

D-Sub Series

D*MA HD Connectors

NXTMC – CS FR022



Type	Mating force (N max)	Unmating force (N min)	Unmating force (N max)	Weight with male contacts (g)	Weight with female contacts (g)
Size E 15 Ways	46	3.4	28	6.4	7.65
Size A 26 Ways	77	4.5	46	9.48	10.86
Size B 44 Ways	127	7.9	77	14.52	16.84
Size C 62 Ways	177	11.3	109	20.56	23.82
Size D 78 Ways	222	14.7	136	24.44	28.58
Size F 104 Ways	295	20.3	177	31.32	36.44

Max weight per contact 22/22	Pin ct	Skt ct
	0.08 g	0.11 g

Add : 0.60 g for float mount (code Y)

Add : 0.65 g for captive nut (code E)

Quality Level

Enhanced quality grade according to specification FR022.

Options

Optional captive nuts or float mounting.

Packaging

Individual ESD plastic bag.

Each D*MA connector is sold without dust cap nor insertion / extraction tool.

Description

High performance D-Sub, High Density (HD), for space applications. Connectors compliant to ESCC specification 3401/002.

Removable contacts compliant to ESCC specification 3401/005.

Compatible with ESCC specifications 3401/022 and 3401/072 (Accessories) and 3401/020 (Savers connectors).

Suitable for use in space.

High military performances and aerospace applications :

Board to Board, Board to Cable or Cable to Cable applications.

High Density Size 22 (HD) available:

15, 26, 44, 62, 78 and 104 ways

Distance between two contact rows:

- Size E, A, B, C: 1.98mm (.078 inch)

- Size D, F: 2.08 mm (.082 inch)

Distance between two horizontally adjacent contacts:

- Size E, A, B: 2.29mm (.090 inch)

- Size C, D, F: 2.41mm (.095 inch)

Features and Benefits

- Enhanced quality grade
- Compliant with commercial space grade quality level
- Socket Starclip contact system
- Removable crimp type contacts
- Harnesses length flexibility
- Non-Outgassing

Applications

- Space equipment
- Satellites harnesses and payloads

Electrical & Mechanical Characteristics

Characteristics	Specifications
Working voltage	250 Vrms max (at sea level) 250 Vrms max (33000m of altitude)
Rated current	5 A max
Contact resistance (Low level current)	6 mΩ max (10 mA / 20 mV DC)
Contact resistance	5 mΩ max (Rated current)
Insulation resistance	5000 MΩ min (500 V DC)
Voltage proof	1000 Vrms / 2 mA (Leakage Current)
Contact retention in insulator	40 N max (axial move 0.3 mm max)
Engagement force	3.33 N max per contact
Seperation force	0.20 N min / 2.22 N max per ct
Temperature range	-55+125 °C
Storage temperature range	-65+125 °C

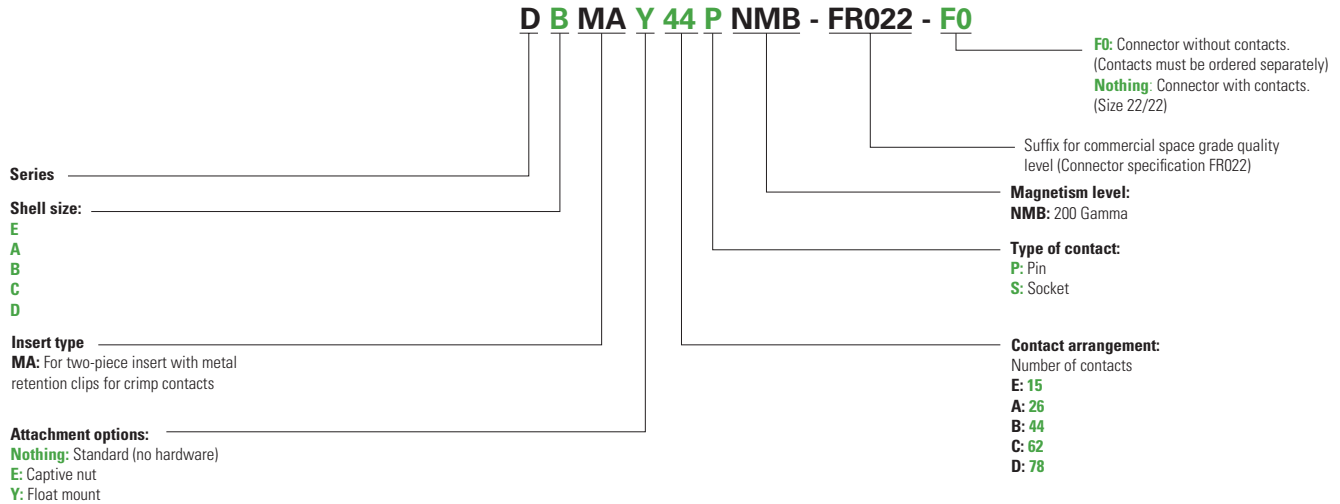
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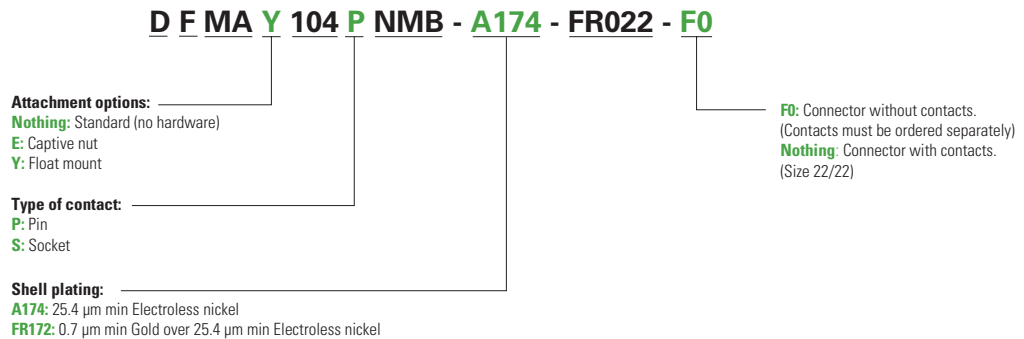
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How To Order Connector

