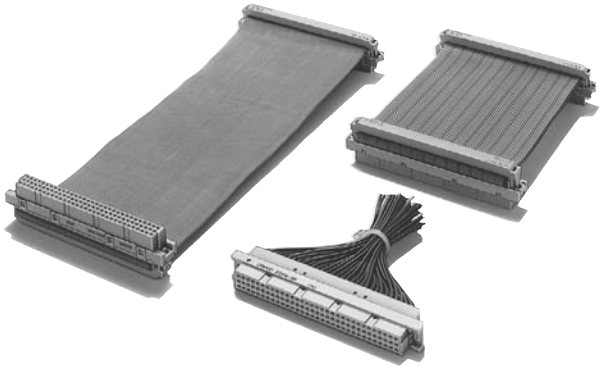
OMRON

DIN Connectors with Cables Attached

XC6

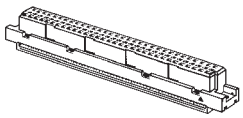
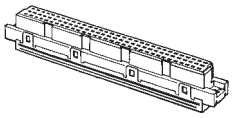
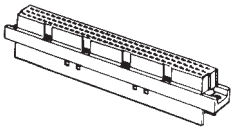
Wider range of uses than normal DIN Connectors



- Two types of Connectors, for flat cables and discrete wires. Select the type for your application.
- Flat Cable Connectors (XC6D, XC6H) enable VME bus configurations (daisy chain) and backplane systems.
- The Discrete-wire IDC Connectors (XC6V) have solderless contacts and use separated contact blocks to significantly reduce the number of harnesses.

RoHS Compliant

■ Connectors

Model	XC6D	XC6H	XC6V
Appearance	Flat Cable Connectors with double rows (no center row) 	Flat Cable Connectors with triple rows 	Discrete-wire IDC Connectors 
Page	2	3	5

■ Ratings and Characteristics

Item	XC6D	XC6H	XC6V	Remarks
Rated current	1 A	0.65 A	3 A max.	
Rated voltage	250 VAC	100 VAC	300 VAC	
Contact resistance	20 mΩ max. (at 20 mV, 100 mA max.)			
Insulation resistance	1,000 MΩ min. (at 500 VDC)			
Dielectric strength	500 VAC	300 VAC	650 VAC	1 minute, leakage current 1 mA max.
Total insertion force	0.59 N per contact max.			
Removal force	0.15 N min. (with test gauge, t = 0.56 mm)			
Insertion durability	200 times			
Ambient operating temperature	–55 to 105°C			(with no icing at low temperature)

■ Materials and Finish

Item		XC6D	XC6H	XC6V (See note.)
Housings		Fiber-glass reinforced PBT resin (UL94 V-0)/gray		
Contacts	Mating end	Copper alloy/nickel base, 0.4-μm gold plating		
	Terminal	Copper alloy/nickel base, 2.0-μm tin plating		
Strain Relief		Fiber-glass reinforced PBT resin (UL94 V-0)/gray		---

Note: This includes the Connector Housing and Single-row Contact Housing.

■ Applicable Wires

Model	XC6D	XC6H	XC6V (See note.)
Wire	XY3A-640□ 1.27 mm-pitch flat cable AWG28 (strand wire) 64 strands UL2651 (standard cable) UL20012 (folding cable) UL20028 (color-code cable)	XY3A-9605 0.847 mm-pitch flat cable AWG30 (strand wire) 96 strands UL20028 (standard cable)	• Size 1 AWG24 (uses UL1061) AWG26 (uses UL1007) • Size 2 AWG26/28 (uses UL1007)

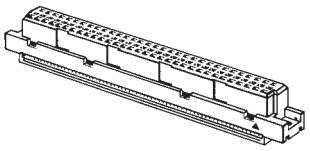
Note: The size numbers are printed on the insulation barrel part of the contact.

