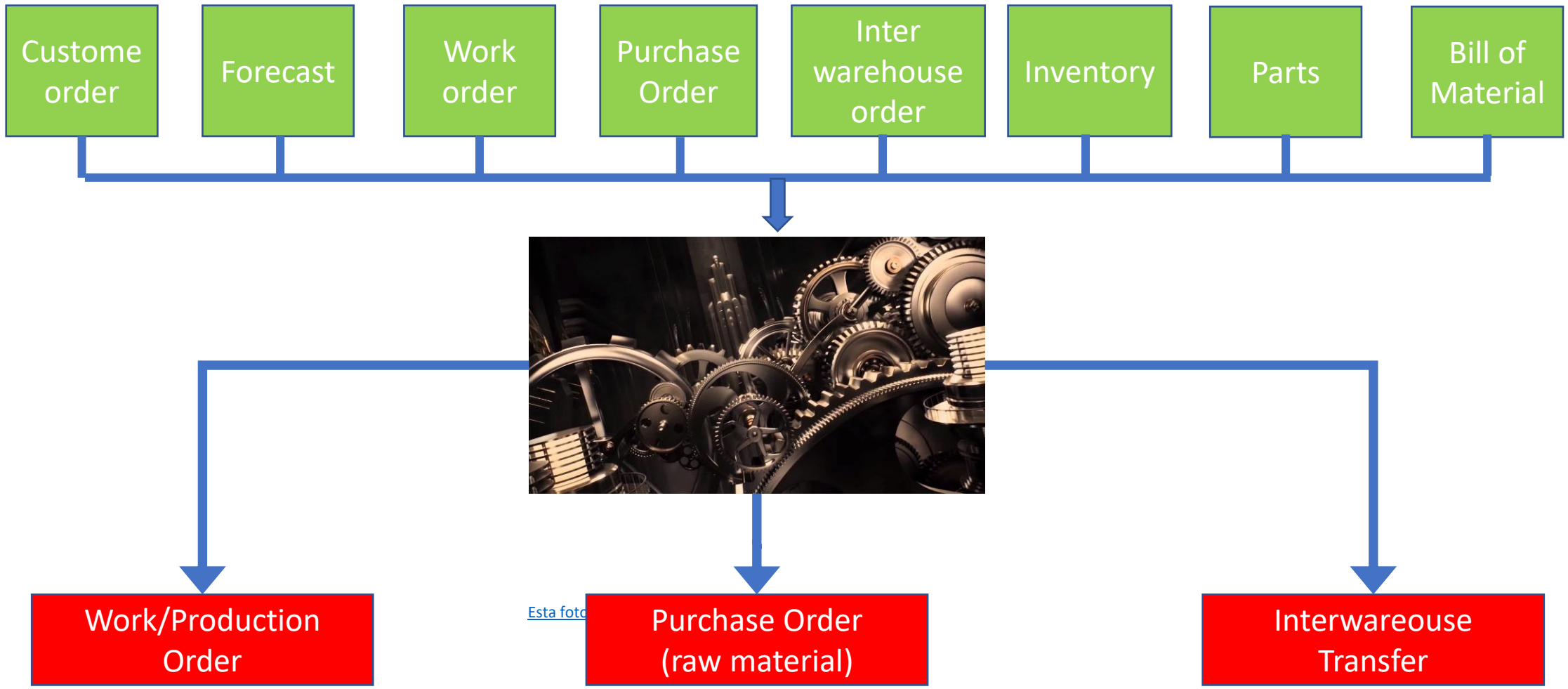
Algoritmos basados en software de planeación

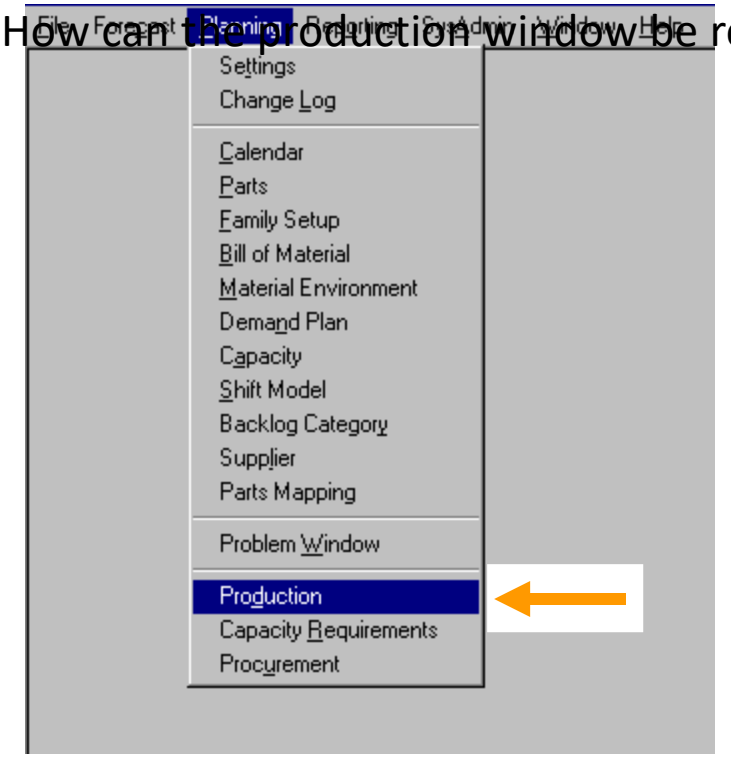
Uso académico exclusivamente

System

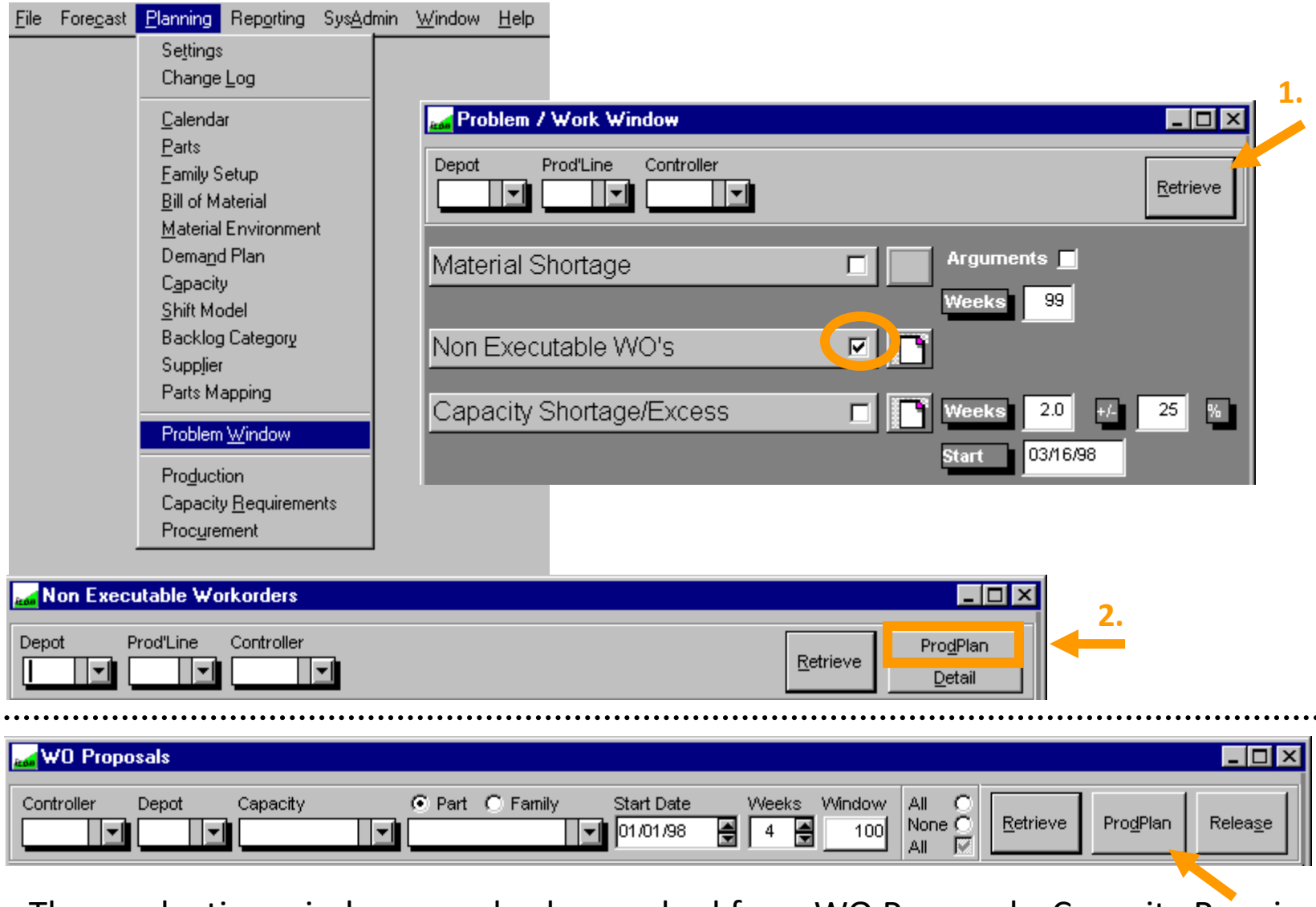

Custome order
Forecast
Work order
Purchase Order
Inter warehouse order
Inventory
Parts
Bill of Material
Work/Production Order
Purchase Order (raw material)
Interwareouse Transfer

The following chapter explains the Tec VEP production screen with its different window areas. The emphasis hereby is not only to understand the information on the screen, but also to see cross references to other windows and parameters, which influence the production information. Key parameters for the production planning output will be identified and explained.

How can the production window be reached in Tec VEP?



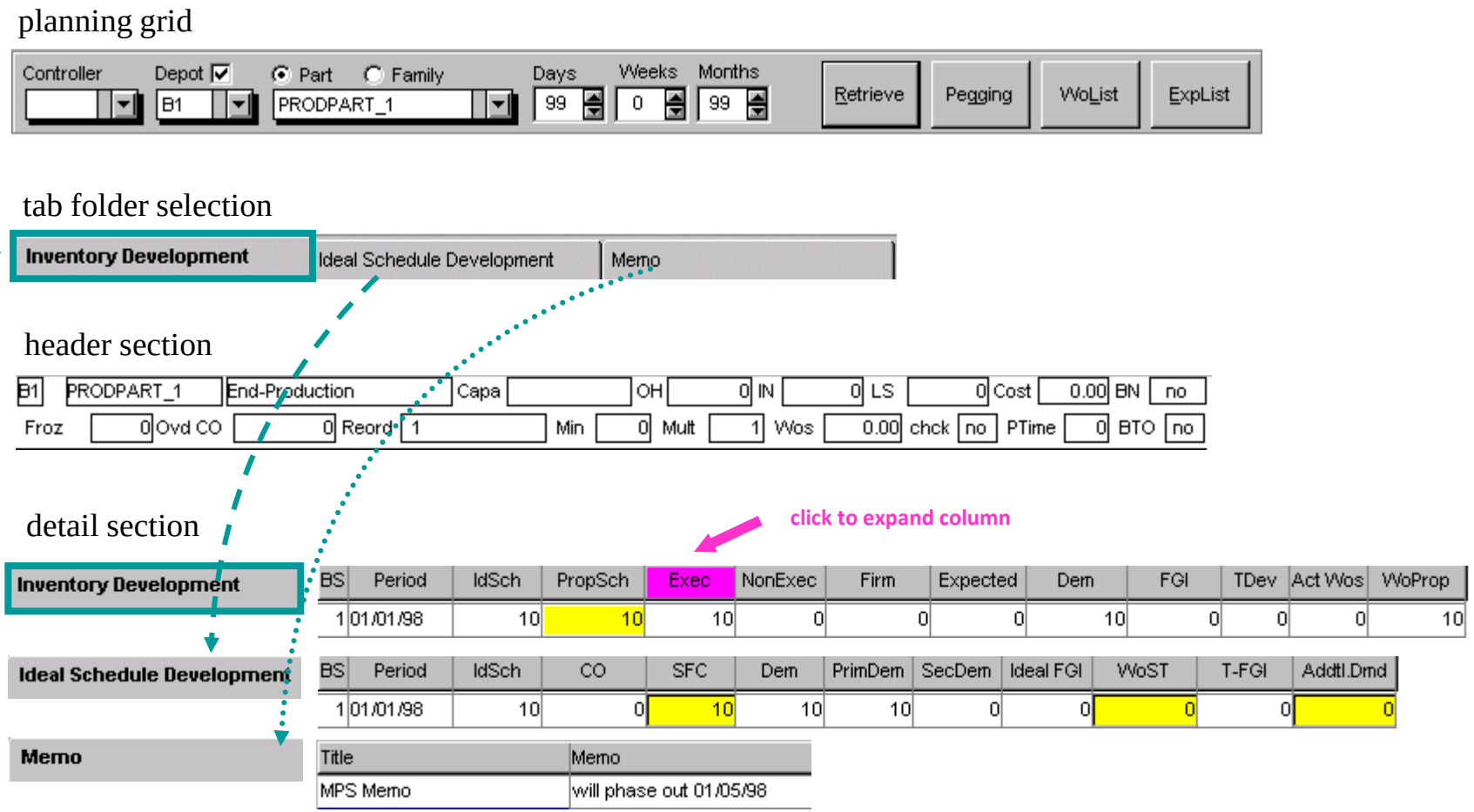
How can the **production window** be reached in Tec VEP ?



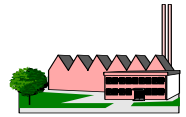
The production window can also be reached from WO Proposals, Capacity Requirements and other screens ...

Areas of the **Production window**

With the Production Window the planner can retrieve detailed information about the **Inventory Developme** and the **Ideal Schedule Development** for production parts.

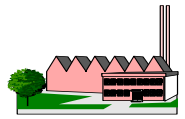


Demand setup: PRODPART_1 / 2



PRODPART_1

B1 = Build Depot



PRODPART_1
PRODPART_2

B2 = Build Depot

For the first step there is a simple production structure with two end-products being build in two build depot. All components are produced in the same depot and suppliers deliver all lower level material to this depot.

