

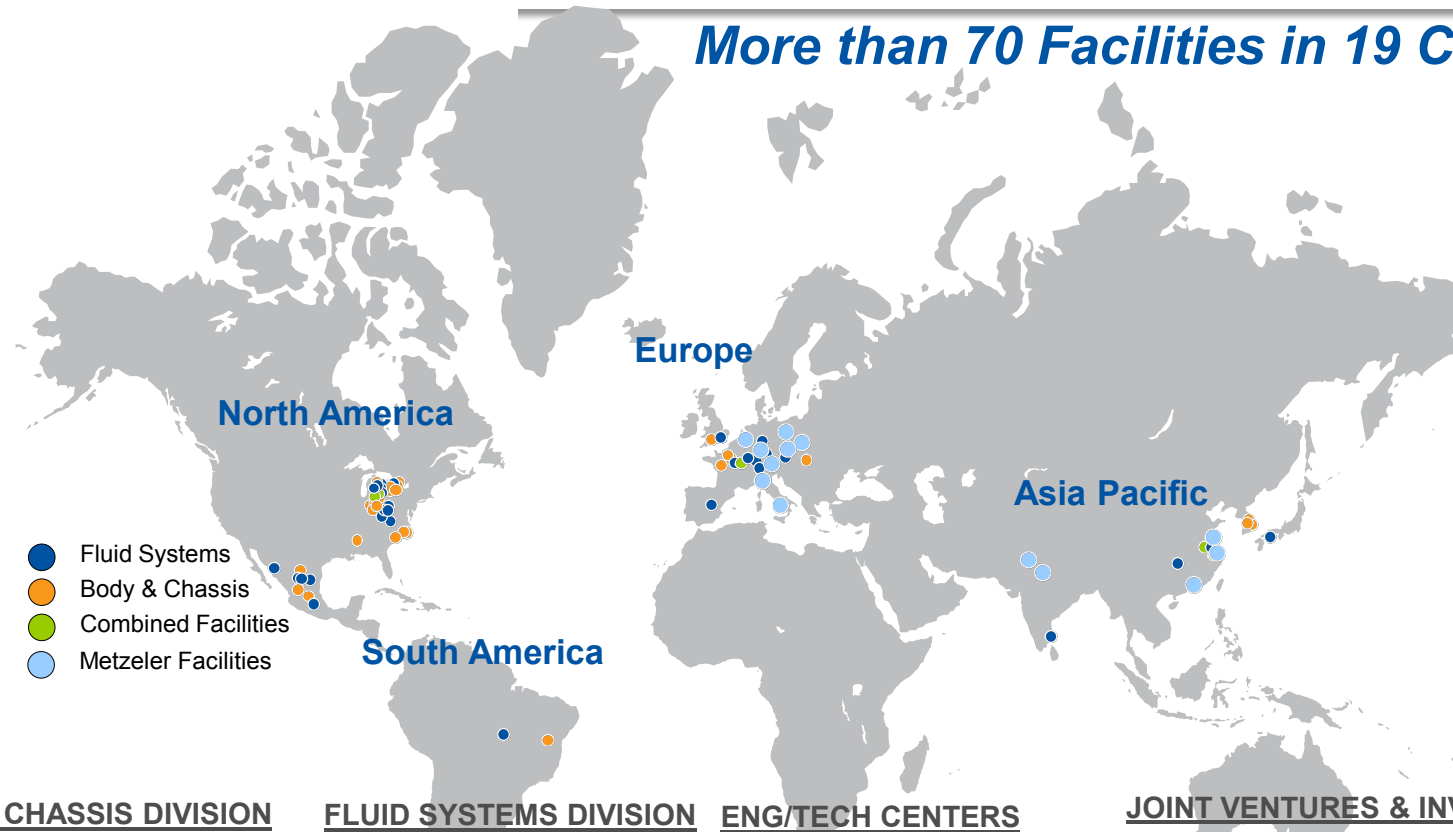
A world map with a yellow and orange color scheme. Several regions are highlighted in a darker orange, including North America, South America, Europe, and parts of Asia and Africa.

# **Comprehensive optimization of the production cell**

**„G26” door seals**



**More than 70 Facilities in 19 Countries**



## BODY & CHASSIS DIVISION

|         |                |
|---------|----------------|
| Belgium | India          |
| Belarus | Italy          |
| Brazil  | Korea          |
| Canada  | Mexico         |
| China   | Poland         |
| France  | United Kingdom |
| Germany | United States  |

## FLUID SYSTEMS DIVISION

|                |               |
|----------------|---------------|
| Australia      | Germany       |
| Brazil         | India         |
| Canada         | Mexico        |
| China          | Spain         |
| Czech Republic | United States |
| France         |               |

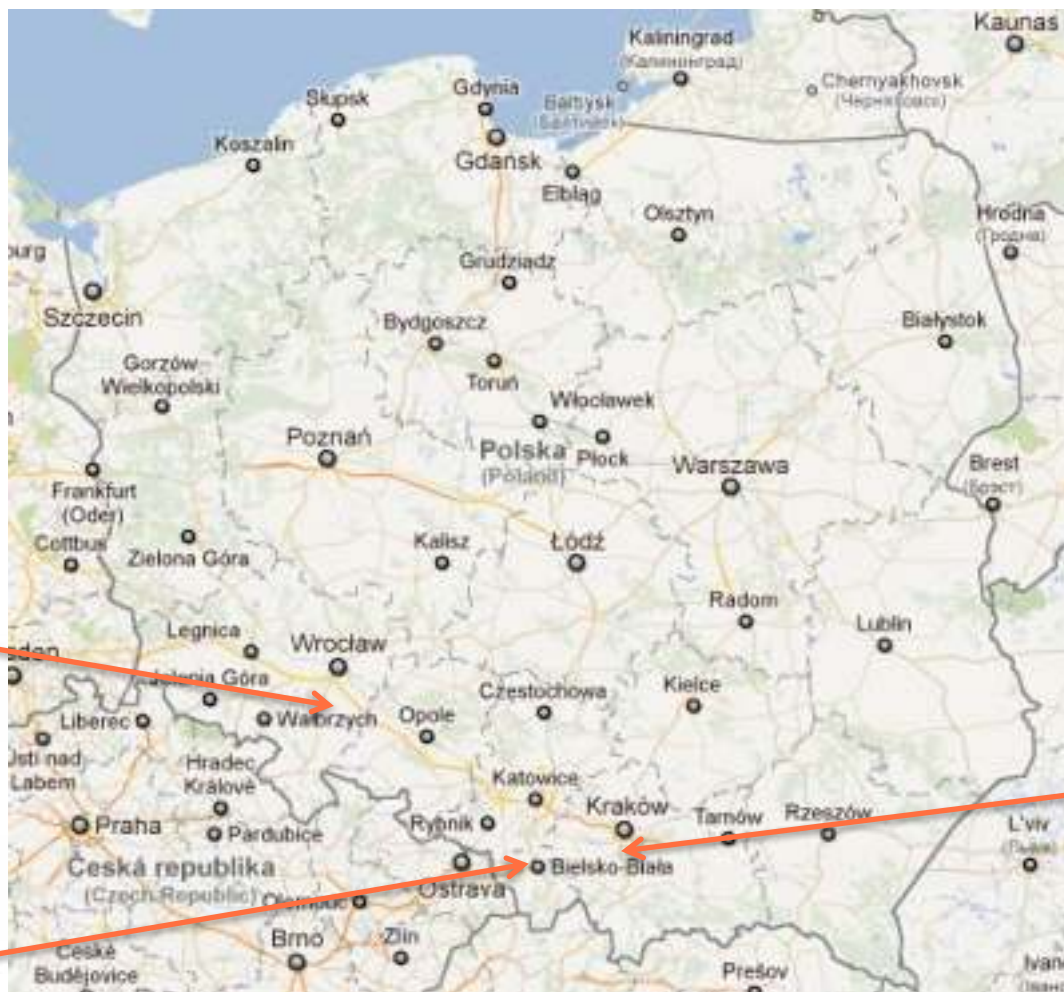
## ENG/TECH CENTERS

|           |               |
|-----------|---------------|
| Australia | Japan         |
| Canada    | Korea         |
| China     | United States |
| France    |               |
| Germany   |               |
| Italy     |               |

