



HiPace[®] 400

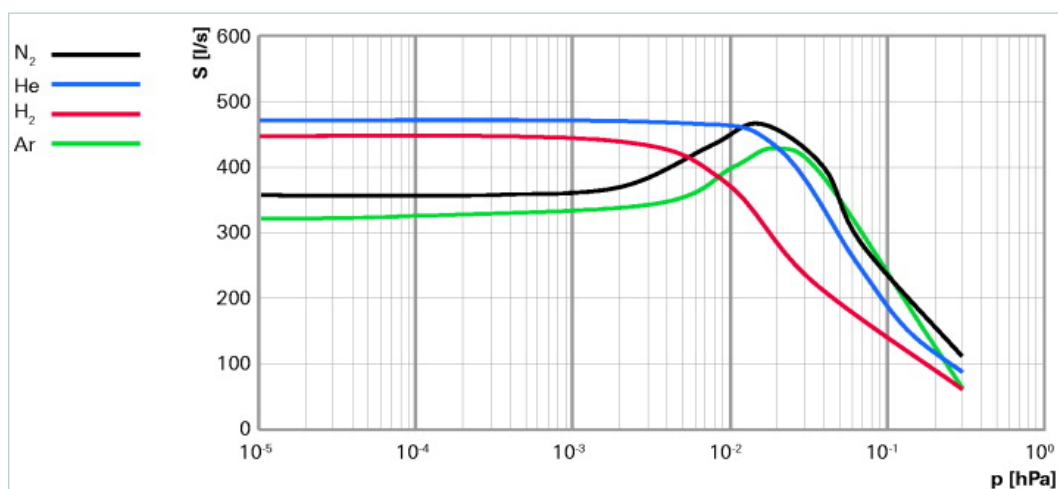
**Compact yet powerful turbopumps with
pumping speeds up to 355 l/s for N₂, with a small
DN 100 flange connection**



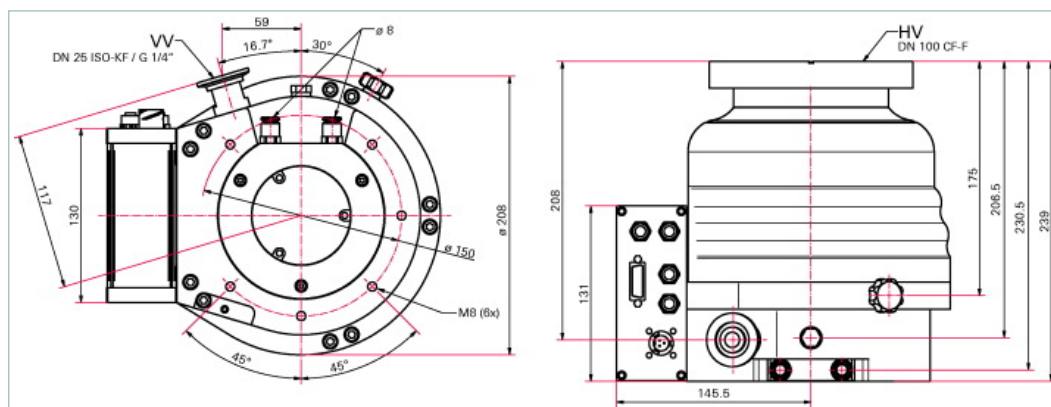
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HiPace® 400 with TC 400, Profibus, DN 100 CF-F

- Compact yet powerful turbopump with a pumping speed up to 355 l/s for N₂
- Integrated drive electronics TC 400 with Profibus
- Ideal for analytical and industrial applications
- For installation in any orientation
- With integrated water cooling for maximum gas throughput
- Flexible through the ability to employ up to 4 accessories
- Profibus connection with M12-plug-in connector
- Extensive accessories expand the range of applications
- Corrosive gas version on request



Dimensions



Technical Data	HiPace® 400 with TC 400, Profibus, DN 100 CF-F
Bearing	Hybrid
Compression ratio for Ar	$> 1 \cdot 10^{11}$
Compression ratio for H ₂	$4 \cdot 10^5$
Compression ratio for He	$3 \cdot 10^7$
Compression ratio for N ₂	$> 1 \cdot 10^{11}$
Cooling method, optional	Air
Cooling method, standard	Water
Cooling water consumption	100 l/h
Cooling water temperature	15-35 °C 59-95 °F 288-308 K
Electronic drive unit	with TC 400
Flange (in)	DN 100 CF-F
Flange (out)	DN 25 ISO-KF / G 1/4"

Technical Data		HiPace® 400 with TC 400, Profibus, DN 100 CF-F
Fore-vacuum max. for N ₂		11 hPa 8.25 Torr 11 mbar
Gas throughput at full rotational speed for Ar		3.5 hPa l/s 2.62 Torr l/s 3.5 mbar l/s
Gas throughput at full rotational speed for H ₂		> 14 hPa l/s > 10.5 Torr l/s > 14 mbar l/s
Gas throughput at full rotational speed for He		10 hPa l/s 7.5 Torr l/s 10 mbar l/s
Gas throughput at full rotational speed for N ₂		6.5 hPa l/s 4.88 Torr l/s 6.5 mbar l/s
Interface, extended		Profibus
Interfaces		RS-485, Remote, Profibus
Mounting orientation		in any orientation
Operating voltage		48 (± 5 %) V DC
Permissible magnetic field max.		6 mT
Protection category		IP 54
Pumping speed for Ar		320 l/s
Pumping speed for H ₂		445 l/s
Pumping speed for He		470 l/s
Pumping speed for N ₂		355 l/s
Rotation speed ± 2 %		49200 min ⁻¹
Rotation speed variable		60-100 %
Run-up time		2 min
Sound pressure level		50 dB (A)
Ultimate pressure according to PNEUROP		< 5 · 10 ⁻¹⁰ hPa < 3.75 · 10 ⁻¹⁰ Torr < 5 · 10 ⁻¹⁰ mbar
Venting connection		G 1/8"
Weight		17.5 kg 38.58 lb
Order number		
HiPace® 400		PM P04 244

