



CREATIVE  
INTERCONNECT  
SOLUTIONS

# ***DMM***

MIL83513

SPECIFICATIONS

## *METAL CONNECTOR*

*MICRO-D TYPE*



HARSH  
ENVIRONMENT

2mm  
pitch

**OUR CORE VALUE**

WE HELP  
PEOPLE  
TO FOLLOW  
THEIR  
DREAMS  
AS AN  
ENGINEER  
YOU CAN  
MAKE  
HISTORY

TOGETHER  
WE'LL FIND  
THE BEST  
SOLUTION

**WE ARE NICOMATIC**

One of the leading international players in the interconnect solutions market, where innovation & creativity are essential. For us, innovation means being bold.

**SUMMARY****INTRODUCTION**

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**MANUFACTURING**

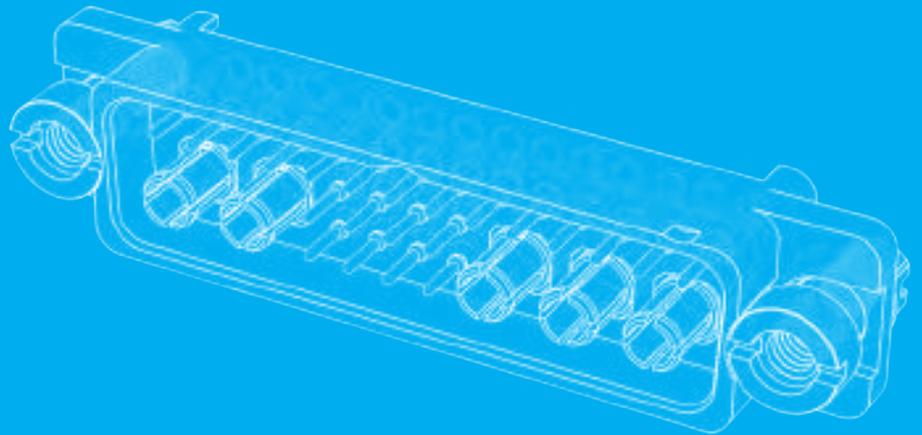
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# **INTRODUCTION**



THE DMM  
HAS BEEN  
CREATED  
TO SAVE  
SPACE

We made it more compact than other micro-d solutions.

Your needs help us improve our range, and know-how.

# FROM THE IDEA TO THE FINISHED PRODUCT

→ **THE CONNECTOR FOR YOUR NEED**

# 5M+

CONFIGURATIONS  
AVAILABLE



BUILD  
YOURSELF  
THE BEST  
SOLUTION

## HIGH MODULARITY

Signal (LF), power (HP), coax (HF),  
mixed layout connectors.

## SHORT LEAD-TIME

4 weeks: Hand in hand  
6 weeks: Standard

## ROBUST & EMI PROOF

MIL-DTL-83513G performances

## EASY DESIGN

Minimum Order Quantity: 1  
Online CAD models instant delivery

### **VERSATILITY**

2,3,4...up to 120 positions

### **SALT SPRAY**

96 Hours resistance

### **SMT COMPLIANT**

Thru-hole type or SMT type

### **SUITABILITY**

Board to board, board to wire,  
wire to wire, panel mount

### **AS/EN9100**

Aerospace quality standard

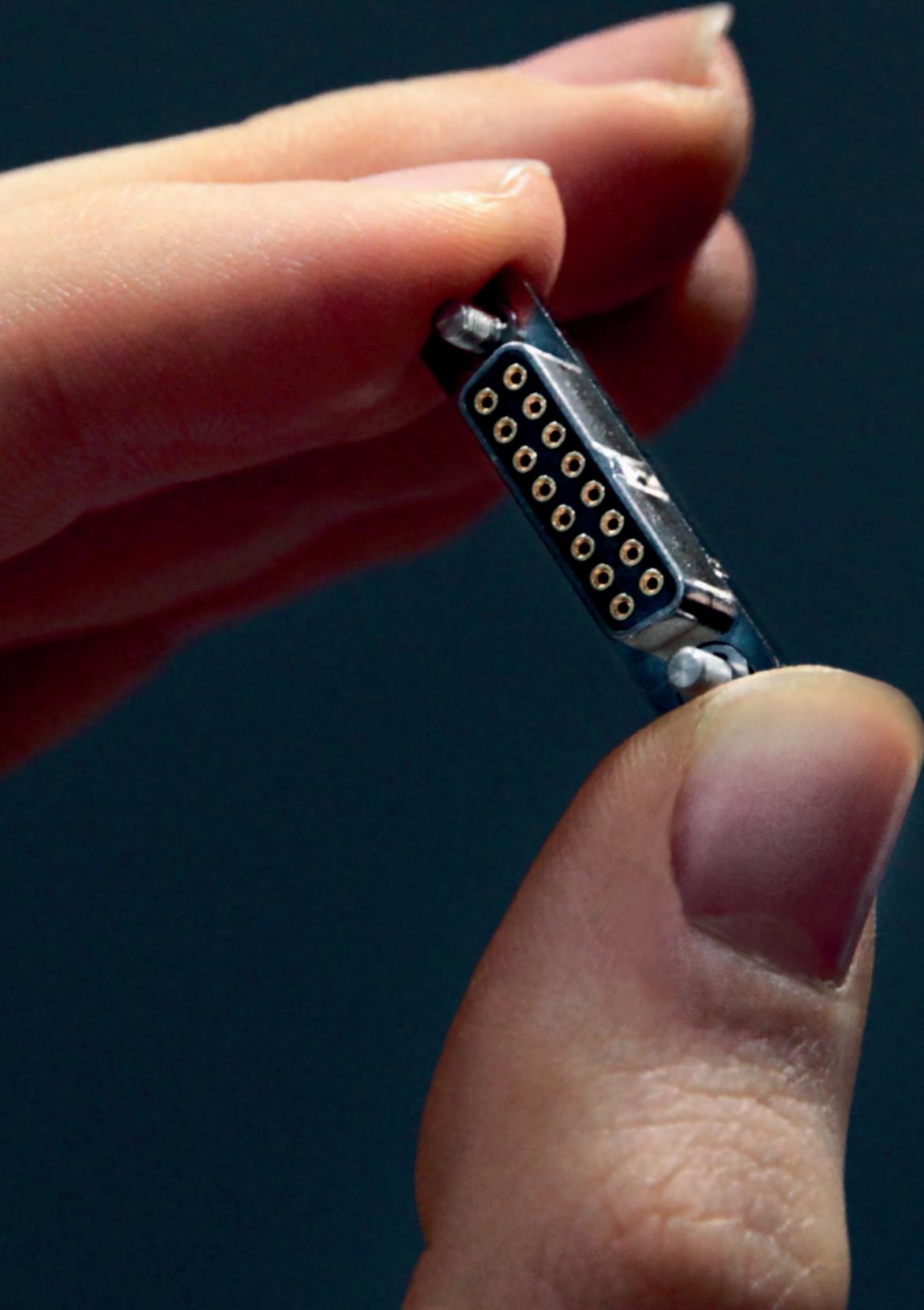
### **CABLING**

Insertable contact, Awg 30 to 12,  
or pre-wired

FUTURE IS SMALLER ■

# SPACE SAVING

---



■ HARSH ENVIRONMENTS

# WHAT IT WITHSTANDS

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NICOMATIC



CREATIVE  
INTERCONNECT  
SOLUTIONS



**DMM**  
CONNECTOR

LET'S GO **P44**



■ **THE BEST OF ENGINEERING**

# WE UNLOCK YOUR POTENTIAL

---

BE CREATIVE,  
OUR SOLUTIONS  
ARE UNLIMITED  
DMM IS ONE  
OF THEM

---

**INFLUENCERS  
NEVER FOLLOW**



NICOMATIC



CREATIVE  
INTERCONNECT  
SOLUTIONS

# DMM | Major applications

*Proven technology / Harsh environment requirements*



## → DEFENCE

**Note:** Our products help to make easier maintenance



High vibration



Space saving



Modularity

### → SUGGESTIONS

DMM shielded harness



Custom IP67 DMM



DMM with Flange



## → SPACE

**Note:** There is no way back for your projects



Reliability



High altitude

**TMC**

Outgassing

### → SUGGESTIONS

Mixed DMM with data and coax contact



Custom gold DMM



DMM RF Grounded

### SEE MORE

- Standard range: P50
- Backshell : P72
- Custom solution : P82
- O-ring solution: P78
- Grounded solution: P79



→ **CIVIL AVIATION**

**Note:** Data reliability is safety critical



Weight saving



Modularity



Emi protection

→ **SUGGESTIONS**

DMM harness

| Metalised composite DMM

| DMM with racking hardware



→ **UAV**

**Note:** Saving weight and space



Weight saving



Space saving



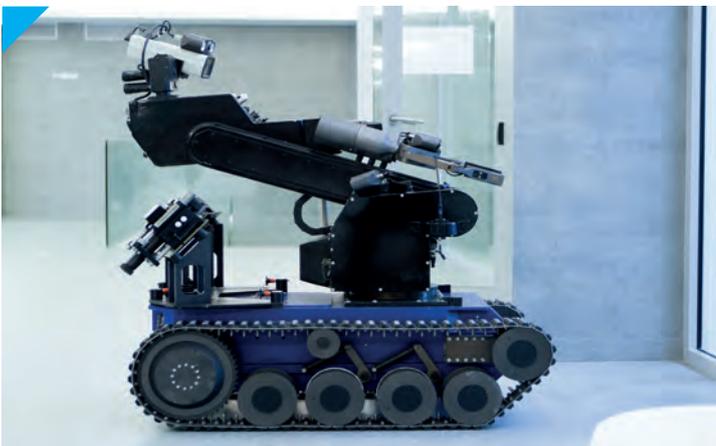
Modularity

→ **SUGGESTIONS**

DMM harness

| Metalised composite DMM

| Mixed DMM with data and power contact



→ **ROBOTICS**

**Note:** Modularity of contacts



Shock resistance



Space saving



Modularity

→ **SUGGESTIONS**

DMM 3 rows

| Mixed DMM with data and power contact

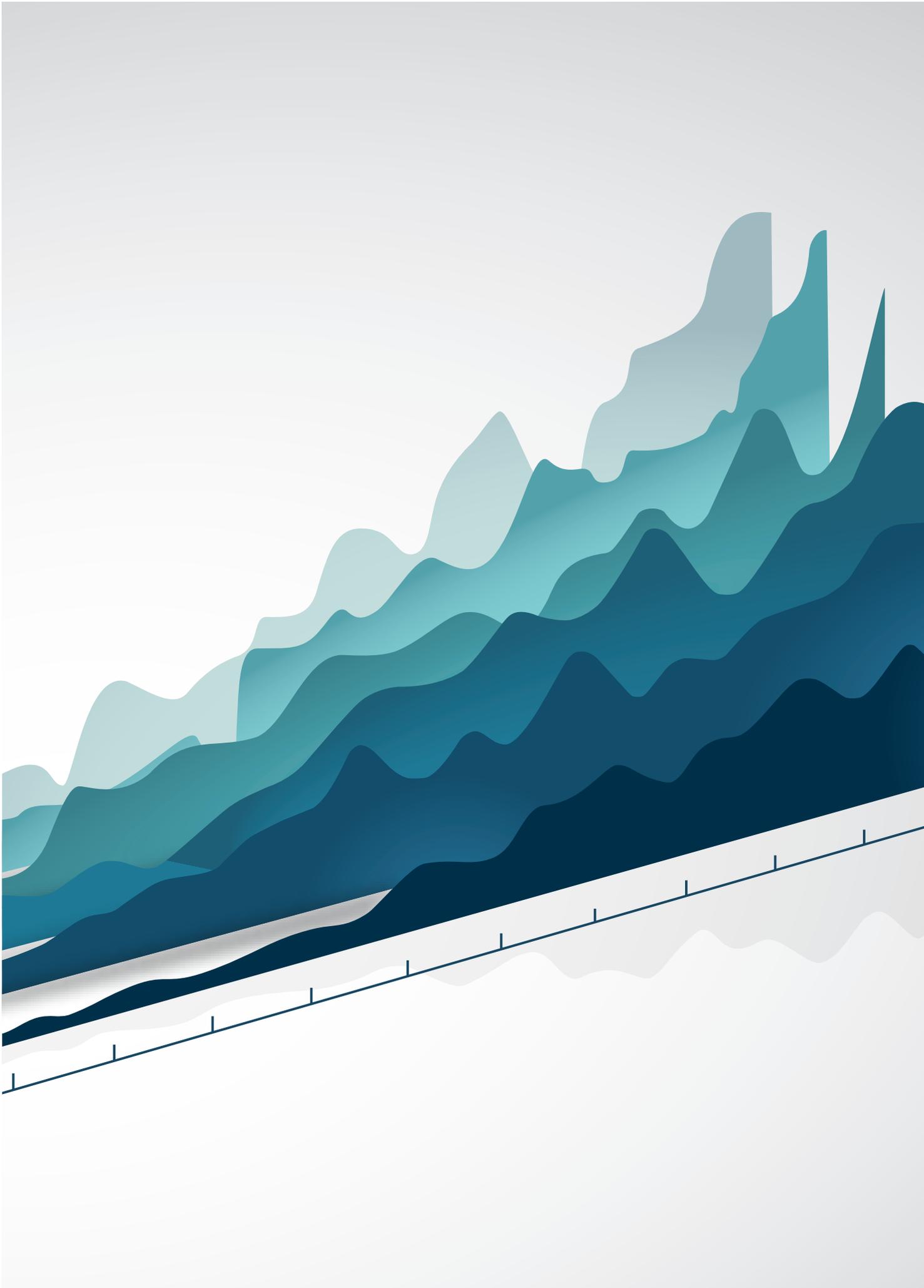
| DMM Multimix

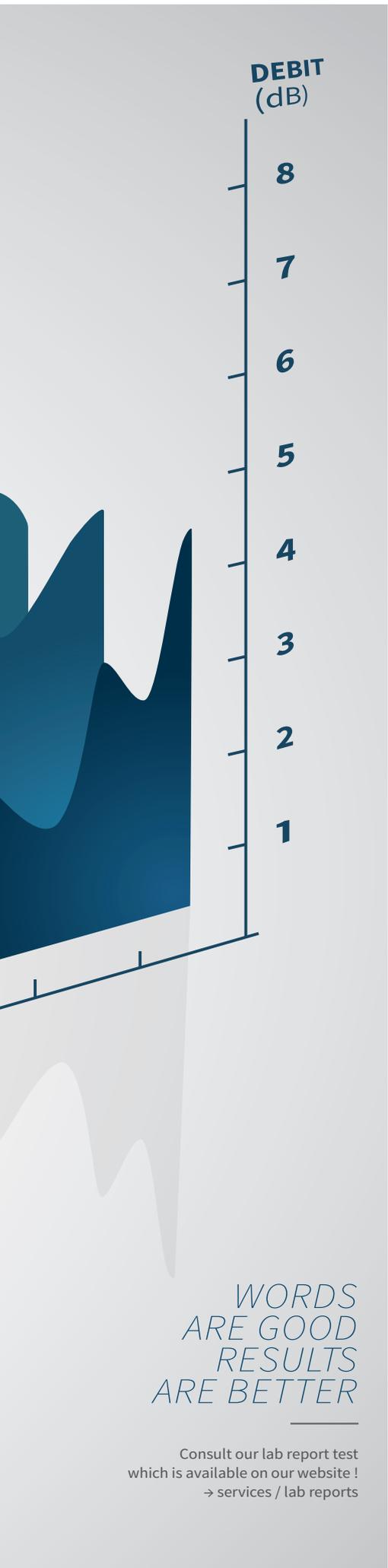
YOUR APPLICATION DOESN'T APPEAR?

**DON'T WORRY**

DMM IS A HIGHLY VERSATILE CONNECTOR

CREATE YOURS ON OUR WEBSITE





WORDS  
ARE GOOD  
RESULTS  
ARE BETTER

Consult our lab report test  
which is available on our website !  
→ services / lab reports

HIGHEST  
**REQUIREMENTS**

# PRODUCT SPECS

**CHALLENGE YOUR LIMITS**

MEET OR EXCEED

MIL-DTL-83513G  
PERFORMANCE

**ALL OUR  
ENGINEERS  
SUPPORT YOU**

We bring you concrete tips.  
Saving time, more gains,  
less stress.

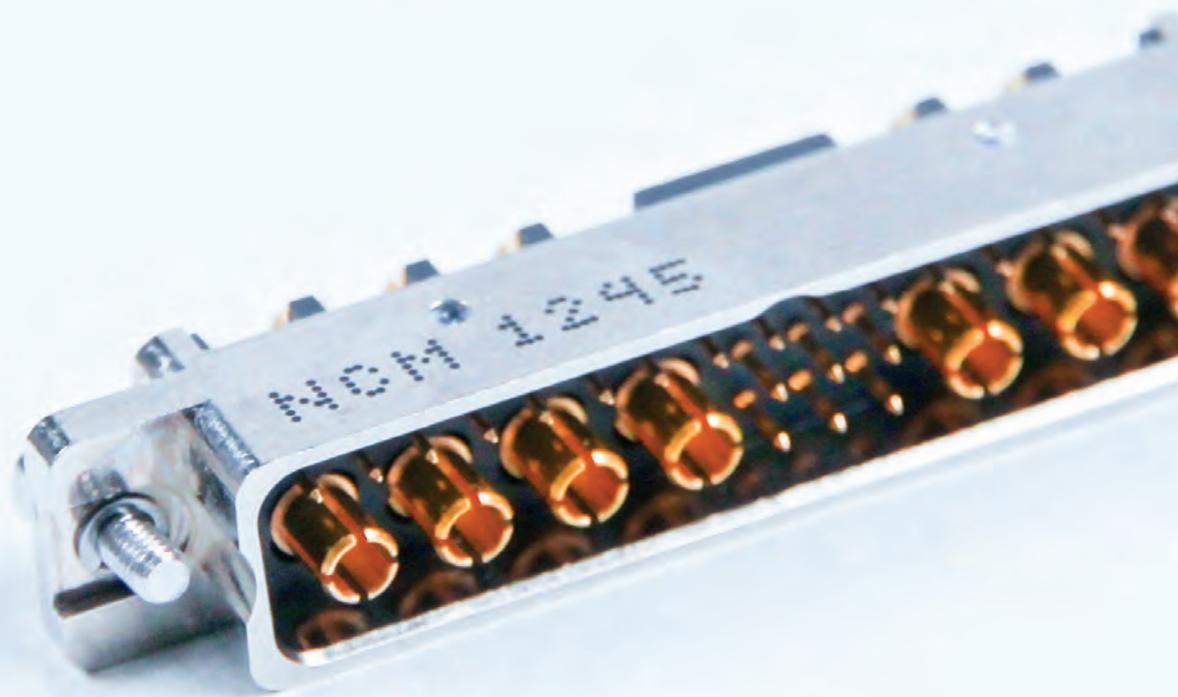


Performance	Results
<b>Electrical features</b>	
<b>Dielectric withstanding voltage sea level</b> EIA-364-20C <i>(Between all adjacent contacts &amp; between the shell and each peripheral contact)</i>	Signal (LF) contacts: Withstanding voltage: <b>600 VRMS</b> Rated Voltage: <b>200 VRMS</b>  Power (HP) & Coax (HF) contacts: Withstanding voltage: <b>800 VRMS</b> Rated Voltage: <b>267 VRM</b>
<b>Dielectric withstanding voltage high altitude</b> (70 000 ft) EIA-364-20C <i>(Between all adjacent contacts &amp; between the shell and each peripheral contact)</i>	Signal (LF) contacts: Withstanding voltage: <b>150 VRMS</b> Rated Voltage: <b>50 VRMS</b>  Power (HP) & Coax (HF) contacts: Withstanding voltage: <b>150 VRMS</b> Rated Voltage: <b>50 VRM</b>
<b>Insulation resistance</b> EIA 364-21C	Signal (LF) & (HP) contacts: EIA 364-21C Insulation resistance: > <b>5 GΩ @ 500V</b>
<b>Contact resistance</b> EIA 364-06C	Signal (LF) contacts: Contact resistance @ 3A: <b>7.63 mΩ max</b>  Power (HP) & Coax (HF) contacts: Contact resistance @ 3A: <b>1.17 mΩ max</b>
<b>Magnetic permeability</b> ASTM A342/A342M	Relative magnetic permeability <: <b>2.0 μ</b>
<b>Derating (Current carrying capacity)</b> IEC 60512-5-2 Test 5b	DMM Connector with only signal (LF) contacts: <b>Max temperature elevation at 3A @ 25°C: 67°C</b> <b>Max temperature elevation at 2.5A @ 85°C: 28°C</b>  DMM Connector with only High Power (HP) contacts: <b>Max temperature elevation at 20A @ 25°C: 61°C</b> <b>Max temperature elevation at 20A @ 85°C: 29°C</b>
<b>High Frequency contacts performances</b>	Please refer to the High Frequency (HF) contacts page
<b>Mechanical features</b>	
<b>Contact engagement and separation forces</b> EIA 364-37B	Signal (LF) contacts: Engagement Force: <b>1.7 N max</b> Separation Force: <b>0.2 N min</b>  Power (HP) & Coax (HF) contacts: Engagement Force: <b>5 N max</b> Separation Force: <b>0.5 N min</b>
<b>Mating and unmating force</b> EIA 364-13D	Signal (LF) contacts: Mating Force: <b>2.781 N max</b> Unmating Force: <b>0.2 N min</b>  Power (HP) & Coax (HF) contacts: Mating Force: <b>9.733 N max</b> Unmating Force: <b>1 N min</b>  <i>Results are the same @initial, After temperature cycling, humidity, vibration, shock tests and 500 cycles, After salt spray, After fluid immersion, @end</i>
<b>Contact replacement</b> EIA 364-29C	Contact retention force for Signal (LF) contacts: <b>Initial: &gt; 19.74</b> <b>After 3 replacements: &gt; 6.83 N</b>  Contact retention force for Power (HP) & Coax (HF) contacts: <b>Initial: &gt; 22.27N</b> <b>After 5 replacements: &gt; 22.27N</b>
<b>Durability</b> MIL-DTL-83513G §4,5,16 & NICOMATIC requirements for HP & HF	DMM Connector with only signal (LF) contacts: <b>500 cycles min - up to 2500 cycles</b> DMM Connector with signal (LF) and High Power (HP) contacts: <b>500 cycles min</b>

