

Refrigeration and Air-Conditioning Equipment

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System Overview

Refrigeration and Air-Conditioning Equipment

ROTHENBERGER, together with specialised trade training institutes, would like to assist you in expanding into a new business: An intensive practical seminar will provide comprehensive training, our trade division will provide you with air-conditioning supplies at great value, and ROTHENBERGER offers you trade-tested tools.

In addition to the innovative ROKLIMA Plus 4F, ROTHENBERGER offers a complete range of conventional tools for the refrigeration and air-conditioning industry. Choose between various, wide-range set combinations or single components.

You decide which air-conditioning units you want to offer and you choose the appropriate tool.

Refrigerant Competence Seminar

Installation, initial operation, maintenance and disposal of factory-made air-conditioning systems

Get trained to be an air-conditioning leader!

ROTHENBERGER offers refrigerant competence seminars nationwide.

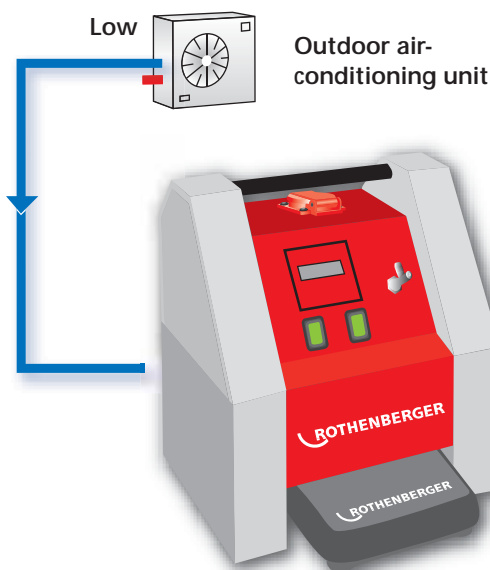
Register now!

All further information can be found at:

www.rothenberger.com



Evacuation with the ROKLIMA PLUS 4F



ROKLIMA PLUS 4F

See  324, 325

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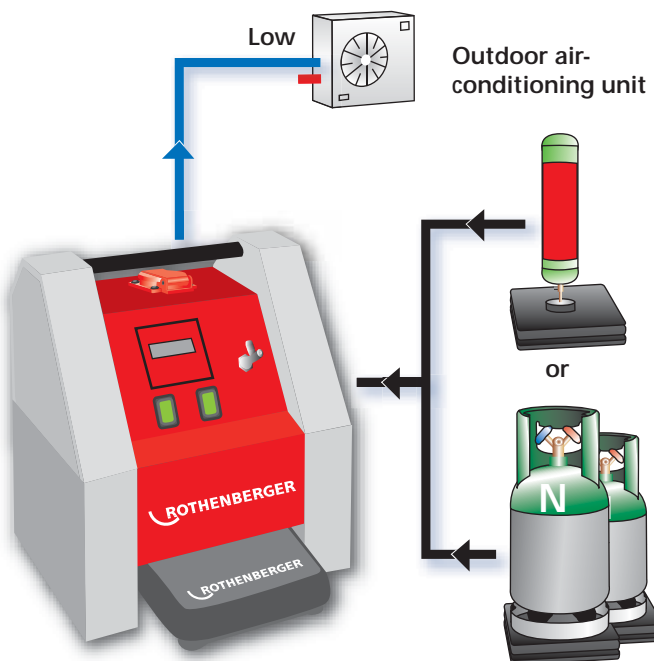
4F

- Evacuation
- Charging
- Leakage test
- Control of the evacuation process

KEY FEATURES (ROKLIMA PLUS 4F)

- **Simple and comfortable to use**
Integrated control
- **All components integrated into casing and optimally protected for transport**
"All-in-one" solution
- **Automatically monitors already filled refrigerants, suitable for all current refrigerant**
Precision scale up to 35 kg and integrated filling hose
- **No overfilling, no loss of refrigerant, no environmental damage**
Fill up quantities to the exact gram desired
- **No overfilling of the recycling bottle**
Controller monitors vacuum procedure

Charging with the ROKLIMA PLUS 4F



ROKLIMA PLUS 4F

See  324, 325

System Overview

KEY FEATURES (MANIFOLD)

- **Secure connections without risk of leaks**
Two-stage high vacuum pump with stable connections for 2 or 4-way manifolds
- **Suitable for all current refrigerant canisters**
Charge process with precision scale for monitoring of filled refrigerant amounts
- **Enables work with light and convenient refrigerant bottles**
Bottle connection for 1 l and 2.5 l refrigerant bottles

As an orientation guide, we have marked all tools specifically suitable for refrigerants with icons:

R410A

R22

R134A

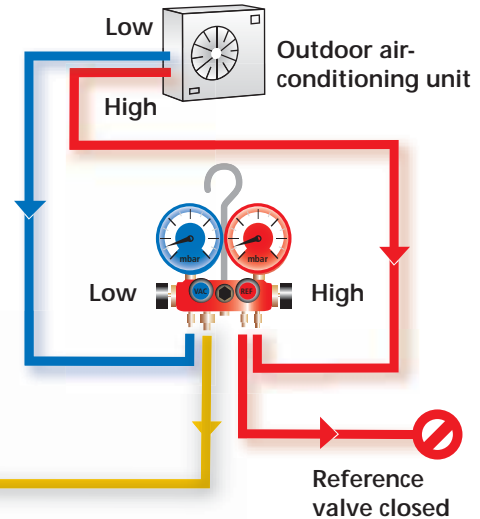
R407C

R404A

R507A

All conventional tools for the refrigeration and air-conditioning field correspond to the high standards of the professional air-conditioning trade.

