PRODUCTCATALOGUE 2024/2025

Company headquarter and assembly plant in Backnang

Kroll Energy GmbH – Your Partner for Efficient Heating and Air Conditioning Solutions

For over 60 years, **Kroll Energy GmbH** has stood for innovative solutions in the fields of heating, air conditioning and dehumidification/construction drying with high technical and sustainable standards.

Originally starting in 1963 with a solution for the utilisation of waste oil in car workshops, through the further development of full condensing technology to the development of a mobile air-to-air heat pump, our engineers have been working towards one goal: to solve current problems through Swabian inventiveness. Quality, diligence and resourcefulness are at home with us and form the basis of our future-oriented progress.

With our MWK40, we have finally achieved a revolution:
An automatically switching, mobile air-to-air heat pump that can heat and cool your properties in a completely CO_2-neutral way thanks to the absence of fossil fuels and purely electric operation. Thanks to the variable operating range between –10°C and +40°C ambient temperature, you can even use it all year round. Our MW40 and MW80 heat pumps are designed for extreme temperature ranges of up to –20°C – but without the cooling function. This allows the CO_2 footprint of properties to be reduced as early as the construction phase. Find out more from page 7.

Foundation & important milestones

1963 – **Foundation and construction** of the first waste oil furnace for the efficient recycling of waste oil from car workshops.

1972 – **Entry** into sheet metal production and **doubling** of the production area.

1981 – **Management** is transferred to Edmund Kroll.

2004 – **Development** of full condensing boilers to **increase energy efficiency and environmental protection.**

2014 – **Takeover** by the RIVA group of companies.

2019 – **Development of the MWK40**, the first mobile heat pump with heating and cooling function for temperatures from –10°C to +40 °C.

2023 – **Celebration** of the company's **60th anniversary.**

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Intelligent Air Conditioning Solutions for Industrial Applications

Climate change and growing environmental awareness are particularly noticeable in the heating and air conditioning sector. Consequently, sustainable products and solutions are increasingly becoming the focus of attention, as air conditioning and building technology should contribute to reducing the ecological footprint more and more in the future.

We, **Kroll Energy GmbH**, first specialised in air conditioning and ventilation solutions in the industrial sector over 60 years ago and are still one of the leading companies in the industry today. Whether heating, cooling, or dehumidification, we develop a customised solution for every requirement in commercial properties. In doing so, we rely on German engineering expertise and quality. From development to production to service, the entire value chain is in our hands. This enables us to react flexibly to the changing requirements of our customers and at the same time ensure that our products meet the highest quality.

Our research and development department is constantly working on innovations to ensure that our products always meet the highest standards. We place particular emphasis on integrating the latest technologies to ensure maximum energy efficiency and performance.

We have a sustainable, mobile innovation in our product portfolio:

A mobile air-to-air heat pump that enables fossil-free air conditioning at ambient temperatures from –20°C (heating: MW model) to +40°C (heating and cooling: MWK model).

The **MW/MWK series** complements our existing product range and sets an example for the future of air conditioning and heating technology. You can continue to rely on our solutions for new or existing buildings. Even during the construction of a property, energy and resources can be saved with the help of mobile solutions for construction site air conditioning or accelerating the drying process.

When developing our products, we can draw not only on many years of experience, but also on practical relevance through customer proximity. Our customers' individual wishes often result in optimised devices or completely new products for specific requirement profiles.

Our customers' satisfaction and our "Made in Germany" quality standards are our most important corporate values: **development, production, delivery and subsequent service remain in our hands ensuring a fast response to current requirements at all times.**

Would you like to find out more about us and our services?

Then watch our company video, in which we take you on a tour.

Watch it on Youtube

Areas of Application

	MOBILE Heat Pumps	STATIONARY Heaters/ Hot Air Generators	MOBILE Heaters/ Hot Air Generators	Construction Dryer
GARAGE AND WORKSHOP				
Large-area heating	●	●	●	
Large-area cooling	●			
Large-area ventilation	●	●	●	
Spot heating			●	
Spot ventilation			●	
CONSTRUCTION SITE				
Large-area heating	●		●	
Large-area cooling	●			
Large-area ventilation	●		●	
Spot heating			●	
Spot ventilation			●	
Dehumidification				●
INDUSTRY AND EVENT				
Large-area heating	●		●	
Large-area cooling	●			
Large-area ventilation	●		●	
Spot ventilation			●	
Production and storage halls	●	●	●	
Large capacity tent	●		●	
Emergency/ Transitional heating	●		●	
AGRICULTURE				
Large-area heating	●		●	
Large-area cooling	●			
Large-area ventilation	●	●	●	
Stable and barn	●	●	●	
Animal rearing facilities	●	●		
Landscaping	●		●	
Greenhouses	●	●		

MOBILE
Heat Pumps

MWK

MW

MOBILE Heat Pumps **MWK, MW**

Environmentally friendly heating and cooling for all demands

Environmentally friendly

Economical

Fossil-free

Mobile

Compact

The transformation in heat supply from fossil fuels to regenerative concepts faces challenges, especially in temporary operating conditions, as the complex solutions often cannot be combined with the necessary flexibility. The unstable price development of fossil fuels and increasing CO_2 taxation make heat pumps an uncomplicated and sustainable yet cost-effective heating solution. Depending on the version, our robust and easily transportable air-to-air heat pumps enable heating as well as heating and cooling completely without fossil fuels. Heating oil and gas are no longer required – an electricity connection is all that is needed.

Our **MWK40** enables year-round temperature control with just one unit – mobile heating at up to –10°C and cooling at up to +40°C. Our **MW40** and **MW80** heat pumps are designed for extreme temperature ranges of down to –20°C – but without a cooling function. Thanks to their air-to-air functionality, there is generally no need for complex room installations. This eliminates the need for heating boilers, cooling units and radiators as well as their pipework distributions with pumps, fittings and control technology.

Even in summer, you can always keep a cool head:
Our mobile heating/cooling combination **MWK40** defies outside temperatures of up to +40°C and cools your properties without any problems.

Area of Application

- (Large) construction sites
- Warehouses and production halls
- Hangars
- Events and large-scale events
- (Festival) tents
- Agriculture
- Commercial, municipal and private requirements as temporary heating, replacement heating in the event of stationary heating systems or for temperature control/ air conditioning.

Honoured in 2021

The Plus X Award is one of the **world's largest innovation awards for technology, sport and lifestyle,** with independent expert jurors from over 80 sectors and more than 700 participating international brands.

The specialist jury, consisting of editors, designers and industry experts, awards various seals of approval to products that are characterised by genuine quality and innovation.

Our MWK40 has earned the seal of approval in five of a total of seven categories.

PLUS X AWARD
2021/2022 | Achieved for:
Innovation
High Quality
Ease of Use
Functionality
Ecology
www.plusxaward.com

Heat pumps installed outdoors heat the room air directly to your desired target temperature via a circulating air flow. Mobile air-to-air heat pumps have been developed for quick connection and easy installation. This means that the temperature control solution is ready for use within a very short time. No tank systems, no storage of fuel and considerably less maintenance – thanks to air-to-air operation, you don't have to worry about chillers as with air-to-water heat pumps. Intake and exhaust nozzles are recessed in the housing and there are no protruding components. Safe loading is guaranteed by the forklift truck mountings.

The high available air pressure enables long hose connections. Air-to-air heat pumps can also be used for stationary applications with a permanently installed air duct system.

All device types can be clearly managed, monitored and billed using a web application and a mobile internet connection.

Features of the MWK40

- Scroll compressor
- Refrigerant R410A
- Axial fan with sickle blades
- Centrifugal blower
- Speed-controlled fan via frequency inverter for optimum air volume
- 200 Pa max. available air pressure
- Purely electrical operation with 400 V/3N~/~50 Hz /31 A
- Pressure transmitter for low- and high-pressure side
- Dimensions: 2.400 x 1.200 x 2.200 mm (L x W x H)
- Nominal heat output 42,9 kW
- Nominal cooling output 33,5 kW
- Operating range outside temperature –10°C to +40°C
- Volume flow 8.000 m³/h
- Protection IP44
- Sound pressure level 69 db(A)
- Refrigerant: Filling capacity 17 kg

Info

Even under extreme conditions of down to –10°C or –20°C outside temperature, our mobile heat pumps heat your properties 100 percent fossil-free – for a 100 percent comfortable room temperature.

Europe-wide remote control via web browser.

Special colours available on request.

MW80

Technical data

Power range 14 to 81 kW				MWK40	MW40	MW80
			Item no.	300686	301531	301532
			€	**48.000,00**	**52.000,00**	**84.000,00**
Function				Heating and cooling	Heating	Heating
Performance data						
Nominal heat output	(A7/L35)		kW	42,9	42,4	96,7
Heat output	(A2/L35)		kW	37,2	38,2	88,3
Heat output	(A-7/L35)		kW	29,0	25,8	63,8
Nominal cooling output	(A30/L12)		kW	33,5	–	–
COP	(A7/L35)		kW	3,31	3,07	3,06
COP	(A-7/L35)		kW	2,24	2,30	2,34
COP	SCOP		kW	2,88	2,72	2,73
Operating and connection data						
Operating range outside temperature			°C	–10 to +40	–20 to +25	–20 to +25
Electrical connection			V/Ph/Hz	400/3N~/~50	400/3N~/~50	400/3N~/~50
Connector plug				32 A CEE	32 A CEE	63 A CEE
Max. rated current			A	31	31	62
Protection			IP	44	44	44
Max. available air pressure			Pa	200	200	250
Nominal volume flow			m³/h	8.000	8.000	16.000
Sound pressure level			dB(A)	69	69	70
Max. amount of condensate (outside air)			l/h	10	10	20
Refrigeration circuit: Refrigerant and compressor						
Refrigerant				R410A	R454C	R454C
Fill capacity			kg	17	15	26
GWP				2088	148	148
Classification				A1 non-combustible	A2L flame retardant	A2L flame retardant
Compressor type				Scroll	Reciprocating piston	Reciprocating piston
Max. power consumption			kW	13,9	17,0	40,0
Dimensions and weight						
Weight			kg	1.020	1.080	2.750
Length			mm	2.400	2.400	3.000
Width			mm	1.200	1.200	2.300
Height			mm	2.200	2.200	2.350
Connection air hoses			mm	525	525	525

A – ambient temperature (°C) | **L** – room air temperature (°C) | **SCOP** – annual performance

Accessories

Heated condensate hose			Item no.	301701
			€	**723,00**
Hot air hose	7,6 m, form-stable	Ø 525 mm	Item no.	301622
			€	**812,00**
Hot air hose with fastening strap and carrying bag	7,6 m	Ø 525 mm	Item no.	005597
			€	**460,00**
External thermostat	20 m cable		Item no.	302443
			€	**590,00**
Connecting piece for extending hot air hoses		Ø 525 mm	Item no.	002800
			€	**120,00**

Key Benefits of our Heat Pumps MWK and MW

01

What advantages do air-to-air heat pumps offer compared to other heating systems?

Our MWK/MW series has significant advantages over other heating systems:

Fossil-free and sustainable

Fuel savings

Cost and energy efficient, thanks to the absence of classic resistance heaters

Low maintenance effort

Ready for use within a very short time

No tank systems or chillers

02

What factors make our air-to-air heat pumps mobile?

While designing our heat pumps, special emphasis was placed on:

Compact in one unit

100% electrical operation

Robust design and high-quality materials

Easy transportation with a forklift truck

Space-saving installation, even in confined spaces

Quick connection and uncomplicated commissioning

03

What aspects ensure that our air-to-air heat pumps are user-friendly?

During development, we placed particular emphasis on the following user-friendly points:

Plug and play – Easy installation and handling

Optional services such as **remote query and remote maintenance**

Control via **web app** and helpful additional functions

Intuitive user interface

04

What temperature ranges can be covered with the air-to-air heat pumps?

Our devices are designed to cope with harsh temperature ranges and withstand even extreme hot and cold environments:

MWK40
–10°C to +40°C
for heating and cooling

MW40 and MW80
–20°C to +25°C
for heating

WEB APP

Digital control and remote monitoring for MWK40, MW40 and MW80

The Kroll Energy GmbH **Web Application** enables modern and efficient management of our mobile heat pumps, regardless of their location. The app is included with every MWK40, MW40 and MW80 series product, making it a central component for professional and multi-unit operation.

The application enables reliable and remote real time monitoring and control of active products via a user-friendly browser-based interface. Any and all relevant system data can be called upon at any time, making processes more transparent and allowing potential faults to be identified at an early stage.

The advantages at a glance:

- Centralized management of all heat pumps via one platform
- Clear display of location, status and process data
- Flexible expandability thanks to modular function packages
- Optimized deployment planning through remote access and time control
- Early detection of potential faults
- No additional hardware or accessories required – web app is already integrated into the products
- Ideal for multi-pump applications, including construction sites, events or temporary heating projects

Functions that grow with demand

The available functions of the web app are organized into three service packages. These offer a graduated expansion of the basic functions through to extended analysis and control options. These packages can be added or removed after your initial purchase, allowing for easy adjustment to your requirements.

The packages are subscriptions with an annual fee and these are automatically renewed every 12 months from the date of initial purchase. The subscriptions can be cancelled with one month's notice.

Package bundle	Contents	Price per year	Article number
Basis package	Basic Version, Error push mail, Restart, Stop	**98,00 €**	Z150
Expansion package	Live data, Daily timer	**49,00 €**	Z151
Data package	Historical data	**49,00 €**	Z152

Transparency and control – anytime, anywhere

The web app enables a remote connection to the product from any location. Changes to temperature, time control or operating mode can be made easily.

Historical data can also be visualized or exported, a valuable support for maintenance, service and documentation.

STATIONARY
Heaters/Hot Air Generators

Stationary Warm Air Heaters **S**

Burner Overview

Universal Oil Burner **KG/UB**

Modulating Gas Condensing Boiler **NBX**

Air Heater **LH**

Ceiling Fan **DV**

STATIONARY Warm Air Heaters **S**

Powerful hall heating for every requirement

Short lead time

Free choice of fuel

Longevity

Energy-saving technology

Suitable for every room

Warm air heaters heat the room air and are characterised by an even, pleasant heat transfer. Our **S-series warm air heaters** have been developed to meet the latest requirements for heating systems and fulfil your individual heating requirements exactly. They combine our long-established Kroll quality with modern, energy-saving technology for trouble-free continuous operation.

The units are ready for use after a short lead time and emit the generated heat directly into the air. In the process, you remain flexible: whether heating oil, liquid or natural gas operation, 2- or 1-stage burner, as a ducted or single unit, horizontal or vertical, full-touch or classic control: our S series can easily meet your individual demands in both new and existing buildings.

Thanks to the generous output range between 25 kilowatts and 652 kilowatts, the right version is available for every location. Customised duct systems can be used for hot air distribution in several rooms. Pressures of up to 1600 Pa are possible.

Our warm air heaters can be used in fresh, mixed and particularly environmentally friendly recirculation mode according to specific requirements. The systems help to reduce energy costs in winter and can also contribute to a pleasant room climate in summer by recirculating air.

Flexibility in the choice of energy source:

Decide between heating oil, LPG and natural gas in compliance with national standards.

Area of application

- Production halls and workshops
- Exhibition and trade fair halls
- Furniture and storage halls
- Showrooms
- Large garages and car workshops
- Sports halls
- Garden centres and greenhouses

Important note

For **2-stage oil operation, an additional nozzle is required in addition to the burner.**
This is not optional and is not included in the scope of delivery.

The nozzle is already included with the gas and 1-stage oil versions.

When using the KG/UB burner, a conveyor system is required.

