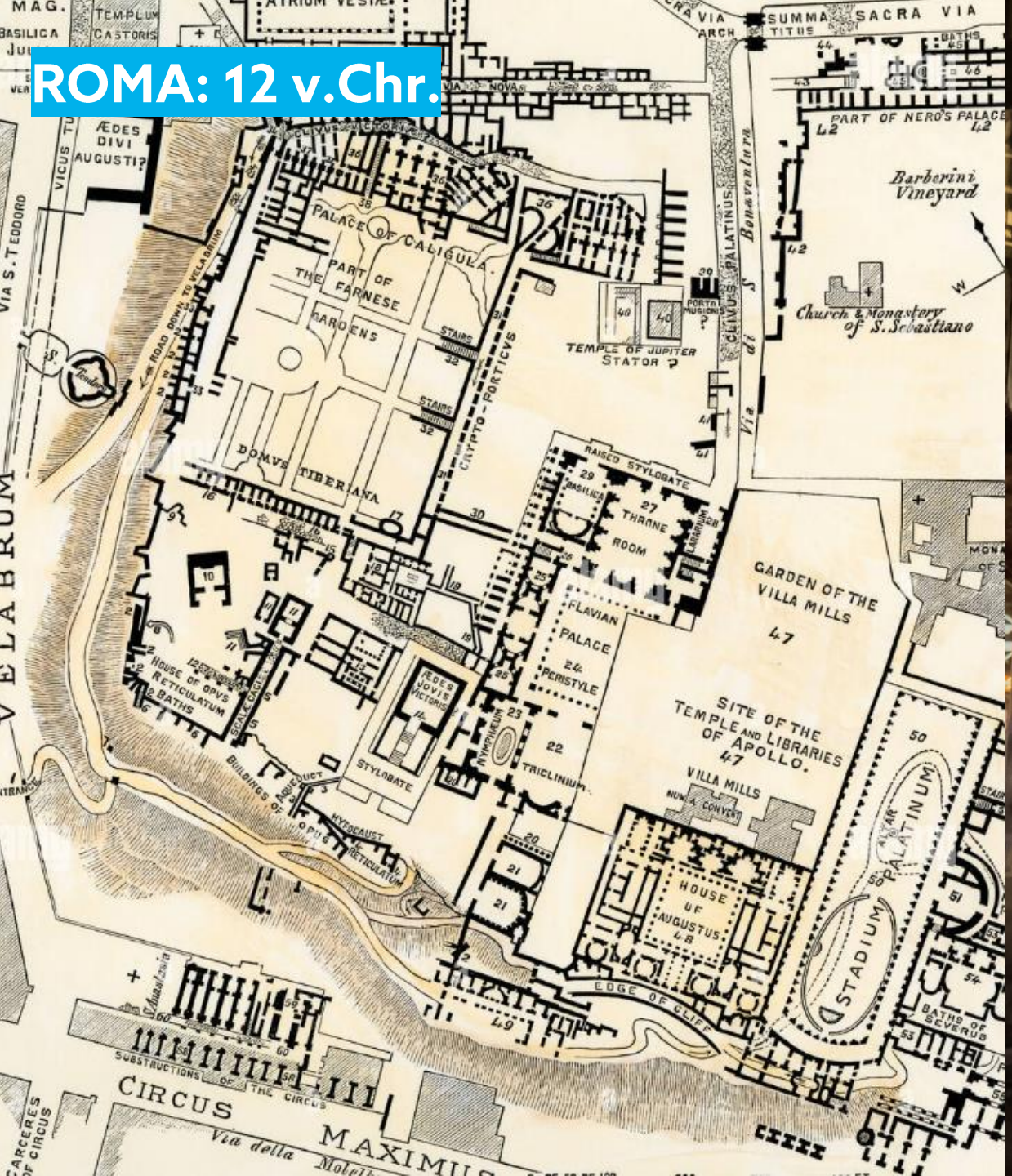
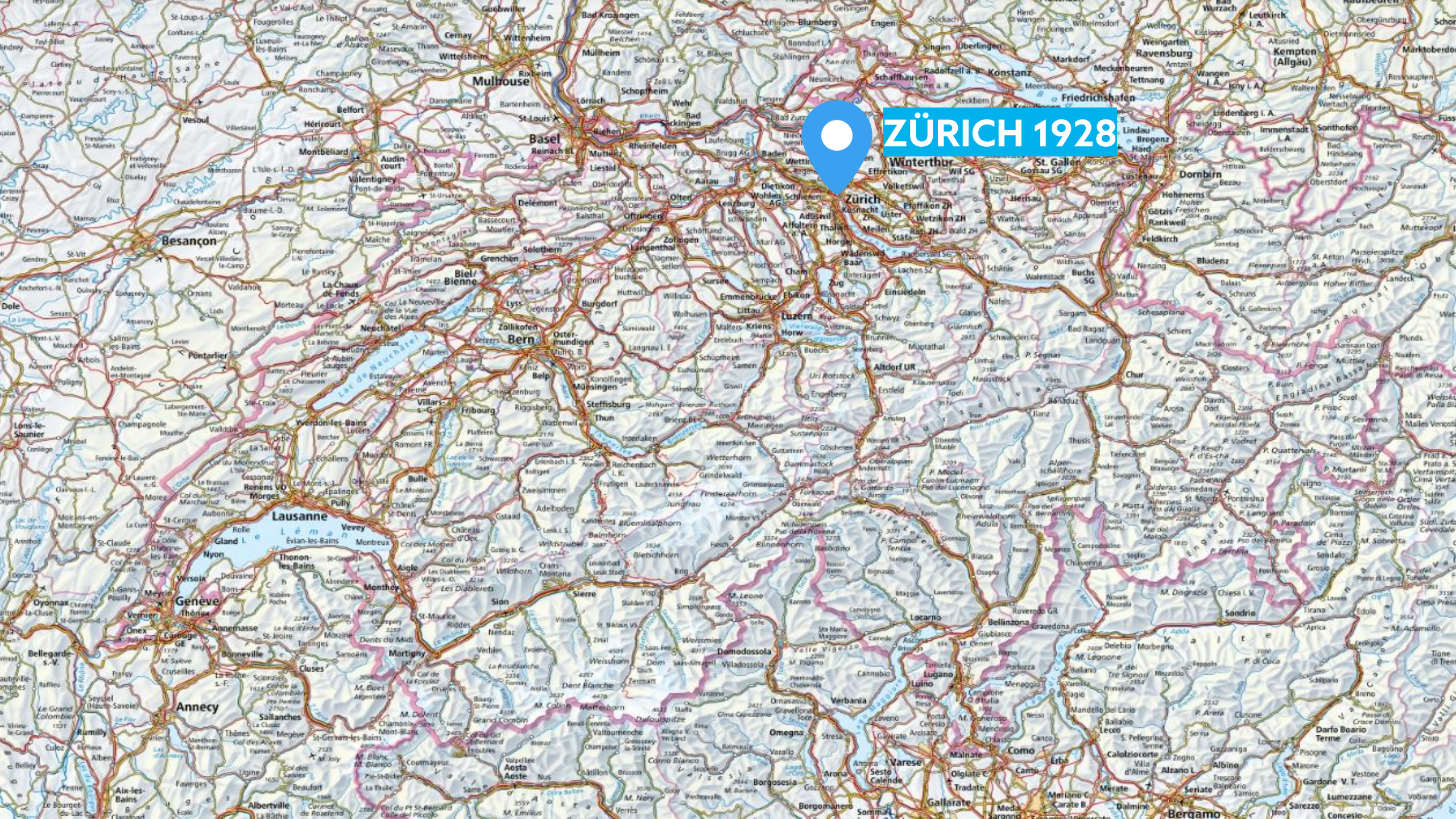
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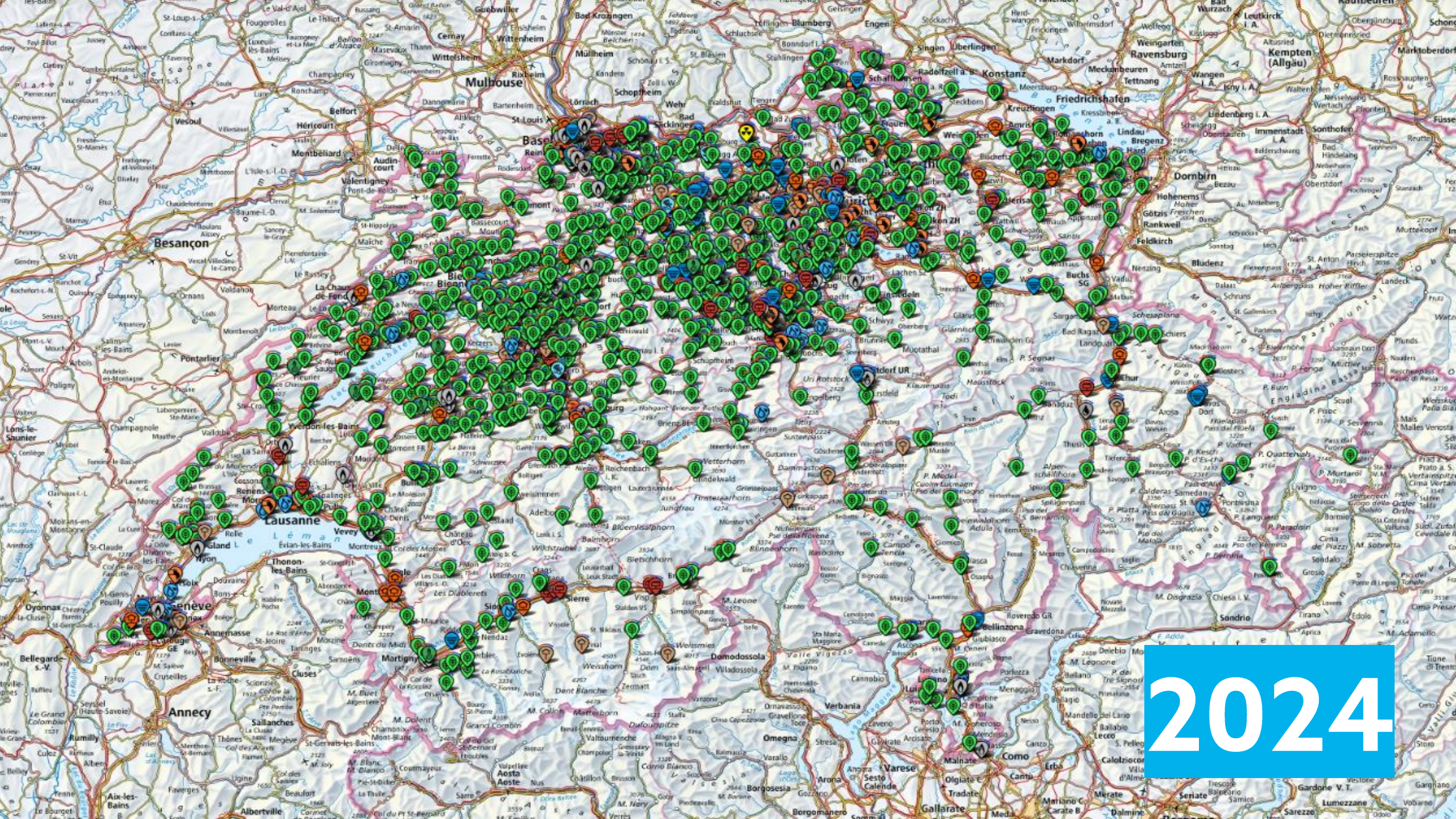
# Thermische Netze ...

