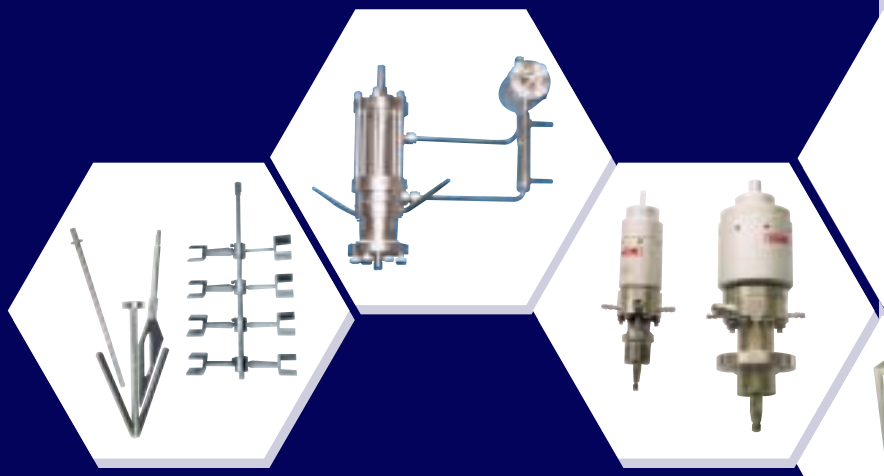


PRODUCT CATALOGUE

Reaction vessels for pressure and vacuum

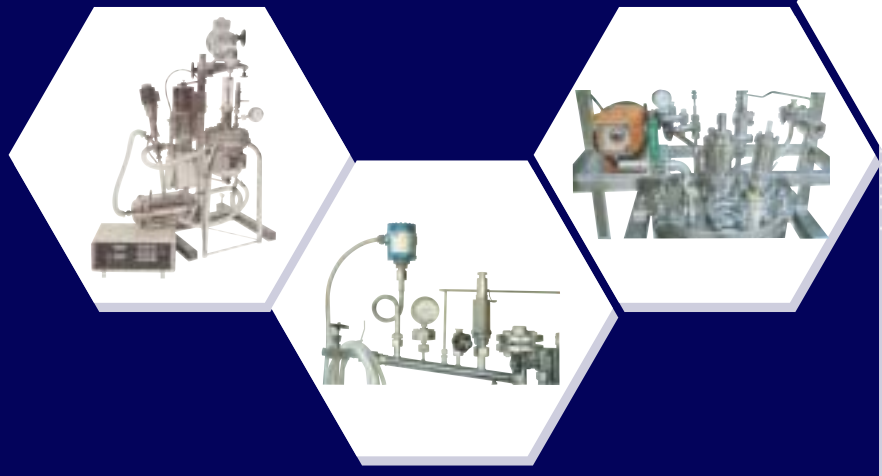
Lifting jacks for vessels

Stirrerheads

Stirrer drives

Thermostats and controllers

Fire suppression troughs



KARL KURT
JUCHHEIM
Laborgeräte GmbH
seit 1927

Handwerkstraße
54470 Bernkastel-Kues
Tel. 0 65 31 / 96 44-0
Fax 0 65 31 / 96 44-15

TÜV Rheinland/
Berlin-Brandenburg

TÜV

CERTIFICATE

Karl Kurt Juchheim
Laborgeräte GmbH
D-54462 Bernkastel-Kues

has fulfilled the quality requirements for welding activities
according to

DIN EN 729-3

The company provides qualified personnel
for the supervision of welding and non destructive testing.

The range of approvals - based on the valid welding procedure qualifications -
is given in the list of the welding procedure tests.

This certificate with No. 01 729-3 711-01 0059 is valid till

November 2004

Department for
Material and Manufacture

Senior engineer

Dipl.-Ing. F.J. Steinborn

Cologne, November 19, 2001

Skill and Longstanding Experience

Custom Design and Manufacture

Assured Quality and Professional Advice

Made in Germany

Research, development, production and the laboratory always need reaction vessels from 0.1 to 100 litres capacity, capable of working under vacuum or pressures up to 150 Bar, at temperatures ranging from –80 °C to 400 °C.

The single name JUCHHEIM brings together design and manufacture know-how, reasonable prices, and long-term reliability.

Its skills and years of experience in making reaction vessels and their accessories can bring your ideas to reality.

We specialise in the production of vessels of 0.5 to 128 L capacity working at

- Vacuum - $10E^{-3}$ mBar
- Pressure - 100 Bar
- Temperatures - –80 °C to 400 °C

The major components of a system comprise:

- **Reaction vessels and accessories**
  Stirrerheads, stirrers, connections and drains
- **Auxiliary equipment**
  Stirrer drive motors, lifting jacks, feeders, and condensers
- **Heating and cooling**
  Recirculating thermostats, heat exchangers, valves and controllers.

All these and a standard range of reaction vessels from 1 to 50 litres are described in this catalogue.

The company is licensed by TÜV Rheinland to manufacture pressure vessels in various materials.

We are experienced in the manufacture of vessels complying with GMP (Good Manufacturing Practice) for use in the food and pharmaceutical industries.

KARL KURT
JUCHHEIM
Laborgeräte GmbH
seit 1927

54470 Bernkastel-Kues
Deliveries
Post and parcels:
Handwerkstraße
Goods:
Hermann-Zillig-Straße

Postal address
Postfach 1229/1230
54462 Bernkastel-Kues

Telephone/Fax
Tel. 0 65 31 / 96 44-0
Fax 0 65 31 / 96 44-15

E-mail
info@juchheim-gmbh.de
info@karl-kurt-juchheim.com
info@juvo-germany.de
info@juvo-germany.com

World Wide Web
www.juchheim-gmbh.de
www.karl-kurt-juchheim.com
www.juvo-germany.de
www.juvo-germany.com

PRODUCT RANGE

JUVO Thermostats for Industry and the Laboratory

JUVO thermostats are used in all branches of science and industry.

JUVO thermostats have a special design, proven over many years, that ensures trouble-free continuous operation at temperatures up to 350 °C.

JUVO thermostats have a heat output up 9 kW and high pumping capacity circulation pump.

They are built in stainless steel, with a glandless pump, a visual level gauge and a temperature limiter.

If required, an expansion chamber containing a float switch can be fitted. This arrangement complies with safety level 2 of DIN 12 879. The 9 kW thermostat has this as standard.

No Decomposition Products

At temperatures over about 200 °C, oxidative decomposition of heat transfer fluids are liable to produce fogs or vapours. This effect is suppressed in the JUVO thermostat by using a double layer of heat transfer fluid.

The hot fluid is covered by a static layer of cold fluid, which is not circulated. Only the circulating pump shaft connects the two.

The cold layer shields the hot fluid from the air. Decomposition products are neither produced nor liberated to the atmosphere.

Applications of JUVO thermostats

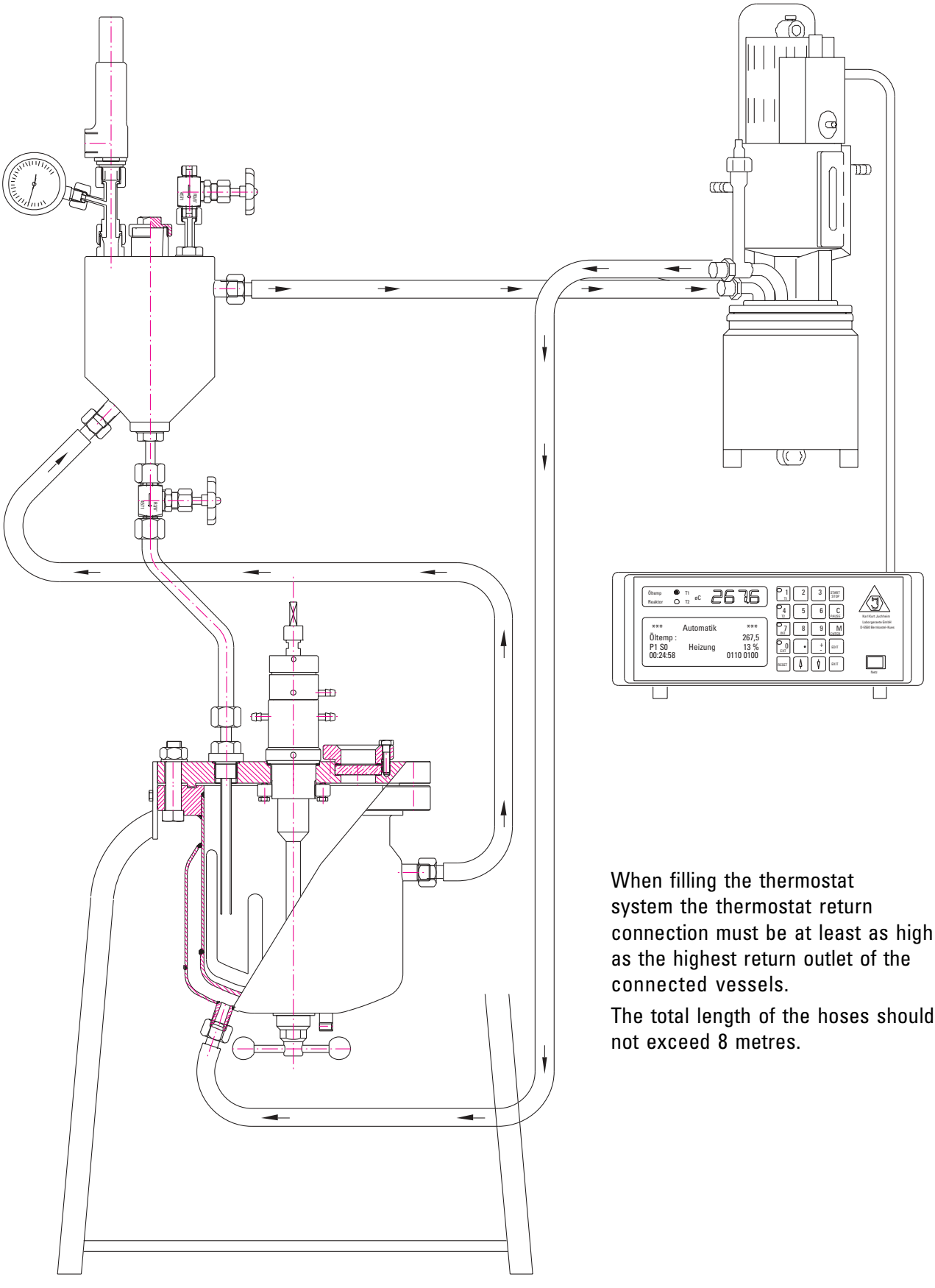
Used for continuous operation at temperatures up to 350 °C in:

