

BIRNS *Aquamate LLC*

ELECTRICAL CONNECTORS FOR
HARSH ENVIRONMENTS AND
SPECIAL APPLICATIONS



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We are committed to the continuous improvement and expansion of our products and services. This section will include the latest news and major updates.

Release 2024-02-15

New Series

XSJJ – we have added the MSXJJ and XSJJ Glass Reinforced Epoxy series. Compatible to market standards.

New Products

RM – we have expanded to include VSG-PBCLM and XSG-BCL-HP-SS

OM – added Over Mold page. Includes OM versions for SC, MC, TC, HD MCLP, FAWL FAWM

55 series – added RFT, 100 Amp single pin sub series

New Technologies

Non Magnetic – We have developed non magnetic versions of our connectors with ratings < 0.25 Nanoteslas (nT)

Catalog Updates

MC – Added 13 contact face configuration

Application Guidelines – Added 1/2”-20 UNF, Added GRE closing torque

FAWL FAWM LPM – Added 12.5MM option for bulkheads

Ethernet – Updated specification and compatibility

General Specification			
Build		Electrical	
Contacts	Gold plated per MIL-G 45204 Type II, Grade C, Class 0	Insulation	>250 megaohm
Pin	Phosphor Bronze	Contacts	<0.01 ohm,
Sockets	Beryllium Copper	Volt Rating Cables	300v
Location Pin	316 Stainless	Volt Rating BH Wires	600v for Teflon bulkhead leads.
In-line cable	60cm	Application	
BH leads	30cm	Pressure Rating Mated	>600 bar
O-rings	Buna-N	Wet Mated Series:	Nano, TC, MC, SC, LP, Metal Shell, FAWL/M, HD
Mold	Neoprene, PU	Depth Open Face*	Diving Depth
Bulkhead	316 Stainless,	Temperature	-5C - +65C
Bulkhead Extended options	Titanium Gr. 5, Nickel Aluminum Bronze, PEEK, Aluminum	Matings	>750 Cycles
*Wet mated connectors have been tested open face to depths far exceeding diving depth. High open face pressures may damage the connector.			

Series	Contact Number And Gauge Range	
	AWG 20	AWG 18
MH	2	
Nano	2,4	
TC Tiny Connector	2,3,4,5 7 (AWG 22)	
MC Mini Connector	5,6,8,9,10,12,13,16,18,21	2,3,4
SC Standard Circular	25	2,3,4,5,6,8,10,12,16
LP Low Profile	12	2,3,4,6,7,9
Metal Shell 1500	5,6,8	2,3,4
Metal Shell 2000	10,12	2,3,4
Metal Shell 2400		6,8,10
FAWL, FAWM	5,8,10	2,3,4
LPM	5,6,7,8	3,4

Series	Contact Number And Gauge Range			
	AWG 18	AWG 16	AWG 12	AWG 4
Penetrator	2,3,4,5,6,7,8			
RM Size A	1			
RM Size G	1,2,3,4,5,6			
RM Size K		2,3,4,5,6,8		
55 Size 1500	4,6,8	2,3		
55 Size 2000	13,21	3,4,6,8		1 [RFT]
55 Size 2400	20	12,10		
HD Heavy Duty				2,3,4

Wire Current Rating Per AWG And Number Of Conductors													
	Number Of Conductors												
	#2	#3	#4	#5	#6	#7	#8	#9	#10	#12	#13	#16	#20
20 AWG	6	5	5	4	4	4	4	3	3	3	3	3	3
18 AWG	8	7	6	6	6	5	5	5	5	4	4	4	4
16 AWG	12	10	9	8	8	7	7	7	7	6	6	6	5
14 AWG	18	15	14	13	12	11	11	10	10	9	9	8	8
12 AWG	23	20	18	17	16	15	14	14	13	12	12	11	10
10 AWG	29	25	23	21	20	19	18	17	16	15	15	14	13
8 AWG	41	35	32	29	28	26	25	24	23	21	21	19	18
6 AWG	53	45	41	38	35	34	32	31	29	28	27	25	23
4 AWG	70	61	55	50	47	45	43	41	39	37	36	33	31
2 AWG	93	81	73	67	63	60	57	54	52	49	48	44	41

