

BOMBAS DE VÁCUO

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De um modo geral, as bombas de vácuo podem ser classificadas como:

bombas de transferência (ou deslocamento) de gás, que retiram os gases de uma região de um sistema de vácuo, transferindo-os para outras, ou para a atmosfera, e

bombas de captura (ou fixação), que retém os gases dentro da própria bomba.

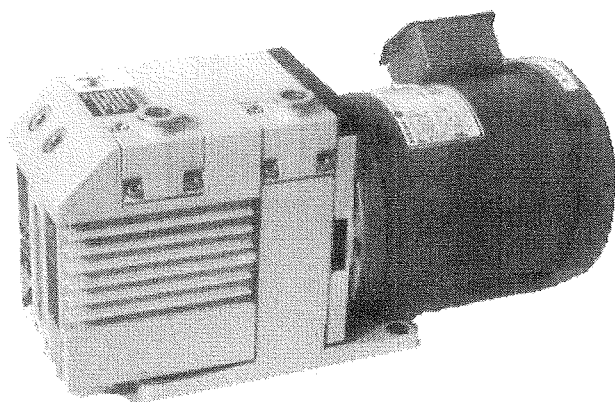
Detalhes essenciais numa bomba de vácuo

Velocidade de bombeamento, S – por definição é a velocidade de bombeamento na entrada –ou boca - da bomba.

Curva característica da velocidade de bombeamento – é a curva $S \times P$, sendo P a pressão na boca da bomba.

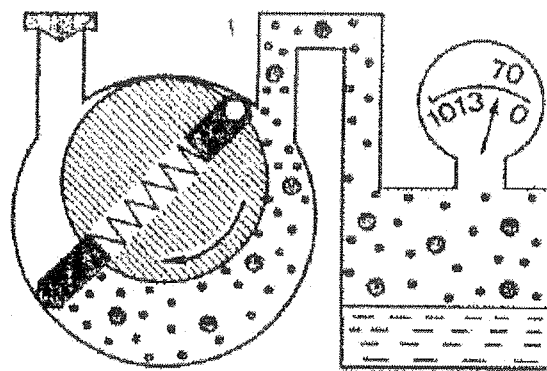
Pressão mínima – é a menor pressão que se pode atingir com uma particular bomba.

Qualidade do vácuo produzido – é a propriedade que tem uma bomba de não contaminar o sistema de vácuo com vapores indesejáveis (geralmente óleo) da própria bomba.

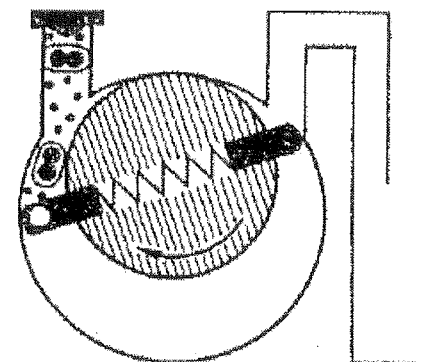


Bomba Rotativa de Palhetas

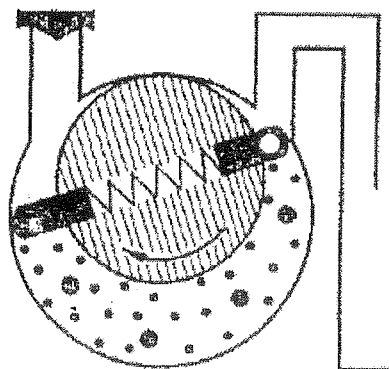
without gas ballast



A₁

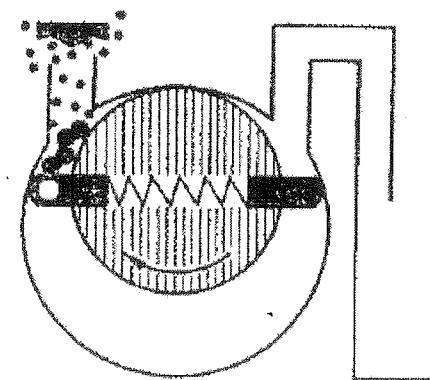


A₃



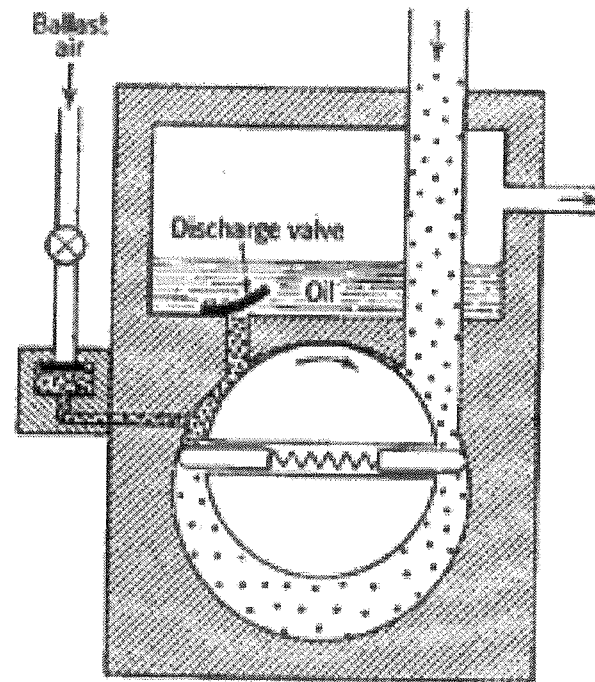
A₂

- vapour particle
- gas particle

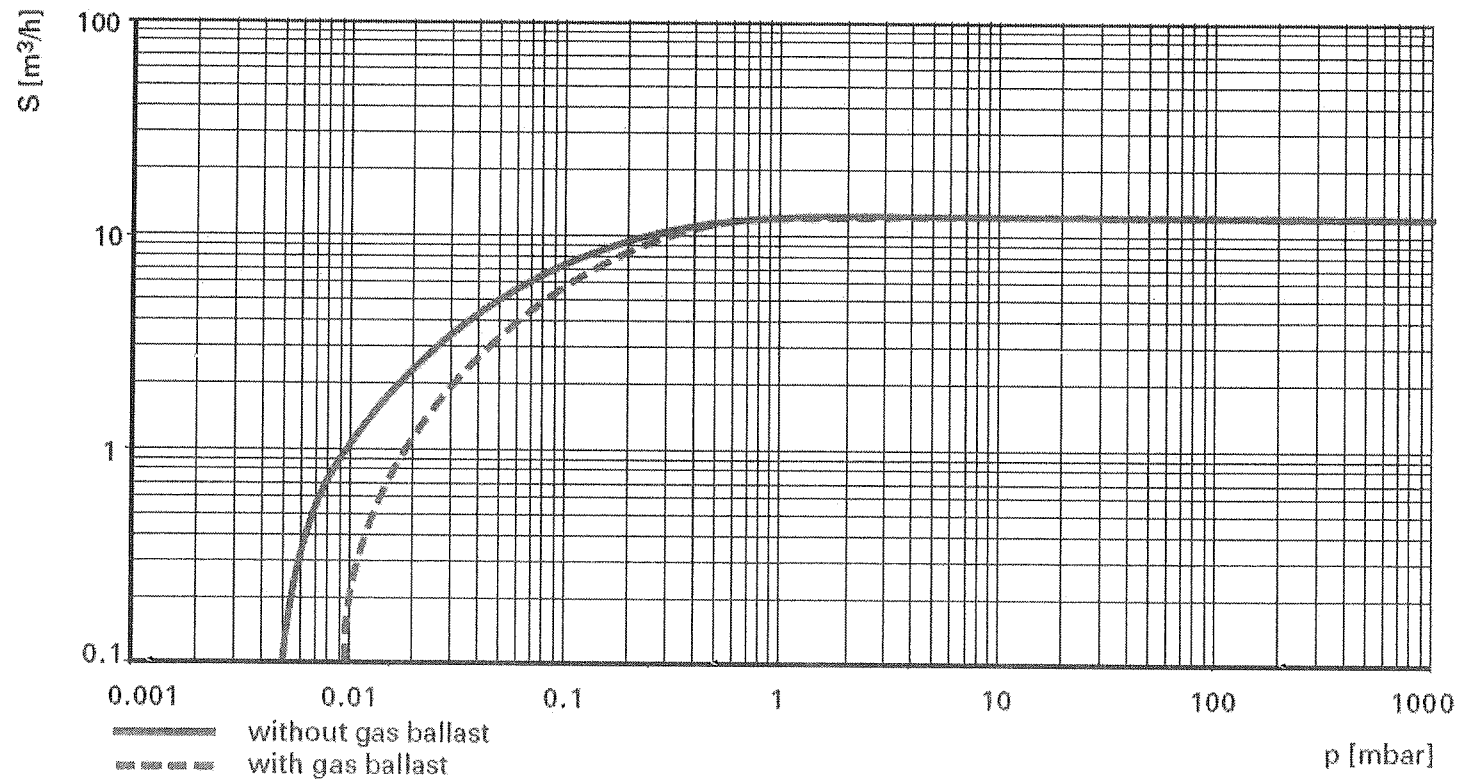
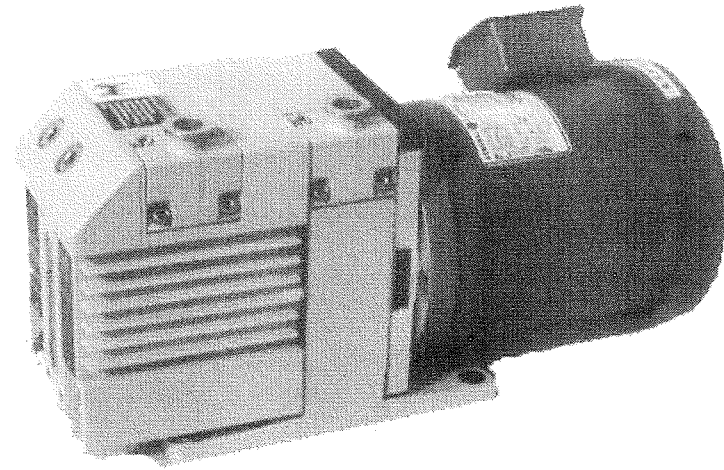
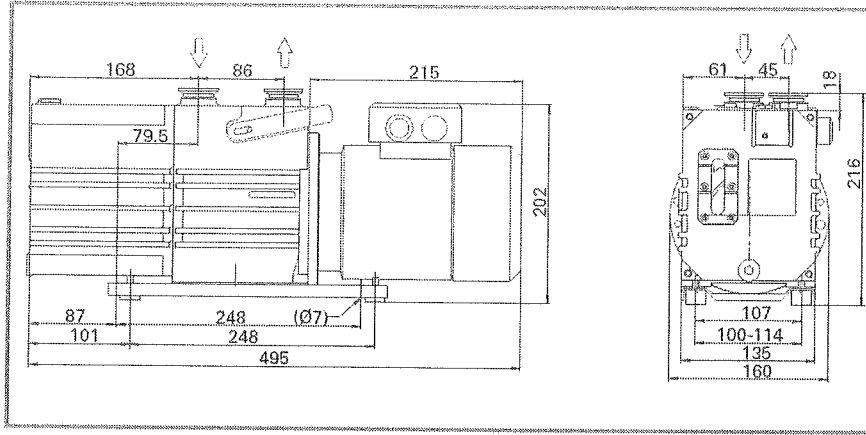