Bill of Material

Bill of Material | Bill of Material (inverted)

Level	Sub	Part	Description	Component	Description	Qty
		PRODPART_1	End-Production	UNCONSTR_IDEAL	Production	1.00000
			End-Production	UNCONSTR_EXE	Production	1.00000
			End-Production	CONSTR_EXE	Production	1.00000
		PRODPART_2	End-Production	CONSTR_EXE	Production	1.00000
			End-Production	COMP1_CONSTR	Production	1.00000
>		COMP1_CONSTR	Production	SUBCOMP1_CONST	Production	1.00000

Menu: Planning - Bill of Material

Material Environment

Customer Orders

Depot	Part	Qty	Req Date
B1	PRODPART_1	100	01/05/98
		50	01/07/98
		150	01/12/98
		100	01/16/98
	Sub	400	
B2	PRODPART_1	222	01/08/98
	Sub	222	
B2	PRODPART_2	500	01/04/98
		250	01/09/98
		300	01/12/98
	Sub	1050	

Menu: Planning - Material Environment

Forecast Data

Shipable Forecast

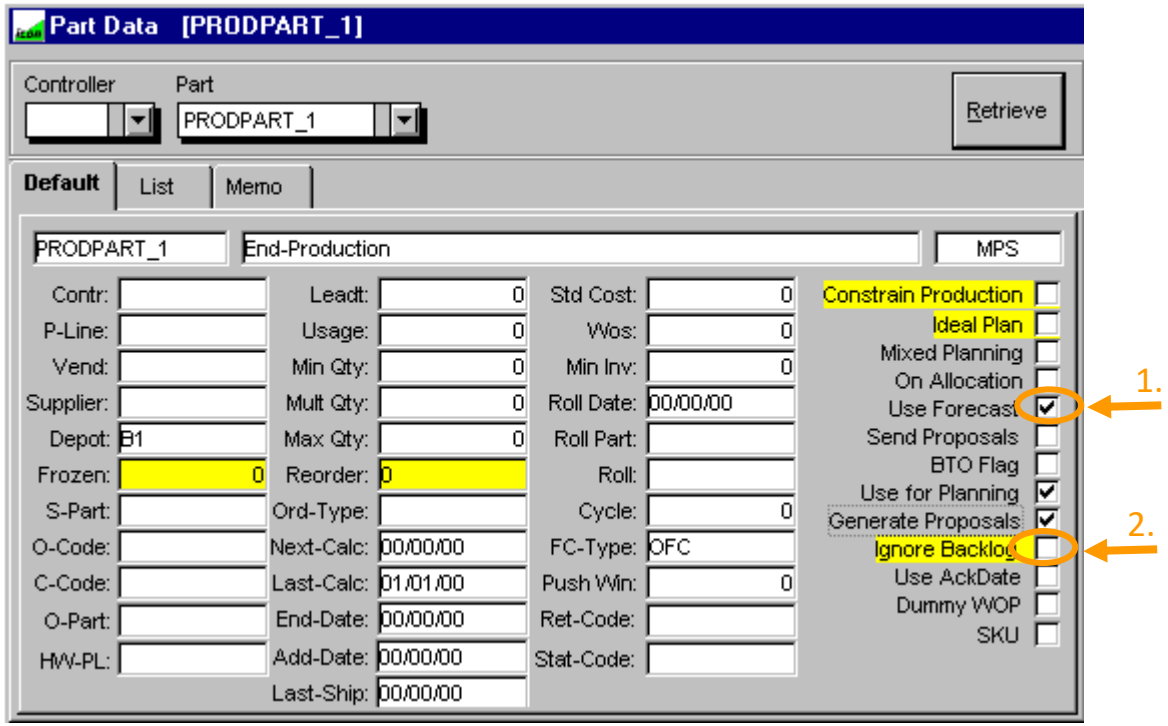
Origin	Depot	Part	Order Date	Qty
Marketing	B1	PRODPART_1	01/02/98	21
Marketing	B1	PRODPART_1	01/05/98	20
Marketing	B1	PRODPART_1	01/06/98	20
...				
Marketing	B2	PRODPART_1	01/02/98	9
Marketing	B2	PRODPART_1	01/05/98	9
Marketing	B2	PRODPART_2	01/02/98	10
Marketing	B2	PRODPART_2	01/05/98	10

Menu: Forecast - Data

For both products the demand consists of customer orders on specific dates and shippable forecast which is divided in daily portions over the month.

Part setting - I

Menu: Forecast - Parameter

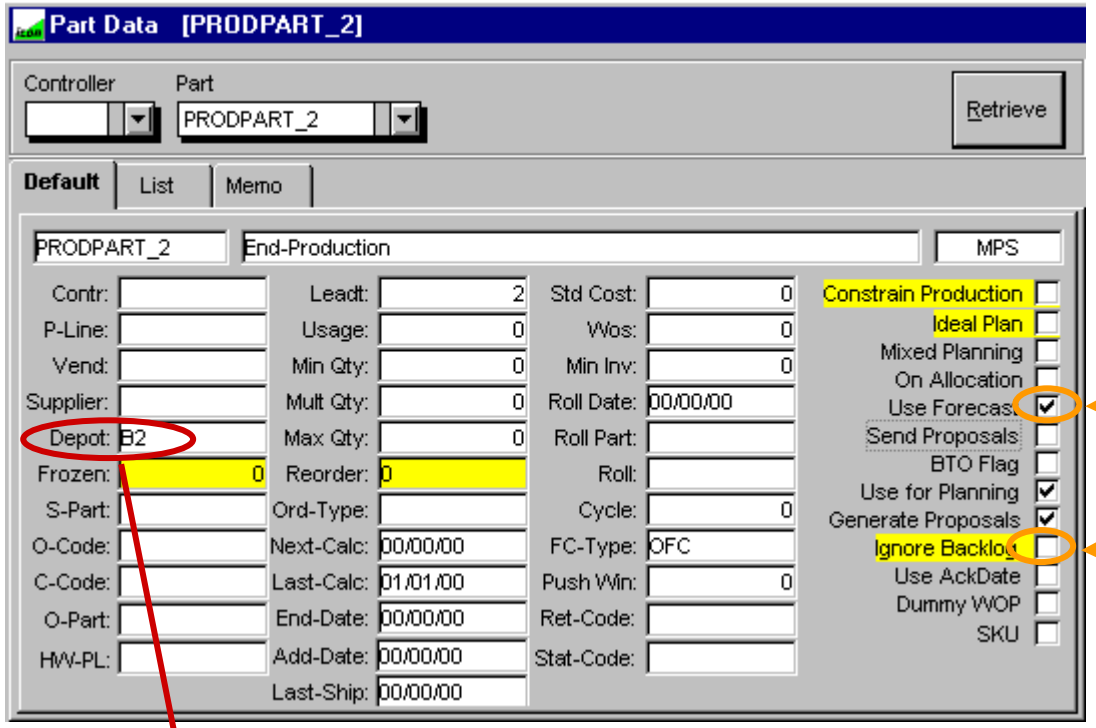


Menu: Planning-Part Data

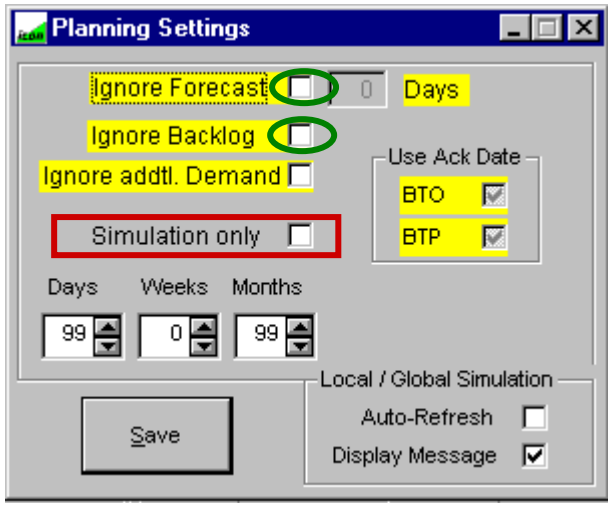
In **Forecast Parameter** the depot split for Prodpart_1 is defined. Thereby the shippable forecast is split accordingly to depot B1 and B2.

1. With the '**Use Forecast**' flag checked, the shippable forecast for a part is considered for planning.
2. The '**Ignore Backlog**' flag checked would ignore customer orders for Prodpart_1.

Part setting - II



menu: Planning-Part Data



menu: Planning-Settings

default depot

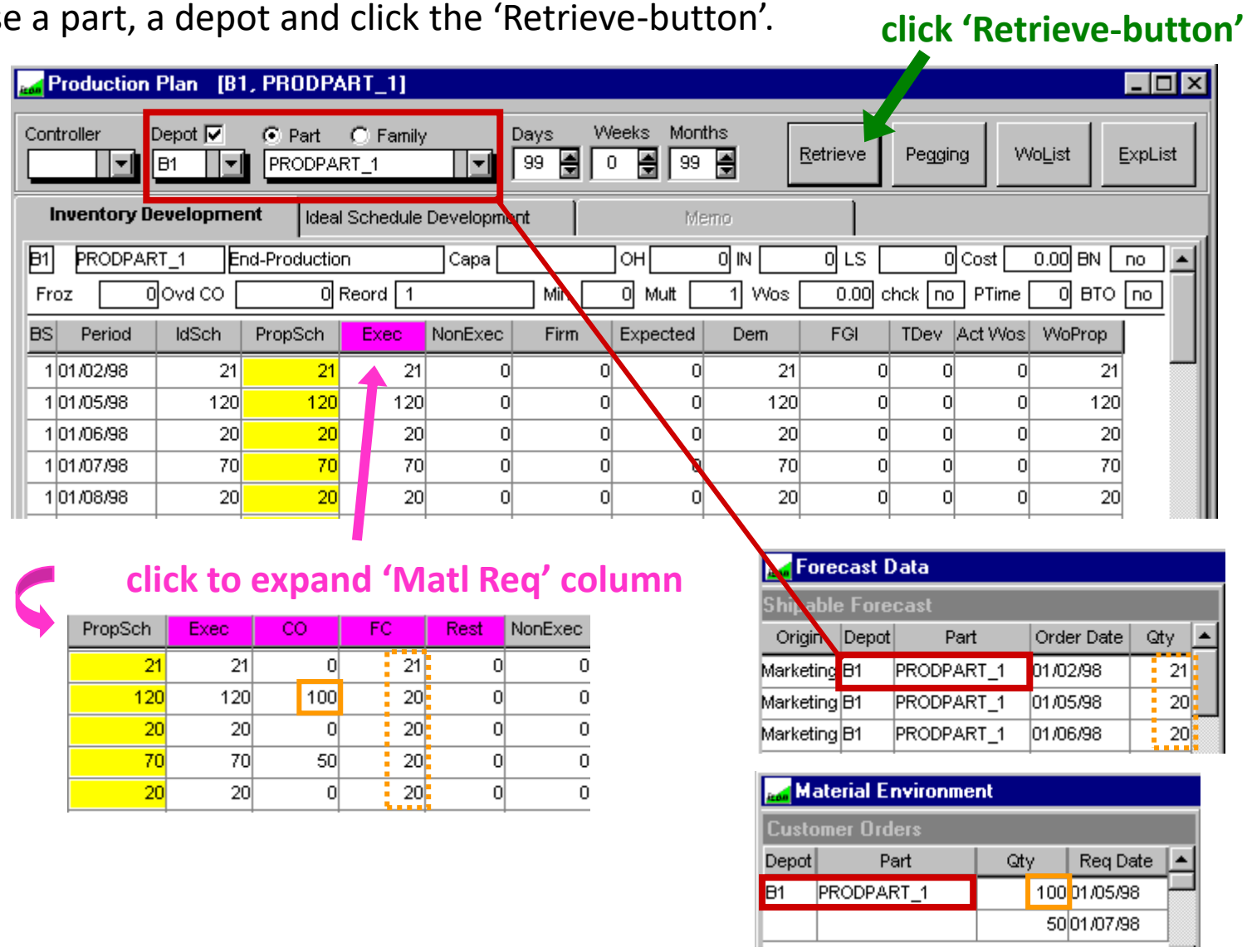
In **Part Data** the default depot is B2 and there is no depot split (Forecast Parameter). Thereby the shippable forecast is routed completely to depot B2.

In Planning Settings forecast and customer orders can be ignored for all parts during simulations.

As all parts (also those of other planners) are influenced by this setting it is strongly recommended to use these flags only for **'local simulations' = Simulation only**.

Using the **Planning grid** (part, depot selection)

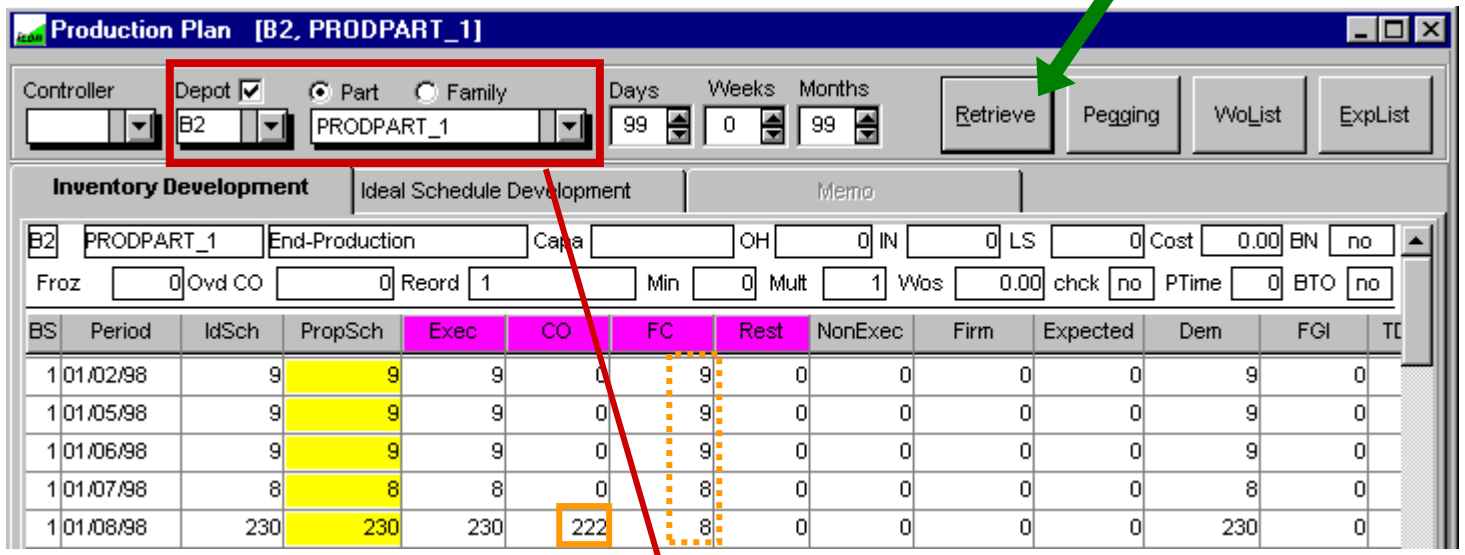
Choose a part, a depot and click the ‘Retrieve-button’.

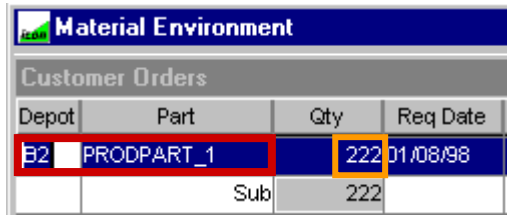


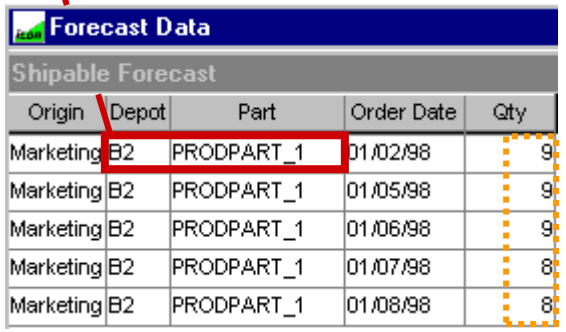
part, depot selection II

depot S2

click ‘Retrieve-button’

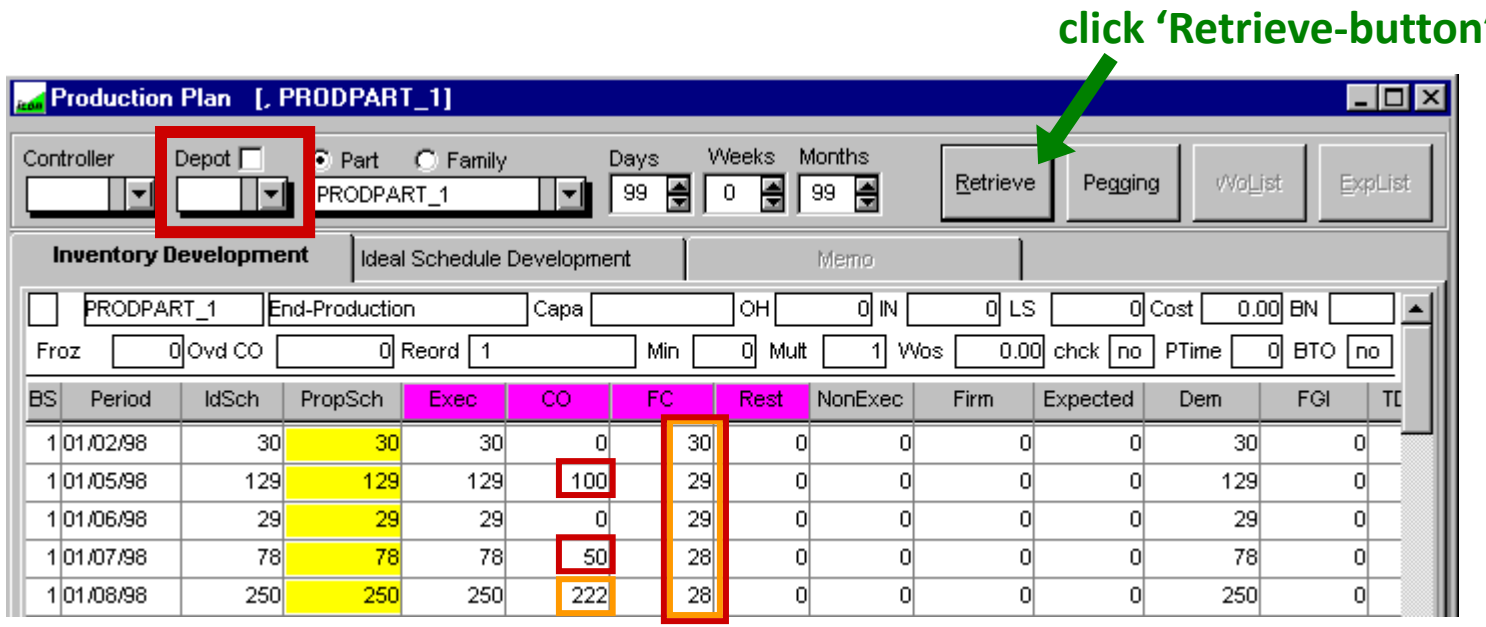






With the depot selection box ( ), the planner can look at the production situation for a part at one specific site.

