

**PASIŪLYMO RAŠTAS DĖL MOKSLINIŲ LABORATORIJŲ PASTATO H. MANTO 84, KLAIPĖDA STATYBOS
 DARBŲ PIRKIMO**

 2015 m. rugpjūčio 31 d. Nr. 242090
 Vilnius

Rangovo pavadinimas [jei tai ūkio subjektų grupė, nurodyti: jungtinės veiklos sutarties pagrindu veikiančių ūkio subjektų grupė, sudaryta iš: [nurodyti visų partnerių pavadinimus]]	UAB „Irdaiva“ UAB „Mitnija“ UAB „Šiaulių plentas“ UAB „Litana ir Ko“ UAB „Conresta“ UAB „KRS“ PER Aarsleff A/S
Rangovo adresas [jei pasiūlymą teikia ūkio subjektų grupė, nurodyti visų partnerių adresus]	Savanorių pr. 176, LT-03154 Vilnius Palemono g. 3, LT-52159 Kaunas Išradėjų g. 11, LT-78149 Šiauliai Gamyklos g. 2A, LT-96155 Gargždai Tuskulėnų g. 33C, LT-09219 Vilnius Draugystės g. 15A, LT-51227 Kaunas Lokesvej 15, DK-8230, Aabyhoej, Danija
Už pasiūlymą atsakingo asmens vardas, pavardė	Algirdas Miceika
Telefono numeris	(8 5) 238 8894
Fakso numeris	(8 5) 238 8968
El. pašto adresas	konkursai@irdaiva.lt

Mes, žemiau pasirašiusieji, šiuo pareiškime, kad:

- 1 Mes patikrinome ir visiškai sutinkame, su 2015 m. 08 mėn. 07d. kvietimu į neskelbiamas derybas bei neskelbiamų derybų sąlygomis ir pirkimo dokumentų turiniu, įskaitant riboto konkurso sąlygomis ir be jokių išlygų ar apribojimų sutinkame su visomis jų nuostatomis.
- 2 Vadovaudamiesi neskelbiamų derybų pirkimo dokumentų sąlygomis ir žemiau nurodytomis sąlygomis bei terminais, be jokių išlygų ar apribojimų, mes siūlome atlikti Specifikacijose numatytus darbus.

Pasiūlymo valiuta Eur	
Pasiūlymo kaina be PVM	9.820.040,08
PVM [21%] suma	2.062.208,42
	11.882.248,50
Bendra pasiūlymo kaina su PVM	[Vienuolika milijonų aštuoni šimtai aštuoniasdešimt du tūkstančiai du šimtai keturiasdešimt aštuoni eurai 50 euro ct.]

Pastaba:

- kainos pasiūlyme nurodomos, paliekant du skaitmenis po kablelio
- bendra kaina turi atitikti pateiktų jos sudėtinių dalių sumą
- tais atvejais, kai pagal galiojančius teisės aktus rangovui nereikia mokėti PVM, jis atitinkamų skilčių nepildo ir nurodo priežastis, dėl kurių PVM nemoka.

BUREAU VERITAS
Certification



Sertifikatas

Išduotas

UAB LABOCHEMA LT

Vilkpėdės g. 22, LT-03151 Vilnius, Lietuva
ir jos asocijuotoms įmonėms:
SIA LABOCHEMA LATVIJA, Dzerbenes str. 27, LV-1006 Ryga, Latvija
OÜ LABOCHEMA EESTI, Aleksandri str. 8, EE-51004 Tartu, Estija



Šiuo sertifikatu Bureau Veritas patvirtina, kad įvertino nurodytos organizacijos vadybos sistemą ir nustatė, jog ji atitinka toliau nurodyto vadybos sistemos standarto reikalavimus

STANDARTAS

ISO 9001:2008 / LST EN ISO 9001:2008

SERTIFIKAVIMO SRITIS

Laboratorinės, matavimo, technologinės įrangos, baldų pardavimas, instaliavimas, remontas, kalibravimas ir aptarnavimas, įskaitant susijusių projektų valdymą. Reagentų ir laboratorinių reikmenų sandėliavimas bei pardavimas.

TIKRA

Sertifikavimo ciklo pradžios data 2014 m. birželio 10 d.

Organizacijos vadybos sistemai nuolat atitinkant nurodyto standarto reikalavimus, šis sertifikatas baigia galioti 2017 m. birželio 11 d.

Pradinio patvirtinimo data 2008 m. liepos 1 d.

Norėdami papildomai pasiteirauti apie šio sertifikato galiojimą, prašome skambinti tel. (5) 233 79 75.
Norėdami gauti daugiau informacijos apie šio sertifikato veikimo sritį ir vadybos sistemos reikalavimų taikymą, prašome kreiptis į organizaciją, kuriai išduotas sertifikatas.

Sertifikato Nr.: LT0883Q

Išdavimo data: 2014 m. birželio 11 d.