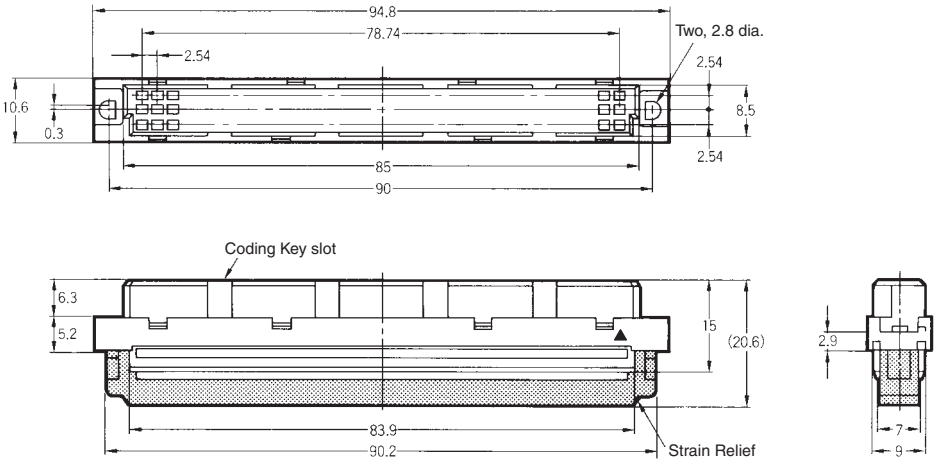
XC6D Double-row Flat Cable Connectors, DIN C-type (No Center Row)

■ Dimensions

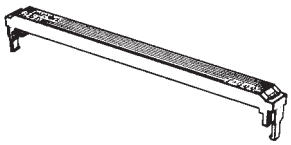
(unit: mm)

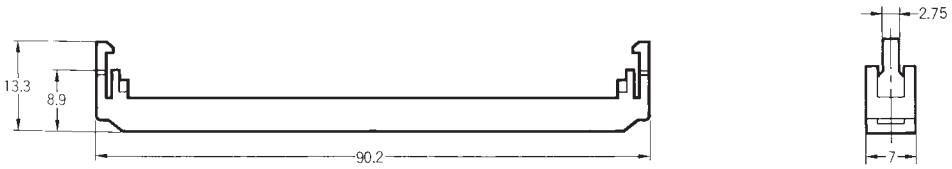
XC6D-6421
Socket



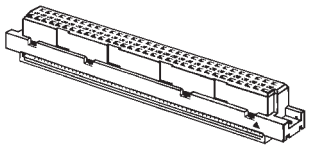
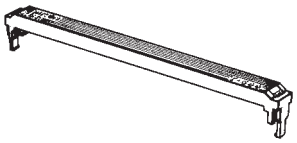


XC6T-644
Strain Relief





■ Ordering Information

No. of contacts	Socket (See note.)	Strain Relief
		
64*	XC6D-6421	XC6T-644

*Has no center row (row b).

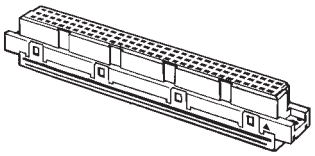
Note: Strain Relief sold separately.

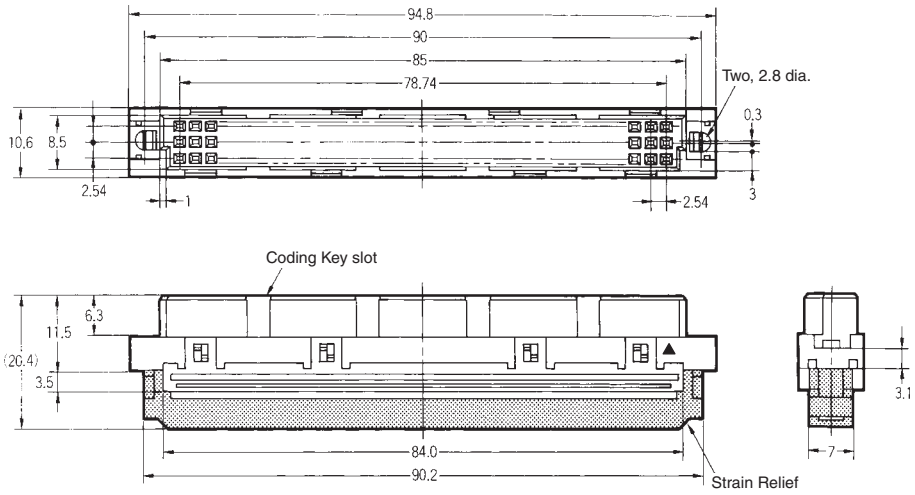
XC6H Triple-row Flat Cable Connectors, DIN C-type

