



## Cool boxes and accessories



**Inhabergeführt**

**Locally Rooted**

**Flexibel**      **Weltoffen**

**International**

**Owner-Managed**

**Hohe Qualität**

**Heimatverbunden**

**Individual**

**High Quality**

**Service**

**Nachhaltig**

**Sustainable**

**Individuell**

**Cosmopolitan**



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# TM Company



## TM – Company

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The owner-run family business **TM** Technischer Gerätebau GmbH was originally developed from an electrical wholesalers which still exists to this day. The company, which was officially launched by Hermann Fixl in 1991, started off by constructing cool boxes for the automotive industry and developed into what it is today. **TM** has its headquarters in Neu-Ulm and is now run by the fourth generation of the founding family.



## TM – Specialist

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Known as a refrigeration and small-scale assembly specialist, **TM** perfectly serves its niche markets in particular. Product solutions are designed and implemented in-house and independently or manufactured according to the customer's detailed specifications.

Our products are used in mobile as well as static installations. Speed, flexibility and many years of experience in manufacturing and development make the company a strong and reliable partner in the industry.



## TM – Products

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Since its founding, **TM** has been producing components for mobile passenger services, mainly used in buses as well as in trucks and rail vehicles. **TM** has developed product solutions for a wide range of applications over the years and has firmly established itself in a wide range of industries such as, for example, in the field of fully automatic coffee machines.

The wide-ranging product portfolio includes the classic dashboard cool box, board kitchens and toilets for the bus industry as well as milk coolers for coffee machines, and many more.





## TM – International

In 2007, **TM** established a subsidiary company near Istanbul to respond to increasing globalisation and the integration of markets. **TM-Turkey** mainly operates in the expanding bus and truck sector in its home market, as well as in neighbouring Arab countries.

In the same year, Jincen-**TM** was established as a joint venture company in China's Anhui Province to serve the Chinese market and to create more synergies. The Chinese company is mainly focused on producing injection moulded parts for the automotive, electrical and household industries as well as assembling on-board kitchens and cool boxes.

Being close to our customers and quick response times are of paramount importance for **TM** so our customers can rely on a Europe-wide network of service partners. **TM** can guarantee a seamless and fast on-site service through the continuous expansion of our partners.



## TM – Philosophy

**TM Technischer Gerätebau GmbH** is a family-run business, distinguished by our short and direct lines of communication, as well as continuity.

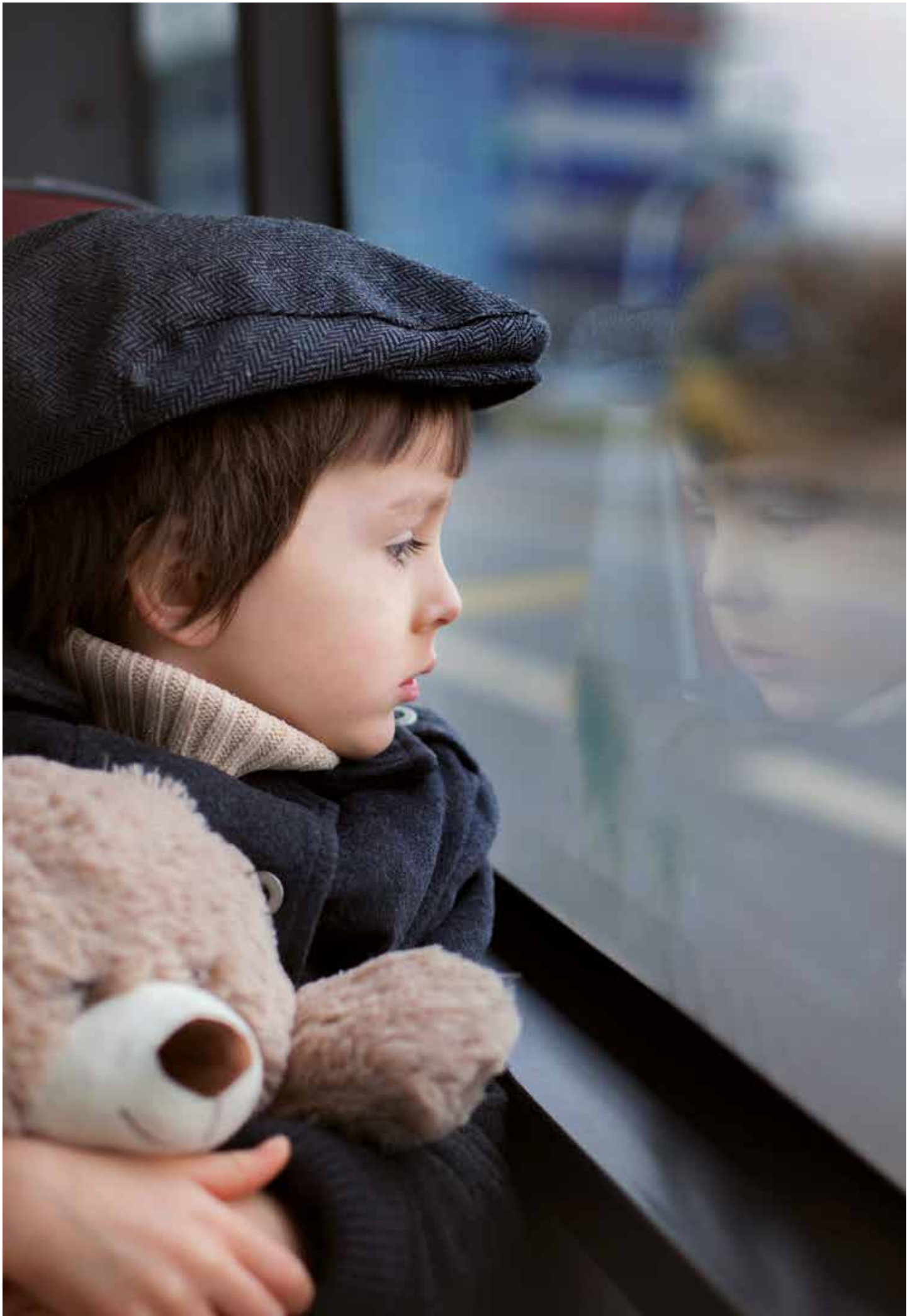
From product design, through quality assurance of the materials used, right up to the final product test, we place the highest value on the perfect processing and precision of our products. Naturally, our products are certified according to relevant EU directives as well as our quality management system being certified according to ISO guidelines.

## TM – Customer satisfaction

Innovative concepts to a high technical standard, together with excellent materials and processing quality, create outstanding products. Our product solutions are constantly setting new standards due to their functionality, compact dimensions and attractive design.

Experience, reliability, quality and long-term success are the building blocks of the current product range and the foundation for satisfied customers throughout the world.





# On the way home



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## **Cool boxes by TM**

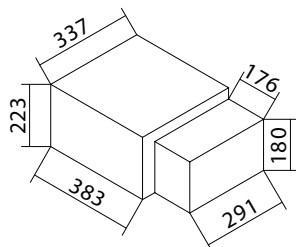
We have a wide variety of cool boxes for you to choose from.  
We are happy to advise you – ask our specialists!

# Bus and truck cool box available over-the-counter

## TM BASIC

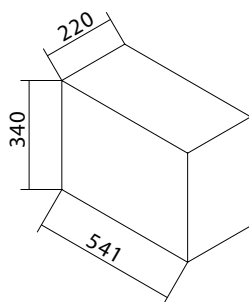
Universal and mobile cool box for bus und truck  
KBU series: For the installation in e.g. mini and midibuses

### Type KBU 15 horizontal



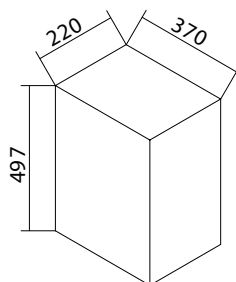
<b>order no.:</b>	01.1515.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	15,5 kg
<b>volume:</b>	15 l

### Type KBU 15 vertical rear



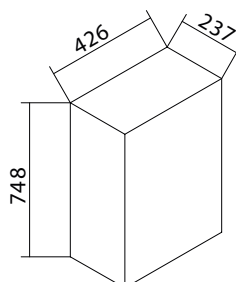
<b>order no.:</b>	01.1516.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	15,5 kg
<b>volume:</b>	15 l

### Type KBU 15 vertical below



<b>order no.:</b>	01.1517.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	15 kg
<b>volume:</b>	15 l

### Type KBU 40



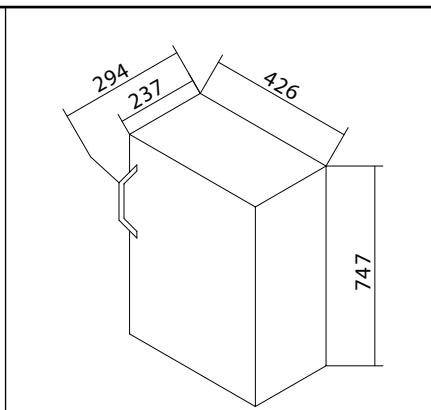
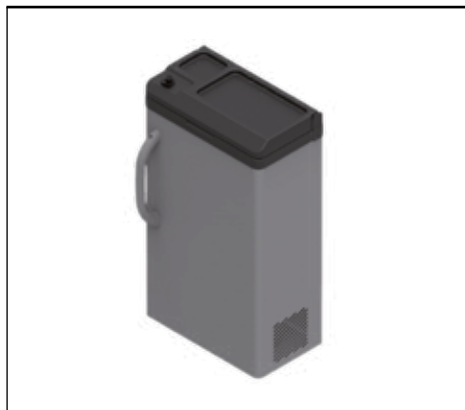
<b>order no.:</b>	01.1570.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	22 kg
<b>volume:</b>	40 l



# Bus and truck cool box available over-the-counter

## TM BASIC

### Type KBU 40 with handle



**order no.:**

01.1577.00.00

**voltage:** 12/24 V DC

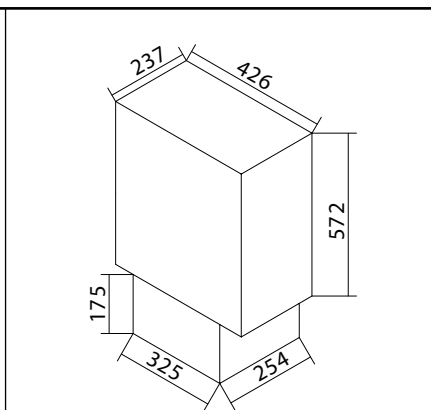
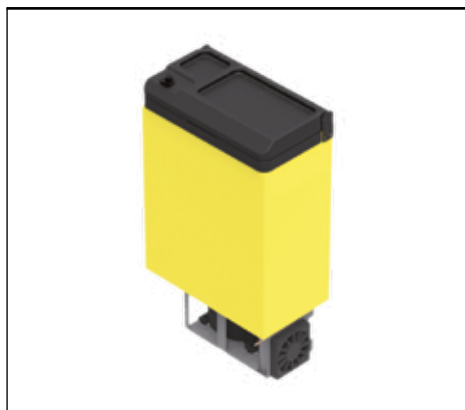
**power:** 35 W

**current consumption:** 3,0/1,5 A

**weight:** 22 kg

**volume:** 40 l

### Type KBU 40 installation



**order no.:**

01.1572.00.00

**voltage:** 12/24 V DC

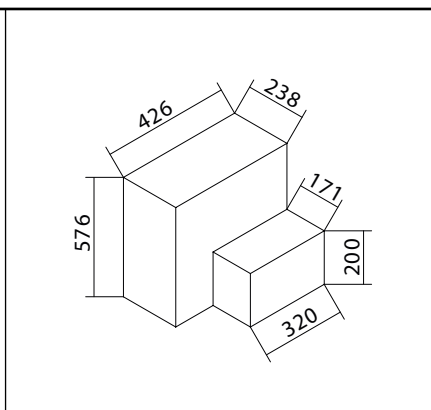
**power:** 35 W

**current consumption:** 3,0/1,5 A

**weight:** 22 kg

**volume:** 40 l

### Type KBU 40 refrigeration unit at the rear



**order no.:**

01.1578.00.00

**voltage:** 12/24 V DC

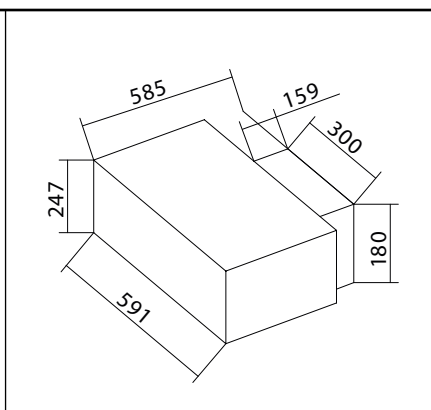
**power:** 35 W

**current consumption:** 3,0/1,5 A

**weight:** 22 kg

**volume:** 40 l

### Type KBU 40 horizontal



**order no.:**

01.1579.00.00

**voltage:** 12/24 V DC

**power:** 35 W

**current consumption:** 3,0/1,5 A

**weight:** 22 kg

**volume:** 40 l

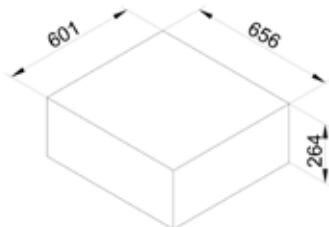
# Bus and truck cool box available over-the-counter

## TM BASIC

Universal and mobile cool box for bus und truck  
KBU series: For the installation in e.g. mini and midibuses

### Type KBU 43

NEW!



