COOLERS OVERVIEW

ECO™ heat transfer coolers

MODINE®

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PRODUCTS GENERAL FEATURES

GENERAL FEATURES

Highly efficient coils, made from special profile aluminium fins and copper tube, designed for use with new generation refrigerants. Coil options are also available for new alternatives of environmentally friendly refrigerants with an appropriate geometry proposed for each specific application.
We have paid great attention to design and construction of the coil end plates to protect the tubes.
Our units are equipped with coils that are cleansed and tested at a pressure of 30 bar 1).

The casings for the different product ranges have been designed to facilitate access to the internal components. The casings are made from smooth finish aluminium alloy or pre-painted galvanized steel sheet (see footnote 2). Key features:

- high corrosion and impact resistance;
- resistant to low temperatures;
- non-toxic;
- no release of environmentally harmful debris or particles;
- covered with protective plastic film.

Standard fan motors 3) manufactured according to our specifications and in compliance with the latest safety standards. When possible, the fan motors are fitted to the unit structure with an anti-vibration system. A high air throw is achieved thanks to a perfect combination of factors. All published data are the result of measurements carried out in our Technical Lab.

For unit coolers with **standard electric defrosting**, the heat needed to dissolve the ice build-up is provided by stainless steel heating elements located in the finned pack of the coil and in the inner drip trays. The heater rods are strategically positioned to provide thorough heat distribution, even in the most critical areas of the unit. Given the high thermal conductivity of the materials employed heat diffusion is ensured throughout the unit.
The water resulting from defrosting is channelled from the internal drip trays to the drain pan. This system that has been specifically designed to allow the water to drain freely.

Electrical parts and casings are connected to an earth terminal.

Fan guards are made from fibreglass charged polyamide or painted steel. These components are manufactured in compliance to strict safety standards.

Standard wiring is carried out in heavy-duty junction boxes with access holes that are equipped with tear-proof cable glands. All electrical wires in proximity to other elements are protected from wear and tear. All materials and components are carefully selected in order to assure long-term reliability.

The packaging is made either from duly reinforced recyclable carboard or entirely of wood, depending on the type of unit. For industrial and brine coolers 4) the packaging was specifically designed to allow quick and easy ceiling installation.

Each unit is supplied with a technical manual, declaration of conformity (with testing certificate included) and PED report. For special models additional documentation shall be issued and provided to complete the technical manual.

REFERENCE STANDARDS

Our products are manufactured in compliance with the following reference standards:

- internal cleanliness of coils DIN 8964;
- electric motors, manufactured in accordance to EN 60335-1;
- fan guards in compliance to EN 294 safety standards;
- air throw measured in our technical lab according to CECOMAF GT 6-001 (final velocity = 0,25 m/s);
- 2006/42/EC Machine Directive, 2014/35/EU Low Voltage Directive and 2014/68/EU Pressure Equipment Directive;
- modified 2014/30/EU EMC Directive (Electromagnetic Compatibility).

ErP 2015 COMPLIANT

All the fan motors fitted in
“ECO Heat Transfer Coolers” branded products comply with the 2009/125/EC Directive, meet the EU energy guidelines and are CE marked as they are manufactured in accordance to the European directives in force.
The ErP directive, mandatory in all EU countries, applies to fan motors with output power between 125 W and 500 kW. This directive covers products made in the EEA (European Economic Area countries) and imported from non-EU countries. EU products exported to other countries are not subject to this directive.
The Erp directive does not apply to products used in ATEX areas, fan motors used at particularly high and low temperatures (<-40°C or >+100°C), fan motors in units for short-term emergency use or fan motors used in means of transportation for persons or goods.
Modine incorporates fan motors and other associated devices used in its products to guarantee that they are in compliance with Commission Regulation (EU) No 327/2011.
Particular attention has been addressed to the components (fan rings) so as to ensure full respect of Directive efficiency and, overall, a perfect balance between air flow performance, energy consumption and noise level emissions.