■ Dimensions

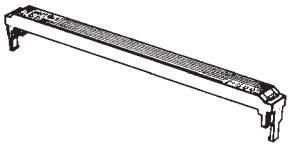
(unit: mm)

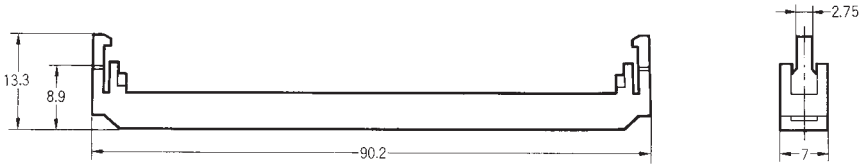
XC6H-9621
Socket



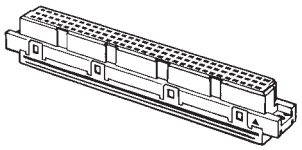
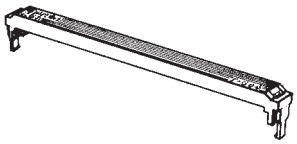


XC6T-644
Strain Relief





■ Ordering Information

No. of contacts	Socket (See note.)	Strain Relief
		
96	XC6H-9621	XC6T-644

Note: Strain Relief sold separately.

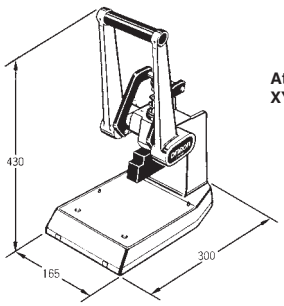
■ XC6D/XC6H IDC Tools

(unit: mm)

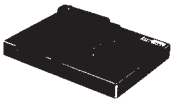
Use the IDC Tool (XY2B-0002) with the XY2B-1005 Attachment.

Model
XY2B-0002
XY2B-1005

IDC Tool XY2B-0002



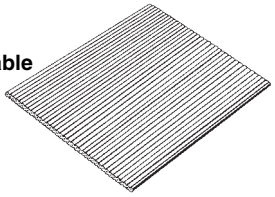
Attachment XY2B-1005

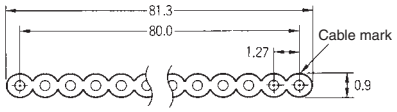


■ Flat Cables (unit: mm)

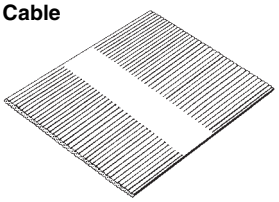
1.27-mm Pitch/Flat Cables for XC6D Connectors

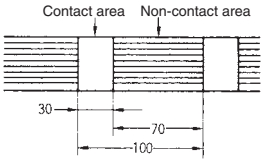
XY3A-6401 Standard Cable



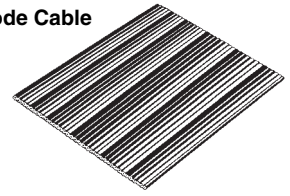


XY3A-6402 Folding Cable





XY3A-6403 Color-code Cable



Core No.	Insulation color	Core No.	Insulation color
1	Brown	6	Blue
2	Red	7	Purple
3	Orange	8	Gray
4	Yellow	9	White
5	Green	10	Black

Note: The colors above repeat again from 11 cores.

Ordering Information (Order in 1-roll (61.0 m) units)

No. of cores	Standard Cable	Folding Cable	Color-coded Cable	Applicable Connector
64 ✻	XY3A-6401	XY3A-6402	XY3A-6403	XC6D-6421

✻ For Cables with other numbers of cores, refer to XY3A.

