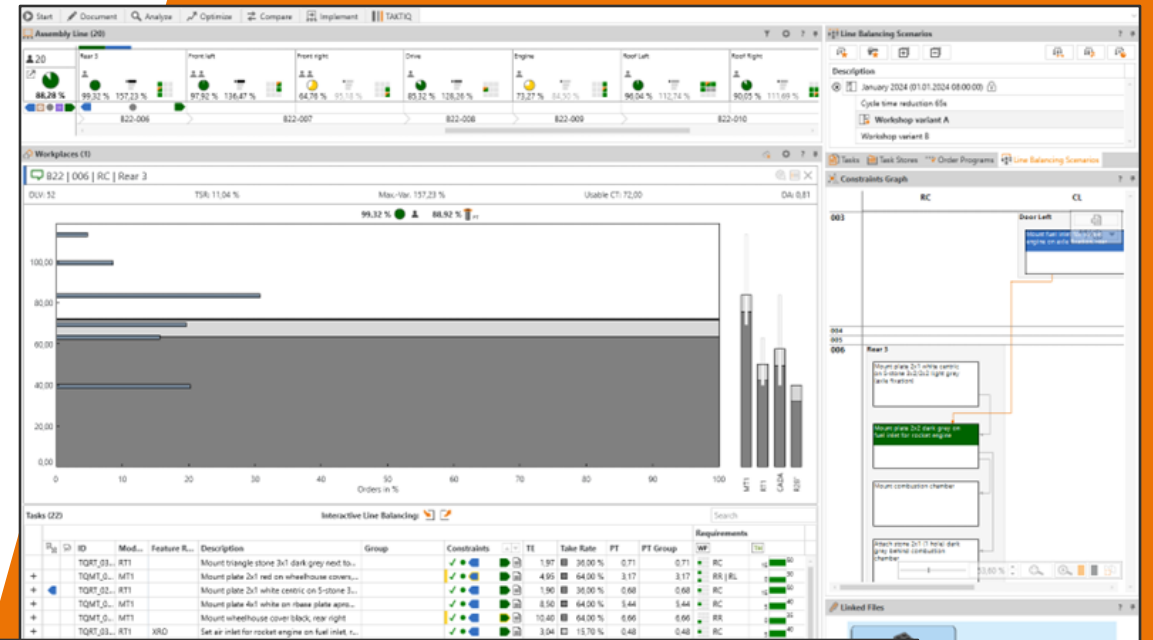


TAKTIQ

AssemblySuite™

Smart Line Balancing and Order Sequencing for Maximum Efficiency



The screenshot displays the TAKTIQ Assembly Suite interface for order sequencing. The main workspace contains a table with columns for Position, Order, Order Scheduling, Density Rules, Neighborhood Rules, Block Rules, Capacity Rules, and Exclusion Rules. The table lists various orders with their respective dates and scheduling details. A right-hand panel shows 'Order Sequencing Rules' with a search bar and several rule categories.

Position	Order	Order Scheduling	Density Rules	Neighborhood Rules	Block Rules	Capacity Rules	Exclusion Rules					
Sequence	Order Numb...	Model	Features	Order Date	Rocket Truck with...	Hybrid	VS Gasoline/Diesel...	Hitch	No hybrid after hybrid	Hydrogen automatic	Hybrid	e-engine & h-engine
43	217	MT1	VM19 MVSG F...	06.02.2024 20:09:45	✓				N			
44	200	RT1	VR05 MVBD F...	06.02.2024 21:03:00	✓				N			
45	69	MT1	VM04 MMYD F...	06.02.2024 21:26:15	✓				N			FILE
46	200	MT1	VM12 MVSG F...	06.02.2024 21:49:30	✓				N			
47	914	RT1	VR06 MVBD F...	06.02.2024 22:12:45	✓				N			
48	229	MT1	VM01 MVSG F...	06.02.2024 22:36:00	✓				N			
49	229	MT1	VM45 MVSG F...	06.02.2024 22:56:15	✓				N			
50	229	RT1	VR07 MVBD F...	06.02.2024 23:22:30	✓				N			FILE
856		RT1	VR05 M...		✓				N			
17		MT1	VM02		✓				N			
126		MT1	VM11		✓				N			
823		RT1	VR05		✓				N			
448		MT1	VM5		✓				N			
539		MT1	VM		✓				N			
57		MT1	VM		✓				N			
58		MT1	VM		✓				N			
59		MT1	VM		✓				N			



Facilitate Production Planning, Unlock Maximum Potential

Focus on variant-rich assembly lines:

- 20sek.-6std. cycle time
- 100-2.500.000 tasks
- 10-50.000 orders
- 2-10²⁷ order variants

	 Mercedes-Benz	
		
		

