



ZMVV.E96029

Wire Connectors and Soldering Lugs

Wire Connectors and Soldering Lugs

See General Information for Wire Connectors and Soldering Lugs

K S TERMINALS INC
8 E 3RD RD, CHANGPIN IND PARK
PO BOX 66
HSIEN SHI
CHANG HWA, TAIWAN

E96029

Insulation displacement (T-Splice) connectors , Cat. Nos. 878006, 878106, 878206.

Splicing wire connectors, Cat. Nos. CE1, -2, -5, -8, PB1, -2, -5, -8.

Cat. Nos. BNY, BNYF, BNYT, BNYTF, BV, BVS, BVSB, WBNY followed by 1, 2, 5; Cat. No. BVT followed by 1, 2, 5, 8, 14, 22, 38.

Cat. No. BNT followed by 0.5, 1, 1-16, 2, 2-16, 3, 5, 5-20, 8, 14, 22, 22-58, 38, 38-64, 60, 60-72, 70, 80, 80-76, 100, 100-76, 150, 150-108, 180, 180-114, 200, 200-126, 325; Cat. No. DBNT followed by 1, 2, 5, 6, 10, 16, 25, 35, 50, 70, 95, 120, 150 ; Cat. No. JBNT followed by 1, 2, 5, 8, 14, 22, 38, 60, 80, 100, 150, 200, 325; Cat. Nos. BV1, BV2, BV5, BVT1, BVT2, BVT5, BNYD1, BNYD1MM, BNYD2, BNYD2MM, BNYD5, BNYD5MM, BNYDF1, BNYDF1MM, BNYDF2, BNYDF2MM, BNYDF5, BNYDF5MM, WBNYD1, WBNYD1MM, WBNYD2, WBNYD2MM, WBNYD5, WBNYD5MM, WBNYDF1, WBNYDF1MM, WBNYDF2, WBNYDF2MM, WBNYDF5; Cat. Nos. BN1, WBNYDF5MM, BN2, BN5, BNT1, BNT2, BNT5.

Terminal connectors, Cat. No. DBD followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, 5-10, 5-14, 5-18, S5-14, 5-18, S5-18, LL2-13; Cat. No. DBD followed by 2-9, 2-10, 2-13, L2-13, 2-14, L2-14, S2-18, 2-18, L2-18; Cat. No. DBNY followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, 2-14, 2-18, 5-10, 5-14, 5-18, L2-13, LL2-13, L2-14, L2-18, S2-18, S5-14, S5-18; Cat. No. DBNYD followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, 2-14, 2-18, 5-10, 5-14, 5-18, L2-13, LL2-13, L2-14, L2-18, S2-18, S5-14, S5-18; Cat. No. DBV followed by 1-9, Y1-9, 1-10, Y1-10, 1-11, Y1-11, 1-13, Y1-13, 1-14, Y1-14, 1-18, S1-18, Y1-18, YS1-18, 2-9, Y2-9, 2-10, Y2-10, 2-13, Y2-13, YL2-13, YLL2-13, 2-14, Y2-14, YL2-14, 2-18, Y2-18, YL2-18, YS2-18, 5-10, Y5-10, 5-14, Y5-14, YS5-14, 5-18, Y5-18, YS5-18, L2-13, YL2-13, L2-14, L2-18, S2-18, S5-14, S5-18; Cat. No. DBVE followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, 2-14, 2-18, 5-10, 5-14, 5-18, L2-13, LL2-13, L2-14, L2-18, S2-18, S5-14, S5-18; Cat. No. DBVB followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, L2-13, LL2-13, 2-14, L2-14, S2-18, 2-18, L2-18, 5-10, S5-14, 5-14, S5-18, 5-18; Cat. No. DBVEB followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, L2-13, LL2-13, 2-14, L2-14, S2-18, 2-18, L2-18, 5-10, S5-14, 5-14, S5-18, 5-18; Cat. No. DBVYB followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, L2-13, LL2-13, 2-14, L2-14, S2-18, 2-18, L2-18, 5-10, S5-14, 5-14, S5-18, 5-18; Cat. No. DBNYB followed by 1-9, 1-10, 1-11, 1-13, 1-14, 1-18, S1-18, 2-9, 2-10, 2-13, L2-13, LL2-13, 2-14, L2-14, S2-18, 2-18, L2-18, 5-10, S5-14, 5-14, S5-18, 5-18; Cat. No. FSVB followed by 1-3.2, S1-3.2, 1-3.7, S1-3.7, L1-3.7, 1-4, L1-4, 1-5, L1-5, 2-3.7, L2-3.7, 2-4, M2-4, L2-4, 2-5, L2-5, 5-3.7, S5-3.7, 5-4, S5-4, 5-5, S5-5; Cat. No. FSVEB followed by 1-3.2, S1-3.2, 1-3.7, S1-3.7, L1-3.7, 1-4, L1-4, 1-5, L1-5, 2-3.7, L2-3.7, 2-4, M2-4, L2-4, 2-5, L2-5, 5-3.7, S5-3.7, 5-4, S5-4, S5-5, 5-5, S5-5; Cat. No. FSVYB followed by 1-3.2, S1-3.2, 1-3.7, S1-3.7, L1-3.7, 1-4, L1-4, 1-5, L1-5, 2-3.7, L2-3.7, 2.4, M2-4, L2-4, 2-5,