FR022 Quality level:



FR022 Quality level for size F only:

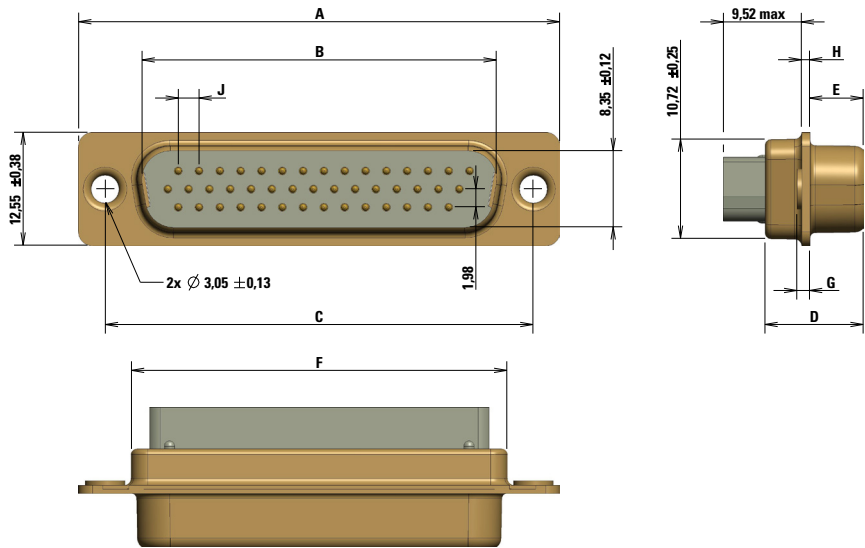


Materials & Finishes

Components	Materials	Finishes
Shell sizes E, A, B, C, D	Copper alloy	0.70 µm min Gold over Copper
Shell size F	Aluminum alloy	A174 : 25.4 µm min Electroless Nickel FR172 : 0.70 µm min Gold over 25.4 µm min Electroless Nickel
Insulator	LCP	UL 94-V0, Glass-filled, Black color
Contact retaining clip	Beryllium copper	None
Contact bodies	Copper alloy	1.27 µm min Gold over Nickel
	Copper alloy	1.27 µm min Gold over Copper
Male screwlocks	Copper alloy	0.7 µm min Gold over Copper
	Stainless steel	Passivated