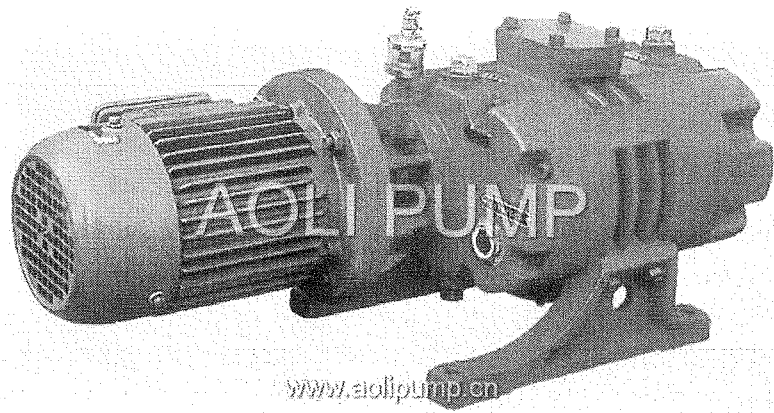
A₄

Esquema de uma bomba rotativa de palhetas com lastro de gás (gas ballast)

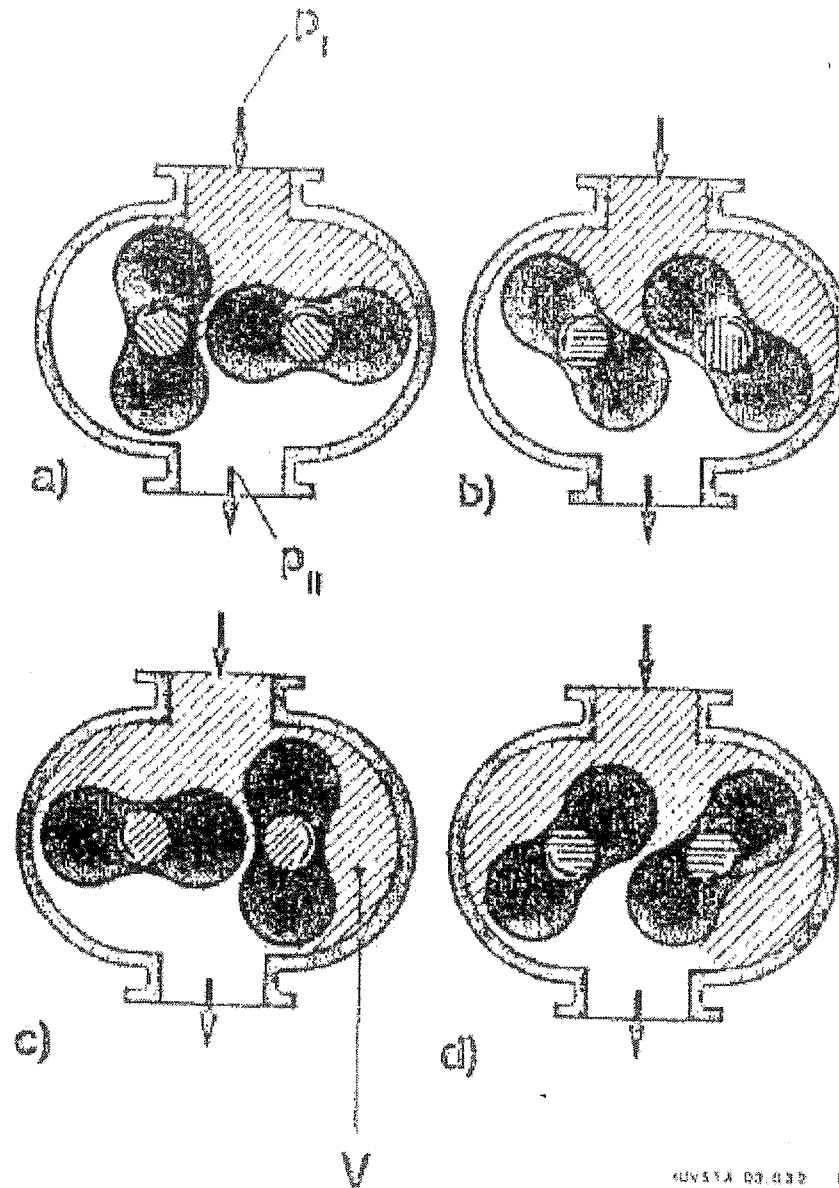


Dimensions

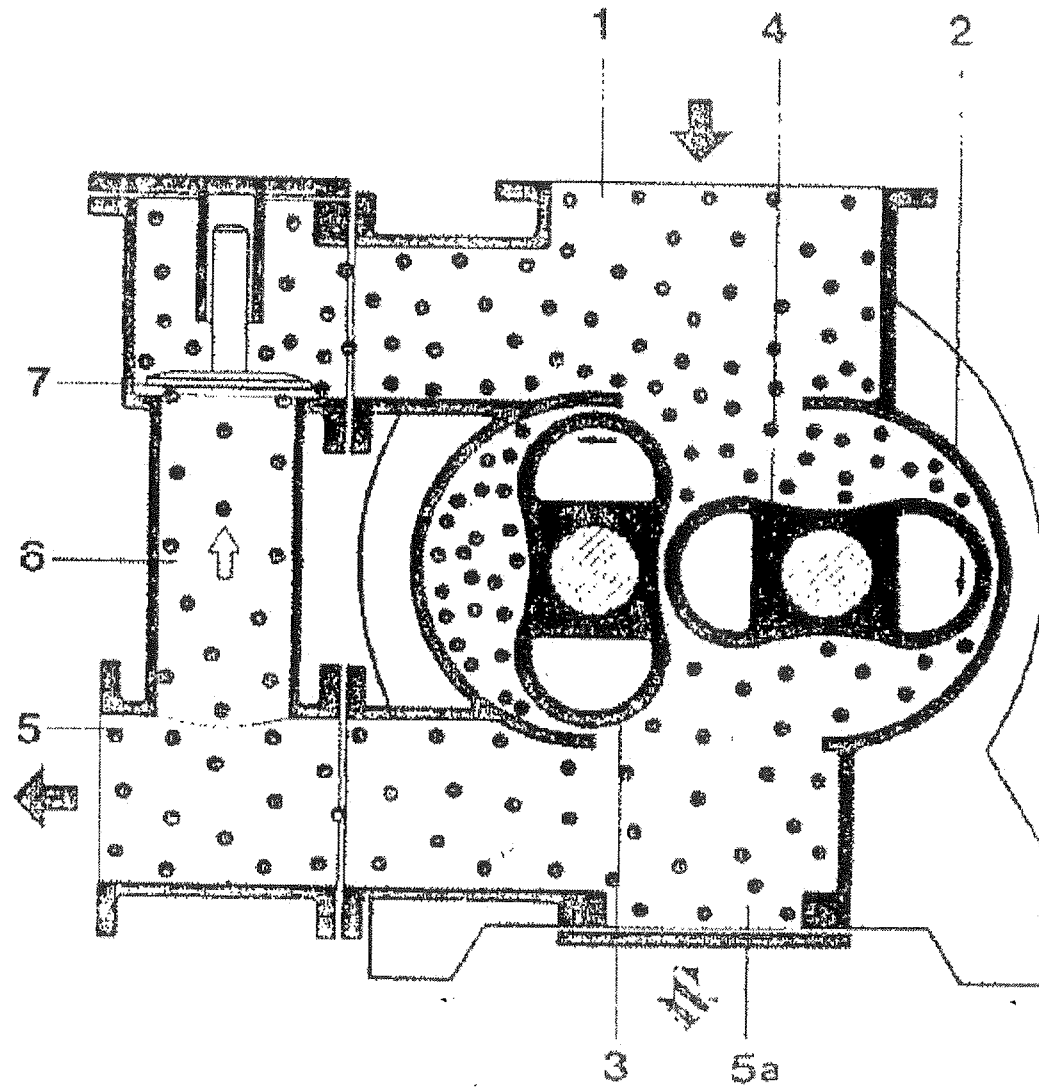




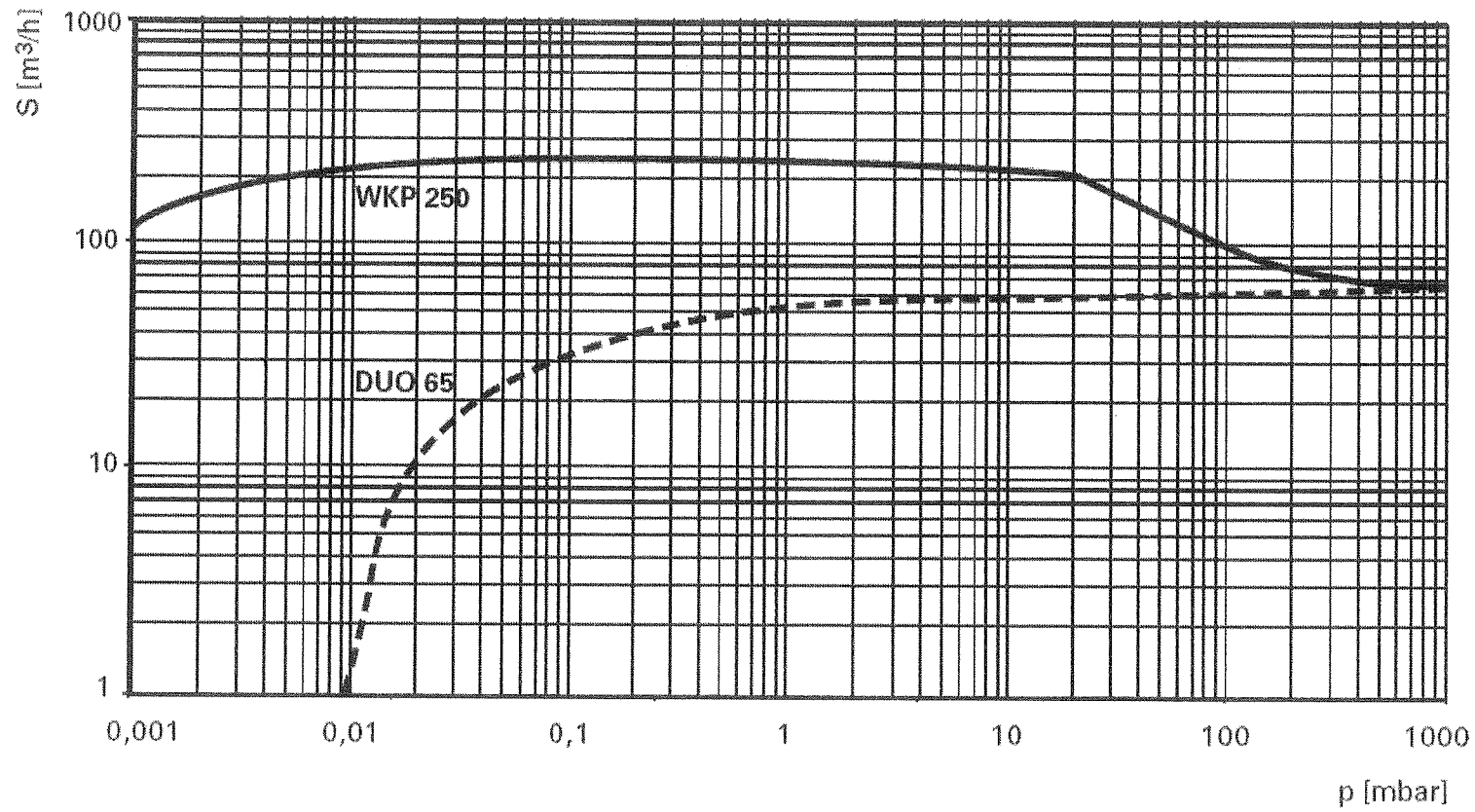
Bomba Roots



