



Q16003

# QUALIFICATION ACCORDING TO APTA & AAR

## MU27P connector

PRJ-14-000003352

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# Validation / Qualification Test Report



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## 1 INTRODUCTION

### 1.1 AIM OF THE TESTS

The aim of the type tests is to qualify the connector MU27P according to the standard APTA (PR-E-S-001-98, PR-E-RP-019-99, PR-E-RP-002-98) and AAR S512

This connector is designed to be used with a rated voltage of 600V according to the standard EN50124-1/A2 (mated connector), taking into account a pollution degree PD2 and overvoltage category of OV3.

### 1.2 APPLICABLE DOCUMENTS

➤ Standards:

- EN60068-1: 1995 – Environmental tests - Part 1: Generality and guidance
- EN60068-2-2/A2: 1995 - Environmental tests - Part 2: Tests - Tests B: Dry heat
- EN60068-2-11: 1999 - Environmental tests - Part 2: Tests - Tests ka: Salt spray
- EN60068-2-14: 2009 - Environmental tests - Part 4: Tests - Tests N: Temperature variation
- EN60068-2-78: 2002 - Environmental tests - Part 2-78: Tests - Test Cab: Continuous damp heat
- EN60529/A1: 2000 – Degree of protection provided by enclosures (IP code)
- EN61373: 2000 - Railway applications – Rolling stock – Chocks and vibrations tests
- ISO1431-1: 2012 – Rubber, vulcanized or thermoplastic materials – Resistance to ozone cracking – Part 1: Tests under static and dynamic stretching
- NF F 61-030: 1992 - Railway rolling stock – Electrical connectors - Generalities
- NF C 93-400 /A1: 1988 – Electronic components – Connection devices – Test procedures and measuring methods – List of tests
- NFC93-422: 1977 - Electronic components – Connection devices – Cylindrical multicontacts connectors – General requirements
- APTA PR-E-S-001-98 – Standard for insulation integrity
- APTA PR-E-RP-002-98 – Recommended Practice for Wiring of Passenger Equipment
- APTA RP-E-017-99 - Recommended Practice for 27-Point Jumper and Receptacle Hardware for Locomotives and Locomotive-Hauled Equipment
- APTA PR-E-RP-019-99 – Recommended Practice for 27-Point Jumper and Receptacle Hardware for Locomotives and Locomotive-Hauled Equipment
- AAR-S-512 – Locomotives and locomotive interchange equipment

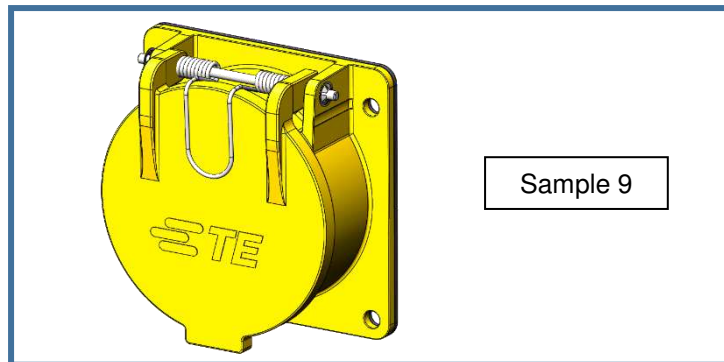
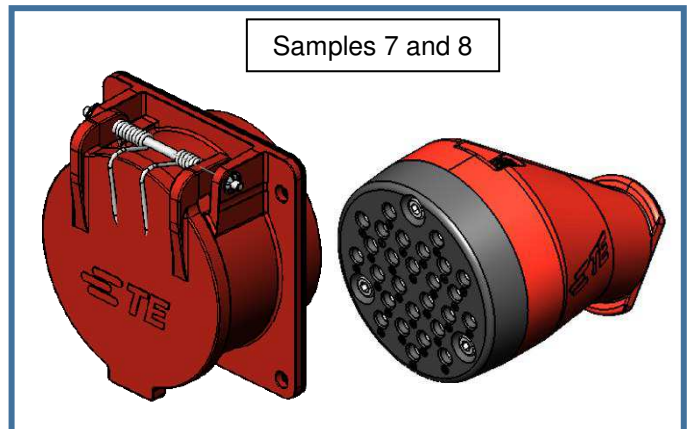
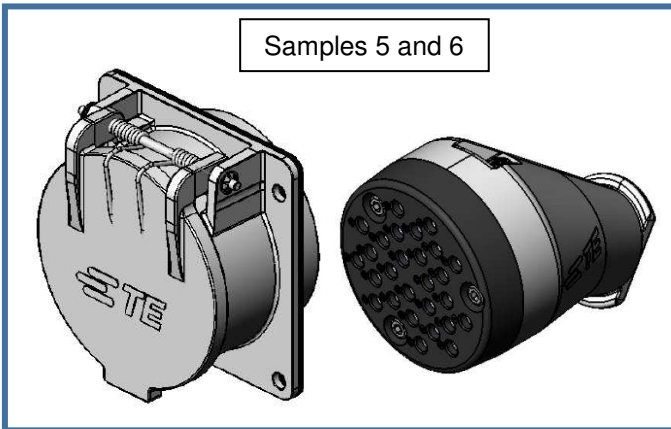
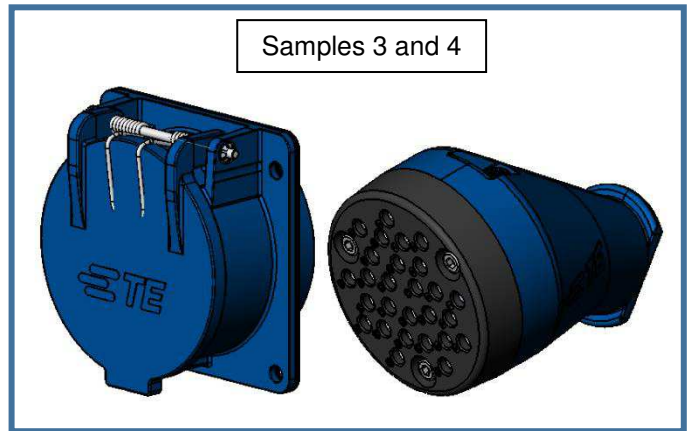
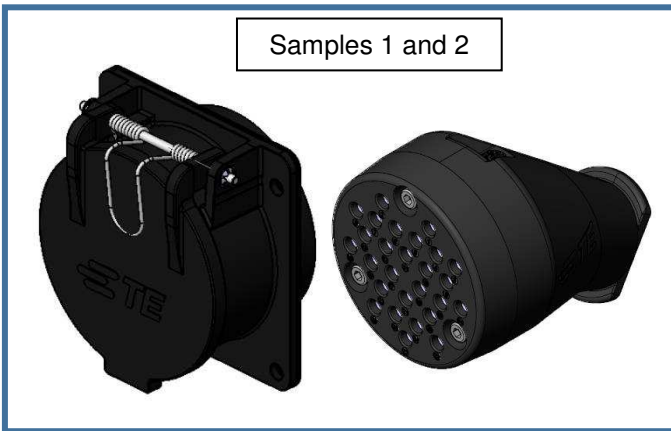
➤ Assembly drawings (see [appendix 2](#)):

- 212075\_DEUTSCH: MU CONTROL PLUG
- 211942\_DEUTSCH: MU CONTROL RECEPTACLE
- 212093\_DEUTSCH: COMMUNICATION PLUG
- 211943\_DEUTSCH: COMMUNICATION RECEPTACLE
- 212094\_DEUTSCH: TYPICAL AEM-7 PLUG
- 212085\_DEUTSCH: TYPICAL AEM-7 RECEPTACLE
- 212095\_DEUTSCH: COMMUNICATION COMMUTER PLUG
- 212086\_DEUTSCH: COMMUNICATION COMMUTER RECEPTACLE
- 211944\_DEUTSCH: DUMMY RECEPTACLE



