



# OFB

For oil free systems, fits Turbocor® TTS/TGS/TTH/TGH compressors

## Description

OFB shut off ball valves are a suction solution for superior reliability of oil-free system featuring Danfoss Turbocor® compressors. OFB shut off ball valves efficiently prevent from refrigerant migration during extended standby periods and therefore, from the risk of liquid slug upon compressor restart.

## Features & benefits

- High reliability through the stem and seat designed for high cycles
  - Strong reliable sealing
  - Tight shut off ball valve
  - Low torque enabling long lifetime of both valve and actuator
- Easy integration and installation through the modular flange system compatible with different piping standards. Inlet flange size 4" or 5" fitted for different Turbocor® compressors
  - Welding and brazing interface to standard pipes and elbows
  - Ready to equip with Actuator - ISO 5211 -F07/17 mm. Actuator can be mounted to make the OFB to be controlled electrically
- High system efficiency through the smooth intake flow with low pressure difference and low flow turbulence
- Effective design is direct mounting to the compressor
  - Low torque - a quarter turn actuator rated at 80 Nm can be sufficient and lead to a long lifetime

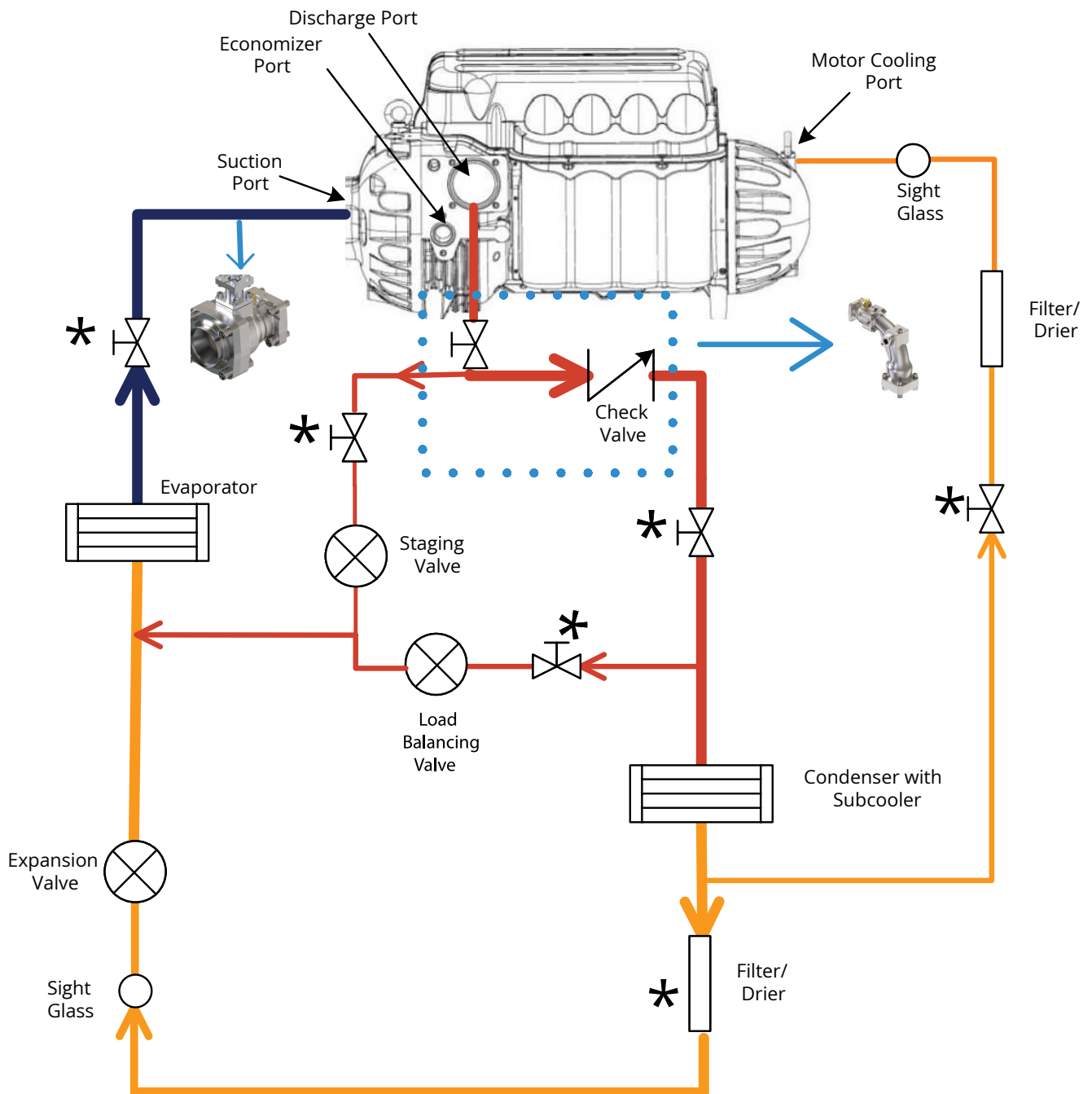
## Applications

### Typical applications for OFB valves are:

Only for oil free system

- Air-cooled chillers
- Water-cooled chillers
- Water-to-water heat pumps
- Air-to-water heat pumps