Įgaliotas darbuotojas



Sertifikavimo įstaigos adresas: Brandon House, 181 Brompton High Street, London SE1 1LB, Jungtinė Karalystė
Sertifikavimo patvirtino ir sertifikatą išdavė: UAB „Bureau Veritas Liet“, Ukmergės g. 369A, LT-12142 Vilnius



SERTIFIKATAS

Nr. **FUR BSC 14-11**

2014-05-08

Vilnius

Pareiškėjas	UAB Labochema LT
Pareiškėjo adresas	Vilkpėdės 22, Vilnius, Lietuva
Produkto pavadinimas	Traukos spintos TS-1200, TS-1500, TS-1800
Gamintojas	UAB Labochema LT
Gamintojo adresas	Vilkpėdės 22, Vilnius, Lietuva
Atitinka norminių dokumentų reikalavimus	LST EN 14175-2:2003 su pataisa LST EN 14175-2:2003/P:2009 Traukos spintos. 2 dalis. Saugos ir darbo charakteristikų reikalavimai

Sertifikavimas atliktas pagal 1 b schemą, remiantis Lietuvos energetikos instituto Šiluminių įrengimų tyrimo ir bandymų laboratorijos bandymų protokolais No. 01/12-BO, 2012-02-14; No. 02/12-BO, 2012-02-14, No. 03/12-BO, 2012-02-14 ir Invent UK Ltd bandymų protokolais No. INV/EN 14175/586-A, 13-10-2011, No. INV/EN 14175/586-B, 13-10-2011, No. INV/EN 14175/587-A, 13-10-2011, No. INV/EN 14175/587-B, 13-10-2014

TIKRA

Sertifikatas galioja iki 2016 m. gegužės 8 d.

*Instito vadovė,
Giedrė Bygdovičius*



Jadvyga Micklenė

SERTIFIKATAS

Nr. FUR BSC 15-10

2015-03-09

Vilnius

Pareiškėjas	UAB Labochema LT
Pareiškėjo adresas	Vilkpėdės g. 22, LT-03151 Vilnius, Lietuva
Produkto pavadinimas	Laboratorijų darbo stalai su lentynomis instaliacijoms
Gamintojas	UAB Labochema LT
Gamintojo adresas	Vilkpėdės g. 22, LT-03151 Vilnius, Lietuva
Atitinka norminių dokumentų reikalavimus	LST EN 13150:2002 Laboratorijų darbo stalai. Matmenys, saugos reikalavimai ir bandymo metodai LST EN 14056:2004 Laboratoriniai baldai. Projektavimo ir įrengimo rekomendacijos

*Sertifikavimas atliktas pagal 1 b schemą, remiantis VŠĮ FURNITEST Baldų
bandymų centro 2015-03-09 bandymų protokolais Nr. BBC 15-051,
Nr. BBC 15-052*

TIKRA

Sertifikatas galioja iki 2017 m. kovo 9 d.

Direktorė

Jadvyga Mickienė

UAB Labochema LT
Gedimino Bagdovičius

MPA Dresden GmbH

Anerkanntes Prüflabor (ZLS-P-860/09)
Accredited testing laboratory

Anerkannte Zertifizierungsstelle (ZLS-ZE-707/09)
Accredited certification body



GS-Zertifikat

GS Mark Certificate

Zertifikatsnummer: Certificate No.:	SSF 2013-G-3033/01	
Zertifikatsinhaber und Fertigungsstätte: Certificate holder and manufacturing facility:	Lacont Umwelttechnik GmbH Halberstädter Str. 20a 39435 Egehn	
Produktbezeichnung: Product name:	Sicherheitsschrank für brennbare Flüssigkeiten SIS Typ 90/600 Safety cabinet for flammable liquids SIS Typ 90/600	
Details zum Produkt: Details of the product:	Höhe / height	1935 mm
	Breite / width	595 mm
	Tiefe / depth	598 mm
	Masse / mass	306 kg
	Türen / doors	1 Flügeltür 1 Wing door
	Feuerwiderstand / fire resistance	90 min
Prüfgrundlagen: Basis of tests:	DIN EN 14470-1:2004-07, DIN EN 14727:2006-03, Dokument EK5/AK4 09-10, ProdSG : 2011-11	
Prüfbericht(e): Test report(s):	2013-B-3031, PB 271 29329	

Hiermit wird bescheinigt, dass das oben beschriebene Erzeugnis den Anforderungen des Gesetz über die Bereitstellung von Produkten auf dem Markt (Produktsicherheitsgesetz – ProdSG) hinsichtlich der Gewährleistung von Sicherheit und Gesundheit entspricht (§21 Abs. 1).

This is to certify that the above specified product meets the requirements regarding to the guarantee of safety and health according to the law Gesetz über die Bereitstellung von Produkten auf dem Markt (Produktsicherheitsgesetz – ProdSG) (paragraph 21 clause 1).

Der Inhaber dieses Zertifikates ist berechtigt, das oben beschriebene Erzeugnis mit dem GS-Zeichen in der abgebildeten Form zu verwenden.
The holder of this certificate is entitled to use the above specified product with the GS Mark as depicted.