+12%
Efficiency

-50%
Planning Effort

+100%
Planning Reliability

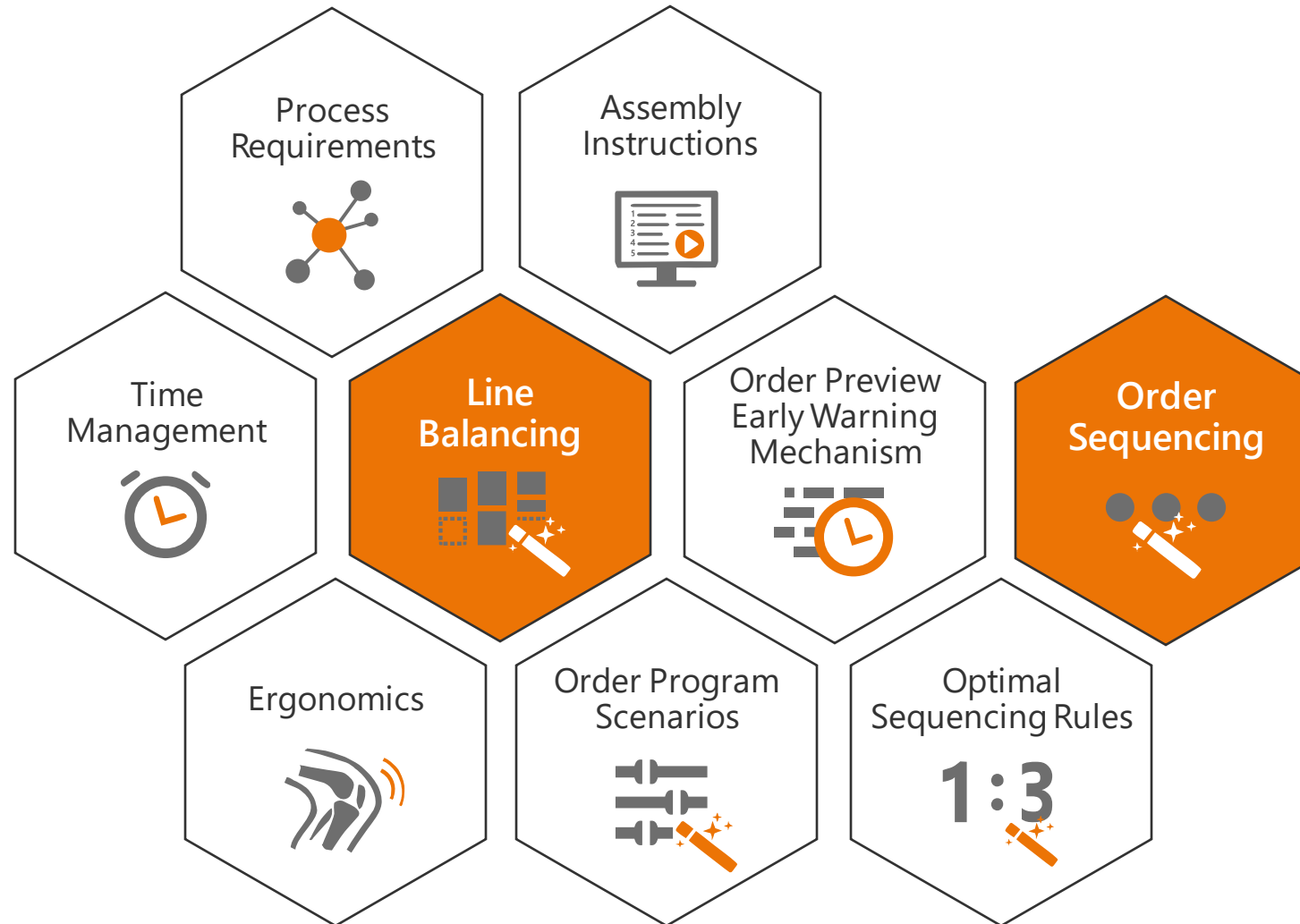


User-Centered Innovation

- **Love Agile Development**
Through continuous innovation, we are actively shaping the future of production planning.
- **Life Close Cooperation**
With fun, partnership and transparency, we make variant diversity manageable.
- **Deliver Focused Software**
Customized functions and updates enable leading manufacturers to achieve ever new levels of quality and efficiency.



AssemblySuite™ Modules





Download Free Demo [Here](#)

Independent test application of the AssemblySuite™ with your own or sample data



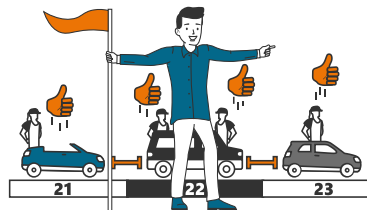
Request Free Live Demonstration [Here](#)

Presentation of AssemblySuite™ and discussion of your requirements, production features and usage scenarios



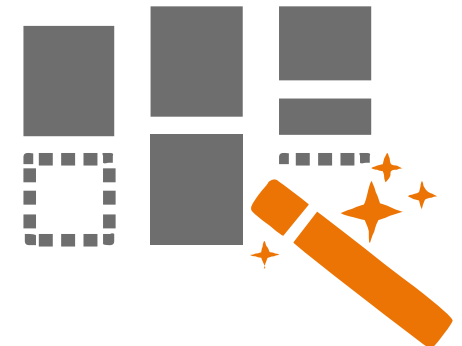
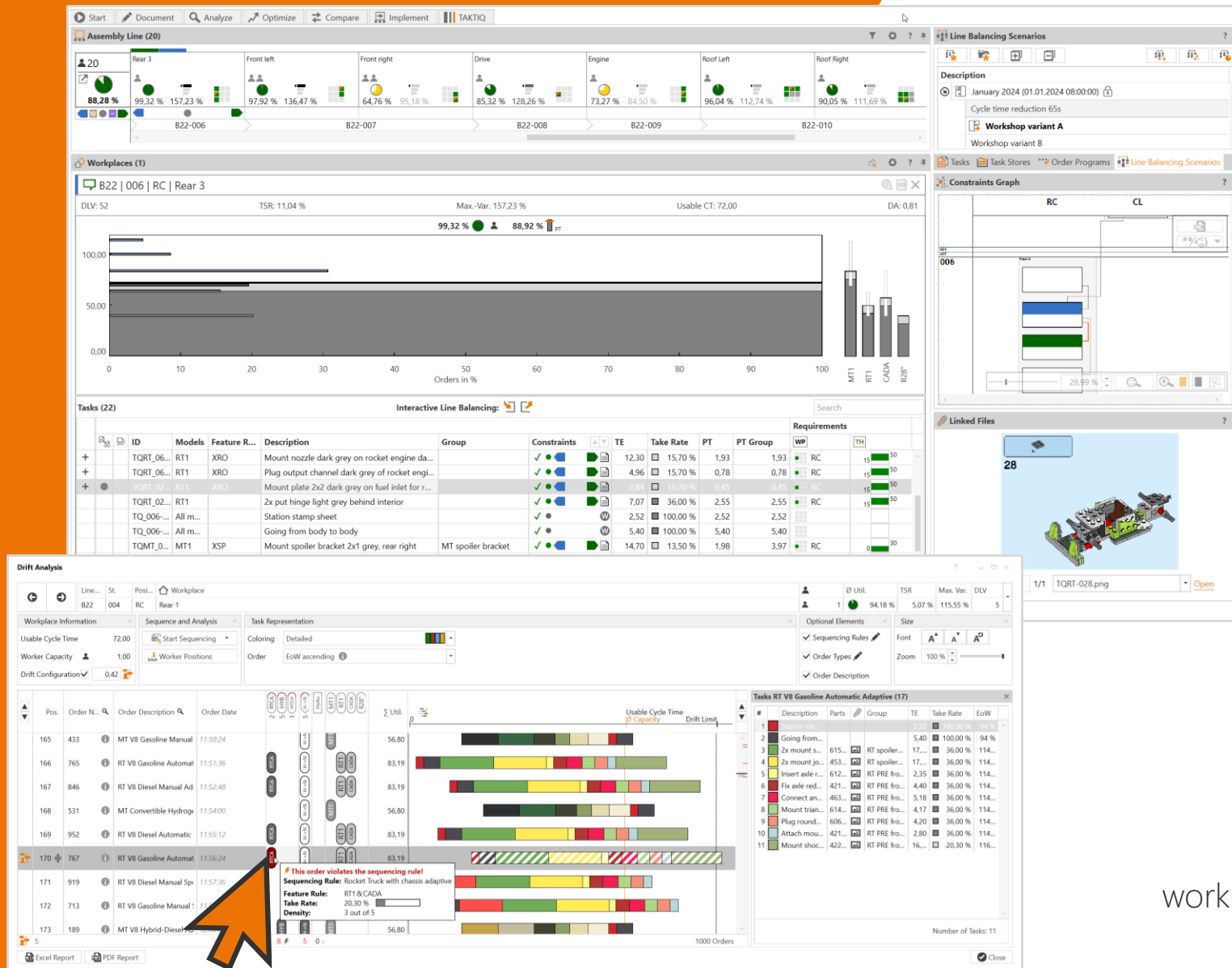
Risk-Free Pilot Project ([Learn More](#))

