



DELTA DA3+
simply the best!



An Invensys company

The most important advantages of the DELTA DA3+ at a glance



The hygienic double-seat mixproof valve DELTA DA3+ is the result of the persistent further development and improvement of the for many years successfully proven valve DELTA D3+.

As a modern double seat valve, of course being free of operating leakages and safe from pressure hammers, and with its integrated seat lift cylinders, it fulfills all demands raised on valves designed for the safe separation of fluids in hygienic process technologies.

- Safe separation of fluids
- Free of operating leakages
- Safe against pressure hammers
- Integrated lifting cylinder
- Housing free of dead spaces - without sump and without dome
- Crevice-free sealing with marked profile seals
- Comprehensive cleanability of all product-wetted parts inclusive shaft seal, seat seal and leakage chamber
- Minimum consumption of cleaning liquids
- Electropolished inner surfaces $Ra \leq 0,8\mu m$, shorter cleaning time
- Compact design: low construction height and low weight
- No risk of injury - all movable parts are covered.

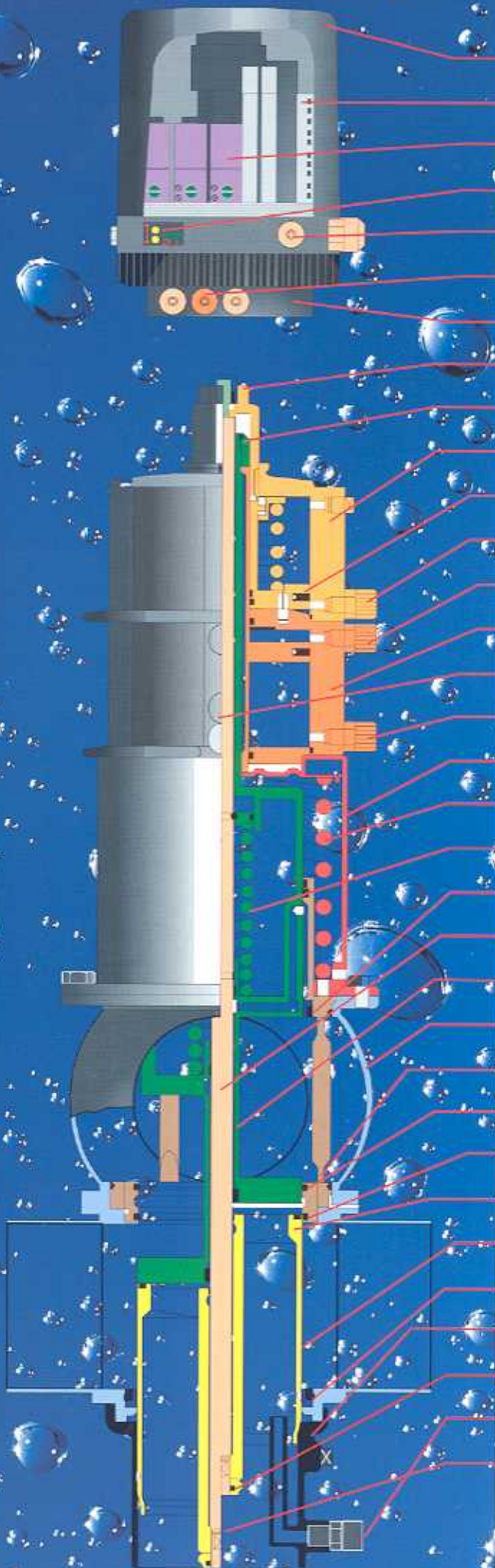
Simple Maintenance

Just 7 seals in the product chamber, seat seals are identical and shaft seals are identical.

Within the subassemblies I (DN 40,50,65), II (DN80,100) and III (DN125, 150) all seals are identical. Simple disassembly and assembly without compressed air.

