TOYO KOKEN

All products line-up for transfer and transportation.

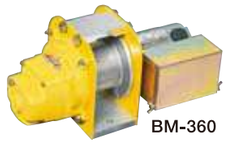
LADDER LIFTER

PV-MZ4

BABYHOIST

BH-N930

WINCH



BM-360

MIGHTYPULLER

MA-10

PALEBOT

TX-21

Feel the high workability of our products by looking at, touching and moving

Demonstrated in our branch offices in various places of the country.

※“BALAMAN Truck” will visit anywhere in the country. Inquire of yournearest branch office of TOYO KOKEN.

BALAMAN CAR

Yamanashi exhibition booth

Osaka exhibition booth

Shop

TOYO KOKEN K.K.

8-19-20, Higashisuna, Koto-ku, Tokyo 136-8666 JAPAN
TEL+81-3-5857-3161 FAX+81-3-5857-3198

Factory／Branches

YAMANASHI PLANT	TEL+81-55-282-5581	FAX+81-55-284-2398
OSAKA Branch	TEL+81-6-6787-7077	FAX+81-6-6785-2210
FUKUOKA Branch	TEL+81-92-477-9890	FAX+81-92-477-9891
NAGOYA Branch	TEL+81-52-793-5255	FAX+81-52-793-5242

For the latest information on products, see at http://www.toyokoken.co.jp

⚠**Caution**◎For correct and safe operation, be sure to read the “Operation Manual” before starting the equipment.

◆Information in this catalog is as of March 2014 Specifications may be modified for the purpose of improvement without notice.

14.3DC1-3

TOYO KOKEN エルゴハンド BALAMAN

Intertek ISO9001:2008 認証取得 ISO14001:2004 認証取得

TOYO KOKEN ERGO-HAND BALAMAN

BALAMAN general catalogue

Change the transfer job of heavy products with various shapes to light duty.

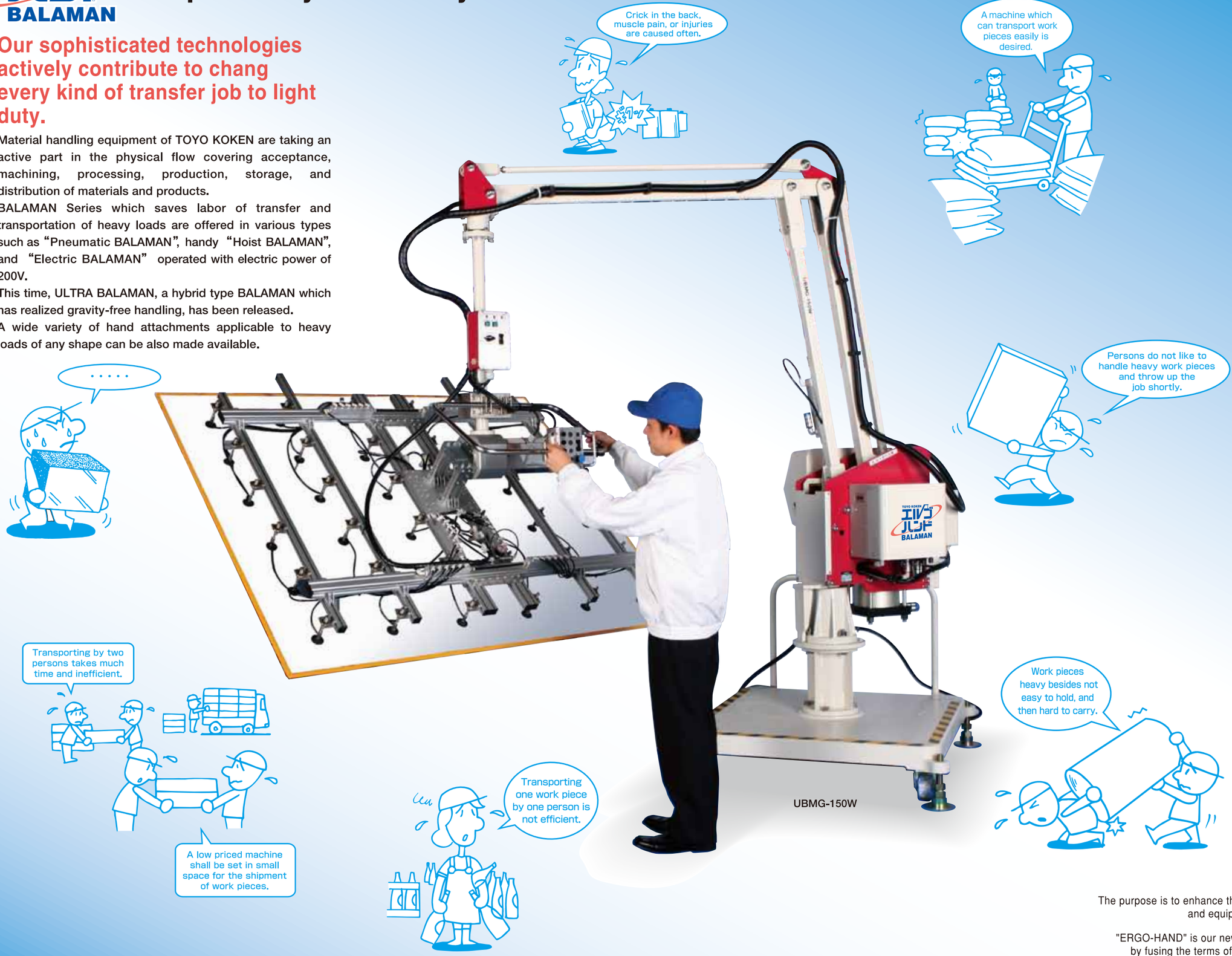
TOYO KOKEN K.K.

TOYO KOKEN エルゴハンド BALAMAN

Realize the streaming and cost reductio n in logistics by sophisticated operability and safety features.

Our sophisticated technologies actively contribute to chang every kind of transfer job to light duty.

Material handling equipment of TOYO KOKEN are taking an active part in the physical flow covering acceptance, machining, processing, production, storage, and distribution of materials and products.
BALAMAN Series which saves labor of transfer and transportation of heavy loads are offered in various types such as “Pneumatic BALAMAN”, handy “Hoist BALAMAN”, and “Electric BALAMAN” operated with electric power of 200V.
This time, ULTRA BALAMAN, a hybrid type BALAMAN which has realized gravity-free handling, has been released.
A wide variety of hand attachments applicable to heavy loads of any shape can be also made available.



INDEX

Intertek ISO9001:2008 Certified
ISO14001:2004 Certified

【ERGO-HAND®】
The purpose is to enhance the safety and work efficiency by design the machine and equipment in conformity with human body and capability.
(ergonomics)
"ERGO-HAND" is our new brand expressing the TOYO KOKEN technologies by fusing the terms of "ergonomics "and "hand (human hand technology)"

We propose BALAMAN, which is suited for your trans fer products and installation conditions.

We propose the best-suited type of main unit, base, attachment, etc. based on the shape, weight, etc. of the transfer products (work piece).
BALAMAN will strongly support your heavy manual labor at the tarnsfer job sites covering from reciving of row materials/materials to processing/production processes, storage/shipping operations, etc. where the flows of products are versatile and wide-ranging, by choosing the best-suited models for the transfer products and the installation conditions.

What are the work pieces and operations?

- ☑ Size of work piece
- ☑ Shape of work piece
- ☑ Weight of work piece
- ☑ Material of work piece
- ☑ Palletize
- ☑ Depalletize
- ☑ Assembly,…etc.

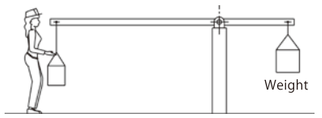
We propose the custom-made attachments and the opera-tion methods in which our know-how is accumulated.

What about the installa-tion space?

- ☑ Working range
- ☑ Height of ceiling
- ☑ Methed of installation
- ☑ Layout of workplace

We propose the installation method, by choosing from the various styles of arm.

What is the "ERGO-HAND BALAMAN"?



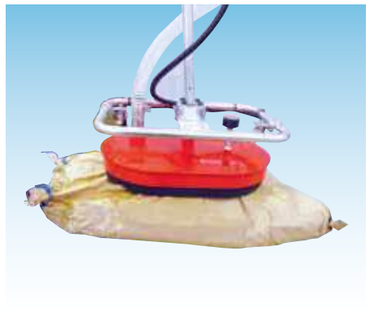
ERGO-HAND BALAMAN is a transfer manipulator that is different from a crane, and it can transfer the product in all directions as intended by the operator by utilizing the principle of leverage.

The highly functional attachments reduce the burden required for the transfer job of heavy prodcuts.

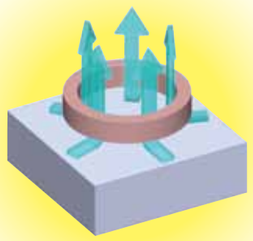
The highly functional attachments that can deal with varieties of heavy products have enabled the safe, rapid and nimble working.

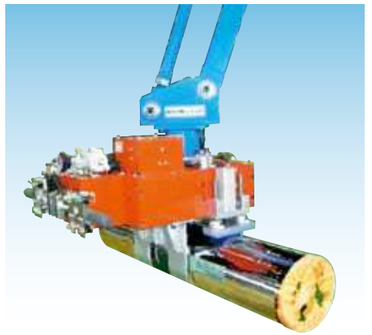
Performance of "ERGO-HAND BALAMAN" is optimized by the attachment that can securely hold the work pieces (heavy products) having different shapes, and realized to readuce the labor of heavy work at a variety of job sites.
ERGO-HAND BALAMAN that has flexible operability and the varieties of attachments that are developed based on our many years of experience and achievements has made the transfer/conveyance heavy work in all areas to develop into safer and more rapid heavy work.