... und die Herausforderungen der Branche.


ROMA: 12 v.Chr.
PALACE OF CALIGULA
PART OF THE FARNESE GARDENS
TEMPLE OF JUPITER STATOR ?
DOMVS TIBERIANA
CRYPTO-PORTICVS
RAISED STYLOBATE
THRONE ROOM
FLAVIAN PALACE
PERISTYLE
TRICLINIUM
STYLOBATE
GARDEN OF THE VILLA MILLS
SITE OF THE TEMPLE AND LIBRARIES OF APOLLO.
VILLA MILLS
HOUSE OF AUGUSTUS
STADIUM
PALATINUM
EDGE OF CLIFF
PART OF NERO'S PALACE
Barberini Vineyard
Church & Monastery of S. Sebastiano
SUMMA SACRA VIA
CLIVUS PALATINUS
Via di S. Bonaventura
ÆDES DIVI AUGUSTI?
VICUS TUSCUS
VIA S. TEODORO
ATRIUM VESTÆ
TEMPLUM CASTORIS
BASILICA
HOUSE OF OPVS RETICULATUM & BATHS
ÆDES IOVIS VICTORIS
HYPOCAUST
OPUS RETICULATUM
BUILDINGS OF AQUEDUCT
SUBSTRUCTIONS OF THE CIRCUS
CIRCUS MAXIMUS
Via della Mol
CARCERES OF CIRCUS
BATHS OF SEVERUS


SMILE
Manhattan 1882


ZÜRICH 1928
Zürich
Basel
Bern
Luzern
Winterthur
Lausanne
Genève
Mulhouse
Besançon
Konstanz
Friedrichshafen
Lugano
Como
Varese
Bergamo
Annecy
Sion
Locarno


2024

# THE WHITE PASS CHRONICLE

GROWING WITH THE LAST GREAT FRONTIER




# NEWS FROM THE KLONDIKE.

dream dreams.
ay sheer walls
2, 1896, it ran

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timeless march

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ntific advance-

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rds. Man may
take to the air
of nations will
who are still to
common cold.
ay sound, frail
his footprints

gons Running
Dawson Soon




**The Land Of Gold**

Map Showing the Yukon Country, With Klondike and Bonanza Creeks, Where

## GOLD! GOLD! GOLD! GOLD!

## Special Tug Chartered To Get The News.

WHITE HORSE TODAY

### BUILDING BOOMING

White Horse, Apr. 1, 1901 — The spring boom has struck White Horse in earnest. The sound of hammers can be heard in all directions and vacant lots in the business portion of the town are becoming as scarce as mushrooms on an iceberg.