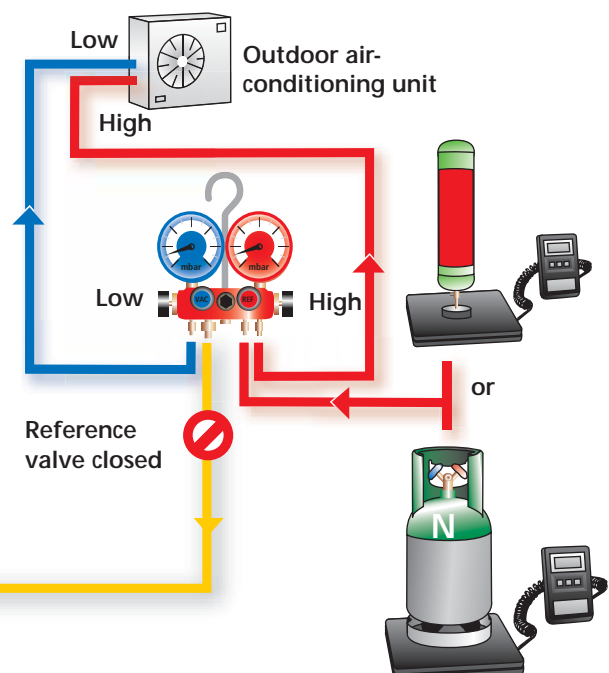
Evacuation with conventional technology



Vacuum Pumps

See 328, 329

Charging with conventional technology



Vacuum Pumps

See 328, 329

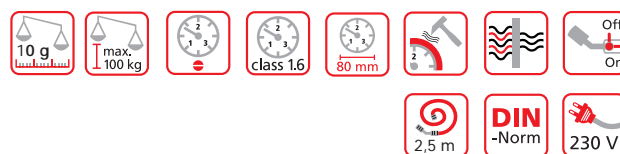


Fully Automatic Evacuation and Charging Station

ROKLIMA PLUS 4F

Fully automatic commissioning and maintenance of air-conditioning units

The innovative unit enables safe and comfortable operation on refrigeration systems. With simple menu navigation, **4 functions (4F)** are automatically controlled



R410A R22 R134A R407C R404A R507A

Product Profile

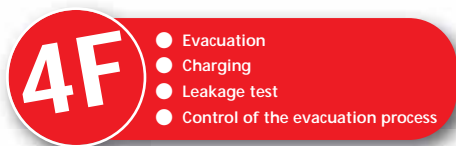
KEY FEATURES

4 Functions

- Evacuation of refrigeration systems
- Charging of refrigeration systems
- Leakage testing of refrigeration systems
- Recovery control of refrigeration systems

TECHNICAL DATA

Weight:	17 kg
Final Vacuum:	1×10^{-2} mbar
Scale range:	bis 100 kg
Resolution:	10 g
Pressure hose length:	2.500 mm
Delivery rate:	42 l / min



Interactive 16-digit display with 4 function buttons

All required parameters can be easily entered

Sturdy, compact metal casing

Protects all components such as vacuum pump and scale

Integrated high vacuum pump with 42 l/min suction performance

For evacuation of the system in accordance with DIN 8975

Pull-out precision digital scale up to 100 kg

Secure stand for large and small containers

3 different pressure gauges "Pulse-free", class 1.6, 80 mm

Universal use on air-conditioning units with all common refrigerants

3 pressure hoses (2.500 mm) from the series "Plus" with ball valve

Safe and comfortable operation with refrigerants without the risk of refrigerant loss

Plastic capillary hose

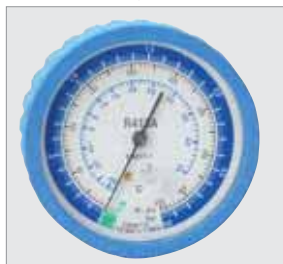
Safe, leak-free filling

3 encased low-pressure gauges for various refrigerants

Secure storage of all accessories: pressure gauge

Pressure hoses

Bottle adaptor for scale No. 1732.03 / 04 / 05 and reducing pieces 1/4"



Fully Automatic Evacuation and Charging Station



ROKLIMA PLUS 4F in use (evacuation and charging)

ROKLIMA PLUS 4F

Set (No. 1840.00) includes: 2-stage high vacuum pump, 3 low pressure gauge (R22 No. 1707.01, R407C No. 1707.01, R410A No. 1707.09), 3 pressure hoses with ball valve à 2.500 mm (R22 No. 1715.38, R407C No. 1715.38, R410A No. 1715.35), 3 bottle connection adaptor (1/4" fine threaded No. 1732.03, 1/4" SAE No. 1732.05, 5/16" SAE No. 1732.04), 2 reducing pieces 1/4" SAE - 5/16" SAE (No. 1700.16), precision digital scale up to 100 kg, automatic control, vacuum and pressure switch, mineral oil (No. 1692.00)

Secure storage of Accessories:
pressure hoses bottle adaptor,
plastic capillary hose



Precision scale up to 100 kg





Ergonomic, Compact



Light



Including: 2-stage high vacuum pump

Model	 kg		No.
ROKLIMA PLUS 4F	17.0	1	1840.00
Reducer pieces 1/4" SAE F - 5/16" SAE M	0.1	1	1700.16

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Fully Automatic Evacuation and Charging Station

ROKLIMA Compact

Fully automatic control unit for the evacuation and charging of refrigeration systems

With the ROKLIMA Compact all common vacuum pumps can be upgraded to a fully automatic evacuation charging station

Product Profile

KEY FEATURES

- 1 Quick operation and easy to use
- 2 Required parameters can easily be entered
- Automatic monitoring of evacuation and charging
- Accurate operation in accordance with **DIN 8975**
- No risk of refrigerant loss thanks to the simple hose system
- High security of the refrigeration system due to the integrated solenoid check valve

TECHNICAL DATA

Final Vacuum:	2 x 10 ⁻² mbar
Dimensions:	270 x 240 x 230 mm
Weight:	8.6 kg
Scale range:	bis 100 kg
Resolution:	10 g

R410A R22 R134A R407C R404A R507A



- 2 Interactive 16-digit display with 4 function buttons

All required parameters can be easily entered

230 V connection



- 1 Only one pressure hose for the refrigeration system, 1/4" SAE connection

Quick and easy operation

Only one pressure hose for the vacuum pump 1/4" SAE connection

Quickly operational and easy to use including 2 adaptors 1/4 - 5/16" SAE

3 functions in one unit:

- Evacuation of refrigeration systems
- Leakage testing of refrigeration systems
- Charging of refrigeration systems