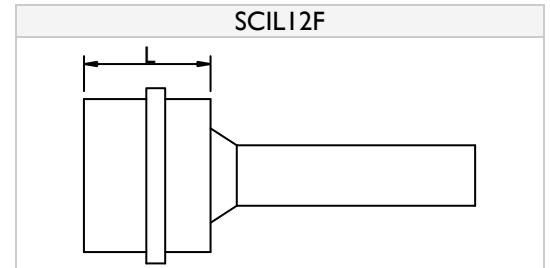
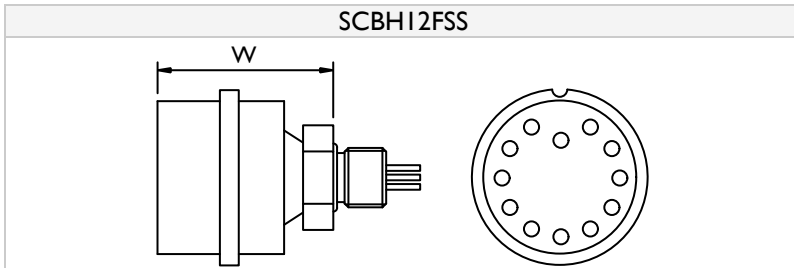
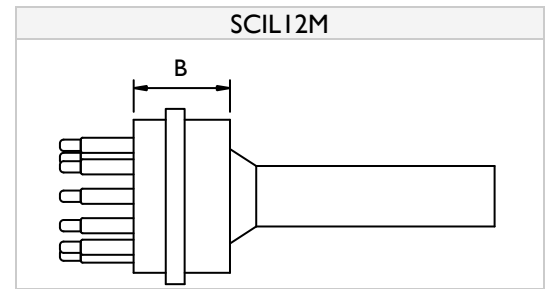
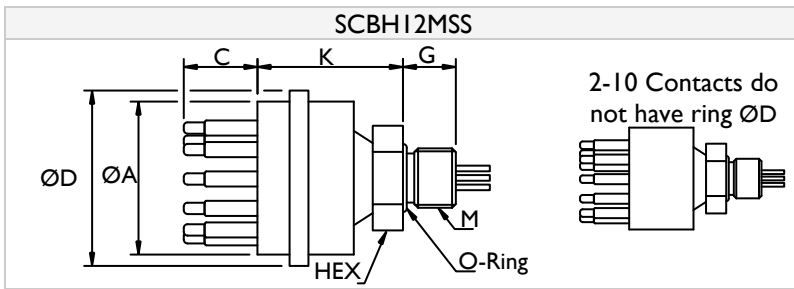
Current Correction		
Ambient Temperature		
°C	°F	Correction Factor
10 >	50 >	1.2
20	68	1.1
30	86	1
40	104	0.9
50	122	0.75
60	140	0.58
65	149	0.47
70	158	0.33
Cable Length		
m (ft)		Correction Factor
15.2 m (50 ft)		0.7

For example, an 18 AWG x 2 pin connector will have an 8-amp rating per wire, @ 50 C ambient temperature multiply by 0.75. The number of conductors refers to electrically loaded conductors.

