Consulting and Coaching

Long-term experience for your job-sites

Based on long-time experience with job schedules of traffic route engineering (national / international) I'm offering project related application support combined with appropriate trainings.

A specific training comprising earthworks and asphalt compaction technologies could be started as early as possible. If required, for example with scheduling of the job-site or in accordance with the staff operation schedule. The participants will be instructed how to use the compaction plant in an efficient way, same applies for the finishers – but just as well following the related acceptance standards.
On-the-job consulting: Clients benefit from my expertise at an early stage, even at the asphalt mixing plant (specific mix design), which requires certain knowledge of locally disposable resources (e.g. bitumen- and stone quality).

Fig.1 Coaching + Training

<u>Smooth production flow based on economic objectives</u>

Instructions for advanced use of construction machinery (earthworks and asphalt), based on
- applications planning of relevant compaction machinery with regards to specific tasks, mix designs and time frame
- coaching / support in terms of new product investments (e.g. price-performance ratio)

<u>Training on-the-job of key staff members</u>
(Languages: German, English, French)

- Operator training for the key products at site (soil and asphalt materials)
- coordination and coaching of the staff
- built-up of a new workmanship with skill building, where applicable
- introduction of teambuilding likewise for earth-moving-machinery and - asphalt (establish mutual understanding)<u>Recognition of possible savings and quality control</u>

Fig. 2 Single drums: Big scale project

- application support of lab-personnel or rather exchange of experience, in terms of production quality and
- optimised asphalt mix design (bitumen / stone quality)
- profound knowledge of special mix designs (British / French Std., e.g. airports, runways)

Fields of application

Asphalt-Paving: „Practice makes perfect! “

The mix-design or the specific characteristics of the asphalt material makes the difference for its compactability and thus, the best roller option. But, if best choices are not available the responsible supervisor has to accept a reasonable compromise. In this context, clients can rely on my knowledge of national / international Standards (also based on further educations). Those regulations decide to some extent the selection of the rollers (e.g. weight class, amplitude, drum width) with drums or rubber tires. But also their sequence behind the paver, according to British Std.: TW, GRW, TW or French Std.: GRW, GRW, TW.
Also the time factor plays an important role, as the weather decides for the cooling time (e.g. also strong wind).

Abb.3 British Std.: TW, GRW, TW

Abb.4: Frz. Std.: GRW, GRW, TW

Stonebase (Paving / finisher)

Depending on choice of material (grain shape, -size) and suitable rolling technique we achieve the desired load bearing capacity and surface evenness und. The so called “roll factor” (Nijboer-Number) of the roller is always crucial.
It describes the longitudinal (and also transverse) flow of the material during the compaction process.
Commonly used weight classes are: 11t, 12t, 13 t and drum widths of ca. 1,7 m to 2,0 m
Major target here: Cost savings due to rate of progress!

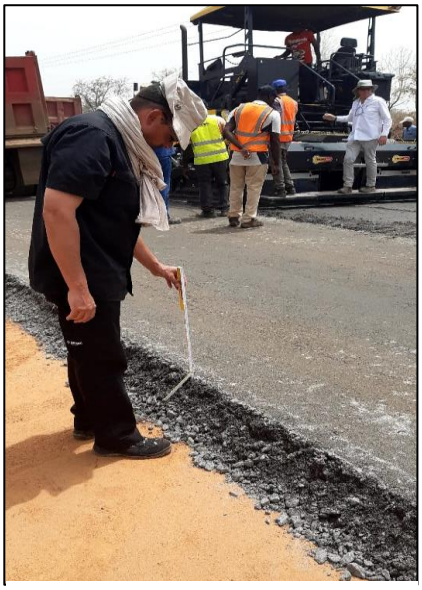

Fig.5: Check for inclination angle

My experience: A total layer of stone base material would be dispensable!
Example: 1 layer of 25 cm /day, vs. 2 layers of 12,5 cm each during two days).
Aside from that: 2 big water tankers vs. 4 tankers (at 40 km distance). Also substantial savings of diesel because of less operating hours, as well as reduced residual works (e.g. material scraping at the outer edge).

Earthwork compaction:

Highly stressed roads and infrastructures resp., worldwide must be sustainable with high loadbearing capacity and low risk of deformation. Therefore, a practice-related compaction is always a must.
Even having made the right choice of machines for the job-site and also for their rolling technique, we sometimes need to compromise the stone quality e.g. for sake of cost savings. For example, if soil mechanics in terms of stone quality (hard or less stable), is not desirable. As the case may be, we create e.g. a mix design of 3 portions of soft rock plus another portion of hard resistant rock. However, we are always targeting the overall quality aspects, like load bearing capacity and evenness!

Compaction of uniform sand (single drums):
In this case (Fig. 6) the combination of front drum vibration (for depth effect) and plate compactors at the rear has been best practice. The plate compactor offers a higher vibration frequency and thus, provides a smooth surface behind the roller (no loosening of the material).

Fig. 6 Single drum with plate compactor

Higher output with increased efficiency: Big potential!
According to my experiences, we can avoid shoving effects or re-loosening of the surface even on thicker soil layers.

Also here, we were able to achieve significant savings: A day output!
Compaction of a complete layer of at least 1 km has been compensated:
Example: 2 layers of 30 cm thicknesses in two days rather than 3 layers of 20 cm during 3 days.
The advantages are obvious: Thicker layers allow for a faster job-site finish, whereas the humidity will be kept inside the layer for a longer period of time – importantly at higher ambient temperatures.
Therefore considerable reduction of the fixed costs (e.g. wages, part-paid on-site Overheads etc.), but again savings of diesel (min. 20 %) and amount of water min. 10 %).

Above all: We are not compromising safety and quality aspects!
The responsible roller drivers and supervisors at site undergo a comprehensive training to meet the ambitious targets: Evenness of ≤ 3 mm or better and the required load bearing capacity.