**Figure: Application diagram**



Ordering

Product code numbers

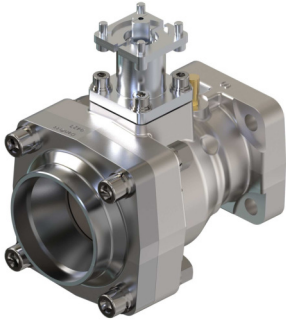


Figure: OFB80A



Table: ANSI BW flange connection

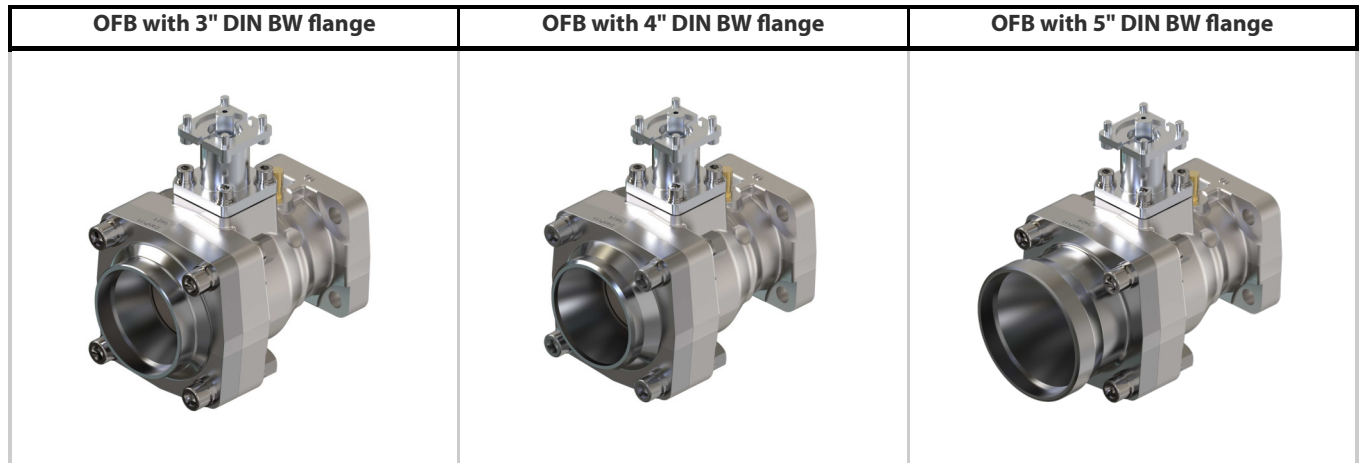
Type	Code number Single pack	Flange size	k <sub>v</sub> m <sup>3</sup> /h	Max. working pressure: PS / MWP	Media temperature range
OFB 80A	009L6102	3"	520	23 bar / 334 psig	-40 – 100 °C / -40 – 212 °F
	009L6106	4"			
	009L6110	5"			

Figure: ANSI BW flange connection

OFB with 3" ANSI BW flange	OFB with 4" ANSI BW flange	OFB with 5" ANSI BW flange
		

**Table: DIN BW flange connection**

Type	Code number Single pack	Flange size	$k_v$ $m^3/h$	Max. working pressure: PS/MWP	Media temperature range
OFB 80A	009L6104	3"	520	23 bar / 334 psig	-40 – 100 °C / -40 – 212 °F
	009L6108	4"			
	009L6113	5"			

**Figure: DIN BW flange connection****Table: EN Cu brazing flange connection**

Type	Code number Single pack	Flange size	$k_v$ $m^3/h$	Max. working pressure: PS/MWP	Media temperature range
OFB 80A	009L6105	3"	520	23 bar / 334 psig	-40 – 100 °C / -40 – 212 °F
	009L6109	4"			
	009L6112	5"			

