



eDART Installation and Maintenance Manual - yDart Valve

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WARNING

eDART Slurry Valves (PTY) LTD will in no way be liable for any loss or injury or death caused to any person or persons or property following this installation and maintenance manual.



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1. INTRODUCTION

This manual is a specific manual intended for use only on the yDart Valve but includes the poly yDart and Flash yDart valve variations (See §7.1 and §7.2 on page 12).

The eDart Slurry Control Valve (yDart) uses a top entry design (removable bonnet) to allow easy access to the internal's for inspection and maintenance without having to remove the valve from the line.

The major valve components are shown in Figure 1 below:

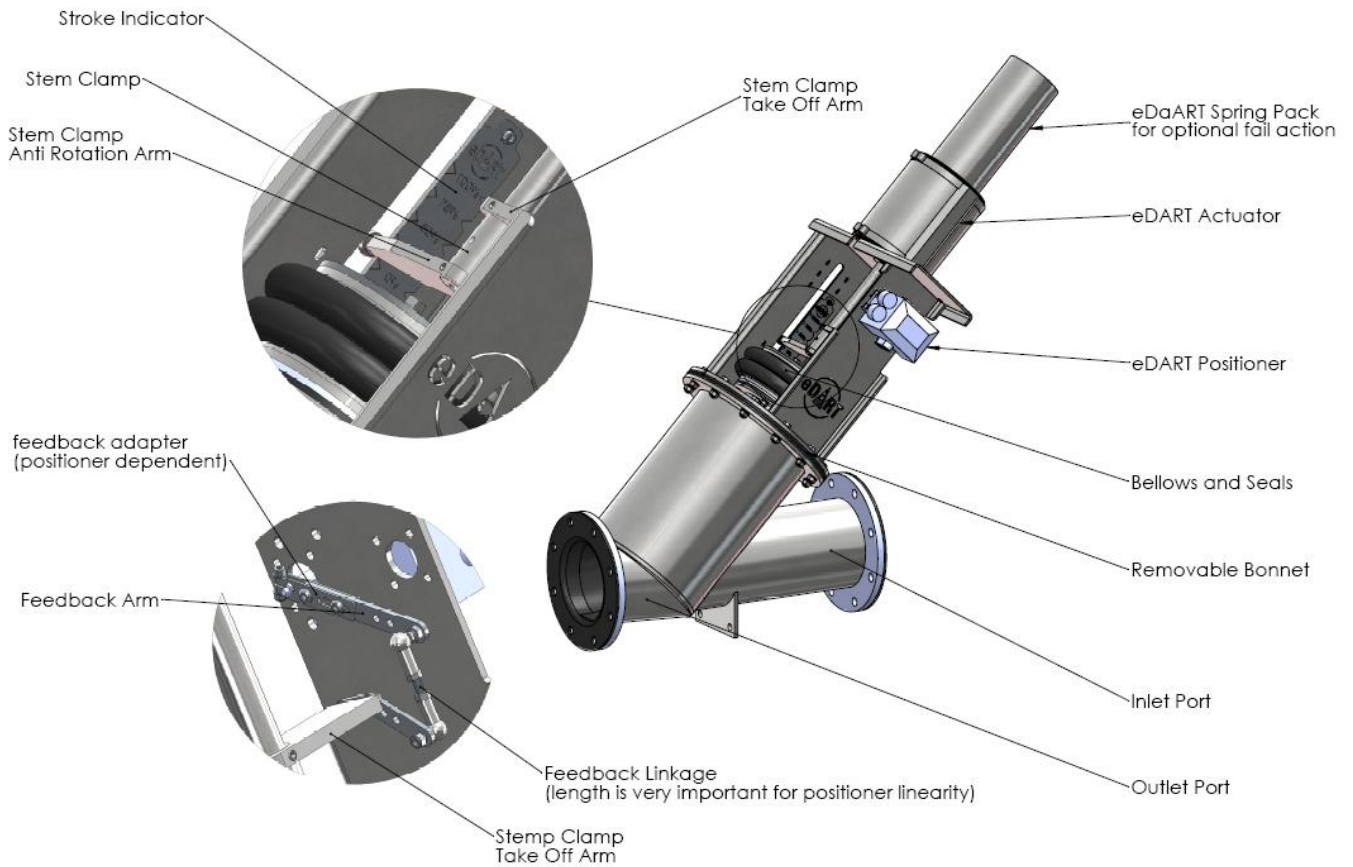


Figure 1: yDart Valve Nomenclature

2. INSTALLATION GUIDELINES

2.1. Rigging and Lifting

1. When lifting, care must be taken so as not to damage the actuator or positioner.
2. Lift the valve by placing slings under the actuator mounting plate. Exercise extreme caution so as not to damage the positioner and its feedback mechanism.



WARNING

The valve must under no circumstances be lifted by the actuator as this will damage the actuator and valve.

2.2. Installation

1. The yDart valve is to be installed in the pipeline with an incline less than 15° (fifteen degrees) from the horizontal.

2. The yDart valve is to be installed in the "flow over" orientation. See Figure 2 (right) where the flow is from left to right.

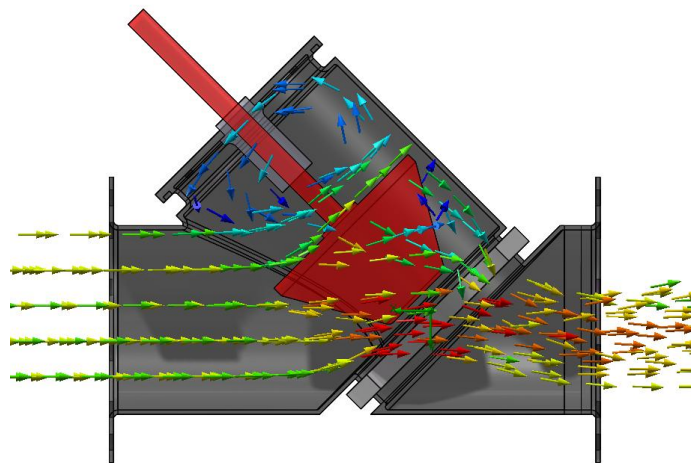


Figure 2: yDart showing flow direction from left to right

