Customized
refrigeration technology
Made in Germany

Universal cooler in
individual design

BASELINE
BL 006 – BL 1440

duotemp
LAHNTECHNIK

Lahntechnik – your system partner for customized refrigeration technology

For more than 50 years now we have been planning, developing and manufacturing individually customized as well as standard refrigeration units.

We aim to be a development partner to our customers and we are committed to the continuous improvement of our performance, efficiency and competitiveness. In order to maximize value each technical solution is based on in-depth analysis of individual requirements resulting from a thorough consulting process. Our expertise in tailor-made solutions depends to a great extent on customer input in the development process.

We focus on providing comprehensive engineering services so that we can respond competently to customer requirements and guarantee fast and individually designed solutions.

Our refrigeration know-how is supplemented by in-house construction services, sheet metalworking and paint shop facilities which enable the fast and seamless development and production of highly customer-specific solutions.

We implement stringent quality controls as standard. Our process quality has been certified as compliant with the DIN ISO 9001 standard for many years now. This high standard of quality is also documented by our status as supplier of refrigeration technology to many German automobile manufacturers.

duotemp LAHNTECHNIK

Universal cooler in individual design

BASELINE BL

LAHNTECHNIK chillers from the standard series **BASELINE BL** are compact, ready-to-use compressor-cooling units for cooling of liquids (e.g. water, oils, etc.), can be equipped universally and are ideally suited for a wide range of technical applications. This series combines an innovative and modular technical architecture – based on the most modern components from major manufacturers – and a flexible housing concept.

Chiller configurations, individual design, optimized geometry

We use different refrigerants depending on customer requirements. Our BASELINE series offers an optimized housing concept which facilitates simple integration of various components. BASELINE chillers are designed to be easily adaptable to specific applications. We offer all models up to and including 68.5 kW also as immersion coolers, either for water, emulsion or oil. Furthermore, our units are available as flow-through coolers (no tank, with or without pump) in case an external tank is available. Where cooling water is available, all units can be executed in water-cooled version or as heat-exchanger without compressor.

LAHNTECHNIK BASELINE chillers are suited for diverse industry sectors and specific applications such as:

- Laser technology
- Machine tools
- Plastics processing
- Printing machinery
- Surface treatment
- Medical technology
- Food industry

LAHNTECHNIK SERIES **BASELINE BL**

Each chiller of the series BASELINE BL is subject to the most stringent quality controls.

LAHNTECHNIK coolers have to undergo extensive functional and performance tests. All chillers are tested to their limits in order to guarantee their performance even at high ambient temperatures.

Only products which pass these extensive tests leave our factory.

Quality and service as a principle

Our production and our products comply with the requirements of DIN ISO 9001 and DIN EN 378, the F-Gas Regulation, the EU Machinery Directive as well as the valid German VDE and UVV Regulations, consequently the coolers comply with the required high quality standards.

Our professional service covers consulting, project planning, commissioning, maintenance and on-site service as well as delivery of spare parts – including a 24-hour hotline.

BL-chiller with stainless steel housing

PRODUCT FEATURES

- 24 models from 0.6 to 144 kW cooling capacity
- Compact housing for in-house installation or optional for outdoor installation, painted or in stainless steel
- Optimized maintenance and service accessibility via easy-to-remove front and side panels
- Refrigerant R134a, R407C or R404A
- Integrated condenser protective grille
- Axial fan(s) with sickle-type blades
- Fully hermetic compressor, 100 % suction gas-cooled
- From 5.8 kW upwards (from BL 058) in scroll technology
- Evaporator as plated heat-exchanger in stainless steel
- Thermostatic expansion valve
- High and low pressure switch
- Electronic temperature controller
- Automatic power regulation
- Corrosion-resistant water circuit with stainless steel tank, insulated against water condensation
- Centrifugal pumps submerged or dry mounted according to type and requirement
- Fixed or pressure-dependent bypass in water circuit as pump protection
- Tank filling, tank level indicator and discharge cock