**1.3 SAMPLING**

Sample No.	Sample BOM	Quantity per sample	Description	Cables
1 and 2	27P-REC-1-01 27P-PLU-1-01	1	MU CONTROL RECEPTACLE MU CONTROL PLUG	See §1.5
3 and 4	27P-REC-2-01 27P-PLU-2-01	1	COMMUNICATION RECEPTACLE COMMUNICATION PLUG	
5 and 6	27P-REC-3-01 27P-PLU-3-01	1	TYPICAL AEM-7 RECEPTACLE TYPICAL AEM-7 PLUG	
7 and 8	27P-REC-4-01 27P-PLU-4-01	1	COMMUNICATION COMMUTER RECEPTACLE COMMUNICATION COMMUTER PLUG	
9	27P-DUM-Y	1	DUMMY RECEPTACLE	N/A





## 1.4 TEST SEQUENCE

Test sequence is the one described by the NFF61030, added to specific tests from the APTA and AAR standards.

The connectors are successively submitted to the tests corresponding to the groups defined here-after:

Group	Test description	Required by standard	Sample number
0	Visual examinations (appearance & marking)	APTA PR-E-RP-019-99	Each sample
	Geometrical checking	APTA PR-E-RP-019-99	1, 9
	Mass checking	AAR S-512	Each sample
	Withstand voltage	APTA PR-E-S-001-98	1 to 8
	Insulation resistance	APTA PR-E-S-001-98	1 to 8
	Contact resistance	NF F 61-030	2, 3 and 7
	Connector insertion force	APTA PR-E-RP-019-99	1, 3, 5 and 7
	Contact insertion force	APTA PR-E-RP-019-99	1
1	Continuous test in damp heat	APTA PR-E-RP-019-99	1
	Vibration test	NF F 61-030	2
	Resistance to fluids	APTA PR-E-RP-019-99 NF F 61-030	2, 4, 6 and 8
2	Rapid variations of temperature	APTA PR-E-RP-002-98	3
	Mechanical endurance	APTA PR-E-RP-002-98	3
	Jumper head retention	APTA PR-E-RP-019-99	3
3	Temperature rise	APTA PR-E-RP-019-99	7
	Corrosion	NF F 61-030	5
	Shocks	NF F 61-030	5
4	Dry heat	NF F 61-030	7
	Mechanical resistance to impact (drop test)	NF F 61-030	7
5	Traction test (crimped connection)	NF F 61-030	10 pairs of contacts

Note:

- A full version of this table included severity and checking tests to be performed is in appendix



## 1.5 SAMPLES IMPLEMENTATION

Each sample for testing is a pair of connectors composed of:

- 1 male receptacle equipped of 27 male contacts caliber 8 with 3 contacts in AWG 10 and 24 contacts in AWG12-14
- 1 female plug equipped of 27 female contacts caliber 8 with 3 contacts in AWG 10 and 24 contacts in AWG12-14

The retention between the plug and the receptacle made by a form in the cover and in the plug.



The contacts and cables used for this qualification are the following:

Cable section	Cable designation	Selector position of the crimping tool
10 AWG (5.27mm <sup>2</sup> )	E125352 (P) (UL) BC-5W2 OR MTW OR THHW OR AWM 1011/1015/1230/1335 600V OR 1032 1000V MOISTURE RESISTANT VW-1- -156016 CSA TEW 105C 600V FT1 OR AWM I A/B 105C 600V FT1	DANIELS CRIMPING HAND CRIMPER HX4 WITH Y543 DIES or DANIELS PNEUMATIC CRIMPER HX23 WITH Y543 DIES
12 AWG (3.31mm <sup>2</sup> )	E125352 (P) (UL) BC-5W2 OR MTW OR THHW OR AWM 1011/1015/1230/1335 600V OR 1032 1000V MOISTURE RESISTANT VW-1- -156016 CSA TEW 105C 600V FT1 OR AWM I A/B 105C 600V FT1	
14 AWG (2.08mm <sup>2</sup> )	E125352 (P) (UL) BC-5W2 OR MTW OR THHW OR AWM 1011/1015/1230/1335 600V OR 1032 1000V MOISTURE RESISTANT VW-1- -156016 CSA TEW 105C 600V FT1 OR AWM I A/B 105C 600V FT1	

Cable stripping length = 0.54 inches (13,7 mm)

Validation / Qualification  
Test ReportReceptacle:

CONTACTS					RECEPTACLE	
Caliber (mm)	Type	Cable used	Reference	Index	No. of contacts	Contact localization in insulator
8	Male contact 10 AWG	10 AWG	YS-UC-211946A-AA1A	C	3	Randomly
8	Male contact 12-14 AWG	12 AWG	YS-UC-211945A-AA1A	C	12	Randomly
8	Male contact 12-14 AWG	14 AWG	YS-UC-211945A-AA1A	C	12	Randomly

Plug:

CONTACTS					RECEPTACLE	
Caliber (mm)	Type	Cable used	Reference	Index	No. of contacts	Contact localization in insulator
8	Female contact 10 AWG	10 AWG	YS-UC-212073A-AA1A	C	3	Identical to receptacle
8	Female contact 12-14 AWG	12 AWG	YS-UC-212072A-AA1A	C	12	Identical to receptacle
8	Female contact 12-14 AWG	14 AWG	YS-UC-212072A-AA1A	C	12	Identical to receptacle

**1.6 SAMPLES WORKING ORDERS**

WO No.	DESCRIPTION	CATALOGUE No.
200215611501	PLUG, MU, CONTROL	27P-PLU-1-01
200215611503	RECEPTACLE, COMMUNICATION	27P-REC-2-01
200215611505	RECEPTACLE, MU, CONTROL	27P-REC-1-01
200215611506	PLUG, COMMUNICATION	27P-PLU-2-01
200215611507	RECEPTACLE, TYPICAL OF AEM-7	27P-REC-3-01
200215611510	PLUG, TYPICAL AEM-7	27P-PLU-3-01
200215611511	PLUG, COMMUNICATION COMMUTER	27P-PLU-4-01
200215611514	RECEPTACLE, COMMUNICATION COMMUTER	27P-REC-4-01
200215638062	DUMMY RECEPTACLE	27P-DUM-Y





## 1.7 TESTS DEVICES

Description	TE No.	Calibration dates	
		Current	Next
Coating measurement Instrument	6428	2016/07	2017/07
Smart scope MVP 300	6616	2017/11	2018/11
Radius gauge (indicator)	/	/	/
Digital CX1/DX1	5420	2017/06	2018/06
Digital caliper MITUTOYO	6131	2017/10	2018/17
Digital caliper MITUTOYO absolute digimatic	2401	2017/03	2018/03
Scale KERN CXP	5435	2017/01	2018/01
Dielectric strength tester SEFELEC PR 12 PF	1589	2017/03	2018/03
Insulation tester MEGGER BM25	2231	2017/11	2018/11
Ohmmeter MEGGER DLRO600	6701	2017/04	2018/04
Traction / compression machine ADAMEL LHOMARGY DY36	1118	2017/04	2019/04
Climatic chamber CLIMATS 320H60-1-5	1574	2017/06	2018/06
Climatic chamber FRANCE ETUVES XU250	6019	2017/06	2018/06
Climatic chamber CERADEL SNOL 970/350	7292	2017/06	2018/06
Climatic chamber CLIMATS EX5424	6185	2017/06	2018/06
Datalogger AGILENT 34970A	1868	2017/03	2018/03
Current generator ZENONE model GI2000GL	7054	2017/06	2018/06
AC current probe CHAUVIN ARNOUX MA100	7570	2017/03	2018/03
Salt spray chamber DYCOMETAL type SSC-400	7574	2017/05	2018/05
Micro-cuts detection device	7344-0001-03-002	2017/10	2018/10
Driver station	7161-0001-05-002	2017/11	2018/11
Sensor signal conditioner model 488C series	7161-0001-26-001	2016/12	2018/12
Accelerometer	7161-0001-28-001	2017/10	2018/10
Shower + Flowmeter PIUISI instrument (indicator)	/	/	/
Dust enclosure FLONIC SCHLUMBERGER	D1086002	/	2019/12
Timers QUANTUM	B2040110 B1040111	/	2019/10