## JOINT VENTURES & INVESTMENTS

Cooper-Standard Saiyang Wuhu 89%  
 Cooper-Standard NISCO 50% / 50%  
 Cooper Hubei Jingda 60% / 40% China  
 Metzeler India 74% / 26%  
 Metzeler China 48% / 52%  
 GuYoung Tech Korea 20%

## 3 Plants in Poland



**Dzierżoniów**

**Myślenice**

**Bielsko-Biała**

# Cooper Standard Automotive



## GENERAL

- Number of facilities 3
- Approximate Land Area 133.000 m<sup>2</sup>
- Plant Size 44.600 m<sup>2</sup>
- Manufacturing Floor Space 37.000 m<sup>2</sup>



## STAFFING

- Direct labor 1610
- Indirect labor 146
- Salary 172



## CUSTOMERS



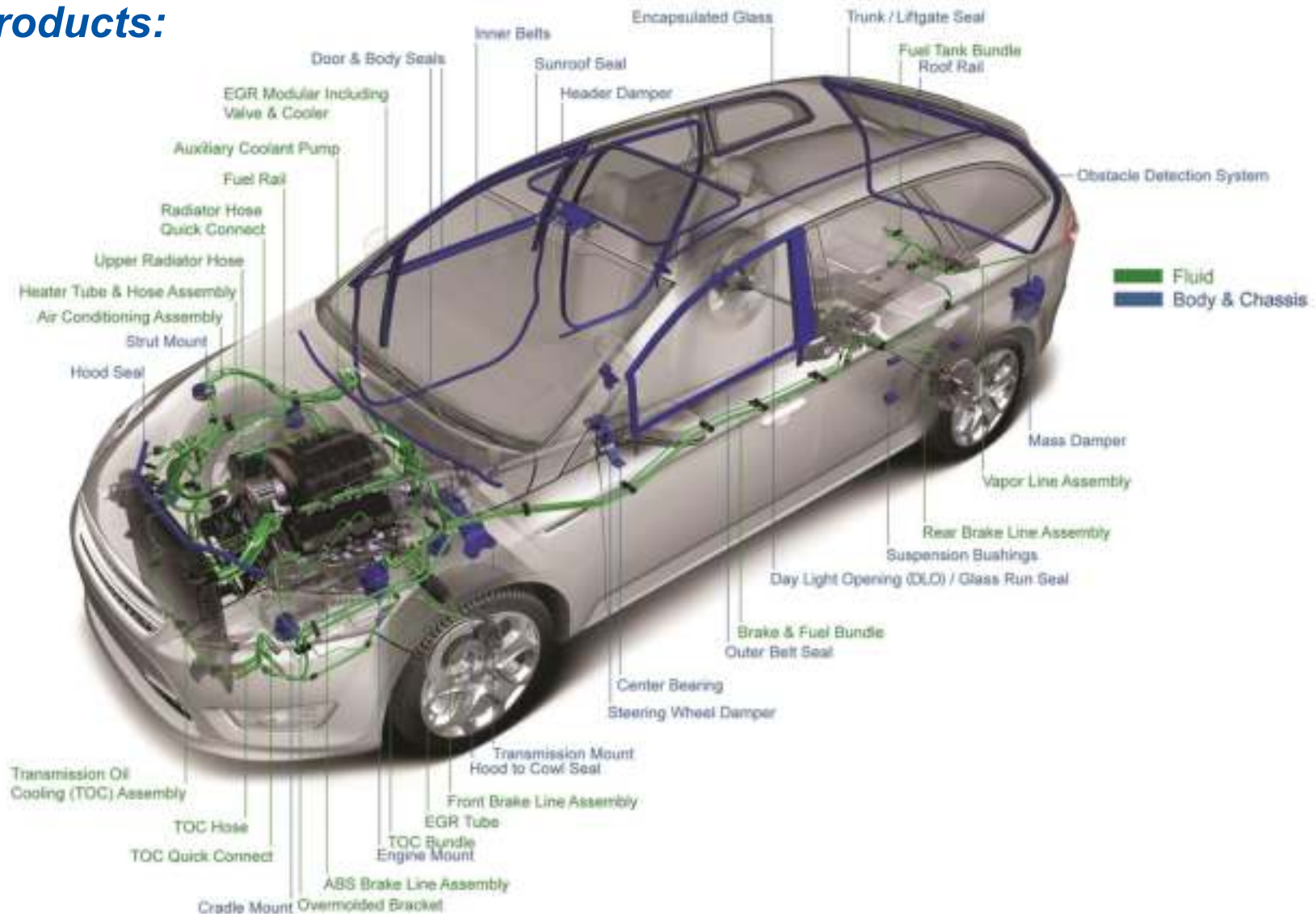
## PROCESSES

- 11 EPDM Extrusion Lines (supported & unsupported) + 3 TP Extrusion Lines
- Finishing Cells – Injection Molding, Cutting & Notching, Tape Application, Encapsulation

## PRODUCTS

- Door seal, supported & unsupported glass runs, outer & inner waistbelts, margin seal, encapsulation

## *Our products:*



*At this moment we are looking for :*

- Process Engineer (English)
- Quality Engineer (English; German)
- Purchasing Specialist (English)

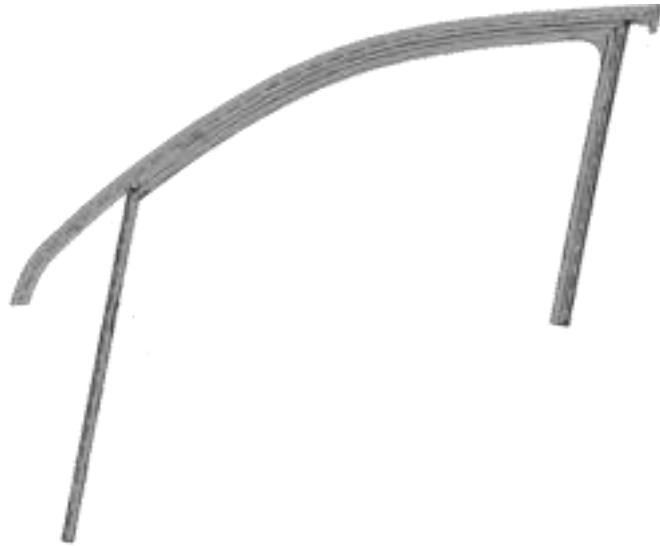
IF YOU ARE INTERESTED IN WORKING FOR AN  
AMERICAN COMPANY, IN INTERNATIONAL  
ENVIRONMENT, WITH A LOT OF DEVELOPMENT  
OPPORTUNITIES,  
SEND YOUR CV:

[REKRUTACJA@COOPERSTANDARD.COM](mailto:REKRUTACJA@COOPERSTANDARD.COM)

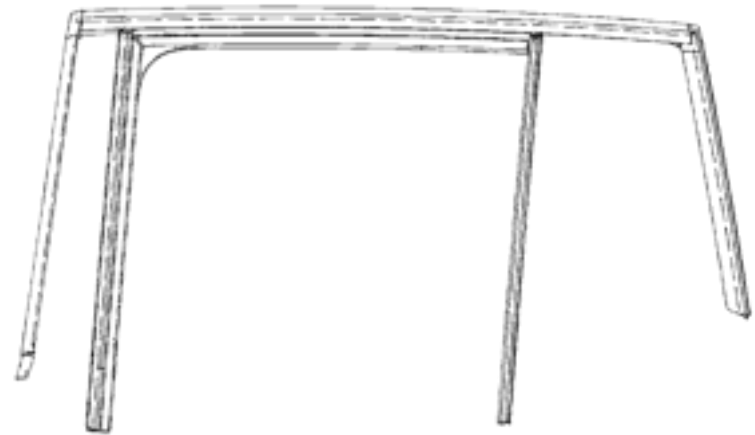
## *Data from the optimized production cell*