Mechanical features	
<b>Insert retention</b> MIL-DTL-83513G §4,5,19	Retention: <b>&gt; 50 pounds per square inch (222N per sq.inch)</b>
	<i>Results are the same @initial, After temperature cycling, humidity, vibration, shock tests and 500 cycles, After salt spray, After fluid immersion, @end</i>
<b>Insert retention destruction test</b> MIL-DTL-83513G §4,5,19	Normal axe force before destruction : Max: <b>973 N</b> Min: <b>378 N</b>  Average: <b>796.6 N</b>
<b>Crimp tensile strength</b> EIA 364-08 20	AWG 28: > <b>13.4N</b> / AWG 26: > <b>22.3N</b> AWG 16: > <b>240N</b> / AWG 14: > <b>412.4N</b> AWG 24: > <b>35.6N</b> / AWG 22: > <b>53.4N</b> AWG 12: > <b>565N</b> AWG 20: > <b>142 N</b> / AWG 18: > <b>200N</b>
Environmental features	
<b>Vibration</b> EIA 364-28E TEST CONDITION III&IV	DMM Connector with only signal (LF) contacts: MIL-DTL-8313G Test Condition IV: <b>[196.1 m/s2 (20 gn) peak]</b> DMM Connector with signal (LF) and Power (HP) contacts: MIL-DTL-8313G Test Condition III: <b>[147.1 m/s2 (15 gn) peak]</b>  <i>It is recommended to use the locking fixing hardware (screws) with the HP and mixed contacts with thread lockfluid</i>
<b>Shock</b> EIA 364-27B TEST CONDITION G	Shock severity: <b>MIL-DTL-8313G Test ConditionG</b> Peak acceleration: <b>100 g / Normal Duration: 6 ms / Waveform: Saw tooth</b>
<b>Temperature cycling</b> EIA 364-32D	Temperature cycling severity: <b>-55°C / +125°C</b>
<b>Fluid immersion</b> MIL-DTL-83513G §4,5,18	A. Lubricating oil Aircraft turbine engines, synthetic base: <b>20 hours</b> B. Coolant-dielectric fluid synthetic silicate ester base lubricant (coolanol 25): <b>1 hour +/- 1 minute.</b>
<b>Humidity</b> EIA 364-31B - Method IV	Withstanding voltage sea level after Humidity: <b>360 Vrms.</b> Insulation resistance after Humidity: <b>&gt;1 GΩ</b>  <i>Ten cycles, cycle duration: 24 hours (except steps 7a and 7b).</i>
<b>Salt spray (corrosion)</b> 364-26B TEST CONDITION A	Duration: <b>96 hours</b> @35°C / Salt solution concentration: <b>5%</b>
<b>Thermal vacuum outgassing</b> ASTM E595 (ECSS-Q-ST-70-02C)	Total mass loss : TML <b>&lt; 1% of the original mass</b> Max volatile condensable material: CVCM <b>&lt; 0.1% of the original mass</b>
<b>Resistance to soldering heat</b> EIA 364-29C	Bath solder T°: <b>250°C - 10 s</b>
<b>Marking performance</b> MIL-STD-202, method 215	Solvent 1: <b>Isopropyl alcohol, Kerosene (Petroleum ether), Ethylbenzene.</b> Solvent 2: <b>Bioact EC-7R</b> Solvent 3: <b>Ethanolamine, 1-methoxy-2- propanol, Water.</b>



DMM series has been tested according to MIL-DTL-83513G.  
 In reality, performance exceeds the expectation.  
 100% of our qualification test reports are available, please feel free to ask!



DISCOVER  
**OUR DMM**

# FIRST STEPS

**ALL DMM ELEMENTS DESCRIBED**

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**SKIP TUTORIAL PAGES: GO TO P44**

**ALL OUR  
ENGINEERS  
SUPPORT YOU**

*We bring you concrete tips.  
Save time, gain more value,  
with less stress.*



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WHAT  
IS  
DMM  
?

---

*EMI FIGHTER*

# RUGGED CONNECTOR



## CONTACT LF/HP/HF

-

Screw-machining is a historical know-how ensuring reliability and precision for various contacts.



## PPS INSULATOR

-

Molded in PPS loaded with 30% of glass fiber, the DMM insulator is real proof a reliability.



## ALUMINIUM SHELL

-

DMM shell is machined in aluminum 6061 (Ni plated), the recommended alloy for aeronautical application.



## FIXING HARDWARE

-

On DMM range, fixing hardware can be mounted both on male or female side, the choice is up to you.

# OUR CONTACTS

# Your Signal

A crucial role in a connector: *signal reliability*



**Nicomatic is evolving but has kept this precious and outstanding know-how: The ability to produce a reliable electrical contact.**

While statistics from ASFA figure out that 43% of embedded electrical network failures are resulting from connectors and conductors, Nicomatic has a quality rating of 99.99%. Whether it is brass, beryllium copper to stainless steel, with diameters from 0.25mm to 20mm, with more than 1 $\mu$  of gold...

We are producing whatever is necessary to ensure a No Fail connection.

Au

**GOLD  
PLATED**

**QUALITY  
WITHOUT  
COMPROMISE**

→ **SELECT YOUR CONTACT**

# SIGNAL

**DATA OR HIGH SPEED DATA**  
AMPERAGE **UPTO 5A**

**LF**

# POWER

**HIGH POWER OR HIGH CURRENT**  
AMPERAGE **UPTO 30A**

**HP**

# COAX

**HIGH FREQUENCY SIGNAL**  
FREQUENCY **UP TO 20GHZ**

**HF**

# LF

# Signal Contact

Signal or high speed data  
Up to 5 Gbit/s

## Nicomatic signal (LF)

contacts are suitable for data signal, & high speed data up to 5 Gbits/s in a 2 mm pitch connector.

Turned in house on Swiss screw machines, they are then assembled and fully inspected by dedicated workstations.

Made from copper alloy with gold finishing our LF contacts are compatible with space, military and airborne environments. They exceed MIL-DTL-83513G requirements for 500 cycles as they have been tested up to 2500 cycles.

To cope with the strong level of vibration and shocks of your applications, we use a multi lips stamped clip made in beryllium copper for the spring feature. Due to its elasticity and multiple contact points, it provides permanent electrical conductivity with vibrations of up to 20G and shocks of up to 100G.

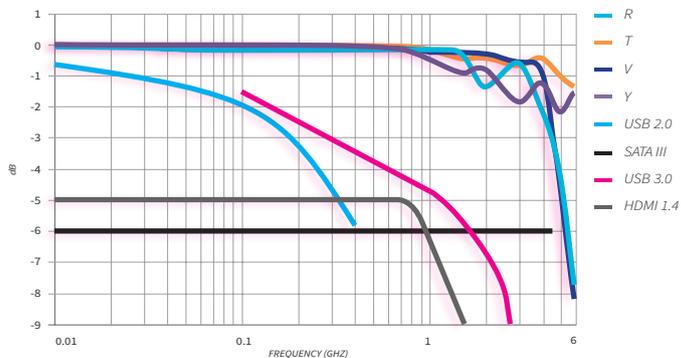
ELECTRICAL FEATURES	
<b>Dielectric withstanding voltage sea level</b> EIA 364-20C*	Signal (LF) contacts: Withstanding voltage: <b>1200 VRMS</b> Rated Voltage: <b>400 VRMS</b>
<b>Insulation resistance</b> EIA 364-21C	Signal (LF) contacts: Insulation resistance: <b>&gt; 5 GΩ @500V</b>
<b>Contact resistance</b> EIA 364-06C	Signal (LF) contacts: Contact resistance @ 3A <b>7.63 mΩ max</b>
<b>Magnetic permeability</b> ASTM A342/A342M	Relative magnetic permeability: <b>&lt;2.0 μ</b>
<b>Derating (Current carrying capacity)</b> IEC 60512-5-2 Test 5b	DMM Connector with only signal (LF) contacts: Max temperature elevation at <b>3A @ 25°C: 67°C</b> Max temperature elevation at <b>2.5A @ 85°C: 28°C</b>
MECHANICAL FEATURES	
<b>Contact engagement &amp; separation forces</b> EIA 364-37B	Signal (LF) contacts: Engagement Force: <b>1.7 N max</b> Separation Force: <b>0.2 N min</b>
<b>Mating &amp; unmating force</b> EIA 364-13D	Signal (LF) contacts: Mating Force: <b>2.781 N max</b> Unmating Force <b>0,2 N min</b>
<b>Contact replacement</b> EIA 364-29C	Contact retention force for Signal (LF) contacts: Initial: <b>&gt; 19.74 N</b> After 3 replacements: <b>&gt; 6.83 N</b>
<b>Durability</b> MIL-DTL-83513G §4,5,16 & NICOMATIC requirements for HP & HF	DMM Connector with only signal (LF) contacts: <b>500 cycles min, up to 2500 cycles</b>
<b>Crimp tensile strenght</b> EIA 364-08 20 (silver plated conductor)	AWG 28: <b>&gt; 13.4 N</b> / AWG 26: <b>&gt; 22.3 N</b> AWG 24: <b>&gt; 35.6 N</b> / AWG 22: <b>&gt; 53.4 N</b>
<b>Humidity</b> EIA 364-31B NICOMATIC requirements Method IV	Withstanding voltage sea level after Humidity: <b>360 VRMS</b> Insulation resistance after Humidity: <b>&gt;1 GΩ</b> Ten cycles, cycle duration: 24 hours (except steps 7a and 7b).
<b>Mating &amp; unmating force</b> EIA 364-13D	Signal (LF) contacts: Mating Force: <b>2.781 N max</b> Unmating Force <b>0,2 N min</b>

\* (Between all adjacent contacts & between the shell and each peripheral contact)

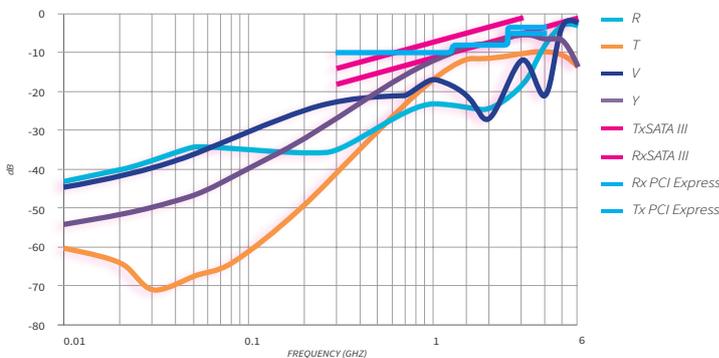
# High speed data capabilities

Our signal contacts have been tested and pushed above their data rate limit. These complete data will help you to select the right product.

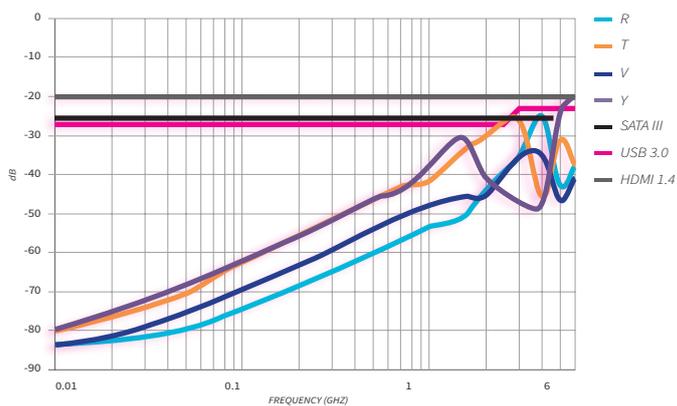
## INSERTION LOSS



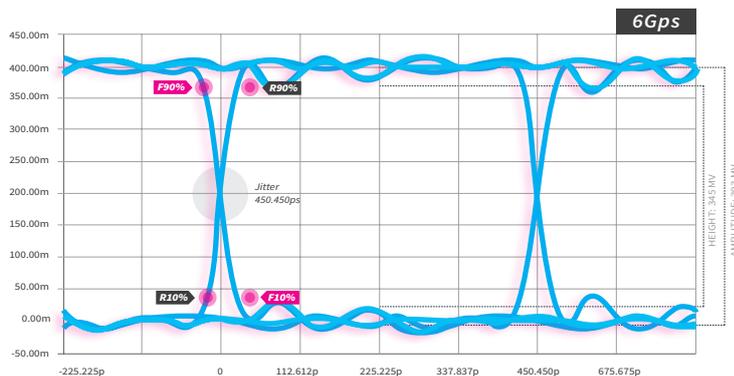
## RETURN LOSS



## CROSS TALK



## EYE DIAGRAM



## MATERIAL



PCB

### MALE CONTACT

Pin : Copper alloy /  
Ni + Au > 1μ  
Tail : Copper alloy / Ni + Au  
flash 0,1μ min

### FEMALE CONTACT

Clip: Beryllium copper /  
Ni + Au > 1,25μ  
Tail : Copper alloy / Ni + Au  
0,2μ min



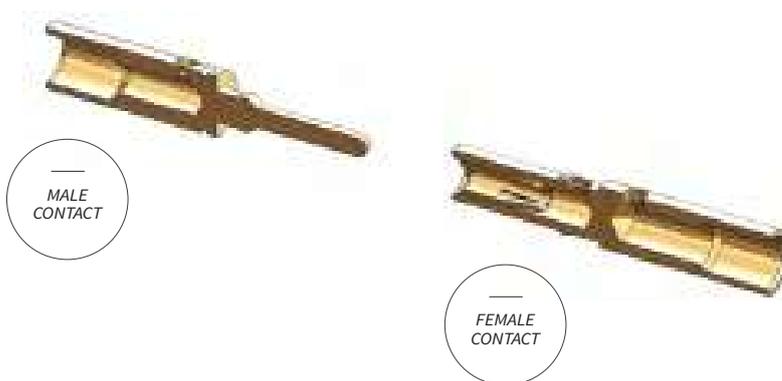
CABLING

### MALE CONTACT

Body & pin: Copper alloy /  
Ni + Au > 1μ

### FEMALE CONTACT

Clip: Beryllium copper /  
Ni + Au > 1,25μ  
Body: Copper alloy /  
Ni + Au 0,2μ min



MALE CONTACT

FEMALE CONTACT



Are you using another protocol? Feel free to contact our test department to get the result

# HP

# Power Contact

High power or high current  
Up to 30 Amps

## Nicomatic High Power

contacts are suitable for power signal up to 30 Amps.

Turned in house on Swiss screw machines, they are then assembled with an outside clip in order to make the insertion into the housing easier.

Made in copper alloy with gold finishing our HP contacts are compatible with space, military and airborne environments. They meet the MIL-DTL-83513G requirements for 500 cycles.

With a pitch of 4 mm between contacts it is the most compact power connection solution on the market. In the same way, all the derating data is available in order to meet your environmental expectations.

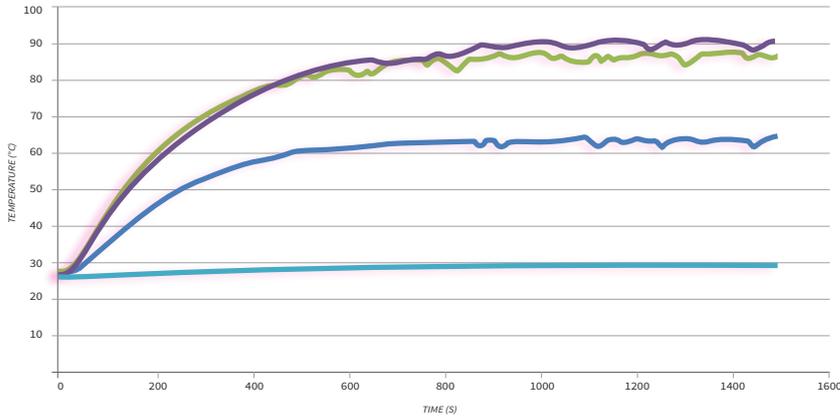
ELECTRICAL FEATURES	
Dielectric withstanding voltage sea level EIA 364-20C*	High Power (HP) contacts: Withstanding voltage: <b>800 VRMS</b> Rated Voltage: <b>266 VRMS</b>
Dielectric withstanding voltage high altitude (70000 ft) EIA 364-20C*	High Power (HP) contacts: Withstanding voltage: <b>150 VRMS</b> Rated Voltage: <b>50 VRMS</b>
Insulation resistance EIA 364-21C	High Power(HP) contacts: Insulation resistance: <b>&gt; 5 GΩ @500V</b>
Contact resistance EIA 364-06C	High Power(HP) contacts: Contact resistance @ 3A <b>1.17 mΩ max</b>
Magnetic permeability ASTM A342/A342M	Relative magnetic permeability: <b>&lt;2.0 μ</b>
Derating (Current carrying capacity) IEC 60512-5-2 Test 5b	DMM Connector with only High Power (HP) contacts: Max temperature elevation at <b>20A @ 25°C: 61°C</b> Max temperature elevation at <b>20A @ 85°C: 29°C</b>
MECHANICAL FEATURES	
Contact engagement & separation forces EIA 364-37B	High Power (HP) contacts: Engagement Force: <b>5 N max</b> Separation Force: <b>0.5 N min</b>
Mating & unmating force EIA 364-13D	High Power (HP) contacts: Mating Force: <b>9.733 N max</b> Unmating Force: <b>1N min</b>
Contact replacement EIA 364-29C	Contact retention force for High Power (HP) contacts: Initial: <b>&gt; 22.27 N</b> After 5 replacements: <b>&gt; 22.27 N</b>
Durability MIL-DTL-83513G §4,5,16 & NICOMATIC requirements for HP & HF	DMM Connector with High Power (HP) contacts: <b>500 cycles min</b>
Crimp tensile strenght EIA 364-08 20 (silver plated conductor)	AWG 20: <b>&gt; 142 N</b> / AWG 18: <b>&gt; 200 N</b> / AWG 16: <b>&gt; 240 N</b> AWG 14: <b>&gt; 412.4 N</b> / AWG 12: <b>&gt; 565 N</b>
Humidity EIA 364-31B NICOMATIC requirements Method IV	Withstanding voltage sea level after Humidity: <b>360 VRMS</b> Insulation resistance after Humidity: <b>&gt;1 GΩ</b> Ten cycles, cycle duration: 24 hours (except steps 7a and 7b).
Resistance to soldering heat EIA 364-29C	Bath solder T°: <b>@260°C, 10 s</b>

\*(Between all adjacent contacts & between the shell and each peripheral contact)

# Derating chart

Nicomatic Power contacts have been tested under high current. It brings you complete derating information you may need.

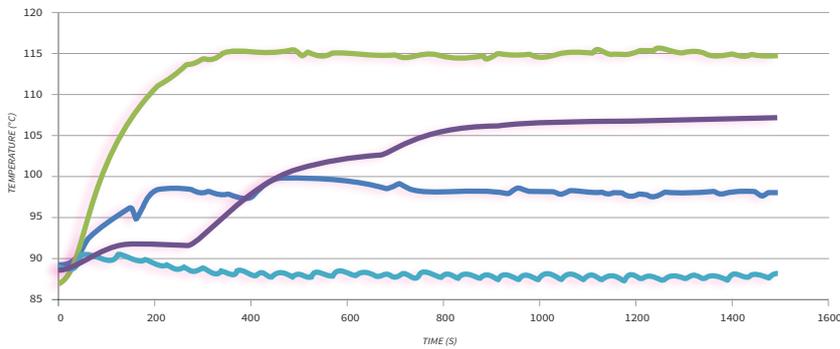
## CURRENT RATING



AT 25°C

- Ambient temp.
- DMM D420 wired - 30 contacts HP (20A)
- DMM D420 PCB(F)/cable(M) - 30 contacts HP (20A)
- DMM D420 PCB(M)/cable(F) - 30 contacts HP (20A)

## CURRENT RATING



AT 85°C

- Ambient temp.
- DMM D420 wired - 30 contacts HP (20A)
- DMM D420 CI(F)/cable(M) - 30 contacts HP (20A)
- DMM D420 CI(M)/cable(F) - 30 contacts HP (20A)

### MATERIAL



PCB

#### MALE & FEMALE CONTACT

Pin : Copper alloy /  
Ni + Au > 0.5µ  
Tail : Copper alloy /  
Ni + Au > 0.5µ



CABLING

#### MALE & FEMALE CONTACT

Body & pin: Copper alloy /  
Ni + Au > 0.5µ  
Retention clip: Copper  
beryllium / Ni > 3µ



Derating formula is the following:  
 $T^{\circ}$  raising  $\max(nbr,A) < 125^{\circ}\text{C} - T^{\circ}$  ambient

# HF

# Coax Contact

RF or high speed data  
Up to 20 Ghz

## Nicomatic High Frequency

contacts are suitable for a frequency bandwidth from 400MHz to 11GHz.

