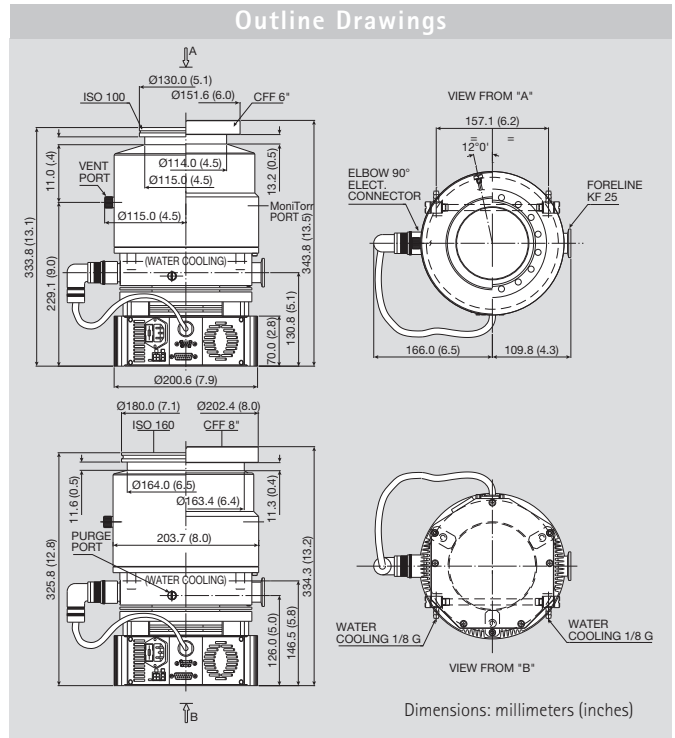


Turbo-V 551 Navigator

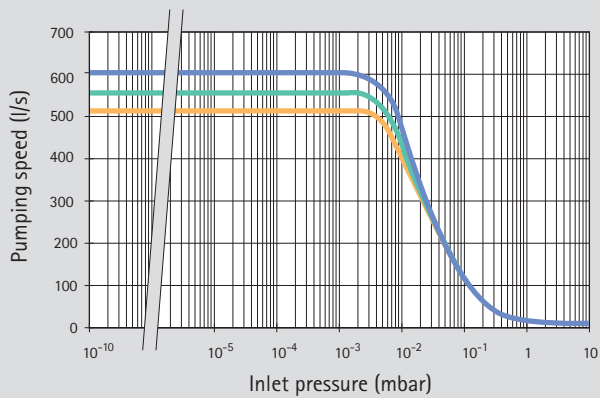


Technical Specifications

Pumping speed (with inlet screen)			
CF 6" or ISO 100:	N ₂ : 350 l/s	He: 450 l/s	H ₂ : 450 l/s
CF 8" or ISO 160:	N ₂ : 550 l/s	He: 600 l/s	H ₂ : 510 l/s
Compression ratio	N ₂ : >1 x 10 ⁹	He: 1 x 10 ⁷	H ₂ : 1 x 10 ⁶
Base pressure *(with minimum recommended forepump)	<1 x 10 ⁻¹⁰ mbar (1 x 10 ⁻¹⁰ Torr)		
Inlet flange	CF 6"	ISO 100	
	CF 8"	ISO 160	
Foreline flange	KF 25		
Rotational speed	42,000 rpm		
Start-up time	<5 minutes		
Recommended forepump	Mechanical: Varian DS 302 Dry scroll: Varian TS300		
Operating position	Any		
Cooling requirements	Natural air convection Water optional (use water with electrical conductivity ≤ 500 μS/cm)		
Bakeout temperature	120 °C at inlet flange max. (CF flange) 80 °C at inlet flange max. (ISO flange)		
Vibration level (displacement)	<0.01 μm at inlet flange		
Weight kg (lbs)	ISO flange 19.4 (43.0) CF flange 23.4 (51.6)		