## *G26 door seal production cell – products:*

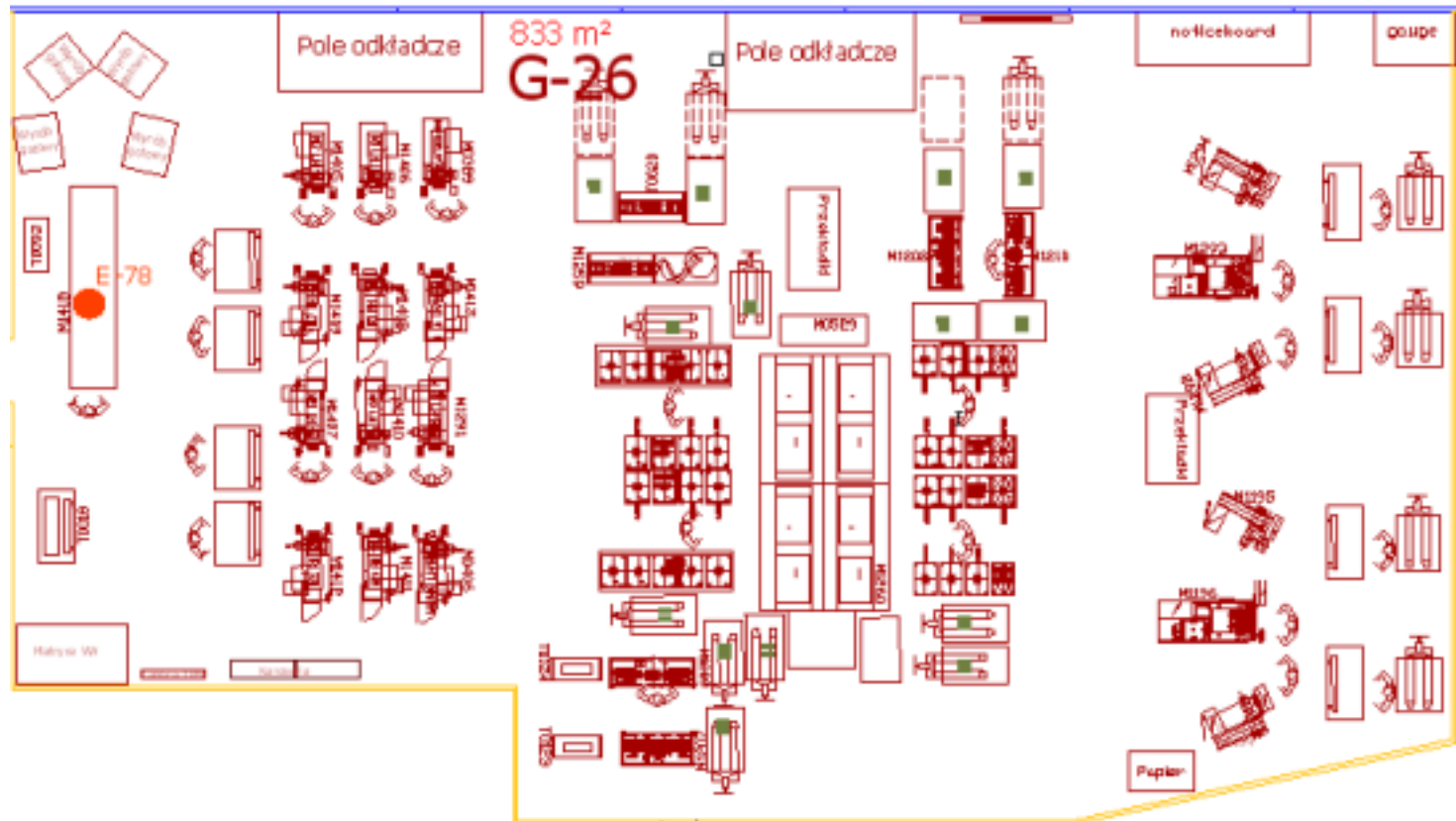
**FRONT SEAL**



**REAR SEAL**



## *G26 door seal production cell – before layout:*



[illegible]

