

GENERAL

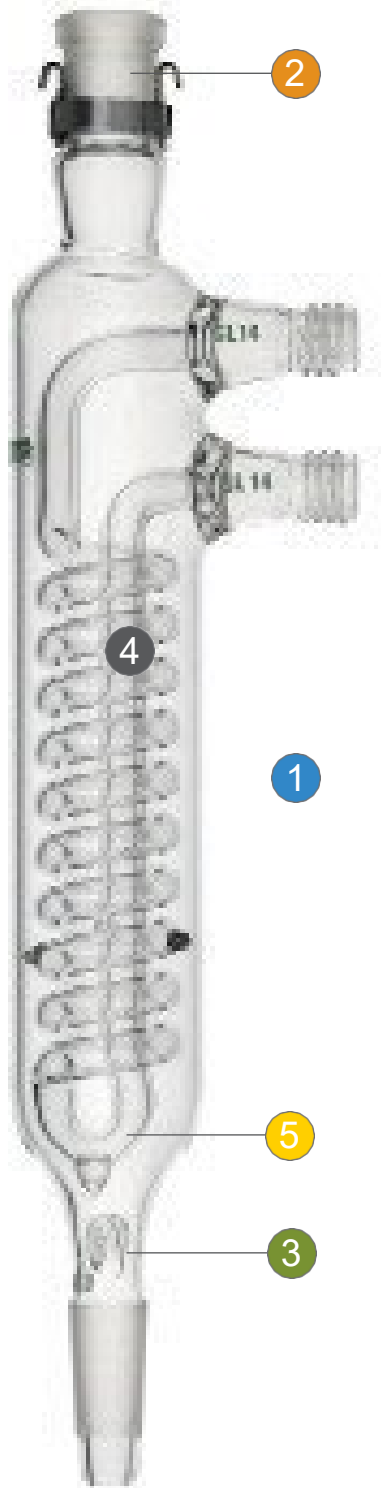
Heat exchangers in highly corrosion-resistant and transparent designs are of central importance in research, training and miniature construction. Heat must be supplied or dissipated in almost all processes with fluid media. PFAUDLER NORMAG SYSTEMS offers the user a wide range of heat exchangers for the various applications in order to optimally solve the respective task.

The tried-and-tested designs are characterised by their universal corrosion resistance.

and high replacement performance. The entire programme of heat exchangers available as standard is specified on the following pages. Please contact our experts for this and any other requirements. GMP-compliant installations with FDA-certified materials such as PTFE are possible for pharmaceutical applications. A dead space-free design to ensure complete emptying as well as simple and effective cleaning options are possible thanks to the design of numerous accessories.

rate, such as coil heat exchangers in the standard design, or can be adapted accordingly. In addition, the borosilicate glass 3.3 material largely prevents caking in areas in contact with the product and the external design of the heat exchangers can be adapted to cleanroom requirements. Further information, designs, options and special solutions can be found in the NORMAG process technology catalogue.

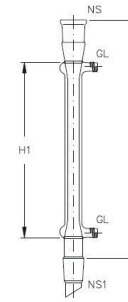




- 1 Higher heat exchanger performance for all heat exchangers thanks to NORMAG-specific design
- 2 Precise and thick-walled connecting pieces for long service life and tightness
- 3 Almost all heat exchangers completely empty
- 4 Sturdy and large coils
- 5 equipped with deflectors for several coils, for better transmission and use at low pressure/flow rates

Liebig cooler

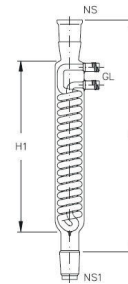
Area [m ²]	NS	NS1	H [mm]	H1 [mm]	GL	Order no.
0,003	14/23	14/23	190	100	14	HCL1423/0003
0,005	14/23	14/23	250	160	14	HCL1423/0005
0,010	29/32	29/32	340	250	14	HCL2932/0010
0,015	29/32	29/32	490	400	14	HCL2932/0015



- Coolers can be used in an inclined and vertical arrangement

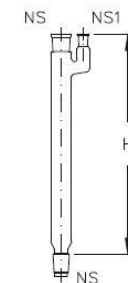
Dimroth cooler

Area [m ²]	NS	NS1	H [mm]	H1 [mm]	GL	Order no.
0,019	14/23	14/23	250	160	14	HCD1423/0019
0,022	29/32	29/32	250	160	14	HCD2932/0022
0,037	14/23	14/23	340	250	14	HCD1423/0037
0,039	29/32	29/32	340	250	14	HCD2932/0039
0,068	29/32	29/32	490	400	14	HCD2932/0068

