

# **LEADERS IN AIR BALANCING HOISTS**



**BUILDING QUALITY PRODUCTS FOR 40 YEARS** 

Bal-Trol<sup>®</sup> Products are covered by U.S. Patent Nos. 6,595,104-B2 and 7,798,472-B2 and other applications pending.

ISO 9001:2008 CERTIFICATION NO. 5047 1494/B



#### HOW TO ORDER A BAL-TROL®\*

IMPORTANT CRITERIA:

1. Determine weight to be lifted. The weight to be lifted will determine what we call the "capacity" of the unit. For example, if you need to lift a 95 lb. load, you would want a 100 lb. capacity unit.

# 2. Determine range of movement from the lowest point to the highest point.

The range of movement will determine what we call the "hook travel" of the unit. The hook travel and the capacity need will determine the Bal-Trol<sup>®</sup> you need.

#### 3. Determine ideal control.

Are you looking for lift assistance, e.g., "picking and placing"? For lift assistance check out the Sensi-Touch<sup>®</sup> and Speed Handle Controls.

Are you looking to balance a load, i.e., rendering a load "weightless"? See our Balance Controls.

4. How much room do you have for the Bal-Trol®?

No space constraint? Use Full Capacity Model. Tighter Space? Use New Single Mount unit or Pro-Air Bal-trol®.

5. Should the Bal-Trol<sup>®</sup> be mounted horizontally or vertically? Decision will depend on space configuration and user preference.

\* Bal-Trol<sup>®</sup> is a Registered Trademark of Tri-Motion Industries, Inc. Bal-Trol<sup>®</sup> Products are covered by U.S. Patent Nos. 6,595,104-B2 and 7,798,472-B2 and other applications pending.

#### EXPLANATION OF TERMS FOR BAL-TROL®

#### BAL-TROL<sup>®</sup>

Provides a flow of regulated air to one side of a piston riding in a tube. It provides a state of balance or lift.

#### 2 CONTROLS

Define application. Four control packages. See pages 3, 4, & 5.

3 CABLE Galvanized steel aircraft type.

#### **4** ACTIVE HOOK TRAVEL

Distance in feet load moves.

#### 5 STROKE

Movement of piston in cylinder tube.

6 OVERHANG CABLE (See pg. 16) Extra cable brings load to point where work takes place. Example: Require 2' of travel. Unit is mounted 3' above work area. We would supply a 3' length of cable.

#### SECONDARY SUPPORT CHAIN

Prevents the possibility of balancer falling. See page 18.

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ISO 9001:2008 CERTIFICATION NO. 5047 1494/B

REGISTERED TRADE NAMES BAL-TROL® DROP-STOP® SENSI-TOUCH®

PAGE

#### **TABLE OF CONTENTS**

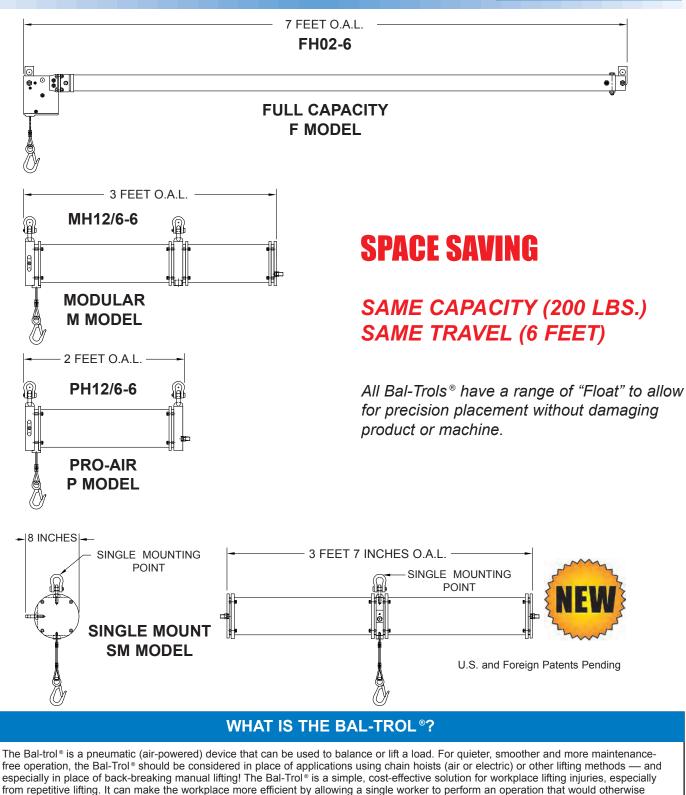
	ſS	Sensi-Touch <sup>®</sup> Control	
	SL	Slim-Line Sensi-Touch <sup>®</sup> Control	3
	Јн	Speed Handle Control	4
CONTROLS	РН	Pro-Handle Control	
	SH	Slim-Handle Control	
	LΒ	Balance Control	5
	C P	Pro-Air • Ordering Specifications	7
	Р	Pro-Air • Dimensions	8
	SM	Single Mount Pro-Air • Ordering Specifications	9
BAL-TROL®	SM	Single Mount Pro-Air • Dimensions	10
DAL-IKUL S	М	Modular Ratio • Ordering Specifications.	
	Μ	Modular Ratio • Dimensions	12
	F	Full Capacity • Ordering Specifications	13
	F	Full Capacity • Dimensions	
DROP-STOP®	D	Drop-Stop® • Load Arrestors	
,	Α	Control Kits & Accessories	6-18



require assistance in manually lifting a heavy load.

**COMPARING OVERALL LENGTHS** 





The Bal-Trol<sup>®</sup> is ideal for high-cycle applications, or where precise control is desired without overheating. The Bal-Trol<sup>®</sup> is simple to operate. It contains no expensive electronic components, and has no computer parts that can fail or require reprogramming. The Bal-Trol<sup>®</sup> is time-tested. It has been used for many years in a variety of applications, in diverse industries, all over the world, including automotive, brewing, military hardware, glass manufacturing, food product manufacturing and processing, to name just a few.

Bal-Trol<sup>®</sup> and an expanding range of controls have been manufactured in the United States for over 40 years by Tri-Motion Industries, Inc. We are proud of our commitment to quality and our durable product line. Some of the very first units we manufactured are still in service! Tri-Motion Industries, Inc. is ISO-certified and Bal-Trol<sup>®</sup> products are available through distributors throughout the United States, Canada and Western Europe.

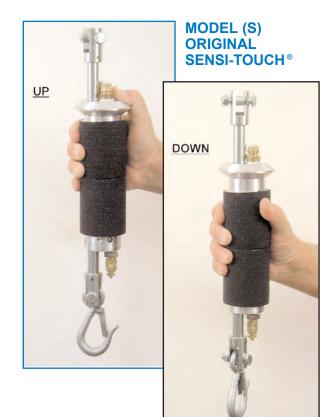




## SENSI-TOUCH ® (S) (SL) CONTROLS LOAD HOOK IS DIRECTLY UNDER CONTROL

#### THIS LIFT ASSIST IS USED FOR PICK AND PLACE APPLICATIONS. ENABLES OBJECTS TO BE LOADED AND UNLOADED. THE RANGE OF "FLOAT" ALLOWS FOR PRECISE PLACEMENT WITHOUT DAMAGING PRODUCT OR MACHINE.

