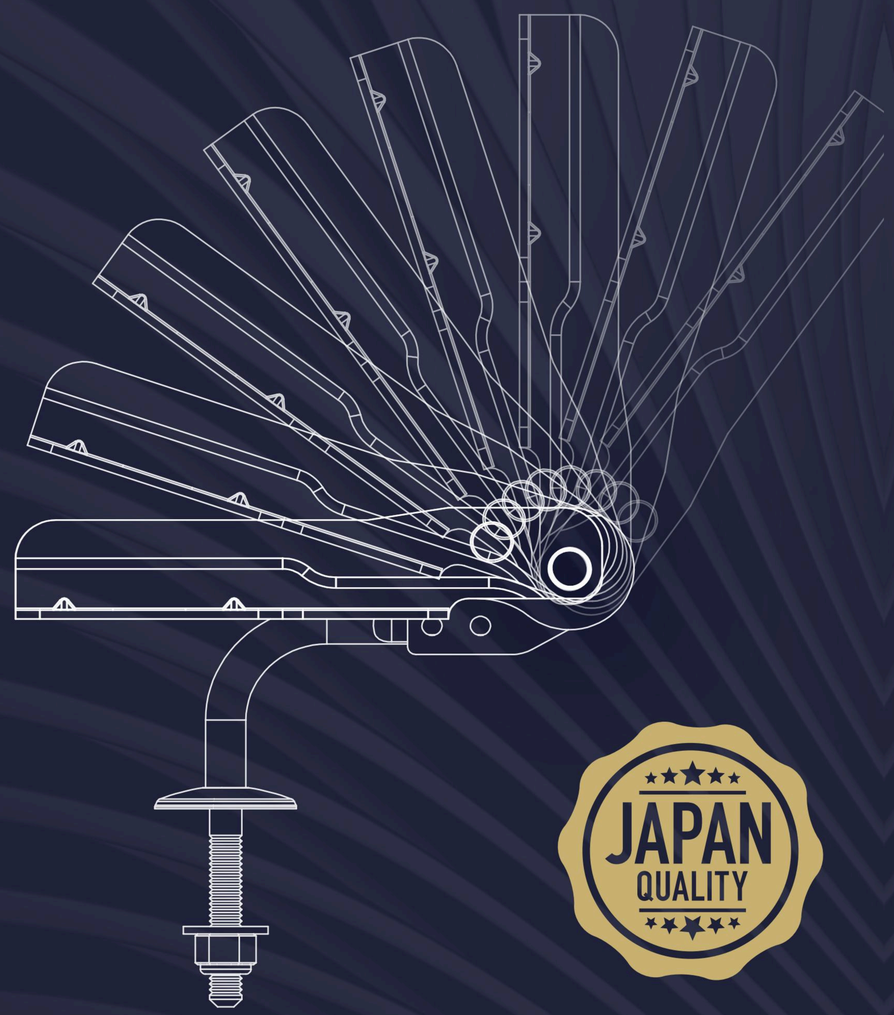
Heart & Technology

KOYO Corporation

PRODUCT CATALOGUE

Vol.7



JAPAN QUALITY

Heart & Technology

Craftsmanship
with
Heart & Technology

The KOYO Philosophy

KOYO was established in 1926 and started to manufacture a wide variety of functional components that make furniture and equipment we use today more user-friendly.
Our mission is to blend Heart and Technology to make a contribution to global markets through a corporate focus on human values, developing products of superior quality and safety.
We will continue to work hard to win the trust and respect of our customers and our partners all over the world.

Craftsmanship with Heart & Technology

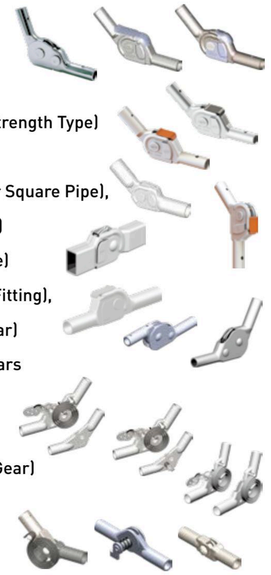
INDEX

P.03-04 JAPAN QUALITY
P.05-06 Product List

P.09 GS, GS-S
P.10 ST
P.11 CB01
P.12 CB02
P.13 LS200α
P.14 LS300
P.15 LS200
P.16 LS100
P.17-18 IS450
P.19-20 IS250
P.21 LS100TR, LS100LT
P.22 IS150LT, IS150T
P.23 FH (Friction Hinge), KA (torque type)
P.24 BRM, MS-4
P.25 EL-02H
P.26 EL-03H

P.29 KDR
P.30 FR
P.31 KS-12SE (Standard Type)
P.32 KS-12HG, KS16HG (High Strength Type)
P.33 KS-12AT (For Headrest),
KS-16URG, KS-12URG (For Square Pipe),
KS-AMG (High Power Type)
P.34 KS-12HG(FD) (Folding Type)
P.35-36 KDS (Cam Type Reclining Fitting),
KDS-5V (Multi Footrest Gear)
P.37-38 Features of Lever-Type Gears
P.38 KX (Lever-Type Gear),
KX-U7 (Lever-Type Gear),
KX-W Spring (Lever-Type Gear)
P.39 SPH (Spring Hinge),
OLH (One Lock Hinge)
P.40 KR2 (Bending Hinge)

P.43 Swivel (Light),
Swivel (Standard),
Swivel (Standard RR),
P.44 Swivel (185 PITCH),
Swivel (AR 360),
Swivel (AR)
P.45 Swivel (Lever Stop),
Swivel (Combo),



Head Office(Osaka, Japan)

KOYO head factory is located in Sakai City, Osaka, Japan.
It is close to the Osaka port and Kansai Airport, both reachable within a one hour's drive.

Our products are made with selected high tension Japanese steel, guaranteeing a high durability for each metal part.

The introduction of the newest servo-press machines allows us the most efficient stamping process with high productivity.

Our core planning, development, and quality control are concentrated at our Japan factory.

At our quality department, critical dimensions are inspected by ultra-precision machines to maintain our high standard quality.

JAPAN QUALITY

KOYO Corporation is committed to quality.
We are to use our full skills and knowledge to send high-quality and heartfelt parts out to the world.

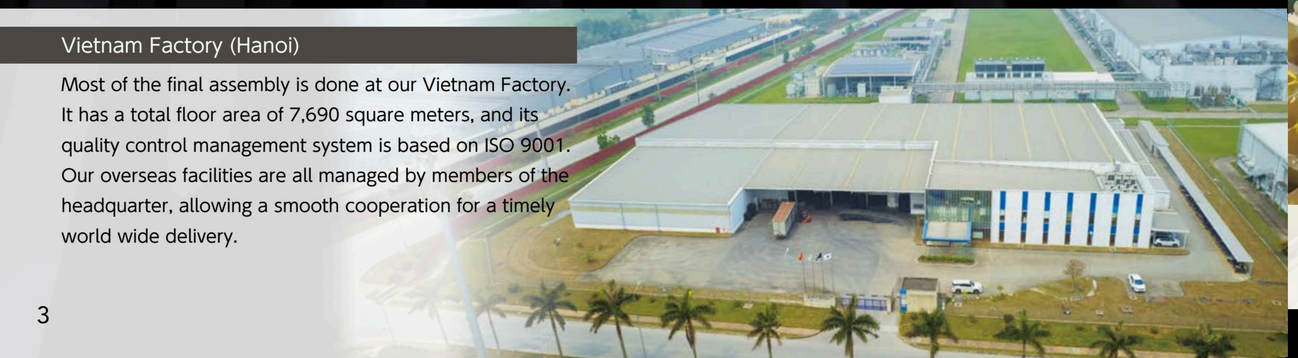
A variety of molds are produced and maintained by our engineering team supporting our flexible production.

We provide a fully integrated in-house service, covering the designing, manufacturing, and the test stamping of molds for seamless precision and efficiency.

The introduction of an automated assembly machine has significantly enhanced the company's productivity, driving greater operational efficiency and momentum.

Vietnam Factory (Hanoi)

Most of the final assembly is done at our Vietnam Factory.
It has a total floor area of 7,690 square meters, and its quality control management system is based on ISO 9001.
Our overseas facilities are all managed by members of the headquarter, allowing a smooth cooperation for a timely world wide delivery.



KOYO
Heart & Technology

Angle Adjustment Parts (for Wood Frame) Product List

GS
Application: Headrest
Armrest
Features: ER FUNCTION
Page: P.09

GS-S
Application: Headrest
Armrest
Features: ER FUNCTION
Page: P.09

ST (SOUND ZERO)
Application : Headrest
Armrest
Strength: 220N·m
Page: P.10

CB01 (SAKURA)
Application : Headrest
Strength: 100N·m
Page: P.11

CB02 (SAKURA)
Application : Headrest
Armrest
Strength: 200N·m
Page: P.12

LS200α
Application : Headrest
Armrest
Strength: 200N·m
Page: P.13

LS300
Application: Backrest
Armrest
Strength: 300 N·m
Page: P.14

LS200
Application : Headrest
Armrest
Strength: 200N·m
Page: P.15

LS100
Application : Headrest
Strength: 100N·m
Page: P.16

IS450
Application: Backrest
Armrest
Strength: 450N·m
Page: P.17-18

IS250
Application : Headrest
Armrest
Strength: 250 N·m
Page: P.19-20

LS100TR, LS100LT
Application: Headrest
Strength: 100N·m
Page: P.21

IS150T、IS150LT
Application: Headrest
Strength: 150N·m
Page: P.22

FH
Application: Headrest
Armrest
Strength: 2 or 8N·m
Page: P.23

KA
Torque Type
Application: High-Back/
Low-Back Adjustment
Page: P.23

BRM
Application: Backrest,
Forward/
Backward Slide
Page: P.24

MS-4
Application: Detachable Backrest
Page: P.24

EL-02H
Application: Headrest
Page: P.25

EL-03H
Application: Headrest
Page: P.26

Angle Adjustment Parts (for Pipes) Product List

KDR
Application: Backrest
Strength: 330N·m／230N·m
Page: P.29

FR
Application: Backrest
strength: 260N·m／210N·m
Page: P.30

KS-12SE
Application: Backrest
Strength: 210N·m
Page: P.31

KS-12HG, KS-16HG
Application: Backrest
Strength: 270N·m
Strengthened Type
Page: P.32

KS-12AT
Application: Headrest
Strength: 100N·m
Page: P.33

KS-16URG, KS-12URG
Application: Backrest
Compatible with
Square Pipe
Strength 210N·m／270N·m
Page: P.33

KS-AMG
Application: Backrest
Compatible with
Inch Pipes
Strength: 360N·m
Type: High Power
Page: P.33

KS-12HG (FD)
Application: Folding Backrest
Strength: 260N·m
Page: P.34

KDS
Application: Backrest
Strength: 180N·m／240N·m
Page: P.35

KDS-5V
Application: Footrest
Strength: 180N·m
Page: P.36

KX
Lever-Type Gears
Application: Backrest
Strength: 390N·m
Page: P.38

KX-U7
With Stopper
Application: Backrest
Strength: 390N·m
Page: P.38

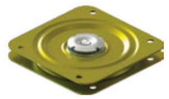
KX-W Spring
W-Spring Gear
Application: Backrest
Strength: 390N·m
Page: P.38

SPH
Spring Hinge
Page: P.39

OLH
One Lock Hinge
Page: P.39

KR2
Folding Hinge
Page: P.40

Swivel Product List



Light
Rotation: 360°
Compatible Seat Width: 450mm
Page: P.43

STANDARD
Rotation: 360°
Compatible Seat Width: 500mm
Page: P.43

Standard RR
Rotation: 360°
Compatible Seat Width: 600mm
Page: P.43

185 PITCH
Rotation: 360°
Compatible Seat Width: 800mm
Page P.44

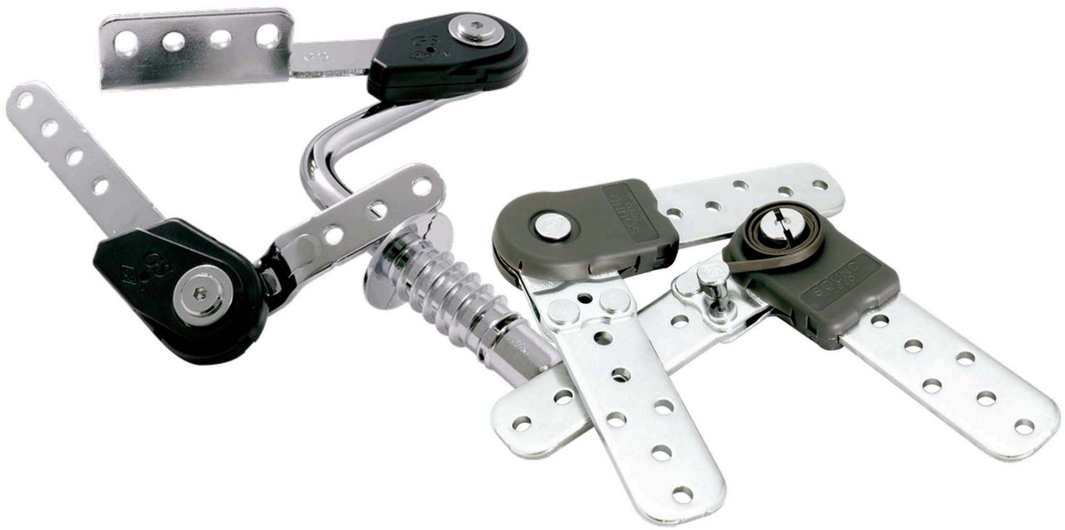
Auto Return SWL AR360
Rotation: 360°Autoreturn
Compatible Seat Width: 800mm
Page: P.44

Auto Return SWL AR
Rotation: 180°(90° adjustable to
the left and right)
Compatible Seat Width: 800mm
Page: P.44

Lever Stop
Rotation: Locked at every 90° pitch.
Compatible Seat Width: 600mm
Page: P.45

COMBO
Rotation: Locked at every 90° pitch
+ Free
Compatible Seat Width: 600mm
Page: P.45

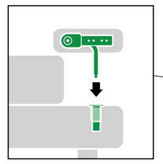
Angle Adjustment Parts for Wood Frame

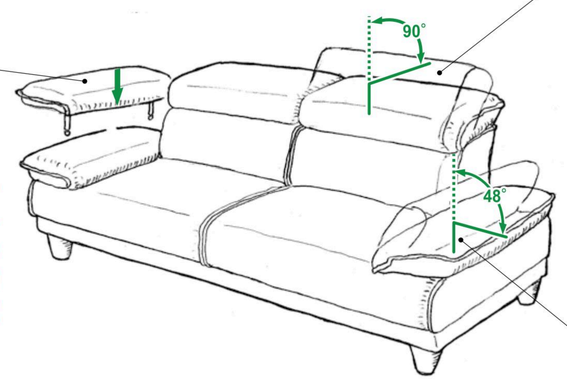


Features

CB01, CB02, GS-ER, LS100, LS200, LS300, and LS200α offer various combinations of bases and arms.
You can select the base and arm to match your sofa's design and frame.

