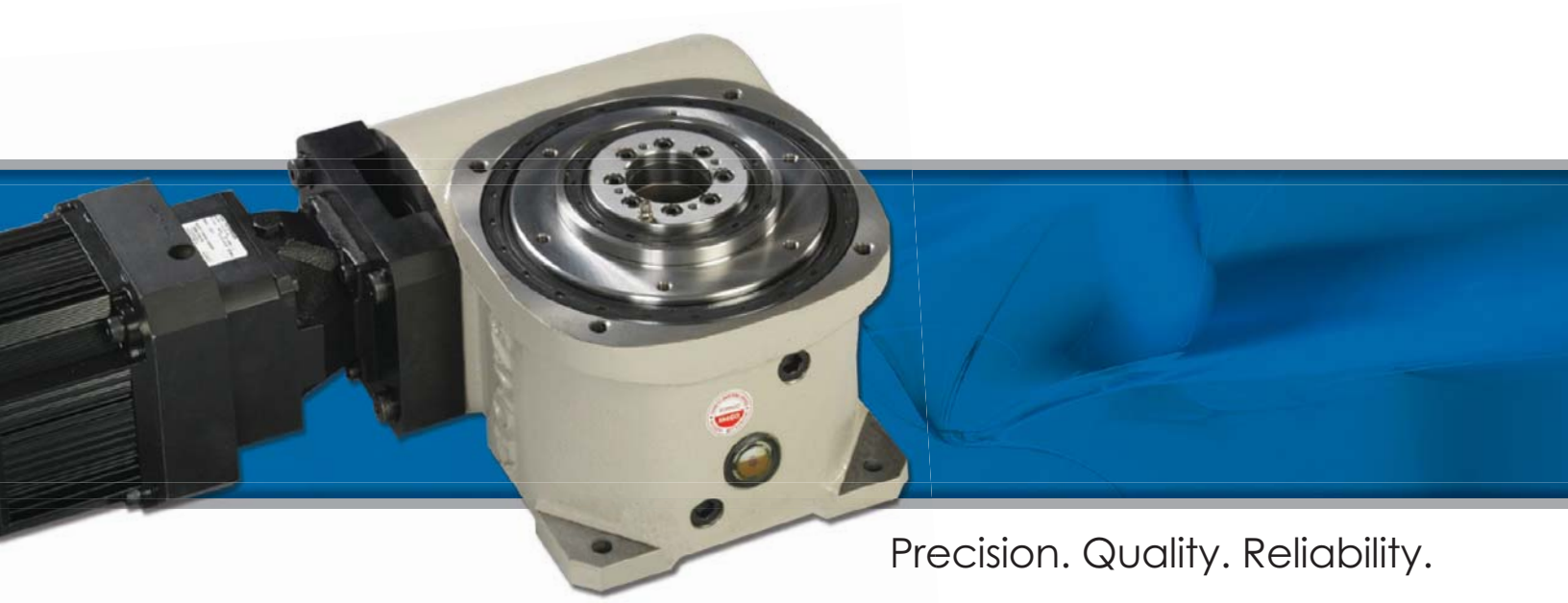
SANKYO AUTOMATION



Precision. Quality. Reliability.

AR Series

Servo Indexing Tables

Introduction

For today's factory automation equipment, motion control using servo systems is a crucial element which greatly affects the machine performance. Ultimately, equipment specifications and performance are designed assuming the expected motion is achieved. If there are factors such as backlash, insufficient rigidity or motion control instability, the output motion will deviate from input commands. Compromising machine performance can affect manufacturing quality, throughput, delivery and customer loyalty.

The AR Series servo motor performance is mechanically enhanced while maintaining powerful torque, rigidity, stability and reducing settling times. With our unique low backlash preloaded mechanism, output motions faithfully follow the control commands. This revolutionary system combines rolling transmission for high-efficiency and reduced wear.

Our standard compact design features a low-profile cast iron housing with a large fixture mounting flange to support unbalanced loads. The output turret includes a second stationary flange mount for inspection probes or auxiliary tooling. Supply lines can be routed through the stationary output bore. No need to inventory or train to support another servo motor brand, the versatile motor mount accepts any servo motor brand of your choice.

Theory of Operation

The AR Series is a precision reducer that uses our roller gear mechanism, one of the finest motion control mechanisms available. Constructed with a spiral input shaft and ring output turret, needle bearing type cam followers are preloaded against the input shaft to provide extremely low backlash.

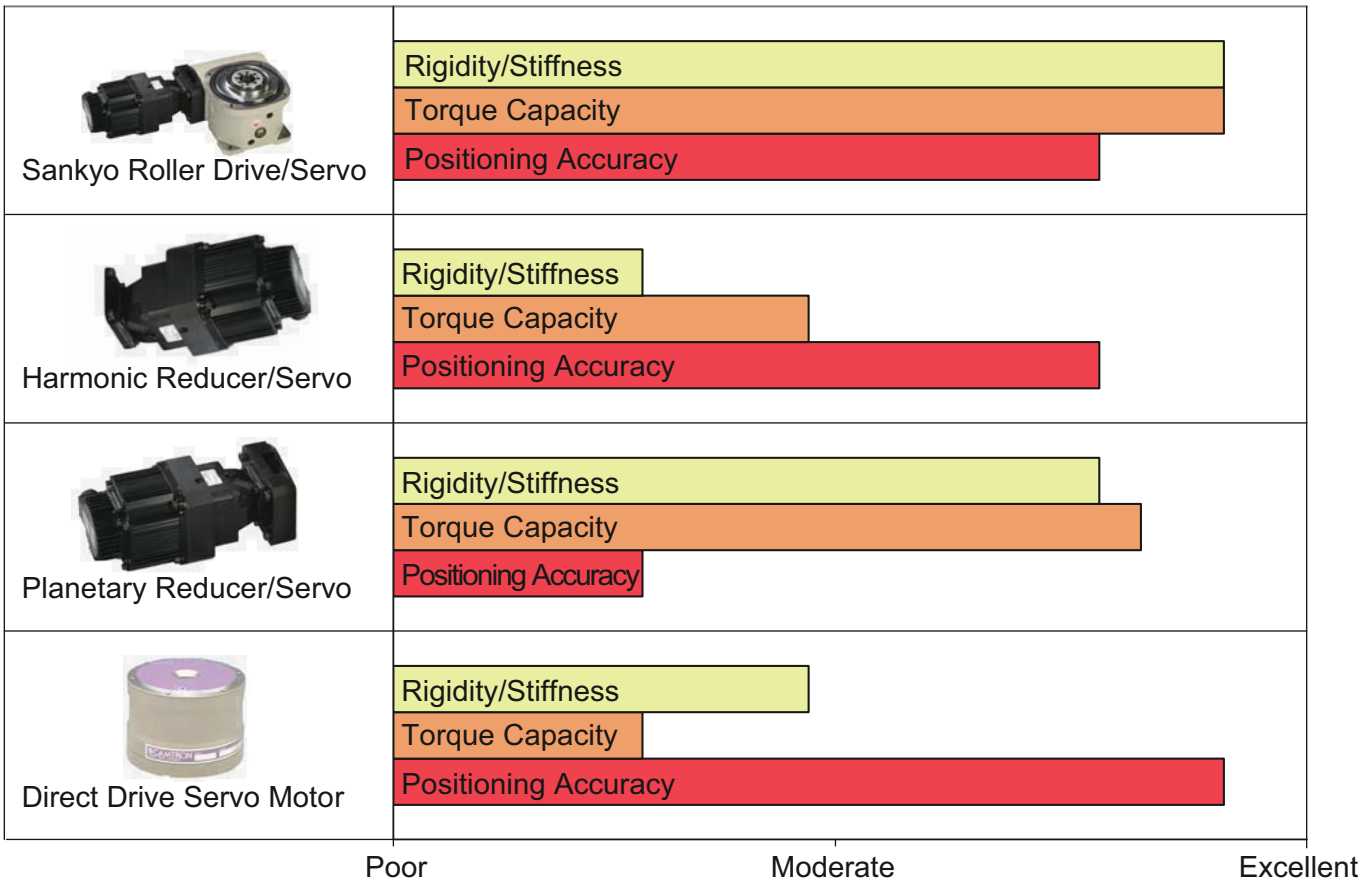
Our proprietary adjustment mechanism ensures optimal preload for many years of reliable service. Large input shaft diameter and tapered bearings reduce deflection during heavy loading and avoid damage during tooling crashes. Large diameter upper and lower output bearings support unbalanced loading.

