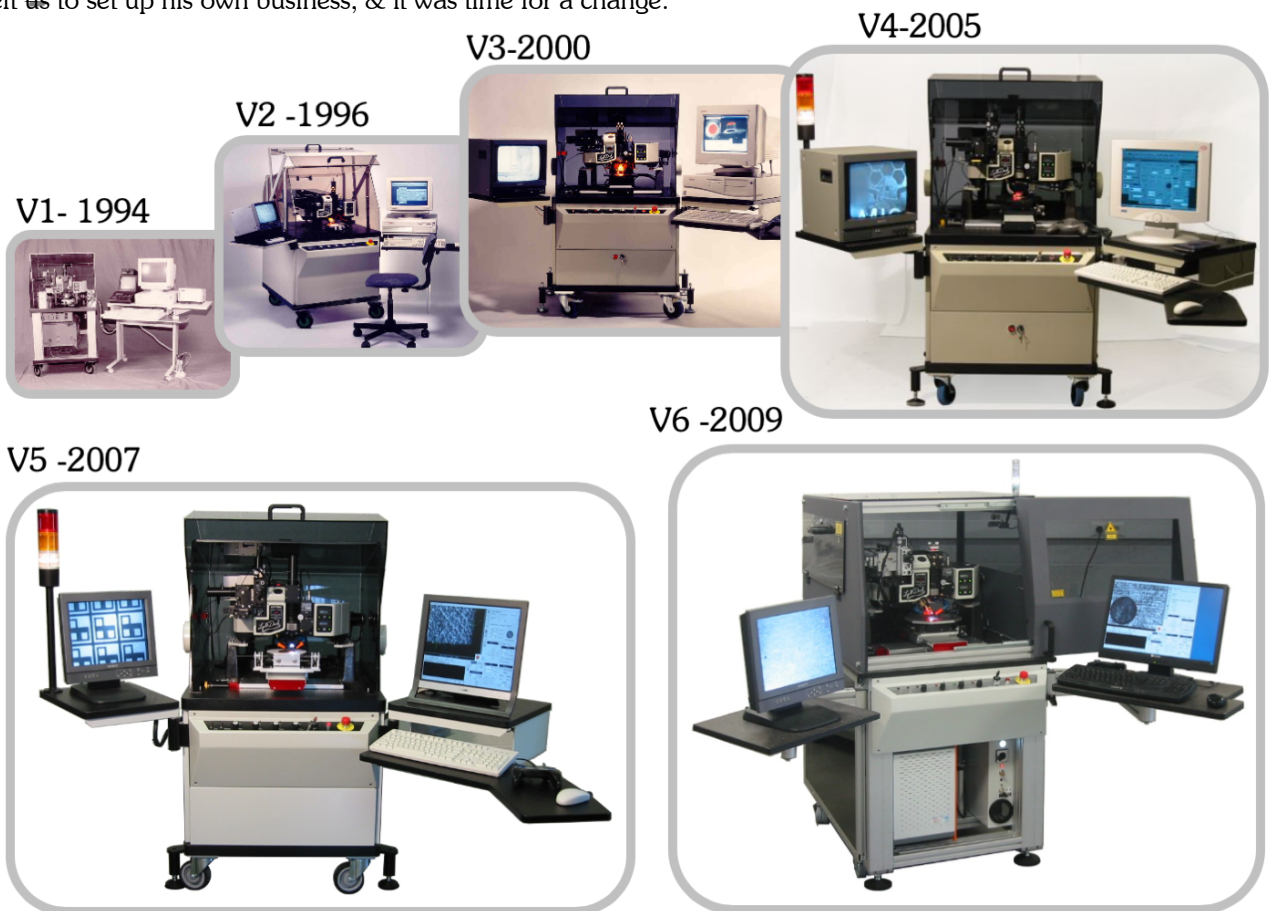
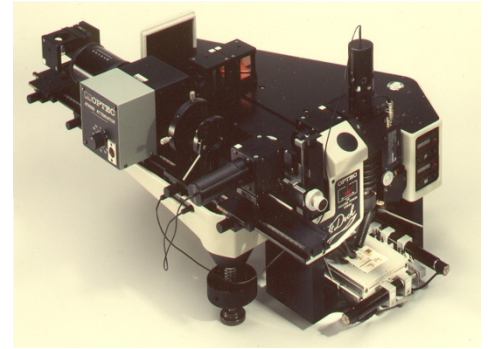


## Short History of Small Optec Excimer Machines

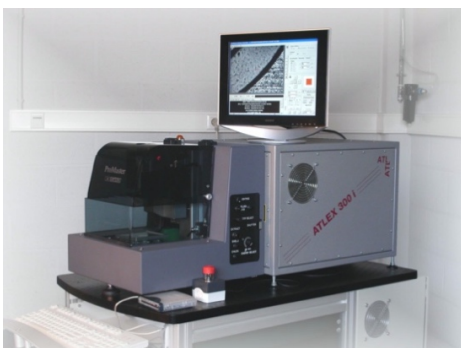
In 1991 I started Optec as a midget ranged against the giant Exitech, & decided the only way I could be competitive was to concentrate on small, low cost, machines, which were not aimed at any particular application, but which had inherently attractive & innovative features like PC controlled variable demag. & WYSIWYG\*. From experience in the excimer apps lab at Label, the **LightDeck** was conceived as a collection of 'smarts' to place between laser & sample, but we only sold a handful in this way; in the end most people wanted a complete 'package' including laser, motion stages etc.