Precision digital scale up to 100 kg

For big and small containers



Bottle adaptor for the scale
No. 1732.03/04/05

Carrying bag No. 1820.54



ROKLIMA Compact

8-part set (No. 1820.00) includes: Control unit with precision digital scale (up to 100 kg), solenoid check valve, solenoid valves in vacuum and charging segment, charging capillary hose and 3 reducing pieces 5/16" SAE M - 1/4" SAE F (No. 1700.16), carrying bag (No. 1820.54)

Model	kg	No.
ROKLIMA Compact Set	8.6	1820.00
Bottle adaptor 1/4" SAE	0.1	1732.05
Bottle adaptor 1/4" finely threaded	0.1	1732.03
Bottle adaptor 5/16" SAE	0.1	1732.04
Carrying bag	0.1	1820.54
Reducing pieces 1/4" SAE F - 5/16" M	0.1	1700.16

Recovery and Recycling Units

ROREC

Refrigerant recovery and recycling device

Compact, portable device for recovery and recycling refrigerants of all kinds



R410A

R22

R134A

R407C

R404A

R507A

Product Profile

KEY FEATURES

- 1 Protects the integrated components
- 2 Emptying of the device in order to work with different refrigerants with the PURGE function
- 3 Maintenance-free operation through the oil-free compressor
- 4 Simple transport and use with the light and compact plastic casing
- 5 Reset of the pressure shut-off with the RESET button

TECHNICAL DATA

Applicable for:	all refrigerants of the type CFC-HCFC-HFC
Capacity:	gaseous: 0.26 kg / min fluid: 1.85 kg / min Push/Pull: 6.22 kg / min
Electrical Data:	110 - 230 V / 50 - 60Hz / 4 - 8A
Power:	370 W
High pressure switch:	38.5 bar
Dimensions:	500 x 220 x 340 mm
Weight:	16 kg

2 PURGE function

Emptying of the device in order to work with different refrigerants

1 Integrated high pressure switch

Protects the integrated components

5 RESET Button

Reset of the pressure shut-off

3 Oil-free compressor

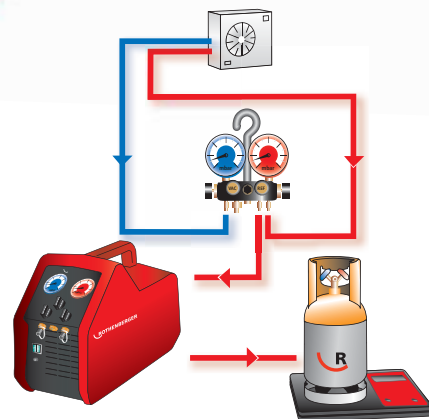
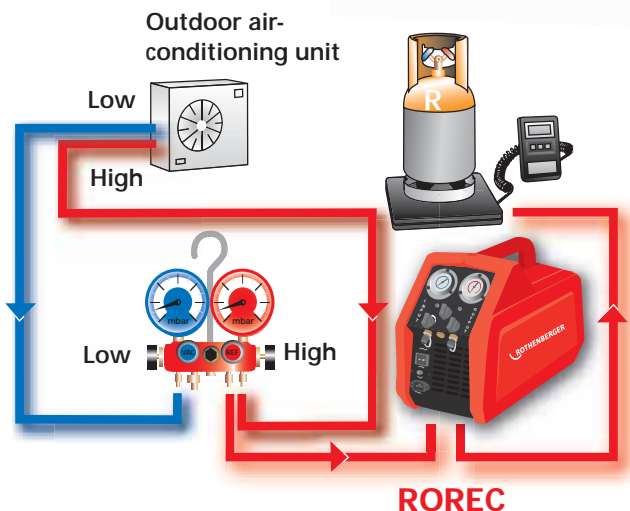
Maintenance-free operation

4 Light and compact plastic casing

Simple transport and use



Recovery of Refrigerant



Model	Power consumption	kg	No.
ROREC	370 W	16	1 1686.04

ROTHENBERGER

High Vacuum Pumps

ROAIRVAC

Two-stage rotary vane pump

For evacuation in accordance with **DIN 8975** with vacuum gauge and solenoid valve

Integrated vacuum gauge and solenoid check valve



Product Profile

KEY FEATURES

- 1 Protects the integrated components with the light and high quality casing
- 2 Solenoid check valve to protect the refrigeration system from oil contamination during power outage
- 3 Vacuum gauge with integrated drag indicator
- 4 Gas ballast valve for reduction of water vapour in the oil container

KEY FEATURES

- 5 Special filter reduces oil mist on nozzle
- 6 Gauge-glass enables easy oil-stand monitoring
- Fast filling of oil without spilling, no special funnel is necessary
- Easy access to the oil drain plug
- Thermal switch protects the unit from the motor overheating



ROAIRVAC 1.5 (42 l / min)



ROAIRVAC 3.0 (85 l / min)



ROAIRVAC 6.0 (170 l / min)



ROAIRVAC 9.0 (255 l / min)



High Vacuum Pumps and Manifold Sets



ROAIRVAC Series

Two-stage rotary vane pump for evacuation in accordance with DIN 8975

Type	ROAIRVAC 1.5	ROAIRVAC 3.0	ROAIRVAC 6.0	ROAIRVAC 9.0
No.	1700.61	1700.62	1700.63	1700.64
Pump-rating	1.5 CFM / 42 l / min	3.0 CFM / 85 l / min	6.0 CFM / 170 l / min	9.0 CFM / 255 l / min
Vacuum stages	2	2	2	2
Final-vacuum	25 micron 0.025 mbar	25 micron 0.025 mbar	25 micron 0.025 mbar	25 micron 0.025 mbar
Motor rating	1/4 Hp 1720 r/m	1/3 Hp 1720 r/m	1/2 Hp 3440 r/m	1 Hp 3440 r/m
Voltage	230 V	230 V	230 V	230 V
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Connections	1/4"	1/4"	1/4"	1/4"
with adaptor	1/4" SAE F 5/16" SAE M 3/8" SAE M	1/4" SAE F 5/16" SAE M 3/8" SAE M	1/4" SAE F 5/16" SAE M 3/8" SAE M	1/4" SAE F 5/16" SAE M 3/8" SAE M
Oil capacity	250 ml	330 ml	330 ml	590 ml
Weight	9.0 kg	10.7 kg	11.5 kg	17.0 kg
Pressure gauge	Ø 50 mm	Ø 50 mm	Ø 50 mm	Ø 80 mm
Measuring unit	mbar / Mpa	mbar / Mpa	mbar / Mpa	mbar

