



SANKYO
AUTOMATION



Precision. Quality. Reliability.

AD Series (Alpha Drive)

Rotary Indexing Tables

Overview

Design & Operation

Sankyo is the worldwide leader for indexing technology and continues to develop innovation in motion control. Sankyo's core indexing system is based upon the roller gear cam mechanism, a combination of a globoidal cam and cam followers in a precision machined turret. Output backlash is eliminated by preloading the cam follower bearings against the cam ribs.

The profile of the cam, and the rolling contact surfaces of the cam followers produce perfectly smooth, controlled motions with minimal wear. Compared to the competition, the AD Series has the largest cam followers in the industry. Larger internal components advantages are; rotate less revolutions for longer service life, more surface area for less wear, and more torque capacity for heavier loads with faster cycle times.



Features

- **Speed:** * Up to 80 CPM, cycle on demand with a VFD controller (index period dependent)
* Up to 200 CPM, cycle on demand with a servo motor drive or continuous running mode
- **Accuracy:** ± 15 to ± 30 arc seconds (motion & housing size dependent)
- **Load Capacity:** Large internal components can move heavier loads
- **Motion Directions:** Operates in forward or reversed directions (oscillates with VFD or servo drives)
- **Motion Options:** Over 700 indexing stops & index period combinations
- **Maintenance Free:** Sealed & totally maintenance free for life
- **Load Size:** Supports 630 to 4,050mm (14 to 160") dial plate diameters
- **Sizes:** 8 housing sizes from 70 to 450mm (2.7 to 17.7") shaft centers
- **Housing Design:** Robust cast iron housing maintains accuracy & dampens vibration
- **Output Design:** Indexing & stationary flange for dial plate mounting with hollow bore to routing supply lines
- **Input Design:** Low profile geared motor or servo motor drives are normally within the indexer housing height
- **Warranty:** 4-year warranty

Optional Safety Features

- **Emergency Stop:** When an emergency stop circuit is designed to stop the indexer mid-cycle, we recommend a fail-safe spring engaged brake motor (engaged without power) or a servo motor drive.
- **Overload Clutch:** For applications when tooling crashes could occur, we offer an output torque limiting clutch to mechanically disconnect the rotating load which protects the indexer from damage.
- **Redundant Sensors:** Dual timing sensor options can avoid human injury or machinery damage from false starts if the main stop sensor fails or a sensor wire is cut/broken.



Geared Motor Drive



Servo Motor Drive

Specifications

Sizes	Units	7AD	9AD	11AD	15AD	19AD	23AD	33AD	45AD
Nominal dial diameter	inch	25	32	40	53	67	81	117	160
	mm	630	810	1,000	1,350	1,710	2,070	2,970	4,050
Cycles per minute	RPM	On demand: 0-66 with VFD drive, 0-200 with servo drive or 0-200 continuous							
Output stop quantity	-	2, 3, 4, 5, 6, 8, 10, 12, 15 & 16 with 1 dwell, 16, 20, 24 & 32 (other are available)							
Indexing accuracy (1 dwell)	arc sec	±30	±25	±20	±15				
Repetitive accuracy (1 dwell)	arc sec	±10			±7.5				
Oscillating angle	degrees	N/A (only by reversing the motor with controller)							
Max. axial load capacity	lb	1,660	3,120	4,150	6,240	13,460	20,230	27,000	37,000
	N	7,390	13,880	18,470	27,770	59,890	90,020	120,140	164,640
Max. radial load capacity	lb	590	845	1,310	2,490	3,470	4,370	5,850	8,490
	N	2,630	3,760	5,830	11,080	15,440	19,440	26,030	37,780
Bending/tilt moment	lb·in	2,300	3,890	6,950	15,200	28,000	42,820	86,300	159,700
	N·m	260	440	790	1,720	3,160	4,840	9,750	18,050
Bending moment rigidity	lb·in/rad	2.0E+06	4.0E+06	6.6E+06	1.8E+07	5.0E+07	7.4E+07	1.5E+08	2.9E+08
	N·m/rad	2.3E+05	4.5E+05	7.5E+05	2.0E+06	5.7E+06	8.4E+06	1.8E+07	3.3E+07
Input inertia	lb·in ²	6.5	8.5	20.5	68.3	358.8	464.7	5,843.3	26,995.6
	kg·m ²	0.0019	0.0025	0.006	0.020	0.105	0.136	1.71	7.90
Output inertia	lb·in ²	11.6	37.9	118.5	553.5	1,876.0	5,757.9	28,328.3	88,094.7
	kg·m ²	0.0034	0.0111	0.0347	0.162	0.549	1.685	8.29	25.78
Lubrication	-	maintenance free & seal for life							
Indexer only weight	lb	33	53	93	187	397	628	2,204	3,527
	kg	15	24	42	85	180	285	1,000	1,600
Geared motor weight (small/large motor option)	lb	13/19	19/25	25/39	39/71	71/121	121/176	322/331	536/631
	kg	6/8.5	8.5/11.5	11.5/17.5	17.5/32	32/55	55/80	146/150	243/286
Inline servo reducer weight (no servo motor)	lb	3.0	3.0	8.1	17.6	35.2	35.2	35.2/79.3	79.3
	kg	1.4	1.4	3.7	8.0	16	16	16/36	36
Output torque limiter weight	lb	9.9	21	33	95	163	243	N/A	N/A
	kg	4.5	9.6	15	43	74	110	N/A	N/A

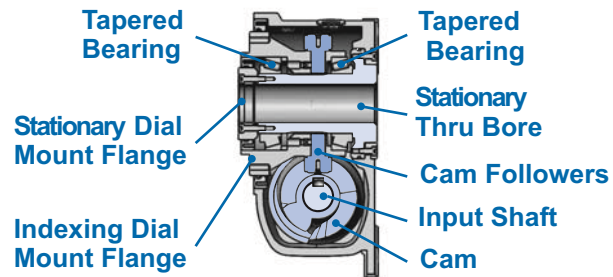
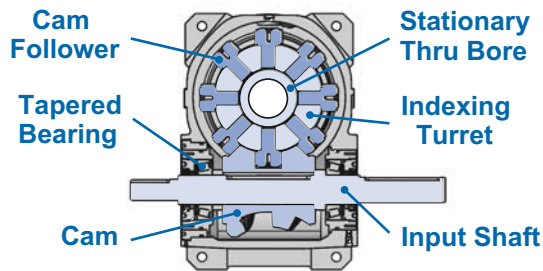
Index Period	Output Stops (others are available)																													
	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	20	24	25	28	30	32	36	38	40	48	60	64	72	80
90°																														
120°																														
150°																														
180°																														
210°																														
240°																														
270°																														
300°																														
330°																														

Standard catalog configurationsSpecials configurations (others are available)

Standard catalog configurations

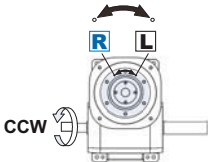
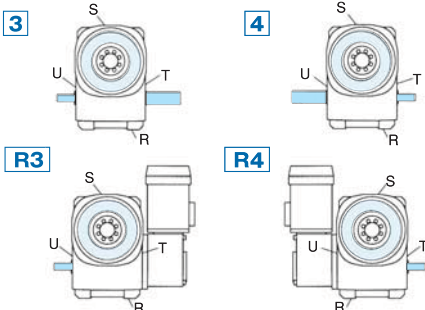
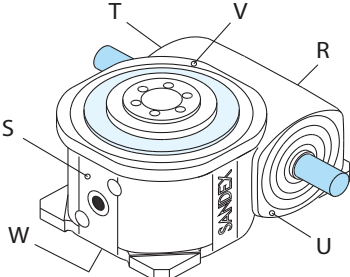
Specials configurations (others are available)

Indexer Options



Model code example

9	AD	—	08	18	7R	—	S	R3	VW1	X
a	b		c	d	e	f	g	h	i	j

a Size	9 90mm, input-to-output distance, options: 70mm, 90mm, 110mm, 150mm, 190mm, 230mm, 330mm & 450mm		
b Series	AD AD/Alpha Series		
c Output Stops	08 8 Stops, number of indexer output stops		
d Index Period	18 180 degrees, amount of input shaft/cam rotation period when the output rotates between stops		
e Motion Curve	7 SMS-3 (Sankyo Modified Sine), 8 SMCV-8 (Sankyo Modified Constant Velocity), 9 Custom Motion (special order)		
f Hand of Cam	R Right-hand (1 dwell) or R2 (2 dwell), input to output rotation relationship (RH is standard) L Right-hand (1 dwell) or L2 (2 dwell), input to output rotation relationship Note: Standard 1 dwell cams are 2 to 16 output stops, 2 dwell cams are 16 to 32 stops.		
g Output Option	S Standard flange, L Optional output torque limiting clutch		
h Input Shaft Projection	1 No drive, large shafts on T-side & no shaft on U-side 2 No drive, no shafts on T-side & large shaft on U-side 3 No drive, large shafts on T-side & small shaft on U-side 4 No drive, small shafts on T-side & large shaft on U-side R3 Drive mounts on T-side & small shaft on U-side (standard) R4 Drive mounts on U-side & small shaft on T-side		
i Mounting Holes	VW Standard tapped mounting holes on V-side & thru holes on W-side. T & U-sides have tapped holes for motor mounting adapter plates.		 W- Side at Ground Level
j Mounting Surfaces	The housing is completely filled with oil & mounts at any angle. It's sealed & maintenance free for life. For mounting reference, please use below. 1 =W-side at GL (std) 3 =U-side at GL 5 =R-side at GL 2 =V-side at GL 4 =T-side at GL 6 =S-side at GL		
k Special Requests	☐ Blank box is for a standard unit. ☒ Special requests are listed a certified drawing for customer approval.		

Geared Motor Drive



- Totally maintenance-free and sealed for life
- Inverter rated 230 & 460VAC dual voltage, reversible (standard)
- Fail-safe brake motor option for mid-cycle emergency stops
- Standard IP44 rating or optional IP65 rated for wash down applications
- Compact low profile is normally within the indexer housing height
- Mounts in 90° increments on either side of the indexer

Variable Frequency Drive (VFD) Motor Controller



- Variable motor speed, multiple presets or change speed on the fly
- Protects motor from over-current burnout
- 115V/1-ph, 230V/1-ph, 230V/3-ph, 460V/3-ph voltage/phase options
- Startup protect, VFD will error & fault if motor is jammed
- Internal contacts can stop/start accessories & signal lights
- Panel or din rail mounting

Servo Motor, Inline or Right Angle Reducer



- Inline or right angle reducer adapts to any servo motor brand
- For frequent stop/starts up to 200 cycles per minute
- Standard IP44 rating or optional IP67 rated for wash down applications
- Totally maintenance-free and sealed for life
- Normally within the indexer housing height & mounts on either side
- Optional FDA lubrication for packaging or medial applications

Model code example

GM	0.2	-030	D	4	-9AD	1	
a	b	c	d	e	f	g	

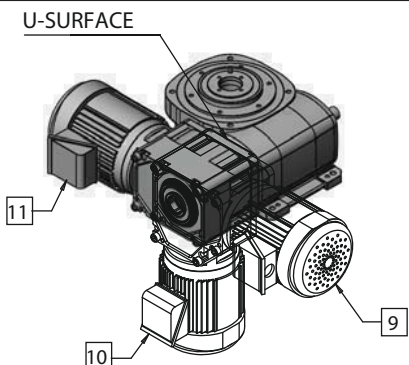
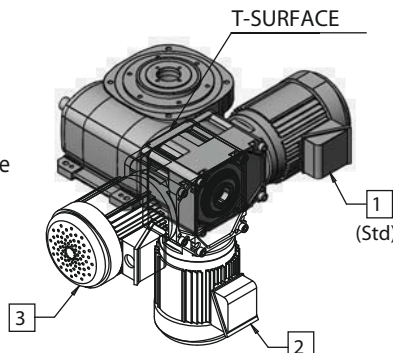
☐ = No Option
☒ **B** = Brake Motor
☒ **W** = Wash Down
☒ **X** = Special (drawing supplied)

a Model	b Motor Power	c Gear Ratio	d Motor Voltage	e Specification	f Model Size
Geared Motor GM Servo Drive SM	Indicates the motor power 0.20.2kW (0.25 HP) 0.75 ...0.75 kW (1 HP)	Indicates the gear ratio 0055:1 01010:1 20.37 ..20.37:1	Indicates the motor input voltage D 230/460V L 230 H 460	Indicates the motor drive manufacture 4 7~19AD standard 1 19~45AD standard X No Motor (special) Other motors available	Indicates the indexer housing size 9AD 7AD, 9AD, 11AD, 15AD, 19AD, 23AD, 33AD & 45AD

g Mounting Positions

Indicates the motor mounting positions

- ☒ **1** Standard
 2 & 3 are mounted on indexer T-side
 9,10 & 11 are mounted on indexer U-side
☒ **X** Specials are available

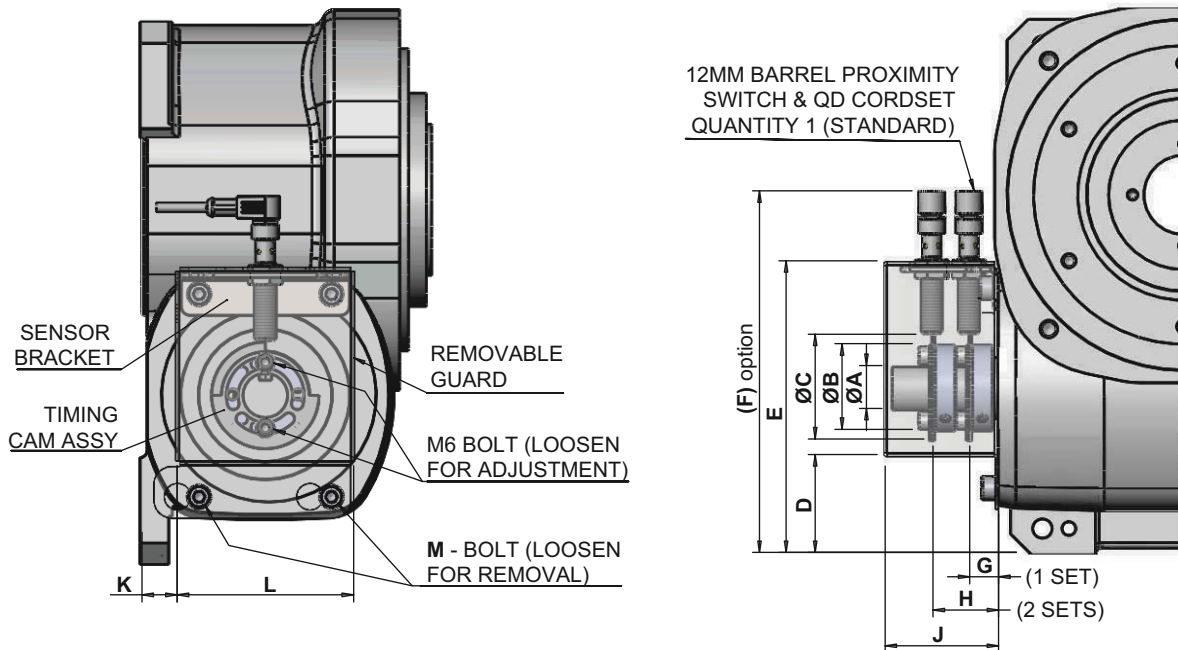


Timing Sensor Options

Timing Cam/Cycle Completed Sensor

We offer a cycle on demand timing cam package when the indexer is stopped every cycle. This package includes a proximity switch, right angle detachable cable, a timing cam and painted steel quick release cover. An optional second proximity switch is available for redundancy or additional interlock capacity.

