



Pow-R-Bounce™

Automatic Bumper Gutter System

INSTALLATION MANUAL, Version 2019/007



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GENERAL INFORMATION AND SAFETY RULES

This installation manual is to be used in installing the "POW-R-BOUNCE", SYSTEM-300 bumper system.

Variations to these procedures and methods could result in future quality and performance problems. Any variations must be approved by the SYSTEM-300 bowling installation manager (representant of authorized dealer of SYSTEM-300) in advance.

If field substituted materials are necessary, they must be of the same or higher quality than those supplied by SYSTEM-300.

Do not attempt to operate any tools until you have read and understood all applicable safety precautions and instructions.

Failure to follow safety precautions and manual instructions can result in blindness, severe personal injury or death and damage to property.

Always wear proper eye and hearing protection when power tools are used.

Never operate tools that are malfunctioning. Never use tools with frayed wires or broken/ chipped plugs. Properly size extension cords with power tools used.

Pin spotters/setters and other equipment must be isolated from power sources prior to beginning installation work in and around them.

Ensure proper ventilation and ensure other necessary precautions are taken when using finishes.

Proper precautions must be taken to prevent unauthorized persons from having access to tools and materials during the installation.

Dust and other installation debris must be cleaned up regularly to prevent a slip or trip hazard.

SYSTEM-300 assumes no liability for improper actions or negligence during installation of its products by independent contractors or bowling center operations.

MINIMUM TOOL REQUIREMENTS

Power tools

Battery operated screw driver (with 3mm and 13mm drill bits plus PZ2 screwingheads)

Hand tools

Measuring tape

Monkey wrench

Hammer

Hand saw / Jigsaw Carpet knife / Scissors

BILL OF MATERIALS

PVC and MDF profiles (long parts):

B1 Gutter PVC profile (4550 mm)	8pcs
B2 Impact Profile PVC (4550 mm)	8pcs
B4 Curtain fastening pipe PVC 16 (2500)mm	14pcs
B5 T-shaped profile PVC (4550 mm)	8pcs
B6-1 Gutter connector part (9x66x100mm)	60pcs
OR	
profile (9 x 66 x ~2500mm)	36m

Per lane (A-box) parts:

B6-2 support blocks (141x47x16mm)	60/ln
B3 Curtain (4550mm)	8pcs
B7 Metal attachment plate for gutter profile joints	6pcs
B10 Rising block (front end of gutters)	2pcs
B11 Hose assembly (parts B11-(1-5))	2pcs
B11-1 Bumper hose	2pcs
B11-2 Hose front end clamp	2pcs
B11-3 Hose back end plug	2pcs
B11-4/B24 Hose back end elbow fitting	2pcs
B11-5 Hose back end support band	2pcs
B13 Curtain fastener screw (5 x 50)mm	40pcs
B14 Rising block screw (6 x 100)mm	6pcs
B15 Control valve fastener scr.(3x30)mm	4pcs
B16 Curtain fastening pipe connector	12pcs
B17 Curtain fastener	40pcs
B18 Pressure nylon tube fastener	20pcs
B19 Electric cable 2 x 0,75 N	10m
B20 Electric cable fastener (small)	20pcs
B21 Control valve 3/2, electr.contr.24V DC	1pcs
B22 T-shaped adapter 12 mm	2pcs
B31 L-shaped adapter 12/12mm	2pcs
B24 Elbow fitting 12mm/ 3/8"(contr.valve)	2pcs
B42 Gutter fastener screw 5x50mm black	40pcs
B23 12mm pressure tube nylon (blue color)	10m
B44 Screw for hose connection	4pcs

B27 Pressure controller	1pcs
B28 Pressure meter	1 pcs
B32 Straight metal joining adapter 12mm	2pcs

Control parts (one per 4 lanes):

B25 Control unit	1/4ln
B26 Power supply for control unit	1/4ln

Per centre/installation parts:

B29 System pressure pipe stop-cock	1 pcs
B30 Straight union adapter for 12/12mm	1pcs
B31 L-shaped elbow adapter 12/12mm	1pcs
B32 Straight metal joining adapter 12mm	1pcs
B23 12mm pressure tube nylon (blue color)	20m
B33 S-300 gutter Installation tools	3pcs

Extra air tank parts:

Extra air tank(s) is not included to the standard bill of materials due to that System-300 recommends the customer source extra air tank(s) locally together with the compressor. System-300 can provide extra air tank(s) on separate order.