ErP -compliant

Technical data

Power range 28 to 110 kW

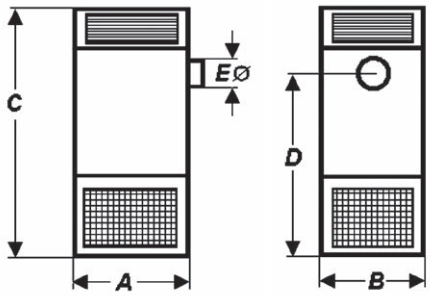
		Standard version					
		S25	**S40**	**S55**	**S70**	**S95**	**S110**
	Item no.	027700	027701	027702	027703	030821	027704
	€	**4.950,00**	**5.155,00**	**6.600,00**	**8.050,00**	**8.870,00**	**9.285,00**
Nominal heat load (Hi)	kW	26	40	51	73	95	108
Nominal heat output	kW	24,1	37,3	47,8	68,3	88,1	98,5
Volume flow	m³/h	2.120	2.890	3.660	5.310	8.090	9.290
Pressure max.*	Pa	freely blowing					
Temperature increase	K	35	36	37	35	31	31
Oil consumption**	kg/h	2,2	3,4	4,3	6,1	8,0	9,1
Gas consumption (natural gas E)	m³/h	2,8	4,2	5,4	7,7	10,1	11,4
Gas consumption (LPG)	kg/h	2,0	3,1	4,0	5,7	7,5	8,5
Electrical connection	V/Hz	230/~50	230/~50	230/~50	400/~50	400/~50	400/~50
Electrical power consumption	kW	0,64	1,12	1,59	1,11	1,74	1,89
Stainless steel heat exchanger		●	●	●	●	●	●
Outlet cover 3-sided with grille ZG2/ recirculating air		●	●	●	●	●	●
Intake grille		●	●	●	●	●	●
Flue pipe	Ø mm	130	130	130	180	180	180
Length	mm	715	865	975	1.085	1.150	1.150
Width	mm	455	505	585	665	765	765
Height	mm	1.275	1.500	1.645	1.835	1.895	1.995
Weight (without burner)	kg	93	124	157	191	245	265
Sound pressure level	dB(A)	68	71	71	68	69	69

* For available air pressure/duct connection or horizontal: see "special version"

** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)

● Included in the scope of delivery

Compact Dimension Overview



Dimensions in mm	A	B	C	D	E
S25	715	455	1.275	910	130
S40	865	505	1.500	1.110	130
55S	975	585	1.645	1.195	130
S70	1.085	665	1.835	1.425	180
S95	1.150	765	1.895	1.545	180
S110	1.150	765	1.985	1.545	180

Technical data

Power range 129 to 280 kW

		Standard version				
		S140	**S170**	**S195**	**S260**	**S290**
	Item no.	021657	021658	021659	021618	021660
	€	**12.000,00**	**13.495,00**	**17.525,00**	**18.610,00**	**21.550,00**
Nominal heat load (Hi)	kW	129	163	194	250	280
Nominal heat output	kW	120	150	180	230	260
Volume flow	m³/h	9.200	11.800	13.800	18.400	20.600
Pressure max.*	Pa	50	60	70	100	100
Temperature increase	K	44	43	44	42	42
Oil consumption**	kg/h	10,8	13,7	16,3	21,0	23,5
Gas consumption (natural gas E)	m3/h	13,7	17,2	20,5	26,5	29,6
Gas consumption (LPG)	kg/h	10,2	12,8	15,3	19,7	22,0
Electrical connection	V/Hz	400/~50	400/~50	400/~50	400/~50	400/~50
Electrical power consumption	kW	1,1	2,2	1,5	3,0	4,0
Stainless steel heat exchanger***		–	–	–	–	–
Outlet cover 3-sided with grille ZG2/ recirculating air		●	●	●	●	●
Intake grille		●	●	●	●	●
Flue pipe	Ø mm	250	250	250	250	250
Length	mm	1.250	1.250	1.750	1.750	2.200
Width	mm	1.025	1.025	1.025	1.025	1.025
Height	mm	2.180	2.180	2.180	2.180	2.180
Weight (without burner)	kg	399	405	495	503	662
Sound pressure level (5 m)	dB(A)	63	66	61	66	67

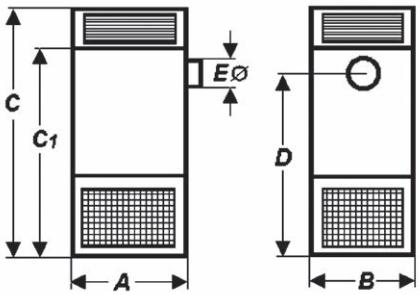
* Maximum pressure "standard" – can also be operated freely blowing out air – for more pressure, horizontal design etc. see "special version"

** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)

*** Optionally available at extra cost.

● Included in the scope of delivery

Compact Dimension Overview



Dimensions in mm	A	B	C	C1	D	E
S140	1.250	1.025	2.180	1.780	1.600	250
S170	1.250	1.025	2.180	1.780	1.600	250
S195	1.750	1.025	2.180	1.780	1.600	250
S260	1.750	1.025	2.180	1.780	1.600	250
S290	2.200	1.025	2.180	1.780	1.600	250

Technical data

Power range 326 to 652 kW

		Standard version					
		S360	**S430**	**S490**	**S580**	**S650**	**S730**
	Item no.	021661	021662	021663	021664	021665	021666
	€	**22.190,00**	**28.770,00**	**29.585,00**	**39.900,00**	**40.855,00**	**41.455,00**
Nominal heat load (Hi)	kW	326	423	489	544	598	652
Nominal heat output	kW	300	390	450	500	550	600
Volume flow	m³/h	23.400	29.500	35.000	37.500	42.600	48.300
Pressure max.*	Pa	100	180	250	160	180	260
Temperature increase	K	43	45	44	45	44	42
Oil consumption**	kg/h	27,4	35,5	41,1	45,7	50,3	54,8
Gas consumption (natural gas E)	m³/h	34,5	44,8	51,7	57,6	63,3	69,0
Gas consumption (LPG)	kg/h	25,7	33,3	38,5	42,8	47,1	51,3
Electrical connection	V/Hz	400/~50	400/~50	400/~50	400/~50	400/~50	400/~50
Electrical power consumption	kW	5,5	5,5	11,0	7,5	11,0	15,0
Stainless steel heat exchanger***		–	–	–	–	–	–
Outlet cover 3-sided with grille ZG2/ recirculating air		●	●	●	●	●	●
Intake grille		●	●	●	●	●	●
Flue pipe	Ø mm	250	300	300	300	300	300
Length	mm	2.200	2.200	2.200	2.700	2.700	2.700
Width	mm	1.025	1.220	1.220	1.220	1.220	1.220
Height	mm	2.180	2.645	2.645	2.745	2.745	2.745
Weight (without burner)	kg	689	1.004	1.015	1.185	1.196	1.248
Sound pressure level (5 m)	dB(A)	70	69	73	69	71	74

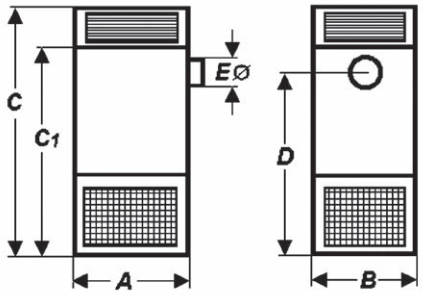
* Maximum pressure "standard" – can also be operated freely blowing out air – for more pressure, horizontal design etc. see "special version"

** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)

*** Optionally available at extra cost.

● Included in the scope of delivery

Compact Dimension Overview



Dimensions in mm	A	B	C	C1	D	E
S360	2.200	1.025	2.180	1.780	1.600	250
S430	2.200	1.220	2.645	2.245	2.020	300
S490	2.200	1.220	2.645	2.245	2.020	300
S580	2.700	1.220	2.745	2.245	2.020	300
S650	2.700	1.220	2.745	2.245	2.020	300
S730	2.700	1.220	2.745	2.245	2.020	300

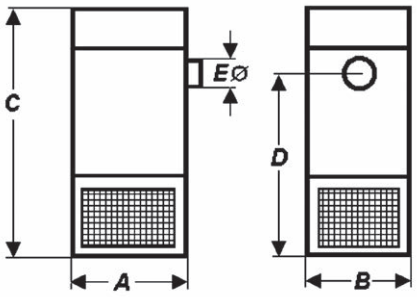
Technical data

Power range 28 to 110 kW

				Special version			
		S25	**S40**	**S55**	**S70**	**S95**	**S110**
	Item no.	101040	101041	101042	101043	101044	101045
	€	**5.695,00**	**5.830,00**	**7.345,00**	**8.800,00**	**9.615,00**	**10.025,00**
Nominal heat load (Hi)	kW	26	40	51	73	95	108
Nominal heat output	kW	24,1	37,3	47,8	68,3	88,1	98,5
Volume flow	m³/h	2.120	2.890	3.660	5.310	8.090	9.290
Pressure max.*	Pa	350	350	350	350	350	350
Temperature increase	K	35	36	37	35	31	31
Oil consumption**	kg/h	2,2	3,4	4,3	6,1	8,0	9,1
Gas consumption (natural gas E)	m3/h	2,8	4,2	5,4	7,7	10,1	11,4
Gas consumption (LPG)	kg/h	2,0	3,1	4,0	5,7	7,5	8,5
Electrical connection	V/Hz	230/~50 400/~50	230/~50 400/~50	230/~50 400/~50	400/~50	400/~50	400/~50
Electrical power consumption***	kW	0,64	1,12	1,59	1,11	1,74	1,89
Stainless steel heat exchanger		●	●	●	●	●	●
Intake grille		●	●	●	●	●	●
Flue pipe	Ø mm	130	130	130	180	180	180
Length	mm	715	865	975	1.085	1.150	1.150
Width	mm	455	505	585	665	765	765
Height	mm	1.275	1.500	1.645	1.835	1.895	1.995
Weight (without burner)	kg	93	124	157	191	245	265
Sound pressure level	dB(A)	68	71	71	68	69	69

* Please specify required pressure, higher pressure up to 1600 Pa and further options on request
** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)
*** Electrical power consumption at 350 Pa – depending on the selected pressure
● Included in the scope of delivery

Compact Dimension Overview



Dimensions in mm	A	B	C	D	E
S25	715	455	1.275	910	130
S40	865	505	1.500	1.110	130
55S	975	585	1.645	1.195	130
S70	1.085	665	1.835	1.425	180
S95	1.150	765	1.895	1.545	180
S110	1.150	765	1.985	1.545	180

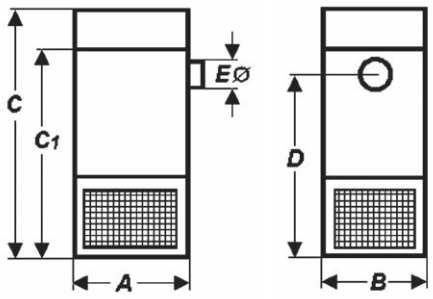
Technical data

Power range 129 to 280 kW

		Special version				
		S140	**S170**	**S195**	**S260**	**S290**
	Item no.	021699	021711	021716	021720	021725
	€	**11.400,00**	**12.820,00**	**16.650,00**	**17.680,00**	**20.470,00**
Nominal heat load (Hi)	kW	129	163	194	250	280
Nominal heat output	kW	120	150	180	230	260
Volume flow	m³/h	9.200	11.800	13.800	18.400	20.600
Pressure max.*	Pa	350	350	350	350	350
Temperature increase	K	44	43	44	42	42
Oil consumption**	kg/h	10,8	13,7	16,3	21,0	23,5
Gas consumption (natural gas E)	m3/h	13,7	17,2	20,5	26,5	29,6
Gas consumption (LPG)	kg/h	10,2	12,8	15,3	19,7	22,0
Electrical connection	V/Hz	400/~50	400/~50	400/~50	400/~50	400/~50
Electrical power consumption***	kW	1,1	2,2	1,5	3,0	4,0
Stainless steel heat exchanger****		–	–	–	–	–
Intake grille		●	●	●	●	●
Flue pipe	Ø mm	250	250	250	250	250
Length	mm	1.250	1.250	1.750	1.750	2.200
Width	mm	1.025	1.025	1.025	1.025	1.025
Height	mm	2.180	2.180	2.180	2.180	2.180
Weight (without burner)	kg	399	405	495	503	662
Sound pressure level (5 m)	dB(A)	63	66	61	66	67

* Please specify required pressure, higher pressure up to 1600 Pa and further options on request
** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)
*** Electrical power consumption at 350 Pa – depending on the selected pressure
**** Optionally available at extra cost
● Included in the scope of delivery

Compact Dimension Overview



Dimensions in mm	A	B	C	C1	D	E
S140	1.250	1.025	2.180	1.780	1.600	250
S170	1.250	1.025	2.180	1.780	1.600	250
S195	1.750	1.025	2.180	1.780	1.600	250
S260	1.750	1.025	2.180	1.780	1.600	250
S290	2.200	1.025	2.180	1.780	1.600	250

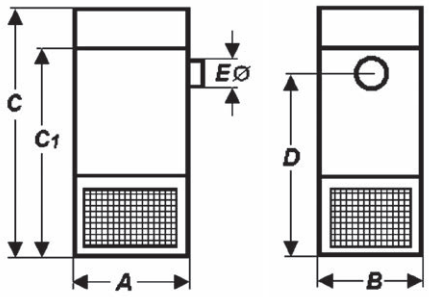
Technical data

Power range 326 to 652 kW

		Special version					
		S360	**S430**	**S490**	**S580**	**S650**	**S730**
	Item no.	021730	021735	021740	021745	021750	021755
	€	**21.080,00**	**27.330,00**	**28.105,00**	**37.905,00**	**38.815,00**	**39.380,00**
Nominal heat load (Hi)	kW	326	423	489	544	598	652
Nominal heat output	kW	300	390	450	500	550	600
Volume flow	m³/h	23.400	29.500	35.000	37.500	42.600	48.300
Pressure max.*	Pa	350	350	350	350	350	350
Temperature increase	K	43	45	44	45	44	42
Oil consumption**	kg/h	27,4	35,5	41,1	45,7	50,3	54,8
Gas consumption (natural gas E)	m³/h	34,5	44,8	51,7	57,6	63,3	69,0
Gas consumption (LPG)	kg/h	25,7	33,3	38,5	42,	47,1	51,3
Electrical connection	V/Hz	400/~50	400/~50	400/~50	400/~50	400/~50	400/~50
Electrical power consumption***	kW	5,5	5,5	11,0	7,5	11,0	15,0
Stainless steel heat exchanger****		–	–	–	–	–	–
Intake grille		●	●	●	●	●	–
Flue pipe	Ø mm	250	300	300	300	300	300
Length	mm	2.200	2.200	2.200	2.700	2.700	2.700
Width	mm	1.025	1.220	1.220	1.220	1.220	1.220
Height	mm	2.180	2.645	2.645	2.745	2.745	2.745
Weight (without burner)	kg	689	1.004	1.015	1.185	1.196	1.248
Sound pressure level (5 m)	dB(A)	70	69	73	69	71	74

* Please specify required pressure, higher pressure up to 1600 Pa and further options on request
** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)
*** Electrical power consumption at 350 Pa – depending on the selected pressure
**** Optionally available at extra cost
● Included in the scope of delivery

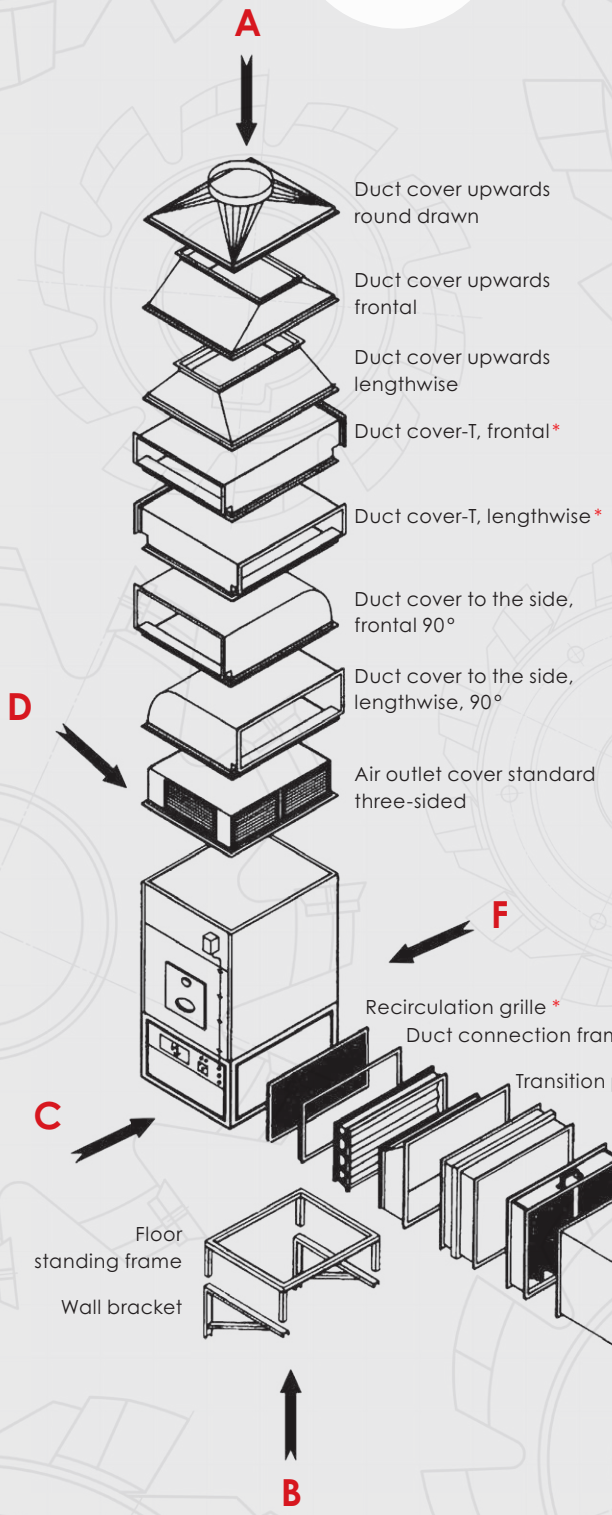
Compact Dimension Overview



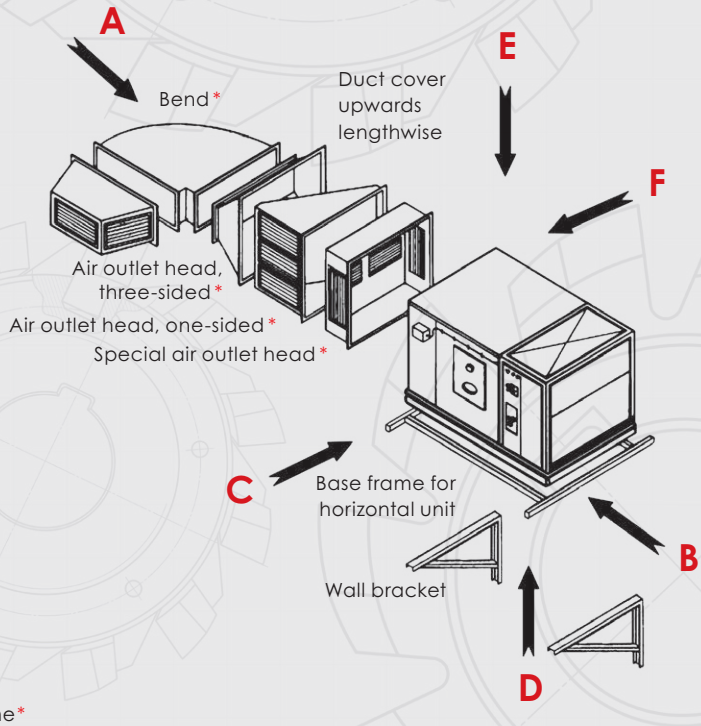
Dimensions in mm	A	B	C	C1	D	E
S360	2.200	1.025	2.180	1.780	1.600	250
S430	2.200	1.220	2.645	2.245	2.020	300
S490	2.200	1.220	2.645	2.245	2.020	300
S580	2.700	1.220	2.745	2.245	2.020	300
S650	2.700	1.220	2.745	2.245	2.020	300
S730	2.700	1.220	2.745	2.245	2.020	300

Explosion drawing

Upright version



horizontal left = LL (as drawn)
horizontal right = LR



Horizontal version

* User/customer-specific accessories available on request.

