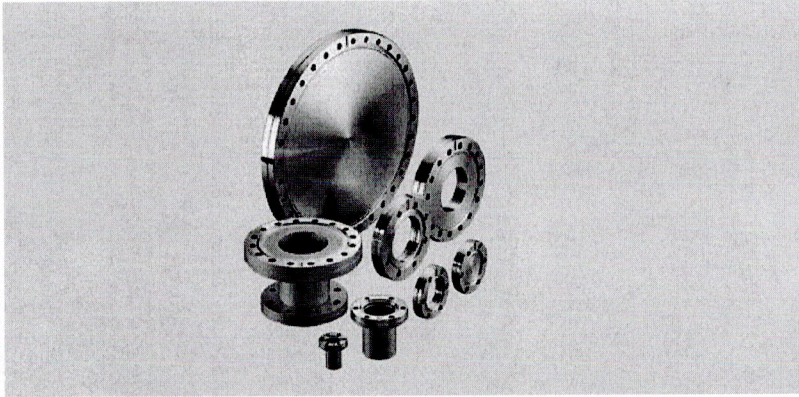
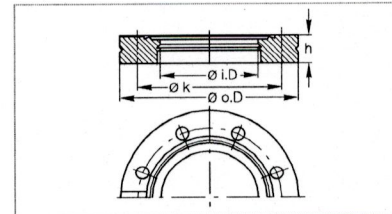


CF Flange Fittings and Components

CF Flanges



The CF flange connection consists of two identical flanges with a flat gasket made of **OFHC copper**, bolts, nuts and washers.



Dimensional drawing for CF flanges

Sealing Principle

When assembling the CF flange connection, the flat copper gasket fits with a slight clearance into the outer recess of the flanges and thus assures good centering of the flange connection. If the flange bolts are properly tightened according to the instructions, the knife edge of the flanges penetrates into the flat copper gasket, whereby the shear action of the outer face of the cutting edge – as seen from the flange axis - produces a yield pressure on the copper gasket, while the inner face of the edge produces a cutting action.

During this process the copper gasket adapts it-self optimally to the micro-structure of the outer knife edge. This explains the high sealing effect and the especially low leak rates of CF flange connections. A radial groove extending right up to the sealing ring is provided for leak testing of the flange connection. In order to ensure that the sealing knife edge is not damaged during frequent use of the flanges, the conventional geometry of such knife edges for CF flanges has been developed further. By using the Leybold developed obtuse angled knife edge

profile the strength of the sealing knife edges has been significantly stabilized. In addition to the actual knife edge, the flanges are provided with a concentric sealing surface for placement of a FPM (FKM) gasket or a supporting ring with FPM O-ring, which may be baked up to 150 °C (302 °F) (does not apply to observation windows).

This design has the advantage, that it is possible to equip the apparatus with elastomer gaskets prior to final assembly, so that the system can be tested under normal high vacuum conditions.