Many substantial frame buildings are going up, also many canvas ones which in time will give place to more permanent structures.

About 400 men are at present working in the town with the prospect of many more being employed, and in the evening the streets put one in mind of the great thoroughfares of the large cities throughout the states.

SKAGWAY AND UP RIVER POINTS

### Alex Schwartz and Party Leave Bennett By Boat But Travel On Ice

**Seattle, July 17, 1897. ON BOARD THE STEAMSHIP PORTLAND, 3:00 A.M. — At 3 o'clock this morning the steamship Portland, from St. Michaels for Seattle, passed up the Sound with more than a ton of solid gold on board and 68 passengers. In the captain's cabin are three chests and a large safe filled with the precious nuggets. The metal is worth nearly $700,000 and most of it was taken from the Klondike district in less than three months last winter. In size the nuggets range from the size of a pea to a guinea hen egg. Of the 68 miners on board hardly a man has less than $7,000, and one or two have more than $100,000 in yellow nuggets.**

### QUEEN VICTORIA



Clarence Berry is regarded as the luckiest man in the Klondike. Ten months ago he was a poor miner and to-day he is in Seattle with $130,000 in gold nuggets. One nugget weighs 13 ounces and is worth $231. "I've been rather fortunate," he avowed.

Inspector Strickland, of the North West Mounted Police, was guarded with his statements. He said there were only two mining districts in what is known as the Klondike section and they are called the Hunker and Bonanza districts. He added: "When I left Dawson City a month ago there were about 500 claims staked out and

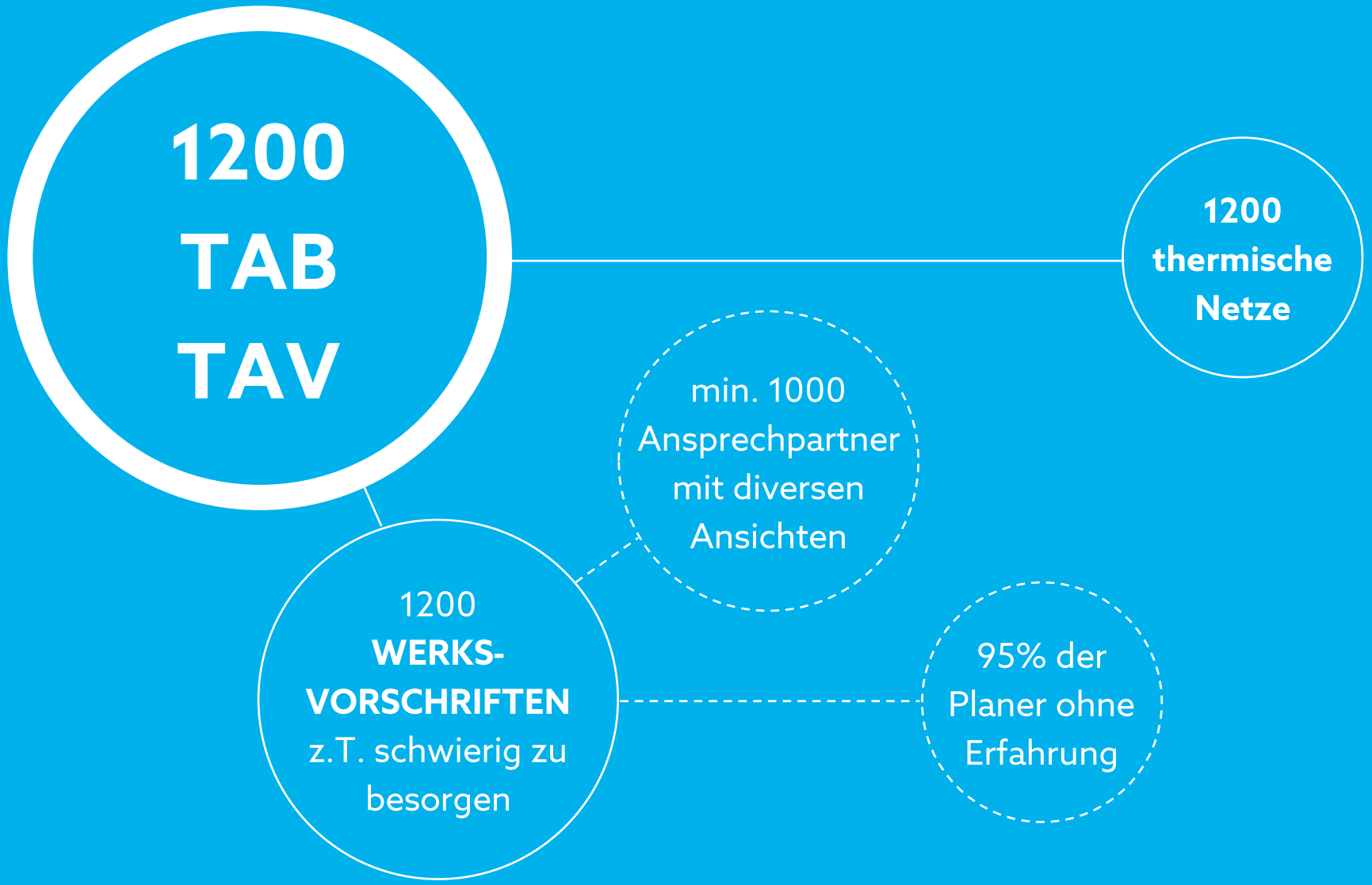
aktuelle
Produktion
Fernwärme:
**8 TWh**

