

# Automation Product Guide



**GENERAL DESIGN STANDARDS** on all Sankyo products, we incorporate parallel or globoidal cams, cast iron housings, needle bearing cam followers and complementary accessories with a large variety of product. Sankyo applies cam technology to virtually eliminate vibration and output stops/speeds limitations that plague barrel cam designs. Our cast iron housings and internal steel components thermally expand at the same rate to maintain consistent friction loads and accuracy, unlike aluminum housing units with cold start chatter and varying accuracy. Friction type cam followers without needle bearings limit the unit speed, causing chatter and require special lubrication if pushed to the speed limits. Sankyo uses needle bearing cam followers to ensure maximum speed capacity with optimal shaft and race diameters which require less revolutions to inherently extend the life and help withstand tooling crashes.

**DIAL INDEXERS**, Sankyo offers a full line of dial index units to rotate tables up to 23 feet in diameter. Standard hollow bore centers can route supplies with a stationary flange for mounting a second dial above the indexing dial. Standard units average  $\pm 10$  arcsec accuracy (but not to exceed  $\pm 30$  arcsec) with optional high accuracy units available. All units perform bi-directional indexing motions or optional oscillating or non-patterned motions with a servo driven continuous lead cam. Most units can be fitted with an adjustable torque limiting clutch.



**AD (High Torque Capacity)**

- Highest Torque Capacity
- Dial Sizes From 1 to 12 Feet
- Output Stops From 2 to 32
- Up to 200 Cycles Per Minute
- 8 Housing Sizes



**DT (Designed for Specials)**

- Extreme Torsional Rigidity
- Dial Sizes From 1 To 21 Feet
- Output Stops From 2 to 96
- Up to 300 Cycles Per Minute
- 10 Housing Sizes



**DTR (Integrated Reducer)**

- Same Features as DT Series
- Integrated Worm Reducer
- Cam Balancer Option can Counter Input Torque to ~Zero
- 5 Housing Sizes



**Do (Large Diameter Bore)**

- Extra Large Hollow Bore
- Dial Sizes From 2~24 Feet
- Output Stops From 16 to 60
- Up to 200 Cycles Per Minute
- 7 Housing Sizes

**RIGHT ANGLE AND PARALLEL INDEXERS** are typically used for continuous duty cycles with cams configured to match the indexing transfer and idle times of the supported machinery. These units are ideal for driving conveyors and synchronizing with other equipment by sharing the same motor. Short index period cams yield long conveyor feed pitches. Coupling with our adjustable torque limiting clutch can eliminate the need for costly indirect belt drives. On the output, dual captive taper bearings support large bending moments for single arm oscillation or non-supported dials with unbalanced pressing stations. Shaft, flange, hollow or dual output shafts are optional configurations on most models. Class-10,000 cleanroom and corrosion resistant models are also available for packaging or medical applications.



**ED (Cleanroom/Wash Down)**

- Cleanroom, rust-proof
- Dial Sizes From 0.3 to 3 Feet
- Output Stops From 2 to 48
- Up to 300 Cycles Per Minute
- 6 Housing Sizes



**D/DF (Designed for Specials)**

- Low Inertia for High Speed
- Dial Sizes From 0.3 to 15 Feet
- Output Stops From 2 to 48
- Up to 700 Cycles Per Minute
- 16 Housing Sizes



**P (Short Index Period)**

- 1 to 8 Output Stop with Short Index Periods ( $\geq 90^\circ$ )
- Cam Balancer is Optional
- Up to 300 Cycles Per Minute
- 12 Housing Sizes



**DU (Shortest Index Period)**

- 0.5 to 8 Output Stop with the Shortest Index Periods ( $\geq 30^\circ$ )
- 2 Output to 1 Input Rotations
- Up to 160 Cycles Per Minute
- 5 Housing Sizes



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**INDEXING & OSCILLATING PART HANDLERS** share the same housing with different cam profiles to provide specific motions. All units are designed to complete a full pick & place cycle with 1-revolution of the input shaft. Oscillating units are typically fitted with single or dual arms for faster pick & place operations. Indexing units with lift may have multiple arms to provide faster cycle times with longer stroke potential. All units are designed with precision linear bearings for longevity, accurate placement and large bending moment loads. Each custom timing sequence can be configured for synchronous or cycle on demand applications. Frequent cycle are achievable with a variable frequency controller up to 60 cycles/minute, clutch/brake up to 80 cycles/minute with stepper or servo drives available for non-patterned timing. Standard or custom timing motions are available at no extra cost.



