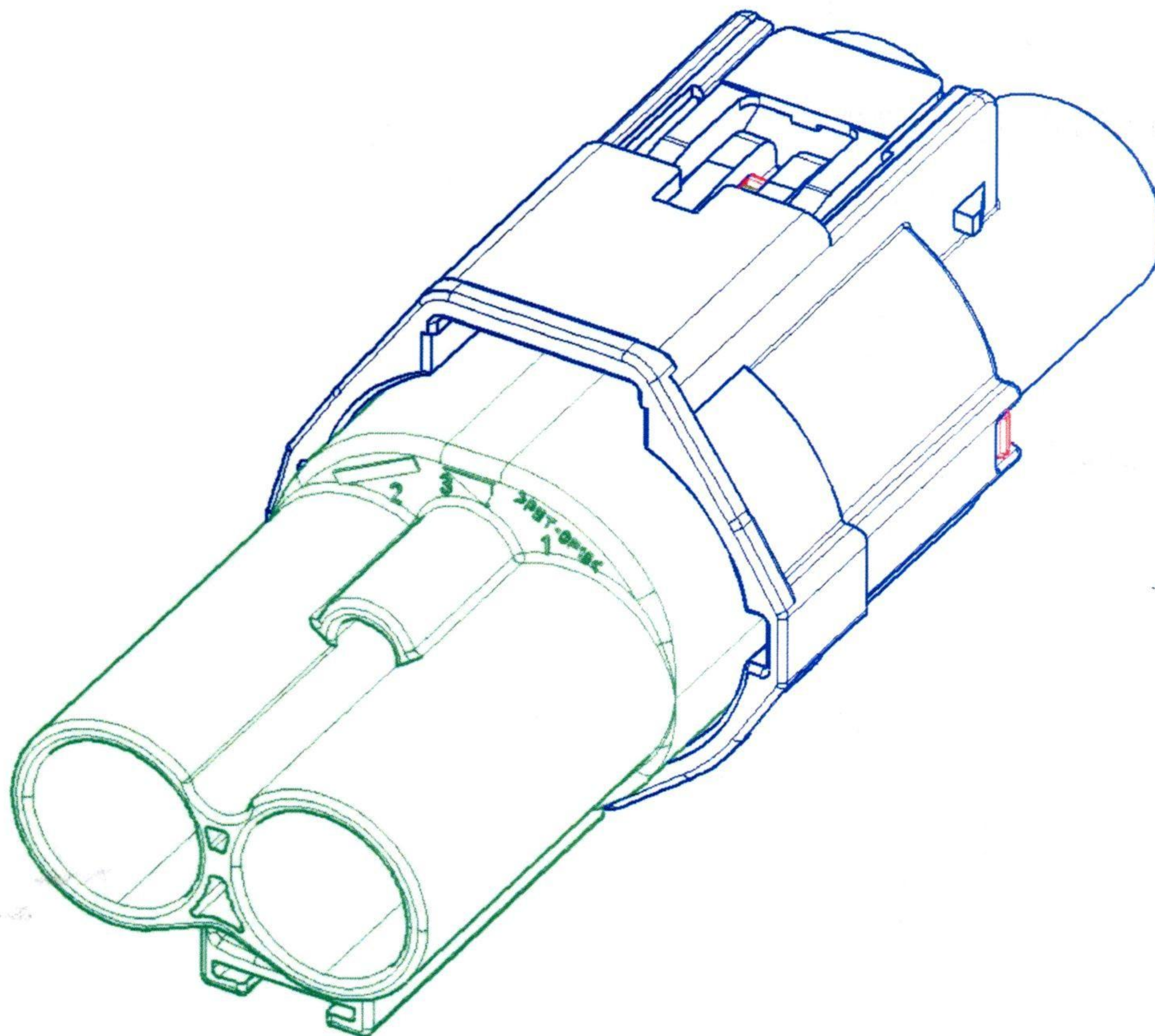




Product Standard for
2P/ 3P/ 4P 1,5mm / YPT 9,5mm System
Sealed Hybrid Connector

Produktspezifikation für
2-/ 3-/ 4-poligen 1,5mm / YPT 9,5mm System
gedichteten Hybrid-Stecker