<u>Compressor (output 200 l / min. 9 bar)</u>	<u>LANES</u>	<u>Extra Air tank</u>
75 l	4 lanes	not needed
150 l	8 lanes	not needed
75 l	8 lanes	150 l
150 l	12 lanes	150 l

<u>Compressor (output 300 l / min. 9 bar)</u>	<u>LANES</u>	<u>Extra Air tank</u>
150 l	14-20 lanes	100 l
225 l	24 lanes	150 l

For each extra air tank it is needed the following parts:

B22 T-shaped adapter 12 mm	1pcs
B32 Straight metal joining adapter 12mm	1pcs



Control unit B25 and power supply B26 for 4 lanes



Pressure controller B27



Control valve B21



Straight adapter B32



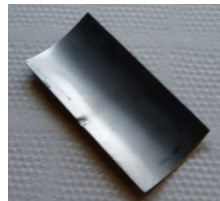
System pressure pipe stop cock B29



Curtain B3



T-Adapter B22



metal attachment plate for gutter profile joints B7



Elbow fitting 12mm/
3/8" (contr.valve) B11-4/B24



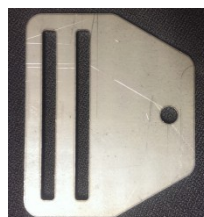
Hose assembly B11



Riser block B10



12mm pressure tube nylon B23



Hose front end clamp B11-2

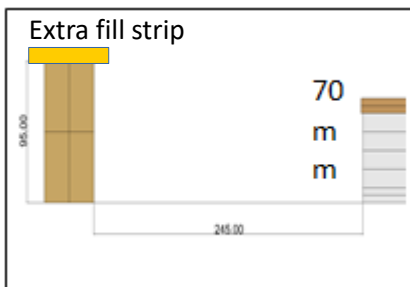
INSTALLATION

Surveying the installation space

Make sure the installation space is clear of any debris, objects or sharp surfaces. It should also be cleaned.

Installation space measurements

In the following picture you can see the normal dimensions for System-300 lane foundations with the lane on the right side and the cappings on the left side.

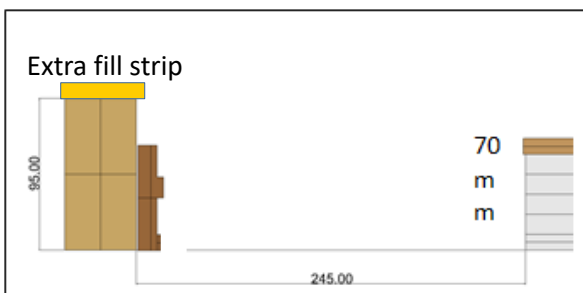


Check and measure the dimensions shown: the width and the heights of the installation space.

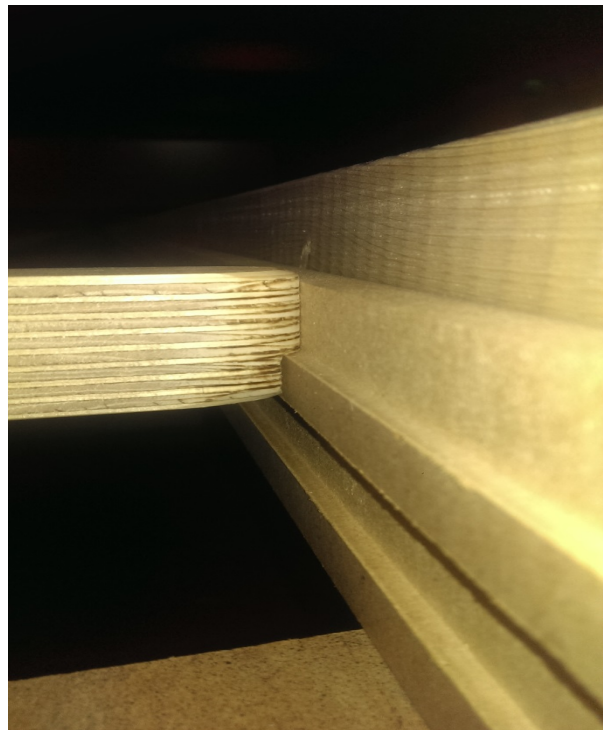
In case these measurements are not met, please ask assistance from S-300.

