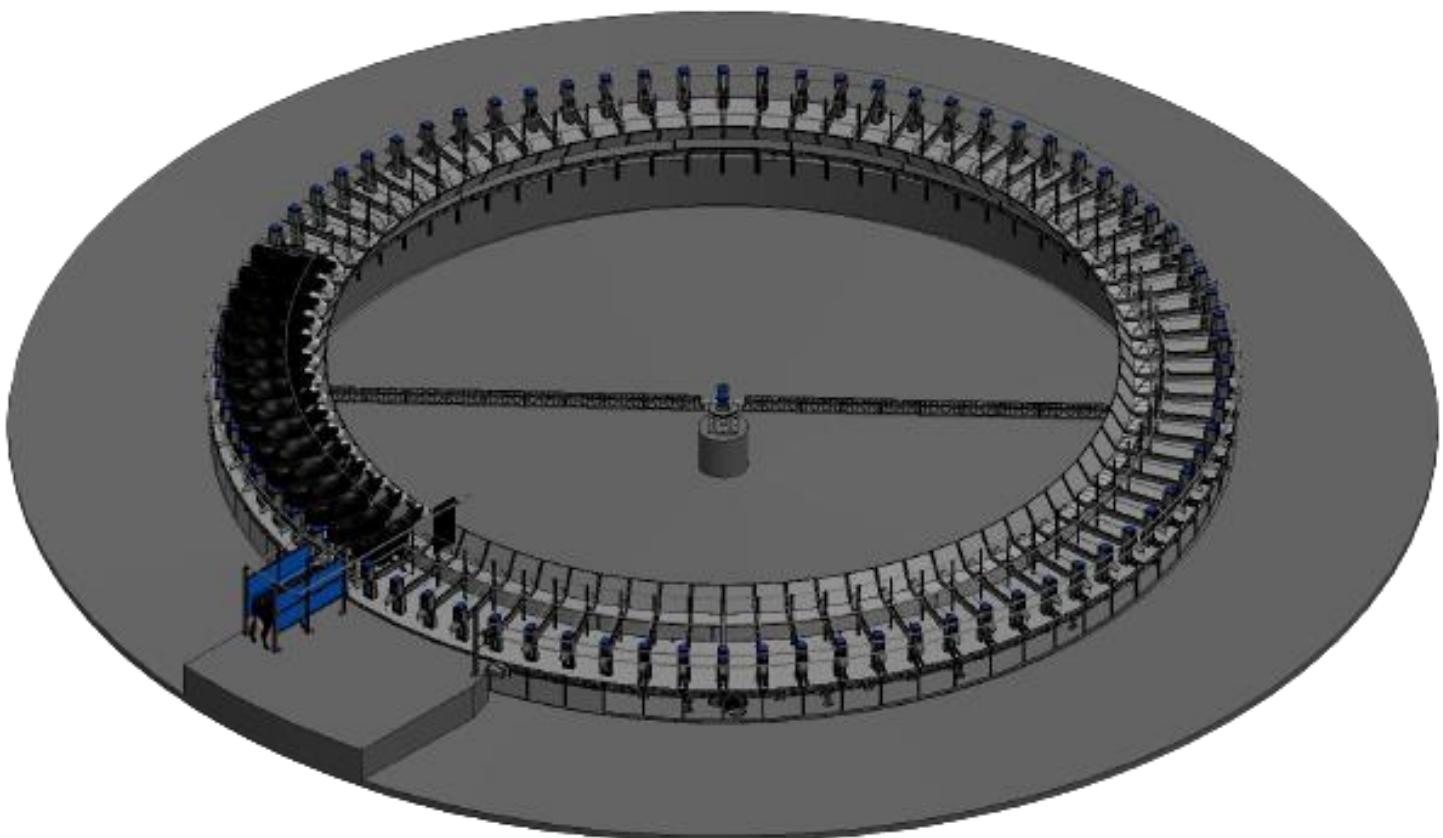


Blom Topline 21LC Rotary

INSTALLATION MANUAL CHASSIS



Date: January 2023
Version 1.3
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Storage information

Store the next parts always under cover:

1. The control unit and its components
2. Central swivel
3. Drive units
4. All wooden crates

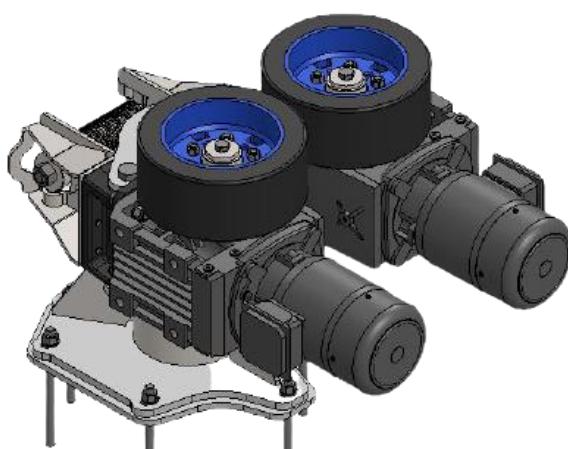
Storage in heated room/shelter:

5. Wooden crate number 1, needed for the chassis, **must be stored at plus 10 degrees celsius at all time**
The epoxy/glue may **NEVER** reach the freezing point

When large delays in installation always check the expiry date on the packing slip and the cartridges.



2. Central Swivel



3. Drive Units



Use this table in the entire document

For the Topline 40

Topline		40
Depth basement	D1	1.300
Diameter basement	B1	10.335
Diameter basement (from gutter to gutter)	B2	12.335
Diameter outer edge rotary	D2	12.734
Center diameter I-beam	Dx	10.834
Center radius I-beam	Rx	5.417
Distance from drive pit to support	B3	67
Markline rails diameter	D3	10.752
Markline rails radius	R3	5.376
Supports diameter	D4	10.655
Supports Radius	R4	5.327,5
Distance between supports	A	1.012,8
Markline center roller diameter	D5	11.706
Markline center roller radius	R5	5.853
Markline drive unit diameter	D6	11.784
Markline drive unit radius	R6	5.892
Outside pole position	B7	1.050
Distance between stall divider beams	S	838,3
Quantity of rollerframes	X-Rol	66
Distance from first I-beam division to mountingplate	Y	50
Distance scratch line to temp plate drive unit	Z	19,5
Number of supports		22
Number of long supports		11



Use this table in the entire document

For the Topline 50

Topline		50
Depth basement	D1	1.300
Diameter basement	B1	13.520
Diameter basement (from gutter to gutter)	B2	15.520
Diameter outer edge rotary	D2	15.920
Center diameter I-beam	Dx	14.020
Center radius I-beam	Rx	7.010
Distance from drive pit to support	B3	117Blom
Markline rails diameter	D3	13.938
Markline rails radius	R3	6.969
Supports diameter	D4	13.841
Supports Radius	R4	6.920,5
Distance between supports	A	1.113,7
Markline center roller diameter	D5	14.892
Markline center roller radius	R5	7.446
Markline drive unit diameter	D6	14.970
Markline drive unit radius	R6	7.485
Outside pole position	B7	1.050
Distance between stall divider beams	S	870,9
Quantity of rollerframes	X-Rol	83
Distance from first I-beam division to mountingplate	Y	19
Distance scratch line to temp plate drive unit	Z	15,3
Number of supports		26
Number of long supports		13



Use this table in the entire document

For the Topline 60

Topline		60
Depth basement	D1	1.300
Diameter basement	B1	16.700
Diameter basement (from gutter to gutter)	B2	18.700
Diameter outer edge rotary	D2	19.100
Center diameter I-beam	Dx	17.200
Center radius I-beam	Rx	8.600
Distance from drive pit to support	B3	85
Markline rails diameter	D3	17.118
Markline rails radius	R3	8.559
Supports diameter	D4	17.021
Supports Radius	R4	8.510,5
Distance between supports	A	1.047,8
Markline center roller diameter	D5	18.072
Markline center roller radius	R5	9.036
Markline drive unit diameter	D6	18.150
Markline drive unit radius	R6	9.075
Outside pole position	B7	1.050
Distance between stall divider beams	S	892,3
Quantity of rollerframes	X-Rol	100
Distance from first I-beam division to mountingplate	Y	356
Distance scratch line to temp plate drive unit	Z	12,7
Number of supports		34
Number of long supports		17



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Use this table in the entire document

For the Topline 72

Topline		72
Depth basement	D1	1.300
Diameter basement	B1	20.520
Diameter basement (from gutter to gutter)	B2	22.520
Diameter outer edge rotary	D2	22.920
Center diameter I-beam	Dx	21.020
Center radius I-beam	Rx	10.510
Distance from drive pit to support	B3	105
Markline rails diameter	D3	20.938
Markline rails radius	R3	10.969
Supports diameter	D4	20.841
Supports Radius	R4	10.420,5
Distance between supports	A	1.090,7
Markline center roller diameter	D5	21.892
Markline center roller radius	R5	10.946
Markline drive unit diameter	D6	21.970
Markline drive unit radius	R6	10.985
Outside pole position	B7	1.050
Distance between stall divider beams	S	910,3
Quantity of rollerframes	X-Rol	120
Distance from first I-beam division to mountingplate	Y	365
Distance scratch line to temp plate drive unit	Z	10,5
Number of supports		40
Number of long supports		20



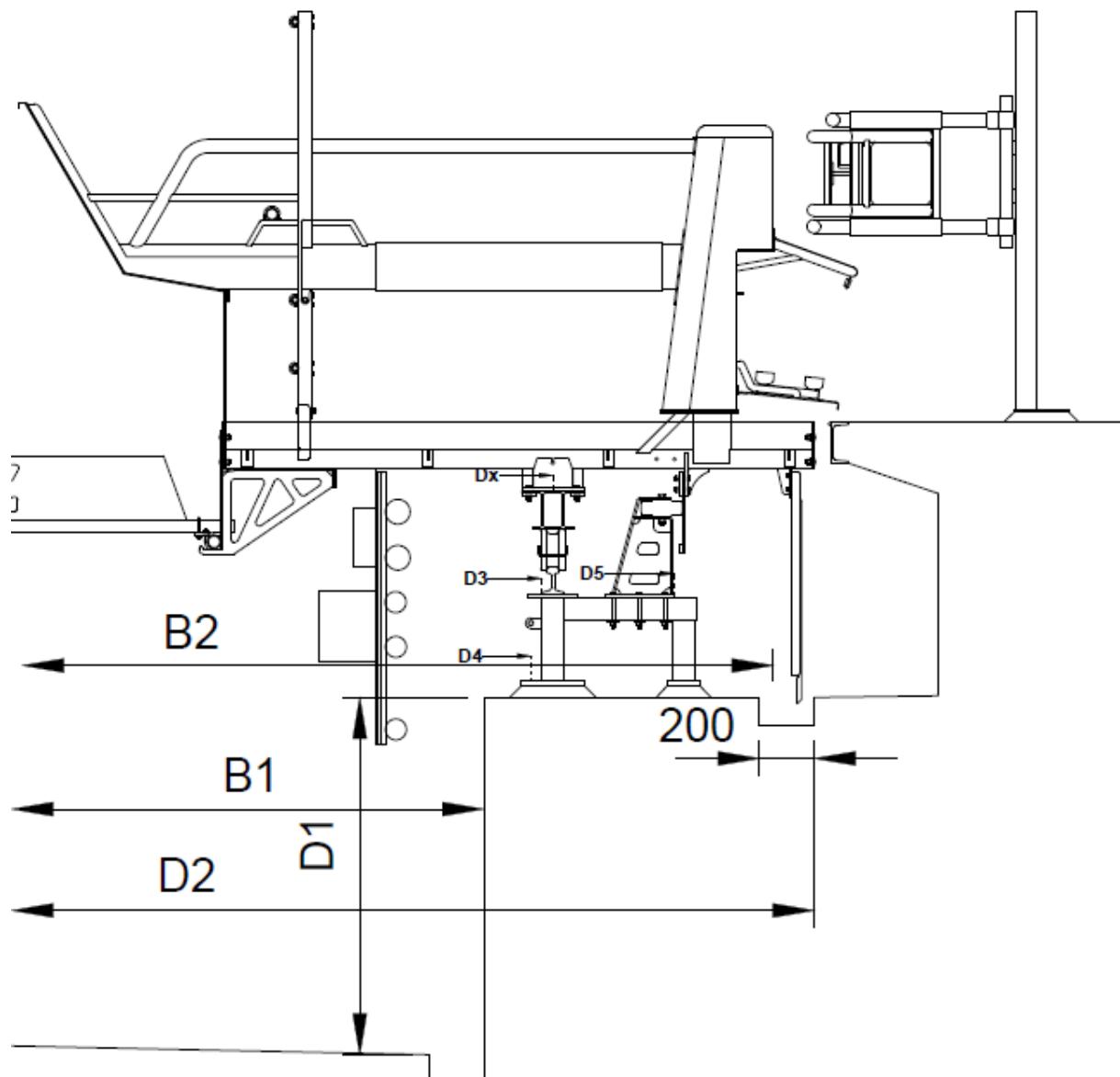
Use this table in the entire document

For the Topline 80

Topline			80
Depth basement	D1	1.300	
Diameter basement	B1	23.064	
Diameter basement (from gutter to gutter)	B2	25.064	
Diameter outer edge rotary	D2	25.464	
Center diameter I-beam	Dx	23.564	
Center radius I-beam	Rx	11.782	
Distance from drive pit to support	B3	150	
Markline rails diameter	D3	23.482	
Markline rails radius	R3	11.741	
Supports diameter	D4	23.385	
Supports Radius	R4	11.692,5	
Distance between supports	A	1.112,7	
Markline center roller diameter	D5	24.436	
Markline center roller radius	R5	12.218	
Markline drive unit diameter	D6	24.514	
Markline drive unit radius	R6	12.257	
Outside pole position	B7	1.050	
Distance between stall divider beams	S	919,2	
Quantity of rollerframes	X-Rol	132	
Distance from first I-beam division to mountingplate	Y	370	
Distance scratch line to temp plate drive unit	Z	9,4	
Number of supports		44	
Number of long supports		22	



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1. ***General information***

I. General

These instructions are meant to help the people who do the installing of a Topline rotary.

The procedures in these instructions should always be performed by a qualified person(licensed, if applicable) and in accordance with applicable codes (state, local and other).

- Welding must be done by a qualified welder
- AC power wiring for voltages over 40V must be done by a qualified (licensed) electrician in compliance with the latest standards.
- All other installation, major maintenance and service work must be done by an authorized dealer
- Safety instructions and stickers must be applied and understood.
- Product/system checkout and troubleshooting need to performed by an authorized dealer
- The owner / operator may perform the operating steps once the product / system checkout has been successfully completed by the dealer or technician. The owner / operator is responsible for properly operation of the product / system, maintained and monitored to ensure it works properly.

These instructions contain no warranties.

II. Safety

You bear the responsibility for the safe installation of the rotary. Make sure that you, and every other person involved in the installation of the rotary, is familiar with all safety information in this installation manual.

- Respect all local standard safety regulations
- Welding of galvanized steel parts may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Use adequate ventilation and protection
- Do not rotate the rotary until the concrete is cured
- Do not rotate the platform when pouring concrete.
- Use only approved lifting equipment rated to handle heavy object.



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III. Table for fastening bolts with a torque wrench.

Dimensions screw	Tightening torque with material quality:		
Thread	6,9	8,8	10,9
M6	8,4 Nm	9,9 Nm	14 Nm
M8	21 Nm	24 Nm	34 Nm
M10	40 Nm	48 Nm	68 Nm
M12	71 Nm	85 Nm	120 Nm
M14	115 Nm	135 Nm	190 Nm
M16	170 Nm	210 Nm	250 Nm
M20	340 Nm	400 Nm	570 Nm
M24	590 Nm	700 Nm	980 Nm

Tabel 1-1 Tolerance

The general tolerance is +/- 1 mm unless otherwise specified.

IV. Safety Symbols

The safety symbols indicate important safety messages on your rotary. Be alert when you see a symbol, there is a chance for personal harm, and follow the safety instruction. The following guidelines apply to the safety symbols:



Note! Indicates a potentially dangerous situation that, in case it is not prevented, can cause minor injury or damage to the rotary or surroundings.



Danger! Indicates a potentially dangerous situation that, in case it is not prevented, can cause serious injury.



Watch out for electrical power! Indicates a potentially dangerous situation that, in case it is not prevented, can cause injury or damage to the rotary or surroundings.



Watch out for rotating parts! Indicates a potentially dangerous situation that, if not prevented, can lead to coming in contact with rotating parts, resulting in injury.



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Entrapment hazard! *Indicates a potentially dangerous situation that, if not prevented, can lead to becoming entrapped, resulting in injury.*



Entrapment hazard! *Indicates a potentially dangerous situation that, if not prevented, can lead to becoming entrapped, resulting in injury.*



Watch your head! *Indicates a potentially dangerous situation that, in case it is not prevented, can cause head injury.*



Hard hat mandatory! *Wearing a hard hat is mandatory for personal protection during operation.*



Safety goggles mandatory! *Wearing safety goggles is mandatory for personal protection during operation.*



Safety shoes mandatory! *Wearing safety shoes is mandatory for personal protection during operation.*

V. Photo control checklist

Follow these steps to make pictures when needed. Send these pictures to the Blom service engineer (service@blombv.nl). This is to make sure the installation goes correct.