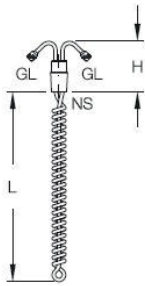


Glass jackets for stainless steel snake coolers/heaters

NS	NS1	H [mm]	Order no.
29/32	14/23	400	HCS2932/0036
29/32	14/23	500	HCS2932/0048



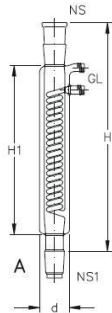
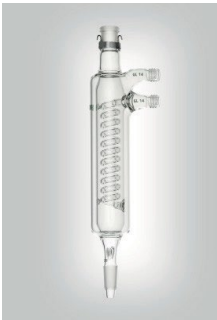
Insert for stainless steel coil cooler/heater



Area [m ²]	NS	Spiral length L [mm]	H [mm]	GL	Order no.
0,036	29/32	300	70	14	HCS2932/GL14/0036
0,048	29/32	400	70	14	HCS2932/GL14/0048

- Material: Stainless steel (1.4571)

Intensive cooler



Area [m ²]	NS	NS1	H [mm]	H1 [mm]	d [mm]	GL	Order no.
0,035	14/23	14/23	250	160	44	14	HCI1423/0035
0,037	29/32	29/32	250	160	50	14	HCI2932/0037
0,063	14/23	14/23	340	250	44	14	HCI1423/0063
0,063	29/32	29/32	340	250	50	14	HCI2932/0063
0,107	29/32	29/32	490	400	50	14	HCI2932/0107

- Intensive cooler with cooling jacket is used to intensify the cooling capacity and to avoid creeping currents on the outer wall
- Cooling medium flows first through the coil and then through the jacket
- Design is suitable for vertical installation

Intensive cooler

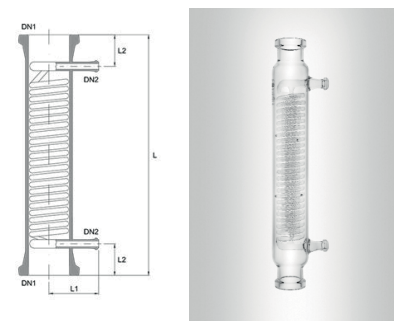


Area [m ²]	DN	DN1	D [mm]	L [mm]	Order no.
0,2	50	15	85	625	HCI050.02-K
0,3	50	15	110	625	HCI050.03-K
0,3	80	15	110	625	HCI080.03-K
0,5	100	15	165	675	HCI100.05-K
0,2	50	15	85	625	HCI050.02-P
0,3	50	15	110	625	HCI050.03-P
0,3	80	15	110	625	HCI080.03-P
0,5	100	15	165	675	HCI100.05-P

- Intensive cooler with cooling jacket is used to intensify the cooling capacity and to avoid creeping currents on the outer wall
- Cooling medium flows first through the coil and then through the jacket
- Design is suitable for vertical installation

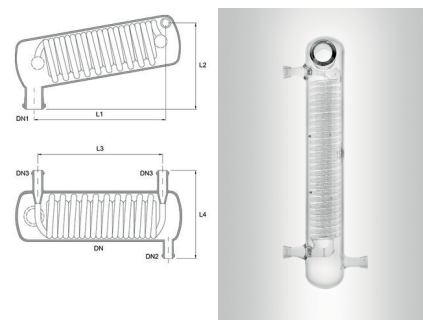
Snake heat exchanger, universal

Area [m ²]	DN1	DN2	L [mm]	L1 [mm]	L2 [mm]	Order no.
0,2	40	15	610	75	95	HC040/02-K
0,4	50	15	610	100	95	HC050/03-K
0,4	80	15	610	100	95	HC080/03-K
0,3	100	15	450	125	75	HC100/03-K-O10
0,5	100	15	610	125	95	HC100/05-K
0,6	150	25	525	175	85	HC150/06-K-O10
0,8	150	25	610	150	100	HC150/07-K
1,3	150	25	840	150	100	HC150/10-K
0,2	40	15	610	75	95	HC040/02-P
0,4	50	15	610	100	95	HC050/03-P
0,4	80	15	610	100	95	HC080/03-P
0,3	100	15	450	125	75	HC100/03-P-O10
0,5	100	15	610	125	95	HC100/05-P
0,6	150	25	525	175	85	HC150/06-P-O10
0,8	150	25	610	150	100	HC150/07-P
1,3	150	25	840	150	100	HC150/10-P



