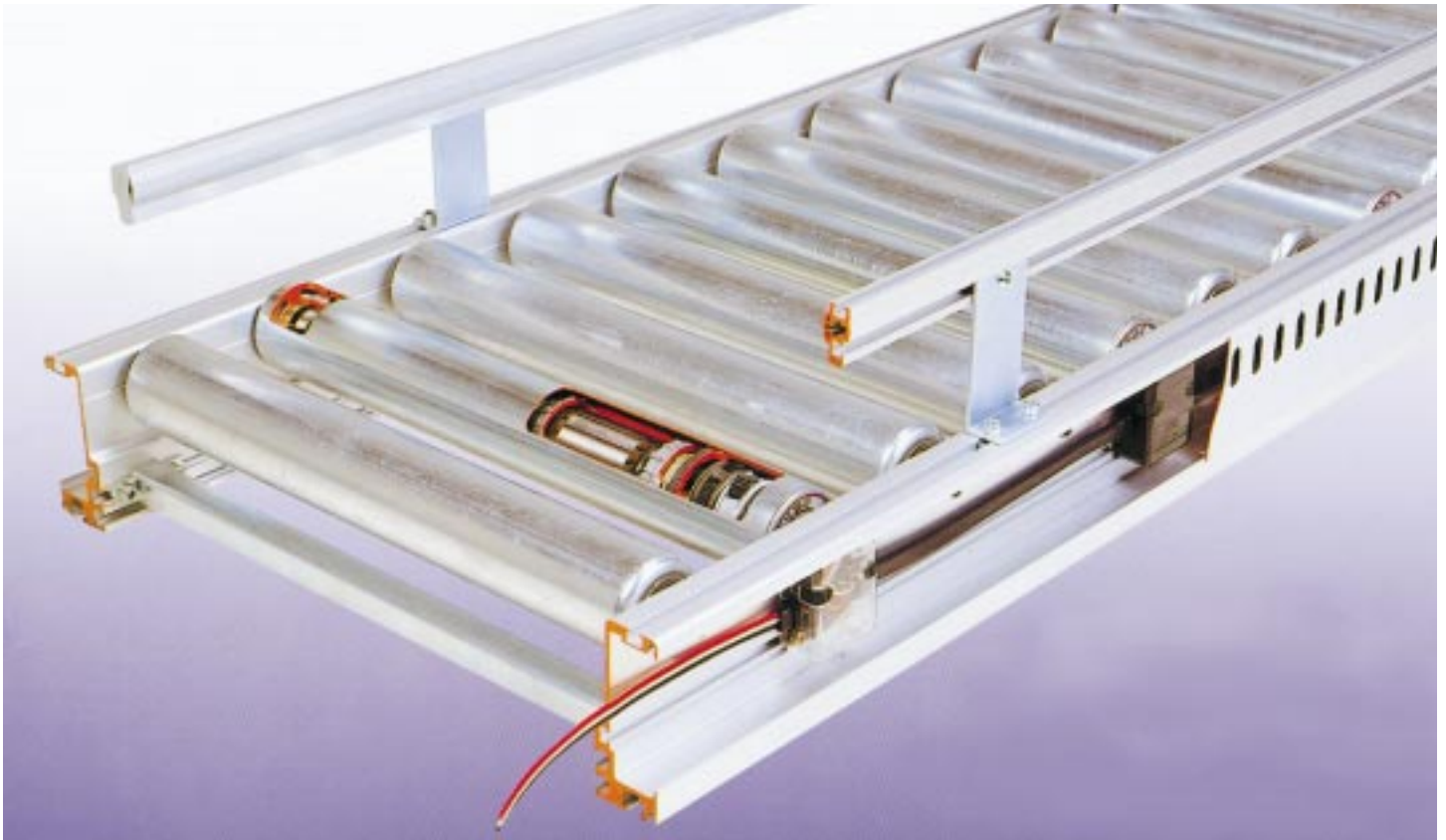


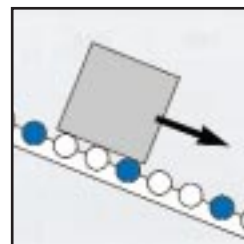
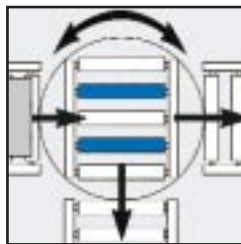
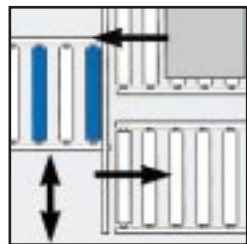
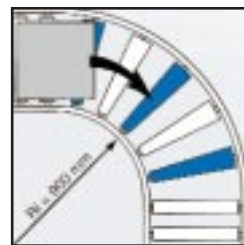
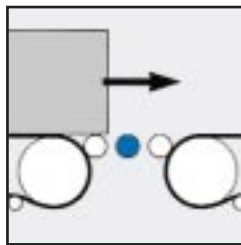
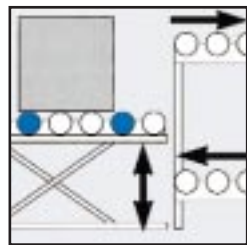


ITO H DENKI, USA ● POWER MOLLER®



POWER MOLLER®

The Modern Approach to Conveyor Motorization



135 Stewart Road • Hanover Industrial Estates • Wilkes-Barre, Pennsylvania 18706-1462
Telephone: 570-820-8811 • Facsimile: 570-820-8838 • www.itohdenki.com

POWER MOLLER® APPLICATION EXAMPLES



LIFT TABLES



**TRANSHIPMENT
SYSTEMS**



TURN TABLES

The *POWER MOLLER*® saves space and decreases the weight of the conveyor frames. These points are always examined when motorizing transfers such as lift tables or “T” junctions,...



MACHINE FEEDING



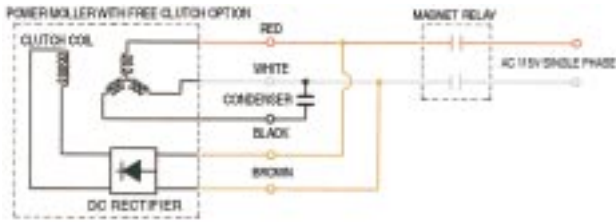
GATE



AGV

The motorization of a gate in order to allow the operators to cross a conveyor line will be easy to manufacture thanks to the *POWER MOLLER*®.

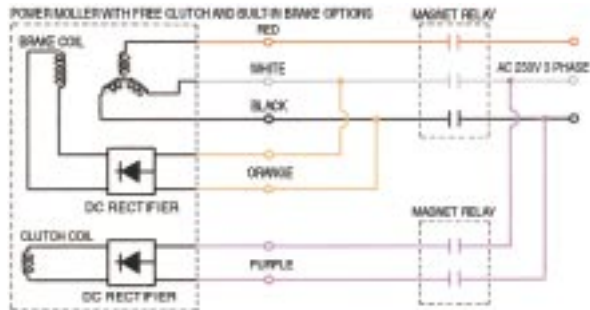
For Single Phase



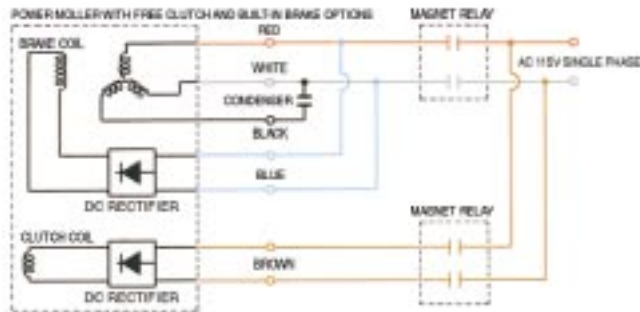
- Built-in DC rectifier.

Wiring for Free Clutch Type with a built-in brake

For 3-Phase

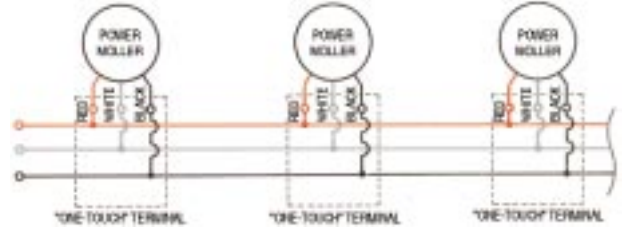


For Single Phase



- Built-in DC power supply.

Wiring for "One-Touch" Terminal Block Fitting No. A-800



- Please use 3 parallel wire cable (optional).
- In case that the said optional cable is not used, please use 1.25 mm² (0.18/50) VSF or KIV.HKIV.

Caution:

The terminal block fitting No. A-800 cannot be used with any of IV cable, VF cable, single-cored cable or FCR wiring.

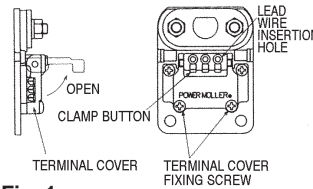


Fig. 1

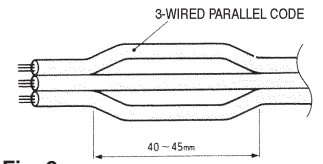


Fig. 2

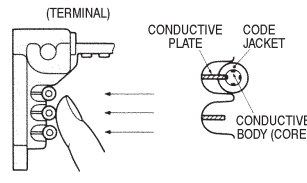


Fig. 3

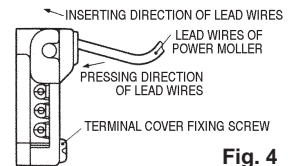


Fig. 4

Connection

1. Upon completion of installation of the terminal block fitting, loosen the 2 mounting screws (M3 x 12) to lift the cover open.
2. Slit the 3-parallel wire cable as shown in Fig. 2.
3. Place the wires in grooves as shown in Fig. 3 and press them firmly so that the jacket of the wires get pierced by the conductive plate.
4. When the wires are tight in the grooves, close the terminal cover and tighten the screws.
5. When wiring is done, press the clamp button to insert the lead wires into the lead wire insertion holes as shown in Fig. 4.
 - When pressing the clamp button, push the lower part of the button.
 - For smooth insertion of the wires, direct the tips of wires upward.
6. Make sure that the lead wires are pushed in all the way so that the core wires won't come out.
7. Release the clamp buttons and pull the lead wires lightly to confirm that the wires are firmly connected.
8. When the direction of Power Moller's® revolution is necessary to be changed, switch any 2 of 3 wires.

Wires used

- Please use the 3-parallel wire cable (optional). (Standard length; 20 m/roll and 200 m/roll)
- In case the above-mentioned wire is not used, please use 1.25 mm² (0.18/50) cable.

TABLE OF CONTENTS

Diameter	Model	Description	115V AC Single Phase	230V AC Three Phase	460V AC Three Phase	24V DC	Page #
1.50" (38 mm)	PM380AS	Light Load Transfer	○	○			5
	PM380DS	DC Operation				○	12
1.68" (42.7 mm)	PM427AS	Light Load Transfer	○	○			6
1.91" (48.6 mm)	PM486BS	Continuous Operation	○	○			6
	PM486FS	Brushless DC Operation				○	12
2.25" (57 mm)	PM570AS	Continuous Operation	○	○	△		7
	PM570DS	Economical DC Operation				○	13
	PM570AH	High Torque (Intermittent)		○	△		7
	PM570BP	Max Torque (Intermittent)		○			7
	PM570AU	Tolerates Accumulation		○			8
	PM570AS	Slow Speed Transfer		○			8
	PM570ES	Brushless DC Operation				○	13
2.38" (60.5 mm)	PM605AS	Continuous Operation	○	○	△		9
	PM605DS	Economical DC Operation				○	14
	PM605AH	High Torque (Intermittent)		○	△		9
	PM605BP	Max Torque (Intermittent)		○			9
	PM605AU	Tolerates Accumulation		○			10
	PM605AS	Slow Speed Transfer		○			10
	PM605ES	Brushless DC Operation				○	14
Tapered Models	PMT50AS	Continuous Operation	○	○	△		11
	PMT50AH	High Torque (Intermittent)		○	△		11
	PMT50BP	Max Torque (Intermittent)		○			11
	PMT50AU	Tolerates Accumulation		○			11
3.0" (76.3 mm)	PM763BS	Continuous Duty For Belt Conveyors	○	○			15
	PM763BC	High Torque (Intermittent)	○				15
4.53" (115 mm)	IP-G	Mini Belt Drive		○			16
	HP-G	Conveyor Pulley		○			16

○ - Available as standard

△ - Available but please check with an Itoh Representative to review 460/3/60 applications.

