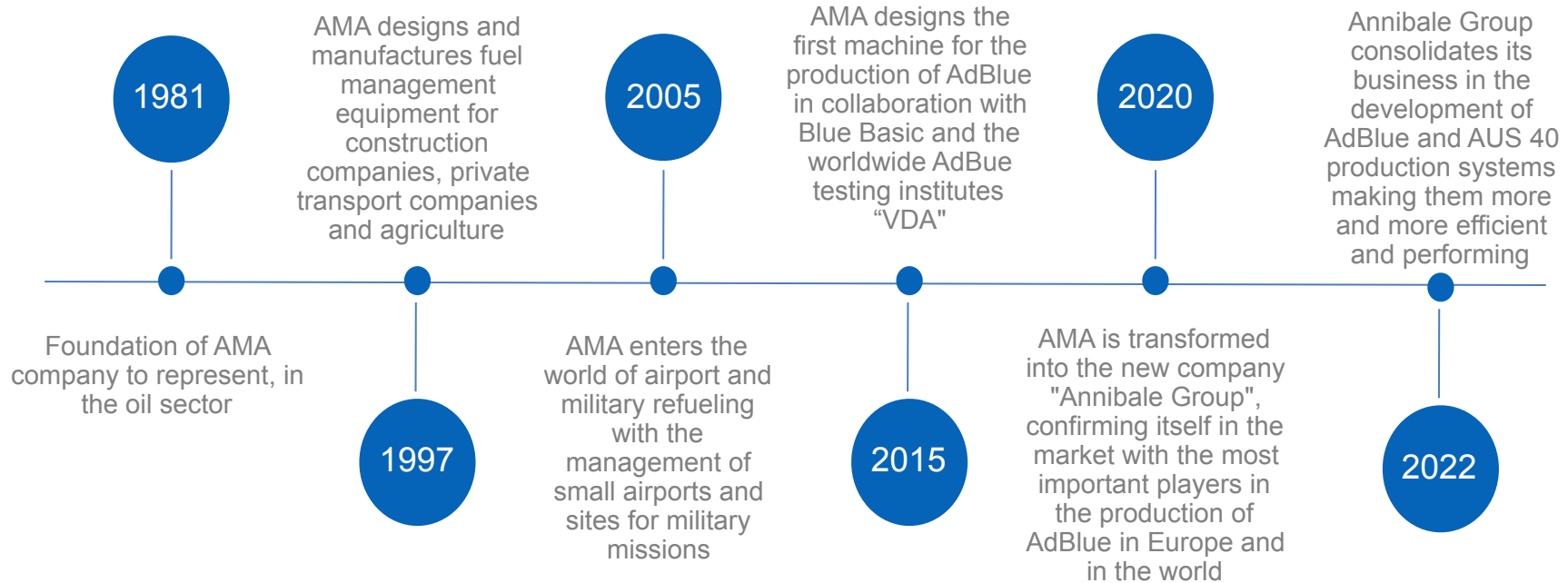




# AdBlue Plant BATCH 5 and 10 Presentation



## History of Annibale Group



Annibale Group is an Italian company that has over 40 years of experience in the oil, chemical and military sectors. Thanks to the design and production of customized systems, for the management of critical issues in the various sectors, we have trusted customers all over the world.

In the last 10 years, with the development of new emission abatement technologies in the automotive world, we have expanded our range with the creation of our BATCH systems for the large-scale production of AdBlue.

In carrying out our activities, we collaborate with the major institutes in the sector for the control of harmful gas emissions into the environment.

## Some AG Customers in the World





Basic AdBlue® delivered



AdBlue® licensees

(updated 2017-08-04)

E = European license  
W = Worldwide license  
A = Quality audit

Introduction:

The VDA-license grants the use of the trademark AdBlue® for marketing purposes.  
VDA-licensees may grant sublicenses to their trading partners.  
Thus a sublicense is of equal value for marketing purposes.

24)	BLUEBASIC SRL Via Mazzolari, 30 25019 SIRMIONE (BS) P. IVA: 03205130986 Italy	W	A
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Annibale Group collaborates with Blue Basic by associating the technology of production machines with VDA product certification.

BlueBasic is a high quality AdBlue product perfectly suited to production via the AG production systems

BlueBasic s.r.l. was founded by a group of Italian entrepreneurs who recognize the ever-increasing importance of protecting the environment. BlueBasic seeks to transform the automotive sector by focusing on new technologies that support the development of low pollutant vehicles.