Holding Method of Work Piece

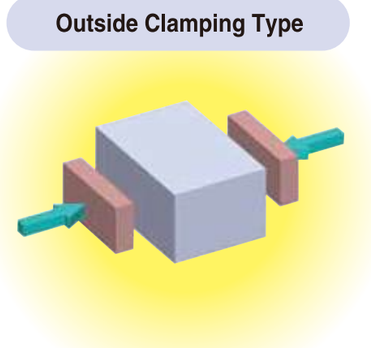


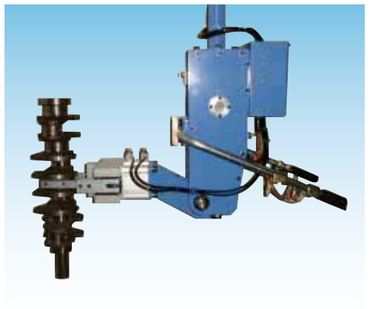
Vacuum Type

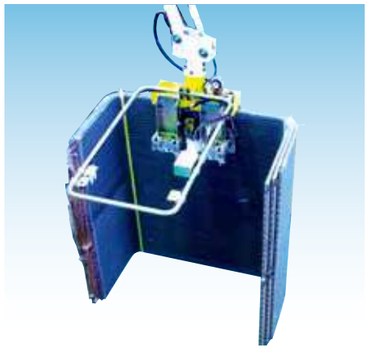


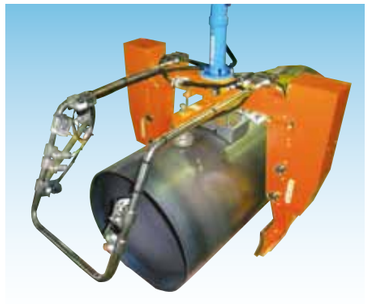


Outside Clamping Type

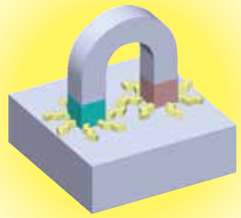




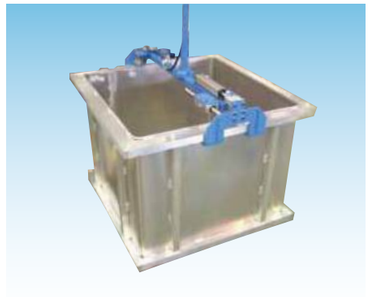


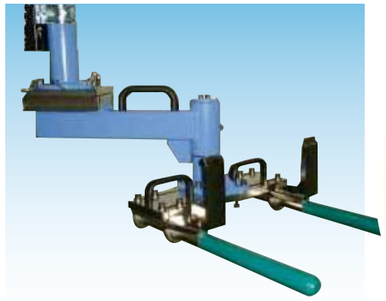


Magnet Type

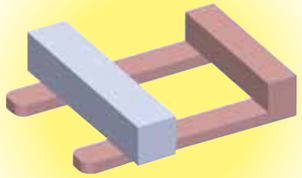


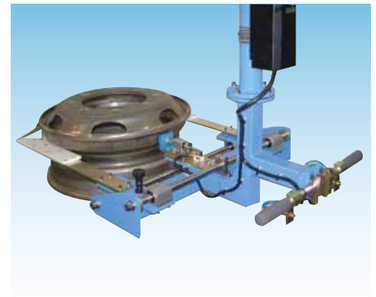
Hook/Hanging Type



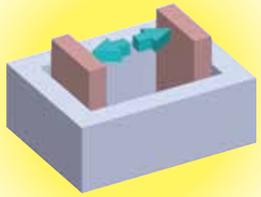


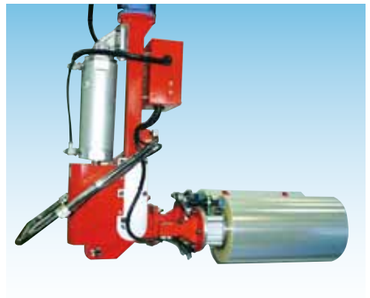
Fork/Insertion Type

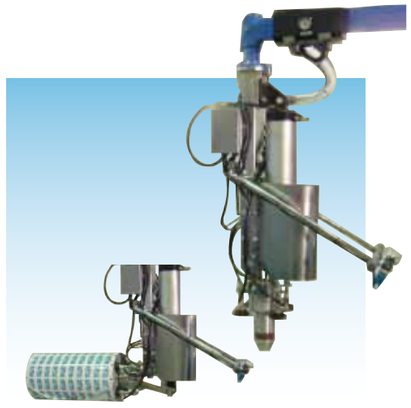




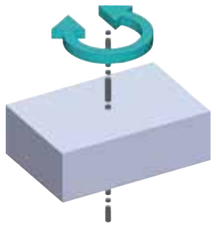
Inside Clamping Type



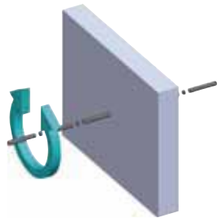




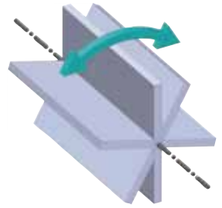
The optimum working posture is realized by adding various mechanisms to the attachments that hold various work pieces.



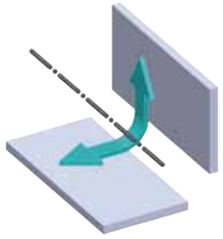
Horizontal Rotation

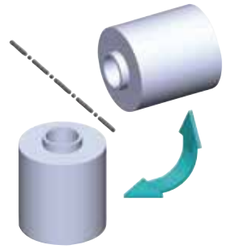


Vertical Rotation



Tilting/Turning Over





Pulling Up/ Down

Motions of the attachment use the air cylinder, rotary actuator, servomotor, etc. in addition to the manual.

Versatile arm types that fit the working space and operations.

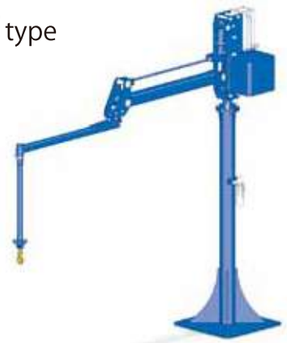
BMF type

- 1-axis rotation type which is the standard and easy-to-use.
- The models ranging from 75kg to 500kg are standardized.
- The fixed type and the movable type can be selected.

* This feature is not applicable to some models.

Pneumatic type | Hybrid type | Electric type

BMS type



- The 2-axis rotation type which is compatible with various installation spaces.
- This type is best suited for lateral loading/unloading operation.
- The fixed type and movable type can be selected.

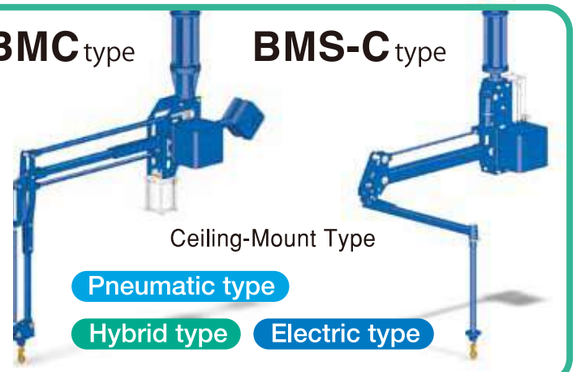
Pneumatic type | Hybrid type | Electric type

BMG type

- Suitable for low ceiling site.
- The fixed type and movable type can be selected.

Hybrid type | Electric type

BMC type　BMS-C type



Ceiling-Mount Type

Pneumatic type

Hybrid type | Electric type

BMH type

- Cover the wide operation area in combination with the ceiling-rail system.

Pneumatic type

TOYO KOKEN
エバラ ハンド
BALAMAN

ELECTRIC BALAMAN

Intelligent type i2 SERIES

Intelligent Intelligent Balaman “i2 series” are versatile and high-performance Balancer, greatly expand the existing function such as balancing function by electronic control and positioning play back, and equipped with new function such as weight indication.

Features

● Realizing the balancing function by electronic control.

The weak point of pneumatic type is covered by the electric type.
It has various functions to keep safety against the changing weight or drop off the work piece.

● Improvement of crane operation function.

Motion speed can be continuously adjusted by crane lever and 2 speed changed by pendant switch (option).
Motion speed can be easily set by the touch panel.

● Position play back function was greatly improved.

This function is storage (teach) the height in advance and positioning (play back) same height by only button operation.
It is useful for the operation that positioning same height repeatedly with high accuracy.