Prepared B.Fretze	Sign	Checked J. Jelak	Sign	Approved T. Schaller	Sign	
Date 09.04.2009.		Date 09.04.2009.		Date 14.04.2009		Doc.No. YPES-11-04-162E
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1. Scope

1.1 Content

This standard covers the performance, tests and quality requirements for the **YAZAKI 2P/ 3P/ 4P 1,5mm / YPT 9,5mm System Sealed Hybrid Connector**.

1.2 Qualification

To perform tests use following specified standards and specifications. All inspections shall be performed using the applicable inspection plan and product drawing.

If there are any differences between this document and product drawings, the content of product drawing takes priority. In all other cases this document shall take priority.

2. Referenced documents

2.1 YAZAKI documents

- Customer drawings:
YAZAKI: 7286-1397-30:R, 7287-1403-30:R,
7158-3672-50:R;
FORD: 9W8T-14A624-BA, 9W8T-14A464-AA
9W87-10C930-AA.
- Test plan DPZ-06-0026
- Handling manual YPES-15-952E

2.2 Other Documents

- SAE / USCAR-2 (Class 3) Connector Performance Specifications, Rev. 4.0
- SAE / USCAR-12 (Class 3) Connector Performance Specifications, Rev. 3.0
- FORD Electrical Connector System Design Specification (SDS), Version 12.0

1. Anwendungsbereich

1.1 Inhalt

*Diese Spezifikation behandelt die technischen Leistungskriterien, Tests und Qualitätsanforderungen für einen **YAZAKI 2 - / 3 - / 4 - poligen 1,5mm / YPT 9,5mm System gedichteten Hybrid-Steckers**.*

1.2 Qualifizierung

Zur Durchführung der Tests sollten die folgenden Normen und Spezifikationen verwendet werden. Alle Prüfungen sollten unter Verwendung der Produktzeichnungen und des Prüfplans durchgeführt werden.

Bei eventuellen Abweichungen zwischen diesem Dokument und den Produktzeichnungen, hat der Inhalt der Zeichnungen Vorrang. In allen anderen Fällen hat der Inhalt dieses Dokuments Vorrang.

2. Referenzdokumente

2.1 YAZAKI Dokumente

- Produktzeichnung Nr.:*
YAZAKI: 7286-1397-30:R, 7287-1403-30:R,
7158-3672-50:R ;
FORD: 9W8T-14A624-BA, 9W8T-14A464-AA
9W87-10C930-AA.
- *Testplan DPZ-06-0026*
 - *Bedienungsanleitung YPES-15-952E*

2.2 Andere Dokumente

- SAE / USCAR-2 (Klasse 3) Connector Performance Specifications, Rev. 4.0
- SAE / USCAR-12 (Klasse 3) Connector Performance Specifications, Rev. 3.0
- FORD Electrical Connector System Design 'Specification (SDS), Version 12.0

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3. Part numbers, applicable terminals, single wire seals and clip fixtures

3.1 Male connector part numbers:

- YPT HYBRID WP M CONNECTOR
4P (1.5x2+9.5x2) Code A
Part No. 7286-1397-30 (black);
- YPT HYBRID WP M CONNECTOR
3P (1.5x1+9.5x2) Code A
Part No. 7286-1398-10 (dark gray);
- YPT HYBRID WP M CONNECTOR
2P (9.5x2) Code A
Part No. 7286-1399-80 (dark brown);
- YPT HYBRID WP M CONNECTOR
4P (1.5x2+9.5x2) Code B
Part No. 7286-1400-30 (black);
- YPT HYBRID WP M CONNECTOR
3P (1.5x1+9.5x2) Code B
Part No. 7286-1401-10 (dark gray);
- YPT HYBRID WP M CONNECTOR
2P (9.5x2) Code B
Part No. 7286-1402-80 (dark brown).

