



# HiPace<sup>®</sup> 700 M

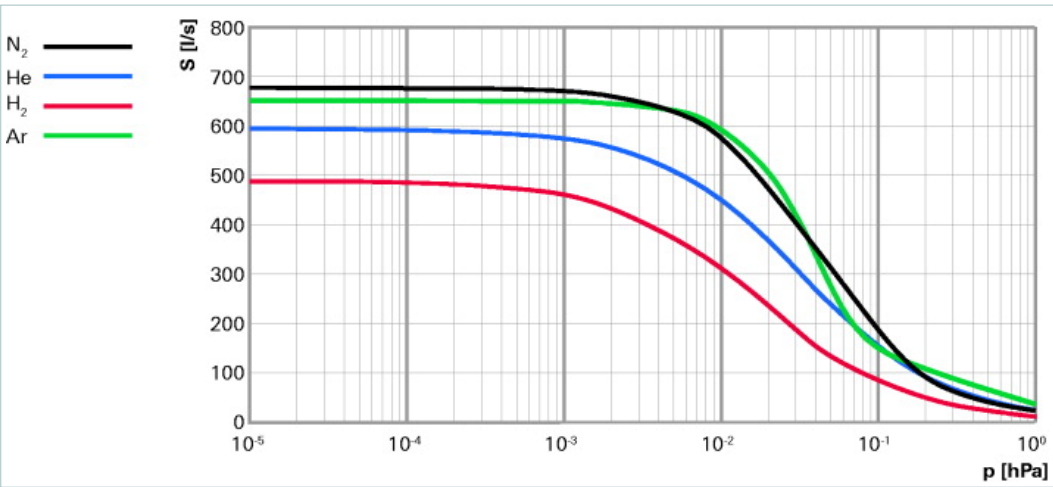




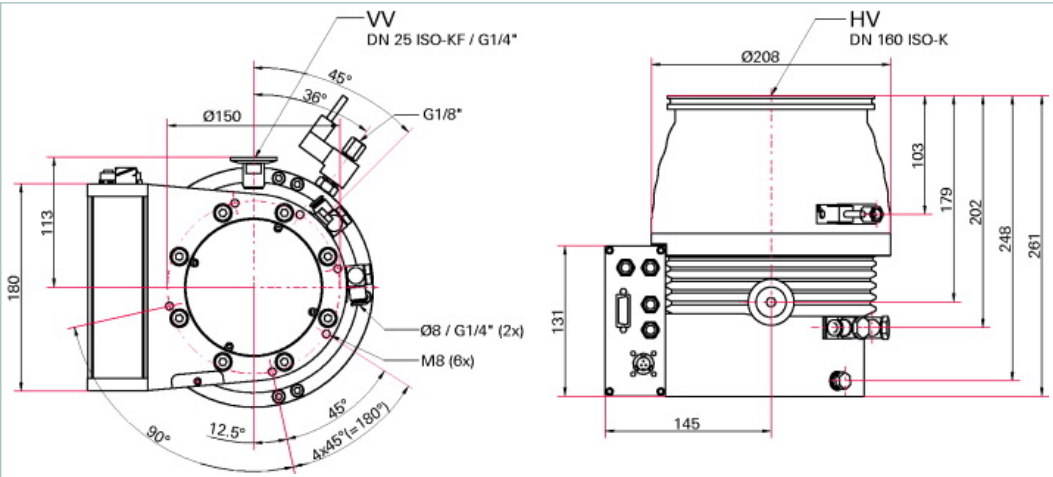
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# HiPace® 700 M with TM 700, DeviceNet, DN 160 ISO-K

- 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
- Interface: DeviceNet and Remote
- 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



