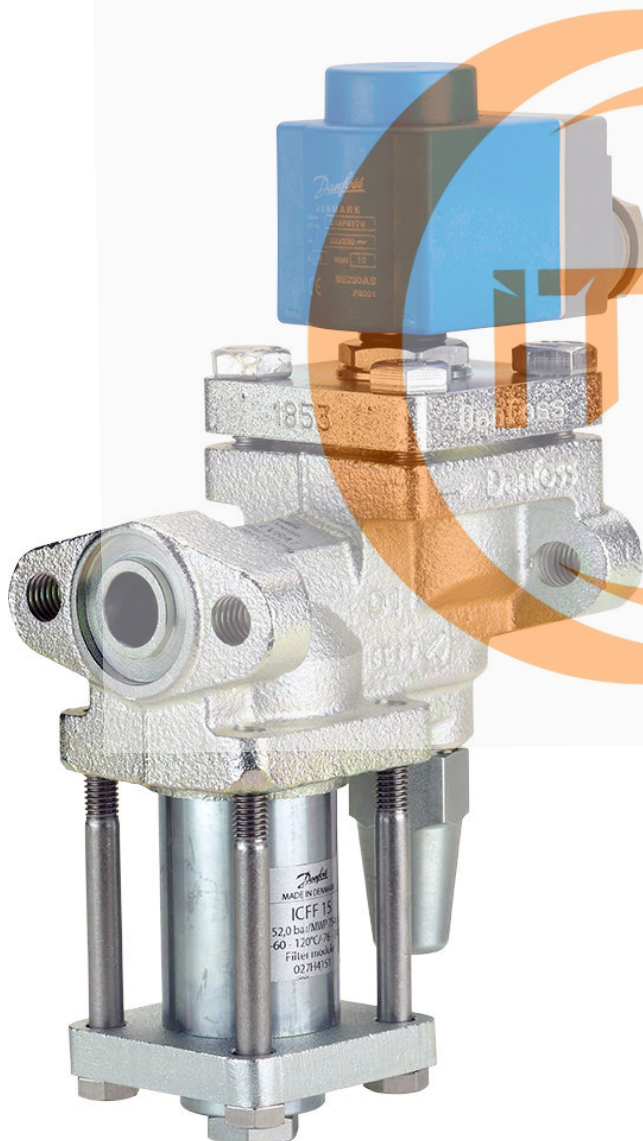


Data Sheet

Valve station Type **ICF 15/20 EVRAT**

Flanged connections for fast and simple retrofit of solenoid valves and strainers (EVRA/FA)



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.

Portfolio overview

Figure 1: ICF 15/20 EVRAT

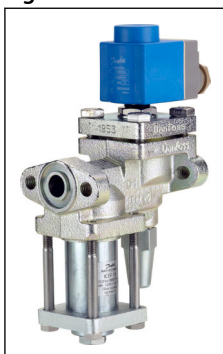


Table 1: Portfolio overview

Description	Values
Valve body/connection material	Steel
Connection type	Flange
Direction	Straightway
Max. temperature range	-40 °C – 105 °C (-40 °F – 221 °F)
Max. working pressure [bar/psig]	42 bar (610 psig)
Packing format	Single pack

Media

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.

New refrigerants

Danfoss products are continually evaluated for use with new refrigerants depending on market requirements.

When a refrigerant is approved for use by Danfoss, it is added to the relevant portfolio, and the R number of the refrigerant (e.g. R513A) will be added to the technical data of the code number. Therefore, products for specific refrigerants are best checked at store.danfoss.com/en/, or by contacting your local Danfoss representative.

Product specification

Design

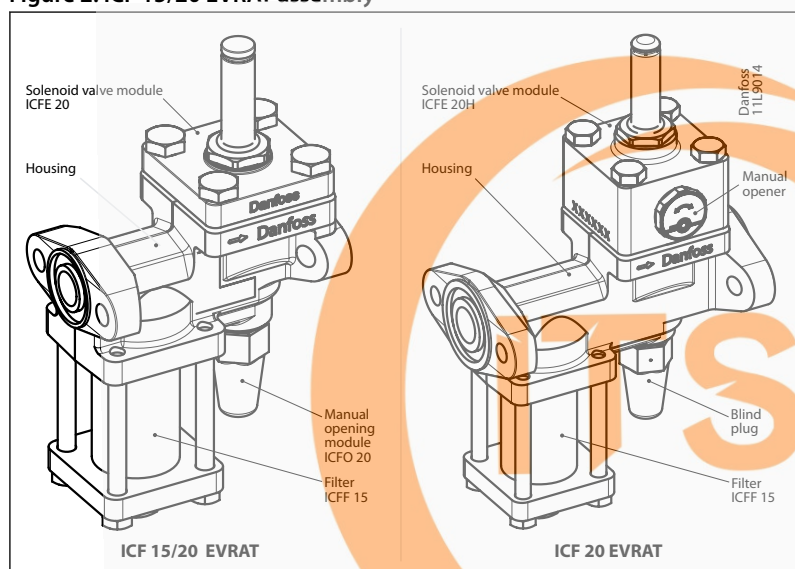
The main components of the ICF EVRAT are:

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

Surface protection

The external surface is zinc-TLP treated to provide corrosion protection according to EN ISO 2081:200. Additional on-site corrosion protection is recommended.