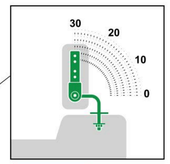
Easily attach and remove with the detachable socket.





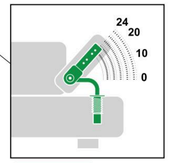
LS200 ▶P.15
LS300 ▶P.14
LS200-α ▶P.13
GS-ER ▶P.09
CB02 ▶P.12

For the headrest, it adjusts from low-back to high-back.



CB01 ▶P.11
GS-ER ▶P.09
LS100 ▶P.16, P.21
IS150 ▶P.22

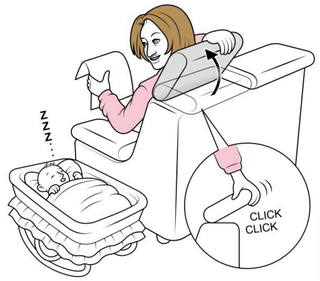
For the armrest, it adjusts height or can be used as a pillow.



GS-ER ▶P.09
LS200-α ▶P.13
LS200 ▶P.15
CB02 ▶P.12

Quiet Operation with No Noise

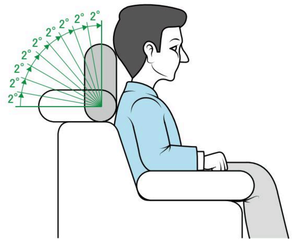
It operates silently, ideal for living rooms and quiet places such as theater and library.



GS-ER ▶P.09
ST ▶P.10

Smooth Operation (stepless /2°Pitch)

The smooth stepless design and sophisticated 2° pitch structure allow for precise angle adjustments.



Stepless

GS-ER ▶P.09
FH ▶P.23

2°Pitch

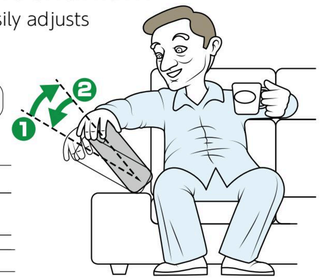
ST ▶P.10
LS200-α ▶P.13
LS300 ▶P.14
LS200 ▶P.15

Free-Lock Mechanism

Once released, it easily adjusts to any angle.

conventional gear

1. Unlock at the top.
2. Lower it all the way down.
3. Lift and adjust to the angle.



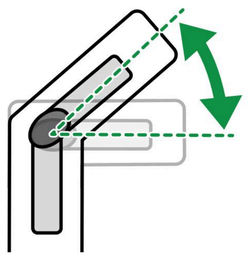
1. Unlock at the top.
2. Locks at any angle.

CB01 ▶P.11
CB02 ▶P.12
LS200-α ▶P.13

Load capacity

100 N·m CB01 ▶P.11 LS100 ▶P.16
200 N·m CB02 ▶P.12 LS200-α ▶P.13
LS200 ▶P.15
220 N·m ST ▶P.10
250 N·m IS250 ▶P.19
300 N·m LS300 ▶P.14
450 N·m IS450 ▶P.17

Durability for Repeated Use

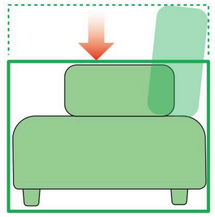


Over 10,000 times
GS-ER ▶P.09
ST ▶P.10
IS250 ▶P.19
IS450 ▶P.17

Over 50,000 times
LS200-α ▶P.13
LS100 ▶P.16
LS200 ▶P.15
LS300 ▶P.14

Save Shipping Costs

Compact packaging helps to minimize shipping costs.



LS300 ▶P.14
MS-4 ▶P.24

Silent Stepless Gear - GS, GS-S GEAR

PAT.

unbreakable GEAR

Silent Stepless Gear

Enables silent, continuous angle adjustments.

ER FUNCTION

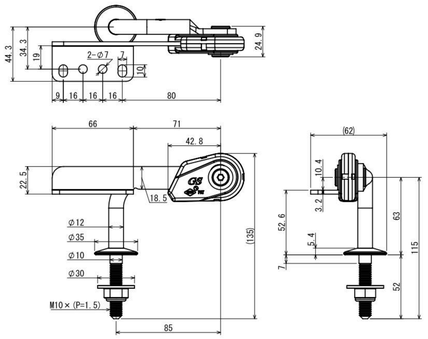
Prevents failure from overload.

※Please avoid performing multiple ER operations in a short time.

Lineup

GS-ER90L-32AF
(Lock nut type)

Model Name GS-ER-90L-32AF
Series / Movable Range / Arm Type / Base Type

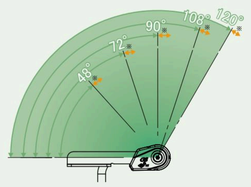


Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.74kg	11.64kg	15	260×360×135

GS(S)-ER90I-A180
(Inner equiped type)

Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.34kg	14.0kg	40	260×360×180

Operation Pattern (Stepless Adjustment)



Base

L-type

I-type

Arm

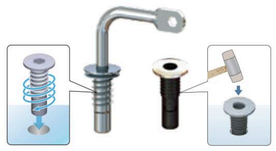
No.10

No.A

No.31AF～33AF

No.31B～33B

No.31G～33G



G4
Metal Socket

G5
Plastic Socket

Silent Gear - ST GEAR

PAT.

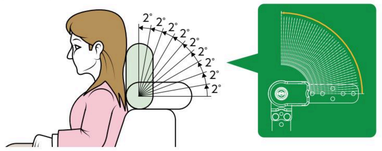
SOUND zero

No Operating Noise

It operates silently, making it ideal for living rooms, theaters, and libraries.

Micro Pitch of 2°per Step

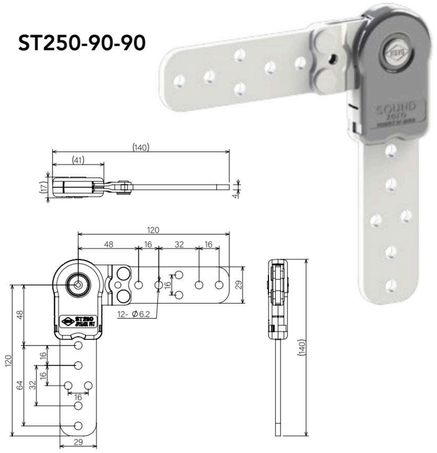
Silent operation and precise 2° pitch allow seamless, fine angle adjustments.



Lineup

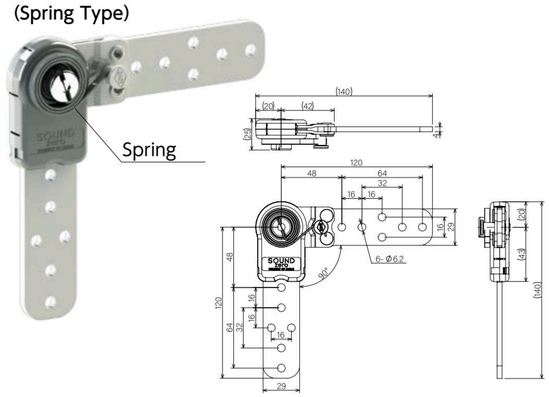
Model Name ST250-SS45-90-90
Series / Spring Type / Movable Range / Starting Position

ST250-90-90



Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
0.3kg	15kg	50	260×360×100

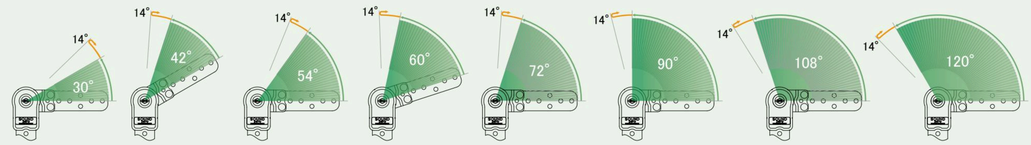
ST250-SS45-90-90
(Spring Type)



Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.65kg	13.3kg	20	260×360×135

Operation Pattern (2°Pitch)

The start position cannot be customized.



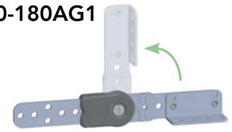
30°(15 steps) 42°(21 steps) 54°(27 steps) 60°(30 steps) 72°(36 steps) 90°(45 steps) 108°(54 step) 120°(60 step)

Options

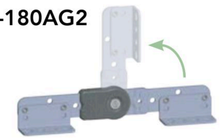
Angle Type

The same movable range as ST250.

ST250-90-180AG1
Angle : 1pc



ST250-90-180AG2
Angle : 2pcs



Long Arm Type

The same movable range as ST250.

ST250-L-90-90
For chairs or sofas with long arms.

ST Socket

1. Easy to install
2. Improving efficiency of assembly
3. Expansion of design patterns

Sockets allow for the easy attachment of headrests and armrests, reducing packaging size.

Free-Lock Gear - CB01 GEAR

PAT.

SAKURA

Free-Lock Mechanism

After release, you can easily adjust to your preferred angle.

1. Unlock at the top position.

2. Lock at any angle.

Conventional Gear

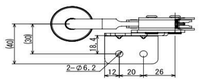
1. Unlock at the top position.
2. Lower it down to the bottom.
3. Lift up and adjust.

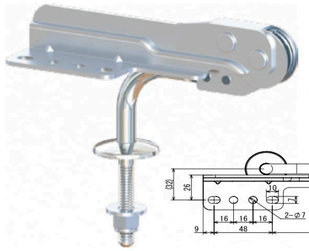
Load capacity 100N·m

Lineup

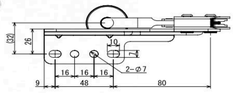
Model Name CB01-90M-30AF
Series | Movable Range | Base type | Arm Type

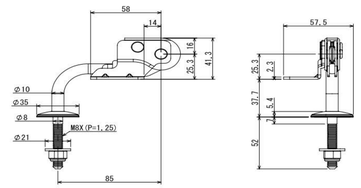
CB01-90M-30AF
Base Type M

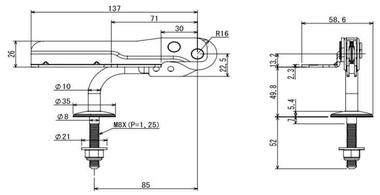




CB01-90L-30AF
Base Type L



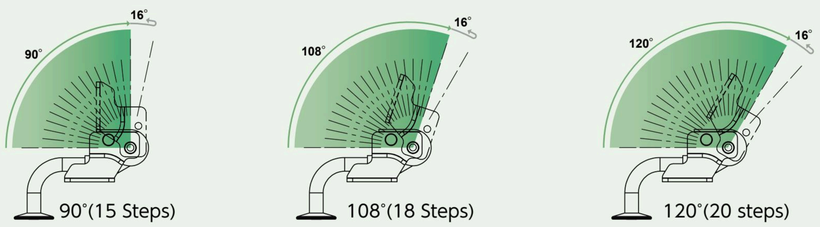




Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.58kg	8.4kg	15	260×360×135

Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.58kg	9.2kg	15	260×360×135

Operation Pattern(6°Pitch)



90°(15 Steps) 108°(18 Steps) 120°(20 steps)

Arm

No.30AF

No.31AF～33AF

No.31B～33B

No.31G5～33G5

※The socket is made of plastic.

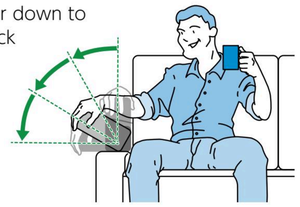
Free-Lock Gear - CB02 GEAR

PAT.

SAKURA

Free-Lock Mechanism

No need to lower down to the bottom to lock the gear.



Once unlocked, you can easily adjust your position.

Conventional Gear

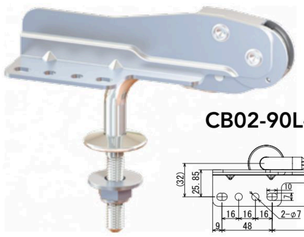
Lower down to the bottom

Lift up and adjust

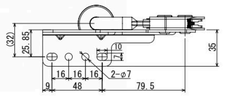
Load capacity 200N·m

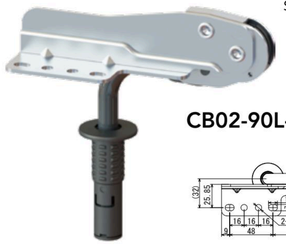
Lineup

Model Name CB02-90L-32AF
Series | Movable Range | Base type | Arm Type

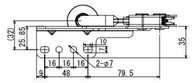


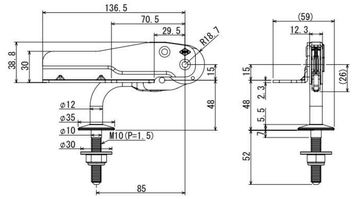
CB02-90L-32AF

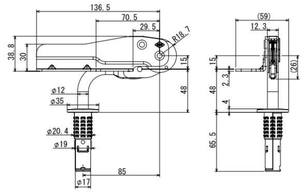




CB02-90L-32G5(MBK)



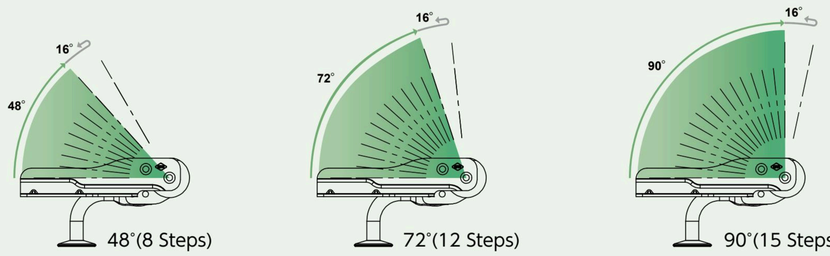




Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.78kg	12.1kg	15	260×360×135

Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.78kg	12.1kg	15	260×360×135

Operation Pattern(6°Pitch)



48°(8 Steps) 72°(12 Steps) 90°(15 Steps)

Arm

No.31AF～33AF

No.31B～33B

No.31G5～33G5

※The socket is made of plastic.

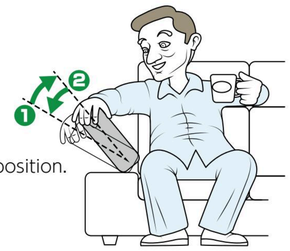
Free-lock Gear - LS200-α GEAR

PAT.

