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Underwriters Laboratory (UL)

Recognised Zebra® Printing Systems

(For the most up-to-date information, visit the UL website on www.ul.com, and search under Company Name “Zebra Technologies”, file MH15633 or for products specific to Europe, see file reference MH18322)

Marking and Labelling Systems - Printing Materials (PGJ12)

Summary Table

Label material	Ribbon type 4800	5095	5100	3200	3400	Image Lock
Z-Ultimate 2500T White	✓	✓	✓			
Z-Ultimate 3000T White	✓	✓	✓			
Z-Ultimate 3000T Silver	✓	✓	✓			
Z-Ultimate 3000T Yellow	✓	✓	✓			
Z-Ultimate 3000T High Tack	✓	✓	✓			
Z-Xtreme 4000T White	✓	✓	✓	✓	✓	
Z-Xtreme 4000T White High Tack	✓	✓	✓	✓	✓	
Z-Xtreme 4000T Silver High Tack	✓	✓	✓	✓	✓	
Z-Supreme 4000T White			✓			
Z-Supreme 4200T Yellow			✓			
Z-Supreme 4000T White ESD			✓			
8000T Void Matte		✓			✓	
Z-Xtreme 5000T White						✓
Z-Xtreme 5000T Silver						✓

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***Z-Ultimate*® products**

Z Ultimate 3000T White unprinted label stock and ribbon is approved as detailed above and for the application surfaces as per the table below. Also suitable where exposed outdoors affixed to aluminum, galvanized steel, acrylic paint, alkyd enamel, stainless steel, polyester paint, porcelain, nylon, melamine plastic, polycarbonate, phenolic plastic, polystyrene, ABS plastic and unsaturated (Thermoset) polyester plastic.

Z-Ultimate 3000T Silver unprinted label stock and ribbon is approved as detailed above and for the application surfaces listed in the table below. Also suitable where exposed outdoors affixed to aluminum, porcelain, galvanized steel, alkyd enamel, acrylic paint, stainless steel, polyester paint, nylon, melamine plastic, polycarbonate, phenolic, polystyrene, ABS plastic and unsaturated (Thermoset) polyester plastic.

Z-Ultimate 3000T Yellow, unprinted label stock and ribbon is approved as detailed above and for the application surfaces detailed in the table below. Also suitable where exposed indoors or outdoors to high humidity or occasional exposure to water.

Z-Ultimate 3000T High-Tack unprinted label stock and ribbon is approved as detailed above and for the application surfaces detailed in the table below. Also suitable where exposed outdoors when affixed to the above surfaces except polypropylene and EPDM rubber.

***Z-Ultimate*® products**

Application Surfaces	Z-Ultimate® 3000T White 4800, 5095, 5100	Z-Ultimate 3000T® Yellow 4800, 5095, 5100	Z-Ultimate® 3000T Silver 4800, 5095, 5100	Z-Ultimate® 3000T High Tack 4800, 5095, 5100
Acrylic paint	150°C to -40°C	150°C to -40°C	80°C to -40°C	150°C to -40°C
Acrylonitrile butadiene styrene (ABS)	80°C to -40°C	60°C to -40°C	80°C to -40°C	80°C to -40°C
Alkyd enamel	150°C to -40°C	150°C to -40°C	150°C to -40°C	150°C to -40°C
Aluminum	150°C to -40°C	150°C to -40°C	150°C to -40°C	150°C to -40°C
Galvanised steel	150°C to -40°C	150°C to -40°C	150°C to -40°C	150°C to -40°C
Melamine plastic	100°C to -29°C	100°C to -40°C	100°C to -29°C	Untested
Nylon	100°C to -29°C	60°C to -40°C	100°C to -29°C	Untested
Phenolic plastic	100°C to -29°C	100°C to -40°C	100°C to -29°C	Untested
Polycarbonate	100°C to -29°C	40°C to -40°C	100°C to -29°C	Untested
Polyester paint	150°C to -29°C	150°C to -40°C	125°C to -29°C	150°C to -40°C
Plastic and unsaturated polyester plastic	80°C to -40°C	100°C to -40°C	80°C to -40°C	PBT: 80°C to -40°C
Polyphenylene oxide	100°C to -40°C	80°C to -40°C	100°C to -29°C	Untested

***Z-Ultimate*® products continued** **Polypropylene**	80°C to -40°C	60°C to -40°C	80°C to -40°C	80°C to -40°C
Polystyrene	80°C to -29°C	80°C to -40°C	80°C to -29°C	Max 40°C
Porcelain	150°C to -29°C	125°C to -40°C	100°C to -40°C	150°C to -40°C
Stainless steel	150°C to -29°C	125°C to -40°C	150°C to -29°C	150°C to -40°C

All of the above materials have been accepted for use on Zebra® thermal transfer printers, reference approval number: UL MH15633, 95NK22563.