**nach
BFE bis 2050
Potenzial
Fernwärme:
18 TWh**

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# verschiedene TAB/TAV

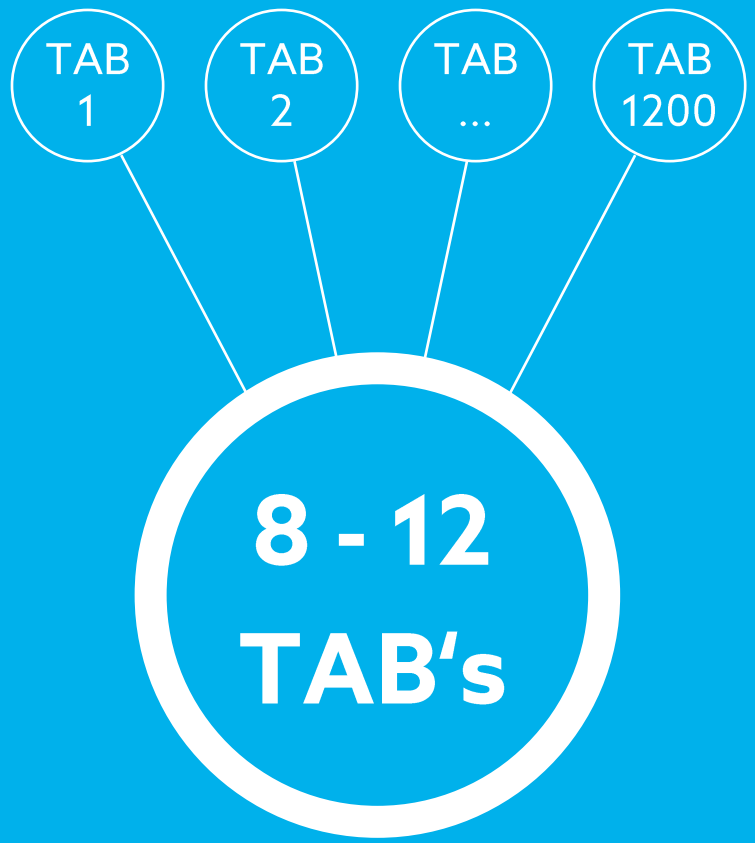
# 1


1200
TAB
TAV
1200
thermische
Netze
min. 1000
Ansprechpartner
mit diversen
Ansichten
1200
WERKS-
VORSCHRIFTEN
z.T. schwierig zu
besorgen
95% der
Planer ohne
Erfahrung

oventrop

# Standardisierung

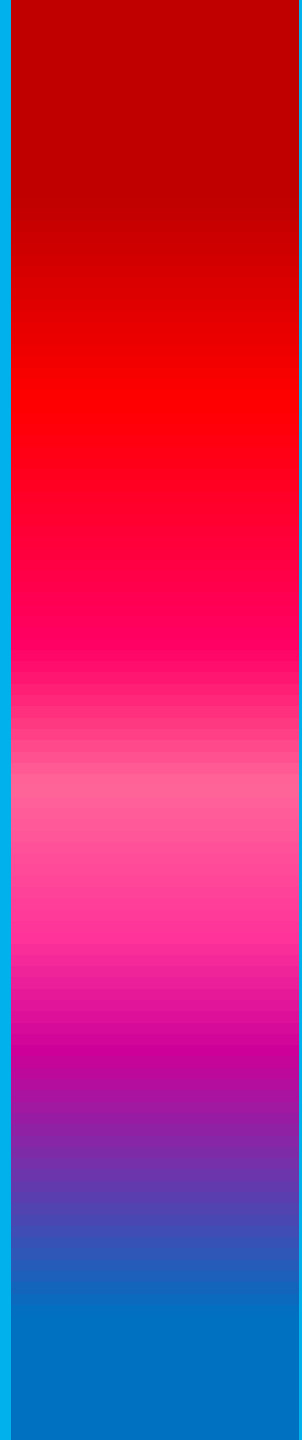
# 2




- **PN10**
- **PN16**
- **PN25**
- **PN40**
- **Temperaturbeständigkeit**
- **buntmetallfrei ?  JA / NEIN**

**HT – Netz:** **60 – 200°C**

**NT – Netz:** **< 60°C**



| | |
|---|---|
| DAMPF: | 160 – 200°C |
| HEISSWASSER: | 110 – 140 °C |
| WARMWASSER: | 60 – 105°C |
| ANERGIE: | 30°C |
| WASSER: | 10°C |
| WASSER/SOLE: | -20 bis +10°C |

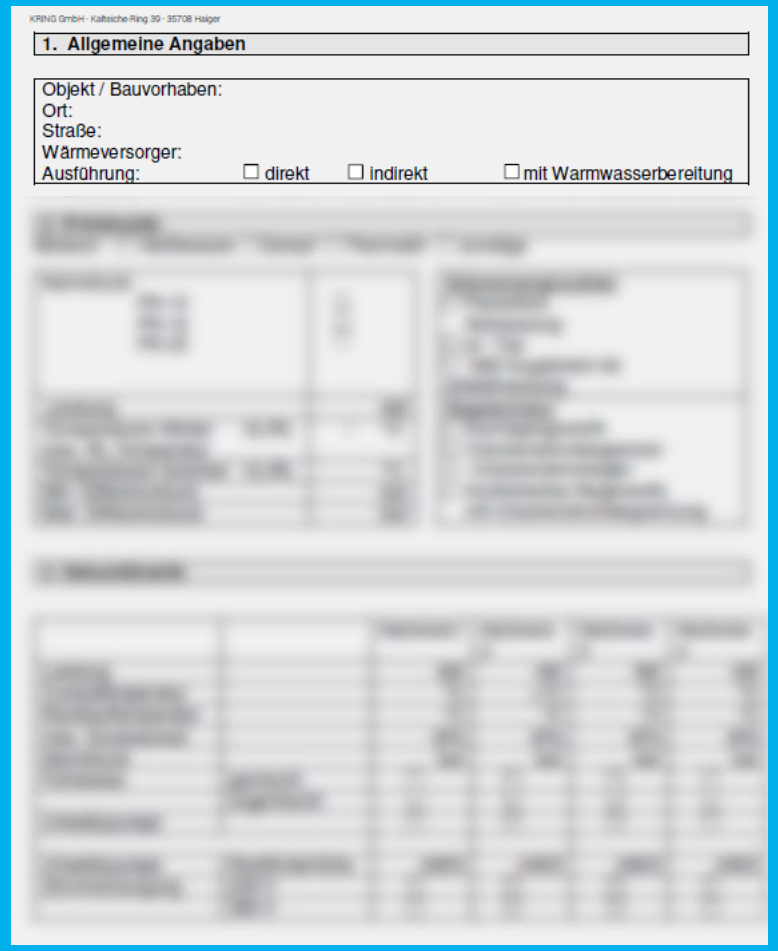
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# Mustervorlagen