3. Access to the removable bonnet is to be kept clear for maintenance and inspections.
4. Sufficient clearance above and below the yDart is to be left clear for stripping and removal. Please refer to drawings for dimensions.

3. ROUTINE MAINTENANCE AND INSPECTION

To ensure optimum life and performance from your valve the following routine inspections are recommended:

1. During operation observe the valve movement and process instrument readings to determine if the valve needs maintenance, repair or adjustment.
2. During a plant shut or maintenance stop, visually inspect the plug, seat, guides and bar guides for wear and damage.
3. Note: Before inspection of the internals of the valve, ensure that the valve has been safely isolated and locked out.
4. The following are indications that the valve needs attention
 - Poor controllability
 - The valve action is no longer smooth
 - When closed the valve is passing excessive product down stream
 - There are air leaks from the actuator, positioner or piping

4. EXPECTED WEAR ITEMS

1. Plug – The plug must be visually inspecting for any wear or damage, this can be done by unbolting and removing the removable bonnet. See Replacing of Components for details on how to safely remove the bonnet.
2. Seat - The seat must be visually inspecting for any wear or damage, this is done by unbolting and removing the removable bonnet. To change the seat, refer to Replacing of Components for details on how to safely change the seat.
3. Shaft and Mounting Bar Guides – All the plastic sleeves must be checked for wear and damage, ensure that these are replaced before any major damage is visible.



WARNING

If any other components appear to be damaged or worn please contact the manufacturer immediately.