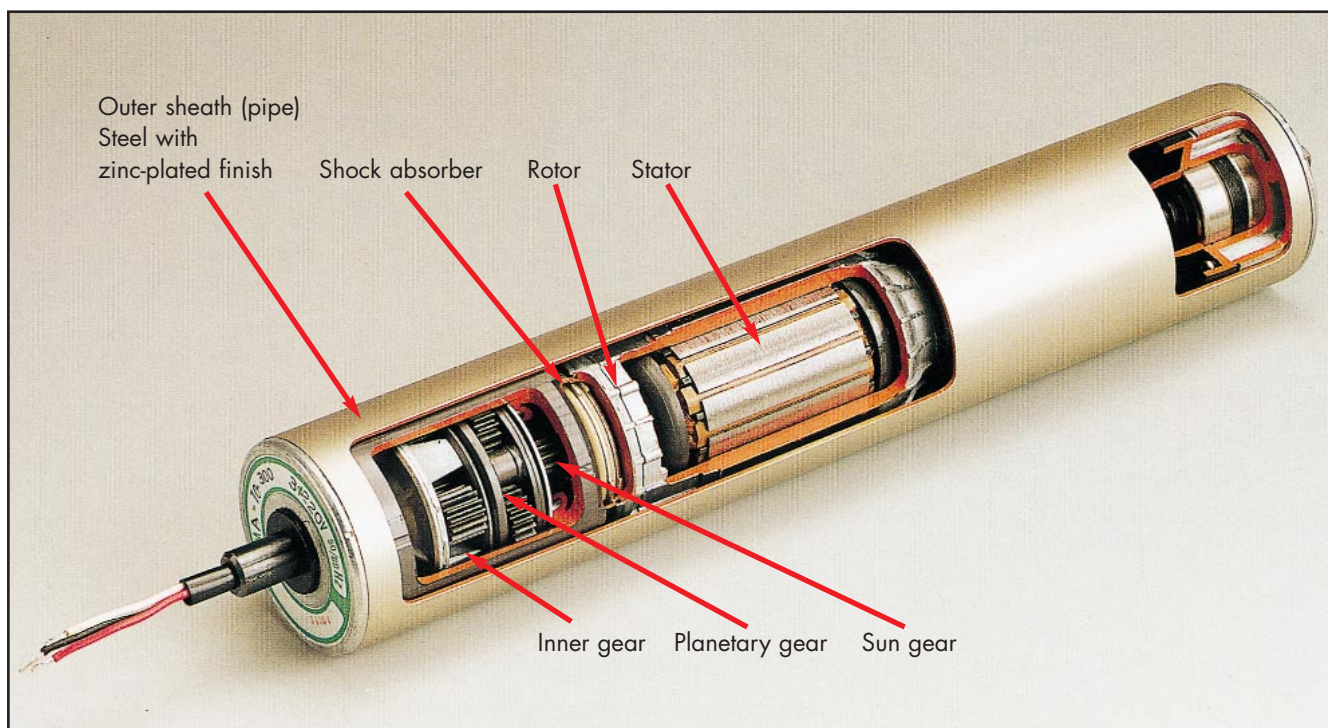
WARRANTY

Itoh Denki warrants its Power Mollers to be free from defects in material and workmanship under normal and proper use for a period of one year starting from the date stamped on the Moller. A copy of this warranty is available upon request.

The Solution To Your Automation Needs.

In today's progressive manufacturing and distribution environments, designing conveyor systems can be a difficult challenge. Complex problems often need to be solved.

Now there is an innovative and advanced engineering solution that meets the demands of a "new age" in production automation and flexibility. The POWER MOLLER® is a self-contained motorized roller that opens new horizons in handling system design. It's low profile and ease of installation make it the perfect choice when production efficiency and space savings are required.



Working Concept:

The turning force of the motor (outer rotor) is transmitted through the shock absorber to the planetary gearing. The planetary gearing drives the inner gear which is affixed to the roller tube. The tube will rotate because the output shaft (stator) is held stationary by the conveyor frame.

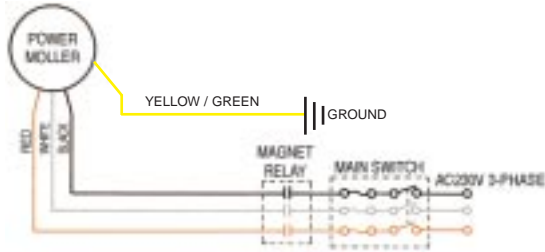
"One-touch" Spring-loaded shaft:

The Power Moller's® spring-loaded attaching shaft enables the unit to be quickly installed or removed without disassembling the conveyor frame.

Built-in Shock Absorber:

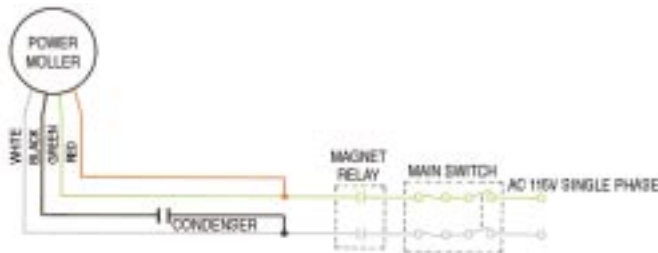
When articles are transported on roller conveyor lines, they can sometimes encounter a sudden stop, impact or acceleration that transmits a strong shock to the torque transmission system of the Power Moller®. The shock absorber provides protection by acting as a slip clutch between the motor and gearbox. The shock absorber is designed to slip at 150% of motor torque and will not function under normal conditions.

Wiring for PM763BS, HP-G, IP-G For 3-Phase



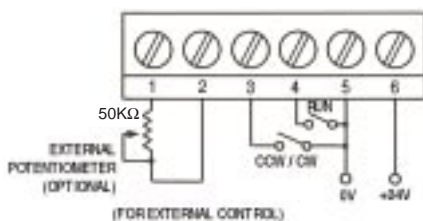
- In case the motor turns in reverse to the designated direction, switch the wiring positions of any two (2) of the three (3) wires.
- The direction of motor revolution can be selected either CW or CCW by the main switch.

Single Phase



- Switch the wiring positions of the black and white wires for reversing the motor revolution.
- Since no condenser is contained, mount the one provided as a standard accessory on a frame or a control panel.

Wiring for PM570ES and PM605ES



Wiring to the Connector 1

- Put a current of DC24V to 5 and 6.
- Contact of 4 and 5 causes the Power Moller® to turn and disconnection of the same shuts it down.
- Contact of 3 and 5 turns the Power Moller® in CCW direction and disconnection of the same in CW direction.
- The motor speed can be adjusted by turning a volume (VR1); CCW for acceleration and CW for deceleration.

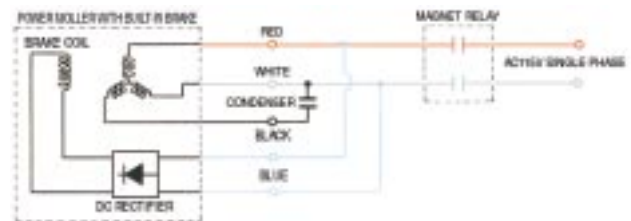
* For more detailed information, please see the operation manual provided with each product.
* The specifications of PCB is subject to change without notice.

Basic Wiring for Power Moller® with a built-in brake

For 3-Phase

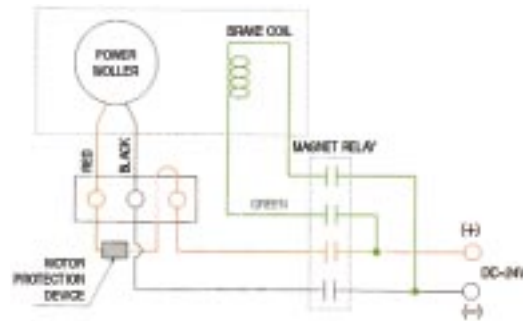


For Single Phase



- Built-in DC rectifier.

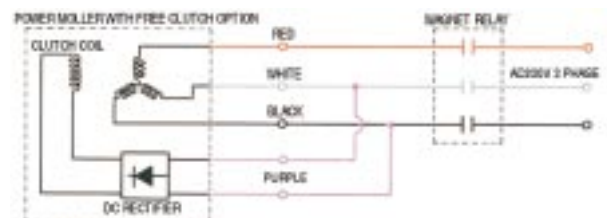
Wiring for built-in brake types of PM380DS, PM570DS, and PM605DS DC-24V



* Since a motor protection device is provided on the terminal block, please never fail to use the terminal block as shown in the diagram above.

Wiring for Free Clutch Type

For 3-Phase



No. A-270-GS and A-280-GS

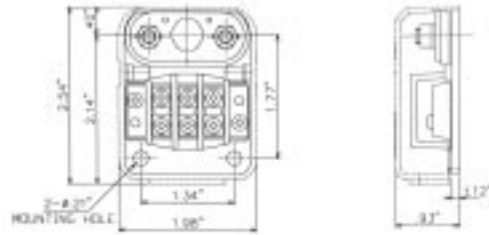
Model applicable

PM486BS

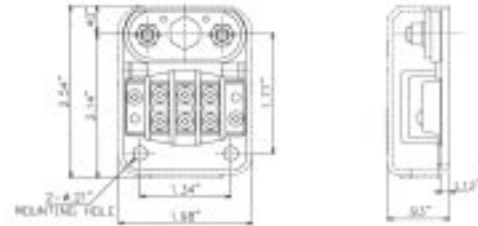
The PM486BS is supplied with either the A-270-GS (flat on top) or the A-280-GS (point on top) terminal block to match the conveyor frame hole design.

Each output shaft should be fixed by the applicable fitting. In case output shaft turns freely it will cause the wires to break.

Hex Flat Up



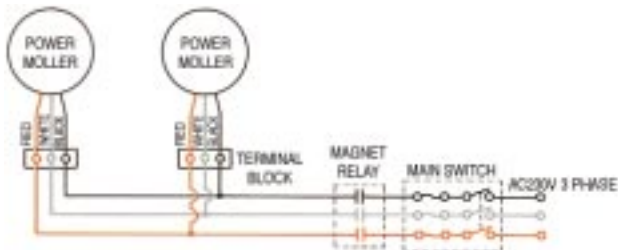
Hex Point Up



Wiring Methods

Basic Wiring for Power Mollers®

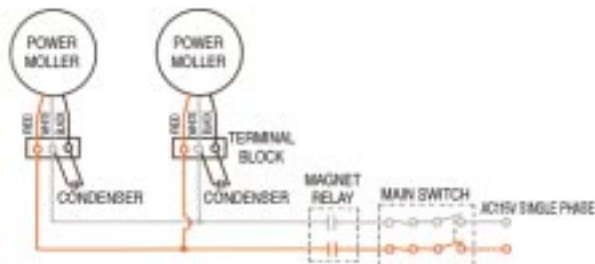
For 3-Phase



- In case the motor turns in reverse to the designated direction, switch the wiring positions of any two (2) of the three (3) lead wires.
- The direction of motor revolution can be selected in CW or CCW by the main switch.

Model No.'s applicable:

PM380AS, PM427AS, PM486BS, PM570AS, PM570AH, PM570BP, PM570AU, PM605AS, PM605AH, PM605BP, PM605AU, PMT50AS.

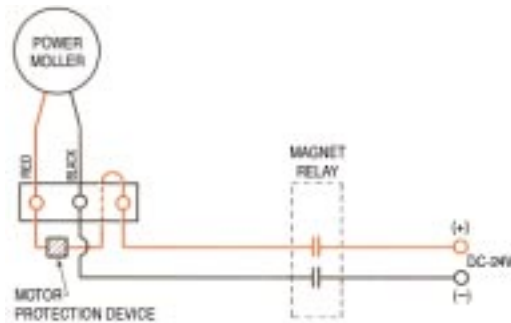


For Single Phase

- Switch the wiring positions of the black and white wires for reverse revolution.
- Since no condenser is built in, mount the one provided as a standard accessory on a frame or a control panel.

Model No.'s applicable:

PM605AS, PM427AS, PM486BS, PM570AS, PMT50AS.



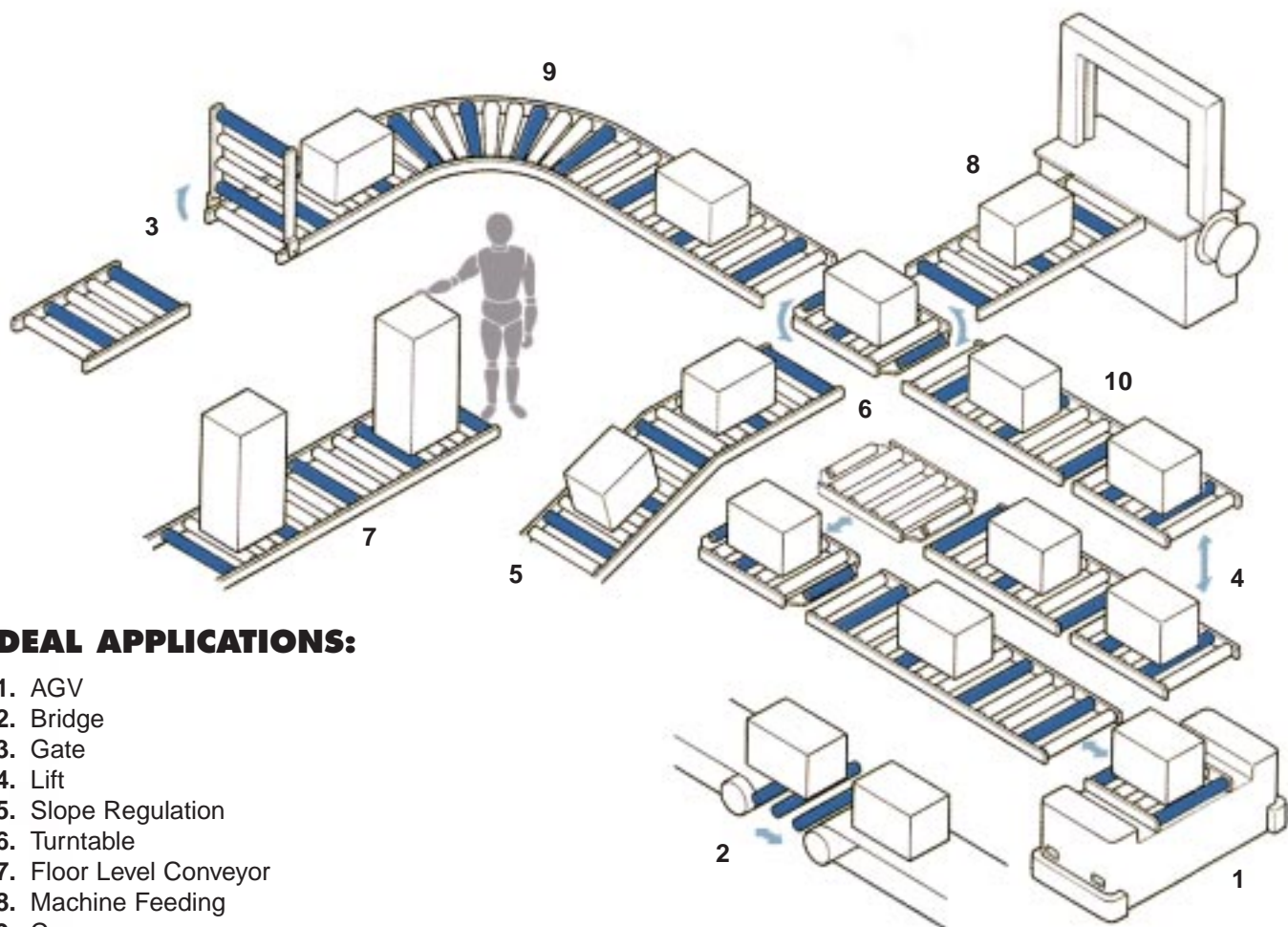
Wiring for PM380DS, PM570DS, and PM605DS

DC-24V

- In case the motor turns in reverse to the designated direction, switch the wiring positions of the two (2) lead wires.
- The direction of motor revolution can be selected either CW or CCW by the main switch.
- When the circuit protector provided on the terminal block is activated, fix the trouble and reset. (PM570DS and PM380DS).

