

Do you really know the volume of your Anilox rolls?



Phil Hall, Managing Director Troika Systems Limited, with the 12-Band Anilox testroll.

For a long time printer / converters have assumed that the volume readings on anilox rolls ordered to the same specification from different manufacturers are the same.

Specifying an anilox roll by line count and volume seems straightforward. Simply choose your line count and carrying capacity and you might think any anilox supplier would provide a roll that delivered the same volume of ink. That's the problem. New field research has uncovered no

clear correlation to the volume measurements being generated by the various anilox suppliers. Because of this, there is a significant technical challenge to overcome due to the absence of a measurement standard for measuring anilox cell volume.

Troika Systems Limited (UK) and its partner The Provident Group (USA) have ascertained that the various measurement techniques being used by manufacturers is the reason why volume readings aren't the same. These techniques include liquid volume, scanning microscopes, white light interferometry and microscopes for measuring openings and depths and calculating the theoretical volume from a chart.

In 2007, Troika Systems launched AniCAM, an effective benchmark tool used to manage anilox inventories. AniCAM allows users to measure and record anilox inventory details from brand new rolls to the end of their usable life. Measuring volume before and after cleaning is a vital part of any anilox management or press standardization program.

Collecting data from the various types of volume measuring techniques has uncovered some noteworthy results. It has been an interesting learning experience and one worth sharing.

The Provident Group had a banded anilox roll manufactured with 12 bands from 1200-100 lpi / 500-40 lpcm (see attached photo). This roll has been sent to anilox manufacturers in North America and Europe with the request that they measure the bands using their standard method. The results gathered to date are shown on the chart below. The considerable differences measured from the same bands on the same roll are frankly astonishing. Variations between 28% and 141% in volume on the bands are seen from the 13 participating companies. Furthermore, the variations in depth measurements of the anilox cells, which is the critical value used by manufacturers using the chart method of volume calculation, varies by as much as 42%.

This research has highlighted the significant variations in readings between various measurement methods. We now know we are dealing with a complex industry wide problem that few are aware of and no one realized the magnitude until now. Our work highlights that volume measurements as they are being done today are a relative measure and only valid when done using the same procedures under controlled conditions.

Troika Systems and The Provident Group are very grateful to all the participating anilox manufacturers for their keen participation and wish to thank *Apex Europe, Cheshire, Harper Europe, Harper USA, Interflex Laser Engravers, Pamarco Global Graphics USA, Praxair Surface Technologies Europe, Sandon Global, Tech Cell, Ungricht, Zecher and others* for their willing and active participation in this important industry research. The project is ongoing and other anilox manufacturers will be contributing data in the near future.

It is hoped that this effort benefits and advances our industry. It has been a unique level of cooperation and trust that has got us to this point. The results have been shared with the companies that participated. Please note that all the manufacturers have methods within their respective operations insuring that their measurements are consistent as possible to achieve roll to roll repeatability in production.

| | LPI / LPCM | Minimum cm ³ /m ² reading | Maximum cm ³ /m ² reading | Percentage difference between manufacturers readings |
|----------------|------------|---|---|--|
| Band 1 | 1200 / 500 | 1,70 | 2,80 | 65% |
| Band 2 | 1000 / 400 | 2,63 | 4,00 | 52% |
| Band 3 | 800 / 320 | 1,99 | 4,80 | 141% |
| Band 4 | 700 / 280 | 4,50 | 8,30 | 84% |
| Band 5 | 500 / 200 | 5,12 | 9,80 | 91% |
| Band 6 | 400 / 160 | 6,25 | 12,80 | 105% |
| Band 7 | 300 / 120 | 8,15 | 12,40 | 52% |
| Band 8 | 250 / 100 | 10,60 | 15,30 | 44% |
| Band 9 | 200 / 80 | 14,80 | 18,90 | 28% |
| Band 10 | 180 / 70 | 13,90 | 20,92 | 51% |
| Band 11 | 150 / 60 | 16,70 | 27,50 | 65% |
| Band 12 | 100 / 40 | 21,50 | 40,81 | 90% |

A comparison between Anilox measuring methods clearly shows a significant range in volume readings.

Research is property of Troika Systems Limited & The Provident Group.

For more detail explanation of the research please contact

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