Installation of the Gutter connector parts and support blocks

The gutter connector parts B6-1 will be installed against the timber with small nail gun (or screws -not included) at every I beam like shown in the picture below.



Use the supplied installation tool B33 to set the installation height of the connector parts B6-1.

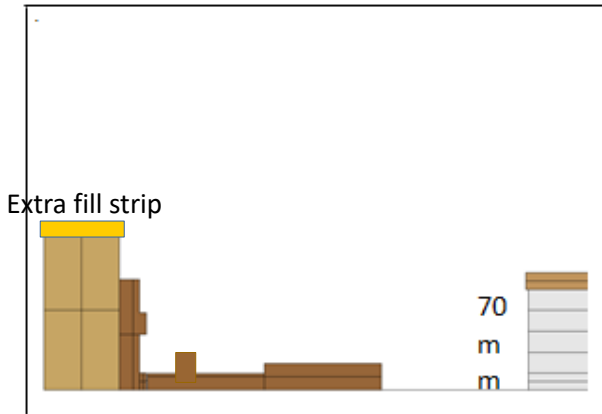


Please notice that the connector parts can be delivered either as short (100mm) parts standard delivery OR continuous profile (~2500mm profile). The connector parts are to be used in normal good conditions and straight division supports. In very difficult (old/crooked divisions) conditions a continuous profile can be ordered (**please inform when ordering**).

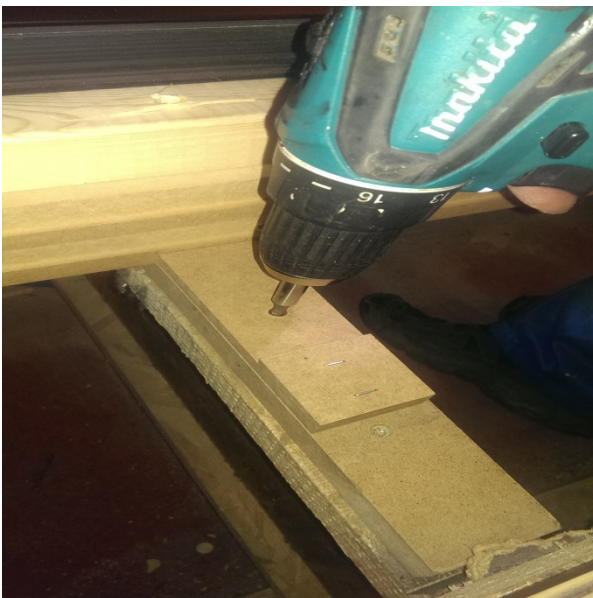
The minimum height of the support from the I-beam surface 95mm. If lower, add the optional division extra fill strip (9mm).

The support blocks B6-2 will be installed on I-beams next to gutter connector parts B6-1 (picture below).

In case of Gutter only installation (no bumper) the support block is smaller and the installation is to be made 90mm from the gutter connector parts i.e. in the manner that the support block supports the gutter on its lowest point.



Support blocks B6-2 attached with nail gun or screw



For lane bed heights from 60-70mm use 16mm support blocks B6-2
 For lane bed height over 70mm, please use the extra shimming material
 For lane bed heights under 60mm, thinner shimming material (not included) is needed

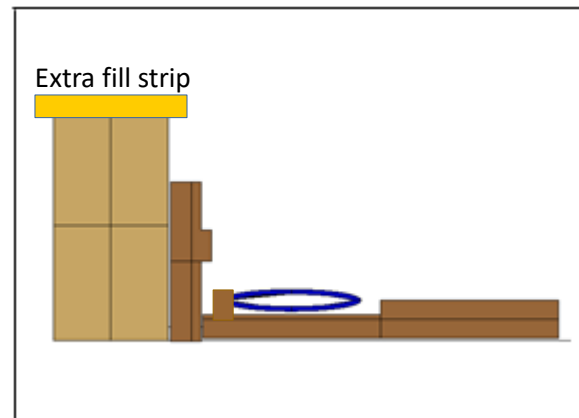
Installation of the hose

There is one 16.5m hose B11 prepared for every run of the Bumper System (two / lane).

