



Technical brochure

Control Solution ICF 20-40



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Introduction

Based on advanced technology the new ICF control solution incorporates several functions in one housing, which can replace a series of conventional mechanical, electro-mechanical and electronically operated valves.

This solution not only provides a number of advantages in the design phase of a refrigeration plant but also in the installation, service and maintenance.

The ICF solutions are designed for low and high pressure refrigerants and can be used in liquid lines, compressor injection lines and hot gas lines.

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

One code number equals one application solution.



Features

- Designed for industrial refrigeration applications for a maximum working pressure of 52 bar/754 psig.
- Applicable to all common non flammable refrigerants including R717, R744 (CO₂) and non corrosive gases/liquids dependent on sealing material compatibility.
- Direct weld connections.
- Connection types include butt weld, socket weld.
- Low temperature steel housing.
- Low weight and compact design.
- V-port regulating cones on the control modules ensure optimum regulating accuracy particularly at part load.
- *Modular Concept*
Each housing is available with several different connection types and sizes. Valve service is performed by replacing the function module.
- Side ports for the connection of pressure gauges, transmitters, sight glasses, service valve etc.



ICF control solution		
Nominal bore	DN≤ 25 (1 in.)	DN 32-40 (1 ¼ - 1 ½")
Classified for	Fluid group I	
Category	Article 3, paragraph 3	II

Technical data

- *Refrigerants*
Applicable to all common non flammable refrigerants including R717, R744 (CO₂) and non corrosive gases/liquids dependent on sealing material compatibility.

For further information please refer to installation instruction for ICF.
Use of the ICF control solution with flammable hydrocarbons is not recommended.
For further information please contact the local Danfoss sales company.
- *Temperature range*
-60/+120°C (-76/+248°F).
- Ambient temperature for ICF with ICAD:
-30°C/+50°C (-22°F/122°F)
- *Surface protection*
The external surface is zinc-chromated to provide corrosion protection. Additional on-site corrosion protection is recommended.
- *Pressure*
The ICF is designed for:
Max. working pressure: 52 bar g (754 psig)

Opening differential pressure:
Please refer to the individual function module data.

Design

The main components of the ICF solution are:

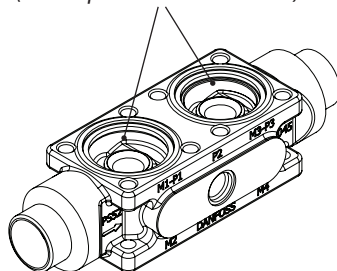
- A housing
- A maximum of four or six function modules

Housing

There are two housing variants:

ICF with 4 module ports (ICF 20 example)

4 module ports
(2 on top and 2 in the bottom)

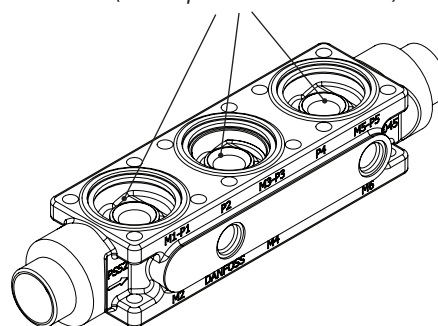


The ICF housing includes:

- Module ports M1 to M4
- Side ports depending on model and connection type

ICF with 6 module ports (ICF 20 example)

6 module ports
(3 on top and 3 in the bottom)



The ICF housing includes:

- Module ports M1 to M6
- Side ports depending on model and connection type

Function modules

Each housing accommodates a maximum of four or six function modules, of the following types:

- Stop valve module
- Manual regulating valve module
- Filter module
- Solenoid valve module
- Electronic expansion valve module
- Manual opening module
- Check valve module
- Stop/check valve module
- Motor valve module
- External welding connection module
- Blank top cover

Optional:

The housings are supplied with a predefined number of side ports for the following:

- Sight glass
- Temperature or pressure sensor
- Pressure gauge
- Side exit for drain or bypass.

The design allows maximum capacity and minimum pressure drop, using advanced technology and double seats – offering higher capacity than conventional systems using individual valves and components.

The ICF solution is multifunctional.

ICF solution offers compact dimensions and shortened installation time due to the reduced number of direct welded connections.

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

Connections

There is a very wide range of connection types available with ICF solutions:

- D: Butt weld, DIN (EN 10220)
- A: Butt weld, ANSI (B 36.10)
- SOC: Socket weld, ANSI (B 16.11)

Approvals

The ICF concept is designed to fulfil global refrigeration requirements.

For specific approval information, please contact Danfoss.

Housing and function module material

Low temperature steel

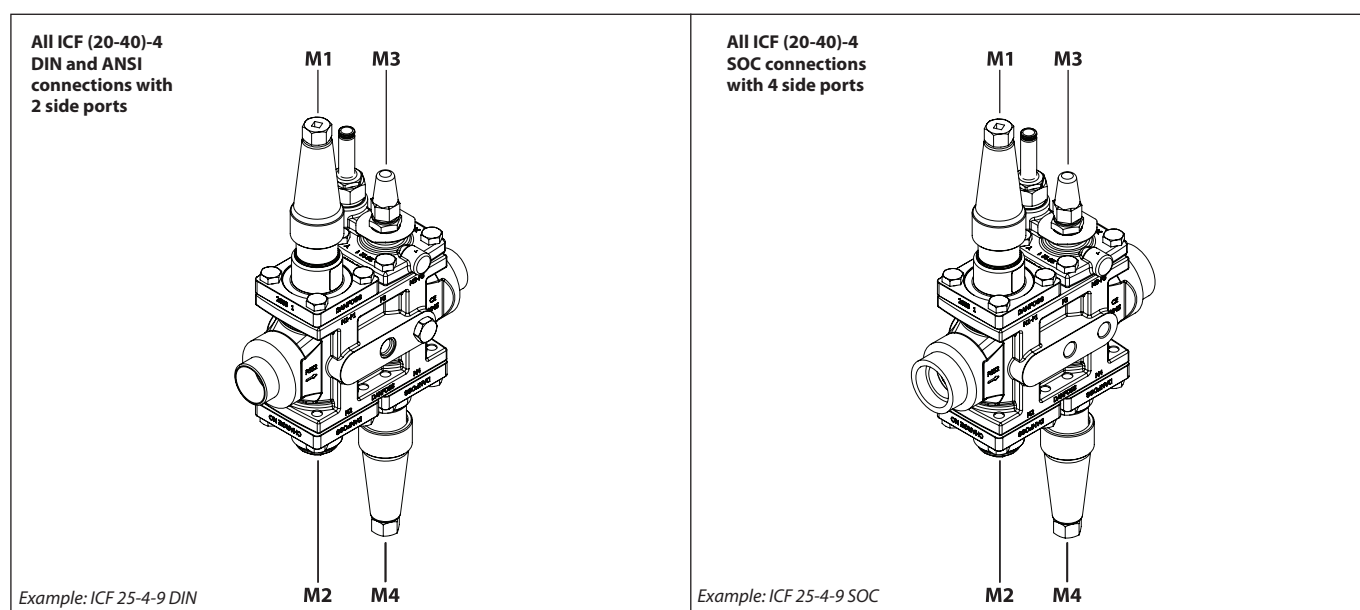
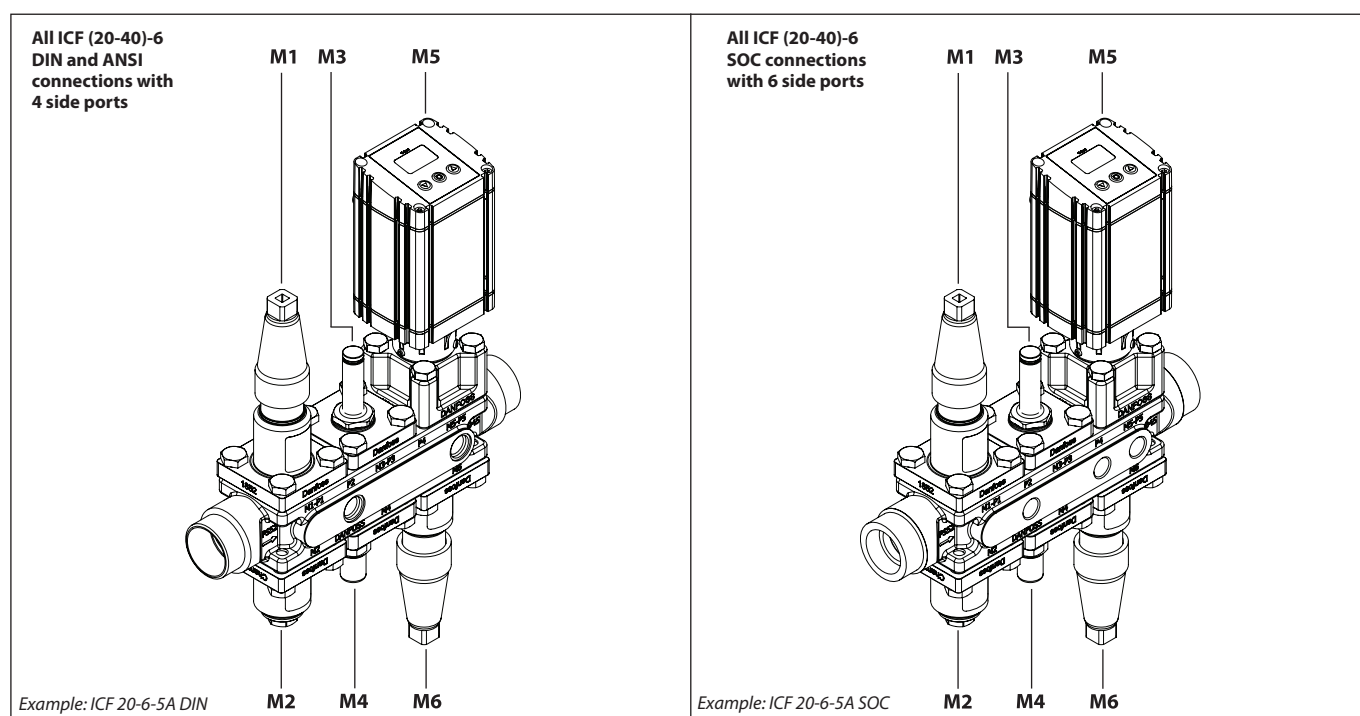
When using TIG/MIG/SAW welding technology, it is possible to install the ICF solution without prior removal of the function modules from the housing. If using other welding methods the modules must be disassembled.

Please consult the product instruction for more details.

Function module configurations

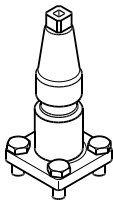
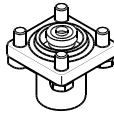
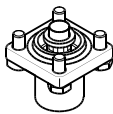
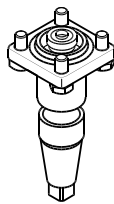
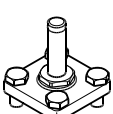
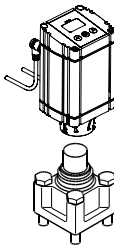
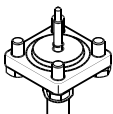
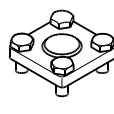
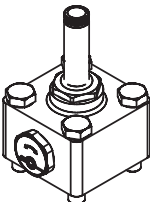
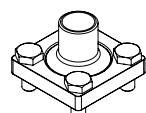
Function Module Type		Can be installed in these locations					
ICFS	Stop valve module	M1	M2	M3	M4	M5	M6
ICFR	Manual regulating valve module	M1	M2	M3	M4	M5	M6
ICFF	Filter (strainer) module		M2		M4		M6
ICFE	Solenoid valve module			M3			
ICFC	Check valve module				M4		M6
ICFN	Stop/check valve module				M4		M6
ICM	Motor valve module	M1		M3		M5	
ICFB	Blank top cover	M1	M2	M3	M4	M5	M6
ICFA	Electronic expansion valve module (for ICF 20 only)	M1		M3		M5	
ICFE20H	Solenoid valve module (for ICF 20 only)	M1		M3		M5	
ICFO	Manual opening module				M4		
ICFW	Welding module (for ICF 25-40 only)	M1	M2	M3	M4	M5	M6

Module locations are indicated by M1, M2, M3, M4, M5 and M6. With respect to refrigerant flow, M1 is closest to inlet.