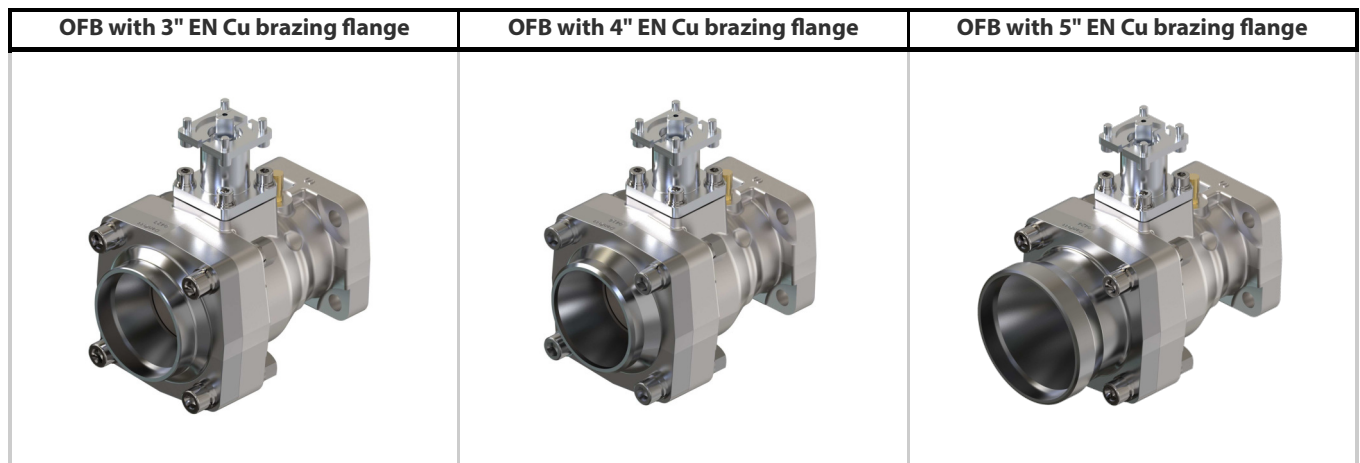
**Figure: EN Cu brazing flange connection**



Table: ASTM brazing flange connection

Type	Code number Single pack	Flange size	$k_v$ $m^3/h$	Max working pressure: PS/MWP	Media temperature range
OFB 80A	009L6103	3"	520	23 bar / 334 psig	-40 – 100 °C / -40 – 212 °F
	009L6107	4"			
	009L6111	5"			

Figure: ASTM brazing flange connection



Table: OFB fit with turbocor compressors based on flange size

Compressor size, aligned with Turbocor application guide minimum pipe size							
OFB with 4" inlet flange suitable for	TGS230	TTS300	TGS310	TTS350	TTH375	TGH285	–
OFB with 5" inlet flange suitable for	TTS400	TGS390	TTS700	TGS520	TTS450	TGS380	TGS490



Actuator for OFB

OFB has diagonal square actuator interface, enabling mounting most 1/4 turn actuators. Danfoss proposes four models of actuators which expected release in Q1 2026.

Figure: Actuator



Table: Ordering for actuator

Code Number	Power supply	Torque (Nm)	IP level	Running time (s)	Fail-safe option
009L2887	AC / DC 24 V	80	67	10	Yes
009L2889	AC / DC 24 V	80	67	10	No
009L2886	AC / DC 95 – 265 V	80	67	10	Yes
009L2888	AC / DC 95 – 265 V	80	67	10	No

Spare parts code numbers

Figure: Flange kit



Flange is delivered with the OFB main body upon purchase, individual flanges are available for order as spare part.

Table: Flange kit

Type	Valve connection size		Single pack	Code number	Content in kit
	[in]	[mm]	Qty / pack		
ANSI BW	3	78	1	009L6150	<ul style="list-style-type: none"><li>• Flange (1 pc)</li><li>• O-ring EPDM (1 pc)</li><li>• Screw M16 (4 pc)</li><li>• Spring washer M16 (1 pc)</li><li>• Plain washer M16 (1 pc)</li><li>• Silicon oil (2 g)</li></ul>
	4	102	1	009L6154	
	5	128	1	009L6158	
DIN BW	3	83	1	009L6152	
	4	107	1	009L6156	
	5	132	1	009L6161	
EN Cu	3	80	1	009L6153	
	4	108	1	009L6157	
	5	134	1	009L6160	
ASTM	3	80	1	009L6151	
	4	105	1	009L6155	
	5	131	1	009L6159	






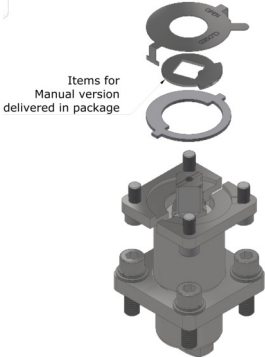
Type	Part name	Code number
	Bonnet	009L6134
	Seal spring	009L6135
	OFB O-ring kit	009L6130
	Flange O-ring kit	009L6131
 <p>Bolts to mount OFB on compressor and bolts to mount actuator on bonnet</p>	OFB bolts kit	009L6132
 <p>Bolts to mount the flange on OFB</p>	Flange bolts kit	009L6133



Overview

Product portfolio

Figure: Portfolio overview

OFB 80A with actuator			OFB 80A with manual kit		
	+			+	

**NOTE:**  
We only deliver the OFB with motor bonnet, customer can mount the actuator to make the OFB be controlled electrically, or customer can mount the manual kit which included in the package to make the OFB be controlled manually.

Identification

Relevant product data is available on the product and box label. An example of a box label and product label are shown, including an explanation of the content.

