STELLRAM

Simplified formulas to evaluate h_m and f_z based on axial depth of cut or radial engagement.

Calculation of the average chip thickness in relation with the D.O.C. (Axial)

Formula: Programme Feed Rate (f_z)

$$f_z = h_m \times \sqrt{\frac{d}{a_p}}$$

h_m = Average chip thickness
a_p = Depth of cut
f_z = Feed per tooth
d = Insert diameter

Formula: Average Chip Thickness (h_m)

$$h_m = f_z \times \sqrt{\frac{a_p}{d}}$$

Calculation of the average chip thickness in relation with the a_e (Radial Engagement) if a_e is less than 50% of dia.

Formula: Programme Feed Rate (f_z)

$$f_z = h_m \times \sqrt{\frac{d}{a_e}}$$

h_m = Average chip thickness
a_e = Radial engagement
f_z = Feed per tooth
d = Cutter diameter

Formula: Average Chip Thickness (h_m)

$$h_m = f_z \times \sqrt{\frac{a_e}{d}}$$

With round inserts,the thickness of the chip varies depending on the axial depth of cut (a_p) and is related to the size of the cutting edge-preparation. For best tool life it is important to maintain the proper chip thickness as shown below. This chart calculates in relation with axial depth of cut (a_p) only and not radial cut (a_e).

RD..2006.. Inserts

Insert	Insert size (mm)	a_p d.o.c. (mm)	h_m (mm)		f_z (mm/Z)	
			min.	max.	min.	max.
RDHT2006M0E-42-X8	20	1,00	0,08	0,18	0,36	0,80
	20	2,00	0,08	0,18	0,25	0,57
	20	3,00	0,08	0,18	0,21	0,46
	20	4,00	0,08	0,18	0,18	0,40
	20	5,00	0,08	0,18	0,16	0,36
	20	6,00	0,08	0,18	0,15	0,33
	20	8,00	0,08	0,18	0,13	0,28
	20	10,00	0,08	0,18	0,11	0,25
RDHW2006M0E-X8	20	1,00	0,10	0,20	0,45	0,89
	20	2,00	0,10	0,20	0,32	0,63
	20	3,00	0,10	0,20	0,26	0,52
	20	4,00	0,10	0,20	0,22	0,45
	20	5,00	0,10	0,20	0,20	0,40
	20	6,00	0,10	0,20	0,18	0,37
	20	8,00	0,10	0,20	0,16	0,32
	20	10,00	0,10	0,20	0,14	0,28
RDHW2006M0S-X8	20	3,00	0,15	0,25	0,39	0,65
	20	4,00	0,15	0,25	0,34	0,56
	20	5,00	0,15	0,25	0,30	0,50
	20	6,00	0,15	0,25	0,27	0,46
	20	8,00	0,15	0,25	0,24	0,40
RDHW2006M0S-25-X8	20	4,00	0,25	0,30	0,56	0,67
	20	5,00	0,25	0,30	0,50	0,60
	20	6,00	0,25	0,30	0,46	0,55
	20	8,00	0,25	0,30	0,40	0,47