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'CS-MS' Electrical Dry-Mate Connector

Introduction:

CRE has developed a range of Aluminium shell connectors designed specifically to meet the needs of the ROV manufacturers. The standard shell connector is designed to accommodate an oil filled hose. It has high density contact patterns and uses aluminium shells as standard to keep both size and weight to a minimum. It can also be moulded to a variety of industrial cables if so specified by the customer. This new series of high specification assemblies are compatible with standard bulkhead interfaces.

The most common applications:

- ROV
- Underwater Cameras and Lights
- Diver communications
- BOP (Blow out preventer) Monitoring Equipment
- Recreational submersibles
- Stress Monitoring
- Neutrino Detection
- Downhole Applications

Key Feature:

- 2 Shell Sizes (J & K)
- Up to 9 contacts - Size J
- Up to 10 contacts - Size K
- Pressure up to 5,900 psi Size J (Mated or open faced)
- Pressure up to 7,000 psi Size K (Mated or open faced)
- Up to 500 VDC
- Up to 13 amps
- 90 deg. CCP adaptor available
- Overmould options available

Options:

- Field Installable
- Mixed contact sizes for power/data requirement
- Bespoke design/configuration to suit customer requirements at no extra cost

Testing:

- Pressure Balanced Oil Filled (PBOF)
- Pressure testing up to 5,900 psi - Size J
- Pressure testing up to 7,000 psi - Size K
- Durability testing with 250 mate and re-mate cycles
- Insulation resistance testing at >1Gohms @ 500 VDC



Specifications:

- Open Face Pressure: 5,900 psi / 4,000m (J size)
7,000psi / 4,780m (K size)
- Mated Pressure 5,900psi / 4,000m (J size)
7,000psi / 4,780m (K size)
- Operating Temperature: -30deg. to 70deg. (-22deg F to 158deg. F)
- Dielectric withstanding voltage: <0.5 mA @ 1,000 VAC

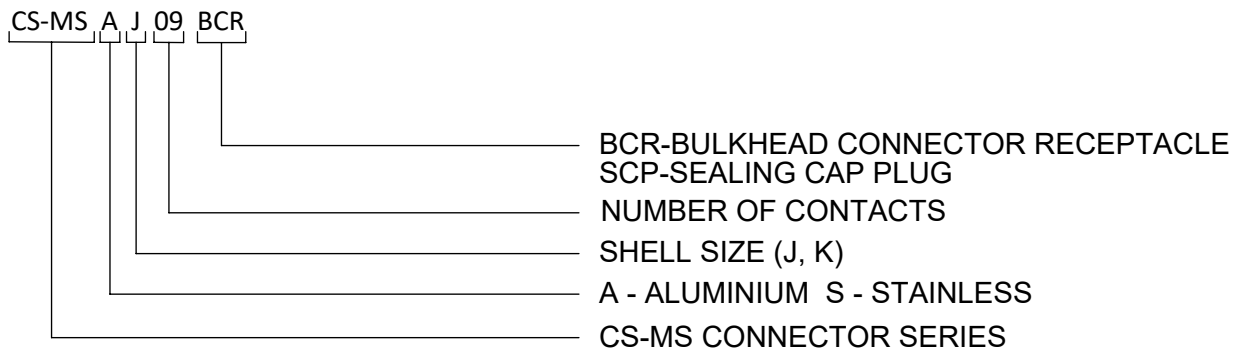
Materials:

- Shell Body: Aluminium 6082-T6. Hard Anodised
- Optional: 316 Stainless Steel / Titanium
- Contact Insert: Epoxy Resin
- Electrical Contacts: Leaded Nickel Copper c97 or K41
- Plating Details: 1um Acid Gold over 2.5um Nickel Copper Flash
- Retaining Nut: Aluminium 6082-T6
- 'O' Rings: Nitrile NI70
- Backing Washer: White Acetal