**order no.:**

01.1585.00.00

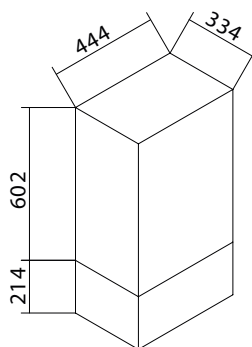
**voltage:** 12/24 V DC

**power:** 35 W

**current consumption:** 3,0/1,5 A

**volume:** 40 l

### Type KBU standard



**order no.:**

01.1559.00.00

**voltage:** 12/24 V DC

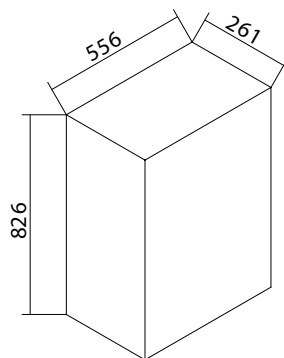
**power:** 35 W

**current consumption:** 3,0/1,5 A

**weight:** 25 kg

**volume:** 58 l

### Type KBU 60



**order no.:**

01.1560.00.00

**voltage:** 12/24 V DC

**power:** 35 W

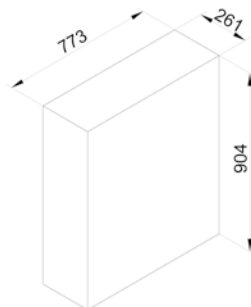
**current consumption:** 3,0/1,5 A

**weight:** 26 kg

**volume:** 58 l

### Type KBU 80

NEW!



**order no.:**

01.1584.00.00

**voltage:** 12/24 V DC

**power:** 35 W

**current consumption:** 3,0/1,5 A

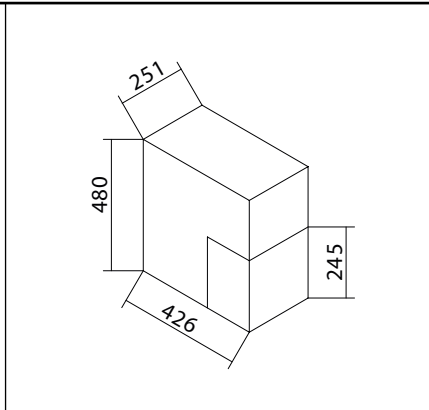
**weight:** 36 kg

**volume:** 82 l

# Bus and truck cool box available over-the-counter

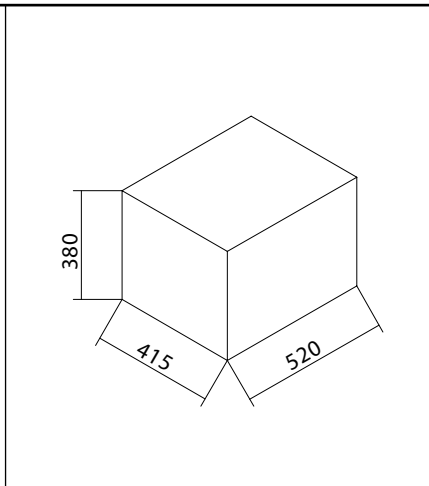
Universal and mobile cool box for bus und truck  
CoolFix series: For the installation in e.g. caravans, boats,  
mini and midibuses

## Type CoolFix Mini



<b>order no.:</b>	01.0210.00.00
<b>voltage:</b>	12/24 V DC
<b>undervoltage protection:</b>	11,3 / 24,6 V
<b>power:</b>	54 W
<b>current consumption:</b>	4,6 / 2,3 A
<b>thermostat:</b>	infinitely variable
<b>weight:</b>	17 kg
<b>volume:</b>	20 l

## Type CoolFix 30

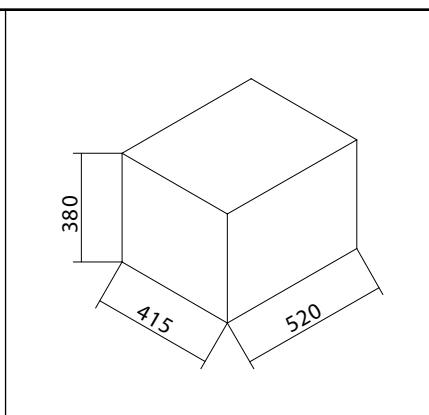


<b>order no.:</b>	01.0225.00.00 01.0226.00.00 with separating grid
<b>voltage:</b>	12/24 V DC
<b>undervoltage protection:</b>	10,4/22,8 V
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>thermostat:</b>	infinitely variable
<b>weight:</b>	18 kg
<b>volume:</b>	30 l
<b>mounting kit order no.:</b>	01.0225.00.01 universal 50.0225.00.02 ACTROS not for Megaspacer

## Type CoolFix 30



Solar module not included  
in scope of delivery.



<b>order no.:</b>	01.0228.00.00 suitable for solar energy 01.0229.00.00 with separating grid
<b>voltage:</b>	12/24 V DC
<b>undervoltage protection:</b>	10,4/22,8 V
<b>power:</b>	35 W
<b>current consumption:</b>	23,0/1,5 A
<b>thermostat:</b>	infinitely variable
<b>weight:</b>	18 kg
<b>volume:</b>	30 l

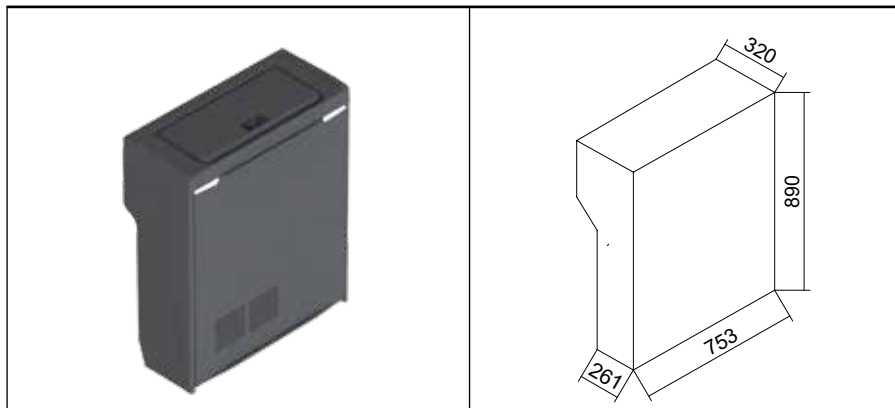




# Bus and truck cool box available over-the-counter

Universal and mobile cool box for bus und truck  
KT series: For the installation in e.g. mini and midibuses

## Type KT 80



### order no.:

01.4038.00.00

**voltage:** 12 / 24 V DC

**power:** 60 W

**current consumption:** 5,0 / 2,5 A

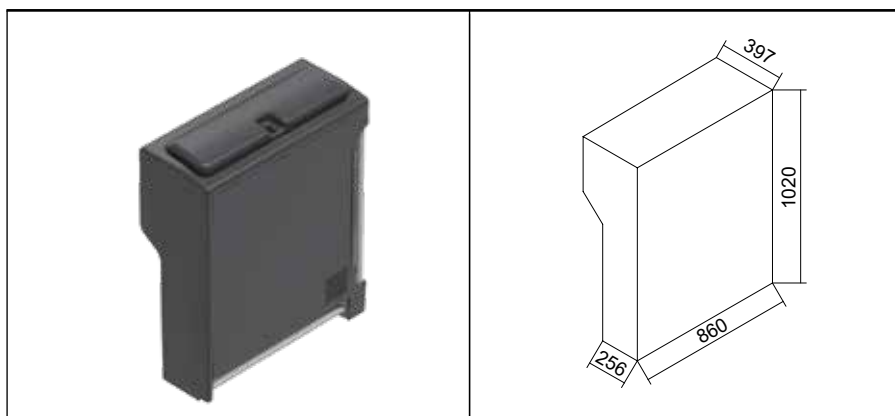
**weight:** 42 kg

**volume:** 80 l

### scope of delivery 01.4038.00.00:

- folding table
- luggage net
- cup holder

## Type KT 100



### order no.:

01.3040.00.00

**voltage:** 12 / 24 V DC

**power:** 60 W

**current consumption:** 4,6 / 2,3 A

**weight:** 56 kg

**volume:** 100 l

No head crash test, rear passengers must be secured with a three-point seatbelt.

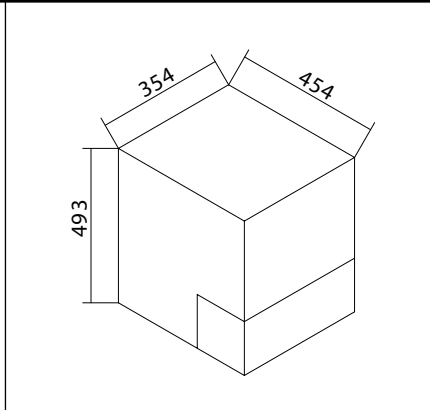
### scope of delivery 01.3040.00.00:

- cup holder
- luggage net

# Bus and truck cool box available over-the-counter

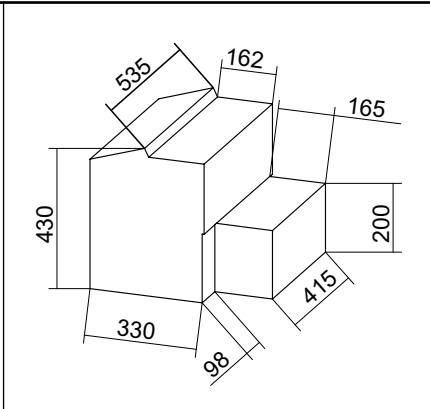
Universal and mobile cool box for bus und truck  
Built in cool box: For installation in transporters, trucks and touring coaches e.g. in the dashboard area

## Type KT-Outdoor



<b>order no.:</b>	01.2700.00.00
<b>voltage:</b>	12/24/230 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5/0,5 A
<b>weight:</b>	17 kg
<b>volume:</b>	35 l

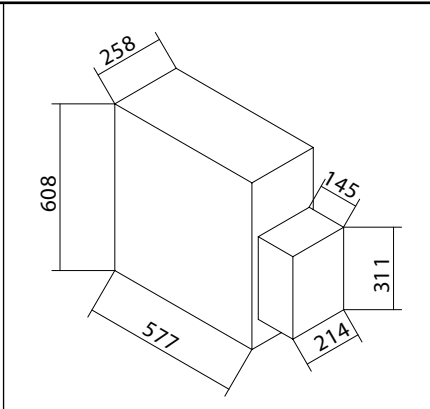
## Type Transporter cool box



<b>order no.:</b>	01.1460.00.00
	01.1462.00.00 for right-hand drive vehicles
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	17 kg
<b>volume:</b>	40 l

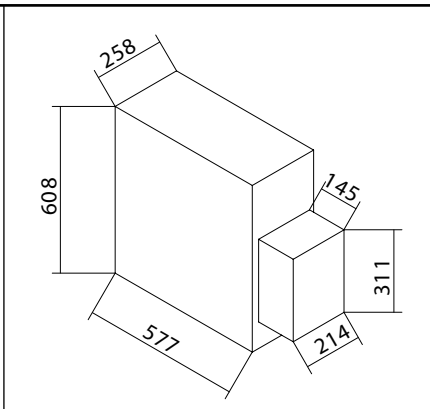
Ideal for installation in the dashboard area of transporters and mini/midibuses

## Type A-KT TM



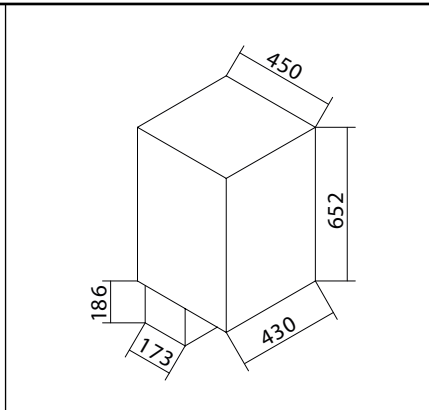
<b>order no.:</b>	01.2000.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	18 kg
<b>volume:</b>	60 l