2 CONCLUSION

Group	Test description	Standard	Requirements	Samples No.									Compliance	
				1	2	3	4	5	6	7	8	9		
0	Visual examinations	APTA PR-E-RP-019-99	See details on report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Dimensions checking	APTA PR-E-RP-019-99 + AAR S-512	211276 Insulator dimensions	✓										
			211942 Receptacle dimensions or 211944 Dummy receptacle dimensions	✓									✓	✓
			212075 Plug dimensions	✓										
	Mass checking	NF F 61-030	Plug	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Receptacle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Withstand voltage	APTA PR-E-S-001-98	No disruptive breakdown, nor arcing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Leakage current ≤ 2 mA (rms value)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Insulation resistance	APTA PR-E-S-001-98	IR ≥ 5 MΩ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Contact resistance	NF F 61-030	Rc ≤ 0.35 mΩ		✓	✓					✓			✓	
Connector insertion force	APTA PR-E-RP-019-99	195 N < Insertion force < 285 N	✓		✓			✓		✓			✓	
Contact insertion force	APTA PR-E-RP-019-99	2.2 N < Insertion force < 14.5 N	✓										✓	
1	Continuous damp heat	APTA PR-E-RP-019-99	No defect that would prevent the connector working properly	✓										
			Legible marking at the end of the test	✓										
			IR ≥ 5 MΩ	✓										
	Vibrations	NF F 61-030	No micro-cuts high than 10 μs		✓									
			No defect, no splitting or fracture or play, no loosening of the locking system		✓									
			195 N < Insertion force < 285 N		✓									✓
			No water trace on the actives parts		✓									
	Resistance to fluids	APTA PR-E-RP-019-99 + NF F 61-030	No cracking or dissolving of the insulation and the sealing system, no defect that would prevent the connector working properly		✓		✓		✓		✓		✓	✓
			The marking shall be legible		✓		✓		✓		✓		✓	✓
			No disruptive breakdown, nor arcing Leakage current ≤ 2 mA (rms value)		✓		✓		✓		✓		✓	✓
IR ≥ 5 MΩ				✓		✓		✓		✓		✓	✓	
2	Rapid temperature variation	APTA PR-E-RP-002-98	The parts shall not have any defect that would prevent them working properly			✓								
			The marking shall be legible at the end of the test			✓								
			IR ≥ 5 MΩ			✓								





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APPENDIX 1: Type tests synthesis and tests requirements

Group	Test description	Severity or conditions	Type tests	Checking tests	No. of the test sample								
					1	2	3	4	5	6	7	8	9
0	Visual examination (appearance & marking)	No damage	X										
	Geometrical checking		X			-	-	-	-	-	-	-	
	Mass checking	±5%	X										
	Withstand voltage	Leakage current ≤2mA	X										-
	Insulating resistance	IR ≥5MΩ	X										-
	Contact resistance	Rc≤0.35mΩ	X					-	-	-	-	-	-
	Connector insertion force	195N<insertion force<285N	X										-
	Contact insertion force	2.2N<insertion force<14.5N	X										-
1	Continuous test in damp heat	-	X										
	Visual examination (appearance & marking)	No damage		X									
	Insulating resistance	IR ≥5MΩ		X									
	Vibration test		X										
	Visual examination (aspect)	No damage		X									
	Locking test	195N<insertion force<285N		X									
	Watertightness IPx4	No water trace on actives parts		X									
	Dust resistance IP5x	No dust trace on actives parts		X									
	Resistance to fluids		X										
	Visual examination (appearance & marking)	No defect – marking visible		X									
	Withstand voltage	Leakage current ≤2mA		X									
Insulating resistance	IR ≥5MΩ		X										
2	Rapid variations of temperature		X										
	Visual examination (appearance & marking)	No defect		X									
	Insulating resistance	IR ≥5MΩ		X									
	Mechanical endurance		X										
	Visual examination (appearance)	No damage		X									
	Locking test	195N<insertion force<285N		X									
	Contact resistance	Rc≤0.35mΩ		X									
Jumper head retention		X											
Visual examination (appearance)	No damage		X										
3	Temperature rise	ΔT ≤ 50 K @ 30A	X										
	Corrosion		X										
	Visual examination (appearance & marking)	No damage		X									
	Insulating resistance	IR ≥5MΩ		X									
	Shocks		X										
Visual examination (appearance)	No damage		X										
Locking test	195N<insertion force<285N		X										
4	Dry heat		X										
	Visual examination (appearance & marking)	No damage		X									
	Contact resistance	Rc≤0.35mΩ		X									
	Insulating resistance	IR ≥5MΩ		X									
	Mechanical resistance to impact (drop test)		X										
Visual examination (appearance)	No damage		X										
Locking test	195N<insertion force<285N		X										
5	Traction resistance of the crimped connection	F≥180N	X		5 pairs of contacts of each cable section range								

	Test to realized
-	Test not to realized



**APPENDIX 2: Assembly drawings of the test samples**  
**MU plug control – reference E1894-212075 – revision C**

**COUPE A-A**  
Représentation avec les contacts et les manchons  
A-A View  
Show without mounted contacts and sleeves

**Vue isométrique - Echelle 1/2**  
Isometric view - Scale 1/2

**Vue isométrique - Echelle 1/2**  
Isometric view - Scale 1/2

1 Masse / Weight = 2032,24 g  
 ( ) : cotes pour information / dimensions for information  
 □ : cotes de contrôle / inspection dimensions

3 Serrage au contact, ne pas appliquer de couple de serrage.  
 To be tightening up to contact, do not apply a tightening torque.

CONTACT AVG812-14 :  
 Référence bureau d'études / Engineering reference : YS-UC-212072A-AA1A  
 Référence commerciale / Commercial reference : 27P-CDN-512-14

CONTACT AVG810 :  
 Référence bureau d'études / Engineering reference : YS-UC-212073A-AA1A  
 Référence commerciale / Commercial reference : 27P-CDN-510

Contacts emballés séparément et identifiés  
 Contacts packaging separately and identified

Marguage laser / Laser marking :  
 Année-semaine + TE + Référence commerciale  
 TE + Commercial reference + Year-Week

Peinture noire  
 Black paint

9 Instruction de montage suivant 118-157000-2  
 Work instruction according to 118-157000-2

Bainure faite pour différencier les contacts  
 Groove made to differentiate contacts

Manchons emballés séparément et identifiés  
 Sleeves packaging separately and identified