#### **FN or FA (90° Oscillation)**

- Up to 6.5" of Lift Motion
- Up to 27.5" Work Radius
- 1 to 360° Oscillation Motion
- 1 to 12 Indexing Output Stops
- Up to 120 Cycles Per Minute
- 10 Housing Sizes



#### **FU (180° Oscillation)**

- Up to 2.75" of Lift Motion
- Up to 27.5" Work Radius
- 0 to 180° Oscillation Motion
- 2 to 6 Indexing Output Stops
- Up to 60 Cycles Per Minute
- 5 Housing Sizes



#### **F (High Capacity)**

- Up to 3.14" of Lift Motion
- Up to 21.6" Work Radius
- 0 to 90° Oscillation Motion
- High Capacity, Dual Cam
- Up to 60 Cycles Per Minute
- 2 Housing Sizes



#### **FH (Fast Cycle)**

- Up to 0.39" of Lift Motion
- Up to 21.6" Work Radius
- 8, 12 or 16 Indexing Output Stops, No Oscillating Motion
- Up to 600 Cycles Per Minute
- 3 Housing Sizes

**LINEAR PART HANDLERS** use separate cams for the lift & extend motions. Since they are grease lubricated, they can be mounted in any configuration. The GY series have long extend strokes with shorter lift strokes for pick & place applications. They can also be used for walking application when the strokes are equal or form a rectangular motion. Each motion sequence includes gripper actuation time for mechanical or vacuum styles. All units are designed with compact narrow housings to be belt driven with a common motor or individually. Precision linear slides with multiple bearing blocks accommodate large lifting loads or twisting force moments to reduce vibration. Standard motions are offered in 10mm incremental strokes. Custom timing configured to match the velocity of peripheral equipment is offered at no extra charge in continuous or on demand duty cycles modes. Multiple timing sensors are offered to synchronize with other equipment or logically interlock to avoid tooling crashes.



#### **GY (Long Strike Capacity)**

- Up to 3.93" of Lift Motion
- Up to 11.81" Extend Motion
- Up to 24-lb Weight Capacity
- 2.75" to 5.51" Wide Housing
- Up to 120 Cycles Per Minute
- 5 Housing Sizes



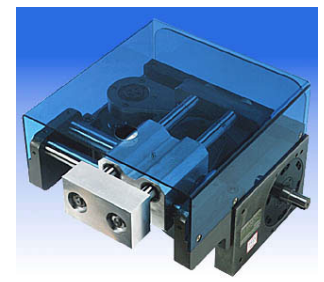
#### **GW (Gear Driven)**

- Up to 1.96" of Lift Motion
- Up to 2.36" Extend Motion
- Up to 9.5-lb Weight Capacity
- Shaft or Gear Driven
- Up to 90 Cycles Per Minute
- 1 Housing Size



#### **GV (Compact Size)**

- Up to 2.36" of Lift Motion
- Up to 2.36" Extend Motion
- Up to 33-lb Weight Capacity
- 4.33" Wide Housing
- Up to 90 Cycles Per Minute
- 1 Housing Size



#### **GI, GII, GIII (Large Capacity)**

- Up to 11.81" of Lift Motion
- Up to 19.68" Extend Motion
- Up to 121-lb Weight Capacity
- 11.6 to 27.7" Wide Housing
- Up to 70 Cycles Per Minute
- 6 Housing Size



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**CUSTOM ASSEMBLY MACHINES** combine indexing motions with synchronized pick & place part handling with a common drive to avoid tooling crashes. Additional peripheral machinery can be synchronized to the assembly machine by attaching to the PTO line shaft provided under the mounting surface. If more assembly space is required, our MPC has an oval shaped pallet track. Each pallet can move at a different speed rates to accumulate multiple pallets for lengthy inspection times or accelerate to the assembly station. Both are driven with a globoidal cam and needle bearing cam followers to maximize your production with reliability for many years.



