

Pomoćni uređaji: ventilatori,  
sustavi ventilacije i klimatizacije



# Ventilatori

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- ventilatori: mali tlakovi (2500 Pa)
- puhala: srednji (3-4 bar)
- kompresori: veliki tlakovi
- zrak, plinovi
- centrifugalni (radijalni) i propelerni (aksijalni)

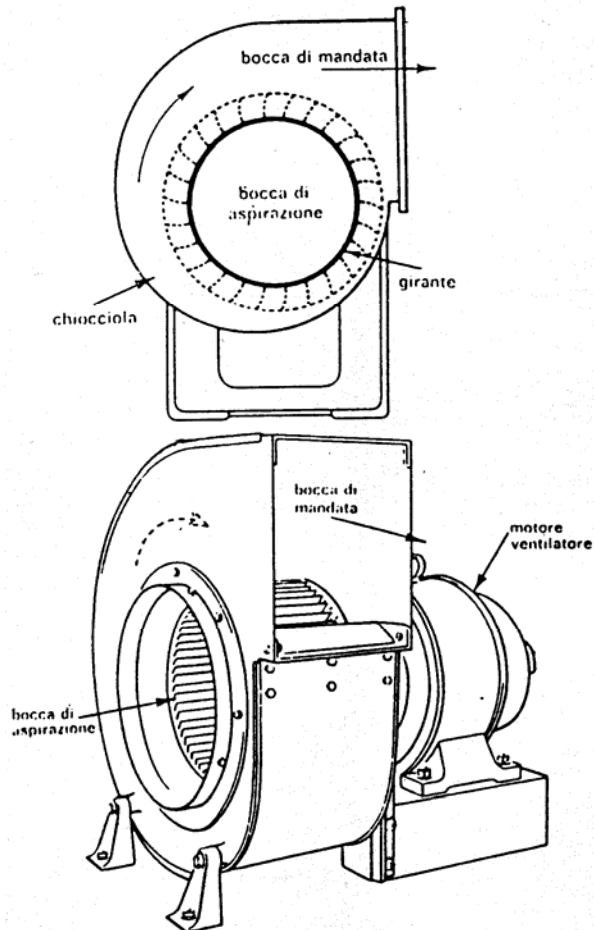


# Centrifugalni

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- centrifugalna sila (masa)
- sve primjene na brodu
- lopatice: ravne, zakrivljene naprijed i nazad
- difuzor

# Centrifugali ventilatori



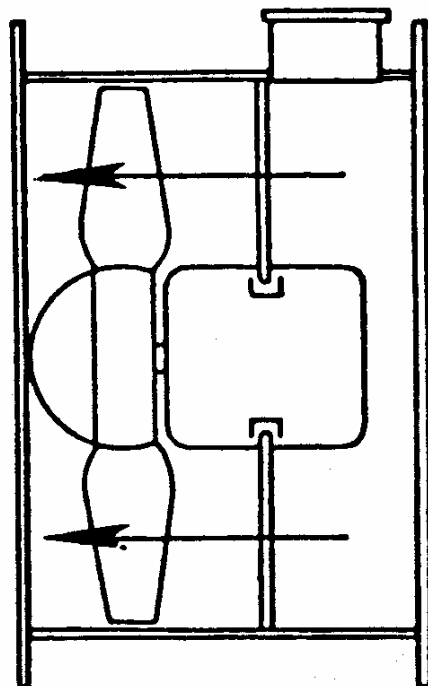


# Aksijalni

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- veliki protoci – mali tlakovi
- smještaj u kanalu
- reverzibilni (strojarnica)
- zakretne lopatice – regulacija
- privodne nepokretne lopatice
- difuzor

# Aksijalni ventilator





# Ventilacija na brodu

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- izgaranje
- odvođenje topline
- odvođenje štetnih tvari (plinova, mirisa)
- (disanje)
- $\text{m}^3/\text{h}$ , izmjena/h
- visoko- i niskotlačna ili –brzinska
- 'dirivent'