The company's guiding principles are quality, and respect for the end customer. AdBlue BlueBasic is a high quality and cost effective Italian product that fully reflects these guiding principles.

AdBlue BlueBasic is VDA licensed for 10 years, and can be produced in different regions throughout the world without compromising its high standards of quality and efficiency.

# BATCH AUS 32 - AdBlue® Systems

## VDA certified production system for NOx Diesel Engine Addictive

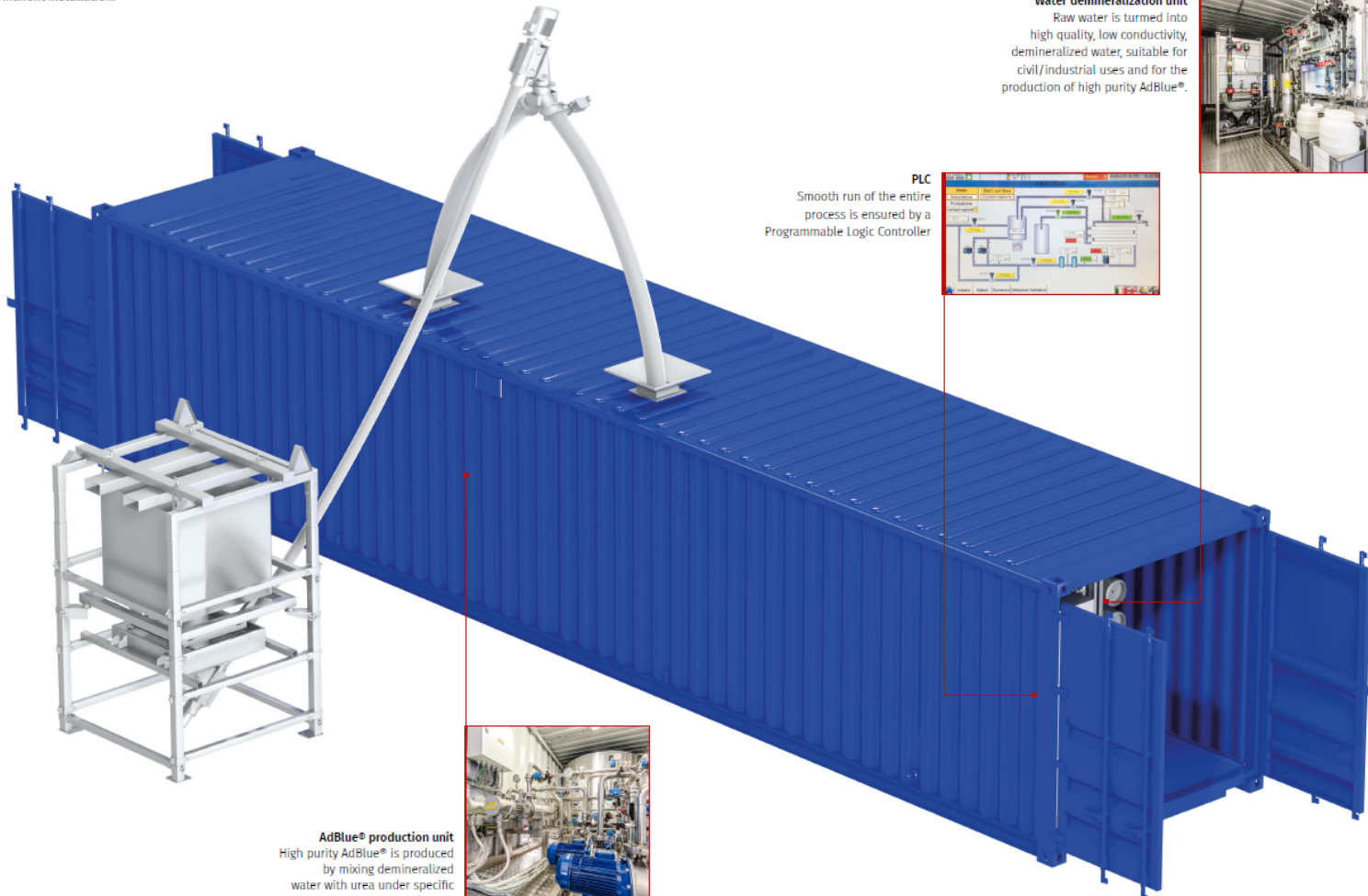
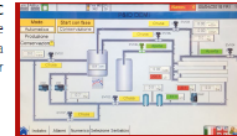
The BATCH 10 is a containerized solution designed to produce AdBlue®, meeting the highest quality standards and conceived for permanent installation.