# 3

# Offerte

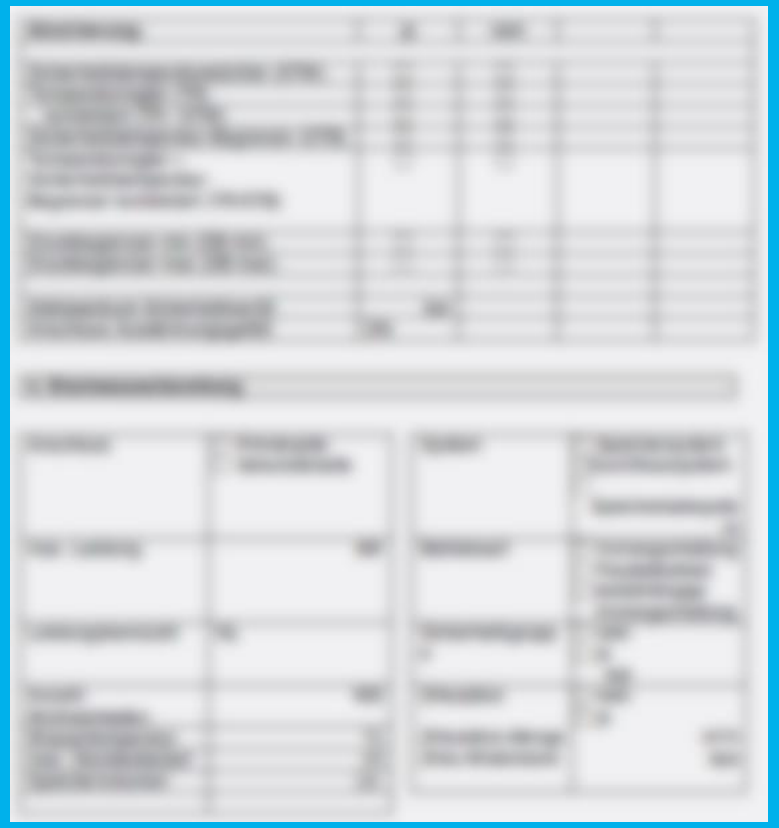
## Formular für den Kunden zum Ausfüllen

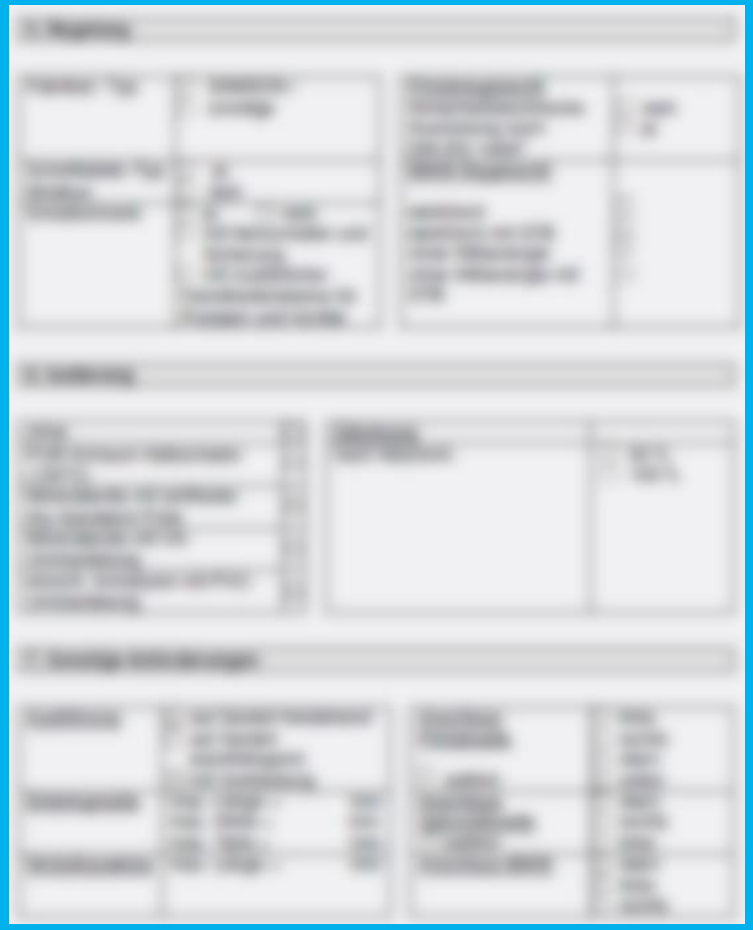


KRING GmbH · Kalteiche-Ring 39 · 35708 Haiger

**1. Allgemeine Angaben**

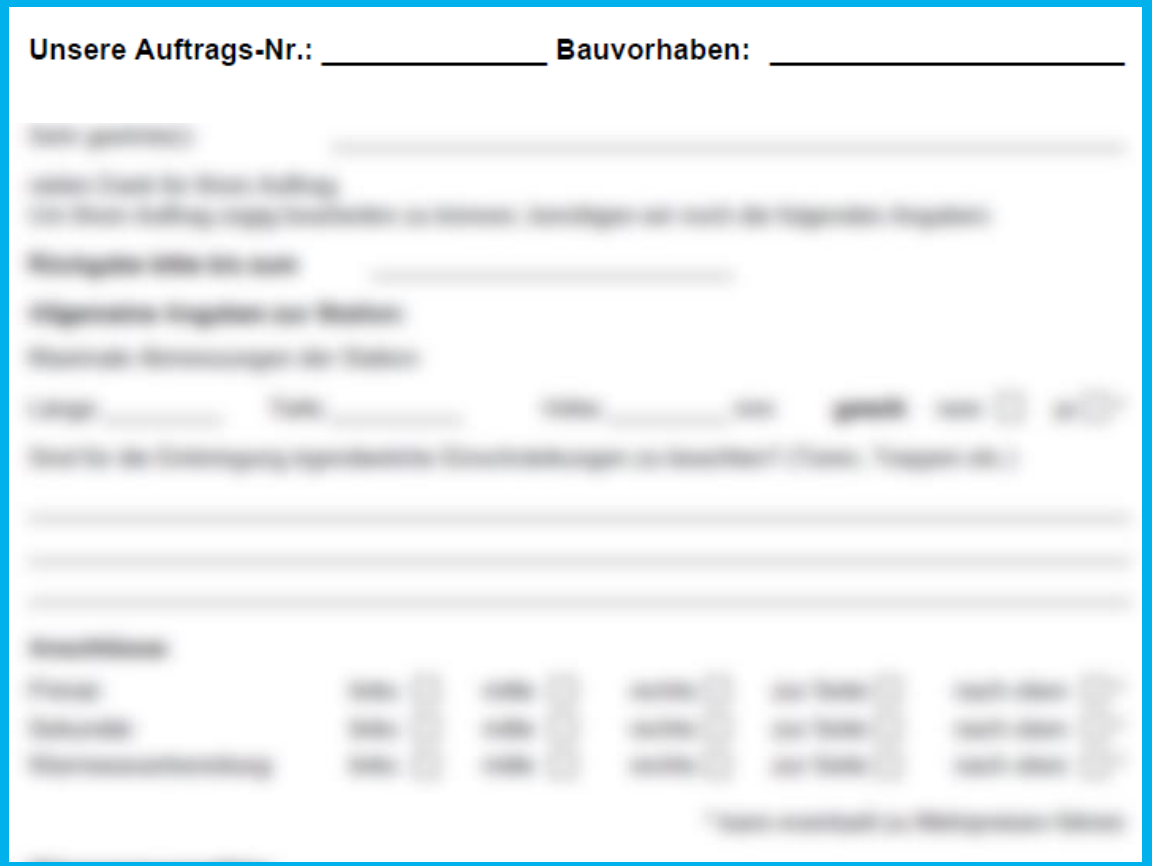
Objekt / Bauvorhaben:
Ort:
Straße:
Wärmeversorger:
Ausführung: ☐ direkt ☐ indirekt ☐ mit Warmwasserbereitung





