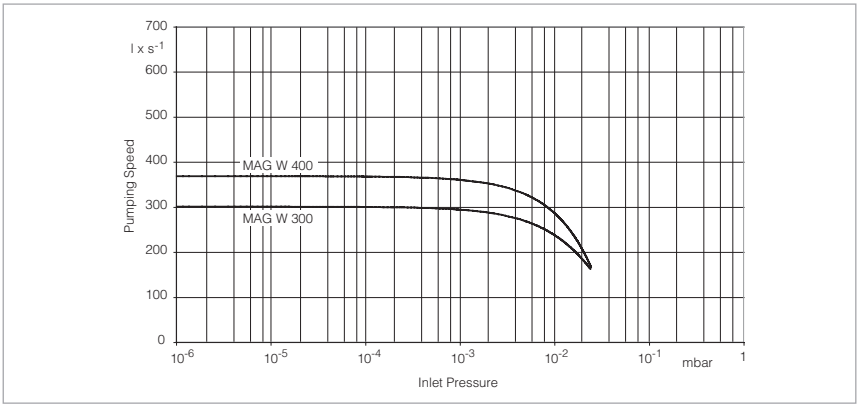
TURBOVAC MAG W 300/400 iP



		DN	⌀ d_1	⌀ d_2	h	h_1	h_2	l	b	b*	α	s_1	s_2
MAG W 300 iP	mm	100 ISO-K	130.0	155.0	250.0	77.7	70.0	156.0	250.0	233.0	16°	19.0	103.0
	in.		5.12	6.10	9.84	3.06	2.76	6.14	9.84	9.17	16°	0.75	4.06
	mm	100 CF	151.5	155.0	264.3	77.7	70.0	156.0	250.0	233.0	16°	15.0	129.0
	in.		5.96	6.10	10.41	3.06	2.76	6.14	9.84	9.17	16°	0.59	5.08
MAG W 400 iP	mm	160 ISO-K	180.0	155.0	241.0	77.7	70.0	168.5	262.5	245.5	16°	19.0	106.0
	in.		7.09	6.10	9.49	3.06	2.76	6.63	10.33	9.67	16°	0.75	4.17
	mm	160 CF	202.5	155.0	234.7	77.7	70.0	181.2	273.7	256.7	16°	14.0	129.0
	in.		7.97	6.10	9.24	3.06	2.76	9.13	10.78	10.11	16°	0.55	5.08

b* = width with plug of the DRIVE/BEARING cable connected instead of MAG.DRIVE iS

Dimensional drawing for the TURBOVAC MAG W 300/400 iP



Pumping speed for N_2 of the TURBOVAC MAG W 300/400 iP as a function of the inlet pressure

Typical Applications

- Gas analysis systems
- Particle accelerators
- Electron microscopes
- Research
- Coating systems

Technical Features

- Installation in any orientation
- DN 100 or 160 ISO-K and/or CF high vacuum connection
- DN 16 ISO-KF with clamped fore vacuum connection
- Purge gas/venting connection DN 16 ISO-KF with clamped connection (purge/vent)
- Water or air cooling optional
- 2 slots for industrial communications modules
  - Standard 9 pin 24 V SPS PLC-IO in Control Slot
  - RS 232 C in Service Slot
  - further interfaces can be fitted: Profibus, RS 485 C, DeviceNet, EtherNet IP, EtherCat

Advantages to the User

- Highest pumping speed from the smallest possible size
- New standard regarding maintenance-free systems
- Suitability for vibration sensitive applications in the area of analytical engineering, thin-film technology, electron microscopes, research, development among others
- Flexibility due to the modular concept; the converter is optionally also available by way of a bench top unit

Technical Data

TURBOVAC MAG

		W 300 iP		W 400 iP	
Inlet flange	DN	100 ISO-K	100 CF	160 ISO-K	160 CF
Pumping speed					
N_2	l/s	300	300	365	365
Ar	l/s	260	260	330	330
He	l/s	260	260	280	280
H_2	l/s	190	190	200	200
Operating speed	min^{-1}	58 800	58 800	58 800	58 800
Compression ratio					
N_2		1.0×10^{10}	1.0×10^{10}	1.0×10^{10}	1.0×10^{10}
H_2		3.2×10^{3}	3.2×10^{3}	3.2×10^{3}	3.2×10^{3}
He		9.2×10^{4}	9.2×10^{4}	9.2×10^{4}	9.2×10^{4}
Ultimate pressure	mbar	$< 10^{-8}$	$< 10^{-10}$	$< 10^{-8}$	$< 10^{-10}$
	(Torr)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)
Max. degassing temperature	°C (°F)	–	80 (176)	–	80 (176)
Max. foreline pressure for N_2	mbar (Torr)	8 (6)	8 (6)	8 (6)	8 (6)
Recommended backing pump		TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B
Run-up time	min	< 5	< 5	< 5	< 5
Foreline flange (clamped)	DN	16 ISO-KF	16 ISO-KF	16 ISO-KF	16 ISO-KF
Purge / vent port (clamped)	DN	16 ISO-KF	16 ISO-KF	16 ISO-KF	16 ISO-KF
Water cooling connection (optional)	G	1/8"	1/8"	1/8"	1/8"
Weight, approx.	kg (lbs)	12 (26)	12 (26)	12 (26)	12 (26)

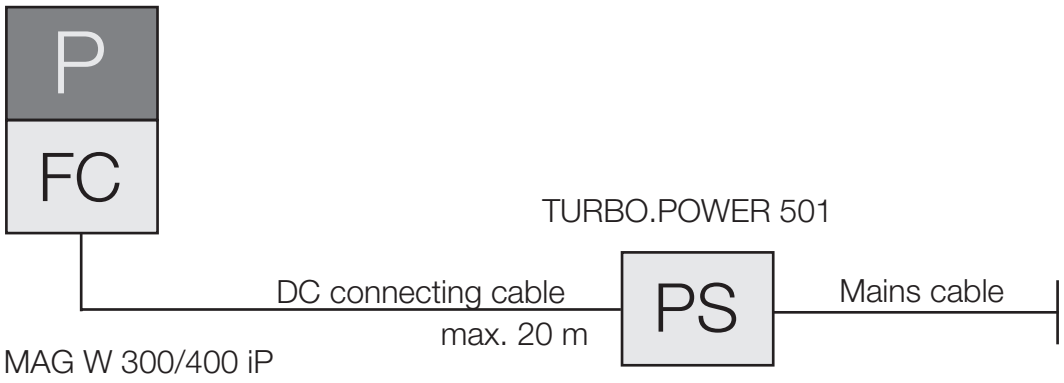
Technical Data

Integrated Frequency Converter TURBO.DRIVE iS

Power supply	V	48	48	48	48
Ripple	%	< 2	< 2	< 2	< 2
Power consumption					
maximum	W	400	400	400	400
at ultimate pressure	W	259	259	259	259
DC current consumption, max.	A	7.5 to 9.3	7.5 to 9.3	7.5 to 9.3	7.5 to 9.3
DC power supply voltage range	V	43 to 53	43 to 53	43 to 53	43 to 53
Length of the DC connection cable, max.					
at 3 x 1.5 mm^2	m (ft)	5 (17.5)	5 (17.5)	5 (17.5)	5 (17.5)
at 3 x 2.5 mm^2	m (ft)	20 (70.0)	20 (70.0)	20 (70.0)	20 (70.0)
Contact rating for the relays, max.		32 V; 0.5 A	32 V; 0.5 A	32 V; 0.5 A	32 V; 0.5 A
Permissible ambient temperature					
during operation	°C	+10 to +40	+10 to +40	+10 to +40	+10 to +40
	(°F)	(+50 to +104)	(+50 to +104)	(+50 to +104)	(+50 to +104)
during storage	°C	0 to +60	0 to +60	0 to +60	0 to +60
	(°F)	(0 to +140)	(0 to +140)	(0 to +140)	(0 to +140)
Relative humidity of the air, non-condensing	%	5 to 85	5 to 85	5 to 85	5 to 85
Protection class	IP	30	30	30	30
Overvoltage category		II	II	II	II
Pollution category		2	2	2	2

	P	FC	Part No.	
TURBOVAC MAG W 300 iP with Integrated Frequency Converter and Seal Gas Connection	P	FC		
DN 100 ISO-K			410300V0505	
DN 100 CF			410300V0506	
TURBOVAC MAG W 400 iP with Integrated Frequency Converter and Seal Gas Connection	P	FC		
DN 160 ISO-K			410400V0505	
DN 160 CF			410400V0506	
Mandatory Accessories	P	FC		
Power supply TURBO.POWER 501			410300V5221	
DC cable frequency converter - power supply			410300V2001	
1 m (3.5 ft)			410300V2003	
3 m (10.5 ft)			410300V2005	
5 m (17.5 ft)			410300V2010	
10 m (35.0 ft)			410300V2020	
20 m (70.0 ft)				
Mains cable, 3 m (10.5 ft)			800102V0002	
with EURO plug			800102V1002	
with US plug 5-15 P				
Forevacuum pump				
TRIVAC D 2,5 E			140 000	
220 – 240 V, 50 Hz; 230 V, 60 Hz; Schuko plug, EURO version			140 002	
110 – 120 V, 50/60 Hz; NEMA plug, US version				
TRIVAC D 8 B			112 55	
1 phase motor; 230 V, 50/60 Hz			112 56	
3 phase motor; 230/400 V, 50 Hz; 250/440 V, 60 Hz				