L2-5, 5-3.7, S5-3.7, S5-4, 5-4, S5-5, 5-5; Cat. No. FSNYB followed by 1-3.2, S1-3.2, 1-3.7, S1-3.7, L1-3.7, 1-4, L1-4, 1-5, L1-S, 2-3.7, L2-3.7, 2-4, M2-4, L2-4, 2-5, L2-5, 5-3.7, S5-3.7, S5-4, 5-4, S5-5, 5-5; Cat. No. FSD followed by 1-4, 1-5, 2-3.7, 2-4, 2-5, 5-3.7, 5-4, 5-5; Cat. No. FSD followed by 1-3.2, S1-3.2, 1-3.7, L1-4, L1-5, L2-3.7, M2-4, L2-5, S5-3.7, S5-4, S5-5; Cat. Nos. FSDL1-3.7, -2-4, FSDFS1-3.7; Cat. No. FSNY followed by 1-3.2, S1-3.2, 1-3.7, 1-4, L1-4, 1-5, L1-5, 2-3.7, L2-3.7, 2-4, M2-4, 2-5, L2-5, 5-3.7, S5-3.7, 5-4, S5-4, 5-5, S5-5, L1-3.7, L2-4, S1-3.7; Cat. No. FSNYD followed by 1-4, 1-5, 2-3.7, 2-4, 2-5, 5-3.7, 5-4, 5-5, L1-3.7, L2-4, S1-3.7, 1-3.2, S1-3.2, 1-3.7, L1-4, L1-5, L2-3.7, M2-4, L2-5, S5-3.7, S5-4, S5-5; Cat. No. FSV followed by 1-3.2, S1-3.2, Y1-3.2, YS1-3.2, 1-3.7, Y1-3.7, YS1-3.7, YL1-3.7, 1-4, L1-4, Y1-4, YL1-4, 1-5, L1-5, Y1-5, YL1-5, 2-3.7, L2-3.7, Y2-3.7, YL2-3.7, 2-4, M2-4, Y2-4, YM2-4, YL2-4, 2-5, L2-5, Y2-5, YL2-5, 5-3.7, S5-3.7, Y5-3.7, YS5-3.7, 5-4, S5-4, Y5-4, YS5-4, 5-5, S5-5, Y5-5, YS5-5, L1-3.7, L2-4, S1-3.7; Cat. No. FSVE followed by 1-3.2, S1-3.2, 1-3.7, 1-4, L1-4, 1-5, L1-5, 2-3.7, L2-3.7, 2-4, M2-4, 2-5, L2-5, 5-3.7, S5-3.7, 5-4, S5-4, 5-5, S5-5, L1-3.7, L2-4, S1-3.7; Cat. No. HD followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HNY followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HNYD followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HV followed by 1-3.7, Y1-3.7, 1-4, Y1-4, 1-5, Y1-5, 1-6, Y1-6, 2-3.7, Y2-3.7, 2-4, Y2-4, 2-5, Y2-5, 2-6, Y2-6, 5-3.7, Y5-3.7, 5-4, Y5-4, 5-5, Y5-5, 5-6, Y5-6, 5-8, Y5-8; Cat. No. HVE followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HVB followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HVEB followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HVYB followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. HNYB followed by 1-3.7, 1-4, 1-5, 1-6, 2-3.7, 2-4, 2-5, 2-6, 5-3.7, 5-4, 5-5, 5-6, 5-8; Cat. No. LBD followed by 1-3.7, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBNY followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBNYD followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBV followed by 1-3, Y1-3, 1-4.6, Y1-4.6, 2-3, Y2-3, 2-4.6, Y2-4.6, 5-3, Y5-3, 5-4.6, Y5-4.6; Cat. No. LBVE followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBVB followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBVEB followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBVYB, followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LBNYB followed by 1-3, 1-4.6, 2-3, 2-4.6, 5-3, 5-4.6; Cat. No. LSD followed by 1-3.7, 2-3.7, 5-3.7, 5-4, 5-5, 5-6, 2-4, S2-4, L1-4, L1-5, L2-4, L2-5, S1-4, S1-5, S2-5; Cat. No. LSNY followed by 1-3.7, 2-3.7, 2-4, 5-3.7, 5-4, 5-5, 5-6, L1-4, L1-5, L2-4, L2-5, S1-4, S1-5, S2-4, S2-5; Cat. No. LSNYD followed by 1-3.7, 2-3.7, 2-4, 5-3.7, 5-4, 5-5, 5-6, L1-4, L1-5, L2-4, L2-5, S1-4, S1-5, S2-4, S2-5; Cat. No. LSV followed by 1-3.7, Y1-3.7, 2-3.7, 2-4, YS1-4, YL1-4, YS1-5, YL1-5, Y2-3.7, Y2-4, YS2-4, YL2-4, YS2-5, YL2-5, 5-3.7, Y5-3.7, 5-4, Y5-4, 5-5, Y5-5, 5-6, Y5-6, L1-4, L1-5, L2-4, L2-5, S1-4, S1-5, S2-4, S2-5; Cat. No. LSVE followed by 1-3.7, 2-3.7, 2-4, 5-3.7, 5-4, 5-5, 5-6, L1-4, L1-5, L2-4, L2-5, S1-4, S1-5, S2-4, S2-5; Cat. No. LSBV followed by 1-3.7, S1-4, L1-4, S1-5, L1-5, 2-3.7, 2-4, S2-4, L2-4, S2.5, L2-5, 5-3.7, 5-4, 5-5, 5-6; Cat. No. LSVEB followed by 1-3.7, S1-4, L1-4, S1-5, L1-5, 2-3.7, 2-4, S2-4, L2-4, S2-5, L2-5, 5-3.7, 5-4, 5-5, 5-6; Cat. No. LSVYB followed by 1-3.7, S1-4, L1-4, S1-5, L1-5, 2-3.7, 2-4, S2-4, L2-4, S2-5, L2-5, 5-3.7, 5-4, 5-5, 5-6; Cat. No. LSNYB followed by 1-3.7, S1-4, L1-4, S1-5, L1-5, 2-3.7, 2-4, S2-4, L2-4, S2-5, L2-5, 5-3.7, 5-4, 5-5, 5-6; Cat. No. PTD followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTNI followed by 1-9, 1-10, 1-12, 1-13; Cat. No. PTNY followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTNYB followed by 10-12, 16-13; Cat. No. PTNYD followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTV followed by 1-7, Y1-7, 1-9, Y1-9, 1-10, Y1-10, 1-12, Y1-12, 1-13, Y1-13, 1-14, Y1-14, 1-16, Y1-16, 2-9, Y2-9, 2-10, Y2-10, 2-12, Y2-12, 2-13, Y2-13, 2-16, Y2-16, 5-10, Y5-10, 5-13, Y5-13; Cat. No. PTVE followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTVB followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTVEB followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTVYB followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. PTNYB followed by 1-7, 1-9, 1-10, 1-12, 1-13, 1-14, 1-16, 2-9, 2-10, 2-12, 2-13, 2-16, 5-10, 5-13; Cat. No. JRNYB followed by 1-3.2, 1-5, 2-6, 2-8, 5-5, 5-6, 5-8, 5-10, L1-4, L2-4, L2-5, L5-4, M1-3.7, S2-3.7; Cat. No. JRVB followed by 1-3.2, 1-3.2-S, 1-5, 1-5-S, 2-6, 2-6-S, 2-8, 2-8-S, 5-5, 5-5-S, 5-6, 5-6-S, 5-8, 5-8-S, 5-10, 5-10-S, L1-4, L1-4-S, L2-4, L2-4-S, L2-5, L2-5-S, L5-4, L5-4-S, M1-3.7, M1-3.7-S, S2-3.7, S2-3.7-S; Cat. No. R16 followed by 4F, 6F, 8F, 10F, 14F, 516F; Cat. No. RD followed by 1-3.2, 1-5, 1-6, 1-8, 1-10, 1-12, 2-3.2, 2-6, 2-8, 2-10, 2-12, 5-3.7, 5-5, 5-6, 5-8, 5-10, 5-12, L1-3.7, L1-4, L1-5, L2-3.2, L2-4, L2-5, L5-4, M1-3.7, M2-3.7, M5-6, S1-3.7, S1-4, S2-3.7, S2-4, S2-5, S5-4; Cat. No. RD followed by 1-2.5, 1-14, 1-16, 1-20, S2-3.2, L2-3.2, 2-14, 2-16, 2-20, 5-3.2, 5-14, 5-16, 5-18, 5-20; Cat. No. RNI followed by 1-3.2, 1-5, 1-6, 1-8, 1-10, L1-3.7, L1-4, M1-3.7, S1-3.7, S1-4; Cat. No. RNY followed by 1-2.5, 1-3.2, 1-5, 1-6, 1-8, 1-10, 1-12, 1-14, 1-16, 1-20, 2-3.2, S2-3.2, L2-3.2, 2-6, 2-8, 2-9, 2-10, 2-12, 2-14, 2-16, 2-20, 5-3.2, 5-3.7, 5-3.7, 5-5, 5-5, 5-6, 5-6, 5-8, 5-8, 5-10, 5-10, 5-12, 5-13, 5-14, 5-16, 5-18, 5-20, L1-3.7, L1-4, L1-5, L2-3.7, L2-4, L2-5, L5-4, L5-4, M1-3.7, M2-3.7, M5-6, S1-3.7, S1-4, S2-3.7, S2-4, S2-5, S5-4, S5-4; Cat. No. RNYB followed by 8-3.7, 8-8, 8-10, 8-12, 14-4, 14-5, 14-8, 14-10, 14-11, 14-12, 22-4, 22-8, 22-10, 22-11, 22-12, 38-5, 38-11, 38-12, L8-4, L8-5, L8-6, L14-6, L22-5, L22-6, L38-6, L38-8, L38-10, M8-5, S8-4, S8-5, S8-6, S14-6, S22-5, S22-6, S38-6, S38-8, S38-10; Cat. No. RNYD followed by 1-3.2, 1-5, 1-6, 1-8, 1-10, 1-12, 2-3.2, 2-6, 2-8, 2-10, 2-12, 5-3.7, 5-5, 5-6, 5-8, 5-10, 5-12, 5-13, L1-3.7, L1-4, L1-5, L2-3.7, L2-4, L2-5, L5-4, M1-3.7, M2-3.7, M5-6, S1-3.7, S1-4, S2-3.7, S2-4, S2-5, S5-4; Cat. No. RV followed by 1-2.5, Y1-2.5, 1-3.2, Y1-3.2, YS1-3.7, YM1-3.7, YL1-3.7, YS1-4, YL1-4, 1-5, YL1-5, L1-5, 1-6, Y1-6, 1-8, Y1-8, 1-10, Y1-10, 1-12, Y1-12, 1-14,