Features and Benefits

- **Space Saving:** Motor and Gearbox integral with roller tube.
- **Easy Installation:** Spring-loaded shaft enables quick and easy installation into new or existing equipment.
- **Safe, Simple and Clean:** Totally sealed construction with no exposed chains or sprockets.
- **Quiet and Smooth Operation:** Enables low vibration transfer.
- **Maintenance Free:** Lifetime lubrication ensures long life and maintenance free operation.
- **Built-in Shock Absorber:** Protects the gearbox from a sudden stop, impact, or acceleration in the line.
- **Easy Wiring:** Supplied mounting fitting with terminal block and safety cover secures the motor shaft to the frame and provides for easy and convenient wiring.
- **Reversible:** Easy control of forward, reverse and stop functions.



IDEAL APPLICATIONS:

1. AGV
2. Bridge
3. Gate
4. Lift
5. Slope Regulation
6. Turntable
7. Floor Level Conveyor
8. Machine Feeding
9. Curves
10. Zero Pressure Accumulation

Product Designation

As a nature of motorized roller, Power Moller's designation consists of both mechanical and electrical elements. The following information is important to determine the right product designation, when you place an order.

1. Mechanical - Roller Tube and Gearbox

Roller Diameter		Roller Tube Length mm (in.)	Gearbox Nominal Speed m/min (fpm)	Option	
Code	Diameter mm (in.)				
380	38.0 (1.5")	Minimum 200mm (7.87") up to 1500mm (59.1") with 1mm increment (.04") (depending on the model)	Fixed Speed Minimum .07m/min (.23 fpm) up to 60m/min (263.4 fpm) (depending on the model)	G	Rubber lagging
427	42.7 (1.68")			NR	Natural Rubber
486	48.6 (1.91")			UR	Urethane rubber
570	57.0 (2.25")			CR	Neoprene
605	60.5 (2.38")			NB	NBR-Nitrile
763	76.3 (3.0")			OL	Other

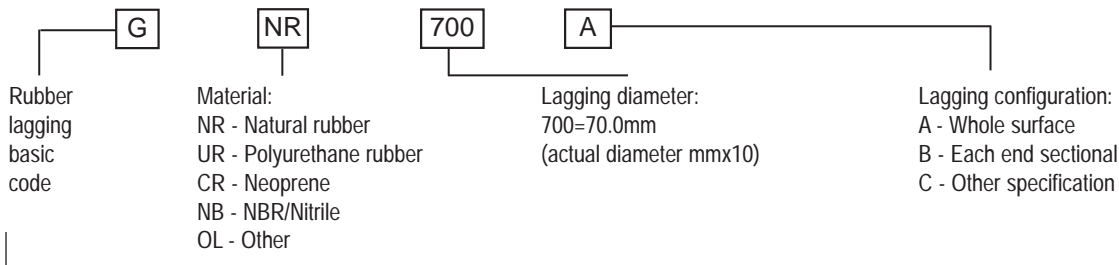
2. Electrical - Motor

Motor Type				Operating Voltage			
1st Code	Specifications	2nd Code	Type	1st Code	Power Source	2nd Code	Voltage
A	AC induction motor, outer rotor design	S	Standard	3	AC 3 phase	24	24V
B	AC induction motor, inner rotor design	H	High Torque	1	AC 1 phase	115	115V
D	DC magnetic motor	U	Accumulation	D	DC	230	230V
E	DC brushless motor, outer rotor design	P	High Power			460	460V
F	DC brushless motor, inner rotor design					See specific model for available voltages	

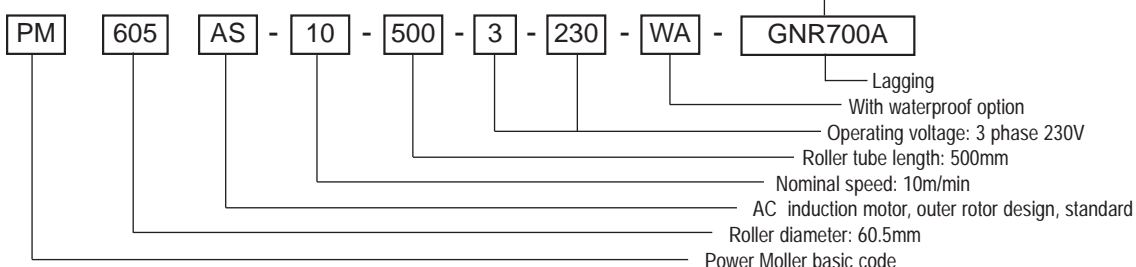
Options

Code	Description
BR	Built-in brake
WA	Waterproof (IP-65)
DR	Drip proof (IP-55)
DU	Dustproof
EC	Free-clutch (electrical)
HC	Free-clutch (4 mode mechanical)
VP	V belt pulley
OS	Other specification(s)

Rubber Lagging Designation:



Designation Example:



No. A-071-G and A-081-G

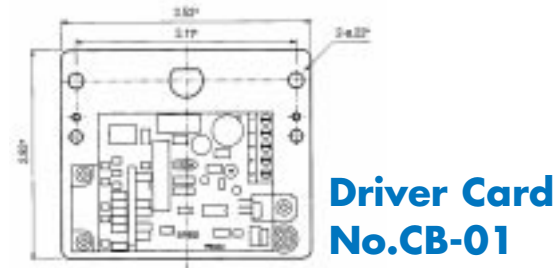
Model applicable

PM486FS

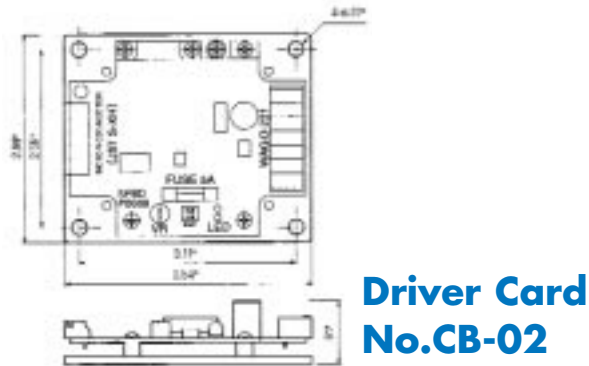
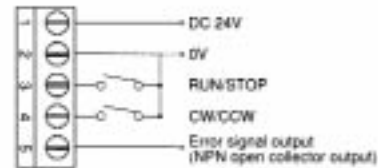
- Supplied as a standard accessory

Accessories

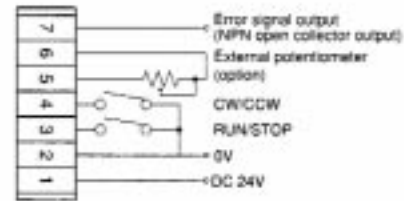
PM486 series Power Moller is supplied with Driver card No. CB-01 or CB-02 (per customer's requirements), with a built-in overload protection device and potentiometer to vary operating speed, together with two mounting brackets No. A-071-G (flat on top) or A-081-G (point on top) to match the conveyor, design. It is mandatory to fix both shafts of the unit properly with these brackets. The base plate of the Driver card must be affixed to conveyor frame to ensure the heat dissipation.



**Driver Card
No. CB-01**



**Driver Card
No. CB-02**



No. CB-02 has two dip switches; Dip switch 1 is for switching internal or external speed variation. Dip switch 2 is to preset CW or CCW rotating direction. Normal position is ON.

WIRING

Power: Connect the power source to the terminal 1 and 2. Terminal 1 is for positive 24VDC. Terminal 2 is for 0V.

Run/Stop: Run - Closed contact between terminal 2 and 3.

Stop - Open contact between terminal 2 and 3.

CW/CCW: CW - Open contact between terminal 2 and 4 (viewed from power cable side)

CCW - Closed contact between terminal 2 and 4 (viewed from power cable side)

Note: This holds true when the dip switch 2 on CB-02 is ON.

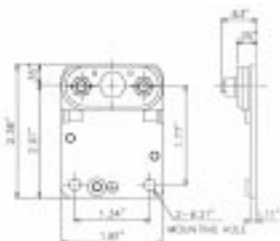
Error signal: "Low" output in case of overload. (terminal 5 on CB-01, terminal 7 on CB-02)

External speed variation: Place a potentiometer between terminal 5 and 6 to vary the motor speed.

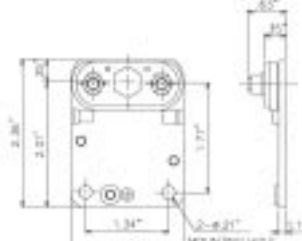
Available only with CB-02. Its dip switch 1 must be off to vary the speed externally.

Please contact an Itoh Representative for other driver cards available.

Mounting Bracket No. A-071-G "Hex Flat Up"



Mounting Bracket No. A-081-G "Hex Point Up"



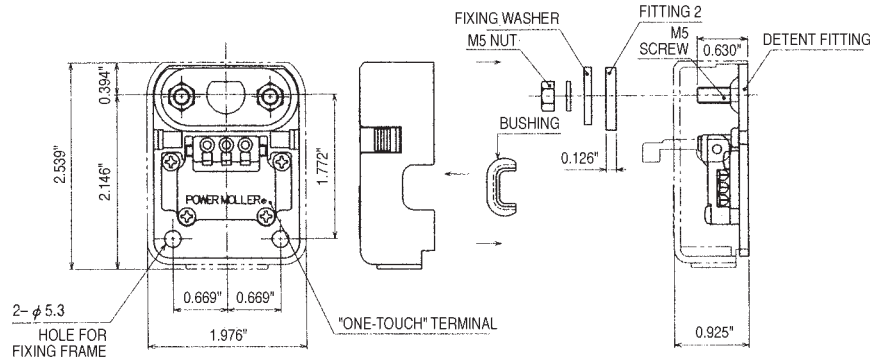


No. A-800 (Optional)

Terminal Blocks

Wiring time is drastically slashed.

- The applicable models are the same as those listed under No. A-200.
- Please see page 28 for the wiring procedure.

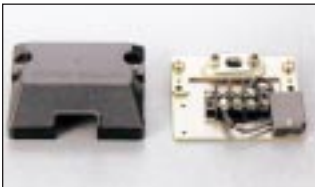


Advantages

- It is not necessary to cut off or strip any wires.
- No terminal connection is required, which drastically slashes wiring time.
- No slack in wiring.

Order:

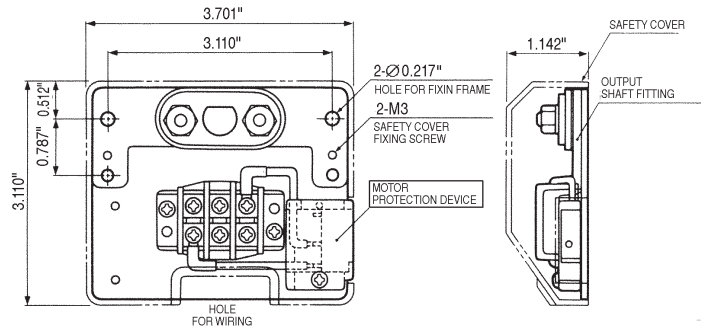
The fitting No. A-800 is an optional item and no Power Moller® is provided with this fitting as standard. Please order it separately when ordering Power Mollers® and the No. A-800 will be delivered instead of No. A-200 at an extra cost.



No. L-200-K

Model applicable
PM570DS, PM605DS

- Standard terminal block fitting for PM570DS and PM605DS
- Please see page for wiring method.



