

MYNXG IBC Fleet Management

Continuous tracking and monitoring of Intermediate Bulk Containers (IBC) with digital workflows. Creating efficient business process modeling opportunities for IBCs and related supply chains.

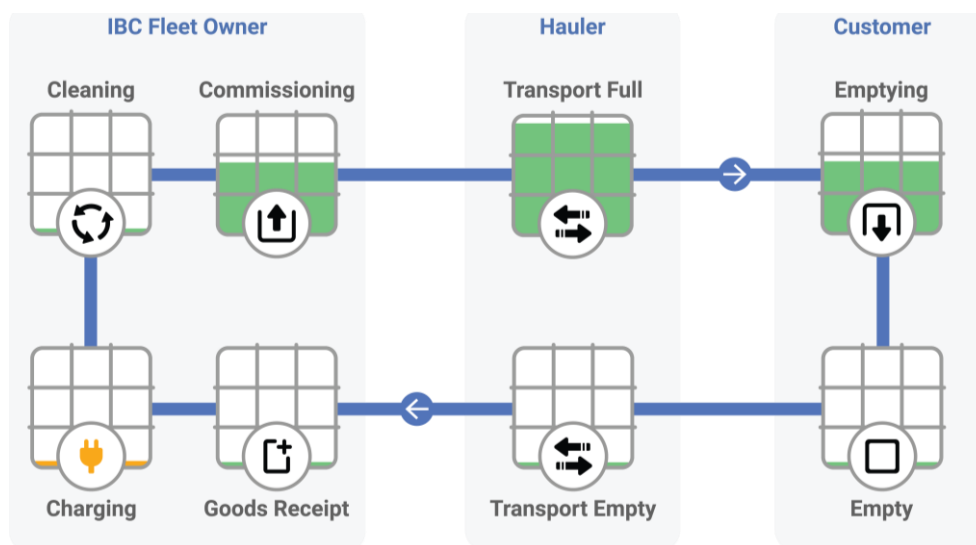
In the chemical as well as in the food & beverage industry, there is the need to store and transport liquids with Intermediate Bulk Containers (IBC). MYNXG is offering a container management solution for IBCs including business processes to manage Kanban systems. Continuous tracking of the IBC location, fill level, and conditions create full transparency of the IBC at any time. Intelligent cloud-based services including digital workflows, digital twins and electronic inventories provide a complete IBC business process landscape.

IBC Technology

Returnable IBCs are used by IBC fleet owners to sell products and to create Kanban processes with the customer. Goods are filled into the IBC within a commissioning process, tracked during transport and consumed by the customer. MYNXG enables continuous remote monitoring, including efficient tools to recognize the conditional states of the IBC as well as tools to detect empty IBCs for pick-up. MYNXG improves the efficiency of IBC fleets by optimizing the capacity usage of your IBCs. MYNXG enables new business models including auto-replenishment at customers.

Benefits

- Digital workflows to remotely manage IBC fleets
- Continuous tracking of conditions and location of your IBC
- Continuous state monitoring with non-intrusive fill levels
- Automated replenishment and pick-up of IBCs
- Capacity and utilization improvement of your IBC fleet

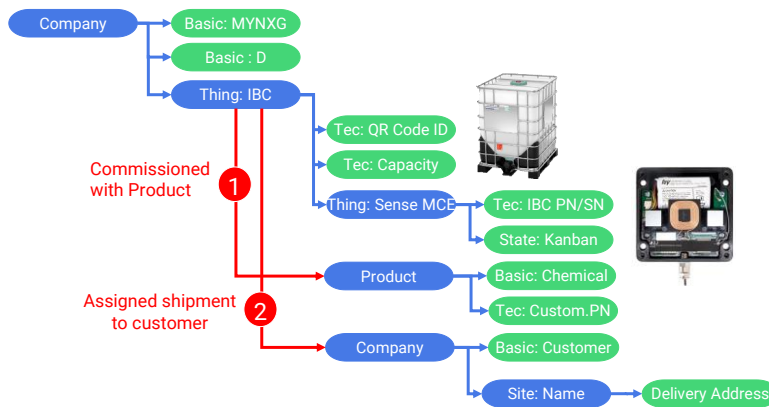




Global Master Data Model for IBC

MYNXG provides a tailored Global Master Data (GMD) solution for the IBC fleet management. Each IBC fleet is assigned to company site which is the "virtual harbor" of the IBC fleet. The GMD structure defines the IBC via QR codes, all technical data of the IBC are part of the data model, e.g., the capacity. Per IBC, one MYNXG Sense MCE IBC is installed at the IBC to monitor and track the IBC.

