Climate rating definitions

Climate rating **SN**
= Ambient temperatures of +10 °C to + 32 °C

Climate rating **N**
= Ambient temperatures of +16 °C to + 32 °C

Climate rating **ST**
= Ambient temperatures of +16 °C to + 38 °C

Climate rating **T**
= Ambient temperatures of +16 °C to + 43 °C

Customer service

As a company specialised in manufacturing refrigerators and freezers, Liebherr has a wide and comprehensive service network.

Liebherr laboratory refrigerators do not conform to DIN 58345 relevant to storing pharmaceuticals nor to DIN 58371 relevant to storing conserved blood. Liebherr laboratory freezers do not conform to 58375 relevant to storing blood plasma. All laboratory refrigerators and freezers conform to the EC Directives 2004/108/EC and 2006/95/EC.

Internet

You will also find all Liebherr's laboratory appliances together with illustrations and technical data on our website at www.liebherr.com

Laboratory refrigerators and freezers

LIEBHERR

Innovative expertise and drive in the laboratory sector

The demands made on refrigerators and freezers are particularly high in all the sectors of professional use. Whether the issue is the refrigeration performance, specifying the materials, designing the refrigeration components or evolving the design concepts – all the decisions are directed to ensuring the long-term, trouble-free use of our appliances.

The most stringent reliability and safety standards apply to appliances in the laboratory sector. Therefore Liebherr has a range of purpose-built and factory-designed laboratory appliances in different temperature ranges for numerous applications. The Mediline appliances incorporating Profi electronic controllers offer many advantages. High-grade materials, high-performance components and accurate workmanship right down to the last detail ensure the high quality of the Liebherr appliances.

The laboratory refrigerators and freezers with Profi electronic controllers

The Profi electronic controller

The menu-guided Profi electronic controller with integrated real-time clock allows the temperature to be set to 1/10°C accuracy. The text display has German, English, French, Spanish or Italian language setting options. To satisfy laboratory hygiene requirements, the electronic controller is flush-fitted and has an easy-clean membrane keypad.
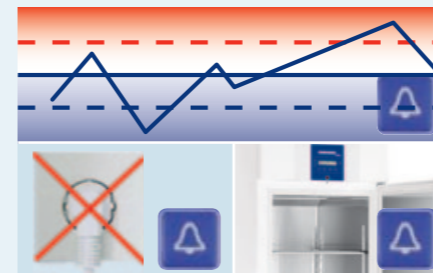
Integrated alarm systems

A visual and audible temperature alarm alerts the user if temperature deviation limits are exceeded. In addition, a visual and audible door alarm is raised if the door is open for longer than 1 minute. There is also an immediate visual and audible alarm in the event of power failure.

Integrated data memory

The Profi electronic controller has an integrated data memory which logs the last 30 alarm events including date, time and maximum temperature as well as the internal temperature profile at 4-minute intervals. 2800 temperature logs are stored to memory, which corresponds to approximately a 7-day logging period.
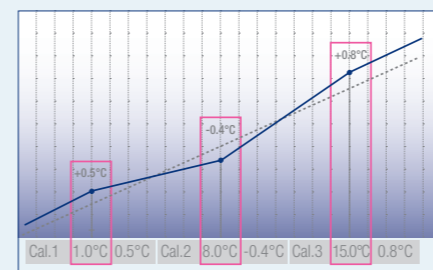
3-point calibration

The laboratory appliances with Profi electronic controllers provide 3-point calibration for extremely accurate temperature control. This permits compensation between the set temperature and the actual internal temperature at as many as three temperature points. Positive or negative changes to the correction value can be made in steps of 0.1K.

### Mains-independent power supply of the electronic controller

In case of power failure, the electronic controller continues to operate from an integrated 12 V battery. As a result, the memory continues to log the internal temperatures for another 72 hours even in the event of power failure. Furthermore, if external alarm and documentation systems are connected, the data transfer is maintained for as long as 72 hours.
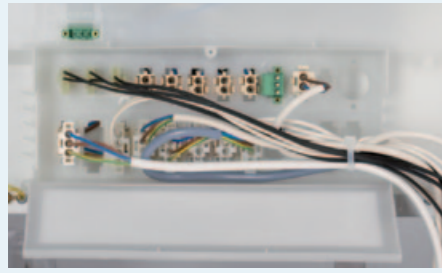
External temperature and alarm documentation

The laboratory appliances with Profi electronic controllers are equipped with a volt-free contact for alarm forwarding to an external remote warning system. The data stored in the internal memory can be read out via the infrared interface and transferred to a PC with documentation software. In addition, the appliances have an RS 485 serial interface enabling as many as 20 appliances to be networked with a central documentation and alarm system.
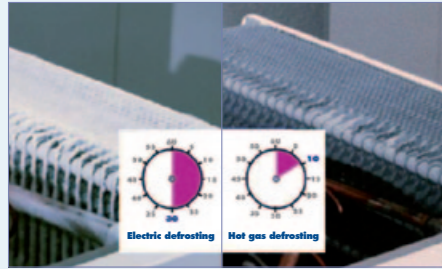
Energy-efficient hot-gas defrost system

The hot-gas defrost system with demand and time control permits very short defrost cycles: only 8 minutes for laboratory refrigerators and 12 minutes for laboratory freezers. As a result, the internal temperature remains almost constant during the defrost cycle. In addition, there is the option of initiating the defrost manually.
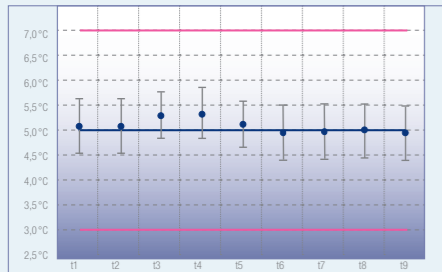
Maximum temperature stability and temperature consistency

Maximum temperature stability is ensured by the high-performance forced-air cooling system with double ventilation, in conjunction with optimal routing of the air flow. The very short defrost cycles allow the internal temperature to be kept almost constant during the defrost phase. All the laboratory appliances are tested according to the NF X 15-140 standard with regard to maximum temperature stability and optimal temperature consistency.
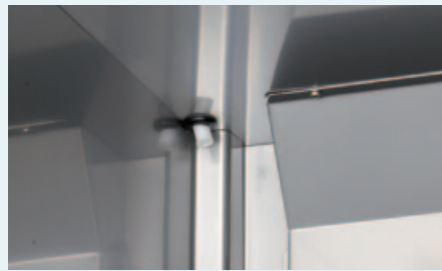
Access port for an external temperature sensor

In the laboratory appliances with Profi electronic controllers there is provision for an independent temperature sensor allowing, for instance, a PT 100 probe or similar measuring elements to be positioned in the interior. The diameter of the access port is 7.6 mm.

Refrigeration components

The refrigeration components are securely integrated in the ceiling area, allowing ready access. The compressor compartment panel can be simply raised for cleaning or servicing purposes and can be fully detached from an opening angle of 45° to provide very good access to the refrigeration components.

