Drift Tube Quality Control

Extensive test program:

Measurement	Requirement	Achieved
1. Drift tube length at $20 \pm 1°$C:	± 0.5 mm	± 0.5 mm
2. X-ray meas. of wire location:	≤ 10 μm (rms)	≤ 7 μm (rms)
3. Gas leak rate at 3 bar:	$\leq 10^{-8}$ bar$\cdot l$/s	$< 1\%$ failure rate
4. HV test with Ar:CO_2 (93:7) at 3 bar: Dark current at 3.4 kV (10^5 gas gain):	≤ 2 nA/m	$< 2\%$ failure rate
5. Wire tension (osc. frequency): $\Longrightarrow$ Wire sag:	350 ± 7 g (rms) $195 \pm 4\mu$m (rms)	± 7 g (rms) ± 4 μm (rms)

Current overall failure rate at start of production: 3%,

i.e. 1000 out of 35000 drift tubes.