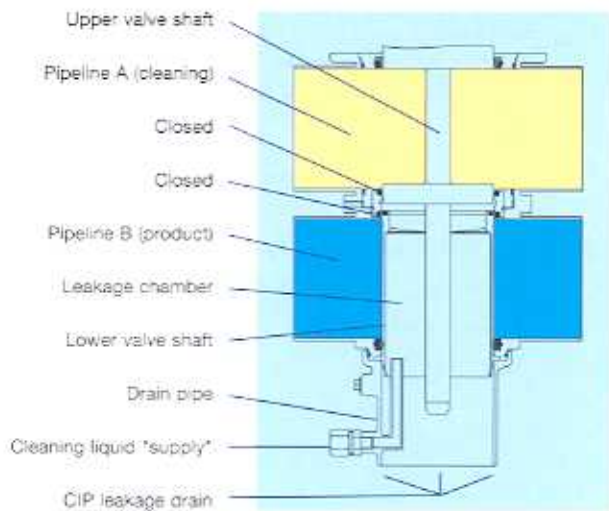
The cleaning connection at the valve housing remains during the valve maintenance.





- Control Unit
- Interface with terminal
- Solenoid valve
- LED indicator
- Air supply
- Air connections to valve
- Adapter
- Stop sleeve (optical position Indicator)
- Coupling (upper shaft)
- Cylinder (lower seat lift)
- Piston seat lifter
- Air connector (lower seat lift)
- Air connector (valve open)
- Main cylinder:
- proximity sensor (valve position)
- Air connector (upper seat lift)
- Spring cylinder
- Main spring
- Central spring
- Upper shaft seal
- Guide rod
- Upper valve shaft
- Valve housing
- Seat lantern
- Upper seat seal
- Lower seat seal
- Middel seal
- Lower valve shaft
- Lower shaft seal
- Drain pipe
- Coupling lower shaft
- CIP- connector
- Leakage drain



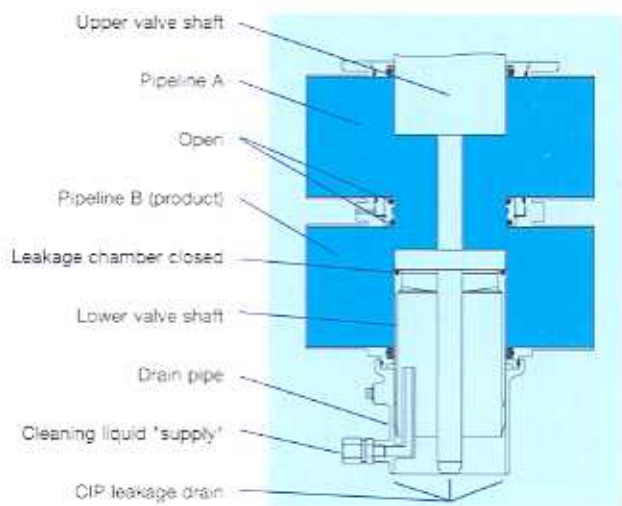


Function: Closed Position

The upper and lower valve shafts are closed by spring force and safely separate the fluids A and B. The large leakage chamber is situated between the valve shafts. This chamber ensures a free and absolutely depressurized discharge of leakages or cleaning liquids to the bottom.

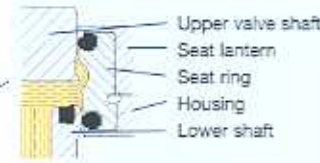
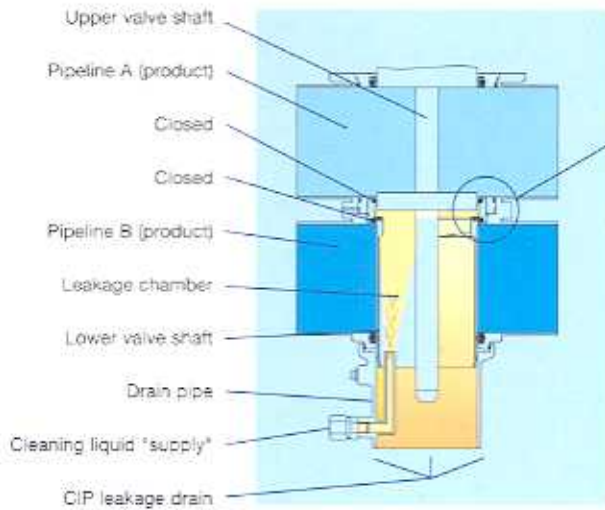
Cleaning

The double-seat mixproof valve DELTA DA3+ makes a complete and reliable cleaning of all product-wetted parts inclusive seals possible. For this purpose, the functions seat lifting as well as the separate spraying of the leakage chamber are available. After upper or lower seat lifting during the CIP pipeline cleaning, the spraying of the leakage chamber is not imperative, since an efficient cleaning of the leakage chamber is already done by seat lifting. The spraying of the leakage chamber can be carried out if required, either in critical applications in addition to the seat lifting or between the switching operations of the valve to keep the neutral area between the two valve shafts clean.