High-quality interior for versatile use

The smooth compartment liners are made entirely of 304-grade stainless steel and are therefore particularly easy to clean. The robust trayslides can be easily repositioned to suit needs and, together with the plastic-coated grid shelves, they ensure versatile use of the interior. The trayslides are U-shaped to make the grid shelves non-tilting.
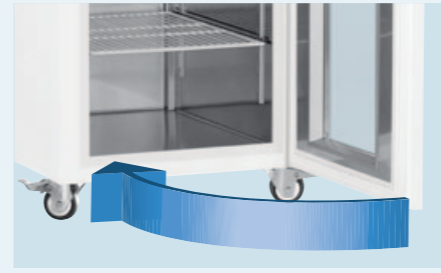
Practical door

The doors remain open at 90° and are self-closing at less than 60° for convenient use. The integrated lock is exceedingly sturdy and protects the stored products against unauthorised access. The door hinges are interchangeable and the door seals are replaceable.

Castors

The LKPv and LGPv ranges come with castors as standard to allow easy and convenient cleaning underneath and versatile use of the appliances in different rooms. The brake of the two front castors provides a firm hold and ensures that the appliances cannot tip even if the grid shelves are extended.

Functional and practical accessories

Infrared key with documentation software

The alarm events and temperature profile data can be read out using the infrared key available as an accessory. Corresponding documentation software is included thus enabling visualisation of the read-out data on a PC.

NTC product temperature probe

An NTC product temperature probe for logging product temperatures is available as a retrofit kit for the laboratory appliances with Profi electronic controllers. The logged product temperatures can either be read by the electronic controller or transferred to an external documentation system via the existing RS 485 interface.

Available from September 2010

Interface converter with documentation software

A special interface converter including documentation software is available for central documentation of the temperature profile data and alarm events of multiple appliances via the RS 485 serial interface. Capability is provided for interconnecting as many as 20 laboratory appliances and centrally documenting their parameters.

U-shaped trayslides and grid shelves

Additional U-shaped trayslides and plastic-coated grid shelves can be retrofitted as required to provide extra storage options. The robust grid shelves have an extremely high loading capacity of up to 60 kg.

Laboratory refrigerators and freezers with Profi electronic controllers	LKPv 1422 Mediline **163 999,- Kč**	LKPv 6522 Mediline **101 999,- Kč**	LKPv 1420 Mediline **142 999,- Kč**	LKPv 6520 Mediline **91 999,- Kč**	LGPv 1420 Mediline **157 999,- Kč**	LGPv 6520 Mediline **106 999,- Kč**
Gross capacity	1427 l	601 l	1427 l	601 l	1427 l	601 l
Exterior dimensions in mm (w/d/h)	1430/830/2150	700/830/2150	1430/830/2150	700/830/2150	1430/830/2150	700/830/2150
Interior dimensions in mm (w/d/h)	1263/650/1550	533/650/1550	1263/650/1550	533/650/1550	1263/650/1550	533/650/1550
Energy consumption in 24h*	3.9 kWh	2.7 kWh	3.3 kWh	1.8 kWh	8.9 kWh	4.7 kWh
General						
Cooling system	dynamic	dynamic	dynamic	dynamic	dynamic	dynamic
Defrosting method	automatic	automatic	automatic	automatic	automatic	automatic
Temperature range	0 °C to +16 °C	0 °C to +16 °C	-2 °C to +16 °C	-2 °C to +16 °C	-10 °C to -26 °C	-10 °C to -35 °C
Housing material/colour	steel/white	steel/white	steel/white	steel/white	steel/white	steel/white
Door/lid material	glazed door	glazed door	steel	steel	steel	steel
Liner material	304-grade stainless steel	304-grade stainless steel	304-grade stainless steel	304-grade stainless steel	304-grade stainless steel	304-grade stainless steel
Type of control	electronic controller	electronic controller	electronic controller	electronic controller	electronic controller	electronic controller
	with data logger and text display	with data logger and text display	with data logger and text display	with data logger and text display	with data logger and text display	with data logger and text display
Temperature display	external digital	external digital	external digital	external digital	external digital	external digital
Status display	●	●	●	●	●	●
Temperature and door open alarm	visual and audible	visual and audible	visual and audible	visual and audible	visual and audible	visual and audible
Power failure alarm for 72h	immediately upon power failure	immediately upon power failure	immediately upon power failure	immediately upon power failure	immediately upon power failure	immediately upon power failure
Interface / volt-free contact	RS 485/●	RS 485/●	RS 485/●	RS 485/●	RS 485/●	RS 485/●
Interior light	ceiling lighting, with separate switch	ceiling lighting, with separate switch	–	–	–	–
Adjustable storage shelves	8	4	8	4	8	4
Usable shelf area in mm (w/d)	1263/ 540	533/ 540	1263/ 540	533/ 540	1263/ 540	533/ 540
Shelf material	grid shelves, plastic-coated	grid shelves, plastic-coated	grid shelves, plastic-coated	grid shelves, plastic-coated	grid shelves, plastic-coated	grid shelves, plastic-coated
Shelf loading capacity	60 kg	60 kg	60 kg	60 kg	60 kg	60 kg
Castors	castors with brake at the front, castors at the rear	castors with brake at the front, fixed castors at the rear	castors with brake at the front, castors at the rear	castors with brake at the front, fixed castors at the rear	castors with brake at the front, castors at the rear	castors with brake at the front, fixed castors at the rear
Handle	ergonomic handle	ergonomic handle	ergonomic handle	ergonomic handle	ergonomic handle	ergonomic handle
Lock	●	●	●	●	●	●
Self-closing door	●	●	●	●	●	●
Door hinges	–	right hand, reversible	-	right hand, reversible	-	right hand, reversible
Climate rating	ST	ST	T	T	T	T
Refrigerant	R 290	R 290	R 290	R 290	R 290	R 290
Accessories						
Grid shelf, plastic-coated	7112393	7112393	7112393	7112393	7112393	7112393
U-shaped trayslide, right	9000906	9000906	9000906	9000906	9000906	9000906
U-shaped trayslide, left	9000907	9000907	9000907	9000907	9000907	9000907
Infrared key incl. software	9590555	9590555	9590555	9590555	9590555	9590555
Converter incl. software (serial connection)	9590557	9590557	9590557	9590557	9590557	9590557
NTC product temperature sensor	available from September 2010	available from September 2010	available from September 2010	available from September 2010	available from September 2010	available from September 2010

* according to NF X 15-140 laboratory test procedure: October 2002 at +25°C ambient temperature

Laboratory appliances in compact format

Wherever floor space is limited or under-worktop installation is planned, the Mediline laboratory refrigerators with Comfort electronic controllers are the ideal solution. These appliances meet the exacting demands made of laboratory appliances. The range comprises two freestanding and two under-worktop laboratory refrigerators, in each case with glass door and solid door versions. The temperature can be set from +3°C to +8°C. The forced-air cooling system in conjunction with the precision electronic controller ensures temperature consistency and uniform temperature distribution in the interior. The new LCv 4010 laboratory fridge-freezer further extends the range of compact laboratory appliances. It has two separately adjustable cooling circuits and therefore provides the utmost temperature stability and temperature consistency for both the refrigerator compartment and the freezer compartment.