With integrated Frequency Converter

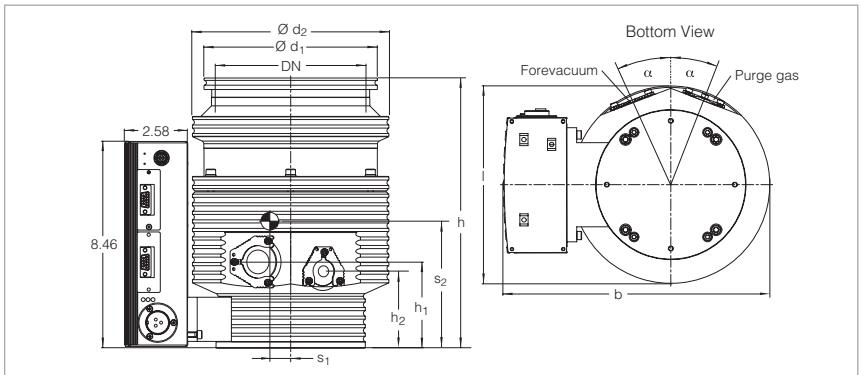


Ordering Information **TURBOVAC MAG W 300/400 iP**

Accessories, optional P	Part No.
Inlet screen	
DN 100 ISO-K	
coarse (3.2 x 3.2 mm (0.13 x 0.13 in.))	**800132V0101**
fine (1.6 x 1.6 mm (0.06 x 0.06 in.))	**800132V0102**
DN 100 CF	
coarse (3.2 x 3.2 mm (0.13 x 0.13 in.))	**200 91 514**
fine (1.6 x 1.6 mm (0.06 x 0.06 in.))	**E 200 17 195**
DN 160 ISO-K	**E 200 00 307**
DN 160 CF	**E 200 17 247**
Flange heater	
100 CF, 230 V, 50 Hz	**854 27**
100 CF, 115 V, 60 Hz	**854 28**
160 CF, 230 V, 50 Hz	**854 37**
160 CF, 115 V, 60 Hz	**854 38**
Water cooling unit	**410300V0101**
Air cooling unit	**410300V0102**
START/STOP switch for manual operation of the turbomolecular pump	**152 48**
DC plug	**800 001 694**
Solenoid venting valve, normally closed	
24 V DC, DN 16 ISO-KF	**800120V0011**
Power failure venting valve, normally open	**800120V0021**
Included in the Delivery of the Pump P	
Flanges for forevacuum, venting and purge gas are blank-flanged	
Centering ring with FPM sealing ring and a clamping yoke	

MAG INTEGRA – Magnetic Rotor Suspension with integrated Frequency Converter, with Compound Stage

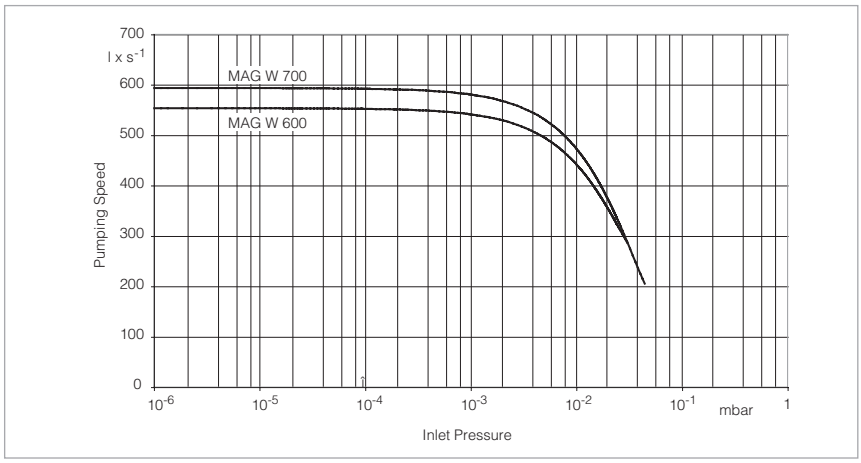
TURBOVAC MAG W 600/700 iP



		DN	⌀ d_1	⌀ d_2	h	h_1	h_2	l	b	b*	α	s_1	s_2
MAG W 600 iP	mm	160 ISO-K	180.0	204.0	281.5	90	80	204.0	274.5	257.5	21°	13.0	121.0
	in.		7.09	8.03	11.08	3.54	3.15	8.03	10.81	10.14	21°	0.51	4.76
	mm	160 CF	202.5	204.0	294.0	90	80	204.0	274.5	257.5	21°	10.0	150.0
	in.		7.97	8.03	11.57	3.54	3.15	8.03	10.81	10.14	16°	0.39	5.91
MAG W 700 iP	mm	200 ISO-K	240.0	204.0	280.5	90	80	240.0	292.5	275.5	21°	13.0	130.0
	in.		9.45	8.03	11.04	3.54	3.15	9.45	11.52	10.85	21°	0.51	5.12
	mm	200 CF	253.0	204.0	275.0	90	80	253.0	299.0	282.0	21°	9.0	156.0
	in.		9.96	8.03	10.83	3.54	3.15	9.96	11.77	11.10	21°	0.35	6.14

b* = width with plug of the DRIVE/BEARING cable connected instead of MAG.DRIVE iS

Dimensional drawing for the TURBOVAC MAG W 600/700 iP



Pumping speed for N_2 of the TURBOVAC MAG W 600/700 iP as a function of the inlet pressure

Typical Applications

- Gas analysis systems
- Particle accelerators
- Electron microscopes
- Research
- Coating systems

Technical Features

- Installation in any orientation
- DN 160 or 200 ISO-K and/or CF high vacuum connection
- DN 25 ISO-KF with clamped fore-vacuum connection
- Purge gas/venting connection DN 16 ISO-KF with clamped connection (purge/vent)
- Water or air cooling optional
- 2 slots for industrial communications modules
  - Standard 9 pin 24 V SPS PLC-IO in Control Slot
  - RS 232 C in Service Slot
  - further interfaces can be fitted: Profibus, RS 485 C, DeviceNet, EtherNet IP, EtherCat

Advantages to the User

- Highest pumping speed from the smallest possible size
- New standard regarding maintenance-free systems
- Suitability for vibration sensitive applications in the area of analytical engineering, thin-film technology, electron microscopes, research, development among others
- Flexibility due to the modular concept; the converter is optionally also available by way of a bench top unit

Technical Data

TURBOVAC MAG

		W 600 iP		W 700 iP	
Inlet flange	DN	160 ISO-K	160 CF	200 ISO-K	200 CF
Pumping speed					
N_2	l/s	550	550	590	590
Ar	l/s	520	520	540	540
He	l/s	570	570	600	600
H_2	l/s	410	410	430	430
Operating speed	min^{-1}	48 000	48 000	48 000	48 000
Compression ratio					
N_2		1.6×10^{10}	1.6×10^{10}	1.6×10^{10}	1.6×10^{10}
H_2		3.4×10^{4}	3.4×10^{4}	3.4×10^{4}	3.4×10^{4}
He		1.7×10^{6}	1.7×10^{6}	1.7×10^{6}	1.7×10^{6}
Ultimate pressure	mbar	$< 10^{-8}$	$< 10^{-10}$	$< 10^{-8}$	$< 10^{-10}$
	(Torr)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)
Max. degassing temperature	°C (°F)	–	80 (176)	–	80 (176)
Max. foreline pressure for N_2	mbar (Torr)	6.0 (4.5)	6.0 (4.5)	6.0 (4.5)	6.0 (4.5)
Recommended backing pump		TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B
Run-up time	min	< 6	< 6	< 6	< 6
Foreline flange (clamped)	DN	25 ISO-KF	25 ISO-KF	25 ISO-KF	25 ISO-KF
Purge / vent port (clamped)	DN	16 ISO-KF	16 ISO-KF	16 ISO-KF	16 ISO-KF
Water cooling connection (optional)	G	1/8"	1/8"	1/8"	1/8"
Weight, approx.	kg (lbs)	17 (37.5)	17 (37.5)	17 (37.5)	17 (37.5)

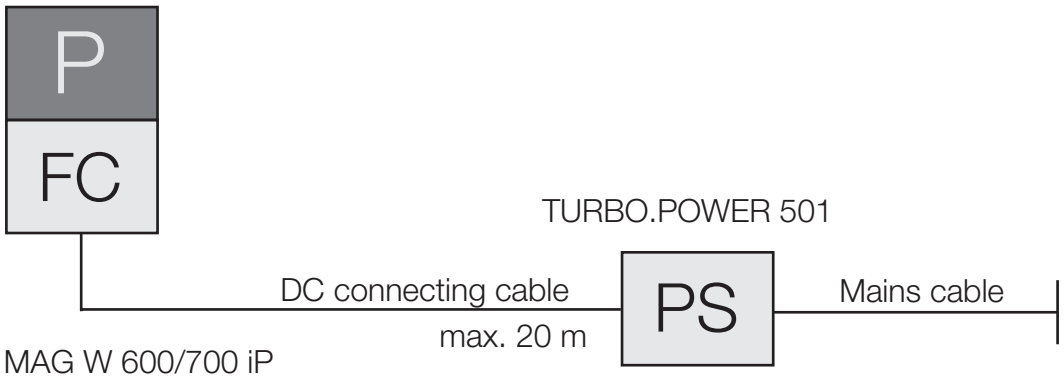
Technical Data

Integrated Frequency Converter TURBO.DRIVE iS

Power supply	V	48	48	48	48
Ripple	%	< 2	< 2	< 2	< 2
Power consumption					
maximum	W	400	400	400	400
at ultimate pressure	W	259	259	259	259
DC current consumption, max.	A	7.5 to 9.3	7.5 to 9.3	7.5 to 9.3	7.5 to 9.3
DC power supply voltage range	V	43 to 53	43 to 53	43 to 53	43 to 53
Length of the DC connection cable, max.					
at 3 x 1.5 mm^2	m (ft)	5 (17.5)	5 (17.5)	5 (17.5)	5 (17.5)
at 3 x 2.5 mm^2	m (ft)	20 (70.0)	20 (70.0)	20 (70.0)	20 (70.0)
Contact rating for the relays, max.		32 V; 0.5 A	32 V; 0.5 A	32 V; 0.5 A	32 V; 0.5 A
Permissible ambient temperature					
during operation	°C	+10 to +40	+10 to +40	+10 to +40	+10 to +40
	(°F)	(+50 to +104)	(+50 to +104)	(+50 to +104)	(+50 to +104)
during storage	°C	0 to +60	0 to +60	0 to +60	0 to +60
	(°F)	(0 to +140)	(0 to +140)	(0 to +140)	(0 to +140)
Relative humidity of the air, non-condensing	%	5 to 85	5 to 85	5 to 85	5 to 85
Protection class	IP	30	30	30	30
Overvoltage category		II	II	II	II
Pollution category		2	2	2	2

	P	FC	Part No.	
TURBOVAC MAG W 600 iP with Integrated Frequency Converter and Seal Gas Connection				
DN 160 ISO-K			**410600V0505**	
DN 160 CF			**410600V0506**	
TURBOVAC MAG W 700 iP with Integrated Frequency Converter and Seal Gas Connection				
DN 200 ISO-K			**410700V0505**	
DN 200 CF			**410700V0506**	
Mandatory Accessories				
Power supply TURBO.POWER 501			**410300V5221**	
DC cable frequency converter – power supply				
1 m (3.5 ft)			**410300V2001**	
3 m (10.5 ft)			**410300V2003**	
5 m (17.5 ft)			**410300V2005**	
10 m (35.0 ft)			**410300V2010**	
20 m (70.0 ft)			**410300V2020**	
Mains cable, 3 m (10.5 ft)				
with EURO plug			**800102V0002**	
with US plug 5-15 P			**800102V1002**	
Forevacuum pump				
TRIVAC D 2,5 E				
220 – 240 V, 50 Hz; 230 V, 60 Hz; Schuko plug, EURO version			**140 000**	
110 – 120 V, 50/60 Hz; NEMA plug, US version			**140 002**	
TRIVAC D 8 B				
1 phase motor; 230 V, 50/60 Hz			**112 55**	
3 phase motor; 230/400 V, 50 Hz; 250/440 V, 60 Hz			**112 56**	

