Ipsen ATLAS Kammerofenkonzept

2025-07-07 | Lukas Kelputt

Ipsen International GmbH | Key Facts

- Location: Kleve, Nordrhein-Westfahlen
- Founding: 1948 USA | 1957 Deutschland
- No. of Employees: 280 am Standort Kleve | >750 weltweit
  davon +50 Service Techniker am Standort Kleve
- Production Facilities: 5 - in Europa | Amerika | Asien
  + Niederlassungen in 34 Ländern
- No. of Installations: + 10.000

Ipsen International GmbH | Key Facts

German Innovation Award 2024 | Hochschulpreis 2025 | Hidden Champion 2025

GERMAN INNOVATION AWARD '24 WINNER

Bildnachweise: © WfG Kreis Kleve / Markus van Offern

WirtschaftsWoche

GLOBAL MARKET LEADER

Champion

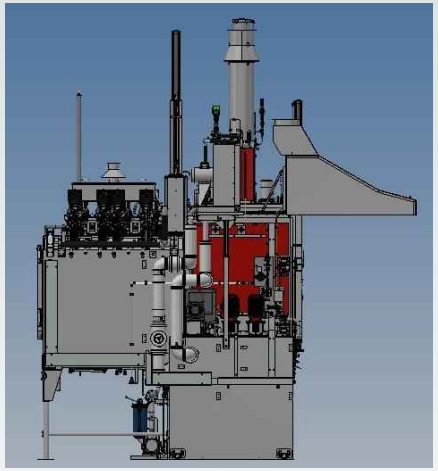
2025

Ipsen International GmbH

Source: Global Market Leader Index
by Dr. Walter Döring
and Prof. Dr. Christoph Müller

ATLAS Furnace Concept | TQ <> RTQ

RTQ



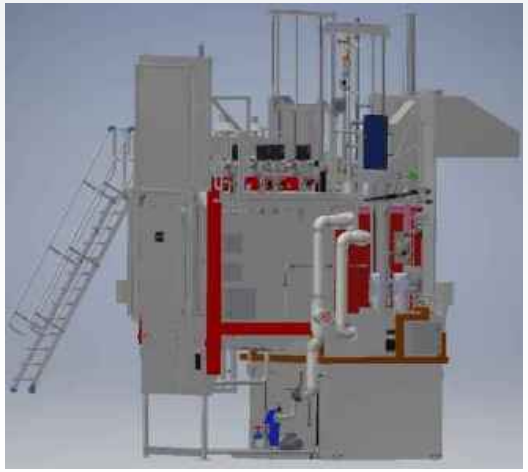
Advantages:

- less space required
- only one loading machine required

Disadvantages:

- delay in furnace loading due to safety purging times after door movement
- access of the heating chamber for maintenance only through quench chamber

TQ



Advantages:

- burn-out of heating chamber during loading sequence
- loading of heating chamber possible independent from previous load in quench chamber
- easy access of heating chamber for maintenance

Disadvantages:

- more space for required
- one loading & one unloading devices necessary

ATLAS Furnace Concept | Furnace Sizes

M	(WxLxH) 610 x 910 x 760 mm – 500kg	4.500 L
L	(WxLxH) 760 x 1220 x 760 mm – 1,000kg	7.000 L
L(910)	(WxLxH) 760 x 1220 x 910 mm – 1,000kg	7.500 L
XL	(WxLxH) 910 x 1220 x 910 mm – 1,500kg	9.000 L
XL(1200)	(WxLxH) 910 x 1220 x 1200 mm – 1,500kg	10.500 L
XXL	(WxLxH) 1220 x 1520 x 910 mm – 2,000kg	10.500 L
XXL (1300)	(WxLxH) 1220 x 1520 x 1300 mm – 2,000kg	12.500 L

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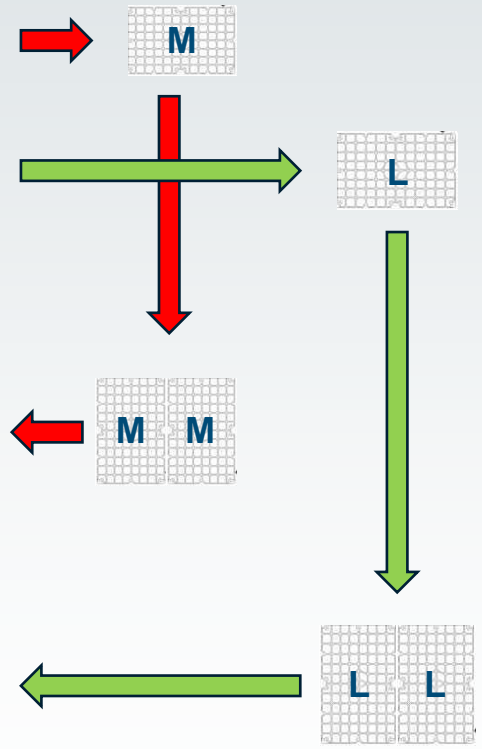
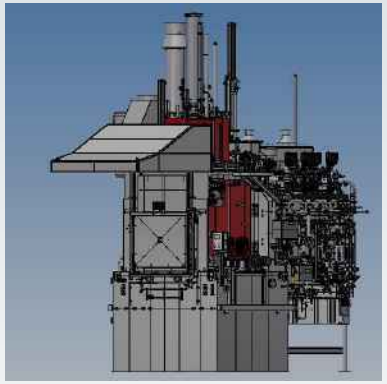
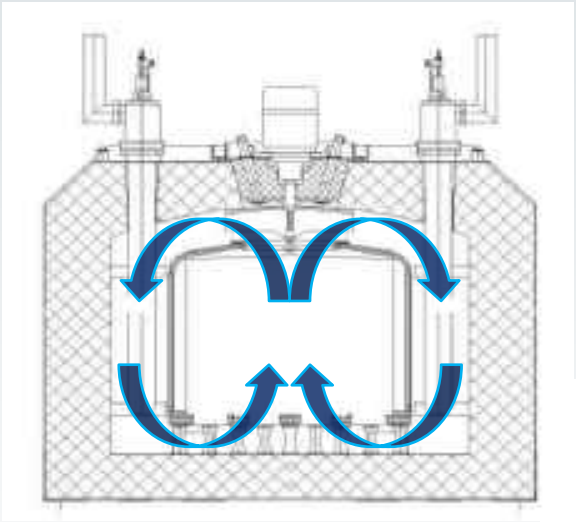
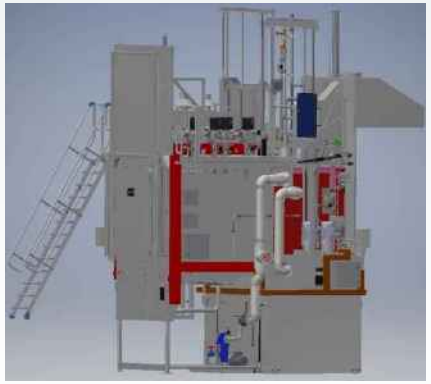
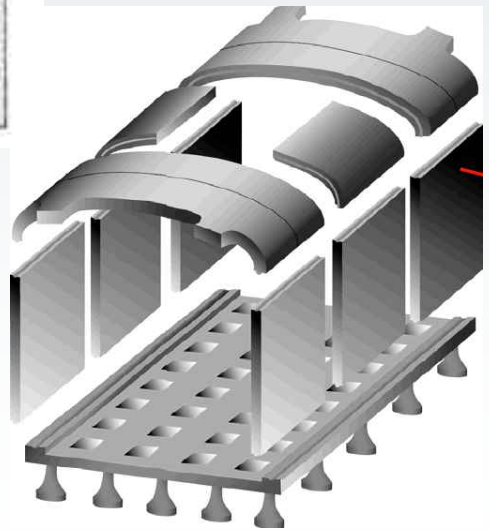


ATLAS Furnace Concept | Muffle System

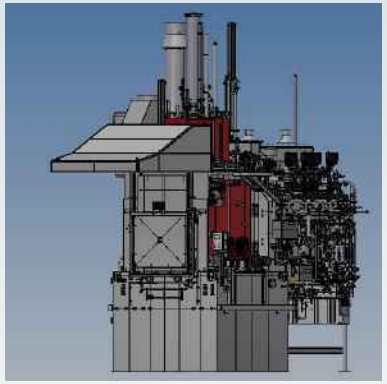


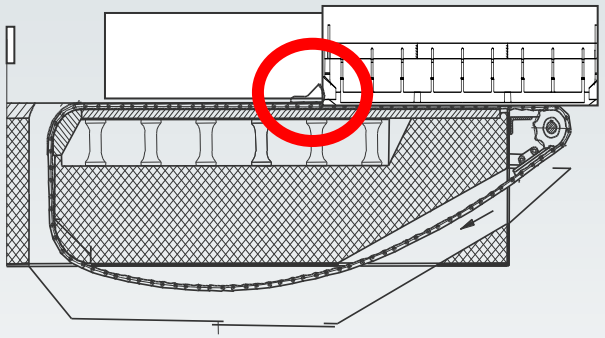


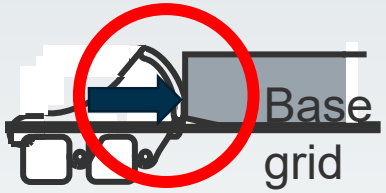




ATLAS Furnace Concept | internal Transport

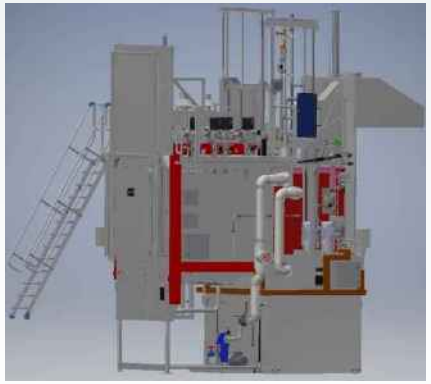


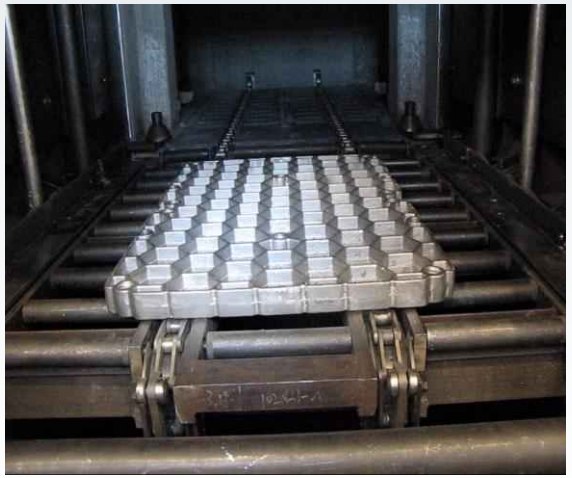




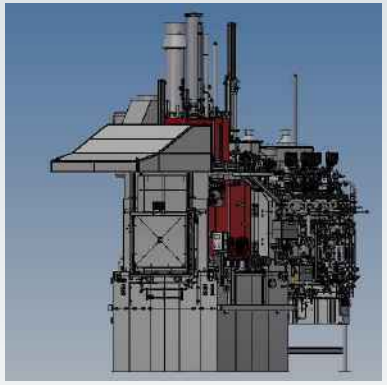
Advantages:

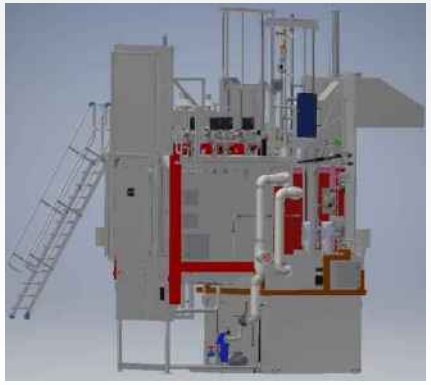
- Uniform and straight movement of the base grids
- Full capacity of the batch base area can be used