## *G26 door seal production cell – data:*

### **REAR SEAL**

*Number of workers: 15 per shift*

*TT – variable*

*Customer orders – one week leveling*

*Max output from the cell – 800 parts*

*PPH = 7,03*

### **FRONT SEAL**

*Number of workers: 11 per shift*

*TT – variable*

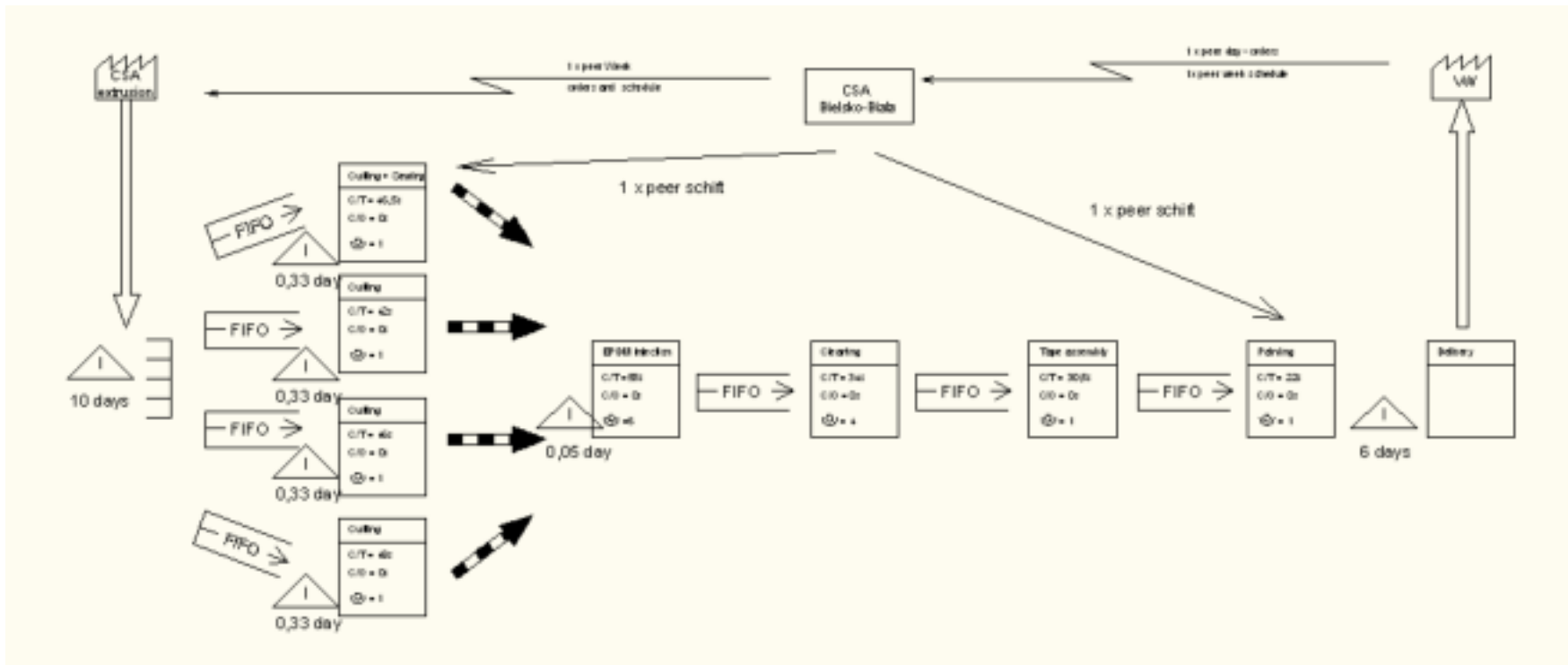
*Customer orders – one week leveling*

*Max output from the cell – 896 parts*

*PPH = 10,74*

*Production surface 502m2*

## VSM current state

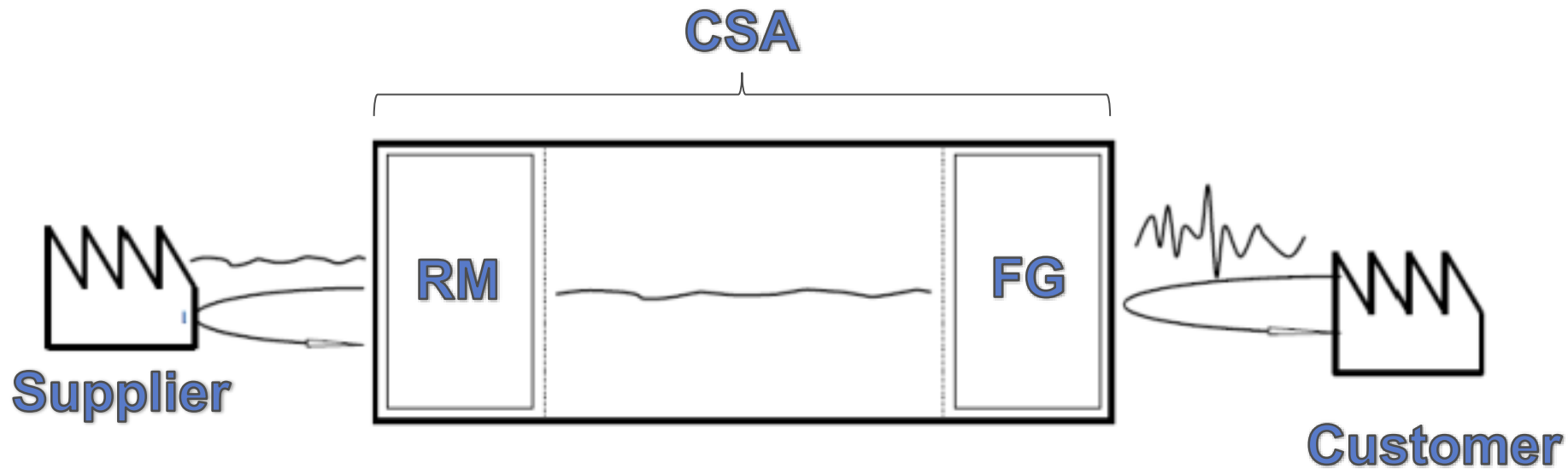


**LT = 16,38 days**

**VA = 66 sec**

## *Optimization steps*

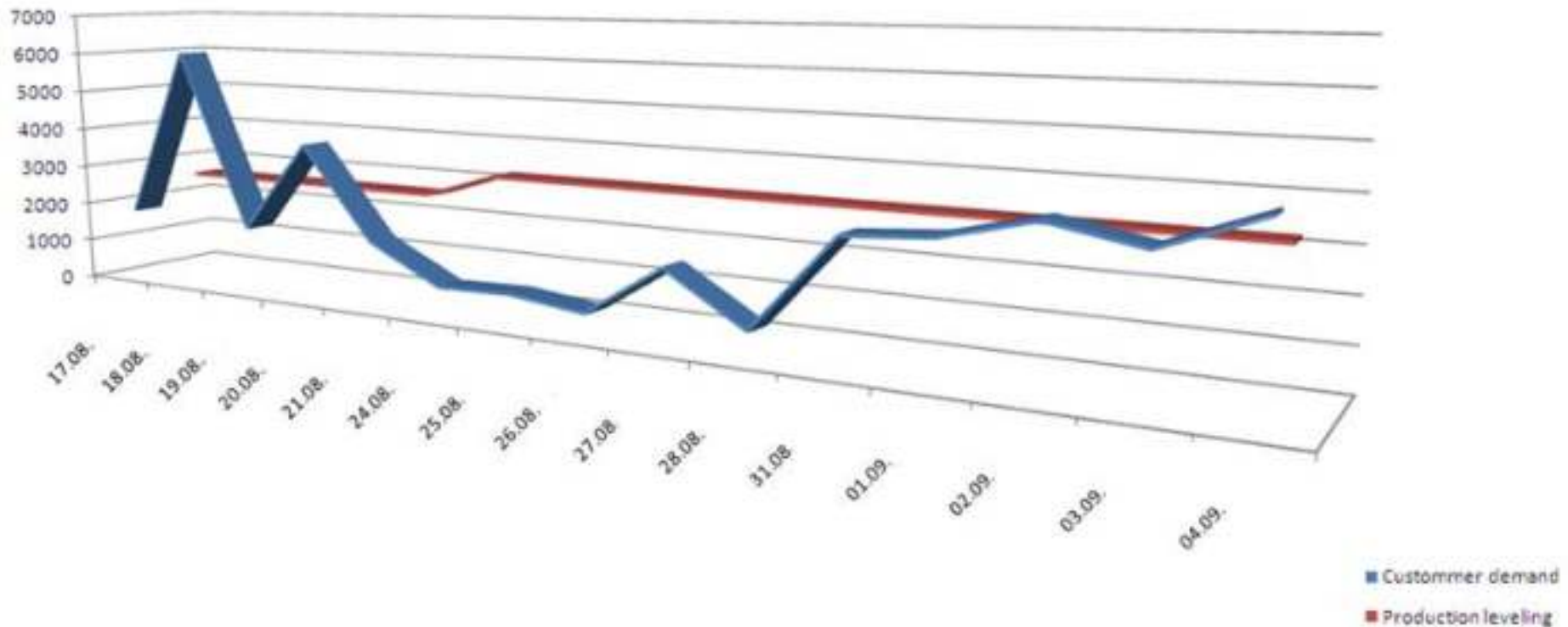
*Implementation of short and long term production leveling*