This mechanism features low backlash motion, long-term accurate positioning and efficient operation while preventing wear. This servo driven rotary table delivers the ultimate motion control for applications requiring heavy loading at moderate speeds.

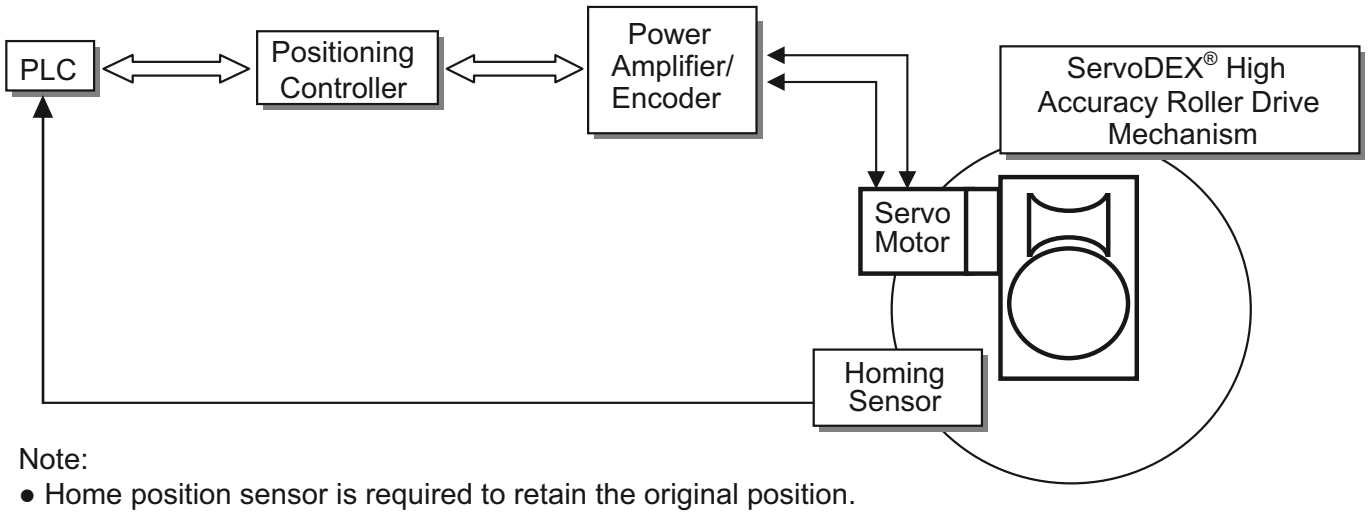
Advantages

- **Excellent solution for non-patterned indexing, oscillating or continuous motion applications**
- **Meets most application requirements for speed or loading with 36:1 to 1600:1 ratio options**
- **Low backlash design positions accurately within ±60 arc seconds**
- **No need to inventory another servo brand, adapts to any servo motor brand of your choice**
- **Perfect solution for frequent "on demand" cycling applications**
- **Sankyo offers (6) housing sizes to minimize over-sizing & related extra cost**
- **Optional output torque limiting clutch protect the AR from damage during tooling crashes**
- **Compact design is robust with heavy loading & large bending moment capacities**
- **Worldwide sales & technical support teams are ready to assist you**

Comparison of Positioning Mechanisms



AR/ServoDEX Series System Control Block Diagram



Note:
- Home position sensor is required to retain the original position.
- Home position sensor not supplied by Sankyo, to be supplied by the customer.
- All items electric devices (servo motor, amplifier, cables, PLC) are typically supplied by the customer.

Specifications

AR Series Servo Driven Rotary Table

- Up to 1600:1 internal cam & inline reducer ratio
- Very low overall backlash
- Accurate positioning within ±60 arc seconds
- Adapts to any servo motor brand of your choice
- Large bending capacity for unbalanced loading
- Inline reducer mounts on either side of the AR
- Optional auto-reset output torque limiting clutch
- Optional right angle reducer mounts in 90 degree increments for versatile mounting

12:1 Ratio Specifications

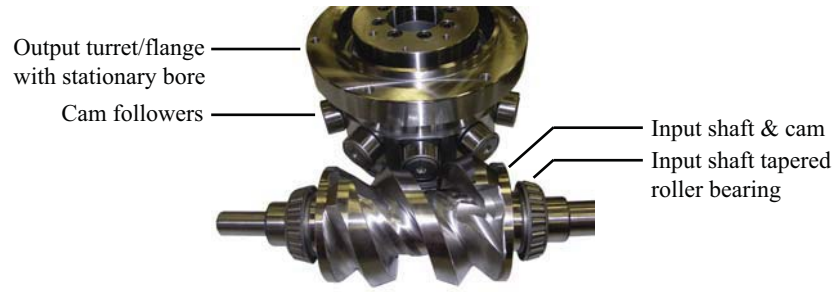
Sizes	Units	7AR	9AR	11AR	15AR	19AR	23AR
Internal gear ratio	-	12:1 standard (6:1, 8:1, 10:1, 16:1 are optional)					
Inline reducer ratio	-	3:1, 4:1, 5:1, 6:1, 7:1, 8:1, 9:1 & 10:1 (15:1 to 100:1 double stage)					
Positioning accuracy	arcsec	±60					
Repetitive accuracy	arcsec	30					
* Max. acceleration torque start/stop (at 5 RPM)	N·m	103.0	212.5	445.3	1,128.4	2,179.9	3,165.9
Static rated output torque emergency stop torque	N·m	295.0	406.6	1,150.1	2,551.1	3,802.6	5,575.6
Output friction torque	N·m	3.6	5.0	7.5	13.7	24	31.2
Max. input torque	N·m	93.1	245	294	392	600	784
Input inertia	kg·m²	0.0019	0.0025	0.006	0.020	0.105	0.136
Output inertia	kg·m²	0.0034	0.0111	0.0347	0.162	0.549	1.685
Max. input speed	RPM	300					
Nominal input speed	RPM	200					
* Max. Output axial runout	mm	0.02					
* Max. Output radial runout	mm	0.02					
* Max. Output axial load	N	7,390	13,880	18,470	27,770	59,890	90,020
* Max. Output radial load	N	2,630	3,760	5,830	11,080	15,440	19,440
* Output bending moment	N·m	260	440	790	1,720	3,160	4,840
Output bending rigidity	N·m/rad	2.3E+05	4.5E+05	7.5E+05	2.0E+06	5.7E+06	8.4E+06
AR housing weight	kg	15.0	24.0	42.0	85.0	180.0	285.0
Inline reducer weight	kg	1.4		3.7	8.0	8.0/16.0	16.0
Inline reducer frame size	mm	60		90	115	115/140	140

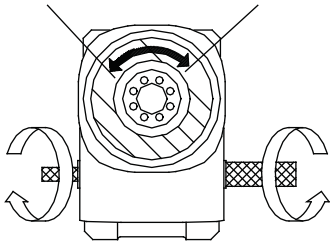
* Denotes dynamic ratings

Model Code

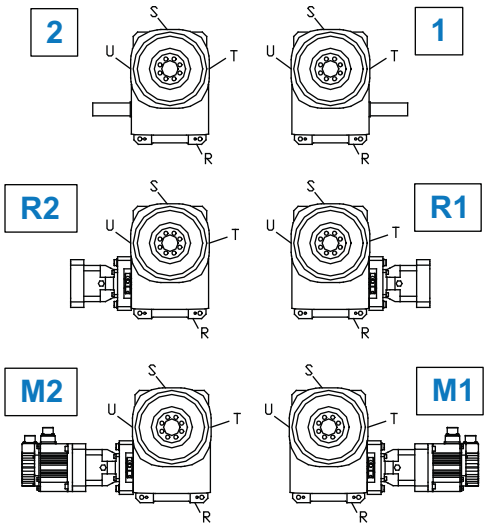
9	AR	-	12	36	0	R	-	S	R1	VW	1	/	X
a	b		c	d	e	f		g	h	i	j		k

