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Application Procedure Specification Dhatec Blasting Plug

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01	General update + layout
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General Information

Equipment	Blasting Plug
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Do not carry out any repairs or modifications on the equipment without consulting Dhatec B.V., doing so will invalidate the guarantee. The guarantee is also invalidated if accidents and damage of any form are caused as a result of improper use and/or not obeying the warnings in general as explained in this user guide. Dhatec B.V. accepts no responsibility for any personal accidents as a consequence of not following the safety instructions and warnings. This is also the case for consequential loss in any form.

Safety Requirements

These are general guidelines, all personnel involved should adhere to the safety requirements of the particular location at which they are performing their operations.

Dhatec recommends wearing of suitable PPE while handling their products. This includes gloves, safety shoes, safety glasses, safety helmet, hearing protection and suitable work clothing.

The working areas should be kept tidy at all times in order to minimize the risk of trips and slips.

All personnel involved should use suitable manual handling techniques and follow industry recommended guidelines for lifting and moving, such as those described in “Ergonomic Guidelines for Manual Material Handling” published by the National Institute for Occupational Safety and Health (Publication 2007-131), or those otherwise prescribed by the client.

Introduction

The Blasting Plug provides effective bevel protection and pipe closure during the external blasting process. The internal pipe surface remains clean and the beveled pipe-end is protected against damage and impact of steel grit. With a number of options the Blasting Plug can be made suitable for different blasting processes.

General information Blasting Plug

For optimal performance, the Blasting Plug is equipped with several options that fit in a specific blasting process.

Basic Construction

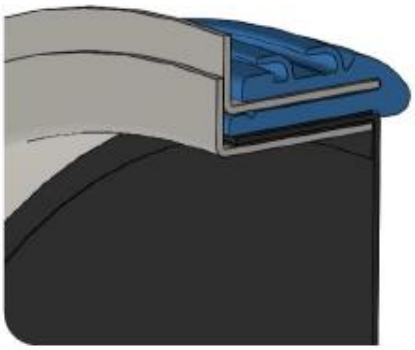

Figure 1. Double Clamping Rubber

Figure 2. Clamping Spoke

Figure 3. Hand Grips

- ***Double Clamping Rubber***

This is a rubber profile which ensures extra clamping of the Blasting Plug. The double clamping rubber has two clamping lips. Remark: this can only be used if the pipes are not coated internally prior to external blasting, or if the cutback of the internal coating is > 30 mm.

- ***Clamping Spoke***

The Clamping Spoke will increase the stiffness of the Blasting Plug and ensures a strong clamping of the Blasting Plug inside the pipe. Blasting Plug from 36” and larger, should always have a Clamping Spoke.

- ***Hand Grips***

The hand grips ensure a firm grip when placing and removing Blasting Plugs. They can also be used in combination with a Clamping Spoke. The Blasting Plug can be provided with 1 or 2 Hand Grips.

Closure options

There are two options for closure of the Blasting Plug:

- ***Rubber Sheet***

The Rubber Sheet is resistant against impact of steel grit. Rubber Sheet applied in the Blasting Plug is also suitable for stopping penetration of water and dirt during the cleaning process of pipes. Rubber has a low heat resistance and due to that, it is not recommended to use a Rubber Sheet in an open flame oven.

Figure 1. Rubber Sheet

- ***Aluminum Plate***

Aluminum Plate closure prevents blasting grit of entering the pipe. The Aluminum Plates a durable solution and prevents the Blasting Plug of ovality. The Aluminum Plate will not burn in an open flame oven.

Figure 2. Aluminum Plate

Finishing

- ***Intensive Use:***
  - *Manganese Chrome*

  This is a very hard top layer (600 Brinell) which is welded on top of the protective edge of the Blasting Plug to prevent this edge from wearing down. Steel grit has less effect on the manganese chrome material. This option cannot be applied in combination with the Forged Steel Ring.

  - *Friction ring*

  When two pipes run against each other with high velocities of rotation, the friction forces between the pipes reduce the life-time of the Blasting Plugs. The friction ring, which is welded on the front surface, increases the lifetime of the Blasting Plug.