- Laboratory and industry for heating measuring equipment, double walled glass reaction vessels, autoclaves and JUVO metal pressure and vacuum reaction vessels.
- For accurate and overheating free heating of plastics forming machinery such as extruders, presses, injection moulders, or the injector heads of large injection moulders.
- High vacuum thin film evaporators.
- Isothermal execution of chemical reactions. Because the mass of the heat transfer fluid is low, it is possible to switch rapidly from heating to cooling.
- Execution of exothermic chemical reactions. A programmable controller in conjunction with an automatic cooling system, (see p 95) senses the onset of the exotherm, and diverts the heat transfer fluid through the heat exchanger, thus suppressing the exotherm.

Heat Transfer Fluids

Suitable fluids are Marlotherm SH® Dowtherm® or low viscosity silicone oil.

Connection scheme for two heated vessels



When filling the thermostat system the thermostat return connection must be at least as high as the highest return outlet of the connected vessels.

The total length of the hoses should not exceed 8 metres.

Output	
Maximum continuous fluid temperature	350 °C
Heat output	2, 3, 4 kW
Pump output	up to 16 l/min
Pump head	8 m water gauge

Dimensions	
Height	440 mm
Diameter	140 mm
Weight	11.2 kg

Technical data	
Supply voltage	230 V / 50 Hz (2 kW) 3 x 230 V / 50 Hz (4 kW)
Current	10 A (2 kW) 19 A (4 kW)
Fluid capacity	1,2 l
Overtemperature protection /cutout	50 - 350 °C +/- 10° and OFF
Low fluid level protection	Only for thermostats with expansion chamber *1
High fluid level protection	By overflow
Safety group (DIN 12879)	2 (with low fluid level detection)

*1

An expansion chamber is required for:

- Operation to DIN 12 879 safety class 2
- Use with moderate volumes of heat transfer fluid and large temperature variations
- Use with large volumes of heat transfer fluid

Programmable controller for JUVO thermostats

- Large LED temperature indicator
- LCD menu control with diplay of all relevant parameters
- All monitor and control functions for operation of thermostat and ancillary equipment
- Three 20 mA loop outputs, two RS-232 ports
- Program capacity: 10 programs, each with 10 steps
- Operation: manual, automatic, 20 mA loop or V24 inputs
- Control points: Fluid temperature (T1) or vessel interior (T2)
- Eight switches available for use in programs
- Dimensions [W x D x H) 340 x 355 x 130 mm

550*0.00

550*0.11

Base units

2 kW Thermostat
Fitted with a single 2 kW heating element and a cooling coil.

	Cat. no.
	55020.00
As 55020.00, but with expansion chamber and float switch.	55020.11

4 kW Thermostat
Fitted with two 2 kW heating elements.

	Cat. no.
	55040.00
As 55040.00, but with expansion chamber and float switch.	55040.11

Non-programmable controller for 2 kW thermostat. (Figure see p 87)
With digital display and ON/OFF switch. Output selectable 0 or 2 kW.

	Cat. no.
	55102.00
As 55102.00, but for 4 kW thermostat. With digital display and ON/OFF switch. Output selectable 0, 2 or 4 kW.	55104.00

Programmable controller
for 2 to 4 kW thermostats (Description see p 89)

	Cat. no.
	55105.00
As 55105.00, but 19" rack mounted.	55105.11

Obligatory Accessories
Pt100/DIN, Platinum resistance thermometer for measurement of fluid temperature.
With three pin plug for thermostats with serial numbers 500-14 and later.

	Cat. no.
	51009.00
As above, but with 2 pin plug for thermostats with serial numbers 500-13 and earlier.	51009.10

Accessories for 2 - 4 kW thermostats

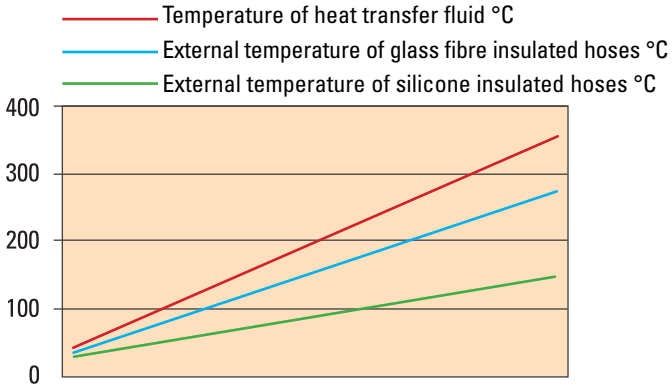
Heat transfer fluid Marlotherm SH

5 litres, in plastic container with spout.

Cat. no.
51016.00

51016.00

Surface temperatures of hoses

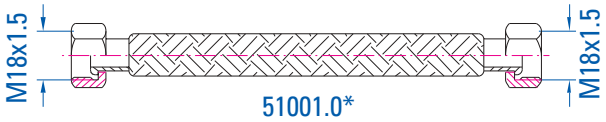


Hoses are made from stainless steel, are flexible, and suitable for use up to 400 °C. End connections are plasma welded. Supplied with either glass fibre or silicone insulation.

Glass fibre insulated hoses, DN10

with two female cap nuts M18 x 1.5

Length [m]	Cat. no.
0,5	51001.05
1,0	51001.10
1,5	51001.15
2,0	51001.20

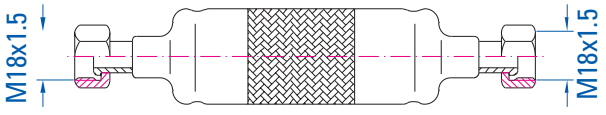


51001.0*

Silicone insulated hoses

with two female cap nuts M18 x 1.5

Length [m]	Cat. no.
0,5	51003.05
1,0	51003.10
1,5	51003.15
2,0	51003.20



51003.0*

Accessories for 2 - 4 kW thermostats - stainless steel

Connectors DN10

	Cat. no.
Straight - Female/Female M18 x 1.5	51005.00
Straight - Male/Male M18 x 1.5	51005.11
Male/Female M18 x 1.5, elbow	51005.22

Adaptors DN10

	Cat. no.
Male M18 x 1.5 Female M16 x 1*[1]	51006.00
Male M16 x 1 *[1] Female M18 x 1.5	51006.01
Male M14 x 1.5 Female M18 x 1.5	51006.11

Welding adaptors, DN10

	Cat. no.
Female M18 x 1.5	51010.00
Male M18 x 1.5	51011.00
Female M16 x 1*[1]	51010.11
Male M16 x 1*[1]	51011.11

Thermometer holder DN10

	Cat. no.
For glass thermometers cat no. 51008.** or Pt100 resistance thermometers Threaded M18 x 1.5 Female/Male	51007.00

