



# PROVAC

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# Pfeiffer TPH-2200, TPU-2200

## Technical Specifications

with clamping flange CF-flange	TPH 2200		TPU 2200	
Connection, nominal diameter				
Inlet	DN 250 ISO-K		DN 250 CF-F	
Outlet	DN 63 ISO-K		DN 63 ISO-K	
Volume flow rate for				
Nitrogen N <sub>2</sub>	l/s	2200	2200	
Helium He	l/s	3200	3200	
Hydrogen H <sub>2</sub>	l/s	2800	2800	
Compression ratio for				
N <sub>2</sub>		10 <sup>8</sup>	10 <sup>8</sup>	
He		4 · 10 <sup>4</sup>	4 · 10 <sup>4</sup>	
H <sub>2</sub>		2 · 10 <sup>3</sup>	2 · 10 <sup>3</sup>	
Recommended backing pump, min.	m <sup>3</sup> /h	60	60	
Electronic drive unit		TCP 600	TCP 600	
Gas throughput, max. <sup>4)</sup>	mbar l/s	12	12	
Theoretical final pressure <sup>1)</sup>	mbar	10 <sup>-11</sup>	10 <sup>-11</sup>	
Final pressure 1 <sup>2)</sup>	mbar	<1 · 10 <sup>-10</sup>	<1 · 10 <sup>-10</sup>	
Final pressure 2 <sup>2)</sup>	mbar	<1 · 10 <sup>-9</sup>	<1 · 10 <sup>-9</sup>	
Final pressure 2 <sup>2)</sup>	mbar	<1 · 10 <sup>-8</sup>	<1 · 10 <sup>-8</sup>	
Rated rotation speed	1/min	36000	36000	
Stand-by rotation speed	1/min	24000	24000	
Run-up time <sup>3)</sup>	min	16	16	
Pump fluid				
Filling quantity	cm <sup>3</sup>	2 x 125	2 x 125	
Type		TL 011 <sup>5)</sup>	TL 011 <sup>5)</sup>	
Type of cooling, standard		Wasser/water/Eau		
Cooling water requirement		l/h	40	40
Permissible cooling water temperature	°C	5 - 25	5 - 25	
Heating jacket included in delivery		nein/no/non	ja/yes/oui	
Power input of heater	W	400	400	
Permissible magnetic field, max. <sup>6)</sup>	mT	13,4	13,4	
Weight	kg	75	80	

<sup>1)</sup> Value to which the pressure in the test dome converges asymptotically. It is the lowest pressure which can be attained with the pump (as per German Industrial Standard 28 428).

<sup>2)</sup> The pressure which is reached in the test dome 48 hours after baking out.

<sup>3)</sup> Up to 90 % of the rated rotation speed.

<sup>4)</sup> At final rotation speed, the turbopumps TPH/TPU 2200 may only be operated up to 5 mbar l/s gas throughput. The backing pump must be so selected that a backing pressure of 0.1 mbar, measured at the fore-vacuum connection of the turbopump, is not exceeded. Greater gas throughputs or fore-vacuum pressures will cause the permitted operating temperature to be exceeded as a result of molecular friction on the rotors. Where greater gas throughputs are required, it is essential to operate in stand-by rotation speed mode.

<sup>5)</sup> Pumps can be supplied for operations involving pump fluid F3 (see rating plate). However it is important to note that a pump manufactured for TL 011 cannot be modified for F3 operations, nor vice versa.

<sup>6)</sup> For more powerful magnetic fields, shielding is available on request.