Turned in house on Swiss screw machining machines, they are then assembled with an outside clip in order to make the insertion in the housing easier.

The design and simulation of the contacts was handled as part of a strong partnership European research laboratory. We provide a full range of contacts compatible with numerous cables while keeping the same pitch and cavity design.

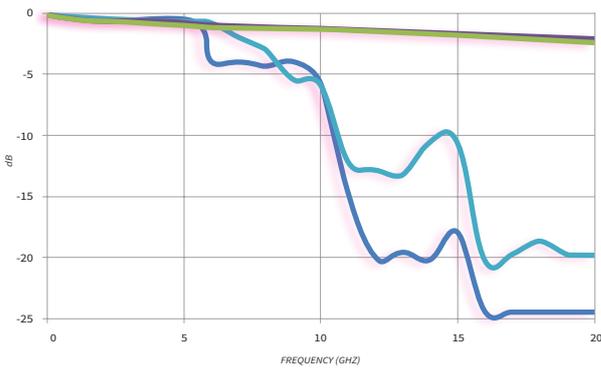
Nicomatic is now able to provide you with RF harnesses made with flexible and semi-rigid cable and delivered with a test report. By keeping the 4 mm pitch between contacts it will definitely meet high density expectations.

ELECTRICAL FEATURES	
Dielectric withstanding voltage sea level <i>EIA 364-20C*</i>	High Frequency (HF) contacts: Withstanding voltage: <b>800 VRMS</b> Rated Voltage: <b>267 VRMS</b>
Dielectric withstanding voltage high altitude (70000 ft) <i>EIA 364-20C*</i>	High Frequency (HF) contacts: Withstanding voltage: <b>150 VRMS</b> Rated Voltage: <b>50 VRMS</b>
Insulation resistance <i>EIA 364-21C</i>	High Frequency (HF) contacts: Insulation resistance: <b>&gt; 5 GΩ @500V</b>
Contact resistance <i>EIA 364-06C</i>	High Frequency (HF) contacts: Contact resistance @ 3A <b>1.17 mΩ max</b>
Magnetic permeability <i>ASTM A342/A342M</i>	Relative magnetic permeability: <b>&lt;2.0 μ</b>
Impedance	<b>50 Ω or 75 Ω</b>
Insulation resistance (between body and central)	<b>1000 GΩ @250V</b>
VSWR (stationary wave ratio)	$VSWR = (1+10^{(-Return\ loss/20)}) / (1-10^{(-Return\ loss/20)})^{**}$
Frequency range	Up to 20Ghz, please refer to the graphics
Insulation between 2 contacts	Up to -80 dB, please refer to the graphics
MECHANICAL FEATURES	
Contact engagement & separation forces <i>EIA 364-37B</i>	High Frequency (HF) contacts: Engagement Force: <b>5 N max</b> Separation Force: <b>0.5 N min</b>
Mating & unmating force <i>EIA 364-13D</i>	High Frequency (HF) contacts: Mating Force: <b>9.733 N max</b> Unmating Force: <b>1N min</b>
Contact replacement <i>EIA 364-29C</i>	Contact retention force for High Frequency (HF) contacts: Initial: <b>&gt; 22.27 N</b> After 5 replacements: <b>&gt; 22.27 N</b>
Durability <i>MIL-DTL-83513G §4,5,16 &amp; NICOMATIC requirements for HP &amp; HF</i>	DMM Connector with High Power (HF) contacts: <b>500 cycles min</b>
Crimp tensile strenght <i>EIA 364-08 20</i>	Depends of the cable, please consult us
Humidity <i>EIA 364-31B NICOMATIC requirements Method IV</i>	Withstanding voltage sea level after Humidity: <b>360 VRMS</b> Insulation resistance after Humidity: <b>&gt;1 GΩ</b> <i>Ten cycles, cycle duration: 24 hours (except steps 7a and 7b).</i>
Resistance to soldering heat <i>EIA 364-29C</i>	Bath solder T°: <b>@260°C, 10 s</b>

\* (Between all adjacent contacts & between the shell and each peripheral contact)

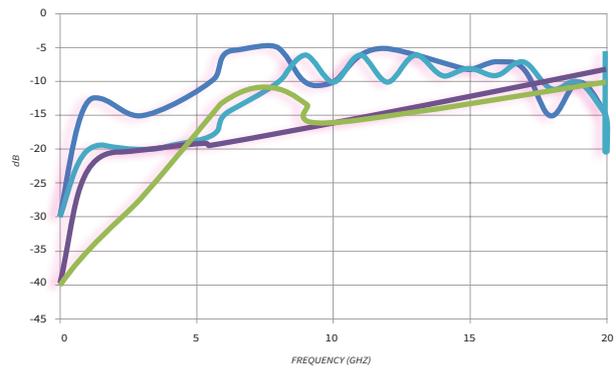
\*\* (please refer to the graphics)

INSERTION LOSS



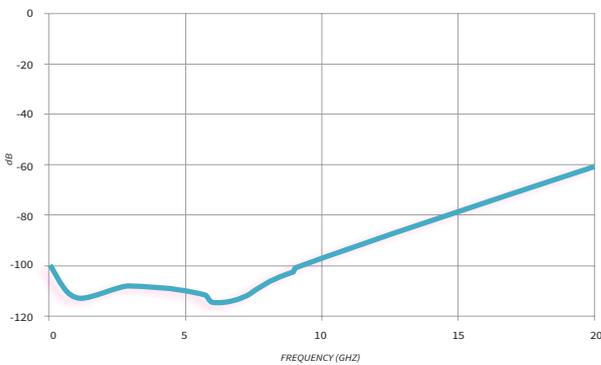
90 on pcb (thru)    Straight on pcb (thru)  
 Straight on UT-047    Straight on HFE100D

RETURN LOSS



90 on pcb (thru)    Straight on pcb (thru)  
 Straight on HFE100D    Straight on UT-047

CROSS TALK



Straight on HFE100D

VSWR

To obtain value please use:

$$VSWR = \frac{[1 + 10^{(-Return\ loss/20)}]}{[1 - 10^{(-Return\ loss/20)}]}$$

MATERIAL



PCB

MALE & FEMALE CONTACT

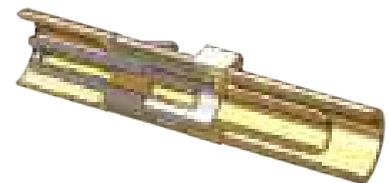
Pin : Copper alloy /  
 Ni + Au > 0.5µ  
 Tail : Copper alloy /  
 Ni + Au > 0.5µ



CABLING

MALE & FEMALE CONTACT

Body: Copper alloy /  
 Ni + Au > 0.5µ  
 Central pin: Copper alloy /  
 Ni + Au > 0.75µ  
 Dielectric: PTFE  
 Sleeve: Copper alloy / Ni 3µ  
 Retention clip: Copper  
 beryllium / Ni > 3µ



Derating formula is the following:  
 $T^{\circ} \text{raising } \max(nbr, A) < 125^{\circ}C - T^{\circ} \text{environment}$

# ALUMINIUM SHELL



**SHELL**

**ALU + NI**

*6061 + Ni20 $\mu$*

---

*DMM shell is machined in aluminum 6061, the recommended alloy for aeronautical application.*

Light and rugged, its thermal expansion coefficient corresponds to that of the insulator in order to be compatible with any intense temperature cycling.

The machining team consists of specialists experienced in working on medical PEEK prosthesis and Swiss watch cases. So yes, Nicomatic truly understands small tolerances (+/- 0.01mm).

Finishing is a special chemical nickel, more than 20 $\mu$  thickness, able to resist more than 96 hours under salt spray environment.

# 96H

*SALT SPRAY  
RESISTANCE*

# PPS INSULATOR



**INSULATOR**

**PPS**

**30%GF**



# 0%

## HUMIDITY ABSORPTION

—  
SPACE  
COMPLIANT

***Molded in PPS charged with 30% of glass fiber, the DMM insulator is proven to be highly reliable.***

This composite is one of the best material on the market regarding in terms of outgassing performance and low humidity absorption. It makes our DMM compliant with high altitude requirements and space applications.

Our manufacturing process uses an exclusive molding tool technology. Thanks to machine's modular structure, Nicomatic can produce the entire range of arrangements, from 2 to 120 cavities, as standard. Our dedicated team is able to switch configuration within two hours, which definitely contributes to more than 98% of one-time delivery ratio.

# DMM | Fixing hardware

100% of our fixings are *manufactured in house*



**FIXING**

**STAINLESS STEEL**

**316L**

*In the DMM range, fixing hardware can be mounted onto either the male or female side, the choice is yours.*

Two types of fixings are available to mate to your connection. A racking type, and a screw locking type.

Made of 316L Stainless Steel with a passivated finish, they provide superior strength and are compliant with 96 hours salt spray exposure.

We would like to remind our customers that we manufacture 100% of our fixings in-house, which allows us to offer a large range of shouldered jack-post kits which are compatible with several PCB and panel thicknesses. You will definitely find the right fixing for your application!

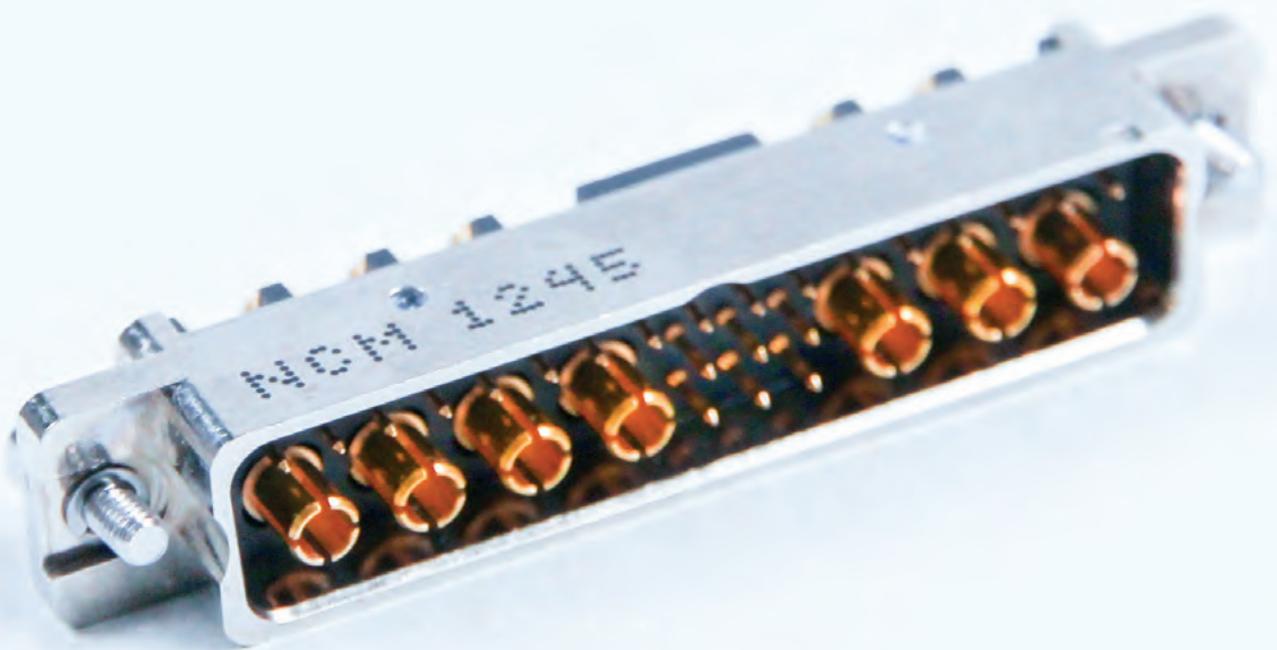
# 100%

MADE IN-HOUSE

SPECIAL KNOWLEDGE  
FOR STAINLESS STEEL



*Non standard panel thickness? Multilayer PCB? Making a custom fixing hardware is one of our top 3 inquiries ! No MOQ, price similar to a standard and part available in 6 weeks at maximum. Just send us your sketch!*



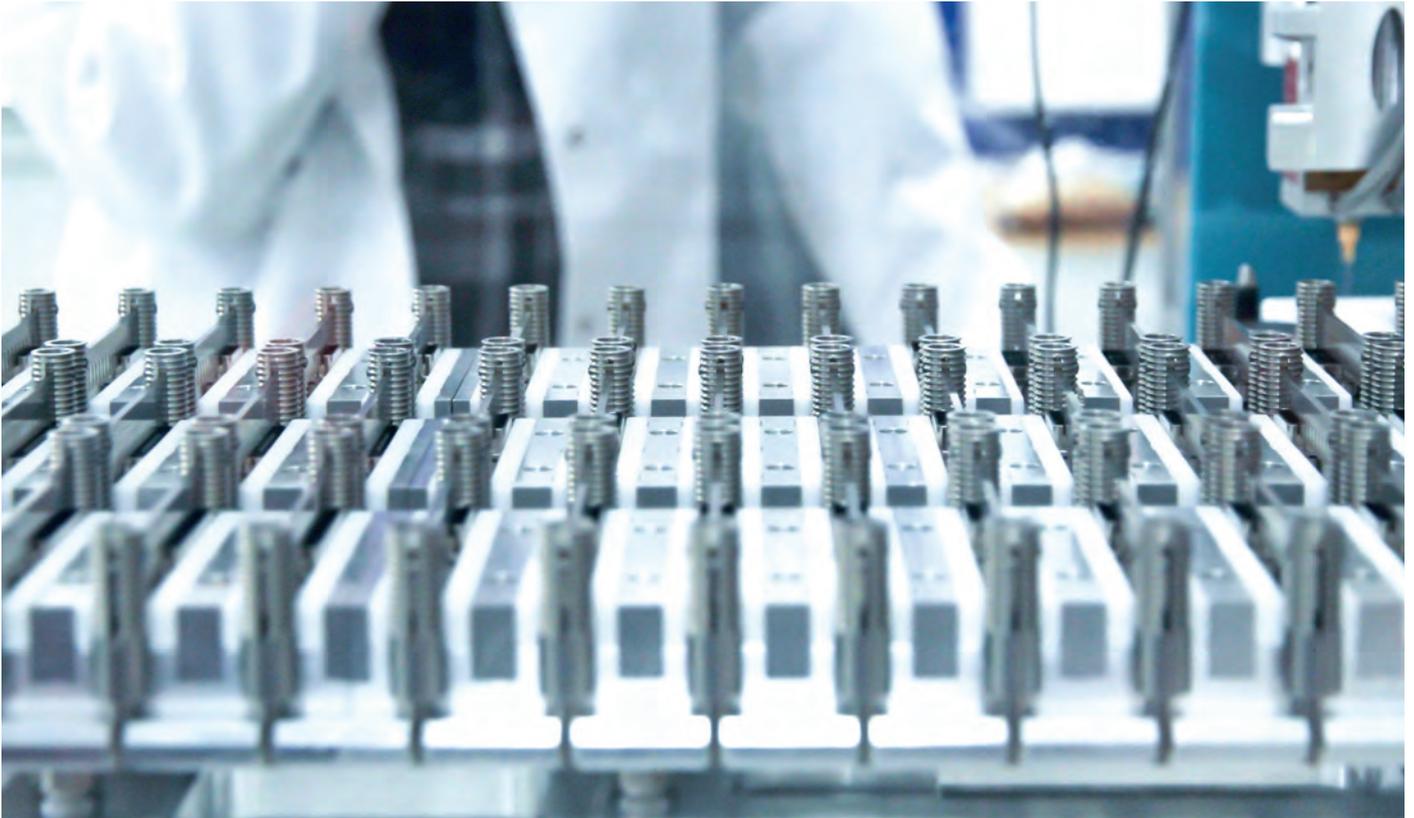
# 05

MAIN  
CRAFTS

TO PRODUCE  
DMM

# DMM / Assembly Line

We combine a major & *unique know how*



---

*Nicomatic has automated the assembly of shell and insulator.*



An epoxy resin is dispensed between the insulator and shell by a fully automated, three axis machine. After polymerization the epoxy becomes solid and acts as a mechanical key. The resulting insert retention is five times higher than the MIL-DTL-83513G requirements.



*You need a custom shape? Or want to add a personal engraving? Do you need to change your contacts layout? Or change the pitch? Contact us, we can help as part of our in-house services!*

*Skip  
tutorial*

*→ Configuration*

---

*P.44*

*Let's begin !*

# EMI / Key concerns

*Electromagnetic interference*  
*Effective shielding*

## Nicomatic Know-how

***The increasing amount of data in electronic systems can have a disastrous result if the impact of cross talk is not anticipated.***

In the event of electromagnetic interference (EMI, RFI or EMP), the cable's conductor acts like an antenna and picks up the radiated signals. The reception of this interference will inevitably affect the integrity of the initial signal. Today, data rate is increasing exponentially and high-speed protocols are omnipresent.

A proper shielding features as a key part of the design.

The backshell as a rear part of the NICOMATIC DMM MIL-DTL-83513G connector is used to secure the cable and to avoid stresses to the soldered/crimped part of the contact. It also shields against electrical interference (EMI/RFI protection) with Transfer Impedance ( $Z_t$ ) under 200mOhm from 10 KHz to 400Mhz (compliant with MIL-STD-1377 (screened cable/connector method). Made of Aluminium 6061 with chemical nickel finish, it protects from mechanical damages.

The back chimneys are designed in an ellipse shape that is fully compatible with common banding systems. Bands and clamping hand

