

SchuF VALVES FOR PVC SERVICE



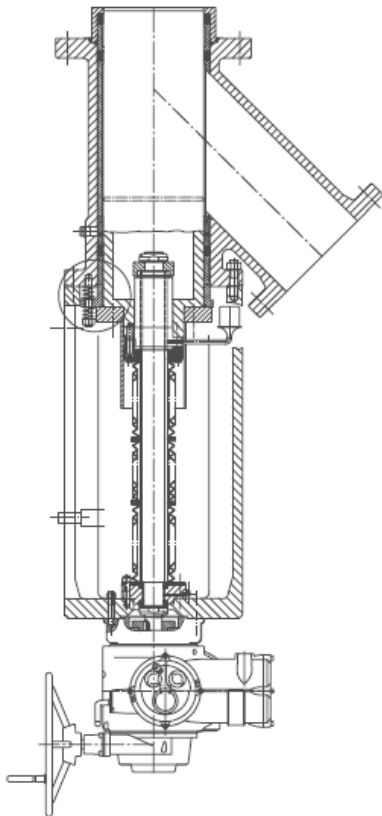
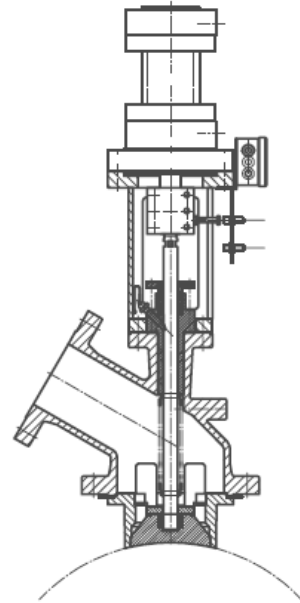
Leadsheep im PVC



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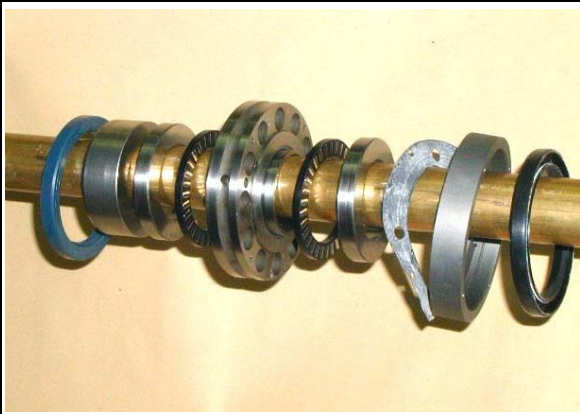


For **feeding** VC into the reactor, SchuF disc type 25BH is ideal. For this service, there is no need for a full bore ram valve. Instead a disc valve where the disc and seat are contoured to exactly match the vessel wall is best. For feeding valves, a bellows seal to atmosphere is recommended to meet the stringent VC pollution requirements



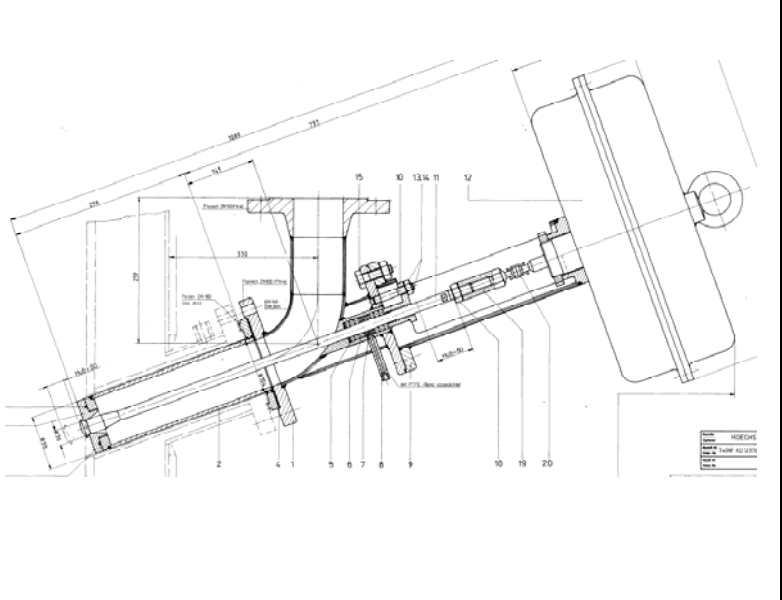
To **discharge** PVC, SchuF would suggest a radially sealed ram type 28KR or metal-metal sealed type 28KS depending on the customer's process philosophy. An alternative radially sealed design would be the pressure sleeve type 26KR which is undoubtedly the predominant style valve for PVC discharge service. SchuF developed the type 28 valve as a successor to the type 26. A full bore valve is key for maximum tank drainage speed. This in combination with the spray rinse valve (see below) means more batches of PVC per year.

Another possible alternative design for the discharge valve is a disc type which SchuF has supplied successfully in the USA. This style valve is significantly more compact than the ram type.

