

Data sheet

# FA + solenoid valve

## Type ICF 15/20 EVRAT



Based on advanced technology the ICF EVRAT retrofit valve incorporates three functions in one housing, which can replace the widely used direct coupled FA + EVRAT, as a drop-in solution.

The two function modules - solenoid valve and manual opener are identical to the function modules in the ICF 20 valve station concept thus facilitating logistic and service.

The solenoid valve is an assisted, servo operated valve for liquid, suction and hot gas lines with ammonia and fluorinated refrigerants.

Supplied as a complete assembly, it is fully tested at high pressure and its functions are tested under factory controlled conditions.

### Features

- Applicable to HCFC, non flammable HFC and R717 (Ammonia).  
The use of ICF EVRAT with flammable hydrocarbons is not recommended.
- Designed for industrial refrigeration applications for a maximum working pressure of 42 bar/610 psig.
- Low temperature steel housing.
- Low weight and compact design.
- The solenoid valve ICFE 20 is designed to open - and stay open at a pressure drop of 0 bar thus suitable for lines with low pressure drop.
- UL approved
- Classification: DNV, CRN, BV, EAC etc.  
To get an updated list of certification on the products please contact your local Danfoss Sales Company.

FA + solenoid valve	
Nominal bore	DN ≤ 25 (1 in.)
Classified for	Fluid group I
Category	Article 3, paragraph 3

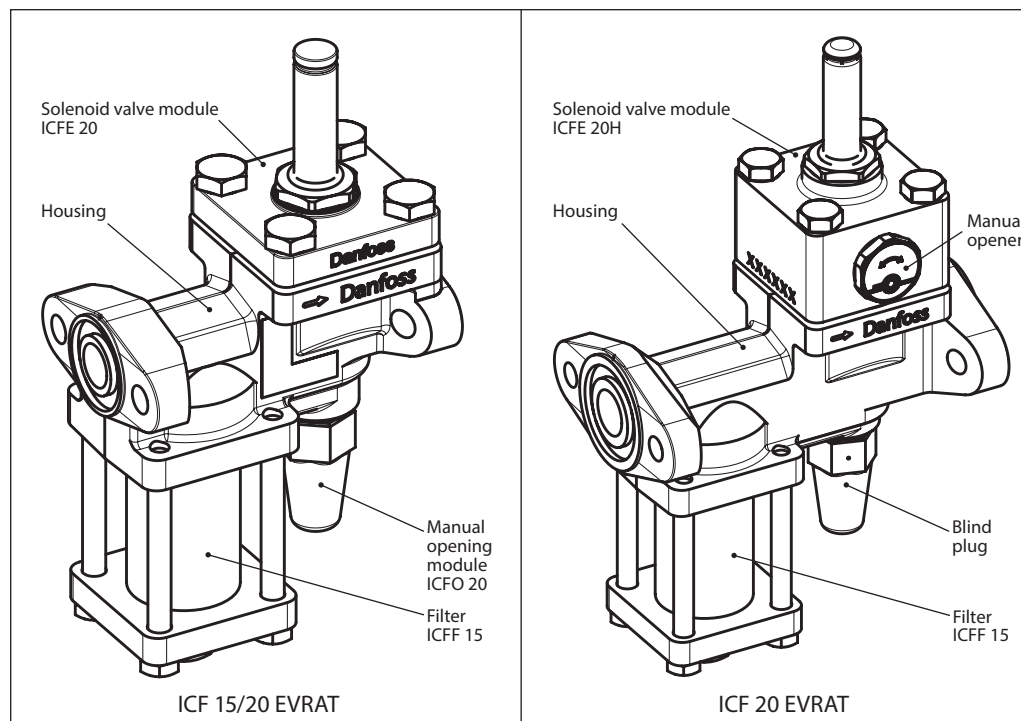
**Technical data**

- *Refrigerants*  
Applicable to HCFC, non flammable HFC and R717 (Ammonia).  
The use of ICF EVRAT with flammable hydrocarbons is not recommended.  
For further information please contact the local Danfoss sales company.
- *Temperature range*  
-40/+105°C (-40/+221°F)
- *Ambient temperature for ICF EVRAT*  
-30°C/+50°C (-22°F/122°F)
- *Surface protection*  
The external surface is zinc-TLP treated to provide corrosion protection according to EN ISO 2081:2009  
Additional on-site corrosion protection is recommended.
- *Pressure*  
The ICF EVRAT is designed for:  
Max. working pressure: 42 bar g (610 psig)

