

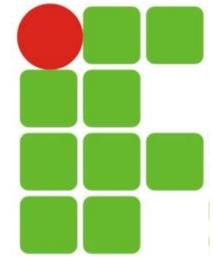
INSTITUTO FEDERAL DE
EDUCAÇÃO, CIÊNCIA E TECNOLOGIA
RIO GRANDE DO NORTE
Campus Parnamirim

Pneumática

Componentes – Parte 2

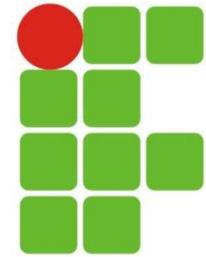
Professor: Paulo Vitor Silva

Sumário

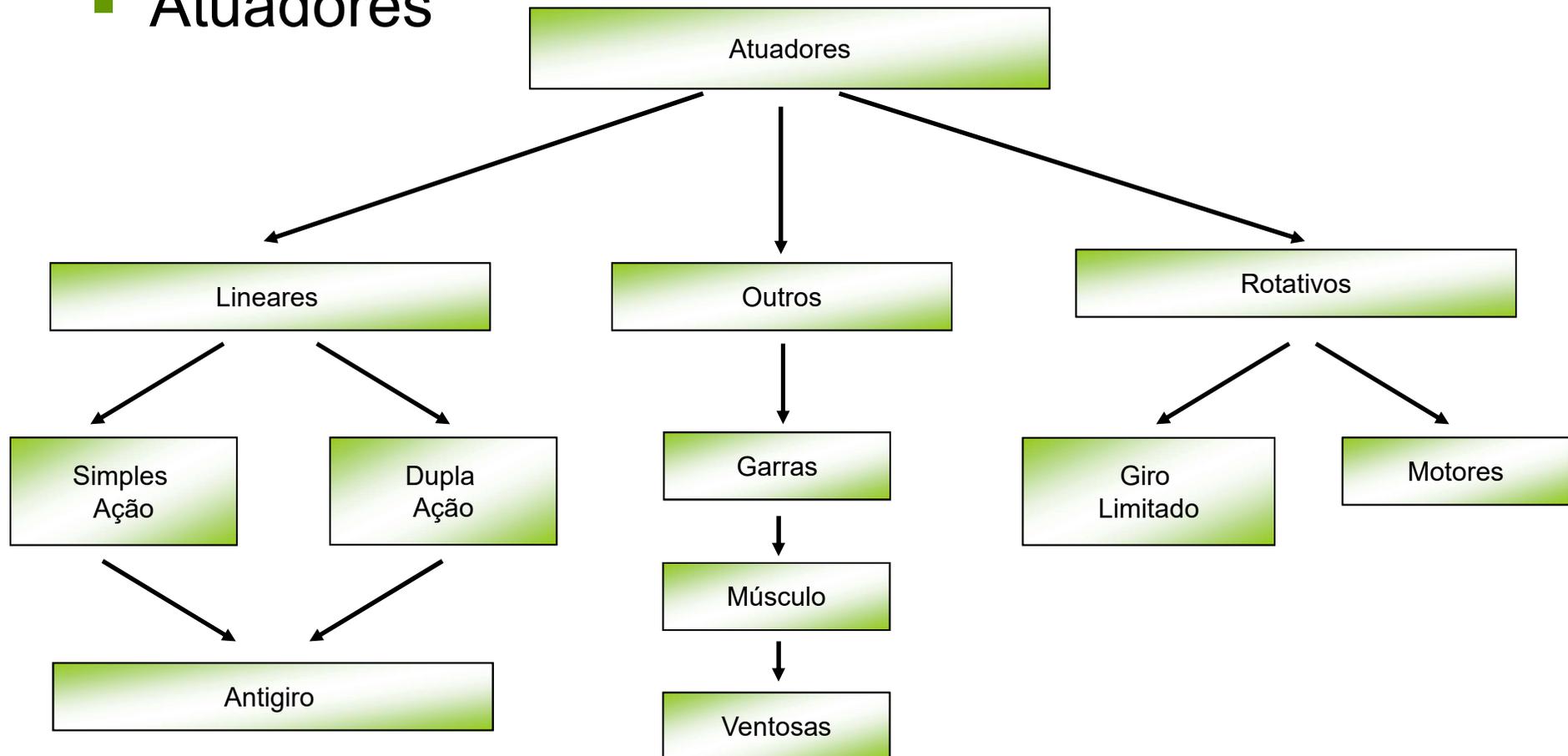


- Componentes
 - Atuadores
 - Válvulas

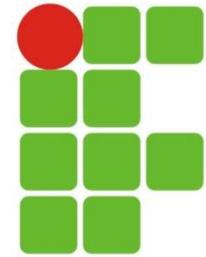
