



Version 5.10

Performance Analysis

Product Description

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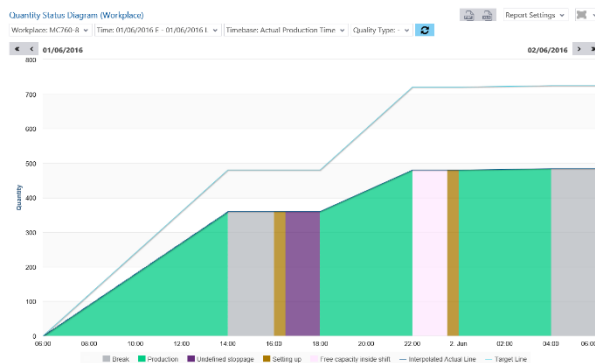


Product Description

The FORCAM FORCE™ Performance Analysis module offers reports in table and graphic format, visualizations of the operating states and quantities produced of individual machines as well as their representation in a shop layout view or an individual view configured in the editor. The information presented in reports facilitates an analysis of past situations and an assessment of the production processes, while the visualizations provide a clear-cut real-time representation of the current progress and situation in production. Editors are available to the user for defining customized reports and visualizations based on the data collected. A number of ready-made reports for Shop Floor Management are included in the standard application and described in more detail below. Reports and visualizations can be combined at will in Dashboards. Alarming by email permits a prompt response to unexpected situations in production.

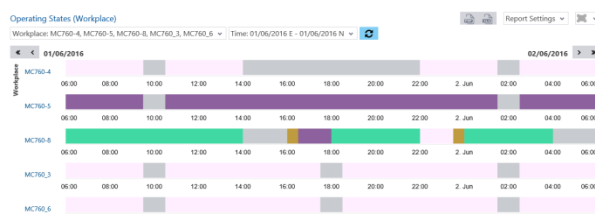
Online Logs for Daily Analysis

The following logs are useful for precise analysis of the data collected from production that are primarily needed for a daily analysis of the production processes of the previous day or preceding shift. Online logs can also be used for real-time analysis of the current shift. Moreover, they enable you to visualize reasons of stoppages, scrap produced and required rework in detail.



Quantity Status Diagram (Workplace)

A real-time report of quantities and the operating state development for a workplace (line or machine) within a freely definable period in ramp chart format. The height of the columns reflects the quantity produced (or number of hits) by the specified time. A target line displayed facilitates an actual/target comparison of the quantity produced.



Operating State Timeline (Workplace)

A real-time graphic view of the operating state development of one or more workplaces (lines or machines) within a freely definable period shown as a timeline chart.

Operating States (Workplace)

Workplace: MC750-8 Time: 02/03/2016 E - 14/12/2016 L

Operating States (Sum)

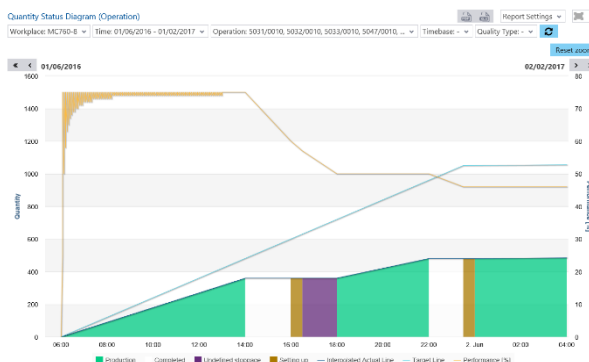
Duration (HH:mm:ss)	Frequency	Code	Operating State
3973:47:03	689	992	Free capacity inside shift
736:42:23	371	993	Break
16:00:28	246	090	Production
01:30:04	5	999	Undefined stoppage
01:00:00	2	005	Setting up

Operating States (Details)

Start Time	Duration (HH:mm:ss)	Code	Operating State	Code (S)	Details (S)	MDC Quantity	Remark Title	Remark
02-Jun-2016 03:00:20	00:59:39	090	Production					
02-Jun-2016 02:00:18	01:00:02	090	Production			1		
02-Jun-2016 01:00:16	01:00:02	090	Production			1		
02-Jun-2016 00:00:13	01:00:02	090	Production			1		
02-Jun-2016 00:00:12	00:00:01	999	Undefined stoppage					
01-Jun-2016 23:30:12	00:30:00	000	Setting up					
01-Jun-2016 22:00:11	01:30:01	992	Free capacity inside shift					
01-Jun-2016 21:56:11	00:02:00	090	Production			1		
01-Jun-2016 21:54:11	00:02:00	090	Production			1		
01-Jun-2016 21:52:11	00:02:00	090	Production			1		
01-Jun-2016 21:50:11	00:02:00	090	Production			1		

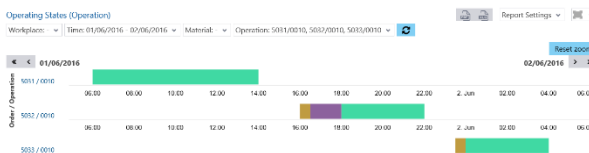
Operating State Log (Workplace)

A real-time view of operating states in table format and related comments for one workplace (line or machine) within a freely definable period. The operating state log consists of an overview of the operating state durations accumulated in the selected period as well as an individual overview including any comments. In the most detailed version, the operating state log covers 6 levels of detailing of the operating states (stoppage reasons).



Quantity Status Diagram (Operation)

A real-time graphic view of quantities and the operating state development of an operation in a ramp chart. The height of the columns reflects the quantity produced (or number of hits) by the specified time. A target line displayed facilitates an actual/target comparison of the quantity produced.




Operating State Timeline (Operation)

A real-time graphic view of the operating state development of one or more operations in a timeline chart.



Operating State Timeline (Order)

A real-time graphic view of the operating state development of the operations of an order in a timeline chart.

Shift Book
 Workplace: MC760-8 | Time: 01/06/2016 F 01:06/2016 L | 

Workplace: MC760-8
 Shift: 01/06/16 [J] 6:06 - 16:06

Actual Quantity

Total Quantity	Yield Qty	Yield [%]	Scrap Qty	Scrap [%]	Rework Qty	Rework [%]
360	120	33.33%	240	66.67%	0	0%

Operating States

Code	Operating State	Frequency	Duration (H:MM:SS)	Duration [%]
000	Production	121	09:00:11	90.00%
990	Break	1	01:56:46	15.96%
999	Undefined stoppage	2	00:00:02	0.01%

Operations

Order	Operation	Material	Target Qty	Yield Qty (Shift)	Scrap Qty (Shift)
5021	0010	4	120	120	240


Operation: 5031 / 0010

Operation Details

Start Time	End Time	Duration (H:MM:SS)	Yield Qty (Shift)	Yield Qty (Operation)	Scrap Qty (Shift)	Scrap Qty (Operation)	Rework Qty (Shift)	Rework Qty (Operation)	Total Quantity (Shift)
01-Jan-2016 06:00:01	00:00:01	0	0	0	0	0	0	0	0
01-Jan-2016 06:00:02	00:00:11	10	120	120	240	0	0	0	360
01-Jan-2016 14:00:13	13:59:47	120	120	240	240	0	0	0	360

Shift Book

A real-time report of quantities, operating states and operations at a workplace during a shift in table format. Each operation is shown with the operation-related operating state log showing the quantities produced until the time of reporting including the scrap reasons and any associated comments. The operating states including 6 levels of detailing (stoppage reasons) are also displayed.