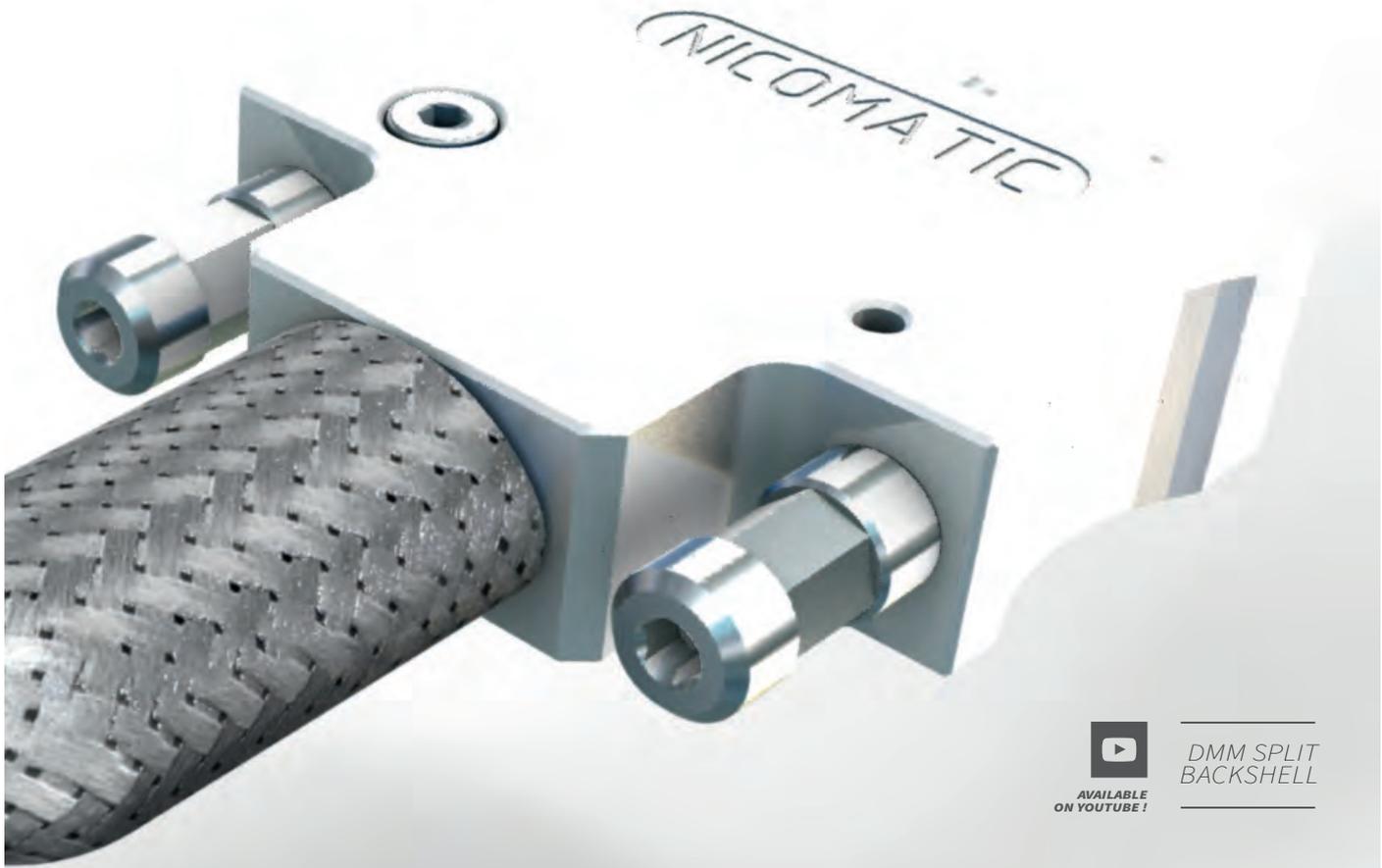
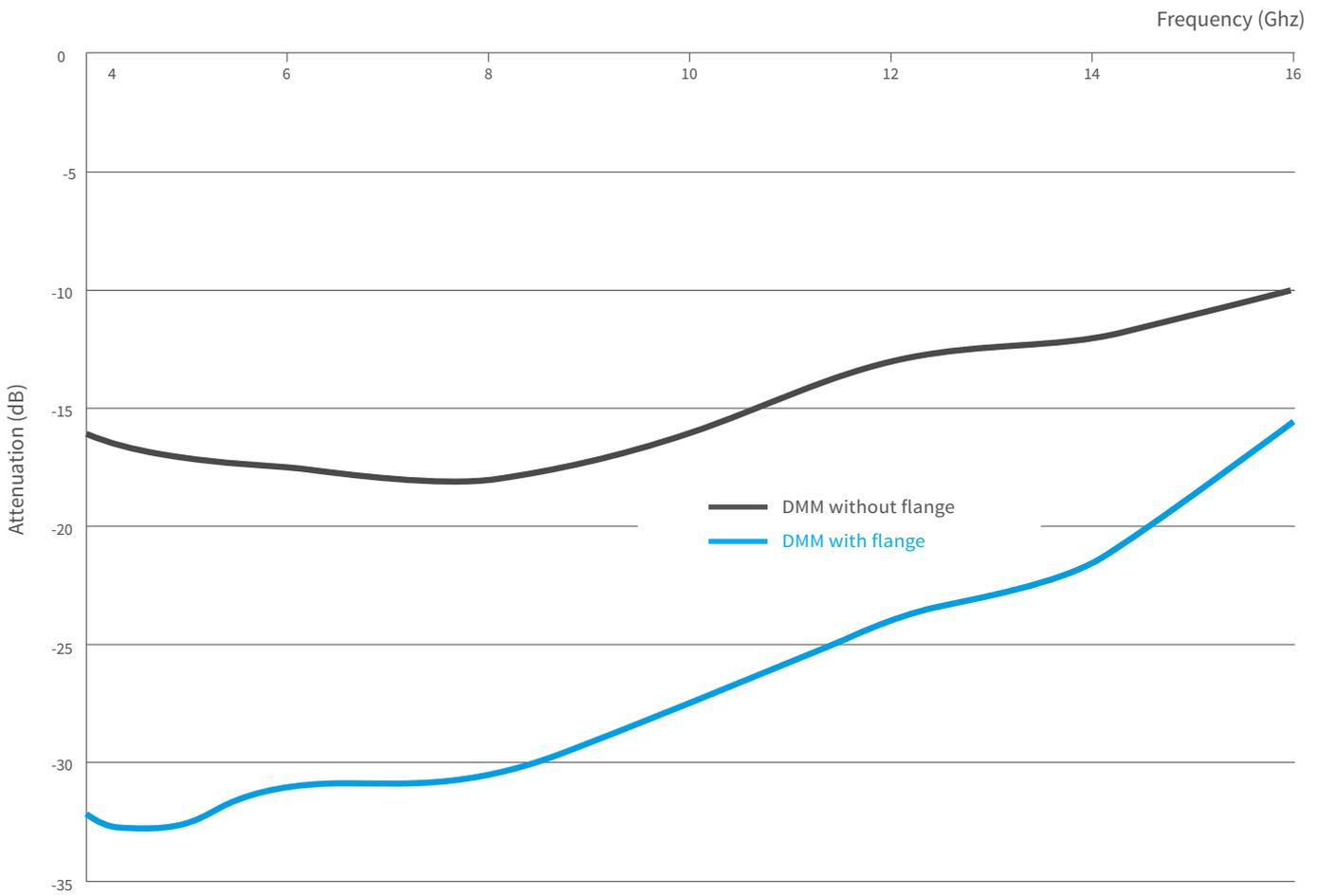
tools are available on our website. Openings allow wires to be fastened with a band clamp system and also to ground the shielding of the twisted pair cable. There are 2 backshell designs available, split and mono.

The split backshell is fully compatible with all Nicomatic DMM connectors, and designed as a two-piece shell. The fixing hardware is mounted on the connector and the locking of the two parts of the shell does not interfere with the harness which is made independently in a previous stage. This means that the hardware is quick and easy to assemble.

The mono backshell is fully compatible with all Nicomatic DMM connectors. Given that it is lighter and smaller, it is a smart and cost-effective solution for the series stage.

The flange has a strong impact on EMI performance in case of panel mounting. As it fills the space between the panel cut and the connector, it greatly improves attenuation (up to 15dB). The chart on the next page represents the attenuation according to the IEEE-STD-299-1997 (Standard Method for Measuring the Effectiveness of Electromagnetic Shielding Enclosures).

In the same way, EMI O-Ring DMM, as an evolution of the DMM flange, provides advanced performance for extreme requirements. For more information, please consult our "Exclusive DMM pages". (P.76)



 **DMM SPLIT BACKSHELL**  
AVAILABLE ON YOUTUBE!

# Metalised composite

Lighter - Cost control  
Rugged body armor

# DLMM

Large EMI protection  
Lead-time 3 weeks



## Alternative solution

**Today, Nicomatic can offer you the best of the innovation on micro-modular connector market. A metalized composite MicroD connector:**

**The DLMM.**

We all know that every ounce in weight matters and our DLMM is definitely lighter than an aluminium connector. It actually weighs 20% less than the DMM and 40% less than a Backshell. How to achieve such high performance? We use an ULTEM composite shell, which also helps to reduce the cost of manufacturing and is less expensive than a standard MicroD connector and

reduces the lead time up to 3 weeks. Indeed, metalization acts as a strong body armor to protect the DLMM.

Qualified in compliance with MIL-DTL-83513G and tested under radio frequency interferences. Thanks to its copper under-layer, it guarantees high EMI protection, identical to our standard DMM.

Cu  
+ Ni

1 STOCKED SHELL

- Size 10 ○
- Size 16 ○
- Size 22 ○
- Size 26 ○
- Size 32 ○

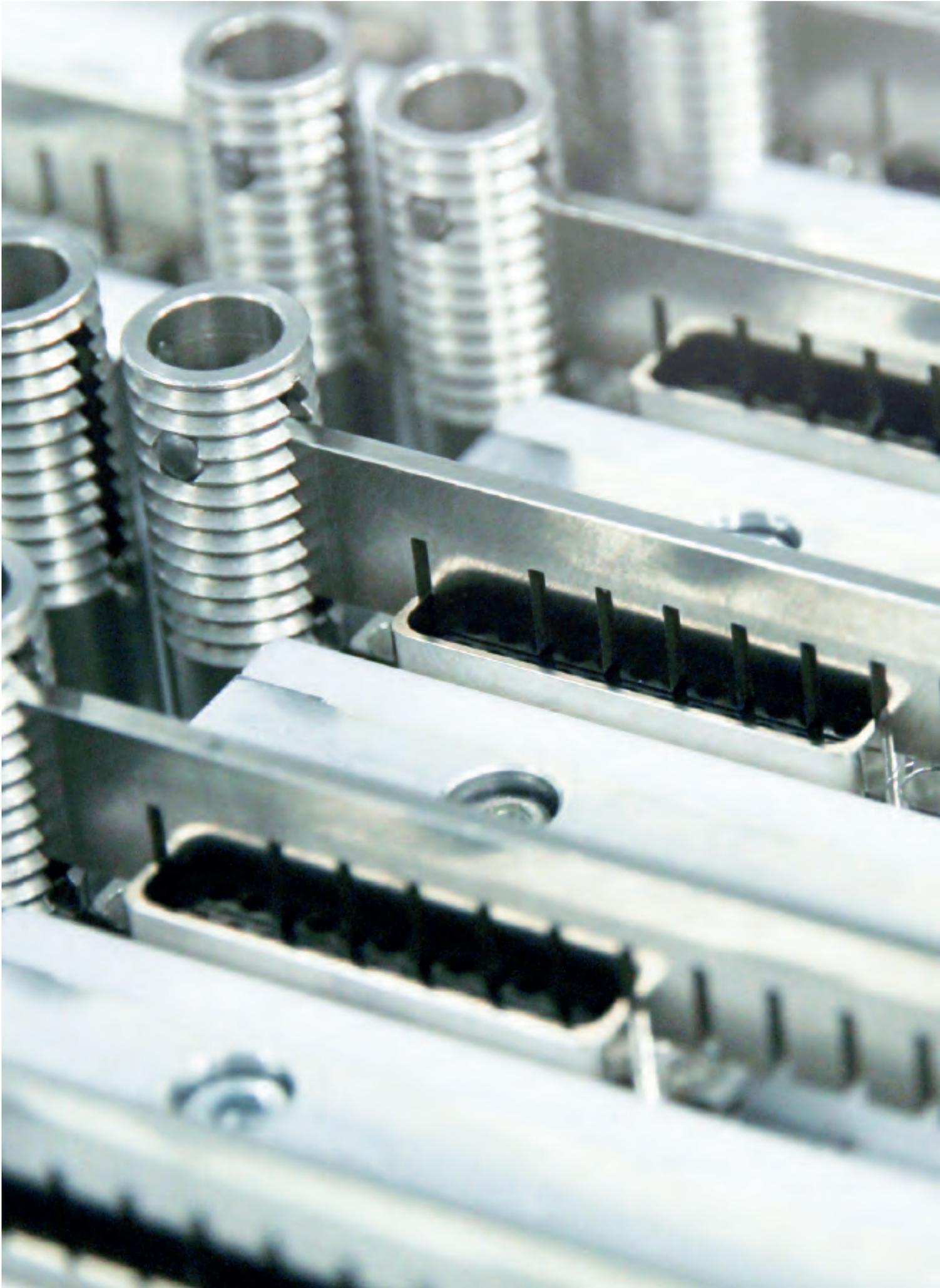
2 LAYOUT EXAMPLE



← DLMM WITH THESE STOCKED SHELLS ARE AVAILABLE IN 3 WEEKS

Other 2 row

shell arrangements are available in 6 weeks.





NICOMATIC  
**INSIDE**

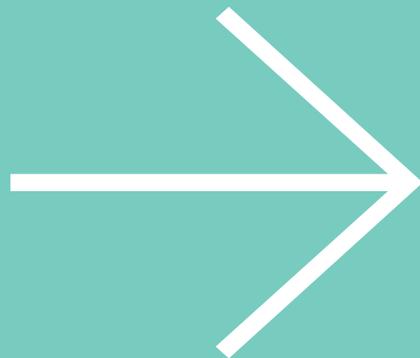
# ALL MADE IN HOUSE

*QUALITY WITHOUT COMPROMISE*

# *Super Humans*

---

*Behind success  
there are talent  
& involvement*



*With Elodie*

# Screw- machining specialist

Without doubt, contacts & fixings are some of the most crucial parts of a connector. We met with Elodie, one of our young screw-machining specialists.

## Inside Nicomatic

As an expert in Mechanics and Mathematics, a screw machinist is a specialist who can make various kinds of miniature pieces used in different sectors characterised by harsh environments:

Aeronautics, automotive, electronics, optical, medical etc.

This profession requires a high degree of precision and good work methods. Screw machinists make real elements and products from drawings. They turn the ideas of the engineers into reality. It's impressive to see how they transform raw materials into real products: From a steelbar to a connector fixing for example.

Like engineers who develop users' environments to offer the most suitable solution, machining operators need to take into account all external environments in order to produce the perfect parts.

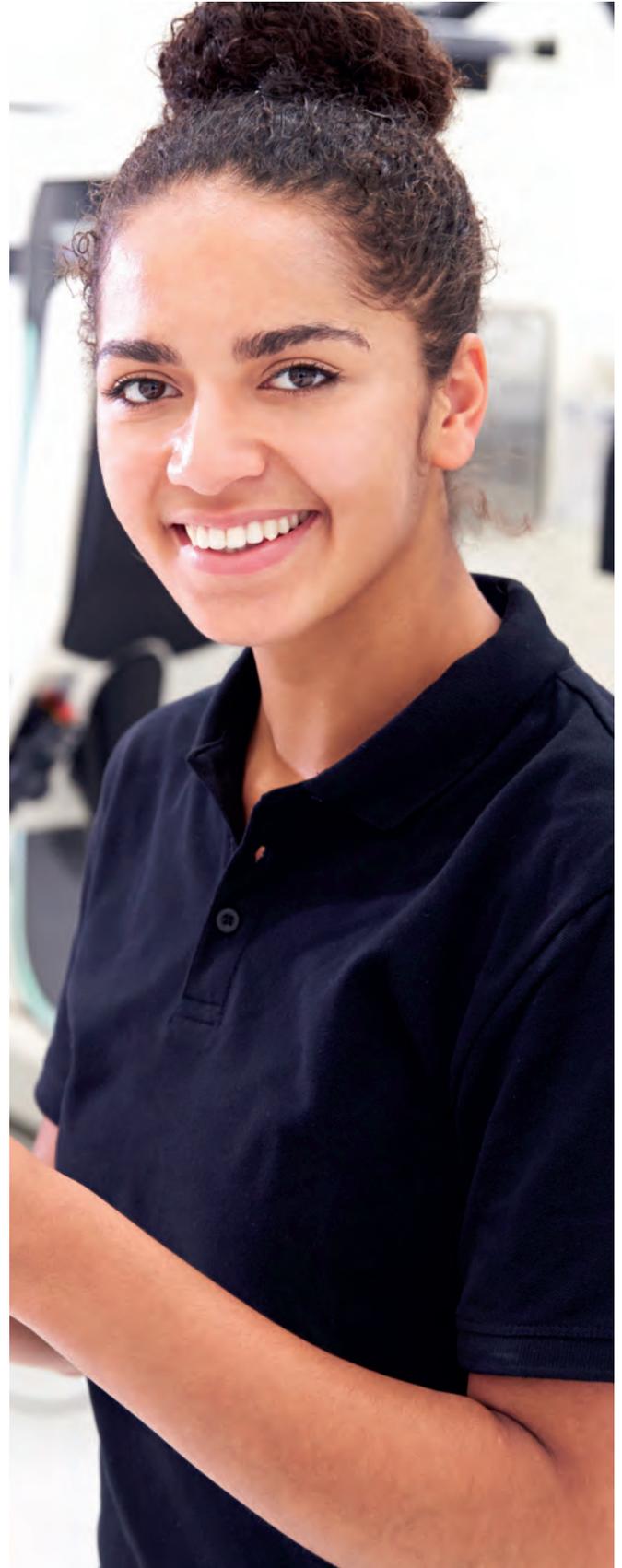
This kind of precision has always interested Elodie, our young machining operator: "My dream is to become screw machining expert and easily produce all kind of miniature parts and help other

people to learn this profession.

I arrived few years ago as a young operator on combined work-study contract. I learned among passionate people who shared their experience and skills with me every day. However, given that I had just finished my studies in microtechnology and my team members had at least 10 years of experience in this domain, it was very difficult at the beginning. I had to work hard to establish myself and gain recognition in the male-dominated world of screw machining and even from my team. In my team, I think we are all equal, we wear the same shirt, we work on the same machines and we can count on each other."

I'm very confident for my future. I would like to continue developing among the best specialists to help other new arrivals like myself a few years ago, to teach them my know-how and tips for screw machining."

Elodie F.



*"Learn among  
leading experts!"*

**24**

**YO**

→ 4 YEARS

AT NICOMATIC



" If you want to achieve excellence, you have to surround yourself with an excellent team. "



" The pieces we manufacture are so tiny, it demands the highest standards and precision. "

With Priscilla

# Machining manager

A plant is a never-ending procession, livened up by the coming and going of people and activities. To manage this continual flow and maintain a very high level of quality and performance, we need different talents and strong personalities. Let's meet Priscilla, manager of the screw machining department.

## Inside Nicomatic

Technology studies were an obvious choice for me. Since I was a kid, I have always loved complex devices and electronics and handling them. Today I have lost count of how many alarm clocks, radios and other electronic devices that I have taken apart and assembled again, not always successfully. It drove my parents crazy! Technology was and still is my passion! That's why I chose my studies curriculum/orientation in industrial design of electronics and micro-technology. First I discovered a magic world of extraordinary machines and high tech. I was particularly interested in high tech and innovation.

This is good news for me, given that we produce the following fabulous products in the machining department: miniaturised elements that are the fruit of hours of work and thinking beforehand, involving the entire team. The teamwork and human relations is the second passion I discovered during my studies. Being naturally curious and because I needed a summer job, I obtained a summer camp activity leader certification (BAFA/BAFD). This gave me the basic elements I needed for project and team management and the desire to associate both management and technology in my professional life. That's why I chose to do a master's degree in Industry management. As a woman, it is often difficult to find our place in the male-dominated world of

industry. We have to prove our expertise and work 3 times harder at it. However, even if there are not many women in this profession, they show that the passion for the work is not related to gender! It proves that if we like our job and want to use our expertise in the industrial sector, we can do it. Because the world is changing and people's visions are, too. Here, at Nicomatic, the general mindset had changed even before my arrival. Today I'm proud to be a woman and a young manager, that I was trusted to manage 3 mini-plants on Nicomatic's production line.

For me, being a manager means being demanding with myself before being demanding with others. Details are very important as we are producing elements for very challenging and secure environments. We have to keep an eye on everything to avoid any errors. However being manager is also about coaching our teams. We should be present when people need us and help them achieve their personal aspirations. As success cannot be achieved without a team and talented people.

If I would like my team to give the best of themselves, I should be exemplary in their eyes, live with them, be close to them, listen to their needs, understand their problems and make their lives easier. For me the human aspect is a key part of success of our organization.

Priscilla R.



"A real token of trust"

27

YO

→ 6 YEARS

AT NICOMATIC



" One of our days: the manager's role is to coach his team and to help them to adapt to the continuously changing world. "



"If I want my team to give the best of themselves, I have to be exemplary in their eyes, live with them, be close to them, listen to their problems and make their lives easier. For me the human factor is the key to the success of our organisation."

# EN 9100

## Standard of excellence

*Quality without compromise  
Dedicated to exception*

**In order to meet requirements of the such safety-conscious industries as the aerospace and defense sectors, we are committed to EN9100 & ISO 9001 certification to build our quality system.**

Strict quality control of all steps from product design to delivery guarantees our clients compliant products that are adapted to their needs and industry requirements.

This quality standard is one of the most demanding and difficult schemes to put in place and respect in daily operations. Nicomatic however were certified from the creation of this quality system management standard (2009).

Thanks to the high standard of Nicomatic's organisation, it can focus on ensuring the highest quality and specifications of its products and services. As for us, excellence cannot be attained by making concessions. We continue progressing and improving our organisation to offer the best of ourselves to all our customers.

All Nicomatic employees are experts; they are delighted to show their work and their know-how to all our customers. We are trying to create a favourable environment for them to work in, build new solutions together and fulfill their professional dreams. Consequently, this year we renewed our certification (new 2016 version).

#### *What's different?*

Some domains were reinforced in the standard certification such as:

- Supply chain and purchasing. We are building and managing long term relationship with not only our customers but also with our suppliers and intermediaries.
- Anti-Counterfeiting. We make excellent products with secure, REACH & ROHS raw materials. We work alongside our suppliers to continuously improve our common creations and quality.
- Human factor and skills. This factor is in the centre of our organisation. We pay particular attention to the human skills to capitalising on human skills and developing talent. We also work to minimize human error risks management.

Obtaining the new version of this certification was a challenge for Nicomatic and its teams in 2017. However we didn't hesitate to take up this challenge. Why?

Because innovation is a part of our genetic make-up and we have a pioneer spirit to be listed among first companies getting this certification. So we started this new challenge and worked hard together to improve our organization and get the certification.

Today people are very proud of their common success.



