

## EM52M/40M/30M Series

# Plastic Connectors for High Current Applications



High-Current



Bayonet



Waterproof



## Features

---

### 1. High Quality Plastic Enables a Robust and Lightweight

High quality plastic enables a lightweight for high current connectors. Robust design resistant to rough handling.

### 2. Quick and Secure Push-on Bayonet Lock

The push-on bayonet locking mechanism enables complete locking in one quick mating action.

### 3. Multi-surface Contact Spring Design

High current is achieved by using the multi-surface contact spring design.

### 4. Standard Crimp Tool for Easy Crimp Connection

Contacts can be crimped by using a JIS standard crimp tool (JIS C 9711).

### 5. Available in a Waterproof Version

Waterproof when using a cable gland (Note).

Note : KEIGLAND,  
manufactured by SANKEI MANUFACTURING Co., Ltd.

### 6. Finger Protection Design

Complies with the electric shock proof specification (IP2X).

Note : Applies only to plug side in the case of EM40M and EM30M.

### 7. TÜV, UL

EM40M, EM30M : UL registered.

EM52M : TÜV registered,

UL application pending

Note : Please confirm specifications at time of delivery.

### 8. RoHS Compliant

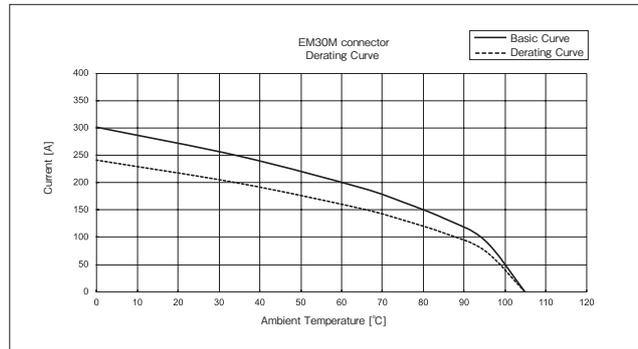
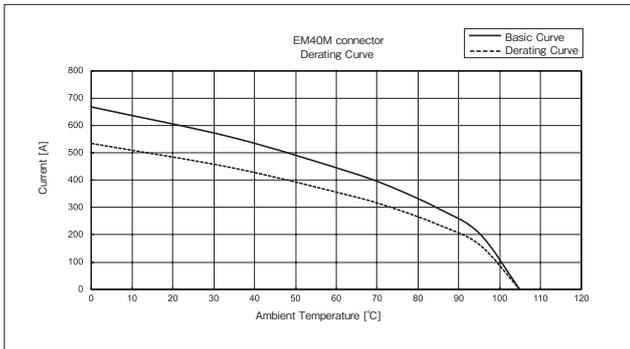
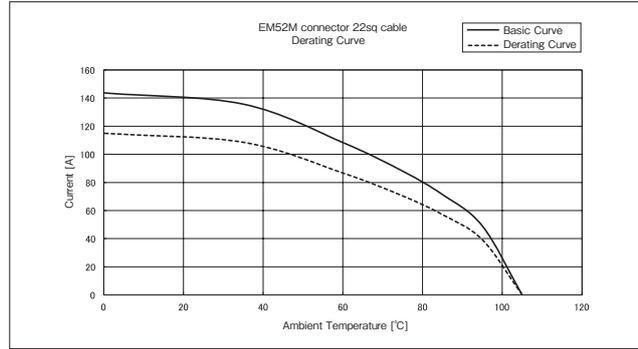
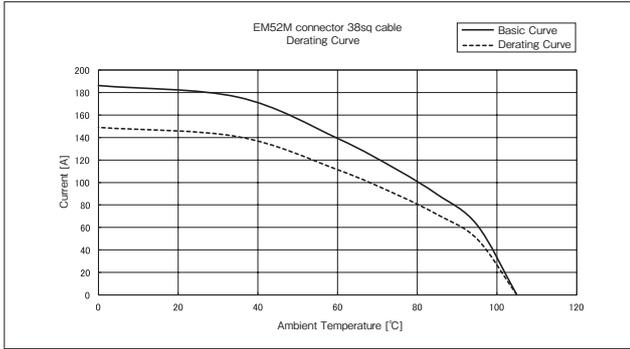
## Product Specifications