Using the AssemblySuite™ in parallel to your current system, tailored key user training, guidance by personal consultant



Revolutionizing Rollout ([Learn More](#))

Full integration into your IT, tailored training, frequent exchange of experience



Line Balancing

Optimally distribute workers and tasks to workplaces for efficient and smooth production

Benefits – Line Balancing

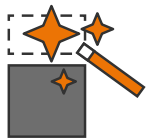
Your Result



Maximum Efficiency



Smooth Production



Reduced Planning Effort

Valuable Information in Seconds

- Interactive and automatic line balancing
- Calculate, simulate and evaluate alternative planning scenarios extremely quickly (> 1,000,000 solutions in 5 seconds)
- Compare different cycle times and line balancing solutions
- Consider multiple order programs (variants and mix) and evaluate utilization and added value
- Flexible variant linking with any feature rules (And, Or, Not, Bracketing)

Ensure Feasibility

- Evaluate variants and production times in detail
- Use extensive analysis functions and visualized key figures (time spread, drift, ...)

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

Learn Quickly, Plan Intuitively

- Clear and easy to understand visual representations
- Modern user-friendly interfaces
- Automatic workshop protocols and reports
- Smooth multi-user planning with time versioned plan states (when using a server)

One Tool for Everything

- Documentation, simulation and optimization in one
- Integrated planning with additional modules: Time Management, Ergonomics, Order Preview, Order Sequencing and more

Permanent Technical Pioneer

- You always remain highly innovative through our agile development process
- Regular updates with new features are inspired by impulses from our customers

Business Case with 25 Workers – Line Balancing

Production per year:	Before	With AssemblySuite™
Utilization	77%	▲ 15% 92%
Cycle time	21 min	▼ 10% 19 min
Necessary workers	25	▼ 8% 23
Necessary line stops and support operations	2.520	▼ 71% 720
× Ø Costs for line stops and support operations		300 €
× Cost per worker		60.000 €
Production costs per year	2.256.000 €	1.596.000 €

Planning per year:	Before	With AssemblySuite™
Performed line balancing	12	12
Team effort per line balancing	160 h	▼ 50% 80 h
Line balancing constraints	0 h	▲ 100% 32 h
Training time for new planners	210 h	▼ 50% 105 h
Effort for every line balancing	2.130 h	▼ 48% 1.097 h
× Hourly rate planner		40 €
Administration costs per year	85.200 €	43.880 €

i Data based on empirical values of previous use cases. Savings vary depending on size and characteristics of production.

Saved costs:
-701.320 € ▼ 30%



Constraints

			Constraints		Requirements		Allowed Workplaces																	
Number	Task ID	Models	Description	TE/TR	Effort	Transfer	Truc...	Allowed WP	002 B22 Shi...	003 B22 Do...	003 B22 Do...	004 B22 Re...	005 B22 Re...	006 B22 Re...	007 B22 Fr...	007 B22 Fr...	008 B22 Dri...	009 B22 Et...	010 B22 Ro...	010 B22 Ro...	011 B22 Sp...	012 B22 Ri...	012 B22 Ri...	
B22 010 CR Roof Right																								
333	TQRT_0...	RT1	Attach triangle stone white to rear corner of interior, right	2,75 TE	36,000 %																			
334	TQRT_0...	RT1	Mount windshield, right	11,52 TE	36,000 %																			
335	TQRT_0...	RT1	Attach roof slab white to interior	10,93 TE	36,000 %																			
336	TQRT_0...	RT1	Mount plate 2x1 (1 knob) dark green on roof slab white	2,63 TE	36,000 %																			
B22 011 RC Spoiler																								
337	TQ_011...	All models	Station stamp sheet	2,52 TE	100,000 %																			
338	TQ_011...	All models	Going from body to body	5,40 TE	100,000 %																			
339	TQMT_...	MT1	Mount ventilation grille 2x1 bevelled black on rear, left	16,95 TE	64,000 %																			
340	TQRT_0...	RT1	Mount roof outer parts rear, left	2,69 TE	36,000 %																			

Constraints Graph

RC

Rear 2

Mount plate 2x1 red on wheelhouse covers, rear

Rear 3

MT spoiler bracket

2 Tasks

Group: MT ventilation grille

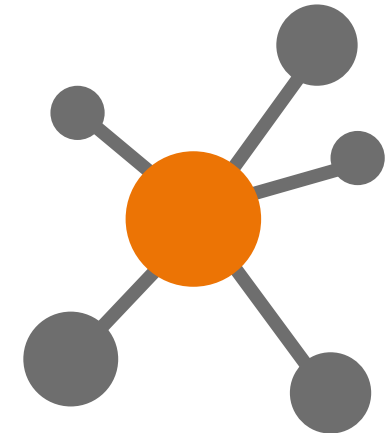
TQMT_030a, MT1 Mount ventilation grille 2x1 bevelled black on rear, left

TQMT_030b, MT1 Mount ventilation grille 2x1 bevelled black on rear, right

Spoiler

MT ventilation grille

2 Tasks



Process Requirements

Record line balancing requirements (predecessors, heights, working positions, tools) to ensure feasible solutions

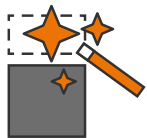
Your Result



Identify More Potential



Ensure Feasibility



Enable Interactive and Automatic Line Balancing

Optimize Production Even Further

- Identify optimization potentials more easily (reduce walking distances, avoid height changes, identify redundant tools)
- Speed up workshops and avoid overlooked requirements
- Use suggestion mechanisms and automatic line balancing
- Identify and resolve limiting constraints

Simple Maintenance, Great Benefits

- Easily maintain detailed requirements (height, working position, tools, ...)
- Manual and automatic task shifts meet all requirements
- Pre-evaluate investments in additional tools, shopping cart concepts and rebuilds

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

Objective Feasibility Check

- Clearly define requirements and always comply
- Live feedback on compliance and violation of maintained constraints
- Avoid discussions

Everything in Sight

- Height profile in assembly line clearly visualized
- Directly detect conflicts in assembly areas
- Interactive constraints graph visualizes relationships between tasks
- Recognize and resolve large task groups and limiting constraints

Collect and Secure Knowledge Centrally

- Document production knowledge directly and pass it on easily
- Train new colleagues more quickly

Start Document Analyze Optimize

Order Program [RT1, MT1] (1000)

Order Features (124) Order Variants (279)

