## Integrated, pilot operated ram check valve with touch valve and baselift control

Figure 1 shows the conventional arrangement of a pilot operated check valve and a touch valve on a ram cylinder in the shield. The POC prevents the conveyor being pulled back by the reactionary forces of the mining machine or when a shield is advanced. The touch valve throttles the flow rate until a pressure of about 80 bar has been built up in the cylinder and then opens fully. This is designed to protect the mechanics.

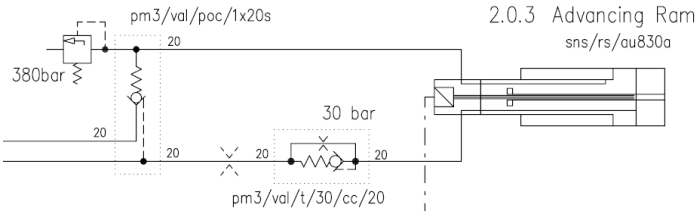


Figure 1

Depending upon the design of the shield, it might also be necessary to control a baselift cylinder (to lift the runners). The conventional method is to use another function (solenoid valve). There is often, however, insufficient pressure during shield advance for the baselift to function as the advancing equipment encounters only a small amount of resistance once the shield is moving. The pressure is then not sufficient to extend the baselift or to keep the runners off the ground.

This problem is solved by the integrated pm3/val/poc/ab<yy>a valve which utilises the accumulated pressure in front of the touch valve to extend the baselift using system pressure. Only once the advancing procedure has been completed, do the POC and controlled relief valve allow the pressure to drop in the baselift as well.

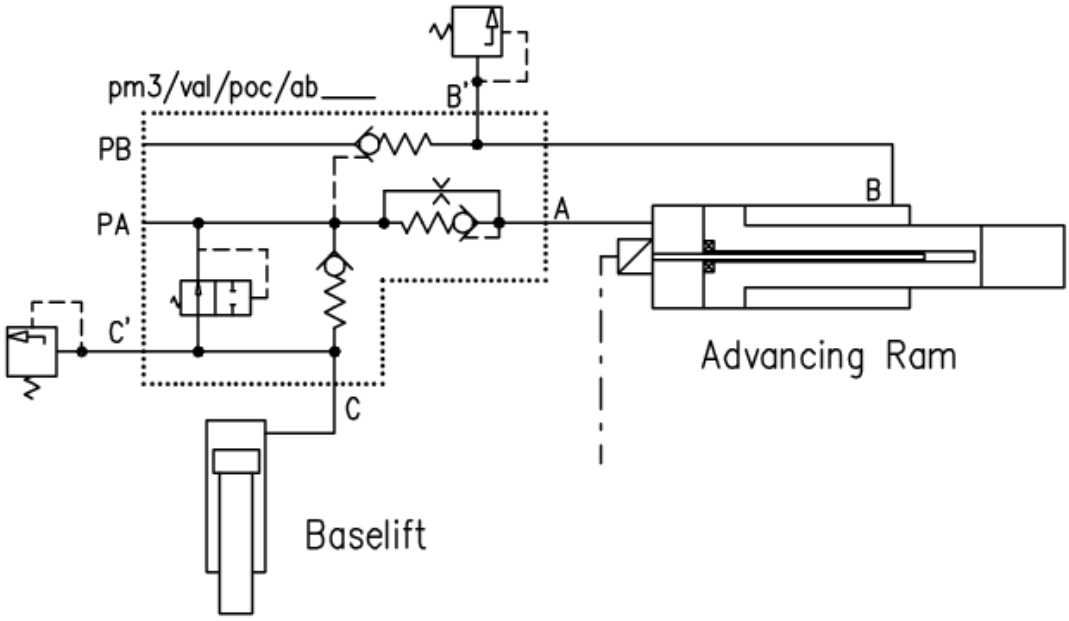


Figure 2 Solution with integrated pm3/val/poc/ab<yy>a valve



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All sealing seats are made of high quality PEEK material.

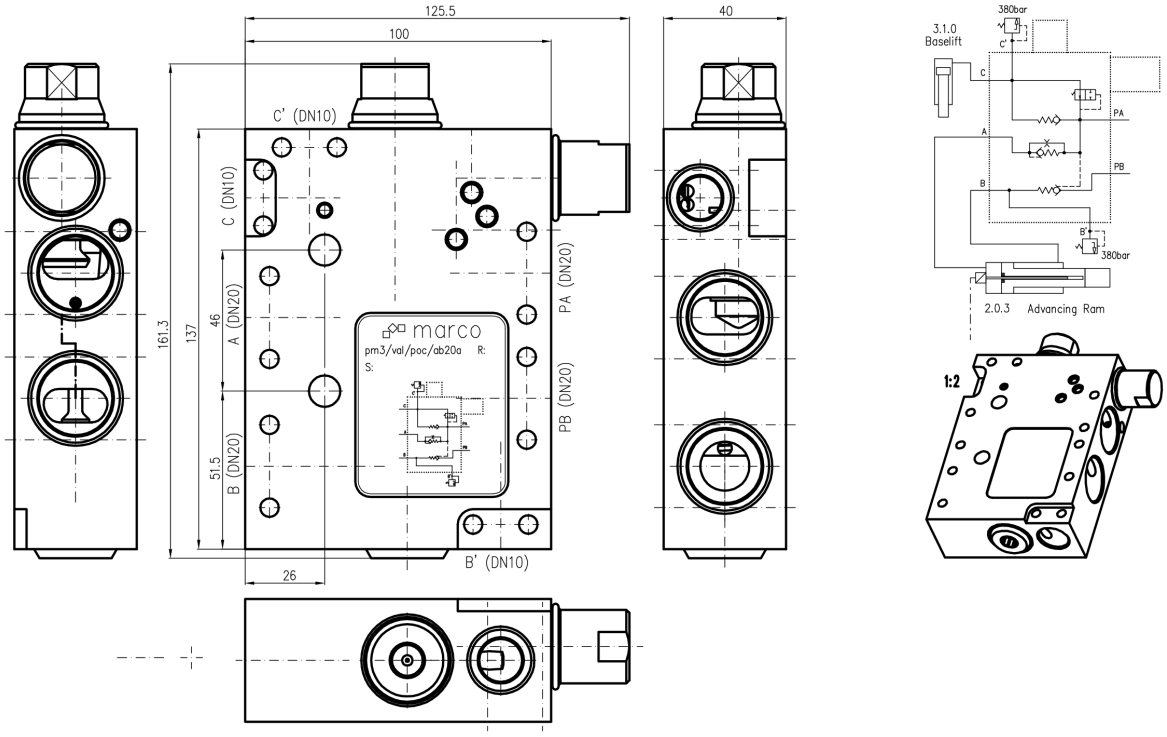


Figure 3 pm3/val/poc/ab20a

| | |
|---|---|
| PA | drawing of shield |
| PB | advance of conveyor |
| A | advance gear draw shield |
| B | advance gear advance conveyor |
| C | extend baselift |
| Either a plunger cylinder is used as baselift or the ring area is connected with the return line | |

| **Order number** | **Description** |
|---|---|
| pm3/val/poc/ab20a | Integrated pilot operated ram valve with touch valve and baselift control, DN20 |
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