

■ Sizing Examples

| A | Horizontal Mass without Propelling Force

- Weight $W = 100\text{ton}$
- Impact velocity $V = 0.5\text{m/s}$



$$E_k = \frac{W \times V^2}{2} = \frac{100 \times 0.5^2}{2} = 12.5 \text{ kNm}$$

Selected Model with E_k : IBSG65-200

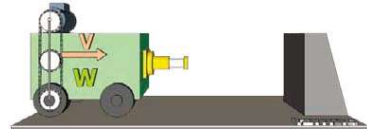
$$E_r = E_k + E_w = 12.5 + 0 = 12.5 \text{ kNm}$$

$$F_s = \frac{E_r}{(S \times \eta) + F_D} = \frac{12.5}{(0.2 \times 0.8) + 0} = 78.13 \text{ kN}$$

Selected Model with E_r & F_s : IBSG65-200

| B | Horizontal Mass with Propelling Force [Motor]

- Weight $W = 100\text{kg}$
- Cycles per hour $C = 600\text{Cycles/h}$
- Impact velocity $V = 1.5\text{m/s}$



$$E_k = \frac{W \times V^2}{2} = \frac{160 \times 1.5^2}{2} = 180 \text{ kNm}$$

Selected Model with E_k : IBSG140-400

$$E_w = F_D \times S = 20 \times 0.4 = 8 \text{ kNm}$$

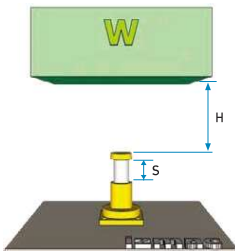
$$E_r = E_k + E_w = 12.5 + 0 = 12.5 \text{ kNm}$$

$$F_s = \frac{E_r}{(S \times \eta) + F_D} = \frac{180 + 8}{(0.4 \times 0.8) + 20} = 607.5 \text{ kN}$$

Selected Model with E_r & F_s : IBSG65-200

| C | Free Falling Mass

- Weight $W = 4\text{ton}$
- Height $H = 0.3\text{m}$



$$E_k = W \times g \times H = 4 \times 9.81 \times 0.3 = 11.772 \text{ kNm}$$

Selected Model with E_k : IBSG100-10

$$E_w = W \times g \times S = 4 \times 9.81 \times 0.1 = 3.924 \text{ kNm}$$

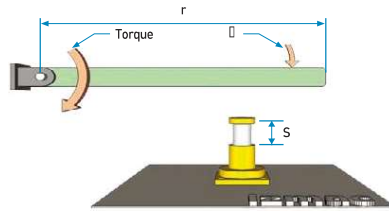
$$E_r = E_k + E_w = 11.772 + 3.924 = 15.696 \text{ kNm}$$

$$F_s = \frac{E_r}{(S \times \eta) + F_D} = \frac{15.696}{(0.1 \times 0.8) + 0} = 196.2 \text{ kN}$$

Selected Model with E_r & F_s : IBSG100-100

| D | Swiveling Mass with Propelling Force

- Torque $T = 200\text{Nm}$
- Impact velocity $\omega = 2\text{rad/s}$
- Radius of gyration $r = 8\text{m}$
- Mass moment of inertia $I = 35 \text{ Nms}^2$
- Stroke $S = 0.2 \text{ m}$



$$E_k = \frac{I \times \omega^2}{2} = \frac{35 \times 2^2}{2} = 70 \text{ kNm}$$

Selected Model with E_k : IBSG120-200

$$E_w = \frac{T \times S}{r} = \frac{200 \times 0.8}{8} = 5 \text{ kNm}$$

$$E_r = E_k + E_w = 70 + 5 = 75 \text{ kNm}$$

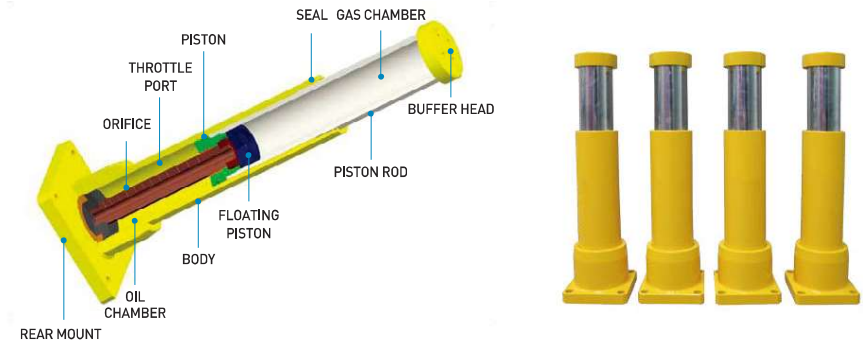
$$F_s = \frac{E_r}{(S \times \eta) + F_D} = \frac{75}{(0.2 \times 0.8) + 0} = 468.75 \text{ kN}$$