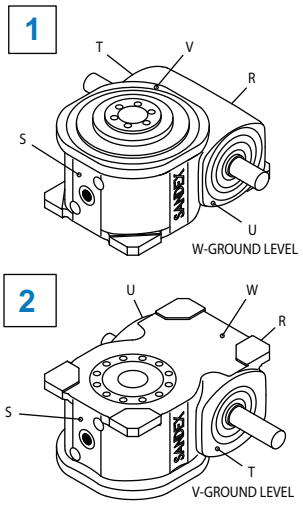
a Size	b Model	c Cam Ratio	d Index Period	e Motion Curve	f Rotation Orientation
9 90mm	**AR** Servo series	**12** 12:1 Ratio	**36** 360°	**0** Constant velocity	**R** Right hand rotation
Input center to output flange center distance 7, 9, 11, 15, 19 & 23 sizes available	Servo input with cam ratio, no output backlash, flange output	Specifies input to output ratio with internal cam	Input shaft rotation is fixed at 360°	Equivalent speed cam curve motion	Indicates the rotation direction of the input & the output, right hand or left hand versions are available Input Output Left hand Right hand

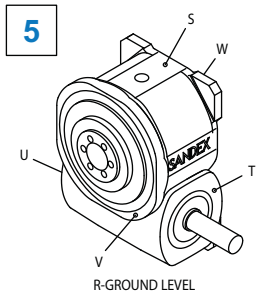




g Output	h Input Shaft Projection	i Housing Mounting Holes	j Housing Mounting Position	k Speicial Instruction
S Standard	**R1** T Surface only with reducer	**VW**	**1**	**/ X**
S Standard **L** Output torque limiter option	**R1** standard **1, 2** no motor drive **R1, R2** reducer **M1, M2** reducer & motor	Standard * (4) tapped holes, V-side * (4) thru holes, W-side * (2) rough bored holes on W-side, customer to finish ream diameter	Mounting positions shown below **1** standard, W-side at ground level **2** V-side at ground level **5** R-side at ground level	Include the symbol **/ X** for special requirements, a certified drawing will be issued for customer approval. Please contact Sankyo sales with any special instructions.







Rough bored dowel holes in the housing mounting feet are standard. Finished bored holes are available.

Model Code - Options

Inline Reducer & Servo Motor Package Option

SM	0.4	A	05	N	Z	-	9AR	-	VRB-xxxxxxx
a	b	c	d	e	f		g		h

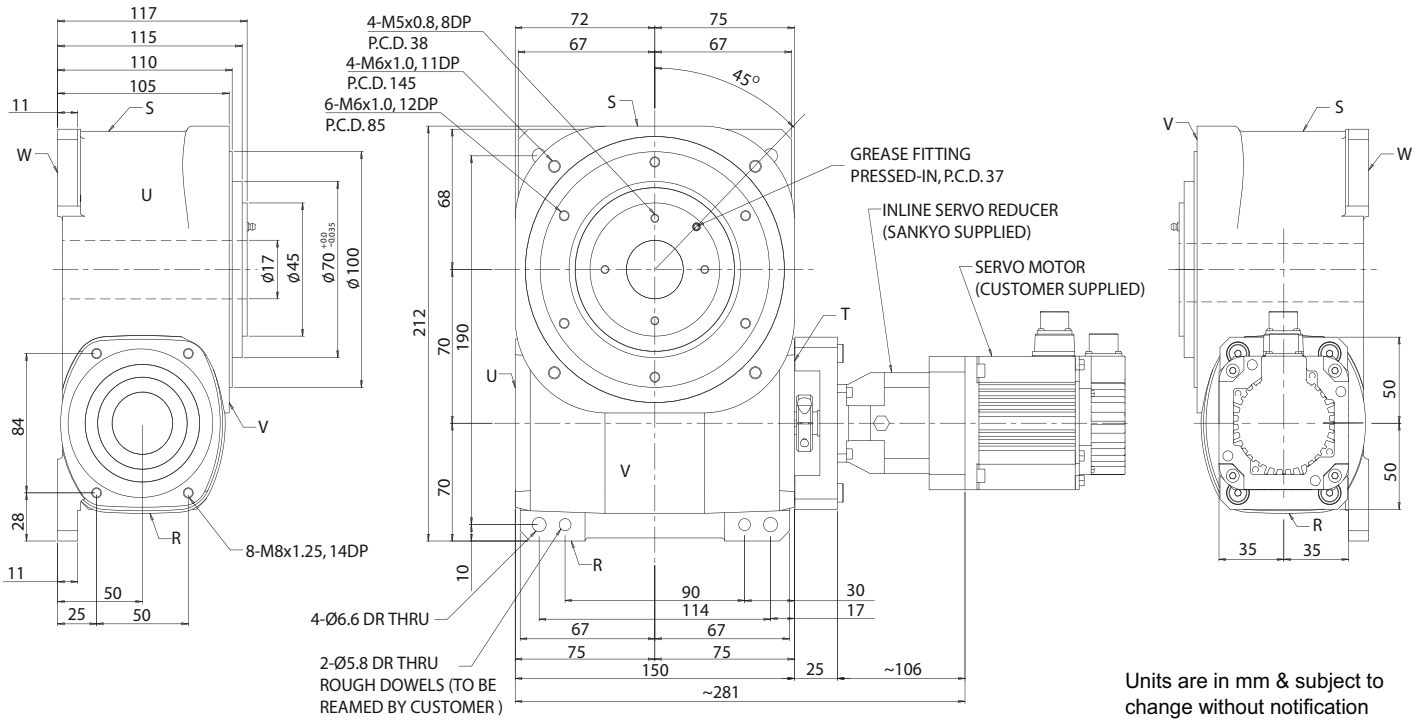
a Model	b Motor Power	c Revision	d Ratio	e Voltage	f Specification	g Model	h Reducer Type
SM	0.4 0.4kW Motor	A	05 Ratio	N Voltage	Z Specification	9AR	VRB-14BE14 Reducer
Servo motor & reducer drive type	No standard, servo motor power is based on required torque, speed, motor shaft diameter & mounting flange size. 0.1... 0.1 kW/.13 HP 0.2... 0.2 kW/.26 HP 0.3... 0.3 kW/.40 HP 0.4... 0.4 kW/0.53 HP 0.5... 0.5 kW/0.67 HP 0.7... 0.7 kW/0.93 HP 1.5... 0.5 kW/2.01 HP	Design Revision	Reducer ratio (no standard) 03... 3:1 ratio 04... 4:1 ratio 05... 5:1 ratio 06... 6:1 ratio 07... 7:1 ratio 08... 8:1 ratio 09... 9:1 ratio 10... 10:1 ratio	No motor is standard A... 100 volt B... 200 volt C... 400 volt D... No motor	U: Sankyo supplied Yaskawa motor only W: Sankyo supplied Yaskawa motor & amplifier Y: Sankyo supplied motor, not Yaskawa Z: Customer to supply motor & amplifier X: Special, custom design requires a detailed drawing	7AR 9AR 11AR 15AR 19AR 23AR	Shimpo brand is standard. VRB-(motor mount)

