



# Greenlee

## The pentathlete of handsets

### Brief

Greenlee, part of the US Textron group, is a leading provider of test equipment for fixed-line network operators. Communications Engineers often work in the rain, in open trenches and at the top of telegraph poles in winter and summer from Alaska to Arizona. In these adverse conditions test equipment is prone to poor reliability. Network downtime and maintenance costs can become a significant factor in the competitiveness between operators. Greenlee's brief for its Nautilus products required a high degree of ruggedness to ensure extended service life with low overall cost of ownership.

### Approach

The design comes from a re-evaluation of the fundamental physical principles of resilience and sealing. The PDD approach was to go back-to-basics in order to achieve military standards of performance within inexpensive, lightweight and appealing designs. Advances in structural techniques and materials now allow polymers to give unsurpassed internal protection. Structure that is elastic on impact so it will bounce was one key to PDD's novel design. The Nautilus handset will survive several 6m drops onto concrete by engineers working up telegraph poles.

It was constructed from a specialised alloy of PA and ABS to achieve the right balance of impact and sealing properties. Yet long-term data about material performance was unavailable, so the PDD team conducted predictive analysis followed by accelerated product testing in its environmental chamber and laboratory to ensure that the ambitious targets could be achieved.

### Result

The handset has been adopted by network operators in Europe and the US.

- It withstands multiple 6m drop-tests onto concrete.
- It will withstand 1m submersion for 30 minutes and is dust tight (IP67).
- A novel and patented cable clip offers a unique single-handed method of latching and unlatching.
- The Nautilus carries a three-year warranty with confidence.

### Probes and Oscillators

We extended our rugged and ergonomic design know-how to a range of cable tracing probes and line oscillators for Greenlee. Together with the handset these have remained flagship products within the industry since 1998.

### Real world Duty

We believe the same principles of combining real-world-ruggedness with economic and attractive ergonomic design can be applied to many other products such as phones, PDAs and GPS products to increase utility and appeal, while lowering real ownership costs.



*"We are not aware of any other company that can match our offering. There can be no doubt that we have produced designs that fully meet the expectations of our customers."*

Greenlee

For more information email [info@pdd.co.uk](mailto:info@pdd.co.uk) or visit our website:

[www.pdd.co.uk](http://www.pdd.co.uk)