

Aqua-safe

Waterproof Plug & Socket Connectors

Simply better designed

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Elkay's Aqua-safe is the only all-round solution for safely connecting and carrying power through wet / damp environments or adverse weather conditions. The range available from Elkay covers a multitude of domestic, commercial and industrial uses.

Typical applications include:

- Gardens to power outside lighting and water pumps
- Local Authorities / Councils
- Temporary Street Lighting
- Marine and Boat Builders
- Portable electricity generator manufacturers

There is an increasing demand for safe outdoor electrical applications and therefore a need for a range of cost effective, fully waterproof connectors. The main features of the Elkay Aqua-safe range are outlined on these pages.

Product features

- **Increased cable acceptance range**

The existing product range has been extended to increase the cable acceptance ranges:

- 5 – 9mm (existing)
- 8 – 13mm (new)
- 12 – 16mm (new)

- **Cable gland technology**

For the cable entry points, Elkay have utilised existing cable gland technology to provide clamping and waterproofing at either end of the connector body. Because the seal deforms so well, each size of gland can accommodate more sizes of cable than competitive products, helping reduce inventory.

- **Improved current capacity**

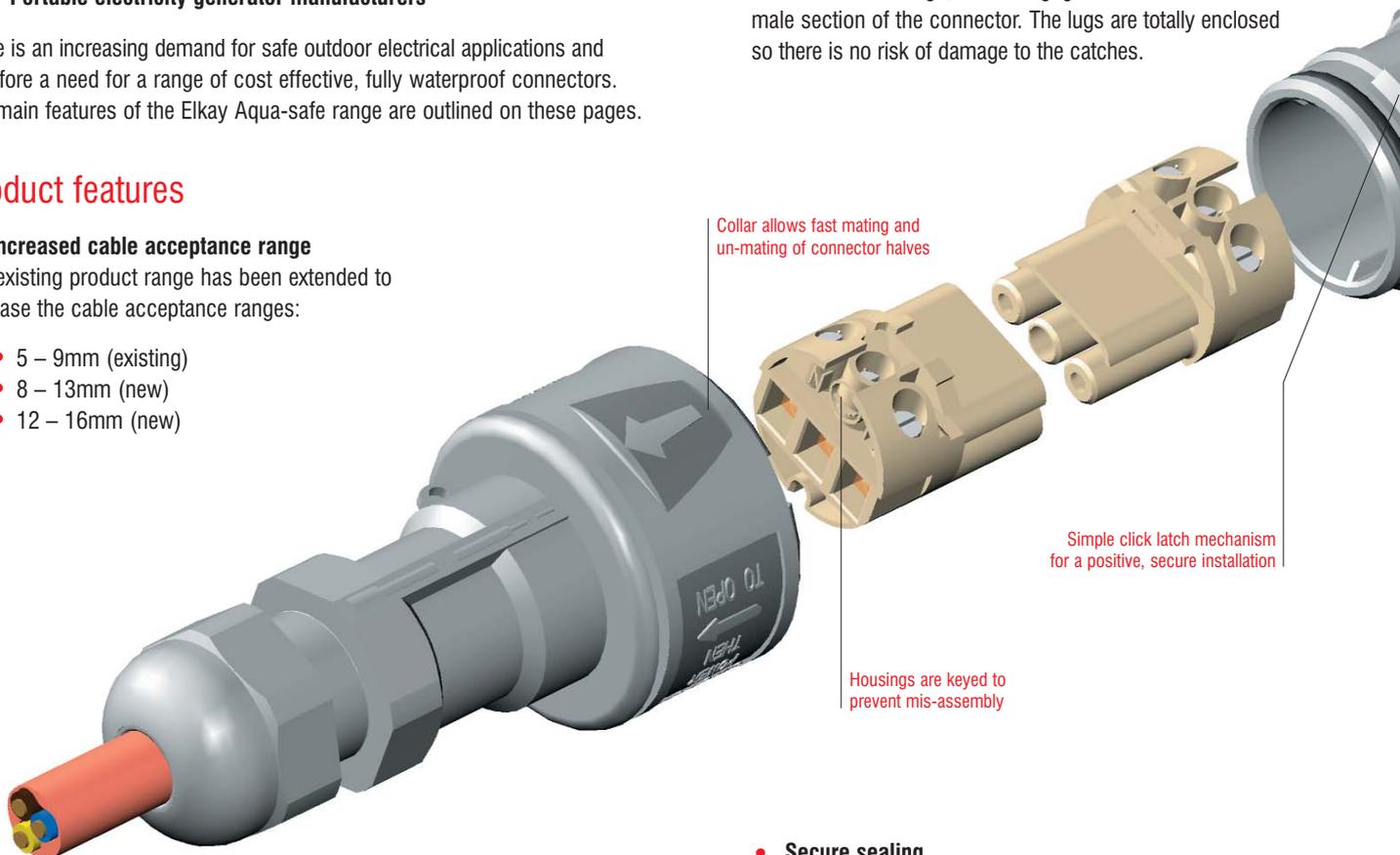
10 amps, now increased to 16 amps.

