

Basic Specification

Model	α-100			α-140			α-200			
Load limit of 1 unit (kgf) ^{※1}	180			400			750			
External Dimension (W × D mm)	234 × 180			268 × 253			328 × 313			
Unit height (mm)	L	238			238			238		
	M	168			168			168		
	H	168			168			168		
Unit mass (kg/1 unit)	L	M	H	L	M	H	L	M	H	
	10.1	8.6	8.9	17.3	15.2	15.7	21.4	18.4	19.4	

Model	α-201			α-202			α-203			
Load limit of 1 unit (kgf) ^{※1}	740			1300			1800			
External Dimension (W × D mm)	260 × 260			260 × 260			260 × 260			
Unit height (mm)	L	259			—			—		
	M	204			259			314		
	H	204			259			314		
Unit mass (kg/1 unit)	α 3w-201M			α 3w-202M			α 3w-203M			
	16			21			26			

Model	α-331			α-332			α-333			
Load limit of 1 unit (kgf) ^{※1}	2000			3900			5800			
External Dimension (W × D mm)	400 × 400			400 × 400			400 × 400			
Unit height (mm)	L	298			403			508		
	M	262			333			404		
	H	262			333			404		
Unit mass (kg/1 unit)	α 3w-331M			α 3w-332M			α 3w-333M			
	72			88			100			

● ※1 Designed load limit is under 0.5MPa supply pressure.

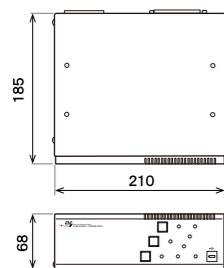
Low height unit series are also available in addition to above unit.

Control direction of actuator

Type	α	α2s	α2w	α3s	α3w
Operation Direction of Static Pressure for Actuators					
Air Consumption (l/min) (ANR) ^{※2}	200Type: 7.5 300Type: 17.5	15.0 25.0	22.5 32.5	22.5 32.5	37.5 47.5

● ※2 Air consumption quantity and design payload refers to the value of per unit when the air pressure of 0.5Mpa is offered.
● 5types have been provided for the necessities of horizontal vibration control competence and different capabilities.

Controller



- Accessory :
Regulator, Air tube,
Electrical wire
- Power supply rating :
100-240VAC
50-60Hz
80Wmax

Meaning of the following marks

α 2 s - 201 M

- ① Series name
- ② Number of vibration control axes(X,Y,Z)
..... α 2=Z+X or Y, α 3=Z+X+Y
- ③ Number of horizontal pneumatic actuators
.....s(single) = side pressure type
and w(double) = opposite type
- ④ Size and layers of vertical air actuators
- ⑤ Natural frequency of vertical direction
.....H = high, M = medium, L = low



The caution for safety

Please read the Instruction Manuals carefully before use.

This catalogue is for the product as of Dec 2020. The specification may be modified without notice.



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As for the precisionvibration isolation products, welcome to Tokkyokiki Corporation, the reliable, well experienced corporation of great achievements. <https://www.tokkyokiki.co.jp>

