AUTOMATION DIVISION

FINE LINE THICK FILM SOLUTIONS

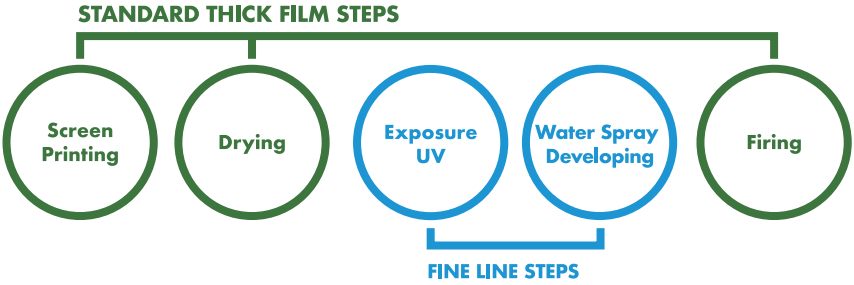
Inexpensive thick film process with fine line resolution starting from just 20µm offers the next level of integration in printed electronics and complements our traditional high density multilayer thick film circuits expertise.

50 years of experience in thick film and printed electronics allow us to render full project support from feasibility study and small scale production in Aurel to automation of a customer's facility with proven equipment and tooling.

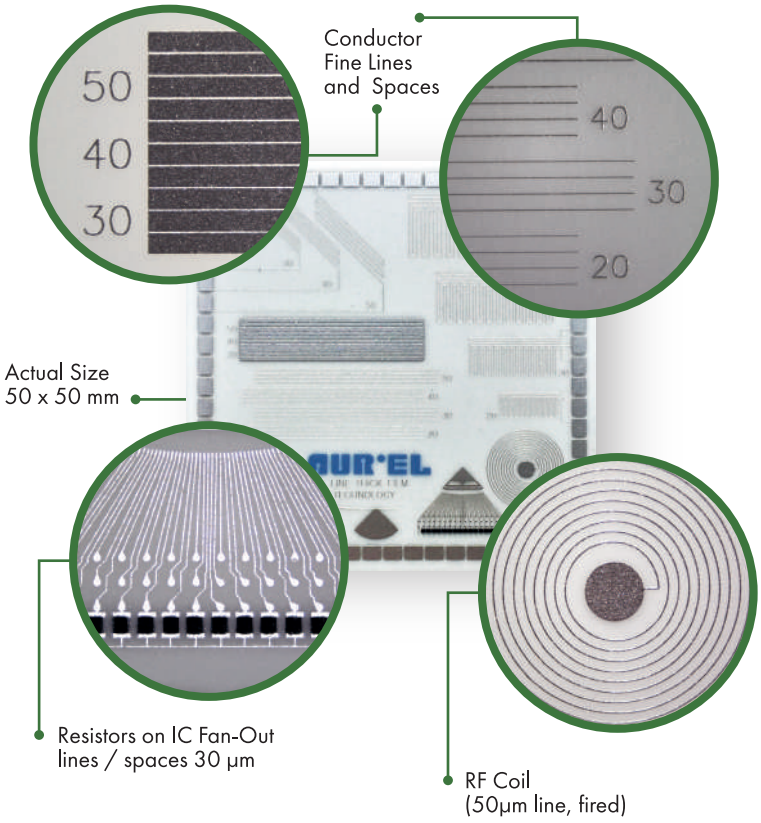
Fine Line and combined layouts are a cost-effective replacement of thin-film and solid-state design with applications that include RF and microwave modules, sensors, chip-components, MEMS, 3D-stack interposers and fan-out substrates for semiconductor elements.

FINE LINE THICK FILM PROCESS

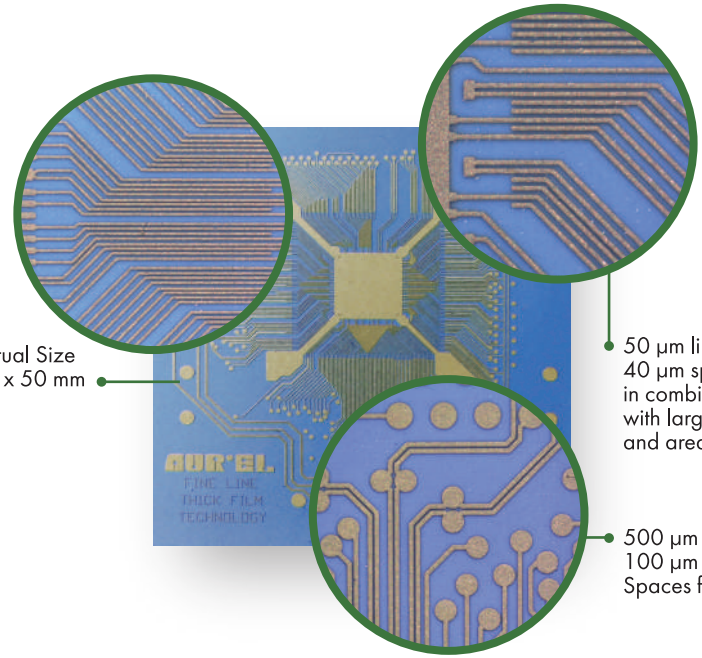
A Cheaper and Cleaner Alternative to Thin Film



FINE LINE ON FIRED CERAMICS



FINE LINE ON GREEN TAPE



Actual Size
50 x 50 mm

50 µm lines
40 µm spaces (dry)
in combination
with larger lines
and areas

500 µm via caps,
100 µm lines
Spaces from 40 to 80 µm

FULL CYCLE PRODUCT SUPPORT FOR HYBRID APPLICATIONS

- Product Concept feasibility Study
- Samples and small Batch Production (Hybrids, Advanced Packaging and SMD assembly)
- Tooling Design and Manufacture
- Automation Solutions for Volume Production
- Aurel «Hybrid Academy» Training Programs

FULLY AUTOMATED PRODUCTION LINES

FINE LINE PRINTING AND EXPOSURE

- Automatic Loader from Stack or Magazine
- Precision Hybrid Screen Printer
- Handler/Collocator
- IR + Convection Dryer
- Handler/Collocator
- High Intensity UV Exposure
- Automatic Unloader to Stack or Magazine

FINE LINE DEVELOPING AND AOI

- Automatic Loader from Stack or Magazine
- Fine Line Water Spray Developer
- Automatic Optical Inspection
- Automatic Unloader to Stack or Magazine

FEATURE RESOLUTION

	MIN. LINE	MIN. SPACE
«As fired» alumina	20 µm	30 µm
Lapped and polished alumina	10 µm	15 µm
Green tape LTCC	20 µm	30 µm
Multilayers	30 µm (vias D50 µm)	40 µm

Photoimageable paste	Conductors (Ag, AgPd, Au, W)
Types	Dielectrics
Fired Thickness	5 ... 8 µm
X/Y shrinkage	less than 10%
Resistivity	3...4 mOhm / sq. at typical thickness

COMBINATIONS WITH STANDARD THICK FILM

regular thick film areas and SMD solder pads areas

interposers for stacked dice, uBGA and fan-out on alumina and LTCC green tapes

resistors, dielectrics and various conductors overlapping in multilayer structures