The Comfort electronic controller

The precision Comfort electronic controller with digital temperature display enables temperatures to be set to 1/10°C accuracy. Symbols indicate the operating status of the appliance at all times. To satisfy laboratory hygiene requirements, the Comfort electronic controller is flush-mounted and has an easy-clean membrane keypad.

Integrated alarm systems

A visual and audible temperature alarm alerts the user if temperature deviation limits are exceeded. The parameters for the temperature alarm can be individually set. In addition, a visual and audible door alarm is raised if the door is open for longer than 1 minute. Furthermore, the laboratory appliances with Comfort electronic controllers have a visual power failure alarm when mains power returns and a sensor defect alarm.
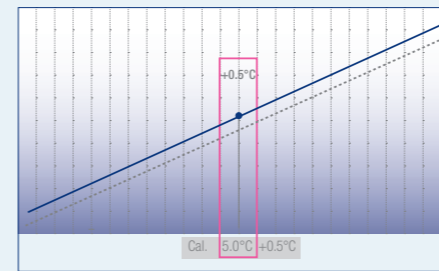
Integrated data memory with min/max temperatures

The Comfort electronic controller has an integrated data memory. It logs the maximum and minimum internal temperatures that occurred once the set temperature was reached, the last three temperature alarms and power failures, together with the time, date and duration of the alarm. The respective data can be recalled using the AlarmLog function and read on the display panel.

1-point calibration

The laboratory appliances with Comfort electronic controllers provide 1-point calibration for accurate temperature control. This permits compensation between the set temperature and the actual internal temperature. Positive or negative changes to the correction value can be made in steps of 0.1K.

Implementation September 2010

External temperature and alarm connections

The laboratory appliances with Comfort electronic controllers are equipped with a volt-free contact for alarm forwarding to an external remote warning system. In addition, the appliances have an RS 485 serial interface for central documentation of the temperature profile data and alarm events.

Maximum temperature stability and temperature consistency

The forced-air cooling system in conjunction with the precision Comfort electronic controller ensures maximum temperature stability and high temperature consistency in the interior. The appliances are equipped with a secondary safety thermostat to prevent temperatures below +2°C in case of a fault. All the laboratory appliances with Comfort electronic controllers are tested according to the NF X 15-140 standard with regard to maximum temperature stability and optimal temperature consistency.
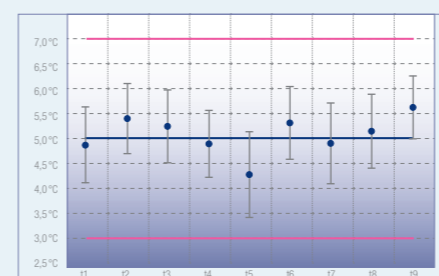
Access port for an external temperature sensor

In the laboratory appliances with Comfort electronic controllers there is provision for an independent temperature sensor allowing, for instance, a PT 100 probe or similar measuring elements to be positioned in the interior. The diameter of the access port is 10 mm.

Hygienic interior for versatile use

The seamless commercial-grade polystyrol inner liner is exceptionally easy to clean. The moulded trayslides prevent the grid shelves from tipping and allow height-adjustment in increments of 32 mm for particularly versatile use of the interior.

Close-mesh grid shelves

The plastic-coated grid shelves are easily adjustable in height and can be removed at a door opening angle of 90°. The close-mesh grid shelves ensure secure storage even for small items. The grid shelves have an extremely high loading capacity of up to 60 kg.

Interior light

The LKv 3912 and LKUv 1612 laboratory refrigerators with glass door have a ceiling light with separate switch for uniform illumination of the interior and fast, direct access to the stored products.
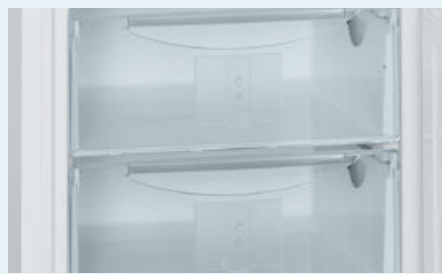
Convenient, clear view drawers

The drawers in the freezer compartment of the LCv 4010 fridge-freezer can be removed at a door opening angle of 90°. They have a transparent front providing a clear view of the substances stored inside, and handles recessed in the sides of the drawers for easy carrying when the drawers are removed. There is the additional possibility of using the freezer compartment just with the two integrated glass shelves as storage areas.

Practical door

The doors are self-closing for convenient use. The integrated lock is exceedingly sturdy and protects the stored products against unauthorised access. The doors hinges are reversible and the gaskets are replaceable.

# Functional and practical accessories

Additional lock barrels

For specific locking requirements, up to 10 lock barrels each with a different key can be retrofitted to the laboratory models with Comfort controllers.

Evaporator cover

A white-coated aluminium evaporator cover is available as a retrofit kit for the LKv, LCv and LKUv models to prevent laboratory preparations from freezing onto the rear-wall evaporator.
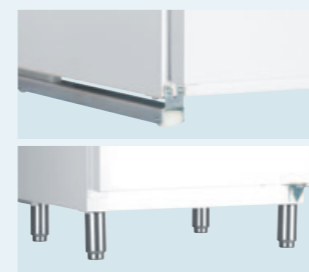
Roller sets and adjustable-height feet

30 mm-high roller sets can be retrofitted to the under-worktop LKUv models and adjustable-height feet can be retrofitted to the LKv models to allow easy cleaning underneath. The feet are adjustable between 115 mm and 170 mm in height.

Plastic-coated grid shelves

Additional plastic-coated grid shelves can be retrofitted as required to provide extra storage options. The robust grid shelves have an extremely high loading capacity of up to 60 kg.

Stacking kit

A stacking kit is available as an accessory for the LKUv, LKUexv and LGUex models. This enables laboratory refrigerators and freezers with independent temperatures to be combined on a small footprint.

NTC product temperature probe

An NTC product temperature probe for logging product temperatures is available as a retrofit kit for the laboratory appliances with Comfort electronic controllers. The logged product temperatures can either be read by the electronic controller or transferred to an external documentation system via the existing RS 485 interface.

Available from September 2010

Interface converter with documentation software

A special interface converter including documentation software is available for central documentation of the temperature profile data and alarm events of multiple appliances via the RS 485 serial interface. Up to 20 laboratory appliances can be networked for central monitoring and temperature recording.