Die Gültigkeit dieser Bescheinigung endet am 25.07.2018.
The validity of this certificate expires on 2018-07-25.

Freiberg, den 26.07.2013
Freiberg 2013-07-25

Dipl.-Ing. B. Ruhle
Leiter der Zertifizierungsstelle
Manager of the certification office



Produktion von
Gleditsia triacanthos

TIKRA

Dieses Zertifikat beinhaltet 2 Seiten. Bitte beachten Sie die Hinweise auf der zweiten Seite.
This certificate comprises 2 pages. Please note the information on the second page.

MPA Dresden GmbH
Fuchsmühlenweg 6F
D-09599 Freiberg
Tel.: +49(0)3731-2 03 93-0
Fax: +49(0)3731-2 03 93-110

Geschäftsführer: Thomas Hübler
Steuernummer: 220/114/03011
Amtsgericht Chemnitz HR B 21581
Internet: www.mpa-dresden.de
E-Mail: info@mpa-dresden.de

Sparkasse Mittelsachsen
Poststraße 1a
D-09599 Freiberg
Kto.: 3115024672
BLZ: 870 520 00

USt-IdNr.: DE234220069
IBAN DE68 8705 2000 3115 0246 72
BIC WELADED1FGX

Hinweise zum GS - Zeichen - Zertifikat

Dieses GS-Zeichen-Zertifikat gilt nur für die auf der ersten Seite bezeichnete Firma und die angegebenen Fertigungsstätten. Es kann nur von der GS-Stelle auf Dritte übertragen werden.

Mit dem auf Seite 1 abgebildeten GS-Zeichen darf nur das o. g. Produkt versehen werden.

Der Ausweis kann für ungültig erklärt bzw. zurückgezogen werden (§ 7 Abs. 2 Satz 2 GPSC).

Die GS-Stelle führt Kontrollmaßnahmen zur Überwachung der Herstellung des in dieser Bescheinigung beschriebenen Erzeugnisses und zur rechtmäßigen Verwendung des GS-Zeichen durch.

Der Hersteller ist verpflichtet, die Voraussetzungen einzuhalten, die für eine vorschriftsmäßige Fertigung erforderlich sind.

Dazu hat er u. a. die Fertigung des mit dem GS-Zeichen versehenen Erzeugnisses laufend auf Übereinstimmung mit den Prüfbestimmungen zu überwachen und die in den Prüfbestimmungen festgelegten oder von der GS-Stelle geforderten Kontrollprüfungen ordnungsgemäß durchzuführen bzw. zu dulden.

Für dieses GS-Zeichen-Zertifikat gelten die Prüf- und Zertifizierungsordnungen im Geltungsbereich des GPSC und die Allgemeinen Geschäftsbedingungen der MPA Dresden GmbH.

Information on the GS Mark Certificate

This GS Mark Certificate only applies to the company on the first page and the manufacturing facility stated there. It can be transferred to third applicants by the certification body only.

Only the above stated product is allowed to mark with the GS Mark as depicted on page 1.

The GS Mark Certificate can be declared invalid or rather it can be withdrawn (article 7 paragraph 2 clause 2 GPSC).

The certification body inspects the manufacture of the product which is specified in this certificate and keeps the lawful use of the GS Mark under surveillance.

The manufacturer is obliged to meet the conditions which are necessary for the correct manufacture. For it he has among others continually to monitor the manufacture of the products filled out with the GS Mark on conformity with the examination specifications. Further more he has to perform or rather to tolerate the monitoring examinations which laid down in the examination specifications or required by the certification body.

The examination and certification rules of the acknowledged body apply to this GS Certificate.



TIKRA

Priedas Nr 1

3 pieces of climatic chambers

Climatic chamber 1 type DC consisting of:

Pos. 1

1 piece of spine +4°C to 25°C ~50% rel. humidity

Outside dimensions: W*D*H approx. 3000 x 4200 x 2410 mm

Inside dimensions

Usable surface: W*D*H approx. 2840 x 4040 x 2250 mm ~12 m²

Insulation thickness: 80 mm polyurethane rigid foam insulation completely CFC-free foamed with cyclopentane

Surface: Inside and outside of white powder coated galvanized sheet steel

Floor execution: KEl1 stainless steel floor (material no. 1.4301)

cone pressed with straight grinding, seamless at the joints, continuously underlapping.

Slip resistance class R11

Admissible load per wheel: 1000 N

Load surface: >4 cm²

Wheel material: rubber wheel

Admissible surface load: 30000 N/m²

Door: 1 piece W*H 1000*2000 mm

with Jumbo handle inside

Others: lighting

Note: The place of installation shall be plane.

