



### 7FN Dimensions

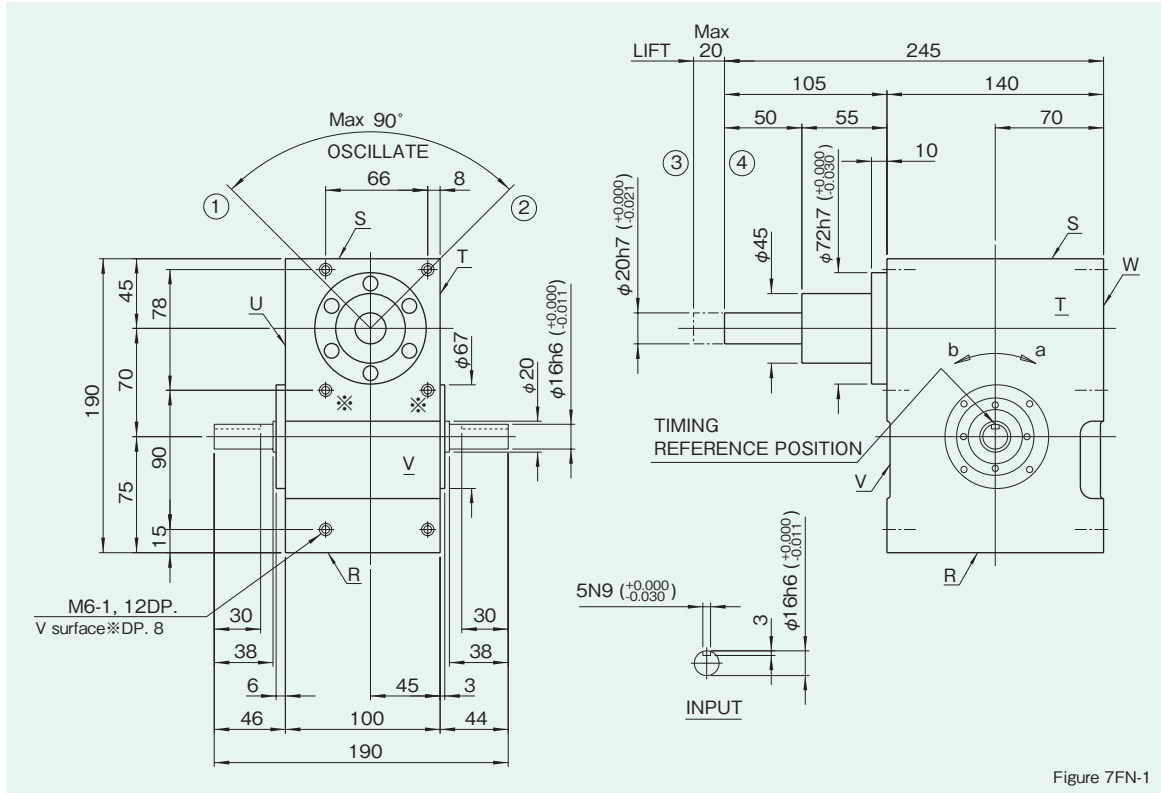


Figure 7FN-1

### Locations of oil plug, etc., and oil capacity

Mounting position	1
Location	
Oil capacity (ℓ)	0.5

Figure 7FN-2

### Precautions

- Each point indicated in the mounting positions shown in Figure 7FN-2 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 7FN-2 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

### Specifications

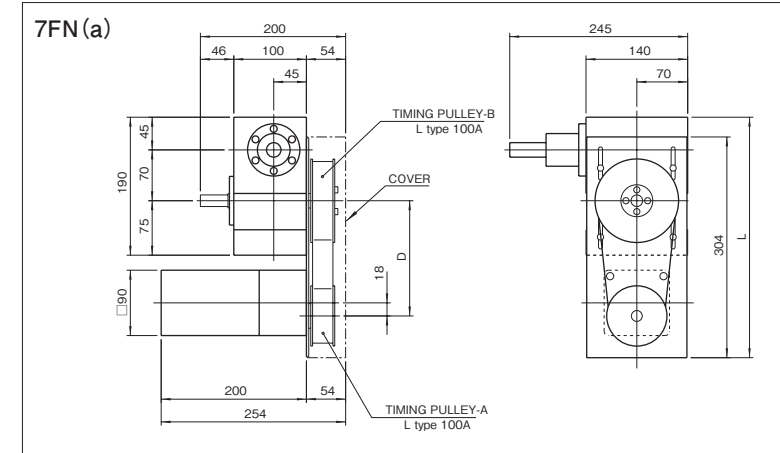
Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	980	Output inertia (oscillate)	$J_0$	$\text{kg}\cdot\text{m}^2$	$2.8 \times 10^{-4}$
Output allowable axial load	$P_1$	N	85	Input allowable radial load	$P_4$	N	930	Output internal load (lift)	$W_{a1}$	N	6.9
Output allowable radial load	$P_2$	N	80	Input maximum repetitive allowable torque	$P_5$	$\text{N}\cdot\text{m}$	59	Housing color			Silver
Output static torque	$T_s$	$\text{N}\cdot\text{m}$	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	$\text{N}\cdot\text{m}/\text{rad}$	4100	Product weight		kg	25
Output torsional rigidity	$K_1$	$\text{N}\cdot\text{m}/\text{rad}$	4700	Input inertia	$J_1$	$\text{kg}\cdot\text{m}^2$	$4.13 \times 10^{-3}$	Contact us.			

Table 7FN-1

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

### Option (Miniature motor mounting specifications)



### Induction motor specifications

Maker	Type	Motor model	Output power (W)	Frequency (Hz)	Voltage (V)	Current (A)	Starting torque (N·m)	Rated torque (N·m)	Rotating speed (rpm)	Capacitor (μF)	Gear head model
Oriental motor	No clutch and brake	5IK90GU-AF	90	50	100	2.0	0.45	0.68	1300	25.0	5GU□KB
	With clutch and brake	CB1590-801	90	60	100	2.0	0.57	0.57	1550	25.0	5GCH□KB
Panasonic	No clutch and brake	M9IC90G4L	90	50	100	1.6	0.470	0.637	1325	25.0	M9GD□B
	With clutch and brake	M9CBIC90G4L	90	60	100	1.7	0.519	0.519	1625	25.0	M9GE□B-CB

Table 7FN-2

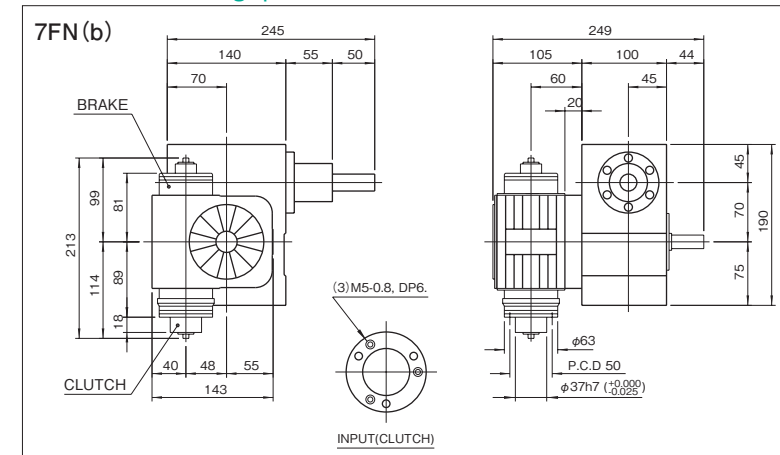
• The figures in the □ indicate gear ratio.

### Allowable torque with gear head (N·m)

Rotating speed	200	120	100	60	50	30	20	15	10
50Hz Gear ratio	7.5	12.5	15	25	30	50	75	100	150
60Hz Gear ratio	9	15	18	30	36	60	90	120	180
Atatic torque	5IK90GU-AF	4.1	6.2	7.4	11.2	13.5	20	20	20
	M9IA90G4L	3.43	5.68	6.76	10.88	13.03	19.6	19.6	19.6

(1N·m=0.102kgf·m)

### Reducer R48 mounting specifications



### Timing transmission specifications

Table 7FN-4

Timing pulley reduction ratio	Pulley A Number of teeth	Pulley B Number of teeth	D (mm)	Belt model
1.38	26	36	156	240L 64 teeth
1.5	24	36	161	240L 64 teeth
1.64	22	36	165	240L 64 teeth

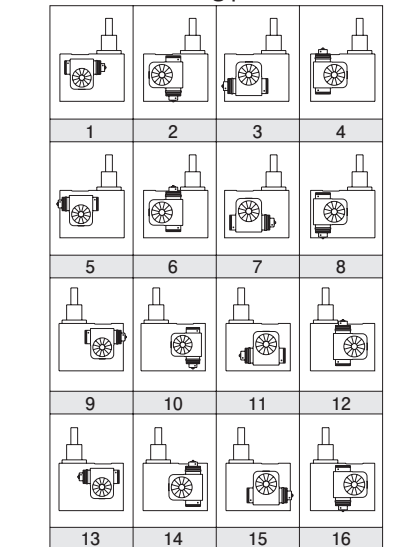
### Clutch and brake specifications

Table 7FN-5

Item	Motor	
	Clutch	Brake
Static frictional torque	1.5N·m	
Dynamic frictional torque	1.0N·m	
Rated voltage	DC24V	
Power consumption (at 75°C)	7W	5W
Armature pull - in time	15msec	
Armature release time	25msec	
Actual torque build - up time	20msec	
Repetition rate	Max. 100 times/min	
Total energy	$1.5 \times 10^{-2}$ J	
Allowable energy at one time	1.47J	