Compatible for laboratory appliances with Comfort electronic controllers from September 2010

Laboratory refrigerators with Comfort electronic controllers

	LKv 3912 Mediline 34 999,- Kč	LKv 3910 Mediline 34 999,- Kč	LKUv 1612 Mediline 29 999,- Kč	LKUv 1610 Mediline 27 999,- Kč
Total gross/net capacity	360/344 l	360/344 l	141/130 l	141/130 l
Exterior dimensions in mm (w/d/h)	600/615/1840	600/615/1840	600/615/820	600/615/820
Interior dimensions in mm (w/d/h)	455/435/1650	455/435/1650	455/435/669	455/435/669
Energy consumption in 24h*	1.3 kWh	0.8 kWh	1.0 kWh	0.7 kWh
General				
Cooling system	dynamic	dynamic	dynamic	dynamic
Defrosting method	automatic	automatic	automatic	automatic
Temperature setting range	+3°C to +8°C	+3°C to +8°C	+3°C to +8°C	+3°C to +8°C
Housing material/colour	steel/white	steel/white	steel/white	steel/white
Door/lid material	glazed door	steel	glazed door	steel
Liner material	white plastic	white plastic	white plastic	white plastic
Type of control	electronic controller	electronic controller	electronic controller	electronic controller
Temperature display	external digital	external digital	external digital	external digital
Status display	●	●	●	●
Temperature and door open alarm	visual and audible	visual and audible	visual and audible	visual and audible
Power failure alarm	when mains power returns	when mains power returns	when mains power returns	when mains power returns
Interface / volt-free contact	RS 485/●	RS 485/●	RS 485/●	RS 485/●
Interior light	ceiling lighting, with separate switch		ceiling lighting, with separate switch	
Adjustable storage shelves	5	5	3	3
Usable shelf area in mm (w/d)	455/420	455/420	455/420	455/420
Shelf material	grid shelves, plastic-coated	grid shelves, plastic-coated	grid shelves, plastic-coated	grid shelves, plastic-coated
Shelf loading capacity	60 kg	60 kg	60 kg	60 kg
Handle	ergonomic slimline handle	ergonomic slimline handle	ergonomic slimline handle	ergonomic slimline handle
Lock	●	●	●	●
Self-closing door	●	●	●	●
Door hinges	right hand, reversible	right hand, reversible	right hand, reversible	right hand, reversible
Climate rating	SN-ST	SN-ST	SN-ST	SN-ST
Refrigerant	R 600a	R 600a	R 600a	R 600a
Accessories				
Grid shelf, plastic-coated	7112313	7112313	7112313	7112313
Stacking kit, white		9876687		9876687
Roller set		9590521		9590521
Evaporator cover, white	9590525	9590525	9590523	9590523
Adjustable legs	9590737	9590737		
NTC product temperature sensor	available from September 2010	available from September 2010	available from September 2010	available from September 2010
Converter incl. software (serial connection)	compatible from September 2010	compatible from September 2010	compatible from September 2010	compatible from September 2010

* according to NF X 15-140 laboratory test procedure: October 2002 at +25°C ambient temperature

Laboratory fridge-freezer with Comfort electronic controllers

		LCv 4010 Mediline 41 999,- Kč
Gross capacity	fridge/freezer comp.	254/107 l
Net capacity	fridge/freezer comp.	240/105 l
Exterior dimensions in mm (w/d/h)		600/615/2000
Interior dimensions in mm (w/d/h)	fridge compartment	455/435/1110
	freezer compartment	431/435/597
Energy consumption in 24h*		1.8 kWh
General		
Cooling system	fridge/freezer comp.	forced-air/static
Defrosting method	fridge/freezer comp.	automatic/manual
Temperature setting range	fridge/freezer comp.	+3°C to +8°C/-9°C to -30°C
Housing material/colour		steel/white
Door/lid material		steel
Liner material		white plastic
Type of control		electronic controller
Temperature display		external digital
Status display		●
Temperature and door open alarm		visual and audible
Power failure alarm		when mains power returns
Interface / volt-free contact		RS 485/●
Adjustable storage shelves	fridge compartment	4
Usable shelf area in mm (w/d)	fridge compartment	455/420
Shelf material	fridge/freezer comp.	grid shelves, plastic-coated/glass
Shelf loading capacity	fridge/freezer comp.	60 kg/40 kg
Number of drawers	freezer compartment	3
Handle		ergonomic slimline door handles
Lock		●
Self-closing doors		●
Door hinges		right interchangeable
Climate rating		SN-ST
Refrigerant		R 600a
Accessories		
Grid shelf, plastic-coated, for	fridge compartment	7112313
Evaporator cover, white, for	fridge compartment	available from September 2010
NTC product temperature sensor		available from September 2010
Converter incl. software (serial connection)		compatible from September 2010

model available from September 2010

* according to NF X 15-140 laboratory test procedure: October 2002 at +25°C ambient temperature

Storage of explosive and highly flammable substances

The range of laboratory appliances with Comfort electronic controllers comprises two refrigerators and two freezers with spark-free interior, especially for storing explosive and highly flammable substances - for instance in the chemical industry or in special laboratories. The interiors of the appliances are in compliance with the safety requirements of the EU Directive 94/9/EC (ATEX 95) and have been tested according to the EN 1127-1, IEC 60079-0 and IEC 60079-15 standards by electro-suisse – SEV (Swiss Association for Electrical Engineering, Power and Information Technologies), the ATEX conformity evaluation organisation.

Certified according to ATEX 95

All laboratory refrigerators and freezers with spark-free interior are tested according to the 94/9 EC (ATEX 95) Directive. They have a Zone II nA interior for gases, taking into account the safety requirements of material category 3G. The appliances are therefore suited for storing explosive and highly flammable substances.

The Comfort electronic controller

The precision Comfort electronic controller with digital temperature display enables temperatures to be set to 1/10°C accuracy. Symbols indicate the operating status of the appliance at all times. To satisfy laboratory hygiene requirements, the Comfort electronic controller is flush-mounted and has an easy-clean membrane keypad.
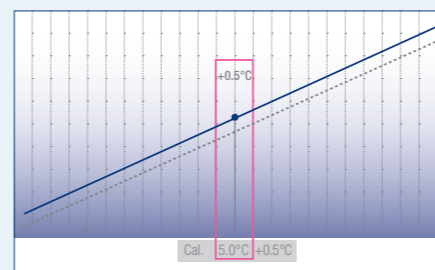
Integrated alarm systems

A visual and audible temperature alarm alerts the user if temperature deviation limits are exceeded. The parameters for the temperature alarm can be individually set. In addition, a visual and audible door alarm is raised if the door is open for longer than 1 minute. Furthermore, the laboratory appliances with Comfort electronic controllers have a visual power failure alarm when mains power returns and a sensor defect alarm.
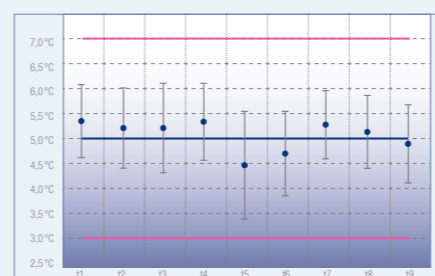
Integrated data memory with min/max temperatures

The Comfort electronic controller has an integrated data memory. It logs the maximum and minimum internal temperatures that occurred once the set temperature was reached, the last three temperature alarms and power failures, together with the time, date and duration of the alarm. The respective data can be recalled using the AlarmLog function and read on the display panel.