Figure: Box label & product label (example)

Box label	Product label
<div><div><div>Oil free ball valve</div><div>OFB 80A</div><div>009L6100</div><div>Direction: Straightway</div><div>Con. Type : Flange</div><div>Inlet/ outlet size: 4 5/8 in - 117 mm</div><div>3 1/8 in - 80 mm</div><div>MWP 334 psig/PS 23 bar/</div><div><div><div><div><div></div></div><div>US</div></div><div><div><div></div></div><div></div></div></div><div>N4425D</div></div><div><div><div></div></div><div>Danfoss A/S, 6430 Nordborg, Denmark</div></div><div><div><div></div></div><div></div></div></div></div>	<div><div><div>Oil free ball valve</div><div>009L6100 OFB 80A</div><div>TS: -40 - 100°C / -40 - 212°F</div><div>PS: 23 bar/334psi</div><div>DN 80</div><div>Fluid group:2</div><div>Serial number and date barcode</div><div>Danfoss A/S 6430 Nordborg, Denmark</div></div><div><div><div></div></div><div>MADE IN DENMARK</div><div><div><div></div></div><div>US</div></div></div></div>

**Table: Product and label text**

Position	Inscription	Explanation
Box label; Product label	Oil free ball valve	Product name
Box label; Product label	009L6100	Code number for ordering
Box label; Product label	OFB 80A	Product type
Box label	Straightway	Direction
Box label	Flange	Connection type of inlet connector
Box label; Product label	PS 23 bar / MWP 334 psig	Max. working pressure in bar and psig
Box label	N4425D	Code for production place and time: week 44, year 2025, Thursday
Product label	Inlet size: 4 5/8 in / 117 mm outlet size: 3 1/8 in / 80 mm	The dimension of inlet and outlet connector
Box label; Product label	MADE IN DENMARK	Manufacturing site acc. to EN standards
Box label	EAN code	Barcode for individual code no. identification according to EAN standard
Product label	TS: -40 – 100 °C / -40 – 212 °F	Operating media temperature range, min and max.
Product label	DN80	Connection size
Product label	Fluid group: 2	PED category
Box label; Product label	Additional information: Relevant approval authority logos	

Functions

The OFB is intended for use on Danfoss Turbocor® TTS, TTH, TGS and TGH compressors, it is mounted at the suction pipe of Turbocor® compressors.

Table: Used for Danfoss Turbocor® compressors:


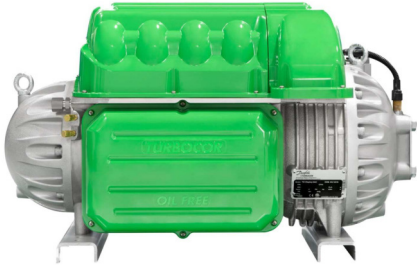


Image	Compressor type	Refrigerant
	TTS300: 60 – 90 TR	R134a, R513A
	TTS350: 70 – 120 TR	
	TTS400: 90 – 150 TR	
	TTS450: 100 – 150 TR	
	TTS700: 130 – 200 TR	
	TTH375: 75 – 115 TR	
	TGS230: 40 – 70 TR	R515B, R1234ze(E)
	TGS310: 60 – 90 TR	
	TGS380: 88 – 110 TR	
	TGS390: 70 – 120 TR	
	TGS490: 110 – 140 TR	
	TGS520: 90 – 150 TR	
	TGH285: 70 – 90 TR	

Figure: Fit on compressor





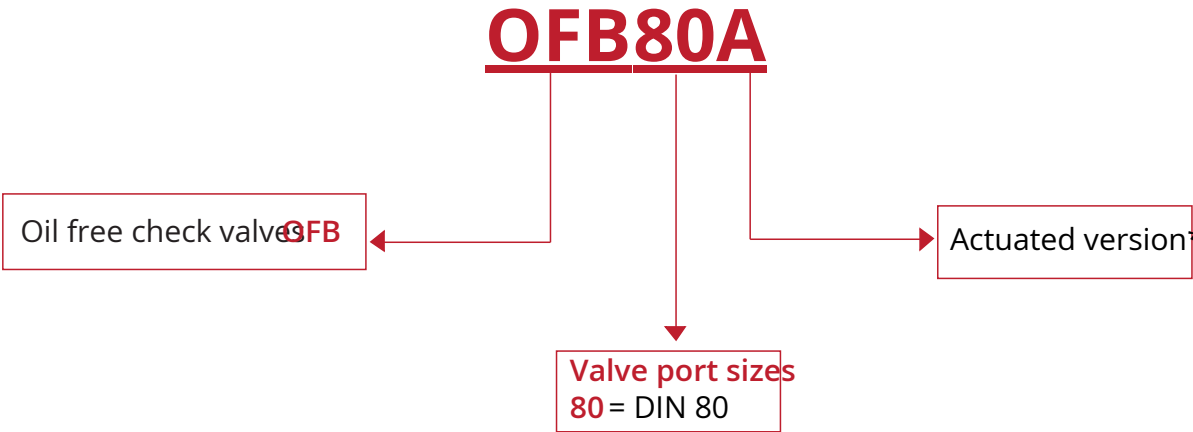
Media

Valve type	Refrigerants	Max. working pressure (PS / MWP)	Media temperature range	Approval	
OFB 80A	R134a, R513A, R515B, R1234ze(E)	23 bar / 334 psig	-40 – 100 °C (-40 – 212 °F)	PED certificate for [Fluid Group 2] Cat.I 	UL Recognized* 