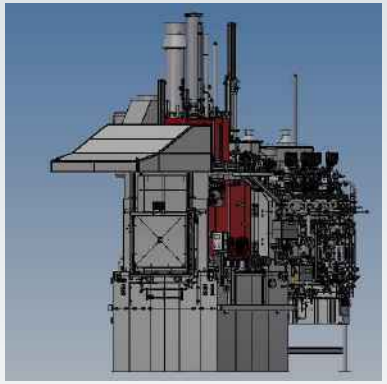


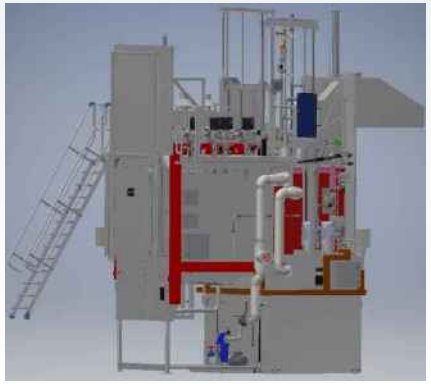
ATLAS Furnace Concept | Water Free

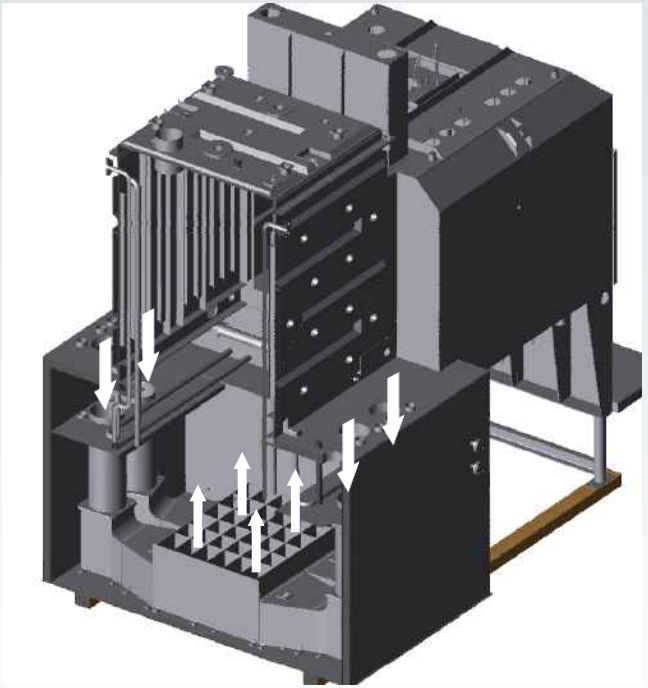




ATLAS Furnace Concept | Super Quench

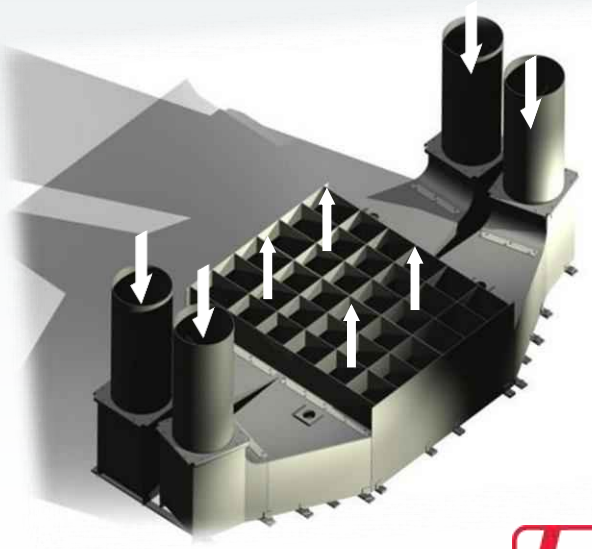




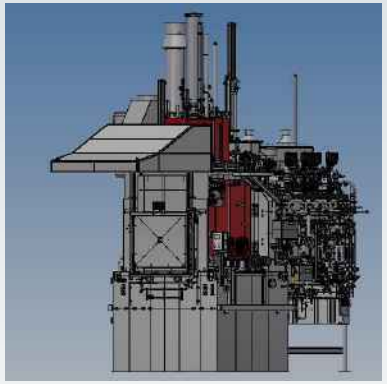


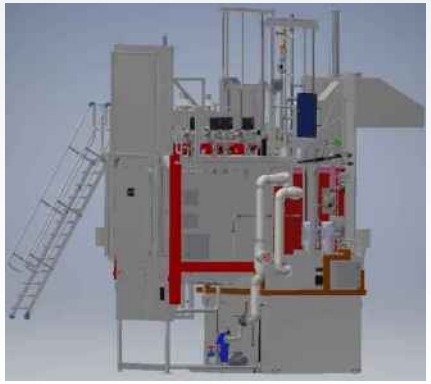
Advantages:

- Variable oil speed flow controlled by VFD
- Oil speed flow`s adjustable to reduce „disstortion“
- Better hardenability of low alloyed steels
- Better uniformity during entire quenching process



ATLAS Furnace Concept | Super Quench





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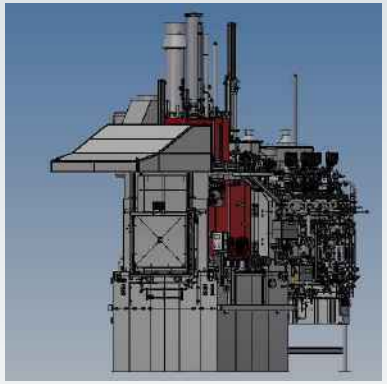
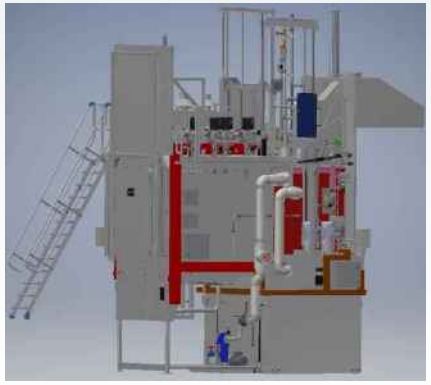
ATLAS Furnace Concept | Eco Oil



Energy Saving Solution:

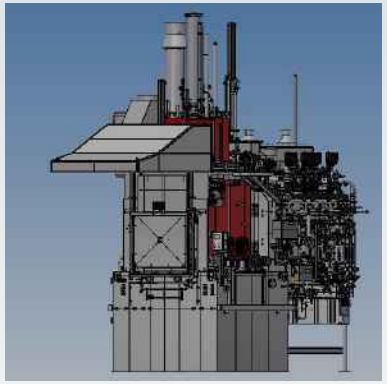
- ON / OFF or
- frequency controlled

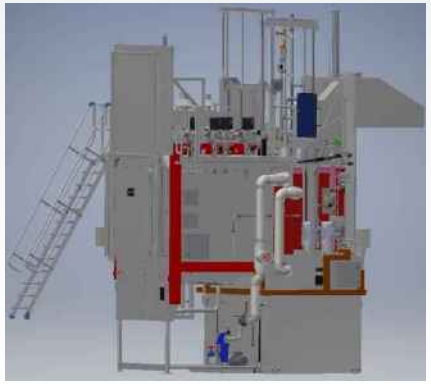


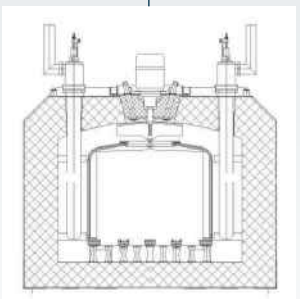
Eco-Oil: Energy-saving module for oil bath circulation:

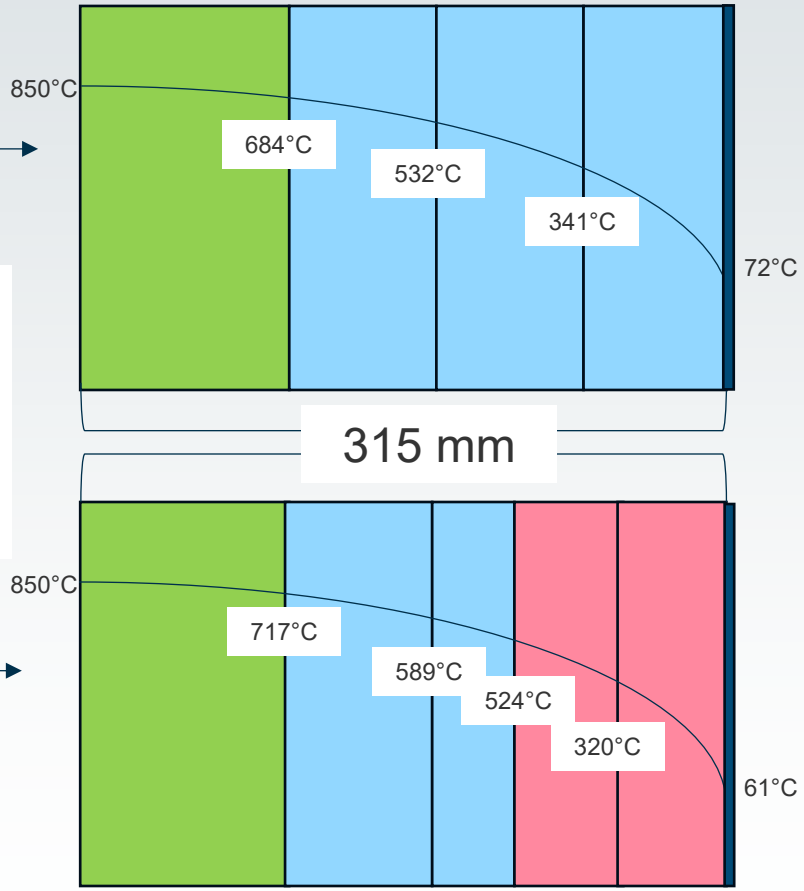
- Software change to the furnace PLC software
- Only one oil bath agitator activated to reduced speed during the standby time
- All remaining oil bath circulators remain switched off
- Quench is only operated with all oil bath agitators on, when the request for quenching is activated

ATLAS Furnace Concept | Microporous Insulation





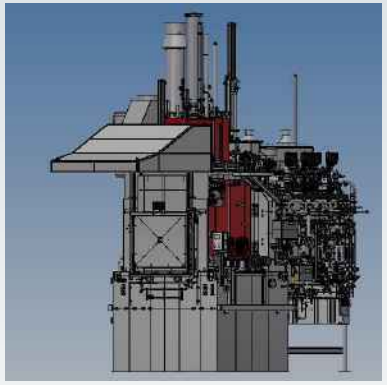


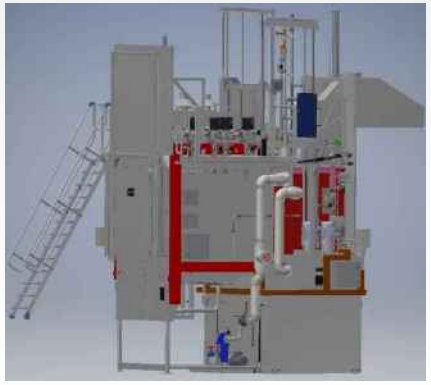


Charge 500 kg (400 kg) CHD=CD=0,95 mm C @ CD=0,35 %		ATM RTQ-M-E **Standard brickwork**
Process duration	930 °C 960 °C 1020 °C	440 min 365 min 277 min
Heating	930 °C 960 °C 1020 °C	352 kWh 330 kWh 317 kWh
CO2-Heating	930 °C 960 °C 1020 °C	134 kg CO2 126 kg CO2 120 kg CO2

Charge 500 kg (400 kg) CHD=CD=0,95 mm C @ CD=0,35 %		ATM RTQ-M-E **Insulation:+ microporous**
Process duration	930 °C 960 °C 1020 °C	440 min 365 min 277 min
Heating	930 °C 960 °C 1020 °C	223 kWh 211 kWh 204 kWh
CO2-Heating	930 °C 960 °C 1020 °C	85 kg CO2 80 kg CO2 78 kg CO2

ATLAS Furnace Concept | Hybrid Heating System – Recon IV Burner





Convincing features.

Recon IV at a glance.

