



Installation guide

ATEX

Type Designation

UK
CA

148R9541

148R9541

ENGLISH

Danfoss Industrial refrigeration standard products are primary designed to be used with common "industrial" refrigerants like ammonia, CO₂, and halocarbons, however specific valve types can be used to HC refrigerants (flammable).

European Directives


If not specifically mentioned all Industrial Refrigeration valves comply with the relevant European Directives like the Pressure Equipment Directive (97/23/CE).

ATEX directive: (94/9/CE)

The ATEX directive specifies the requirements for equipment intended for use in potentially explosive atmospheres. Danfoss Industrial Refrigeration products have been verified according to this directive.

The products are divided into 3 main groups:

I) Products which are (type) approved to be used in potentially explosive atmospheres (zone 2, zone 1 or zone 0). (Table 1, group F)

These products are marked  and are available with "Certificate of Conformance" acc. ATEX

II) Products which can be used in potentially explosive atmospheres, but are not covered by the scope of the ATEX directive. (Table 1, group A, B, C and D)

These products are available with "Manufactures Declaration" according to ATEX.

Note: Due to material compatibility specific product type / code no. has to be used for HC refrigerants. (E.g. components with O-rings. see table 1, group D)

III) Products which have an ignition source. These products must not be used in potentially explosive atmospheres. (Table 1, group E)

These products are available with "Manufactures Declaration" according to ATEX.

Installation

General remarks

For safety reasons, the installation must take place under the supervision of an

authorised person taking account of local safety instructions, for flammable fluids, and advisories.

The handling of valves and their controls must be done by staff trained in all technical aspects of their operation. Before installation the pipes must be depressurised and purged (empty of its fluid) in order to avoid any danger to the operator.

In ATEX zone, check that the pipes are connected to the earth (grounded).. Do not use insulating pipes (PVC...)

- Check that the valves are suitable for the actual refrigerant.

Note: Type designation "xxxE", are used for products containing O-rings, and are suitable for flammable (HC) refrigerants.

- Check that the valves are suitable for the actual zone.

Commission

Before putting valve into operation, check that:

- The working conditions are compatible with the details given on the identification plate, this instruction notice and the manufacturer's details (technical data sheet, price list catalogue, advisory service).

- All electrical connections have been properly made.

- Installation is tight after the assembly.

Maintenance

- Maintenance and repair work must be carried out by qualified personnel.

- The pipe must be depressurized and purged (emptied of its fluid) in order to avoid any danger to the operator. If the installation has carried fluids which are dangerous in themselves if in contact with the outside atmosphere (inflammable, corrosive, toxic, explosive..)

- All operations must be performed using suitable protective (clothing, gloves, mask...).

- Where a control uses an external energy source, it is essential to isolate this source before any operation.

Warning:

When used in an ATEX zone, electrostatic charges may be present inside the valve. The user is responsible for taking all precautions to avoid this risk.

Safety

As well as the indications given in the preceding paragraphs of this notice, it is imperative that the following instructions be followed:

- This notice must be available on site where valves are installed.

- Personnel carrying out any intervention on the valve must be qualified for the task. In ATEX zone, the personnel must be educated in the risks of explosion, and should have received specific ATEX training.

- In case the forwarded media would be an explosive atmosphere (deliberate internal explosive) or should it cause an explosive atmosphere in case of external leakage, the user must check the tightness of the installation after assembling, after a faulty operation or on a periodic basis under normal conditions

- It is the responsibility of the user to check after the installation of the valve that there is no leakage. Especially in case of deliberate internal explosive atmospheres.

- Internal rules and legislation current in the country concerned with respect to health and safety at work must be applied and respected.

- The valve and its control must not undergo any modification without prior approval from our advisory service. Danfoss is not responsible for any damage which may be caused by the use of parts, accessories or controls which are not original Danfoss parts

- Hot or cold parts of the valve which present a danger to the operator must be protected.

- In ATEX zone, the valve and its control must be cleaned regularly to avoid the accumulation of dust.

- In ATEX zone do not mount valves at open ends of lines.

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Classification of Danfoss Industrial Refrigeration products
Table 1

