www.izmac.co.kr

Best Engineered For Energy Absorption Technology

Shock Absorber
Hydraulic Buffer

izmac
Fluid Damping Technology

izmac
Fluid Damping Technology

Best Engineered For Energy Absorption Technology

Overview

In many of industrial fields, production speed increased in high face for better productivity. In addition, the needs for high energy capacity with compact shock absorber has increased whereas the application product size is getting bigger.

Through intensive technical development, IZMAC upgrade all shock absorber models more than 200% capacity of previous ones and improve collision speed allowance range as 0.1m/sec~5 m/sec. Thanks to production management, IZMAC can provide low cost, long life products with short delivery time.

IZMAC would do its best to supply products that customer satisfy by way of on-going research and development with advanced production & quality management.

izmac
Fluid Damping Technology

Best Engineered For Energy Absorption Technology

DECELERATION CONTROL SOLUTION :

Provide customer deceleration control solution customer satisfactory policy

CREATE MAX PRODUCTIVITY :

Create maximum productivity by supplying best product to customers

INNOVATION :

On-going innovation to maintain its high level quality

Applications

Factory Automation

Automotive

- Car manufacturing(Assembly/Transfer/ Inspection/Pick & Place robot line)
- Car-Welding, Assembly line, Tire line
- Electric actuator, Rodless cylinder, High speed cylinder, Guide cylinder, Stopper cylinder, Handling system, Linear module protection
- Pneumatic components
  Grippers, Pneumatic cylinder, Pneumatic valve, Fluid control components
- Electronics
  Semi-conductor equipment, Circuit breaker
- Factory
  Steel factory, Paper factory
- Safety : Brake cylinder, Tie rod cylinder, Compact cylinder, Brake unit, Linear guide, Emergency stop

*** Warehouse Automation**

Features

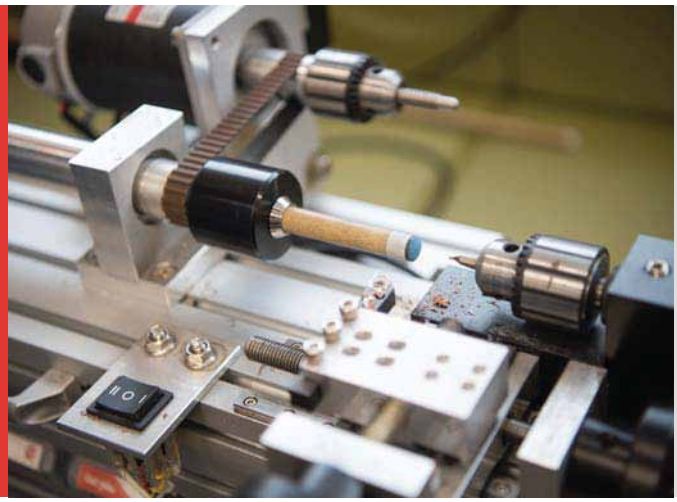
- Upgrade precision degree
- Secure stability, Optimizing control
- Reliability of production lines
- Max productivity
- Decrease failure ratio
- Increase output quality level

Production Process

01

Design

What is technology? It will be the one which makes differences. IZMAC always open ears to hear customer's voices for renovation.
IZMAC makes endless R&D and it supports to develop quality of products for customer's productivity. On time customizing is also one of helpful features of IZMAC.



02

Machining process

Clean machining clean products. IZMAC has its own fleets to doing machining process.
To minimizes defect ratio into "0", skillful engineers manage all over the process.
Advanced machineries are helpful to carry out complicate & difficult output process.

03

Part inspection

IZMAC only supply products after total inspection process. If there are any small defects found it goes directly to the beginning process.
Perfect product delivery is what IZMAC quality assurance system is aiming at.

04

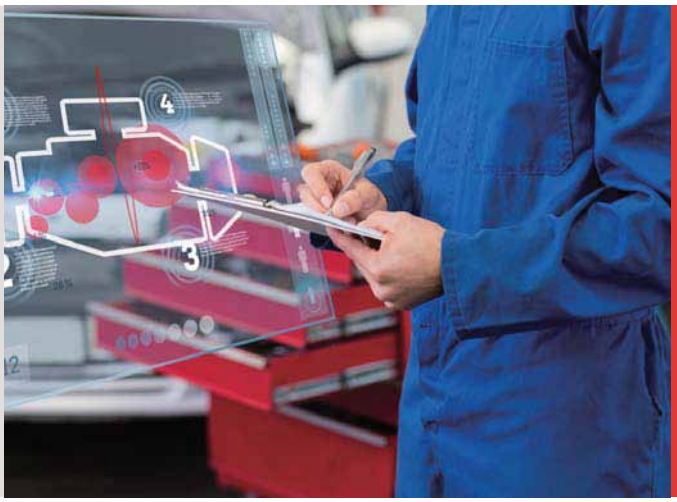
Assembly

Assembly is one of very important process of production. Every part should be inserted into the right position to do its right function.

05

Product inspection / Test

Through product inspection In the final qualifying process, IZMAC products are ready to deliver customer's places. Defective products are automatically transferred to the beginning process of production or trashed to prevent quality trouble.



06

Shipping

IZMAC only supply products in perfect condition of packing. If there are any small defects found or manager feels that package is not settled well, the packaging system is reset for safe delivery.
Perfect product delivery is what IZMAC quality assurance system is looking for.

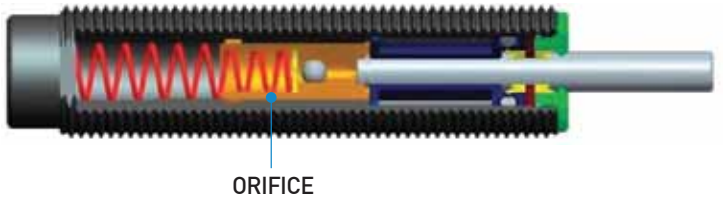
Shock Absorber

Orifice features

SINGLE ORIFICE

1 Single orifice is called as "Dashpot" and it has only one orifice on the tube as a hole or circled shape gap. It has the features that orifice dimension is maintained for total stroke when it has flow activity.

2 As per the diagram, resistance force is going high suddenly after collision and it dramatically down when the stroke is in progress. And the force is decreasing step by step.

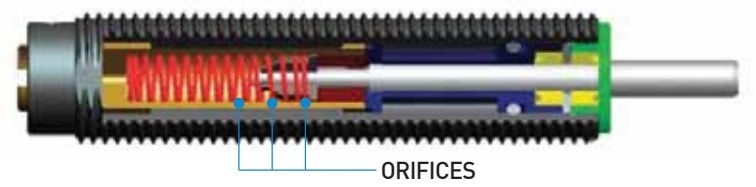


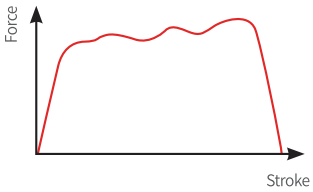
MULTIPLE ORIFICES

On the other hands, by using multiple orifices, total oil route dimension is decreasing when the stroke is on-going. It enables to maintain total shock absorption safely and softly.

■ Adjustable type

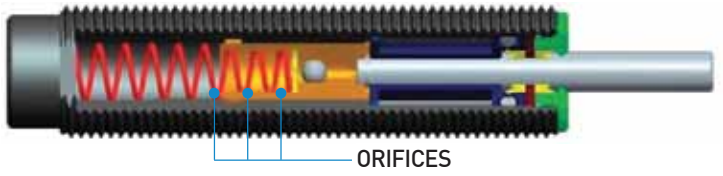
By using adjustment dial, it can provide best deceleration features against various collision cases.

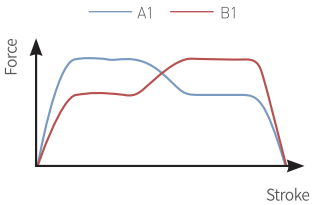




■ Self compensating

Self compensating type shock absorber is optimized for repeated work conditions and it makes ideal deceleration features by using highly optimized orifices on customized shock conditions.
Diagram A1 shows the condition of high speed/low profelling force, B1 shows low speed/high propelling forces and they show resist forces are not increased excessive manner on those contrast conditions.





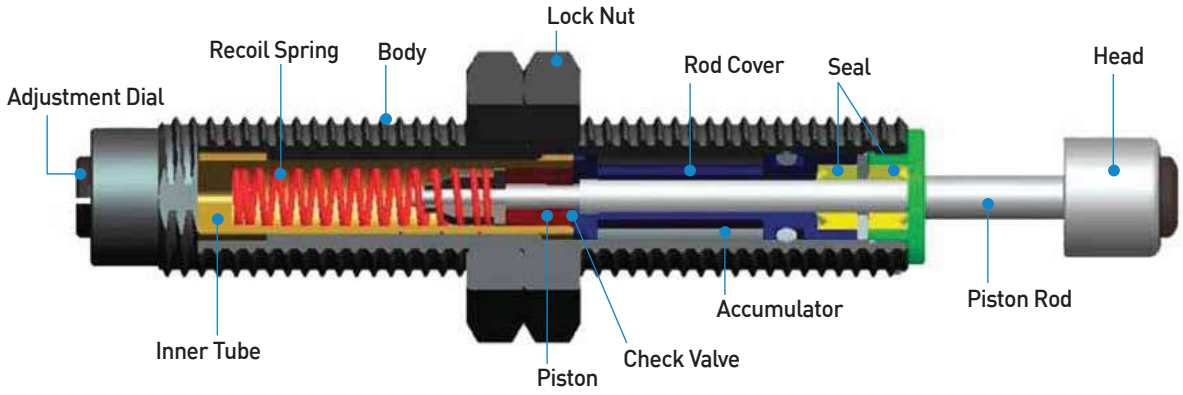
Principal of energy absorption

After impact piston is inserted into inner tube, oil flows through orifice holes made in the tube.
The impact kinetic energy is changed into thermal energy by way of rebounding activity. And the thermal energy is dissipated outside through threaded body.

Internal Structure

1 Shock absorber consists of 5 major parts : Head, Piston rod, Body, Adjustment dial and Lock nut.
2 Bumper head is the part which contact colliding object directly, and it has the function of stopper at the end of stroke with contacting body.
3 Piston rod transfer impact energy to the piston through full stroke.
4 Body outside is fully threaded for easy installation at any position and for more heat dissipation.
5 Adjustment dial is for optimum operation by setting Knob to the various impact conditions.
6 Lock nut is used for installing and fixing shock absorber tightly coupled with body thread on the machine.

Inside of shock absorber consist of piston, check valve, inner tube, multiple orifices, accumulator, return spring and oil. On impact the piston rod is inserted into inner tube and check valve is closed. And it forces oil in the chamber to flow through orifice. At the same time, damping force is generated into piston. Compressed oil which flowed into accumulator position is compensating same volume of piston inside. After one cycle ended, return process is made by coil spring and check valve is opened when it starts return process. Because the oil is moved from oil tube into inner tube, piston rod is returned to its original position for proper operation.



Ordering information

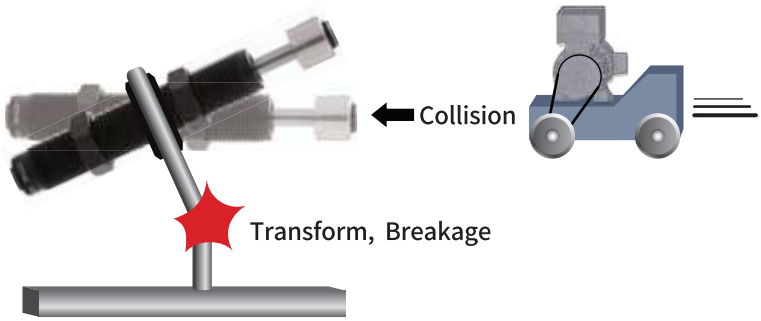
Ordering Info		Previous	Current	Explanation
Series	Absorber	IAAS SDA	IAA	**I**zmac mini **A**bsorber **A**dustable type
		IASS	IMS	**I**zmac **M**ini & **M**iddle class absorber **S**elf-compensating
		IAAH	IHA	**I**zmac **H**eavy type **A**bsorber
		IAAD	ISA	**I**zmac **S**tright type **A**bsorber (middle class)
	Buffer	IBSG	IHG	**I**zmac **H**ydraulic **G**as & oil type buffer
		IBAW	ICA	**I**zmac hydraulic & oil stacker **C**rane **A**djustable buffer
		IBSW	ISC	**I**zmac hydraulic & oil **S**tcker **C**rane buffer
	Special product	ISAA	IHC	**I**zmac **H**ydro **C**heck
		IDSM	ICD	**I**zmac **C**rash **D**amper
		IDSP	IPC	**I**zmac **P**lastic type **C**rash damper
		IRAD	IRD	**I**zmac **R**ate control **D**ouble dial
		IASR	ISR	**I**zmac **S**hort **R**ange absorber

Safety Instruction

1. Shock absorber

IZMAC shock absorber has been developped to endure up to million cycles. To assure long life cycle please be aware of the following regulations.

1-1 Ensure correct energy capacity before operation of shock absorber.
1-2 Do not paint or weld to the body of shock absorber.
1-3 Piston rod not to be marked or painted. (Shock absorber may have maifunction with oil leackage.)
1-4 Adjustment dial knob is preset to “0” by factory. Once achieved the correct damping strength, tighten the lock screw.
1-5 Shock absorber shall be kept away from fire because can be ignited by oil.
1-6 Always check strength of installation site before using and it is recommended to installing shock absorber at strong base structure.
Secure the strength as " Max shock energy x safety ratio. (2.5)"



1-7 Refer to below table of proper lock nut installation tightening torque. Tightening with excessive force may cause malfunction or damage to product.

Screw outdia (mm)	M8x1.0	M10x1.0	M12x1.0	M14x1.0 / M14x1.5	M16x1.5	M20x1.5	M25x1.5 / M25x2.0	M27x1.5 / M27x2.0 / M27x3.0	M30x1.5	M36x1.5	M42x1.5
Nut Torque (Nm)	3.9	7.8	7.8	9.8	14.7	29.4	49	58.8	78.4	98	392

It will be efficient when it apply additional anti-loosening adhesives.

1-8 Always check the operation temperature of shock absorber to get best performance.

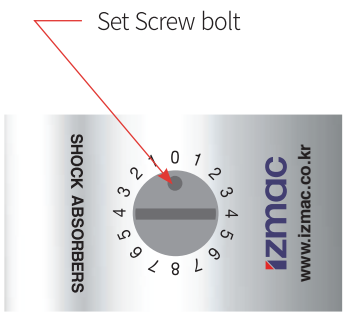
1-9 Impact mass should be perpendicular to the axis of shock absorber. In case of an side load impact especially angle of deviation over 1°, it is better to use an side load adapter. Otherwise failures can be occurred due to abrasion of inner sealings.

1-10 Shield the shock absorber to protect it from foreign material such as dust, acids, steam, solvents, cutting fluids, weld flash, and dust.

1-11 Check the operating temperature range of shock absorber (-10°C ~ 80°C) to get best performance. If you need to use shock absorber in other temperature exceed standard operating temperature, please contact us.

1-12 Adjustable type of shock absorber is designed to get suitable resistance force according to impact velocity by controlling the area of orifice. Refer to below adjustment dial of IDA series, ISA Series and IHA Series.
Lock the set screw bolt after adjust dial with fitting properly on your application conditions.

IAA & ISA & IHA Series Adjustment Dial

IAA Series	ISA Series	IHA Series
 Set Screw bolt	 Set Screw bolt	 Set Screw bolt

It will be efficient when it apply additional anti-loosening adhesives.

2. General Inspection

2-1 Regular Checking

1) Check the below points regularly.

It is impossible to disassemble and repair the shock absorber so change the shock absorber when it is broken.

2) Inspection Point

- Condition of lock nut fastened
- Condition of piston rod (Damage or Scratch)
- Checking the stroke
- Outer appearance of shock absorber
- Oil leakage
- Noise on process

If any trouble found after inspection, please do trouble shooting with considering "2-2. trouble & trouble shooting.