Dimensions



Unit	A	B	C	D	E	(F)	G	H	J	K	L	M
7AD	17	40	50	41	127	183	15.5	36.5	58	10	80	M8
9AD	25	49	60	46	146	194	16.5	37.5	65	12	96	M8
11AD	25	49	60	56	167	206	16.5	37.5	65	20	100	M8
15AD	25	49	60	72	173	227	18.5	39.5	67	26	118	M10
19AD	25	49	60	82	209	279	18.5	39.5	67	42	146	M12
23AD	25	49	60	84	219	273	18.5	39.5	67	63	168	M12

Model code example

TC -
 D
1
U -
 9
AD -
 PNP -
 1

a
b
c
d
e
f
g
h

a Model	b Sensor Type	c Number of Sets	d USA Standard	e Model Sizes	f Series	g Sensor Polarity	h Number of Cam Dwells
Timing Cam & Sensor TC	D M12 Proximity Switch with QD 2 Meter Cable, Bracket, Timing Cam & Cover E Bracket, Timing Cam & Cover (no prox switch or cable)	1 Standard 2 Option 3 Special	U Standard	7 9 11 15 19 23 33 45	AD	PNP Standard NPN Option	1 2~16 Stops 2 16~48 Stops 3 48~80 Stops 4 40~80 Stops

Torque Limiting Clutch Options

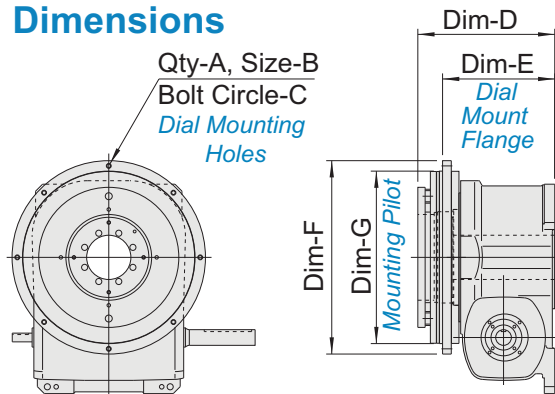
TAD Series Output Clutch

Our TAD series is designed to free spin when overloaded and automatically resets accurately at the original position when the load torque is below the preset. Dial plates or fixtures can mount to the center pilot flange and includes a hollow center bore.



- Easy adjust torque range changes in seconds without disassembly
- Automatically resets every 360° within ±15 arc seconds accuracy
- Trip torque accuracy is with ±10% of the preset torque
- Hollow bore design accepts riser post and/or overload sensor
- Compact low profile height is 40 to 74mm (1.57" to 2.91")
- 12 torque ranges from 40 to 5500 Nm (354 to 48,679 lb*in)

Dimensions



Size	Qty-A	Size-B	B.C.-C	Dim-D	Dim-E	Dim-F	Dim-G
7AD	6	M5x0.8	168	159.5	129	Ø180	Ø155 ^{+0.0} _{-0.040}
9AD	8	M8x1.25	220	192	152.5	Ø240	Ø200 ^{+0.0} _{-0.046}
11AD	8	M10x1.5	260	220	175	Ø285	Ø235 ^{+0.0} _{-0.046}
15AD	8	M12x1.75	365	265	212	Ø395	Ø335 ^{+0.0} _{-0.057}
19AD	8	M12x1.75	450	341	272	Ø480	Ø420 ^{+0.0} _{-0.063}
23AD	8	M14x1.75	525	393	322	Ø555	Ø495 ^{+0.0} _{-0.063}

Model code example



a	b	c	d
Torque limiter size	Model	Max. tripping torque	Spring type
7 Fits 7AD 9 Fits 9AD 11 Fits 11AD	15 Fits 15AD 19 Fits 19AD 23 Fits 23AD	TAD Series flange to flange type 20 20 Nm torque capacity 550 550 Nm torque capacity	L Light spring type H Heavy spring type

Model code example



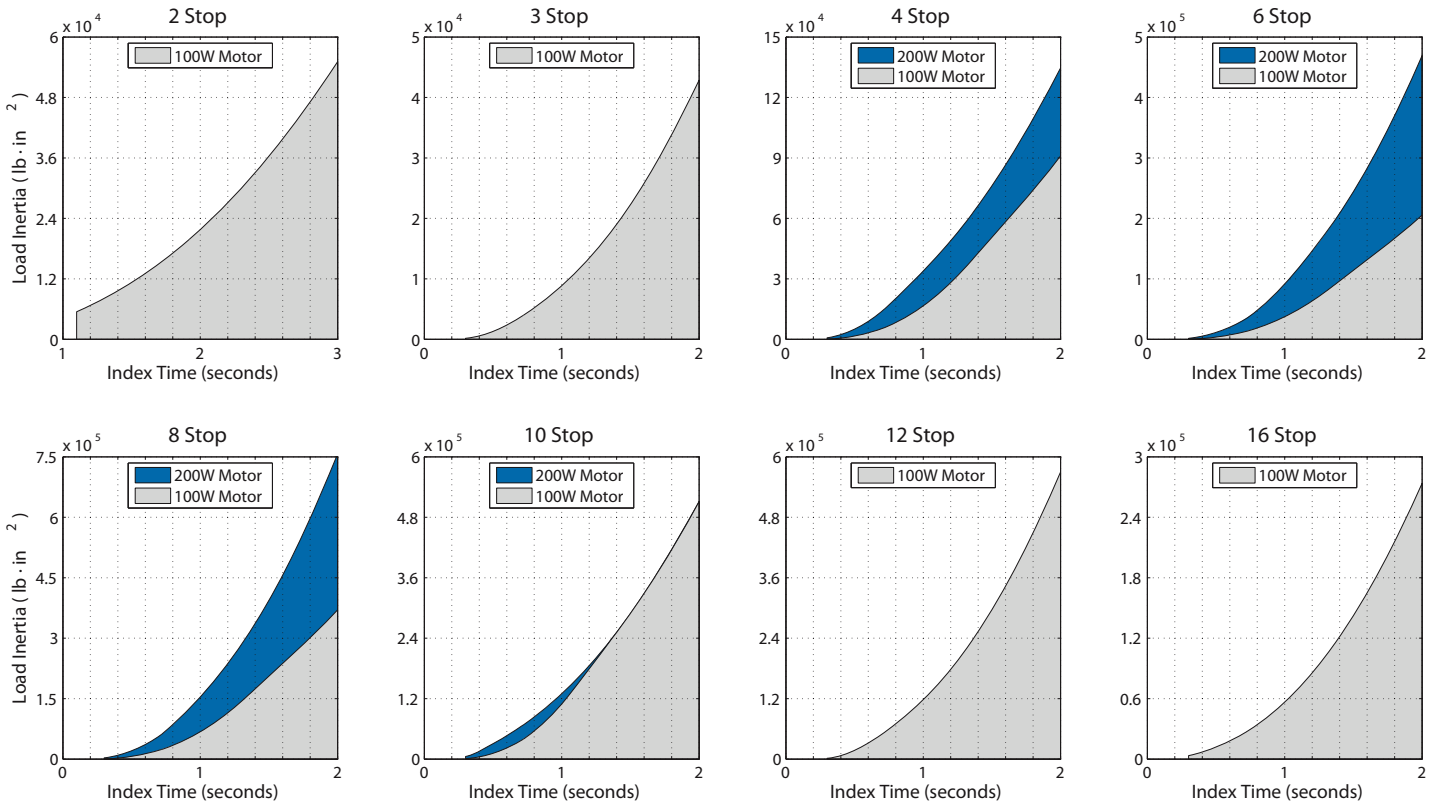
a	b	c	d
Torque limiter sensor	TAD Series size	Sensor polarity type	Sensor type
TLS Torque limiter overload detection sensor pkg.	9TAD Series size	PNP PNP-NO/NC (standard) NPN NPN-NO/NC	D Proximity type C Mount only

7AD Specifications

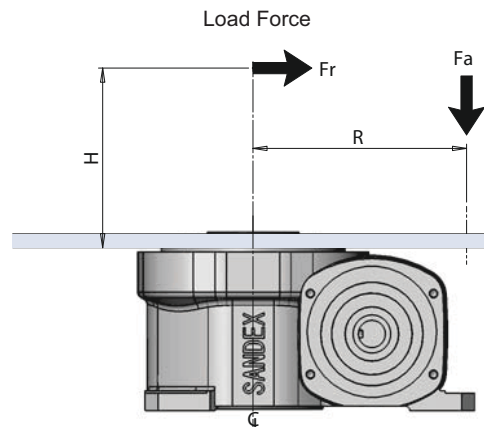
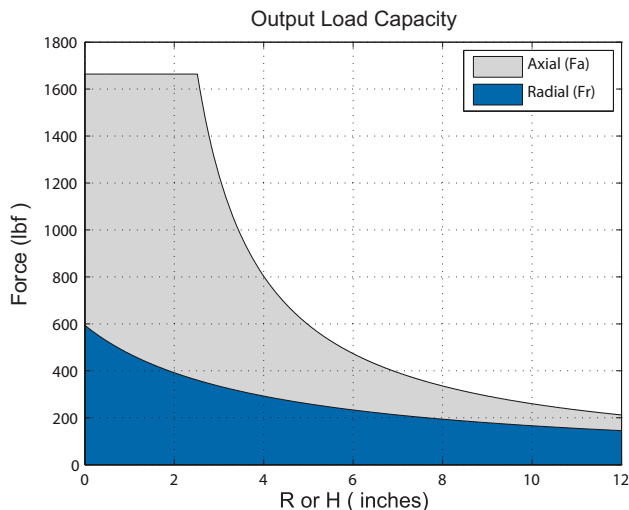


Typical Dial Size	25" (630mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-30 arc seconds
Repetitive Accuracy	+/-10 arc seconds
Max. Output Axial Load	1,660 lbs. (7,390 N)
Max. Output Radial Load	590 lbs. (2,630 N)
Max. Output Bending Moment	2,300 lb*in (260 N*m)
Output Bending Moment Rigidity	2.0E+06 lb*in/rad (2.3E+05 N*m/rad)
Output Inertia	11.61 lb*in ² (0.0034 kg*m ²)
Input Inertia	6.49 lb*in ² (0.0019 kg*m ²)
Max. Input Torque	824 lb*in (93.1 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	1/8 & 1/4 HP (0.1 & 0.2 kW)
Indexer Weight / with Gearmotor	33/49.5 & 33/54 lbs. (15/22.5 & 15/24.5 kg)

Load Capacity (inertia vs. time)



Load Data

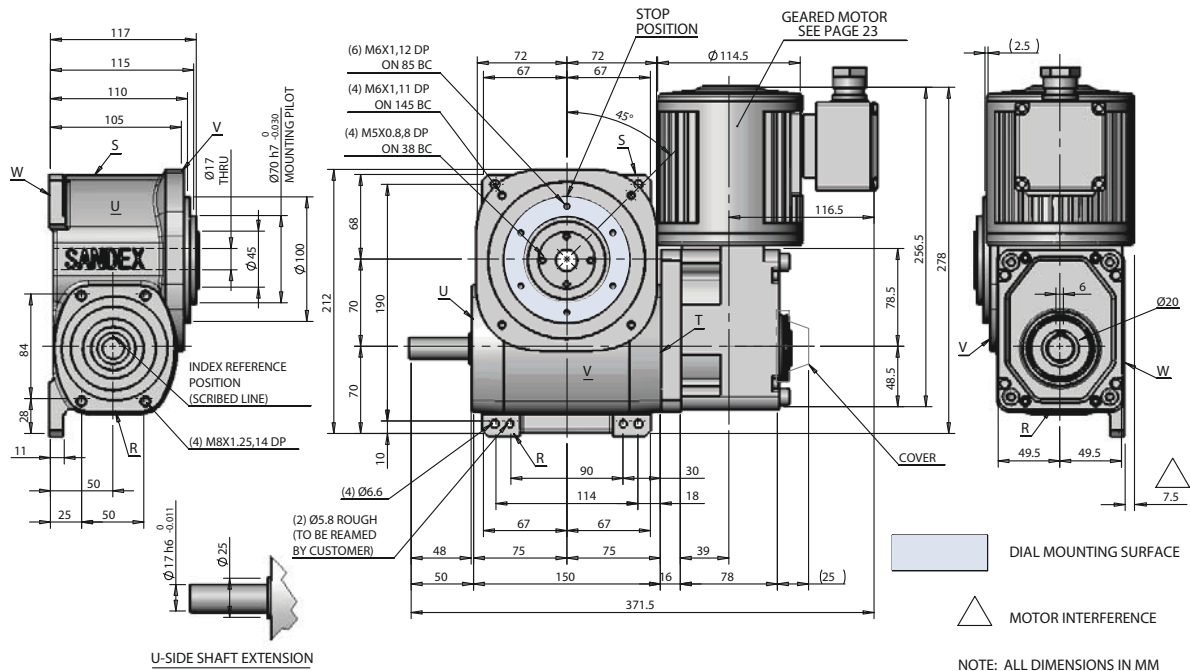


NOTES:

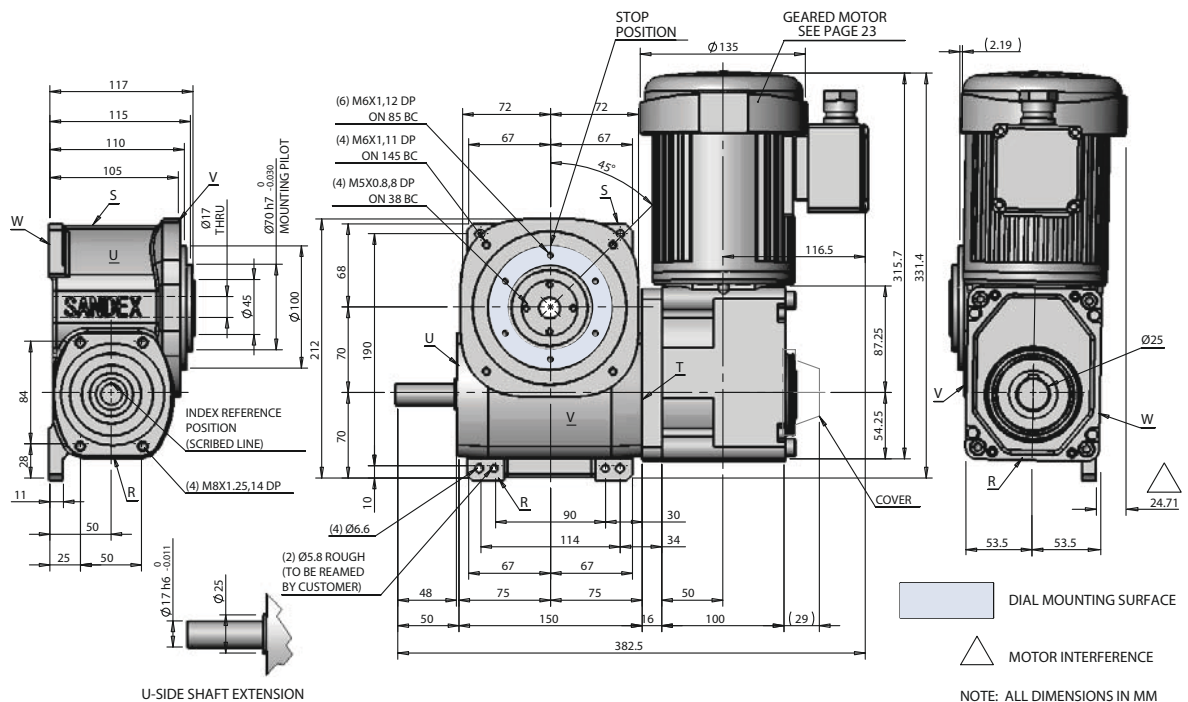
- Loads are for unidirectional loading only, contact Sankyo for combined loading.
- 1 lbf = 4.448 N, 1 inch = 25.4mm

7AD Dimensions

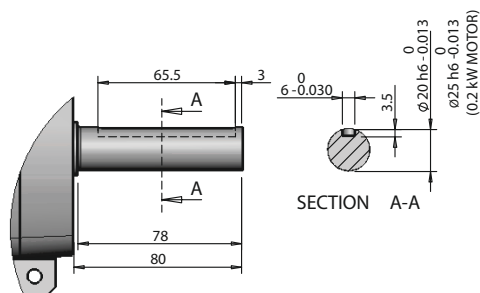
1/8 HP (0.1 kW) Motor



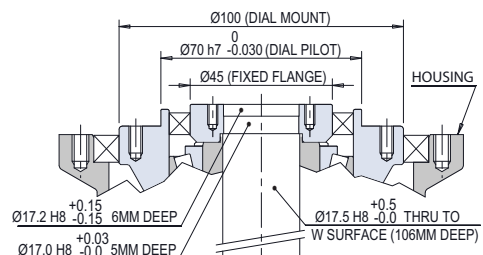
1/4 HP (0.2 kW) Motor



Standard Input Shaft (T Surface)



Output Flange Dimensions

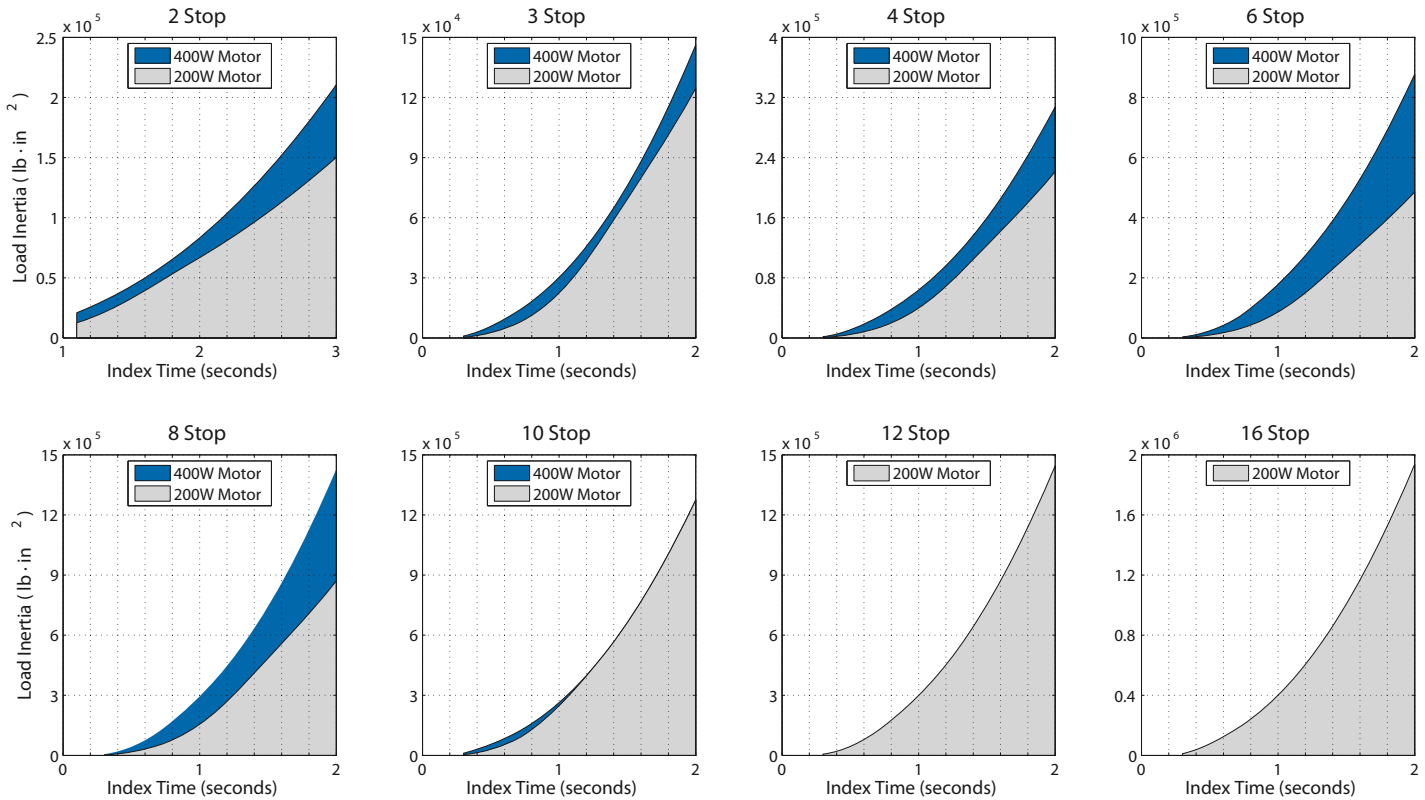


9AD Specifications

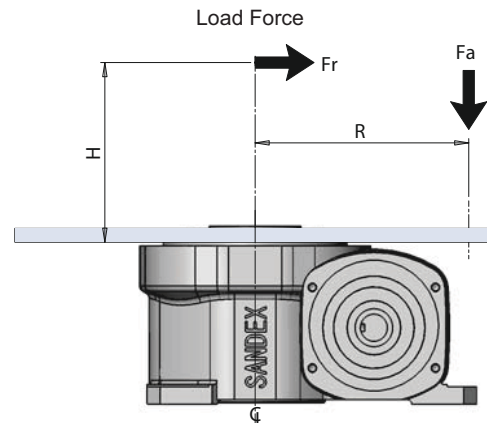
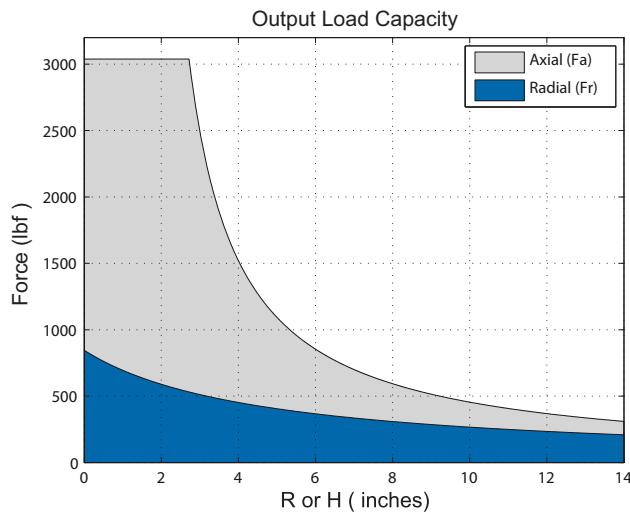


Typical Dial Size	32" (810mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-25 arc seconds
Repetitive Accuracy	+/-10 arc seconds
Max. Output Axial Load	3,120 lbs. (13,880 N)
Max. Output Radial Load	845 lbs. (3,760 N)
Max. Output Bending Moment	3,890 lb*in (440 N*m)
Output Bending Moment Rigidity	4.0E+06 lb*in/rad (4.5E+05 N*m/rad)
Output Inertia	37.93 lb*in ² (0.0111 kg*m ²)
Input Inertia	8.54 lb*in ² (0.0025 kg*m ²)
Max. Input Torque	2,168 lb*in (245 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	1/4 & 1/2 HP (0.2 & 0.4 kW)
Indexer Weight / with Gearmotor	53/72 & 53/78 lbs. (24/32.6 & 24/35.5 kg)

Load Capacity (inertia vs. time)



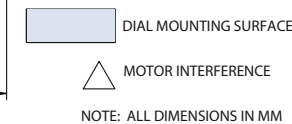
Load Data



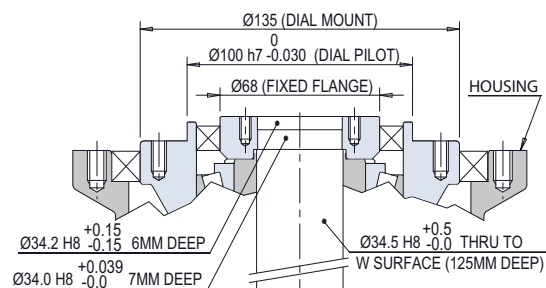
NOTES:

- Loads are for unidirectional loading only, contact Sankyo for combined loading.
- 1 lbf = 4.448 N, 1 inch = 25.4mm