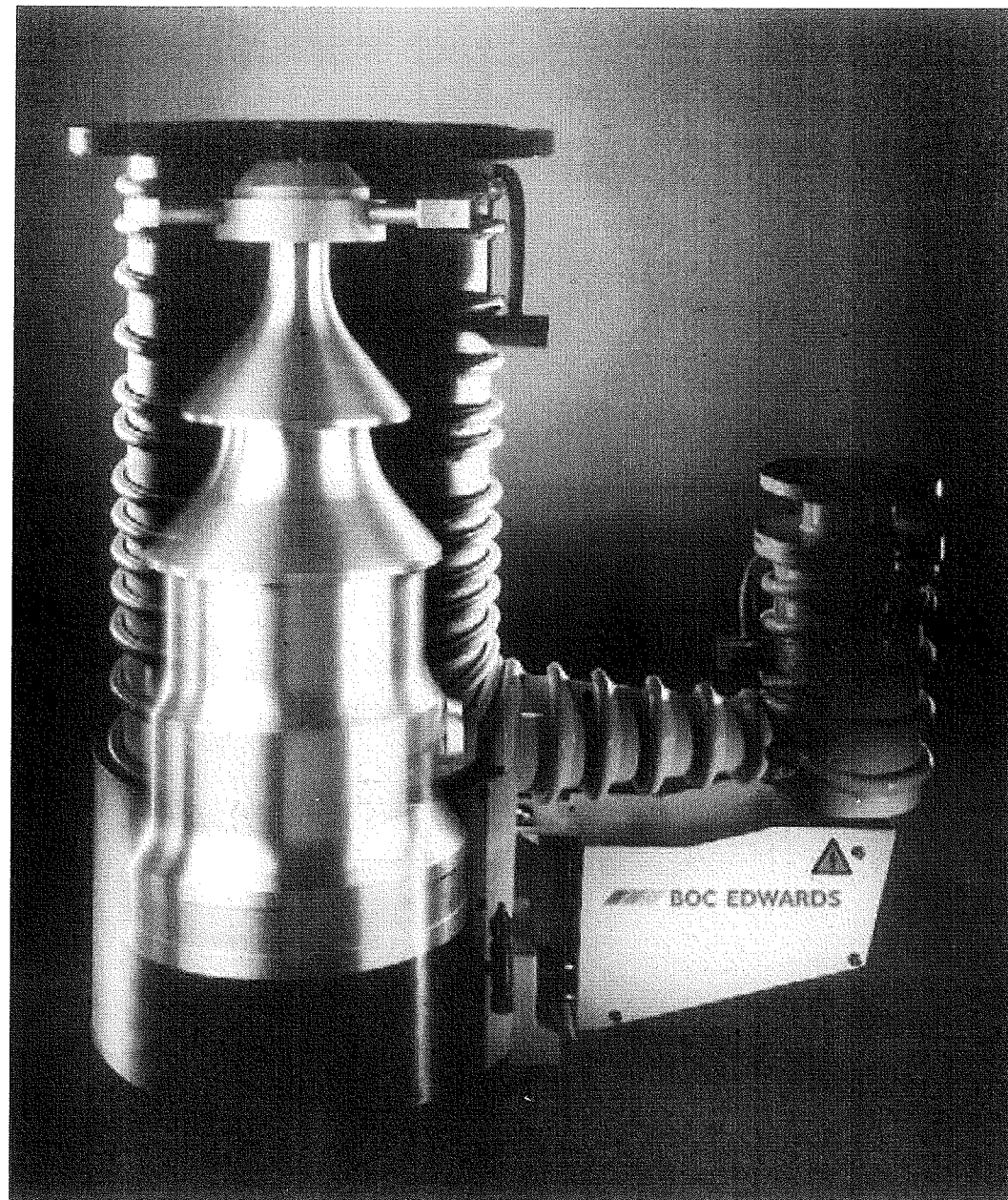
Bomba Roots



Bomba Roots

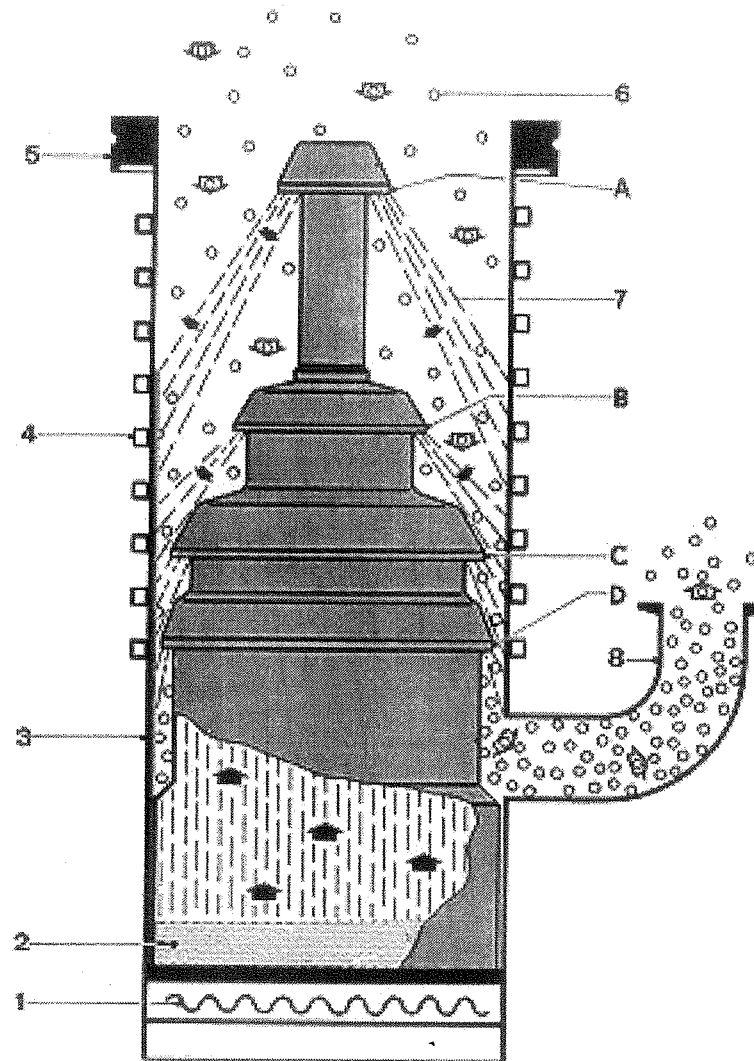


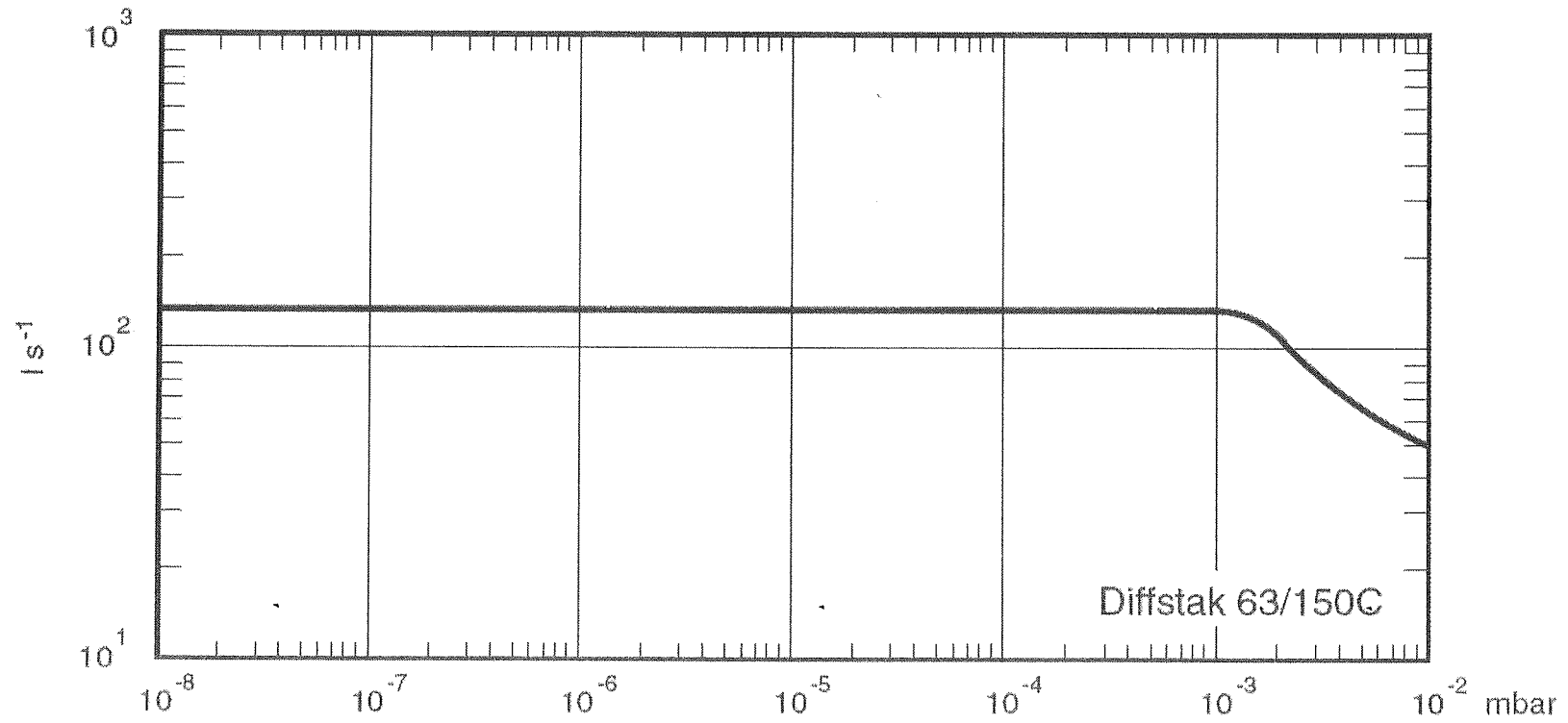
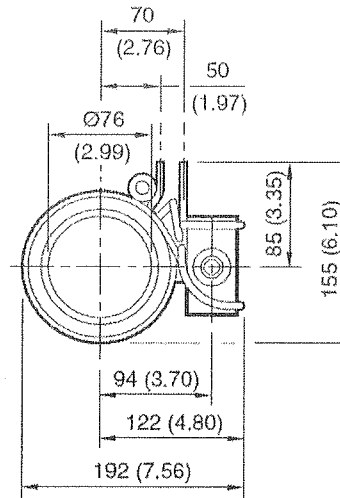
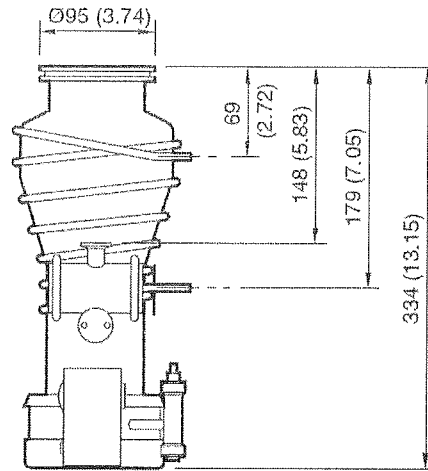
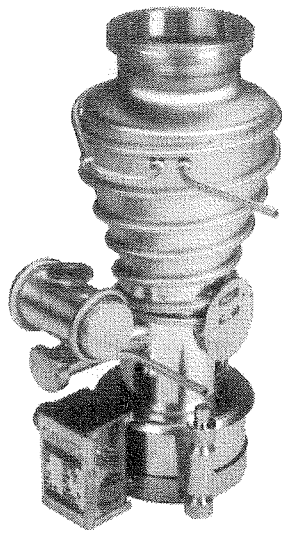
Bomba de Difusão