ADVANTAGES AT A GLANCE

- **Planning, design, optimization and assembly all under one roof**
- **Electronic integration in central control systems**
- **Commissioning, introduction and training for owner / operator**
- **Use of high quality standard components enables rapid sourcing of spare parts**
- **24-hour hotline**
- **Global service partners**
- **Maintenance contracts**

SPECIFICATIONS

Placement
At the air inlet – through a filter grille at the rear side of the cooling unit – a minimum distance of 0.5 m from a wall should be adhered to and at the air outlet – on the upper side of the aggregate – a distance of 1 - 1.5 m from the wall and ceiling areas. Likewise, it has to be ensured that neither air-flow resistance nor air short-circuits between intake and outlet occur.

OPTIONS AT A GLANCE

- Other cooling media, such as oils, aggressive media
- Models available as immersion or flow-through chiller
- Special voltages and frequencies
- Temperature accuracy ± 0,1K or ± 0,5K
- Reference temperature control
- Water circuit for deionized water
- Flow switch, overflow valve, balancing valve
- Electrical heating
- Metal or fleece filter mat
- Outside mounting
- Water-cooled models
- Multi-circuit-systems also with different media and / or temperatures
- Different colors or stainless steel versions
- Radial fans for external air transport
- Other refrigerants (with appropriate suitability of components)
- Water filter
- Heat recovery
- Control voltage 24 V AC or DC
- ASI/Profi-bus system
- Choice of pumps
- Rollers, crane hooks
- Air filter mat monitoring
- Fan rpm control
- Noise-reduced models
- Automatic water replenishment
- Redundancy
- High and low temperature models
- Maintenance contract

Refrigerant
For the power classes 0.6 – 7.5 kW, chiller BL 006 to BL 075, we use the refrigerant R134a as standard; and for the power classes 9.2 – 144 kW, chiller BL 092 to BL 1440, we use the refrigerant R407C (other refrigerant choices optional).

Temperature control range
In standard cases the cooling medium temperature can be set between +10 °C and +20 °C or +25 °C depending on requirements. In case of temperatures below the ambient temperature and high humidity, there is a tendency for non-insulated components to get wet with condensation.
To avoid the formation of such condensation, users are recommended to use reference temperature control or a complete insulation of all water-carrying components (see options).

Hysteresis and switching frequency
The standard temperature hysteresis is ±1 K to ±2 K, depending on the chiller type. With this setting, the switching frequency of the compressor is optimized. In cases of small switching differences, care must be taken to ensure that the compressor does not exceed more than 12 switchings per hour, otherwise the life expectancy of components is dramatically reduced. Should a higher temperature accuracy be required, the chiller can be fitted with a hot gas bypass regulator, which is available in 0.5 K accuracy or in high-precision at +/-0.1 K.

Cooling medium
The relevant components in the water circuit are configured depending on the cooling medium. This means that pipes in copper or plastic, steel or stainless steel are used.
A water-ethylenglycol mixture (max. glycol at 40 %, e.g. Antifrogen N), distilled / demineralized water or mineral oil acc. to DIN 51524 T1 and T2 can be used as cooling medium. The cooling medium has an influence on the dimensioning and design of the pump and the evaporator.

Ambient temperature
Permitted ambient temperatures lie between 0 °C or +15 °C to +38 °C or +42 °C depending on type (see technical data). Performance figures are based upon +32 °C ambient temperature. Between +32 °C and +42 °C there is a performance reduction of approx. 2 % per 1 K temperature increase.
In addition, chillers can be equipped with an appropriate package for ambient temperature down to -30 °C or up to +55 °C.

Eco version
All units above 4 kW (from BL 040 on) can be supplied in energetically optimized configurations. This above all is recommendable in the case of continuously running compressors. The extra costs are amortized within a timespan of 1 – 3 years through significantly lower current consumption. We configure your optimized system making use of frequency-regulated compressors and pumps, EC ventilators, electrical expansion valves as well as the instrumentation equipment necessary.