Quantity Log
 Workplace: H170101 | Time: 01/01/2017 00:00 - 24/01/2017 00:00 | 

Workplace: H170101
 Operation: H170101 / 0010

Total Quantity


Start Time	End Time	Material	Target Qty	Yield Qty	Scrap Qty	Rework Qty	Target Time per Unit
13-Jan-2017 10:48:05	07-Feb-2017 14:56:42	5	20	21	20	20	00:02:00

Quality Details

Booking Time	Quantity	Quality Type	Quality Details
13.01.2017 11:05:05	1	Yield quantity	Yield quantity standard
13.01.2017 11:06:06	1	Scrap quantity	Material Surface
13.01.2017 11:07:36	1	Rework quantity	Material Surface
13.01.2017 11:09:06	1	Rework quantity	Dimensional Precision
13.01.2017 11:11:06	1	Yield quantity	Yield quantity standard
13.01.2017 11:13:06	1	Yield quantity	Yield quantity standard
13.01.2017 11:14:06	1	Scrap quantity	Material Surface
13.01.2017 11:15:36	1	Rework quantity	Material Surface
13.01.2017 11:17:07	1	Rework quantity	Dimensional Precision
13.01.2017 11:19:07	1	Yield quantity	Yield quantity standard
13.01.2017 11:21:07	1	Yield quantity	Yield quantity standard
13.01.2017 11:22:07	1	Scrap quantity	Material Surface
13.01.2017 11:23:37	1	Rework quantity	Material Surface
13.01.2017 11:25:07	1	Rework quantity	Dimensional Precision

Quantity Log

A real-time report of the quantities of all operations at a workplace during a definable period in table format. The target, accumulated yield, scrap, and rework quantities are shown for each operation. In addition, a detailed list of all operation-related quantity messages is displayed, showing the quantity type and quantity reason.

Shift Log
 Workplace: MC760-8, MC760-3 | Time: 14/03/2016 L - 14/04/2016 N | 

Workplace: MC760-3
 Shift: 14/04/16 [J] 14:04 - 22:04

Sum of Hits

Order	Operation	Start Time	End Time	Material	Hits (Shift)	Hits (Operation)
5005	0010	14-Apr-2016 14:00:24	14-Apr-2016 22:00:00	4	0	0

Operating States

Code	Operating State	Frequency	Duration (H:MM:SS)	Duration [%]
000	Production	4	05:59:57	74.99%
020	Setup up	1	00:14:37	3.05%
990	Break	1	00:39:53	12.48%
999	Undefined stoppage	4	00:40:57	14.4%

Shift: 14/04/16 [N] 22:04 - 0:04

Sum of Hits


Order	Operation	Start Time	End Time	Material	Hits (Shift)	Hits (Operation)
5005	0010	14-Apr-2016 22:00:00	15-Apr-2016 03:30:19	4	0	0

Operating States

Code	Operating State	Frequency	Duration (H:MM:SS)	Duration [%]
000	Production	4	04:30:19	96.53%
990	Free capacity inside shift	2	02:25:40	31.18%
990	Break	1	00:59:44	12.43%
999	Undefined stoppage	1	00:00:15	0.01%

Shift Log

A real-time report of the total number of hits of the operations within a shift, the total number of hits of an operation as well as the frequency distribution of the operating states within the specific shift in table format.

Daily Log
 Workplace: MC760-8 | Time: 01/06/2016 | 

Workplace: MC760-8
 Day: 01/06/16

Sum of Hits

Order	Operation	Start Time	End Time	Material	Material Description	Hits (Day)	Hits (Operation)
5021	0010	01.06.2016 06:00:01	01.06.2016 14:00:13	4	Kugellumlaufspindel	0	0
5022	0010	01.06.2016 16:00:02	01.06.2016 22:00:11	4	Kugellumlaufspindel	0	0
5023	0010	01.06.2016 23:00:12	02.06.2016 04:00:22	4	Kugellumlaufspindel	0	0

Operating States

Code	Operating State	Frequency	Duration (H:MM:SS)	Duration [%]
000	Production	146	16:00:26	94.7%
020	Setup up	2	01:00:00	4.17%
990	Free capacity inside shift	2	01:59:08	6.23%
990	Break	2	03:59:23	16.62%
999	Undefined stoppage	5	01:59:04	6.26%

Daily Log

A real-time report of the accumulated number of hits (machine cycles) of the operations within a day, the total number of hits (machine cycles) of an operation as well as the frequency distribution of the operating states within the specific day in table format.

Message Log

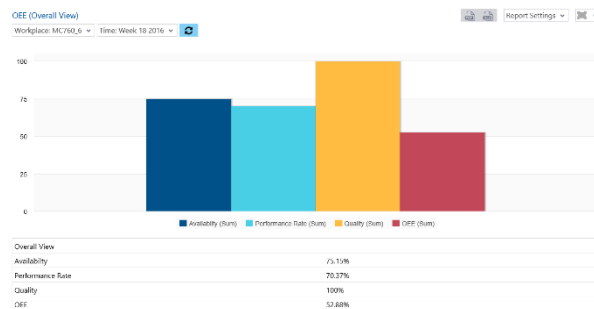
Workplace: MC760-8 Time: 01/06/2016 00:00 - 01/06/2016 23:00 Message Type: [icon]

Time stamp	Message	Workplace	Order	Opera...	Unit/Status	Number	Yield Qty	Comp Qty	Reas'd Qty	Last Name	First Name
01-Jun-2016 13:52:10	Machine Counter	MC760-8	0		Crk. No.: 1	3	0	0	0		
01-Jun-2016 13:52:11	Operation Qua...	MC760-8	5031	0010	Yield quantity standard	0	1	0	0		
01-Jun-2016 13:52:12	Operation Qua...	MC760-8	5031	0010	Generic failure	0	0	2	0		
01-Jun-2016 13:52:13	Machine State	MC760-8	0			0	0	0	0		
01-Jun-2016 13:56:10	Machine Counter	MC760-8	0		Crk. No.: 1	2	0	0	0		
01-Jun-2016 13:56:11	Operation Qua...	MC760-8	5031	0010	Yield quantity standard	0	1	0	0		
01-Jun-2016 13:56:12	Operation Qua...	MC760-8	5031	0010	Generic failure	0	0	2	0		
01-Jun-2016 13:56:13	Machine State	MC760-8	0			0	0	0	0		
01-Jun-2016 14:00:00	Shift State	MC760-8	0		Break	0	0	0	0		
01-Jun-2016 14:00:10	Machine Counter	MC760-8	0		Crk. No.: 1	2	0	0	0		
01-Jun-2016 14:00:11	Operation Qua...	MC760-8	5031	0010	Yield quantity standard	0	1	0	0		
01-Jun-2016 14:00:12	Operation Qua...	MC760-8	5031	0010	Generic failure	0	0	2	0		
01-Jun-2016 14:00:13	Operation Phase	MC760-8	5031	0010	Completed	0	0	0	0	Bond	James
01-Jun-2016 14:00:15	Machine State	MC760-8	0		Undefined stoppage	0	0	0	0		
01-Jun-2016 15:25:02	Machine State	MC760-8	0		Undefined stoppage	0	0	0	0		
01-Jun-2016 16:00:00	Shift State	MC760-8	0		Shift	0	0	0	0		
01-Jun-2016 16:00:00	Shift State	MC760-8	0		Shift	0	0	0	0		
01-Jun-2016 16:00:02	Operation Phase	MC760-8	5032	0010	Setting up	0	0	0	0	Bond	James
01-Jun-2016 16:00:03	Operation Phase	MC760-8	5032	0010	No. In progress	0	0	0	0	Bond	James
01-Jun-2016 16:30:03	Machine State	MC760-8	0		Undefined stoppage	0	0	0	0		
01-Jun-2016 18:00:03	Machine State	MC760-8	0		Undefined stoppage	0	0	0	0		

