

# 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<br>15 Ways  | 46                   | 3.4                    | 28                     | 6.4                           | 7.65                            |
| Size A<br>26 Ways  | 77                   | 4.5                    | 46                     | 9.48                          | 10.86                           |
| Size B<br>44 Ways  | 127                  | 7.9                    | 77                     | 14.52                         | 16.84                           |
| Size C<br>62 Ways  | 177                  | 11.3                   | 109                    | 20.56                         | 23.82                           |
| Size D<br>78 Ways  | 222                  | 14.7                   | 136                    | 24.44                         | 28.58                           |
| Size F<br>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)<br>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<br>(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                                                       |

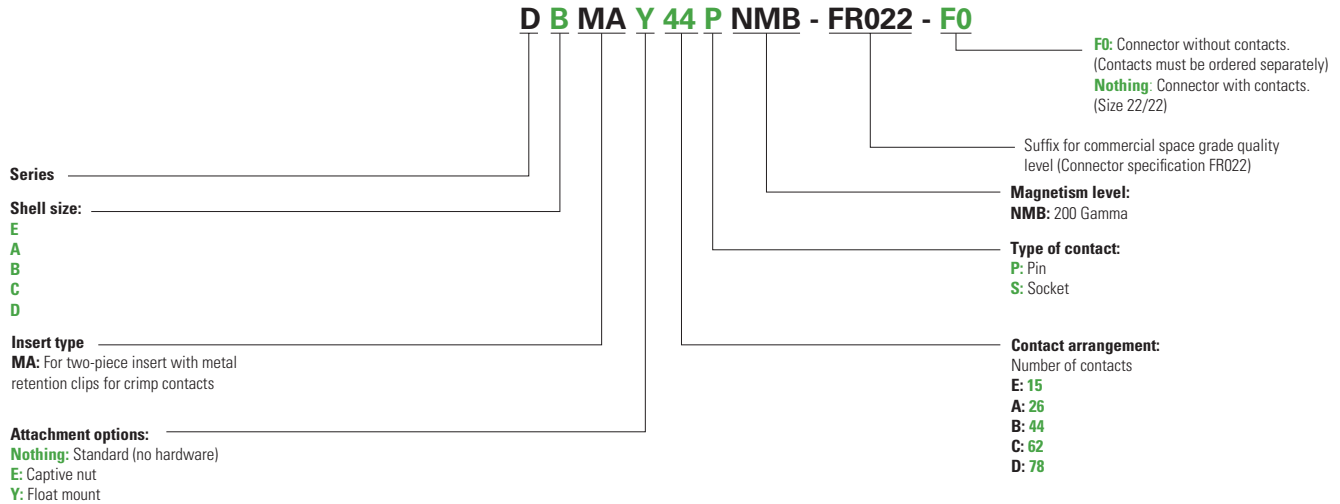
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## D\*MA HD Connectors

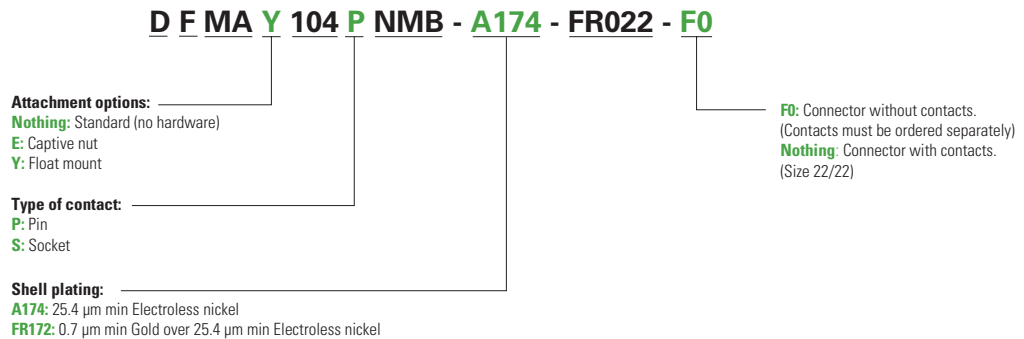
### NXTMC – CS FR022

#### How To Order Connector

FR022 Quality level:



FR022 Quality level for size F only:

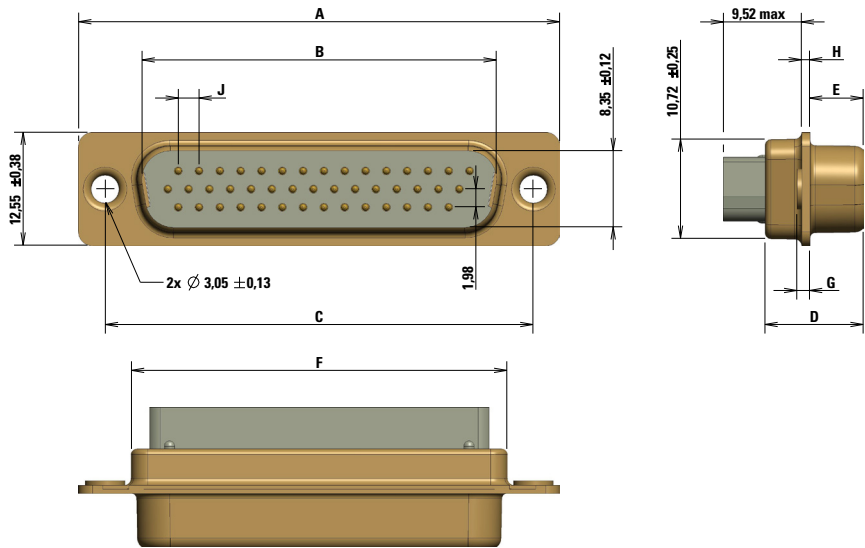


#### Materials & Finishes

| 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<br>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                                                                                            |

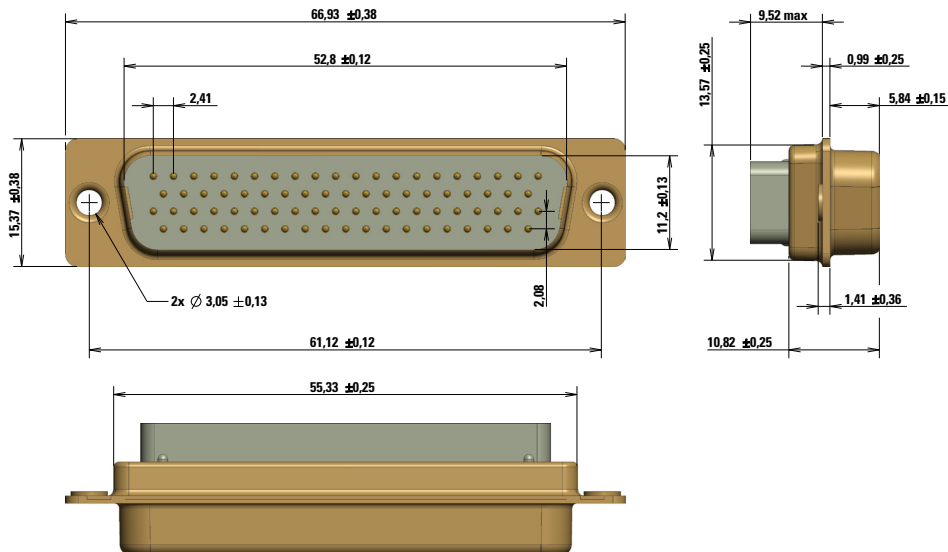
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D\*MA HD Connectors  
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Pin connector dimensions - Sizes E-A-B-C



| Shell Size | Contact Arrangement | Gender | A<br>±0.38 | B<br>±0.12 | C<br>±0.12 | D<br>±0.25 | E<br>±0.11 | F<br>±0.25 | G<br>±0.31 | H<br>±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)