3 x 230V socket wired to point of transfer

Pos. 2

1 piece of air processing unit

Ceiling installation

- Recirculating air fans
- Climatic heating
- Cold water heat exchanger for cooling / dehumidification
- Safety thermostat
- Test material protection thermostat
- Supply air approx. 100 m³/h
- Exhaust air spigot for extraction 150 mm round

Pos. 3

1 piece of moistening unit

Carrel steam moistening unit

Total hardness 5-40 Conductivity 0-1500 µS/cm

Steam capacity 2 kg

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PVM mokėtojo kodas: LT100003107911
Nordea Bank AB Lietuvos skyrius
Banko kodas: 21400
Mokėjimai litais: LT27 2140 0300 0101 3490
Mokėjimai eurais: LT48 2140 0300 0101 3500

CENTRINĖ BŪSTINĖ
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VAKARŲ LIETUVOS PADALINYS
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Tel. (8-46) 267005
Faks. (8-46) 267006
El. paštas: vakarai@labochemia.lt



UAB Labochemia LT
www.labochemia.lt

E-connection 230V
Dimensions HxWxD 887x690x438 mm



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Įmonės kodas: 300670772
PVM mokėtojo kodas: LT100003107911
Nordea Bank AB Lietuvos skyrius
Banko kodas: 21400
Mokėjimai litais: LT27 2140 0300 0101 3490
Mokėjimai eurais: LT48 2140 0300 0101 3500

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Faks. (8-5) 2757980
El. paštas: info@labochemia.lt

VAKARŲ LIETUVOS PADALINYS
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Tel. (8-46) 267005
Faks. (8-46) 267006
El. paštas: vakarai@labochemia.lt

Pos. 4**1 piece of air drying unit**

Technical data:

(at 20°C, 60% rel. humidity air intake)

Dehumidification capacity: 1.6 kg/h

Process air volume: 210 m³/h

External pressing: 45 Pa

Regenerative air volume: 69 m³/h

External pressing: 40 Pa

Electric connection: 1x230V/50Hz/2.1 kW

Dimensions (LxWxH): 450 x 450 x 483 mm

Weight: 38 kg

With corresponding air pipe connectors

Pos. 5**1 piece of refrigeration unit temperature chambers consisting of:**

Fully thermal unit with

ventilated condenser

- 1 set of high pressure switch

- 1 set of low pressure switch

- 1 set of dryer inspection glass

- Fillings refrigerant R404a (CFC-free)

- Alco expansion valve

- Alco solenoid valves

- A max. of 5 m of connection lines

(additional lengths will be invoiced upon presentation of receipts)

Pos. 6**1 piece of switchbox**

- 2 pieces of digital controllers

- 1 piece of temperature and humidity sensor

- System control unit

- All required load circuits

- All required control circuits

- Unit wiring

- Logging and transmission of disruptions

Pos. 7**2 pieces of shelving system incl. lighting**

- W*D*H approx. 4000 x 500 x 2000 mm

- 5 shelves

- Loading capacity per shelf 50 kg/m

- Stainless steel L304

- Light strip per shelf

Įmonės kodas: 300670772
PVM moketojo kodas: LT100003107911
Nordea Bank AB Lietuvos skyrius
Banko kodas: 21400
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UAB Labochemia LT
www.labochemia.lt

Pos. 8**1 piece of installation**

Commissioning and calibration

Climatic chamber 2 type DC consisting of:**Pos. 1****1 piece of spine -4°C to 50°C**

Outside dimensions: W*D*H approx. 3000 x 4200 x 2410 mm

Inside dimensions

Usable surface: W*D*H approx. 2840 x 4040 x 2250 mm ~12 m²

Insulation thickness 80 mm polyurethane rigid foam insulation completely CFC-free foamed with cyclopentane

Surface: stainless steel interior

Galvanized sheet steel on the outside

White powder coated

Floor execution: KEl1 stainless steel floor (material no. 1.4301)

Cone pressed with straight grinding, seamless at the joints, continuously underlapping.

Slip resistance class R11

Admissible load per wheel: 1000 N

Load surface: >4 cm²

Wheel material: rubber wheel

Admissible surface load: 30000 N/m²

Door: 1 piece W*H 1000*2000 mm with Jumbo handle inside

Others: lighting

Note: The place of installation shall be plane.

3 x 230V sockets wired to point of transfer

1 x cold water tap piped to point of transfer

1 x ultra-pure water tap – grade 2 – piped as circulation to point of transfer

Pos. 2**1 piece of air processing unit****Ceiling installation**

- Recirculating air fans
- Climatic heating
- Cold water heat exchanger for cooling / dehumidification
- Safety thermostat
- Test material protection thermostat
- Supply air approx. 100m³/h

Pos.3**1 piece of moistening unit****Carrel steam moistening unit**

Total hardness 5-40 Conductivity 0-1500 $\mu\text{S}/\text{cm}$

Steam capacity 2 Kg

E-connection 230V

Dimensions HxWxD 887x690x438 mm

Pos.4**1 piece of air drying unit****Technical data:**

(at 20°C, 60% rel. humidity air intake)