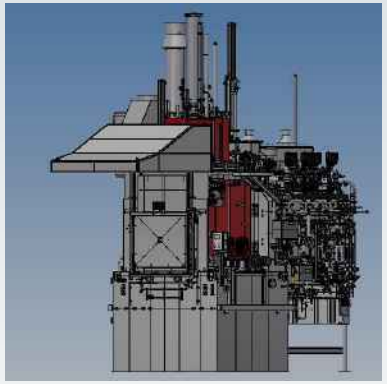
Advantages:

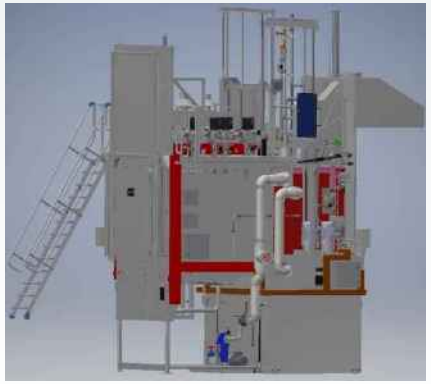
- Multi-gas burner, H2 ready
- New emission limit values from the European MCP directive / 44.BImSchV
- Recon IV - Zero for the lowest NOx emissions according to 44.BImSchV
- Recon IV – Basic, can be upgraded to Zero later
- 10% improved efficiency compared to previous model Recon III
- Also available (individually) as a retrofit
- CO_2 savings eligible for subsidies
- Less Maintenance required

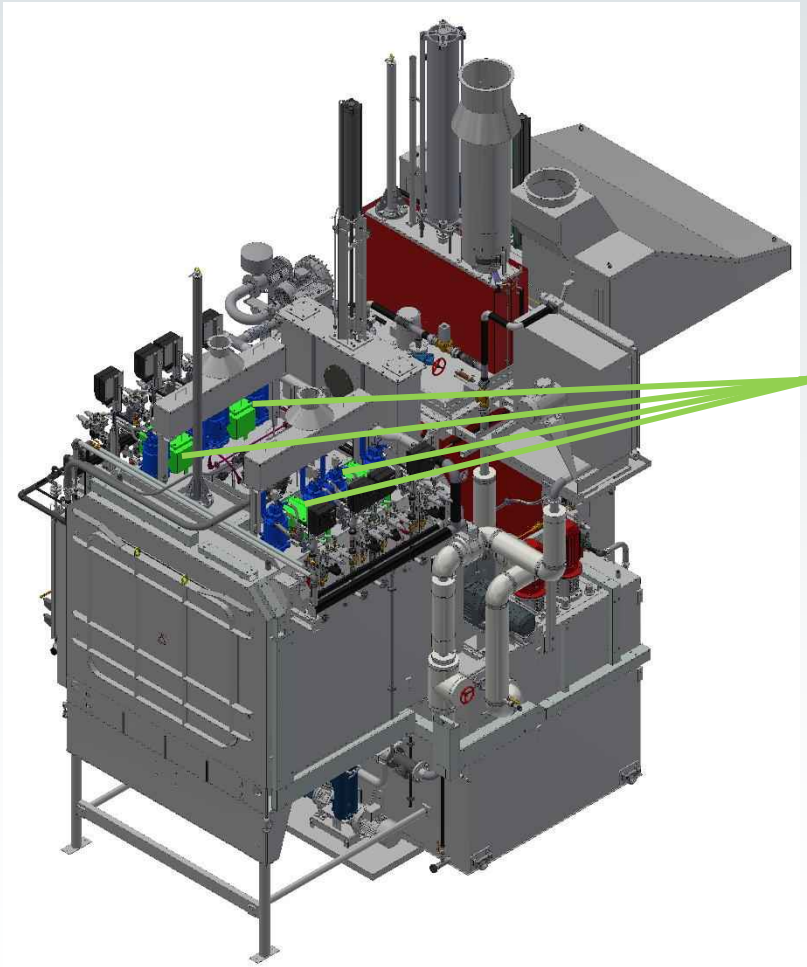
MCP: medium combustion plants

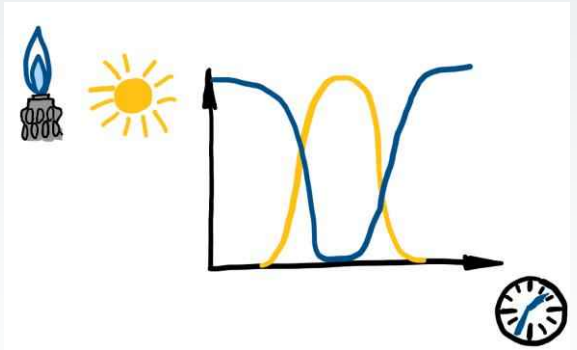
BImSchV: Bundes Immissionsschutz Verordnung

ATLAS Furnace Concept | Hybrid Heating System



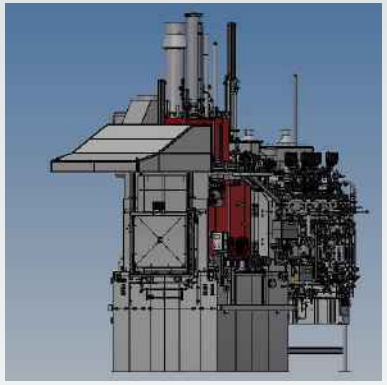


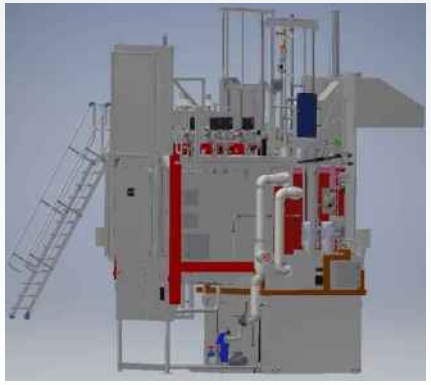


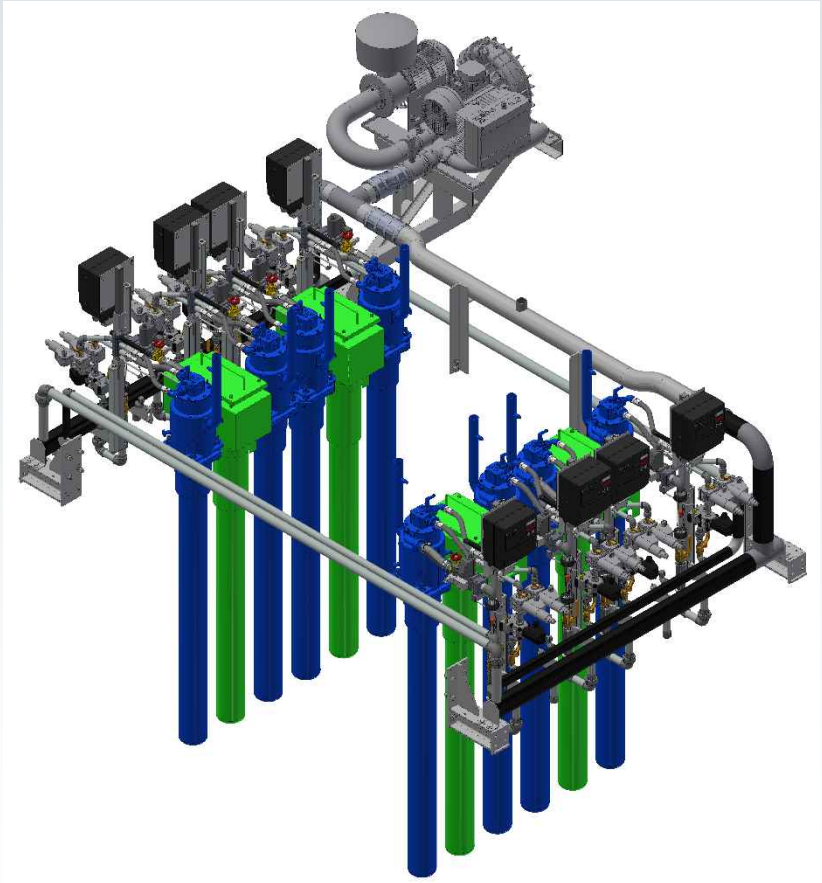


- Hydrogen / multi-gas burner
- Electric heating

ATLAS Furnace Concept | Hybrid Heating System







Advantages:

- Hydrogen / multi-gas burner
- Electric heating

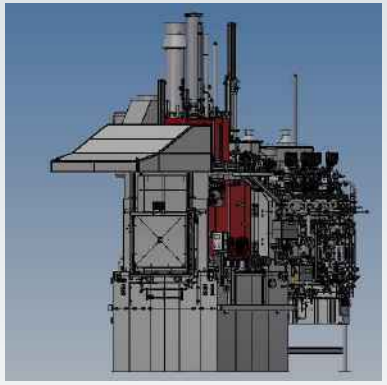
8x Recon IV Burners
4x Electric heaters

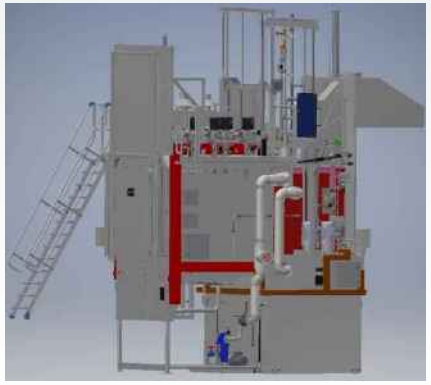
Also possible are:

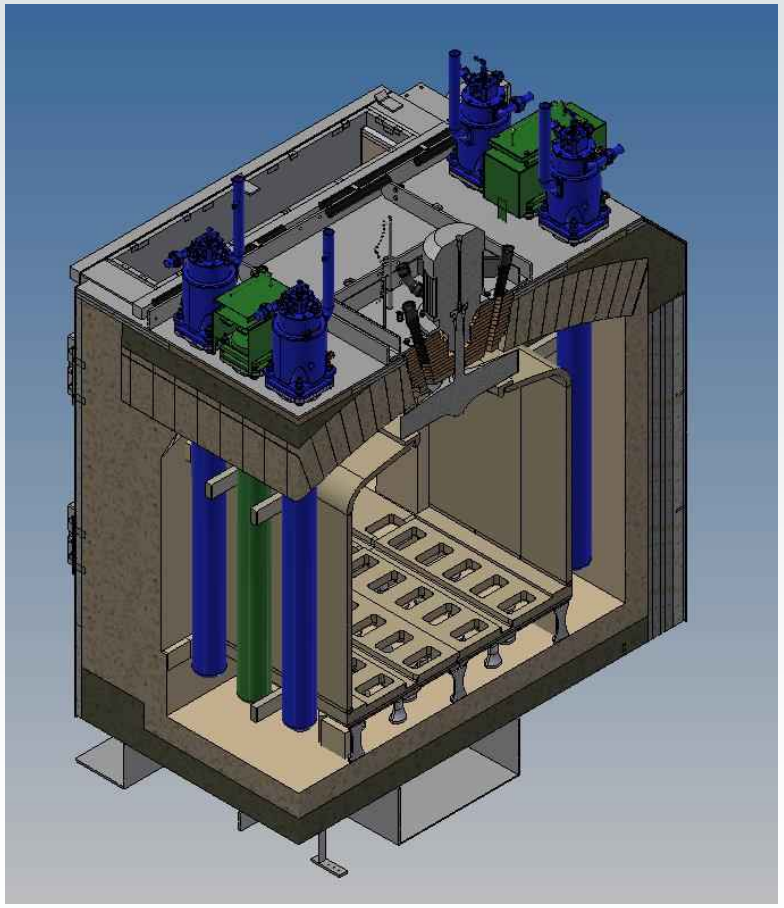
8x Electric + 4x burners
6x Electric + 6x burners (not symmetrical)
etc.

Most of the time, one source is preferred.

ATLAS Furnace Concept | Hybrid Heating System







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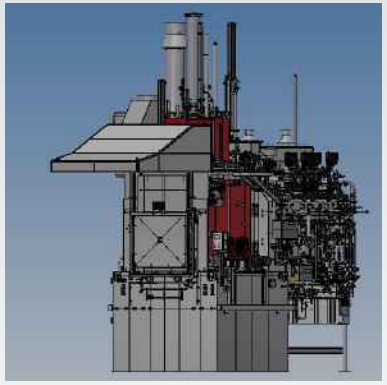
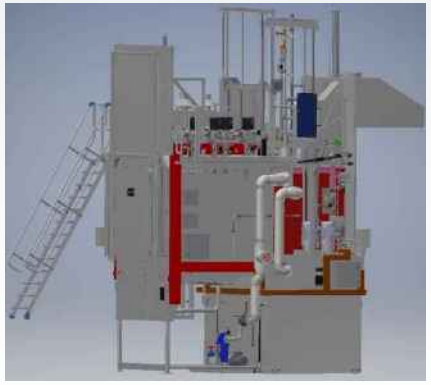
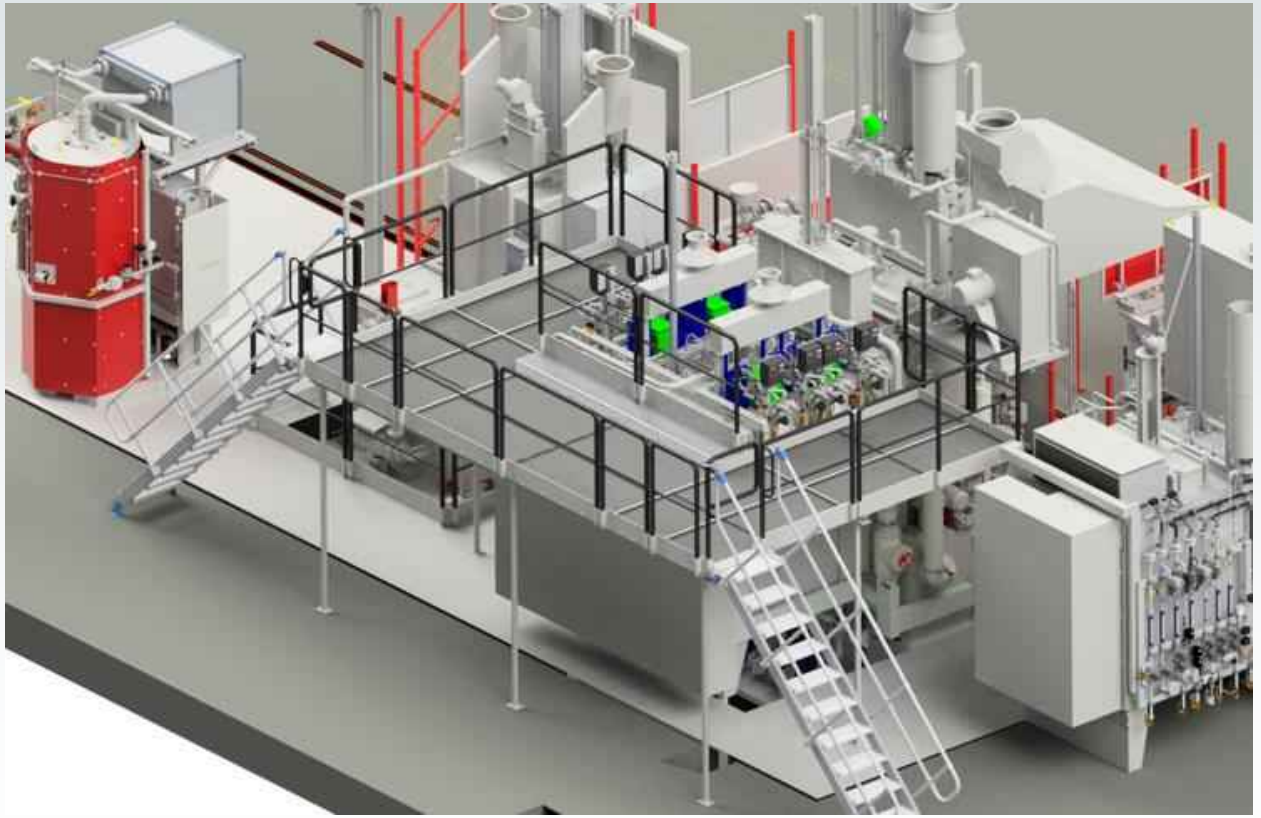
ATLAS Furnace Concept | Furnace Maintenance Platform







