Omtec
Installers Guide

The Omtec reference number for this shipment is:

Refer to checked pages below:

- ☐ Omtec Component Identifier ____ 1
- ☐ Omtec Control, Fitting and Tubing Identifier ____ 2
- ☐ Connecting Controls To Omtec Pop-Up Ball Surfaces ____ 3
- ☐ Connecting The Filter, Regulator and Lubricator ____ 3
- ☐ Adjusting The Filter, Regulator and Lubricator ____ 4
- ☐ Installing Omtec Pop-Up Ball Transfer or Pad Strips ____ 5
- ☐ Installing Omtec Pop-Up Ball And Pad Strips ____ 6
- ☐ Connecting Controls To Manifolds With RGV Valves ____ 7
- ☐ Omtec RGV Valves ____ 8
- ☐ Mounting Omtec Tops On Lifts Or Other Sub-Surfaces ____ 9
- ☐ Installing Tight Joint Fasteners ____ 10
- ☐ Proper Frame Support For Omtec Surfaces ____ 10

Omtec Component Identifier

Pop-Up Ball Transfer*
PBT-1 Carbon Steel Balls
PBT-1-SS Stainless Steel Balls

Pop-Up Ball Transfer*
PBT-1-DP Delrin Plastic Ball

Pop-Up Pad*
PPD-1 High Coefficient
Of Friction Polyurethane Pad

Pop-Up ESD Ground*
PUG-1

Fixed Ball Transfer - Flange Mount
F-1 Carbon Steel Balls
F-1-SS Stainless Steel Balls
F-1-DP Delrin Ball

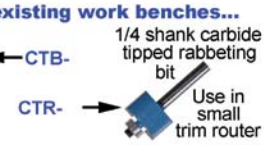
ESD units available

Insert Wheel*
IWH Wheel Set High
IWL Wheel Set Low

IR-length Insert Roll*
May be any lengths
Standard IR-10.25" (260.35mm)
OAL= Length + 1.625" (41.28mm)
ESD units available

For retro-fitting existing work benches...

Use in 1/2 drill motor



For boring holes and if needed recessing flanges in plastic or plastic laminated wood or wood composites.

To CTB & CTR add -P for pop-up units and -F for fixed balls

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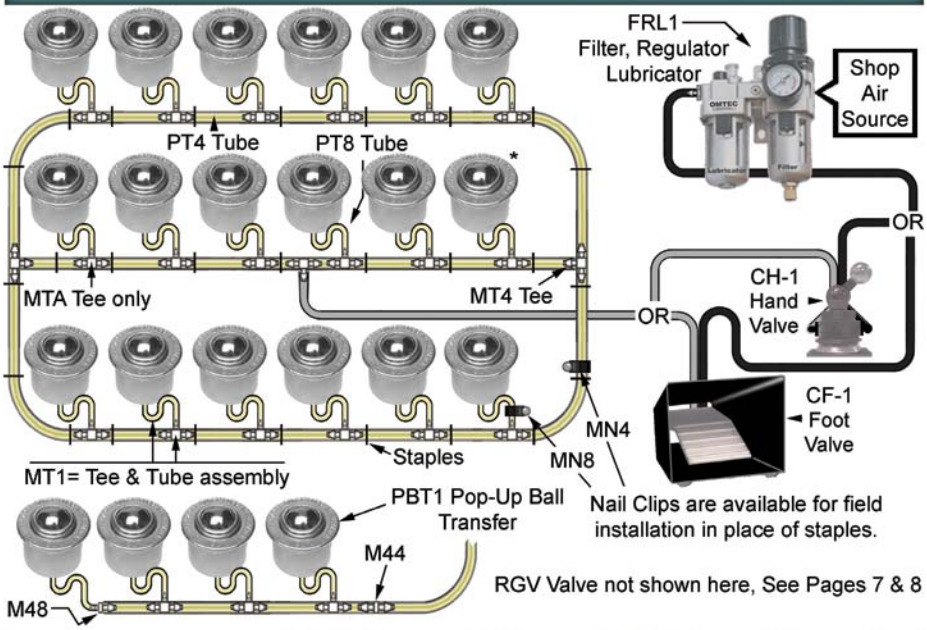
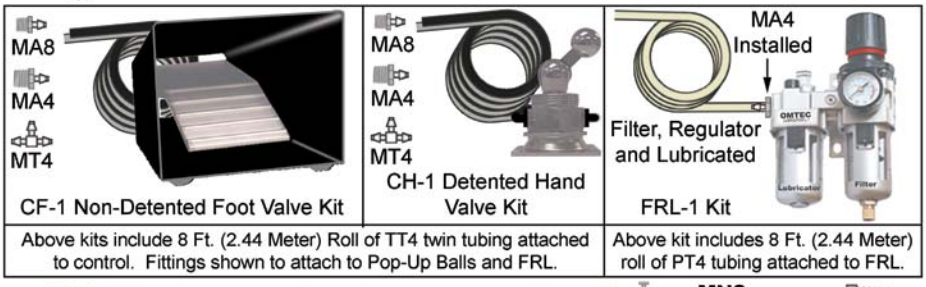
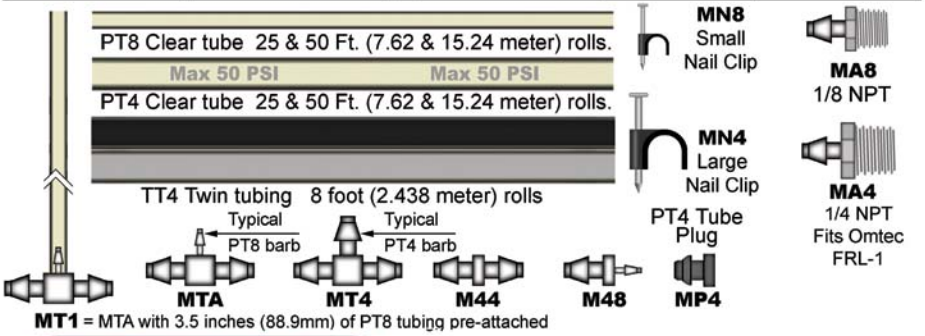
Omtec Control, Fitting And Tubing Identifier