Message Log

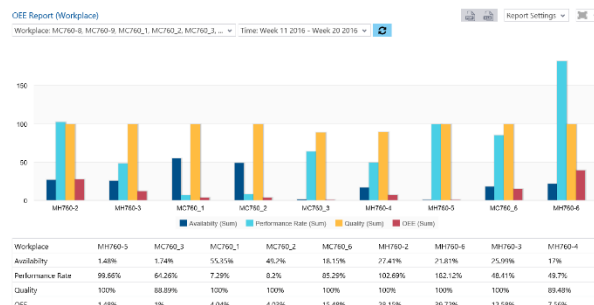
A real-time report of all messages received within a freely definable period from one or more workplaces (machines or shop floor terminals) in table format.

Overall Equipment Effectiveness (OEE)



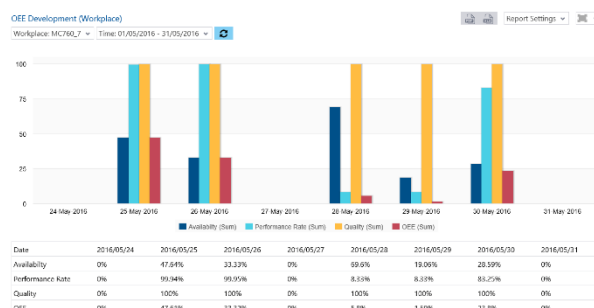
OEE (Overall View)

A report of the OEE analysis in a graphic and tabular format, showing the situation of the complete plant or individual plant areas within a predefined period in a column chart. The OEE is calculated by multiplication of availability, performance rate and quality.



OEE Report

A view of the OEE analysis in graphic and table format as a column chart for comparing individual workplaces or hierarchical levels within a predefined period.



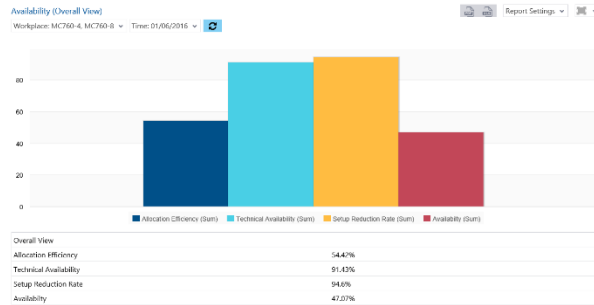
OEE Development

A view of the OEE development over time in graphic and table format for selectable cumulative periods (day, week, month, quarter, year) within a predefined period. The report may relate to individual workplaces or any hierarchical level.

Availability Analysis

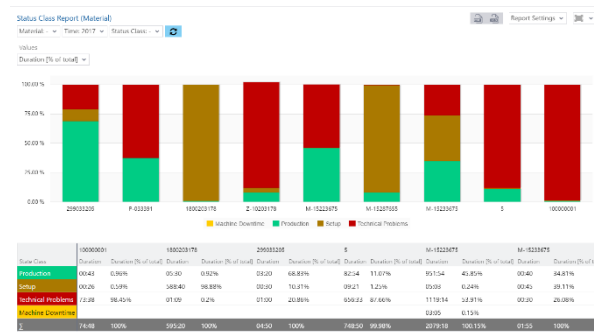
The following reports provide a condensed view of the operating states occurring in production. They are therefore suitable for analyzing the availability within larger periods (e.g. weekly, monthly or yearly review) and facilitate comparing different plants and production areas.

Availability (Overall View)



A graphic and tabular view of the occupancy rate, the process availability, the setup reduction rate (proportion of processing time within busy time) and the availability, showing the situation of the complete plant or individual plant areas within a predefined period. The availability is calculated by multiplying the occupancy rate (allocative component), process availability and setup reduction rate.

Status Class Report

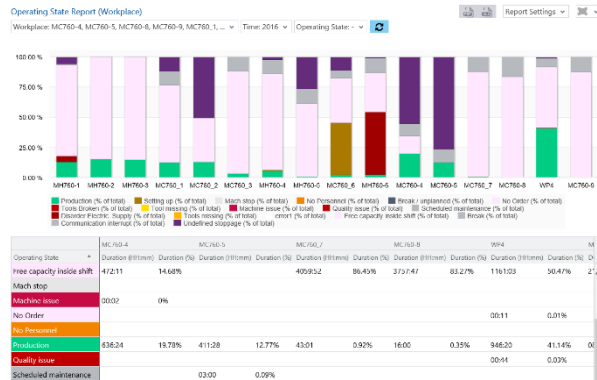


A graphic and tabular view of the accumulated durations of status classes within a predefined period. You can select different cumulative periods (day, week, month, quarter, year). The four variants of the status class report facilitate analysis for the four dimensions of workplace, material, order and operation.

Status Class Development

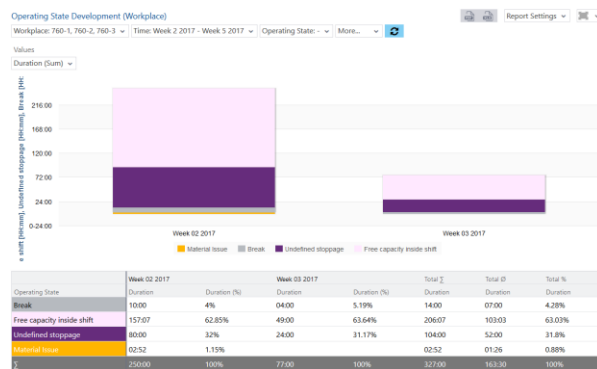


Shows the development of the status classes over time in graphic and table format. The shares of different status classes are illustrated by way of sections of column charts for a predefined period based on the selected cumulative period (day, week, month, quarter, year). The two variants of the status class development facilitate analysis for the two dimensions of workplace and material.



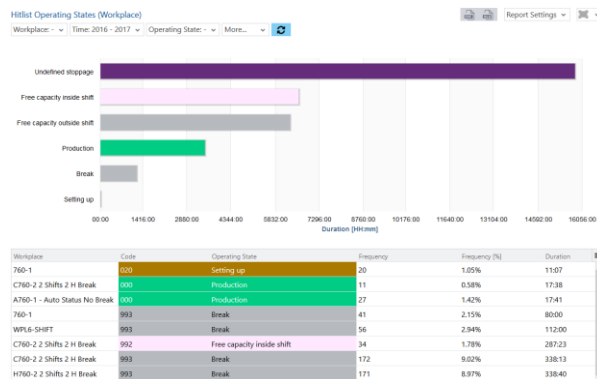
Operating State Report

A graphic and tabular view of the accumulated durations of operating states within a predefined period. You can select different cumulative periods (day, week, month, quarter, year). The four variants of the operating state report facilitate analysis for the four dimensions of workplace, material, order and operation.



