



JUNG, AUST & PARTNER

# FlowPro\_II

## The Toolbox for Flow Manufacturing and Kanban

FlowPro\_II is an efficient tool for the realization of the principles of the "Flexible Factory". It performs all major calculations, necessary for the dimensioning of Flow Manufacturing lines and material supply via Kanban, with minimal time and resource requirements. Calculating and designing a Flow Manufacturing line is an iterative process. Basic rules and formulas are applied on the one hand, on the other hand specific know-how and experience is applied in the planning and implementation process which is not always quantifiable. FlowPro\_II is an easy to handle model, which simplifies the structured process of line and Kanban dimensioning. The time-consuming task of data analysis is reduced to a minimum in order to utilize the resources of the project team as efficiently as possible. Complexity has been reduced so that the average user with basic Microsoft Office knowledge can handle the model. Basic knowledge of Flow Manufacturing fundamentals, however, are required, as well as an introduction to the functionalities of the model.

**The key feature of FlowPro\_II is that all output reports are generated as Excel Worksheets.** All Formulas are contained in the output so that rapid changes and "what if" calculations can be made. The user can adapt all reports to the specific requirements. The nomenclature in all screens can be individually adapted to the specific nomenclature of the organization via a dictionary.

The screenshot displays two Excel worksheets from the FlowPro\_II software. The top worksheet, 'LineCalc', provides a summary of resource requirements for various manufacturing stations. The bottom worksheet, 'SetupOptions', details the setup parameters for these stations.

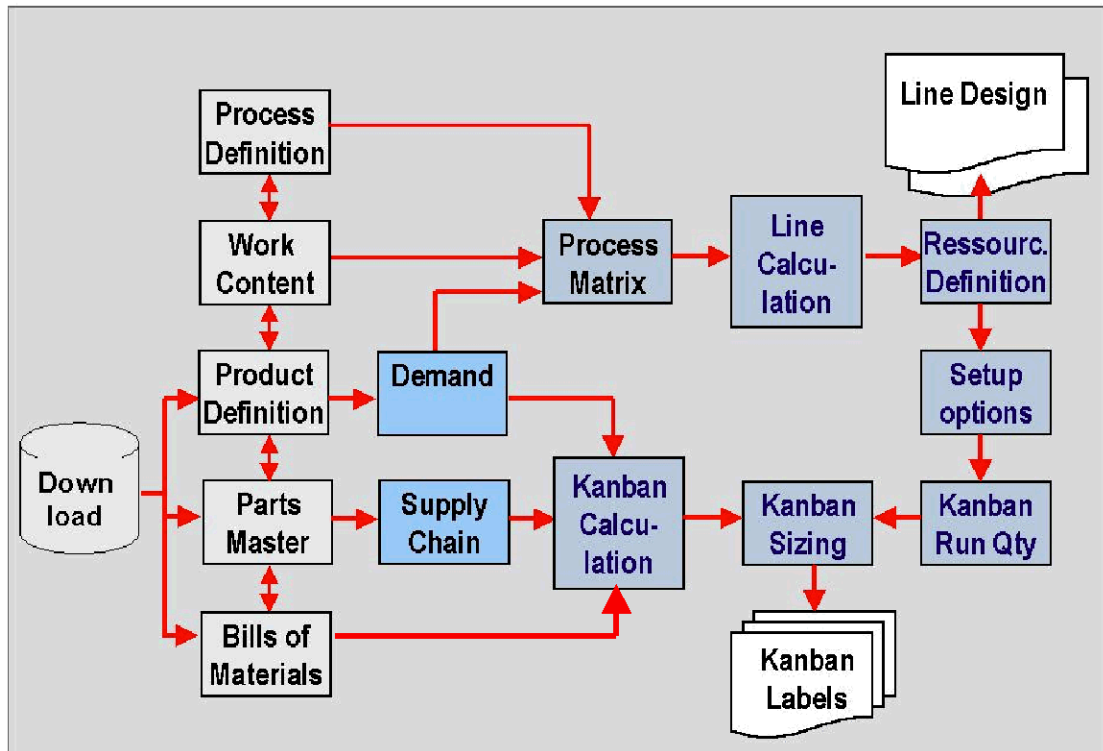
	Surface Mount 1 (1110)	Surface Mount 1 (1110)	Surface Mount 2 (1120)	Surface Mount 2 (1120)	THT Mount (1130)	THT Mount (1130)	Manual Solder (1140)	Manual Solder (1140)	In-Circuit Test (1160)	In-Circuit Test (1160)
Sum DC	870.0	870.0	460.0	460.0	483.6	0.0	483.6	0.0	0.0	870.0
Number of products	10	10	4	4	5	0	5	0	0	10
ATw	1.0	1.0	0.9	0.9	2.9	0.0	3.2	0.0	0.0	0.2
Flow Time Target	1.1	1.1	2.1	2.1	2.0	0.0	2.0	0.0	0.0	1.1
Required Resourced Sum Labor:	0.9	0.9	0.4	0.4	1.5	0.0	1.6	0.0	0.0	0.2
Max Time	1.2	1.2	1.2	1.2	3.6	0.0	3.8	0.0	0.0	0.2
Min Time	0.4	0.4	0.7	0.7	2.3	0.0	2.0	0.0	0.0	0.2
Average Work Time	0.9	0.9								
Planned Resources Sum Labor:	1.0	1.0								
Utilization	86%	86%								
Hours per shift	8.0	8.0	8.0	8.0						
Number of shifts	2.0	2.0	2.0	2.0						
Available Minutes per day	960.0	960.0	480.0	480.0						
Runtime per day	828.2	828.2	414.1	414.1						