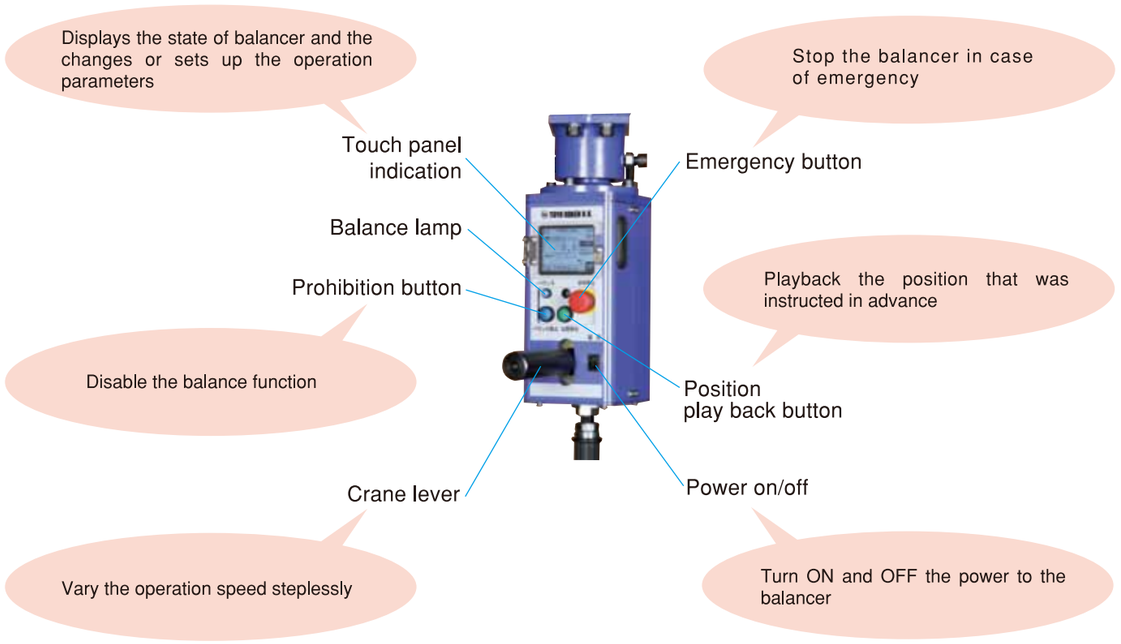
● Saving energy followed by electrification.

Consumption energy of the electric type shall be reduced 20% compared with pneumatic type, and saved running
cost and saving energy operation can be realized.

● Improvement of maintainability.

Touch panel is installed at operation box as standard. Setting and changing of motion shall be eased.
Error and warning message shall be indicated on the panel, therefore right and rapid counter action can be applied.

Controller



Customization such as the mounting of a switch on the operation handle of the attachment is possible.

BMi2F/C-100/180

1-axis rotation type which is the standard and easy-to-use.

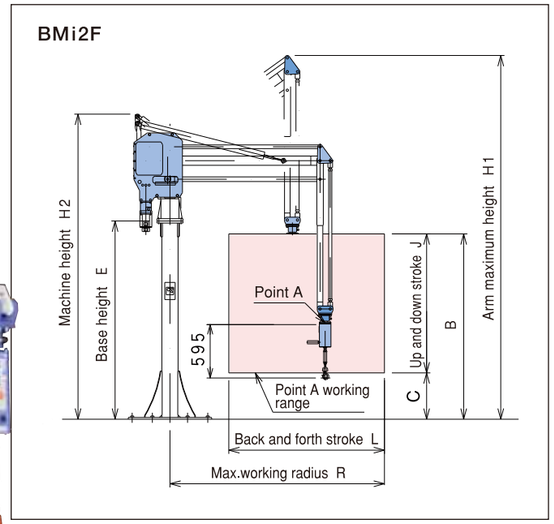
TOYO KOKEN エルゴハンド BALAMAN

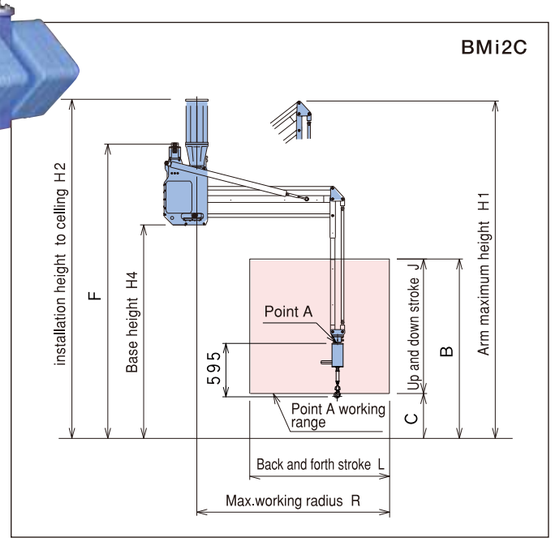
E Electric type | Fixed type base | Mobile type base | Ceiling type mobile trolley | 100kg Suspended load 100kg (-i2F) | 180kg Suspended load 180kg (-i2F)

Intelligent type i2 SERIES

Electric type

BMi2F-180





BMi2 series

- Arm ratio 100=7:1、180=7:1
- Refer to the "Table for utilty " for the power source for the Electric Balaman.
- Refer to the attached table [P25] for the details of the applicable bases.

BMi2F

Model	Max. load (kg)			H1 (mm)	H2 (mm)	B (mm)	C (mm)	E (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base	
	Attachment type with balancing fanction	Hook type with balancing fanction	Crane type										Fixed type	Mobile type
BMi2F-100	88	100	100	3761	3173	2000	500	2035	1500	1560	2150	205	FSI-75	SNI-100
BMi2F-180	168	180	180	3925	3292	2000	500	2139	1500	1680	2315	265	FSI-150	SNI-150

BMi2C

Model	Max. load (kg)			H1 (mm)	H3 (mm)	H4 (mm)	B (mm)	C (mm)	E (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base		
	Attachment type with balancing fanction	Hook type with balancing fanction	Crane type											Fixed type	Manual type	Electric trolley
BMi2C-100	88	100	100	3761	3780	2380	2000	500	2035	1500	1560	2150	215	CS-150	MT-150	AT-150
BMi2C-180	168	180	180	3925	3970	2470	2000	500	2139	1500	1680	2315	275	CS-250	—	AT-250

BMi2S/S-C-50~250

The 2-axis rotation type which can compatible with various installation spaces

TOYO KOKEN エルゴハンド BALAMAN

Intelligent type i2 SERIES

Electric type

BMi2S-75

Note: The photo shows the system with attachments.
The standard system does not include any attachment.

E Electric type

Fixed type base

Mobile type base

Short tube for ceiling attachment

Ceiling type mobile trolley

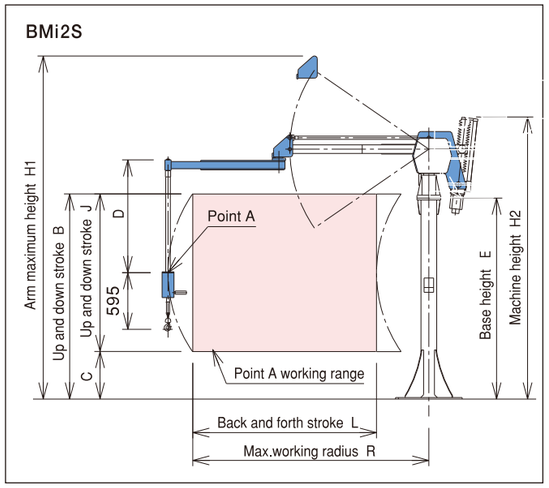
50 kg Suspended load 50kg

75 kg Suspended load 75kg

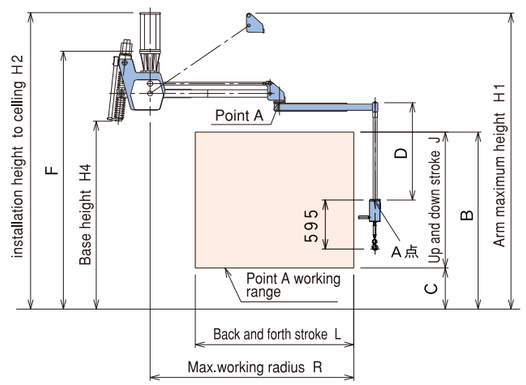
150 kg Suspended load 250kg (-i2S)

250 kg Suspended load 250kg (-i2S)

BMi2S



BMi2SC



BMi2Sseries

BMi2S

Model	Max. load (kg)		
	Attachment type with balancing fanction	Hook type with balancing fanction	Crane type
BMi2S-50	38	43	50
BMi2S-75	63	75	75
BMi2S-150	138	150	150
BMi2S-250	225	250	250

H1 (mm)	H2 (mm)	B (mm)	C (mm)	D (mm)	E (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base	
										Fixed type	Mobile type
3269	2961	2100	500	900	1816	1600	1500	2158	150	FSI-50	SNI-50
3603	2963	2155	500	1185	2111	1655	1930	2480	215	FSI-75	SNI-75
3450	2731	2165	500	904	1931	1665	1810	2345	240	FSI-150	SNI-150
3633	2987	2165	500	1000	2038	1665	1876	2552	410	FSI-250	SNI-250

●Arm ratio 50=5:1、75=4.17:1、150=7.5:1、250=7.5:1
●Refer to the "Table for utilty " for the power source for the Electric Balaman.
●As for the details of the applicable bases, refer to the Attached Table.