Above kits include 8 Ft. (2.44 Meter) Roll of TT4 twin tubing attached to control. Fittings shown to attach to Pop-Up Balls and FRL.

Above kit includes 8 Ft. (2.44 Meter) roll of PT4 tubing attached to FRL.



MT1 = MTA with 3.5 inches (88.9mm) of PT8 tubing pre-attached

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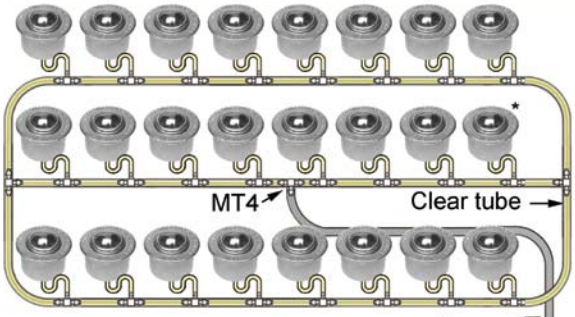
Connecting Controls To Omtec Pop-Up Ball Surfaces



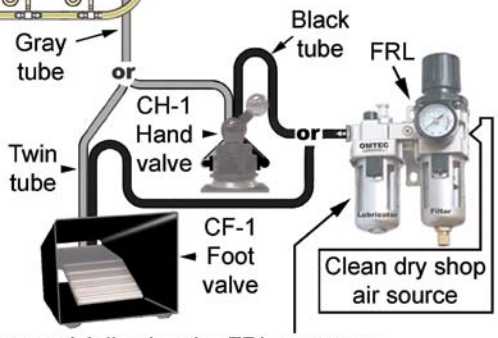
A) Separate the black and gray twin tube on the control to a convenient length considering neatness and appearance of the tubing when done.

Use a knife or cutting pliers to start split.

Then complete pulling apart by hand to desired length.

B) Connect the black tube from the control to the FRL using the MA8 for a 1/8 NPT ported FRL or the MA4 for a 1/4 NPT FRL.

C) Connect the gray tube to the MT4 in the center of the ball manifold under the surface .

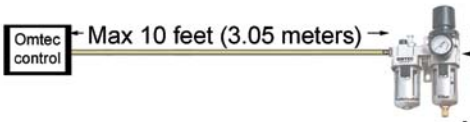


See Connecting the FRL below and Adjusting the FRL next page

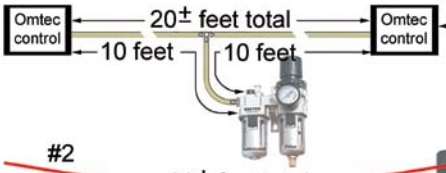
Connecting The FRL

Filter, Regulator & Lubricator and control valve should be located as close as possible to the Omtec surface.

