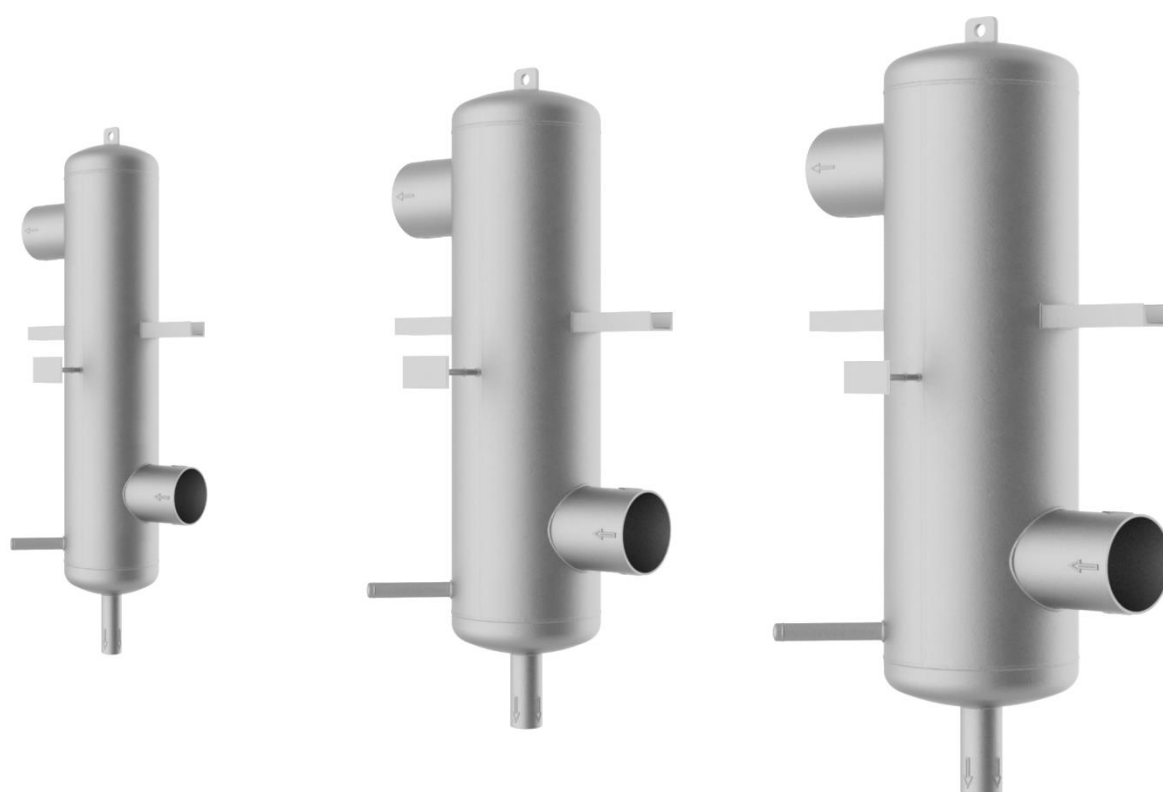


HAD

High-performance separator



HAD – High-performance separator

The HAD is a highly efficient compact separator, which can be integrated and flexibly used in almost any piping system due to its vertical design.

It offers you reliable, very effective droplet separation and increases the efficiency of your compressors and thus of the entire refrigeration system.

The HAD can separate up to 20,000 ppm (2% of mass flow) of liquid refrigerant.

Thus, the HAD offers you an effective alternative as a:

- **Compact and cost-effective system extension**

In the case of system extension, the capacity of the existing refrigeration system can be increased without replacing the existing separator or extending the machine room. After installation of the HAD in the suction line, it reliably takes over the separation of the refrigerant and allows you to increase the level of the existing separator (depending on the existing separator system) to a maximum. Then the separator functions only as a collecting tank.

- **Simple remedy in case of insufficient separation**

If the installed separator does not separate reliably and droplets of liquid refrigerant get into the compressor suction line, the HAD is the solution for reliable separation.

- **Economiser in systems with screw compressors**

In systems with screw compressors the HAD can be used as an economiser in combination with an upstream and downstream expansion element (e.g. WITT high pressure float regulator). The compressor is thus relieved and works more efficiently. Also, the low-pressure separator can be dimensioned smaller.