2-2 Trouble and trouble - shooting

Trouble	Cause	Trouble - shooting
Lock Nut is not fastened tightly.	Lack of fixing torque	Fasten the nut or bolt tightly
	Vibration of machine	Check the vibration of machine and adjust it
Not Suitable Shock absorption	The required energy is over the capacity of shock absorber	Change the shock absorber with higher capacity
	The adjustable dial step is not suitable	Set adjustment dial to"0"
	Stop the stroke by stopper	Adjust the stopper location to use long stroke
	The shock absorber is not installed in line	Install the shock absorber in line
	The moving load is hit the shock absorber over 1 degree	
	There is vibration in moving load	Install the guide to remove the vibration
	Use the body of shock absorber as stopper	Install the stop collar or other stopper
	Ambient temperature is too high	Change the shock absorber which is applicable for high temperature
	Damaged seal by other material on the piston rod	Clean the piston rod and protect it from the dust
	The rotating moving load is impacted direct to shock absorber	Install the protection object to prevent from the direct impact to shock absorber
	The lifespan of shock absorber is over	Change the shock absorber to new one
OIL Leakage	Damaged seal by other material on the piston rod	Clean the piston rod and protect it from the dust
	Ambient temperature is too low	Warm the shock absorber as temp, over -10°C or change it to shock absorber for low temperature
	The lifespan of shock absorber is over	Change the shock absorber to new one
Rod is not returned.	The shock absorber is not installed in line	Install the shock absorber in line
	The moving load is hit the shock absorber over 1 degree	
	There is vibration in moving load	Install the guide to remove the vibration
	Use the body of shock absorber as stopper	Install the stop collar or other stopper
	Ambient temperature is too low	Warm the shock absorber as temp, over -10°C or change it to shock absorber for low temperature
	The lifespan of shock absorber is over	The lifespan of shock absorber is over

※ When using the shock absorber inside the chamber, be sure to contact IZMAC before using it.

Shock Absorber

Fomula and Calculation

Symbols

Symbol	Unit	Description	Symbol	Unit	Description
E_K	Nm	Kinetic energy	T	Nm	Torque
E_W	Nm	Work energy	H	m	Height
E_T	Nm	Total energy	m	kg	Weight
E_TC	Nm / h	Total energy per hour	P	bar	Operating pressure
F_S	N	Impact force	ω	rad / s	Angular verlocity
F_P	N	Propelling force	α	°	Angle of incline
m_e	kg	Effective weight	I	kgm^2	Moment of inertia
C	Cycles / h	Cycles per hour	K	m	Turning radius
S	m	Stroke	R_S	m	Mounting distance form pivot point
V	m / s	Impact velocity	μ		Coefficient of friction
V_D	m / s	Mass velocity	g	m / s^2	Gravitational acceleration
P_M	kW	Motor power	a	m / s^2	Acceleration
D	mm	Inner diamerer of Cylinder	t	s	Time
R_S	m	Shockabsorber loaction	K	m	Radius of gyration
R_C	m	Cylinder location			

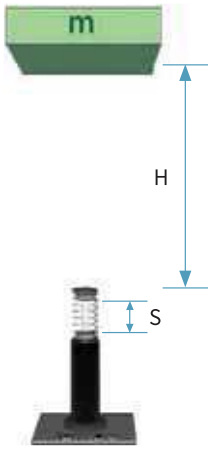
Useful formulas

Description	Symbol	Formulas
Impact force	F_S	$= E_T / S / 0.8$
Motor power	F_P	$= 3000 \times P_M / V$
Cylinder power	F_P	$= 0.0785 \times D^2 \times P$
Effective weight	m_e	$= 2 \times E_T / V^2$
Velocity (free falling)	V	$= \sqrt{2 \times g \times H}$
Velocity (with acceleration)	V	$= 2 \times D / t$
Velocity (w/o acceleration)	V	$= D / t$
Deceleration	a	$= V^2 / 2 / S$
Stoppimg time	t	$= 2.5 \times S / V$

Examples

| A | Free falling mass

- **Weight** m = 600kg
- **Height** H = 0.5m
- **Cycles per hour** C = 60Cycles/h
- **Gravitational acceleration** $g = 9.81 m/s^2$



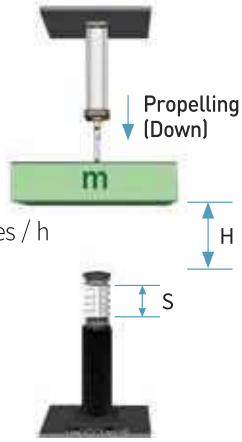
$E_K = m \times g \times H = 600 \times 9.81 \times 0.5 = 2,943$ Nm
Selected Model with E_k : ISA64 -100
$E_W = m \times g \times S = 600 \times 9.81 \times 0.1 = 589$ Nm
$E_T = E_K + E_W = 2,943 + 5\ 89 = 3,532$ Nm
$E_TC = E_T \times C = 3,532 \times 60 = 211,896$ Nm / h
$V = \sqrt{2 \times g \times H} = \sqrt{2 \times 9.81 \times 0.5} = 3.13$ m / s

$$m_e = \frac{2 \times E_T}{V^2} = \frac{2 \times 3,532}{3.13^2} = 720 \text{ kg}$$

Selected Model with E_T, E_TC & m_e : ISA 64-100

| B | Down mass with propelling force

- **Weight** m = 1,200kg
- **Impact velocity** V = 1.8m / s
- **Inner diamerer of Cylinder** D = 140mm
- **Operating pressure** P = 5bar
- **Cycles per hour** C = 125Cycles / h



$$E_K = \frac{m \times V^2}{2} = \frac{1,200 \times 1.8^2}{2} = 1,944 \text{ Nm}$$

Selected Model with E_k : ISA 85-50
$F_P = 0.0785 \times D^2 \times P + m \times g =$
$0.0785 \times 140^2 \times 5 + 1,200 \times 9.81 = 19,465$ N
$E_W = F_P \times S = 19,465 \times 0.05 = 973$ Nm
$E_T = E_K + E_W = 1,944 + 973 = 2,917$ Nm
$E_TC = E_T \times C = 2,917 \times 125 = 364,656$ Nm / h

$$m_e = \frac{2 \times E_T}{V^2} = \frac{2 \times 2,917}{1.8^2} = 1,801 \text{ kg}$$

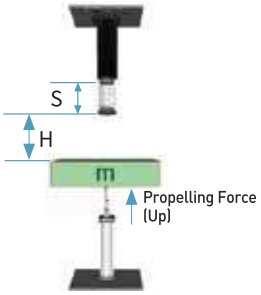
Selected Model with E_T, E_TC & m_e : ISA 85-50

Shock Absorber

Fomula and Calculation

| C | Up mass with propelling force

- Weight m = 200kg
- Impact velocity V = 2.5m/s
- Inner diamerer of Cylinder D = 150mm
- Operating pressure P = 5bar
- Cycles per hour C = 180Cycles/h



$E_K = \frac{m \times V^2}{2} = \frac{200 \times 2.5^2}{2} = 625$ Nm

Selected Model with E_k : ISA 45-50

$F_P = 0.0785 \times D^2 \times P + m \times g =$
$0.0785 \times 150^2 \times 5 - 200 \times 9.81 = 6,869$ N

$E_W = F_P \times S = 6,869 \times 0.05 = 343$ Nm

$E_T = E_K + E_W = 625 + 343 = 968$ Nm

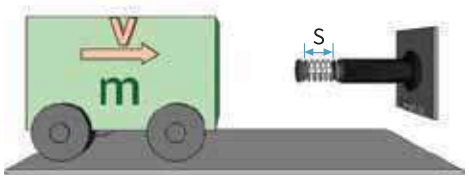
$E_TC = E_T \times C = 968 \times 180 = 174,323$ Nm / h

$m_e = \frac{2 \times E_T}{V^2} = \frac{2 \times 968}{2.5^2} = 310$ kg

Selected Model with E_T, E_TC & m_e : ISA 45-50

| D | Horizontal mass without propelling force

- Weight m = 100kg
- Impact velocity V = 1.5m/s
- Cycles per hour C = 600Cycles/h



$E_K = \frac{m \times V^2}{2} = \frac{100 \times 1.5^2}{2} = 113$ Nm

$E_T = E_K + E_W = 113 + 0 = 113$ Nm

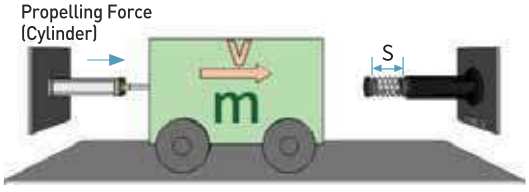
$E_TC = E_T \times C = 113 \times 600 = 67,800$ Nm / h

$m_e = \frac{2 \times E_T}{V^2} = \frac{2 \times 113}{1.5^2} = 100$ kg

Selected Model with E_T, E_TC & m_e : IAA 25-25

| E | Horizontal mass with propelling force [Cylinder]

- Weight m = 300kg
- Impact velocity V = 1.2m/s
- Inner diamerer of Cylinder D = 50mm
- Operating pressure P = 5bar
- Cycles per hour C=300Cycles /h



$E_K = \frac{m \times V^2}{2} = \frac{300 \times 1.2^2}{2} = 216$ Nm

Selected Model with E_k : IAA 36-25

$F_P = 0.0785 \times D^2 \times P = 0.0785 \times 50^2 \times 5 = 981$ N

$E_W = F_P \times S = 981 \times 0.025 = 25$ Nm

$E_T = E_K + E_W = 216 + 25 = 241$ Nm

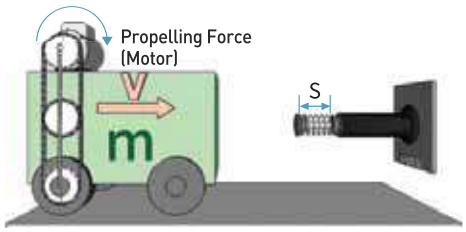
$E_TC = E_T \times C = 241 \times 300 = 72,300$ Nm / h

$m_e = \frac{2 \times E_T}{V^2} = \frac{2 \times 241}{1.2^2} = 335$ kg

Selected Model with E_T, E_TC & m_e : IAA 36-25

| F | Horizontal mass with propelling force [Motor]

- Weight m = 1,300kg
- Impact velocity V = 1.6m/s
- Motor power P = 3kW
- Cycles per hour C = 100Cycles/h



$E_K = \frac{m \times V^2}{2} = \frac{1,300 \times 1.6^2}{2} = 1,664$ Nm

Selected Model with E_k : ISA 64-50

$F_P = \frac{3,000 \times P_M}{V} = \frac{3,000 \times 3}{1.6} = 5,625$ N

$E_W = F_P \times S = 5,625 \times 0.05 = 281$ Nm

$E_T = E_K + E_W = 1,664 + 281 = 1,945$ Nm

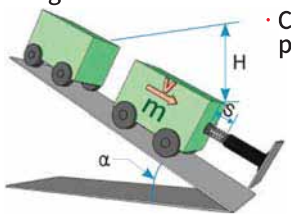
$E_TC = E_T \times C = 1,945 \times 100 = 194,500$ Nm / h

$m_e = \frac{2 \times E_T}{V^2} = \frac{2 \times 1,945}{1.6^2} = 1,520$ kg

Selected Model with E_T, E_TC & m_e : ISA 64-50

| G | Sliding down mass without propelling force

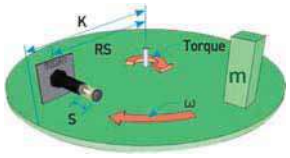
- Weight m = 800kg
- Height H = 0.7m
- Angle of incline α = 30°
- Cycles per hour C = 100Cycles/h



E_K = m X g X H = 800 X 0.7 X 9.81 = 5,494 Nm
Selected Model with E_k : ISA 85-100
F_S = m X sin(α) X g = 800 X sin(30) X 9.81 = 3,922 N
$E_W = F_S$ X S = 3,922 X 0.1 = 392 Nm
$E_T = E_K + E_W$ = 5,494 + 3 92 = 5,886 Nm
$E_TC = E_T$ X C = 5,886 X 100 = 588,600 Nm
$V = \sqrt{2 X g X H} = \sqrt{2 X 9.81 X 0.7} = 3.7$ m / s
$m_e = \frac{2 X E_T}{V^2} = \frac{2 X 5,886}{3.7^2} = 860$ Nm / h
Selected Model with E_T, E_TC & m_e : ISA 85-100

| H | Rotary table mass with propelling force

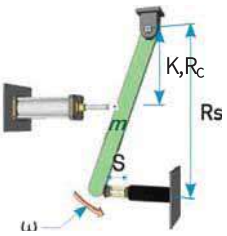
- Weight m = 200kg
- Angular Velocity ω = 2rad/s
- Mounting distance form pivot point Rs = 0.5m
- Radius of gyration K = 0.8m
- Torque T = 400Nm
- Cycles per hour C = 350Cycles/h



$I = m X K^2 = 200 X 0.8^2 = 128$ kgm²
$E_K = \frac{I X \omega^2}{2} = \frac{128 X 2^2}{2} = 256$ Nm
Selected Model with E_k : IAA 36-25
$F_P = \frac{T}{Rs} = \frac{400}{0.5} = 800$ N
$E_W = F_P$ X S = 800 X 0.05 = 20 Nm
$E_T = E_K + E_W$ = 256 + 20 = 276 Nm
$E_TC = E_T$ X C = 276 X 350 = 96,600 Nm / h
$V = R_S X \omega = 0.5 X 2 = 1$ m / s
$E_K = \frac{2 X E_T}{V^2} = \frac{2 X 276}{1^2} = 552$ kg
Selected Model with E_T, E_TC & m_e : IAA 36-25

| I | Swiveling mass with propelling force

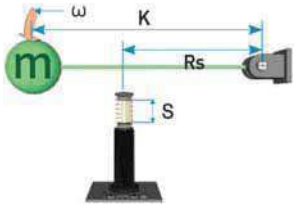
- Weight m = 50kg
- Angular Velocity ω = 2.5rad/s
- Mounting distance form pivot point Rs = 0.8m
- Radius of gyration K = 0.5m
- Inner diamerer of Cylinder D = 40mm
- Operating pressure P = 5Bar
- Cycles per hour C= 1,000Cycles/h



$I = m X K^2 = 50 X 0.5^2 = 13$ kgm²
$E_K = \frac{I X \omega^2}{2} = \frac{13 X 2.5^2}{2} = 41$Nm
Selected Model with E_k : IAA 20-15
$F_S = \frac{0.0785 X D^2 X P X R_c}{Rs} = \frac{0.0785 X 40^2 X 5 X 0.5}{0.8} = 393$ N
$E_W = F_P$ X S = 393 X 0.015 = 6 Nm
$E_T = E_K$ + Ew = 39 + 6 = 45 Nm
$E_TC = E_T$ X C = 45 X 1,000 = 45,000 Nm / h
V = Rs X ω= 2.5 X 0.8= 2 m / s
$E_K = \frac{2 X E_T}{V^2} = \frac{2 X 45}{2^2} = 23$ kg
Selected Model with E_T, E_TC & m_e : IAA 20-15

| J | Swiveling mass without propelling force

- Weight m = 200kg
- Mass velocity (from Mass Center) Vm = 2m/s
- Angular Velocity ω = 2.5rad/s
- Mounting distance form pivot point Rs = 0.6m
- Radius of gyration K = 0.8m
- Cycles per hour C= 200Cycles/h



$I = m X K^2 = 200 X 0.8^2 = 128$ kgm²
$E_K = \frac{I X \omega^2}{2} = \frac{128 X 2.5^2}{2} = 400$ Nm
Selected Model with E_k : IAA 36-50
$F_S = \frac{m X g X K}{Rs} = \frac{200 X 9.81 X 0.8}{0.6} = 2,616$ N
$E_W = F_S$ X S = 2,616 X 0.05 = 131 Nm
$E_T = E_K + E_w$ = 400 + 131 = 531 Nm
$E_TC = E_T$ X C = 531 X 200 = 106,200 Nm / h
V = Rs X ω= 0.6 X 2.5 =1.5 m / s
$m_e = \frac{2 X E_T}{V^2} = \frac{2 X 531}{1.5^2} = 472$ kg
Selected Model with E_T, E_TC & m_e : IAA 36-50

IAA Series Dial type

IZMAC mini Absorber Adustable type

DESCRIPTION

IAA has dial which can set 12 steps of shock speed ranges and it is uparaded on wider damping ranges. Energy capacity was Improved over 200% and effective weight ranges become wider than before.