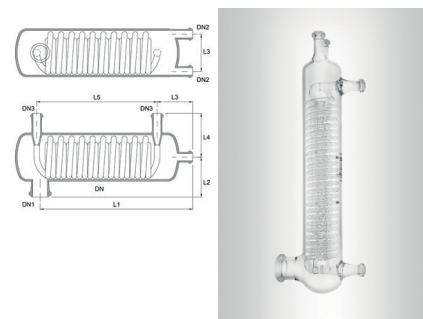
Reflux condensers, inclined

Area [m ²]	DN	DN1	DN2	DN3	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Order no.
0,2	80	40	15	15	610	175	480	175	HCR040/03-K
0,3	80	50	15	15	610	200	480	195	HCR050/03-K
0,8	150	50	15	15	610	200	480	215	HCR050/07-K
0,3	100	80	15	15	610	225	480	235	HCR080/03-K
0,2	80	40	15	15	610	175	480	175	HCR040/03-P
0,3	80	50	15	15	610	200	480	195	HCR050/03-P
0,8	150	50	15	15	610	200	480	215	HCR050/07-P
0,3	100	80	15	15	610	225	480	235	HCR080/03-P

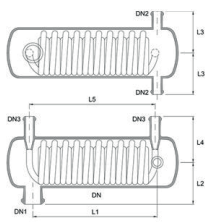
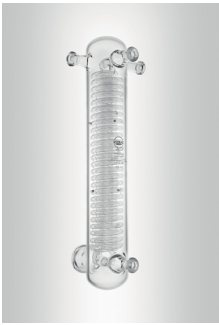


Flow-through condensers, horizontal

Area A [m ²]	DN	DN1	DN2	DN3	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	Order no.
0,3	80	40	15	15	610	75	95	95	470	HCH040/03-K
0,3	80	50	15	15	580	100	95	95	440	HCH050/03-K
0,3	100	80	15	15	580	125	80	80	440	HCH080/03-K
0,3	80	40	15	15	610	75	95	95	470	HCH040/03-P
0,3	80	50	15	15	580	100	95	95	440	HCH050/03-P
0,3	100	80	15	15	580	125	80	80	440	HCH080/03-P

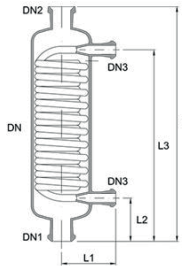


Flow-through condensers, horizontal, vertical nozzles



Area [m ²]	DN [mm]	DN1	DN2	DN3	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	Order no.
0,3	80	40	15	15	610	75	95	95	470	HCH040/03-K-O5
0,3	80	50	15	15	580	100	95	95	440	HCH050/03-K-O5
0,3	100	80	15	15	580	125	80	80	440	HCH080/03-K-O5
0,3	80	40	15	15	610	75	95	95	470	HCH040/03-P-O5
0,3	80	50	15	15	580	100	95	95	440	HCH050/03-P-O5
0,3	100	80	15	15	580	125	80	80	440	HCH080/03-P-O5

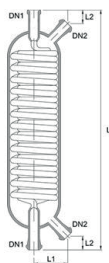
Post/compact capacitors



Area [m ²]	DN [mm]	DN1	DN2	DN3	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Order no.
0,3	80	50	25	15	610	100	95	515	-	HGV050/025/03-K
0,3	80	50	25	15	525	100	95	515	100	HGH050/025/03-K
0,5	100	50	25	15	625	125	110	515	-	HGV050/025/05-K
0,5	100	50	25	15	550	125	110	515	125	HGH050/025/05-K
0,6	100	25	25	15	800	125	125	550	-	HGV025/025/06-K-O10
0,6	100	50	50	15	800	125	125	550	-	HGV050/050/06-K-O10
0,3	80	50	25	15	610	100	95	515	-	HGV050/025/03-P
0,3	80	50	25	15	525	100	95	515	100	HGH050/025/03-P
0,5	100	50	25	15	625	125	110	515	-	HGV050/025/05-P
0,5	100	50	25	15	550	125	110	515	125	HGH050/025/05-P
0,6	100	25	25	15	800	125	125	550	-	HGV025/025/06-P-O10
0,6	100	50	50	15	800	125	125	550	-	HGV050/050/06-P-O10

