

CHILLVENTA eSPECIAL

Refrigeration | AC & Ventilation | Heat Pumps

13.–15.10.2020

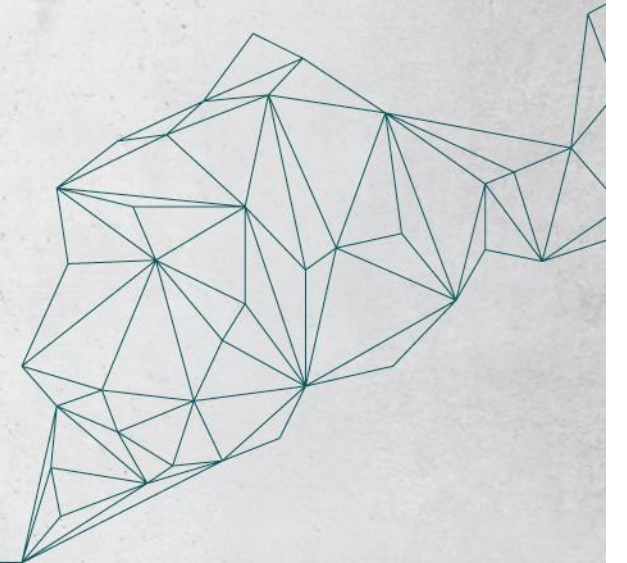
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NÜRNBERG MESSE

How to respect the refrigerant charge limits with A2L into residential heat pump

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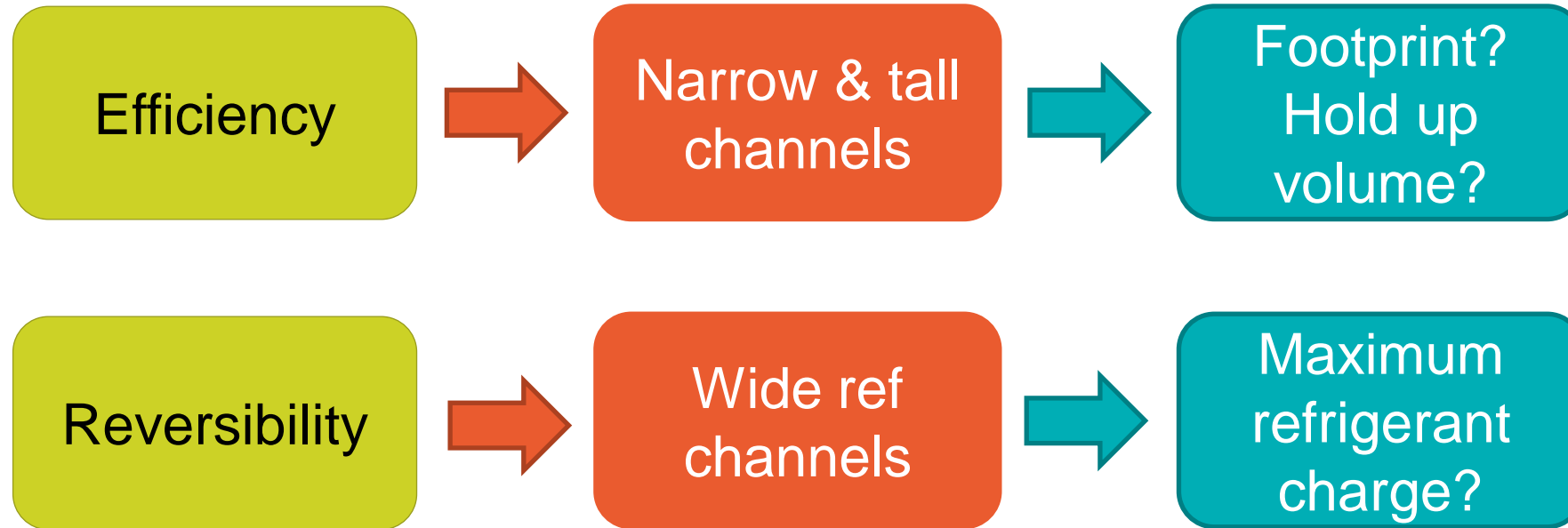


