Author's comments regarding the 1984 Purdue paper "Computer Simulation of the Oil Injected Twin Screw Compressor"

Further calculations and laboratory tests showed a difference in performance between the 4+6 and the 5+7 lobe combinations of about 1-2 %.

In general, from experience, the differences in performance between different profiles (A, C, Sigma, e.t.c…) and lobe combinations are in size orders 1-2-%.

Comments from Professor Nikola Stosic, City University , London

Dear Bo,
You are right, if you modify a profile only and keep everything else the same, the improvement will be of about up to 2%, not more.
However, if you modify other elements by using specific features of certain profiles, you may improve the compressor performance more and substantially more, say for example if you decrease clearances because the rotors may touch at both flank sides.
Moreover, if you modify a bad compressor by improving its profile, clearance distribution, discharge ports, its L/D aspects and oil injection mass and position, you may end with substantially higher compressor performance.
Even more important aspect of these improvements is extension of the compressor range, which means that the compressors will work with lower inlet and higher outlet pressures still maintaining low discharge temperatures.