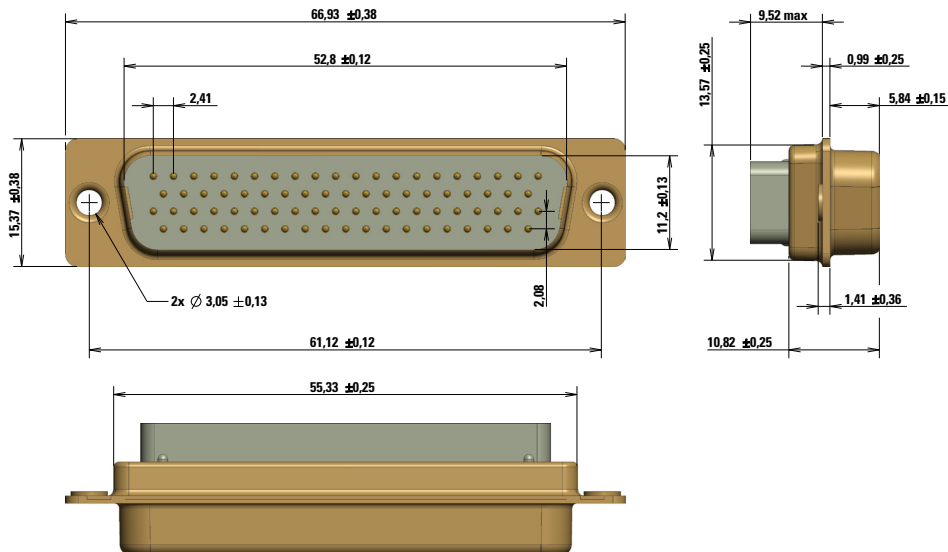
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Pin connector dimensions - Sizes E-A-B-C



Shell Size	Contact Arrangement	Gender	A ±0.38	B ±0.12	C ±0.12	D ±0.25	E ±0.11	F ±0.25	G ±0.31	H ±0.25	J
E	15	Pin	30.81	16.91	24.99	10.72	5.94	19.28	1.21	0.77	2.29
A	26	Pin	39.14	25.24	33.32	10.72	5.94	27.51	1.21	0.77	2.29
B	44	Pin	53.04	38.96	47.04	10.82	5.84±0.15	41.28	1.41±0.36	0.99	2.29
C	62	Pin	69.32	55.42	63.50	10.82	5.84±0.15	57.71	1.41±0.36	0.99	2.41

Pin connector dimensions - Size D (78 pos)

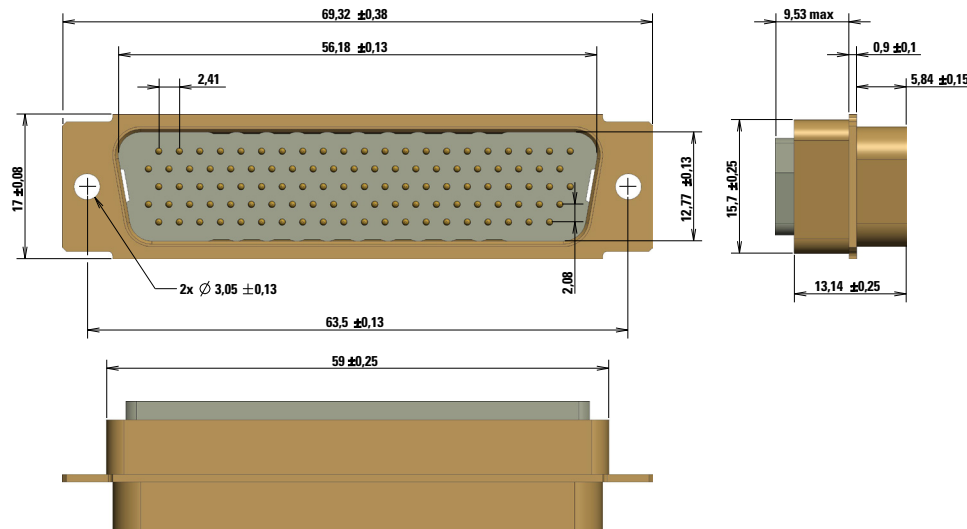


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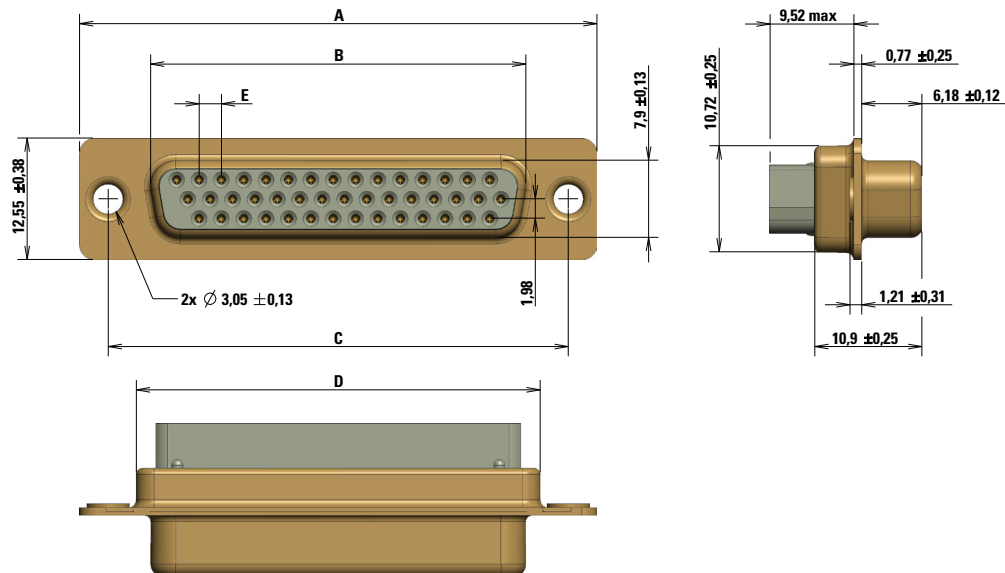
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Pin connector dimensions - Size F (104 pos)