With integrated Frequency Converter

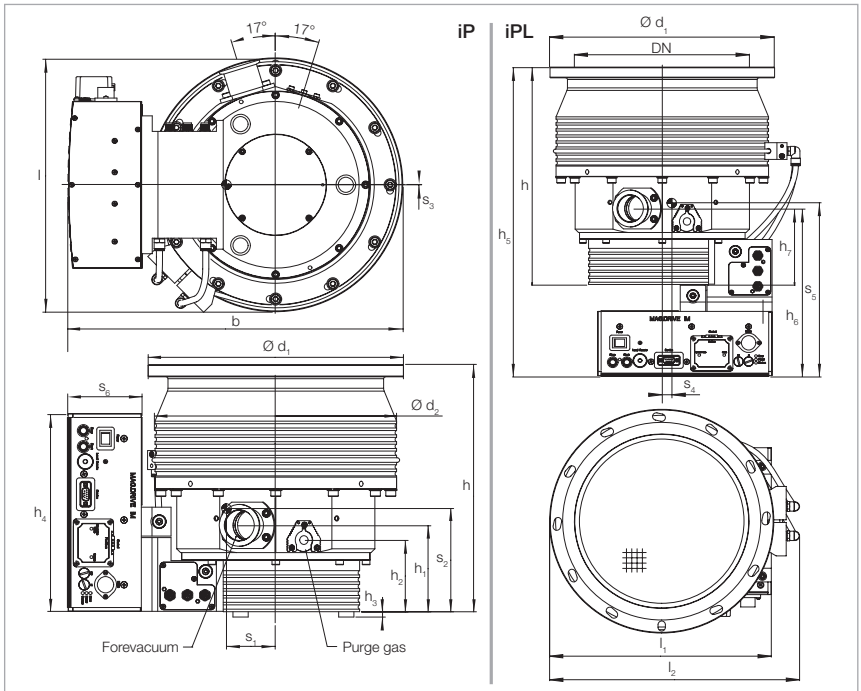


Ordering Information **TURBOVAC MAG W 600/700 iP**

Accessories, optional P	Part No.
Inlet screen	
DN 160 ISO-K	**E 200 00 307**
DN 160 CF	**E 200 17 247**
DN 200 ISO-K	**200 91 639**
DN 200 CF	**400 001 515**
Flange heater	
160 CF, 230 V, 50 Hz	**854 37**
160 CF, 115 V, 60 Hz	**854 38**
Water cooling unit	**410600V0101**
Air cooling unit	**410600V0102**
START/STOP switch for manual operation of the turbomolecular pump	**152 48**
DC plug	**800 001 694**
Solenoid venting valve, normally closed	
24 V DC, DN 16 ISO-KF	**800120V0011**
Power failure venting valve, normally open	**800120V0021**
Included in the Delivery of the Pump P	
Flanges for forevacuum, venting and purge gas are blank-flanged	
Centering ring with FPM sealing ring and a clamping yoke	

MAG INTEGRA – Magnetic Rotor Suspension with integrated Frequency Converter, with and without Compound Stage

TURBOVAC MAG W 1300 iP(L) to 2201 iP(L)



Type	DN		b	d_1	d_2	h	h_1	h_2	h_3	h_4	h_5	h_6
MAG W 1300	200 ISO-F	mm	420 [1]	285	285	305	114	94	7	260	442	251
		in.	16.54 [1]	11.22	11.22	12.01	4.49	3.70	0.38	10.24	17.40	9.88
	200 CF	mm	416	254	285	335	114	94	7	260	472	251
		in.	16.38	10.00	11.22	13.19	4.49	3.70	0.38	10.24	18.58	9.88
MAG W 1600/1601/1700	250 ISO-F	mm	442	335	317	325	114	94	7	260	463	251
		in.	17.40	13.19	12.48	12.80	4.49	3.70	0.38	10.24	18.23	9.88
	250 CF	mm	432	305	317	330	114	94	7	260	467	251
		in.	17.01	12.01	12.48	12.99	4.49	3.70	0.38	10.24	18.39	9.88
MAG W 2200/2201	250 ISO-F	mm	450	335	349	355	114	94	7	260	492	251
		in.	17.18	13.19	13.74	13.19	4.49	3.70	0.38	10.24	19.37	9.88
	250 CF	mm	446	305	349	372	114	94	7	260	506	251
		in.	17.56	12.01	13.74	14.65	4.49	3.70	0.38	10.24	19.92	9.88

			h_7	l	l_1	l_2	s_1	s_2	s_3	s_4	s_5	s_6
MAG W 1300	200 ISO-F	mm	114	311 [1]	311 [1]	332 [1]	42	140	0	15	241	98
		in.	4.49	12.24 [1]	12.24 [1]	13.07 [1]	1.65	5.51	0	0.59	9.49	3.86
	200 CF	mm	114	307	307	–	32	164	0	–	–	98
		in.	4.49	12.09	12.09	–	1.26	6.46	0	–	–	3.86
MAG W 1600/1601/1700	250 ISO-F	mm	114	335	331	374	39	154	0	14	259	98
		in.	4.49	13.19	12.24	14.72	1.54	6.06	0	0.55	10.20	3.86
	250 CF	mm	114	335	322	–	29	173	0	9	285	98
		in.	4.49	13.19	12.68	–	1.14	6.81	0	0.35	11.22	3.86
MAG W 2200/2201	250 ISO-F	mm	114	343	340	392	34	165	0	12	272	98
		in.	4.49	13.50	13.39	15.43	1.34	6.50	0	0.47	10.71	3.86
	250 CF	mm	114	339	340	–	26	187	0	8	302	98
		in.	4.49	13.35	13.39	–	1.02	7.36	0	0.32	11.89	3.86

[1] 4 mm (0.16 in.) for cooling coil

Dimensional drawing for the MAG INTEGRA, dimensions in mm

Typical Applications

- PVD coatings systems
- Coating of architectural glass
- Optical coatings
- LC displays
- Flat panels
- Research
- Analytical systems

Technical Features

- Installation in any orientation
- DN 200 and/or 250 in ISO-F and/or CF high vacuum connection
- DN 40 KF forevacuum connection
- Purge gas/venting connection DN 16 KF with clamped connection (purge/vent)
- Water cooling
- Protection class IP 54
- RS 232 C in Service Slot
- 1 slot for industrial communications modules
  - Standard ProfiBus
  - further interfaces can be fitted: RS 485 C, 9 pin 24 V PLC, DeviceNet, EtherNet IP, EtherCat

Advantages to the User

- Highest pumping speed and gas throughput from a very small size
- Rugged and reliable operation in industrial applications
- Sets new benchmarks for maintenance-free systems
- Suited for vibration sensitive applications in the areas of analytical, thin-film, electron microscopy, research and development among others.
- Flexibility through the modular concept; the converter is either attached to the side or under the pump

Technical Data

TURBOVAC MAG W

		1300 iP(L)	1600 iP(L) Booster	1601 iP(L) Booster	1700 iP(L)	2200 iP(L)	2201 iP(L)
Inlet flange	DN	200 ISO-F 200 CF	250 ISO-F	250 ISO-F	250 ISO-F 250 CF	250 ISO-F 250 CF	250 ISO-F
Pumping speed							
N_2	l/s	1100	1600	1600	1610	2100	2100
Ar	l/s	1050	1470	1470	1480	1900	1900
He	l/s	1220	1770	1770	1710	2050	2050
H_2	l/s	1130	1570	1570	1500	1750	1750
Operating speed							
standby speed adjustable from	min^{-1}	37 800	33 000	33 000	33 000	30 600	30 000
to nominal speed	min^{-1}	13 800 (230 Hz)	13 800 (230 Hz)	13 800 (230 Hz)	13 800 (230 Hz)	13 800 (230 Hz)	13 800 (230 Hz)
Max. compression ratiop							
N_2		> 10^8	> 10^7	> 10^7	> 10^8	> 10^8	> 10^8
Ar		> 10^8	> 10^7	> 10^7	> 10^8	> 10^8	> 10^8
He at 1 sccm		2 x 10^5	6 x 10^4	3 x 10^3	2 x 10^5	5 x 10^4	5 x 10^3
H_2 at 1 sccm		8 x 10^3	1 x 10^3	5 x 10^2	4 x 10^3	5 x 10^3	5 x 10^2
Max. gas throughput							
N_2 briefly, e.g. during pumpdown	mbar x l/s	30	60	60	30	30	50
N_2 in continuous operation	mbar x l/s	20	30	40	20	17	36
Ar briefly, e.g. during pumpdown	mbar x l/s	20	30	30	20	20	30
Ar in continuous operation	mbar x l/s	15	20	25	15	12	24
Ultimate pressure							
ISO-F flange	mbar (Torr)	< 10^{-8} (< 7.5 x 10^{-9})	< 10^{-8} (< 7.5 x 10^{-9})	< 10^{-8} (< 7.5 x 10^{-9})	< 10^{-8}	< 10^{-8}	< 10^{-8} (< 7.5 x 10^{-9})
CF flange	mbar (Torr)	< 10^{-10} (< 7.5 x 10^{-11})	–	–	< 10^{-10} (< 7.5 x 10^{-11})	< 10^{-10} (< 7.5 x 10^{-11})	–
Max. degassing temperature	°C (°F)	80 (176)					
Max. foreline pressure							
N_2	mbar (Torr)	4.0 (3.00)	1.0 (0.75)	1.0 (0.75)	4.0 (3.00)	2.5 (1.9)	1.2 (0.91)
Ar	mbar (Torr)	0.6 (0.45)	1.0 (0.75)	1.0 (0.75)	0.6 (0.45)	2.5 (1.9)	1.2 (0.91)
Recommended backing pump		TRIVAC B or dry compressing pumps					
Run-up time	min	< 5	< 7	< 7	< 7	< 10	< 10
Foreline flange	DN	40 KF					
Purge / vent port (clamped)	DN	16 KF					
Water cooling connection	G	1/8“					
Weight, approx.	kg (lbs)	40 (88)	45 (99)	45 (99)	45 (99)	50 (110)	50 (110)
Noise level acc. ISO 3744	dB(A	< 41					
Vibration level at high vacuum flange at max. speed	µm	0.01					