BMi2S-C

Model	Max. load (kg)			H1 (mm)	H3 (mm)	H4 (mm)	B (mm)	C (mm)	D (mm)	F (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base		
	Attachment type with balancing fanction	Hook type with balancing fanction	Crane type												Fixed type	Manual type	Electric trolley
BMi2S-50C	38	43	50	3269	3500	2018	2100	500	900	3164	1600	1500	2158	150	CSI-50	MT-75SP	AT-75SP
BMi2S-75C	63	75	75	3603	3609	2287	2155	500	1185	3139	1655	1930	2480	240	CS-150	MT-150	AT-150
BMi2S-150C	138	150	150	3450	3488	2188	2165	500	904	2988	1665	1810	2345	240	CS-250	—	AT-250
BMi2S-250C	225	250	250	3633	3734	2259	2165	500	1000	3209	1665	1876	2552	410	CSI-250	—	AT-375

TOYO KOKEN エルゴハンド BALAMAN

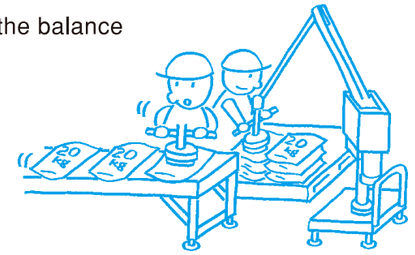
PNEUMATIC BALAMAN

Two control systems that can be adapted to transfer product and operations

REGULATOR CONTROL

The control system that the weight of the transfer products is set up in advance and the condition of balance is selected by switch operations

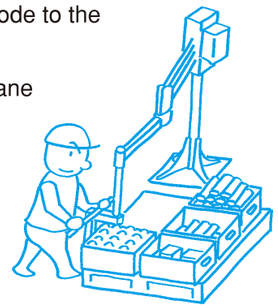
- Suitable for the lot manufacturing that transfers the same products continuously.
- Since the state of balance can be switched rapidly, it is suitable for operations that require the shorter tact time.
- Applied only to the balance operations.
- Setting up the multiple weights and selecting the balance with the selector switch.



DOUBLE CONTROL

The control system can deal with random weights where the weight of transfer products is detected each time.

- Suitable for handling of various kinds of transfer prodcuts.
- The balancing pressure is set up each time after lifting up the transfer products by the crane operation.
- A press on the balance button as required switches the mode to the balancing condition.
- The transfer in the air is possible to select either by the crane or the balance operation.



Safety function

- The work piece/arm can be stopped and held at the existing position even when the supply air is lost.
- Prevent the jump-up of the arm even if the work piece was self-destructed.
- The interlocking circuits with various attachments are featured.

BMG-30~150

The capability of flexible transfer is ensured even in the low ceiling space.

TOYO KOKEN エルゴハンド BALAMAN

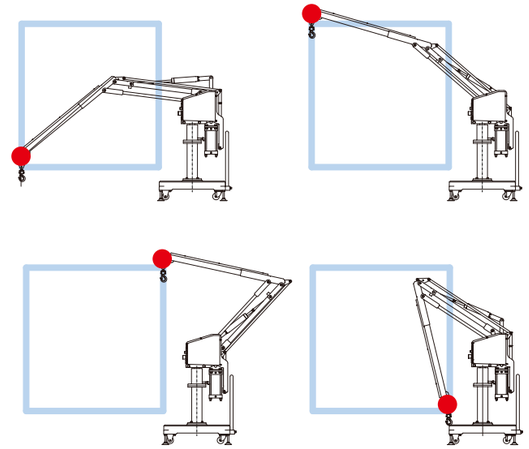
Pneumatic type | Fixed type base | Mobile type base

30 kg Suspended load 30kg | 38 kg Suspended load 38kg | 50 kg Suspended load 50kg | 75 kg Suspended load 75kg | 150 kg Suspended load 150kg

Pneumatic type

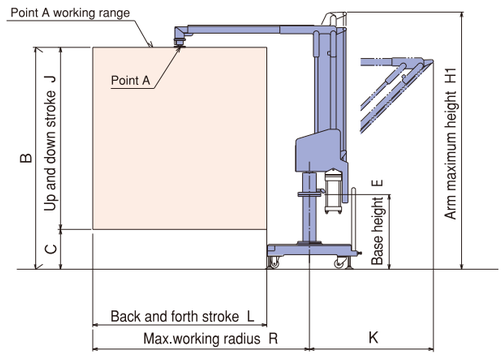
BMG-38S

Point A



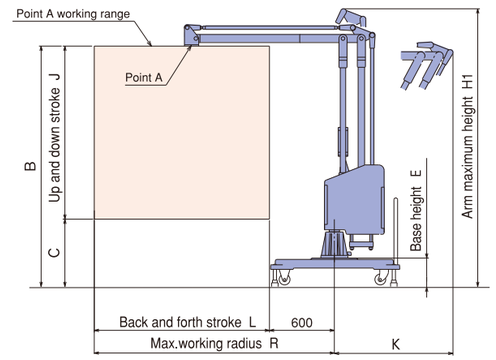
Note: The photo shows the system with attachments.
The standard system does not include any attachment.

＊The maximum working radius can be changed. (The load capacity varies according to the change.)
＊The load capacity includes the weight of attachment in addition to that of the work piece.



Model	Max. load (kg)	H1 (mm)	B (mm)	C (mm)	E (mm)	J (mm)	K (mm)	R (mm)	L (mm)	Approx. Mass (kg)	Base	
											Fixed type	Mobile type
BMG-30W	30	2260	1950	350	656	1600	1090	1905	1530	100	SNG-50	SNG-30
BMG-38S	38	2480	2220	220	656	2000	1175	2375	1870	100		SNG-50
BMG-38W	38	2500	2190	190	656	2000	1260	2375	1870	140		
BMG-50W	50	2260	1950	350	656	1600	1090	1905	1530	135		

- Arm ratio: 8:1, 10:1（BMG-38W／S）
- Refer to the "Table for utility " for air pressure and the air consumption.（P.29）
- Refer to the "Table for utilty " for the power source for the hybrid control.（P.29）
- Refer to the attached table [P25] for the details of the applicable bases.



Model	Max. load (kg)	H1 (mm)	B (mm)	C (mm)	E (mm)	J (mm)	K (mm)	R (mm)	L (mm)	Approx. Mass (kg)	Base	
											Fixed type	Mobile type
BMG-75W	75	2441	2096	496	136	1600	1097	2220	1620	220	FSG-75	——
		2528	2183	583	223	1600	1097	2220	1620			SNG-75
BMG-150W	150	2441	2096	496	136	1600	1097	2220	1620	290	FSG-150	——
		2568	2223	623	263	1600	1097	2220	1620			SNG-150

- Arm ratio: 8:1
- Refer to the "Table for utility " for air pressure and the air consumption.（P.29）
- Refer to the "Table for utilty " for the power source for the hybrid control.（P.29）
- Refer to the attached table [P25] for the details of the applicable bases.

BMF-75~500

1-axis rotation type which is the standard and easy-to-use

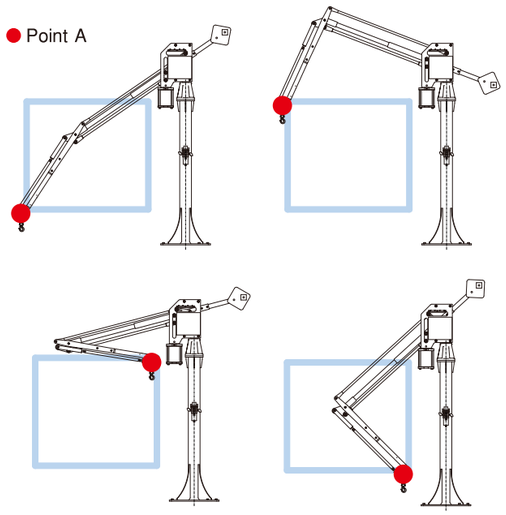
Pneumatic type | Fixed type base | Mobile type base | Single link | Double link

75kg Suspended load 75kg | 150kg Suspended load 150kg | 250kg Suspended load 250kg | 375kg Suspended load 375kg | 500kg Suspended load 500kg

Pneumatic type

BMF-150W

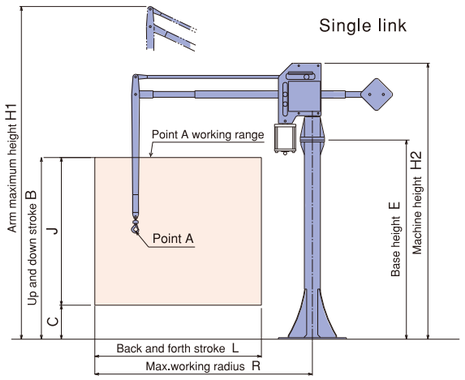
● Point A



Note: The photo shows the system with attachments.
The standard system does not include any attachment.

＊Select the double link type if it needs to keep level of the work piece.

Single link

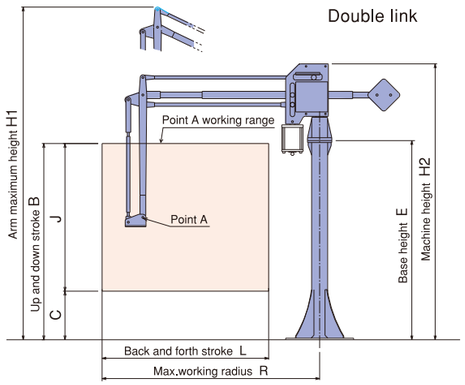


BMF-S

Model	Max. load (kg)	H1 (mm)	H2 (mm)	B (mm)	C (mm)	E (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base	
											Fixed type	Mobile type
BMF-75S	75	3487	2840	1870	350	2050	1520	1715	2240	180	FS-75	SN-75
BMF-150S	150	3487	2840	1870	350	2050	1520	1715	2240	220	FS-150	SN-150
BMF-250S	250	3525	2945	1840	320	2010	1520	1715	2260	355	FS-250	SN-250
BMF-375S	375	3525	2945	1840	320	1970	1520	1715	2260	383	FS-375	SN-375
BMF-500S	500	4045	3245	2050	300	1868	1750	2040	2870	900	FS-500	——

- Arm ratio: 8:1 for 75 and 150. 7:1 for 250 and above
- Refer to the "Table for utility " for air pressure and the air consumption. (P.29)
- Refer to the "Table for utilty " for the power source for the hybrid control. (P.29)
- Refer to the attached table [P25] for the details of the applicable bases.