ICF 20

Description of the function modules for ICF 20

ICFS 20 <i>Stop valve module</i> This module has the function of a stop valve. ICFR 20A <i>Manual regulating valve module</i> This module has the function of a hand regulating valve.	 ICFS 20 / ICFR 20A	ICFC 20 <i>Check valve module</i> This module has the function of a check valve.	 ICFC 20
ICFF 20 / ICFF 20E <i>Filter module</i> This module functions as a filter. Filter size (ICFF 20): ICF with DIN and ANSI connections: Pleated 150μ (100 mesh) / 45 cm² (7.0 in²) ICF with SOC connections (ICFF 20E): Pleated 250μ (72 mesh) / 160 cm² (24.8 in²)	 ICFF 20 / ICFF 20E	ICFN 20 <i>Stop/check valve module</i> This module has the function of a combined stop and check valve.	 ICFN 20
ICFE 20 <i>Solenoid valve module</i> This module has the function of a normally closed solenoid valve for controlling the refrigerant flow. ICFA 10 <i>Electronic expansion valve module</i> This module has the function of an electronic pulse width modulating (PWM) expansion valve.	 ICFE 20 / ICFA 10	ICM 20-A, B or C <i>Motor valve module</i> This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.	 ICM 20-A, B or C
ICFO 20 <i>Manual opening module</i> This module facilitates the manual opening of the solenoid valve (type ICFE).	 ICFO 20	ICFB 20 <i>Blank top cover</i> This provides a blanking cover for unused module ports.	 ICFB 20
ICFE 20H <i>Solenoid valve module with integrated manual opener</i> This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.	 ICFE 20H	ICFW 20 <i>Welding module 20 DIN</i> This module is used for drain connection during hot-gas defrosting - in case of high capacity.	 ICFW 20

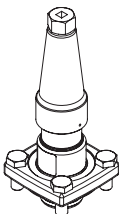
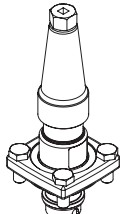
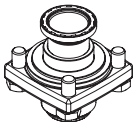
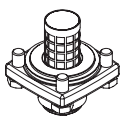
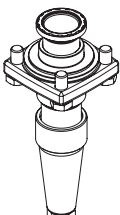
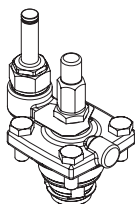
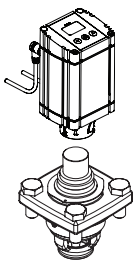
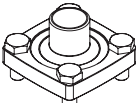
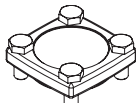


Please note:

At about 10% of maximum mass flow of ICFE 20H, the pressure differential correspond to about 0.07 Bar (1 psi). ICFE 20H will start to open at these conditions. At a pressure differential of minimum 0.2 Bar (2.9 psi) ICFE 20H will be 100 % open.

ICF 25-40

Description of the function modules for ICF 25-40

ICFS 25-40 Stop valve module This module has the function of a stop valve.	 ICFS 25-40	ICFR 25-40 Manual regulating valve module This module has the function of a hand regulating valve.	 ICFR 25-40
ICFC 25-40 Check valve module This module has the function of a check valve.	 ICFC 25-40	ICFF 25-40 / ICFF (25-40)E Filter module This module functions as a filter. Filter size: ICF with DIN and ANSI (ICFF 25-40) connections: Pleated 150µ (100 mesh) / 160 cm ² (24.8 in ²) ICF with SOC connections (ICF (25-40)E): Pleated 250µ (72 mesh) / 330 cm ² (51.2 in ²)	 ICFF 25-40 / ICFF (25-40)E
ICFN 25-40 Stop/check valve module This module has the function of a combined stop and check valve.	 ICFN 25-40	ICFE 25-40 Solenoid valve module This module has the function of a normally closed solenoid valve for controlling the refrigerant flow. It has a built-in manual opening function.	 ICFE 25-40
ICM 25-A or B Motor valve module This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.	 ICM 25-A or B	Please note: At about 10% of maximum mass flow of ICFE 25-40, the pressure differential correspond to about 0.07 Bar (1 psi). ICFE 25-40 will start to open at these conditions. At a pressure differential of minimum 0.2 Bar (2.9 psi) ICFE 25-40 will be 100 % open.	
ICFW 25-40 Welding module, 25 DIN This module is used for drain connection during hot-gas defrosting - in case of high capacity.	 ICFW 25-40	ICFB 25-40 Blank top cover This provides a blanking cover for unused module ports.	 ICFB 25-40

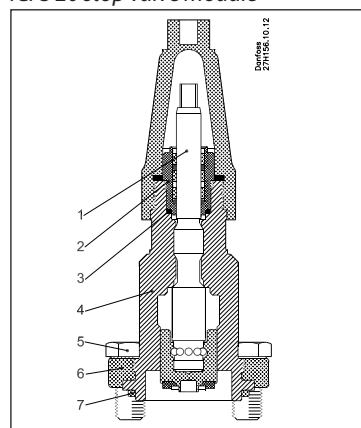
Material specification

ICF housing

ICF 20-4, 25-4, 32-4, 40-4	Pos.	Part	Material	EN	ASTM	JIS
	1	Housing	Cast steel low temperature	G20Mn5QT EN 10213-3	LCC, A352	SCPL1, G5151

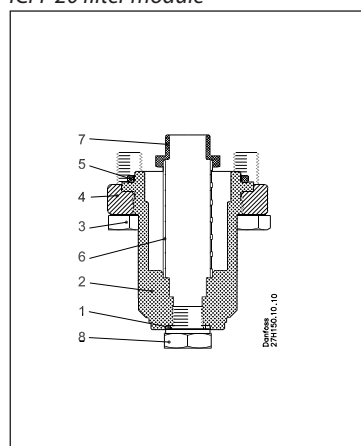
ICF 20-6, 25-6, 32-6, 40-6	Pos.	Part	Material	EN	ASTM	JIS
	1	Housing	Cast steel low temperature	G20Mn5QT EN 10213-3	LCC, A352	SCPL1, G5151

ICFS 20 stop valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
2	Thread part	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
3	AL-gasket/ Refrig. gasket		AL99 alloy no. 1200 DIN 1712 BL.3		
4	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
5	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
7	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

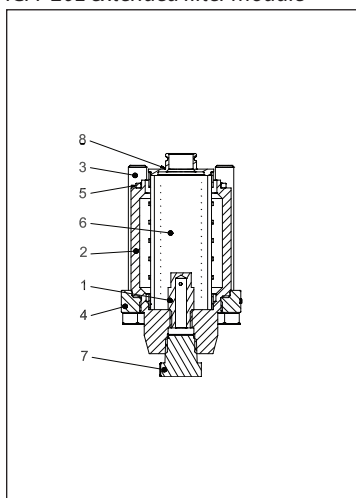
ICFF 20 filter module



Pos.	Part	Material	EN	ASTM	JIS
1	Gasket	AL 99 F11			
2	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
3	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
4	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Filter element	Steel 150μ + 50μ			
7	Plug	Steel			
8	Plug 1/8" RG for butt-weld 3/8" NPT for socket weld	Stainless steel	A2-70 EN 24017	A320	A2-70

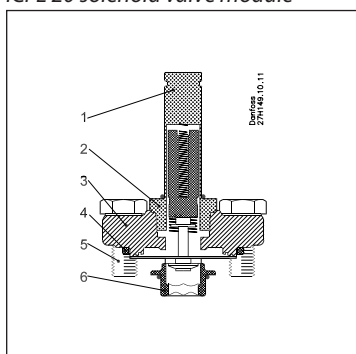
Material specification (continued)

ICFF 20E extended filter module



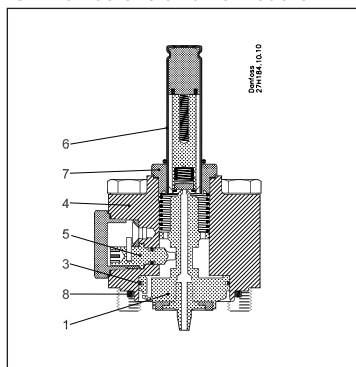
Pos.	Part	Material	EN	ASTM	JIS
1	Dirt protection plug	Steel	115Mn30 EN 10087	Grade 1213 A29	G4804
2	Bonnet	Steel	115Mn30 EN 10087	Grade 1213 A29	G4804
3	Hex-head bolt M12x80	Stainless steel	A2-70 EN 1515-1	Grade B8 A320	A2-70 B1054
4	Flange	Steel	P285QH: EN 10222-4 G20Mn5QT; EN 10213-3	LF2 - A350 LCC - A352	SFL2 - G3205 SCPL1 - G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Filter element	Steel 150µ + 50µ			
7	Plug 3/8" NPT	Stainless steel	A2-70 EN 1515-1	Grade B8 A320	A2-70 B1054
8	Filter adaptor	Steel	115Mn30 EN 10087	Grade 1213 A29	G4804

ICFE 20 solenoid valve module



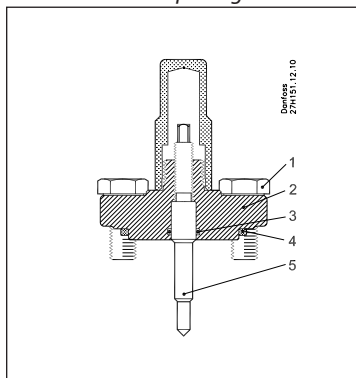
Pos.	Part	Material	EN	ASTM	JIS
1	Armature tube	Stainless steel	X2CrNi19-11 EN 10088		
2	Armature tube nut	Stainless steel	X8CrNiS18-9 EN 10088		
3	Flange	Cast Steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
4	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
5	Hex-Head bolt M10 x 25	Stainless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

ICFE 20H solenoid valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Piston	Steel	115Mn30 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)			

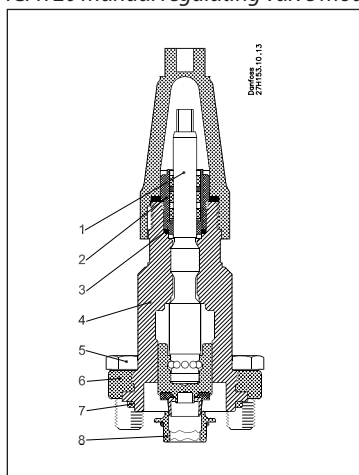
ICFO 20 manual opening module



Pos.	Part	Material	EN	ASTM	JIS
1	Hex-head bolt M10 x 25	Stainless steel	A2-70 EN 24017	A320	A2-70
2	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
3	O-ring	Chloroprene			
4	Rubber gasket	Chloroprene rubber			
5	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304

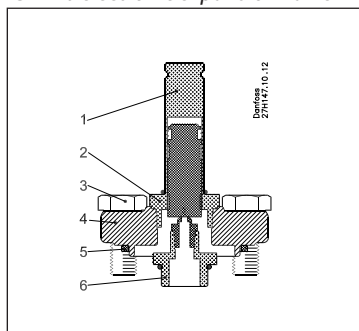
Material specification
(continued)