Product		EM52M	EM40M	EM30M
No of Pos.		4pos.	1pos.	1pos.
Rated Current	Waterproof	TÜV :100A (38SQ) 80A (22SQ) General : 130A (38SQ) (Ambient temperature 25°C)	UL : 300A  General : 410A (Ambient temperature 25°C)	UL : 150A  General : 175A (Ambient temperature 25°C)
	Non-Waterproof	TÜV :100A (38SQ) 80A (22SQ) General : 140A (38SQ) (Ambient temperature 25°C)	UL : 300A  General : 450A (Ambient temperature 25°C)	UL : 150A  General : 200A (Ambient temperature 25°C)
Rated Voltage		1000V AC/DC 600V AC , 750V DC (TÜV)	1000V AC/DC 600V AC/DC (UL)	
Operating Temperature		-25 to +105°C (Non-Waterproof specification) -20 to +90°C (Waterproof specification) (Includes temperature rise due to current flow.)		
Storage Temperature		-10 to +60°C		
Conductor Area		22SQ: 16.78 to 26.66mm <sup>2</sup> 38SQ: 26.66 to 42.42mm <sup>2</sup>	117.2 to 152.05mm <sup>2</sup>	42.42 to 60.57mm <sup>2</sup>

Item	Specifications	Conditions
Contact Resistance	0.5m Ω Max. (EM52M) 0.3m Ω Max. (EM40M) 0.6m Ω Max. (EM30M)	Measured at 1A DC
Insulation Resistance	1000M Ω Min.	Measured at 500V DC
Withstanding Voltage	No flashover or dielectric breakdown	2200V AC for 1 min.
Mating Durability	Contact resistance 1.0m Ω Max. (EM52M) 0.8m Ω Max. (EM40M) 0.8m Ω Max. (EM30M)	50 cycles
Vibration Resistance	No electrical discontinuity of 10 μ s or more	Frequency : 10 to 55 to 10Hz/cycle, single amplitude of 0.75mm 5 minutes/cycle, 10 cycles in each of the 3 axis (EM52M Non-water-proof specification)
		Frequency : 10 to 500Hz/cycle, single amplitude of 0.75mm 3 hours in 3 axial directions (MIL-STD-1344 Method 2005 Condition II ) (EM52M Water-proof specification, EM40M, EM30M)
Shock Resistance	No electrical discontinuity of 10 μ s or more	Acceleration : 490m/s <sup>2</sup> , duration : 11ms, 6 directions, 3 cycles for each
Temperature Cycles	Insulation resistance : 1000M Ω Min.	-40°C : 30 minutes → Room temperature : 2 to 3 minutes → +105°C : 30 minutes → Room temperature : 2 to 3 minutes, 5 cycles
Humidity Resistance	Insulation resistance : 10M Ω Min. (at high humidity) 100M Ω Min. (dry environment)	Left for 96 hours at 40°C and humidity of 90 to 95%
Waterproof	No water intrusion inside connector	Submerged in 1m water depth for 30 minutes in mated condition.