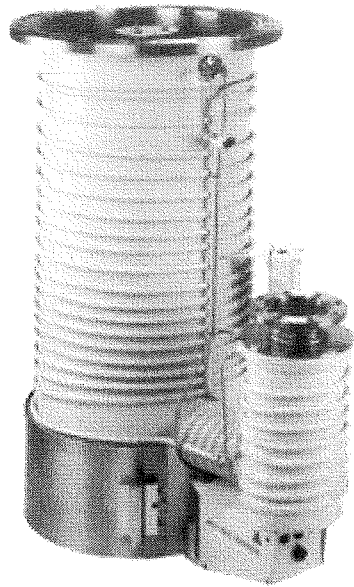


Bomba de Difusão

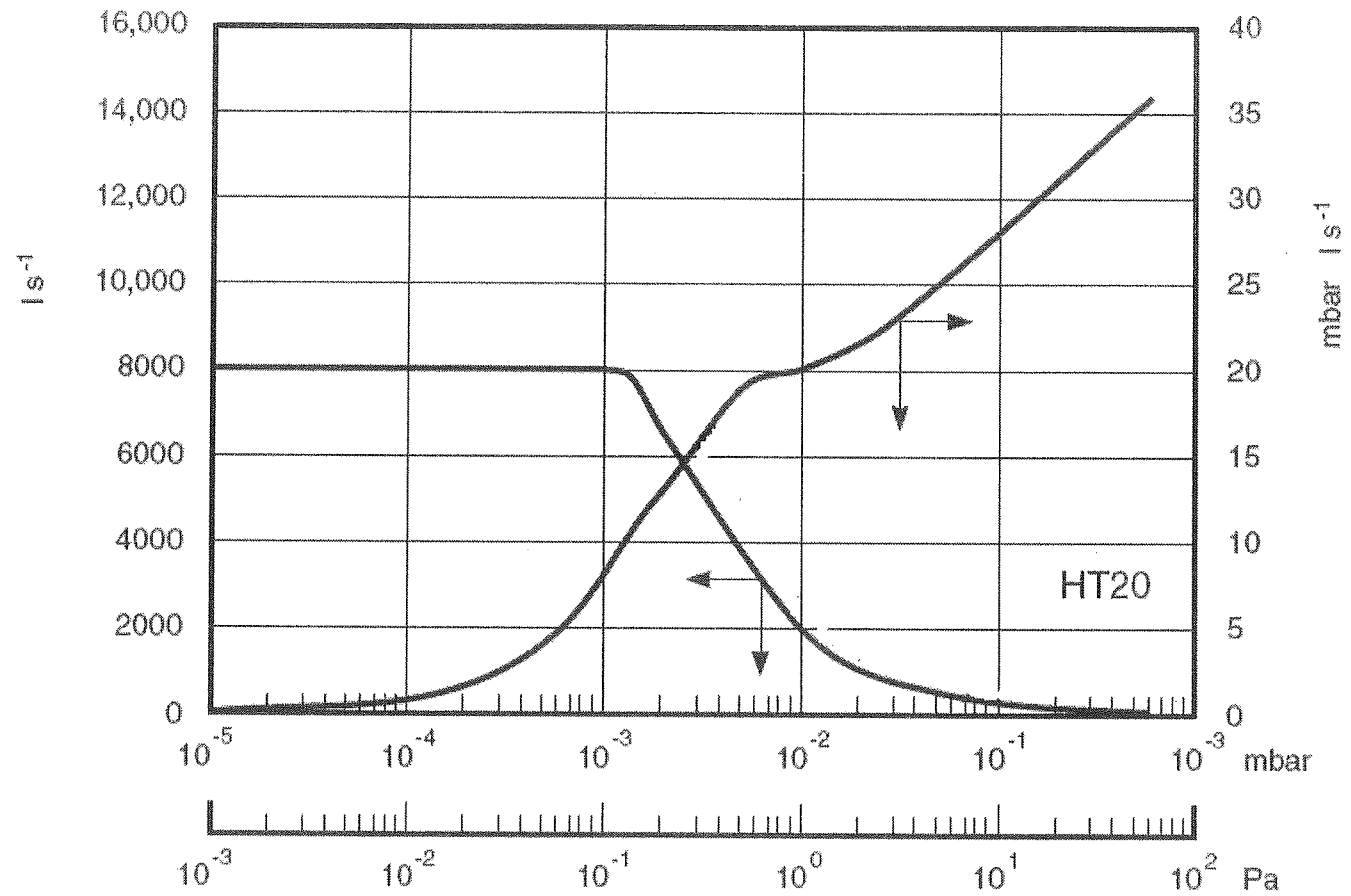
- 1 Heater
- 2 Boiler
- 3 Pump body
- 4 Cooling coil
- 5 High vacuum flange
- 6 Gas molecules
- 7 Vapor jet
- 8 Backing vacuum connection
- A } Nozzles
- B } Nozzles
- C } Nozzles
- D } Nozzles