1/4 HP (0.2 kW) Motor



Output Flange Dimensions

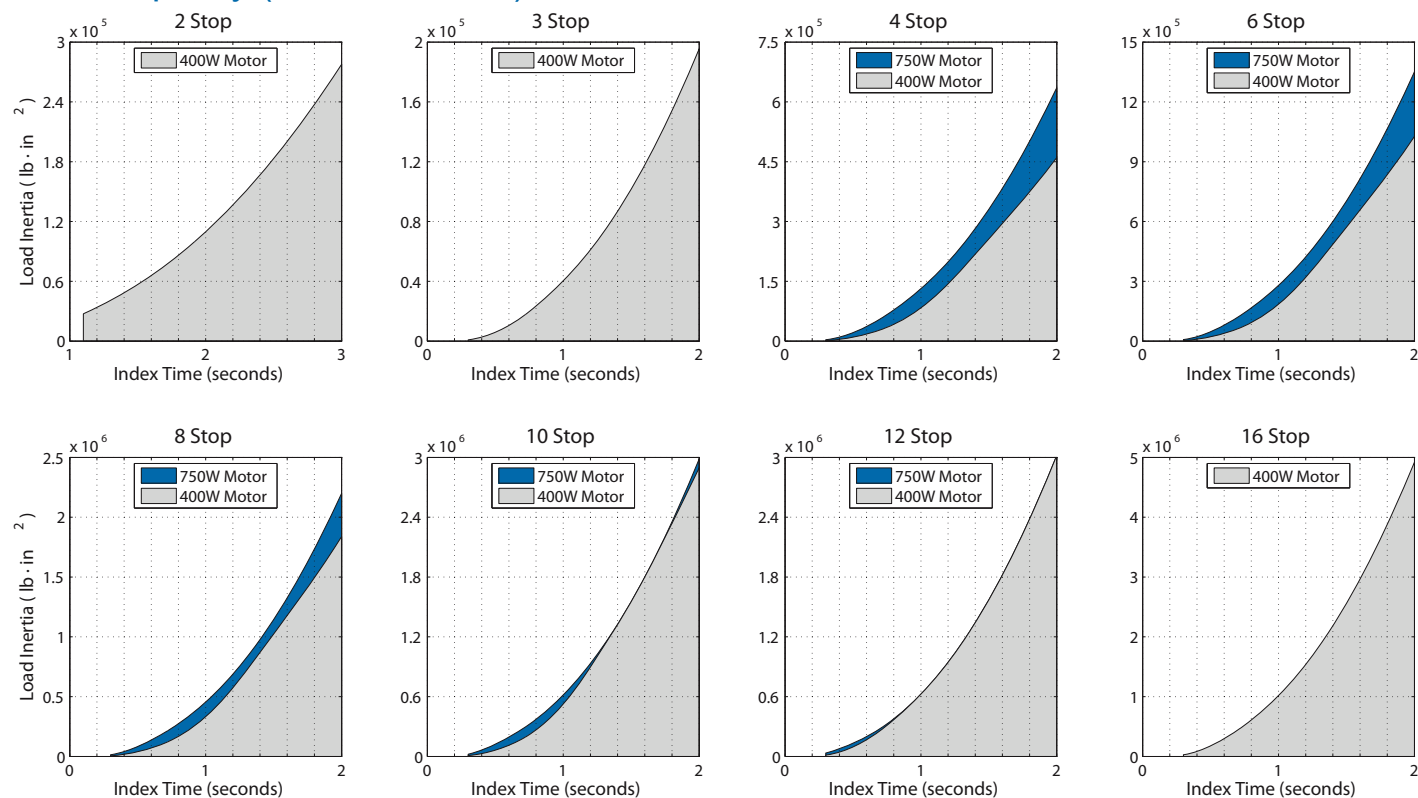


11AD Specifications

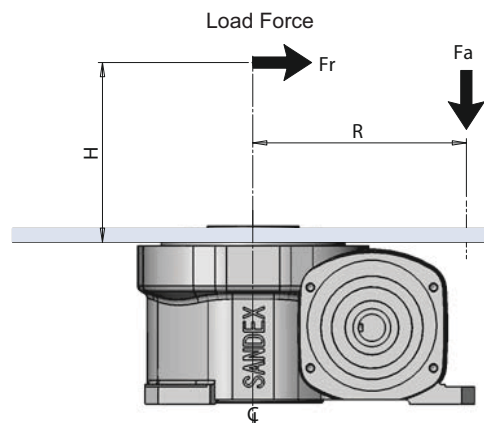
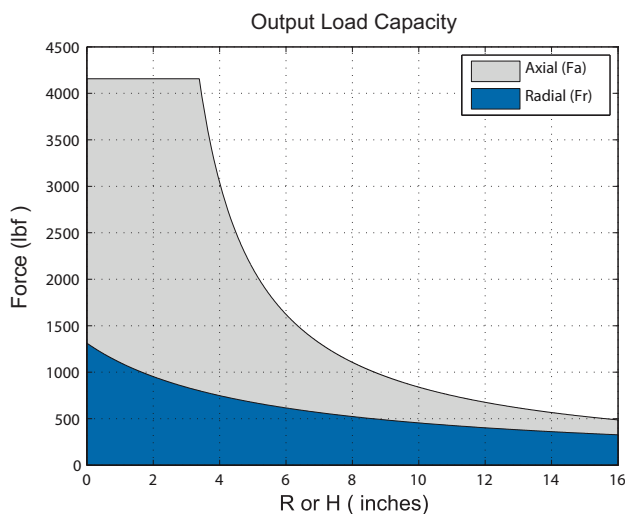


Typical Dial Size	40" (1,000mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-20 arc seconds
Repetitive Accuracy	+/-10 arc seconds
Max. Output Axial Load	4,150 lbs. (18,470 N)
Max. Output Radial Load	1,310 lbs. (5,830 N)
Max. Output Bending Moment	6,950 lb*in (790 N*m)
Output Bending Moment Rigidity	6.6E+06 lb*in/rad (7.5E+05 N*m/rad)
Output Inertia	118.57 lb*in ² (0.0347 kg*m ²)
Input Inertia	20.5 lb*in ² (0.006 kg*m ²)
Max. Input Torque	2,602 lb*in (294 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	1/2 & 1 HP (0.4 & 0.75 kW)
Indexer Weight / with Gearmotor	93/118 & 93/132 lbs. (42/53.5 & 42/59.5 kg)

Load Capacity (inertia vs. time)



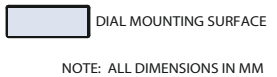
Load Data



NOTES:

- Loads are for unidirectional loading only, contact Sankyo for combined loading.
- 1 lbf = 4.448 N, 1 inch = 25.4mm

1/2 HP (0.4 kW) Motor



SANDERX

STOP POSITION

GEARED MOTOR SEE PAGE 23

(2) M8x1.25, 16 DP ON 150 BC

(4) M10x1.5, 16 DP ON 216 BC

(4) M6x1.12 DP ON 58 BC

MOUNTING PILOT

INDEX REFERENCE POSITION

(4) M8x1.25, 16 DP

(2) Ø7.8 ROUGH (TO BE REAMED BY CUSTOMER)

COVER

DIAL MOUNTING SURFACE

MOTOR INTERFERENCE

NOTE: ALL DIMENSIONS IN MM

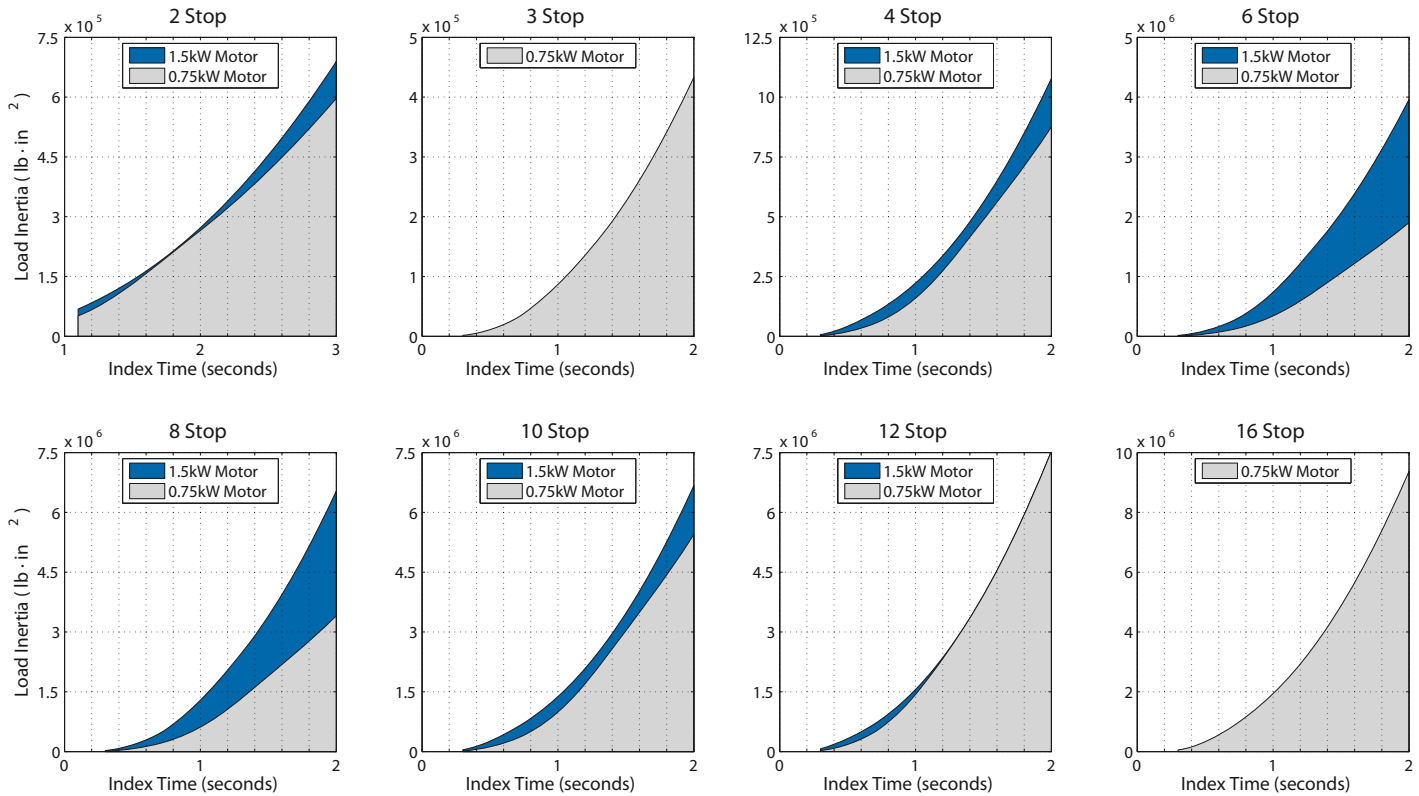
Technical drawing of a shaft-housing assembly. The shaft has a diameter of $\varnothing 170$ (DIAL MOUNT) and a central section with a diameter of $\varnothing 120$ h7 -0.035 (DIAL PILOT). The housing has a fixed flange with a diameter of $\varnothing 85$. The housing is labeled "HOUSING". The shaft has two keyways with dimensions $\varnothing 45.2$ H8 -0.15 7MM DEEP and $\varnothing 45.0$ H8 +0.039 -0.0 10.5MM DEEP. The housing has a dimension $\varnothing 45.5$ H8 +0.5 -0.0 THRU TO W SURFACE (145.5MM DEEP).

15AD Specifications

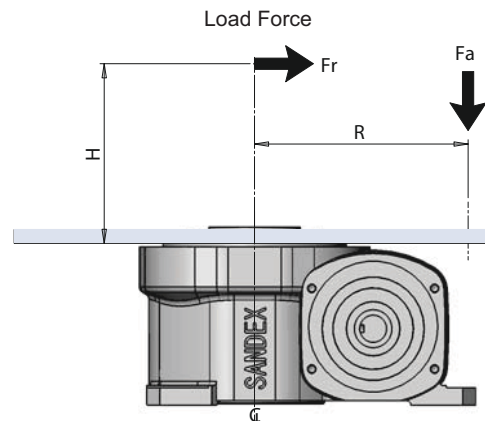
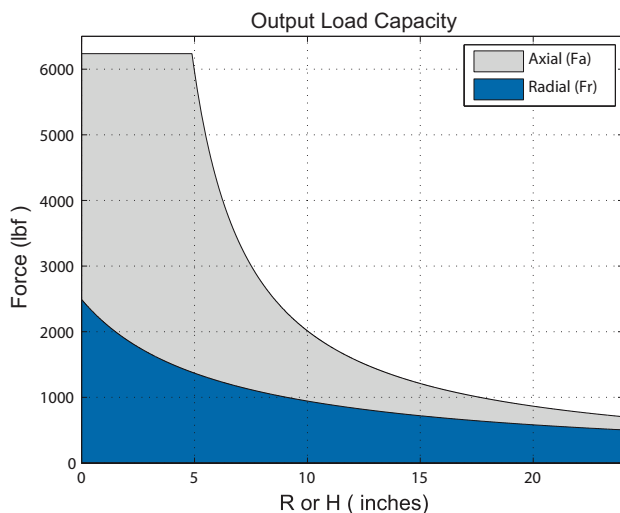


Typical Dial Size	53" (1,350mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-15 arc seconds
Repetitive Accuracy	+/-7.5 arc seconds
Max. Output Axial Load	6,240 lbs. (27,770 N)
Max. Output Radial Load	2,490 lbs. (11,080 N)
Max. Output Bending Moment	15,200 lb*in (1,720 N*m)
Output Bending Moment Rigidity	1.8E+07 lb*in/rad (2.0E+06 N*m/rad)
Output Inertia	553.58 lb*in ² (0.162 kg*m ²)
Input Inertia	68.34 lb*in ² (0.020 kg*m ²)
Max. Input Torque	3,470 lb*in (392 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	1 & 2 HP (0.75 & 1.5 kW)
Indexer Weight / with Gearmotor	187/226 & 187/258 lbs. (85/103 & 85/117 kg)

Load Capacity (inertia vs. time)



Load Data



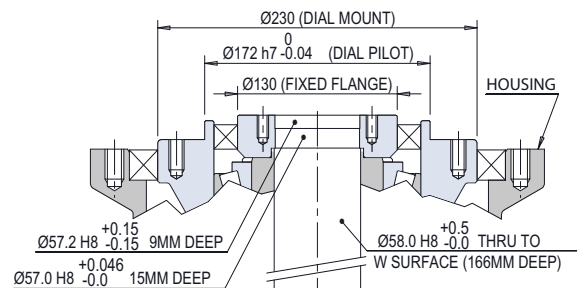
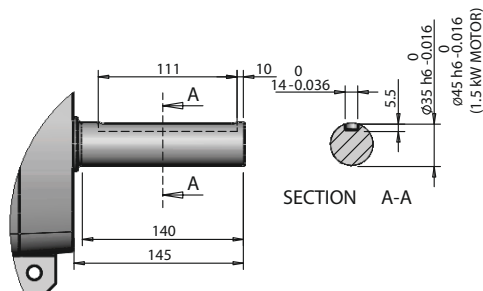
NOTES:

- Loads are for unidirectional loading only, contact Sankyo for combined loading.
- 1 lbf = 4.448 N, 1 inch = 25.4mm