Ratings and Characteristics

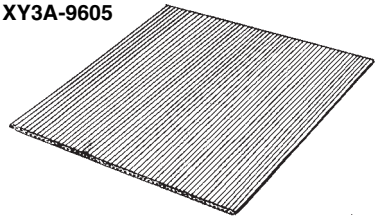
Item	XY3A-6401 Standard Cable	XY3A-6402 Folding Cable	XY3A-6403 Color-coded Cable
UL file No.	UL2651	UL20012	UL20028
Max. operation voltage	300 V	150 V	150 V
Max. operation current	105°C	80°C	105°C
Max. conductor resistance	224 Ω/km (at 20°C)		
Dielectric strength	2,000 VAC 50/60 HZ for one min		
Min. insulation resistance	5 MΩ-km (at 20°C)		

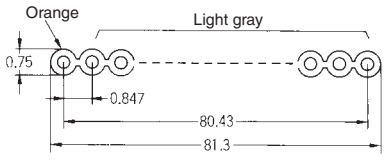
Materials

Conductor	AWG28 (7/0.127), tin plated, soft copper wire
Insulation	Heat-resistant vinyl

0.847-mm Pitch/Flat Cable for XC6H Connectors

XY3A-9605





Ordering Information (Order in 1-roll (61.0 m) units)

No. of cores	Model	Applicable Connector
96	XY3A-9605	XC6H-9621

Ratings and Characteristics

UL file No.	UL20028
Max. operation voltage	150 V
Max. operation current	105°C
Max. conductor resistance	354 Ω/km (at 20°C)
Dielectric strength	2,000 VAC 50/60 HZ for 1 min
Min. insulation resistance	5 MΩ-km (at 20°C)

Materials

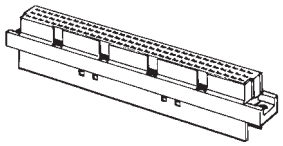
Conductor	AWG30 (7/0.102), tin plated, soft copper wire
Insulation	Heat-resistant vinyl

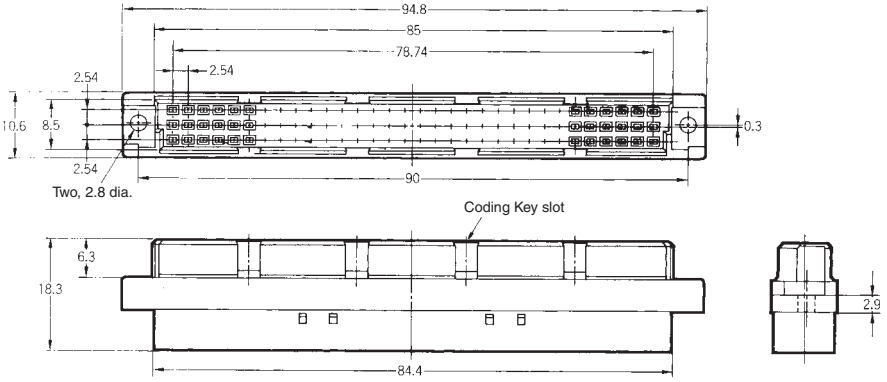
XC6V Discrete-wire IDC Connectors

■ Dimensions

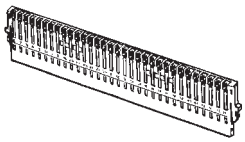
(unit: mm)

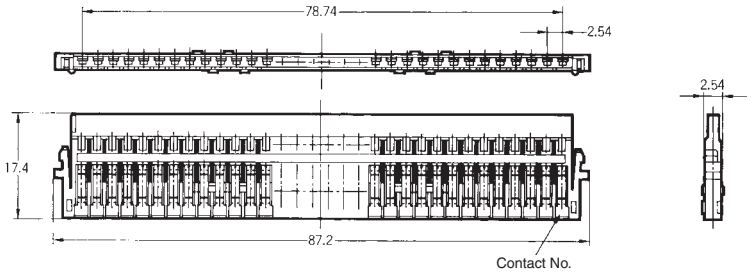
Connector Housing
XC6M-96



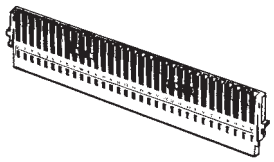


Single-row Contacts
XC6W-3221 (Size 1 AWG24/26)
XC6W-3222 (Size 2 AWG26/28)