Protection class
Protection classes IP 44 or IP 54 are valid for all design sizes.

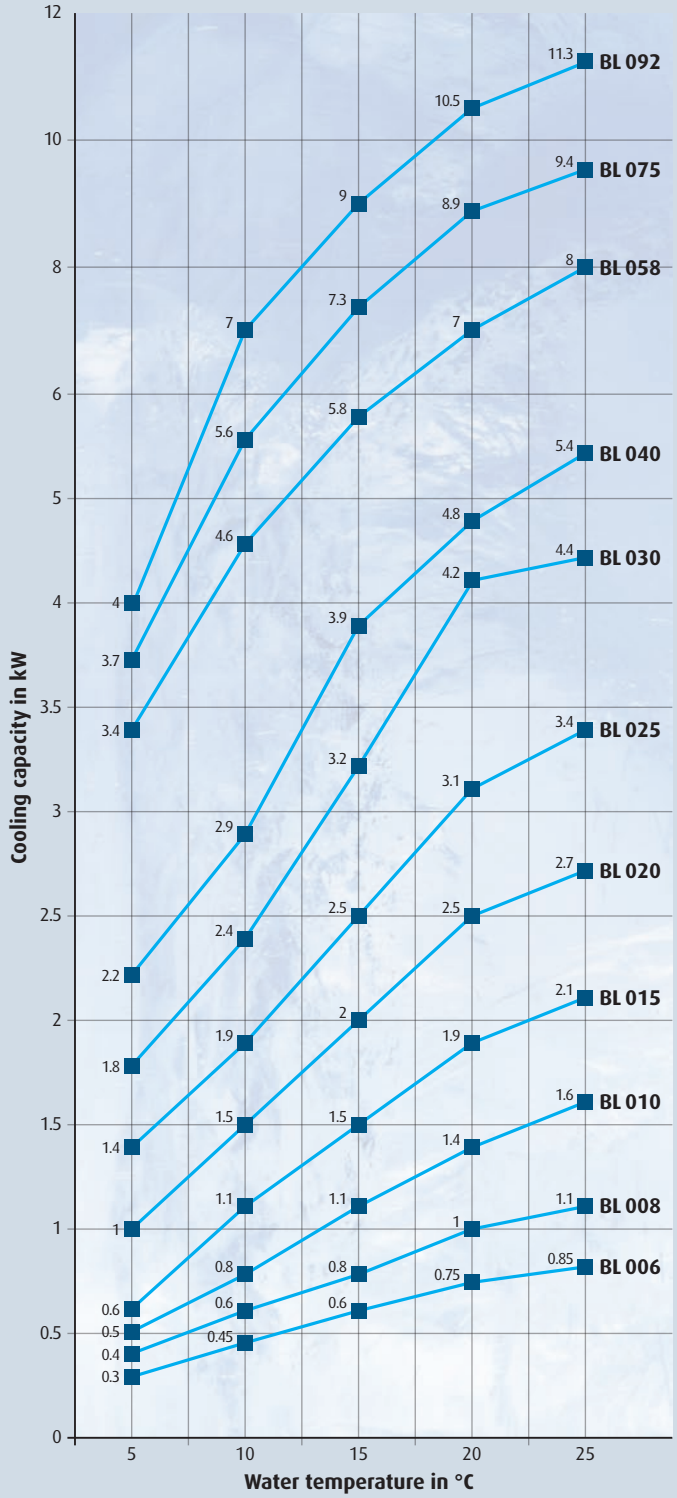
Painting
Our standard color is RAL 7035. However, special paint requirements can be fulfilled in our in-house paint-shop.