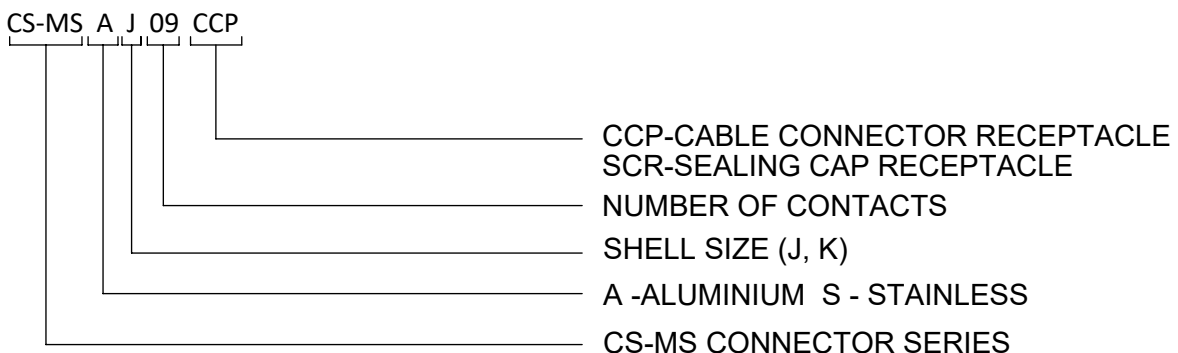
NOTES:

Contact CRE for special order materials.

Part Numbering System - Bulkhead Example

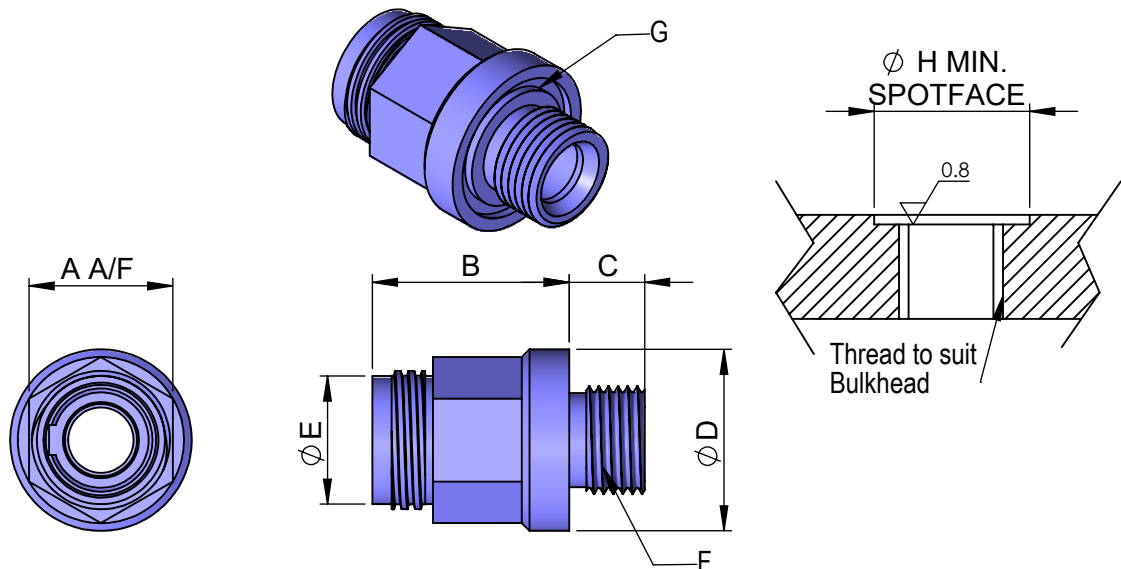


Part Numbering System-Connector Example



Reference Dimensions CS-MS-BCR' Connector

Bulkhead Connector Receptacle (BCR)

