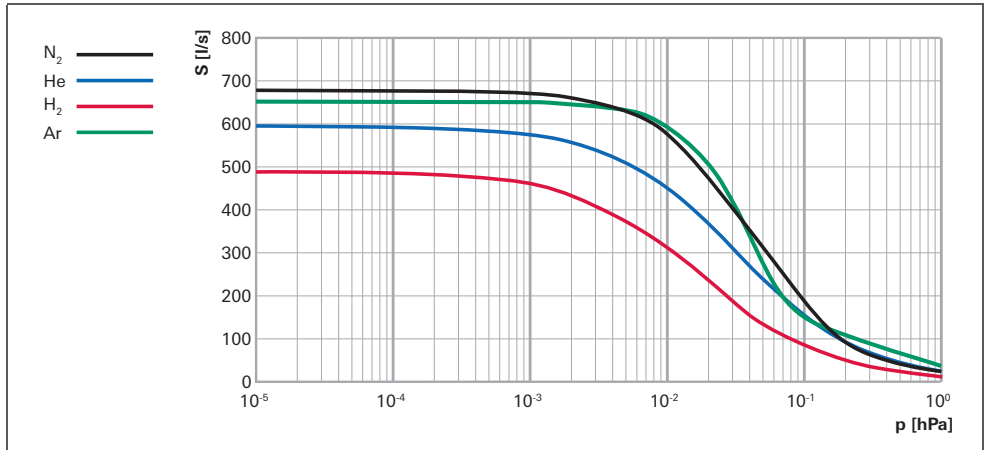


## HiPace® 700 M



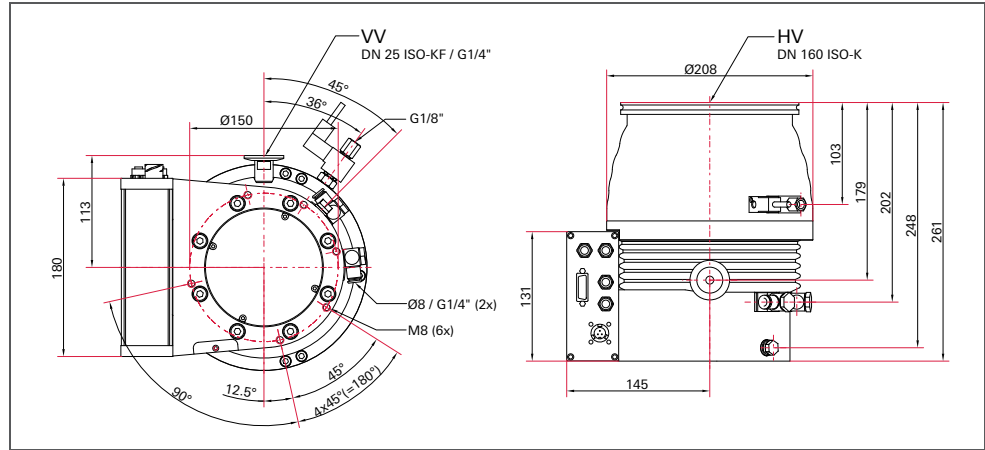
- 5-axis magnetically levitated turbopump with a pumping speed of 685 l/s for N<sub>2</sub>
- Integrated digital magnetic bearing controller TM 700
- Installation in any orientation; flexible through connectivity of up to 4 accessory parts
- With integrated water cooling for maximum gas throughput
- Interfaces: RS-485, Remote (Profibus/DeviceNet on request)
- The turbopump features extremely low vibration and is oil-free
- With patented In-field sensor calibration
- Including venting valve and patented "pulsed venting"
- Protection Class: IP 54
- Extensive accessories expand the range of applications