WARRANTY

All technical information in this edition is based on tests carried out, which we deem exhaustive and reliable but which cannot be referred to all records of possible applications. Therefore, the purchaser must ascertain product suitability with regard to its intended use, undertaking all responsibility arising from its said use. Upon request by the purchaser, the seller shall be available to supply all useful information in order to better use its products. All our models have a two-year warranty with effect from the date of invoice. Please refer to the

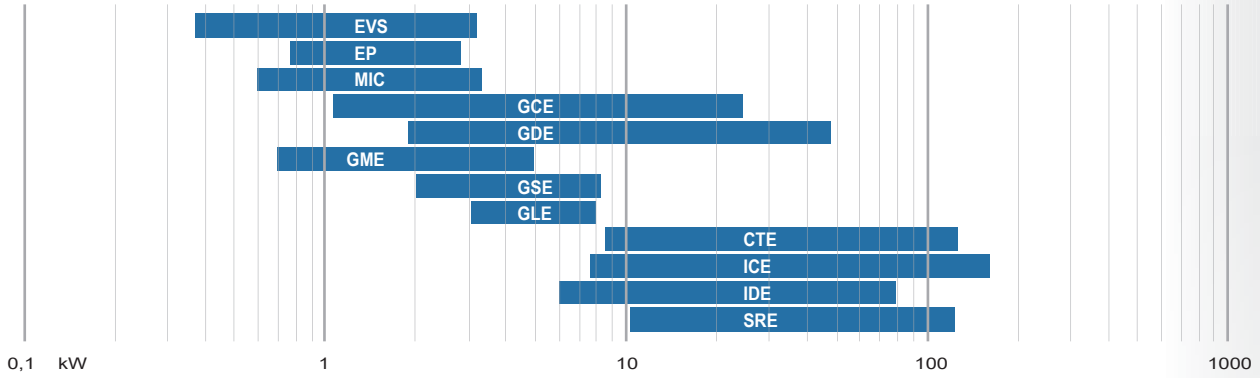
Modine CIS Italy S.r.l Legal Office for detailed information. However, occasional failures such as those due to transport, tampering by unauthorised personnel, incorrect use and incorrect installation, which the products are subjected to, are all excluded from any form of warranty.

As a result of continuing research and design by our technical team and laboratories, aimed at offering top quality and innovative products, the information and materials contained herein may be subject to change without prior notice. If the said content contains any mistakes, omissions, inaccuracies and/or typographical errors Modine assumes no responsibility thereof and reserves the right to make amendments deemed necessary, without notice and at any time.
It will be up to the user to keep up to date with all possible modifications.

1) For brine and dry coolers 16 bars.
2) Prepainted steel for models TKE, PCV, PKE, PCR, EGK, VCE and VCC, galvanized steel for LCE. Full bell mouth fan rings are produced in polyester painted galvanized steel.
3) Fan motors produced by various manufacturers may be used.
4) Models with packaging that has been specifically designed to facilitate ceiling installation: ICE, IDE, CTE Ø 630 mm, CDC Ø 630 mm and ICL.

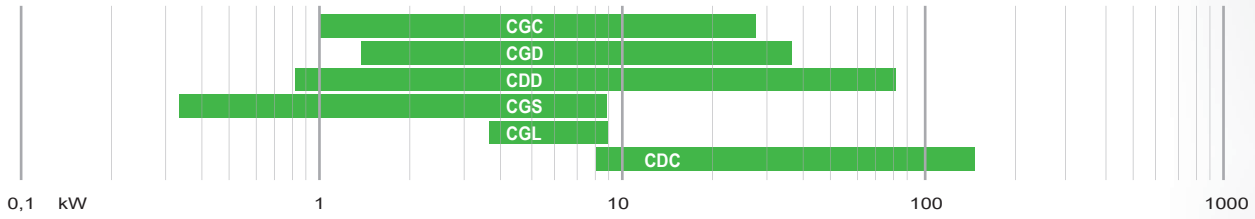
CAPACITY RANGE

UNIT COOLERS



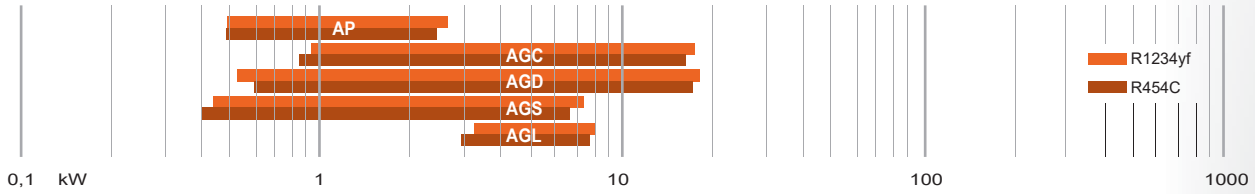
Nominal capacity: assessed in practical operating ambient, i.e. in wet conditions; R404A refrigerant; air inlet temperature 0 °C; evaporating temperature –8 °C; TD 8 K.

