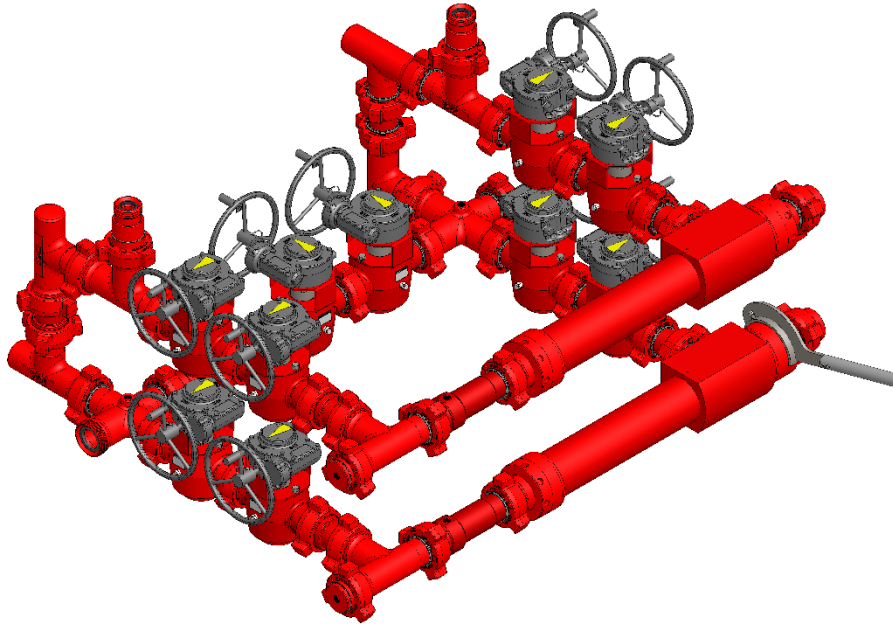


Red Deer Ironworks



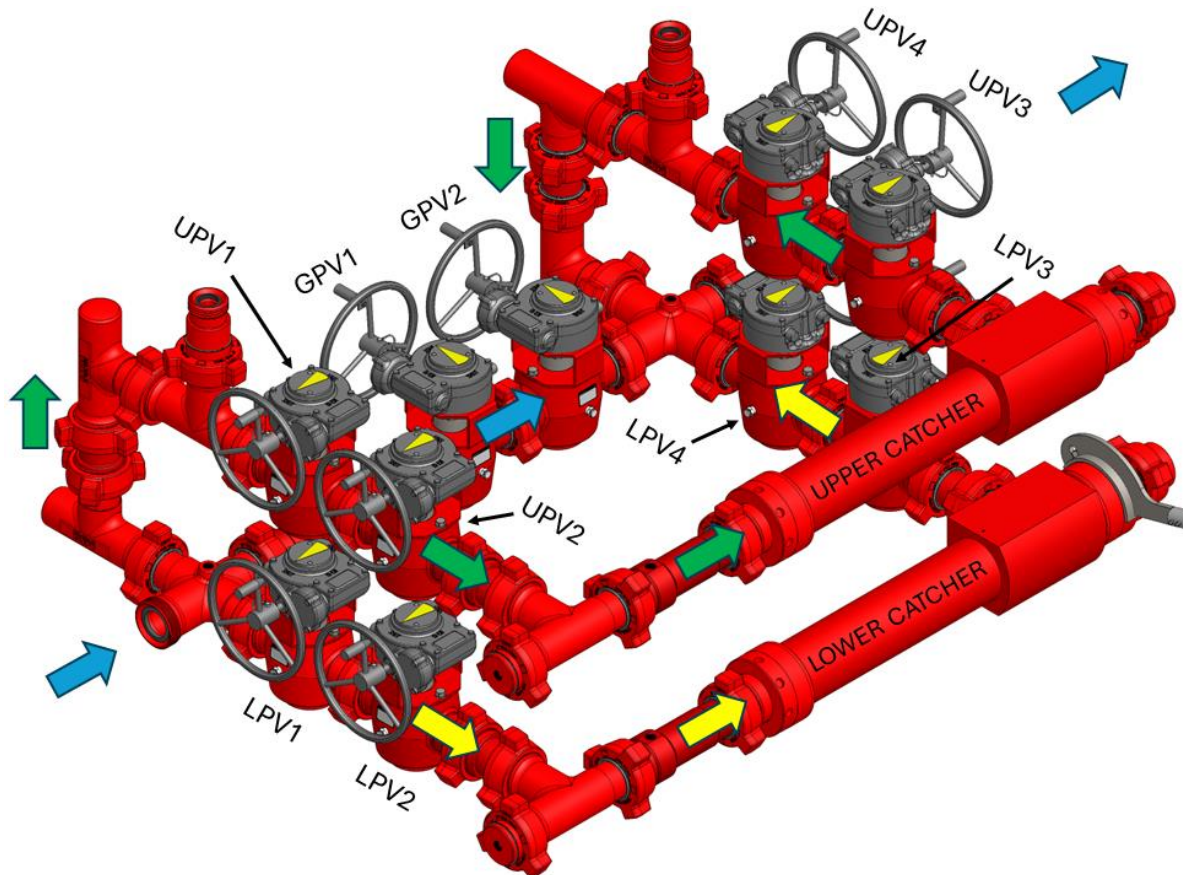
MANDC0476-A001 (Double Block) Operation Manual



The dual barrel debris catcher is designed to catch debris flowing back from the well. The dual design allows the operator to switch flow to the opposite catcher when the barrel becomes full and clean out the catcher while flowing through the opposite side.