Terminal Bracket No. L-600-F

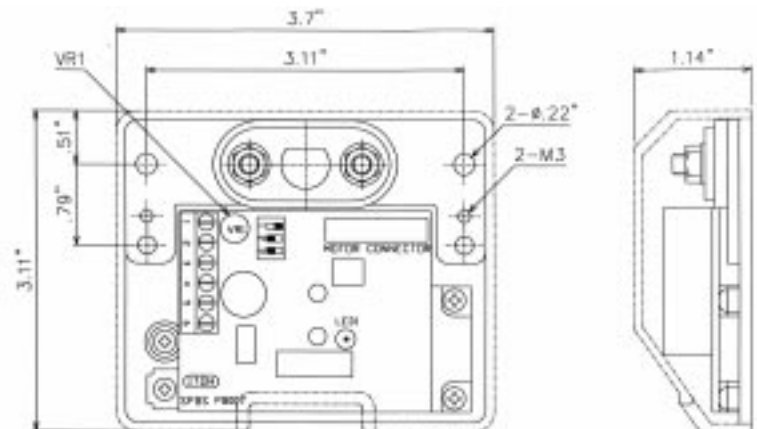
Models applicable

PM570ES, PM605ES

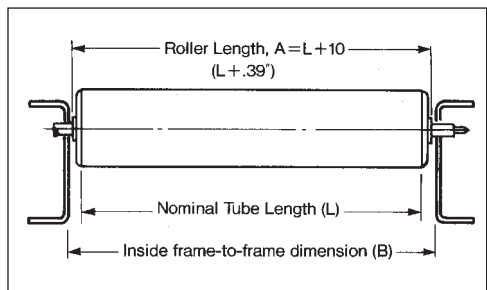
The Driver Card No L-600-F has 3 Dip switches:

- Dip switch 1: to switch internal (VR1) or external speed variation
- Dip switch 2: to switch manual or automatic recovery of built-in thermal device
- Dip switch 3: to preset CW or CCW rotating direction

PM570/605ES series Power Moller are supplied with No. L-600-F bracket, with a built-in overload protection device. It is mandatory to fix the unit's output shaft properly with this bracket. It's base plate must be affixed to conveyor frame to ensure the heat dissipation.



Standard Product Weights



The inside frame-to-frame dimension (B) of the conveyor differs by manufacturer.

Depending on the tolerance of dimension B, the total clearance between dimension B and the total roller length (A) should range from .08" (2mm) to .20" (5mm).

MODEL	Nominal Tube length L (mm)									
	200	250	300	400	500	600	700	800	900	1000
PM380AS	.9kg	1.0kg	1.1kg	1.2kg	1.3kg	1.4kg				
	2.0lb	2.2lb	2.4lb	2.6lb	2.9lb	3.1lb				
PM427AS	1.1kg	1.2kg	1.3kg	1.4kg	1.6kg	1.7kg	1.9kg	2.0kg		
	2.4lb	2.6lb	2.9lb	3.1lb	3.5lb	3.7lb	4.2lb	4.4lb		
PM486BS		1.8kg	1.9kg	2.0kg	2.2kg	2.3kg	2.6kg	2.7kg	2.9kg	
		4.0lb	4.2lb	4.4lb	4.8lb	5.1lb	5.3lb	5.7lb	5.9lb	6.4lb
PM570AS, PM570DS, PM570AH PM570BP, PM570AU, PM570AJ	1.7kg	2.0kg	2.1kg	2.3kg	2.5kg	2.7kg	2.9kg	3.1kg	3.2kg	3.4kg
	3.7lb	4.4lb	4.6lb	5.0lb	5.5lb	6.0lb	6.4lb	6.8lb	7.1lb	7.5lb
PM763BS		5.4kg	5.9kg	6.8kg	7.7kg	8.6kg				
		11.9lb	13.0lb	15.0lb	17.0lb	19.0lb				

1) The "One Touch" attaching shaft is available on the above models with a minimum 250mm (9.84").

MODEL	Type S Nominal Tube length L (mm)					
	195	245	295	395	495	595
PM380DS	0.8kg	0.9kg	1.0kg	1.2kg	1.4kg	1.6kg
	1.8lb	2.01lb	2.2lb	2.6lb	3.1lb	3.5lb

MODEL	Type P Nominal Tube length L (mm)					
	200	250	300	400	500	600
PM380DS	0.8kg	0.9kg	1.0kg	1.2kg	1.4kg	1.6kg
	1.8lb	2.01lb	2.2lb	2.6lb	3.1lb	3.5lb

MODEL	Nominal Tube length L (mm)									
	290	340	400	500	600	700	800	900	1000	
PM570AS SLOW SPEED	2.4kg	2.7kg	2.8kg	3.0kg	3.2kg	3.4kg	3.6kg	3.8kg	4.0kg	
	5.3lb	6.0lb	5.7lb	6.6lb	7.0lb	7.5lb	7.9lb	8.4lb	8.8lb	
PM605AS SLOW SPEED	3.1kg	3.3kg	3.5kg	4.0kg	4.5kg	5.0kg	5.5kg	6.0kg	6.5kg	
	6.8lb	7.3lb	7.7lb	8.8lb	9.9lb	11.0lb	12.1lb	13.2lb	14.3lb	

1) The "One-Touch" attaching shaft is available on the above models with a minimum 340mm (13.4").

PM380AS 1.50" (38mm) Diameter Specifications

115V Single Phase 230V Three Phase



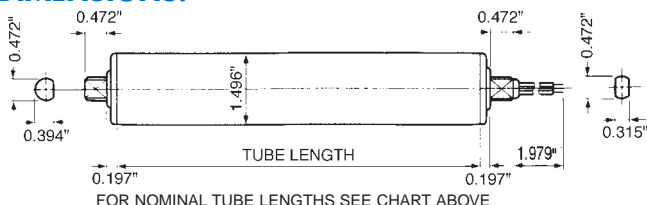
FEATURES:

- Designed for slim and compact lines.
- Easy installation into existing conveyor lines.
- Simplifies new conveyor design.
- Easy control of forward, reverse and stop.
- Includes No. E-920 Terminal Block.

OPTIONS:



DIMENSIONS:

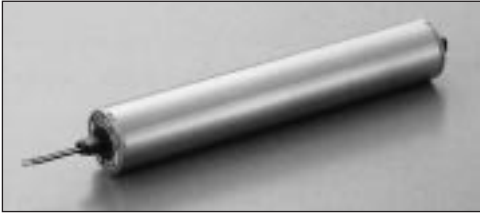


					Current (A)	
	Power Source	Speed (ft/min)	Tangential force (lbs)	Starting Torque (In lbs)	No Load	Start
PM380AS-5	3 Phase 230V Input 12W	16.4	13.4	10.0	0.05	0.07
PM380AS-8		24.9	8.9	6.6		
PM380AS-10		37.4	5.8	4.3		
PM380AS-15		52.5	4.9	3.6		
PM380AS-20		83.3	3.2	2.4		
PM380AS-30		124.3	2.0	1.5		
PM380AS-5	Single Phase 115V Input 10.5W	16.4	6.8	5.0	0.11	0.13
PM380AS-8		24.9	4.5	3.4		
PM380AS-10		37.4	3.0	2.2		
PM380AS-15		52.5	2.6	1.9		
PM380AS-20		80.1	1.8	1.3		
PM380AS-30		124.3	1.1	.8		

PM427AS

1.68" (42.7mm) Diameter

115V Single Phase
230V Three Phase

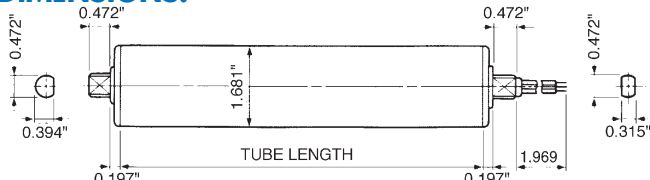


FEATURES:

- Designed for slim and compact lines.
- Easy installation into existing conveyors.
- Simplifies new conveyor design.
- Easy control of forward, reverse and stop.
- Perfect for clean lines.
- Includes No. E-920 Terminal Block

OPTIONS:

DIMENSIONS:



FOR NOMINAL TUBE LENGTHS SEE CHART ON PAGE 5

Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM427AS-5	3 Phase 230V Input 12W	18.4	11.9	10.0	0.05	0.07
PM427AS-8		27.9	7.9	6.6		
PM427AS-10		42.0	5.2	4.3		
PM427AS-15		58.7	4.3	3.6		
PM427AS-20		89.9	2.8	2.4		
PM427AS-30	139.8	1.8	1.5			
PM427AS-5	Single Phase 115V Input 10.5W	18.4	6.0	5.0	0.11	0.13
PM427AS-8		27.9	4.0	3.4		
PM427AS-10		42.0	2.6	2.2		
PM427AS-15		58.7	2.3	1.9		
PM427AS-20		89.9	1.6	1.3		
PM427AS-30		139.8	.9	0.8		

PM486BS

1.91" (48.6mm) Diameter

115V Single Phase
230V Three Phase

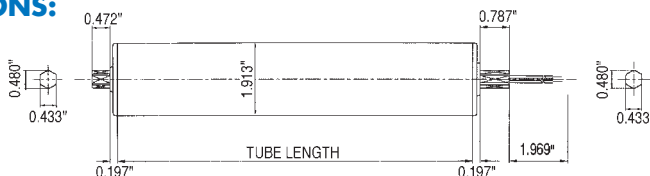


FEATURES:

- Easy installation into existing conveyor lines.
- Simplifies new conveyor design.
- Includes No. A-270-GS (Flat on top) or A-280-GS (Point on top) Terminal Block.
- 7/16" Hex Shaft
- Easy control of forward, reverse, stop.
- Perfect for clean lines.
- Impedance protected motor for accumulation (115V - 230V only).

OPTIONS:

DIMENSIONS:



FOR NOMINAL TUBE LENGTHS SEE CHART ON PAGE 5

Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM486BS-5	3 Phase 230V Input 12W	16.4	17.2	16.5	0.07	0.08
PM486BS-10		34.1	9.9	9.5		
PM486BS-15		53.8	6.0	5.8		
PM486BS-20		67.9	6.0	5.8		
PM486BS-30		107.6	3.8	3.6		
PM486BS-40	130.2	3.2	3.0	0.04	0.11	
PM486BS-5	Single Phase 115V Input 10.5W	16.4	7.6	7.3	0.13	0.17
PM486BS-10		34.1	4.5	4.3		
PM486BS-15		53.8	2.9	2.7		
PM486BS-20		67.9	2.9	2.7		
PM486BS-30		107.6	1.9	1.9		
PM486BS-40		130.2	1.6	1.5		



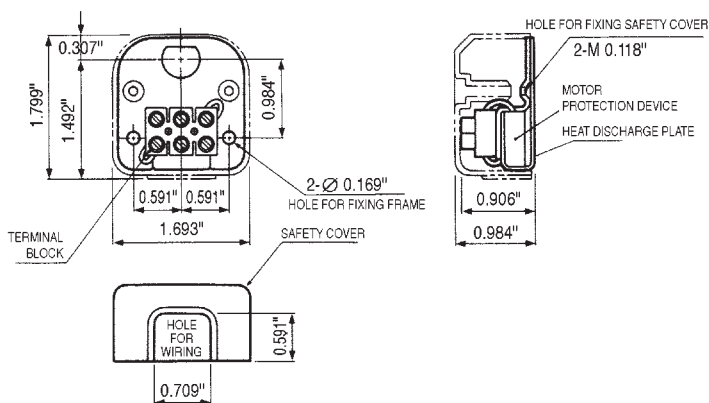
No. D-400-B

Applicable Models

PM380DS

- Standard accessory for PM380DS
- Commonly used for output shaft type S and P.
- A motor protection device is provided on the terminal block.
- A safety cover is provided for the terminal block.
- Wires should come out of the hole at the bottom of the terminal block for wiring.
- Should there be no space for wiring underneath the block, please make a hole in the side of the block, for which the provision has been provided.

Terminal Blocks



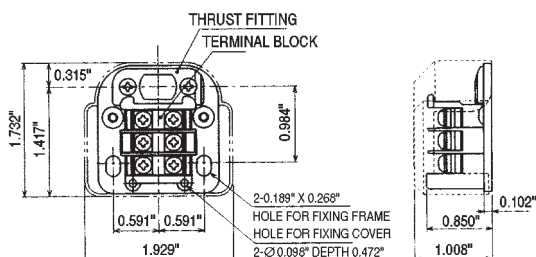
No. E-920

Applicable Models

PM380AS, PM427AS

- Standard accessory for PM380AS and PM427AS.
- Please fix the output shaft by the special fitting. In case the output shaft runs freely, it causes the wires to break.
- The wiring method is the same as No. A-200.

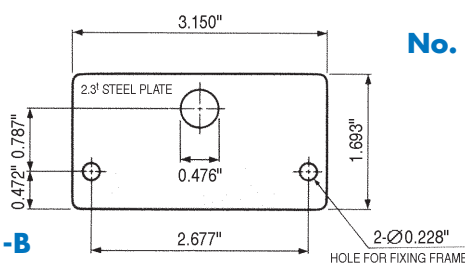
Terminal Blocks



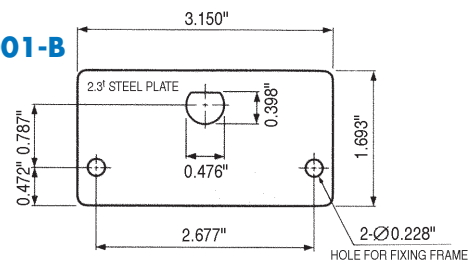
No. F-091-B (Optional) No. F-001-B

- Can be mounted on either inside or outside of a frame.

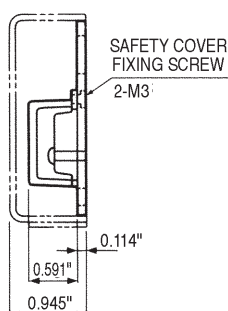
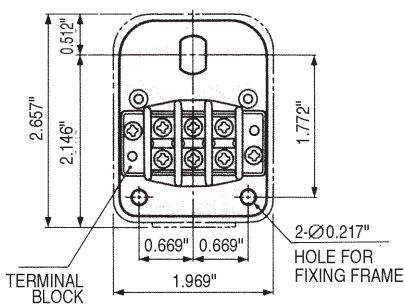
No. F-091-B



No. F-001-B



Brackets



No. I-210-B Terminal Blocks

- Applicable for the models listed under No. A-200 with a dual flat shaft.
- The wiring method is the same as No. A-200.