- **Simplified assembly of inner connectors**

Active latch mechanism to access the inner connectors for quicker wiring.

- **Click latch mechanism**

The conventional approach of connector halves that screw together has been discarded and replaced by a simple click latch mechanism. A latch system is more reliable than a screw thread as there is no doubt when the connector is fully mated. Aqua-safe's latch mechanism is also highly innovative with only one moving part. This is a sliding ring that carries three lugs, which engage with slots on the male section of the connector. The lugs are totally enclosed so there is no risk of damage to the catches.



Collar allows fast mating and un-mating of connector halves

Simple click latch mechanism for a positive, secure installation

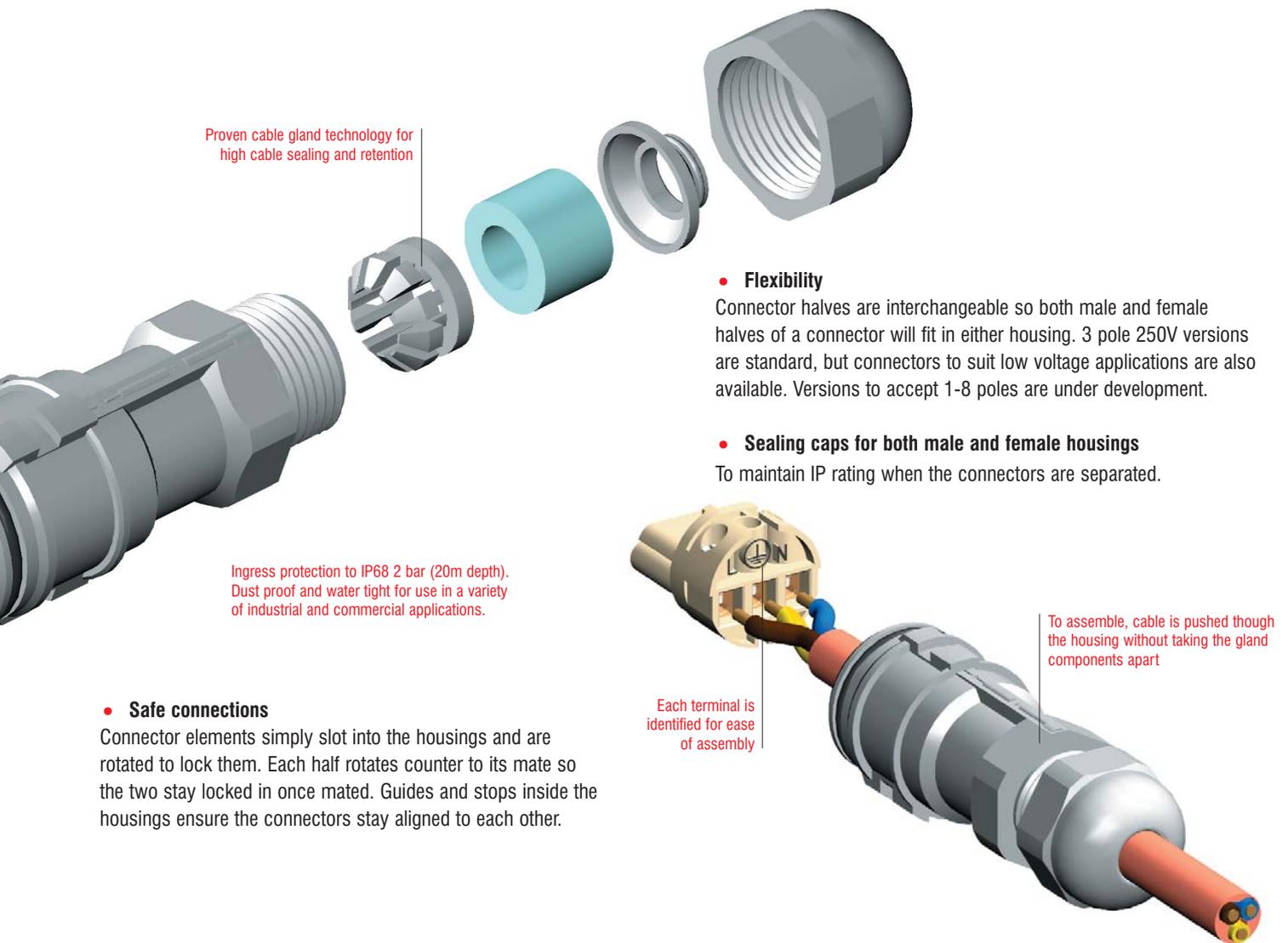
Housings are keyed to prevent mis-assembly