- Sensi-Touch<sup>®</sup> Controls have a range of FLOAT (or balance) of <u>4</u> to <u>6</u> inches. This allows the operator to move load within a couple of inches of drop off point, remove hands from the control so that the part can be maneuvered in place and then release.
- SPEED: These controls allow for variable speeds. Gentle pressure causes a slow gradual movement. Increased pressure causes faster movement. Smooth travel movement is consistent throughout travel.
- SPEED ADJUSTMENTS are easily handled with no additional tools required. All up speed is adjusted by turning the flow control on the manifold (located on the Bal-Trol<sup>®</sup>). Down speed is adjusted at the control handle.
- SAFETY: Loss of air pressure will not result in load dropping. Bal-Trol<sup>®</sup> will keep load in place. Once the load is in place, it may be removed from the hook after releasing the air pressure in the unit!



OPERATION: A thumb ring at the top of the Controls provides better control on the upstroke. For the downstroke simply pull down on the control.

901-06000 - (5-375 Lbs.) Small Sensi-Touch® Control ONLY. 901-06001 - (400-1200 Lbs.) Large Sensi-Touch® Control ONLY. 905-06000 - (5-375 Lbs.) Small Slim-Line Sensi-Touch® Control ONLY.

905-06002 - (400-1200 Lbs.) Large Slim-Line Sensi-Touch® Control ONLY. See Control Packages

on Page 16.

MODEL (SL) SLIM-LINE SENSI-TOUCH®

- Small, fits comfortably in most any size hand.
- Same load bearing capacity and air flow speed as the Original Sensi-Touch®.
- Up & down speed adjustments located near the Bal-Trol®.

UP

DOWN

- Compatible with all sizes of Bal-Trol®.
- Operates at 45 PSI minimum.
- Dual-acting option provides a power-assisted down mode, which makes it easier to lower an empty hook when there is no load present. Recommended for heavy loads 300 lbs. or more, but can be used on any weight.

- Larger grip diameter.
- Down speed adjustment conveniently located on the control.
- Compatible with all models of Bal-Trol<sup>®</sup>.



# PENDANT HANDLE (H) (PH) (SH) CONTROLS

#### USED FOR LOADING & UNLOADING OBJECTS THAT ARE LARGE & SMALL IN SIZE. ALLOWS THE WORKER TO LIFT OBJECTS REMOTE FROM THE LOAD OR ON A FIXTURE. PENDANT HANDLE CONTROLS UTILIZE THUMB LEVERS FOR THE UP AND DOWN MOVEMENT.

- FLOAT FOR PRECISE POSITIONING: The Pendant Handle Controls have a range of float (or balance) of <u>4 to 6</u> <u>inches.</u> This allows the operator to move the load within a couple of inches of drop off point, then remove hands from the control handle so that the part can be maneuvered into place.
- SPEED: The Original Speed Handle and Pro Handle Controls allow for variable speeds. Gentle pressure causes a slow gradual movement. Increased pressure causes faster movement. Smooth travel movement is consistent throughout travel.
- SPEED ADJUSTMENTS are easily handled with no additional tools required. The up speed is adjusted by turning the flow control located on the Speed Handle. Down speed is also adjusted at the control handle, for the Original and Pro Handle.



#### **PRO HANDLE**<sup>™</sup> (PH)

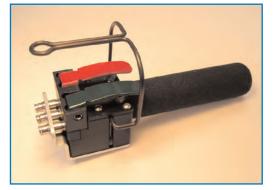
- Small, weighs only 1.9 lbs.
- Proportional speed up & down: speed is low when the lever is pressed a little and higher when the lever is pressed all the way, similar to your car accelerator.
- Works well on Bal-trol<sup>®</sup> units up to 300 lbs. capacity or less.
- Easy to set the up and down speeds.

**905-16100** Pro Handle ONLY. See Pro Handle Control Packages on Page 17.

#### SLIM HANDLE<sup>™</sup> (SH)

- Smaller, weighs only 1.4 lbs.
- Works well on all Bal-trol<sup>®</sup> units.
- Dual-acting option provides a power-assisted down mode, which makes it easier to lower an empty hook when there is no load present. Recommended for heavy loads, 300 lbs. or more, but can be used on any weight.
- This control works thru an air piloted control valve.
- Can be used on fixtures for clamping & unclamping.

**905-16000** Slim Handle ONLY. See Slim Handle Control Packages on Page 17.





#### **ORIGINAL SPEED HANDLE™ (H)**

- Select this Control for Loads over 300 Lb. capacity or greater.
- Worker Operates Lift Remote from Load.
- Up and Down speed controls are mounted on the Speed Handle.
- Control weighs 2.4 lbs.

**901-07000** - Original Speed Handle ONLY. See Original Speed Handle Control Packages on Page 17.

# **BALANCE (B) CONTROL**

#### FOR CONSTANT WEIGHT BALANCING APPLICATIONS

BALANCERS ARE INTENDED FOR APPLICATIONS WHERE A CONSTANT WEIGHT IS SUPPORTED FROM THE LOAD HOOK. BALANCERS GIVE A DEGREE OF WEIGHTLESSNESS TO THE SUSPENDED LOAD. THEY GIVE AN OBJECT MOBILITY, MINIMIZE OPERATOR FATIGUE, AND PROTECT TOOLS FROM BEING DROPPED AND DAMAGED.

Tri-Motion Air Balancers Provide a Broad Range of Capacities In Each Model and Provide a True Balance Over Entire Travel.

- Virtually No Maintenance Easy Installation.
- Air Consumption Is Nominal, Intake Air Is Required For Lifting Load Only.
- No Spring Fatigue.

Depending on adjustment selection, balance can be either <u>CONSTANT</u>: load remains where it is when operation ceases. <u>BIAS UP</u>: load automatically rises when operator is finished or <u>BIAS DOWN</u>: load returns to a down position.

#### BALANCER WITH HIGH RELIEF REGULATOR



Adjustment is simple, no additional tools required. Turn the adjustment knob until desired balance is achieved.

Should the main air supply be cut off, check valves keep load from falling.

Chart reflects the range of capacity for units supplied with regulator.

#### BALANCER WITH SERVO BLEED VALVE

No additional tools required for adjustments. Works in conjunction with High Relief Regulator. Simply turn the servo knob until balance is achieved.

Check valves keep load from falling in the event main air supply is lost. Load lowers gradually.

Hose between regulator and servo is a steel braided hose; in the unlikely event hose is severely damaged, load will fall.



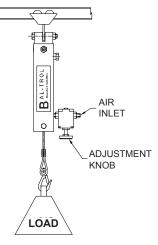
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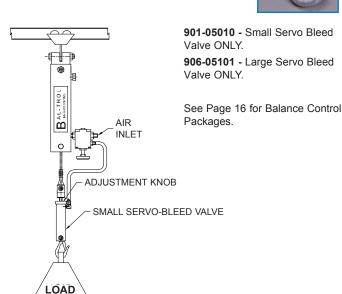
**BALANCE CONTROL** 

909-30600 - 5-100 LBS. Regulator with Fitting ONLY. -NONTAPPED.

909-30601 - 5-100 LBS. Regulator Tapped For Servo Bleed Valve With Fitting for VERTICAL HOISTS. 909-30602 - 5-100 LBS. Regulator Tapped For Servo Bleed Valve.With Fitting For HORIZONTAL HOISTS.

See Page 16 for Balance Control Packages.