BASELINE BL

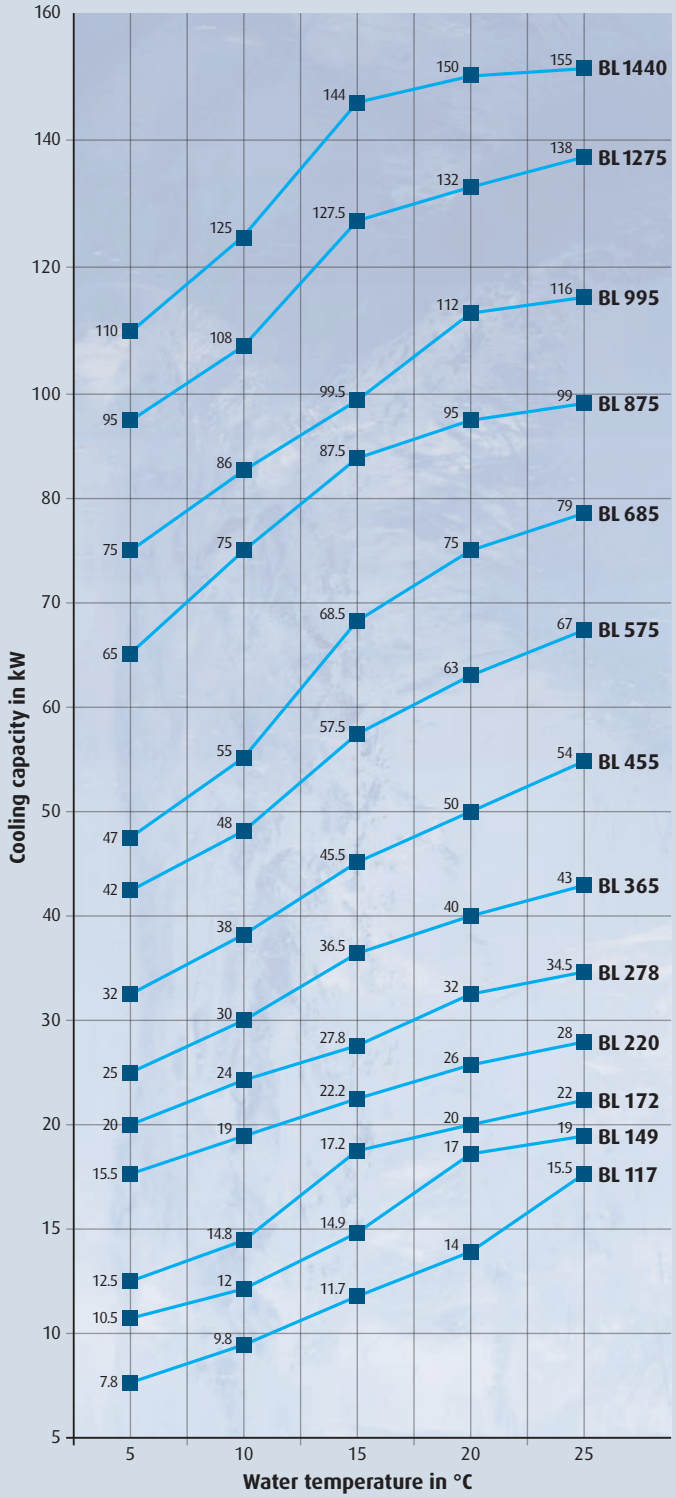
COOLING CAPACITIES

The cooling capacity of our compressor cooling units is dependent on the ambient temperature and the cooling medium temperature. In the diagrams, the cooling capacity is shown as a function of the set cooling medium temperature for each particular model. These cooling performance curves are valid for an ambient temperature (air temperature) of +32 °C.