1 HP (0.75 kW) Motor



Output Flange Dimensions

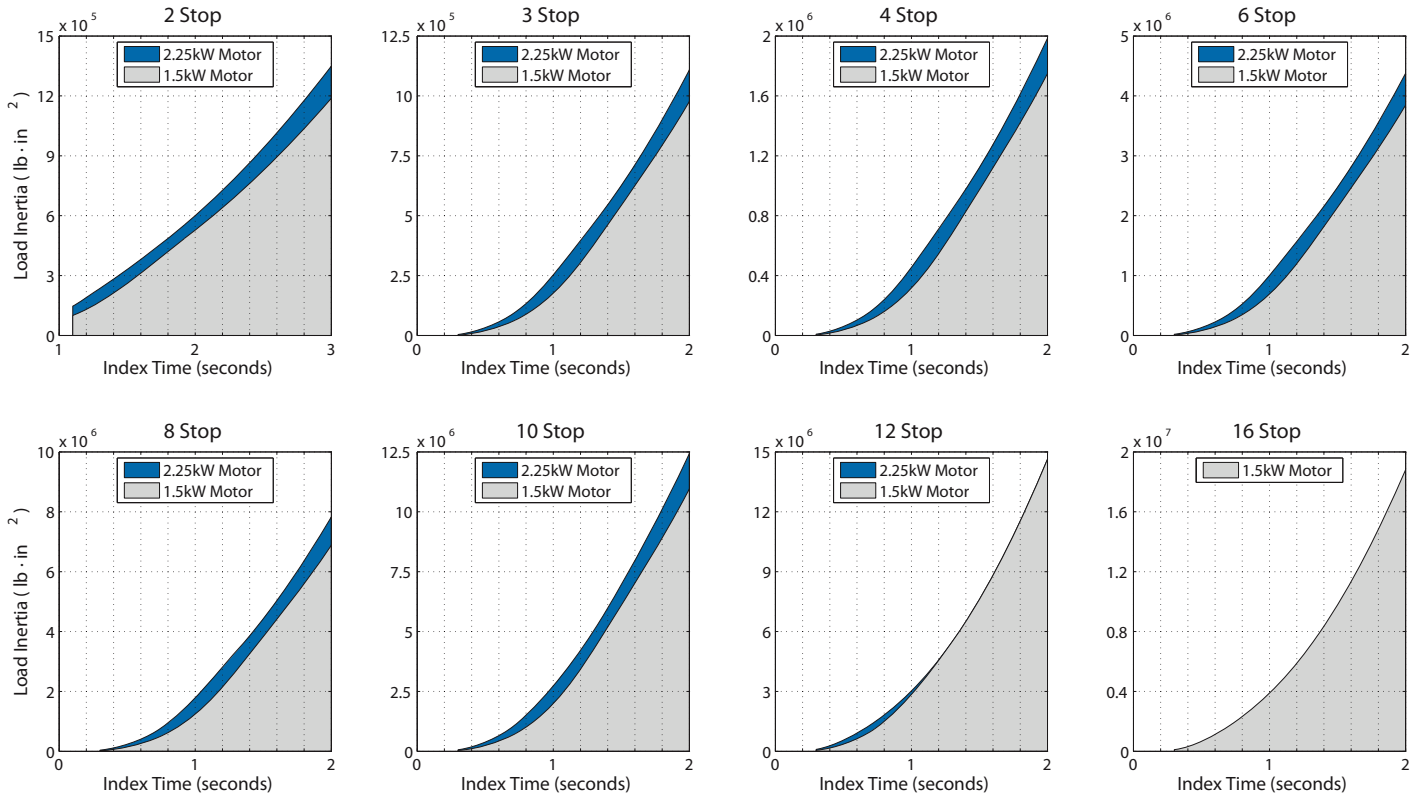


19AD Specifications

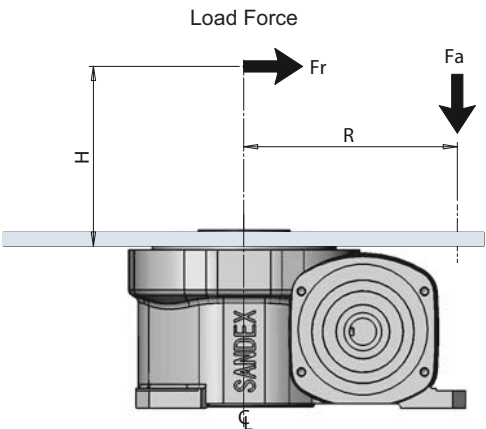
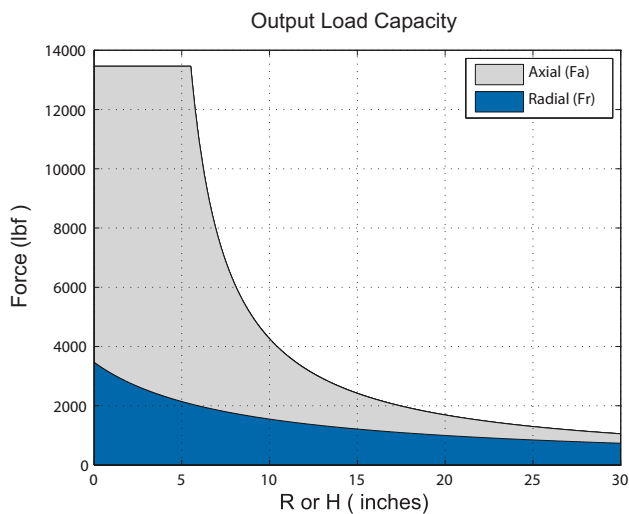


Typical Dial Size	67" (1,710mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-15 arc seconds
Repetitive Accuracy	+/-7.5 arc seconds
Max. Output Axial Load	13,460 lbs. (59,890 N)
Max. Output Radial Load	3,470 lbs. (15,440 N)
Max. Output Bending Moment	28,000 lb*in (3,160 N*m)
Output Bending Moment Rigidity	5.0E+07 lb*in/rad (5.7E+06 N*m/rad)
Output Inertia	1,876.02 lb*in ² (0.549 kg*m ²)
Input Inertia	358.80 lb*in ² (0.105 kg*m ²)
Max. Input Torque	5,311 lb*in (600 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	2 & 3 HP (1.5 & 2.2 kW)
Indexer Weight / with Gearmotor	397/468 & 397/518 lbs. (180/212 & 180/235 kg)

Load Capacity (inertia vs. time)

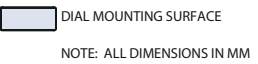


Load Data

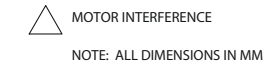


- NOTES:
- Loads are for unidirectional loading only, contact Sankyo for combined loading.
 - 1 lbf = 4.448 N, 1 inch = 25.4mm

2 HP (1.5 kW) Motor



DIAL MOUNTING SURFACE

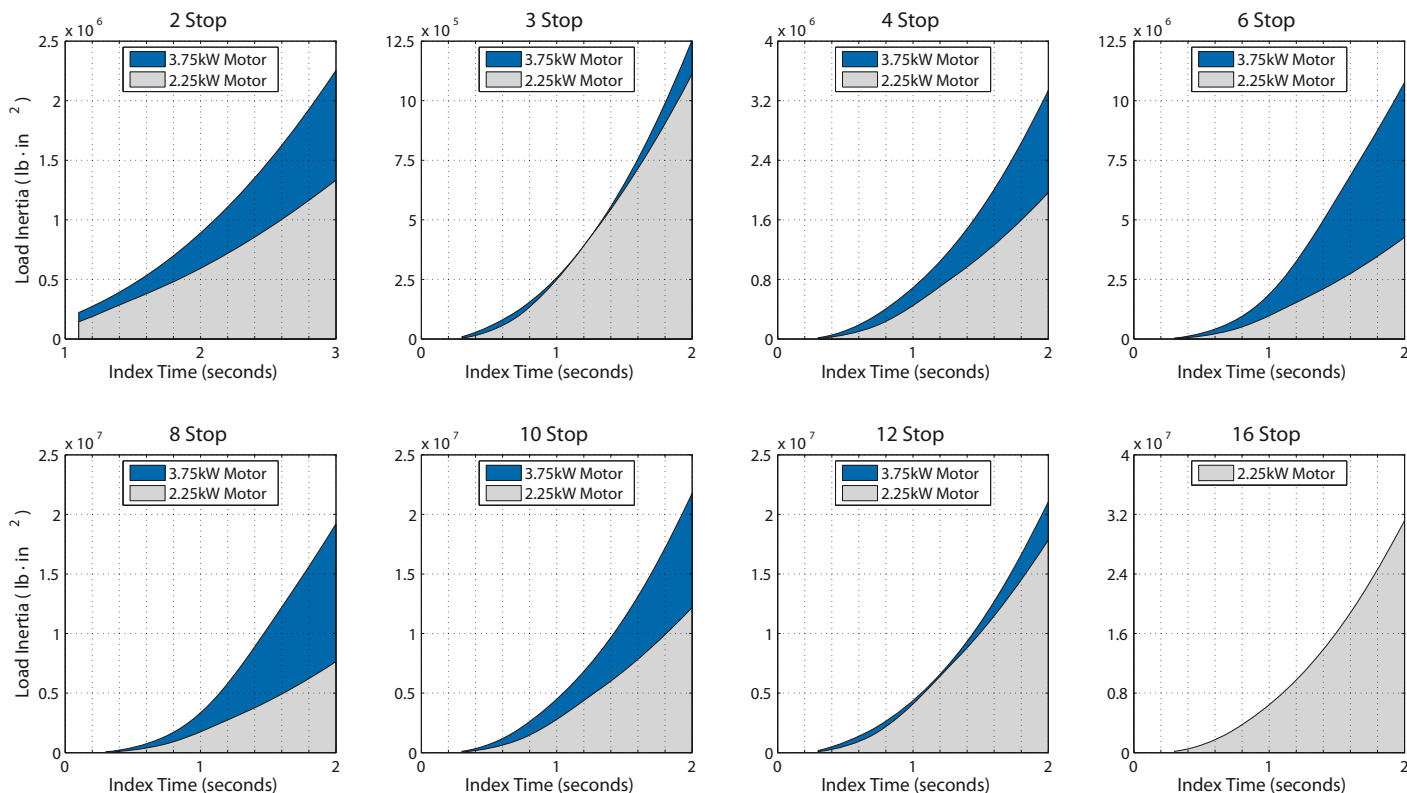
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23AD Specifications

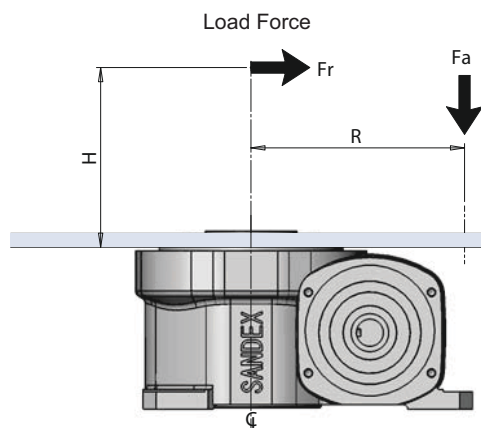
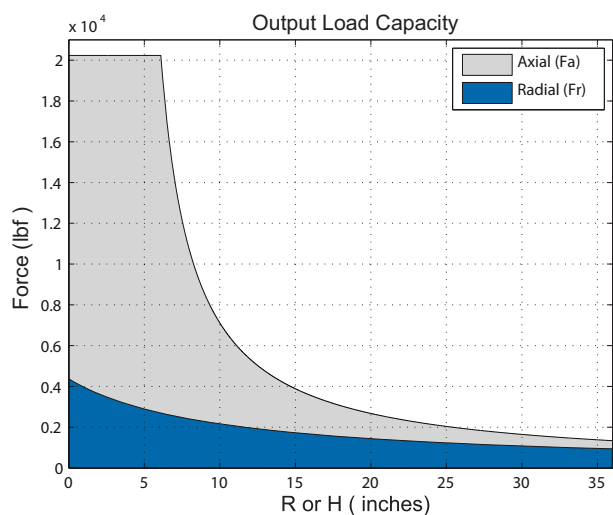


Typical Dial Size	81" (2,070mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-15 arc seconds
Repetitive Accuracy	+/-7.5 arc seconds
Max. Output Axial Load	20,230 lbs. (90,020 N)
Max. Output Radial Load	4,370 lbs. (19,440 N)
Max. Output Bending Moment	42,820 lb*in (4,840 N*m)
Output Bending Moment Rigidity	7.4E+07 lb*in/rad (8.4E+06 N*m/rad)
Output Inertia	5,757.93 lb*in ² (1.685 kg*m ²)
Input Inertia	464.73 lb*in ² (0.136 kg*m ²)
Max. Input Torque	6,938 lb*in (784 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	3 & 5 HP (2.2 & 3.7 kW)
Indexer Weight / with Gearmotor	628/749 & 628/804 lbs. (285/340 & 285/365 kg)

Load Capacity (inertia vs. time)



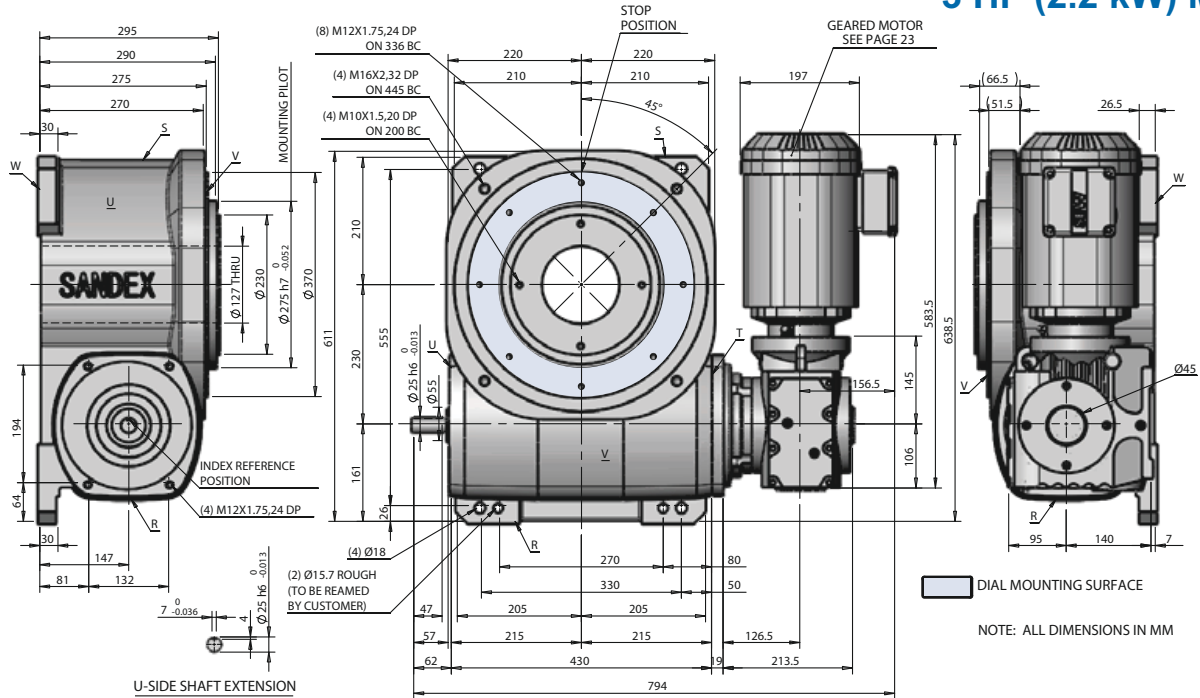
Load Data



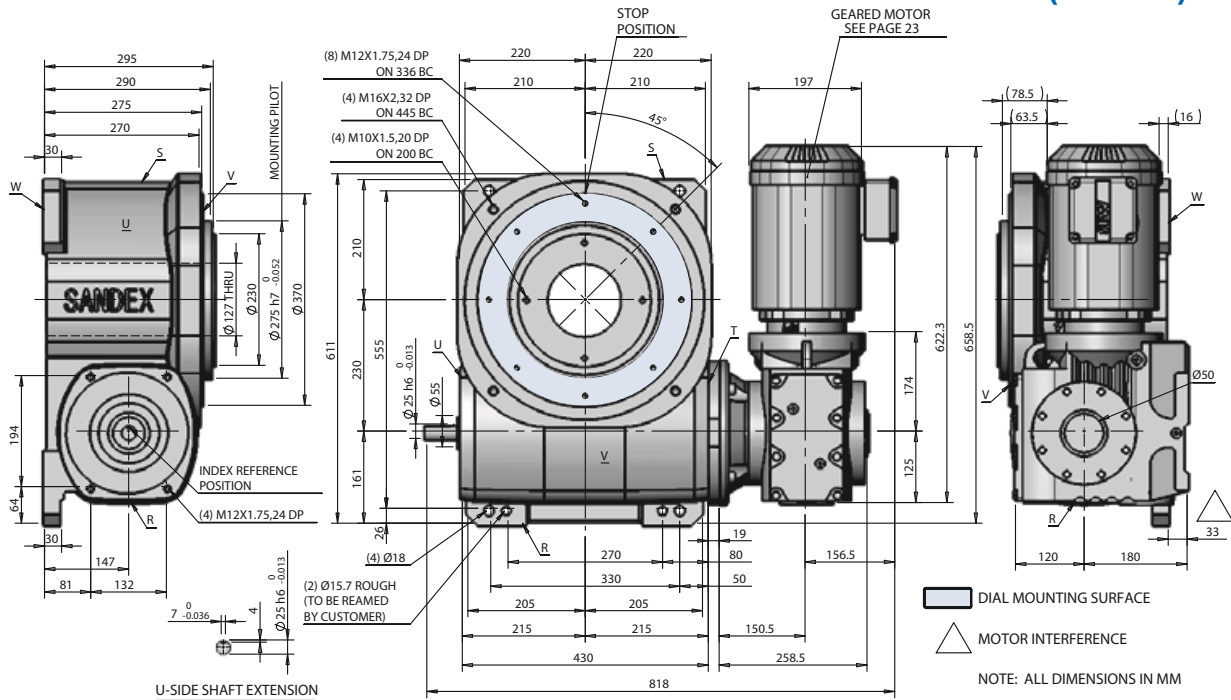
NOTES:

- Loads are for unidirectional loading only, contact Sankyo for combined loading.
- 1 lbf = 4.448 N, 1 inch = 25.4mm

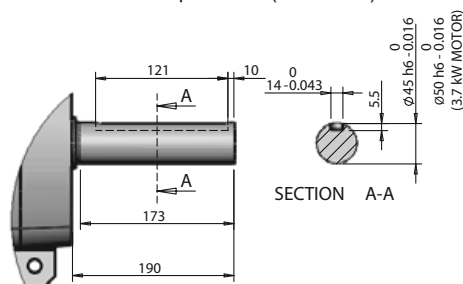
3 HP (2.2 kW) Motor



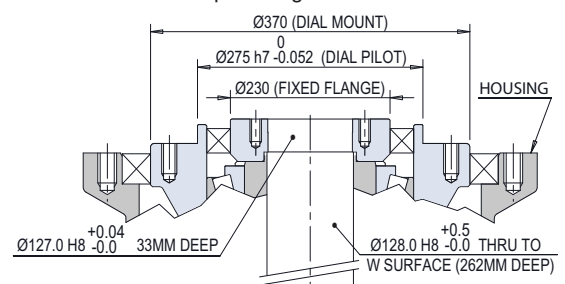
5 HP (3.7 kW) Motor



Standard Input Shaft (T Surface)



Output Flange Dimensions

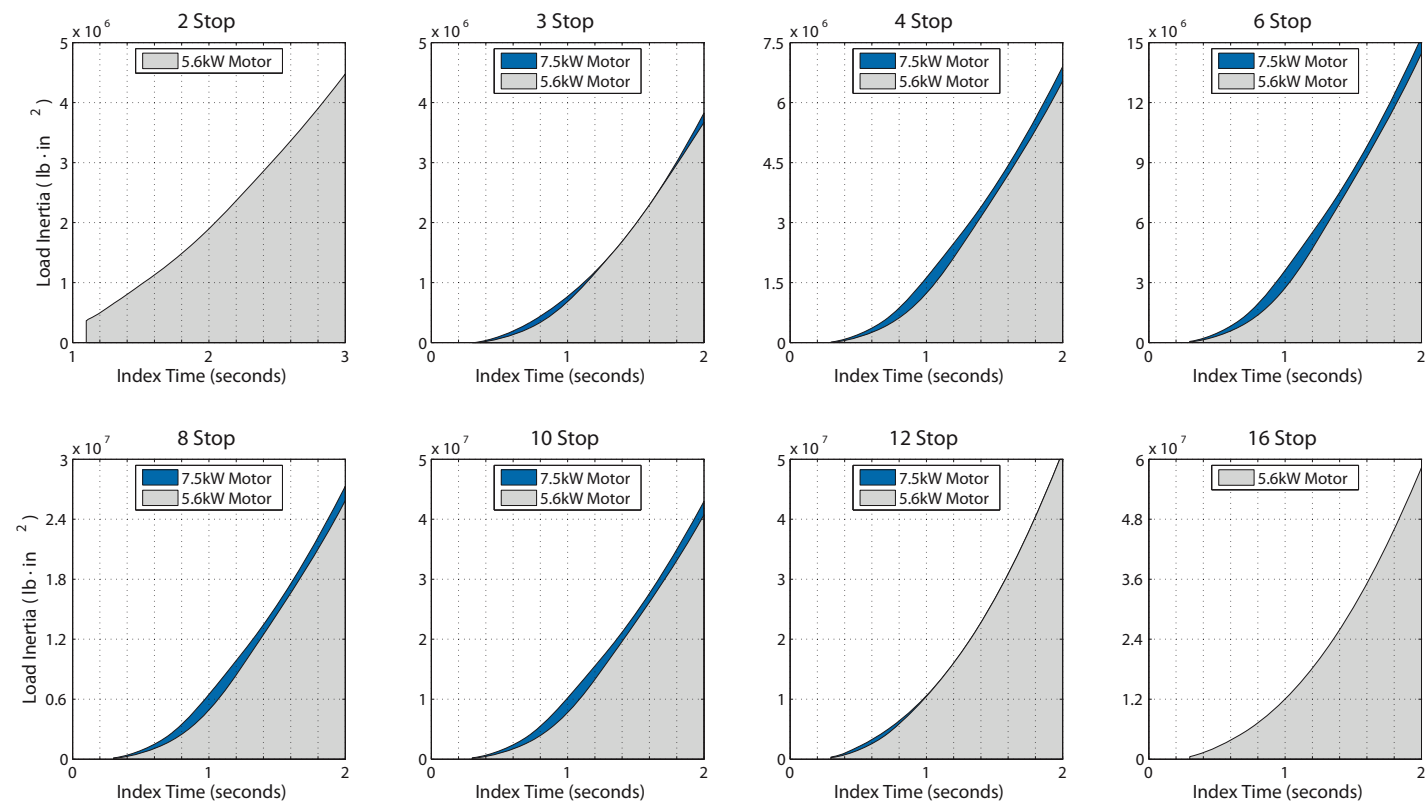


33AD Specifications

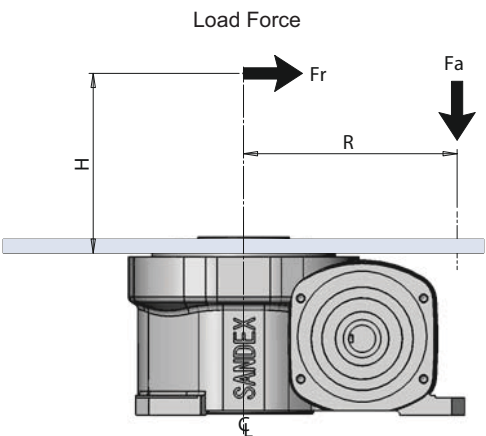
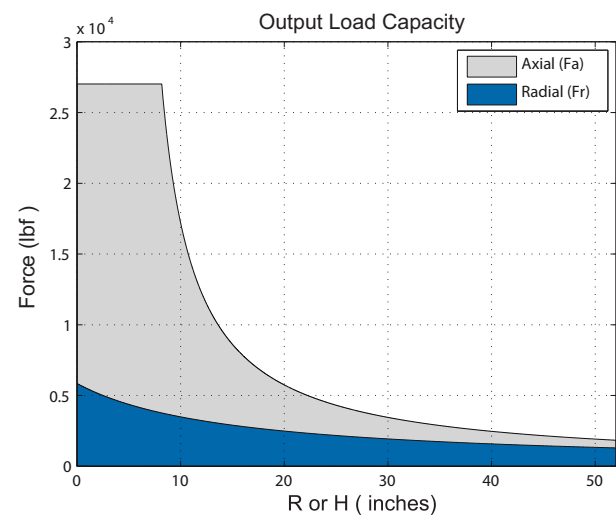


Typical Dial Size	117" (2,970mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-15 arc seconds
Repetitive Accuracy	+/-7.5 arc seconds
Max. Output Axial Load	27,000 lbs. (120,140 N)
Max. Output Radial Load	5,850 lbs. (26,030 N)
Max. Output Bending Moment	68,300 lb*in (9,750 N*m)
Output Bending Moment Rigidity	1.5E+08 lb*in/rad (1.8E+07 N*m/rad)
Output Inertia	28,328.35 lb*in ² (8.290 kg*m ²)
Input Inertia	5,843.36 lb*in ² (1.710 kg*m ²)
Max. Input Torque	56,644 lb*in (6,400 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	7.5 & 10 HP (5.5 & 7.5 kW)
Indexer Weight / with Gearmotor	2,205/2,536 lbs. (1,000/1,150 kg)

Load Capacity (inertia vs. time)

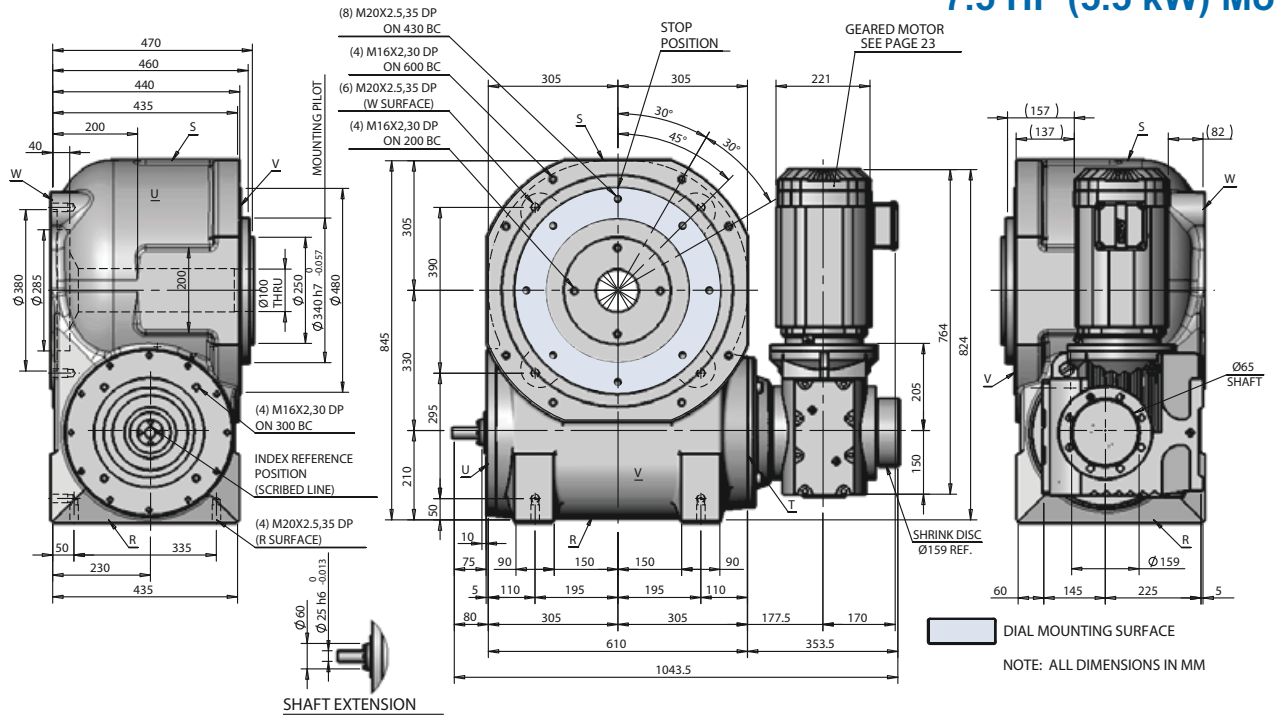


Load Data

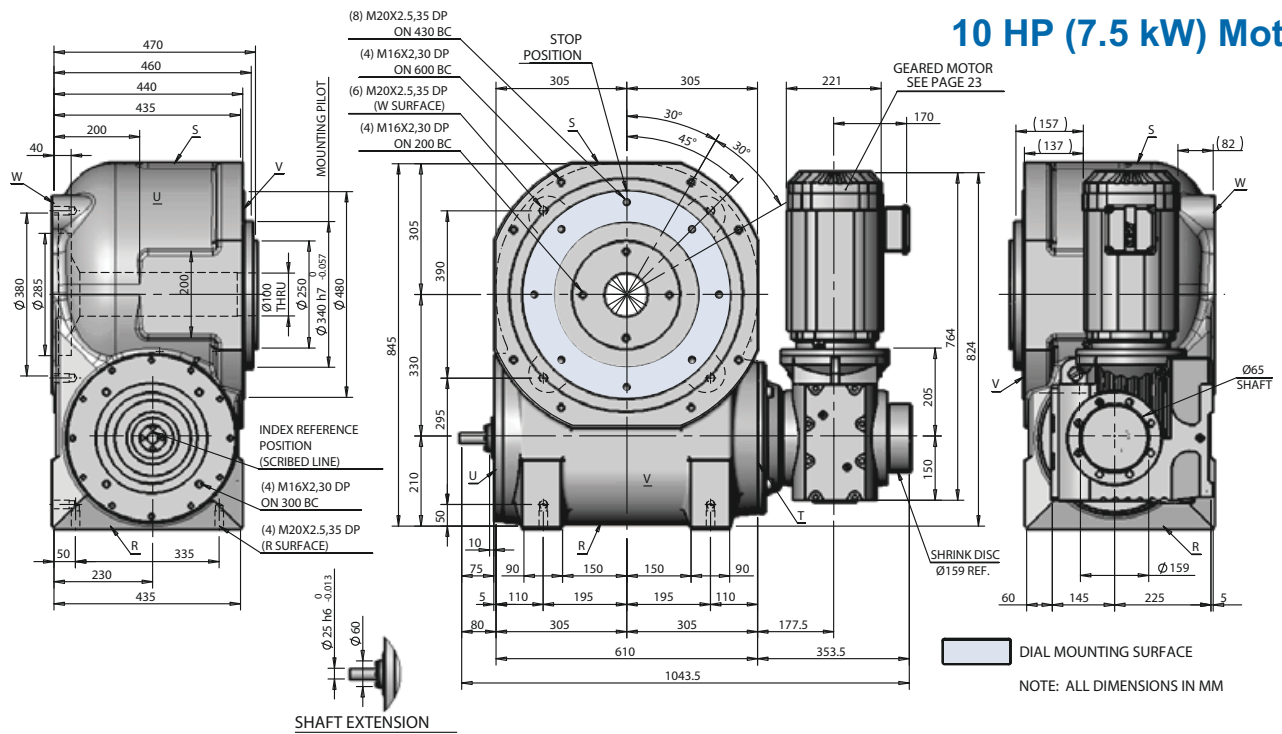


- NOTES:
- Loads are for unidirectional loading only, contact Sankyo for combined loading.
 - 1 lbf = 4.448 N, 1 inch = 25.4mm