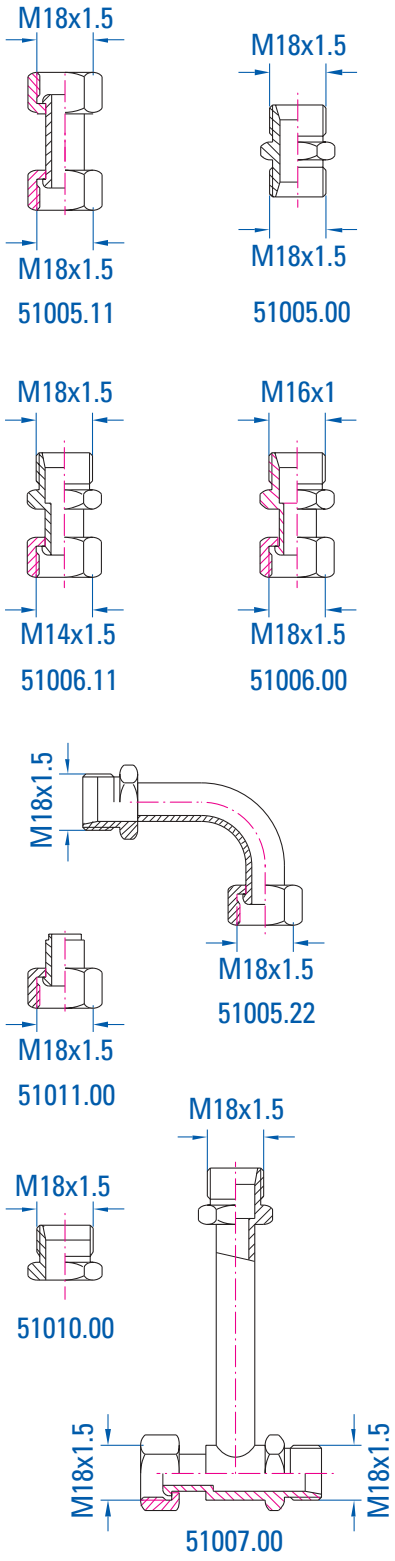
Glass thermometers

Specially designed to fit in thermometer holder 51007.00

	Cat. no.
Range 0–100 °C	51008.10
Range 0–200 °C	51008.20
Range 0–300 °C	51008.30

*[1] M16 x 1 thread is specified by DIN 71668

** 10, 20, 30 according to measurement range



Accessories for 2 - 4 kW thermostats - stainless steel

Welding adaptors, DN10, straight

	Cat. no.
Male M18 x 1,5	51024.00
Female M18 x 1,5	51025.00

Schott flange adaptors

	Cat. no.
Female M18 x 1.5	51026.00

Welding adaptors, DN10, elbow

	Cat. no.
Male M18 x 1.5	51022.00
Female M18 x 1.5	51023.00

Three way ball valve, with PTFE seals.
For manual control of cooling. For connections see page 98, lower diagram.

Threaded M18 x 1.5, two male, 1 female.

Cat. no.
50114.00

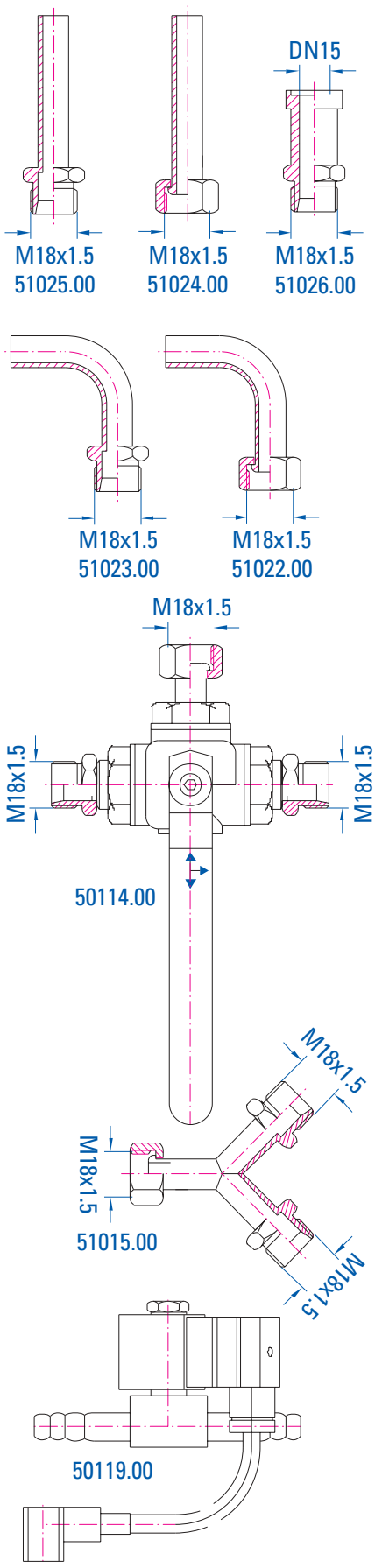
Y - Piece
Allows outlet from reactor heating jacket to be connected to two hoses. For connections see page 98, lower diagram, page 99 upper diagram.

Threaded M18 x 1.5, two male, 1 female.

	Cat. no.
	51015.00
As 51015.00, but with one male inlet, and one female and one male outlet	51015.11

Cooling water valve
For automatic control of cooling water through heat exchangers. Requires the programmable controller. See page 99, upper diagram.
Power supply 230V / 50 Hz
Fitted with two 9–12 mm hose connectors.

Cat. no.
50119.00



Accessories for 2 – 4 kW thermostats

Platinum resistance thermometers
Pt100/1 DIN resistance thermometer, type EL115. With 0.45 m long cable and plug. Response time 1 second.

	Cat. no.
For thermostats models 500-13 and earlier	51009.11
For thermostats models 500-14 and later	51009.00

Pt100/0.3 DIN resistance thermometer, type EL115. With 0.25 m long cable and plug.
Response time 0.3 second

	Cat. no.
For thermostats models 500-13 and earlier	51009.33
For thermostats models 500-14 and later	51009.22

Pt100/1 DIN resistance thermometer
with various dip length, cable and plug, For measurement of internal temperatures of vessels. (see Pages 39 and 44)

Glass to Metal connector
For connection of Schott flanges to metal hoses. Nominal diameter 10 mm. Supplied with pressure equalising spring and PTFE gasket.

	Cat. no.
For DN 10 Schott flange	51012.00
For DN 15 Schott flange	51013.00

Connectors for plastic hoses
Threaded male M18 x 1.5. For hoses diam 9 - 13 mm

			Cat. no.
			51020.00
Threaded female M18 x 1.5			
Hose diameter	∅ 8 mm	∅ 10 mm	∅ 13 mm
Cat. no.**	51021.08	51021.10	51021.13

Thermostat holder for mounting a thermostat onto a 34 mm rod or tube, such as supplied with a stirrer drive motor mounting stand.

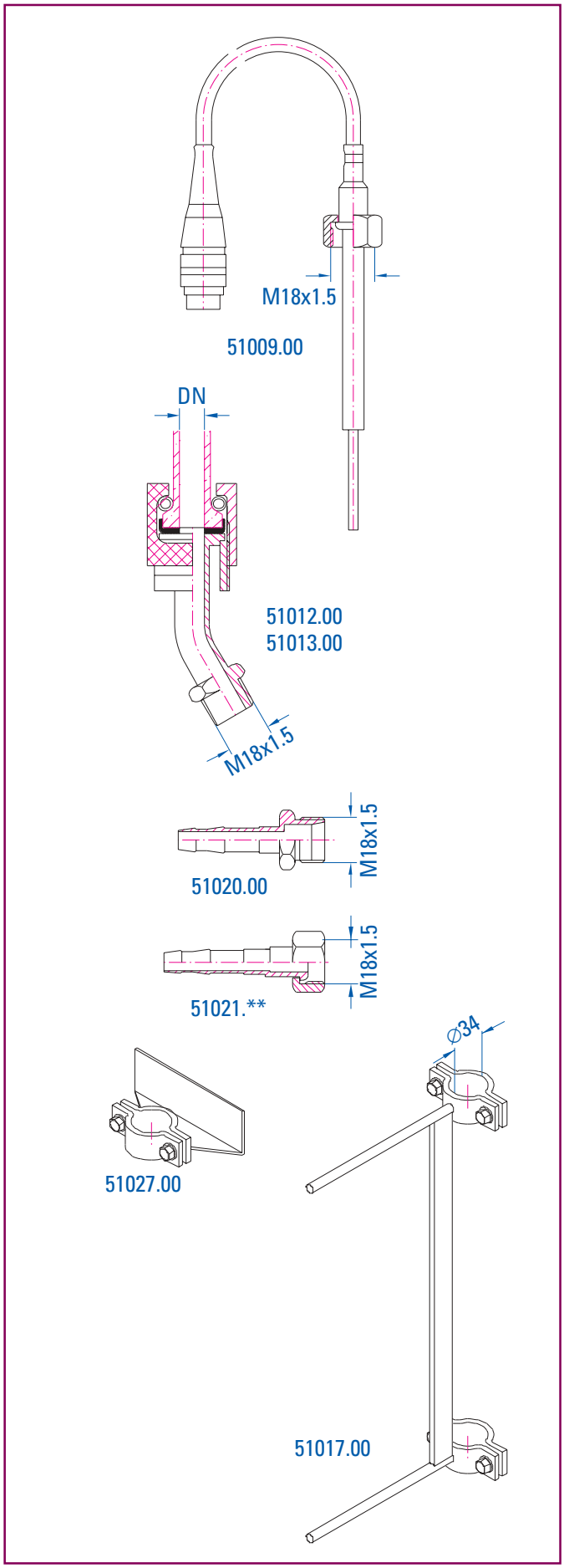
51017.00

Heat exchanger holder, for attachment to a 34 mm diam. rod or tube.