is not prohibited, provided the ampacity levels continue to be based on the 75 or 90°C ratings.

Connectors are rated and marked as follows:

Type of Connector	Rated For	Wire Range	Temp Marking	Rating
Terminal (CU body)	CU only	All	Not marked	90
Terminal (AL body)	CU only	All	75 or 90	As marked@
Terminal	AL or AL-CU	All	75 or 90	As marked@
Splicing wire	CU only	30-6	Not marked	90
Splicing wire (CU body)	CU only	4 and larger	Not marked	90
Splicing wire (AL body)	CU only	4 and larger	75 or 90	As marked
Splicing wire	AL or AL-CU	30-6	Not marked	75
Splicing wire	AL or AL-CU	4 and larger	75 or 90	As marked

@ Terminal connectors rated for 6 AWG or smaller conductors may have the markings on the connector, the unit container, or on an information sheet packed in the unit container.

Insulation temperature rating (maximum operating temperature) — Insulated connectors, insulating caps and insulating covers have an insulation temperature rating marked on the device or the unit container. Insulated connectors, insulating caps and insulating covers that have an insulation temperature greater than the connector ampacity level rating are marked "Temperature Rating of Insulating Material ___°C."

Voltage rating — Uninsulated wire connectors are rated for general use in circuits up through 2000 V. Uninsulated wire connectors may be used in circuits over 2000 V up through 35,000 V where the effects of corona have been investigated in the end-use application. Uninsulated wire connectors are not marked with a voltage rating.

Insulated wire connectors, insulating caps and insulating covers have voltage ratings for which they have been found acceptable. The voltage rating is marked on the device or the unit container and may be stated as "300 volts maximum," "600 volts maximum," or "600 volts maximum building wire, 1000 volts maximum, in signs or luminaires," or equivalent wording.

Flammability rating — Insulated connectors and insulating caps and covers may be additionally marked with a flammability rating of V-2 or VTM-2 or better.

Assigned torque rating — A connector or its unit container may be marked with an assigned torque value for which the connector was investigated.

INSTALLATION INSTRUCTIONS

Use of specific tools — A specific tool and die used to assemble a wire connector to a conductor is identified on the connector, or on or within the unit container of the connector. The identification consists of a catalog or type designation, color coding, die index number, or equivalent means. Color coding of the crimp barrel is common.

Multiple crimping operations — The number of crimps necessary to make a connection using the specific tool is identified on the connector, or on or within the unit container of the connector. Location and number of crimping points is commonly located on the crimp barrel of the connector.

Conductor strip length — Wire connectors requiring a specific strip length have this information identified on the connector, on or within the unit container of the connector, on an insulating cover, or on the tool or tool carrying Strip length marking is optional for some constructions.

Preliminary preparation of conductor — Some wire connectors supply instructions for the preliminary preparation

of conductors, such as use of conductor termination compound (antioxidant compound) or pre-twisting of conductors, on or within the unit container.

Pre-twisting — Some connectors may specify that conductors are to be pre-twisted before assembly onto the connector.

Conductor Termination Compound — Some connectors are shipped pre-filled with conductor termination compound (antioxidant compound). For non-prefilled connectors, conductor termination compound may be used if recommended by the connector manufacturer as preliminary preparation of the conductor. Wire brushing of the conductor may also be performed if recommended. Also see Conductor Termination Compounds (**DVYW**).

RELATED PRODUCTS

Sealed wire connector systems intended for direct burial, below-grade use, or similar damp or wet locations are covered under Wire Connectors, Insulated for Use with Underground Conductors (**ZMWQ**).

