STELLRAM

Shoulder Mills

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)

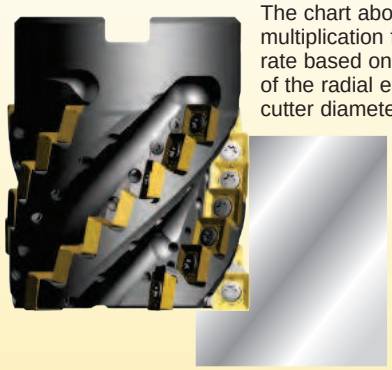
$$h_m = f_z \times \sqrt{\frac{a_e}{d}}$$

h_m Correction Coefficient Chart

Cutter Ø 50mm			Cutter Ø 63mm			Cutter Ø 80mm			Cutter Ø 100mm		
a_e%	a_e (mm)	Coefficient Factor	a_e%	a_e (mm)	Coefficient Factor	a_e%	a_e (mm)	Coefficient Factor	a_e%	a_e (mm)	Coefficient Factor
5	2,50	2,30	**5**	3,15	2,30	5	4,00	2,30	**5**	5,00	2,30
10	5,00	1,66	**10**	6,30	1,66	**10**	8,00	1,66	**10**	10,00	1,66
15	7,5	1,40	**15**	9,45	1,40	**15**	12,00	1,40	**15**	15,00	1,40
20	10,00	1,25	**20**	12,60	1,25	**20**	16,00	1,25	**20**	20,00	1,25
25	12,50	1,16	**25**	15,75	1,16	**25**	20,00	1,16	**25**	25,00	1,16
35	17,50	1,05	**35**	22,05	1,05	**35**	28,00	1,05	**35**	35,00	1,05
50 - 100	25,00 - 50,00	1,00	**50 - 100**	31,50 - 63,00	1,00	**50 - 100**	40,00 - 80,00	1,00	**50 - 100**	50,00 - 100,00	1,00

Example: A 50mm diameter cutter using 5,00mm radial engagement (a_e) = 10% of the cutter diameter.

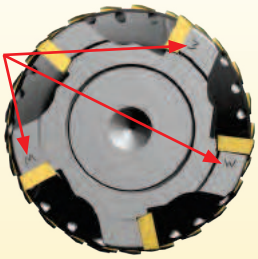
At 10%, your coefficient is 1,66 (see above table); therefore you must multiply your feed rate by 1,66 for correcting the feed for profiling.



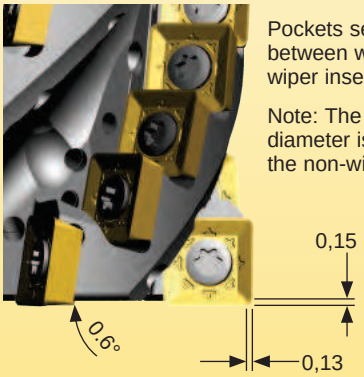
The chart above shows the multiplication factor for the feed rate based on the percentage of the radial engagement of the cutter diameter.



Wiper pockets are identified with a **W** engraved on the face of the body.

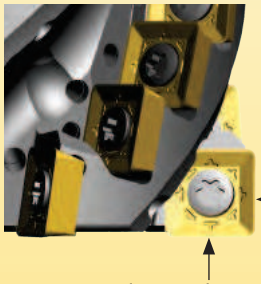


The 5230VS cutter series is designed with wiper pockets which provide a much better face surface finish. The non-wiper pockets generate the 90° corner. The same inserts can be utilised in all pockets.



Pockets setting difference between wiper and non-wiper inserts.

Note: The true cutter diameter is measured at the non-wiper pockets.



Non wiper pocket positions are set back & square to axis to give a true 90 degree approach.

Wiper pocket positions are in front and angled to allow facing.

Cutter Diameter (mm)	No. of Wiper Inserts
50	2
63	2
80	3
100	3