## Dimensions



| Technical Data                       | HiPace® 700 M with TM 700, DeviceNet, DN 160 ISO-K |
|--------------------------------------|--|
| Bearing                              | Magnetically Levitated                             |
| Compression ratio for Ar             | $> 1 \cdot 10^{11}$                                |
| Compression ratio for H <sub>2</sub> | $2 \cdot 10^5$                                     |
| Compression ratio for He             | $> 1 \cdot 10^7$                                   |
| Compression ratio for N <sub>2</sub> | $> 1 \cdot 10^{11}$                                |
| Cooling method, optional             | Air, convection                                    |

| Technical Data   |  | HiPace® 700 M with TM 700, DeviceNet, DN 160 ISO-K                                       |
|--|--|--|
| Cooling method, standard                                   |  | Water  |
| Cooling water consumption                                  |  | 80 l/h   |
| Cooling water temperature                                  |  | 15-35 °C   59-95 °F   288-308 K  |
| Electronic drive unit                                      |  | with TM 700  |
| Flange (in)  |  | DN 160 ISO-K   |
| Flange (out)   |  | DN 25 ISO-KF   |
| Fore-vacuum max. for N <sub>2</sub>                        |  | 8 hPa   6 Torr   8 mbar  |
| Gas throughput at 0.1 hPa HV for Ar                        |  | 16 hPa l/s   12 Torr l/s   16 mbar l/s   |
| Gas throughput at 0.1 hPa HV for H <sub>2</sub>            |  | 9 hPa l/s   6.75 Torr l/s   9 mbar l/s   |
| Gas throughput at 0.1 hPa HV for He                        |  | 16 hPa l/s   12 Torr l/s   16 mbar l/s   |
| Gas throughput at 0.1 hPa HV for N <sub>2</sub>            |  | 16 hPa l/s   12 Torr l/s   16 mbar l/s   |
| Gas throughput at full rotational speed for Ar             |  | 8 hPa l/s   6 Torr l/s   8 mbar l/s  |
| Gas throughput at full rotational speed for N <sub>2</sub> |  | 13 hPa l/s   9.75 Torr l/s   13 mbar l/s   |
| Interface, extended  |  | DeviceNet  |
| Interfaces   |  | RS-485, Remote, DeviceNet  |
| Low vibrations   |  | yes  |
| Mounting orientation                                       |  | in any orientation   |
| Operating voltage  |  | 48 (± 5 %) V DC  |
| Permissible magnetic field max.                            |  | 5 mT   |
| Protection category  |  | IP 54  |
| Pumping speed for Ar                                       |  | 660 l/s  |
| Pumping speed for H <sub>2</sub>                           |  | 480 l/s  |
| Pumping speed for He                                       |  | 600 l/s  |
| Pumping speed for N <sub>2</sub>                           |  | 685 l/s  |
| Rotation speed ± 2 %                                       |  | 49200 min <sup>-1</sup>  |
| Rotation speed variable                                    |  | 20-100 %   |
| Run-up time  |  | 4 min  |
| Sound pressure level                                       |  | ≤ 45 dB (A)  |
| Ultimate pressure according to PNEUROP                     |  | < 1 · 10 <sup>-7</sup> hPa   < 7.5 · 10 <sup>-8</sup> Torr   < 1 · 10 <sup>-7</sup> mbar |
| Venting connection   |  | G 1/8"   |
| Weight   |  | 15.7 kg   34.61 lb   |
| Order number   |  |  |
| HiPace® 700 M  |  | PM P04 456   |

