

MDF6 Series

3.5mm Pitch, Double Row, Compact Internal Power Connector (UL/CSA Standard Certified Product)



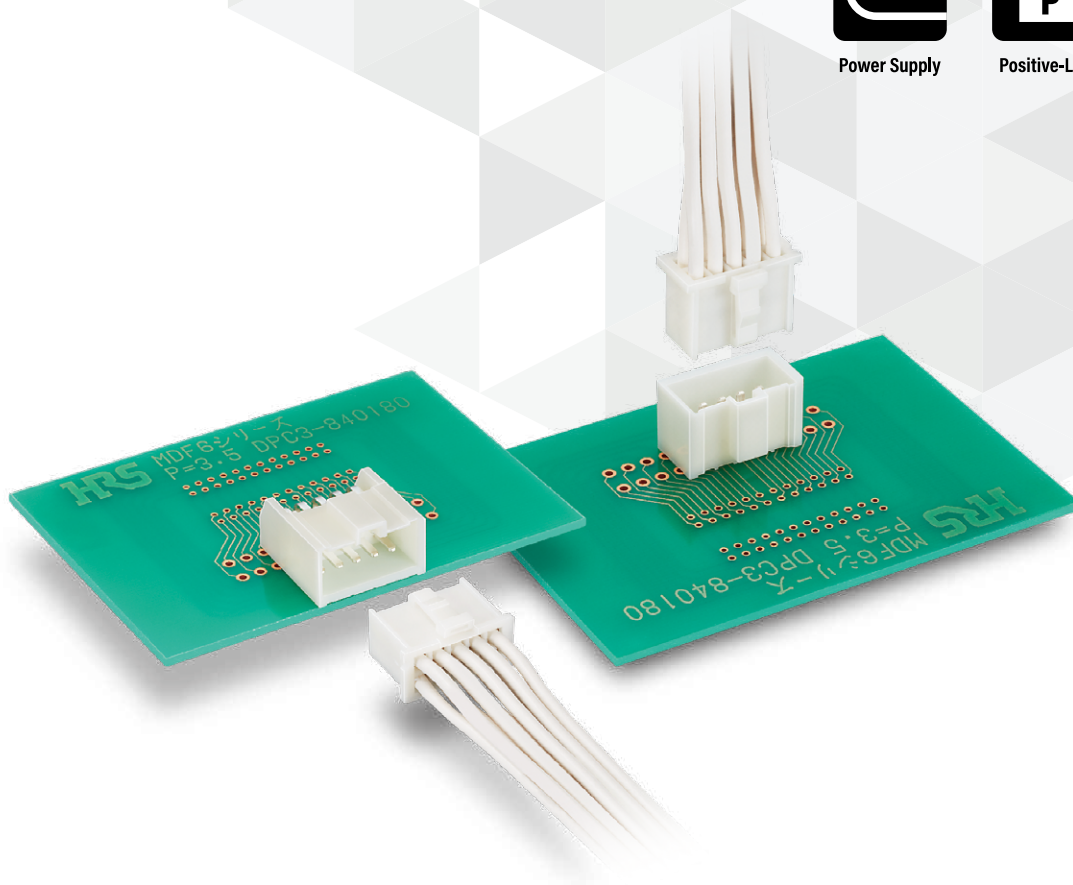
Power Supply



Positive-Lock



Compact



Features

1. 3.5mm pitch compact connector

MDF6 Series is a compact, space-saving power connector with a 3.5mm × 5mm pitch set in a double row alignment configuration.