Output Torque Limiting Clutch Option

9	TAD	–	20	L	–	PNP
a	b		c	d		e

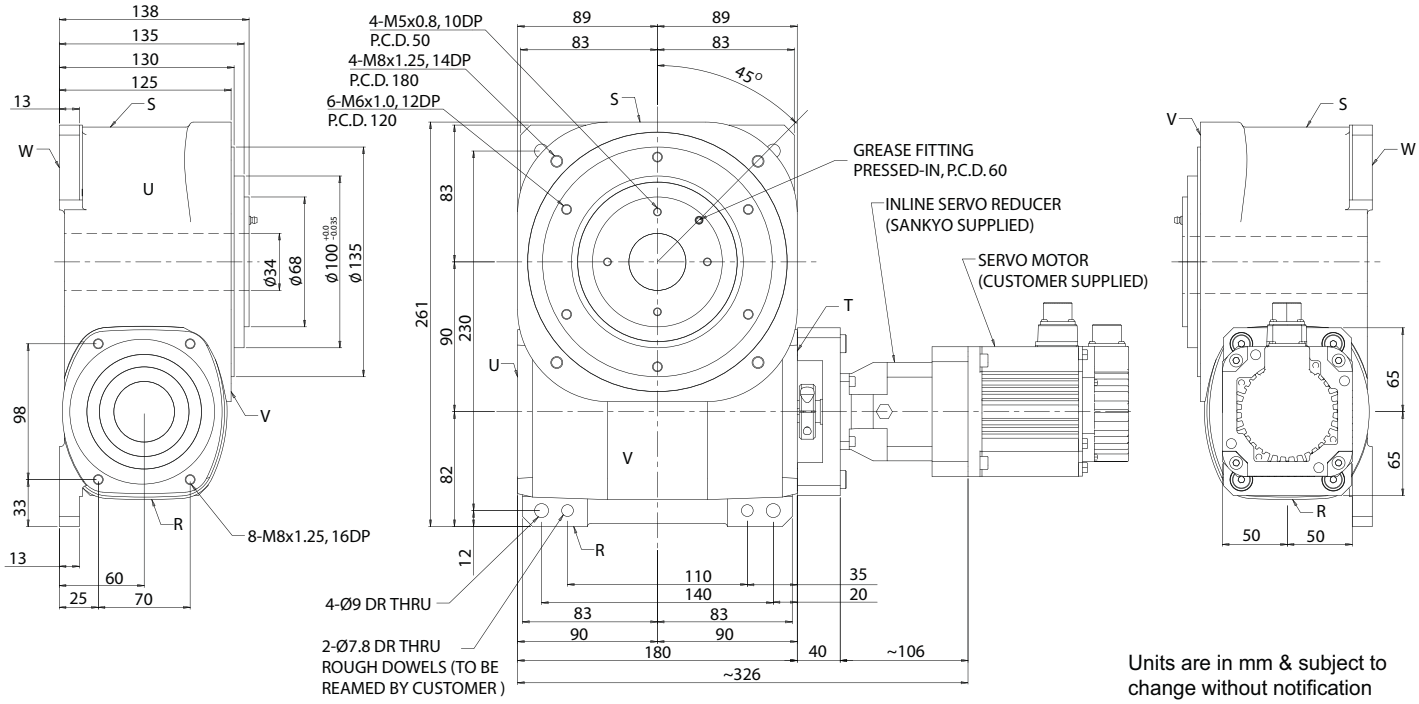
a Unit Size	b Model	c Tripping Torque	d Spring Type	e Sensor Type
Model size, no standard, sized by Sankyo. 7TAD... 7AR 9TAD... 9AR 11TAD... 11AR 15TAD... 15AR 19TAD... 19AR 23TAD... 23AR	Flange to flange type, adjustable torque. TAD series	Maximum tripping torque. 20... 200 Nm Cap.	Die spring type, larger wire used for heavy duty. L... Light duty H... Heavy duty	Trip/overload detection proximity type sensor. (PNP is standard) PNP... PNP type NPN... NPN type

7AR Series Programmable Indexer & Inline Reducer



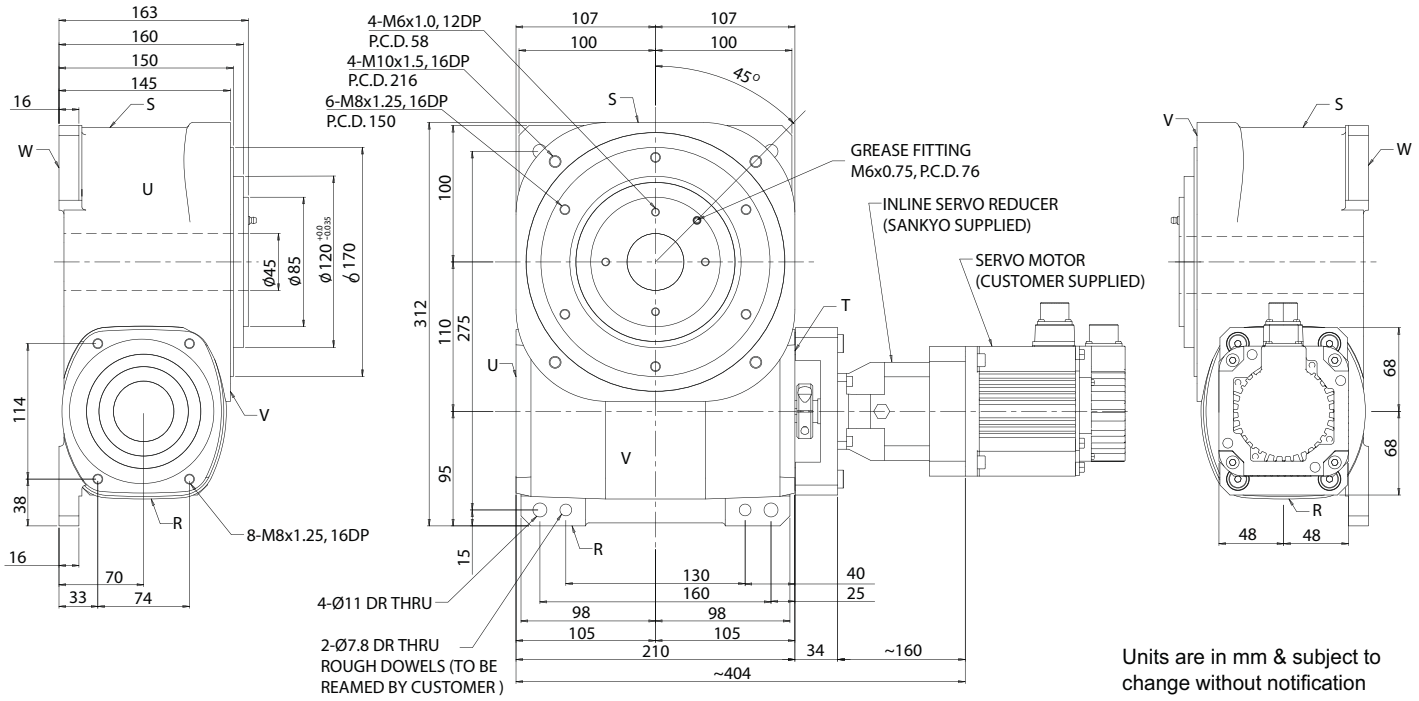
Units are in mm & subject to change without notification

