

27.07.2016 ME

Information for selection of the right internal chamfer gauge IFM

1 Diameter

The internal chamfer gauge IFM is designed for the determination of the largest diameter of an internal chamfer or an internal taper. It measures the submersion depth of a measuring taper.

The internal chamfer gauges are available ex stock for the following measuring ranges:

taper angle °	measuring range (mm)		dial gauge	ratio
	from	to		
60	0,5	12	w/o	1,1547
60	12	20	w/o	1,1547
60	20	31	w/o	1,1547
60	30	40	w/o	1,1547
90	0,5	20	with	2
90	20	40	with	2
90	40	60	with	2
127	0,5	20	with	4
127	20	40	with	4
127	40	60	with	4

2 Taper angle

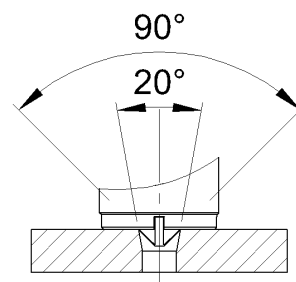
2.1 Taper angle IFM gauge > taper angle work piece

α = taper angle work piece

β = taper angle IFM gauge

The taper angle of the IFM gauge must be chosen to be larger than the taper angle of the work piece to be measured. Otherwise the measuring taper does not lie on the top edge (transition of the plane face into the chamfer) but on the bottom edge (transition of the chamfer into the bore).

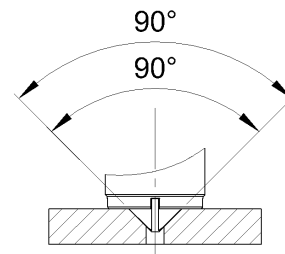
The difference of the two tapers does not matter.



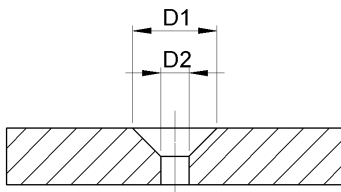
$$\alpha < \beta$$

2.2 Taper angle IFM gauge = taper angle work piece

actually optimal – however if the taper angle of the work piece is larger due to the production tolerance, then the smaller diameter D_2 of the following bore is measured and not the larger diameter of the chamfer. The size of the resulting measuring error depends on the length of the chamfer and the actual angle.

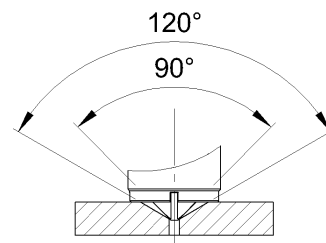


$$\beta = \alpha$$



2.3 Taper angle IFM gauge < taper angle work piece

The taper of the IFM will lie on the smaller diameter. This causes a measuring error.



$$\alpha > \beta$$

2.4 Comparison of the different angles when measuring – advantage of the smaller angle

The smaller or more pointed the angle on the IFM measuring instrument the easier and more accurate the measuring due to the better self-centring of the taper. Moreover a larger ratio increases the measuring errors.