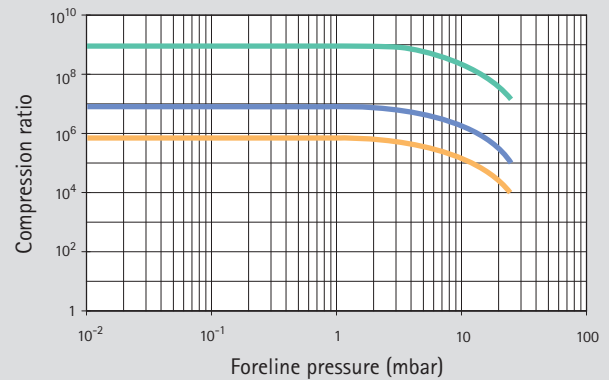
* According to standard DIN 28 428, the base pressure is measured in a leak-free test dome, 48 hours after completion of test dome bake-out, with a Turbopump fitted with a ConFlat flange and using the recommended backing pump.

Nitrogen Pumping Speed vs Inlet Pressure (DN 160 only)



— Nitrogen — Helium — Hydrogen

Compression Ratio vs Foreline Pressure



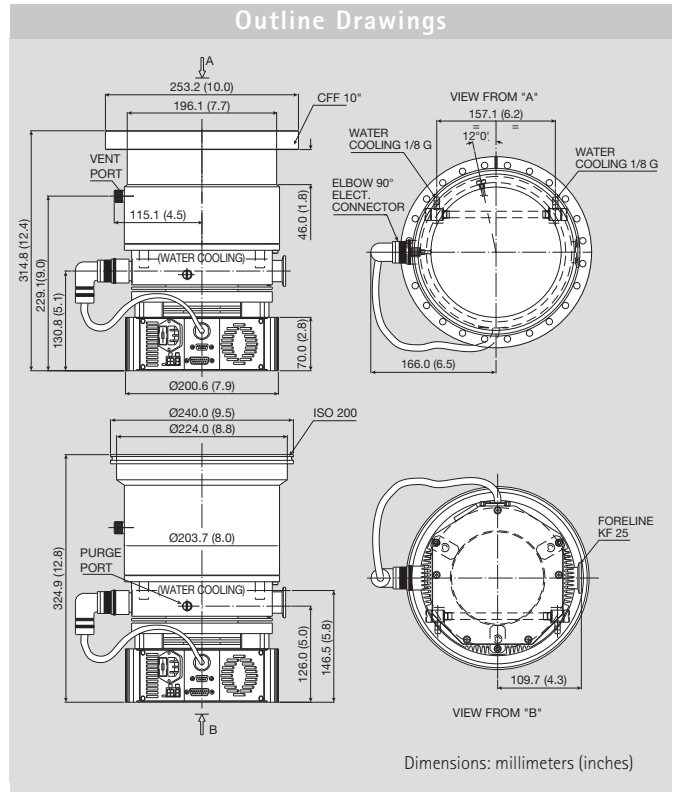
— Nitrogen — Helium — Hydrogen

Ordering Information

Description	Weight kg (lbs)	Part Number
Complete Systems		
Turbo-V 551 Navigator complete system, ISO 160 flange	19.0 (43.0)	9698832
Turbo-V 551 Navigator complete system, 8" CF flange	25.0 (56.0)	9698833
Turbo-V 551 Navigator complete system, ISO 100 flange	19.0 (43.0)	9698834
Turbo-V 551 Navigator complete system, 6" CF flange	25.0 (56.0)	9698835
<small>Complete system includes: Pump, Inlet screen, Controller mounted on the bottom, 2 Mains cables (NEMA plug and European plug), Serial cable and Navigator software, Bracket for side mounting.</small>		
Pumps		
Turbo-V 551 Navigator pump, ISO 160	6.0 (35.0)	9698922
Turbo-V 551 Navigator pump, 8" CF	22.0 (49.0)	9698923
Turbo-V 551 Navigator pump, ISO 100	16.0 (35.0)	9698924
Turbo-V 551 Navigator pump, 6" CF	22.0 (49.0)	9698925
Controllers		
Turbo-V 551 Navigator controller 120/220 V - 50/60 Hz	3.0 (6.0)	9698974
Turbo-V 550 Rack controller, 220 V	15.7 (35.0)	9699444
Turbo-V 550 Rack controller, 110 V	15.7 (35.0)	9699544