Operating State Development

Shows the development of the operating states over time in graphic and table format. The shares of different operating states are illustrated by way of sections of column charts for a predefined period based on the selected cumulative period (day, week, month, quarter, year). The two variants of the operating state development facilitate analysis for the two dimensions of workplace and material.

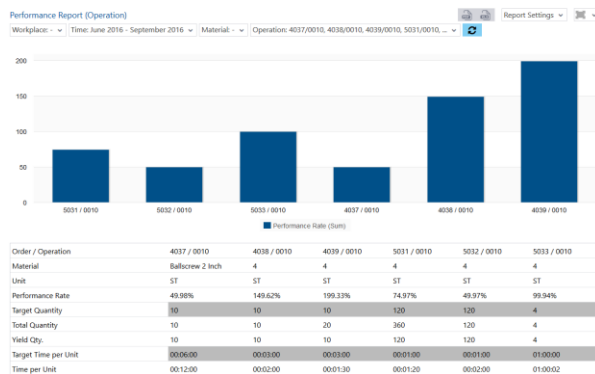


Hitlist of Operating States

A graphic and tabular view of the durations and frequencies of operating states occurring within a predefined period. The operating states are arranged according to duration or frequency in the form of a bar chart. The four variants of the hit list of operating states facilitate analysis for the four dimensions of workplace, material, order and operation.

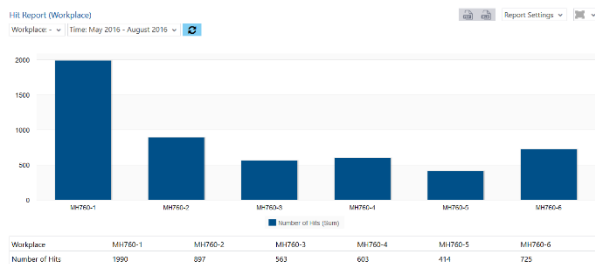
Performance Rate Analysis

The following reports provide a quantitative analysis of the quantities produced. They are suitable for analyzing the production output within various periods (e.g. days or weeks) and facilitate comparing different plants and production areas.



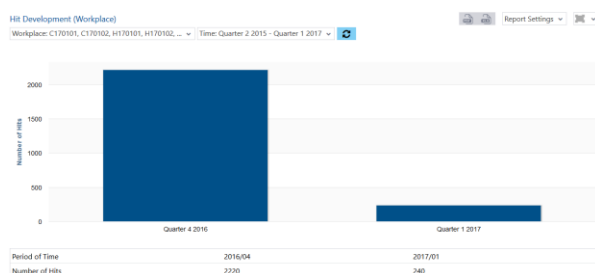
Performance Report (Operation)

A comparison of the performance rates of operations in graphic and table format. The table shows the quantities produced, the corresponding production time, the time required per unit and the resulting performance rate. The latter is calculated by multiplication of target time per unit by total quantity, divided by production time. For individual operations it can also be calculated as the quotient from target time per unit and actual time per unit.



Hit Report (Workplace)

A graphic and tabular view of the accumulated hits of one or more workplaces for a selectable period (day, week, month, quarter, year).

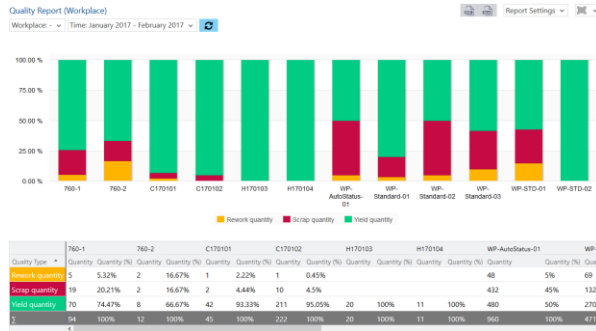


Hit Development (Workplace)

A graphic and tabular view of the development of accumulated hits of one or more workplaces over time for a selectable period (day, week, month, quarter, year).

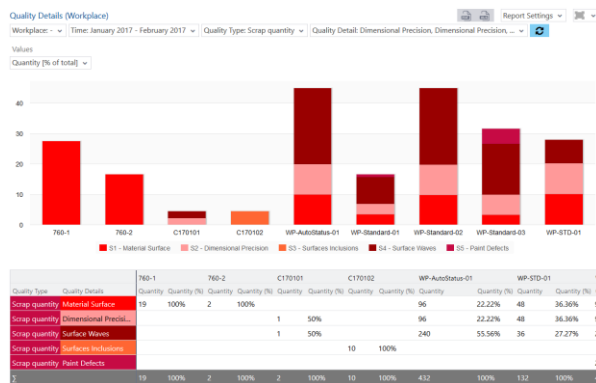
Quality Analysis

The following reports provide a qualitative analysis of the quantities produced. They are therefore suitable for analyzing the quality within larger periods (e.g. weekly, monthly or yearly review) and facilitate comparing different production areas.



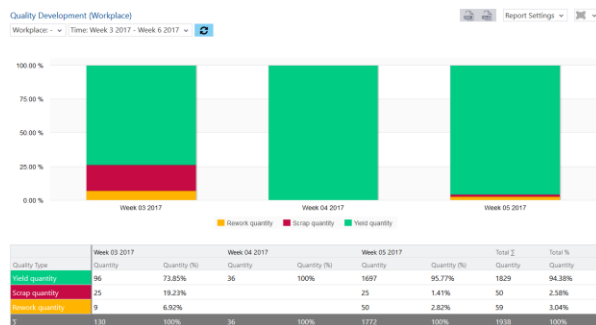
Quality Report

A graphic and tabular view of the accumulated quantities arranged according to quality characteristics (yield, rework and scrap quantities) for a selectable period. The three variants of the quality report facilitate analysis for the three dimensions of workplace, material and operation.



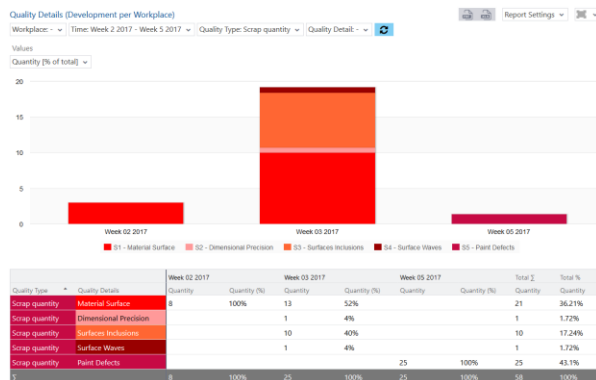
Quality Details

A graphic and tabular view of the accumulated quantities arranged according to quality characteristics (rework and scrap reasons) for a selectable period. The three variants of the report facilitate analysis for the three dimensions of workplace, material and operation.