Double link



BMF-W

Model	Max. load (kg)	H1 (mm)	H2 (mm)	B (mm)	C (mm)	E (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base	
											Fixed type	Mobile type
BMF-75W	72	3487	2840	2020	500	2050	1520	1715	2240	200	FS-75	SN-75
BMF-150W	142	3487	2840	2020	500	2050	1520	1715	2240	275	FS-150	SN-150
BMF-250W	236	3525	2945	2020	500	2010	1520	1715	2260	404	FS-250	SN-250
BMF-375W	351	3525	2945	2020	500	1970	1520	1715	2260	430	FS-375	SN-375
BMF-500(4W)	435	4045	3245	2250	500	1868	1750	2040	2870	1110	FS-500	——

- Arm ratio: 8:1 for 75 and 150. 7:1 for 250 and above
- Refer to the "Table for utility " for air pressure and the air consumption. (P.29)
- Refer to the "Table for utilty " for the power source for the hybrid control. (P.29)
- Refer to the attached table [P25] for the details of the applicable bases.

BMC-75~500

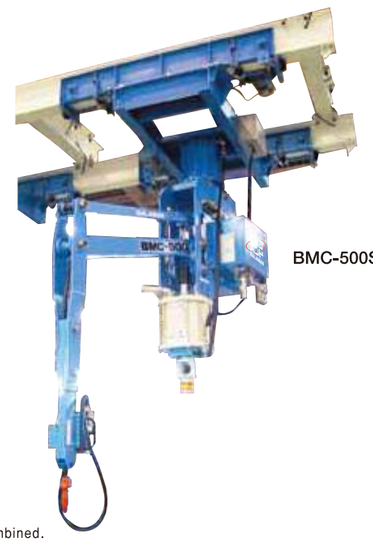
Ceiling-mount type that ensures the effective use of the floor space

Pneumatic type | Short tube for ceiling attachment | Ceiling type mobile trolley | Single link | Double link

75kg Suspended load 75kg | 150kg Suspended load 150kg | 250kg Suspended load 250kg | 375kg Suspended load 375kg | 500kg Suspended load 500kg

Pneumatic type

BMC-150S

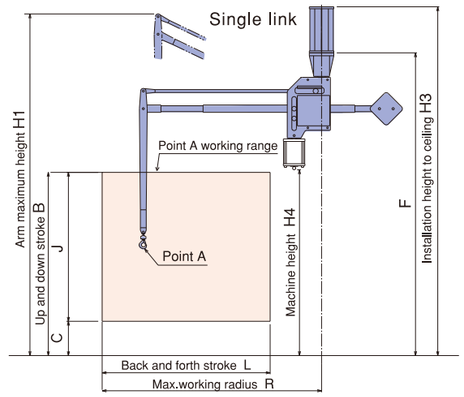


BMC-500S

Note: In this Photo, an electric trolley unit (optional) is combined.
The standard model includes no electric trolley unit.

＊The maximum working radius can be changed. (The load capacity varies according to the change.)
＊The load capacity includes the weight of attachment in addition to that of the work piece.

Single link

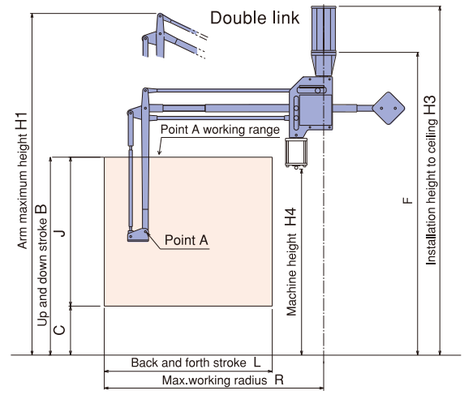


BMC-S

Model	Max. load (kg)	H1 (mm)	H3 (mm)	H4 (mm)	B (mm)	C (mm)	F (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base		
												Fixed type	Manual type	Electric trolly
BMC-75S	75	3487	3560	1921	1870	350	3090	1520	1715	2240	180	CS-75	MT-75	AT-75
BMC-150S	150	3487	3560	1897	1870	350	3090	1520	1715	2240	220	CS-150	MT-150	AT-150
BMC-250S	250	3525	3590	1728	1840	320	3190	1520	1715	2260	355	CS-250	——	AT-250
BMC-375S	375	3525	3630	1728	1840	320	3230	1520	1715	2260	383		——	AT-375
BMC-500S	500	4045	4235	1826	2050	300	3870	1750	2040	2690	900	CS-500	——	AT-500

- Arm ratio: 8:1 for 75 and 150, 7:1 for 250 and above
- Refer to the "Table for utility " for air pressure and the air consumption. (P.29)
- Refer to the "Table for utilty " for the power source for the hybrid control. (P.29)
- Refer to the attached table [P25] for the details of the applicable bases.

Double link



BMC-W

Model	Max. load (kg)	H1 (mm)	H3 (mm)	H4 (mm)	B (mm)	C (mm)	F (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base		
												Fixed type	Manual type	Electric trolly
BMC-75W	72	3487	3560	1921	2020	500	3090	1520	1715	2240	200	CS-75	MT-75	AT-75
BMC-150W	142	3487	3560	1897	2020	500	3090	1520	1715	2240	275	CS-150	MT-150	AT-150
BMC-250W	236	3525	3590	1728	2020	500	3190	1520	1715	2260	404	CS-250	——	AT-250
BMC-375W	351	3525	3630	1728	2020	500	3230	1520	1715	2260	430		——	AT-375
BMC-500(4W)	435	4045	4235	1826	2250	500	3870	1750	2040	2690	1100	CS-500	——	AT-500

- Arm ratio: 8:1 for 75 and 150, 7:1 for 250 and above
- Refer to the "Table for utility " for air pressure and the air consumption. (P.29)
- Refer to the "Table for utilty " for the power source for the hybrid control. (P.29)
- Refer to the attached table [P25] for the details of the applicable bases.

BMS-30~150

The 2-axis rotation type which can compatible with various installation spaces

Pneumatic type | Fixed type base | Mobile type base | 30kg Suspended load 30kg | 50kg Suspended load 50kg | 75kg Suspended load 75kg | 125kg Suspended load 125kg | 150kg Suspended load 150kg

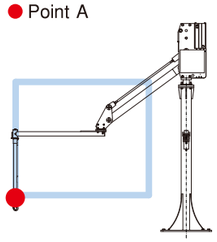
Pneumatic type

BMS-30

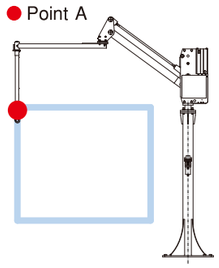
Pneumatic type

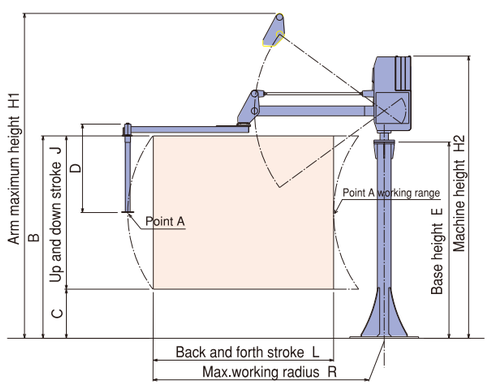
BMS-75

Point A



Point A





BMS

Model	Max. load (kg)	H1 (mm)	H2 (mm)	B (mm)	C (mm)	D (mm)	E (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base	
												Fixed type	Mobile type
BMS-30	30	2982	2529	1800	500	900	1920	1300	1540	1990	80	FSS-30	SNS-30
BMS-50	50	3338	2855	2110	500	900	1988	1610	1525	2118	120	FSS-50	SNS-50
BMS-75	75	3307	2873	2060	500	900	1997	1560	1835	2350	150	FS-75	SN-75
BMS-125	125	3278	2926	2000	500	900	1983	1500	1535	2190	180	FS-150	SNS-125
BMS-150	150	3451	3035	2156	500	900	2023	1656	1812	2354	280		SN-150

- Arm ratio: 30=10:1 , 50=7:1 , 75=6:1 , 125=5:1 ,150=6:1
- Refer to the "Table for utility " for air pressure and the air consumption. (P.29)
- Refer to the "Table for utilty " for the power source for the hybrid control. (P.29)
- Refer to the attached table [P25] for the details of the applicable bases.