- **Reliable secondary separation for direct expansion systems**

For direct expansion systems, the HAD offers additional safety: In the event of unforeseen operating conditions (e.g. rapid load changes) and the requirement to generate as little overheating as possible, increased liquid contents in the suction line can occur. The HAD reliably separates the liquid part of the refrigerant from the evaporator and thus protects your compressor from possible liquid hammer.

Installation instructions



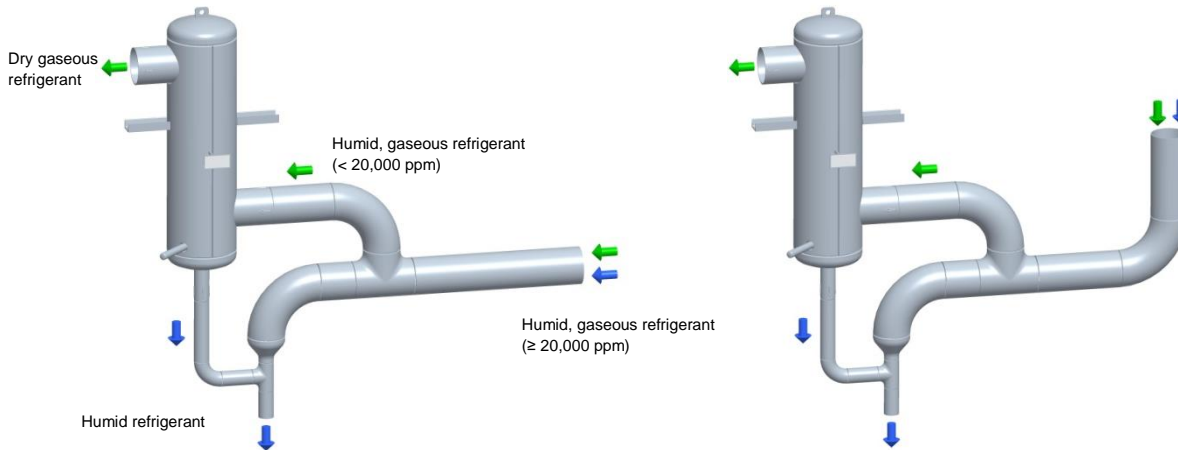
NOTE

The installation possibilities shown are exemplary sketches. These sketches do not show concrete installation instructions. For your personal installation, please contact us in advance.

The pipelines are to be laid according to the state of the art; this includes appropriate gradients and crossovers in the pipelines.

Pipeline routing

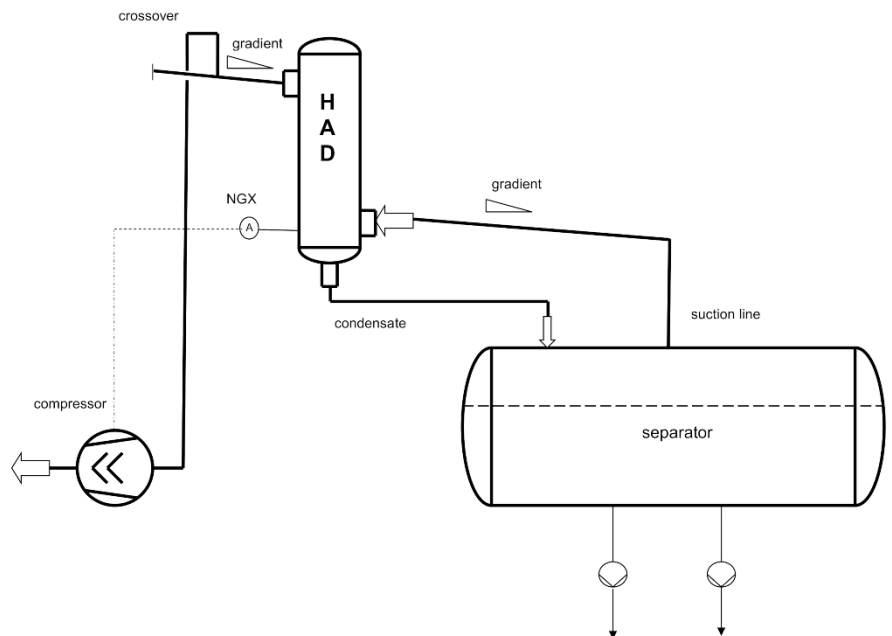
From a liquid portion of refrigerant of 20,000ppm in the suction line upstream of the HAD, multiple deflection of the gas flow is absolutely necessary. This increases the separation of the liquid components and ensures a dry suction line to the compressor!