Air line from the control valve to Omtec manifold should be 8 feet (2.44 meters) or less.



Length of tubing between the FRL and the Omtec control should not exceed 10 feet.



Multiple Omtec workstations may be supplied by a common FRL as long as no single station has more than 10 feet of tube between the FRL and the control valve.

Wrong: Tubing length to #2 is too long. Lubricant mist in the line may condense or settle in the tubing and will not get to where it is needed at station #2.

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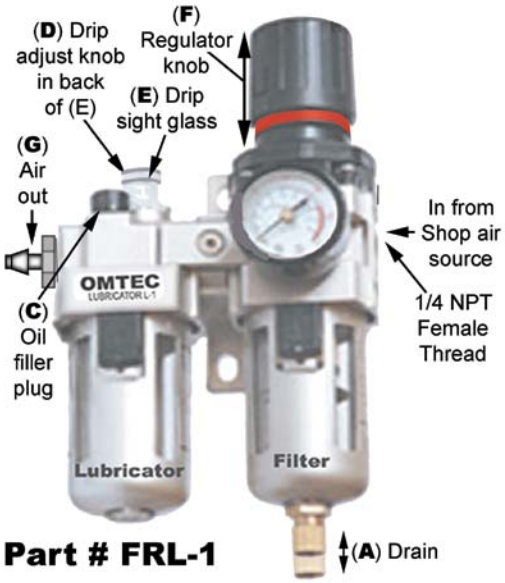
Adjusting The FRL

Pop-Up Ball Transfers and Pop-Up Pads like other pneumatically operated components require:
filtered (clean), regulated (pressure) and lubricated air

This is accomplished by utilizing a Filter, Regulator and Lubricator (FRL). An FRL will seriously increase the pneumatic components life expectancy. Although the filter will trap some water it is not meant to do so and a dry source of air into the FRL is required.

The Filter: is non-adjustable 5 microns. It requires periodical draining. It is self relieving when the air to the FRL is shut off but in most cases the air is not shut off. In these situations it has to be drained manually. This is accomplished by pushing the brass knob (**A**) at the bottom of the filter bowl up until the accumulated debris and liquid are blown out.

Reference: 1 micron = 1 millionth of a meter! A human hair is 70 to 100 microns in diameter.



Part # FRL-1

The Regulator: needs to be set at 50 PSI on the gauge.

Pull knob (**F**) up until red ring is visible and then turn to raise or lower pressure.

Push knob down until it snaps and locks. Red ring will be covered by knob and not visible.

The regulator is limited to a maximum pressure of 60 PSI and can not be set higher.

The Lubricator: Fill with a non-detergent non-synthetic oil. A high quality SAE 10 oil is recommended such as Mobil DTE Light.

The oil filler is the black or brass colored plug (**C**) at the top. The lubrication rate adjusting knob (**D**) is on the back side of the sight glass (**E**).

The air source should be shut off prior to filling, otherwise any oil in the lubricator will blow out when the plug is removed.

Adjusting the lubricator: Disconnect tubing (**G**). Close rate adjust knob (**D**). Turn the air source on and allow the air to blow out (**G**) open knob (**D**) while watching in the sight glass (**E**) for the oil to drip. This tells you that the oil is flowing through the lubricator. Close knob (**D**) again and reconnect tubing (**G**). Open knob (**D**) slightly.

The proper flow is determined by holding your thumb nail or a mirror near the exhaust port of the foot or hand control unless white RGV valves are present. If RGV's are present the hole in the RGV's with no tubing attached is the exhaust port (not the hand or foot control!). See page 7 for location of the RGV valves.

A heavy film indicates over lubrication and the drip rate should be reduced by turning (**D**) to a lower setting. A starting point would be 1 drop every 5 cycles of the foot or hand valve but the above needs to be performed to assure the balls are being properly lubricated.