## [Reference] Derating Curve

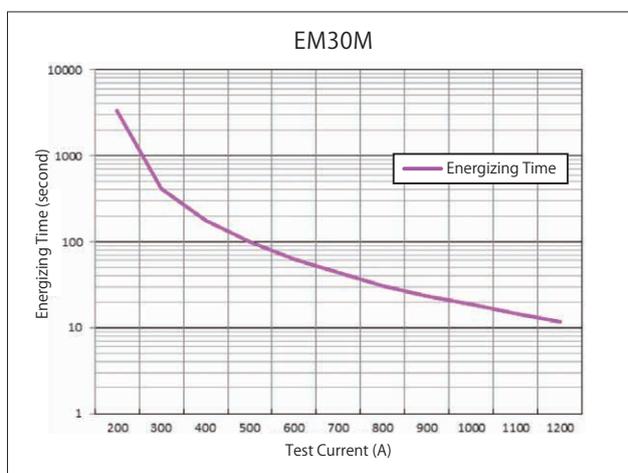
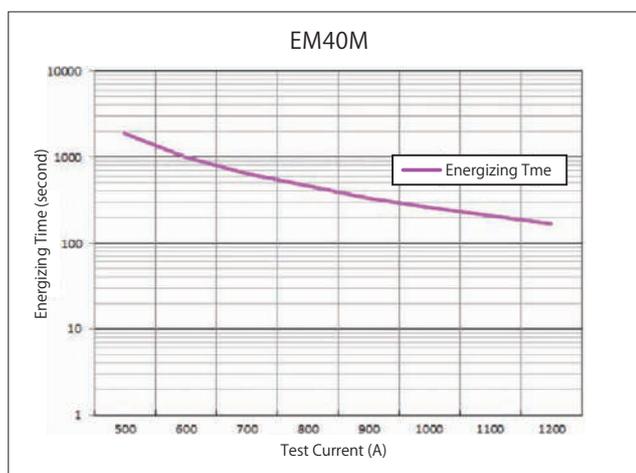
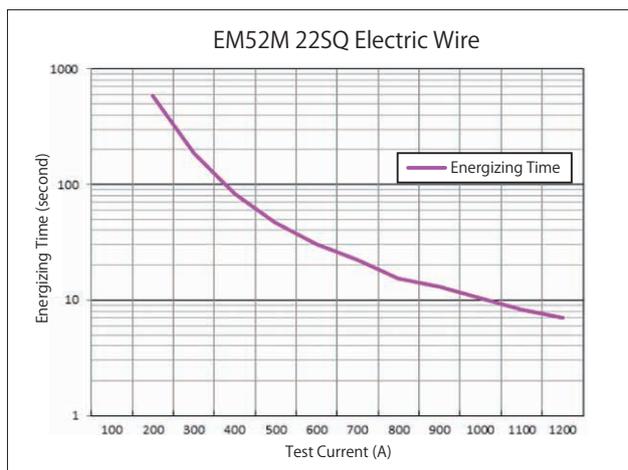
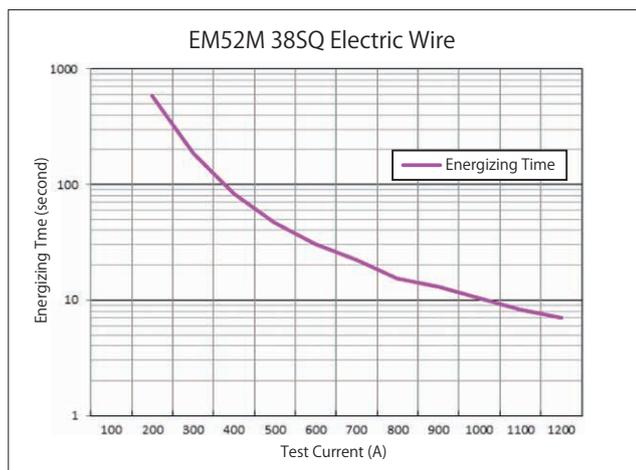
Operation below the derating curve (dotted line) is recommended.



Note : Derating curve could vary depending on cable type and measurement even under the same conditions.  
Therefore, the data noted above are reference values, not connector specifications.

## [Reference] Continuous Energizing Current Graph (Current-Time Graph)

[Temperature rise value 45°C] Energizing time (average value of all samples)



Note : The continuous energizing current graph is reference data used for current values exceeding the rated values for a short time.

## Materials / Finish

Component	Materials	Color/Finish	Remarks
Insulator	PBT, PBT Alloy Resin	Black	UL94V-0
Contact	Copper	Silver Plated	-
Contact Spring	Copper Alloy	Silver Plated	-
Packing	Fluorosilicone Rubber	Black	-
O-Ring	Nitrile Rubber	Black	-

## Product Number Structure

Please utilize the below part number chart when selecting.