Technical Data

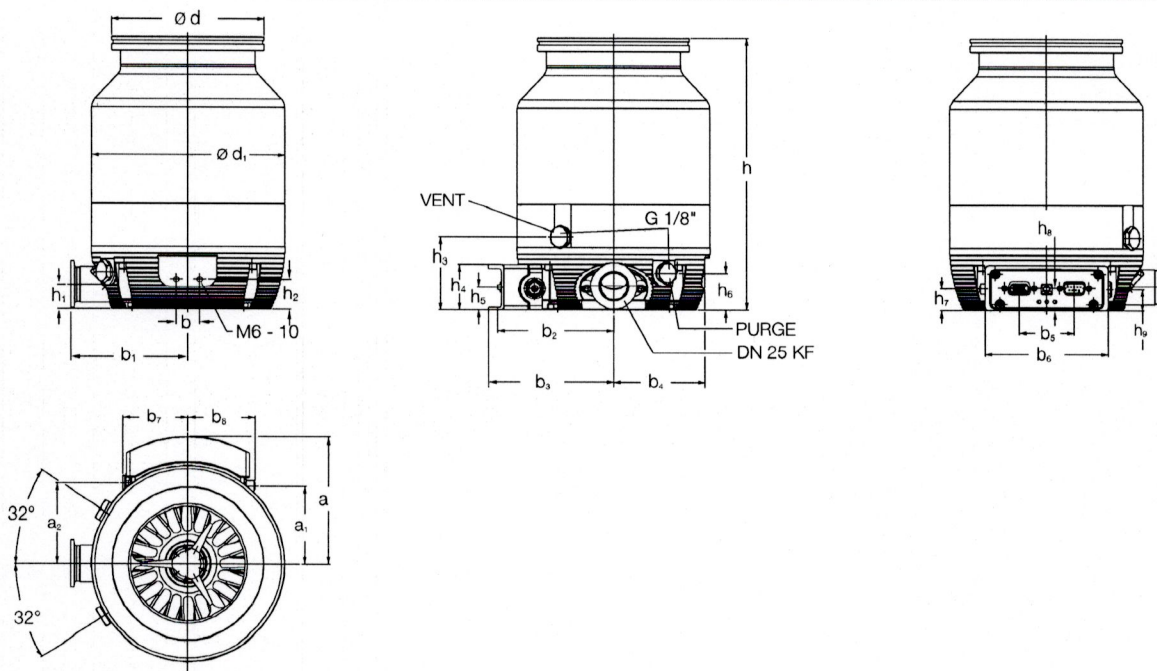
DN	CF	16	40	63	100	160	200	250
Outside diameter o. D.	mm (in.)	34.0 (1.33)	69.5 (2.75)	113.5 (4.50)	152.0 (6.00)	202.5 (8.00)	253.0 (10.00)	305.0 (12.00)
Inside diameter i. D.	mm (in.)	16.0 (0.63)	36.8 (1.375)	66.0 (2.50)	104.0 (4.00)	155.0 (6.00)	200.0 (8.00)	250.0 (10.00)
Bolt circle diameter k	mm (in.)	27.0 (1.06)	58.7 (2.31)	92.2 (3.63)	130.3 (5.13)	181.0 (7.13)	231.8 (9.13)	284.0 (11.18)
High h	mm (in.)	7.5 (0.30)	13.0 (0.51)	17.5 (0.69)	20.0 (0.79)	22.0 (0.87)	24.5 (0.97)	24.5 (0.97)
Number of holes		6	6	8	16	20	24	32
Hole diameter	mm (in.)	4.3 (0.17)	6.6 (0.26)	8.4 (0.33)	8.4 (0.33)	8.4 (0.33)	8.4 (0.33)	8.4 (0.33)

Conversion Factors

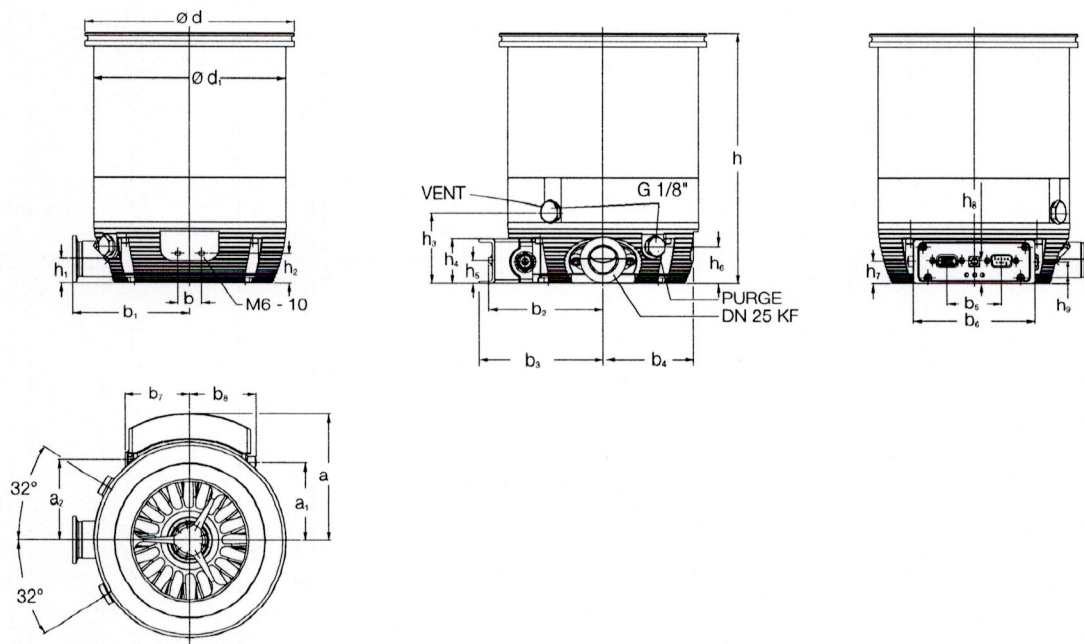
- Magnetizing field H, unit:
Previously used unit: Oersted (Oe) $A \times m^{-1}$
 $1 \text{ Oe} = 79.577 (A \times m^{-1})$
- Strength of the magnetic field B, unit:
Previously used unit: Gauß (G) $Vs \times m^{-2} = \text{Tesla (T)}$
 $1 \text{ G} = 10^{-4} Vs \times m^{-2} = 10^{-4} \text{ T}$