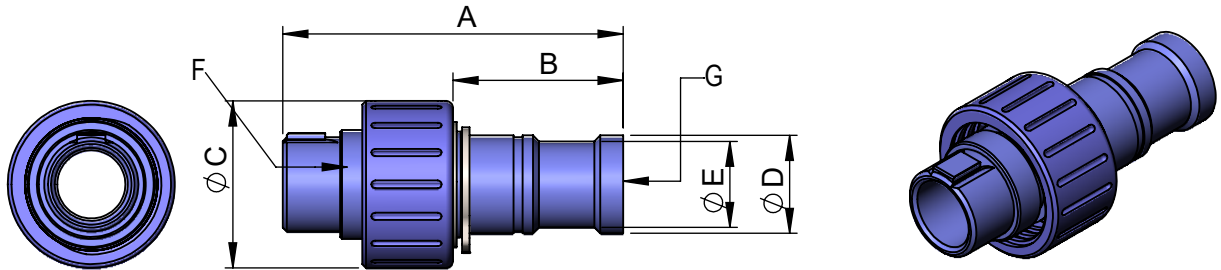


A	B	C	D	E	F	G-'O'Ring	H	TYPE
19	26	10	24	17	9/16-18 UNF	5-254 - (16.76 x 1.63mm)	25	Size J
21	26	10	25	18.4	5/8-18 UNF-2A	2-017 - (17.17 x 1.78mm)	26	Size K

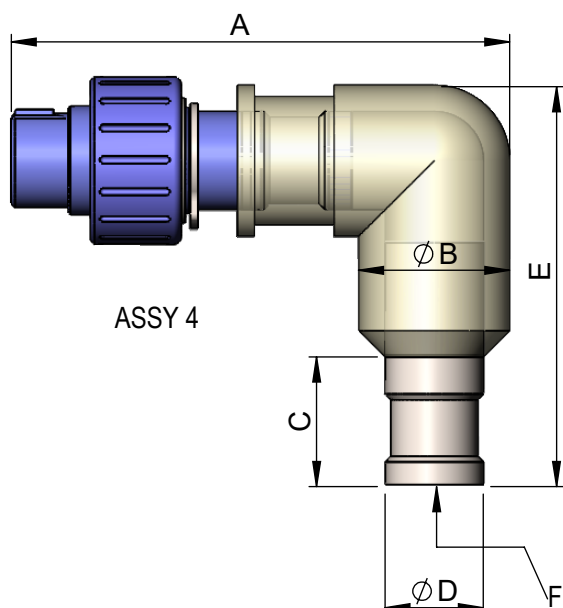
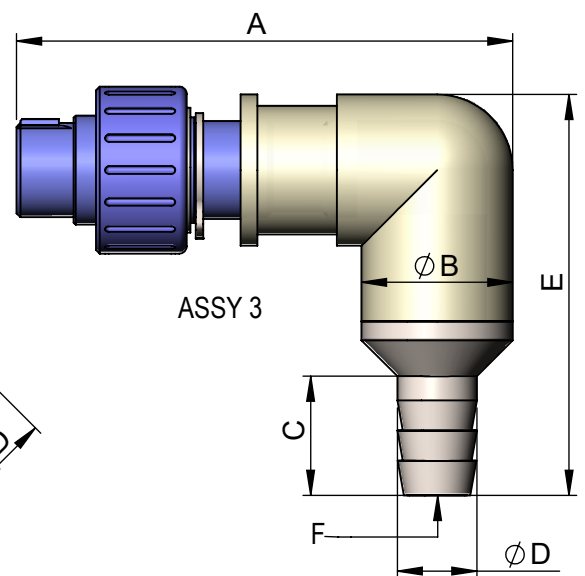
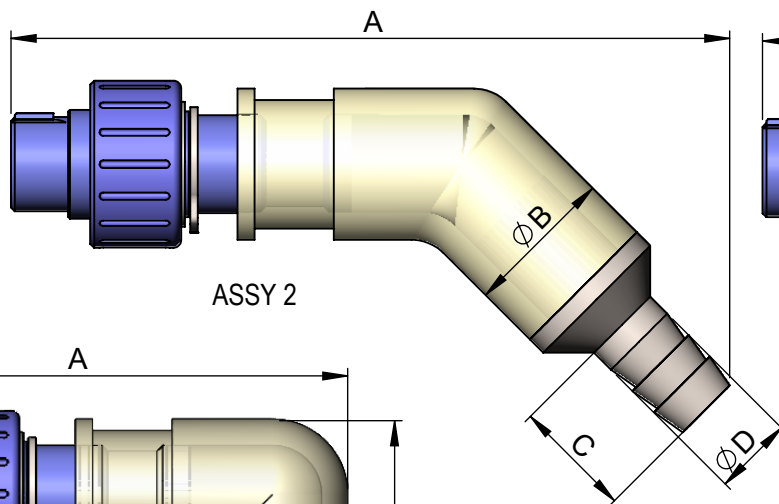
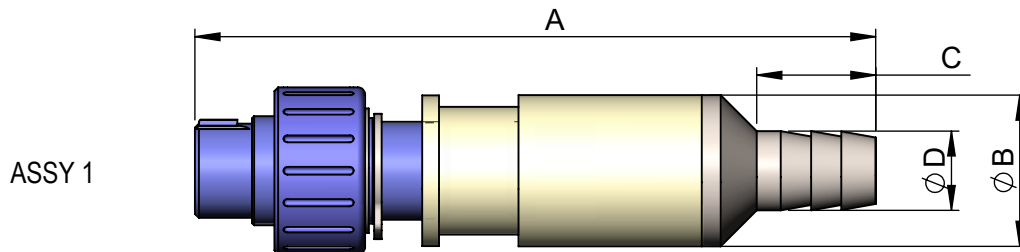
NOTE: For recommended Torque figures please refer to page 11