Technical Data

Integrated Frequency Converter

MAG.DRIVE iM

Power supply	V	200 – 240 ±10%
Mains frequency	Hz	50 / 60
Power consumption		
maximum	W	750
at ultimate pressure	W	150
Contact rating for the relays, max.		32 V, 0.5 A
Permissible ambient temperature		
during operation	°C (°F)	+10 to +45 (+50 to +113)
during storage	°C (°F)	-10 to +60 (+14 to +140)
Relative humidity of the air, non-condensing	%	5 to 85
Protection class	IP	54
Overvoltage category		II
Pollution category		2

Ordering Information

TURBOVAC MAG W1300/1600/1601/ 1700/2200/2201 iP(L)

TURBOVAC MAG W 1300 with Integrated Frequency Converter and Purge Gas Connection (P FC PS)	Part No.
MAG W 1300 iP, DN 200 ISO-F, Profibus	411300V0504
MAG W 1300 iP, DN 200 ISO-F, 24 V SPS interface	411300V0514
MAG W 1300 iP, DN 200 CF, Profibus	411300V0506
MAG W 1300 iP, DN 200 CF, 24 V SPS interface	411300V0516
MAG W 1300 iPL, DN 200 ISO-F, Profibus	411300V0704
MAG W 1300 iPL, DN 200 ISO-F, 24 V SPS interface	411300V0714
MAG W 1300 iPL, DN 200 CF, Profibus	411300V0706
MAG W 1300 iPL, DN 200 CF 24 V SPS interface	411300V0716

TURBOVAC MAG W 1600 Booster with Integrated Frequency Converter and Purge Gas Connection (P FC PS)	Part No.
MAG W 1600 iP Booster, DN 250 ISO-F, Profibus	411600V0504
MAG W 1600 iP Booster, DN 250 ISO-F, 24 V SPS interface	411600V0514
MAG W 1600 iPL Booster, DN 250 ISO-F, Profibus	411600V0704
MAG W 1600 iPL Booster, DN 250 ISO-F, 24 V SPS interface	411600V0714

TURBOVAC MAG 1601 Booster with Integrated Frequency Converter and Purge Gas Connection (P FC PS)	Part No.
MAG 1601 iP Booster, DN 250 ISO-F, Profibus	411600V2504
MAG 1601 iP Booster, DN 250 ISO-F, 24 V SPS interface	411600V2514
MAG 1601 iPL Booster, DN 250 ISO-F, Profibus	411600V2704
MAG 1601 iPL Booster, DN 250 ISO-F, 24 V SPS interface	411600V2714

TURBOVAC MAG W 1700 with Integrated Frequency Converter and Purge Gas Connection (P FC PS)	Part No.
MAG W 1700 iP, DN 250 ISO-F, Profibus	411700V0504
MAG W 1700 iP, DN 250 ISO-F, 24 V SPS interface	411700V0514
MAG W 1700 iP, DN 250 CF, Profibus	411700V0506
MAG W 1700 iP, DN 250 CF, 24 V SPS interface	411700V0516
MAG W 1700 iPL, DN 250 ISO-F, Profibus	411700V0704
MAG W 1700 iPL, DN 250 ISO-F, 24 V SPS interface	411700V0714
MAG W 1700 iPL, DN 250 CF, Profibus	411700V0706
MAG W 1700 iPL, DN 250 CF, 24 V SPS interface	411700V0716

TURBOVAC MAG W 2200 with Integrated Frequency Converter and Purge Gas Connection (P FC PS)	Part No.
MAG W 2200 iP, DN 250 ISO-F, Profibus	412200V0504
MAG W 2200 iP, DN 250 ISO-F, 24 V SPS interface	412200V0514
MAG W 2200 iP, DN 250 CF, Profibus	412200V0506
MAG W 2200 iP, DN 250 CF, 24 V SPS interface	412200V0516
MAG W 2200 iPL, DN 250 ISO-F, Profibus	412200V0704
MAG W 2200 iPL, DN 250 ISO-F, 24 V SPS interface	412200V0714
MAG W 2200 iPL, DN 250 CF, Profibus	412200V0706
MAG W 2200 iPL, DN 250 CF, 24 V SPS interface	412200V0716

TURBOVAC MAG 2201 Booster with Integrated Frequency Converter and Purge Gas Connection (P FC PS)	Part No.
MAG 2201 iP, DN 250 ISO-F, Profibus	412200V2504
MAG 2201 iP, DN 250 ISO-F, 24 V SPS interface	412200V2514
MAG 2201 iPL, DN 250 ISO-F, Profibus	412200V2704
MAG 2201 iPL, DN 250 ISO-F, 24 V SPS interface	412200V2714

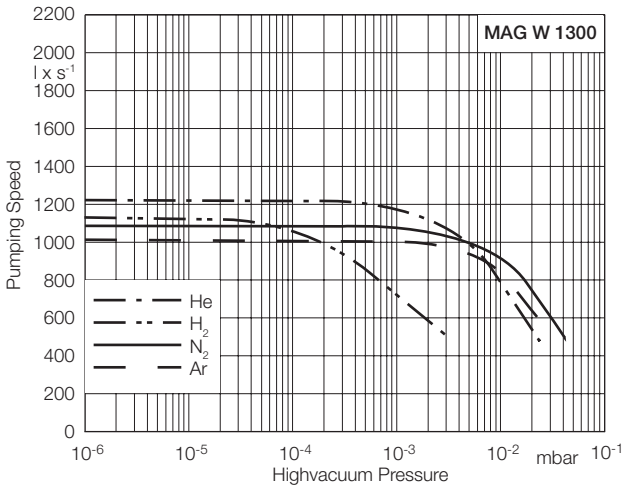
Other interfaces upon request

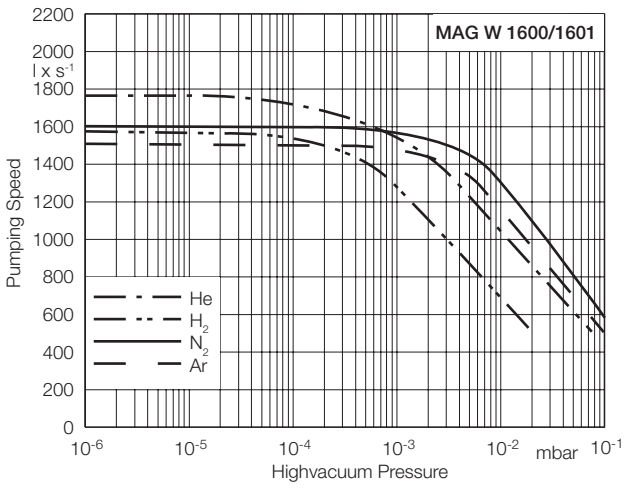
With integrated Frequency Converter and Power Supply

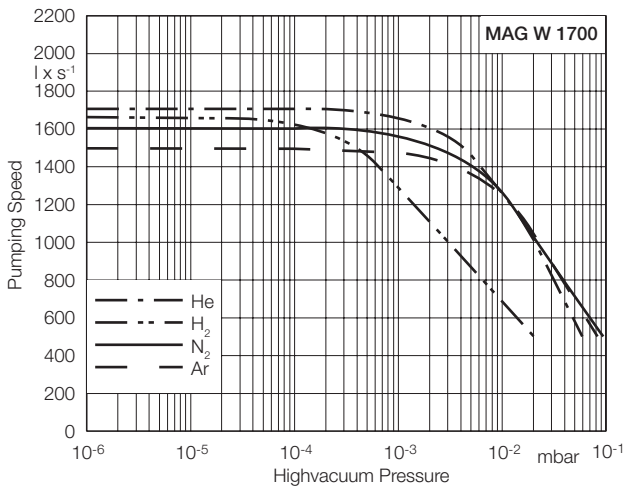
MAG W 1300 iP(L),
MAG W 1600/1601 iP(L) Booster,
MAG W 1700 iP(L),
MAG W 2200/2201 iP(L)

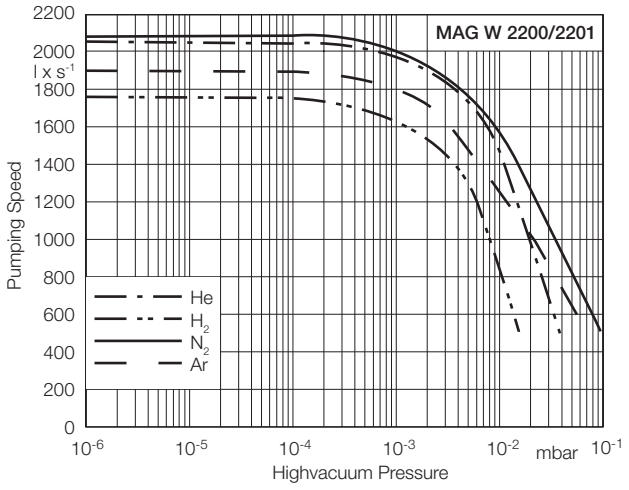
Ordering Information

	TURBOVAC MAG W1300/1600/1601/ 1700/2200/2201 iP(L)
Mandatory Accessories P	**Part No.**
Set of bolts, nuts and washers for ISO-F flange (12 each)	
Bolts M 10 x 50	**400153V0012**
Bolts M 10 x 35	**400153V0010**
Centering with O-ring	
Al/FPM	
DN 200	**268 44**
DN 250	**268 45**
Stainless steel/FPM	
DN 200	**887 02**
DN 250	**887 08**
Set of bolts, nuts and washers for CF flange (8 each)	
Bolts M 8 x 40	**400153V0016**
(For DN 200, 3 sets are required; for DN 250, 4 sets)	
Copper gasket rings for CF flange	
DN 200 (Set of 10 pieces)	**839 47**
DN 250 (Set of 5 pieces)	**839 48**
Set of hex. bolts with nuts, bolts and washers for CF flange	
DN 200	**839 07**
DN 250 (2 sets required)	**839 07**
Accessories, optional P FC PS	
Mains cable, 2.5 m (8.75 ft)	
with EURO plug	**411310V03**
with US plug	**411320V03**
Seal Kit DN 250 Metal	**200 07 901**
Seal kit, metal, for other flanges	**upon request**
Purge gas and venting valve 24 V DC	
0.6 mbar·l/s at 1.5 to 6 bar	**121 33**
0.6 mbar·l/s at 1 to 1.5 bar	**800152V0010**
Cable set (2 pieces) for connection to the pump	**411300V01**
Cooling water valve kit	**411300V02**
Spare Parts	
Inlet screen	
DN 200 ISO-F and DN 200 CF	**E 200 04 558**
DN 250 ISO-F and DN 250 CF	**E 200 04 557**
Included in the Delivery of the Pump P	
Flanges for forevacuum, venting and purge gas are blank-flanged	
Converter-side mains plug (IP 54)	
Inlet screen	