51027.00

Mounting plate for a thermostat, heat exchanger and high temperature valve. (not illustrated)

55041.00



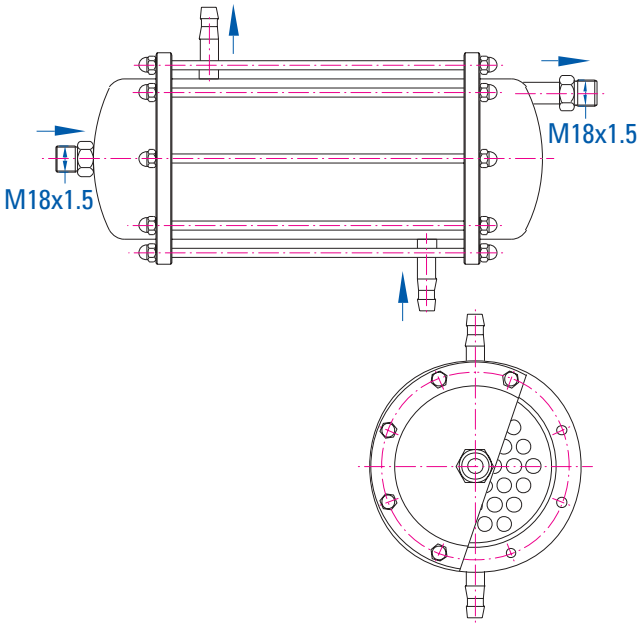
Accessories for 2 - 4 kW thermostats

Heat exchangers

The tube and shell heat exchangers provide for the rapid cooling of heat transfer fluid.

- All stainless steel construction
- PTFE gaskets
- Useable up to 350 °C with continuous water throughput, or with flow controlled by the valve 50119.00 in conjunction with the programmable controller (see layout on page 99 upper).
- Heat transfer fluid connections: male, M18 x 1.5
- Water connections: 12 mm plastic hose connectors.

	Cat. no.
Tube surface area 0.16 m²	50111.00
Tube surface area 0.32 m²	50112.00

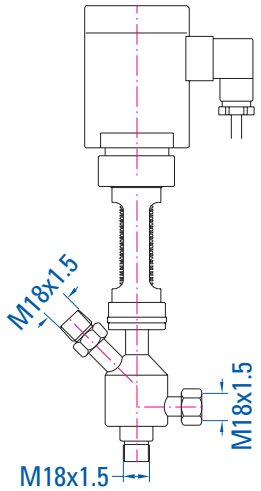


High Temperature Valve DN10

The high temperature valve is designed for switching the flow of heat transfer fluid at temperatures up to 350 °C. For use with the programable controller to provide automatic cooling. All-or-nothing operation.

- Actuator rod sealed within metal bellows
- All parts in contact with heat transfer fluid made from stainless steel
- Fitted with a high temperature electromagnet (normal operating temperature 85 °C). Powered from programmable controller 55105. With connection cable.
- Input: Female M18 x 1.5
- Outputs: Male M18 x 1.5

Cat. no.
50117.00



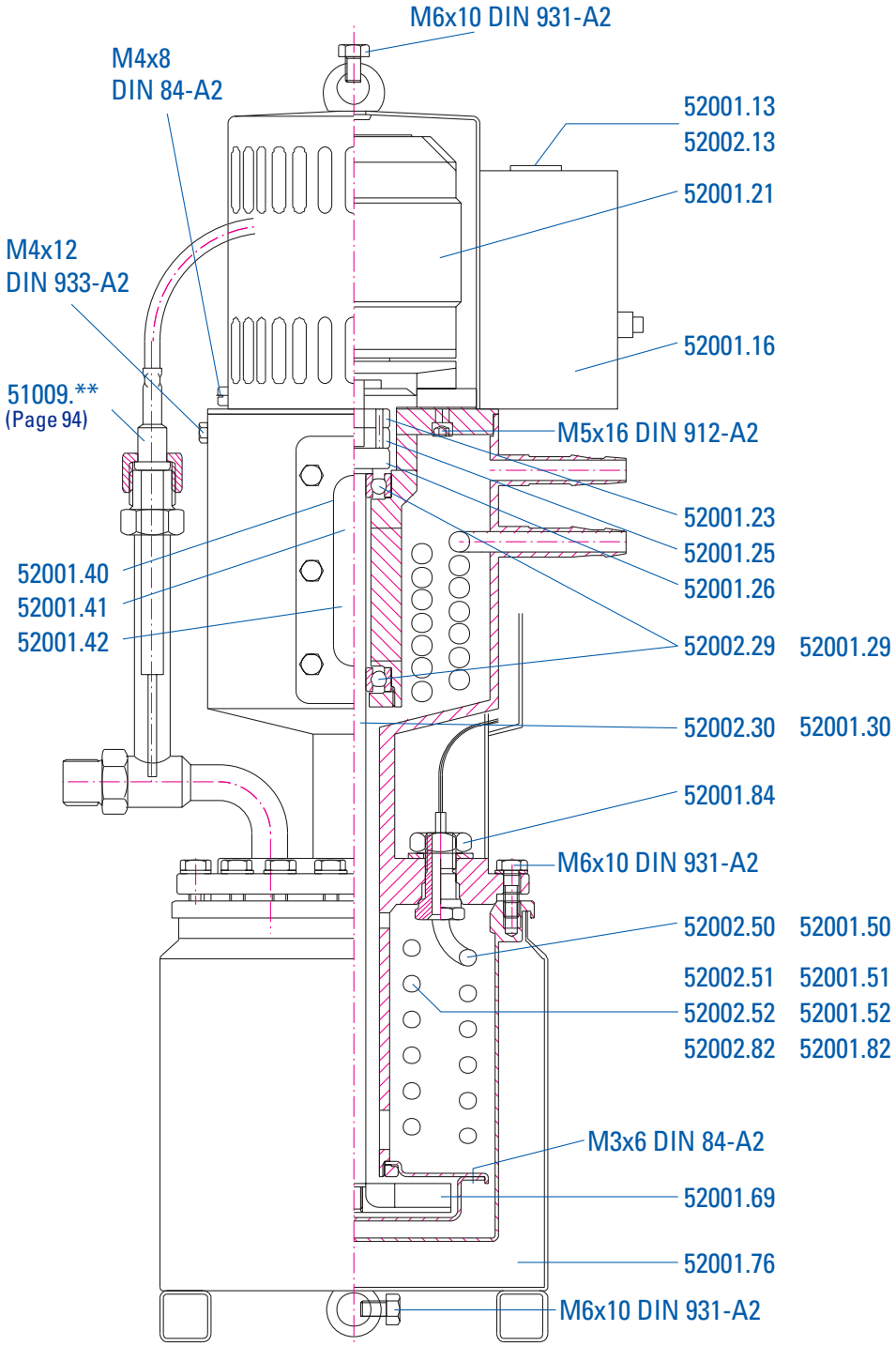
High Temperature Proportioning Valve DN10

As above, but motor driven, allowing continuously variable opening.

Driven by programmable controller 55105. Position of valve is fed back to the controller. Opening proportional to the difference between the actual temperature and the set temperature.

Cat. no.
50117.11

Spare Parts for Thermostat



Consumables for Thermostat

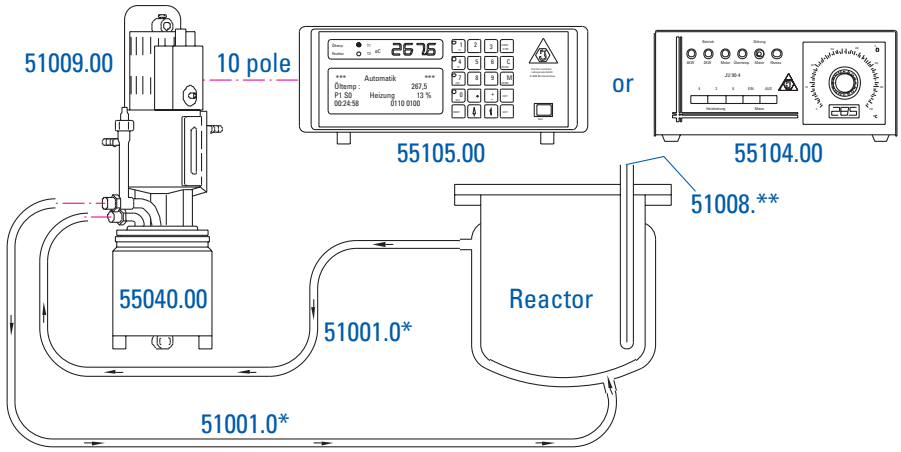
	Cat. no.
Thermometer socket 2 pole with nuts and bolts for models 50013 and earlier	52001.13
Thermometer socket 3 pole with locknuts, for models 500-14 and later	52002.13
8 pole connector	52001.16
Motor 230 V / 50 Hz AC	52001.21
Motor drive plate with adjustment screws	52001.23
Clutch plate plastic	52001.25
Shaft drive plate with adjustment screws	52001.26
Ball bearing 1200.C3S1 heat treated	52001.29
Ball bearing 608Z15 stainless steel	52002.29
Silver steel pump shaft chromium plated, with circlip	52001.30
Stainless steel pump shaft with circlip	52002.30
Silicone seat for sightglass	52001.40
Sightglass	52001.41
'O' ring for sealing sightglass	52001.42
Large heater element 2 kW 230 V / 50 Hz for all thermostats for models up to 500-06**	52001.50
As above, for models 500-07** and later	52002.50