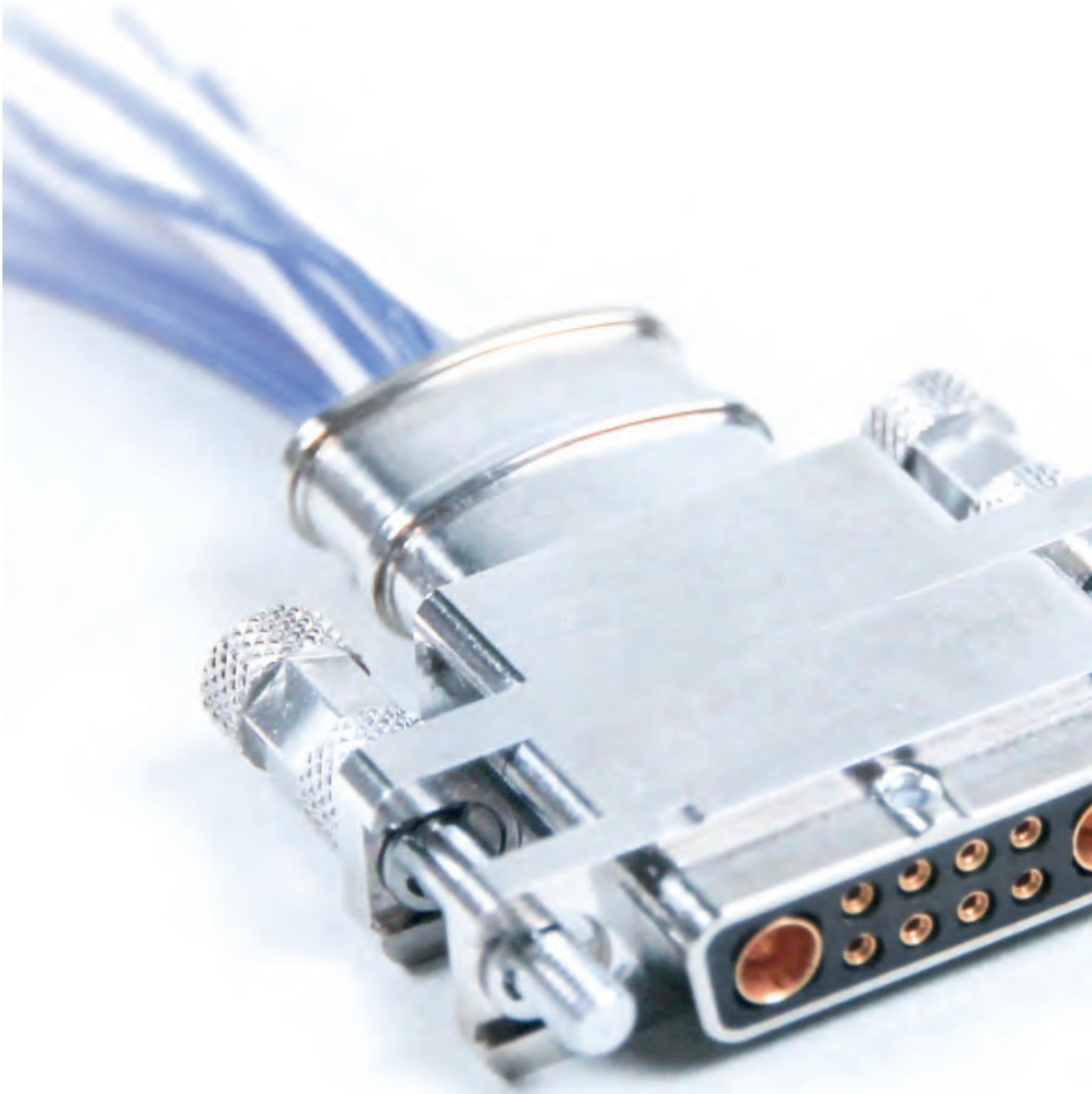
SINCE

**2009**

NEW VERSION

**2017**

CERTIFIED



DMM  
**RANGE**

# CONFIGURE YOUR SOLUTION

**BUILD YOUR PART NUMBER**



**ALL OUR  
ENGINEERS  
SUPPORT YOU**

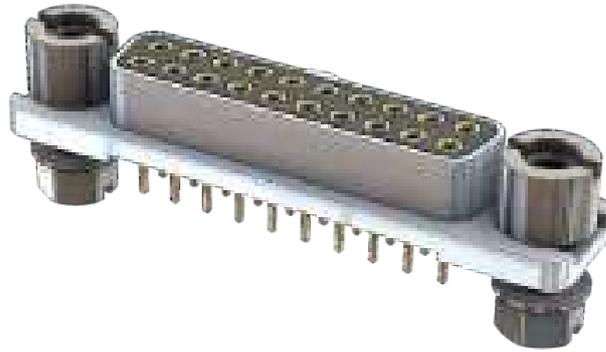
*We bring you concrete tips.  
Save time, gain more value,  
with less stress.*



# DMM | Product range

## P52

STRAIGHT PCB



### FEATURES

Thru-hole or SMT terminations  
PCB from 0.8 to 3.2mm

A

 COLOR CODE

## P58

90° PCB



### FEATURES

Thru-hole or SMT terminations  
Compact

B

 COLOR CODE

## P64

FOR CABLING



### FEATURES

Insertable/removable contacts  
Compatible w/ backpotting

C

 COLOR CODE

EXCEED YOUR EXPECTATIONS

5M+

CONFIGURATIONS AVAILABLE

# P70

**PRE-WIRED**



### FEATURES

Choose your length  
Backpotting option

**D**    
COLOR CODE

# P72

**BACKSHELL**



### FEATURES

Major accessories for  
proper shielding

**E**    
COLOR CODE

# P76

**EXCLUSIVE**



### FEATURES

Standard solution for  
specific needs

**F**    
COLOR CODE

# DMM | Good to know

## WE DON'T LEAVE YOU BEHIND

USEFUL INFORMATION TO KNOW BEFORE DESIGN

### → TRACABILITY

100 % of our connectors are marked with a high resistance white ink indicating the batch number

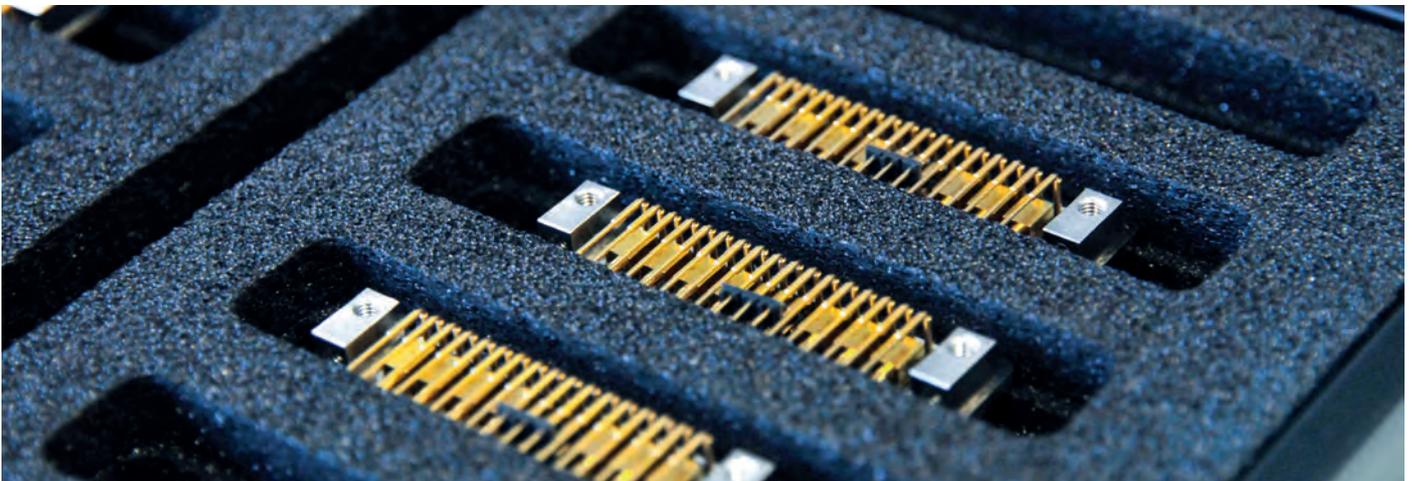


**EXAMPLE**  
AA(Year): 2015  
SS(Week): 06

#### MARKING

NCM = Nicomatic™ brand  
AASS = year + week batch

### → PACKAGING



Our connectors are delivered in a high quality plastic tray, snapped in black foam.  
Contacts and fixing hardware corresponding to the number of connectors are included, packaged in labeled plastic bags.  
A clipped transparent cover with a label, ensures an easy identification, manipulation and warehousing.

## → POLARIZATION KEYS

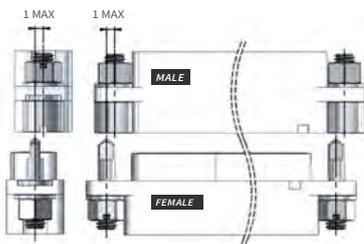
You can adjust the position of the key to guarantee a unique and independent mating in case of a multi connection interface

Code	Localisation	Distance from the fixing hardware (mm)	View	Code	Localisation	Distance from the fixing hardware (mm)	View
∅	Central up		 D222SP08DXX	Code added at the end of the PN			
K1	First contact side, up	7	 D222SP08DXX - K1	K3	Last contact side, down	7	 D222SP08DXX - K3
K2	First contact side, down	7	 D222SP08DXX - K2	K4	Last contact side, up	7	 D222SP08DXX - K4

## → MISALIGNMENT & KINEMATICS

Realignment capabilities and mating sequence for a racked configuration with guided pins.

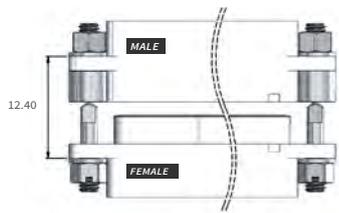
### MISALIGNMENT



1

→ Axial Realignment Capabilities  
1mm max in both axis

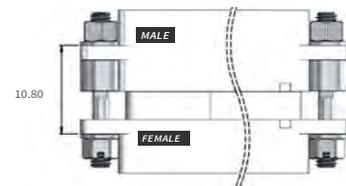
### GUIDED



2

→ Guiding sequence  
guides entering in contact

### RAILED



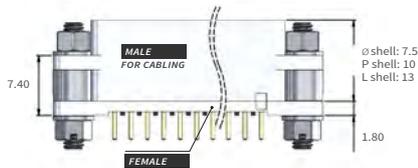
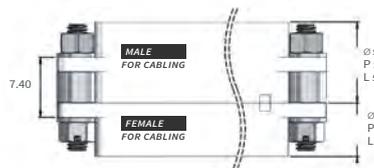
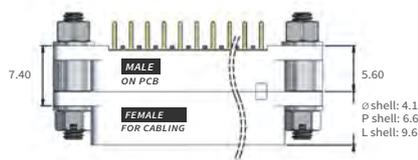
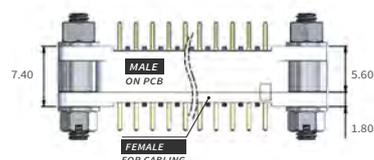
3

→ Railing sequence  
shells entering in contact

## → OVERALL DIMENSION

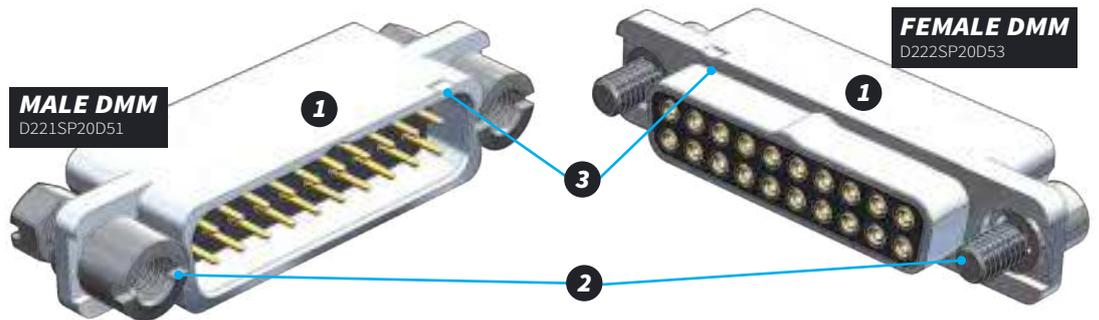
Racking configuration and locked configuration

### MATED



→ Overall dimension  
once mated for both racking configuration and locked configuration

# CONFIGURE YOUR DMM



PRODUCT FAMILY 	
<b>P52 A</b>	STRAIGHT PCB
<b>P58 B</b>	90° PCB
<b>P64 C</b>	FOR CABLING
<b>P70 D</b>	PRE-WIRED
<b>P72 E</b>	BACKSHELL

1- GENDER		2- FIXING HARDWARE		3- FIRST CONTACT MARK	
<b>MALE</b>	With male contacts	<b>MALE</b>	Can be racking or screw locking type	<b>MALE</b>	1st contact always on the right side
<b>FEMALE</b>	With female contacts	<b>FEMALE</b>	Can be racking or screw locking type. Both can be receptacle or pin type	<b>FEMALE</b>	1st contact always on the left side
<b>→</b>	<b>NOTES</b> All the product families are matable with each other 	<b>→</b>	<b>NOTES</b> if one fixing is receptacle the mating fixing must be pin type	<b>→</b>	<b>NOTES</b> Marks matched together once mated

Part numbering							
Flange & row	Gender	LF contact type	LF contact nbr	Fixing	Serie 30 contacts nbr		Serie 30 contact
D10 1row	1 Male	Refer to your connector type page	nn(n) Contact number	Refer to your connector type page	yy number side FIRST	zz number side LAST	Refer to your connector type page
D22 2rows	2 Female						
D32 3rows							
D42 4rows							
DF10 Flange 1row							
DF22 Flange 2rows							
DF32 Flange 3rows							
DF42 Flange 4rows							
DL22 Metalized Composite 2rows							

**In case of**

locked mating we recommend to screw each fixing one rotation at a time to avoid stress on contacts and connectors.

**We usually advise**

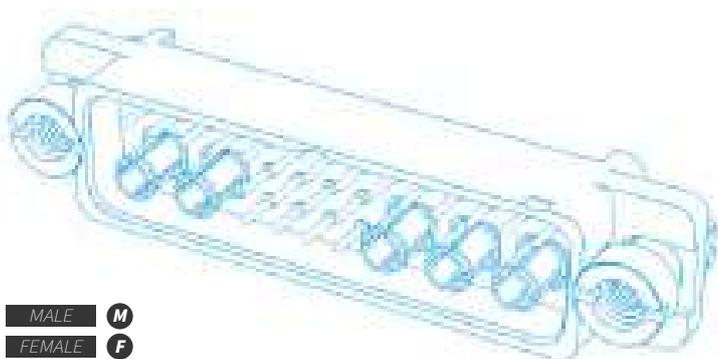
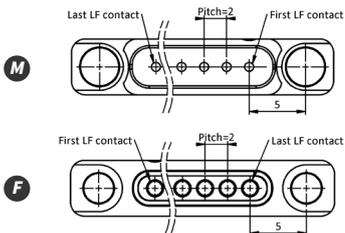
to use the female connector from power side. It avoids any short circuits or accident when unmated.



**TIPS**

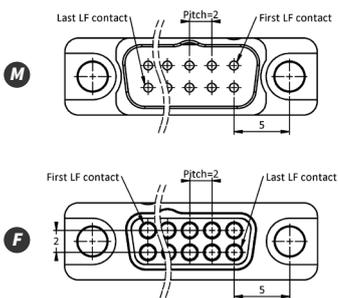
# → DMM LAYOUTS

## D100 ▶ LF CONTACTS

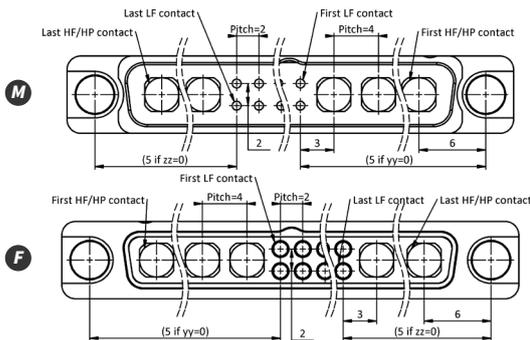


MALE **M**  
FEMALE **F**

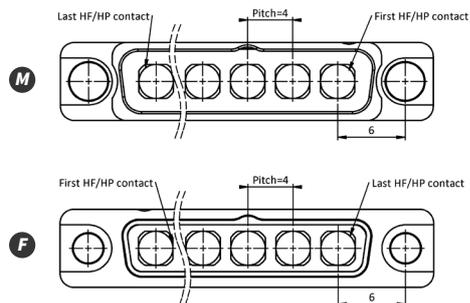
## D220 ▶ LF CONTACTS



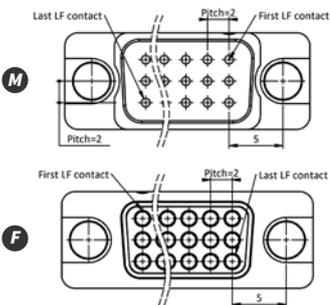
## ▶ MIXED



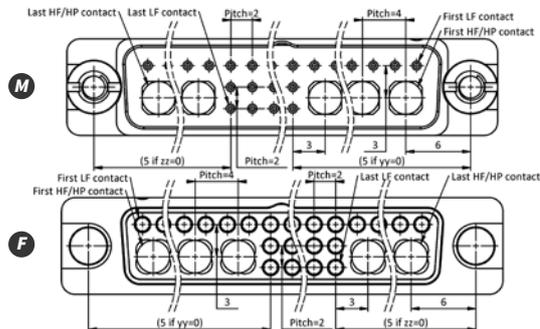
## ▶ HP OR HF CONTACTS



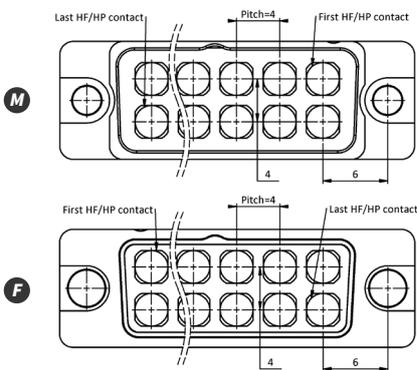
## D320 ▶ LF CONTACTS



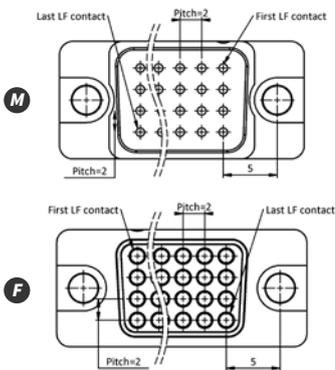
## ▶ MIXED



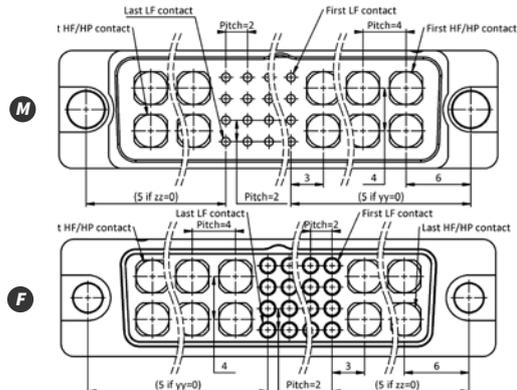
## ▶ HP OR HF CONTACTS



## D420 ▶ LF CONTACTS



## ▶ MIXED



Dimension table		12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	
LF contact number	row = 1	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	row = 2	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	
	row = 3	006	009	012	015	018	021	024	027	030	033	036	039	042	045	048	051	054	057	060	063	066	069	072	075	078	081	084	087	090	
	row = 4	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	084	088	092	096	100	104	108	112	116	120	
	⊙	In term of dimension, a High power (HP) contact or a High frequency (HF) contact, corresponds to 4 signal contacts (LF)																													

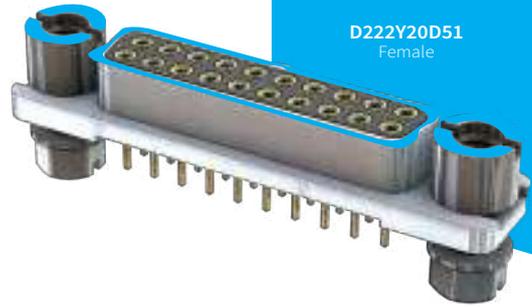


Free 3D & 2D drawings

Put it together on our DMM product page  
 Feel free to use our builder to check the available configuration  
 → [nicomatic.com](http://nicomatic.com)

**A**

D222Y20D51  
 Female



# DMM

# Straight PCB

Thru hole or SMT terminations  
 PCB from 0.8 to 3.2 mm

Racking or locked fixing hardware  
 Mixed layout

Part numbering								
Flange & row	Gender	LF contact type	LF contact nbr	Fixing	High power & High frequency contacts			
<b>D10</b> 1 row	<b>1</b> Male	<b>Y</b> Thru hole 3mm	<b>nn(n)</b> Contact number	<b>Locked fixing</b>	if Signals (LF) contacts only			
<b>D22</b> 2 rows	<b>2</b> Female	<b>YL</b> Thru hole 4.5mm		<b>D51#</b> Jackpost up to 3.2mm	<b>-yy</b> number side FIRST	<b>zz-</b> number side LAST	<b>High Power contacts</b>	
<b>D32</b> 3 rows		<b>T</b> SMT		<b>D55#</b> Jackpost Rear panel 0.5 to 2mm			<b>3300DMM</b> Male 3mm	<b>4300DMM</b> Female 3mm
<b>DF42</b> 4 rows		<b>D</b> Used if no LF		<b>D53</b> Jackscrew CHC			<b>330045</b> Male 4.5mm	<b>430045</b> Female 4.5mm
<b>DF10</b> Flange 1row				<b>D61</b> Jackscrew			<b>High Frequency contacts</b>	
<b>DF22</b> Flange 2 rows				<b>Racked fixing</b>			<b>1300DMM</b> Male 3mm	<b>2300DMM</b> Female 3mm
<b>DF32</b> Flange 3 rows				<b>D64#</b> Socket up to 3.2mm			<b>130045</b> Male 4.5mm	<b>230045</b> Female 4.5mm
<b>DF42</b> Flange 4 rows				<b>D65#</b> Socket Rear panel 0.5 to 2mm				
<b>DL22</b> Metalised Composite 2rows				<b>D63#</b> Guide pin				

→ EXAMPLES



<b>D221T20D51L</b>	<b>D322Y022D51-0302-2300DMM</b>	<b>D421D000D53-0012-330045</b>
Reference	Reference	Reference
<i>SMT</i>	<i>Mixed</i>	<i>Power</i>

Flange & row				
Flange & row	Gender	W = Width (mm)	Flange	View
D10	1	5	Without	
D22	2	7		
D32	3	9		
D42	4	11		
DF10	1	6.4	With	
DF22	2	8.4		
DL22	2	8.4		
DF32	3	10.4		
DF42	4	12.4		



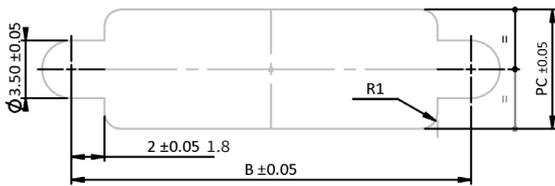
### Check all

The advantages provided by the flange in the dedicated paragraph (EMI page)

### There, you will

find all the dimensions of your model on the 3D and 2D drawings.