| Accessories  |               |
|--|---------------|
| <b>Accessory for TC 400/1200 and TM 700</b>  |               |
| Y-connector, shielded, M12 for accessories   | P 4723 013    |
| <b>Adapter and control cables</b>  |               |
| Control cable for pumping stations 0.7 m   | PM 061 675 AT |
| HiPace - ACP connection cable  | PM 071 142 -X |
| <b>Air cooling</b>   |               |
| Air cooling, shielded, for HiPace 400/700/800 and 300700/800 M with TC 400 PB/TM 700                             | PM Z01 363    |
| <b>Connection cables</b>   |               |
| Connection cable for HiPace with TC 400/TM 700 to power supply TPS/DCU 310/311/400/401                           | PM 061 352 -T |
| <b>Control and display units</b>   |               |
| Accessories package for HPU 001/PC   | PM 061 005 -T |
| DCU 002, Display Control Unit  | PM 061 348 -T |
| HPU 001, Handheld Programming Unit   | PM 051 510 -T |
| <b>DCU with integrated power supply</b>  |               |
| DCU 400, Display control unit incl. power supply   | PM C01 823    |
| <b>DN ISO-K, Mounting kit, bracket screws</b>  |               |
| Mounting kit for HiPace 700, DN 160 ISO-K, including coated centering ring, protection screen and bracket screws | PM 016 387-T  |
| Mounting kit for HiPace 700 M, DN 160 ISO-K, including coated centering ring, splinter shield, bracket screws    | PM 016 386 -T |
| Mounting kit for HiPace 700 M, DN 160 ISO-K, including coated centering ring and bracket screws                  | PM 016 385 -T |
| <b>DN ISO-K / -F, sealings, splinter shields, protection screens</b>   |               |
| Centering ring with multifunction coating, DN 160 ISO-K/-F   | PM 016 216 -U |
| Centering ring with multifunction coating and integrated protection screen, DN 160 ISO-K/-F                      | PM 016 218 -U |
| Centering ring with multifunction coating and integrated splinter shield, DN 160 ISO-K/-F                        | PM 016 217 -U |
| <b>Fore-vacuum safety valves</b>   |               |
| TVV 001 fore-vacuum safety valve, 115 V AC   | PM Z01 206    |
| TVV 001 fore-vacuum safety valve, 230 V AC   | PM Z01 205    |
| <b>Interface and extension cables</b>  |               |
| Interface cable, M12 m straight/M12 m straight, 3 m  | PM 061 283 -T |
| <b>Mains cables</b>  |               |
| Mains cable 115 V AC, NEMA 5-15 to C13, 3 m  | P 4564 309 ZE |
| Mains cable 208 V AC, NEMA 6-15 to C13, 3 m  | P 4564 309 ZF |
| Mains cable 230 V AC, CEE 7/7 to C13, 3 m  | P 4564 309 ZA |
| <b>Pressure Sensors</b>  |               |
| IKT 010, Digital Cold Cathode Sensor, low current  | PTR 72 100    |
| IKT 011, Digital Cold Cathode Sensor, high current   | PT R73 100    |
| RPT 010, Digital Piezo/Pirani Sensor   | PT R71 100    |
| TIC 010, Adapter for two sensors   | PT R70 000    |
| <b>Relay boxes</b>   |               |
| Relay box, shielded, for backing pumps, 1-phase 20 A for TC 400/1200, TM 700 and TCP 350, M12                    | PM 071 285 -X |
| Relay box, shielded, for backing pumps, 1-phase 7 A for TC 400/1200, TM 700 and TCP 350, M12                     | PM 071 284 -X |

| <b>Accessories</b>   |                      |
|--|----------------------|
| <b>RS-485</b>  |                      |
| Connector M12 to RS-485  | <b>PM 061 270 -X</b> |
| Power separator for RS-485   | <b>PT 348 132 -T</b> |
| Termination resistor for RS-485  | <b>PT 348 105 -T</b> |
| USB converter to RS-485 interface  | <b>PM 061 207 -T</b> |
| Y-Connector M12 to RS-485  | <b>P 4723 010</b>    |
| <b>Sealing gas</b>   |                      |
| Sealing gas throttle for HiPace 300  | <b>PM Z01 317</b>    |
| Sealing gas valve, shielded for HiPace 300 with TC 400 and TM 700, TCP 350         | <b>PM Z01 312</b>    |
| <b>TPS-19" rack module</b>   |                      |
| Front panel kit for TPS 401  | <b>PM 061 396 -T</b> |
| TPS 401, power supply 48 V DC, 19" partial plug-in 3HU                             | <b>PM 061 347 -T</b> |
| <b>TPS wall rail fitting</b>   |                      |
| TPS 400, power supply 48 V DC, for wall/standard rail fitting                      | <b>PM 061 343 -T</b> |
| Wall rail fitting for TPS 110/180/310/400  | <b>PM 061 392 -T</b> |
| <b>Venting accessory with small flange, G 1/8", hoses, air drier</b>               |                      |
| TTV 001, dryer for venting turbopumps  | <b>PM Z00 121</b>    |
| <b>Venting valve (normally closed)</b>   |                      |
| Venting valve, shielded, 24 V DC, G 1/8", for connection to TC 400/1200 and TM 700 | <b>PM Z01 291</b>    |
| <b>Vibration damper</b>  |                      |
| Vibration damper for HiPace with DN 160 ISO-K/F                                    | <b>PM 006 492 -X</b> |

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