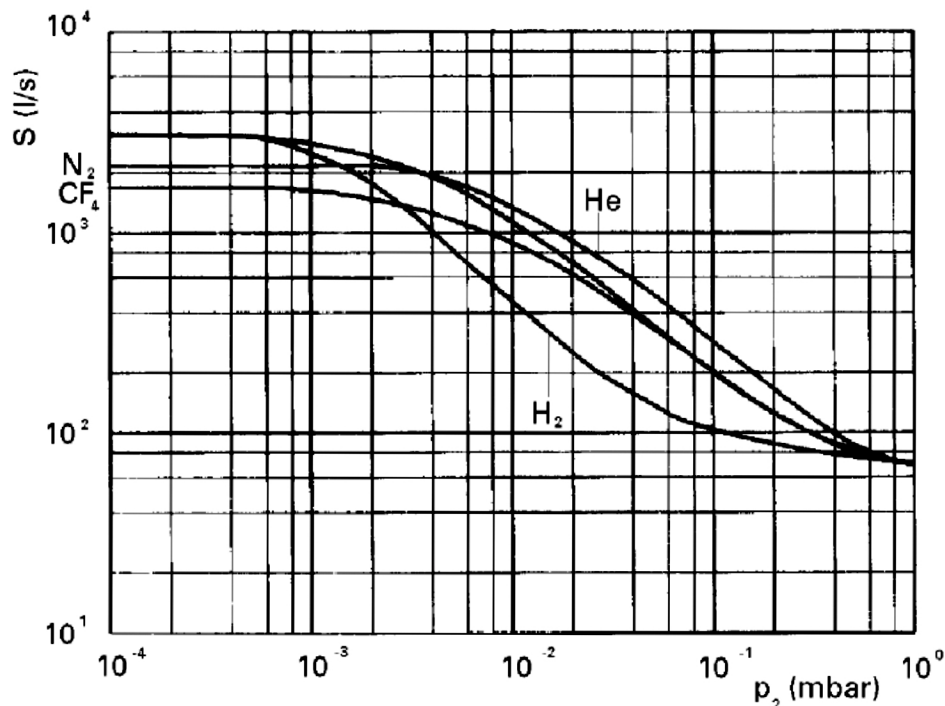
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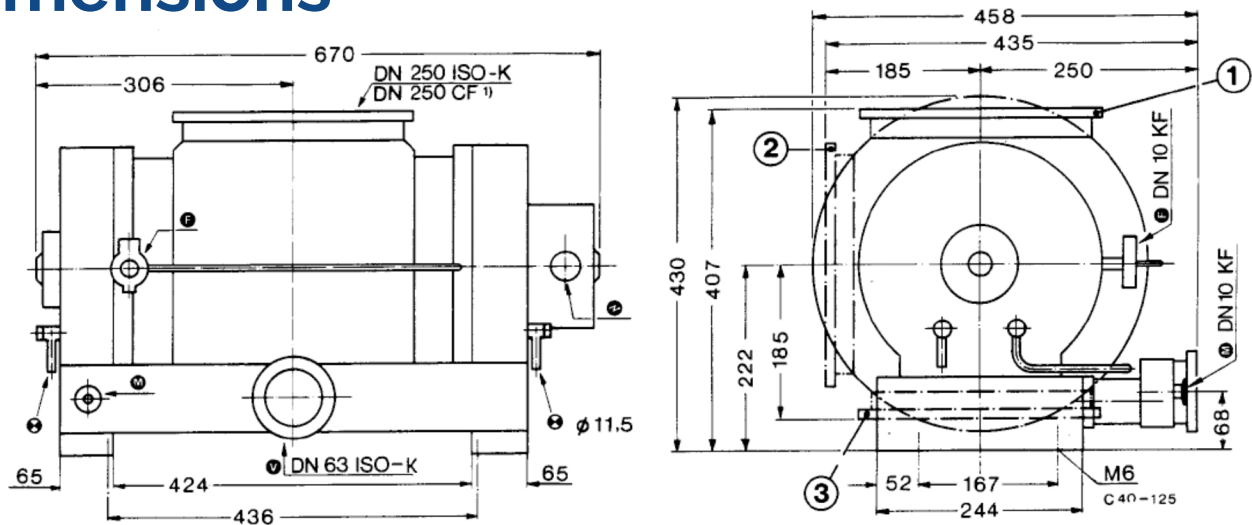
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# Pfeiffer TPH-2200, TPU-2200 Pumping Curves



## Dimensions



1 TPH/TPU 2200 HV flange above  
2 TPH/TPU 2200 S HV flange aside  
3 TPH/TPU 2200 U HV flange below

- ① High vacuum connection
- ② Fore-vacuum connection
- ③ Venting connection
- ④ Cooling water connection
- ⑤ Connection for electronic drive unit
- ⑥ Measuring connection