-	-	Carton	6,00	1	Y00000-0206-0217AS	Boîte en carton	11	
-	-	Inox	23,20	3	CHCM08x40-1	Vis CHC	10	
-	-	Inox	2,56	3	MU-08-1	Rondelle plate	9	
-	-	Inox	1,72	3	ISO4-0030U4	Entretoise	8	
-	-	Aluminium	14,62	1	ISO4-0020U4	Cône de serrage	7	
-	-	Argenture	17,53	3	YC-UC-212073A-AA1A	Contact femelle AVG 10	6	
-	-	Argenture	17,64	24	YC-UC-212072A-AA1A	Femelle contact 10 AVG	5	
-	-	Neoprène	258,94	1	YK-UC-211288A-YU00	Contact femelle AVG 12 et 14	4	
-	-	Neoprène	1,36	27	ISO4-0008A4	Isolant femelle	3	
-	-	Polycarbonate	124,80	1	YK-UC-211276A-DK00	Femelle insert	2	
-	-	Conversion Cr3	1038,59	1	YF-UC-211290A-JU06	Isolant mixte	1	
Observations	Protection	Aluminium	Matière	Masse (g)	Nbr	Couffication	Désignation	Item

Observations / Remarks

Conversion Cr3 / Cr3 conversion

Protection / Protection

Matière / Material

Masse (g) / Mass (g)

Nbr / Qty

Couffication / Marking

Désignation / Designation

Item

Reference commerciale / commercial reference : 27P-PLU-1-01

YK-UC-212075A-000

PART NO

16 JUL 2015

16 JUL 2015

16 JUL 2015

TE Connectivity

MU PLUG CONTROL

MU PLUG CONTROL

E1894-212075

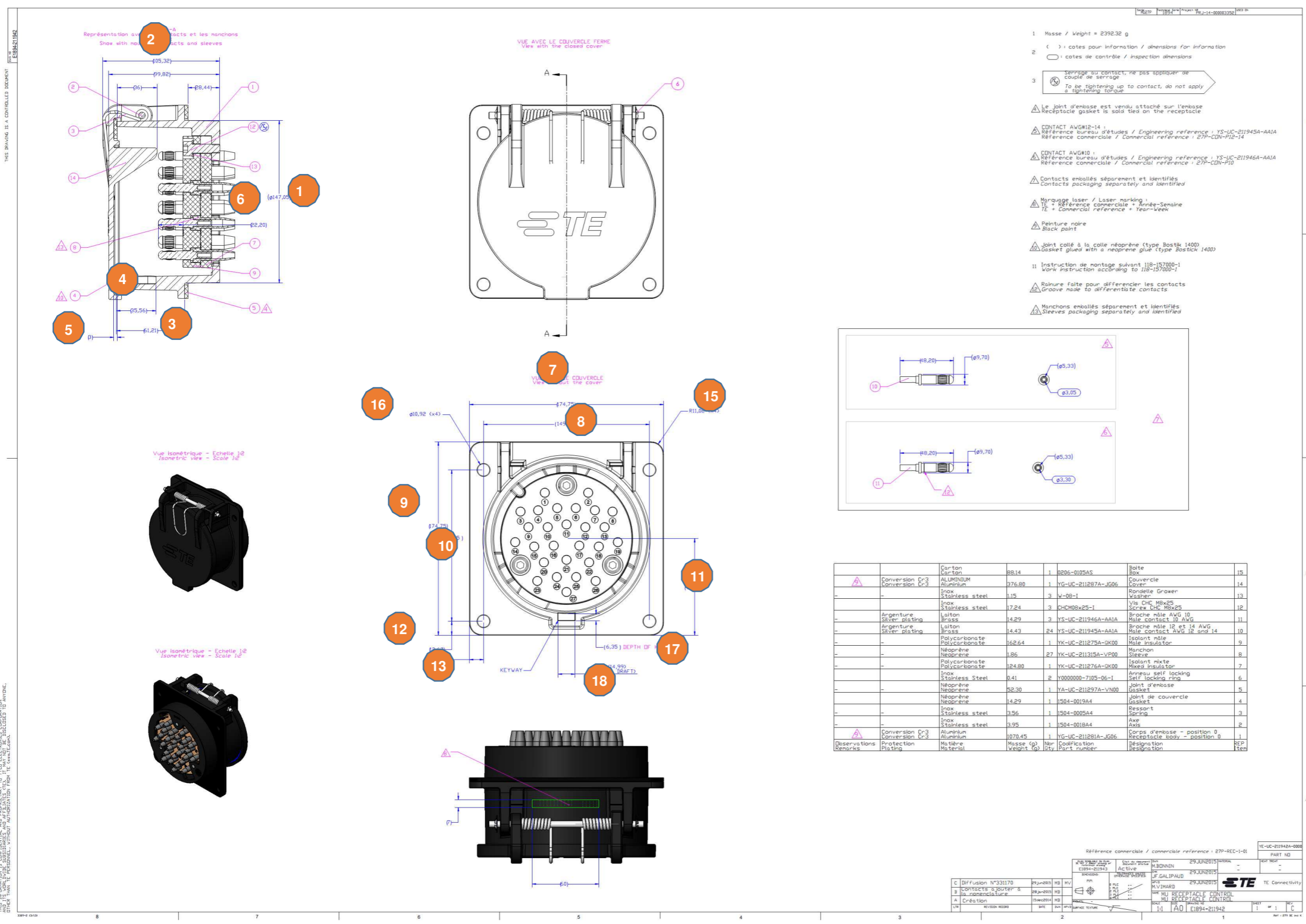
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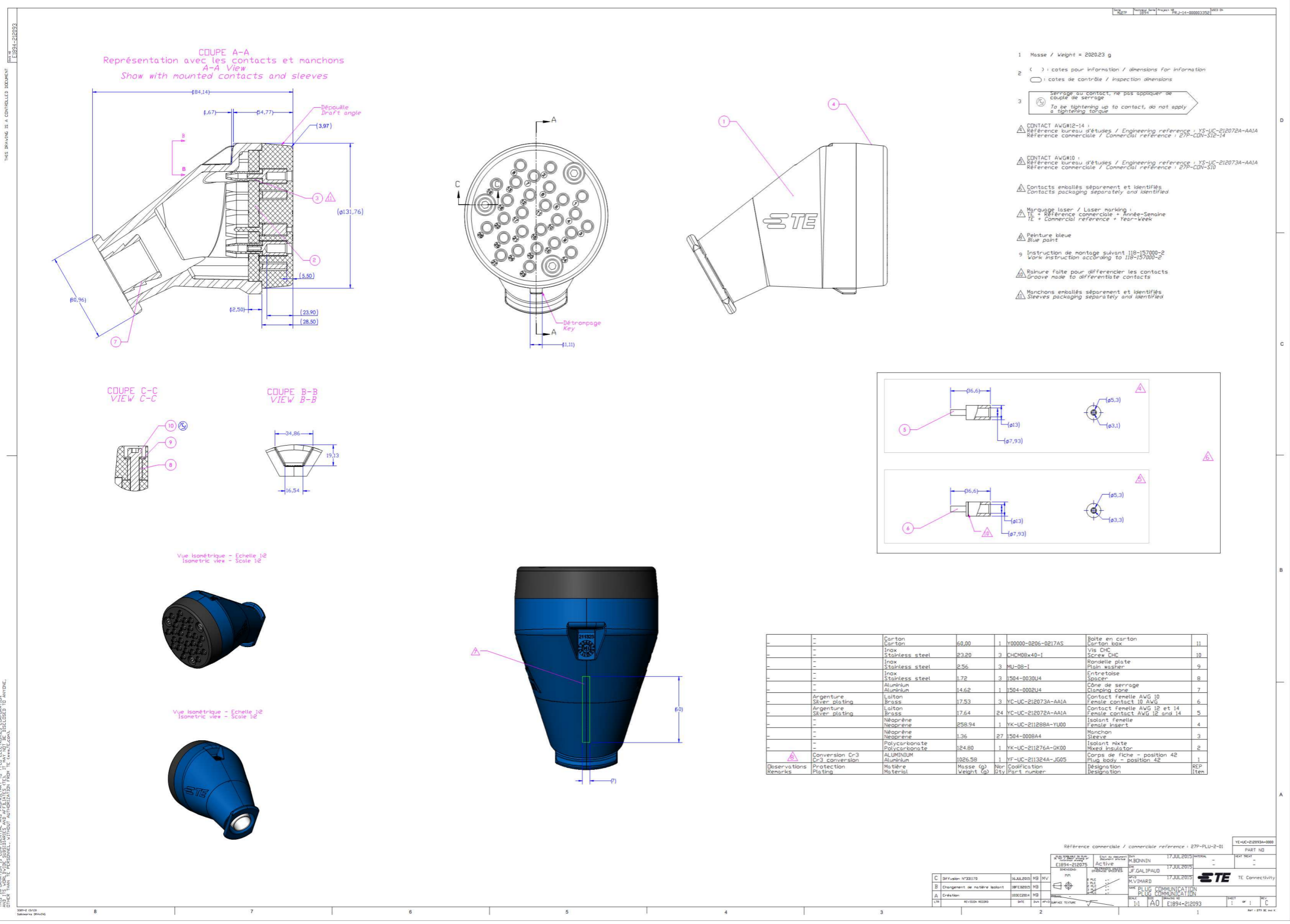
MU receptacle control – reference E1894-211942 – revision C