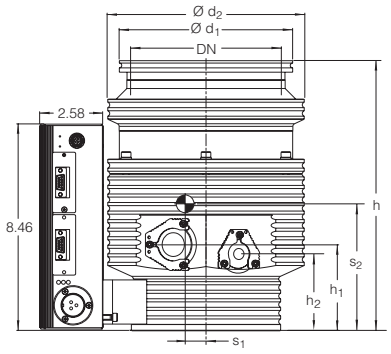


Pumping speed curves of the MAG W 1300, W 1600, W 1700 and W 2200

Notes

MAG INTEGRA – Magnetic Rotor Suspension with separate Frequency Converter, with Compound Stage

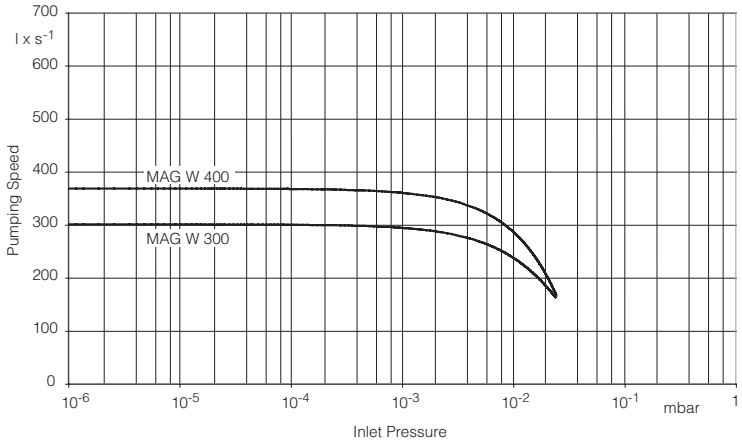
TURBOVAC MAG W 300/400 P



	DN		Ø d_1	Ø d_2	h	h_1	h_2	l	b	b*	α	s_1	s_2
MAG W 300 P	100 ISO-K	mm	130.0	155.0	250.0	77.7	70.0	156.0	250.0	233.0	16°	19.0	103.0
		in.	5.12	6.10	9.84	3.06	2.76	6.14	9.84	9.17	16°	0.75	4.06
	100 CF	mm	151.5	155.0	264.3	77.7	70.0	156.0	250.0	233.0	16°	15.0	129.0
		in.	5.97	6.10	10.41	3.06	2.76	6.14	9.84	9.17	16°	0.59	5.08
MAG W 400 P	160 ISO-K	mm	180.0	155.0	241.0	77.7	70.0	168.5	262.5	245.5	16°	19.0	106.0
		in.	7.09	6.10	9.49	3.06	2.76	6.63	10.34	9.67	16°	0.75	4.17
	160 CF	mm	202.5	155.0	234.7	77.7	70.0	181.2	273.7	256.7	16°	14.0	129.0
		in.	7.97	6.10	9.24	3.06	2.76	7.13	10.78	10.11	16°	0.55	5.08

b* = width with plug of the DRIVE/BEARING cable connected instead of MAG.DRIVE iS

Dimensional drawing for the TURBOVAC MAG W 300/400 P



Pumping speed for N_2 of the TURBOVAC MAG W 300/400 P as a function of the inlet pressure

Typical Applications

- Gas analysis systems
- Particle accelerators
- Electron microscopes
- Research
- Coating systems

Technical Features

- Installation in any orientation
- DN 100 or 160 ISO-K and/or CF high vacuum connection
- DN 16 ISO-KF with clamped forevacuum connection
- Purge gas/venting connection DN 16 ISO-KF with clamped connection (purge/vent)
- Water or air cooling optional

Advantages to the User

- Highest pumping speed from the smallest possible size
- New standard regarding maintenance-free systems
- Suitability for vibration sensitive applications in the area of analytical engineering, thin-film technology, electron microscopes, research, development among others
- Flexibility due to the modular concept; alternatively the pump is available also with an integrated frequency converter

Technical Data

TURBOVAC MAG

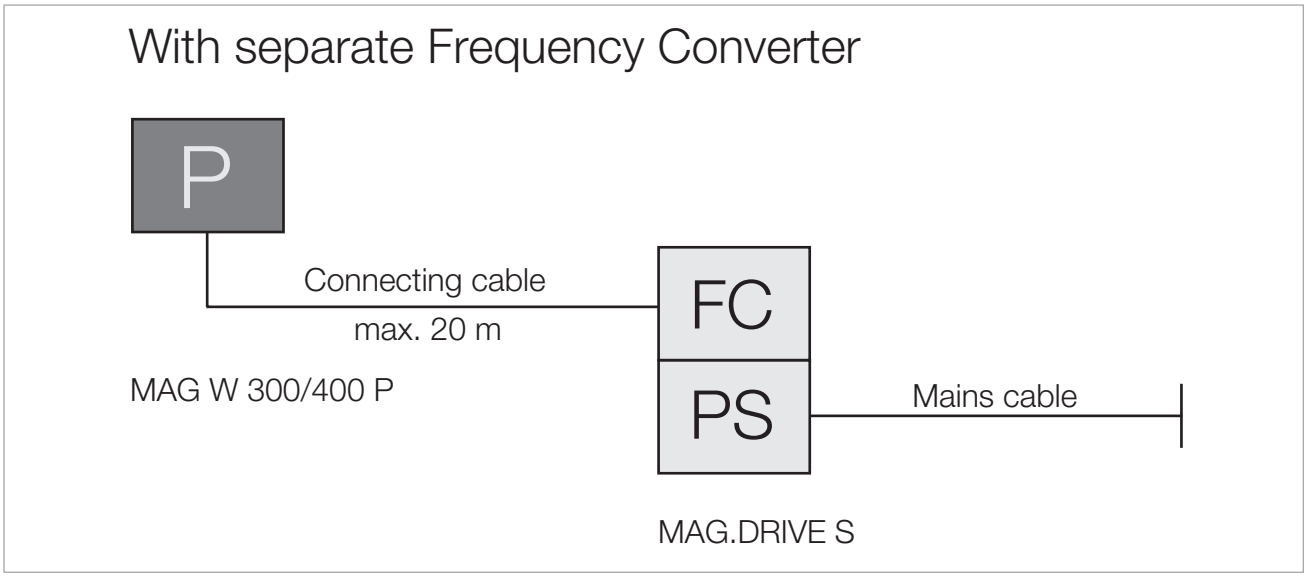
		W 300 P		W 400 P	
Inlet flange	DN	100 ISO-K	100 CF	160 ISO-K	160 CF
Pumping speed					
N_2	l/s	300	300	365	365
Ar	l/s	260	260	330	330
He	l/s	260	260	280	280
H_2	l/s	190	190	200	200
Operating speed	min^{-1}	58 800	58 800	58 800	58 800
Compression ratio					
N_2		1.0×10^{10}	1.0×10^{10}	1.0×10^{10}	1.0×10^{10}
H_2		3.2×10^{3}	3.2×10^{3}	3.2×10^{3}	3.2×10^{3}
He		9.2×10^{4}	9.2×10^{4}	9.2×10^{4}	9.2×10^{4}
Ultimate pressure	mbar	$< 10^{-8}$	$< 10^{-10}$	$< 10^{-8}$	$< 10^{-10}$
	(Torr)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)
Max. degassing temperature	°C (°F)	–	80 (176)	–	80 (176)
Max. foreline pressure for N_2	mbar (Torr)	8 (6)	8 (6)	8 (6)	8 (6)
Recommended backing pump		TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B
Run-up time	min	< 5	< 5	< 5	< 5
Foreline flange (clamped)	DN	16 ISO-KF	16 ISO-KF	16 ISO-KF	16 ISO-KF
Purge / vent port (clamped)	DN	16 ISO-KF	16 ISO-KF	16 ISO-KF	16 ISO-KF
Water cooling connection (optional)	G	1/8"	1/8"	1/8"	1/8"
Weight, approx.	kg (lbs)	12 (26)	12 (26)	12 (26)	12 (26)

Technical Data

MAG.DRIVE S

Voltage range	V	100 – 240, ±10 %
Nominal frequency	Hz	50 / 60
Power consumption		
stand-by	W	100
maximum	W	400
Max. motor voltage	V	48
Max. pump current	A	6
Fuses F1, F2 5 x 20 mm		10 A fast blow high breaking capacity 250 V
System fuse		L or G characteristic
Max. frequency	Hz	0 to 2000
Load capability, relay output X1	V / A	32 / 0,5
Temperature		
during operation	°C (°F)	0 to +45 (+32 to +113)
during storage	°C (°F)	-10 to +60 (+14 to +140)
Relative humidity of the air	%	95 (non-condensing)

TURBOVAC MAG W 300 P P **with separate Frequency Converter and Compound Stage**	**Part No.**	
DN 100 ISO-K	**410300V0005**	
DN 100 CF	**410300V0006**	
TURBOVAC MAG W 400 P P **with separate Frequency Converter and Compound Stage**		
DN 160 ISO-K	**410400V0005**	
DN 160 CF	**410400V0006**	
Mandatory Accessories P FC		
Electronic frequency converter		
MAG.DRIVE S with display	**410300V0212**	
Connecting cable DRIVE/BEARING		
(connection between pump and MAG.DRIVE S)		
3.0 m (10.5 ft)	**410300V4003**	
5.0 m (17.5 ft)	**410300V4005**	
10.0 m (35.0 ft)	**410300V4010**	
20.0 m (70.0 ft)	**410300V4020**	
Mains cable		
3.0 m (10.5 ft)		
EURO plug	**800102V0002**	
US plug 5-15 P	**800102V1002**	
2.0 m (7.5 ft)		
US plug 115 V AC	**992 76 513**	
Forevacuum pump		
TRIVAC D 2,5 E		
220 – 240 V, 50 Hz; 230 V, 60 Hz; Schuko plug, EURO version	**140 000**	
110 – 120 V, 50/60 Hz; NEMA plug, US version	**140 002**	
TRIVAC D 8 B		
1 phase motor; 230 V, 50/60 Hz	**112 55**	
3 phase motor; 230/400 V, 50 Hz; 250/440 V, 60 Hz	**112 56**	