### Pumping speed

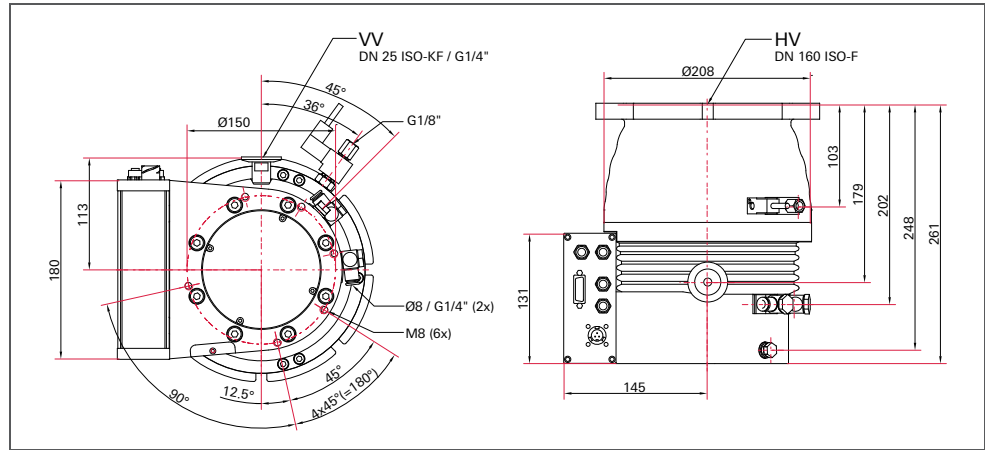


HiPace® 700 M

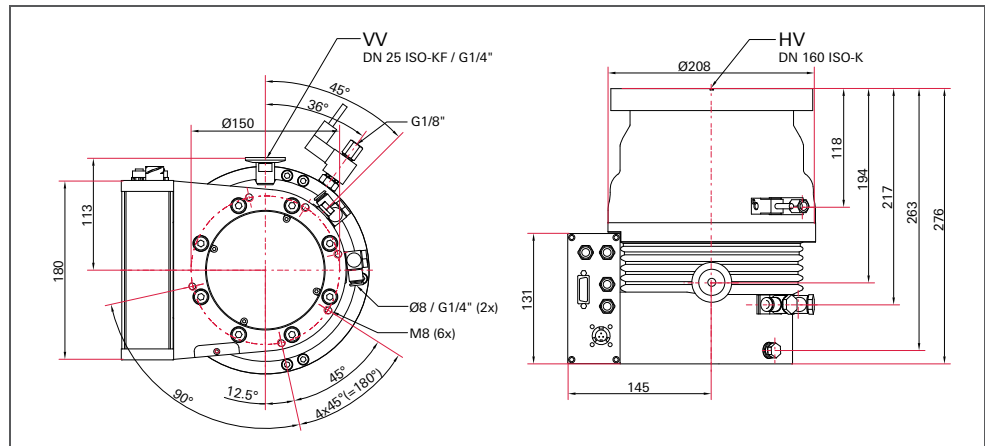
Dimensions (in mm)