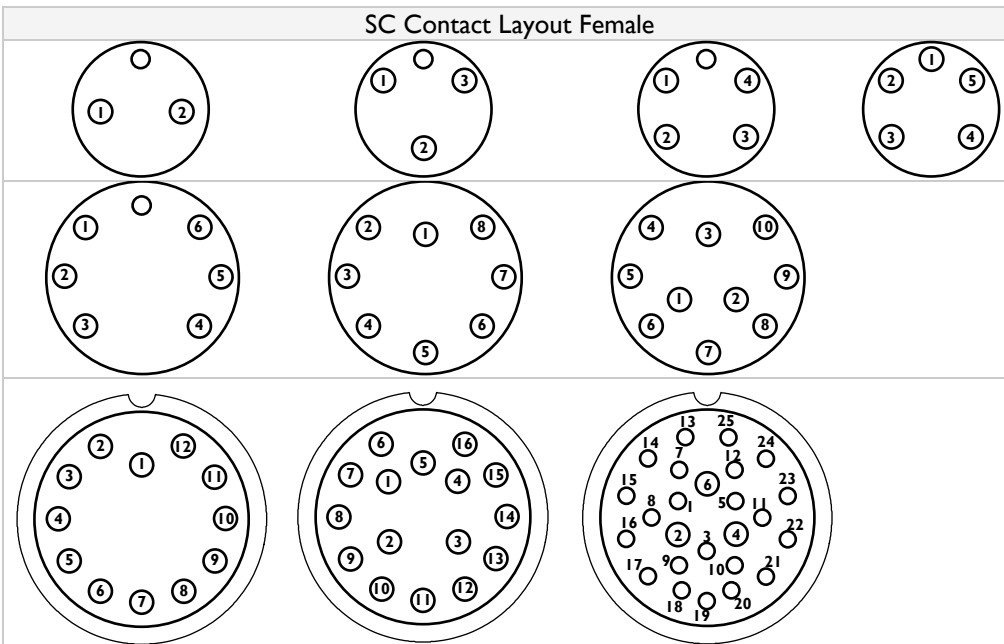
Standard Color Code					
Wire 1	Black	Wire 11	Black/White	Wire 21	White/Green
Wire 2	White	Wire 12	Black/Red	Wire 22	White/Orange
Wire 3	Red	Wire 13	Black/Green	Wire 23	White/Blue
Wire 4	Green	Wire 14	Black/Orange	Wire 24	White/Brown
Wire 5	Orange	Wire 15	Black/Blue		
Wire 6	Blue	Wire 16	Black/Brown		
Wire 7	Brown	Wire 17	Black/Yellow		
Wire 8	Yellow	Wire 18	Black/Gray		
Wire 9	Gray	Wire 19	Black/Violet		
Wire 10	Violet	Wire 20	White/Red		

These color codes may vary and are for reference only. Customers must always check pin / wire alignment before terminating. For Ethernet color coding see the Ethernet section.

Manufacturer Compatibility Table										
	SC	MC	LP	LPM	FAWL FAWM	METAL SHELL	5500	RM	XSJJ	Legend
SUBCONN	YG	YG*	YG	NA	NA	YG	NA	NA	NA	YG YES GUARANTEED Y YES L LIKELY N NO NA NOT APPLICABLE
SEACON	Y	Y	Y	N	YG	NA	L	YG	YG	
IMPULSE	Y	Y	Y	YG	N	NA	NA	L	NA	
BURTON	NA	NA	NA	NA	NA	NA	YG	NA	NA	
*	For MC 9-16 add suffix "-SU" or "-BIRNS"									



#Contacts	ØA[mm]	B[mm]	C[mm]	ØD[mm]	K[mm]	G[mm]	L[mm]	W[mm]	M[Thread]	HEX[mm]	O-Ring	Locking Sleeve
2,3,4,5	25	19	19.5	NA	36	14 or 19	28.5	45	7/16-20 UNF	19	2-014	FLS-A, MLS-A
6,8,10	32	19	19.5	NA	41	14 or 19	28.5	50	5/8-18 UNF	24	2-017	FLS-B, MLS-B
12,16,25	40.5	25.5	19.5	46	38.5	14 or 19	28.5	45	5/8-18 UNF	24	2-017	FLS-C, MLS-C



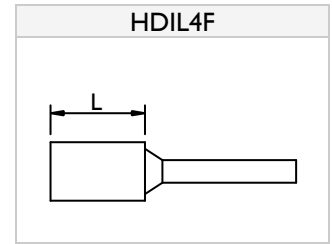
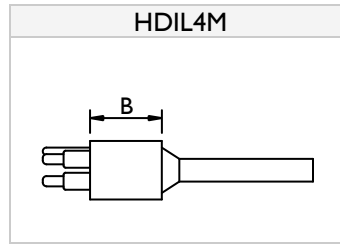
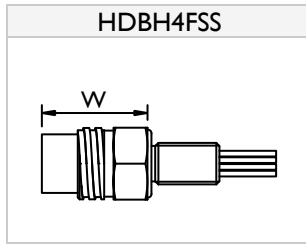
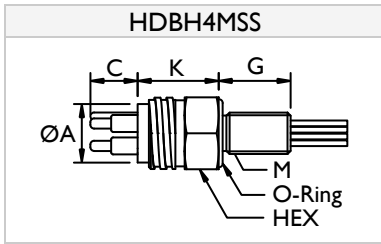
# Contacts	Cable OD [mm]	AWG
2	7.5	18
3	8.1	
4	9	
5	12.2	
6	12.3	
8	13.5	
10	15	
12	16	
16	18	
25	20	