BEFORE POURING ANY CONCRETE YOU MUST RECEIVE AN WRITTEN APPROVAL FROM YOUR BLOM SERVICE ENGINEER



1. Make 6 photos to show the support radius on 6 different positions with a tapeline. (Chapter 7)



2. Make 6 photos to show how the rails lay on the markline (chapter 11)



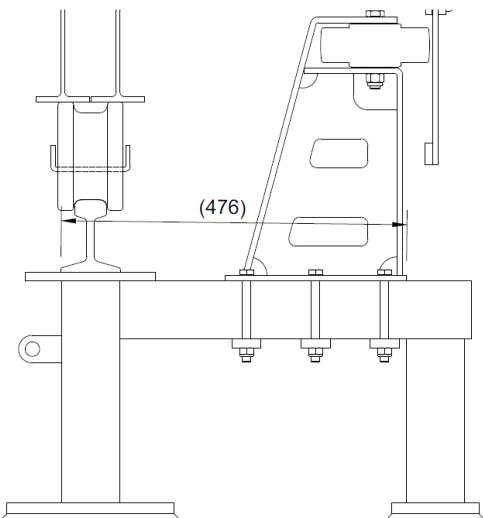
3. Provide 3 photos of the used clamp plates for mounting the align brackets (chapter 12)



4. Make 2 photos per drive unit to show it got installed the right way (chapter 16)



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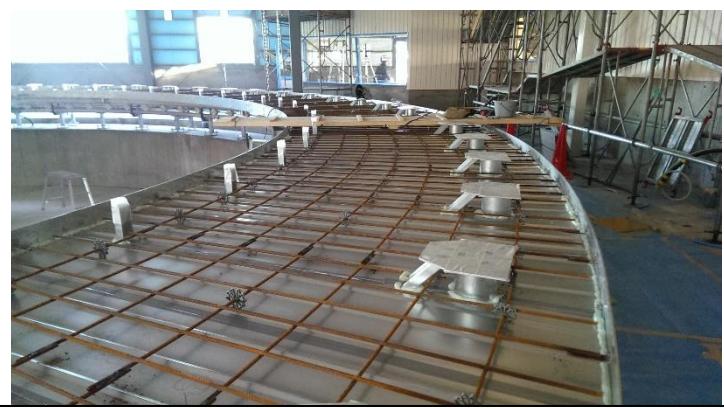
5. Take a picture showing the center rollers are in right position. Do this for 6 different center rollers. (chapter 14)

6. Take 5 pictures of the stall divider beams showing they are in the right place and that they are pointing to the middle. (chapter 17)



7. Show the correct installation of the drive flat and the in & outside ring. Make 5 pictures of each part. (chapter 18)

8. Take 2 pictures of the installation of the bridge. (chapter 26)



9. Take 5 pictures of the correct installation of the drain + the seal ring (chapter 22)

10. Take 5 pictures of the installation of the concrete rebar (chapter 24)

11. Take 5 pictures how the thin plates are sealed (chapter 25)

2. *Tool-list*

Start of installation of the rotary platform depend on the following:

Planning

- Four weeks upfront the desired installation , the dealer will check with Blom if there is a mechanic available in the by dealer requested installation week.
- One week upfront the actual installation week , dealer must send most recent pictures of the on-site situation to verify with Blom if installation is possible or not.

Tools & Material requirements:

- All required labour force need to be present on site and fully available during the duration of the installation.
- Lifting device as described in the tool list with operator needs to be available
- All the by dealer supplied tools must be on site in the right quantity,
- If you need more information regarding dealer supplied work-force or tools required please contact service@blombv.nl.

Building requirements:

- All workmen/contractors (bricklayers, roofworkers, carpenters, electricians, plumbing etc.) should be finished in the area where the rotary equipment has to be installed.
- The building must be closed (wind & water proof) and the installation site tidy and cleaned
- Lights and electrical supply must be established.
- A storage area must be available – dry, firm floor and covered – where the equipment can be placed protected from wind and weather before and during installation.
- There must be on site access to washbasin and toilets for our technicians.

Storage Requirements

- All wooden crates, carton boxes and as such marked must be stored covered, dry and frost free , temperatures of lower than 1 degrees Celsius will affect the supplied kit and epoxy.

- Storing off all other parts under cover will be a benefit for the general quality of the products.

Resource requirements:

- At least one of the technicians on site must speak 1 of the following languages:
English /German / Dutch, or there must be a person provided, on site, during the entire installation for interpreting to one of these 3 languages.
- The same dealer technicians, who start on a project, must be used for the entire installation

The above conditions will assure we can execute an expert, safe and efficient installation. Therefore we require all the above points have been confirmed finished to us before we start the installation.

Any delays on the installation, or waiting times, because of not fulfilling all above points, will be charged.

Tool List For Rotary Installation

For taking dimensions and marking the stalls and supports:

Measure tape with steel band long enough to measure the diameter of the rump poles

Standard measure tape, scratch needle, chalk and permanent marker. Measure tapes must be metric.



For placing supports:

2x heavy impact drill SDS-MAX type with at least 4x high quality concrete drills 18mm, big enough to be able to stand up straight when you are drilling (in the US you can use a $\frac{3}{4}$ " drill)

A recently calibrated laser level device with receiver with an accuracy of 10 arc second (0,05mm/meter).

A normal level of 300mm, power cables, an air compressor with 10 or 15 meter air hose, a blow gun and a professional vacuum cleaner to clean out the drilled holes and prevent concrete dust inhalation.

A dust mask for all co-workers during drilling and cleaning drilled holes is advised.

A pneumatic or battery operated kit dispenser for 300ml cartridges.



To bring in the heavy parts a lifting device with driver has to be present.
Capacity 1000kg.



Example, any other similar device will do.

For putting together the rotary we need the following tools:

A scratch tool

2x heavy impact wrench with impact sockets 17, 19, 21 and 24mm

A normal wrench with sockets 17, 19, 24 and 27mm

A torque wrench which fits the 27mm socket, with a capacity of minimum 250 Nm.

A set of combination spanners: 4x13, 4x17, 4x19 and 4x 24mm.

A set of metric Allen keys.

A small crowbar with thorn approximately 600mm long to align holes of the I-beam and all the plates.

A SDS-plus kombi hammer with drill 14, 16 and 18.

A standard drill with drills 5 until 13 and a 17mm drill.

Masonry rope to align the stall dividers to the centre.

For cutting and polishing the rail track:

A big angle grinder with 230mm cut-off discs.

A small grinder with cut-off, grinding and fibre or flap discs.

A big grinder with fibre discs



INDL.



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For welding the outside rumprail tubing and the concrete rebar material:

A 150 amps welding device with 2½ and 3¼ welding electrodes.



Further just a normal set of hand tools like hammer, screwdrivers, pliers etc.

If you have also the electric installation done, you will need a set of tools for an electrician,

Like small screwdrivers and pliers, a multi meter and amp meter.

A local electrician must be present during the electric installation, he usually has the tools.



Before we can start installation, please confirm that the building is wind and waterproof and that all of the above mentioned tools are present.

3. ***Drilling holes in concrete***

This chapter is for later use.

When everything is in place you can start drilling the holes. Drill as straight as possible using a 18mm drill. Start with the part on its place. Drill a little bit through the holes.

Then remove the part and drill straight , 150 mm deep.

Blow out the holes clean with compressed air, making sure that they are absolutely dust free. Let someone put one nut on the threaded M16x250 rods approximately 50 to 70 mm from the top and place them at the support and drive positions. Now you can start gluing the rods with the chemical mortar. Throw away the first 2 squeezes of mortar which come out of the static mixer because that is not mixed with both components. You can see by the colour difference of the mortar when it is mixed well, it will be darker than the first bit. With normally drilled holes, you will need about 2½ squeezes. Put in the rod directly after putting the mortar in the hole, making one full turn while pushing it in until it stands on the bottom of the hole. A little bit of mortar has to come out, than you know you used enough. After you put in the rod as straight as possible, don't touch it anymore until it is completely hardened, see time and temperature table supplied with the mortar.

If too much mortar came out, you have to clean this a little bit. Because otherwise you will have trouble with adjusting the supports later on.



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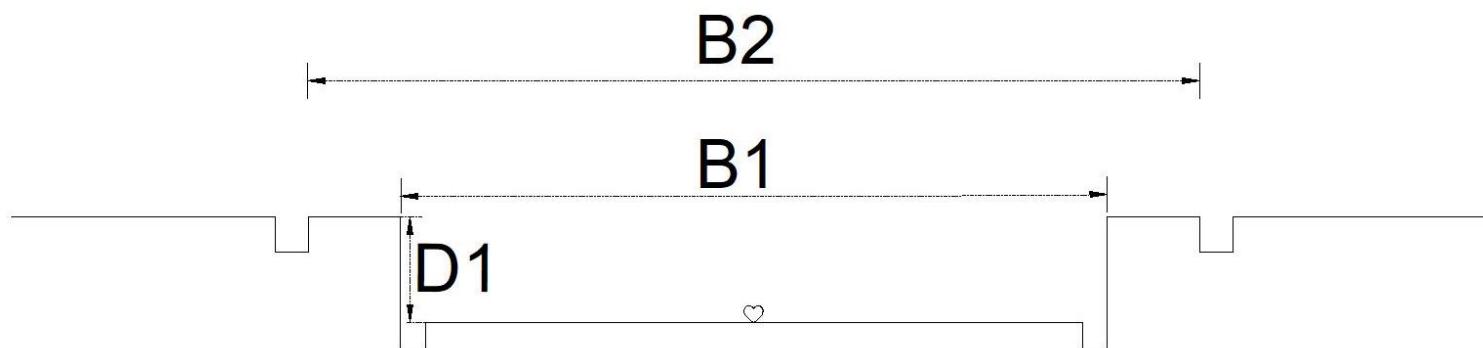


Figure 4-1



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Check 6 times to
get the correct
center!

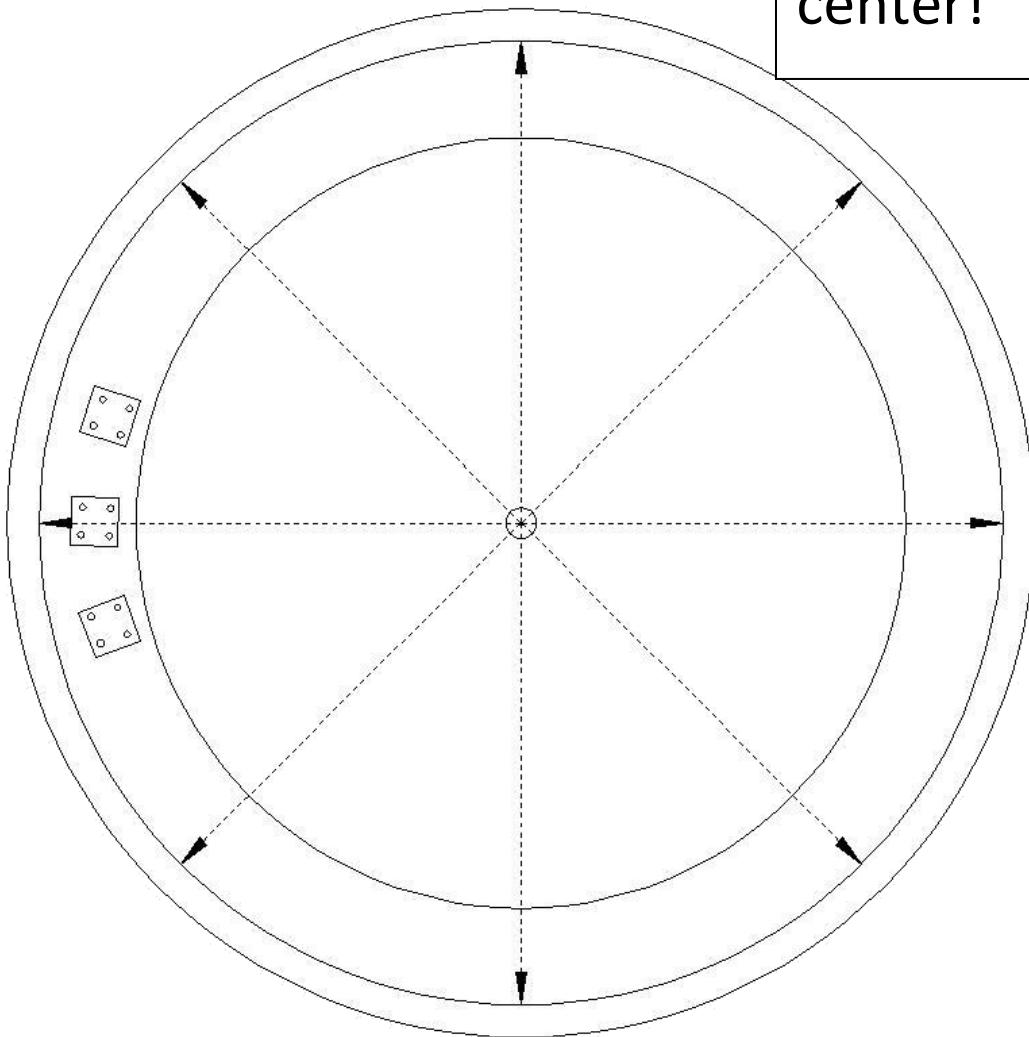


Figure 4-2



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4. First Dimension Check

Check the diameter of the basement

Check the depth of the basement

Measured Dimension	
Depth	Fill in on the AS BUILT form
Diameter	Fill in on the AS BUILT form

Original Dimension	
Depth	D1
Diameter	B1+B2

There are 3 different Wooden crates . Labelled A – B – C.

You start with A. Only when you used everything in this crate you can open B. If B is empty you can open C.

In every crate are different boxes with a label on it. The label corresponds with the part you are installing. So only open a box when needed!

5. Center/ swivel support

Crate : B

Box: **Center table 1,2 & 3**

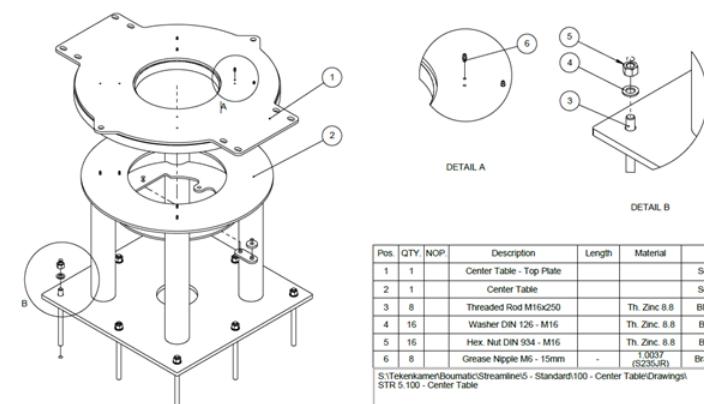
Using: Galv. Threaded rod M16x250

Determine the center of the basement, if there is already a center you still need to check. Check from 6 different positions to get as close to the center as possible. It's important you determine the center from the gutter and not from the pit, as shown in the picture.

Now you can drill as specified earlier in the chapter 'drilling'.

Make sure the top plate is level, check this above the 4 poles, not in between.

Put the height of the swivel support on approximately 36mm from floor to bottom of the plate.



Pos	QTY	NOP	Description	Length	Material	Remarks
1	1		Center Table - Top Plate			See sheet 4 and 5.
2	1		Center Table			See sheet 2 and 3.
3	8		Threaded Rod M16x250		Th. Zinc 8.8	BMBT: 25.316.250
4	16		Washer DIN 126 - M16		Th. Zinc 8.8	BMBT: 28.26.016
5	16		Hex. Nut DIN 934 - M16		Th. Zinc 8.8	BMBT: 28.02.516
6	8		Grease Nipple M6 - 15mm		1.0037 (S235JR)	Brammer: 32031613

S:\Tekenkamer\Boumatic\Streamline5 - Standard\100 - Center Table\Drawings\STR 5.100 - Center Table

Projection:	Project:	Boumatic Streamline	Paper size:	A4	Weight:	147.06 [Kg]
Type:	Center Table	Scale:	1:10	Part no:	STR 5.100	Rev D: -
Signed:	Date:	18-11-2014	Units:	mm		

BLOM The Quality Rotary B.V. Drawing: STR 5.100 - Center Table Revision: -

Tolerance: ± 1mm unless otherwise specified | 1 out of 5



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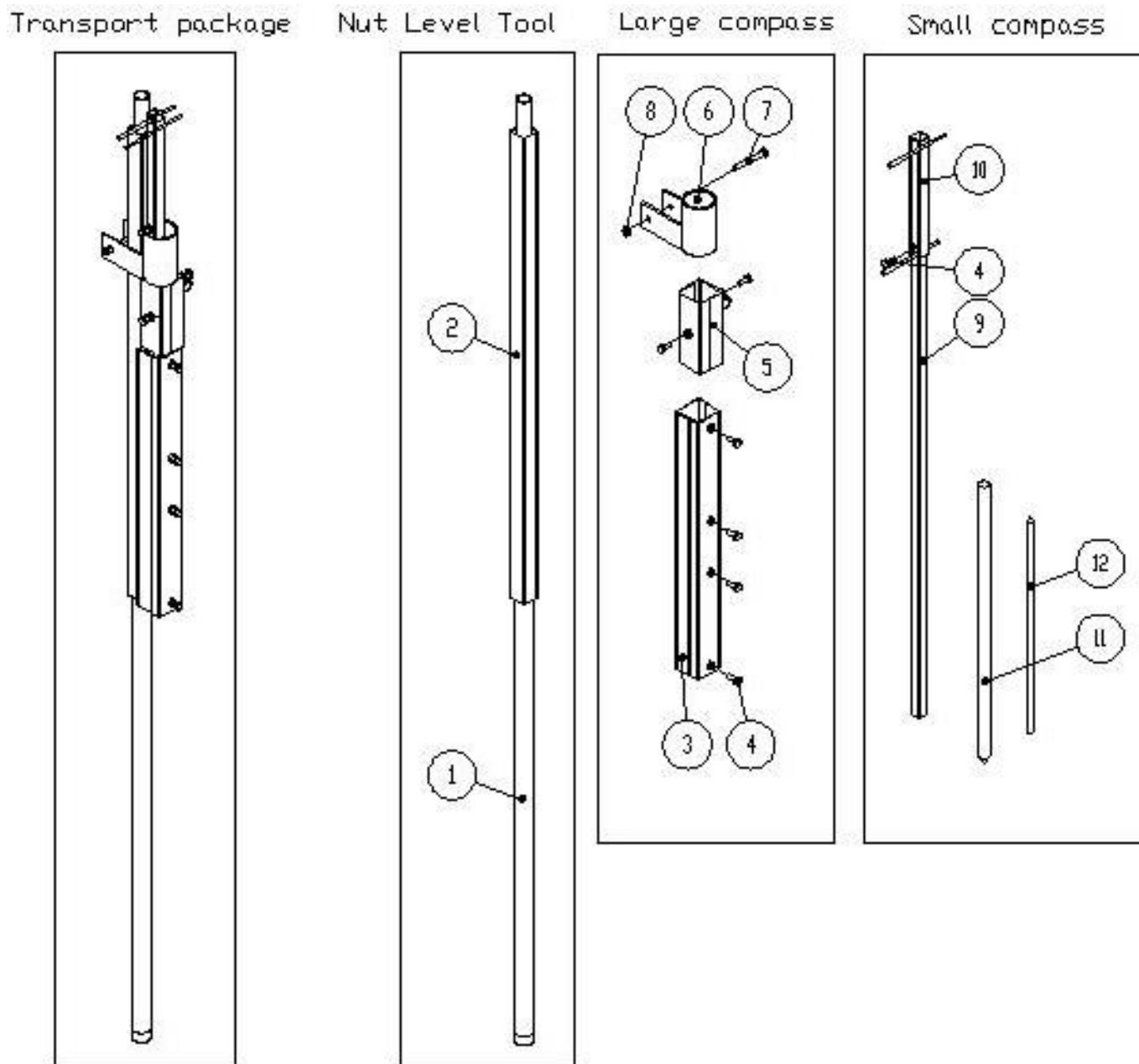


Figure 6-1



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6. Assemble the Scribe tools

The different compasses come in one package, as shown in the picture here. You assemble the large compass by taking number 3 in the drawing and put two square tubes in number 3. The two long square tubes don't come in this package but they are included.