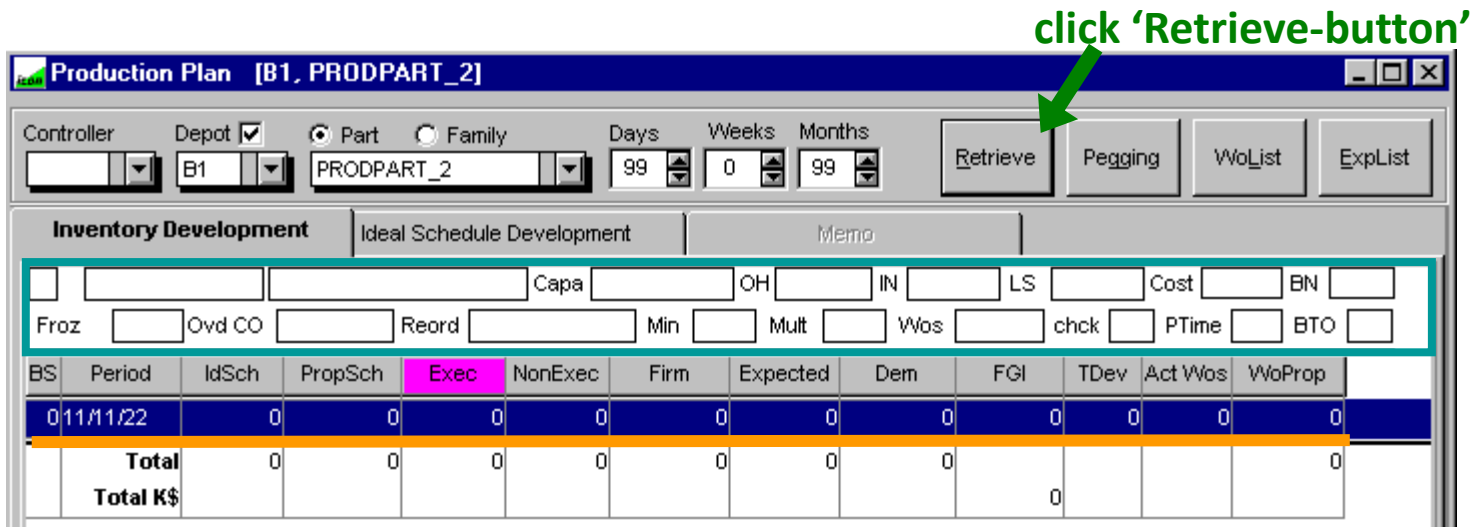
Cross depot selection



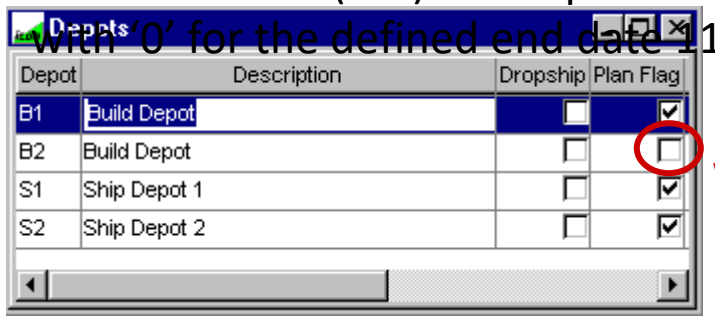
The planner can start cross-depot queries (all depot) with the check box ‘Depot’ unchecked. In this example CO quantity still can be identified (unique date and quantity) where forecast is displayed as a sum of forecast for depot B1 and B2.

With a cross depot selection data entries in simulation columns (yellow) are ignored, because an entry could not be assigned to a part-depot combination.

Depot with no demand or inventory



If there is no demand and no inventory for the specified part at a specific site, you get a screen with no entries in the header section ( ) of the procurement screen plus a row with '0' for the defined end date 11/11/2022 ( ).



menu: SysAdmin Depots

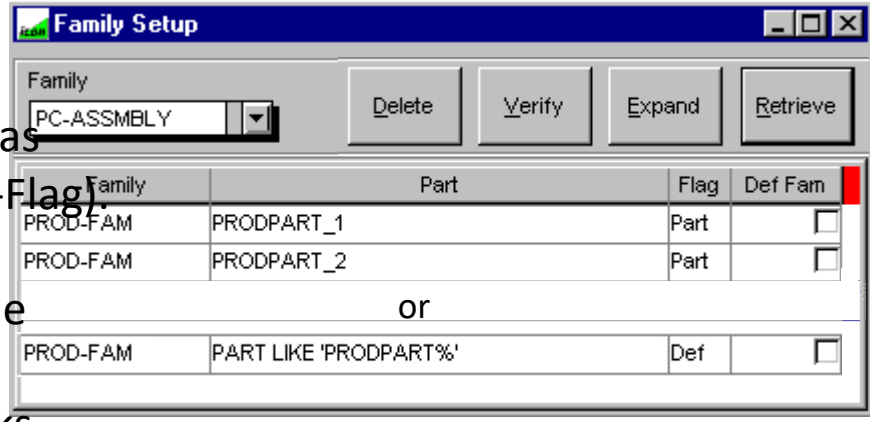
menu: Planning - Material Environment

Another explanation for an empty production window could be, that a depot is not being planned.

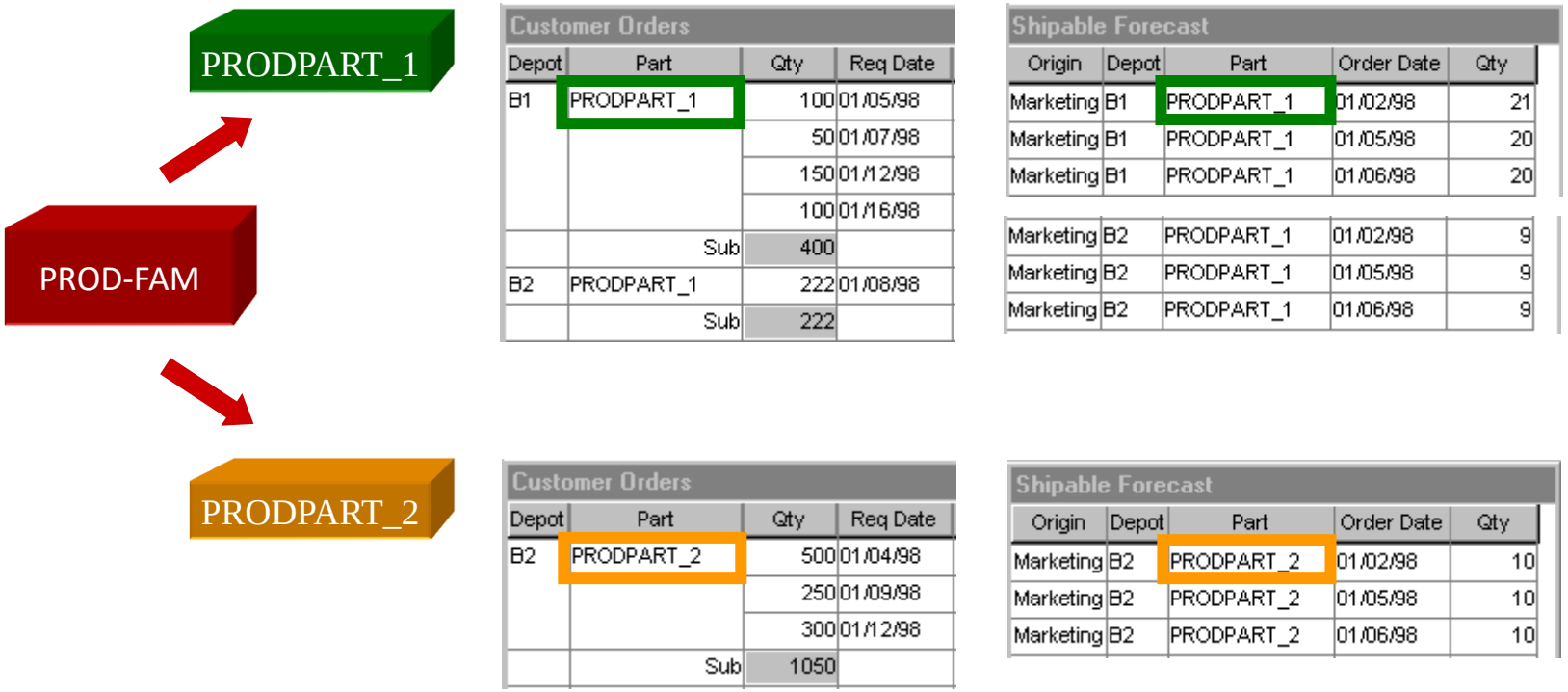
Family setup:

In Tec VEP families can be setup by an explicit family-part entry (Part-Flag) or as a generic family via sql-statement (Def-Flag).

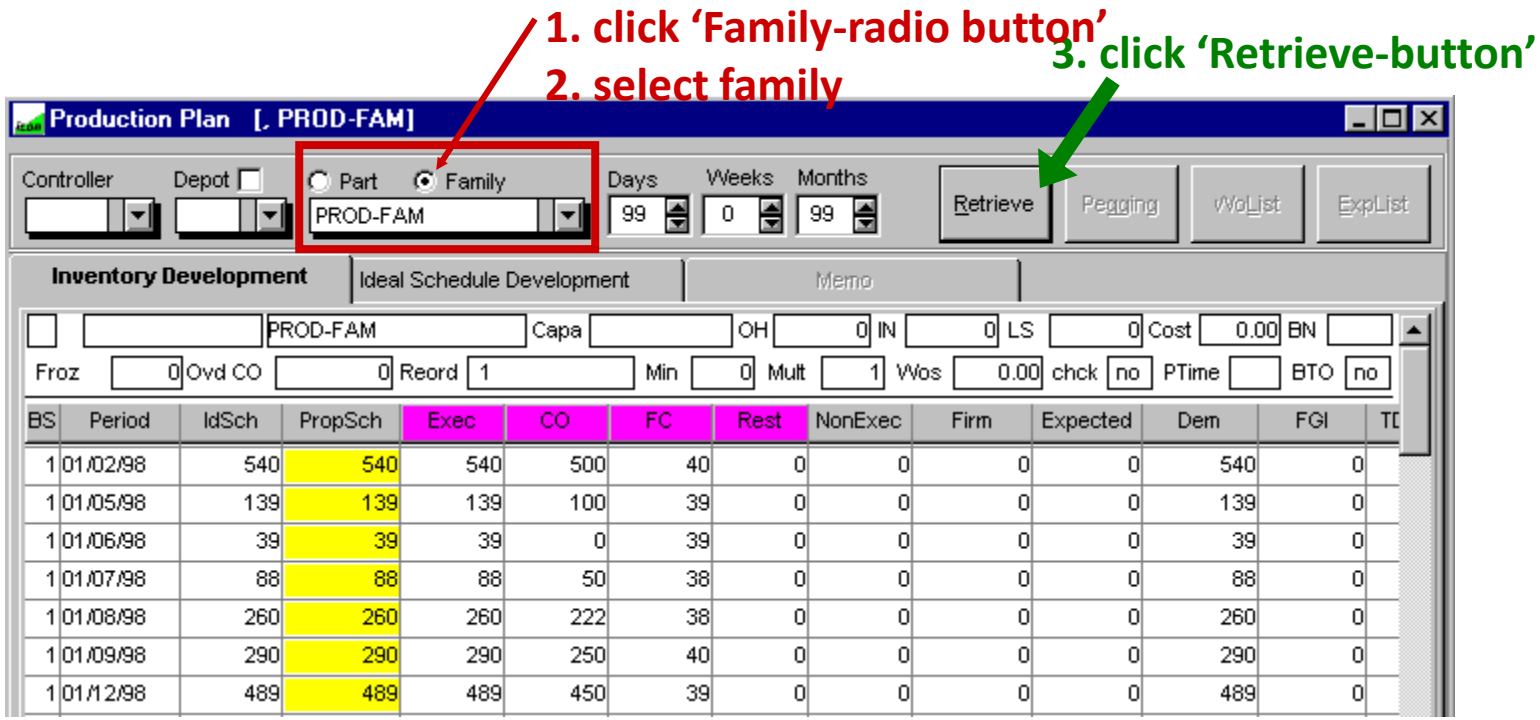
A generic family gets created once a line with a Def-Flag is expanded with the Expand button. The Verify button checks if a sql-statement is valid.



menu: Planning-Family Setup



Family selection

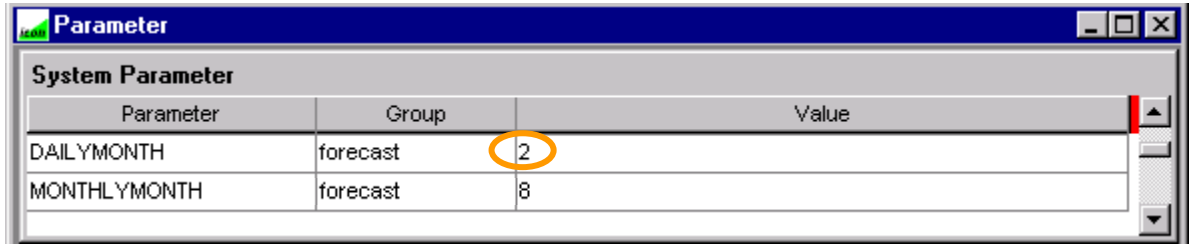


BS	Period	IdSch	PropSch	Exec	CO	FC	Rest	NonExec	Firm	Expected	Dem	FGI
1	01/02/98	540	540	540	500	40	0	0	0	0	540	0
1	01/05/98	139	139	139	100	39	0	0	0	0	139	0
1	01/06/98	39	39	39	0	39	0	0	0	0	39	0
1	01/07/98	88	88	88	50	38	0	0	0	0	88	0
1	01/08/98	260	260	260	222	38	0	0	0	0	260	0
1	01/09/98	290	290	290	250	40	0	0	0	0	290	0
1	01/12/98	489	489	489	450	39	0	0	0	0	489	0

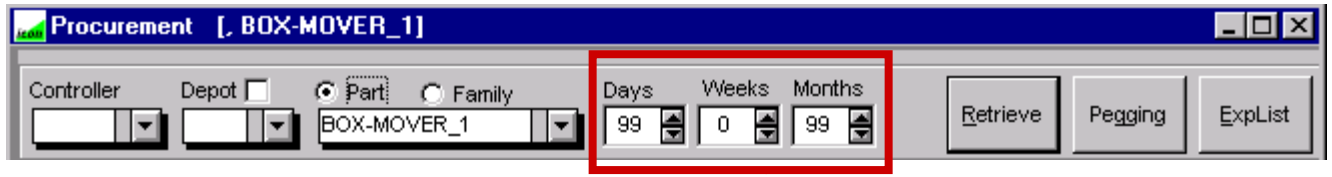
With the radio button ‘Part-Family’, the planner can switch from part-related selection to family-related selections. The family setup offers a possibility to aggregate different parts to a family. Likewise the production situation for the family can be viewed site specific or cross-depots.