## Type A-KT TM



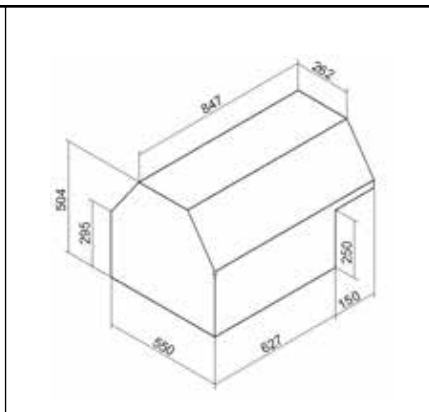
<b>order no.:</b>	P01.2001.00.00 without lid
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	14 kg
<b>volume:</b>	60 l

## Type A-KT Volvo



<b>order no.:</b>	01.1301.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	18 kg
<b>volume:</b>	60 l

## Type Trapezoid refrigerator



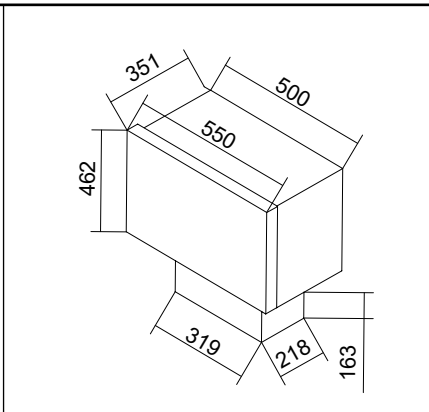
<b>order no.:</b>	01.9001.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	34 kg
<b>volume:</b>	87 l



# Bus and truck cool box available over-the-counter

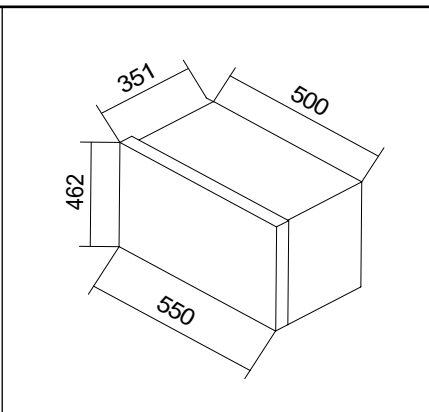
## Mobile cool box for medicine transport

Ambulance series: For the installation in e.g. the side-panel of rescue vehicles



### Type Ambulance

<b>order no.:</b>	
01.1210.00.00	normal cooling
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	19 kg
<b>volume:</b>	34 l
<b>temperature range:</b>	+11,0 to -4,5°C
<b>order no.:</b>	
01.1211.00.00	freezer
<b>voltage:</b>	12/24 V DC
<b>power:</b>	90 W
<b>current consumption:</b>	7,5/3,8 A
<b>weight:</b>	19 kg
<b>volume:</b>	34 l
<b>temperature range:</b>	+7,5 to -22,0°C

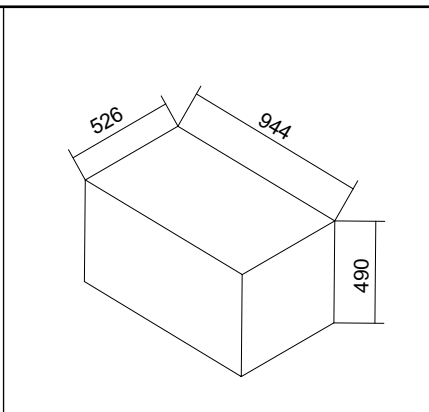


### Type Ambulance temperate

<b>order no.:</b>	
S01.1210.00.00	hot cabinet, controllable by thermostat
<b>voltage:</b>	12/24 V DC
<b>power:</b>	25 W
<b>current consumption:</b>	2,0 A
<b>weight:</b>	12 kg
<b>volume:</b>	34 l
<b>temperature range:</b>	+30,0 to +35°C

## Mobile cool box for blood and medicine transport

BTK series: For the transportation of e.g. blood samples or other sensitive medicines which need to be cooled from +4°C to +8°C



### Type BTK

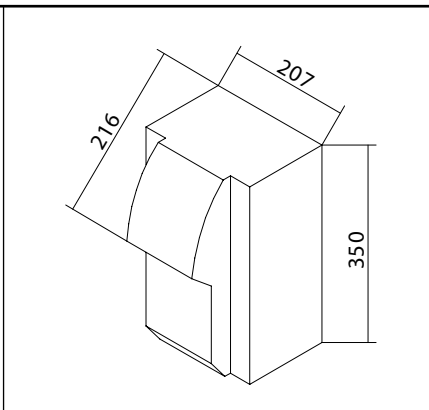
<b>order no.:</b>	
01.1215.00.00	
<b>voltage:</b>	12/24 V DC
<b>undervoltage protection:</b>	10,4/22,8 A
<b>power:</b>	93 W
<b>current consumption:</b>	7,8/3,9 A
<b>weight:</b>	40 kg
<b>volume:</b>	105 l
<b>temperature range:</b>	+4,0 to +8°C

# Bus and truck cool box available over-the-counter

## Cool boxes with thermoelectric cooling technology – Peltier

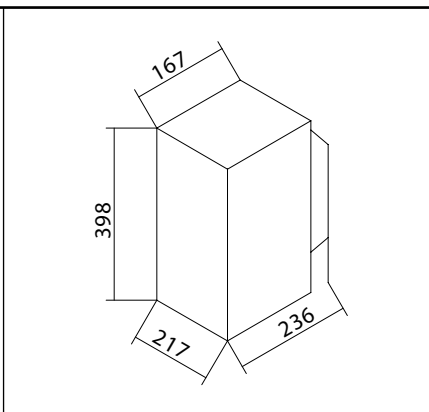
Summertime series: Abrasion and maintenance free technology, high cooling capacity by a peltier element. Efficiency up to 22° C to ambient temperature.

### Type Summertime E



<b>order no.:</b>	01.0016.00.00
<b>voltage:</b>	24 V DC
<b>power:</b>	36 W
<b>current consumption:</b>	1,5 A
<b>weight:</b>	4,5 kg
<b>volume:</b>	4,6 l

### Type Summertime 2

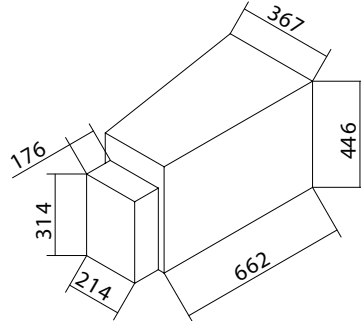


<b>order no.:</b>	01.0024.00.00
<b>voltage:</b>	12/ 24 V DC
<b>power:</b>	36 W
<b>current consumption:</b>	1,5/3,0 A
<b>weight:</b>	2,9 kg
<b>volume:</b>	5,5 l

# Bus and truck cool box customer-specific

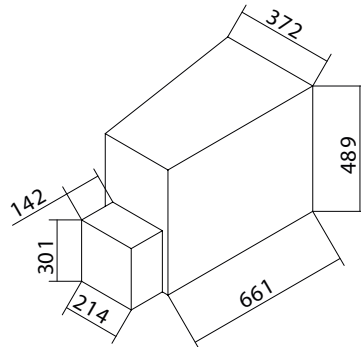
Cool boxes for EVOBUS – MERCEDES BENZ  
Series 400

## Type KTD 583/57 Liter TRAVEGO from 11/2008



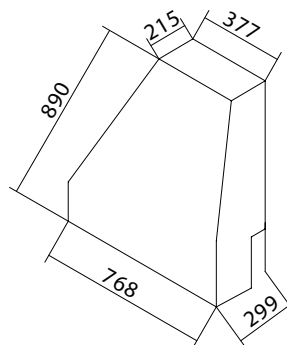
<b>order no.:</b>	01.0583.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5/2,5 A
<b>weight:</b>	16 kg
<b>volume:</b>	57 l

## Type KTD 580 TRAVEGO HD/HDH



<b>order no.:</b>	01.0580.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	50 W
<b>current consumption:</b>	4,0/2,0 A
<b>weight:</b>	18 kg
<b>volume:</b>	65 l

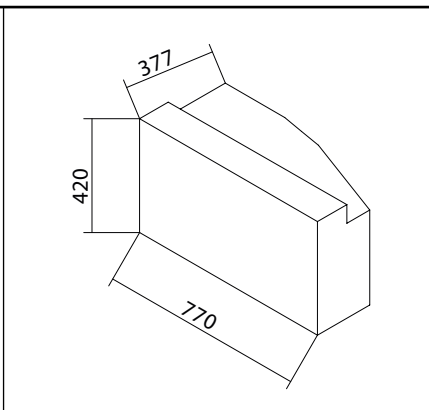
## Type KTS 590 Toilet annex TRAVEGO



<b>order no.:</b>	01.0590.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	23 kg
<b>volume:</b>	60 l



## Type KTS 327 SETRA S 315 UL/H



**order no.:**

01.0327.00.00

**voltage:** 12/24 V DC

**power:** 35 W

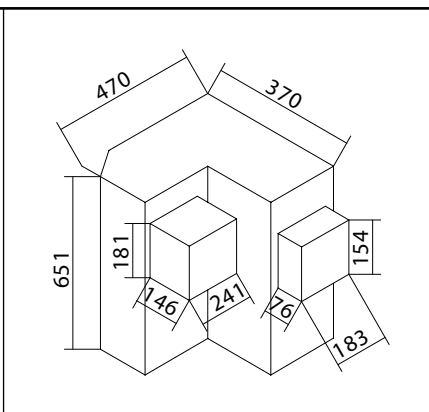
**current consumption:** 3,0/1,5 A

**weight:** 18 kg

**volume:** 43 l

1 separating grid

## Type KTS 364 SETRA S 328 DT



**order no.:**

01.3640.00.00

**voltage:** 12/24 V DC

**power:** 35 W

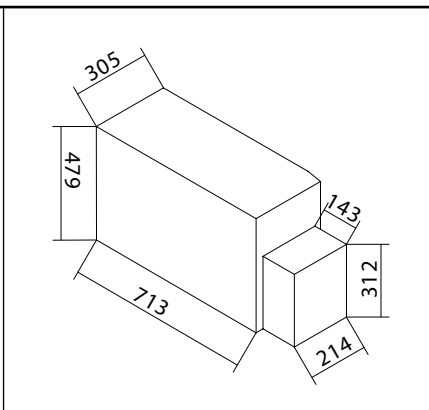
**current consumption:** 3,0/1,5 A

**weight:** 26 kg

**volume:** 60 l

Assembled on removable floor panel;  
digital temperature indicator

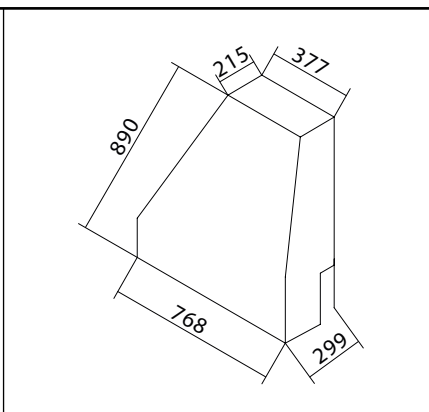
## Type KTS 410 SETRA 411/415 HD/415 HDH



<b>order no.:</b>	01.4100.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	50 W
<b>current consumption:</b>	4,0/2,0 A
<b>weight:</b>	19 kg
<b>volume:</b>	56 l

2 separating grids

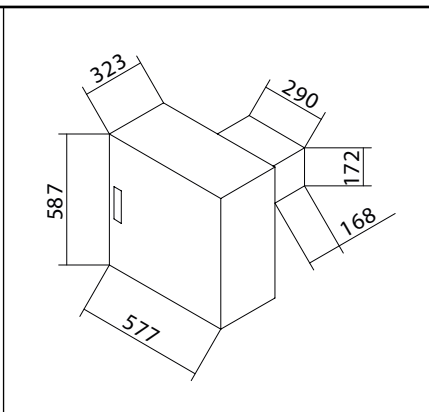
## Type KTS 590 toilet annex SETRA series 300 + 400



<b>order no.:</b>	01.0590.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	23 kg
<b>volume:</b>	60 l

stainless steel inside

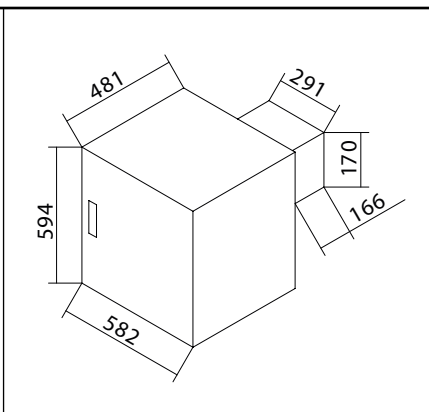
## Type KTS 440 SETRA 415/417 HDH – three-axle



<b>order no.:</b>	01.4400.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	25 kg
<b>volume:</b>	65 l