### REAR PANEL CUTOUT

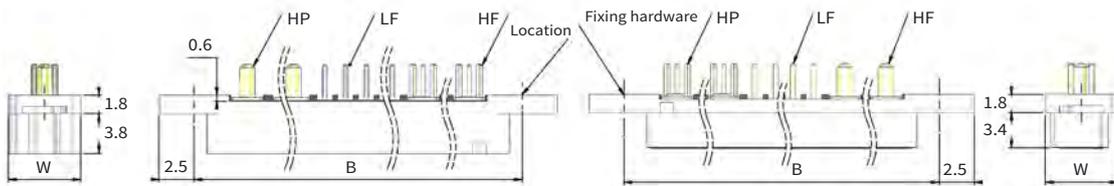


PC=  
 5.2 FOR 1 ROW  
 7.2 FOR 2 ROWS  
 9.2 FOR 3 ROWS  
 11.2 FOR 4 ROWS

All dimensions are in mm

### Y TYPE MALE

### Y TYPE FEMALE



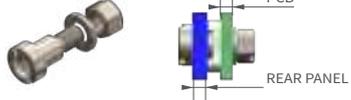
Dimension table	
B=Distance between fixings (mm)	12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68
LF contact number	row = 1 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
	row = 2 04 06 08 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60
	row = 3 006 009 012 015 018 021 024 027 030 033 036 039 042 045 048 051 054 057 060 063 066 069 072 075 078 081 084 087 090
	row = 4 008 012 016 020 024 028 032 036 040 044 048 052 056 060 064 068 072 076 080 084 088 092 096 100 104 108 112 116 120
⦿ = ●	In term of dimension, a High power (HP) contact or a High frequency (HF) contact, correspond to 4 signal contacts (LF)

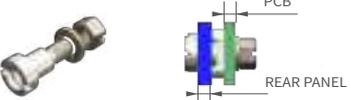


More contacts? Multi cavities? Please contact us.

## → FIXING HARDWARE

All fixing hardware is compatible with male and female connectors

		Locked mating		→ SCREW LOCKING FOR THE MOST SECURE CONNECTION			
Code	Description	#= PCB thickness (mm)		#=Rear panel thickness (mm)		Torque (Nm)	View
D51#	Jackpost	∅	0.8 to 1.6			0.4	→D51 
		L	1.6 to 3.2				
D55##	Jackpost with rear panel	∅	0.8 to 1.6	A	0.5	0.4	→D55D 
				B	1		
		L	1.6 to 3.2	C	1.5		
				D	2		
D53	Jackscrew Hex-type	These jackscrews are compatible with all the locked type jackpost fixings				0.3	→D53 
D61	Jackscrew						→D61 

		Racked mating		→ GUIDED FIXING FOR AN ACCURATE ALIGNMENT			
Code	Description	#= PCB thickness (mm)		#=Rear panel thickness (mm)		Torque (Nm)	View
D64#	Guide socket	∅	0.8 to 1.6			0.4	→D64L 
		L	1.6 to 3.2				
D65##	Guide socket with rear panel	∅	0.8 to 1.6	A	0.5	0.4	→D65B 
				B	1		
		L	1.6 to 3.2	C	1.5		
				D	2		
D63#	Guide pin	∅	0.8 to 1.6	This guidepin is compatible with all guided sockets		0.4	→D63 
		L	1.6 to 3.2				

## → BULK ACCESSORIES

Reference	Description	View	Reference	Description	View
17267	M2.5 Nut		16255	Washer	

Bulk kits for fixing hardware can be delivered on request.



- In case of thicker PCB, we can easily manufacture longer fixings.
- If one connector is mounted with a jackpost fixing, its mating must be mounted with a jackscrew fixing.
- If one connector is mounted with guide socket fixing, its mating must be mounted with guide pin.
- Fixings are delivered mounted on the connector.
- A controlled torque screw driver kit is available, please refer to the tooling page.

## → CONTACTS ARRANGEMENT

Row	Gender	LF contacts		HP contacts		HF contacts	
		Thru hole	SMT	Thru hole	SMT	Thru hole	SMT
1	1						
	2						
2	1						
	2						
3	1						
	2						
4	1						
	2						

## → SIGNAL CONTACT

Code	Gender	Type	Amperage (A)	Data rate (Gbits/s)	Length (mm)	PCB thickness (mm)	View
Y	1	Thru hole	Up to 5	Up to 5	3	Up to 2	
YL					4.5	Up to 3.2	
YM					5.1		
YX					9.1		
YC	2				1.2	Up to 2	
Y					3	Up to 2	
YL					4.5	Up to 3.2	
T	1	SMT					
D	Used if no LF						



A gold layer over the PCB contact tails represents less than 3% of the soldering volume. Please consider it before removing gold.

## → HIGH POWER CONTACT (HP)

#=3 Male HP contact for male connector			#=4 Female HP contact for female connector				
Code	Reference	Type	Amperage (A)	PCB thickness (mm)	Length (mm)	View	
#300DMM	30-#300-DMM	Thru hole	Up to 30A	Up to 2	3		
#330045	30-#300-45			Up to 3.2	4.5		

## → HIGH FREQUENCY CONTACT (HF)

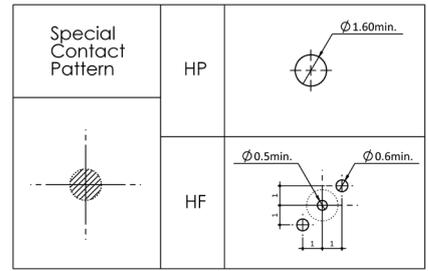
#=1 Male HF contact for male connector			#=2 Female HF contact for female connector				
Code	Reference	Type	Impedance (A)	Frequency range	PCB thickness (mm)	Length (mm)	View
#300DMM	30-#300-DMM	Thru hole	50	Up to 20GHz	Up to 2	3	
#330045	30-#300-45				Up to 3.2	4.5	



Longer contacts? up to 15mm? Different finishing? Screw machining is part of the historical know-how of Nicomatic and we can offer a large range of customization.

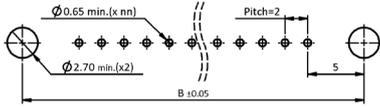
# → THRU HOLE TYPE PCB LAYOUT

FIRST CONTACT IS ON THE RIGHT SIDE FOR THE MALE CONNECTOR & ON THE LEFT FOR THE FEMALE CONNECTOR



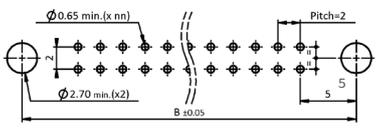
## 1 ROW

▷ LF CONTACTS

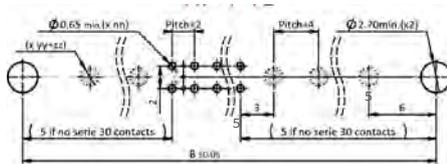


## 2 ROWS

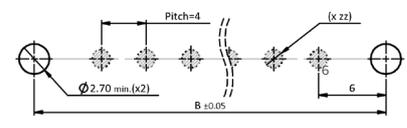
▷ LF CONTACTS



▷ MIXED

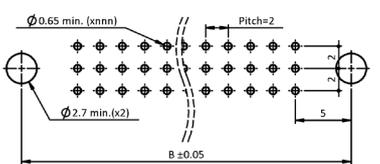


▷ HP OR HF CONTACTS

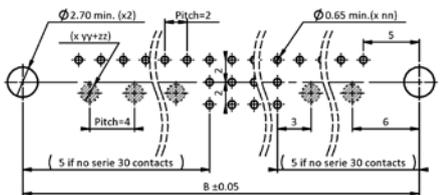


## 3 ROWS

▷ LF CONTACTS



▷ MIXED

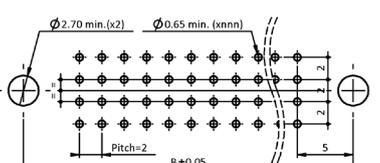


▷ HP OR HF CONTACTS

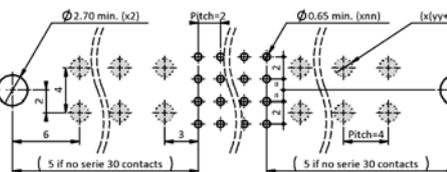


## 4 ROWS

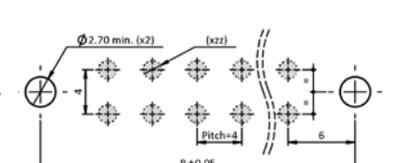
▷ LF CONTACTS



▷ MIXED



▷ HP OR HF CONTACTS



Dimension table		12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	
LF contact number	row = 1	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	row = 2	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	
	row = 3	006	009	012	015	018	021	024	027	030	033	036	039	042	045	048	051	054	057	060	063	066	069	072	075	078	081	084	087	090	
	row = 4	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	084	088	092	096	100	104	108	112	116	120	
		In term of dimension, a High power (HP) contact or a High frequency (HF) contact, correspond to 4 signal contacts (LF)																													

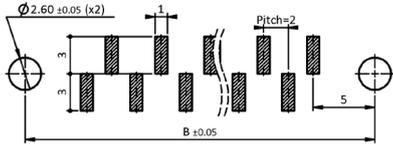


D53 and D61 fixing hardware are compatible with PCB mounting.  
Fixing hardware cutout diameter becomes 4.20 mm instead of 2.70 mm.

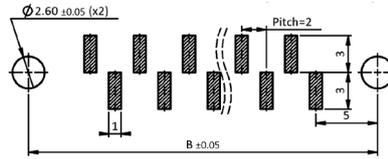
# → SMT PCB LAYOUT

FOR LF CONTACTS ONLY

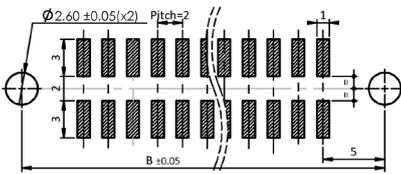
## 1 ROW DMM TTL (MALE)



## DMM TTL (FEMALE)



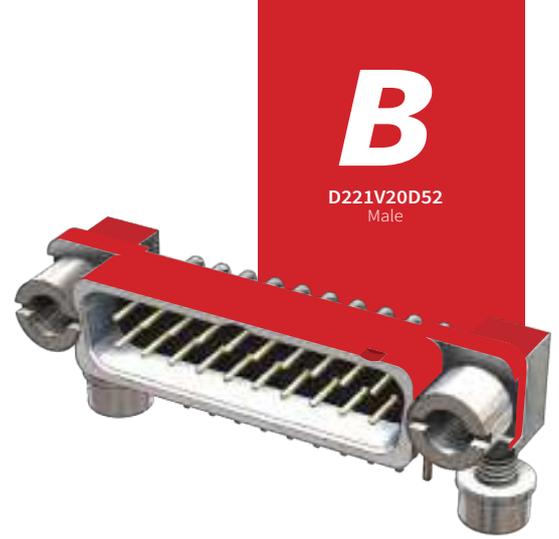
## 2 ROWS





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 → [nicomatic.com](http://nicomatic.com)



# DMM

90°  
PCB

Thru hole or SMT terminations  
Compact

Racking or locked fixing hardware  
Mixed layout

Part numbering								
Flange & row	Gender	LF contact type	LF contact nbr	Fixing		High power & High frequency contacts		
D10 1row	1 Male	V Thru hole 3mm	nn(n) Contact number	Locked fixing	Racked fixing	if Signals (LF) contacts only		
D22 2 rows	2 Female	VL Thru hole 4.5mm		D60# Jackpost 1row up to 3.2mm	D71# Socket 1 row up to 3.2mm	yy number side FIRST    zz number side LAST	High Power contacts	
D32 3 rows		R SMT		D52# Jackpost 2 rows up to 3.2mm	D68# Socket 2 rows up to 3.2mm			3400DMM Male 3mm
DF10 Flange 1row		D Used if no LF		D57# Jackpost 3 rows up to 3.2mm	D72# Socket 3 rows up to 3.2mm		High Frequency contacts	
DF22 Flange 2 rows				D62## Jackpost 1 rear panel 0.5 to 2mm	D73## Socket 1 rear panel 0.5 to 2mm		1400DMM Male 3mm	2400DMM Female 3mm
DF32 Flange 3 rows				D56## Jackpost 2 rear panel 0.5 to 2mm	D74## Socket 2 rear panel 0.5 to 2mm			
DL22 Metalised Composite 2rows				D59## Jackpost 3 rear panel 0.5 to 2mm	D75## Socket 3 rear panel 0.5 to 2mm			

→ EXAMPLES



<b>DF222VL10D56LD</b>	<b>DF321R021D57</b>	<b>D322V022D57-0302-2400DMM</b>
Reference	Reference	Reference
Panel mount	SMT	HF mixed

Flange & row				
Flange & row	Gender	W = Width (mm)	Flange	View
D10	1	5	Without	
D22	2	7		
D32	3	9		
DF10	1	6.4	With	
DF22	2	8.4		
DL22	2	8.4		
DF32	3	10.4		



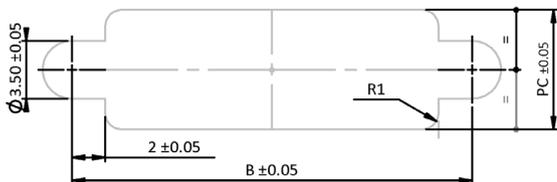
### Check all

The advantages provided by the flange in the dedicated paragraph (EMI page)

### There, you will

find all the dimensions of your model on the 3D and 2D drawings.

### REAR PANEL CUTOUT

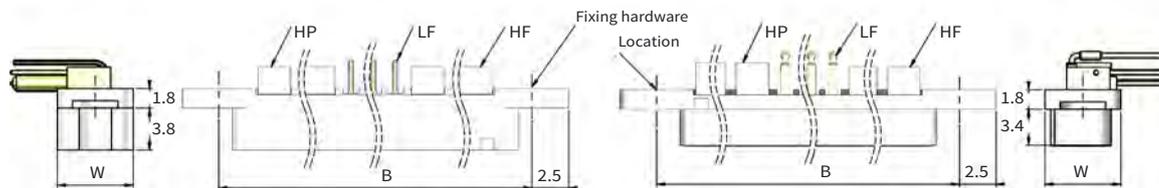


PC=  
5.2 FOR 1 ROW  
7.2 FOR 2 ROWS  
9.2 FOR 3 ROWS

All dimensions are in mm

### Y TYPE MALE

### Y TYPE FEMALE



Dimension table																														
B=Distance between fixings (mm)		12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68
LF contact number	row = 1	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	row = 2	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
	row = 3	006	009	012	015	018	021	024	027	030	033	036	039	042	045	048	051	054	057	060	063	066	069	072	075	078	081	084	087	090
	row = 4	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	084	088	092	096	100	104	108	112	116	120
		In term of dimension, a High power (HP) contact or a High frequency (HF) contact, correspond to 4 signal contacts (LF)																												



More contacts? Multi cavities? Please contact us

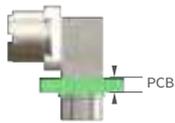
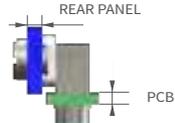
## → FIXING HARDWARE

All fixing hardware is compatible with male and female connectors



### Locked mating

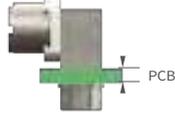
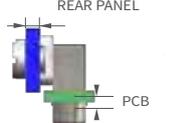
→ SCREWED LOCKING FOR THE MOST SECURE CONNECTION

Code	Row	Description	#= PCB thickness (mm)		#=Rear panel thickness (mm)		Torque (Nm)	View
D60#	1	Jackpost	∅	0.8 to 1.6			0.4	→D60L  
D52#	2		M	1.6 to 2.4				
D57#	3		L	2.4 to 3.2				
D62##	1	Jackpost with rear panel	∅	0.8 to 1.6	A	0.5	0.4	→D59MA  
D56##	2		M	1.6 to 2.4	B	1		
D59##	3		L	2.4 to 3.2	C	1.5		
			D	2				



### Racked mating

→ GUIDED FIXING FOR AN ACCURATE ALIGNMENT

Code	Row	Description	#= PCB thickness (mm)		#=Rear panel thickness (mm)		Torque (Nm)	View
D71#	1	Jackpost	∅	0.8 to 1.6			0.4	→D73  
D68#	2		M	1.6 to 2.4				
D72#	3		L	2.4 to 3.2				
D73##	1	Jackpost with rear panel	∅	0.8 to 1.6	A	0.5	0.4	→D74MD  
D74##	2		M	1.6 to 2.4	B	1		
D75##	3		L	2.4 to 3.2	C	1.5		
			D	2				



- 1 In case of a thicker PCB, we can easily manufacture a longer fixings.
- 2 If one connector is mounted with a jackpost fixing, its mating must be mounted with a jackscrew fixing.
- 3 If one connector is mounted with guide socket fixing, its mating must be mounted with guide pin.

- 4 Fixings are delivered mounted on the connector.

- 5 A controlled torque screwdriver kit is available, please refer to the tooling page.

## → CONTACTS

Row	Gender	LF contacts		HP contacts		HF contacts	
		Thru hole	SMT	Thru hole	SMT	Thru hole	SMT
1	1						
	2						
2	1						
	2						
3	1						
	2	VL not available					

### → SIGNAL CONTACT (LF)

Code	Gender	Type	Amperage (A)	Data rate (Gbits/s)	Length (mm)	PCB thickness (mm)	View
V	1	Thru hole	Up to 5	Up to 5	3.3	Up to 2	 DIMENSIONS AVAILABLE ON 2D DRAWINGS
VL					4.5	Up to 3.2	
V	2	Thru hole	Up to 5	Up to 5	3.3	Up to 2	 DIMENSIONS AVAILABLE ON 2D DRAWINGS
VL					4.5	Up to 3.2	
R	1	SMT					 DIMENSIONS AVAILABLE ON 2D DRAWINGS
D	Used if no LF						

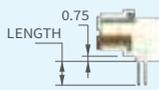


A gold layer over the PCB contact tails represents less than 3% of the soldering volume. Please consider this before removing gold.

### → HIGH POWER CONTACT (HP)

<b>#=3</b> Male HP contact for male connector 		<b>#=4</b> Female HP contact for female connector 				
Code	Reference	Type	Amperage (A)	PCB thickness (mm)	Length (mm)	View
#400DMM	30-#400-DMM	Thru hole	Up to 30A	Up to 2.4	3.3	

### → HIGH FREQUENCY CONTACT (HF)

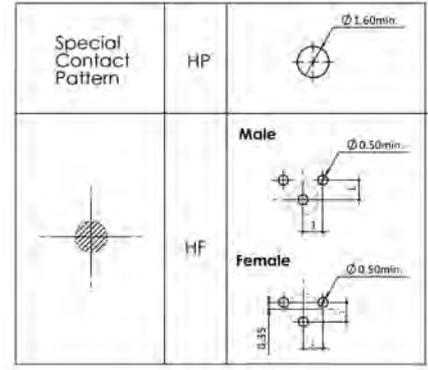
<b>#=1</b> Male HF contact for male connector 		<b>#=2</b> Female HF contact for female connector 					
Code	Reference	Type	Impedance (A)	Frequency range	PCB thickness (mm)	Length (mm)	View
#400DMM	30-#400-DMM	Thru hole	50	Up to 20GHz	Up to 2	3.3	



Longer contacts? up to 15mm? Different finishing? Screw machining is part of the historical know-how of Nicomatic and we can offer a large range of customization.