Z-Xtreme® products

Z-Xtreme 4000T White, unprinted label stock and ribbon is approved as detailed in the summary table and for the application surfaces as per the table below. Suitable where exposed indoors or outdoors to high humidity or occasional exposure to water.

Z-Xtreme 4000T White High-Tack and Z-Xtreme 4000T Silver High Tack unprinted label stocks and ribbon are approved as detailed above and for the application surfaces as per the table below. Suitable where exposed indoors to high humidity or occasional exposure to water. Also suitable for outdoor use on all surfaces except polypropylene.

Application Surfaces	*Z-Xtreme*™ 4000T White 3200, 4800, 5095, 5100	*Z-Xtreme*™ 4000T White High Tack 3200, 4800, 5095, 5100	*Z-Xtreme* ™4000T Silver High Tack 3200, 4800, 5095, 5100
Aluminum	150°C to -40°C	80°C to -40°C	80°C to -40°C
Stainless Steel	150°C to -40°C	Untested	Untested
Galvanized Steel	150°C to -40°C	150°C to -29°C	150°C to -29°C
Polyester Paint	150°C to -40°C	125°C to -29°C	125°C to -29°C
Phenolic	100°C to -40°C	100°C to -29°C	100°C to -29°C
Polycarbonate	100°C to -40°C	100°C to -40°C	100°C to -40°C
Nylon	80°C to -40°C	80°C to -29°C	80°C to -29°C
Polystyrene	60°C to -40°C	60°C to -40°C	60°C to -40°C
ABS	60°C to -40°C	60°C to -29°C	60°C to -29°C
PolyPropylene*	60°C to -29°C	40°C to -29°C	40°C to -29°C

Z-Xtreme 5000T White and Silver are approved unprinted label stocks and ribbon are approved as detailed below and for the application surfaces as per the table below. Suitable for outdoor use on all surfaces except polypropylene and EPDM rubber.

Application Surfaces	Z-Xtreme™ 5000T White Image Lock ribbon	Z-Xtreme™ 5000T Silver Image Lock ribbon
Acrylic paint (AC PT)	125°C to -40°C	125°C to -40°C
Acrylic powder paint (AC PDR PT)	125°C to -40°C	125°C to -40°C
Alkyd paint (AK PT)	125°C to -40°C	125°C to -40°C
Aluminum (AL)	125°C to -40°C	125°C to -40°C
Epoxy paint (EP PT)	125°C to -40°C	125°C to -40°C
Epoxy powder paint (EP PDR PT)	125°C to -40°C	125°C to -40°C
Epoxy/Polyurethane powder paint (EP/PUR PDR PT)	125°C to -40°C	125°C to -40°C
Galvanized steel (GS)	125°C to -40°C	125°C to -40°C
Polyester paint (PER PT)	125°C to -40°C	125°C to -40°C
Polyester powder paint (PER PDR PT)	125°C to -40°C	125°C to -40°C
	125°C to -40°C	125°C to -40°C
Porcelain (PRCLN)	125°C to -40°C	125°C to -40°C
Stainless steel (SS)	125°C to -40°C	125°C to -40°C
Melamine (ME)	100°C to -40°C	100°C to -40°C
Nylon - polyamide (PA)	100°C to -40°C	100°C to -40°C
Phenolic - Phenol Formaldehyde (PH)	Not tested	100°C to -40°C
Polycarbonate (PC)	100°C to -40°C	100°C to -40°C
Polyethylene (PE)	100°C to -40°C	100°C to -40°C
Polyvinyl chloride (PVC)	100°C to -40°C	100°C to -40°C
Unsaturated polyester - thermoset (UP)	100°C to -40°C	100°C to -40°C
Acrylonitrile butadiene styrene (ABS)	80°C to -40°C	80°C to -40°C
EPDM rubber	80°C to -40°C	80°C to -40°C
Polybutylene terephthalate (PBT)	80°C to -40°C	80°C to -40°C
Polypropylene (PP)	80°C to -40°C	80°C to -40°C
Polystyrene (PS)	80°C to -40°C	80°C to -40°C

All of the above materials have been accepted for use on Zebra® thermal transfer printers, reference approval number UL MH15633, 95NK22563.

8000T Speciality products

8000T Void Matte unprinted label stock and appropriate ribbons are approved as detailed in the summary table and for the application surfaces detailed in the table below.

Also suitable where exposed outdoors when affixed to the surfaces in the table, except polypropylene.