In one end of the square tube you have to drill a hole 8,5 or 9 to later on secure this to center with tool number 6.

On the other tube at the end you put number 5 on it. This has the scratching tool on it. With this you can also change the diameter. Then you need to put the center table tool (Figure 6-3) in place at the center.

Over this pipe you can put number 6 and now you can secure the compass to the center tool and use the large compass.

See figure 6-4 on how to make the scribe tool stronger.

For the small compass you just have number 4, 9 and 10 as one whole and you can change the diameter by adjusting the tubes.

The nut level tool will be used later, when adjusting the supports.



Figure 6-2

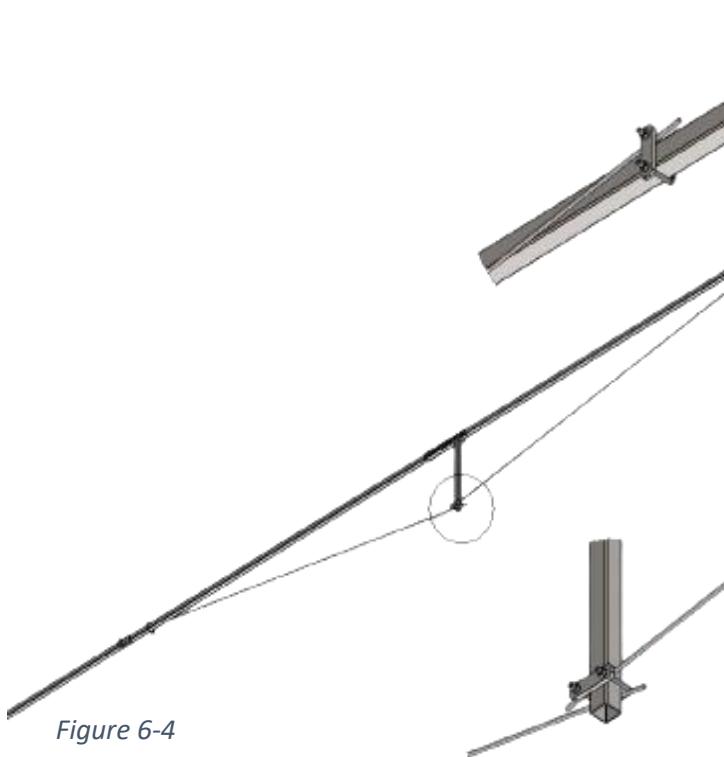


Figure 6-4

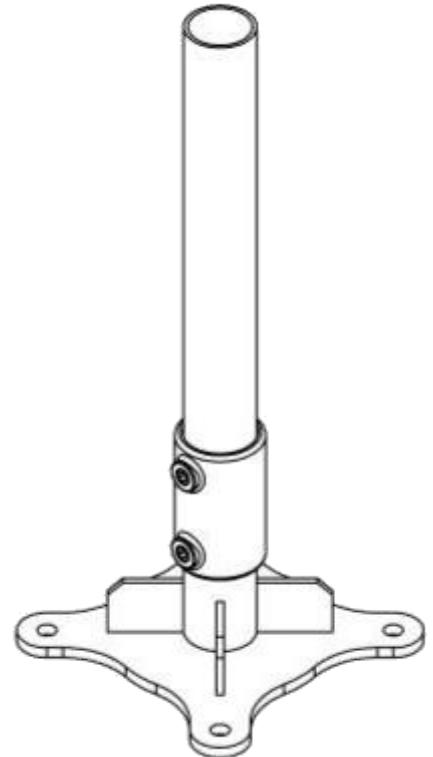


Figure 6-3



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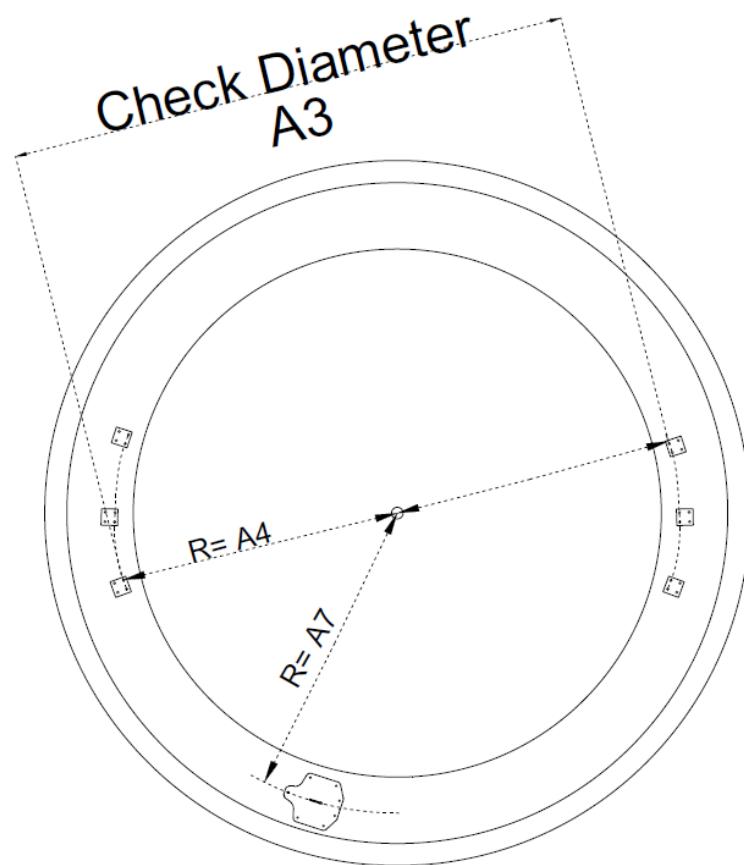


Figure 7-1

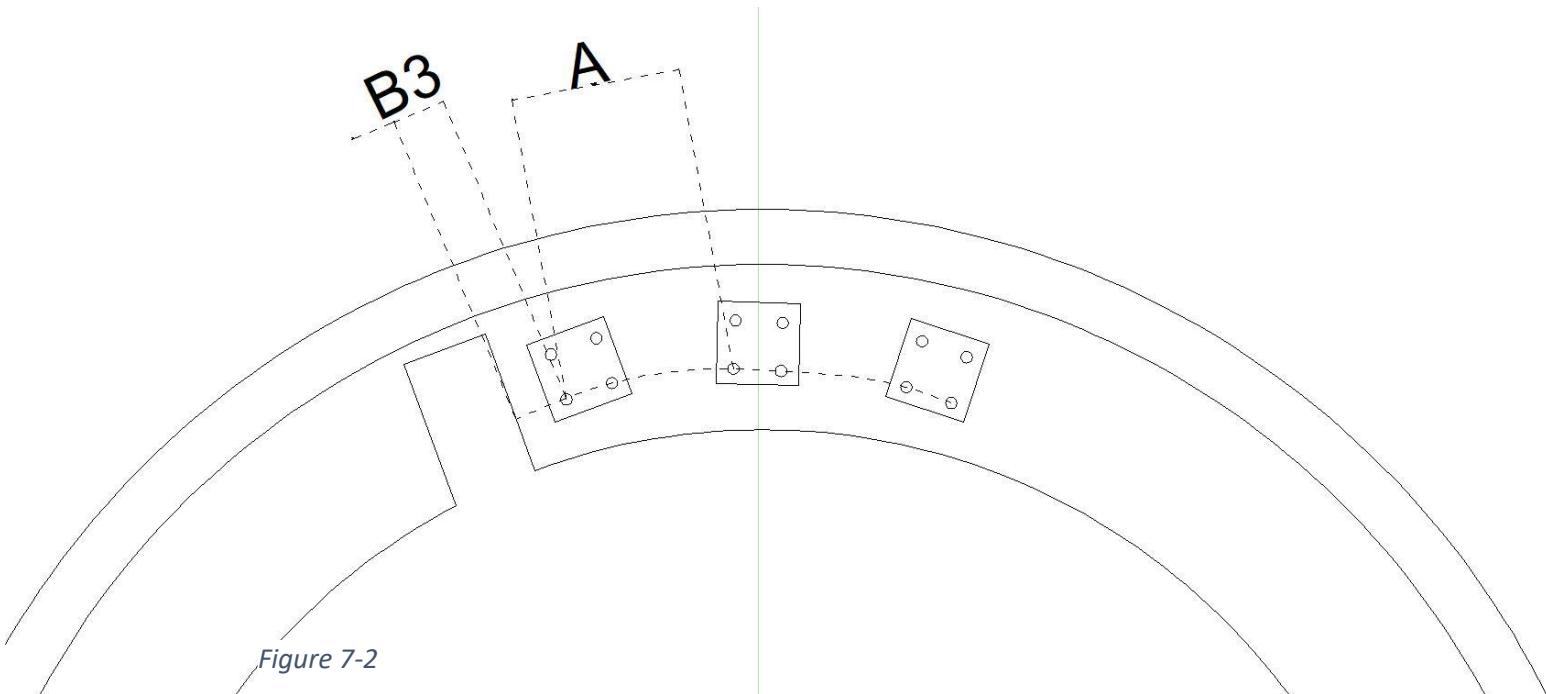


Figure 7-2

7. *Marking the support circle*

First you need to mark the lines of the supports. Set your compass on the right radius. Mark 2 short lines on opposite sides and check the diameter, correct if necessary. Is the diameter for example 10 to big, shorten the compass with 5 mm. If the diameter is correct, Mark the whole circle.

Support Diameter	D4 mm
Support Radius	R4 mm

Now you can mark the line for the drive units. Do the same as you did with the supports. Only this time you don't need to mark all the way around. Only at the place where the drive units will come.

Drive unit diameter	D6 mm
Drive unit radius	R6 mm

Then with the smaller compass you need to set the mark for the exact position of the supports. The distance between the supports is A mm. Start somewhere where you won't interfere with your drive unit or your drive unit hole. This means you place a support next to the pit on the distance specified in the table as B3.

GENERAL TOLERANCE ON DIAMETER IS +/- 1 mm

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.



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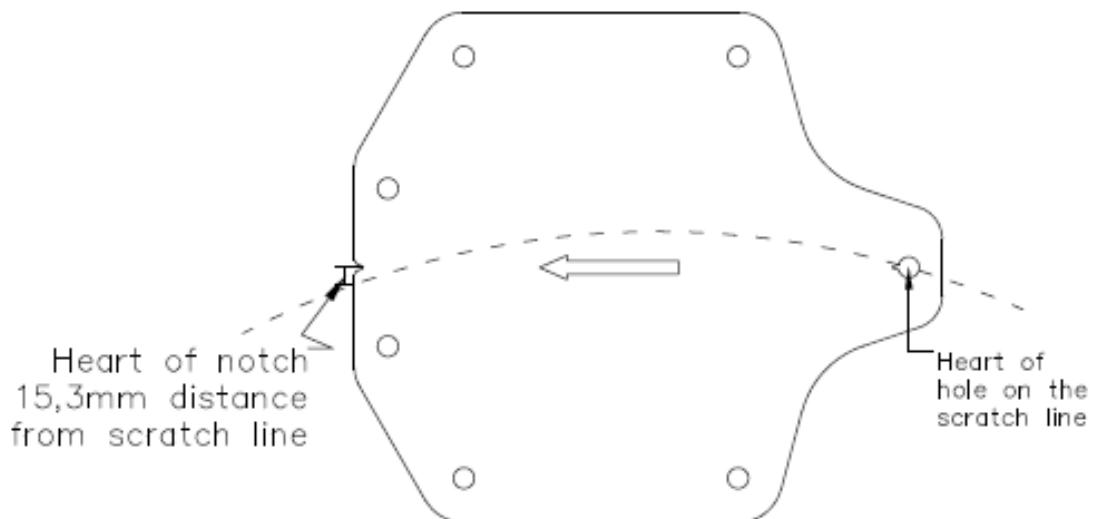


Figure 8-1

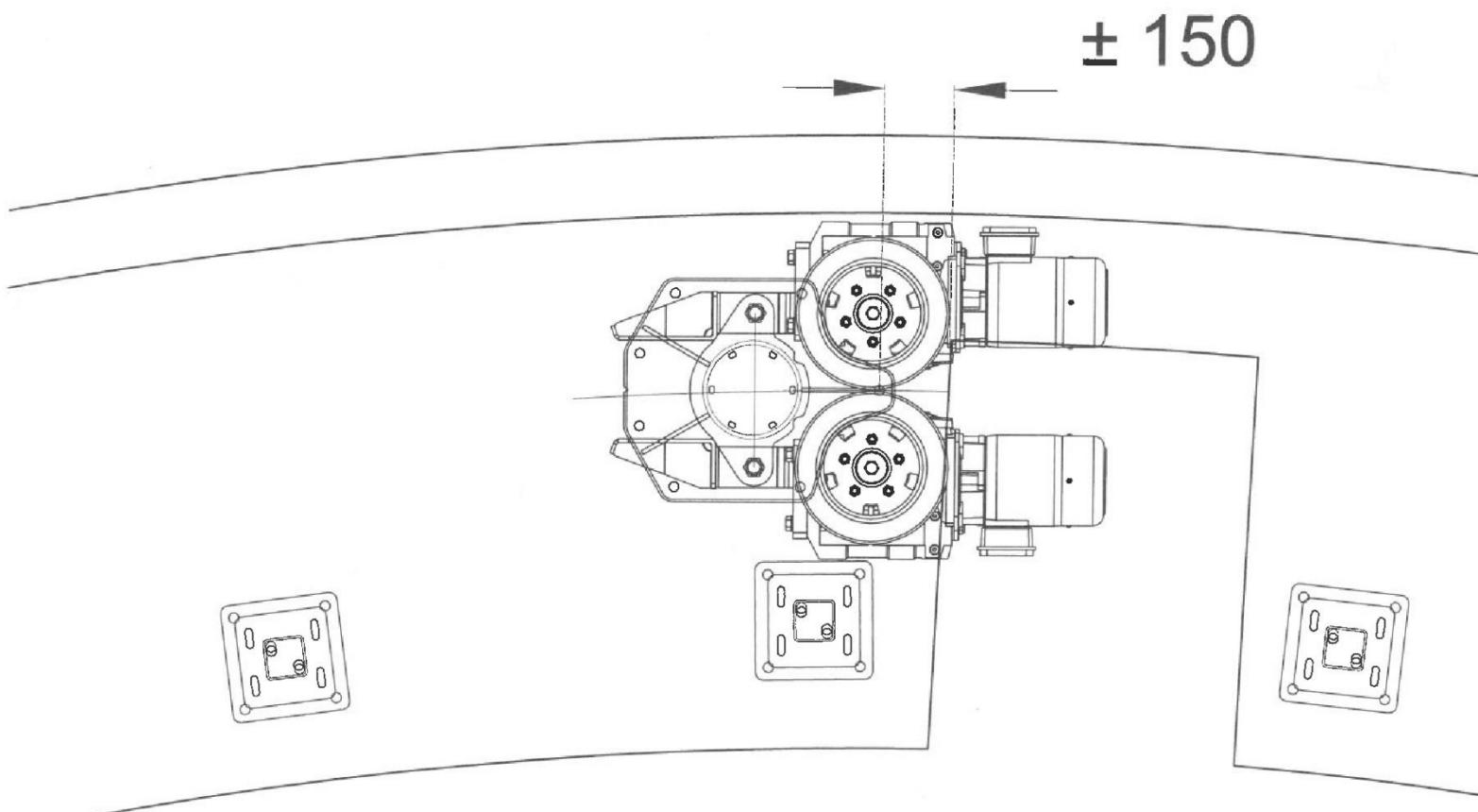


Figure 8-2



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8. *Installing drilling temp-plate drive unit*

Crate : A Box: Drive unit 1, 2 & 3

Using: Galv. Threaded rod M16x250

Galv. Nut M16

Put the plate in position as seen in figure 8-1. The arrow must point in the direction in which the rotary is going to turn. When in position drill the holes through the plates. Drill as specified earlier in the chapter 'drilling'. Drill the holes 120mm deep into the floor.

Make sure the heart of the hole to the edge of the drive unit service hole is 150 mm

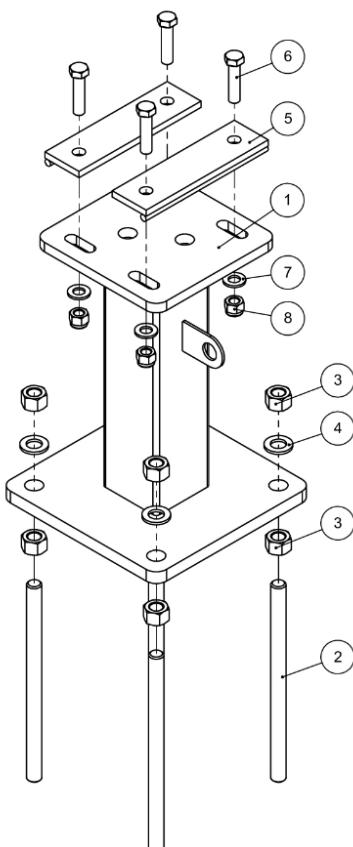
Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.



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Figure 9-1



Pos.	QTY.	NOP.	Description	Length	Material	Remarks
1	1		Standard Support			
2	4		Threaded Rod M16x250			
3	8		Hex. Nut DIN 934 - M16			
4	4		Washer DIN 125 - M16			
5	2		Clamp Plate 180x50x8mm			
6	4		Hex. Bolt DIN 933 - M12x50			
7	4		Washer DIN 125 - M12			
8	4		Locking Nut DIN 985 - M12			

S:\Tekenkamer\The Quality Rotary\1 - Chassis\100 - Support\110 - Standard Support\Drawings\TQR 1.110 - Standard Support (E)

Projection: Project: Blom External Papersize: A4 Weigh: 14.49 [Kg]
Type: Standard Support Scale: 1:5 Part no: TQR 1.110
Signed: Dolf Date: 6-11-2014 Units: mm Rev.D.: -

BLOM
The Quality Rotary B.V. Drawing: TQR 1.110 - Standard Support (E) Revision:
Tolerance: ± 1mm unless otherwise specified 1 out of 1 -

Figure 9-2



BLOM

9. *Supports*

Crate: A

Box: Support 1, 2 & 3

*Using: Galv.Threaded rod M16*250*

Galvanized nut M16

Place the supports on the marks you've just made. There are normal supports and long supports which are for the center rollers. After every **2 normal supports** you get **1 long support**. Place the supports with part 4 facing towards the center.