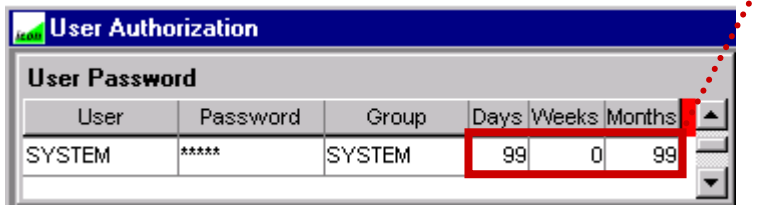
With the family selection data entries in simulation columns (yellow) are ignored, because an entry can not be assigned to a part-depot combination. The Pegging, WoList and ExpList functionality are also not available.

Using the **Planning grid** (planning horizon)



menu:'Sysadmin - Parameter'





menu:'Sysadmin -User Authorization'

The Display grid for the individual periods is geared to the defaults in Days, Weeks and Months. The defaults can be set for each user in 'Sysadmin - User Authorization'.

The displayed number of days, weeks and months in the output of the procurement window is specified in Planning grid. The System parameters DAILYMONTH and MONTHLYMONTH influence the available number of periods which are actually calculated by the server. Information that isn't calculated can obviously not b displayed.

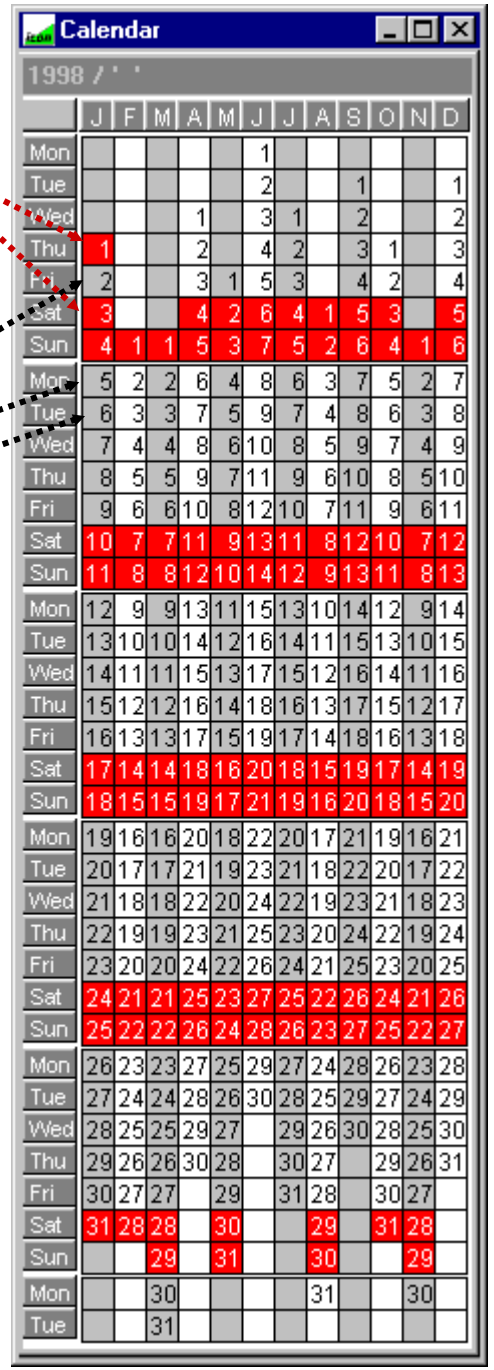
That means for the example that the displayed number of daily periods will not exceed the number of days for the first 2 months ( ). Likewise a maximum number of 10 (2 + 8) months can be displayed.

Planning periods and output

default:

Days	Weeks	Months
99	0	99

BS	Period	IdSch
1	01/02/98	30
1	01/05/98	129
1	01/06/98	29
1	01/07/98	78
1	01/08/98	250
1	01/09/98	30
1	01/12/98	179
...		
1	02/25/98	34
1	02/26/98	34
1	02/27/98	34
22	03/02/98	800
22	04/01/98	1300
21	05/01/98	1400
22	06/01/98	1100
23	07/01/98	500
21	08/03/98	600
22	09/01/98	600
22	10/01/98	400
	Total	8597
	Total K$	0



Column ‘BS’ stands for bucket size and contains the number of working days, which are represented by a specific row. For a daily period the bucket size is ‘1’, for a monthly period it depends on the months (e.g. March 98 contains 22 working days.
Whether a calendar day is a working day is defined in calendar window (red days are weekends or holidays).

Column ‘Period’ displays the first working day of each bucket.

Column ‘IdSch’ stands for ideal schedule and is determined on the basis of demand and the required target inventory for the period.

BS	Period	ldSch
1	01/02/98	30
1	01/05/98	129
1	01/06/98	29
1	01/07/98	78
1	01/08/98	250
16	01/09/98	681
20	02/02/98	700
22	03/02/98	800
22	04/01/98	1300
21	05/01/98	1400
22	06/01/98	1100
23	07/01/98	500
21	08/03/98	600
22	09/01/98	600
22	10/01/98	400
	Total	8597
	Total K$	0

5 days means, that only the first 5 working days are displayed individually. The following bucket (16) aggregates the rest of the working days of the month.

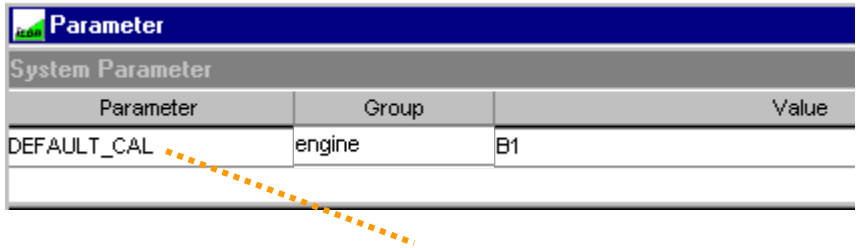
BS	Period	ldSch
1	01/02/98	30
1	01/05/98	129
1	01/06/98	29
1	01/07/98	78
1	01/08/98	250
1	01/09/98	30
5	01/12/98	394
5	01/19/98	139
5	01/26/98	118
20	02/02/98	700
22	03/02/98	800
22	04/01/98	1300
21	05/01/98	1400
22	06/01/98	1100
23	07/01/98	500
21	08/03/98	600
22	09/01/98	600
22	10/01/98	400
	Total	8597
	Total K$	0

If the display grid specifies more than 0 weeks, the ‘rest bucket’ of the actual month is displayed in weekly portions.
If there are less weeks left for the actual month the following month is displayed in weekly buckets as well (Maximum of DAILYMONTH individual periods in weekly buckets

BS	Period	ldSch
1	01/02/98	30
1	01/05/98	129
1	01/06/98	29
1	01/07/98	78
1	01/08/98	250
1	01/09/98	30
5	01/12/98	394
5	01/19/98	139
5	01/26/98	118
20	02/02/98	700
22	03/02/98	800
22	04/01/98	1300
21	05/01/98	1400
	Total	5397
	Total K$	0

The number of months in the display grid controls the actual periods, which are added up for the total at the bottom of the procurement screen.
The displayed number can not exceed MONTHLYMONTH periods.

Depot specific calendar



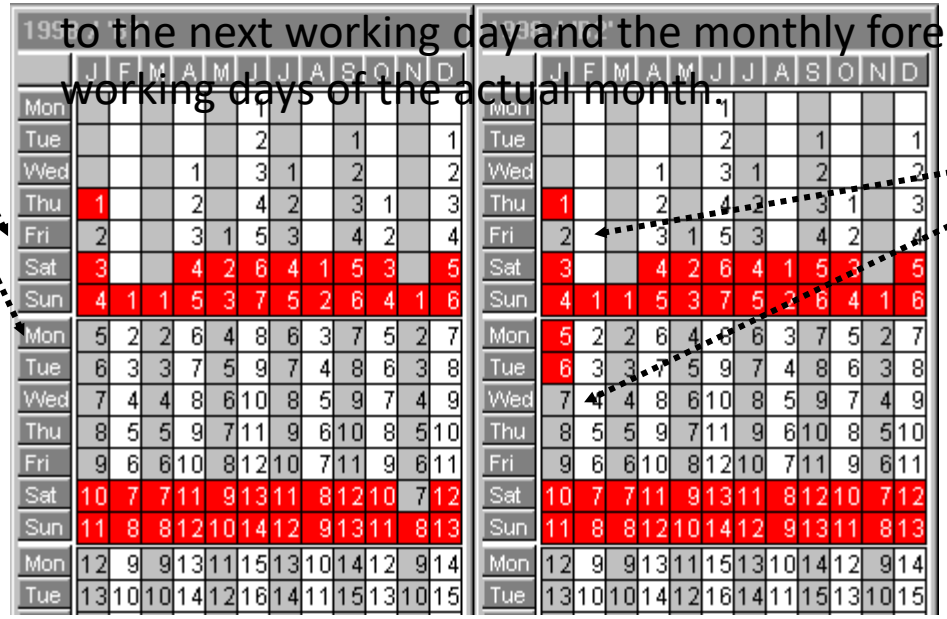
In Tec VEP different calendars can be defined for different depots. If no calendar exists for a depot, the DEFAULT_CAL is being used. Valid entries are ‘’ for an empty calendar (no working days excluded) or any **depot id**.

Non working days change the planning results as demand from COs is moved to the next working day and the monthly forecast portion is divided over the working days of the actual month.

B1 PRODPART_1

Froz 0 Ovd CO

BS	Period	ldSch
1	01/02/98	21
1	01/05/98	120
1	01/06/98	20
1	01/07/98	70
1	01/08/98	20
1	01/09/98	21
5	01/12/98	351

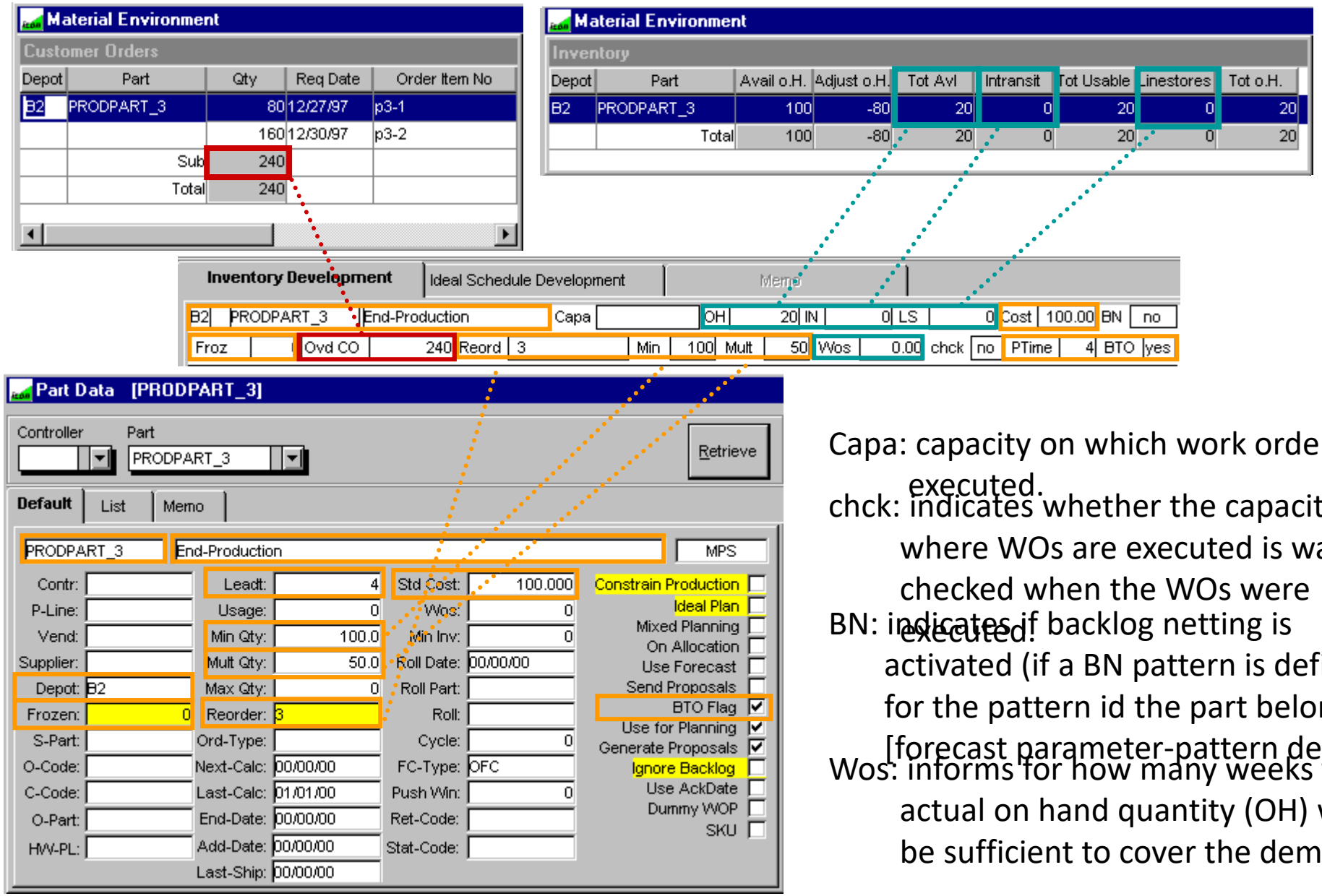


Froz 0 Ovd CO

BS	Period	ldSch
1	01/02/98	11
1	01/07/98	11
1	01/08/98	233
1	01/09/98	10
1	01/12/98	9
1	01/13/98	9
1	01/14/98	9