Included in delivery with all pumps: 1 l Mineral oil (1692.00)



Solenoid valve 1700.25 and vacuum gauge



Vacuum gauge set (No.1700.25) includes: Solenoid valve, cable, grommet, cable socket and all required adaptors (1/4"-, 3/8"-, 5/16"-M SAE)

ROAIRVAC sets include: High vacuum pump with connections 1/4", 5/16" and 3/8" SAE, plastic bottle (1 l) with mineral oil

Model	Performance	kg	No.
ROAIRVAC 1.5 *	42 l / min	9.0	1700.61
ROAIRVAC 3.0 *	85 l / min	10.7	1700.62
ROAIRVAC 6.0 *	170 l / min	11.5	1700.63
ROAIRVAC 9.0 *	255 l / min	17.0	1700.64

Accessories

Description	kg	No.
Mineral oil, 1 litre	1.1	1692.00
Vacuum gauge with central connection	0.3	1700.25

* Available starting in May 2009.

Manifold Sets

Manifold sets and pressure hoses



Sets include: Manifold, pressure gauge with Ø 80 mm, "Pulse-free", class 1.6, 3 x 1.500 mm pressure hoses

Model	kg	No.
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2-way "Standard"

R22	R134A	R407C
Manifold set 2-way "Standard"	2.7	1706.00
R410A		
Manifold set 2-way "Standard"	2.7	1706.07

4-way "Standard"

R22	R134A	R407C
Manifold set 4-way I "Standard"	2.8	1706.01
R410A		
Manifold set 4-way I "Standard"	2.8	1706.06

4-way "Plus"

R22	R134A	R407C
Manifold set 4-way II "Plus"	2.8	1706.02
R410A		
Manifold set 4-way II "Plus"	2.8	1706.08
Plastic carrying case	1.4	1715.05

2-way manifold (for 1706.00 and 1706.07)

4-way manifold (for 1706.01, 1706.06, 1706.02 and 1706.08)

Durable and highly precise tool



No. 1706.01

Pressure hose with ball valve "Plus" (only for 1706.02 and 1706.08)

No loss of refrigerant

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ROTHENBERGER

Manifold Sets

Digital Manifold



Product Profile

APPLICATION AREA

Suitable for commissioning and maintenance of air-conditioners and heat pumps

KEY FEATURES

- Automatic calculation of overheating / under-cooling
- ① Simple control of the procedures needed to be performed
- ② Over 60 different refrigerants can be used
- ③ T-junction with Schrader valve for connection to refrigerant bottle
- ④ Monitoring of the evacuation processed with the included vacuum sensor
- ⑤ Connection for the clamping thermometer

TECHNICAL DATA

Pressure display:	PSI, Bar, MPa, Kg / cm ²
Temperature display:	°F or °C
Deep vacuum display:	Micron, mBar, Kpa, mmHg
Resolution:	1 psi (07 Bar, 007 MPa, 07 Kg / cm ²)
Accuracy:	+/- 1 psi or 1% of the display
Working pressure:	0 - 750 psi (52 Bar, 6 MPa, 52 Kg / cm ²)
Testing pressure:	1000 psi (70 Bar, 7 MPa, 70 Kg / cm ²) (Tolerated pressure without causing damage)
Refrigerant Temperature measurement range:	-40 up to 200 °F (-4 up to 93 °C)
Working temperature:	32 up to 122 °F (0 up to 45 °C)
Temperature accuracy:	± 1 °F (± 0.5 °C) between 32 up to 160 °F (0 up to 71 °C)
Storage temperature:	10 up to 120 °F (12 up to 49 °C)
Power source:	9 Volt battery and AC/DC charger, can be ordered separately
Adaptor connection:	1/4" SAE (7/16 UNF)

Protects against damage

Unit with shockproof rubber protector

⑤ Automatic overheating calculation

Connection for clamping thermometer

⑤ Automatic under-cooling calculation

Connection for clamping thermometer

④ Evacuation control during start-up

Connection for external vacuum sensor

① Large display with various indicators

Simple control of the procedures needed to be performed

② Wide range of possible applications

Over 60 different refrigerants can be used

③ Simultaneous connection of vacuum and filling hose

T-junction with Schrader valve for connection to refrigerant bottle



Set (No. 1705.20) includes: Digital manifold (No. 1705.23), vacuum sensor, (No. 1705.21), clamping thermometer (No. 1705.22), plastic case

Model		No.
Digital manifold set	1	1705.20
Digital manifold	1	1705.23

Description		No.
Vacuum sensor	1	1705.21
Clamping thermometer	1	1705.22

Complete set in protective plastic case



External vacuum sensor for monitoring the evacuation



Clamping thermometer automatically calculates overheating / under-cooling



Digital manifold in use



Manifolds and Pressure Hoses

Manifolds

2- and 4-way manifolds

Pressure gauge Ø 80 mm, with pulse-dampening class 1.6

Easy-to-read, high precision display

Large hand valve with colour coding

Light, secure and precise opening and closing of the diaphragm valve, maintenance free



Pressure gauge with shock-proof rubber protector

Protects against damage

Valve body made of aluminium with gauge glass

Sturdy despite low weight

2-way manifold



Manifold extender, 3/8"-F SAE bronze connection, for secure mounting of a 4-way manifold on a vacuum pump

Manifold extender	0.1	1709.20
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Accessories

Description	No.
Blue rubber protector for manifold	1705.45
Red rubber protector for manifold	1705.46
Valve inserts for manifold	1705.47