ATLAS Furnace Concept | Ipsen Gas Analyzer IGA 5.2

Picture: Ipsen IGA5.2 at Ipsen Future Lab

Ipsen Gas Analyzer IGA 5.2

- NDIR (Non-Dispersive Infra-Red-adsorption): CO, CO_2, CH_4

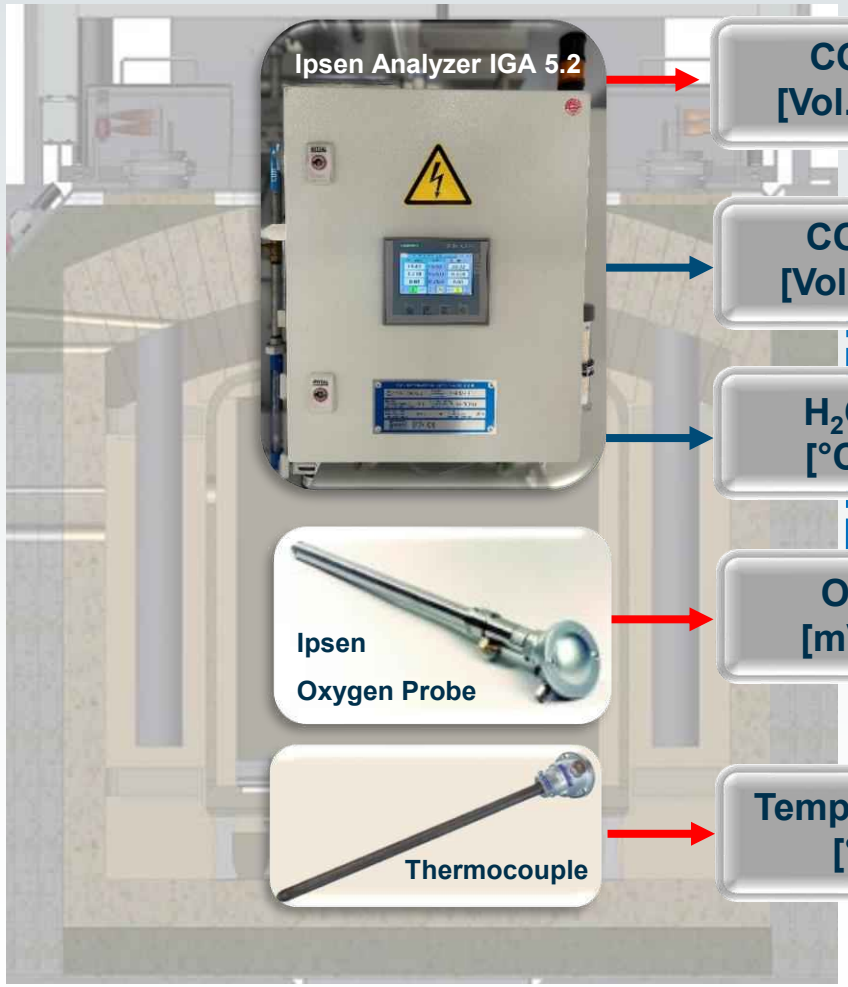
Measurement Range:

• CO	0- 40	Vol.%
• CO_2	0- 2,5	Vol.%
• CH_4	0- 10	Vol.%
• O_2	0- 25	Vol. %
• H_2O	-30- +30 °C	

2 - Channel Analyzer

Sophisticated Calibration Service available

ATLAS Furnace Concept | Green flow



Picture: Ipsen - Cross Section Heating Chamber

CO [Vol.%]

CO_2 [Vol.%]

H_2O [°C]

O_2 [mV]

Temperature [°C]

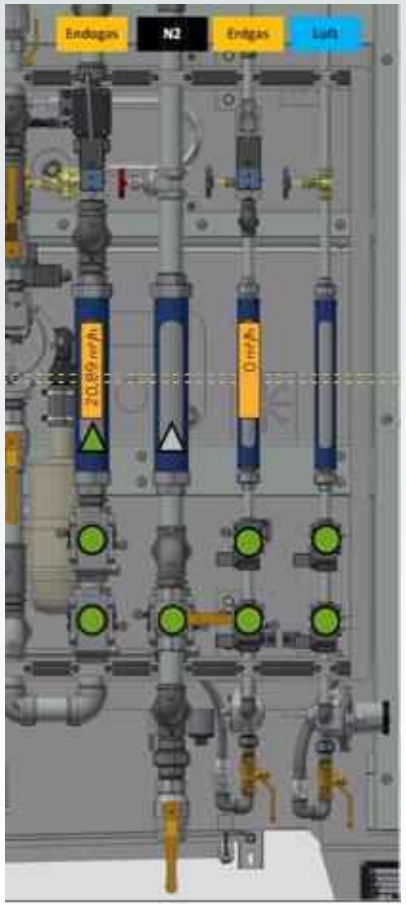
Inputs

Picture: Siemens

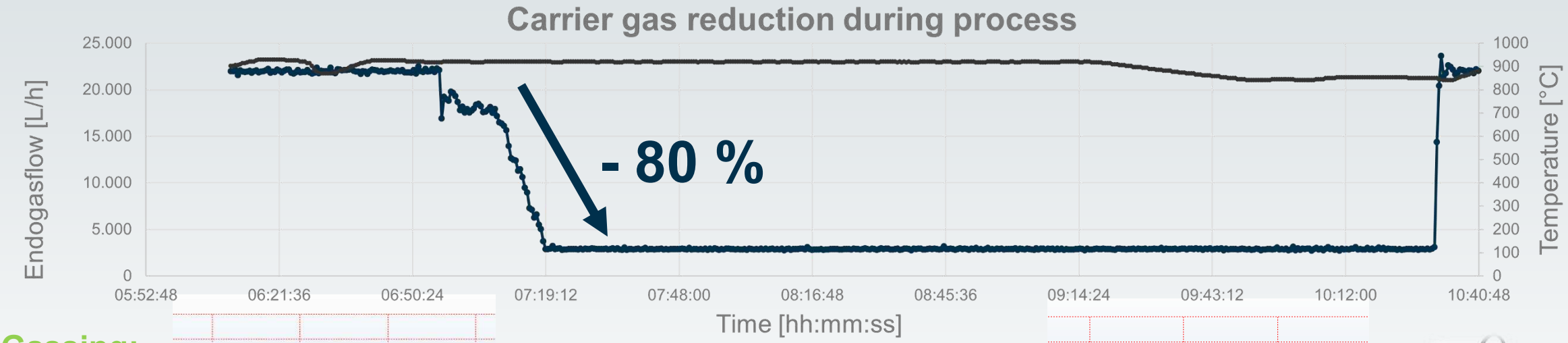
Carb-o-Prof®

Picture: Ipsen - Carb-o-Prof

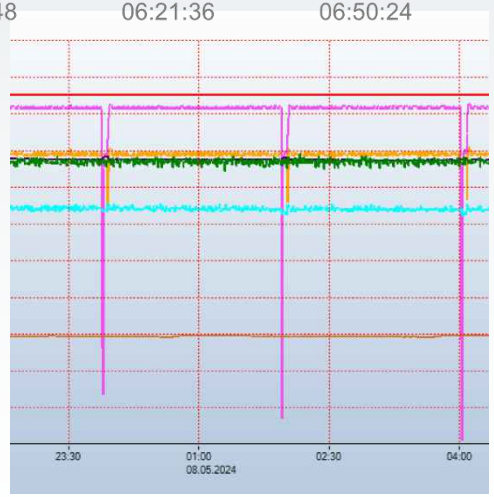
Outputs



ATLAS Furnace Concept | Green flow



Gassing: 20,89 m³/h Endogas



Picture: Ipsen FutureLab

Green Flow

Picture: Ipsen IGA5.2

Picture: Fischer

Picture: Ipsen FutureLab

Picture: Bürkert

Gassing: 3,94 m³/h* Endogas

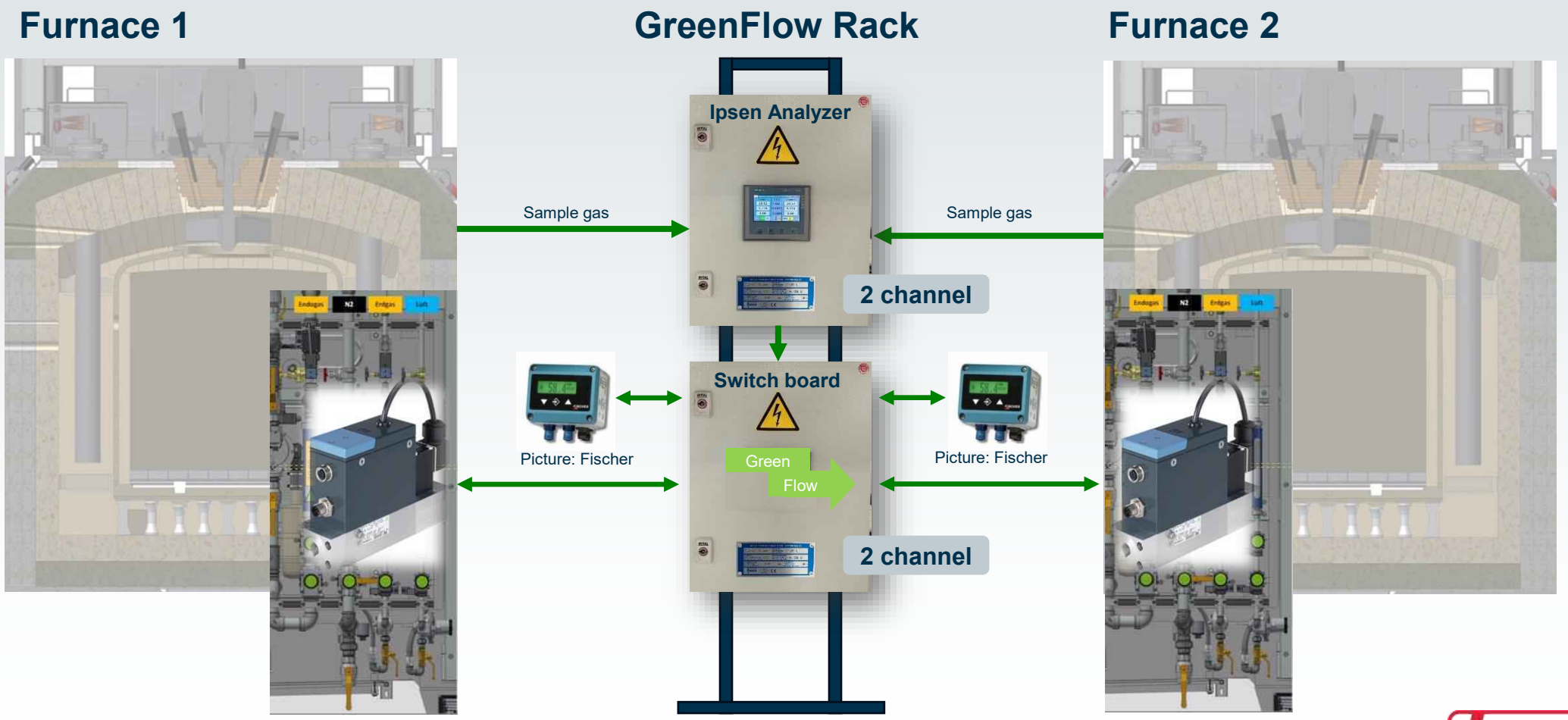
*** GreenFlow conditions only**

ATLAS Furnace Concept | Green flow

Ofengröße: Size:	Chargenabmessung: Load Dimension:	Endogas – Requirement* Standard-Mode:	GreenFlow-Mode:
M	(WxLxH) 610 x 910 x 760 mm	9,2 m³/h	1,8 m³/h
L	(WxLxH) 760 x 1.220 x 760 mm	16,6 m³/h	3,3 m³/h
L(910)	(WxLxH) 760 x 1.220 x 910 mm	18,8 m³/h	3,8 m³/h
XL	(WxLxH) 910 x 1.220 x 910 mm	21,0 m³/h	4,2 m³/h
XL(1200)	(WxLxH) 910 x 1.220 x 1.200 mm	24,6 m³/h	5,0 m³/h
XXL (1300)	(WxLxH) 1.220 x 1.520 x 1.300 mm	37,6 m³/h	7,5 m³/h