Accessories

			Product allocation								
			S25	S40	S55	S70	S95 S110	S140 S170	S195 S260	S290 S360	S430 S490	S580 S650 S730
Fastening components												
Floor standing frame	Height 500 mm	Item no.	030501	030502	030503	030504	034587	021833	021834	021835	022100	021836
		€	**599,00**	**603,00**	**645,00**	**659,00**	**764,00**	**857,00**	**1.109,00**	**1.387,00**	**1.362,00**	**1.373,00**
Wall brackets	for vertical unit	Item no.	030505	030506	030507	030508	034651	021842	011903	021843	022102	021844
		€	**601,00**	**579,00**	**605,00**	**624,00**	**988,00**	**623,00**	**647,00**	**657,00**	**657,00**	**932,00**
Wall brackets	for horizontal Unit	Item no.	030509	030510	030511	030512	034713	021840	021841	–	–	–
		€	**629,00**	**632,00**	**735,00**	**833,00**	**988,00**	**975,00**	**1.028,00**	–	–	–
Base frame	for horizontal unit	Item no.	030513	030514	030515	030516	034714	011906	021846	021847	022105	021848
		€	**744,00**	**833,00**	**601,00**	**638,00**	**931,00**	**679,00**	**701,00**	**718,00**	**748,00**	**768,00**
Base frame	for ceiling suspension	Item no.	030517	030518	030519	030520	034715	011907	021850	021851	022107	021852
		€	**649,00**	**682,00**	**627,00**	**652,00**	**1.097,00**	**688,00**	**711,00**	**735,00**	**762,00**	**792,00**
Burner												
Burner cladding		Item no.	030469	030469	030469	030473	030473	011910	011911	011912	011912	011912
		€	**729,00**	**729,00**	**729,00**	**749,00**	**749,00**	**974,00**	**905,00**	**945,00**	**945,00**	**945,00**
Burner air supply												
Intake bend	90°	Item no.	021853	021853	021853	021853	021853	–	–	–	–	–
		€	**119,00**	**119,00**	**119,00**	**119,00**	**119,00**	–	–	–	–	–
Intake bend	45°	Item no.	011915	011915	011915	011915	011915	–	–	–	–	–
		€	**146,00**	**146,00**	**146,00**	**146,00**	**146,00**	–	–	–	–	–
Intake pipe	1-metre-long	Item no.	021856	021856	021856	021856	021856	–	–	–	–	–
		€	**102,00**	**102,00**	**102,00**	**102,00**	**102,00**	–	–	–	–	–
Intake end piece	with grille	Item no.	021859	021859	021859	021859	021859	–	–	–	–	–
		€	**132,00**	**132,00**	**132,00**	**132,00**	**132,00**	–	–	–	–	–
Duct air outlet accessories												
Duct cover upwards	round drawn	Item no.	030537	030538	030539	030540	034719	011888	021897	021898	022113	021899
		Ø mm	335	400	450	500	600	710	900	1.000	**	**
		€	**403,00**	**403,00**	**403,00**	**428,00**	**692,00**	**993,00**	**1.212,00**	**1.261,00**	**1.615,00**	**1.721,00**
Duct cover upwards	rectangular *	Item no.	030533	030534	030535	030536	021891	021892	021893	022247	022112	021894
		€	**95,00**	**120,00**	**139,00**	**	**	**	**	**	**	**
Duct cover to the side	90° frontal	Item no.	030529	030530	030531	030532	301166	021887	011880	021888	022111	021889
		€	**608,00**	**629,00**	**608,00**	**709,00**	**791,00**	**869,00**	**1.019,00**	**1.585,00**	**1.845,00**	**2.030,00**
Duct cover to the side	90° lengthwise	Item no.	030525	030526	030527	030528	021886	021887	011880	021888	022111	021889
		€	**608,00**	**608,00**	**608,00**	**675,00**	**837,00**	**869,00**	**1.019,00**	**1.585,00**	**1.845,00**	**2.030,00**
Air outlet cover	standard 3-sided	Item no.	Part of the standard unit					011874	011875	011876	022109	011878
		€						**953,00**	**1.274,00**	**1.637,00**	**1.893,00**	**2.420,00**

* frontal, lengthwise, rectangular

** on request

		Product allocation									
		S25	S40	S55	S70	S95 S110	S140 S170	S195 S260	S290 S360	S430 S490	S580 S650 S730
Air intake accessories for vertical version											
Transition piece to pocket air filter	Item no. €	030553 **333,00**	021938 **336,00**	021939 **336,00**	021940 **346,00**	034723 **388,00**	– –	– –	– –	– –	– –
Pocket air filter	Item no. €	030556 **1.277,00**	030561 **1.305,00**	021966 **1.709,00**	021967 **1.837,00**	034726 **1.876,00**	– –	– –	– –	– –	– –
Pocket air filter including transition piece	Item no. €	– –	– –	– –	– –	– –	021969 **1.837,00**	021970 **2.030,00**	021971 **2.680,00**	022127 **3.125,00**	021972 **4.055,00**
Flat filter (set)	Item no. €	034182 **1.511,00**	034187 **1.524,00**	034192 **1.538,00**	034197 **1.751,00**	034202 **1.299,00**	021977 **1.424,00**	021978 **1.582,00**	– –	– –	– –
Electrical accessories and oil filter											
Fuel oil filter with return mixing	Item no. €	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**	005330 **83,00**
Room thermostat RTI, industrial version IP54	Item no. €	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**
Day-Night-Control in plastic housing, for night setback, with digital clock, power reserve, daily and weekly programme, including 1 room sensor	Item no. €	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**
Automatic heating oil vent with filter	Item no. €	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**	006903 **226,00**

Further accessories available on request.

Not sure which burner to choose?

On these pages you will find an overview of available burners and allocations in various designs

We would like to emphasise once again that you or your customer is only ErP-compliant with a 2-stage burner and that compliance with national standards is mandatory in all cases.

If the KG/UB burner is used in a universal oil application of an M or S device, a conveyor system is required.

If in doubt, we will be happy to help you choose the right burner at any time.

Model	Suitable burner	Nozzle	Item no.	€
S25	Oil burner Riello, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 0,60 gph/60°S	300631 005585	**2.580,00** **15,00**
	Oil burner Giersch, 1-stage		027485	**1.260,00**
	Multi-fuel oil burner KG/UB20		027142	**3.530,00**

Model	Suitable burner	Nozzle	Item no.	€
S40	Oil burner Riello, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 0,75 gph/60°S	300631 005853	**2.580,00** **15,00**
	Oil burner Giersch, 1-stage		027486	**1.260,00**
	Multi-fuel oil burner KG/UB20		027142	**3.530,00**

Model	Suitable burner	Nozzle	Item no.	€
S55	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 0,85/60°S	300575 029692	**2.950,00** **16,00**
	Oil burner Weishaupt, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 0,75/60°S	300710 005853	**4.370,00** **15,00**
	Oil burner Giersch, 1-stage		027487	**1.260,00**
	Multi-fuel oil burner KG/UB55		027143	**3.650,00**

Model	Suitable burner	Nozzle	Item no.	€
S70	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 1,10/60°S	300575 005543	**2.950,00** **16,00**
	Oil burner Weishaupt, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 1,00/60°S	300710 005538	**4.370,00** **16,00**
	Oil burner Giersch, 1-stage		005785	**1.535,00**
	Multi-fuel oil burner KG/UB70		027144	**4.050,00**

Model	Suitable burner	Nozzle	Item no.	€
S95	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 1,50/60°S	300575 029473	**2.950,00** **19,00**
	Oil burner Weishaupt, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 1,35/60°S	300711 005855	**4.540,00** **16,00**
	Oil burner Giersch, 1-stage		006224	**1.700,00**
	Multi-fuel oil burner KG/UB100		027145	**4.340,00**

Model	Suitable burner	Nozzle	Item no.	€
S110	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 1,75/60°S	300575 030562	**2.950,00** **22,00**
	Oil burner Weishaupt, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 1,65/60°H	300712 042061	**5.340,00** **26,00**
	Oil burner Giersch, 1-stage		006224	**1.700,00**
	Multi-fuel oil burner KG/UB100		027145	**4.340,00**

Model	Suitable burner	Nozzle	Item no.	€
S140	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 2,00/60°S	300575 006098	**2.950,00** **28,00**
	Oil burner Giersch, 1-stage		006224	**1.700,00**
	Multi-fuel oil burner KG/UB150		027146	**5.450,00**

Burner overview: Oil

Model	Suitable burner	Nozzle	Item no.	€
S170	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 2,50/60°S	300643 005944	**3.965,00** **28,00**
	Oil burner Giersch, 1-stage		005811	**2.580,00**
	Multi-fuel oil burner KG/UB200		027147	**5.635,00**

Model	Suitable burner	Nozzle	Item no.	€
S195	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 3,00/60°S	300643 028179	**3.965,00** **28,00**
	Oil burner Giersch, 1-stage		005811	**2.580,00**
	Multi-fuel oil burner KG/UB200		027147	**5.635,00**

Model	Suitable burner	Nozzle	Item no.	€
S260	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 4,00/60°S	300643 035235	**3.965,00** **28,00**
	Oil burner Giersch, 1-stage		005811	**2.580,00**

Model	Suitable burner	Nozzle	Item no.	€
S290	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 4,50/60°S	300695 056166	**6.010,00** **28,00**

Model	Suitable burner	Nozzle	Item no.	€
S360	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 5,5/60°S	300695 046746	**6.010,00** **56,00**

Model	Suitable burner	Nozzle	Item no.	€
S430	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 7,00/60°S	300695 300708	**6.010,00** **36,00**

Model	Suitable burner	Nozzle	Item no.	€
S490	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 7,50/60°SS	300696 006320	**6.400,00** **16,00**

Model	Suitable burner	Nozzle	Item no.	€
S580	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 9,00/60°SS	300697 032617	**10.080,00** **16,00**

Model	Suitable burner	Nozzle	Item no.	€
S650	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 9,00/60°SS	300697 032617	**10.080,00** **16,00**

Model	Suitable burner	Nozzle	Item no.	€
S730	Oil burner Giersch, 2-stage **CAUTION: Nozzle is necessary and must be ordered!**	Nozzle 10,00/60°SS	300697 300709	**10.080,00** **35,00**

Burner overview: Natural gas

Model	Suitable burner	Item no.	€
S25	Natural gas burner Riello, 2-stage	300633	**3.870,00**
	Natural gas burner Weishaupt, 2-stage	300680	**7.470,00**
	Natural gas burner Giersch, 1-stage	005813	**2.065,00**
S40	Natural gas burner Riello, 2-stage	300633	**3.870,00**
	Natural gas burner Weishaupt, 2-stage	300680	**7.470,00**
	Natural gas burner Giersch, 1-stage	005814	**2.090,00**
55S	Natural gas burner Riello, 2-stage	300634	**3.955,00**
	Natural gas burner Weishaupt, 2-stage	300680	**7.470,00**
	Natural gas burner Weishaupt, 2-stage	300681	**7.890,00**
	Natural gas burner Giersch, 1-stage	005815	**2.300,00**
S70	Natural gas burner Giersch, 2-stage	300576	**4.945,00**
	Natural gas burner Riello, 2-stage	300634	**3.955,00**
	Natural gas burner Weishaupt, 2-stage	300681	**7.890,00**
	Natural gas burner Giersch, 1-stage	005816	**2.890,00**
S95	Natural gas burner Giersch, 2-stage	300576	**4.945,00**
	Natural gas burner Weishaupt, 2-stage	300681	**7.890,00**
	Natural gas burner Giersch, 1-stage	005816	**2.890,00**
S110	Natural gas burner Giersch, 2-stage	300576	**4.945,00**
	Natural gas burner Weishaupt, 2-stage	300681	**7.890,00**
	Natural gas burner Weishaupt, 2-stage	300682	**8.520,00**
	Natural gas burner Giersch, 1-stage	005816	**2.890,00**
S140	Natural gas burner Giersch, 2-stage	300576	**4.945,00**
	Natural gas burner Giersch, 1-stage	006006	**4.100,00**
S170	Natural gas burner Giersch, 2-stage	300648	**5.685,00**
	Natural gas burner Giersch, 1-stage	006006	**4.100,00**
S195	Natural gas burner Giersch, 2-stage	300644	**7.040,00**
	Natural gas burner Giersch, 1-stage	006006	**4.100,00**
S260	Natural gas burner Giersch, 2-stage	300646	**7.400,00**
	Natural gas burner Giersch, 1-stage	021669	**4.480,00**
S290	Natural gas burner Giersch, 2-stage	021793	**7.390,00**
S360	Natural gas burner Giersch, 2-stage	021793	**7.390,00**
S430	Natural gas burner Giersch, 2-stage	029199	**8.630,00**
S490	Natural gas burner Giersch, 2-stage	029201	**12.580,00**
S580	Natural gas burner Giersch, 2-stage	021798	**15.310,00**
S650	Natural gas burner Giersch, 2-stage	021798	**15.310,00**
S730	Natural gas burner Giersch, 2-stage	021798	**15.310,00**

Burner overview: LPG

Model	Suitable burner	Item no.	€
S25	Gas burner Riello, 2-stage **CAUTION: upgrade kit for LPG must be ordered!**	300633 300635	**3.870,00** **139,00**
	LPG burner Weishaupt, 2-stage	300690	**7.660,00**
	LPG burner Giersch, 1-stage	005821	**2.055,00**
S40	Gas burner Riello, 2-stage **CAUTION: upgrade kit for LPG must be ordered!**	300633 300635	**3.870,00** **139,00**
	LPG burner Weishaupt, 2-stage	300690	**7.660,00**
	LPG burner Giersch, 1-stage	005822	**2.055,00**
55S	Gas burner Riello, 2-stage **CAUTION: upgrade kit for LPG must be ordered!**	300634 300636	**3.955,00** **118,00**
	LPG burner Weishaupt, 2-stage	300690	**7.660,00**
	LPG burner Weishaupt, 2-stage	300691	**8.080,00**
	LPG burner Giersch, 1-stage	005822	**2.055,00**
S70	LPG burner Giersch, 2-stage	300577	**4.945,00**
	Gas burner Riello, 2-stage **CAUTION: upgrade kit for LPG must be ordered!**	300634 300636	**3.955,00** **118,00**
	LPG burner Weishaupt, 2-stage	300691	**8.080,00**
	LPG burner Giersch, 1-stage	005824	**2.710,00**
S95	LPG burner Giersch, 2-stage	300577	**4.945,00**
	LPG burner Weishaupt, 2-stage	300691	**8.080,00**
	LPG burner Giersch, 1-stage	005824	**2.710,00**
S110	LPG burner Giersch, 2-stage	300577	**4.945,00**
	LPG burner Weishaupt, 2-stage	300691	**8.080,00**
	LPG burner Weishaupt, 2-stage	300692	**8.710,00**
	LPG burner Giersch, 1-stage	005824	**2.710,00**
S140	LPG burner Giersch, 2-stage	300577	**4.945,00**
	LPG burner Giersch, 1-stage	006009	**3.785,00**
S170	LPG burner Giersch, 2-stage	300577	**4.945,00**
	LPG burner Giersch, 1-stage	006009	**3.785,00**
S195	LPG burner Giersch, 2-stage	300645	**6.170,00**
	LPG burner Giersch, 1-stage	006009	**3.785,00**
S260	LPG burner Giersch, 2-stage	300647	**8.075,00**
	LPG burner Giersch, 1-stage	006009	**3.785,00**
S290	LPG burner Giersch, 2-stage	021806	**8.980,00**
S360	LPG burner Giersch, 2-stage	021806	**8.980,00**
S430	LPG burner Giersch, 2-stage	029326	**8.635,00**
S490	LPG burner Giersch, 2-stage	029326	**8.635,00**
S580	LPG burner Giersch, 2-stage	021810	**13.470,00**
S650	LPG burner Giersch, 2-stage	021810	**13.470,00**
S730	LPG burner Giersch, 2-stage	021810	**13.470,00**

Universal Oil Burner KG/UB

Burner output based on individual heat requirement

Efficient

Maintenance-friendly

Free choice of fuel

Flexible

Suitable for every room

Our **highly modern universal oil burner KG/UB** is a true all-rounder among oil burners. The innovative device allows you to choose between different types of oil as fuel without the use of special tools and in strict compliance with national standards. The practical design requires only a few manual steps to set the optimal preheating temperature and the correct ratio between combustion air and fuel. This flexibility, combined with a powerful warm air generator, allows you to heat your large commercial or industrial spaces such as workshops, production halls or storage areas in an economical and extremely convenient way. The fuel is atomized efficiently using compressed air through large nozzle diameters, which is particularly helpful in avoiding blockages with dirty or viscous oils.

A separate conveying system draws the required fuel from the storage tank, feeds it and preheats it if necessary. The tank ensures a constant volume flow of fuel to the ignition electrode, which ensures continuous and flawless combustion.

Whether your boiler has a cast iron or steel combustion chamber, the additional use of our ZVP pipe and a ceramic fibre plate ensures a so-called "hot combustion chamber".

The ZVP tube helps to lower the exhaust gas temperature, improves CO_2 values, reduces the soot count and significantly extends the service life of your burner. This innovative technology guarantees not only efficiency, but also environmental responsibility and longevity for your heating system.

Exemplary application of our KG/UB in combination with our S device

Help

Does the burner fit my present boiler?

Please pay attention to the dimensions. Check the **dimensions of the drilling** in **the burner plate** and the **dimensions of the burner tube.** If these dimensions match the flame tube of the burner, the burner flange can be fitted.

If in doubt, we will be happy to help you choose the right burner at any time.