Model	kg	No.
R22		
R134A		
R407C		
2-way, 3 x 1/4" SAE	0.7	1 1705.01
4-way, 3 x 1/4", 1 x 3/8" SAE	0.3	1 1705.02
R410A		
2-way, 3 x 5/16" SAE	0.7	1 1705.18
4-way, 3 x 5/16", 1 x 3/8" SAE	0.9	1 1705.08

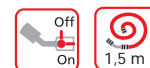
3-piece Pressure Hose Sets

● Long service life of hoses and seals

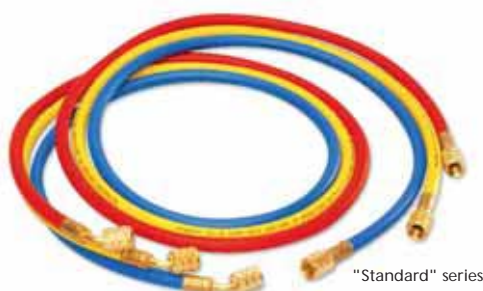
Pressure hoses "HD" (heavy duty) with Neoprene seal

● No confusion, safe work

Colour coding (blue, red, yellow) on the hose ends ("HD") and coloured hoses



R410A	R22	R134A	R407C
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"Standard" series



"Plus" series

Pressure hose from the series "Standard" 1/4" SAE 45°

Model	L mm	No.
R22		
R134A		
R407C		
Set with three "Standard" pressure hoses	1.500	1 1715.12
Pressure hose blue	1.500	1 1715.44
Pressure hose red	1.500	1 1715.46
Pressure hose yellow	1.500	1 1715.48
R410A		
Set with three "Standard" pressure hoses	1.500	1 1715.34
Pressure hose blue	1.500	1 1715.43
Pressure hose red	1.500	1 1715.45
Pressure hose yellow	1.500	1 1715.47

Pressure hose from the series "Plus" 1/4" SAE 45° with ball valve

Model	L mm	No.
R22		
R134A		
R407C		
Set with three "Plus" pressure hoses	1.500	1 1715.17
Pressure hose "Plus" blue	1.500	1 1715.22
Pressure hose "Plus" red	1.500	1 1715.40
Pressure hose "Plus" yellow	1.500	1 1715.42
R410A		
Set with three "Plus" pressure hoses	1.500	1 1715.34
Pressure hose "Plus" blue	1.500	1 1715.21
Pressure hose "Plus" red	1.500	1 1715.39
Pressure hose "Plus" yellow	1.500	1 1715.41

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Measuring and Testing Devices

Torque Wrench Set

Set includes: adjustable torque wrench (10 - 70 Nm) and 6 spanner inserts sizes 17, 22, 24, 26, 27 and 29 mm, for flange connections on 1/4", 3/8", 1/2" and 5/16" pipe lines **according to DIN 3866**

DIN
-Norm



Pipe- Ø	Spanner width	ET	Locking torque
1/4"	17 mm	1	18 Nm
3/8"	22 mm	2	42 Nm
1/2"	24 mm	3	55 Nm
1/2"	26 mm	4	55 Nm
5/16"	27 mm	5	65 Nm
5/16"	29 mm	6	65 Nm
Model			kg No.
Torque Wrench Set			3.5 1750.01
in nylon bag including 1 - 6			

Schrader Valve Tool

- For exchanging the Schrader valve on air-conditioners under pressure, with ball valve and 2 connections (1/4" and 5/16" SAE)



Description	g	No.
Schrader Valve Tool in plastic carrying case	20	8.7800

Vacuum Gauge

Vacuum gauge (Ø 80 mm, scale 1,000 - 0 mbar, adjustable) with mark pointer for holding the achieved vacuum at a desired pressure level



No. 1693.10



No. 1693.11

Model	kg	No.
1-way Vacuum Gauge with safety valve and hooks 1/4" SAE	0.4	1693.10
Flexible vacuum hose, 900 mm, 2 x 1/4" SAE	0.3	1693.11

Electronic Digital Scales

Automatic switch-off function when not in use, tare-function, zero-setting, switch from gram, kg, lbs, oz: Rubberized scale platform
Measuring accuracy up to 1 kg: 1 g, up to 5 kg: 2 g (No. 1731.03),
Measuring accuracy: ± 0,5%, resolution: 10 g (No. 1730.03)



No. 1731.03

For appropriate bottle connector see 334



No. 1730.03

Model	kg	No.
Precision Digital Scale up to 5 kg battery-powered (4 x AA), dimensions: 230 x 150 x 35 mm	0.5	1731.03
Precision Digital Scale up to 50 kg battery-powered (1 x 9 V). in plastic case integrated Dimensions: 387 x 267 x 63 mm	2.0	1730.03

Nitrogen Set

Multiple uses for refrigeration systems



Product Profile

APPLICATION AREA

- Pressure and leak test with nitrogen
- Flushing of the installation
- Nitrogen admission during soldering to prevent scale formation



Nitrogen bottle included

Complete set

Spring-loaded pressure reducing valve

Simple use



Fine scaled 1.0 pressure gauge

Precise reading of the testing pressure

Set (No. 2590.60) includes: Nitrogen bottle (No. 2590.08), pressure reducing valve, connection hose, bottle adaptor, pressure gauge and plastic case

Model	kg	No.
Nitrogen Set with bottle (No. 2590.08)	5	2590.60
Nitrogen bottle, each 950 cm ³	1	2590.08

Accessories

Pressure gauge, complete	2590.11
Filling hose 1/4" SAE, 1,500 mm	2590.12
Filling hose with pressure gauge	2590.10
Connection 5/16" SAE internal, 1/4" SAE external	2590.07

RO-LEAK

Electronic leak detection device

For locating leaks in refrigeration systems (3 g/a)



Suitable for all common CFC, HFC and HCFC

7 LEDs

Determine battery status and refrigerant concentration level

Audio signal

Comfortable use

7 different sensitivity levels

Exact location of the leak

RESET - button

Adjusts to the sensor tip zero point setting for simple leak location

35 cm long, flexible sensor

Easy access in hard-to-reach places



Sensor tip with 20 hour stand-by

Durable and highly sensitive sensor tip with leak location from 3 g/a

R410A	R22	R134A	R407C	R404A	R507A
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Model	No.
RO-LEAK set with spare sensor and 2 batteries in plastic case	0873.04
Spare sensor	0873.03