- **Secure sealing**

To ensure effective sealing between mating housings, we have opted for a single 'O' ring that is carried in a groove on the male half of the connector and is a comfortable fit inside the second half of the connector. With Elkay Aqua-safe, if the latch is snapped home then the sealing will work. Our design provides both an audible and tactile response when activated. The 'O' ring sealing system provides IP68 protection (at 2 bar). Effectively the Elkay Aqua-safe range is waterproof up to a depth of 20 metres.



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Proven cable gland technology for high cable sealing and retention

- **Flexibility**

Connector halves are interchangeable so both male and female halves of a connector will fit in either housing. 3 pole 250V versions are standard, but connectors to suit low voltage applications are also available. Versions to accept 1-8 poles are under development.

- **Sealing caps for both male and female housings**

To maintain IP rating when the connectors are separated.

Ingress protection to IP68 2 bar (20m depth). Dust proof and water tight for use in a variety of industrial and commercial applications.

To assemble, cable is pushed through the housing without taking the gland components apart

Each terminal is identified for ease of assembly

- **Safe connections**

Connector elements simply slot into the housings and are rotated to lock them. Each half rotates counter to its mate so the two stay locked in once mated. Guides and stops inside the housings ensure the connectors stay aligned to each other.

- **Bulkhead or panel mounted fittings**

It is now possible to fix the mounting of one half of the Aqua-safe connector either by bulkhead (flanged) or panel mounting (threaded).

Bulkhead screwed male and female options



Bulkhead flanged male and female options



The In-Line Aqua-safe range

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In-Line \varnothing 5 to 9mm



In-Line \varnothing 8 to 13mm



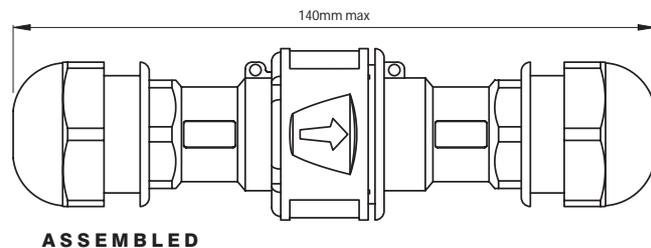
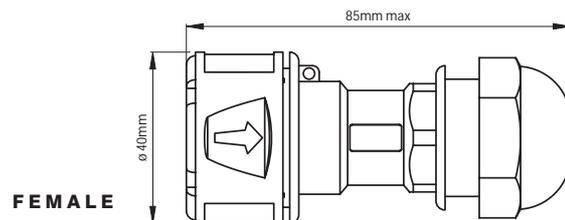
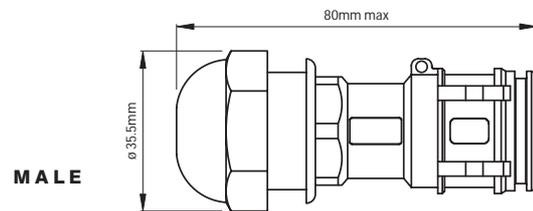
In-Line \varnothing 12 to 16mm



Standard in-line product

The in-line range is typically used where temporary connections are required for power. The range offers a variety of cable acceptance sizes, whilst maintaining a compact working envelope. The housings are defined as either Female or Male. The Female housing has the collar moulding, and the Male housing is smaller in diameter, and fits inside the opposite housing. The inner connectors are defined as either a Plug or Socket according to the metal inserts.