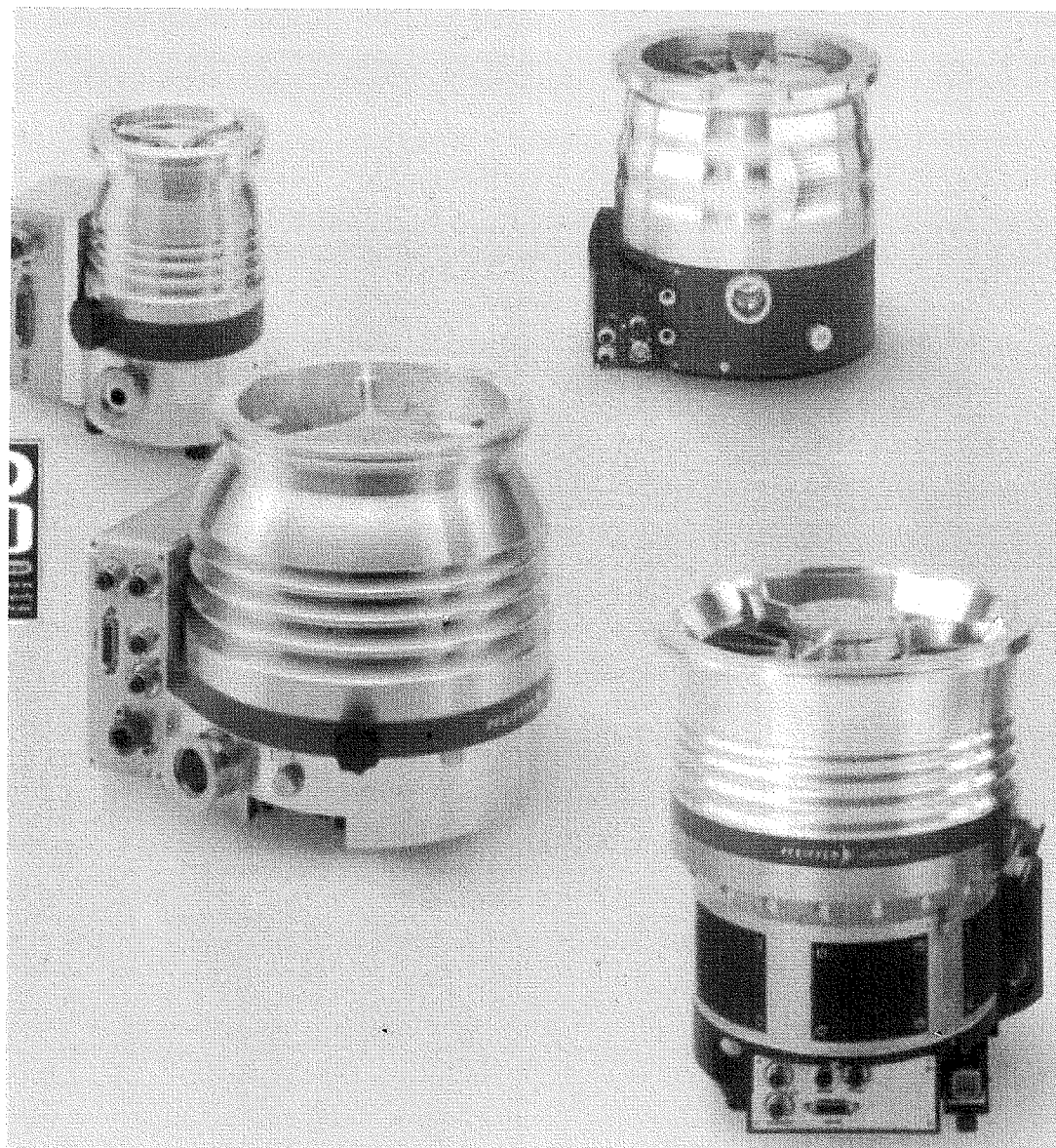




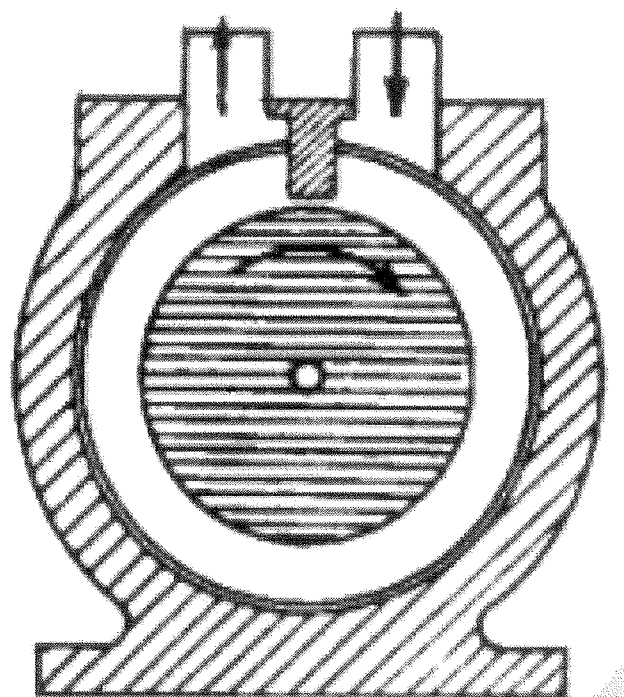
Bomba de Difusão



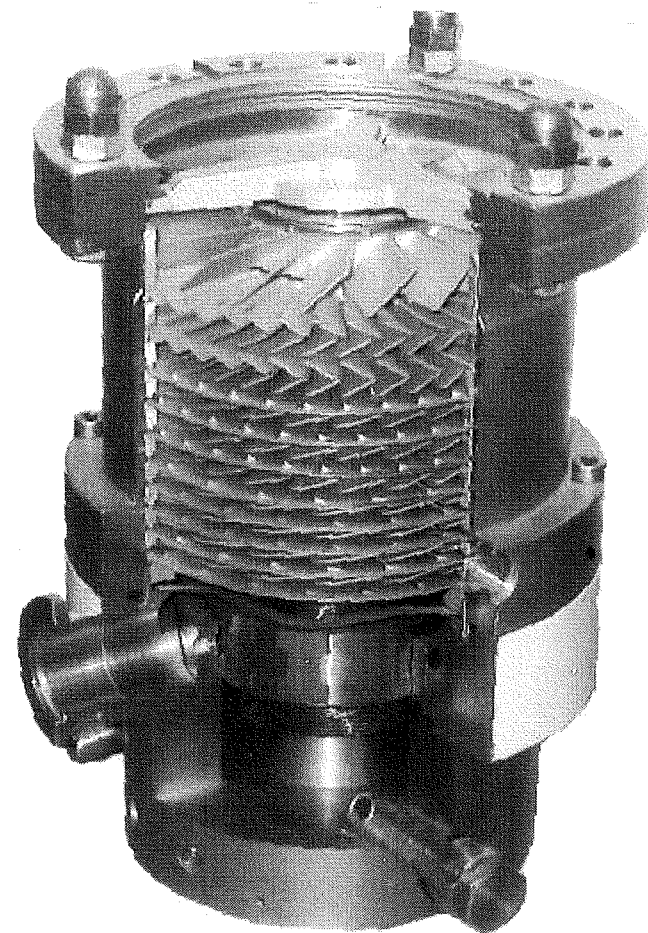
Bomba Turbomolecular



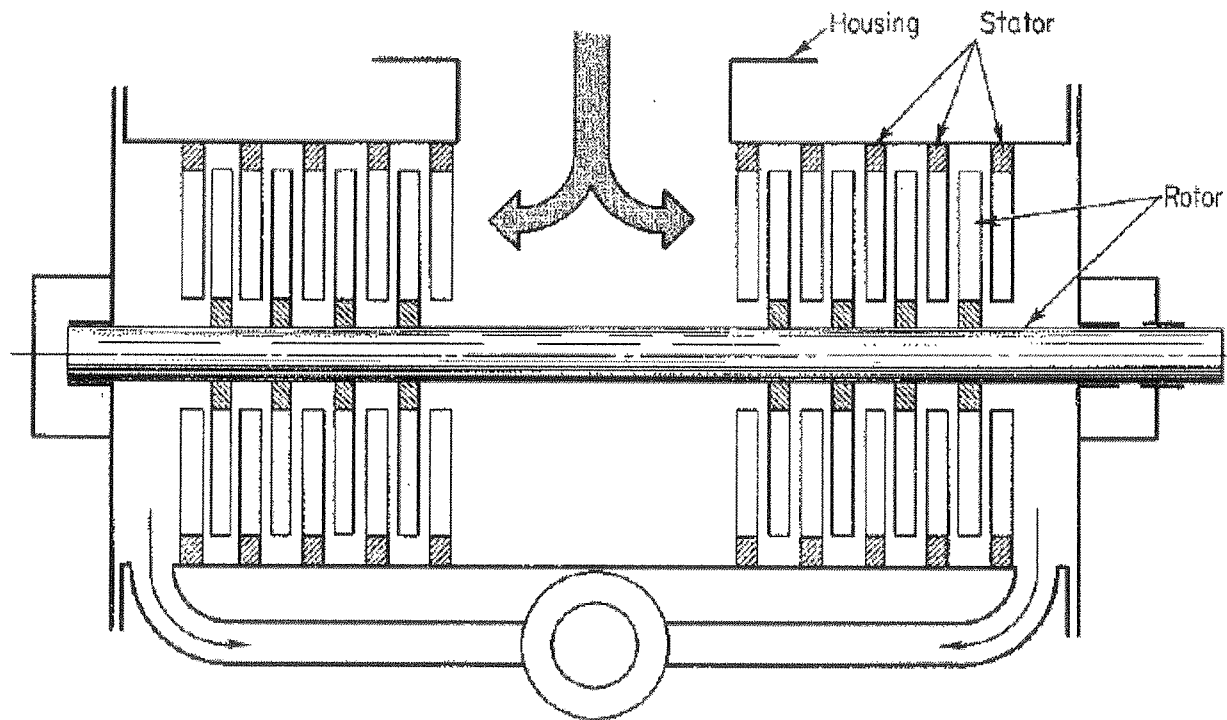
Bomba molecular de Gaede



