

MDMA Series

Micro D connectors with removable crimp contacts
ESAQ - ESCC 3401/077 & 078 Certified



Description

High performance microminiature connectors, ESA qualified for space applications. Meet the performance and dimensional requirements of ESA/ESCC 3401 and MIL-DTL-83513 specifications.

MDMA connectors compliant to ESCC specifications 3401/077 and 3401/078 for removable crimp contacts.

Compatible with ESCC 3401/029 MDM connectors, 3401/041 Savers, 3401/032 Accessories and 3401/087 Backshells.

Suitable for use in space and high performance military / aerospace applications : Board to Board, Board to Cable, Cable to Cable. Removable contacts (Twist Pin technology).

Sizes available : 9, 15, 21, 25, 31, 37, 51 ways and 51-2R

Type	Mating/Unmating Force (N max)	Unmating Force (N min)	Max weight without contacts nor accessories (g)
Size 9	25	1.3	2.3
Size 15	42	2	3.1
Size 21	58	2.9	3.9
Size 25	70	3.5	4.4
Size 31	86	4.3	5.2
Size 37	103	5.1	6
Size 51	142	7.1	7.3
Size 51-2R	142	7.1	7.3

Max weight per (g)	Pin contact	Skt contact
	0.03	0.06
Add : 0.4 g for float mount (code Y)		
Add : 1 g for captive nut (code E)		

Electrical & Mechanical Characteristics

Characteristics	Specifications	
Working Voltage	150	Vrms max (at sea level)
	100	Vrms max (33000 m of altitude)
Rated Current AWG 24	3.5	A max
Rated Current AWG 25	2.5	A max
Rated Current AWG 26	2.5	A max
Rated Current AWG 28	1.5	A max
Contact Resistance (Low level current)	6	mΩ max (10mA / 20 mV DC)
Contact Resistance	5	mΩ max (Rated current)
Insulation Resistance	5000	MΩ min (500 V DC)
	2500	MΩ min* (500 V DC)
Voltage Proof	600	Vrms / 2mA (leakage current)
	450	Vrms / 2mA (leakage current)*

* : For size 51 with 3 rows.

For connectors 9, 15, 21, 25, 31, 37, 51-2R ways, accepted wires size:

Per contact, one insulated wire AWG24 or AWG26 or AWG 28, all with an insulation diameter of 0.97 mm max.

Per contact, one uninsulated solid wire AWG25.

Per contact, two insulated wires AWG28 with an insulation diameter of 0.82mm max.

For connectors 51 ways, accepted wires size :

Per contact, one insulated wire AWG24 or AWG26 or AWG28, all with an insulation diameter of 0.97 mm max.

Per contact, one uninsulated solid wire AWG25.

Pitch between two contacts rows : 1.09 mm (.043")

Pitch between two horizontally adjacent contacts : 1.27 mm (.050")

Features & Benefits

- Compliant with ESA specifications
- High performance Micropin™ contact system: "Twist pin" spring male contact and tubular socket contact
- Removable crimp type contacts
- Harnesses length flexibility
- Non-outgassing
- Low Size connectors
- Low weight connectors

Applications

- Space equipment
- Satellites harnesses and payloads
- Avionics / Military

Quality Level

ESA / ESCC: code 3401 (Flying model).

Qualification reviewed every 2 years.

Retention test

A dedicated tool is available to make the retention test of each contacts from the connectors (to be ordered separately).

Contact extraction

A dedicated tool is available to remove the contacts from the connectors (to be ordered separately).

Connector options

Optional interfacial seal can be applied for female connectors (to be ordered separately).

Optional captive nuts or float mounting.

Packaging

Individual ESD plastic bag.

Traceability and documentation according to ESA/ESCC spec.

Each MDMA connector is sold with a dust cap.

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Mechanical Characteristics	Specifications	
Contact retention in insert (no axial move allowed)	22.25	N min (sizes 9 to 37)
	11	N min (sizes 51 to 51-2R)
Engagement force	1.667	N max per contact
Seperation force	0.137	N min per contact
Mechanical endurance	500	Cycles (mating / unmating)
Temperature range	-55/+125	°C
Storage temperature	-55/+125	°C

How To Order Connector

Our easy build-a-connector concept allows you to mix and match options to create the MDMA you need. To order, select desired option from each category and place it in the appropriate box.