BMS-30~150C

Ceiling-mount type that ensures the effective use of the floor space

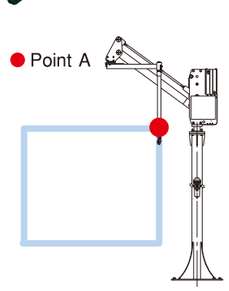
Pneumatic type | Short tube for ceiling attachment | Ceiling type mobile trolley

30kg Suspended load 30kg | 50kg Suspended load 50kg | 75kg Suspended load 75kg | 125kg Suspended load 125kg | 150kg Suspended load 150kg

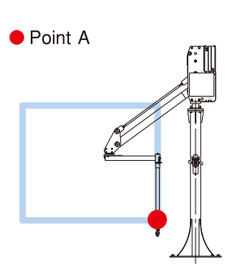
Pneumatic type

Note: The photo shows the system with attachments.
The standard system does not include any attachment.

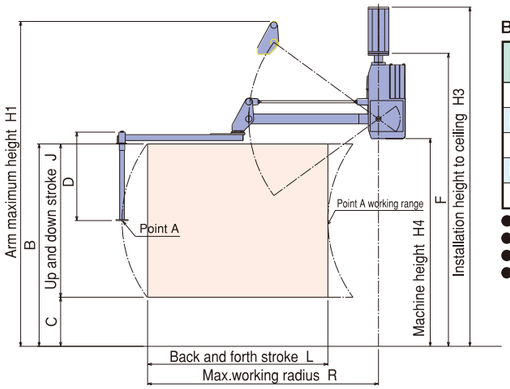
Point A



Point A



*The maximum working radius can be changed. (The load capacity varies according to the change.)
*The load capacity includes the weight of attachment in addition to that of the work piece.



BMS-C

Model	Max. load (kg)	H1 (mm)	H3 (mm)	H4 (mm)	B (mm)	C (mm)	D (mm)	F (mm)	J (mm)	L (mm)	R (mm)	Approx. Mass (kg)	Base		
													Fixed type	Manual trolly	Electric trolly
BMS-30C	30	2982	3082	2012	1800	500	900	2707	1300	1540	1990	80	CS-30	MT-75SP	AT-75SP
BMS-50C	50	3338	3573	2188	2110	500	900	3046	1610	1525	2118	120	CS-50	MT-75SP	AT-75SP
BMS-75C	75	3307	3542	2114	2060	500	900	2982	1560	1835	2350	150	CS-75	MT-75	AT-75
BMS-125C	125	3278	3476	2072	2000	500	900	3006	1500	1535	2190	180	CS-150	MT-150	AT-150
BMS-150C	150	3451	3613	2143	2156	500	900	3143	1656	1812	2354	280			AT-150

- Arm ratio: 30=10:1 , 50=7:1 , 75=6:1 , 125=5:1 ,150=6:1
- Refer to the "Table for utility " for air pressure and the air consumption. (P.29)
- Refer to the "Table for utilty " for the power source for the hybrid control. (P.29)
- Refer to the attached table [P25] for the details of the applicable bases.

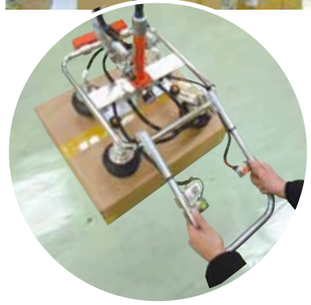
BMH-30~130

Air Hoist with Balance Function

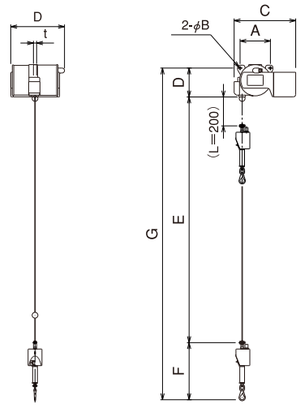
Pneumatic type | 30 kg Suspended load 30kg | 60 kg Suspended load 60kg | 90 kg Suspended load 90kg | 130 kg Suspended load 130kg

TOYO KOKEN エルゴハンド BALAMAN

Pneumatic type



Note: The photo shows the system with attachments. The standard system does not include any attachment.
Note: The photo shows the installation example on the rail system. The standard system does not include the rail system.



BMH

Model	Max. load (kg)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	t (mm)	Approx. Mass (kg)
BMH-30	30	180	16	385	179	1700	395	2274	1500	22	25
BMH-60	60	210	16	426	200	1700	395	2295	1500	22	35
BMH-90	90	220	21	435	261	2200	530	2991	2000	35	45
BMH-130	130	220	21	448	261	2200	530	2991	2000	35	50

- Wire length L = 200 mm at the upper stroke end is minimum length. It can be extended within the specified range.
- The Dimension F of BMH-30/60 is for regulator control with hook.

TOYO KOKEN エルゴハンド BALAMAN

HYBRID BALAMAN

ULTRA BALAMAN

ULTRA U series BALAMAN

Hybrid type Ultra BALAMAN

Amazing level of operatability by computer-control

Features

- By employing a computer control system, power required for operation has decreased to 1/2 to 1/3 than before.
- Approximately constant operating force can be secured irrespective of work piece weight
- Safety circuit works during operation to improve the safety remarkably.
- Crane operating speed is finely controlled.
- Maintenance efficiency is remarkably improved bydisplay of warnings.

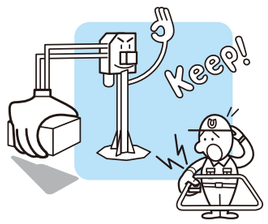
■Hybrid type basic control system
●Automatic weight sensing control.
●Air pressure memory reproduction control ●New crane control

Simple operation with one single pushbutton

For the pneumatic type, when the vacuum type attachment is taken as an example, press the Vacuum, UP and Balance buttons in order to pick up the work piece.With the hybrid type (ULTRA BALAMAN), the operations in series can be realized by pressing only one button. A press on the button at the beginning, a series of operations is performed automatically. Releasing of the work piece can be done with the same button.

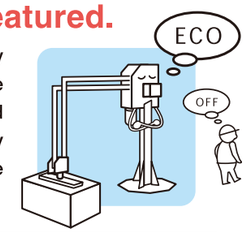
Prevent wrong operations, thereby ensuring safe working.

Since a series of operations can be done with a single button, you do not have to operate the system while bothering yourself about the operation procedures, which eliminates wrong operations.
Since ULTRA BALAMAN detects if the work piece is held in the air or not, it does not release the work piece even if the button is pressed when the work piece is in the air. It releases the work piece only when it is on the ground.



Energy-saving mode is featured.

ULTRA BALAMAN is put in the energy -saving mode when the non-operated time continues for a certain period of time and disconnect the air circuit, thereby suppressing the power consumption of the control circuit down to the minimum.



Hybrid type | Hybrid type | Mobile type base | Short tube for ceiling attachment | Ceiling type mobile trolley | Single link | Double link

30 kg Suspended load 30kg | 38 kg Suspended load 38kg | 50 kg Suspended load 50kg | 75 kg Suspended load 75kg | 150 kg Suspended load 150kg | 250 kg Suspended load 250kg | 375 kg Suspended load 375kg | 500 kg Suspended load 500kg (F type)

Delicate speed control of crane mode operation.

By the Up/Down operation lever switch, the balancer speed can freely be controlled by responding to the operating angle of lever.In addition, the delicate speed control that could not be realized with conventional pneumatic control technology became possible.

Adoption of the electronic control system contributes to the drastic increase in the pneumatic power efficiency.

Computer brain (newly developed control circuit) added to the air control has ultra functions. Automatic weight sensing control, air pressure memory reproduction control, new crane control, safety and many other functions and performance have been added to the standard basic control function. Functions can be freely selected with the switch on the standard operation box panel.

Adoption of the electronic memory function expanded the compatibility with a variety of works and many kinds of attachment.

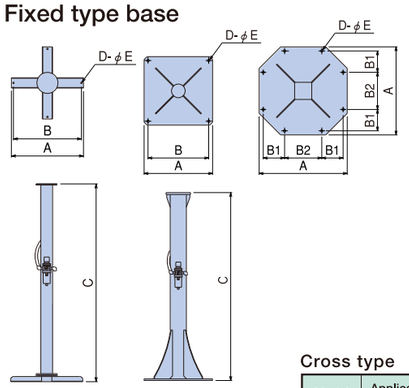
By adding the balance pressure memory/reproduc -tion control function to the standard control system, up to eight weights of work piece can be memorized and selected for use.
Furthermore, by adding the attachment replacement control function to the standard control system, up to six attachment weights can be memorized and selected for use.

UBMF-375W

For ULTRA BALAMAN, the letter "U" is placed at the top of the model code.
Refer to respective pneumatic-type BALAMAN models for the detailed dimensions.

BALAMAN mounting base

Fixed type base



Cross type　　Plate type

Cross type

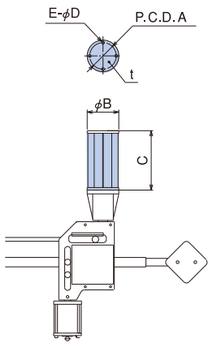
Model	Applicable model	A (mm)	B (mm)	C (mm)	D	E (mm)	Approx. Mass(kg)
FSS-30	BMS-30	700	660	1920	4	14	46
FSG-30	BMG-30W						
FSG-38	BMG38S/W	700	660	656	4	14	28
FSG-50	BMG-50W						
FSG-75	BMG-75W	800	760	136	4	24	18
FSG-150	BMG-150W	800	760	136	4	24	25

Dimension C can be changed within the specified limit.