MYNXG provides the processes to install, clean, charge, commission and monitor the IBC. At the commissioning, the IBC is filled with the product and the shipment address is assigned.



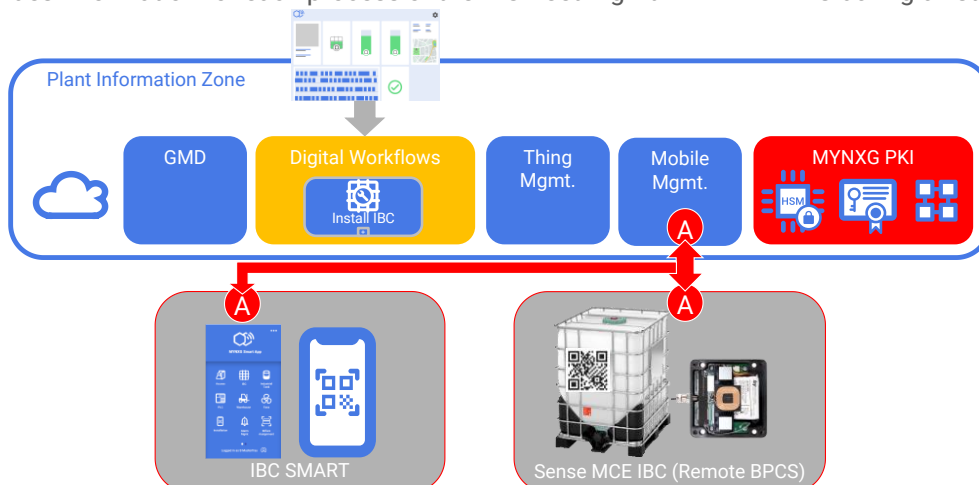
Process Features

- Digital workflow creation is supported by advanced GMD process data
- Intelligent Sense MCE devices create effective real time data and provide real-time inside each IBC lifecycle

Cloud-based secure IBC Fleet Mgmt.

MYNXG provides digital workflows and Method Building Blocks (MBB) for all IBC processes. The Sense MCE IBC is intelligent and reports all IBC states securely to the MYNXG cloud. Reporting is done with data heartbeats in intervals of typical 60 minutes providing geo-location, climate, acceleration, and the fill level. In case of events like emptying or cleaning, the reporting is more frequent and detailed. Additionally, alarms are created in case of dangerous situation like smashing or tilting of an IBC.

User can interact with the IBC with SMART by scanning its QR code. SMART provides information for each process of the IBC fleet mgmt.



Device Security Features

- ISA/IEC 62443 certified IBC fleet management
- Trusted Platform Module (TPM) integrated in the Sense MCE IBC
- Secure and intelligent status monitoring of the IBC during all stages



Functions

Intermediate Bulk Container (IBC) Fleet Management



- Manage and control IBC fleets
- Automated Kanban processes
- Installation, cleaning charging, commissioning, and monitoring of IBCs during entire lifecycle

Remote monitoring and tracking via Digital Twins



- Real-time electronic inventory of all IBCs
- IBC status information including fill level, climate/temperature, acceleration/shock/ G-force.
- Location tracking via integrated GPS
- Remote control via MYNXG cloud

Precise Measurement of Fill Level



- Non-intrusive measurement
- Fill level in units of height, volume, mass
- Supports different IBC types (plastic, steel)

IBC Installation and Registration



- SMART supported Installation of Sense MCE IBC
- Automatic registration at MYNXG cloud
- Alarm detection of intrusion and / or damages at the housing

Commissioning of Goods



- SMART supported commissioning process
- Filling and direct shipment to customer
- Filling & storage at warehouses for later shipment
- Integrated SAP Extended Warehouse support
- Integrated calibration ensures correct fill levels