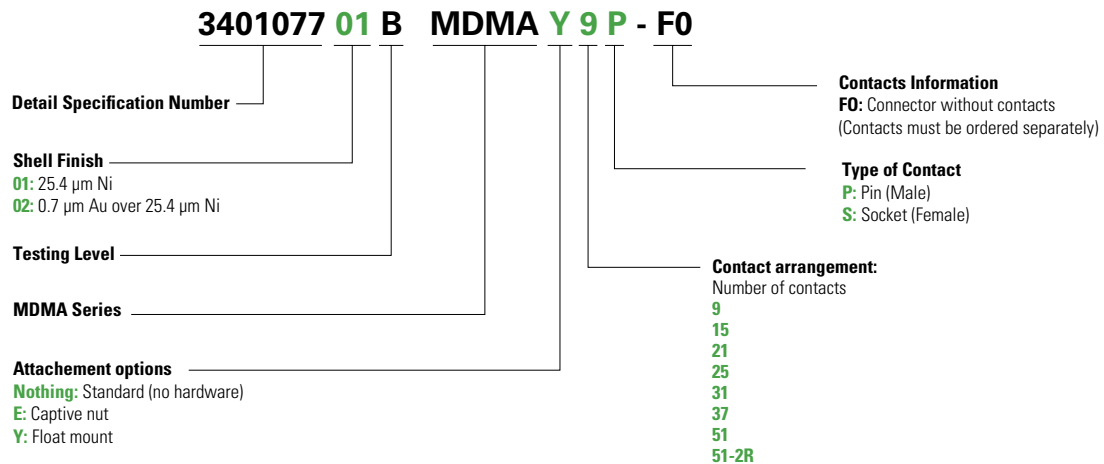


Pin connector with shell Nickel plated



Pin connector with shell Gold plated

ESA / ESCC specification:

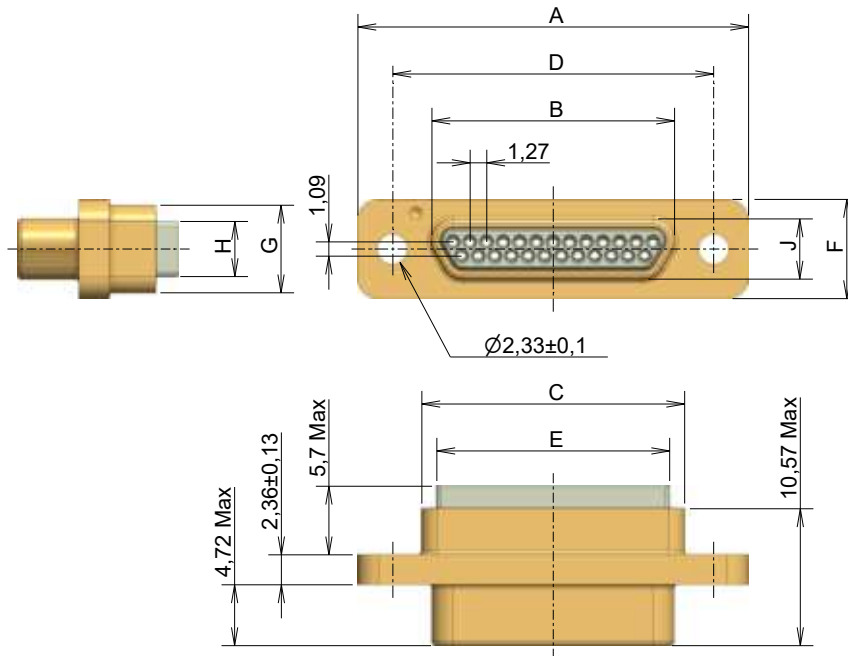


Components	Materials	Finishes
Shell	Alluminum alloy	01: 25.4 µm min Electroless Nickel 02: 0.7 µm min Gold over 25.4 µm min Electroless Nickel
Insulator	LCP	UL 94-V0, Glass-filled, Black color
Female contacts	Copper alloy	1.27 µm min Gold over Copper
Male contacts	Copper alloy	1.27 µm min Gold over Copper
Accessories (E & Y)	Stainless steel	Passivated
Interfacial Seal	Fluorosilicone elastomer	Pink color
Dust cap	Polyethylene	Black color, antistatic
Encapsulant	Epoxy	Black color
Male screwlocks	Stainless steel	Passivated