Socket connector dimensions - Sizes E-A-B-C



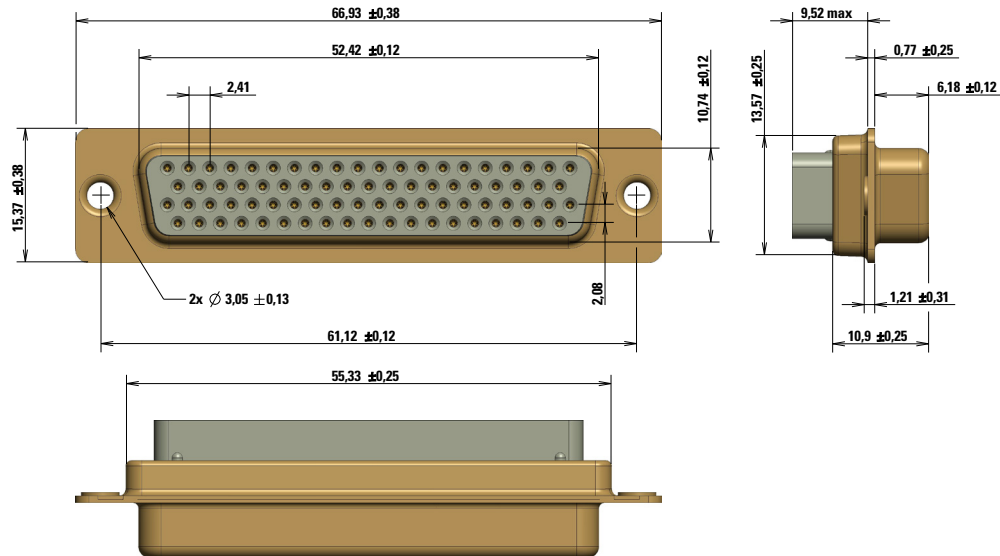
Shell Size	Contact Arrangement	Gender	A ±0.38	B ±0.12	C ±0.12	D ±0.25	E
E	15	SKT	30.81	16.33	24.99	19.28	2.29
A	26	SKT	39.14	24.66	33.32	27.51	2.29
B	44	SKT	53.04	38.38	47.04	41.28	2.29
C	62	SKT	69.32	54.84	63.50	57.71	2.41

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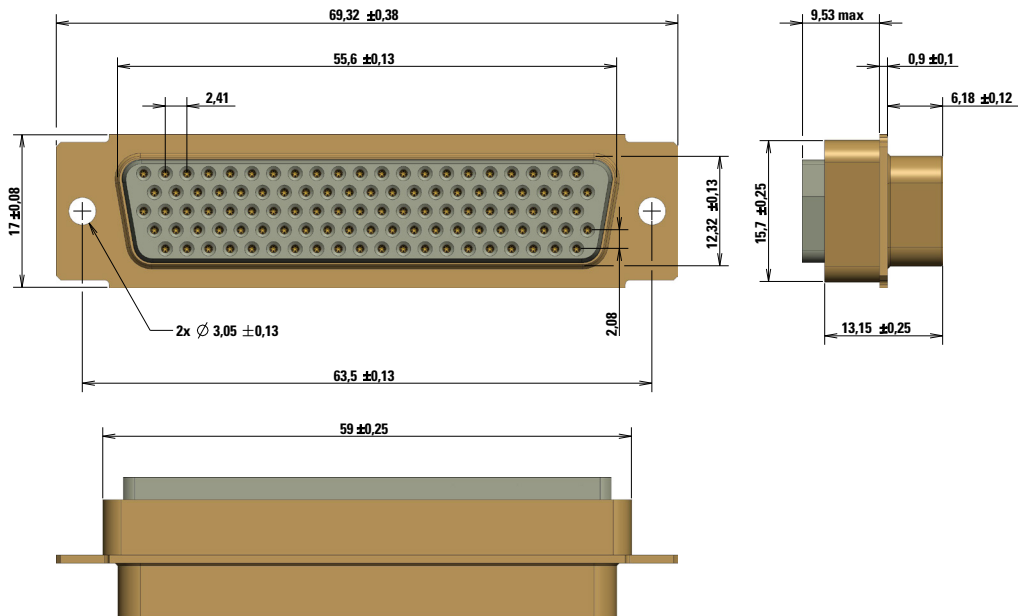
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Socket connector dimensions - Size D (78 pos)