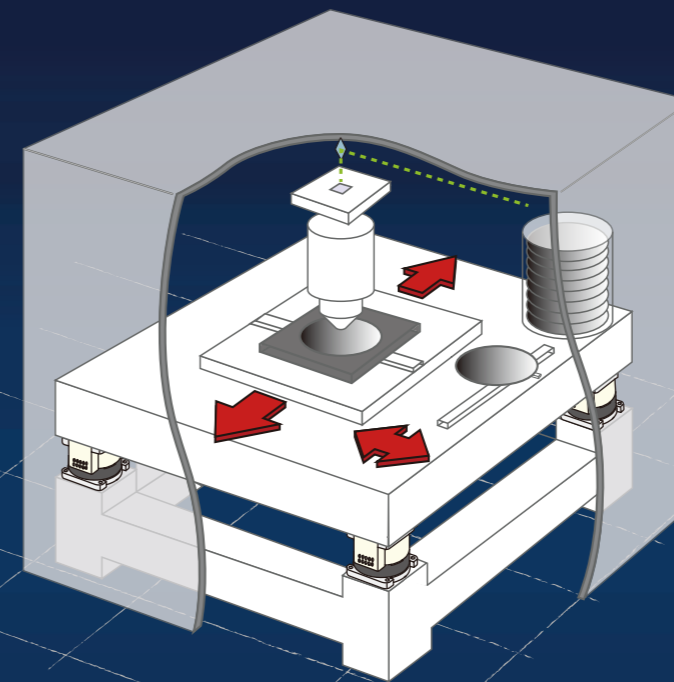


Vibration Control Technology
TOKKYOKIKI

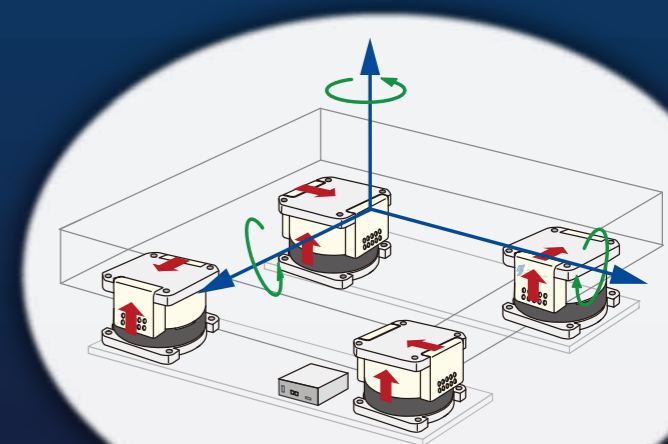
Pneumatic ActiveVibration Isolation System

α Series

α Series, Tokkyokiki's Best Vibration Control technologies are integrated.



- Excellent Vibration Isolation Performance
- Fast settling Time and Accurate Position Control
- Versatile Installation Option
(Possible to Support Three to Multiple Points)



Continue to evolve since world first pneumatic active sales release in 1988

Pneumatic Active Vibration Isolation System α Series

Semiconductor and FPD process rule becomes more and more fine, and at the same time in order to improve production efficiency, manufacturing and inspection tools evolve to higher accuracy and faster response time. For such background, both vibration control technology to settle direct disturbance promptly and floor vibration isolation performance are required. The α Series, in response to such market requirement, have excellent vibration isolation, vibration control and position recovery performance.



α Series

Advantage of Pneumatic Control:

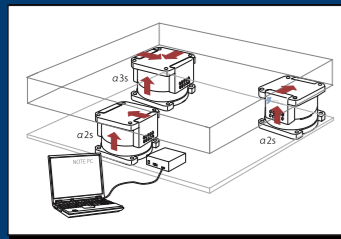
- Excellent Microvibration isolation performance from low frequency
- Easy to support static load
- Easy position and posture control
- Large stroke
- Creep free
- No heat radiation
- No magnetic flux leakage

α Series

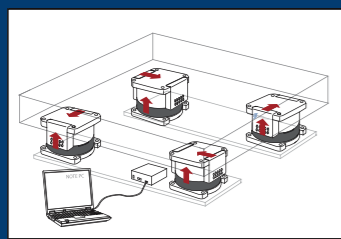
Versatile installation option

Possible to Support Three to Multiple Points.
Appropriate proposal according to tool/site specification & requirement

