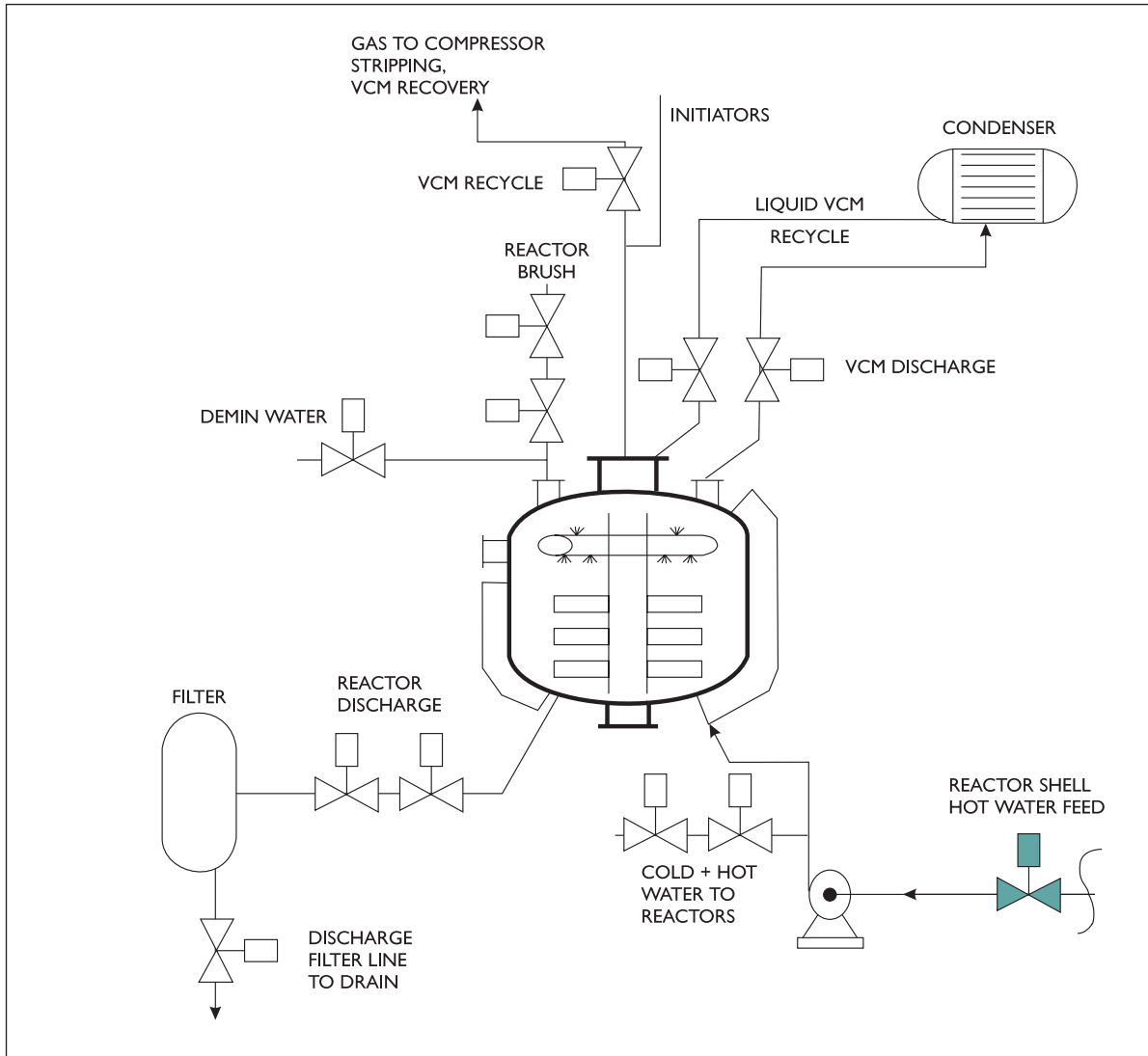


# VCM discharge to condenser



## Introduction

In the mass polymerization process of producing PVC, the enthalpy of the reaction is removed by two means, discharge of Vinyl Chloride Monomer (VCM) gas and heat transfer through a reactor shell. This application bulletin addresses the discharge of the VCM gas to a condenser, the valve application and requirements, and Metso Automation's solution.

## The Process

The reaction temperature of the PVC is held between 40-70 °C / 104-158 °F, depending on the desired quality of the end product.

Controlling this temperature is done by means of discharging VCM gas in order to evacuate the enthalpy or heat of the reaction.

## APPLICATION REPORT

The VCM gas goes to a condenser to remove excess moisture, and then is recovered to be used in other reactors. Typical process conditions seen by the VCM discharge valve are:

- Fluid: VCM gas with PVC product
- Flow: 1500 kg/hr
- Pressure: 11 bar / 155 psi
- Temperature: 95 °C / 203 °F

### Application demands

The application can be demanding because of several factors:

- Toxicity of VCM
- PVC product in flow stream
- Tendency for valve blockage

### Valve selection

For this application, a Metso Automation segment valve was proposed.

### Features and benefits:

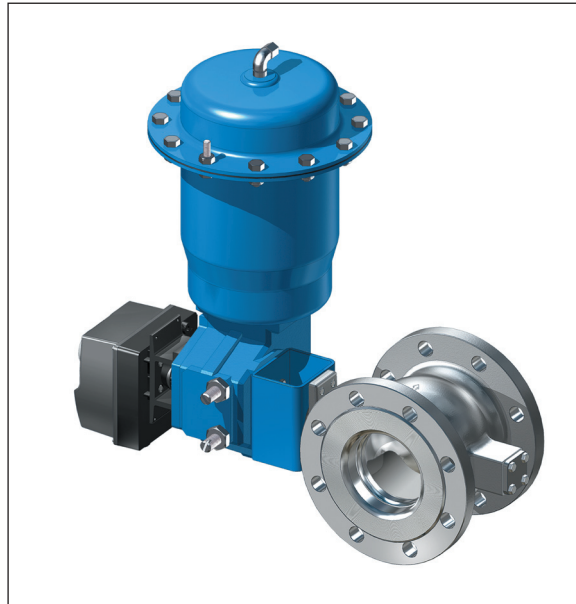
Increased production due to:

- Tighter controllability with segment ball valve rangeability
- Tight shut-off eliminating loss of product and emission of VCM
- Reduced loss of energy through high capacity flow path
- Reactor stoppages caused by valve blockage eliminated by use of valve jacket, polishing of body internals and metal seat

### Valve selected

Type: R series

- Segment ball valve
- Body and trim stainless steel
- Metal seat
- Flanged, ANSI 300
- Optional jacket
- Optional helium testing
- Optional polishing of body internals
- Metso Automation piston actuator



Metso Automation R series segment valve

The information provided in this bulletin is advisory in nature, and is intended as a guideline only. For specific circumstances and more detailed information, please consult with your local automation expert at Metso.

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