1-point calibration

The laboratory appliances with Comfort electronic controllers provide 1-point calibration for accurate temperature control. This permits compensation between the set temperature and the actual internal temperature. Positive or negative changes to the correction value can be made in steps of 0.1K.

Implementation September 2010

Maximum temperature stability and temperature consistency

In conjunction with the precision Comfort electronic controller, the forced-air cooling system of the laboratory refrigerators and the static cooling system of the laboratory freezers with spark-free interior ensure maximum temperature stability and high temperature consistency. The laboratory refrigerators are equipped with a secondary safety thermostat to prevent temperatures below +2°C in case of a fault. All the laboratory appliances with Comfort electronic controllers are tested according to the NF X 15-140 standard with regard to maximum temperature stability and optimal temperature consistency.

External temperature and alarm connections

The laboratory appliances with Comfort electronic controllers are equipped with a volt-free contact for alarm forwarding to an external remote warning system. In addition, the appliances have an RS 485 serial interface for central documentation of the temperature profile data and alarm events.

Access port for an external temperature sensor

In the laboratory appliances with Comfort electronic controllers and spark-free interior there is provision for an independent temperature sensor allowing, for instance, a PT 100 or similar measuring elements to be positioned in the interior. The access port diameter is 10 mm.

Hygienic interior for versatile use

The seamless commercial-grade polystyrol inner liner of the laboratory refrigerators with spark-free interior is exceptionally easy to clean. The moulded trayslides prevent the glass shelves from tipping and allow height-adjustment in increments of 32 mm for particularly versatile use of the interior.

Glass shelves

The glass shelves of the laboratory refrigerators with spark-free interior are easily adjustable in height and can be removed at a door opening angle of 90°. They ensure secure storage even for small items and have a loading capacity of up to 40 kg.

Convenient, clear view drawers

The drawers of the spark-free laboratory freezers can be removed at a door opening angle of 90°. They have a transparent front providing a clear view of the substances stored inside, and handles recessed in the sides of the drawers for easy carrying when the drawers are removed.

Practical door

The doors are self-closing for convenient use. The integrated lock is exceedingly sturdy and protects the stored products against unauthorised access. The door hinges are reversible and the gaskets are replaceable.

# Functional and practical accessories

Additional lock barrels

For specific locking requirements, up to 10 lock barrels each with a different key can be retrofitted to the laboratory models with Comfort controllers.

Evaporator cover

A white-coated aluminium evaporator cover is available as a retrofit kit for the LKexv and LKUexv models to prevent laboratory preparations from freezing onto the rear-wall evaporator.
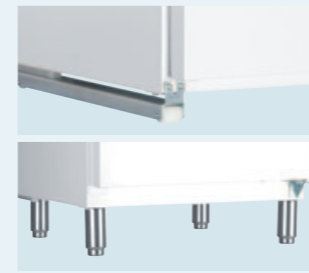
Roller sets and adjustable legs

30 mm-high roller sets can be retrofitted to the under-worktop LKUexv 1610 and LGUex 1500 models and adjustable legs can be retrofitted to the LKexv 3910 and LGex 3410 models to allow easy cleaning underneath. The feet are adjustable between 115 mm and 170 mm in height.

Glass shelves

Additional glass shelves can be retrofitted to the LKexv and LKUexv models as required to provide extra storage options. The robust glass shelves have an extremely high loading capacity of up to 40 kg.

Stacking kit

A stacking kit is available as an accessory for the LKUv, LKUexv and LGUex models. This enables laboratory refrigerators and freezers with independent temperatures to be combined on a small footprint.

NTC product temperature probe

An NTC product temperature probe for logging product temperatures is available as a retrofit kit for the laboratory appliances with Comfort electronic controllers. The logged product temperatures can either be read by the electronic controller or transferred to an external documentation system via the existing RS 485 interface.

available from September 2010

Interface converter with documentation software

A special interface converter including documentation software is available for central documentation of the temperature profile data and alarm events of multiple appliances via the RS 485 serial interface. Up to 20 laboratory appliances can be networked for central monitoring and temperature recording.

Compatible for laboratory appliances with Comfort electronic controllers from September 2010

Laboratory refrigerators and freezers with Comfort electronic controller and spark-free interior

	LKexv 3910 Mediline	LKUexv 1610 Mediline	LGex 3410 Mediline	LGUex 1500 Mediline
Price	**37 999,- Kč**	**28 999,- Kč**	**41 999,- Kč**	**31 999,- Kč**
Total gross/net capacity	360/344 l	141/130 l	310/284 l	139/129 l
Exterior dimensions in mm (w/d/h)	600/615/1840	600/615/820	600/615/1840	600/615/820
Interior dimensions in mm (w/d/h)	455/435/1650	455/435/669	420/400/1587	454/450/663
Energy consumption in 24h*	0.9 kWh	0.9 kWh	1.3 kWh	0.9 kWh
General				
Cooling system	dynamic	dynamic	static	static
Defrosting method	automatic	automatic	manual	manual
Temperature setting range	+3°C to +8°C	+3°C to +8°C	-9°C to -30°C	-9°C to -26°C
Housing material/colour	steel/white	steel/white	steel/white	steel/white
Door/lid material	steel	steel	steel	steel
Liner material	white plastic	white plastic	white plastic	white plastic
Type of control	electronic controller	electronic controller	electronic controller	electronic controller
Temperature display	external digital	external digital	external digital	external digital
Status display	●	●	●	●
Temperature and door open alarm	visual and audible	visual and audible	visual and audible	visual and audible
Power failure alarm	when mains power returns	when mains power returns	when mains power returns	when mains power returns
Interface / volt-free contact	RS 485/●	RS 485/●	RS 485/●	RS 485/●
Adjustable storage shelves	5	3		
Usable shelf area in mm (w/d)	455/420	455/420		
Shelf material	glass	glass	evaporator plates	evaporator plates
Shelf loading capacity	40 kg	40 kg	24 kg	24 kg
Number of drawers/baskets			8/0	3/1
Shelf height in mm			185	149
Handle	ergonomic slimline handle	ergonomic slimline handle	ergonomic slimline handle	ergonomic slimline handle
Lock	●	●	●	●
Self-closing door	●	●	●	●
Door hinges	right hand, reversible	right hand, reversible	right hand, reversible	right hand, reversible
Climate rating	SN-ST	SN-ST	SN-ST	SN-ST
Refrigerant	R 600a	R 600a	R 600a	R 600a
Accessories				
Glass shelf	9293629	9293629		
Stacking kit, white		9876687		9876687
Roller set		9590521		9590521
Evaporator cover, white	9590525	9590523		
Adjustable legs	9590737		9590737	
NTC product temperature sensor	available from September 2010	available from September 2010	available from September 2010	available from September 2010
Converter incl. software (serial connection)	compatible from September 2010	compatible from September 2010	compatible from September 2010	compatible from September 2010

* according to NF X 15-140 laboratory test procedure: October 2002 at +25°C ambient temperature

Robust and spark-free

The laboratory refrigerators with static cooling and spark-free interior are designed especially for storing explosive and highly flammable substances. The interiors of the FKEX models meet all the safety requirements of the EU Directive 94/9EC (ATEX 95). The appliances excel with a large capacity and rugged design. The cooling temperature is continuously adjustable from +2°C to +10°C with the aid of the thermostat integrated in the control panel.