IAA series

FEATURES

1 All threaded body outside helps to install shock absorber and it can be fixed at the exact position. And it helps also to dissipate more shock energy by increased surface dimension.
2 Body surface treated as alloyed black colored steel or Zn-Ni and it develops anti corrosion features highly.
3 Stop collar is not necessary when shock absorber has steel head, and poly pad & urethane cap will help to decrease collision noises efficiently.
4 Rod cover is made of long lasting materials with function of seal protection and that enable to guarantee long life.
5 Speed ranges : 0.3 ~ 5m/s • Low Velocity (LV) : 0.08 ~ 1.3m/s
6 Temperature ranges : -10 ~ 80°C • Special : -40 ~ 120°C(Oil and Seal)

APPLICATIONS

Pick N place robot, machining tools, automobile assembly line, tire assembly line, crane, safety devices and all other industrial ranges of multi purposes.

IAA SERIES ORDERING INFORMATION

IAA - 25 - 25 - SC

- SC : Stop Collar
- LN : Lock Nut
- SLA : Side Load Adaptor
- CM : Clamp Mount

Stroke

Body Thread Size

I : Izmac
A : Absorber
A : Adustable type

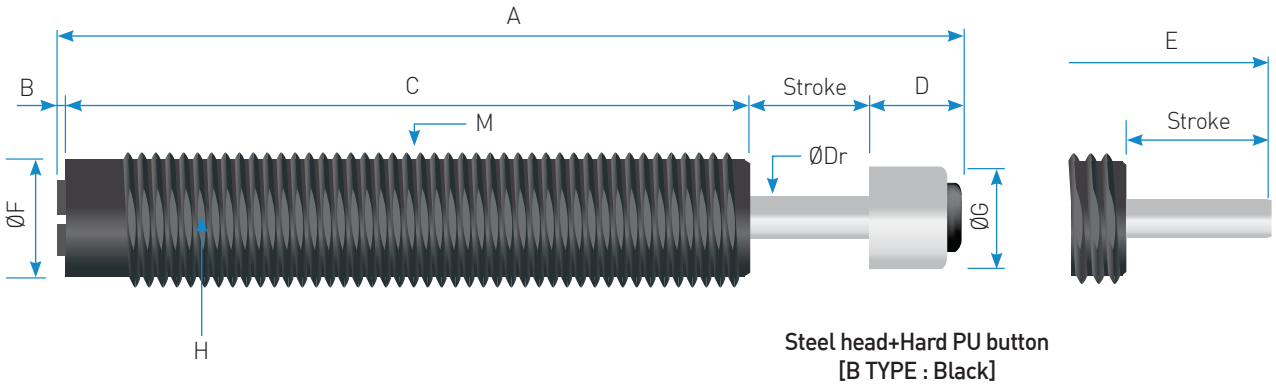
IAA10-07(B) / 12-10(B)

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(g)
					Ext.	Comp.	
IAA10 - 07(B)	7	5.5	15,000	1 - 123	2.4	5.4	21
IAA12 - 10(B)	10	16	30,500	1.5 - 333	3.6	9.8	41

Dimensions

Model	Stroke	A	B	C	D	E	F	G	H	M	Dr
IAA10 - 07(B)	7	68	1.2	52.8	7	61	Ø8.6	Ø8.6	SW:8.8	M10X1.0	Ø3
IAA12 - 10(B)	10	84	1.2	62.8	10	74	Ø10.5	Ø10.5	-	M12X1.0	Ø4



Steel head+Hard PU button
[B TYPE : Black]

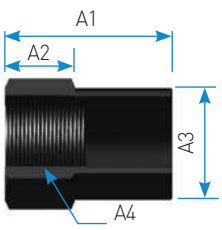
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

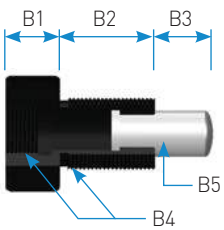
(unit : mm)

Stop Collar	Side Load Adapter	Clamp Mount	Lock Nut	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC10X1.0	SLA10-07	CM10X1.0	LN10X1.0	20	8	Ø12.8	M10 X 1.0	12	12.5	7	M10 X 1.0	Ø4	16	14	25	10	M10 X 1.0	M4	13	M10 X 1.0	4
SC12X1.0	SLA12-10	CM12X1.0	LN12X1.0			Ø13.8	M12 X 1.0		17.5	10	M12 X 1.0	Ø5	20	16	32	12	M12 X 1.0	M5 X 18L	14	M12 X 1.0	

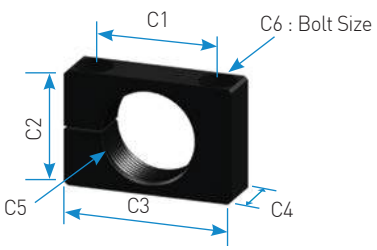
Stop Collar



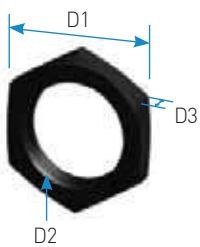
Side Load Adapter



Clamp Mount



Lock Nut



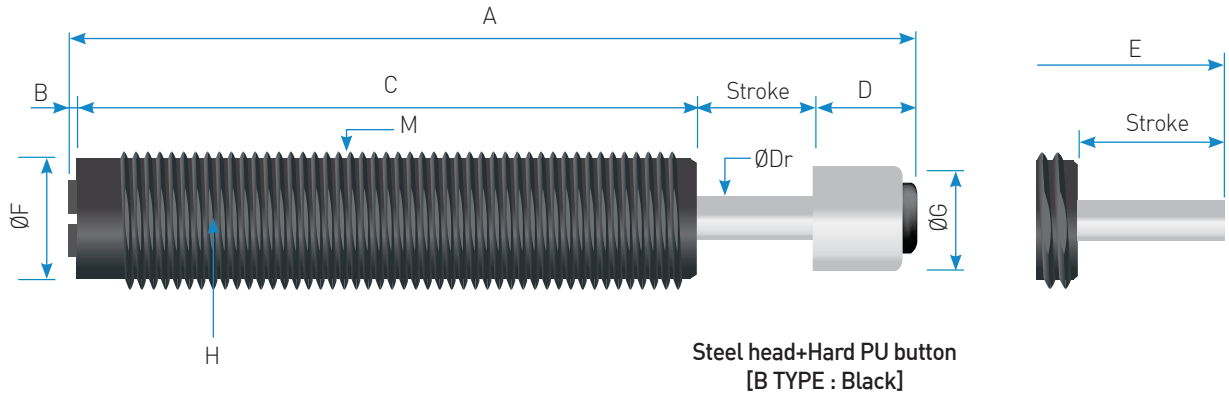
IAA14 - 12(B) / 16 - 12(B)

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(g)
					Ext.	Comp.	
IAA14 - 12(B)	12	18	38,000	1.8 - 400	4.9	11.4	60
IAA16 - 12(B)	12	24	47,200	2-530	5	11.5	84

Dimensions

Model	Stroke	A	B	C	D	E	F	G	H	M	Dr
IAA14 - 12(B)	12	96	1.2	72.8	10	86	Ø12	Ø10.5	SW:12.5	M14X1.5	Ø4
IAA16 - 12(B)	12	97	1.2	71.3	12.5	84.5	Ø10.5	Ø13.6	SW:14.5	M16X1.5	Ø5



Steel head+Hard PU button
[B TYPE : Black]

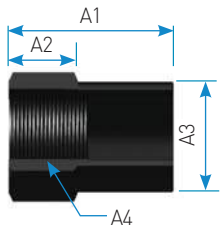
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

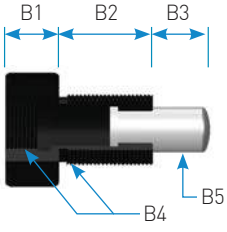
(unit : mm)

Stop Collar	Side Load Adapter	Clamp Mount	Lock Nut	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC14X1.5	SLA14-12	CM14X1.5	LN14X1.5	27	12	Ø18	M14 X 1.5	14	19.5	12	M14 X 1.5	Ø6	20	20	32	12	M14 X 1.5	M5 X25L	19	M14 X 1.5	5
SC16X1.5	SLA16-12	CM16X1.5	LN16X1.5			Ø19	M16 X 1.5	19	22.8		M16 X 1.5	Ø8	24	22	36	16	M16 X 1.5	M6 X25L		M16 X 1.5	6

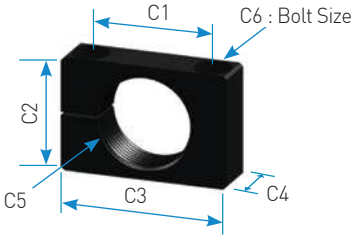
Stop Collar



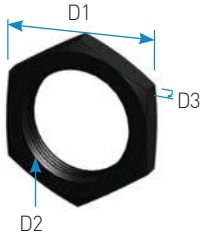
Side Load Adapter



Clamp Mount



Lock Nut



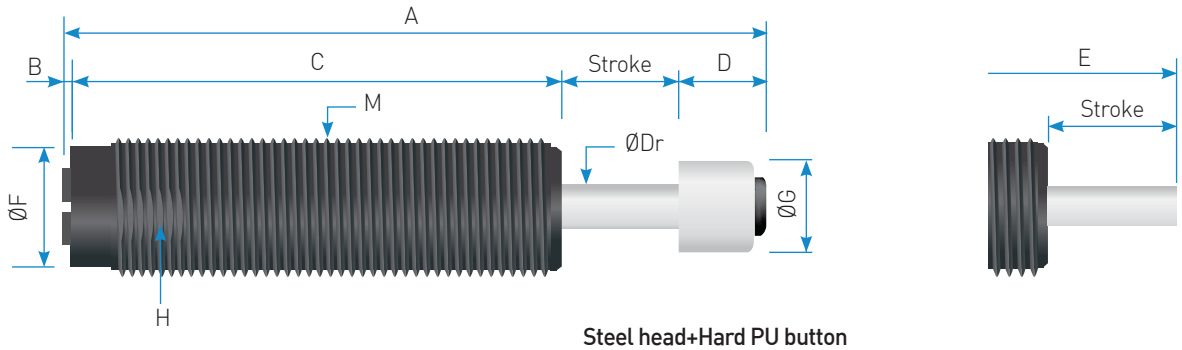
IAA20 - 15(B) / 25 - 25(B)

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(g)
					Ext.	Comp.	
IAA20 - 15(B)	15	56	58,000	4.5-1,240	8	19,6	139
IAA25 - 25(B)	25	150	96,000	11.5-3,330	10.2	29.5	285

Dimensions

Model	Stroke	A	B	C	D	E	F	G	H	M	Dr
IAA20 - 15(B)	15	109	1.5	79	13.5	95.5	Ø17.6	Ø13.5	SW:18.5	M20X1.5	Ø6
IAA25 - 25(B)	25	144	1.5	101	16.5	127.5	Ø22.6	Ø16	SW:23	M25X1.5	Ø8



Steel head+Hard PU button
[B TYPE : Black]

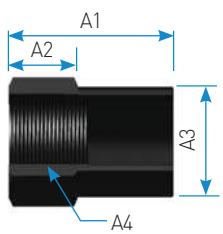
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

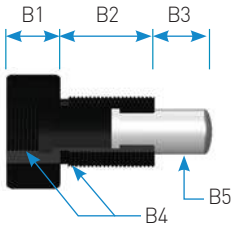
(unit : mm)

Stop Collar	Side Load Adapter	Clamp Mount	Lock Nut	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC20X1.5	SLA20-15	CM20X1.5	LN20X1.5	36	15	Ø24	M20 X 1.5	20	34	15	M20 X 1.5	Ø12	28	25	40	20	M20 X 1.5	M6 X30L	24	M20 X 1.5	6
SC25X1.5	SLA25-25	CM25X1.5	LN25X1.5	42	18	Ø31.5	M25 X 1.5		42	25	M25 X 1.5	Ø16	32	32	46	25	M25 X 1.5	M6 X35L	32	M25 X 1.5	8

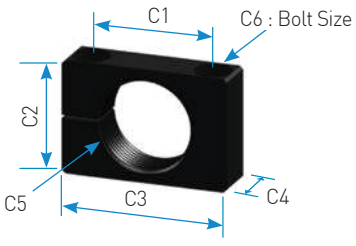
Stop Collar



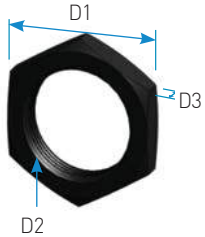
Side Load Adapter



Clamp Mount



Lock Nut



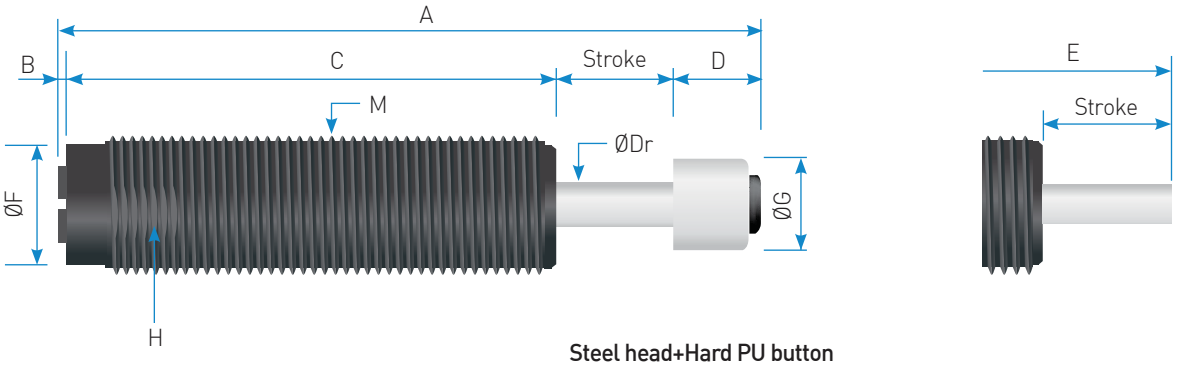
IAA27 - 25(B) / 27 - 25F(B)

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(g)
					Ext.	Comp.	
IAA27 - 25(B)	25	150	96,000	11.5-3,330	10.2	29.5	303
- 25F(B)							325

Dimensions

Model	Stroke	A	B	C	D	E	F	G	H	M	Dr
IAA27 - 25(B)	25	144	1.5	101	16.5	127.5	Ø22.6	Ø16	SW:25(23)	M27X3.0	Ø8
- 25F(B)									SW:25	M27X1.5	



Steel head+Hard PU button
[B TYPE : Black]

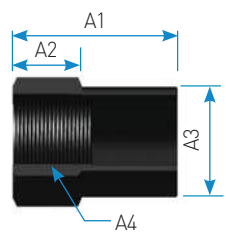
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

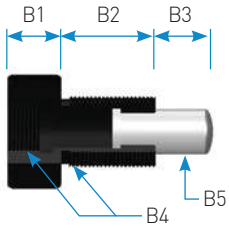
(unit : mm)

Stop Collar	Side Load Adapter	Clamp Mount	Lock Nut	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC27X3.0	SLA27-25	CM27X3.0	LN27X3.0	42	18	Ø31.5	M27 X 3.0	20	42	25	M27 X 3.0	Ø16	35	32	48	25	M27 X 3.0	M6 X35L	32	M27 X 3.0	8
SC27X1.5	SLA27-25F	CM27X1.5	LN27X1.5				M27 X 1.5				M27 X 1.5						M27 X 1.5			M27 X 1.5	