αGear

Free-Lock Mechanism

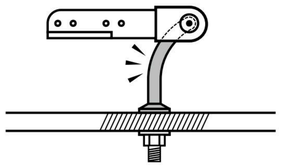
Once unlocked you can easily adjust your position



1. Unlock at the top position.
2. Lock at any angle.

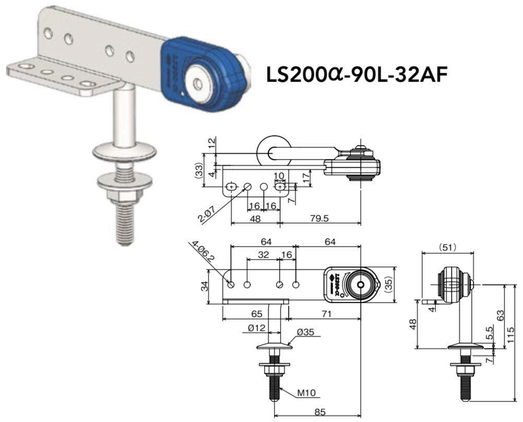
Flexibility

Still functional even after any possible deformation in use



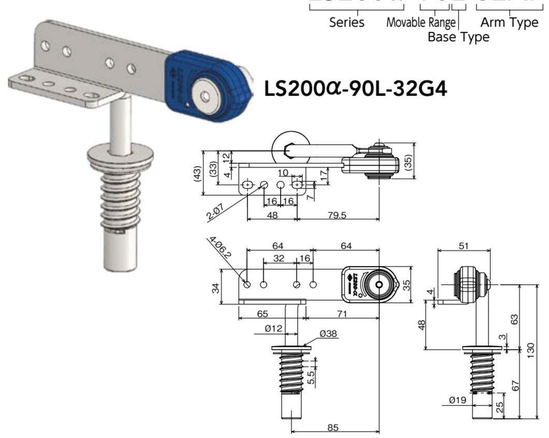
Lineup

Model Name LS200α-90L-32AF
Series / Movable Range / Base Type / Arm Type



LS200α-90L-32AF

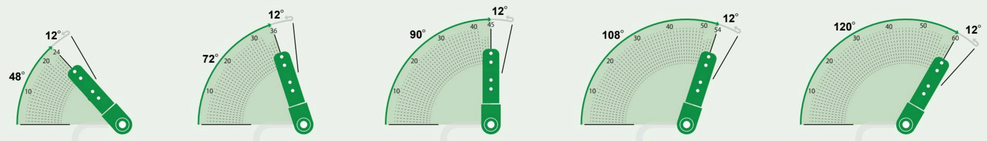
Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.92kg	14.3kg	15	260×360×150



LS200α-90L-32G4

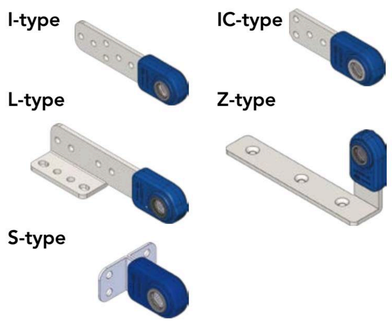
Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
1.09kg	16.8kg	15	260×360×150

Operation Pattern(2°Pitch)

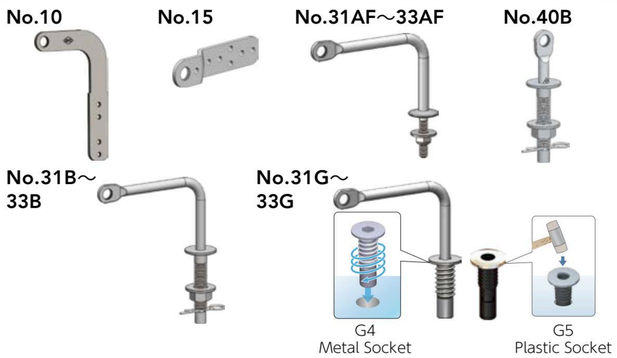


48°(24 steps) 72°(36 steps) 90°(45 steps) 108°(54 steps) 120°(60 steps)

Base



Arm

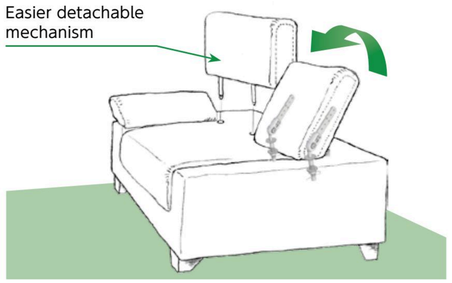


Micro Pitch Gear - LS300 GEAR

PAT.

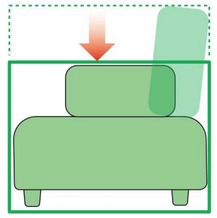
Detachable

The detachable design allows for separate assembly of the sofa body and the movable parts.



Save Shipping Costs

The detachable design allows for compact packaging and saves shipping costs.

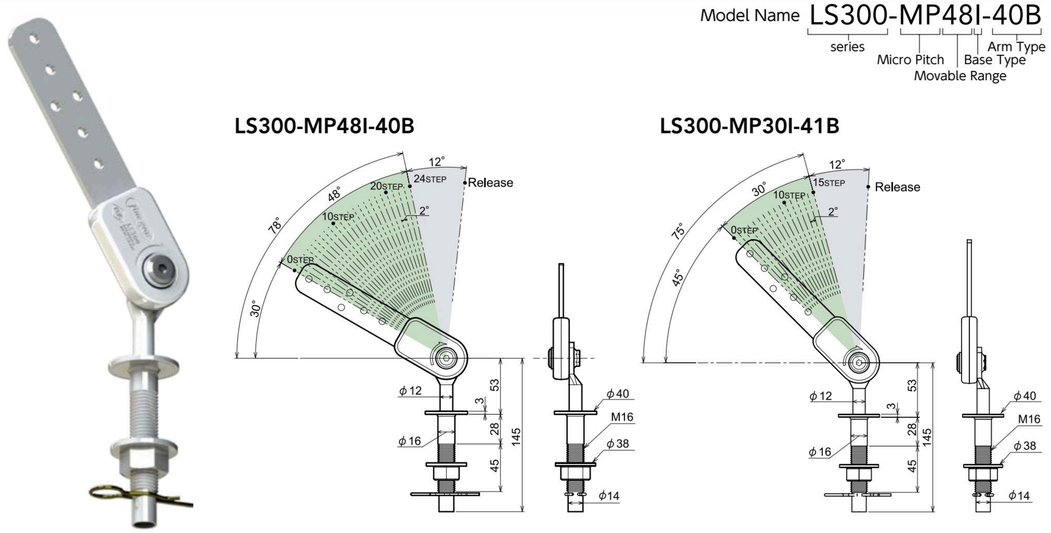


Load capacity 300N·m

Load capacity improved by over 50% compared to the conventional LS200 series.

Lineup

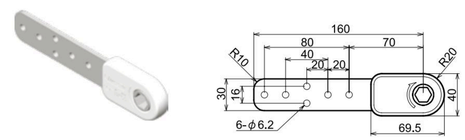
Model Name LS300-MP48I-40B
series / Micro Pitch Movable Range / Base Type / Arm Type



LS300-MP48I-40B

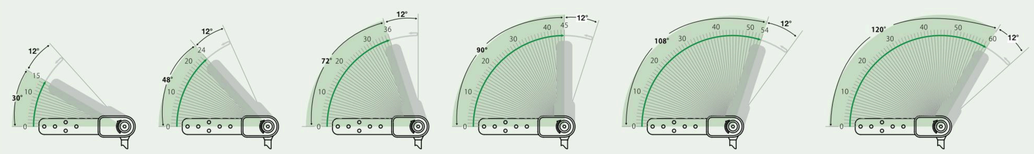
LS300-MP30I-41B

Base



Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
1.02kg	15.8kg	15	200×360×135

Operation Pattern(2°Pitch)



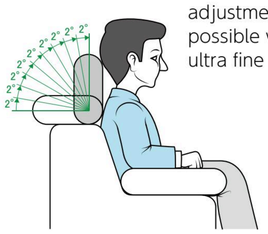
30°(15 steps) 48°(24 steps) 72°(36 steps) 90°(45 steps) 108°(54 steps) 120°(60 steps)

Micro Pitch Gear - LS200 GEAR

PAT.

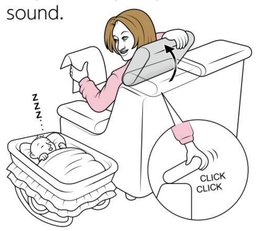
2°Pitch Adjustment

Reliable and precise adjustments are possible with 2° ultra fine pitch.

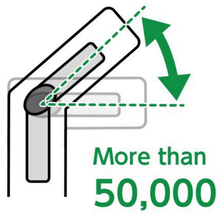


Quiet click sound

It operates quietly with minimized sound.



Repetition

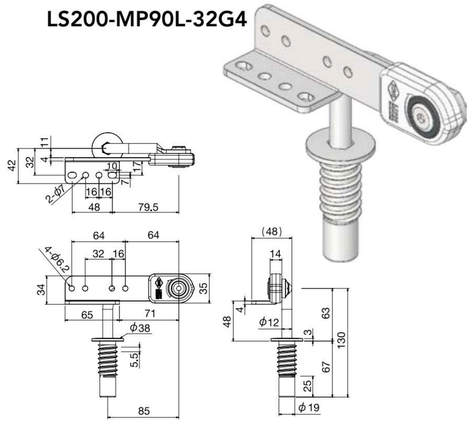


More than **50,000** cycles

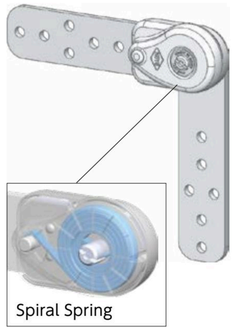
Lineup

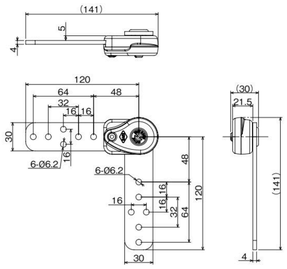
Model Name LS200-MP90L-32G
Series / Micro Pitch Movable Range / Base Type / Arm Type

LS200-MP90L-32G4



LS200(S)-MP90I-R11
(Spring Type)

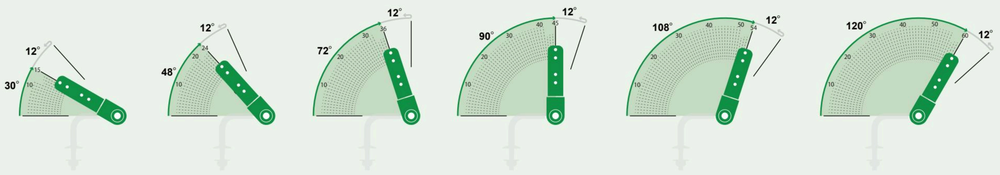




Weight/Set	Weight/Carton	Set/Carton	Carton (L×W×H)
1.04kg	16.1kg	15	260×360×135

Weight/Set	Weight/Carton	Set/Carton	Carton (L×W×H)
0.65kg	10.2kg	15	260×360×135

Operation Pattern (2°Pitch)



30°(15 steps) 48°(24 steps) 72°(36 steps) 90°(45 steps) 108°(54 steps) 120°(60 steps)

Base

I-type

IC-type

L-type

Z-type

S-type

Arm

No.10

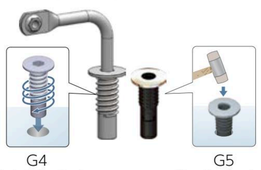
No.11

No.15

No.31AF～33AF

No.31B～33B

No.31G～33G



G4
Metal Socket

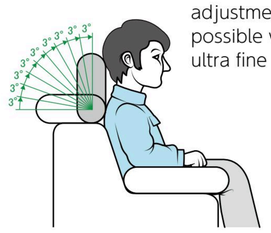
G5
Plastic Socket

Micro Pitch - LS100 GEAR

PAT.

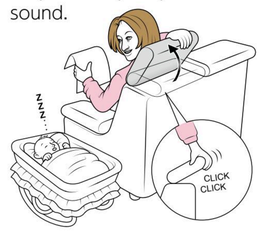
3°Pitch Adjustment

Reliable and precise adjustments are possible with 3° ultra fine pitch.

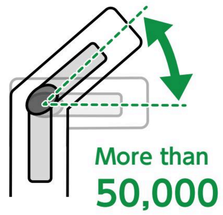


Quiet click sound

It operates quietly with minimized sound.



Repetition

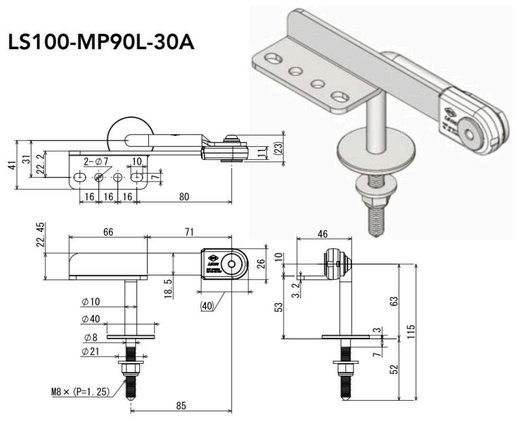


More than **50,000** cycles

Lineup

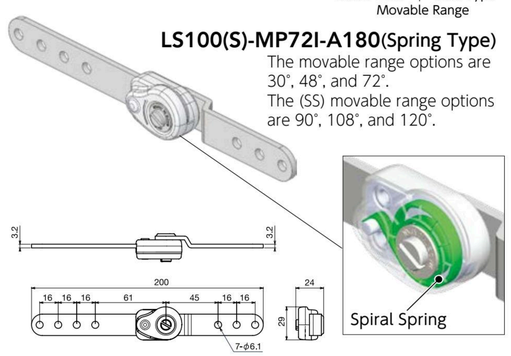
Model Name LS100-MP90L-30A
Series / Micro Pitch Movable Range / Base Type / Arm Type

LS100-MP90L-30A



LS100(S)-MP72I-A180(Spring Type)

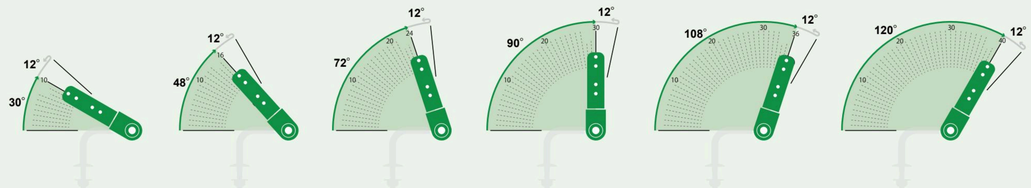
The movable range options are 30°, 48°, and 72°.
The (SS) movable range options are 90°, 108°, and 120°.