Figure 7FN-5

### Reducer mounting positions





# Oscillating Handler/Indexing Handler 10FN

SANDEX

## 10FN Dimensions

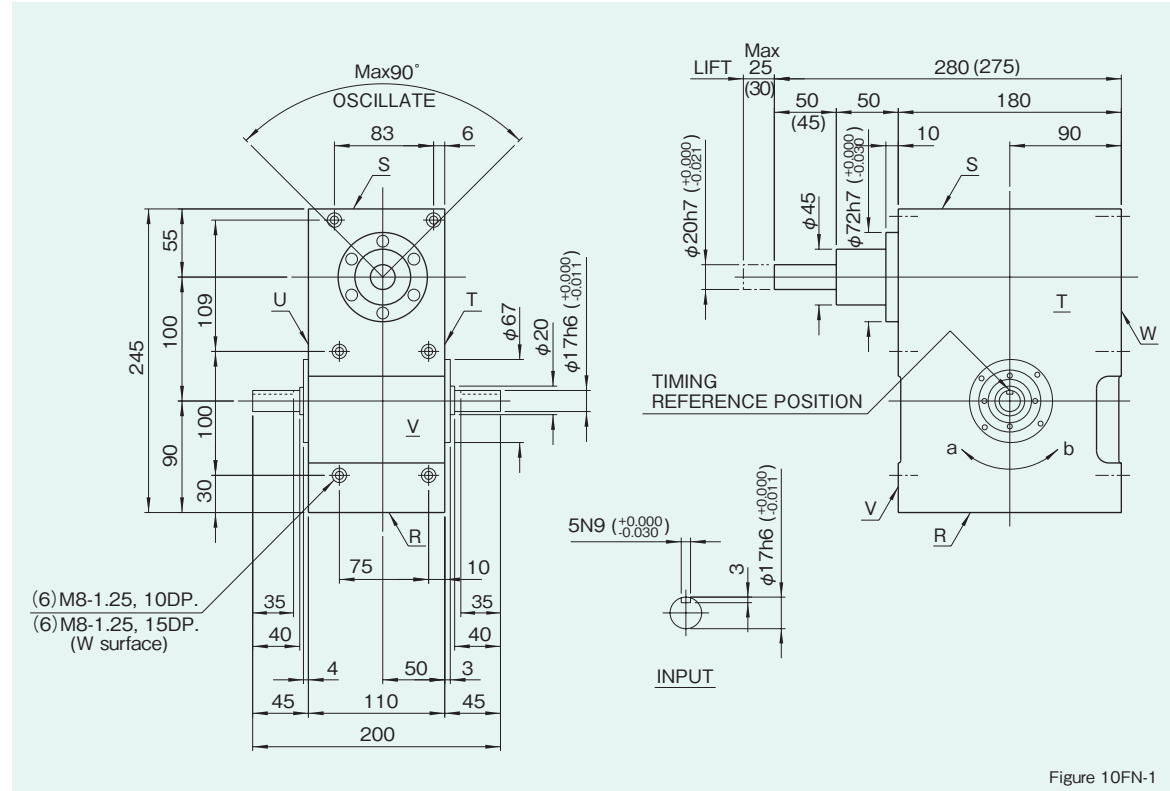


Figure 10FN-1

•Dimensions in ( ) apply when lift is over 25 mm.

### Locations of oil plug, etc., and oil capacity

Mounting position	1
Location	
Oil capacity (ℓ)	0.8

Figure 10FN-2

### Precautions

- Each point indicated in the mounting positions shown in Figure 10FN-2 represents (starting at top) the oil plug (PT1/2), oil level (VA-01), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 10FN-2 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

## Specifications

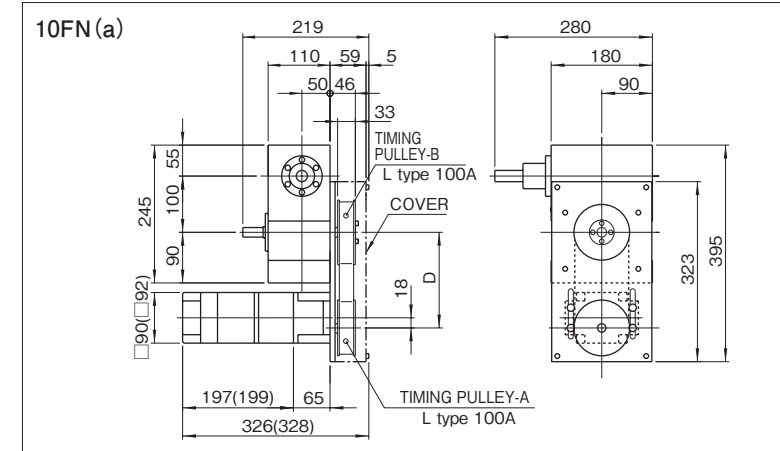
Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	980	Output inertia (oscillate)	$J_0$	$\text{kg}\cdot\text{m}^2$	$1.2 \times 10^{-3}$
Output allowable axial load	$P_1$	N	245	Input allowable radial load	$P_4$	N	1078	Output internal load (lift)	$W_{a1}$	N	19.6
Output allowable radial load	$P_2$	N	98	Input maximum repetitive allowable torque	$P_5$	$\text{N}\cdot\text{m}$	68.6	Housing color			Silver
Output static torque	$T_s$	$\text{N}\cdot\text{m}$	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	$\text{N}\cdot\text{m}/\text{rad}$	6664	Product weight		kg	27
Output torsional rigidity	$K_1$	$\text{N}\cdot\text{m}/\text{rad}$	5096	Input inertia	$J_1$	$\text{kg}\cdot\text{m}^2$	$1.5 \times 10^{-2}$	Contact us.			

Table 10FN-1

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

## Option (Miniature motor mounting specifications)



## Induction motor specifications

Table 10FN-2

Maker	Type	Motor model	Output power (W)	Frequency (Hz)	Voltage (V)	Current (A)	Starting torque (N·m)	Rated torque (N·m)	Rotating speed (rpm)	Capacitor (μF)	Gear head model
Oriental motor	No clutch and brake	5IK90GU-AF	90	50	100	2.0	0.45	0.68	1300	25.0	5GU□KB
	With clutch and brake	CB1590-801	90	60	100	2.0	0.45	0.57	1550	25.0	5GCH□KB
Panasonic	No clutch and brake	M9IC90G4L	90	50	100	1.6	0.470	0.637	1325	25.0	M9GD□B
	With clutch and brake	M9CBIC90G4L	90	60	100	1.7	0.470	0.519	1625	25.0	M9GE□B-CB

•The figures in the □ indicate gear ratio.

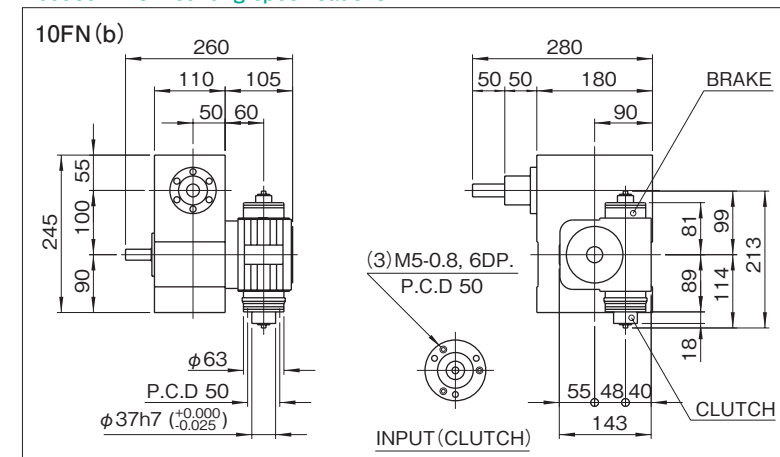
## Allowable torque with gear head (N·m)

Table 10FN-3

Rotating speed	200	120	100	60	50	30	20	15	10
50Hz Gear ratio	7.5	12.5	15	25	30	50	75	100	150
60Hz Gear ratio	9	15	18	30	36	60	90	120	180
Atatic torque	5IK90GU-AF	4.1	6.2	7.4	11.2	13.5	20	20	20
	M9IA90G4L	3.43	5.68	6.76	10.88	13.03	19.6	19.6	19.6

(1N·m=0.102kgf·m)

## Reducer R48 mounting specifications



## Timing transmission specifications

Table 10FN-4

Timing pulley reduction ratio	Pulley A Number of teeth	Pulley B Number of teeth	D (mm)	Belt model
1.4	30	42	170	270L 72 teeth
1.5	28	42	175	270L 72 teeth
1.62	26	42	179	270L 72 teeth

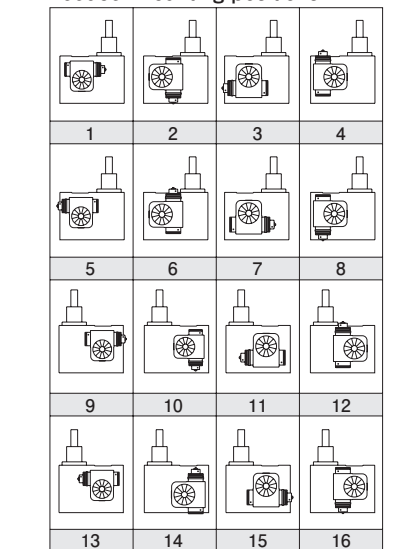
## Clutch and brake specifications

Table 10FN-5

Item	Motor	
	Clutch	Brake
Static frictional torque	1.5N·m	
Dynamic frictional torque	1.0N·m	
Rated voltage	DC24V	
Power consumption (at 75°C)	7W	5W
Armature pull - in time	15msec	
Armature release time	25msec	
Actual torque build - up time	20msec	
Repetition rate	Max. 100 times/min	
Total energy	$1.5 \times 10^{-2}$ J	
Allowable energy at one time	1.47J	