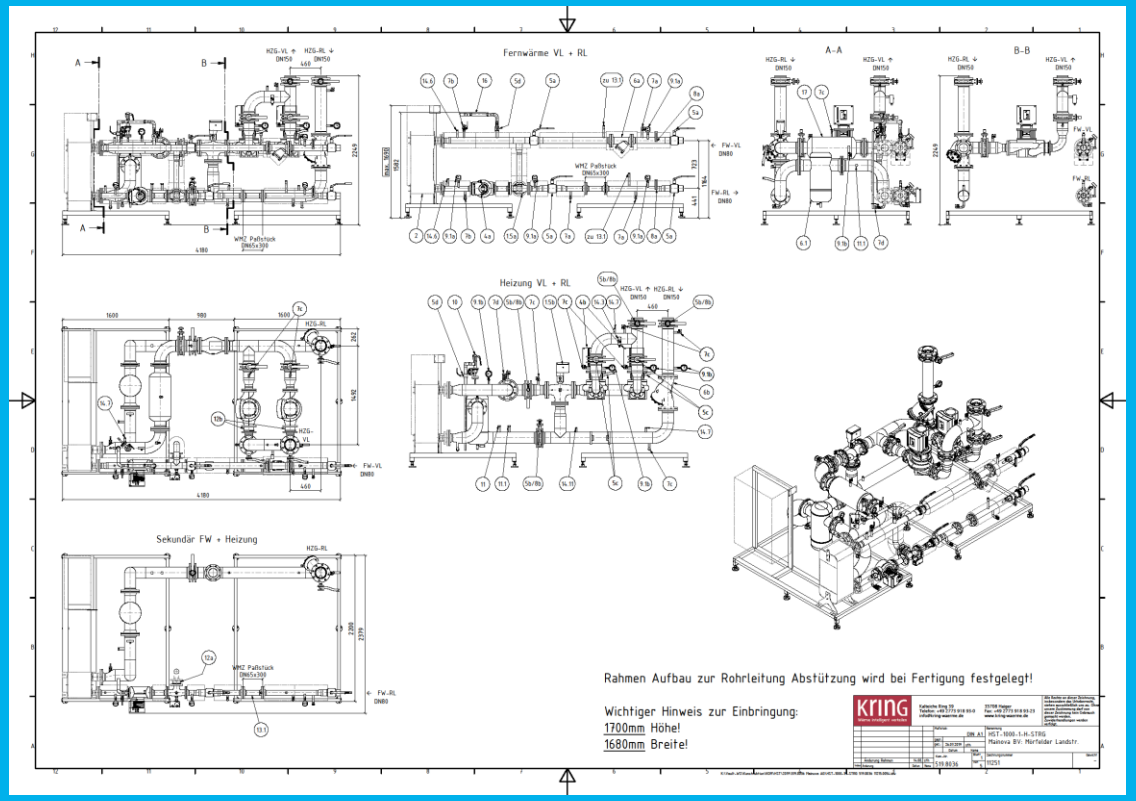
# Ausführung

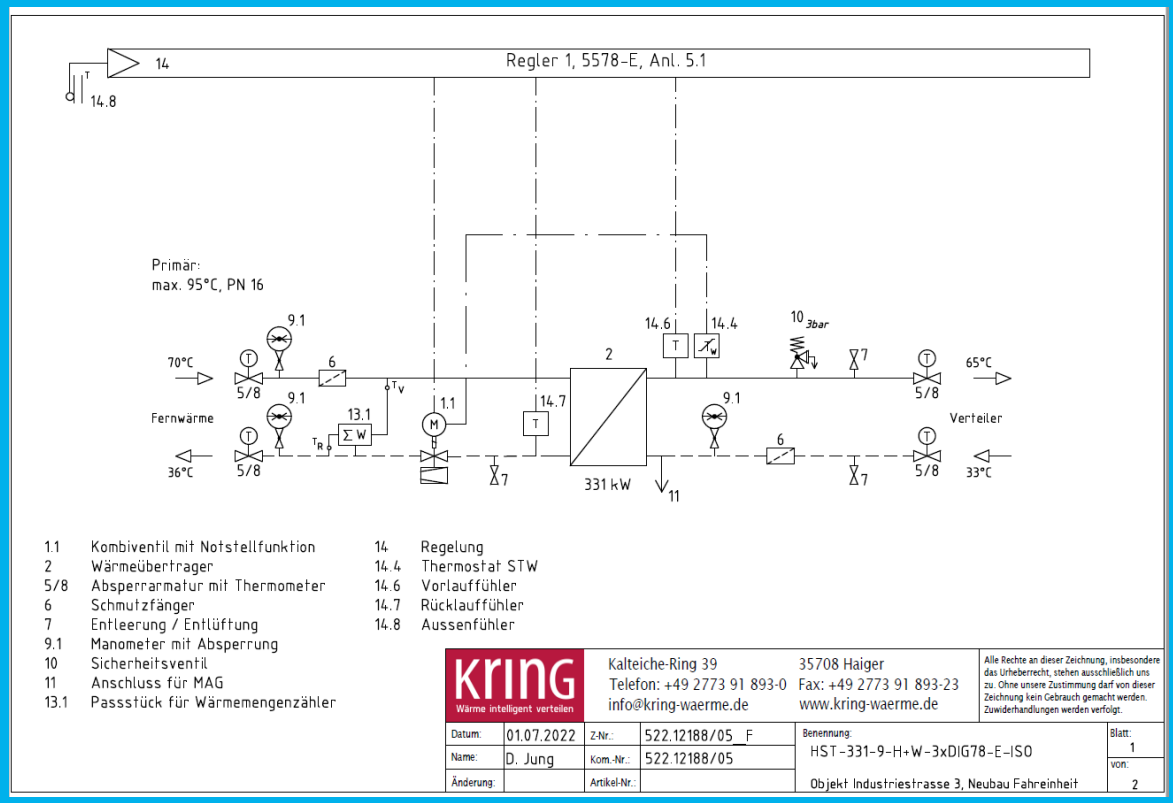
## Formular nach Auftragseingang vom Kunden auszufüllen