***Calendar B2 is used from now on for production in depot B2.

Header section



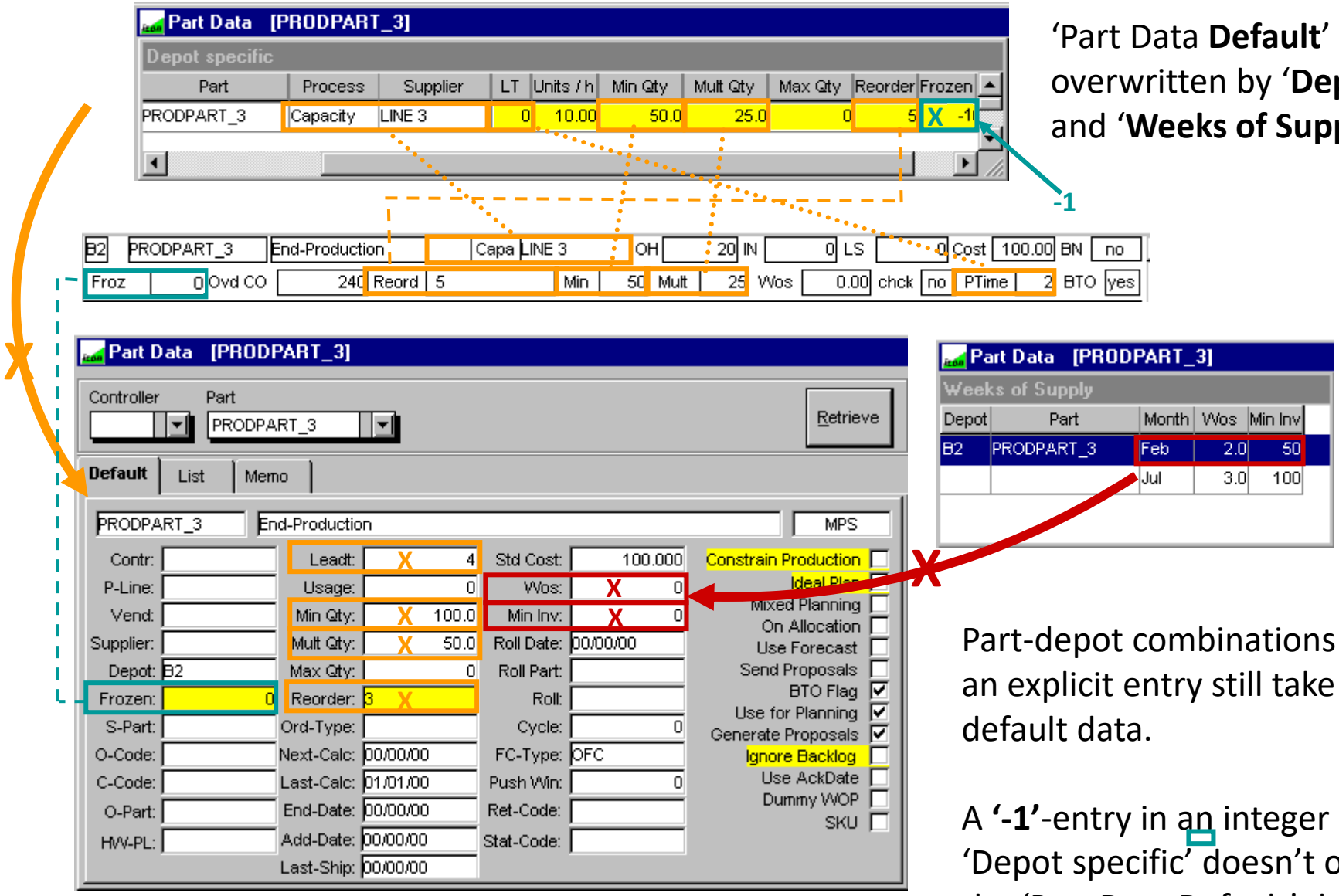
Capa: capacity on which work orders are executed.

chck: indicates whether the capacity where WOs are executed is was checked when the WOs were executed.

BN: indicates if backlog netting is activated (if a BN pattern is defined for the pattern id the part belongs to). [forecast parameter-pattern definition]

Wos: informs for how many weeks the actual on hand quantity (OH) would be sufficient to cover the demand

Header section (specific overwrites default)



'Part Data **Default**' data is overwritten by '**Depot specific**' and '**Weeks of Supply**' data.

Part-depot combinations without an explicit entry still take the default data.

A **'-1'**-entry in an integer column of 'Depot specific' doesn't overwrite the 'Part Data Default' data for this column (e.g. Frozen).

Ideal Schedule Development

This subwindow contains information about the **Ideal Schedule Development.**

BS	Period	IdSch	CO	SFC	Dem	PrimDem	SecDem	Ideal FGI	WoST	T-FGI	Addtl.Dmd
1	01./02/98	161	0	21	21	21	0	140	0.40	140	0
1	01./05/98	70	100	20	120	120	0	90	0.40	90	0
1	01./06/98	20	0	20	20	20	0	90	0.40	90	0

yellow columns allow data entry for simulations

Columns:

BS: Bucket Size (number of working days)

Period: first day of a bucket

IdSch: Ideal Schedule shows necessary order quantities to reach the target inventory level if open work orders (firm) reordering and lead time is ignored

CO: Customer Orders contain the sum of the direct CO for the Part and the CO for the systems into which the part goes.

SFC: Shipment Forecast is part- and depot-specific and is determined with the Forecast Parameters *Depot Split, Monthly Shipment Split, Weekly Shipment Split* taking into account the *Devaluation*. SFC contains the sum of direct SFC and SFC for systems into which the part goes.

Dem: Demand = PrimDem + SecDemand

In Dem Secondary Demand is listed according to the required date. The sum CO + SFC may differ from Dem, if there is e.g. secondary demand on a component but also inventory on parent systems.

Prim Dem: Primary Demand

Sec Dem: Secondary Demand

Secondary Demand comes from the Ideal Plan and does not consider the Executable Plan

Ideal FGI: Ideal inventory development

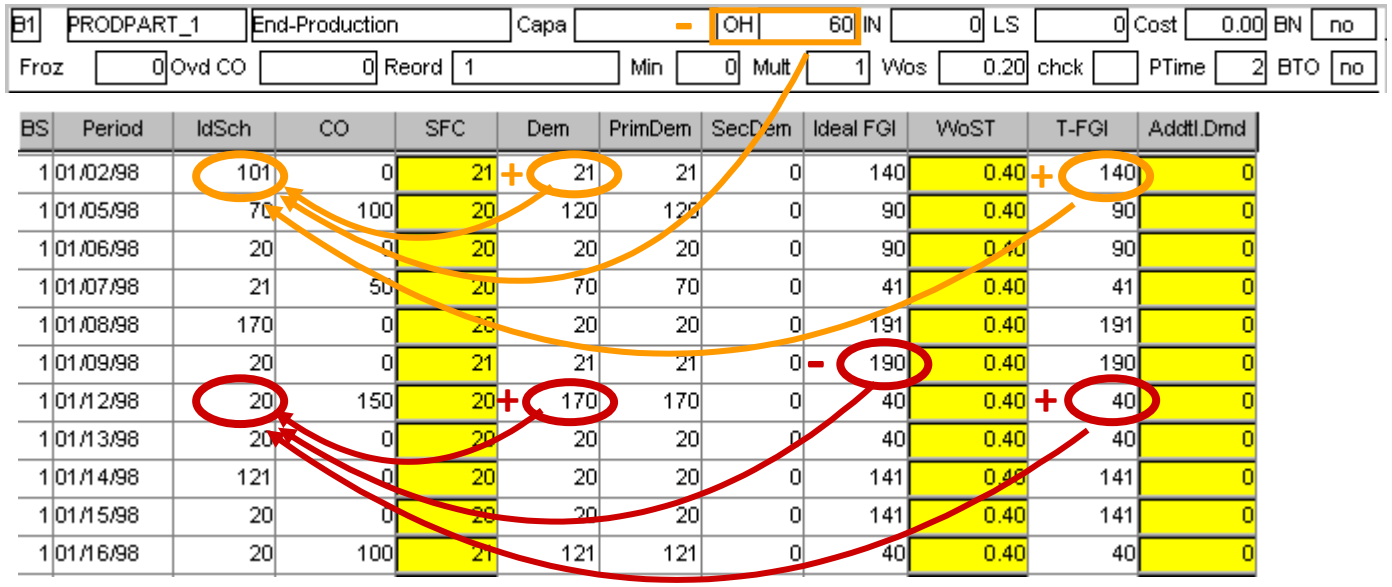
- Ideal FGI (t) = Ideal FGI (t-1) - Demand (t) + Ideal Schedule (t)]

WoS Targ: Weeks of Supply Target shows the number of weeks which the stock is supposed to cover the demand (Dem).

T-FGI: Target Inventory results from Week of Supply Target and has to exceed Min Inventory

Addtl Dmd: Additional Demand in this column is Primary Additional Demand. Additional Demand from parent systems is listed and treated as CO or FC depending on the system parameter TREAT_AD_AS_FC.

Ideal Schedule (IdSch)



B1	PRODPART_1	End-Production	Capa	-	OH	60	IN	0	LS	0	Cost	0.00	BN	no
Froz	0	Ovd CO	0	Reord	1	Min	0	Mult	1	Wos	0.20	chck		PTime	2	BTO	no

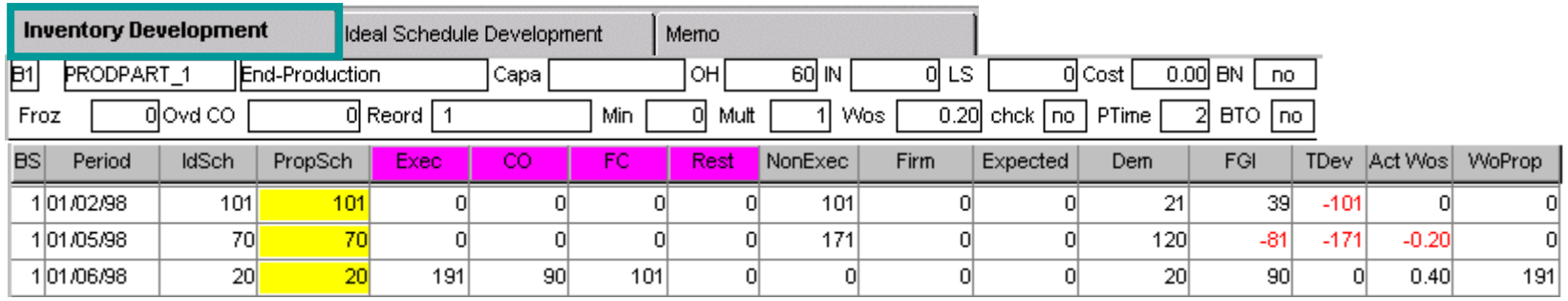
BS	Period	IdSch	CO	SFC		Dem	PrimDem	SecDem	Ideal FGI		WoST		T-FGI	Addtl.Dmd
1	01/02/98	101	0	21	+	21	21	0	140		0.40	+	140	0
1	01/05/98	70	100	20		120	120	0	90		0.40		90	0
1	01/06/98	20	0	20		20	20	0	90		0.40		90	0
1	01/07/98	21	50	20		70	70	0	41		0.40		41	0
1	01/08/98	170	0	20		20	20	0	191		0.40		191	0
1	01/09/98	20	0	21		21	21	0	-	190	0.40		190	0
1	01/12/98	20	150	20	+	170	170	0	40		0.40	+	40	0
1	01/13/98	20	0	20		20	20	0	40		0.40		40	0
1	01/14/98	121	0	20		20	20	0	141		0.40		141	0
1	01/15/98	20	0	20		20	20	0	141		0.40		141	0
1	01/16/98	20	100	21		121	121	0	40		0.40		40	0

$IdSch\ (t) = MAX\ [\ 0, Dem\ (t) + T\text{-}FGI\ (t) - Ideal\ FGI\ (t\text{-}1)\ ]_{min/mult}$

Ideal Schedule is based on Ideal Demand (Dem) and Ideal Inventory deviation (difference between Target FGI and the Ideal FGI of the preceding period).

Inventory Development

This subwindow contains information about the **Inventory Development**.



Inventory Development | Ideal Schedule Development | Memo

B1 | PRODPART_1 | End-Production | Capa | OH 60 | IN 0 | LS 0 | Cost 0.00 | BN no

Froz 0 | Ovd CO 0 | Reord 1 | Min 0 | Mult 1 | Wos 0.20 | chck no | PTime 2 | BTO no

BS	Period	IdSch	PropSch	Exec	CO	FC	Rest	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	101	101	0	0	0	0	101	0	0	21	39	-101	0	0
1	01/05/98	70	70	0	0	0	0	171	0	0	120	-81	-171	-0.20	0
1	01/06/98	20	20	191	90	101	0	0	0	0	20	90	0	0.40	191

Columns:

BS: Bucket Size (number of working days)

Period: first day of a bucket

IdSch: Ideal Schedule shows necessary work order quantities to reach the target inventory level if open work orders (firm) reordering and lead time is ignored

ProdSch: Proposed Schedule based on reordering, frozen and open work orders ignoring lead times

- PropSch (t) = MAX [0 , SUM (Demand (i))] - Firm (t) - Expected (t)

Exec: Executable work orders of PropSch quantity

- CO: Executable WOs based on customer orders
- FC: Executable WOs based on forecasts
- Rest: Executable WOs based on demand from FGI goal or Min/Mult requirements

NonExec: Non Executable WOs are the portion from PropSch which can not be executed because of material or capacity constraints

Firm: Receipts from open work orders

ExpRcpts: Expected Receipts (planned receipts from POs, IWTs and WO Proposals). Firm WOs are not included

FGI: Finished goods inventory (= planned closing inventory for period)

- FGI (t) = FGI (t-1) - Demand (t) + Exec (t) + Firm (t)

Dem: Demand = PrimDem + SecDemand

T-Dev: Target Deviation from the Target Inventory

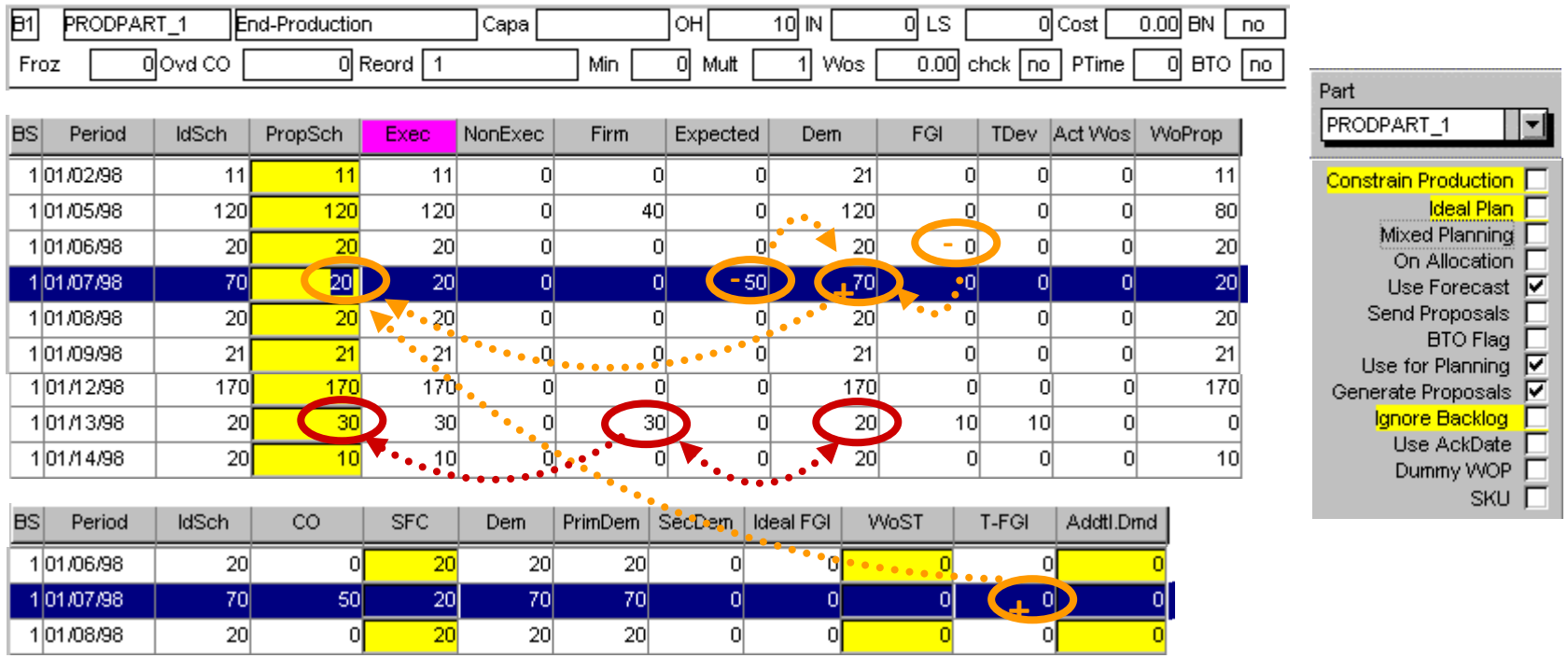
- Target Inventory Deviation = FGI (t-1) - Target Inventory (t)

Act WoS: Actual Weeks of Supply shows the number of weeks which the stock is sufficient to cover the demand.