Search

Order...	Weighting	Original Take Rate	Target Take Rate	Take Rate	0% 100%	Description	Category	Category Description
MV6G	★★★	9,80 %	6,80 %	9,80 %	+3,00 %	Motor V6 Gasoline	MOT	Motor
MV6D	★★★	12,10 %	8,90 %	12,10 %	+3,20 %	Motor V6 Diesel	MOT	Motor
MHYD	★★★	6,60 %	4,00 %	6,60 %	+2,60 %	Motor Hydrogen	MOT	Motor
MH8G	★★★	2,60 %	2,60 %	2,60 %	0,00 %	Motor Hybrid V8 Gasoline	MOT	Motor
MH8D	★★★	4,50 %	4,50 %	4,50 %	0,00 %	Motor Hybrid V8 Diesel	MOT	Motor
MH6G	★★★	4,30 %	4,30 %	4,30 %	0,00 %	Motor Hybrid V6 Gasoline	MOT	Motor
MH6D	★★★	4,10 %	4,10 %	4,10 %	0,00 %	Motor Hybrid V6 Diesel	MOT	Motor
MELE	★★★	5,40 %	8,00 %	5,40 %	-2,60 %	Motor Electric	MOT	Motor
XWI	★★★	31,20 %	31,20 %	31,20 %	0,00 %	Winch	XTRA	Extra equipment
XTQ							XTRA	Extra equipment
XSP							XTRA	Extra equipment
XRC							XTRA	Extra equipment
YUJ							XTRA	Extra equipment
Report							XTRA	Extra equipment

∅ Deviation 0,14 % 124 shown 124 Features total

Generate Order Program [Order Program [RT1, MT1]]

Set piece count per model ★★★★★

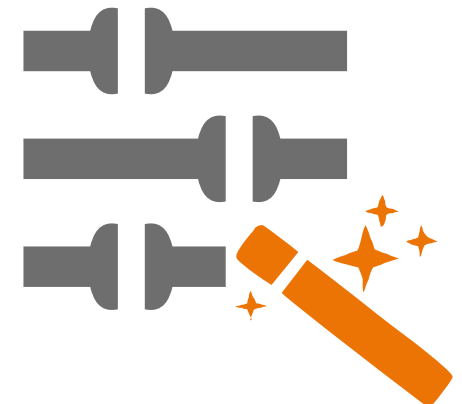
Model	Piece count (original)	Target piece count (relati...	Target piece count (absol...
MT1	640	64,00	640
RT1	360	36,00	360

Target piece count

Parameterization

Keep each feature at least once Precision ● Duration ●

Keep each order variant at least once

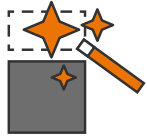


Order Program Scenarios

Analyze order programs in detail as well as generate and simulate them based on sales forecasts

Benefits – Order Program Scenarios

Your Result



Generate Order Programs Close to Reality



Increase the Quality of Analyses



Extreme Responsiveness

Interactive and Live

- Adjust feature frequencies without having to edit individual order variants
- Automatic check of buildability rules when manually changing variants
- Simultaneous adjustment of several take rates and total number of orders
- Split order programs easily according to rules

Many Options, Easy Navigation

- Create features and use them for optimization or analysis as desired
- Sort order features into categories and easily find them again

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

Plan Realistically

- Simulation based on different forecasts
- Detailed analysis of order variants incl. frequencies and correlation of features
- Buildability always guaranteed, as only existing order variants are used

Record-Breaking Processing Power

Mathematical optimization technology generates order program according to targets with minimum deviation

Perfect Addition

Evaluate the effect of alternative order programs in combination with the modules line balancing and optimal sequencing rules

Time Analyses

Workplace / Task	Description	Linked Models	Feature Rule	Code	Time Unit...	Quanti...	Frequency	VA	VA _{TE}	NVA _{TE}
B22 001 C...	Axle									
TQRT_014...	Connect block 2x1 dark green cent...	RT1						✓		
TQRT_014...	Install block 2x1 dark green (winch...	RT1	XWI					✓		
TQ_001-a1	Station stamp sheet	All models			70			0,00	2,52	
	Stamping			BB2	70	1,0000	1,0000	0,00	2,52	
TQ_001-b1	Going from body to body	All models			25			0,00	5,40	
	Walkway			KA	25	6,0000	1,0000	0,00	5,40	
TQMT_01...	Mount plate 4x1 orange on under...	MT1			205			10,...	0,00	
	Mount plate			AL3	115	1,0000	1,0000	4,14	0,00	
	Fix plate			HB3	75	2,0000	1,0000	5,40	0,00	
	Check fixing			VA	15	2,0000	1,0000	1,08	0,00	
TQMT_01...	Install plate 4x1 orange (wiring he...	MT1	HSE		200			7,56	0,20	
	#Mainworkflow									
	Laying cables			AF3	80	1,0000	1,0000	2,88	0,00	
	Take clamps out of box			AA1	20	2,0000	1,0000	1,44	0,00	

Time Analyses Building Blocks

Code	TTU...	TTB...	Time Units...	Text	TE	Uses
BB2	0	70	70	!!! Acc...	2,52	
HA1	0	25	25	tool ha...	0,90	
HA2	0	45	45	tool ha...	1,62	
HB3	0	75	75	tool ha...	2,70	
HC1	0	50	50	tool ha...	1,80	
KA	0	25	25	body m...	0,90	
PC1	0	30	30	place (t...	1,08	
PC3	0	45	45	place (t...	1,62	
VA	0	15	15	control...	0,54	
ZA2	0	15	15	moving...	0,54	
ZB1	0	10	10	moving...	0,36	
ZC3	0	55	55	moving...	1,98	

Assembly Line (20)

92.35%

99.95% 92.47% 0.00% 98.86% 99.50% 0.00% 99.33% 99.69% 95.61%

B22-001 B22-002 B22-003 B22-004

Workplaces (1)

B22 | 001 | CL | Axle

DLV: 12 TSR: 4,61% Max.-Var. 122,94% Usable CT: 72,00 DA: 1,00

99,95%

Tasks (16)

ID	Models	Description	TE	Take Rate	PT
TQ_001-a1	All models	Station stamp sheet	2,52	100,00%	2,52
TQ_001-b1	All models	Going from body to body	5,40	100,00%	5,40
TQRT_004b_RT1	RT1	Mount axle bracket 2x1	4,75	36,00%	1,71
TQRT_004a_RT1	RT1	Mount axle bracket 2x1	4,75	36,00%	1,71
TQMT_002b_MT1	MT1	Turn underbody plate 14x2 grey by 180° - emp...	5,00	64,00%	3,20
TQMT_011b_MT1	MT1	Mount sill bracket side cover 4x1/2x1 grey cent...	36,90	64,00%	23,62
TQMT_005_MT1	RT1	RT PRE bumper winch (2)	27,11		6,13
	MT1	Mount apron black on underbody plate, front	11,00	64,00%	7,04



Time Management

Define time requirements for tasks easily with time modules and recognize added value



Benefits – Time Management

Your Result



Time Management and Line Balancing in One



Time Modules Defined Centrally



Clear and Understandable

Uniform Time Measurement

- Define modules and analyses centrally and use them on tasks
- Centrally define performance level as well as surcharges and discounts
- Define and analyze value added and non value added