Wire connector adapters installed on the end of a conductor prior to their subsequent connection to Listed wire connectors or to connectors used in Listed equipment are covered under Wire Connector Adapters (**ZMOW**).

ADDITIONAL INFORMATION

For additional information, see Electrical Equipment for Use in Ordinary Locations (**AALZ**).

REQUIREMENTS

The basic standards used to investigate products in this category are ANSI/UL 486A-486B, "Wire Connectors," and ANSI/UL 486C, "Splicing Wire Connectors."

UL MARK

The Listing Mark of Underwriters Laboratories Inc. on the smallest unit container in which the product is packaged, with or without the UL symbol on the product, is the only method provided by UL to identify these products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and one of the following product names: "Wire Connector," "Soldering Lug," "Terminal Connector," "Splicing Wire Connector," or other appropriate product name as shown in the individual Listings.

Last Updated on 2004-03-15

This page and all contents are Copyright © 2005 by Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2005 Underwriters Laboratories Inc.®"

ZMVF.GuideInfo

Wire Connectors and Soldering Lugs

[Wire Connectors] Wire Connectors and Soldering Lugs

See General Information for Wire Connectors

USE

This category covers wire connectors for use with all alloys of copper or aluminum conductors, or both, for the purpose of providing contact between current carrying parts. Wire connectors may be uninsulated, supplied with integral insulation, or separable insulation in the form of insulating caps or covers.

Terminal connectors establish a connection between one or more conductors to a terminal plate or stud, or to any similar device by means of mechanical pressure. They are fixed in position.

Splicing wire connectors establish a connection between two or more conductors by means of mechanical pressure and are not intended to be permanently mounted. They are floating, such as a twist-on connector in an outlet box.

Insulating caps or covers are for general use when installed on specific connectors. Information covering use of the caps or cover on specific connectors appears on the unit containers in which the caps or covers are packaged.

Soldering lugs are terminal connectors designed for attachment to a conductor by means of solder (non-pressure).

Reusability — Wire connectors have not been investigated for reusability. Reusability should be determined by the installer and the Authority Having Jurisdiction (AHJ).

Use in service equipment — Where wire connectors are used as a part of service equipment, dead-front switchboards, panelboards, meter sockets, enclosed switches, circuit breakers, etc., reference should be made to the General Information for those categories concerning the use of the wire connectors. When wire connectors suitable for use with aluminum conductors are employed in such equipment, the suitability for wiring with aluminum conductors of such equipment will be indicated by a marking on the equipment and is independent of any marking on the wire connector.

INSTALLATION

Wire connectors are intended for use in installation covered by ANSI/NFPA 70, "National Electrical Code" (NEC).

PRODUCT MARKINGS AND RATINGS

Wire size and wire combinations — Wire connectors are rated for 30 AWG or larger copper conductors and/or 12 AWG or larger aluminum conductors. The wire size, wire range or wire combinations are marked on the connector, or on or within the unit container. Wire connectors additionally investigated for metric size conductors are marked with the metric wire sizes expressed in mm².

Multiple conductors — Connectors generally accommodate a single conductor under a clamping mechanism unless otherwise identified, such as with the number of conductors located parenthetically in front of the wire size or range. Some connectors may have a single conductor wire range as well as a second multiple conductor wire range. Some

connectors, such as twist-on connectors, will have multiple conductors expressed in a list of wire combinations.

Parallel conductors — Connectors intended for paralleling of conductors are intended to be used in accordance with Clause 310.4 of the NEC. Parallel connectors may have multiple conductor clamping mechanisms, each accepting a single conductor or a singular clamping mechanism accepting multiple conductors.

Wire stranding — Unless clearly marked "Solid," "SOL," "Stranded" or "STR" for a given wire size, wire range or wire combination, conductors in the range 30-10 AWG are both solid and stranded, and 8 AWG and larger are for stranded wire only. Connectors additionally rated for metric conductor sizes are marked with the letter "r" for rigid solid and rigid stranded conductors, or the letter "f" for flexible conductors.