2. 7A Current Capacity

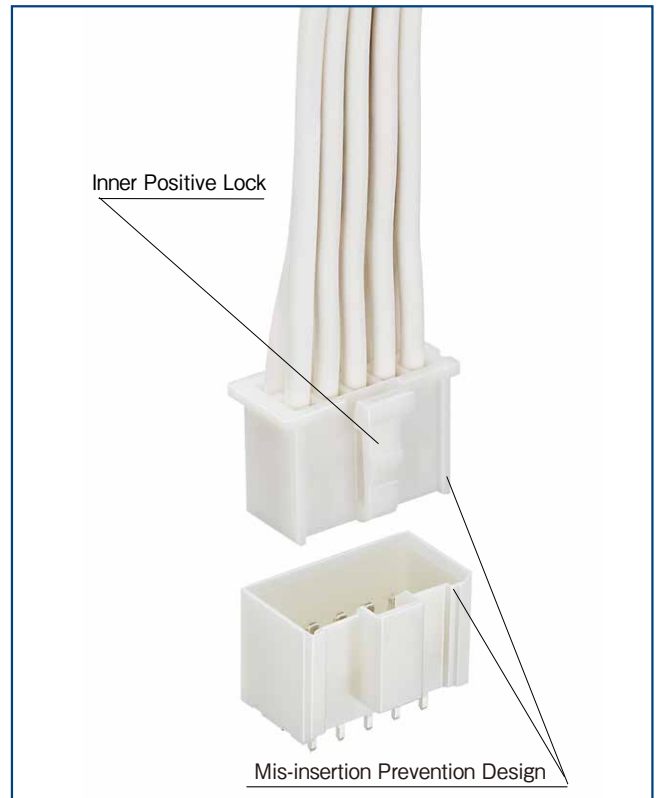
Compact power connector that maintains a current capacity of 7A when using 16 AWG (UL/CSA standard is 6A).

3. Box Type Header

The box type header is highly resistant to prying and is polarized to prevent mis-insertion.

4. Internal Positive Lock

Secure mating with enhanced safety is secured by the internal positive lock.



Applications

Internal power supply for various devices

Product Specifications

| | | | | | | |
|------------------------|------------|--------|--------|--------|-----------------------------------|-------------|
| Rated Current (Note 1) | 16 AWG | 18 AWG | 20AWG | 22 AWG | Operating Temperature (Note 2) | -30 to 85°C |
| | 7A/pin | 6A/pin | 5A/pin | 4A/pin | Operating Humidity Range (Note 3) | 40 to 80% |
| Rated Voltage | 300V AC/DC | | | | Storage Temperature Range | -10 to 60°C |
| | | | | | Storage Humidity Range | 40 to 70% |

| | | | | | |
|--------|---------------|------------------------------|--------|--------|--------|
| UL/CSA | Rated Current | 16 AWG | 18 AWG | 20 AWG | 22 AWG |
| | | 6A/pin | 6A/pin | 4A/pin | 4A/pin |
| | Rated Voltage | UL : 250V AC CSA : 30V AC | | | |

■ UL CSA Safety Standard File No.
UL : E52653
CSA : LR95109

| Item | Specifications | Conditions |
|---------------------------|---|---|
| Insulation Resistance | 1000M Ω Min. | 500V DC |
| Withstanding Voltage | No flashover or insulation breakdown. | 1,500V AC per min. |
| Contact Resistance | 30m Ω Max. | 1mA |
| Vibration Resistance | No electrical discontinuity of 1 μ s or more | Frequency : 10 to 55Hz, single amplitude of 0.75mm, 10 cycles in each of the 3 directions. |
| Humidity (Steady state) | Contact Resistance : 30m Ω Max. Insulation Resistance : 1000M Ω Min. | 96 hours at temperature of 40 \pm 2°C and humidity of 90% to 95% |
| Temperature Cycle | Contact Resistance : 30m Ω Max. Insulation Resistance : 1000M Ω Min. | (-55°C : 30 minutes \rightarrow 5 to 35°C : 10 minutes \rightarrow 85°C : 30 minutes \rightarrow 5 to 35°C : 10 minutes) 5 cycles |
| Mating Durability | Contact Resistance : 30m Ω Max. | Tin Plated : 30 cycles |
| Soldering Heat Resistance | No deformation of components affecting performance. | Flow : 250°C for 10 seconds Manual soldering : 300°C for 3 seconds |

Note 1 : The rated current changes depending on the cable used. Only the rated current of the header is 7A.

Note 2 : Includes temperature rise due to current flow.

Note 3 : No condensing.