PM570AS 2.25" (57mm) Diameter

115V Single Phase
230V Three Phase
460V Three Phase*

* Please check with an Itoh Denki representative to review 460/3/60 applications.

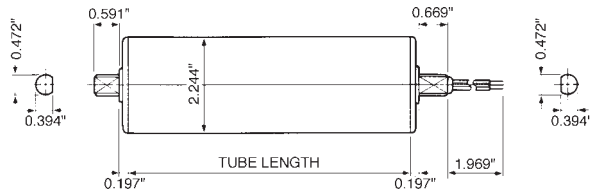


FEATURES:

- Designed for continuous and intermittent duty.
- Easy installation into existing conveyor lines.
- Easy control of forward, reverse and stop.
- Not suited for repeated locking.
- Includes No. A-200 Terminal Block



DIMENSIONS:



FOR NOMINAL TUBE LENGTHS SEE CHART ON PAGE 5

Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs)	Starting Torque (In Lbs)	Current (A)	
					No Load	Start
PM570AS-4	3 Phase 230V Input 16.5W	14.8	27.9	31.2	0.07	0.13
PM570AS-5		20.3	20.4	22.8		
PM570AS-8		29.9	14.0	15.7		
PM570AS-9		37.4	11.1	12.5		
PM570AS-10		41.0	10.2	11.4		
PM570AS-13		51.5	8.1	9.0		
PM570AS-15		62.7	7.7	8.6		
PM570AS-20		86.9	5.4	6.0		
PM570AS-30		130.6	3.7	4.2		
PM570AS-45		170.3	2.8	3.2		
PM570AS-50	188.0	2.5	2.8	0.17	0.28	
PM570AS-60	246.7	2.0	2.2			
PM570AS-4	Single Phase 115V Input 11W	14.8	11.5			12.8
PM570AS-5		20.3	8.4			9.4
PM570AS-8		29.9	5.8			6.5
PM570AS-9		37.4	4.6			5.1
PM570AS-10		41.0	4.2	4.7		
PM570AS-13		51.5	3.3	3.7		
PM570AS-15		62.7	3.4	3.8		
PM570AS-20		86.9	2.4	2.7		
PM570AS-30		130.6	1.7	1.9		
PM570AS-45		170.3	1.3	1.4		
PM570AS-50	188.0	1.1	1.2			
PM570AS-60	246.7	0.9	1.0			

PM570AH

2.25" (57mm) Diameter

230V Three Phase

460V Three Phase*

* Please check with an Itoh Denki representative to review 460/3/60 applications.

FEATURES:

- Designed for intermittent duty.
- Maximum continuous run time of 20 minutes.
- 50% more torque than PM570AS.
- Duty cycle of 50%.
- Includes No. A-200 Terminal Block



DIMENSIONS: Same as dimensions for PM570AS above.

Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs)	Starting Torque (In Lbs)	Current (A)	
					No Load	Start
PM570AH-4	3 Phase 230V Input 20W	14.8	47.0	52.7	0.11	0.20
PM570AH-5		20.3	34.3	38.5		
PM570AH-8		29.9	23.5	26.4		
PM570AH-9		37.4	18.7	21.0		
PM570AH-10		41.0	17.1	19.2		
PM570AH-13		51.5	13.6	15.2		
PM570AH-15		62.7	12.9	14.4		
PM570AH-20		86.9	9.0	10.1		
PM570AH-30		130.6	6.2	6.9		
PM570AH-45		170.3	4.7	5.3		
PM570AH-50	188.0	4.3	4.8	3.6		
PM570AH-60	246.7	3.2	3.6			

PM570BP

2.25" (57mm) Diameter

230V Three Phase

FEATURES:

- Designed for intermittent duty.
- Motor is protected from thermal overload.
- 150% more torque than PM570AS.
- Duty cycle of 50%.
- Includes No. A-200 Terminal Block



DIMENSIONS: Same as dimensions for PM570AS above.

Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs)	Starting Torque (In Lbs)	Current (A)	
					No Load	Start
PM570BP-4	3 Phase 230V Input 20W	14.8	71.8	80.5	0.09	0.31
PM570BP-5		21.0	51.5	57.8		
PM570BP-8		30.2	35.9	40.3		
PM570BP-10		42.0	25.7	29.0		
PM570BP-15		75.5	16.7	18.7		
PM570BP-20		117.1	10.8	12.1		
PM570BP-30		148.6	8.3	9.3		
PM570BP-40		231.6	5.4	6.0		

PM570AU

2.25" (57mm) Diameter

230V Three Phase



FEATURES:

- For applications requiring extended stall periods.
- Special high impedance motor draws low current under any load condition.
- Includes No. A-200 Terminal Block

OPTIONS:

DIMENSIONS: Same as dimensions for PM570AS on page 7.

Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM570AU-4	3 Phase 230V Input 8W	13.5	9.9	11.2	0.05	0.06
PM570AU-5		18.4	7.3	8.1		
PM570AU-8		26.9	5.0	5.6		
PM570AU-9		33.8	3.9	4.4		
PM570AU-10		37.1	3.6	4.1		
PM570AU-13		46.9	2.8	3.2		
PM570AU-15		53.2	2.9	3.4		
PM570AU-20		73.2	2.0	2.3		
PM570AU-30		113.9	1.4	1.6		
PM570AU-45		149.3	1.1	1.2		

PM570AS

2.25" (57mm) Diameter

230V Three Phase

Extremely Slow Speed



FEATURES:

- Designed for slow speed transfer.
- Useful for inspection and calculating operations.
- Wide variation in operating speeds.
- Includes No. A-200 Terminal Block

OPTIONS:

DIMENSIONS: Same as dimensions for PM570AS on page 7.

Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)			
					No Load	Start		
PM570AS-0.07	3 Phase 230V Input 11W	0.23	44.1	49.5	0.07	0.13		
PM570AS-0.1		0.33						
PM570AS-0.15		0.46						
PM570AS-0.2		0.66						
PM570AS-0.3		0.98						
PM570AS-0.4		1.38						
PM570AS-0.6		2.07						
PM570AS-0.9		2.99						
PM570AS-0.8		2.76						
PM570AS-1.3		4.13					22.0	24.7
PM570AS-1.8		5.97						

1) LOCKING

As a special outer rotor is used for the Power Moller's® motor, the coil will not burn out when the Power Moller® is locked under conductance for a short period of time. But repeated locking will raise the temperature of the motor coil and result in gradual deterioration of the insulation and eventually cause the motor to burn out. It's unnecessary to turn off the power when the Power Moller® is locked under conductance for a few seconds. However, if locking longer than 10 seconds is required, it is necessary to turn off the power or use the accumulation type.

Type	Incidental locking time without risk of motor damage
PM570AS, PM605AS PMT50AS, PM486AL	Max. 20 minutes
PM570AH, PM605AH PMT50AH	Max. 3 minutes
PM570AU, PM605AU PMT50AU	Continuous locking allowed.

2) CONTACT TIME

Due to temperature rise of the coil winding, the minimum contact time during intermittent operation is approximately as specified below:

Type	Minimum Contact Time
Standard PM570AS, PM605AS PMT50AS, PM486AL	3 seconds ON/2 seconds OFF
High Torque PM570AH, PM605AH, PMT50AH	3 seconds ON/5 seconds OFF
Accumulation PM570AU, PM605AU, PMT50AU	Limitless

3) TEMPERATURE RISE

The Power Moller® is designed to operate within an ambient temperature of -10°C (14°F) to 40°C (104°F). The temperature of the roller tube rises about 20°C (68°F) above the ambient during normal usage.

The following graphs represent the temperature characteristics of a typical Power Moller®. Please contact your Itoh Denki representative for information on additional Power Moller® models.

Fig. 1

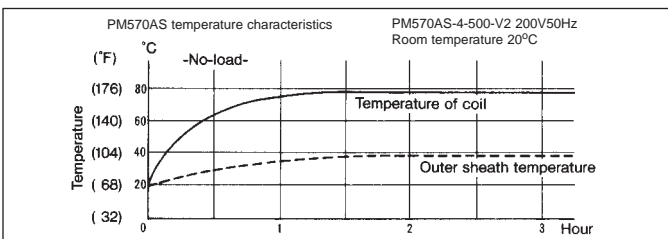
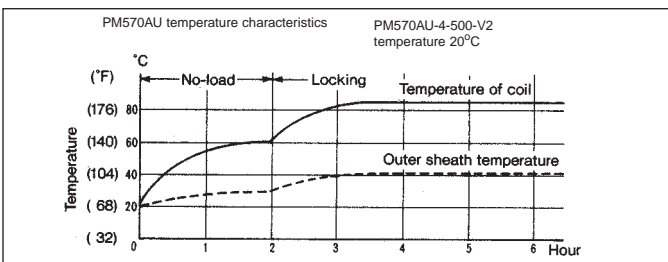


Fig. 2



4) INERTIA AND INTERMITTENT OPERATION

* As a result of motor inertia, the Power Moller® will not instantly stop rotating after the power is disconnected.

- * Inertia values differ in accordance with motor type, speed, operation time as well as weigh of the load.
- * Inertia can be eliminated by using the Power Moller® with built-in brake.

5) CHANGE IN TRANSPORTING SPEED

The peripheral velocity (transportation speed) of the Power Moller® is dependent upon the weight and material composition of the load as well as the ambient temperature. Please contact your Itoh Denki representative for additional technical information.

6) VARYING LINE SPEED

Care should be taken to avoid exposing the Power Moller® to excessive shock as a result of drastic load speed changes within a line or between adjoining lines. Although depending on the weight and speed of the load, typically no harm is done by load speed changes within 50% of nominal Power Moller® speed.

7) LEVEL OF CONVEYING SURFACE

- * If the bottom surface of the load is not flat or the conveyor rollers are not level, then the Power Moller® may rotate freely and the load may not be transferred or may tend to drift. It is especially important when transferring relatively heavy loads that the static load limit of the Power Moller® is not exceeded.
- * The transfer of light loads (less than 5kg) can sometimes be impeded by the resistance of idler rollers. Check to be sure that the idlers spin freely.
- * Due to packing (binding) bands, bulging of the bottom of the load, etc., the load may lean to one side during transfer. The use of rubber lagging on each end of the Power Moller® would facilitate a straight transfer of the load.

8) CONVEYOR BELT

The Power Moller® is designed for use in roller conveyors. As a result, its torque is relatively low and generally not suitable for belt driving. It can, however, be used with very light loads as outlined in the table below. The Power Moller® is overloaded when the belt speed is less than 80% of the nominal speed of the unit. In this case, the system parameters (load, belt thickness, etc.) must be decreased and/or both head and tail roller must be powered.

Type (Nominal speed)	Belt thickness	Maximum system length (ft)	Maximum transport weight (lbs)
PM570AS, PM605AS (4, 5, 8)	1 mm or less	4.9	4.4
PM570AS, PM605AS (10, 15)		3.9	2.2
PM570AS, PM605AS (20, 30)		2.3	1.1

NOTE: These values in the table are for 3 phase units.

9) TABLE OF AVAILABLE DIMENSIONS (L)

Type/Specifications	Nominal Tube Length (L)	One Touch Mechanism
Standard PM570AS, PM605AS High Torque PM570AH, PM605AH, Accumulation PM570AU, PM605AU	7.9", 9.8", 11.8", 15.7", 19.7" 23.6", 27.6" 31.5", 39.4"	9.8" or over
Built-in Brake	Available from 9.8" up to 39.4"	11.8" or over
Waterproof	Available from 10.2" up to 39.4"	Unavailable for any size
Dripproof	Available from 7.9" up to 39.4"	9.8" or over
PM486AL	5.9", 7.9", 11.8", 15.7", 19.7", 23.6"	Unavailable for any size
Tapered Type PMT50AS	11.8", 15.7", 19.7", 23.6", 27.6", 31.5"	11.8" or over

* Intermediate L dimensions also available to match your conveyor needs.

SELECTION CRITERIA

● MAXIMUM LOAD LIMIT PER UNIT OF POWER MOLLER® kg (lbs)

TYPE	Outside Diameter of Tube mm (in.)	Wall Thickness of Tube mm (in.)	Tube Lengths mm (in.)										Thrust Load
			200 (7.8)	250 (9.8)	300 (11.8)	400 (15.7)	500 (19.7)	600 (23.6)	700 (27.6)	800 (31.5)	900 (35.4)	1000 (39.4)	
PM570AS, PM570AH, PM570AU	57 (2.25)	1.6 (0.06)	120 (266)	100 (220)	100 (220)	100 (220)	80 (176)	80 (176)	60 (132)	60 (132)	50 (110)	50 (110)	50 (110)
PM605AS, PM605AH, PM605AU	60.5 (2.38)	3.2 (0.13)	190 (419)	160 (353)	160 (353)	160 (353)	130 (287)	130 (287)	100 (220)	100 (220)	80 (176)	80 (176)	
PMT50AS, PMT50AH, PMT50AU	Small 50 diameter (1.97)	1.6 (0.06)	--	--	100 (220)	100 (220)	80 (176)	80 (176)	60 (132)	60 (132)	--	--	
PM486AL	48.6 (1.91)	2.0 (0.08)	40 (88)	40 (88)	40 (88)	40 (88)	30 (66)	30 (66)	--	--	--	--	30 (66)
PM380AS/PM380DS	38 (1.5)	1.2 (0.05)	50 (110)	45 (99)	45 (99)	40 (88)	35 (77)	30 (66)	--	--	--	--	
PM427AS	42.7 (1.68)	1.5 (0.06)	75 (165)	65 (143)	65 (143)	55 (121)	45 (99)	35 (77)	30 (66)	25 (55)	--	--	
PM486BS/PM486FS	48.6 (1.91)	1.2 (0.05)	90 (198)	75 (165)	70 (154)	60 (132)	50 (110)	40 (88)	35 (77)	30 (66)	25 (55)	20 (44)	
PM763BS	76.3 (3.0)	3.6 (0.14)	--	250 (551)	250 (551)	225 (496)	200 (440)	200 (440)	--	--	--	--	70 (154)
IPG	115 (4.53)	4.0 (0.16)	--	400 (880)	400 (880)	350 (770)	350 (770)	300 (660)	--	--	--	--	
HPG	250* (550) <i>*AVAILABLE IN 150mm (5.91 in) length only.</i>												

IMPACT LOADING:

In applications where the article being transferred is dropped onto the Power Moller®, reduce the static load limits in the above table by 50% to compensate for the increased forces generated from impact. As the load limit will vary considerably in accordance with the intensity of impact, allow a substantial margin of safety.