Reference Dimensions CS-MS-CCP Connector

Backshell Cable Connector Receptacle-Straight (CCP)



A	B	C	D	E	F-O'Ring	BORE G	SIZE
45	22.5	22	12.95	11.38	2-013 - (10.82 x 1.78mm)	9	J
45.5	25.65	24	14	12.4	13.5 X 1.6mm	10.25	K

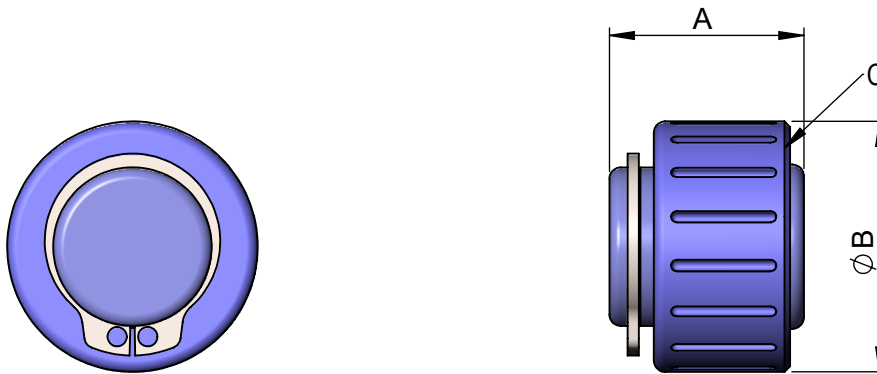


CCP-PBOF ADAPTOR - SIZE J & K						
A	B	C	D	E	BORE F	ASSY
90	20	15.75	10.5	N/A	8	1
95	20	15.75	10.5	N/A	8	2
65.5	20	15.75	10.5	53	8	3
65.5	20	17	13	53	9	4

NOTE: Customer should check that your custom wiring detail is suitable for the chosen Interface bore sizes shown.