Unsere Auftrags-Nr.: _____ Bauvorhaben: _____



# **Ausführung**
## vom Kunden schriftlich GUT ZUR AUSFÜHRUNG

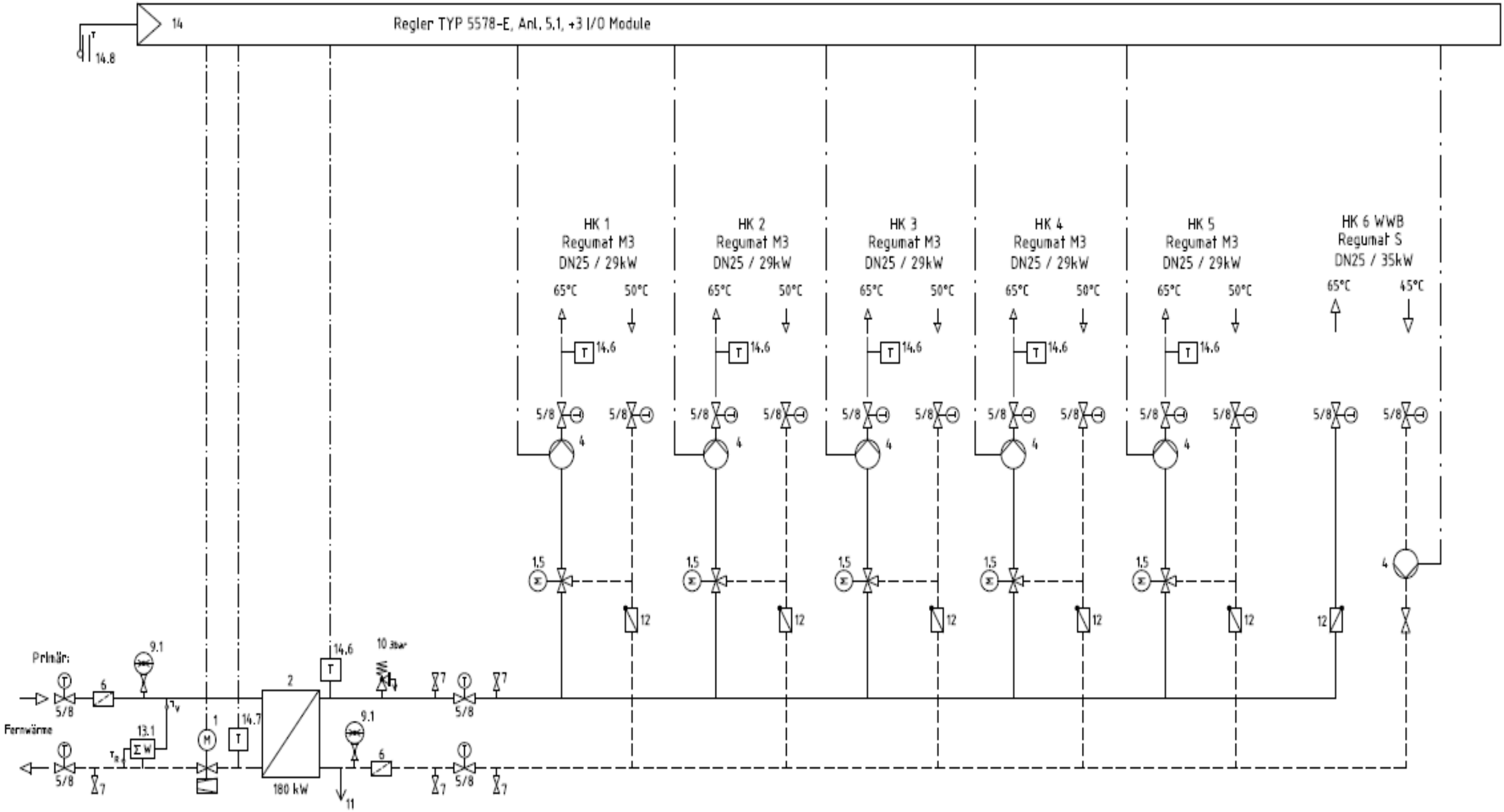


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# Ausbildung Techniker

# 4


14
Regler TYP 5578-E, Anl. 5.1, +3 I/O Module
14.8
HK 1
Regumat M3
DN25 / 29kW
HK 2
Regumat M3
DN25 / 29kW
HK 3
Regumat M3
DN25 / 29kW
HK 4
Regumat M3
DN25 / 29kW
HK 5
Regumat M3
DN25 / 29kW
HK 6 WWB
Regumat S
DN25 / 35kW
65°C
50°C
65°C
45°C
14.6
5/8
4
1.5
12
Primär:
Fernwärme
9.1
6
2
10 3bar
7
13.1
ΣW
1
14.7
180 kW
11

# It’s not rocket science …

dennoch …

! DER BETREIBER ÖFFNET DIE PRIMÄRSEITIGEN ABSPERRUNGEN UND GIBT DIE ANLAGE FREI

1 HYDRAULIK- UND ELEKTROSCHEMA LESEN

2 REGLEREINSTELLUNGEN VORNEHMEN Z.B. RÜCKLAUFTEMPERATUR UND HEIZKREISGRUPPEN

3 KOMBIVENTIL MIT HILFE DES WÄRMEMENGENZÄHLERS EINSTELLEN

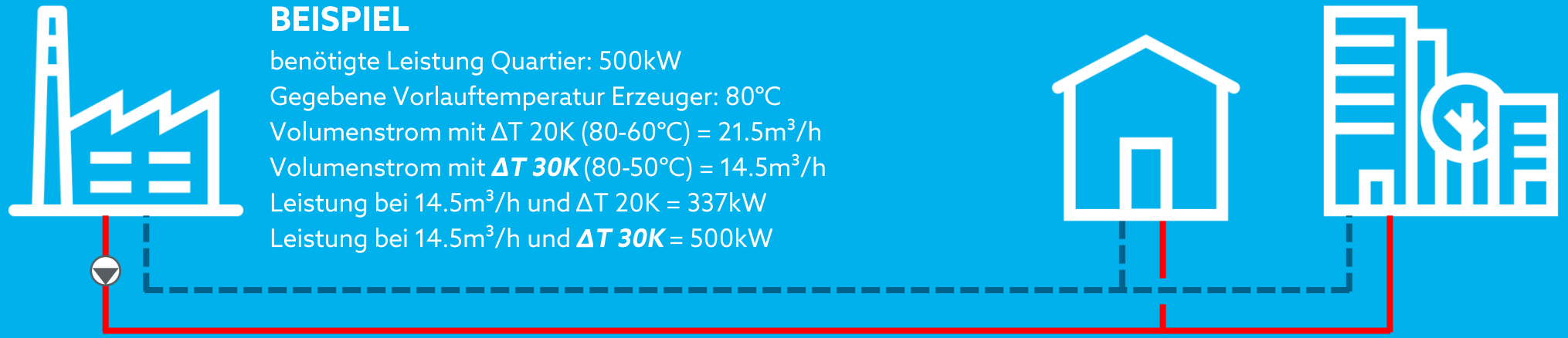
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# Rücklauftemperatur