LEVEL:

When the diameters of the roller tube and the shafts of the Power Moller® are the same as that of idler rollers, the existing shaft holes in the conveyor frame can be used without any modification. If these dimensions are not the same, the level of the Power Moller® must be adjusted by changing the height of the shaft holes in the frame so that the load will be evenly applied to all the rollers.

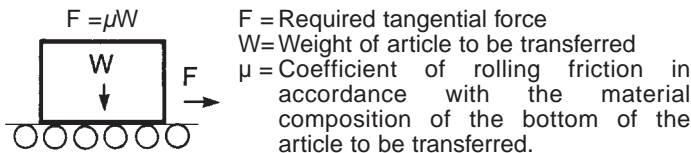
If the articles being transferred do not come into contact with the Power Moller® due to their composition or smoothness, then the level of the Power Moller® should be set 0.2 to 0.5mm higher. In this case, however, care must be taken not to exceed the static load limit of the Power Moller®.

THE MAXIMUM WEIGHT OF ARTICLES TRANSFERRED:

Set 1,000 kg. (2,205 lbs) as the maximum limit of the weight of articles which can be transferred by the Power Mollers®. If the load exceeds 500 kg (1,102lbs) adopt the parallel conveyor system.

HOW TO DETERMINE THE NUMBER OF POWER MOLLER® UNITS TO USE:

This depends on the weight, width of the bottom, material and smoothness of the article to be transferred. Tangential force F for transfer can be found by the following formula:



Work Tube	Metal	Plastic	Wood	Urethane	NR	Corrugated Cardboard
Steel	0.01-0.02	0.02-0.04	0.02-0.05	0.03-0.06	0.04-0.07	0.05-0.15
Urethane Lagging	0.01-0.02	0.02-0.04	0.02-0.05	0.03-0.06	0.04-0.07	0.05-0.15
NR Lagging	0.02-0.03	0.03-0.05	0.03-0.06	0.04-0.07	0.05-0.08	0.05-0.15

Coefficient of Rolling Friction

Determine the number of Power Moller® units required for transfer by comparing the required tangential force F and the tangential force of one Power Moller® unit, f: Number of Power Mollers® required = F/f

Example 1.

Suppose roller width 19.7" (500mm), and roller pitch 3.9" (100mm) is chosen in accordance with the shape and weight of the article to be transferred. Provided the article is corrugated cardboard, and its weight is 30kg (66lbs), the required tangential force F to transfer the article is found by:

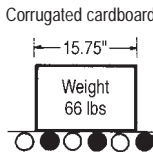
$$F = \mu W$$

$$= 0.075 \times 66\text{lbs} = 4.95\text{lbs.}$$

As the tangential force f of the standard type PM570AS-20 is 4.9lbs at 60Hz (see table),

one unit of PM570AS-4, 5, 8, 9, 10, 13, 15, 20, 45, 50, 60 or two units of PM570AS-30, 40 will transfer the article.

The load applied to one unit of Power Moller® is: 66lbs/4 units = 16.5lbs, which is within the load limit of the PM570AS type roller with 20" width.



Example 2.

Suppose roller width 39.4" (1,000mm) and pitch 3.9" (100mm) is chosen in accordance with the shape and weight of the article to be transferred. Provided the article is on a plastic pallet (coefficient of rolling friction is 0.03), and total weight is 660lbs, the required tangential force F to transfer the article is found by:

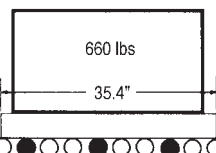
$$F = \mu W$$

$$= 0.03 \times 660\text{lbs} = 19.8\text{lbs}$$

The number of Power Moller® units required are:

- one unit of PM570AS-4, 5
- two units of PM570AS-8, 10
- one unit of PM570AH-4, 5, 8, 10

Plastic pallet



The load applied to one unit of Power Moller® will be: 660lbs/9 units = 79.3lbs. This is within the load limit of 110lbs for width 39.4".

NOTE: In case the starting speed is critical, or the bottom surface of the load is coarse, the number of units should be increased to ensure transfer.

PM605AS 2.38" (60.5mm) Diameter

**115V Single Phase
230V Three Phase
460V Three Phase***



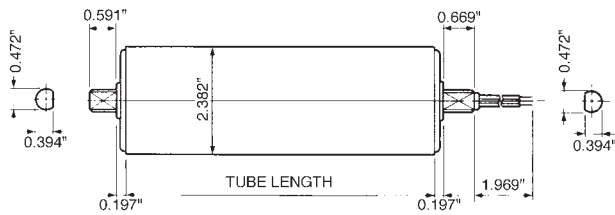
FEATURES:

- Designed for heavy load transfer.
- Easy installation into existing conveyor lines.
- Easy control of forward, reverse, stop.
- Not suited for repeated locking.
- Includes No. A-200 Terminal Block.

OPTIONS:



DIMENSIONS :



FOR NOMINAL TUBE LENGTHS SEE CHART ON PAGE 5.

Specifications

* Please check with an Itoh Denki representative to review 460/3/60 applications.

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM605AS-4	3 Phase 230V Input 16.5W	15.7	26.3	31.2	0.07	0.13
PM605AS-5		21.7	19.2	22.8		
PM605AS-8		31.8	13.2	15.7		
PM605AS-9		40.0	10.5	12.5		
PM605AS-10		43.6	9.6	11.4		
PM605AS-13		55.1	7.6	9.0		
PM605AS-15		66.6	7.2	8.6		
PM605AS-20		92.2	5.0	6.0		
PM605AS-30		138.5	3.5	4.2		
PM605AS-45		181.5	2.7	3.2		
PM605AS-50		199.5	2.4	2.8		
PM605AS-60	263.4	1.9	2.2			
PM605AS-4	Single Phase 115V Input 11W	15.7	10.8	12.8	0.17	0.28
PM605AS-5		21.7	7.9	9.4		
PM605AS-8		31.8	5.4	6.5		
PM605AS-9		40.0	4.3	5.1		
PM605AS-10		43.6	3.9	4.7		
PM605AS-13		55.1	3.1	3.7		
PM605AS-15		66.6	3.2	3.8		
PM605AS-20		92.2	2.2	2.7		
PM605AS-30		138.5	1.6	1.9		
PM605AS-45		181.4	1.2	1.4		
PM605AS-50		199.5	1.0	1.2		
PM605AS-60	263.4	0.8	1.0			

PM605AH

2.38" (60.5mm) Diameter

230V Three Phase

460V Three Phase*

* Please check with an Itoh Denki representative to review 460/3/60 applications.

FEATURES:

- Designed for heavy load transfer.
- 50% more torque than PM605AS.
- Duty cycle of 50%.
- Maximum continuous run time of 20 minutes.
- Includes No. A-200 Terminal Block.

OPTIONS:



DIMENSIONS : Same as dimensions for PM605AS above.

Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM605AH-4	3 Phase 230V Input 20W	15.7	44.3	52.7	0.11	0.20
PM605AH-5		21.7	32.4	38.5		
PM605AH-8		31.8	22.2	26.4		
PM605AH-9		40.0	17.6	21.0		
PM605AH-10		43.6	16.1	19.2		
PM605AH-13		55.1	12.8	15.2		
PM605AH-15		66.6	12.1	14.4		
PM605AH-20		92.2	8.5	10.1		
PM605AH-30		138.5	5.8	6.9		
PM605AH-45		181.4	4.5	5.3		
PM605AH-50		199.5	4.0	4.8		
PM605AH-60	263.5	3.1	3.6			

PM605BP

2.38" (60.5mm) Diameter

230V Three Phase

FEATURES:

- Designed for heavy load transfer.
- Motor is protected from thermal overload.
- 150% more torque than PM605AS.
- 50% duty cycle.
- Maximum run time of 20 min.
- Includes No. A-200 Terminal Block.

OPTIONS:



DIMENSIONS : Same as dimensions for PM605AS above.

Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM605BP-4	3 Phase 230V Input 20W	15.7	67.7	80.5	0.09	0.31
PM605BP-5		21.7	48.6	57.8		
PM605BP-8		31.8	33.8	40.3		
PM605BP-10		40.0	24.3	29.0		
PM605BP-15		43.6	15.7	18.7		
PM605BP-20		55.1	10.2	12.1		
PM605BP-30		66.6	7.8	9.3		
PM605BP-40		92.2	5.1	6.0		

PM605AU 2.38" (60.5mm) Diameter 230V Three Phase



Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM605AU-4	3 Phase 230V Input 8W	14.1	9.4	11.2	0.05	0.06
PM605AU-5		19.4	6.8	8.1		
PM605AU-8		28.5	4.7	5.6		
PM605AU-9		36.1	3.7	4.4		
PM605AU-10		39.7	3.4	4.1		
PM605AU-13		50.2	2.7	3.2		
PM605AU-15		56.8	2.8	3.4		
PM605AU-20		78.1	1.9	2.3		
PM605AU-30		124.3	1.4	1.6		
PM605AU-45		162.7	1.0	1.2		

FEATURES:

- Designed for heavy load transfer.
- For applications requiring extended stall periods.
- Special high impedance motor draws low current under any condition.
- Includes No. A-200 Terminal Block.

OPTIONS: 

DIMENSIONS : Same as dimensions for PM605AS on page 9

PM605AS 2.38" (60.5mm) Diameter 230V Three Phase

Extremely Slow Speed



Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM605AS-0.07	3 Phase 230V Input 11W	0.26	41.6	49.5	0.07	0.13
PM605AS-0.1		0.33				
PM605AS-0.15		0.49				
PM605AS-0.2		0.69				
PM605AS-0.3		1.05				
PM605AS-0.4		1.44				
PM605AS-0.6		2.20				
PM605AS-0.9		3.18				
PM605AS-0.8		2.92				
PM605AS-1.3		4.40				
PM605AS-1.8	6.37					

FEATURES:

- Designed for heavy load transfer.
- Provides slow speed transfer.
- Useful for inspection and calculating operations.
- Wide variation in operating speeds.
- Includes No. A-200 Terminal Block.

OPTIONS: 

DIMENSIONS : Same as dimensions for PM605AS on page 9.

GROOVED TUBE

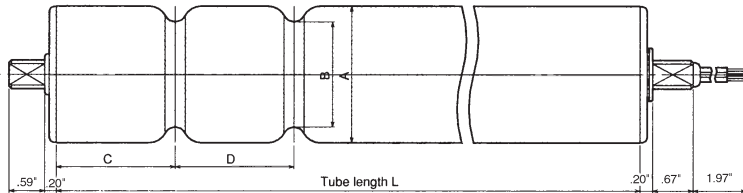
Model applicable

PM486 and PM570

Power Moller is available with two grooved tubes to slave the idler rollers via O-rings. This solution is useful to transfer especially light and small articles by slaving all those idler rollers.

PM486 series Groove 50/32: First groove at 1.97" (50mm) from the tube end, and the second at 1.26" (32mm) from first.

PM570 series Groove 65/30: First groove at 2.56" (65mm) from the tube end, and the second at 1.18" (30mm) from first.



Series	A	B	C	D
PM486	1.91"	1.48"	1.96"	1.26"
PM570	2.24"	1.72"	2.56"	1.18"

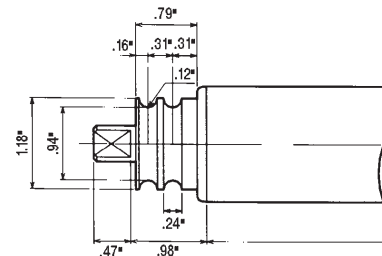
V-BELT / ROUND BELT PULLEY

Models applicable

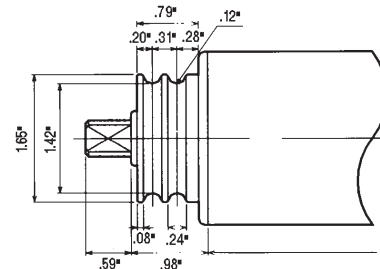
PM380, PM427, PM486, PM570, and PM605

Power Moller and matching idler rollers are available with a special pulley endcap to accommodate V belts or round belts. The Power Moller can be linked to idler rollers on light load/small size handling applications, where consecutive "live" rollers are required. Minimum tube length is 250mm.