First open the hose package next to the installation space.

Install the hose over the support block B6-2 as in picture.

The hose B11 will lie next to the gutter connector parts B6-1 on the support block B6-2



The hose front end clamp B11-2 is installed on hose B11 in the following fashion

The hose front end clamp B11-2 will be secured on the first I-beam.



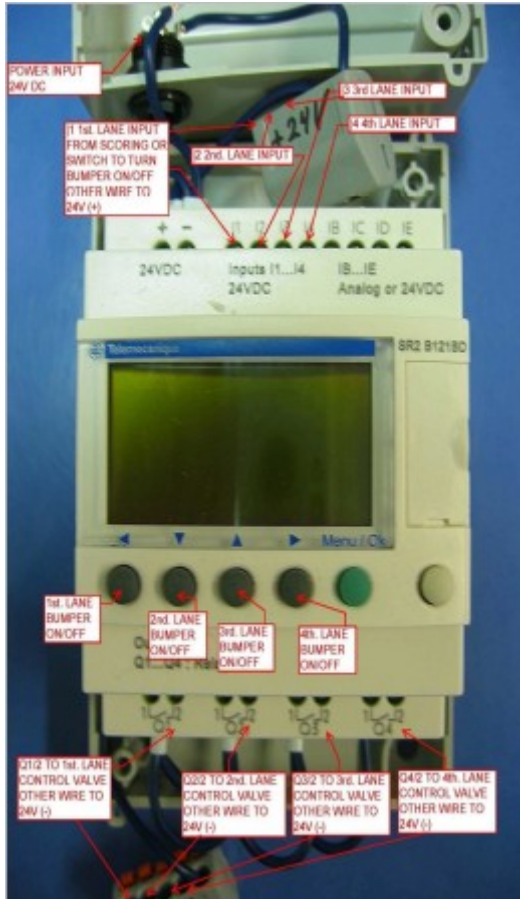
After this, the hose B11 will be pulled tight so it does not hang loose or twisted.



The hose back end support band will be attached in the middle of the last two I-Beams at bottom of timber with one (1) 5 x 50 screw. Please make sure the hose B11 is installed as straight as possible to ensure proper air flow in and out of the hose