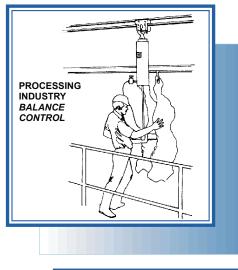




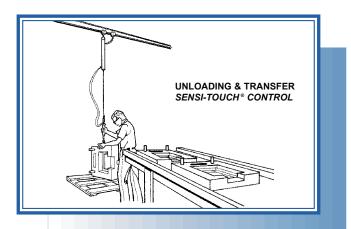


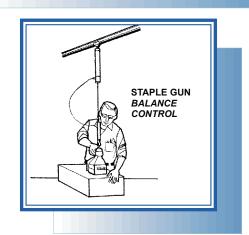
#### **TYPICAL APPLICATIONS**

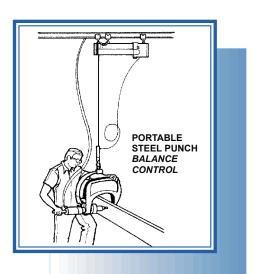
BAL-TROL<sup>®</sup> BALANCE CONTROL

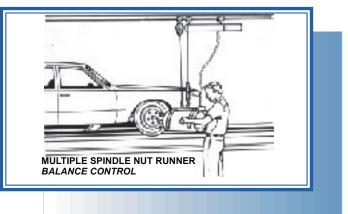




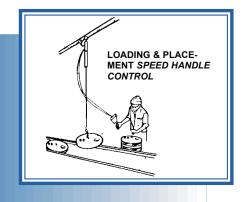








No Spring Fatigue = Reduced Operator Fatigue Minimal Maintenance = Reduced Costly Downtime Uncluttered Work Areas = Reduced Potential Safety Hazards BAL-TROL<sup>®</sup> = GREATER WORKER OUTPUT





**ORDERING SPECIFICATIONS** 



# PRO-AIR UNITS - 4 MODELS P-03, P-06, P-12 & P-20

### BAL-TROL® IS THE COST EFFECTIVE, ERGONOMIC SOLUTION FOR WORKPLACE LIFTING.

#### TWO MOUNTING STYLES: HORIZONTAL AND VERTICAL

- For All Repetitive Lifting Applications.
- Made to Order Travels from 1 Foot to 30 Feet or More.
- Smallest, Most Compact Bal-Trol<sup>®</sup>.
- Same Lifting Capacity as M, F, and SM Models.
- Simple to Operate.
- It Contains No Expensive Electronic Components or Computer Parts to Fail, Overheat, Have Moisture Damage or Require Reprogramming.



	L	SI 80 PSI 80 PSI 80 F   S. 75 LBS. 150 LBS. N//							
RATIO	P-03	P-06	P-12	P-20					
	80 PSI	80 PSI	80 PSI	80 PSI					
8:1	40 LBS.	75 LBS.	150 LBS.	N/A					
6:1	60 LBS.	100 LBS.	200 LBS.	N/A					
4:1	80 LBS.	125 LBS.	300 LBS.	500 LBS.					

#### Examples:

#### Model - PH12/6-7-H

Pro-Air, Horizontal Mtg., 200 lbs. Capacity, 7' travel, Speed Handle Control.

#### Model - PH06/8-4-SL

Pro-Air, Horizontal Mtg., 75 lbs. Capacity, 4' travel, Slim-Line Sensi-Touch  $^{\circ}$  Control.

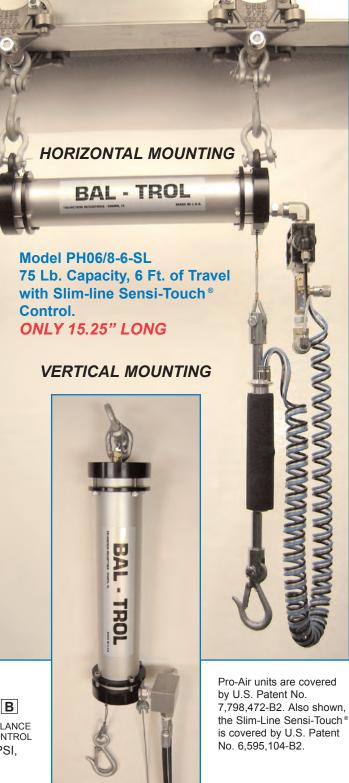
#### Model - PV03/6-6-B

Pro-Air, Vertical Mtg., 60 lbs. Capacity, 6' travel, Balance Control.

CHECK UNIT'S OVERALL LENGTH, HORIZONTAL & VERTICAL DIMENSIONS. SEE PAGE 8.

#### HOW TO ORDER PRO-AIR UNITS

Ρ	V	0	3	/	6		6		В
MOUNTIN	IG V/H	МОГ	/ DEL		RATIO		TRAVEL (6 FT.)		BALANCE CONTROL
PV03/6-6-E	B Pro-Air	Unit, Ve	ertical	mour	nting, 60	lb. C	apacity	@ 80	PSI,
	6 ft. tra	vel with	Balan	ce Co	ontrol				

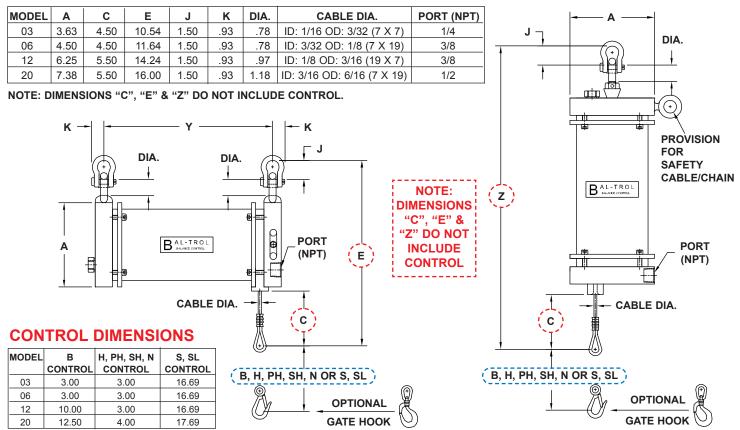


**P** DIMENSIONS



U.S. Patent No. 7,798,472-B2

#### PH & PV - HORIZONTAL AND VERTICAL DIMENSIONS



#### PRO-AIR MODEL OVERALL LENGTHS AT VARIOUS HOOK TRAVEL.

80 PSI>	40 L	BS.	60 L	BS.	80 I	BS.	75	LBS.	100	LBS.	125	LBS.	150	LBS.	200	LBS.
	HORIZ.	VERT.														
TRAVEL	PH03/8	PV03/8	PH03/6	PV03/6	PH03/4	PV03/4	PH06/8	PV06/8	PH06/6	PV06/6	PH06/4	PV06/4	PH12/8	PV12/8	PH12/6	PV12/6
FEET	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z
1'	6.46	15.42	6.96	15.92	7.96	16.92	7.75	17.06	8.25	17.56	9.25	18.56	10.12	21.00	10.62	21.50
2'	7.96	16.92	8.96	17.92	10.96	19.92	9.25	18.56	10.25	19.56	12.25	21.56	11.62	22.50	12.62	23.50
3'	9.46	18.42	10.96	19.92	13.96	22.92	10.75	20.06	12.25	21.56	15.25	24.56	13.12	24.00	14.62	25.50
4'	10.96	19.92	12.96	21.92	16.96	25.92	12.25	21.56	14.25	23.56	18.25	27.56	14.62	25.50	16.62	27.50
5'	12.46	21.42	14.96	23.92	19.96	28.92	13.75	23.06	16.25	25.56	21.25	30.56	16.12	27.00	18.62	29.50
6'	13.96	22.92	16.96	25.92	22.96	31.92	15.25	24.56	18.25	27.56	24.25	33.56	17.62	28.50	20.62	31.50
7'	15.46	24.42	18.96	27.92	25.96	34.92	16.75	26.06	20.25	29.56	27.25	36.56	19.12	30.00	22.62	33.50
8'	16.96	25.92	20.96	29.92	28.96	37.92	18.25	27.56	22.25	31.56	30.25	39.56	20.62	31.50	24.62	35.50
9'	18.46	27.42	22.96	31.92	31.96	40.92	19.75	29.06	24.25	33.56	33.25	42.56	22.12	33.00	26.62	37.50
10'	19.96	28.92	24.96	33.92	34.96	43.92	21.25	30.56	26.25	35.56	36.25	45.56	23.62	34.50	28.62	39.50