Security



- Industrial grade security via Smallest Possible Cell (SPC) technology include TPM at Sense MCE IBC
- ISA/IEC 62443 certified IBC fleet management
- Non-manipulative audit trails for business decisions using MYNXG blockchain

Safety

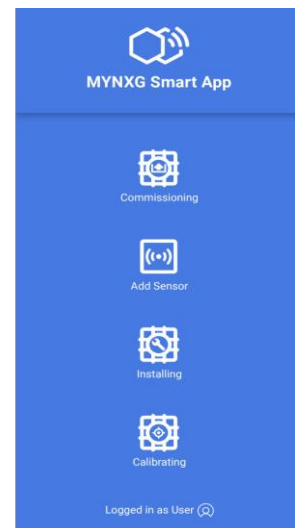


- Sense MCE IBC is designed as intrinsic safe device for operation in hazardous environments
- CE/FCC/UL ordinary locations (available)
- CE/FCC/UL ATEX hazardous (Q4 2021)

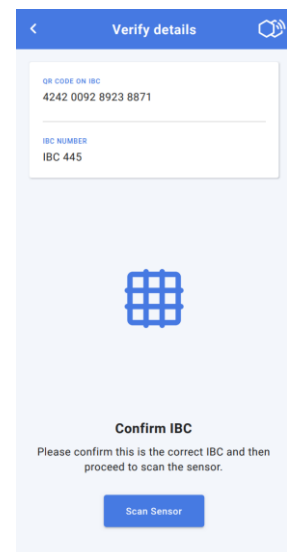
Supported IBC

- Support of all common plastic IBCs like Schütz ECO
- Support of most steel IBC types
- Installation guides for IBC types are available at MYNXG

SMART IBC App



Screen of IBC scanning





Product Information

The MYNXG Sense MCE IBC device supports measurement of fill levels (non-intrusive) and continuous monitoring of the current IBC state. This includes precise tracking of the IBC by determining the geo-location, measurement of environmental conditions like temperature and detection of alarm conditions like heavy shock. All collected data is sent securely via cellular networks to the MYNXG cloud. Security is ensured by integrated secure hardware.

MYNXG Sense MCO IBC (Non-ATEX)

- Cellular communication: LTE, 3G, GSM,
- Wireless communication: Wi-Fi and ISM band support
- Non-intrusive fill level measurement with 5 % accuracy
- Geo localization via GPS and or cell information
- Gyro sensor for acceleration and orientation
- Climate sensor for humidity and temperature
- Ambient light sensor to monitor housing
- Security is based on BSI certified TPM, MYNXG cipher suite and the MYNXG blockchain
- Battery life with one message per 6 hours up to 3 years or
- Battery life with one message per 1 hour up to 6 months
- Carbon fiber enforced housing, EN 69529 IP class 67
- Dimensions 145 x 125 x 32 mm
- Certified: CE /FCC and UL non-hazardous environments.

MYNXG Sense MCE IBC (ATEX) is the intrinsic safe version for the management of IBC in UL/ATEX hazardous environments.

- Functions are identical to the SENSE MCO IBC with exemption of the ISM bands which are excluded.
- Certified: CE/FCC and UL for hazardous environments:
- ATEX/UL conformity NEC 500, class I, division I
- ATEX/UL conformity NEC 505, class I, zone 1 and 2
- ATEX conformity group II, category 2G /3G

Charging Cabinets

The battery inside the Sense MCE IBC device is charged at wireless charging stations and can be fully managed with MYNXG SMART.

About MYNXG

MYNXG is a secure industrial IOT architecture to protect assets, infrastructure, and their data to the highest cybersecurity standards. MYNXG is the technology of choice to securely connect operational devices in highly regulated industries and the people interacting with them. The platform supports all industrial interfaces at the device level, provides cloud platform APIs and provides digital workflow support for BPMN 2.0.

The MYNXG platform sets the de-facto security standard for operational technology and is fully ISA/IEC 62443 certified.

Key Features

- Variant for hazardous environments
- Wireless charging via charging station
- Integrated antenna for cellular communication

Sense MCO IBC Device

- Monitoring of chemicals, food & beverages, and other liquids in non-hazardous environments



Sense MCE IBC Device

- Monitoring of chemicals, food & beverages, and other liquids in ATEX/UL hazardous environments



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