\* Confocal TTL vision, - 'What You See Is What You Get'

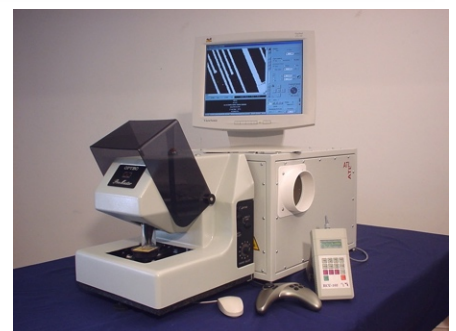
The answer to this was the **MicroMaster**. V1 was put together very rapidly just to show the principle at a trade fair. The moulded synthetic granite base supporting LD & motion stages came in with V3, differences through to V5 (the most successful MM) were mostly in PC & screen technology. V6 we only sold a few before 'retiring' the LightDeck; the (expensive) silicone moulds for the LD covers needed replacement (but without promise of numbers to cover that investment,) the colleague who assembled the LD left us to set up his own business, & it was time for a change.



Even MM was too 'evolved' & expensive for some clients, so in 2001 Optec developed a fixed 10X demag. 'little brother', - the **ProMaster**, intended as an 'add-on' to a small excimer laser, as a table-top system, and originally with moulded cover & associated control rack (not shown here). PM used the same 3e lens as MM, so the optical path was multiply folded inside the PM head, but the illumination path included a BCT to 'square up' the beam, & was very short.



In 2003, ATL changed the look of their laser, so we changed the appearance of the PM to suit.



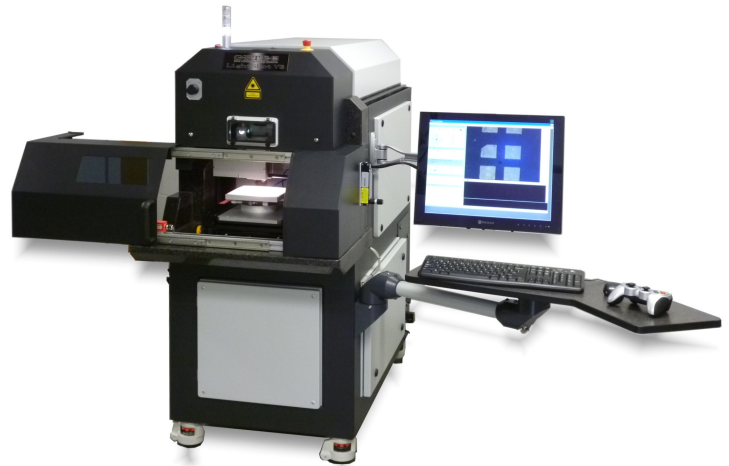
In parallel, & as with MM, we had found that most people wanted a fully integrated system, so what we had previously called PM-INT on a trolley carrying electrics & gas cabinet, became the standard form of PM, leaving the stripped-down table-top version PM-TT as the 'empty pockets' version; we sold very few in that format.

**LB Systems** Both MM & PM are what can be called ‘closed architecture’; For our own lab & demo work we ourselves had always used a straight rail-mounted BDU in the lab, for ultimate flexibility,- open architecture, a kind of unfolded LightDeck. We sold a few in this form (left below), but again many people wanted a complete system (you would have thought we would have learned by now!), so LB gradually transmogrified into LB Systems,- LB-1000 or LB-1500, depending on the rail length, dictated by application & necessary optical path length; we sold quite a few, & easy systems for us to build; probably no two identical, and included twin rail versions.



**MMV7** The trend was away from ‘do-everything’ R&D workstations towards more robust industrial tools so after MMV6 we decided to merge MM & LB Systems into a new product which could be fitted with PC-controlled variable demag. as MMV7, (we still called it the LD principle) OR internally customized as a fixed demag. LB-System.

MMV7 looks, & is!, good & has a generous internal granite space frame so is substantially more stable than the highly successful V5 (though everything has its moment, & V5 would probably not find favour today).



**LightShot** The original LightShot V1 was based on a 266nm solid state laser; today the companion system to MMV7 is the excimer based LightShot V3, of which we sold >100X to one OEM customer.

**LB Smart Systems.** LB Smart systems started in 2005 with the particular RQ of Chempa (left below), where we had only 30° access to a robot assembly plant with indexing table, so needed a long thin ‘business end’ to the system. LB Smart systems are very easy for us to build and have been produced in many variants & formats. Customers have liked LB Smart, as a ‘minimal system where they don’t get the impression they’re paying for extras they don’t need.