80 PSI>	300	LBS.	500 I	_BS.
	HORIZ.	VERT.	HORIZ.	VERT.
TRAVEL	PH12/4	PV12/4	PH20/4	PV20/4
FEET	Y	Z	Y	Z
1'	11.62	22.50	15.75	26.50
2'	14.62	25.50	18.75	29.50
3'	17.62	28.50	21.75	32.50
4'	20.62	31.50	24.75	35.50
5'	23.62	34.50	27.75	38.50
6'	26.62	37.50	30.75	41.50
7'	29.62	40.50	33.75	44.50
8'	29.62	40.50	36.75	47.50
9'	35.62	46.50	39.75	50.50
10'	38.62	49.50	42.75	53.50

#### THESE CHARTS INDICATE THE OVERALL LENGTH, IN INCHES, OF UNITS AT VARIOUS TRAVEL. THESE MEASUREMENTS DO NOT INCLUDE THE CONTROL DIMENSIONS.

**SEE CONTROLS PAGES 3-5** 

NOTE: We Reserve the Right to Change Specifications & Dimensions Without Notice. When Specifications Are Critical, Consult Factory.



# SINGLE MOUNT PRO-AIR UNITS - 3 MODELS SM-03, SM-06 & SM-12

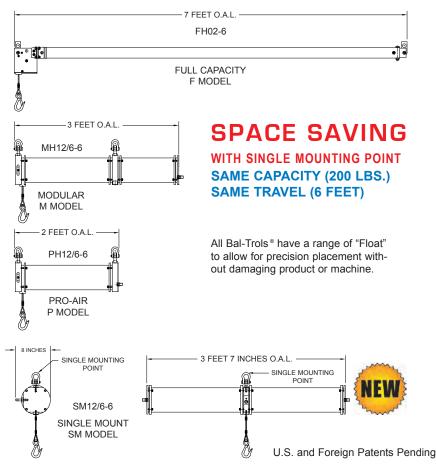
### BAL-TROL® IS THE COST EFFECTIVE, ERGONOMIC SOLUTION FOR WORKPLACE LIFTING.

#### HORIZONTAL MOUNTING STYLE

- Space Saving Single Mount Horizontal Bal-Trol<sup>®</sup> Mounts Like a Vertical.
- The Single Mount Advantage Is It Can Be Mounted Inline or Perpendicular To The Rail.
- Only Needs One Trolley.
- For All Repetitive Lifting Applications.
- Simple to Operate.
- Made to Order Travels from 1 Foot to 10 Feet.



• Contains No Expensive Electronic Components or Computer Parts to Fail, Overheat, Have Moisture Damage or Require Reprogramming.



	LOAD CAPACITY													
RATIO	RATIO SM-03 SM-06 SM-12													
	80PSI	80 PSI	80PSI											
6:1	60 LBS.	100 LBS.	200 LBS.											
4:1	80 LBS.	125 LBS.	300 LBS.											

#### Example:

#### Model - SM06/6-4-SL

Single Mount Pro-Air, Horizontal Mtg., 100 Lbs. Capacity, 4 ft. of travel, Slim-Line Sensi-Touch® Control.

#### Model - SM12/6-7-H

Single Mount Pro-Air, Horizontal Mtg., 200 Lbs. Capacity, 7 ft. of travel, Speed Handle Control.

CHECK UNIT'S OVERALL LENGTH, HORIZONTAL & VERTICAL DIMENSIONS. SEE PAGE 10.

#### HOW TO ORDER SINGLE MOUNT UNITS

S	03	6 -	- 6 -	- B
MOUNTING H	MODEL	RATIO	TRAVEL (6 FT)	BALANCE CONTROL

SM03/6-6-B Single Mount Pro-Air, Horizontal Mounting, 60 Lb. Capacity @ 80 PSI, 6 ft. of travel with Balance Control.



**SM** DIMENSIONS



# **SINGLE MOUNT PRO-AIR UNITS**

U.S. & Foreign Patents Pending

NOTE: DIMENSIONS

#### **SM** - DIMENSIONS

MODEL

03

06

12

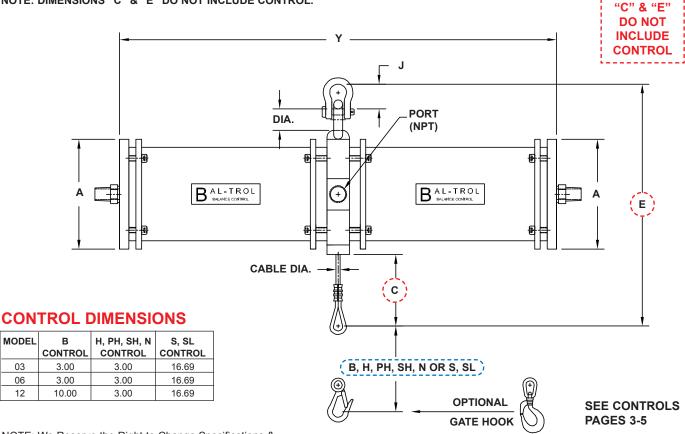
в

3.00

3.00

MODEL	Α	В	С	Е	н	J	S	DIA.	CABLE DIA.	PORT (NPT)
03	3.63	3.00	4.50	10.54	3.00	1.50	16.69	.78	ID: 1/16 OD: 3/32 (7 X 7)	1/4
06	4.50	3.00	4.50	11.64	3.00	1.50	16.69	.78	ID: 3/32 OD: 1/8 (7 X 19)	3/8
12	6.25	10.00	5.50	14.24	3.00	1.50	16.69	.97	ID: 1/8 OD: 3/16 (19 X 7)	3/8

NOTE: DIMENSIONS "C" & "E" DO NOT INCLUDE CONTROL.



NOTE: We Reserve the Right to Change Specifications & Dimensions Without Notice. When Specifications Are Critical Consult Factory.

#### THE CHART BELOW INDICATES THE OVERALL LENGTH, IN INCHES, OF UNITS AT VARIOUS TRAVEL. THESE MEASUREMENTS DO NOT INCLUDE THE CONTROL DIMENSIONS.

#### SINGLE MOUNT PRO-AIR MODEL OVERALL LENGTHS AT VARIOUS HOOK TRAVEL

	60 LBS.	80 LBS.	100 LBS.	125 LBS.	200 LBS.	300 LBS.
	HORIZ.	HORIZ.	HORIZ.	HORIZ.	HORIZ.	HORIZ.
TRAVEL	SM03/6	SM03/4	SM06/6	SM06/4	SM12/6	SM12/4
FEET	Y	Y	Y	Y	Y	Y
1'	11.88	12.88	14.50	15.50	18.38	19.38
2'	13.88	15.88	16.50	18.50	20.38	22.38
3'	15.88	18.88	18.50	21.50	22.38	25.38
4'	17.88	21.88	20.50	24.50	24.38	28.38
5'	19.88	24.88	22.50	27.50	26.38	31.38
6'	21.88	27.88	24.50	30.50	28.38	34.38
7'	23.88	30.88	26.50	33.50	30.38	37.38
8'	25.88	33.88	28.50	36.50	32.38	40.38
9'	27.88	36.88	30.50	39.50	34.38	43.38
10'	29.88	39.88	32.50	42.50	36.38	46.38