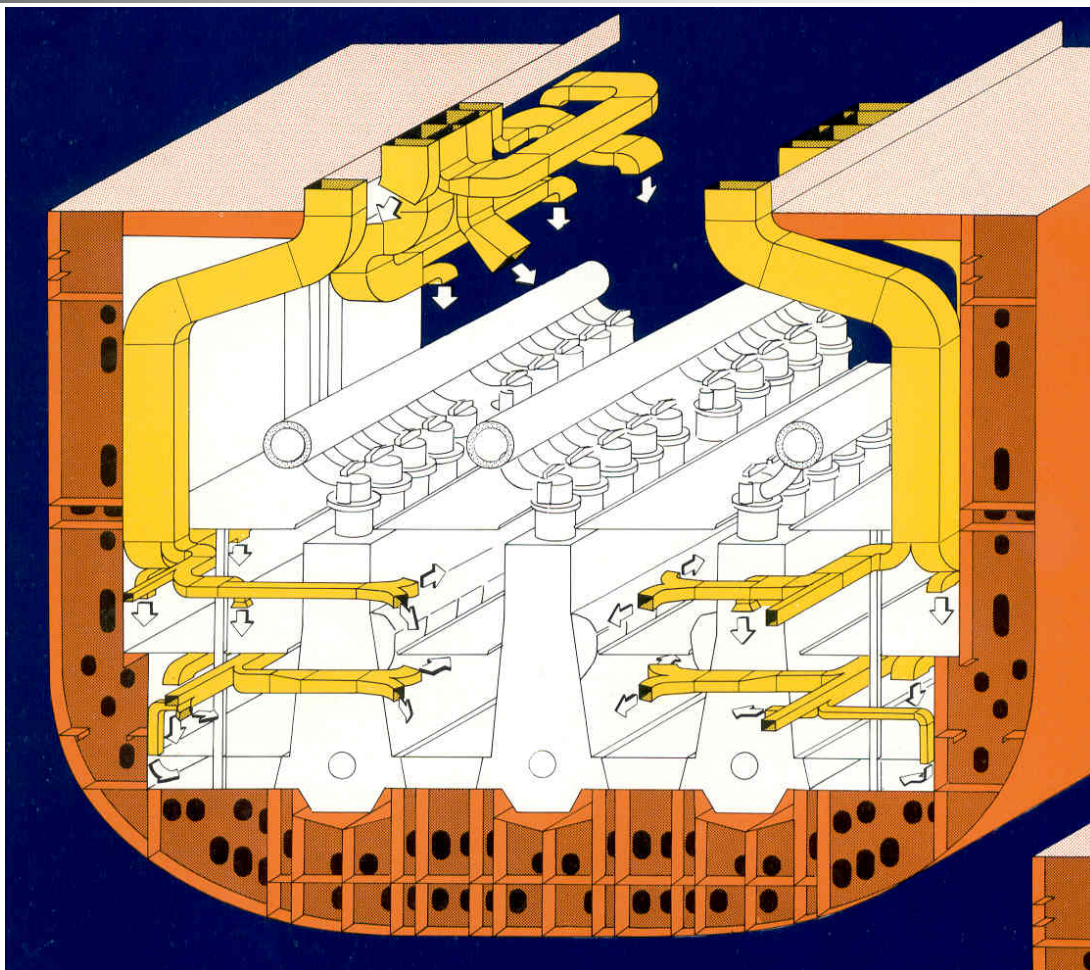
# Ventilacija strojarnice

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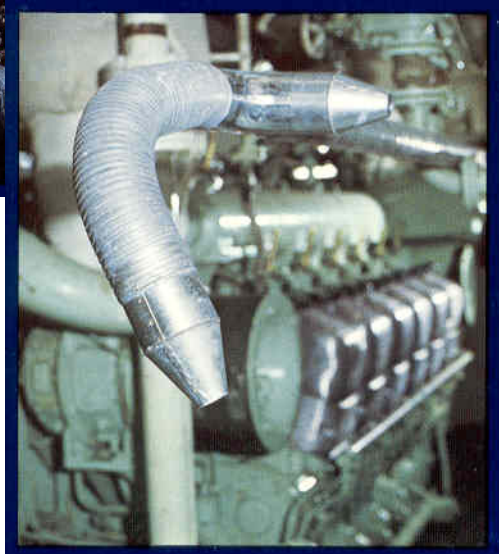
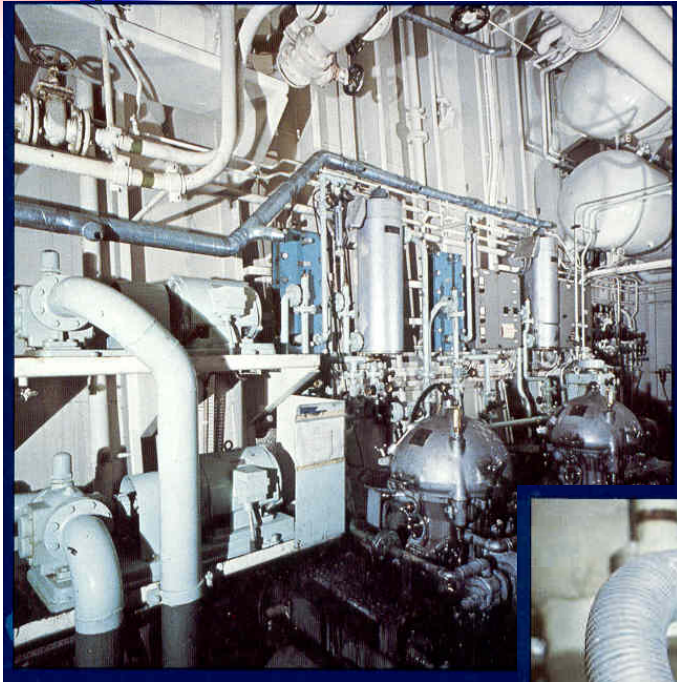
- pozitivno balansirana
- fleksibilna
- reverzibilni ventilatori
- $\approx 2xGM$
- do ispod najdonje podnice
- automatsko zaustavljanje



# Ventilacija



# “Dirivent”





# Ventilacija skladišta

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- plinovi (CO<sub>2</sub>) i vlaga (korozija)
- prirodna i prisilna
- odvlaživači