Dehumidification capacity: 1.6 kg/h

Process air volume: 210 m³/h

External pressing: 45 Pa

Regenerative air volume: 69 m³/h

External pressing: 40 Pa

Electric connection: 1x230V/50Hz/2.1 kW

Dimensions (LxWxH): 450 x 450 x 483 mm

Weight: 38 kg

With corresponding air pipe connectors

Pos. 5**1 piece of refrigeration unit temperature chambers consisting of:**

Fully thermal unit with ventilated condenser

- 1 set of high pressure switch

- 1 set of low pressure switch

- 1 set of dryer inspection glass

- Fillings refrigerant R404a (CFC-free)

- Alco expansion valve

- Alco solenoid valves

- A max. of 5 m of connection pipes

(additional lengths are invoiced upon presentation of receipt)

Pos. 6**1 piece of switchbox**

- 2 pieces of digital controllers

- 1 piece of temperature and humidity sensor

- System control unit

- All required load circuits

- All required control circuits

- Unit wiring

- Logging and transmission of disruptions

Pos. 7**1 piece of shelving system incl. lighting**

- W*D*H approx. 4000 x 500 x 2000 mm
- 5 shelves
- Loading capacity per shelf 50 kg/m
- Stainless steel L304
- Light strip per shelf – Light type for phytoplankton

Pos. 8**1 piece of installation**

Commissioning and calibration

Climatic chamber 3 type DC consisting of:**Pos. 1****1 piece of spine -4°C to 50°C**

Outside dimensions: W*D*H approx. 3000 x 4200 x 2410 mm

Inside dimensions

Usable surface: W*D*H approx. 2840 x 4040 x 2250 mm ~12 m²

Insulation thickness: 80 mm polyurethane rigid foam insulation completely CFC-free foamed with cyclopentane

Surface: stainless steel interior

Galvanized sheet steel outside

White powder coated

Floor execution: KEl1 stainless steel floor (material no. 1.4301)

Cone pressed with straight grinding, seamless at the joints, continuously underlapping.

Slip resistance class R11

Admissible load per wheel: 1000 N

Load surface: >4 cm²

Wheel material: rubber wheel

Admissible surface load: 30000 N/m²

Door: 1 piece W*H 1000*2000 mm with Jumbo handle inside

Others: Lighting

Note: The place of installation shall be plane.

3 x 230V sockets wired to point of transfer

1 x cold water tap piped to point of transfer

1 x ultra-pure water tap – grade 2 – piped as circulation to point of transfer

Pos. 2**1 piece of air processing unit****Ceiling installation**

- Recirculating air fans
- Climatic heating
- Cold water heat exchanger for cooling / dehumidification
- Safety thermostat
- Test material protection thermostat
- Supply air approx. 100 m³/h
- Exhaust air spigot for extraction 150 mm round

Pos.3**1 piece of moistening unit****Carrel steam moistening unit**

Total hardness 5-40 Conductivity 0-1500 µS/cm
Steam capacity 2 Kg
E-connection 230V
Dimensions HxWxD 887x690x438 mm

Pos.4**1 piece of air drying unit****Technical data:**

(at 20°C, 60% rel. humidity air intake)

Dehumidification capacity: 1.6 kg/h

Process air volume: 210 m³/h

External pressing: 45 Pa

Regenerative air volume: 69 m³/h

External pressing: 40 Pa

Electric connection: 1x230V/50Hz/2.1 kW

Dimensions (LxWxH): 450 x 450 x 483 mm

Weight: 38 kg

With corresponding air pipe connectors

Pos. 5 1 piece of refrigerating unit temperature chambers consisting of:

Fully thermal unit with ventilated condenser

- 1 set of high pressure switch
- 1 set of low pressure switch
- 1 set of dryer inspection glass
- Fillings refrigerant R404a (CFC-free)
- Alco expansion valve
- Alco solenoid valves
- A max. of 5 m of connection lines

(additional lengths are invoiced upon presentation of receipt)

Jmonės kodas: 300670772
PVM mokėtojo kodas: LT100003107911
Nordea Bank AB Lietuvos skyrius
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Mokėjimai eurais: LT48 2140 0300 0101 3500

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Pos. 6**1 piece of switchbox**

- 2 pieces of digital controllers
- 1 piece of temperature and humidity sensor
- System control unit
- All required load circuits
- All required control circuits
- Unit wiring
- Logging and transmission of disruptions

Pos. 7**1 piece of shelving system incl. lighting**

- W*D*H approx. 4000 x 500 x 2000 mm
- 5 shelves
- Loading capacity per shelf 50 kg/m
- Stainless steel L304
- Light strip per shelf – Light type for phytoplankton

Pos. 8**1 piece of installation**

Commissioning and calibration

Pardavimų asistentas
Marius Bugailiškis

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1 klimato kamera Apšvietimas:

Standartinis vidaus patalpos apšvietimas 2x18W fluorescencinės lempos (1 x balta, 1 x žalia)

turi būti nepriklausomai įjungiamos. Įrengtos pagal sanitarinius ir saugos reikalavimus. Lempos turi būti su elektriniu kėlimo mechanizmu. Aukščio keitimo ribos iki 60 cm.