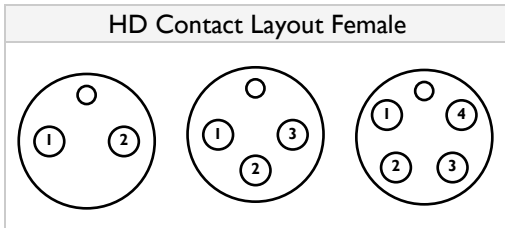
SC Part Number Format				
SC	BH	4	M	SS
Series SC	Type*: BH, IL, DC, OM	Contact Num.	Gender F - Female M - Male	Options SS - Stainless Steel TT - Titanium

* BH – Bulkhead, IL – Inline, DC – Dummy, OM - Over Mold

HEAVY DUTY (HD)



# Contacts	A [mm]	B [mm]	C [mm]	K [mm]	G [mm]	L [mm]	W mm]	M [Thread]	HEX [mm]	O-Ring [Nitrile]	Locking Sleeve
2,3,4	25	19	14	30	14 or 19	28	39	5/8-18 UNF	24	2-017	FLS-MCA MLS-MCA

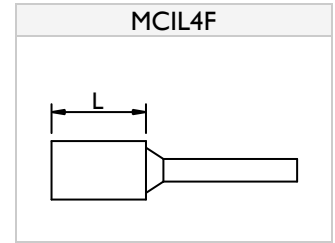
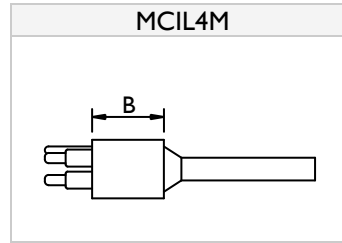
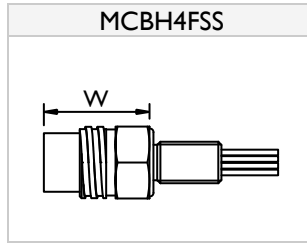
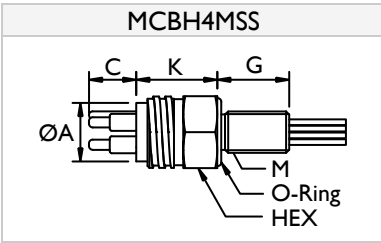


# Contacts	Cable OD [mm]	AWG
2	15.2	
3	16.1	12
4	17	

HD Part Number Format

HD	BH	4	M	SS
Series	Type	Contact Num.	Gender	Options
HD	BH - bulkhead IL - inline DC - dummy OM - over mold		F - female M - male	SS - stainless steel TT - titanium