The process consists of two independent stages: water demineralization and AdBlue® production.

**Water demineralization unit**  
Raw water is turned into high quality, low conductivity, demineralized water, suitable for civil/industrial uses and for the production of high purity AdBlue®.



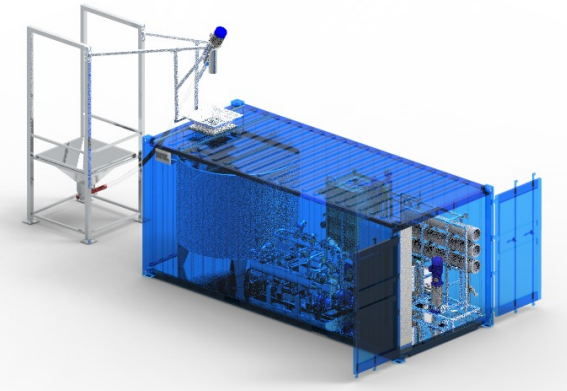
**PLC**  
Smooth run of the entire process is ensured by a Programmable Logic Controller



**AdBlue® production unit**  
High purity AdBlue® is produced by mixing demineralized water with urea under specific conditions.



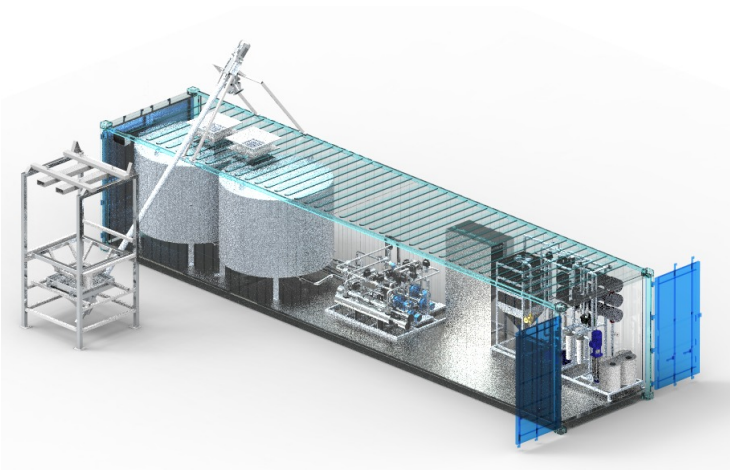
## Model: BATCH 5



### Technical Specifications

Technical Data Sheet	
<b>General Data:</b>	
Unit Size	243 x 600 x 259 cm
Unit Weight	2.800 kg
Operating Temperature Range	-10°C / +60°C
Annual Production Capacity AdBlue	12.000.000 lt/year
Electrical Power	130 Kw - 400 Volt.
<b>Daily average production data:</b>	
Daily Production Capacity AdBlue	60.000 lt/day
Daily Production Capacity Demi Water	50.000 lt/day
Daily Waste Capacity Water	12.000 lt/day
<b>Water supply requirement:</b>	
Daily Water Supply	65.000 lt/day
Daily Water flow Supply	7.000 lt/hour
<b>Power supply requirement:</b>	
Electric power required	140 Kw - 400 Volt. - 50 Hz.
<b>Internet supply requirement:</b>	
Internet connections	ADSL or corporate LAN
<b>Storage tank Required</b>	
Polyethylene storage tank – Water	1 x 25.000 lt.
Polyethylene storage tank – Dem. Water	2 x 25.000 lt.
Polyethylene storage tank – AdBlue	3 x 25.000 lt.

# Model: BATCH 10



## Technical Specifications

Technical Data Sheet	
<b>General Data:</b>	
Unit Size	243 x 1.200 x 259 cm
Unit Weight	3.500 kg
Operating Temperature Range	-10°C / +60°C
Annual Production Capacity AdBlue	30.000.000 lt/year
Electrical Power	200 Kw - 400 Volt.
<b>Daily average production data:</b>	
Daily Production Capacity AdBlue	150.000 lt/day
Daily Production Capacity Demi Water	120.000 lt/day
Daily Waste Capacity Water	30.000 lt/day
<b>Water supply requirement:</b>	
Daily Water Supply	155.000 lt/day
Daily Water flow Supply	10.000 lt/hour
<b>Power supply requirement:</b>	
Electric power required	200 Kw - 400 Volt. - 50 Hz.
<b>Internet supply requirement:</b>	
Internet connections	ADSL or corporate LAN
<b>Storage tank Required</b>	
Polyethylene storage tank – Water	2 x 25.000 lt.
Polyethylene storage tank – Dem. Water	3 x 25.000 lt.
Polyethylene storage tank – AdBlue	4 x 25.000 lt.