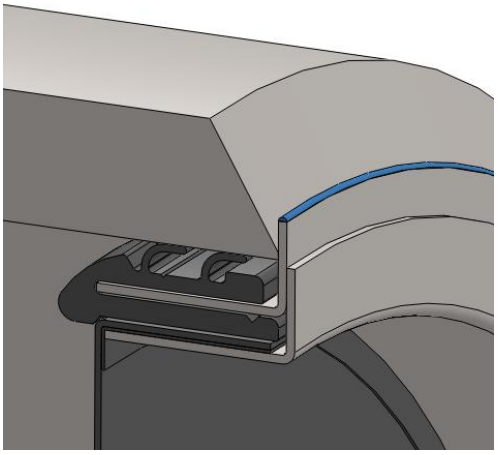

Figure 6. Manganese Chrome

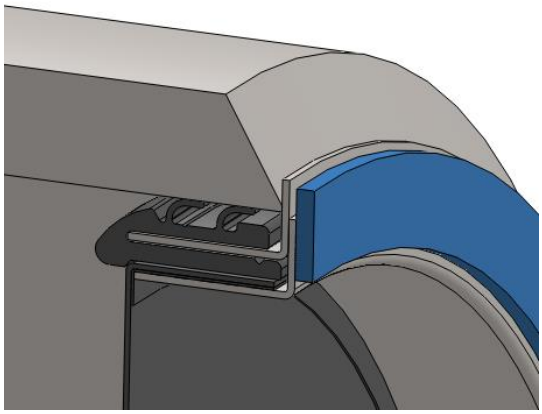

Figure 7. Friction Ring

- ***Shielded bevel:***
  - *Forged Steel Ring*

  The Forged Steel Ring is a combination of a Friction Ring and complete bevel protection of the pipe during the blasting process. In this way the complete surface of the bevel is shielded against blasting grit. *Forged Steel Ring cannot be used in combination with Manganese Chrome.*

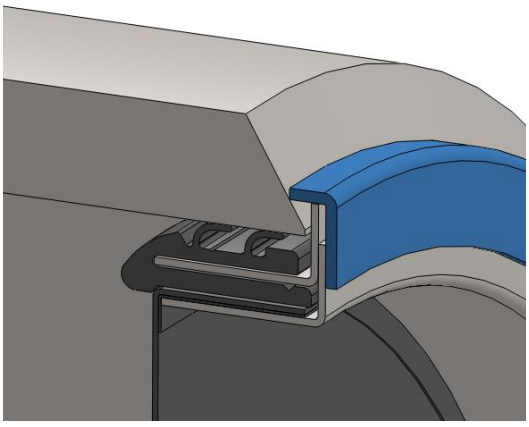

Figure 3. Forged Steel Ring

Rubber Underlay

The extra rubber layers are used between the steel Basic Construction and the Clamping Rubber. It is possible to adjust the Blasting Plug for a larger internal pipe diameter with a maximum tolerance of 6mm than the original produced diameter. 3, 6 or 9 pieces of underlay rubber have to be used.

Internal diameter [mm]	Pcs. rubber
< 700	3
700 – 1000	6
> 1000	9

Thickness [mm]	Width [mm]	Length [mm]
1	33	200
2	33	200
3	33	200

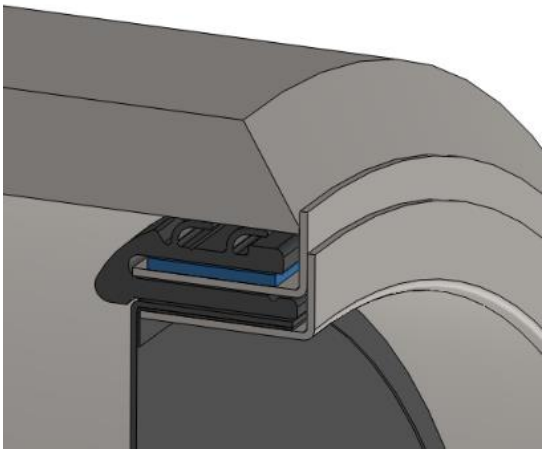

Figure 4. Rubber Underlay

Optional

- ***Monorail Handle***
  The monorail handle can be placed on the Blasting Plug when this has to be moved through a factory on a monorail / hook. The monorail handle is a safety feature because it prevents the Blasting Plug from falling from height.

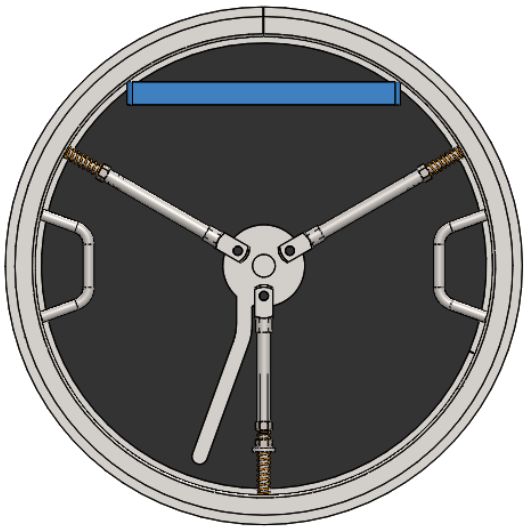

Figure 5. Monorail Handle

Application of the Blasting Plug

Fitting the Blasting Plug on the pipes can be done by one person. Apply the Blasting Plug only when the pipes are lying still in a stable position.

Use the hand grips to install the Blasting Plug on each pipe-end before the blasting process. The Blasting Plug is suitable for running through a pre-heating oven and washing cabin. Never use one Blasting Plug, always use two plugs per pipe that run against each other. Make sure the temperature of the Blasting Plug remains < 100°C in the oven.