Quality Development

A graphic and tabular view of the development of accumulated quantities over time grouped according to quality characteristics (yield, scrap and rework quantities). The two variants of the quality development report facilitate analysis for the two dimensions of workplace and material.



Quality Details (Development)

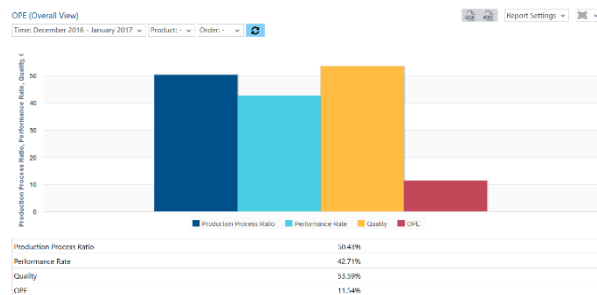
A graphic and tabular view of the development of accumulated quantities over time, arranged according to quality characteristics (scrap and rework reasons) for a selectable period. The two variants of the report facilitate analysis for the two dimensions of workplace and material.



Hitlist of Quality Details

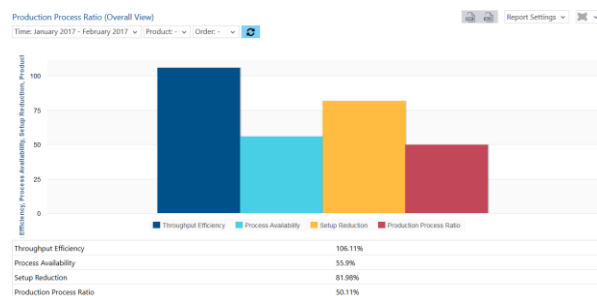
A graphic and tabular view of the quality reasons (reasons for scrap and rework) for one or more workplaces, sorted by frequency. The three variants of the report facilitate analysis for the three dimensions of workplace, material and operation.

Overall Process Efficiency (OPE)



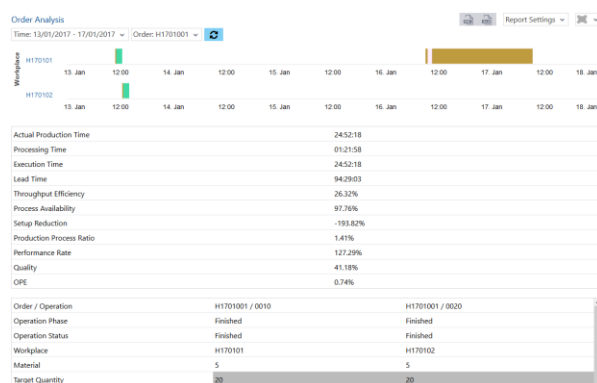
OPE (Overall View)

A graphic and tabular view of the production process ratio, performance rate, quality and OPE of the overall plant, individual products or orders within a predefined period. The OPE describes the percentage of time of loss-free value addition in relation to the lead time of one or more production orders and thus the efficiency of the production processes. It is calculated by multiplication of production process ratio, performance rate and quality.



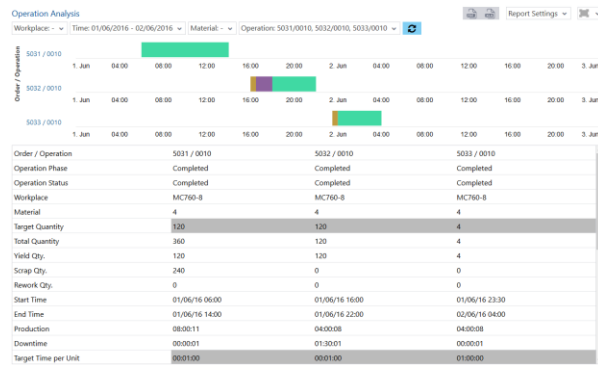
Production Process Ratio (Overall View)

A graphic and tabular view of the throughput efficiency, process availability, setup reduction rate and production process ratio of the overall plant, individual products or orders within a predefined period. The production process ratio is calculated by multiplication of the three other key figures.



Order Analysis

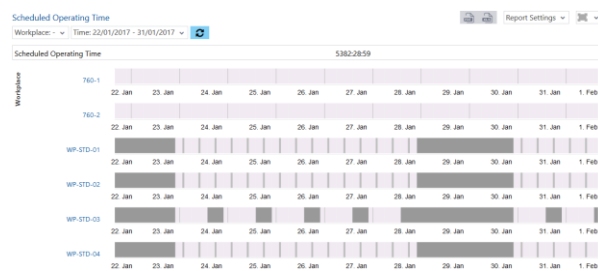
A graphic view of the operations of an order and their operating states in a timeline chart. A tabular view of the durations and key performance indicators of an order. It shows the production time, processing time, execution time, lead time, throughput efficiency, process availability, setup reduction rate, production process ratio, performance rate, quality and OPE. Another tabular view shows additional details about the individual operations of the order.



Operation Analysis

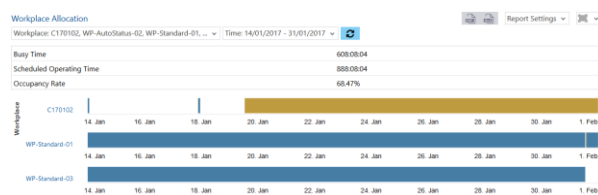
A graphic view of one or more operations and their operating states in a timeline chart. A tabular view showing details about the quantity output, an actual/target comparison of the durations of individual operation segments and key figures for the individual operations.

Resource Allocation



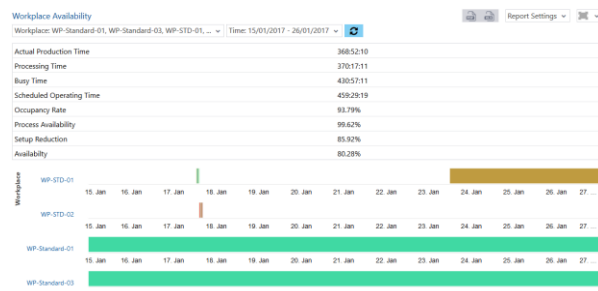
Scheduled Operating Time

A graphic view of the scheduled operating time of one or more workplaces including the accumulated operating hours for the selected period and all selected workplaces.



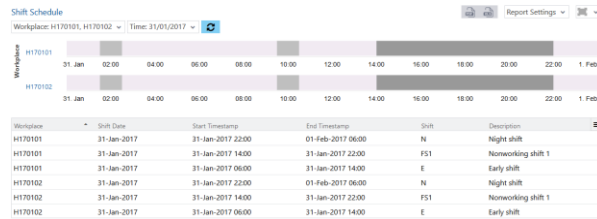
Workplace Allocation

A graphic view of the workplace allocation of one or more workplaces including the busy time, scheduled operating time and the occupancy rate, calculated as the quotient of the two time values. The duration values are accumulated for the selected period and all selected workplaces.



Workplace Availability

A graphic view of the workplace allocation including the corresponding operating states of one or more workplaces. It shows the production time, processing time, busy time as well as the scheduled operating time. The duration values are accumulated for the selected period and all selected workplaces. It contains data on occupancy rate, process availability, setup reduction rate and availability. The latter is the product of the first three key figures.