- FGI (t) > 0 specifies how many weeks the stock will meet the demand without any further receipts
- FGI (t) < 0 specifies how many weeks it will take to reach stock with the planned receipts and issues

WO Prop: Work Order Proposals are created for PropSch quantities which are not covered by Firm work orders. Lead times are taken into account.

Production detail - PropSch

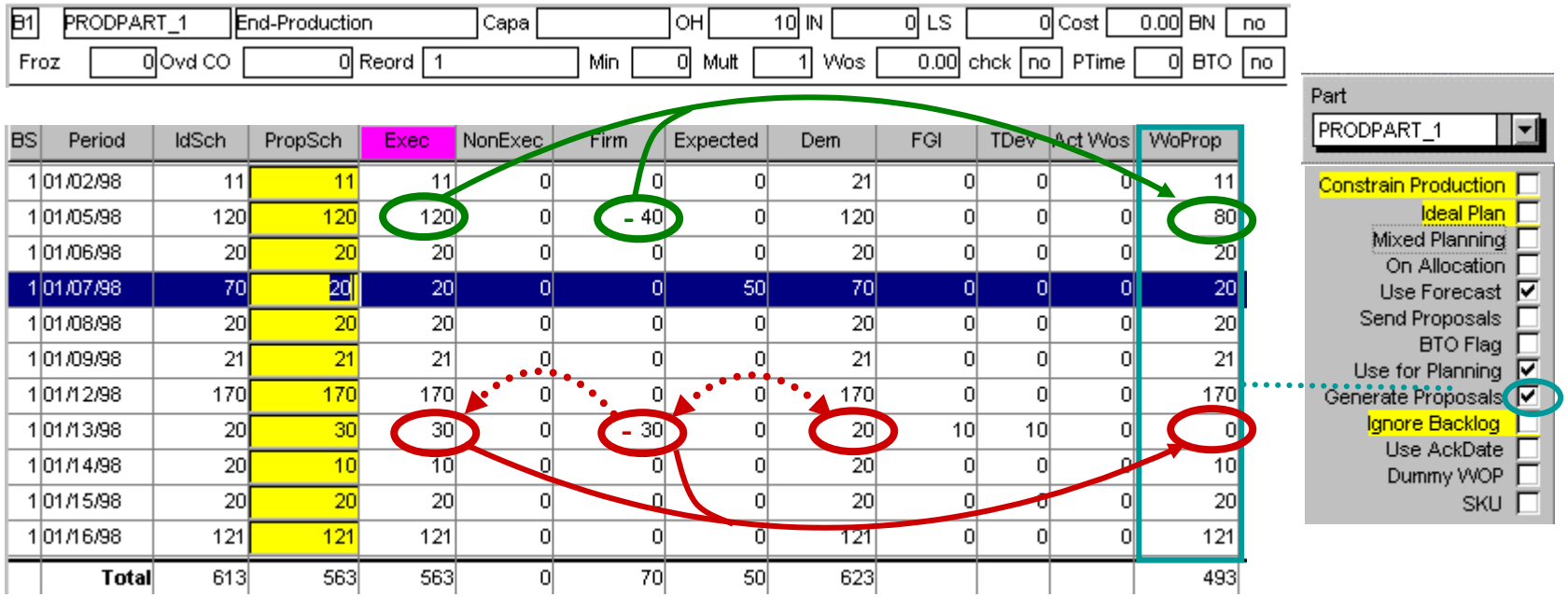


PropSch (t) = MAX [Firm(t), Dem (t) + T-FGI (t) - Expected (t)- FGI (t-1)]

The Proposed Schedule column is calculated out of demand plus target-FGI (projected requirements at the end of the period) minus inventory minus expected receipts (from Purchase orders or IWTs). The displayed number in PropSch represents the maximum from this calculation schema and the firm orders from the execution system.

The Exec and NonExec columns split up the PropSch quantity in an executable portion and a non-executable portion.

Production detail - WoProp

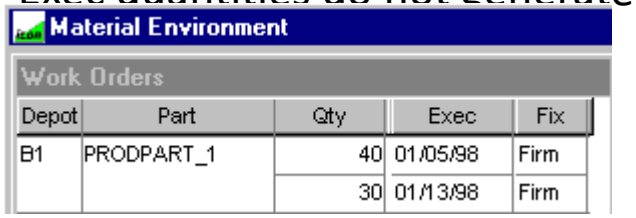


B1	PRODPART_1	End-Production	Capa		OH	10	IN	0	LS	0	Cost	0.00	BN	no
Froz	0	Ovd CO	0	Reord	1		Min	0	Mult	1	Wos	0.00	chck	no	PTime	0	BTO	no

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	11	11	11	0	0	0	21	0	0	0	11
1	01/05/98	120	120	120	0	- 40	0	120	0	0	0	80
1	01/06/98	20	20	20	0	0	0	20	0	0	0	20
1	01/07/98	70	20	20	0	0	50	70	0	0	0	20
1	01/08/98	20	20	20	0	0	0	20	0	0	0	20
1	01/09/98	21	21	21	0	0	0	21	0	0	0	21
1	01/12/98	170	170	170	0	0	0	170	0	0	0	170
1	01/13/98	20	30	30	0	- 30	0	20	10	10	0	0
1	01/14/98	20	10	10	0	0	0	20	0	0	0	10
1	01/15/98	20	20	20	0	0	0	20	0	0	0	20
1	01/16/98	121	121	121	0	0	0	121	0	0	0	121
	Total	613	563	563	0	70	50	623				493

WoProp (t) = Exec (PropSch) - Σ Firm

The WoProp column is only calculated if the 'Generate Proposal' flag is checked for a part. Here you can see an easy case were all proposed quantities are executable and production time = 0. Firm portions of Exec quantities do not generate any further WoProp.



Material Environment

Work Orders

Depot	Part	Qty	Exec	Fix
B1	PRODPART_1	40	01/05/98	Firm
		30	01/13/98	Firm

Firm WOs are loaded via interface files from the execution system. They are displayed in the Material Environment Work Order subwindow as 'Firm' Work Orders.

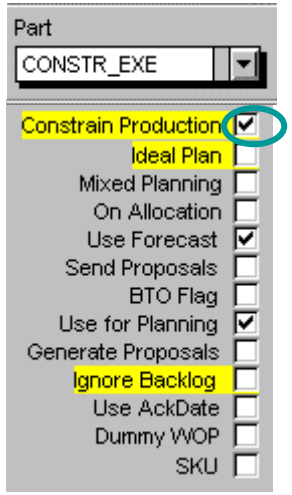
Production Time

B1	PRODPART_1	End-Production	Capa		OH	10	IN	0	LS	0	Cost	0.00	BN	no
Froz	0	Ovd CO	0	Reord	1	Min	0	Mult	1	Wos	0.00	chck	yes	PTime	2	BTO	no

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	11	11	0	11	0	0	21	-11	-11	-0.60	0
1	01/05/98	120	120	0	131	40	0	120	-131	-131	-0.40	0
1	01/06/98	20	20	0	151	0	0	20	-151	-151	-0.20	0
1	01/07/98	70	20	171	0	0	50	70	0	0	0	131
1	01/08/98	20	20	20	0	0	0	20	0	0	0	20
1	01/09/98	21	21	21	0	0	0	21	0	0	0	21
1	01/12/98	170	170	150	20	0	0	170	-20	-20	-0.20	150
1	01/13/98	20	30	30	20	30	0	20	-10	-10	-0.20	0
1	01/14/98	20	10	30	0	0	0	20	0	0	0	30

B1	CONSTR_EXE	Production
Froz	0	Ovd CO 0

BS	Period	IdSch	PropSch
1	01/02/98	151	0
1	01/05/98	20	300
1	01/06/98	20	0
1	01/07/98	21	0
1	01/08/98	170	0
1	01/09/98	30	0
1	01/12/98	10	150
1	01/13/98	20	0



Ptime is entered in the Leadt(ime) field of Part Data Default or Part Data Depot specific.

A Ptime of 2 days means that all constraining components of the product need to be available 2 days before production starts.
The component constr_exe is available on 01/05/98 and on 01/12/98. Therefor Prodpart_1 can not be produced before 01/07/98 and 01/14/98.
The orange marked example shows why 'Σ Firm' is necessary in the above formula.

WoProp (t) = Exec (PropSch) - Σ Firm

On hand inventory

cross depot (B1 and B2)

	PRODPART_1	End-Production	Capa		OH	200	IN	0	LS	0	Cost	0.00	BN		
Froz	0	Ovd CO	0	Reord	1	Min	0	Mult	1	Wos	0.60	chck	yes	PTime	2	BTO	no

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	0	11	0	11	0	0	32	168	168	0.40	0
1	01/05/98	0	40	40	11	40	0	120	88	88	0.20	0
1	01/06/98	0	0	0	11	0	0	20	68	68	0	0
1	01/07/98	53	11	0	22	0	50	81	37	37	0	0
1	01/08/98	253	233	0	255	0	0	253	-216	-216	-0.40	0
1	01/09/98	31	10	0	265	0	0	31	-247	-247	-0.20	0

depot B1

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	0	0	0	0	0	0	21	179	179	0.40	0
1	01/05/98	0	40	40	0	40	0	120	99	99	0.40	0
1	01/06/98	0	0	0	0	0	0	20	79	79	0.20	0
1	01/07/98	31	0	0	0	0	50	70	59	59	0.40	0
1	01/08/98	20	0	0	0	0	0	20	39	39	0.20	0
1	01/09/98	21	0	0	0	0	0	21	18	18	0	0

depot B2

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	11	11	0	11	0	0	11	-11	-11	-0.80	0
1	01/07/98	11	11	0	22	0	0	11	-22	-22	-0.60	0
1	01/08/98	233	233	0	255	0	0	233	-255	-255	-0.40	0
1	01/09/98	10	10	0	265	0	0	10	-265	-265	-0.20	0

OH quantities are displayed per depot in Material Environment Inventory.

Inventory

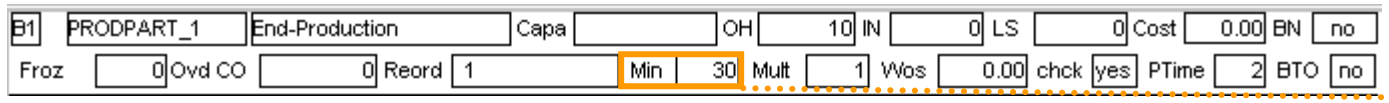
Depot	Part	Avail o.H.	Adjust o.H.	Tot Avl
B1	PRODPART_1	0	200	200
	Total	0	200	200

The intention of the cross depot query is to show the cumulated (system wide) inventory. You don't see any wrong allocation here. [( ) 168 = -11 + 179]
Negative entries in a cross depot query show that the cumulated inventory would not be sufficient even if transfer times would be neglected.

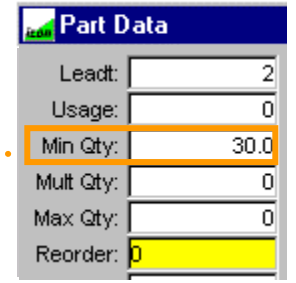
Though the cross depot view shows a positive inventory, depot B2 is missing material.

The PropSch is calculated that the demand (Dem) is exactly covered taking the inventory level into account ( ).

Min order quantities can be set in ‘Part Data default’ (Depot specifics). Each PropSch quantity (except for firm orders) matches the Min criteria.



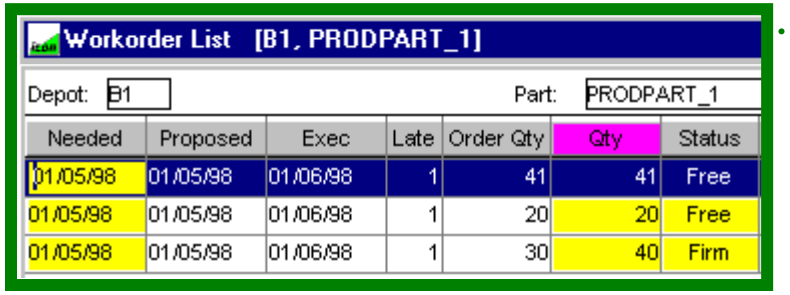
BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	30	30	0	30	0	0	21	-11	-11	-0.40	0
1	01/05/98	101	101	0	131	40	0	120	-131	-131	-0.20	0
1	01/06/98	30	30	161	0	0	0	20	10	10	0	121
1	01/07/98	60	30	30	0	0	50	70	20	20	0.20	30
1	01/08/98	30	0	0	0	0	0	20	0	0	0	
1	01/09/98	30	30	30	0	0	0	21	9	9	0	
1	01/12/98	151	161	161	0	0	0	170	0	0	0	



Each WO >= 30

1. choose row with PropSch or / and WoProp > 0

2. click ‘Retrieve-button’

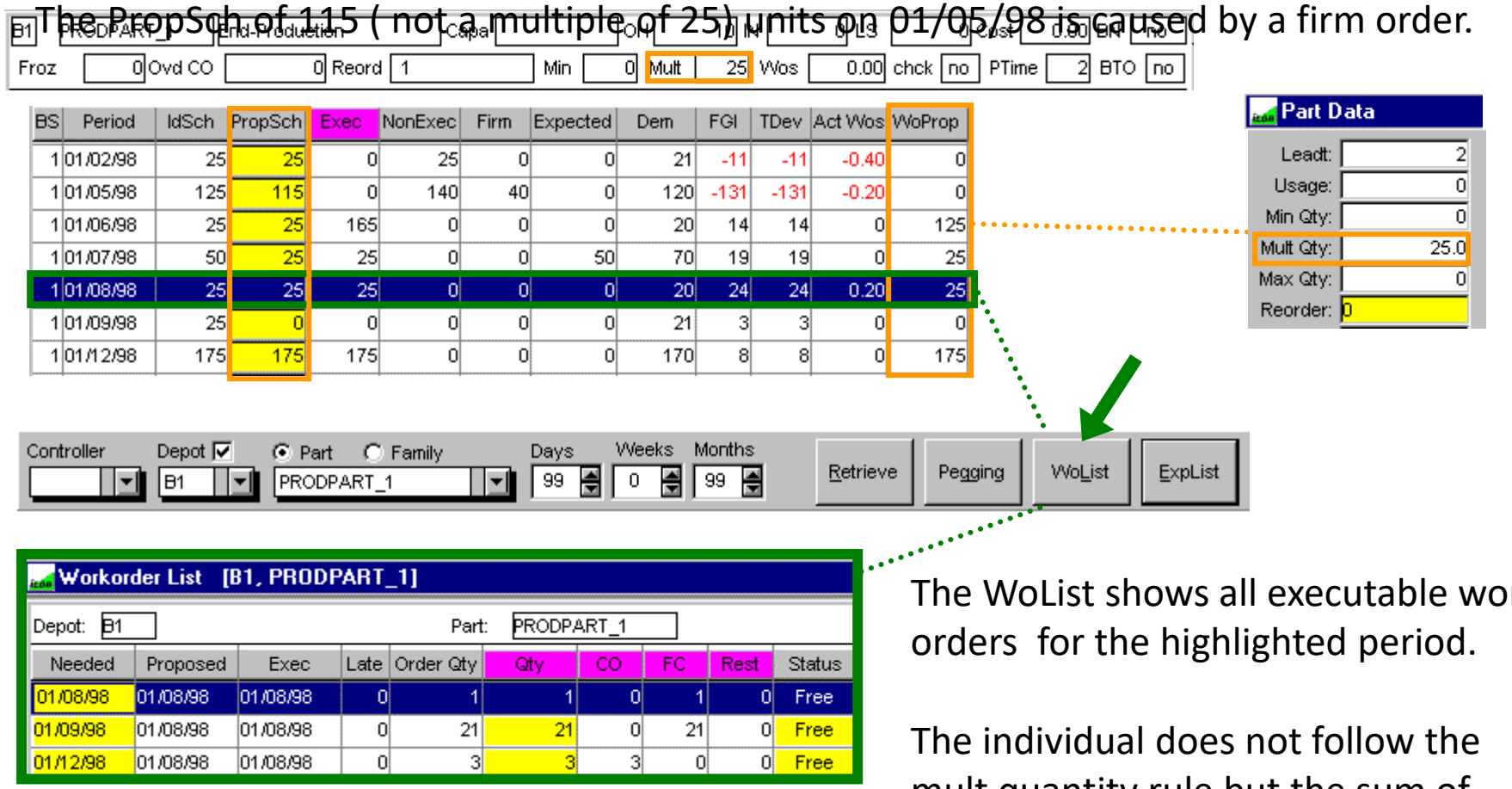


Needed	Proposed	Exec	Late	Order Qty	Qty	Status
01/05/98	01/05/98	01/06/98	1	41	41	Free
01/05/98	01/05/98	01/06/98	1	20	20	Free
01/05/98	01/05/98	01/06/98	1	30	40	Firm

In the Work order List you can see all work orders which are executable that day or proposed for and executable during the planning horizon.