HiPace<sup>®</sup> 700 M with TM 700, DN 160 ISO-K



HiPace<sup>®</sup> 700 M with TM 700, DN 160 ISO-F



HiPace<sup>®</sup> 700 M with TM 700, DN 160 CF-F

Technical data	HiPace® 700 M with TM 700, DN 160 ISO-K	HiPace® 700 M with TM 700, DN 160 CF-F	HiPace® 700 M with TM 700, DN 160 ISO-F
<b>Connection nominal diameter</b>			
Flange (out)	DN 25 ISO-KF	DN 25 ISO-KF	DN 25 ISO-KF
Flange (in)	DN 160 ISO-K	DN 160 CF-F	DN 160 ISO-F
Venting connection	G 1/8"	G 1/8"	G 1/8"
<b>Pumping speed</b>			
Pumping speed for Ar	660 l/s	660 l/s	660 l/s
Pumping speed for H <sub>2</sub>	480 l/s	480 l/s	480 l/s
Pumping speed for He	600 l/s	600 l/s	600 l/s
Pumping speed for N <sub>2</sub>	685 l/s	685 l/s	685 l/s
<b>Compression</b>			
Compression ratio for Ar	> 1 · 10 <sup>11</sup>	> 1 · 10 <sup>11</sup>	> 1 · 10 <sup>11</sup>
Compression ratio for H <sub>2</sub>	2 · 10 <sup>5</sup>	2 · 10 <sup>5</sup>	2 · 10 <sup>5</sup>
Compression ratio for He	> 1 · 10 <sup>7</sup>	> 1 · 10 <sup>7</sup>	> 1 · 10 <sup>7</sup>
Compression ratio for N <sub>2</sub>	> 1 · 10 <sup>11</sup>	> 1 · 10 <sup>11</sup>	> 1 · 10 <sup>11</sup>
<b>Fore-vacuum max. for N<sub>2</sub></b>			
	8 hPa	8 hPa	8 hPa
<b>Gas throughput</b>			
Gas throughput at 0.1 hPa HV for Ar	16 hPa l/s	16 hPa l/s	16 hPa l/s
Gas throughput at 0.1 hPa HV for H <sub>2</sub>	9 hPa l/s	9 hPa l/s	9 hPa l/s
Gas throughput at 0.1 hPa HV for He	16 hPa l/s	16 hPa l/s	16 hPa l/s
Gas throughput at 0.1 hPa HV for N <sub>2</sub>	16 hPa l/s	16 hPa l/s	16 hPa l/s
Gas throughput at full rotational speed for Ar	8 hPa l/s	8 hPa l/s	8 hPa l/s
Gas throughput at full rotational speed for N <sub>2</sub>	13 hPa l/s	13 hPa l/s	13 hPa l/s
<b>Electronic drive unit</b>			
Operating voltage	with TM 700	with TM 700	with TM 700
Operating voltage	48 (± 5 %) V DC	48 (± 5 %) V DC	48 (± 5 %) V DC
Rotation speed ± 2 %	49200 min <sup>-1</sup>	49200 min <sup>-1</sup>	49200 min <sup>-1</sup>
Rotation speed variable	20-100 %	20-100 %	20-100 %
Mounting orientation	in any orientation	in any orientation	in any orientation
Ultimate pressure*	< 1 · 10 <sup>-7</sup> hPa	< 5 · 10 <sup>-10</sup> hPa	< 1 · 10 <sup>-7</sup> hPa
Weight	15.7 kg	20.8 kg	16.4 kg
Run-up time	4 min	4 min	4 min
Cooling method, optional	Air, Convection	Air, Convection	Air, Convection
Cooling method, standard	Water	Water	Water
Cooling water temperature	15-35 °C	15-35 °C	15-35 °C
Cooling water consumption	80 l/h	80 l/h	80 l/h
Bearing	Magnetically Levitated	Magnetically Levitated	Magnetically Levitated
Sound pressure level	≤ 45 dB (A)	≤ 45 dB (A)	≤ 45 dB (A)
Interfaces	RS-485, Remote	RS-485, Remote	RS-485, Remote
Protection category	IP 54	IP 54	IP 54
Low vibrations	YES	YES	YES
Permissible magnetic field max.	5 mT	5 mT	5 mT
<b>Order number pump Pumpe</b>	<b>PM P04 450</b>	<b>PM P04 452</b>	<b>PM P04 451</b>