ICFR 20 manual regulating valve module



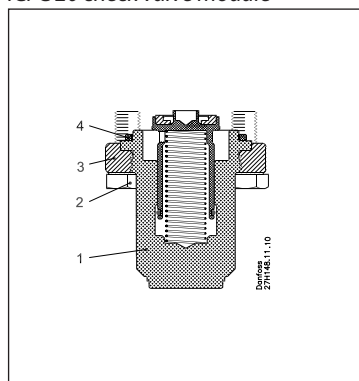
Pos.	Part	Material	EN	ASTM	JIS
1	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
2	Thread part	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
3	AL-gasket		AL99 alloy no. 1200 DIN 1712 BL.3		
4	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
5	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
7	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
8	Seat	High density polymer			

ICFA 10 electronic expansion valve module



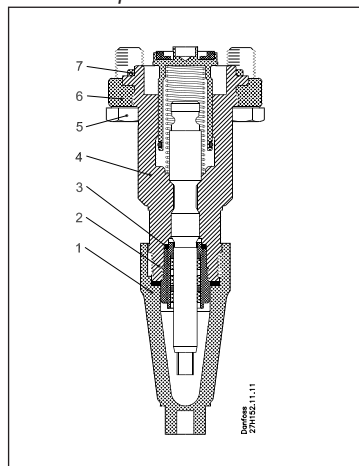
Pos.	Part	Material	EN	ASTM	JIS
1	Armature tube	Stainless steel	X2CrNi19-11 EN 10088		
2	Armature tube nut	Stainless steel	X8CrNiS 18-9 EN 10088		
3	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
4	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Adaptor	Steel			

ICFC 20 check valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Bonnet	Steel	S235JRG2	A283	G3101
2	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
3	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	AG5152
4	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

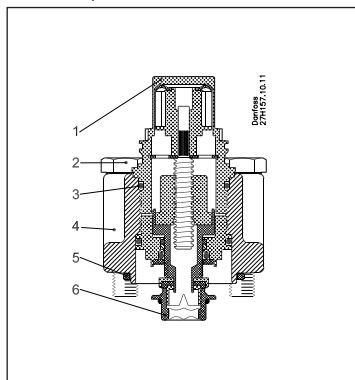
ICFN 20 stop/check valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
2	Thread part	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
3	AL-gasket		AL99 alloy no. 1200 DIN 1712 BL.3		
4	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
5	Hex-head bolt M10 × 25	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
7	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

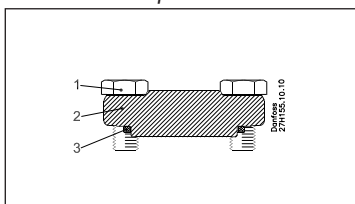
Material specification
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ICM 20-A, 20-B or 20-C motor valve module



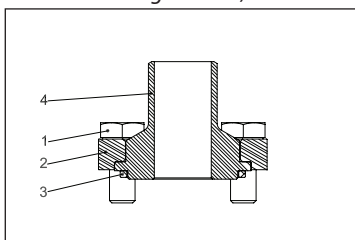
Pos.	Part	Material	EN	ASTM	JIS
1	Adapter	Stainless steel	X5CrNi18-10 EN 10088	A240	G4303 G4304
2	Hex-head bolt M10 × 50	Stainless steel	A2-70 EN 24014	A320	A2-70
3	O-ring	Chloroprene			
4	Bonnet	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Seat	High density polymer			

ICFB 20 blank top cover



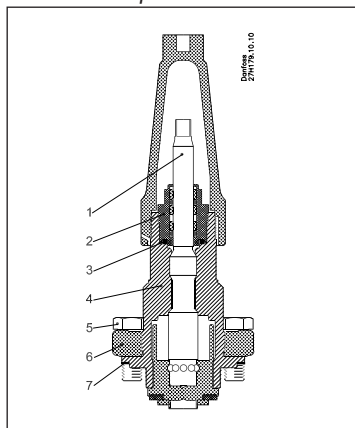
Pos.	Part	Material	EN	ASTM	JIS
1	Hex-head bolt M10 × 25	Stainless Steel	A2-70 EN 24017	A320	A2-70
2	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
3	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

ICFW 20 welding module, 20 DIN



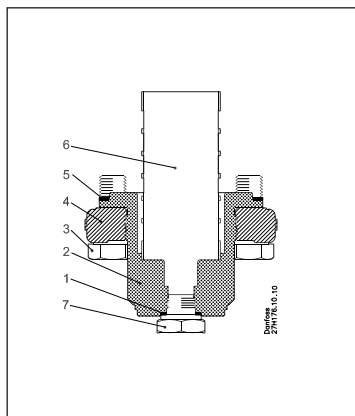
Pos.	Part	Material	EN	ASTM	JIS
1	Hex-head bolt M10 × 25	Stainless Steel	A2-70 EN 24017	A320	A2-70
2	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
3	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
4	Weld connection	Steel	S235JRG2 EN 10025	A283	G3101

ICFS 25-40 stop valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
2	Thread part	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
3	O-ring	Chloroprene			
4	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
5	Hex-head bolt M12 × 30	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
7	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

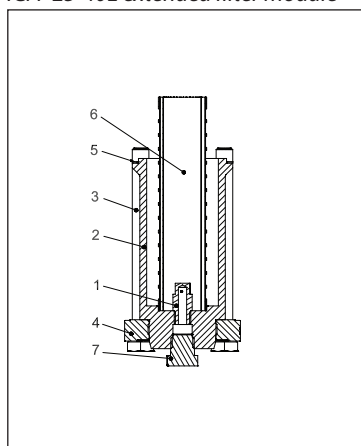
ICFF 25-40 filter module



Pos.	Part	Material	EN	ASTM	JIS
1	Al. Gasket	AL 99 F11			
2	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
3	Hex-head bolt M12 × 30	Stainless steel	A2-70 EN 24017	A320	A2-70
4	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Filter element	Steel 150μ + 50μ			
7	Plug 1/4" RG for butt-weld 3/8" NPT for socket weld	Stainless steel	A2-70 EN 24017	A320	A2-70

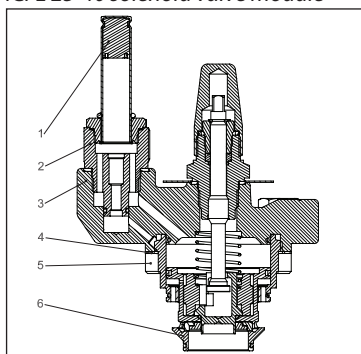
Material specification
(continued)

ICFF 25-40E extended filter module



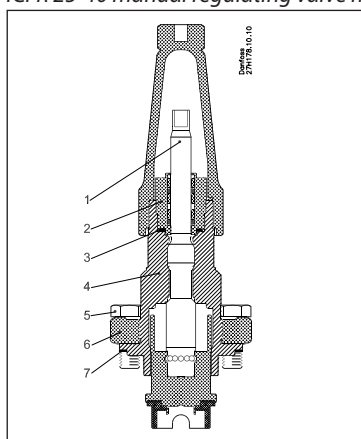
Pos.	Part	Material	EN	ASTM	JIS
1	Dirt protection plug	Steel	11SMn30 EN 10087	Grade 1213 A29	G4804
2	Bonnet	Steel	11SMn30 EN 10087	Grade 1213 A29	G4804
3	Hex-head bolt M12x140	Stainless steel	A2-70 EN 1515-1	Grade B8 A320	A2-70 B1054
4	Flange	Steel	P285QH: EN 10222-4 G20Mn5QT; EN 10213-3	LF2 - A350 LCC - A352	SFL2 - G3205 SCPL1 - G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Filter element	Steel 150μ + 50μ			
7	Plug 3/8" NPT	Stainless steel	A2-70 EN 1515-1	Grade B8 A320	A2-70 B1054

ICFE 25-40 solenoid valve module



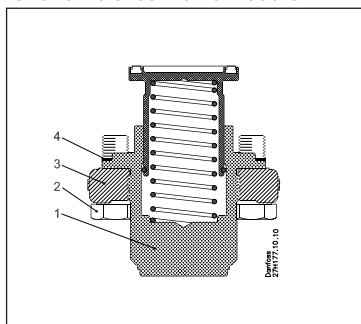
Pos.	Part	Material	EN	ASTM	JIS
1	Armature tube	Stainless steel	X2CrNi19-11 EN 10088		
2	Armature tube nut	Stainless steel	X8CrNiS18-9 EN 10088		
3	Bonnet	Cast steel low temperature	G20Mn5QT EN10213-3	A352	G5152
4	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
5	Hex-Head bolt M10 x 25	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Seat	High density polymer			

ICFR 25-40 manual regulating valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
2	Thread part	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
3	O-ring	Chloroprene			
4	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
5	Hex-head bolt M12 x 30	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
7	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
8	Seat	High density polymer			

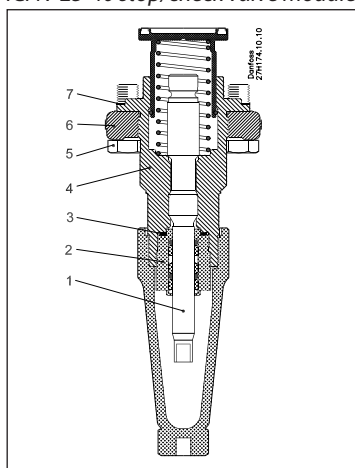
ICFC 25-40 check valve module



Pos.	Part	Material	EN	ASTM	JIS
1	Bonnet	Steel	S235JRG2	A283	G3101
2	Hex-head bolt M12 x 30	Stainless steel	A2-70 EN 24017	A320	A2-70
3	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	AG5152
4	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

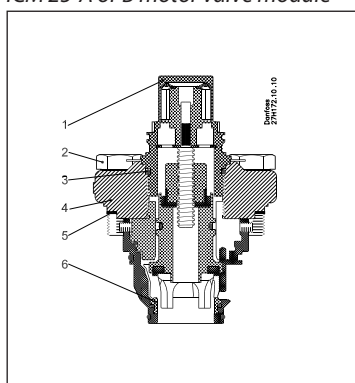
Material specification
(continued)

ICFN 25-40 stop/check valve module



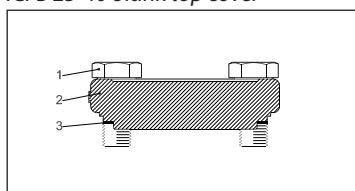
Pos.	Part	Material	EN	ASTM	JIS
1	Spindle	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
2	Thread part	Stainless steel	X8CrNiS 18-9 EN 10088		G4303 G4304
3	O-ring	Chloroprene			
4	Bonnet	Steel	S235JRG2 EN 10025	A283	G3101
5	Hex-head bolt M12 × 30	Stainless steel	A2-70 EN 24017	A320	A2-70
6	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
7	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

ICM 25-A or B motor valve module



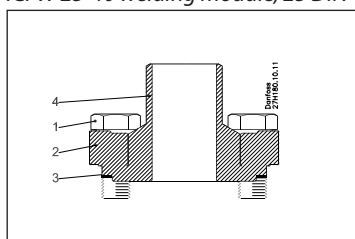
Pos.	Part	Material	EN	ASTM	JIS
1	Adapter	Stainless steel	X5CrNi18-10 EN 10088	A240	G4303 G4304
2	Hex-head bolt M12 × 30	Stainless steel	A2-70 EN 24014	A320	A2-70
3	O-ring	Chloroprene			
4	Bonnet	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
5	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
6	Seat	High density polymer			

ICFB 25-40 blank top cover



Pos.	Part	Material	EN	ASTM	JIS
1	Hex-head bolt M10 × 25	Stainless Steel	A2-70 EN 24017	A320	A2-70
2	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
3	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			

ICFW 25-40 welding module, 25 DIN



Pos.	Part	Material	EN	ASTM	JIS
1	Hex-head bolt M10 × 25	Stainless Steel	A2-70 EN 24017	A320	A2-70
2	Flange	Cast steel low temperature	G20Mn5QT EN 10213-3	A352	G5152
3	Gasket	Chloroprene (Neoprene)/ Fiber non asbestos			
4	Weld connection	Steel	S235JRG2 EN 10025	A283	G3101

Code number selection

To determine the correct ICF solution follow steps 1 through 5.