Weight/Set	Weight/Carton	Set/Carton	Carton (L×W×H)
0.56kg	9kg	15	260×360×135

Weight/Set	Weight/Carton	Set/Carton	Carton (L×W×H)
0.26kg	15kg	50	260×360×135

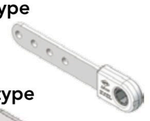
Operation Pattern (3°Pitch)



30°(10 steps) 48° (16 steps) 72°(24 steps) 90°(30 steps) 108°(36 steps) 120°(40 steps)

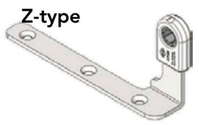
Base

I-type



L-type

Z-type



Arm

No.10

No.30A

No.31AF～33AF

No.A

No.31G～33G

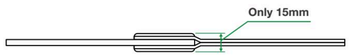
G4
Metal Socket

G5
Plastic Socket

Fine Pitch Gear - IS450 GEAR

PAT.

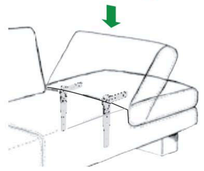
Slim Design



Safe Design

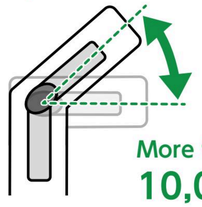
Strength

900N·m
(450N·m×2pcs)



For the IS450 type, a set of two can support up to 180 kg with a backrest height of 500 mm.

Repetition



More than
10,000 cycles

Load capacity 450N·m

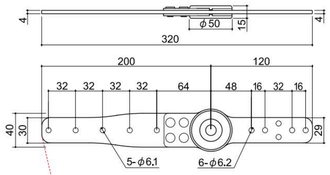
※The load capacity decreases by 15% only for the 15-step gear of the IS450 type.

Lineup

IS450Y-12-180

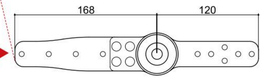
Model Name IS450Y-12-180
Series / Step / Starting Position

STD



Short type

32mm
Size Down!



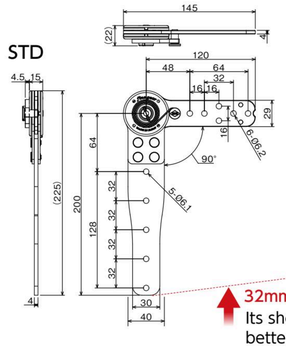
Its shorter design allows it to fit better into the sofa frame.

Weight/Pc	Weight/Carton	Pcs/Carton	Carton (L×W×H)
0.46kg	23.5kg	50	260×360×135

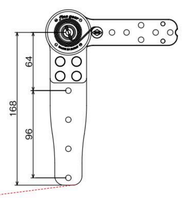
IS450Y-SS45-12-90
(Spring Type)

Model Name IS450Y-SS45-12-90
Series / Spring Type / Step / Starting Position

STD



Short type



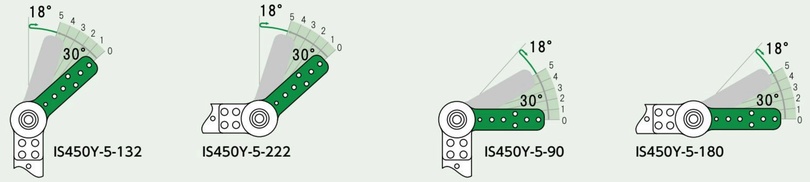
32mm Size Down!
Its shorter design allows it to fit better into the sofa frame.

Weight/Pc	Weight/Carton	Pcs/Carton	Carton (L×W×H)
0.5kg	20.5kg	40 pieces per box (right) + 40 pieces per box (left)	260×360×135

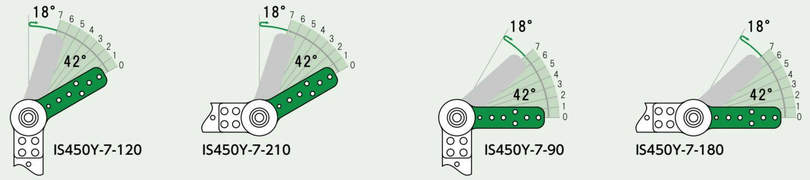
Operation Pattern (6° Pitch)

For other operation patterns, please consult us.

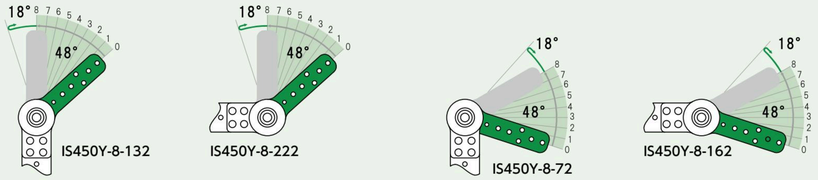
5 STEPS (30°)



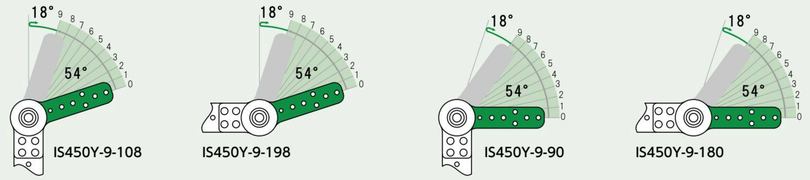
7 STEPS (42°)



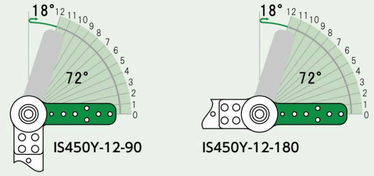
8 STEPS (48°)



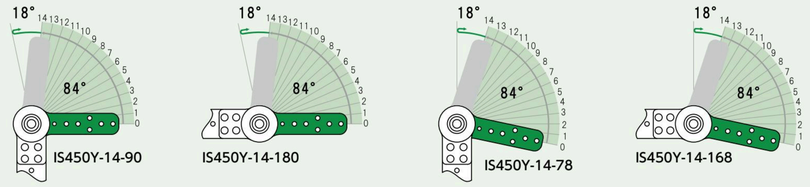
9 STEPS (54°)



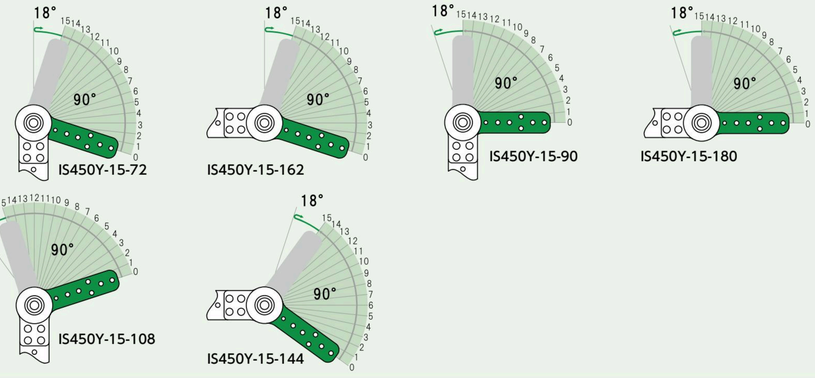
12 STEPS (72°)



14 STEPS (84°)



15 STEPS (90°)



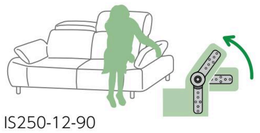
Fine Pitch Gear - IS250 GEAR

PAT.

Product lineup designed for the motion patterns of wooden frame sofas.

Load capacity 250N·m

For armrests

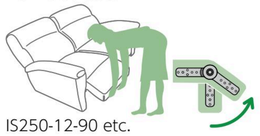


IS250-12-90
IS250-12-180 etc.

For headrests

IS250-5-180
IS250-15-90 etc.

For footrests

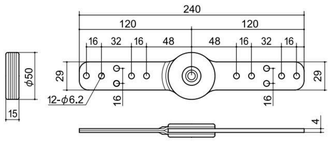


IS250-12-90 etc.

Lineup IS250

IS250-12-90

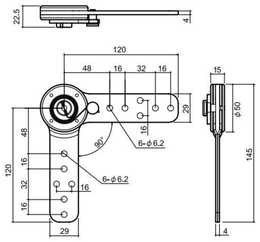
Model Name IS250-12-90
Series / Step / Starting Position



Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
0.3kg	15.5kg	50	260×360×100

IS250-SS45-15-90
(Spring Type)

Model Name IS250-SS45-12-90
Series / Spring Type / Step / Starting Position



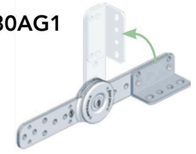
Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
0.33kg	13.7kg	40	260×360×100

Options

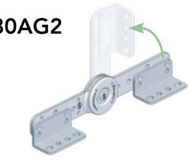
Angle Type

The same movable range as IS250.

IS250-15-180AG1
Angle : 1pc



IS250-15-180AG2
Angle : 2pcs



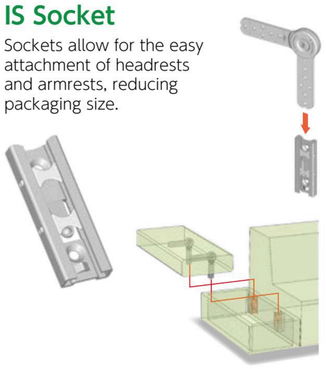
Long Arm Type

The same movable range as IS250.

IS250-L-15-90
For chairs or sofas with long arms.

IS Socket

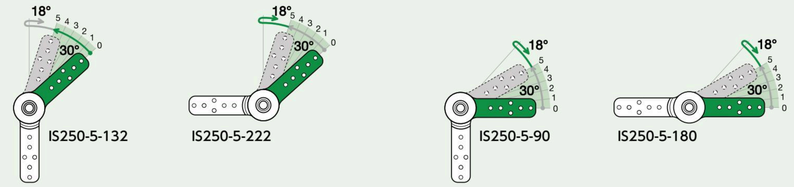
Sockets allow for the easy attachment of headrests and armrests, reducing packaging size.



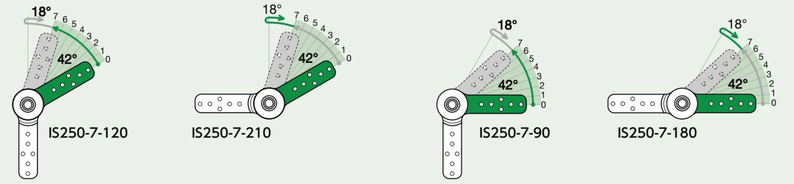
Operation Pattern (6˚ Pitch)

For other operation patterns, please consult us.

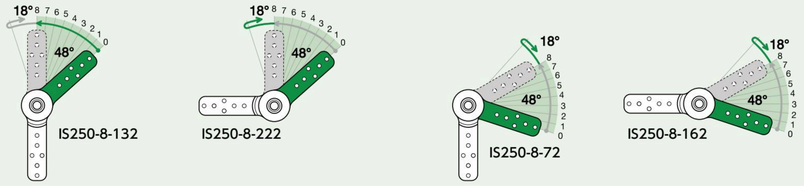
5 STEPS (30˚)



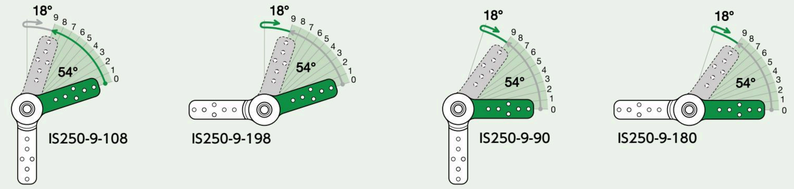
7 STEPS (42˚)



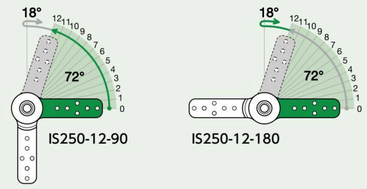
8 STEPS (48˚)



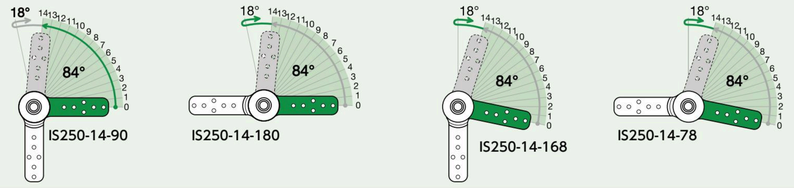
9 STEPS (54˚)



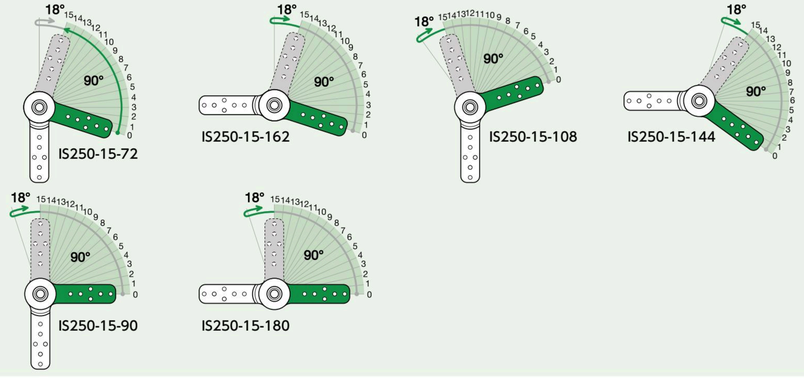
12 STEPS (72˚)



14 STEPS (84˚)



15 STEPS (90˚)

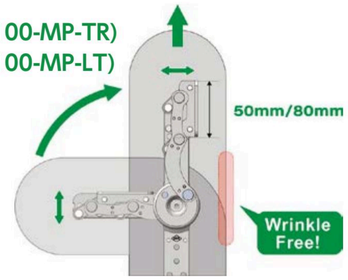


Stretch Function Gear - LS100 GEAR

PAT.

Stroke

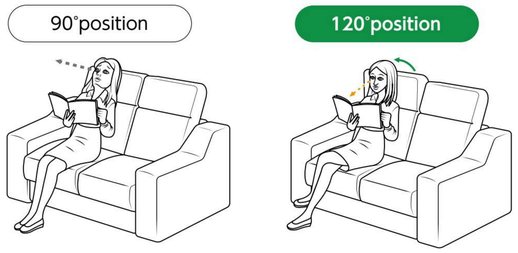
50mm(LS100-MP-TR)
80mm(LS100-MP-LT)



❶As the gear moves, the angle plate slides 50mm / 80mm to prevent sofa fabric wrinkling while maintaining its design.

❷The angle plate's width stays the same as it extends.