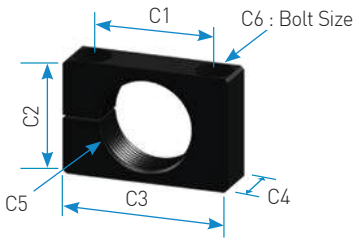
Stop Collar



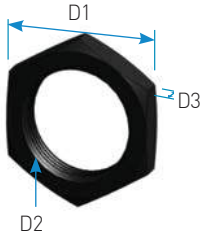
Side Load Adapter



Clamp Mount



Lock Nut



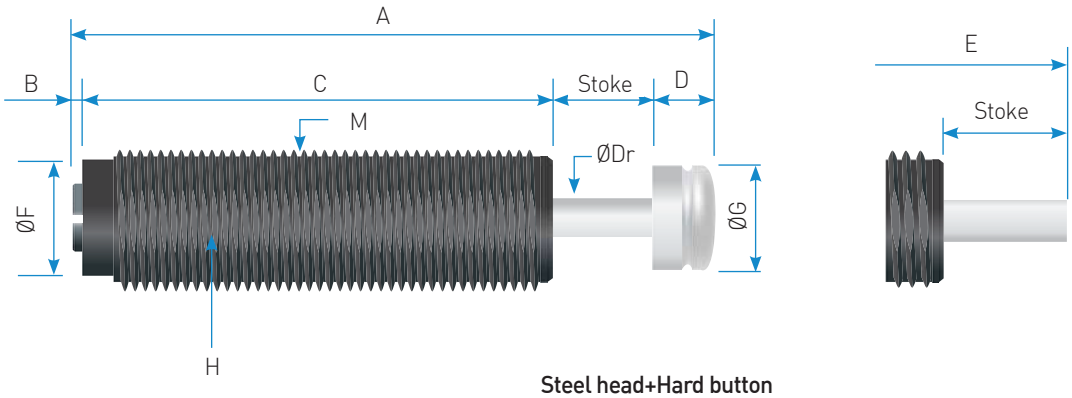
IAA36 - 25(B) / 36 -50(B)

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(g)
					Ext.	Comp.	
IAA36 - 25(B)	25	300	108,000	24 - 6,667	25	56.2	700
- 50(B)	50	615	142,000	49 - 13,667	22.5	60	811

Dimensions

Model	Stroke	A	B	C	D	E	F	G	H	M	Dr
IAA36 - 25(B)	25	158.5	2	116	15.5	143	Ø31	Ø 28	SW:34	M36 X 1.5	Ø10
- 50(B)	50	218	2	150.5	15.5	202.5	Ø31	Ø 28	SW:34	M36 X 1.5	Ø10



Steel head+Hard button

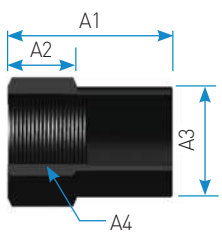
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

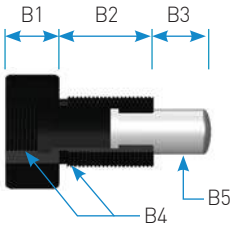
(unit : mm)

Stop Collar	Side Load Adapter	Clamp Mount	Lock Nut	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC36X1.5	SLA36-25	CM36X1.5	LN36X1.5	62	26	Ø45	M36 X 1.5	22	47	25	M36 X 1.5	20	45	42	61	25	M36 X 1.5	M6 X45L	46	M36 X 1.5	10
SC36X1.5	SLA36-50	CM36X1.5	LN36X1.5					22	78	50		20									

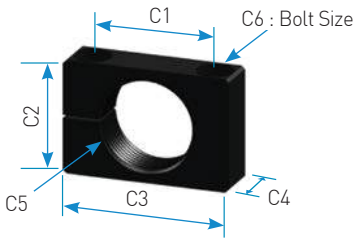
Stop Collar



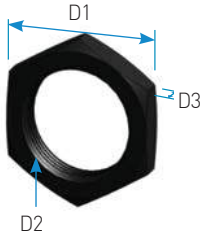
Side Load Adapter



Clamp Mount



Lock Nut



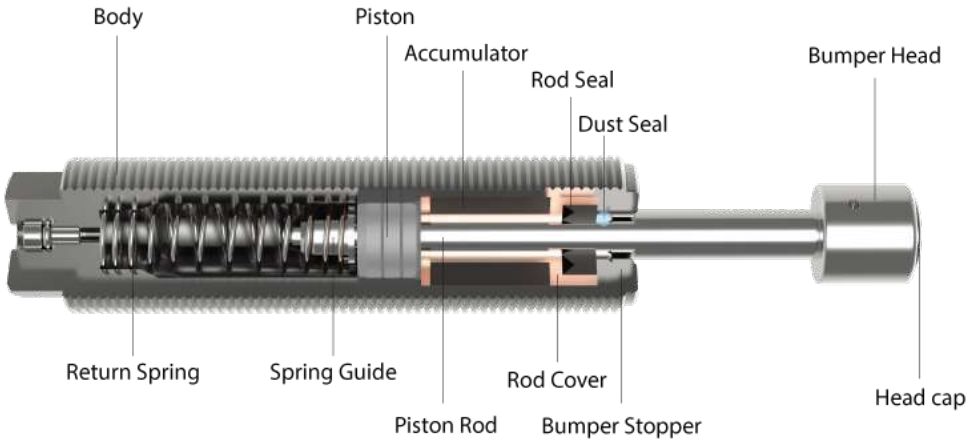
IMS Series Self Compensating type

IZMAC Mini absorber Self-compansating type

DESCRIPTION

IMS is self compensating type and it controls the damping power itself against damping speed. Energy capacity was Improved over 200% and effective weight ranges become wider than before.

IMS series



FEATURES

1 All threaded body outside helps to install shock absorber and it can be fixed at the exact position. And it helps also to dissipate more shock energy by increased surface dimension.

2 Body surface treated as alloyed black colored steel or Zn-Ni and it develops anti corrosion features highly.

3 Stop collar is not necessary when shock absorber has steel head, and poly pad & urethane cap will help to decrease collision noises efficiently.

4 Rod cover is made of long lasting materials with function of seal protection and that enable to guarantee long life.

5 Speed ranges : 0.3 ~ 5m/s

6 Temperature ranges : -10 ~ 80°C • Special : -40 ~ 120°C(Oil and Seal)

APPLICATIONS

Pick N place robotic line, machining tools, automobile assembly line, tire assembly line, crane, safety devices and all other industrial ranges of multi purposes.

IMS SERIES ORDERING INFORMATION

IMS	-	25	-	25	-	SC

- SC : Stop Collar
- LN : Lock Nut
- CM : Clamp Mount

Stroke

Body Thread Size

I : Izmac
M : Mini & Middle absorber
S : Self-compensating type

IMS04 - 04(B) / 05 - 05(B) / 06 - 05(B)

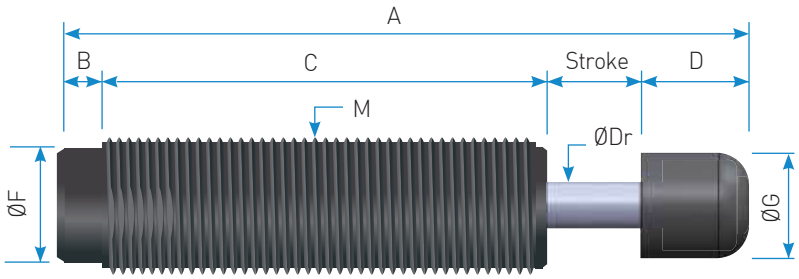
Engineering Data

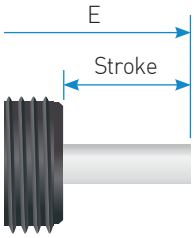
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e			Recoil Force(N)		Weight(g)
				1	2	3	Ext.	Comp.	
IMS04 - 04(B)	4	0.4	1,500	0.1 - 1.0	0.9 - 3.2		2	7	2.5
IMS05 - 05(B)	5	0.6	1,800	0.1 - 1.2	1.0 - 5.0		2	7	2.5
IMS06 - 05(B)	5	1	2,500	0.05 - 1	0.8 - 2.8	1.5 - 4	2	5	4.0

Dimensions

(unit : mm)

Model	Stroke	A	B	C	D	E	F	G	M	Dr
IMS04 - 04(B)	4	34.5	2.4	24	4	30.5	3.4	Ø3	M4 X 0.5	Ø1.2
IMS05 - 05(B)	5	35	3.5	22.5	4	31	4.4	Ø3	M5 X 0.5	Ø1.5
IMS06 - 05(B)	5	38.5	3.5	25	5	33.5	5.3	Ø5	M6 X 0.5	Ø1.5





MC Nylon head

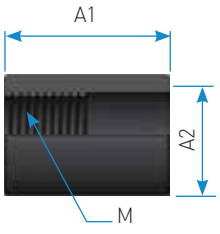
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

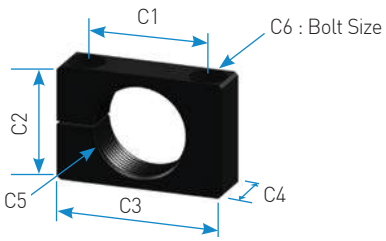
(unit : mm)

Stop Collar	Clamp Mount	Lock Nut	A1	A2	A3	C1	C2	C3	C4	C5	C6	D1	D2	D3
		LN04X0.5			M4 X 0.5							8	M4 X 0.5	5
SC05X0.5	CM05X0.5	LN05X0.5	10	7	M5 X 0.5	12	10	20	8	M5 X 0.5	M3	8	M5 X 0.5	5
SC06X0.5	CM06X0.5	LN06X0.5	12	8	M6 X 0.5					M6 X 0.5			M6 X 0.5	

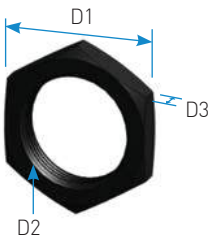
Stop Collar



Clamp Mount



Lock Nut



IMS08 - 06(B) / 10 - 08(B)

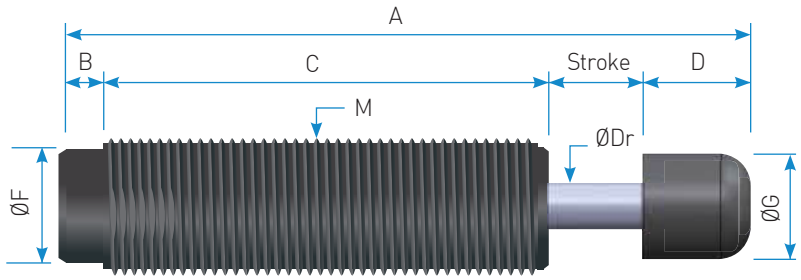
Engineering Data

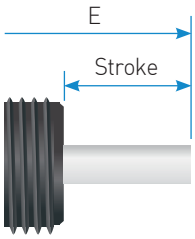
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(Kg) m_e			Recoil Force(N)		Weight(g)
				1	2	3	Ext.	Comp.	
IMS08 - 06(B)	6	5	8,000	0.8 - 2.8	2.5 - 12.6	10 - 111	2.2	5.8	10
IMS10 - 08(B)	8	11	14,500	1.8 - 6.1	5.5 - 27	22 - 244	2.5	6.9	15.5

Dimensions

(unit : mm)

Model	Stroke	A	B	C	D	E	F	G	M	Dr
IMS08 - 06(B)	6	54	7.5	35	7	47	Ø6.8	Ø 6.8	M8 X 1.0	Ø2
IMS10 - 08(B)	8	64.5	7.5	42	7	57.5	Ø7	Ø 8	M10 X 1.0	Ø3





MC Nylon head

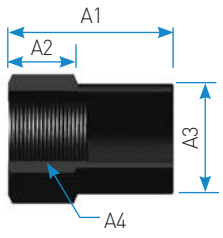
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

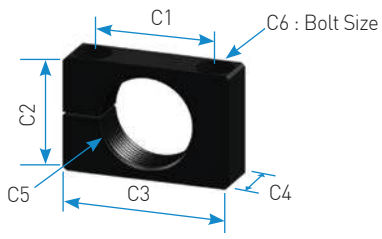
(unit : mm)

Stop Collar	Clamp Mount	Lock Nut	A1	A2	A3	A4	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC08X1.0	CM08X1.0	LN08X1.0	20	8	Ø11.5	M8X1.0	16	14	25	10	M8X1.0	M4 X 16L	12	M8X1.0	3
SC10X1.0	CM10X1.0	LN10X1.0			Ø12.8	M10 X 1.0					M10 X 1.0		13	M10 X 1.0	4

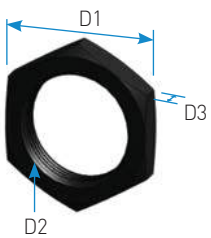
Stop Collar



Clamp Mount



Lock Nut



IMS12-10(B) / 14-15(B) / 14-15F(B)

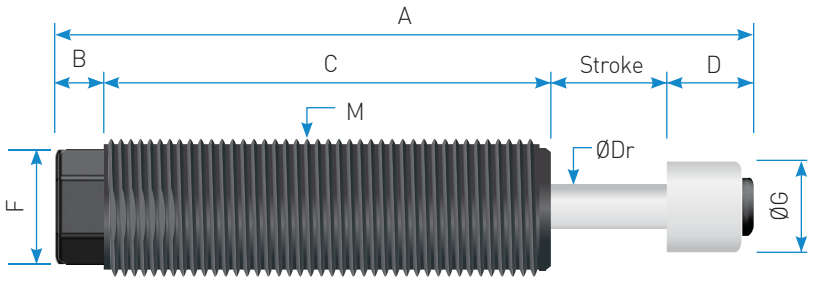
Engineering Data

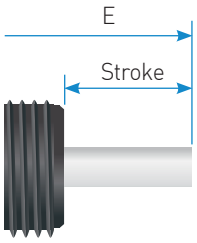
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(Kg) m_e			Recoil Force(N)		Weight(g)
				1	2	3	Ext.	Comp.	
IMS12 - 10(B)	10	16	30,000	13~8	6.6~22	16~200	3.8	9.8	39
IMS14 - 15(B)	15	30	51,000	3.8~15	12~42	31~1500	3.8	13	61
- 15F(B)	15	30	51,000	3.8~15	12~42	31~1500	3.8	13	64

Dimensions

(unit : mm)

Model	Stroke	A	B	C	D	E	F	G	M	Dr
IMS12 - 10(B)	10	79	6.5	52.5	10	69	SW:10.8	Ø10.5	M12 X 1.0	Ø4
IMS14 - 15(B)	15	100.5	6.5	69	10	90.5	SW:11.8	Ø10.5	M14 X 1.5	Ø4
- 15F(B)	15	100.5	6.5	69	10	90.5	SW:11.8	Ø10.5	M14 X 1.0	Ø4





Steel head+Hard PU button
[B TYPE : Black]

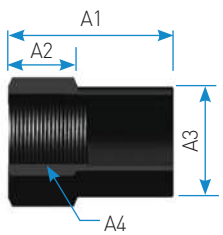
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

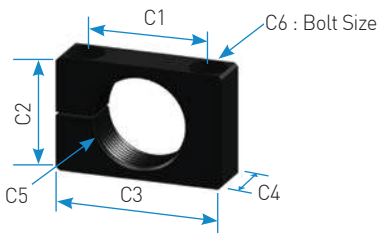
(unit : mm)

Stop Collar	Clamp Mount	Lock Nut	A1	A2	A3	A4	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC12X1.0	CM12X1.0	LN12X1.0	20	8	Ø13.8	M12 X 1.0	20	16	32	12	M12 X 1.0	M5 X 18L	14	M12 X 1.0	4
SC14X1.5	CM14X1.5	LN14X1.5	27	12	Ø18	M14 X 1.5	20	20	32	12	M14 X 1.5	M5 X 25L	19	M14 X 1.5	5
SC14X1.0	CM14X1.0	LN14X1.0				M14 X 1.0					M14 X 1.0			M14 X 1.0	

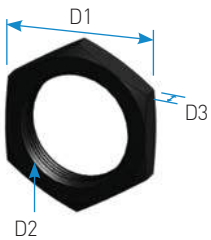
Stop Collar



Clamp Mount



Lock Nut



IMS20 - 20(B) / 25 - 25(B) / 25 - 25F(B)