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Pin connector dimensions

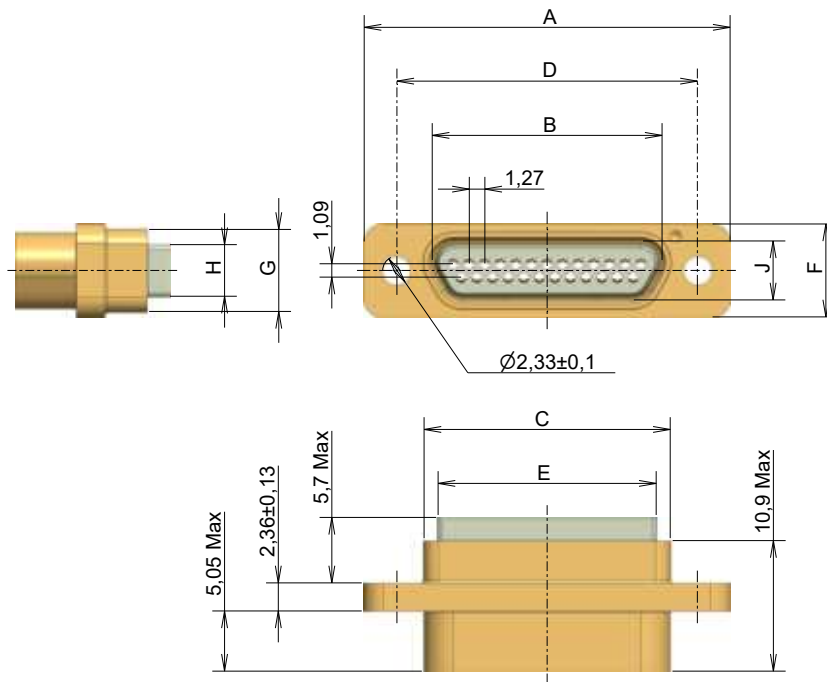


Shell Size	A ±0.25	B ±0.1	C ±0.24	D ±0.13	E ±0.13	F ±0.22	G ±0.17	H ±0.13	J max
9P	19.69	8.38	9.92	14.35	7.63	7.60	6.69	4.21	4.69
15P	23.50	12.19	13.73	18.16	11.44	7.60	6.69	4.21	4.69
21P	27.31	16.00	17.54	21.97	15.25	7.60	6.69	4.21	4.69
25P	29.85	18.54	20.08	24.51	17.79	7.60	6.69	4.21	4.69
31P	33.66	22.35	23.89	28.32	21.60	7.60	6.69	4.21	4.69
37P	37.47	26.16	27.70	32.13	25.41	7.60	6.69	4.21	4.69
51P	36.20	24.89	26.43	30.86	24.14	8.70	7.70	5.12	5.79
51P-2R	46.36	35.05	36.59	41.02	34.30	7.60	6.69	4.10	4.69

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Socket connector dimensions



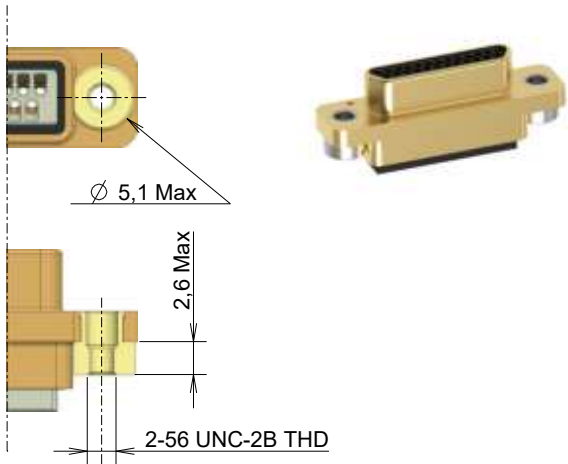
Shell Size	A ±0.25	B min	C ±0.24	D ±0.13	E ±0.13	F ±0.22	G ±0.17	H ±0.13	J min
9S	19.69	8.49	9.92	14.35	7.63	7.60	6.69	4.21	4.70
15S	23.50	12.30	13.73	18.16	11.44	7.60	6.69	4.21	4.70
21S	27.31	16.11	17.54	21.97	15.25	7.60	6.69	4.21	4.70
25S	29.85	18.65	20.08	24.51	17.79	7.60	6.69	4.21	4.70
31S	33.66	22.46	23.89	28.32	21.60	7.60	6.69	4.21	4.70
37S	37.47	26.27	27.70	32.13	25.41	7.60	6.69	4.21	4.70
51S	36.20	25.00	26.43	30.86	24.14	8.70	7.70	5.12	5.80
51S-2R	46.36	35.16	36.59	41.02	34.30	7.60	6.69	4.10	4.70

