



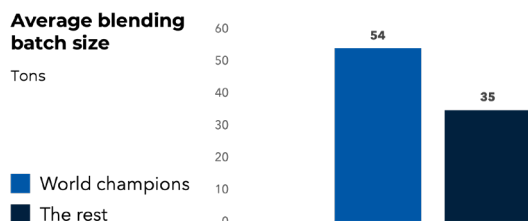
# The Best vs. The Rest

## PIMS Letter 8/2025

Lubricant manufacturers across the globe are contending with a range of complex challenges. These include saturated markets, disruptions in raw material supply, suboptimal productivity of assets and labour, elevated maintenance costs, and the high turnover of experienced personnel. Both global majors and independent manufacturers are increasingly focused on identifying the key performance drivers where the greatest gaps to best-in-class standards exist. For over 30 years, PIMS has delivered evidence-based recommendations to help lubricant manufacturers enhance their competitive positioning. Our research consistently shows that certain plants outperform their peers – these “world champion plants” benefit from a significant cost advantage and demonstrate exceptional labour and asset productivity. In this paper, we examine the distinguishing attributes of these world champion plants and explore the factors that contribute to their sustained competitive edge.

### Economies of scale

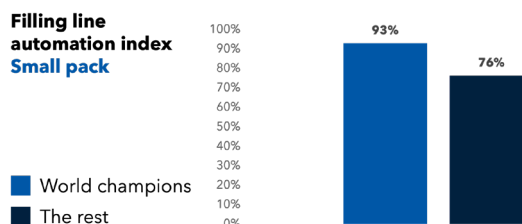
World champion lubricant plants excel in leveraging economies of scale across all core activity areas within their plants. During the blending process, these top performers produce an average of 54 tons of finished lubricants per run, compared to 35 tons for their peers. Similarly, when filling large packs such as IBCs, drums, and pails – champion plants average 25 tons per filling run, versus 16 tons for the rest. The gap is even more pronounced in smaller packs (<10 litres), where champions fill more than twice the volume per run relative to their counterparts. By capitalizing on economies of scale, these leading plants are able to significantly reduce operational complexity – minimizing the number of changeovers, flushings, and associated downtime. This streamlined approach directly contributes to superior labour and asset productivity.



### Automation

World champion lubricant plants consistently utilise a higher degree of advanced automation compared to their peers. On average, 49% of the finished lubricants volume blended by these top performers is blended using in-line blending systems, versus 33% for the rest.

In batch blending operations, champions also report greater reliance on software-controlled processes with minimal human intervention. Automation levels on filling lines are assessed using an “automation index,” which evaluates the extent of automation across six key steps: empty pack feeding, pack orientation, filling, capping, labelling, and palletizing. The index is calculated by dividing the number of automated steps by six. For instance, if four steps – filling, capping, labelling, and palletizing – are automated, the index would be 4/6, or approximately 67%. For large pack lines, world champions report an average automation index of 63%, compared to 47% among others. The gap is even more significant for small pack lines – the most labour-intensive area of a lubricant plant – where champions report an automation index of 93% versus 76% for the rest. Additionally, champions report slightly higher levels of automation in on-site warehousing, though both groups have substantial opportunities for further upgrades. By strategically investing in automation – particularly in labour-intensive departments – world champions foster greater labour productivity and operational efficiency, supporting long-term competitive advantage.



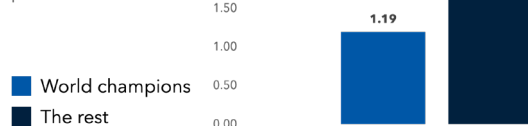


## Complexity

World champion lubricant plants master the management of complexity that arises from variety. At PIMS, manufacturing complexity is defined as the degree of difficulty imposed on the plant by commercial demands – specifically, the variety introduced through numerous formulations, components, SKUs, and footprints. Greater variety translates directly into higher operational complexity. In blending operations, champion plants report an average of 1.19 formulations per 1,000 tons of finished lubricants produced, compared to 2.22 among their peers. Similarly, in both large and small pack filling, champions handle approximately 5–6 SKUs per 1,000 tons filled, while others manage 9–10. This reduced variety enables champions to better exploit economies of scale, minimizing the frequency of changeovers, flushings, and associated downtime. Notably, both groups dispatch a comparable share of their throughput – around one-third – in bulk. It is important to note that complexity, in itself, is not inherently negative. When it supports strategic goals such as margin expansion or market differentiation, it can be justified. However, PIMS research has established a statistically significant correlation between complexity and manufacturing costs, underscoring the need for deliberate management of product portfolios.

### Formulation intensity

No. of formulations  
per 1000 tons



## Conclusions

World champion lubricant plants outperform peers by leveraging economies of scale, advanced automation, and effective complexity management. These top performers blend and fill significantly larger volumes per run, reducing changeovers and increasing productivity. They also invest more in automation – especially in labour intensive areas – achieving higher efficiency and cost-effectiveness. Additionally, they manage manufacturing complexity by limiting product variety, which streamlines operations without compromising market reach. These attributes give champion plants a sustained competitive edge in an increasingly challenging and complex competitive landscape.