Componentes



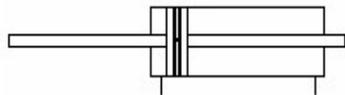
■ Atuadores



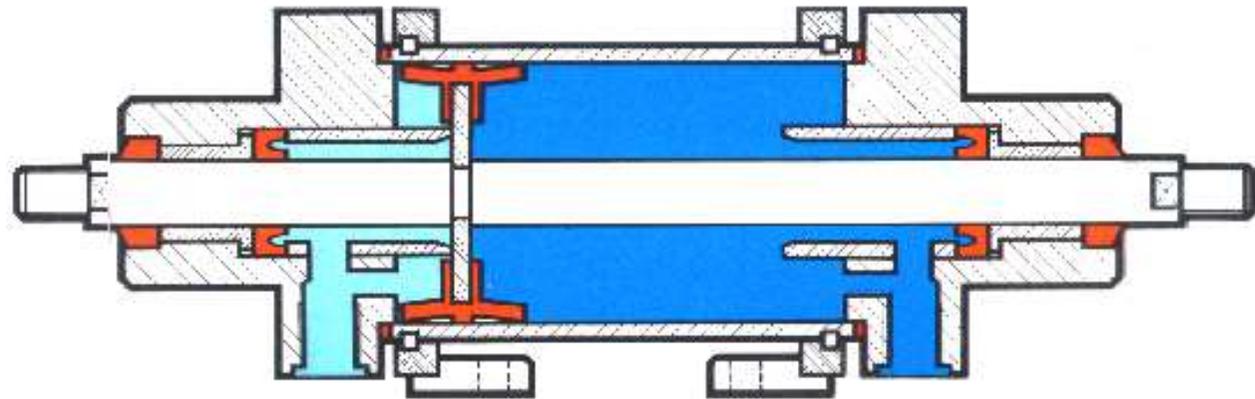
Componentes



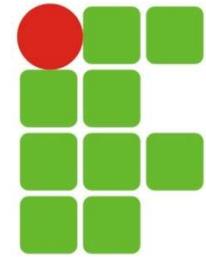
- Atuadores
 - Cilindro de dupla ação (haste passante)



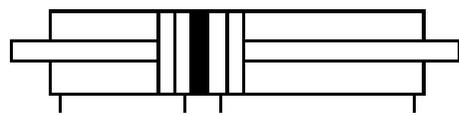
Simbologia



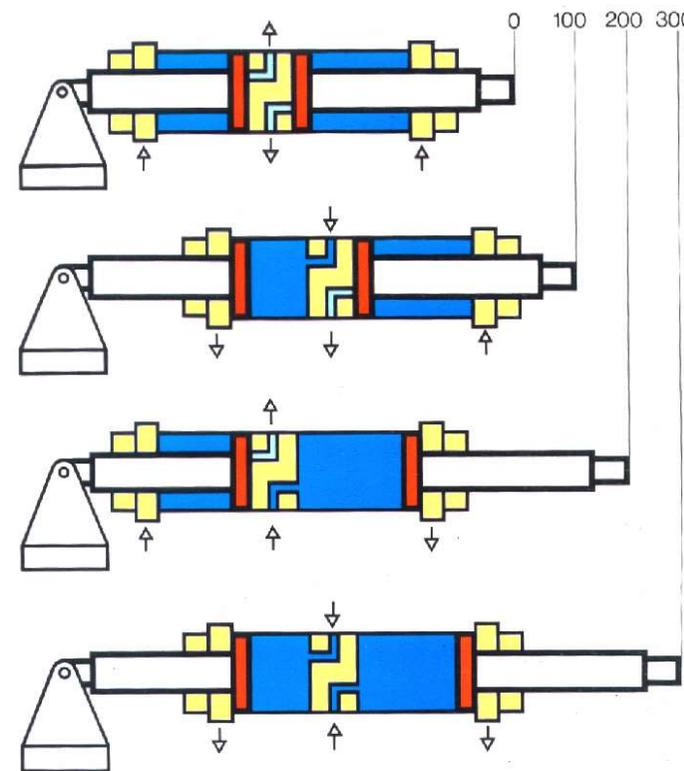
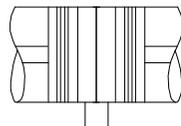
Componentes