Oil: OFB valve is designed for an oil-free environment  
\* UL approval is in process, and will be available in Q1 2026

**NOTE:**  
For a complete list of approved refrigerants, visit <http://store.danfoss.com/> and search for individual code numbers, where refrigerants are listed as part of product details.

Designation



\* Manual kit is delivered as accessories

## Product details

### General data

**Table: Technical data**

Technical data	Values
Max. working pressure	23 bar / 334 psig
Media temperature	-40 – 100 °C (-40 – 212 °F)
Ambient temperature	-40 – 100 °C (-40 – 212 °F)
Humidity	5 – 95% (non-condensing)
Storage ambient temperature	-30 – 51 °C (5 – 124 °F)
Flow direction	Single flow
Valve direction	Straight way
State of delivery	Closed
Weight	18 kg
Serviceable	Seats, Bonnet, Flange O-ring
Compressor interface	To fit directly on inlet of the listed Turbocor compressors (see page 2) Connection: 4" or 5"
Tube brazing and flange connection	3" inlet flange for brazing of 3" steel or cooper pipe 4" inlet flange for brazing of 4" steel or copper pipe 5" inlet flange for brazing of 5" steel or copper pipe Three sizes flanges are also available as spare part and shall be purchased separately

### Contents of accessory box

- Bolts M16x90 for mounting flange to OFB (4 pcs)
- M16 plain washer (8 pcs)
- M16 spring washer (8 pcs)
- O-ring compatible with Turbocor compressor (1 pc)
- M8x20 tensilock bolts (4 pcs)
- Flange kit with replacement O-ring\*
- O-ring lubrication (2 gram)

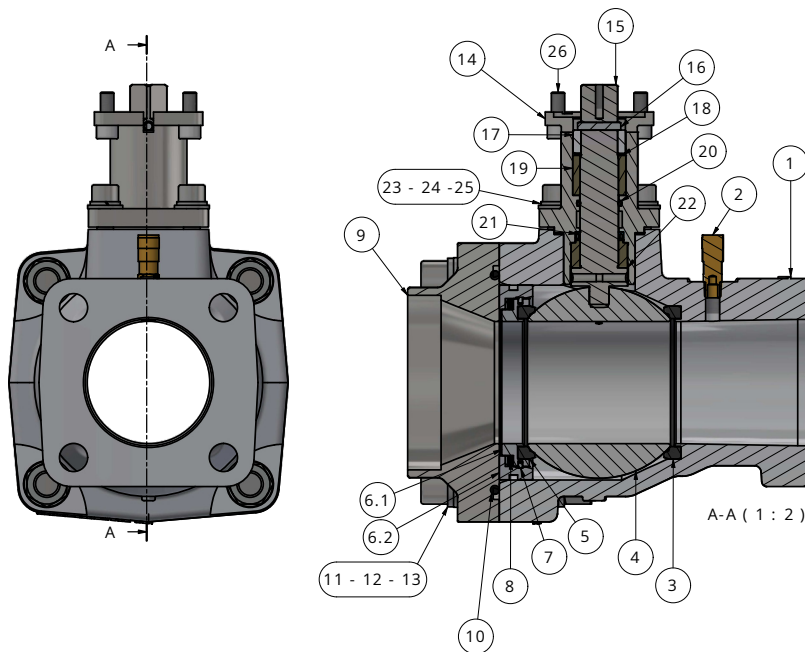
\* Size and connection style depend on what inlet connection is chosen