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Measuring and Testing Devices

Digital Thermo-Hygrometer

Precision battery-operated instrument for measuring temperature and moisture

Measurement range for temperature: -50 up to 150 °C, 58 - 300 °F,
Measurement range for relative humidity: 2 - 98 %, Display of min./max. values



Model	kg	No.
Precision battery-operated thermo-hygrometer (button cell included)	0.2	0885.00

RO-therm 03

Precision battery powered thermometer

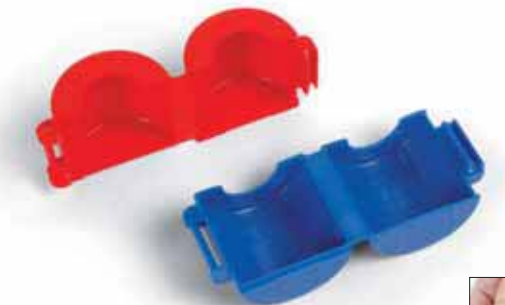
Measurement range: -40 - 200 °C, -40 - 392 °F



Model	kg	No.
Precision thermometer, battery-power (button cell included in delivery))	0.1	0884.00
Dimensions: 180 x 18 x 18 mm		

RO-Seal

Universal seal for sealing of air-conditioning units and for documentation of proper service: Blue seal for low pressure areas, red seal for high pressure areas. Sticker labels with consecutive numbering for identification.



No. 0879.00



Model	No.
RO-Seal, package with 25 pieces per colour and sticker labels for 1/4" , 3/8" , 1/2"	0879.00
for 5/16"	0879.01

Bottle Connection and Adaptors

For refrigerant bottles

For use with new refrigerant bottles on existing equipment



No. 1709.50

No. 1732.03, No. 1732.04, No. 1732.05

Description	No.
Bottle adaptor for 5 kg scale bottle threads	
1/4" fine threaded	1732.03
1/4" SAE	1732.05
5/16" SAE	1732.04
For 2.5 l bottles: Bottle connection adaptor	
W 21.8 x 1/4" SAE M with seal	1709.50
Adaptor 1/4" F - 5/16" M SAE	1709.16
Adaptor 1/2" SAE F - 1/4" SAE M	1709.01
Adaptor 1/2" SAE F - 5/16" SAE M	1709.15
Adaptor 3/8" SAE F - 3/8" SAE M	1709.18

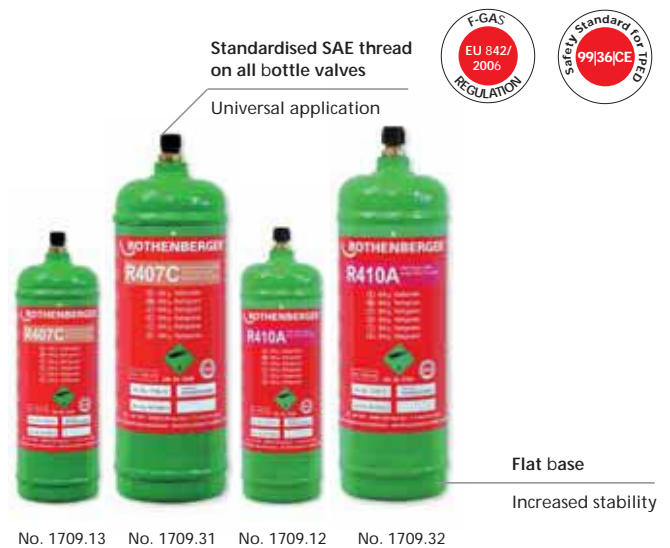
Refrigerant for Air-conditioning Units

Environmentally friendly, non-chlorinated refrigerant of the HFC group in practical 40 bar steel bottles (bursting pressure: 165 bar) TÜV seal No. 0036-043/03D and TPED accepted as per 99/36/CE

KEY FEATURES

- Light and practical for use on building-sites
- 1 and 2.5 litre steel bottles, rent-free and easy disposal

Model			Contents	No.
R407C	Refrigerant R407C in cardboard packaging			
1 I-steel bottle	1	12	850 g	1709.13
2.5 I-steel bottle	1	6	2000 g	1709.31
R410A	Refrigerant R410A in cardboard packaging			
1 I-Steel bottle	1	12	800 g	1709.12
2.5 I-Steel bottle	1	6	2000 g	1709.32



Refrigerant Recycling Bottles

Empty, welded press gas bottles for collection of exhausted, new or used refrigerant. Volumes: 14.5 litre, maximum filled weight: 10.0 kg, double connection valve for gaseous and fluid removal with dip pipe for standing bottle. With 2-way fill / disposal valve, bottle label and complete ADR papers

Including recycling

Model	Ø mm	Height mm	No.
Recycling bottle 1/4" SAE including complete refrigerant recycling	230	510	1709.52

2-way fill/disposal valve

Liquid and gaseous removal possible

Bottle includes complete refrigerant recycling

No rent, no separate disposal costs

Clear labelling on the bottle ("max 10 kg")

Prevents overfilling, no danger of explosion due to increase of temperature



SANIFRESH

Disinfecting and deodorising cleaning spray

- **Removes the threat of disease and allergies**
Practical and ecologically friendly solution for removing mites, dust, bacteria and spores
- **Spray is applied directly to affected surface**
Economical spray-can with spray nozzle and spray tube
- **Removes unpleasant odours**
Pleasant mint smell

Model			Contents	No.
Sanifresh (contains 12 bottles)	1	1(12)	400 ml	0858.00



10



Universal Sets for Evacuation and Charging

ROCADDY 5 and ROCADDY 50

Universal sets for evacuation and charging

The ROCADDY sets contain all the components for evacuation and charging of air-conditioning units with all common refrigerants in a secure rolling transport case. Every part meets the requirements of the professional air-conditioning trade

R410A

R22

R134A

R407C

R404A

Sturdy plastic rolling case with foldaway handle and double cover

Simple and comfortable transport with ample room for accessories and small parts

Bottle adaptor for 1 kg and 2.5 kg refrigerant bottles for connection to the scale