Step 1 Determine application and function requirements:

- Line: Liquid DX, flooded or hot gas
- Control: On/off solenoid valve, motorised valve
- Defrost: Electric or hot gas

From the above determine the application reference number (see pages 14, 15, 16 and 17):

Step 2 Selection criteria - (Please use ICF calculation software)

Download the software from:

<http://www.danfoss.com/BusinessAreas/RefrigerationAndAirConditioning/IR+Software+Details/DIRCalcICFModule.htm>

- Refrigerant
- Capacity
- Temperature
- Circulation rate

From the above determine the solution required, e.g.: ICF 20 complete with ICM 20-C

Step 3 Establish connection sizes and type

- DIN butt-weld, ANSI butt-weld or SOC weld
- 20 (¾ in.), 25 (1 in.), 32 (1 ¼ in.) or 40 (1 ½ in.)

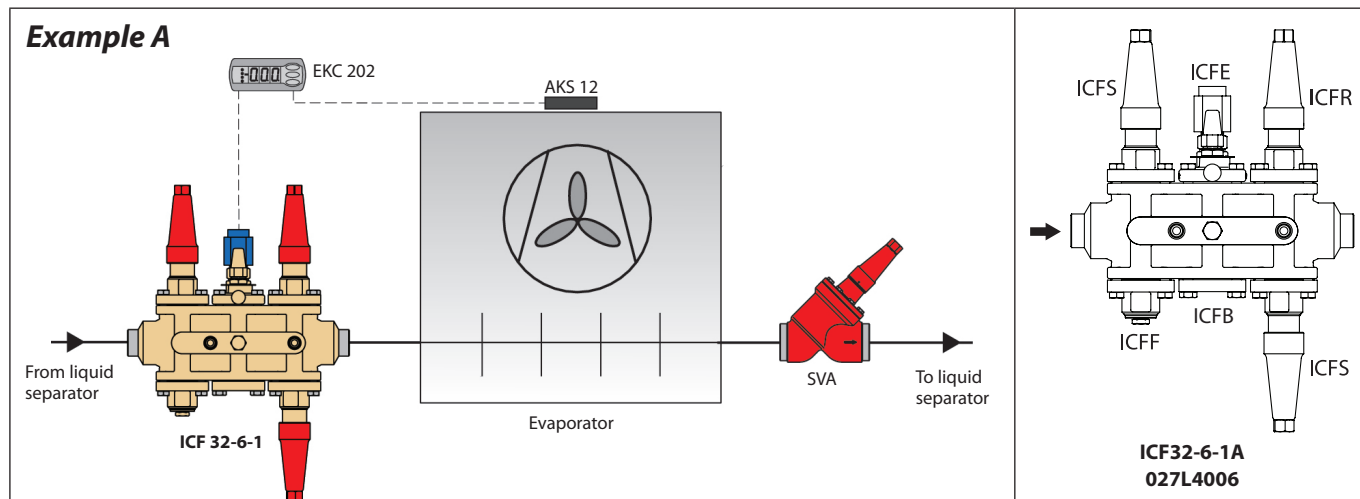
Step 4 Establish code number

(See pages 22, 23, 24 and 25)

Application example A

A valve combination for a flooded evaporator operating on/off from a thermostat and with electric defrost is required. Manual override of the solenoid valve is requested. Pipe dimension is 32 mm, and there is a demand for butt weld DIN connections.

For this application **ICF 32-6-1A**, code number **027L4004** is recommended.



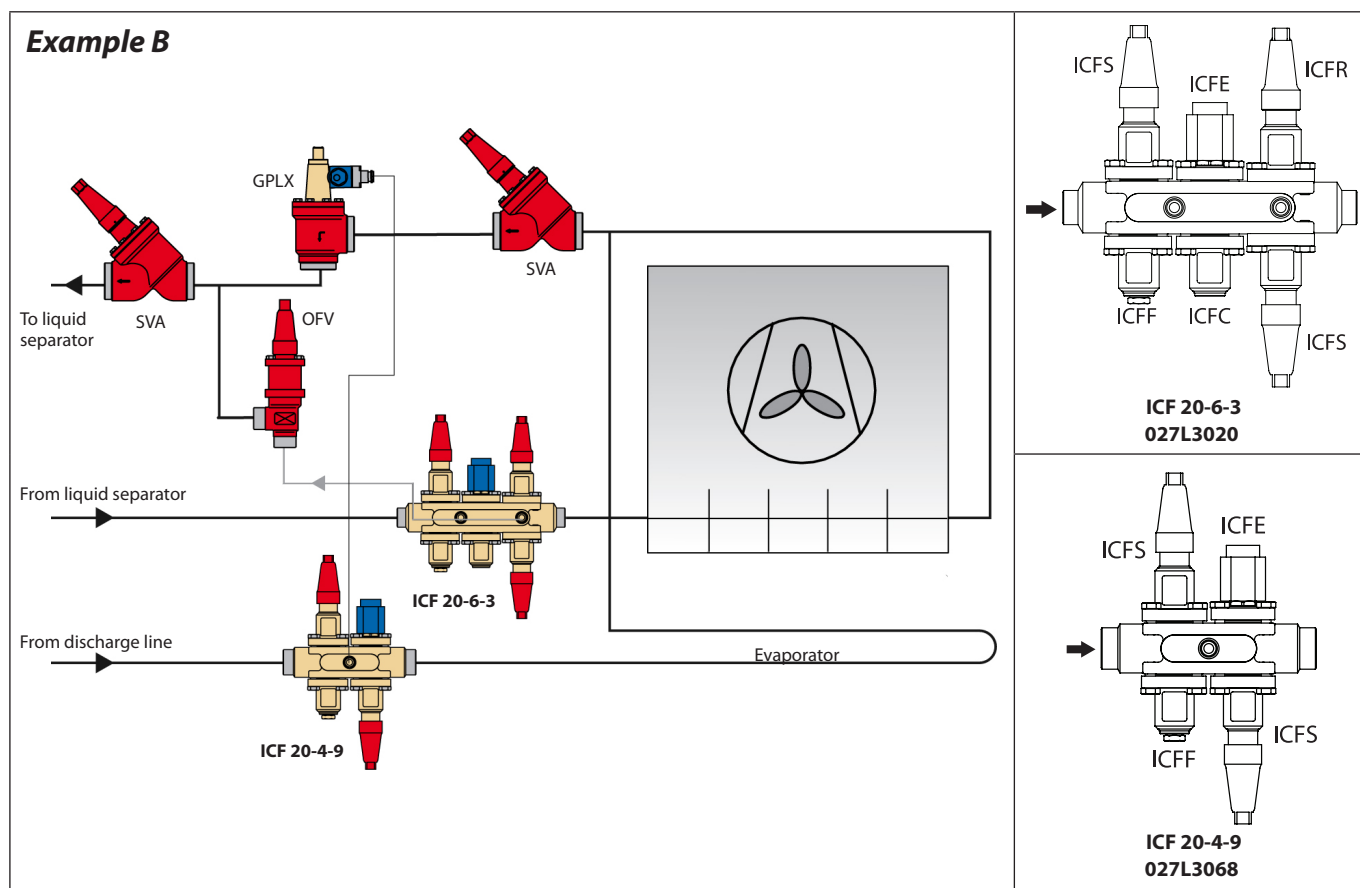
Application example B

A valve combination for a flooded evaporator operating on/off from a thermostat and with hot gas defrost is required. Pipe dimension is 25 mm, and there is a demand for butt weld DIN connections. It is a request to have 4 sideports for external connectors.

For this application **ICF 20-6-3**, code number **027L3020** is recommended.

On the same evaporator a hot gas valve to inject the gas into is needed. Pipe dimension is 32 mm, and there is a demand for butt weld DIN connections. It is a request to have 2 sideports for external connectors.

For this application **ICF 20-4-9**, code number **027L3068** is recommended.



For this application **ICF 32-6-5A**, code number **027L4044** is recommended.

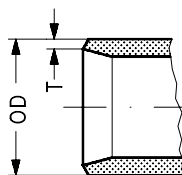
ICF 32-6-5A
027L4044

For this application **ICF 20-6-5B**, code number **027L3042** is recommended.

ICF 20-6-5B
027L3042

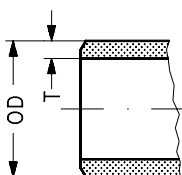
Connections

D: Butt-weld DIN (EN 10220)



Size mm	Size in.	OD mm	T mm	OD in.	T in.		
20	($\frac{3}{4}$)	26.9	2.3	1.059	0.091		
25	(1)	33.7	2.6	1.327	0.103		
32	($1\frac{1}{4}$)	42.4	2.6	1.669	0.102		
40	($1\frac{1}{2}$)	48.3	2.6	1.902	0.103		

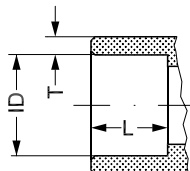
A: Butt-weld ANSI (B 36.10)



Size mm	Size in.	OD mm	T mm	OD in.	T in.	Schedule	
(20)	$\frac{3}{4}$	26.9	4.0	1.059	0.158	80	
(25)	1	33.7	4.6	1.327	0.181	80	
(32)	$1\frac{1}{4}$	42.4	4.9	1.669	0.193	80	
(40)	$1\frac{1}{2}$	48.3	5.1	1.902	0.201	80	

SOC:

Socket welding ANSI (B 16.11)



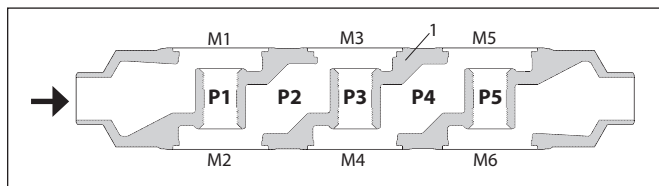
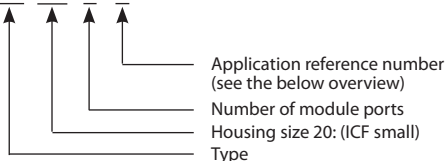
Size mm	Size in.	ID mm	T mm	ID in.	T in.	L mm	L in.
(20)	$\frac{3}{4}$	27.2	4.6	1.071	0.181	13	0.51
(25)	1	33.9	7.2	1.335	0.284	13	0.51
(32)	$1\frac{1}{4}$	42.7	6.1	1.743	0.240	13	0.51
(40)	$1\frac{1}{2}$	48.8	6.6	1.921	0.260	13	0.51

Ordering ICF 20 with six function modules

The code numbers refer to one complete assembled control solution.