\* Flange included in part numbers 009L6102 to 009L6113

\* Flange can also be individually ordered, part numbers: 009L6150 to 009L6161

## Design

Figure: Product drawing

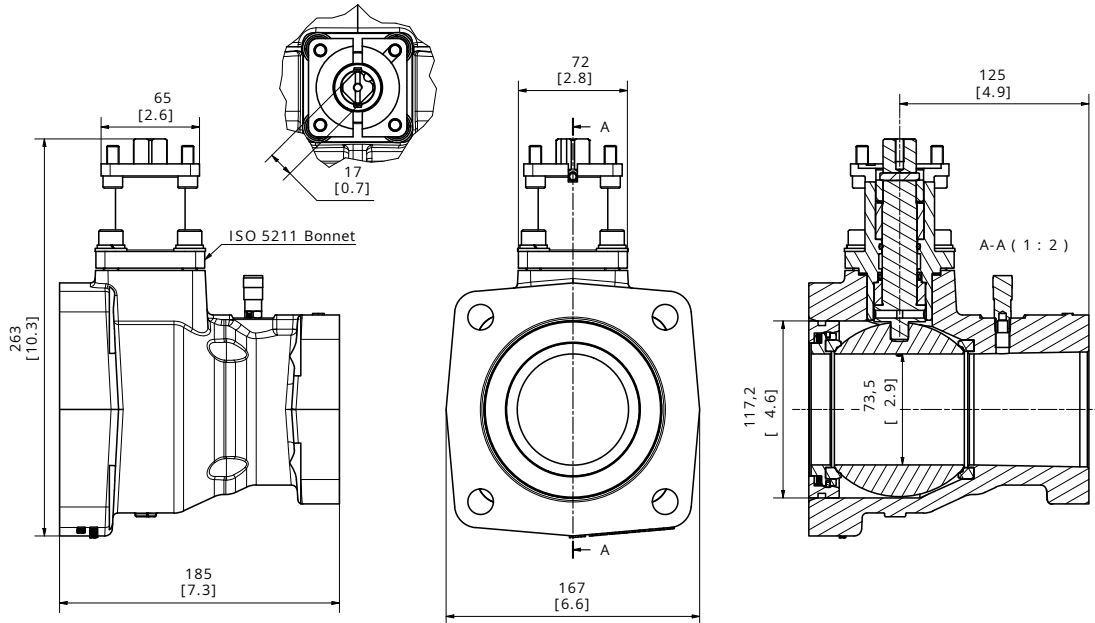


Position	Description	Material
1	Housing	Aluminium
2	Schrader valve	Brass
3	Seat	PTFE
4	Ball	Stainless steel
5	Seat	PTFE
6.1	Male axial spring	Stainless steel
6.2	Female axial spring	Stainless steel
7	Spring ring	Cold rolled steel
8	Wave spring	Carbon steel
9	Flange	Steel
10	O-ring	EPDM
11	Bolt	Stainless steel
12	Plain washer	Stainless steel
13	Spring washer	Stainless steel
14	Bonnet	Stainless steel
15	Spindle	Stainless steel
16	Stop ring	Stainless steel
17	Push bushing	Stainless steel
18	Wave spring	Steel
19	Axial seal	PEEK
20	O-ring	EPDM
21	Flexi seal	PTFE
22	Axial seal	PEEK
23	Bolt	Stainless steel
24	Plain washer	Stainless steel
25	Spring washer	Stainless steel
26	Bolt	Stainless steel

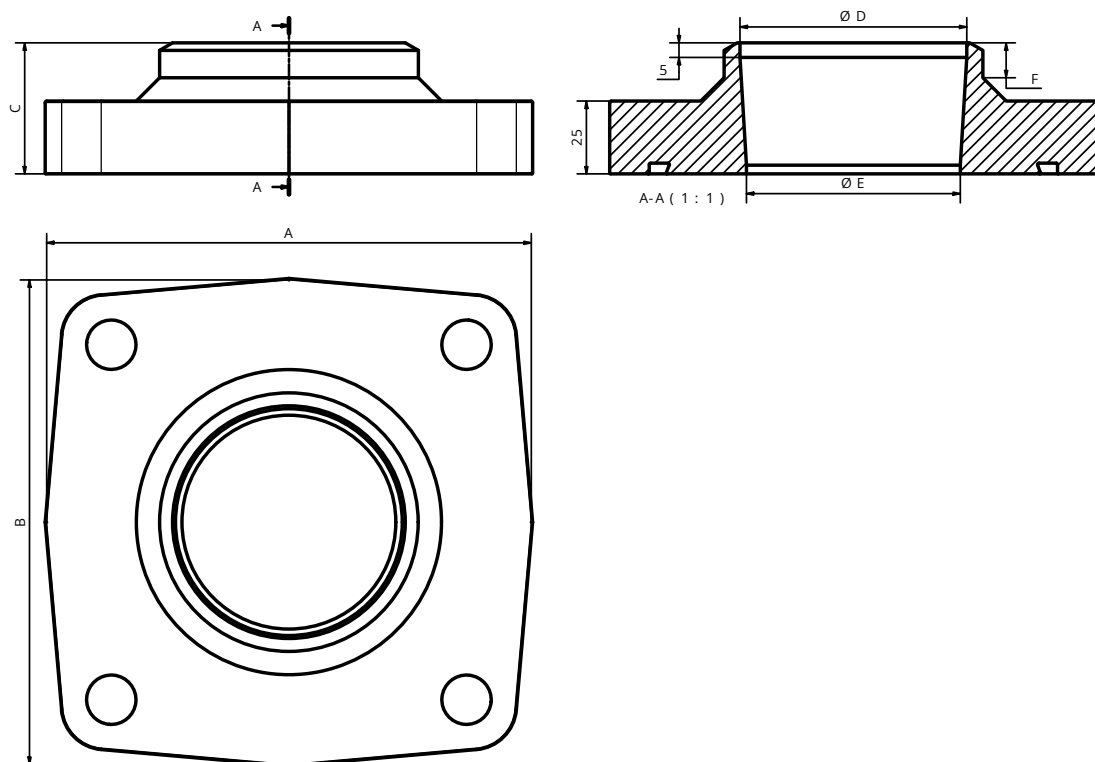
## Dimensions

You will find downloadable dimension drawings for individual code numbers on Danfoss store as part of the visuals tab for individual code numbers.