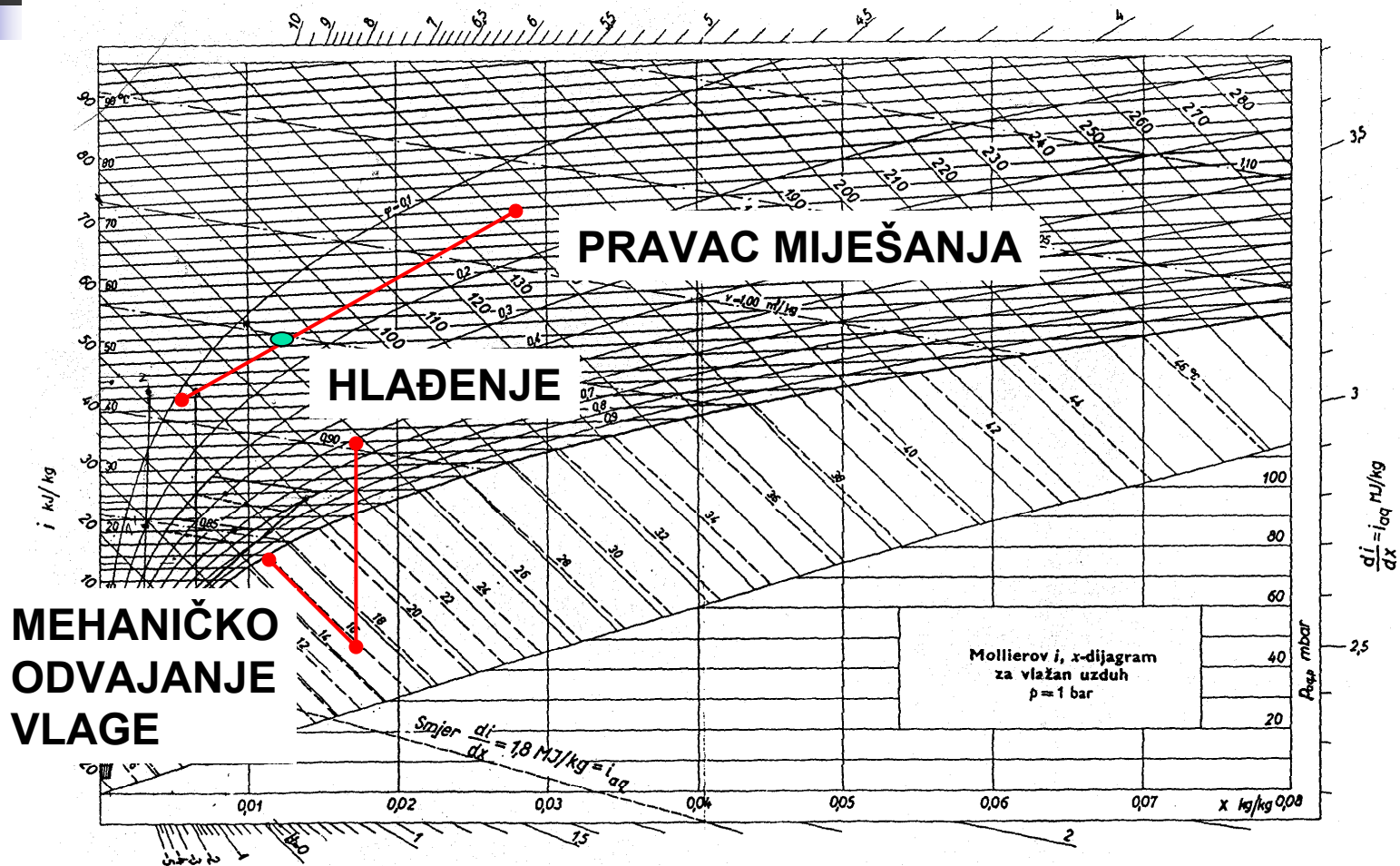


# Klimatizacija

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- klimatizacija: nadgrađe, kuhinja, ECR
- nadgrađe: posebni i zajednički prostori, sanitarni čvorovi, kuhinja