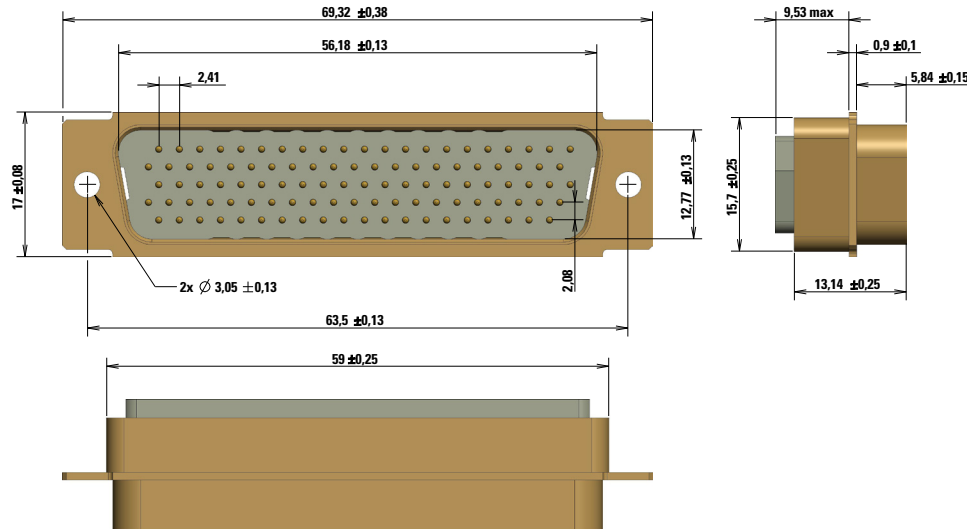


# D-Sub Series

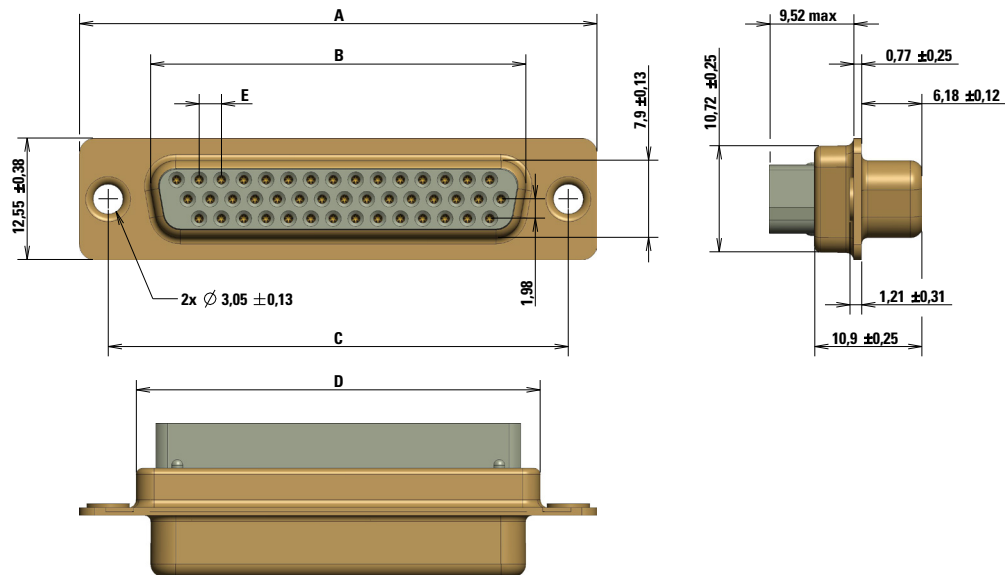
## D\*MA HD Connectors

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#### Pin connector dimensions - Size F (104 pos)