Area of application

Connected to our S devices, M devices or hot water boilers in general:

- Production halls and workshops
- Furniture and storage halls
- Exhibition and trade fair halls
- Sales rooms and other large rooms

Features

- Free choice of fuel (comply with national standards)
- Intuitive operation
- Easy to maintain
- Optionally with ZVP pipe

KG/UB

Technical data

Power range 14 to 81 kW

		KG/UB20	KG/UB55	KG/UB70	KG/UB100	KG/UB150	KG/UB200
	Item no.	027142	027143	027144	027145	027146	027147
	€	**3.530,00**	**3.650,00**	**4.050,00**	**4.340,00**	**5.450,00**	**5.635,00**
Heat output with rapeseed oil (Hi)	kW	26–38	37–54	56–81	81–100	93–147	131–190
Oil consumption	kg/h	2,5–3,7	3,6–5,2	5,4 –7,8	7,8–9,6	8,9–14,1	12,7–18,0
Electrical connection	V/Hz	230/~50	230/~50	230/~50	230/~50	230/~50	230/~50
Electrical power consumption	kW	1,21	1,21	1,21	1,21	1,35	1,35
Weight	kg	15	15	16	16	26	26
Drilling in the burner plate	mm	150–170	150–170	150–170	150–170	160– 200	160– 200
Burner pipe	Ø mm	90	90	101	101	114	114

Accessories

		Product allocation					
		KG/UB20	KG/UB55	KG/UB70	KG/UB100	KG/UB150	KG/UB200
Spacer flange with gasket **required for use on certain boiler types**	Item no. €	034129 **172,00**	034129 **172,00**	034129 **172,00**	034129 **172,00**	034131 **157,00**	034131 **157,00**
ZVP pipe for KG/UB20 **only in conjunction with devices S25 and S40**	Item no. €	038768 **369,00**	– –	– –	– –	– –	– –
ZVP pipe and ceramic fiber mat	Item no. €	038672 **365,00**	038672 **365,00**	038770 **401,00**	038770 **401,00**	038771 **465,00**	038771 **465,00**
Ceramic fiber mat 6 mm, width 610 mm; running meter	Item no. €	– –	– –	034241 **22,00**	034241 **22,00**	034241 **22,00**	034241 **22,00**
Ceramic fiber plate approx. 25x500x500 mm	Item no. €	– –	– –	039363 **243,00**	039363 **243,00**	039363 **243,00**	039363 **243,00**
Conveying system for external storage tank, conveying unit with heated filter and floating suction unit	Item no. €	000901 **1.318,00**	000901 **1.318,00**	000901 **1.318,00**	000901 **1.318,00**	000901 **1.318,00**	000901 **1.318,00**
Conveying system for external storage tank, conveying unit with unheated filter and floating suction unit	Item no. €	047550 **873,00**	047550 **873,00**	047550 **873,00**	047550 **873,00**	047550 **873,00**	047550 **873,00**
Conveying system with device tank, conveying unit, heated filter and floating suction unit Tank capacity: 59 litres KG/UB20 to KG/UB70 Tank capacity: 109 litres KG/UB100 to KG/UB200	Item no. €	000900 **2.405,00**	000900 **2.405,00**	000900 **2.405,00**	000891 **2.650,00**	000891 **2.650,00**	000891 **2.650,00**

If the KG/UB burner is used in a universal oil application of an M or S device, a conveyor system is required.

ZVP pipe	Use for:		Overall length (mm)	Outer-Ø (mm)
ZVP125	Multi-fuel oil burner KG/UB20	on warm air heaters	1.025	2.180
ZVP140	Multi-fuel oil burner KG/UB20, KG/UB55	on hot water boilers	1.220	2.645
ZVP160	Multi-fuel oil burner KG/UB70, KG/UB100	on hot water boilers	1.220	2.645
ZVP180	Multi-fuel oil burner KG/UB150, KG/UB200	on hot water boilers	1.220	2.745

Modulating Gas Condensing Boiler **NBX**

Instant heat without lead time

Economical

Additional recirculation mode

Instantly ready for operation

Permanent condensing boiler

Avoidance of draughts

Our **modulating gas condensing boilers of the NBX series** not only offer an ideal solution for heating and ventilating industrial premises but are also characterized by their versatility. The precise control enables targeted heating of specific areas, for example in process handling, creating an optimum working environment. This flexibility is particularly invaluable in dynamic production environments.

By eliminating lead times, as with central heating, they provide quick and comfortable warmth both during spontaneous cold snaps and on particularly cold days. In summer, our NBX units can also be used to ventilate rooms.

A key feature of our systems is the patented stainless steel heat exchanger, which ensures a remarkably high air flow rate. The high-performance burner is equipped with innovative burner tubes, electronic ignition and ionisation monitoring, which not only ensures efficient combustion but also meets the highest safety standards. The comprehensive thermal insulation minimises heat radiation and transmission losses, while the weld-free construction around the burner ensures exceptional durability and low maintenance.

Our units are designed to be flexible and adaptable to different installation requirements. They can be mounted on the wall or suspended from the ceiling. The option of chimney-mounted installation or the use of a flue gas routing system via the roof or through the outer wall offers additional variability to suit a wide range of spatial conditions.

Thanks to condensing operation, our units not only achieve a significant increase in efficiency, but also make a significant contribution to reducing your operating costs. This makes them an economically viable solution for air conditioning and heating your industrial premises.

Area of application

- Workshops
- Production halls
- Large garages
- Car workshops
- Exhibition and trade fair halls
- Furniture and storage halls
- Sports halls

Features

- Maintenance-free motor
- Low-noise sickle blade fans
- Adjustable air flow direction
- Electronic ignition
- Fuel: Natural or LPG (pre-equipped for natural gas G20)

Technical data

Power range 9,4 to 115 kW

		NBX30	NBX40	NBX50	NBX60	NBX90	NBX120
	Item no.	300131	300132	300133	300134	300135	300136
	€	**5.520,00**	**6.100,00**	**6.820,00**	**7.550,00**	**10.600,00**	**11.615,00**
Nominal heat load max. (Hi)	kW	29,1	38,5	49,8	59,0	90,8	116,0
Nominal heat output max.	kW	28,0	37,0	48,0	57,0	89,0	115,0
Nominal heat load min. (Hi)	kW	10,0	14,0	19,0	21,0	35,0	43,0
Nominal heat output min.	kW	9,4	13,3	18,4	20,0	33,3	40,6
Volume flow	m³/h	3.200	4.400	5.500	6.500	10.000	13.000
Electrical connection	V/Hz	230/~50	230/~50	230/~50	230/~50	230/~50	400/~50
Electrical power consumption	kW	0,17	0,31	0,34	0,40	0,66	0,74
Stainless steel heat exchanger							
		Natural gas membrane G20 mounted as delivered					
Natural gas		●	●	●	●	●	●
		Natural gas membrane G25 must be ordered separately					
LPG		●	●	●	●	●	●
		LPG membrane G31 must be ordered separately					
Electronic ignition		●	●	●	●	●	●
Throw range*	m	20	28	32	35	39	42
Condensate quantity**	l/h	0,2–1,1	0,3–1,3	0,3–1,5	0,3–1,9	1,6–3,3	2,7–4,3
Depth including fins	mm	830	830	896	896	1.081	1.081
Depth excluding fins	mm	560	560	610	610	710	710
Width	mm	885	885	1.225	1.225	1.775	1.775
Height	mm	580	580	650	650	800	800
Weight	kg	65	75	90	95	205	215
Exhaust connection		DN80	DN80	DN80	DN80	DN100	DN100
Supply air connection		DN80	DN80	DN80	DN80	DN100	DN100
Max. flue gas length (above roof)	m	10	10	10	10	10	10
Sound pressure level	dB(A)	53	55	56	57	56	60

* Based on ambient temperature + 20°C, residual speed 0.2 m/s

** Indicative variable value, depending on the ambient conditions

● Included in the scope of delivery

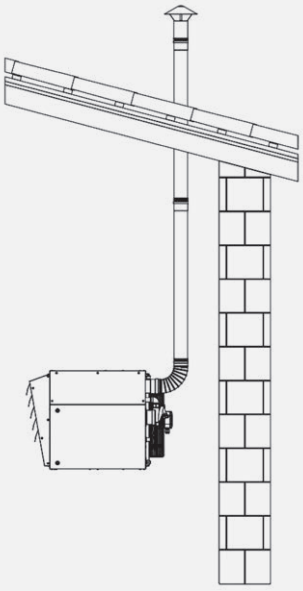
Accessories

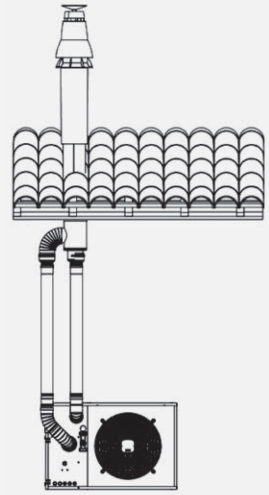
				Product allocation					
				NBX30	NBX40	NBX50	NBX60	NBX90	NBX120
Natural gas membrane G25 for natural gas			Item no. €	300214 **37,00**	300215 **37,00**	300216 **37,00**	300216 **37,00**	300217 **69,00**	300213 **69,00**
LPG membrane G31 for LPG			Item no. €	300218 **37,00**	300219 **46,00**	300220 **37,00**	300220 **37,00**	300221 **69,00**	300222 **69,00**
Control unit with serial communication including day-night-control for up to 10 units **This is mandatory for operation.**			Item no. €	300139 **282,00**	300139 **282,00**	300139 **282,00**	300139 **282,00**	300139 **282,00**	300139 **282,00**
External room temperature sensor			Item no. €	053293 **119,00**	053293 **119,00**	053293 **119,00**	053293 **119,00**	053293 **119,00**	053293 **119,00**
Wall brackets			Item no. €	053288 **329,00**	053288 **329,00**	300138 **329,00**	300138 **329,00**	300138 **329,00**	300138 **329,00**
Hanging set			Item no. €	300140 **339,00**	300140 **339,00**	300140 **339,00**	300140 **339,00**	300140 **339,00**	300140 **339,00**
Double pipe wall duct **For NBX30, NBX40, NBX50, NBX60, the transition piece 300144 is also required!**		DN100/100	Item no. €	053294 **483,00**	053294 **483,00**	053294 **483,00**	053294 **483,00**	053294 **483,00**	053294 **483,00**
Double pipe roof duct **For NBX30, NBX40, NBX50, NBX60, transition piece 300144 is also required!**		DN100/100	Item no. €	053296 **709,00**	053296 **709,00**	053296 **709,00**	053296 **709,00**	053296 **709,00**	053296 **709,00**
Length element	0,5 m	DN80	Item no. €	300141 **56,00**	300141 **56,00**	300141 **56,00**	300141 **56,00**	– –	– –
End piece (flue pipe)		DN80	Item no. €	300142 **119,00**	300142 **119,00**	300142 **119,00**	300142 **119,00**	– –	– –
Length element	0,5 m	DN100	Item no. €	– –	– –	– –	– –	034619 **64,00**	034619 **64,00**
End piece (flue pipe)		DN100	Item no. €	– –	– –	– –	– –	300143 **127,00**	300143 **127,00**
Adapter/ transition piece		80 mm to 100 mm	Item no. €	300144 **46,00**	300144 **46,00**	300144 **46,00**	300144 **46,00**	– –	– –
Bend	90°	DN80 m/f	Item no. €	300145 **73,00**	300145 **73,00**	300145 **73,00**	300145 **73,00**	– –	– –
Length component	1,0 m	DN80	Item no. €	300146 **92,00**	300146 **92,00**	300146 **92,00**	300146 **92,00**	– –	– –
Bend	90°	DN100 m/f	Item no. €	– –	– –	– –	– –	034630 **92,00**	034630 **92,00**
Length component	1,0 m	DN100	Item no. €	– –	– –	– –	– –	034617 **109,00**	034617 **109,00**
Bend	45°	DN80 m/f	Item no. €	300147 **56,00**	300147 **56,00**	300147 **56,00**	300147 **56,00**	– –	– –
Bend	45°	DN100	Item no. €	–	–	–	–	034626 **73,00**	034626 **73,00**
Rain cover		DN80	Item no. €	300148 **83,00**	300148 **83,00**	300148 **83,00**	300148 **83,00**	– –	– –
Rain cover		DN100	Item no. €	– –	– –	– –	– –	034621 **99,00**	034621 **99,00**

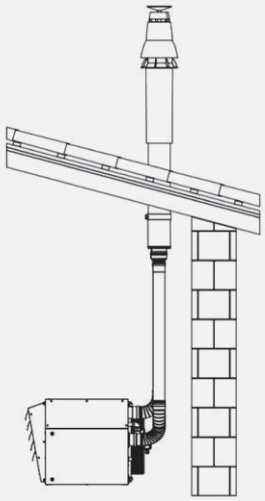
Further accessories available on request.

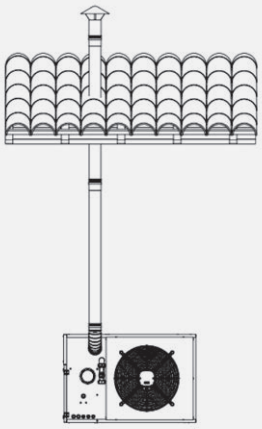
Possible flue gas ducts

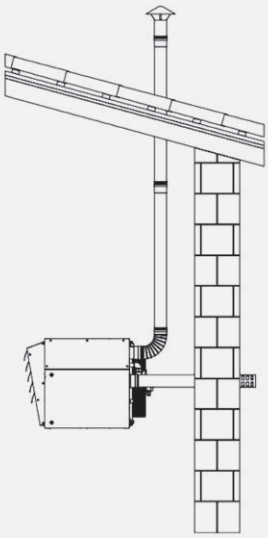
Roof duct



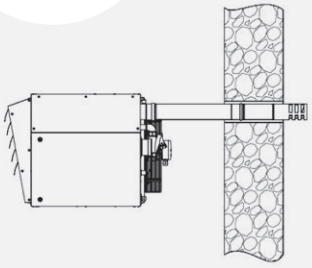


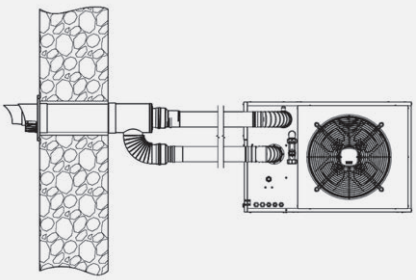






Wall duct





Wall duct
exhaust gas

Air Heater **LH**

Draught-free and comfortable heat distribution

Economical

Additional recirculation mode

Space-saving

Multi-stage adjustable

Avoidance of draughts

The **air heaters in our LH-range** are true all-rounders when it comes to heating and air distribution. The LH air heater ensures draught-free, comprehensive and extremely comfortable heat and air distribution in your spaces. The low noise level ensures a pleasant room climate without excessive or harmful noise pollution. They are equally suitable for a wall or ceiling installation and are suitable for any space, regardless of its size or intended use.

They are best suited for

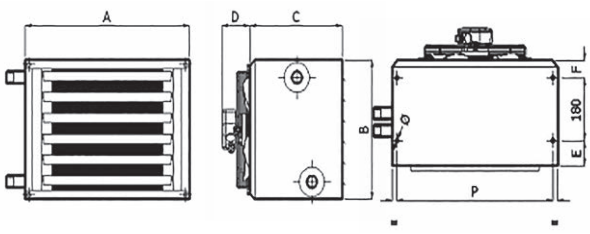
- Production halls
- Large garages
- Car workshops
- Exhibition and trade fair halls
- Gymnasiums

Our LH Series units plumb into a pre-exisiting central heating system, whereby the integrated heat exchanger, which is made of high-quality materials such as copper and aluminum, uses hot water as an efficient heating medium. With splash water protection to IP54, the devices are readily equipped for different environments. An extensive range of models with multi-stage fans enables a tailor-made solution for every specific requirement.

Performance features

- Suitable for wall and ceiling mounting
- Recirculated air operation
- For heating and ventilation
- Discharge louvre included
- Heat exchanger made of Cu/Al
- Fans with crescent impeller

Thanks to their compact design, the LH air heaters are easy to install and extremely flexible to use. With the right accessories, controlling your indoor climate becomes effortless, making our LH Series units a reliable solution for a wide range of heating and ventilation requirements.