Lempos turi turėti termostatinį kontrolės mechanizmą, kad užtikrinti optimalią lempų darbinę temperatūrą.

2 ir 3 klimato kameros Apšvietimas:

Standartinis vidaus patalpos apšvietimas 2x18W fluorescencinės lepos (1 x balta, 1 x žalia),

turi būti nepriklausomai įjungiamos. Įrengtos pagal sanitarinius ir saugos reikalavimus. Lempos turi būti su elektriniu kėlimo mechanizmu. Aukščio keitimo ribos iki 60 cm.

Lempos turi turėti termostatinį kontrolės mechanizmą, kad užtikrinti optimalią lempų darbinę temperatūrą.

Papildomai turi būti įrengta: Subalansuotas išdėstymas „šaltu baltu“ 840 spektro dienos šviesos lempų ir raudonų bei artimų raudonų LED'ų blokų. Abu šviesos šaltiniai turi būti programuojami atskirai imituojant aušrą ir sutemą. Visos fluorescencinės lempos turi būti atskirtos nuo patalpos dėl žemų temperatūrų įtakos. Fluorescencinės lempos ir LED'ai turi būti keičiami nenaudojant įrankių.

Apšvietimo sensoriai: Apšvietimo sensorius matuoja ir kontroliuoja šviesos intensyvumą (+- 20pmol/m² s) kiekvienoje lentynoje ir automatiškai perreguliuoja nustatytą šviesos intensyvumą, nepriklausomai šviesos absorbcijos lygį lentynoje. Faktinė šviesos intensyvumo reikšmė matoma ekrane.

Šviesos intensyvumo ribos: keičiamos nuo 30gmol/m² S-1 iki 700gmol/m² S-1, (keitimo žingsnis 1pmol/m² S-1) dviejų pakopų auginimo bankuose, nuo 20pmol/m² S-1 iki 550gmol/m² S-1, (keitimo žingsnis 1gmol/m² S-1) trijų pakopų auginimo bankuose, nuo 10iumol/m² S-1 iki 250gmol/m² S-1, (keitimo žingsnis 1pinol/m² S-1) keturių pakopų auginimo bankuose. LED tipo šviestuvai turi turėti pritemdymo funkciją ir sinchronizuojami su fluorescencinėmis lempomis arba programuojami atskirai.

3. Šviesos intensyvumo stabilumas: +- 10 gmo¹/m² S-1 Šviesos vienodumas: >90% visoje darbo zonoje. Terminė kontrolė: lempų blokų temperatūra turi būti kontroliuojama. Lempų blokai turi būti atskirti nuo darbinės zonos specialia karščiui atsparia danga

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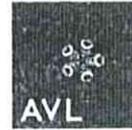


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OIL CONDITIONING SYSTEM CONSYSLUBE



ConsysLube - 200/400 ConsysLube S - 400

The compact mobile Oil Conditioning Systems AVL ConsysLube, designed as primary or secondary circuit conditioning systems are used to maintain the engine lube oil temperature and oil pressure at a preselected value. The PID control function is handled by the test bed host (e.g. AVL PUMA System). A controller rack with PID Controllers can be used as an alternative (available on request). Particular advantages are the control accuracy, quick response and modular design.

Two type of device are available:

- Primary Circuit Conditioning Systems

ConsysLube -200 for engine outputs up to 200 kW (cooling capacity 25 kW)

Secondary Circuit Conditioning Systems

ConsysLube S-400 for engine outputs up to 400 kW (cooling capacity 50 kW)

THERMOSTATIC VALVE

The thermostatic valve for the AVL ConsysLube regulates the amount of water that flows through the heat exchanger based on the cooling water outlet temperature. The water flow will be adjusted according to the actual demand of the engine size. (reduced cooling water consumption)

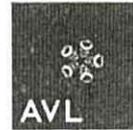
Scope of Supply

each consisting of:

- 1 2/2-way valve (control range 25 to 65°C)
- 1 control element
- 1 sensor pocket

COVERING

For covering the AVL ConsysLube a modified frame with wheels and cover plates is offered.



Scope of Supply

each consisting of:

-
- 1 extended AL-frame
- 4 wheels
- 1 set covers

OIL CONDITIONING SYSTEM

ConsysLube 200

The compact mobile Oil Conditioning System ConsysLube 200 for engines up to approx. 200 kW is responsible for maintaining the temperature and pressure (option) of the engine's lubricating oil at a preselected value. The PID control function is carried out by the test bed host (e.g. AVL PUMA System). Alternatively an appropriate controller rack with PID Controller can also be used.



AVL Oil Conditioning System ConsysLube 200

Example

Your Benefits at a Glance:

- High temperature-control precision (1°C)
- High pressure-control precision (0,1 bar) by using Option PID Pressure Control Valve
- Various integration possibilities into the engine oil circuit (sump conditioning, pressurized oil conditioning, etc.)