MDMA Series

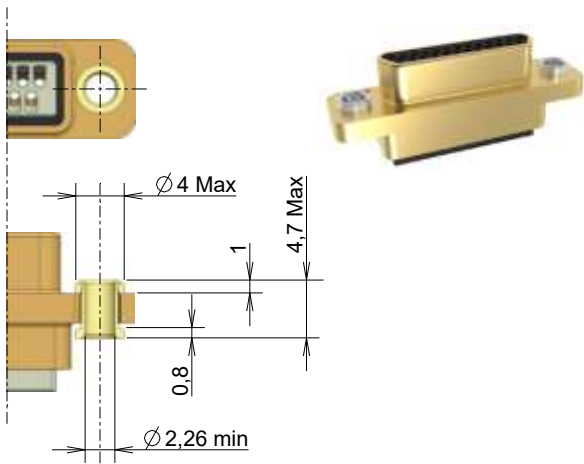
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Attachment options

Captive nut (Option E)



Floating mount (Option Y)

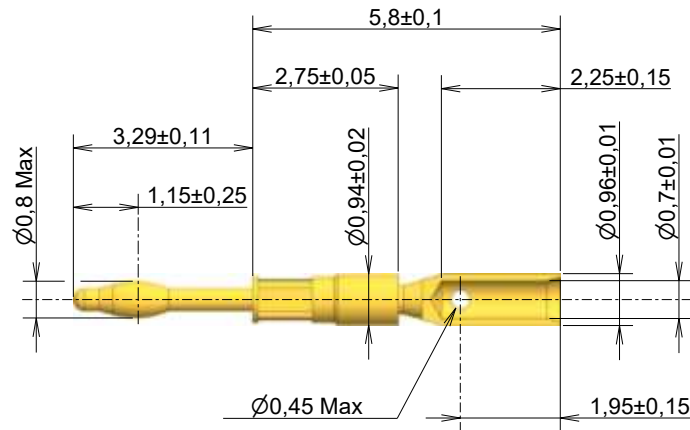


Allowable float	(mm)
Lateral	0.40
Axial	0.40

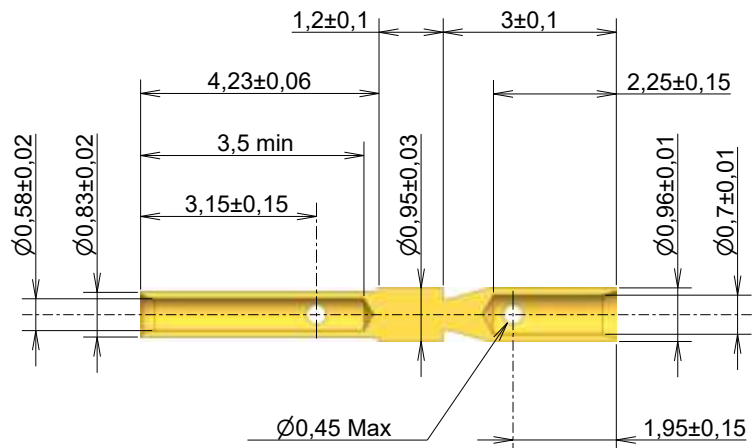
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Pin contact – 24/24 – Wire sizes AWG 24, 25, 26, 28 or 2x28



Socket contact – 24/24 – Wire sizes AWG 24, 25, 26, 28 or 2x28



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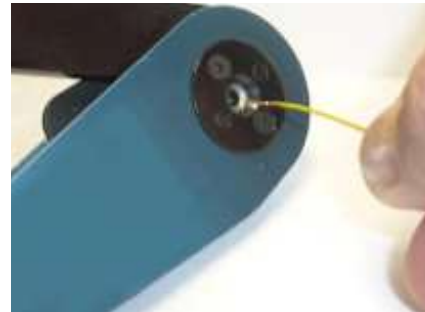
Crimping process & Cable insertion process

- Previously, strip the jacket of the wire : Length of $2.4 \text{ mm} \pm 0.1$
- Contact crimping process:
 1. Choose the dedicated locator corresponding to type of contact and install it on the crimping tool.
 2. Choose the correct selector: Position 2, on the crimping tool.
 3. Insert the wire into the contact body.



