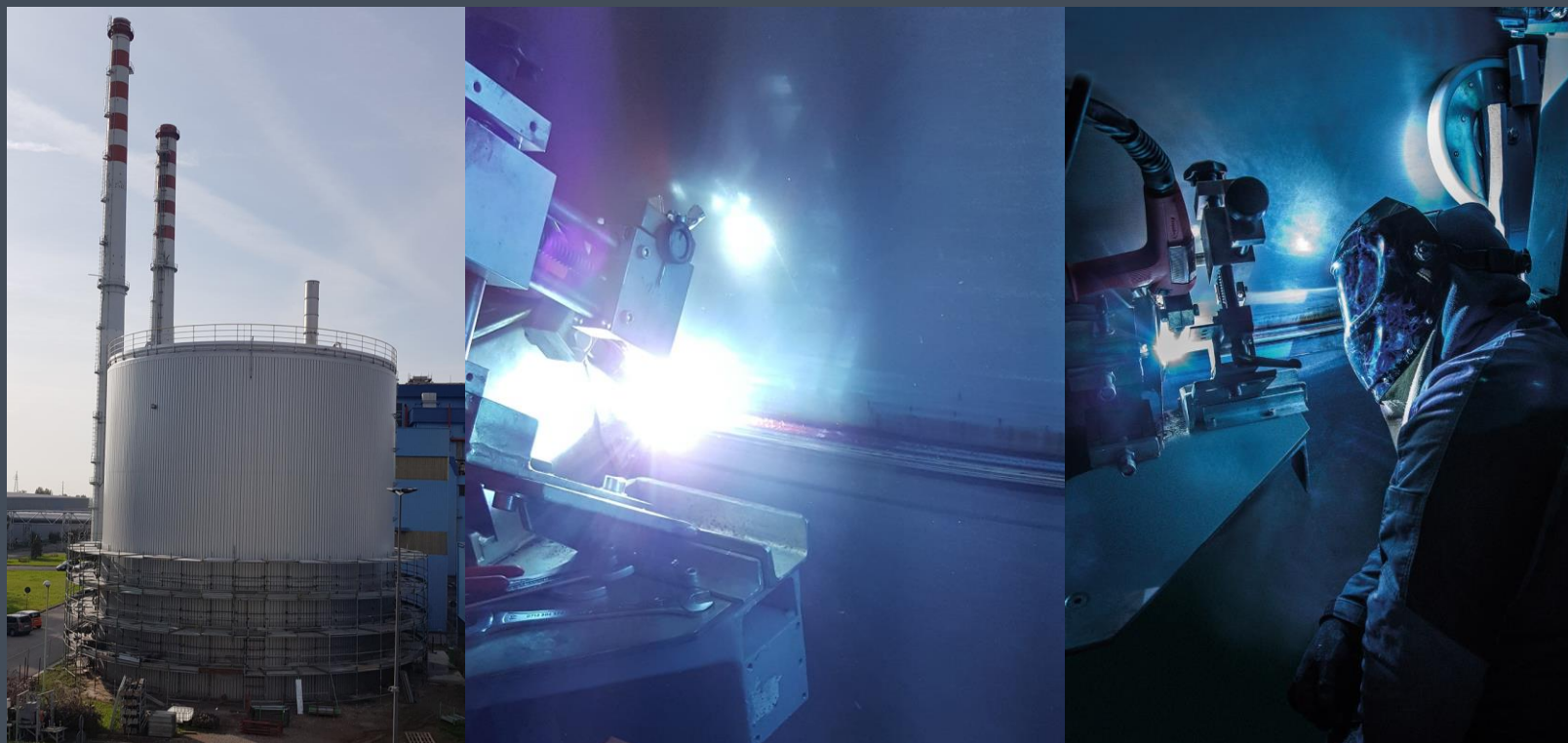


AUTOMATED CONSTRUCTION OF LARGE-SCALE THERMAL STORAGE TANKS

FOR INDUSTRY AND DISTRICT HEATING NETWORKS



General Information

LIPP GmbH, Germany
Tanks and Systems Solution
Unique Worldwide

Established: 1958
 Annual Sales: < 20 Mio. €
 Employees: 80
 Patents/Innovations: < 150