Secure mounting of the bottle during charging

2-stage high vacuum pump with oil injection

For evacuation and removal of all moisture residue in refrigeration systems during installation per DIN 8975

Highly accurate electronic digital scale from 5 kg up to 50 kg

Precise weighing of refrigerants

2 sets with 3 pressure hoses of the series "Plus" with ball valve

Safe and comfortable operation with refrigerants - without the risk of refrigerant loss

4-way manifold

With scale for all common refrigerants

4-way manifold for low and high pressure gases



ROAIRVAC 1.5 with solenoid valve and vacuum gauge



ROCADDY 50 with 50 kg scale



2 sets of 3 pressure hoses with series "Plus" with ball valve



ROCADDY Universal set for evacuation and charging

15-part set includes: 2-stage high vacuum pump ROAIRVAC 1.5 (No. 1700.61) with vacuum gauge and solenoid valve, 4-way manifold for R22, R134a, R407C (No. 1705.02), 4-way manifold for R410A (No. 1705.08), set of 3 pressure hoses each 1.500 mm with ball valve for R22, R134a, R407C (No. 1715.17), set of 3 pressure hoses each 1.500 mm with ball valve for R410A (No. 1715.20), precision digital scale up to 5 kg (No. 1731.03), 3 bottle connections for 1 litre and 2.5 litre refrigerant bottles (No. 1732.03/04/05) as well as mineral oil 0.4 litre (No. 1692.00) for the high vacuum pump and plastic transport case (No. 1690.51) **ROCADDY 50** (No. 1690.35) with 50 kg scale (No. 1730.03)

Model	Performance			No.
ROCADDY 5 with 5 kg scale	48 l / min	19	1	1690.25
ROCADDY 50 with 50 kg scale	48 l / min	21	1	1690.35

Tool Set Klima

Practical tool set with all tools required for installation and maintenance of air-conditioning units such as split units

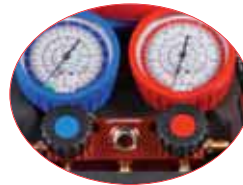


Product Profile

KEY FEATURES

- 1 Monitor temperature and pressure
- 2 Quality hoses with high bursting pressure
- 3 For all pipe cross-sections from 6 - 35 mm (1/4" - 1.1/8")
- 4 For all pipe cross-sections from 3 - 22 mm (1/8" - 7/8")
- 5 Measurement of ambient and ventilator air temperature
- 6 Clean, kink-free bending of all common pipe cross-sections
- 7 Optimum flaring connections for all types of air-conditioners

The ideal introduction into a whole new area of business



- 1 2-way manifold with 1/4" or 5/16" SAE connections

Monitors temperature and pressure



- 7 Universal flaring tool for precise simple 45° flanging (only 1706.04)

Optimum flare connections for all types of air-conditioning units

- 2 Set of pressure hoses (1/2" and 3/16")

Quality hoses with high bursting pressure

- 3 Telescoping pipe cutter, chrome-plated

For all pipe cross-sections from 6 - 35 mm (1/4" - 1.1/8")

- 4 Mini pipe cutter, chrome-plated

For pipe cross-sections from 3 - 22 mm (1/8" - 7/8")

- 5 Digital thermometer

Temperature measurement of ambient and ventilation air

- 6 Bending springs 3/8" - 1/2" - 5/8"

Clean, kink-free bending of all common pipe diameters

No. 1706.04

9-part tool set Klima I (No. 1706.04) includes: 2-way manifold (No. 1705.01), set of pressure hoses 1/4" SAE, telescopic pipe cutter (No. 7.0027C), minicut pipe cutter (No. 7.0401C), thermometer, set of bending springs 3/8" - 1/2" - 5/8", universal flaring tool (No. 2226.01), plastic case

Model	kg		No.
R22			
R134a			
R407C			
R404A			
Tool Set Klima I	2.3	1	1706.04

9-part tool set Klima II (No. 1706.05) includes: 2-way manifold (3 x 5/16"), set of pressure hoses 5/16" SAE, telescopic pipe cutter (No. 7.0027C), minicut pipe cutter (No. 7.0401C), thermometer, set of bending springs 3/8" - 1/2" - 5/8", reeling flaring tool (No. 2224.03), plastic carrying case

Model	kg		No.
R410A			
Tool Set Klima II	2.3	1	1706.05

10



Refrigerant Data

Refrigerant data from CFC-alternative refrigerants

Refrigerant	Composition	ODP	GWP	Temperature glide
R22 (HFC-CFC refrigerant)	CHCLF ₂	0.05	1700	–
R134a (HFC chlorine-free refrigerant)	CF ₃ CH ₂ F	0	1300	–
R32 (HFC chlorine-free refrigerant)	CH ₂ F ₂	0	580	–
R404A (HFC chlorine-free blends)	52% R143a, 44% R125, 4% R134a	0	3750	–
R507 (HFC chlorine-free blends)	50% R143a, 50% R125	0	3800	–
R407C (HFC chlorine-free blends)	23% R32, 25% R125, 52% R134a	0	1610	7.5K
R410A (HFC chlorine-free blends)	50% R32, 50% R125	0	1890	0.2K

ODP = Ozone Depletion Potential

GWP = Global Warming Potential

Instructions for safe and proper use of the refrigerants:

Refrigerant:

- Wear protective gloves and safety goggles
- Do not let refrigerant come in contact with skin
- Do not inhale high concentrations of vapours (Lack of oxygen causes a narcotic effect and is a danger to life)
- Do not smoke around refrigerant
- Working place / room must be thoroughly aired, if necessary extracted

Refrigerant bottles:

- Secure against accidents, do not throw
- Do not expose to direct sunlight and do not place near radiators or other heat sources
- Do not use open flame
- Do not disassemble or remove valves
- Damaged bottles need to be properly returned
- Close empty containers

Air-conditioners:

- Air-conditioner leaks need to be repaired immediately
- Do not allow refrigerant to leak while filling or doing maintenance work
- In high concentrations (for example pipe burst), leave the room and do not enter again until it has been properly ventilated
- Only do brazing work together with protective nitrogen gas and only in well ventilated areas