Accessories	
Accessory for TC 400/1200 and TM 700	
Y-connector, shielded, M12 for accessories	P 4723 013
Adapter and control cables	
Control cable for pumping stations 0.7 m	PM 061 675 AT
HiPace - ACP connection cable	PM 071 142 -X
Air cooling	
Air cooling, shielded, for HiPace 400/700/800 and 300700/800 M with TC 400 PB/TM 700	PM Z01 363
Air cooling for HiPace 400/700/800 and HiPace 300/700/800 M, 115 V	PM Z01 342
Air cooling for HiPace 400/700/800 and HiPace 300/700/800 M, 230 V	PM Z01 341
CF-F, Mounting kit	
Set of hexagon screws for through hole, DN 100 CF-F	PM 016 690 -T
Set of stud screws for tapped hole, DN 100 CF-F	PM 016 692 -T
Set of stud screws for through hole, DN 100 CF-F	PM 016 734 -T
CF-F, Sealings, splinter shields, protection screens	
Protection screen for DN 100 CF-F	PM 016 336
Splinter shield for turbopumps, DN 100 CF-F	PM 016 315
Connection cables	
Connection cable for HiPace with TC 400/TM 700 to power supply TPS/DCU 310/311/400/401	PM 061 352 -T
Control and display units	
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
RJ 45 interface cable on M12 for HiPace	PM 051 726 -T
DCU with integrated power supply	
DCU 400, Display control unit incl. power supply	PM C01 823
Fore-vacuum safety valves	
TVV 001 fore-vacuum safety valve, 115 V AC	PM Z01 206
TVV 001 fore-vacuum safety valve, 230 V AC	PM Z01 205
Interface and extension cables	
Extension cable M12 on M12	PM 061 747 -T
Interface cable, M12 m straight/ M12 m angled 0.7 m	PM 061 791 -T
Interface cable, M12 m straight / M12 m straight, 3 m	PM 061 283 -T
Mains cables	
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
Power failure venting units (normally open)	
Power failure venting valve, shielded, 24 V DC, G 1/8" for connection to TC 400, TM 700 and TC 1200	PM Z01 331
Profibus	
Line filter for cable fitting	PM 061 806
Plug and socket M12B for Profibus	PM 051 927 -T
T-Connector M12B to Profibus	P 4723 020
Termination resistor M12B for Profibus	P 4723 030
Y-Connector M12B to Profibus	P 4723 015
Y-Connector with cable M12B to Profibus, 0.5 m	P 4723 018

Accessories	
Relay boxes	
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
RS-485	
USB converter to RS-485 interface	PM 061 207 -T
Y-Connector M12 to RS-485	P 4723 010
Sealing gas	
Sealing gas throttle for HiPace 300 - 800	PM Z01 317
Sealing gas valve, shielded for HiPace 300/400/700 and 800 with TC 400 and TM 700	PM Z01 312
Shielded heating suitable for TC 400 PB, TC 1200 and TM 700	
Heating jacket, shielded, for HiPace 400/700/800 with TC 400 PB/TM 700, 115 V AC, UL plug	PM 071 271 -T
Heating jacket, shielded, for HiPace 400/700/800 with TC 400 PB/TM 700, 208 V AC, UL plug	PM 071 270 -T
Heating jacket, shielded, for HiPace 400/700/800 with TC 400 PB/TM 700, 230 V AC, safety plug	PM 071 269 -T
TPS-19" rack module	
Front panel kit for TPS 401	PM 061 396 -T
TPS 401, power supply 48 V DC, 19" partial plug-in 3HU	PM 061 347 -T
TPS wall rail fitting	
TPS 400, power supply 48 V DC, for wall/standard rail fitting	PM 061 343 -T
Wall rail fitting for TPS 110/180/310/400	PM 061 392 -T
Venting accessory with small flange, G 1/8", hoses, air drier	
Banjo fitting	PM 016 787 -T
Banjo fitting, small	PM 143 877 -T
Hose nozzle for 9 mm hose, G 1/8"	PM 016 783 -T
Plug-in fitting for 6 mm hose, G 1/8"	PM 016 781 -T
Plug-in fitting for 8 mm hose, G 1/8"	PM 016 782 -T
Screw-in flange, DN 10 ISO-KF, G 1/8"	PM 033 737 -T
Screw-on flange, DN 16 ISO-KF, G 1/8"	PM 016 780 -T
TTV 001, dryer for venting turbopumps	PM Z00 121
Venting valve (normally closed)	
Venting valve, 24 V DC, G 1/8" without cable	PM Z01 293
Venting valve, shielded, 24 V DC, G 1/8", for connecting to TC 400,1200 and TM 700 with twisted plug 270°	PM Z01 292
Venting valve, shielded, 24 V DC, G 1/8", for connection to TC 400/1200 and TM 700	PM Z01 291
Vibration damper	
Vibration damper for HiPace 300/400, DN 100 CF-F	PM 006 488 -X