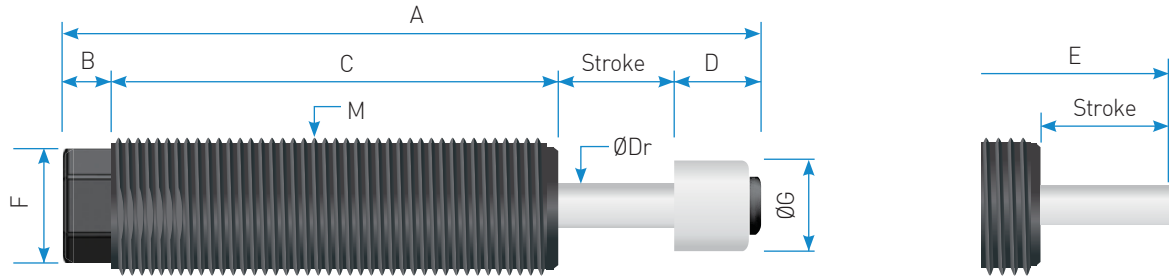
Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(Kg) m_e			Recoil Force(N)		Weight(g)
				1	2	3	Ext.	Comp.	
IMS20 - 20(B)	20	96	55,000	9~59	48~192	133~4,800	8.1	23	138
IMS25 - 25(B)	25	205	69,000	33~209	103~1,139	641~10,250	11	29	262
- 25F(B)	25	205	69,000	33~209	103~1,139	641~10,250	11	29	271

Dimensions

(unit : mm)

Model	Stroke	A	B	C	D	E	F	G	M	Dr
IMS20 - 20(B)	20	118.5	8	77	13.5	105	SW : 15	Ø 13.5	M20 X 1.5	Ø6
IMS25 - 25(B)	25	141.5	9	91	16.5	125	SW : 19	Ø 16	M25 X 2.0	Ø8
- 25F(B)	25	141.5	9	91	16.5	125	SW : 19	Ø 16	M25 X 1.5	Ø8



Steel head+Hard PU button
[B TYPE : Black]

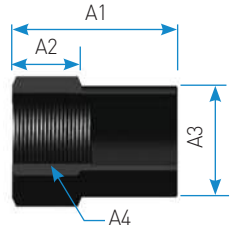
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

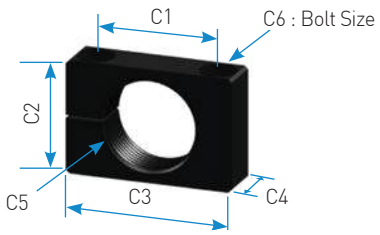
(unit : mm)

Stop Collar	Clamp Mount	Lock Nut	A1	A2	A3	A4	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC20X1.5	CM20X1.5	LN20X1.5	36	15	Ø24	M20 X 1.5	28	25	40	20	M20 X 1.5	M6 X 30L	24	M20 X 1.5	6
SC25X2.0	CM25X2.0	LN25X2.0	42	18	Ø31.5	M25 X 2.0	32	32	46	25	M25 X 2.0	M6 X 35L	32	M25 X 2.0	8
SC25X1.5	CM25X1.5	LN25X1.5				M25 X 1.5					M25 X 1.5			M25 X 1.5	

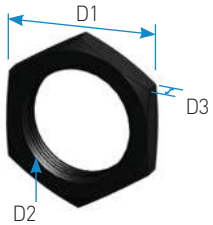
Stop Collar



Clamp Mount



Lock Nut



IMS36 - 25(B) / 36 - 50(B)

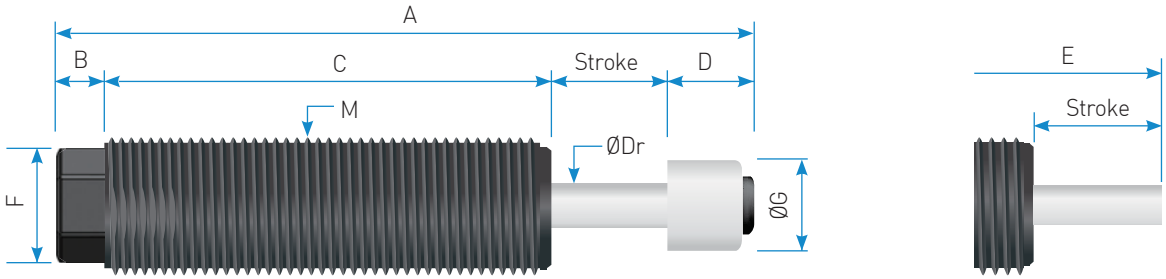
Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(Kg) m_e			Recoil Force(N)		Weight(g)
				1	2	3	Ext.	Comp.	
IMS36 - 25(B)	25	490	115,000	61-185	170-500	435-10,888	25	64.3	758
- 50(B)	50	220	162,000	35-121	110-543	440-4,888	24.4	44.6	994

Dimensions

(unit : mm)

Model	Stroke	A	B	C	D	E	F	G	M	Dr
IMS36 - 25(B)	25	164	14	101	24	140	SW : 30	Ø28	M36 X 1.5	Ø10
- 50(B)	50	221	11	136	24	197	SW : 30	Ø28	M36 X 1.5	Ø10



Steel head+Hard PU button
[B TYPE : Black]

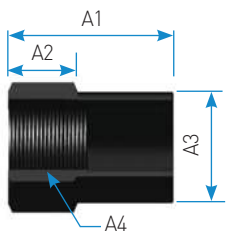
Accessories

- Two Lock Nuts included for each absorber
- Other accessories to be ordered separately

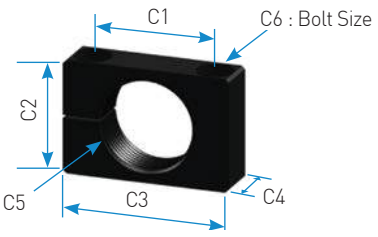
(unit : mm)

Stop Collar	Clamp Mount	Lock Nut	A1	A2	A3	A4	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC36X1.5	CM36X1.5	LN36X1.5	62	26	Ø45	M36 X 1.5	45	42	61	25	M36 X 1.5	M6	46	M36 X 1.5	10
SC36X1.5	CM36X1.5	LN36X1.5													

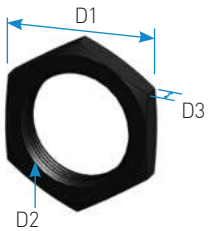
Stop Collar



Clamp Mount



Lock Nut



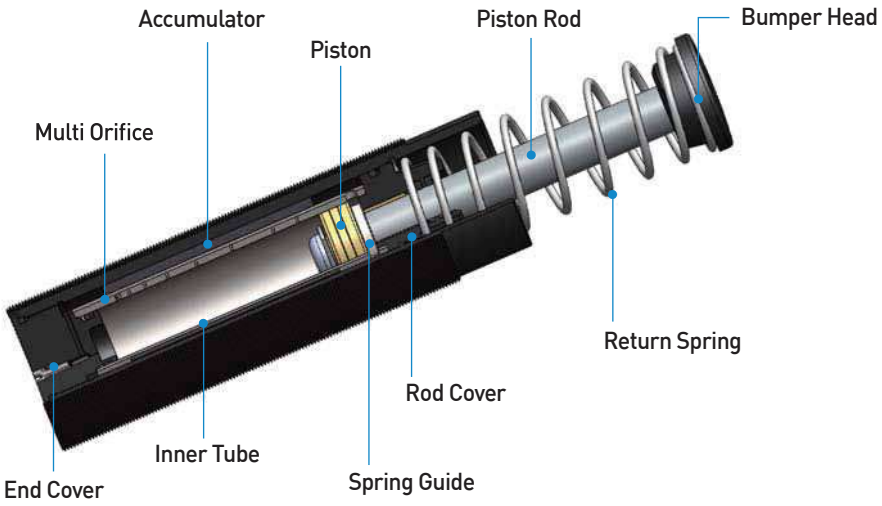
IMS Series Large bore Self compensating type

NEW

IZMAC Mini absorber Self-compansating type

DESCRIPTION

IMS is middle class shock absorber. Operation : when the collision comes pistion compress oil chamber in inner tube according to the piston rod moving. Oil flows to accumulator position through outskirt line of tube. In this process, deceleration power comes by flow resistence. And kinetic energy is dissipated in the air by changed as heat energy. Recoil spring returns piston rod into its original position when the load is disappeared.



FEATURES

1 Compact design and possible to absorb wide range of high shock energy.
2 The effective weight range is significantly expanded, resulting in a wide range of energy absorption capabilities.
3 Easy fastening and smooth heat dissipation due to the screw-type body.
4 Body surface strongly treated to prevent corrosion by nickel plating or alloy plating. (Black)
5 Body and mount : Black or Ni plating
6 Piston rod : Hard chrome (25μ or more)
7 Speed range : 0.15 ~ 5 m/s
8 Temperature range : -10 ~ 80°C • Special : -40 ~ 120°C(Oil and Seal)

IMS SERIES ORDERING INFORMATION

IMS - 45 - 25 - LC

- IMS
  - I : Izmac
  - M : Mini & Middle absorber
  - S : Self-compensating type
- 45 — Body Thread Size
- 25 — Stroke
- LC
  - LC : Lock Collar
  - SF : Square Flange
  - CM : Clamp Mount

IMS33 Series

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
IMS33-25-1	25	300	120,000	7-32	45	90	0.53
IMS33-25-2	25	300	120,000	28-130	45	90	0.53
IMS33-25-3	25	300	120,000	80-590	45	90	0.53
IMS33-25-4	25	300	120,000	440-2,050	45	90	0.53
IMS33-25-5	25	300	120,000	2,000-12,500	45	90	0.53
IMS33-50-1	50	500	150,000	13-60	45	135	0.64
IMS33-50-2	50	500	150,000	56-240	45	135	0.64
IMS33-50-3	50	500	150,000	160-1,200	45	135	0.64
IMS33-50-4	50	500	150,000	1,000-4,200	45	135	0.64
IMS33-50-5	50	500	150,000	4,000-25,000	45	135	0.64

Dimensions

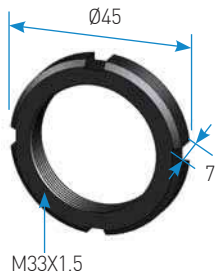
Model	Stroke	A	B	C	D	M
IMS33-25	25	138	Ø31	Ø25	95	M33*1.5P
IMS33-50	50	189	Ø31	Ø25	121	M33*1.5P

Accessories

• Other accessories to be ordered separately

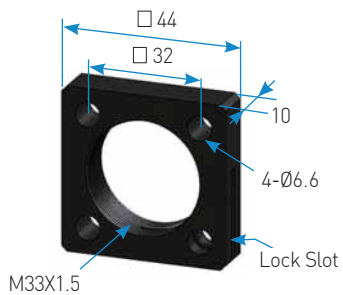
(unit : mm)

Lock Collar



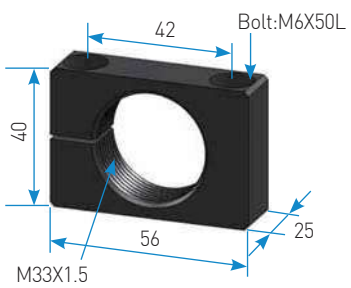
LC 33

Square Flange



SF 33

Clamp Mount

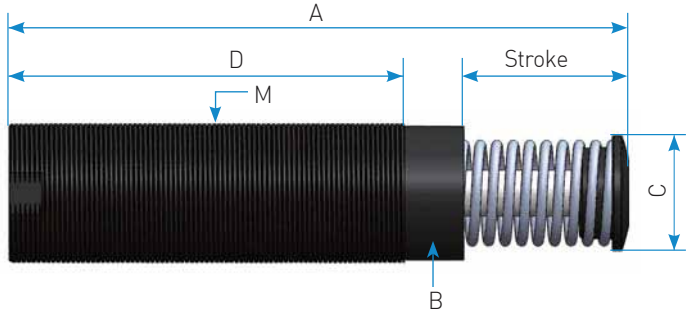


CM 33

IMS45 Series

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e		Recoil Forec(N)		Weight(kg)
						Ext.	Comp.	
IMS45 - 25 - 1	25	850	255,000	24	110	75	110	1.2
- 25 - 2	25	850	255,000	100	385	75	110	1.2
- 25 - 3	25	850	255,000	350	1,700	75	110	1.2
- 25 - 4	25	850	255,000	1,400	6,800	75	110	1.2
- 25 - 5	25	850	255,000	6,000	38,500	75	110	1.2
IMS45 - 50 - 1	50	1,300	325,000	35	170	75	150	1.4
- 50 - 2	50	1,300	325,000	160	590	75	150	1.4
- 50 - 3	50	1,300	325,000	540	2,600	75	150	1.4
- 50 - 4	50	1,300	325,000	2,150	10,400	75	150	1.4
- 50 - 5	50	1,300	325,000	3,200	58,900	75	150	1.4
IMS45 - 75 - 1	75	2,100	420,000	50	270	60	185	1.6
- 75 - 2	75	2,100	420,000	250	950	60	185	1.6
- 75 - 3	75	2,100	420,000	870	4,200	60	185	1.6
- 75 - 4	75	2,100	420,000	3,500	16,800	60	185	1.6
- 75 - 5	75	2,100	420,000	14,900	95,200	60	185	1.6



Dimensions

(unit : mm)

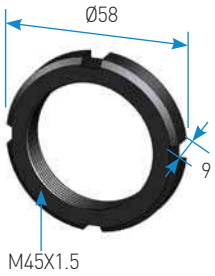
Model	Stroke	A	B	C	D	M
IMS45 - 25	25	145	Ø42	Ø35	95	M45 X 1.5P
- 50	50	195	Ø42	Ø35	120	M45 X 1.5P
- 75	75	246	Ø42	Ø35	145	M45 X 1.5P

Accessories

• Other accessories to be ordered separately

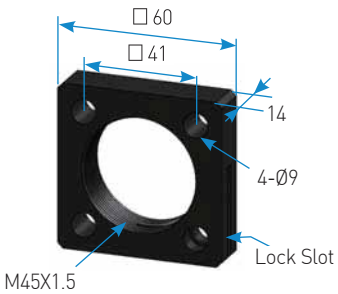
(unit : mm)

Lock Collar



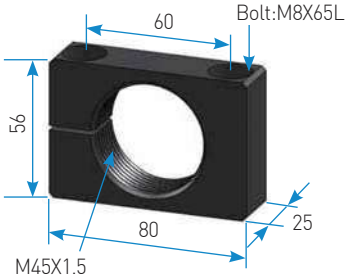
LC 45

Square Flange



SF 45

Clamp Mount



CM 45

IMS64 Series

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e		Recoil Forec(N)		Weight(kg)
						Ext.	Comp.	
IMS64 - 50 - 1	50	2,400	240,000	60	320	95	160	3
- 50 - 2	50	2,400	240,000	280	1,090	95	160	3
- 50 - 3	50	2,400	240,000	990	4,800	95	160	3
- 50 - 4	50	2,400	240,000	4,000	19,200	95	160	3
- 50 - 5	50	2,400	240,000	17,000	108,800	95	160	3
IMS64 - 100 - 1	100	5,000	350,000	140	650	110	275	3.7
- 100 - 2	100	5,000	350,000	590	2,270	110	275	3.7
- 100 - 3	100	5,000	350,000	2,050	10,000	110	275	3.7
- 100 - 4	100	5,000	350,000	8,300	40,000	110	275	3.7
- 100 - 5	100	5,000	350,000	35,600	226,700	110	275	3.7
IMS64 - 150 - 1	150	8,000	400,000	220	1,050	80	370	5
- 150 - 2	150	8,000	400,000	950	3,600	80	370	5
- 150 - 3	150	8,000	400,000	3,300	16,000	80	370	5
- 150 - 4	150	8,000	400,000	13,200	64,000	80	370	5
- 150 - 5	150	8,000	400,000	16,000	362,000	80	370	5

Dimensions

(unit : mm)

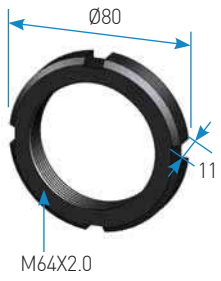
Model	Stroke	A	B	C	D	M
IMS64 - 50	50	225	60	48	140	M64 X 2.0P
- 100	100	326	60	48	191	M64 X 2.0P
- 150	150	450	60	48	241	M64 X 2.0P