The HAD should be installed in front of the compressors as shown in the applications.

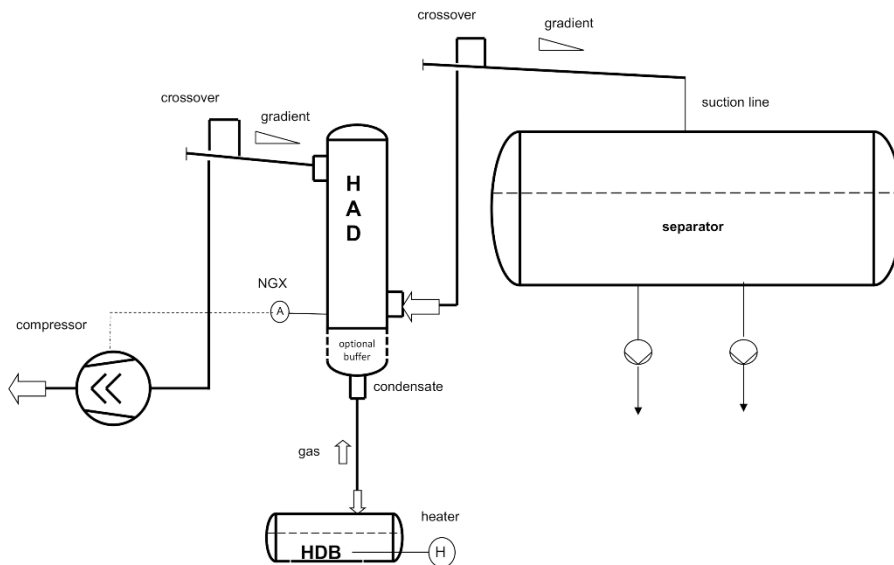
Standard connection

Under normal conditions the HAD is installed above the original separator in the suction line to the compressor. The liquid refrigerant separated in the HAD returns via a separate connection on the original separator. Here the HAD is installed in close proximity to the original separator (thus no height is required to overcome the pressure losses).

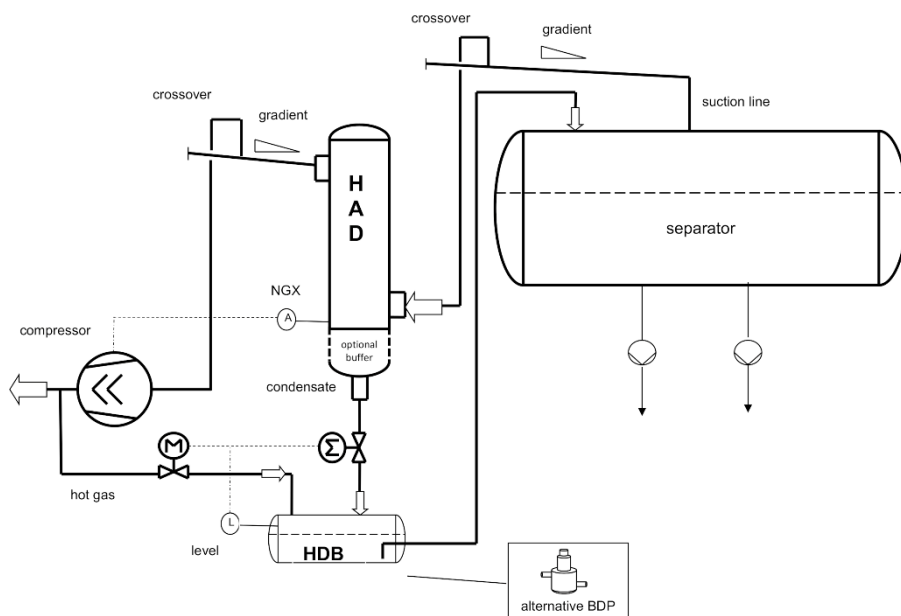


Connection in case of height problems at single-stage system

If only small amounts of liquid are expected in the suction line (e.g. if the separator is only temporarily overloaded) and the corresponding connections on the separator are missing, the HAD can be installed independently of the separator. The resulting condensate is collected and heated up in the HDB collection tank and flows as vaporized gas in counterflow back to the HAD where it is led to the compressor with the suction gas.