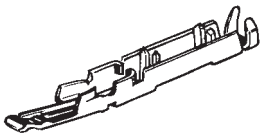


Dummy Board
XC6T-32

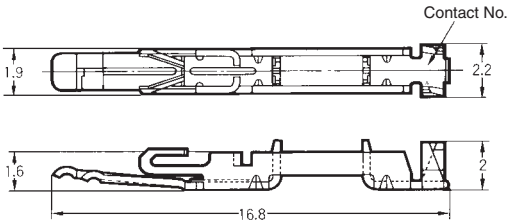


Note: Dimensions are the same as those for the Single-row Contacts.

Spare Contacts
XC6W-0021 (Size 1, AWG24/26)
XC6W-0022 (Size 2, AWG26/28)



Note: This can be used as a replacement Connector in the event of erroneous connection.



■ Ordering Information

Individual Models

Name	No. of contacts	Applicable wire	Model
Connector Housing	(See note.)	---	XC6M-96
Single-row Contacts	32	AWG24/26	XC6W-3221
	32	AWG26/28	XC6W-3222
Dummy Board	---	---	XC6T-32
Spare Contacts	---	AWG24/26	XC6W-0021
	---	AWG26/28	XC6W-0022

Note: Three Single-row Contacts (32 contacts) can be inserted.

Combinations

No. of contacts	Applicable wire	Model	Model and quantity
96	AWG24/26	XC6V-9621	XC6M-96 × 1 XC6W-3221 × 3
	AWG26/28	XC6V-9622	XC6M-96 × 1 XC6W-3222 × 3
64	AWG24/26	XC6V-6421	XC6M-96 × 1 XC6W-3221 × 2 XC6T-32 × 1
	AWG26/28	XC6V-6422	XC6M-96 × 1 XC6W-3222 × 2 XC6T-32 × 1

Note: 1. Accommodating model numbers are not printed on the Connectors.

2. For combinations other than the above especially when using different wires for each row, order the Connectors individually.

■ XC6V Accessories

Contact Extraction Tool

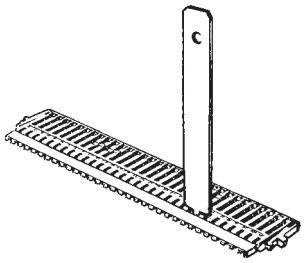
XY2D-0003

Used to remove contacts that were mistakenly connected to the socket housing.

Model
XY2D-0003

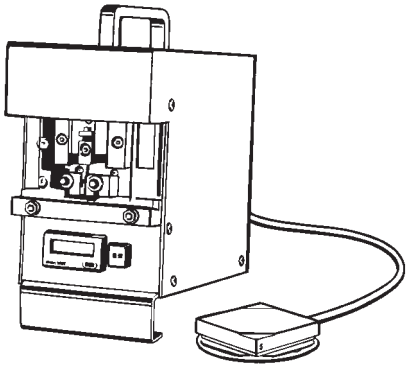
Procedure

1. Insert the lance holder of the tool into the lance hole in the housing.
2. When the hole is wide enough, remove the contact.
3. Insert a new Spare Contact.



Wire IDC Tool Set

XY2B-2105-N



(Contact the product dealer for delivery details.)

Model
XY2B-2105-N

This simple electric IDC tool is designed for XC6V Discrete-wire DIN Connectors.

Specifications

Stroke	13 mm
Motor speed	83/100 rpm (50/60 Hz)
Feed pitch	2.54 mm
Operation	Foot switch
Weight	About 6 kg
Rated voltage	0.5 A, 100 VAC (50/60 Hz)
Fuse	1 A
Dimensions	120 × 200 × 225 mm (W × H × D)

Note: See the IDC Tool User's Manual for function and operating details.

