ZIP CHAIN ACTUATOR®

THE NEXT GENERATION OF COMPACT, HIGH-SPEED LINEAR ACTUATORS
The patented Tsubaki Zip Chain Actuator® (ZCA) is the solution to your linear actuator application problems. The ZCA utilizes 100+ years of Tsubaki Roller Chain manufacturing expertise to create a linear actuator that “zips” together chain segments, creating a rigid actuating arm that offers high speed, multi-point stopping, efficient operation, and a long life — all in a compact footprint.

### SIMPLE AND EASY MAINTENANCE

**ZIP CHAIN END FITTING**
End fitting is integrated with the Zip Chain. This enables mounting for lifting or suspending.

**DRIVE SECTION**
The engagement of the Zip Chain and Tsubaki’s special sprocket ensures efficient power transmission.

**HOUSING SECTION**
The sliding parts used on the chain facilitate smooth storage in a compact chain case.

### FEATURES

**HIGH SPEED**

**MULTI-POINT STOPPING**

**MAX SPEED**
1,000 MM/SEC

**DUTY FACTOR**
100%ED

**LONGER LIFE**

**INSTALLS IN ANY DIRECTION**

**EXPECTED TRAVEL**
DISTANCE 4,000 KM

**NO LIMIT ON INSTALL DIRECTION**

**COMPACT DESIGN**

**REDUCED SPACE**

**UP TO 90% SMALLER THAN THE STROKE**

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Model: ZCA45M200EL040H60

Pneumatic cylinder

Hydraulic cylinder

Stroke: 2,000 mm

U.S. Patents: #8,326,670, #8,453,994, #8,541,361, #8,241,676, #8,604,975, #8,967,005
APPLICATIONS

COMPACT DESIGN IDEAL FOR LOW HEIGHT APPLICATION AND SAVING SPACE

The compact structure of the ZIP CHAIN ACTUATOR® enables various installation options — including lifting, horizontal, and suspending installation. Use for a wide range of applications requiring linear operation.

PALLET TRANSFER DEVICE  HS  HF  C

Benefit:
› Can be installed in the small space on the ceiling side
› Reduces the cycle time for conveyance by allowing for lifting at high speed

Workpieces are raised and lowered for transferring, using an arm powered by the Zip Chain Actuator.

CONTAINER SORTING EQUIPMENT  HS  C

Benefit:
› Horizontal and suspending installation are possible without protruding parts, enabling a lower height layout
› Accurate multi-point stopping even with horizontal transfers

Zip Chain Actuators can be used to move traversers horizontally and to raise or lower chucking units vertically.

AGV (AUTOMATED GUIDED VEHICLE)  HP  C

Benefit:
› Lift unit can be accommodated compactly in the AGV
› Height can be adjusted according to the conveyor height of the next process

Workpieces are transferred between conveyors at different heights using the Zip Chain Actuator mounted on AGV.

FURNACE DOOR  HS  C  E

Benefit:
› Can be installed without protruding from equipment
› Higher speed operation prevents temperatures inside the furnace from changing

Zip Chain Actuators can be used to push up and close furnace doors.
## MODEL

### ZCA 35 N 050 E L - J1

<table>
<thead>
<tr>
<th>SERIES</th>
<th>SIZE</th>
<th>DRIVE SECTION</th>
<th>STROKE</th>
<th>MOUNTING</th>
<th>SHAFT ARRANGEMENT</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25</td>
<td>35</td>
<td>45</td>
<td></td>
<td></td>
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</table>

**SIZE**

<table>
<thead>
<tr>
<th>Sizes</th>
<th>25</th>
<th>35</th>
<th>45</th>
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<tbody>
<tr>
<td>Code</td>
<td>030</td>
<td>050</td>
<td>075</td>
</tr>
<tr>
<td>Allowable stroke (mm)</td>
<td>300</td>
<td>500</td>
<td>750</td>
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</table>

**STROKE**

<table>
<thead>
<tr>
<th>Sizes</th>
<th>25</th>
<th>35</th>
<th>45</th>
</tr>
</thead>
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<td>Code</td>
<td>050</td>
<td>075</td>
<td>100</td>
</tr>
<tr>
<td>Allowable stroke (mm)</td>
<td>100</td>
<td>150</td>
<td>200</td>
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**MOUNTING**