### **Demineralization System:**

The plant is conceived to deliver from 3 to 5 m<sup>3</sup>/h of permeate stream with an electrical conductivity  $\leq 5 \mu\text{S}/\text{cm}$ , starting from 8,0 m<sup>3</sup>/h of raw water with a maximum concentration of ions of about 375 mg/l (TDS). This choice allows to cover most of the civil and industrial applications where it is expected to draw water from the local network by ensuring the production of high quality demineralized water (low conductivity) for industrial uses and, in particular, for the production of high purity AdBlue.





### PLC System:

Power supply:

Reate voltage: 400 V ac

Auxiliary voltage: 230 V ac; 24 V ac and 24 V dc

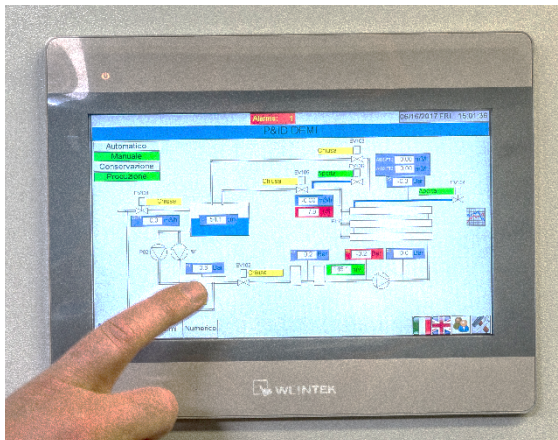
Instal capacity: 120 Kw

Breaking capacity: 6 Kw

Input: 3 phases + Neutral + Eart

Frequency: 50 Hz

Protection degree :IP 54



### PLC System:

The entire system (demineralization and AdBlue production stages) is handled by a Programmable Logic Controller (PLC) which manages among other things:

- The opening and closing of the pneumatic actuators valves.
- Flow of permeate and concentrate streams based on electrical conductivity.
- Quality of the product in accordance with the measurement of the refractometer.



## AdBlue Mixer System:

The key functions and components of this stage are:

- Transferring water using the small pump 150 lt/min from the demineralized storage tank to the stainless steel mixing tank 1 (inside of the container), the demineralized water passes through the flowmeter and to the heater 1.
- Transferring water using the small pump 150 lt/min from the demineralized storage tank to the stainless steel mixing tank 2 (inside of the container), the demineralized water passes through the flowmeter and to the heater 2.
- Heating the water until it reaches a defined temperature (40°C). At this phase, the demineralized water is re-circulated using the small pump 150 lt/min from/to the stainless steel mixing tank 1 and passing through the heater 1.
- Heating the water until it reaches a defined temperature (40°C). At this phase, the demineralized water is re-circulated using the small pump 150 lt/min from/to the stainless steel mixing tank 2 and passing through the heater 2.
- Simulate a vortex inside the mixing tank 1 in order to create the proper conditions to load the urea. The big pump 500 lt/min is used to create the vortex.
- Simulate a vortex inside the mixing tank 2 in order to create the proper conditions to load the urea. The big pump 500 lt/min is used to create the vortex.
- Loading the bag(s) of urea through the belt with flexible screw conveyor and starting the production of AdBlue by combining the demineralized water with the urea.
- After completion of this stage and in accordance with the quality requirements (measured by the refractometers) of the final product, the system will be ready to transfer the AdBlue to the storage tank. The big pumps 500 lt/min 1 and 2 are used to make this transferring through the flowmeter.