ICF 20-6

Nomenclature: ICF 20-6-4

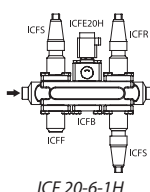
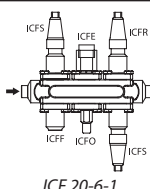


Application overview

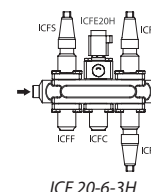
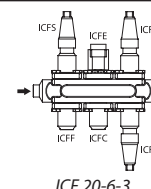
Application #	FUNCTION MODULE LOCATION					
	M1	M2	M3	M4	M5	M6
1	ICFS	ICFF	ICFE	ICFO	ICFR	ICFS
1H	ICFS	ICFF	ICFE20H	ICFB	ICFR	ICFS
2	ICFS	ICFF	ICFE	ICFO	ICFR	ICFN
2H	ICFS	ICFF	ICFE20H	ICFB	ICFR	ICFN
3	ICFS	ICFF	ICFE	ICFC	ICFR	ICFS
3H	ICFS	ICFF	ICFE20H	ICFC	ICFR	ICFS
4	ICFS	ICFF	ICFE	ICFO	ICFB	ICFS

Application #	FUNCTION MODULE LOCATION					
	M1	M2	M3	M4	M5	M6
5A	ICFS	ICFF	ICFE	ICFO	ICM20A	ICFS
5AH	ICFS	ICFF	ICFE20H	ICFB	ICM20A	ICFS
5B	ICFS	ICFF	ICFE	ICFO	ICM20B	ICFS
5BH	ICFS	ICFF	ICFE20H	ICFB	ICM20B	ICFS
5C	ICFS	ICFF	ICFE	ICFO	ICM20C	ICFS
5CH	ICFS	ICFF	ICFE20H	ICFB	ICM20C	ICFS
6	ICFS	ICFF	ICFE	ICFO	ICFA	ICFS
7	ICFS	ICFF	ICFA	ICFC	ICFB	ICFS
15	ICFS	ICFF	ICFE	ICFC	ICFW	ICFR

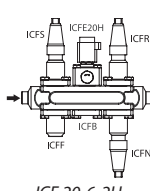
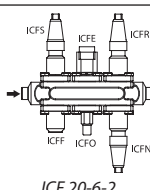
ICF 20-6-1 and ICF 20-6-1H			
Connection	Side ports [#]	ICF 20-6-1 Application #1	ICF 20-6-1H Application #1H
20 D (3/4 in.)	4	027L3000	
25 D (1 in.)	4	027L3002	027L3302
32 D (1 1/4 in.)	4	027L3003	027L3303
20 A (3/4 in.)	4	027L3004	
20 SOC (3/4 in.)	6	027L3005	
25 SOC (1 in.)	6	027L3007	027L3305
32 SOC (1 1/4 in.)	6	027L3008	027L3306



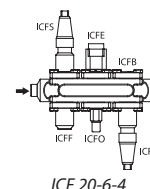
ICF 20-6-3 and ICF 20-6-3H			
Connection	Side ports [#]	ICF 20-6-3 Application #3	ICF 20-6-3H Application #3H
20 D (3/4 in.)	4	027L3018	
25 D (1 in.)	4	027L3020	027L3316
32 D (1 1/4 in.)	4	027L3021	027L3317
20 A (3/4 in.)	4	027L3022	
20 SOC (3/4 in.)	6	027L3023	
25 SOC (1 in.)	6	027L3025	027L3319
32 SOC (1 1/4 in.)	6	027L3026	027L3320



ICF 20-6-2 and ICF 20-6-2H			
Connection	Side ports [#]	ICF 20-6-2 Application #2	ICF 20-6-2H Application #2H
20 D (3/4 in.)	4	027L3009	
25 D (1 in.)	4	027L3011	027L3309
32 D (1 1/4 in.)	4	027L3012	027L3310
20 A (3/4 in.)	4	027L3013	
20 SOC (3/4 in.)	6	027L3014	
25 SOC (1 in.)	6	027L3016	027L3312
32 SOC (1 1/4 in.)	6	027L3017	027L3313



ICF 20-6-4		
Connection	Side ports [#]	ICF 20-6-4 Application #4
20 D (3/4 in.)	4	
25 D (1 in.)	4	027L3028
32 D (1 1/4 in.)	4	027L3029
20 A (3/4 in.)	4	
20 SOC (3/4 in.)	6	027L3124
25 SOC (1 in.)	6	027L3032
32 SOC (1 1/4 in.)	6	027L3033



ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

D = Butt-weld DIN (2448)
A = Butt-weld ANSI (B 36.10)
SOC = Socket welding ANSI (B 16.11)

Not available

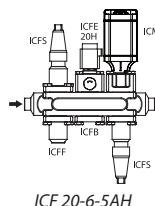
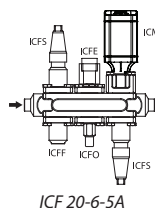
* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.
Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10.
Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

Ordering ICF 20 with six function modules (continued)

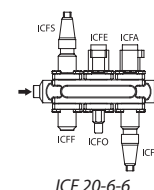
The code numbers refer to one complete assembled control solution.

ICF 20-6

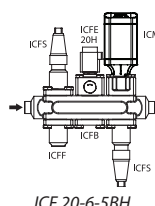
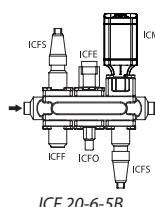
ICF 20-6-5A and ICF 20-6-5AH			
Connection	Side ports [#]	ICF 20-6-5A Application #5A	ICF 20-6-5AH Application #5AH
20 D (3/4 in.)	4	027L3034	
25 D (1 in.)	4	027L3036	027L3322
32 D (1 1/4 in.)	4		
20 A (3/4 in.)	4	027L3037	
20 SOC (3/4 in.)	6	027L3038	
25 SOC (1 in.)	6	027L3040	027L3323
32 SOC (1 1/4 in.)	6		



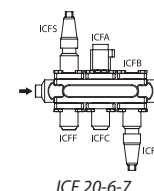
ICF 20-6-6		
Connection	Side ports [#]	ICF 20-6-6 Application #6
20 D (3/4 in.)	4	027L3053
25 D (1 in.)	4	
32 D (1 1/4 in.)	4	
20 A (3/4 in.)	4	
20 SOC (3/4 in.)	6	027L3055
25 SOC (1 in.)	6	
32 SOC (1 1/4 in.)	6	



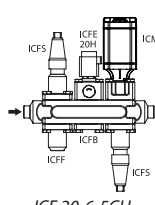
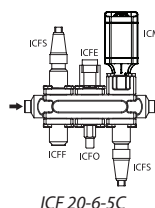
ICF 20-6-5B and ICF 20-6-5BH			
Connection	Side ports [#]	ICF 20-6-5B Application #5B	ICF 20-6-5BH Application #5BH
20 D (3/4 in.)	4		
25 D (1 in.)	4	027L3042	027L3325
32 D (1 1/4 in.)	4		
20 A (3/4 in.)	4	027L3043	
20 SOC (3/4 in.)	6	027L3127	
25 SOC (1 in.)	6	027L3045	027L3326
32 SOC (1 1/4 in.)	6		



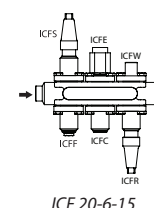
ICF 20-6-7		
Connection	Side ports [#]	ICF 20-6-7 Application #7
20 D (3/4 in.)	4	027L3056
25 D (1 in.)	4	
32 D (1 1/4 in.)	4	
20 A (3/4 in.)	4	
20 SOC (3/4 in.)	6	027L3058
25 SOC (1 in.)	6	
32 SOC (1 1/4 in.)	6	



ICF 20-6-5C and ICF 20-6-5CH			
Connection	Side ports [#]	ICF 20-6-5C Application #5C	ICF 20-6-5CH Application #5CH
20 D (3/4 in.)	4		
25 D (1 in.)	4	027L3047	027L3328
32 D (1 1/4 in.)	4	027L3048	027L3329
20 A (3/4 in.)	4		
20 SOC (3/4 in.)	6		
25 SOC (1 in.)	6	027L3051	027L3330
32 SOC (1 1/4 in.)	6	027L3052	027L3331



ICF 20-6-15		
Connection	Side ports [#]	ICF 20-6-15 Application #15
25 D (1 in.)	4	027L3157



* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10. Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10. Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

Please Note:

When used in CO₂ the o-rings on the ICM module can swell (grow).

At service, it is recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

D = Butt-weld DIN (2448)
A = Butt-weld ANSI (B 36.10)
SOC = Socket welding ANSI (B 16.11)

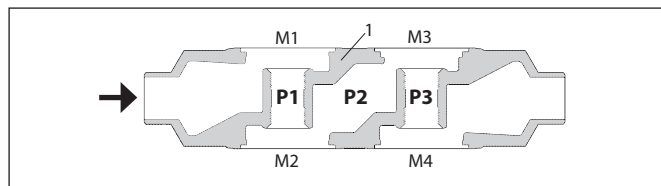
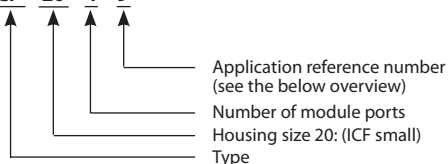
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Ordering ICF 20 with four function modules

The code numbers refer to one complete assembled control solution.

ICF 20-4

Nomenclature: ICF 20-4-9

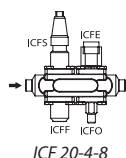


Application overview

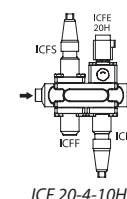
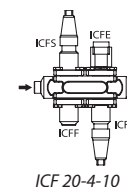
Application #	FUNCTION MODULE LOCATION			
	M1	M2	M3	M4
8	ICFS	ICFF	ICFE	ICFO
9	ICFS	ICFF	ICFE	ICFS
9H	ICFS	ICFF	ICFE20H	ICFS
10	ICFS	ICFF	ICFE	ICFR
10H	ICFS	ICFF	ICFE20H	ICFR
11	ICFS	ICFF	ICFE	ICFC

Application #	FUNCTION MODULE LOCATION			
	M1	M2	M3	M4
11H	ICFS	ICFF	ICFE20H	ICFC
12	ICFS	ICFF	ICFA	ICFS
13	ICFS	ICFF	ICFA	ICFN
14A	ICFS	ICFF	ICM20A	ICFS
14B	ICFS	ICFF	ICM20B	ICFS
14C	ICFS	ICFF	ICM20C	ICFS

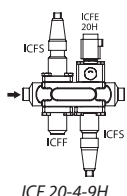
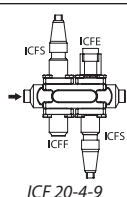
ICF 20-4-8		
Connection	Side ports [#]	ICF 20-4-8 Application #8
20 D (3/4 in.)	2	
25 D (1 in.)	2	027L3060
32 D (1 1/4 in.)	2	027L3061
20 A (3/4 in.)	2	027L3062
20 SOC (3/4 in.)	4	
25 SOC (1 in.)	4	027L3064
32 SOC (1 1/4 in.)	4	027L3065



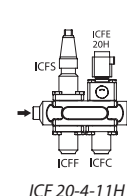
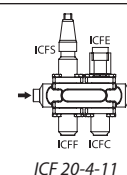
ICF 20-4-10 and ICF 20-4-10H			
Connection	Side ports [#]	ICF 20-4-10 Application #10	ICF 20-4-10H Application #10H
20 D (3/4 in.)	2	027L3073	
25 D (1 in.)	4	027L3075	027L3339
32 D (1 1/4 in.)	4	027L3076	027L3340
20 A (3/4 in.)	2		
20 SOC (3/4 in.)	4	027L3078	027L3350
25 SOC (1 in.)	4	027L3080	027L3342
32 SOC (1 1/4 in.)	4	027L3081	027L3343



ICF 20-4-9 and ICF 20-4-9H			
Connection	Side ports [#]	ICF 20-4-9 Application #9	ICF 20-4-9H Application #9H
20 D (3/4 in.)	2		
25 D (1 in.)	2	027L3067	027L3333
32 D (1 1/4 in.)	2	027L3068	027L3334
20 A (3/4 in.)	2	027L3069	
20 SOC (3/4 in.)	4		027L3351
25 SOC (1 in.)	4	027L3071	027L3336
32 SOC (1 1/4 in.)	4	027L3072	027L3337



ICF 20-4-11 and ICF 20-4-11H			
Connection	Side ports [#]	ICF 20-4-11 Application #11	ICF 20-4-11H Application #11H
20 D (3/4 in.)	2		
25 D (1 in.)	2	027L3083	027L3345
32 D (1 1/4 in.)	2	027L3084	027L3346
20 A (3/4 in.)	2	027L3085	
20 SOC (3/4 in.)	4		
25 SOC (1 in.)	4	027L3087	027L3348
32 SOC (1 1/4 in.)	4	027L3088	027L3349



ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

D = Butt-weld DIN (2448)
A = Butt-weld ANSI (B 36.10)
SOC = Socket welding ANSI (B 16.11)

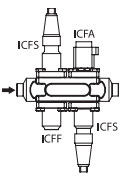
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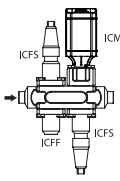
* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10. Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

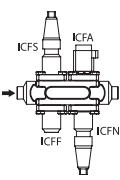
Ordering ICF 20 with four function modules *(continued)*

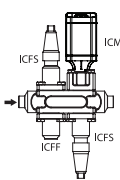
The code numbers refer to one complete assembled control solution.