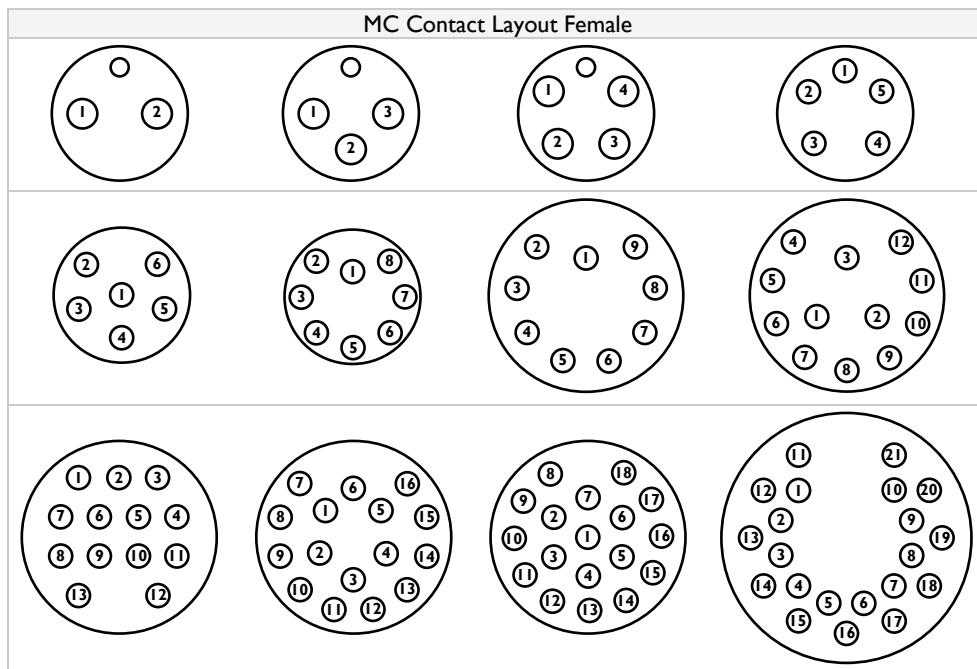
MINI CONNECTOR (MC)



# Contacts	A [mm]	B [mm]	C [mm]	K [mm]	G [mm]	L [mm]	W [mm]	M[Thread]	HEX[mm]	O-Ring	Locking Sleeve
2,3,4,5,6,8	16	19	12.5	21.5	19	25	28	7/16-20 UNF	19	2-014	FLS-MC MLS-MC
*9,10,12,13,16,18	25	19	14	30	14 or 19	28.5	39	5/8-18 UNF	24	2-017	FLS-MCA MLS-MCA
21	32	19	14	41	14 or 19	28.5	50	5/8-18 UNF	24	2-017	FLS-B MLS-B

*9,10,12,16 BIRNS configuration. See "SU" for Subconn configuration.

*13 Typically Ethernet. Compatible with MCXX13-SU but with 'BIRNS' type body.

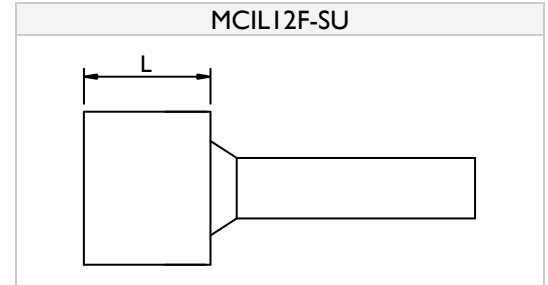
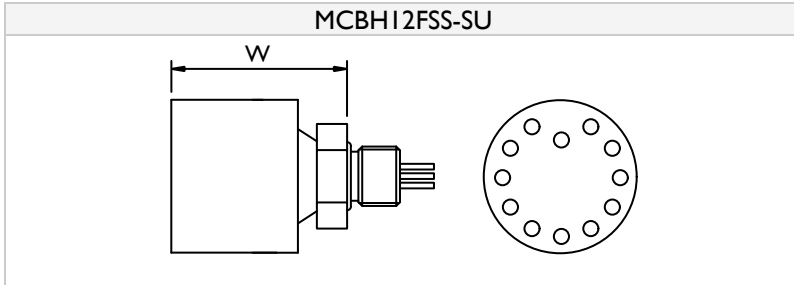
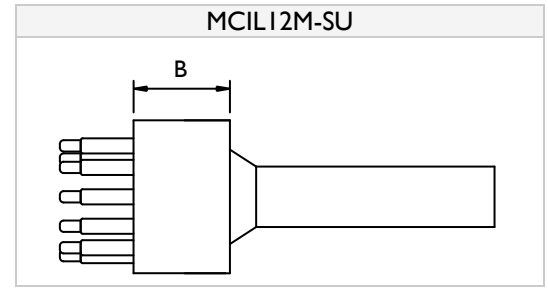
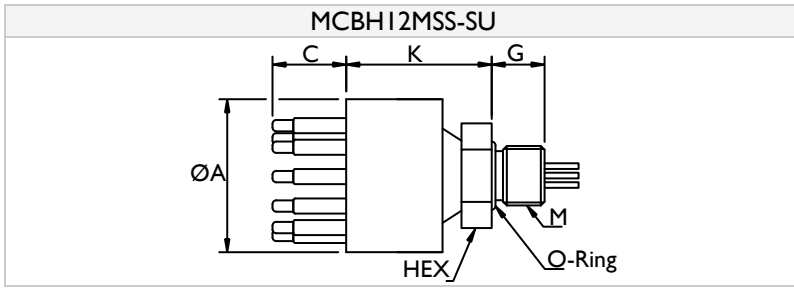