Work Simpler

- Easy maintenance both at the task and across a workplace or the entire line
- Fast reuse of blocks that were used last or frequently
- Drag & drop of blocks to new time analyses lines
- Format comments and headings within time analyses

Faster to the Goal

- Combined use of estimation times and time analyses
- Fast identification of missing time analyses and active estimation times
- Transparent and comprehensible presentation

Define Own Standards

Working with any (also individual) modular systems (e.g. UAS)

Live Adjustment

Live update of all time analyses in case of adjustments of time analyses building blocks

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

Digital Assembly Instructions

Line... B22 St. 001 Posi... PRE Workplace VM Axle Autoplay

Options
 Font Size: A⁺ A A⁻
 Media Display Time (Sec.): 3
 View Options

Description	Is Visible	Highlighted
Description	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Take Rate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Models	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Engines	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Feature Rule	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Variant Split Feature Rule	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Task comment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Constraints comment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Assembly Usage Description	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Reset Layout

Master Data
 Description: Plug fixation black into block 2x1 (2 holes) light grey, front left
 Group: RT PRE axle front left
 TE: 11.50 (VA: 11.50, NVA: 0.00)
 Take Rate: 36,00
 Models: RT1

Linked Files

TAKTIQ Standard Operating Procedure

+ = safety Q = quality A = archive CC = critical features SC = significant features = positioning
 = visual = touch = touch with caution = marker = function = noise = measure = start/end

No.	Task Description	Symbol	Part No.	Reference	Position	Picture Index (Photo)	Tool
10	Check the connection of the module connectors of the cable channel with the markers	Q					
20	Check whether the column seal is correct with the markers						
30	Check whether the fuse is connected to the ambient lighting						
40	Change of position from position A to C						
50	Check the presence and conformity of the assembly of the left dashboard clips Install the left fan Clad the panel Assemble the cover of the Combi-Instrument Assemble the ambient lighting on the driver's side Check the positioning of the light beam on the Combi-Instrument	SC Q					
60	Check the presence and conformity of the assembly of the right dashboard clips Install the right fan Clad the panel Assemble the cover of the Combi-Instrument Assemble the ambient lighting on the driver's side Check the positioning of the light beam on the Combi-Instrument	SC Q					

Workplace 1 Supplement Task

#	Description	Parts	Group
1	Yes Station stamp sheet		
2	Yes Going from body to body		
3	Yes Prepare spoiler base plate 6x2 black	379526	MT PR
4	Yes Mount cover plate 4x2 smooth white on spoiler base plate 6x2 black	4560178	MT PR
5	Yes Place sticker TAKTIQ		MT PR
6	Yes Turn spoiler module upside down 180 degrees		MT PR
7	Yes Mount spoiler hinge 2x1 black on spoiler module, left	4515368	MT PRE spoiler
8	Yes Mount spoiler hinge 2x1 black on spoiler module, right	4515368	MT PRE spoiler
9	Yes Turn spoiler module back by 180 degrees		MT PRE spoiler
10	Yes Mount ventilation grille 2x1 bevelled black on spoiler module, right	4541191	MT PRE spoiler
11	Yes Mount ventilation grille 2x1 bevelled black on spoiler module, left	4541191	MT PRE spoiler
12	Yes Plug fixation black into block 2x1 (2 holes) light grey, front left	412171...	RT PRE axle front left
13	Yes Plug axle suspension black onto fixation black, front left	6280394	RT PRE axle front left
14	Yes Insert axle into block 2x1 (2 holes) light grey, front left	6083620	RT PRE axle front left

Number of Tasks: 23

Close



Assembly Instructions

Communicate planning results to production via Excel or PDF and train workers with digital assembly instructions in the AssemblySuite™



Benefits – Assembly Instructions

Your Result



Save Time in the Long Run



Secure and Pass On Knowledge



Generate Work Instructions Automatically

Easily Train Production

- Autoplay for qualification with images and videos
- Flexible customization of the interface and displayed attributes as needed (shown content, font sizes, image representations)

Customize to Own Needs

- Individual format template with e.g. company- and country-specific language, design, logos
- Completely individual specifications of attributes (torques, tools, icons for sensitive or dangerous activities, etc.) as well as information on the document (inspector, version, releaser, etc.)
- Placement of images on extra pages according to specifications

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

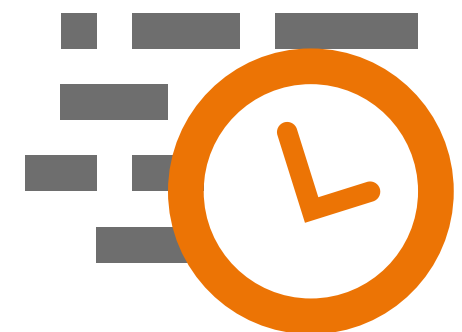
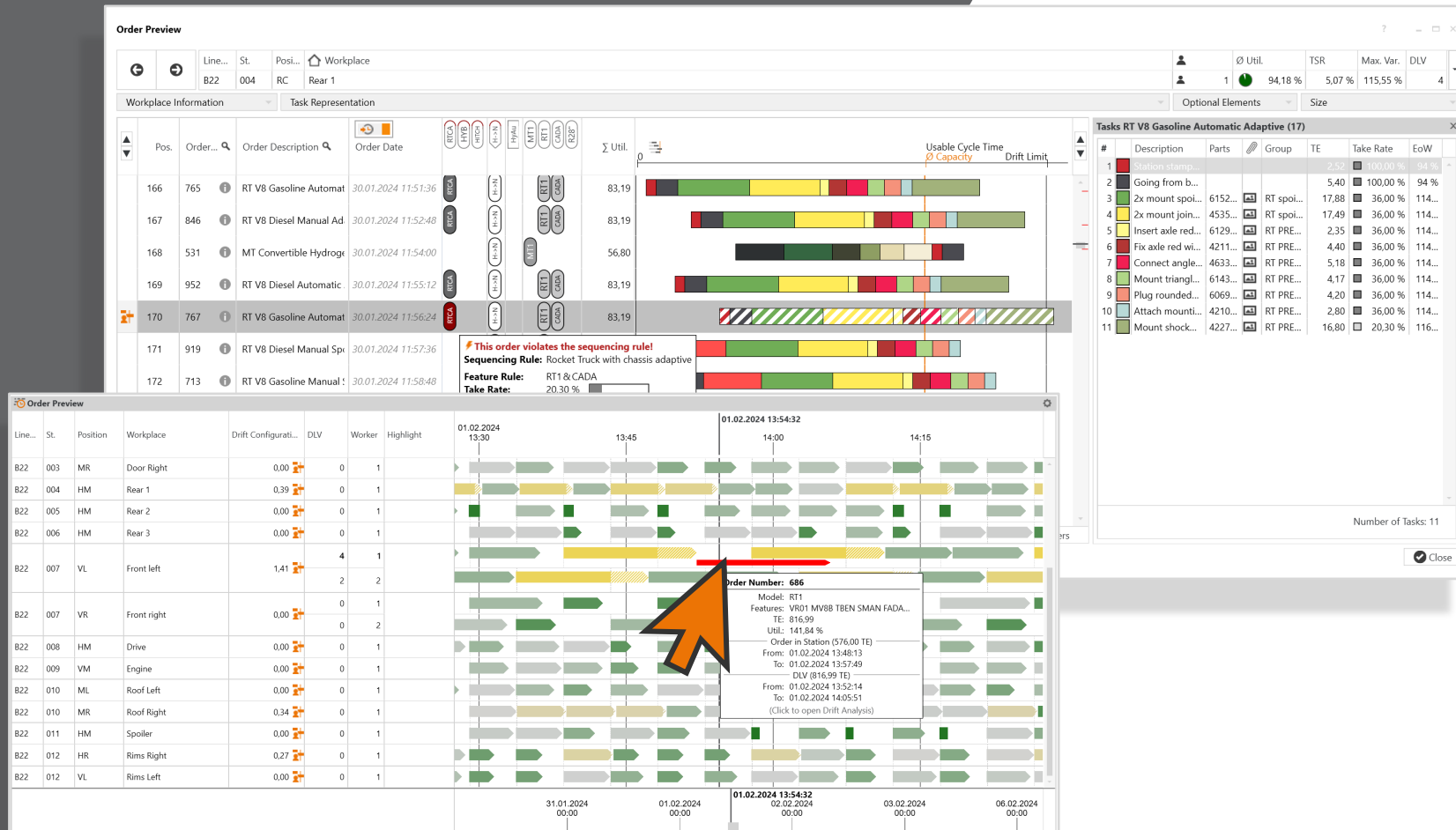
Generate Work Instructions Automatically