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Plug communication – reference E1894-212093 – revision C



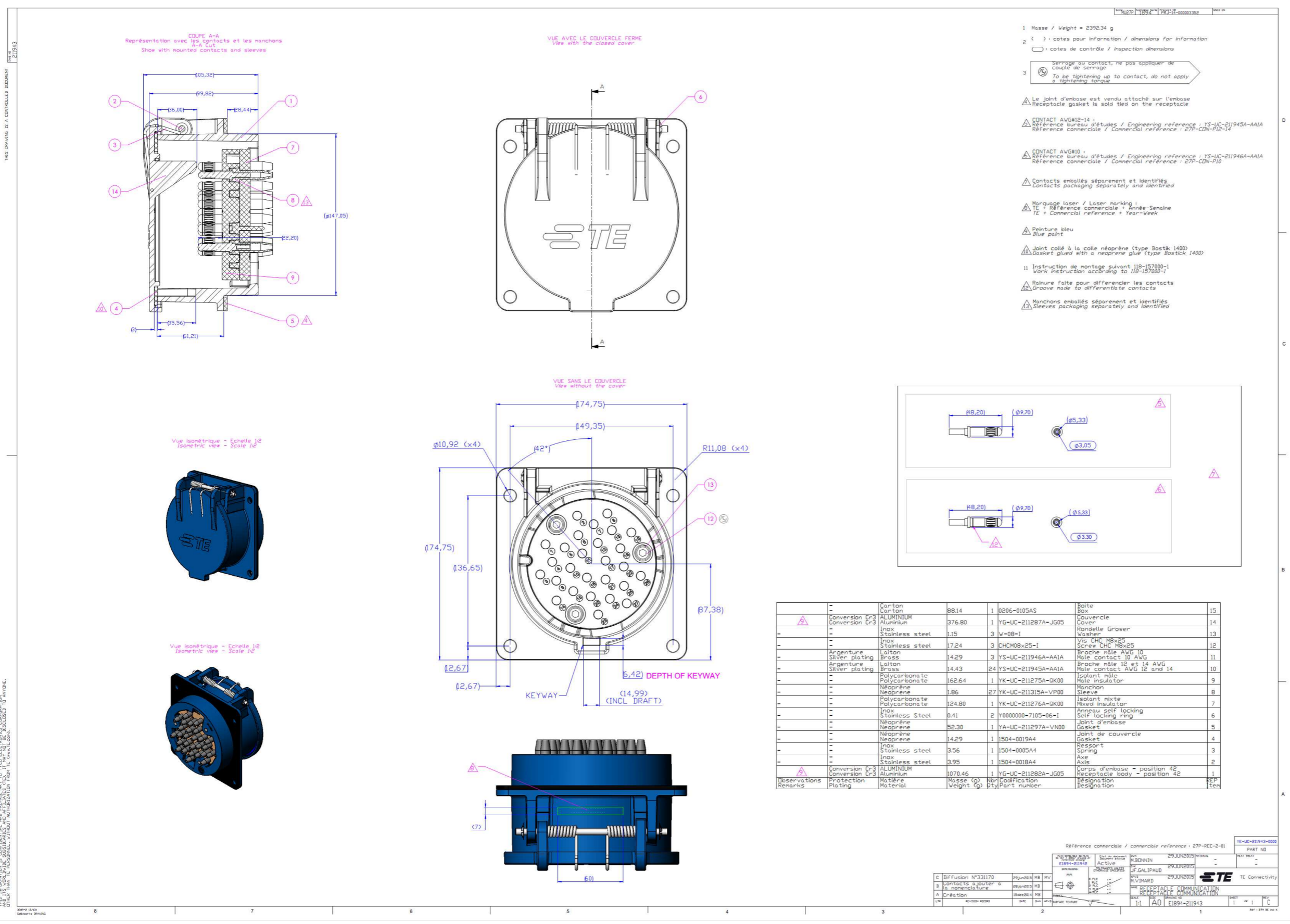
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Révision		Date		Par		Approuvé		N° de pièce		Date		N° de pièce		Date	
C		02/07/2015		MB		MV		1800000000		17 JUL 2015		MB		17 JUL 2015	
B		08/12/2015		MB		MV		1800000000		17 JUL 2015		MB		17 JUL 2015	
A		02/02/2014		MB		MV		1800000000		17 JUL 2015		MB		17 JUL 2015	
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Receptacle communication – reference E1894-211943 – revision C



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Typical AEM-7 plug – reference E1894-212094 – revision C

**COUPE A-A**  
Représentation avec les contacts  
A-A View  
Show without mounted contacts

**COUPE B-B**  
VIEW B-B

**COUPE C-C**  
VIEW C-C

**Vue isométrique - Echelle 1:2**  
Isometric view - Scale 1:2

**Vue isométrique - Echelle 1:2**  
Isometric view - Scale 1:2

**Notes:**

- Masse / Weight = 2025.49 g
- ( ) : cotes pour information / dimensions for information  
○ : cotes de contrôle / inspection dimensions
- ⚠ serrage au contact, ne pas appliquer de couple de serrage  
To be tightening up to contact, do not apply a tightening torque
- ⚠ CONTACT AVGR12-14 : Référence bureau d'études / Engineering reference : YS-UC-212072A-AA1A  
Référence commerciale / Commercial reference : 27P-CDN-512-14
- ⚠ CONTACT AVGR10 : Référence bureau d'études / Engineering reference : YS-UC-212073A-AA1A  
Référence commerciale / Commercial reference : 27P-CDN-510
- ⚠ Contacts emballés séparément et identifiés  
Contacts packaging separately and identified
- ⚠ Marquage laser / Laser marking : TE + Référence commerciale + Année-Semaine  
TE + Commercial reference + Year-Week
- ⚠ Peinture blanche  
White paint
- ⚠ Instruction de montage suivant I18-157000-2  
Work instruction according to I18-157000-2
- ⚠ Rainure faite pour différencier les contacts  
Groove made to differentiate contacts
- ⚠ Manchons emballés séparément et identifiés  
Sleeves packaging separately and identified