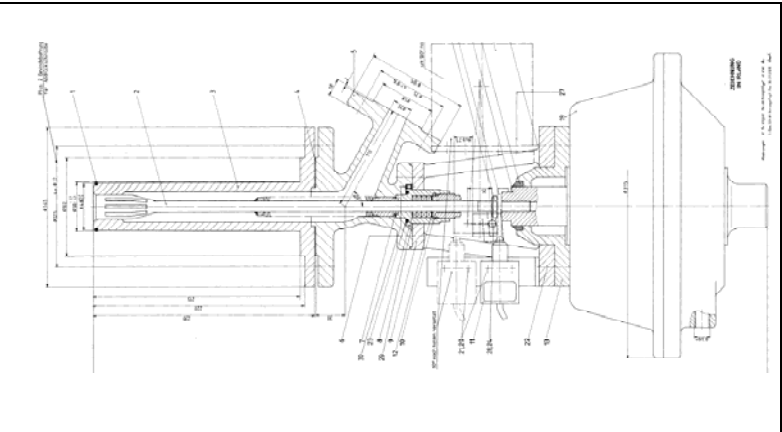


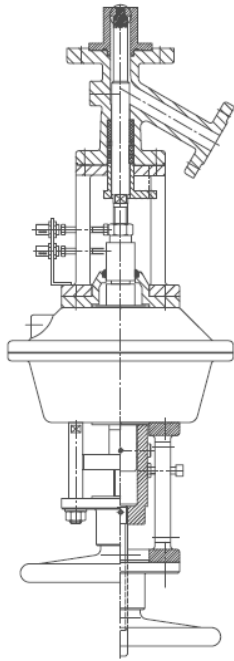
Often the bottom **discharge** valves are very large piston valves which the customer specifies with air or electrical motor actuated. For such cases, SchuF recommends a re-circulating ball screw for the valve spindle. This allows for faster and smoother actuation, reduces the actuator size requirement and greatly enhances the spindle and spindle thread life. This option applies to size 10" and over.

An efficient way of **adding catalyst** into the reactor is into the liquid phase near the agitator, which reduces the total catalyst requirement (often very expensive). SchuF Type 74RC offers for this service a very accurate control. A smooth electrochemical polished surface and replaceable seats are of great importance here.



Some processes inject colloids into the PVC to prevent the particles becoming too big. A disc type **injection** valve with a bellows seal to atmosphere is used for this.

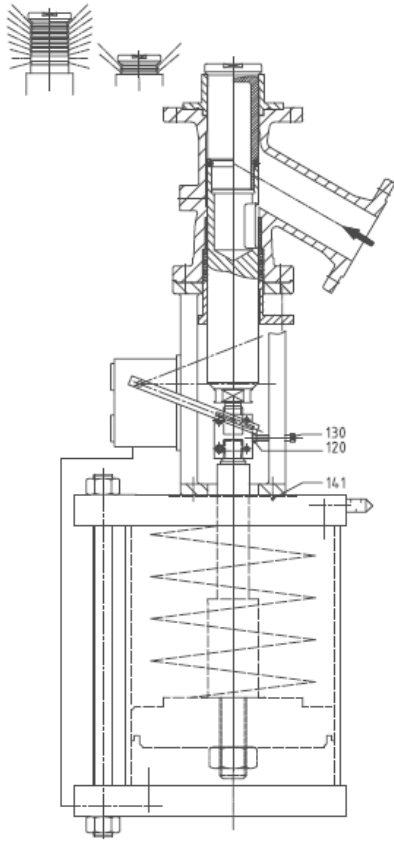




If the PVC reaction gets out of hand due to its exothermic nature, the process has had to be aborted. The SchuF **killer** valve – a modified type 28KS ram valve with pneumatic diaphragm actuator – is used to inject ‘stopper’ backed up by a 30bar N₂ tank system. It's important that the stopper is injected into the vessel contents rather than percolate up the side of the tank, which can happen if the incorrect valve is used.

Instead of heating and cooling the vessel through the jacket, the batch can be heated much more efficiently by **injecting steam** directly into the product using a SchuF type 27SE – patented by Wacker and SchuF – which evenly distributes the steam. Important is the optimal nozzle distribution to minimise steam use and thus dilution.





Once the reaction is complete, remaining free monomers and impurities are stripped using a **steam stripping** valve. This normally happens in a stripper. It is however possible to strip inside the reactor during the polymerisation. In both cases it is important to maximise efficiency – i.e. minimise steam use and product dilution – by optimising the size, angles and distribution of the holes in the steam injection head. These valves usually come with stepped linear control and a positioner. Product back flow is prevented by a leak path allowing steam flow through the valve as soon as it begins to open.

To **rinse** the tank after a batch a type 27SR spray rinse valve can be used. The valve directs the spray pattern first at the bottom pad, then up the vessel sides, until finally up against the vessel dome. The dome and the bottom pad are the parts most in need of cleaning. The cleaning cycle is optimised so the time between filling is minimised. The valve can be used for water or steam at up to 40 bar and also to inject anti-stick agent on a steam carrier which can reduce the cleaning frequency significantly. Cleanliness may not be as thorough as by doing it manually with a high pressure system. However, the frequency of thorough manual cleaning is significantly reduced meaning that the valve pays for itself within a few weeks.