# 5

# Systemtemperaturen im Wärmeverbund

## Vorteile tiefer Rücklauftemperaturen



**BEISPIEL**

benötigte Leistung Quartier: 500kW
Gegebene Vorlauftemperatur Erzeuger: 80°C
Volumenstrom mit ΔT 20K (80-60°C) = 21.5m³/h
Volumenstrom mit ***ΔT 30K*** (80-50°C) = 14.5m³/h
Leistung bei 14.5m³/h und ΔT 20K = 337kW
Leistung bei 14.5m³/h und ***ΔT 30K*** = 500kW

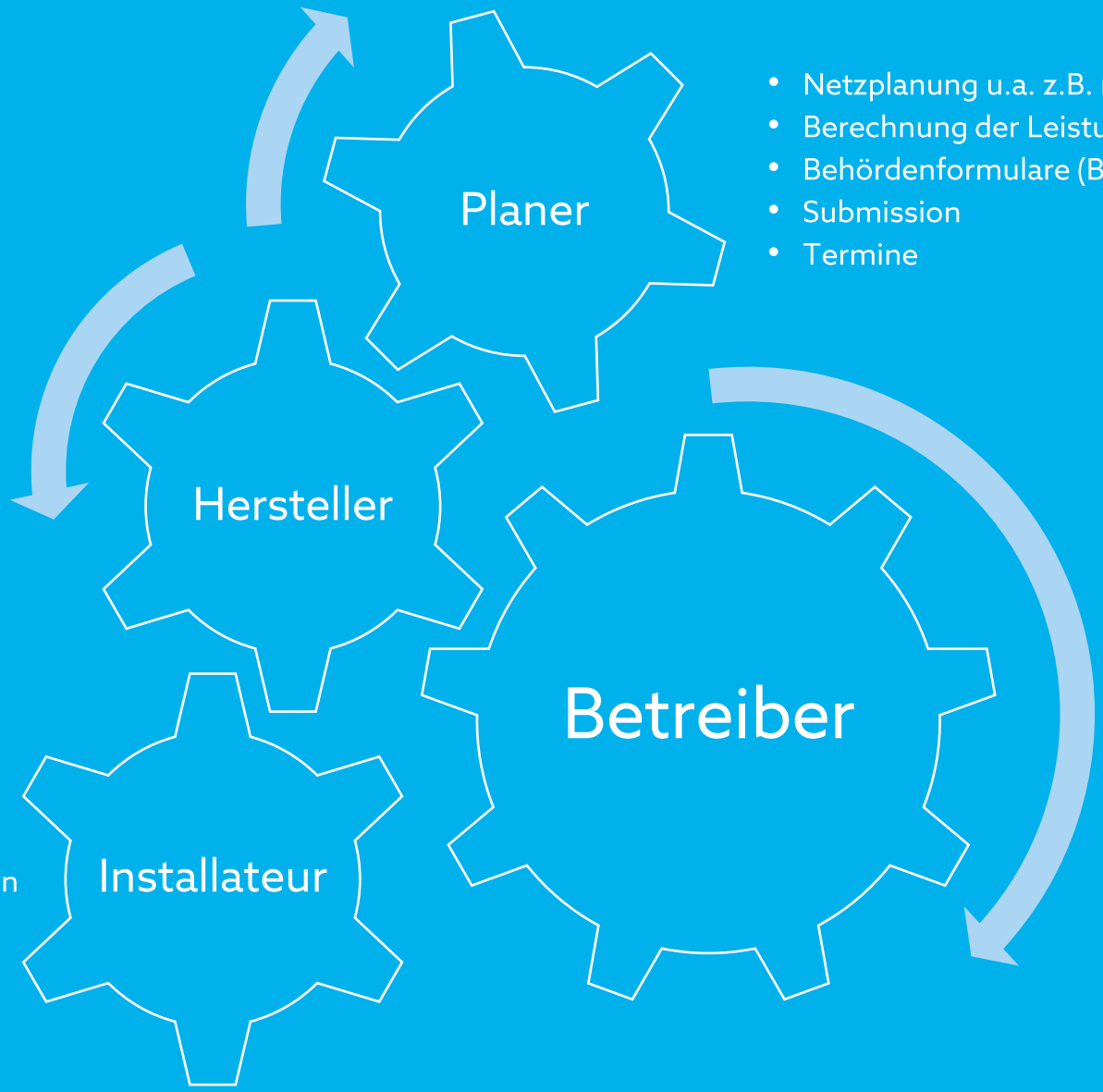
1. **BEI GLEICHER LEISTUNG KLEINERE ROHRDIMENSIONEN**
2. **BEI GLEICHEM VOLUMENSTROM ERHÄLT MAN MEHR LEISTUNG**
3. **REDUKTION DER WÄRMEVERLUSTE IM RÜCKLAUF**

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# Kommunikation zwischen Playern

# 6

- Planung der Station mit Planer
- Produktionsplan
- Produktion nach TAB Betreiber
- Lieferung nach Terminplan
- IBN
- Betriebsinstruktion Endkunde
- Datenschnittstelle / Cloudservice




- Netzplanung u.a. z.B. mit Grün Stadt Zürich
- Berechnung der Leistungen
- Behördenformulare (Baueingabe)
- Submission
- Termine

- Bauherr
- Kick-Off
- Werksvorschriften (TAB/TAV)
- Verrechnung an Endkunde
- Betrieb der Anlage
- Optimieren der Anlage

- Submissionseingabe
- Planung gem. Baufortschritt
- Personalplanung
- Bestellung der Übergabestationen
- Installation
- IBN organisieren
- After Sales (Wartung)

# Branchenveranstaltungen

## Verband Thermische Netze Schweiz



# Wir regeln das. Seit 1851.



Mehr Info unter: www.oventrop.ch / info@oventrop.ch und in Ihrem Fachhandel