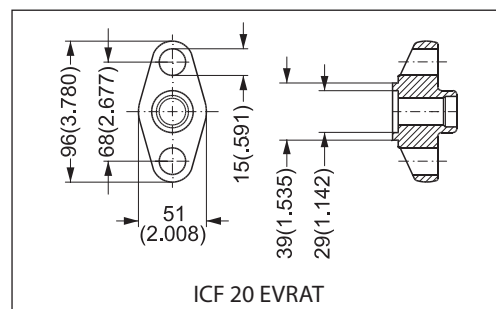
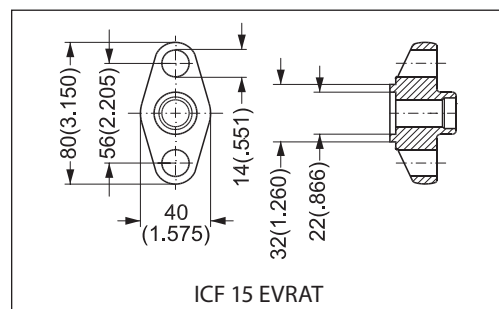
**Design**

The main components of the ICF EVRAT are:

- Housing
- 3 predefined function modules:
  - Filter ICFE 15
  - Solenoid valve module ICFE 20/ICFE 20H
  - Manual opening module ICFO 20

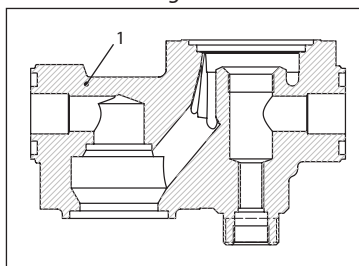


- Connections**  
The ICF EVRAT drop-in valves matches 2 existing flange connections:
- ICF 15 EVRAT fits directly into the EVRA/T 10/15 + FA flange arrangement
  - ICF 20 EVRAT fits directly into the EVRA/T 20/25 + FA flange arrangement



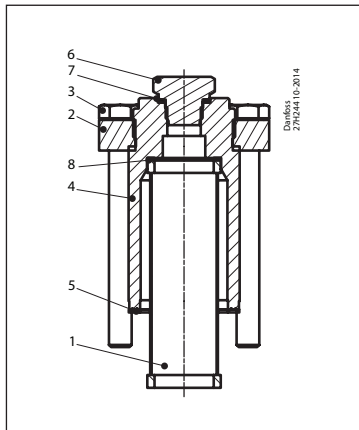
Material specification

ICF EVRAT housing



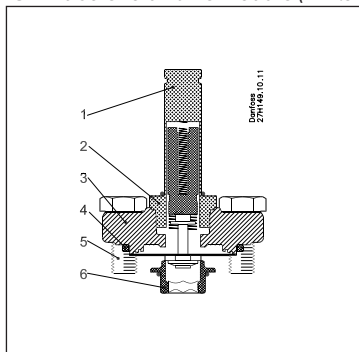
Pos.	Part	Material	EN	ASTM	JIS
1	Housing	Cast Iron	EN-GJS-400-18-LT		

ICFF 15 filter module (Filter element 150µ (100 mesh) 60 cm<sup>2</sup> (9.3 in<sup>2</sup>))



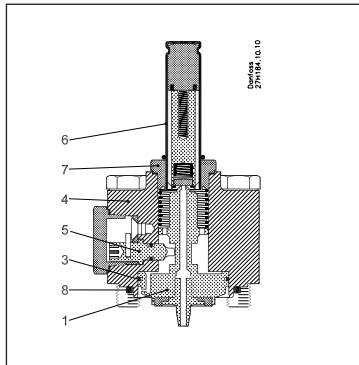
Pos.	Part	Material	EN	ASTM	JIS
1	Filter	Stainless steel			
2	Flange bonnet	Steel	G20Mn5QT, 10213-3 P285QH+QT, 10222-4 P275NL, 10028-3	LCC, A352 LF2, A350	
3	Bolt	Stainless steel	A2-70	Type 308	A2-70
4	ICFF 15 bonnet G1/4	Steel	11SMn30	AISI 1213	Type 2
5	Flat gasket	Fiber, Non-asbestos			
6	Plug 1/2" NPT	Steel	11SMnPb30		
7	Gasket - metal joint	Aluminium			
8	Wave spring	Steel			

ICFE 20 solenoid valve module (K<sub>v</sub> 4.5 m<sup>2</sup>/h. C<sub>v</sub> 5.2 USgal/min)



Pos.	Part	Material	EN	ASTM	JIS
1	Armature tube	Stainless steel	X2CrNi19-11 EN 10088		
2	Armature tube nut	Stainless steel	X8CrNiS18-9 EN 10088		
3	Flange	Cast Steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
4	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
5	Hex-Head bolt M10 x 25	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Seat	High density polymer			