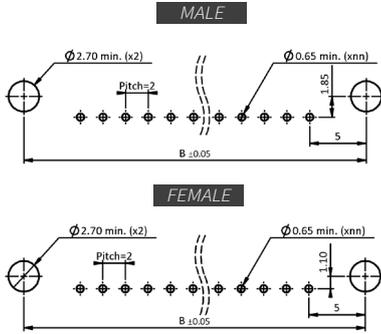
# → THRU HOLE TYPE PCB LAYOUT

FIRST CONTACT IS ON THE RIGHT SIDE FOR THE MALE CONNECTOR & ON THE LEFT FOR THE FEMALE CONNECTOR



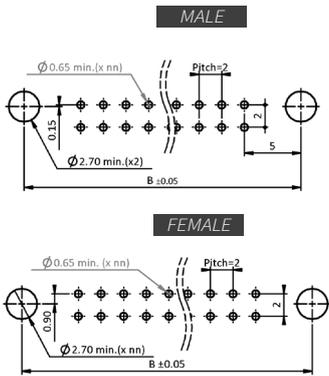
## 1 ROW

▷ LF CONTACTS

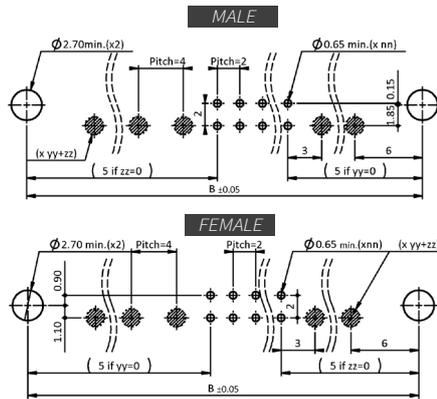


## 2 ROWS

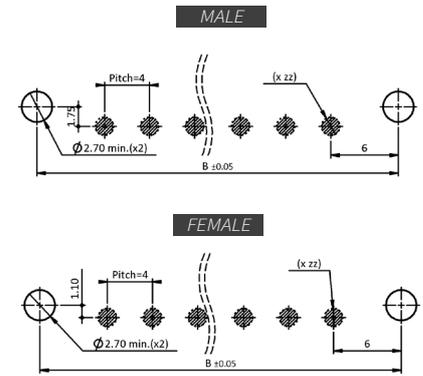
▷ LF CONTACTS



▷ MIXED

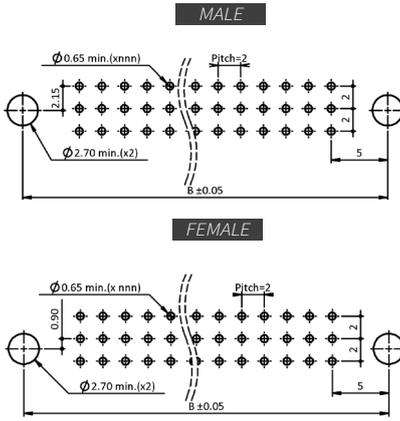


▷ HP OR HF CONTACTS

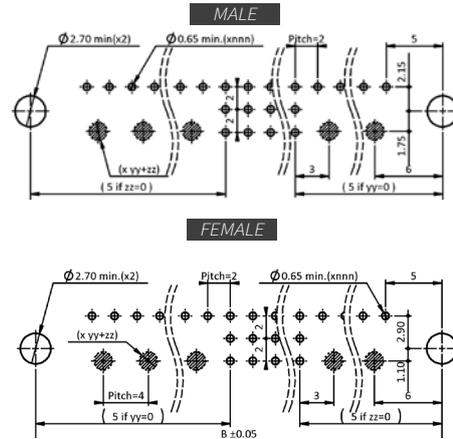


## 3 ROWS

▷ LF CONTACTS



▷ MIXED



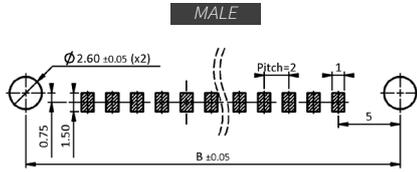
Dimension table																														
B=Distance between fixings (mm)	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	
LF contact number	row = 1	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	row = 2	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
	row = 3	006	009	012	015	018	021	024	027	030	033	036	039	042	045	048	051	054	057	060	063	066	069	072	075	078	081	084	087	090
	row = 4	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	084	088	092	096	100	104	108	112	116	120
⊙ = ●	In term of dimension, a High power (HP) contact or a High frequency (HF) contact, correspond to 4 signal contacts (LF)																													

# → SMT PCB LAYOUT

FOR LF CONTACTS ONLY

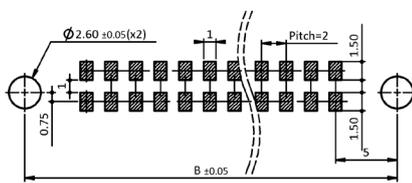
## 1 ROW

DMM TTL (MALE)



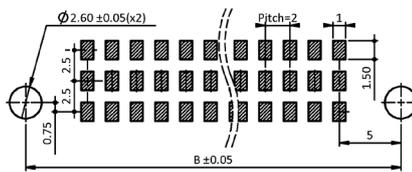
## 2 ROWS

**FEMALE**



## 3 ROWS

**MALE**





**Free 3D & 2D drawings**

Put it together on our DMM product page  
 Feel free to use our builder to check the available configuration  
 → [nicomatic.com](http://nicomatic.com)



**DL221SP20D53**  
Female



**INFO**  
 Contacts are delivered together with the connector

# DMM

# For cabling

Insertable/removable contacts  
 Compatible w/ backpotting

Racking or locked fixing hardware  
 Mixed layout

Part numbering									
Flange & row	Gender	LF contact type	Shape	Signal contacts (LF)	Fixing	High power (HP) & High frequency (HF) contacts			
<b>D10</b> 1 row	<b>1</b> Male	<b>S</b> AWG 24-28	<b>Ø</b> No potting	<b>nn(n)</b> Contact number	<b>Locked fixing</b>	if Signals (LF) contacts only			
<b>D22</b> 2 rows	<b>2</b> Female	<b>C</b> AWG 22	<b>P</b> 2mm potting shape		<b>D51#</b> Jackpost up to 3.2mm	<b>yy</b> number side FIRST	<b>zz</b> number side LAST	<b>High Power contacts</b>	
<b>D32</b> 3 rows		<b>E</b> Used if no LF	<b>L</b> 5mm potting shape		<b>D55#</b> Jackpost Rear panel 0.5 to 2mm			<b>Straight</b>	<b>Right angle</b>
<b>D42</b> 4 rows					<b>D53</b> Jackscrew HEX			<b>MALE</b>	<b>FEMALE</b>
<b>DF10</b> Flange 1 row					<b>D61</b> Jackscrew			<b>3305</b> 5A	<b>4305</b> 5A
<b>DF22</b> Flange 2 rows					<b>Racked fixing</b>			<b>3405</b> 5A	<b>4405</b> 5A
<b>DF32</b> Flange 3 rows					<b>D64#</b> Socket up to 3.2mm			<b>3308</b> 8A	<b>4308</b> 8A
<b>D42</b> Flange 4 rows					<b>D65#</b> Socket panel 0.5 to 2mm			<b>3408</b> 8A	<b>4408</b> 8A
<b>DL22</b> Metalised Composite 2 rows					<b>D63#</b> Guide pin			<b>3310</b> 10A	<b>4310</b> 10A
								<b>3410</b> 10A	<b>4410</b> 10A
								<b>3315</b> 15A	<b>4315</b> 15A
								<b>3415</b> 15A	<b>4415</b> 15A
								<b>3320</b> 20A	<b>4320</b> 20A
								<b>3420</b> 20A	<b>4420</b> 20A
								<b>High frequency contacts</b>	
								<b>MALE</b>	<b>FEMALE</b>
								<b>1320SS</b> 50Ω, RG178	<b>2320SS</b> 50Ω, RG178
								<b>1324SS</b> 50Ω, RG214	<b>2324SS</b> 50Ω, RG214
								<b>1326SS</b> 50Ω, RG316 DT RG174	<b>2326SS</b> 50Ω, RG316 DT RG174
								<b>1347ZZ</b> 50Ω, UT47	<b>2347ZZ</b> 50Ω, UT47
								<b>1385ZZ</b> 50Ω, UT85 RG405	<b>2385ZZ</b> 50Ω, UT85 RG405
								<b>1326SS-75</b> 75Ω, RG179	<b>2326SS-75</b> 75Ω, RG179

→ EXAMPLES



<b>D102SP04D64</b>	<b>D222S08D53</b> -0302-4410	<b>DF321SL030D55C</b>
<b>Reference</b> - Rack	<b>Reference</b> - 90°HP	<b>Reference</b> - Panel mount

**OTHER CONTACTS AVAILABLE**  
 Mini flex coax cable  
 Double shielding coax cable  
 please check the next pages



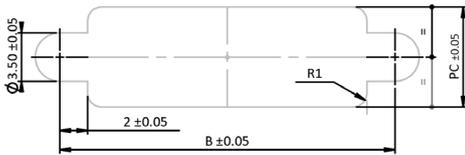
Flange & row					Shape			
FLANGE	Gender	W = Width (mm)	Flange	View	Shape	H=Total height	Potting shape	View
D10	1	5	Without		Ø	7.5	NO potting shape	
D22	2	7						
D32	3	9						
D42	4	11						
DF10	1	6.4	With		P	10	2mm potting shape	
DF22	2	8.4						
DL22	3	10.4						
DF32	3	10.4						
DF42	4	12.4						



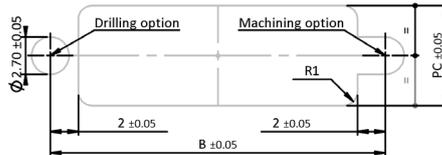
1. Check all the advantages bring by the flange in the dedicated paragraph

2. Potting allows better electrical protection and secures the contact retention

REAR PANEL CUTOUT



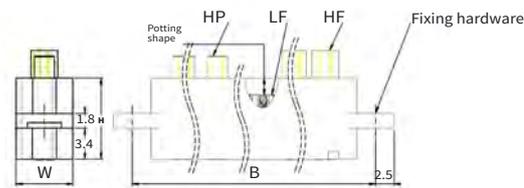
FRONT PANEL CUT



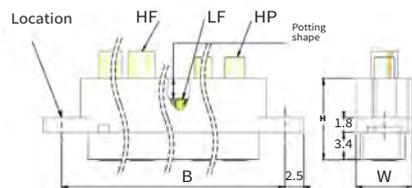
PC=  
5.2 FOR 1 ROW  
7.2 FOR 2 ROWS  
9.2 FOR 3 ROWS  
11.2 FOR 4 ROWS

All dimensions are in mm

MALE W/ POTTING SHAPE

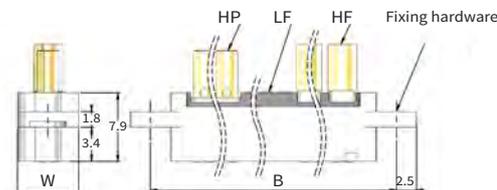


FEMALE W/ POTTING SHAPE

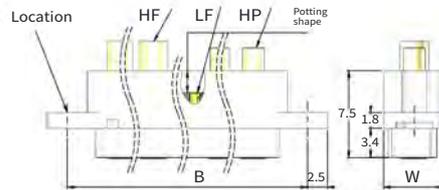


All the dimensions are available on the 3D & 2D drawings

MALE NO POTTING SHAPE



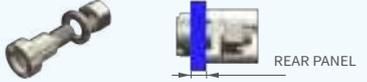
FEMALE NO POTTING SHAPE



		Dimension table																												
B=Distance between fixings (mm)		12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68
LF contact number	row = 1	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	row = 2	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
	row = 3	006	009	012	015	018	021	024	027	030	033	036	039	042	045	048	051	054	057	060	063	066	069	072	075	078	081	084	087	090
	row = 4	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	084	088	092	096	100	104	108	112	116	120
⊙ = ●		In term of dimension, a High power (HP) contact or a High frequency (HF) contact, correspond to 4 signal contacts (LF)																												

## → FIXING HARDWARE

All fixing hardware is compatible with male and female connectors

		<b>Locked mating</b>		<b>→ SCREWED LOCKING FOR THE MOST SECURE CONNECTION</b>						
Code	Description	#=Front panel thickness (mm)		#=Rear panel thickness (mm)		Torque (Nm)	View			
<b>D51#</b>	Jackpost	∅	Up to 1.5		0.4		→D51 			
		L	1.5 to 3.2				FRONT PANEL			
<b>D76</b>	Jackpost to be screwed in a panel	∅	Min 1.5				→D76 	FRONT PANEL		
<b>D55#</b>	Jackpost with rear panel						A	0.5	→D55D 	REAR PANEL
							B	1		
							C	1.5		
				D	2					
<b>B51</b>	Jackpost for split backshell					→B51 	HEX.4 HEX.2			
<b>B51M</b>	Jackpost for mono backshell					→B51M 	HEX.4 HEX.2			
<b>D53</b>	Jackscrew type ChC					→D53 	HEX.2			
<b>D61</b>	Jackscrew	These jackscrews are compatible with all the lock type jackposts				→D61 	0.80 HEX.4			
<b>B53</b>	Jackscrew for split backshell					→B53 	HEX.4 HEX.2			
<b>DXX</b>	No fixing. Also use in case of jackscrewed monobackshell as the fixing is delivered mounted on the backshell					→DXX 				



- 1** In case of a thicker PCB, we can easily manufacture a longer fixing.
- 2** If one connector is mounted with a jackpost fixing, its mating must be mounted with a jackscrew fixing.
- 3** If one connector is mounted with guide socket fixing, its mating must be mounted with guide pin.

- 4** Fixings are delivered mounted on the connector.
- 5** A controlled torque screwdriver kit is available, please refer to the tooling page.



**Racked mating**

→ GUIDED FIXING FOR AN ACCURATE ALIGNMENT

Code	Description	#=Front panel thickness (mm)		#=Rear panel thickness (mm)		Torque (Nm)	View		
D64#	Guide socket	Ø	Up to 1.5			0.4	→D64L 		
		L	1.5 to 3.2						
D77	Guide socket to be screwed in a panel	Ø	Min 1.5				A 0.5 B 1 C 1.5 D 2	0.4	→D77 
D65#	Guide socket with rear panel								
D63#	Guide pin	Ø	Up to 1.5	This guide pin is compatible with all the guide socket		0.4	→D63 		
	L	1.5 to 3.2							

→ *BULK ACCESSORIES*

Reference	Description	Overview	Reference	Description	View
17267	M2.5 Nut		16255	Washer	

Bulk kits for fixing hardware can be delivered on request.

# → CONTACTS ARRANGEMENT

Row	Gender	LF contacts		HP contacts		HF contacts	
		Straight		Straight	90°	Straight	90°
1	1						
	2						
2	1				With low profile shape		Please contact us
	2				With low profile shape		
3	1				With low profile shape		
	2				With low profile shape		
4	1						
	2						

## → SIGNAL CONTACT (LF)

Straight											
Code	Reference	Gender	Type	Cable gage	Amperage (A)	Recommended wire	Crimping instruction	Data rate (Gbits/s)	Dimension B (mm)	View	
S	12969	1	To be crimped or to be soldered	AWG 28	0.8	M22759/11-28	ICLF01 Please consult our website	Up to 5	0.7		
				AWG 26	1	M22759/11-26					
				AWG 24	2	M22759/11-24					
C	12960	2		AWG 22	3	M22759/18-22			0.9		
S	C12468			AWG 28	0.8	M22759/11-28			0.7		
C				AWG 26	1	M22759/11-26					
	C13064-P		AWG 24	2	M22759/11-24	0.9					
			AWG 22	3	M22759/18-22						

OUR CONTACTS ARE QUALIFIED UP TO 5 AMPS.

The above value represents the nominal continuous amperage per gage. Depending on your cable and your signal features, this value could be higher.



We have developed a signal contact (LF) compatible with AWG 20, 5 Amp, Raychem 55A0111-20 wire, please contact us for more detail.

## → HIGH POWER CONTACT (HP)

Straight											
Code	Reference	Type	Cable gage	Amperage (A)	Recommended wire	Crimping instruction	Derating	Dimension B (mm)	Dimension F (mm)	View	
#305	30-#305	To be crimped or to be soldered	AWG 20	5	M22759/11-20	IC30HP02 Please consult our website	Up to 30A	1.1	4.5		
#308	30-#308		AWG 18	8	M22759/11-18			1.35	4.5		
#310	30-#310		AWG 20	10	M22759/11-20			1.7	6		
			AWG 18	10	M22759/11-18						
#315	30-#315		AWG 16	15	M22759/11-16			2	6		
#320	30-#320		AWG 14	20	M22759/11-14			2.6	5.5		

Right angle											
Code	Reference	Type	Cable gage	Amperage (A)	Recommended wire	Crimping instruction	Derating	Dimension B (mm)	Dimension F (mm)	View	
#405	30-#305	To be soldered	AWG 20	5	M22759/11-20	IC30HP04 Please consult our website	Up to 30A	1.1	5.3		
#408	30-#408		AWG 18	8	M22759/11-18			1.35			
#310	30-#410		AWG 16	10	M22759/11-16			2			
#415	30-#415		AWG 14	15	M22759/11-14						
#420	30-#420		AWG 12	20	M22759/11-12			2.5			

OUR CONTACTS ARE QUALIFIED UP TO 30 AMPS.

The above value represents the nominal continuous amperage per gage. Depending on your cable and your signal features, this value could be higher.



# → HIGH FREQUENCY CONTACTS (HF)

#=1

Male HF contact  
for male connector



#=2

Female HF contact  
for female connector



## Straight

Code	Reference	Impedance $\Omega$	Cable gage	Cable type	Crimping instruction	A (mm)	B (mm)	C (mm)	D (mm)	View
#320SS	30-#320-SS	50	RG178	Flexible	IC30HF02	2	1	2.2	0.5	
#320DS	30-#320-DS		RG178 DT			2.3	1	2.8	0.5	
#320SS	30-#324-SS					2.4	1.5	2.8	0.6	
#326SS	30-#326-SS		RG316 - RG174			2.7	1.7	2.8	0.6	
#326DS	30-#326-DS		RG316 DT			3	1.7	3.25	0.6	
#312ZS01	30-#3126-ZS-01		50VMTX			Mini Flexible	IC30HF01	1.2	1	
#312ZS02	30-#312-ZS-02	SM 50	1.2	0.85	1.15			0.6		
#347ZZ	30-#347-ZZ	75	UT47	Semi-rigid			1	1.4	0.5	
#385ZZ	30-#385-ZZ		UT85 - RG405				1.7	2.3	0.6	
#326SS-75	30-#326-SS-75	75	RG179	Flexible	IC30HF02	2.7	1.7	2.8	0.5	
#326DS-75	30-#326-DS-75		RG179DT			3	1.7	3.25	0.5	
#312ZS01-75	30-#312-ZS-01-75		75VMTX	Mini Flexible	IC30HF01	1.2	1	1.25	0.5	
#312ZS02-75	30-#312-ZS-02-75		SM 75			1.2	0.85	1.15	0.5	



We also have High Frequency (HF) right angle contacts, please contact us for more details



3D & 2D drawings for free

Please build it on our DMM product page  
Feel free to use our builder to check the available configuration  
→ [nicomatic.com](http://nicomatic.com)

**D**

Pre-wired DMM Female



**DMM**

Choose your length  
Backpotting option

Pre-Wired

Metal braid and backshell option

Part numbering

Flange & row	Gender	Signal wire + color #	Shape & potting	LF contacts nbr	Fixing	Serie 30 contacts number		Serie 30 wire & color (HP only)		Shielding	Config.	Length
HD10 1 row	1 Male	E If no Signals (LF) contacts	Z No potting shape	nn(n) Contact number	Please refer to "DMM for cabling" fixing hardware page	∅ if Signals (LF) contacts only		Z No	F Fly lead			XXXX
HD22 2 rows	2 Female	H# AWG 28	P 2mm potting shape			-yy Number side FIRST	Zz- Number side FIRST	HP	HF	M Mono backshell	B Back to back	
HD32 3 rows		I# AWG 26	Q 2mm potting shape + potting				L# AWG 20	A RG174	N Mono backshell +metal braid	R Back to back reversed		
HD42 4 rows		J# AWG 24	L 5mm potting shape				M# AWG 18	B RG178	S Split backshell			
HDF10 Flange 1 row		K# AWG 22	M 5mm potting shape + potting				N# AWG 16	C RG178 DT	T Split backshell + metal braid			
HDF22 Flange 2 rows							O# AWG 14	D RG179				
HDF32 Flange 3 rows							P# AWG 12	E RG179 DT				
HDF42 Flange 4 rows								F RG316				
HDL22 Metalized Composite 2 rows								G RG316 DT				
								H RG405				

# WIRE COLOR	
0	Black
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Grey
9	White
R	Rainbow repeated

OPTIONS

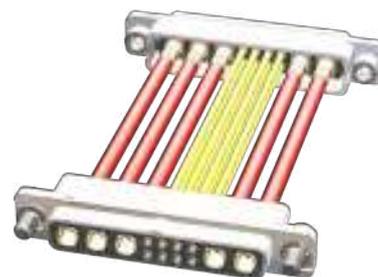
**SIGNAL WIRES:** MIL-22759/11 (/18 for AWG22)  
**HIGH POWER WIRES:** MIL-22759/11  
**HIGH FREQUENCY COAXIAL CABLES:** MIL-C-17 (RG type)  
**BACK POTTING:** STYCAST2651MM + Catalyst V9  
**METAL BRAID:** A-A-A-59569  
**LENGTH:** From 50mm to 5000mm,  
**AVAILABILITY:** Check arrangements, shape, fixing hardware



Twisted pairs?, different colors?,  
tinned striped termination? label?  
shrinkable tube? Braided sleeving?