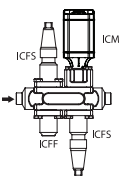
ICF 20-4

ICF 20-4-12			 ICF 20-4-12
Connection	Side ports [#]	ICF 20-4-12 Application #12	
20 D (3/4 in.)	2	027L3089	
25 D (1 in.)	2		
32 D (1 1/4 in.)	2		
20 A (3/4 in.)	2		
20 SOC (3/4 in.)	4	027L3091	
25 SOC (1 in.)	4		
32 SOC (1 1/4 in.)	4		

ICF 20-4-14B			 ICF 20-4-14B
Connection	Side ports [#]	ICF 20-4-14B Application #14B	
20 D (3/4 in.)	2		
25 D (1 in.)	2	027L3103	
32 D (1 1/4 in.)	2		
20 A (3/4 in.)	2		
20 SOC (3/4 in.)	4		
25 SOC (1 in.)	4	027L3106	
32 SOC (1 1/4 in.)	4		

ICF 20-4-13			 ICF 20-4-13
Connection	Side ports [#]	ICF 20-4-13 Application #13	
20 D (3/4 in.)	2	027L3092	
25 D (1 in.)	2		
32 D (1 1/4 in.)	2		
20 A (3/4 in.)	2		
20 SOC (3/4 in.)	4	027L3094	
25 SOC (1 in.)	4		
32 SOC (1 1/4 in.)	4		

ICF 20-4-14C			 ICF 20-4-14C
Connection	Side ports [#]	ICF 20-4-14C Application #14C	
20 D (3/4 in.)	2		
25 D (1 in.)	2	027L3108	
32 D (1 1/4 in.)	2	027L3109	
20 A (3/4 in.)	2		
20 SOC (3/4 in.)	4		
25 SOC (1 in.)	4	027L3112	
32 SOC (1 1/4 in.)	4	027L3113	

ICF 20-4-14A			 ICF 20-4-14A
Connection	Side ports [#]	ICF 20-4-14A Application #14A	
20 D (3/4 in.)	2	027L3095	
25 D (1 in.)	2	027L3097	
32 D (1 1/4 in.)	2		
20 A (3/4 in.)	2		
20 SOC (3/4 in.)	4	027L3099	
25 SOC (1 in.)	4	027L3101	
32 SOC (1 1/4 in.)	4		

Please Note:

When used in CO₂, the o-rings on the ICM module can swell (grow).

At service, it is recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

D = Butt-weld DIN (2448)

A = Butt-weld ANSI (B 36.10)

SOC = Socket welding ANSI (B 16.11)

 Not available

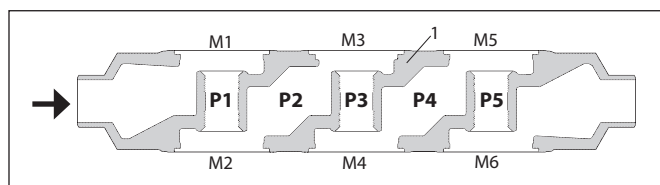
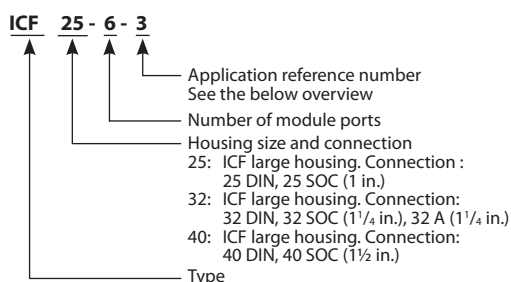
* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10. Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

Ordering ICF 25-40 with six function modules

The code numbers refer to one complete assembled control solution.

ICF 25-6 → 40-6

Nomenclature:



Application overview

Application #	FUNCTION MODULE LOCATION					
	M1	M2	M3	M4	M5	M6
1A	ICFS	ICFF	ICFE	ICFB	ICFRA	ICFS
1B	ICFS	ICFF	ICFE	ICFB	ICFRB	ICFS
3A	ICFS	ICFF	ICFE	ICFC	ICFRA	ICFS
3B	ICFS	ICFF	ICFE	ICFC	ICFRB	ICFS

Application #	FUNCTION MODULE LOCATION					
	M1	M2	M3	M4	M5	M6
5A	ICFS	ICFF	ICFE	ICFB	ICM25A	ICFS
5B	ICFS	ICFF	ICFE	ICFB	ICM25B	ICFS
15A	ICFS	ICFF	ICFE	ICFC	ICFW	ICFRA
15B	ICFS	ICFF	ICFE	ICFC	ICFW	ICFRB

ICF 25-6-1A and ICF 32-6-1A		
Connection	Side ports [#]	ICF 25-6-1A ICF 32-6-1A Application #1A
25 D (1 in.)	4	027L4002
32 D (1 1/4 in.)	4	027L4006
25 SOC (1 in.)	6	027L4003
32 SOC (1 1/4 in.)	6	027L4008
32 A (1 1/4 in.)	4	

ICF 25-6-1A
ICF 32-6-1A

ICF 25-6-3A and ICF 32-6-3A		
Connection	Side ports [#]	ICF 25-6-3A ICF 32-6-3A Application #3A
25 D (1 in.)	4	027L4020
32 D (1 1/4 in.)	4	027L4024
25 SOC (1 in.)	6	027L4021
32 SOC (1 1/4 in.)	6	027L4026
32 A (1 1/4 in.)	4	

ICF 25-6-3A
ICF 32-6-3A

ICF 32-6-1B and ICF 40-6-1B		
Connection	Side ports [#]	ICF 32-6-1B ICF 40-6-1B Application #1B
32 D (1 1/4 in.)	4	027L4011
40 D (1 1/2 in.)	4	027L4016
32 SOC (1 1/4 in.)	6	027L4013
40 SOC (1 1/2 in.)	6	027L4017
32 A (1 1/4 in.)	4	027L4012

ICF 32-6-1B
ICF 40-6-1B

ICF 32-6-3B and ICF 40-6-3B		
Connection	Side ports [#]	ICF 32-6-3B ICF 40-6-3B Application #3B
32 D (1 1/4 in.)	4	027L4029
40 D (1 1/2 in.)	4	027L4034
32 SOC (1 1/4 in.)	6	027L4031
40 SOC (1 1/2 in.)	6	027L4035
32 A (1 1/4 in.)	4	

ICF 32-6-3B
ICF 40-6-3B

Please Note:

When used in CO₂, the o-rings on the ICM module/ICFE 25-40 solenoid module can swell (grow).

At service, it is recommended to install new o-rings, before the modules is re-installed in the ICF valve body.

ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

- D = Butt-weld DIN (2448)
- A = Butt-weld ANSI (B 36.10)
- SOC = Socket welding ANSI (B 16.11)

* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.

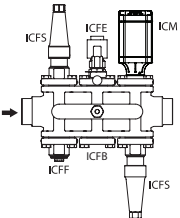
Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10.

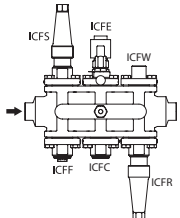
Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

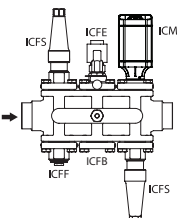
Ordering ICF 25-40 with six function modules (continued)

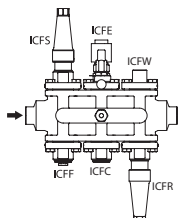
The code numbers refer to one complete assembled control solution.

ICF 25-6 → 40-6

ICF 25-6-5A, ICF 32-6-5A and ICF 40-6-5A			 ICF 25-6-5A ICF 32-6-5A ICF 40-6-5A
Connection	Side ports [#]	ICF 25-6-5A ICF 32-6-5A Application #5A	
25 D (1 in.)	4	027L4038	
32 D (1 1/4 in.)	4	027L4042	
25 SOC (1 in.)	6	027L4039	
32 SOC (1 1/4 in.)	6	027L4044	
32 A (1 1/4 in.)	4	027L4043	
40 D (1 1/2 in.)	4	027L4148	

ICF 25-6-15A			 ICF 25-6-15A
Connection	Side ports [#]	ICF 25-6-15A Application #15A	
25 D (1 in.)	4	027L4121	
32 D (1 1/4 in.)	4		
25 SOC (1 in.)	6	027L4122	
32 SOC (1 1/4 in.)	6		
32 A (1 1/4 in.)	4		

ICF 32-6-5B and ICF 40-6-5B			 ICF 32-6-5B ICF 40-6-5B
Connection	Side ports [#]	ICF 32-6-5B ICF 40-6-5B Application #5B	
32 D (1 1/4 in.)	4	027L4047	
40 D (1 1/2 in.)	4	027L4052	
32 SOC (1 1/4 in.)	6	027L4049	
40 SOC (1 1/2 in.)	6	027L4053	
32 A (1 1/4 in.)	4		

ICF 32-6-15B and ICF 40-6-15B			 ICF 32-6-15B ICF 40-6-15B
Connection	Side ports [#]	ICF 32-6-15B ICF 40-6-15B Application #15B	
32 D (1 1/4 in.)	4	027L4126	
40 D (1 1/2 in.)	4	027L4130	
32 SOC (1 1/4 in.)	6	027L4127	
40 SOC (1 1/2 in.)	6	027L4131	
32 A (1 1/4 in.)	4		

Please Note:

When used in CO₂, the o-rings on the ICM module/ICFE 25-40 solenoid module can swell (grow).

At service, it is recommended to install new o-rings, before the modules is re-installed in the ICF valve body.

ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

- D = Butt-weld DIN (2448)
- A = Butt-weld ANSI (B 36.10)
- SOC = Socket welding ANSI (B 16.11)

Not available

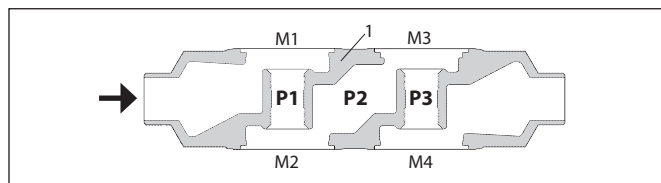
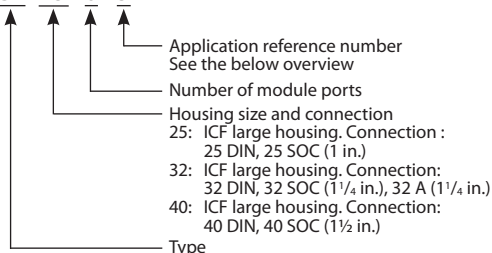
* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.
Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10.
Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

Ordering ICF 25-40 with four function modules

The code numbers refer to one complete assembled control solution.