Technical Insight:

Main data:

Dimensions (L x W x H): approx. 1400x600x800 mm

Max. test engine power (PMot): 200 kW

Weight: 200 to 250 kg

Ambient conditions:

Ambient temperature: 0 to 40 °C

Air humidity (rel.): 20 to 80 %, not condensing

Primary circuit:



Nominal cooling capacity: 25 kW
Calculated oil capacity: approx. 6 l
approx. 10 l (with 9kW heating)
Considered oil quality: SAE 10 W 40
Operating temperature (TB): 20 to 155 °C
T-control range (TR): 70 to 140 °C
Control accuracy steady state: $\pm 1^{\circ}\text{C}$ (PT 100 at engine inlet)
Flow rate at nominal cooling capacity (Q): 1,8 m³/h (50 Hz), 2,1 m³/h (60 Hz)

Secondary circuit (cooling water requirements)

Max. temperature at inlet: 30 °C
Pressure in open circuit: min. 2,5 bar, max. 6 bar
Pressure drop at nominal cooling capacity: max. 1,5 bar
Max. glycol content: max. 5 %
Recommended water hardness: 7 – 8 °dH

Connections engine side (primary circuit):

Oil to engine nominal width (DN): 1"
Oil from engine nominal width (DN): 1 ¼"
Nominal pressure (PN): 10 bar

Cooling water connections (secondary circuit)

Nominal width (DN): ¾"
Nominal pressure (PN): 6 bar

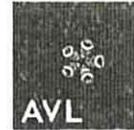
Electricity:

Voltage (U): $\sim 3 \times 400 \text{ VAC} \pm 10 \%$
Frequency (f): 50 / 60 Hz $\pm 1 \%$ (permanent)
 $\pm 2 \%$ (short term)
Connected power (P): approx. 3 kW (without options)
approx. 12 kW (with all options)

Scope of supply

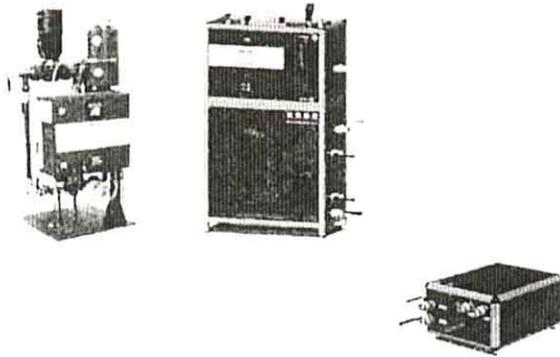
each consisting of:

-
- 1 mounting frame
- 1 water/oil heat exchanger
- 1 3/2-way control valve with pneumatic actuation
- 1 temperature sensor
- 1 oil dirt trap
- 1 water dirt trap
- 5 ball valves
- 1 oil pump
- 1 expansion line with ball valve



- 1 flow switch
 - 1 switchbox
 - 1 Operating Instructions
 - 1 set of installation material (connecting cable to PUMA, each l = 15 m)
- set of connection cables, connectors (loose)
- Note: The feeding cable has to be supplied by the customer

COOLANT CONDITIONING SYSTEM CONSYSCOOL



Conditioning System ConsysCool

The Coolant Conditioning Systems AVL ConsysCool with primary or secondary circuit control are used for engine test beds for conditioning the engine coolant temperature to a predefined value and maintaining it within tight tolerance limits. The PID controller function is executed either by the test bed host (e.g. AVL PUMA System), the internal PLC (ConsysCool 200) or an external controller rack with PID controller (available on request).

Particular advantages are the control accuracy, fast response and modular design.

Three types are available:

- ConsysCool 350 for engine outputs up to 400 kW (cooling capacity 350 kW)
- ConsysCool 200 for engine outputs up to 230 kW (cooling capacity 200 kW)
- ConsysCoolS 200 for engine outputs up to 230 kW (cooling capacity 200 kW)

The AVL ConsysCool Coolant Conditioning System is integrated into the engine's coolant circuit instead of the normal radiator.

CONSYSCOOL 200

The coolant conditioning system AVL consysCool 200 with combined primary and secondary circuit control is used for bringing the engine coolant to a free definable temperature and to keep it within tight limits. Additionally it serves for quick preheating of the coolant and on request for pressure ratio control in the primary circuit.



The AVL ConsysCool 200 is suitable for engine test beds with engine ratings up to approx. 230kW. It consists of a base unit for high-precision temperature control with included controllers. Additional components (options) enable the upgrade of unit to additional functions.