Adjustable internal floor; stainless steel inside

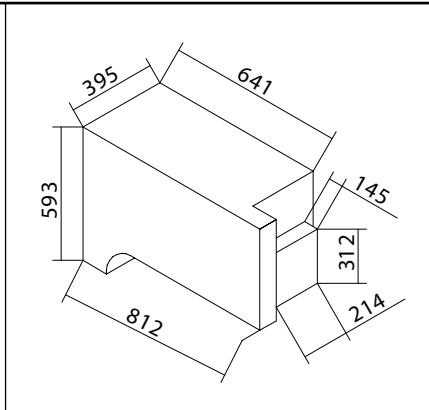
## Type KTS 450 SETRA 415/417 HDH – three-axle



<b>order no.:</b>	01.4500.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	50 W
<b>current consumption:</b>	4,0/2,0 A
<b>weight:</b>	27 kg
<b>volume:</b>	110 l

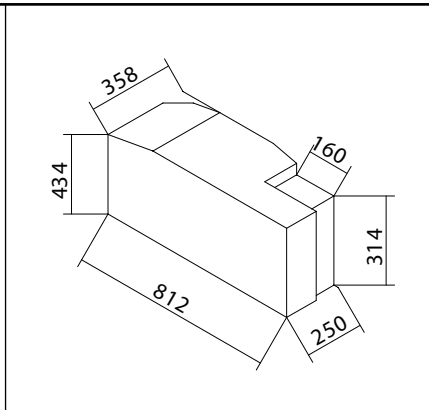
Adjustable internal floor; stainless steel inside

**Type KTS 460**  
**SETRA 415 GT/415 GT-HD/**  
**416 GT-HD/417 GT-HD**



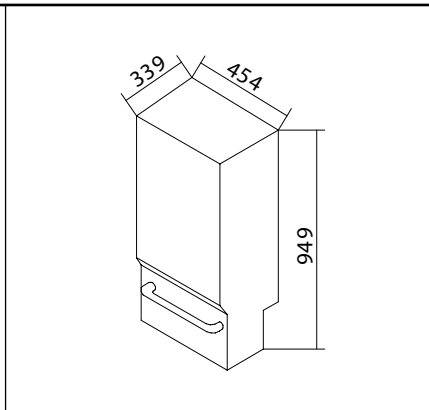
<b>order no.:</b>	01.4600.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	26 kg
<b>volume:</b>	67 l

**Type KTS 470**  
**SETRA 412 UL/415 UL/417 UL/419 UL**



<b>order no.:</b>	01.4700.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	19 kg
<b>volume:</b>	50 l

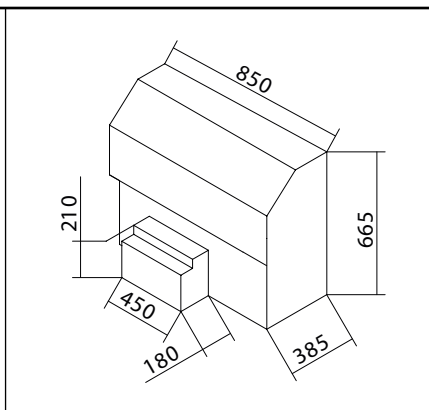
**Type KTS 471**  
**SETRA/Mercedes**



<b>order no.:</b>	01.4710.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	27 kg
<b>volume:</b>	60 l

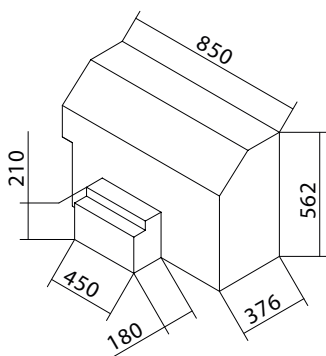
Tour guide refrigeration cabinet

**Type KTS 483**  
**SETRA 431 DT 3 stars**



<b>order no.:</b>	01.4830.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	50 W
<b>current consumption:</b>	4,0/2,0 A
<b>weight:</b>	25 kg
<b>volume:</b>	110 l

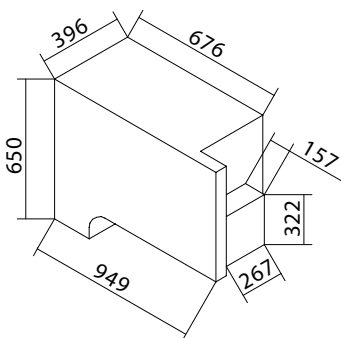
## Type KTS 484 SETRA 431 DT 4 Stars



**order no.:**  
01.4840.00.00

**voltage:** 12/24 V DC  
**power:** 50 W  
**current consumption:** 4,0/2,0 A  
**weight:** 24 kg  
**volume:** 85 l

## Type A-KT TC4

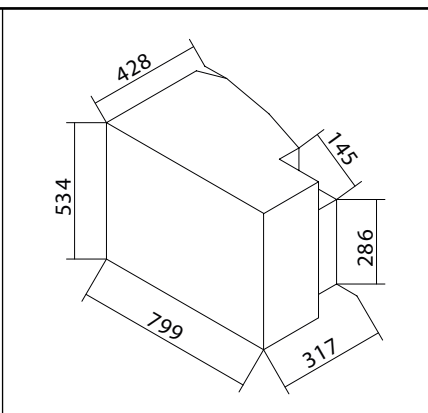


**order no.:**  
01.4800.00.00

**voltage:** 12/24 V DC  
**power:** 60 W  
**current consumption:** 5,0/2,5 A  
**weight:** 26 kg  
**volume:** 67 l

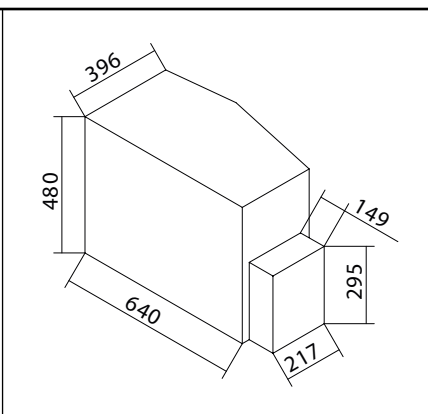
## Cool boxes for EVOBUS – SETRA Series 500

## Type KT NCR MD and RHD SETRA ComfortClass S 515 and S 516 MD for Interurban-Cockpit



<b>order no.:</b>	01.5100.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	22 kg
<b>volume:</b>	55 l

## Type A-KT NCR SETRA CC500 and TC500

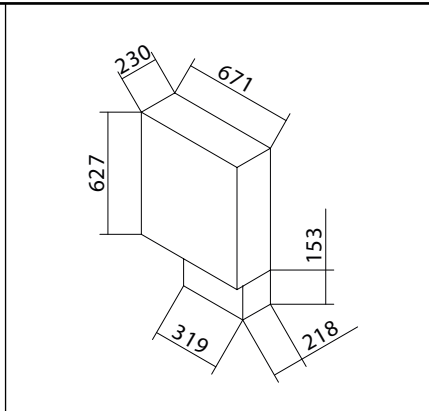


<b>order no.:</b>	01.5000.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	19 kg
<b>volume:</b>	67 l



## Cool boxes for MCV

### Type MCV 500

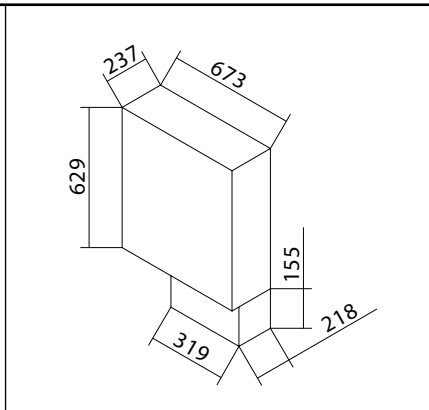


<b>order no.:</b>	
01.1201.00.00	cooling unit right side
01.1203.00.00	cooling unit left side

<b>voltage:</b>	12/24 V DC
<b>power:</b>	50 W
<b>current consumption:</b>	4,0/2,0 A
<b>weight:</b>	23 kg
<b>volume:</b>	40 l

2 baskets, removable

### Type MCV 600

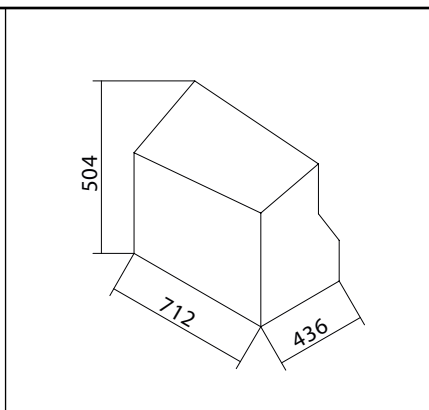
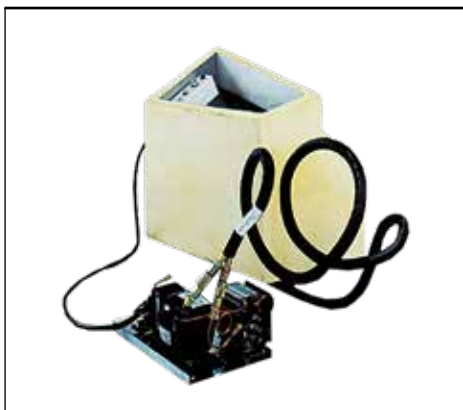


<b>order no.:</b>	
01.1202.00.00	

<b>voltage:</b>	12/24 V DC
<b>power:</b>	50 W
<b>current consumption:</b>	4,0/2,0 A
<b>weight:</b>	23 kg
<b>volume:</b>	40 l

## Cool boxes for MERKAVIM

### Type MERKAVIM/VOLVO

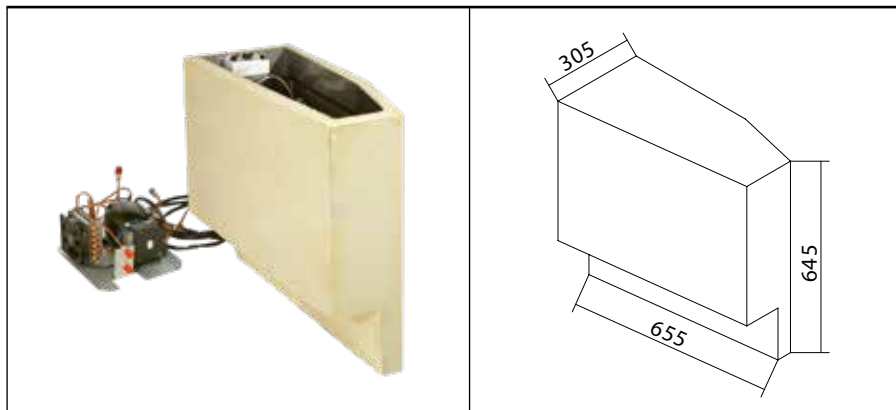


<b>order no.:</b>	
01.0004.00.00	

<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	18 kg
<b>volume:</b>	56 l

Cooling unit self-contained with coupling;  
stainless steel inside

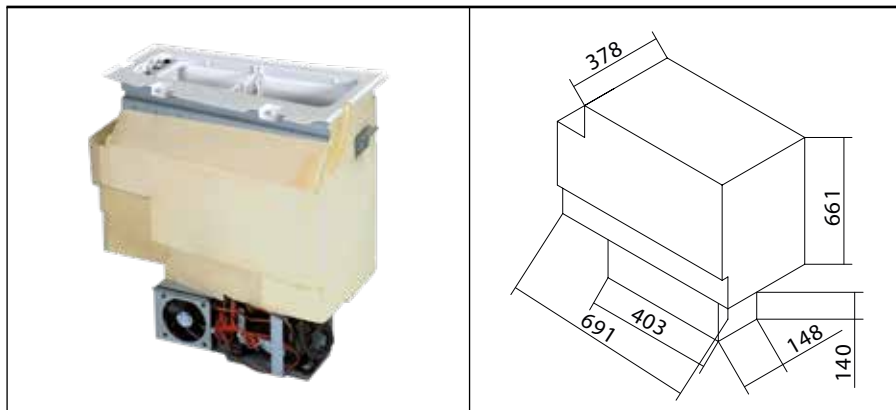
## Type MERKAVIM/Apollo



<b>order no.:</b>	
	01.0002.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	23 kg
<b>volume:</b>	60 l

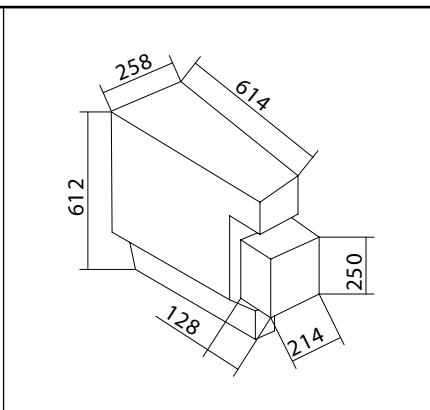
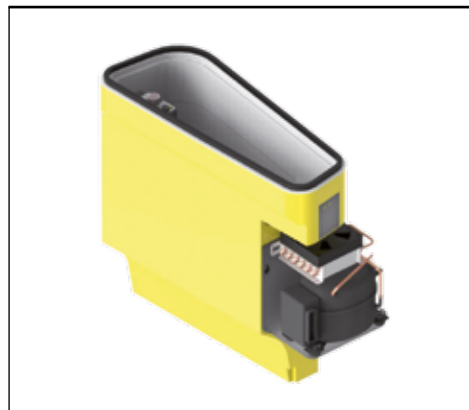
## Cool boxes for NEOMAN – NEOPLAN