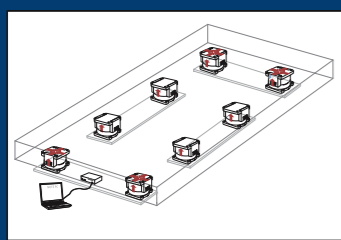
Three points support



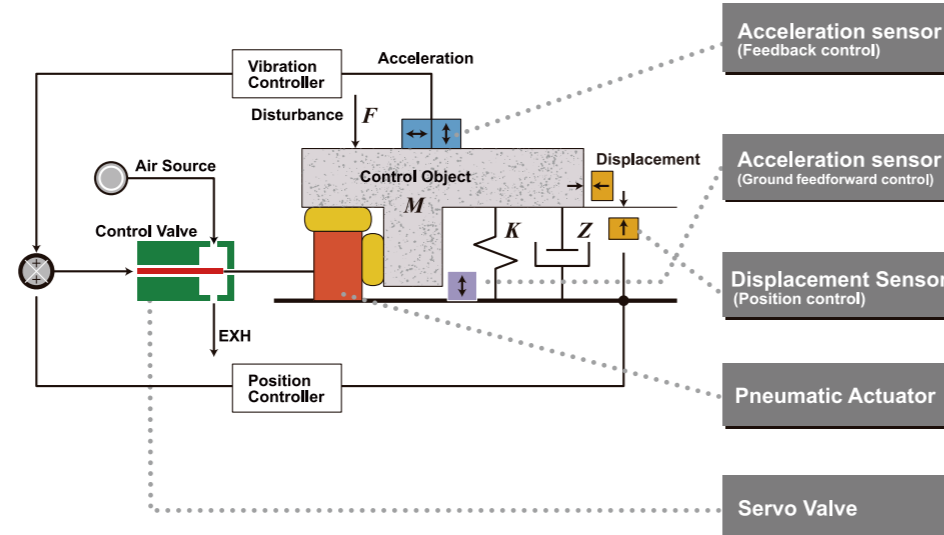
Four points support



Eight points support

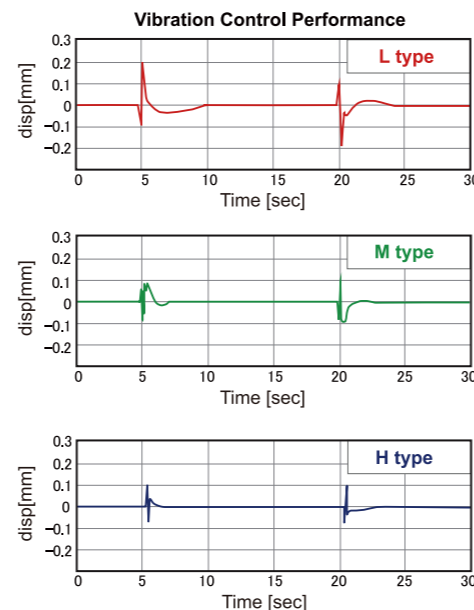
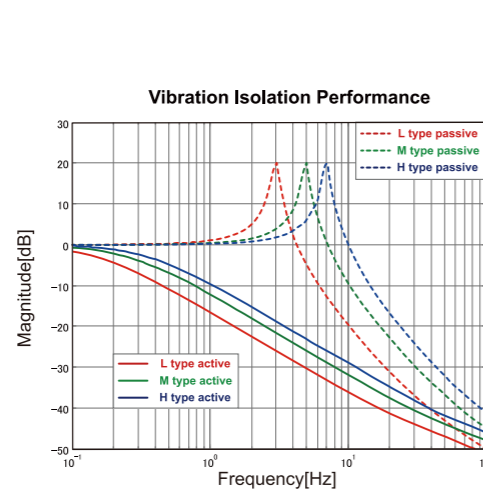


System configuration



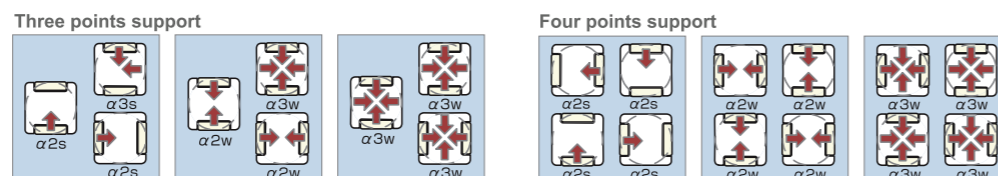
α Series Microvibration Control Technology fitting to tool application & requirement