Application Surfaces	8000T Void Matte 3400, 5095
Aluminum	150°C to -40°C
Alkyd enamel	125°C to -40°C
Stainless Steel	150°C to -40°C
Galvanized Steel	150°C to -40°C
Phenolic	100°C to -40°C
Polycarbonate	80°C to -40°C
Polyester paint	150°C to -40°C
Nylon, melamine plastic,	80°C to -40°C
Polystyrene	80°C to -40°C
ABS	60°C to -29°C
PolyPropylene*	Up to 80°C

The above materials have been accepted for use on Zebra® thermal transfer printers, reference approval number UL MH15633, 95NK22563.

Z-Supreme products

Z-Supreme 4000T products unprinted label stock and appropriate ribbons are approved as detailed in the summary table and for the application surfaces detailed in the table below.

Application Surfaces	Z-Supreme 4000T White ESD 5100	Z-Supreme 4200T Yellow
Melamine	100°C to -40°C	100°C to -40°C
Nylon- polyamide	100°C to -40°C	100°C to -40°C
Phenolic- Phenol Formaldehyde	100°C to -40°C	100°C to -40°C
Polycarbonate	100°C to -40°C	100°C to -40°C
Polyphenylene oxide/ether	100°C to -40°C	100°C to -40°C
Acrylonitrile butadiene styrene	80°C to -40°C	80°C to -40°C
Polystyrene	80°C to -40°C	80°C to -40°C
Unsaturated polyester-thermoset	80°C to -40°C	80°C to -40°C

Canadian Standards Association

CSA listings, file 233092/097843_L_000

For the most up-to-date information, visit the CSA website at http://www.csa-international.org/Default.asp?language=english and search for Zebra. See file reference 233092.

Label material	Ribbon type 4800	5095	5100	3200
Z-Ultimate 3000T White	✓	✓	✓	
Z-Ultimate 3000T Silver	✓	✓	✓	
Z-Xtreme 4000T White	✓	✓		✓
Z-Xtreme 4000T White High Tack	✓	✓		✓
Z-Xtreme 4000T Silver High Tack	✓	✓		✓

Adhesive Type Labels- Printing systems

Label materials	Application surfaces	Max temperature	Indoor/outdoor
Z-Ultimate® 3000T White	Metal and Plastics Group 1	100C	Indoor and outdoor
	Plastics Group II,III,V,VI,VII and VIII	80C	Indoor and outdoor
Z-Ultimate® 3000T Silver	Metal and Plastics Group 1	100C	Indoor and outdoor
	Plastics Group II,III,V,VI,VII and VIII	80C	Indoor and outdoor
Z-Xtreme 4000T White	Metal and Plastics Group 1	100C	Indoor and outdoor
	Plastics Group II,III,V,VI,VII and VIII	80C	Indoor and outdoor
Z-Xtreme 4000T White High-Tack	Metal and Plastics Group 1	100C	Indoor and outdoor
	Plastics Group II,III,V,VI,VII and VIII	80C	Indoor and outdoor
Z-Xtreme 4000T Silver High-Tack	Metal and Plastics Group 1	100C	Indoor and outdoor
	Plastics Group II,III,V,VI,VII and VIII	80C	Indoor and outdoor

Metals

Bare, plated, or enamelled steel; bare, anodized, or enamelled aluminium

Plastics

Clean, smooth, flat or curved surfaces of plastics in one or more of the following groups:

Group I	Phenolics (PH); Melamines (MF, M/P); Urea-Formaldehydes (UF).
Group II	Polyphenylene Oxides (PPHOX); Polyphenylene Sulphides (PPS).
Group III	Polycarbonates (PC); Acetates (CA, CAB); Acrylics (PMMA).
Group IV	Polypropylenes (PP); Polyethylenes (PE); Polybutylenes (PB).
Group V	Polyamides (PA); Polyimides (PI).
Group VI	Polystyrenes (PS); Acrylonitrile-Butadiene-Styrenes (ABS); Styrene-Acrylonitriles (SAN).
Group VII	Rigid and Plasticised Vinyls (PVC).
Group VIII	Glass-filled Polyesters (GRP); Glass-filled Epoxies (GREP); Polyethylene Terepthalates (PET); Polybutylene Terepthalates (PBTP).

In application testing required
The tests carried out on these label products determine their general suitability, but this does not constitute a certification, since the final acceptance of a printing system is determined only on converted label construction and the final application to an end product.

Product Performance and Suitability

All information on this document is to be used for guidance only and is not to be used for setting specifications. All purchasers of Zebra products shall be responsible for independently determining if the product conforms to all requirements of the application.