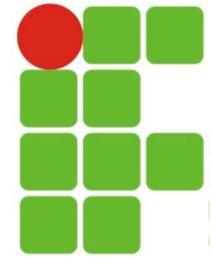
- Atuadores
 - Cilindro de dupla ação (múltiplas posições)



Simbologia



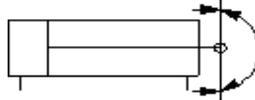
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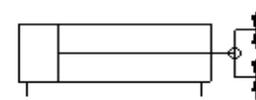
- Atuadores
 - Garras Pneumáticas



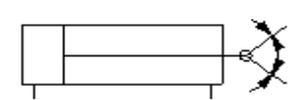
Paralela



Radial

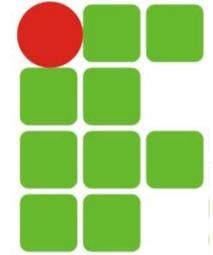


3 Pontos



Angular

Válvulas



Válvulas

Direcionais

Bloqueio

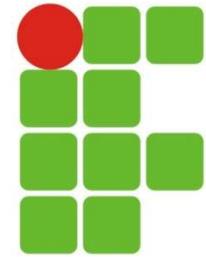
Vácuo

Pressão

Fluxo

Combinadas

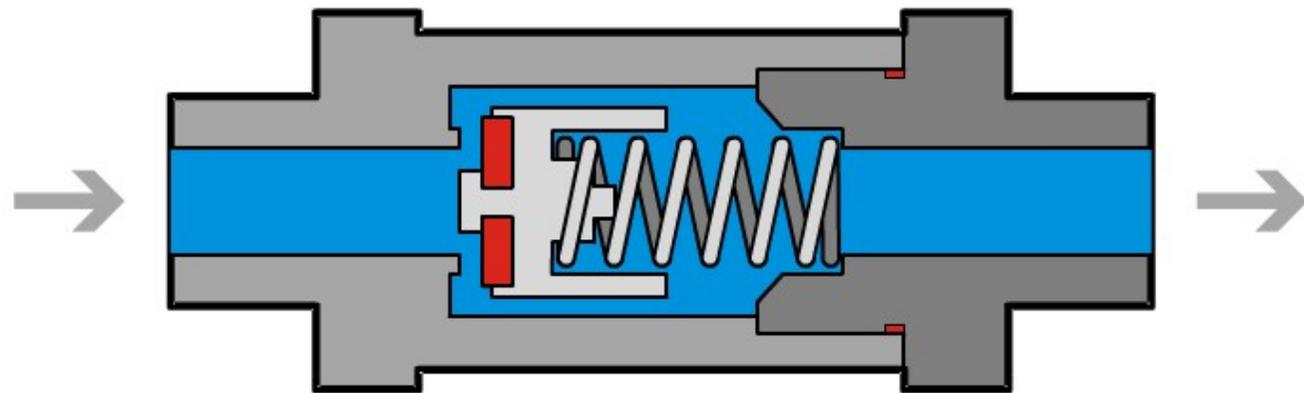
Válvulas



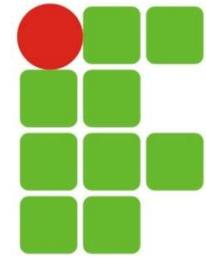
- Bloqueio
 - Válvula de Retenção