<table>
<thead>
<tr>
<th>E</th>
<th>D*</th>
</tr>
</thead>
<tbody>
<tr>
<td>L: Input shaft</td>
<td>Horizontal Installation</td>
</tr>
<tr>
<td>R: Input shaft on opposite side</td>
<td>Suspending Installation (MTO)</td>
</tr>
<tr>
<td>T: Dual Input shaft*</td>
<td></td>
</tr>
</tbody>
</table>

**SHAFT ARRANGEMENT**

<table>
<thead>
<tr>
<th>L: Input shaft</th>
<th>R: Input shaft on opposite side</th>
<th>T: Dual Input shaft*</th>
</tr>
</thead>
</table>

**OPTIONS**

| Bellows* |
| J1: For lifting, suspending | J2: For horizontal |

**DRIVE SECTION**

<table>
<thead>
<tr>
<th>M</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Integrated Hypoid Gear Motor*</td>
<td>With Integrated TERVO Hypoid Reducer for Servo Motors*</td>
</tr>
</tbody>
</table>

**ATTACHABLE OPTIONS**

| Upper Mounting Base | Lower Mounting Base |

*Made-to-order options*
### SPECIFICATIONS AND ENVIRONMENTAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Drive section</th>
<th>Material</th>
<th>ZCA25N</th>
<th>ZCA35N</th>
<th>ZCA45N</th>
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<tbody>
<tr>
<td>Coating Color</td>
<td>Black, Munsell N2.0 equivalent</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Housing section</th>
<th>Material</th>
<th>Polyacetal</th>
<th>Iron</th>
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<tr>
<td>Coating Color</td>
<td>Purple grey Munsell 0.8P6.3/3.0 equivalent (molded)</td>
<td>Black, Munsell N2.0 equivalent</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Chain</th>
<th>Material</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricant</td>
<td>Shell Alvania EP Grease 2 (Showa Shell Sekiyu K. K.) * This grease is applied before shipment.</td>
<td></td>
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</tbody>
</table>

* Environmental requirements:
  - Operating temperature: 0 to 60°C
  - Relative humidity: 85% or less (no condensation)
  - Ambient atmosphere: Typical rain-free indoor environment with dust levels kept at a general factory level.

Installation direction: ZCA can be installed with any direction, be sure to mount a linear guide in the direction of travel. A mounting base is required to supporting installation.

### CHARACTERISTICS

#### WITHOUT BELLOWS

<table>
<thead>
<tr>
<th>Model</th>
<th>Allowable stroke</th>
<th>Allowable thrust</th>
<th>Input shaft</th>
<th>Maximum speed</th>
<th>Approximate mass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>N (kgf)</td>
<td>N•m (kgf•m)</td>
<td>N (kgf)</td>
<td>mm</td>
</tr>
<tr>
<td>ZCA25N</td>
<td>030 300 400 [40.8]</td>
<td>9.41 (0.96) 638 (65)</td>
<td>1000 630</td>
<td>95.3</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>050 500 300 [33.6]</td>
<td>34.7 (3.53) 946 (96.4)</td>
<td>1000 420</td>
<td>142.9</td>
<td>5.1</td>
</tr>
</tbody>
</table>

#### WITH BELLOWS

<table>
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<td>050 500 300 [33.6]</td>
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<td>142.9</td>
<td>5.5</td>
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* Use the unit within the allowable stroke range. Also, be sure to always attach a linear guide in the direction of travel.
* Values are obtained when operated at a maximum acceleration of 0.35 G (upper limit) with the end fitting attached.
* These values are applicable regardless of the type of installation (vertical, horizontal, suspending).
* Made-to-order options
MORE INNOVATIVE SOLUTIONS FROM TSUBAKI

SEALED JOINT CHAIN OPTIONS
BACKSTOPS & OVERRUNNING CLUTCHES
STEEL CABLE CARRIERS
ZIP CHAIN LIFTER®
SMART TOOTH SPROCKETS®
TITAN® SERIES CHAINS

EXCELLENCE THROUGH INNOVATION SINCE 1917

For over 100 years, Tsubaki has developed and manufactured the highest-quality products for power transmission and motion control. With a vast network of global production facilities, R&D resources and sales offices, Tsubaki remains committed to providing innovative solutions to customers’ problems for the next 100 years.

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