

## Preliminary

### planned mechanical load

- ☐ transportation (loan)
- ☐ exhibition
- ☐ transportation and exhibition
- ☐ restoration treatment

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### format of the canvas

- ☐ quadrangle
- ☐ oval
- ☐ circular\*

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know first natural frequency?

yes

no

\*If the format of the canvas is circular, the dimensions "width" and "height" are replaced by "diameter".

### parameter input box

#### pretension

- ☐ low: TensionFactor = 0.7
- ☐ low-medium: TensionFactor = 0.85
- ☐ medium: TensionFactor = 1
- ☐ medium-high: TensionFactor = 1.1
- ☐ high: TensionFactor = 1.2

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#### lining - how many layers?

- ☐ 0: LiningFactor = 1
- ☐ 1: LiningFactor = 1.1
- ☐ 2: LiningFactor = 1.2
- ☐ 3: LiningFactor = 1.3

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#### deformation

- ☐ not at all: DeformFactor = 1
- ☐ medium: DeformFactor = 1.1
- ☐ heavy: DeformFactor = 1.2

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#### impasto-painted surface

- ☐ 0%: ImpastoFactor = 1
- ☐ 10%: ImpastoFactor = 1.1
- ☐ 20%: ImpastoFactor = 1.4
- ☐ 50%: ImpastoFactor = 2

affects base thickness\*\*

Parameters are not dependent on each other.  
 Pretension, lining, and deformation act as adjustment parameters in the calculation of the Young's modulus, and impasto is used to adjust the density.  
 \*\*If the thickness of painting is not provided, the base thickness is estimated based on the presence and number of lining layers. Without lining (0 layers), it is set to 2–2.5 mm. With lining, the base thickness is set to 2–3 times the value with lining. However, for improved accuracy, entering the measured thickness is recommended.

## Canvas size

### planned mechanical load

- ☐ weight [kg]
- ☐ width/height or diameter [mm]
- ☐ average thickness\*\* of painted canvas [mm]

### calculation of first natural frequency

### sub-calculation of Young's modulus

base Young's modulus: 400 [N/mm<sup>2</sup>]

### sub-calculation of bending stiffness

Poisson ratio: 0.3

### sub-calculation of density

base density: 400 [kg/m<sup>3</sup>]

### first natural frequency [Hz]

first natural frequency

## Stretcher construction

### type of wood

- ☐ soft wood
- ☐ hard wood

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### construction of stretcher

- ☐ weight [kg]
- ☐ width/height or diameter [mm]
- ☐ thickness [mm]
- ☐ number of partitions
- ☐ width/height of one partition [mm]
- ☐ average thickness of length and cross bars [mm]

## Outer frame

### painting with outer frame

- ☐ total weight [kg]
- ☐ width/height or diameter [mm]
- ☐ average thickness of painted canvas [mm]