When everything is in place you can start drilling the holes. See chapter 'drilling'. Holes should be drilled 120mm in the floor.

When drilling, lean on the support to prevent movement of the support.

When the mortar is drying, you can put the supports back on the rods. This way you make sure the support will always fit on the rods

Don't touch until the mortar is completely dry!

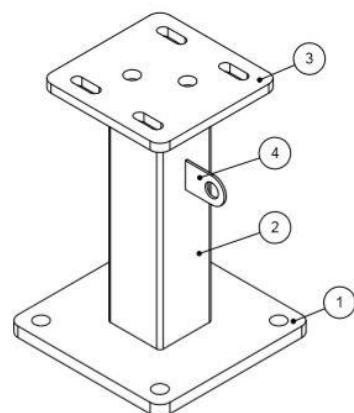


Figure 9-3

**If the long support ends up
on a drive position see
attachment 1 on how to
solve this.**



BLOM

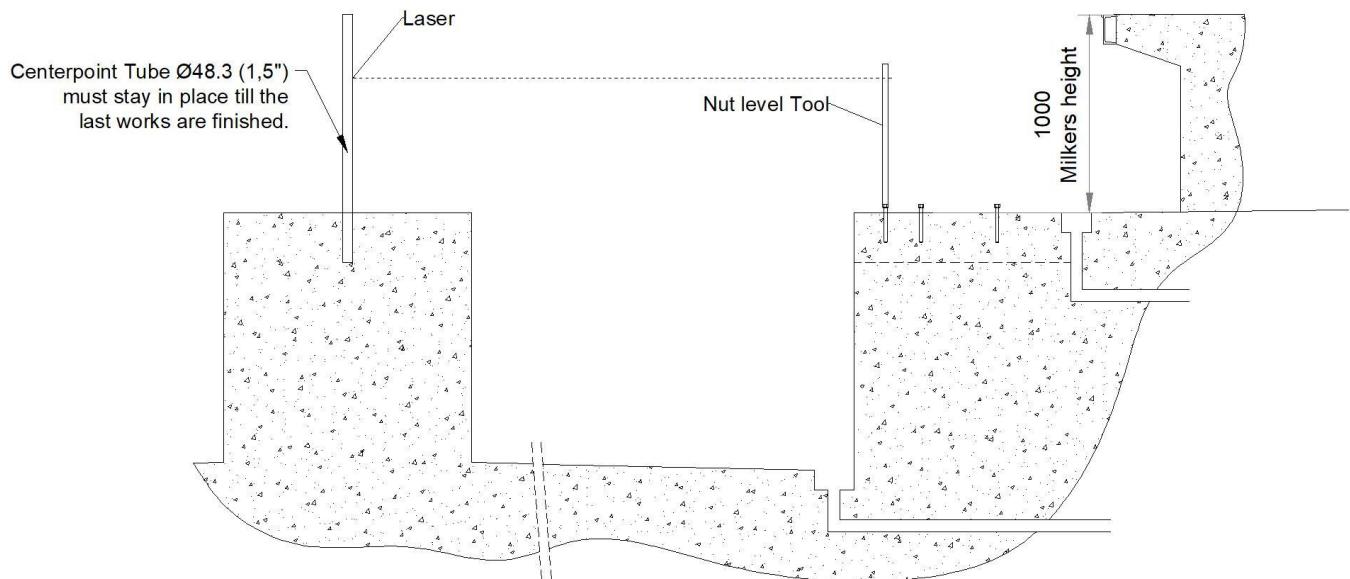


Figure 10-1

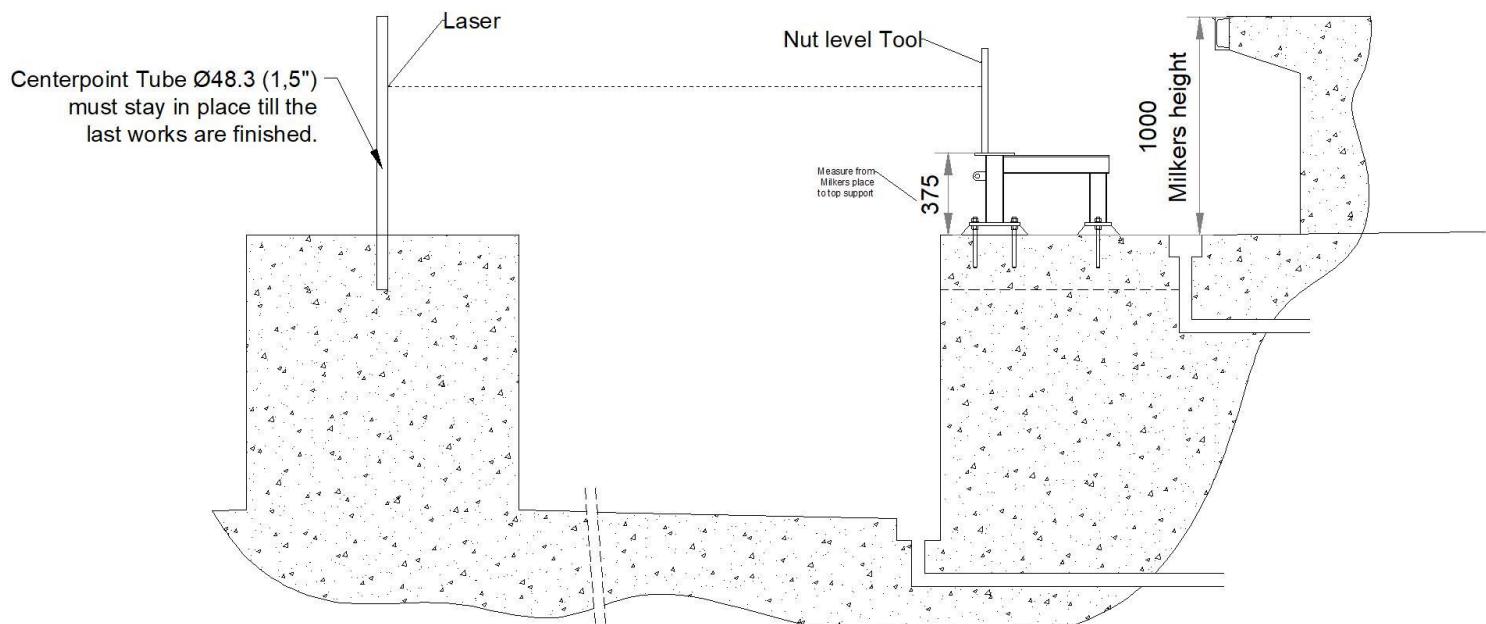


Figure 10-2

10. Adjusting supports

Crate: A

Box: Support 1, 2 & 3

Using: Galvanized washer

Galvanized nut M16

As first you take the nut level tool. You set up the laser-receiver on this tool. With this tool we will adjust the nuts until they are all the right height-level, the height is: 375 mm from the top of the support to the concrete floor of the milkers place. So check first support on the place where the milker will stand. Once you got the right height, you set the laser on this height and will lower or lift-up every nut by turning. Before doing all the supports. Check if support is level with your spirit level (see figure 10-3 & 10-4). After this you can put the supports on their position. Check all the supports with the laser. Put your nut level tool on the first support you did and adjust the laser receiver. Now check every support with the laser and check if every support is level. If not, you need to adjust the support height.

If everything is correct you can secure all supports. If there is a torque wrench available. Set it at 210 NM.

After this has been done, check the support once by placing the laser on top of the support and in the middle. If it's not correct you need to adjust.

GENERAL TOLERANCE ON HEIGHTLEVEL IS +/- 0,5 mm



Figure 10-3



Figure 10-4



BLOM

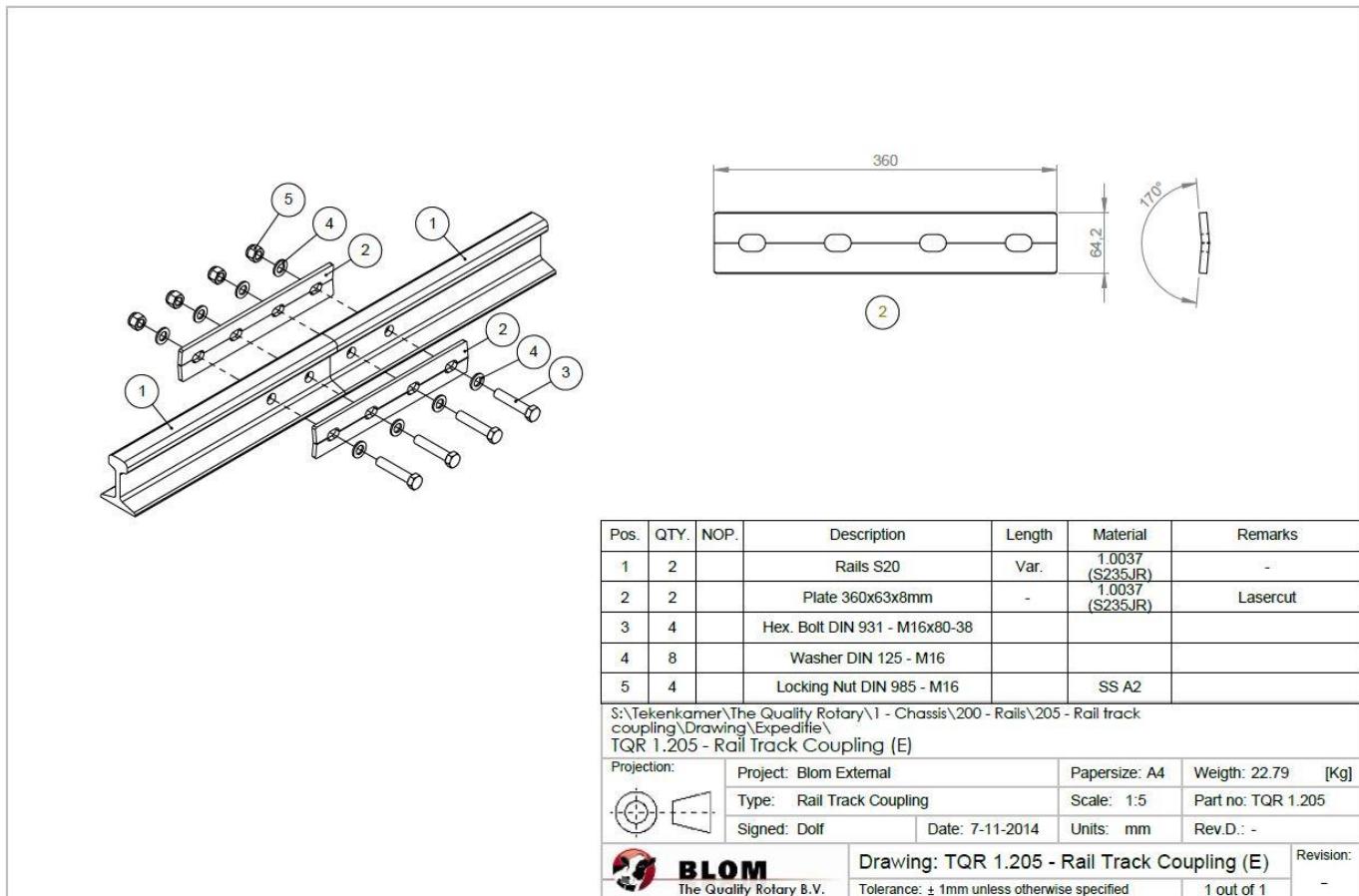


Figure 11-1

7



Figure 11-2

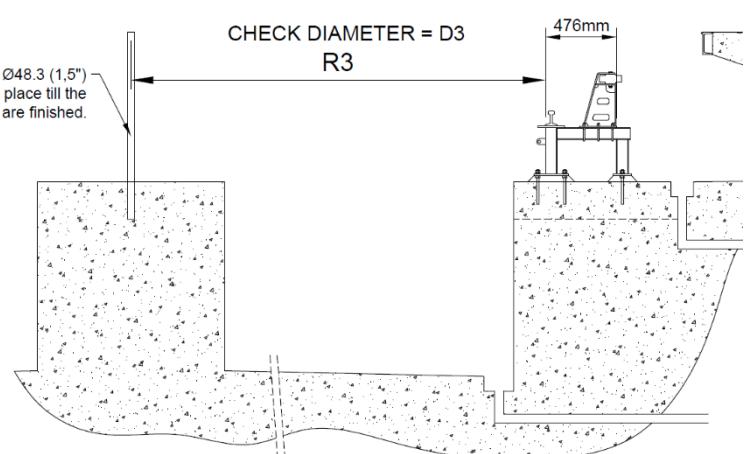


Figure 11-3



11. Rails

Rail coupling:

Crate: A Box: Rail 1 2 & 3

Using: Galvanized bolt M16x80-38

Galvanized washer M16

Stainless steel locking nut M16

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.

Secure rails on supports:

Crate: A Box: Support 4,5 & 6

Using: Galvanized bolt M12x50

Galvanized washer M12

Stainless steel locking nut M12

To make sure everything is correct. Measure on 6 different places ON the rails with the laser and fill this in in the AS BUILT form.

GENERAL TOLERANCE ON DIAMETER IS +/- 1 mm

Now you can mark the lines for the rails with the use of the large compass. Place the compass with scribe on a support. The diameter of the mark line is **D3** mm. So set up the compass, mark two narrow lines on two opposite supports and check the diameter. Correct when necessary, if the diameter is 10mm off, correct with 5mm.

When it is impossible to measure on opposite sites because of an uneven number of supports, place something on the supports so you can scratch on that and measure on opposite sites. This is very important. If correct mark the full circle and take care there will be not much weight on the scratch nail. If you have done this make sure to make a center punch on the top of a support where a mark line is. So you can always find it back easily. Now mark the lines for the center roller, set your large compass on a radius of 476 mm from the rail line and put a mark on every long support. (see figure 11-4) So the dimension from middle point to center roller is R3+476mm

Place the rails with the inside radius exact on the mark line. First secure the rails with the outer clamp plates and check the mark line on the supports, this line must be visible. If this is correct mount the inside clamp plates.

Connect the rails with connecting plates (hollow side of the plate must face the rail). Use M16x80 and use on both sides a washer.

When you get to the last rail, it will be a shorter one, but with overlength. You have to cut it in the correct length. After you made it fit you need to drill the holes 17 mm in the rails and use the connecting plate as a template.

Check if rail connection spots are smooth to prevent wear and damaging on the rollers.

When needed grind/sand these spots and cover with zinc spray.



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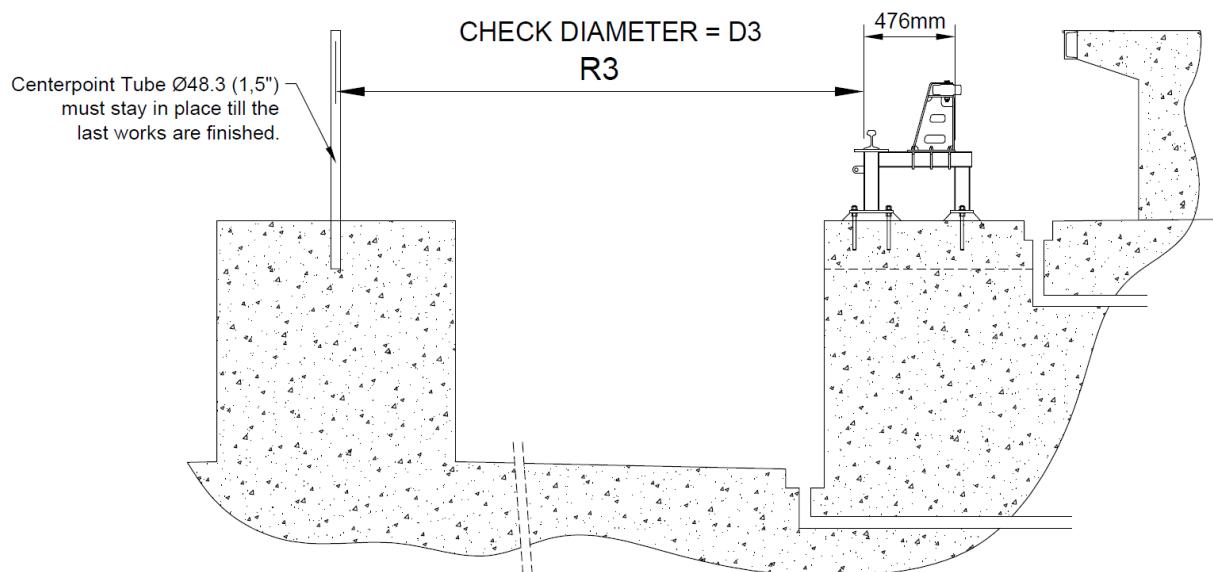