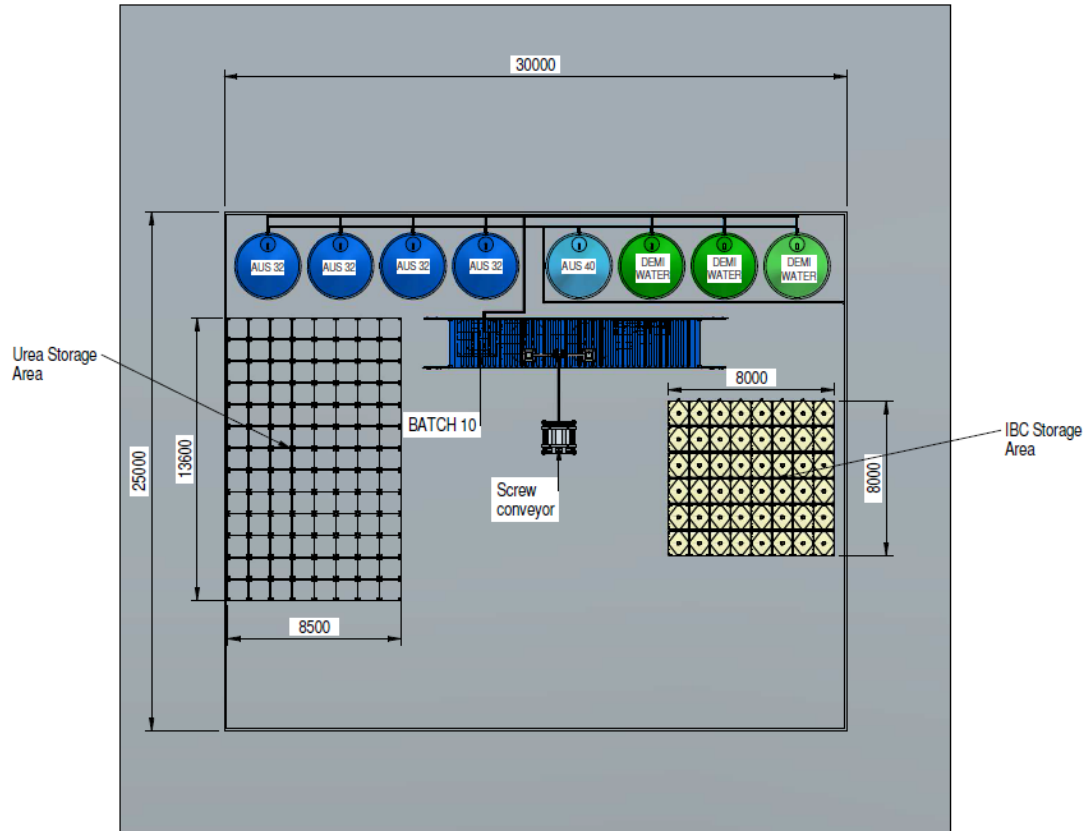
## **Polyethylene tank for the storage of: Water, Demineralized Water and AdBlue:**

High density polyethylene 15 or 25 mc. tanks designed and manufactured for the storage of AdBlue. Made of high-thickness linear polyethylene, they guarantee the storage and conservation quality of AdBlue even for a long period.

The rotational molding process and the use of specific linear polyethylene guarantee excellent resistance to shocks and temperature changes. Thanks to their monolithic structure and the homogeneous thickness of the walls, they are free from any critical point guaranteeing a high quality standard.

The tanks are supplied with a screw top manhole cover and a vent with a filter that guarantees the absence of dust contamination.

The tanks are equipped with flanged connections for filling and emptying, for an efficient and robust connection to the system pipes.