Certified according to ATEX 95

The FKEX models are labelled clearly and permanently on the outer housing and inside in accordance with the ATEX Directive 94/9 EC, including information for cleaning. The interior is in compliance with Zone II nA for gases, taking into account the safety requirements of material category 3G. The appliances are therefore suited for storing explosive and highly flammable substances.

Hygienic interior for versatile use

The seamless plastic compartment liner is exceptionally easy to clean. The moulded trayslides prevent the glass shelves from tipping and allow them to be varied in height.

Glass shelves

The glass shelves ensure secure storage even for small items and have a loading capacity of up to 40 kg.

Water tray

The defrost water drain in the laboratory appliances with spark-free interior is sealed for compliance with the ATEX Directive 94/9 EC. The defrost water obtained during the automatic defrost cycle is collected in a tray which has to be emptied manually at regular intervals.
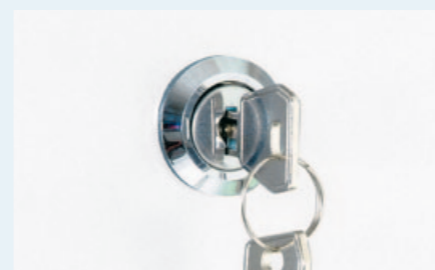
Lock

The integrated lock is exceedingly sturdy and protects the stored products against unauthorised access.
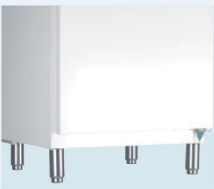
Reversible door hinges

The door hinges of the FKEX models are reversible to permit adaptation to individual space conditions. The door gaskets can also be replaced as required.

CFC/HFC free

Functional and practical accessories

Castor base

A castor base is available as an accessory for the FKEX models to allow flexible use of the appliances in different rooms.

Adjustable legs

Adjustable legs can be retrofitted to the FKEX models for easy cleaning underneath. The legs are adjustable between 115 mm and 170 mm in height.

Glass shelves

Additional glass shelves can be retrofitted as required to provide extra storage options. The robust glass shelves have a loading capacity of up to 40 kg.

Additional lock barrels

For specific locking requirements, up to 10 lock barrels each with a different key can be retrofitted to the FKEX models.

Laboratory refrigerators with analogue controls and spark-free interior	FKEX 5000 Mediline 28 999,- Kč	FKEX 3600 Mediline 27 999,- Kč	FKEX 2600 Mediline 26 999,- Kč	FKEX 1800 Mediline 25 999,- Kč
Total gross/net capacity	500/433 l	360/335 l	260/247 l	180/174 l
Exterior dimensions in mm (w/d/h)	752/710/1516	600/600/1590	600/600/1216	600/600/885
Interior dimensions in mm (w/d/h)	652/537/1338	513/441/1418	513/441/1047	513/441/734
Energy consumption in 24h	0.9 kWh	0.9 kWh	0.8 kWh	0.7 kWh
General				
Cooling system	static	static	static	static
Defrosting method	automatic	automatic	automatic	automatic
Temperature setting range	+2°C to +10 °C	+2°C to +10 °C	+2°C to +10 °C	+2°C to +10 °C
Housing material/colour	steel/white	steel/white	steel/white	steel/white
Door/lid material	steel	steel	steel	steel
Liner material	white plastic	white plastic	white plastic	white plastic
Type of control	mechanical control system	mechanical control system	mechanical control system	mechanical control system
Adjustable storage shelves	5	5	4	3
Shelf material	glass	glass	glass	glass
Usable shelf area in mm (w/d)	652/489	513/405	513/405	513/405
Shelf loading capacity	40 kg	40 kg	40 kg	40 kg
Handle	●	●	●	●
Lock	●	●	●	●
Door hinges	right hand, reversible	right hand, reversible	right hand, reversible	right hand, reversible
Gross/net weight	78/73 kg	62/58 kg	48/45 kg	39/36 kg
Climate rating	SN	SN	SN	SN
Refrigerant	R 600a	R 600a	R 600a	R 600a
Accessories				
Glass shelf	9293689	9293691	9293691	9293691
Castor base	9086957	9086959	9086781	9086781
Set of adjustable legs	9590963	9590965	9590965	9590965

Uvedené ceny jsou bezu DPH

Uvedené ceny jsou bezu DPH

Laboratory -45°C
chest freezers
with Comfort controller

LIEBHERR

Laboratory refrigerators and freezers

Laboratory -45°C chest freezers with Comfort controller

Gefrieren FKW frei

35 999,- Kč   33 999,- Kč

LGT 4725 / LGT 3725

LGT 2325

28 999,- Kč

Based on domestic models:
GTP 2356, GT 3756, GT 4756

- Gross/net capacities: 459 / 431 litres (LGT 4725)
  365 / 342 litres (LGT 3725)
  215 / 200 litres (LGT 2325)
- Dimensions in mm: 1648 x 808 x 919 (LGT 4725)
  (W x D x H): 1373 x 808 x 919 (LGT 3725)
  1132 x 760 x 919 (LGT 2325)
- Cooling system: static (aluminium tubing around the inner liner)
- Manual defrost
- Temperature range: -10°C to -45°C
- External finish: white powder-coated
- Inner liner in stucco aluminium, white painted
- Interior light integrated in the lid
- Electronic controller (Carel PowerCompact)
- Visual and audible temperature and lid-open alarm
- Visual power failure alarm when mains power returns
- RS 485 serial interface and volt-free contact
- Interface for NTC product probe
- "Commercial" aluminium handle with lock as standard
- Insulation: 100 mm (LGT 47.., LGT 37..) and 120 mm (LGT 23..)
- Climate rating SN (4)
- Refrigerant R 290

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Laboratory refrigerators and freezers

LGT 4725 / LGT 3725 / LGT 2325

Comfort controller with 1/10°C digital temperature display and symbols for indicating operating status

Visual and audible temperature and lid alarm; visual power failure alarm when mains power returns
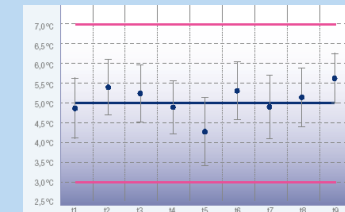