4. Insert the equipped contact into the crimping tool (see picture).
5. Crimp till opening of the crimping tool.

Crimping tool :
M22520/2-01
P/N : C995-0001-584



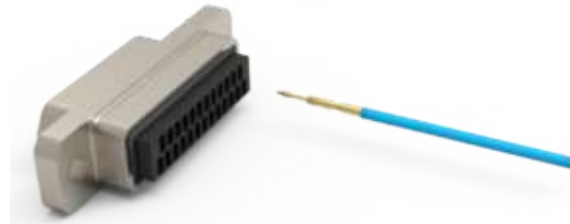
Locator for male contact:
MDMA-Locator-P-01
P/N: C115373-0001



Locator for female contact:
MDMA-Locator-S-01
P/N: C115373-0002



- Contact insertion process:
 1. Insert contact with wire into rear insulator cavity until positive stop.
 2. To avoid any stress on the retention clip, insert contact in the axis (without insertion angle).
 3. To be sure contact is securely locked, pull back slightly on the wire or use calibrated test retention tool below.



- Contact test retention tool
P/N: C115373-0009

This tool is equipped with 2 test tips at each end for using with Pin and Socket connectors.
This tool is delivered with :
- 2 protective caps.
- 1 calibration certificate referring to applicable force and travel.

If necessary, we can perform the calibration of tools already in service.

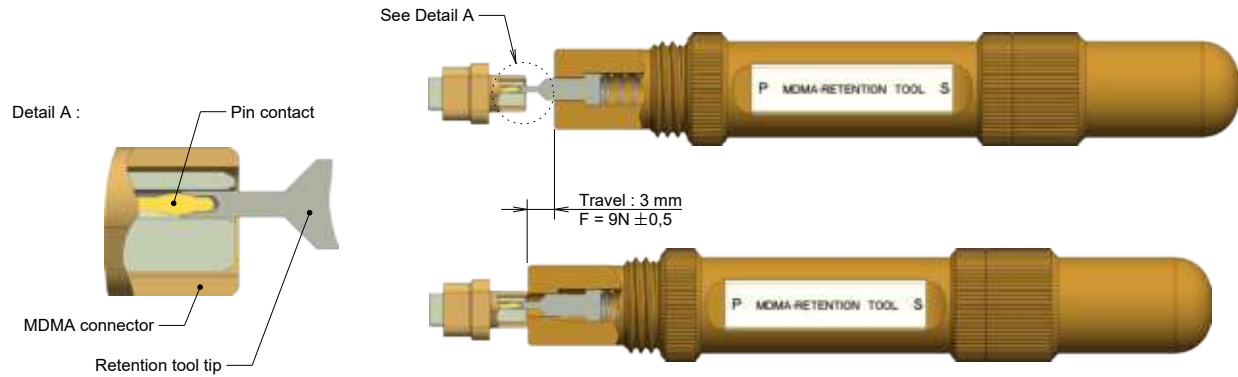
For a quote, use the P/N : C115373-0009 CA