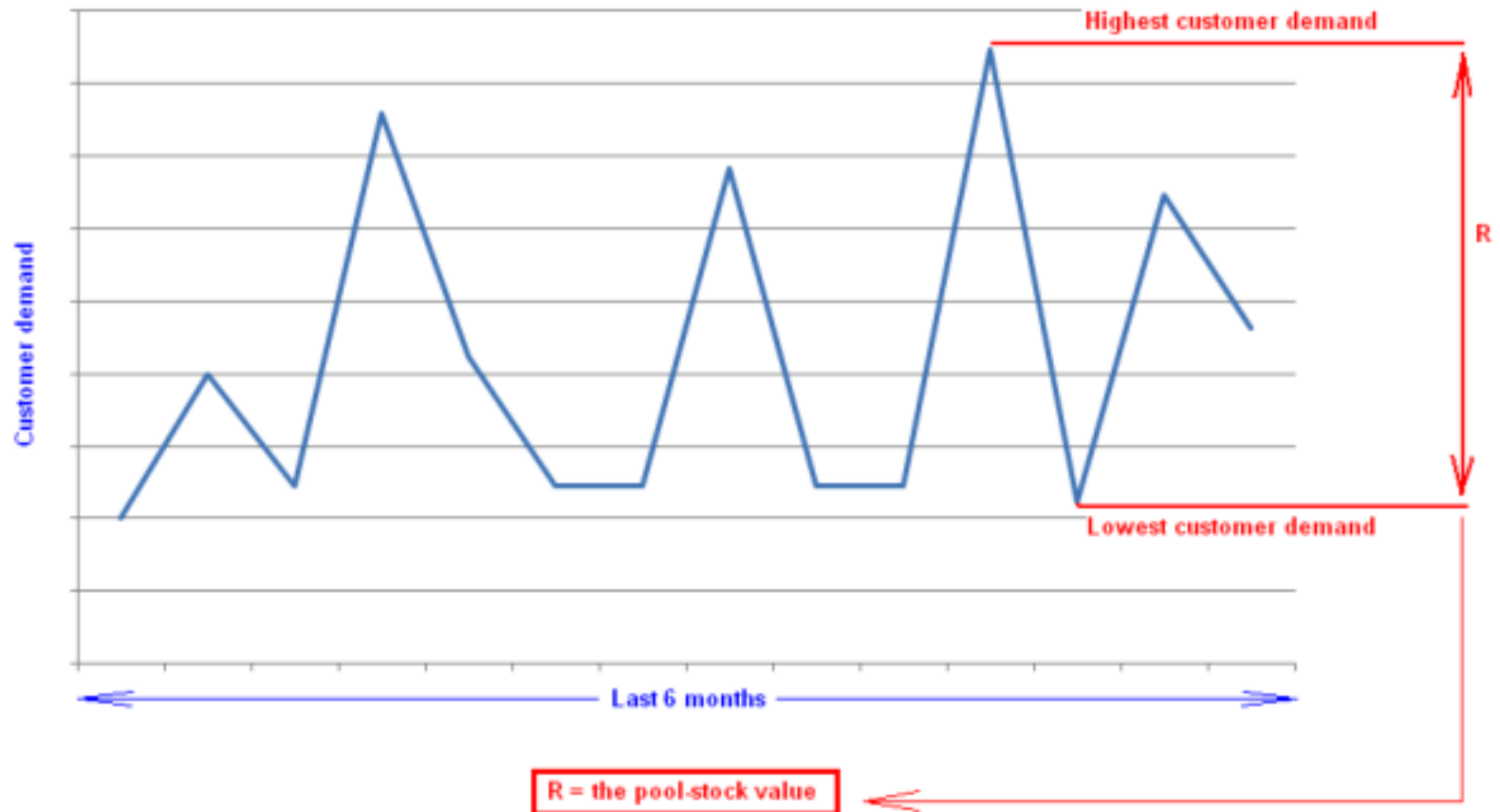
**Master Production Schedule (MPS)**

**Sales & Operations Plan (SOP)**

## *Implementation of short and long term production leveling*



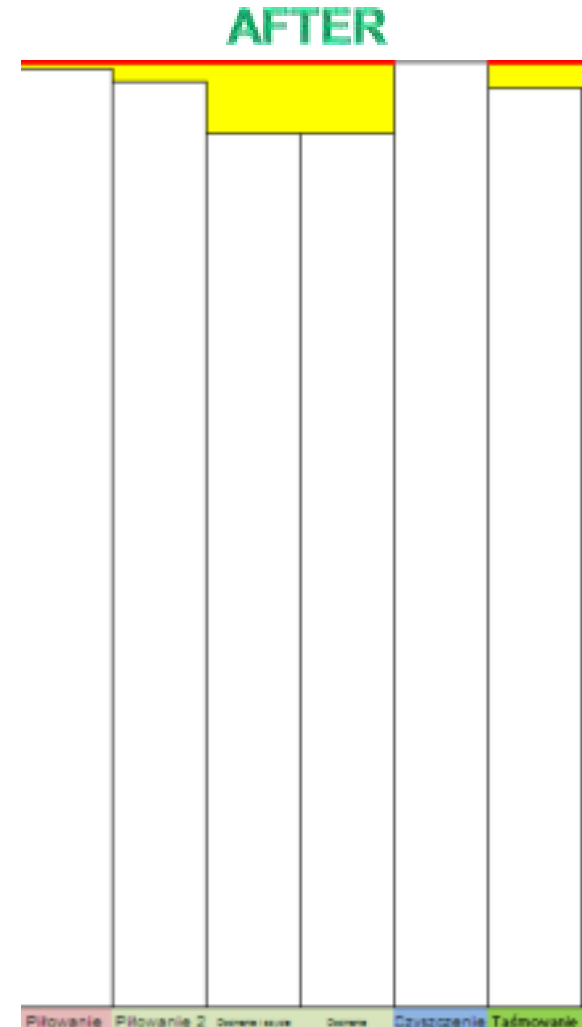
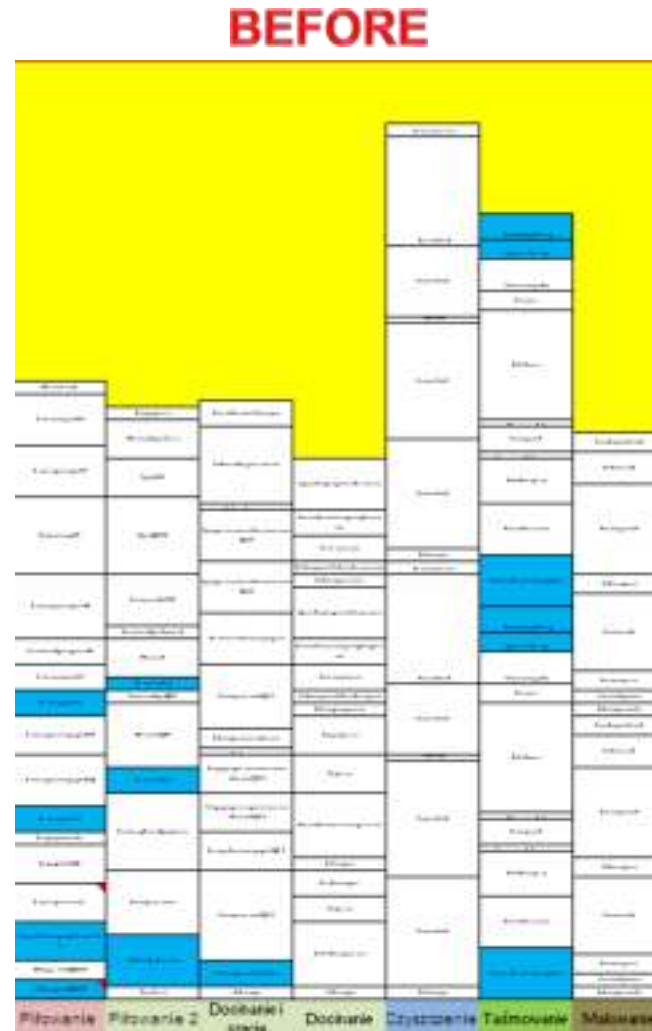
## *Pool stock - definition and calculation*



*Only for high-runners!*

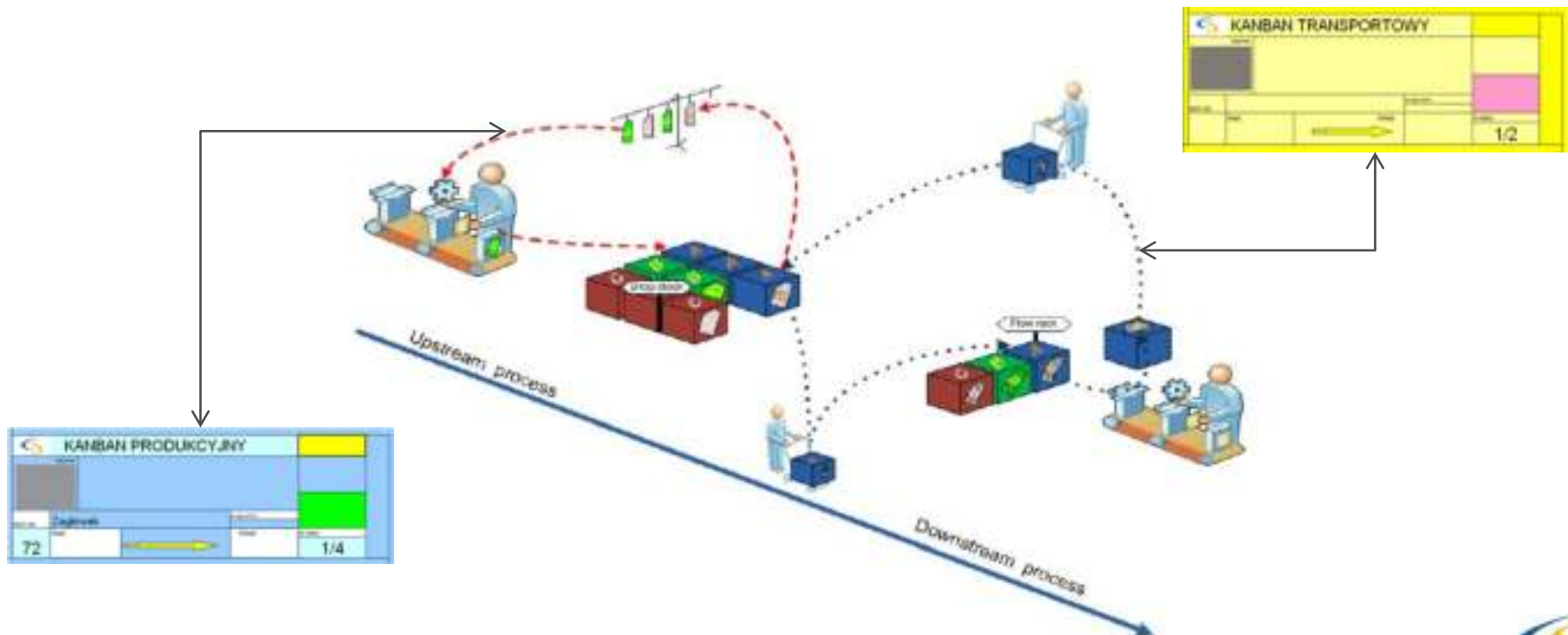
## Production cell balancing (example from rear seal)

