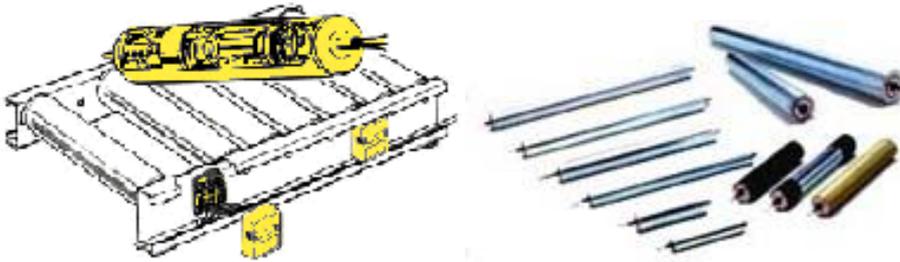


## Design considerations



### STATIC LOAD LIMIT (kg)

(AC series)

| Model        | Roller Diameter | Thickness | Roller Length(mm) |     |     |     |     |     |      |     |      |      | Thrust Load (kg) |
|--------------|-----------------|-----------|-------------------|-----|-----|-----|-----|-----|------|-----|------|------|------------------|
|              |                 |           | 200               | 250 | 300 | 400 | 500 | 600 | 700  | 800 | 900  | 1000 |                  |
| PM380 series | 38              | 1.2       | 50                | 45  | 45  | 40  | 35  | 30  | n.a. |     |      |      | 30               |
| PM427 series | 42.7            | 1.5       | 75                | 65  | 65  | 55  | 45  | 35  | 30   | 25  | n.a. |      |                  |
| PM486 series | 48.6            | 1.4       | 65                | 65  | 65  | 55  | 45  | 35  | 30   | 25  | 20   | 20   |                  |
| PM500 series | 50              | 1.4       | 65                | 65  | 65  | 55  | 45  | 35  | 30   | 25  | 20   | 20   |                  |
| PM570 series | 57              | 1.5       | 120               | 100 | 100 | 100 | 80  | 80  | 60   | 60  | 50   | 50   | 50               |
| PM605 series | 60.5            | 3.2       | 190               | 160 | 160 | 160 | 130 | 130 | 100  | 100 | 80   | 80   |                  |
| PMT series   | 50*             | -         | n.a.              |     | 100 | 100 | 80  | 80  | 60   | 60  | n.a. | n.a. |                  |
| PM763 BS     | 76.3            | 3.65      | n.a.              | 250 | 250 | 225 | 200 | 200 | n.a. |     |      |      | 70               |

(DC series)

| Model        | Roller Diameter | Thickness | Roller Length(mm) |      |              |            |            |            |           |           |              |              | Thrust Load (kg) |
|--------------|-----------------|-----------|-------------------|------|--------------|------------|------------|------------|-----------|-----------|--------------|--------------|------------------|
|              |                 |           | 200               | 250  | 300          | 400        | 500        | 600        | 700       | 800       | 900          | 1000         |                  |
| PM380 series | 38              | 1.2       | 50                | 45   | 45           | 40         | 35         | 30         | n.a.      |           |              |              | 30               |
| PM427 series | 42.7            | 1.5       | 75                | 65   | 65           | 55         | 45         | 35         | 30        | 25        | n.a.         |              |                  |
| PM486 series | 48.6            | 1.4       | n.a.              | n.a. | 65<br>(n.a.) | 55<br>(15) | 45<br>(13) | 35<br>(10) | 30<br>(9) | 25<br>(7) | 20<br>(n.a.) | 20<br>(n.a.) |                  |
| PM500 series | 50              | 1.4       | n.a.              | n.a. | 65<br>(n.a.) | 55<br>(15) | 45<br>(13) | 35<br>(10) | 30<br>(9) | 25<br>(7) | 20<br>(n.a.) | 20<br>(n.a.) |                  |
| PM570 series | 57              | 1.5       | n.a.              | n.a. | 100          | 100        | 80         | 80         | 60        | 60        | 50           | 50           | 50               |
| PM605 series | 60.5            | 3.2       | n.a.              | n.a. | 160          | 160        | 130        | 130        | 100       | 100       | 80           | 80           |                  |
| PM763GE      | 76.3            | 3.65      | n.a.              | n.a. | n.a.         | n.a.       | n.a.       | 290        | 290       | 290       | 290          | 290          |                  |

\*Value in the parenthesis is for twogrooved tube.

### **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.

### **Roller Level:**

The level of the Power Moller and idler rollers in the conveyor must be adjusted so that the load weight will be evenly distributed. If the conveyed loads are not in contact with the Power Moller(s), because of their light weight or their physical nature, raise slightly the level of the Power Mollers (maximum 0.5mm). Care must also be paid not to exceed the maximum static load of each rollers.

Poor contact between the conveyed load and the Power Mollers can cause slippage or jam due to the load twisting. Rubber lagging is recommended to ensure the contact and to ensure the proper transfer of the load.

The transfer of light loads can sometimes impeded by the resistance of idler rollers. Make sure that the idler rollers spin freely.

### **Maximum Transported Weight:**

Set 1,000kg as the maximum limit of the weight of the load that can be transferred by Power Mollers. If the load exceeds 500kg, adopt the parallel conveyor system.

### **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 adjacent lines. Load should not arrive more than 50% faster or 50% slower than the Power Moller's nominal speed so as to avoid any long term damage to its mechanical structure.

### **Speed Variation:**

Speed of 3phase AC Power Mollers (< 300V) can be varied by using frequency inverter. **Use of frequency inverter in higher voltage (> 300V) is not recommended.**

Speed of DC Power Moller incorporating magnetic motor can be varied by changing supplying voltage.

Speed of DC Power Moller incorporating brushless motor can be varied by turning potentiometer on its standard Driver Card.

**Speed Deceleration in Slope:**

When the speed of AC Power Moller reaches more than 10 to 20% above its nominal speed, a braking torque is generated as a nature of induction motor. This effect can be used to decelerate the load speed on self-travel gravity conveyor as a brake roller.

**Inertia:**

As a result of inertia of motor incorporated, the Power Moller will not stop instantly after electrical stop.

Inertia values differ in accordance with motor type, speed and weight of the load.

Inertia can be eliminated by using built-in brake option.

**Brake Information:**

Built-in brake option is recommended, when precise stop or positioning of the load is required in a conveyor line.

When not powered, the built-in electromagnet uses spring force to lock the motor and prevent the roller rotation.

The motor is released when the brake is powered (energised) Stopping distance may vary slightly depending on the load bottom material, weight and transfer speed, etc.