Dimensions in mm	A	B	C	D	E	F	P	Ø
LH130	550	400	425	425	79	72	489	M6*
LH230	600	450	446	446	79	72	539	M6*
LH330	700	550	441	441	79	72	639	M6*
LH430	750	600	451	451	79	72	689	M6*
LH530	800	650	481	481	79	72	739	M6*
LH630	850	700	1.031	1.031	79	72	789	M6*

Technical data

Power range 13 to 64 kW

		LH130	LH230	LH330	LH430	LH530	LH630
Varnished housing	Item no.	038973	038975	038977	038979	038981	038983
	€	**1.157,00**	**1.287,00**	**1.429,00**	**1.521,00**	**1.712,00**	**2.110,00**
Heating capacity Heating medium water, 90/70°C, air 15°C	kW	13,0–17,8	20,5–24,5	23,3–37,4	30,3–44,0	36,0–54,0	54,4–64,7
Volume flow	m³/h	850–1.550	1.550–2.300	1.350–3.400	1.850–3.900	2.200–4.900	4.250–6.700
Electrical connection	V/Hz	230/~50	230/~50	230/~50	230/~50	230/~50	400/~50
Electrical power consumption	A	0.34	0.38	0.58	0.9	0.95	1,04
Length	mm	550	600	700	750	800	850
Depth	mm	425	446	441	451	481	1.031
Height	mm	400	450	550	600	650	700
Weight	kg	18	21	27	32	36	44
Sound pressure level	dB(A)	50	51	53	53	53	52

Accessories

		Product allocation					
		LH130	LH230	LH330	LH430	LH530	LH630
5-step switch ST 5-1 for maximum 1.5 amps	Item no. €	058499 **291,00**	058499 **291,00**	058499 **291,00**	058499 **291,00**	058499 **291,00**	– –
5-step switch ST 5-7 for a maximum of 7 amps	Item no. €	040121 **733,00**	040121 **733,00**	040121 **733,00**	040121 **733,00**	040121 **733,00**	– –
1-step switch DST1	Item no. €	– –	– –	– –	– –	– –	022071 **401,00**
2-step switch DST2	Item no. €	– –	– –	– –	– –	– –	022072 **455,00**
5-step switch DST5-2	Item no. €	– –	– –	– –	– –	– –	022074 **1.008,00**
5-step switch DST5-4	Item no. €	– –	– –	– –	– –	– –	022075 **1.165,00**
5-step switch DST5-7	Item no. €	– –	– –	– –	– –	– –	022076 **1.388,00**
5-step switch DST5-10	Item no. €	– –	– –	– –	– –	– –	022077 **1.768,00**
Intermediate terminal box IP65 for 2 to 5 devices	Item no.	– –	– –	– –	– –	– –	024361 **303,00**
Room thermostat RTI, industrial version IP54 (splash-proof)	Item no. €	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**	005434 **79,00**
Day-Night-Control in plastic housing, for night setback, with digital clock, power reserve, daily and weekly programme, including 1 room sensor	Item no. €	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**	006708 **1.039,00**
Brackets for wall mounting	Item no. €	039024 **126,00**	039024 **126,00**	039024 **126,00**	039024 **126,00**	039024 **126,00**	039024 **126,00**
Suspension brackets for ceiling mounting	Item no. €	042870 **69,00**	042870 **69,00**	042870 **69,00**	042870 **69,00**	042870 **69,00**	042870 **69,00**
Wide air outlet galvanised	Item no. €	042871 **92,00**	042873 **95,00**	042874 **159,00**	042875 **186,00**	042876 **206,00**	042877 **234,00**
Four-sided air outlet	Item no. €	042881 **351,00**	042882 **409,00**	042890 **277,00**	042891 **371,00**	042892 **358,00**	042893 **366,00**
Air outlet cone	Item no. €	042896 **512,00**	042897 **575,00**	042898 **648,00**	042899 **713,00**	042900 **748,00**	042901 **836,00**

Ceiling Fan DV

Saving energy through efficient heat distribution

Economical

Quiet

Immediately ready for use

Protected

Avoidance of draughts

The natural buoyancy causes heat to rise upwards, where it is not needed and is therefore lost. The **innovative Kroll ceiling fans DV** offer the ideal solution by actively guiding warm air downwards, thereby significantly reducing your heating costs. The use of ceiling fans for heat recirculation is particularly useful and effective in large, high-ceilinged rooms such as production and storage halls, workshops, sales rooms, industrial tents, greenhouses and animal breeding facilities.

The problem that often arises in such rooms is that warm air collects under the ceiling while the floor remains cold. To achieve a comfortable room temperature, the setpoint temperature is often increased unnecessarily, which leads to excessive fuel consumption. Heating costs can be reduced by up to 30 per cent thanks to even air distribution and the resulting temperature balance. The ceiling fans can be combined with our various heating units such as S, M, NBX and LH series.

With an impressive air circulation rate of 15,000 m/h and 300 rpm, our ceiling fans ensure fast and even heating of areas without long pre-heating times. Specially designed blades create a narrow air cone, which prevents shallow draughts. Our ceiling fans are also suitable for continuous operation, even at full capacity 24 hours a day.

Our practical accessories make operation child's play: stepless controls for up to twelve ceiling fans, optionally equipped with room sensors or speed controllers, ensure that the warm air reaches the desired area draught-free and energy-efficiently – for perfect temperature balancing in your space.

Area of application

- Industrial and commercial buildings
- Greenhouses
- Production halls
- Sports facilities
- Warehouses
- Sales and showrooms
- Cooling in summer (recirculation mode)

Recommendation

We recommend the use of ceiling fans from a ceiling height of three metres.

Features

- High air circulation rate
- Quiet operation
- Energy-saving high-performance motor
- All-metal design
- Long service life
- High operational reliability

Technical data

		DV
	Item no.	006245
	€	**229,00**
Colour		white
Electrical connection	V/Hz	230/~50
Power consumption	W	75
Max. current	A	0,35
Max. speed	U/min	300
Air circulation	m^3/h	15.000
Sound pressure level	dB(A)	52
Weight	kg	9,5
Rotor diameter	mm	1.420
Overall height	mm	690
Packaging LxWxH	mm	235x255x690
Throw range*	m	10

Accessories

Ceiling fans, also for air heaters and for all hot air generators

Speed controller infinitely variable for up to 5 ceiling fans	Item no. €	006735 **225,00**
Control for 1 to 12 ceiling fans, including speed controller and 1 room sensor	Item no. €	006900 **774,00**
Control for 1 to 12 ceiling fans, including 2 room sensors, speed controller and digital clock, with day-night-control	Item no. €	006901 **1.846,00**
Differential temperature control for 1 to 12 ceiling fans, including 2 room sensors	Item no. €	006902 **649,00**

* Larger throw ranges on request.

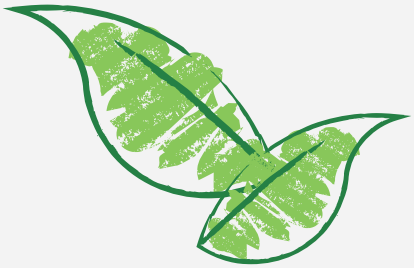
Without heat recovery: high transmission losses

With heat recovery through DV: balanced temperatures

Example photo of hall – not at scale

ErP Directive for Warm Air Heaters

Heat requirement formula



Explanation

ErP stands for Energy-related Products. The ErP Directive 2009/125/EC of the European Parliament and of the European Council of 21 October 2009 deals with the definition of requirements for the environmentally conscious design of energy-related products. This is implemented in Regulation 2016/2281 EC for warm air heaters. Once this regulation comes into force, hot-air heaters that do not fulfil the necessary requirements may no longer be placed on the market!

Requirements

1. efficiency requirements (gas and oil)
2. limit values for nitrogen oxide emissions:
   - From 26 September 2018 maximum **100 mg/kWh** (180 mg/kWh oil)
   - From 01 January 2021 maximum **70 mg/kWh** (150 mg/kWh oil)
3. Information must be made freely and publicly available

Implementation in two stages

1. from 01.01.2018: annual space heating utilization rate ηs at least 72 percent
2. from 01.01.2021: Annual space heating utilization rate ηs at least 78 percent

Annual Space Heating Utilization Rate Definition

The annual space heating utilization rate is a key figure that considers the actual operation of heating systems. It is not the combustion efficiency.

The commission responsible for the directive has recognised that heating systems operate on average 85 percent at partial load – i. e. in the transitional periods – and only about 15 percent at full load, and therefore weights the heating efficiencies. Furthermore, inefficient burners, poor insulation and permanent ignition flames are considered with negative factors.

This means that different manufacturers can be compared objectively for the first time.

Calculation for warm air heaters

The annual space heating utilization rate is calculated from various individual factors.

The formula for the calculation is attached.

Annual space heating utilisation factor ηs:

$$\eta_S = \eta_{S,ON} - \sum F_i$$

$$\eta_{S,ON} = \eta_{S,th} \cdot \eta_{S,flow}$$

ΣF_i = Correction factors

Burner modulation
Electric energy consumption
Exhaust gas conveying
Permanent pilot flame

$$\eta_{S,th} = (0{,}85\,\eta_{min} + 0{,}15\,\eta_{nom}) - F_{env}$$

Thermal efficiency

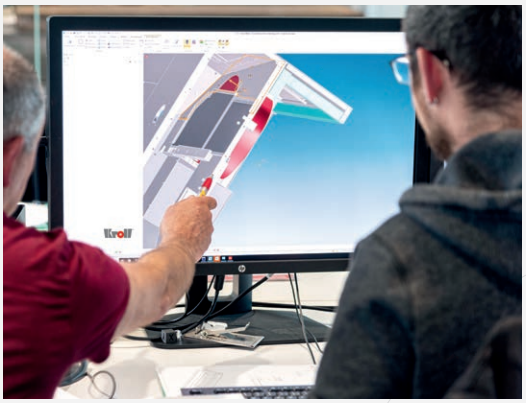
$$\eta_{S,flow} = 1 - 9{,}78\left(\frac{0{,}15P_{nom}}{AF_{nom}} + \frac{0{,}85P_{min}}{AF_{min}}\right)$$

Efficiency at heat output


OUR
RIGHT
PRODUCT
FOR YOUR
PROJECT.
We are looking forward
to consulting you.
Kroll®

Planning, production, manufacturing

A look behind the scenes in our team



Our employees are not just part of our company, they are the backbone of our success:
With their experience and creativity, they create both proven classics and personalised customer solutions that take all needs into account.

From development and design to sales and the appropriate service – **with us you get everything from one source.**

MOBILE
Heaters/Hot Air Generators

Electric Heater **E**

Mobile Warm Air Heater **M**

Oil Heater **MA**

Gas Heater **P, PX**

Mobile Heating Centre **HM**

Electric Heater **E**

Compact and portable heating and ventilation

Fossil-FREE

Room thermostat (built-in)

Intuitive operation

Additional recirculation mode

Frost protection

Powered electrically

The **portable electric heaters** by Kroll offer the ideal solution for heating small to medium-sized rooms and serve as perfect auxiliary heaters in larger spaces. Their area of application ranges from workshops and horticulture to sales and exhibition rooms, storage rooms, building sites and construction containers. In these environments, Kroll's electric heaters provide pleasant and rapid warmth, especially during cold snaps or transitional periods.

Thanks to their electric operation, the electric heaters are also ideal for rooms that are poorly ventilated or not ventilated at all. Another outstanding feature is their instant operational availability without additional installations. The warm air is distributed efficiently via resistance heaters and is fed directly into the room by an axial fan. The warm air temperature can be individually adjusted and is precisely regulated by an integrated thermostat. This enables flexible adjustment to the respective heating requirements.

One particularly useful function is during the summer months, when the electric heaters can also be used to ventilate rooms in recirculation mode. This versatility makes them year-round companions in different environments. The compact dimensions and portable design make them easy to transport and allow them to be quickly adapted to various locations.

In summary, the Kroll electric heaters offer a reliable and efficient heating solution for a wide range of applications, both in small workshops and in larger commercial or industrial environments.

Area of application

- Workshops
- Garden centres
- Tents
- Sales and showrooms
- Warehouses
- Agriculture
- Building sites and construction containers

Features

- No oxygen consumption
- No installations necessary
- Summer switch for recirculation mode available
- Integrated room thermostat
- No exhaust gases, odourless, no condensation

E18SH

Illustration with hose accessories

Technical data

Power range 3 to 18 kW

		E3	E8	E12	E18	E18SH
	Item no.	000138	000143	000147	000153	053432
	€	**618,00**	**1.099,00**	**1.240,00**	**1.375,00**	**2.385,00**
Nominal heat load	kW	3	4/8	6/12	12/18	12/18
Volume flow max.	m³/h	185	420	735	960	1.450
Pressure max.	Pa	–	–	–	–	100
Ambient temperature max.	°C	40	40	40	40	60
Temperature increase	K	44	28/56	24/48	36,5/55	36/55
Connector plug		Schuko-plug	16 A CEE	32 A CEE	32 A CEE	32 A CEE
Electrical connection	V/Hz	230/50	400/3N~	400/3N~	400/3N~	400/3N~
Electrical power consumption	A	13,5	3x12	3x16,5	3x24,5	3x24,5
Built-in room thermostat		●	●	●	●	●
Heating capacity 2-stage		–	●	●	●	●
Width	mm	195	282	322	322	322
Length	mm	333	532	667	667	990
Height	mm	280	461	501	501	501
Weight	kg	7,1	16,9	22,8	24,8	32,0
Sound pressure level	dB(A)	52	56	56	56	64
Protection	IP	20	20	20	20	20

● Included in the scope of delivery

Accessories

				Product allocation
				E18SH
Hot air hose muffle on both side	3,0 m	Ø 305 mm	Item no. €	045720 **219,00**
Connecting piece for hose extension for hot air hoses with		Ø 305 mm	Item no. €	002873 **58,00**
Room thermostat IP54 10 m cable, including plug	adjustable from 0°C to 70°C and necessary for E18SH		Item no. €	056355 **365,00**

MOBILE Warm Air Heater **M**

Efficient heating and drying on all construction sites

Economical

Heated oil filter

Free choice of fuel

Longevity

Fast heat supply

Our **mobile warm air heaters** of the **M series** not only convince with their fast and efficient heat supply, but also offer a range of features that make them a first-class choice for a wide selection of applications.

The broad spectrum of possible uses covers everything from the heating of tents and additional hall heating to construction heating and the associated drying and frost protection. This impressive flexibility enables even demanding construction projects to proceed without delay during the winter months, whether for new builds, renovations or modernisations.

Thanks to their compact design and high mobility, our units can be used almost anywhere, whether as a temporary heat source, emergency or transitional heater. The small M25, M50 and M70T models are characterised by their integrated oil tank and heating cartridge, which not only save space, but are also ready for immediate use when equipped with fuel. The larger models M70, M100, M150 and M200, on the other hand, are characterised by their drum fitting and heated oil filter, which ensure a quick start to operation.

Maximum mobility is ensured by additional swivel castors, crane eyes and forklift mounts, allowing the units to be positioned flexibly as required.

The choice of fuel is in your hands, as the units are approved for use with both oil and gas. With an impressive efficiency of 93 per cent (Hi), our mobile hot air heaters set standards in terms of efficiency.

The integrated high-performance radial fans with a maximum pressure of up to 180 Pa enable the connection of hot air hose systems, even over long distances. This means that even remote areas or outdoor surfaces can be heated without any problems. Effective

Examples of application

heating is even guaranteed when the units are installed outdoors. The optional recirculation module, integrated as standard in the M150/ M200, contributes to efficient and economical operation.

The use of high-quality components such as the stainless steel combustion chamber and stainless steel heat exchanger with a chrome content of around 15 percent guarantees a long service life for the units. In addition, all fittings and control elements are designed to be service-friendly to enable convenient maintenance. When you choose our mobile air heaters, you are not only opting for extremely reliable heat, but also for outstanding performance and durability that meets even the highest demands.

Note for units with air circulation module

M25 to M100:
One hose connection to the front on the suction side

M150 to M200:
Two hose connections on the suction side, one on the right and one on the left of the unit

The connection options can be found on pages 48 and 49.

If the hose connection is on the suction side, it must be ensured that the hose(s) are not sucked together.
We recommend dimensionally stable suction hoses.

Area of application

- Tent heating
- Hall heating
- Construction heating
- Drying and frost protection
- Hire and rental

Features

- Burner connection for oil, natural gas, LPG and universal oil burners
- Heated oil filter
- Combustion chamber and heat exchanger made of stainless steel 1.4512
- Swivel castors from M70
- Radial blower with pressing power up to 180 Pa

Air outlet box with open blades

Air outlet box rear side

Maintenance kits*

Maintenance kit M25	from index 17	Item no.	S00007
		€	**145,00**
Maintenance kit M50	from index 17	Item no.	S00008
		€	**145,00**
Maintenance kit M70	from index 17	Item no.	S00010
		€	**298,00**
Maintenance kit M100	from index 17	Item no.	S00011
		€	**298,00**
Maintenance kit M150	from index 17	Item no.	S00012
		€	**305,00**
Maintenance kit M200	from index 17	Item no.	S00013
		€	**305,00**

* Maintenance kit includes pump filter, ignition electrode, nozzle and oil filter insert

Technical data

Power range 25 to 71 kW

		With tank		
		With oil burner		
		M25	**M50**	**M70T**
Item no.		040720	000296	101912
€		**6.490,00**	**7.530,00**	**9.630,00**
		With natural gas burner		
		M25N	**M50N**	**–**
Item no.		050600	050602	–
€		**7.115,00**	**8.370,00**	–
		With LPG burner		
		M25F	**M50F**	**–**
Item no.		050601	050603	–
€		**7.115,00**	**8.160,00**	–
		With universal oil burner KG/UB		
		–	**M50U**	**–**
Item no.		–	056382	–
€		–	**8.970,00**	–
Nominal heat load (Hi)	kW	25	51	71
Nominal heat output	kW	22	46	64
Volume flow (warm)	m³/h	1.690	3.460	4.800
Pressure max.	Pa	150	170	180
Temperature increase	K	78	54	56
Oil consumption*	kg/h	2,1	4,3	6,0
Gas consumption (natural gas E)	m³/h	2,1	4,9	–
Gas consumption (LPG)	kg/h	1,9	3,9	–
Electrical connection	V/Hz/A	230/~50/1,75	230/~50/3,0	230/~50/7,5
Electrical power consumption	kW	0,4	0,69	1,72
Tank capacity	l	27	46	74
Flue pipe	Ø mm	100	130	180
Air outlet	Ø mm	295	385	445
Air intake	Ø mm	295	385	445
Width	mm	560	610	770
Length	mm	1.140	1.220	1.480
Height	mm	980	1.050	1.330
Weight (without burner)	kg	62	108	175
Sound pressure level	dB(A)	68	72	78

* Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)

Recirculation module for M25 to M70 on request!