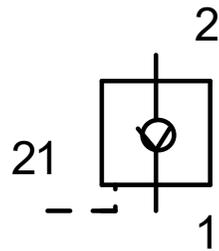
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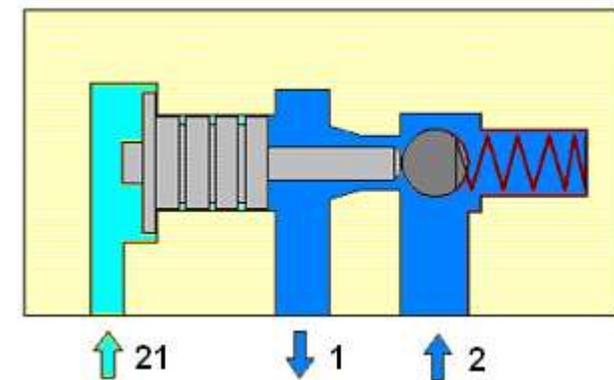
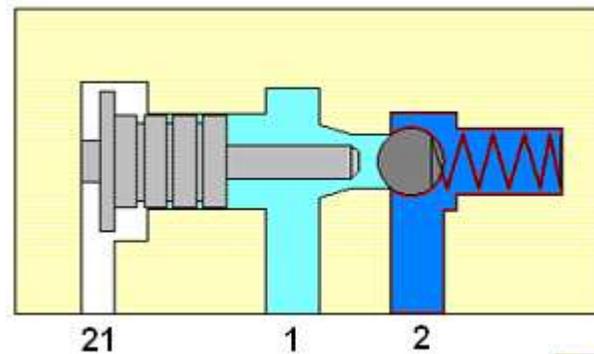
Válvulas



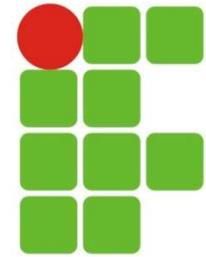
- Bloqueio
 - Válvula de Retenção Pilotada



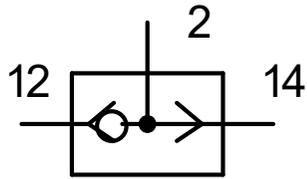
Simbologia



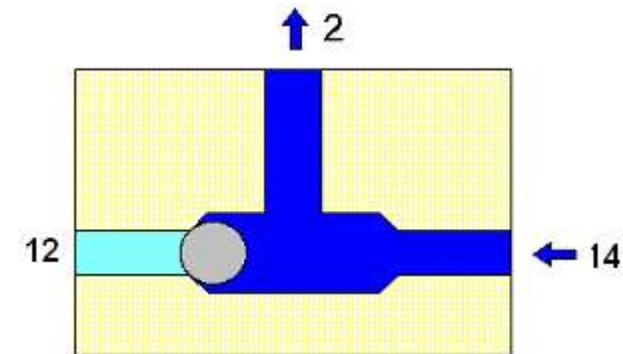
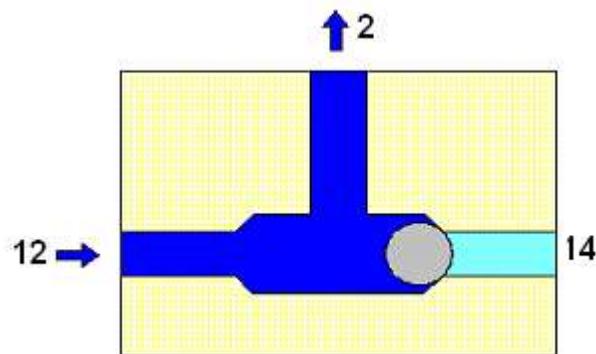
Válvulas



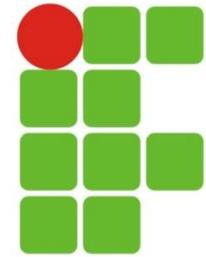
- Bloqueio
 - Alternada (OU)



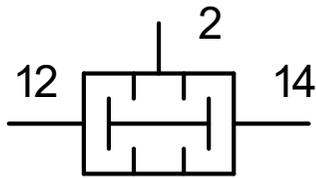
Simbologia



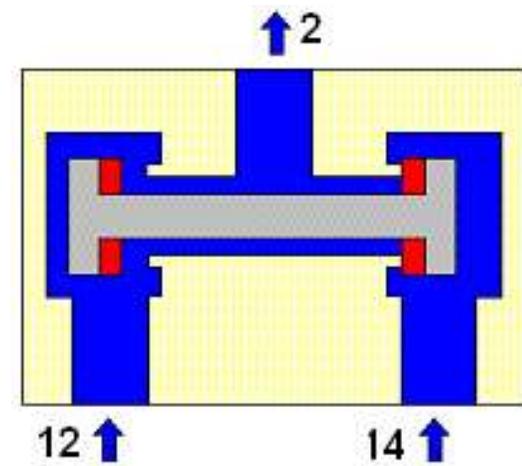
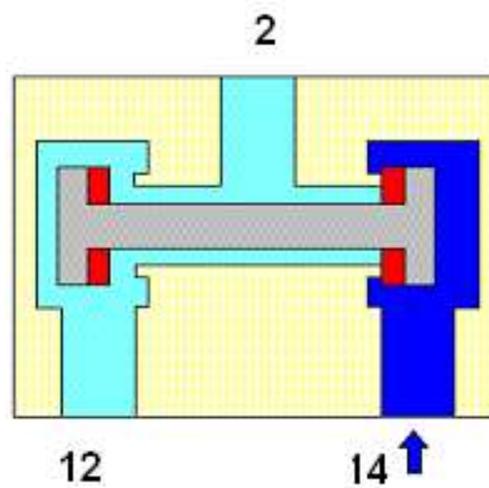
Válvulas