UNIT COOLERS FOR CO_2



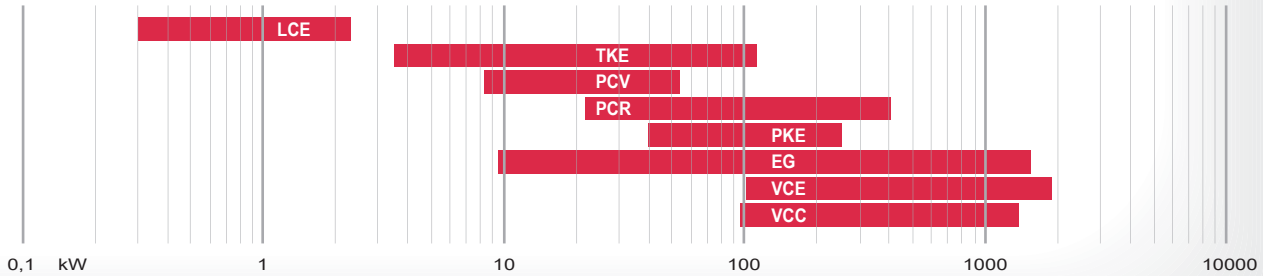
Nominal capacity: Assessed in practical operating ambient, i.e. in wet conditions, in direct expansion application.
Norms and conditions applied for the calculation of the published capacities: please contact our Technical dept.

UNIT COOLERS FOR A2L



Nominal capacity: Assessed in practical operating ambient, i.e. in wet conditions, in direct expansion application,air inlet temperature 0 °C; evaporating temperature –8 °C; TD 8 K; Mid Point.

AIR COOLED CONDENSERS



The stated capacity is assessed based on ambient temperature 25 °C; and condensing temperature 40 °C with R404A.

UNIT COOLERS AND BRINE COOLERS

EVS

Slanted coolers and brine coolers for cabinets and/or small cold rooms

- Fan motors: diameter 200 mm
- Fin spacing: 3,5/7 mm or 4,5/9 mm
- 20 customizable models
- Capacity from 0,37 to 3,29 kW

EP

Wall unit coolers and brine coolers for cabinets and/or small cold rooms

- Fan motors: diameter 230 mm
- Fin spacing: 3,5/7 mm
- 5 customizable models
- Capacity from 0,75 to 2,76 kW

MIC

Dual discharge unit coolers and brine coolers for cabinets and/or small cold rooms

- Fan motors: diameter 230 mm
- Fin spacing: 4,5/9 mm
- 8 customizable models
- Capacity from 0,59 to 4,29 kW

GCE

Cubic unit coolers and brine coolers for commercial cold rooms

- Fan motors: diameter 250; 315 or 350 mm
- Fin spacing: 4; 6 or 8 mm
- 105 customizable models
- Capacity from 1,07 to 24,28 kW

GDE

Dual discharge unit coolers and brine coolers for commercial cold rooms

- Fan motors: diameter 315 or 350 mm
- Fin spacing: 3; 4 or 7 mm
- 48 customizable models
- Capacity from 1,7 to 24 kW

GME

Slanted unit coolers and brine coolers for small commercial cold rooms

- Fan motors: diameter 250 mm
- Fin spacing: 4 or 7 mm
- 18 customizable models
- Capacity from 0,69 to 3,97 kW

GSE

Slanted unit coolers and brine coolers for commercial cold rooms

- Fan motors: diameter 315 mm
- Fin spacing: 4 or 7 mm
- 8 customizable models
- Capacity from 2 to 8,2 kW

GLE

Dual discharge unit coolers and brine coolers for work rooms and cold rooms in which reduced air circulation is required

- Fan motors: diameter 250 or 315 mm
- Fin spacing: 5 mm
- 5 customizable models
- Capacity from 3,1 to 8 kW

CTE

Cubic unit coolers and brine coolers for commercial and industrial cold rooms

- Fan motors: diameter 500 or 630 mm
- Fin spacing: 4; 6 or 8,5 mm
- 69 customizable models
- Capacity from 8,4 to 126 kW

ICE

Cubic unit coolers and brine coolers for refrigerated warehouses and industrial cold rooms