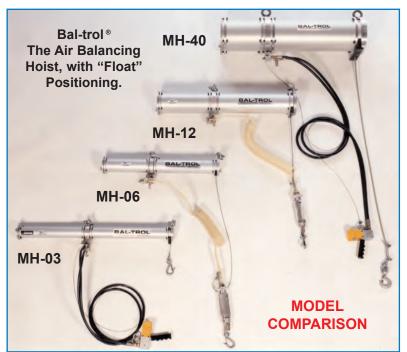


# **M-MODULAR RATIO UNITS - 4 MODELS** M-03, M-06, M-12 & M-40

#### TWO MOUNTING STYLES: HORIZONTAL AND VERTICAL

- Modular Units SPACE SAVERS
- Supply Ergonomic Solution For Work Force Efficiency And Safety For The Workplace.
- Each Model Offers A Wide Range Of Lifting Capabilities.
- Easy To Install And Maintain -Field Repairable.
- Made To Order Travels From 1 Foot To 15 Feet Or More.
- Ideal for all Types of Repetitive Pick and Place Applications.
- Greatly Reduces Operator Fatigue and Physical Stress Related Injuries.





	LOAD CAPACITY													
RATIO M-03 M-06 M-12 M-40														
	80 PSI	80 PSI	80 PSI	100 PSI										
8:1	40 LBS.	75 LBS.	150 LBS.	400 LBS.										
6:1	60 LBS.	100 LBS.	200 LBS.	600 LBS.										
4:1	80 LBS.	125 LBS.	300 LBS.	800 LBS.										

#### HOW TO ORDER MODULAR UNITS





MV03/6-6-B Modular Unit, Vertical mounting, 60 lb. Capacity @ 80 PSI, 6 ft. travel with Balance Control.

6

Examples:

Model - MH12/6-7-H

Modular Ratio, Horizontal Mtg., 1200/6 = 200 lbs. Capacity, 7' travel, Speed Handle Control.

Model - MV06/8-4-SL

Modular Ratio, Vertical Mtg. 600/8 = 75 lbs. Capacity, 4' travel, Slim-Line Sensi-Touch® Control.

#### Model - MV03/6-6-B

Modular Ratio, Vertical Mtg. 300/6 = 50 lbs. Capacity, 6' travel, Balance Control.

**M** DIMENSIONS

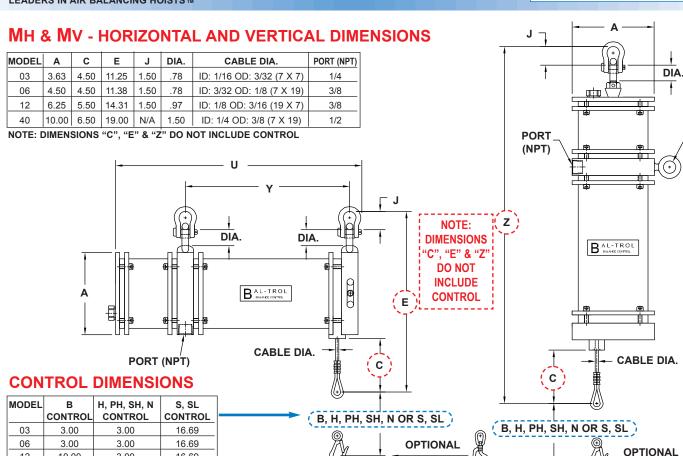


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PROVISION FOR

SAFETY

CABLE OR CHAIN



#### M - MODULAR CAPACITY MODELS

16.69

17.69

SEE CONTROLS

PAGES 3-5

3.00

4.00

10.00

12.00

12

40

#### OVERALL LENGTHS OF UNITS, IN INCHES, AT VARIOUS HOOK TRAVEL. CONTROL DIMENSIONS NOT INCLUDED.

**GATE HOOK** 

		40 LB	S.		60 LE	S.		80 LB	S.		75 LBS	β.		100 LE	BS.	125 LBS		BS.	
	HOF	RIZ.	VERT.	HC	RIZ.	VERT.	НО	RIZ.	VERT.	HORIZ. VERT.		HORIZ.		HORIZ. VERT.		VERT.	HORIZ.		VERT.
TRAVEL	мно	)3/8	MV03/8	MH	103/6	MV03/6	МН	03/4	MV03/4	МН	06/8	MV06/8	MH	06/6	MV06/6	MH06/4		MV06/4	
FEET	U	Y	Z	U	Y	Z	U	Y	Z	U	Y	Z	U	Y	Z	U	Y	Z	
1'	11.54	6.88	18.50	12.54	7.38	19.50	14.54	8.38	21.50	14.03	9.19	21.16	15.03	9.69	22.16	17.03	10.69	24.16	
2'	14.54	8.38	21.50	16.54	9.38	23.50	20.54	11.38	27.50	17.03	10.69	24.16	19.03	11.69	26.16	23.03	13.69	30.16	
3'	17.54	9.88	24.50	20.54	11.38	27.50	26.54	14.38	33.50	20.03	12.19	27.16	23.03	13.69	30.16	29.03	16.69	36.16	
4'	20.54	11.38	27.50	24.54	13.38	31.50	32.54	17.38	39.50	23.03	13.69	30.16	27.03	15.69	34.16	35.03	19.69	42.16	
5'	23.54	12.88	30.50	28.54	15.38	35.50	38.54	20.38	45.50	26.03	15.19	33.16	31.03	17.69	38.16	41.03	22.69	48.16	
6'	26.54	14.38	33.50	32.54	17.38	39.50	44.54	23.38	51.50	29.03	16.69	36.16	35.03	19.69	42.16	47.03	25.69	54.16	
7'	29.54	15.88	36.50	36.54	19.38	43.50	50.54	26.38	57.50	32.03	18.19	39.16	39.03	21.69	46.16	53.03	28.69	60.16	
8'	32.54	17.38	39.50	40.54	21.38	47.50	56.54	29.38	63.50	35.03	19.69	42.16	43.03	23.69	50.16	59.03	31.69	66.16	
9'	35.54	18.88	42.50	44.54	23.38	51.50	62.54	32.38	69.50	38.03	21.19	45.16	47.03	25.69	54.16	65.03	34.69	72.16	
10'	38.54	20.38	45.50	48.54	25.38	55.50	68.54	35.38	75.50	41.03	22.69	48.16	51.03	27.69	58.16	71.03	37.69	78.16	

		150 L	BS.		200 L	BS.		300 LI	BS.	400	LBS.	600 LBS.		800 LBS.	
	HOR	IZ.	VERT.	RT. HORIZ. VERT.		VERT.	HORIZ. VERT.			но	RIZ.	HORIZ.		HORIZ.	
TRAVEL	MH12/8 MV12/8		MV12/8	MH1	2/6	MV12/6	MH1	2/4	MV12/4	MH	40/8	MH4	40/6	MH40/4	
FEET	U	Y	Z	U	Y	Z	U	Y	Z	U	Y	U	Y	U	Y
1'	15.30	10.31	24.32	16.30	10.81	25.32	18.30	11.81	27.32	25.15	18.68	26.15	19.18	28.15	20.18
2'	18.30	11.81	27.32	20.30	12.81	29.32	24.30	14.81	33.32	28.15	20.18	30.15	21.18	34.15	23.18
3'	21.30	13.31	30.32	24.30	14.81	33.32	30.30	17.81	39.32	31.15	21.68	34.15	23.18	40.15	26.18
4'	24.30	14.81	33.32	28.30	16.81	37.32	36.30	20.81	45.32	34.15	23.18	38.15	25.18	46.15	29.18
5'	27.30	16.31	36.32	32.30	18.81	41.32	42.30	23.81	51.32	37.15	24.68	42.15	27.18	52.15	32.18
6'	30.30	17.81	39.32	36.30	20.81	45.32	48.30	26.81	57.32	40.15	26.18	46.15	29.18	58.15	35.18
7'	33.30	19.31	42.32	40.30	22.81	49.32	54.30	29.81	63.32	43.15	27.68	50.15	31.18	64.15	38.18
8'	36.30	20.81	45.32	44.30	24.81	53.32	60.30	32.81	69.32	46.15	29.18	54.15	33.18	70.15	41.18
9'	39.30	22.31	48.32	48.30	26.81	57.32	66.30	35.81	75.32	49.15	30.68	58.15	35.18	76.15	44.18
10'	42.30	23.81	51.32	52.30	28.81	61.32	72.30	38.81	81.32	52.15	32.18	62.15	37.18	82.15	47.18