Optional connections for hot air hoses on pages 48 and 49

Technical data

Power range 71 to 188 kW

		Without tank			
		With oil burner			
		M70	M100	M150	M200
Item no.		000301	000282	000284	000287
	€	**9.205,00**	**10.880,00**	**15.480,00**	**19.670,00**
		With natural gas burner			
		M70N	M100N	M150N	M200N
Item no.		050604	050606	050608	050610
	€	**10.045,00**	**11.720,00**	**17.790,00**	**20.720,00**
		With LPG burner			
		M70F	M100F	M150F	M200F
Item no.		050605	050607	050609	050611
	€	**9.835,00**	**11.720,00**	**16.745,00**	**20.090,00**
		With universal oil burner KG/UB *			
		M70U	M100U	M150U	M200U***
Item no.		056383	056384	056385	056386
	€	**10.935,00**	**12.375,00**	**18.080,00**	**21.790,00**
Nominal heat load (Hi)	kW	71	100	140	188
Nominal heat output	kW	64	90	125	173
Volume flow (warm)	m³/h	4.800	6.750	9.850	12.210
Pressure max.	Pa	180	150	150	150
Temperature increase	K	56	70	50	60
Oil consumption**	kg/h	6,0	8,4	11,8	15,8
Gas consumption (natural gas E)	m³/h	6,8	9,6	13,5	18,1
Gas consumption (LPG)	kg/h	5,5	7,7	10,8	14,6
Electrical connection	V/Hz/A	230/~50/6,4	400/~50/2,0	400/~50/2,0	400/~50/4,2
Electrical power consumption	kW	1,47	1,38	1,38	2,9
Tank capacity	l	Without tank			
Flue pipe	Ø mm	180	180	180	180
Air outlet	Ø mm	445	550	550	550
Air intake	Ø mm	445	550	2 x 520	2 x 520
Width	mm	770	940	940	940
Length	mm	1.480	1.830	2.310	2.450
Height	mm	1.120	1.300	1.430	1.630
Weight (without burner)	kg	134	190	270	330
Sound pressure level	dB(A)	78	77	75	75

* When using the KG/UB burner, a conveyor system is required.

Recirculation module for M70 to M100 on request!

** Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)

*** Attention: Supply line with 16A (C16) cable protection required!

Connection options for hot air hoses on pages 48 and 49

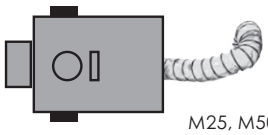
Accessories

				Product allocation					
				M25 M25N M25F	M50 M50N M50F M50U	M70 M70T M70N M70F M70U	M100 M100N M100F M100U	M150 M150N M150F M150U	M200 M200N M200F M200U
Room thermostat IP54 10 m cable, including plug	adjustable from 0°C to 50°C		Item no. €	000729 **183,00**	000729 **183,00**	000729 **183,00**	000729 **183,00**	000729 **183,00**	000729 **183,00**
Room thermostat IP54 22 m cable, including plug	adjustable from 0°C to 50°C		Item no. €	049585 **223,00**	049585 **223,00**	049585 **223,00**	049585 **223,00**	049585 **223,00**	049585 **223,00**
Air outlet adapter	1 way	Ø 425 mm	Item no. €	– –	002419 **151,00**	– –	– –	– –	– –
Air outlet adapter	1 way	Ø 425 mm	Item no. €	– –	– –	012575 **164,00**	– –	– –	– –
Air outlet adapter	1 way	Ø 525 mm	Item no. €	– –	– –	– –	012527 **255,00**	012527 **255,00**	012527 **255,00**
Air outlet adapter	2 ways	Ø 254 mm	Item no. €	037789 **289,00**	– –	– –	– –	– –	–
Air outlet adapter	2 ways	Ø 305 mm	Item no. €	– –	012566 **313,00**	– –	– –	–	– –
Air outlet adapter	2 ways	Ø 305 mm	Item no. €	– –	– –	012576 **343,00**	– –	– –	– –
Air outlet adapter	2 ways	Ø 305 mm	Item no. €	– –	– –	– –	012528 **428,00**	– –	– –
Air outlet adapter	2 ways	Ø 525 mm	Item no. €	– –	– –	– –	– –	065076 **875,00**	065076 **875,00**
Air outlet adapter	3 ways	Ø 305 mm	Item no. €	– –	– –	– –	012529 **527,00**	012529 **527,00**	– –
Air outlet adapter	3 ways	Ø 425 mm	Item no. €	– –	– –	– –	– –	– –	065077 **646,00**
Air outlet adapter	4 ways	Ø 305 mm	Item no. €	– –	– –	– –	– –	012530 **646,00**	012530 **646,00**

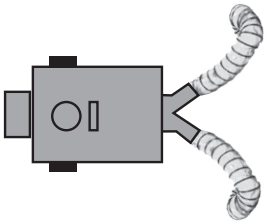
Connection variants for hot air hoses

M25 to M100: One hose connection to the front on the suction side.
M150 to M200: Two hose connections on the suction side, one on the right and one on the left of the unit

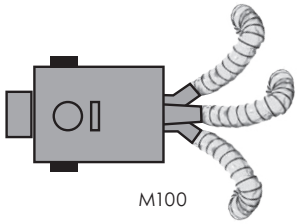
With a hose connection on the intake side, it must be ensured that the hose(s) are not sucked together. **We recommend dimensionally stable intake hoses.**



M25, M50, M70, M100, M150, M200



M25, M50, M70, M100, M150, M200

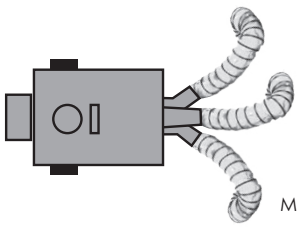


M100

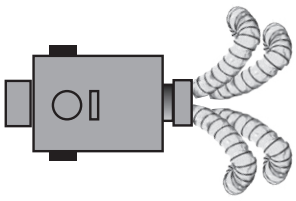
Accessories

				Product allocation					
				M25 M25N M25F	M50 M50N M50F M50U	M70 M70T M70N M70F M70U	M100 M100N M100F M100U	M150 M150N M150F M150U	M200 M200N M200F M200U
Connecting piece for extending hot air hoses with		Ø 305 mm	Item no. €	– –	002873 **58,00**	002873 **58,00**	002873 **58,00**	002873 **58,00**	002873 **58,00**
Connecting piece for extending hot air hoses with		Ø 425 mm	Item no. €	– –	002909 **83,00**	002909 **83,00**	– –	– –	– –
Connecting piece for extending hot air hoses with		Ø 525 mm	Item no. €	– –	– –	– –	002800 **120,00**	002800 **120,00**	002800 **120,00**
Connecting piece for extending hot air hoses with		Ø 560 mm	Item no. €	– –	– –	– –	026985 **204,00**	026985 **204,00**	– –
Air outlet box for hoses with		Ø 560 mm	Item no. €	– –	– –	– –	052623 **1.559,00**	052623 **1.559,00**	052623 **1.559,00**
Connection adapter from Ø 305 mm to air outlet box			Item no. €	– –	300105 **186,00**	300105 **186,00**	300105 **186,00**	300105 **186,00**	300105 **186,00**
Connection adapter from Ø 425 mm to air outlet box			Item no. €	– –	300106 **179,00**	300106 **179,00**	– –	– –	– –
Connection adapter from Ø 525 mm to air outlet box			Item no. €	– –	– –	– –	300107 **179,00**	300107 **179,00**	300107 **179,00**
Flue pipe made of stainless steel, flexible	3,0 m	Ø 100 mm	Item no. €	006305 **289,00**	– –	– –	– –	– –	– –
Flue pipe made of stainless steel, flexible	3,0 m	Ø 130 mm	Item no. €	– –	006306 **406,00**	– –	– –	– –	– –
Flue pipe made of stainless steel, flexible	3,0 m	Ø 180 mm	Item no. €	– –	– –	006307 **502,00**	006307 **502,00**	006307 **502,00**	006307 **502,00**
Flue pipe made of sheet steel, fire-aluminised	1,0 m	Ø 100 mm	Item no. €	012473 **69,00**	– –	– –	– –	– –	– –
Flue pipe made of sheet steel, fire-aluminised	1,0 m	Ø 130 mm	Item no. €	– –	012474 **75,00**	– –	– –	– –	– –

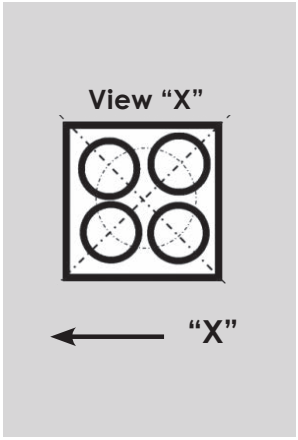
Connection variants for hot air hoses



M150, M200



M200



Accessories

				Product allocation					
				M25 M25N M25F	M50 M50N M50F M50U	M70 M70T M70N M70F M70U	M100 M100N M100F M100U	M150 M150N M150F M150U	M200 M200N M200F M200U
Flue pipe made of sheet steel, fire-aluminised	1,0 m	Ø 180 mm	Item no. €	– –	– –	012477 **123,00**	012477 **123,00**	012477 **123,00**	012477 **123,00**
Flue pipe made of sheet steel, fire-aluminised	90°	Ø 100 mm	Item no. €	012488 **53,00**	– –	– –	– –	– –	– –
Flue pipe made of sheet steel, fire-aluminised	90°	Ø 130 mm	Item no. €	– –	012489 **61,00**	– –	– –	– –	– –
Flue pipe made of sheet steel, fire-aluminised	90°	Ø 180 mm	Item no. €	– –	– –	012492 **136,00**	012492 **136,00**	012492 **136,00**	012492 **136,00**
Rain cover for flue pipe made of sheet steel, fire-aluminised		Ø 100 mm	Item no. €	012503 **87,00**	– –	– –	– –	– –	– –
Rain cover for flue pipe made of sheet steel, fire-aluminised		Ø 130 mm	Item no. €	– –	012504 **105,00**	– –	– –	– –	– –
Rain cover for flue pipe made of sheet steel, fire-aluminised		Ø 180 mm	Item no. €	– –	– –	012507 **136,00**	012507 **136,00**	012507 **136,00**	012507 **136,00**
Recirculation module including burner cladding		Ø 295 mm	Item no. €	050620 **684,00**	– –	– –	– –	– –	– –
Recirculation module including burner cladding		Ø 385 mm	Item no. €	– –	050621 **690,00**	– –	– –	– –	– –
Recirculation module including burner cladding		Ø 445 mm	Item no. €	– –	– –	050622 **720,00**	– –	– –	– –
Recirculation module including burner cladding		Ø 550 mm	Item no. €	– –	– –	– –	050623 **980,00**	– –	– –
Hot air hose* with fastening strap and carrying bag	7,6 m	Ø 254 mm	Item no. €	059881 **289,00**	– –	– –	– –	– –	– –
Hot air hose** with fastening strap and carrying bag	7,6 m	Ø 305 mm	Item no. €	005417 **324,00**	005417 **324,00**	005417 **324,00**	005417 **324,00**	005417 **324,00**	005417 **324,00**
Hot air hose*** with fastening strap and carrying bag	7,6 m	Ø 425 mm	Item no. €	– –	005418 **398,00**	005418 **398,00**	– –	– –	– –
Hot air hose**** with fastening strap and carrying bag	7,6 m	Ø 525 mm	Item no. €	– –	– –	– –	005597 **460,00**	005597 **460,00**	005597 **460,00**
Hot air hose***** with fastening strap and carrying bag	7,6 m	Ø 560 mm	Item no. €	– –	– –	– –	026991 **474,00**	026991 **474,00**	026991 **474,00**
Form-stable hot air hose with two fastening straps and carrying bag	7,6 m	Ø 525 mm	Item no. €	– –	– –	– –	301622 **812,00**	301622 **812,00**	301622 **812,00**

Further form-stable hot air hoses on request!

Perforated, textile hot air hoses on request!

* **M25:** for pressure-side connection to air outlet adapter 037789

** **M25:** direct connection
M50 to M200: for pressure-side connection to diverse air outlet adapters

*** **M50:** transition piece 002419 is required
M70: transition piece 012575 is required

**** **M100 to M200:** for connection to distribution piece 012527
M150 and M200: intake-side direct connection

***** **M100 to M200:** direct connection
M150 and M200: pressure side only

Choose **Kroll Energy GmbH** and join us in shaping a sustainable and energy-efficient future.

Contact us today for individual advice and solutions that are perfectly tailored to your requirements.

Why Kroll Energy?

Products and services

The core business of **Kroll Energy GmbH** focuses on a wide range of modern heating and air conditioning systems that meet the highest efficiency standards. Our experts will help you find the ideal product for your needs, be it a mobile heat pump or other stationary and mobile heating devices in our portfolio.

Sustainability and environmental awareness

Sustainability is at the heart of our business philosophy. By providing energy-efficient heating and air conditioning solutions, we help companies and private customers to reduce their energy costs and at the same time make a contribution to environmental protection.

Quality standards

Our products and services meet the highest quality standards. We work with renowned suppliers to ensure durable and efficient solutions. This is also proven by our exceptionally low complaint rates.

Customer satisfaction

The needs of our customers are at the heart of everything we do. We strive for long-term partnerships and attach great importance to personal and competent advice. Our products and services are designed to be not only efficient, but also cost-effective and user-friendly.

Innovation

The world is changing and we are always on the lookout for new technologies and solutions to offer our customers the best and most sustainable options in the heating and air conditioning industry.

Expertise and experience

We have more than 60 years of experience in the heating and air conditioning industry. Our highly qualified team offers expertise and experience to realize the most demanding projects. Our long-standing presence and continuous development have earned us a reputation built on quality, innovation and reliability.

Oil Heater **MA**

Direct and fast heat with our mobile heating cannons

Economical

Heated oil filter

Mobile

Intuitive operation

Fast heat supply

The **versatile oil heaters** of the **MA series** from Kroll Energy are suitable for a wide range of applications, whether in construction and agriculture, workshops, halls, tents, greenhouses, animal breeding facilities or other large spaces. The MA series is characterized by its cost-efficient and fast heat supply and is ready for operation extremely fast. The units are easily operated with diesel or heating oil and a 230 V/50 Hz connection, which makes them uncomplicated to use.

To ensure an optimum oil supply, each device in the MA range has an integrated high-pressure pump that efficiently pumps the oil from the attached tank. In addition, all MA models have a built-in room thermostat connection to enable precise control of the heat output.

Another practical feature is the factory-integrated heated oil filter (except MA22), which ensures smooth functionality.

For even heat distribution, the units in the MA range (except MA22) can be operated with a hot air hose. This only requires an additional adapter.

The compact dimensions of the devices combined with a practical handle make them particularly easy to transport, which makes the MA oil heaters ideal for use in changing locations.

Overall, the MA models from Kroll Energy therefore represent a reliable and flexible solution for a variety of heating applications in diverse environments.

Area of application

- Construction and agriculture
- Workshops
- Halls
- Tents
- Greenhouses
- Animal breeding facilities
- Drying of new buildings or water damage

Features

- Stainless steel combustion chamber
- Practical handle
- Economical
- Integrated high-pressure pump
- Approx. 90 percent efficiency
- Integrated heated oil filter from MA32
- Hot air hose connection from MA32

MA32

Maintenance kits*

Maintenance kit MA22	Item no.	S00014
	€	**62,00**
Maintenance kit MA32	Item no.	S00015
	€	**74,00**
Maintenance kit MA59	Item no.	S00016
	€	**78,00**
Maintenance kit MA91	Item no.	S00017
	€	**85,00**

* Maintenance kit includes ignition electrode, nozzle and oil filter insert

Technical data

Power range 23 to 90 kW		MA22	MA32	MA59	MA91
	Item no.	046325	046439	046440	046441
	€	**1.985,00**	**2.650,00**	**2.975,00**	**3.580,00**
Nominal heat load (Hi)	kW	22	32	55	85
Volume flow	m³/h	550	1.150	2.500	4.300
Temperature increase	K	97	71	57	51
Oil consumption*	kg/h	1,85	2,70	4,64	7,17
Electrical connection	V/Hz	230/~50	230/~50	230/5~0	230/~50
Electrical power consumption	kW	0,3	0,37	0,85	1,14
Tank capacity	l	42	42	65	105
Flue pipe connection	Ø mm	120	150	150	150
Room thermostat connection		●	●	●	●
Heated oil filter		–	●	●	●
Width	mm	482	482	555	690
Length	mm	1.098	1.209	1.435	1.740
Height	mm	664	738	940	1.025
Weight	kg	43	55	81	110
Sound pressure level at 1 m	dB(A)	69	72	72	75
Sound pressure level at 2 m	dB(A)	65	69	70	71

* Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C) ● Included in the scope of delivery

Accessories

				Product allocation			
				MA22	MA32	MA59	MA91
Room thermostat IP54 10 m cable, including plug	adjustable from 0°C to 50°C		Item no. €	000729 **183,00**	000729 **183,00**	000729 **183,00**	000729 **183,00**
Room thermostat IP54 22 m cable, including plug	adjustable from 0°C to 50°C		Item no. €	049585 **223,00**	049585 **223,00**	049585 **223,00**	049585 **223,00**
Air outlet adapter	1 way	Ø 300 mm	Item no. €	– –	046410 **205,00**	– –	– –
Air outlet adapter	1 way	Ø 350 mm	Item no. €	– –	– –	046411 **265,00**	– –
Air outlet adapter	1 way	Ø 400 mm	Item no. €	– –	– –	– –	046412 **331,00**
Flue pipe made of stainless steel	1,0 m	Ø 120 mm	Item no. €	046415 **105,00**	– –	– –	– –
Flue pipe bend made of stainless steel	90°	Ø 120 mm	Item no. €	046417 **105,00**	– –	– –	– –
Flue pipe rain cover made of stainless steel		Ø 120 mm	Item no. €	046419 **103,00**	– –	– –	– –
Flue pipe made of stainless steel, flexible	3,0 m	Ø 150 mm	Item no. €	– –	031267 **423,00**	031267 **423,00**	031267 **423,00**
Flue pipe made of sheet steel, fire-aluminised	1,0 m	Ø 150 mm	Item no. €	– –	012476 **47,00**	012476 **47,00**	012476 **47,00**
Flue pipe bend made of sheet steel, fire-aluminised	90°	Ø 150 mm	Item no. €	– –	012491 **46,00**	012491 **46,00**	012491 **46,00**
Flue pipe T-piece made of sheet steel, fire-aluminised	90°	Ø 150 mm	Item no. €	– –	012501 **128,00**	012501 **128,00**	012501 **128,00**
Flue pipe rain cover made of sheet steel, fire-aluminised		Ø 150 mm	Item no. €	– –	012506 **62,00**	012506 **62,00**	012506 **62,00**
Hot air hose with fastening strap and carrying bag	7,6 m	Ø 305 mm	Item no. €	– –	005417 **324,00**	– –	– –
Hot air hose with fastening strap and carrying bag	7,6 m	Ø 425 mm	Item no. €	– –	– –	005418 **398,00**	– –
Hot air hose with fastening strap and carrying bag	7,6 m	Ø 457 mm	Item no. €	– –	– –	– –	031902 **419,00**

Gas Heater **P, PX**

Environmentally friendly and efficient instant heat

Mobile

Immediately ready for use

Extensive range of accessories

Permanent gas flame monitoring

Powered electrically

Kroll **gas heaters** represent an outstanding combination of environmental sustainability and economic efficiency. By using gas as a fuel, which is inherently environmentally friendly, our gas heaters position themselves as one of the most sustainable options among fossil fuels. The nearly residue-free combustion and high efficiency of our gas heaters help to minimize the environmental impact.