5. ISOLATING THE VALVE



WARNING

Only suitably trained personnel are to work on the eDart Valve.

1. Drain the pipeline containing the valve, flushing out any excess slurry remaining in the pipe.
2. Ensure that the correct lock-out procedures are followed and that the valve and adjacent pipe work are safely isolated.
3. Disconnect the air and signal from the positioner and actuator.

6. REPLACING OF COMPONENTS



WARNING

Only suitably trained personnel are to work on the eDart Valve.

Before any maintenance is done the valve must be safely isolated.

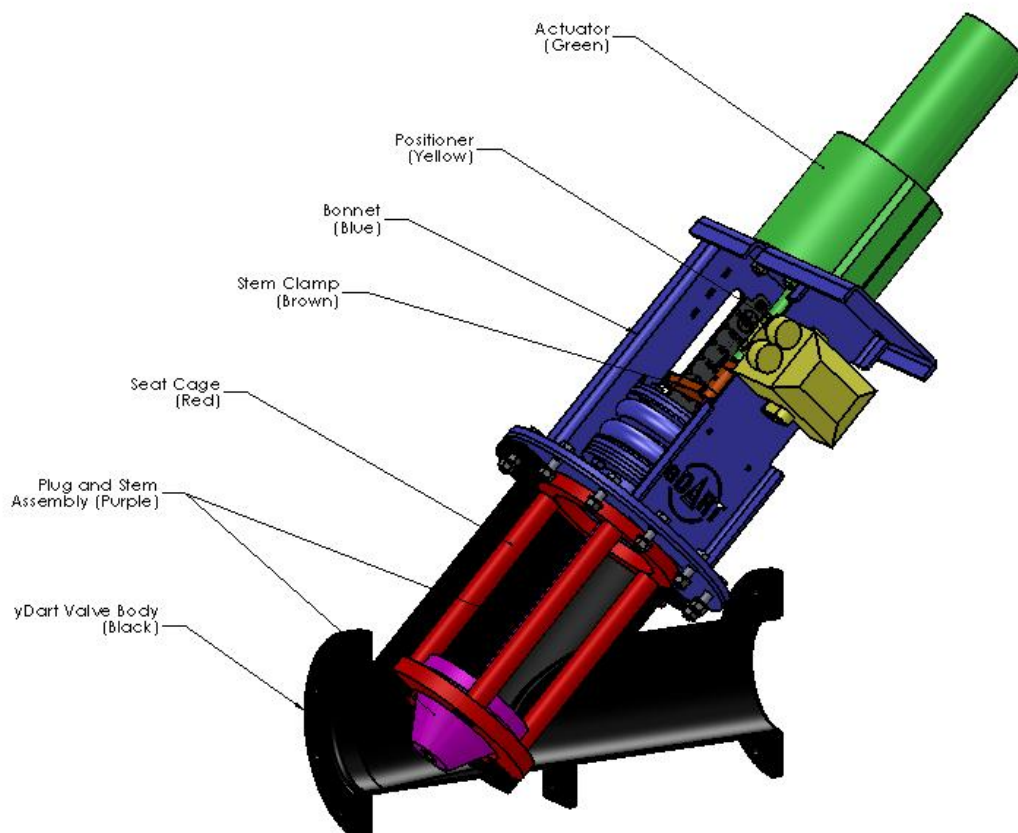


Figure 3: Major subassemblies of the yDart valve indicated in colour.

6.1. Replacing the plug

1. Ensure that the valve has been safely and correctly isolated. See §5 above.
2. Remove the nuts and bolts on the removable bonnet (Blue Assembly in Figure 3), the bonnet with actuator (Green Assembly in Figure 3) and plug (Purple Assembly in Figure 3) still attached can now be pulled out of the valve body (leaving behind the seat cage (Red Assembly in Figure 3)).
3. Place the bonnet in a suitable area to safely work on it, take care not to damage the actuator or positioner.

