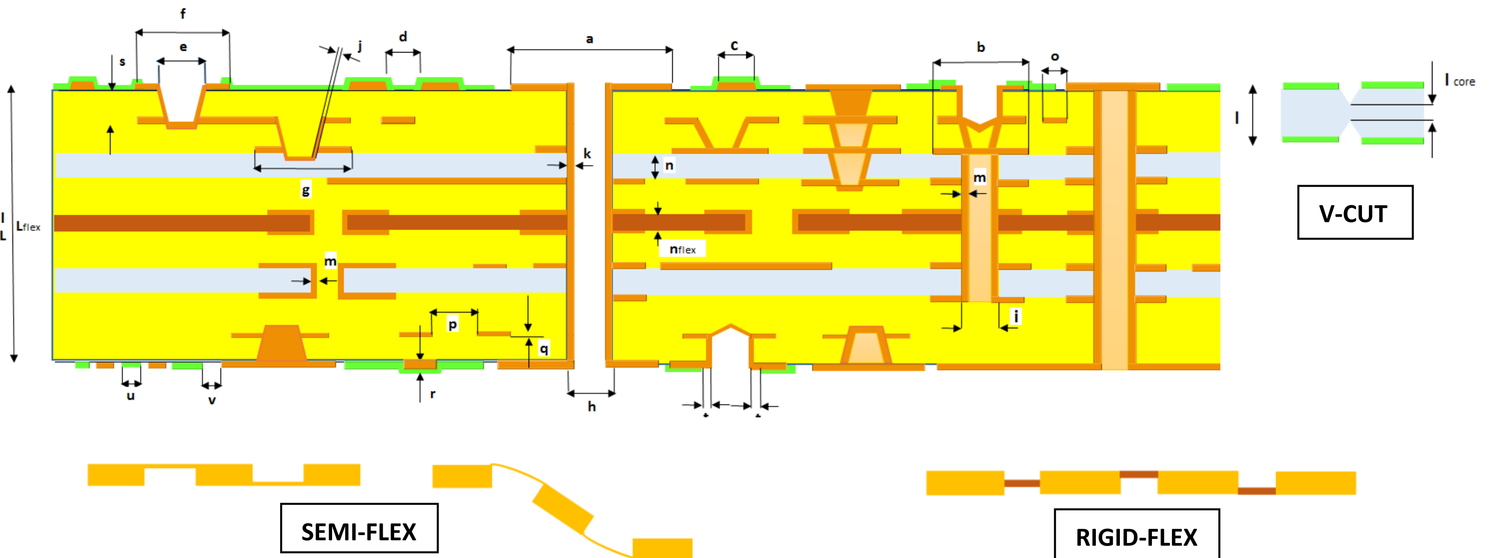
TECNOMASTER by TECNOMASTERGROUP The European PCB

TECHNICAL CAPABILITIES CHART

Parameters	Description	Categories: Standard [µm]	Categories: Advanced [µm]	Categories: R&D [µm]
Track & Gap Outer (TOP+BOTTOM + SEQUENTIAL BUILD UP)	Spacing conductors	> 75	75	50
	Minimum Track	> 75	75	50
Track & Gap Inner	Spacing conductors	> 75	75	50
	Minimum Track	> 75	75	50
PAD/Anular ring	Min. Anular ring on via	> 50	50	40
	Min. Anular ring on PTH/blind holes/buried holes	> 75	75	55
Cu base Thickness on layer	Copper clad thickness Inner	17,5÷105	< 17,5 or > 105	Special requests will be evaluated by Tecnomaster
	Copper clad thickness Outer	12÷70	9 and 105	5 or > 105
Drill/ Cu Distance	Min distance between NPTH to cu on Inner Layer	150	100	< 100
	Min distance between PTH to cu on Inner Layer	175	150	< 150
Hole Diameter	Min finished production PTH/Via /Buried via/NPTH hole diameter for thickness 1,6 mm	200	150	100
	Max aspect ratio	10:1	12:1	20:1
Blind via	Min finished production Blind via hole diameter	> 100	100	50
	Max aspect ratio	0,8:1	1,0:1	1,2:1
	Via holewall distance to Cu	175	150	< 150
Sequential Build UP	SBU/HDI	2+N+2 3+N+3	4+N+4	> 4+N+4
Solder mask (Green/Blue/Red)	Min Solder Dam	100	75	50
	Min clearance between Solder Mask and PAD	50	25	< 25
Solder mask (Black and White)	Min Solder Dam	200	150	< 150
	Min clearance between Solder Mask and PAD	50	25	< 25
Silkscreen	Min Text Width	> 75	75	< 75
	Min Text Height	> 600	600	< 600
Impedance	Controlled impedance with Polar Coupon and its report	± 10%	±5%	