Plate type

Type	Applicable Model	A (mm)	B (mm)	B1 (mm)	B2 (mm)	C (mm)	D	E (mm)	Approx. Mass (kg)
FSS-50	BMS-50	700	620			1988	4	25	110
FSI-50	BMi2S-50	700	620			1816	4	25	160
FS-75	BMF-75	700	620			2050	4	25	120
	BMS-75					1997			
FSI-75	BMi2S-75	700	620			2111	4	25	190
	BMi2F-100					2035			
FS-150	BMF-150	700	620			2050	4	25	130
	BMS-125					1983			
	BMS-150					2023			
FSI-150	BMi2S-150	900		218	380	1931	8	25	250
	BMi2S-180					2319			
FSI-150 Foundation bolt	BMi2S-150	700	620			1931	4	25	210
	BMi2S-180					2139			
FS-250	BMF-250	900		218	380	2010	8	25	210
FS-250 Foundation bolt	BMF-250	700	620			2010	4	25	160
FSI-250	BMi2S-250	1100		266	464	2038	8	25	330
FSI-250 Foundation bolt	BMi2S-250	700	620			2038	4	25	240
FS-375	BMF-375	1100		266	464	1970	8	25	300
FS-375 Foundation bolt	BMF-375	700	620			1970	4	25	190
FS-500	BMF-500	O.D.1000 P.C.D.1000				1868	6	25	300

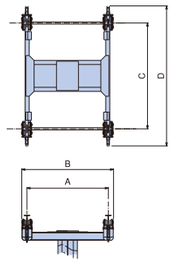
Ceiling fixing support column



Model	A (mm)	B (mm)	C (mm)	D (mm)	E	t (mm)	Approx. Mass(kg)
CS-30	170	204	375	14	4	14	10
CS-50	165	200	527	19	4	16	12
CSI-50	165	200	336	19	4	16	13
CS-75	175	210	470	19	4	18	15
CS-150	210	250	470	23	4	20	20
CS-250 (CS-375)	240	280	400	23	4	22	25
CSI-250	240	280	525	23	4	22	37
CS-500	355	400	257	25	6	24	44

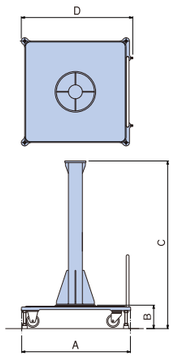
Dimension C can be changed within the specified limit.

Ceiling type mobile manual trolley (for 75 ～ 150)



Model	B (mm)	C (mm)	D (mm)	E (mm)	recommendable runway rail	Approx. Mass(kg)
MT-75	900	1041	1200	1622	I ～125×75×5.5	100
MT-150	1000	1135	1300	1722	I ～150×75×5.5	115

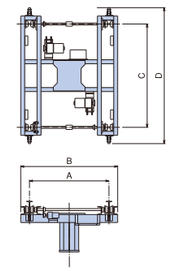
Mobile type base



Type	Applicable Model	A (mm)	B (mm)	C (mm)	D (mm)	Approx. Mass (kg)
SNG-30	BMG-30	700	205	656	830	280
SNS-30	BMS-30	700	230	1920	830	380
SNG-50	BMG-38	700	230	656	830	370
	BMG-50					
SNS-50	BMS-50	900	238	1988	1025	380
SNI-50	BMi2S-50	820	250	1816	980	610
BMG-75	BMG-75	1100	223	223	1220	380
SN-75	BMF-75	1100	223	2050	1220	430
	BMS-75			1997		
SNI-75	BMi2S-75	1200	302	2111	1320	840
SNI-100	BMi2S-100	1100	223	2035	1220	680
SNS-125	BMS-125	1200	277	1983	1320	500
SNG-150	BMG-150	1100	263	263	1220	720
SN-150	BMF-150	1200	302	2050	1320	760
	BMS-150			2023		
SNI-150	BMi2S-150	900	440	1931	1520	1030
	BMi2S-180					
SN-250	BMF-250	1300	440	2010	1520	780
SNI-250	BMi2S-250	1400	220	2038	1400	1630
SN-375	BMF-375	1400	440	1970	1620	830

＊※SNI-250 shall be transferred by the fork-lift (No wheel)
Dimension C can be changed within the specified limit.

Ceiling type mobile electric trolley (for 75～500)



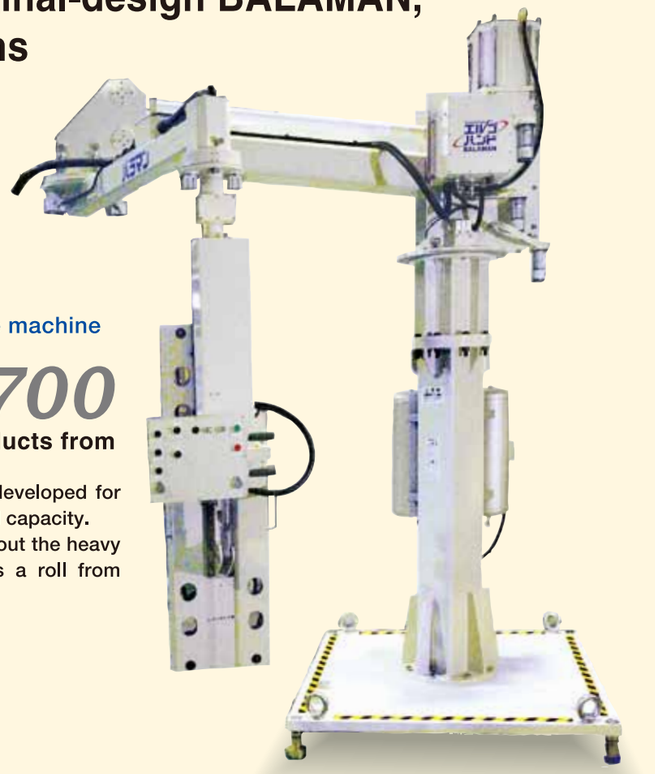
Model	A (mm)	B (mm)	C (mm)	D (mm)	recommendable runway rail	Traveling speed (at 50Hz)	Approx. Mass(kg)
AT-75	900	1120	1200	1610	I ～125×75×5.5	20m/min	160
AT-150	1000	1220	1300	1710	I ～150×75×5.5		280
AT-250	1100	1435	1620	1902	I ～200×100×7	18m/min	430
AT-375	1200	1535	1620	1902	I ～250×125×7.5		450
AT-500	1600	1935	1620	1902	I ～300×150×10	13m/min	600

＊These specifications for the models supporting the hybrid type Ultra Balaman are the same as those for the air type models.

TOYO KOKEN
エルゴバランサ
BALAMAN

ORDER MADE BALAMAN

Extensive experience in original-design BALAMAN, including special applications and large-size machines.



Special specification large-size machine for ultra-heavy products.

BMS-500/700

Take out the ultra-heavy products from sideward.

The large-size scalar-type machine developed for wider operation range and heavy load capacity.
Best-suited for the operation to take out the heavy products of 500kg or over such as a roll from sideward.

Special specification large-size machine for heavy products

BMS-250

Lateral loading/unloading the heavy products

Special machine that is best suited for transfer operation of rolled products of about 150kg that is loaded/unloaded laterally in most cases.
Special requirements that include the reinforcement of the arm are possible and mount the attachment to handle heavy work piece or to execute complex movements is also possible.

Specified for Clean Room.

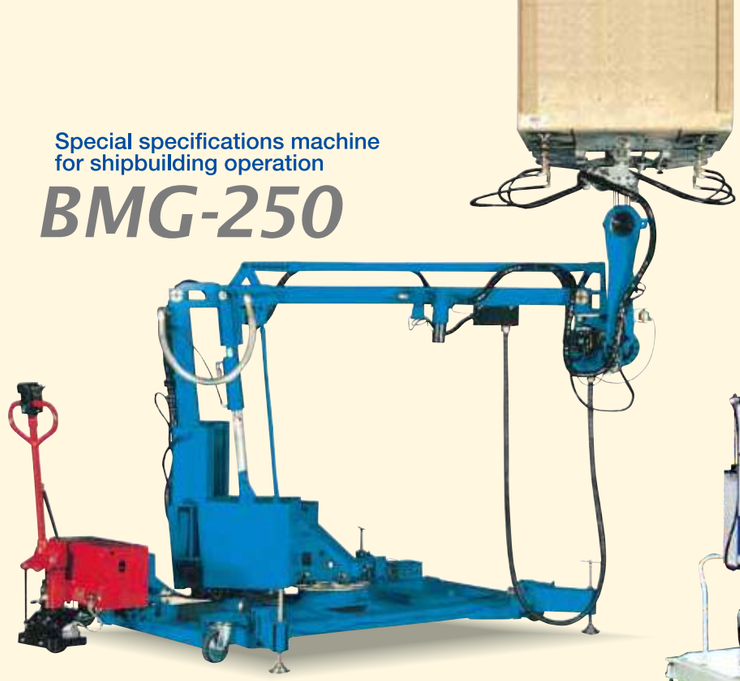
BMi2S-75-CL

Specified for each class of cleanliness

In addition to the electric type shown in the photo, you can choose the pneumatic type that features the collective exhaust function. The product lineup covers abundant option devices for each clean class and adoption of the stainless steel parts is also possible.

Special specifications machine for shipbuilding operation

BMG-250



Special specification type of increased flexbility further by combining the servomotor to the two axis of the end of the arm of the pneumatic type balancer.
Special type for the operation to install the heat insulating box in the tank of LNG carrier, the frame of mobile base is used for vacuum tank.