3.2 Female connector part numbers

- YPT HYBRID WP F CONNECTOR
4P (1.5x2+9.5x2) Code A
Part No. 7287-1403-30 (black);
- YPT HYBRID WP F CONNECTOR
3P (1.5x1+9.5x2) Code A
Part No. 7287-1404-10 (dark gray);
- YPT HYBRID WP F CONNECTOR
2P (9.5x2) Code A
Part No. 7287-1405-30 (dark brown);
- YPT HYBRID WP F CONNECTOR
4P (1.5x2+9.5x2) Code B
Part No. 7287-1406-30 (black);
- YPT HYBRID WP F CONNECTOR
3P (1.5x1+9.5x2) Code B
Part No. 7287-1407-10 (dark gray);
- YPT HYBRID WP F CONNECTOR
2P (9.5x2) Code B
Part No. 7287-1408-80 (dark brown).

3. Teilenummern, einsetzbare Kontakte, Einzeldichtungen und Befestigungselemente

3.1 Stiftstecker, Teilenummern

- YPT HYBRID GEDICHTET FLACHSTECKER
4P (1.5x2+9.5x2) Kodierung A
Teilenummer 7286-1397-30 (schwarz);
- YPT HYBRID GEDICHTET FLACHSTECKER
3P (1.5x2+9.5x2) Kodierung A
Teilenummer 7286-1398-10 (dunkelgrau);
- YPT HYBRID GEDICHTET FLACHSTECKER
2P (9.5x2) Kodierung A
Teilenummer 7286-1399-80 (dunkelgrau);
- YPT HYBRID GEDICHTET FLACHSTECKER
4P (1.5x2+9.5x2) Kodierung B
Teilenummer 7286-1400-30 (schwarz);
- YPT HYBRID GEDICHTET FLACHSTECKER
3P (1.5x2+9.5x2) Kodierung B
Teilenummer 7286-1401-10 (dunkelgrau);
- YPT HYBRID GEDICHTET FLACHSTECKER
2P (9.5x2) Kodierung B
Teilenummer 7286-1402-80 (dunkelgrau).

3.2 Buchsenstecker, Teilenummern

- YPT HYBRID GEDICHTET BUCHSENSTECKER
4P (1.5x2+9.5x2) Kodierung A
Teilenummer 7287-1403-30 (schwarz);
- YPT HYBRID GEDICHTET BUCHSENSTECKER
3P (1.5x1+9.5x2) Kodierung A
Teilenummer 7287-1404-10 (dunkelgrau);
- YPT HYBRID GEDICHTET BUCHSENSTECKER
3P (1.5x1+9.5x2) Kodierung A
Teilenummer 7287-1405-80 (dunkelgrau);
- YPT HYBRID GEDICHTET BUCHSENSTECKER
4P (1.5x2+9.5x2) Kodierung B
Teilenummer 7287-1406-30 (schwarz);
- YPT HYBRID GEDICHTET BUCHSENSTECKER
3P (1.5x1+9.5x2) Kodierung B
Teilenummer 7287-1407-10 (dunkelgrau);
- YPT HYBRID GEDICHTET BUCHSENSTECKER
3P (1.5x1+9.5x2) Kodierung B
Teilenummer 7287-1408-80 (dunkelgrau).

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3.3 Applicable Male terminals: Part No.

YESC 1.5mm: 7114-4102-02, 7114-4103-02,
7114-4102-08, 7114-4103-08;
YPT 9.5mm: 7114-5623-02, 7114-5623-06.

3.4 Applicable Female terminals: Part No.

YESC 1.5mm: 7116-4102-02, 7116-4103-02,
7116-4102-08, 7116-4103-08;
YPT 9.5mm: 7116-6525-02, 7116-6525-06.

3.5 Applicable single wire seals: Part No.

For 1.5mm: 7158-3030-50, 7158-3031-90;
For 9.5mm: 7158-3672-50, 7158-3673-90,
7158-3713-70.