Symbol	Parameter	Value
a/b	Min. Anular ring on Buried hole and PTH	75 µm
c/d	Min. line/space - Outer layer	70/70 µm
e	Min Mechanical Vias	100 µm
e	Min Laser Vias	40 µm
f/g	Min. Anular ring on via	50 µm
h/i min	Min. Plated Through hole	0,1 mm
J	Min. Cu thickness in blind vias for microvias Min. Cu thickness in blind vias for vias	> 12 µm (class 2/3) > 20 µm (class 2); > 25 µm (class 3)
k	Min. cu Thickness in Through vias	> 20 µm (class 2) > 25 µm (class 3)
l min	Min. core thickness on DS- flex	25 µm
l max	Max. pcb thickness on ML	6,50 mm
l core	Residual material between the two scoring incisions (STD)	FR4: 0,30-0,45 mm (l ≥ 1,6 mm) 0,25-0,35 mm (0,8≤ l < 1,6 mm) 0,2-0,3 mm (l < 0,8 mm) CEM1: 0,7- 0,9 mm (l ≥ 1,6 mm)
L/Lflex	Max. No. Of layers/Max. No. Of Flex layers	40 layers/20 layers

Symbol	Parameter	Value
m	Min. Cu Thickness in Buried core (2 layers) Min. Cu Thickness in Buried core (>2 layers)	> 15 µm (class 2/3) > 20 µm (class 2); > 25 µm (class 3)
n	Min. thickness rigid base material	50 µm
nflex	Min. thickness flexible base material	25 µm
o/p	Min. line/space on base Cu 18 µm - Inner layer	75/75 µm
q	Min. copper Thickness Inner Layer	18 µm
r	Min. Copper Thickness Outer Layer	12 µm (9 - 5 µm special Thk.)
s	Min.prepeg core thickness	50 µm
t	Min. Solder mask Opening on vias	100 µm
u	Minimum solder mask dam	75 µm
v	Min.solder mask clereance	25 µm

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TECHNICAL CAPABILITIES CHART

TECHNICAL DETAILS:

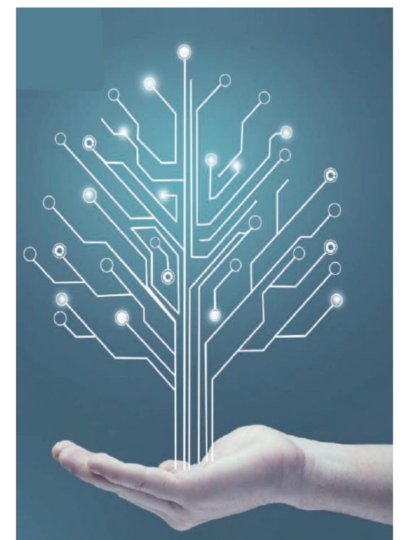
Classification	Specification	Detail	Note
Dimension and Thickness	Maximum dimension PCB (Double Layer)	610 x 1500 mm	For special demands we are available to evaluate the feasibility
	Maximum dimension PCB (Multilayer)	580 x 490 mm	
	Maximum thickness 2 Layers	3,2 mm	Up to 6,0 mm by material manufactured in Tecnomaster
	Maximum thickness Multilayer	6,5 mm	
Controlled Depth Drilling (Plated/not Plated)	In compliance with customer's specifications		
Press-fit tecniques	Within the tolerances written in the customer's datasheet		
Countersink (Plated/not Plated)	Angles	90°/120°	Further angles on demand
Counterbore (Plated/not Plated)	In compliance with customer's specifications		
Plated side and half castellated holes	In compliance with customer's specifications		
Bevelling	Angles	45°/30°/20°	Further angles on demand
Solder Mask	Curtain coated or screen printed	Green,red,blue,black,white	
Vias Treatment	Vias filling in compliance with IPC 4761		
	Plugged and capped Vias in compliance with IPC 4761		
Screen Printing	Legend ,Peelable mask,graphite and resistive inks and serialization	Black,white,yellow,red	
Printing ink-jet	Legend, Serialization (Numbering, 2D Barcode,QR code,Label,datamatrix, Std barcode)	Black and white	
Finish with or without LEAD	HAL Sn Pb, HAL LF, ENIG (Al bondable),ENIGPIG (Au bondable),Chemical TIN or SILVER, Total or Selective Electrolitic Hard or soft Gold,OSP		HAL SnPb - No RoHs
Heat dissipator	Heat dissipator	Aluminium, Copper	