Selected Model with E_r & F_s : IBSG120-200

IBSG Series

DESCRIPTION

IBSG is a heavy-duty application product that has a high impact energy absorption capacity compared to its size. Operation: When an object collides, the piston enters the oil chamber by the tube shape piston rod, and the oil flows through the orifice of the throttle port and finally oil is pushing floating piston up to compress gas. In this process, flow resistance power arises, and gas pressure takes a role of accumulator which compensating piston rod space compressed gas has the role of returning piston rod to its original position when the load is released.



FEATURES

- 1 IBSG has over 90% high capable efficient energy hydraulic buffer.
- 2 Customizing orifice
- 3 Fulfilled international standards: OSHA, AISE, CMMA, DIN, FEM etc.
- 4 Operation temperature Standard: $-10 \sim 80^\circ\text{C}$ • Special: $-40 \sim 120^\circ\text{C}$
- 5 Piston rod surface treatment: Hard Chrome Plated
- 6 Body surface treatment: Epoxy Painting, Zinc Plating

APPLICATION

Container crane, overhead crane, stacker crane, transfer car, rail end stop, heavy industry, steel mill

IBSG SERIES ORDERING INFORMATION

IBSG - 120 - 200 - RF - BC

Mount Type

Stroke: mm

Body Thread Size

IB: Izmac Buffer

S: Self Compensating

G: Gas type

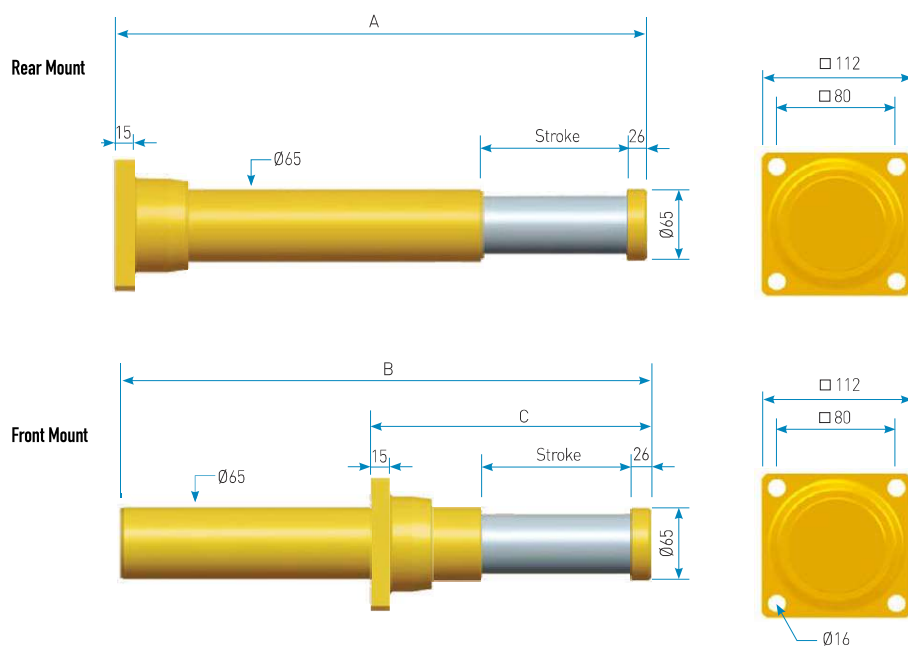
C: Safety Cable
UC: Urethane Cap
B: Bellows

RF: Rear Flange Mount
FF: Front Flange Mount
RC: Rod Clevis
EC: End Clevis

IBSG65 Series

■ Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(KJ)	Max.Buffer Force (kN)	Recoil Force (kN)		Weight(g)
				Ext.	Comp.	
IBSG65 - 50	50	3.8	95	1.0	3.5	6
- 75	75	5.7	95	1.0	3.5	8
- 100	100	7.5	95	1.0	3.5	9
- 150	150	11	95	1.0	3.5	11
- 200	200	14.7	95	1.0	3.5	12



■ Dimensions

(unit : mm)