9AR Series Programmable Indexer & Inline Reducer



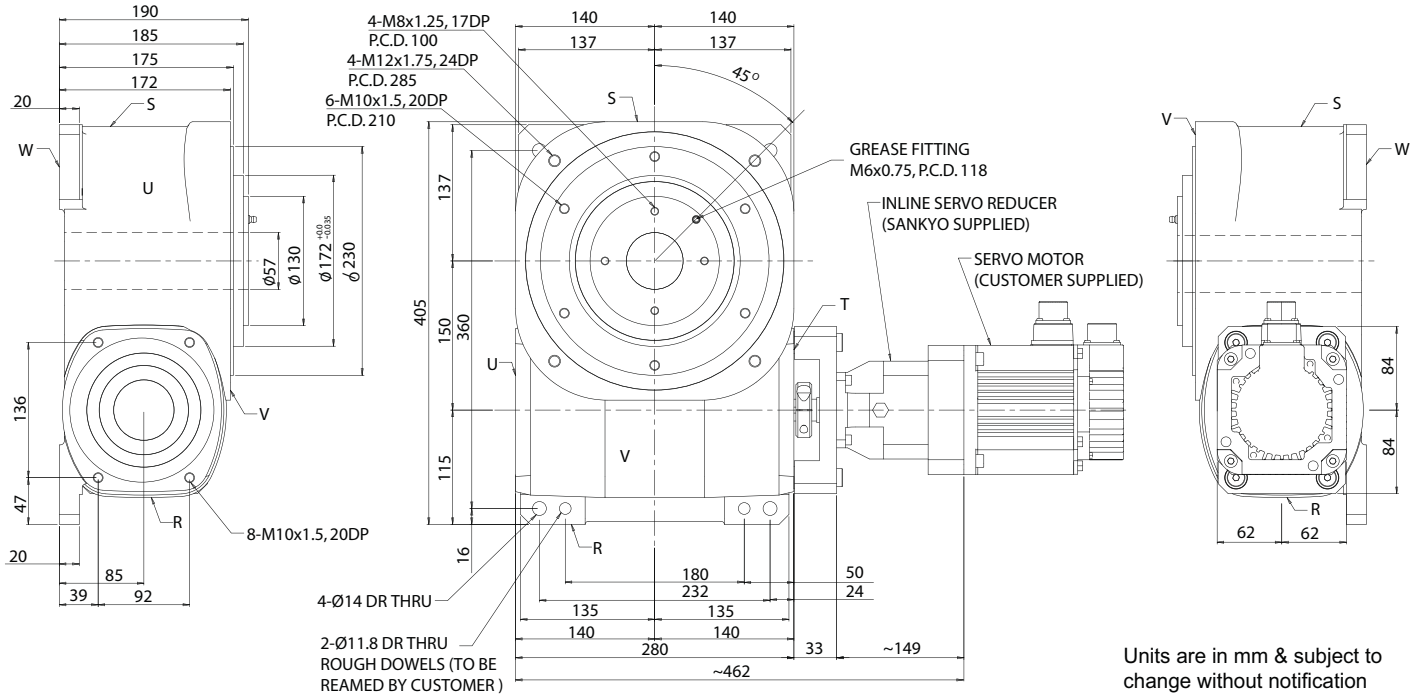
Units are in mm & subject to change without notification

11AR Series Programmable Indexer & Inline Reducer



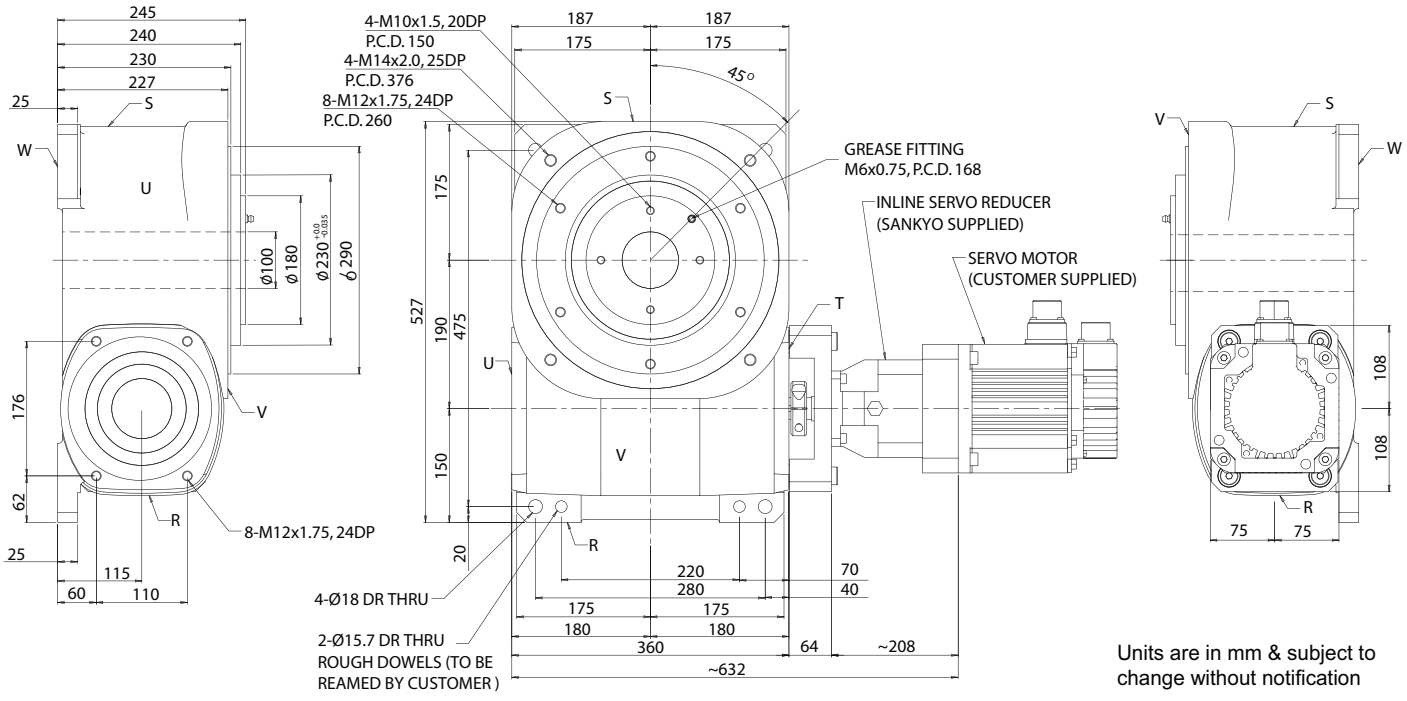
Units are in mm & subject to change without notification

15AR Series Programmable Indexer & Inline Reducer



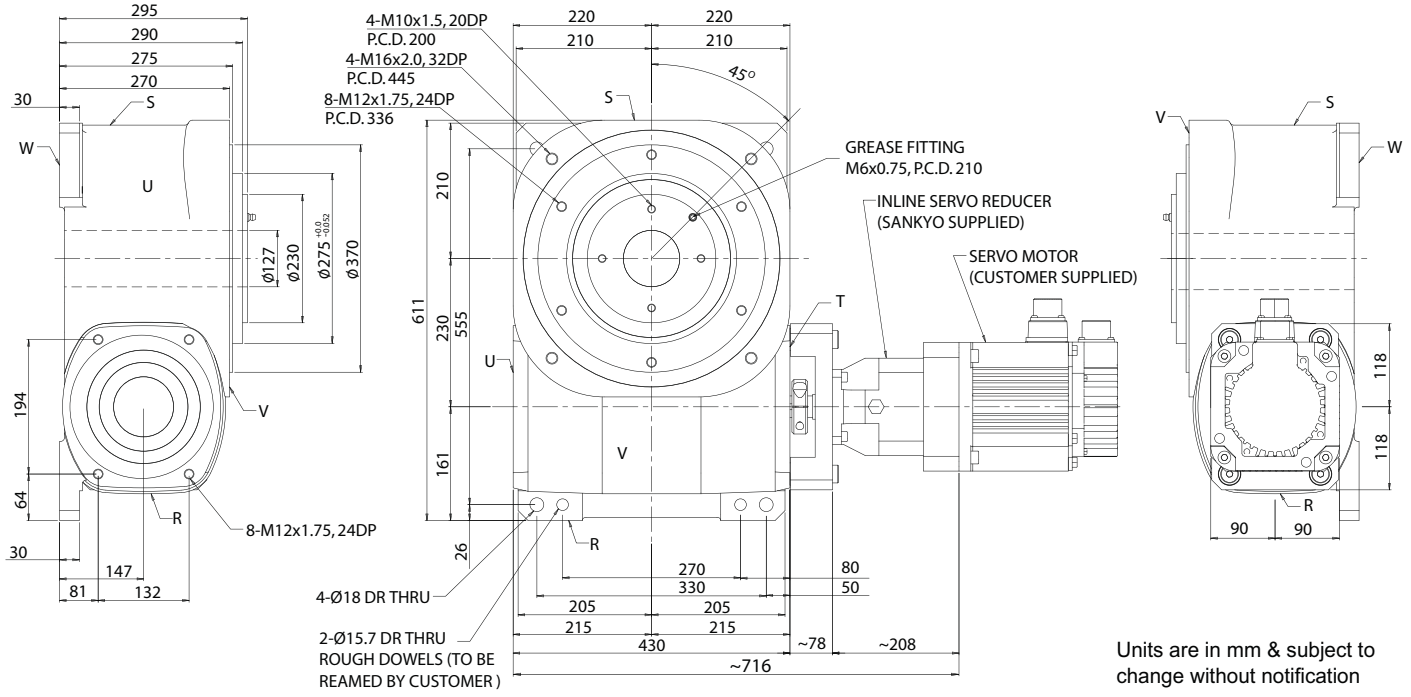
Units are in mm & subject to change without notification