- štednja energije: recirkulacija ili regeneracija
- ECR: 90% se recirkulira
- 18-22 °C (20°C) i 60-70% vlage

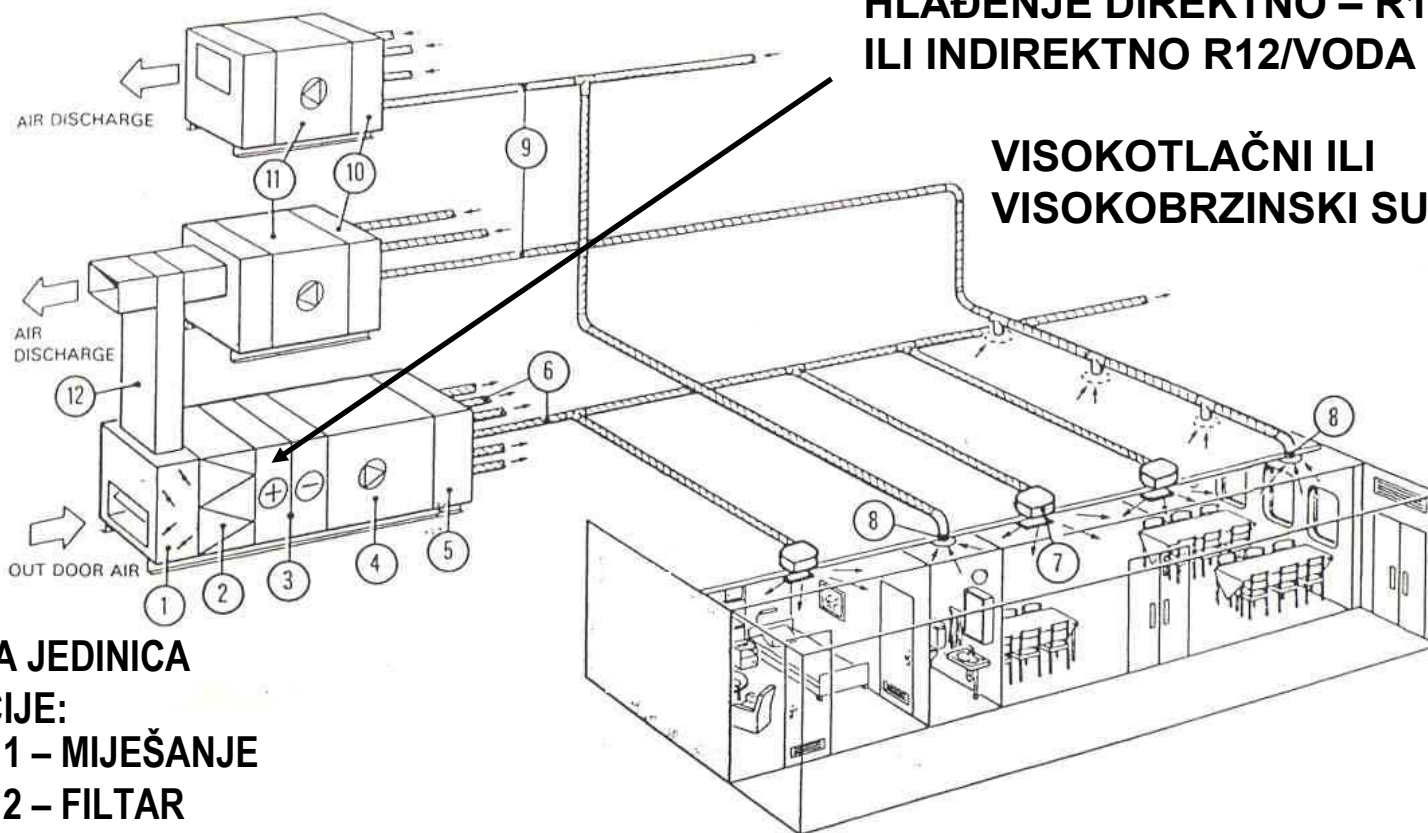
# Vlažni zrak (h-x)