Stranded conductor Class — Connectors rated for use with stranded conductors are for the following strand configurations:

- Aluminum - Class B concentric, compressed, and unidirectional lay compact
- Copper - Class B concentric, Class B compressed, Class C concentric

Wire connectors additionally rated for use with compact copper conductors are additionally marked "For compact-stranded copper conductors" or equivalent on the connector, or on or within the unit container.

Wire connectors additionally rated for use with other Class conductors, such as Class M, are marked with the additional class designation and number of strands.

Strip length — Some connectors or their unit containers are marked with a strip length for the conductor before assembly to the wire connector.

Conductor material — Wire connectors or the unit containers are marked with the type of conductor material(s) as follows:

Marking (or equivalent)	For Use With
"CU"	Copper wire only
"AL"	Aluminum wire only
"AL-CU" or "CU-AL"	Copper to copper, aluminum to aluminum, and copper to aluminum but not intermixed or in direct physical contact
"AL-CU" (intermixed - dry locations)	Copper to copper, aluminum to aluminum, and copper to aluminum intermixed

Except as otherwise noted on or in the shipping carton, copper and aluminum conductors are not intended to be used in direct physical contact in the same connector. A wire connector for securing an aluminum wire in combination with a copper conductor, where physical contact occurs between the wires of different metals, is limited to dry locations only and is marked "AL-CU (intermixed - dry locations)."

Ampacity level rating:

A. Equipment use — Equipment wiring requirements may restrict the sizing, ampacity and temperature ratings of connected conductors. Equipment requirements may limit 90°C or higher rated conductors to 60 or 75°C ampacity in accordance with Electrical Equipment for Use in Ordinary Locations (AALZ).

B. General use — Connectors rated 75°C are intended for use at ampacities not greater than those for 75°C rated conductors, and connectors rated 90°C are for use at ampacities not greater than those for 90°C rated conductors. Connectors may be marked with "75C" or "90C" to represent these levels. Alternatively, these rating levels may be represented by a 7 or 9 associated with the marking "CU," "AL" or "AL-CU," e.g., "AL9," "AL9CU," "AL7CU," "CU7," "CU9." Connectors not marked with an ampacity number 7 or 9 have an assumed level per the following table. Use of higher temperature-rated conductors

is not prohibited, provided the ampacity levels continue to be based on the 75 or 90°C ratings.

Connectors are rated and marked as follows:

Type of Connector	Rated For	Wire Range	Temp Marking	Rating
Terminal (CU body)	CU only	All	Not marked	90
Terminal (AL body)	CU only	All	75 or 90	As marked@
Terminal	AL or AL-CU	All	75 or 90	As marked@
Splicing wire	CU only	30-6	Not marked	90
Splicing wire (CU body)	CU only	4 and larger	Not marked	90
Splicing wire (AL body)	CU only	4 and larger	75 or 90	As marked
Splicing wire	AL or AL-CU	30-6	Not marked	75
Splicing wire	AL or AL-CU	4 and larger	75 or 90	As marked

@ Terminal connectors rated for 6 AWG or smaller conductors may have the markings on the connector, the unit container, or on an information sheet packed in the unit container.

Insulation temperature rating (maximum operating temperature) — Insulated connectors, insulating caps and insulating covers have an insulation temperature rating marked on the device or the unit container. Insulated connectors, insulating caps and insulating covers that have an insulation temperature greater than the connector ampacity level rating are marked "Temperature Rating of Insulating Material ___°C."

Voltage rating — Uninsulated wire connectors are rated for general use in circuits up through 2000 V. Uninsulated wire connectors may be used in circuits over 2000 V up through 35,000 V where the effects of corona have been investigated in the end-use application. Uninsulated wire connectors are not marked with a voltage rating.

Insulated wire connectors, insulating caps and insulating covers have voltage ratings for which they have been found acceptable. The voltage rating is marked on the device or the unit container and may be stated as "300 volts maximum," "600 volts maximum," or "600 volts maximum building wire, 1000 volts maximum, in signs or luminaires," or equivalent wording.

