

Numero

Data

Rev.

Pagina

SPEME- SOTMP-00066

20/07/2020

0

1

Documento tipo

SPECIFICA TECNICA (SPE)

Titolo

Specification for turbine vacuum pumps of the Cnao O3 line

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Referente

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Parole chiave

Linea O3

Riassunto

Il Cnao, Centro Nazionale di Adroterapia Oncologica, è un centro per la cura delle malattie oncologiche, costituito prevalentemente da un acceleratore di particelle. Questo documento illustra le specifiche delle pompe a turbina per la linea O3.

Emesso

Verificato

Verificato

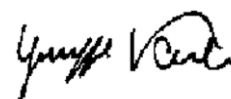
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Definizione delle caratteristiche delle turbine per la linea O3

Turbine pumps for the O3 line must have the following technical characteristics:

- Bearing Hybrid
- Compression ratio for Ar $\geq 1 \cdot 10^{13}$
- Compression ratio for H2 $\geq 2 \cdot 10^7$
- Compression ratio for He $\geq 3 \cdot 10^9$
- Compression ratio for N2 $\geq 1 \cdot 10^{13}$
- Connection flange (in) DN 160 CF-F
- Connection flange (out) DN 25 ISO-KF/G 1/4"
- Cooling method, optional Air
- Cooling method, standard Water
- Water cooling system with quick coupling for flexible hose 8mm external diameter
- Max cooling water flow 100 l/h
- Cooling water temperature $>15, <35$ °C
- Current max. 8,75 A
- Final pressure without gas ballast $<1 \cdot 10^{-10}$ hPa | $7.5 \cdot 10^{-11}$ Torr | $1 \cdot 10^{-10}$ mbar
- Fore-vacuum max. for N2 22 hPa | 16.5 Torr | 22 mbar
- Gas throughput at full rotational speed for Ar ≥ 2 hPa·l/s
- Gas throughput at full rotational speed for H2 ≥ 14 hPa·l/s
- Gas throughput at full rotational speed for He ≥ 18 hPa·l/s
- Gas throughput at full rotational speed for N2 ≥ 3.5 hPa·l/s
- Mounting orientation Any
- Permissible radial magnetic field max. 6 mT
- Power consumption max. 420 W
- Protection category IP54
- Pumping speed for Ar ≥ 665 l/s
- Pumping speed for H2 ≥ 555 l/s
- Pumping speed for He ≥ 655 l/s
- Pumping speed for N2 ≥ 685 l/s
- Rotation speed variable 60 – 100 %
- Run-up time 2 min
- Remote control through separated electronic drive unit equipped with dedicated 26-pin d-sub connector.
- Ultimate pressure $<1 \cdot 10^{-10}$ hPa | $<7.5 \cdot 10^{-10}$ Torr | $<1 \cdot 10^{-10}$ mbar
- Disassembly of the pump from the process chamber must not be required to replace the ball bearing
- Venting connection G 1/8"
- Max weight of the pump 17 kg
- Communication protocol RS-485
- delivery time for the supply of 11 pumps: 45 days from contract signature