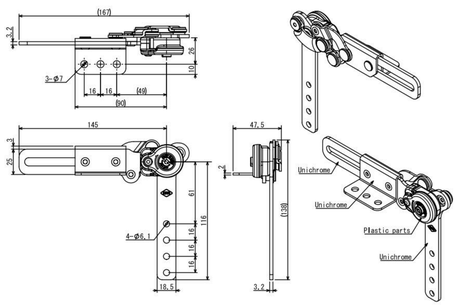
Range of motion 120°



Adjust the headrest to your preferred position for reading or watching TV.

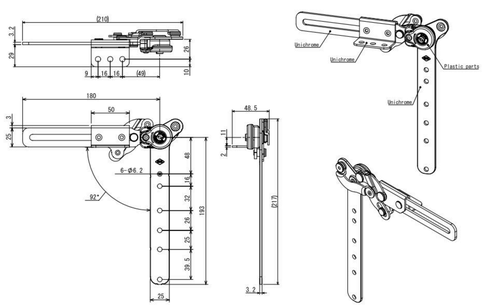
Lineup

LS100(S)-MP120TR-TA01(90)



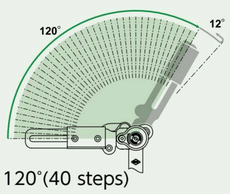
Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.6kg	9.5kg	15	260×360×135

LS100(S)-MP120LT-LTA01(90)



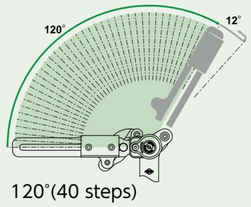
Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.8kg	8.45kg	10	260×360×135

Operation Pattern(3°Pitch)



120°(40 steps)

Operation Pattern(3°Pitch)



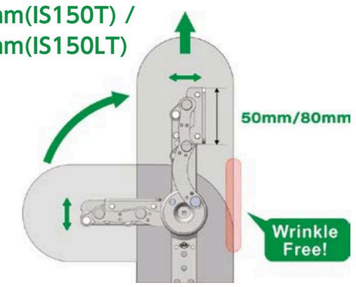
120°(40 steps)

Stretch Function Gear - IS150 GEAR

PAT.

Stroke

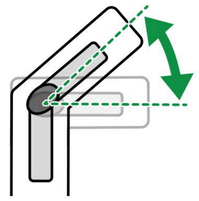
50mm(IS150T) /
80mm(IS150LT)



When moving the gear, the angle plate slides up 50mm / 80mm which prevents the fabric from wrinkling.

Load capacity 150N·m

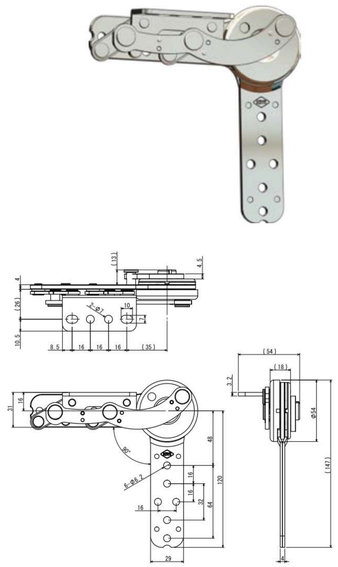
Repetition



More than
10,000 cycles

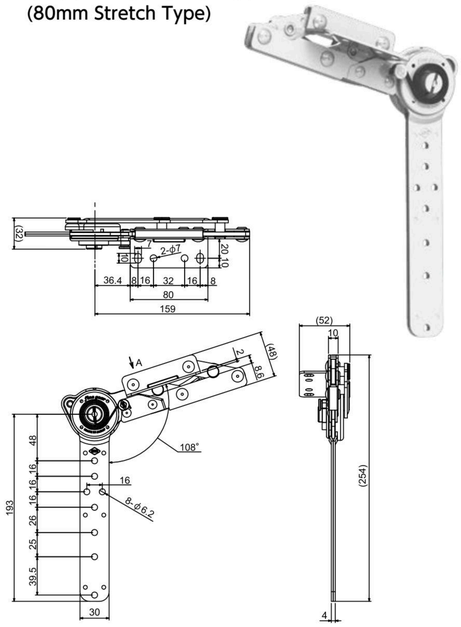
Lineup

IS150T-15-90
(50mm Stretch Type)



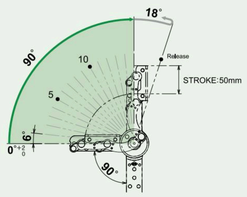
Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.97kg	20.0kg	20	260×360×180

IS150LT-L-SS45-15-108
(80mm Stretch Type)

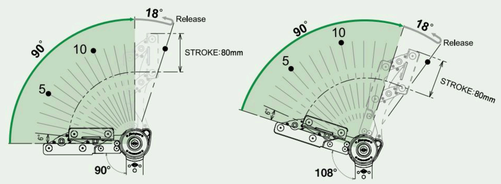


Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
1.5kg	15.5kg	10	260×360×180

Operation Pattern(6°Pitch)



Operation Pattern(6°Pitch)



IS150LT-L-SS45-15-90 IS150LT-L-SS45-15-108

Friction Hinge (FH)

Silent Stepless Hinge

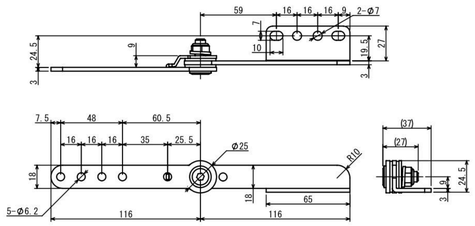
Allows silent, smooth angle adjustments.

Free Stop Specification

FH02-L:2±1N·m
FH08-L:8±2N·m
The torque value is the figure at the time of shipment

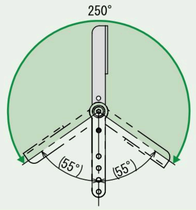
FH02-L
FH08-L

FH-I



Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
0.33kg	17kg	50	260×360×180

Operation Pattern (Stepless Adjustment)

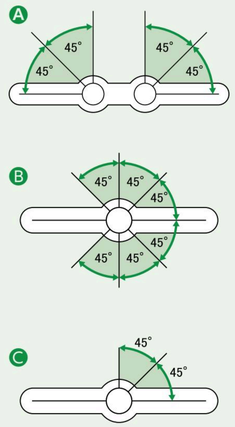


Torque Hinge (KA)

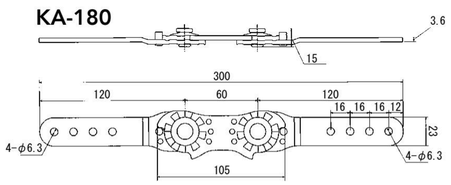
Unlike ratchet locks, it holds at 45° and switches angles in either direction

KA-180 KA-90 KA-90B

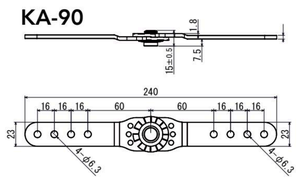
Operation pattern



KA-180



KA-90



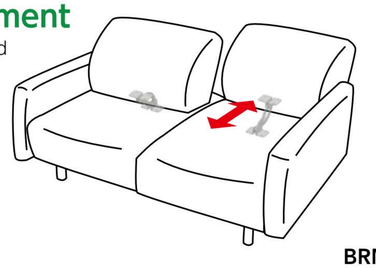
Rotation Torque: Strong: 3 springs, Medium: 2 springs, Weak: 1 spring, Finish: Unichrome Plating

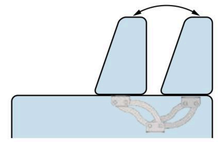
Number	Model	Operation Pattern	Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
115982	KA-180	A	0.28kg	14.5kg	50	160×360×135
115984	KA-90	B	0.2kg	10.5kg		
115985	KA-90B	C				

Depth Adjustment (BRM)

Backrest Movement

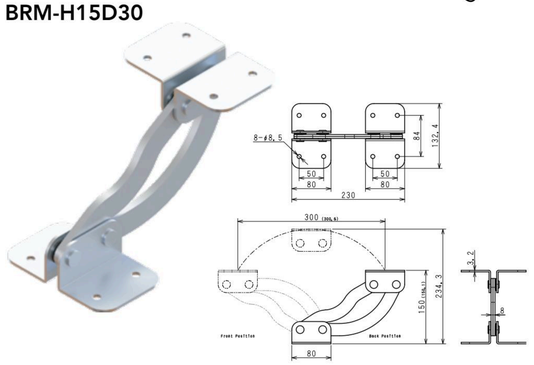
The backrest can be moved to two different positions (front and back).



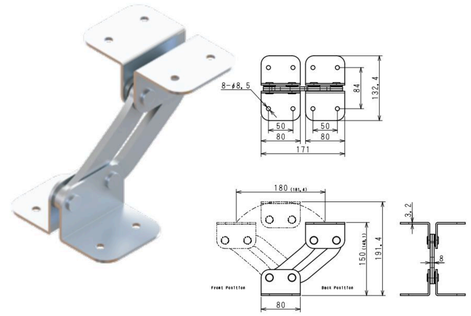


BRM-H15D30 : 300mm
BRM-H15D18 : 180mm

BRM-H15D30



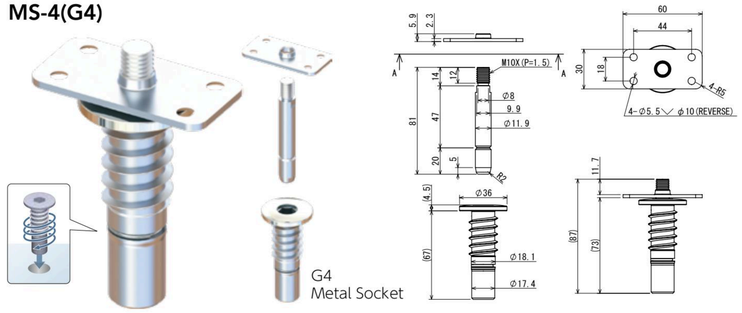
BRM-H15D18

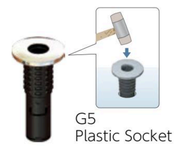


Number	Model	Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
121053	BRM-H15D30	1.42kg	6.2kg	4	260×360×135
121054	BRM-H15D18	1.25kg	6.7kg	5	

Knockdown Parts (MS-4)

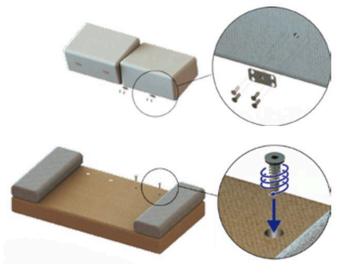
MS-4(G4)





STEP1

Secure the plate to the backrest. Attach the socket to the base.

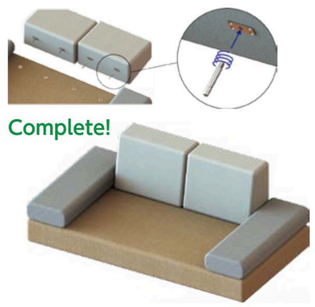


STEP2

Make sure to include the support columns into the package.

STEP3

After delivery, attach and secure the support columns.

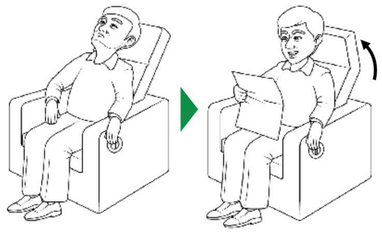


Number	Model	Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
121128	MS-4(G4)	0.19kg	19.8kg	100	265×360×155
121131	MS-4(G5)	0.11kg	12.0kg		

Motorized Angle Adjustable Gear (EL-02H)

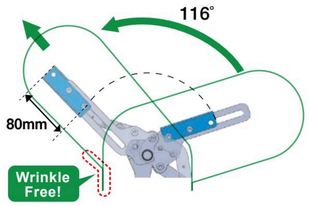
Just press a button to adjust the headrest angle

Adjust the back and headrest to your preferred angle for reading or watching TV.



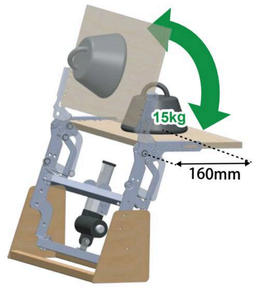
Stroke 80mm

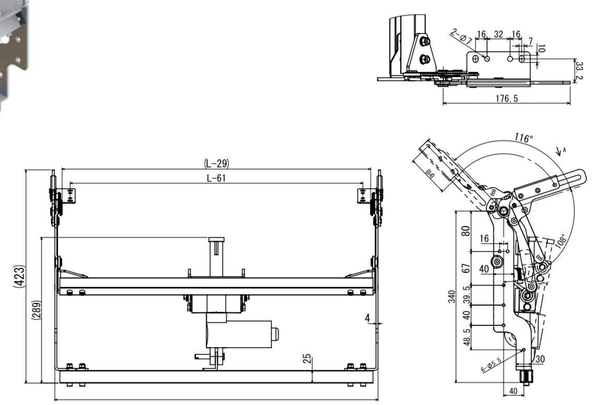
Prevents fabric wrinkles during gear movement.



Test Data

25,000 cycles with a 15kg load applied at a distance of 160mm from the center.





Mechanical Components

EL-02H2
arm parts/pair

EL-02H2-T565 (641・680・791)
EL-02H2-B565 (641・680・791)
Joint Pipe

EL-02H2-AC
accessory

Motorized Lift Up Mechanism (EL-03H)

Movability

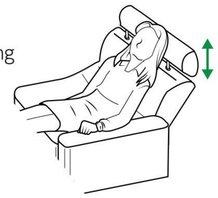
Refer to the chart for angle options.

One-hand angle adjustment.

Max 90mm

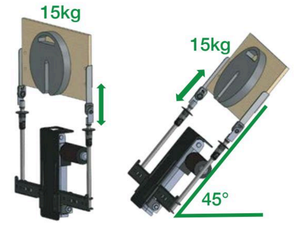
Motorized height adjustment.

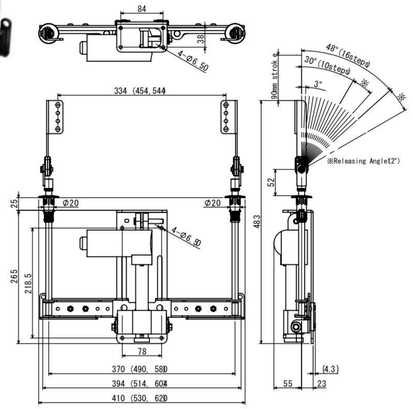
Height can be controlled by using the button.



Load Test

20,000 cycles tested with 15kg load vertically at 45°. No unusual sounds or vibrations.