Figure 10FN-5

## Reducer mounting positions





### 12FN Dimensions

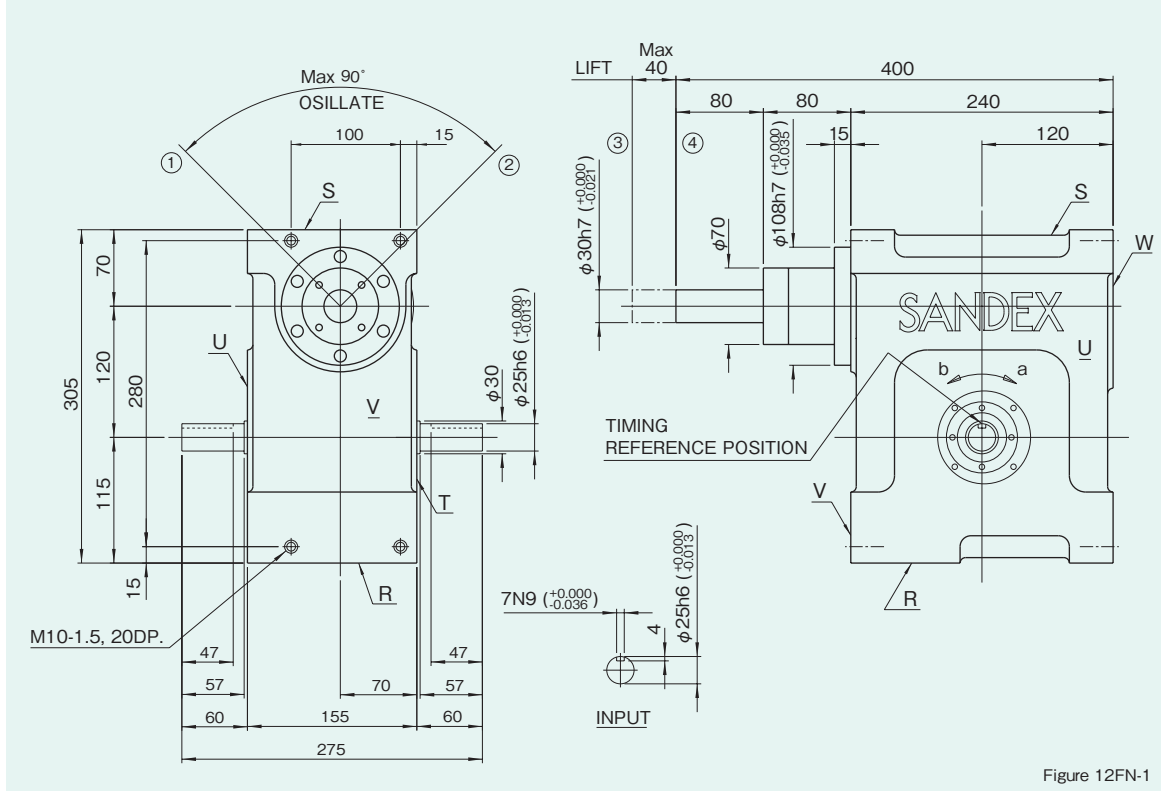


Figure 12FN-1

### Locations of oil plug, etc., and oil capacity

Mounting position	1
Location	
Oil capacity (ℓ)	1.4

Figure 12FN-2

### Precautions

- Each point indicated in the mounting positions shown in Figure 12FN-2 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 12FN-2 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

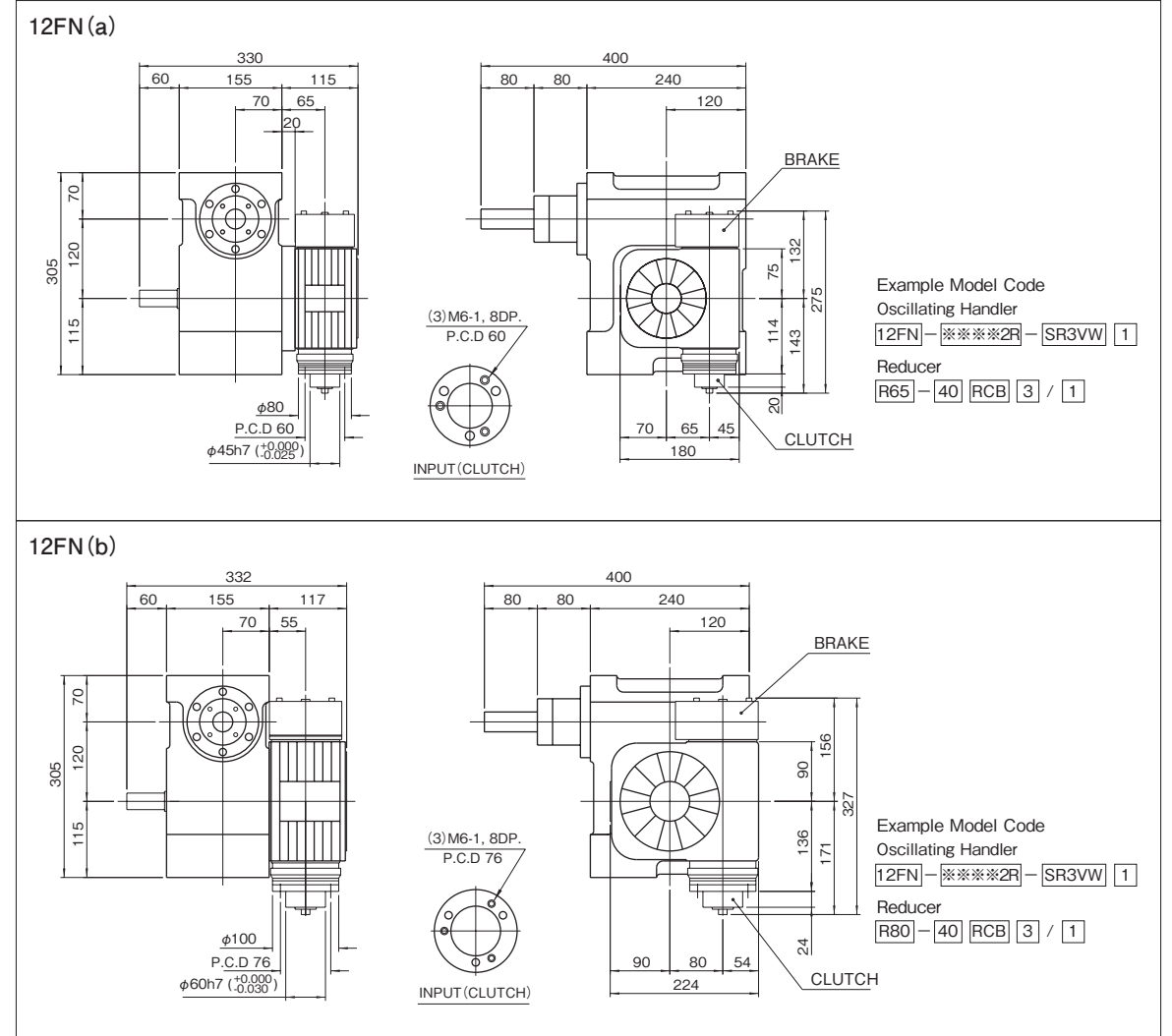
### Specifications

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	1470	Output inertia (oscillate)	$J_0$	kg·m <sup>2</sup>	0.0033
Output allowable axial load	$P_1$	N	280	Input allowable radial load	$P_4$	N	2300	Output internal load (lift)	$W_{a1}$	N	25.5
Output allowable radial load	$P_2$	N	200	Input maximum repetitious allowable torque	$P_5$	N·m	220	Housing color			Silver
Output static torque	$T_s$	N·m	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	N·m/rad	$1.66 \times 10^4$	Product weight		kg	70
Output torsional rigidity	$K_1$	N·m/rad	$1.65 \times 10^4$	Input inertia	$J_1$	kg·m <sup>2</sup>	$6.3 \times 10^{-2}$				Contact us.