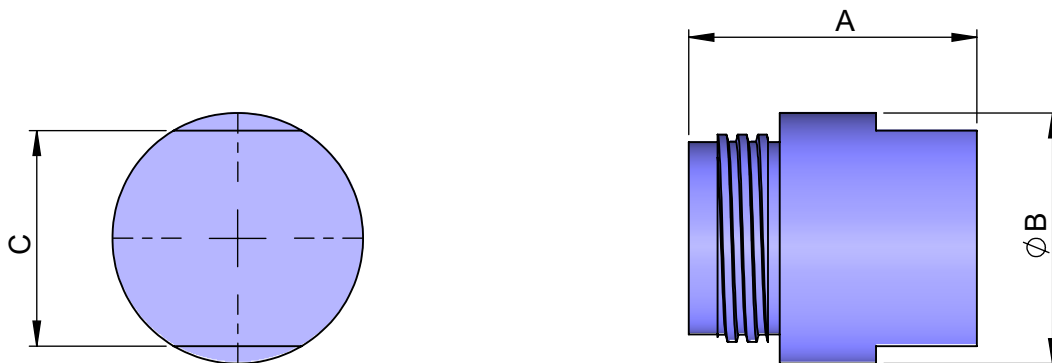
Reference Dimensions CS-MS SCP/SCR

Bulkhead Blanking Plug (SCP)



A	B	C-O'Ring	SIZE
17	22	2-013 - (10.82 x 1.78mm)	J
17	24	14.0 x 1.5mm	K

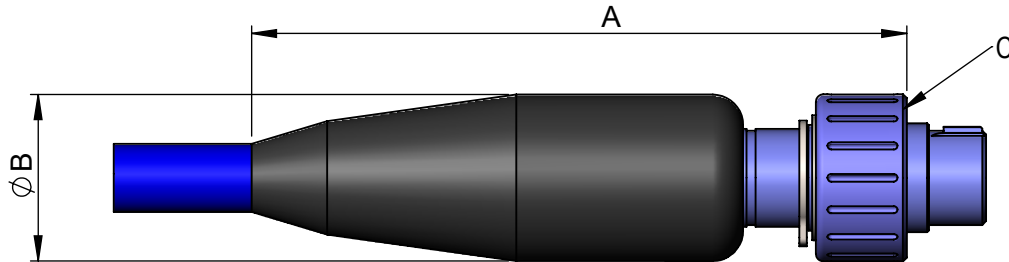
Cable Connector Blanking Plug (SCR)



A	B	C	SIZE
25	22	19	J
25	23	19	K

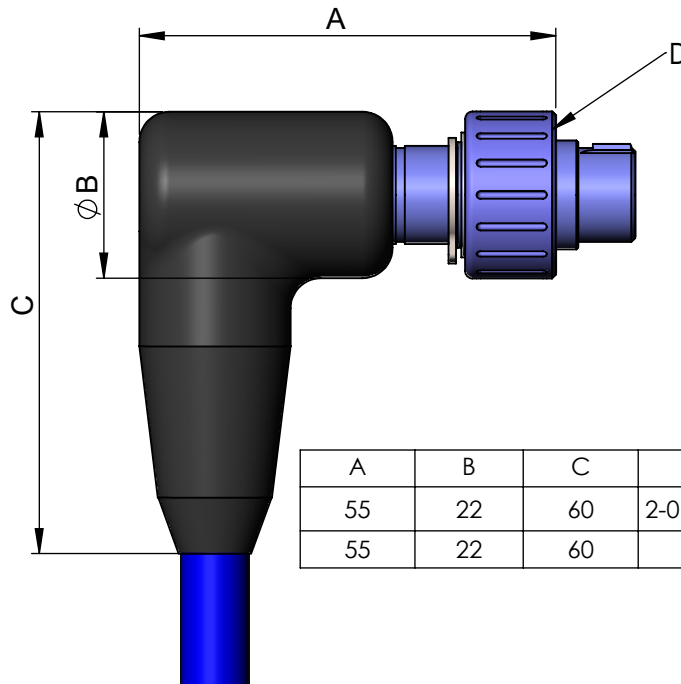
Reference Dimensions CS-MS-CCP Overmoulds