- Dual speed fan motors: diameter 450; 560 or 630 mm
- Fin spacing: 6; 8; 10 or 12 mm
- 104 customizable models
- Capacity from 7,6 to 162 kW

IDE

Dual discharge unit coolers and brine coolers for refrigerated warehouses and industrial cold rooms

- Dual speed fan motors: diameter 450 or 560 mm
- Fin spacing: 4,5; 7 or 10 mm
- 36 customizable models
- Capacity from 6 to 78,6 kW

SRE

Floor standing unit coolers and brine coolers for blast chiller tunnels and blast freezer rooms

- Fan motors: diameter 500; 560 or 630 mm
- Fin spacing: 7; 10 or 12 mm
- 79 customizable models
- Capacity from 10,3 to 123 kW

UNIT COOLERS FOR CO_2

CGC

Cubic unit coolers (CO_2)
for commercial cold rooms

- Fan motors: diameter 250; 315 or 350 mm
- Fin spacing: 4; 6 or 8 mm
- 105 customizable models
- Capacity from 1 to 27,2 kW

CGD

Dual discharge unit coolers (CO_2)
for commercial cold rooms

- Fan motors: diameter 315 or 350 mm
- Fin spacing: 3; 4 or 7 mm
- 48 customizable models
- Capacity from 1,3 to 35 kW

CDD

Dual discharge unit coolers (CO_2)
for commercial and industrial cold rooms

- Fan motors: diameter 230; 450 or 560 mm
- Fin spacing: 4; 4,5/9 or 10 mm
- 52 customizable models
- Capacity from 0,82 to 81,5 kW

CGS

Slanted unit coolers (CO_2)
for commercial cold rooms

- Fan motors: diameter 200; 250 or 315 mm
- Fin spacing: 3,5/7; 4; 4,5/9 or 7 mm
- 46 customizable models
- Capacity from 0,24 to 8,9 kW

CGL

Dual discharge unit coolers (CO_2)
for commercial working rooms

- Fan motors: diameter 250 or 315 mm
- Fin spacing: 5 mm
- 5 customizable models
- Capacity from 3,4 to 8,8 kW

CDC

Cubic unit coolers (CO_2)
for commercial and industrial cold rooms

- Fan motors: diameter 500 or 630 mm
- Fin spacing: 4; 6 or 8,5 mm
- 69 customizable models
- Capacity from 8,2 to 149 kW

F-Gas ready!

In order to address and challenge the adverse effects of climate change, the European Commission has started a program to promote the establishment of a more sustainable and efficient economy.

This program covers the main economic sectors, including the refrigeration industry. In fact, it comprises the F-Gas Regulation (EU – No. 517/2014) which aims to significantly reduce the emissions of high GWP (Global Warming Potential) fluorinated refrigerants (HFCs).

The F-Gas regulation enforces the gradual ban of HFCs.

The refrigeration industry is responding to this significant change by developing and introducing new technologies and innovative designs for refrigeration installations.

The entire sector is rapidly evolving: from HFC producers, product plant

UNIT COOLERS FOR A2L

New range!

AP

Wall unit coolers for cabinets and small cold rooms
- Fan motors: diameter 230 mm
- Fin spacing: 3,5/7 mm
- 5 customizable models
- Capacity R1234yf: from 0,49 to 2,42 kW
- Capacity R454C: from 0,45 to 2,21 kW

AGC

Cubic unit coolers for commercial cold rooms
- Fan motors: diameter 250, 315 or 350 mm
- Fin spacing: 4; 6 or 8 mm
- 57 customizable models
- Capacity R1234yf: from 0,93 to 15,06 kW
- Capacity R454C: from 0,85 to 13,8 kW

AGD

Dual discharge unit coolers for work rooms and commercial cold rooms
- Fan motors: diameter 230, 315 or 350 mm
- Fin spacing: 3, 4, 4,5/9 or 7 mm
- 50 customizable models
- Capacity R1234yf: from 0,52 to 16,16 kW
- Capacity R454C: from 0,48 to 14,82 kW

AGS

Slanted unit coolers
for cabinets and commercial cold rooms
- Fan motors: diameter 200, 250 or 315 mm
- Fin spacing: 3,5/7, 4,5/9, 4 or 7 mm
- 46 customizable models
- Capacity R1234yf: from 0,33 to 7,17 kW
- Capacity R454C: from 0,3 to 6,57 kW

AGL

Dual discharge unit coolers for work rooms and cold rooms
in which reduced air circulation is required
- Fan motors: diameter 250 or 315 mm
- Fin spacing: 5 mm
- 5 customizable models
- Capacity R1234yf: from 2,71 to 7 kW
- Capacity R454C: from 2,49 to 6,42 kW

management to maintenance operators.