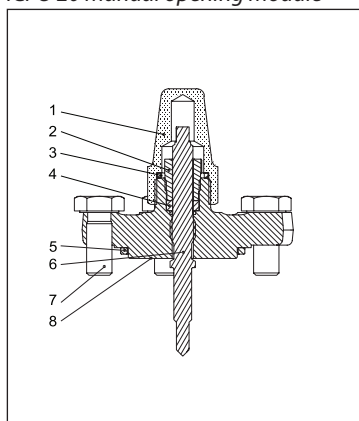
ICFE 20H solenoid valve module (K<sub>v</sub> 8 m<sup>2</sup>/h. C<sub>v</sub> 9.3 USgal/min)



Pos.	Part	Material	EN	ASTM	JIS
1	Piston	Steel	11SMn30 EN 10025		
2	Seat	Teflon			
3	Piston ring				
4	Bonnet cylinder	Steel	P285QH EN 10222	A350	G3205
5	Manual opener	Steel			
6	Armature tube	Stainless steel	X2CrNi19-11 EN10028		
7	Armature tube nut	Stainless steel	X2CrNi19-11 EN10216	A320	A2-70
8	Gasket	Chloroprene (Neoprene)			

**Material specification**  
(continued)

ICFO 20 manual opening module



Pos.	Part	Material	EN	ASTM	JIS
1	Seal cap	Steel	DIN 1651-9SMn28 TLP surface treatment	1213 (SAE)	SUM 22
2	Gland nut	Steel	DIN 1651 9SMn28 Zinc Chromate Surface treatment	1213 (SAE)	SUM 22
3	Seal cap gasket	Nylon	Polyamid A6	Polyamid PA6	Polyamid PA6
4	Sealing ring	Teflon	PTFE	PTFE	PTFE
5	Rubber gasket	Chloroprene rubber	CR	CR	CR
6	Spindle	Stainless steel	X8CrNi5 18-9 EN 10088	G4303 G4304	SUS 303
7	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
8	Flange	Cast steel low temperature	EN10222-4 P285QH		

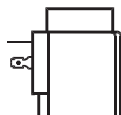
**Code number selection**

ICF EVRAT valves are intended as drop-in replacement valves.

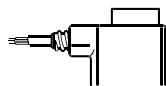
To identify the correct code number simply select the same size as the replaced valve.

Type	Solenoid	K <sub>v</sub> [m³/h]	C <sub>v</sub> [USgal/min]	Code number
ICF 15 EVRAT	ICFE 20	2.4	2.8	<b>027L4517</b>
ICF 20 EVRAT	ICFE 20	3.0	3.5	<b>027L4518</b>
ICF 20 EVRAT	ICFE 20H	3.7	4.3	<b>027L4519</b>

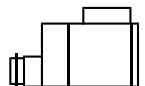
**Coils**



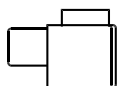
Valve type	Voltage V	Frequency Hz	Code no.			Appendix no.)*	Power consumption
			With 1 m 3-core cable IP 67	With terminal box IP 67	With DIN plugs**)		



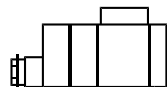
*Alternating current a.c.*



ICFE	12	50		<b>018F6706</b>		15	Holding: 10 W 21 VA
	24	50	<b>018F6257</b>	<b>018F6707</b>	<b>018F7358</b>	16	
	220-230	50	<b>018F6251</b>	<b>018F6701</b>	<b>018F7351</b>	31	Inrush: 44 VA
	115	60	<b>018F6260</b>	<b>018F6710</b>		20	

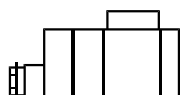


*Direct current d.c.*



ICFE	12			<b>018F6856</b>		01	20 W
	24			<b>018F6857</b>		02	

**Special coils for ICFE**



Valve type	Voltage V	Frequency Hz	Code no.	Appendix no. Indicates voltage and frequency	Power consumption
			With terminal box IP 67		