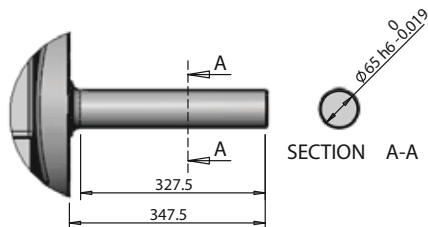
7.5 HP (5.5 kW) Motor



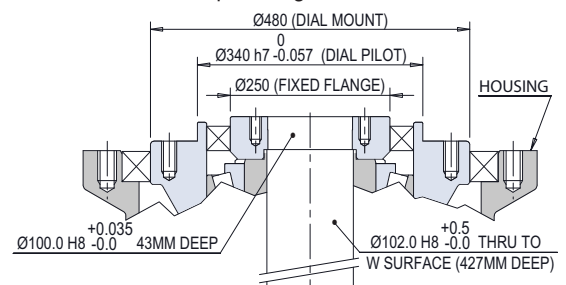
10 HP (7.5 kW) Motor



Standard Input Shaft (T Surface)



Output Flange Dimensions

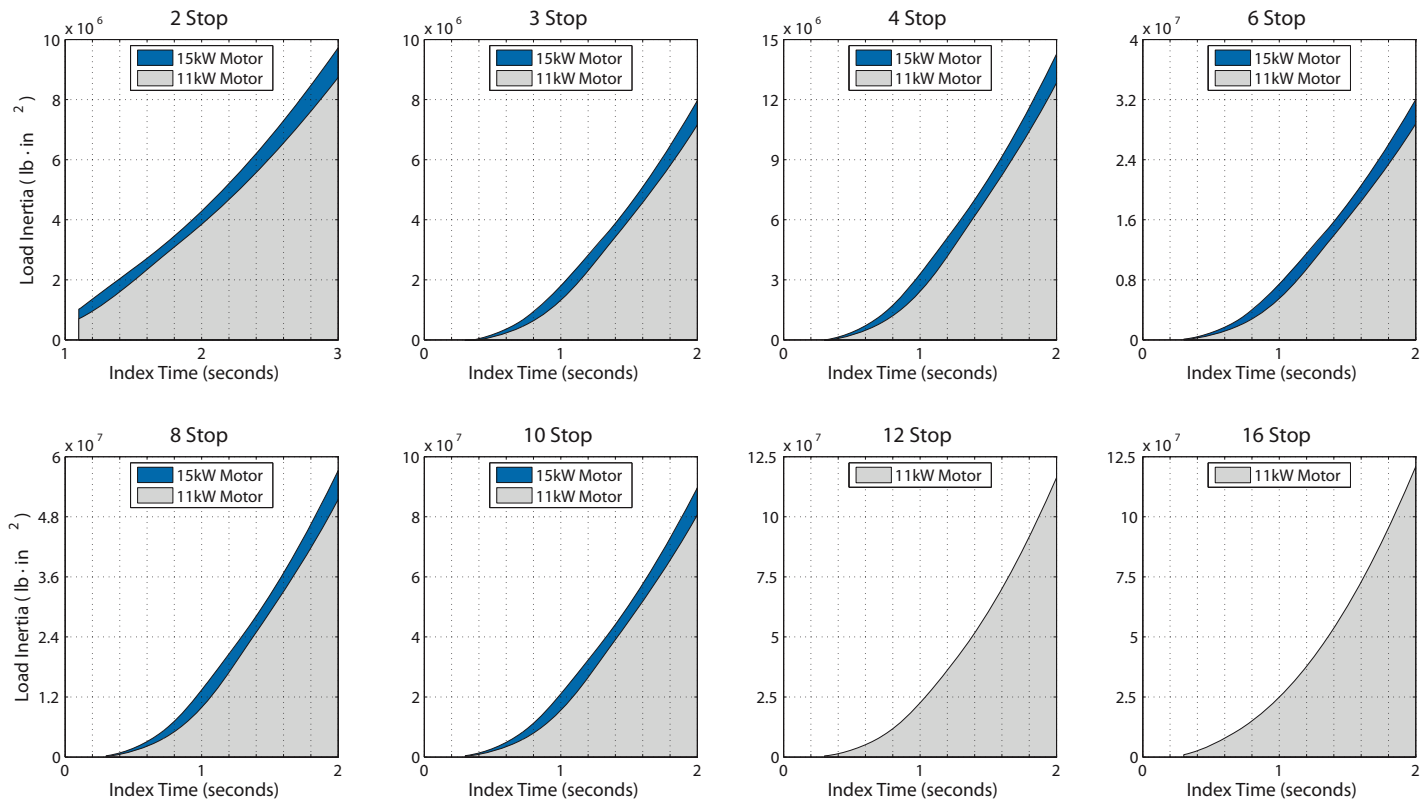


45AD Specifications

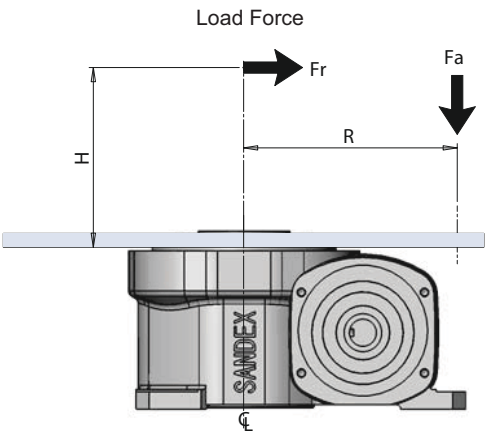
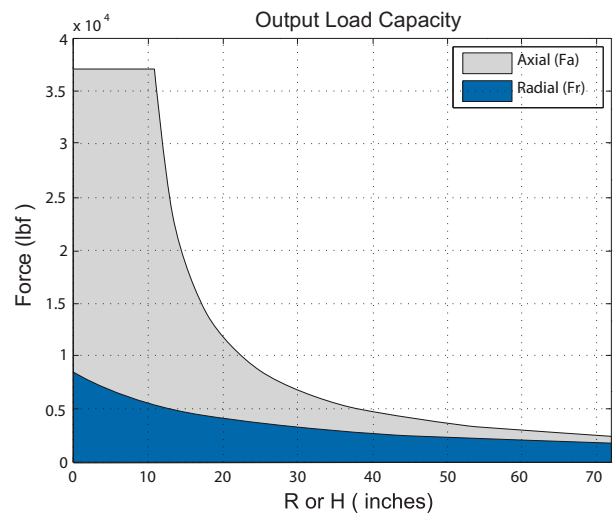


Typical Dial Size	160" (4,050mm)
Output Stops	2,3,4,5,6,8,10,12,15,16,20,24 & 32
Indexes Per Minute	Up to 200 IPM (66 IPM with VFD)
Indexing Accuracy (2~16 stops)	+/-15 arc seconds
Repetitive Accuracy	+/-7.5 arc seconds
Max. Output Axial Load	37,000 lbs. (164,640 N)
Max. Output Radial Load	8,490 lbs. (37,780 N)
Max. Output Bending Moment	159,700 lb*in (18,050 N*m)
Output Bending Moment Rigidity	2.9E+08 lb*in/rad (3.3E+07 N*m/rad)
Output Inertia	88,094.69 lb*in ² (25.780 kg*m ²)
Input Inertia	26,995.65 lb*in ² (7.900 kg*m ²)
Max. Input Torque	74,346 lb*in (8,400 N*m)
Drive Motor Voltage	230 & 460 VAC, 3 Phase (60 Hz)
Drive Motor Sizes	15 & 20 HP (11 & 15 kW)
Indexer Weight / with Gearmotor	3,527/4,158 lbs. (1,600/1,886 kg)

Load Capacity (inertia vs. time)

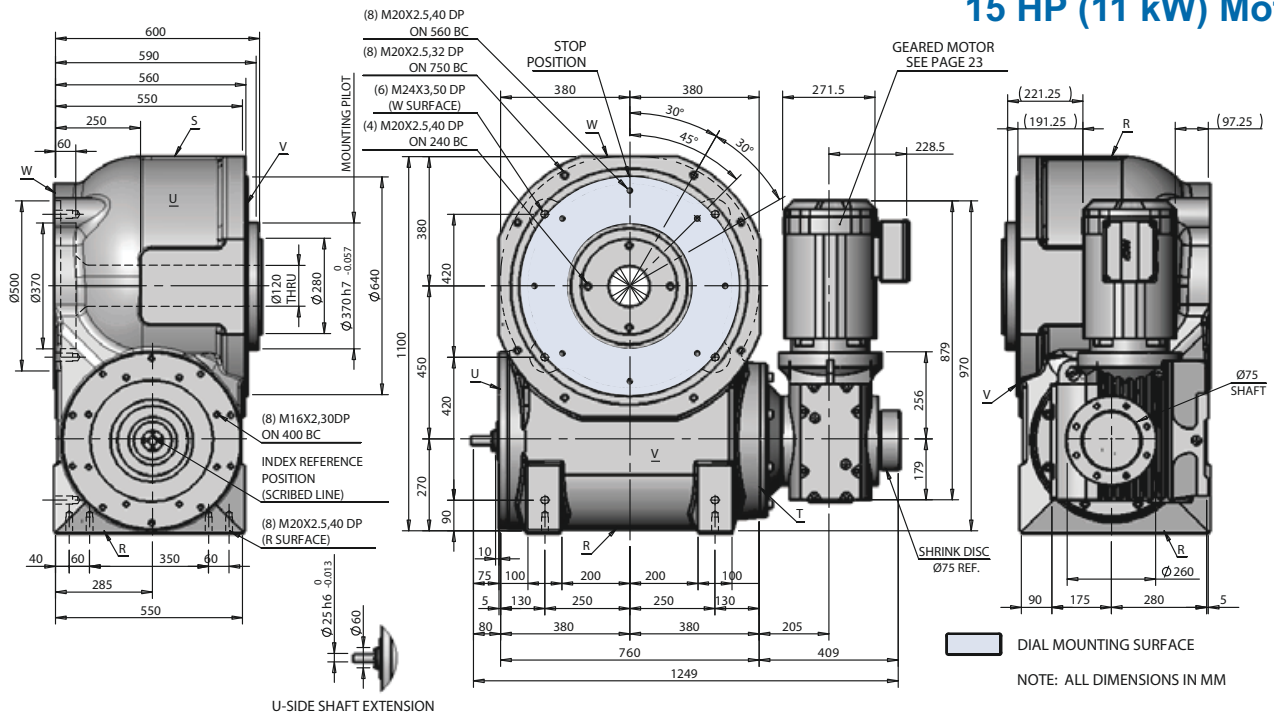


Load Data

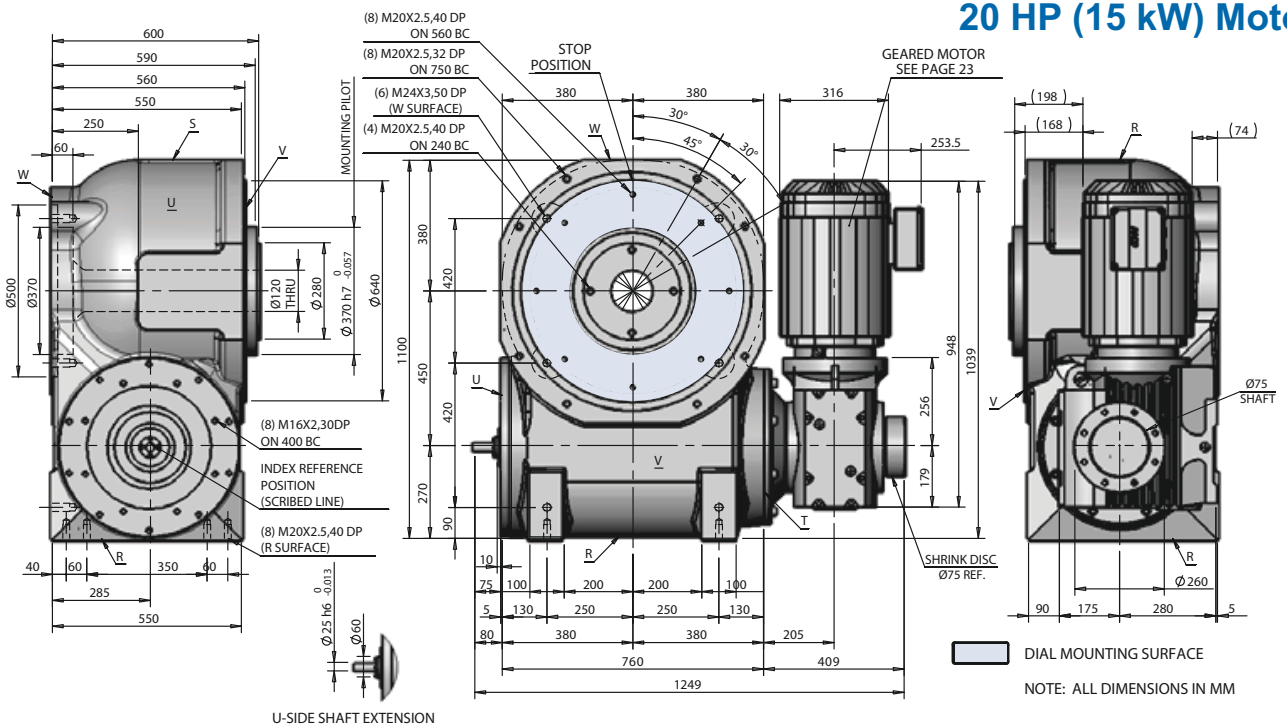


- NOTES:
- Loads are for unidirectional loading only, contact Sankyo for combined loading.
 - 1 lbf = 4.448 N, 1 inch = 25.4mm