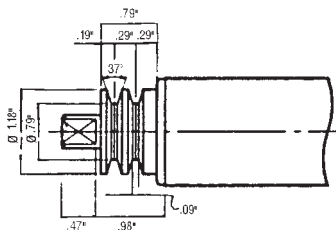
PM380 • PM427



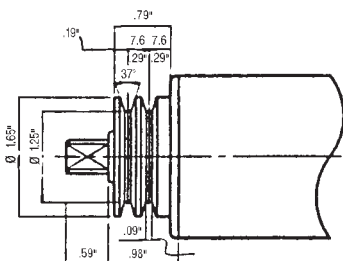
PM486 • PM570 • PM605



PM380 and PM427 Series



PM486, PM570, and PM605 Series



NOTE : Speed and tangential force can be affected by using Power Moller to slave idlers. Please check with an Itoh representative to review application.

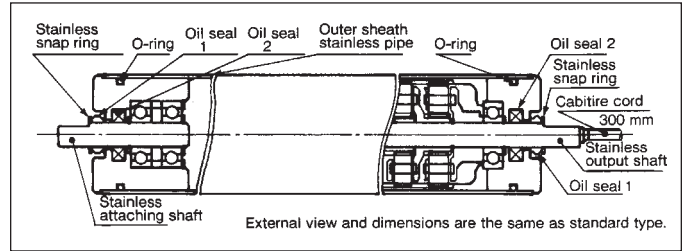
WATERPROOF



Designed for outdoor lines or lines subject to water spray (washdown) Output and attaching shafts, end caps and tubes are made of stainless steel to resist corrosion.

When using the waterproof option, the following speeds are only available. If higher speeds are required, torque and speed will be decreased.

Model	Speeds Available											
PM380AS - PM427AS	5	8	10	15								
PM486BS	5	10	20	30								
PM570AS-PM605AS	4	5	8	9	10	13	15	20	30	45	50	

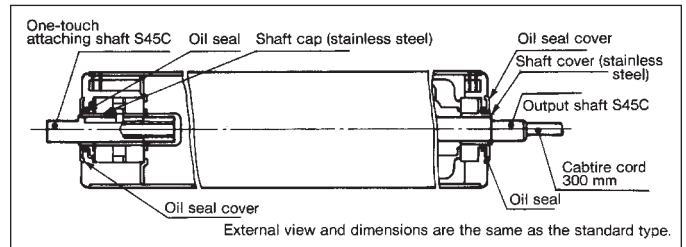


Double rubber seals at each end cap and a 300mm (12") power cable meet the requirements of IP-65. Minimum tube length is 260mm (10 1/4"). "One-touch" mechanism is not available with the waterproof option.

DRIP PROOF



Used on conveyor lines that are located in areas with high moisture levels. Attaching shaft and shaft caps are made of stainless steel to resist corrosion.



Rubber seals at each end cap and a 300mm (12") power cable meet the requirements of IP-55. Minimum tube length is 200mm (8"). "One-touch" mechanism is included with tube lengths of 250mm (10") or more.

DUST PROOF



Used in dusty or powdery environments. Rubber seals protect the POWER MOLLER® bearings from contamination.

CLEAN ROOM



Designed for the handling line that requires a high degree of cleanliness, such as in the electronics, food and pharmaceuticals industries etc. Includes the features incorporated in the dripproof option as well as standard leadwires and stainless steel tube, attaching and output shafts. Different models to conform to 10,000, 1,000 and 100 class levels.

PMT50AS

1.97" (50mm) Diameter (inside)
Taper Type

230V Three Phase 460V* Three Phase

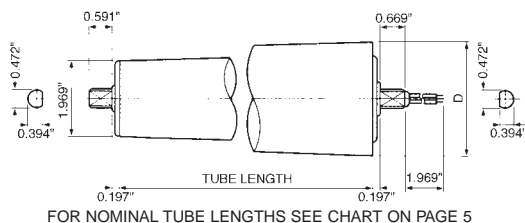


FEATURES:

- Designed for curved conveyor lines with 36" (900mm) inner radius.
- Available lengths from 11.8" (300mm) to 31.5" (800mm).
- Includes No. A-200 Terminal Block.

OPTIONS:

DIMENSIONS :



Standard Length * Please check with an Itoh Denki representative to review 460/3/60 applications.

Pipe Length (mm)	11.8" (300 mm)	15.7" (400 mm)	19.7" (500 mm)	23.6" (600 mm)	27.6" (700 mm)	31.5" (800 mm)
Large dia. (mm)	2.6" (66.7 mm)	2.8" (72.2 mm)	3.1" (77.8 mm)	3.3" (83.3 mm)	3.5" (88.9 mm)	3.7" (94.4 mm)
Center dia. (mm)	2.3" (58.4 mm)	2.4" (61.1 mm)	2.5" (63.9 mm)	2.6" (66.7 mm)	2.7" (69.5 mm)	2.8" (72.2 mm)

Specifications [power source: 3 phase 230V, input: 11W, current: 0.07A (no load) & 0.13A (starting)]

	11.8" (300 mm)		15.7" (400 mm)		19.7" (500 mm)		23.6" (600 mm)		27.6" (700 mm)		31.5" (800 mm)	
	Speed (ft/min)	Tangential Force	Speed (ft/min)	Tangential Force	Speed (ft/min)	Tangential Force	Speed (ft/min)	Tangential Force	Speed (ft/min)	Tangential Force	Speed (ft/min)	Tangential Force
PMT50AS-4	15.1	27.2	15.7	26.0	16.4	24.9	17.4	23.8	18.0	22.9	18.7	22.0
PMT50AS-5	20.7	19.9	21.7	19.0	22.6	18.2	24.0	17.4	24.9	16.7	25.9	16.1
PMT50AS-8	30.5	13.6	31.8	13.0	33.5	12.5	35.1	11.9	36.4	11.5	38.1	11.0
PMT50AS-9	37.4	10.9	39.0	10.4	41.0	9.9	42.9	9.5	44.5	9.1	46.4	8.8
PMT50AS-10	42.0	9.9	44.0	9.5	45.9	9.1	47.9	8.7	50.2	8.3	52.2	8.0
PMT50AS-13	51.5	7.9	54.1	7.5	56.3	7.2	59.9	6.9	61.4	6.6	63.7	6.4
PMT50AS-15	64.0	7.5	66.0	7.2	70.2	6.8	73.5	6.5	76.4	6.3	79.7	6.1
PMT50AS-20	88.6	5.2	93.2	5.0	97.4	4.8	101.7	4.6	106.0	4.4	110.6	4.2
PMT50AS-30	133.2	3.6	140.1	3.5	146.3	3.3	152.9	3.2	159.5	3.0	166.0	2.9
PMT50AS-45	170.9	2.8	178.6	2.7	186.9	2.5	195.2	2.4	203.2	2.3	211.2	2.3
PMT50AS-50	187.8	2.5	196.5	2.4	205.4	2.3	214.7	2.2	223.7	2.1	232.3	2.0
PMT50AS-60	247.4	1.9	258.6	1.8	270.4	1.7	282.2	1.7	294.1	1.6	305.6	1.6

PMT50AH

1.97" (50mm) Diameter (inside)
High Torque Taper

230V Three Phase 460V* Three Phase

FEATURES:

- 50% more torque than PMT50AS.
- Duty cycle of 50%.
- Maximum continuous run time of 20 minutes.
- Includes No. A-200 Terminal Block.

OPTIONS:

* Please check with an Itoh Denki representative to review 460/3/60 applications.

DIMENSIONS : Same as dimensions for PMT50AS above.

PMT50BP

1.97" (50mm) Diameter (inside)
Maximum Torque Taper

230V Three Phase

FEATURES:

- Motor is protected from thermal overload.
- 150% more torque than PMT50AS.
- 50% duty cycle.
- Maximum run time of 20 minutes.
- Includes No. A-200 Terminal Block.

OPTIONS:

DIMENSIONS : Same as dimensions for PMT50AS above.

PMT50AU

1.97" (50mm) Diameter (inside)
Accumulation Taper

230V Three Phase

FEATURES:

- Designed for applications requiring extended stall periods.
- Special high impedance motor draws low current under any load condition.
- Includes No. A-200 Terminal Block.

OPTIONS:

DIMENSIONS : Same as dimensions for PMT50AS above.

PM380DS 1.50" (38mm) Diameter

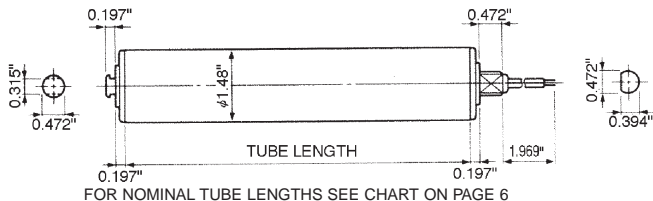
24V DC



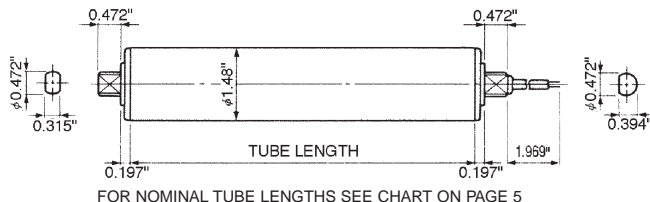
OPTIONS:

DIMENSIONS:

ROUND SHAFT TYPE "S"



FLAT SHAFT TYPE "P"



FEATURES:

- High torque DC magnetic motor.
- Motor protection device prevents overheating.
- Convenient terminal block with safety cover.
- Includes No. D-400-B Terminal Block

Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM380DS-2	DC24V	6.6	64.8	48.4	0.13	1.5
PM380DS-5		14.1	28.7	21.4		
PM380DS-10		31.8	14.7	11.0		
PM380DS-25		72.2	6.3	4.7		

PM486FS 1.91" (48.6mm) Diameter

24V DC

POWER MOLLER[®] 24



Specifications

	Peripheral Velocity (fpm)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
				No Load	Start
PM486FS-5	23.9	55.3	52.8	0.25	2.35
PM486FS-8	32.2	75.1	71.7	0.30	2.80
PM486FS-10	44.3	68.5	65.4	0.46	3.00
PM486FS-15	57.4	69.4	66.3	0.50	3.20
PM486FS-20	90.2	17.4	16.6	0.25	2.35
PM486FS-30	120.4	23.6	22.5	0.30	2.80
PM486FS-45	167.0	21.4	20.4	0.46	3.00
PM486FS-55	216.5	21.6	20.6	0.50	3.20

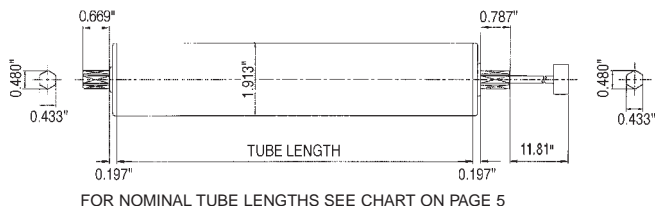
*Should other speeds be needed, please contact ITOH DENKI USA, INC.

FEATURES:

- Inner rotor design.
- Z.P.A. (zero pressure accumulation).
- DC brushless motor is adopted for long life.
- 7/16" Hex Shaft
- The motor is protected from overheating.
- Includes CB-01 control card and No. A-071-G (Flat on top) or A-081-G (point on top) fitting.

OPTIONS:

DIMENSIONS:



BROAD RANGE OF OPTIONS FOR SPECIAL APPLICATIONS

RUBBER LAGGINGS

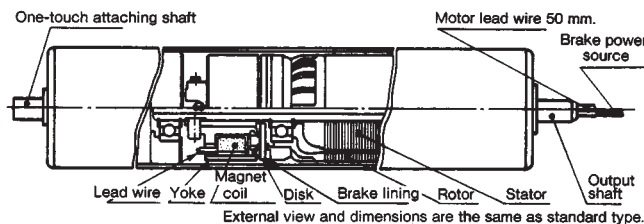


Prevents light loads from slipping and protects the surface of loads during transfer. Rubber is molded (vulcanized) on to tube to assure permanent adhesion.

PM SERIES	DIAMETER	LAGGING THICKNESS	DIAMETER WITH LAGGING
PM380	1.50" (38 mm)	1/8" (2 mm)	1.75" (42 mm)
PM427	1.68" (42.7 mm)	1/8" (3 mm)	1.93" (48.7 mm)
PM486	1.91" (48.6 mm)	1/8" (3 mm)	2.16" (54.6 mm)
PM570	2.25" (57 mm)	1/8" (3 mm) 1/4" (6.5 mm)	2.5" (63 mm) 2.75" (70 mm)
PM605	2.38" (60.5 mm)	3/16" (4.75 mm)	2.75" (70 mm)

MATERIAL	HARDNESS (Durometer)
Natural Rubber	60-65
NBR	60-65
Neoprene	60-65
Urethane	90

BUILT-IN BRAKE



Eliminate load inertia and enable precise stopping. Electro-magnetic brake is engaged by spring force when power to the motor is interrupted. Minimum tube length is 250mm (10") and "One-touch" mechanism is included with tube lengths of 300mm (12") or more. Maximum continuous energized time is 30 minutes with a 70% duty cycle.

Brake power source:

- 115VAC 1-ph./230VAC 3-ph.
- 24VDC or 100VDC (Use either pure DC or full-wave rectified power source).
- Other brake voltages are also available.