CS-MS-CCP Overmould-Straight



A	B	C - 'O' Ring	SIZE
90	22	2-013 - (10.82 x 1.78mm)	J
90	22	13.5 X 1.6mm	K

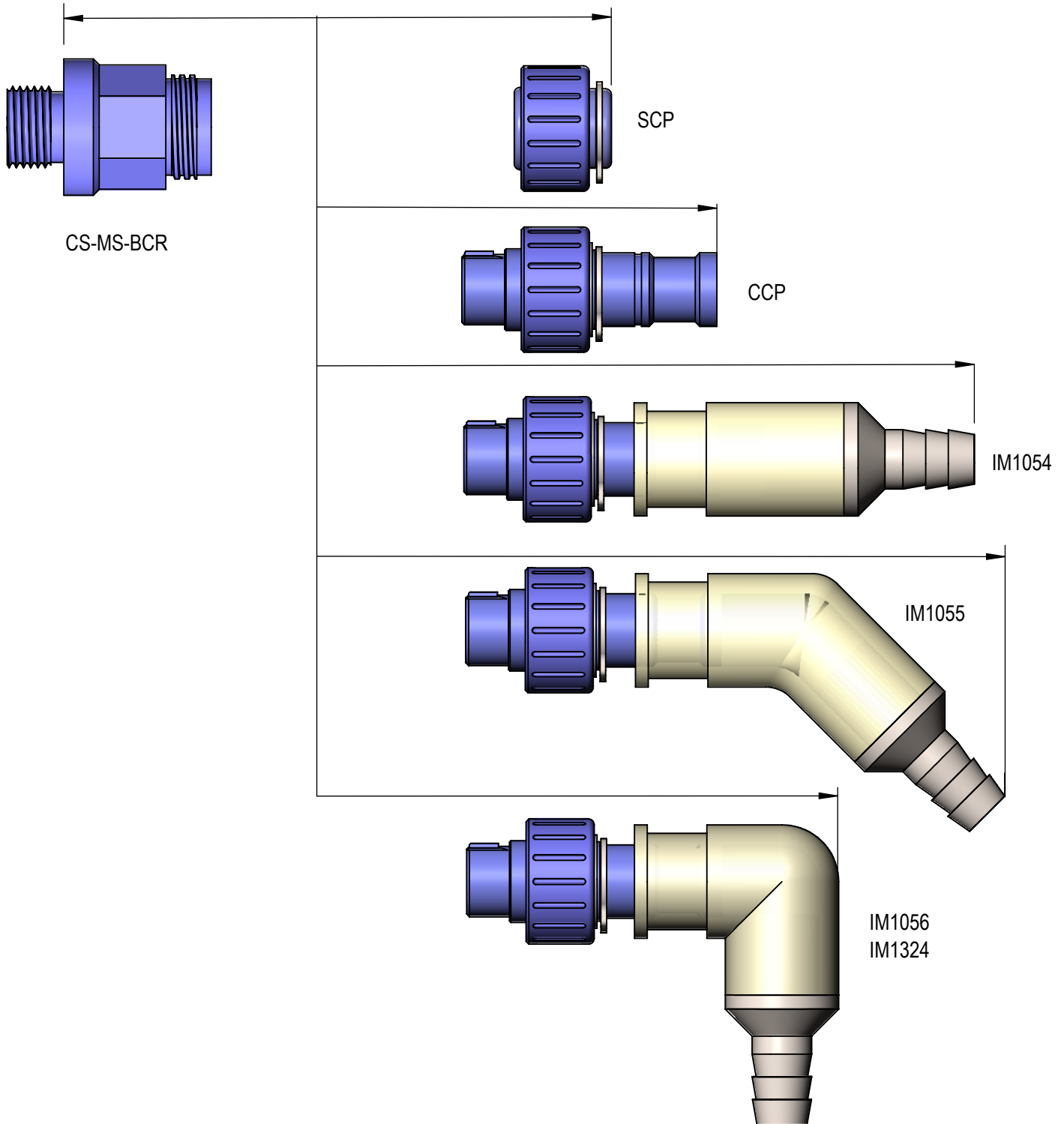
CS-MS-CCP Overmould-90 Deg.