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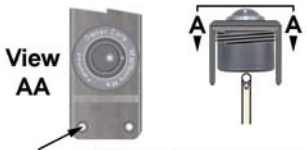
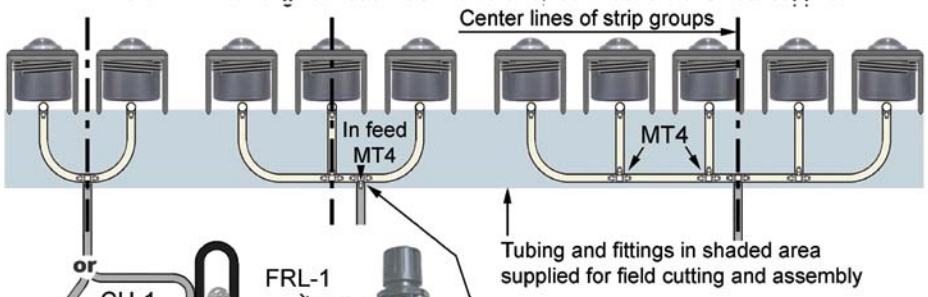
Installing Omtec Pop-Up Ball Transfer Or Pad Strips

These instructions cover:
all balls **or** all pads in
all strips.

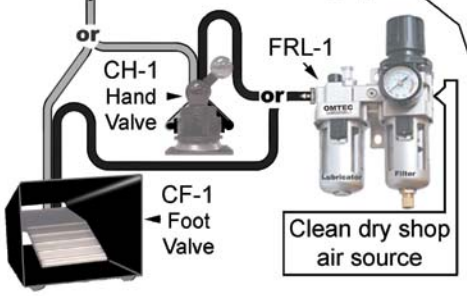
See page 6 for combination ball and pad strips



#6-32 1/2 inch long flat head machine screws, lock washers and nuts supplied.



Tubing and fittings in shaded area
supplied for field cutting and assembly



Keep the in feed MT4 as close as possible to the center line of the strip group.

Do not allow downward pressure on tubing attached to the balls. If the in-feed tubing does pull down then it should be secured with tie wraps.

Distorting the ball manifold tubing will cause leaks.

Separate the black and gray tubing on the control to a convenient length considering neatness and appearance of the tubing when done. Use a knife or cutting pliers, then complete pulling apart by hand to desired length.

Connect the black tube from the control to the FRL using the MA8 for a 1/8 NPT ported FRL or the MA4 for a 1/4 NPT ported FRL.

Connect the gray tube to the MT4 in the center of the strip manifold.

See: **Connecting The FRL** on page 3 and **Adjusting The FRL** on Page 4

Warning! Like any machine parts:
Omtec Pop-Up Ball Transfers should be protected during installation from drill chips, welding sparks, grinding grit and other debris.
They must also be protected from humidity and/or exposure to water and should be covered and stored in a clean dry environment prior to installation.
Failure to do so could destroy the Pop-Up Ball Transfers, Pop-Up Pads and other components.

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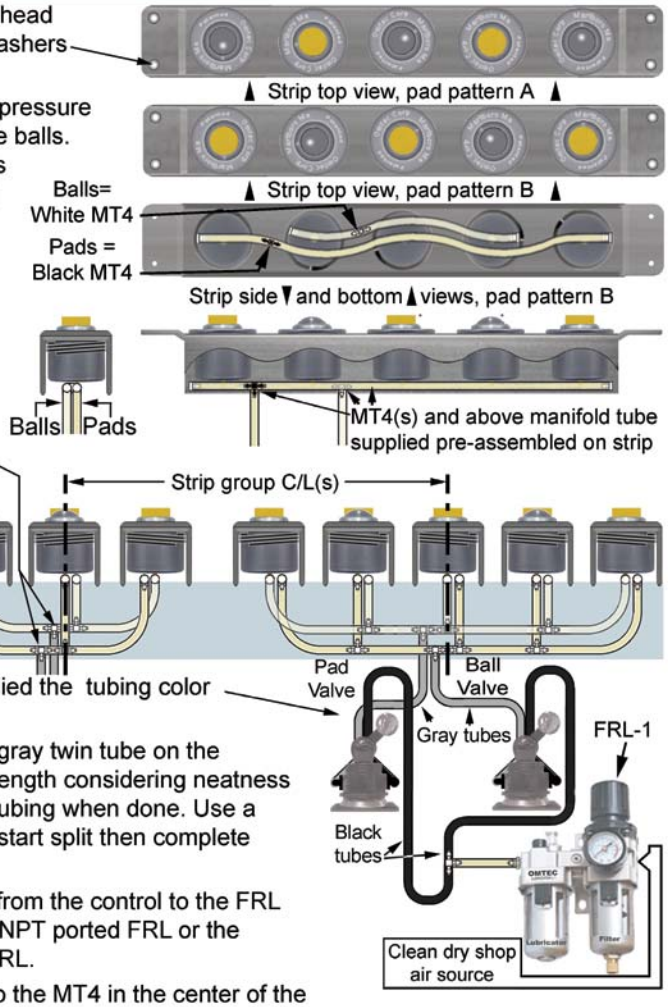
Installing Omtec Pop-Up Ball And Pad Strips