Note 4 : Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

Material / Finish

| Product | Part | Material | Finish | Remarks | RoHS2 |
|----------------------|-----------|-----------------|-----------------|---------|-------|
| Crimp Socket | Insulator | Polyamide Resin | Natural (White) | UL94V-0 | ○ |
| Socket Crimp Contact | Contact | Phosphor Bronze | Tin Plating | - | |
| Pin Header | Insulator | Polyamide Resin | Natural (White) | UL94V-0 | |
| | Contact | Brass | Tin Plating | - | |

Product Number Structure

Connector

MDF6 - # DS - 3.5 C

① ② ③ ④ ⑤

| | | | |
|------------------|--|-----------------|--|
| ① Series Name | MDF6 | ④ Contact Pitch | 3.5mm |
| ② No. of Pos. | 4 to 20 | ⑤ Contact Type | C : Crimp Socket DSA : Straight Pin Header DS : Right Angle Pin Header |
| ③ Connector Type | DS : Double Row Socket DP : Double Row Pin Header | | |

Contact

MDF6 - 1618 SCF

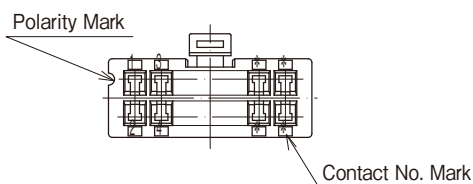
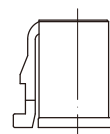
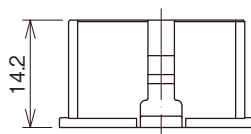
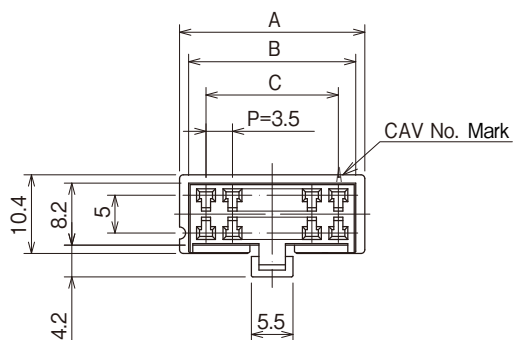
① ②

| | | | |
|-------------------------|--------------------------------------|------------------|---|
| ① Applicable Cable Size | 1618 : 16-18 AWG 2022 : 20-22 AWG | ② Packaging Type | SCF : Socket Contact, Reel SC : Socket Contact, Pack |
|-------------------------|--------------------------------------|------------------|---|

Double Row Socket

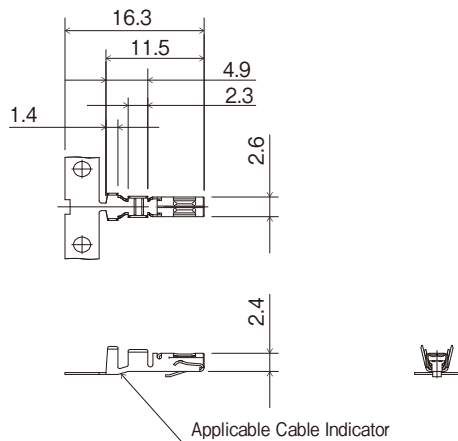


Shown with crimp contacts assembled.



| Part No. | HRS No. | No. of Pos. | A | B | C | Purchase Unit |
|----------------|------------------|-------------|------|------|------|----------------|
| MDF6-4DS-3.5C | CL0547-0074-1-00 | 4 | 10.5 | 8.1 | 3.5 | 100pcs per bag |
| MDF6-6DS-3.5C | CL0547-0075-4-00 | 6 | 14.0 | 11.6 | 7.0 | |
| MDF6-8DS-3.5C | CL0547-0076-7-00 | 8 | 17.5 | 15.1 | 10.5 | |
| MDF6-10DS-3.5C | CL0547-0077-0-00 | 10 | 21.0 | 18.6 | 14.0 | |
| MDF6-12DS-3.5C | CL0547-0078-2-00 | 12 | 24.5 | 22.1 | 17.5 | |
| MDF6-14DS-3.5C | CL0547-0079-5-00 | 14 | 28.0 | 25.6 | 21.0 | |
| MDF6-16DS-3.5C | CL0547-0080-4-00 | 16 | 31.5 | 29.1 | 24.5 | |
| MDF6-18DS-3.5C | CL0547-0081-7-00 | 18 | 35.0 | 32.6 | 28.0 | |
| MDF6-20DS-3.5C | CL0547-0082-0-00 | 20 | 38.5 | 36.1 | 31.5 | |