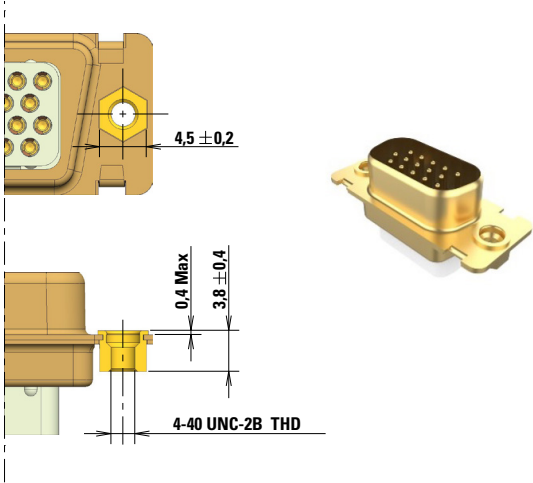


Socket connector dimensions - Size F (104 pos)

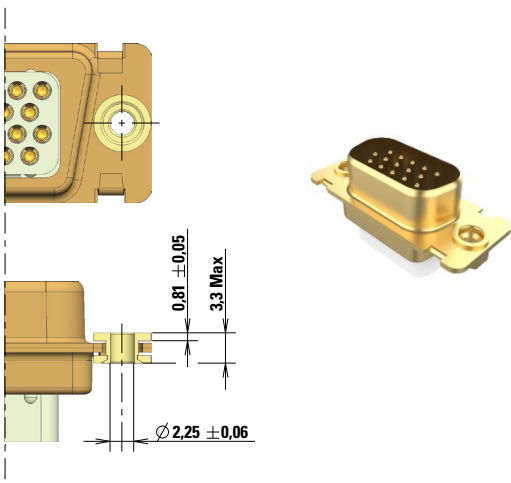


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Captive nut (Option E)



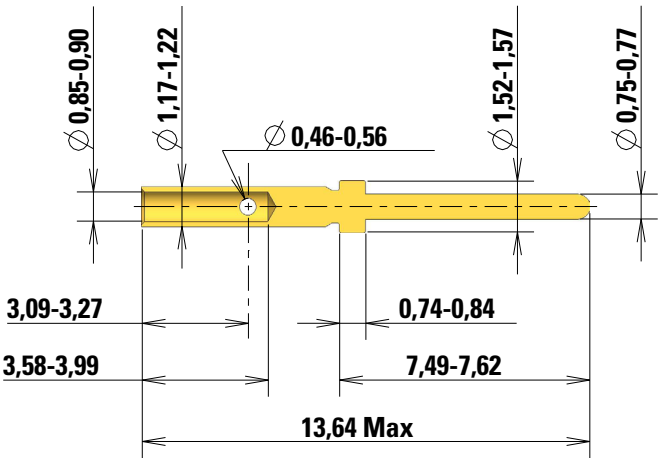
Floating mount (Option Y)



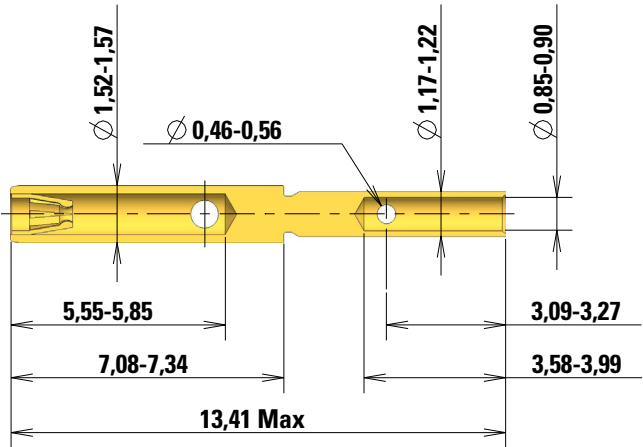
Allowable Float	(mm)
Lateral	0.78
Axial	0.20

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Pin contact – 22/22 – Wire size AWG 22, 24, 26, 28



