

# MindSphere Open Space Challenge

## Case Specification

### Company

Bausch + Ströbel Maschinenfabrik Ilshofen GmbH + Co. KG

### Company Details

**Industry**

Pharmaceutical Packaging

**Size (empl. / turnover)**

1700 employees

**Company Details**

Globally, B+S ampoule filling systems and packaging plants are used to fill syringes, vials, and ampoules with top-quality liquid and powdery drugs. The process starts with the cleaning and sterilizing of the products and ends with labeling and mounting the needle. Apart from the design and construction of the plants, which are tailored to the needs of the customers, Bausch+Ströbel offers a large variety of services – as a competent partner for secure and stable productions.

B+S is globally active and market leader in the area of pharmaceutical packaging.

B+S machines incorporate a broad range of Siemens Digital Factory Portfolio products and product lifecycle management solutions like NX, MCD, Teamcenter.

## Case Title

**Good Chemistry: End-to-End Output Planning with Predictive Maintenance in Pharmaceuticals**

## User Story

Pharmaceuticals plant operators: The early detection of changes in the machine enables faster and better decision with regard to the constant supervision of critical production processes.

To do so, the manufacturer need real-time-information about the machine status, including recommendations for action for a more efficient maintenance to achieve shorter outages.

Bausch+Ströbel: Use of domain and machine know-how to improve the UX of the plant and to develop new services in order to be able to offer an end to end output planning (from the base material to the distributed drug) in the future.

## Problem Description

In pharmaceuticals the continuous supervision and traceability of products is of paramount importance. A strong focus also lies on the filling and packaging processes.

In the future machine data are to be used to provide an an end-to-end supervision and output planning for pharmaceutical companies.

In the first step a B+S labeling machine is to be made suitable for predictive maintenance.

Data from the essential components have to be recorded, visualized and analyzed to be provided to the customers in the form of dashboards.

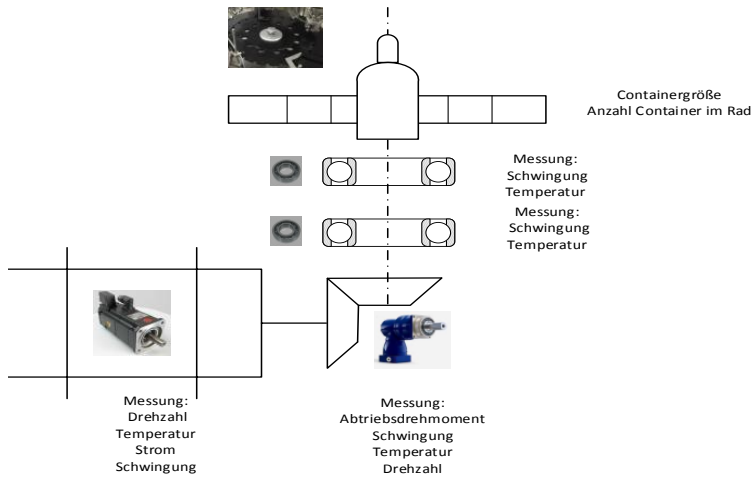
## Technical Provision

Type of machinery / plants? <https://www.bausch-stroebel.com/de>

## Questions?

MindSphere Forum

<https://www.mindsphere.io/community/>



App für Hauptantrieb:

Containergröße:  
100ml

Anzahl Container pro Minute:  
400

Anzahl Container im System:  
500

Motor

Getriebe

Kugellager 1

Kugellager 2



Temperatur  
Motor



Temperatur  
Getriebe



Temperatur  
Kugellager 1



Temperatur  
Kugellager 2



Drehzahl  
Motor



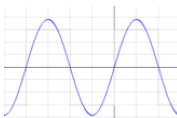
Drehzahl  
Abtrieb



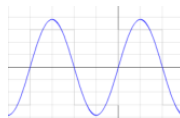
Strom  
Motor



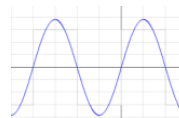
Drehmoment  
Abtrieb



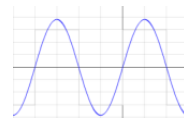
Schwingungen  
Motor



Schwingungen  
Getriebe



Schwingungen  
Kugellager 1



Schwingungen  
Kugellager 2

Anzeige geladenes Rezept

Anzeige aktueller Output gemessen am Einlesesensor

Anzeige Anzahl Container im System

Anzeige Temperatur mit Angabe zulässiger Max.-Wert

Anzeige Drehzahl Motorwelle und Abtriebswelle Getriebe

Anzeige Motorstrom und Angabe zulässiger Max.-Wert

Anzeige Schwingungen mit Angabe zulässige Grenzen

Systemüberwachung: Vergleich aller Istwerte mit zulässigen Sollwerten (festgelegt bei Auslieferung)

Analytics: Diagnose bei Sollwertabweichung aufgrund von Abhängigkeiten, z.B. erhöhte Schwingung am Kugellager 1 sowie erhöhte Temperatur am Kugellager 1 sowie erhöhtes Abtriebsdrehmoment und erhöhter Stromverbrauch → Kugellager 1 defekt.