3.6 Applicable clip fixtures: Part No.

7147-8925-30, 7147-8926-30, 7147-8927-30,
7147-8928-30.

3.3 Verwendbare Stiftkontakte: Teilenummer

YESC 1.5mm: 7114-4102-02, 7114-4103-02,
7114-4102-08, 7114-4103-08;
YPT 9.5mm: 7114-5623-02, 7114-5623-06.

3.4 Verwendbare Buchsenkontakte: Teilenummer

YESC 1.5mm: 7116-4102-02, 7116-4103-02,
7116-4102-08, 7116-4103-08;
YPT 9.5mm: 7116-6525-02, 7116-6525-06.

3.5 Verwendbare Einzeldichtungen: Teilenummer

For 1.5mm: 7158-3030-50, 7158-3031-90;
For 9.5mm: 7158-3672-50, 7158-3673-90,
7158-3713-70.

3.6 Verwendbare Befestigungselemente: Teilenummer

7147-8925-30, 7147-8926-30, 7147-8927-30,
7147-8928-30.

4 Performance data

4.1 Design and construction

Shape and physical dimensions of the product
are defined on the applicable product
drawings.

4.2 Material

All materials are defined in the applicable
product drawings and in the Table 1.

4.3 Quality and performance

The product is designed to meet mechanical,
electrical and environmental performance
requirements specified in Table 2 and Table 3.

4 Leistungsdaten

4.1 Design und Konstruktion

Form und Abmaße des Steckers sind in den
entsprechenden Zeichnungen definiert.

4.2 Material

Die Materialien sind in den Zeichnungen sowie
in Tabelle 1 aufgelistet.

4.3 Qualität und Leistungskriterien

Die Steckverbindung wurde so konstruiert, das
sie die mechanischen, elektrischen und
umwelttechnischen Anforderungen wie in
Tabelle 2 und 3 aufgelistet erfüllt.

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Table 1 / Tabelle 1

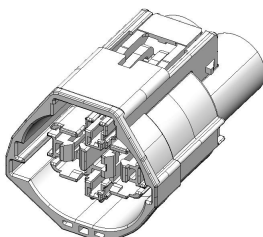
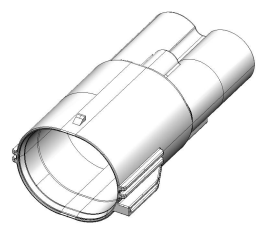
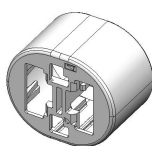
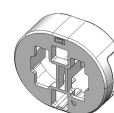
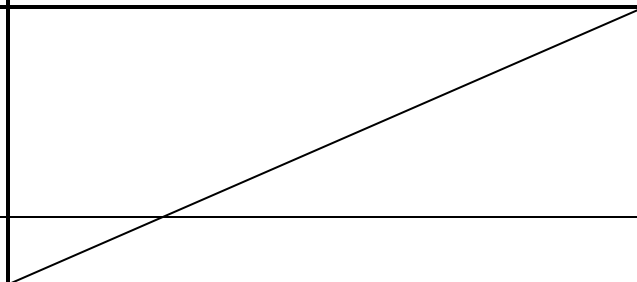
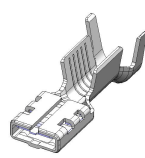
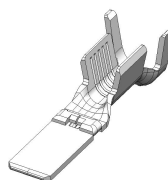
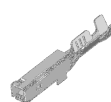
			
Female Housing / <i>Buchsengehäuse</i> Material: PBT GF15		Male Housing / <i>Stiftgehäuse</i> Material: PBT GF15	
			
Front Holder (F) / <i>Vordere Kontaktlagesicherung (F)</i> Material: PBT GF15		Front Holder (M) / <i>Vordere Kontaktlagesicherung (M)</i> Material: PBT GF15	
			