Min./max. temperature memory; last three temperature alarm and power failure events are stored

1-point calibration for compensation between the display temperature and the actual internal temperature

Volt-free contact and RS 485 serial interface for external temperature and alarm documentation

Max. temperature stability and temperature constancy according to NF X 15-140 standard

LIEBHERR

Laboratory refrigerators and freezers

LGT 4725 / LGT 3725 / LGT 2325

The controller and interfaces are in a waterproof polystyrol housing at the rear of the freezer. The controller inclined forward by 5° for an improved visibility

Inner liner in white-painted Stucco aluminium – hygienic design
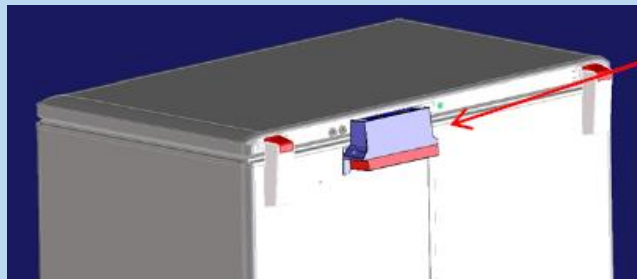
Reinforced lid hinges (as on GTL chest freezers) ensure high stability for frequent lid opening and closing
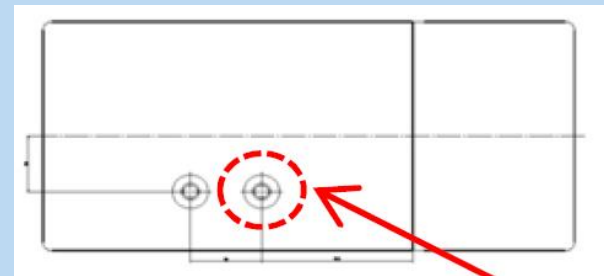
An access port (Ø 17mm) for an external temperature probe is provided in the base, 120 mm from the defrost water drain

Sealing material is supplied as standard to properly sealed the cable of an external temperature probe

LIEBHERR
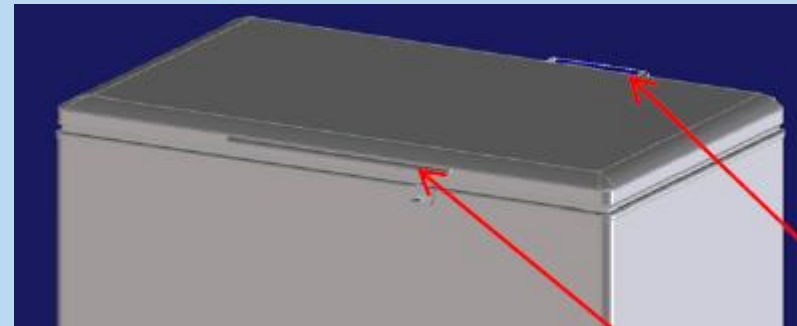
Laboratory refrigerators and freezers

LGT 4725 / LGT 3725 / LGT 2325

Interior light integrated in the lid
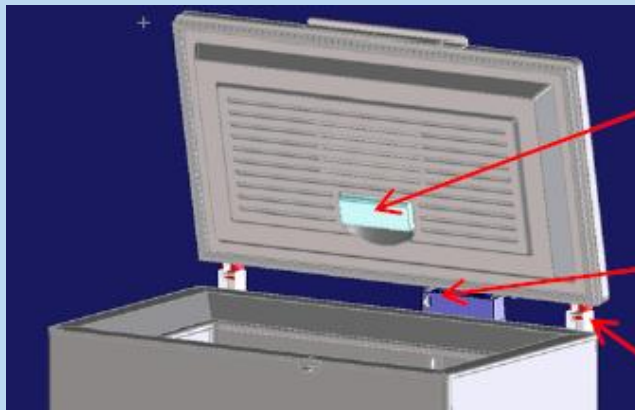
Tough aluminium handle (as on GTL) ensures high stability for frequent lid opening and closing and potentially high vacuum

Lock to protect products from unauthorised access. (There is no alternative lock barrel option with different keys for this type of lock)
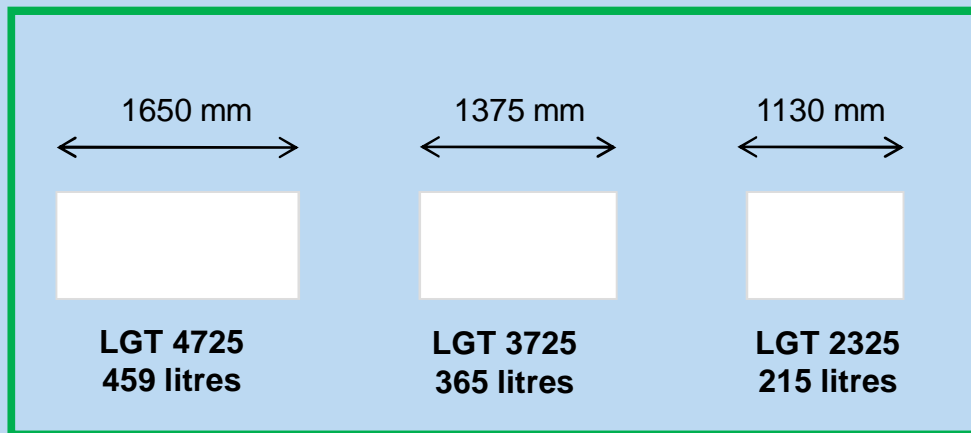
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Laboratory refrigerators and freezers

Laboratory -45°C chest freezers
with Comfort controller

Gefrieren **FKW frei**

LGT Models 2012:

1650 mm ⟷   1375 mm ⟷   1130 mm ⟷

LGT 4725   **LGT 3725**   **LGT 2325**
459 litres   **365 litres**   **215 litres**

External finish: white

New appliances

LIEBHERR

Pharmacy refrigerators to DIN 58345

LIEBHERR

Laboratory refrigerators and freezers
Pharmacy refrigerators to DIN 58345

Kühlen | FKW frei

MKv 3912 / MKv 3910

39 999,- Kč **36 999,- Kč**

- Gross/net capacity: 360 / 344 litres
- Dimensions in mm (W x D x H): 600 x 615 x 1840
- Energy consumption in 24h*: 1.3 kWh (MKv 3912) / 0.8 kWh (MKv 3910)
- Forced-air cooling system
- Automatic off-cycle defrost
- Factory set temperature +5°C: cannot be changed by the user
- Comfort controller (CarelPowerCompact)
- Reference product temperature probe sited at the warmest point in the cabinet. The controller displays this probe temperature.
- Hi-low temperature alarm – limits of +2° & +8°C and alarm delay cannot be changed
- Audible power failure alarm for 12h immediately upon power failure
- RS 485 interface / volt-free contact
- Ceiling light with separate switch (MKv 3912)
- 5 adjustable wire shelves, white plastic-coated
- Ergonomic slimline handle
- Lock
- Right-hand door hinges, reversible on site
- Climate rating SN-ST
- Refrigerant R 600a