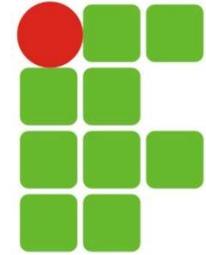
- Bloqueio
 - Simultaneidade (E)



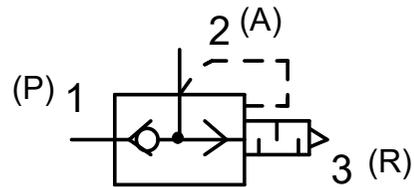
Simbologia



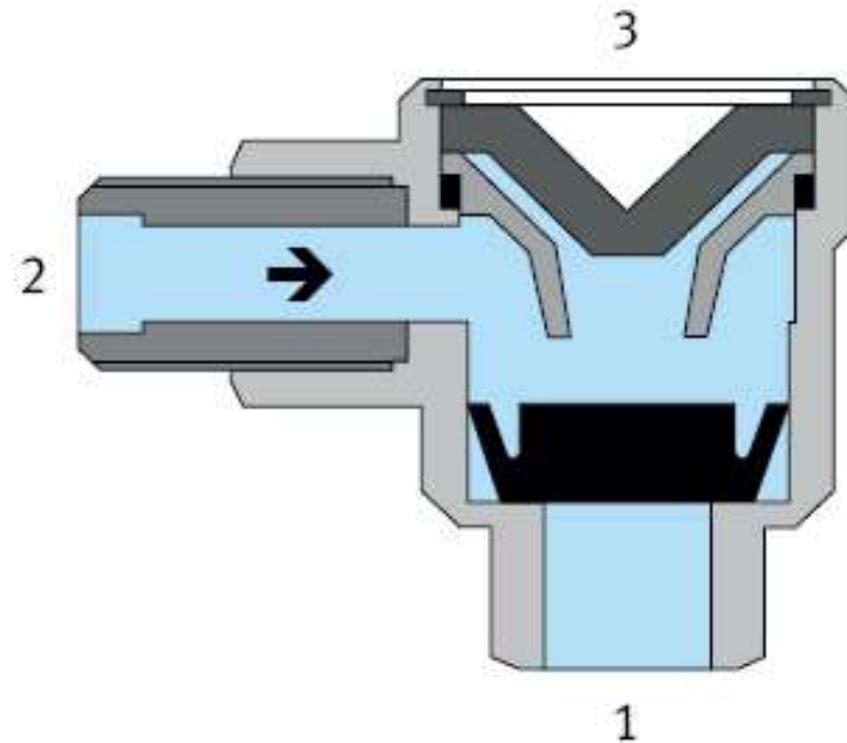
Válvulas



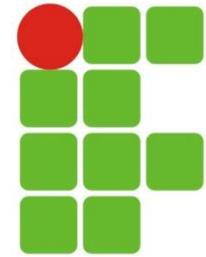
- Bloqueio
 - Escape Rápido