#6-32 1/2 inch long flat head machine screws, lock washers and nuts supplied.

Do not allow downward pressure on tubing attached to the balls. If the in feed tubing does pull down then it should be secured using tie wraps.

Distorting the ball manifold tubing will cause leaks.

Keep the in feed MT4(s) as close as possible to the center line of the strip group.



If foot valves were supplied the tubing color code is the same.

Separate the black and gray twin tube on the control to a convenient length considering neatness and appearance of the tubing when done. Use a knife or cutting pliers to start split then complete pulling apart by hand.

Connect the black tube from the control to the FRL using the MA8 for a 1/8 NPT ported FRL or the MA4 for for a 1/4 NPT FRL.

Connect the gray tube to the MT4 in the center of the strip manifold.

See: **Connecting The FRL** on page 3 **Adjusting the FRL** on page 4

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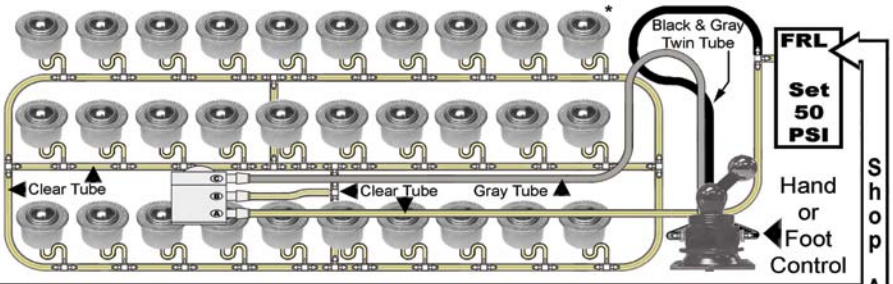
Connecting Controls To Manifolds With RGV Valves

Connecting a control to a manifold with a single RGV valve.



a) First determine if there is a single or multi RGVs. Then chose the proper option in lines b) and e)

b) Single RGV: Connect the clear tube from the lubricator to the A port on the RGV.
Multi RGV(s): Connect clear tube from lubricator to the RGV manifold's black tubing

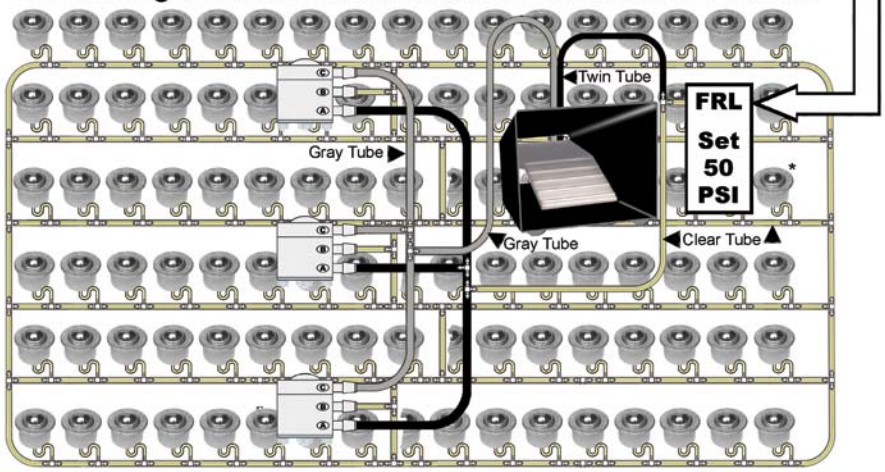
c) Separate the black and gray twin tube on the control to a convenient length considering neatness and appearance of the tubing when done.

d) Connect the black tube from the control to the clear tube from the FRL using a MT4 tee at a convenient location. Note the orientation of the MT4 shown above.

e) Single RGV:Connect the gray tube from the control to the C port on RGV.
Multi RGVs: Connect the gray tube from the control to the RGV manifold gray tubing

See: Connecting the FRL, page 3 and Adjusting the FRL, page 4.