- Automatic adjustment of assembly instructions after moving tasks or adjusting avos and workplaces
- Constantly updated illustration of the sequence at the workplace by linking tasks with images
- Summary and highlighting of attributes and cells automatically in the document
- Export to Excel or PDF according to individual specifications

One Time Effort, Every Time Benefit

- Information on tasks automatically moves with them when they are moved
- Linked files are available during scheduling, training and export instructions



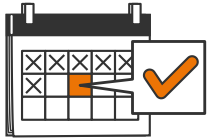


Order Preview Early Warning Mechanism

Secure quantities and ensure smooth production through early detection of bottlenecks and better control of short-term capacity measures

Benefits – Order Preview/Early Warning Mechanism

Your Result



Avoid Bottlenecks



Make Detailed Predictions



Increase Product Quality

React Early

- Live calculation of expected order dates based on real dates
- Feedback from external system or manual specification
- Alert support personnel in a targeted and timely manner

Work and Navigate Intuitively

- Update view live based on current time
- Automatically enter at the beginning of the shift with the appropriate data
- Flexible zoom of the view
- Display detailed contents and drift behavior of an order on demand
- Overview through individually marked order types

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

Accurately Predict the Timing and Content of Bottlenecks

- Pre-calculate job deadlines at each station, taking into account plant structure, shift schedules, break times and disruptions
- Calculate expected drift limit violations based on individual drift configuration per workplace
- Display compliance with or violation of sequence rules

Integrate Data Easily

Integration into MES systems for the transfer of real dates

Beautiful To Look At

Visualization of the detailed drift behavior per workplace

Ergonomic Strains

Workplace / Task	Description	Linked Models	Feature Rule	Require...	Is co...	Duration	Take Rate	Planne...	Posture	Trunk Rotation	Trunk tilt	Reach	Grip type	Finger Forces	Arm Forces	Bod
	Fix tank with screws				!	2,70	0,49							35 N 3.0 x		
	Visual control of the assembly work				!	0,54	0,10									
⊙ TQMT_009f_MT1	Mount block 4x2 black (tank gasoline o...	MT1	FGAS			11,16	18,40 %	2,05								
	Insert tank				!	5,76	1,06				-15°					
	Remove 3 screws from container				!	2,16	0,40									
	Fix tank with screws				!	2,70	0,50							35 N 3.0 x		
	Visual control of the assembly work				!	0,54	0,10									
⊙ TQMT_009e1_MT	Mount block 4x2 black (tank gasoline for...	MT1	FGHY			6,98	6,90 %	0,48								
	Place tank (small) and snap into place				!	3,78	0,26				-15°			30 N 0.7 TE	40 N 3.8 TE	20 N 0.7 TE
														45 N 1.6 TE		



Ergonomic Evaluation

Line...: B22 | ST: 007 | Posi...: FL | Workplace: Front left

∅ Uthl.: 2 | Max. Var.: 97,92 % | Erg. Eval.: 136,47 % | 25,0

Total Result: 25,00 Points

Total Body = Posture (15,0) + Action Forces (4,5) + Loads (5,5) + Extra Points (0,0) = 25,0

Upper Limb = Forces (0,3) + Posture (0,0) + Extra Points (0,0) × Organization (10,5) = 3,5

General

Physical Hierarchy: B22 | 007 | FL
 Organizational Hierarchy: Assembly | 3626 | B | 2
 Description: Front left

Force percentile: P40 (for execution)
 Gender: Mostly men

Gross Shift Duration [Min.]: 480,0
 Breaks/Shift [Min.]: 10,0 (1,0 Break(s))
 Net Shift Duration [Min.]: 470,0
 Capacity [TE]: 144,0
 Piece Count in Reference Shift: 195,0

Postures

Description	Norm. Duration	Base Posture	Trunk Rotation	Trunk Bending	Reach
Standing upright with support	56,8 s / 60 s	2 Points	6,3 Points	3 Points	1,8 Points
Sitting upright	3,2 s / 60 s	0 Points			1,8 Points
		2,0 Points	6,3 Points	3,0 Points	3,6 Points
		15,0 Points -- 15 Points			

Action Forces

Info	Intensity	Evaluation
⊙ Finger Forces		
Thumb to four fingers 45,0 N Static	1,0 s	2,6 Points
Thumb 40,0 N Static	36,9 % FMax	
⊙ Arm Forces		
Standing bent B- (forward) 70 N Dynamic		
Standing strongly bent B- (forward) 100 N Dynamic	0,8 x	1,9 Points
Standing strongly bent B- (forward) 70 N Dynamic		
Standing bent A+ (up) 55 N Dynamic		

Export | Close

Ergonomics

Determine and optimize ergonomic load per worker and perform live ergonomics assessment during line balancing



Benefits – Ergonomics

Your Result



Certified Ergonomics



Maximum Efficiency & Ergonomics



Rapid Reevaluation

Established Standards

- Assessment of ergonomic loads of workers by EAWS® or individual assessment methods of our customers.
- First company to be officially certified as EAWS® compliant by the German MTM Society



Automatic Line Balancing

Automatic line balancing procedures take ergonomic limit values into account (point or traffic light system)

Convince Yourself Today

Try your [free demo](#) now or book your free live-demonstration at taktiq.de

Realizable Workshop Results

- Integrated evaluation of ergonomics when developing new line balancing solutions.
- Better solutions and shorter planning time through direct live assessment of the ergonomic impact of each change (shift of tasks, order program, cycle time or shift schedule change)

Interactive Line Balancing

- Suggestions for shifting tasks with live calculation of resulting ergonomic effects.
- Achieve highest efficiency & ergonomic goals!