Installation and operating instructions of the control unit

See the instruction as shown picture in below



Installation of the pneumatic parts

Refer to the following page diagram about connecting the pneumatic parts

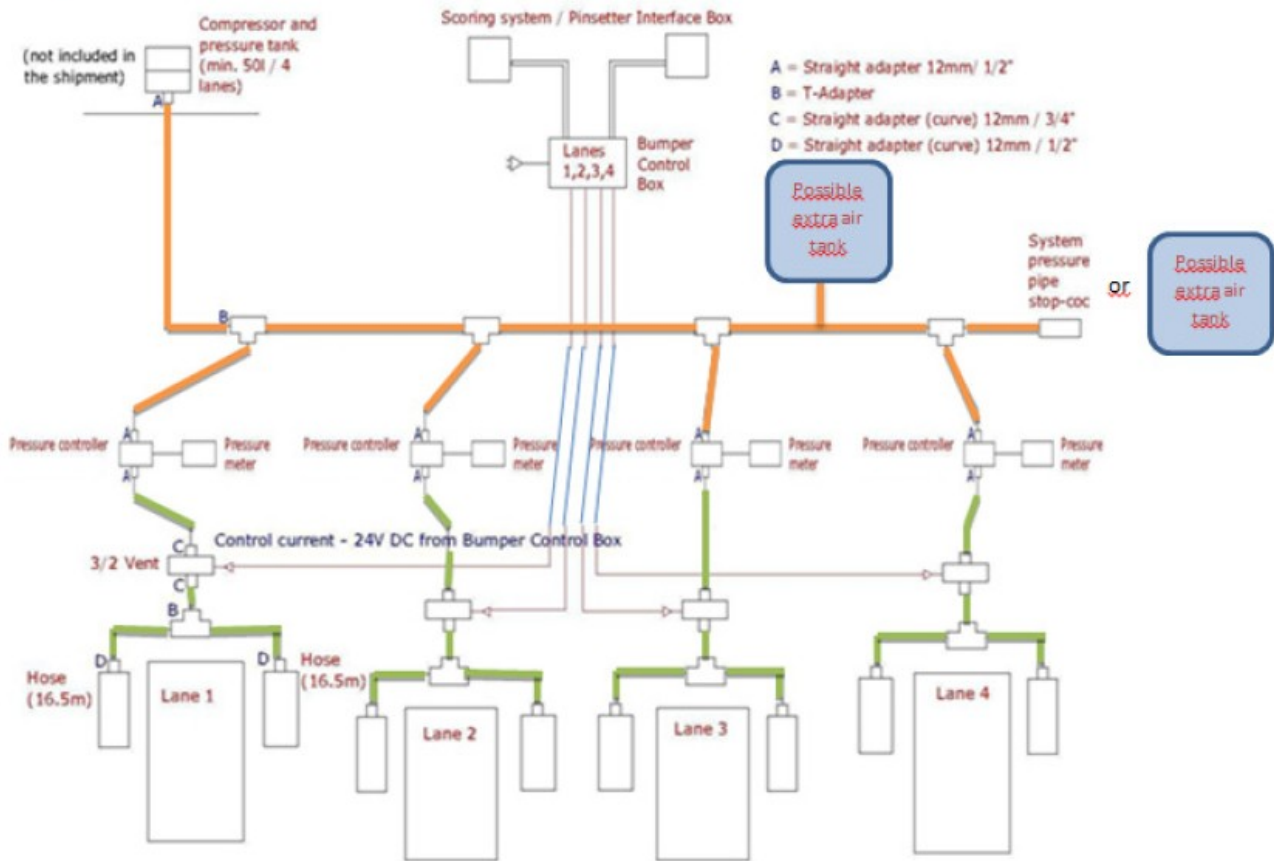
There is one (1) control box B25 and power supply B26 for every four (4) lanes.

There is one (1) compressor and/or pressure tank (NOT INCLUDED) for the whole system.

Required Compressor capacity as follows:

<u>Compressor (output 200 l / min. 9 bar)</u>	<u>LANES</u>	<u>Extra Air tank</u>
75 l	4 lanes	not needed
150 l	8 lanes	not needed
75 l	8 lanes	150 l
150 l	12 lanes	150 l
<u>Compressor (output 300 l / min. 9 bar)</u>	<u>LANES</u>	<u>Extra Air tank</u>
150 l	14-20 lanes	100 l
225 l	24 lanes	150 l

Pneumatic parts, electronics and connections



THE SYSTEM MAIN PRESSURE (ORANGE LINE) SHOULD BE 6-9bar

THE LANES PRESSURE (GREEN LINE) SHOULD BE 1-1,5bar AND NEVER EXCEED $1,5 \text{ kg/m}^2 = 1,5 \text{ Bar} = 0,15 \text{ MPa}$

Installing the curtain fasteners

Curtain fasteners B17 will be installed on top of the I-Beams on the bottom of the installation space. Their purpose is to connect the Bumper Curtain right to the bottom.

Install 15-20 curtain fasteners B17 per run. Screw them on top of the I-beams with curtain fastener screw B13.



Installing the curtain to the PVC gutter profile

Slide the T-shaped PVC profile B5 inside the curtain B3 in a way that the seam of the curtain is placed at the inner side of the system (the seam should face to the hinges).

Slide the curtain B3 together with the T-shaped PVC profile B5 inside to the appropriate gap to be found in PVC gutter profile B1.

Secure that the seam of the curtain B3 stays at the inner side of the system (the seam should face to the hinges).



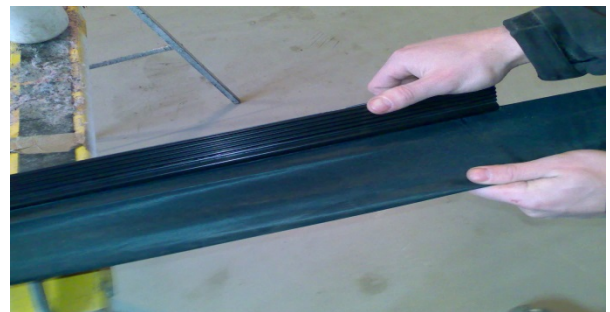
Pull the curtain B3 together with the T-shaped PVC profile B5 along the gap to the whole length of the PVC gutter profile B1.