Figure 11-4

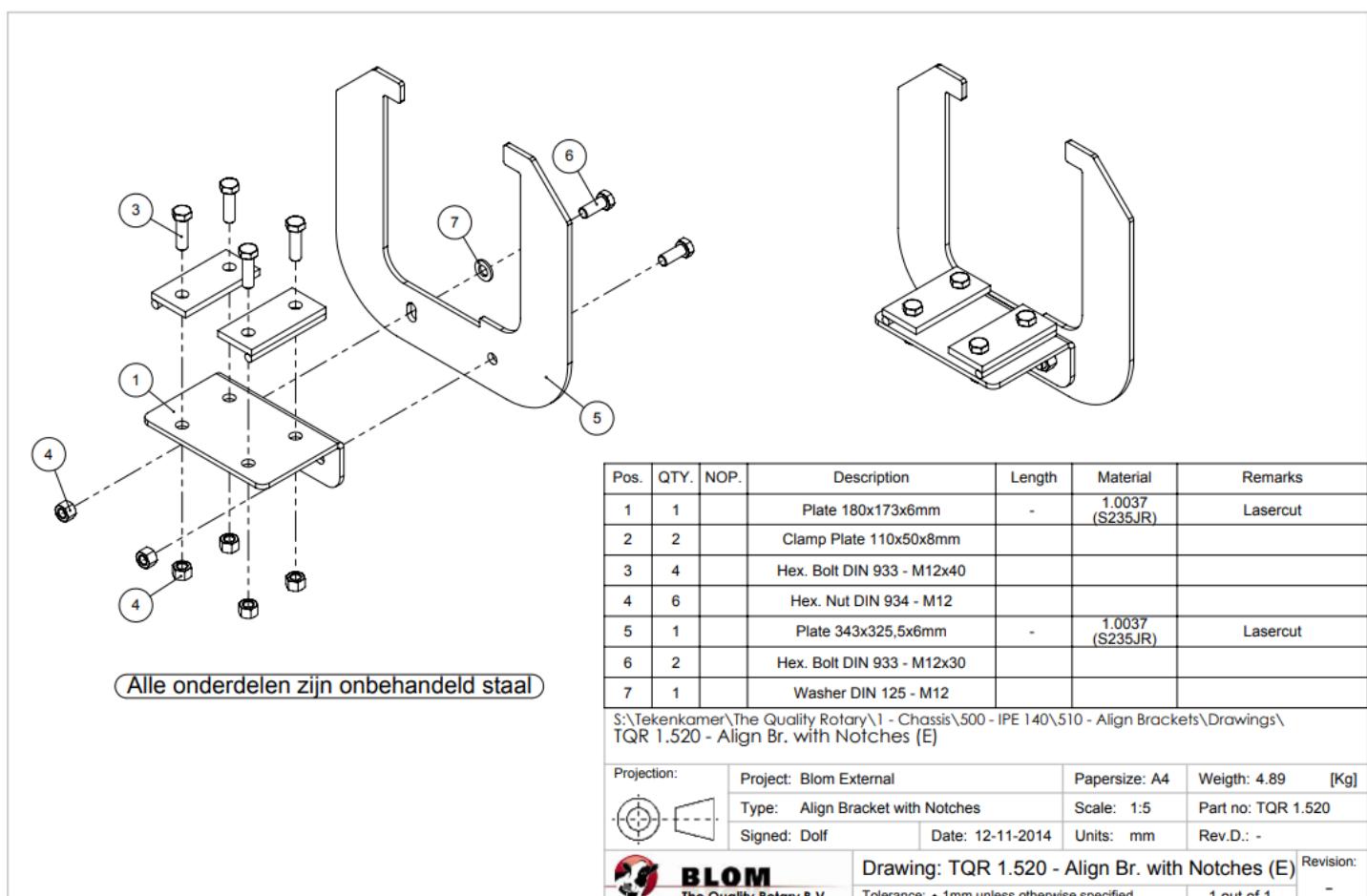


Figure 12-1

12. Mount align brackets

Crate: A

Box: Align Bracket 1,2,3 & 4

Using: Galvanized bolt M12x40

Galvanized Bolt M12x30

Galvanized nut M12

Galvanized washer M12

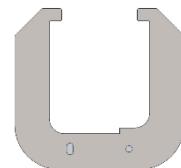


Figure 12-2

Mount the align Brackets by assembling the bended plate on the bracket. Then place the bracket every two supports with two clamb plates. Make sure the notch on the bottom is in contact with the rails. Place the align bracket on approximately 100 mm from a support. Use a rope to make sure the brackets are in line with the center. Also make sure the bracket is level from the side.

On figure 15.1 you can see some align brackets.

DO NOT REMOVE UNTIL CONCRETE HAS BEEN POURED

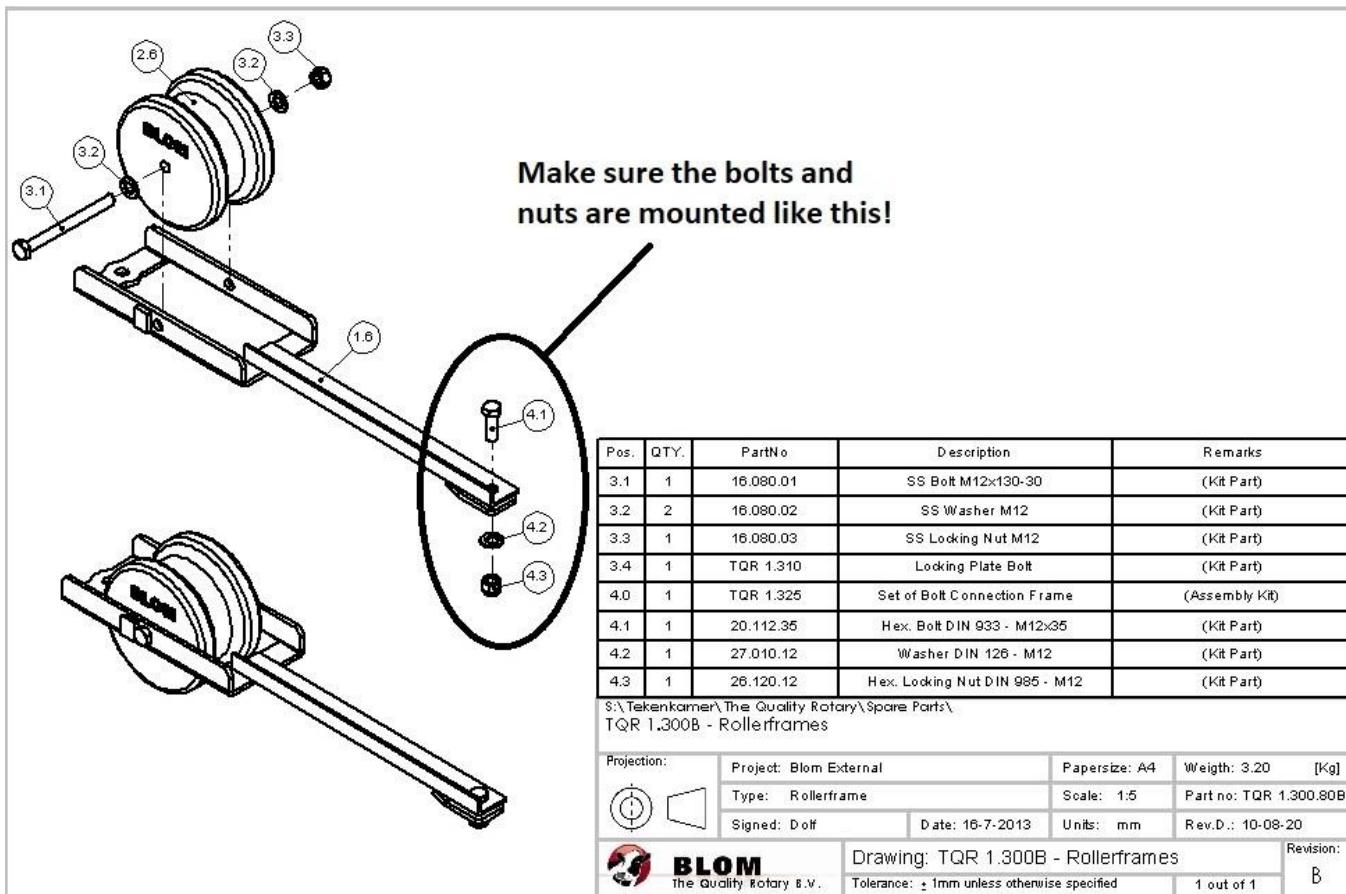
**BLOM**

Figure 13-1

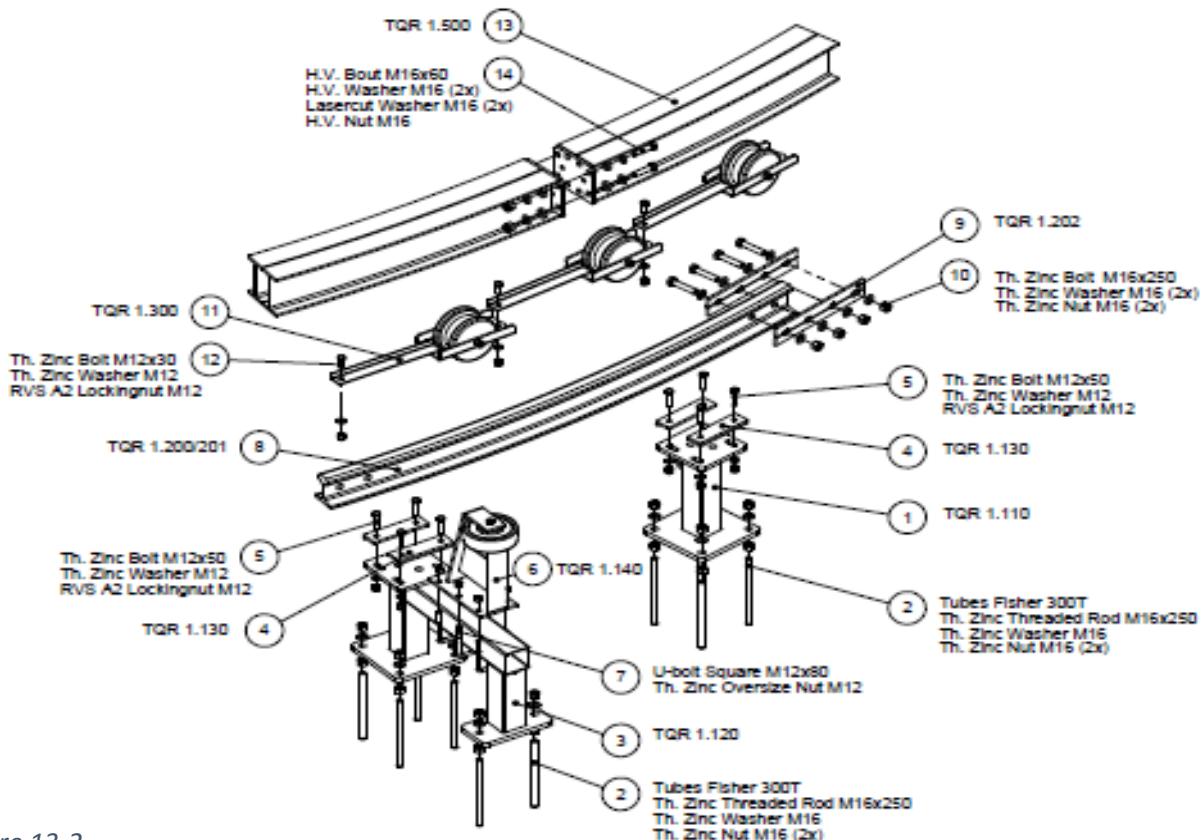


Figure 13-2



BLOM

13. Rollers

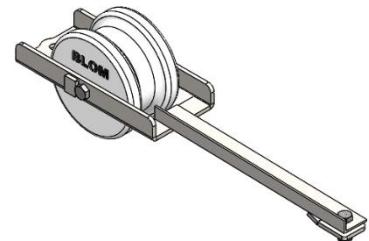
Crate: A

Box: Rollerframe 1,2 & 3

Using: Galvanized bolt M12x35

Galvanized washer M12

Stainless steel locking nut M12



Assemble the roller frames in groups of 6, tighten the bolts and then loosen the bolt with a quarter turn.

Figure 13-3

Place them per 6 careful on the rails and connect the others too.

Quantity of roller frames to assemble is X-Roll

MAKE SURE THE STICKERS ON THE WHEELS ARE FACING THE CENTER.

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.

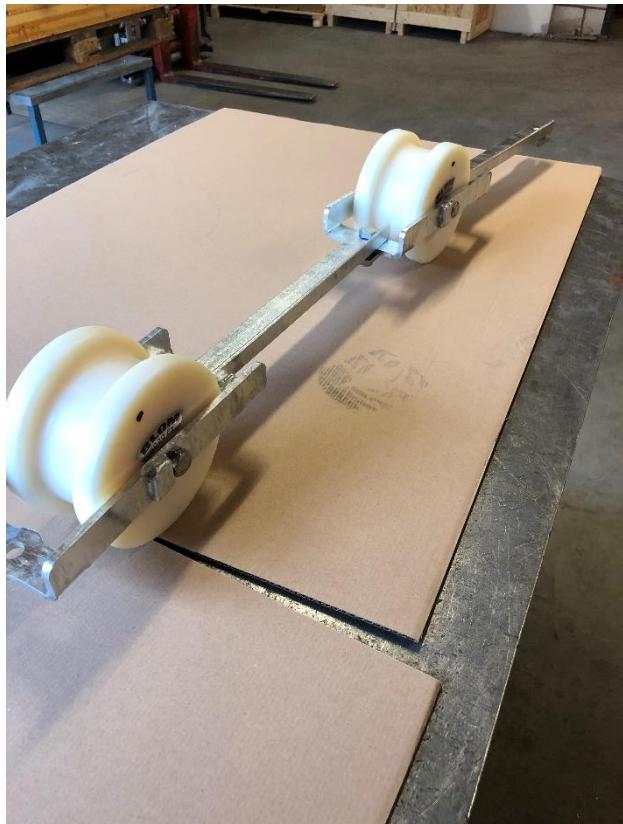


Figure 13-3



Figure 13-4



BLOM

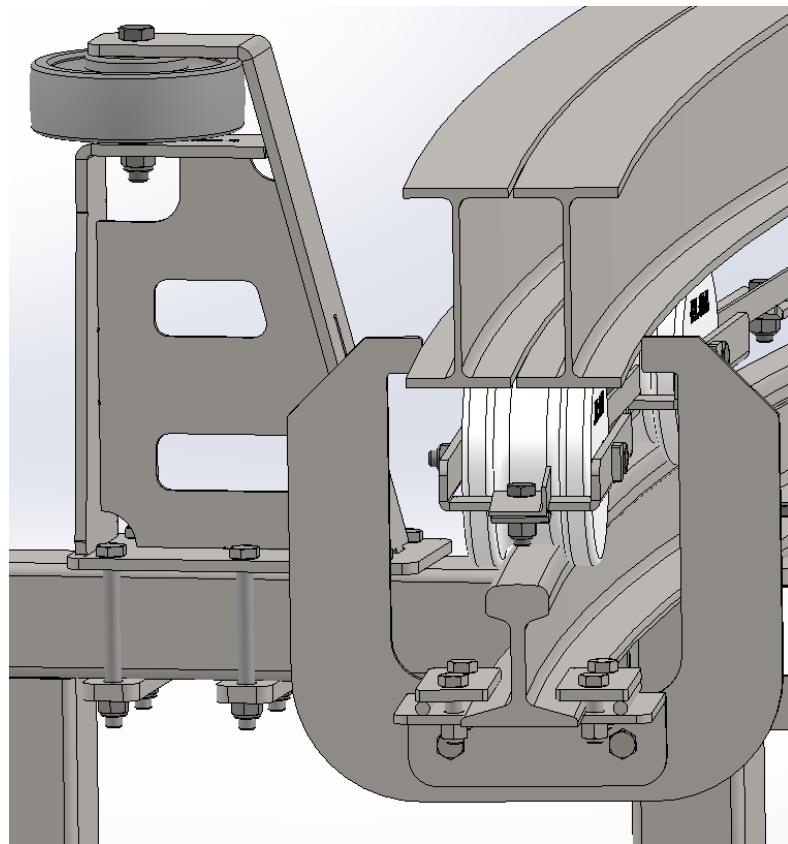


Figure 14-1

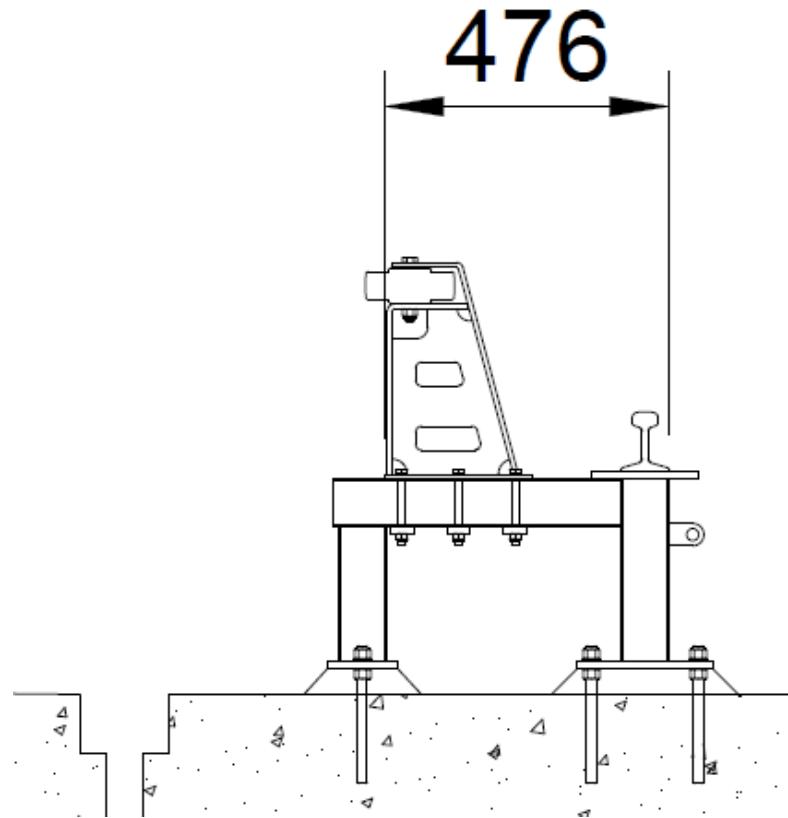


Figure 14-2

14. Center Roller

Crate: A

Box: Support 7 & 8

Using: Galvanized U-Bolt 82x120 M12

Galvanized oversized nut M12

Place the center roller on the markings you made in chapter 11. The marking should be visible when you got the plate on it. The wheels should be facing towards the outside of the rotary. Tighten the bolts.

Use three Clamp plates per center roller. Use the holes as specified in Figure 14-3

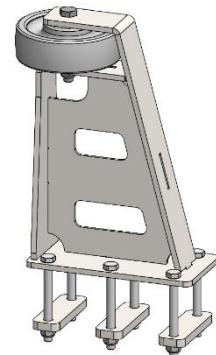


Figure 14-3

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.