ICF 25-4 → ICF 40-4

Nomenclature: ICF 25-6-3



Application overview

Application #	FUNCTION MODULE LOCATION			
	M1	M2	M3	M4
8	ICFS	ICFF	ICFE	ICFB
9	ICFS	ICFF	ICFE	ICFS
10A	ICFS	ICFF	ICFE	ICFRA
10B	ICFS	ICFF	ICFE	ICFRB

Application #	FUNCTION MODULE LOCATION			
	M1	M2	M3	M4
11	ICFS	ICFF	ICFE	ICFC
14A	ICFS	ICFF	ICM25A	ICFS
14B	ICFS	ICFF	ICM25B	ICFS

ICF (25-40)-4-8		
Connection	Side ports [#]	ICF 25-4-8 ICF 32-4-8 ICF 40-4-8 Appl. #8
25 D (1 in.)	2	
32 D (1 1/4 in.)	2	027L4133
40 D (1 1/2 in.)	2	
25 SOC (1 in.)	4	
32 SOC (1 1/4 in.)	4	
40 SOC (1 1/2 in.)	4	
32 A (1 1/4 in.)	2	

ICF 25-4-8
ICF 32-4-8
ICF 40-4-8

ICF (25-40)-4-10A		
Connection	Side ports [#]	ICF 25-4-10A ICF 32-4-10A ICF 40-4-10A Appl. #10A
25 D (1 in.)	2	027L4076
32 D (1 1/4 in.)	2	027L4080
40 D (1 1/2 in.)	2	
25 SOC (1 in.)	4	027L4077
32 SOC (1 1/4 in.)	4	027L4082
40 SOC (1 1/2 in.)	4	
32 A (1 1/4 in.)	2	027L4081

ICF 25-4-10A
ICF 32-4-10A
ICF 40-4-10A

ICF (25-40)-4-9		
Connection	Side ports [#]	ICF 25-4-9 ICF 32-4-9 ICF 40-4-9 Appl. #9
25 D (1 in.)	2	027L4063
32 D (1 1/4 in.)	2	027L4067
40 D (1 1/2 in.)	2	027L4072
25 SOC (1 in.)	4	027L4064
32 SOC (1 1/4 in.)	4	027L4069
40 SOC (1 1/2 in.)	4	027L4073
32 A (1 1/4 in.)	2	

ICF 25-4-9
ICF 32-4-9
ICF 40-4-9

ICF (25-40)-4-10B		
Connection	Side ports [#]	ICF 25-4-10B ICF 32-4-10B ICF 40-4-10B Appl. #10B
25 D (1 in.)	2	
32 D (1 1/4 in.)	2	027L4085
40 D (1 1/2 in.)	2	027L4090
25 SOC (1 in.)	4	
32 SOC (1 1/4 in.)	4	027L4087
40 SOC (1 1/2 in.)	4	027L4091
32 A (1 1/4 in.)	2	

ICF 25-4-10B
ICF 32-4-10B
ICF 40-4-10B

Please Note:

When used in CO₂, the o-rings on the ICM module/ICFE 25-40 solenoid module can swell (grow).
At service, it is recommended to install new o-rings, before the modules is re-installed in the ICF valve body.

ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

D = Butt-weld DIN (2448)
A = Butt-weld ANSI (B 36.10)
SOC = Socket welding ANSI (B 16.11)

Not available

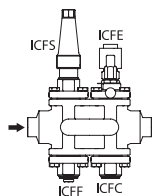
* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.
Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

Ordering ICF 25-40 with four function modules *(continued)*

The code numbers refer to one complete assembled control solution.

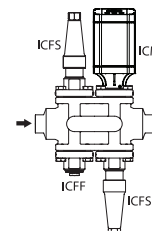
ICF 25-4 → ICF 40-4

ICF (25-40)-4-11		
Connection	Side ports [#]	ICF 25-4-11 ICF 32-4-11 ICF 40-4-11 Appl. #11
25 D (1 in.)	2	
32 D (1 1/4 in.)	2	027L4094
40 D (1 1/2 in.)	2	027L4099
25 SOC (1 in.)	4	
32 SOC (1 1/4 in.)	4	027L4096
40 SOC (1 1/2 in.)	4	027L4100
32 A (1 1/4 in.)	2	



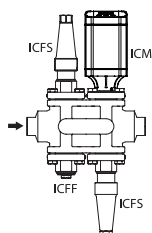
ICF 25-4-11
ICF 32-4-11
ICF 40-4-11

ICF (25-40)-4-14B		
Connection	Side ports [#]	ICF 25-4-14B ICF 32-4-14B ICF 40-4-14B Appl. #14B
25 D (1 in.)	2	
32 D (1 1/4 in.)	2	027L4112
40 D (1 1/2 in.)	2	027L4117
25 SOC (1 in.)	4	
32 SOC (1 1/4 in.)	4	027L4114
40 SOC (1 1/2 in.)	4	027L4118
32 A (1 1/4 in.)	2	



ICF 25-4-14B
ICF 32-4-14B
ICF 40-4-14B

ICF (25-40)-4-14A		
Connection	Side ports [#]	ICF 25-4-14A ICF 32-4-14A ICF 40-4-14A Appl. #14A
25 D (1 in.)	2	027L4103
32 D (1 1/4 in.)	2	027L4107
40 D (1 1/2 in.)	2	
25 SOC (1 in.)	4	027L4104
32 SOC (1 1/4 in.)	4	027L4109
40 SOC (1 1/2 in.)	4	
32 A (1 1/4 in.)	2	



ICF 25-4-14A
ICF 32-4-14A
ICF 40-4-14A

Please Note:

When used in CO₂, the o-rings on the ICM module/ICFE 25-40 solenoid module can swell (grow).

At service, it is recommended to install new o-rings, before the modules is re-installed in the ICF valve body.

ICAD and coils are not included and must be ordered separately. Please refer to the section "Ordering accessories".

- D = Butt-weld DIN (2448)
- A = Butt-weld ANSI (B 36.10)
- SOC = Socket welding ANSI (B 16.11)

Not available

* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10. Side ports are 3/8" G for butt weld connection or 3/8" NPT for socket weld connection.

Ordering accessories
Stop valve type SNV-ST

	Quantity	Code no.
	1	148B3778

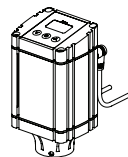
Sight glass

	Quantity	Code no.
	2 pcs. $\frac{3}{8}$ " RG	027L1267

Blind plug

	Quantity	Code no.
	2 pcs. $\frac{3}{8}$ " RG 2 pcs. $\frac{3}{8}$ " NPT	027L1265 027L1268

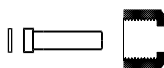
ICAD 600

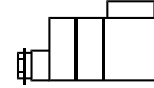
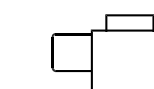
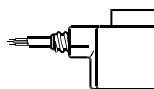
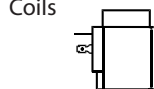
	Code no.	
	with cable	without cable
	027H9065	027H9100

Connector $\frac{1}{2}$ in. - $\frac{3}{8}$ in.

	Quantity	Code no.
	2	027L1266

 $\frac{1}{2}$ in. weld connector

	Quantity	Code no.
	2	148B4184

Coils


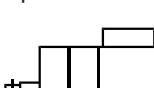
Valve type	Voltage V	Frequency Hz	Code no.			Appendix no. *)	Power consumption
			With 1 m 3-core cable IP 67	With terminal box IP 67	With DIN plugs**)		

Alternating current a.c.

ICFE	12	50	018F6256	018F6706		15	Holding: 10 W 21 VA
	24	50	018F6257	018F6707	018F7358	16	
	220-230	50	018F6251	018F6701	018F7351	31	Inrush: 44 VA
	115	60	018F6260	018F6710		20	

Direct current d.c. (can not be used for ICF 20 configurations with ICM module)
Coil type I

ICFE/ICFA	12			018F6856		01	20 W
	24			018F6857		02	

Special coils for ICFE (can not be used for ICF 20 configurations with ICM module)


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.

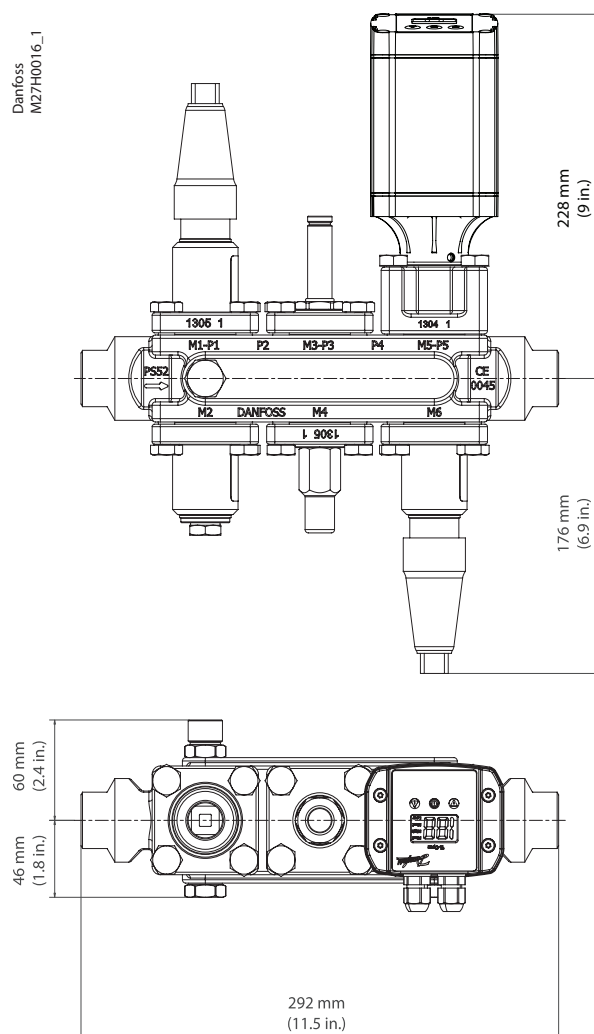
ICFE	24	50	018F6807	16	Holding: 12 W 26 VA
	110	50	018F6811	22	
	220-230	50	018F6801	31	Inrush: 55 VA

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

Dimensions and weight

ICF 20-6

This example indicates the maximum dimensions for the ICF control solutions.