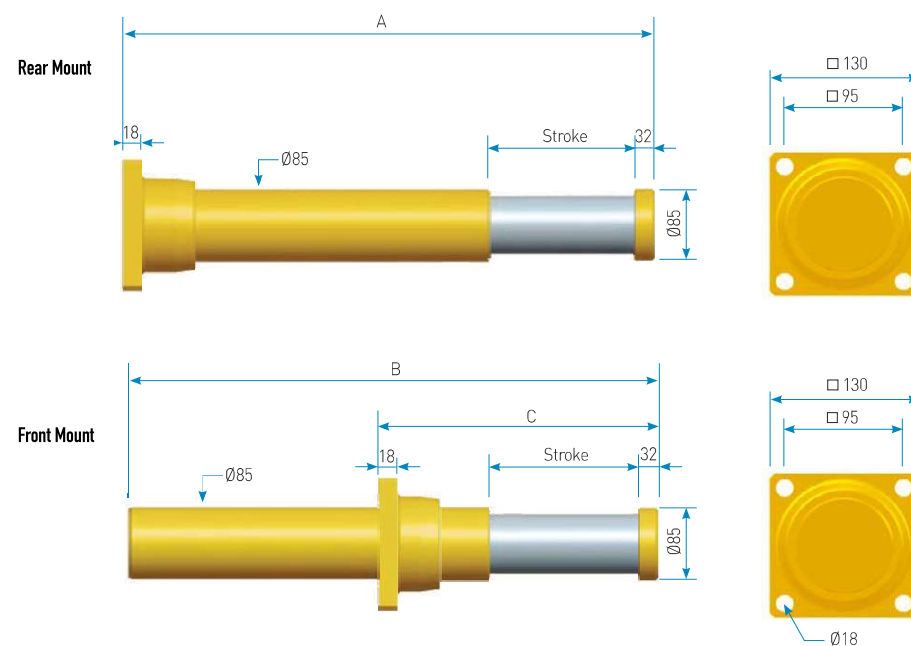
Model	Stroke (mm)	Rear Type (mm)	Front Type (mm)		Mounting Bolt Size
		A	C	D	
IBSG65 - 50	50	312	300	151	14
- 75	75	372	360	176	
- 100	100	432	420	231	
- 150	150	552	540	281	
- 200	200	672	660	371	

IBSG85 Series

Best Engineered
For Energy Absorption
Technology

■ Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(KJ)	Max.Buffer Force (kN)	Recoil Force (kN)		Weight(g)
				Ext.	Comp.	
IBSG85 - 50	50	7.5	188	1.5	13	12
- 100	100	15	188	1.5	13	14
- 150	150	22.5	188	1.5	20	17
- 200	200	30	188	1.5	20	20
- 250	250	37.5	188	1.5	20	22



■ Dimensions

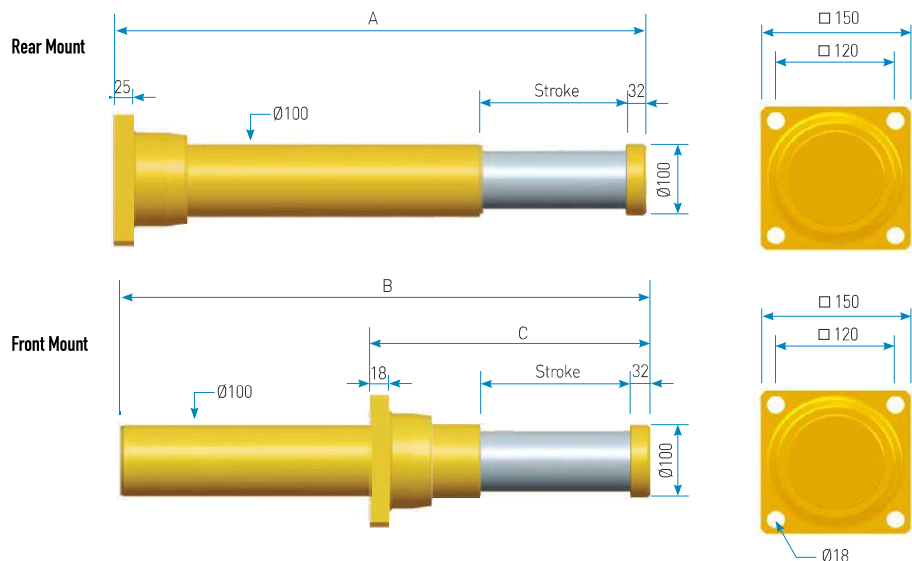
(unit : mm)