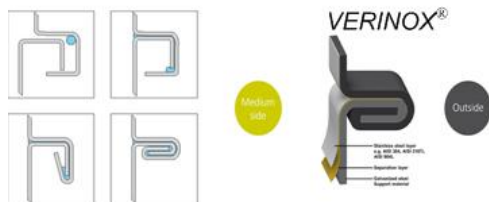
Family-owned in 3rd generation (established 1958)

Global Partnerships



Double Seam System

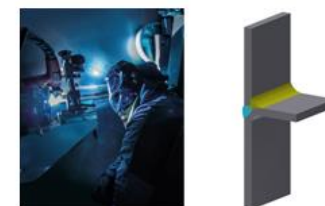
Automated on-site
 manufacturing



Diameter: 3 m – 50 m
 Ma. Thickness: 1.5 mm – 4.0 mm
 Volume: 100 – 15. 000 m³

Welding Technology

Automated on-site
 manufacturing



Diameter: 4 m – 30 m
 Ma. Thickness: 3.0 mm – 8.0 mm
 Volume: 100 – 12. 000 m³



1982



2006



2017



2016

Horizon 2020
 European Union funding
 for Research & Innovation

Material:

VERINOX®

50 – 3.000 m³

Stainless Steel

Galvanized Steel

Black Steel

100 – 12.000 m³

LIPP Systems & Applications



Potable Water



Waste Water Treatment



Anaerobic Technology



Liquid Storage Tanks



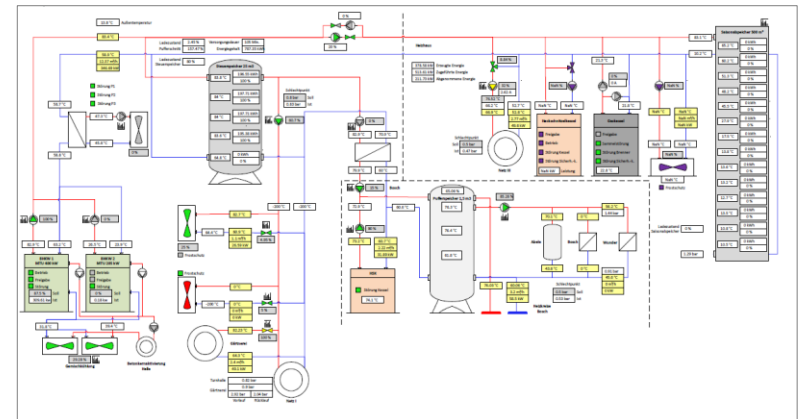
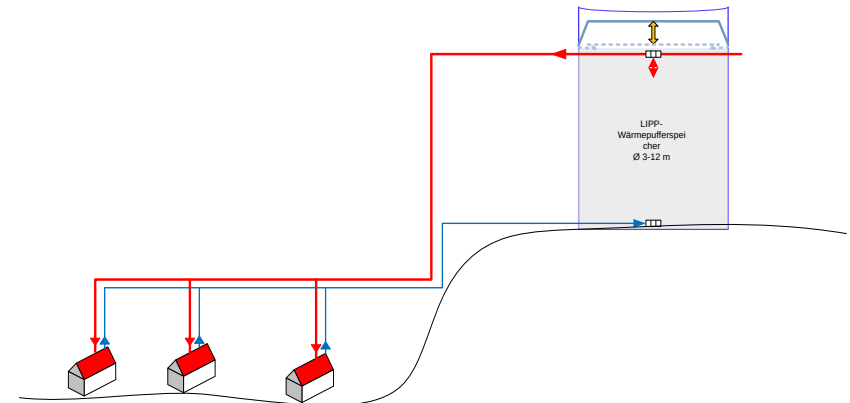
Gas Accumulators & Silos