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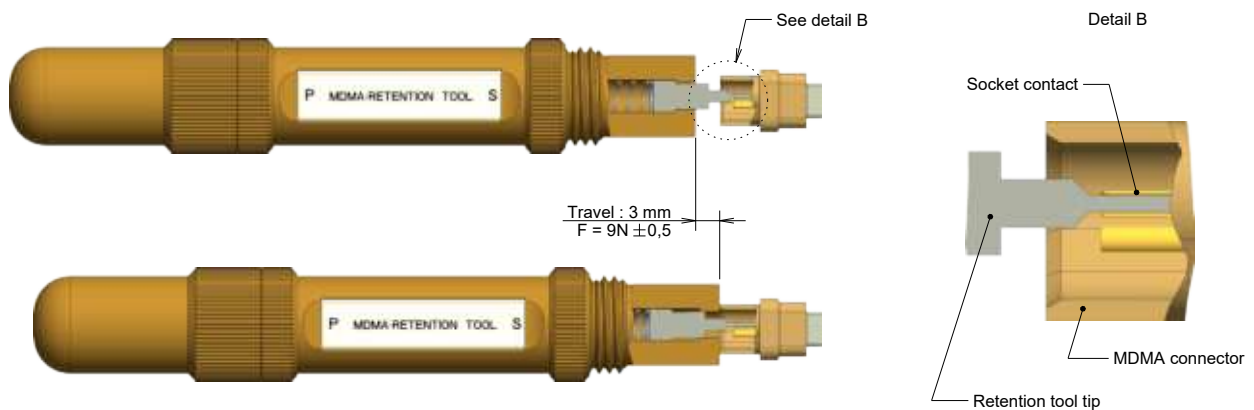
- For MDMA connectors with pin contacts:



Process:

1. Insert the tip of the tool around the Pin contact as shown.
2. Push the tool up to the stop with the front face of the connector.
3. Pull back slightly on wire to be sure contact is securely locked.

- For MDMA connectors with socket contacts:



Process:

1. Insert the tip of the tool inside the Socket contact as shown.
2. Push the tool up to the stop with the front face of the connector.
3. Pull back slightly on wire to be sure contact is securely locked.

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Contact and cable extraction process

1. Select contact extraction tool:

Connectors sizes 9 to 37:

MDMA-Extract tool-01

P/N : C115373-0006

Connectors size 51 and 51-2R:

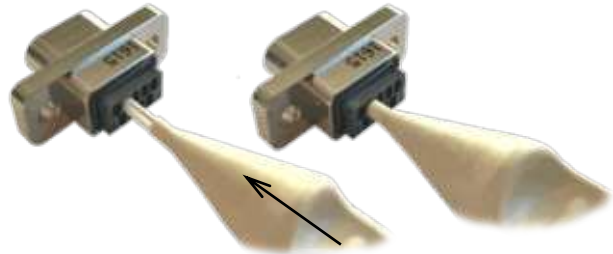
MDMA-Extract tool-02

P/N : C115373-0007

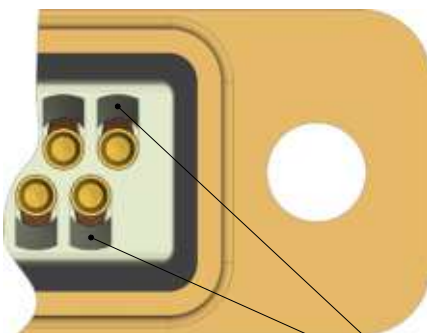


2. Insert tool tip into the contact cavity until tip bottoms against contact shoulder for releasing time.

Be careful to put the extraction tool in correct direction. Each contact cavity has flat area where to place the tool tip:

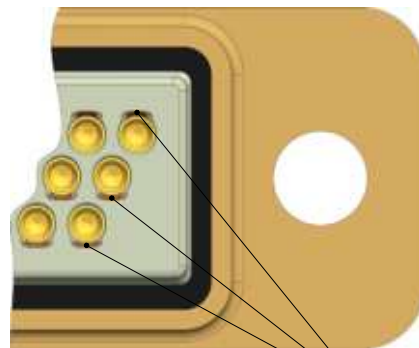


Connector size 9 to 37 and 51-2R



Insertion area for
extraction tool

Connector size 51



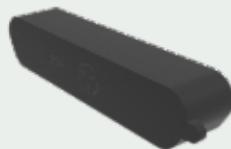
Insertion area for
extraction tool

3. Hold the wire against the tool with the finger and remove the tool and the equipped contact together.

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Accessories

Interfacial seal (to be ordered separately)	Size	ESA/ESCC description	P/N
 Weight: 0.1 g Max	9 S	340103212B	C115373-0050C
	15 S	340103213B	C115373-0051C
	21 S	340103214B	C115373-0052C
	25 S	340103215B	C115373-0053C
	31 S	340103216B	C115373-0054C
	37 S	340103217B	C115373-0055C
	51 S	340103219B	C115373-0056C
	51-2R S	340103269B	C115373-0057C
Male screwlocks (to be ordered separately)	ESA/ESCC description		P/N
 Weight for one pair: 0.88 g max Screwing torque: 0.3 ±0.02 Nm	340103207B		C115366-9218C
Crimping tool and locators	Description		P/N
	M22520/2-01		C995-0001-584
	For male contacts	MDMA-LOCATOR-P-01	C115373-0001
	For female contacts	MDMA-LOCATOR-S-01	C115373-0002
Extraction tools	Connector size	Description	P/N
	9 to 37	MDMA-EXTRACT TOOL-01	C115373-0006
	51 & 51-2R	MDMA-EXTRACT TOOL-02	C115373-0007
Contact test retention tool	Description		P/N
	Tool		MDMA-RETENTION TOOL V2
Dust cap (if additional need)	Size	Description	P/N
	9 P	MDM-DUSTCAP-9P-FR022	C115288-6927
	9 S	MDM-DUSTCAP-9S-FR022	C115288-6928
	15 P	MDM-DUSTCAP-15P-FR022	C115288-6929
	15 S	MDM-DUSTCAP-15S-FR022	C115288-6930
	21 P	MDM-DUSTCAP-21P-FR022	C115288-6931
	21 S	MDM-DUSTCAP-21S-FR022	C115288-6932
	25 P	MDM-DUSTCAP-25P-FR022	C115288-6933
	25 S	MDM-DUSTCAP-25S-FR022	C115288-6934
	31 P	MDM-DUSTCAP-31P-FR022	C115288-6935
	31 S	MDM-DUSTCAP-31S-FR022	C115288-6936
	37 P	MDM-DUSTCAP-37P-FR022	C115288-6937
	37 S	MDM-DUSTCAP-37S-FR022	C115288-6938
	51 P	MDM-DUSTCAP-51P-FR022	C115288-6939
	51 S	MDM-DUSTCAP-51S-FR022	C115288-6940
	51-2R P	MDM-DUSTCAP-51-2R-P-FR022	C115288-6947
	51-2R S	MDM-DUSTCAP-51-2R-S-FR022	C115288-6948

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Connectors Description and Part Numbers