Socket contact – 22/22 – Wire size AWG 22, 24, 26, 28



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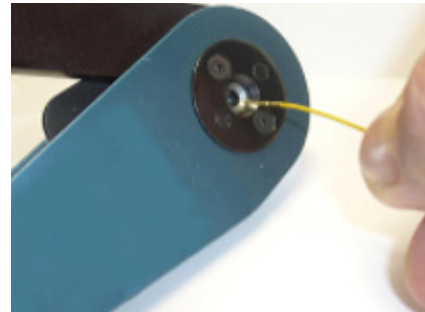
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Crimping process & Cable insertion process

- Previously, strip the jacket of the wire : Length of 5.03mm $\pm$ 0.25
- 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 in function of the wire AWG, on the crimping tool (see table below).
 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 22/22 :
M22520/2-09
P/N : C995-0001-734



Locator for female contact 22/22 :
M22520/2-06
P/N : C995-0001-739

Wire AWG Sizes	Selector positions
AWG 22	4
AWG 24	3
AWG 26	2
AWG 28	1

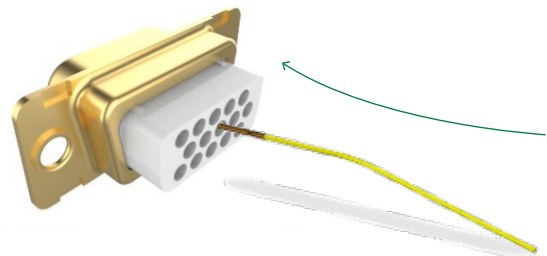
- Contact insertion process:

1. Insert contact with wire into rear insulator cavity until positive stop.

Possibility to use the green side insertion / extraction tool for connectors size 22 High Density:
M81969/14-01
P/N : C274-7048-000

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.

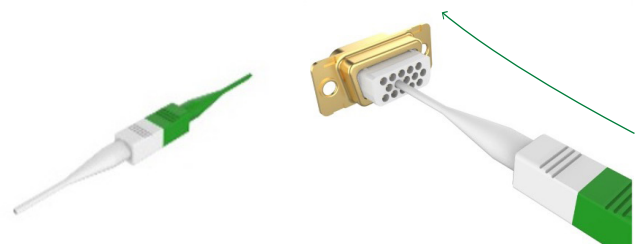


Cable extraction process

1. Select white side insertion / extraction tool for connectors size 22 High Density :
M81969/14-01
P/N : C274-7048-000

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

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



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Connectors description and Part Numbers