Target cycle time →



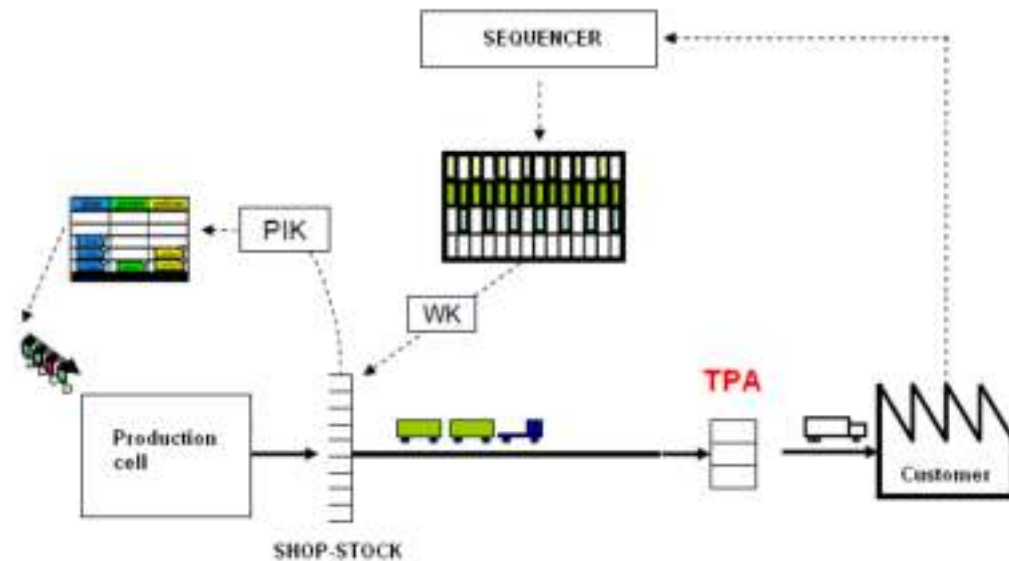
## *Kanban and pull flow implementation*

- *implementation of withdrawal kanban*
- *Implementation of production kanban*



## *Kanban and pull flow implementation*

### *b) Heijunka*



## *Kanban and pull flow implementation*

### *c) Small-train*

*Capacity up to 2,5 higher then forklift*

*WIP reduction in production cell from 8 to 1,5 hours*

*Frequently delivering of components and finish goods collection, always in the same time unit (30minutes).*