Important: In the table of Chapter "General" the German designation for the type of steel is also stated in accordance with AISI.

2.3 Teh. spec



Type	DN		a	a ₁	a ₂	b	b ₁	b ₂	b ₃	b ₄
TURBOVAC (T) 350 i	ISO-K	mm (in.)	107.5 (4.23)	65.4 (2.57)	67.6 (2.66)	20 (0.79)	100.7 (3.96)	99.2 (3.91)	107.5 (4.23)	78.1 (3.07)
	CF	mm (in.)	107.5 (4.23)	65.4 (2.57)	67.6 (2.66)	20 (0.79)	100.7 (3.96)	99.2 (3.91)	107.5 (4.23)	78.1 (3.07)
TURBOVAC (T) 450 i	ISO-K	mm (in.)	107.5 (4.23)	65.4 (2.57)	67.6 (2.66)	20 (0.79)	100.7 (3.96)	99.2 (3.91)	107.5 (4.23)	78.1 (3.07)
	CF	mm (in.)	107.5 (4.23)	65.4 (2.57)	67.6 (2.66)	20 (0.79)	100.7 (3.96)	99.2 (3.91)	107.5 (4.23)	78.1 (3.07)
	DN		b ₅	b ₆	b ₇	b ₈	d	d ₁	h	h ₁
TURBOVAC (T) 350 i	ISO-K	mm (in.)	47 (1.85)	105 (4.13)	55.5 (2.19)	57.2 (2.25)	130 (5.12)	165 (6.5)	232 (9.13)	20.8 (0.82)
	CF	mm (in.)	47 (1.85)	105 (4.13)	55.5 (2.19)	57.2 (2.25)	180 (7.09)	165 (6.5)	245 (9.65)	20.8 (0.82)
TURBOVAC (T) 450 i	ISO-K	mm (in.)	47 (1.85)	105 (4.13)	55.5 (2.19)	57.2 (2.25)	130 (5.12)	165 (6.5)	216 (8.5)	20.8 (0.82)
	CF	mm (in.)	47 (1.85)	105 (4.13)	55.5 (2.19)	57.2 (2.25)	180 (7.09)	165 (6.5)	222 (8.74)	20.8 (0.82)
	DN		h ₂	h ₃	h ₄	h ₅	h ₆	h ₇	h ₈	h ₉
TURBOVAC (T) 350 i	ISO-K	mm (in.)	25.5 (1.0)	61.5 (2.42)	39 (1.54)	19.4 (0.76)	32 (1.26)	19 (0.75)	18.8 (0.74)	18.4 (0.72)
	CF	mm (in.)	25.5 (1.0)	61.5 (2.42)	39 (1.54)	19.4 (0.76)	32 (1.26)	19 (0.75)	18.8 (0.74)	18.4 (0.72)
TURBOVAC (T) 450 i	ISO-K	mm (in.)	25.5 (1.0)	61.5 (2.42)	39 (1.54)	19.4 (0.76)	32 (1.26)	19 (0.75)	18.8 (0.74)	18.4 (0.72)
	CF	mm (in.)	25.5 (1.0)	61.5 (2.42)	39 (1.54)	19.4 (0.76)	32 (1.26)	19 (0.75)	18.8 (0.74)	18.4 (0.72)