Faster (Re)Evaluation

- Documentation of ergonomic loads at the tasks level and simultaneous assessment of ergonomics at the workplace level
- Reuse of all determined ergonomic loads at tasks



Start Document Analyze Compare Optimize

Order Sequence (1000), Sequencing Rules (8)

Density ✓ Neighborhood ✓ Blocks ✓ Capacity ✓ Exclusion ✓

Search for order

Position	Order	Order Scheduling	Density Rules	Neighborhood Rules	Block Rules	Capacity Rules	Exclusion Rules					
Sequence	Order Num...	Model	Features	Order Date	Rocket Truck with...	Hybrid	V8 Gasoline/Diesel...	Hitch	No hybrid after hybrid	Hydrogen automatic	Hybrid	e-engine & h-engine
05.02.2024 19:23:15 - 08.02.2024 06:15:45 (90/100)												
Week 6 (90/100)												
Tuesday, February 6, 2024 (40)												
Late Shift (20)												
Early Shift (0)												
43	217	MT1	VM19 MV6G F...	06.02.2024 20:09:45					N			
44	860	RT1	VR05 MV8D F...	06.02.2024 21:03:00	✓		✓		N			
45	49	MT1	VM04 MHYD F...	06.02.2024 21:26:15					N	✓		✓ FHYD
46	430	MT1	VM32 MV8G F...	06.02.2024 21:49:30			✓		N			
47	914	RT1	VR06 MV8D F...	06.02.2024 22:12:45			✓		N			
48	229	MT1	VM21 MV6G F...	06.02.2024 22:36:00					N			
49	561	MT1	VM45 MH6G F...	06.02.2024 22:59:15		✓			✓		✓	
50	940	RT1	VR07 MV8D F...	06.02.2024 23:22:30	✓		✓		N		↓	↓
Wednesday, February 7, 2024 (40)												
Early Shift (20)												
51	856								N			
52	17								N			
53	126								✓			
54	823								✓			
55	448								✓			
56	539								✓			
57	141								✓			
58	624								✓			
59	148								✓			
60	962								✓			
61	85								✓			
62	325								✓			

Active Scenario: Working Copy
Workplaces with Drift Limit Violations
B22 | 001 | CL | Axle 5
Σ Drift Limit Violations 5

ty ✓ Neighborhood ✓ Block ✓ Capacity ✓ Exclusion ✓ DLV 5 | 100,00 %

Live-Feedback: Sequencing

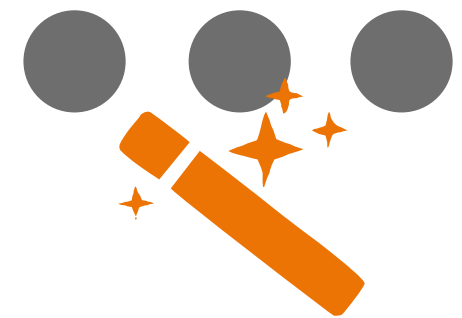
05.02.2024 19:23:15 - 08.02.2024 06:15:45 (90 Orders)
Required Time: 23s
Number of Iterations: 4.514.671

Category	Before	After
Rule Violations	67	20

Category	Before	After
Drift Limit Violations	24	7

Category	Before	After
Uniform Distribution	67.5%	78.9%

Apply and Close Discard and Close



Order Sequencing

Optimal production sequence of orders for efficient and smooth production



Benefits – Order Sequencing

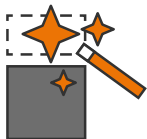
Your Result



Maximum Efficiency



Smooth Production



Reduced Planning Effort

One Click for The Optimal Order Sequence

- Reduce manual effort to a few minutes
- Sequence automatically in seconds
- Adhere to even demanding sequencing rules and ensure smooth production
- Different rule types possible (density, neighbor, exclusion, capacity, position, block)

Minimize Bottleneck Situations

- Ensure even distribution of the workload of a wide range of variants
- Precisely simulate and compare scenarios
- Integration of additional modules possible (optimal sequencing rules, early warning mechanism, ...)

Permanent Technical Pioneer

- You always remain highly innovative through our agile development process
- Regular updates with new features are inspired by impulses from our customers

Learn Quickly, Plan Intuitively

- Clear and easy to understand visual representations
- Modern user-friendly interfaces
- Quickly create and deliver significant reports
- Flexible interfaces to existing systems (order management, ERP, ...)

Generate, Communicate and Meet Deadlines

- Create work calendars with your own shift schedules
- Scheduled appointments are generated immediately by linking order sequence and work calendar and updated live in case of changes
- Pass on appointments via interface or Excel export
- Simple comparison of planned, target and actual dates

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Business Case With 25 Workplaces – Order Sequencing

Production per year:	Before		With AssemblySuite™
Workplaces	25		25
Production days	220		220
Bottleneck situation per day	50	▼ 76%	12
Ø Effort per day for rework, support and line stops	48 h	▼ 50%	24 h
Ø Effort for rework, support and line stops	10.560 h	▼ 50 %	5.280 h
× Hourly rate supporter		35 €	
Production costs per year	369.600 €		184.800 €

Planning per year:	Before		With AssemblySuite™
Evaluated sequences per day	1.000	▲ 9.999.900%	100.000.000
Sequencing rules considered	10	▲ 900%	100
Effort per order sequence	6 h	▼ 92%	0,5 h
Necessary final sequences	220		220
Necessary hours for sequencing	1.320 h	▼ 92%	110 h
× Hourly rate planner		40 €	
Management costs per year	52.800 €		4.400 €

i Data based on empirical values of previous use cases. Savings vary depending on size and characteristics of production.