BACKGROUND

- During last 2 years a **massive redesign** of the Heat pump ranges has occurred.
- There is a lot of uncertainty on **which refrigerant** (A2L) to use
- All refrigerants are mildly **flammable** or explosive
- The heat pump have a maximum refrigerant **charge limitation (1.6 – 1.8 kg)**
- The **efficiency** requested is still very high in all conditions
- The **cooling** performance are as important as the heating

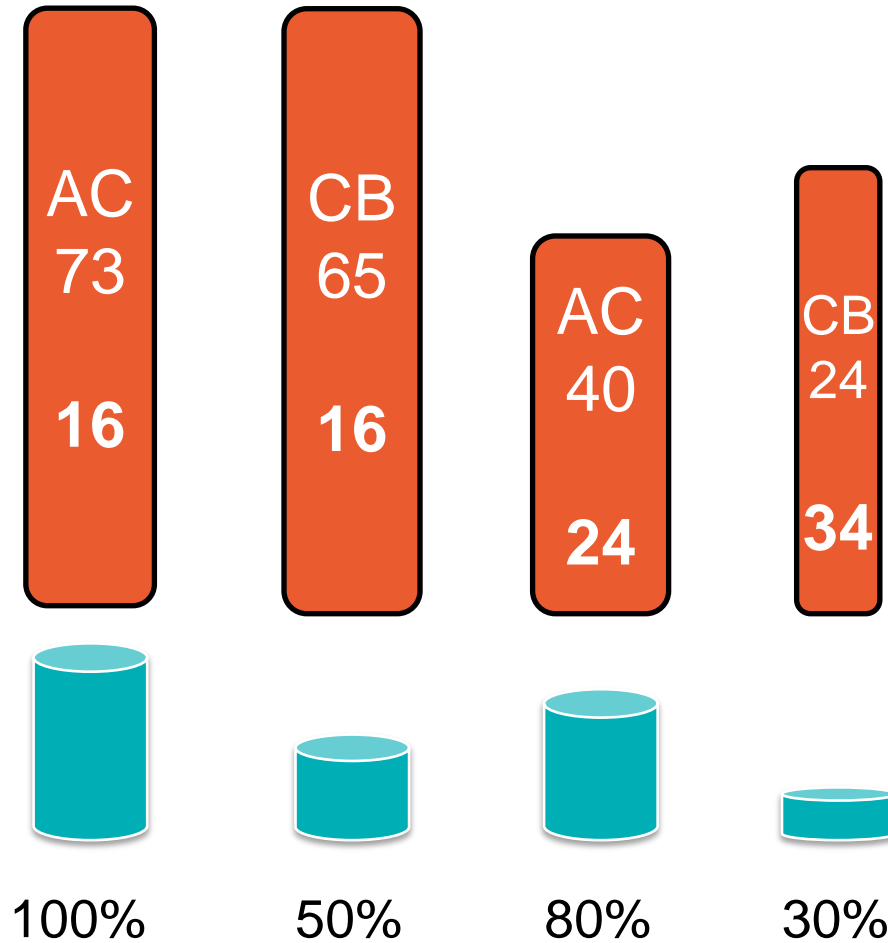
HOW THE HEAT EXCHANGERS CAN SOLVE ALL THE ABOVE CHALLENGES AND RESPECT THE REFRIGERANT CHARGE LIMITS?

WHAT ARE THE TECHNICAL CHALLENGES?



LARGE VARIETY OF POSSIBLE COMBINATIONS

HTA
1 m²

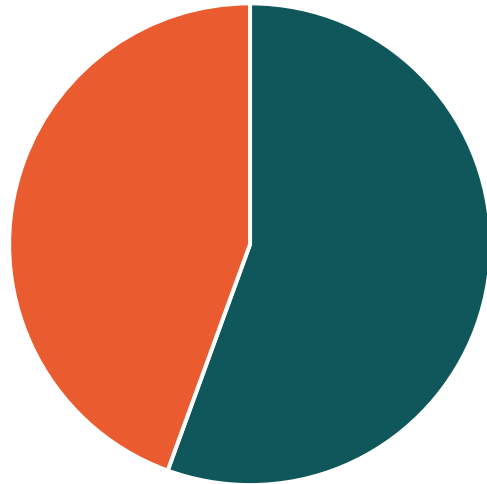


How to combine the different channels for

- **Ground Source** Heat Pump
- **Air to Water** Heat Pump.