Accessories

• Other accessories to be ordered separately

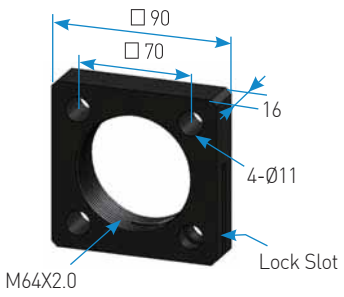
(unit : mm)

Lock Collar



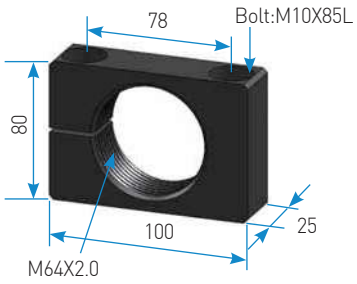
LC 64

Square Flange



SF 64

Clamp Mount

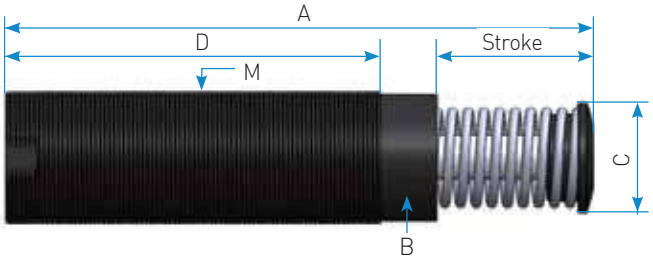


CM 64

IMS85 Series

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e		Recoil Forec(N)		Weight(kg)
						Ext.	Comp.	
IMS85 - 50 - 1	50	4,000	1,200,000	110	520	140	330	7
- 50 - 2	50	4,000	1,200,000	470	1,800	140	330	7
- 50 - 3	50	4,000	1,200,000	1,600	8,000	140	330	7
- 50 - 4	50	4,000	1,200,000	6,600	32,000	140	330	7
- 50 - 5	50	4,000	1,200,000	28,400	181,000	140	330	7
IMS85 - 100 - 1	100	8,500	1,700,000	230	1,100	120	420	9
- 100 - 2	100	8,500	1,700,000	1,000	3,800	120	420	9
- 100 - 3	100	8,500	1,700,000	3,500	17,000	120	420	9
- 100 - 4	100	8,500	1,700,000	14,100	68,000	120	420	9
- 100 - 5	100	8,500	1,700,000	60,500	385,000	120	420	9
IMS85 - 150 - 1	150	13,500	2,025,000	370	1,800	110	430	12
- 150 - 2	150	13,500	2,025,000	1,600	6,100	110	430	12
- 150 - 3	150	13,500	2,025,000	5,600	27,000	110	430	12
- 150 - 4	150	13,500	2,025,000	22,300	108,000	110	430	12
- 150 - 5	150	13,500	2,025,000	96,100	612,000	110	430	12
IMS85 - 200 - 1	200	19,000	2,660,000	530	2,500	100	430	15
- 200 - 2	200	19,000	2,660,000	2,200	8,600	100	430	15
- 200 - 3	200	19,000	2,660,000	7,800	38,000	100	430	15
- 200 - 4	200	19,000	2,660,000	31,400	152,000	100	430	15
- 200 - 5	200	19,000	2,660,000	135,000	861,000	100	430	15
IMS85 - 250 - 1	250	23,500	2,820,000	650	3,100	95	430	20
- 250 - 2	250	23,500	2,820,000	2,800	10,700	95	430	20
- 250 - 3	250	23,500	2,820,000	9,700	47,000	95	430	20
- 250 - 4	250	23,500	2,820,000	38,800	188,000	95	430	20
- 250 - 5	250	23,500	2,820,000	167,000	1,065,000	95	430	20



Dimensions

(unit : mm)

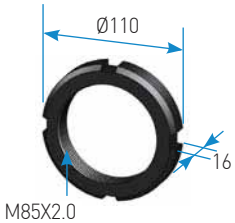
Model	Stroke	A	B	C	D	M
IMS85 - 50	50	258	81	68	165	M85 X 2.0P
- 100	100	360	81	68	218	M85 X 2.0P
- 150	150	485	81	68	285	M85 X 2.0P
- 200	200	590	81	68	330	M85 X 2.0P
- 250	250	700	81	68	390	M85 X 2.0P

Accessories

• Other accessories to be ordered separately

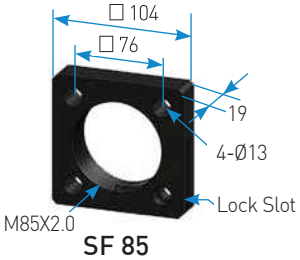
(unit : mm)

Lock Collar



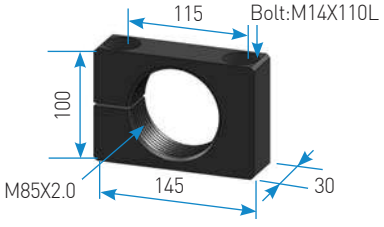
LC 85

Square Flange



SF 85

Clamp Mount

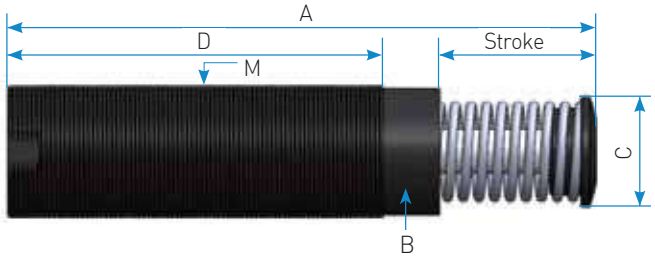


CM 85

IMS115 Series

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e		Recoil Forec(N)		Weight(kg)
						Ext.	Comp.	
IMS115 - 50 - 1	50	11,000	3,300,000	300	1,400	220	480	12
- 50 - 2	50	11,000	3,300,000	1,300	5,000	220	480	12
- 50 - 3	50	11,000	3,300,000	4,500	22,000	220	480	12
- 50 - 4	50	11,000	3,300,000	18,100	88,000	220	480	12
- 50 - 5	50	11,000	3,300,000	78,300	498,000	220	480	12
IMS115 - 100 - 1	100	22,600	4,520,000	630	3,000	220	550	14
- 100 - 2	100	22,600	4,520,000	2,700	10,300	220	550	14
- 100 - 3	100	22,600	4,520,000	9,400	45,200	220	550	14
- 100 - 4	100	22,600	4,520,000	37,300	180,800	220	550	14
- 100 - 5	100	22,600	4,520,000	160,000	1,024,000	220	550	14
IMS115 - 150 - 1	150	34,000	5,100,000	950	4,500	200	570	17
- 150 - 2	150	34,000	5,100,000	4,100	15,500	200	570	17
- 150 - 3	150	34,000	5,100,000	14,000	68,000	200	570	17
- 150 - 4	150	34,000	5,100,000	56,000	272,000	200	570	17
- 150 - 5	150	34,000	5,100,000	242,000	1,541,000	200	570	17
IMS115 - 200 - 1	200	45,000	6,300,000	1,300	6,000	180	570	20
- 200 - 2	200	45,000	6,300,000	5,400	20,500	180	570	20
- 200 - 3	200	45,000	6,300,000	18,500	90,000	180	570	20
- 200 - 4	200	45,000	6,300,000	74,300	360,000	180	570	20
- 200 - 5	200	45,000	6,300,000	320,000	2,040,000	180	570	20
IMS115 - 250 - 1	250	56,000	6,720,000	1,500	7,400	200	620	25
- 250 - 2	250	56,000	6,720,000	6,600	25,300	200	620	25
- 250 - 3	250	56,000	6,720,000	23,100	112,000	200	620	25
- 250 - 4	250	56,000	6,720,000	92,500	448,000	200	620	25
- 250 - 5	250	56,000	6,720,000	398,000	2,539,000	200	620	25



Dimensions

(unit : mm)

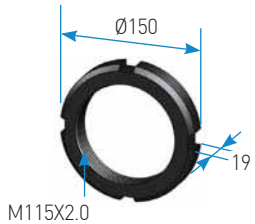
Model	Stroke	A	B	C	D	M
IMS115 - 50	50	310	Ø111	Ø98	205	M115 X 2.0P
- 100	100	420	Ø111	Ø98	265	M115 X 2.0P
- 150	150	535	Ø111	Ø98	315	M115 X 2.0P
- 200	200	655	Ø111	Ø98	380	M115 X 2.0P
- 250	250	770	Ø111	Ø98	435	M115 X 2.0P

Accessories

(unit : mm)

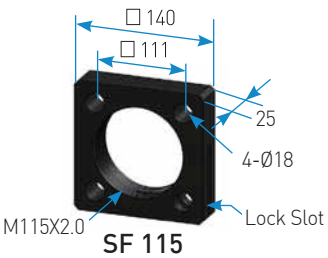
• Other accessories to be ordered separately

Lock Collar



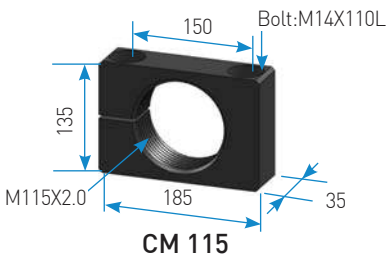
LC 115

Square Flange



SF 115

Clamp Mount



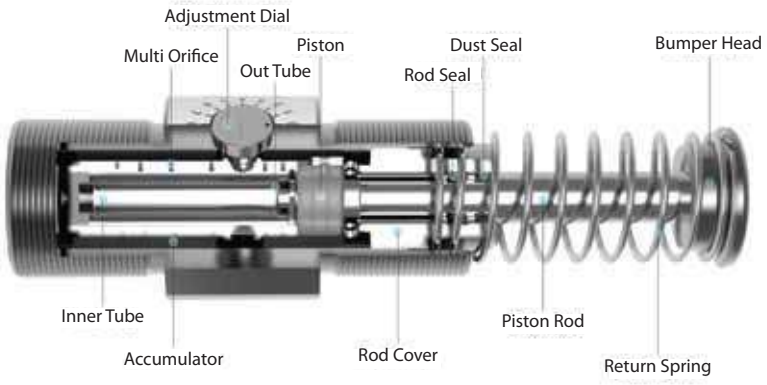
CM 115

IHA Series Mid dial type

IZMAC Heavy Type Absorber

DESCRIPTION

IHA is mid large bore series heavy type shock absorber. Operation : when the collision comes pistion compress oil chamber in inner tube according to the piston rod moving. Oil flows to accumulator through outside grooves in this process, deceleration power comes by flow resistence. And kinetic energy is dissipated in the air by changed as heat energy. Recoil Spring returns piston rod into its original position when the load is disappeared.



FEATURES

1 IHA is dial type and it can set the speed ranges as 8 steps.
2 Energy capacity was Improved over 200% and effective weight ra nges become wider than before.
3 All threaded body outside helps to install shock absorber and it can be fixed at the exact position. And it helps also to dissipate more shock energy by increased surface dimension.
4 Body surface treated as alloyed black colored steel or Zn-Ni and it develops anti corrosion features highly.
5 Stop collar is not necessary when shock absorber has steel head, and poly pad & urethane cap will help to decrease collision noises efficiently.
6 Rod cover is made of long lasting materials with function of seal protection and that enable to guarantee long life.
7 Speed ranges : 0.3 ~ 3.5m/s • Low Velocity (LV) : 0.08 ~ 1.3m/s
8 Temperature ranges : -10 ~ 80°C • Special : -40 ~ 120°C(Oil and Seal)

IHA SERIES ORDERING INFORMATION

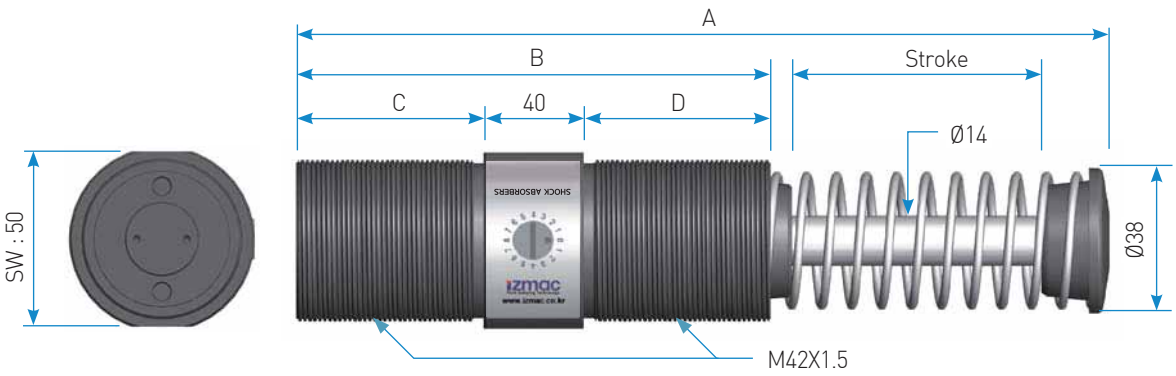
IHA - 42 - 50 - N - LV - SC

- IHA
  - I : Izmac
  - H : Heavy type
  - A : Absorber
- 42 : Body Thread Size
- 50 : Stroke
- N : Surface standard black / Nickel
- LV : Velocity(03~3.5m/s) / Low velocity(0.08~1.3m/s)
- SC : Accessory Series
  - SC : Stop Collar
  - UC : Urethane Cap
  - SF : Square Flange
  - RF : Rectangular Flange
  - LC : Lock Collar
  - RC : Rod Clevis
  - EC : End Clevis
  - CM : Clamp Mount

IHA42 Series

Engineering Data

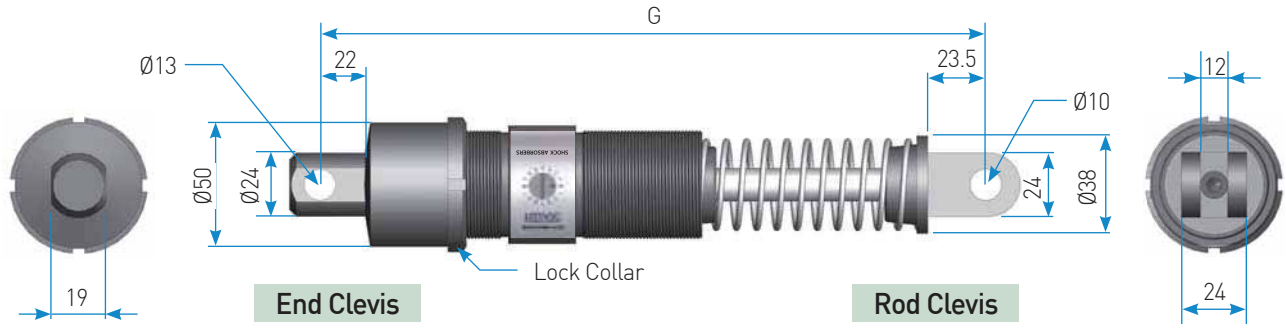
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
IHA42 - 25	25	250	125,000	36 - 3,600	28	56	1.25
- 50	50	500	166,000	45 - 6,150	38	86	1.4
- 75	75	750	200,000	54 - 9,500	32	88	1.6



Clamp Mount

Urethane Cap

Clevis Mount



Dimensions

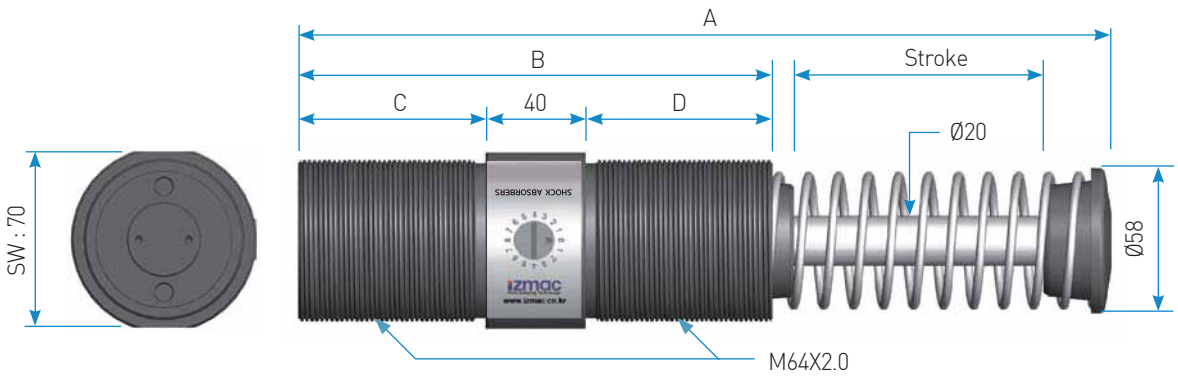
(unit : mm)