A	B	C	D - 'O' Ring	SIZE
55	22	60	2-013 - (10.82 x 1.78mm)	J
55	22	60	13.5 x 1.6mm	K

Note: Overmould dimensions are indicative, please contact sales@cre-marine.com if you have specific mould dimension requirements

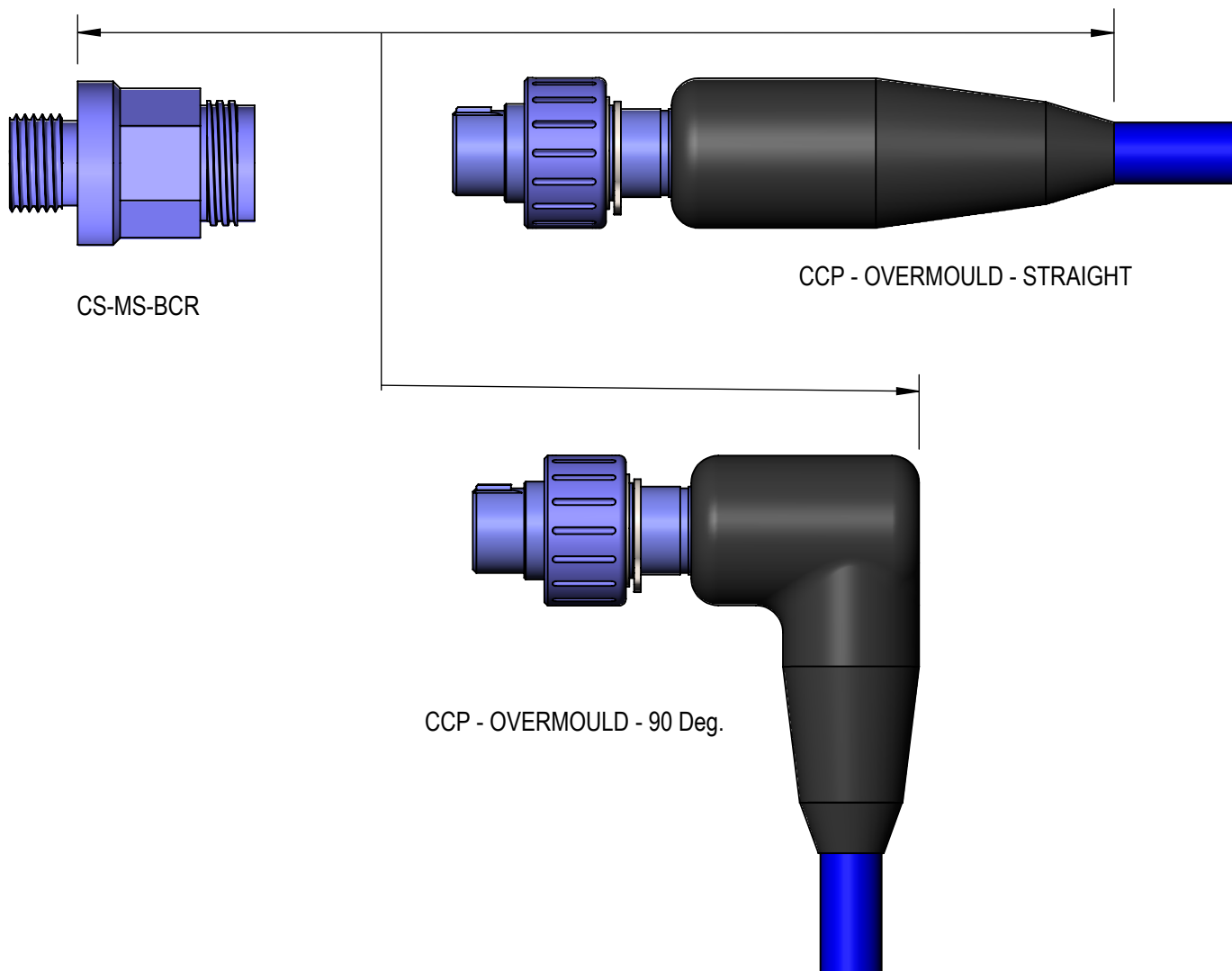
Assembled Dimensions CS-MS-BCR/CCP



CS-MS SIZES J & K	SCP	CCP	IM1054	IM1055	IM1056 IM1324
	34.5	52.5	97.5	102.5	73

Note: Step files for design purposes available from engineering@CRE-marine.com

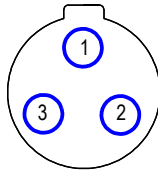
Assembled Dimensions CS-MS-CCP Overmoulds



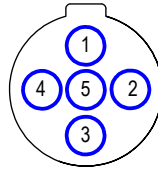
CS-MS	CCP - STR.	CCP - 90Deg.
SIZES J & K	104.5	73.5

Note: Step files for design purposes available from engineering@CRE-marine.com

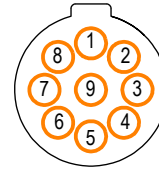
Pin Face View - CS-MS-J



3 WAY
500 VDC

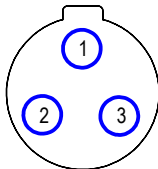


5 WAY
400 VDC

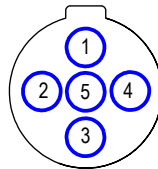


9 WAY
300 VDC

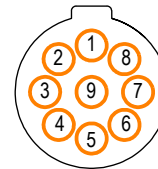
Socket Face View - CS-MS-J



3 WAY
500 VDC

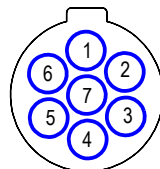


5 WAY
400 VDC

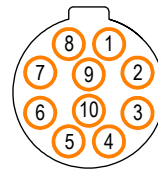


9 WAY
300 VDC

Pin Face View - CS-MS-K

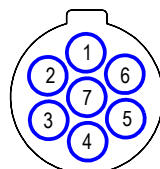


3 WAY
500 VDC

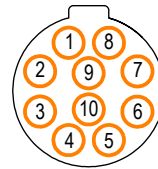


10 WAY
300 VDC

Socket Face View - CS-MS-K



3 WAY
500 VDC



10 WAY
300 VDC



For current carrying capacity and wire recommendations see page 11

