Chambers for Tensile Tester
**TH 2700 chamber for tensile tester**

Self-supported two-fold body frame  
Made of stainless steel 2mm 1.4301

Melted, polished and brushed from the outside  
Heating power 2.3 kW (220 Volt/380 Volt)  
Range of temperature -80°C + 280°C (optional 350°C)

Air circulation with a centric blower - mixing fan

Front door contains 4 glass-platens;  
Between inner glass platens are heating coils to remove frosting of the glass – (optional door light, internal light)

Up and down hole has a Teflon guide tube outside, V2a inside  
We add insert shells to reduce to smaller diameter for Pullrods  
If we supply also Pullrods

External regulator self-optimizing 0.1°C Sika TLK96  
(optional Omron RS232 or Eurotherm RS485, analog in and out)

19” Rack with 4 m cable and a solid plug on backside  
Sensor PT 100

Frame to move chamber in and out of tensile tester  
Chamber with adjustable feet is carried by the bearings and can be moved to 611 mm away.

Heat up speed 15°C/Minute (from 20 to 80°C without grip)

Energy consumption of our standard TH2700 without grips

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Energy Consumption (kwh/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°C</td>
<td>0,11</td>
</tr>
<tr>
<td>200°C</td>
<td>0,24</td>
</tr>
<tr>
<td>300°C</td>
<td>0,38</td>
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</tbody>
</table>

Cooling requires liquid nitrogen, which is controlled by a magnet valve on back side of chamber

Temporary frosting of the internal glass is occurred by opening the door and can be solved by using heating coils

To come down to -70°C 4 kg liquid air is requested  
To keep -70°C ~ 3 kg liquid air per hour is requested
TH 2700  standard size
Dimensions: inside 220x220x580  outside 360x480x766mm

TH2700-Esk  dto but with removeable wedge ports

TK....-SX  special versions of chambers with special dimensions
Inside A x B x C (Width x Deepness x Height)

TK....-SX-Esk like Version SX but with removeable wedge ports

Options

-Lit door light (heating coils alternative )
-RS232 regulator with RS232
-RS485 regulator with RS485
-T350 elevated temperature range
-WT heat exchanger
-SSR special hinge
-ESP Antireflex glasses
-LHB long hole on back side for extensometer

Grips for chambers Suitable grips (TH175 THS321) you find on www.grip.de
THS521 Adapter made of stainless steel
Tube with air pressure connector and Teflon tube
Standard version on stock
TH2700

TH2700+E

Removable wedge ports
SSR special hinge allows chamber to move back
Special Versions

Chamber with special Dimension
TK72.3+ESK200 deep chamber with inserts ( option SAY + ESK1 )
TK45 special small chamber (option SA1)

TH2700-H850-Li special chamber inter height 850mm with light (220x220x850mm) option SA1
TK21-SX  Little chamber
Cooler and heating on the right side
TK332 -180°C inside 220x230x310mm 120mm wall thickness
TK389 T500°C  special chamber for usage up to 500°C
slot on backside for long travel extensometer

TK190-LHB  long hole on back side for long travel extensometer
TK43 SX-Esk  Big chamber special size with wedges
TK349 special chamber with special wedgeports

https://youtu.be/XWKYuSbwEKg
TH3870-SX with frame for tensile tester
TK168  extra window on left wall
TK293-SF45 extra window 45° for laser extensometer
TK149  Dimensions 220x250x480mm

Esk  Removeable wedge ports
SF   extra windows on left and right
For single column machines

TK21-3 for single column machine
TK71  220x225x350mm (340x478x430mm)  small chambers
Short Cooling

with fluid air - with magnetic valve - Standard Solution

Consumption at -70°C ~ 3 kg fluid air per hour
Air coolings system     TH4240-1000    -30°C

Air coolings system     TH4240-380     -25°C
Special wide chambers for multi axe machines

TK56 Special chamber with double-folding door
TK101 open
TK62 4x glasses on each side - wedge ports - no heating - no ventilator
TK374-0-5-100  chamber for biax tensile tester
TH3930-40 special Trolley with counter balance
Connector for fluid air

To fix a 8mm tube on valve of chamber

https://youtu.be/ERwOe80rF_I  how to connect liquid air
TK2-66-1200  trail for chamber

TK2-ESK-BU50  50mm bush for wedges

TK2-BU50 reduction 50 to 22mm

TK2-BU50-T350  reduction 50 to 22mm for 350°C
Special ESK - Wedge with ESK bush 350°C
**Pullrods**

<table>
<thead>
<tr>
<th>THS-158-159-P-L117</th>
<th>Long Adapter with Teflon tube and pneumatic fittings, length 117 mm</th>
</tr>
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<tbody>
<tr>
<td>THS251-158-159-L150</td>
<td>Rod 150mm pin to pin</td>
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<tr>
<td>THS521-158-159-L400-Hsd</td>
<td>Rod 400mm with Hestshield</td>
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<tr>
<td>TH2700 +</td>
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<tr>
<td>THS521-158-365</td>
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<tr>
<td>THS521-158-195</td>
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</tbody>
</table>
THS481-158-100
THS481-158-50
Grips for chambers

TH175-10 + BP
Pneumatic grip 10kN -80°C bis 280°C  V2a

TH175-10 + BP
pneumatic grip + pyramid jaws 10kN  -80°C up to 280°C

www.grip.de/G12/TH175
THS321-10  10kN  -70°C up to 350°C

www.grip.de/G08/THS321

THS321-50  -180°C ..+ 550°C
Heat up and cool down diagram without grips

Heat up time of TH2700 without grips
Controller

-ORS232 Omron

E5AN-Q3MT-500-N for SSR E53-EN01 optional with RS232

The universal regulators of the product line E5_N are available in 4 Standard-DIN-Formats. All constructions have lighted two-line display with good viewing angle. Each model of this line have 3-colored actual value indicating.

- 2-Point- or PID-Regulation
- relay output, hybrid Relay output, voltage output (for solid-state relay) or current output
- power options 24 V DC / 24 V AC or 100 to 240 V AC
- simply connection to industry-PC to configure, save and copy parameters
- simply setting and operation with the buttons on the front side
- clear diagnosis and alarm indication
- safety in use thanks to the password security and adjustable menu
- large selection of special functions and options

http://www.ia.omron.com/product/family/1432/index_l_u.html

Eurotherm 2404 (add cost)

MODELL (2404) Industrieregler Typ 2404
FUNKTION (CC) PID Regel
VERSORGUNGS-Spannung (VH) 85-264 Vac Netzversorgung
MODUL 1 (LH) Logikausgang Heizen
MODUL 2 (YC) Relais Wechsler Kuehlausgang
KOMMUNIKATION 1 (YM) RS485 MODBUS Protokoll
BEDIENUNGSANLEITUNG (GER) Deutsch
SENSOREINGANG (Z) Pt100 DIN 43760
MINIMUM RANGE -70
MAXIMUM RANGE 280
ANZEIGEEINHEIT (C) Celsius


Types of communication protocols vs type of Controller

<table>
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<tr>
<th>Comm</th>
<th>Eurotherm</th>
<th>Omron</th>
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<tr>
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<td>2404</td>
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<td>ModBus RTU</td>
<td>CompoWay/F ModBus</td>
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Antireflex glass for optical extensometer

Optische Eigenschaften

Reflexion von BOROFLOAT® 33
im Vergleich zu BOROFLOAT® AR
(entspiegelt)

MT 24.9.2019