- HGH - horizontal spigot DN2
- HGV - vertical spigot DN 2

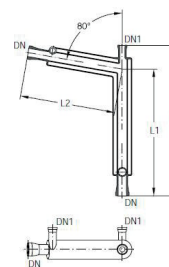
Liquid cooler



Area [m ²]	DN	DN1	DN2	L [mm]	L1 [mm]	L2 [mm]	V1 ¹⁾ [l/h]	Order no.
0,03	65	15	15	250	79	30	200	HL015/003-K
0,06	65	15	15	350	79	30	200	HL015/006-K
0,1	65	15	15	500	79	30	200	HL015/010-K
0,2	100	25	25	475	85	40	400	HL025/020-K
0,3	100	25	25	550	85	40	400	HL025/030-K
0,3	100	25	25	500	125	100	400	HL025/030-K-O10
0,03	65	15	15	250	79	30	200	HL015/003-P
0,06	65	15	15	350	79	30	200	HL015/006-P
0,1	65	15	15	500	79	30	200	HL015/010-P
0,2	100	25	25	475	85	40	400	HL025/020-P
0,3	100	25	25	550	85	40	400	HL025/030-P

Distillate aftercooler

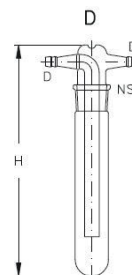
Area A [m ²]	DN [mm]	DN1	L [mm]	L1 [mm]	L2 [mm]	Order no.
0,045	15	15	460	400	300	HD015/015/0045-K
0,045	15	25	460	400	300	HD015/025/0045-K
0,045	25	25	460	400	300	HD025/025/0045-K
0,045	15	15	460	400	300	HD015/015/0045-P
0,045	15	25	460	400	300	HD015/025/0045-P
0,045	25	25	460	400	300	HD025/025/0045-P



- preferably used directly downstream of a liquid divider in order to be able to quickly cool the condensate leaving the column to a temperature below its boiling point
- Additional connection piece allows the connection of a pressure equalisation line or the use of a thermometer

Cold traps

Area [m ²]	H [mm]	NS	NS1	Hose connection D [mm]	Order no.
0,023	270	29/32	-	11	HCTDD11/D11/0023
0,036	320	45/40	-	16	HCTDD16/D16/0036
0,023	270	29/32	29/32	-	HCTD2932/2932/0023
0,036	320	45/40	29/32	-	HCTD2932/2932/0036



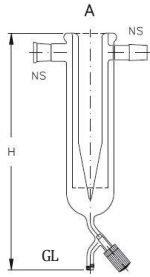
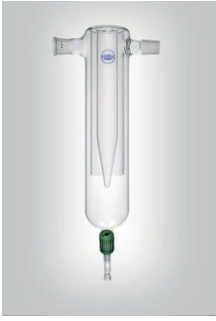
- for use with Dewar vessels

Cooler for differential pressure measurement

Area [m ²]	H [mm]	GL	GL	Order no.
0,02	235	25	18	HDPGL25/GL18/0020



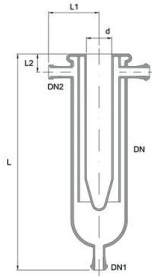
Cold traps, laboratory



Area [m ²]	H [mm]	NS	GL	Order no.
0,05	450	29/32	18	HCT2932/GL18/0050
0,05	450	45/40	18	HCT4540/GL18/0050

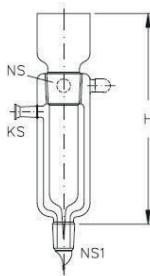
- For use with liquid nitrogen or dry ice

Cold traps, process



Area [m ²]	DN	DN1/	DN2	L1 [mm]	L2 [mm]	Volume [litres]	Order no.
0,05	100	25	25	450	110	0,4	HCT100/05-K
0,1	150	25	25	535	150	2,1	HCT150/10-K

Low-temperature cold traps

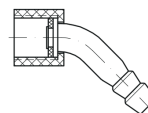
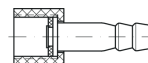


Area [m ²]	NS	NS1	H [mm]	S	Order no.
0,010	29/32	14/23	235	19	HCTV19/1423/0010
0,018	45/40	29/32	280	19	HCTV19/4540/0018

- is used to condense very volatile substances
- Silver-mirrored high vacuum jacket that can be filled with various coolants (no ice fluid) and ensures optimum cleaning

Threaded hose couplings GL14

Execution	Order no.
straight	SAS 00747 01
curved (45°)	SAS 00749 01



- Couplings made of glass fibre reinforced PTFE material