Model	Stroke	A	B	C	D	E(Min/Max)	F(Min/Max)	G
IHA42 - 25	25	145	95	28	27	65/70	62.5/64.5	200
- 50	50	195	120	40	40	65/95	87.5/102.5	250
- 75	75	245	145	52	53	65/120	117.6/145.5	300

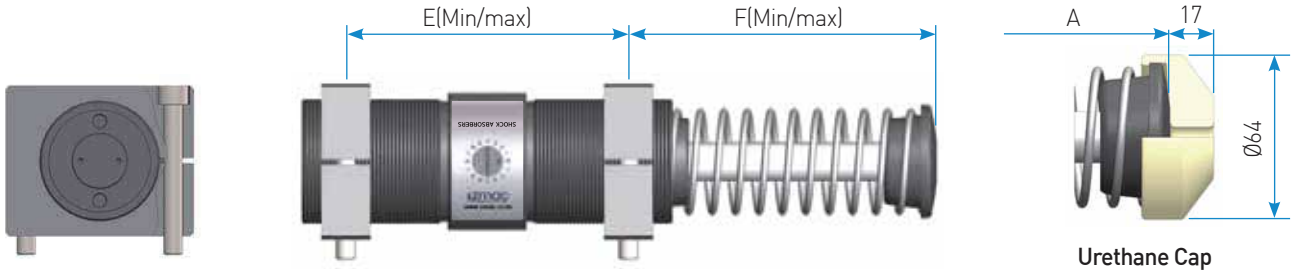
IHA64 Series

Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
IHA64 - 50	50	1,300	270,000	82 - 12,600	65	148	3.7
- 100	100	2,600	360,000	115 - 17,000	45	157	4.5
- 150	150	3,900	420,000	140 - 22,000	47	199	5.3

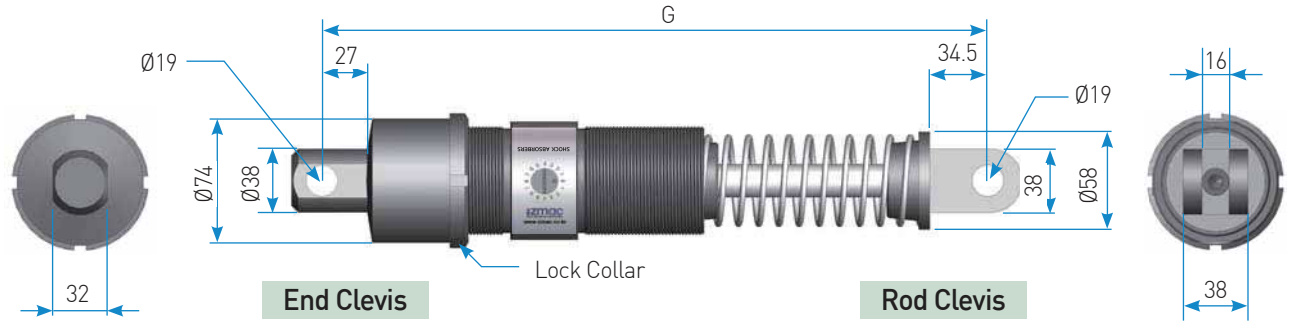


Clamp Mount



Urethane Cap

Clevis Mount



Dimensions

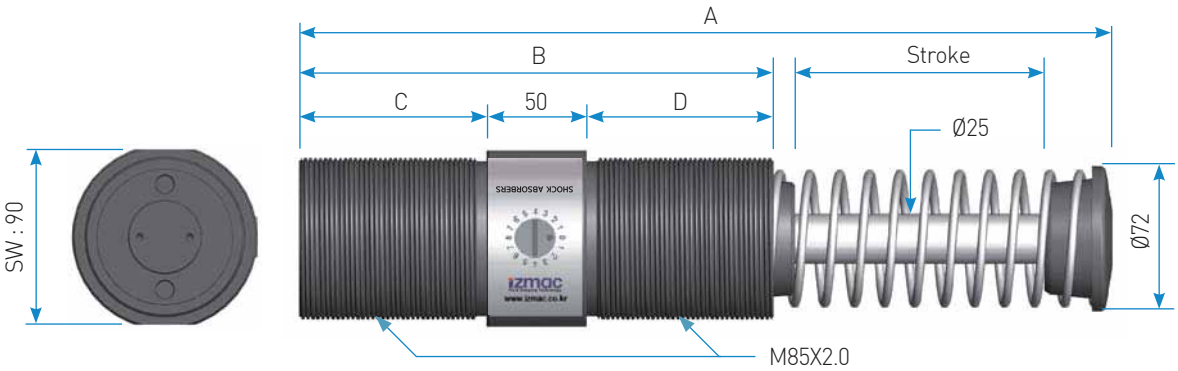
(unit : mm)

Model	Stroke	A	B	C	D	E(Min/Max)	F(Min/Max)	G
IHA64 - 50	50	225	140	50	50	65/115	97.5/122.5	305
- 100	100	327	190	75	75	65/165	147.5/197.5	409
- 150	150	455	240	100	100	65/215	197.5/272.5	534

IHA85 Series

Engineering Data

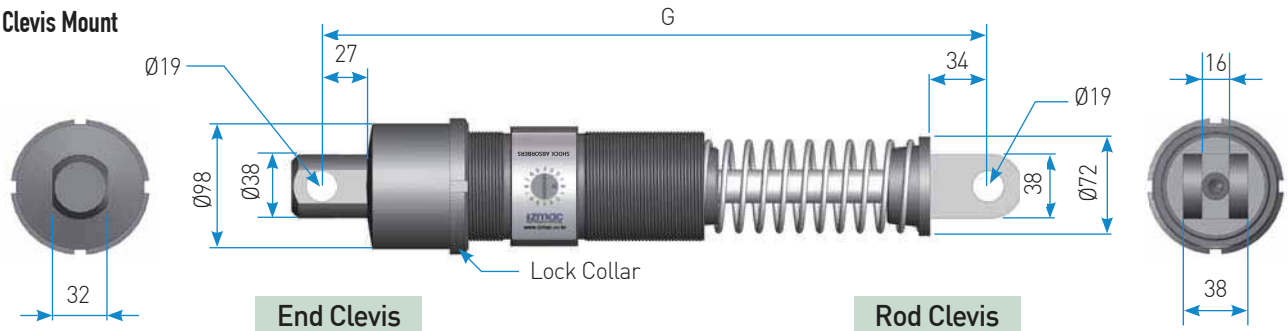
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
IHA64 - 50	50	2,300	370,000	200 - 37,000	148	315	6.4
- 90	90	4,000	650,000	230 - 40,000	121	365	7.6
- 125	125	5,700	930,000	300 - 43,000	114	365	8.6
- 165	165	7,300	1,210,000	360 - 45,000	98	429	9.8



Clamp Mount

Urethane Cap

Clevis Mount



End Clevis **Rod Clevis**

Dimensions

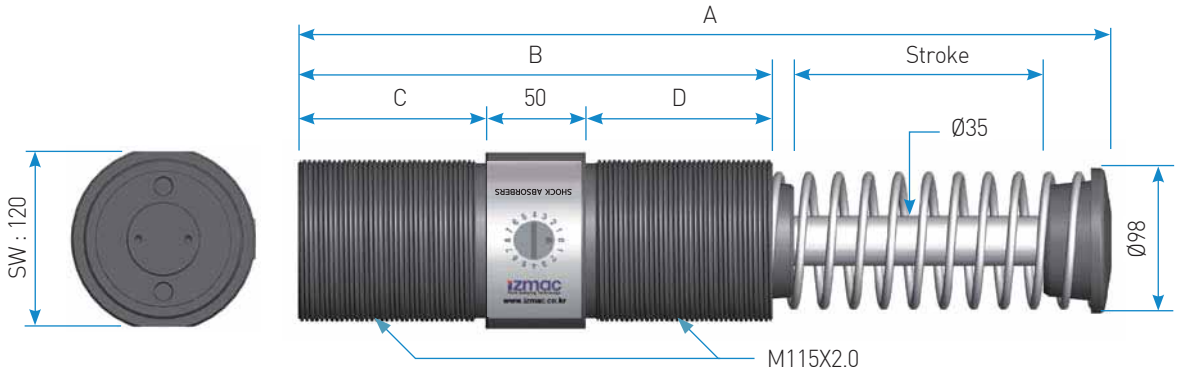
(unit : mm)

Model	Stroke	A	B	C	D	E(Min/Max)	F(Min/Max)	G
IHA64 - 50	50	245	140	42	48	80/110	120/138	325
- 90	90	325	180	60	70	80/150	160/200	405
- 125	125	400	216	82	84	80/186	195/249	480
- 165	165	494	256	106	100	80/226	220/290	575

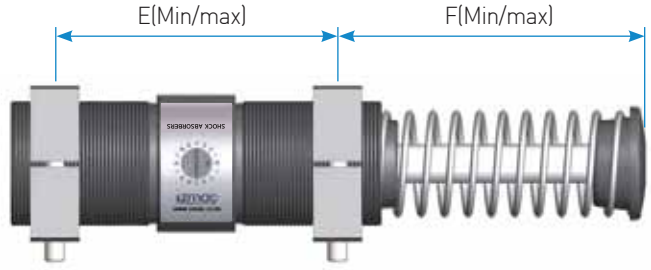
IHA115 Series

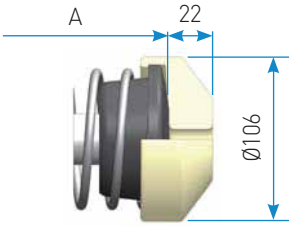
Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
IHA115 - 50	50	3,700	1,501,000	370 - 44,000	187	427	16
- 100	100	7,400	1,805,000	370 - 57,000	178	482	19
- 150	150	11,100	2,100,000	370 - 89,000	185	538	21
- 200	200	14,800	2,405,000	390 - 118,000	185	665	31
- 250	250	18,500	2,710,000	440 - 145,000	184	649	34



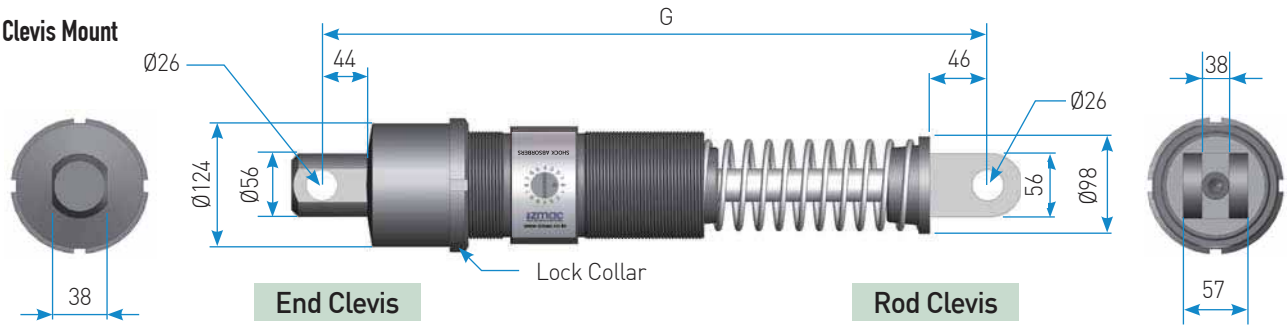
Clamp Mount





Urethane Cap

Clevis Mount



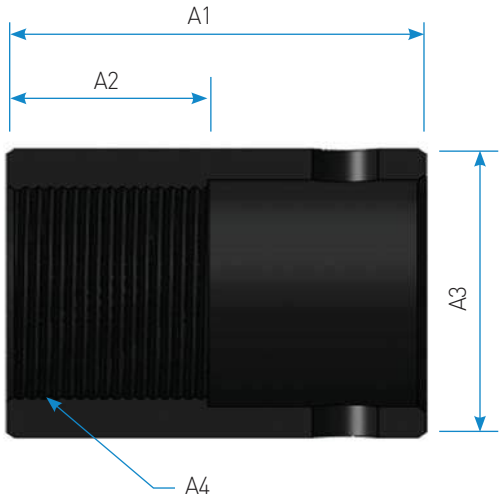
Dimensions

(unit : mm)

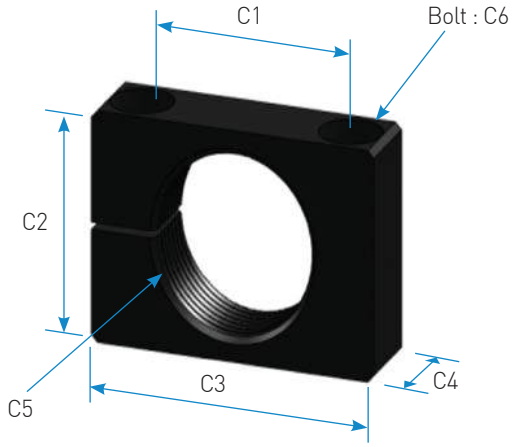
Model	Stroke	A	B	C	D	E(Min/Max)	F(Min/Max)	G
IHA115 - 50	50	314	200	75	75	80/170	129/174	430
- 100	100	414	250	100	100	80/220	179/249	535
- 150	150	514	300	125	125	80/270	229/324	635
- 200	200	644	350	150	150	80/320	279/399	760
- 250	250	744	400	180	170	80/370	329/479	865

Accessories

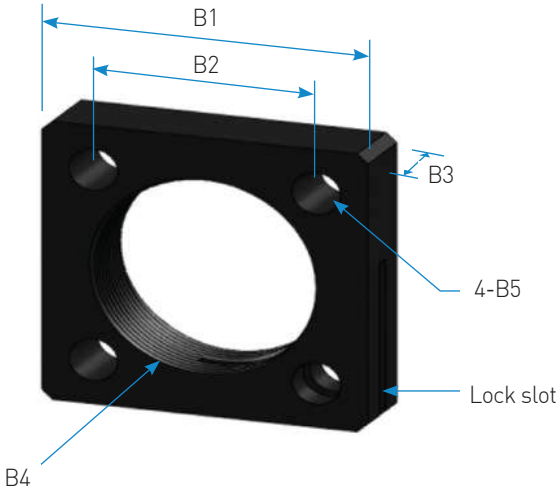
Stop Collar



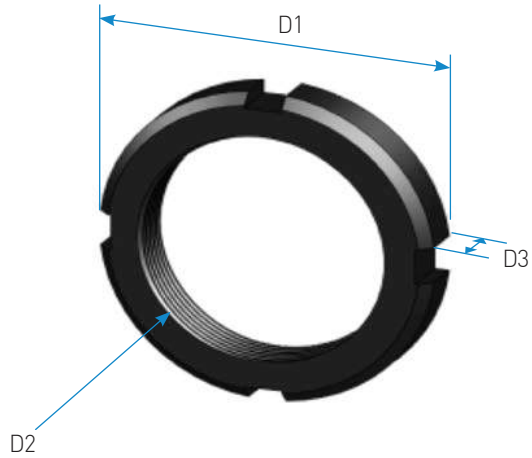
Clamp Mount



Retangular Flange



Lock Collar



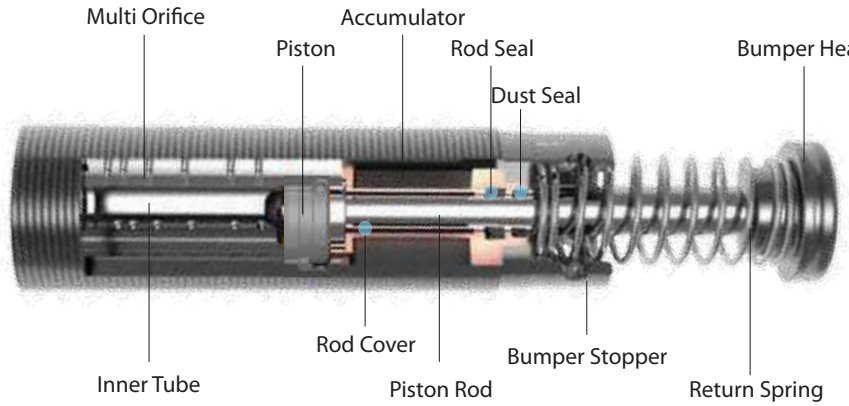
Dimensions

(unit : mm)