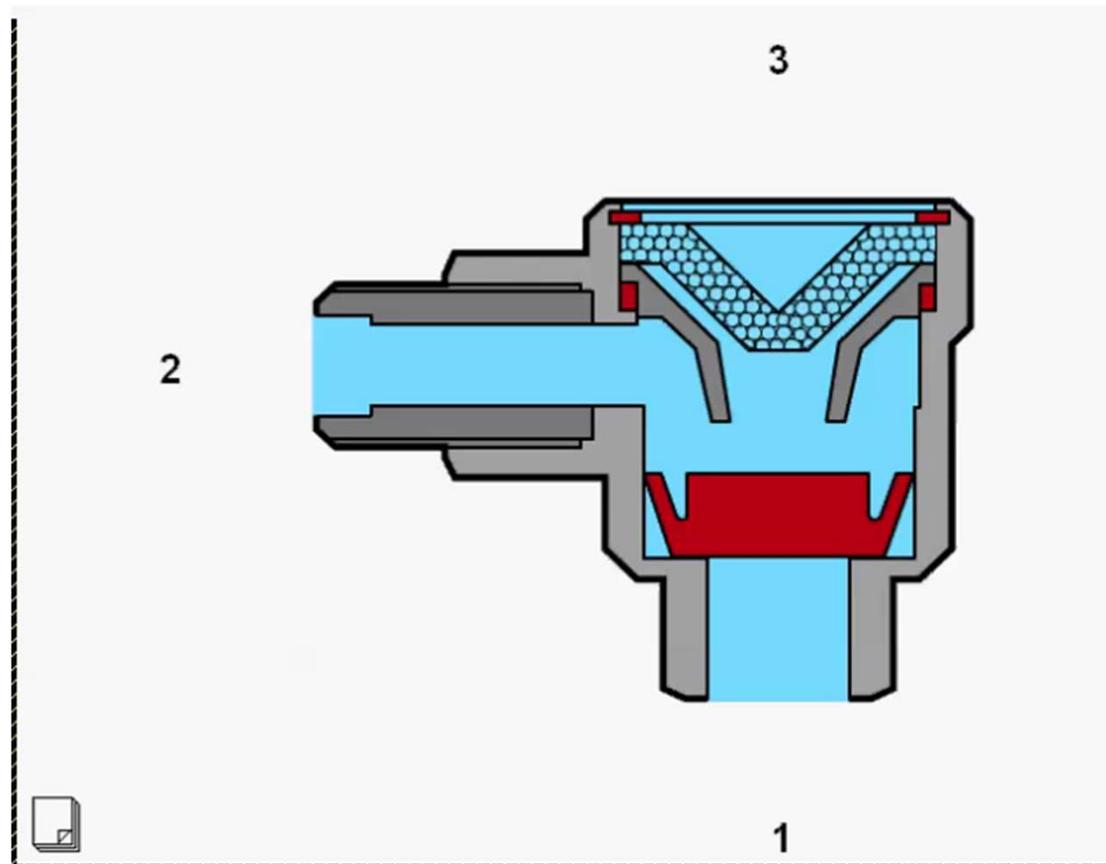
Simbologia



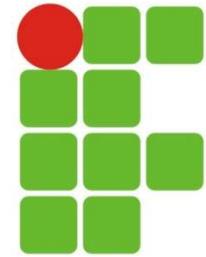
Válvulas



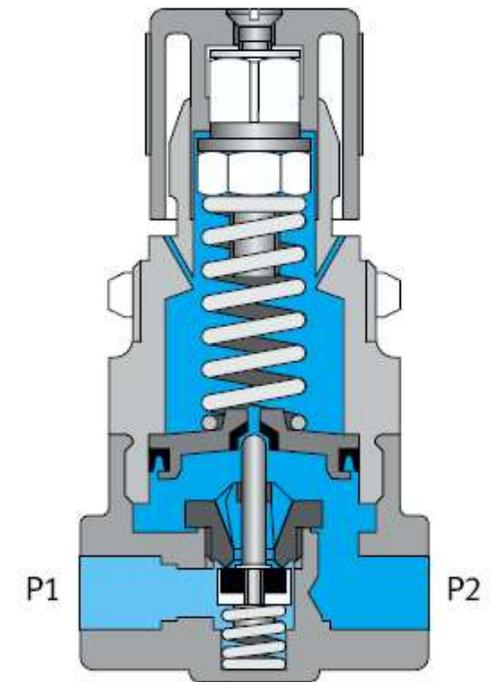
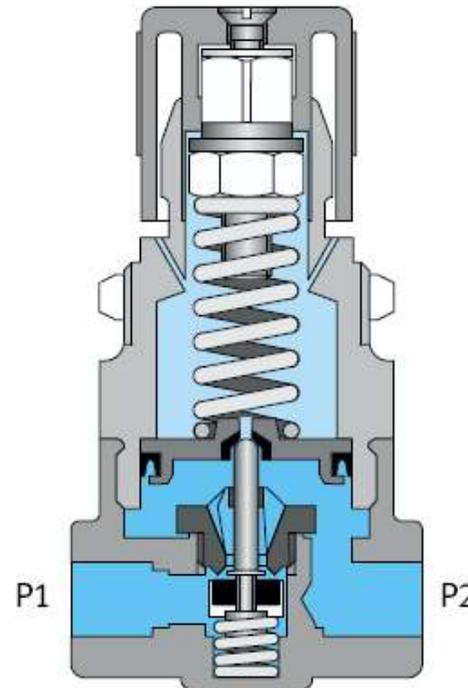
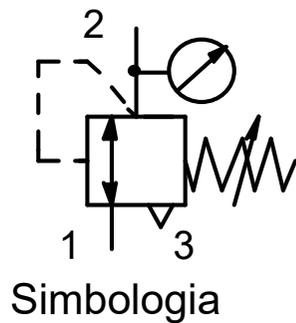
- Bloqueio - Escape Rápido