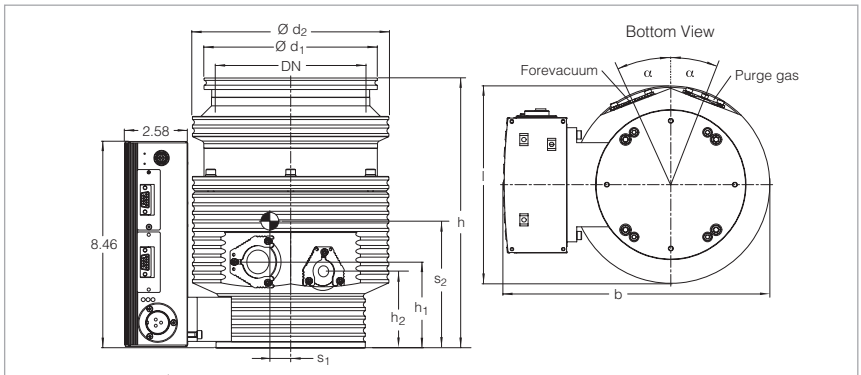
Ordering Information

TURBOVAC MAG W 300/400 P

Accessories, optional	P	Part No.
Inlet screen		
DN 100 ISO-K		
coarse (3.2 x 3.2 mm (0.13 x 0.13 in.)		800132V0101
fine (1.6 x 1.6 mm (0.06 x 0.06 in.))		800132V0102
DN 100 CF		
coarse (3.2 x 3.2 mm (0.13 x 0.13 in.))		200 91 514
fine (1.6 x 1.6 mm (0.06 x 0.06 in.))		E 200 17 195
DN 160 ISO-K		E 200 00 307
DN 160 CF		E 200 17 247
Flange heater		
100 CF, 230 V, 50 Hz		854 27
100 CF, 115 V, 60 Hz		854 28
160 CF, 230 V, 50 Hz		854 37
160 CF, 115 V, 60 Hz		854 38
Water cooling unit		410300V0101
Air cooling unit		410300V0102
Solenoid venting valve, normally closed		
24 V DC, DN 16 ISO-KF		800120V0011
Power failure venting valve, normally open		800120V0021
Included in the Delivery of the Pump	P	
Flanges for forevacuum, venting and purge gas are blank-flanged		
Centering ring with FPM sealing ring and a clamping yoke		

MAG INTEGRA – Magnetic Rotor Suspension with separate Frequency Converter, with Compound Stage

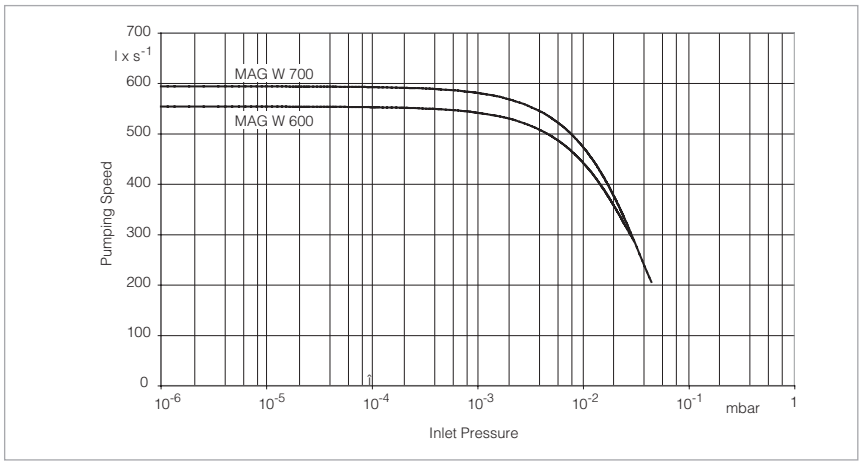
TURBOVAC MAG W 600/700 P



		DN	ø d_1	ø d_2	h	h_1	h_2	l	b	b*	α	s_1	s_2
MAG W 600 P	mm	160 ISO-K	180.0	204.0	281.5	90	80	204.0	274.5	257.5	21°	13.0	121.0
	in.		7.09	8.03	11.08	3.54	3.15	8.03	10.81	10.14	21°	0.51	4.76
	mm	160 CF	202.5	204.0	294.0	90	80	204.0	274.5	257.5	21°	10.0	150.0
	in.		7.97	8.03	11.57	3.54	3.15	8.03	10.81	10.14	21°	0.39	5.91
MAG W 700 P	mm	200 ISO-K	240.0	204.0	280.5	90	80	240.0	292.5	275.5	21°	13.0	130.0
	in.		9.45	8.03	11.04	3.54	3.15	9.45	11.52	10.85	21°	0.51	5.12
	mm	200 CF	253.0	204.0	275.0	90	80	253.0	299.0	282.0	21°	9.0	156.0
	in.		9.96	8.03	10.83	3.54	3.15	9.96	11.77	11.10	21°	0.35	6.14

b* = width with plug of the DRIVE/BEARING cable connected instead of MAG.DRIVE iS

Dimensional drawing for the TURBOVAC MAG W 600/700 P



Pumping speed for N_2 of the TURBOVAC MAG W 600/700 P as a function of the inlet pressure

Typical Applications

- Gas analysis systems
- Particle accelerators
- Electron microscopes
- Research
- Coating systems

Technical Features

- Installation in any orientation
- DN 160 or 200 ISO-K and/or CF high vacuum connection
- DN 25 ISO-KF with clamped forevacuum connection
- Purge gas/venting connection DN 16 ISO-KF with clamped connection (purge/vent)
- Water or air cooling optional

Advantages to the User

- Highest pumping speed from the smallest possible size
- New standard regarding maintenance-free systems
- Suitability for vibration sensitive applications in the area of analytical engineering, thin-film technology, electron microscopes, research, development among others
- Flexibility due to the modular concept; alternatively the pump is available also with an integrated frequency converter

Technical Data

TURBOVAC MAG

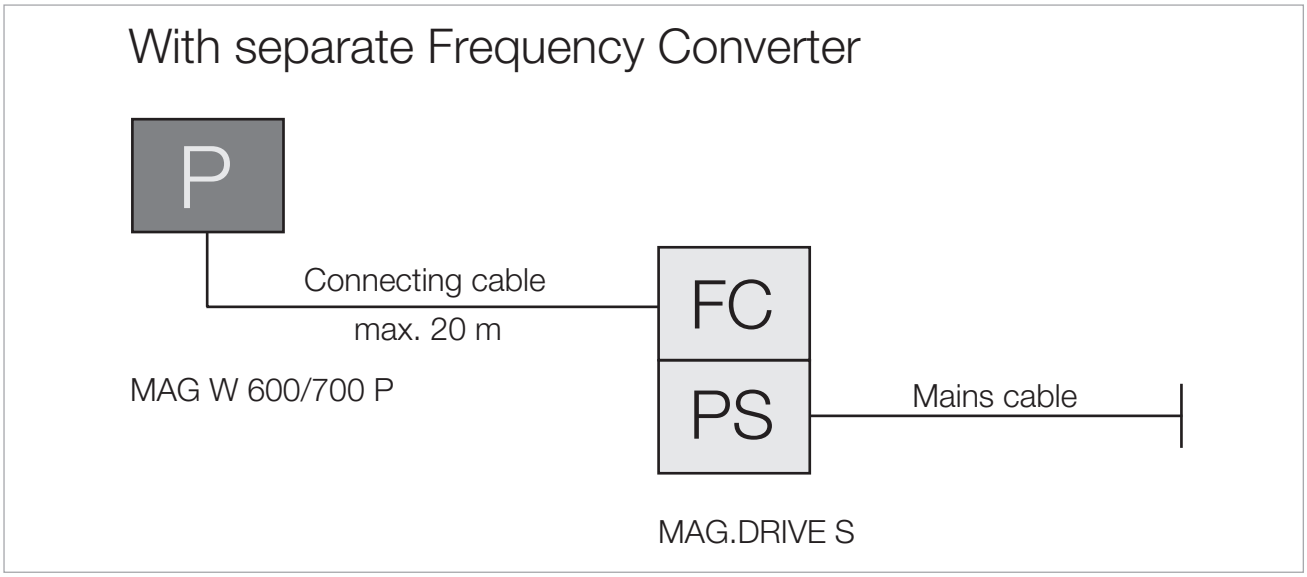
		W 600 P		W 700 P	
Inlet flange	DN	160 ISO-K	160 CF	200 ISO-K	200 CF
Pumping speed					
N_2	l/s	550	550	590	590
Ar	l/s	520	520	540	540
He	l/s	570	570	600	600
H_2	l/s	410	410	430	430
Operating speed	min^{-1}	48 000	48 000	48 000	48 000
Compression ratio					
N_2		1.6×10^{10}	1.6×10^{10}	1.6×10^{10}	1.6×10^{10}
H_2		3.4×10^{4}	3.4×10^{4}	3.4×10^{4}	3.4×10^{4}
He		1.7×10^{6}	1.7×10^{6}	1.7×10^{6}	1.7×10^{6}
Ultimate pressure	mbar	$< 10^{-8}$	$< 10^{-10}$	$< 10^{-8}$	$< 10^{-10}$
	(Torr)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)	($< 0.75 \times 10^{-8}$)	($< 0.75 \times 10^{-10}$)
Max. degassing temperature	°C (°F)	–	80 (176)	–	80 (176)
Max. foreline pressure for N_2	mbar (Torr)	6.0 (4.5)	6.0 (4.5)	6.0 (4.5)	6.0 (4.5)
Recommended backing pump		TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B	TRIVAC D 2,5 E TRIVAC D 8 B
Run-up time	min	< 6	< 6	< 6	< 6
Foreline flange (clamped)	DN	25 ISO-KF	25 ISO-KF	25 ISO-KF	25 ISO-KF
Purge / vent port (clamped)	DN	16 ISO-KF	16 ISO-KF	16 ISO-KF	16 ISO-KF
Water cooling connection (optional)	G	1/8"	1/8"	1/8"	1/8"
Weight, approx.	kg (lbs)	17 (37.5)	17 (37.5)	17 (37.5)	17 (37.5)

Technical Data

MAG.DRIVE S

Voltage range	V	100 – 240, ±10 %
Nominal frequency	Hz	50 / 60
Power consumption		
stand-by	W	100
maximum	W	400
Max. motor voltage	V	48
Max. pump current	A	6
Fuses F1, F2 5 x 20 mm		10 A fast blow high breaking capacity 250 V
System fuse		L or G characteristic
Max. frequency	Hz	0 to 2000
Load capability, relay output X1	V / A	32 / 0.5
Temperature		
during operation	°C (°F)	0 to +45 (+32 to +113)
during storage	°C (°F)	-10 to +60 (+14 to +140)
Relative humidity of the air	%	95 (non-condensing)