The Min quantity is considered for the proposed quantity but not for the individual WO. If portions of a WO are not executable the executable portion as well as the missed quantity is scheduled ignoring

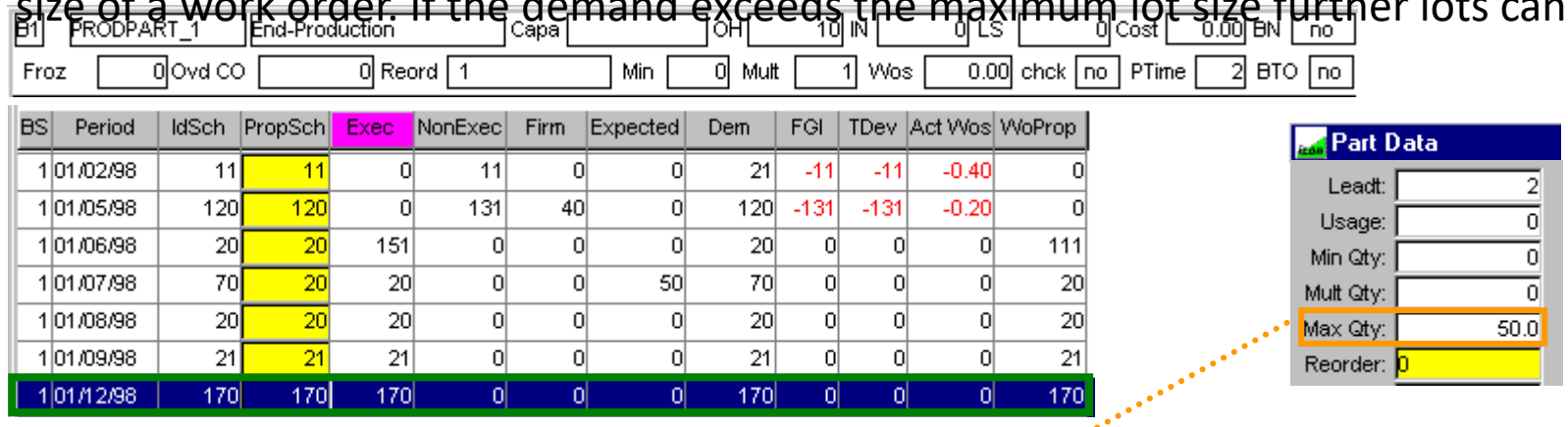
Mult quantities can be set in ‘Part Data default’ (Depot specific). The sum of all free generated WO Prop follows the mult quantity. Firm WOs Fixed WOs and former non executable quantities may not follow the mult qty. The same is true for WOs which are restricted by a capacity.
The PropSch of 115 (not a multiple of 25) units on 01/05/98 is caused by a firm order.



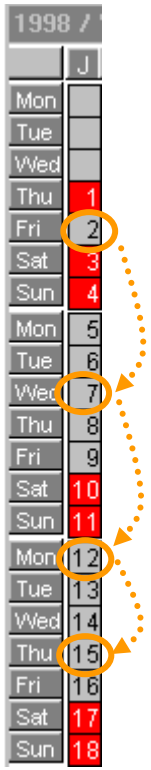
The WoList shows all executable work orders for the highlighted period.

The individual does not follow the mult quantity rule but the sum of Proposed WOs (with the exeptions mentioned above).

Max quantities can be set in ‘Part Data default’ (Depot specific). Max qtys are only taken into account for production parts. Max qty is not meant as a restriction of the daily output quantity. It only limits the lot size of a work order. If the demand exceeds the maximum lot size further lots can be scheduled .



In the example the demand of 170 units (150 CO + 20 FC) is broken down into 3 lots of 50 for the CO and the FC quantity.



The Reordering can be set in ‘Part Data default’ (Depot specific). There are two modes of reordering available in MPS. One the definition over a coordination period, where the reorder may happen after a defined number of working days (not calendar days) and two the order cycle where working and non working days are taken into account.

0 LS 0 Cost 0.00 BN no

Froz 0 Ovd CO 0 Reord 3 Min 0 Mult 1 Wos 0.00 chck no PTime 2 BTO no

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	11	111	0	111	0	0	21	-11	-11	-0.40	0
1	01/05/98	120	40	0	151	40	0	120	-131	-131	-0.20	0
1	01/06/98	20	0	151	0	0	0	20	0	0	0	111
1	01/07/98	70	61	61	0	0	50	70	41	41	0.40	61
1	01/08/98	20	0	0	0	0	0	20	21	21	0.20	0
1	01/09/98	21	0	0	0	0	0	21	0	0	0	0
1	01/12/98	170	180	180	0	0	0	170	10	10	0	180
1	01/13/98	20	30	30	0	30	0	20	20	20	0.20	0
1	01/14/98	20	0	0	0	0	0	20	0	0	0	0
1	01/15/98	20	161	161	0	0	0	20	141	141	0.40	161
1	01/16/98	121	0	0	0	0	0	121	20	20	0.20	0

Part Data

Leadt:	2
Usage:	0
Min Qty:	0
Mult Qty:	0
Max Qty:	0
Reorder:	3

Workorder List [B1, PRODPART_1]

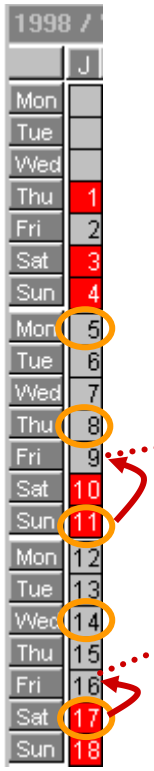
Depot: B1 Part: PRODPART_1

Needed	Proposed	Exec	Late	Order Qty	Qty	Status
01/07/98	01/07/98	01/07/98	0	20	20	Free
01/08/98	01/07/98	01/07/98	0	20	20	Free
01/09/98	01/07/98	01/07/98	0	21	21	Free

In the above example you can see, that proposals are generated every 3 days. The exception are the 111 units on 01/06/98. But these result from post-poned WOs, where the corresponding demand is on 01/02/98.

The period when reordering starts is determined by the first demand.

The WoList shows that Needed quantities of the next 3 working days are executed together on 01/07/98.



The order cycle is based on calendar days. In Part Data Default the parameters for the order cycle can be set.

B1	PRODPART_1	End-Production	Capa		OH	10	IN	0	LS	0	Cost	0.00	BN	no
Froz	0	Ovd CO	0	Reord	D 3 1998-01-05	Min	0	Mult	1	Wos	0.00	chck	no	PTime	2	BTO	no

BS	Period	ldSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	11	0	0	0	0	0	21	-11	-11	-0.40	0
1	01/05/98	120	171	0	171	40	0	120	-131	-131	-0.20	0
1	01/06/98	20	0	171	0	0	0	20	20	20	0	131
1	01/07/98	70	0	0	0	0	50	70	0	0	0	0
1	01/08/98	20	20	20	0	0	0	20	0	0	0	20
1	01/09/98	21	191	191	0	0	0	21	170	170	0.20	191
1	01/12/98	170	0	0	0	0	0	170	0	0	0	0
1	01/13/98	20	30	30	0	30	0	20	10	10	0	0
1	01/14/98	20	30	30	0	0	0	20	20	20	0.20	30
1	01/15/98	20	0	0	0	0	0	20	0	0	0	0
1	01/16/98	121	141	141	0	0	0	121	20	20	0.20	141

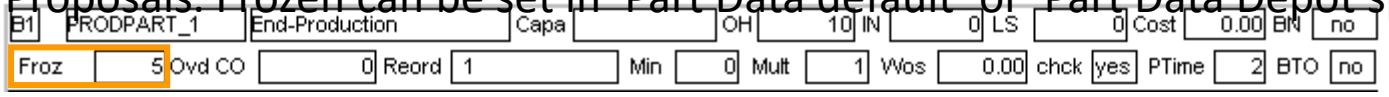
Part Data

Leadt:	2
Usage:	0
Min Qty:	0
Mult Qty:	0
Max Qty:	0
Reorder:	D 3 1998-01-05

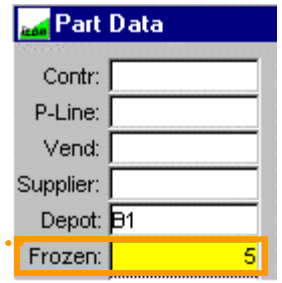
A fixed order cycle is defined as **Period** (D ay or M onth), **Cycle** (periods between two proposals) and **Offset** (earliest date for proposal: YYYY-MM-DD). If a order would be placed on a non working day, it is routed to the first working day prior to the day scheduled. Days like this are marked with a red box in the above example.
In case off missing material the offset date would be ignored to clear the shortage situation as soon as possible (01/07/1998).

Examples: D 7 1998-01-02 stands for Fridays every week
M 1 1998-01-15 stands for the 15th every month.

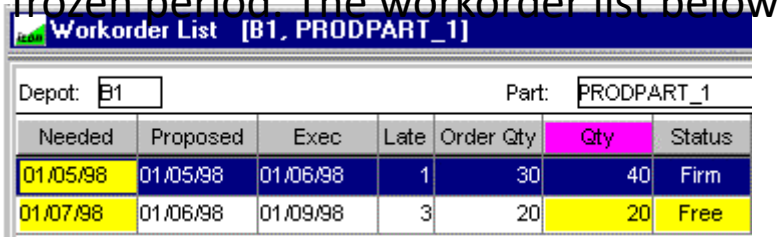
Frozen defines a number of working days where there are no WOs from free WO Proposals. Frozen can be set in ‘Part Data default’ or ‘Part Data Depot specifics’.



BS	Period	ldSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	11	11	0	11	0	0	21	-11	-11	-1.00	0
1	01/05/98	120	120	0	131	40	0	120	-131	-131	-0.80	0
1	01/06/98	20	20	40	111	0	0	20	-111	-111	-0.60	0
1	01/07/98	70	20	0	131	0	50	70	-131	-131	-0.40	0
1	01/08/98	20	20	0	151	0	0	20	-151	-151	-0.20	0
1	01/09/98	21	21	172	0	0	0	21	0	0	0	172
1	01/12/98	170	170	170	0	0	0	170	0	0	0	170



In the example the Exec column only contains the WO from the firm WO (40) and could contain fixed WOs. Free generated WO Proposals are placed on the first day after the frozen period. The workorder list below shows the status of the workorders.



Needed	Proposed	Exec	Late	Order Qty	Qty	Status
01/05/98	01/05/98	01/06/98	1	30	40	Firm
01/07/98	01/06/98	01/09/98	3	20	20	Free

Weeks of supply represent a dynamic inventory goal. The target inventory level (T(arget)-FGI) fluctuates to cover the demand for a defined number of days (1 day = 0.2 weeks).

Wos can be set in 'Part Data default' or 'Part Data Weeks of Supply'

B1 | PRODPART_1 | End-Production | Capa | OH 10 | Fil 0 | LS 0 | Cost 0.00 | BM no

Froz 0 | Ovd CO 0 | Reord 1 | Min 0 | Mult 1 | Wos 0.00 | chck yes | PTime 2 | BTO no

BS	Period	IdSch	PropSch	Exec	NonExec	Firm	Expected	Dem	FGI	TDev	Act Wos	WoProp
1	01/02/98	262	262	0	262	0	0	21	-11	-262	-0.40	0
1	01/05/98	170	170	0	432	40	0	120	-131	-432	-0.20	0
1	01/06/98	20	20	452	0	0	0	20	301	0	1.00	412
1	01/07/98	20	0	0	0	0	50	70	281	30	1.20	0
1	01/08/98	20	0	0	0	0	0	20	261	10	1.00	0
1	01/09/98	121	111	111	0	0	0	21	351	0	1.00	111
1	01/12/98	20	20	20	0	0	0	170	201	0	1.00	20

BS	Period	IdSch	CO	SFC	Dem	PrimDem	SecDem	Ideal FGI	WoST	T-FGI	Addtl.Dmd
1	01/02/98	262	0	21	21	21	0	251	1.00	251	0
1	01/05/98	170	100	20	120	120	0	301	1.00	301	0
1	01/06/98	20	0	20	20	20	0	301	1.00	301	0
1	01/07/98	20	50	20	70	70	0	251	1.00	251	0
1	01/08/98	20	0	20	20	20	0	251	1.00	251	0
1	01/09/98	121	0	21	21	21	0	351	1.00	351	0
1	01/12/98	20	150	20	170	170	0	201	1.00	201	0
1	01/13/98	20	0	20	20	20	0	201	1.00	201	0
1	01/14/98	20	0	20	20	20	0	201	1.00	201	0
1	01/15/98	20	0	20	20	20	0	201	1.00	201	0
1	01/16/98	17	100	21	121	121	0	97	1.00	97	0
1	01/19/98	17	0	20	20	20	0	94	1.00	94	0