Applicable Connectors and Wires

Applicable Connector	Contact No.	Applicable wires			
		UL file No.	Size [No. or wires/diameter (mm)]	Cross-sectional area (mm)	Covering diameter (mm)
XC6V-9621 (Connector set)	No. 1	UL1061	AWG24 [7/0.203]	0.21	1.10 dia.
XC6W-3221 (Single-row Contacts)		UL1007	AWG26 [7/0.16]	0.13	1.30 dia.
XC6V-9622 (Connector set)	No. 2	UL1007	AWG26 [7/0.16]	0.13	1.30 dia.
XC6W-3222 (Single-row Contacts)			AWG28 [7/0.127]	0.09	1.20 dia.

Note: Use only wires specified in the table above.

■ Precautions

Correct Use

About Solderless Connections (IDC)

- Use only the XC6 IDC Tool to insure reliability.
- Contact your OMRON representative for details on the IDC Tool.
- Check the contact size (No. 1 or No. 2) and wire size before connecting.
- Do not use wires other than UL-tested 7-strand wires.
- Do not touch the contacts during connection.
- Due to the construction of the Single-row Contacts and the Dummy Board, the long-hand direction is weak. Do not bend it.
- After making the connections, check that:

1. The wires are inserted all the way into the slots.
2. The wires are centered in both slots. (Fig. 1.)
3. Insulation displacement margin should be adequate. (a)
4. The height of the connections in both slots is equal. (Fig. 2)
5. The insulation barrel completely covers the wires.

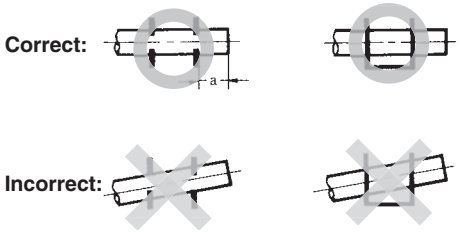
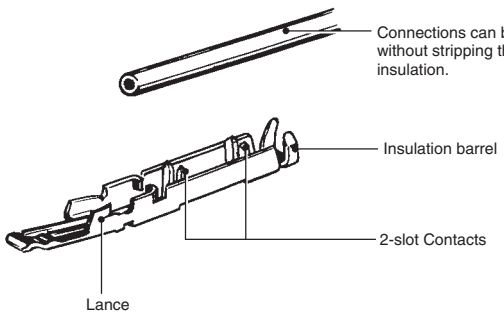


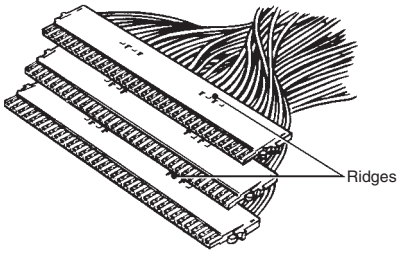
Fig. 1 Fig. 2

IDC Contacts

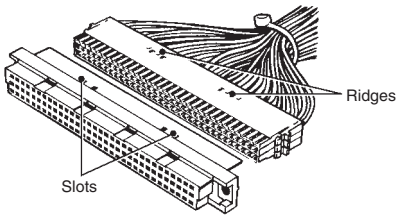


- An insertion length of 9 mm is required, which should be taken into account when preparing a wire for connection.

Inserting into the Connector Housing

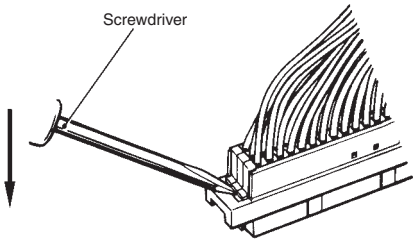


- Three Single-row Contacts (or Dummy Boards) can be stacked in the same direction. Position the Contacts (or Dummy Boards) by using the tabs on the surface).



- Make sure that the tabs on the three Contact match the slots on the housing. Push them until they snap together.

Removing from the Connector Housing



Insert a flat-blade screw driver into the gap under the flaps on the back of the unit as shown in the diagram. Push the screw driver in the direction of the arrow (down).

Use a wide screw driver that can remove all three Single-row Contacts.

Mating with the XC6V Connector

- The XC6V can mate with the XC5 or XC3 Triple-row, 96-contact Plugs.
- It can also mate with other DIN standard (DIN 41612) connectors.
- Be sure to hold the Connector Housing when removing the XC6V from the Plug. Do not try to remove it by pulling on the wire.

- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

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