*Reduction of the production cell area (result of G26 – 28,3%)*



## *Kanban and pull flow implementation*

### *c) Small-train*

*WIP reduction in production cell from 8 to 1,5 hours*



## *Kanban and pull flow implementation*

### *c) Small-train*

#### *More ergonomic platforms for FG*

**Before**

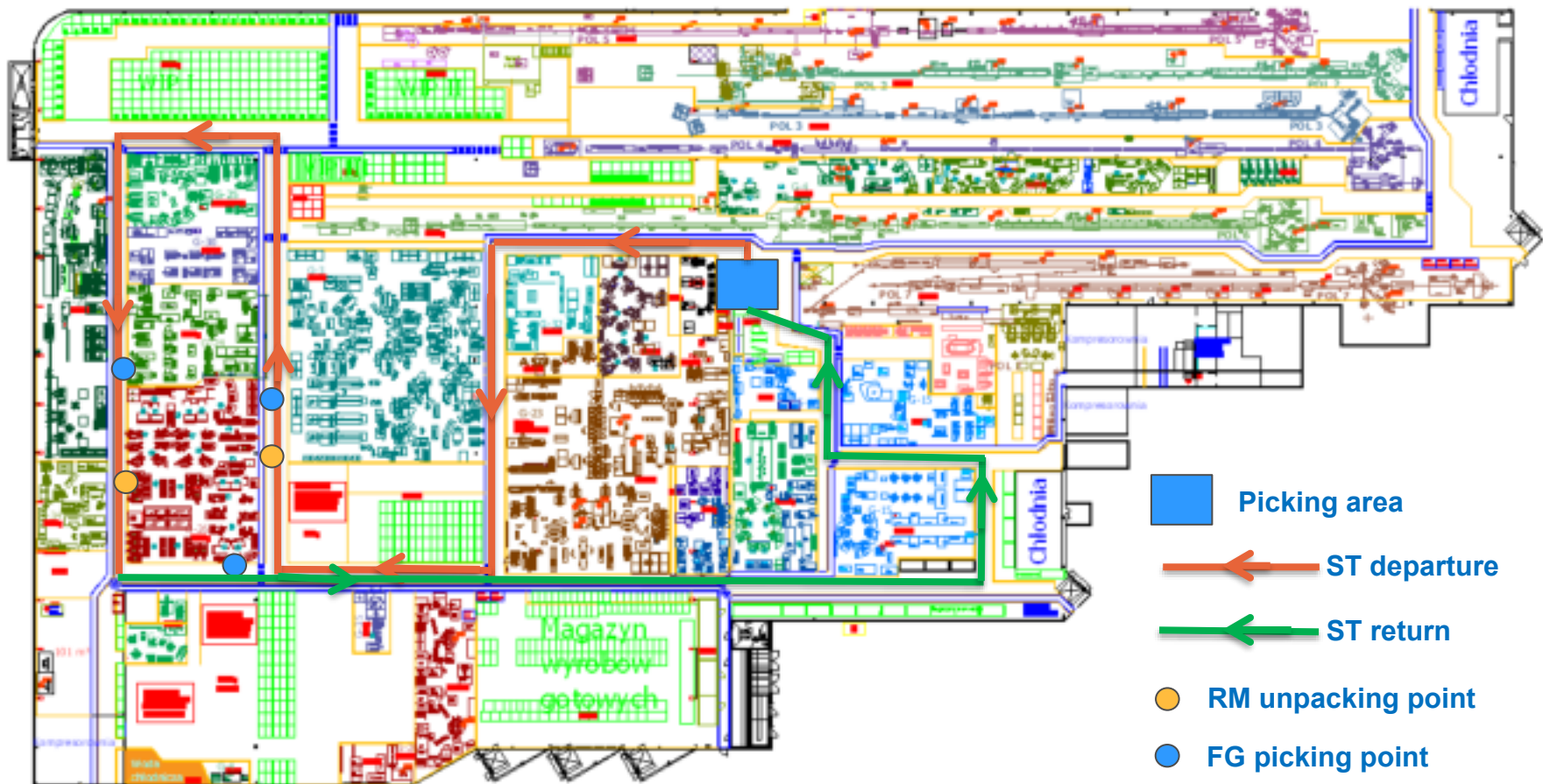


**After**

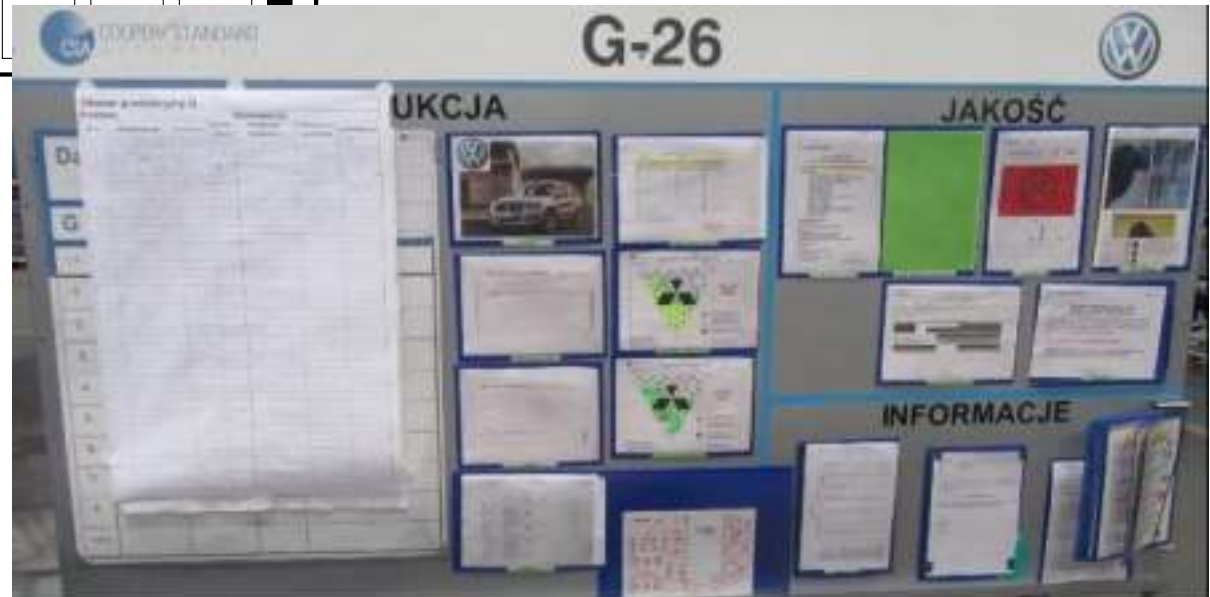
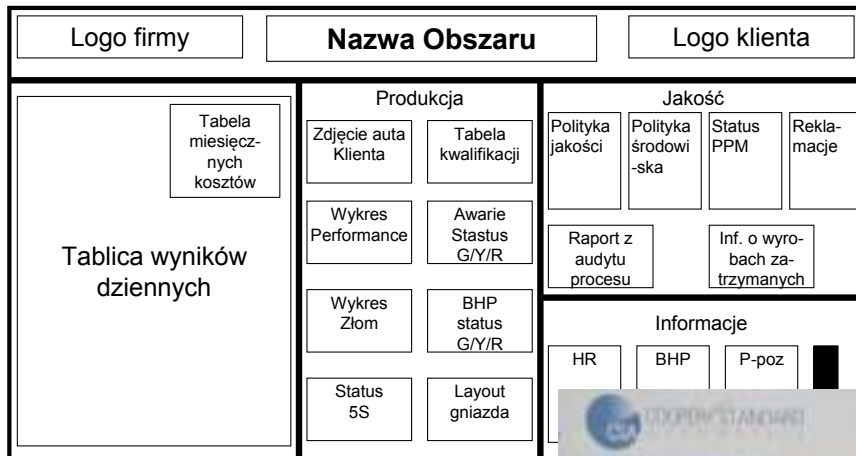