- L Type ... Ultra high sensitivity tool against floor vibration (TEM, SEM, AFM etc)
- M Type ... Fast settling and high sensitivity tool against floor vibration (Std tool)
- H Type ... Ultra fast settling time tool (High speed machining and inspection tool etc)



Possible to support three to multiple points

- Basic Layout Pattern ※ More than six points support are possible.



α Series Features

■ Excellent Microvibration Isolation Performance

Realize outstanding and stable vibration isolation by feedback and feedforward control

■ Fast settling time and accurate position control

Realize accurate position recovery by instantly detecting the impact with high precision accelerometer and displacement sensor

■ High Durability

Maintain high performance although earthquake or 2G stage's large impact is applied, it continues to keep good performance

α Series lineup



■ Pneumatic Active Vibration Isolation System α Series

The α series exhibits outstanding effectiveness in its maintenance of posture as well as in its vibration isolation and damping abilities. It can also handle heavy loads by supporting multiple points of 6, 8 and more.



■ High Performance Controller

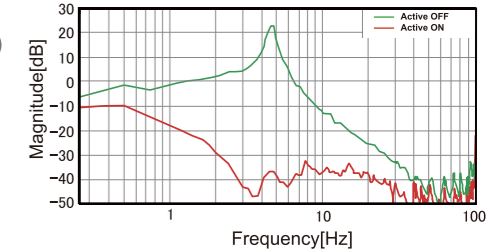
Best control and data processing capability with data log function when error occurs. Onsite tuning or auto tuning selectable according to the situation.

There are three points to create accurate vibration environment. The α Series realize optimum balance of these three points.

1. Vibration Isolation Performance

Enhance isolation performance by feedback and ground feedforward control.

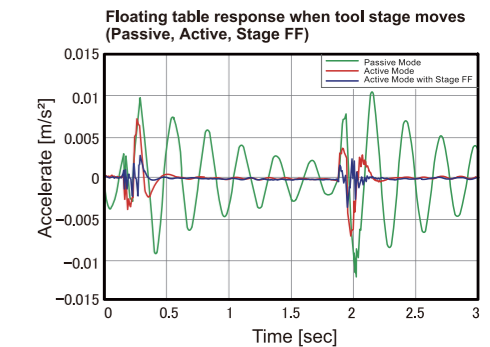
- Create ultra microvibration environment of below $10^{-5} \text{m/s}^2 (1 \text{mGal})$
- Isolate floor vibration from 0.5Hz
- $\leq 2\text{Hz}$: -6dB ~ -20dB (50%~90%)
- $> 2\text{Hz}$: $> -20\text{dB}$ or better



2. Vibration Control Performance

Settle quickly by detecting direct disturbance of the loading tool.

- Enable high speed operation by reducing the swing
- Obtain more vibration control capability by stage feedforward (SFF) control*

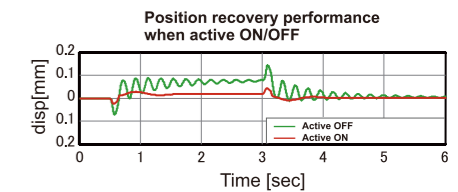


* Stage feedforward (SFF) Control :
By synchronizing with the stage signal of loading tool, drive actuators and recover the posture change promptly caused by the stage move.
SFF is optional function.

3. Position Recovery Performance

Realize accurate position recovery control by constantly monitoring displacement signal.

- Keep minimal relative displacement against peripheral equipment
- Return to original position with 5 μm accuracy if tool COG changes



It can realize better vibration isolation environment by the double active (α series both inside tool and active table) without resonance.