* Theoretical Gas consumption based on Atlas RTQ design and maintenance condition

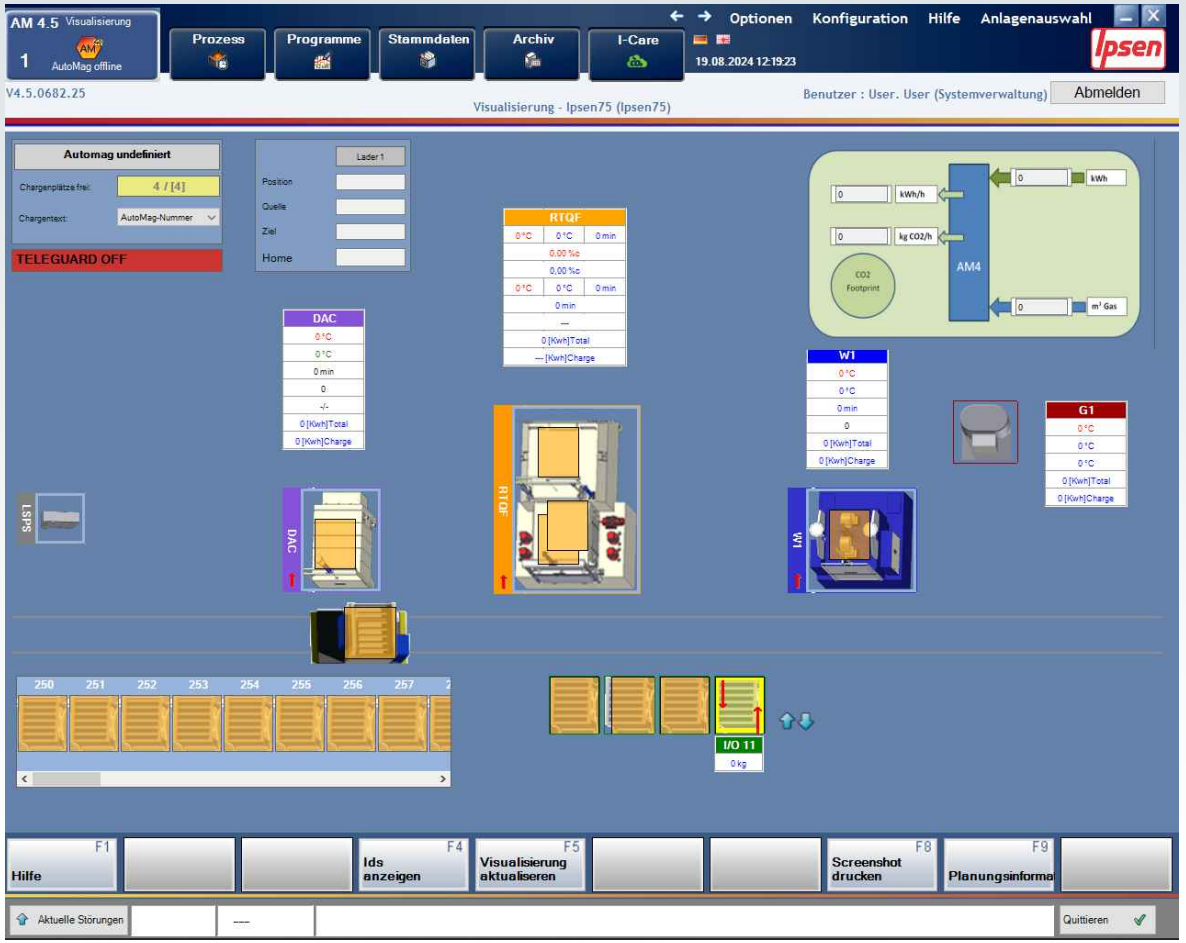
ATLAS Furnace Concept | Green flow



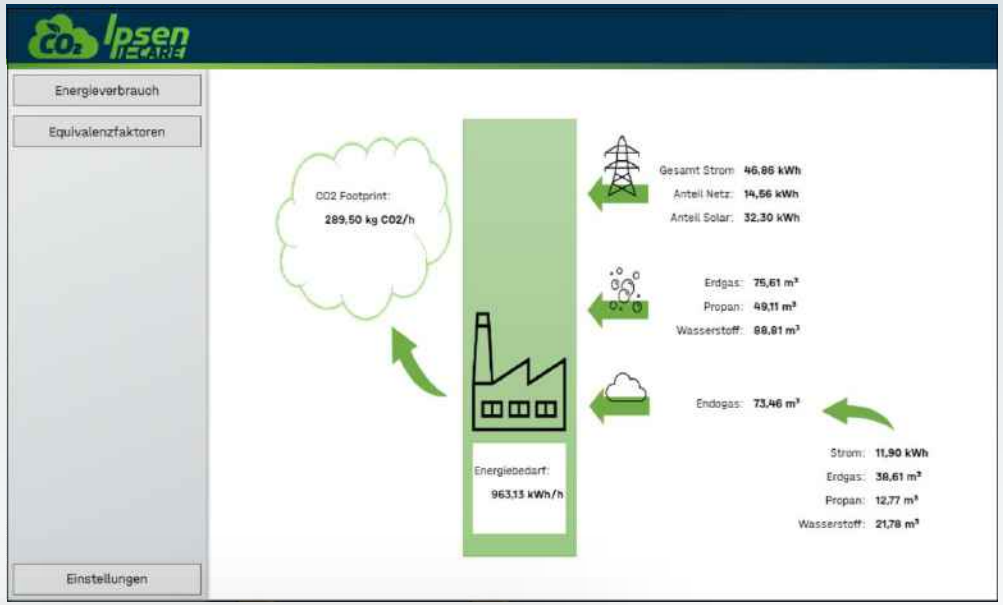
Ipsen Prozess Software

Ipsen Software | CarboProf 4.5

Ipsen Software | AutoMag 4.5

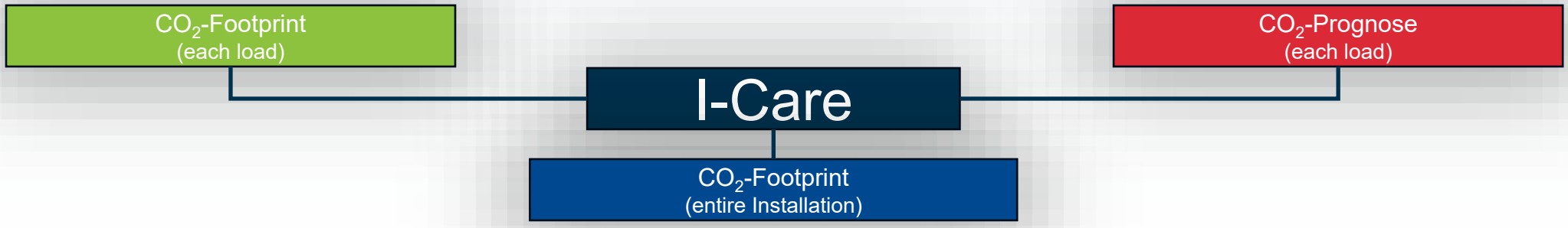


Ipsen Software | I-Care

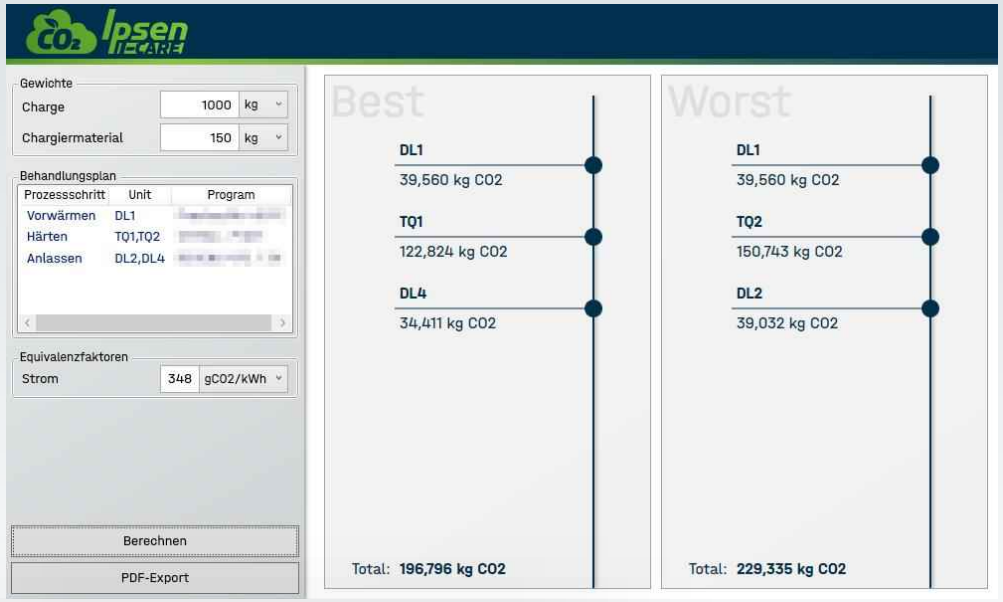


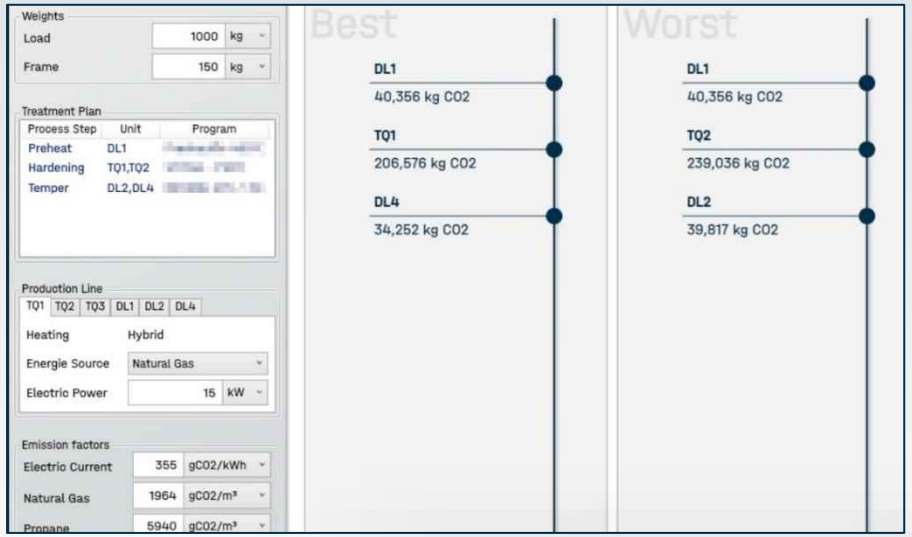
Features:

- Determine CO2 emissions for each batch
  - Protocol on emissions
- Current CO2 emissions of the complete system
- Forecast of CO2 emissions for upcoming batches
- CO2 optimized operation in combination hybrid heating system



