Vibration Damping Casters

Load Rating 300N
Vibration Damping

Vibration Damping Casters

RoHS10

Body		Wheel		Bearings	
Material	Surface Treatment	Material	Specific Volume Resistivity	Swiveling	Wheel
304 Stainless Steel	Barrel Grinding	Antistatic Urethane	108–109 Ω•cm	Incorporated	Incorporated

CMPR
Plate Type

CMPRS
Plate Type

CMPG
Screw-In Type

CMPGS
Screw-In Type

🛈 For dedicated wrenches, P.3108.

Body Type	Part Number		Wheel Material	H Stroke		d	E₁	E₂	r₁	r₂	Y₁	Y₂	K₁	K₂	B	*Nominal Load (N)	Mass (g)
	Type	D		H₁ (max.)	H₂ (min)												
Swivel	CMPR	100	S Antistatic Urethane	162	148	8.8	20	34	71	85	71	78	61	46	28	300	1100
		125		180	166		25	39	89	103	77	83	77	62	32		1258
Swivel + Stopper	CMPRS	100		162	148	8.8	20	34	95	94	71	78	61	46	28	300	1212
		125		180	166		25	39	110	110	77	83	77	62	32		1381

*Nominal load should be selected within the range of an applicable load (carriages + load) appropriate to the allowable load ratings.
For use of 4 pcs.: Applicable Load=Nominal Load x 4 pcs. x Safety Ratio (between 0.5 and 1.0)

Body Type	Part Number		Wheel Material	H Stroke		E₁	E₂	r₁	r₂	Y₁	Y₂	K₁	K₂	B	*Nominal Load (N)	Mass (g)
	Type	D		H₁ (max.)	H₂ (min)											
Swivel Screw-In	CMPG	100	S Antistatic Urethane	160	146	20	34	71	85	71	78	61	46	28	300	1062
		125		178	164	25	39	89	103	77	83	77	62	32		1218
Swivel Screw-In+Stopper	CMPGS	100		160	146	20	34	95	94	71	78	61	46	28	300	1174
		125		178	164	25	39	110	110	77	83	77	62	32		1341

Part Number Example
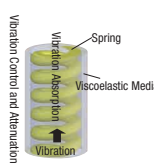
Part Number - Wheel Material

CMPR100 - **S**

Yield Problems Expected with the Conventional Wheels

(1) **Particles generated by a conveyor machine due to Vibration Transmission**
When work is being conveyed into a clean room, casters are travelling over steps or grating surfaces and vibrations from the floor are transmitted to the cart. Vibrations can also cause possible transmitting impacts on important work.

(2) **Generation of Particles due to Vibrations**
The vibrations from the casters movement may lift dust from the floor and into the air, which cannot be avoided.

(3) **Anti-static Countermeasures**
Dust sticks to the rubber/urethane wheels of conventional casters, which accumulate static electricity from the friction between the wheels and the floor, and may cause a spark.
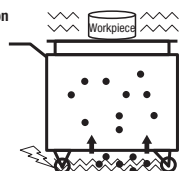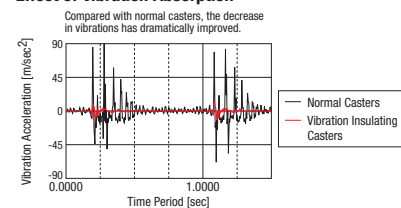
Basic Structure of Vibration Damper

The damper is of a double layer structure of a spring within a viscoelastic member. Shocks received by a caster when going over a stepped terrain are absorbed by a spring, then dampened by a viscoelastic member.
A New mechanism provides solutions for conventional spring-loaded casters on insufficient vibration damping, and solutions for the urethane type on degradation-inducing durability losses. It also provides excellence in safety with no damping gas leaks.

Effect of Vibration Absorption

Compared with normal casters, the decrease in vibrations has dramatically improved.

Feature of Caster with Vibration Dampers

– Protects transported equipment by absorbing and damping vibrations from the floor.
– Controls particulate generation caused by vibrations, and improves production yields.
– Prevents static electricity generated by the floor with antistatic wheels.

Particulate Generation Comparison

Particle volume is reduced to one-fourth1/4.

Dust Size
5.0[μm]
2.0[μm]
1.0[μm]
0.7[μm]
0.5[μm]
0.3[μm]

Vibration Insulating Casters   Normal Casters

Specific Volume Resistivity of Wheels

| 10⁰ | 10² | 10⁴ | 10⁶ | 10⁸ | 10¹⁰ | 10¹² | 10¹⁴ |

Antistatic Urethane 10⁸–10⁹Ω•cm
Rubber Wheel 10¹⁵~ Ω•cm

Electric Conductivity   Antistatic Performance   Insulation

Functional Comparison by Damper Type

(Research by MISUMI)

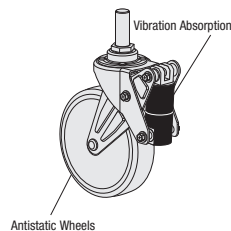| Damper Type	Shock Absorption	Vibration Transmission Time	Allowable Load	Safety	Service Life
No Damper (Normal Caster)	Poor	Poor	Excellent	Good	Good
Spring	Good	Poor	Acceptable	Good	Acceptable
Urethane Cushioned	Good	Acceptable	Acceptable	Acceptable	Poor
Shock Absorber	Good	Good	Acceptable	Poor	Acceptable
Casters with Vibration Dampers	Good	Excellent	Good	Good	Good

Feature

Vibration Damper (Spring with Built-in Urethane) absorbs vibrations generated when the caster is traveling over steps and grating surfaces.