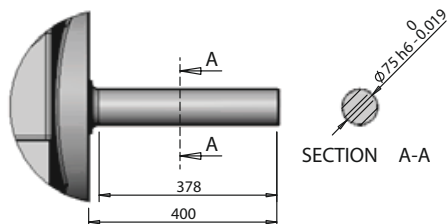
15 HP (11 kW) Motor



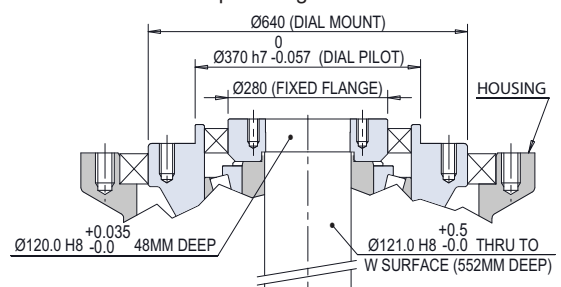
20 HP (15 kW) Motor



Standard Input Shaft (T Surface)



Output Flange Dimensions



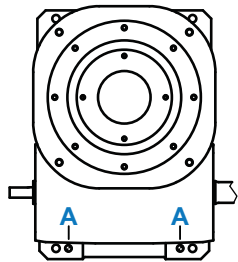
Dowel Hole Options

Dowel Holes

When dowel pinning two mating surfaces, the dowel pin is normally a light press fit. The diameter tolerance of a dowel is $\pm 0.0001"$ (0.0025mm). Since the press fit tolerance should be less than the dowel pin diameter tolerance, the mating surface holes need to be located with better than $\pm 0.0001"$ ($\pm 0.0025\text{mm}$) position tolerance.

To avoid costly machining for high tolerance position locations, Sankyo offers rough bored dowel holes. The two mating surface holes can be reamed to press fit tolerance after they are assembled. This ensures holes are aligned, the dowel pin is properly fitted, and the cost is low. If the customer chooses to install the dowel holes, Sankyo will warrant the indexer and torque limiting clutch if the holes are properly located and at the correct depth.

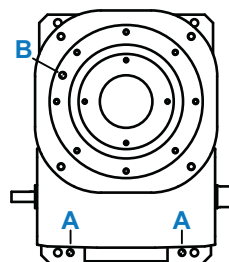
Housing Dowel Holes



Standard
(2) holes in the housing mounting feet
(reference: A)

Code Example
None (std)

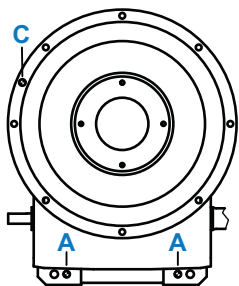
Housing & Output Flange



Option
(2) holes in the housing mounting feet & (1) in the output dial mounting flange
(reference: A & B)

Code Example
DH-15AD-M5

Housing & Clutch Output Flange



Option
(2) holes in the housing mounting feet & (1) in the clutch dial mounting flange
(reference: A & C)

Code Example
DH-15TAD-M4

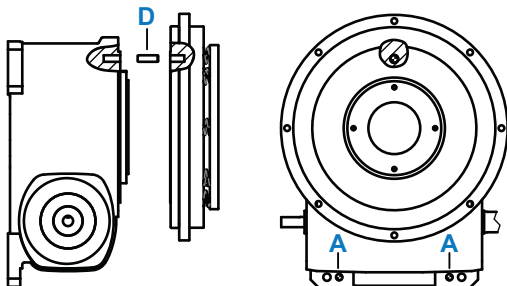
Rough Bore Dowel Hole Sizes

The diameters of the dowel holes are listed for each indexer and clutch sizes which are compatible with inch or metric transfer punch sizes.

7AD = $\varnothing 0.22"$ ($\varnothing 5.8\text{mm}$)	15AD = $\varnothing 0.46"$ ($\varnothing 11.8\text{mm}$)
9AD = $\varnothing 0.30"$ ($\varnothing 7.8\text{mm}$)	19AD = $\varnothing 0.61"$ ($\varnothing 15.7\text{mm}$)
11AD = $\varnothing 0.30"$ ($\varnothing 7.8\text{mm}$)	23AD = $\varnothing 0.61"$ ($\varnothing 15.7\text{mm}$)

Please contact Sankyo for other dowel hole configurations.

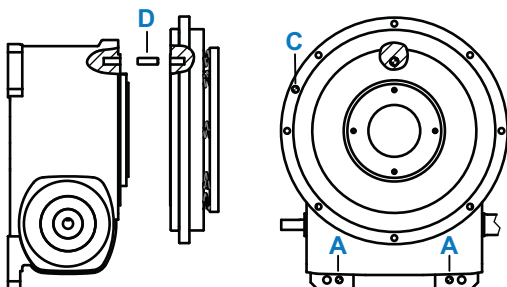
Housing & Clutch Pinned To Indexer



Option
(2) holes in the housing mounting feet & the clutch dowel pinned to the indexer output flange
(reference: A & D)

Code Example
DH-15TAD-M1

Housing & Clutch Pinned To Indexer



Option
(2) holes in the housing mounting feet, the clutch dowel pinned to the indexer output flange & (1) in the clutch dial mounting flange
(reference: A, C & D)

Code Example
DH-15TAD-M2

Mounting Procedures

This mechanism is capable of high torque forces during the acceleration and deceleration ramps, use removable thread locker or locking devices on all fasteners. When tightening the bolts, use the proper torque to match the bolt size.

Bolt Tightening Torque Chart		
M5	4.9~7.6 N·m	(3.6~5.6 lb·ft)
M6	8~13.5 N·m	(5.9~9.9 lb·ft)
M8	20~34 N·m	(14.7~25.0 lb·ft)
M10	40~67.5 N·m	(29.5~49.7 lb·ft)
M12	70~84 N·m	(51.6~61.9 lb·ft)
M14	112~134 N·m	(82.6~61.9 lb·ft)
M16	175~210 N·m	(129.0~154.8 lb·ft)
M20	341~402 N·m	(251.5~296.4 lb·ft)

- If the housing mounting feet or output flange surfaces have any scratches, burrs or paint, use an oil stone or fine emery paper to correct it. Clean the mounting surfaces and apply grease or mineral oil to prevent rust. While mounting the housing, verify all mounting feet are in contact with the base mounting plate. If necessary, install leveling shims to avoid any bending stress on the housing.
- When mounting dial plates or fixture tooling to the output flange, dowel pins can be added to maintain the original tooling position. Dowel holes can be placed on the same bolt circle and no deeper than the tapped mounting holes. Please contact Sankyo for more information.

Environment

- Operating temperature: 0 to 40 degrees Celsius (32° to 104° F), for use outside this range, use the proper oil viscosity for your environment. Contact Sankyo for other temperature range recommendations.
- Moisture: to avoid rust from high humidity condensation, coat any bare metal surfaces with paint, grease, oil or sealant.
- The roller gear cam mechanism input and output will seal only limited amounts of dirt and foreign particles. Inspect the seals regularly to avoid oil leaks and install protective covers if necessary (covers are recommended for grinding applications).
- If electric currents passes through the housing, the bearings may be damaged with less than 1 volt causing electrolytic corrosion. Use the proper insulation and grounding to protect the internal bearings. For more information and recommendations, contact Sankyo.

Operation

Prior to powering the roller gear cam mechanism, rotate the input drive by hand to verify proper clearances and avoid tooling crashes. Verify, the housing and fixtures are mounted properly, correct voltage, use slow/jog speed settings with gradual acceleration and check for abnormal noise, vibration and oil leaks. Be prepared to stop the motor quickly if necessary.

Storage

For long term storage, apply grease or paint the bare metal surfaces. To avoid internal rust, cycle the motor a few times or if power is no longer connected rotate the housing upside down, then upright to coat the internal parts. Storing the housing in fluctuating temperatures may cause the internal components to condensate, rust and contaminate the oil bath with water.

Repair & Inspection

The internal components are rolling contact and rarely require replacement. In the event of a tooling crash, the internal components may be bent or broken. If the internal component are damaged, continuing to operate the unit may cause more damage. Signs of internal damage are; over or under shooting the output home position, output backlash and/or the input motor torque may increase significantly. Please contact Sankyo for inspection and troubleshooting support.

Application Form - Quote Request

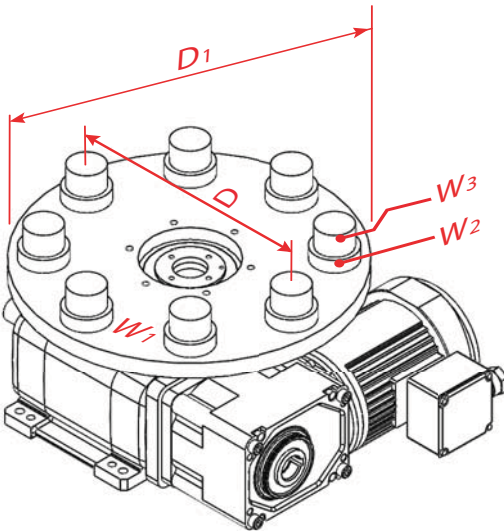
Thank you for considering our products. If you wish to receive a formal quotation, please complete this data sheet with your application information.

- You may call in your application to Sankyo Sales at (937) 498.4901 or fax to (937) 498.9403.
- Online form website link: www.sankyoautomation.com
- Scan/e-mail link: sales@sankyoautomation.com

Company	
Address	
Contact Name	
Tel	
E-mail Address	

- A) Number of output stops/stations.....
- B) Index time to move between stations [sec].....
- C) Dwell time or process time [sec].....

Indexing Dial Plate or Fixture



D1 - Dial Plate Diameter [mm]

W1 - Dial Plate Weight [kg]

D - Part/fixture Diameter [mm]

W2 - Fixture Weight [kg]

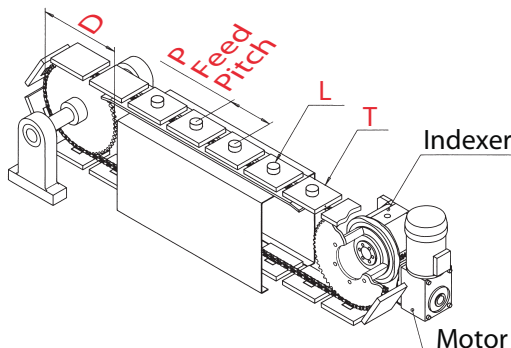
W2 - Fixture Quantity

W3 - Part Weight [kg]

W3 - Part Quantity

Notes

Indexing Conveyor



D - Sprocket Diameter [mm]

D1 - Sprocket Quantity (idler?)

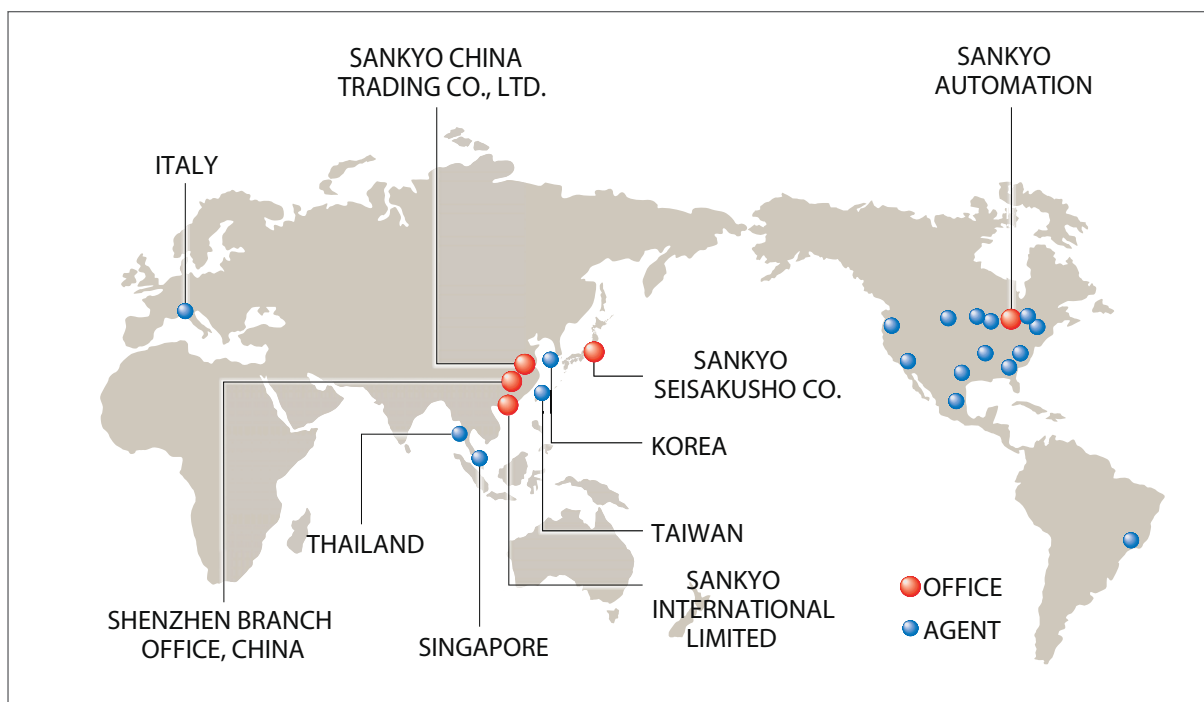
P - Part Feed Pitch [mm]

L - Load/part Weight [kg]

L1 - Load/part Quantity

T - Tooling Weight [kg]

T1 - Tooling Quantity



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