Socket Crimp Contact



| Part No. | HRS No. | Applicable Cable AWG Size | Applicable Cable Jacket Diameter | Type | Purchase Unit |
|--------------|------------------|---------------------------|----------------------------------|---------------|------------------|
| MDF6-1618SCF | CL0547-0070-0-00 | 16-18 AWG | φ 2.5 to 2.0 | Reel Contact | 5000pcs per reel |
| MDF6-1618SC | CL0547-0071-3-00 | | | Loose Contact | 100pcs per bag |
| MDF6-2022SCF | CL0547-0072-6-00 | 20-22 AWG | φ 1.9 to 1.5 | Reel Contact | 5000pcs per reel |
| MDF6-2022SC | CL0547-0073-9-00 | | | Loose Contact | 100pcs per bag |

● Applicable Cable (Tin Plated Annealed Copper Wire)

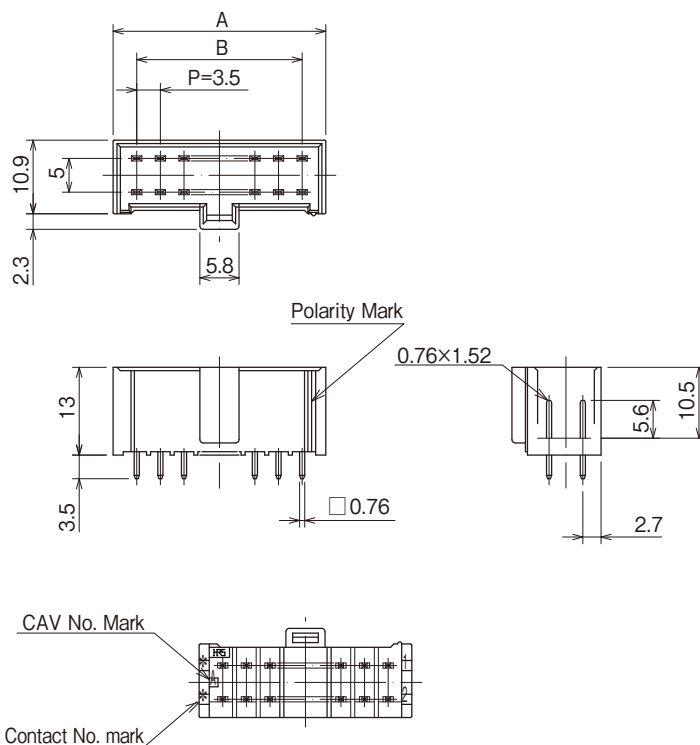
| Conductor Size (Wire Construction) | Jacket Diameter | Recommended Cable | Strip Length |
|------------------------------------|-----------------|-------------------|--------------|
| 16 AWG (26/0.254mm) | φ 2.5 to 2.0 | UL1061, UL1007 | 2.7 to 4.4mm |
| 18 AWG (34/0.18mm) | | | |
| 20 AWG (21/0.18mm) | φ 1.9 to 1.5 | | |
| 22 AWG (17/0.16mm) | | | |

Note : Please contact a Hirose sales representative when using cables other than those specified.

Double Row Pin Header : Straight Type

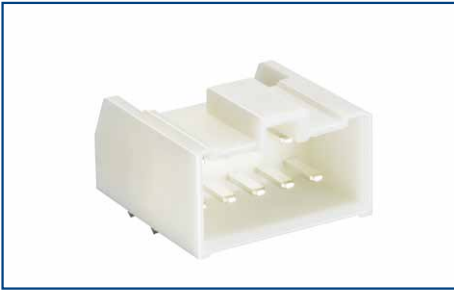


- Applicable Through Hole Diameter of PCB : $\phi 1.3^{+0.1}_0$
- Applicable PCB Thickness : 1.6 ± 0.2