Selection diagram BASELINE BL 006 up to BL 092



Selection diagram BASELINE BL 117 to BL 1440



SERIES **BASELINE BL – TECHNICAL DATA AT A GLANCE**

	BL 006	BL 008	BL 010	BL 015	BL 020	BL 025	BL 030	BL 040	BL 058	BL 075
Net cooling capacity 15/32 °C in kW	0.6	0.8	1.1	1.5	2.0	2.5	3.2	4.0	5.8	7.5
Operational area water temp. °C (without antifreeze)	8 – 25	8 – 25	10 – 25	10 – 25	10 – 25	10 – 25	10 – 25	10 – 25	10 – 25	10 – 25
Operational area ambient temperature °C	15 – 42	15 – 42	15 – 42	15 – 42	15 – 42	15 – 42	15 – 42	15 – 42	15 – 42	15 – 42
Refrigerant	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Height mm	805	805	805	805	805	1,092	1,092	1,092	1,314	1,697
Width mm	465	465	465	465	465	655	655	655	656	750
Depth mm	505	505	505	505	505	600	600	600	640	800
Weight empty kg	45	50	50	65	85	140	145	150	180	225
Water connection in inches	R ½	R ½	R ½	R ½	R ½	R ¾	R ¾	R ¾	R ¾	R ¾
Tank volume l	15	15	15	15	15	52	52	52	70	150
Cooling air flow m^3/h	850	850	1,200	1,200	1,700	1,700	1,700	2,400	3,200	4,500
Pump	Y 2041	Y 2041	Y 2951	Y 2951	Y 2051	T-601	CM3-3	CM3-3	CM3-5	CM3-5
Pump delivery rate l/min ...	5	5	6	6	15	16	30	30	40	40
for pump pressure bar	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	3.5	3.5
Pump power consumption kW	0.12	0.12	0.18	0.18	0.35	0.45	0.46	0.46	0.65	0.65
Pump current consumption A	0.5	0.5	0.8	0.8	1.5	1.4	1.2	1.2	1.8	1.8
Power consumption without pump kW	0.50	0.80	0.93	1.05	1.35	1.75	2.46	2.46	2.84	3.69
Current consumption without pump A	2.20	3.50	4.05	4.86	6.24	4.25	4.66	4.66	5.40	6.08
Protection class	IP 44	IP 44	IP 44	IP 44	IP 44	IP 44	IP 44	IP 44	IP 54	IP 54
Operating voltage	230 V/1/ 50-60 Hz	230 V/1/ 50-60 Hz	230 V/1/ 50 Hz	230 V/1/ 50 Hz	230 V/1/ 50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz
Sound pressure level at 5 m distance dB(A)	47	47	47	47	47	49	49	49	49	45
Options										
Maximum number of pumps	1	1	1	1	1	1	1	1	2	2
Number of possible circuits	Upon request									
Customization possible	Upon request									
Compressor continuous operation ±0.5 K / ±0.1 hysteresis	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■
Customer-specific water connections	■	■	■	■	■	■	■	■	■	■
60 Hz version or bifrequent version	■	■	■	■	■	■	■	■	■	■
Insulation cooling pipework and pump from tw2 < 12 °C	■	■	■	■	■	■	■	■	■	■
Fan rpm regulation	■	■	■	■	■	■	■	■	■	■
Flow monitor	■	■	■	■	■	■	■	■	■	■
Pump bypass	Balancing valve									
Water circuit VA / PVC	■	■	■	■	■	■	■	■	■	■
Control voltage 24 V	■	■	■	■	■	■	■	■	■	■
Condenser water-cooled	■	■	■	■	■	■	■	■	■	■
Filter mat fleece / cleanable metallic filter mat	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■
Electrical heating	■	■	■	■	■	■	■	■	■	■
Condenser protection guard	Standard									

Further options (selection): models for high/low ambient temperatures, higher water temperatures, flow monitoring, manometer, special voltages as well as UL-/CSA-version, stainless steel housing or special paint colors, crane hooks, rollers, customer-specific signal exchange, remote-control, alternative pumps ...