Able to protect conveyed workpiece and decreases generation of dust particles in a clean room environment.
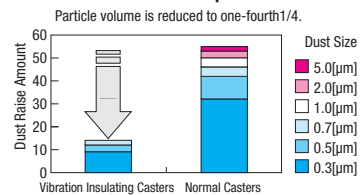
Test Overview

Casters: CMPG100-S (Vibrations Insulating Caster)
Urethane Wheel Diameter Ø100 (Normal Casters)
Testing Instrument: JIS B 8923 Compliant with Casters for Industrial Use
Protrusion: Semicircle R = 2.5 mm
Protrusion Intervals: per 1m
Load: 201N
Running Speed: 4 km/h

Casters for Clean Environments

Load Rating 800~1000N
Vibration Damping

Casters for Clean Environments

RoHS10

Body		Wheel		Bearing Shield	Bearings	
Material	Surface Treatment	Material (Color)	Specific Volume Resistivity	Material	Swiveling	Wheel
304 Stainless Steel	Electrolytic Polishing	Urethane (Blue) / Antistatic Urethane (Yellow) / Electrically Conductive MC Nylon (Black)	10¹⁰ or More / 10⁷–10⁹ / 10²–10⁴	Stainless Steel (Austenite)	Incorporated	Incorporated

CHEPA
Plate Type

Clean Grease Filled Ball Bearing 6202ZZ (Stainless Steel)
Clean Grease Filled Ball Bearing 6201ZZ (Stainless Steel)

CHGPA
Screw-In Type

Clean Grease Filled Ball Bearing 6202ZZ (Stainless Steel)
Clean Grease Filled Ball Bearing 6201ZZ (Stainless Steel)

Body Type	Part Number		Wheel Material	H	B	d	r	Allowable Load (N)	Mass (g)
	Type	D							
Swivel	CHEPA	75	U Urethane / S Antistatic Urethane / D Conductive MC Nylon	118	38	10.5	70	1000	1200
		100		130	32		83		1350

Body Type	Part Number		Wheel Material	H	B	r	Allowable Load (N)	Mass (g)
	Type	D						
Swivel + Screw Fitting	CHGPA	75	U Urethane / S Antistatic Urethane / D Conductive MC Nylon	122	38	70	800	1100
		100		134	32	83		1250

Antistatic Urethane (OCTRON) Wheel Properties

– Because of the antistatic effect, sparks and high-frequency noises are prevented.
– Conventional anti-static caster wheels may exhibit varying electrical resistivity depending on measured location on wheels, but the OCTRON urethane wheels have uniform resistivity regardless of the measured location, being effective in a wide voltage range.
– Due to lower hardness than ordinary urethane wheels (shore A67), vibration and noise on grating floor decreases.
– Because carbon black is not used, there is no contamination to the floor or dispersion of carbon to products.

Part Number Example

Part Number - Wheel Material

CHEPA75 - **U**

Evaluation Conditions
Casters: CMGN75-R(General Caster + Rubber Wheel Type)
CHEPA75-S(Clean Caster + Antistatic Wheel Type)
Running Time: 2km/hr
Ambience: Inside Clean Booths (Class10)
Temperature: 23℃
Humidity: 40%
Particle Counter: Made by Rion Co. Ltd. 237B (Laser Type)

Clean Room
HEPA Filter (P.2966)
Clean Booth
Particle Counter
Test Caster
Rotary Drum
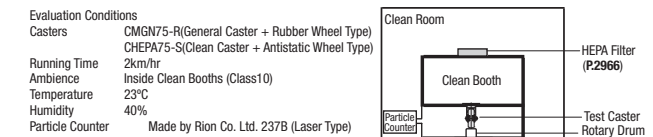
Grease Performance Table

Item		Conditions	Unit	Measurement Method	Low Particulate Generation Type G Type
Grease Performance	Thickener	—	—	—	Lithium Type
	Base Oil	—	—	—	Mineral Oil + Synthetic Hydrocarbon Oil
	Base Oil Kinetic Viscosity	40°C	mm²/s	JIS K2220 5.19	30
		100°C			—
	Worked Penetration	—	—	JIS K2220 5.3	207
	Dropping Point	—	°C	JIS K2220 5.4	200
	Evaporation Amount	99°C x 22hr	wt%	—	1.40%
	Oil Separation	100°C x 24hr	wt%	JIS K2220 514	0.8%
	Operating Temperature	In Air	°C	—	-10–80

Particle Generation Comparison (0.3μm or More)

General Caster
Dustproof Caster

Dust Raise Property   Running Time (hr)