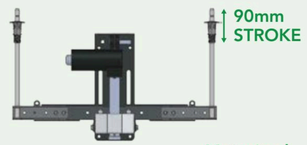
Optional Angle Adjustable Parts

LS100-MP30L FOR EL-03H or
LS100-MP48L FOR EL-03H

LS100(S)-MP30L FOR EL-03H or
LS100(S)-MP48L FOR EL-03H

+

Lift Up Mechanism
EL-03H



Motorized

Electric Accesories

EL-03H-ACT
Linear actuator

EL-01H-PA
Power adaptor

EL-01H-PC
Power cable

EL-01H-CC
Connection cable

EL-01H-YC
Split cable

EL-01H-BA
Plastic oval handset

EL-01H-BB
Aluminium oval handset

EL-01H-BC
Soft touch handset

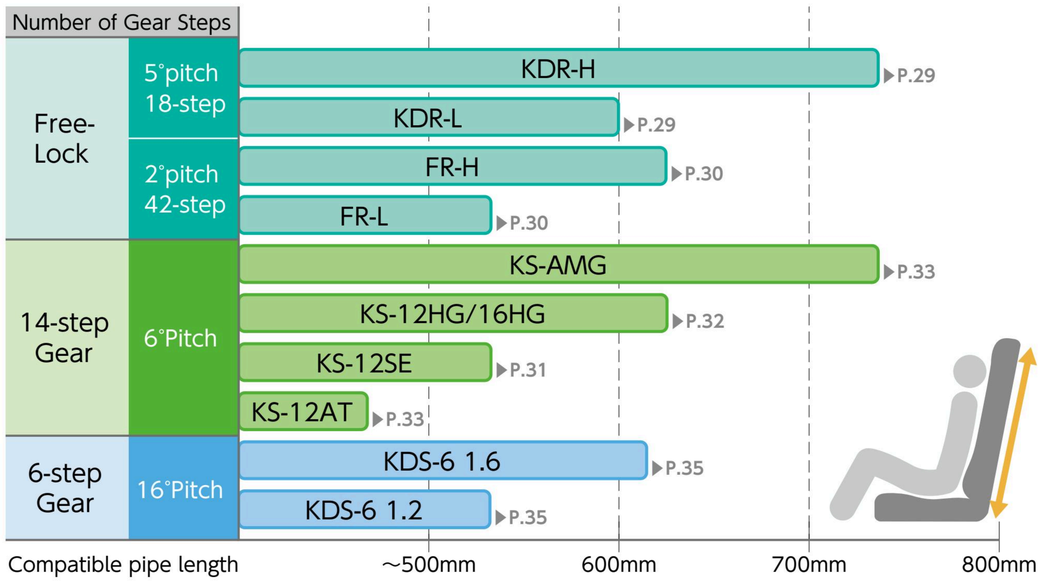
Angle Adjustment Parts for Pipes

Features

These chair fittings are designed for comfort and convenience, offering 6 to 42 adjustable positions with precise increments of 2˚, 5˚, and 6˚. These range allows easy customization for optimal posture in any setting.

Pipe Length Compatibility (Strength) Chart

This graph displays compatible backrest pipe lengths. Please use it as a reference for gear selection.



Free-Lock Mechanism

After releasing the gear lock, you can adjust the angle without needing to flatten the back in advance. The angle adjustment can be operated even in small and narrow spaces.

KDR-L KDR-H FR ▶P.29-30

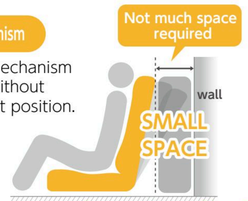
Conventional Gear

Before the angle adjustment, you must flatten the back in advance.

A large space is required

Free-Lock Mechanism

The Free-Lock mechanism allows locking without returning to a flat position.



You can adjust at any angle even in small and narrow space

How to operate

Scan to watch the operation video

STEP1
Release
Pull the back in front, and unlock

STEP2
Free
Adjust the angle you need

STEP3
Lock
Pull the back slightly to the front to lock the position

Folding Gear

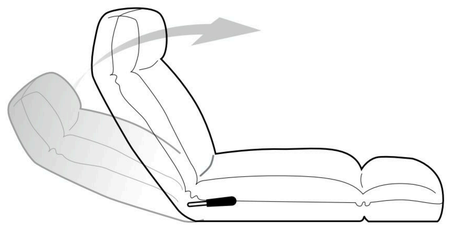
Can be folded forward for compact storage.
Save on Packaging and Shipping Costs.

KS-12HG(FD) ▶P.34

Lever-Type Gears

It moves like a car reclining seat, allowing you to freely adjust the reclining angle with a lever.

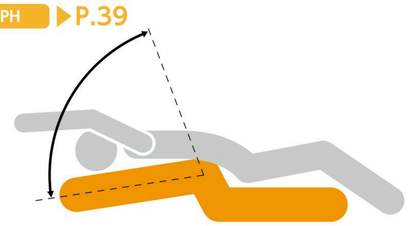
KX ▶P.37-38



Spring Hinge

By leaning back and applying weight to the backrest, it swings significantly around the waist area, allowing for stretching the lower back and spine while seated.

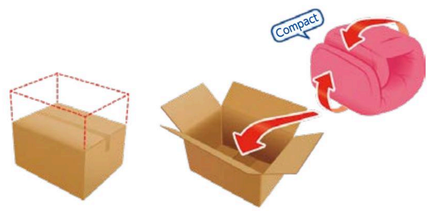
SPH ▶P.39



One Lock Hinge

The packaging size can be minimized, and it locks into place during use.

OLH ▶P.39



FLOOR SEAT parts

Free-Lock Gear - KDR GEAR

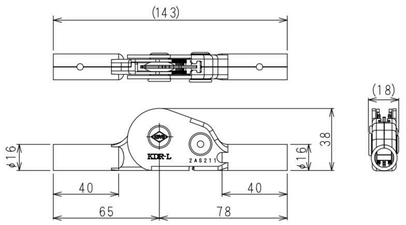
PAT.

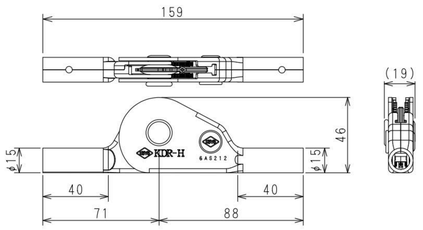
KDR-L

230N·m | Free-Lock

KDR-H

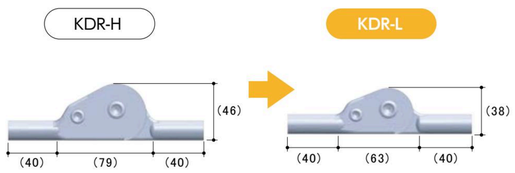
330N·m | Free-Lock





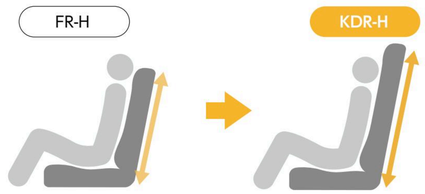
Compact (KDR-L)

About 20% smaller than KDR-H.

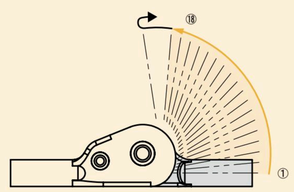


Increased Strength (KDR-H)

Can be used for higher-back products compared to FR-H.



Operation Pattern (18 steps/5°pitch)



Options

Plastic Cover

Upper Cover:
Prevents fabric and urethane from being wrapped.

Case Cover:
Prevents scratches on the floor surface.

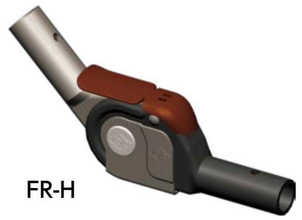
Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
11020300	KDR-L1.2	18-step	φ19.1mm t1.2mm	230N·m	167g	17.1kg	100	260×360×135
11020100	KDR-H1.2			330N·m	234g	23.8kg	100	260×360×150
11020200	KDR-H1.6		φ19.1mm t1.6mm	330N·m	234g	23.8kg	100	260×360×150

Free-Lock Gear - FR GEAR

PAT.

FR-L

Super Multi-step Gear | Free-Lock

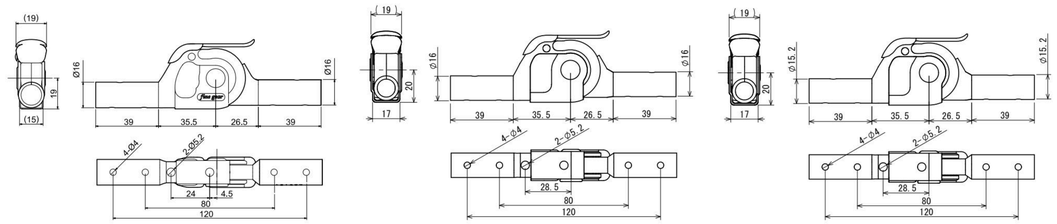


FR-H

Super Multi-step Gear | Free-Lock

FR-H1.6

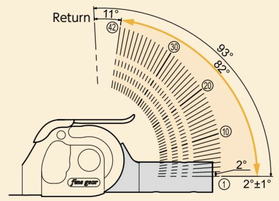
Super Multi-step Gear | Free-Lock



Super Multi-step Reclinig

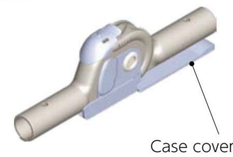
Achieves ultra-multi-step reclining with a 2° pitch and 42 positions.

Operation Pattern (42 steps/2°pitch)



Options

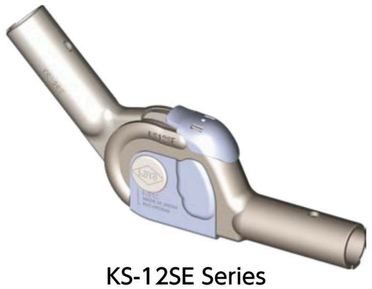
Plastic Cover



Case cover image

Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
126023	FR-L	42-step	φ19.1mm t1.2mm	210N·m	152g	15.7kg	100	260×360×135
126024	FR-H			260N·m	190g	19.6kg		
126045	FR-H1.6		φ19.1mm t1.6mm	260N·m	191g	19.6kg		

Reclining Gear - KS GEAR



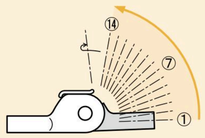
KS-12SE Series

14-step Gear

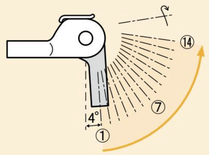
Operation Pattern (14steps/6°pitch)

For other operation patterns, please consult us.

Ⓐ 14-step



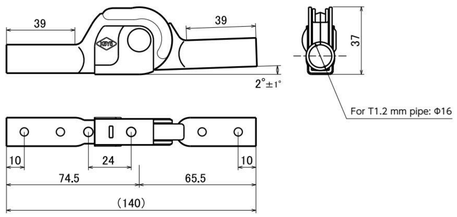
Ⓑ Lower 14-step reverse



Options

Plastic Cover

Case Cover:
Prevents scratches on the floor surface



Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
126022	KS-12SE	Ⓐ	φ19.1mm t1.2mm	210N·m	140g	14.5kg	100	260×360×135
126026	KS-12SE-L14R	Ⓑ		210N·m	140g	14.5kg		

Strengthened Reclining Gear - KS-HG

KS-12HG Series
(Gear cover : brown)

270N·m | 14-step Gear·7-step Gear

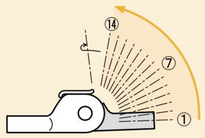
KS-16HG Series
(Gear cover : black)

270N·m | Compatible with 1.6 mm

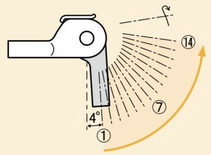
Operation Pattern (14steps/6°pitch)

For other operation patterns, please consult us.

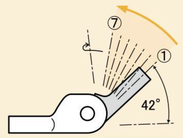
Ⓐ 14-step



Ⓑ Lower 14-step reverse



Ⓒ Upper 7-step

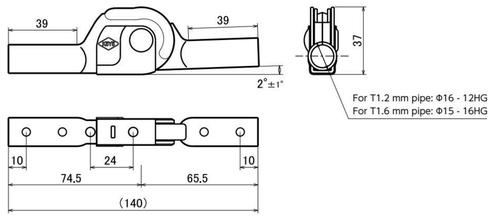


※Without Gear Cover

Options

Plastic Cover

Case Cover:
Prevents scratches on the floor surface

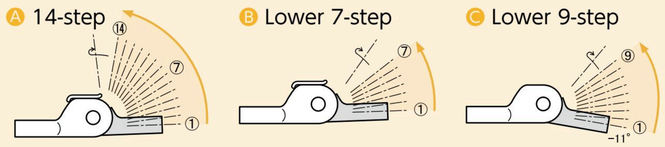


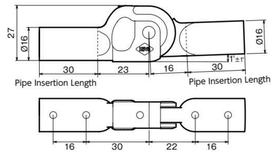
Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
126002	KS-12HG	Ⓐ	φ19.1mm t1.2mm	270N·m	170g	17.5kg	100	260×360×135
126007	KS-12HG-U7	Ⓒ		270N·m	170g	17.5kg		
126102	KS-16HG	Ⓐ	φ19.1mm t1.6mm	270N·m	170g	17.5kg		
126103	KS-16HG-L14R	Ⓑ		270N·m	170g	17.5kg		

Headrest Gear - KS-12AT

Headrest　14-step Gear

Operation Pattern (6°pitch)





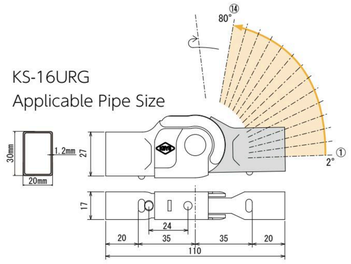
※Note
The KS-12AT is designed for use in bending locations, such as headrests, where relatively low loads are expected.

Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
126040	KS-12AT	Ⓐ	ϕ19.1mm t1.2mm	100N·m	85g	17.5kg	200	260×360×135
126042	KS-12AT-L7	Ⓑ						
126043	KS-12AT-L9	Ⓒ						

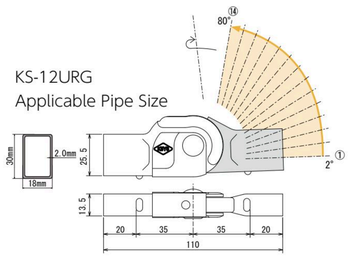
Gear for square pipes - KS-URG

14-step Gear

KS-16URG
Applicable Pipe Size



KS-12URG
Applicable Pipe Size

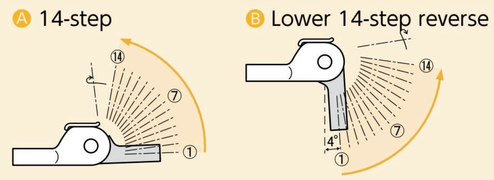


Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
126301	KS-16URG	14-step Gear 6°pitch	30×20×t1.2	270N·m	180g	19.0kg	100	260×360×135
126302	KS-12URG		30×18×t2.0	210N·m	140g	15.0kg		

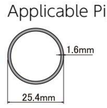
High-power gear - KS-AMG

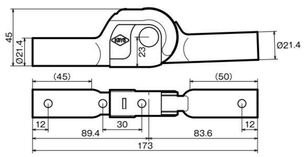
360N·m　14-step Gear

Operation Pattern (6°pitch)　For other operation patterns, please consult us.