AVL Coolant Conditioning System ConsysCool 200

Symbol

Your benefits at a glance:

- Easy to use visualization software, completely included in PUMA Open system integrated user guidance and unit visualization
- Highest Control accuracy and control dynamic for various applications
- Multi purpose use through intelligent parting plane and thus possibility for usage as underfloor unit.
- Stainless steel tubing ensures high quality and long time value
- Simple configuration and parameterization of controllers due to preset internal parameter sets
- Relief of PUMA OPEN system by using included PLC for control and data acquisition within the unit
- Cost reduction via internal sensors and controllers, thus no hard and software requirements on the PUMA System

Technical data:

Main data Dimensions (L x W x H): approx. 1170x500x2025 mm

Weight (empty, with all options): approx. 285 kg

Ambient conditions:

Ambient temperature: 0 to 40 °C

Air humidity (rel.): 20 to 80 %, not condensing

Primary circuit:

Nominal cooling capacity (QC): 200 kW

Electric heating capacity (QH) 18 kW

Operating temperature (TB): 10 to 140 °C

T-control range nominal (TR): 70 to 125 °C

T-control range advanced (TR): 20 to 125 °C

Control accuracy steady state (engine inlet): 0,7 °C or higher

Control accuracy steady state (engine outlet): ± 2 °C or higher

Flow rate at nominal cooling capacity (Q): 12 m³/h at p = 0,9 bar primary

Pressure loss at nominal flow rate (p): 0,6 bar excl. piping and UUT

Max. system pressure: 1,4 bar (up to 6 bar optionally)

Max. mixture ratio water/glycol: 50/50
Coolant capacity in unit: 20 l

Secondary circuit (cooling water requirements)
Temperature at unit inlet: 0 to 30 °C
Pressure: min. 2,5 bar, max. 6 bar
Pressure loss: max. 1,5 bar
Max. glycol content: max. 5 %
Recommended water hardness: 7 – 8 °dH

Engine side (primary circuit):
Nominal width (DN): 1½"
Nominal pressure (PN): 6 bar

Cooling water side (secondary circuit):
Nominal width (DN): 1½"
Nominal pressure: 6 bar

Pneumatic connections:
Nominal width hose (DN): (int.) 4 mm; (ext.) 6 mm
Minimum pressure (pmin): 4 bar
Maximum pressure (pmax): 6 bar

Electricity:
Voltage (U): ~ 3 x 400 VAC ± 10 %
Frequency (f): 50 / 60 Hz ± 1 % (permanent) ± 2 % (short term)
Connection power (P): approx. 20 kW

Scope of supply

Each consisting of:

- - 1 Visualization software for PUMA Open V1.2x
 - 1 Unit frame for the assembly of all components
 - 1 Circulation pump in primary circuit
 - 2 3/2-Solenoid valves
 - 2 Electrical heating rod in heating tube
 - 1 Plate heat exchanger
 - 1 Extension vessel
 - 1 Internal bypass line
 - 1 Safety valve
 - 3 Temperature sensor PT 100
 - 4 Optical gages for temperature and pressure
 - 1 Strainer for cooling water (secondary circuit)
 - 1 Connection (for filling and drain) with ball valve
 - 1 Electrical cabinet, integrated and programmed PLC and RS232 interface
 - 2 Isolation valves an cut-off point to external cooling water system
 - 2 Isolation valves at unit boundary to UUT
 - 1 Connection (for filling and drain) with ball valve
 - • 1 Electrical cabinet, integrated and programmed PLC and RS232 interface
 - • 1 User manual
 - • 1 Set installation material (connecting cable to PUMA, l = 15 m per cable)
- Set of connecting cables, connectors (loose)

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Not included:

- The power supply cable has to be supplied by the customer.
- The UUT has to be connected by the customer.
- The unit commissioning on site has to be offered separately.

SYSTEM PRESSURE CONTROL

System pressure control option enables to choose and control the primary circuit system pressure through the user interface software. The system pressure can be controlled independently from the engine operation condition either steady state or in transient mode.

This option simulates desired pressure conditions within the unit under test. Preferred application if coolant temperatures rise above 95°C for stabilising the fluidic flow. The standard primary system pressure is limited to 1,4 bar by the regular safety valve. Operating the unit with pressure levels exceeding this, even up to 6 bar is possible, for this please contact the PM or TIP

Scope of supply:

Each consisting of:

- 1 Pneumatic pressure control valve with pressure transducer
- 1 Magnetic valve
- 2 Water non-return fingers
- Internal electric wiring,

This option is mounted completely within the unit and can be retrofitted.

ADJUSTMENT VALVE

Low-end manual control valve with integrated flow rate sensor for adjusting the designated flow rate.

The volume flow can be locally monitored via a plotting unit (cp. Accessory: plotting unit for flow adjustment valve)

Depending on the mounting place the valve achieves different functions:

Runback cooling water

Cooling performance inquiry via flow rate and temperature deviation between cooling water inlet and cooling water outlet (thermometer not in scope of supply). Thus perfect tool for commissioning and trouble shooting respectively.

Runback from UUT

Additional to the above-named matters is an easy backpressure adjustment (radiator simulation) for a steady state operating point. (required manometers not in scope of supply).

UUT supply Identically approach to above-named matter though the supply line is chosen when the pressure loss in the return line shall be minimized. Pressure loss Δp (fully opened, max. volume 12 m³/h): 0,05 bar

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