

# ACTIVITY DISTRIBUTION SYSTEM

The activity distribution system is designed to safely distribute radioactive targets in fluid and liquid states from the cyclotron to hot cells making use of multi-position valves.

The ADS is operated remotely with touch screens. The operator logs into the system and selects the route from the cyclotron to a (specific) hot cell. After submitting the route, the door of the destination hot cell will be interlocked to ensure a safe transfer. After the target content is transferred, the ADS system will confirm successful delivery.

We will develop the optimal product routing possibilities considering the number of (future) products and hot cell compartments.

This distribution system is available in two widths and two different shielding thicknesses.

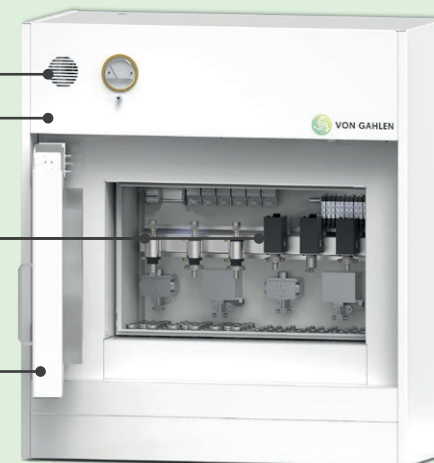
Variants	ADS	ADS-XL
Multi position valves	2 pcs	max. 6 pcs
Internal dimensions [mm] (W*D*H)	600*210*380	850*210*380
Outside dimensions [mm] (W*D*H) With 75 mm Pb shielding	Appr. 1.250*760*1.400	Appr. 1.500*760*1.400
Weight @75 mm shielding [Kg]	Appr. 1.750	Appr. 2.800
Weight @100 mm shielding [Kg]	Appr. 2.250	Appr. 3.600
Exhaust [m <sup>3</sup> / hr]	1	1,5

Ventilated cabinet

Shielded cabinet can be integrated in hot cell configuration

High quality multi position valves

Electrical lock with interlock



## STANDARD FEATURES

### Radiation protection

- Up to 75 mm lead shielding in all walls, roof and floor. (can be integrated into a hot cell line).
- Electrically locked and interlocked shielded door.
- Unshielded version only suitable for installation in a cyclotron room (or separate room).

### Sample & product handling

- Easy target line connections through airtight connector plates (can be replaced easily).
- Liquid target lines feed through corrugated guide tubes (can be replaced easily).

### Air handling / distribution

- Leak tightness according to ISO10648-2 Class 3 (<1% hourly leak rate).
- Air inlet: with HEPA filter (H13), including valve.
- Air exhaust: including valve.

### Cleaning

- Internal enclosure of high-grade 316L stainless steel with special micro-surface treatment.
- Exterior finish traffic white [RAL 9016], easy to clean.

### System operation / control

- A PLC is used to control the distribution system.
- Operating the activity distribution system is via the hot cell control panel. This is a user-friendly, intuitive interface.
- An additional control panel close or on the ADS cabinet is available for local control.
- The software-guided distribution is based on cyclotron- and hot cell status.
- Routing options are fully customizable by authorized user.
- The high-level system components (multi-position valves for gasses and liquids) are connected to an industrial controller running a SCADA application.
- Implementation of software is conformed to SDLC (software development life cycle).
- Development and validation of software according to GAMP and is technically compliant with Eudralex V4 Annex 11 and 21 CFR Part 11.

### Utilities

- High-quality multi-position valves for gasses and liquids have up to 12 positions with waste and home positions.
- Airtight pass-through for custom entry of guide tubes and stainless steel tubing.

## OPTIONAL FEATURES

- Multi-position valves with up to 12 configurable positions.
- Pneumatically or electrically actuated multi-position valves.
- Unshielded cabinet.
- Uninterruptible power supply (UPS).
- Manual valve controller for maintenance
- Safety valve(s).
- Ion chamber (further modifications may apply).
- Radiation detection system, including safety interlock.
- Liquid waste bottle.
- Additionally, safety shutdown valve.