Ipsen Software | I-Care CO_2 forecast





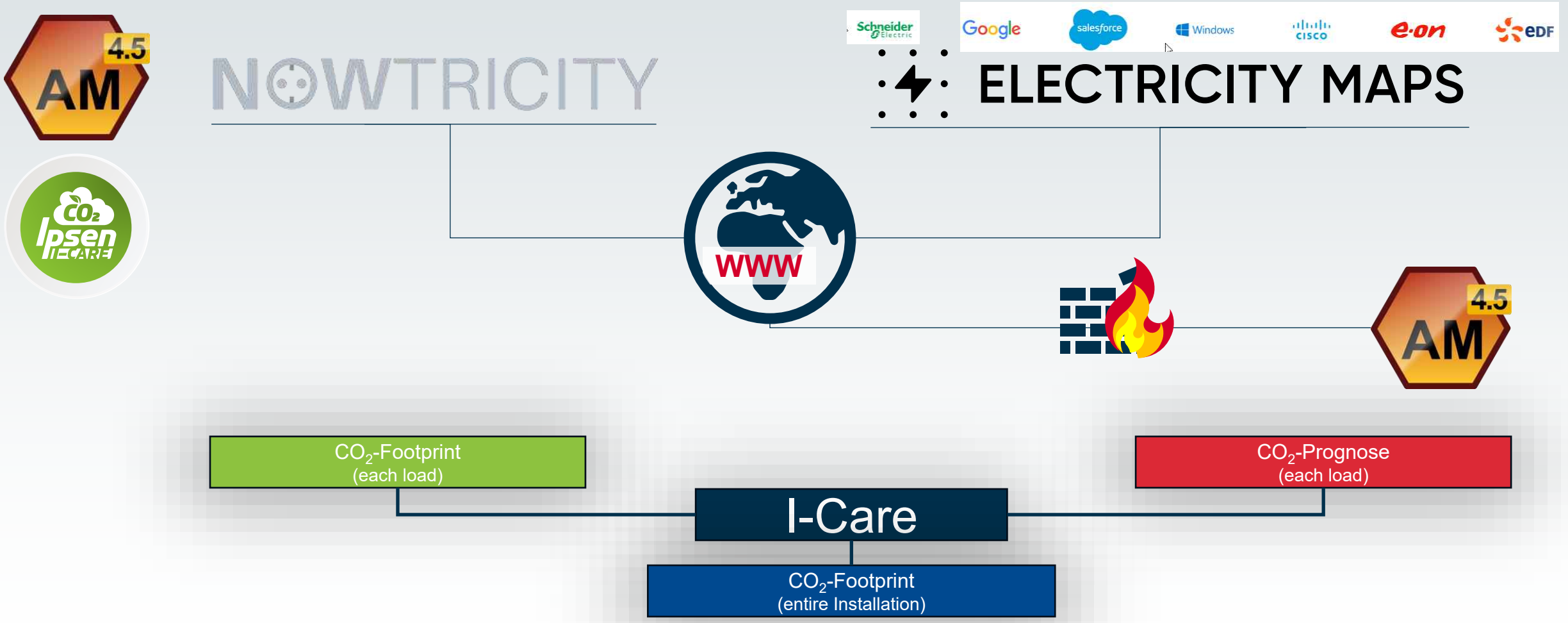
CO_2-Footprint
(each load)

CO_2-Prognose
(each load)

I-Care

CO_2-Footprint
(entire Installation)

Ipsen Software | I-Care CO_2 forecast data



Ipsen Software | I-Care protocol

AutoMag 4.5 Wärmebehandlungsnachweis Automag-Nummer 23-06 0013 /01 10.09.2023 23:32:20

AutoMag 4.5

Wärmebehandlungsnachweis

Automag-Nummer: 23-06 0013 /01

Chargendaten

Automag-Nummer:	23-06 0013 /01	Anlage:	AM1
FA-Nr (AMS):		Wärmebehandlung:	
Startzeit:	11.06.2023 02:59:33	Stoppzeit:	12.06.2023 09:14:54
Erstellt durch:		Erstellt am:	11.06.2023 02:59:33
Geändert durch:	AM4-SYSTEM	Geändert am:	12.06.2023 09:14:54

CO2 Fußabdruck

Anlage	Start Datum	Dauer	Energiequelle	Äquivalenzfaktor	Energieverbrauch	Teilweiser Fußabdruck	Äquivalenzfaktor Herkunft
DL1	11.06.2023 15:50:07	04:02:08	Strom (Netz)	331 gCO2/kWh	70 kWh	23,17 kg	Electricity Maps
TQ2	11.06.2023 19:54:55	04:36:27	Strom (Netz)	331 gCO2/kWh	13 kWh	4,303 kg	ElectricityMaps
TQ2	11.06.2023 19:54:55	04:36:27	Erdgas	1963,77 gCO2/m³	59 m³	115,86243 kg	Norm
W1	12.06.2023 00:32:36	00:42:40	Strom (Netz)	331 gCO2/kWh	1 kWh	0,331 kg	Electricity Maps
W1	12.06.2023 00:32:36	00:42:40	Erdgas	1963,77 gCO2/m³	2 m³	3,92754 kg	Norm
DL2	12.06.2023 01:17:10	03:37:00	Strom (Netz)	331 gCO2/kWh	147 kWh	48,657 kg	Electricity Maps
					CO2 Fußabdruck	196.25097 kg	

Ipsen Software | I-Care protocol

CO2 Fußabdruck

Anlage	Start Datum	Dauer	Energiequelle	Äquivalenzfaktor	Energieverbrauch	Teilweiser Fußabdruck	Äquivalenzfaktor Herkunft
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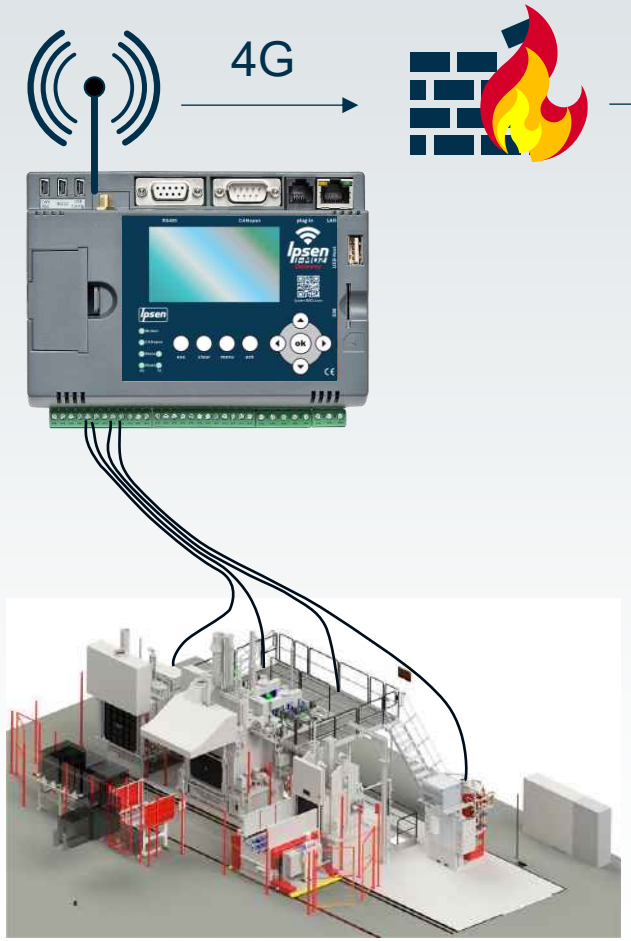
					CO2 Fußabdruck	196,25097 kg	

