

## Positioning accuracy

Since the tilting stage of the complex coupling mechanism converts a linear trajectory into an arcuate trajectory, there is an angular error along the tangent curve between the amount of movement of the feed screw and the actually moving tilting portion.

The values in the table of positioning errors are given by the following formula:

\*\*Feed angle = R

\*\*Distance between the feed screw axis of rotation and the center of rotation = H

\*\*Pulse number feed = L

\*\*One pulse displacement = 0.001 mm

\*\*Formula  $R = \tan^{-1}(L/H)$

Distance between the feed screw axis of rotation and the center of rotation (H)	
ATS-C416B-HM	61.0mm
ATS-C412B-HM	79.0mm
ATS-C410B-HM	97.0mm
ATS-C616B-HM	86.0mm
ATS-C612B-HM	112.0mm
ATS-C610B-HM	138.0mm

Angle (°)	ATS-C416B-HM		ATS-C412B-HM		ATS-C410B-HM	
	H = 61		H = 79		H = 97	
	Pulse number L (pulse)	Pulse feed angle R (°)	Pulse number L (pulse)	Pulse feed angle R (°)	Pulse number L (pulse)	Pulse feed angle R (°)
0	0	0.000000	0	0.000000	0	0.000000
1	1065	1.000226	1379	1.000036	1693	0.999917
2	2130	1.999843	2759	2.000188	3387	1.999814
3	3197	3.000118	4140	2.999845	5084	3.000262
4	4266	4.000434	5524	3.999843	6783	4.000058
5	5337	5.000179	6912	5.000285	8486	4.999765
6	6411	5.999667	8303	5.999832		
7	7490	7.000131				
8	8573	8.000008				

Angle (°)	ATS-C616B-HM		ATS-C612B-HM		ATS-C610B-HM	
	H = 86		H = 112		H = 138	
	Pulse number L (pulse)	Pulse feed angle R (°)	Pulse number L (pulse)	Pulse feed angle R (°)	Pulse number L (pulse)	Pulse feed angle R (°)
0	0	0.000000	0	0.000000	0	0.000000
1	1501	0.999910	1955	1.000017	2409	1.000083
2	3003	1.999876	3911	1.999936	4819	1.999973
3	4507	2.999954	5870	3.000168	7232	2.999887
4	6014	4.000195	7832	4.000100	9650	4.000041
5	7524	4.999983	9799	5.000137	12073	4.999821
6	9039	6.000024	11772	6.000165		
7	10559	6.999690				
8	12087	8.000319				