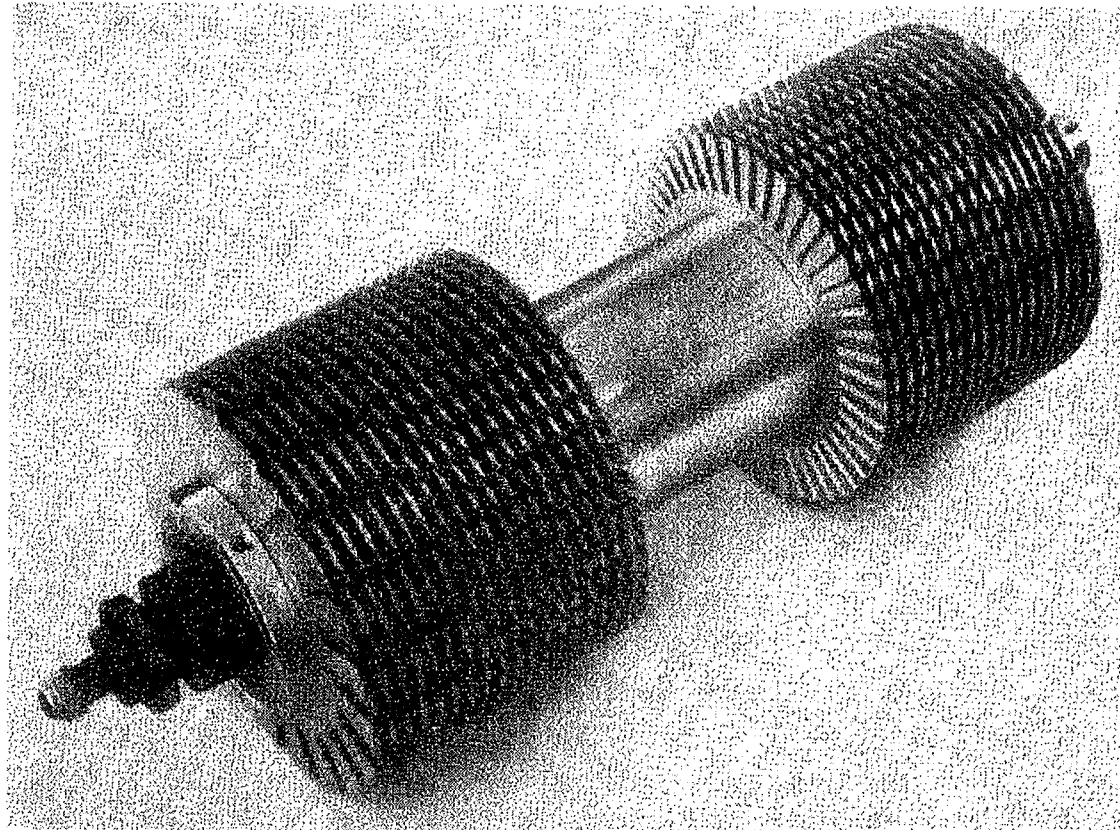
Bomba Turbomolecular



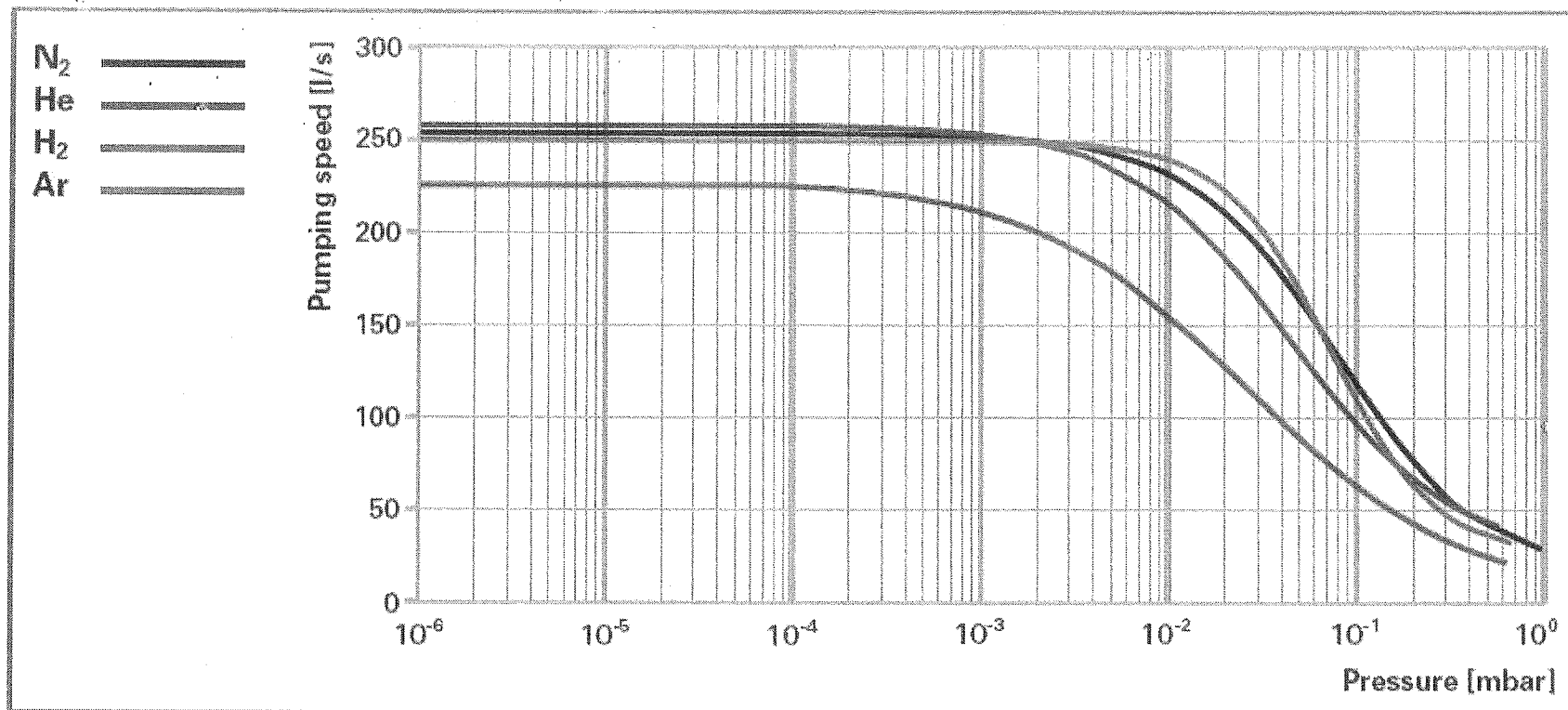
Bomba turbomolecular de Becker



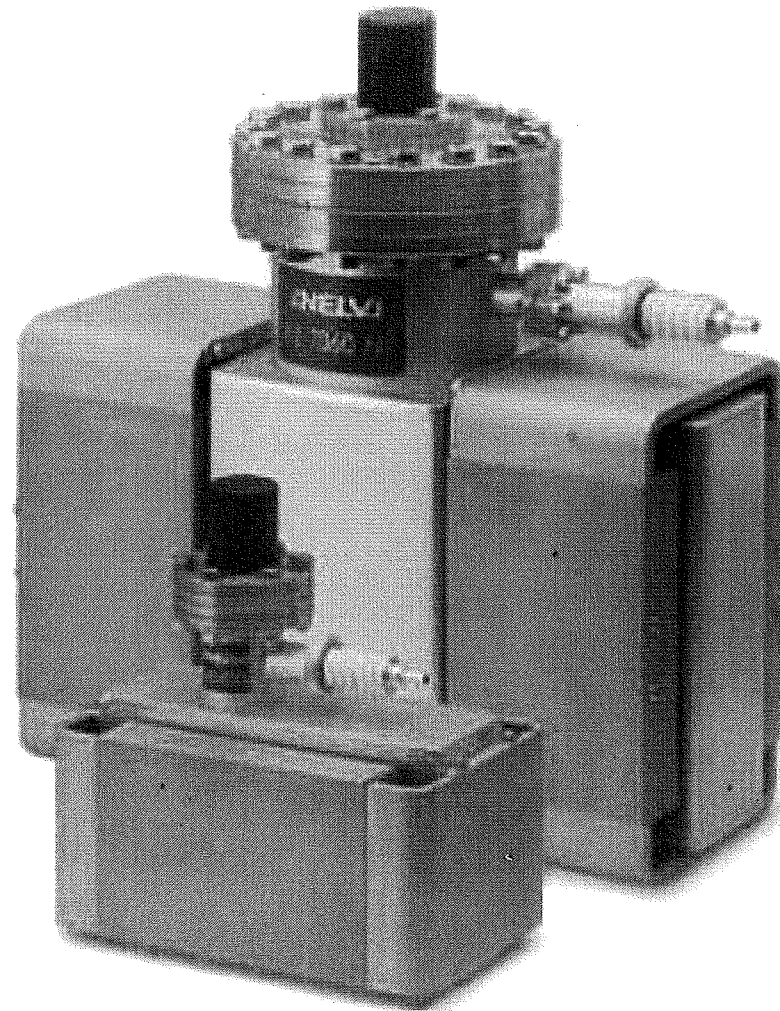
Rotor da bomba de Becker