Part Data

Std Cost: 0

Wos: X 0.6

Min Inv: 0

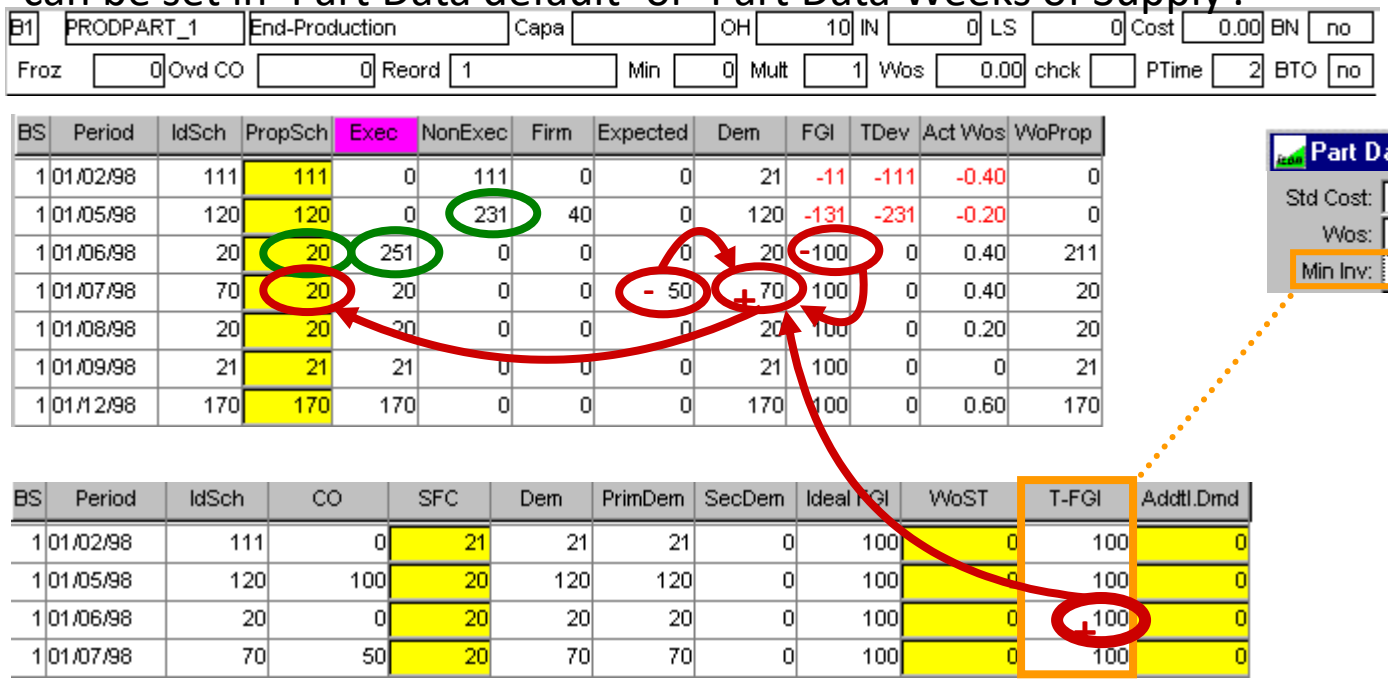
Part Data [PRODPART_1]

Weeks of Supply

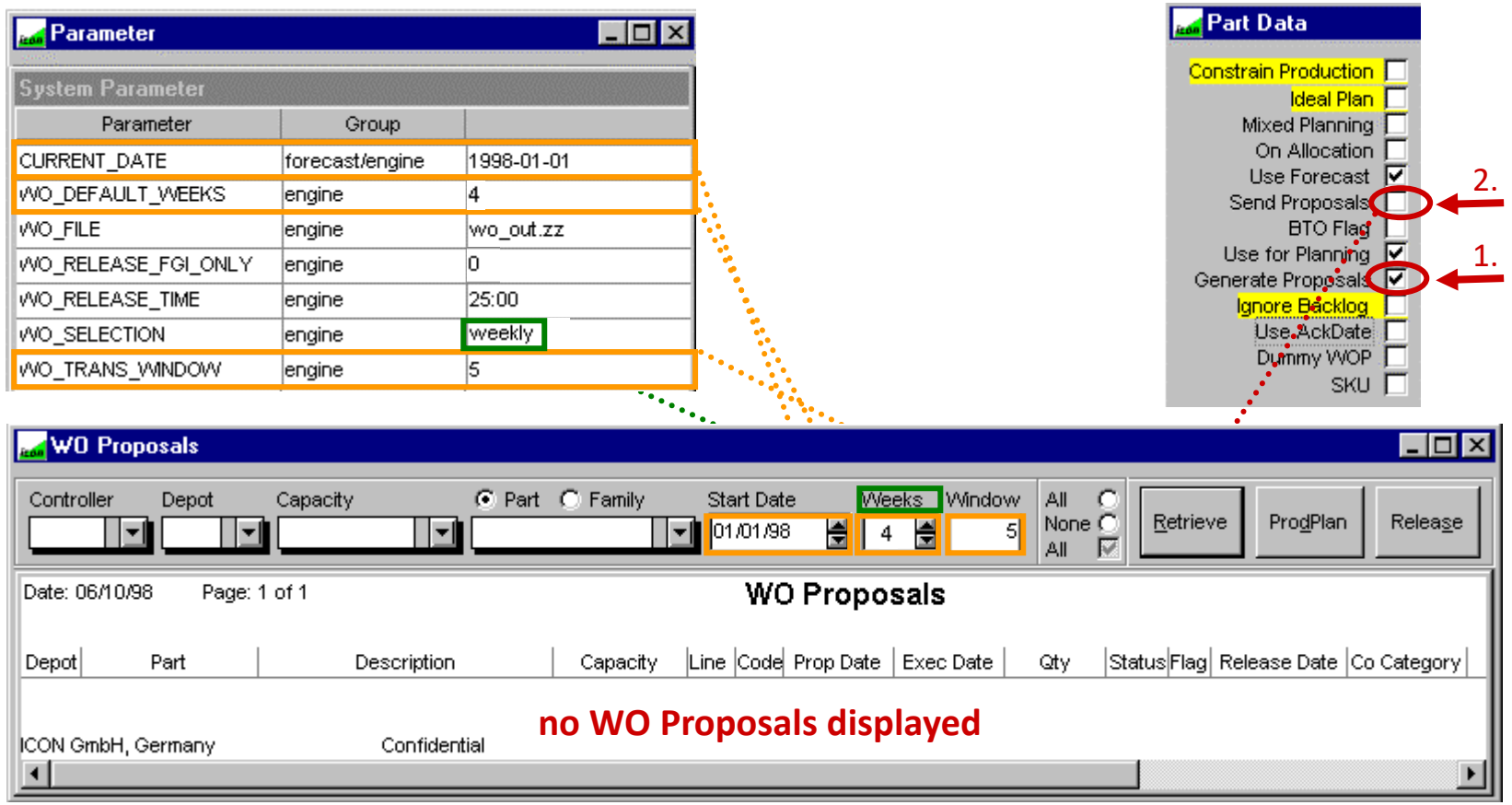
Depot	Part	Month	Wos	Min Inv
B1	PRODPART_1	Jan	1.0	0

One Wos means that the Target-FGI for a period covers the demand for the next 5 working days.

Min Inv represents a static inventory goal. Likewise the Target-FGI is a constant value in the Ideal Schedule Development window. **Min Inv** can be set in 'Part Data default' or 'Part Data Weeks of Supply'.

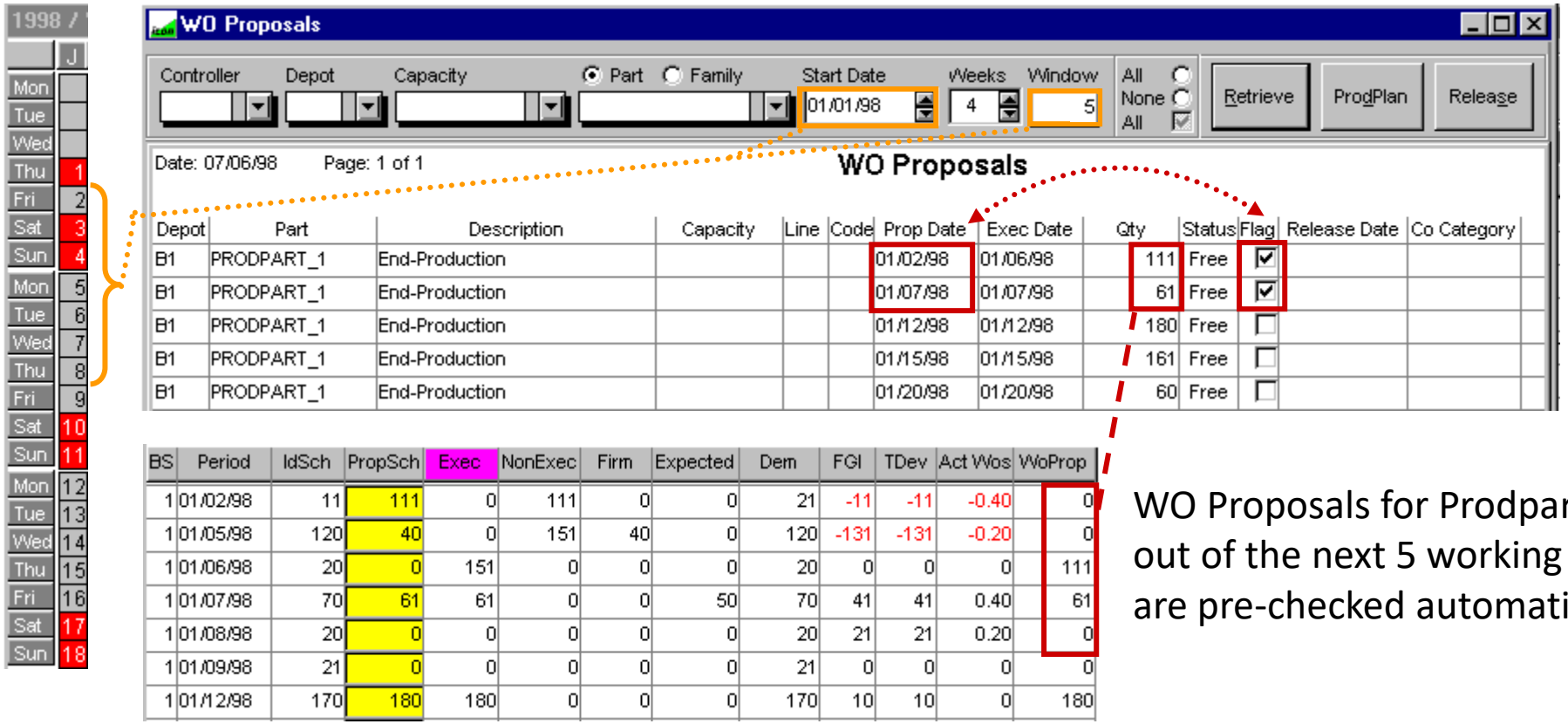


WO Proposals precondition



Default parameters in the WO Proposals planning grid are set in System Parameters.

1. With the '**Generate Proposals**' flag checked, WPO Proposals are calculated by Tec VEP and displayed in the production window.
2. Only if the '**Send Proposal**' flag is checked the proposals from the production screen are display in the '**WO Proposals**' window.

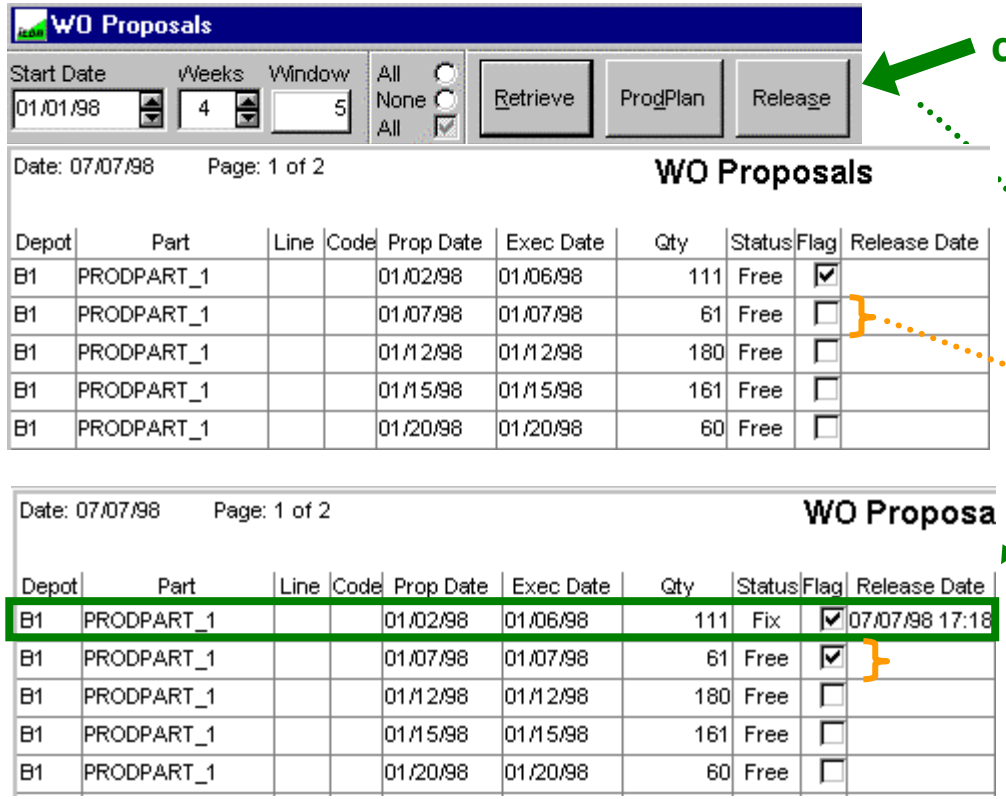


WO Proposals for Prodpart_1 out of the next 5 working days are pre-checked automatically.

All WO Proposals for a depot, a supplier, a part or family during the next **WO_DEFAULT_WEEKS** are displayed in the WO Proposals window. The first **WO_TRANS_WINDOW** periods of WO Proposals (outside a frozen per are pre-checked automatically in the WO Proposals window.

With **WO_RELEASE_FGI_ONLY = 1** only those WOs are pre-checked which are covered by inventory.

There are three different status for WO Proposals in Tec VEP - FREE, FIXED, RELEASED. A free WO is proposed by Tec VEP. All WOs with a release flag which are not manually released during the day will be released automatically during the nightly batch cycle (if auto-release is enabled).



click ‘Release-button’

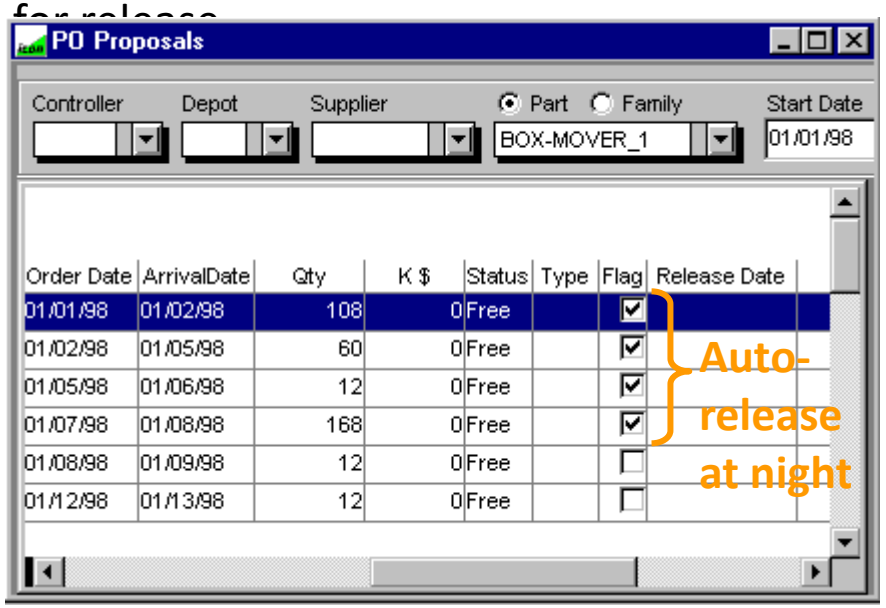
Clicking the ‘Release button writes all checked WOs to the WO_FILE which triggers a work order in the execution system. This can **not be reverted** by the planner any more.

This WO is manually unchecked (inside WO_TRANS_WINDOW).

The ‘Release Date’ marks a already released WO.

Manually unchecked WOs inside the WO_TRANS_WINDOW get checked again after the release.

The automatic WO Proposal release cycle works in two steps. At day number one (01/01/98) the planner looks at the WO Proposal window. Each WO Proposal within the WO_TRANS_WINDOW are pre-checked for release.



All checked WOs are automatically released during the nightly batch cycle.

This means all released WO Proposals appear next day in the

a) Material Environment with the status **firm** and

b) as **firm** in the Production screen

01/01/98

01/02/98