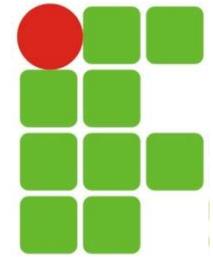
Válvulas



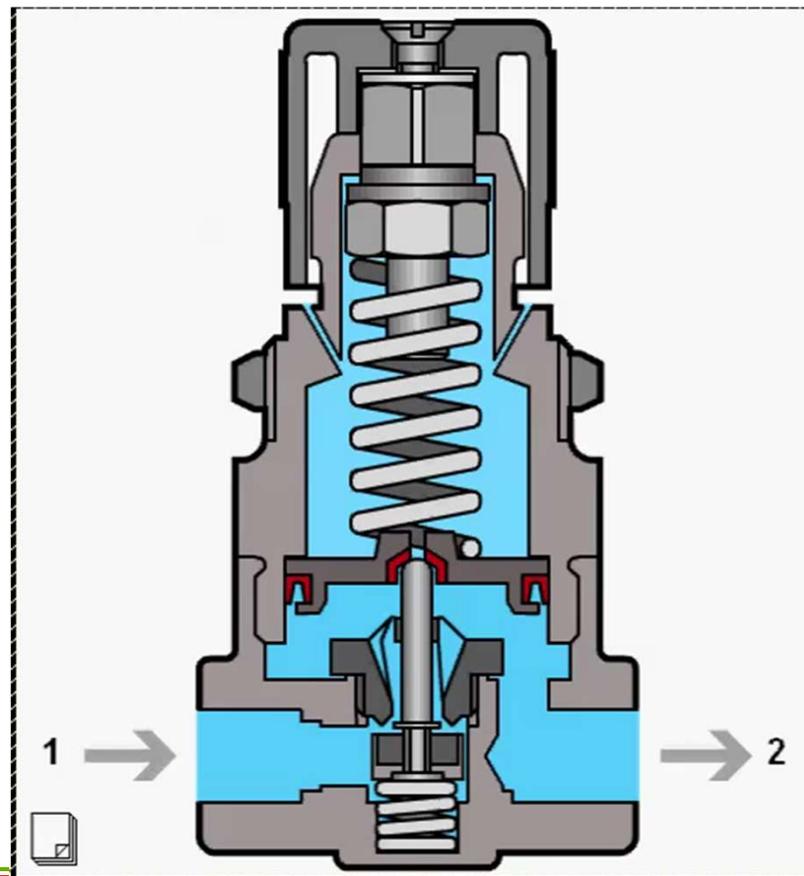
- Pressão
 - Reguladora de Pressão



Válvulas

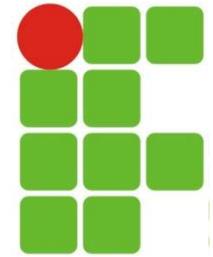


- Pressão – Reguladora de Pressão



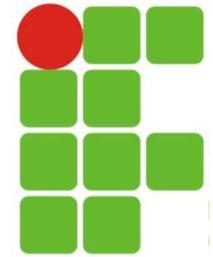
Pneumática

Exercícios

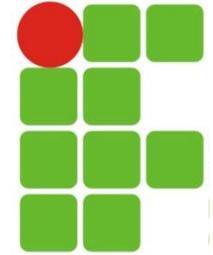


- Atividades em Laboratório
 - Ensaaios: 8 – 15
 - Projetos: 1 – 3

Perguntas?



Bibliografia



- Bonacorso, Nelso Gauze. , Automação Eletropneumática, 12^a ed., Érica, São Paulo, 2013.
- Material de aula fornecido pela Festo: Curso – P110 – Automação Pneumática, 2017.