## Type KBN-Starliner 2



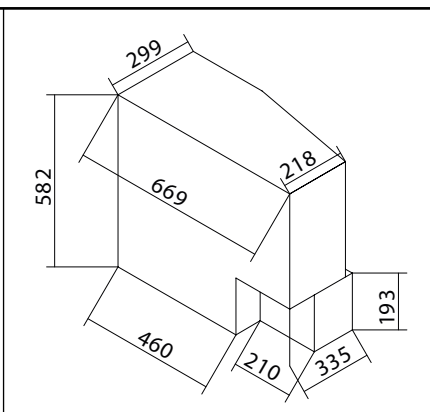
<b>order no.:</b>	
	01.1115.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	20 kg
<b>volume:</b>	56 l

## Cool boxes for TEMSA



### Type Aventurin

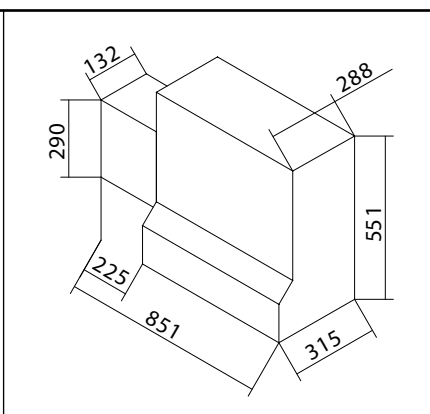
<b>order no.:</b>	
	01.1911.00.00
	01.1912.00.00 RHD
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	13 kg
<b>volume:</b>	25 l



### Type Safari/Safir

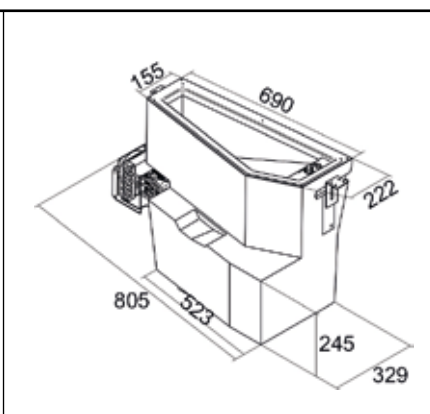
<b>order no.:</b>	
	01.1910.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	35 W
<b>current consumption:</b>	3,0/1,5 A
<b>weight:</b>	16 kg
<b>volume:</b>	50 l

## VDL Van Hool Mazedonien



### Type A-KT EX

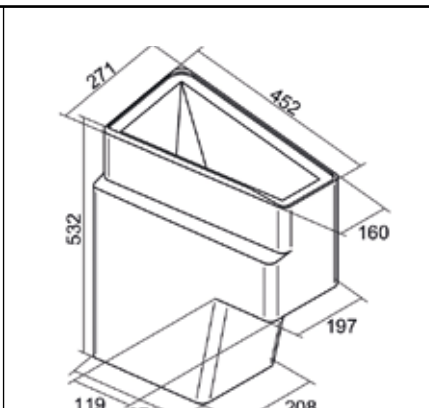
<b>order no.:</b>	
	01.3102.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	27 kg
<b>Inhalt:</b>	51 l



### Type A-KT EX A624

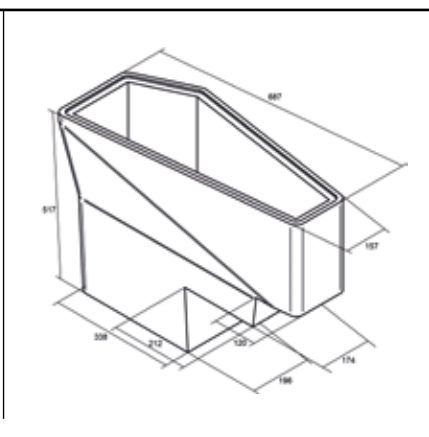
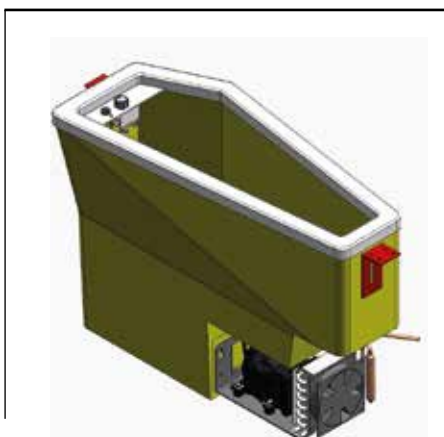
<b>order no.:</b>	
	01.3103.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	48 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	17 kg
<b>volume:</b>	50 l

## Type A-KT EX-SD-RHD-UK



<b>Artikel-Nr.:</b>	01.3104.00.00
<b>Spannung:</b>	12/24 V DC
<b>Leistung:</b>	60 W
<b>Stromaufnahme:</b>	5,0/2,5 A
<b>Gewicht:</b>	27 kg
<b>Inhalt:</b>	26 l

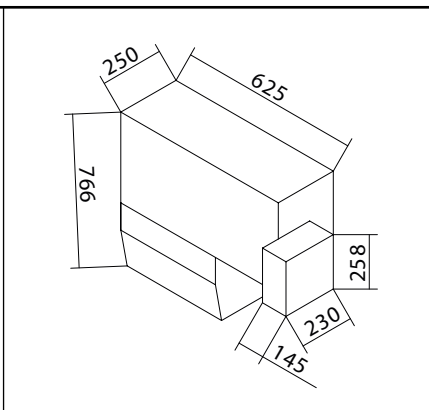
## Type A-KT EX-DD



<b>Artikel-Nr.:</b>	01.3105.00.00
<b>Spannung:</b>	12/24 V DC
<b>Leistung:</b>	60 W
<b>Stromaufnahme:</b>	5,0/2,5 A
<b>Gewicht:</b>	27 kg
<b>Inhalt:</b>	35 l

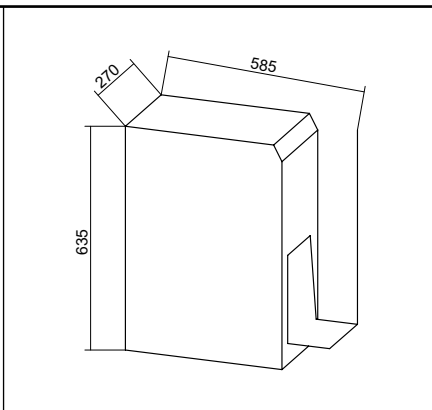
## Cool boxes for VDL

## Type VDL



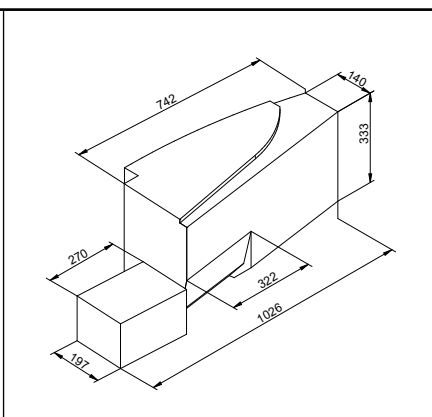
<b>order no.:</b>	01.6010.00.00
	01.6011.00.00 RHD
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	17 kg
<b>volume:</b>	55 l

## TK behind the toilet



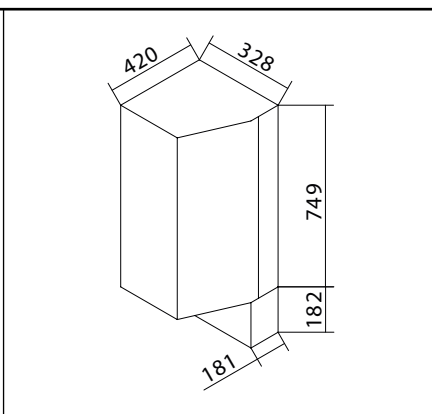
<b>order no.:</b>	01.6015.00.00
<b>voltage:</b>	12 / 24 V DC
<b>power:</b>	48 W
<b>current consumption:</b>	4,0 / 2,0 A
<b>weight:</b>	12 kg
<b>volume:</b>	50 l

## A-KT FHD3



<b>order no.:</b>	01.6014.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	24 kg
<b>volume:</b>	50 l

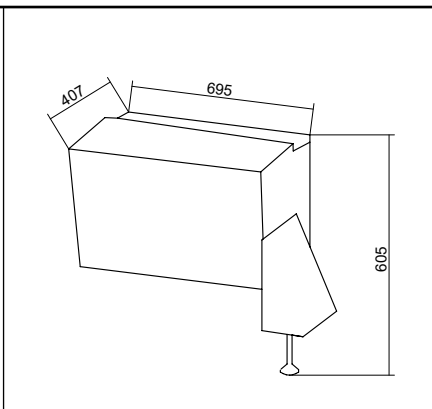
## Type KS Toplader



<b>order no.:</b>	01.6000.00.00
<b>voltage:</b>	12/24 V DC
<b>power:</b>	60 W
<b>current consumption:</b>	5,0/2,5 A
<b>weight:</b>	24 kg
<b>volume:</b>	50 l

## Cool boxes for Volvo

## A-KT P9420



<b>order no.:</b>	01.1305.00.00 LHD 01.1306.00.00 RHD
<b>voltage:</b>	12/24 V DC
<b>power:</b>	48 W
<b>current consumption:</b>	4,0 / 2,0 A
<b>weight:</b>	15 kg
<b>volume:</b>	50 l



# On the way home



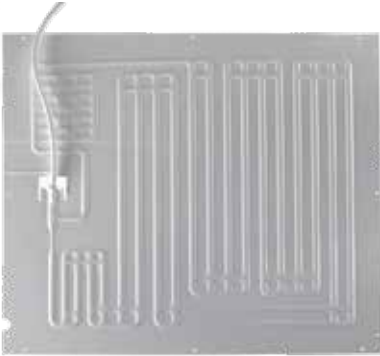
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## **Accessories by TM**

We have a wide variety of accessories for you to choose from.  
We are happy to advise you – ask our specialists!

# Aluminium plate evaporator ROLLBOND

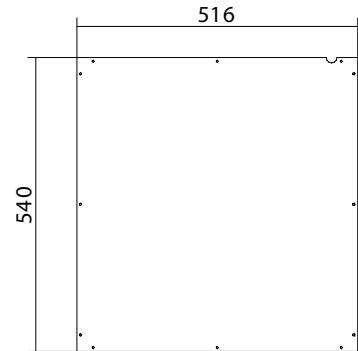
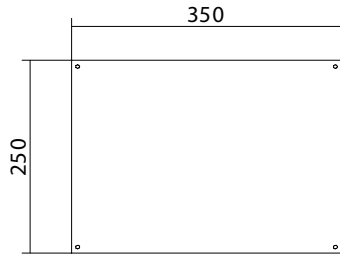
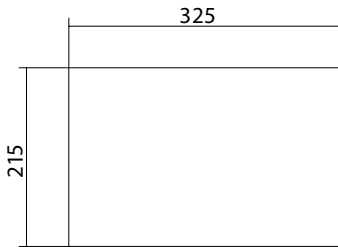
Other individual model versions available upon request  
white, powder-coated



order no.:  
27.0000.00.00

order no.:  
27.0544.31.01

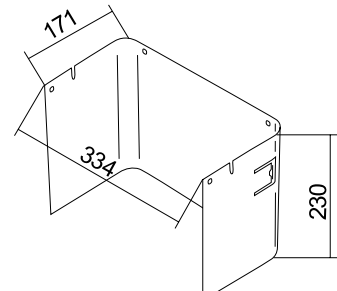
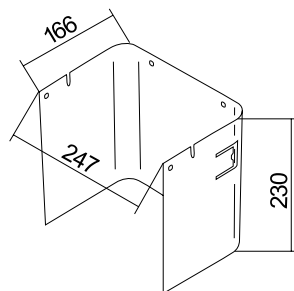
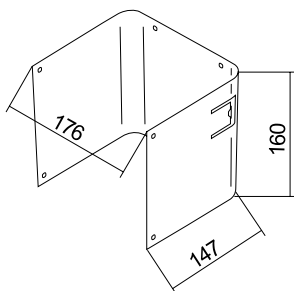
order no.:  
27.4500.10.20