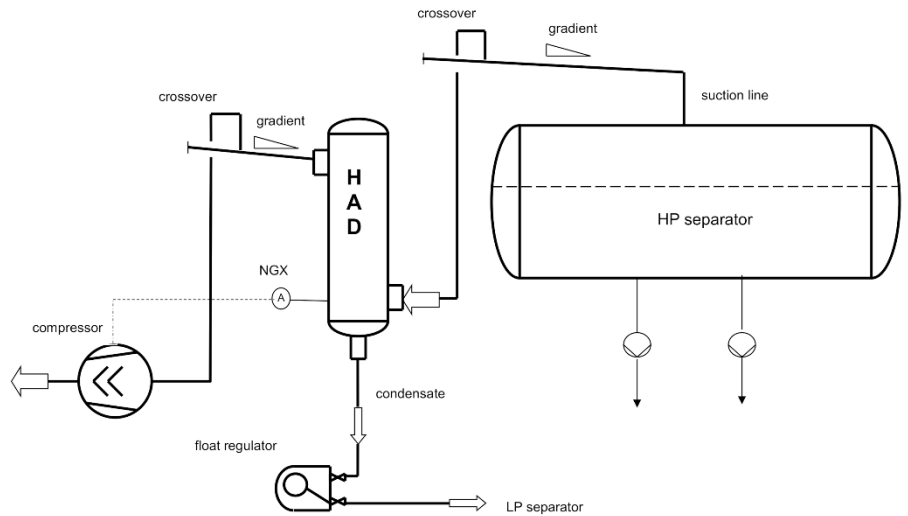
Connection in case of height problems with hot gas recirculation



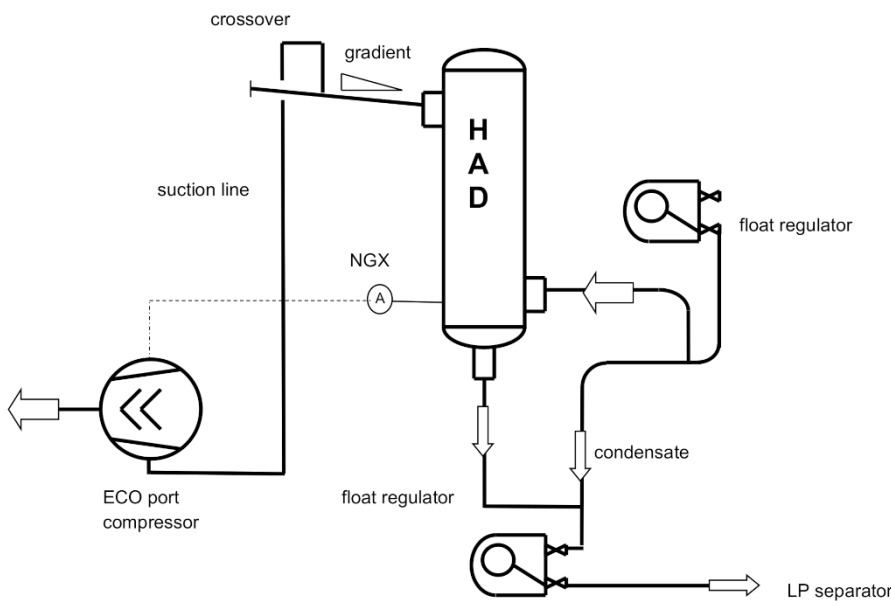
If the liquid content in the suction line is estimated to be higher and the HAD cannot be installed above the separator for space reasons, it is possible to use the existing discharge gas produced by the compressor to push the collected condensate back into the separator. Installation instructions such as gradients and crossovers must be observed here!