Weight

Connection	Number of side ports*	ICF 20-6-1		ICF 20-6-2		ICF 20-6-3		ICF 20-6-4		ICF 20-6-5A**		ICF 20-6-5B**		ICF 20-6-5C**		ICF 20-6-6		ICF 20-6-7		ICF 20-6-15	
		kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs
20 D (3/4 in.)	4	8.7	19.3	8.8	19.3	8.9	19.6			9.9	21.8	9.9	21.8	9.9	21.8	8.2	18.1	8.3	18.3	8.3	18.3
25 D (1 in.)	4	8.7	19.3	8.8	19.3	8.9	19.6	8.2	18.03	9.9	21.8	9.9	21.8	9.9	21.8						
32 D (1 1/4 in.)	4	8.7	19.3	8.8	19.3	8.9	19.6	8.2	18.03	10.1	22.3	10.1	22.3	10.1	22.3						
20 A (3/4 in.)	4	8.7	19.3	8.8	19.3	8.9	19.6	8.2	18.03	9.9	21.8	9.9	21.8	9.9	21.8	8.2	18.1	8.3	18.3	8.3	18.3
20 SOC (3/4 in.)	6	9.0	19.9	9.1	20.0	9.2	20.2			9.9	21.8	9.9	21.8	9.9	21.8	8.5	18.7	8.6	19.0	8.6	19.0
25 SOC (1 in.)	6	9.0	19.9	9.1	20.0	9.2	20.2	8.5	18.70	10.1	22.3	10.1	22.3	10.1	22.3						
32 SOC (1 1/4 in.)	6	9.0	19.9	9.1	20.0	9.2	20.2	8.5	18.70	10.2	22.5	10.2	22.5	10.2	22.5						

D = Butt-weld DIN (2448)

A = Butt-weld ANSI (B 36.10)

SOC = Socket welding ANSI (B 16.11)

* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.

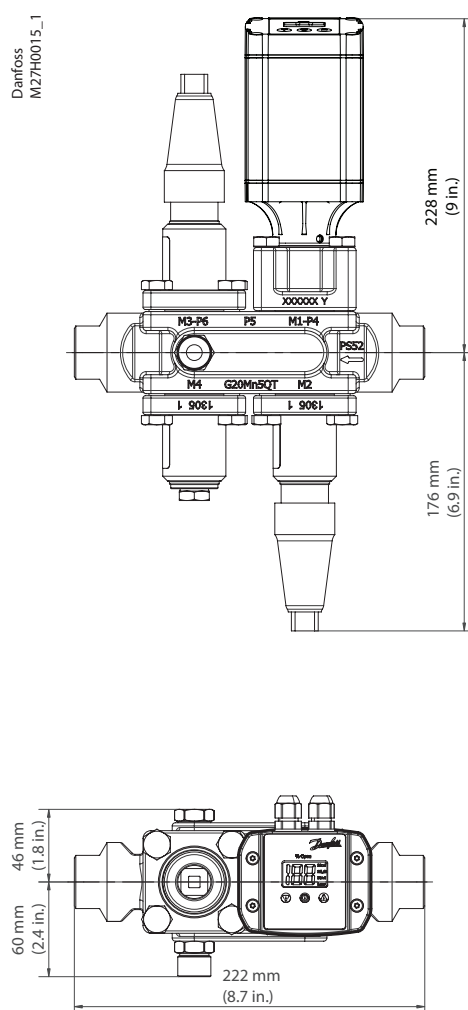
Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10.

** Including ICAD 600 actuator

Dimensions and weight

ICF 20-4

This example indicates the maximum dimensions for the ICF control solutions.



Weight

Connection	Number of side ports*	ICF 20-4-8		ICF 20-4-9		ICF 20-4-10		ICF 20-4-11		ICF 20-4-12		ICF 20-4-13		ICF 20-4-14A**		ICF 20-4-14B**		ICF 20-4-14C**	
		kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs
20 D (3/4 in.)	2					5.9	12.9			5.9	12.9	5.9	12.9	6.4	14.2				
25 D (1 in.)	2	5.4	12	5.9	12.9	5.9	12.9	5.6	12.2					6.4	14.2	6.4	14.2	6.4	14.2
32 D (1 1/4 in.)	2	5.4	12	5.9	12.9	5.9	12.9	5.6	12.2									6.4	14.2
20 A (3/4 in.)	2	5.4	12	5.9	12.9	5.9	12.9	5.6	12.2	5.9	12.9	5.9	12.9	6.4	14.2	6.4	14.2	6.4	14.2
20 SOC (3/4 in.)	4					6.0	13.3			6.0	13.2	6.0	13.3	6.6	14.5				
25 SOC (1 in.)	4	5.6	6.6	6.0	13.3	6.0	13.3	5.7	12.6					6.6	14.5	6.6	14.5	6.6	14.5
32 SOC (1 1/4 in.)	4	5.6	6.6	6.0	13.3	6.0	13.3	5.7	12.6									6.6	14.5

D = Butt-weld DIN (2448)

A = Butt-weld ANSI (B 36.10)

SOC = Socket welding ANSI (B 16.11)

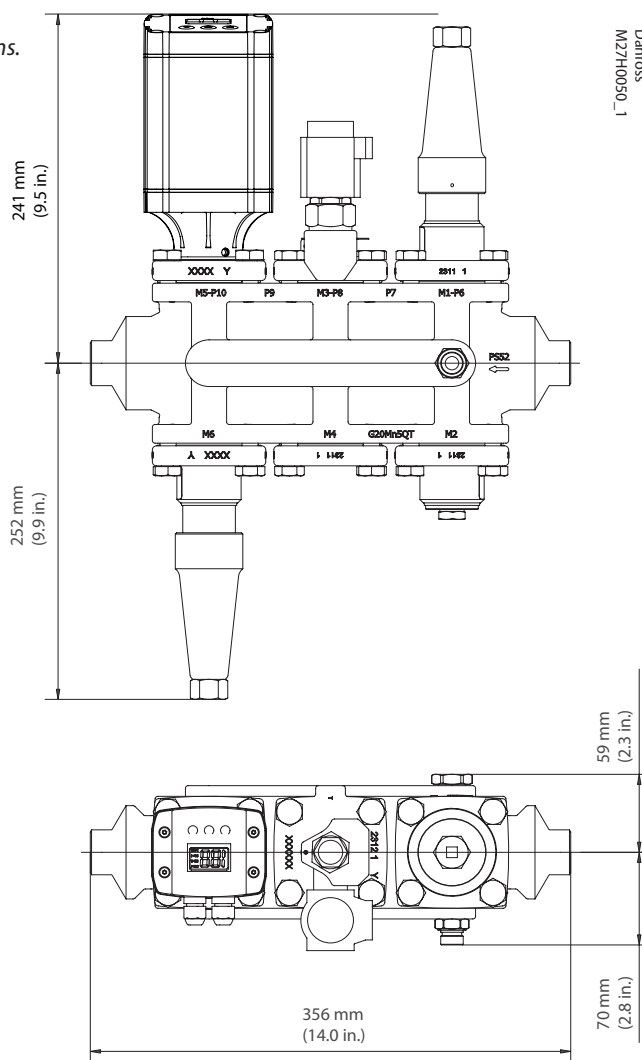
* Two side ports include two blind plugs and one 1/2 in. connector. Side ports in P2/P5.
Four side ports include four blind plugs. Side ports in P2/P5 and P3/P6.

** Including ICAD 600 actuator

Dimensions and weight

ICF 25-6 → ICF 40-6

This example indicates the maximum dimensions for the ICF control solutions.



Weight

Connection	Number of side ports*	ICF 25-6-1A ICF 32-6-1A/B ICF 40-6-1B		ICF 25-6-3A ICF 32-6-3A/B ICF 40-6-3B		ICF 25-6-5A** ICF 32-6-5A/B** ICF 40-6-5B**		ICF 25-6-15A ICF 32-6-15B ICF 40-6-15B	
		kg	lbs	kg	lbs	kg	lbs	kg	lbs
25 D (1 in.)	4	23.6	52.0	23.8	52.5	23.8	52.5	23.6	52.0
32 D (1 1/4 in.)	4	23.8	52.5	24.0	52.9	24.0	52.9	23.8	52.5
40 D (1 1/2 in.)	4	24.0	52.9	24.2	53.4	24.2	53.4	24.0	52.9
25 SOC (1 in.)	6	23.6	52.0	23.8	52.5	23.8	52.5	23.6	52.0
32 SOC (1 1/4 in.)	6	23.8	52.5	24.0	52.9	24.0	52.9	23.8	52.5
40 SOC (1 1/2 in.)	6	24.0	52.9	24.2	53.4	24.2	53.4	24.0	52.9
32 A (1 1/4 in.)	4	23.8	52.5	24.0	52.9	24.0	52.9	23.8	52.5

D = Butt-weld DIN (2448) – A = Butt-weld ANSI (B 36.10) – SOC = Socket welding ANSI (B 16.11)

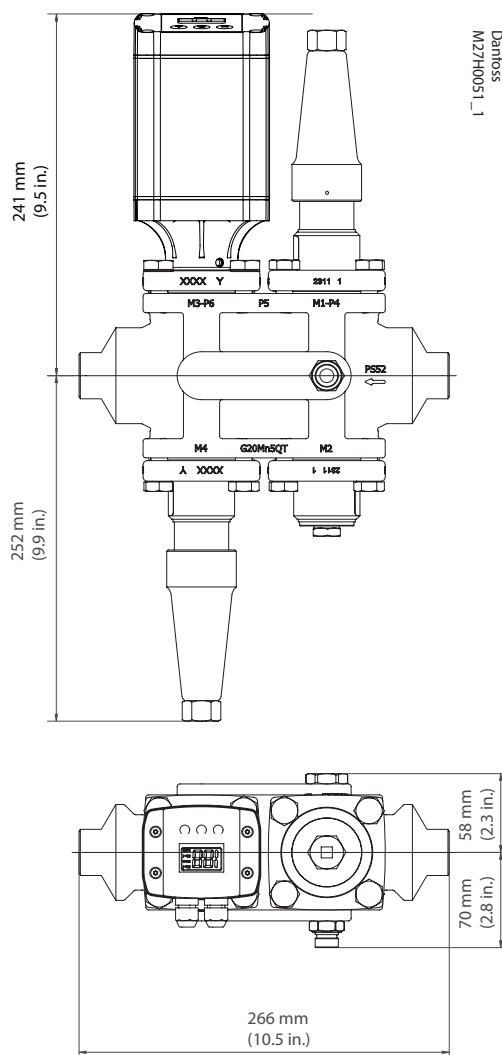
* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.
Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10.

** Including ICAD 600 actuator

Dimensions and weight

ICF 25-4 → ICF 40-4

This example indicates the maximum dimensions for the ICF control solutions.



Weight

Connection	Number of side ports*	ICF 25-4-8 ICF 32-4-8 ICF 40-4-8		ICF 25-4-9 ICF 32-4-9 ICF 40-4-9		ICF 25-4-10A ICF 32-4-10A/B ICF 40-4-10B		ICF 25-4-11 ICF 32-4-11 ICF 40-4-11		ICF 25-4-14A** ICF32-4-14A/B** ICF40-4-14B**	
		kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs
25 D (1 in.)	2	14.6	32.2	14.8	32.6	14.8	32.6	14.8	32.6	14.8	32.6
32 D (1 1/4 in.)	2	14.8	32.6	15.1	33.3	15.1	33.3	15.1	33.3	15.1	33.3
40 D (1 1/2 in.)	2	15.2	33.5	15.4	34.0	15.4	34.0	15.4	34.0	15.4	34.0
25 SOC (1 in.)	4	14.6	32.2	14.8	32.6	14.8	32.6	14.8	32.6	14.8	32.6
32 SOC (1 1/4 in.)	4	14.8	32.6	15.1	33.3	15.1	33.3	15.1	33.3	15.1	33.3
40 SOC (1 1/2 in.)	4	15.2	33.5	15.4	34.0	15.4	34.0	15.4	34.0	15.4	34.0
32 A (1 1/4 in.)	2	14.8	32.6	15.0	33.1	15.0	33.1	15.0	33.1	15.0	33.1

D = Butt-weld DIN (2448) – A = Butt-weld ANSI (B 36.10) – SOC = Socket welding ANSI (B 16.11)

* Four side ports include four blind plugs and one 1/2 in. connector. Side ports in P2/P7 and P5/P10.
Six side ports include six blind plugs. Side ports in P2/P7, P4/P9 and P5/P10.

** Including ICAD 600 actuator