QTY	DESCRIPTION	MAT.	POIDS (g)	N°	REMARQUES	REP.
1	Carton	Carton	60,00	1	Y00000-0205-0217AS Boite en carton Carton box	11
3	Inox	Stainless steel	23,20	3	CHCM08x40-1 Vis CHC Screw CHC	10
3	Inox	Stainless steel	2,56	3	MU-08-1 Rondelle plate Plain washer	9
3	Inox	Stainless steel	1,72	3	1504-0030U4 Entretoise Spacer	8
1	Aluminium	Aluminium	14,62	1	1504-0002U4 Cône de serrage Clamping cone	7
3	Argenture	Laiton Silver plating	17,53	3	YC-UC-212073A-AA1A Contact femelle AVG 10 Female contact 10 AVG	6
24	Argenture	Laiton Silver plating	17,64	24	YC-UC-212072A-AA1A Contact femelle AVG 12 et 14 Female contact AVG 12 and 14	5
1	Néoprène	Néoprène	258,94	1	YK-UC-211288A-YU00 Isolant femelle Female insert	4
27	Néoprène	Néoprène	1,36	27	1504-0008A4 Manchon Sleeve	3
1	Polycarbonate	Polycarbonate	124,80	1	YK-UC-211276A-0K00 Isolant mixte Mixed insulator	2
1	Aluminium	Aluminium	1031,84	1	YF-UC-211326A-JG07 Corps de fiche - position 77,5 Plug body - position 77,5	1
	Conversion Cr3	Aluminium				
	Protection	Matière	Masse (g)	N°	Qualification	Designation
	Plating	Material	Weight (g)	Qty	Part number	Designation

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E1894-212094  
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Référence commerciale / commerciale reference : 27P-PLU-3-01		TE-UC-212094-0000	
REV	DESCRIPTION	DATE	BY
C	Diffusion N°33178	17.JUL.2015	MB
B	Changement de matière isolant	08.FEB.2014	MB
A	Création	08.FEB.2014	MB
LT	REVISION REC289	04.FEB.2014	MB



# Validation / Qualification Test Report



## Receptacle typical of AEM-7 plug – reference E1894-212085 – revision C

Représentation avec les contacts et les manchons  
A-A Cut  
Show with mounted contacts and sleeves

VUE AVEC LE COUVERCLE FERME  
View with the closed cover

VUE SANS LE COUVERCLE  
View without the cover

Vue isométrique - Echelle 1/2  
Isometric view - Scale 1/2

Vue isométrique - Echelle 1/2  
Isometric view - Scale 1/2

1 Masse / Weight = 2392,22 g  
2 ( ) : cotes pour information / dimensions for information  
3 ( ) : cotes de contrôle / inspection dimensions

Serrage au contact, ne pas appliquer de couple de serrage  
To be tightening up to contact, do not apply a tightening torque

Le joint d'embase est vendu attaché sur l'embase  
Receptacle gasket is sold tied on the receptacle

CONTACT AVGM12-14 :  
Référence bureau d'études / Engineering reference : YS-UC-211945A-AA1A  
Référence commerciale / Commercial reference : 27P-CDN-F12-14

CONTACT AVGM10 :  
Référence bureau d'études / Engineering reference : YS-UC-211946A-AA1A  
Référence commerciale / Commercial reference : 27P-CDN-F10

Contacts emballés séparément et identifiés  
Contacts packaging separately and identified

Marquage laser / Laser marking :  
TE + Référence commerciale + Année-Semaine  
TE + Commercial reference + Year-week

Peinture blanche  
White paint

Joint collé à la colle néoprène (type Bostik 1400)  
Gasket glued with a neoprene glue (type Bostik 1400)

11 Instruction de montage suivant 118-157000-1  
Work instruction according to 118-157000-1

Raure faite pour différencier les contacts  
Groove made to differentiate contacts

Manchons emballés séparément et identifiés  
Sleeves packaging separately and identified

Part No.	Description	Material	QTY	Part No.	Description	Material	QTY
1	Masse		2392,22	15	Boîte	Box	1
2	Couverture	ALUMINIUM	376,80	14	Couvercle	Cover	1
3	Washer	Inox	1,15	13	Rondelle Grover	Washer	3
4	Vis	Inox	17,24	12	Vis CHC M8x25	Screw CHC M8x25	3
5	Broche mâle	Argenture	14,29	11	Broche mâle AWG 10	Male contact AWG 10	3
6	Isolant mâle	Argenture	14,43	10	Broche mâle 12 et 14 AWG	Male contact AWG 12 and 14	24
7	Isolant mixte	Polycarbonate	162,64	9	Isolant mâle	Male insulator	1
8	Manchon	Neoprène	1,86	8	Sleeve	Sleeve	27
9	Isolant mixte	Polycarbonate	124,80	7	Isolant mixte	Mixed insulator	1
10	Anneau self locking	Inox	0,41	6	Anneau self locking	Self locking ring	2
11	Joint d'embase	Neoprène	52,30	5	Joint d'embase	Gasket	1
12	Joint de couvercle	Neoprène	14,29	4	Joint de couvercle	Gasket	1
13	Ressort	Inox	3,56	3	Ressort	Spring	1
14	Axe	Inox	3,95	2	Axe	Axis	1
15	Corps d'embase - position 77,5	ALUMINIUM	1070,35	1	Corps d'embase - position 77,5	Receptacle body - position 77,5	1

Observations / Remarks

Part No.	Description	Material	QTY	Part No.	Description	Material	QTY
1	Receptacle body	ALUMINIUM	1070,35	1	Receptacle body	ALUMINIUM	1

Reference commerciale / commerciale reference : 27P-REC-3-01

Part No. 15

Part No. 14

Part No. 13

Part No. 12

Part No. 11

Part No. 10

Part No. 9

Part No. 8

Part No. 7

Part No. 6

Part No. 5

Part No. 4

Part No. 3

Part No. 2

Part No. 1

# Validation / Qualification Test Report



## Communication commuter plug – reference E1894-212095 – revision C

**COUPE A-A**  
Représentation avec les contacts et les manchons  
A-A View  
Show with mounted contacts ans sleeves

**Vue isométrique - Echelle 1:2**  
Isometric view - Scale 1:2

**Vue isométrique - Echelle 1:2**  
Isometric view - Scale 1:2

1 Masse / Weight = 2032,24 g

2 ( ) : cotes pour information / dimensions for information  
⊙ : cotes de contrôle / inspection dimensions

3 serrage au contact, ne pas appliquer de couple de serrage  
To be tightening up to contact, do not apply a tightening torque

⚠ CONTACT AWG#12-14  
Référence bureau d'études / Engineering reference : YS-UC-212072A-AA1A  
Référence commerciale / Commercial reference : 27P-CDN-512-14

⚠ CONTACT AWG#10  
Référence bureau d'études / Engineering reference : YS-UC-212073A-AA1A  
Référence commerciale / Commercial reference : 27P-CDN-S10

⚠ Contacts emballés séparément et identifiés  
Contacts packaging separately and identified

⚠ Marquage laser / Laser marking :  
TE + Référence commerciale + Année-Semaine  
TE + Commercial reference + Year-Week

⚠ Peinture rouge  
Red paint

g Instruction de montage suivant 118-157000-2  
Work instruction according to 118-157000-2

⚠ Rainure faite pour différencier les contacts  
Groove made to differentiate contacts

⚠ Manchons emballés séparément et identifiés  
Sleeves packaging separately and identified