The product can be supplied as a mated pair, or as separate halves to mate with either bulkhead or panel mounted version shown on the opposite page. The table below shows the standard stock items, but other variations are available. Standard assembly is the socket connector supplied in the Male housing. Elkay always recommend that the Aqua-safe be installed with power connected to the socket inner connector, but if a specific application dictates this is not possible or if the connections are incorrectly assembled during installation, the connector remains touch-safe. Refer to the table on inside back cover for further details on customising Aqua-safe.



Nr	Description	Connector Details	\varnothing Cable Range	Pack Qty
185-9000	Aqua-safe In-Line Waterproof Connector Assembly	3 Pole Plug & Socket	5-9mm	1
185-9100	Aqua-safe In-Line Waterproof Connector Assembly	3 Pole Plug & Socket	8-13mm	1
185-9200	Aqua-safe In-Line Waterproof Connector Assembly	3 Pole Plug & Socket	12-16mm	1
185-0A1011-P030-1	Aqua-safe In-Line Waterproof Female Housing	3 Pole Plug	5 - 9mm	1
185-0A1021-P030-1	Aqua-safe In-Line Waterproof Female Housing	3 Pole Plug	8 - 13mm	1
185-0A1031-P030-1	Aqua-safe In-Line Waterproof Female Housing	3 Pole Plug	12 - 16mm	1
185-1A1011-S030-1	Aqua-safe In-Line Waterproof Male Housing	3 pole Socket	5 - 9mm	1
185-1A1021-S030-1	Aqua-safe In-Line Waterproof Male Housing	3 pole Socket	8 - 13mm	1
185-1A1031-S030-1	Aqua-safe In-Line Waterproof Male Housing	3 pole Socket	12 - 16mm	1

Low voltage versions are also available as standard, see specification sheet on page 7.

The Bulkhead Aqua-safe

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Standard bulkhead product

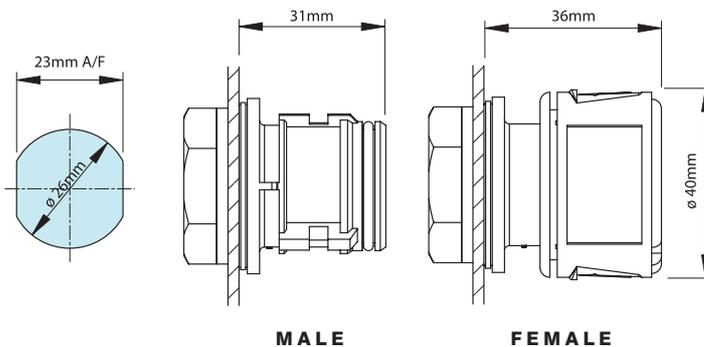
If power is being distributed and controlled from a fixed installation, it may be more appropriate to mount products into an enclosure or electrical equipment. As an alternative to the in-line connector, Elkay offer complimentary mounting options including;

- **Chassis / panel mounting (screwed)**
Supplied with M25 Locknut and Sealing Washer as standard, the thread has flats to orientate the housing during installation.
- **Bulkhead / surface mounting (flanged)**
Flanged to suit surface mounting where space is restricted behind the application.

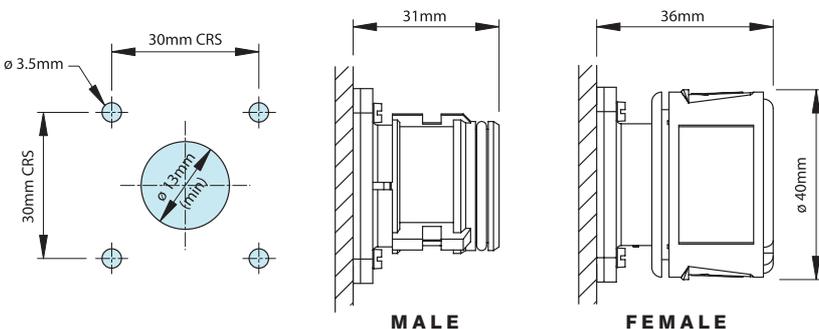
Each bulkhead / panel mounted housing can be used in conjunction with the appropriate mating in-line connector.