*Alternating current a.c.*

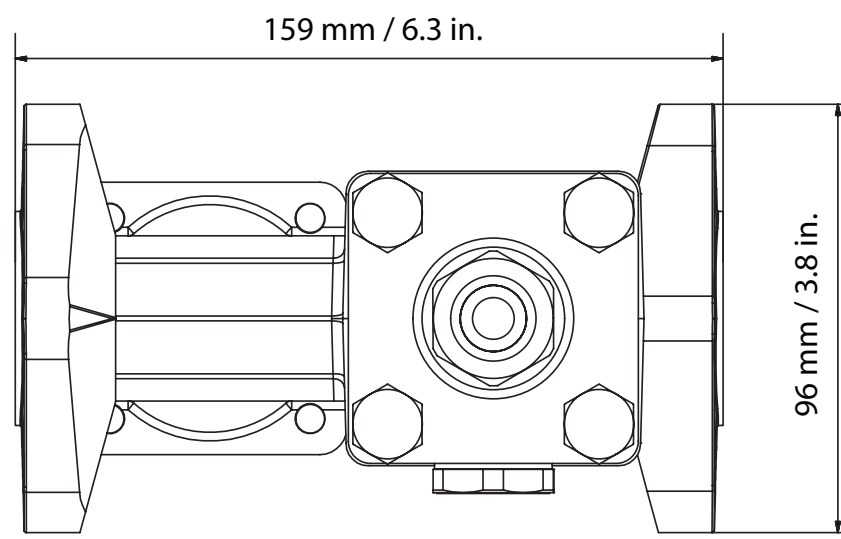
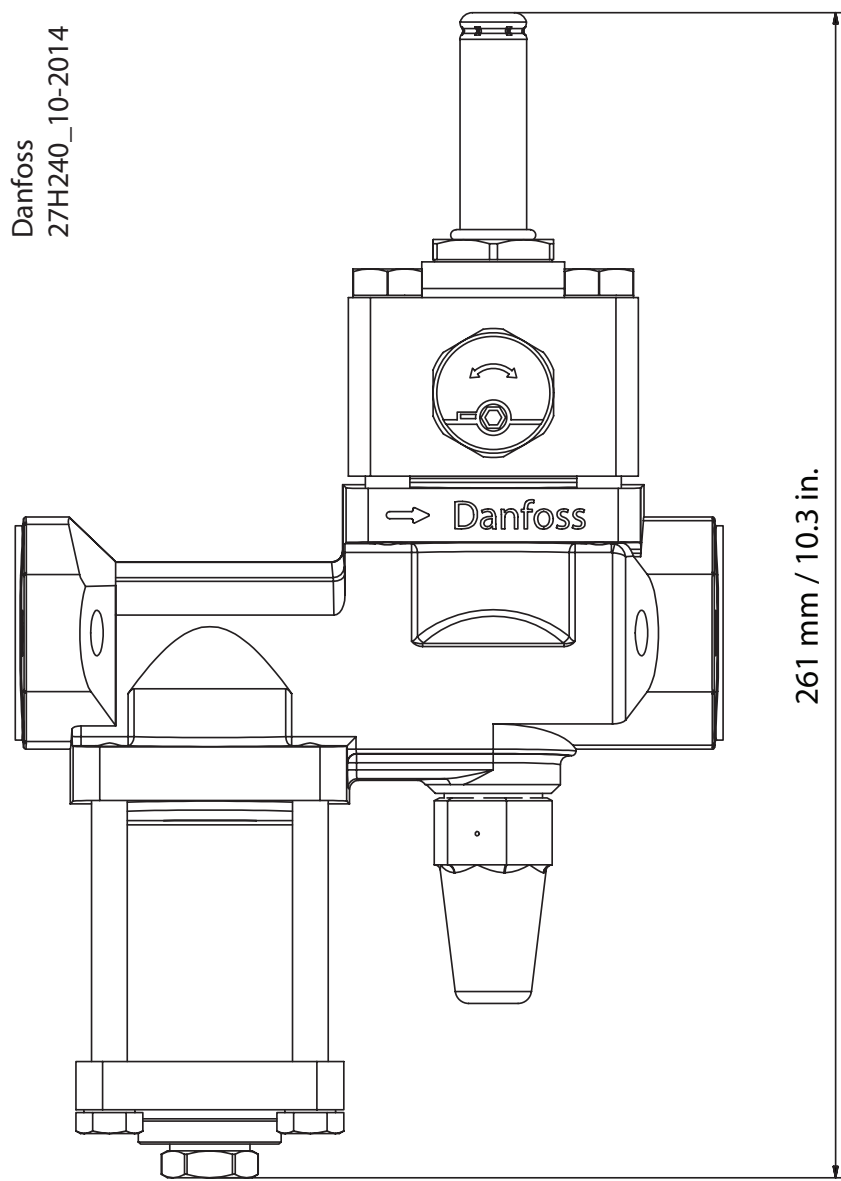
ICFE	24	50	<b>018F6807</b>	16	Holding: 12 W 26 VA
	110	50	<b>018F6811</b>	22	
	220-230	50	<b>018F6801</b>	31	Inrush: 55 VA

For other coil types please refer to the technical leaflets for EVRA or AKVA valves

Dimensions

ICF 20 EVRAT

*This example indicates the maximum dimensions for the ICF EVRAT*





ENGINEERING  
TOMORROW



---

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.