Description	Weight kg (lbs)	Part Number
Accessories		
Mains cable NEMA plug, 3 m long	0.5 (1.0)	9699958
Mains cable European plug, 3 m long	0.5 (1.0)	9699957
Serial cable and Navigator software	0.5 (1.0)	9699883
Inlet screen DN 100	0.5 (1.0)	9699302
Inlet screen DN 160	0.5 (1.0)	9699304
Heater band, 220 V	1.0 (2.0)	9699807
Heater band, 120 V	1.0 (2.0)	9699808
Water cooling kit	0.5 (1.0)	9699337
Plastic water cooling kit	0.5 (1.0)	9699347
Air cooling kit for use with Navigator controller	4.5 (10.0)	9699339
Air cooling kit for use with standard rack controller	3.0 (7.0)	9699314
Bracket for Navigator controller side mouting	2.0 (4.0)	9699349
Vibration damper ISO 100	3.0 (7.0)	9699344
Vibration damper CF 6"	3.0 (7.0)	9699334
Vibration damper ISO 160	4.0 (9.0)	9699345
Vibration damper CF 8"	4.0 (9.0)	9699335
Vent flange, NW 10 KF / M8	0.5 (1.0)	9699108
Vent device with adjustable delay time for standard rack controller	2.0 (4.0)	9699831
Vent valve for standard rack controller	2.0 (4.0)	9699843
Vent valve for Navigator controller	2.0 (4.0)	9699834
Purge valve 10 SCCM NW16KF - M12	0.2 (0.5)	9699239
Purge valve 10 SCCM 1/4 Swagelok - M12	0.2 (0.5)	9699240

Turbo-V 701 Navigator

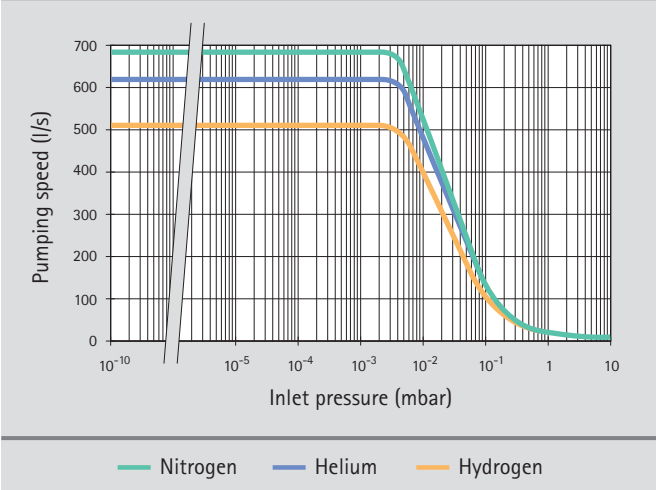


Technical Specifications

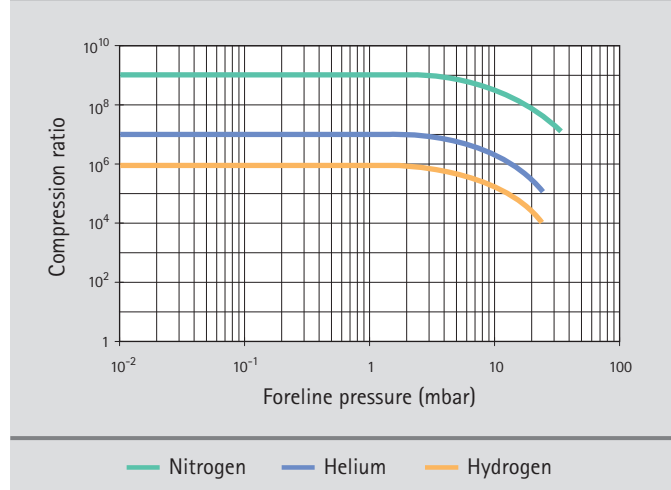
Pumping speed (with inlet screen) CF 10" or ISO 200:	N ₂ : 690 l/s	He: 620 l/s	H ₂ : 510 l/s
Compression ratio	N ₂ : 1 x 10 ⁹	He: 1 x 10 ⁷	H ₂ : 1 x 10 ⁶
Base pressure *(with minimum recommended forepump)	$< 1 \times 10^{-10}$ mbar (1×10^{-10} Torr)		
Inlet flange	CF 10"		ISO 200
Foreline flange	KF 25		
Rotational speed	42,000 rpm		
Start-up time	<5 minutes		
Recommended forepump	Mechanical: Varian DS 402 Dry scroll: Varian TS300		
Operating position	Any		
Cooling requirements	Natural air convection Water optional (use water with electrical conductivity $\leq 500 \mu\text{S/cm}$)		
Bakeout temperature	120 °C at inlet flange max. (CF flange)		80 °C at inlet flange max. (ISO flange)
Vibration level (displacement)	$< 0.01 \mu\text{m}$ at inlet flange		
Weight kg (lbs)	ISO flange 19.4 (43.0)		CF flange 25.5 (54.2)