Shell plating	Contact type	Number of contacts	Attachment options					
			Standard connector		Connector with captive nut (E)		Connector with floating mount (Y)	
			ESA / ESCC description	P/N	ESA / ESCC description	P/N	ESA / ESCC description	P/N
Nickel plated	Pin	9	340107701B MDMA9P-FO	C115373-2100C	340107701B MDMAE9P-FO	C115373-2124C	340107701B MDMAY9P-FO	C115373-2112C
		15	340107701B MDMA15P-FO	C115373-2102C	340107701B MDMAE15P-FO	C115373-2126C	340107701B MDMAY15P-FO	C115373-2114C
		21	340107701B MDMA21P-FO	C115373-2104C	340107701B MDMAE21P-FO	C115373-2128C	340107701B MDMAY21P-FO	C115373-2116C
		25	340107701B MDMA25P-FO	C115373-2106C	340107701B MDMAE25P-FO	C115373-2130C	340107701B MDMAY25P-FO	C115373-2118C
		31	340107701B MDMA31P-FO	C115373-2108C	340107701B MDMAE31P-FO	C115373-2132C	340107701B MDMAY31P-FO	C115373-2120C
		37	340107701B MDMA37P-FO	C115373-2110C	340107701B MDMAE37P-FO	C115373-2134C	340107701B MDMAY37P-FO	C115373-2122C
		51	340107701B MDMA51P-FO	C115373-2142C	340107701B MDMAE51P-FO	C115373-2146C	340107701B MDMAY51P-FO	C115373-2144C
		51-2R	340107701B MDMA51P-2R-FO	C115373-2136C	340107701B MDMAE51P-2R-FO	C115373-2140C	340107701B MDMAY51P-2R-FO	C115373-2138C
	Socket	9	340107701B MDMA9S-FO	C115373-2101C	340107701B MDMAE9S-FO	C115373-2125C	340107701B MDMAY9S-FO	C115373-2113C
		15	340107701B MDMA15S-FO	C115373-2103C	340107701B MDMAE15S-FO	C115373-2127C	340107701B MDMAY15S-FO	C115373-2115C
		21	340107701B MDMA21S-FO	C115373-2105C	340107701B MDMAE21S-FO	C115373-2129C	340107701B MDMAY21S-FO	C115373-2117C
		25	340107701B MDMA25S-FO	C115373-2107C	340107701B MDMAE25S-FO	C115373-2131C	340107701B MDMAY25S-FO	C115373-2119C
		31	340107701B MDMA31S-FO	C115373-2109C	340107701B MDMAE31S-FO	C115373-2133C	340107701B MDMAY31S-FO	C115373-2121C
		37	340107701B MDMA37S-FO	C115373-2111C	340107701B MDMAE37S-FO	C115373-2135C	340107701B MDMAY37S-FO	C115373-2123C
		51	340107701B MDMA51S-FO	C115373-2143C	340107701B MDMAE51S-FO	C115373-2147C	340107701B MDMAY51S-FO	C115373-2145C
		51-2R	340107701B MDMA51S-2R-FO	C115373-2137C	340107701B MDMAE51S-2R-FO	C115373-2141C	340107701B MDMAY51S-2R-FO	C115373-2139C
Gold plated	Pin	9	340107702B MDMA9P-FO	C115373-2150C	340107702B MDMAE9P-FO	C115373-2174C	340107702B MDMAY9P-FO	C115373-2162C
		15	340107702B MDMA15P-FO	C115373-2152C	340107702B MDMAE15P-FO	C115373-2176C	340107702B MDMAY15P-FO	C115373-2164C
		21	340107702B MDMA21P-FO	C115373-2154C	340107702B MDMAE21P-FO	C115373-2178C	340107702B MDMAY21P-FO	C115373-2166C
		25	340107702B MDMA25P-FO	C115373-2156C	340107702B MDMAE25P-FO	C115373-2180C	340107702B MDMAY25P-FO	C115373-2168C
		31	340107702B MDMA31P-FO	C115373-2158C	340107702B MDMAE31P-FO	C115373-2182C	340107702B MDMAY31P-FO	C115373-2170C
		37	340107702B MDMA37P-FO	C115373-2160C	340107702B MDMAE37P-FO	C115373-2184C	340107702B MDMAY37P-FO	C115373-2172C
		51	340107702B MDMA51P-FO	C115373-2192C	340107702B MDMAE51P-FO	C115373-2196C	340107702B MDMAY51P-FO	C115373-2194C
		51-2R	340107702B MDMA51P-2R-FO	C115373-2186C	340107702B MDMAE51P-2R-FO	C115373-2190C	340107702B MDMAY51P-2R-FO	C115373-2188C
	Socket	9	340107702B MDMA9S-FO	C115373-2151C	340107702B MDMAE9S-FO	C115373-2175C	340107702B MDMAY9S-FO	C115373-2163C
		15	340107702B MDMA15S-FO	C115373-2153C	340107702B MDMAE15S-FO	C115373-2177C	340107702B MDMAY15S-FO	C115373-2165C
		21	340107702B MDMA21S-FO	C115373-2155C	340107702B MDMAE21S-FO	C115373-2179C	340107702B MDMAY21S-FO	C115373-2167C
		25	340107702B MDMA25S-FO	C115373-2157C	340107702B MDMAE25S-FO	C115373-2181C	340107702B MDMAY25S-FO	C115373-2169C
		31	340107702B MDMA31S-FO	C115373-2159C	340107702B MDMAE31S-FO	C115373-2183C	340107702B MDMAY31S-FO	C115373-2171C
		37	340107702B MDMA37S-FO	C115373-2161C	340107702B MDMAE37S-FO	C115373-2185C	340107702B MDMAY37S-FO	C115373-2173C
		51	340107702B MDMA51S-FO	C115373-2193C	340107702B MDMAE51S-FO	C115373-2197C	340107702B MDMAY51S-FO	C115373-2195C
		51-2R	340107702B MDMA51S-2R-FO	C115373-2187C	340107702B MDMAE51S-2R-FO	C115373-2191C	340107702B MDMAY51S-2R-FO	C115373-2189C

Contacts description and Part Numbers

Used for wire size AWG	Contact type	ESA / ESCC description	P/N
25 / 26 / 28	Pin	340107801B	C331-8752-000H
	Socket	340107802B	C252-8838-000H
24 / 25 / 26 / 28 / 2 x 28	Pin *	340107803B	C331-8754-000H
	Socket *	340107804B	C252-8844-000H

* : To be preferred. Designed for all wires combination.