

Why does this program have that funny title, TGV? Isn't that the name of a French Express Train?

It started as a pun ...

The Machine Loading screen was originally designed for a large French customer. There, what started out as a pun was quickly adopted by everybody, and other countries followed suit.

How come? Well, in the early eighties we created the program « Petit Train » – the « Little Train » – for that same customer. The « Grand Train » is what the French sometimes call the corrugator, which makes it clear that « Petit Train » stands for the conversion machines.

That old program shows the machine load by weeks, and the name « Petit Train » stuck because the single days of each week resemble the wagons of a train. Later, people felt that looking at the machine load by weeks wasn't adequate anymore, they wanted to enhance visibility by looking at the machine load of each day.

Our answer was the « Train à Grande Visibilité », with homage to the French TGV express train, the « Train à Grande Vitesse ».

Conclusion: The TGV gives you a clear day to day view of the machine load.

But what do all these numbers mean?

All values are given in hours

The answer is simple: All numbers in this table represent *hours*.

PC-Topp: Machine Load		09.05.		15.05.	
20		5	8	8	8
	Slotter Jurine	15.05.			
30		3	10	0	7
	Martin 1000	19	23	23	17
		9	14	05	16
		11	17	22	17

For each machine, three lines containing data appear, always starting with today's figures (the exact date and time are shown in the headline, on the right).

The background colors are the key to decoding the exact meaning of each square.

Figures on **blue** background give the **Capacity in work hours** on the corresponding day (according to the Machine Timetable).

On a **green** background, the **number of free work hours** remaining on that day is displayed. (In other words: The difference between Blue and Green is the machine load on that day.)

Red indicates **overload**. (Here, the machine load equals the total of Blue plus Red.)

The bottom line finally indicates graphically how the machine load develops with time:

Red The **machine is fully loaded**.

Orange The machine is **critically loaded**. Up until the given date, there is less free capacity than one day's production.

Yellow the machine is **heavily loaded**. The free capacity is less than two production days.

And why is the free capacity shown in white on some days, and in grey on others?

Grey is like the shadow of big events to come.

If the number of free work hours is shown in **white**, then there's no problem: This free capacity is fully available.

Be careful, however, if it is shown in **grey**: The free capacity only *seems* to be available when you look at nothing but that one day. However, the free work hours are required to absorb an overload on another day.

Example 1: On May 16, machine 30 has a total workload of 29 hours, which translates into an overload of 7 hours as shown. In order to have all orders finished at the end of that day, the 7 work hours

need to be anticipated. That means, though, that on May 15 the full three shifts (23 hours) will not be fully available, just 14 hours remain.

Example 2: On Friday May 12, machine 20 still seems to have four hours of free capacity. But why is that figure 4 shown in grey? The red bar makes it clear that the machine is fully loaded until May 15. The four hours on Friday are hardly enough to absorb the overload on Monday. It even spills over into Tuesday, at least theoretically – its free capacity is also reduced by one hour.

Who is supposed to use the TGV?

The graphical display of the machine load is first and foremost intended for the Sales Department.

The red and orange bars make it blatantly clear which due dates can easily be confirmed for new orders, and what days are off limits:

Any additional order that falls into the red zone will either entail delays for other orders, or it will itself not get finished on time.

Is the TGV just for Sales then, or can Planning benefit as well?

In Planning, there is a simple rule of thumb: Each machine should be scheduled at least until the end of the red bar, in other words at least until the first day with free capacity.

Oops, what's the use of planning that far ahead?

Well, if a machine is saturated for several days, than it certainly can't hurt to line up the orders in a preliminary, reasonable sequence.

In doing so, there is no way that you will schedule an order to run unnecessarily early: It may well be that isolated orders run before their normal production date, but doing so is necessary in order to finish all subsequent orders on time. If you still don't believe, simply give it a try: You will see that in the end things work out just fine – all orders lined up will exactly fill the available free space.

Are the TGV's figures always up-to-date?

Yes ... and then no.

The machine load is automatically recalculated at fixed times, so that it can be accessed at any time with no wait. The headline clearly states the exact time at which the situation was recorded.