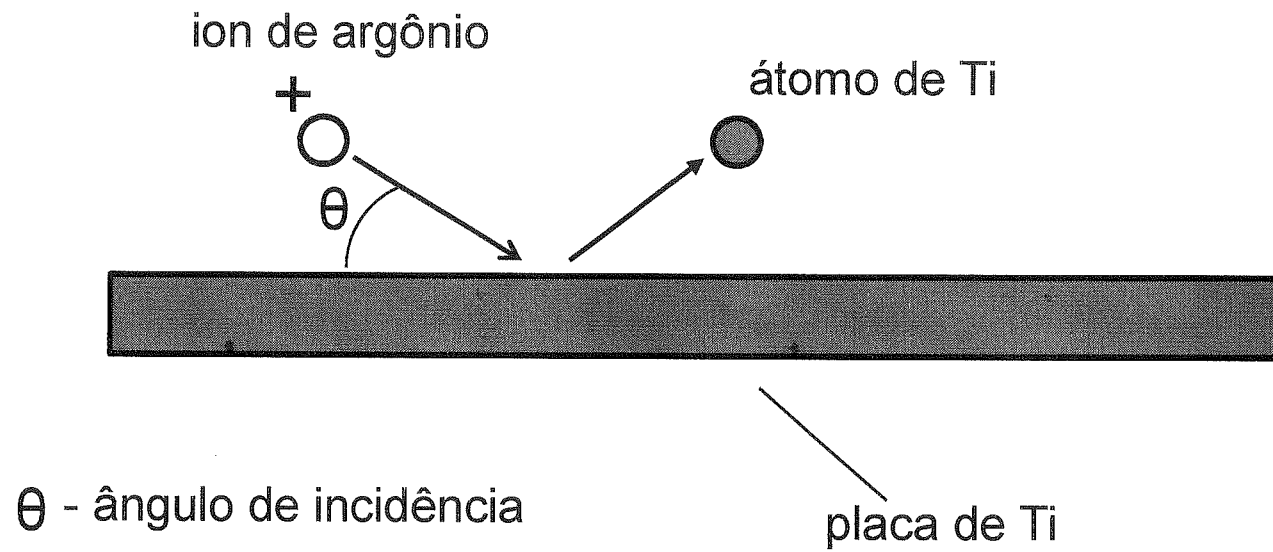
Bomba Turbomolecular



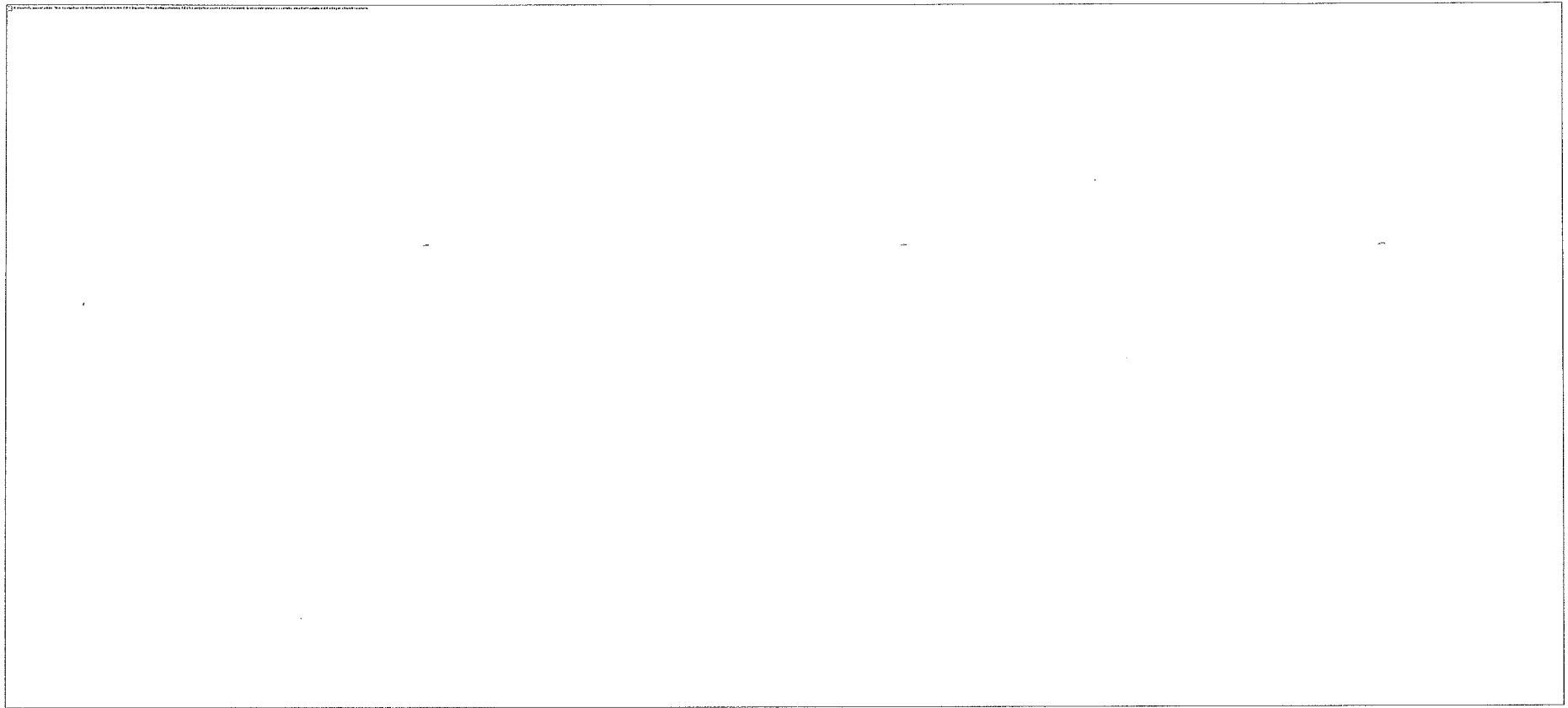
Bombas Magneto-Iônicas



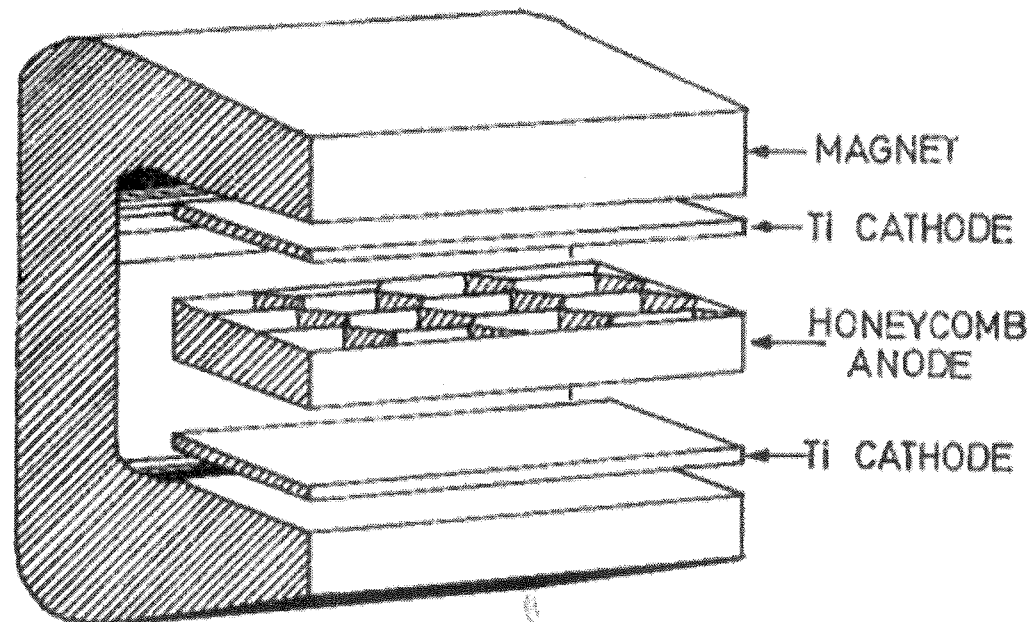
O efeito de sputtering



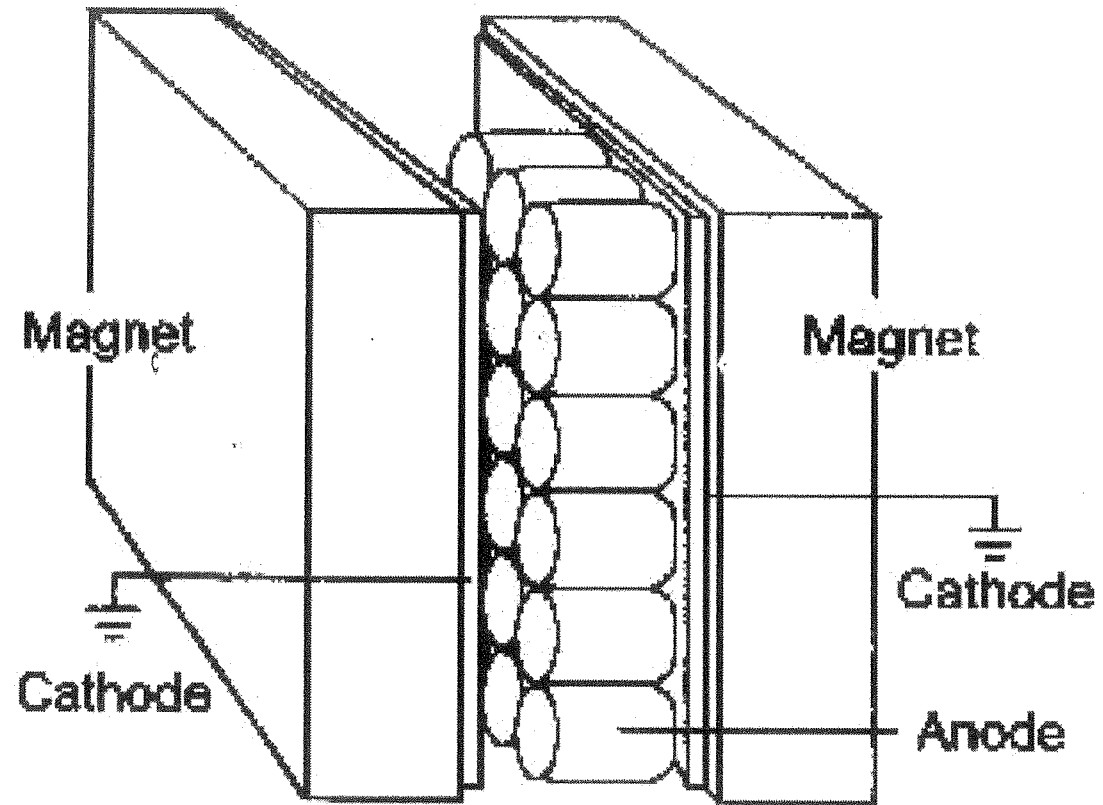