	Cat. no.
Small heater element 2 kW 230 V / 50 Hz for 4 kW thermostats for models up to 500-06**	52001.51
As above, for models 500-07** and later	52002.51
Small heater element 1 kW 230 V / 50 Hz for 3 kW thermostats for models up to 500-06**	52001.52
As above, for models 500-07** and later	52002.52
Cooling coils For 2 kW thermostats only, for models up to 500-06**	52001.82
As above, for models 500-07** and later	52002.82
Gaskets for heater elements and cooling coils, aluminium, for models up to 500-06**	52001.53
Pump impeller	52001.69
Gasket for heat transfer fluid reservoir	52001.71
Insulation for lower heat transfer fluid reservoir	52001.76
Nuts M12 x 1.5 for heater elements and cooling coil	52001.84
Drain tube with connector and M18 x 1.5 female cap nut	52001.87
Resistance thermometer gasket for models up to 500-06**. With cap '0' ring 10 x 3, viton	52001.92

** state serial number when ordering

Thermostat System Layouts

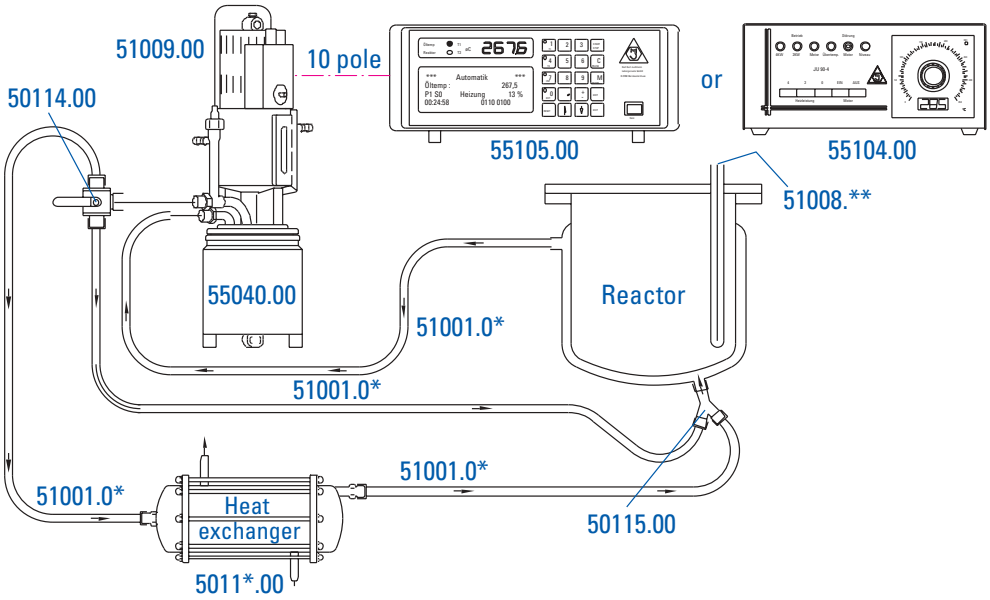
Simplest system



Components required:

	Cat. no.
Thermostat	550*0.**
Pt100 thermometer (T1)	51009.00
Programmable controller	55105.**
or non-programmable controller	5510*.00
2 hoses	5100*.**
Marlotherm heat transfer fluid, 5 Litre	51016.00

System with manual cooling, for temperatures up to 250 °C

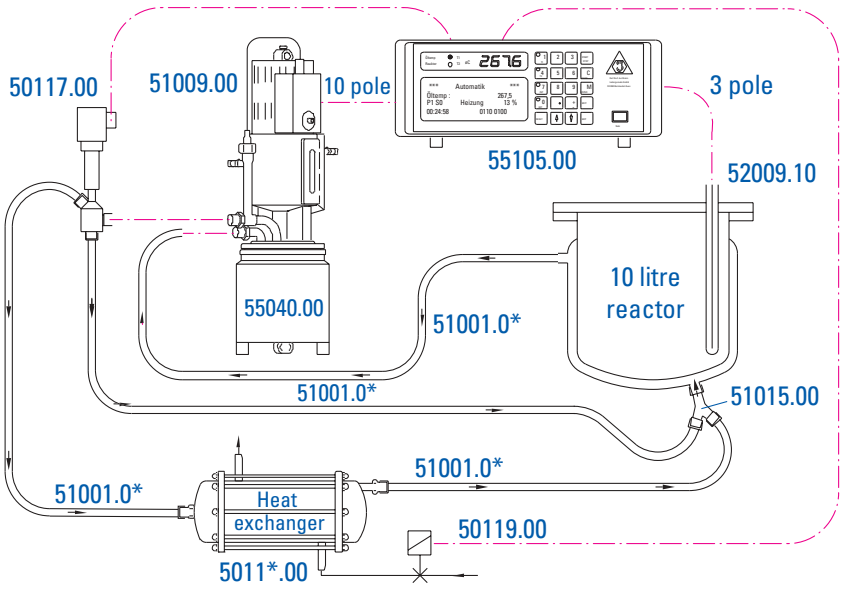


Components required:

	Cat. no.
Thermostat	55040.**
Pt100 thermometer (T1)	51009.00
Programmable controller	55105.**
or non-programmable controller	55104.00
Marlotherm heat transfer fluid, 5 Litre	51016.00
4 hoses	5100*.**
Three-way ball valve	50114.00
Heat exchanger	5011*.00
'Y' piece	51015.00

Thermostat System Layouts

System with automatic cooling, control point reactor temperature

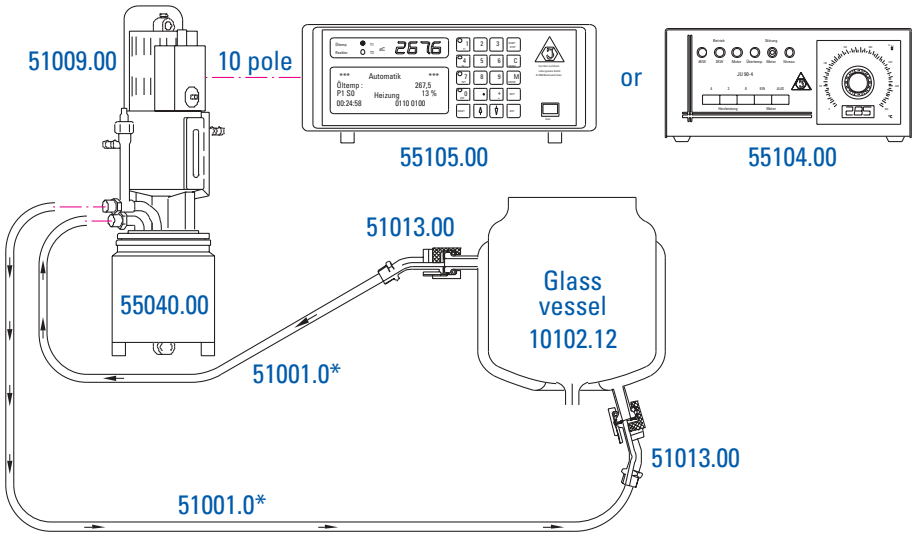


Components required:

	Cat. no.
Thermostat	55040.**
Pt100 thermometer (T1)	51009.00
Programmable controller	55105.00
Pt100 thermometer (T2)	52009.**
4 hoses	5100*.**

	Cat. no.
High temperature valve	50117.00
Heat exchanger	5011*.00
'Y' piece	51015.00
Cooling water valve	50119.00
Marlotherm heat transfer fluid, 5 Litre	51016.00