Stop Collar	Rectangular Flange	Clamp Mount	Lock Nut	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SC42X1.5	RF42X1.5	CM42X1.5	LN42X1.5	52	25	Ø56	M42 X 1.5P	□60	□41	14	M42 X 1.5P	4 - Ø9	60	56	80	25	M42 X 1.5P	M8 X 60L	Ø58	M42 X 1.5P	9
SC64X2.0	RF64X2.0	CM64X2.0	LN64X2.0	85	45	Ø75	M64 X 2.0P	□90	□70	16	M64 X 2.0P	4 - Ø11	78	80	100	25	M64 X 2.0P	M10 X 80L	Ø80	M64 X 2.0P	11
SC85X2.0	RF85X2.0	CM85X2.0	LN85X2.0	95	45	Ø98	M85 X 2.0P	□104	□76	19	M85 X 2.0P	4 - Ø13	115	100	145	30	M85 X 2.0P	M14 X 100L	Ø110	M85 X 2.0P	16
SC115X2.0	RF115X2.0	CM115X2.0	LN115X2.0	130	70	Ø138	M115 X 2.0	□140	□111	25	M115 X 2.0	4 - Ø18	150	135	185	35	M115 X 2.0	M16 X 150L	Ø150	M115 X 2.0	19

ISA Series Mid dial type

IZMAC Straight Type Absorber (middle class)



FEATURES

1 According to the collision speed, you can fit the buffer dial from 0 to 300 degrees in 12 steps.
2 Adjustment is easy in various installation environment by adopting front and rear adjustment dial.
3 Shock absober body is built as one body, not only robust also fundamentally solves the shoot out trouble so called bottom out problem.
4 The entire body is threaded and easy to assemble. Also, due to the surface area is increased, the heat energy which comes from shock absorption can be emitted to the outside faster.
5 Piston rod is hard chrome-plated. Rod cover is a special material that can be used even for a long time, it protects seal and guarantees life.
6 Body surface treatment is resistant to corrosion by nickel plating or alloy plating (Black).
7 By using urethane cap, noise can be reduced.
8 Speed ranges : 0.3 ~ 5m/s
9 Temperature ranges : -10 ~ 80°C • Special : -40 ~ 120°C(Oil and Seal)

APPLICATIONS

Pick n place robot, packing machine, loom, machine tool, automobile manufacturing facility, crane etc.

ISA SERIES ORDERING INFORMATION

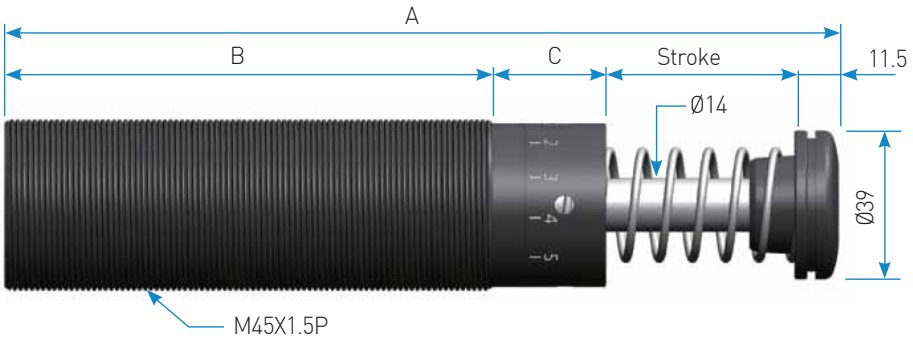
ISA - 42 - 50 - N - SC

- ISA: I : Izmac / S : straight type Absorber / A : Absorber (middle class)
- 42: Body Thread Size
- 50: Stroke
- N: Surface standard black / Nickel
- SC: Accessory Series
  - SC : Stop Collar
  - UC : Urethane Cap
  - SF : Square Flange
  - RF : Retangular Flange
  - LC : Lock Collar
  - RC : Rod Clevis
  - EC : End Clevis
  - CM : Clamp Mount

ISA45 Series

Engineering Data

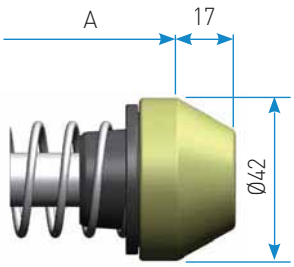
Model	Stroke (mm) St	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
ISA45 - 25	25	650	195,000	50-13,354	49.7	82.8	1.13
- 50	50	1,300	260,000	99-26,700	45.6	54	1.3
- 75	75	2,000	300,000	148-39,060	44.3	86.3	1.52



Dimensions

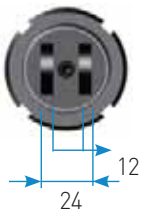
(unit : mm)

Model	Stroke	A	B	C
ISA45 - 25	25	159.5	93	30
- 50	50	220.5	129	30
- 75	75	292.5	168.5	37.5



Clevis Mount

Urethane Cap



Clamp Mount

Accessories

• Other accessories to be ordered separately

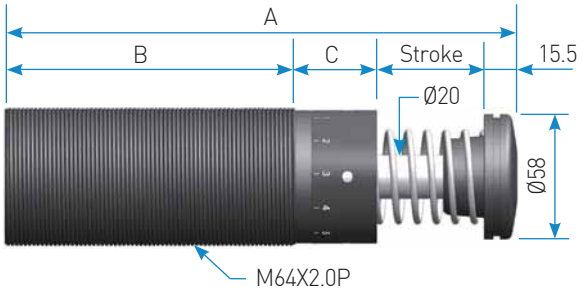
(unit : mm)

Model	ISA45-25	ISA45-50	ISA45-75
A	210	271	343
B(Min/Max)	25/68	25/104	25/143.5
C(Min/Max)	79.5/100.5	104/143.5	37.5129/170.75

ISA64 Series

Engineering Data

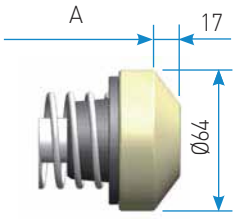
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
ISA64 - 25	25	1,250	152,000	92~24,400	61.8	110	2.9
- 50	50	2,500	248,000	185-48.800	60.8	133.2	3.3
- 75	75	3,750	265,000	277-73,240	61.4	148.3	3.8
- 100	100	5,000	360,000	370-97,650	59.4	140.1	4
- 125	125	6,250	413,000	462-122,000	57.1	160.4	7.7
- 150	150	7,500	450,000	555-146,480	51	166.8	8.9



Dimensions

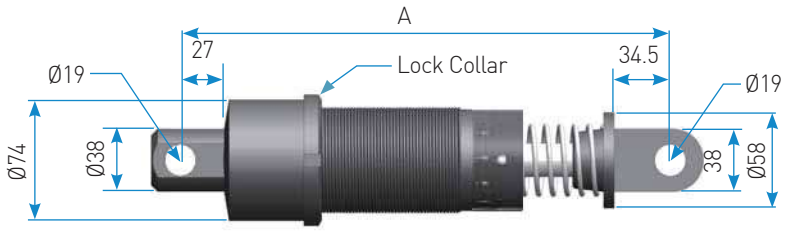
(unit : mm)

Model	Stroke	A	B	C
ISA64 - 25	25	176	97.5	38
- 50	50	239	135.5	38
- 75	75	309	173.5	45
- 100	100	375	214.5	45
- 125	125	452	256.5	55
- 150	150	518.5	294.5	58.5



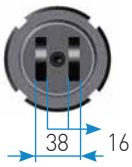
Urethane Cap

Clevis Mount

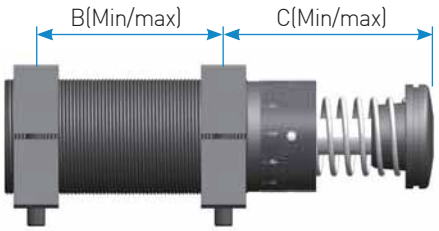


End Clevis

Rod Clevis



Clamp Mount



Accessories

• Other accessories to be ordered separately

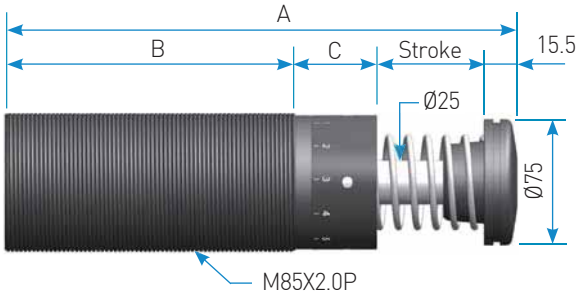
(unit : mm)

Model	ISA64 -25	ISA64 -50	ISA64 -75	ISA64 -100	ISA64 -125	ISA64 -150
A	244	307	377	442	520	-
B(Min/Max)	25/72.5	25/110.5	25/148.5	25/189.5	25/231.5	25/269.5
C(Min/Max)	92.5/116.25	117.5/160.25	149.5/211.25	174.5/256.75	209.5/312.75	238/360.25

ISA85 Series

Engineering Data

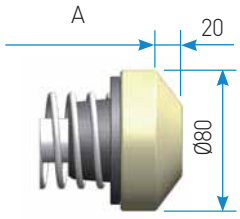
Model	Stroke (mm)	Max.Energy / Cycle(Nm) E_T	Max.Energy / Hour(Nm/h) E_TC	Effective Weight(kg) m_e	Recoil Forec(N)		Weight(kg)
					Ext.	Comp.	
ISA85 - 25	25	2,000	330,000	148-39,600	132	245.8	5.4
- 50	50	4,000	462,000	296-78,100	131.6	271.7	6.5
- 75	75	6,000	680,000	444-117,200	130	325.1	7.9
- 100	100	8,000	825,000	591-156,300	125.4	327.7	9.2
- 125	125	10,000	859,000	740-195,300	126.6	343.3	10.4
- 150	150	12,000	901,000	930-220,300	126.6	386.7	12



Dimensions

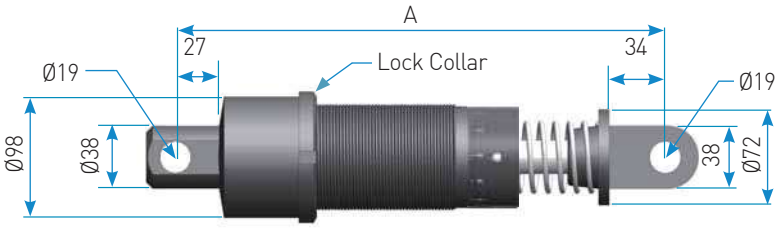
(unit : mm)

Model	Stroke	A	B	C
ISA85 - 25	25	189.5	109	40
- 50	50	251	145.5	40
- 75	75	314.5	180	44
- 100	100	384.5	217	52
- 125	125	452.5	256	56
- 150	150	513.5	292	56



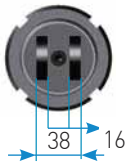
Urethane Cap

Clevis Mount

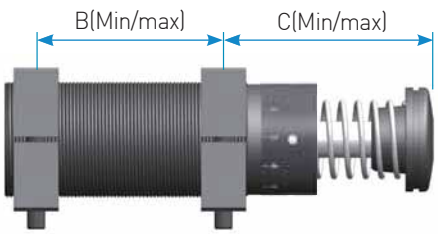


End Clevis

Rod Clevis



Clamp Mount



Accessories

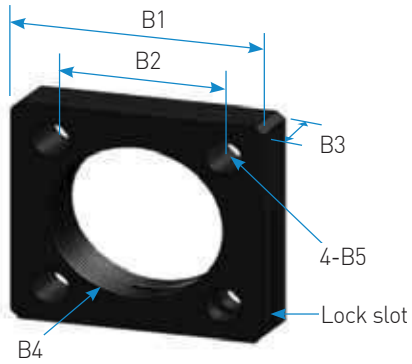
• Other accessories to be ordered separately

(unit : mm)

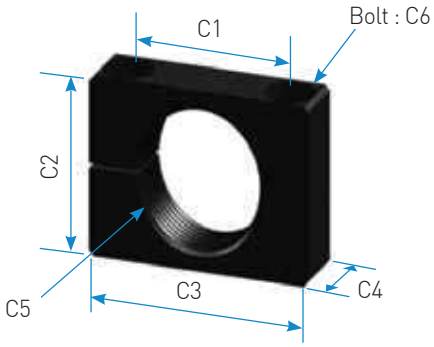
Model	ISA85 -25	ISA85 -50	ISA85 -75	ISA85 -100	ISA85 -125	ISA85 -150
A	256	316	381	451	519	-
B(Min/Max)	25/79	25/114	25/150	25/187	25/226	25/262
C(Min/Max)	95.5/120	120.5/162.5	149/209.5	182.5/261	211.5/309.5	236.5/352.5

Accessories

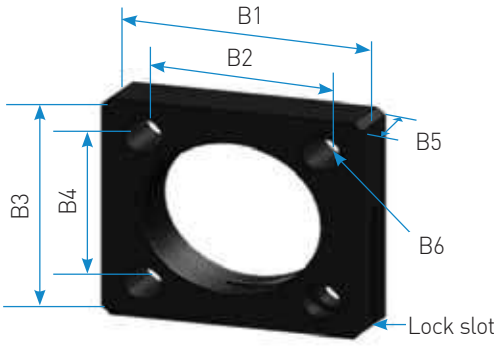
Square Flange



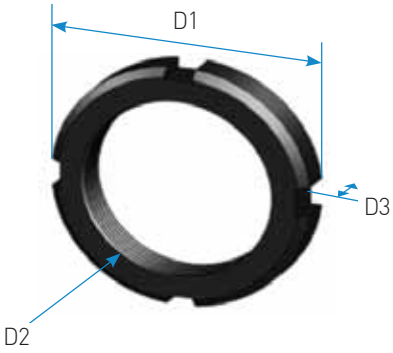
Clamp Mount



Rectangular Flange



Lock Collar



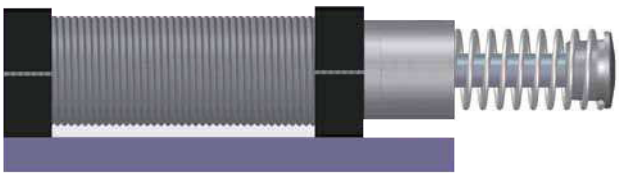
Rectangular Flange	B1	B2	B3	B4	B5	B6
RF45X1.5	78	60	60	41	14	Ø9
RF64X2.0	115	87.6	90	70	16	Ø11

Dimensions

(unit : mm)

Square Flange	Clamp Mount	Lock Nut	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3
SF45X1.5	CM45X1.5	LN45X1.5	□60	□41	14	M45 X 1.5P	Ø9	60	56	80	25	M45 X 1.5P	M8 X 60L	Ø58	M45 X 1.5P	9
SF64X2.0	CM64X2.0	LN64X2.0	□90	□70	16	M64 X 2.0P	Ø11	78	80	100	25	M64 X 2.0P	M10 X 80L	Ø80	M64 X 2.0P	11
SF85X2.0	CM85X2.0	LN85X2.0	□104	□76	19	M85 X 2.0P	Ø13	115	100	145	30	M85 X 2.0P	M14 X 100L	Ø110	M85 X 2.0P	16

ISA Accessories : Instruction

NAME	Installation Drawing	
Lock Collar		As a basic mounting way by using lock collar, shock absorber can be installed easily.
Flange Mount		Flange or rectangular flange can br used to fix the shock abosorber convenicntly.
Clamp Mount		Clamp mount is mainly used for horizontal sufaces and is useful when the length of the shock absorber is long.
Clevis Mount		It is mainly used in rotary motion and it is used to absorb shock indirectly by using clevis. Shock absorber can be protected from side loads.