19AR Series Programmable Indexer & Inline Reducer



Units are in mm & subject to change without notification

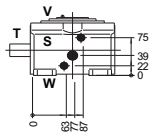
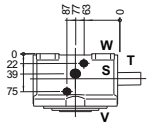
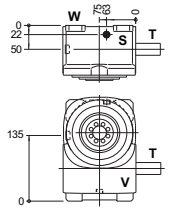
23AR Series Programmable Indexer & Inline Reducer



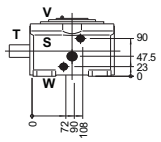
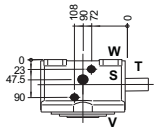
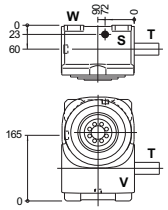
Units are in mm & subject to change without notification

Oil Fil, Drain & Sight Gauge Locations

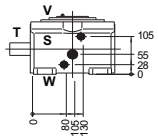
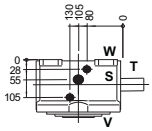
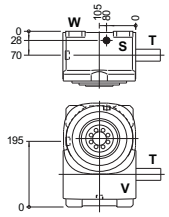
Dimensions (mm)

Position-1	Position-2	Position-5
		
0.4 liter	0.7 liter	0.8 liter

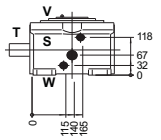
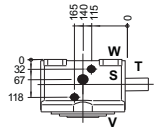
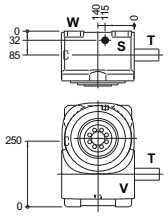
7AR housing mounting position options & oil amount
- Oil plug threads are 1/4 BPT
- Oil sight gauge is part number VA-01

Position-1	Position-2	Position-5
		
0.5 liter	0.9 liter	1.0 liter

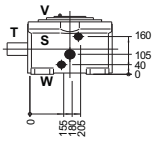
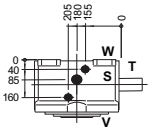
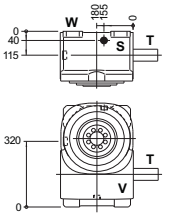
9AR housing mounting position options & oil amount
- Oil plug threads are 3/8 BPT
- Oil sight gauge is part number VA-01

Position-1	Position-2	Position-5
		
0.8 liter	1.4 liter	1.6 liter

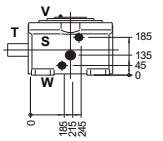
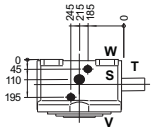
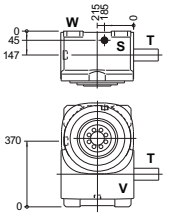
11AR housing mounting position options & oil amount
- Oil plug threads are 1/2 BPT
- Oil sight gauge is part number VA

Position-1	Position-2	Position-5
		
2.2 liter	3.0 liter	3.3 liter

15AR housing mounting position options & oil amount
- Oil plug threads are 1/2 BPT
- Oil sight gauge is part number VA

Position-1	Position-2	Position-5
		
5.0 liter	6.0 liter	6.5 liter

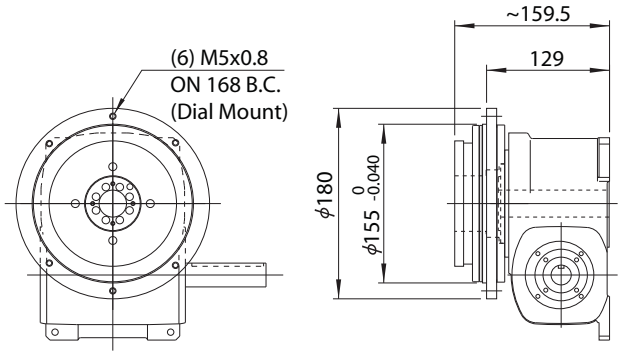
19AR housing mounting position options & oil amount
- Oil plug threads are 3/4 BPT
- Oil sight gauge is part number VB

Position-1	Position-2	Position-5
		
10.0 liter	12.0 liter	13.0 liter

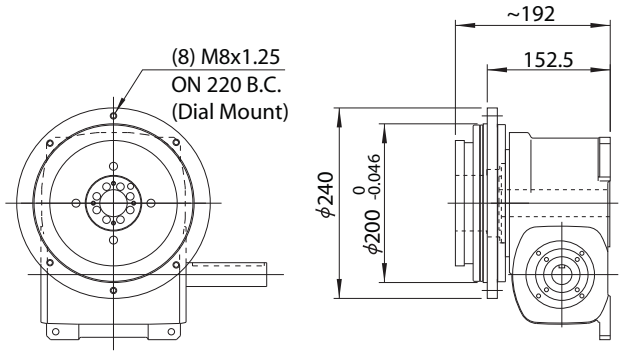
23AR housing mounting position options & oil amount
- Oil plug threads are 3/4 BPT
- Oil sight gauge is part number VB

Output Torque Limiting Clutch Option

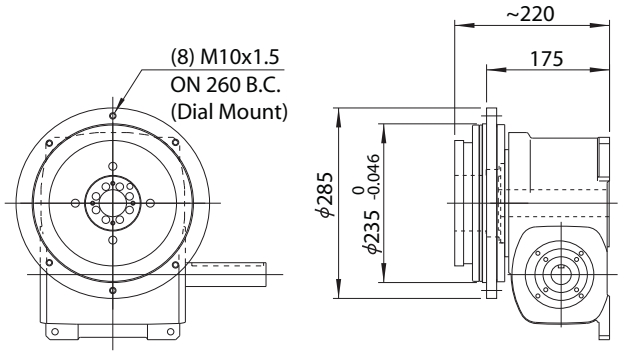
Dimensions (mm)



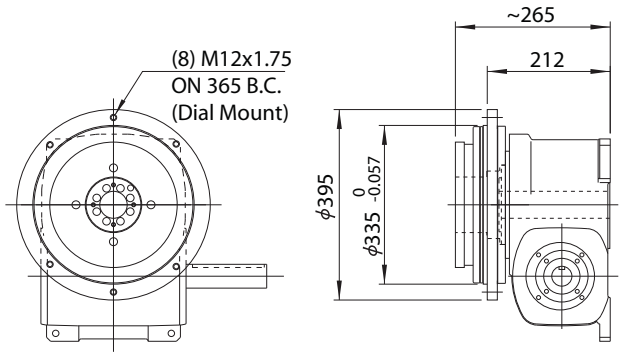
Model Code: 7TAD-15L (40~150 Nm)
7TAD-25H (100~250 Nm)



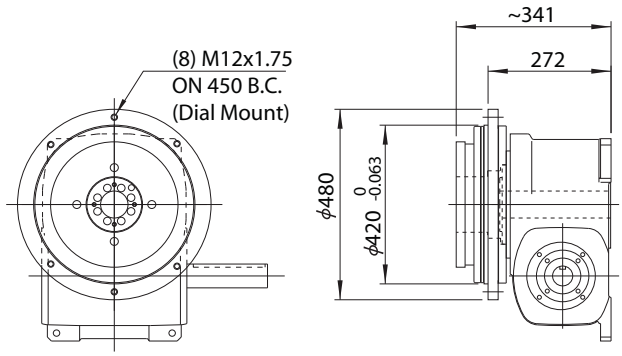
Model Code: 9TAD-20L (60~2000 Nm)
9TAD-45H (140~450 Nm)