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

### Mounted accessories



### Reducer mounting positions

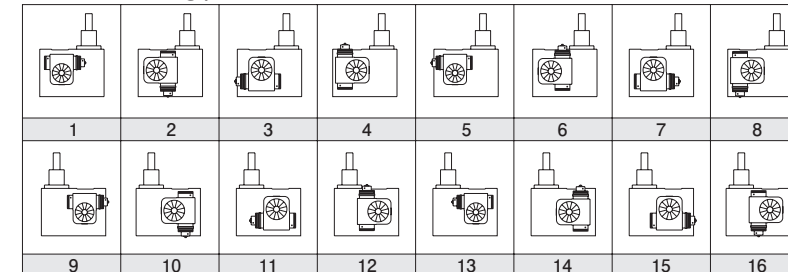


Figure 12FN-4



## 16FN Dimensions

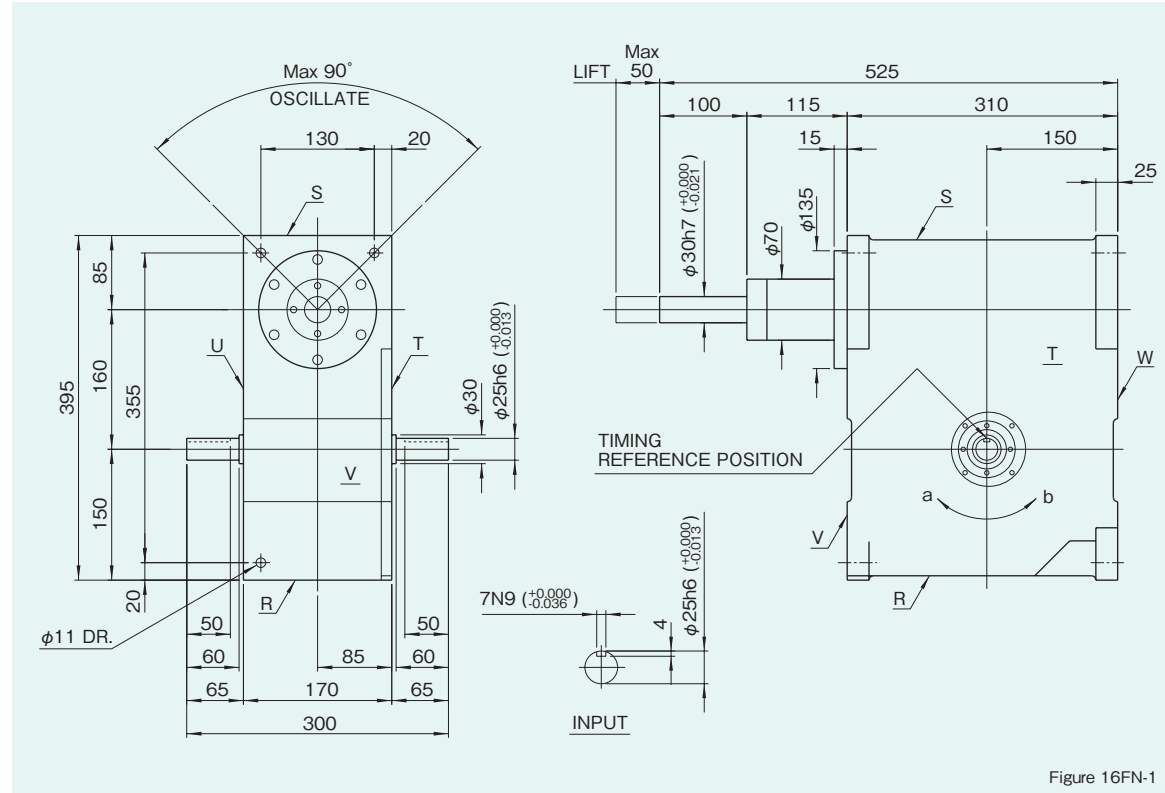
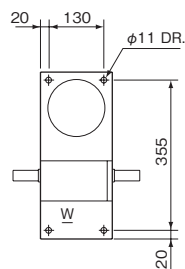


Figure 16FN-1

### Mounting hole locations

Figure 16FN-2



Dimension of W surface

### Locations of oil plug, etc., and oil capacity

Figure 16FN-3

Mounting position	1
Location	
Oil capacity (ℓ)	2.5

### Precautions

- Each point indicated in the mounting positions shown in Figure 16FN-3 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 16FN-3 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

### Specifications

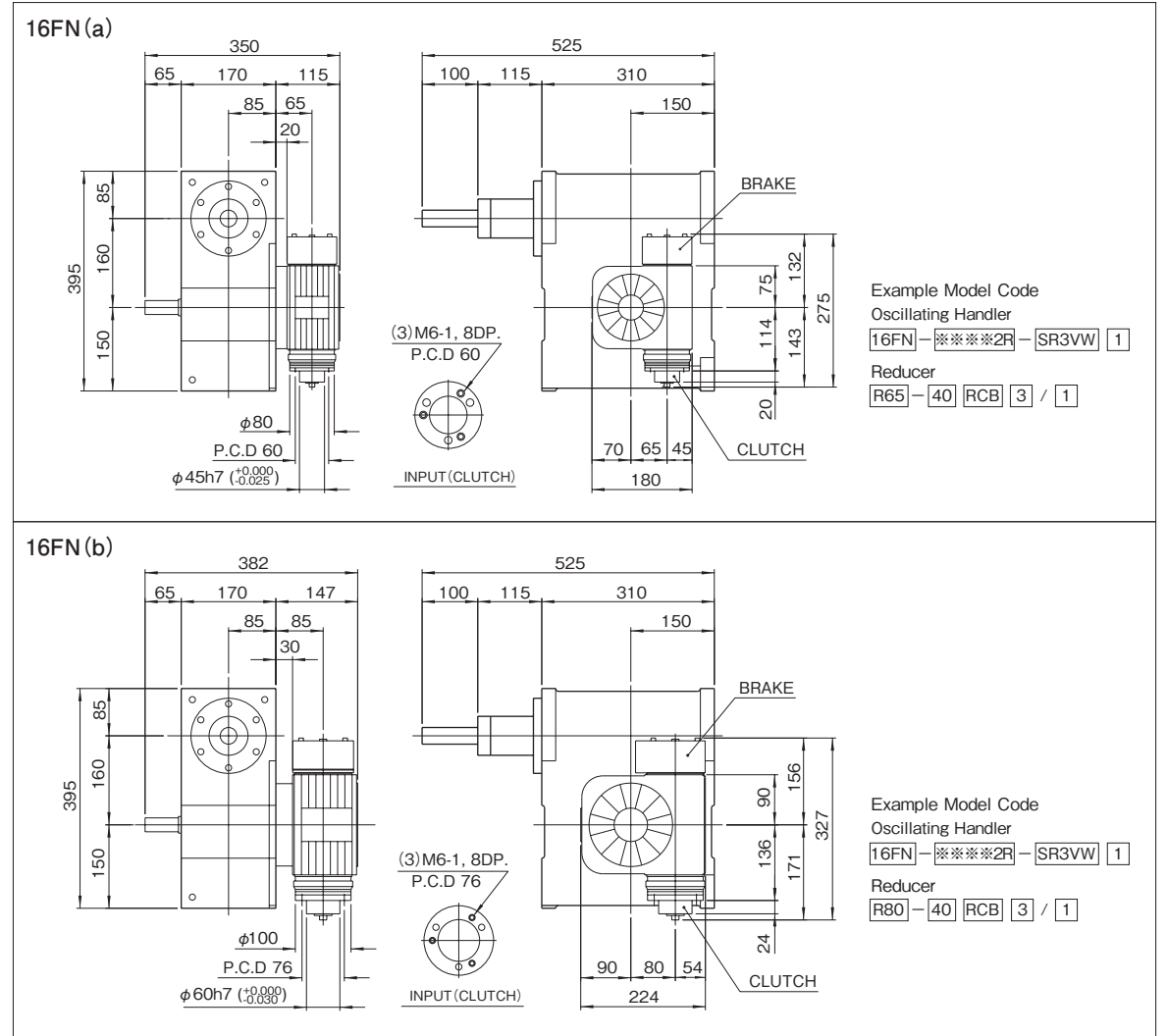
Table 16FN-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	1470	Output inertia (oscillate)	$J_0$	$\text{kg}\cdot\text{m}^2$	$6.35 \times 10^{-3}$
Output allowable axial load	$P_1$	N	490	Input allowable radial load	$P_4$	N	2352	Output internal load (lift)	$W_{a1}$	N	56.8
Output allowable radial load	$P_2$	N	274.4	Input maximum repetitive allowable torque	$P_5$	$\text{N}\cdot\text{m}$	225.4	Housing color			Silver
Output static torque	$T_s$	$\text{N}\cdot\text{m}$	264.6	Input torsional rigidity	$K_2$	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	$2.058 \times 10^4$	Product weight		kg	110
Output torsional rigidity	$K_1$	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	$2.058 \times 10^4$	Input inertia	$J_1$	$\text{kg}\cdot\text{m}^2$	0.1875				Contact us.

Note : Input inertia : J is calculated in dwell.

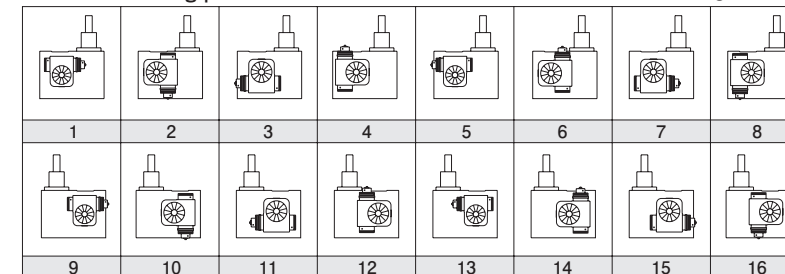
(1N=0.102kgf)