Figure 15-1

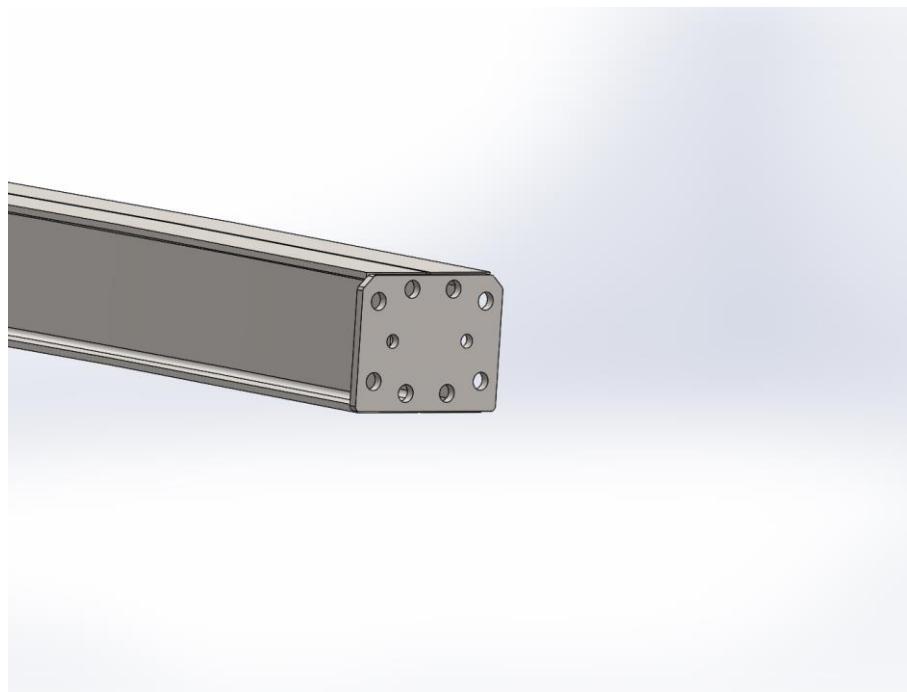


Figure 15-2

15. I Beams

Crate: A Box: Double I-Beam 1,2,3 &4

Using: HV Bolt M16x60

HV Washer M16

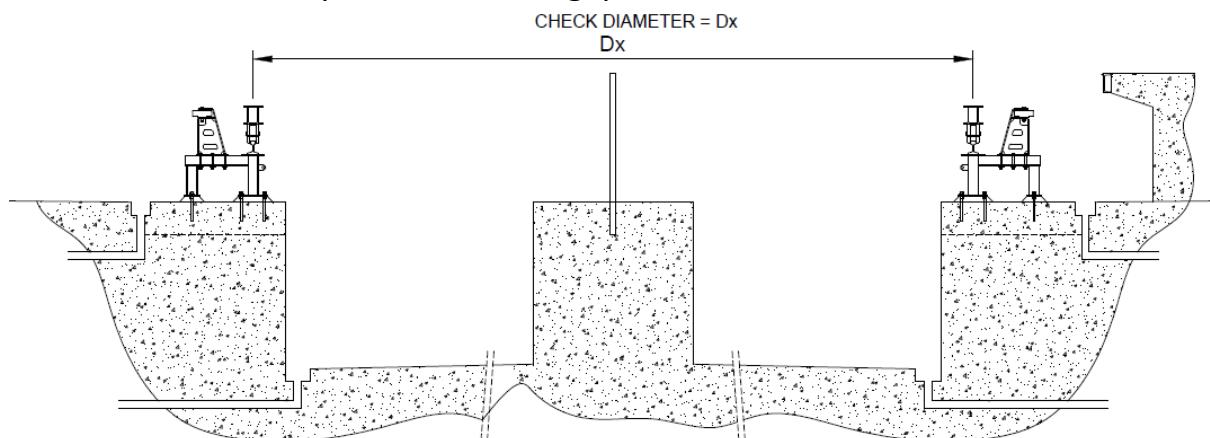
V Nut M16

Loctite 2701

Now place the double I Beam on the rollers. Make sure the I Beam is placed correctly, with the chamfers on the connection plate on the top and so that the number of stalls is readable. Connect the beams by tightening the two bolts on the top. Tight them slightly so you can move the beam a little. Make sure the beams are connected smooth on the bottom by using the thorn on the crow bar and wig a little. **Make sure the bottom is 100% smooth and in line.** If there is a crack bigger then 10mm between the I Beams. Push the I beam to the inside all around. Otherwise the I Beam will form as an egg.

GENERAL TOLERANCE ON DIAMETER IS +/- 1 mm

Now you can check the diameter off the double I-Beam with the use of a measure tape. Maesure the Dx diameter of the joints of the I-Beams. Check of the center of the I-beam is positioned on the Dx diameter. If necessary move the I-beam to the DX diameter. If the movement cause a gap between two I-Beams use the shim plates to fill the gap.



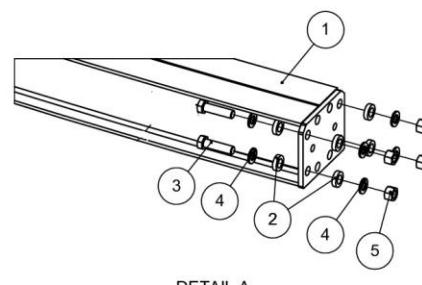
Make bolts grease proof and put Loctite on it. Then fasten the bolts. Now fasten the bolts with a torque wrench at 250 Nm.

Figure 15-3

**BLOM**

Important: It is not allowed to turn the parts over the roller at any time until the drive ring and center spokes are mounted.

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.



DETAIL A

Pos.	QTY.	NOP.	Description	Length	Material	Remarks
1	1		Double I-beam			
2	8		Thick Washer Ø 30x8mm	(M16)	1.0037 (S235JR)	Lasercut
3	4		HV Bolt M16x60		Fabory	04210.160.060
4	8		HV Washer M16		Fabory	04237.160.001
5	4		HV Nut M16		Fabory	04225.160.001

S:\Tekenkamer\The Quality Rotary\1 - Chassis\500 - IPE 140\Expeditie\TQR 1.500 - Double I-beam (E)

Projection:	Project: Blom External	Papersize: A4	Weight: 148.92 [Kg]
	Type: Double I-Beam	Scale: 1:25	Part no: TQR 1.500
Signed: Dolf	Date: 12-11-2014	Units: mm	Rev.D.: -
BLOM The Quality Rotary B.V.	Drawing: TQR 1.500 - Double I-beam (E)	Tolerance: ± 1mm unless otherwise specified	1 out of 1
			Revision: -

Figure 15-4

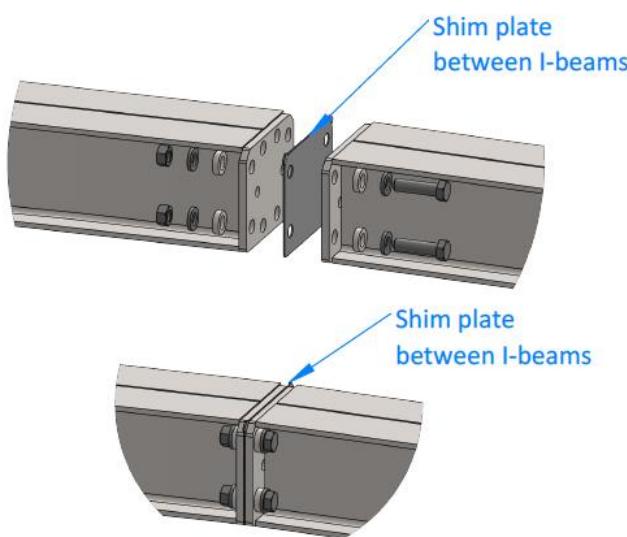


Figure 15-5



BLOM



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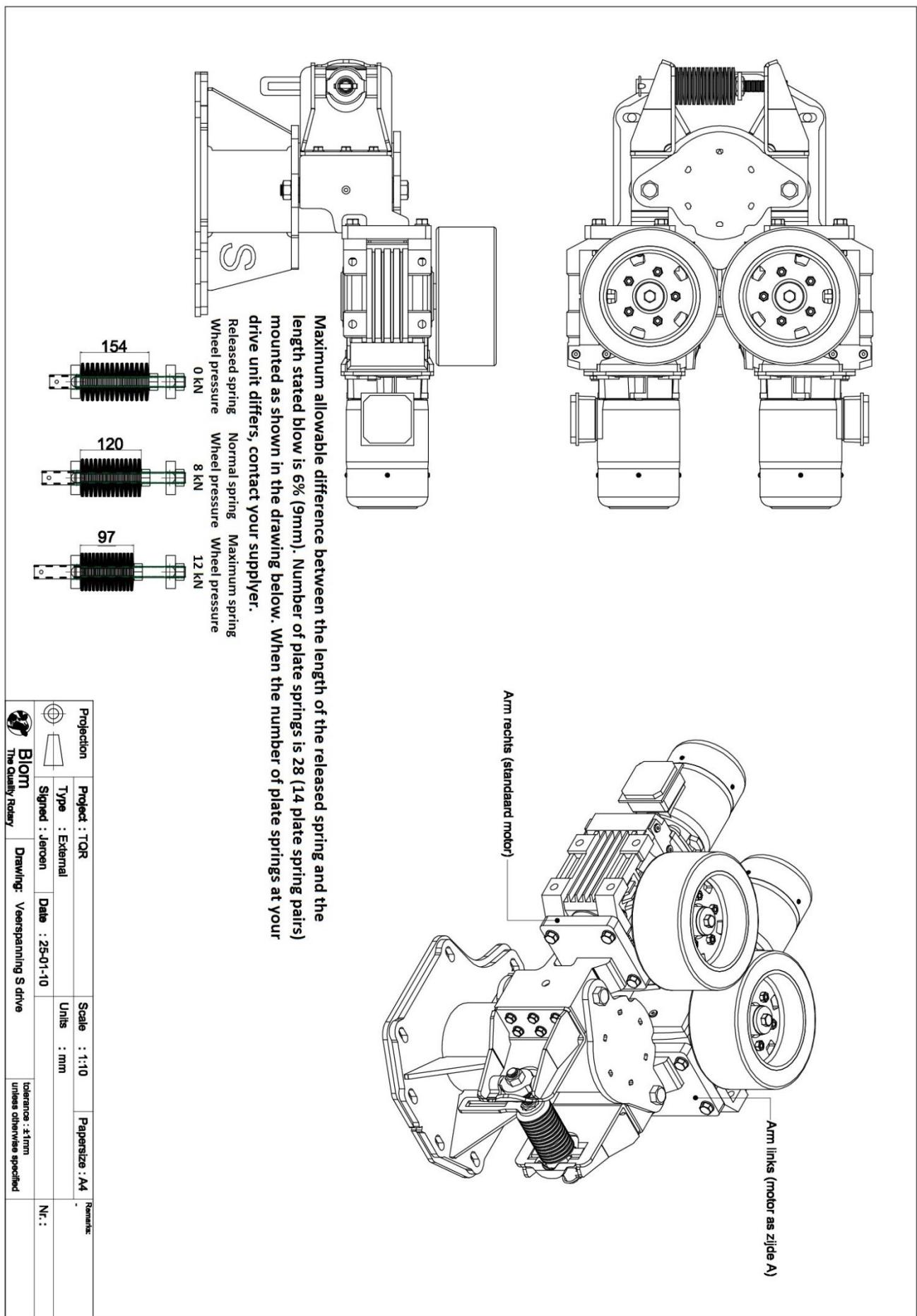


Figure 16-1

16. *Installing drive Unit- frames*

Crate: A

Box: Drive unit 1,2 & 3

Using: Galvanized washer M16

Galvanized nut M16

Earlier you drilled the plates for the drive unit. Now you can put it on the right height, as earlier descript. The bottom of the drilling plate must be 10 mm higher than the bottom of the support. Set the right height with the nuts. Place the drive unit frame check the levels in all direction and tight the nuts as specified. The v on the plates must be in line.

If done this you can place the other plate on the second drive unit location and repeat above.

The drive unit will be as shown in figure 16-2.

For the right spring tension see figure 16-1.

General tolerance on height level is +/- 0,5 MM!

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.

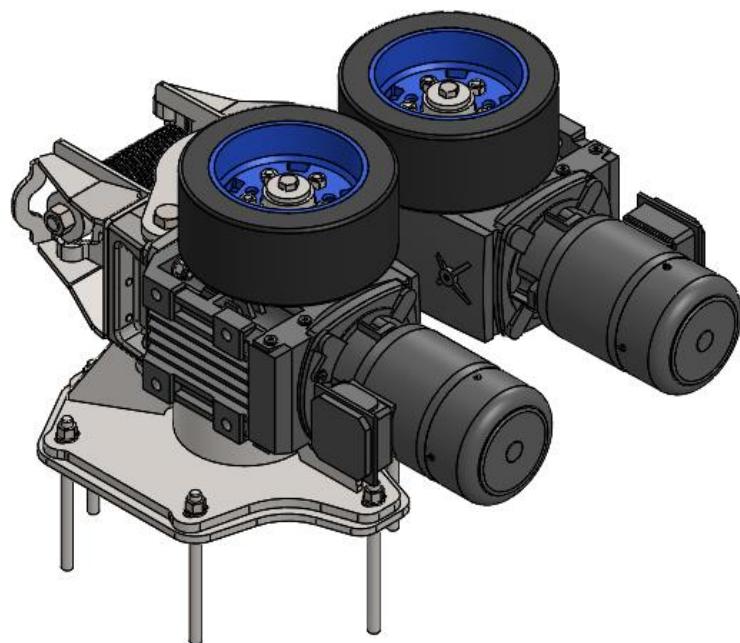


Figure 16-2



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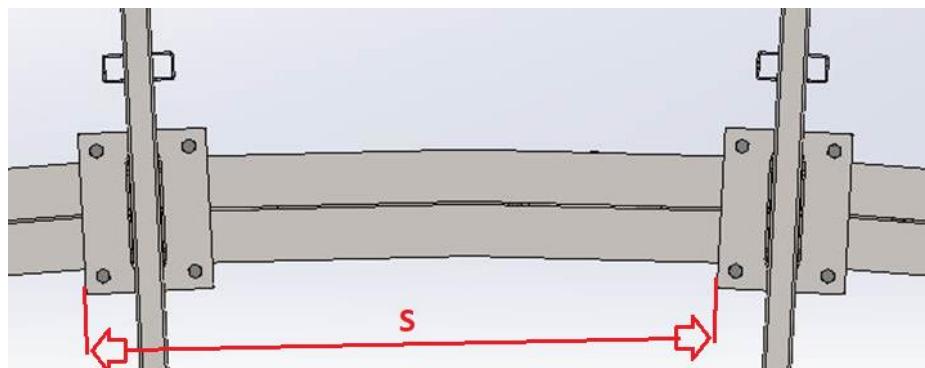
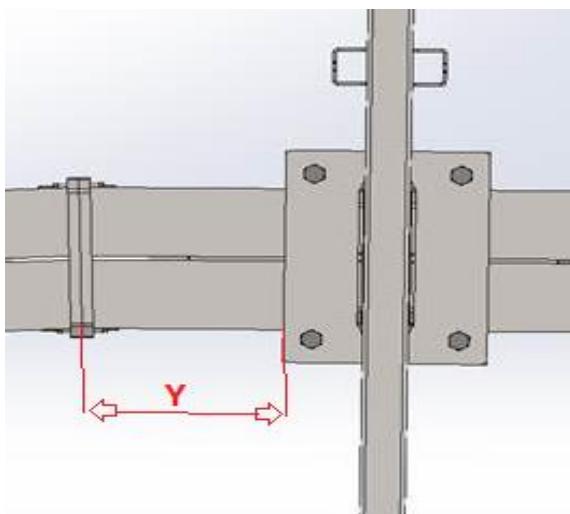


Figure 17-2

Figure 17-1

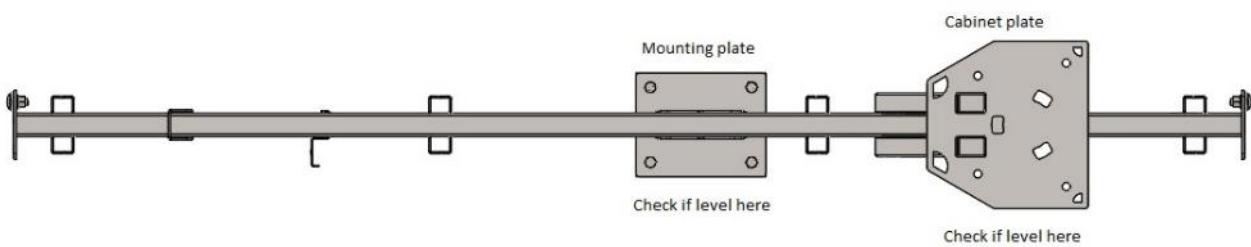


Figure 17-3



Figure 17-4



BLOM

17. Mark & Install stall divider beams

Crate: B

Box: Stall divider 1 & 2

Using: Galvanized bolt M12x50

Stainless steel locking nut M12

Also in crate B:

filler plate (170x20x0,75)

Clamp plate (180x50x8)

Now you can start with marking the stall divider beam distances. Important is that you mark from the inside of the I-Beam. Use your small compass. Start **Y** mm from the heart of a connection point of the I-beam, the distance between the stall dividers is **S** mm. *See figure 17-2.* Go a whole round. Once done, measure the difference between end and start point. If the difference is bigger than 5mm, divide it over all your stall dividers beam. When the difference is lower than 5mm, you can divide it over the last 10 stall dividers. Once the difference is lower than 1 mm you are done.

Installing

Place the stall divider beams. Make sure the long side is pointing to the center. Important is that the side of the mounting plate is touching the mark line, make sure you always choose the same side. Fasten the stall dividers beam with the clamp plates on the I-beam loose so that you can still move them. Take a rope from the center and check if the stall divider beam is lined up exactly to the center. If this is correct. Tighten the bolts. Check if stall divider beams are level, check in two directions. Do 1 check above the I-Beam and 1 check on the cabinet plate, *see figure 17-5).* If not level adjust, eventually use the filler plates to make the dividers level. See figure 17-3



Figure 17-5

Check dimensions! Do as many measurements as the AS BUILT form requires and fill in the table with the measured dimensions.