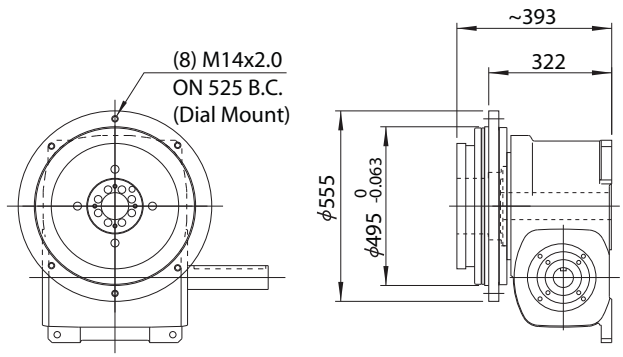
Model Code: 11TAD-23L (90~230 Nm)
11TAD-60H (150~600 Nm)



Model Code: 15TAD-100L (300~1000 Nm)
15TAD-220H (650~2200 Nm)



Model Code: 19TAD-200L (600~2000 Nm)
19TAD-450H (1500~4500 Nm)



Model Code: 23TAD-350L (1200~3500 Nm)
23TAD-550H (2000~5500 Nm)

Output Torque Limiting Clutch Dimensions

Dimensions

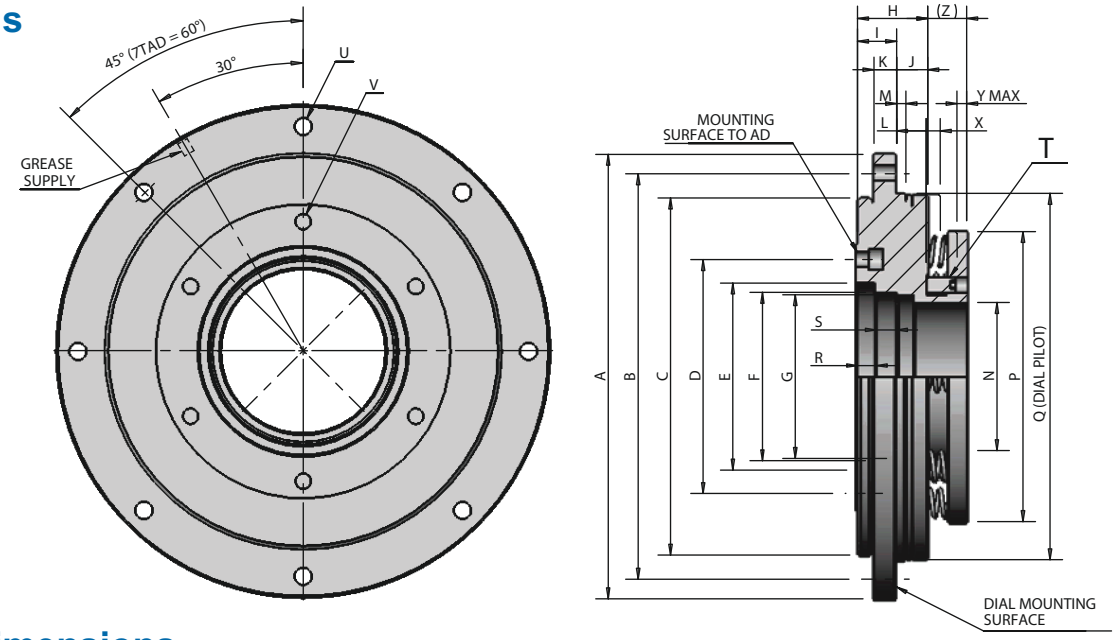


Table of Dimensions

Table TAD-1

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	X	Y max	Z
7TAD	ϕ180	ϕ168	ϕ152	ϕ85	ϕ70 H7	ϕ60	M55 ×2	33	19	14	10.5	14	5	ϕ47	ϕ107	ϕ155 h7	7	10	(4) M5	(6)M5 ×0.8	(6) 6.6DR.	3	5	16.5
9TAD	ϕ240	ϕ220	ϕ198	ϕ120	ϕ100 H7	ϕ85	M80 ×2	39	22.5	16.5	12.5	17.5	5	ϕ70	ϕ158	ϕ200 h7	7	16	(4) M10	(8)M8 ×1.25	(6) 6.6DR.	3.5	7	23
11TAD	ϕ285	ϕ260	ϕ229	ϕ150	ϕ120 H7	ϕ108	M105 ×2	44	25	19	14.5	20	6	ϕ95	ϕ186	ϕ235 h7	12	13	(4) M10	(8)M10 ×1.5	(6) 9DR.	3.7	7.5	26
15TAD	ϕ395	ϕ365	ϕ328	ϕ210	ϕ172 H7	ϕ155	M145 ×2	64	37	27	20	27	6	ϕ130	ϕ256	ϕ335 h7	12	33	(4) M10	(8)M12 ×1.75	(6) 11DR.	5.5	7	26
19TAD	ϕ480	ϕ450	ϕ419	ϕ260	ϕ230 H7	ϕ186	M180 ×2	77	42	35	21	33	8	ϕ166	ϕ326	ϕ420 h7	16	43	(4) M10	(8)M12 ×1.75	(8) 14DR.	5.6	7	34
23TAD	ϕ555	ϕ525	ϕ494	ϕ336	ϕ275 H7	ϕ262	M260 ×2	82	47	35	25	35	9	ϕ246	ϕ402	ϕ495 h7	17	44	(4) M10	(8)M14 ×2	(8) 14DR.	6.5	8	36

〔Unit : mm〕

Specifications

Table TAD-2

Model	Code	Range of Tripping Torque (N•m)	Thread Pitch On Torque Adjusting Nut (mm)	Max. Allowable Radial Load (N)	Max. Allowable Thrust Load (N)	Max. Allowable Bending Moment (N•m)	Max. Revolution Per Minute (r.p.m.)	Moment of Inertia (kg•m²)	Mass (kg)
7TAD	7TAD−15L	40 ～ 150	2	2450	2950	45	200	0.02	4.5
	7TAD−25H	100 ～ 250							
9TAD	9TAD−20L	60 ～ 200	2	5200	5000	100	200	0.07	9.6
	9TAD−45H	140 ～ 450							
11TAD	11TAD−23L	90 ～ 230	2	7300	7000	180	200	0.15	15
	11TAD−60H	150 ～ 600							
15TAD	15TAD−100L	300 ～ 1000	2	11800	12000	430	140	0.8	43
	15TAD−220H	650 ～ 2200							
19TAD	19TAD−200L	600 ～2000	2	16800	17000	750	120	2.1	74
	19TAD−450H	1500 ～4500							
23TAD	23TAD−350L	1200 ～ 3500	2	24800	35000	1950	100	4.5	110
	23TAD−550H	2000 ～ 5500							

X: When an overload occurs, the overload detection panel moves X mm. This movement is used to activate a sensing device and thereby allows the user to take appropriate measures in the control logic.

Z: This dimension indicates the height when the spring is free and should be referred to when calculating tripping torque.

Ymax: This dimension indicates tightening length when tripping torque is maximum. If tightening more than this figure, the torque limiter does not operate.