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Number of products	10.0	10.0	4.0	4.0	5.0	0.0	5.0	0.0	0.0	10.0
Sum DC	870.0	870.0	460.0	460.0	483.6	0.0	483.6	0.0	0.0	870.0
ATw	1.0	1.0	0.9	0.9	2.9	0.0	3.2	0.0	0.0	0.2
Planned Resources	1.0	1.0	0.5	0.5	2.0	1.0	2.0	1.0	0.0	1.0
Available Time for Setup	33.0	33.0	16.0	16.0	22.0	11.0	22.0	11.0	0.0	33.0
Average Setup	3.3	3.3	4.0	4.0	4.0	0.0	4.4	0.0	0.0	3.3
Number of Setups possible	4.4	4.4	2.1	2.1	0.0	0.0	0.0	0.0	0.0	9.8
Planned Setups per Day	3.2	3.2	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Number of Products for Setup	10.0	10.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	10.0
Max Days of Inventory	3.2	3.2	1.7	1.7	0.0	0.0	0.0	0.0	0.0	20.0
Average Days of Inventory	1.6	1.6	0.8	0.8	0.0	0.0	0.0	0.0	0.0	10.0
Setup Time Target:	41.8	41.8	22.1	22.1	0.0	0.0	0.0	0.0	0.0	57.2
Days per Month	22.0	22.0								
Sum of Products	40.0	40.0	4.0	4.0	2.0	0.0	0.0	0.0	0.0	40.0

FlowPro\_II runs on Windows 98, WIN 2000, WIN NT. Versions for Access 97 and 2000 and Excel 97 and 2000 are available. Languages: German and English; others upon request

**Data flow and calculations:**



**FlowPro\_II consists of the following key modules:**

**Master data**

- Parts master
- Control cycles
- Forecasts
- Operation plans
- Import formats in MS Excel

**Kanban calculation**

- Dimensioning of Supply Chains
- Kanban quantities
- Number of Packs
- Values of the Kanban cycles
- Printing of Kanban labels

**Integrated lean-flow-line calculation**

- Required resources
- Utilization of resources
- Setup options
- Dimensioning of "Supermarkets"

- Identification of bottlenecks
- Optimal production-run-times
- Optimal production kanbans
- Minimizing "buffer values"

FlowPro\_II contains all functionalities for calculating all relevant data for a Mixed Model Flow Manufacturing Line, such as ATw, Takt, number of resources, total work content, number of operations, remaining time for set-up etc. FlowPro\_II contains all relevant tools necessary for line calculation and initial line set-up. Changes in basic parameters, such as demand data or product mix can be included immediately and the effects are calculated within seconds. During the "Running in" of a line in the first three to six months it is quite normal to make modifications to the initial design. These modifications are easily handled with FlowPro\_II. In general a line design is verified or modified after 12 to 18 months due to changes in demand or product mix. These changes can easily be reflected in the line design with FlowPro\_II.

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