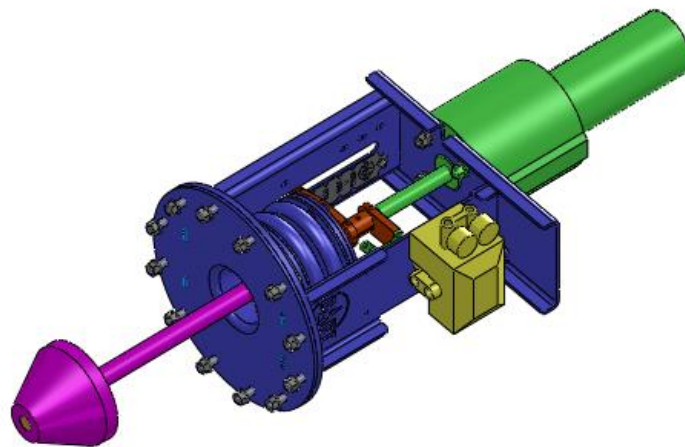


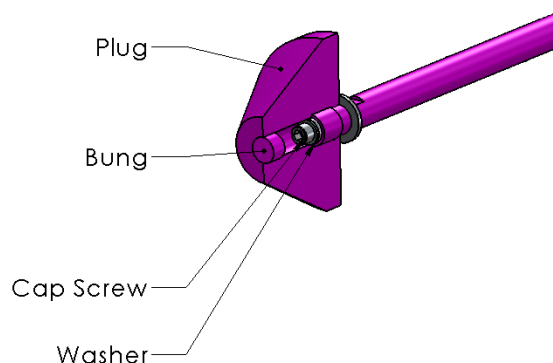
Figure 4: Removable Subassembly after undoing the bonnet bolts



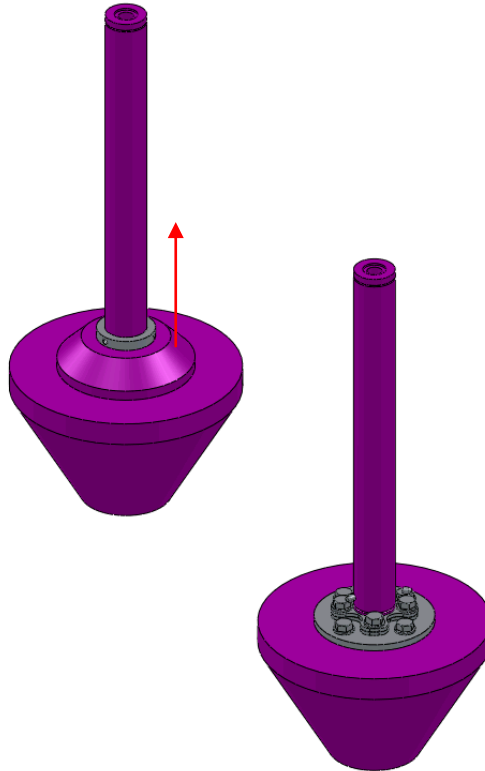
Note:

If the plug has a soft rubber coating, the plug and shaft will need to be replaced, if this is the case please refer to Replacing the Guides and Packing for details on how to remove the shaft. If the plug is not coated with rubber continue with instructions.

4. Depending on the size of the valve there are two styles of plugs:
 - a. For Small Plugs, remove the bung in the plug protecting the cap screw, the cap screw can now be removed and new plug fitted.



b. For Large Plugs



- i. Loosen the capscrews in the collar holding the plug cap down.
- ii. Lift up plug cap and loosen four bolts which hold the four half-washers in place. The plug can then be removed from the shaft.
- iii. Replace plug cap on shaft if necessary
- iv. Realign new plug and/or shaft. Position the four half-washers so the top two are 90 degrees from the first. Tighten bolts.

5. Reassemble in reverse order.

Note: Stroking or calibration of the positioner may be required to seat the plug correctly.