BLOM

Inside Flat



Figure 18-1

Drive Flat



Figure 18-2

Outside Flat



Figure 18-3

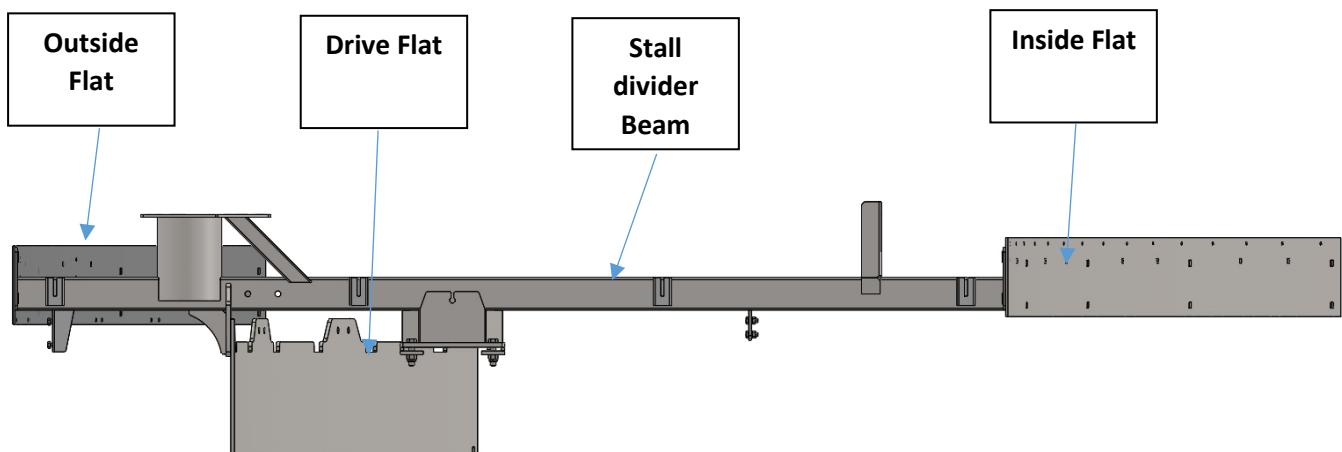


Figure 18-4



BLOM

18. Drive flat, inside flat & outside flat

Crate: B

Box: Drive flat 1 & 2

Using: Galvanized bolt M12x35

Stainless steel locking nut

Box: Inside flat 1

Using: Stainless steel carriage bolt

Galvanized washer M12

Galvanized nut M12

Place the drive ring in front of the bracket so the outer radius of the ring touches the bracket. Put in the bolts but don't tighten them.

Start mounting the inside flat. The inside flat comes on the inside of the rotary. You can mount them on the plates at the end of a spoke. Mount it only with the top bolts placed but not tightened. When you have done every inside flat, walk around with the tapered bar to align the bolt holes and tighten the top bolt, place the lower carriage bolt and tight up.

For the outside flat you can do the same. Make sure the top of the inside and outside flats are aligned. One outside flat is for washing. This is where you will flush the system. Place it according to the requirement milk equipment.

Now also align the holes for the drive ring and put in the other bolts and tight it up. Connect the drive flats with each other by using the drive flat connector as shown in figure 18-5.

Try to let the seams of the flats 'jump' So they are not in one line.

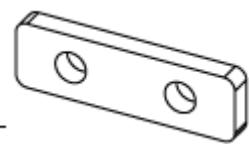


Figure 18-5

Check the center roller! Measure the distance between every center roller and the drive flat. Add them all up and divide this by the total of center rollers. This distance should be 4mm. Now adjust the center rollers.

For example: You have got 5 center rollers. The total distance between center roller and drive flat is 25mm (4+6+3+7+5) it should be 20 (5*4). So $25-20= 5$ mm. This means you should place EVERY center roller 1 mm closer. Because 5 mm divided by 5 center rollers is 1mm. And you want 4mm on every centerroller. (see figure 18-6)

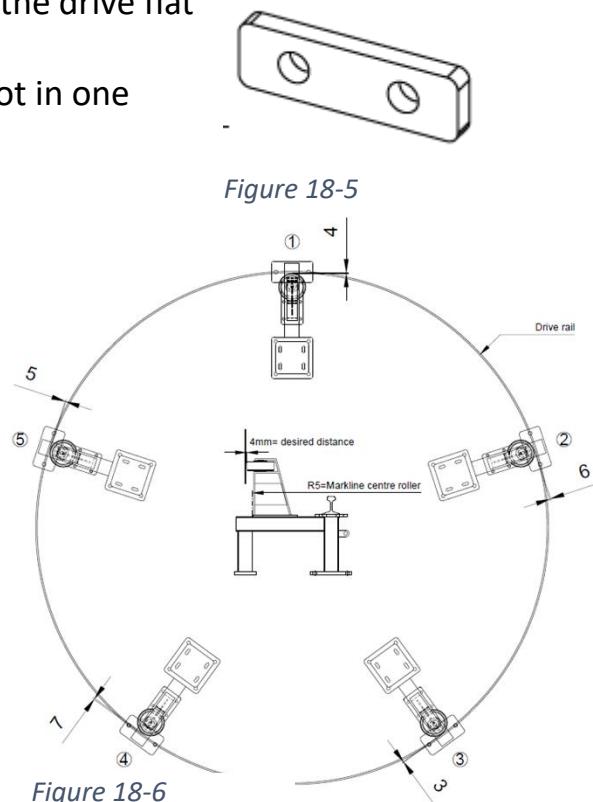


Figure 18-6



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Outside Flat (wash)



Figure 18-7 Outside flat with wash

Outside Flat

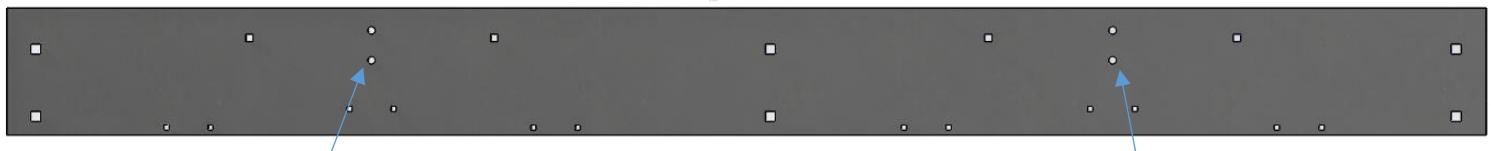


Figure 19-1

Mount concrete sleeve here

Mount concrete sleeve here



Figure 19-2

19. *Installing concrete sleeves*

Crate: B

Box: Hose guider 1 & 2

Using: Stainless steel hex. Socket button flange bolt M8x20

Stainless steel concrete sleeve M8x60

Mount the bolts and concrete sleeves as specified in the pictures on the outside flat. Bolts must be hand tight. Do this on the complete outside flat. This is for the optional hose support.

Do this after welding the concrete rebar!



BLOM

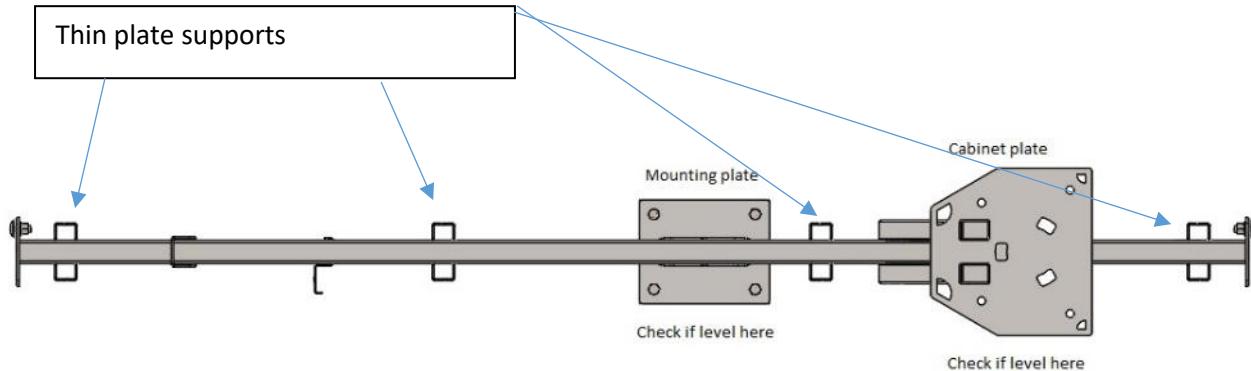
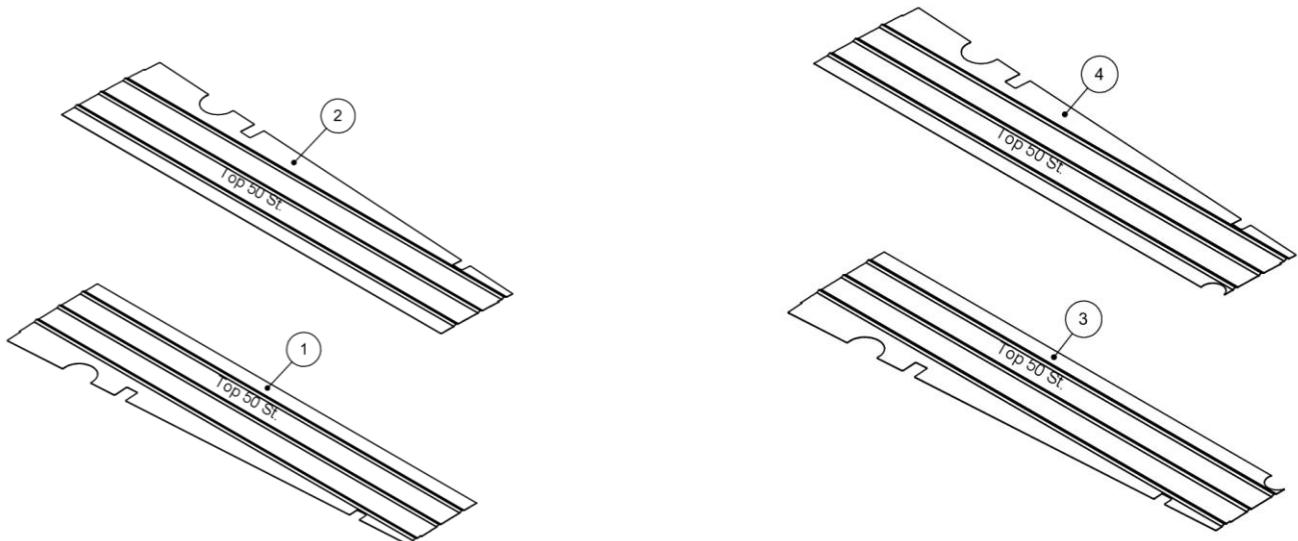


Figure 20-1



Pos.	QTY.	NOP.	Description	Length	Material	Remarks
1	1		Plate 2140x529x0,75mm	-	1.0037 (S235JR)	Lasercut
2	1	40	Plate 2140x529x0,75mm	-	1.0037 (S235JR)	Lasercut

S:\Tekenkamer\The Quality Rotary\2 - Deck\400 - Platform plates\Topline\Drawings\ TQR 2.450.50 - Platform Plates

Projection: Project: Blom External Topline Papersize: A4 Weigh: 11.55 [Kg]
Type: Platform Plate 50 Stands Scale: 1:20 Part no: TQR 2.460.50
Signed: Dolf Date: 18-12-2013 Units: mm Rev.D.: -

Pos.	QTY.	NOP.	Description	Length	Material	Remarks
3	1	10	Plate 2140x529x0,75mm	-	1.0037 (S235JR)	Lasercut
4	1	10	Plate 2140x529x0,75mm	-	1.0037 (S235JR)	Lasercut

S:\Tekenkamer\The Quality Rotary\2 - Deck\400 - Platform plates\Topline\Drawings\ TQR 2.450.50 - Platform Plates

Projection: Project: Blom External Topline Papersize: A4 Weigh: 11.49 [Kg]
Type: Platform Plate 50 Stand Scale: 1:20 Part no: TQR 2.480.50
Signed: Dolf Date: 18-12-2013 Units: mm Rev.D.: -

BLOM
The Quality Rotary B.V.

Drawing: TQR 2.450.50 - Platform Plates Revision: -
Tolerance: ± 1mm unless otherwise specified 2 out of 2

Figure 21-1



BLOM

20. Place thin plate supports

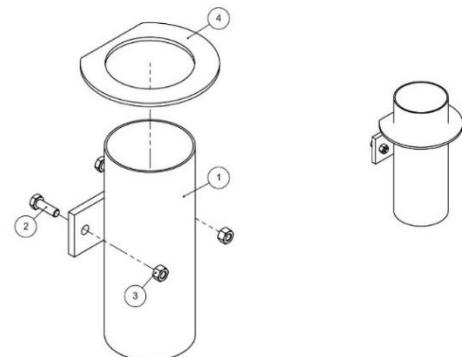
Place thin plate supports in the brackets, you got 4 different lengths of support. They are all 40x5mm And got 4 different lengths. Place the shortest one in the bracket nearest to the center and the longest one in the bracket closest to the outside.

21. Place thin plates

Start placing the thin plates, make sure the V shape is facing up. Notice there are left and right thin plates. See figure 21-1. Place 'standard' thin plates (1 or 2) on 4 stands and then place platform plate (3 or 4) on 1 stand for the drains and go on.

Start at the washing position. Put standard platform plates 2 stands on the right and 2 stands on the left of the washing position.

DO NOT WALK AT THIS PLATES AT ANY TIME.
STAND ONLY AT THE CABINET PLATES.



22. Install Drains

Crate: B

Box: Drain pipe 1, 2 & 3

Using: Galvanized Bolt M8x25

Galvanized nut M8

Polyurethane Sealant PU50 Gray

(kit)

Put the drains in place and bolt them to the inside flat. You first need to drill 9mm holes. Make sure the longest side is pointing down. The bracket must be aligned with the bottom of the inside flat.

Around the drain you need to put a rubber ring we included. Put this ring on 25mm from the top of thin plates. This is to prevent leaking.

Pos.	QTY.	NOP.	Description	Length	Material	Remarks
1	1		Drain Pipe Deck		SS 304	
2	2		Hex. Bolt DIN 933 - MBx25			
3	2		Hex. Nut DIN 934 - M8			
4	1		NBR Plate Ø136x87x4mm	-	NBR	Ordered By ODV

S:\Teknikkamer\The Quality Rotary\2- Deck\300 - Concrete rebar\350 - Drain pipe TQR 2.550 - Drain Pipe Deck (E)
Project: Blom External
Type: Drain Pipe Deck
Signed: Dof
Date: 2-11-2015
Units: mm
Drawing: TQR 2.550 - Drain Pipe Deck (E)
Tolerance: ± 1mm unless otherwise specified
Revision: 1 out of 1