# Klimatizacija - jednocijevni

GRIJANJE PAROM  
HLAĐENJE DIREKTNO – R12  
ILI INDIREKTNO R12/VODA

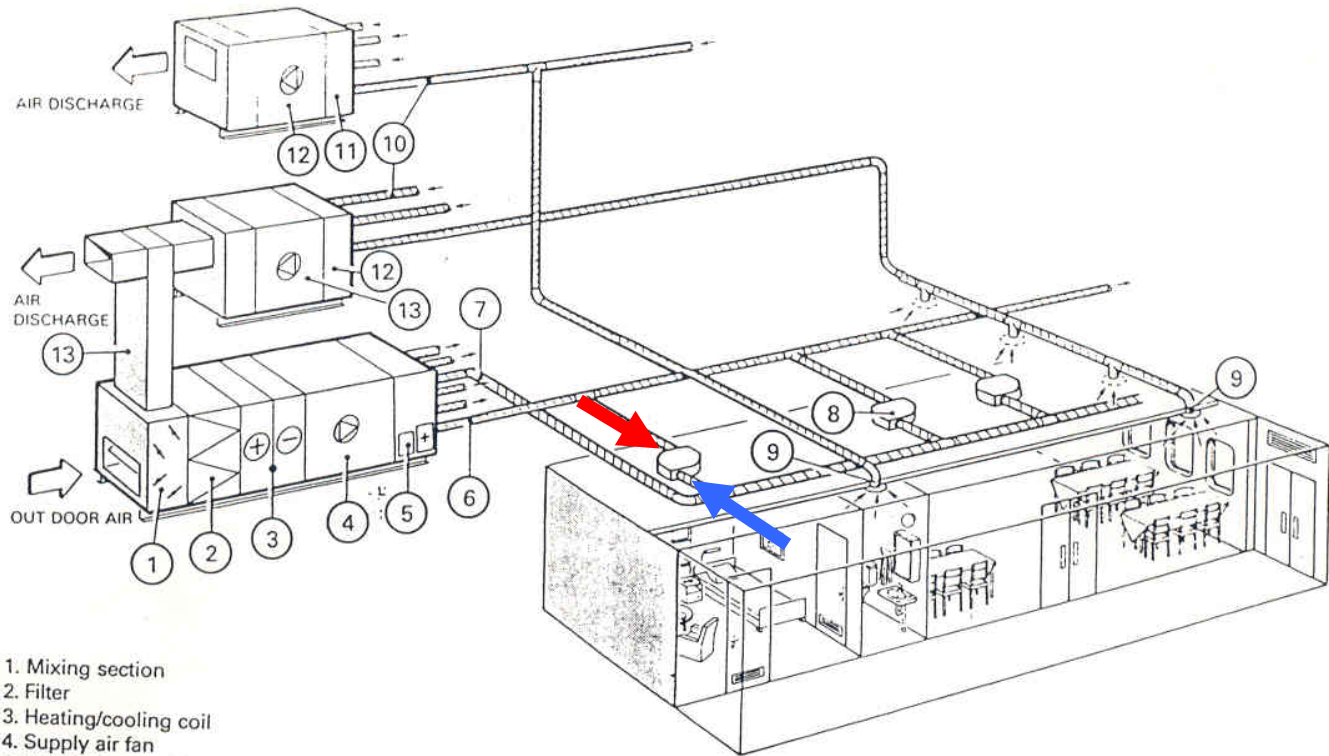
VISOKOTLAČNI ILI  