Usually, the TGV is recalculated every 15 or 30 minutes, thus it is always sufficiently recent. If you wish, the system administrator can change a setting on the PC-Topp Services PC for even more frequent updates.

Ideally, each such order should be okayed by Planning; as a result, the sales person is aware of the consequences of a rush order already at the time the order is taken.

An even better solution is to give the salesperson direct (read-only) access to the orders in the red area, allowing him or her to identify orders that are less urgent and can be pushed back to make room for the rush order.

Working that way has two major advantages:

At an early stage, you're able to line up the orders in a way that allows optimum streamlined production on the machine. And on upstream and downstream operations, the time of availability becomes clearly visible and can be taken into account when planning those machines.

But the main advantage is this: When Sales sends an order for a period in time that is already full (and therefore scheduled), that order will suddenly appear on the bottom of the screen, all alone on a day that was previously empty because all that day's orders were already scheduled. No way will you miss that order!

When you then schedule that order, all dire consequences will become immediately visible ... this is how it pays to plan ahead over a longer period of time.

However, schedule changes are reflected only with a little delay, which may be a problem when you want to check the effects of a major schedule change.

In such a case, it is possible to trigger the update manually at the Services PC – or you use the DOS version which calculates the current figures within a few seconds, if you accept the less than perfect presentation in character mode.



How can I tell which orders exactly correspond to the machine load of a given day?

Attention:
PC-Topp is aware of the **Production Day**, from the beginning of the first shift until the end of the last shift!

The answer to this question is easy, except for a tiny little detail ... let's start with the easy stuff:

Select any day on the TGV and jot down the number of hours of work shown for that day. (Remember: The work load is calculated as "blue minus green" or "blue plus red")

Next, go to Conversion Machine Scheduling and check the orders that are scheduled to run on that day. Add the hours and minutes that PC-Topp shows for those orders, and jot down the result under "Scheduled".

Now check the bottom half of the screen, under the corresponding date. Again, add the durations of the orders appearing under that date, but - now this is important - do not add any orders that are already scheduled on the previous machine (those orders are shown with the time they become available from the preceding operation). Note the result under "Not Scheduled".

I'm afraid my figures are different from those found in the TGV!

Well, there are a few critical details that may lead to those differences. Please check the following exceptions and frequent errors:

- **The current order** is not counted in full, but with its (theoretical) balance.
- Each order is counted under the date where it **begins**, even if it ends only on the following day.

Orders that are scheduled on the corrugator but not in conversion, why aren't they simply added to the day where PC-Topp shows them?

Well, we found that wouldn't be useful, it wouldn't be "fair" regarding the orders that are really urgent. Why?

That situation is only likely to occur if an order is put on the corrugator long before it is normally due, e.g. for combination reasons.

All other orders will normally be also scheduled on the conversion machines, either because their due date is imminent, or simply because they were put where they belong in the schedule, which means they are on (or near) their normal production date.

So far everything was quite clear: The machine load of a day is the total of the orders scheduled to run on that day, plus the orders whose "normal production date" matches that day.

But until now all those orders are missing that we had skipped in the second step! Which day do they belong to?

Again, the answer is seemingly simple: Those orders are also counted on their "normal production date". Only ... that date isn't shown and can't be found out easily.

The best solution to this dilemma is to schedule those orders not just on the first machine (or on the corrugator), but also on all subsequent operations, by putting them on a reasonable production date.

Once you do that, you won't have any omitted orders any more, and the figures should match ...

- Orders with a duration that is greater than the number of work hours in the day are **split** between that day and the following dates. Attention: This is only true for orders that are already scheduled.
- It is easy to go wrong with the **production day**: The schedule shows a date separator line where it belongs, in front of the first order after midnight. That order and the following ones often still belong to the preceding production day, because that day's night shift ends only in the morning of the next day.

Why now should an order that was produced way too early be added to the work load of a day that may already be full, causing that day to appear to be overloaded?

By maintaining that order assigned to its normal production date in conversion, the TGV keeps the future work load unchanged, the way it was supposed to be.

If the order is scheduled early also in production, then the machine load will adapt itself automatically and again correspond to the changed situation: The load moves from the original ("normal") date to the scheduled production date.