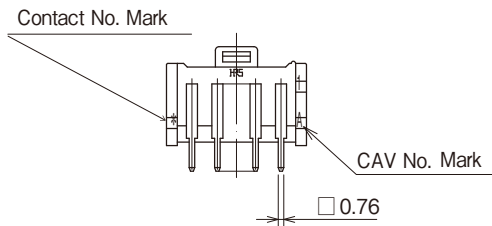
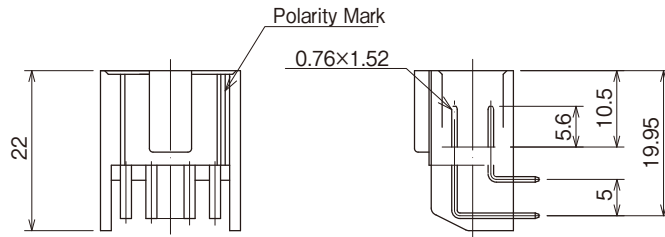
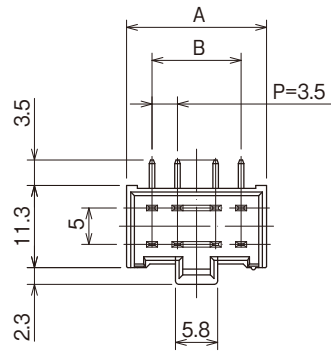


| Part No. | HRS No. | No. of Pos. | A | B | Purchase Unit |
|----------------------|------------------|-------------|------|------|----------------|
| MDF6-4DP-3.5DSA(23) | CL0547-0083-2-23 | 4 | 10.5 | 3.5 | 100pcs per bag |
| MDF6-6DP-3.5DSA(23) | CL0547-0084-5-23 | 6 | 14.0 | 7.0 | |
| MDF6-8DP-3.5DSA(23) | CL0547-0085-8-23 | 8 | 17.5 | 10.5 | |
| MDF6-10DP-3.5DSA(23) | CL0547-0086-0-23 | 10 | 21.0 | 14.0 | |
| MDF6-12DP-3.5DSA(23) | CL0547-0087-3-23 | 12 | 24.5 | 17.5 | |
| MDF6-14DP-3.5DSA(23) | CL0547-0088-6-23 | 14 | 28.0 | 21.0 | |
| MDF6-16DP-3.5DSA(23) | CL0547-0089-9-23 | 16 | 31.5 | 24.5 | |
| MDF6-18DP-3.5DSA(23) | CL0547-0090-8-23 | 18 | 35.0 | 28.0 | |
| MDF6-20DP-3.5DSA(23) | CL0547-0091-0-23 | 20 | 38.5 | 31.5 | |

Double Row Pin Header : Right Angle Type

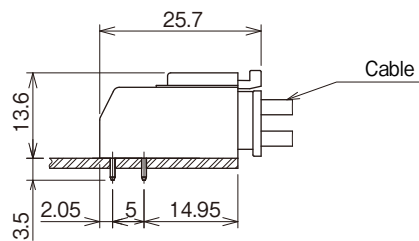
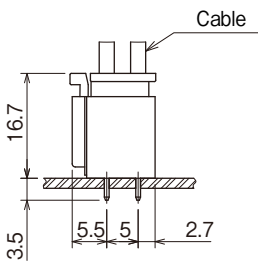


- Applicable Board Hole Diameter of PCB : $\phi 1.3^{+0.1}_0$
- Applicable PCB Thickness : 1.6 ± 0.2



| Part No. | HRS No. | No. of Pos. | A | B | Purchase Unit |
|---------------------|------------------|-------------|------|------|----------------|
| MDF6-4DP-3.5DS(23) | CL0547-0270-0-23 | 4 | 10.5 | 3.5 | 100pcs per bag |
| MDF6-6DP-3.5DS(23) | CL0547-0271-2-23 | 6 | 14.0 | 7.0 | |
| MDF6-8DP-3.5DS(23) | CL0547-0272-5-23 | 8 | 17.5 | 10.5 | |
| MDF6-10DP-3.5DS(23) | CL0547-0273-8-23 | 10 | 21.0 | 14.0 | |

Application Pattern



Applicable Crimping Tool

| Type | Part No. | HRS No. | Applicable Contact |
|----------------------|------------------|------------------|--------------------|
| Main Press Unit | CM-105C | CL0901-0001-0-00 | - |
| Applicator | AP105-MDF6-1618S | CL0901-4512-4-00 | MDF6-1618SCF |
| | AP105-MDF6-2022S | CL0901-4513-7-00 | MDF6-2022SCF |
| Manual Crimping Tool | MDF6-TA1618HC | CL0550-0203-5-00 | MDF6-1618SC |
| | MDF6-TA-2022HC | CL0550-0204-8-00 | MDF6-2022SC |
| Extraction Tool | DF-C-PO(A) | CL0550-0170-8-00 | MDF6-####SC(F) |

Note 1 : Issues caused by tools other than those specified by Hirose are outside the scope of warranty.