## Kanban and pull flow implementation

### c) Small-train



## Visualization – standard production cell information board



## 5S - standards

### Linie i pola:

#### Linia żółta

Przedmioty o stałym położeniu

#### Linia biała

Pole na przedmioty ruchome

#### Linia czerwona

Pole na materiały/wyroby niezgodne, zakaz przejścia

#### Linia zielona

Pole na pojemniki z odpadkami

#### Pole pomarańczowe

Części/wyroby lewe

#### Pole niebieskie

Części/wyroby prawe

### Opisy:

#### Materiały WE/WY:

**G24** Pole odkładcze

wyrób gotowy max 2 pojemniki



Wymiar: 1000mm x 1000mm x 1000mm

### Zdjęcia, szafy narzędziowe- kącik czystości:



### Zarządzanie odpadami:



## TPM

### *TPM instructions for all machines in the production cell*

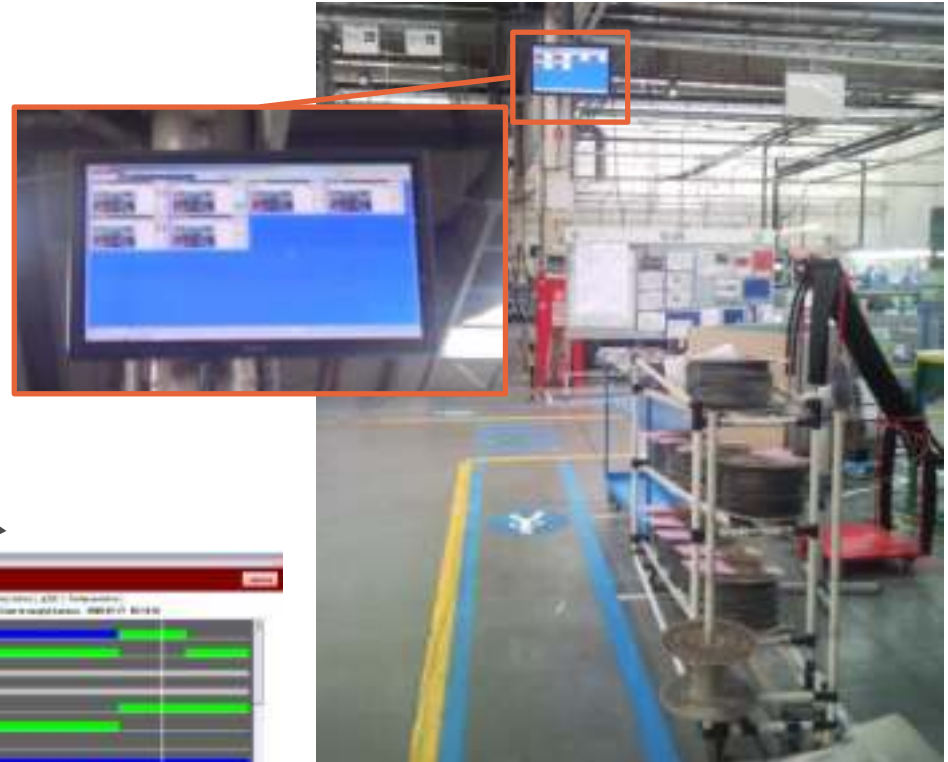


### *Standard TPM symbols with TPM activity definition*



## Online productivity tracking

### Production cell overview



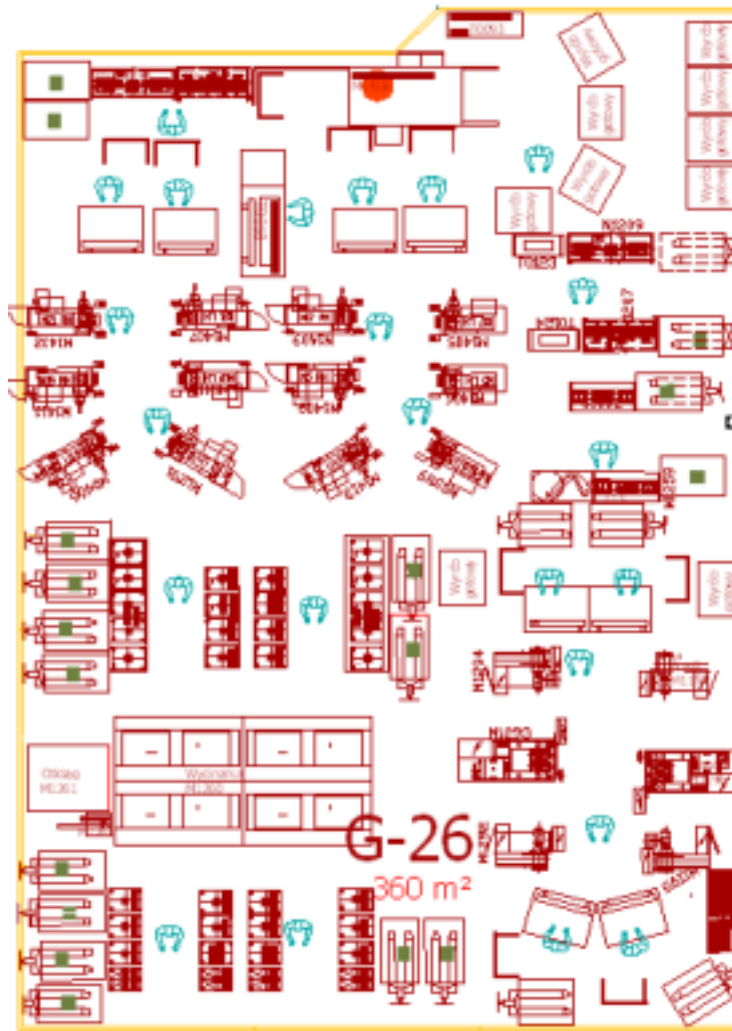
Actual number of cycles



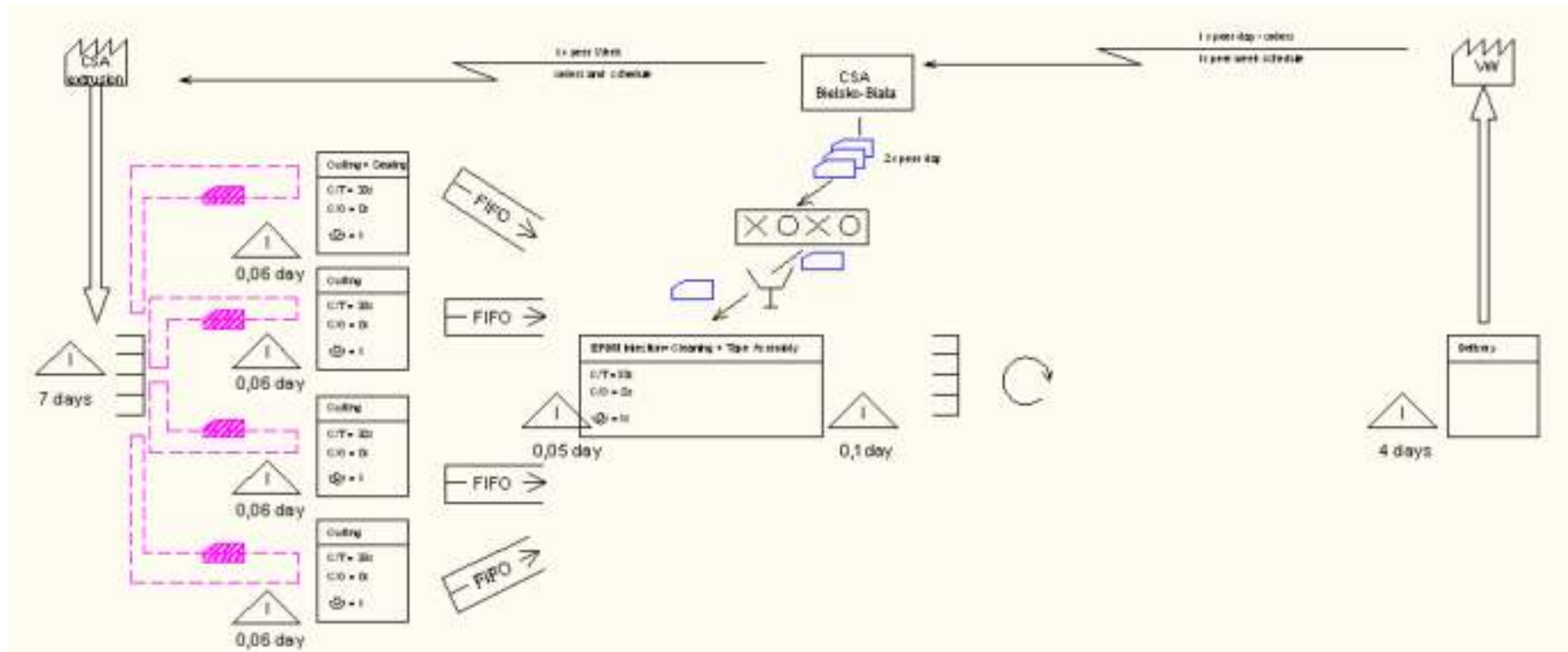
Work history

## *Final results*

## *G26 door seal production cell – after layout:*



## VSM current state:



**LT = 11,21 days**

**-31%**

**VA = 66 sec**

## *G26 door seal production cell – data:*

### **Before**

#### REAR SEAL

*Number of workers: 15 per shift*

*TT – variable*

*Customer orders – one week leveling*

*Max output from the cell – 800 parts*

*PPH = 7,03*

### **After**

#### REAR SEAL

*Number of workers: 12 per shift*

*TT – 31,93s*

*Customer orders – MPS + SOP fully leveled*

*Max output from the cell – 864 parts*

*PPH = 9,49*

**+35%**

## G26 door seal production cell – data:

### Before

#### FRONT SEAL

Number of workers: 11 per shift

TT – variable

Customer orders – one week leveling

Max output from the cell – 896 parts

PPH = 10,74

### After

#### FRONT SEAL

Number of workers: 11 per shift

TT – 28,74s

Customer orders – MPS + SOP fully leveled

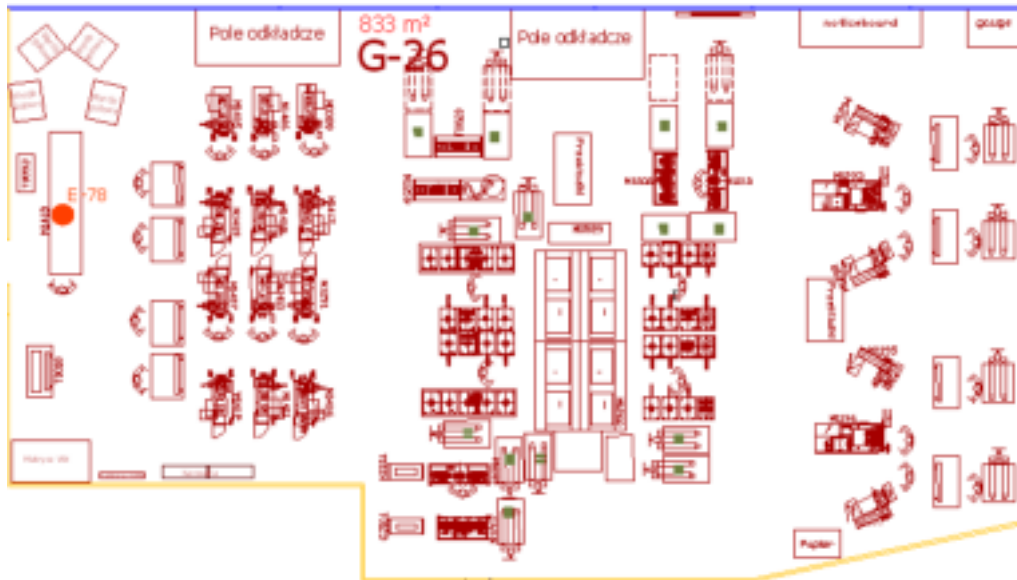
Max output from the cell – 960 parts

PPH = 11,51

+7,14%

## Before

*Production surface 502m<sup>2</sup>*



## After

*Production surface 360m<sup>2</sup> -28,3%*



## *Internal lean manufacturing training program*

### Cooper Production Excellence Academy

CPE tools training available for all employees

Three knowledge levels:



Level 1: CPE, Lean thinking, Kanban, 5S, 7 waste,



Level 2: PDCA, SMED, TPM, VSM, continuous-flow



Level 3: Production control & logistic,  
Multi-skilled operators,  
Sales and operations planning