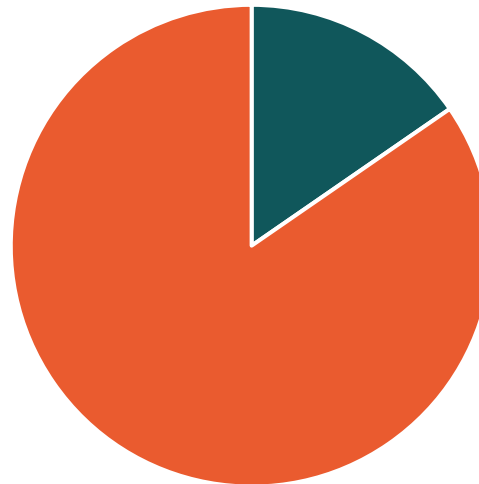
WIDE or NARROW CHANNELS?

ATWHP



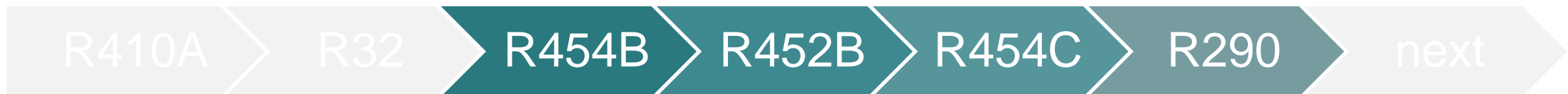
■ wide channels ■ narrow channels

GSHP



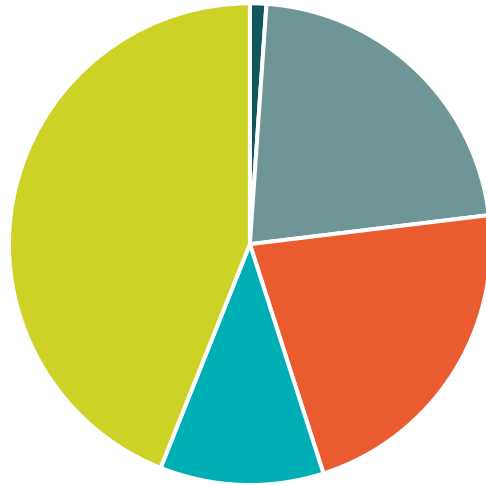
■ wide channels ■ narrow channels

- **ATWHP** we still need wide channels
- **GSHP** there is a consolidated trend towards narrow channels



BEST CHANNEL PLATE

ATWHP

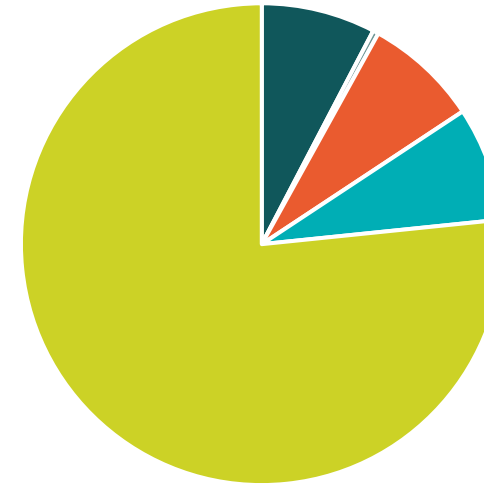


■ CB24 ■ AC40 ■ AC73 ■ CB62 ■ CB65

AIR TO WATER

- **AC73 & AC40** large volume to balance the outdoor coil volume with integrated distributor to optimize the reversibility.
- **CB65** high efficiency is used for special designs (R290/R454C)