Applicable Pipe





Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
126201	KS-AMG	Ⓐ	ϕ25.4×t1.6	360N·m	280g	14.5kg	50	260×360×135
126203	KS-AMG-L14R	Ⓑ						

Folding Gear - KS-FD

KS-12HG(FD)

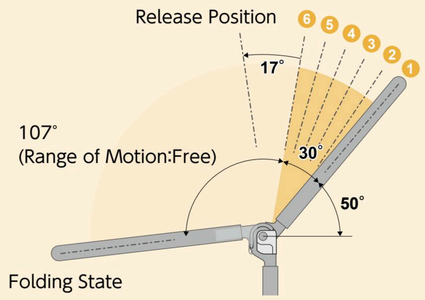
Free movement up to 107°

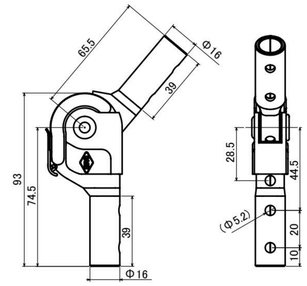
Compatible with 550mm～650mm

Save on Packaging and Shipping Costs.

Can be folded forward for compact storage.

Operation Pattern (Free movement +6-step gear／6°pitch)





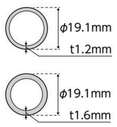
Number	Model	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
126047	KS-12HG(FD)	ϕ19.1mm t1.2mm	270N·m	170g	17.5kg	100	260×360×135

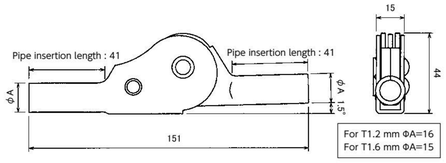
FLOOR SEAT parts

Cam-Type Reclining Gear - KDS

Compatible pipe sizes:
1.6 mm and 1.2 mm

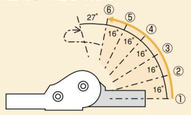
Applicable Pipe



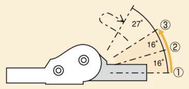


Operation Pattern (16°pitch)

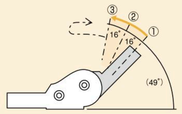
Ⓐ 6-step
KDS 1.2-6S / KDS 1.6-6S
KDS 1.2-6 / KDS 1.6-6



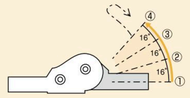
Ⓑ Lower 3-step
KDS 1.2-L3 / KDS 1.6-L3
KDS 1.2-L3S / KDS 1.6-L3S



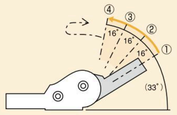
Ⓒ Upper 3-step
KDS 1.2-U3 / KDS 1.6-U3



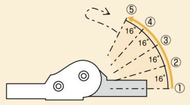
Ⓓ Lower 4-step
KDS 1.2-L4 / KDS 1.6-L4



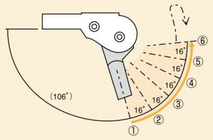
Ⓔ Upper 4-step
KDS 1.2-U4 / KDS 1.6-U4



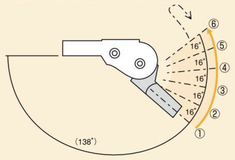
Ⓕ Lower 5-step
KDS 1.2-L5 / KDS 1.6-L5



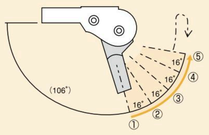
Ⓖ Lower 6-step reverse
KDS 1.2-L6R / KDS 1.6-L6R



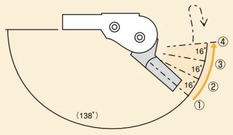
Ⓗ Upper 6-step reverse
KDS 1.2-U6R / KDS 1.6-U6R



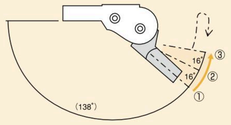
Ⓘ Lower 5-step reverse
KDS 1.2-L5R / KDS 1.6-L5R



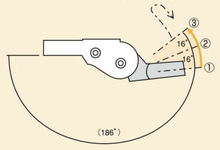
Ⓙ Lower 4-step reverse
KDS 1.2-L4R / KDS 1.6-L4R



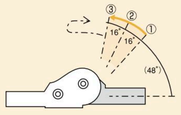
Ⓚ Lower 3-step reverse
KDS 1.2-L3R / KDS 1.6-L3R



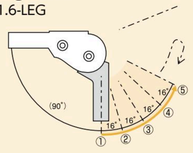
Ⓛ Upper 3-step reverse
KDS 1.2-U3R / KDS 1.6-U3R



Ⓜ Upper 3-step free
KDS 1.6-U3F



Ⓝ Leg Gear
KDS 1.6-LEG



Options

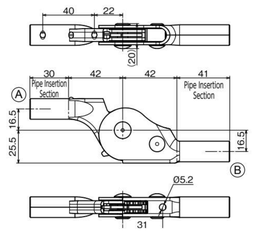
Case Cover

Prevents floor scratches and fabric or foam wrapping.

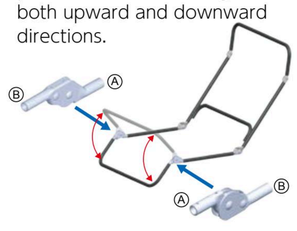
Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Pc
110001	KDS 1.2-6S	Stopper Ⓐ	ϕ19.1×t1.2	180N·m
110040	KDS 1.6-6S		ϕ19.1×t1.6	240N·m
110002	KDS 1.2-6	Standard Ⓐ	ϕ19.1×t1.2	180N·m
110004	KDS 1.6-6		ϕ19.1×t1.6	240N·m
110006	KDS 1.2-L3	Standard Ⓑ	ϕ19.1×t1.2	180N·m
110008	KDS 1.6-L3		ϕ19.1×t1.6	240N·m
110044	KDS 1.2-L3S	Stopper Ⓑ	ϕ19.1×t1.2	180N·m
110045	KDS 1.6-L3S		ϕ19.1×t1.6	240N·m
110005	KDS 1.2-U3	Ⓒ	ϕ19.1×t1.2	180N·m
110007	KDS 1.6-U3		ϕ19.1×t1.6	240N·m
110010	KDS 1.2-L4	Ⓓ	ϕ19.1×t1.2	180N·m
110012	KDS 1.6-L4		ϕ19.1×t1.6	240N·m
110009	KDS 1.2-U4	Ⓔ	ϕ19.1×t1.2	180N·m
110011	KDS 1.6-U4		ϕ19.1×t1.6	240N·m
110037	KDS 1.2-L5	Ⓕ	ϕ19.1×t1.2	180N·m
110041	KDS 1.6-L5		ϕ19.1×t1.6	240N·m
110013	KDS 1.2-L6R	Ⓖ	ϕ19.1×t1.2	180N·m
110019	KDS 1.6-L6R		ϕ19.1×t1.6	240N·m
110018	KDS 1.2-U6R	Ⓗ	ϕ19.1×t1.2	180N·m
110024	KDS 1.6-U6R		ϕ19.1×t1.6	240N·m
110016	KDS 1.2-L5R	Ⓘ	ϕ19.1×t1.2	180N·m
110022	KDS 1.6-L5R		ϕ19.1×t1.6	240N·m
110015	KDS 1.2-L4R	Ⓙ	ϕ19.1×t1.2	180N·m
110021	KDS 1.6-L4R		ϕ19.1×t1.6	240N·m
110014	KDS 1.2-L3R	Ⓚ	ϕ19.1×t1.2	180N·m
110020	KDS 1.6-L3R		ϕ19.1×t1.6	240N·m
110017	KDS 1.2-U3R	Ⓛ	ϕ19.1×t1.2	180N·m
110023	KDS 1.6-U3R		ϕ19.1×t1.6	240N·m
110042	KDS 1.6-U3F	Ⓜ	ϕ19.1×t1.6	240N·m
110032	KDS 1.6-LEG	Ⓝ	ϕ19.1×t1.6	180N·m

Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
200g	21.0kg	100	260×360×150

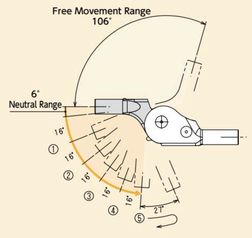
Footrest Gear - KDS-5V



By installing the left and right gears in opposite directions, you can enable reclining in both upward and downward directions.



Operation Pattern
(Free movement + 5-stage gear / 16°pitch)



Number	Model	Applicable Pipe	Standard Strength / Pc	Weight/Pc	Weight/Carton	Pcs/Carton	Carton(L×W×H)
110077	KDS 1.2-5V	ϕ19.1mm t1.2mm	180N·m	209g	21.2kg	100	260×360×150

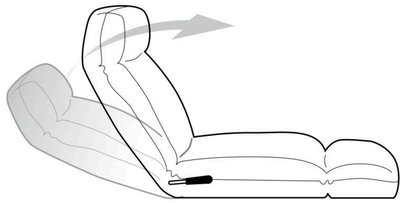
FLOOR SEAT parts

Features of Lever-Type Gears

This gear allows easy angle adjustment with a lever.

Feature

- ■Adjust the reclining angle freely by operating the lever.
- ■It works like a car reclining seat, with the backrest rising due to spring force when the lever is used.
- ■Suitable for recliners, sofas, dining chairs, and also for wooden furniture and welfare applications.



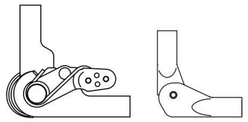
Usage

STEP1
Release
Raise the lever.

STEP2
Free
You can adjust the angle while the lever is raised.

STEP3
Lock
Lower the lever.

Standard Set for Lever Type

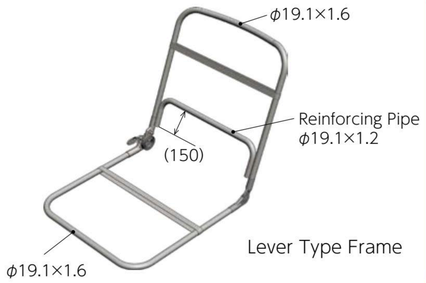


- ·Main Gear ·Free Gear
- ·Screw M6×10 (2 pieces)
- ·Lever Rod

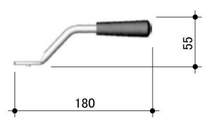
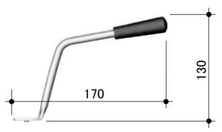
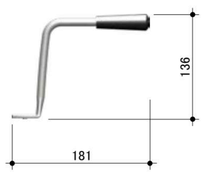
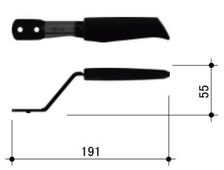
Caution

1. Be careful of the force when raising the lever, as it can cause the backrest to rise unexpectedly (during processing).
2. Do not pull up the lever while leaning against the backrest.
3. Lean back only after securely locking the lever down.
4. If the top position is difficult to engage, please lift it by hand.

※ Since the Lever-Type Gears have a free gear (pivot) on one side, it is recommended to use a reinforcing pipe to prevent twisting of the pipe frame.

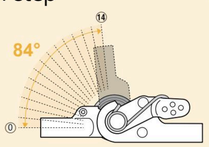


Lever Type ※Dimensions are for reference only.

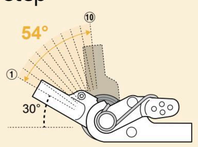
Number	115062	115066	115073	115124
Model	LEVER 1-B	LEVER 3-B	LEVER 5-B	LEVER P(BK-BK)
Made of Plastic				

Operation Pattern (6°pitch) For other operation patterns, please consult us.

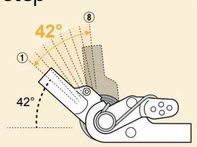
Ⓐ 14-step



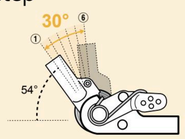
Ⓑ 10-step



Ⓒ 8-step



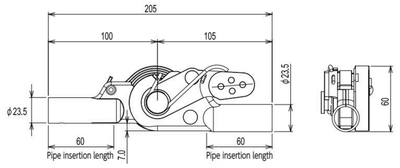
Ⓓ 6-step

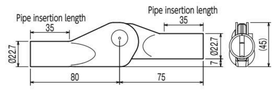


Lever-Type Gears - KX

- ●You can adjust to your preferred angle with a hand-operated control.
- ●Available in both right-hand and left-hand operation options.

Right Lever Type





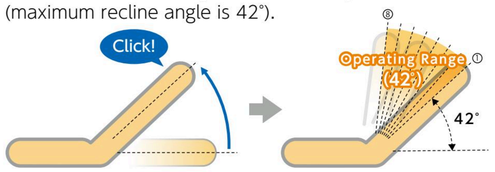
Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Set	Weight/Set	Weight/ Carton	Set/Carton	Carton(L×W×H)
126454	KX-14M-R-F2	Right Lever Type Ⓐ	ϕ19.1mm t1.6mm	390N·m	800g	16.5kg	20	260×360×150
126460	KX-U10M-R-F2	Right Lever Type Ⓑ						
126462	KX-U8M-R-F2	Right Lever Type Ⓒ						
126458	KX-U6M-R-F2	Right Lever Type Ⓓ						

Stopper Included Lever-Type Gears - KX-U7

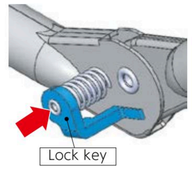
Right Lever Type

About the Operating Range

When the backrest is raised to a position of 42°, the stopper mechanism engages, preventing the backrest from returning to a horizontal position (maximum recline angle is 42°).



By pressing the lock key on the free side while operating the lever, you can lower the backrest back to a horizontal position.