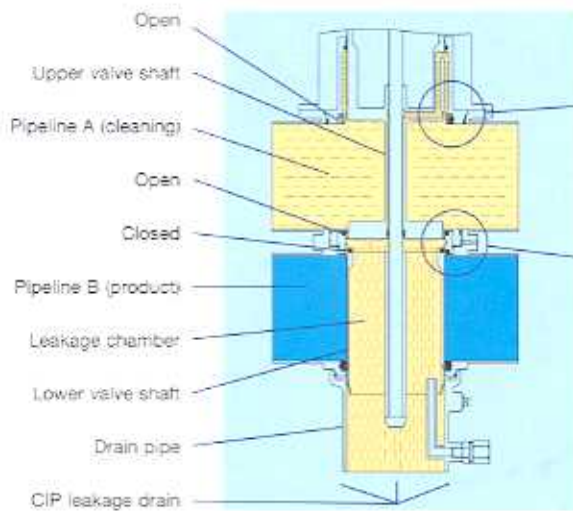
Function: Open Position

The upper valve shaft is moved against the middle seal of the lower valve shaft by operation of the actuator. Thus, the leakage chamber is closed against the product chamber. Then, the two valve shafts move downwards into the open position, connecting the pipelines A and B.



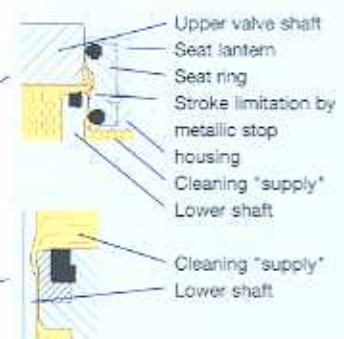
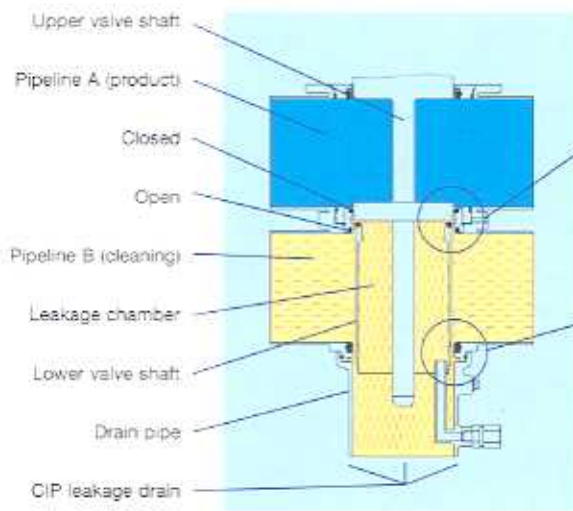
Cleaning: Leakage Chamber
 Cleaning is realized by directed spraying of cleaning liquids from the cleaning

connection at the drain pipe. As a result of the tangential flow created, the leakage chamber and the seat area are cleaned reliably. The cleaning liquid drains off to the bottom in depressurized state.



Cleaning: Upper Valve Area
 By lifting of the upper valve shaft, cleaning liquid flows across the upper seat seal, the middle seal and the upper shaft seal. The leakage

chamber is cleaned simultaneously. The cleaning liquid drains off to the bottom in absolutely depressurized state.



Cleaning: Lower Valve Area
 By lifting of the lower valve shaft, cleaning liquid flushes across the lower seat seal and the middle seal as well as across the lower shaft seal.

The leakage chamber is flushed simultaneously. The cleaning liquid drains off to the bottom in absolutely depressurized state.

APV Valves for the safe separation of fluids

For every application in the hygienic process technology APV offers the appropriate valve:



DELTA DA3+

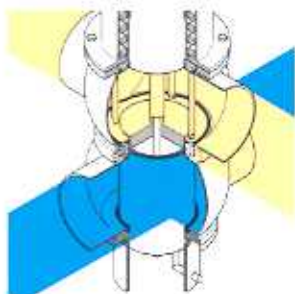
The best of. State-of-the-art, free of operating leakages and fully balanced, double-seat mixproof valve with integrated lifting for the flushing of seat and shaft. External flushing of the leakage chamber in addition if required. For ultra-clean applications in the safe separation of fluids.