Model	Stroke (mm)	Rear Type (mm)	Front Type (mm)		Mounting Bolt Size
		A	C	D	
IBSG85 - 50	50	323	310	183	16
- 100	100	463	450	242	
- 150	150	603	590	305	
- 200	200	743	730	367	
- 250	250	883	870	430	

IBSG100 Series

■ Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(KJ)	Max.Buffer Force (kN)	Recoil Force (kN)		Weight(g)
				Ext.	Comp.	
IBSG100-50	50	16	250	2.4	16	20
- 100	100	20	250	2.4	16	25
- 150	150	30	250	2.4	20	28
- 200	200	40	250	2.4	20	34
- 250	250	50	250	2.4	25	39
- 300	300	60	250	2.4	25	43



■ Dimensions

Model	Stroke (mm)	Rear Type (mm)	Front Type (mm)		Mounting Bolt Size
		A	C	D	
IBSG100-80	80	423	403	215	16
- 100	100	450	430	252	
- 150	150	580	560	315	
- 200	200	720	700	377	
- 250	250	865	845	440	
- 300	300	1010	990	502	

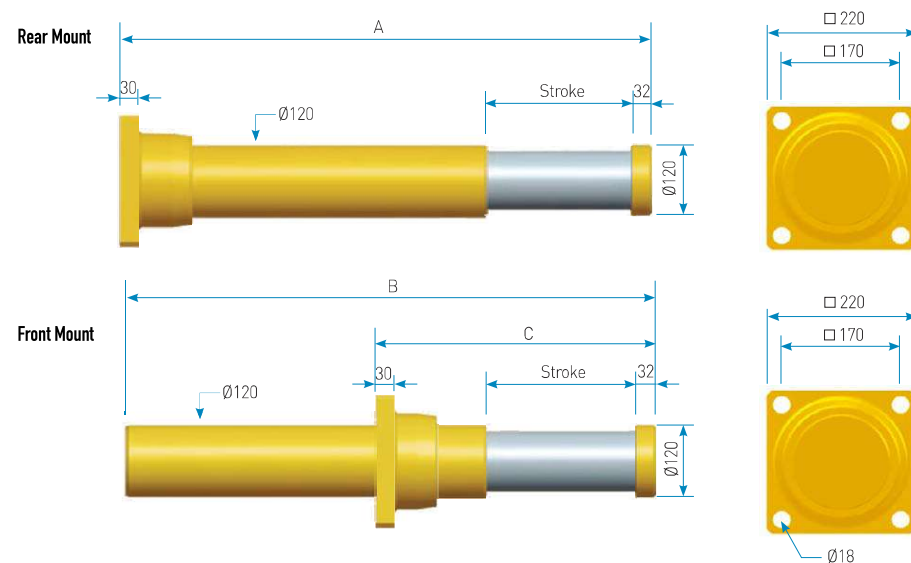
(unit : mm)

IBSG120 Series

Best Engineered
For Energy Absorption
Technology

■ Engineering Data

Model	Stroke (mm)	Max.Energy / Cycle(KJ)	Max.Buffer Force (kN)	Recoil Force (kN)		Weight(g)
				Ext.	Comp.	
IBSG120-100	100	40	500	3.5	40	41
- 150	150	60	500	3.5	40	48
- 200	200	80	500	3.5	40	58
- 250	250	100	500	3.5	40	65
- 300	300	120	400	3.5	40	72
- 400	400	160	400	3.5	40	78
- 500	500	180	400	3.5	40	86
- 600	600	200	400	3.5	40	95
- 800	800	240	375	3.5	40	112
- 1000	1000	280	350	3.5	40	118



(unit : mm)