## Mounted accessories



### Reducer mounting positions

Figure 16FN-5







7FU Dimensions

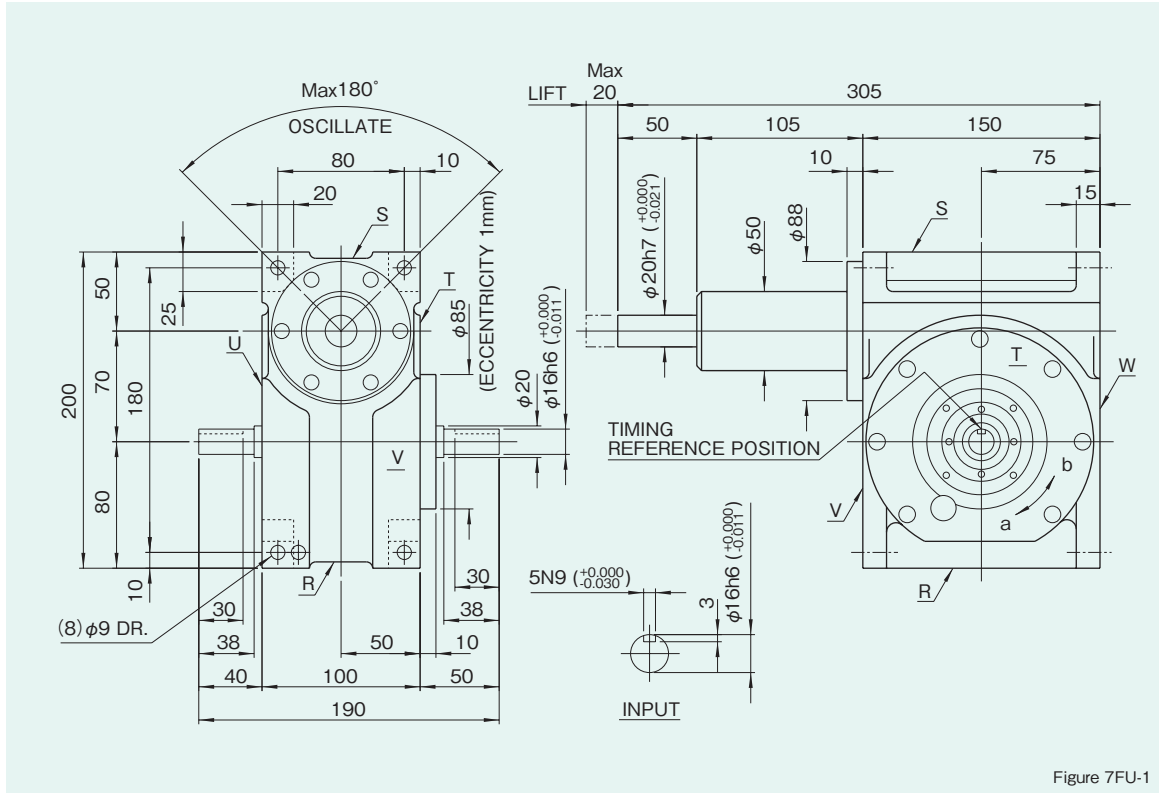
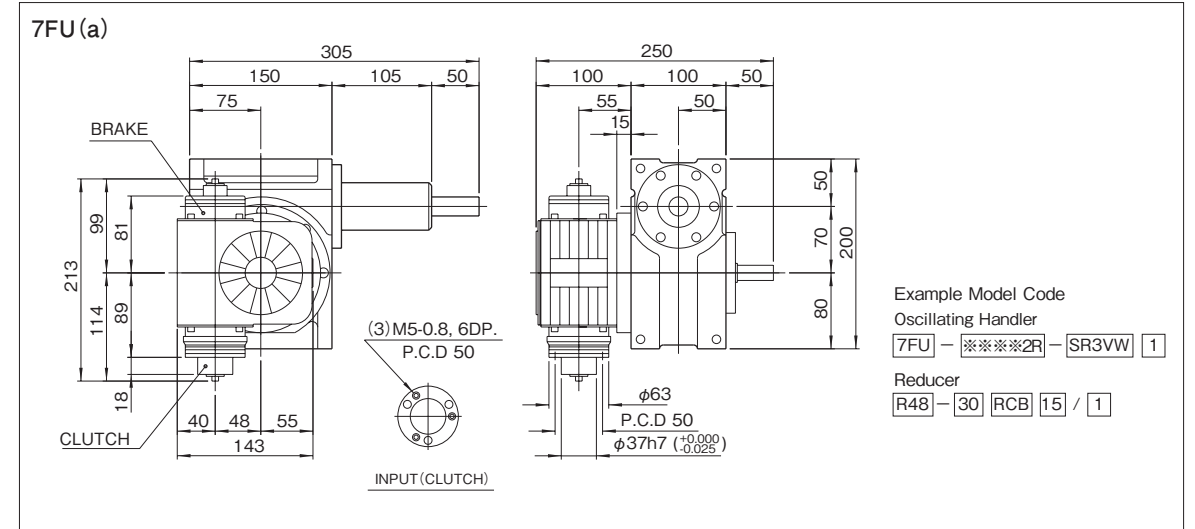
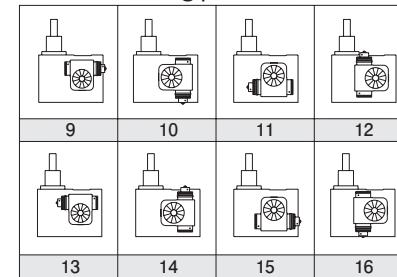


Figure 7FU-1

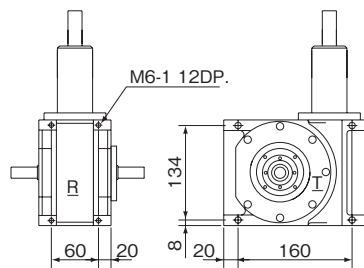
Mounted accessories



Reducer mounting positions Figure 7FU-5

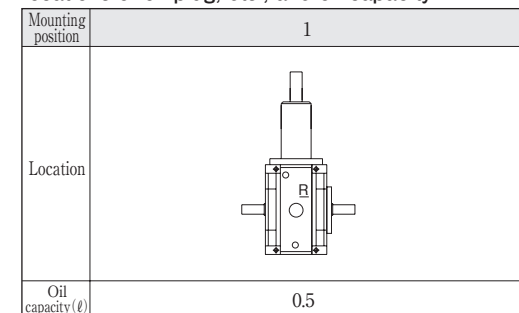


Mounting hole locations Figure 7FU-2



Dimension of R,S,T, and U surface

Locations of oil plug, etc., and oil capacity Figure 7FU-3



Precautions

- Each point indicated in the mounting positions shown in Figure 7FU-3 represents (starting at top) the oil plug (PT3/8), oil level (VA-01), and drain (PT3/8).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 7FU-3 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

Specifications

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	980	Output inertia (oscillate)	$J_0$	kg·m <sup>2</sup>	$1.9 \times 10^{-4}$
Output allowable axial load	$P_1$	N	68.6	Input allowable radial load	$P_4$	N	931	Output internal load (lift)	$W_{a1}$	N	10.8
Output allowable radial load	$P_2$	N	137.2	Input maximum repetitive allowable torque	$P_5$	N·m	58.8	Housing color			
Output static torque	$T_s$	N·m	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	N·m/rad	$4.116 \times 10^3$	Product weight		kg	22
Output torsional rigidity	$K_1$	N·m/rad	4704	Input inertia	$J_1$	kg·m <sup>2</sup>	$3.0 \times 10^{-3}$	Contact us.			

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)







## 11FU Dimensions

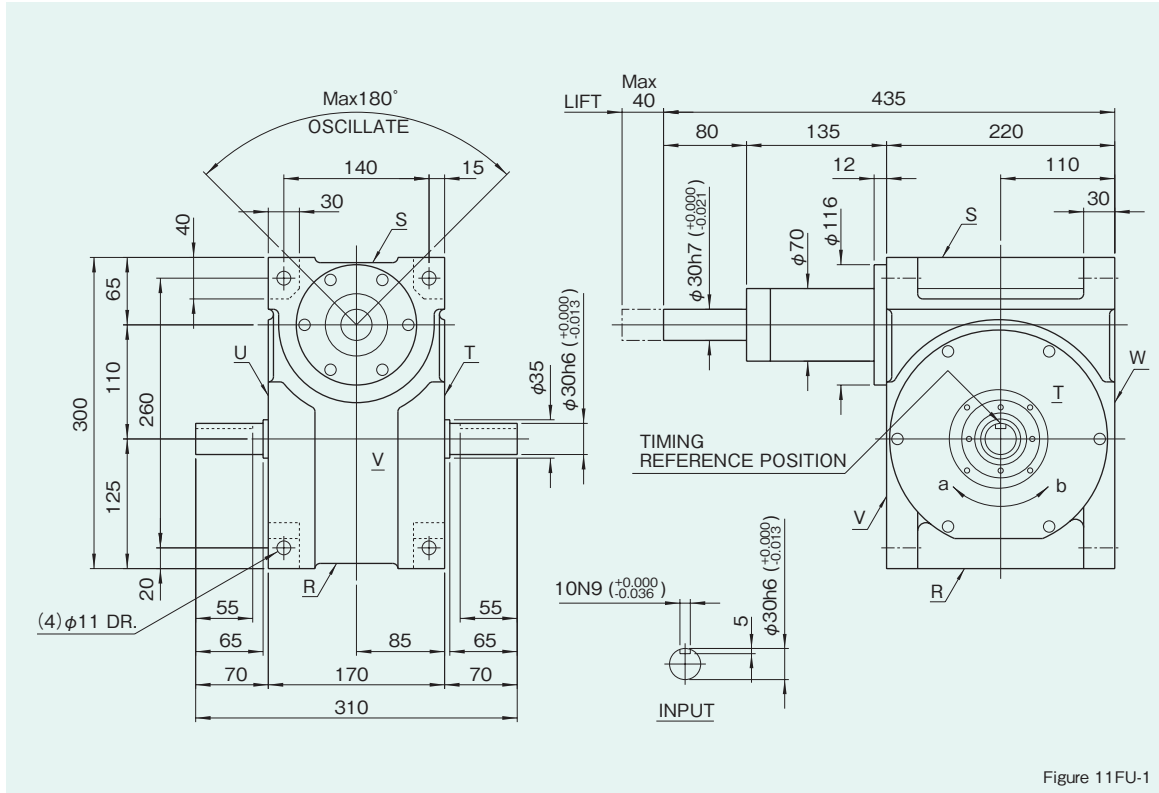
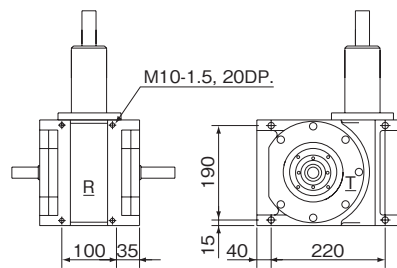