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



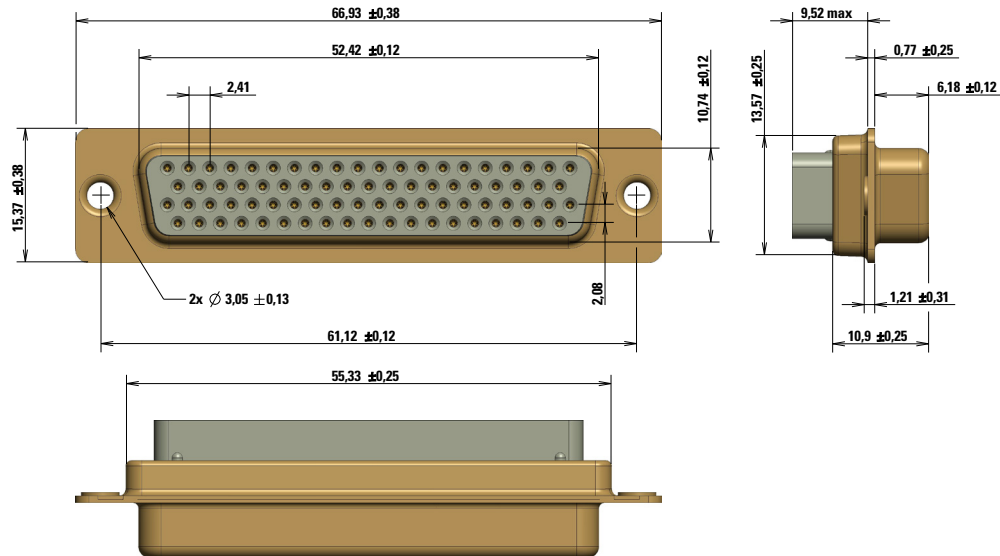
| Shell Size | Contact Arrangement | Gender | A<br>±0.38 | B<br>±0.12 | C<br>±0.12 | D<br>±0.25 | E    |
|------------|---------------------|--------|------------|------------|------------|------------|------|
| E          | 15                  | SKT    | 30.81      | 16.33      | 24.99      | 19.28      | 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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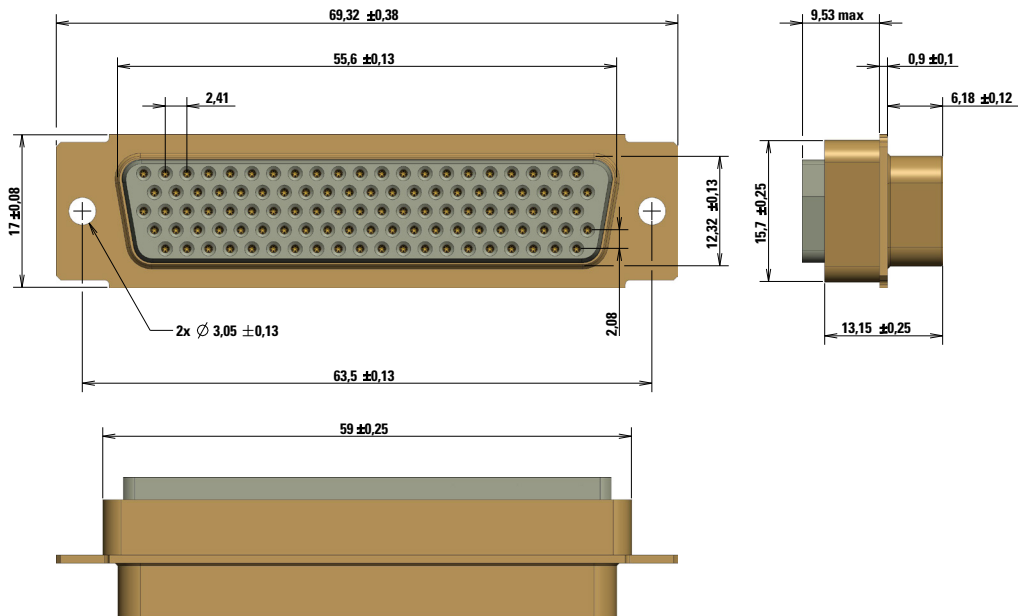
## D\*MA HD Connectors

### NXTMC – CS FR022

Socket connector dimensions - Size D (78 pos)

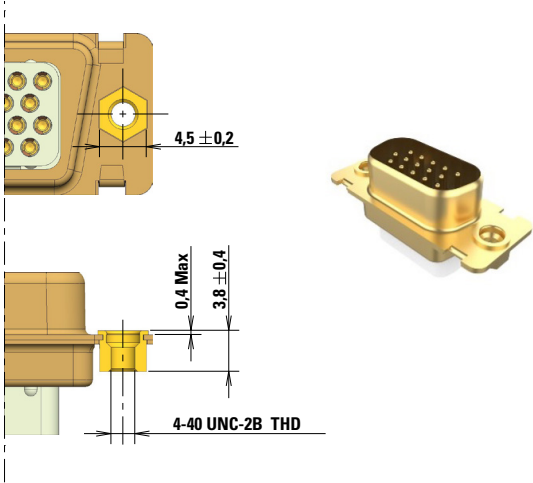


Socket connector dimensions - Size F (104 pos)

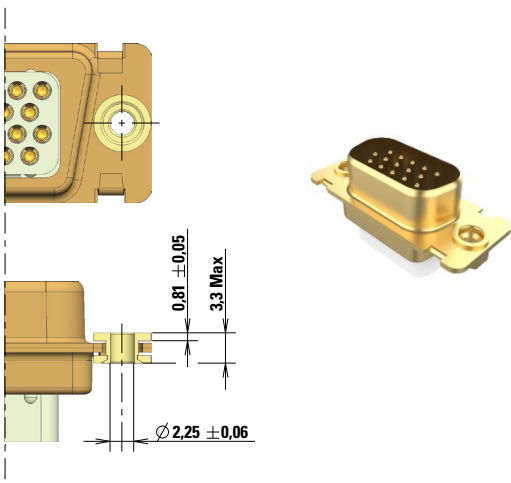


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Captive nut (Option E)



Floating mount (Option Y)