**Figure: OFB dimension without inlet flange**



**Figure: Dimension of flanges (ANSI BW)**

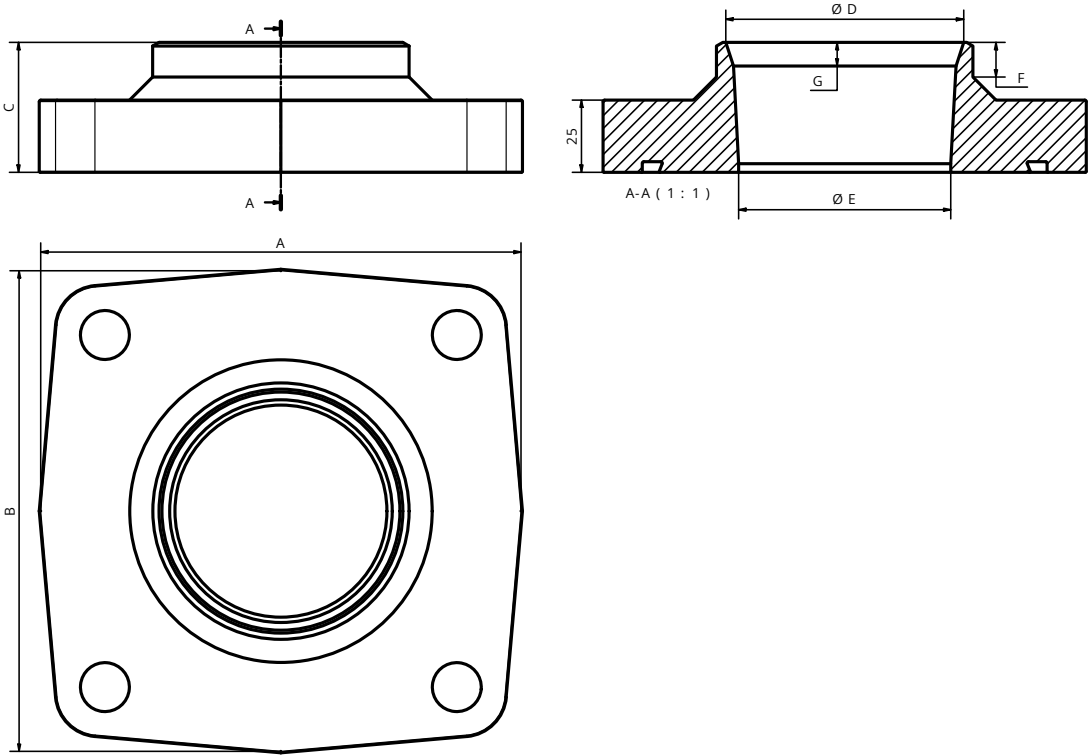


Flange size [in]	A [mm]	B [mm]	C [mm]	ØD [mm]	ØE [mm]	F [mm]
3	167	167	45	77.9	73.5	12
4	167	167	55	101.1	73.5	12
5	167	167	100	128.2	73.5	12