Current Capacity and Wire Recommendations

- The current rating may be impacted by cable selection and the ambient temperature.
- The amount of heat generated should not exceed the maximum temperature rating of the insulation material.
- Heat dissipation is lessened as the number of individually insulated conductors bundled together is increased.
- A derating factor must be applied for bundled conductors. See chart below.
- Current ratings shown below are for single conductors in free air at 30deg C ambient temp.
- Where applicable, alternative pin & current ratings are available.
- Voltage up to 500 VDC
- For different pin configurations contact CRE

Pin Diameter	1.0	1.56
Wire Size	20 awg	18 awg
Current	14 amps	20 amps
Current ratings based on PTFE type C cable		

Derating Factors for Bundled Conductors	
Bundle #	Derating Factor (x Amps)
2 - 5	0.8
6 - 15	0.7
16 - 30	0.5

Recommended Torque figures for threaded Bulkheads manufactured in 6061-T6 Aluminium

TORQUE (Dry Threads)

THREAD	Metallic Housing	Plastic Housing
9/16 & 5/8-18 UNF	100 in/lbs - 11.25 N/m	20 in/lbs - 2.25 N/m

The table above shows our recommended tightening torque values for the threaded Bulkheads shown in these Datasheets
 CRE also supply Bulkheads manufactured from 316L Stainless Steel, Grade 5 Titanium
 Should you require any further information or advice then please contact CRE direct.