Simple system for use with glass reactor

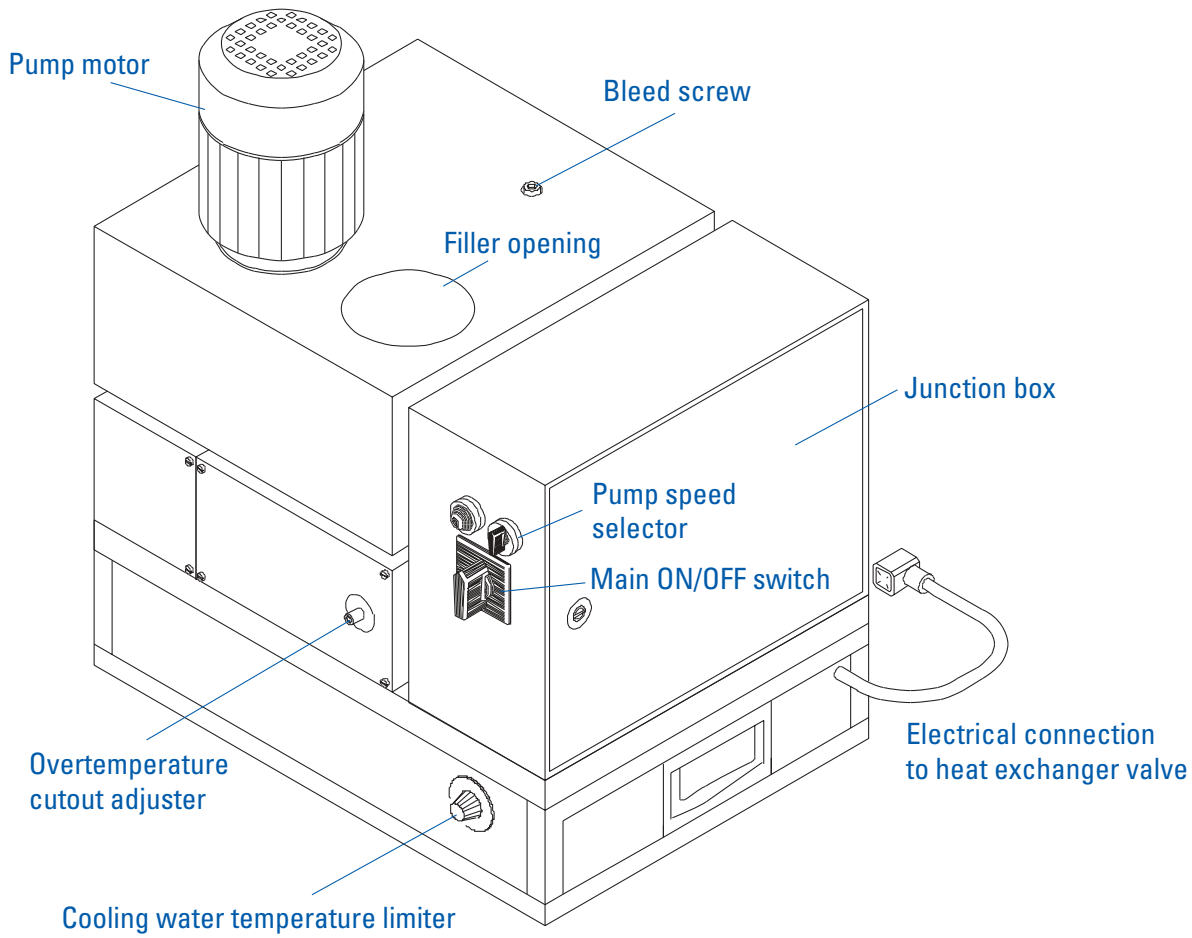


Components required:

	Cat. no.
Thermostat	550*0.**
Pt100 thermometer (T1)	51009.00
Programmable controller	55105.00
or non-programmable controller	5510*.00

	Cat. no.
2 hoses	5100*.**
2 DN10 glass - metal connectors	51013.00
Marlotherm heat transfer fluid, 5 Litre	51016.00

9 kW Thermostat

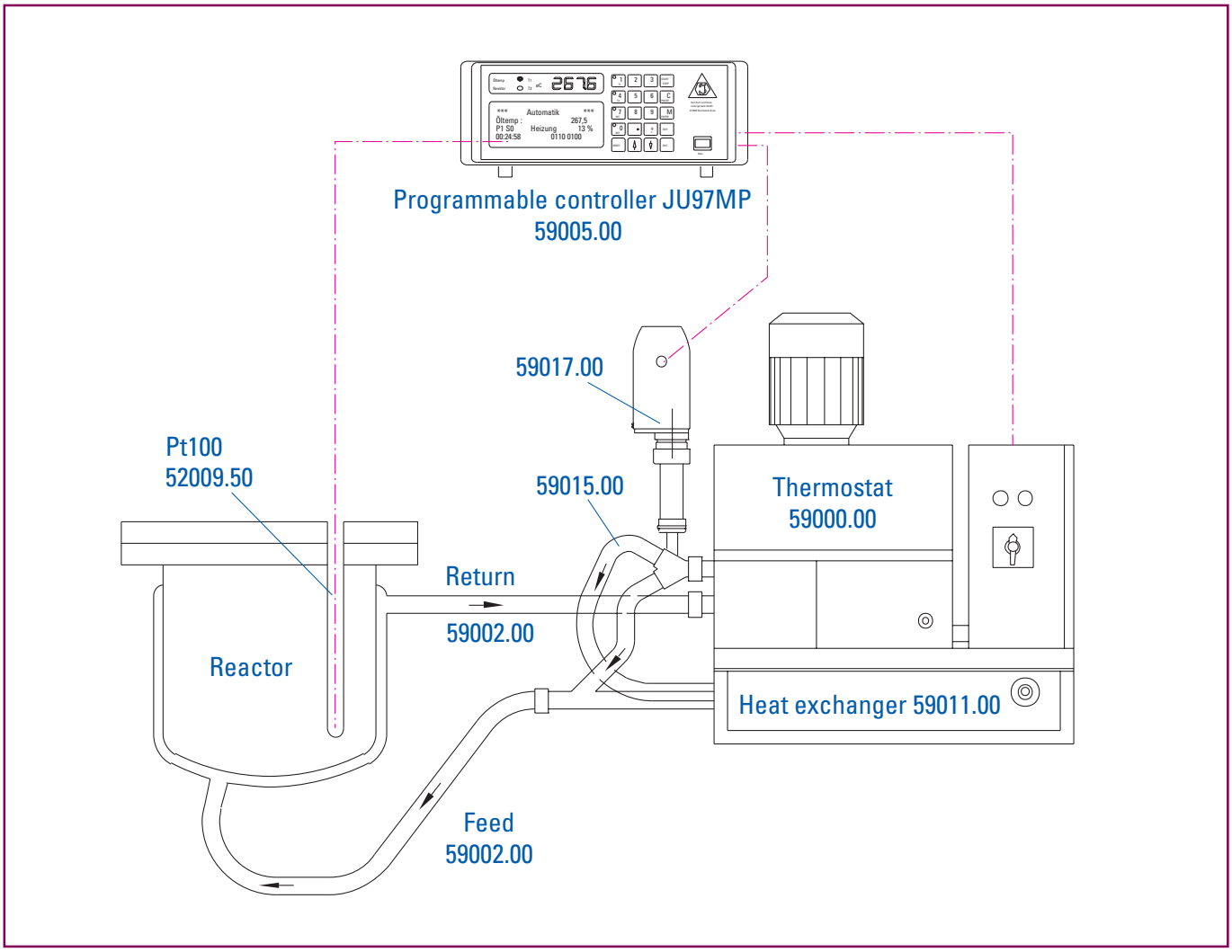


Technical data	
Supply voltage	3 x 400 V, with neutral and earth, 5 pole CEE plug Load per phase 3–4 kW, current 16 A
Motor	0.37 kW, speed 1400/2600 rpm 925 rpm under maximum pump load
Temperature range	30–320 °C with heat exchanger 130 °C to 320 °C without heat exchanger

Technical data	
Cooling water consumption	60 litres/h for temperatures up to 150 °C 300 litres/h for temperatures up to 320 °C
Connections	Heat transfer fluid DN20/M30 x 1.5 Cooling water 10 mm plastic hose connectors

All parts in contact with heat transfer fluid made from stainless steel.

9 kW thermostat accessories



Thermostat DN20
Output 9kW, Dimensions (W x D x H)
530 x 380 x 450 mm

	Cat. no.
	59000.00

Programmable controller
for 9 kW thermostat. For description see page 89

	Cat. no.
	59005.00
As above, but for 19" rack mounting	59005.19

High Temperature Proportioning Valve DN20
with servo control through controller

	Cat. no.
	59017.00

Heat exchanger
1 m² surface area with temperature limiter and magnetic on/off valve for cooling water. Installed in lower part of thermostat.
Dimensions (W x D x H) 530 x 380 x 110 mm

	Cat. no.
	59011.00

Fittings for connection of thermostat, high temperature valve and heat exchanger.

	Cat. no.
	59015.00

Stainless steel hoses, DN20,
connections M30 x 1.5 female

Length [m]	Cat. no.
1	59001.00
2	59002.00
3	59003.00

Materials:

Rust and acid resistant stainless steel - 316
German designation: 1.4571

➡ *See chemical resistance tables page 36*

Unsuitable for applications involving the presence of halide ions. Standard material for vessels and accessories. Suitable for most applications. Lowest cost material.

The company is licensed and supervised by TÜV Rheinland to fabricate pressure vessels in this material.

Nickel based alloy - Hastelloy C4®
German designation: 24610

Highly resistant material for vessels and accessories. Highly suited for applications involving acids, and other applications for which stainless steel is unsuited.

Stocks are held of materials and spare parts made from this material.

The company is licensed and supervised by TÜV Rheinland to fabricate pressure vessels in this material.

Nickel based alloy - Alloy 59
A nickel-chromium-molybdenum based alloy

The company is licensed and supervised by TÜV Rheinland to fabricate pressure vessels in this material.

Additional information about chemical resistance and composition of the alloys mentioned above and others is available on the World Wide Web.

A good source of information is:
http://www.corrosionsource.com

Other materials are possible. Contact us for details.

GMP (Good Manufacturing Practice) Standard for pharmaceutical applications.

Vessels and accessories can be manufactured to comply with the GMP code.

The standard requires that the vessel and its accessories can be cleaned according to a written procedure, and the results must accord with a written procedure.

To achieve this certain modifications are made to the design and to the fabrication process.

Design modifications:

Elimination, as far as possible, of all dead spaces in gaskets, seals, connections, valves and and monitoring equipment.

Specification of sightglasses, valves without dead space, and membrane pressure gauges.

Elimination, as far as possible, of exterior crevices, e.g. any thermal insulation is sheathed and permanently welded onto the vessel.

Manufacturing modifications:

Surface roughness lower than 0.8 µm. Reaction vessels can be made to a roughness down to 0.3 µm. Exterior roughness 3 µm maximum. Surfaces to be inspected at various points.

Vessel marking to be done chemically instead of by nameplates. All bearings and channels in lifting gear and stands to be sealed.

Approved materials to be used. In food or pharmaceutical applications gasket and sealing materials must be FDA (Food and Drug Administration) approved.

A list of all components with all relevant documentation.

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Conditions of sale and payment

1 Only our sale and payment conditions apply. Purchase conditions applied by customers are explicitly excluded. We are not bound by such conditions even if they are not excluded at the finalisation of any particular contract of sale.