Connection in case of height problem in two-stage systems

In two-stage systems the HAD can be installed independently of the separator. The condensate produced is automatically conveyed to the low-pressure side by a float. Installation instructions such as gradients and crossovers must be observed!



Connection as economiser downstream the condenser



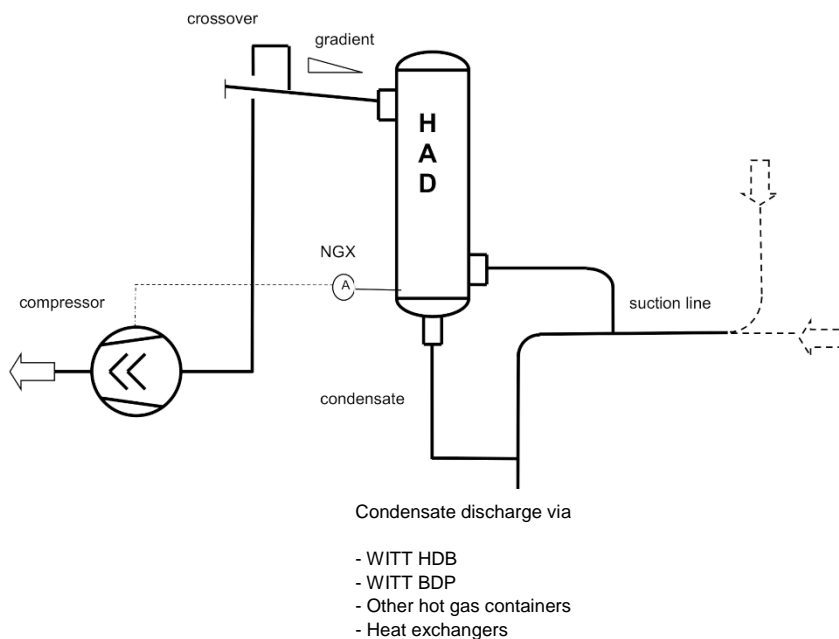
When installed as an economiser, the flash gas already expanded to ECO pressure is sucked through the HAD without droplets to the ECO-port of the screw compressor.

Liquid refrigerant separated in the HAD to ECO pressure is then expanded to low pressure via the lower outlet into a second float regulator.

Connection as secondary separator in DX-systems

When installing the HAD as a secondary separator for DX-systems, the special piping design of the suction line and the connection of the condensate line must be taken into account.

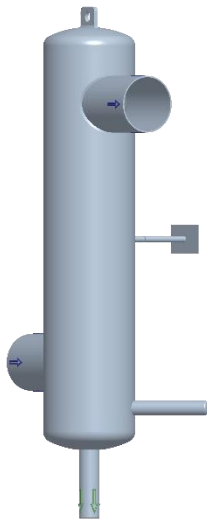
It is important that the collecting tank for the separated liquid refrigerant (in this case a WITT HDB) is dimensioned for the maximum quantity of liquid refrigerant to be expected from the DX-evaporator (e.g. for hot gas defrosting).



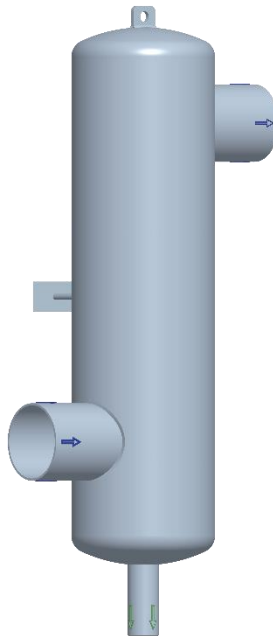
Available capacities and technical data

	Weight [kg]	PN _{MAX} [bar]	Capacity [kW]*	Capacity [kW]**
HAD 250	100	40	650	320
HAD 400	200	40	1.400	690
HAD 550	320	25	3.000	1.460