BASELINE BL 006 – BL 1440

As of: November 2013

BL 092	BL 117	BL 149	BL 172	BL 220	BL 278	BL 365	BL 455	BL 575	BL 685	BL 875	BL 995	BL 1275	BL 1440
9.2	11.7	14.9	17.2	22.2	27.8	36.5	45.5	57.5	68.5	87.5	99.5	127.5	144.0
10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20	10 – 20
15 – 42	15 – 42	15 – 42	15 – 42	0 – 42	0 – 42	0 – 42	0 – 42	0 – 42	0 – 40	0 – 42	0 – 40	0 – 40	0 – 38
R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C
1,697	1,697	1,655	1,655	1,752	1,752	2,056	2,056	2,140	2,140	2,140	2,140	2,140	2,140
750	750	855	855	855	855	856	856	856	856	1.994	1.994	1.500	1.500
800	800	1.125	1.125	1.360	1.360	1.811	1.811	2.111	2.111	1.449	1.449	2.400	2.400
240	270	400	420	470	500	590	700	780	820	1.120	1.220	1.430	1.560
R ¾	R 1	R 1	R 1	R 1	R 1	R 1¼	R 1¼	R 1½	R 1½	R 2	R 2	R 2	R 2
150	150	195	195	235	235	270	270	300	300	300	300	350	350
4,500	7,200	6,600	6,600	15,400	15,400	15,400	15,400	23,000	23,000	30,800	30,800	40,000	40,000
CM3-5	CM3-5	CM3-5	CM5-4	CM5-4	CM5-6	CM10-3	CM10-3	CM10-3	CM10-3	CM15-2	CM15-2	CM25-2	CM25-2
40	40	50	60	60	90	120	150	150	180	225	250	325	385
3.5	3.5	3.0	3.3	3.3	3.5	4.5	4.0	4.0	3.7	3.2	3.0	3.4	3.2
0.65	0.65	0.65	1.26	1.26	1.45	2.84	2.84	2.84	2.84	2.84	2.84	4.14	4.14
1.8	1.8	1.8	2.3	2.3	3.2	6.5	6.5	6.5	6.5	6.5	6.5	8.7	8.7
2.79	4.09	5.79	7.67	10.18	13.47	16.67	22.82	23.86	25.96	35.00	38.00	48.50	55.00
5.54	6.66	10.34	13.24	18.70	26.60	28.00	39.40	40.68	43.80	66.50	72.00	92.00	104.00
IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54
400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz	400 V/3/ PE/50 Hz
45	54	54	55	57	58	60	60	62	62	63	63	66	66
2	5	5	5	5	5	3	3	3	3	3	3	3	3
Upon request													
Upon request													
■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / –	■ / –	■ / –	■ / –	■ / –	■ / –	■ / –	■ / –
■	■	■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	Standard									
■	■	■	■	■	■	■	■	■	■	■	■	■	■
Balancing valve						Overflow valve							
■	■	■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■	■	■
■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■
■	■	■	■	■	■	■	■	■	■	■	■	■	■
Standard						■	■	■	■	■	■	■	■

Subject to technical modifications or corrections.

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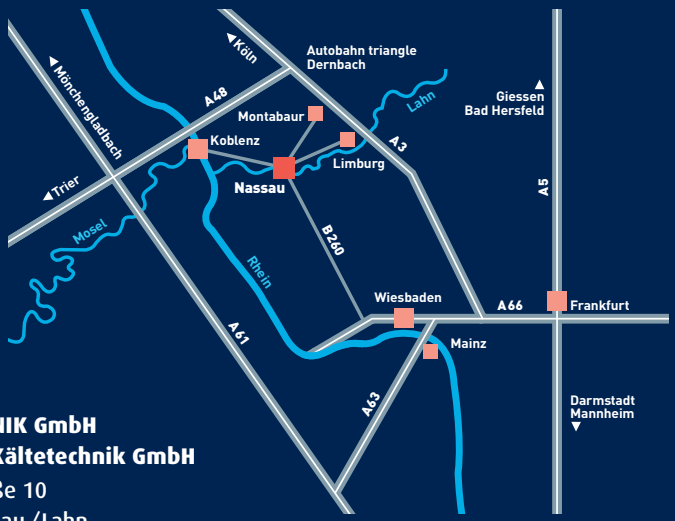

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