NOTE: DIMENSIONS "C", "E" & "Z" DO NOT INCLUDE CONTROL
---

GATE HOOK





# **F-FULL CAPACITY UNITS - 8 MODELS**

#### TWO MOUNTING STYLES: HORIZONTAL AND VERTICAL

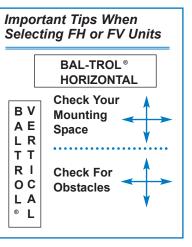
- Full Capacity Units Offer Ergonomic Solutions For Employee Fatigue, Efficiency & Workplace Safety.
- They Offer A Wide Range Of Capacities: 10-1200 Lbs.
- Least Expensive Fewest Moving Parts
- Cable & Seals Easily Changed In The Field
- Made To Order Travels From 1' to 15' Or More
- CHECK OVERALL LENGTH BEFORE ORDERING SEE OTHER UNITS FOR SPACE SAVING.

### **VERTICAL BAL-TROL**®



Consider This When Selecting Vertical Model: Available Vertical Mounting Space Requires High Ceilings

#### FV01-4-S shown



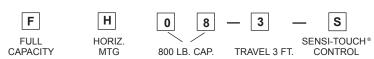
# HORIZONTAL BAL-TROL®



to a vertical plane).

LOAD CAPACITY									
MODEL	BORE SIZE Inches	@ 80 PSI	@ 100 PSI						
50	1	50 LBS.	65 LBS.						
01	1-1/2	100 LBS.	125 LBS.						
02	2	200 LBS.	250 LBS.						
03	2-1/2	300 LBS.	375 LBS.						
06	3-1/4	600 LBS.	750 LBS.						
08	4	800 LBS.	1000 LBS.						
12	5	1200 LBS.	1500 LBS.						

#### HOW TO ORDER FULL CAPACITY UNITS



**FH08-3-S** Full Capacity, Horizontal Mounting, 800 lb. Capacity @ 80 PSI, 3 ft. of travel, with Sensi-touch® Control.

#### Examples:

#### Model - FV02-4-S

Full Capacity Units, VertIcal, 200 lbs. Capacity, 4 ft. of travel, Sensi-Touch<sup>®</sup> Control indicate "S" or "SL" *(SEE PAGE 3)*. *CHECK UNITS OVERALL LENGTH* 

#### Model - FH02-5-B

Full Capacity Units, Horizontal, 200 lbs. Capacity, 5 ft. of travel, Balance Control Package.(*SEE PAGE 5*).

CHECK YOUR HORIZONTAL & VERTICAL DIMENSIONS. SEE PAGE 14.

TMI TRI-MOTION INDUSTRIES, INC.

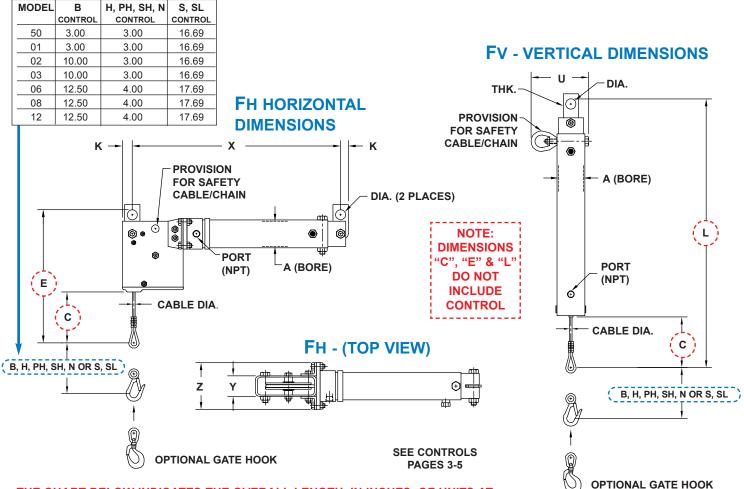
**F DIMENSIONS** 



#### **FH & FV - HORIZONTAL AND VERTICAL DIMENSIONS**

MODEL	Α	С	Е	ĸ	U	Y	Z	THK.	DIA.	CABLE DIA.	PORT (NPT)
50	1.00	4.50	8.35	.62	4.06	1.50	2.00	.13	.75	ID: 1/16 OD: 3/32 (7 X 7)	1/8
01	1.50	4.50	11.91	.75	4.56	2.50	3.38	.18	1.00	ID: 1/8 OD: 3/16 (19 X 7)	3/8
02	2.00	5.00	13.13	.87	5.06	2.00	4.13	.18	1.00	ID: 5/32 OD: 1/4 (7 X 19)	3/8
03	2.50	5.00	13.13	.87	5.56	2.00	4.63	.18	1.00	ID: 5/32 OD: 1/4 (7 X 19)	3/8
06	3.25	5.50	16.04	1.32	6.31	2.00	5.50	.50	1.00	ID: 3/16 OD: 5/16 (7 X 19)	1/2
08	4.00	6.00	18.13	1.29	7.06	2.00	6.25	.50	1.00	ID: 1/4 OD: 3/8 (7 X 19)	1/2
12	5.00	6.00	17.63	1.41	8.06	4.00	7.63	.50	1.00	ID: 1/4 OD: 3/8 (7 X 19)	1/2

#### **CONTROL DIMENSIONS**



# THE CHART BELOW INDICATES THE OVERALL LENGTH, IN INCHES, OF UNITS AT

#### F - FULL CAPACITY MODELS OVERALL LENGTHS AT VARIOUS HOOK TRAVEL

-														
	50 LBS.		50 LBS. 100 LBS. 200 LBS.		300 LBS. 600		600 L	600 LBS. 800		LBS.	1200	LBS.		
	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
TRAVEL	FH50	FV50	FH01	FV01	FH02	FV02	FH03	FV03	FH06	FV06	FH08	FV08	FH12	FV12
FEET	Х	L	X	L	X	L	Х	L	Х	L	Х	L	X	L
1'	18.85	25.63	22.06	26.32	23.53	26.82	23.53	26.82	28.41	30.20	28.48	31.58	30.30	33.47
2'	30.85	37.63	34.06	38.32	35.53	38.82	35.53	38.82	40.41	42.20	40.48	43.58	42.30	45.47
3'	42.85	49.63	46.06	50.32	47.53	50.82	47.53	50.82	52.41	54.20	52.48	55.58	54.30	57.47
4'	54.85	61.63	58.06	62.32	59.53	62.82	59.53	62.82	64.41	66.20	64.48	67.58	66.30	69.47
5'	66.85	73.63	70.06	74.32	71.53	74.82	71.53	74.82	76.41	78.20	76.48	79.58	78.30	81.47
6'	78.85	85.63	82.06	86.32	83.53	86.82	83.53	86.82	88.41	90.20	88.48	91.58	90.30	93.47
7'	90.85	97.63	94.06	98.32	95.53	98.82	95.53	98.82	100.41	102.20	100.48	103.58	102.30	105.47
8'	102.85	109.63	106.06	110.32	107.53	110.82	107.53	110.82	112.41	114.20	112.48	115.58	114.30	117.47
9'	114.85	121.63	118.06	122.32	119.53	122.82	119.53	122.82	124.41	126.20	124.48	127.58	126.30	129.47
10'	126.85	133.63	130.06	134.32	131.53	134.82	131.53	134.82	136.41	138.20	136.48	139.58	138.30	141.47





# **DROP-STOP**<sup>®</sup> LOAD ARRESTORS

#### FUNCTION: ARREST ACCIDENTAL FREE-FALL OF LOADS ON PRODUCT OR MACHINERY.

APPLICATIONS: PROTECTS HEAVY COMPONENTS/ASSEMBLIES, RAW MATERIALS & MACHINERY.