Shift Schedule

Graphic view of the scheduled operating time of one or more workplaces and a detailed overview of the shift schedule for the selected period.

Order Overview

Order Overview

Product: - | Time: December 2016 - January 2017

Order	Material	Material Description	Target quantity	Unit	Basic Start Date	Basic Finish Date	Priority	Active	ERP Status (German)	ERP Stat
10020000	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020001	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020002	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020003	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020004	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020005	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020006	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020007	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020008	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020009	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020010	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020011	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020012	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020013	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020014	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020015	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020016	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020017	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020018	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020019	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020020	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				

Order Details

Product: - | Time: December 2016 - January 2017 | Workplace: - | Material: - | Operation: C170101/0010, C170101/0020 | Operation Phase: -

Order	Material	Material Description	Target quantity	Unit	Basic Start Date	Basic Finish Date	Priority	Active	ERP Status (German)	ERP Status
10020000	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020001	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020002	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020003	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				
10020004	M-152236...	AFV-Vertikal-Kettenfördere VKF 6...	20000	Stk	14. Nov 2016 - 04:00...	01. Dec 2016 - 21:30...				

Order	Operation	Material	Material Number	Material Description	Operation Phase	Operation Status	Status since	Last Logged	Last Login	Time Remaining
C170101_0010	M-152236...	M-15223675	AFV-Vertikal-Kettenfördere VKF 6...	Finished	Finished	10/01/17 08...	10/01/17 08...	00:00:00		
C170101_0020	299033205	299033205	Raw Flap	Finished	Finished	10/01/17 08...	10/01/17 08...	00:00:00		

Order Overview

A tabular overview of either all orders or the orders for a specific product within a predefined period.

Order Details

A tabular view of the order header including all details about the operations of the order.

Order Backlog

A tabular overview of the pending orders and/or the operations remaining to be processed. In addition to the scheduled workplace, planned start and finish dates, the standard values for quantities and durations are also displayed for all operations.

Operations in Progress

A tabular overview of the currently registered operations, showing the operation phase and operating state of the workplace, start date and time, anticipated remaining time, quantities produced so far and the time taken for setting up and processing phases, production time and downtime.

Order Backlog

Workplace: - | More...

Order	Operation	Material	Operation Phase	Operation Status	Status since	Priority	Workplace Group	Workplace	Planned Starting Date	Planned Finishing Date	Time
1001486	0010			Released	30/01/17 08:28		760-1		30/01/17 09:00	30/01/17 09:03	00:00:00
H1701003	0020	5	partial processed	Released	18/01/17 13:15			H170102	17/01/17 09:01	17/01/17 09:56	00:50:00

Operations in Progress

Workplace: - | More...

Order	Operation	Material	Operation Phase	Operation Status	Status since	Priority	Workplace	Planned Starting Date	Start Time	Planned Finishing Date	Time
1001000300	0010	M-152236...	Setting up	Downtime	07/02/17 08...		WP-AutoStatus-01	06/07/16 04:00	23/12/16 09...	07/07/16 21:30	07/02/...
WP-STD01_0001	0015	1800000178	Setting up	Downtime	23/01/17 11...	E	WP-STD-01	07/03/17 23:10	02/01/17 14...	06/03/17 03:43	07/02/...
C1701003	0020	5	Setting up	Downtime	07/02/17 10...		C170102	13/01/17 13:00	18/01/17 12...	13/01/17 16:35	07/02/...
H1701007	0010	5	Production	Downtime	07/02/17 10...		H170101	20/01/17 08:35	20/01/17 11...	20/01/17 08:30	07/02/...
1001493	0020	100000001	Production	Downtime	07/02/17 08...		760-2	06/02/17 06:00	06/02/17 08...	06/02/17 11:04	07/02/...

Operations Completed

Operations Completed

Workplace: - Time: February 2017 - More...

Order	Operation	Material	Workplace	Planned Starting Date	Start Time	Planned Ending Date	End Time	Schedule Deviation	Setup Start Time	Setup End Time
10010001	0010	M-15239...	WP-Standard-01	06/07/16 04:00	31/01/17 13:...	07/07/16 21:30	02/02/17 00:...	5019:15:44	31/01/17 13:...	31/01/17 14:...
1001483	0020	100000001	760-2	20/01/17 06:00	06/02/17 08:...	20/01/17 06:04	06/02/17 08:...	4102:21:19	06/02/17 08:...	06/02/17 08:...
1001491	0010	100000001	760-1	06/02/17 00:00	06/02/17 08:...	06/02/17 00:00	06/02/17 08:...	08:23:58	06/02/17 08:...	06/02/17 08:...
1001491	0020	100000001	760-2	06/02/17 06:00	06/02/17 08:...	06/02/17 06:00	06/02/17 08:...	-00:06:35	06/02/17 08:...	06/02/17 08:...
1001492	0020	100000001	760-2	06/02/17 06:00	06/02/17 08:...	06/02/17 11:04	06/02/17 08:...	-03:14:41	06/02/17 08:...	06/02/17 08:...
1001494	0010	100000001	760-1	06/02/17 00:00	06/02/17 08:...	06/02/17 01:42	06/02/17 08:...	07:17:30	06/02/17 08:...	06/02/17 08:...
1001494	0020	100000001	760-2	06/02/17 06:00	06/02/17 08:...	06/02/17 08:34	06/02/17 08:...	01:29:22	06/02/17 08:...	06/02/17 08:...
1001495	0010	100000001	760-1	06/02/17 00:00	06/02/17 08:...	06/02/17 01:42	06/02/17 08:...	08:38:20	06/02/17 08:...	06/02/17 08:...
1001495	0020	100000001	760-2	06/02/17 06:00	06/02/17 08:...	06/02/17 08:34	06/02/17 08:...	01:52:32	06/02/17 08:...	06/02/17 08:...

A tabular overview of the operations completed within a selected period. Shows all operation-related details of planned dates, target duration of individual operation phases and target quantities for the actual dates, durations and quantities of materials to be produced including actual/target comparisons and various key performance indicators.

Operation Details

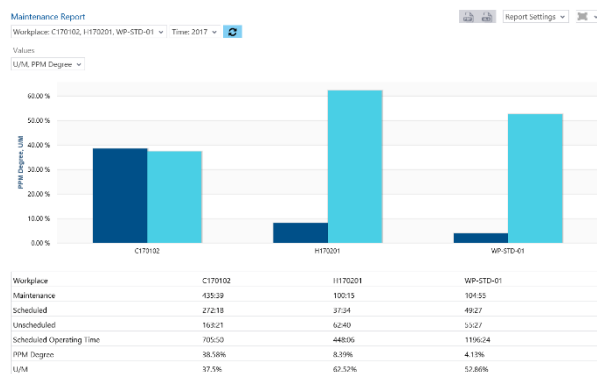
Operation Details

Workplace: H170101, WP-STD-01 - Time: 13/01/2017 - 23/01/2017 - Material: - Operation: - Operation Phase: Setting up Production - Operation Status: -