Nominal speed	4	5	8	10	15	20	30	40
Brake torque (lbs-in)	53.7	39.8	27.7	19.9	13.0	9.5	6.1	4.3

FREE CLUTCH



1. Normal functions of Power Moller®.



2. Power Moller® with brake.



3. Power Moller® with free roller function.



- When power is on, Power Moller® functions normally.
- When power is off, Power Moller® functions as an idler roller.
- Available for PM570/PM605 series models.
- The minimum tube length that Free Clutch option can be attached to is 11". In case the Power Moller® has a spring-loaded end cap, the said minimum length is 13".
- Free Clutch option can be added to the Power Moller® with brake. In this case, the minimum tube lengths are 13" without a spring-loaded end cap and 15" with a spring-loaded end cap.

IP-G 4.53" (115mm) Diameter


230V Three Phase



FEATURES:

- Mini belt conveyor drive pulley.
- Ideal for small belt conveyors with low cost and simple design.
- Not necessary to have separate motor and gear reduction system.
- Dust proof spec
- Continuous duty.
- Built in T.O.P. (Thermal Overload Protection) as motor protection system (in the event of T.O.P. trips, shut down power, wait for motor to cool, then restart)
- "One touch" shaft mechanism not available.
- Terminal Block not available.

OPTIONS:

- IP-GC: Crowned Tube 
- IP-GS: Straight Tube

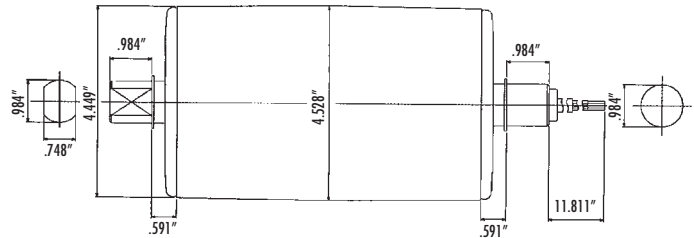
Maximum Transport Load For Belt Applications:

Referenced load values were obtained under the following test parameters:

Conveyor Length: 4 meters (13ft)
 Belt Thickness: 1.6mm (.063in)
 Belt Width: 500mm (20in)
 Power Source: 200/3/60 AC
 Conveyor Angle: horizontal

Speed (fpm)	Max. Load
5 20.8	220 lbs.
10 33.3	143 lbs.
15 53.1	88 lbs.
20 83.5	55 lbs.
30 104.3	33 lbs.
40 167.0	22 lbs.

DIMENSIONS:



HP-G 4.53" (115mm) Diameter

230V Three Phase



FEATURES:

- Mini belt conveyor drive pulley.
- Ideal for small belt conveyors with low cost and simple design.
- Not necessary to have separate motor and gear reduction system.
- Dust proof spec
- Continuous duty.
- Built in T.O.P. (Thermal Overload Protection) as motor protection system (in the event of T.O.P. trips, shut down power, wait for motor to cool, then restart)
- Only tube length - 150mm (5.91in)
- "One touch" shaft mechanism not available.
- Terminal Block not available.

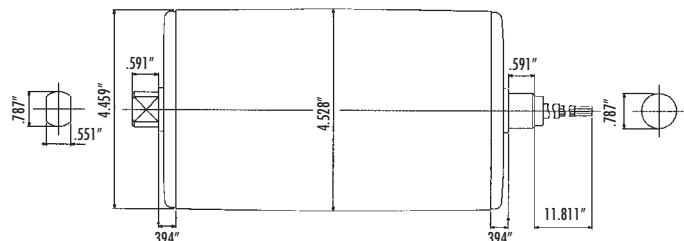
Maximum Transport Load For Belt Applications:

Referenced load values were obtained under the following test parameters:

Conveyor Length: 2 meters (6ft-6in)
 Belt Thickness: 0.7mm (.028in)
 Belt Width: 150mm (5.91in)
 Power Source: 200/3/60 AC
 Conveyor Angle: horizontal

Speed (fpm)	Max. Load
5 16.8	66 lbs.
7 25.4	44 lbs.
10 32.7	33 lbs.
15 50.5	22 lbs.
20 75.9	15 lbs.
30 97.7	11 lbs.
40 151.5	6 lbs.

DIMENSIONS:



OPTIONS:

- HP-GC: Crowned Tube
- HP-GS: Straight Tube

PM570ES 2.25" (57mm) Diameter

24V DC



FEATURES:

- Brushless design for high level drive systems.
- Variable speed.
- Electric brake.
- Built-in thermal protector.
- Dip switch for reverse operation.
- Silent operation.
- Higher torque.
- Includes No. L-600-F Driver Card.

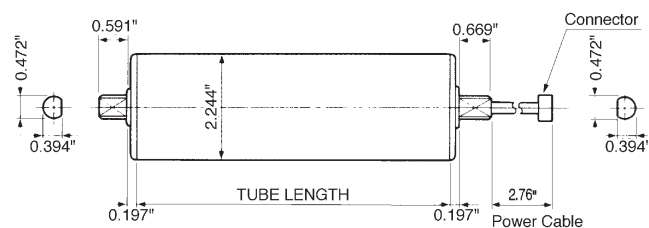
OPTIONS:



Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM570ES-4	DC24V	9.8 to 18.7	83.8	94.0	0.15	2.1
PM570ES-5		13.1 to 25.3	61.3	68.8		
PM570ES-8		19.7 to 36.7	42.1	47.2	to	to
PM570ES-10		26.2 to 51.8	30.6	34.3		
PM570ES-15		39.4 to 48.1	22.6	25.3	0.25	3.0
PM570ES-20		55.8 to 108.3	16.3	18.2		
PM570ES-30		82.0 to 160.8	10.8	12.1		
PM570ES-40		118.1 to 233.0	7.5	8.4		

DIMENSIONS:



FOR NOMINAL TUBE LENGTHS SEE CHART ON PAGE 5.

PM570DS 2.25" (57mm) Diameter

24V DC



FEATURES:

- Magnetic motor for superior speed control.
- Built-in circuit protector.
- Designed for AGV operation.
- Includes No. L-200-K Terminal Block.

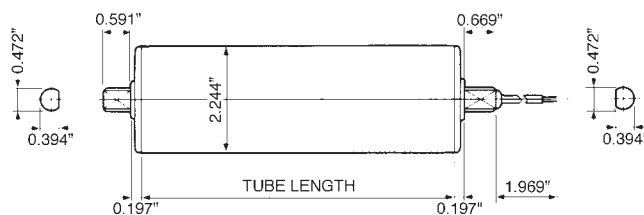
OPTIONS



Specifications

	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (In lbs)	Current (A)	
					No Load	Start
PM570DS-4	DC24V	12.1	80.6	90.4	0.10	2.40
PM570DS-5		17.1	57.8	64.8		
PM570DS-8		24.3	40.3	45.1	to	to
PM570DS-10		34.1	28.9	32.4		
PM570DS-15		61.0	18.7	21.0	0.25	3.0
PM570DS-20		94.2	12.1	13.5		
PM570DS-30		121.7	9.3	10.4		
PM570DS-40		189.0	6.0	6.7		

DIMENSIONS:



FOR NOMINAL TUBE LENGTHS SEE CHART ON PAGE 5.

PM605ES 2.38" (60.5mm) Diameter

24V DC



FEATURES:

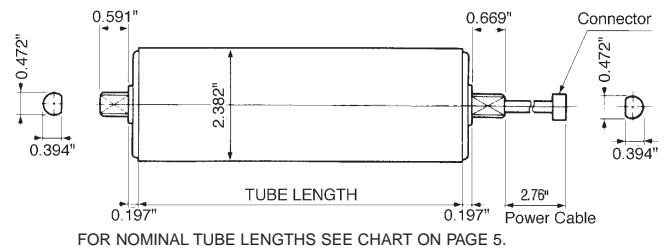
- Designed for heavy load transfer.
- Brushless design for high level drive systems.
- Variable speed.
- Electric brake.
- Includes No. L-600-F Driver Card.
- Built-in thermal protector.
- Dip switch for reverse operation.
- Silent operation.
- Higher torque.

OPTIONS:

Specifications

					Current (A)	
	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (lbs)	No Load	Start
PM605ES-4	DC24V	9.8 to 19.7	79.0	94.0	0.15 to 0.25	2.1 to 3.0
PM605ES-5		13.5 to 26.9	57.8	68.8		
PM605ES-8		19.7 to 39.4	39.6	47.2		
PM605ES-10		26.9 to 53.2	28.9	34.3		
PM605ES-15		41.3 to 83.0	21.3	25.3		
PM605ES-20		57.7 to 115.2	15.3	18.2		
PM605ES-30		86.3 to 172.9	10.2	12.1		
PM605ES-40		124.7 to 249.4	7.1	8.4		

DIMENSIONS:



PM605DS 2.38" (60.5mm) Diameter

24V DC



FEATURES:

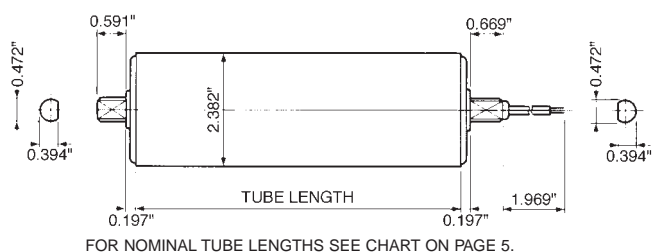
- Designed for heavy load transfer.
- Magnetic motor for superior speed control.
- Built-in circuit breaker.
- Designed for AGV operation.
- Includes No. L-200-K Terminal Block.

OPTIONS:

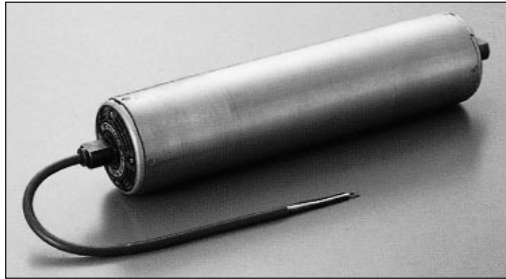
Specifications

					Current (A)	
	Power Source	Speed (ft/min)	Tangential Force (lbs)	Starting Torque (lbs)	No Load	Start
PM605DS-4	DC24V	12.8	75.9	90.4	0.10	2.40
PM605DS-5		18.0	54.5	64.8		
PM605DS-8		25.6	37.9	45.1		
PM605DS-10		36.1	27.2	32.4		
PM605DS-15		64.6	17.6	21.0		
PM605DS-20		99.7	11.4	13.5		
PM605DS-30		128.9	8.8	10.4		
PM605DS-40		200.5	5.6	6.7		

DIMENSIONS:



PM763BS 3.0" (76.3mm) Diameter



Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs)
PM763BS-5	3 Phase 230V 90W	20.0	233.5
PM763BS-8		27.2	167.2
PM763BS-10		40.0	110.9
PM763BS-20		82.4	60.3
PM763BS-30		110.6	44.9
PM763BS-40		170.0	29.3

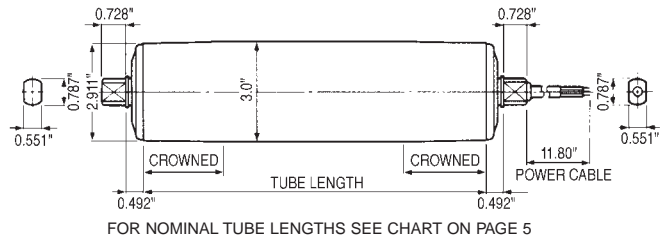
FEATURES:

- Powerful driving for small belt conveyors. Heavy load transfer for roller conveyors.
- Manufactured to IP55 standards for dustproof operation.
- Internal thermal overload protection.
- Designed for continuous and intermittent operation.
- Operation without oil bath.
- Eliminates risk of oil leakage.
- Terminal Block not available.

OPTIONS:

DIMENSIONS:

- Straight tube also available.



MAXIMUM TRANSPORTED LOAD

Type	Maximum Load	
	kg	lb.
PM763BS-5	40	88
PM763BS-8	30	66
PM763BS-10	20	44
PM763BS-20	15	33
PM763BS-30	8	18
PM763BS-40	4	9

Referenced load values were obtained under the following test parameters:

- conveyor length: 4 meters (13ft).
- belt thickness: 1mm (.040in).
- belt width: 500mm (20in).
- power source: 200VAC/3-PH.
- conveyor angle: horizontal (Without carrier rollers)

For an inclined conveyor, the maximum transferrable load must be adjusted as follows:

Angle of Inclination (*)	0	5	10	20	30
Percent of Maximum Load	100	85	70	55	40

PM763BC 3.0" (76.3mm) Diameter

FEATURES:

- Powerful driving for small belt conveyors. Heavy load transfer for roller conveyors.
- Manufactured to IP55 standards for dustproof operation.
- Internal thermal overload protection.
- Designed for intermittent operation.
- Terminal Block not available.

OPTIONS:

DIMENSIONS: Same as dimensions for PM763BS above.

Condenser:	115V	220V	Starting Current:	115V	220V
	4.5 μF	1.2 μF		0.74 A	0.32 A
Rated Current:	0.37 A	0.17 A	Rated Output:	21.9 W	19.0 W

Specifications

	Power Source	Speed (ft/min)	Tangential force (lbs) Nominal	Starting Torque (In lbs)
PM763BC-2.5	Single Phase 115V	9.8	66.0	70.0
PM763BC-4		13.1	50.8	52.2
PM763BC-5		20.0	33.7	34.7
PM763BC-10	Input 42W	40.7	16.5	16.8
PM763BC-15		54.5	12.3	12.6
PM763BC-20		84.0	7.9	8.3
PM763BC-2.5	Single Phase 220V	9.8	58.7	70.7
PM763BC-4		13.1	44.0	52.8
PM763BC-5		20.0	29.0	35.0
PM763BC-10	Input 38W	40.7	14.3	17.1
PM763BC-15		54.5	10.6	12.6
PM763BC-20		84.0	6.8	8.3



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