The PX model takes an even further step towards energy efficiency by offering the option of using a room thermostat for more precise control of the heat output. The devices are extremely user-friendly and, once connected to a gas cylinder and the 230 V supply, require no lead time to be ready for immediate operation. The wide range of outputs extends from 15 to 100 kilowatts, enabling versatile use in construction projects, agriculture, horticulture and well- ventilated production halls and workshops.

To ensure the highest safety standards, all devices are equipped with a pressure regulator and the connection fitting is included in the scope of delivery. Our gas heaters comply with the strict DIN 30697 regulations and thus the European CE standard. Additional safety is guaranteed by the permanent monitoring of the gas flame using thermocouples, which stops the gas supply immediately if the flame goes out. A built-in thermostat also prevents the device from overheating, which contributes to reliable and safe use.

Robust technology and the highest quality workmanship guarantee trouble-free operation of our gas heaters. Thanks to their compact design, they are easy to transport, and an optional conversion kit for mobile and stackable use can be fitted for additional flexibility. Overall, Kroll gas heaters offer an advanced, environmentally friendly and efficient solution for a variety of heating applications in different environments.

Area of application

- Construction and agriculture
- Garden centres
- Well ventilated production and factory halls

Features

- Powder-coated steel housing
- Low-noise and powerful housing
- Pressure regulator with hose rupture protection
- Robust technology
- Highest processing quality
- Stackable

Version with conversion kit for driving and stacking capability (for P/PX32 to P/PX85).

The conversion kit **is not** included in the scope of delivery!

Technical data

Power range 15 to 58,27 kW		P32	P45	P65
	Item no.	057498	057501	057499
	€	**470,00**	**614,00**	**1.057,00**
Nominal heat load (Hi)	kW	13,83–27,75	19,82–40,69	28,58–58,27
Volume flow	m³/h	1.100	1.250	1.950
Gas consumption	kg/h	1,03–2,13	1,54–3,15	2,19–4,47
Electrical connection	V/Hz	230/~50-60	230/~50-60	230/~50-60
Electrical power consumption	kW	0,09	0,11	0,14
LPG		●	●	●
Piezo ignition		●	●	●
Connection fitting with hose		●	●	●
Length	mm	511	511	538
Width	mm	277	277	317
Height	mm	505	575	580
Weight	kg	10	12	14

● Included in the scope of delivery

Power range 15 to 58,27 kW PX = with ionization monitoring		PX32	PX45	PX65
	Item no.	057494	057492	057495
	€	**705,00**	**847,00**	**1.335,00**
Nominal heat load (Hi)	kW	13,83–27,75	19,82–40,69	28,58–58,27
Volume flow	m³/h	1.100	1.250	1.950
Gas consumption	kg/h	1,03–2,13	1,54–3,15	2,19–4,47
Electrical connection	V/Hz	230/~50	230/~50	230/~50
Electrical power consumption	kW	0,09	0,112	0,14
LPG		●	●	●
Electronic ignition		●	●	●
Connection fitting with hose		●	●	●
Length	mm	511	511	538
Width	mm	277	277	317
Height	mm	505	575	580
Weight	kg	10	12	14

● Included in the scope of delivery

Accessories			Product allocation	
			P32 to P65	PX32 to PX65
Room thermostat IP54 10 m cable, including plug	adjustable from 0°C to 50°C	Item no. €	– –	000729 **183,00**
Room thermostat IP54 22 m cable, including plug	adjustable from 0°C to 50°C	Item no. €	– –	049585 **223,00**
Multi-bottle system		Item no. €	005346 **176,00**	005346 **176,00**

		Product allocation
		P32 to P65 and PX32 to PX65
Conversion kit for movability and stackability	Item no. €	057508 **108,00**

Mobile Heating Centres **HM**

Backup heating for spontaneous use and emergencies

Room thermostat connection

Maintenance-friendly

Free choice of fuel

Safely stackable

Intuitive operation

Our **mobile heating centres HM** support your heating requirements quickly and efficiently. The units are used wherever heat is required and existing systems fail, are being replaced or do not yet exist. They are particularly suitable for construction heating and associated drying. This means new buildings, renovations or modernisations can be carried out without delay, even during the winter months. In addition to supporting your process heat, they are also ideal for heating trade fairs, events, warehouses or factories flexibly and conveniently.

A high-quality stainless steel heat exchanger ensures efficient use of the energy converted by the 2-stage burner in our mobile heating centres. The choice of fuel is up to you – our units are available in natural gas, LPG or oil versions. Variable recirculating air, fresh air or mixed air operation is integrated ex works and can be set using a switch. Heat can be distributed via one or more air ducts or air hoses. Thanks to high pressure and high-performance radial fans, even long supply routes are no problem.

The robust housing is made of powder-coated sheet steel with resistance class RC2. All components are kept under lock and key. This means that our heating centre is securely protected against sabotage or tampering. At the same time, our heating centres have a compact design - there are no protruding components, the flue spigots are recessed in the housing, and the intake and exhaust spigots can also be recessed if required. Lifting holes on the long and short sides ensure practical loading with a forklift truck, while additional crane eyes provide even more flexibility.

The unit can be safely stacked and makes optimum use of the loading space during transport, as it can be placed crosswise on the loading area of a truck.

Area of application

- Tent heating
- Hall heating
- Construction heating
- Drying and frost protection
- Additional heating in the cold season
- Fast drying for new buildings

Features

- Flexible choice of fuel
- Compact design
- Economical
- Flexible in use
- Maintenance-friendly
- Approx. 93 percent efficiency (Hi)
- Intuitive control via switch and optional room thermostat

Technical data

Power range 133 to 188 kW

			HM200/2 2-stage
		Item no.	049333
		€	**25.500,00**
Operating mode			Oil
Nominal heat load (Hi)		kW	133/188
Nominal heat output		kW	122/173
Volume flow		m³/h	8.500–12.200
Pressure max.		Pa	175/350
Temperature increase		K	66/60
Oil consumption*		kg/h	11,1/15,7
Electrical connection		V/Hz/A	400~50/13,5
Electrical power consumption		kW	1,45/4,65
Drum fitting			●
Heated oil filter			●
Flue pipe		Ø mm	180
Air outlet		Ø mm	550
Air intake		Ø mm	550
Width		mm	820
Length		mm	2.400
Height	(without lifting eye)	mm	1.510
Height	(with lifting eye)	mm	1.610
Weight		kg	655
Sound pressure level		dB(A)	75

* Heating oil consumption: 1 kg/h = 1.17 l/h (at 15°C)

● Included in the scope of delivery

Accessories

				Product allocation HM200/2 2-stage
Room thermostat IP54 10 m cable, including plug	adjustable from 0°C to 50°C		Item no. €	000729 **183,00**
Room thermostat IP54 22 m cable, including plug	adjustable from 0°C to 50°C		Item no. €	049585 **223,00**
RT fastening strap			Item no. €	052494 **79,00**
Clock thermostat			Item no. €	056714 **1.564,00**
Flue pipe made of sheet steel, fire-aluminised	1,0 m	Ø 180 mm	Item no. €	012477 **123,00**
Rain cover for flue pipe made of sheet steel, fire-aluminised		Ø 180 mm	Item no. €	012507 **136,00**
Hot air hose with fastening strap and carrying bag	7,6 m	Ø 525 mm	Item no. €	005597 **460,00**
Connecting piece for extending hot air hoses with		Ø 525 mm	Item no. €	002800 **120,00**
Hot air hose with fastening strap and carrying bag	7,6 m	Ø 560 mm	Item no. €	026991 **474,00**
Connecting piece for extending hot air hoses with		Ø 560 mm	Item no. €	026985 **204,00**
Air outlet adapter	1 way	Ø 525 mm	Item no. €	012527 **255,00**
Air outlet adapter	2 ways	Ø 525 mm	Item no. €	065076 **875,00**
Air outlet adapter	3 ways	Ø 425 mm	Item no. €	065077 **646,00**
Air outlet adapter	4 ways	Ø 305 mm	Item no. €	012530 **646,00**
Air outlet box for hoses with		Ø 560 mm	Item no. €	052623 **1.559,00**

Dehumidifier

Dehumidifier **TK, TE**

Dehumidifier **TK, TE**

Assistance with construction drying and water damage

Maintenance-friendly

Space-saving

Mobile

Operating hours counter

Suitable for every room

Most construction damage is caused by existing moisture in the building. The Kroll **T-series dehumidifiers** are your strong partner from the very first second – whether for new buildings, renovation work, water damage, accelerating the drying process or keeping rooms dry. Kroll offers an extensive range of dehumidifiers from 30 to 120 litres/24 hours dehumidification capacity, so we have the right device for a wide range of temperatures and humidity levels.

The units are easy to set up and start up electrically and operate quietly in a wide working range between 5 and 32 degrees Celsius at 50 to 90 percent relative humidity.

Automatic hot gas defrosting ensures trouble-free operation, even in continuous use or at colder temperatures.

Easily cleanable intake filters increase the service life of the units and reduce particle pollution in the room. Our TE models have a patented, cleanable long-term filter.

Overflowing of the condensed water in the tank is ruled out thanks to a magnetic contact overflow protection (TK models and TE40). The operating status can also be always observed on the LED display. Our dehumidifiers are practical and easily transportable thanks to their compact design, integrated wheels and handle.

Area of application

- New build and renovation work
- Construction and water damage drying
- Hire and rental
- Industry and construction

Features

- Quiet
- Stackable
- Operating hours counter
- Long service life due to intake filter
- Automatic hot gas defrosting
- Powder-coated steel housing
- Environmentally friendly, CFC-free refrigerant

Technical data

Power range 30 to 60 l/24h

		TK30	TK60
	Item no.	050653	050654
	€	**1.560,00**	**1.955,00**
Maximum dehumidification capacity*	l/24h	30	60
Volume flow	m³/h	580	1.000
Working range humidity	% RF	50–90	50–90
Working range temperature	°C	5–32	5–32
Refrigerant		R290	R454C
Electrical connection	V/Hz	220–240/~50	220–240/~50
Electrical power consumption	kW	0,57	1,40
Width	mm	430	520
Length	mm	500	560
Height	mm	800	980
Weight	kg	34	40
Water collection tank	l	6	6
Operating hours counter		●	●
Connection for condensate pump		●	●
Stackable		●	●
Device socket		●	●
Hot gas defrosting		●	●
Sound pressure level	dB(A)	52	56
Protection	IP	21	21

* 32 °C/80 % relative humidity
● Included in the scope of delivery

Accessories

		Product allocation	
		TK30	TK60
Hygrostat		integrated	integrated
Condensate pump	Item no. €	049946 **573,00**	049946 **573,00**
Maximum delivery height	m	4,3	4,3
Dual counter	Item no. €	301665 **640,00**	301665 **640,00**

Technical data

Power range 40 to 120 l/24h

		With additional electric heater			
		TE40	**TE80**	**TE100**	**TE120**
	Item no.	000114	038856	039239	039368
	€	**2.350,00**	**3.285,00**	**3.570,00**	**4.385,00**
Maximum dehumidification capacity*	l/24h	33	56	74	90
Volume flow	m³/h	580	1.000	1.000	1.160
Working range humidity	% RF	50–90	50–90	50–90	50–90
Working range temperature	°C	5–32	5–32	5–32	5–32
Refrigerant		R290	R454C	R454C	R454C
Volume flow	m³/h	580	1.000	1.000	1.160
Electrical connection	V/Hz	220–240/~50	220–240/~50	220–240/~50	220–240/~50
Electrical power consumption	kW	0,50/2,50	1,35/3,35	1,90/3,50	1,93/3,53
Width	mm	495	620	620	620
Length	mm	830	615	615	580
Height	mm	610	860	860	1.070
Weight	kg	37	52	53	58
Water collection tank	l	14	–	–	–
Operating hours counter		●	●	●	●
Connection for condensate pump		●	●	●	●
Stackable		●	●	●	●
Hot gas defrosting		●	●	●	●
Auxiliary heater		●	●	●	●
Sound pressure level	dB(A)	50	57	57	59
Protection	IP	23	23	23	23

* 32 °C/80 % relative humidity

● Included in the scope of delivery

Accessories

		Product allocation			
		TE40	**TE80**	**TE100**	**TE120**
Hygrostat	Item no.	046075	046075	046075	046075
	€	**146,00**	**146,00**	**146,00**	**146,00**
Condensate pump	Item no.	021779	021779	021779	021779
	€	**534,00**	**534,00**	**534,00**	**534,00**
Maximum delivery height		5,4	5,4	5,4	5,4
Overflow protection for external collection container	Item no.	–	021780	021780	021780
	€	–	**176,00**	**176,00**	**176,00**

GENERAL

Glossary

Terms of Sale and Delivery

Glossary

A

Air outlet cone

An air outlet cone is a part of a ventilation system or air conditioning system that is used to direct, distribute an airflow from a duct or opening and/or direct it in a specific direction. It helps to distribute the air flow evenly in the room and thus ensures efficient ventilation or cooling. The air outlet cone can have different shapes and sizes, depending on the requirements of the system and the desired airflow pattern.

Annual space heating utilization rate

This is an indication of how efficiently a room heating system works throughout the year.
The value indicates what percentage of the energy used is used for heating the room, including losses due to, for example, heat dissipation to the environment and other inefficient factors.
A high value means that the heating system is working efficiently, while low annual utilization rates indicate that a considerable amount of energy is being lost. In general, it is desirable to choose space heating systems with high annual efficiency values to minimize energy consumption and reduce operating costs.

Available air pressure (Pa)

This value indicates how much pressure is available to move air through the product.

Axial fan

An axial fan is like a large fan with flat, shovel-like blades that look like a propeller. It moves the air forwards or backwards along its axis. This type of blower is usually installed in products where a lot of air movement is required, for example ventilation systems or air conditioning systems.

C

Centrifugal blower

A centrifugal blower is like a fan with blades that push the air from the centre outwards, creating an airflow in a circular direction.
This type of blower is often found in products that need to transport air over longer distances or generate a higher pressure difference.

COP

"Coefficent of Performance".
The COP is a key figure that indicates how efficiently a heat pump or cooling compressor works.

The COP is calculated by dividing the heating or cooling output generated by the electrical power supplied.

A higher COP means that the device works more efficiently, as it generates more heating or cooling capacity per electrical power input.

The formula is

$$COP = \frac{Q_{ab}}{W_{auf}}$$

Q_{ab} is the amount of heat emitted (heat output) and

W_{auf} is the electrical work consumed (drive power).

D

Differential temperature control

A control strategy used to optimize the operation of heating or cooling systems. With this type of control, the difference between the desired target temperature and the actual room temperature is measured and heating or cooling systems are controlled based on this.
Differential temperature control enables efficient and convenient control of heating or cooling systems by optimizing energy consumption while ensuring the desired level of comfort in the room.

E

EER

EER stands for "Energy Efficiency Ratio". Like the COP, the EER is a measure of the efficiency of heat pumps and air conditioning systems.

It is calculated from the ratio of the cooling capacity of a device to the electrical power supplied at a certain temperature.

The formula is

$$EER = \frac{Q_{cooling}}{W_{electric}}$$

$Q_{cooling}$ is the cooling capacity in BTU/h (British Thermal Units per hour) and

$W_{electric}$ is the electrical power consumption in watts (W)

The higher the EER value, the more energy-efficient the device.

Glossary

Efficiency (η)

Efficiency is a measure of how efficiently a system converts or transfers energy. The value is given as a percentage and indicates what proportion of the energy used is converted into the desired form.

The efficiency formula is

$$n\ (\%) = \frac{E_{use}}{E_{total}} \times 100$$

n is the efficiency (often expressed as a percentage)

E_{use} is the energy output by the machine,

E_{total} is the total energy supplied or the energy supplied to the system

A high efficiency indicates that little energy is lost and the system is operating efficiently, while a low efficiency indicates that a significant amount of energy is converted into unwanted forms, which is inefficient.

Energy analysis

An energy analysis is a review that aims to scrutinize the energy consumption of an object.
It examines how energy is used in a building (a machine or a process) to identify possible improvements or increases in efficiency.

Electrical power consumption

This is the amount of power in watts (W) consumed by a device or indicates how much energy the device requires to function. A low electrical power consumption can indicate efficient energy consumption. This value is important to understand the energy requirements of a product, especially in terms of energy efficiency and cost.

Electronic ignition

Electronic ignition is a modern method of igniting gas devices using electrical control. Electronic ignition comprises a control unit, sensors and other electrical components that monitor and control the ignition process. When the user presses the ignition button or switch, the control unit sends an electrical pulse to an ignition transformer or spark plug. Through this process, electronic ignitions provide precise control over the ignition process and are generally reliable and durable. They can also improve the efficiency of the ignition process.