Mounting details and general dimensions

Screwed



Flanged



Bulkhead screwed

Male



Bulkhead screwed

Female



Bulkhead flanged

Male



Bulkhead flanged

Female



Nr	Description	Mounting Style	Connector Details	Pack Qty
185-0B1000-P030-1	Aqua-safe Bulkhead Female Housing	Flanged	3 Pole Plug	1
185-0E1000-P030-1	Aqua-safe Bulkhead Female Housing	Screwed	3 Pole Plug	1
185-1B1000-S030-1	Aqua-safe Bulkhead Male Housing	Flanged	3 Pole Socket	1
185-1E1000-S030-1	Aqua-safe Bulkhead Male Housing	Screwed	3 Pole Socket	1

Aqua-safe accessories, assembly and installation

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Accessories

Female Sealing Cap supplied with Connector Strap



Male Sealing Cap supplied with Connector Strap



Sealing caps

IP 68 Sealing caps can be fitted to each individual housing to maintain protection when the connectors are separated. This ensures electrical safety at all times, even when the connectors are not in use. The caps are operated in exactly the same manner as the connectors, by the latch mechanism held within the collar. A strap is also provided to retain the sealing cap onto the housings, for light static applications.

Nr	Description	Pack Qty
185-6100	Aqua-safe Male Sealing Cap with strap to suit all Female Housings	100
185-6200	Aqua-safe Female Sealing Cap with strap to suit all Male Housings	100

Assembly and installation

To disconnect Aqua-safe, firstly separate the two halves. This is achieved by simply gripping the collar and pulling in the direction of the arrows. This un-locks and separates the connector. Mating Aqua-safe is even easier. Guidance ribs are provided on each housing to help align the two halves of the connector. Simply push the housings together, and full engagement is assured by an audible 'click' which means both halves are locked together and the seal is complete.

The design process utilised to develop Aqua-safe ensures that it is only possible to mate the housings providing the inner connectors are correctly installed. The internal connector elements simply slot into the housings and are rotated to lock them in place. Each half rotates counter to its mate so the two stay locked in once mated. Guides and stops inside the housings ensure the connectors stay aligned to each other and prevent mis-insertion.

Once the inner connector has been removed, the cable is simply pushed through the housing without disassembling the gland. This helps to save time during installation. The conductors are then assembled into each appropriate terminal. A cutting guide for the conductors is provided on the housing alignment ribs. The inner connectors are then re-fitted by sliding back into the housing and rotating 45 degrees clockwise so that the latch clicks into the locked position. To finish the assembly, the gland nut is then tightened onto the outer sheathing of the cable to provide total sealing and retention.

During the connection and disconnection process, the centre earth pin is 2mm longer than the others, and is the first one to make contact and the last one to break contact. This ensures electrical safety.

As with all electrical connectors, it is important that the power is switched off before disconnecting the Aqua-safe.

The Aqua-safe 'Active Latch'

Access to the inner connectors is quick and simple by inserting a screwdriver into the release latch, and rotating the connector 45 degrees anti-clockwise (until it reaches the stop). The connector is then free to slide out of the housing to terminate the individual conductors.



3 Pole Plug Inner Connector with active latch.



3 Pole Socket Inner Connector with active latch.

Specification

Approvals

IEC 61984

Electrical Performance

Voltage Rating: 250 Va.c./d.c
 Current Rating: 16 Amps (Max.)
 Wire Capacity: 4mm² (Max.)

Temperature Range

Minimum: -25° Centigrade
 Maximum: +80° Centigrade

Waterproof Rating

IP68 to 2 Bar (equivalent to 20 metres water depth approx.)

Materials

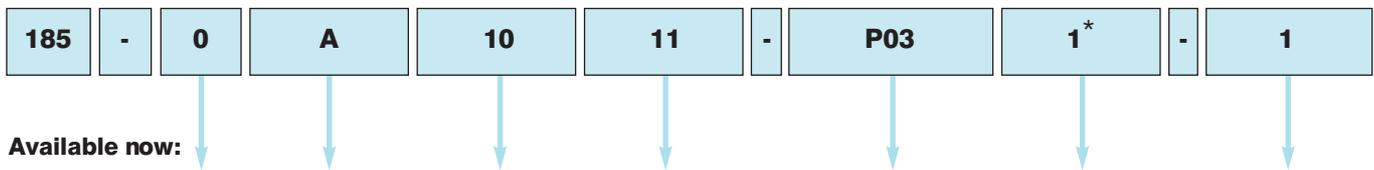
Inner Plug & Socket
 Connector: Polycarbonate
 Outer Housing: Glass Filled Nylon
 Seals: Nitrile Rubber
 Colour: Black (other colours pending)



How to specify Aqua-safe

Elkay have devised a part number which can be tailored to your specific product requirement. The table below show typical part numbers and how they are constructed. Each digit refers to specific criteria of the product. Our sales team are always ready to help you when you place your order, please find their contact number below.