When operating the dual block plug valves always close the downstream valve first followed by the upstream valve, when opening always open the valves in the opposite order i.e. open the upstream valve first and then open the downstream valve. This will save the upstream valve from wear, as it will be opened and closed when there is no flow and allow you to always be able to replace or service the downstream valve under single block isolation using the upstream valve if required.

Reference drawings MANDC0476-A001 and DBBL0428A-A001 for these procedures.



Procedure to operate catcher for one full cycle

1. Before opening flow to the catcher do the following steps:
 - 1.1. Close all plug valves on the upper debris catcher piping (UPV1 to UPV4).
 - 1.2. Open all plug valves on the lower debris catcher piping (LPV1 to LPV4).
 - 1.3. Ensure gutline plug valves are in the closed position (GPV1 & GPV2).
 - 1.4. Ensure blowdown valves (if present) or vent fittings on both levels are in the closed position.
 - 1.5. Initiate flow through debris catcher, fluid will now be flowing through the lower debris catcher barrel.
 - 1.6. It is up to the operator to determine when to switch screens, flow will be restricted when the screen is almost full. Leaving the screen too long will cause the debris to pack into the screen making it more difficult to clean.
 - 1.7. When it is time to clean out the lower debris catcher screen do the following steps.
 - 1.8. Open upper debris catcher piping valves in this order:
 - 1.8.1. Open the first upper plug valve first (UPV1).
 - 1.8.2. Open the remaining upper plug valves working from the first to second to third to fourth (UPV2 then UPV3 then UPV4).
 - 1.9. Close lower debris catcher piping valves in this order:
 - 1.9.1. Close the fourth lower plug valve first (LPV4).
 - 1.9.2. Close the remaining lower plug valves working back from the fourth to third to second to first (LPV3 then LPV2 then LPV1).
 - 1.10. Flow is now through the upper debris catcher and the lower debris catcher should be isolated.
 - 1.11. Ensure pressure is bled upstream and downstream of the lower debris catcher barrel.
 - 1.12. See DWG MANDC0476-A001 Sheet 2 for cleaning instructions.
 - 1.13. When it is time to clean out the upper debris catcher screen do the following steps.
 - 1.14. Open lower debris catcher piping valves in this order:
 - 1.14.1. Open the first lower plug valve first (LPV1).
 - 1.14.2. Open the remaining lower plug valves working from the first to second to third to fourth (LPV2 then LPV3 then LPV4).
 - 1.15. Close upper debris catcher piping valves in this order:
 - 1.15.1. Close the fourth upper plug valve first (UPV4).
 - 1.15.2. Close the remaining upper plug valves working back from the fourth to third to second to first (UPV3 then UPV2 then UPV1).
 - 1.16. Flow is now through the lower debris catcher and the upper debris catcher should be isolated.
 - 1.17. Ensure pressure is bled above and below the debris catcher barrel.
 - 1.18. See DWG MANDC0476-A001 Sheet 2 for cleaning instructions.
 - 1.19. Repeat steps starting at 1.7 to switch back to the upper debris catcher as necessary.
 2. Procedure to start flow through gutline:
 - 2.1. Open upstream gutline plug valve (GPV1) and then open the downstream gutline plug valve (GPV2).
 - 2.2. Close the fourth upper & lower plug valves (UPV4 & LPV4).
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- 2.2.1. Close the remaining upper & lower plug valves working back from the fourth to third to second to first (UPV3, LPV3, UPV2, LPV2, UPV1, LPV1).
3. Procedure to shutdown flow through gutline:
 - 3.1. If you do not want to flow through catcher skip to step 3.4.
 - 3.2. If you want flow through the upper debris catcher complete steps in 1.8 Then return to step 3.4.
 - 3.3. If you want flow through the lower debris catcher complete steps in 1.14 Then return to step 3.4.
 - 3.4. Close downstream gutline plug valve (GPV2) and then close the upstream gutline plug valve (GPV1).
4. Procedure to blowdown upper catcher when blowdown valves are installed:
 - 4.1. Open upper blowdown valve.
 - 4.2. If required close fourth upper plug valve (UPV4) and then close the third upper plug valve (UPV3).
 - 4.3. Once blowdown operation is complete continue to next step.
 - 4.4. Open the third upper plug valve (UPV3) and then open the fourth upper plug valve (UPV4).
 - 4.5. Close upper blowdown valve.
5. Procedure to blowdown lower catcher when blowdown valves are installed:
 - 5.1. Open lower blowdown valve.
 - 5.2. If required close fourth lower plug valve (LPV4) and then close the third lower plug valve (LPV3).
 - 5.3. Once blowdown operation is complete continue to next step.
 - 5.4. Open the third lower plug valve (LPV3) and then open the fourth lower plug valve (LPV4).
 - 5.5. Close lower blowdown valve.

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