2 All prices are ex-works, excluding packing. Quotations are valid for 6 months only. We reserve the right to raise prices if manufacturing costs increase between the date of ordering and the date of delivery.

3 Minimum order value € 25.00 net excluding VAT. For deliveries under the minimum order value an administration charge of € 5.00 will be added in addition to packing and dispatch costs.

4 Packing is charged at cost and is not returnable. Railway delivery within the Federal Republic of Germany is generally effected through rented Bahncollicos, which must be emptied and returned immediately after receipt. Return freight for Bahncollicos is free.

5 Quotations must not be disclosed to third parties and competing firms.

6 If items are specially manufactured, we reserve a right to a delivery margin of + or - 10%.

7 As far as our facilities allow us to do so, we will manufacture special products in a proper and timely manner on the basis of samples, drawings or information provided by the customer. No returns or exchanges of specially manufactured goods will be allowed, but any shortages will be made up.

8 Delivery dates are not binding. Operational difficulties outside our control or forces majeures allow us to postpone previously agreed delivery dates, or to cancel the contract. Penalty clauses for late delivery are not accepted.

9 Our order acknowledgements serve as the confirmation of an order. Small orders and orders met ex-stock will not be acknowledged.

10 Delivery and transport are at the buyer's cost and risk. In the absence of specific instructions, packaging and means of delivery are chosen on basis of greatest suitability, rather than minimum cost.

11 Shortages must be notified in writing 8 days after delivery at the latest. Hidden faults must be disclosed immediately on discovery, but within 1 month from the date of invoice at the latest. When a claim is acknowledged the purchaser is entitled to reworking or a make-up delivery. Further claims, especially those engendered by reworking or make-up deliveries will not be entertained.

12 Commercial rights: we are unable to check in detail if the production or delivery of goods according to a drawing or sample infringes the rights of third parties. The risk is borne by the purchaser. If required by us, the purchaser must indemnify us against claims for infringement of these rights. All costs involved are to be borne by the customer.

13 Except in the case of delivery errors, returns or exchanges of specially manufactured goods is not allowed.

14 No responsibility for damage consequent on the use of our products will be accepted.

15 We reserve the right to make technical modifications to our products.

16 Payment: within 8 days with 2% discount, within 30 days net. For foreign payments under € 250.00, all costs of payment must be incurred by the purchaser, otherwise they will be subsequently invoiced. Transfers through the Post system are free of charge. Cheques and transfers are only accepted subject to clearance. Payment is not considered to be effected until such instruments have been cleared. We recognise discounts only when payments are received within the time allowed. The time of payment is taken to be the date of transfer from the settling institution, or the postmark in the case of settlement by cheque.

17 Delays in payment entitles us to block any further deliveries. Additionally, we are entitled to demand immediate settlement of outstanding and any further sums due. Interest will be charged at 2% over local bank rate. Non-compliance with payment conditions entitles the seller to demand payment in advance for outstanding deliveries or for guarantors, and after suitable notice to withdraw from the contract or to demand indemnity against claims for non-fulfilment of the contract.

18 Ownership: all goods supplied remain our property until payment of all invoices, including those stemming from other deliveries and actions. Working and processing of goods are done according to §950 of the Federal German Legal code, with the exception of ownership claims. The goods produced are our collateral. If required by us, the buyer must inform the end user of the goods of this condition. In the case of of loss of ownership through alienation or further working, the buyer relinquishes in advance all the demands stemming from such alienation or other legal grounds

19 In the case of arrears of payment or significant degradation of the financial position of the purchaser, with the opening of agreement with creditors or bankruptcy, the seller is entitled to demand the return of all goods subject to our ownership and to rescind any outstanding contracts to supply. The buyer must inform us immediately of any pledge to or interest of third parties.

The competent court for all questions, including payments, is Bernkastel-Kues. German law applies in all cases.

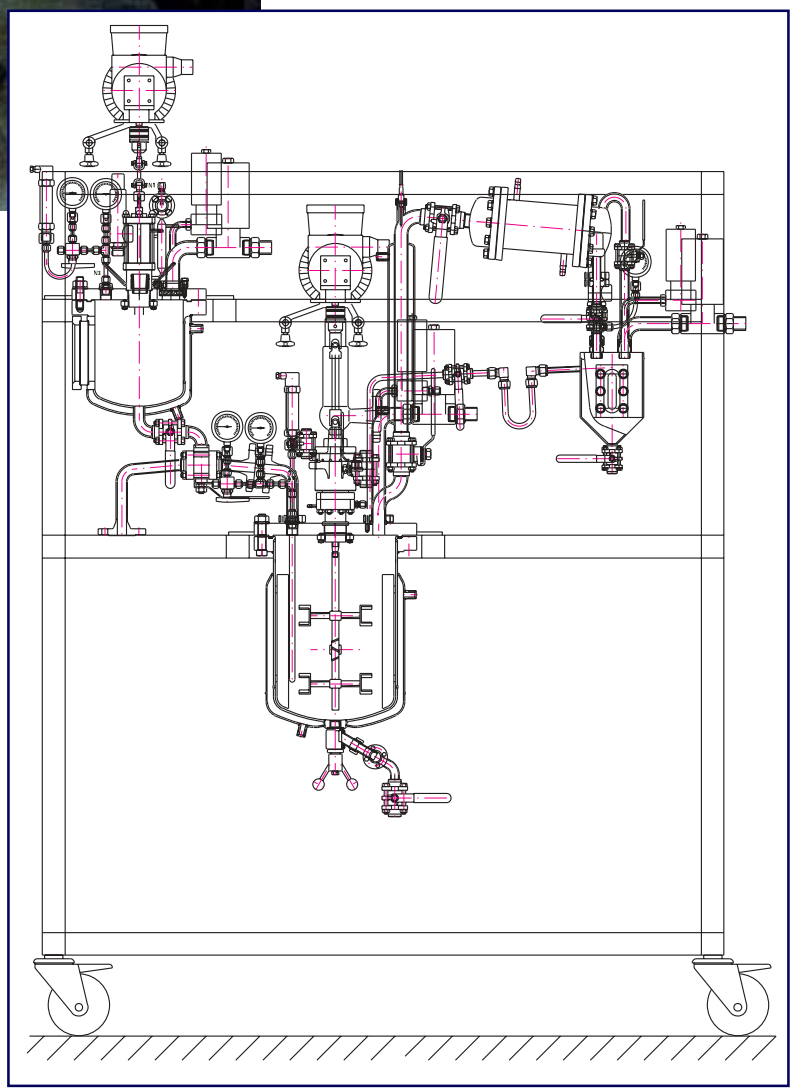
Karl Kurt Juchheim Laborgeräte GmbH

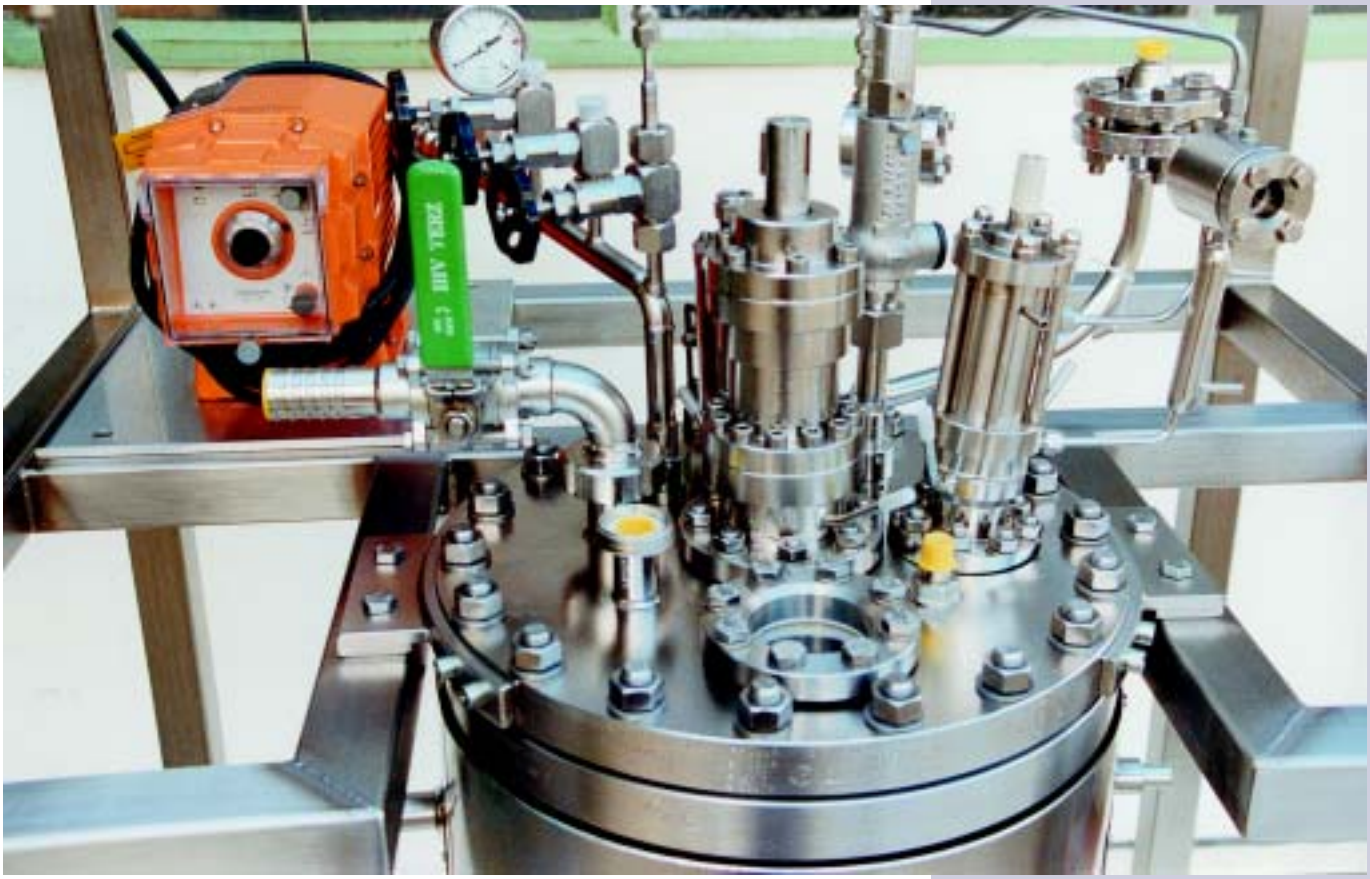
Note: We reserve the right to make modifications on grounds of technical improvements.