The 17 digit part number should be constructed using the options given below



Available now:

HOUSING	HOUSING TYPE	HOUSING COLOUR/MATERIAL	GLAND SIZE / TYPE	INNER CONNECTOR	CAP / STRAP DETAILS	PACKING DETAILS
0 = Female (250V)	A = In-Line	10 = Black	00 = Bulkhead version (N/A)	000 = None	0 = None	1 = Single
1 = Male (250V)	B = Bulkhead flanged straight		11 = 5-9mm (single)	P03 = 3 Pole plug (250V)	1 = Male	2 = Bulk pack (QTY=10)
2 = Female (50V - Low voltage)	E = Bulkhead screwed straight		21 = 8-13mm (single)	S03 = 3 Pole socket (250V)	2 = Female	3 = Bulk pack (QTY=25)
3 = Male (50V - Low voltage)			31 = 12-16mm (single)	PL3 = 3 Pole plug (50V - Low voltage)	3 = Male & Female	4 = Bulk pack (QTY=50)
				SL3 = 3 Pole socket (50V - Low voltage)		5 = Bulk pack (QTY=100)

Under development: (contact Sales/Engineering for availability)

	C = Bulkhead flanged 45°	20 = Blue	1F = 5-9mm (flat)	P04 = 4 Pole plug (250V)	4 = Special	
	D = Bulkhead flanged 90°	30 = Yellow	1M = 5-9mm (multi)	P08 = 8 Pole plug (250V)		
	F = Bulkhead screwed 45°	40 = Grey				
	G = Bulkhead screwed 90°		2F = 8-13mm (flat)	S04 = 4 Pole socket (250V)		
			2M = 8-13mm (multi)	S08 = 8 Pole socket (250V)		
			3F = 12-16mm (flat)			
			3M = 12-16mm (multi)			

NOTE:

- *1 WHEN SPECIFYING SEALING CAPS, IT SHOULD BE NOTED THAT A MALE CAP FITS INTO A FEMALE HOUSING, AND A FEMALE CAP FITS ON TO A MALE HOUSING. THEREFORE, DO NOT SPECIFY A MALE CAP TO FIT WITH A MALE HOUSING, AND VICE-VERSA.
- ANY '0' SHOWN IN THE PART No. IS NUMERIC, NOT ALPHANUMERIC.
- PLEASE NOTE THAT THE MATERIAL COLOUR (DIGITS 7 & 8 OF THE PART No.) REFERS TO THE MALE & FEMALE HOUSINGS ONLY. THE INNER CONNECTOR (PLUG & SOCKET) IS SUPPLIED IN WHITE MATERIAL FOR 250V, AND BLACK MATERIAL FOR LOW VOLTAGE (50V) AS STANDARD.
- IF NOT SPECIFIED OTHERWISE, ELKAY WILL SUPPLY THE PLUG INNER CONNECTOR IN THE FEMALE HALF AND THE SOCKET INNER CONNECTOR IN THE MALE HALF (AS STANDARD WITH THE IN-LINE PRODUCTS).

Other Products available from Elkay Electrical include;

- Cable Glands
- Terminal Blocks and Connectors
- Energy Management Switches and Accessories
- Din Rail Terminals
- PCB Terminals
- Enclosures
- Bespoke Engineering Solutions

With over 75 years experience, Elkay is the UK's premier manufacturer and distributor of interconnect and energy management solutions.

As we have grown, so has our reputation for providing innovative and value-engineered products. And with our integrated design and manufacturing capability as well as our dedication to providing exceptional service, we are consistently able to match the changing needs of our diverse customer base.

Our commitment to quality is demonstrated through our company-wide ISO 9001: 2000 certification and we are also represented on key European standards committees to help raise the standard of product safety.

As part of an international group of companies we are continuing to build on our unrivalled expertise to increase the competitive performance of our customers.



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