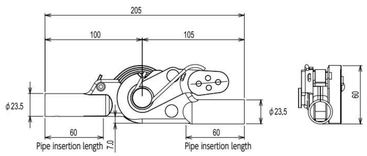


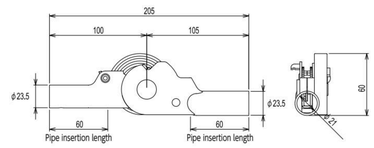
Number	Model	Applicable Pipe	Standard Strength / Set	Weight/Set	Weight/Carton	Set/Carton	Carton(L×W×H)
126455	KX-14M-R-FU7	ϕ19.1mm t1.6mm	390N·m	826g	17kg	20	260×360×150

Double Spring Lever-Type Gears - KX-W

- ●The free gear also has a built-in spring.
- ●Use it for products where the backrest is difficult to lift.

Main Gear Free Gear



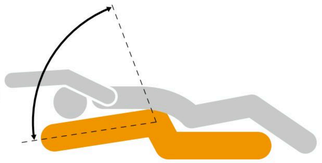


Number	Model	Operation Pattern	Applicable Pipe	Standard Strength / Set	Weight/Set	Weight/ Carton	Set/Carton	Carton(L×W×H)
126402	KX-14MW-R-FM	Ⓐ	ϕ19.1mm t1.6mm	390N·m	1.1kg	17.0kg 12.0kg	15	260×360×150

Spring Hinge - SPH

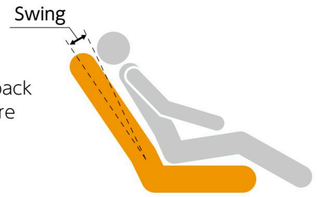
Stretch While Seated

By leaning back on the backrest, it swings around the waist, allowing you to stretch your lower back and spine while seated.

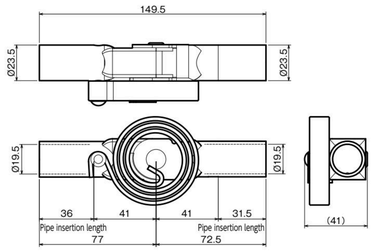


For added relaxation

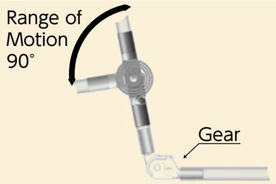
The backrest swings when you lean back on the chair, allowing for an even more comfortable experience.



Applicable Pipe Size

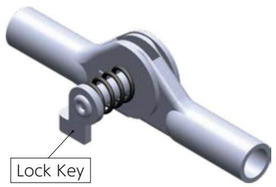


Usage



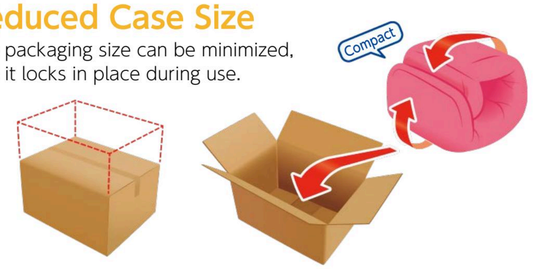
Number	Model	Applicable Pipe	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
121014	SPH-STD	ϕ19.1×t1.2	365g	15.0kg	40	260×360×150
		ϕ19.1×t1.6				

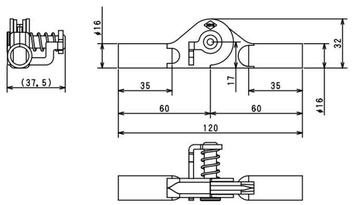
One Lock Hinge - OLH



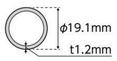
Reduced Case Size

The packaging size can be minimized, and it locks in place during use.

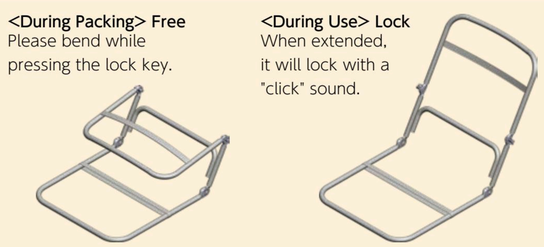




Applicable Pipe Size



Usage

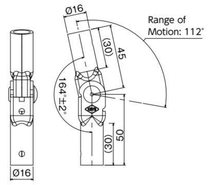


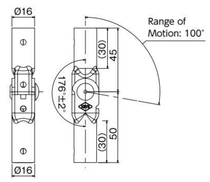
Number	Model	Applicable Pipe	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
121016	OLH-180	ϕ19.1×t1.2	133g	19.8kg	150	260×360×180

Bending Hinge - KR2

KR2-168

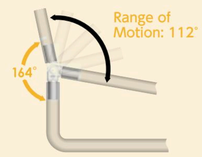
KR2-180



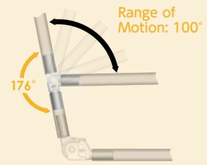


Usage and Range of Motion

KR2-168

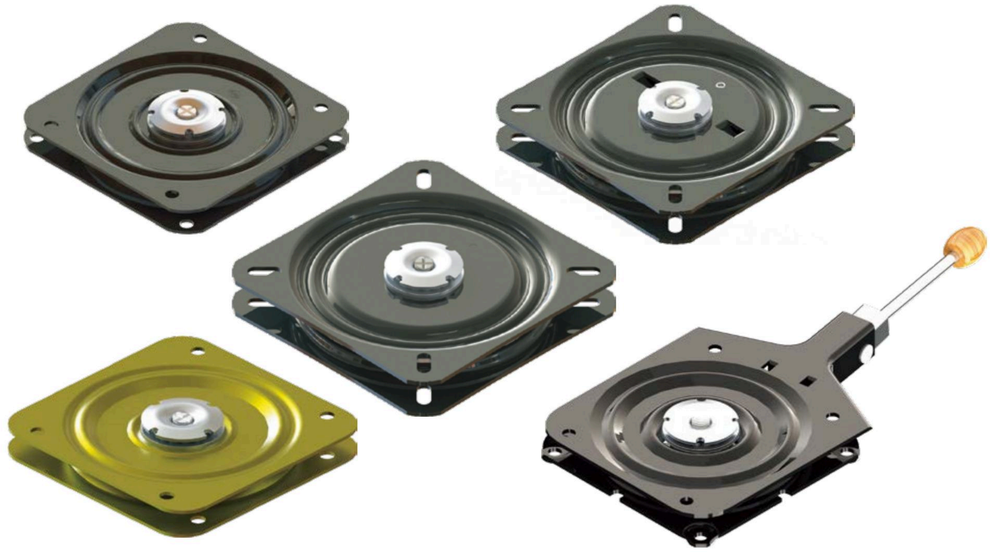


KR2-180



Number	Model	Applicable Pipe	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
114033	KR2-168	ϕ19.1mm t1.2mm	81g	16.7kg	200	260×360×135
114032	KR2-180					

SWIVEL

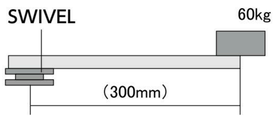


Feature

Our original production expertise ensures smooth rotation and low noise.
KOYO swivels are used for dining chairs, massage chairs and single-seater sofas.
The durability and reliability are far beyond any other swivels.

Durability test

■Eccentric Load Test
Loading 60kg weight at the point of 300mm or 250mm from the center of a swivel, and rotate 38rpm.



Swivel	Rotation/Distance from center
LIGHT, Standard	CLEAR 10,000 CYCLES／250mm
RR, LEVER STOP, COMBO	CLEAR 15,000 CYCLES／250mm
185 PITCH, AR	CLEAR 15,000 CYCLES／300mm

The SWL-AR's reciprocating operation is rated for 10,000 cycles.

■Vertical Load Test
Evaluation of the product applying a 150kg load at the center of the swivel.
Result: No abnormal noise during rotation or any other irregularities in any of the turntables.

Examples of SWIVEL Usage

Massage chair

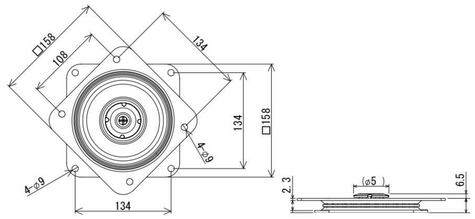
Dining chair

Types/Names of Swivel	Function	Width of chair	
Light SWIVEL LIGHT	Free swivel	**450mm**	
Standard SWIVEL STD	Free swivel	**500mm**	
Standard Reinforcement SWIVEL RR	Free swivel	**600mm**	
185 Pitch SWIVEL 185 PITCH	Free swivel	**800mm**	
Auto Return SWIVEL-AR360	Free swivel	**800mm**	
Auto Return SWIVEL-AR	Free swivel	**800mm**	
LEVER STOP SWL-LEVER STOP	Swivel lock by lever operation	**600mm**	
COMBO SWL-COMBO	Swivel lock or free swivel by lever operation	**600mm**	

SWIVEL

Light - SWIVEL LIGHT

●Ideal for chairs up to 450mm wide.

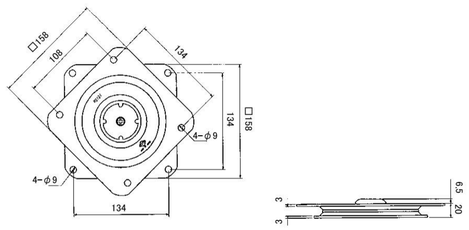


FINISH:Chromate Plating

Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116055	SWIVEL LIGHT(BK)	360° (120°/180° stoppable)	See p.57 for the durability test	1.1kg	22.3kg	20	260×360×180
116003	SWIVEL LIGHT						

Standard - SWIVEL-STD

●Ideal for chairs up to 500mm wide.

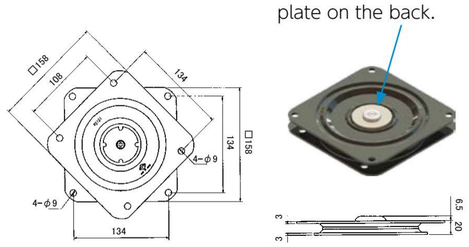


FINISH:Unichrome Plating

Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116078	SWIVEL STD(BK)	360° (120°/180° stoppable)	See p.57 for the durability test	1.32kg	26.6kg	20	260×360×180
116001	SWIVEL STD						

Standard Reinforced - SWIVEL-RR

●A 50mm diameter reinforcement plate is attached to the back of the STD swivel plate for improved stability.
●Ideal for chairs up to 600mm wide.



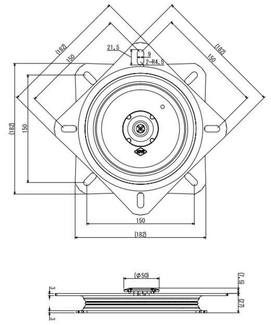
There is a reinforcement plate on the back.

FINISH:Unichrome Plating

Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116079	SWIVEL RR(BK)	360° (120°/180° stoppable)	See p.57 for the durability test	1.35kg	27.3kg	20	260×360×180
116002	SWIVEL RR						

185 Pitch - SWIVEL 185 PITCH

Ideal for chairs up to 800mm wide.

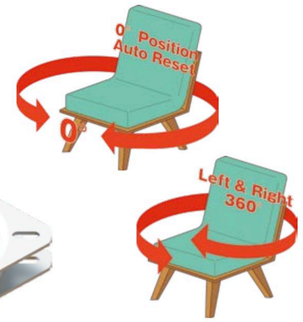


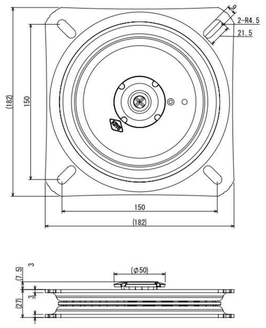
Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116070	SWIVEL 185 PITCH(BK)	360° (120°/180° stoppable)	See p.57 for the durability test	1.75kg	21.0kg	14	260×360×190
116004	SWIVEL 185 PITCH						

Auto Return - SWL-AR360

PAT.

●No need to arrange the chair.
●Keeps the appearance tidy.

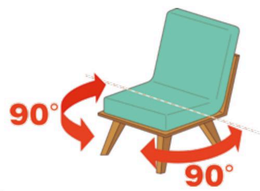


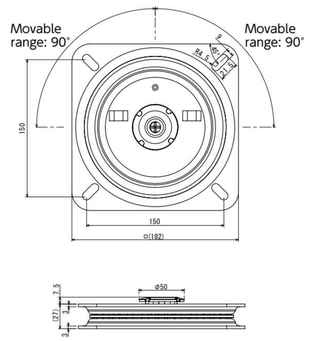


Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116083	SWL-AR 360(BK)	360° + auto return	See p.57 for the durability test	1.73kg	24.8kg	14	260×360×190
116082	SWL-AR 360						

Auto Return - SWL-AR

●No need to arrange the chair.
●Keeps the appearance tidy.

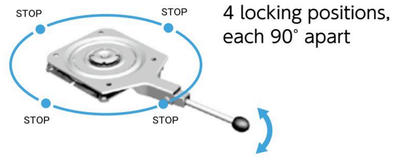




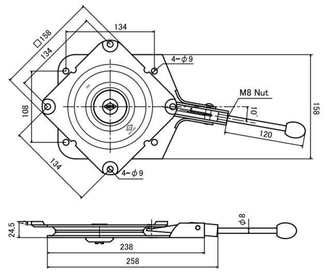
Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116069	SWL-AR(BK)	Left & Right 90°Each	See p.57 for the durability test	1.89kg	26.46kg	14	260×360×190
116056	SWL-AR						

SWIVEL

LEVER STOP - SWL-LEVER STOP

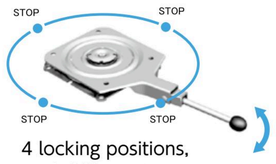


4 locking positions,
each 90° apart



Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116081	SWL-LEVER STOP(BK)	Locked at every 90° pitch.	See p.57 for the durability test	1.7kg	18.0kg	10	260×330×200
116008	SWL-LEVER STOP						

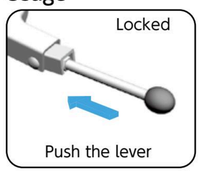
Combo - SWL-COMBO

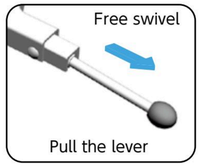


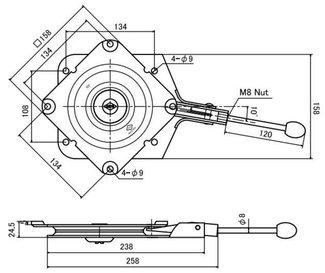
4 locking positions,
each 90° apart

Pulling the lever
allows for free swivel

Usage







Number	Model	Movable Range	Durability	Weight/Pc	Weight/ Carton	Pcs/Carton	Carton(L×W×H)
116080	SWL-COMBO(BK)	Fixed at each 90-degree interval with free rotation.	See p.57 for the durability test	1.7kg	18.0kg	10	260×330×200
116021	SWL-COMBO						

SWIVEL

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