### ■ Plug

**EM ## M - # B P - # P C A - # (##)**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

### ■ Receptacle

**EM ## M - # B R - # S C A - # (##)**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

### ■ Crimp Contact (Male)

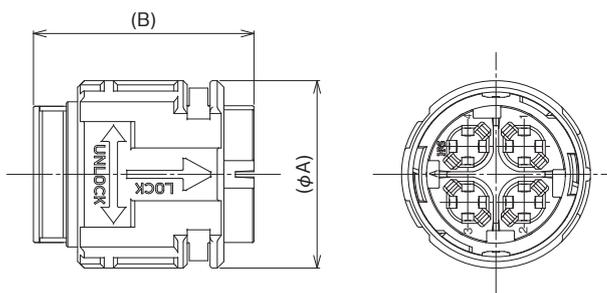
**EM 52 M - P C # - 1 # 2 (##)**  
 ① ② ③ ⑧ ⑨ ⑬ ⑭ ⑮ ⑯ ⑫

### ■ Crimp Contact (Female)

**EV1 - S C # - 1 # 2 (##)**  
 ① ⑧ ⑨ ⑬ ⑭ ⑮ ⑯ ⑫

① Series Name	EM, EV	⑨ Contact Connection Method	C : Crimp connection
② Shell Size	52, 40, 30	⑩ Mating Guide Indication	A, B, C, D
③ Style [1]	M : Mold type	⑪ Package	Unmarked : Standard K : Contact, retainer or sleeve shipped in a single package
④ Style [2]	W : Waterproof type Unmarked : Non-waterproof type	⑫ Special Specification	Alternate options
⑤ Lock Type	B : Bayonet lock	⑬ Contact Shape	Unmarked : Standard (with connection holes) 2 : Without connection holes
⑥ Connector Type	P : Plug R : Receptacle J : Jack	⑭ Contact Form	1 : Loose piece contact
⑦ No. of Pos.		⑮ Connection Section	1 : 22SQ-compliant 3 : 38SQ-compliant
⑧ Connector Gender	P : Male contact S : Female contact	⑯ Plating Class	2 : Silver plating

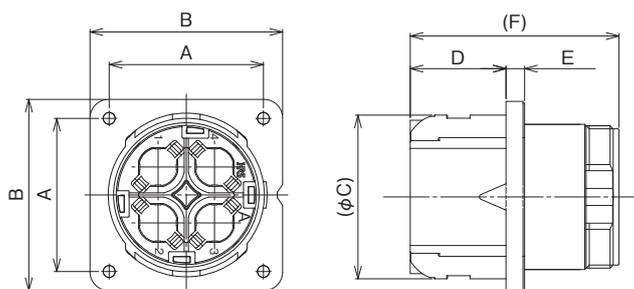
## Plug



Unit : mm

Part No.	HRS No.	A	B	Remarks	Purchase Unit
EM52M-BP-4PCA	CL0138-0046-2-00	71	51.6	For non-waterproof type	6pcs per box
EM52M-WBP-4PCA	CL0138-0035-6-00			For waterproof type	
EM40M-WBP-1PCA-K(81)	CL0138-0070-0-81	53.2	39.5	For waterproof type, Contact and sleeve shipped in a single package	12pcs per box
EM40M-BP-1PCA-K(81)	CL0138-0072-0-81			For non-waterproof type, Contact and retainer shipped in a single package	
EM30M-WBP-1PCA-K(81)	CL0138-0074-0-81	40.6	26.7	For waterproof type, Contact and sleeve shipped in a single package	20pcs per box
EM30M-BP-1PCA-K(81)	CL0138-0076-0-81			For non-waterproof type, Contact and retainer shipped in a single package	

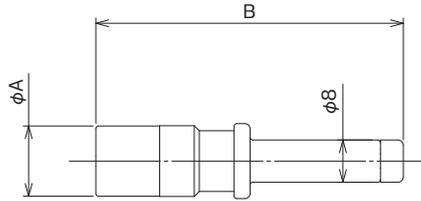
## Receptacle



Unit : mm

Part No.	HRS No.	A	B	C	D	E	F	Remarks	Purchase Unit
EM52M-BR-4SCA	CL0138-0050-0-00	58	72.4	62	36	7	78.5	For non-waterproof type	6pcs per box
EM52M-WBR-4SCA	CL0138-0036-9-00							For waterproof type	
EM40M-WBR-1SCA-K(81)	CL0138-0071-0-81	45.96	56	46.5	27	6	75.7	For waterproof type, Contact and sleeve shipped in a single package	20pcs per box
EM40M-BJ-1SCA-K(81)	CL0138-0073-0-81							For non-waterproof type, Contact and retainer shipped in a single package	
EM30M-WBR-1SCA-K(81)	CL0138-0075-0-81	36.77	46	35.2	21.6	5	57.8	For waterproof type, Contact and sleeve shipped in a single package	20pcs per box
EM30M-BJ-1SCA-K(81)	CL0138-0077-0-81							For non-waterproof type, Contact and retainer shipped in a single package	