Flare connections

Flare outer diameter in relationship to the pipe diameter

Pipe outer diameter mm / inch	Metric	Flare outer diameter with R22-, R134a-, R404-, R407C air-conditioners	Flare outer diameter with R410A air-conditioners
6 mm		9 mm	9.1 mm
8 mm		11 mm	11.1 mm
10 mm		13 mm	13.2 mm
12 mm		16 mm	16.5 mm
15 mm		19 mm	19.2 mm
1/4"	6.35 mm	9 mm	9.1 mm
3/8"	9.52 mm	13 mm	13.2 mm
1/2"	12.70 mm	16.2 mm	16.6 mm
5/8"	15.88 mm	19.4 mm	19.7 mm



Conversion table temperature

mbar	Micron	Torr	mm HG Vacuum
10	7516	7.5	752
5	3759	3.6	756
2	1503	1.5	758
1	752	0.75	759
0.5	376	0.36	
0.4	300	0.30	
0.3	225	0.23	
0.2	150	0.15	
0.1	75	0.08	
0.09	68		
0.07	53		
0.06	45		
0.05	38		
0.04	30		
0.03	22		
0.02	15		
0.01	8		

Conversion table pressure

Conversion from °C in °F: $^{\circ}\text{C} \times 1.8 + 32 = ^{\circ}\text{F}$

Conversion from °F in °C: $(^{\circ}\text{F} - 32) : 1.8 = ^{\circ}\text{C}$

°C	°F	°C	°F	°C	°F	°C	°F
100	212	65	149	30	86	-10	14
95	203	60	140	25	77	-20	-4
90	194	55	131	20	68	-30	-22
85	185	50	122	15	59	-40	-40
80	176	45	113	10	50	-50	-58
75	167	40	104	4	39	-60	-76
70	158	35	95	0	32	-273	-460

Common threads


UNF-Thread	SAE-Thread	Outer diameter (max. mm)	Internal diameter (min mm)	Threads per inch	Increment (mm)
7/16" - 20	1/4"	11.079	9.738	20	1.270
1/2" - 20	5/16"	12.667	11.328	20	1.270
5/8" - 18	3/8"	15.839	14.348	18	1.411
3/4" - 16	1/2"	19.012	17.330	16	1.588
7/8" - 14	-	22.184	20.262	14	1.814
7/8" - 14	5/8"	22.184	20.262	14	1.814
1" - 14	3/4"	25.357	23.437	14	1.814
1 1/16" - 14	-	26.947	25.024	14	1.814
1 1/8" - 12	-	28.529	26.284	12	2.117
1 1/4" - 12	7/8"	31.704	29.459	12	2.117
1 3/8" - 12	-	34.877	32.634	12	2.117
1 1/2" - 12	1	38.052	35.809	12	2.117







Icons

Overview of all icons

S b G





POWER FIRE Compact

SS
d S S d

S

c S cs

- With Piezo ignition in button
- For use in all positions (MAPP® Gas)
- Compact and 45% lighter (compared to POWER FIRE)


7/16" EU
up to Ø 22 mm
up to Ø 35 mm


S s d


Description No.


POWER FIRE Compact Set (including MAPP® Gas) 81

s s b s c d s c b d s 18 18




 = Lock button


 = Piezo ignition


 = Fine adjustment of the flame


 = 360° rotatable


 = Hot Brazing
450 ° - 1100 °C


G 1


 Ergonomic Design


 Up to 50% time-saving


 Softgrip


 Transport case


 Emergency stop switch


 AC 230 V

 Three-phase current 400 V


 Cable length 5 m


 Battery + AC operation possible


 Battery operation


 Battery charger


G


 Can be used in confined spaces

 Balance point in handle


 Transport case

 Emergency stop switch

 AC 230 V


 Cable length 5 m

 Battery + AC operation possible


 Battery operation


 Battery charger


S G

 Can be used in confined spaces

 Can be used overhead


 Portable operation

 Meets DIN standards


 Environmentally friendly


 Transport case


 AC 230 V

 AC 110 V


G


 MLP / Multi-layer pipe


 Ergonomic Design


 Handy


 Suitable for tight spaces


 Fast cut

 No deformation from use

 Meets DIN standards

 Transport case

 Counter display


 Heed safety warning

 Heed Industrial safety

 Don't sharpen

 Don't use defective cutter wheels

6



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Overview of all icons

S b G

G					
	Can be used overhead		Portable operation		Environmentally friendly
	Meets DIN standards		Transport case		AC 230 V
	Battery + AC operation possible		Battery operation		Battery charger
	Battery-powered				
S G 6					
	Handy		Bayonet coupling		Push lock
	Thread lock		Lock button		Piezo ignition
	= Fine adjustment of the flame		360° rotatable		Sturdy casing
	Economy valve		Constant pressure control		Acetylene control
	Oxygen control		Propane control		Meets DIN standards
	Blowback prevention		Transport case		AC 230 V
	AC 110 V		On / off switch		Filling supports
	Basic Soft-soldering up to 450 °C		Hot Brazing 450 ° - 1100 °C		Max Autogen welding 1100 °C
G					
	Portable operation		Transport case		AC 230 V
	AC 115 V		AC 110 V		Three-phase current 400 V
G 8					
	One-handed operation possible		Portable operation		Sturdy casing
	Transport case		AC 230 V		AC 115 V
	AC 110 V		Battery + AC operation possible		Battery operation
	Battery charger		Battery-powered		Memory card
	With USB connection		With Video function		With Photo function
G					
	AC 230 V		AC 110 V		Dry drilling
	Wet drilling				
G 1					
	Inspection window		Measuring accuracy up to 1 g		Measuring accuracy up to 10 g
	Scale range max. 5 kg		Scale range max. 50 kg		Scale range max. 100 kg
	Pressure gauge display adjustable		Pressure gauge class 1 - 6		Pressure gauge 80 mm
	Impact protection		Shock absorption		Pressure hose ball valve
	Pressure hose length 1.5 m		Pressure hose length 2.5 m		Meets DIN standards
	Transport case		AC 230 V		Battery-powered