■ Dimensions

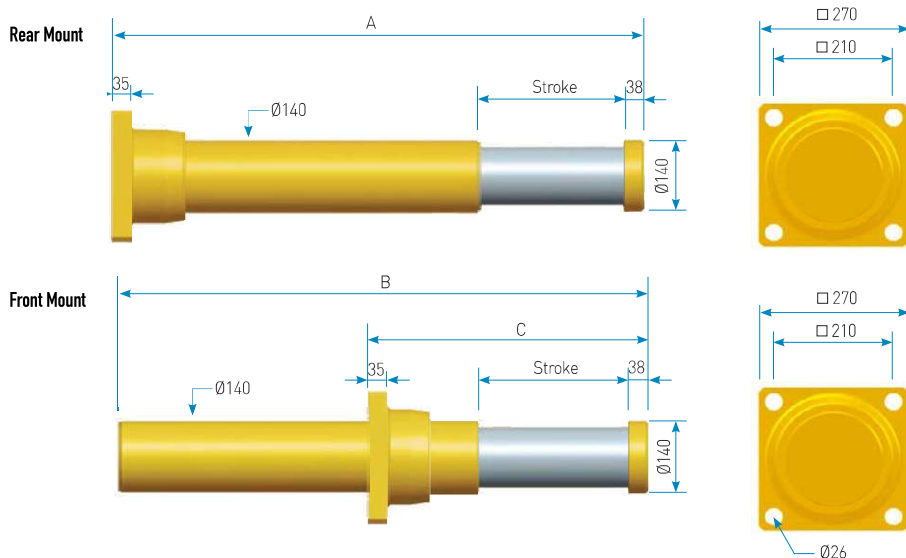
Model	Stroke (mm)	Rear Type (mm)	Front Type (mm)		Mounting Bolt Size
		A	C	D	
IBSG120-100	100	470	450	277	24
- 150	150	610	590	340	
- 200	200	760	740	402	
- 250	250	900	880	465	
- 300	300	1050	1030	527	
- 400	400	1340	1320	680	
- 500	500	1620	1600	815	
- 600	600	1920	1900	950	
- 800	800	-	2400	1290	
- 1000	1000	-	2960	1360	

IBSG140 Series

Best Engineered
For Energy Absorption
Technology

Engineering Data

Model	Stroke (mm)	Max. Energy / Cycle (KJ)	Max. Buffer Force (kN)	Recoil Force (kN)		Weight (g)
				Ext.	Comp.	
IBSG140 - 100	100	55	688	6	70	60
- 200	200	110	688	6	70	85
- 300	300	165	688	6	70	110
- 400	400	220	688	6	78	135
- 500	500	270	680	6	78	150
- 600	600	300	630	6	78	160
- 800	800	325	510	6	78	185
- 1000	1000	360	450	6	78	200



Dimensions

Model	Stroke (mm)	Rear Type (mm)	Front Type (mm)		Mounting Bolt Size
		A	C	D	
IBSG140 - 100	100	480	460	297	24
- 200	200	770	750	422	
- 300	300	1060	1040	547	
- 400	400	1350	1330	712	
- 500	500	1630	1610	847	
- 600	600	1930	1910	982	
- 800	800	2350	2330	1252	
- 1000	1000	-	2880	1595	

(unit: mm)

IBAW Series Stacker Crane Buffers

NEW

DESCRIPTION

IBAW is newly launched state-of-the-art dial type buffer which is engineered to select damping forces against wide application conditions. Engineered to maintain rather low peak figures & rebounding forces. Therefore it can be operated by lowest rebounding force and decelerate softly in emergency stop conditions. Used for mainly stacker crane application in automated logistic system, dial type has models upto 300mm stroke and maximum energy 82 kNm, there are front dial control type & back dial control type according to the dial location.

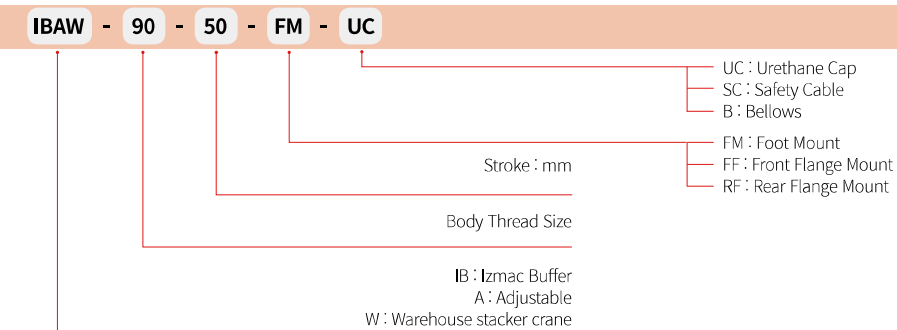
FEATURES

- 1 Customized orifice
- 2 Piston rod surface treatment : Hardened, Hard chrome plated
- 3 Body surface treatment : White zinc plated
- 4 Operation temperature : -10 ~ 80°C • Special : -40 ~ 120°C
- 5 Fullfilled international standards : OSHA, AISE, AIST, CMAA, DIN, FEM etc.
- 6 Option : Urethane cap, Safety cable, Mounting plates, Adjustment dial position

APPLICATION

Automatic warehouse stacker crane, logistic automation system, amusement park, STS crane, production facilities.

IBAW SERIES ORDERING INFORMATION



Hydraulic Buffers

IBAW Series