



# TECHNICKÁ SPRÁVA

## VUZ template

Objednávateľ: Zákazník  
Adresa  
meno

Evidenčné č. zákazky: 222/2003/ME

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Milan Baláž, Ing, PhD.

## 1 Vstupné údaje

```
inputs={
  "membranova-stena": {
    "od" : 57,
    "t_nom" : 5,
    "p_op" : 10,
    "temp_op" : 315,
    "material" : "12022",
  },
  "strop-ohniska": {
    "od" : 57,
    "t_nom" : 5,
    "p_op" : 10,
    "temp_op" : 315,
    "material" : "12022",
  },
  "strop-medzitahu": {
    "od" : 57,
    "t_nom" : 5,
    "p_op" : 10,
    "temp_op" : 305,
    "material" : "12022",
  },
  "zadna-stena-2-tah": {
    "od" : 57,
    "t_nom" : 5,
    "p_op" : 10,
    "temp_op" : 260,
    "material" : "12022",
  },
  "p-l-stena-2-tah": {
    "od" : 57,
    "t_nom" : 5,
    "p_op" : 10,
    "temp_op" : 260,
    "material" : "12022",
  },
  "vystupny-prehrievac": {
    "od" : 57,
    "t_nom" : 5,
    "p_op" : 10,
    "temp_op" : 525,
    "material" : "15128",
  },
}
```

```

    },
    "salavy-prehrievac": {
        "od" : 57,
        "t_nom" : 5,
        "p_op" : 10,
        "temp_op" : 480,
        "material" : "15128",
    },
    "mreza": {
        "od" : 57,
        "t_nom" : 5,
        "p_op" : 10,
        "temp_op" : 325,
        "material" : "12022",
    },
}
}

```

```

from IPython.display import Markdown
from tabulate import tabulate
import pandas as pd

# df = pd.DataFrame.from_dict(inputs, orient='index').reset_index(drop=True)
df = pd.DataFrame.from_dict(inputs, orient='index')

# print(df.to_markdown(index=True))
Markdown(tabulate(df, headers="keys", tablefmt="github"))

```

Table 1. – Vstupné údaje

	od	t_nom	p_op	temp_op	material
membranova-stena	57	5	10	315	12022
strop-ohniska	57	5	10	315	12022
strop-medzitahu	57	5	10	305	12022
zadna-stena-2-tah	57	5	10	260	12022
p-l-stena-2-tah	57	5	10	260	12022
vystupny-prehrievac	57	5	10	525	15128
salavy-prehrievac	57	5	10	480	15128
mreza	57	5	10	325	12022

### 1.1.1 Materiálové vlastnosti

```
import sympy as sy
# sy.init_printing()
from IPython.display import display, Math
```

### 1.1.1.1 Materiál 12022

Teplotný rozsah

```
t_12022=sy.var('T_{12022}')
t_12022_values = [20,100,200,250,300,350,400,450]
# Format the output in LaTeX
latex_output = f"${t_12022} = {t_12022_values}$"
# Render the LaTeX expression as a math equation
display(Math(latex_output))
```

$$T_{12022} = [20, 100, 200, 250, 300, 350, 400, 450]$$

Medza klzu

```
rp02_12022=sy.var('R_{p02-12022}')
rp02_12022_values = [255, 245, 225, 205, 177, 157, 137, 117]
latex_output = f"${rp02_12022} = {rp02_12022_values}$"
display(Math(latex_output))
```

$$R_{p02-12022} = [255, 245, 225, 205, 177, 157, 137, 117]$$

Medza pevnosti

```
rm_12022=sy.var('R_{m-12022}')
rm_12022_values = 440
latex_output = f"${rm_12022} = {rm_12022_values}$"
display(Math(latex_output))
```

$$R_{m-12022} = 440$$

#### 1.1.1.1.1 Medza pevnosti pri tečení (200 000 h)

Teplotný rozsah

```
tt_12022=sy.var('T_{t-12022}')
tt_12022_values = [380, 400, 420, 440, 460, 480, 500]
latex_output = f"${tt_12022} = {tt_12022_values}$"
display(Math(latex_output))
```

$$T_{t-12022} = [380, 400, 420, 440, 460, 480, 500]$$

Medza pevnosti pri tečení

```
rmt_12022=sy.var('R_{mt-12022}')
rmt_12022_values = [145, 115, 89, 67, 48, 33.4, 24]
latex_output = f"${rmt_12022} = {rmt_12022_values}$"
display(Math(latex_output))
```

$$R_{mt-12022} = [145, 115, 89, 67, 48, 33.4, 24]$$

### 1.1.1.2 Materiál 15128

Teplotný rozsah

```
t_15128=sy.var('T_{15128}')
t_15128_values = [20, 200, 250, 300, 350, 400, 450, 500, 550, 600]
latex_output = f"${t_15128} = {t_15128_values}$"
display(Math(latex_output))
```

$$T_{15128} = [20, 200, 250, 300, 350, 400, 450, 500, 550, 600]$$

Medza klzu

```
rp02_15128=sy.var('R_{p02-15128}')
rp02_15128_values = [365, 319, 304, 294, 279, 265, 245, 226, 206, 181]
latex_output = f"${rp02_15128} = {rp02_15128_values}$"
display(Math(latex_output))
```

$$R_{p02-15128} = [365, 319, 304, 294, 279, 265, 245, 226, 206, 181]$$

Medza pevnosti

```
rm_15128=sy.var('R_{m-15128}')
rm_15128_values = 490
latex_output = f"${rm_15128} = {rm_15128_values}$"
display(Math(latex_output))
```

$$R_{m-15128} = 490$$

#### 1.1.1.2.1 Medza pevnosti pri tečení (200 000 h)

Teplotný rozsah

```
tt_15128=sy.var('T_{t-15128}')
tt_15128_values = [480, 500, 520, 540, 560, 580, 6500]
latex_output = f"${tt_15128} = {tt_15128_values}$"
display(Math(latex_output))
```

$$T_{t-15128} = [480, 500, 520, 540, 560, 580, 6500]$$

Medza pevnosti pri tečení

```
rmt_15128=sy.var('R_{mt-15128}')  
rmt_15128_values = [197, 151, 115, 87, 66, 50, 38]  
latex_output = f"${rmt_15128} = {rmt_15128_values}$"  
display(Math(latex_output))
```

$$R_{mt-15128} = [197, 151, 115, 87, 66, 50, 38]$$