TURBOVAC MAG W 600 P with separate Frequency Converter and Compound Stage P	Part No.	
DN 160 ISO-K	410600V0005	
DN 160 CF	410600V0006	
TURBOVAC MAG W 700 P with separate Frequency Converter and Compound Stage P		
DN 200 ISO-K	410700V0005	
DN 200 CF	410700V0006	
Mandatory Accessories P FC		
Electronic frequency converter MAG.DRIVE S with display	410300V0212	
Connecting cable DRIVE/BEARING (connection between pump and MAG.DRIVE S)		
3.0 m (10.5 ft)	410300V4003	
5.0 m (17.5 ft)	410300V4005	
10.0 m (35.0 ft)	410300V4010	
20.0 m (70.0 ft)	410300V4020	
Mains cable		
3.0 m (10.5 ft)		
EURO plug	800102V0002	
US plug 5-15 P	800102V1002	
2.0 m (7.5 ft)		
US plug 115 V AC	992 76 513	
Forevacuum pump		
TRIVAC D 2,5 E		
220 – 240 V, 50 Hz; 230 V, 60 Hz; Schuko plug, EURO version	140 000	
110 – 120 V, 50/60 Hz; NEMA plug, US version	140 002	
TRIVAC D 8 B		
1 phase motor; 230 V, 50/60 Hz	112 55	
3 phase motor; 230/400 V, 50 Hz; 250/440 V, 60 Hz	112 56	



Ordering Information

TURBOVAC MAG W 600/700 P

Accessories, optional	P	Part No.
Inlet screen		
DN 160 ISO-K		**E 200 00 307**
DN 160 CF		**E 200 17 247**
DN 200 ISO-K		**200 91 639**
DN 200 CF		**400 001 515**
Flange heater		
160 CF, 230 V, 50 Hz		**854 37**
160 CF, 115 V, 60 Hz		**854 38**
Water cooling unit		**410600V0101**
Air cooling unit		**410600V0102**
Solenoid venting valve, normally closed		
24 V DC, DN 16 ISO-KF		**800120V0011**
Power failure venting valve, normally open		**800120V0021**
Included in the Delivery of the Pump	P	
Flanges for forevacuum, venting and purge gas are blank-flanged		
Centering ring with FPM sealing ring and a clamping yoke		

Accessories

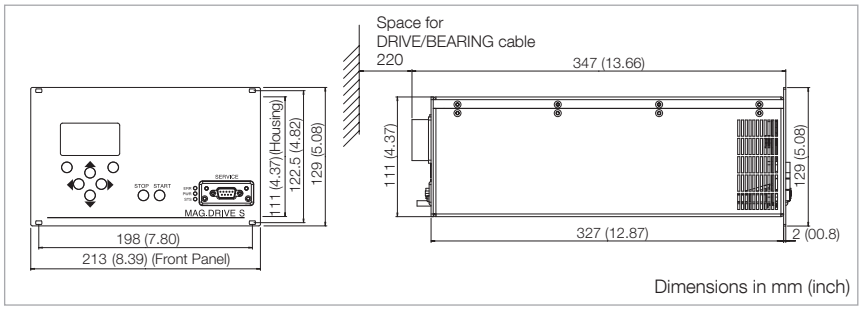
Electronic Frequency Converters for Pumps with Magnetic Rotor Suspension

MAG.DRIVE S

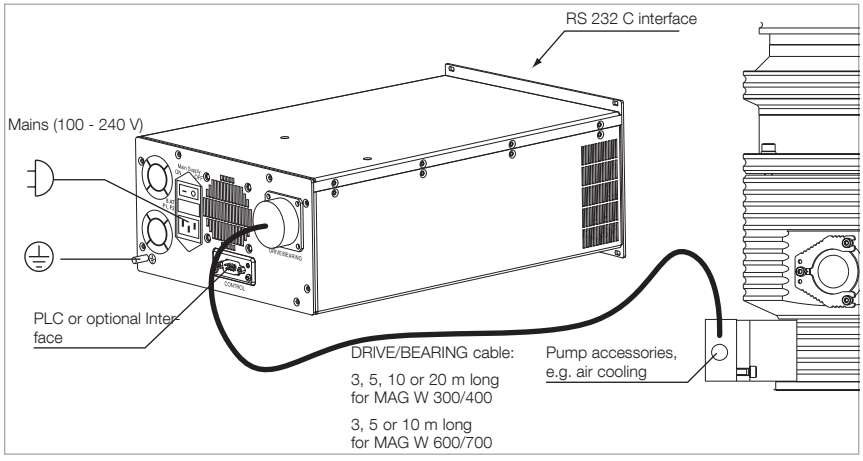
MAG.DRIVE S with display

Advantages to the User

- Operation of turbomolecular pumps with magnetically levitated rotors:
  MAG W 300/400 P and
  MAG W 600/700 P
- Easy operation through the controls
- Communication to host computer of the customer via serial interface and conventional interface possible
- Setting of speed and other functions
- Warning in case the pump is running out of specification
- Storing of all parameters in the pump's memory
- Small size and low weight
- Integrated fan
- 2 slots for industrial communications modules
  - rear side:
    Standard 9 pin 24 V SPS
    PLC-IO in Control Slot
  - front side:
    RS 232 C in Service Slot
  - further interfaces can be fitted:
    Ethernet, Profibus, DeviceNet,
    RS 485 C



Dimensional drawing for the MAG.DRIVE S



Connection schematic MAG.DRIVE S

Technical Data

MAG.DRIVE S

Voltage range	V	100 – 240, ±10%
Nominal frequency	Hz	50 / 60
Power consumption		
stand-by	W	100
maximum	W	400
Max. motor voltage	V	48
Max. pump current	A	6
Fuses F1, F2 5 x 20 mm		10 A fast blow high breaking capacity 250 V
System fuse		L or G characteristic
Max. frequency	Hz	0 to 2000
Load capability, relay output X1	V / A	32 / 0,5
Temperature		
during operation	°C (°F)	0 to +45 (+32 to +113)
during storage	°C (°F)	-10 to +60 (+14 to +140)
Relative humidity of the air	%	95 (non-condensing)
Weight, approx.	kg (lbs)	65 (14.35)

Ordering Information

MAG.DRIVE S

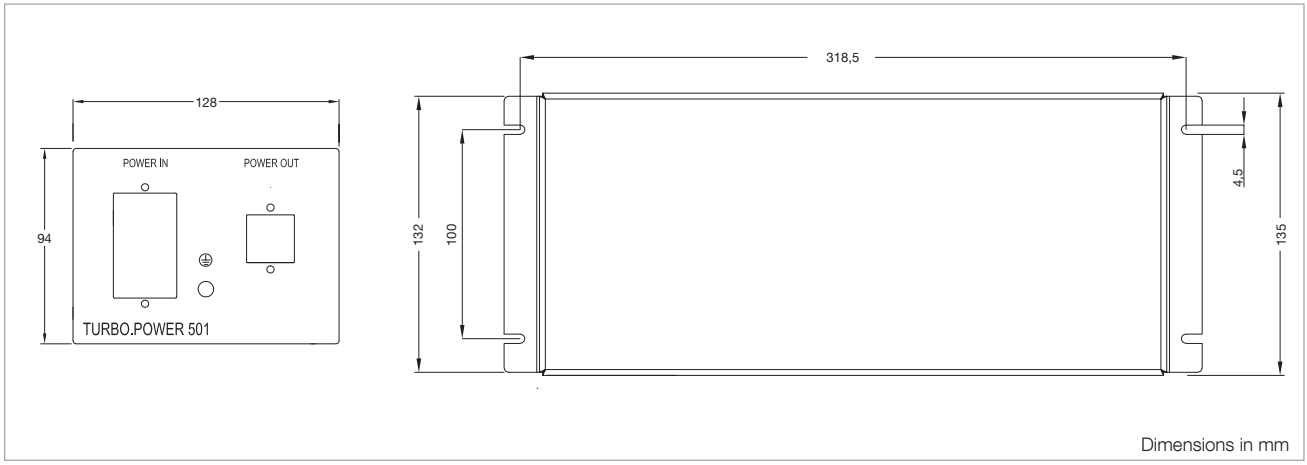
	Part No.
Electronic frequency converter MAG.DRIVE S with display	**410300V0212**
Connecting cable DRIVE/BEARING (connection between pump and MAG.DRIVE S)	
3.0 m (10.5 ft)	**410300V4003**
5.0 m (17.5 ft)	**410300V4005**
10.0 m (35.0 ft) [1]	**410300V4010**
20.0 m (70.0 ft) [1]	**410300V4020**
Mains cable	
3.0 m (10.5 ft)	
EURO plug	**800102V0002**
US plug 5-15 P	**800102V1002**
2.0 m (7.5 ft)	
US plug 115 V AC	**992 76 513**

[1] Suited for operating the MAG W 300/400 only

Power Supply TURBO.POWER 501

for TURBOVAC MAG W 300/400/600/700 iP

TURBO.POWER 501 (Fig.similar)



Dimensional drawing for the power supply TURBO.POWER 501

Technical Features

- For supplying 48 V DC power to the MAG W 300/400/600/700 iP
- Bench top unit or for cabinet mounting

Technical Data

		Power Supply TURBO.POWER 501
Power supply (POWER IN)	V	100 – 240, ±10%
Nominal frequency	Hz	50 / 60
Power consumption		
maximum	VA	650
at ultimate pressure operation of the pump	VA	450
DC voltage range		
POWER OUT	V DC	48
max.	A	10
Length of the DC connection cable, max.		
at 3 x 1.5 mm²	m (ft)	5 (17.5)
at 3 x 2.5 mm²	m (ft)	20 (70.0)
Ambient temperature		
during operation	°C (°F)	+10 to +40 (+50 to +104)
during storage	°C (°F)	-10 to -70 (+14 to -94)
Relative humidity of the air	%	5 to 85 (non-condensing)
Protection class	IP	30
Overvoltage category		II
Pollution category		2
Weight, approx.	kg (lbs)	4.0 (8.8)

Ordering Information

	Power Supply TURBO.POWER 501 Part No.
Power supply TURBO.POWER 501	**410300V5221**
DC cable (connection between TURBO.POWER 501 and MAG.DRIVE iS)	
1.0 m (3.5 ft)	**410300V2001**
3.0 m (10.5 ft)	**410300V2003**
5.0 m (17.5 ft)	**410300V2005**
10.0 m (35.0 ft)	**410300V2010**
20.0 m (70.0 ft)	**410300V2020**
Mains cable	
3.0 m (10.5 ft)	
EURO plug	**800102V0002**
US plug 5-15 P	**800102V1002**
2.0 m (7.5 ft)	
US plug 115 V AC	**992 76 513**

Vibration Absorber

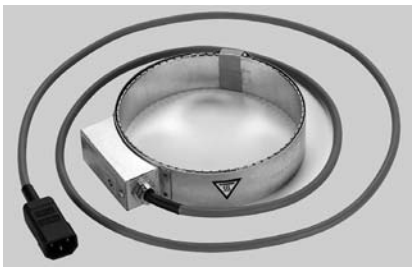
Vibration absorbers are used to inhibit the propagation of vibrations from the turbomolecular pump to highly sensitive instruments like electron beam microscopes, micro-balances or analytical instruments.