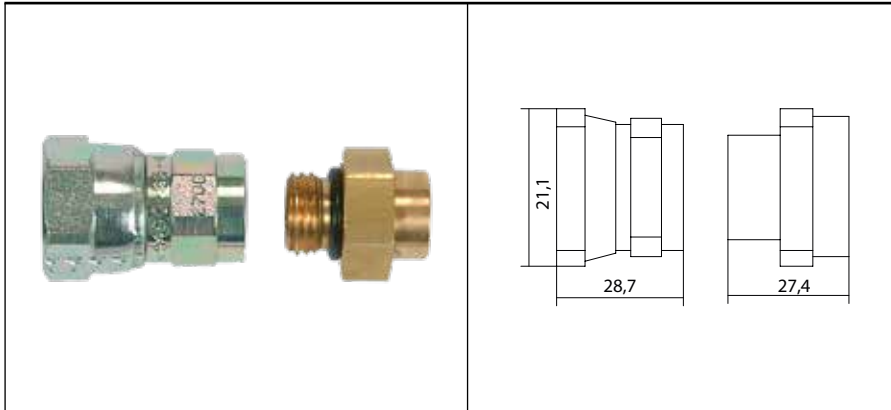
order no.:  
27.1400.00.01

order no.:  
27.0220.00.01

order no.:  
27.0225.00.01



## Coupling



**order no.:**

50.6060.01.01 Vent sleeve

50.6060.01.02 Vent coupling

Coupling self-sealing; several evaporators deliverable with soldered coupling

SECOP BD35K / BD50K / BDN50K  
Current Compressors R 600a 12 – 24 V



## General

The SECOP compressor type BD35K / 50K and BDN50K/50K-A is designed for connection to 12 V and 24 V direct current power supply, and, depending on the combination option, also for solar panels. The compressors use the environmentally friendly, natural refrigerant R600a. Refrigerant R600a is characterized by its superior thermodynamic properties and its low GWP of only 3, compared with more than 1000 for other refrigerants. The compressor is particularly intended for mobile applications, e.g. leisure boats, commercial shipping, caravans, lorries, buses, etc. The compressor can be used in refrigeration and freezing appliances and is designed for capillary tubes as a throttling device. The compressor concept includes an electronic unit with overload protection and protection against harmful battery discharge. The electronic unit has built-in voltage detection and adjustment options for undervoltage protection. The compressor operates at a very low noise level and has a low energy consumption. It can operate continuously at inclinations of up to 30°, as typically encountered on boats.

## Battery Protection

The BD compressor is equipped with a brushless direct current motor. The electronic unit must always be connected directly to the battery terminals. To protect the installation, an external fuse (max. 15 A, blue) must be installed close to the battery (or power supply) in the supply cable. The cables to the battery must be connected with screws. Additional cable connections should be avoided. If the polarity is incorrect, the electronic unit will not function. If the vehicle chassis is used as a conductor, a suitable connection between cable and chassis must be ensured. The electronic unit automatically detects whether the power supply is a 24-volt or 12-volt system and operates accordingly. The BD compressor protection system reliably safeguards against compressor overload and start-up faults, against fan overload and overheating of the electronic unit, as well as against harmful battery discharge.

## Overload Protection

The compressor overload and start-up protection cuts off the current to the compressor if the compressor speed drops below approximately 1900 rpm, or if this speed is not reached at start-up. Possible causes for the activation of the overload protection may be excessive pressure in the refrigeration system during operation or lack of pressure equalisation during start-up.

## Battery Protection

To ensure sufficient battery current for compressor operation, or to prevent permanent damage to the battery due to deep discharge, the BD electronic unit is equipped with protective circuitry. The compressor is stopped and restarted in accordance with defined voltage limits, which are to be measured at the + and – terminals of the electronic unit. The voltage can be adjusted according to individual requirements.

## Thermostat Connection

The BD compressor can operate with conventional mechanical thermostats used in refrigeration appliances, with electronic thermostats, or it can directly read a suitable NTC sensor.

The thermostat is connected between the terminals C and T of the electronic unit. Compressor current does not flow through the thermostat terminals. If the thermostat is switched off, the electronic unit remains energised. The compressor speed can be controlled with the aid of series resistors or, depending on the type of electronic unit used, operated either at full performance or in an energy-optimised mode.

## Fan Connection

If a fan is to be used, it must be connected to the + and F terminals of the electronic unit. Always use a 12 V fan, even in 24 V systems, since the electronic unit will automatically reduce the supply voltage for the fan to 12 V. If the fan is overloaded, both fan and compressor will be switched off by the overload protection.

## Troubleshooting

To determine why a compressor has stopped unintentionally, it is advisable to connect a light-emitting diode (LED) between the terminals + and D. Provided that the electronic unit is correctly connected to the power supply and the thermostat is switched on, the illumination of the LED will provide an indication of the cause of the interrupted compressor operation. The number of flashes depends on the type of detected operating fault. Each flash lasts 1/4 second.

The compressor motor windings can be checked for faults by measuring the resistance between the power supply pins. If the measured values between all three pins are approximately equal, the motor is most likely in good condition. Repair of the electronic unit is not intended due to the specially protected circuit board, therefore the units should not be opened under any circumstances.

# Cooling Units R600a

## Introducing the BD35K und BD50K



The BD35K and BD50K were designed for stationary and mobile applications. The BD50K is more powerful than the BD35K, while both stand out due to their robust design, making them suitable for extreme applications.

### Cable Dimensions

To ensure correct operating conditions, the following cable dimensions must be observed:

cable cross-section	Maximum length*	
	12 V	24 V
2,5 mm <sup>2</sup>	2,5 m	5,0 m
4,0 mm <sup>2</sup>	4,0 m	8,0 m
6,0 mm <sup>2</sup>	6,0 m	12,0 m
10,0 mm <sup>2</sup>	10,0 m	20,0 m

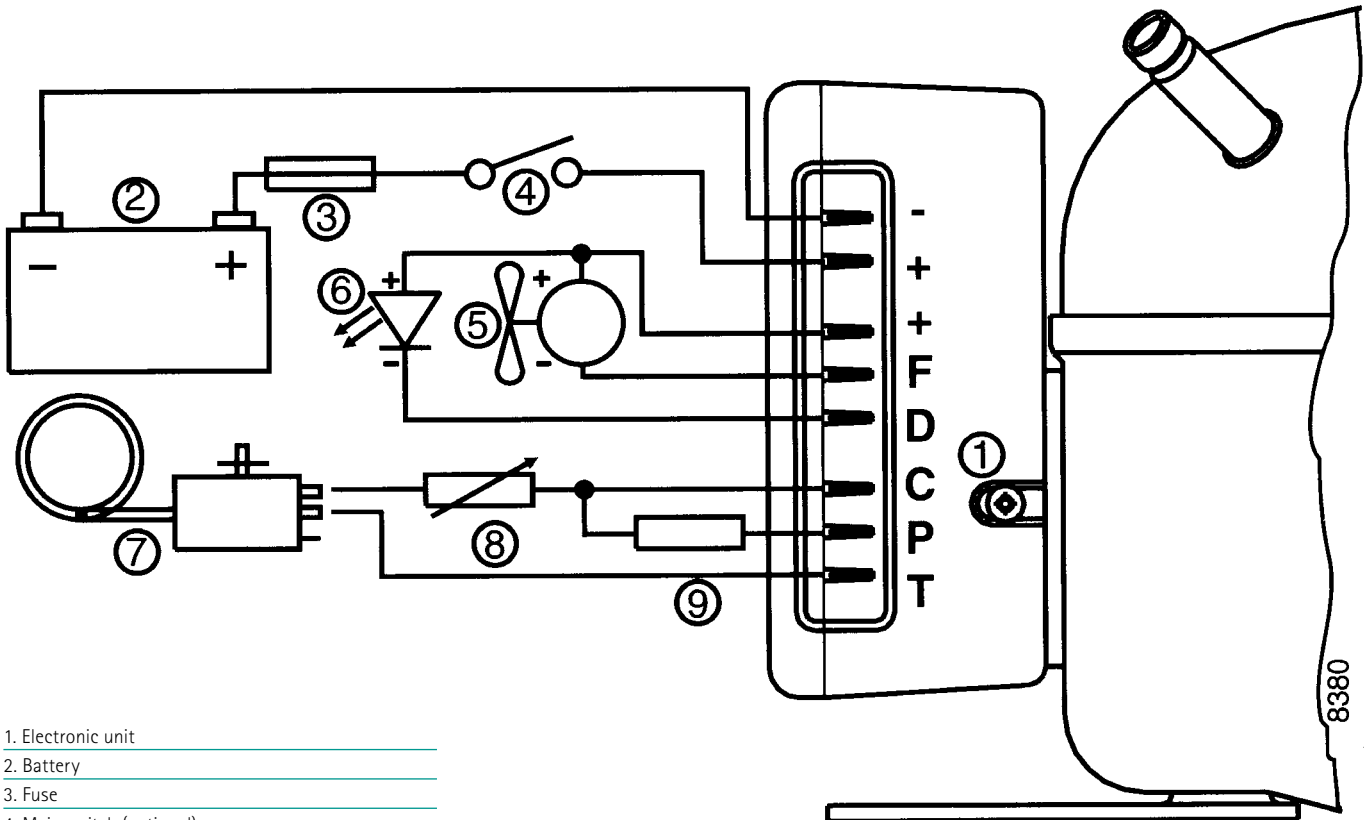
\*Cable length between battery and electronic control unit.

### Number of LED Flashes Error Types

1 x	Battery protection cut-out
2 x	Fan over-current cut-out
3 x	Motor start error
4 x	Minimum motor speed error
5 x	Thermal cut-out of the electronic unit
6 x	Thermostat failure (only with NTC sensors)

### Standard battery protection settings

12 V OFF bei 10,4 V	12 V ON bei 11,7 V
24 V OFF bei 22,8 V	24 V ON bei 24,2 V



- 1. Electronic unit
- 2. Battery
- 3. Fuse
- 4. Main switch (optional)
- 5. Fan (optional)
- 6. LED (optional)
- 7. Thermostat
- 8. Omitted: combined with No.
- 9. Resistor for presetting the battery protection voltage and motor speed (optional)

8380



# Cooling Units R600a

## Introducing the BDN50K



High cooling capacity meets compact design. The BDN50K series was developed for mobile use in confined spaces. Despite its compact size, its performance equals that of the larger BD50K units.

### Cable Dimensions

To ensure correct operating conditions, the following cable dimensions must be observed:

cable cross-section	Maximum length*	
	12 V	24 V
2,5 mm <sup>2</sup>	2,5 m	5,0 m
4,0 mm <sup>2</sup>	4,0 m	8,0 m
6,0 mm <sup>2</sup>	6,0 m	12,0 m
10,0 mm <sup>2</sup>	10,0 m	20,0 m

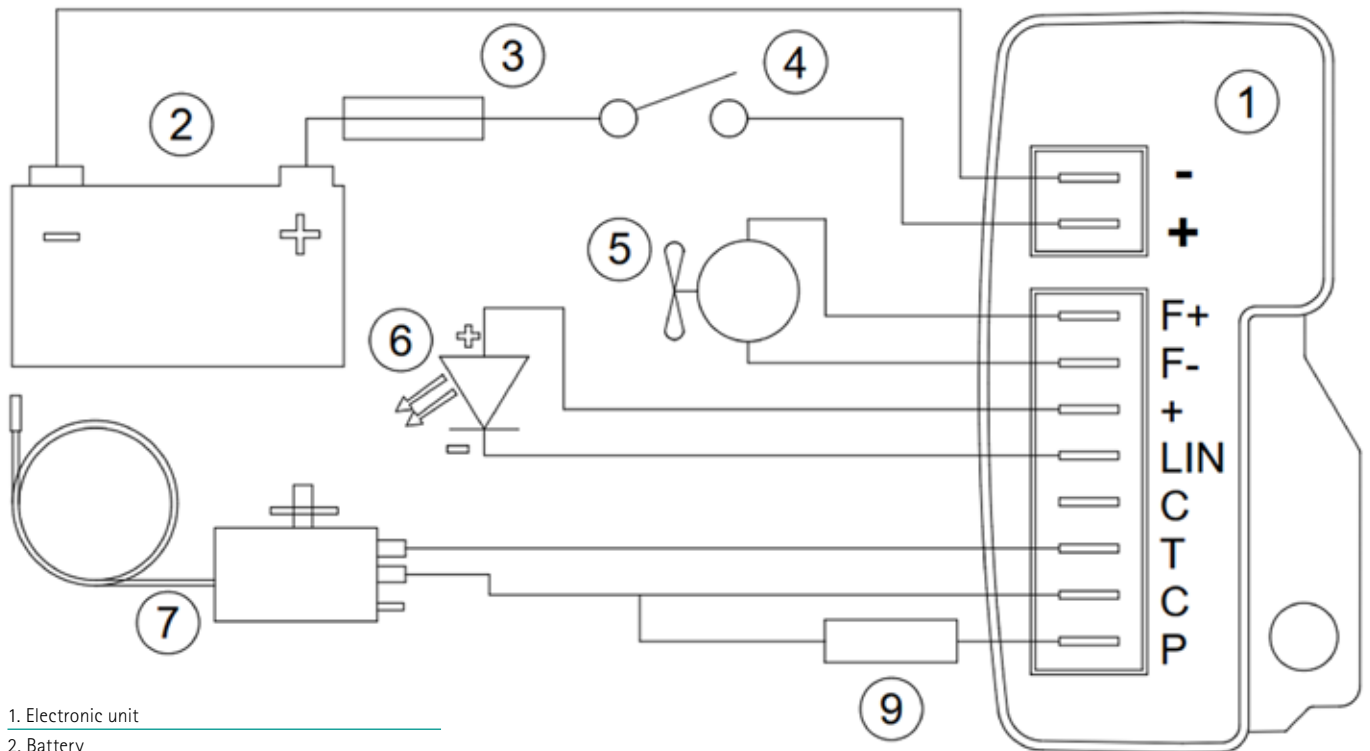
\*Cable length between battery and electronic control unit.