Figure 11FU-1

### Mounting hole locations

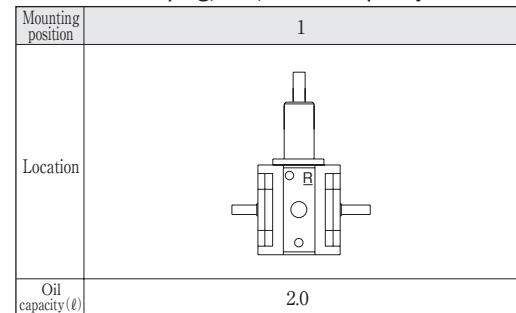
Figure 11FU-2



Dimension of R,S,T, and U surface

### Locations of oil plug, etc., and oil capacity

Figure 11FU-3



### Precautions

- Each point indicated in the mounting positions shown in Figure 11FU-3 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 11FU-3 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

### Specifications

Table 11FU-1

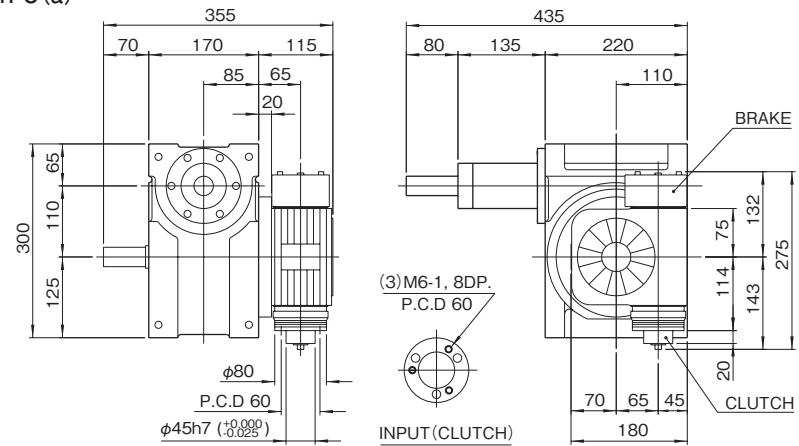
Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	2940	Output inertia (oscillate)	$J_0$	$\text{kg}\cdot\text{m}^2$	$1.6 \times 10^{-3}$
Output allowable axial load	$P_1$	N	245	Input allowable radial load	$P_4$	N	2548	Output internal load (lift)	$W_{a1}$	N	34.3
Output allowable radial load	$P_2$	N	176.4	Input maximum repetitive allowable torque	$P_5$	$\text{N}\cdot\text{m}$	392	Housing color			
Output static torque	$T_s$	$\text{N}\cdot\text{m}$	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	$\text{N}\cdot\text{m}/\text{rad}$	$2.548 \times 10^4$	Product weight		kg	75
Output torsional rigidity	$K_1$	$\text{N}\cdot\text{m}/\text{rad}$	$1.764 \times 10^4$	Input inertia	$J_1$	$\text{kg}\cdot\text{m}^2$	$3.0 \times 10^{-2}$	Contact us.			

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

## Mounted accessories

### 11FU(a)



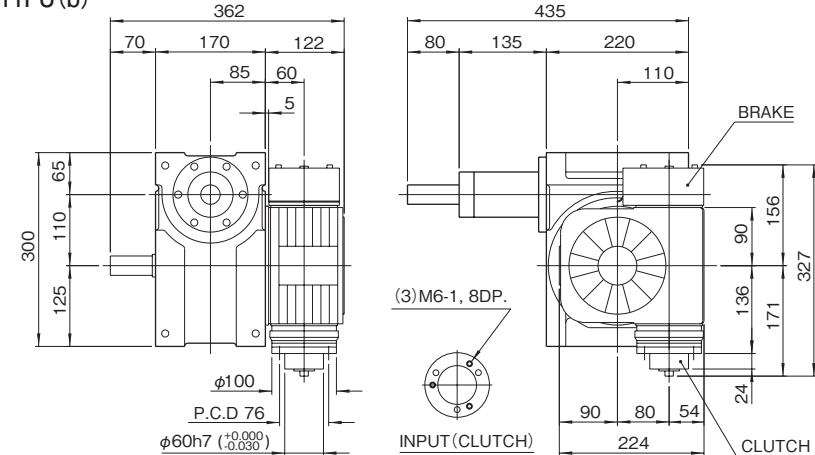
### Example Model Code

Oscillating Handler  
11FU-\*\*\*2R-SR3VW 1

### Reducer

R65-20 RCB 3 / 1

### 11FU(b)



### Example Model Code

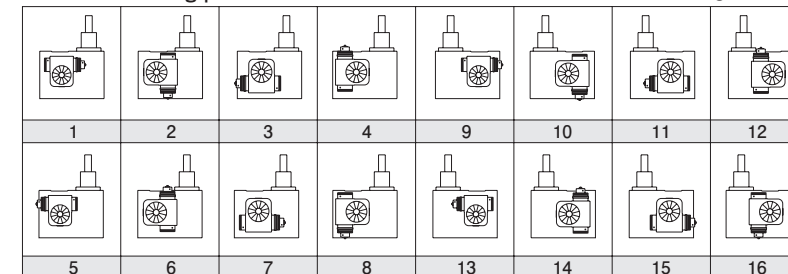
Oscillating Handler  
11FU-\*\*\*2R-SR3VW 1

### Reducer

R80-20 RCB 3 / 1

## Reducer mounting positions

Figure 11FU-5







## 14FU Dimensions

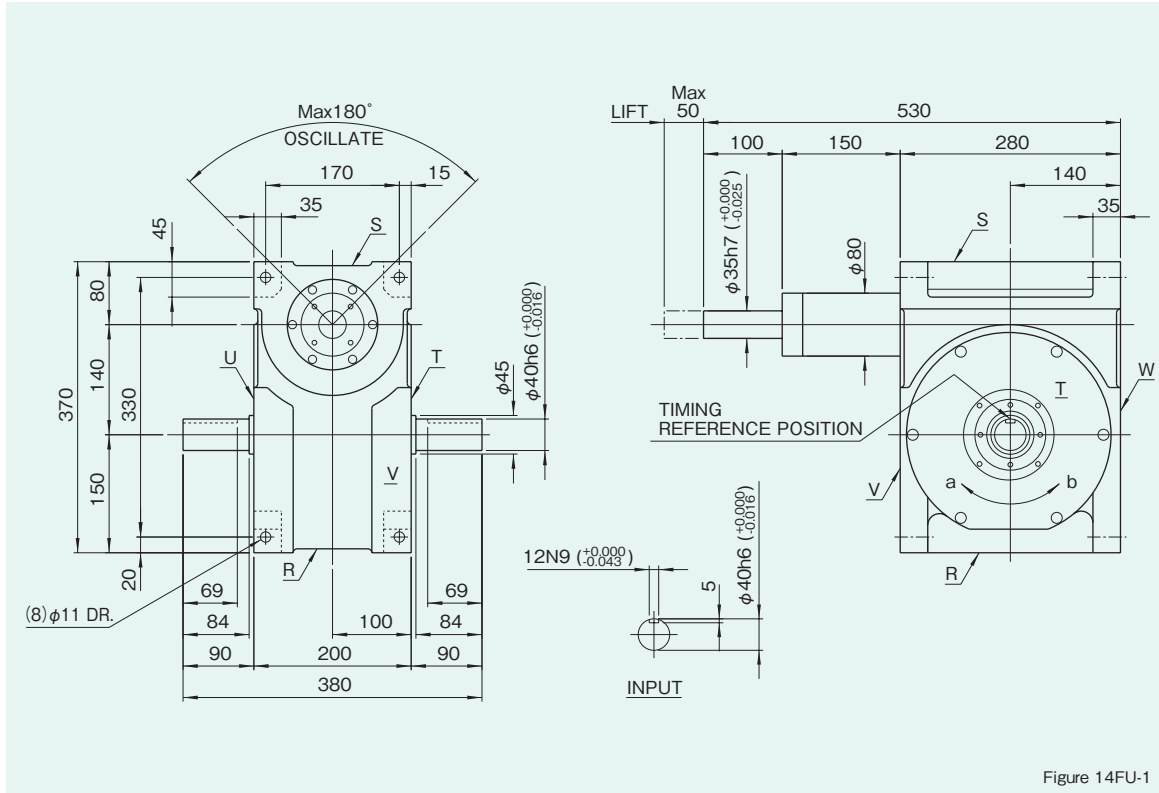
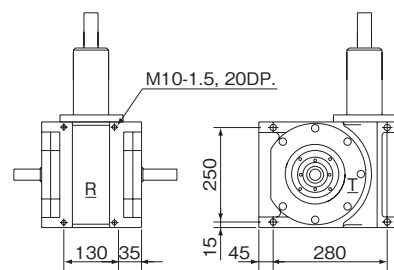


Figure 14FU-1

### Mounting hole locations

Figure 14FU-2



Dimension of R,S,T, and U surface

### Locations of oil plug, etc., and oil capacity

Figure 14FU-3

Mounting position	1
Location	
Oil capacity (ℓ)	3.5

### Precautions

- Each point indicated in the mounting positions shown in Figure 14FU-3 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 14FU-3 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