Secure that:

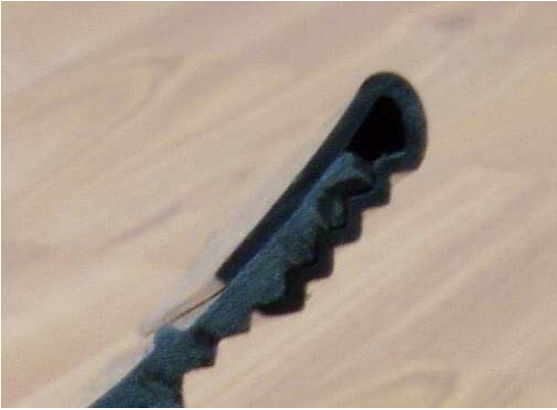
The curtain B3 is tightly wrapped around the T-shaped PVC profile B5 (attn! No wrinkles!!).

The seam of of the curtain B3 is in straight line and the seam facing to the capping side.



Installing the gutter impact profile

Slide the Gutter Impact profiles B2 on the gutters. A rubber hammer may be used to aid in installation. This step may be done before or after installing the gutters.



Installing the gutters

Lift the gutter profile B1 approximately in its place.

By using the provided tools B33 install the groove of the gutter B1 on the ridge in gutter connector parts B6-1 one gutter piece (4550mm) at a time.

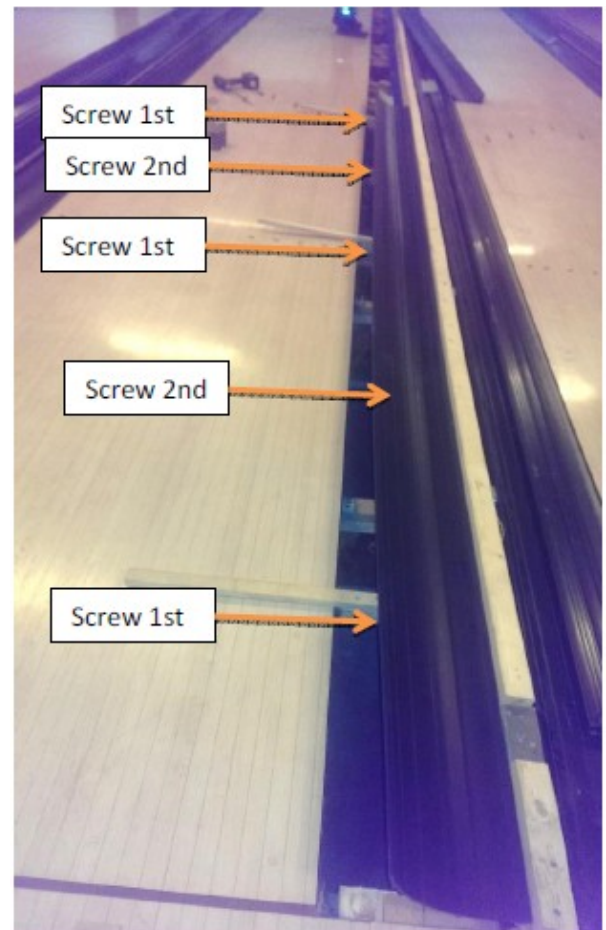


Screw the profile B1 on the Timber through the ridge on gutter connector parts B6-1



First put all three tools B33 in place (beginning, end and middle of the gutter piece B1) and secure the gutter B1 in place with gutter fastener screws B42 next to each tool B33.

After this add two more screws B42 between the three screws.



Make sure the screws B42 fastens the groove of gutter profile B1 against the rib of gutter connector parts B6-1.