* According to standard DIN 28 428, the base pressure is measured in a leak-free test dome, 48 hours after completion of test dome bake-out, with a Turbopump fitted with a ConFlat flange and using the recommended backing pump.

Nitrogen Pumping Speed vs Inlet Pressure (DN 200 only)



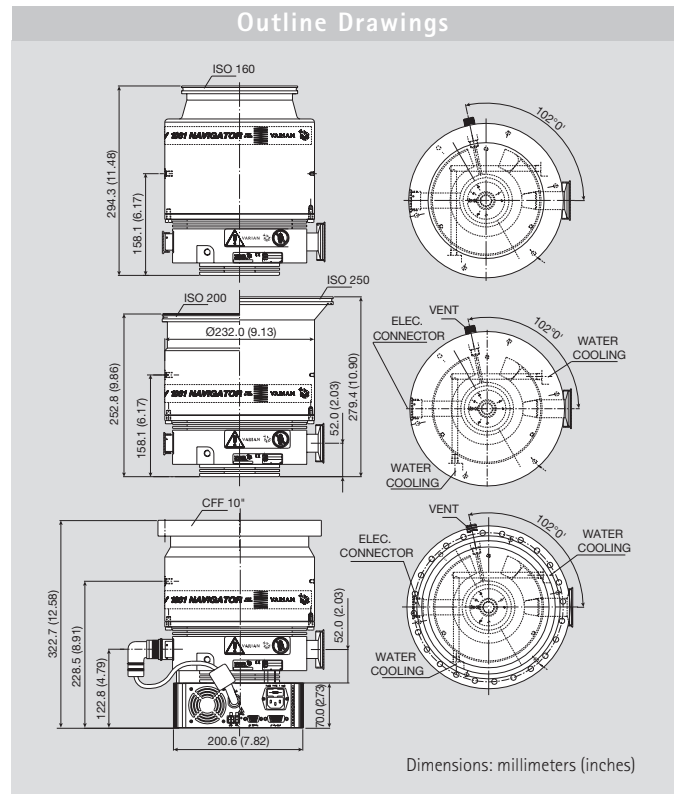
Compression Ratio vs Foreline Pressure



Ordering Information

Description	Weight kg (lbs)	Part Number
Complete Systems		
Turbo-V 701 Navigator complete system, ISO 200 flange	19.0 (43.0)	9698836
Turbo-V 701 Navigator complete system, 10" CF flange	25.0 (56.0)	9698837
<i>Complete system includes: Pump, Inlet screen, Controller mounted on the bottom, 2 Mains cables (NEMA plug and European plug), Serial cable and Navigator software, Bracket for side mounting.</i>		
Pumps		
Turbo-V 701 Navigator pump, ISO 200	16.0 (35.0)	9698926
Turbo-V 701 Navigator pump, 10" CF	22.0 (49.0)	9698927
Controllers		
Turbo-V 701 Navigator controller 120/220 V - 50/60 Hz	3.0 (6.0)	9698975
Turbo-V 700HT Rack controller, 220 V	16.0 (35.0)	9699445
Turbo-V 700HT Rack controller, 110 V	16.0 (35.0)	9699545
Accessories		
Mains cable NEMA plug, 3 m long	0.5 (1.0)	9699958
Mains cable European plug, 3 m long	0.5 (1.0)	9699957
Serial cable and Navigator software	0.5 (1.0)	9699883
Inlet screen DN 200	0.5 (1.0)	9699316
Heater band, 220 V	1.0 (2.0)	9699807
Heater band, 120 V	1.0 (2.0)	9699808
Water cooling kit	0.5 (1.0)	9699337
Plastic water cooling kit	0.5 (1.0)	9699347
Air cooling kit for use with Navigator controller	5.0 (10.0)	9699339
Air cooling kit for use with standard rack controller	3.0 (7.0)	9699314
Bracket for Navigator controller side mounting	2.0 (4.0)	9699349
Vibration damper, ISO 200	5.0 (10.0)	9699346
Vibration damper, CF 10"	5.0 (10.0)	9699336
Vent flange, NW 10 KF / M8	0.5 (1.0)	9699108
Vent device with adjustable delay time for standard rack controller	2.0 (4.0)	9699831
Vent valve for standard rack controller	2.0 (4.0)	9699843
Vent valve for Navigator controller	2.0 (4.0)	9699834
Purge valve 10 SCCM NW16KF - M12	0.2 (0.5)	9699239
Purge valve 10 SCCM 1/4 Swagelok - M12	0.2 (0.5)	9699240