The evolution of our products is ongoing and prompted by current regulations.

We even anticipate the future by developing and launching innovative product ranges.

Today our product portfolio includes models with smaller internal volumes, that ensure higher efficiency with a substantial reduction of the amount of refrigerant employed.

We have also designed a comprehensive range of CO_2 models (GWP=1) that can run at higher operating pressures.These units can now also be used in regions that are characterized with climates with higher temperatures; thanks to options and technical solutions that guarantee optimum performance and reduced energy consumption.

F-gas prohibitions

1 January 2022

"Refrigerators and freezers for commercial use (hermetically sealed equipment) that contain HFCs with GWP of 150 or more"

"Multipack centralised refrigeration systems for commercial use with a rated capacity of 40 KW or more that contain, or the functioning of which relies upon, fluorinated greenhouse gases with GWP of 150 or more. Except in the primary refrigerant circuit of cascade systems where fluorinated greenhouse gases with a GWP of less than 1500 may be used"

Also A2L refrigerants are one of the new options with low GWP.

To safely use A2L refrigerants , we have designed a new range of Unit Coolers that benefit from high reliable standard components and a dedicated electrical defrost system option that can operate at temperatures below the A2L ignition point.

To check the performances with new generation low-GWP synthetic or natural refrigerants our **"Scelte"** selection software is at your disposal, at **www.modineselect.com**

This tool is constantly updated with all the latest and most significant innovations on the market.

CONDENSERS, LIQUID COOLERS AND GAS COOLERS

LCE

Air cooled condensers for small condensing units
- Fan motors: diameter 170; 200; 230; 250 or 300 mm
- Fin spacing: 3 mm
- 16 customizable models
- Capacity from 0,3 to 2,3 kW

TKE

Air cooled condensers for commercial applications
- Fan motors: diameter 350 or 450 mm
- Fin spacing: 2,1 mm
- 69 customizable models
- Capacity from 3,5 to 112,3 kW

PCV

Air cooled condensers and gas coolers with integrated housing for commercial applications
- Fan motors: diameter 450; 500; 630 and 710 mm
- Fin spacing: 2,1 mm
- 60 customizable models
- Capacity from 8,3 to 53,8 kW

PCR

Air cooled condensers, dry coolers and gas coolers with EC radial fan motors for commercial and industrial applications
- Fan motors: diameter 400; 500 or 630 mm
- Fin spacing: 2,1 mm
- 11 customizable models
- Capacity from 21,7 to 402 kW

PKE

Air cooled condensers, dry coolers and gas coolers with sound-proof housing for commercial and industrial applications
- Dual speed fan motors: diameter 630 mm
- Fin spacing: 2,1 mm
- 34 customizable models
- Capacity from 39,7 to 253 kW

EG(K)

Air cooled condensers for commercial and industrial applications
- Dual speed fan motors: diameter 500; 630; 710; 800; 910 and 1000 mm
- Fin spacing: 2,1 mm
- 6651 customizable models, capacity from 9,7 to 1516 kW

VCE

Air cooled condensers, dry coolers and gas coolers two coils with V configuration for industrial applications
- Dual speed fan motors: diameter 800 and 910 mm
- Fin spacing: 2,1 mm
- 208 customizable models
- Capacity from 101 to 1882 kW

VCC

Air cooled condensers, dry coolers and gas coolers two coils with V configuration for industrial applications, suitable for container transportation
- Dual speed fan motors: diameter 800 mm
- Fin spacing: 2,1 mm
- 112 customizable models
- Capacity from 96 to 1379 kW

We have been developing and improving our products in response to your most rigorous requirements and needs.

With the objective of offering top quality products and service, Modine has taken up ISO 9001, ISO 14000 control standards and also the standards proposed by the most influential international certification associations.

The wealth of experience that we have acquired in many years of continuous, intense work is now at your complete disposal.

For all supplementary information our team is at your complete disposal.