Flammability rating — Insulated connectors and insulating caps and covers may be additionally marked with a flammability rating of V-2 or VTM-2 or better.

Assigned torque rating — A connector or its unit container may be marked with an assigned torque value for which the connector was investigated.

INSTALLATION INSTRUCTIONS

Use of specific tools — A specific tool and die used to assemble a wire connector to a conductor is identified on the connector, or on or within the unit container of the connector. The identification consists of a catalog or type designation, color coding, die index number, or equivalent means. Color coding of the crimp barrel is common.

Multiple crimping operations — The number of crimps necessary to make a connection using the specific tool is identified on the connector, or on or within the unit container of the connector. Location and number of crimping points is commonly located on the crimp barrel of the connector.

Conductor strip length — Wire connectors requiring a specific strip length have this information identified on the connector, on or within the unit container of the connector, on an insulating cover, or on the tool or tool carrying Strip length marking is optional for some constructions.

Preliminary preparation of conductor — Some wire connectors supply instructions for the preliminary preparation

of conductors, such as use of conductor termination compound (antioxidant compound) or pre-twisting of conductors, on or within the unit container.

Pre-twisting — Some connectors may specify that conductors are to be pre-twisted before assembly onto the connector.

Conductor Termination Compound — Some connectors are shipped pre-filled with conductor termination compound (antioxidant compound). For non-prefilled connectors, conductor termination compound may be used if recommended by the connector manufacturer as preliminary preparation of the conductor. Wire brushing of the conductor may also be performed if recommended. Also see Conductor Termination Compounds (**DVYW**).

RELATED PRODUCTS

Sealed wire connector systems intended for direct burial, below-grade use, or similar damp or wet locations are covered under Wire Connectors, Insulated for Use with Underground Conductors (**ZMWQ**).

Wire connector adapters installed on the end of a conductor prior to their subsequent connection to Listed wire connectors or to connectors used in Listed equipment are covered under Wire Connector Adapters (**ZMOW**).

ADDITIONAL INFORMATION

For additional information, see Electrical Equipment for Use in Ordinary Locations (**AALZ**).

REQUIREMENTS

The basic standards used to investigate products in this category are ANSI/UL 486A-486B, "Wire Connectors," and ANSI/UL 486C, "Splicing Wire Connectors."

UL MARK

The Listing Mark of Underwriters Laboratories Inc. on the smallest unit container in which the product is packaged, with or without the UL symbol on the product, is the only method provided by UL to identify these products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and one of the following product names: "Wire Connector," "Soldering Lug," "Terminal Connector," "Splicing Wire Connector," or other appropriate product name as shown in the individual Listings.

Last Updated on 2004-03-15

This page and all contents are Copyright © 2005 by Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2005 Underwriters Laboratories Inc.®"

Online Certifications Directory - Notice of Disclaimer

By accessing these Listings, Designs, Constructions, Systems, and Assemblies, the user acknowledges and accepts the terms and conditions upon which this service is made available.

THIS INFORMATION AND ALL RELATED MATERIALS, SUPPORT, AND SERVICES ARE MADE AVAILABLE BY UL FOR USE ONLY BY USERS FOR THEIR INTERNAL PURPOSES AND IS "AS IS," WITHOUT ANY REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

UL cannot and does not warrant that this information is current, accurate, or complete. This database contains the names of companies who have qualified to use the UL Mark and those products for which samples have been evaluated by UL and judged to be eligible for Listing. The manufacturer is not obligated to label all of his production. Accordingly, the appearance of a company's name or product in this database does not in itself assure those products are covered under UL's Listing and Follow-Up Service. Only those products bearing the appropriate UL Mark should be considered covered under UL's Listing and Follow-Up Service. Any reproduction or re-transmission of this information is prohibited unless reproduced or re-transmitted in its entirety, including this Notice of Disclaimer.

UL does not permit hyperlinking to this website without its express prior written consent and the execution of a *hyperlinking agreement*.