Figure 22-1

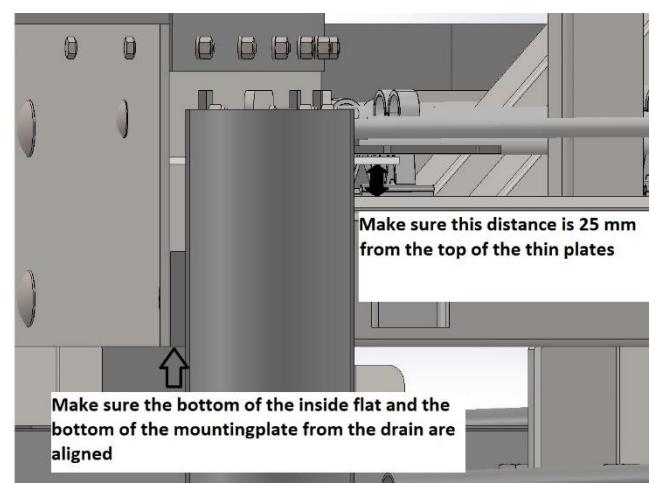


Figure 22-2 Drain dimensions

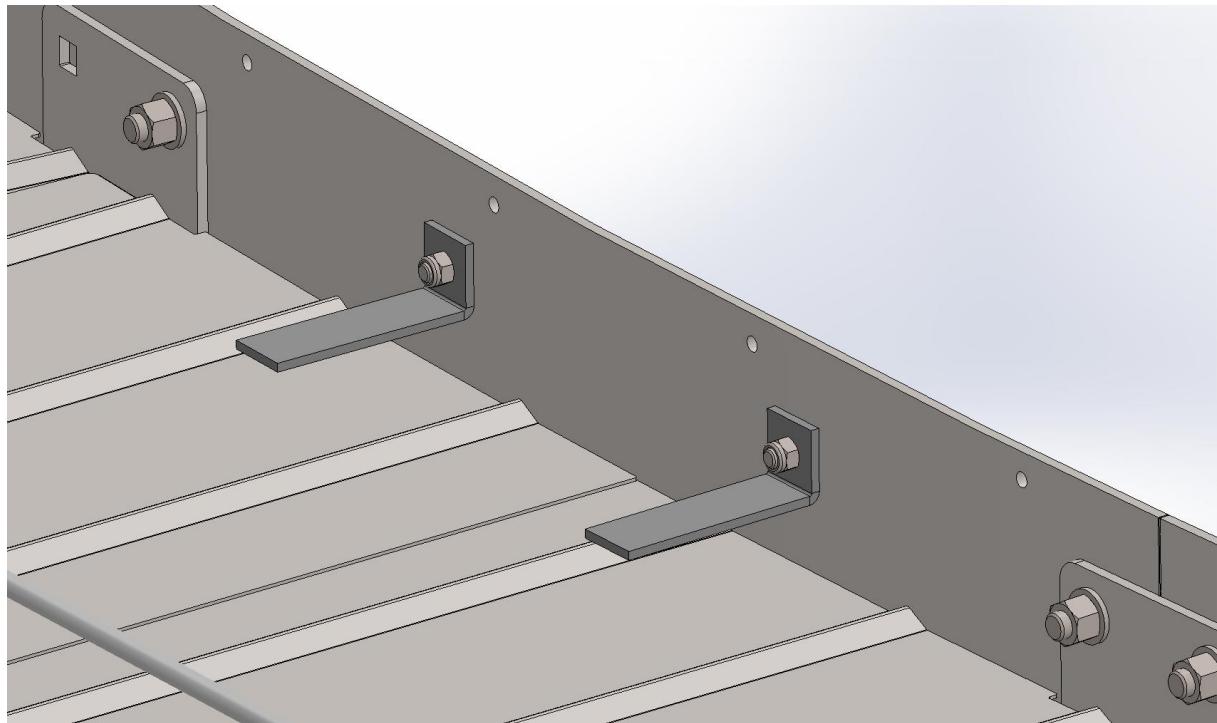


Figure 23-1

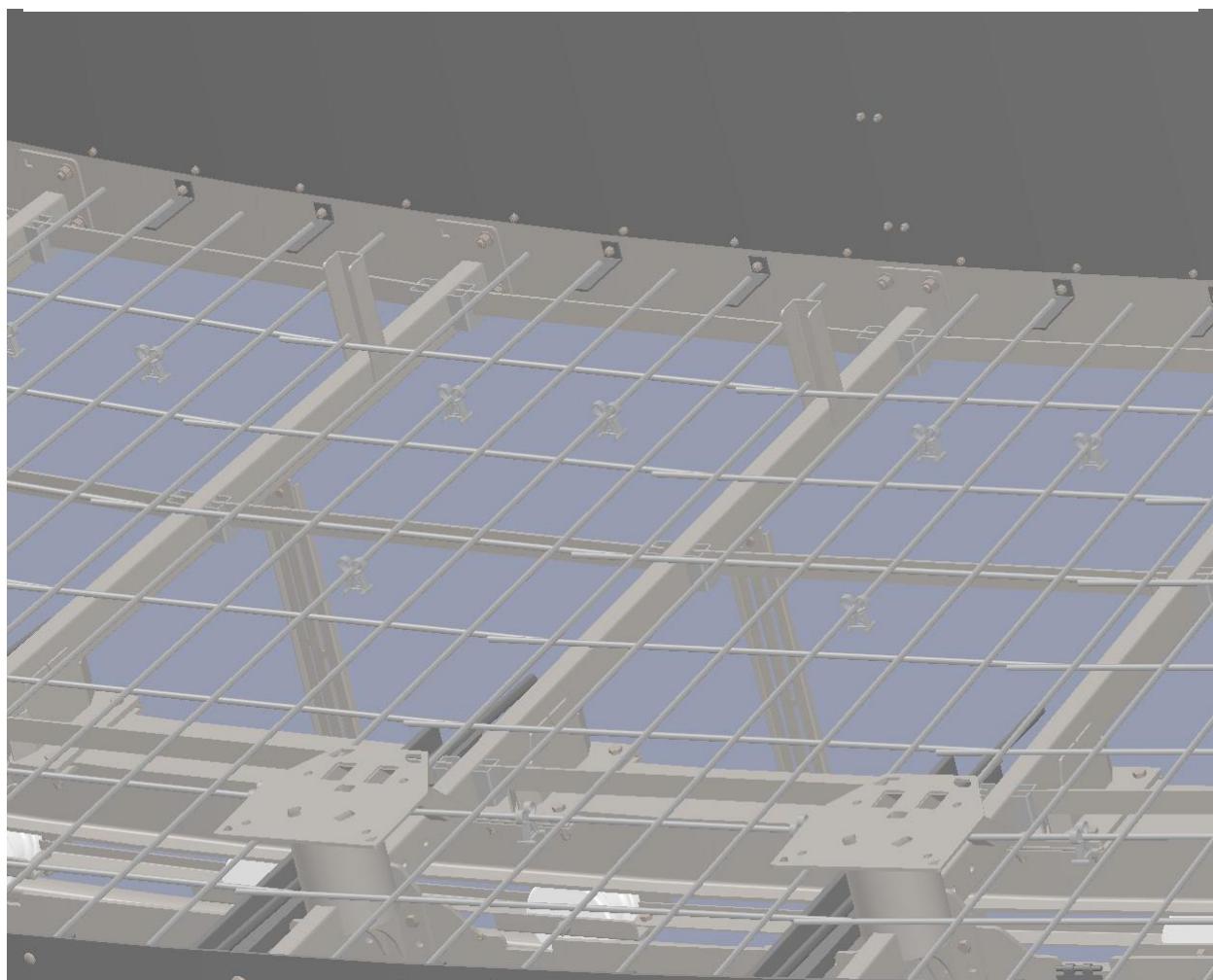


Figure 24-1



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23. *Installing concrete rebar bracket*

Crate: B

Box: Concrete rebar 1 & 2

Using: Stainless steel carriage nut

Galvanized nut M8

Install the concrete rebar brackets. Place them on the inside and outside flats. Per stall will be 2 brackets on the inside and 2 brackets on the outside. So 4 brackets per stand

24. *Concrete rebar*

Place the rebar with the spacer. Use 5 spacers per rebar. Make sure the Rebar is laying high at the outside flat and low at the inside flat.

Make sure the rebar that is crossways is facing down, as seen in figure 24-3.

Now weld the rebar together at the points where they overlap and at the rebar bracket.



Figure 24-2

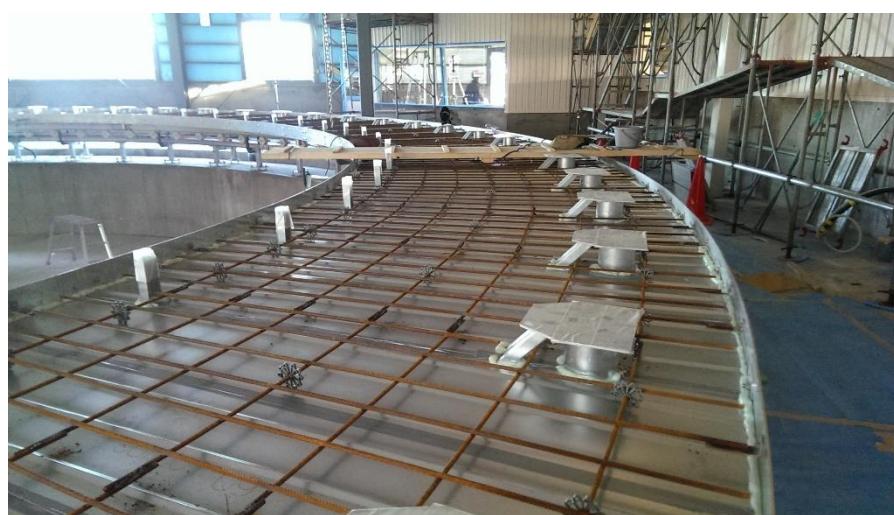


Figure 24-3



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25. **Waterproof The Platform plate**

Crate: B

Box: Platform plate 1, 2 & 3

Using: PUR foam gun AA230

Polyurethane perfectfoam Pistol 880ML

Roles of duct tape

PUR edges of the in and outside flat. Tape the platform plates in the length direction. Especially for the PUR it is very important that you do it after welding the rebar. Otherwise it is flammable.



BLOM



BLOM



Figure 26-1



BLOM

26. Center Bridge

Crate: B

Box: **Center bridge 1, 2 & 3**

Using: Stainless steel carriage bolt M12x30

Galvanized washer M12

Galvanized nut M12

Start by mounting the bracket (Figure 26.2) on the inside flat and stall divider beam (figure 26.3). Do this using the existing holes in the flats. Start somewhere near the cut out for the receiver unit (plate in figure 18-5). Do this conform the requirement milk equipment.

Now assemble the bridge by bolting the different pieces together.

Now lay the tubes on the bracket which was installed at first and secure them (figure 26.2) and secure the plate on the swivel support (Figure 26.4).

Do this for the other side as well.

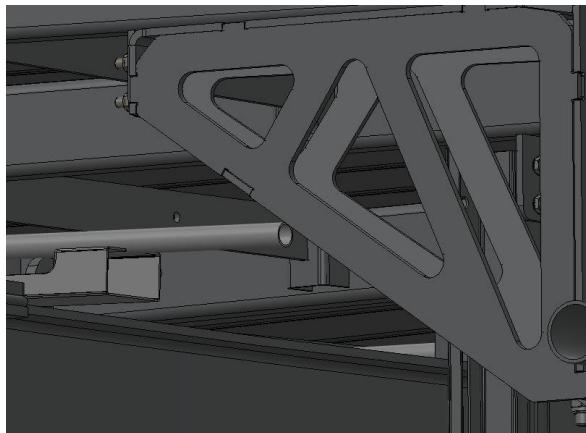


Figure 26-3

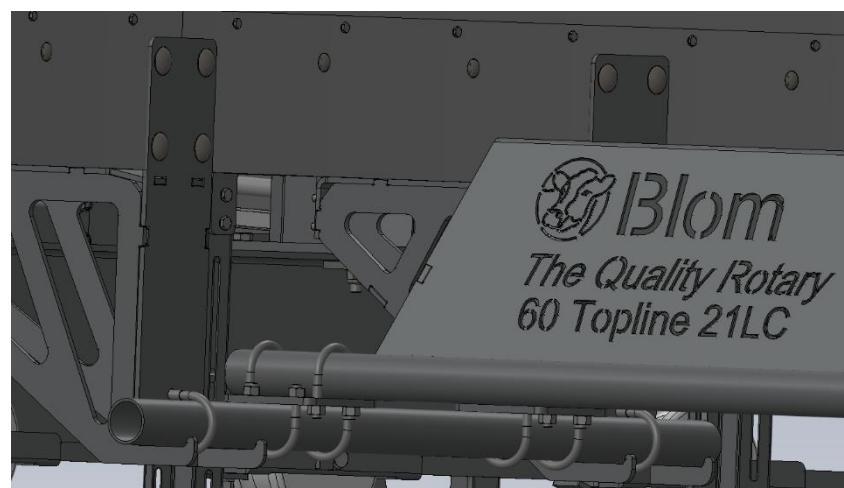


Figure 26-2

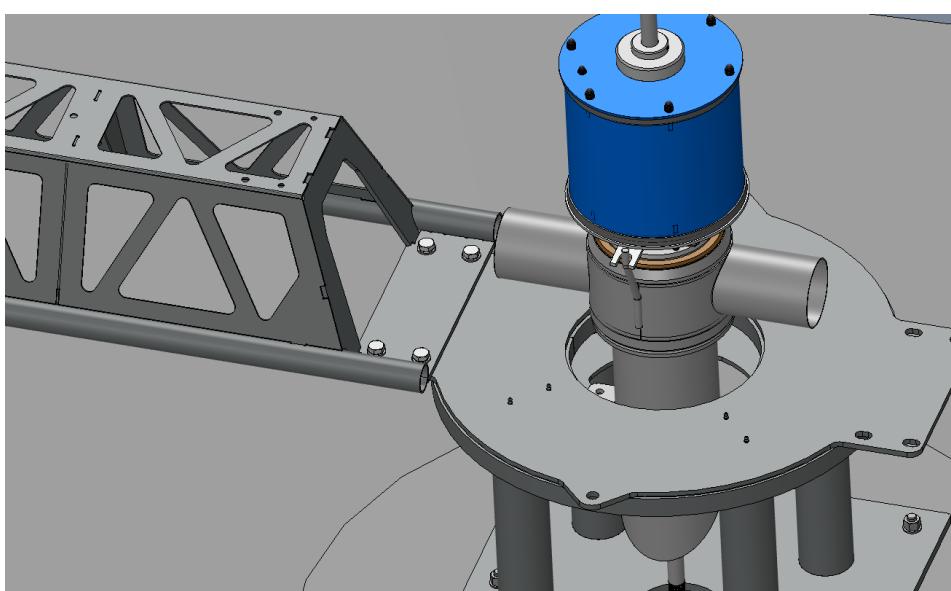
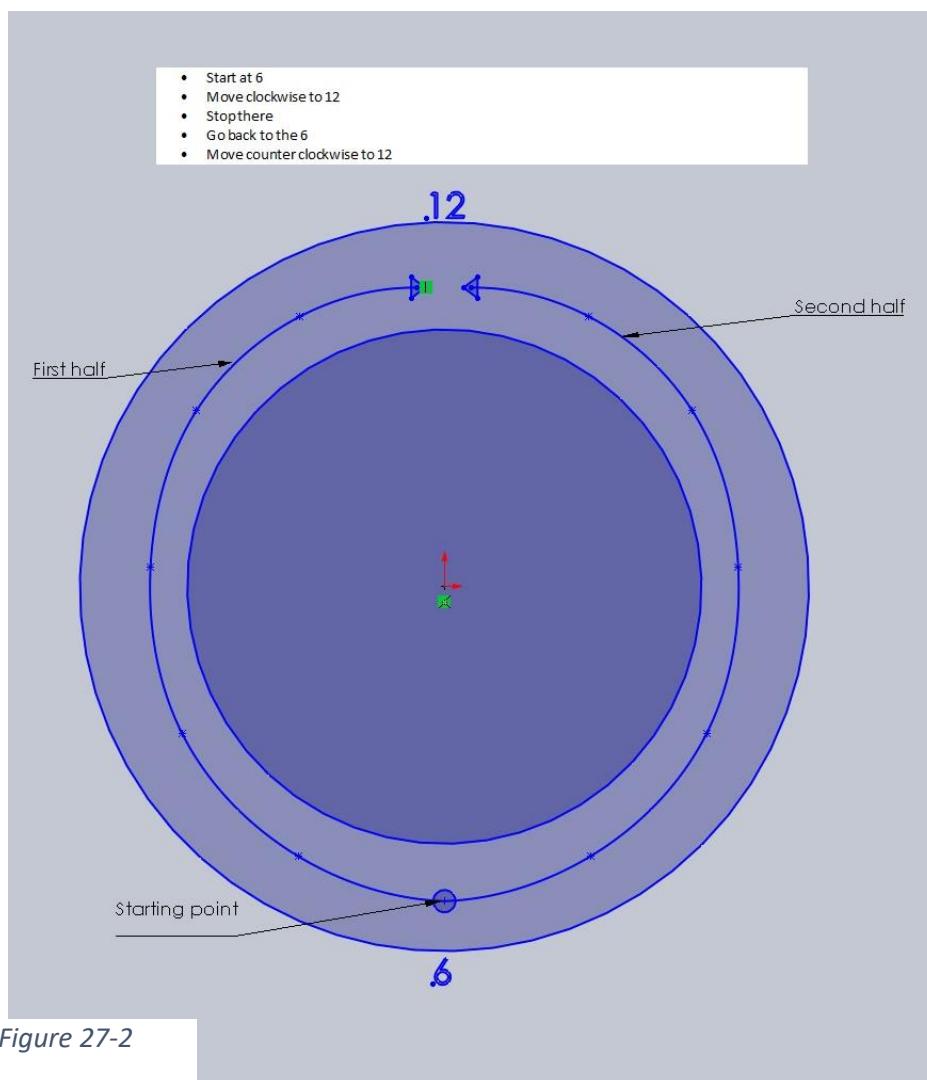
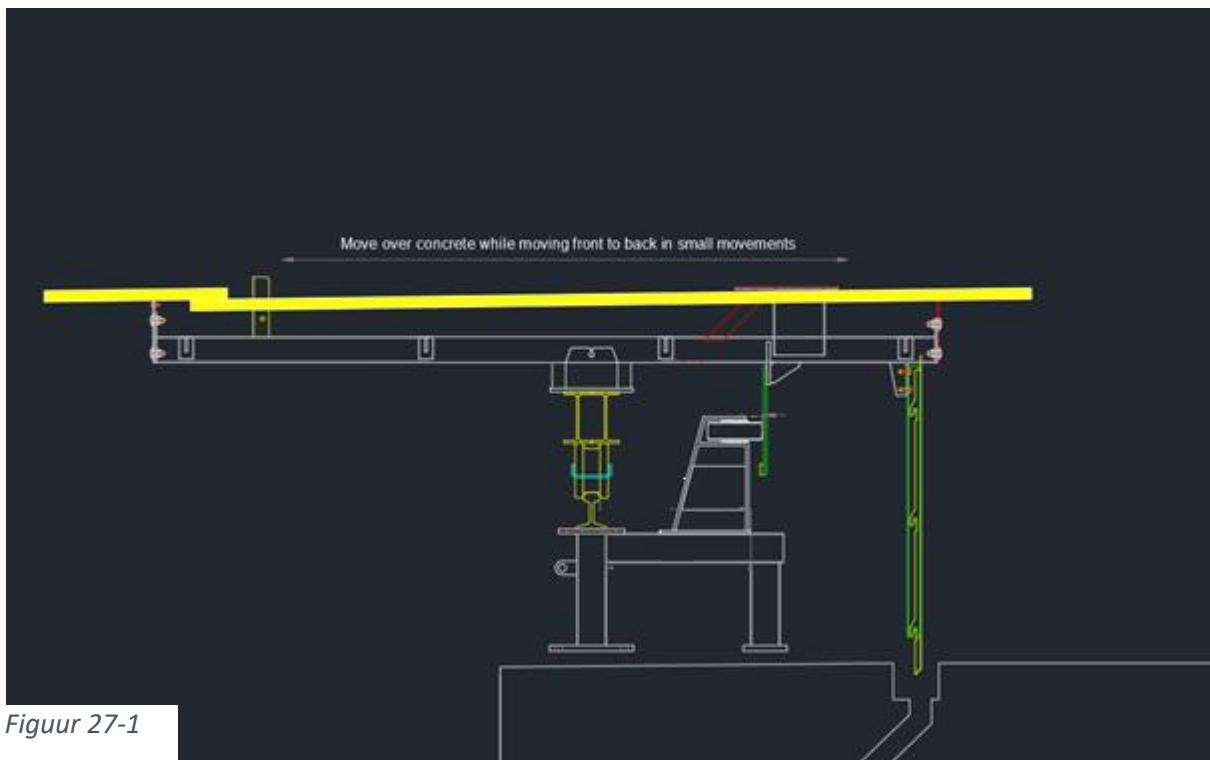


Figure 26-4



BLOM



27. Concrete

We recommend the following concrete specifications:

Concrete.

Strength: C35/45

Exposure class: XA3

Fiber: 4 kg/m³ Nova mesh 950 or similar.

Replacing product : 3 kg/m³ constructive fiber

1 kg/m³ filament Fiber

Make sure to cover up all the visible parts, like the cabinet mounting plate, to prevent concrete splashes. Otherwise you have to scrape this off later on.

Fill the deck with a concrete pump to insure the quality of the deck.

Start filling one half of the deck, than go back to the beginning and fill the other half the other way around, to make sure that the concrete cures well together. See figure 27-2.

It is not allowed to rotate the rotary during pouring the concrete.

After pouring concrete, the platform has to cure for 28 days.

No works or turning the rotary during this time!

You will need approximately 6 people, from which 4 are qualified concrete workers.

Fill the gap underneath the supports with shrink free concrete.

Cubic meters needed:

30 stall: 4.3

32 stall: 4.7

36 stall: 5.4

40 stall: 6.1

44 stall: 6.9

50 stall: 8

60 stall: 9.8

72 stall: 12.2

80 stall: 13.4

These are volumes calculated for a deck in one piece, the pieces of the stall divider which are imbedded are negligible.

Consult your concrete supplier how much extra you need to compensate for the loss in the concrete pump to prevent shortage

28. *Notes:*