Version	Shell type	Gender type	Size	Attachment options					
				Standard connector		Connector with captive nut (E)		Connector with floating mount (Y)	
				NXTMC description	P/N	NXTMC description	P/N	NXTMC description	P/N
Delivered in ESD bag without contact (Contacts to order separately, see chart below)	Shell gold plated	Pin	E	DEMA15PNMB-FR022-F0	C115368-3210	DEMAE15PNMB-FR022-F0	C115368-3250	DEMAY15PNMB-FR022-F0	C115368-3230
			A	DAMA26PNMB-FR022-F0	C115368-3212	DAMAE26PNMB-FR022-F0	C115368-3252	DAMAY26PNMB-FR022-F0	C115368-3232
			B	DBMA44PNMB-FR022-F0	C115368-3214	DBMAE44PNMB-FR022-F0	C115368-3254	DBMAY44PNMB-FR022-F0	C115368-3234
			C	DCMA62PNMB-FR022-F0	C115368-3216	DCMAE62PNMB-FR022-F0	C115368-3256	DCMAY62PNMB-FR022-F0	C115368-3236
			D	DDMA78PNMB-FR022-F0	C115368-3218	DDMAE78PNMB-FR022-F0	C115368-3258	DDMAY78PNMB-FR022-F0	C115368-3238
			F	DFMA104PNMB-FR172-FR022-F0	C115368-3282	DFMAE104PNMB-FR172-FR022-F0	C115368-3452	DFMAY104PNMB-FR172-FR022-F0	C115368-3286
	Shell nickel plated	Socket	E	DEMA15SNMB-FR022-F0	C115368-3211	DEMAE15SNMB-FR022-F0	C115368-3251	DEMAY15SNMB-FR022-F0	C115368-3231
			A	DAMA26SNMB-FR022-F0	C115368-3213	DAMAE26SNMB-FR022-F0	C115368-3253	DAMAY26SNMB-FR022-F0	C115368-3233
			B	DBMA44SNMB-FR022-F0	C115368-3215	DBMAE44SNMB-FR022-F0	C115368-3255	DBMAY44SNMB-FR022-F0	C115368-3235
			C	DCMA62SNMB-FR022-F0	C115368-3217	DCMAE62SNMB-FR022-F0	C115368-3257	DCMAY62SNMB-FR022-F0	C115368-3237
			D	DDMA78SNMB-FR022-F0	C115368-3219	DDMAE78SNMB-FR022-F0	C115368-3259	DDMAY78SNMB-FR022-F0	C115368-3239
			F	DFMA104SNMB-FR172-FR022-F0	C115368-3283	DFMAE104SNMB-FR172-FR022-F0	C115368-3453	DFMAY104SNMB-FR172-FR022-F0	C115368-3287
Delivered in ESD bag with contacts Size 22/22	Shell gold plated	Pin	E	DEMA15PNMB-FR022	C115368-3200	DEMAE15PNMB-FR022	C115368-3240	DEMAY15PNMB-FR022	C115368-3220
			A	DAMA26PNMB-FR022	C115368-3202	DAMAE26PNMB-FR022	C115368-3242	DAMAY26PNMB-FR022	C115368-3222
			B	DBMA44PNMB-FR022	C115368-3204	DBMAE44PNMB-FR022	C115368-3244	DBMAY44PNMB-FR022	C115368-3224
			C	DCMA62PNMB-FR022	C115368-3206	DCMAE62PNMB-FR022	C115368-3246	DCMAY62PNMB-FR022	C115368-3226
			D	DDMA78PNMB-FR022	C115368-3208	DDMAE78PNMB-FR022	C115368-3248	DDMAY78PNMB-FR022	C115368-3228
			F	DFMA104PNMB-FR172-FR022	C115368-3280	DFMAE104PNMB-FR172-FR022	C115368-3450	DFMAY104PNMB-FR172-FR022	C115368-3284
	Shell nickel plated	Socket	E	DEMA15SNMB-FR022	C115368-3201	DEMAE15SNMB-FR022	C115368-3241	DEMAY15SNMB-FR022	C115368-3221
			A	DAMA26SNMB-FR022	C115368-3203	DAMAE26SNMB-FR022	C115368-3243	DAMAY26SNMB-FR022	C115368-3223
			B	DBMA44SNMB-FR022	C115368-3205	DBMAE44SNMB-FR022	C115368-3245	DBMAY44SNMB-FR022	C115368-3225
			C	DCMA62SNMB-FR022	C115368-3207	DCMAE62SNMB-FR022	C115368-3247	DCMAY62SNMB-FR022	C115368-3227
			D	DDMA78SNMB-FR022	C115368-3209	DDMAE78SNMB-FR022	C115368-3249	DDMAY78SNMB-FR022	C115368-3229
			F	DFMA104SNMB-FR172-FR022	C115368-3281	DFMAE104SNMB-FR172-FR022	C115368-3451	DFMAY104SNMB-FR172-FR022	C115368-3285
	Shell nickel plated	Pin	F	DFMA104PNMB-A174-FR022	C115368-3290	DFMAE104PNMB-A174-FR022	C115368-3454	DFMAY104PNMB-A174-FR022	C115368-3294
		Socket	F	DFMA104SNMB-A174-FR022	C115368-3291	DFMAE104SNMB-A174-FR022	C115368-3455	DFMAY104SNMB-A174-FR022	C115368-3295

Contacts description and Part Numbers

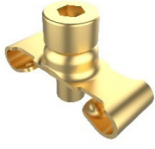
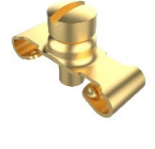
Size	Used for wire size AWG	Contact type	NXTMC description	P/N
22/22	22 / 24 / 26 / 28	Pin, Gold over Nickel	330-8998-101-FR022	C330-8998-101D
		Pin, Gold over Copper	330-8998-104-FR022	C330-8998-104D
		Socket, Gold over Nickel	031-8998-101-FR022	C031-8998-101D
		Socket, Gold over Copper	031-8998-104-FR022	C031-8998-104D

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Accessories description and Part Numbers (To order separately)