\*Ultimate pressure please find description on page 272

Accessories	HiPace® 700 M with TM 700, DN 160 ISO-K	HiPace® 700 M with TM 700, DN 160 CF-F	HiPace® 700 M with TM 700, DN 160 ISO-F
<b>Order number pump Pompe</b>	PM P04 450	PM P04 452	PM P04 451
<b>Power supplies/power</b>			
DCU - power supply with display control unit	PM C01 823	PM C01 823	PM C01 823
TPS - mains pack for wall/standard rail fitting	PM 061 343 -T	PM 061 343 -T	PM 061 343 -T
TPS - mains pack 19" rack module 3 RU	PM 061 347 -T	PM 061 347 -T	PM 061 347 -T
<b>Control units</b>			
DCU - Display Control Unit	PM 061 348 -T	PM 061 348 -T	PM 061 348 -T
HPU - Handheld Programming Unit	PM 051 510 -T	PM 051 510 -T	PM 051 510 -T
Accessories for HPU	PM 061 005 -T	PM 061 005 -T	PM 061 005 -T
<b>Mains cable DCU/TPS/TCP, 3 m</b>			
230 V AC mains cable with Euro-style safety plug	P 4564 309 ZA	P 4564 309 ZA	P 4564 309 ZA
115 V AC mains cable with UL plug	P 4564 309 ZE	P 4564 309 ZE	P 4564 309 ZE
208 V AC mains cable with UL plug	P 4564 309 ZF	P 4564 309 ZF	P 4564 309 ZF
<b>Connection cable, length 3 m between</b>			
Connection cable for HiPace with TC 400/TM 700 to power supply TPS/DCU 310/311/400/401	PM 061 352 -T	PM 061 352 -T	PM 061 352 -T
<b>Venting accessories</b>			
Venting valve	PM Z01 291	PM Z01 291	PM Z01 291
Air drier TTV 001	PM Z00 121	PM Z00 121	PM Z00 121
<b>Cooling accessories</b>			
Air cooling	PM Z01 363	PM Z01 363	PM Z01 363
<b>Heating accessories</b>			
Heating jacket 208 V AC, UL plug		PM 071 270 -T	
Heating jacket 115 V AC, UL plug		PM 071 271 -T	
Heating jacket 230 V AC, Euro-style safety plug		PM 071 269 -T	
<b>Backing pump control</b>			
Backing pump relay box, shielded, 1-phase 7 A	PM 071 284 -X	PM 071 284 -X	PM 071 284 -X
Backing pump relay box, shielded, 1-phase 20 A	PM 071 285 -X	PM 071 285 -X	PM 071 285 -X
Control cable for pumping stations 0.7 m	PM 061 675 -T	PM 061 675 -T	PM 061 675 -T
HiPace-ACP connection cable	PM 071 142 -X	PM 071 142 -X	PM 071 142 -X
TVV 001 backing pump safety valve, 230 V AC	PM Z01 205	PM Z01 205	PM Z01 205
TVV 001 backing pump safety valve, 115 V AC	PM Z01 206	PM Z01 206	PM Z01 206
<b>General accessories</b>			
Sealing gas valve	PM Z01 312	PM Z01 312	PM Z01 312
Sealing gas throttle	PM Z01 317	PM Z01 317	PM Z01 317
Centering ring coated	PM 016 216 -U		PM 016 216 -U
Centering ring coated with protection screen	PM 016 218 -U		PM 016 218 -U
Centering ring coated with splinter shield	PM 016 217 -U		PM 016 217 -U
Protection screen		PM 016 339	
Splinter shield		PM 016 318	
Vibration dampers	PM 006 492 -X	PM 006 493 -X	
USB/RS-485-Converter	PM 061 207 -T	PM 061 207 -T	PM 061 207 -T
Interface cable 3 m	PM 061 283 -T	PM 061 283 -T	PM 061 283 -T
Y-connector M12 for RS-485	P 4723 010	P 4723 010	P 4723 010
Y-connector M12 for accessories	P 4723 013	P 4723 013	P 4723 013
<b>Mounting materials</b>			
Centering ring coated with splinter shield, hexagon bolts			PM 016 460 -T
Centering ring coated with protection screen, hexagon bolts			PM 016 462 -T
Centering ring coated with splinter shield, hexagon bolts			PM 016 461 -T
Centering ring coated with stud screws			PM 016 465 -T
Centering ring coated with protection screen with stud screws			PM 016 467 -T
Centering ring coated with splinter shield with stud screws			PM 016 466 -T
Set of hexagon screws for trough hole (CF-F)		PM 016 691 -T	
Set of stud screws for tapped hole (CF-F)		PM 016 693 -T	
Set of stud screws for trough hole (CF)		PM 016 735 -T	
Coated centering ring, bracket screws	PM 016 385 -T		
Centering ring coated with protection screen, bracket screws	PM 016 387 -T		
Centering ring coated with splinter shield, bracket screws	PM 016 386 -T		