We are well-experienced

→ OVER ALL DIMENSIONS



**FLY LEAD**

**P/N**

HDF422I6Q056D55  
DZF0200

**MONO BACKSHELLED**

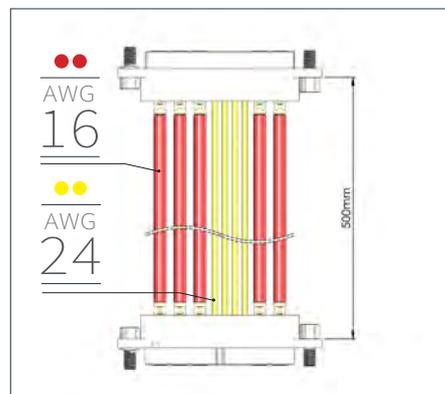
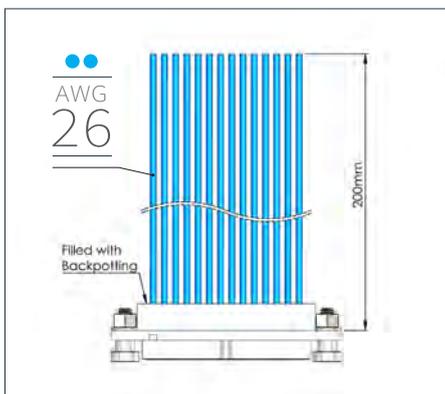
**P/N**

HD2210P20  
DXXMF0300

**BACK TO BACK**

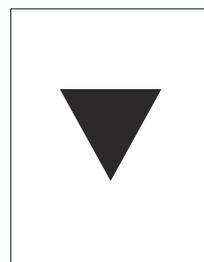
**P/N**

HD222J4Z08D53-  
0302-N2ZR0500



→ OPTIONS

*FLEXIBLE PCB ASSEMBLY*



*In a lot of applications today, you can choose to switch from round cable to flat flexible PCB in order to save weight & space.*

In this way, we can support you full Flexible PCB Assembly to avoid the multi-suppliers risk. Working with multiple layers and/or shielded flexible support, we can simulate and qualify the signal integrity of such harnesses. Please feel free to contact us.



LIGHT SOLUTION



# DMM / Backshell solution

CHOOSE YOUR TYPE  
MONO OR SPLIT



They all are made of Aluminium 6061 + 20µ of chemical nickel finishing.

As a rear part of the DMM they bring you →

Mechanical protection, thereby avoiding tension on the wires and the contact soldering/crimping

360° shielding against EMI/RFI (according to MIL-STD-1377) with a transfer impedance (Zt) under 200mOhm from 10kHz to 400mHz.

Compatible with Band-it type systems

## → SPLIT BACKSHELL

Two half covers backshell  
Easy closing for quick prototyping

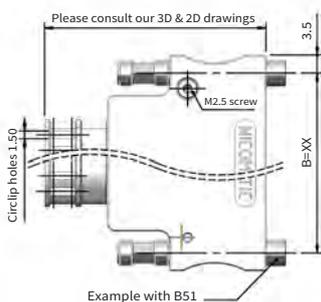
–  
Not compatible with flange option « DF »



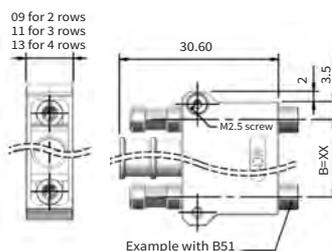
Part numbering							
Type	Row	Connector layout	Connector gender	Distance between the fixings	Connector shape	Fixing	Delivered with
DMM-S Split	2 2 rows	-L Only signal (LF)	∅ No impact	-XX Distance between the fixings	-P No impact	∅ Jackscrew fixing B53 or Jack post fixings B51 Mounted on the connector.*  * Please refer to « DMM to be cabled » fixing hardware page.	-F Flat band
	3 3 rows	-M At least one serie 30 contact (HF or HP)					-C Coiled band
	4 4 rows						∅ No flat band



XX > 18



XX < 18



90° or 45° Chimney?  
Custom design?  
Grounding advice?  
Please feel free to contact us, we are well-experienced

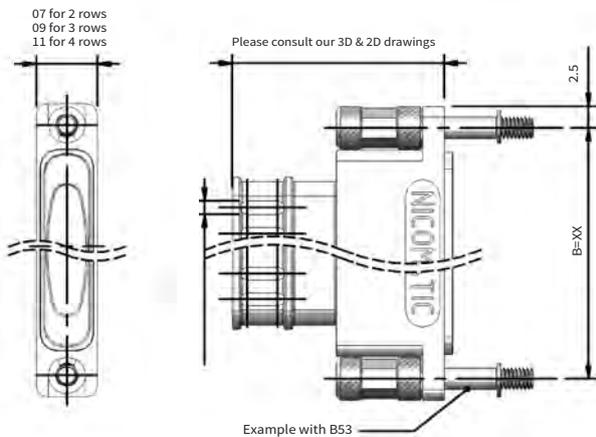
→ **MONO-BLOCK BACKSHELL**  
**One part backshell**  
**Small overall dimensions**

- $XX \text{ min} = 18$
- Not compatible with low profile shape
- Assembly thanks to the circlip tooling C17596



Part numbering							
Type	Row	Connector layout	Connector gender	Distance between the fixings	Connector shape	Fixing	Delivered with
DMM-M Mono	2 2 rows	-L Only signal (LF)	1 Mounted on a male DMM	-XX Distance between the fixings	-P Mounted on a 2mm potting shape	-3 Jackscrew fixing Mounted on the backshell.*	-F Flat band
DLMM-M Metalized Composite 2rows	3 3 rows	-M At least one serie 30 contact (HF or HP)	2 Mounted on a female DMM		-L Mounted on a 5mm potting shape	-1 Jackpost fixing B51M Mounted on the connector.*	-C Coiled band
	4 4 rows					* Please refer to "DMM for cabling" fixing hardware page	∅ No

XX>18



**CHECK OUR TOOLS & ACCESSORIES**  
 →NEXT PAGE  
**P.74**

Dimension table																														
$xx$ =Distance between fixings (mm)		12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68
LF contact number	row = 2	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
	row = 3	006	009	012	015	018	021	024	027	030	033	036	039	042	045	048	051	054	057	060	063	066	069	072	075	078	081	084	087	090
	row = 4	008	012	016	020	024	028	032	036	040	044	048	052	056	060	064	068	072	076	080	084	088	092	096	100	104	108	112	116	120
		In term of dimension, a High power (HP) contact or a High frequency (HF) contact, correspond to 4 signal contacts (LF)																												

**FLAT BAND**

Reference

17205

**COILED BAND**

Reference

17206

---

→ ACCESSORIES

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PLEASE  
CONSULT  
OUR DMM  
WEBSITE  
PAGE  
TO GET  
A QUOTE

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**TOOL FOR  
MOUNTING/  
DISMOUNTING  
OF MONO  
BACKSHELL**

Reference

C17596

**BANDING  
TOOL  
KIT**

Reference

C17472

---

→ TOOLING

---

PLEASE  
CONSULT  
OUR DMM  
WEBSITE  
PAGE  
TO GET  
A QUOTE

---



*Please  
check*

*Our youtube  
channel*

---

*Video instructions  
available !*

# DMM | Exclusive range

NO BIG DEAL FOR US → Standard solution for specific need  
NO LIMIT

## → MULTIMIX DMM

Mix High Power contacts and High Frequency contacts in the same layout



**D221V08D56MD-0302-1400-3400DMM**  
Male connector



Part numbering									
Flange & row	Gender	LF contact type	Shape	LF contacts nbr	Fixing	Serie 30 contact nbr	Serie 30 contact nbr	Serie 30 contact side first	Serie 30 contact side last
D# *	#	#	#	nn(n) Contact number	*	Yy Number side FIRST	Zz Number side LAST	HP contact or HF contacts	HP contact or HF contacts

\* Multimix is available with all the DMM family, please refer to "configure your DMM" (P.50)

**D222SP08D53-0302-2326-4310**

**Reference**  
—  
*Cable type*





Need to mix PCB type contacts and cable type contacts in the same layout => SUPERMIX, please let our R&D department check it for you.

→ DEDICATED LAYOUT

# Custom layout



**D432SP016B53**  
**-1234-2326SS**  
Female connector

Part numbering										
Flange & row	Gender	LF contact type	Shape	LF contacts nbr	Fixing	Serie 30 contact number				Serie 30 contact
D43 Flange 4 rows	1 Male	S AWG 24-28	∅ for cable without potting shape**	nn(n) Contact number	* Please refer to "configure your DMM" pages	W Number side FIRST up	X Number side LAST down	Y Number side LAST up	Z Number side LAST down	HP contact or HF contacts
	2 Female	C AWG 22	P 2 mm potting shape							
		E cable, used if no LF	L 5 mm potting shape							
		Y Thru hole 3mm	**or for PCB version							
		YL Thru hole 4.5 mm								
		D PCB, used if no LF								



### Any other

If you need a different layout or pitch, please contact us!



## CUSTOM

24

GROUNDED

04

DATA

10

HF

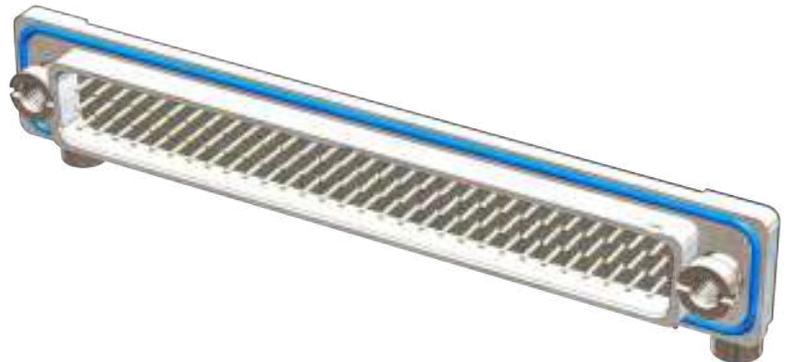
## → EMI O-RING

*100% shielded**MIL-G-83528**Compatible w/ standard DMM range*

**C18631-CM-V043D59D-0002-1400DMM**  
Male connector

## Part numbering

Row & gender	Material	Delivery	LF contacts type, shape, LF contact nbr, fixing, serie 30 contact nbr, serie 30 contact
<b>C18611</b> DF101 w/ EMI O-ring	<b>-A</b> Loaded silicone Cu/Ag	<b>U</b> O-Ring Unmounted	<i>EMI O-ring is available with all the DMM family please refer to "configure your DMM"</i>
<b>C18612</b> DF102 w/ EMI O-ring	<b>-B</b> Loaded silicone Al/Ag	<b>M</b> O-Ring Mounted	
<b>C18621</b> DF221 w/ EMI O-ring	<b>-C</b> Loaded fluorosilicone Cu/Ag		
<b>C18622</b> DF222 w/ EMI O-ring	<b>-D</b> Loaded fluorosilicone Al/Ag		
<b>C18631</b> DF321 w/ EMI O-ring			
<b>C18632</b> DF322 w/ EMI O-ring			
<b>C18641</b> DF421 w/ EMI O-ring			
<b>C18642</b> DF422 w/ EMI O-ring			

**C18631-DU-VO90D59D****Reference***High density*

→ RF GROUNDED

- Full metal shell*
- RF contact clipped onto the shell*
- Common grounding*
- >Compatible with the standard DMM range*



AVAILABLE  
ON REQUEST

# DMM

The right tool for  
the right component

# Tooling

High reliability



## → TORQUE CONTROL SCREW DRIVER

Reference	Description	Overview	Reference	Description	View
18035	PresetScrewdriver 0.3NM (Blue)		18042	Slot head tip with clearance	
18036	PresetScrewdriver 0.4NM (Red)		18091	Slot head tip	
			18040	Internal hex Z tip	
C18599	Package: Two screwdrivers and 3 bolt tips packaged in box				

## NOTES

Using this tooling will ensure the quality and precision of all your designs

→ **SIGNAL(LF) CONTACT**  
CRIMPING TOOL

Reference	Description	View
MH800	Crimping Hand tool DANIELS MH800	
C12929	Positioner K1692 for signals (LF) contacts	
C14925	<i>Package: Hand tool MH800 + Positioner</i>	

 Please consult on our website crimping instruction ICLF01

→ **HIGH POWER CONTACT(HP)**  
CRIMPING TOOL

Reference	Description	View
16459	Crimping Hand tool DANIELS AF8	
C16460	Positioner for High Power (HP) contacts	
C16462	<i>Package: Hand tool AF8 + Positioner</i>	

 Please consult on our website crimping instruction IC30HP02 & IC30HP04.

→ **SIGNAL(LF) CONTACT**  
INSERTION/EXTRACTION TOOL

Reference	Description	View
C13172	Body driver + Cover cap	
13171	"S" contacts insertion tip	
13712	"C" contacts insertion tip	
13242	Male contacts extraction tip	
13170	Female contacts extraction tip	
C12935	<i>Package: Bolt + driver + tips</i>	

→ **HIGH FREQUENCY (HF)**  
CRIMPING TOOL

Reference	Description	View
<b>CENTRAL CONTACT</b>		
MH800	Crimping Hand tool DANIELS MH800	
K1131	Positioner K1692 for High Frequency contacts (HF)	
C12237	<i>Package: Hand tool MH800 + Positioner</i>	

<b>SLEEVE</b>		
13858	Crimping Hand tool DANIELS HX3	
C13847	Dies Hex. 1,9 / 2,4 / 2,8	
C12238	<i>Package: Hand tool HX3 + Dies C13847</i>	
C14680	Dies Hex. 3,25 / 4	
C14770	<i>Package: Hand tool HX3 + Dies C14680</i>	

 Please consult on our website crimping instruction IC30HF01 & IC30HF02.

→ **HP & HF CONTACT**  
EXTRACTION TOOL

Reference	Description	View
12368	Extraction tool for High power (HP) & High Frequency (HF) contacts	

 Contact is delivered with an external clip which allows it to be manually inserted into the cavity without tooling.

# DMM | Custom solution

DON'T LIMIT YOURSELF → We make it possible !



## Alternative solution

**Upgrade a standard product, create a full new solution or retrofit part of your application, we are here to make it happen:**

**The custom solution team.**

As the electronics markets is continually changing, integrating new requirements and constraints has become Nicomatic's top priority. Nicomatic has decided to build a flexible initiative capable of supporting its clients and effectively meeting their ongoing challenges. Completing 60 projects per year, Nicomatic Custom Solutions generates added value by getting the Nicomatic engineers to

constantly develop new solutions that will help our clients make progress in their innovation processes. In creating this new initiative and placing the client at the heart of its development strategy.

Nicomatic has the vision to be the go-to source in the world of custom-made connector.

**DON'T  
WAIT ANY  
LONGER !**

**FREE  
PRE-STUDY  
ALL CAPABILITY  
IN-HOUSE**

**PROTOTYPE STAGE  
COMPLIANT → MOQ 1**

**AVERAGE PROTOTYPE  
LEAD TIME → 10 WEEKS**

# FEED THRU & SAVER

## CUSTOMER CASE

Get an independent connection from both sides of a fixed panel

## OUR SOLUTION

FEED THRU connector with easy mounting MIL83513 & EMI resistant shielded connection

Space interface module



# IP67

## CUSTOMER CASE

Get a sealed IP 67 protection

## OUR SOLUTION

DMM type connector, front panel mounting, Oring for IP68 between connector/box

Defence Radar station



# MULTI CAVITIES

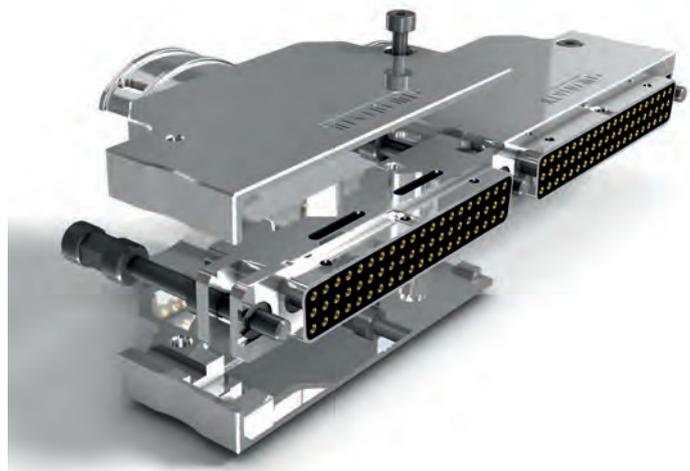
## CUSTOMER CASE

Get a high number of positions & isolate data from power

## OUR SOLUTION

DMM type connector, multi cavity shape, one for power, one for data 150 positions

Defence Optronic system



# HIGH POWER

## CUSTOMER CASE

*Transit 300 amps in a Micro connector*

## OUR SOLUTION

*High power contacts compatible with AWG10 (30A), AWG8 (40A)*

*Civil aeronautic Power unit*



# FIRST MATE LAST BREAK

## CUSTOMER CASE

*Switch on power board before data, strong pin*

## OUR SOLUTION

*Pin dia 1.6mm with different length*

*Defense Soldier system*



# FLOATING

## CUSTOMER CASE

*(+/-) 1mm misalignment to catch up, panel in contact with the flange*

## OUR SOLUTION

*Floating fixing hardware, with alignment pins. Spring to flatten the connector*

*Transportation Computing module*



# QUICK LOCK

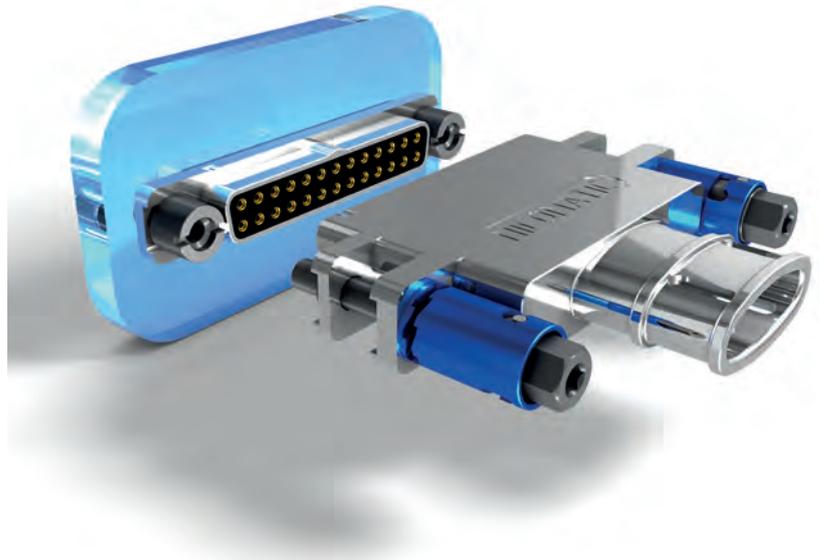
## CUSTOMER CASE

*No unscrewing, impossible to use  
thread locking fluid*

## OUR SOLUTION

*Custom spring nut,  
to mechanically jam the fixing*

*Defense  
UAV battery*



# RACKING

## CUSTOMER CASE

*100 000 mating cycles  
Blind mating*

## OUR SOLUTION

*Hyperboloid contacts  
Polarized guide pins, kinematic study*

*Defense  
Backplane*



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WHO  
WE  
ARE  
?

---

WE ARE **DREAMERS**

*One of leading international players in the interconnect solutions market, where innovation & creativity are core values. For us, innovation means being bold.*

# WE CARE ABOUT PROGRESS

## HUMAN & TECHNOLOGIC

***We like to believe that we help users with personal development. Simply because "impossible" is not in our vocabulary.***

*Every day we're challenging ourselves to provide added value to our customers, and we do our best to provide an exceptional and motivating work environment to our team.*

## QUALITY WITHOUT COMPROMISE

***It reflects the high quality products and services of the brand. High standards: excellence cannot be achieved by making concessions.***

*We honour our promises, they are not just words. Showcasing the know-how of our internal expertise throughout the world.*

## BUSINESS ETHICS

***Environmental impacts, healthcare & well-being at work, conflicts minerals declarations, climate impact are a reality.***

*We're working for the world of tomorrow. And you?*

A close-up profile of a man's face, looking towards the right. The lighting is dramatic, with a strong blue glow on the left side of his face and a red glow on the right side. The background is dark and out of focus.

—  
DON'T LET  
ANYONE  
TELL YOU  
THAT YOU  
CAN'T DO IT

**BECOME THE BEST VERSION OF YOURSELF**

---

*DON'T LET  
ANYONE  
TELL YOU  
THAT YOU  
CAN'T DO IT*

**BECOME THE BEST VERSION OF YOURSELF**



# Notes

Date of issue: **May 2019**  
Catalogue reference :  
C.2.2DMM\_EN

NICOMATIC maintains a policy of ongoing development and improvement. It therefore reserves the right to change design, dimensions and specifications without notice.

All information stated inside this catalogue is not contractual and subject to change. (eg. standard connector configurations).

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NICOMATIC

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Aerospace cluster

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## CAREER

### COME & JOIN US

- Improving technology
- Diversity & gender equality
- We promote initiative & responsibility

### READY TO JOIN OUR TEAM?

recruitment@nicomatic.com



WEBSITE  
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