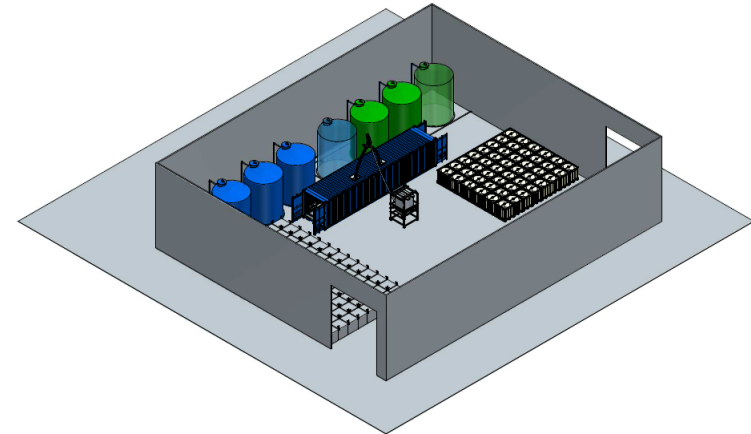
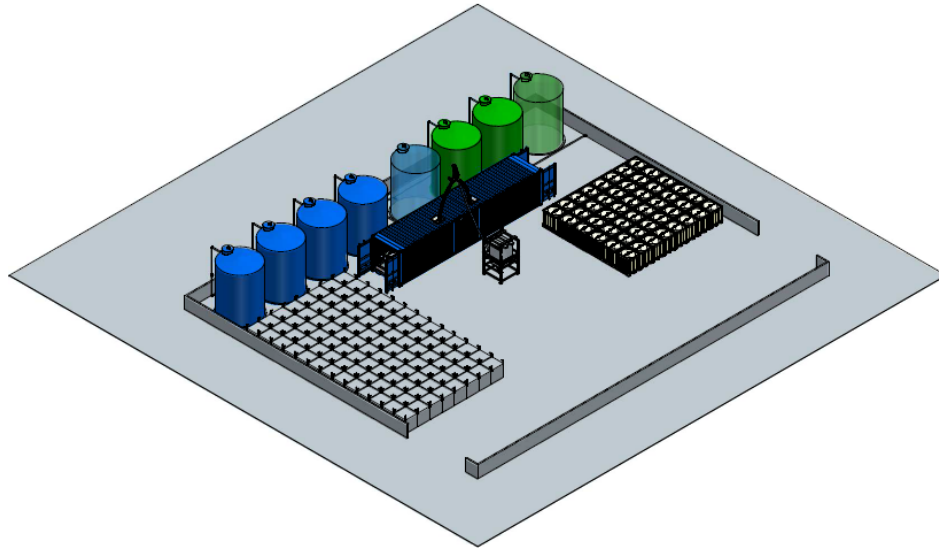


## Typical plant of AdBlue production:

Thanks to its technology and its size, the BATCH 10 system requires a reduced space for its operation. Being a system with pack and play technology, a few steps are needed for it:

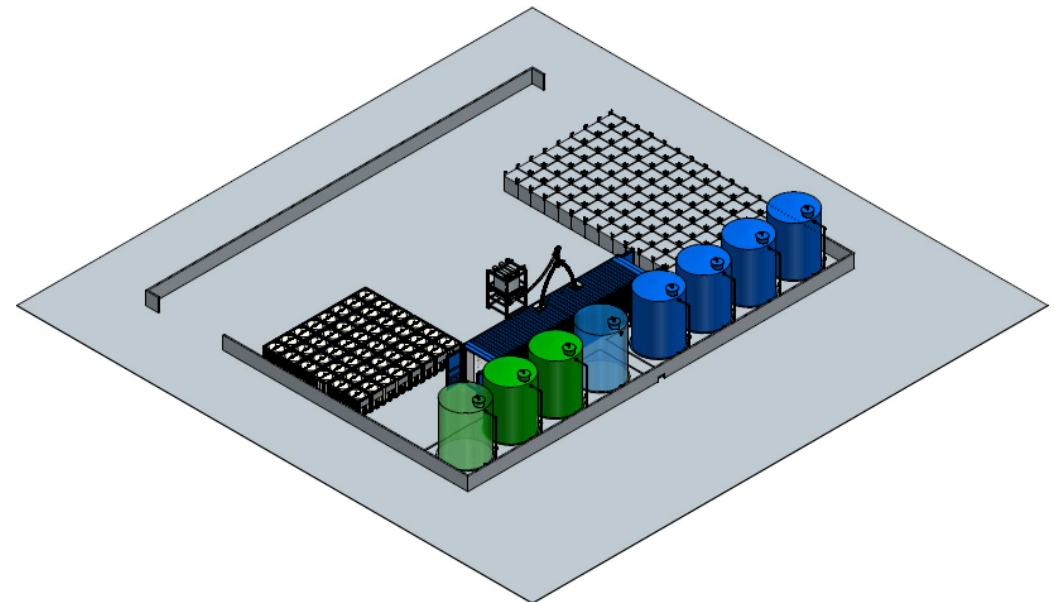
- Connection through a manifold to the tanks (Water, Dem. Water and AdBlue or AUS 40);
- Electric connection 400 Volt. - 150 KW.
- Connection to LAN for its Internet connectivity.

The minimum installation surface is 750 square meters, which allow, in addition to the positioning of the BATCH 10 system and its tank, also the storage of raw material (Urea) and Sales Package (IBC and Canisters)



**The AdBlue plant production consists of:**

- n. 1 Batch 10 system;
- n. 1 Hydraulic manifold;
- n. 1 x 25 cm Water tank  
(if you don't have a network line);
- n. 2 x 25 cm Dem. Water Tank;
- n. 4 x 25 cm Tank for AdBlue (AUS 32).



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***Thank You***