AR SERIES OUTPUT TORQUE CAPACITY

Cam Ratio	Index Period θ (deg)	CODE	Static-rated Output Torque Ts (N·m)	Dynamic-rated Output Torque Top(N·m) / Internal Inertia Load Torque Toi (N·m) — Number of Indexes per minute (Index/min) 25	50	75	100	125	150	200	Camshaft Frictional Torque Tx (N·m)	Sankyo Cam Follower SCF (mm)
6:1	360	07AR 0636 0R	286.2	94.9	94.9	94.9	94.9	94.9	94.9	94.9	3.8	16
		09AR 0636 0R	393.7	245.2	199.1	176.3	161.7	151.3	143.2	131.4	5.2	19
		11AR 0636 0R	1110.3	512.8	416.5	368.8	338.3	316.4	299.6	274.8	7.9	26
		15AR 0636 0R	2414.7	1286.6	1045.1	925.4	848.8	721.7	683.3	626.8	14.5	35
		19AR 0636 0R	3622.8	2493.7	2025.5	1793.6	1645.3	1538.7	1456.8	1336.4	25.4	47
		23AR 0636 0R	7422.6	3599.8	2923.9	2589.0	2375.0	2221.2	2103.0	1929.1	33.1	52
8:1	360	07AR 0836 0R	338.5	222.8	180.9	160.2	147.0	137.5	130.1	119.4	4.2	22
		09AR 0836 0R	656.3	423.5	344.0	304.6	279.4	261.3	247.4	226.9	6.6	26
		11AR 0836 0R	1007.9	651.6	529.3	468.7	429.9	402.1	380.7	349.2	9.3	32
		15AR 0836 0R	2900.3	1959.6	1591.7	1409.4	1292.8	1209.1	1144.8	1050.1	19.1	47
		19AR 0836 0R	5908.4	4076.0	3310.7	2931.5	2689.1	2515.0	2381.1	2184.3	32.9	60
		23AR 0836 0R	9167.8	6272.0	5094.4	4510.9	4137.9	3870.0	3664.0	3361.1	43.7	70
10:1	360	07AR 1036 0R	307.6	132.8	132.8	132.8	132.8	129.7	122.8	112.7	3.8	19
		09AR 1036 0R	444.4	285.7	240.2	212.7	195.1	182.4	172.7	158.4	5.4	22
		11AR 1036 0R	993.1	696.4	565.6	500.8	459.4	429.7	406.8	373.2	8.8	30
		15AR 1036 0R	2208.1	1578.7	1282.3	1135.4	1041.5	974.1	922.2	846.0	15.7	40
		19AR 1036 0R	4431.3	3178.4	2581.7	2286.0	2097.0	1961.2	1856.8	1703.3	27.4	52
		23AR 1036 0R	7252.7	4666.4	4192.8	3712.6	3405.6	3185.1	3015.6	2766.2	37.2	60
12:1	360	07AR 1236 0R	295.0	96.4	96.4	96.4	96.4	96.4	96.4	96.4	3.6	16
		09AR 1236 0R	406.6	276.5	224.6	198.8	182.4	170.6	161.5	148.2	5.0	19
		11AR 1236 0R	1150.1	579.1	470.4	416.5	382.1	357.3	338.3	310.3	7.5	26
		15AR 1236 0R	2551.1	1467.4	1191.9	1055.4	968.1	823.1	779.3	714.9	13.7	35
		19AR 1236 0R	3802.6	2834.8	2302.6	2038.8	1870.3	1749.2	1656.1	1519.1	24.0	47
		23AR 1236 0R	5575.6	3721.5	3343.8	2960.9	2716.0	2540.2	2405.0	2206.1	31.2	52
16:1	360	07AR 1636 0R	53.8	37.6	30.6	27.1	24.8	23.2	22.0	20.2	1.9	12
		09AR 1636 0R	386.0	275.1	223.4	197.8	181.5	169.7	160.7	147.4	4.7	16
		11AR 1636 0R	773.2	695.9	573.7	508.8	466.0	251.6	238.2	218.5	5.7	19
		15AR 1636 0R	2037.5	1342.8	1090.7	965.8	885.9	690.5	653.7	599.7	11.6	30
		19AR 1636 0R	2344.5	1805.6	1466.6	1298.6	1191.2	1114.1	1054.8	967.6	18.1	35
		23AR 1636 0R	3670.4	2592.3	2329.2	2026.4	1849.9	1769.4	1675.2	1536.7	23.4	40

Updated 8/20/2012

Handling Procedures

AR Series Handling Procedures

The Sankyo roller gear cam mechanism features high accuracy positioning. To ensure maximum life and precision, maintain the recommended lubrication frequency and follow the procedures below.

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)

a) 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.

b) 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

a) 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.

b) Moisture: to avoid rust from high humidity condensation, coat any bare metal surfaces with paint, grease, oil or sealant.

c) 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.

d) 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.

Lubrication

Proper lubrication and maintenance frequency is essential for maintaining reliable service. The recommended gear oil viscosities are based on the input rotational speeds. Contact Sankyo if special speeds or housing mounting angle positions are required. (MobilGear 460 & EP2 grease are standard)

RPM	Viscosity
0~20	680
20~100	460
100~200	320

a) Change the oil bath and grease the output flange every 3,000 hours. Normally 3~5 shots of grease are required for the output flange. If the output flange grease cavity is over filled, the extra grease will drip into the oil bath and be mixed once the motor is started.

b) 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.

Servo Indexer Sizing Form

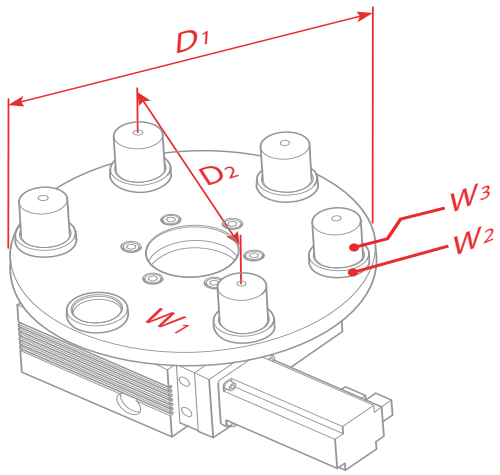
SANKYO AUTOMATION

10655 State Route 47 • Sidney, Ohio 45365
Tel: (937) 498.9401 • Fax: (937) 498.9403
sales@sankyoautomation.com
www.sankyoautomation.com

Company			
Address			
Contact Name			
Tel		**Fax**	
E-mail Address			

A) List the longest output motion in degrees & time to complete this motion with dwell/process time:

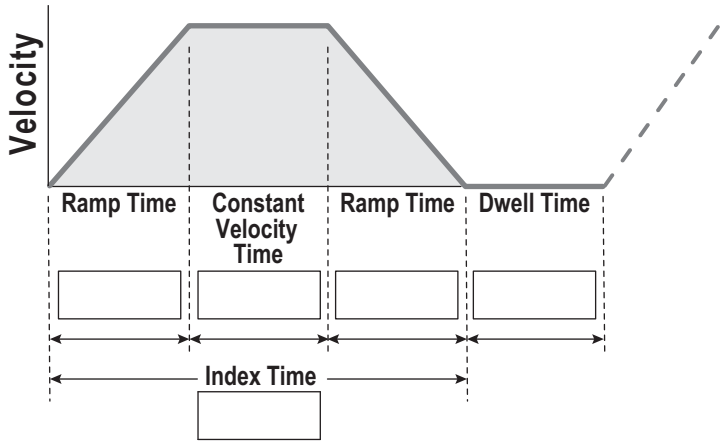
B) Please provide the application information below



D_1 - Table Diameter [mm]
W_1 - Table Weight [kg]
D_2 - Part/fixture Diameter [mm]
W_2 - Fixture Weight [kg]
W_2 - Fixture Quantity
W_3 - Part Weight [kg]
W_3 - Part Quantity

If known, additional axial/radial load [N]	If known, bending moment/unbalanced load [Nm]

C) Acceleration, motion, deceleration time & dwell/process time [sec]



Servo Motor Brand Name
Model Number [if known]
Notes

Service Network

SANKYO Seisakusho Co.
3-37-3 Tabatashinmachi, Kita-ku
Tokyo, Japan 114-8538
Tel: (81) 33.800.3330
overseas@sankyo-seisakusho.co.jp
www.sankyo-seisokusho.co.jp

SANKYO Korea
102-408, Digital Empire2,
88 Sinwon-ro, Yeongtong-gu,
Suwon-si,
Gyeonggi-do, 443-734 Korea
Tel: (82) 31.499.4054

SANKYO China Trading Co. Ltd.
Room1103, Block B, No.391 Guiping
Road, Shanghai 200233 China
Tel: (86) 21.5445.2813
sales@sankyochina-trading.com
www.sankyochina-trading.com

Represented by:

SANKYO AUTOMATION

10655 State Route 47
Sidney, Ohio 45365 USA
Tel: (937) 498.4901
sales@sankyoautomation.com
www.sankyoautomation.com

SAI-AR-2017/9