NOTE

Stroking and calibration will be required to seat the plug correctly. See eDART Installation and Maintenance Manual - Actuator for further instructions if necessary.

6.2. Replacing the Seat

1. Ensure that the valve has been safely and correctly isolated. See §5 above.
2. Remove the nuts and bolts on the removable bonnet (Blue Assembly in Figure 3), the bonnet with actuator (Green Assembly in Figure 3) and plug (Purple Assembly in Figure 3) still attached can now be pulled out of the valve body (leaving behind the seat cage (Red Assembly in Figure 3)).
3. Place the bonnet in a suitable area taking care not to damage the actuator or positioner.



NOTE

The larger valves may require that the bonnets be supported by rigging

4. Replace the seat cage assembly and reassemble in reverse order.

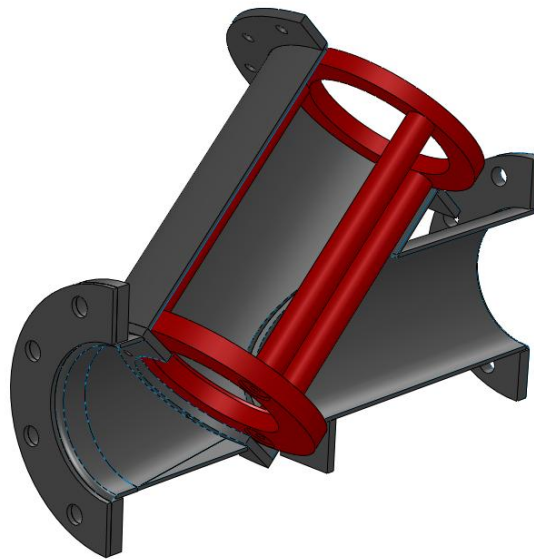


Figure 5: Removable Seat Cage



NOTE

Stroking and calibration will be required to seat the plug correctly. See eDART Installation and Maintenance Manual - Actuator for further instructions if necessary.

Note: Stroking or calibration of the positioner may be required to seat the plug correctly. See Actuator manual for instructions.

6.3. Replacing the Guides

1. Ensure that the valve has been safely and correctly isolated. See §5 above.
2. Unbolt and remove the bonnet from the valve.
3. Disconnect the actuator shaft from the valve shaft by loosening the stem clamp (shown in Figure 6 below)