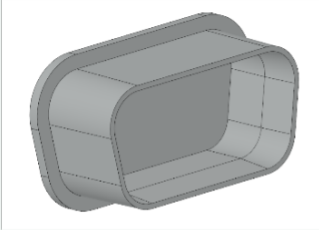
Male screwlocks	Application	Backshell	Material	NXTMC description	P/N
	E, A Pin / E, A, B, C Skt	Without	Brass	D115419-0100-FR022	C115419-0100
	B, C Pin	Without	Brass	D115419-0101-FR022	C115419-0101
	D Skt	Without	Brass	D115420-0100-FR022	C115420-0100
	D Pin	Without	Brass	D115420-0101-FR022	C115420-0101
	E, A Pin / E, A, B, C Skt	With	Brass	D115419-0102-FR022	C115419-0102
	B, C Pin	With	Brass	D115419-0103-FR022	C115419-0103
	D Skt	With	Brass	D115420-0102-FR022	C115420-0102
	D Pin	With	Brass	D115420-0103-FR022	C115420-0103
	E, A Pin / E, A, B, C Skt	Without	Stainless Steel	D115419-1004-FR022	C115419-1004
	B, C Pin	Without	Stainless Steel	D115419-1005-FR022	C115419-1005
	D Skt	Without	Stainless Steel	D115420-1004-FR022	C115420-1004
	D Pin	Without	Stainless Steel	D115420-1005-FR022	C115420-1005
	E, A Pin / E, A, B, C Skt	With	Stainless Steel	D115419-1006-FR022	C115419-1006
	B, C Pin	With	Stainless Steel	D115419-1007-FR022	C115419-1007
	D Skt	With	Stainless Steel	D115420-1006-FR022	C115420-1006
	D Pin	With	Stainless Steel	D115420-1007-FR022	C115420-1007
	E, A Pin / E, A, B, C Skt	Without	Brass	D115419-0074-FR022	C115419-0074
	B, C Pin	Without	Brass	D115419-0048-FR022	C115419-0048
	D Skt	Without	Brass	D115420-0067-FR022	C115420-0067
	D Pin	Without	Brass	D115420-0049-FR022	C115420-0049
	E, A Pin / E, A, B, C Skt	With	Brass	D115419-0073-FR022	C115419-0073
	B, C Pin	With	Brass	D115419-0084-FR022	C115419-0084
	D Skt	With	Brass	D115420-0063-FR022	C115420-0063
	D Pin	With	Brass	D115420-0088-FR022	C115420-0088
	E, A Pin / E, A, B, C Skt	Without	Stainless Steel	D115419-1000-FR022	C115419-1000
	B, C Pin	Without	Stainless Steel	D115419-1001-FR022	C115419-1001
	D Skt	Without	Stainless Steel	D115420-1000-FR022	C115420-1000
	D Pin	Without	Stainless Steel	D115420-1001-FR022	C115420-1001
	E, A Pin / E, A, B, C Skt	With	Stainless Steel	D115419-1002-FR022	C115419-1002
	B, C Pin	With	Stainless Steel	D115419-1003-FR022	C115419-1003
	D Skt	With	Stainless Steel	D115420-1002-FR022	C115420-1002
	D Pin	With	Stainless Steel	D115420-1003-FR022	C115420-1003
	All Sizes Pin / Skt	Without	Brass	D115440-0166-FR022	C115440-0166A
	All Sizes Pin / Skt	With	Brass	D115440-0167-FR022	C115440-0167A
	All Sizes Pin / Skt	Without	Brass	D115440-0164-FR022	C115440-0164A
	All Sizes Pin / Skt	With	Brass	D115440-0165-FR022	C115440-0165A

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Accessories description and Part Numbers (To order separately)

Dust Cap D*MA HD	Size	Description	P/N
	15 P	DUSTCAP-DE-PIN-20-FR022	C025-8900-000A
		DUSTCAP-DE-PIN-20-FR022 EMB 25	C025-8900-000AK
	15 S	DUSTCAP-DE-SKT-20-FR022	C025-8900-001A
		DUSTCAP-DE-SKT-20-FR022 EMB 25	C025-8900-001AK
	26 P	DUSTCAP-DA-PIN-20-FR022	C025-8901-000A
		DUSTCAP-DA-PIN-20-FR022 EMB 25	C025-8901-000AK
	26 S	DUSTCAP-DA-SKT-20-FR022	C025-8901-001A
		DUSTCAP-DA-SKT-20-FR022 EMB 25	C025-8901-001AK
	44 P	DUSTCAP-DB-PIN-20-FR022	C025-8902-000A
		DUSTCAP-DB-PIN-20-FR022 EMB 25	C025-8902-000AK
	44 S	DUSTCAP-DB-SKT-20-FR022	C025-8902-001A
		DUSTCAP-DB-SKT-20-FR022 EMB 25	C025-8902-001AK
	62 P	DUSTCAP-DC-PIN-20-FR022	C025-8903-000A
		DUSTCAP-DC-PIN-20-FR022 EMB 25	C025-8903-000AK
	62 S	DUSTCAP-DC-SKT-20-FR022	C025-8903-001A
		DUSTCAP-DC-SKT-20-FR022 EMB 25	C025-8903-001AK
	78 P	DUSTCAP-DD-PIN-20-FR022	C025-8904-000A
		DUSTCAP-DD-PIN-20-FR022 EMB 25	C025-8904-000AK
	78 S	DUSTCAP-DD-SKT-20-FR022	C025-8904-001A
		DUSTCAP-DD-SKT-20-FR022 EMB 25	C025-8904-001AK