Ordering Information — Vibration Absorber

	Part No.
Vibration absorber	
DN 63 ISO-K 66 mm (2.60 in.) long	**800131V0063**
DN 63 CF 81 mm (3.19 in.) long	**500 070**
DN 100 ISO-K 84 mm (3.31 in.) long	**800131V0100**
DN 100 CF 100 mm (4.09 in.) long	**500 071**
DN 160 ISO-K 84 mm (3.31 in.) long	**500 073**
DN 160 CF 104 mm (4.09 in.) long	**500 072**

Flange Heater for CF High Vacuum Flanges

Most TURBOVAC pumps can be baked out in order to improve the ultimate pressure attained in the UHV range. Degassing of the turbomolecular pump will only be useful when simultaneously baking out the vacuum chamber.



Technical Data — Flange Heater

		Flange Heater
Rated power consumption of the flange heater		
DN 63 CF, DN 100 CF	W	100
DN 160 CF	W	150
Voltage	V AC	230 or 115
Cable length	mm	1600
Max. temperature	°C	100

Ordering Information — Flange Heater

	Part No.	Part No.
Flange heater	230 V	115 V
DN 63 CF	**800137V0003**	**800137V0004**
DN 100 CF	**800137V0005**	**800137V0006**
DN 160 CF	**800137V0007**	**800137V0008**

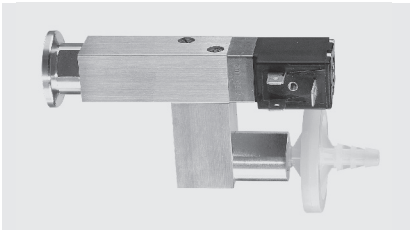
Fine Filter

A fine filter integrated in the centering ring protects the pump against particles and dust on the high vacuum side.

Ordering Information — Fine Filter

	Part No.
Connection flange of the fine filter	
DN 40 ISO-KF	**883 98**
DN 63 ISO-K	**887 20**
DN 100 ISO-K	**887 21**

Solenoid Venting Valve



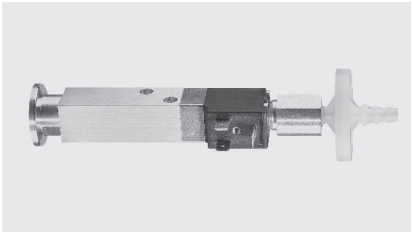
Technical Data — Venting Valve

Drive voltage	V DC	24
Power consumption	W	4
Connecting flange	DN	16 ISO-KF
Weight, approx.	kg (lbs)	0.3 (0.66)

Ordering Information — Venting Valve

	Part No.
Solenoid venting valve, normally closed	**800120V0011**

Power Failure Venting Valve



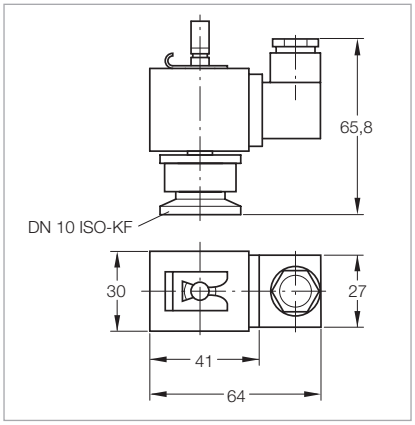
Technical Data — Power Failure Venting Valve

Drive voltage	V DC	24
Power consumption	W	4
Connecting flange	DN	16 ISO-KF
Weight, approx.	kg (lbs)	0.3 (0.66)

Ordering Information — Power Failure Venting Valve

	Part No.
Power failure venting valve, normally open	**800120V0021**

Power Failure Venting Valve, Electromagnetically Actuated



Dimensional drawing for the electromagnetically astuated power failure venting valve

Technical Data — Power Failure Venting Valve

Technical data	See Catalog “Valves”, para. “Special Valves”

Ordering Information — Power Failure Venting Valve

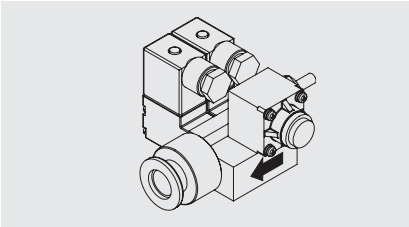
	Part No.
Power failure venting valve DN 10 ISO-KF, electromagnetically actuated	
24 V DC	**174 46**
230 V AC / 50/60 Hz	**174 26**

Purge Gas and Venting Valve

Technical Data		Purge Gas and Venting Valve
Connecting flange	DN	10 ISO-KF
Weight, approx.	kg (lbs)	0.7 (1.55)

Ordering Information	Purge Gas and Venting Valve
	Part No.
Purge gas and venting valve, 230 V	
0.2 mbar x l/s (12 sccm)	**855 19**
0.4 mbar x l/s (24 sccm)	**855 29**

Purge Gas and Venting Valve

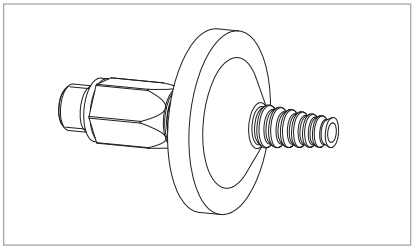


Technical Data		Purge Gas and Venting Valve
Connecting flange		
Inlet		1/4" tube
Outlet		pump specific or DN 16 ISO-KF
Purge gas pressure, abs.	bar	1.5 to 6,0
Weight, approx.	kg (lbs)	0.5 (1.1)

Ordering Information	Purge Gas and Venting Valve
	Part No.
Purge gas and venting valve, 24 V DC	
0.6 mbar x l/s	**121 33**

Further 0.6 mbar x l/s valves upon request

Gas Filter to G 1/4" for Purge Gas and Venting Valve



Technical Data	Gas Filter
Gasfilter including fitting G 1/4" and 2 gaskets	

Ordering Information	Gas Filter
	Part No.
Gas filter to G 1/4" for seal gas and venting valve	**800110V0012**
Replacement filter for gas filter to G 1/4" for seal gas and venting valve	**E 200 18 515**

Accessories for Serial Interfaces RS 232 C and RS 485 C

Through these accessories many control, monitoring and information capabilities can be implemented in connection with the electronic frequency converters and turbomolecular pumps.

All turbomolecular pumps or electronic frequency converters are supported.

PC Software LEYASSIST

Software for PC-based communication, control and monitoring of turbomolecular pumps via USB, RS 485 or RS 232 interface with automatic pump detection.

Functions

- Display of vacuum system status
- Configuring the accessory functions of the TURBOVAC i / iX
- Reading/writing of parameters
- Data logging
- Alarm/warning message logging

Ordering Information **PC Software LEYASSIST**

	Part No.
PC software LEYASSIST	**230439V01**

Interface Adaptor for Frequency Converter with RS 232 C/RS 485 C Interface

Ordering Information **Interface Adaptor RS 232 C/RS 485 C**

	Part No.
Adaptor RS 232 C/RS 485 C mains connection 230 V, 50 Hz, EURO plug	**800110V0101**
Adaptor USB/RS 232 C for connection of RS 232 C to USB (PC), including CD with drivers and manual	**800110V0103**

Services for Mechanically Suspended Turbomolecular Pumps

Complete Refurbishing at the Service Centre

Complete refurbishing at the service centre includes the following:
Complete disassembly, cleaning, replacement of all wearing parts, mounting, electrical safety test, final test including vibration measurement

Complete Refurbishing with Decontamination at the Service Centre

Complete refurbishing with decontamination at the service centre includes the following:
Complete disassembly, cleaning and decontamination, replacement of all wearing parts, mounting, electrical safety test, final test including vibration measurement

Ordering Information	Complete Refurbishing at the Service Centre	Complete Refurbishing with Decontamination at the Service Centre
	Part No.	Part No.
For pump		
TURBOVAC 35 / 50D	**AS 2165**	**AS 2165 D**
TURBOVAC 50	**AS 2133**	**AS 2133 D**
TURBOVAC SL 80	**LAS 2368**	**LAS 2368 D**
TURBOVAC TW 70 H	**AS 2368**	**AS 2368 D**
TURBOVAC 151	**AS 2134**	**AS 2134 D**
TURBOVAC TW 250 S	**AS 2168**	**AS 2168 D**
TURBOVAC SL 300	**LAS 2369**	**LAS 2369 D**
TURBOVAC TW 300	**AS 2369**	**AS 2369 D**
TURBOVAC 361	**AS 2135**	**AS 2135 D**
TURBOVAC 600 / 1000	**AS 2136**	**AS 2136 D**
TURBOVAC TW 701 / 690	**AS 2330**	**AS 2330 D**
TURBOVAC 1100	**AS 2137**	**AS 2137 D**

Services for Magnetically Levitated Turbomolecular Pumps

Complete Refurbishing at the Service Centre

Complete refurbishing at the service centre includes the following:
Complete disassembly, cleaning, replacement of all wearing parts, mounting, electrical safety test, final test including vibration measurement

Complete Refurbishing with Decontamination at the Service Centre

Complete refurbishing with decontamination at the service centre includes the following:
Complete disassembly, cleaning and decontamination, replacement of all wearing parts, mounting, electrical safety test, final test including vibration measurement

Ordering Information	Complete Refurbishing at the Service Centre	Complete Refurbishing with Decontamination at the Service Centre
	Part No.	**Part No.**
For pump		
MAG W 300 / 400	**AS 2300**	**AS 2300 D**
MAG W 600 / 700	**AS 2600**	**AS 2600 D**
MAG W 1300 iP (L) – 2201 iP (L)	**AS 2700**	**AS 2700 D**
MAG (W) 1600 / 2000	**AS 2164** [1)]	**AS 2164 D** [1]
MAG (W) 830 / 1300 / 1500	**AS 2370** [1)]	**AS 2370 D** [1)]
MAG 900 / 1000 / 1200	**AS 2160** [1)]	**AS 2160 D** [1)]
MAG 2200	**AS 2200** [1)]	**AS 2200 D** [1)]
MAG 2800 / 3200	**AS 2800** [1)]	**AS 2800 D** [1)]

Notes

The listed services include the costs for material and working hours for standard pumps. Services for pump variants upon request.
If additional spare parts are needed for repairs, then these are invoiced separately according to a cost estimate.

[1)] Including rotor replacement