Order	Operation	Material	Material Number	Material Description	Operation Phase	Operation Status	Status since	Last Logout	Last Login	Time Remaining
WP-STD01_O...	0015	1800...	1800020178	Ventellhuette L...	Setting up	Setting up	23/01/17 11:59	23/01/17 11:39	23/01/17 11:...	16:59:17
H1701007	0010	5	5		Production	Completed	07/02/17 10:30	23/01/17 08:14	23/01/17 08:...	00:00:00

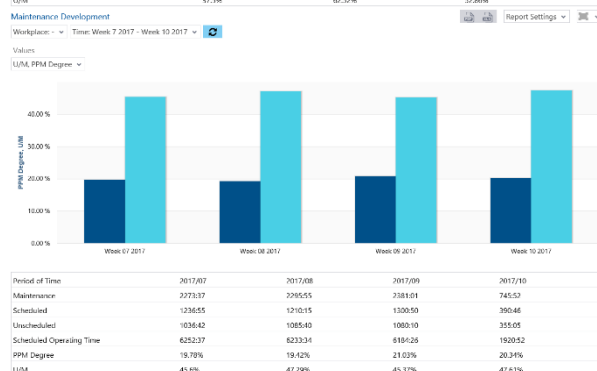
A tabular view of selected operations including all operation-related details of planned dates, target duration of individual operation phases and target quantities for the actual dates, durations and quantities of the material to be produced including actual/target comparisons and various key performance indicators.

Maintenance



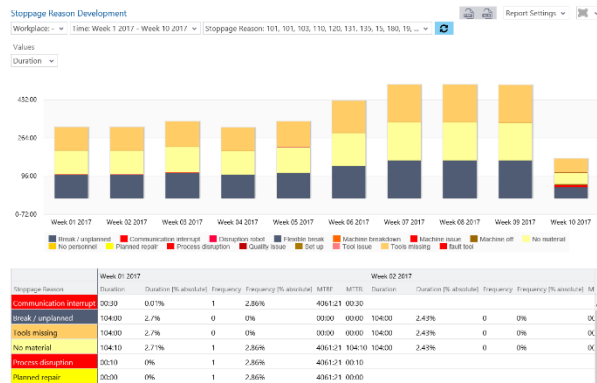
Maintenance Report

A graphic and tabular view of the SOC (scheduled operating time) degree and the proportion of the unplanned maintenance within the overall maintenance per workplace.



Maintenance Development

A graphic and tabular view of the development of the SOC degree and the proportion of the unplanned maintenance within the overall maintenance.

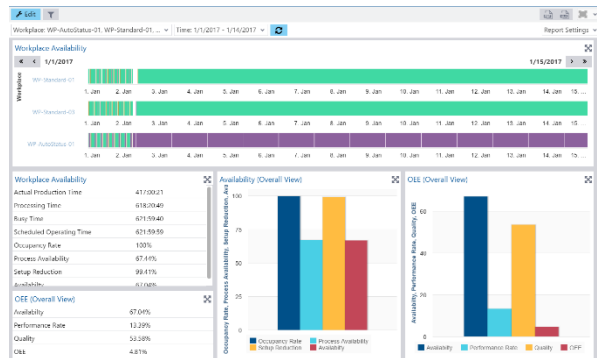


Stoppage Reason Development

A graphic and tabular view of development of stoppage reasons. In addition to the frequency, the percental and the absolute duration of stoppage reasons, Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) are displayed.

Dashboards

Dashboards can be used to arrange reports and visualizations at will in a combined view.

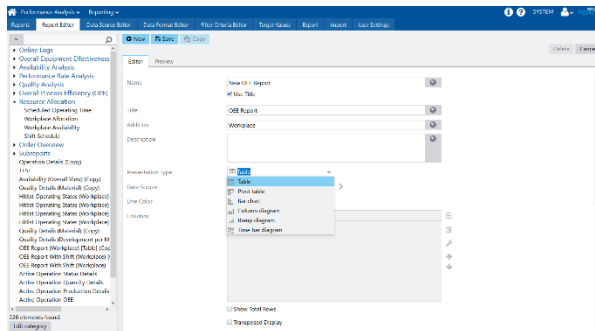


OEE Cockpit

Workplace availability shown as a time line and a table combined in a dashboard together with the overall views of availability and OEE.

Report Editor

The Report Editor makes it possible to create user-defined reports on the basis of predefined data sources. This does not require any knowledge of SQL if only the data sources included in the package are used.

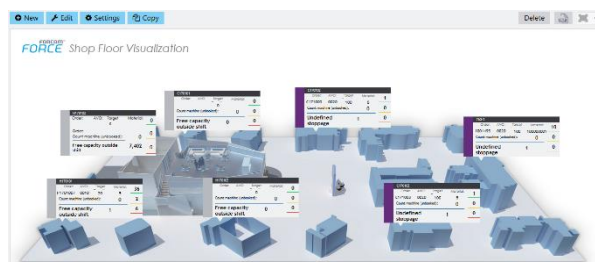


Report Editor

In the Report Editor, you can configure user-defined tables, pivot tables, bar and column charts, ramp charts and timeline charts with user-defined contents and filter criteria on the basis of predefined views (data sources). A preview function is provided in the editor which enables the user to verify the result immediately with real data.

Online Visualization

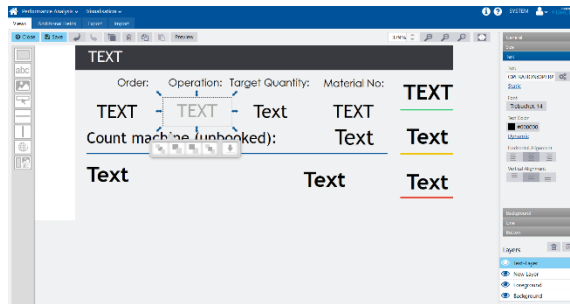
Visualizations provide a clearly arranged real-time view of the current situation in production. The View Editor offers a number of basic graphic elements to design your own visualizations according to your requirements. These can be used in turn as group elements in other visualizations. The View Editor lets you define a freely configurable number of graphic layers which enable you to edit various visualization components separately. Graphic basic and group elements can be assigned to the data collected for a workplace in order to illustrate operating states and progress in production. Group elements for the visualization of a single line or machine can be integrated into the shop floor layout or any other background design so that a complete production shop can be visualized. You can use any terminal device with a suitable Internet browser to display the visualizations, e.g. a tablet computer or a large ANDON display.



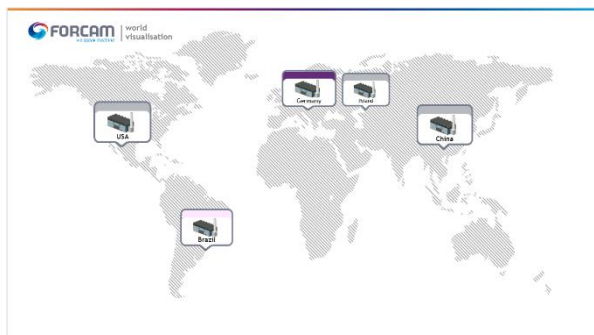
Shop Floor

A visualization is composed of the basic elements of rectangle, line and text. It is also possible to include HTML pages, graphics or self-defined group elements. You can integrate all graphics in the formats supported by browsers (MIME type). You can display a preview in the editor as early as in the design phase in order to see how the view will look like later and whether the correct data are included.