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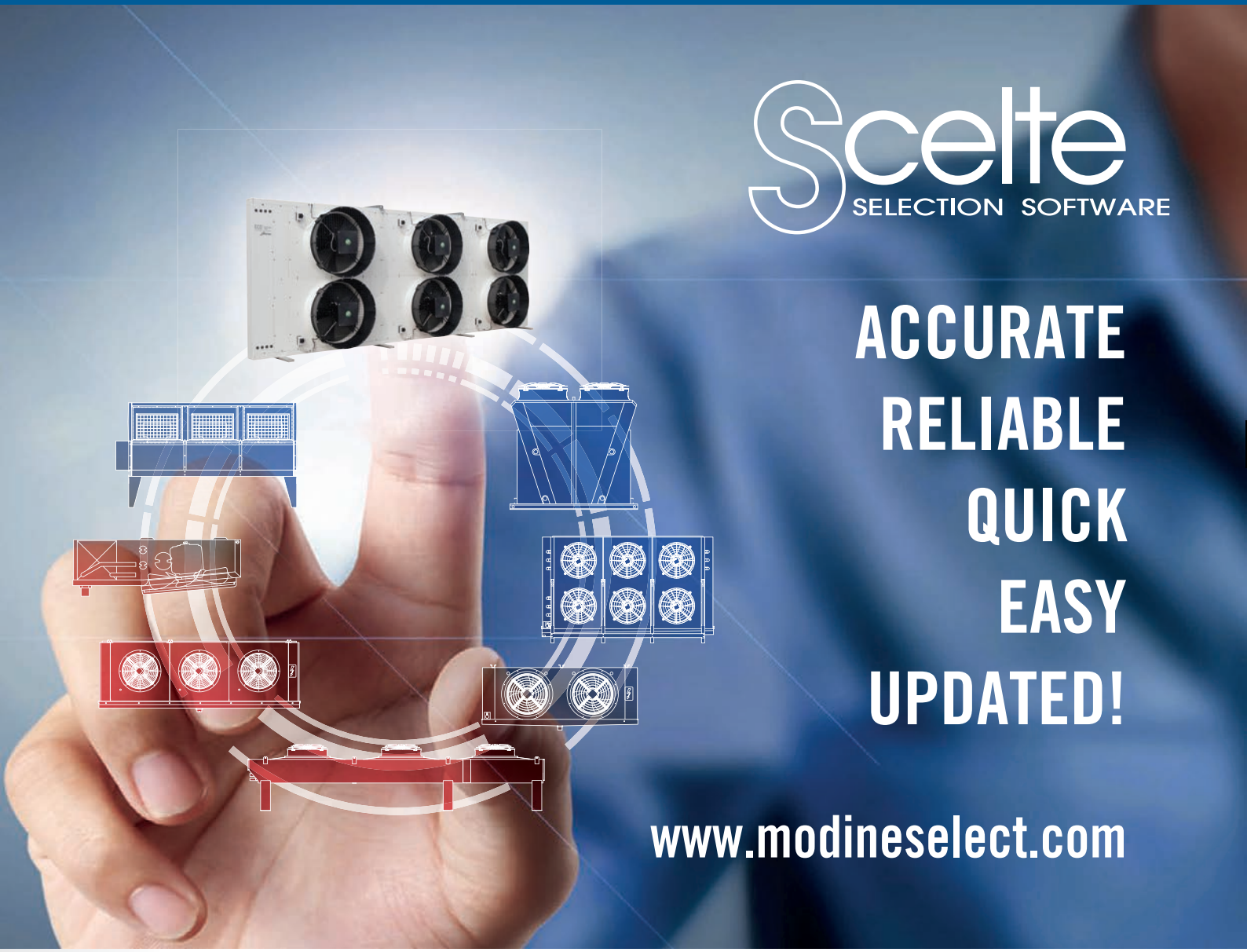

Cover photo: food refrigerated depot (Bologna) - Italy
Courtesy of "Colfrigor"

MODINE®
Always Innovating. Always Improving.

To learn more, visit
www.modinecoolers.com
and our others websites
www.modine.com
www.modinecoils.com

About Modine
Modine specializes in thermal management systems and components, bringing highly engineered heating and cooling components, original equipment products, and systems to diversified global markets through its four complementary segments: BHVAC, CIS, HDE, and Automotive. Modine is a global company headquartered in Racine, Wisconsin (USA), with operations in North America, South America, Europe and Asia.

Follow us @ModineHVAC
Watch us at YouTube.com/ModineHVAC

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