Figure 14FU-1

### Specifications

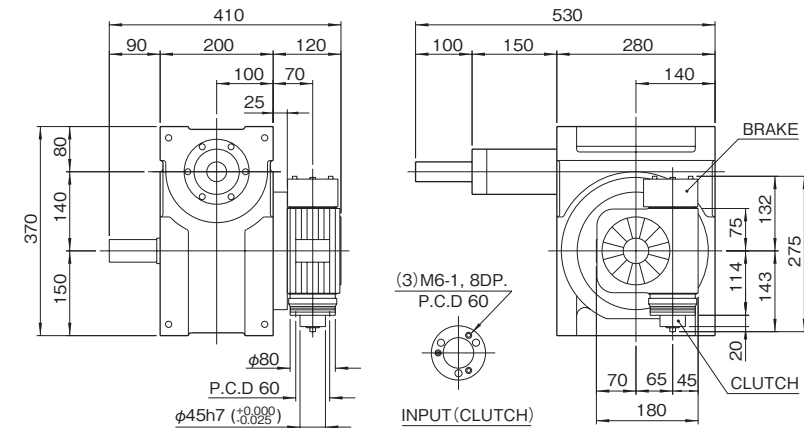
Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	3136	Output inertia (oscillate)	$J_0$	$\text{kg}\cdot\text{m}^2$	$5.0 \times 10^{-3}$
Output allowable axial load	$P_1$	N	372.4	Input allowable radial load	$P_4$	N	3822	Output internal load (lift)	$W_{a1}$	N	58.8
Output allowable radial load	$P_2$	N	294	Input maximum repetitive allowable torque	$P_5$	$\text{N}\cdot\text{m}$	735	Housing color			
Output static torque	$T_s$	$\text{N}\cdot\text{m}$	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	$\text{N}\cdot\text{m}/\text{rad}$	$1.078 \times 10^5$	Product weight		kg	
Output torsional rigidity	$K_1$	$\text{N}\cdot\text{m}/\text{rad}$	$2.646 \times 10^4$	Input inertia	$J_1$	$\text{kg}\cdot\text{m}^2$	0.1075	Contact us.			

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

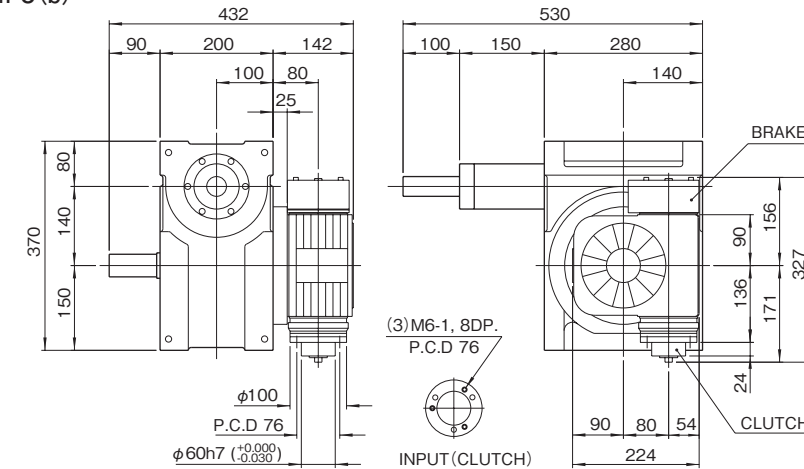
## Mounted accessories

### 14FU (a)



Example Model Code  
Oscillating Handler  
14FU-\*\*\*2R-SR3VW 1  
Reducer  
R65-20 RCB 3 / 1

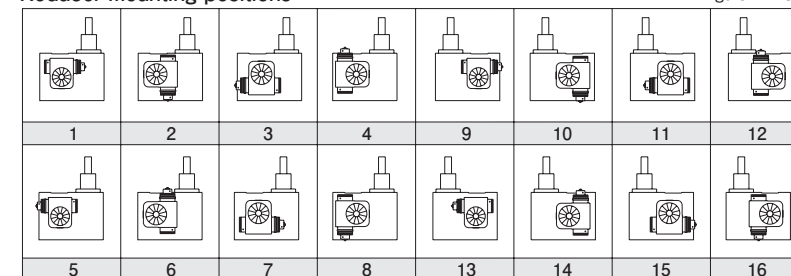
### 14FU (b)



Example Model Code  
Oscillating Handler  
14FU-\*\*\*2R-SR3VW 1  
Reducer  
R80-20 RCB 3 / 1

### Reducer mounting positions

Figure 14FU-5





20FU Dimensions

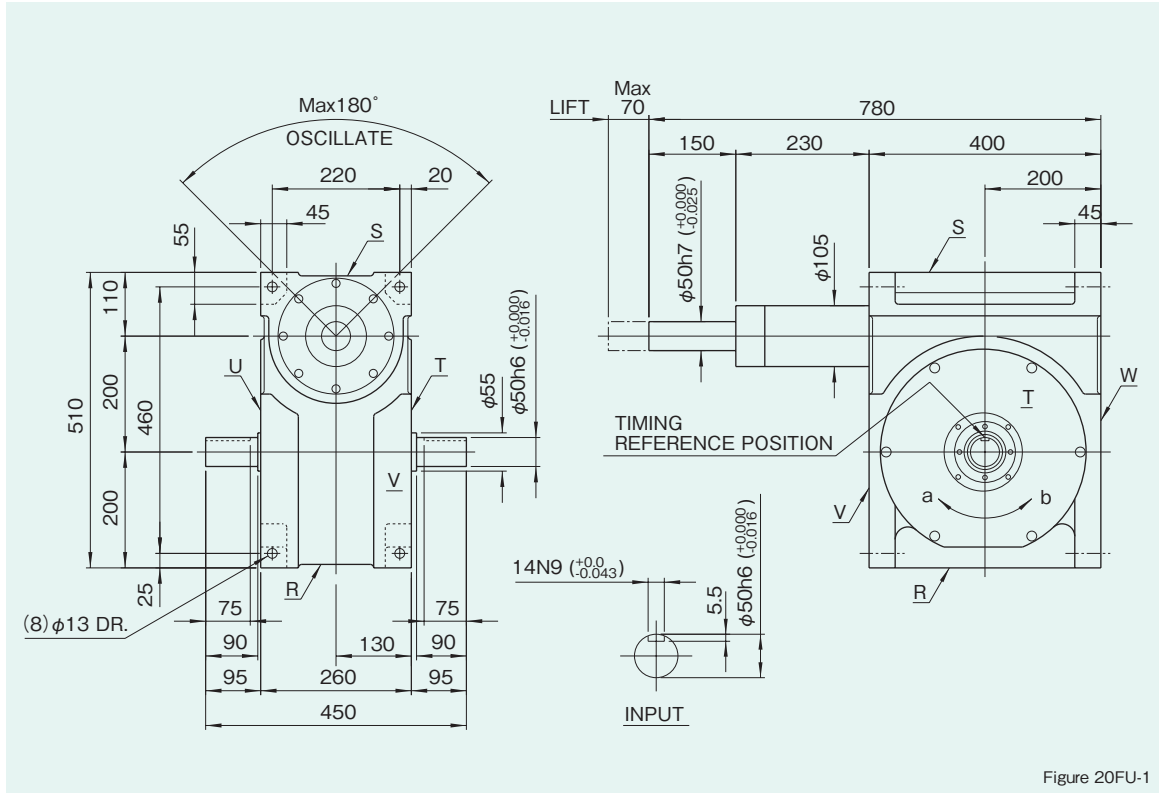
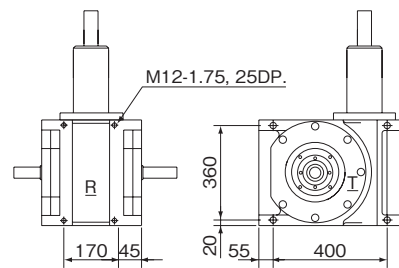


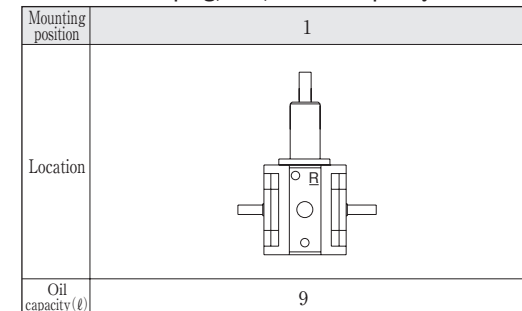
Figure 20FU-1

Mounting hole locations Figure 20FU-2



Dimension of R,S,T, and U surface

Locations of oil plug, etc., and oil capacity Figure 20FU-3



Precautions

- Each point indicated in the mounting positions shown in Figure 20FU-3 represents (starting at top) the oil plug (PT3/4), oil level (VB), and drain (PT3/4).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 14FU-3 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