Installing the metal attachment plates for gutter profile joints

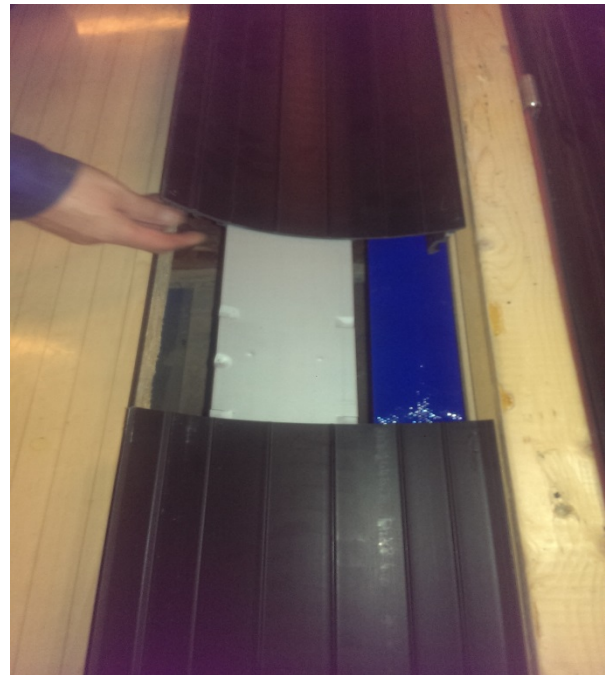
The gutters have specific metal attachment plates for gutter profile joints B7, that will slide in the bottom of the gutter B1. There are three (3) longer metal attachment plates B7 per four (4) pieces of gutter B1 (for one run of the Bumper System).

The long metal attachment plates for gutter profile joints B7 will be installed to connect every gutter B1 with each other.

Put one end of the metal attachment plates B7 in installed gutter



Align the next gutter piece B1 to other end of metal attachment plates B7



Push the new gutter B1 so far it touches the previous one. Then proceed with attaching the next metal attachment plate B7 and next gutter profile B1.



Please note that the last gutter B1 must usually be cut to fit the adaptor block/flat gutter (not included). Length depending on the type of adaptor.

Connecting the curtain B3 (with the T- shaped PVC profile B5) to the foundation

First part is to insert the curtain fastening pipe B4 into the curtains B3 as shown in the picture.



Use a curtain fastening pipe connector B16 to connect the curtain fastening pipes B4 to each other.

Cut the left over curtain B3 with scissors. Each end of the curtain B3 must overlap to the next one as illustrated on the photograph



After that, push the bottom part of the curtain B3 so that the piped curtain B3 connects itself firmly into the curtain fasteners B17 below.

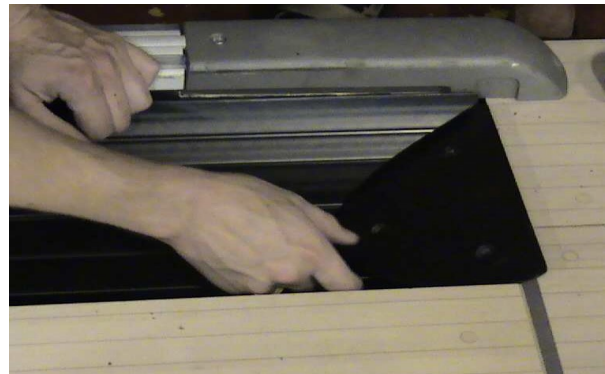


Installing the rising block B10

After everything else has been done, the last part to install is the rising block B10 on top of the first section of the gutter of every run of the Bumper System (front –end).

Rising block B10 will be screwed from the top of the first gutter B1 with three (3) rising block screws B14.

The rising block B10 will hold the gutter B1 firmly in its position.



SYSTEM-300 POW-R-BOUNCE SYSTEMS CHECK

Now that the bumper-system has been installed, it's time to make a proper systems check. It is necessary to make sure that:

The system functions like it should

System main pressure is 6-9bar

Pressure rates in all lanes are 1-1,5bar

All pressure tubes B23 are correctly attached (that they don't hit any machine parts or that they are not in the way of anything like balls or pinsetting)

The bumper rises high enough and that every gutter rises to the same height (if not, adjust the curtain)

The curtains are tight

There are no leaks in the hoses B 1 1 or elsewhere in the pneumatic system

If the gutter B1 hits the lane side, the width can be adjusted by depth of impact profile B2 or in extreme cases with cutting the profile B1

Please check that the scoring system sensors (reflectors) do not stay in the shadow of the gutter B 1 (when the bumpers are in the up position).