Thermal Storage Tanks

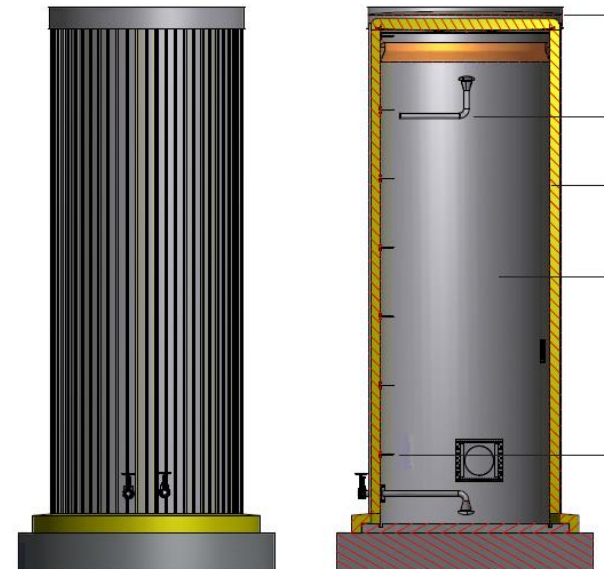
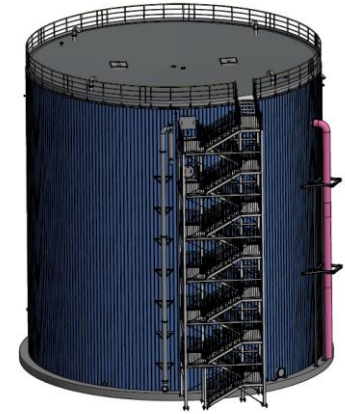
Application of Thermal Storage Tanks in District Heating Networks

- Time-difference between heat-production and use
e.g. flexible biogas production, heat-power plants etc.
- Energy Storage of excessive heat
- Economic utilization of waste-heat
- Power-to-Heat solutions: Electricity generated by wind turbines or photovoltaic that cannot be fed into the grid is used to heat-up water -> ENERGY STORAGE similar to pumped storage power plant



Advantages & Specialties of LIPP Thermal Storage Tanks

- Improved temp.-levels (cold-hot separation) due to height-diameter ratio
- Flexible / adjustable Diameter / Height
- Realization of huge volume due to special LIPP tank construction technology
- Reduced Heat-Loss due to customized insulation of wall & roof
- Oxygen-impermeable membrane instead of Nitrogen-Injection
- Incl. All safety systems
- Additional, customizable components internal & externally
- Short construction times and same quality world-wide
- Low maintenance costs, no operating costs.



Project Italy – General Information

Municipal District Heating Network -

Project Description

The city in northern Italy has the oldest and largest district heating network in Italy.

There are already 2 x 1000 m³ pressure thermal storage tanks existing with approx. 140 MWh.

To increase the heat storage capacity, another atmospheric pressure Thermal Storage Tank from LIPP GmbH with a capacity of 5200 m³ was built to provide approx. 220 MWh.

Together with further storage tanks at other locations the capacity is planned to increase to approx. 550 MWh.

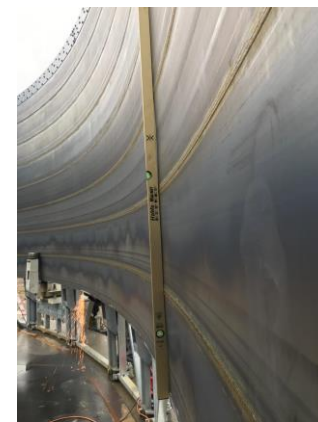


LIPP Thermal Storage Tank – Project Italy

District Heating Network

Atmospheric Pressure – Thermal Storage Tank –

Tank Diameter:	19,50 m
Tank Height :	20,00 m
Filling Level :	17,42 m
Total Volume:	5200 m ³
Year of Construction:	2019
Installation Time:	ca. 15 Weeks
Thermal Power:	220 MWh
	55 MW for 4 hours
	4 cycles / day
Flow rate:	1500 m ³ / h
Temperature:	97 ° C



Installation Process -



References

Italy 2

Volume 1.500 m^3

D=10,50m; H=20,00m; FH=17,33m

Italy 3

Volume 3.050 m^3

D=15,60m; H=18,00m; FH=15,96m

Flow rate: 750 m³/h,

Max. 4 cycles / day

Italy 4

Volume 2.200 m^3

D=15,00m; H=15,50m; FH=12,45m

Germany, Baden-Württemberg

Volume 5000 m^3

D=19,50m; H=18,75m; FH=17,75m

Germany, Rostock

Volume 820 m^3

D=9,50m; H=13,00m; FH=11,50m

Germany, Weiden

Volume 2000 m^3

D=12,00m; H=20,00m; FH=18,00m

Gargelen, Switzerland

Volume 1450 m^3

D=10,00m; H=19,45m; FH=18,40m

Thank you for your attention!

LIPP GmbH

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