Turbo-V 1001 Navigator

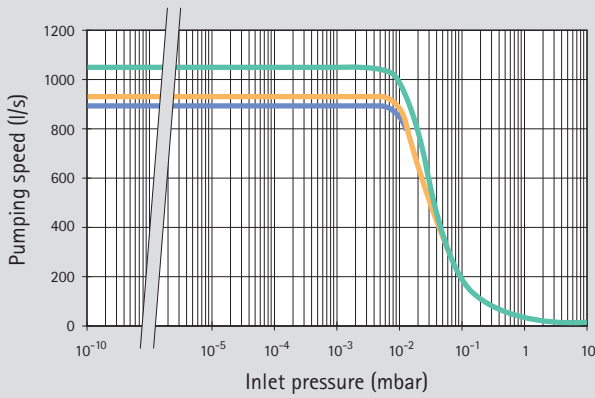


Technical Specifications

Pumping speed (with inlet screen)				
ISO 160:	N ₂ : 790 l/s	He: 820 l/s	H ₂ : 860 l/s	
CF 10" or ISO 200:	N ₂ : 950 l/s	He: 870 l/s	H ₂ : 900 l/s	
ISO 250:	N ₂ : 1,050 l/s	He: 900 l/s	H ₂ : 920 l/s	
Compression ratio				
ISO 160	N ₂ : >1 x 10 ⁹	He: 5 x 10 ⁷	H ₂ : 2 x 10 ⁶	
CF 10"/ISO 200 - ISO 250	N ₂ : 1 x 10 ⁹	He: 1 x 10 ⁷	H ₂ : 1 x 10 ⁶	
Base pressure* (with recommended forepump)	<1 x 10 ⁻¹⁰ mbar (1 x 10 ⁻¹⁰ Torr)			
Inlet flange	ISO 160	ISO 200, CF 10"	ISO 250	
Foreline flange	KF 40			
Rotational speed	38,000 rpm			
Start-up time	<4 minutes			
Recommended forepump	Mechanical: Varian DS 402 Dry scroll: Varian TS300			
Operating position	Any			
Cooling requirements	Forced air or water			
Bakeout temperature	120 °C at inlet flange max. (CF flange) 80 °C at inlet flange max. (ISO flange)			
Vibration level (displacement)	< 0.01 μm at inlet flange			
Weight kg (lbs)				
ISO 160 flange		19 (41.8)		
ISO 200 flange		19.4 (43.0)		
CF 10" flange		25.5 (54.2)		
ISO 250 flange		21.2 (46.6)		

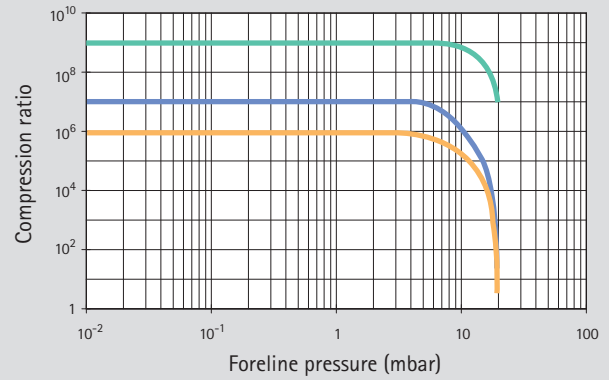
* According to standard DIN 28 428, the base pressure is measured in a leak-free test dome, 48 hours after completion of test dome bake-out, with a Turbopump fitted with a ConFlat flange and using the recommended backing pump.