Although all reasonable care has been taken to ensure accuracy, we can take no responsibility for any errors.

Transportable turnkey plant, explosion-proof, in stainless steel framework with:

- Main reactor with 16 Nm magnetic stirrerhead and continuously variable stirrer drive
- Stirred reservoir, mechanically sealed stirrerhead and a rectangular lateral sightglass
- Heated reflux condenser and and tube-and-shell condenser with receiving vessel
  Lifting jack and vacuum pump





Reaction vessel, 50 litres, in stainless steel framework

- With various manifolds and connections
- Mechanically sealed stirrerhead with 25 mm shaft and a sloping stirrerhead to one side

KARL KURT JUCHHEIM

Laborgerätebau GmbH

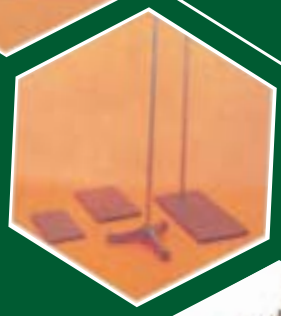
70 Jahre

1927 1997

Apparatebau
Spezialanfertigungen
für
Laborgeräte

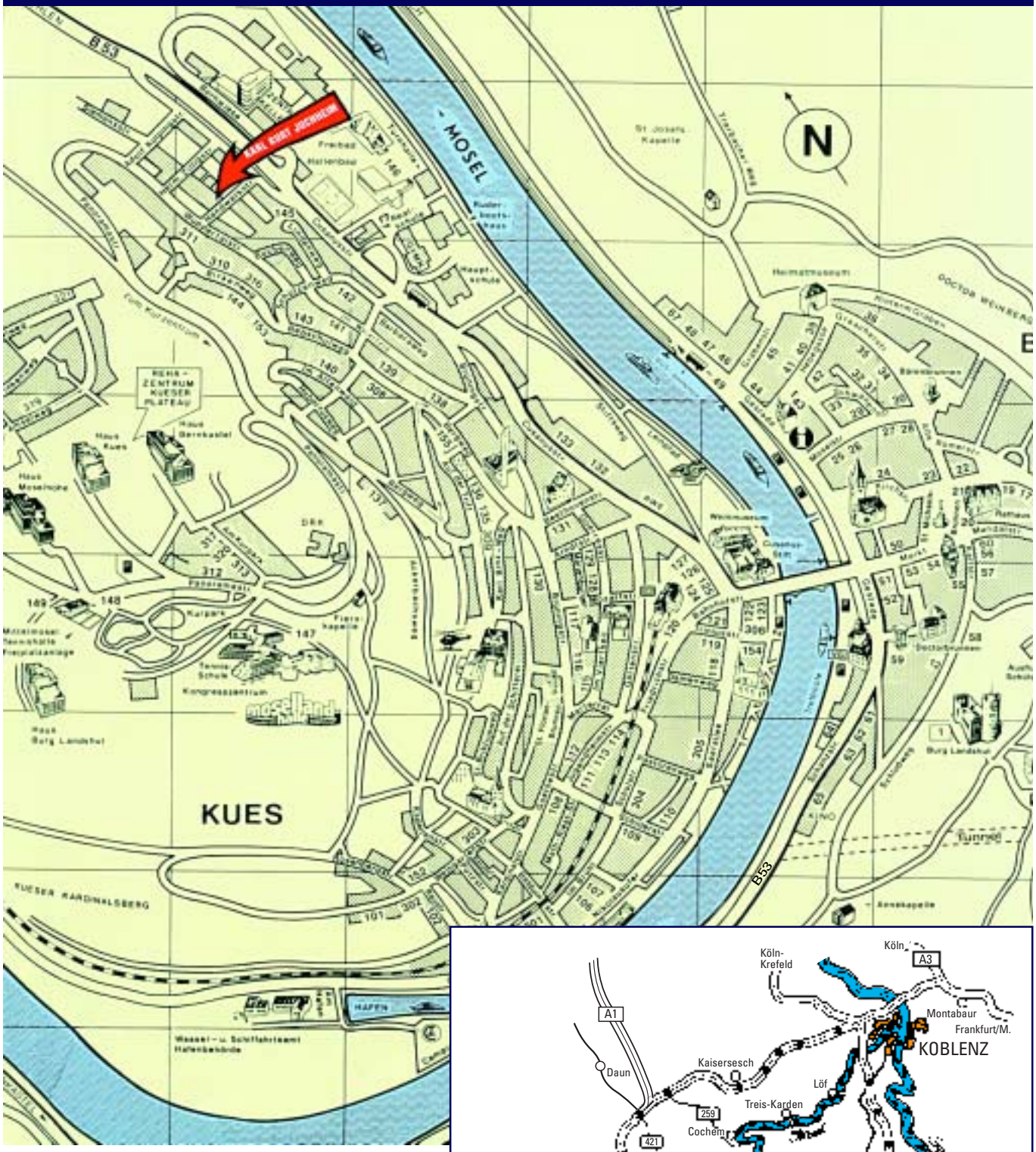
Laborbrenner
nach
Bunsen, Teclu, Heinze
Mikro- u. Sicherheits-
brenner
Gebläsebrenner

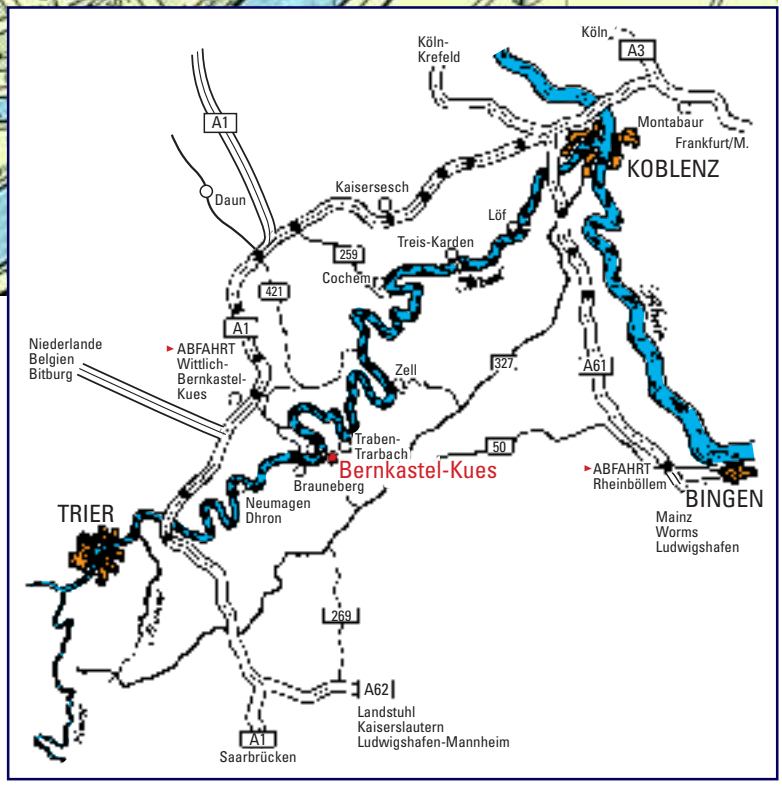
Stativklemmen
aus
Edelstahl (18/8)
Stahl
Temperguß



Verstellbare Druckgas-
Flaschenhalterung
Brandschutzwannen
Spinnmilben-
Bürstenmaschinen
Reagenzglasgestelle

Karl Kurt Juchheim
Laborgeräte GmbH
Postfach 1229 – 1230
Handwerkstraße
54462 Bernkastel-Kues
Tel.: (0 65 31) 96 44-0
Fax: (0 65 31) 30 17





KARL KURT
JUCHHEIM
Laborgeräte GmbH
seit 1927

Handwerkstraße · 54470 Bernkastel-Kues
Tel. 0 65 31 / 96 44-0 · Fax 0 65 31 / 96 44-15
E-Mail: info@juchheim-gmbh.de
Internet: www.juchheim-gmbh.de