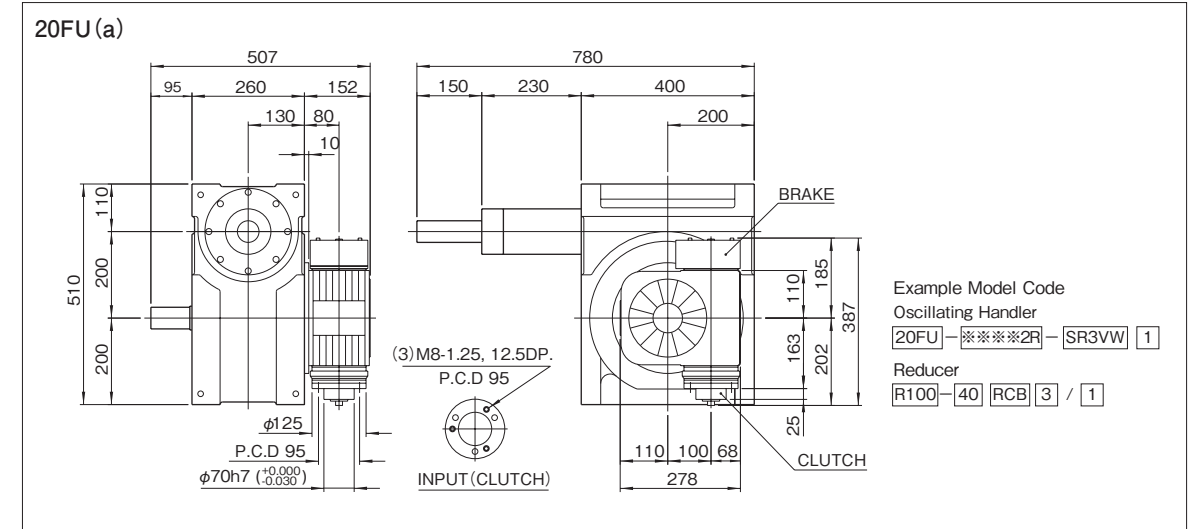
Specifications

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	4900	Output inertia (oscillate)	$J_0$	$\text{kg}\cdot\text{m}^2$	$3.5 \times 10^{-2}$
Output allowable axial load	$P_1$	N	735	Input allowable radial load	$P_4$	N	6860	Output internal load (lift)	$W_{a1}$	N	157.8
Output allowable radial load	$P_2$	N	352.8	Input maximum repetitive allowable torque	$P_5$	$\text{N}\cdot\text{m}$	1372	Housing color			
Output static torque	$T_s$	$\text{N}\cdot\text{m}$	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	$2.646 \times 10^5$	Product weight		kg	330
Output torsional rigidity	$K_1$	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	$7.644 \times 10^4$	Input inertia	$J_1$	$\text{kg}\cdot\text{m}^2$	0.365	Contact us.			

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

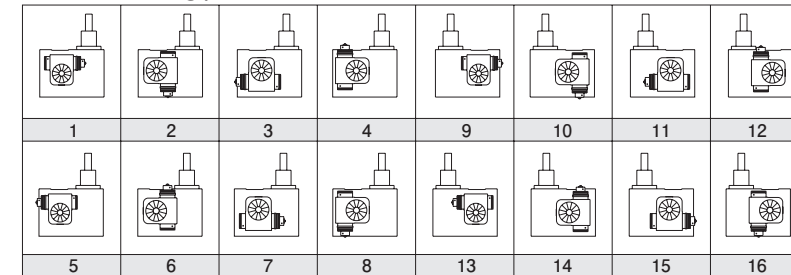
Mounted accessories



Example Model Code  
 Oscillating Handler  
 20FU-\*\*\*2R-SR3VW 1  
 Reducer  
 R100-40 RCB 3 / 1

Reducer mounting positions

Figure 20FU-5





## 8F Dimensions

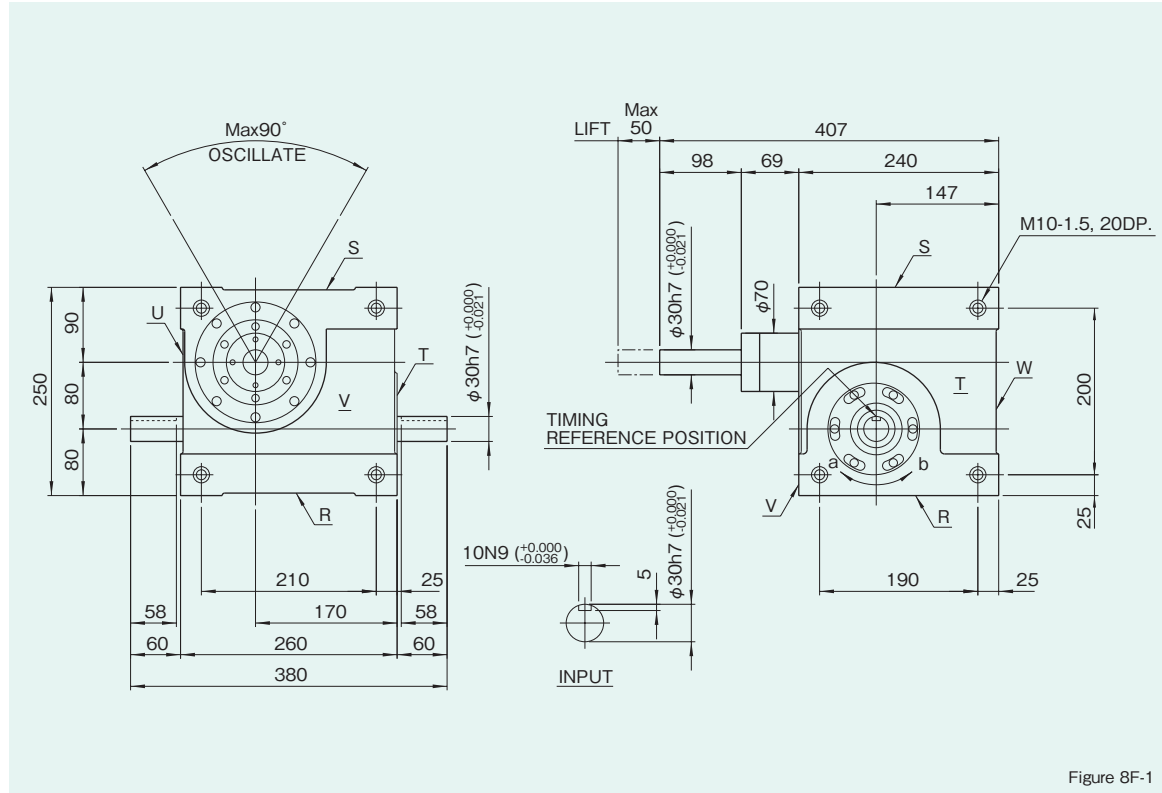
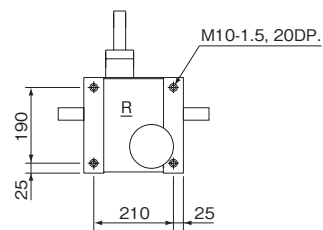


Figure 8F-1

### Mounting hole locations

Figure 8F-2



Dimension of R and S surface

### Locations of oil plug, etc., and oil capacity

Figure 8F-3

Mounting position	1	5
Location		
Oil capacity (ℓ)	3	3

### Precautions

- Each point indicated in the mounting positions shown in Figure 8F-3 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing, oscillating, and roller drives.
- The oil levels indicated in Figure 8F-3 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

### Specifications

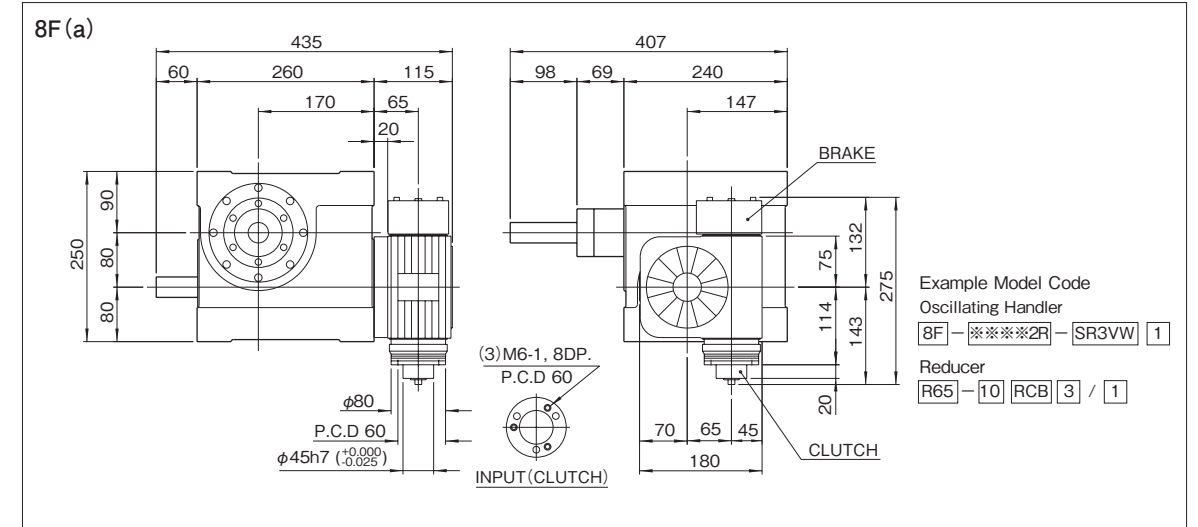
Table 8F-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable carrying load	$W_0$	N	Refer to Carrying Capacity Table	Input allowable axial load	$P_3$	N	1862	Output inertia (oscillate)	$J_0$	kg·m <sup>2</sup>	$5.0 \times 10^{-3}$
Output allowable axial load	$P_1$	N	294	Input allowable radial load	$P_4$	N	3920	Output internal load (lift)	$W_{a1}$	N	34.3
Output allowable radial load	$P_2$	N	147	Input maximum repetitive allowable torque	$P_5$	N·m	392	Housing color			
Output static torque	$T_s$	N·m	Refer to Torque Capacity Table	Input torsional rigidity	$K_2$	N·m/rad	$2.842 \times 10^4$	Product weight		kg	70
Output torsional rigidity	$K_1$	N·m/rad	$1.715 \times 10^4$	Input inertia	$J_1$	kg·m <sup>2</sup>	$4.25 \times 10^{-2}$	Contact us.			

Note : Input inertia : J is calculated in dwell.

(1N=0.102kgf)

## Mounted accessories



Example Model Code  
Oscillating Handler  
8F-\*\*\*2R-SR3VW 1  
Reducer  
R65-10 RCB 3 / 1

### Reducer mounting positions

Figure 8F-5