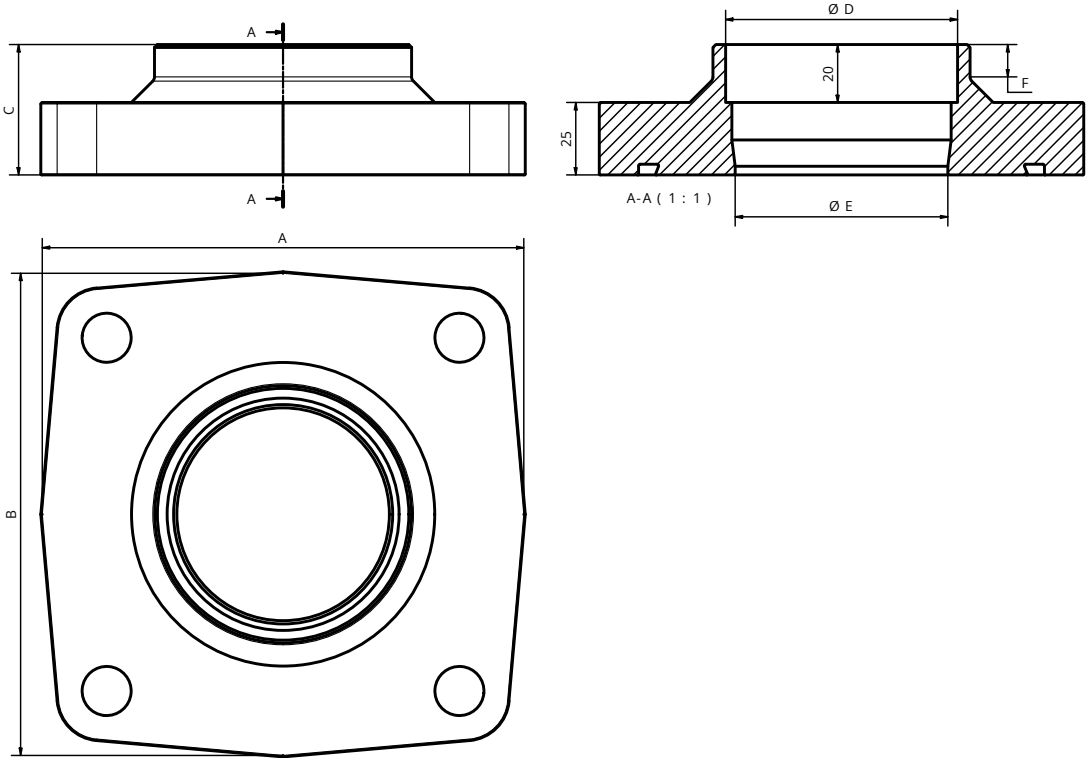


Figure: Dimension of flanges (DIN BW)



Flange size [in]	A [mm]	B [mm]	C [mm]	ØD [mm]	ØE [mm]	F [mm]	G [mm]
3	167	167	45	82.5	73.5	12	8.2
4	167	167	55	107.1	73.5	15	7.2
5	167	167	100	131.7	73.5	26	2.8

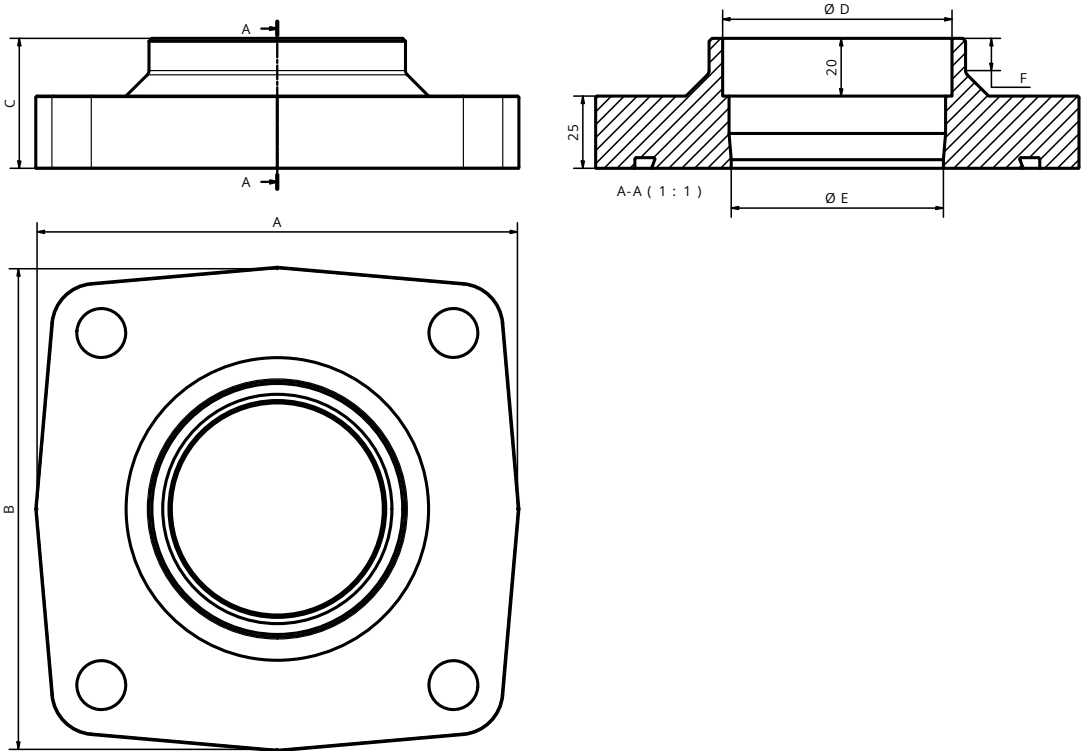
Figure: Dimension of flanges (EN Cu brazing)



Flange size [in]	A [mm]	B [mm]	C [mm]	ØD [mm]	ØE [mm]	F [mm]
3	167	167	45	80.2	73.5	11
4	167	167	55	108.65	73.5	18
5	167	167	100	133.65	73.5	23



Figure: Dimension of flanges (ASTM brazing)



Flange size [in]	A [mm]	B [mm]	C [mm]	ØD [mm]	ØE [mm]	F [mm]
3	167	167	45	79.5	73.5	11
4	167	167	55	104.95	73.5	18
5	167	167	100	130.5	73.5	23

## Contact details

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