Works on principle of inertia. Inertia is the same principle used in car safety belt systems. Drop-Stops® are used as a back-up device to the Bal-Trol®. Load arrestors' spring tensioned cable is connected to the load. The device senses a fall when connected objects fall and speeds exceed the lock-on rate.

#### **ADDITIONAL FEATURES OF DROP-STOPS®:**

- Shock Absorbing Systems
- Portable
- Brake Indicator Button
- Self Retracting Steel Cable
- Sturdy Rigid Design



D23-300 (hook style varies)



D23-1100F



D23-3300

MODEL NUMBER	CABLE LENGTH FT.	LOAD CAPACITY LBS.	SPEED TO ACTIVATE BRAKING FT./SEC.	STOP DISTANCE TO ACTIVATE FEET (MAX.)	BLOCK O.A.L. LENGTH	BLOCK WIDTH	BLOCK DEPTH	MINIMUM ANCHORAGE POINT REQ./LBS.	BLOCK WEIGHT
D23-300	23'	75-300	4.9	2.3'	23"	9"	5.2"	2600	22
D40-660	40'	75-660	1.65	2'	13.5"	8"	4.5"	3555	19
D17-1100	17'	75-1100	1.65	2'	13.4"	8"	4.5"	6975	19
D23-1100F	23'	75-1100	2.0	3.3'	28.4"	11.5"	5.4"	5511	35
D50-1100F	50'	75-1100	2.0	3.3'	28.4"	11.5"	5.4"	5511	35
D23-3300	23'	75-3300	2.0	3.3'	28.4"	11.5"	6.0"	13228	48
D33-3300	33'	75-3300	2.0	3.3'	28.4"	11.5"	6.0"	13228	53

DUE TO THE NATURE OF THIS PRODUCT, IT IS RECOMMENDED THAT ALL DROP-STOPS® BE RETURNED FOR A YEARLY ROUTINE INSPECTION AND RECERTIFICATION. DROP STOPS SHOULD BE SERVICED EXCLUSIVELY BY TRAINED REPRESENTATIVES.



#### CONTROL PACKAGES AND ACCESSORIES





Manifold Block

#### Flow Control Valve

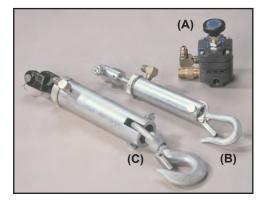
	nsi-Touch <sup>®</sup> Control Package (See page 3) nifold, Hose & Flow Control)
901-09000	5-375 LBS. for VERTICAL Hoists
901-09001	5-375 LBS. for HORIZONTAL Hoists
901-09002	400-1200 LBS. for VERTICAL Hoists
901-09003	400-1200 LBS. for HORIZONTAL Hoists
901-06000	Original Sensi-Touch® Small Control Only, 5-375 Lbs.
901-06001	Original Sensi-Touch® Large Control Only, 400-1200 Lbs.
909-04000	Hose Assembly (Clear 10 Ft.)
909-04015	Hose Assembly (Clear 15 Ft.)
909-40300MH 101-05508	Manifold Block and JF2 Flow Control Horizontal Manifold Block Universal
601-05400	JN2 Flow Control only, 1/4" NPT

Slim-Line Sensi-Touch® Control Packages (See page 3) (Includes: Valves, Hose & Control)

905-09000	5-375 LBS. SINGLE ACTING	for VERTICAL Hoists					
905-09001	5-375 LBS. SINGLE ACTING	for HORIZONTAL Hoists					
905-09002	400-1200 LBS. SINGLE ACTING	for VERTICAL Hoists					
905-09003	400-1200 LBS. SINGLE ACTING	for HORIZONTAL Hoists					
905-06000	Slim-Line Sensi-Touch® Control	Only, 5-375 Lbs.					
905-06002	Slim-Line Sensi-Touch® Control	Only, 400-1200 Lbs.					
605-06006	3-Bore Coiled Slim-Line Hose (1	0 Ft.)					
605-06020	Hose Union (3 needed)						
Single Acting Retrofit Valve Kit:							

905-07000 Valve Assembly (No Slim-Line, No Hose)

	<b>3</b> (
Dual Actin	g Retrofit Valve Kits:
905-07020	Models FV01 thru FV03
905-07021	Models FH01 thru FH03
905-07022	Models FV06 thru FV12
905-07023	Models FH06 thru FH12, MH40
905-07024	Models MV03 thru MV12, PV03
905-07025	Models MH03, FH03
905-07026	Models PV, PV12
905-07027	Models MH06 thru MH12
905-07028	Model PV20
905-07029	Models PH03, PH06, PH12
905-07031	Model PH20
905-07040	Models SM03, SM06
905-07041	Model SM12



#### Balance Control Packages (See page 5)

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0.00

909-30600 5-100 LBS. Balancer Control Package Includes: Regulator with Fitting. For Models F-50, F-01, M-03, M-06/6, M-06/6, P-03, P-06/6, P-06/6, SM-03, SM-06/6.

901-31000 125-375 LBS. Balancer Control Package

Includes: Small Servo, Regulator & Hose, For Models F-02, F-03, M-06/4, M-12, P-12, P-06/4. SM06/4, SM-12.

906-31000 400-800 LBS. Balancer Control Package

Includes: Large Servo, Regulator & Hose, For Models F-06, F-08, F-12, M-40, P-20.

**909-30600** Regulator with fitting Only, nontapped (A)

909-30601 Regulator tapped for Servo w/fitting for VERTICAL Hoists

- 909-30602 Regulator tapped for Servo w/fitting for HORIZONTAL Hoists
- 901-25000 Servo Hose Assembly (Not Pictured)
- 901-05010 Small Servo (B) (Control Only)
- 906-05101 Large Servo (C) (Control Only)

#### EXTRA, ADJUSTABLE, PRIMARY CABLE WITH CLAMPS

Customer specifies a non-standard amount of extra, adjustable, primary cable for any Bal-Trol<sup>®</sup> model. Useful when the Bal-Trol<sup>®</sup> is going to be mounted high above the work area. The extra cable ensures that the hook travel range reaches the place where the work takes place. The extra, adjustable, primary cable represents the amount of cable which does not retract into the unit (Refer to the"C" dimension on pages 8, 10, 12 and 14). Extra cable is generally supplied in 1 foot increments and can be adjusted in the field using the included wire rope clamps.

#### **OVERHANG CABLE**

Attaches to retractable cable supplied on Bal-Trol<sup>®</sup> and comes with top shackle and safety hook. Does not retract into unit. Can be adjusted in the field. Generally supplied in 1 foot increments

Model No. CA-4 All Capacities 600 lbs. & under Model No. CA-7 All Capacities over 600 lbs.