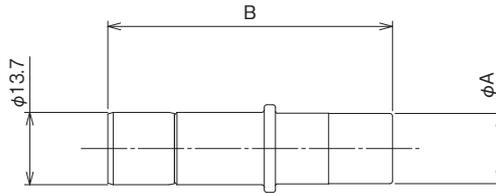
## Male Contact



Unit : mm

Part No.	HRS No.	Conductor Area	A	B	Cap Color	Purchase Unit
EM52M-PC2-132	CL0138-0006-0-00	26.66 to 42.42mm <sup>2</sup>	13.3	57.8	Gray	4pcs per bag
EM52M-PC-112	CL0138-0012-0-00	16.78 to 26.66mm <sup>2</sup>	11.5	50.8	Black	

## Female Contact



Unit : mm

Part No.	HRS No.	Conductor Area	A	B	Cap Color	Purchase Unit
EV1-SC2-132(03)	CL0139-0012-7-03	26.66 to 42.42mm <sup>2</sup>	13.3	53.5	Gray	4pcs per bag
EV1-SC2-112(03)	CL0139-0013-0-03	16.78 to 26.66mm <sup>2</sup>	11.5	50.5	Black	

## Cable Gland



Part No.	HRS No.	Applicable Connector	Remarks
E2KD3636	—	EM52M	When using a 38mm <sup>2</sup> wire
E2KD3236	—	EM52M	When using a 22mm <sup>2</sup> wire
E2KD2428	—	EM40M	—
E2KD1620	—	EM30M	—

Note : This product is manufactured by SANKEI MANUFACTURING Co., Ltd.

## Multiple Packing



Part No.	HRS No.	Applicable Connector	Outer Diameter of Applicable Wire	Applicable Cable Gland
EMGP36-11 × 4P	—	EM52M	φ 10 to 11mm	E2KD3636
EMGP36-12 × 4P	—		φ 11 to 12mm	
EMGP36-13 × 4P	—		φ 12 to 13mm	
EMGP32-9 × 4P	—		φ 8 to 9mm	E2KD3236
EMGP32-10 × 4P	—		φ 9 to 10mm	
EMGP32-11 × 4P	—		φ 10 to 11mm	

Note : This product is manufactured by SANKEI MANUFACTURING Co., Ltd.

## Applicable Tools

### ● Contact Extraction Tool



EM52M-PC-TP

### ● Contact Extraction Tool



EM52M-SC-TP

### ● Manual Hydraulic Type Crimp Tool



9H-60

### ● Electric Hydraulic Type Crimp Tool



REC-Li150

Items	Part No.	HRS No.	Remarks
Contact Extraction Tool	EM52M-PC-TP	CL0150-0261-9-00	Male contact extraction tool
	EM52M-SC-TP	CL0150-0262-1-00	Female contact extraction tool
Manual Hydraulic Type Crimp Tool	HT111/9H-60	CL0902-1515-2-00	Equivalent product : 9H-60 made by Maxell Izumi Co., Ltd.
Electric Hydraulic Type Crimp Tool	—	—	Recommendation : REC-Li150 made by Maxell Izumi Co., Ltd.

## Safety Precautions

### ⚠ Warning

- Do not touch the exposed conductor while it is energized. Failing to follow this warning may cause an electric shock and injury. ⚠
- The power should be in the OFF position when inserting or extracting this connector.
- After mating this connector, perform a light pull on the cable to ensure that it has been correctly mated and is locked securely. Incomplete mating may result in disconnection or contact failure and is extremely dangerous.

### ⚠ Caution

- This connector was designed to be used in a stable and stationary environment, do not try to operate this connector where vibration occurs.
- Please only use Hirose approved contacts. Using unapproved contacts can result in a lowering of the product's performance and cause a serious accident. Please contact your local Hirose representative for additional information.

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please review 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, the warranty of the product may be affected.

If considering usage for below mentioned applications, please contact your sales representative.

In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/defense etc. Hirose must review before assurance of reliability can be given.