Group	Product groups - ATEX requirements		"Non-flammable" refrigerants (Ammonia, CFC, HCFC, HFC, CO ₂)				Flammable refrigerants (Propane, Butane, Iso-butane, Propylene, ethane)				Comments	
	Hazardous area		Outside category / zone	Zone 2	Zone 1	Zone 0	Outside category / zone	Zone 2	Zone 1	Zone 0		
	ATEX Equipment group II			Category 3	Category 2	Category 1		Category 3	Category 2	Category 1		
Component type				Outside category / zone	Category 3	Category 2	Category 1	Outside category / zone	Category 3	Category 2	Category 1	
A	Component which can be used to all refrigerants and - cannot be mounted with any electrically pilots / equipment and - have no ignition sources											
	Stop Valves	SVA-HS, X1	X	X	X	-	X	X	X	-		
	Filters FIA	FIA	X	X	X	-	X	X	X	-		
	Check Valves	NRVS	X	X	X	-	X	X	X	-		
	Check Valves	NRVA	X	X	X	-	X	X	X	-		
B	Component which can be used to Ammonia, CO ₂ , CFC, HCFC, HFC refrigerants and - cannot be mounted with any electrically pilots / equipment and - have no ignition sources											
	Stop Valves	SVA-ST, LT	X	X	X	-	-	-	-	-		
	Regulating Valves - REG	REG	X	X	X	-	-	-	-	-		
	Stop Check Valves	SCA	X	X	X	-	-	-	-	-		
	Overflow valve	OFV	X	X	X	-	-	-	-	-		
	Check Valves	CHV	X	X	X	-	-	-	-	-		
	Float Valves	HFI	X	X	X	-	-	-	-	-		
	Float Valves	SV	X	X	X	-	-	-	-	-		
	Pilots for ICS Valves	CVP, CVPP	X	X	X	-	-	-	-	-		
	Safety Valves	SFA	X	X	X	-	-	-	-	-		
	Safety Valves	SFV	X	X	X	-	-	-	-	-		
	Safety Valves	BSV	X	X	X	-	-	-	-	-		
Change Over Valves for Safety Valves	DSV	X	X	X	-	-	-	-	-			
Safety Valves	POV	X	X	X	-	-	-	-	-			
C	Component which can be used to Ammonia, CO ₂ , CFC, HCFC, HFC refrigerants and - can be mounted with electrically pilots / equipment and - have no ignition sources Note: Only EX approved coils, if any coils are used											
	Main Valves (control valves)	ICS 1 ICS 3	X	X	X	-	-	-	-	-		
	Main Valves (control valves)	PM1 PM3 PML PMLX	X	X	X	-	-	-	-	-		
	Modulating liquid level regulators	PMFH	X	X	X	-	-	-	-	-		
	Pilots for ICS Valves	EVM	X	X	X	-	-	-	-	-		
	Electrically operated expansion valve	AKVA	X	X	X	-	-	-	-	-		
	Solenoid Valves	EVRS	X	X	X	-	-	-	-	-		
Solenoid Valves	EVRA	X	X	X	-	-	-	-	-			
D	Component with special sealing material for HC-refrigerants (Propane, Butane, Iso-butane and Propylene) and - can be mounted with electrically pilots / equipment and - have no ignition sources Note: Only EX approved coils, if any coils are used											
	Main Valves (control valves)	ICS 3E	-	-	-	-	X	X	X	-		
	Modulating liquid level regulators	PMFHE	-	-	-	-	X	X	X	-		
	Modulating liquid level regulators	SV3E	-	-	-	-	X	X	X	-		
	Pilots for ICS Valves	CVPE-L, CVPE-M	-	-	-	-	X	X	X	-		
	Pilots for ICS Valves	CVCE	-	-	-	-	X	X	X	-		
	Pilots for ICS Valves	EVME	-	-	-	-	X	X	X	-		
	Safety Valves	SFAE	-	-	-	-	X	X	X	-		
Safety Valves	BSVE	-	-	-	-	X	X	X	-			
E	Component not to be used in hasadas areas Components in this group has an ignition source											
	Motor Valves	ICM	-	-	-	-	-	-	-	-		
	Motor Valves	MRV / MEV	-	-	-	-	-	-	-	-		
	Level controls	38E, AKS48	-	-	-	-	-	-	-	-		
	Electronic regulators	EKC 2., EKC 3..	-	-	-	-	-	-	-	-		
	"Standard" coils	all	-	-	-	-	-	-	-	-		
Pilots	CVQ, CVPM	-	-	-	-	-	-	-	-			
F	Electrically component to be used in hasadas areas											
	RT-Safety pressure control	RTE	X	X	X	-	X	X	X	-	Ex II 3 G EEx ia IIC T6	
	RT-Differential pressure control	RTE	X	X	X	-	X	X	X	-	Ex II 3 G EEx ia IIC T6	
	RT-Thermostats	RTE	X	X	X	-	X	X	X	-	Ex II 3 G EEx ia IIC T6	
	KPE-Safety pressure control	KPE	-	-	-	-	X	X	-	-	Ex II 3 G EEx nL IIC T6	
	MP 55E-Differential pressure control	MP 55E	-	-	-	-	X	X	-	-	Ex II 3 G EEx nL IIC T6	
	MBS Pressure transmittere	MBS 42xx	X	X	X	X	X	X	X	X	Ex II 1 G EEx ia II T4 - T6	
	EX Coils	BP	X	X	X	-	X	X	X	-	Ex II 2 G EEx m II T4	
	EX Coils	" "	X	X	X	-	X	X	X	-	Ex II 3 G EEx nA II T3	
	Gas detector	GD	X	X	X	-	X	X	X	-	Ex II 2 G EEx d IIB + H2 T3 -T6	

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