## **BH (Rotary Assembly)**

- Up to 1.96" of Lift Motion (6GW)
- Up to 2.36" Extend Motion (6GW)
- Up to 9.5-lb Weight Cap. (6GW)
- Up to 550-lb Pressing Force with 1.57" of Vertical Stroke (6GX)
- Up to 12 Pick or Pressing Stations
- Up to 24 Indexing Dial Stops
- Up to 90 Cycles Per Minute

- Common Motor to Sync Motions to Avoid Tooling Crashes
- Multiple Adjustable Torque Limiting Clutch Protection
- Standard Auxiliary Machinery Drive Shaft Supplied
- 3 Frame Sizes



## **MPC (Vari-Pitch Assembly)**

- Feed Pitch can Vary per Station
- Up to 14.75" Feed Pitch
- Up to 34 Pallets on Standard Units
- Up to 6.7" by 2" Pallet Sizes
- Up to 67-lb Weight Cap. Per Pallet
- Up to 60 Cycles Per Minute
- Torque Limiting Clutch Protected

- Common Motor to Sync Motions to Avoid Tooling Crashes
- Auxiliary Machinery Drive Shaft Supplied
- Easy Pick & Place Handler Interface
- Class 10,000 Clean Room or Medical Versions Available
- 2 Frame Sizes

**ADJUSTABLE TORQUE LIMITING CLUTCHES** are used to limit the torque between indexing units and rotating fixtures or a conveyor shafts. All have ground centering pilots to locate fixtures or drive sprocket components. Coupler type units are compatible with parallel or angular misalignment applications using an optional adapter for shaft to shaft connections. All have overload sensor monitoring detection plates and accurately reset automatically or manually to single or multiple positions. Varying torque capacities are changed by compressing springs or adjusting air bladders forcing multiple pins or balls into detent pockets. Patented designs eliminate backlash and vacuum friction to constantly provide accurate overload thresholds. Class 10,000 cleanroom or corrosion resistant models are available for medical and packaging applications.



## **TF (Shat to Flange Type)**

- 2.6 to 44253 in-lb of Torque
- 8 Models, 32 Torque Ranges
- 180 to 2000 rpm, Spring Type



## **TNF (High Frequency)**

- 17 to 5310 in-lb of Torque
- 3 Models, 12 Torque Ranges
- 400 to 800 rpm, Spring Type



## **TAF (Torque Adjust w/ Air)**

- 442 to 5752 in-lb of Torque
- 3 Models, 6 Torque Ranges
- 300 to 600 rpm, Air Type



## **TRF (Low Torque Range)**

- 88 to 973 in-lb of Torque
- 2 Models, 8 Torque Ranges
- 2000 rpm, Spring Type



## **TC (Shaft Coupling Type)**

- 2.6 to 44253 in-lb of Torque
- 8 Models, 32 Torque Ranges
- 200 to 2000 rpm, Spring Type



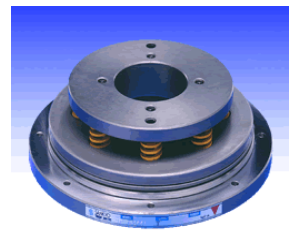
## **TR (Low Torque/High Speed)**

- 26 to 5310 in-lb of Torque
- 5 Models, 10 Torque Ranges
- 800 to 2000 rpm, Spring Type



## **To (Flange to Flange)**

- 885 to 8850 in-lb of Torque
- 5 Models, 10 Torque Ranges
- 120 to 200 rpm, Spring Type



## **TAD (Flange, High Capacity)**

- 354 to 48679 in-lb of Torque
- 6 Models, 12 Torque Ranges
- 120 to 200 rpm, Spring Type

