

### Reading the capacity table for oscillating handler

The capacity table gives dynamic torque  $T_o$  and dynamic allowable load  $W_o$  by oscillating angles, number of stops, life, and rotating speed. This table was calculated based on a life expectancy of 12,000 hours of normal operation including mounting, lubrication, and handling conditions. Adverse conditions and poor maintenance can affect the transmission capacity and life of the oscillate handler. Beside, if you misunderstand how to read the capacity table when you select a model, you are not able to select proper model. Please carefully pay attention below instructions.

Oscillating Angle $\varphi$ (deg)	Index Period $\theta_0$ (deg)	Static Torque $T_s$ (N-m)	Dynamic Torque $T_o$ (N-m)								Camshaft Frictional Torque $T_x$ (N-m)
			Input Shaft Speed N(rpm)								
			20	40	60	80	100	120	150	200	
30	32	5.1	2.6	2.2	2.0	1.8	1.7	1.5	1.4	1.2	1.3
	45	6.0	2.6	2.2	2.0	1.8	1.7	1.6	1.4	1.2	
	60	6.6	2.5	2.1	1.9	1.7	1.6	1.5	1.4	1.2	
45	45	4.9	2.3								
	60	5.7									

1. Static torque ( $T_s$ ) is the maximum available torque on output shaft.
2. Dynamic torque ( $T_o$ ) is the number of maximum allowable consecutive output torque based on a life of 12,000 hours.
3. Dynamic allowable load ( $W_o$ ) is the number of maximum allowable consecutive load based on a life of 12,000 hours.
4. Cam shaft friction torque ( $T_x$ ) is the maximum friction torque of cam(input) shaft when

### Index period

When are two or more index periods are given for the oscillating angle, number of stops, and lift, the smaller number is the minimum index periods. Cam can not be manufactured for index periods shorter than this minimum value. When designing the timing, try to make the index period as large as possible.

### Dynamic torque, dynamic allowable load, and rotating speeds

The dynamic torque and dynamic allowable loads given in each capacity table will vary according to the oscillating angle, number of stops, lift, and rotating speed. Always check the values according to actual using conditions.

### Cam curves

The output displacement of oscillating handler is produced by a modified sine curve (MS curve) or a modified constant velocity curve (MCV50). If your application requires synchronized operation at equivalent speeds or special displacement specifications. Please consult Sankyo.

### Number of stops

This is the number of stops the output makes during one revolution. If the number of stops is S, output shaft will rotate  $360/S$  degrees for one index.

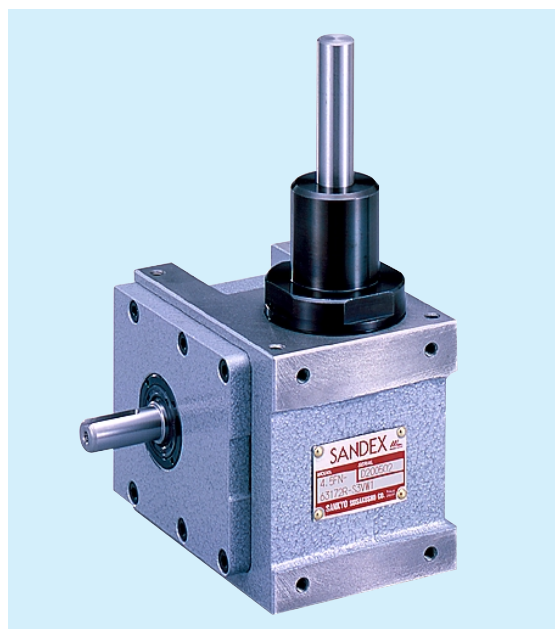
Number of Stops S	Index Period $\theta_1$ (deg)	Static Torque $T_s$ (N-m)
2	190	5.0
	220	5.5

### Lifting stroke

This is the different amount of lifting stroke output shaft moves. It is used at Oscillating and Indexing Handlers.