### Number of LED Flashes Error Types

1 x	Battery protection cut-out
2 x	Fan over-current cut-out
3 x	Motor start error
4 x	Minimum motor speed error
5 x	Thermal cut-out of the electronic unit
6 x	Thermostat failure (only with NTC sensors)

### Standard battery protection settings

12 V OFF bei 10,4 V	12 V ON bei 11,7 V
24 V OFF bei 22,8 V	24 V ON bei 24,2 V



1. Electronic unit
2. Battery
3. Fuse
4. Main switch (optional)
5. Fan (optional)
6. LED (optional)
7. Thermostat
8. Omitted: combined with No.
9. Resistor for presetting the battery protection voltage and motor speed (optional)

SECOP BD 35 F/50 F/80 F  
Direct current compressor R 134 a 12 – 24 V



## General

The SECOP compressor type BD 35 F / 50 F / 80 F is designed for connection to 12 V and 24 V DC power supply and for refrigerant R134a. The compressor is particularly intended for mobile applications such as leisure boats, commercial shipping, caravans, trucks, buses, etc. The compressor can be used in refrigeration and freezer appliances and is designed for use with capillary tubes as the throttling device. The compressor concept includes an electronic unit with overload protection and protection against harmful battery discharge. The electronic unit has built-in voltage detection and adjustment options for undervoltage protection. The compressor operates very quietly and has low energy consumption. It can operate continuously at inclinations of up to 30°, as often encountered on boats.

## Electrical connection

The BD compressor is fitted with a brushless direct current motor which through an electronic unit becomes electronically commutated. The electronic unit must always be connected directly to the battery poles. For the protection of the installation an external fuse (max. 15 A, blue) must be installed close to the battery (or power supply) in the power supply cable. The cables to the battery must be connected with screws. Avoid extra cable connections. If the wrong polarity is used, the electronic unit will not work. If the chassis is used as a conductor a good connection at the lead end must be established. The electronic unit will calibrate to the applied voltage. This means that if the battery voltage is less than 17V, the system assumes that it is working in a 12V system. If the voltage is higher than 17V, the electronic unit assumes that it is working in a 24V system. Consequently, the compressor does not run at power supply voltages between about 17V and the desired battery protection cut-out voltage for 24V systems.

## Protection system

The BD compressor protection system protects the compressor from overload and start failure. It also prevents destructive battery discharge.

## Overload protection

The compressor overload and start protection switches off power to the compressor if the compressor speed falls below approx. 1900 rpm or if this speed is not reached. Possible causes for overload protection activation may include excessively high pressure in the refrigeration system during operation or insufficient pressure equalization during startup.

## Battery protection

To ensure sufficient battery power for the engine re-start, or to avoid permanent damage to the battery, because of heavy discharge, the BD electronic unit is fitted with a protection device. The compressor is stopped and re-started again according to the decided voltage limits measured on the + and - terminals of the electronic unit.

## Troubleshooting

To determine why a compressor has stopped unexpectedly, it is recommended to connect an LED between terminals + and D. Provided the electronic unit is correctly connected to the power supply and the thermostat is switched on, the flashing of the LED will indicate the cause of the interrupted compressor operation. The compressor motor windings can be checked for faults by measuring resistance between the motor terminals. If the measured values are approximately equal between all three

pins, the motor is most likely in good condition. The electronic unit is not designed to be repaired; therefore, units should not be opened.

## Thermostat connection

The BD compressor can operate with normal mechanical type thermostats used in refrigeration appliances or with electronic thermostats. Always use new thermostats. The thermostat is normally connected across terminals C and T of the electronic unit. Compressor current does not flow through the thermostat contacts. When the thermostat is switched off there will still be power on the electronic unit.

## Fan connection

If a fan is to be used, it must be connected to the electronic unit terminals + and F. Always use a 12 V fan, also in 24 V systems, as the electronic unit will automatically reduce the applied voltage to 12 V for the fan. If the fan becomes overloaded, both fan and compressor will be cut out by the overload protection.

## LED connection

A 10 mA light emitting diode (LED) can be connected between the terminals + and D to observe the compressor operation. In case the electronic unit records an operational error, the diode will flash a number of times. The number of flashes depends on what kind of operational error was recorded. Each flash will last 1/4 second.



## Wire dimensions

To guarantee a correct operation you have to pay attention to the following wire dimensions:

cable diameter	max. length*	24 V
	<b>12 V</b>	5,0 m
<b>2,5 mm<sup>2</sup></b>	2,5 m	8,0 m
<b>4,0 mm<sup>2</sup></b>	4,0 m	12,0 m
<b>6,0 mm<sup>2</sup></b>	6,0 m	20,0 m
<b>10,0 mm<sup>2</sup></b>	10,0 m	

\* Wire length between battery and electronic control unit.

## Number of flashes

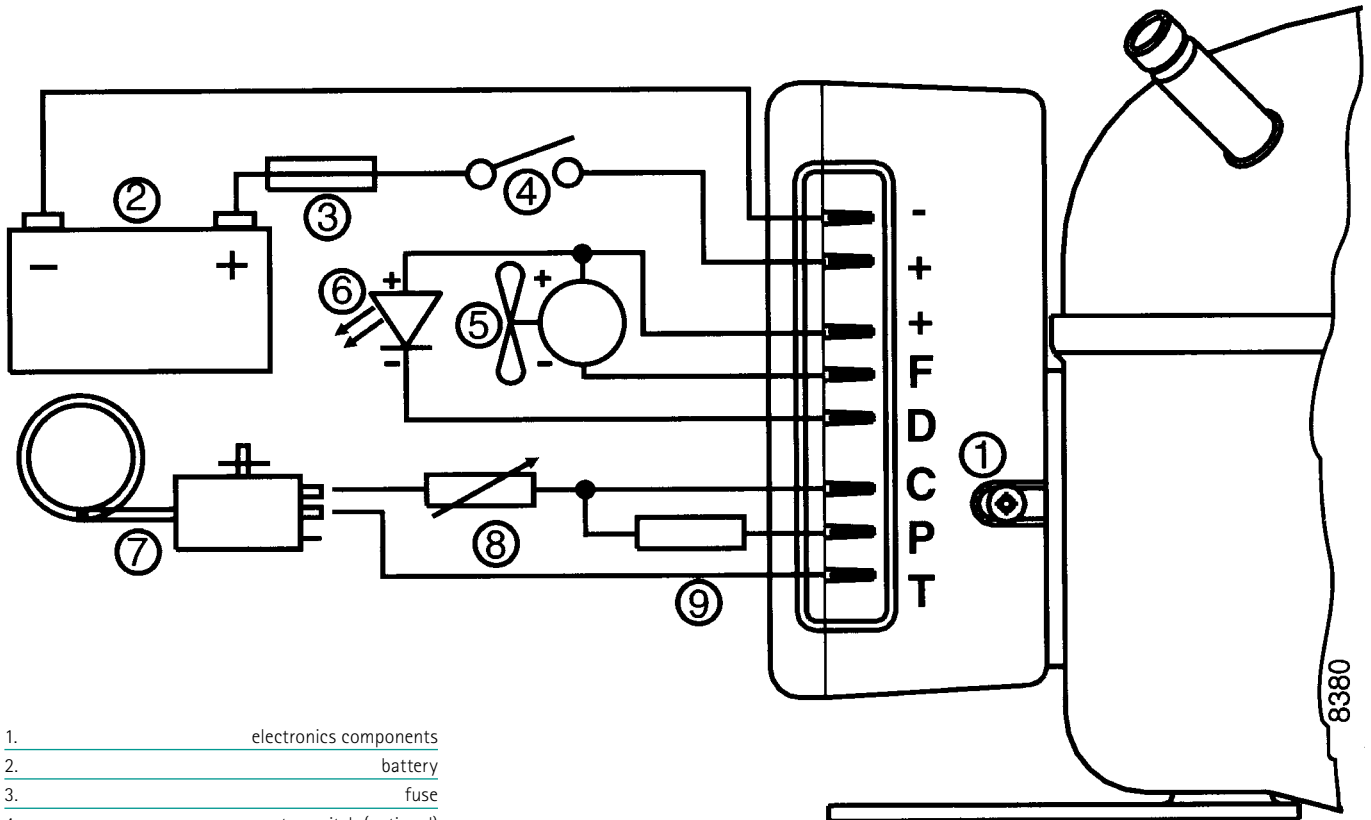
## Error type

1 x	battery protection cut out
2 x	fan over-current cut out
3 x	motor start error
4 x	minimum motor speed error
5 x	thermal cut out of electronic unit

## Standard battery protection settings

standard battery protection settings

12 V <b>AUS</b> bei 10,4 V	12 V <b>EIN</b> bei 11,7 V
24 V <b>AUS</b> bei 22,8 V	24 V <b>EIN</b> bei 24,2 V



1. electronics components
2. battery
3. fuse
4. master switch (optional)
5. fan (optional)
6. light-emitting diode (optional)
7. thermostat
8. resistance to speed preset (optional)  
resistance to battery protection voltage preset (optional)
9. resistance to battery protection voltage preset (optional)

# DC Cooling Units

DC Cooling Units 12/24 V  
With the reliable SECOP full hermetic compressors BD 35 F und BD 50 F

		<b>order no.:</b> 03.0580.00.00 (BD 35 F) 03.0580.50.00 (BD 50 F)																
		<table border="1"> <thead> <tr> <th></th> <th>BD 35 F</th> <th>BD 50 F</th> </tr> </thead> <tbody> <tr> <td><b>voltage:</b></td> <td>12/24 V</td> <td>12/24 V</td> </tr> <tr> <td><b>current consumption:</b></td> <td colspan="2">depending on technical product design</td> </tr> <tr> <td><b>refrigerant:</b></td> <td>R 134 A</td> <td>R 134 A</td> </tr> <tr> <td><b>operating noise:</b></td> <td>25 db (A)</td> <td>25 db (A)</td> </tr> <tr> <td><b>weight:</b></td> <td>4,7 kg</td> <td>6,7 kg</td> </tr> </tbody> </table>		BD 35 F	BD 50 F	<b>voltage:</b>	12/24 V	12/24 V	<b>current consumption:</b>	depending on technical product design		<b>refrigerant:</b>	R 134 A	R 134 A	<b>operating noise:</b>	25 db (A)	25 db (A)	<b>weight:</b>
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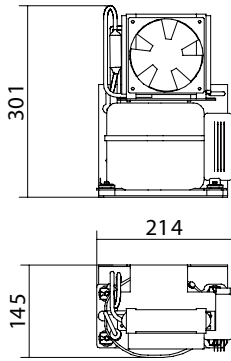
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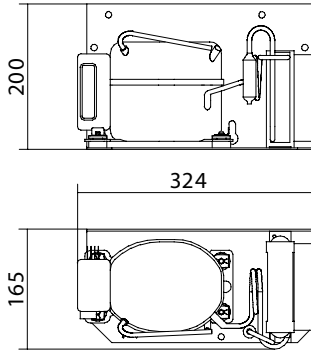
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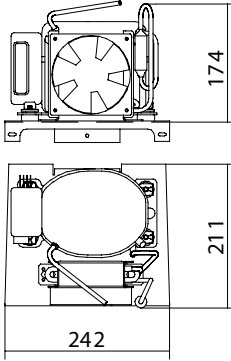
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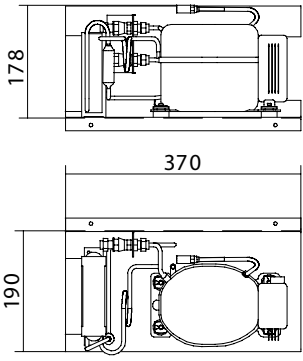
# DC Cooling Units

DC Cooling Units 12/24 V  
Including refrigerant R 600A and the reliable  
SECOF full hermetic compressors BD 35 K und BD 50 K

		<b>order no.:</b> 03.0581.00.00 (BD 35 K) 03.0581.50.00 (BD 50 K)																
		<table border="1"> <thead> <tr> <th></th> <th>BD 35 K</th> <th>BD 50 K</th> </tr> </thead> <tbody> <tr> <td><b>voltage:</b></td> <td>12/24 V</td> <td>12/24 V</td> </tr> <tr> <td><b>current consumption:</b></td> <td colspan="2">depending on technical product design</td> </tr> <tr> <td><b>refrigerant:</b></td> <td>R 600 A</td> <td>R 600 A</td> </tr> <tr> <td><b>operating noise:</b></td> <td>25 db (A)</td> <td>25 db (A)</td> </tr> <tr> <td><b>weight:</b></td> <td>4,7 kg</td> <td>6,7 kg</td> </tr> </tbody> </table>		BD 35 K	BD 50 K	<b>voltage:</b>	12/24 V	12/24 V	<b>current consumption:</b>	depending on technical product design		<b>refrigerant:</b>	R 600 A	R 600 A	<b>operating noise:</b>	25 db (A)	25 db (A)	<b>weight:</b>
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<b>operating noise:</b>	25 db (A)	25 db (A)																
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<b>operating noise:</b>	25 db (A)	25 db (A)																
<b>weight:</b>	7 kg	7 kg																





operation panel



aluminium rollbond evaporator



insulation

**TM** is one of the first users of Secop full hermetic compressors. From the beginning till today **TM** developed a huge know-how in the use of Secop full hermetic compressors. This explains **TM**'s top class position in the field of bus cooling. Therefore **TM** only uses Secop compressors. Since the beginning **TM** has been convinced of the advantages of the constant voltage full hermetic compressors with the high quality of the cast iron series production.