DELTA DE3

A technology that is just right. Up-to-date, free of operating leakages and fully balanced, double-seat mixproof valve without seat lifting for all standard applications in the hygienic process technology.

Optional equipment with Control Unit DELTA CU, comprising solenoid valves and control, or with Control Unit DELTA CU Valve-Net, additionally comprising a Profibus interface.





Safe separation of media:
Separation of different media
through application of double
seal techniques.

Medium 1
Medium 2



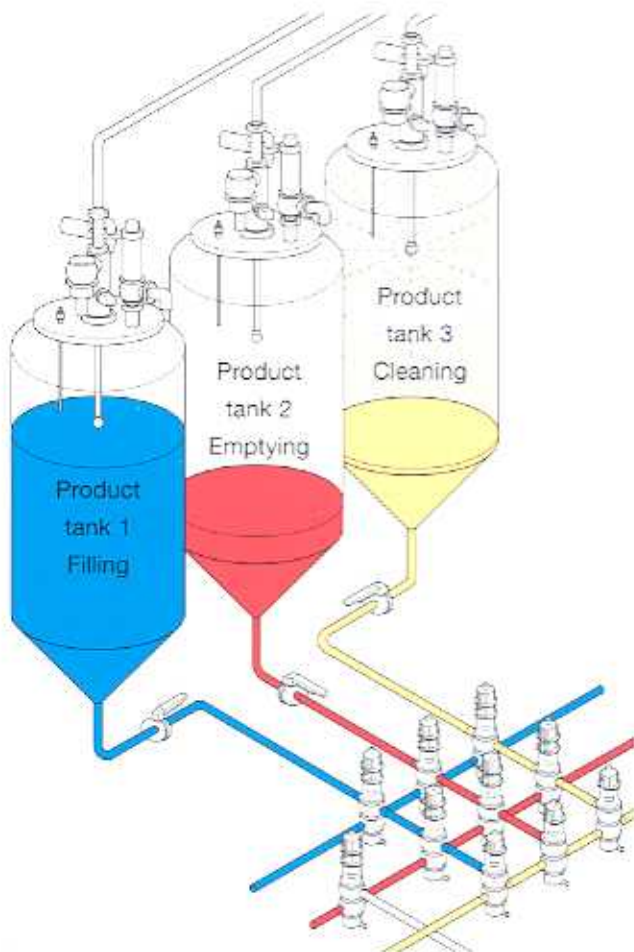
DELTA DKR

The compact and patented double seat ball valve with full pipeline cross-section in open position is suited for pigging. CIP connector for external flushing of the leakage chamber. Beside the tank outlet valve DKRT and the high-pressure design DKRH many special solutions, like for horizontal installation, enlarge the fields of application.



DELTA SD4

A simple and reliable double seal valve with pneumatic valves for the discharge and effective cleaning of the leakage chamber. To increase the closing forces of the valve it is equipped with NOT element as a standard.



Technical Data

Sizes:	DN 40 - 150 OD Tube 1,5" - 4", IPS Sh5 1,5" - 4", others on request
Housing types:	31, 32, 33, 34
Materials:	product-wetted parts: 1.4404/AISI 316L other parts (actuator): 1.4301/AISI 304, and PA12GF30 drain pipe PP seals EPDM (PTFE), HNBR (PTFE) (seal materials according to FDA regulations)
Surfaces:	inside electropolished RA \leq 0,8 μ m outside glass beaded, satin finish
Product pressure:	10 bar
Product temperature:	140°C EPDM, HNBR
Sterilization temp.:	(short-term) 150°C EPDM, 140°C HNBR
Pneum. air pressure:	6-10 bar, valve normally closed



APV Fluid Handling

Hygienic handling of fluids is a demanding task. But APV Fluid Handling has the expertise and know-how to manufacture components that match any processing requirements.

The APV Fluid Handling companies each have highly specialised manufacturing facilities and by working together, we develop components designed to meet the highest hygienic standards.

Therefore APV pumps, valves, fittings and other fluid handling equipment are found in the food, dairy, brewery, pharmaceutical, personal care, and chemical industries and other types of hygienic processing plants throughout the world which demand the highest degree of reliability, productivity and profitability.

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