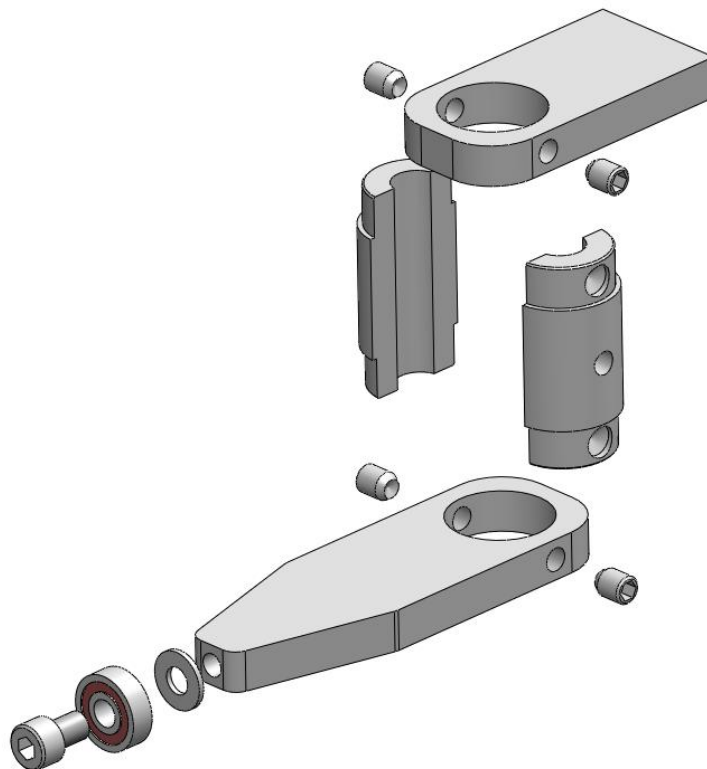


Figure 6: Stemp Clamp used to fasten the Actuator Stem to the Valve Shaft

4. Remove the actuator

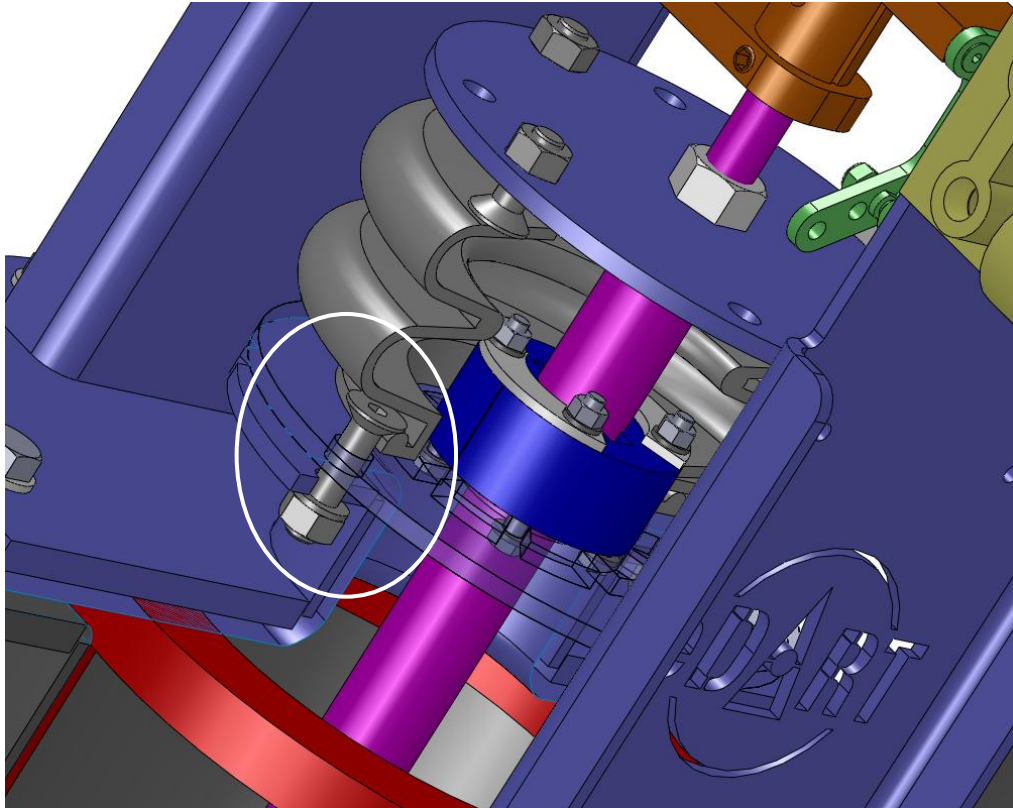


Figure 7: Partial section through bonnet showing location of guides and indicating the bolts to remove in order to gain access.

5. Loosen the bottom bolts attaching the bellow seal to the bonnet as indicated in Figure 7
6. The plastic sleeves can now be removed and replaced by loosening the bolts and saddle.
7. Re-assemble in reverse order, remember to put all spacers and washers back as they were removed.



NOTE

Stroking and calibration will be required to seat the plug correctly. See eDART Installation and Maintenance Manual - Actuator for further instructions if necessary.