GSHP

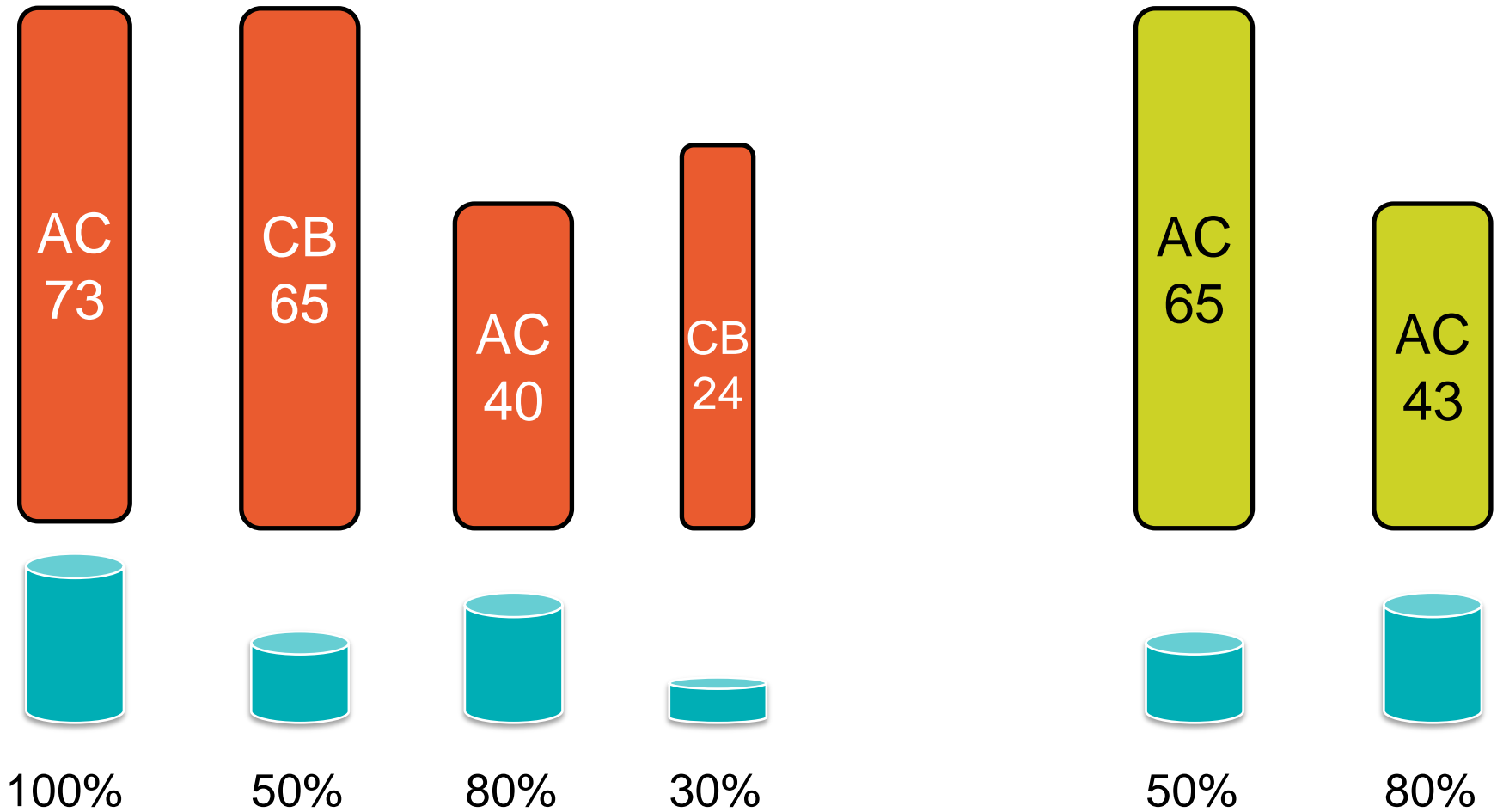


■ CB24 ■ AC40 ■ AC73 ■ CB62 ■ CB65

GROUND SOURCE

- **CB65 & CB24** narrow channels are used for the indoor installations.
- Start to see the request for reversible GSHP (see next slide)

REVERSIBILITY



**Thank you for your
attention.**

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