Interface Seal / <i>Dichtung</i> Material: Silicon rubber / <i>Silikongummi</i>			
			
YPT 9.5 female terminal / <i>YPT 9.5 buchsenkontakt</i>	YPT 9.5 male terminal / <i>YPT 9.5 stiftkontakt</i>	1.5 female terminal / <i>1.5 buchsenkontakt</i>	1.5 male terminal / <i>1.5 stiftkontakt</i>
Terminal material: copper alloy / <i>Material Kontakt: Kupferlegierung</i> Spring material: stainless steel / <i>Kontaktfedermaterial: rostfreier Stahl</i>		Material: copper alloy / <i>Kupferlegierung</i>	
			
Single Wire Seal For YPT 9.5 Terminals / <i>Einzeldichtung Für YPT 9.5 Kontakte</i> Material: PBT GF15 + Silicon rubber / <i>Silikongummi</i>		Single wire seal for 1.5 terminals / <i>Einzeldichtung Für 1.5 Kontakte</i> Material: Silicon rubber / <i>Silikongummi</i>	

Table 2: Mechanical Performance / Tabelle 2: mechanisches Verhalten

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Test description / <i>Testbeschreibung</i>	Performance data / <i>Leistungsdaten</i>	Procedure / <i>Durchführung</i>
Terminal to connector engage force / <i>Kontakteinsteckkraft</i> - For 1.5 terminal system / <i>für 1.5 Kontaktsystem</i> - For YPT 9.5 terminal system / <i>für YPT 9.5 Kontaktsystem</i>	$\leq 30 \text{ N}$ $\leq 30 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.1
Terminal to connector disengage force / <i>Kontaktauszugskraft</i> Without TPA / <i>ohne Kontaktlagesicherung</i> : - For 1.5 terminal system / <i>für 1.5 Kontaktsystem</i> - For YPT 9.5 terminal system / <i>für YPT 9.5 Kontaktsystem</i> With TPA / <i>mit Kontaktlagesicherung</i> : - For 1.5 terminal system / <i>für 1.5 Kontaktsystem</i> - For YPT 9.5 terminal system / <i>für YPT 9.5 Kontaktsystem</i>	$\geq 50 \text{ N}$ $\geq 70 \text{ N}$ $\geq 90 \text{ N}$ $\geq 200 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.1 Customer request / <i>Aufforderung</i>
TPA engage force (preset-set) / <i>Betätigungskraft Kontaktlagesicherung</i>	$\geq 10 \text{ N}$ $\leq 50 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.5
TPA disengage force (set-preset) / <i>Auszugskraft Kontaktlagesicherung</i>	$\geq 15 \text{ N}$ $\leq 60 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.5
Connector engage force / <i>Steckkraft (Gehäuse mit Kontakten)</i>	$\leq 75 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.2
Connector disengage force / <i>Steckerauszugskraft</i> - Connector lock disabled / <i>ohne Steckerverriegelung</i> - Connector lock enabled / <i>mit Steckerverriegelung</i>	$\leq 75 \text{ N}$ $\geq 110 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.2
Polarization effectiveness / <i>Wirksamkeit der Kodierung</i> Minimum mis-mating force / <i>minimale Kraft bei Fehlsteckung</i>	$\geq 220 \text{ N}$	According / <i>nach</i> : SAE/USCAR-2, Sec. 5.4.4