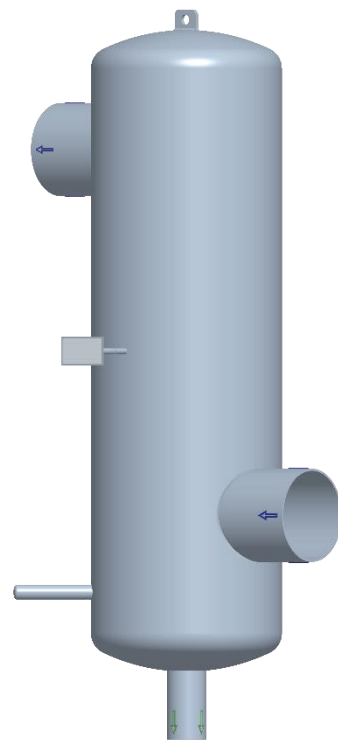
* NH₃ T₀=-10°C T_C=+35°C | **NH₃ T₀=-40°C T_C=+35°C



HAD 250



HAD 400



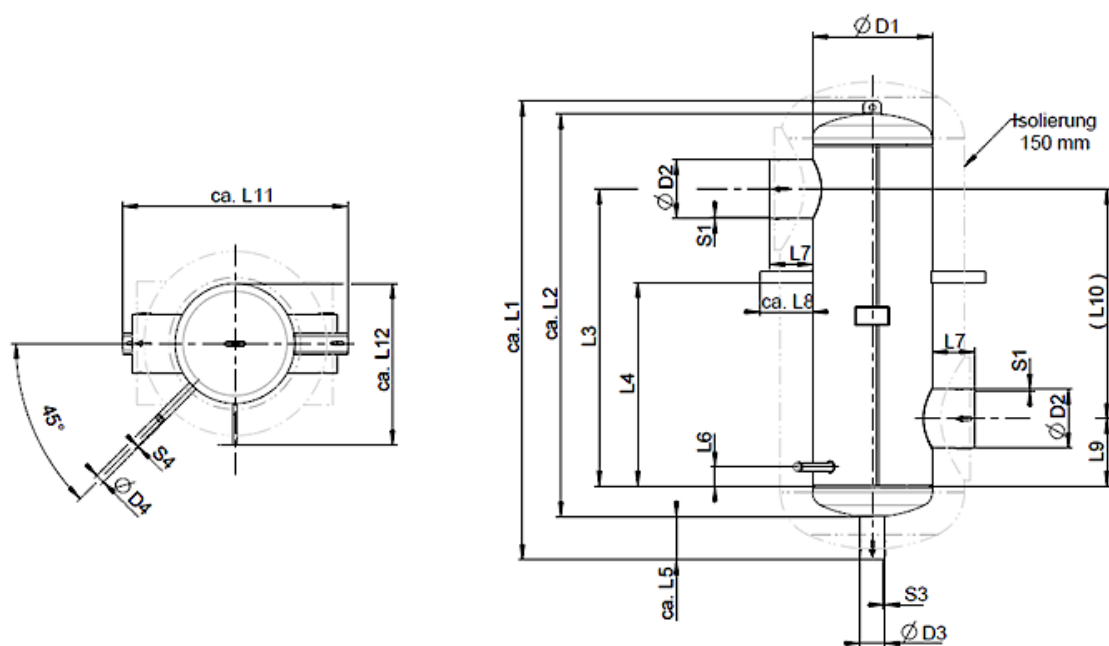
HAD 550



NOTE

The HAD high-capacity separator is standardised for the PN16 pressure stage. The pressure stages PN25 and PN40 are available on request.

Dimensions



Variable*	HAD-250	HAD-400	HAD-550
L1	1.516,0	1.778,0	2.137,0
L2	1.255,0	1.519,0	1.877,0
L3	945,0	1.135,0	1.385,0
L4	600,0	750,0	950,0
L5	201,0	199,0	200,0
L6	45,0	60,0	90,0
L7	200,0	200,0	200,0
L8	246,0	246,0	246,0
L9	180,0	235,0	315,0
L10	765,0	900,0	1.070,0
L11	64,0	898,0	1.052,0
L12	469,0	602,0	755,0
D1	273,0	406,4	559,0
D2	168,3	219,1	273,0
D3	60,3	88,9	114,3
D4	42,4	42,4	42,4
S2	4,5	6,3	6,3
S3	2,9	3,2	3,6
S4	2,6	2,6	2,6

* all figures in mm

Legend: Isolierung = Insulation



TH. WITT Kältemaschinenfabrik GmbH

Lukasstraße 32
52070 Aachen

+49 241 18208-0 | sales@th-witt.com