#### CONTROL PACKAGES AND ACCESSORIES





#### Small Original Speed Handle Control Package (See Page 4)

901-02000 5-375 LBS. for VERTICAL Hoists 901-02001 5-375 LBS. for HORIZONTAL Hoists Includes: Handle, Manifold, Hose,

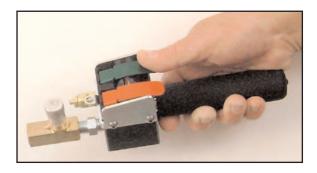
Large Orig	ginal Speed Handle Control Package
906-02000	400-1200 LBS. for VERTICAL Hoists
906-02001	400-1200 LBS. for HORIZONTAL Hoists
901-07000	Original Speed Handle Control Only, 5-375 Lbs.
901-07001	Large Original Speed Handle Control Only, 400-1200 Lbs.
909-45000	Small Hose Assembly (1/4")
901-45000	Large Hose Assembly (3/8")
101-05508	Manifold Block Universal
601-05503	Flow Control Valve JN1 1/8" NPT
601-05400	Flow Control Valve JN2 1/4" NPT

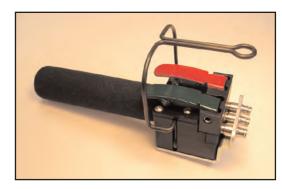
601-05500 Flow Control Valve JN3 3/8" NPT

#### Pro Handle Control Package (See Page 4)

905-19100	5-375 LBS. SINGLE ACTING for VERTICAL Hoist
905-19101	5-375 LBS. SINGLE ACTING for HORIZONTAL Hoist
905-16100	Pro Handle Control Only
909-45000	Small Hose Assembly (1/4")
909-04001	Hose Assembly (10 Feet with Fittings for Pro Handle)

- 101-05508 Manifold Block Universal
- 601-05400 Flow Control Valve JN2 1/4" NPT

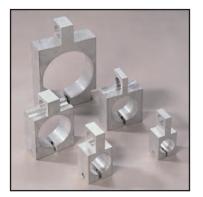




#### Slim Handle Control Package (See page 4)

905-19000	5-375 LBS. SINGLE ACTING for VERTICAL Hoists
905-19001	5-375 LBS. SINGLE ACTING for HORIZONTAL Hoists
905-19002	400-1200 LBS. SINGLE ACTING for VERTICAL Hoists
905-19003	400-1200 LBS. SINGLE ACTING for HORIZONTAL Hoists
905-16000	Slim Handle Control Only.
905-07000	Valve Assembly (No Slim-Handle, No Hose)
905-07001	Valve Assembly (No Control or Hose, MH)
605-06006	3-Bore Coiled Hose Assembly (10 Ft.)

Single Acting Retrofit Valve Kit same as Slim-Line Sensi-Touch® Control Dual Acting Retrofit Valve Kits same as Slim-Line Sensi-Touch® Control



#### ADJUSTABLE REAR SUPPORT

Shortens mounting distance on horizontal units. In drawing, unit could be mounted in space of 2'. Approximately 35" of unit would suspend off back of arm.

ADJUSTABLE REAR SUPPORT MODEL FH03-4 SHOWN 59.53" WITHOUT ADJUSTABLE SUPPORT									
	MODEL	A.R.S. MODEL NO.	MODEL	A.R.S. MODEL NO.					
۵	FH50 FH01	105-03202 101-03202	FH06 FH08	106-03202					
	FH01	102-03202	FHU6 FH12	112-03202					
	FH03	103-03202	11/12	112 00202					

### TMI TRI-MOTION INDUSTRIES, INC.

ACCESSORIES



#### Pictured is a CABLE ASSEMBLY AND SEAL KIT.

These Items are the only recommended replacement parts you need to have on hand to keep down-time to a minimum. Replacement Cable and Seal Kit can ship in a matter of days, same day shipment for emergencies. Your unit can easily be repaired in the field.



Always specify a complete model number & serial number.

#### SWIVELS

The cables on the Bal-trol<sup>®</sup> units should not be allowed to twist repetitively. If the application requires that the load be rotated, then a swivel should be used to protect the cable from this type of spinning. In the case of the Sensi-Touch<sup>®</sup> control there is a set screw on the lower body of the control that must be tightened to prevent the shaft from turning within the control. This will prevent the shaft from rotating & twisting the cable.

Model No. GHNB-06 - Used on Sensi-Touch® Model No. GHNB-07 - Used on Speed Handle

. . . . . . . . . . . . . . . . . . .

#### SAFETY CHAIN

All Bal-trols<sup>®</sup> are supplied with provisions to secure a safety chain from the Bal-Trol<sup>®</sup> to a secondary support system. The secondary support should be different



from the support that the Bal-Trol<sup>®</sup> is mounted. All overhead equipment should be secured for safety reasons. Selection is base on total weight of Bal-Trol<sup>®</sup> plus load(s).

Model No. 500C (500 Lbs. Capacity) Model No. 2000C (2000 Lbs. Capacity)



#### DEMO KIT - 909-90000

A trained Tri-Motion authorized distributor is capable of demonstrating the benefits of a Bal-Trol<sup>®</sup>. Their demo kit can easily be set up in any office environment. They furnish hangers, Bal-Trol<sup>®</sup> unit PH03/8-3-SL and air tank which serves as a weight. Make arrangements to have your local distributor show you the ergonomic and safety benefits of using Tri-Motion Air Balancers.

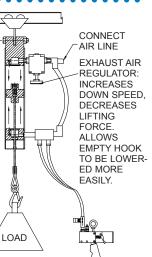


#### GH4 and GH7 GATE HOOK

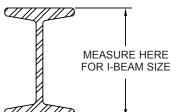
All Bal-Trols are supplied with forged steel Safety Latch Type Hooks. Gate Hooks provide an additional measure of safety, extra but simple procedures are required in order to remove a load from the hook. Select **Model GH-4** for Models (100 Lbs. thru 600 Lbs.) F01 thru F06 M03, M06, M12, P03, P06, P12, P20, SM03, SM06 & SM12 **Model GH-7** for Models (800 Lbs. thru 1200 Lbs.)F08, F12 and M40.

#### EXHAUST AIR REGULATOR - E.A.R. MODEL 909-09000

Used in applications where "Float" is not required. Offers additional safety should a load accidentally slip from the hook. This option increases down speed for those applications lowering empty hooks or light loads. Depending on how valve is regulated, capacity can *decrease* from 10% to 100%. Units can be field retrofitted with E.A.R. option.



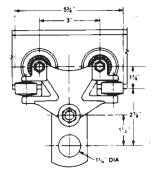


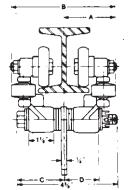


VARIABLE DIMENSIONS				
BEAM				
SIZE	Α	В	С	D
2-5/8"	2.06	4.12	2.06	1.25
3"	2.38	4.68	2.06	1.56
4"	2.50	5.00	2.06	1.75

Consult factory for other models

#### 500-T & 1000-T TROLLEYS









CONTROLS

SLIM-LINE SENSI-TOUCH® CONTROL ORIGINAL SENSI-TOUCH® CONTROL See page 3



ORIGINAL SPEED HANDLE CONTROL PRO-HANDLE CONTROL SLIM HANDLE CONTROL See page 4

> BALANCE CONTROL REGULATOR WITH FITTINGS SERVO BLEED VALVES See page 5



LEADERS IN AIR BALANCING HOISTS

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