Uvedené ceny jsou bez DPH

* according to NFX 15-140 with an ambient temperature of 25°C

LIEBHERR

Laboratory refrigerators and freezers
Pharmacy refrigerators to DIN 58345

32 999,- Kč

MKUv 1612 /
MKUv 1610

30 999,- Kč

- Gross/net capacity: 141 / 130 litres
- Dimensions in mm (W x D x H): 600 x 615 x 820
- Energy consumption in 24h*: 1.0 kWh (MKUv 1612) / 0.7 kWh (MKUv 1610)
- Forced-air cooling system
- Automatic off-cycle defrost
- Factory set temperature +5°C: cannot be changed by the user
- Comfort controller (CarelPowerCompact)
- Reference product temperature probe sited at the warmest point in the cabinet. The controller displays this probe temperature.
- Hi-low temperature alarm – limits of +2° & +8°C and alarm delay cannot be changed
- Audible power failure alarm for 12h immediately upon power failure
- RS 485 interface / volt-free contact
- Ceiling light with separate switch (MKUv 1612)
- 3 adjustable wire shelves, white plastic-coated
- Ergonomic slimline handle
- Lock
- Right-hand door hinges, reversible on site
- Climate rating SN-ST
- Refrigerant R 600a

Uvedené ceny jsou bez DPH

*according to NFX 15-140 with an ambient temperature of 25°C

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Laboratory refrigerators and freezers
Pharmacy refrigerators to DIN 58345

MKv / MKUv models – requirements to DIN 58345

The MKv 3912 / MKv 3910 / MKUv 1612 and MKUv 1610 pharmaceutical refrigerators comply with DIN 58345 and are based on the LKv 3912, LKv 3910, LKUv 1612 and LKUv 1610 laboratory refrigerators.

To comply to DIN 58345 the pharmacy refrigerators fulfill the following additional requirements:

At the factory:

■ A product temperature probe is fitted at the warmest point in the interior. The controller displays the product probe temperature i.e. the most critical and warmest temperature is constantly displayed.

■ The controller is factory-set to +5°C to ensure that the internal temperature of 2°C to 8°C required by DIN 58345 is constantly held at ambient temperatures of +10°C to +35°C – no adjustment by the customer is permitted.

■ The temperature alarm delay is set to 30 minutes – no adjustment by the customer is permitted.

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Laboratory refrigerators and freezers
Pharmacy refrigerators to DIN 58345

■ Pharmacy refrigerators must have an audible power failure alarm which must be connected by the customer. This is stipulated accordingly in the operating manual.

■ Indication on the pharmacy refrigerators and in the operating manuals that compliance with DIN 58345 is only guaranteed when using the factory settings. Any adjustment of the settings invalidates compliance to DIN 58345 .

■ Key measurements to DIN 58345 like energy consumption, alarm times, relative compressor run-time and storage period in the event of power failure must be quoted in the product documentation

By the customer:

■ Connection of the power failure alarm as specified in the operating manual.

■ Reset of the min./max. temperature memory once the preset temperature of +5°C has been reached for the first time. This is specified in the operating manual.

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Laboratory refrigerators and freezers
Pharmacy refrigerators to DIN 58345

MKv 3912 / MKv 3910 / MKUv 1612 / MKUv 1610

Comfort controller with 1/10°C digital temperature display and symbols for indicating operating status
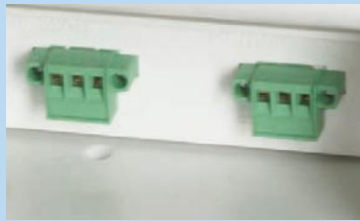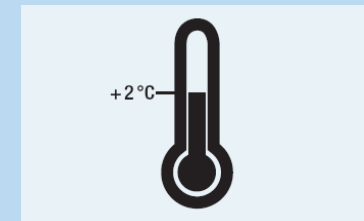
Visual and audible temperature and door opening alarm

Min./max. temperature memory; last three temperature alarm and power failure events are saved

Product temperature probe to display the warmest internal temperature

Volt-free contact and RS 485 serial interface for external temperature and alarm documentation

Safety thermostat to avoid temperatures below +2°C

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MKv 3912 / MKv 3910 / MKUv 1612 / MKUv 1610

Access port (Ø 10 mm) for an independent temperature probe

Seamless plastic inner liner for perfect hygiene

Narrow-mesh wire shelves ensure that items do not tip over. The shelves are removable at 90°door opening

Self-closing door with integrated lock protects the products from unauthorised access

Power failure alarm gives audible and visual signals for at least 12 hours (built-in battery) immediately in case of a power failure. The alarm can also be muted with the reset button.

The volume of the alarm signal is approx. 85 dBA !

The cabinet plug is fixed with 2 screws and cannot be unintentionally removed from the alarm socket.
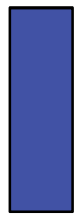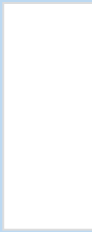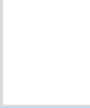
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Laboratory refrigerators and freezers
Pharmacy refrigerators to DIN 58345

MKv / MKUv Models 2012:

MKv 3912 Glass door	**MKv 3910** Solid door	**MKUv 1612** Glass door	**MKUv 1610** Solid door

Door steel white

Glass door

New appliances

LIEBHERR

Laboratory appliances LKPv 8420 and LGPv 8420

LIEBHERR

Laboratory refrigerators and freezers
Laboratory appliances LKPv 8420 and LGPv 8420

Kühlen · Gefrieren · FKW frei

112 999,- Kč   127 999,- Kč

LKPv 8420 / LGPv 8420

Based on bakery models:
BKPv 8420 / BGPv 8420

- Gross capacity: 856 litres
- Exterior dimensions in mm (W x D x H): 790 x 980 x 2150
- Interior dimensions in mm (W x D x H): 623 x 800 x 1550
- Forced-air cooling system
- Automatic off-cycle defrost
- Temperature range: -2°C to +16°C (LKPv 8420)
                                      -10°C to -35°C (LGPv 8420)
- Steel housing white powder-coated
- Inner liner in 304-grade stainless steel
- Electronic controller with real time display (EVCO)
- Digital temperature display
- Visual and audible temperature and door alarm
- Power failure alarm for 72h immediately upon power failure
- RS 485 serial interface and volt-free contact
- Interface for NTC product temperature probe
- 4 adjustable plastic-coated wire shelves
- Shelf size 600mm x 800mm
- Swivel castors with brake at the front, fixed castors at the rear
- Ergonomic handle and lock
- Self-closing door, right hand, reversible
- Climate rating T (at -18°C on freezer)
- Refrigerant R 290

Uvedené ceny jsou bez DPH

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