7. yDART VARIATIONS

7.1. Poly yDart

In this type of yDart the liner, seat and guide bars are cast in polyurethane as one piece. Should there be any wear on the seating surface or the guides, the whole body needs to be replaced. See Figure 8 below

7.2. Flash yDart

The Flash yDart has an underflow (for the heavy particles), see Figure 9 below. This plate may need to be changed either if the size of the effective restriction needs to be changed or if wear has occurred. Entry is through the top of the valve after the bonnet and seat cage has been removed. It is attached with capscrews.

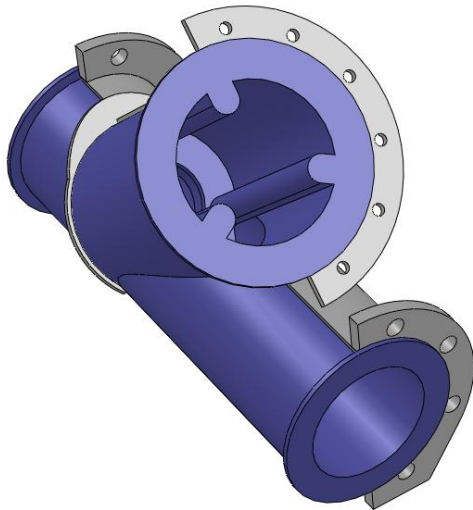


Figure 8: Poly yDart.

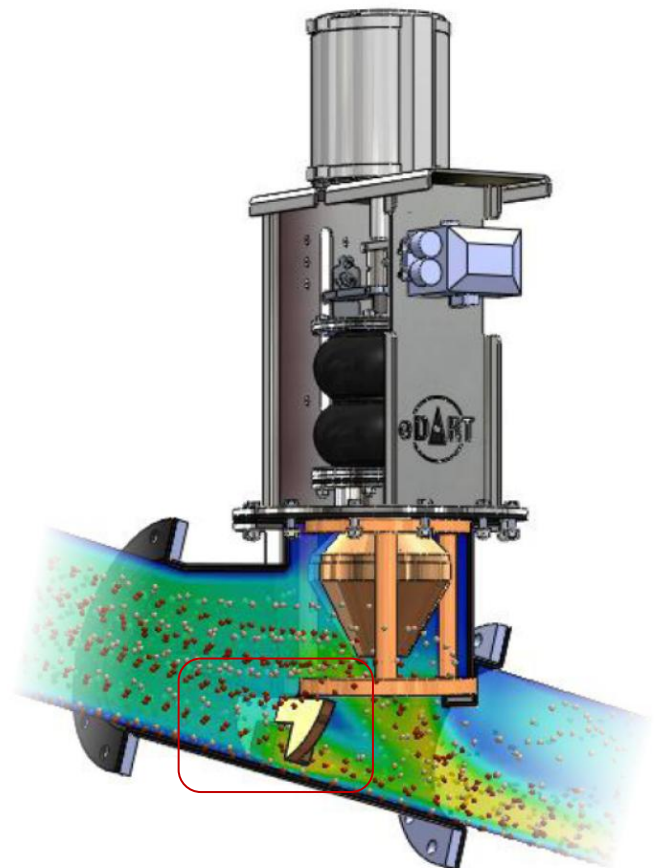


Figure 9: Flash yDart.



8. eDART SAFETY

1. The eDart is to be lifted using a soft sling under the body, taking care to support the actuator so as not to damage the actuator or positioner. **If applicable, do not lift from the eye bolt on the actuator as this will damage the actuator.**
2. Due consideration is to be given to the weight of the components before dismantling.
3. Rigging equipment and procedures are to be followed to service the eDart.
4. Safety procedures for the use of compressed air are to be followed.
5. Only suitably qualified persons to work on or maintain eDart valves.
6. All local safety rules and regulations with respect to safety clothes applicable, tools and equipment used and methods of operation are to be adhered to.

9. PROBLEMS

For any problems please contact eDART Slurry Valves directly on –

Toll Free: 086 011 EDART (33267)
Tel. +27. (0) 11.823.6620, or
email: maintenance@edart.co.za

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