BASE MATERIALS FOR PCBs:

Classification	Material Type	Material used for the manufacturing of the PCBs
CEM	CEM 1 Std	KINGBOARD KB-5150
FR4	Tg 140 (Std FR4)	KINGBOARD KB6160A;ISOLA Duraver DE104;ITEQ IT140
	Tg 140 (Black FR4)	BLACK FR4 - VENTEC VT42
	Tg 150 /160 (Mid Tg epoxy for Lead free process)	KINGBOARD KB6165F;ISOLA IS400;ITEQ IT158;VENTEC VT481
	Tg 150 (Mid Tg halogen free)	ITEQ IT150G;PANASONIC R1566
	Tg 170 (High Tg epoxy halogen free)	ITEQ IT170GRA,IT170G,IT180GN
	Tg 180 (High Tg epoxy (without filler)	ARLON 45N;ISOLA IS410, IS420;ITEQ IT180
	Tg 180 (High Tg fillered epoxy)	ISOLA PCL370HR;ITEQ IT180A, IT180i;VENTEC VT47
	High speed application	ISOLA FR408HR, IS600(series);ITEQ IT200DK, IT150DA(SE); PANASONIC MEGTRON6, MEGTRON7; ISOLA ATRA MT77, I-TERA MT40
POLYIMIDE RESIN SYSTEM	High performances materials for avionic/ military application Thickness copper: up to 500 microns	ARLON 33N,35N,84N,85N,85HP;ISOLA 95P/96P
SUBSTRATES FOR FLEXIBLE CIRCUITS (POLYIMIDE)	Flexible Laminates -Polyimide film based	DU PONT PYRALUX LF, PYRALUX FR
	Flexible Laminates -Polyimide film based adhesiveless	DU PONT PYRALUX AP, PYRALUX AP-PLUS. PYRALUX TK
	Flexible Laminates -Polyimide based adhesiveless	ITEQ 25-50-75 µm;UBE Upilex 25-50-75 µm
PTFE	High Frequency material TEFLON based and non -Teflon based ROGERS/ARLON	RT/Duroid Family; RO3000 Family;Diclad Family, TMM family, Isoclad Family; Cuclad Family; AD Family;AR Family; TC Familiy, RO4350,RO4003
	High Frequency material TEFLON based and non -Teflon based TACONIC	RF25A2,RF35,RF35A2,RF45,RF60,TSM-DS3, Cer10, FastRise, TACLAM Plus and all teflon family (TLX,TLY,TLE)

CERTIFICATIONS:

Certification	Description
ISO 9001: 2015	Manufacturing of professional double, multilayer and flexible printed circuits board
IATF 16949:2016	Manufacturing of printed circuits boards based on customer design
AS 9100:2018	Manufacturing of printed circuits boards based on customer design
UL FILE NUMBER	**E175172**



YOU THINK. WE DO.

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