4.4 Table 3: Qualification and Requalification Test Sequence

4.4 Tabelle 3: Qualifikations- und Requalifikations-Prüfreiheitenfolge

Test / Prüfung	Test Group / Prüfungsgruppe				
	Vibration / Mechanical Shock <i>Schwingung / Mechanischer Schock</i>	Thermal Shock <i>Temperaturschock</i>	Temperature / Humidity Cycling <i>Temperatur / Feuchte-wechsel</i>	High Temperature Exposure <i>Hochtemperatur-lagerung</i>	Fluid Resistance <i>Chemische Beständigkeit</i>
Test Sequence / Prüfreiheitenfolge					
General <i>Allgemein</i> Acc.SAE/USCAR-2, Sec. 5.1	1	1	1	1	1
Visual Inspection <i>Sichtprüfung</i> Acc.SAE/USCAR-2, Sec. 5.1.8	2	2	2	2	2,6
Connector Cycling <i>Steckzyklen</i> Acc.SAE/USCAR-2, Sec. 5.1.7	3	3	3	3	
Circuit Continuity Monitoring <i>Überwachung von Kontaktunterbrechung</i> Acc.SAE/USCAR-2, Sec. 5.1.9	5	5			
Dry Circuit Resistance <i>Dry-Circuit Widerstand</i> Acc.SAE/USCAR-2, Sec. 5.3.1	4,6	4,6	4,6	4,6	
Voltage Drop <i>Spannungsabfall</i> Acc.SAE/USCAR-2, Sec. 5.3.2	7	7	7	7	
Terminal-Connector Extraction Force <i>Kontaktausdrückkraft</i> Acc.SAE/USCAR-2, Sec. 5.4.1			9		
Vibration / Mechanical Shock <i>Schwingung / Mech. Schock</i> Acc.SAE/USCAR-2, Sec. 5.4.6	5				
Isolation Resistance <i>Isolationswiderstand</i> Acc.SAE/USCAR-2, Sec. 5.5.1			8		3,5
Thermal Shock <i>Temperaturschock</i> Acc.SAE/USCAR-2, Sec. 5.6.1		5			
Temperature / Humidity Cycling <i>Temperatur / Feuchtewechsel</i> Acc.SAE/USCAR-2, Sec. 5.6.2			5		
High Temperature Exposure <i>Hochtemperaturlagerung</i> Acc.SAE/USCAR-2, Sec. 5.6.3				5	
Fluid Resistance <i>Chemische Beständigkeit</i> Acc.SAE/USCAR-2, Sec. 5.6.4					4

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5 Quality assurance provisions

5.1 Qualification testing

5.1.1 Sample selection

The samples will be selected in random order from current production.

5.1.2 Test sequence

Qualification inspection will be verified by testing samples as specified in section 4.4 (Table 3)

5.2 Requalification testing

If significant changes are made on the product or manufacturing process, which significantly affects form, fit or function re-qualification testing has to be made. It will consist of whole or part of original testing sequence as determined by responsible engineering.

5.3 Acceptance

Acceptance is based on verification that the product meets requirements of Para. 4.3. Failures attributed to the equipment, test setup or operator deficiencies will not disqualify the product.

The indications from the handling manual should be considered.

5.4 Quality conformance inspection

The applicable YAZAKI quality inspection plan will specify sampling acceptable quality level to be used. Dimensional and functional requirements will be in accordance with applicable drawing and this specification.

5 Qualitätssicherungsvorkehrungen

5.1 Freigabetest

5.1.1 Auswahl der Muster

Die Muster werden aus der laufenden Produktion genommen.

5.1.2 Testabfolge

Die Qualifikationsprüfung wird durch die Prüfmuster bestätigt, wie in Absatz 4.4 spezifiziert (Tabelle 3).

5.2 Zweiter Qualifizierungstest

Im Fall von bedeutenden Veränderungen am Produkt oder am Herstellungsprozess, welche die Form, Passung oder Funktion betreffen, muss ein zweiter Qualifizierungstest durchgeführt werden. Ob der komplette Test oder nur Teile des ursprünglichen Test durchgeführt werden müssen, wird von der zuständigen Abteilung festgelegt.

5.3 Abnahme

Die Freigabe erfolgt, wenn das Produkt die Anforderungen in Abschnitt 4.3 erfüllt. Versagen auf Grund des Ausfalls von Testgeräten, Fehlern im Testaufbau oder des Bedieners führen nicht zur Disqualifizierung des Produktes.

Die Hinweise aus der Verarbeitungsspezifikation sind zu berücksichtigen.

5.4 Qualitätssicherungsüberprüfung

Der Yazaki Qualitäts-Prüfplan dient zur Überprüfung der Teilequalität. Maße und die funktionellen Anforderungen stimmen mit den entsprechenden Zeichnungen und dieser Spezifikation überein.

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