Nitrogen Pumping Speed vs Inlet Pressure (DN 250 only)



— Nitrogen — Helium — Hydrogen

Compression Ratio vs Foreline Pressure



— Nitrogen — Helium — Hydrogen

Ordering Information

Description	Weight kg (lbs)	Part Number
Complete Systems		
Turbo-V 1001 Navigator complete system, ISO 160 flange	24.4 (53.8)	9698840
Turbo-V 1001 Navigator complete system, ISO 200 flange	24.8 (55.0)	9698838
Turbo-V 1001 Navigator complete system, 10" CF flange	30.9 (66.2)	9698839
Turbo-V 1001 Navigator complete system, ISO 250 flange	26.6 (58.6)	9698841
<i>Complete system includes: Pump, Inlet screen, Controller mounted on the bottom, 2 Mains cables (NEMA plug and European plug), Serial cable and Navigator software, Bracket for side mounting.</i>		
Pumps		
Turbo-V 1001 Navigator pump, ISO 160 flange	19.0 (41.8)	9698933
Turbo-V 1001 Navigator pump, ISO 200 flange	19.4 (43.0)	9698931
Turbo-V 1001 Navigator pump, 10" CF flange	25.5 (54.2)	9698932
Turbo-V 1001 Navigator pump, ISO 250 flange	21.2 (46.6)	9698934
Controllers		
Turbo-V 1001 Navigator controller 120/220 V - 50/60 Hz	5.4 (12.0)	9698978
Turbo-V 1000HT Rack controller, 220 V	15.7 (35.0)	9699454
Turbo-V 1000HT Rack controller, 110 V	15.7 (35.0)	9699554

Description	Weight kg (lbs)	Part Number
Accessories		
Mains cable NEMA plug, 3 m long	0.5 (1.0)	9699958
Mains cable European plug, 3 m long	0.5 (1.0)	9699957
Serial cable and Navigator software	0.5 (1.0)	9699883
Inlet screen DN 160	0.5 (1.0)	9699304
Inlet screen DN 200	0.5 (1.0)	9699316
Inlet screen DN 250	0.5 (1.0)	9699350
Heater band, 220 V	1.0 (2.0)	9699327
Heater band, 120 V	1.0 (2.0)	9699317
Water cooling kit	0.5 (1.0)	9699337
Plastic water cooling kit	0.5 (1.0)	9699347
Air cooling kit for use with Navigator controller	4.5 (10.0)	9699297
Air cooling kit for use with standard rack controller	3.0 (7.0)	9699315
Bracket for Navigator controller side mounting	2.0 (4.0)	9699298
Vibration damper ISO 160	4.0 (9.0)	9699345
Vibration damper, ISO 200	5.0 (10.0)	9699346
Vibration damper, CF 10"	5.0 (10.0)	9699336
Vent flange, NW 10 KF / M8	0.5 (1.0)	9699108
Vent device with adjustable delay time for standard rack controller	2.0 (4.0)	9699831
Vent valve for standard rack controller	2.0 (4.0)	9699843
Vent valve for Navigator controller	2.0 (4.0)	9699834
Purge valve 10 SCCM NW16KF - M12	0.2 (0.5)	9699239
Purge valve 10 SCCM 1/4 Swagelok - M12	0.2 (0.5)	9699240
Purge valve 20 SCCM NW16KF - M12	0.2 (0.5)	9699241
Purge valve 20 SCCM 1/4 Swagelok - M12	0.2 (0.5)	9699242
Purge valve 10 SCCM 1/4 Swagelok 1/4 Swagelok	0.2 (0.5)	9699232
Purge Valve 20 SCCM 1/4 Swagelok 1/4 Swagelok	0.2 (0.5)	9699236