Dimensional drawing for the TURBOVAC (T) pumps, 350 i top and 450 i bottom

2.3 Teh. spec

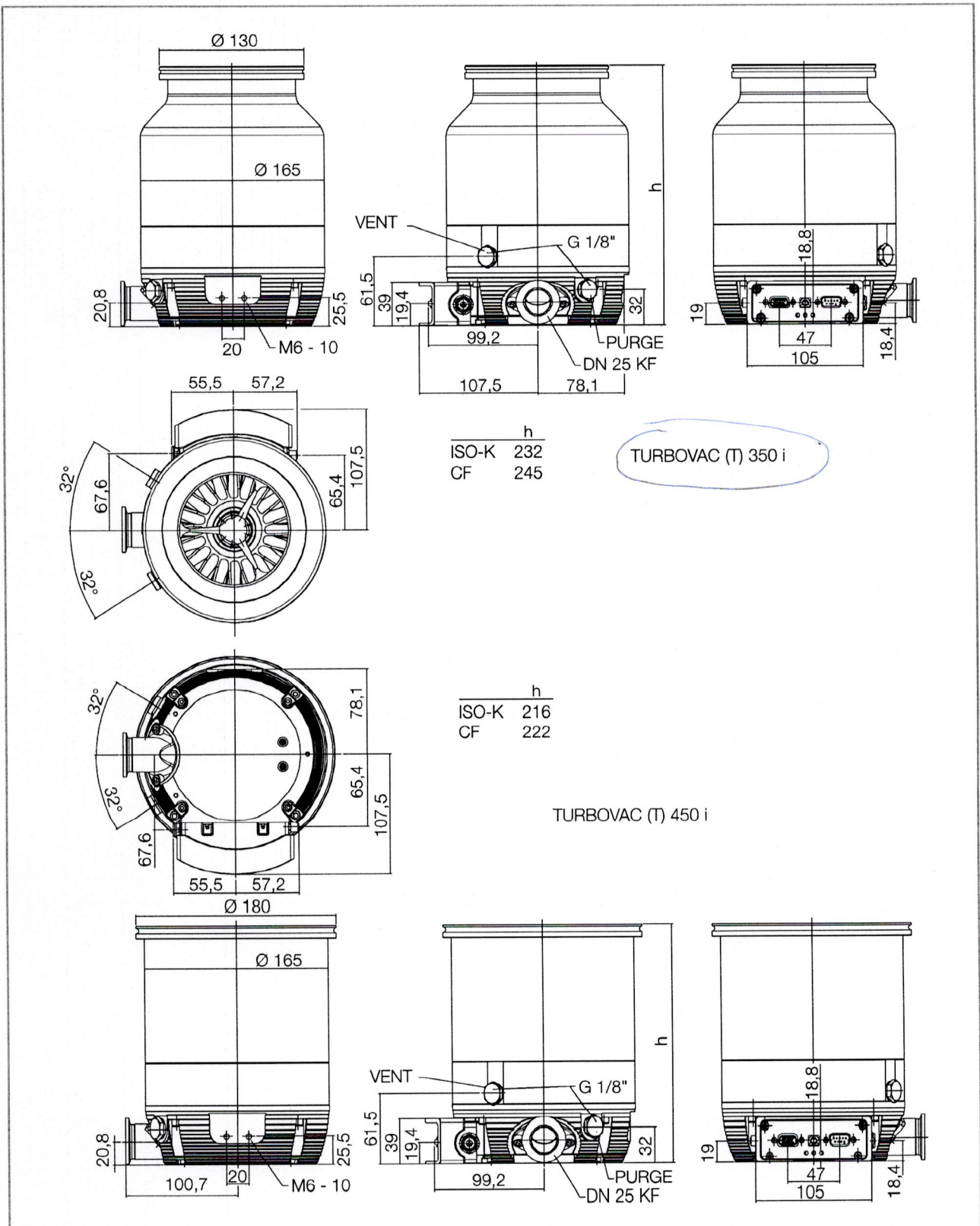


Fig. 1.19 Dimensional drawings, dimensions in mm