Bomba Magneto-Iônica



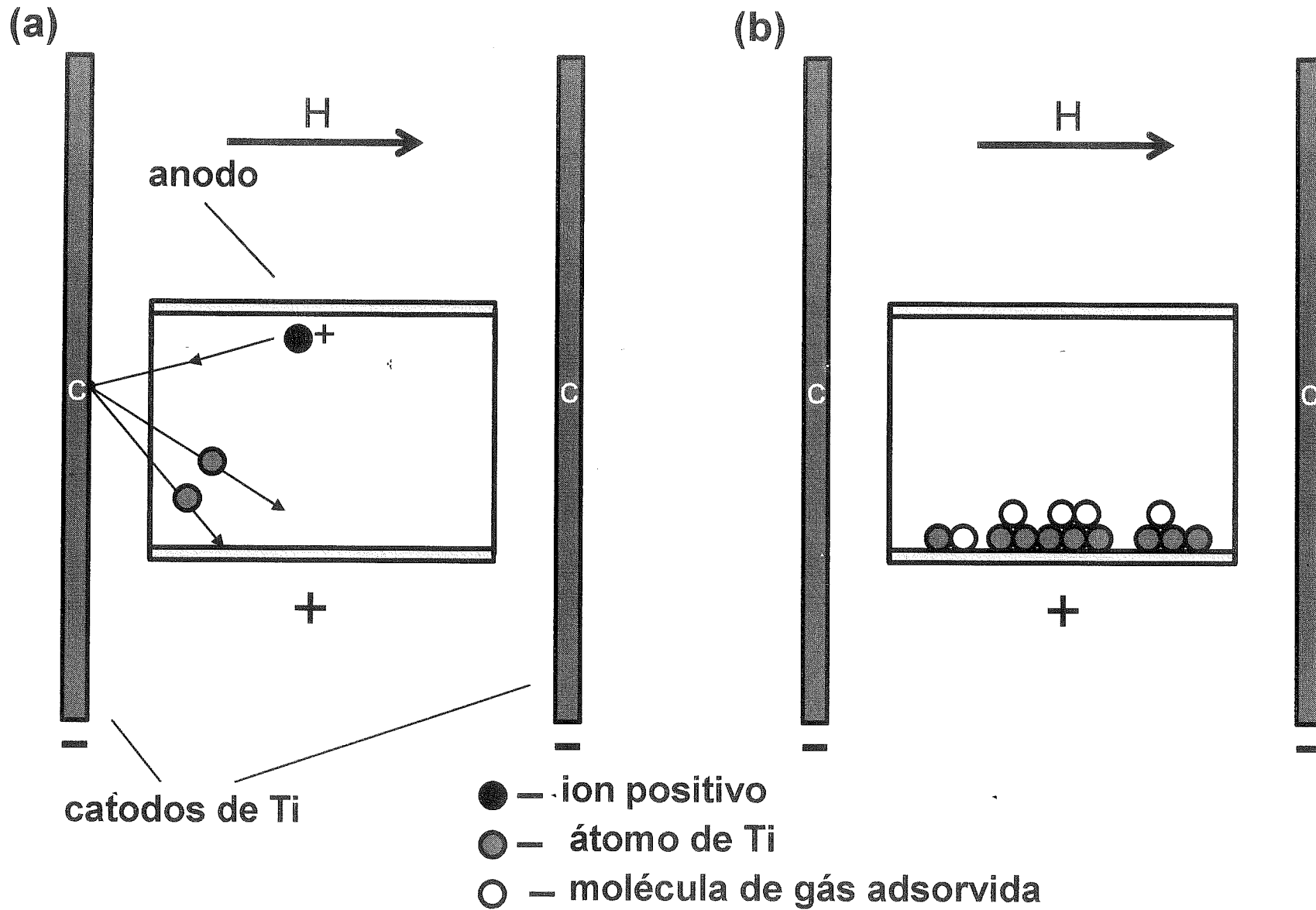
Esquema de uma bomba magneto iônica diodo



Esquema de uma bomba magneto iônica



Proceso de sputtering e captura de gás numa bomba diodo



Bomba Criogênica