The Secop compressor types BD 35 F and BD 50 F are developed for 12 V and 24 V direct current supply connection and for the refrigerant R 134 A. The compressor comprises an electronic device with an overload protection and protection against battery discharge. The compressor is almost noiseless, has a low energy consumption and works under an angle of inclination of 30°, as it occurs on boats.

Our quality standard provides every cooling box with a clear operation panel. This panel allows an easy and clear operation. The operation panel contains:

- Thermostat with knob for continuous adjustment
- Indoor lighting
- Fuse for the electronic
- Function indicator

Another **TM** quality characteristic is that most of the cooling boxes are equipped with foamed aluminum rollbond evaporators. Due to this method we reach optimal efficiency. This processing makes it impossible to develop condensed moisture between the evaporator and the insulation, thus the PU insulation cannot be affected. The layout of the evaporator tubes will be designed for each cooling casing according to the request, so that the best cooling performance can be reached. The aluminum rollbond evaporator is powder coated and easy to handle.

An important contribution for a good cooling performance is the insulation, naturally CFC-free. **TM** foams the cooling casings with a high pressure procedure via computer controlled, modern foaming machines. **TM** also foams the cover frame, cover lid and all hollow spaces with PU foam. Before starting series production the cooling boxes will be tested in various long term check programs, for example in our climatic chamber under different ambient temperatures and operating conditions. The cooling boxes will also be checked on the shaking table. All materials of the casing, like outside casing, foam, evaporator or other plastic casing parts, are certified by the German authorities for vehicle registration.

# Direct current compressor



Interior compressor

BD 35 F  
BD 50 F  
BD 80 F  
BD 1.4F MICRO

## Wire dimensions

To guarantee a correct operation you have to pay attention to the following wire dimensions:

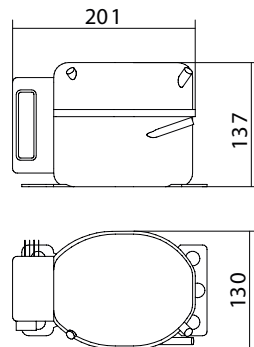
cable diameter	max. length*	
	12 V	24 V
2,5 mm <sup>2</sup>	2,5 mm <sup>2</sup>	5,0 m
4,0 mm <sup>2</sup>	4,0 mm <sup>2</sup>	6,0 m
6,0 mm <sup>2</sup>	6,0 mm <sup>2</sup>	12,0 m
10,0 mm <sup>2</sup>	10,0 mm <sup>2</sup>	20,0 m

\* wire length between battery and electronic control unit.

## Standard battery protection settings

12 V OFF bei 10,4 V	12 V ON bei 11,7 V
24 V OFF bei 22,8 V	24 V ON bei 24,2 V

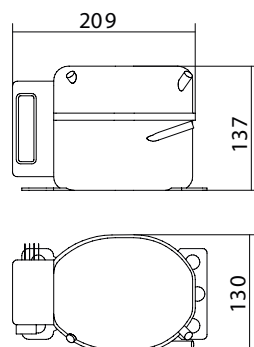
## Type BD 35 F



<b>order no.:</b>	
compressor/electronic unit	25.2412.10.00
compressor separate	25.2412.10.01
electronic unit separate	24.2412.10.02
<b>voltage:</b>	12 / 24 V DC
<b>undervoltage protection:</b>	10,4 / 22,8 V
<b>power:</b>	35 W
<b>current consumption:</b>	depending on technical product design
<b>weight:</b>	4,5 kg
<b>revolutions:</b>	2.000 min*
<b>refrigerant:</b>	R134a
<b>operating noise:</b>	25 db (A)

\* higher compressor capacity can be reached by increasing revolutions up to max. 3.500.

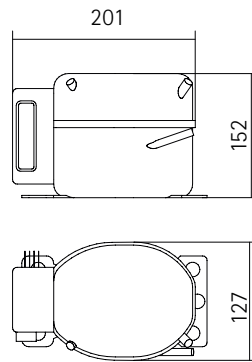
## Type BD 50 F



<b>order no.:</b>	
compressor/electronic unit	25.0050.24.02
compressor separate	25.0050.24.01
electronic unit separate	25.2412.10.02
<b>voltage:</b>	12 / 24 V DC
<b>undervoltage protection:</b>	10,4 / 22,8 V
<b>current consumption:</b>	depending on technical product design
<b>weight:</b>	4,5 kg
<b>revolutions:</b>	2.000 min*
<b>refrigerant:</b>	R134a
<b>operating noise:</b>	25 db (A)

\* higher compressor capacity can be reached by increasing revolutions up to max. 3.500.

## Type BD 35 K



### order no.:

compressor/elektronik unit 25.0600.24.00

compressor separate 25.0600.24.01

elektronik unit separate 25.0600.24.02

**voltage:** 12/24 V DC

**undervoltage protection:** 10,4/22,8 V

**current consumption:** depending on technical product design

**weight:** 4,5 kg

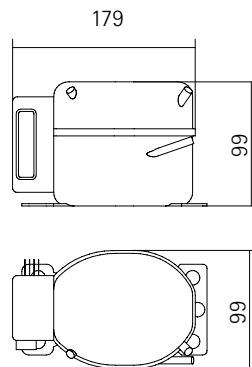
**revolutions:** 2.500 min\*

**refrigerant:** R600A

**operating noise:** 25 db (A)

\* higher compressor capacity can be reached by increasing revolutions up to max. 4.400.

## Type BD 80 F



### order no.:

compressor/elektronik unit 25.6114.10.00

compressor separate 25.6114.10.08

elektronik unit separate 25.6114.10.10

**voltage:** 12/24 V DC

**undervoltage protection:** 19-27 V

**current consumption:** depending on technical product design

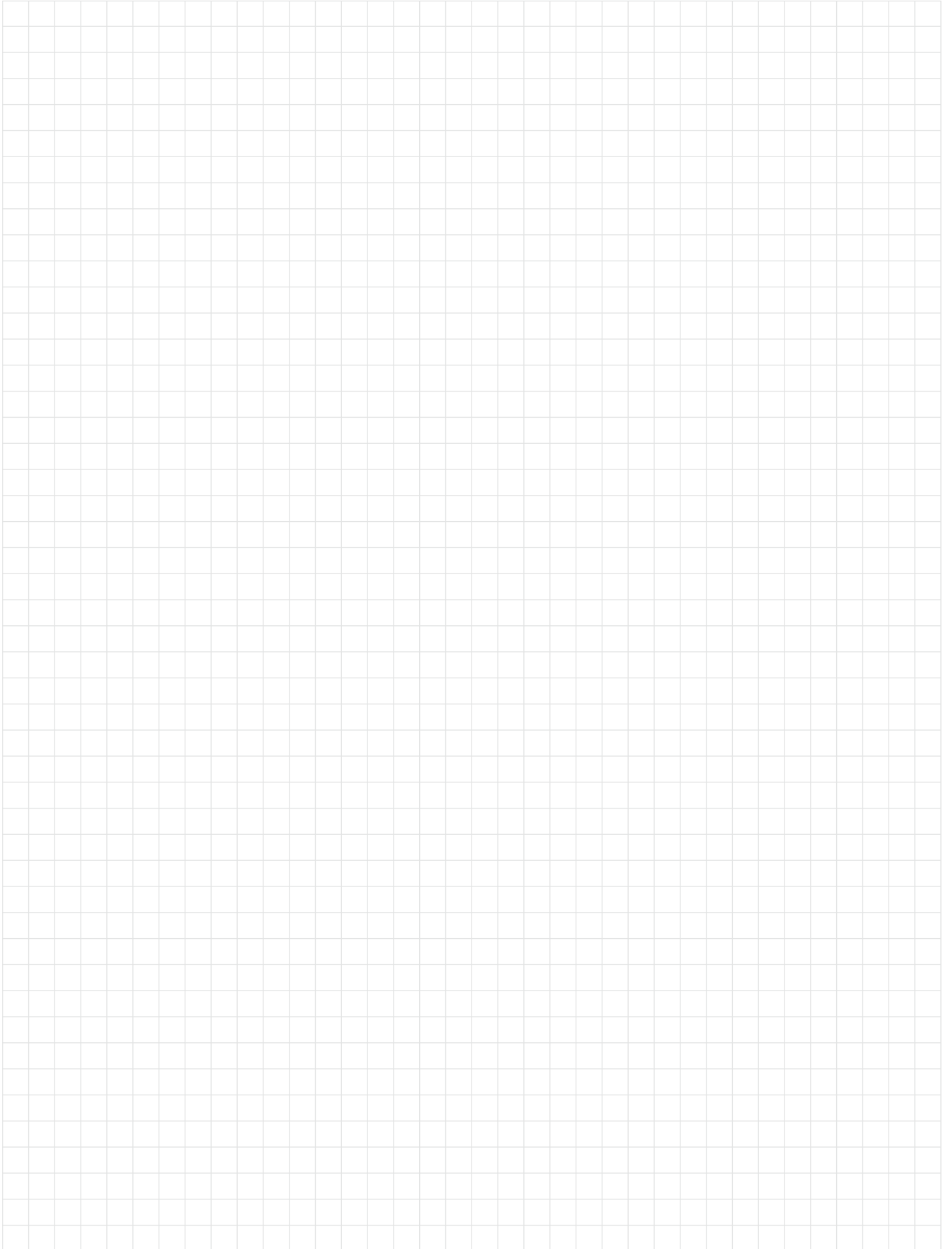
**weight:** 2,3 kg

**refrigerant:** R600A

**operating noise:** k. A.

\* higher compressor capacity can be reached by increasing revolutions up to max. 4.400.

# NOTES



# TM product family



1



2



3

1. Dashboard integrated cool box
2. QS MultiPlus 2G Kitchen
3. Transporter cool box
4. Summertime 2
5. Cool box KBU 60
6. Central acces toilet

# TM

Technik in Bestform



4

5

6



## TM Technischer Gerätebau GmbH

Böttgerstraße 13  
89231 Neu-Ulm  
Germany

phone +49 (0) 731/9 74 21-0  
fax +49 (0) 731/9 74 21-69  
e-mail vm@tmtech.de  
homepage www.tmtech.de

## Contact TM Germany sales and distribution national

spare parts +49 (0) 731/9 74 21-53  
order transaction  
manufacturer +49 (0) 731/9 74 21-57  
customer service +49 (0) 731/9 74 21-41  
fax +49 (0) 731/9 74 21-69

## TM Teknik Otomotiv

Ekipmanları İthalat İhracat Sanayi ve Ticaret Ltd. Şti.  
Gebze Organize Sanayi Bölgesi (GOSB)

1000.Cadde, No: 1009  
41435, Çayırova, Kocaeli  
Turkey

phone +90 (0) 262/ 6 77 11-52  
fax +90 (0) 262/ 6 77 11-54  
e-mail info@tmtech.com.tr  
homepage www.tmtech.com.tr

## Jincen-TM

Automotive Component Manufacturing Ltd.

Industrial Zone Shuangfeng Road  
Hefei 23113

P.R. China

homepage www.jincen-tm.com

## Our company is ISO 9001 certified.

Our products are tested according to the following standards:  
Burning behavior according to ECE R118.  
Electromagnetic compatibility according to ECE R10.  
Energy absorption test according to ECE R21.  
Bus comfort according to RAL-GZ 791.