Figure 2: ICF 15/20 EVRAT assembly



Pressure and temperature data

Table 2: Pressure and temperature

Max. Working pressure	42 bar (610 psig)
Max. Temperature range	-40 °C – 105 °C (-40 °F – 221 °F)
Ambient temperature range	-30 °C – 50 °C (-22 °F – 122 °F)

Material specification

ICF EVRAT housing

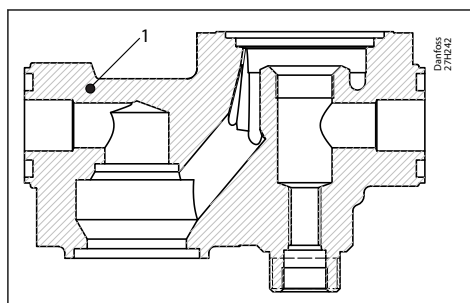


Table 3: ICF EVRAT housing

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

ICFF 15 Filter module

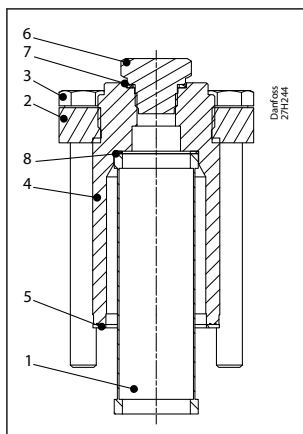


Table 4: ICFF 15 Filter module

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 3/8" NPT	Steel	11SMnPb30		
7	Gasket - metal joint	Aluminium			
8	Wave spring	Steel			

ICFE 20 solenoid valve module (Kv 4.5 m2/h. Cv 5.2 USgal/min)

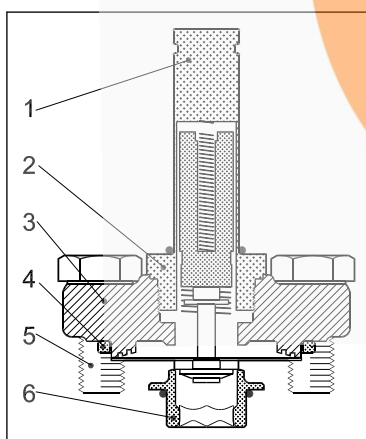


Table 5: ICFE 20 solenoid valve module (Kv 4.5 m2/h. Cv 5.2 USgal/min)

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 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Seat	High density polymer			

ICFE 20H solenoid valve module (Kv 8 m⁴/h. Cv 9.3 USgal/min)

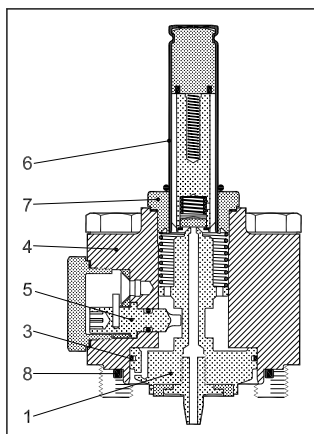


Table 6: ICFE 20H solenoid valve module (Kv 8 m⁴/h. Cv 9.3 USgal/min)

Pos.	Part	Material	EN	ASTM	JIS
1	Piston	Steel	11SMn30 EN 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)			

ICFO 20 Manual opening module

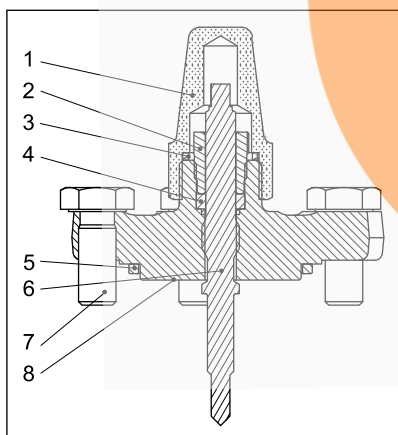


Table 7: ICFO 20 Manual opening module

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	X8CrNiS 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		

Connections

The ICF EVRAT drop-in valves matches 2 existing flange connections:

Valve station, Type ICF 15/20 EVRAT

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

Figure 3: ICF 15 EVRAT

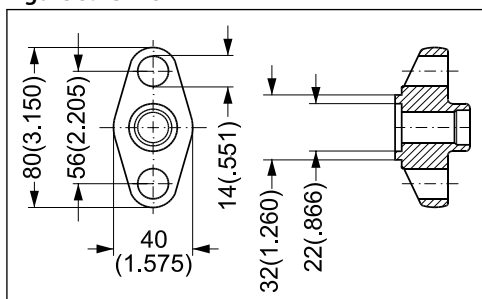
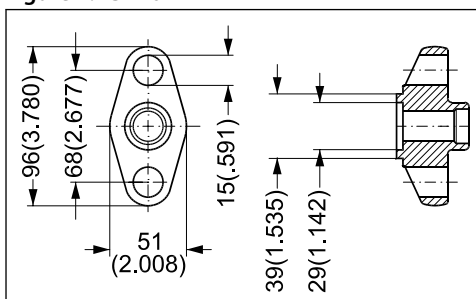
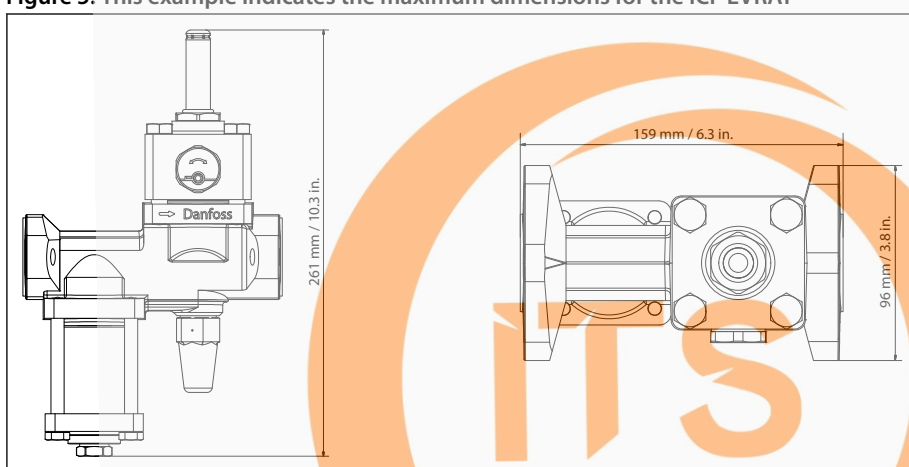


Figure 4: ICF 20 EVRAT



Dimensions and weight

Figure 5: This example indicates the maximum dimensions for the ICF EVRAT



Ordering

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.

Table 8: Code number selection

Type	Solenoid	Kv [m³/h]	Cv [USgal/min]	Code number
ICF 15 EVRAT	ICFE 20	2.4	2.8	027L4517
ICF 20 EVRAT	ICFE 20	3	3.5	027L4518
ICF 20 EVRAT	ICFE 20H	3.7	4.3	027L4519

Coils

Table 9: Coils

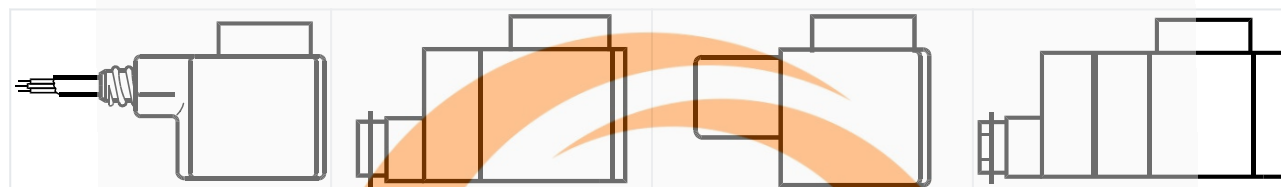


Table 10: Coils

Table 10: ICFE							
Valve type	Voltage	Frequency	Code no.			Appendix no.	Power consumption
	V	Hz	With 1 m 3-core cable IP 67	With terminal box IP 67	With DIN plugs		
Alternating current AC							
ICFE	12	50		018F6706		15	Holding: 10 W 21 VA Inrush: 44 VA
	24	50	018F6257	018F6707	018F7358	16	
	220 – 230	50	018F6251	018F6701	018F7351	31	
	115	60	018F6260	018F6710		20	
Direct current DC							
ICFE	12			018F6856		1	20 W
ICFE	24			018F6857		2	20 W

Special coils for ICFE

Figure 6: Special coils for ICFE

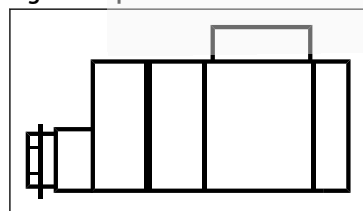


Table 11: Special coils for ICFE

Valve type	Voltage	Frequency	Code no.	Appendix no.	Power consumption
	V	Hz	With terminal box IP 67		
Alternating current AC					
ICFE	24	50	018F6807	16	Holding: 12 W 26VA Inrush: 55 VA
	110	50	018F6811	22	
	220 – 230	50	018F6801	31	

NOTE:

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

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 12: Valid Approvals

Type	File name	Document type	Document topic	Approval authority
ICF 15 EVRAT	TAA0000085 Rev. 2	Mechanical - Safety Certificate	-	DNV GL
	SA7200	Mechanical - Safety Certificate	-	UL
	CRN.0C14029.523467890YTN	Pressure - Safety Certificate	CRN	TSSA
ICF 20 EVRAT	TAA0000085 Rev. 2	Mechanical - Safety Certificate	-	DNV GL
	SA7200	Mechanical - Safety Certificate	-	UL
	CRN.0C14029.523467890YTN	Pressure - Safety Certificate	CRN	TSSA

Table 13: Compliance

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