-	-	Carton	60,00	1	Y00000-0206-0217AS	Boite en carton	Carton box	11
-	-	Inox	23,20	3	CHCM08x40-1	Vis CHC	Screws CHC	10
-	-	Inox	2,56	3	MU-08-1	Rondelle plate	Plain washer	9
-	-	Inox	1,72	3	1504-0030U4	Entretouille	Spacer	8
-	-	Aluminium	14,62	1	1504-0002U4	Cône de serrage	Clamping cone	7
-	Argenture	Laiton	17,53	3	YC-UC-212073A-AA1A	Contact femelle AWG 10	Female contact AWG 10	6
-	Argenture	Laiton	17,64	24	YC-UC-212072A-AA1A	Contact femelle AWG 12 et 14	Female contact AWG 12 and 14	5
-	-	Neoprène	258,94	1	YK-UC-211288A-YU00	Isolant femelle	Female insert	4
-	-	Neoprène	1,36	27	1504-0008A4	Manchon	Sleeve	3
-	-	Polycarbonate	124,80	1	YK-UC-211276A-0K00	Isolant mixte	Mixed insulator	2
⚠	Conversion Cr3	ALUMINIUM	1038,59	1	YF-UC-211290A-JG04	Corps de fiche - position 0	Plug body - position 0	1
Observations	Protection	Matériau	Masse (g)	Nbr	Codification	Désignation	Designation	REP
	Plating	Material	Weight (g)	Qty	Part number		Item	

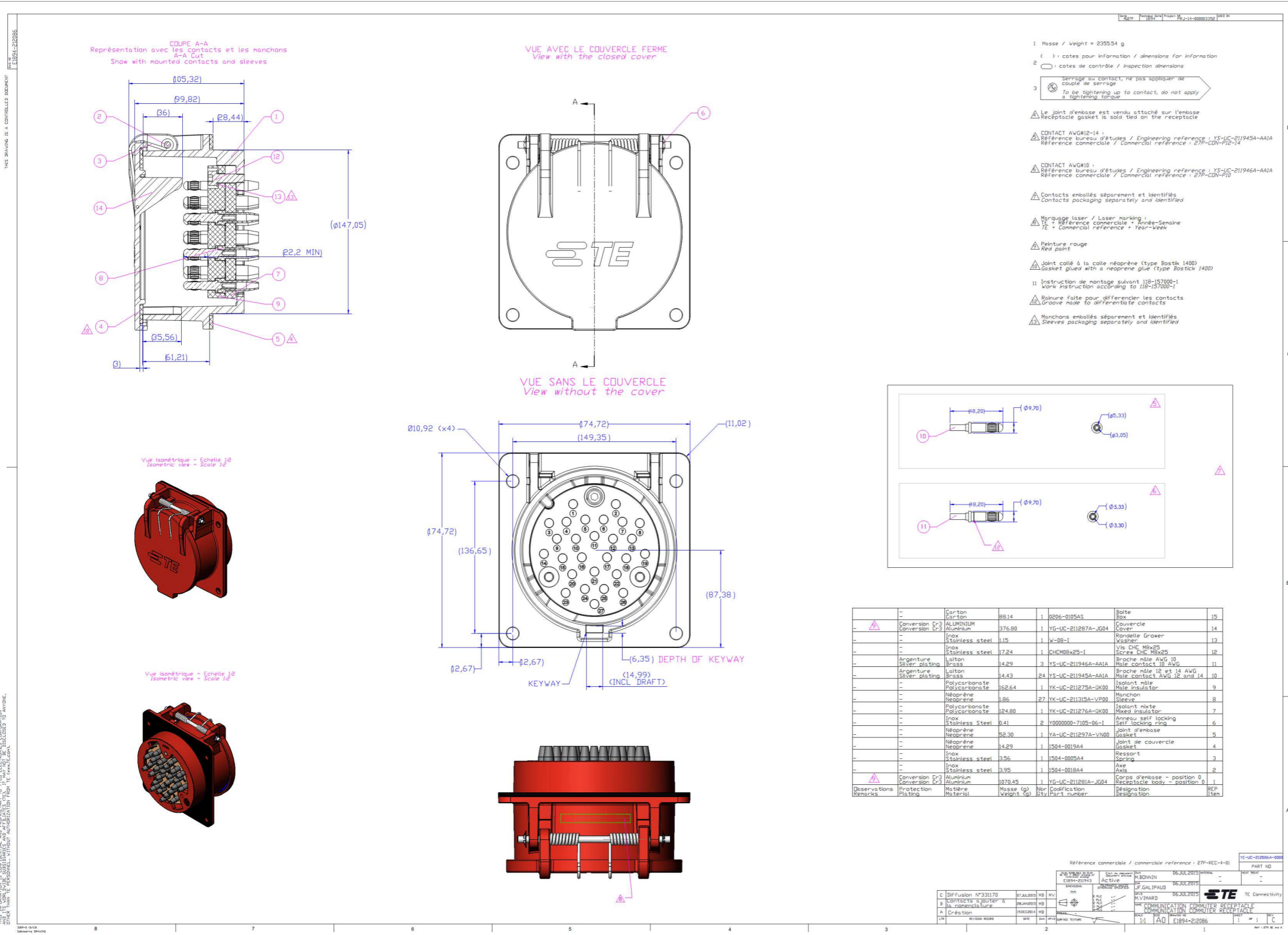
Référence commerciale / commerciale reference : E1894-212095		1E-UC-212095A-000
17 JUL 2015		17 JUL 2015
M.BONNIN		M.BONNIN
J.F. GALIPAUD		J.F. GALIPAUD
M. VIMARD		M. VIMARD
COMMUNICATION COMMUTER PLUG		COMMUNICATION COMMUTER PLUG
E1894-212095		E1894-212095
1		1
C		C

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Communication commutateur receptacle – reference E1894-212086 – revision C



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# Validation / Qualification Test Report



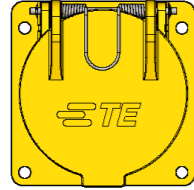
## Dummy receptacle – reference E1894-211944 – revision E

Project No	REVISING	DATE	BY
PRJ-14-00003352			
C	Diffusion N°331170		MB MV
D	Diffusion 33283		MB MV
E	Application note - Diffusion 33121		EL MV

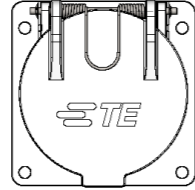
- ( ) : cotes pour information / dimensions for information  
( ) : cotes de controle / inspection dimensions
- Instructions de mise en oeuvre à appliquer par le client  
Customer instructions to be applied by the customer

- ⚠ Receptacle gasket is sold tied on the receptacle
- ⚠ Yellow point
- ⚠ White point
- 6 Work instruction according to 118-157000-3
- ⚠ Laser marking :  
TE + Commercial reference + Year-Week
- ⚠ Dummy receptacle completely enclosed
- ⚠ A label with the commercial reference and the complete BOM is glued on the carobox
- Ⓢ Standards  
ANSI Z39.50, APTA RP-E-019-99
- 11 Packaging Specification 107-157003

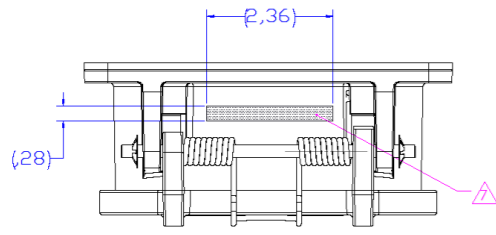
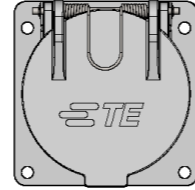
Référence commerciale / Commercial reference  
E7P-DUM-Y (color yellow)