Note 2 : Please conduct crimping work according to the "Crimp Quality Standard (ETAD-H0792-00)" and "Crimp Condition Table".

Note 3 : When non-authorized tools are used, please consult with Hirose sales representative about provision of the drawing of the crimping tool.

Precautions When Crimping

Required Documents Prior to Crimping

The work-related documents listed below are required before beginning cable assembly (The ● mark indicates required documents). Please contact a Hirose sales representative if you do not have these documents.

| Document Title | Description | Automatic Crimping Machine | Hand Crimping Tool | Reference |
|--|--|----------------------------|--------------------|---|
| 1. Crimping Machine Main Unit Instruction Manual | Explanation of main press machine unit | ● | - | Bundled with purchase of main press machine unit. |
| 2. Applicator Instruction Manual | Crimping Method | ● | - | Bundled with purchase of applicator. |
| 3. Applicator Spare Parts List | Explanation for Applicator Installation | ● | - | |
| 4. Crimp Conditions | Standard crimp height and tensile strength values | ● | - | |
| 5. Crimp Quality Standards | Various standards for crimping conditions | ● | - | |
| 6. Operating Instructions for Hand Tool | Crimping method, standard crimp height and tensile strength values | - | ● | Bundled with purchase of hand tool. |

Tools

Use the tools designated by Hirose when performing crimping. Crimping performed with tools other than those designated is outside the scope of warranty. The operating instruction manual for the crimping machine and applicator are provided. Be sure to carefully read the operating instructions before beginning work.

Applicable Cables

Check that the cables to be used are within the applicable range. If you intend to use a cable other than those recommended, contact a sales representative.

[Precautions]

- Cables applicable to crimping connectors are tin-plated stranded soft-copper wire.
- Avoid crimping solid wire, wires with polyester threads or tin coated wires.
- Avoid crimping two cables together.
- The crimp height setting values (Note) may vary between tin-plated and gold-plated terminals even if the same electric wires are used.
- The crimp height setting values (Note) may vary depending on the difference in the core wire configuration even if the computed cross-sectional area is the same.

Note : The crimp height is an important item that determines crimping quality. We execute crimping tests for each electric wire to ensure the optimal value for the crimp height with high precision, thereby ensuring optimal setup values.

Precautions

| | |
|-------------------------|--|
| 1.Cleaning Conditions | Please refer to the "Wire-to-Board Connector Use Handbook". |
| 2.Connection Conditions | Please refer to the "Wire-to-Board Connector Use Handbook". |
| 3.Precautions | <ul style="list-style-type: none"> ■ The color of the plastic molding may differ slightly depending on product lot and future storage conditions but this does not affect the product performance. |
| 4.Handling | <p>Please refer to the following documents when handling the product.</p> <ul style="list-style-type: none"> ■ Crimp Quality Standard (ATAD-H0792-00) ■ Wire-to-Board Connector Use Handbook |

While taking in consideration

Specifications mentioned in this catalog are reference values.
 When considering to order or use this product, please confirm the "Drawing" and "Product Specifications" sheets.
 Use an appropriate cable when using the connector in combination with cables.
 If considering usage of a non-specified cable, please contact your sales representative.
 If assembly process is done by jigs & tools which are not identified by Hirose assurance will not be given.
 Please consult with your Hirose sales representative if you are planning to use the product for any of the following applications. (Automotive, medical, public infrastructure, aerospace/defense, etc.)
 Hirose will consider the validity of the warranty depending on the conditions.

[JAPAN]

Headquarters
HIROSE ELECTRIC CO., LTD.
 Phone : +81-45-620-7410
<http://www.hirose.com>

[U.S.A]

US Headquarters / CHICAGO Office
HIROSE ELECTRIC (U.S.A.), INC.
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[THE NETHERLANDS]

EU Headquarters / AMSTERDAM OFFICE
HIROSE ELECTRIC EUROPE B.V.
 Phone : +31-20-6557460
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UK Branch
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