Lift LT (mm)	Index Period $\theta_L$ (deg)	
5	30	14.7
	45	14.7

## 4.5FN



## 4.5FN

Torque capacity table of oscillating motion/Cam curves:MS

Table 4.5FN-1

Oscillating Angle $\phi$ (deg)	Index Period $\theta_0$ (deg)	Static Torque $T_s$ (N·m)	Dynamic Torque $T_o$ (N·m) Input Shaft Speed N(rpm)								Camshaft Frictional Torque $T_x$ (N·m)
			20	40	60	80	100	120	150	200	
30	33	11.9	6.1	5.1	4.7	4.3	3.9	3.7	3.3	2.8	2.5
	45	13.7	6.0	5.0	4.6	4.2	3.9	3.7	3.4	3.0	
	60	15.0	5.8	4.8	4.4	4.0	3.8	3.5	3.3	2.9	
45	45	11.3	5.4	4.5	4.1	3.8	3.5	3.3	3.0	2.5	
	60	13.1	5.4	4.5	4.1	3.7	3.5	3.3	3.0	2.7	
	75	14.2	5.2	4.4	4.0	3.7	3.4	3.2	3.0	2.7	
60	60	11.3	5.1	4.2	3.9	3.5	3.3	3.1	2.8	2.4	
	75	12.7	5.0	4.2	3.9	3.5	3.3	3.1	2.8	2.5	
	90	13.7	5.0	4.1	3.8	3.5	3.2	3.0	2.8	2.5	
90	90	11.3	4.5	3.8	3.4	3.1	2.9	2.7	2.5	2.2	
	105	12.3	4.5	3.7	3.4	3.1	2.9	2.7	2.5	2.2	
	120	13.1	4.4	3.7	3.4	3.1	2.9	2.7	2.5	2.3	

Torque capacity table of oscillating motion/Cam curves:MCV50

120	100	12.2	4.6	3.9	3.5	3.2	3.0	2.8	2.5	2.2	2.5
	120	13.2	4.6	3.8	3.5	3.2	3.0	2.8	2.5	2.2	
	180	15.0	4.2	3.5	3.2	2.9	2.7	2.5	2.3	2.0	

Torque capacity table of indexing motion/Cam curves:MS

Table 4.5FN-2

Number of Stops S	Index Period $\theta_1$ (deg)	Static Torque $T_s$ (N·m)	Dynamic Torque $T_o$ (N·m) Input Shaft Speed N(rpm)								Camshaft Frictional Torque $T_x$ (N·m)
			20	40	60	80	100	120	150	200	
2	200	12.0	5.2	4.4	4.0	3.6	3.4	3.2	3.0	2.7	2.5
	230	12.8	5.2	4.3	4.0	3.6	3.4	3.2	3.0	2.7	
3	140	12.3	6.2	5.2	4.8	4.4	4.1	3.8	3.6	3.2	
	160	13.1	6.2	5.2	4.7	4.3	4.0	3.8	3.6	3.2	
	180	13.7	6.1	5.1	4.7	4.3	4.0	3.8	3.5	3.2	
4	115	6.6	3.7	3.1	2.8	2.6	2.4	2.2	2.1	1.8	
	130	7.0	3.6	3.0	2.8	2.5	2.4	2.2	2.1	1.8	
	150	7.4	3.6	3.0	2.7	2.5	2.3	2.2	2.0	1.8	
6	60	11.3	8.6	7.2	6.6	6.0	5.6	5.2	4.8	4.3	
	90	13.7	8.4	7.0	6.4	5.9	5.5	5.2	4.8	4.3	
	120	15.0	8.0	6.7	6.2	5.6	5.3	5.0	4.6	4.2	
8	55	6.5	5.0	4.2	3.9	3.5	3.3	3.1	2.8	2.4	
	90	7.8	4.8	4.0	3.7	3.3	3.1	2.9	2.7	2.4	
	120	8.3	4.5	3.8	3.5	3.2	3.0	2.8	2.6	2.3	

Please consult SANKYO in case of requiring more than 200rpm.

Carrying capacity table/Cam curves:MS

Table 4.5FN-3

Lift $L_T$ (mm)	Index Period $\theta_L$ (deg)	Dynamic Allowable Load $W_o$ (N) Input Shaft Speed N(rpm)								
		20	40	60	80	100	120	150	200	
5	26	24.5	24.5	24.5	18.4	10.3	4.7			
	45	24.5	24.5	24.5	24.5	24.5	19.9	12.2	3.8	
	60	24.5	24.5	24.5	24.5	24.5	24.5	19.9	10.6	
10	37	24.5	24.5	24.5	17.9	10.0	4.5			
	45	24.5	24.5	24.5	24.3	15.9	9.7	3.3		
	65	24.5	24.5	24.5	24.5	24.5	20.3	12.6	4.1	
15	45	24.5	24.5	24.5	17.2	9.4	4.1			
	55	24.5	24.5	24.5	23.8	15.6	9.4	3.1		
	70	24.5	24.5	24.5	24.5	23.0	16.4	9.1		
20	52	24.5	24.5	24.5	16.2	8.7				
	65	24.5	24.5	24.5	23.6	15.6	9.6	3.2		
	80	24.5	24.5	24.5	24.5	22.0	15.6	8.5		

Note : If the timing requires intermediate stop, above index period and number of torque may be differed.