Visualization Editor



You can link the graphic elements to the data existing in FORCAM FORCE™. This enables you, for example, to create a machine element which indicates the current operating state by a specific color and shows the order currently processed, operation start, operation status, quantities already produced, etc. You can easily copy other machine objects and use the mouse to position them by drag-and-drop.



World Map

The views are created in a certain size and then adjust automatically to the resolution and width of the display screen used. This makes it possible to create visualizations for 2.5" displays on smart phones as well as for large 40" display screens.

Operating State Report (Workplace) [Column Chart % Duration]

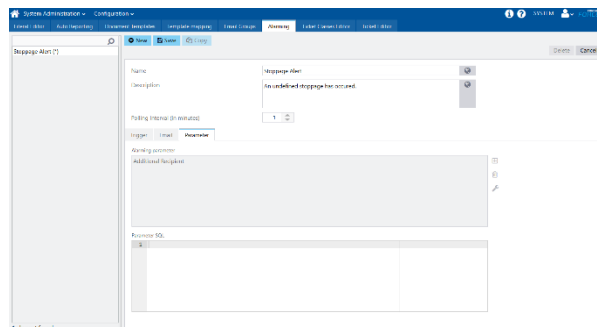


Drill Down to Operating State History

Drill-down views make it possible to navigate from the world view to individual plants and shop floors, detail views of individual machines and back. You can also include reports on individual workplaces or shop floors into a visualization.

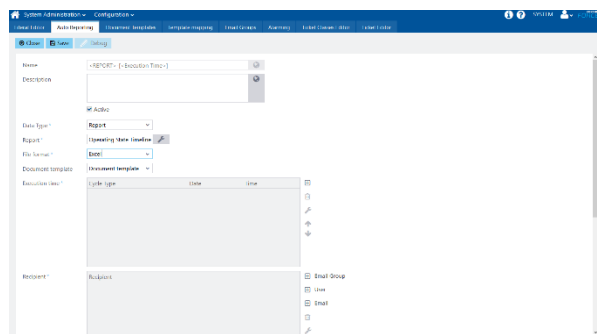
Alarming and Auto Reporting

When a preconfigured limit value is violated, an email is sent to predefined persons. These emails may consist of static and dynamic text elements. The dynamic text part is updated with the appropriate values from the data collection system when an alarm is triggered, for example, which order is affected and how long the malfunction has existed. Auto reporting lets users receive specific reports by email at regular intervals.



Alarming

In the Office Client, SQL statements addressing the database and the data collected from production can be configured with specific conditions that will trigger an alarm. Furthermore, you can specify persons and groups of persons who will be notified by email about an alarm when it occurs. You can define different templates for the emails to be sent.



Auto Reporting

The Office Client includes an editor in which you can select existing reports or dashboards (included in the package or user-defined) and set a time interval for sending these to the selected recipients. You can also specify individuals or groups of persons for this purpose.

Scope of Functions

Reports

- Predefined and configurable logs for real-time views of the data collected from production:
 - Operating state log, workplace and operation related operating state timeline chart – also relating to the current shift in real time
 - Workplace and operation-related quantity status diagram – also relating to the current shift in real time
 - Messages (overview of all messages)
 - Shift book, shift log, daily log, quantity log – also relating to the current shift in real time
- Overall Equipment Effectiveness (OEE):
 - OEE (overall view), OEE report and OEE development
- Availability analysis:
 - Status class report in the dimensions of workplace, material, order and operation
 - Status class development in the dimensions of workplace and material
 - Operating state report in the dimensions of workplace, material, order and operation
 - Operating state development in the dimensions of workplace and material
 - Hitlist of operating states including stoppage reasons (malfunction reasons) in the dimensions of workplace, material, order and operation
 - Overall view of availability including occupancy rate, process availability, setup reduction rate and availability
- Performance rate analysis:
 - Operation related performance report, workplace related hit report and hit development
- Quality analysis:
 - Workplace, material, and operation related quality report and quality details
 - Workplace and material related quality development and quality detail development
 - Workplace, material, and operation related hit list of quality details and/or scrap and rework reasons
- Overall Process Efficiency (OPE):
 - Overall view of OPE including production process ratio, performance rate, quality
 - Overall view of production process ratio including throughput efficiency, process availability, setup reduction rate
 - Order and operation analysis
- Resource allocation:
 - Scheduled operating time
 - Workplace allocation

- Workplace availability
- Shift schedule
- Maintenance
 - Maintenance report
 - Maintenance development
 - Stoppage reason development
- Order overview:
 - Order overview and order details
 - Order backlog
 - Operations in progress
 - Operations completed
 - Operation details
- Self-defined reports created in the editor without needing SQL knowledge on the basis of predefined data sources
- Self-defined reports created in the editor using freely definable SQL statements addressing the database
- Various types of diagrams, graphics and tables are available for report design
- Automatic report mailing

Visualization

- Cross-plant overall view of progress in production, the production-related states of the current orders and the current operating states of the machines and lines
- Virtual tour of the production facilities with navigation options ranging from an overall view of all locations to a detailed view of individual workplaces:
 - Overview of plant locations
 - Overview of shops and production lines
 - Detailed views of individual workplaces and machinery
- Virtual real-time image of production:
 - Visualization of the machine and line states
 - Visualization of downtimes, indicating any stoppage reasons (lack of orders or material, malfunctions)
 - Visualization of malfunctions of the machinery, indicating malfunction reasons
 - Real-time visualization of actual data: Cycle times, yield quantities, rework quantities including actual/target comparison, machinery operating times
- Web-based application suitable for use with large-format screens, PCs and mobile devices
- The layout adjusts dynamically to the display screen size.
- Objects are shown/hidden as appropriate for the user role. Allows different presentation of views to different users (from version 5.4 and higher)
- Easy creation of new views with drag-and-drop support

- Several views (e.g. production line or shop floor layout) can be edited or applied independently.
- WYSIWYG display during editing: When editing shop layouts and workplace views, these are displayed in the preview in exactly the same way as at runtime.
- Separate logical and physical presentation of signals. The user does not need any knowledge of the database structure.
- Import of visualization elements and background images supporting all common graphic formats
- Embedding of web pages
- Reports can also be shown either as a table or as a chart within a view.

Alarming

Alarm Triggering

- Cyclic monitoring of any FORCAM FORCE™ data that may be used as triggers
- Email sending
- Freely definable recipients
- Email templates freely definable with static and dynamic text elements. Dynamic texts are inserted using the FORCAM FORCE™ placeholder method (similar to self-defined reports).
- Cyclic computation of values within a shift without affecting the runtime behaviour of the visualization.

Alarm Mailing Triggers

- Duration of a specific operating state (preconfigured)
- Shift end
- Order status (status 1) of the workplace
- Workplace status (status 2) of the workplace
- Duration of a freely definable time base since shift start
- Yield quantity since shift start
- Scrap quantity since shift start
- Rework quantity since shift start
- Total quantity since shift start
- Yield quantity since shift start according to a time base
- Scrap quantity since shift start according to a time base
- Rework quantity since shift start according to a time base
- Total quantity since shift start according to a time base
- Calculated target quantity according to a time base

Auto Report

- Cyclic generation of reports
- Mailing of reports as PDF files to freely definable email recipients and groups