VISOKOBRZINSKI SUSTAV



## KLIMA JEDINICA SEKCIJE:

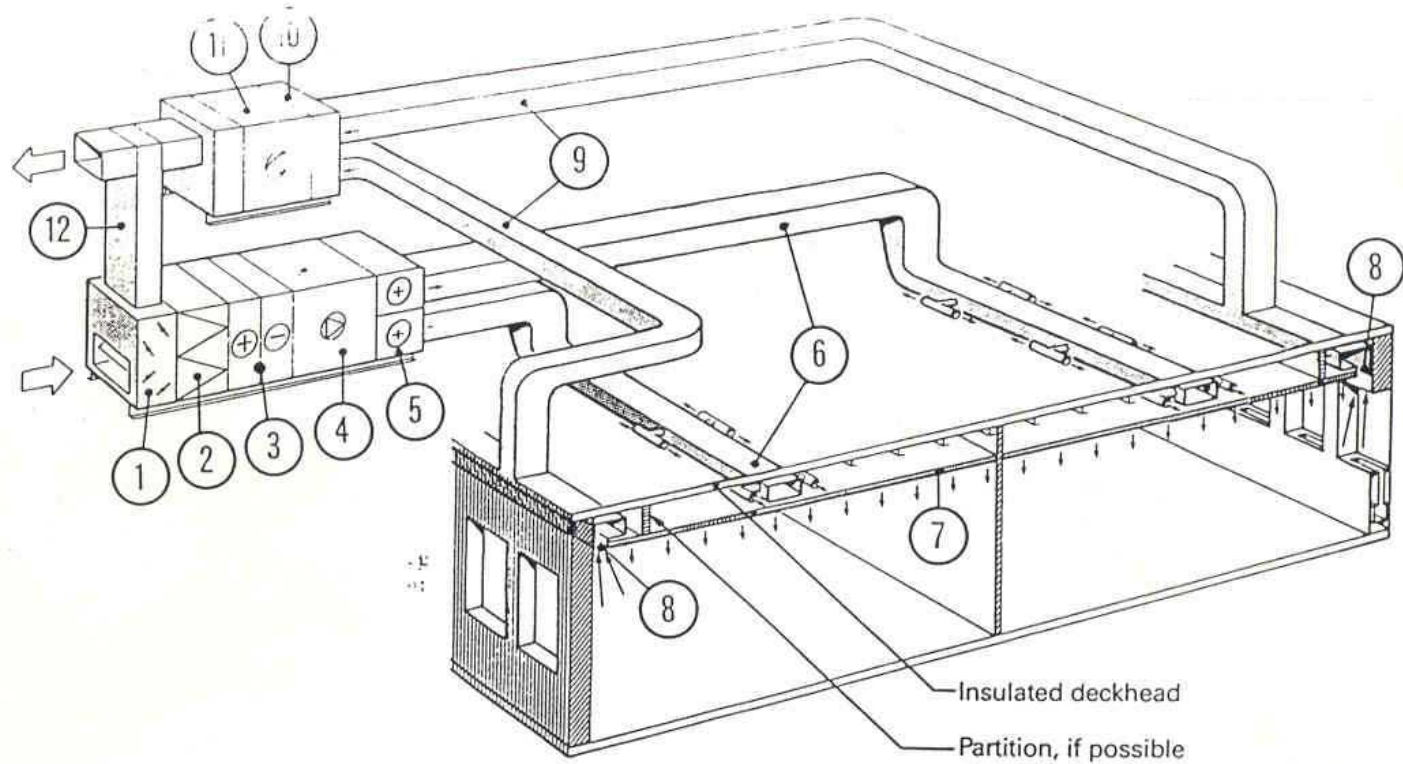
- 1 – MIJEŠANJE
- 2 – FILTAR
- 3 – GRIJANJE/HLAĐENJE
- 4 – VENTILATOR
- 5 – DISTRIBUCIJA