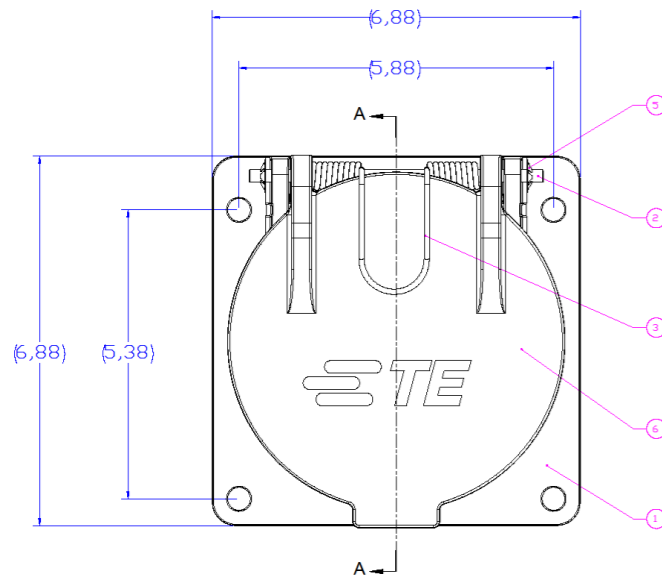
Référence commerciale / Commercial reference  
E7P-DUM-V (color white)



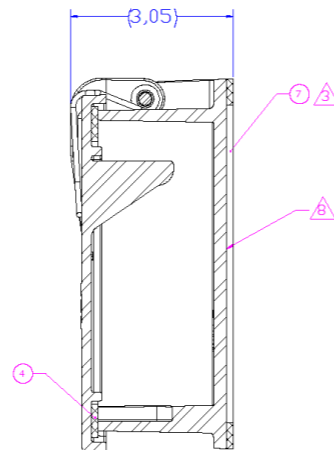
Référence commerciale / Commercial reference  
E7P-DUM-DI (without color)



REFERENCE	RE	Engineering reference	Commercial reference	Material	Weight (g)	Qty	Part number	Designation	Item
		TE-UC-211944-0000		Paper	5,00	1	YSPEC-408-157000-3	Mounting instruction	11
		TE-UC-211944-0000			1,50	1	0206-0329AS	Dehydrating bag	10
				Plastic	0,50	2	D158-0001-X	Collar	9
				Carton	60,00	1	0206-0155AS	Box	8
				Neoprene	52,30	1	YA-UC-211297A-VN00	Gasket	7
				Aluminium	376,80	1	YG-UC-211287A-JG08	Cover	6
				Aluminium	376,80	1	YG-UC-211287A-JG07	Cover	6
				Aluminium	376,80	1	YG-UC-211287A-JG0E	Cover	6
				Stainless steel	0,17	2	Y0000000-7105-06-1	Self locking ring	5
				Neoprene	14,29	1	1504-0019A4	Gasket	4
				Stainless steel	0,56	1	1504-0005A4	Spring	3
				Stainless steel	0,95	1	1504-0018A4	Axis	2
				Aluminium	965,15	1	YG-UC-211317A-JG08	Dummy receptacle	1
				Aluminium	965,15	1	YG-UC-211317A-JG07	Dummy receptacle	1
				Aluminium	965,15	1	YG-UC-211317A-JG0E	Dummy receptacle	1
Remarks: Data sheet, Plating, Material, Weight (g), Qty, Part number, Designation, Item									



A-A VIEW

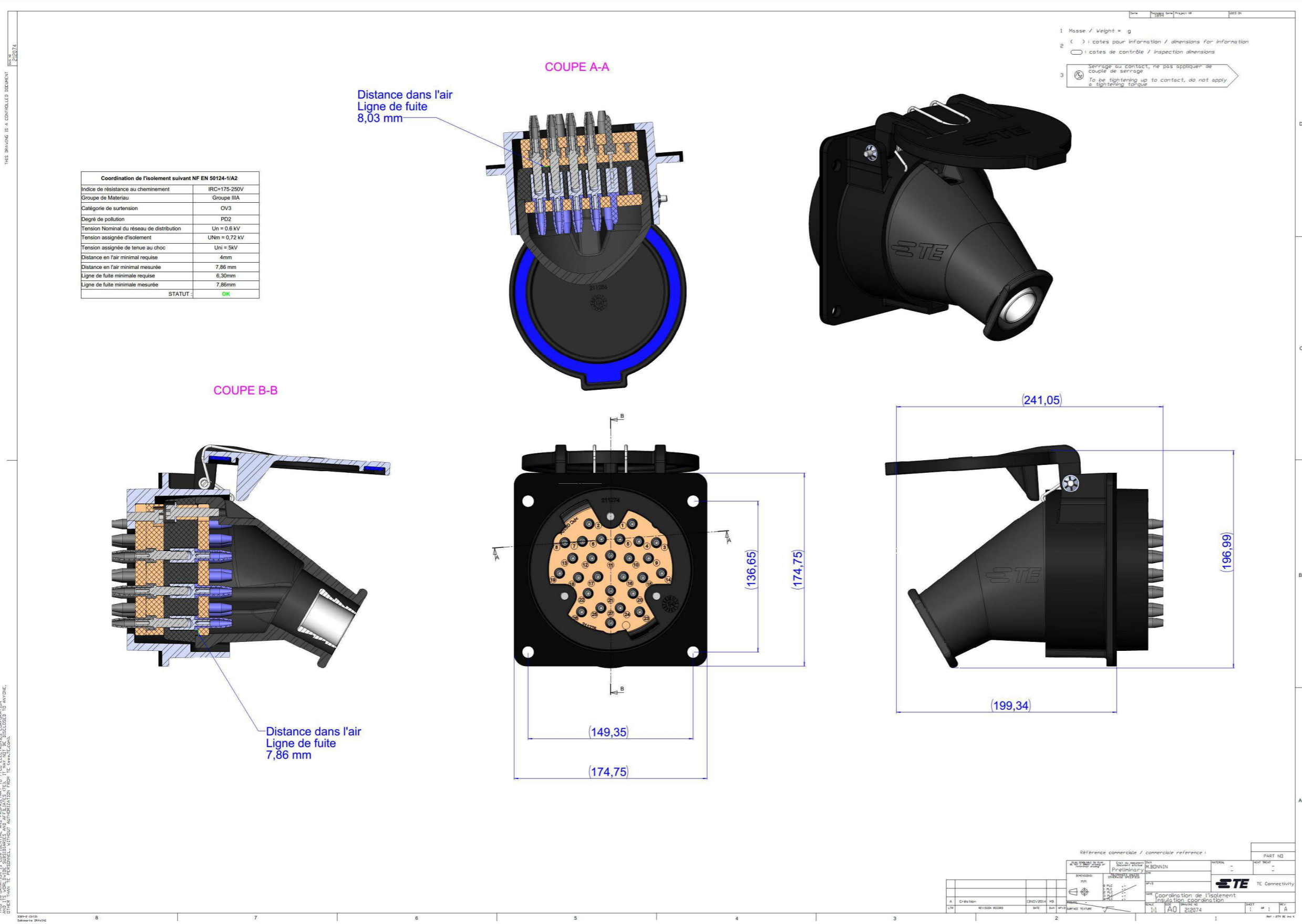


Reference commerciale / Commercial reference : see table

THIS DRAWING IS A CONTROLLED DOCUMENT		TE CONNECTIVITY	
REVISION	DATE	BY	CHK
1	08/2018	MB	MV
TE CONNECTIVITY		TE CONNECTIVITY	
Boîte de repos		Boîte de repos	
Dummy receptacle		Dummy receptacle	
E1894-211944		E1894-211944	
CUSTOMER DRAWING		CUSTOMER DRAWING	



APPENDIX 3: Insulation Coordination



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