If the Blasting Plug is equipped with a Clamping Spoke, practice fitting and removing the Blasting Plugs before you start production. For tensioning, turn the handle in the middle counter clockwise (Figure 11). For releasing tension, turn the handle clockwise (Figure 12). Always release the tension before removing the Blasting Plug. The tensioning force can be fine-tuned by adjusting the spring in the clamping spoke.

Make sure that the Blasting Plug is pushed inside the pipe-end as deeply as possible. When used for the first time, the Blasting Plugs have a tight fit. After a couple of runs, fitting becomes easier. If fitting is difficult you can use a rubber hammer, but be careful not to damage the Blasting Plug.

After blasting, the Blasting Plugs can easily be removed by pulling on the hand grips. Only remove the Blasting Plug when the pipes are lying still in a stable position. If the Blasting Plugs is equipped with a clamping spoke, make sure the tension is released (by turning the handle clockwise) before removing the Blasting Plug.

It is possible to adjust the Blasting Plug for a larger internal pipe diameter with a maximum tolerance of 6mm than the original produced diameter (for example: if the Blasting Plug is produced for an internal diameter of 480mm, the Blasting Plug can be used for internal diameters up to 486mm). To adjust the Blasting Plug, for a larger internal diameter, extra rubber can be placed between the steel construction and the Clamping Rubber.

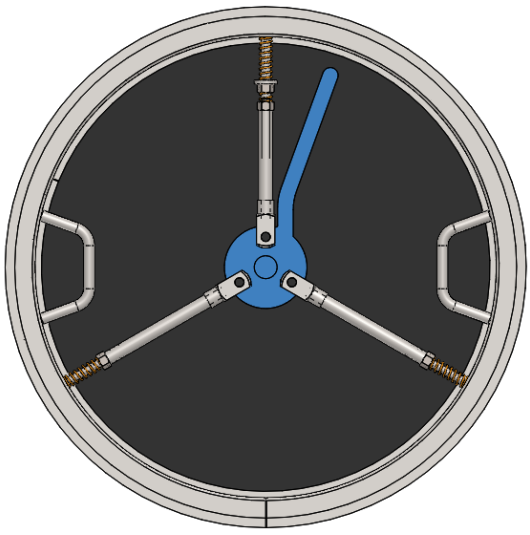

Figure 7. Blasting Plug Tensioned

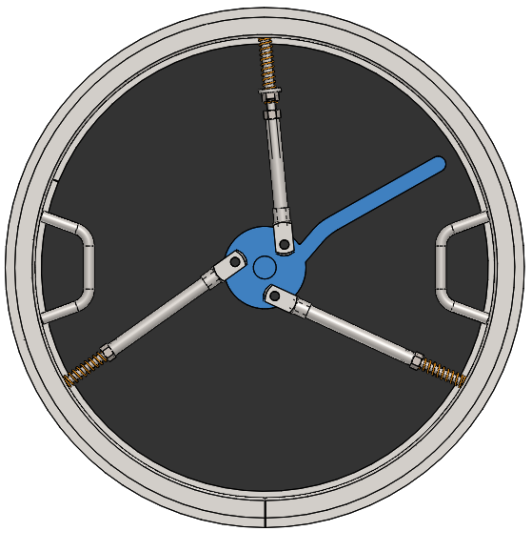

Figure 6. Blasting Plug Tension Released

Placing Rubber Underlays

The following steps shows how to apply the Rubber Underlays on the Blasting Plug.

Step 1. Create space between the rubber profile and the steel ring with the help of a screw driver.

Figure 13. Create space with a screw driver

Figure 14. Create space and place the underlay rubber

Step 2. Fit a rubber underlay between the steel construction and the Clamping Rubber.

Figure 15. Fit the rubber underlay

Figure 16. Positioned the rubber with a screw driver

Step 3. Work the rubber underlay completely underneath the rubber profile using the screw driver. Use 3, 6 or 9 pieces of rubber underlay for each Blasting Plug. Divide these rubbers on the circumference of the Blasting Plug.

Figure 17. Rubber underlay placed underneath rubber profile

Diameter [mm]	Pcs. rubber
< 700	3
700 – 1000	6
> 1000	9

Thickness [mm]	Width [mm]	Length [mm]
1	33	200
2	33	200
3	33	200

Guidelines to check if Blasting Plug is applied properly

The Blasting Plug should be placed equally on the entire pipe-end. Once the first rubber is positioned inside the pipe, the Blasting Plug can be positioned firmly in the pipe-end:

The Blasting Plug should not be applied in an angle

The Blasting Plug needs to be placed as deeply as possible inside the pipe-end, there should be no space between the pipe-end and the Blasting Plug:

There should be no space between pipe-end and Blasting Plug