Connecting a control to a manifold with 2 or more RGV valves.



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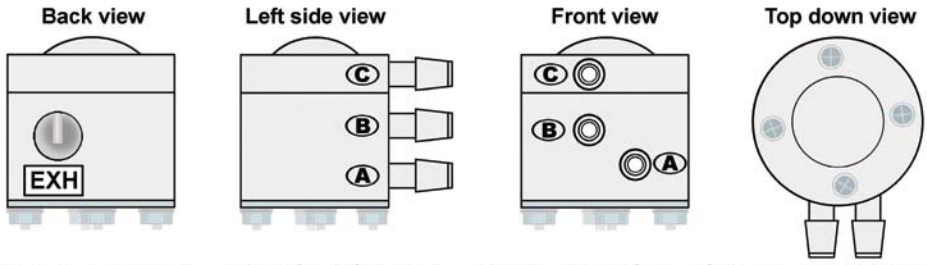
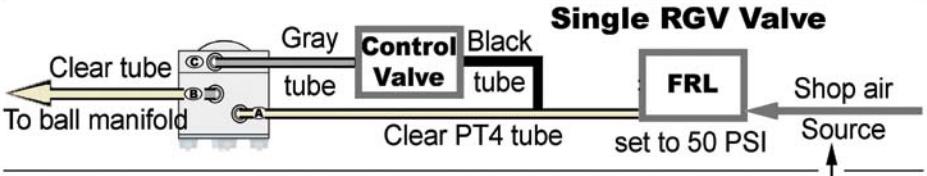
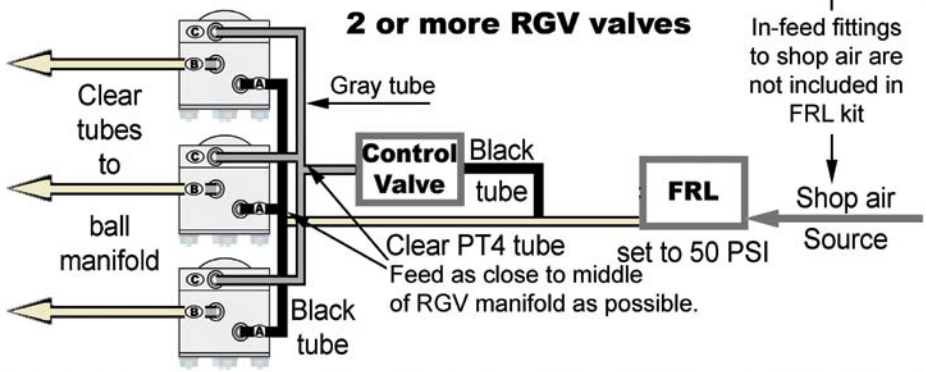
Omtec RGV Valves



Exh: Exhaust port **A: 50 PSI air from FRL** **B: To ball manifold** **C: From control valve**





Designing your own ball pattern and manifold notes:

When feeding 30 or more balls on a common manifold, RGV valves should be considered. If requested, Omtec engineers will advise.

RGV's should be located as close as possible to the center of each group of 30 balls, keeping the tube feeding the balls from the RGV's as short as possible.

Looping the manifold around the outer perimeter of the ball pattern encourages the air to flow evenly into each row of balls from both ends.

The manifold should be looped around the outer perimeter of the complete ball pattern. Each group of 30 balls should be looped within the outer loop.

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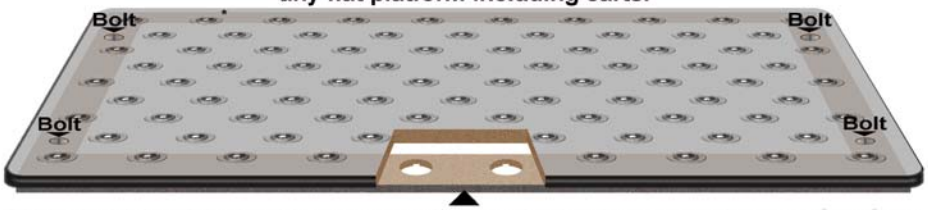
Mounting Omtec Tops On Lifts & Other Sub-Surfaces

Although the example shows a scissor lift, the same mounting procedures are followed for most Omtec Worksurfaces, including maple surfaces on virtually any flat platform including carts.