ErP Directive

The ErP Directive, also known as the Ecodesign Directive, for energy-related products is a legal regulation of the European Union (EU) that aims to reduce the environmental impact of energy-related products and improve energy efficiency.

F

Flue gas loss

The flue gas loss describes the difference between the nominal heat load and the nominal heat output. The lower the flue gas loss, the more efficient the device.

Frequency converter

A frequency converter is a power converter that generates a different AC voltage from the AC voltage being supplied.
When we talk about a frequency converter, it is usually in the context of cooling systems. Here, the frequency converter is an electrical device that controls the speed of the compressor or motor. Instead of running the motor at a constant speed, as is the case with conventional systems, a frequency converter allows the speed to be adjusted according to actual requirements. It is like the accelerator pedal in a car; it controls the speed at which the motor runs. In air conditioning systems, the frequency inverter regulates the speed of the motor to precisely adjust cooling or heating. This saves energy and ensures that the system runs efficiently, like a car that only accelerates as much as necessary to reach the desired speed.

H

Heat exchanger

A device used to transfer heat from one medium to another without the two media coming into direct contact with each other. The media can be either gaseous or liquid. By using a heat exchanger, energy can be saved as it allows heat to be transferred from one process to another instead of simply being lost.

Heat recirculation

Heat recirculation is a process in which heat that would otherwise be lost is fed back into a system or room to be reused. During the heating process, for example in a building, some of the heat

normally escapes outside through windows, doors or other openings. With a heat recirculation system, some of this lost heat can be fed back into the building and used to heat the rooms instead of being lost. In industrial applications, heat recirculation can mean that the waste heat from machines or processes is fed back into production processes to save energy and increase efficiency.

Hot gas defrosting

A method used in refrigeration and air conditioning systems to melt ice or frost from the evaporators. If ice forms on the evaporators, the efficiency of the system can be impaired as this affects heat transfer. During hot gas defrosting, the refrigerant is passed through the evaporator in its gaseous state instead of going through the normal refrigeration cycle. This hot gas heats the evaporator and melts the ice/frost that has formed on it. The melted water is then discharged via a condensate drain system. This enables efficient and rapid defrosting of the evaporators without having to drain the refrigerant and helps to reduce energy consumption and maintain performance.

Hygrostat

A device used to monitor and control the humidity in a room. It works in a similar way to a thermostat, but instead of the temperature, it controls the humidity for a comfortable and healthy indoor climate.

Alternatively, a hygrostat is also used after water damage, in new buildings, during renovation work or to speed up the drying process in combination with a dehumidifier.

K

Kelvin (K)

Kelvin is a unit of measurement for temperatures. Unlike Celsius or Fahrenheit, the Kelvin scale starts at absolute zero and has no negative values. 0°C corresponds to 273.15 K, whereby °C and K have the same "step range". Temperature differences are technically correctly expressed in Kelvin – i.e. the difference between 20°C and 60°C is 40 K.

N

Nominal heat load (Hi)

This value indicates the maximum amount of energy that a device can use to heat or cool a room. A high value merely means that the unit can handle more energy and does not represent any indication of efficiency, economy, etc.

Nominal heat output (Qn)

This value refers to the maximum amount of energy that the device can generate or emit. This value is important to ensure correct dimensioning of the system.

P

Piezo ignition

Piezo ignition is an ignition device that is often used in gas-powered devices. It generates a spark using so-called piezo elements, which are mechanically deformed to generate an electrical charge. The way it works is quite simple, but reliable; inside the igniter is a piezo element consisting of a crystal that generates an electrical charge under pressure. If the element is now mechanically deformed by (button) pressure, this generates a high-voltage discharge. This discharge generates a spark between two electrodes, which ignites the connected gas-air mixture. As neither batteries nor external power sources are required, piezo ignitions also work in various weather conditions, including rain and cold, making them very reliable.

Piston compressor

The piston compressor is the oldest form of air compressor. It works by pistons sliding up and down, drawing in the refrigerant, compressing it and discharging it again. This process is controlled by intake and outlet valves. Thanks to its robust design and versatile application options, the piston compressor can now be used in both trade and industry. It is low-maintenance, durable and often the most economical solution.

Pressure transmitter

In the context of air conditioning and cooling systems, the pressure transmitter measures the pressure of the refrigerant or liquid within the system. If the pressure is too high or too low, the pressure transmitter can trigger alarms to initiate repairs and ensure that everything is running smoothly.

R

Refrigerant

Refrigerant is a chemical substance used in refrigeration and air

conditioning systems to absorb and release heat. The main function of a refrigerant is to absorb heat in one area (evaporate) and release heat in another area (condense). Refrigerant circulates through the system and changes between a liquid and gaseous state, thereby transporting heat. It is like the "fuel" in air conditioning systems or heat pumps that makes them work.

Return flow addition

Return flow addition describes a process within a heating system in which part of the already heated medium (water, air, oil, etc.) is returned and mixed with the still cold supply. This is done to lower the temperature of the returned medium and thus increase the efficiency of the heating system. In the example of a boiler, this means that hot water flows through radiators or pipes, releases heat there and returns to the boiler as a so-called "return flow". By adding cold water to the return flow, the temperature can be lowered – this has the advantage that the boiler then works more efficiently, as it can handle a colder return flow and therefore consumes less energy. The addition of return water helps to improve the overall efficiency of heating systems and is also often used in hydronic heating systems.

S

(Scroll) compressor

A scroll compressor is a special type of compressor that is used in air conditioning systems, heat pumps or cooling systems. In contrast to conventional piston compressors, the scroll compressor works with a spiral design in which one spiral is fixed and the other moves. As the moving scroll rotates, the refrigerant is trapped and compressed. This continuous process leads to efficient compression of the gas. This makes the compressor efficient, reliable and quiet. Scroll compressors are used to cool or heat the air.

Sound pressure level dB(A)

The sound pressure level is a value that indicates how loud a noise is, in our case our devices. It is measured in decibels (dB). The higher the decibel value, the louder the noise.

Please note: decibels are expressed on a so-called logarithmic scale, which means that ratios are shown, not values. An increase of ten decibels corresponds to a doubling of the sound intensity/volume.

T

Throw distance

The throw distance describes how far the air flow blows away from an outlet point. In a room, a longer throw distance means that the air flows further before it is distributed. A good throw ensures that the air is distributed evenly throughout the room to achieve a comfortable temperature and air quality. A great example is our ceiling fan with a throw of 10 metres or more.

Thanks to its good throw range, it can distribute the air far enough across the room to create a pleasant air circulation. The air flow is not only noticeable under the fan, but also in other places in the room (see also illustration on page 37).

V

Volume flow

This is the amount of air that flows through a device, usually measured/specified in cubic meters per hour (m^3/h). The air flow rate is important for assessing the efficiency of a device and ensuring that sufficient fresh air enters or leaves a room.

Terms of Sale and Delivery

(As of 12/2022)

§ 1 General

1. Our terms and conditions of sale and delivery shall apply exclusively. Any general terms and conditions of business of the Purchaser that conflict with or deviate from our supplement terms and conditions shall not be recognized, even if they have not been expressly objected to and/or the delivery has been carried out without reservation despite knowledge thereof.
2. These terms and conditions of sale and delivery shall apply to

§ 2 Conclusion of contract

1. Our offers are subject to change.
2. Technical and constructive changes, as well as changes in form, color and/or weight remain reserved within the scope of reasonableness.
3. Orders, additions and changes to an order shall only be deemed to have been accepted when they have been confirmed by us in writing or the goods have been delivered to the purchaser.
4. We reserve the property rights and copyrights to cost estimates, drawings and similar documents.

§ 3 Delivery

1. Agreed periods shall commence upon conclusion of the contract, but not before the customer has provided any documents to be procured, including complete technical specifications, approvals, releases, provisions or other prerequisites essential for the performance of the contract, and also not before receipt of any agreed payment.
2. We are entitled to make partial deliveries if this is operationally necessary and reasonable.
3. Events of force majeure and other circumstances unforeseeable by us, in particular procurement, manufacturing, delivery disruptions, strikes, lockouts and the like. At our premises or those of our suppliers shall release us from our delivery obligations for the duration of the disruption as well as a reasonable start-up period – also during an already existing delay – unless the disruption was caused by us, our legal representatives, agents or vicarious agents intentionally or by gross negligence. If the delivery becomes impossible or economically unreasonable due to the aforementioned circumstances, we shall be released from our contractual obligations. Claims for damages on the part of the customer are excluded.
4. Our obligation to deliver shall be suspended as long as the customer is not only insignificantly in arrears with an obligation.

§ 4 Prices/Payment

1. The prices confirmed by us shall apply ex works, excluding packaging, plus the respective statutory value added tax.
2. If the net value of the goods is less than 50.00 €, a minimum quantity surcharge of 25.00 € shall be levied.
3. If there is no individual contractual agreement, we reserve the right to charge for additional packaging costs exceeding the usual amount.
4. We calculate shipping and delivery costs as follows:

   For shipment by parcel service, max. 31.5 kg (within the specified dimensions of the parcel service)

   per package 12,00 € net

   For deliveries by forwarding agent, we charge a flat-rate freight charge, which is staggered according to the net order value:

   a. up to 2.000,00 € 4 % of the net order value; at least however 45,00 € / delivery
   b. from 2,001,00 to 3,000.00 € 3 % of the net order value
   c. from 3,001,00 to 10,000.00 € 2 % of the net order value
   d. from 10.001,00 € 1 % of the net order value

   Project business, heat pumps and plant construction ex works.

   Excluded from this regulation are German islands and port surcharges, these will be calculated separately and on a daily basis.

   Additional costs incurred for deliveries abroad will be charged on a time and material basis. Additional costs directly related to shipping will be charged as follows:

   a. Notification by telephone 13,00 €
   b. Technical notification (e-mail) 7,00 €
   c. Agreement of a time window 20,00 €
   d. Acknowledged delivery bill 10,00 €
   e. Exchange of pallet cages 10,00 €.

   In the context of express deliveries (so-called "Next Day") the following surcharges apply:

   a. Next Day, arrival time not influenceable 30,00 €
   b. Delivery by 10:00 a.m. on the following day 70.00 €
   c. Delivery by 12:00 noon the following day 55.00 €

   Valid working days Monday to Friday, Sundays and holidays excluded, individual inquiry required in any case, as not all zip code areas are covered.
5. Expenses incurred due to changes, type or scope of delivery at the request of the purchaser after our order confirmation and/or which arise due to the fulfillment of subsequent or unforeseeable official conditions and requirements will also be invoiced separately at the quoted purchase price.
6. If, after conclusion of the contract, there is a significant change in the price factors for materials, vendor parts, wages, social benefits, energy costs, sales and transfer taxes or customs duties, we shall be entitled to increase the prices stated in the order confirmation for the goods to be delivered more than 6 weeks after conclusion of the contract accordingly. If the price increase would be more than 5% of the price stated in the order confirmation, the customer shall be entitled to withdraw from the contract within one month from notification of the price change.
7. Assembly costs will be charged separately.
8. The deduction of a discount requires a special written agreement.
9. The customer shall only be entitled to a right of set-off if his counterclaims have been legally established, are undisputed or have been acknowledged by us. The customer may only exercise rights of retention insofar as his counterclaim is based on the same contractual relationship.
10. If we become aware of circumstances that give rise to justified doubts about the creditworthiness of the customer and if the customer is not prepared to pay in advance or to provide appropriate securities despite a corresponding request, we shall be entitled to withdraw from the contract.

Terms of Sale and Delivery

§ 5 Transfer of risk

1. Delivery shall always be ex works.
2. The risk of accidental loss and accidental deterioration of the goods shall pass to the customer upon handover in the case of sale by delivery to a place other than the place of performance upon delivery to the transport company. If the customer is in default of acceptance, the risk of accidental loss and accidental deterioration of the goods shall pass to him from the day of readiness for dispatch. Any storage costs incurred shall be borne by the customer.

§ 6 Retention of title

1. We reserve title to our goods until full payment of all claims arising from the entire business relationship.
2. In the event of breach of contract by the customer, in particular in the event of default in payment, we shall be entitled to withdraw from the contract after setting a reasonable deadline and to demand the return of our goods. After taking back the goods, we shall be entitled to utilize them. The proceeds of the realization shall be credited against the customer's liabilities less reasonable costs of realization. If the right of withdrawal cannot be realized, we shall be entitled to a corresponding claim for damages.
3. The purchaser is permitted to resell our goods within the scope of his ordinary business operations. The purchaser hereby assigns to us all claims against his customers arising from the resale. We hereby accept the assignment. The customer shall remain authorized to collect the claims assigned to us. This authorization shall expire upon cessation of payments by the customer.
4. In the event of seizure, other interventions by third parties or any damage to or destruction of the goods, the customer shall notify us immediately. Likewise, a change of ownership of the purchased goods as well as a possible change of domicile of the purchaser must be notified immediately.

§ 7 Claims for defects

1. The Purchaser shall only be entitled to make claims for defects if it has duly fulfilled its obligations to inspect the goods and give notice of defects in accordance with § 377 of the German Commercial Code (HGB).
2. If the goods have a defect for which we are responsible, we shall, at our discretion, either remedy the defect at our expense or deliver goods free of defects (subsequent performance). The purchaser is obliged to allow us to inspect the goods upon request, also by third parties.
3. Only our product description shall apply as the quality of the purchased item. Public statements, recommendations or advertising do not constitute a contractual description of the quality of the goods.
4. We shall be liable in accordance with the statutory provisions if the customer asserts claims for damages based on intent or gross negligence. Insofar as we cannot be accused of intentional or grossly negligent breach of duty, the liability for damages shall be limited to the foreseeable, typically occurring damage. This shall not apply to liability for culpable injury to life, limb or health, nor to mandatory liability under the Product Liability Act.
5. The period of limitation for claims for defects of the purchaser is one year from delivery of the goods.
6. The customer does not receive guarantees in the legal sense from us. Manufacturer's guarantees shall remain unaffected by this.

§ 8 Liability

1. In the case of other claims for damages, we shall be liable in the event of a slightly negligent breach of duty at most only for the damage typically occurring in accordance with the type of purchased item. This shall also apply to slightly negligent breaches of duty by our legal representatives or vicarious agents.
2. Our liability for slightly negligent breaches of non-essential contractual obligations is excluded.
3. Liability for culpable injury to life, body or health remains unaffected. Likewise, the mandatory liability under the Product Liability Act.

§ 9 Place of performance

The place of performance for the delivery is the respective shipping point, for payments and all other obligations arising from this contractual relationship the registered office of our company.

§ 10 Final Provisions

1. The law of the Federal Republic of Germany shall apply. The provisions of the UN Convention on Contracts for the International Sale of Goods shall not apply and are expressly excluded.
2. The exclusive place of jurisdiction for all disputes arising from this contract shall be the local or regional court of Stuttgart, depending on the amount in dispute.
3. The data of the orderer necessary in the context of the contract winding up are stored and processed for own purposes. A notification according to § 33 BDSG is hereby made. Our detailed privacy policy is available at any time at **www.kroll.de/datenschutz**.
4. If individual provisions of the contract, including these terms and conditions of sale and delivery, are or become invalid in whole or in part, this shall not affect the validity of the remaining provisions. The wholly or partially invalid provision shall be replaced by a provision whose economic success comes as close as possible to that of the invalid provision. This also applies in the event of a loophole.

All shipments are checked by us at the outgoing goods and packed with the utmost care. Nevertheless, in rare cases items may arrive damaged at the recipient. Therefore, please check your shipment immediately upon delivery carefully for external defects and completeness. In case of visible damage (e.g. foil or packaging damaged, showing cracks, holes, dents or dented edges) we recommend to unpack and check the shipment in the presence of the carrier and to note the exact damage with date, time and signature on the proof of delivery and have it certified. The note "acceptance of goods with reservation" is not sufficient. Photographs to preserve evidence are also helpful. If complaints regarding quantity or damage are not made, not made sufficiently or not made in good time, the goods shall be deemed to have been delivered complete and undamaged in accordance with § 438 HGB. Claims for damages arising from transport damage or missing goods cannot be asserted at a later date either with us or with the transport insurance company.

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Notes

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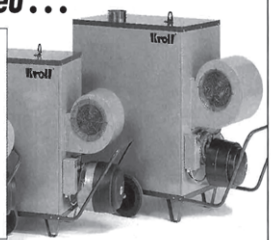

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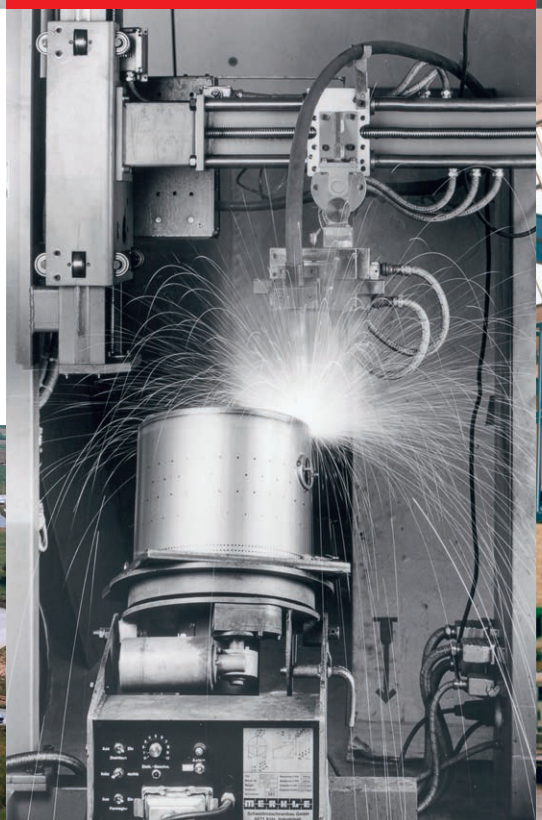

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