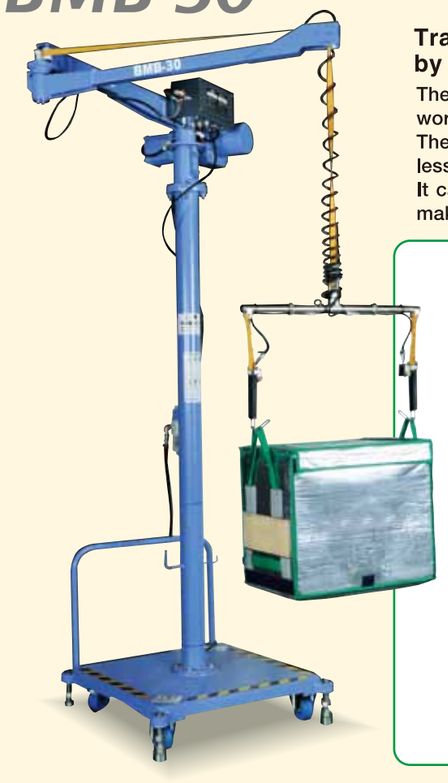
Special machine to transfer the liquid crystal board.

BMG-250

The machine is capable of handling a large liquid crystal board in the area where the ceiling height is low.

This is the special machine designed for the operations to take out a large, thin and easy-to-deflect liquid crystal board and it can be installed in the limited space where the ceiling height is low. It is available to use also in the clean room.

BMB-30



Transfer of the work piece can be done safely and robustly by the “automatic balance control.”

The work piece can be surely held by the attachment that is made to fit for the work pieces.
The risk to drop the work piece is small, thereby it can operated safely and less-burden for operators.
It can be transferd with directly gripping the work piece, and it is possible to make lighter operation by the control such as automatic balance function.

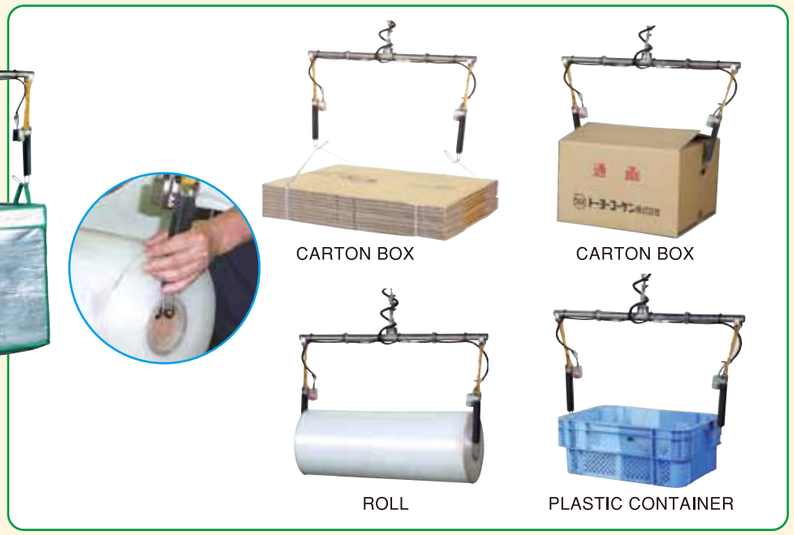


Table for utility

Pneumatic Balaman

Type	Air pressure Mpa	Lifting speed mm/sec	Cycle time sec	Air consumption average NL/min	Max.consumption at a monent NL/min	Applied compressor KW
BMS-30	0.54	600	10 (15)	48 (32)	221	0.4
50	0.54	600	10 (15)	85 (56)	316	0.75
75	0.54	500	10 (20)	157 (78)	503	1.5 (0.75)
125	0.54	500	15 (30)	121 (60)	603	1.5 (0.75)
150	0.54	500	15 (30)	186 (93)	841	2.2
BMG-30	0.49	600	10 (15)	47 (31)	177	0.4
38	0.49	600	10 (15)	74 (49)	221	0.75
50	0.49	600	10 (15)	74 (49)	276	0.75
75	0.49	500	10 (20)	121 (60)	377	1.5 (0.75)
150	0.49	500	10 (20)	189 (94)	589	1.5
BMF-75	0.49	500	10 (20)	101 (50)	331	1.5 (0.75)
150	0.49	500	10 (20)	179 (90)	589	1.5
250	0.49	400	15 (30)	213 (107)	841	2.2 (1.5)
375	0.49	400	15 (30)	307 (153)	1211	3.7 (1.5)
500	0.49	200	20 (30)	361 (241)	825	3.7 (2.2)
BMH-30	0.49	600	10 (15)	52 (35)	208	0.4
60	0.49	600	10 (15)	79 (53)	317	0.75
90	0.49	500	15 (30)	94 (47)	353	1.5 (0.75)
130	0.49	500	15 (30)	144 (72)	541	1.5 (0.75)

1. Numbers in the table are calculated by full stroke at up and down.
2. Numbers in ( ) are under the condition of cycle time shown in ( ).
3. Consumption average shall be increase / decrease by rate of long / short cycle time.
4. At moment maximum consumption shall be increase by rate of high speed of motion.
5. Numbers in the table are under the lifting condition of maximum weight of work pieces, and more light lifting weigh, more small consumption.
6. For adoption of compressor, take lifting speed and cycle time into consideration.
7. As for ULTRA BALAMAN, the air supply shall be applied 0.54 MPa.

Ultra Balaman

type	Source of electricity	Electric consumption KVA	Air pressure Mpa	Air consumption NL/min
All type	Single phase AC85～264V 50/60Hz	0.1	0.54	"Refer to above Air consumption average".

Electric Balaman

type	Source of electricity	Lifting speed m/sec	Electric consumption KVA
BMi2S-50	Three phase AC200V/220V±10% 50/60Hz	600	1.3
75		600	2.3
150		400	2.5
250		364	2.9
BMi2F-100		500	2.3
BMi2F-180		400	2.5

Electric Trolley

type	Source of electricity	Motor output	Electric consumption KVA
AT-75	Three phase AC200V/220V±10% 50/60Hz	0.2kw×2	1.0
150		0.2kw×2	1.0
250		0.4kw×2	2.0
375		0.4kw×2	2.0
500		0.75kw×2	3.0

Form Q-0002

Sales Department	Name of person in charge			

BALAMAN inquiry check sheet

Date of preparation . .

Receiving No.

Company name					
Address	〒				
Department/section		Person in charge			
TEL		FAX		E-mail	

1.Details of work Piece (object to be handled)

① Shape	Bag, box, others ( )		②Object Material		③ Contents		
④ Size	Max.(width)	mm	(Length)	mm	(Height)	mm	
	Min. (width)	mm	(Length)	mm	(Height)	mm	
⑤ Weight	Max.	kg	Min.	kg	⑥ Type	types	

⑦ Others : (1) Whether work samples can be lent or not if an adhesion test is required for carton box, paper bag or other works ☐Yes ☐No

(2) If there are many types of works or the shape of the work is complicated, attach lists, diagrams, data, etc.

Sketch of work piece (if specific clamping or vacuum positions are desired, show them on the skech.)

Details of operation (describe actual operation)

Layout of workplace

Place where the work is located (height from the floor: mm)
Place to transport the work to (height from the floor: mm)
How the work is to be placed 1) Horizontal 2) Reversed (angle)

2.Method of installation
1) Fixed on the floor (concrete thickness mm) 2) Movable on the floor 3) Fixed to the ceiling
4) Overhead traveling (manual, electric) trolley (traveling mm) 5) Others (

3.Place of installation
1) 1st floor 2) 2nd floor 3) Clean room (class) 4) Others

4.Carry in and installation
1) Forklift 2) Crane 3) Chain block 4) Hoist 5) Others ( )

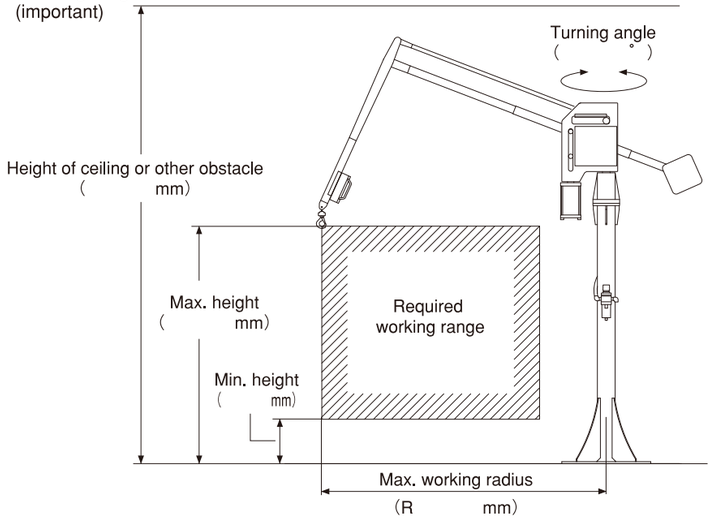
5.Supply power source
1) Electric (V) 2) Pneumatic (MPa or Kg／cm²) 3) None

6.Painting specifications
1) Standard color (salvia blue) 2) Specified color ( ) 3) Color of special specification ( )

7.Attachment to handle 1) Required 2) Not required

8.Requested model In case you need

9.Working range
(important)



1) When using a hook, describe the maximum and minimum height of the hook.
2) When some attachment is used, describe the height of the top surface of the work piece.

10.Others
Describe any other request