3/4 inch thick x 3 inch wide spacer strip, attached to bottom perimeter of surface

A) Raise the scissor lift platform and securely block it so it will not accidently drop!

B) Connecting control to Omtec Worksurface.

Attach the control to worksurface before proceeding to next step.

Locate the 1 inch wide x 5/16 high control tubing access slot that is provided in the manifold spacer strip.

To attach the control, turn to the checked ✔ control page in the index.

C) Determining where to drill attachment holes.

Lay the Omtec Worksurface on the platform without crushing manifold tubing. Slide over each of the four edges and note where to drill holes for the mounting screws or bolts. Be sure to avoid puncturing the manifold tubing or other Omtec Worksurface components. It should also be determined the fasteners will not interfere with the scissor mechanism of the platform.

D) Fastening The Omtec Worksurface (Both Bolts and screws are supplied)

Bolt option: 1 (preferred fastening method)

Locate bolts as close as possible to the four corners of surface. As you drill each 3/8 inch diameter hole, put a bolt in to hold the location.
When all 4 holes are drilled go back and counter sink each hole with a **sharp** 3/4 diameter 82 degree counter sink bit so the head of the bolt is slightly below surface. Then install nut and lock washers.

Screw option: 2

Drill 3/16 diameter holes, every 6 to 8 inches around perimeter of the platform. The holes should be located in the approximate center of manifold spacer strips attached to the Omtec top.

Locate the Omtec top on platform. Then install screws with a screw gun.

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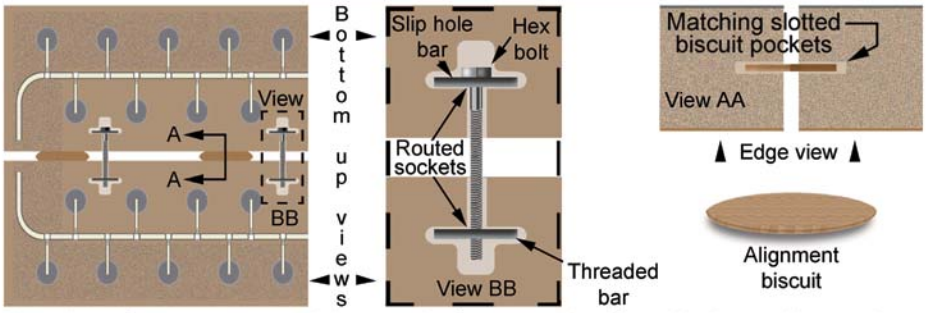
Installing Tight Joint Fasteners



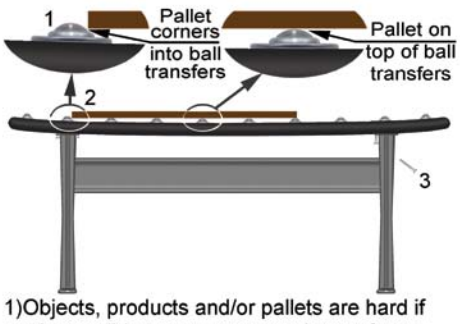
Place the surface segments on their supporting frame or sub-surface with the top side up and aligned with each other.

View AA: Multiple matching short slotted pockets are provided in the joining edges to accept the alignment biscuits. The slotted pockets in the two segments should align with each other. Leave enough space between the surfaces to insert the biscuits into one of the segments. Insert the biscuits then close the gap between both segments so the biscuits are in the pockets of both.

View BB: Routed pockets are provided in the underside of the Omtec worksurface for the tight joint fasteners. The slip hole bar should be placed on the head end of bolt, then screw on the threaded plate. From the underside place all the bolts with bars attached in to the routed sockets.

All the bolts need to be tighten at the same rate pulling the two segments together evenly.

Proper Frame Support For Omtec Surfaces



1)Objects, products and/or pallets are hard if not impossible to move on sagging surfaces.

2) Objects bump and damage ball transfers.

3) Bumping loosens bench hardware.