# Dvocijevni sustav



1. Mixing section
2. Filter
3. Heating/cooling coil
4. Supply air fan
5. Distribution section with reheating coil
6. Warm supply air
7. Cold supply air duct
8. Supply air terminal unit DKFS
9. Exhaust air register
10. Exhaust air duct
11. Exhaust air section
12. Exhaust air fan
13. Recirculated air duct

# Dvozonski sustav

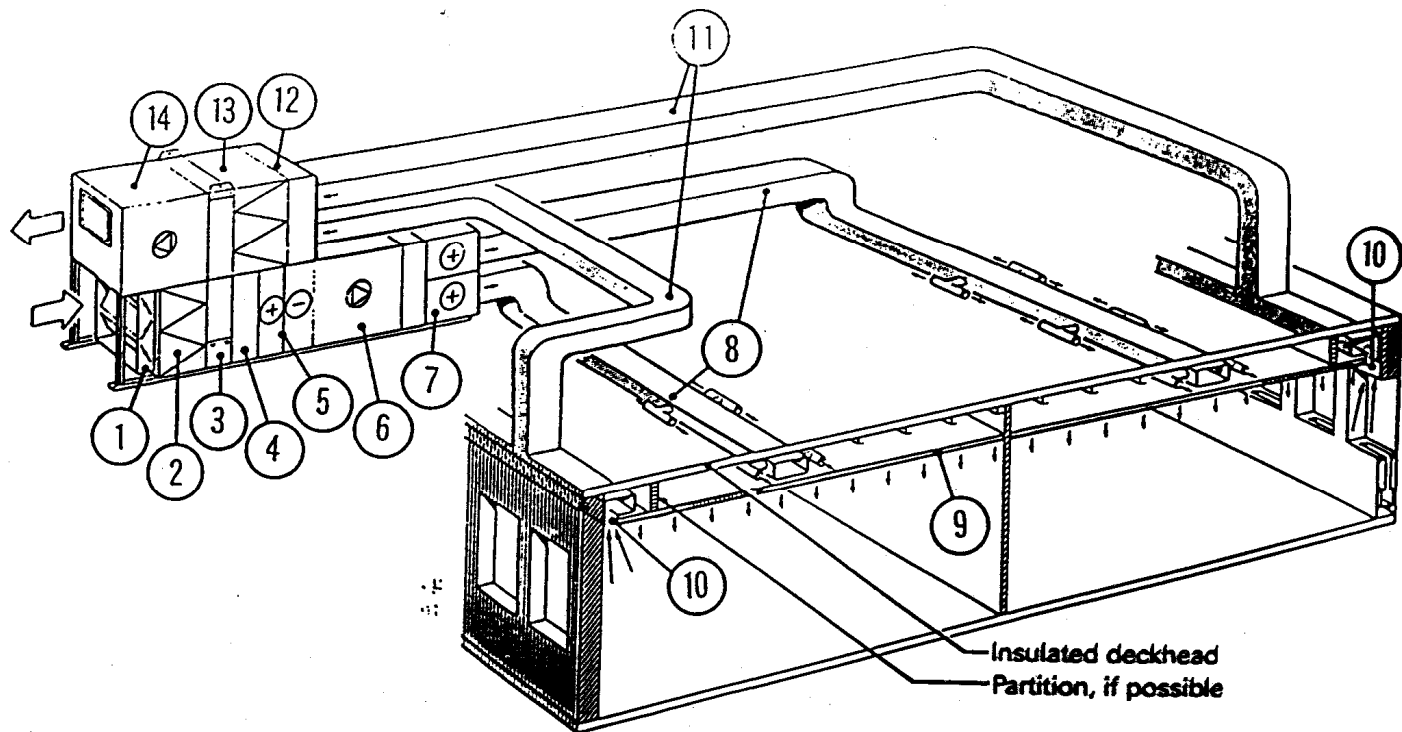


1. Mixing section
2. Filter
3. Heating/cooling coil
4. Supply air fan
5. Distribution section with heater
6. Supply air duct

7. Perforated ceiling
8. Exhaust air grille
9. Exhaust air duct
10. Exhaust air section
11. Exhaust air fan
12. Recirculated air duct



# Dvozonski - regeneracija



**NEMA RECIRKULACIJE ZRAKA  
13 – REGENERATOR**