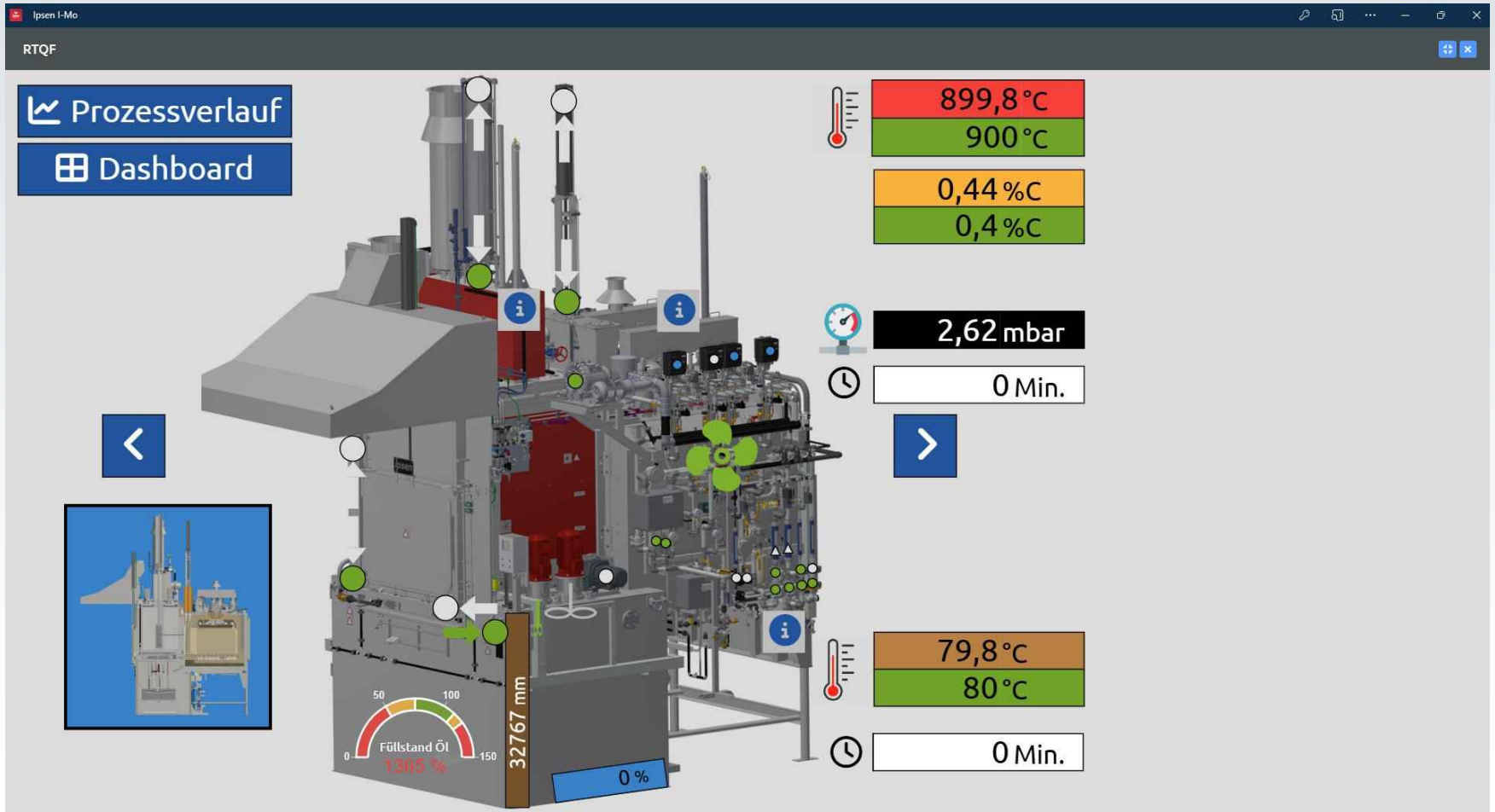
Ipsen Software | I-Mo²

Ipsen Software | I-Mo²

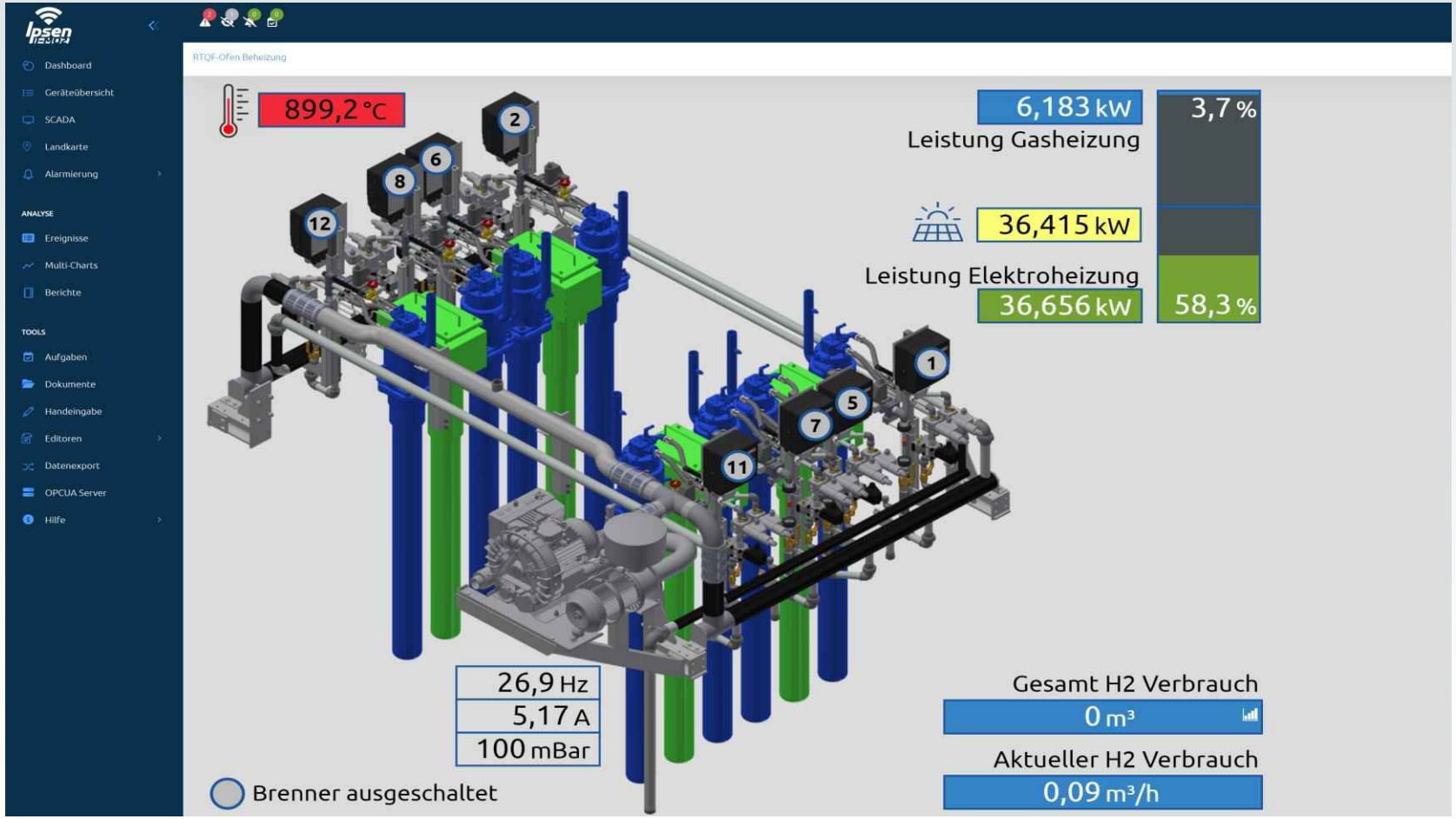


Ipsen Software | I-Mo²

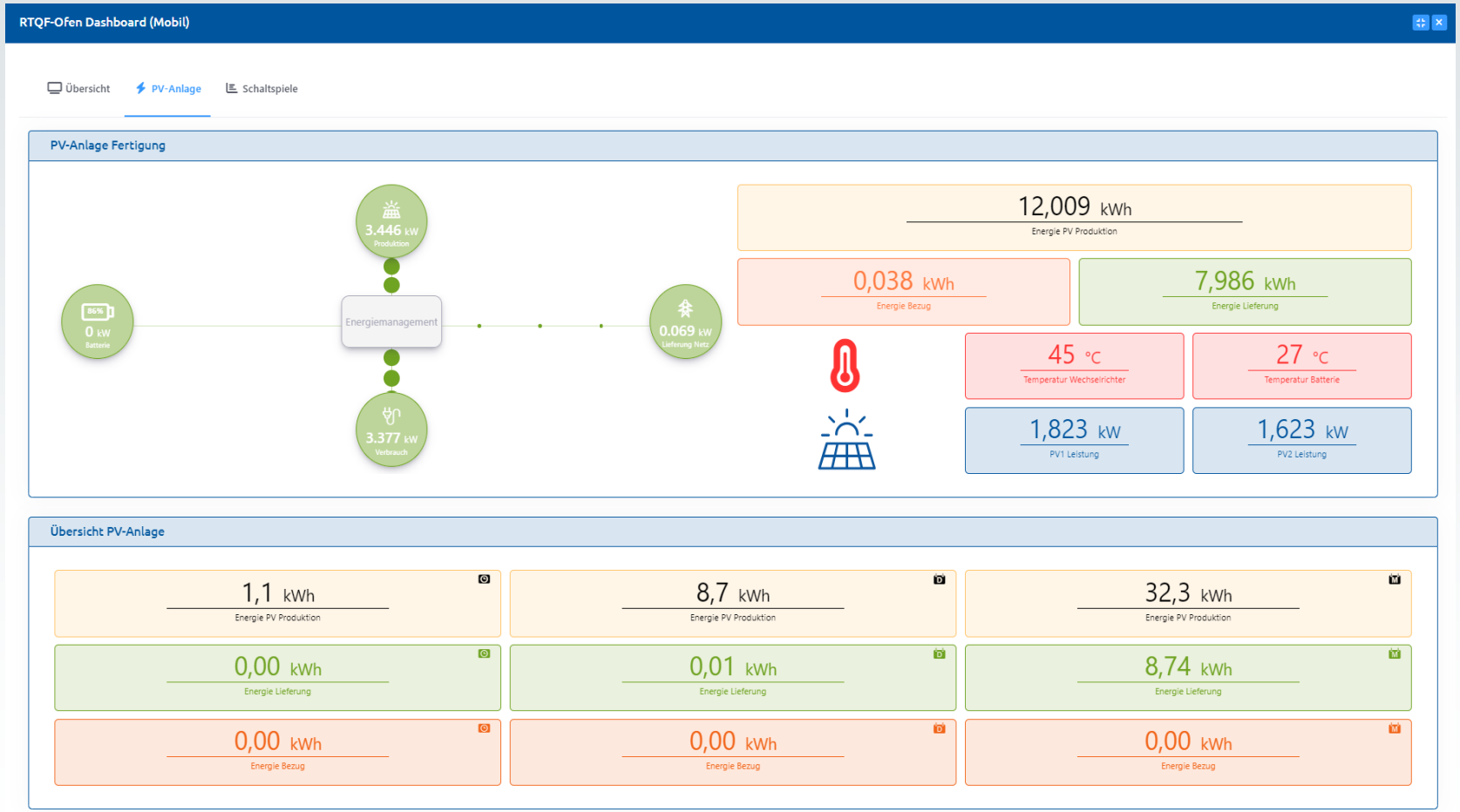
Ipsen Software | I-Mo²



Ipsen Software | I-Mo²



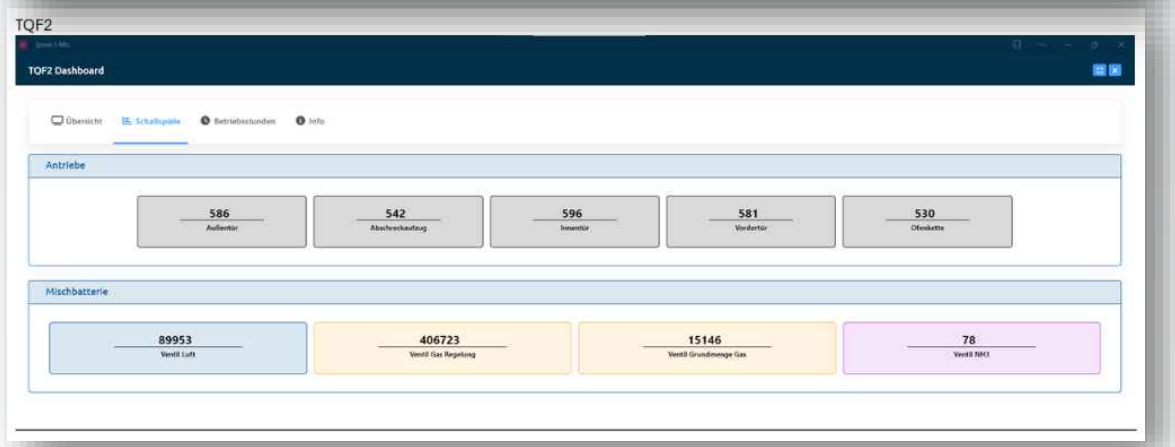
Ipsen Software | I-Mo²

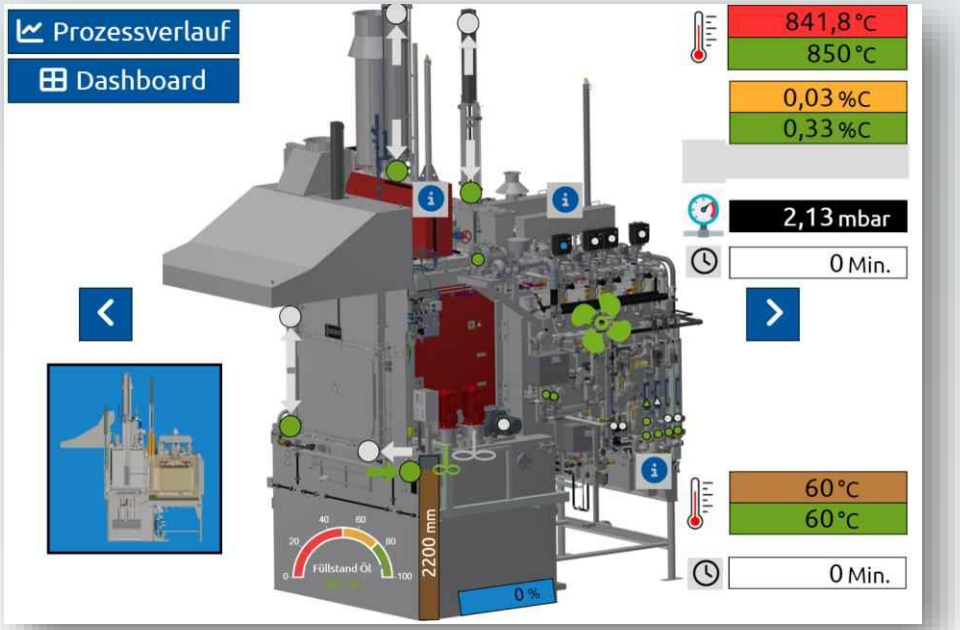


Ipsen Software | I-Mo²

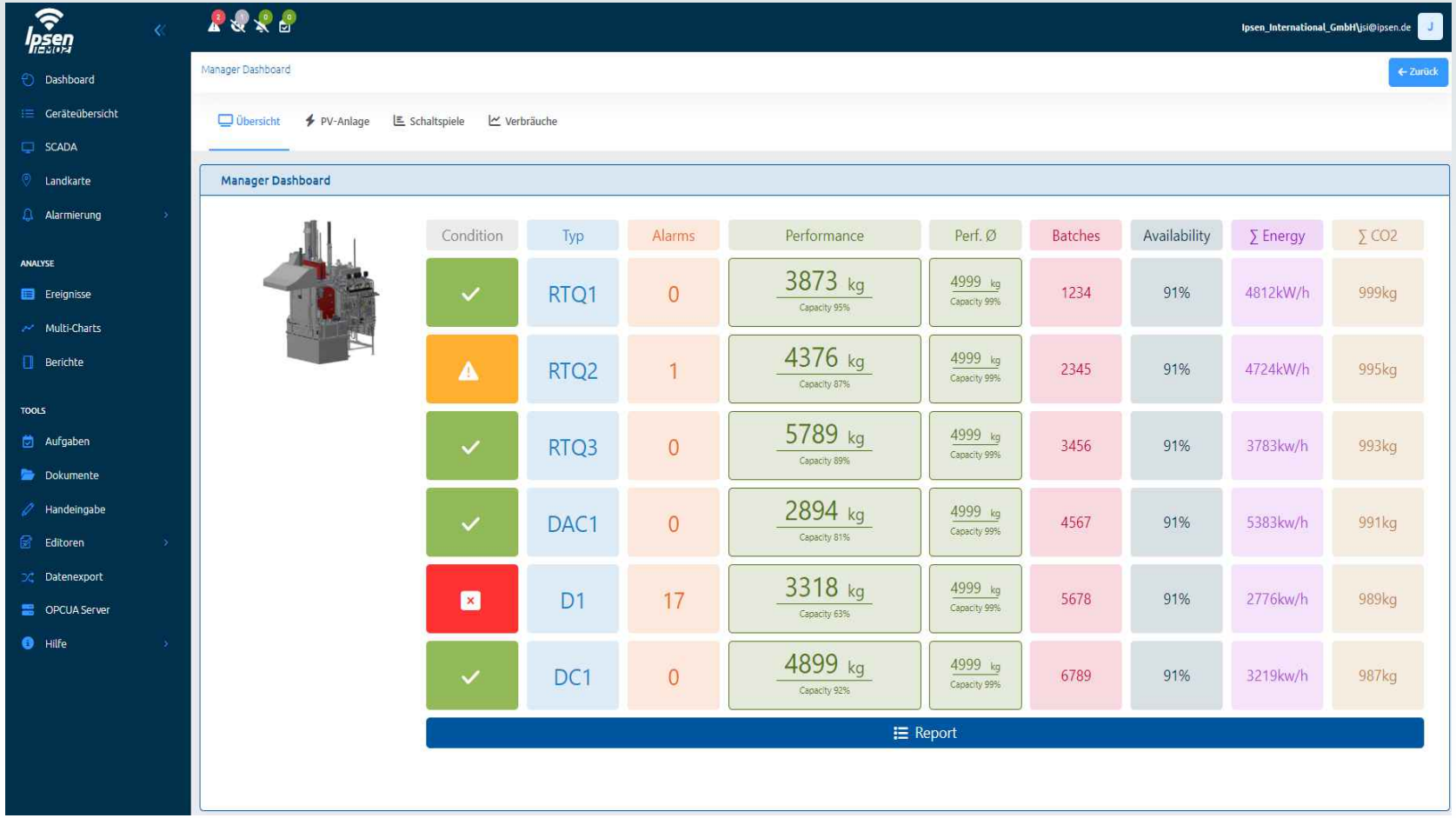
Ipsen Software | I-Mo²

Monitoring and Predictive Maintenance:





Ipsen Software | I-Mo²



Ipsen Conti | Pusher Carburizing Furnace Systems

Available options for tracks:

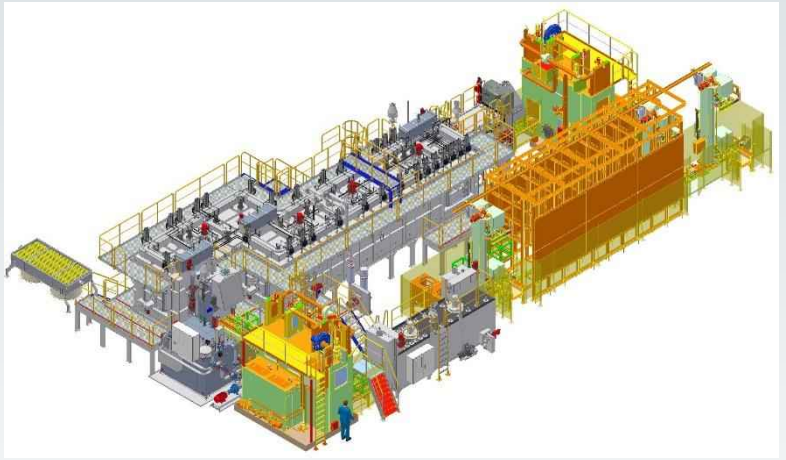
1, 2, or 3 traces

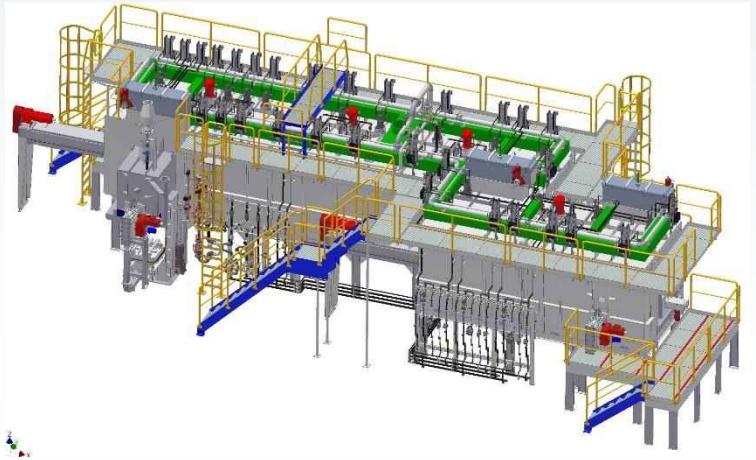
charge sizes (mm):

500x500, 560x560, 630x630, 710x710, 800x800, 915x915

and charge heights (mm):

500, 600, 700, 800





Ipsen Conti | Rotary Hearth Furnace Systems

Available work piece levels:

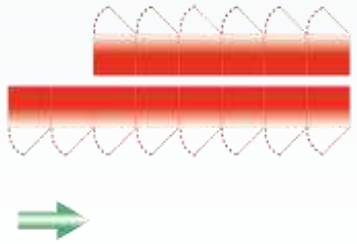
1 - 6

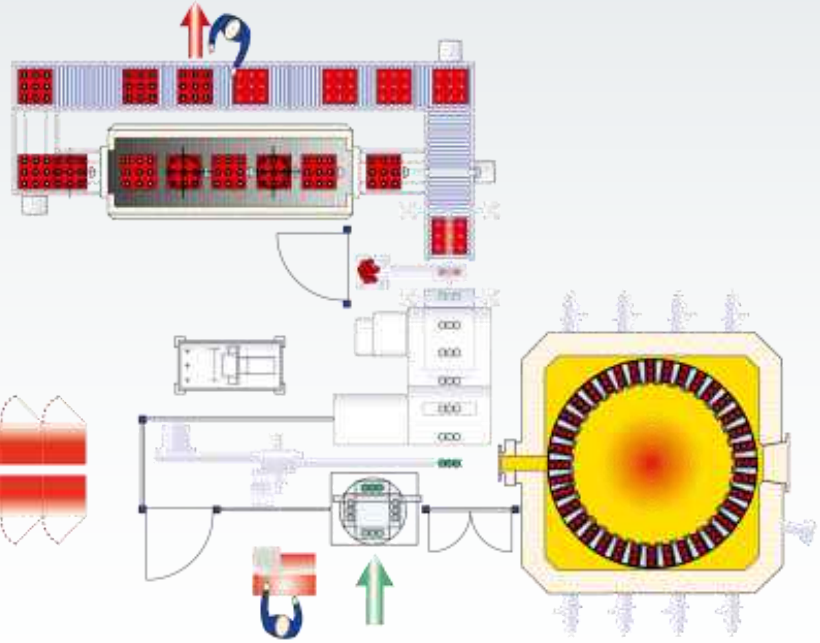
hearth diameters (mm):

1850, 2300, 3000, 3500, 4000

charge heights (mm):

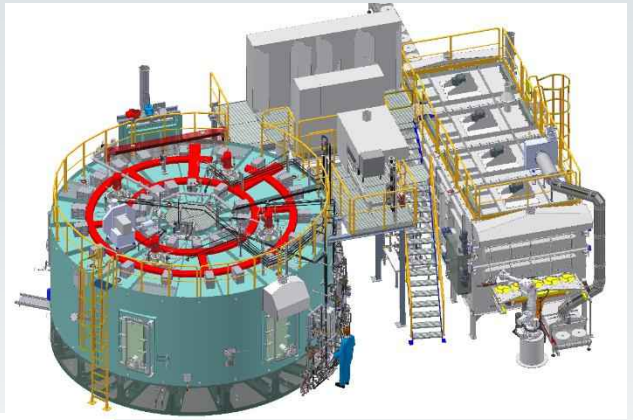
500, 600, 700, 800, 900,1000, 1200

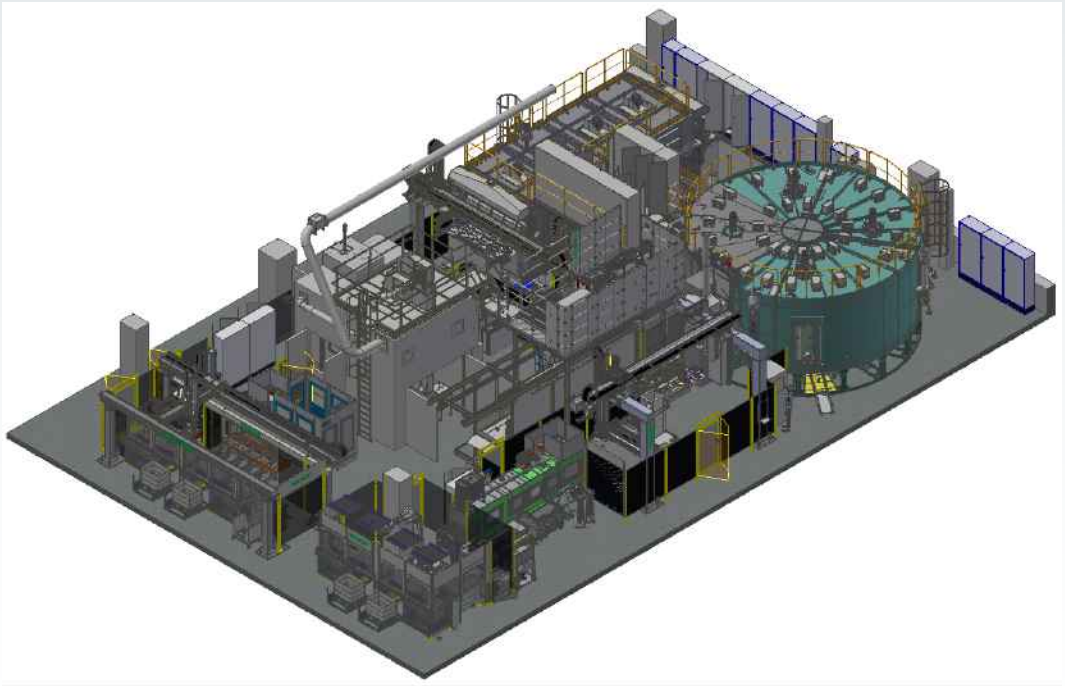


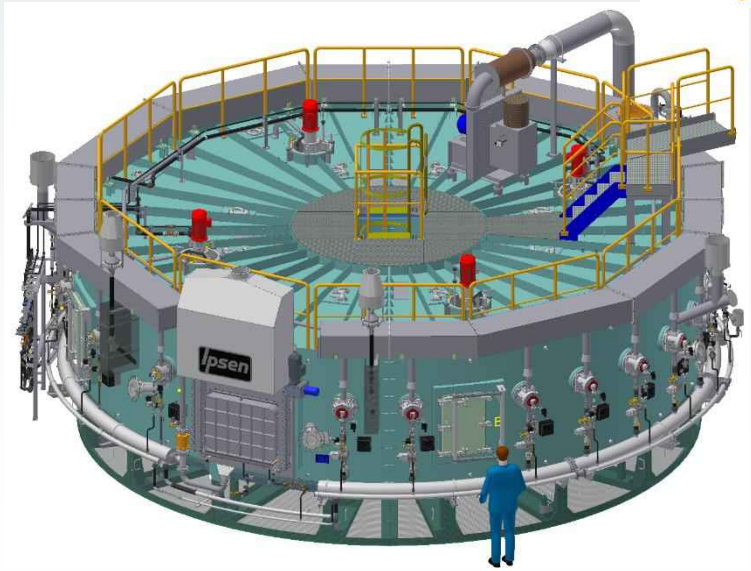


Ipsen | Ring Hearth Furnace Systems

work piece levels:	1 – 6, others on request
hearth diameters (mm):	4600, 8000, others on request
charge heights (mm):	500, 600, 700, 800,900,1000, 1200, others on request







Ipsen | Roller hearth Furnace Systems

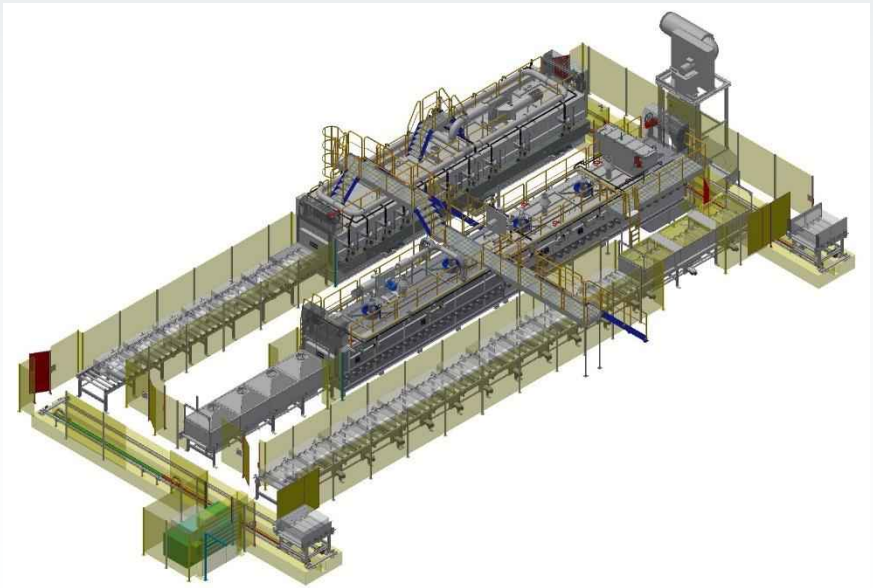
Available options:

charge width (mm): 1250 preferred, others on request

charge length (mm): 1400 preferred, others on request

charge height (mm): 500, 600, 700, others on request

gas tight and non gas tight furnaces



Welcome @ Ipsen | State of the Art Furnace Technology

ATLAS Green Batch Furnace Innovations

- Eco Oil
- Updated Insulation
- Newest Burner Technology
- The world's first and unique furnace hybrid heating system
- Ipsen IGA 5.2 Gas Analyzer
- Green Flow
- Process Software Solutions
- I-Care
- I-Mo²
- **…and more to see @ Ipsen Future-Lab**

ATLAS Green Video

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