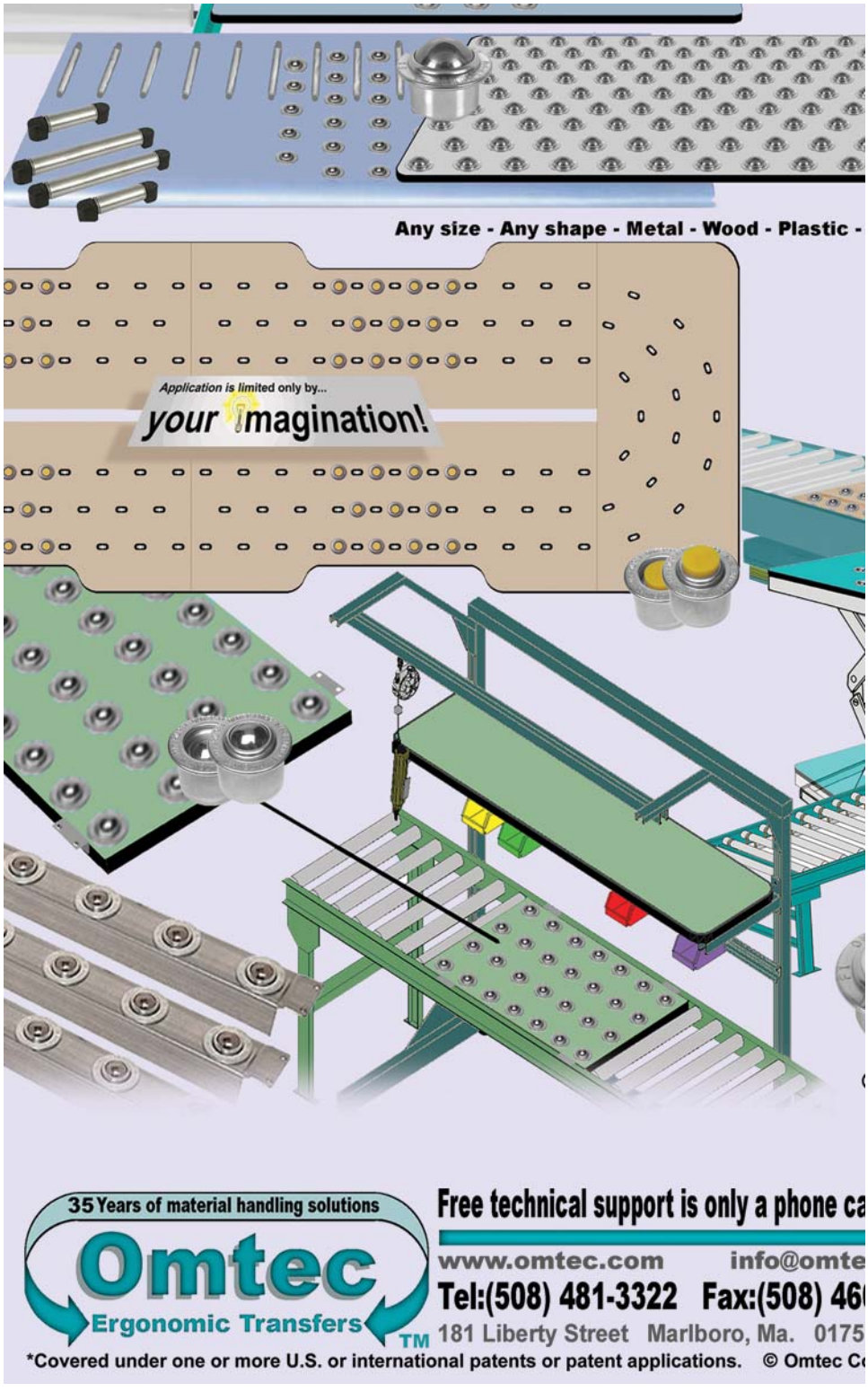
If not properly supported, work surfaces will sag under weight. Sag that may or may not be acceptable on a standard work bench is an unacceptable problem with ball transfers surfaces.

There are many ways to avoid sag and one common support method is shown above.

A) Stringers are mounted all the way around the top perimeter of the frame to support the surface.

B) Stringers of sufficient strength to hold legs vertical so they will not sway or lay over under moving loads.

The load a ball transfer surface will move around on the surface and must be considered in design.


Any size - Any shape - Metal - Wood - Plastic -
Application is limited only by...
your imagination!
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