Saved costs:
-233.200 € ▼ 52%



Sequencing Rules

05.02.2024 19:23:15 - 08.02.2024 06:15:45 (90 Orders)

Density Neighborhood Block Capacity Exclusion

Search Aa Text Mode

Active	No.	Short Descr.	Description	Feature Rule	Density	Take Rate	Tension	Uniform Distribution	Uniform Distribution-Rate	Weighting	Violations	Comment
<input type="checkbox"/>	1	WSPO	Steering Wheel Sport	WSPO	1 out of 2	25,56 %	0,51	<input checked="" type="checkbox"/>	79,10 %	★☆☆☆☆	-Inactive-	
<input checked="" type="checkbox"/>	2	RTCA	Rocket Truck with chassis adaptive	RI1 & CADA	3 out of 5	21,11 %	0,35	<input type="checkbox"/>	-	★★★★★	0	
<input checked="" type="checkbox"/>	3	HYB	Hybrid	EGHY EDHY	1 out of 2	20,00 %	0,40	<input type="checkbox"/>	-	★★★★★	0	
<input checked="" type="checkbox"/>	4	V8	V8 Gasoline/Diesel/Hybrid	MV8D MV8G MH8D MH8G	3 out of 4	53,33 %	0,71	<input type="checkbox"/>	-	★★★★★	0	
<input checked="" type="checkbox"/>	5	HITCH	Hitch	XHI	1 out of 2	10,00 %	0,20	<input checked="" type="checkbox"/>	71,60 %	★★★★★	0	

Number of Rules: 5, Violations: 0

Apply Cancel

Derive Sequencing Rules

Line... St. Posi... Workplace

B22 004 RC Rear 1

Ø Util. 94,18 % TSR 5,07 % Max. Var. 115,55 % DLV 11 Drift... 0,42 Capa... 72,00 Usabl... 72,00

Derivation Options

Allow &-Connections Include Negation Multiple Rules Focus on fast results

Density	Feature Rule	Controlled Orders	Unnecessarily contr. Orders	Tension	Ø DLV	WC-DLV
-	Without Sequencing Rules	-	-	-	30	107
2 out of 5	R28S VR05 VR01 VR07 VR03	36,00 %	0,00 %	0,90	0	30
2 out of 3	CADA R28S	51,70 %	0,00 %	0,78	1	49
		36,00 %	0,00 %	0,72	2	45
		36,00 %	0,00 %	0,54	10	99
		51,70 %	0,00 %	0,69	16	94
		51,70 %	0,00 %	0,65	23	95
3 out of 4	R28S VR05 VR01 VR07 VR03	36,00 %	0,00 %	0,48	23	107



Optimal Sequencing Rules

Create sequencing rules analytically, verify effectiveness and optimize



Benefits – Optimal Sequencing Rules

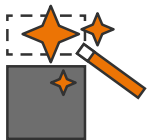
Your Result



Optimal Production Sequences



Smooth Job Scheduling Process



Increased Responsiveness

Valuable Information in Seconds

- Simulate 1000 order schedules in a few seconds
- Evaluate sequencing ability and expected impact of rule sets on bottlenecks in production
- Obtain well-founded predictive ability for "what-if" scenarios

Interactive Rule Derivation

- Recognize control-relevant order features and feature combinations for program planning and sequencing
- Derive distance rules automatically
- Recognize control-relevant orders and automatically describe them with rules
- Recognize maximum take rate for critical features

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Get an Overview and Use It

- Transparency about limit values of the own production
- Recognize and react to bottlenecks and potentials at an early stage

Reduce Rules, Increase Quality

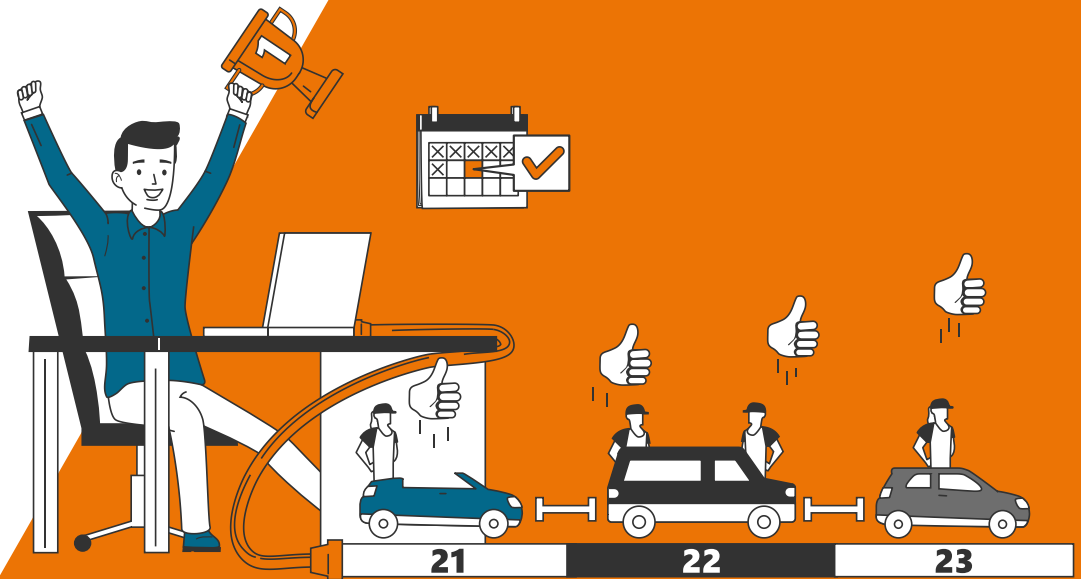
- Avoid unnecessary rules with overlap and effect analyses
- Rule sets can always be sequenced

Making Versatile Use of Findings

Receive recommendations for adjustments to line balancing and sequencing parameters

Your Advantages With the AssemblySuite™

- Use and exploit production capacities safely
- Precisely simulate and compare planning scenarios
- Smoothly map and plan interrelationships
- Create significant reports easily
- Modern and user-friendly interfaces
- Clear and comprehensible visual representations
- Easy and intuitive to use
- Language selection enables native use (German, English, French, Chinese, Hungarian and Italian)



Your Advantages With TAKTIQ



Used by Renowned Customers Worldwide



Certified Company



Regular Exchange of Best Practices



Individual Solutions for Your Production



Permanent Updates and Improvements



Solving Problems Within a Day



Comprehensive User Manual



Direct Support by E-Mail and Telephone

3 Ways To Integrate the AssemblySuite™ Into Your IT Landscape



Excel Im-/Export

Do you want to **test everything first** before investing in a long-term interface?

Simply export our Excel template directly from the AssemblySuite™, enter your data in the selected columns and import it again. We will be happy to help you!

[Schedule Appointment](#)



Standard Interfaces

Connect your IT landscape **yourself, quickly and easily** with AssemblySuite™ thanks to our standard interfaces.

With our sample interfaces, your IT team can get an idea of the scope and structure.

[Open Sample Interfaces](#)



Other Interfaces

We have already implemented interfaces to systems such as **Ticon, SAP, Windchill** and over 10 other customer-internal systems.

We are also happy to program an interface to **ema, halocline, Siemens Teamcenter** and other systems on request.

[Schedule Appointment](#)

Open Questions? These Documents Will Help You!

Service Specifications

What product combinations and services does TAKTIQ offer?

How is the price calculated?

[Open PDF](#)

Product Development Agreement

What is the development process for an AssemblySuite™ extension?

What is the pricing for such a development?

[Open PDF](#)

System Requirements

How does the installation work?

What requirements does my IT have to meet?

[Open PDF](#)

More Questions

Which address should I contact if I have further questions?

[Write E-Mail](#)



TAKTIQ

AssemblySuite™

Bring your Produktion in Einklang!

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