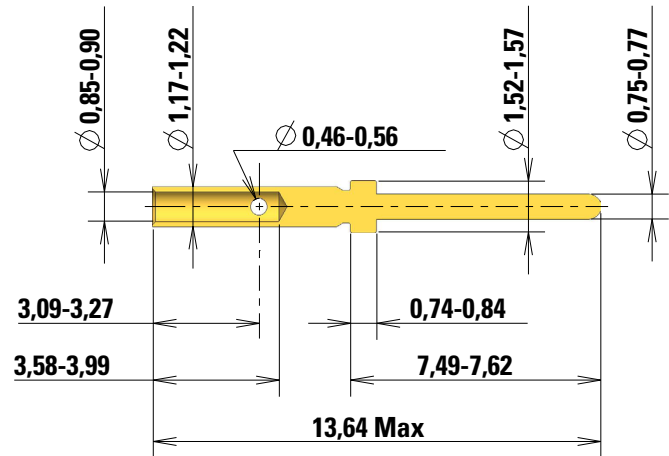


| Allowable Float | (mm) |
|-----------------|------|
| Lateral         | 0.78 |
| Axial           | 0.20 |

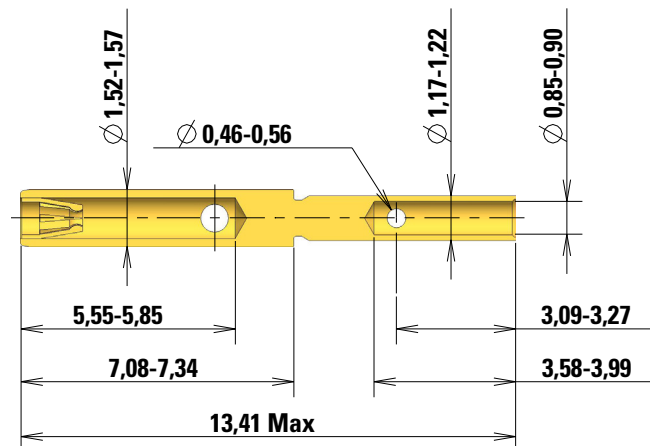
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Pin contact – 22/22 – Wire size AWG 22, 24, 26, 28



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



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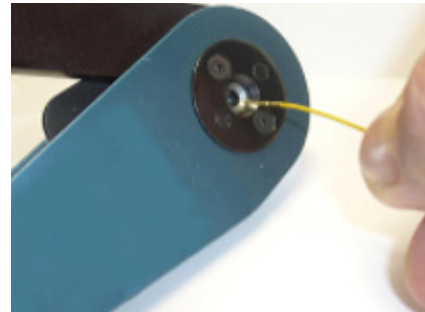
## D\*MA HD Connectors

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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                  |

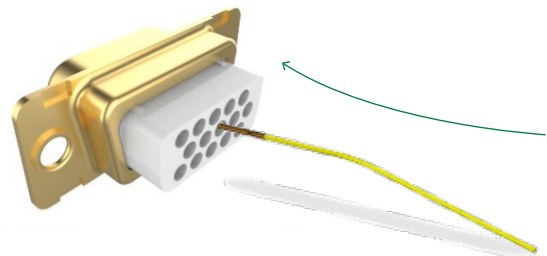
- Contact insertion process:

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.

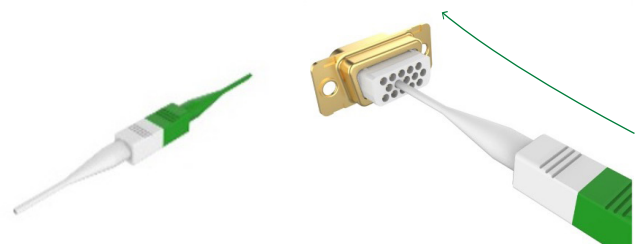


#### Cable extraction process

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<br>(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

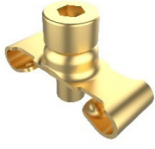
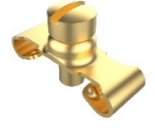
| Size  | Used for wire size<br>AWG | Contact type             | NXTMC<br>description | P/N            |
|-------|---------------------------|--------------------------|----------------------|----------------|
| 22/22 | 22 / 24 / 26 / 28         | Pin, Gold over Nickel    | 330-8998-101-FR022   | C330-8998-101D |
|       |                           | 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)

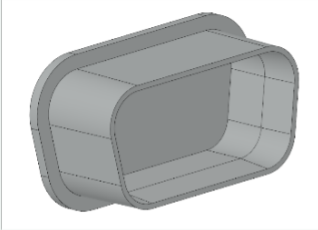
| Male screwlocks                                                                     | Application               | Backshell | Material        | NXTMC description  | P/N           |
|-------------------------------------------------------------------------------------|---------------------------|-----------|-----------------|--------------------|---------------|
|    | 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 |

# D-Sub Series

## D\*MA HD Connectors

### NXTMC – CS FR022

#### 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 |