# Contacts	Cable OD [mm]	AWG
2	8	18
3	9.4	
4	10	
5	8	
6	8	20
8	10	
9	10	
10	10.5	
12	9	
16	10.5	
18	10.5	-
21	-	

MC Part Number Format					
MC	BH	8	M	SS	-RA
Series	Type	Contact Num.	Gender	Options	Option
MC	BH - bulkhead IL - inline DC - dummy OM - over mold		F - female M - male	SS - stainless steel TT - titanium PK - peek AL - aluminum	RA - right angle

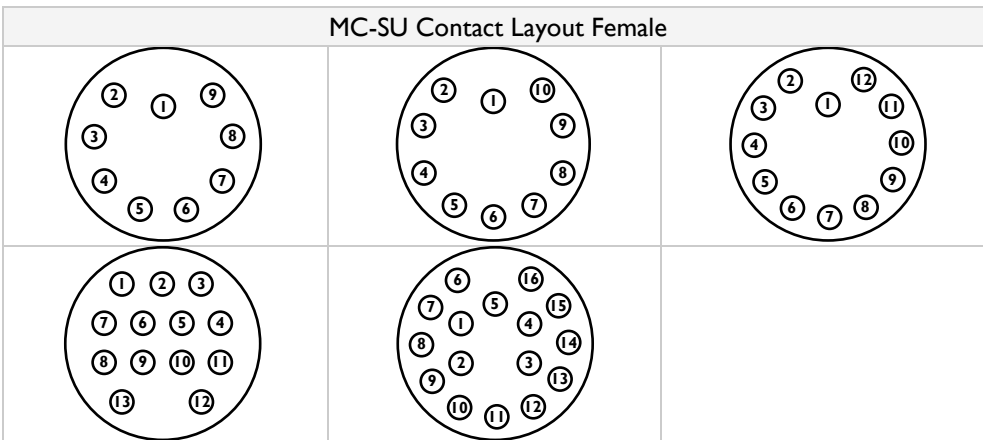


MINI CONNECTOR SUBCONN CONFIGURATION (MC-SU)



#Contacts	ØA[mm]	B[mm]	C[mm]	K[mm]	G[mm]	L[mm]	W[mm]	M[Thread]	HEX[mm]	O-Ring	Locking Sleeve
9, 10, 12, 13*, 16	25	19	19.5	36	14 or 19	28	45	1/2-20 UNF	24	2-017	FLS-A, MLS-A

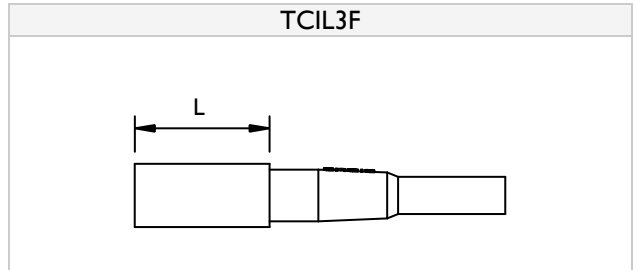
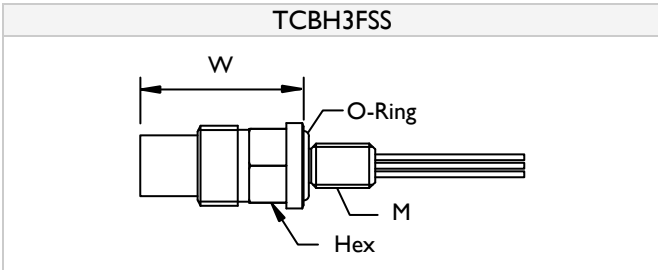
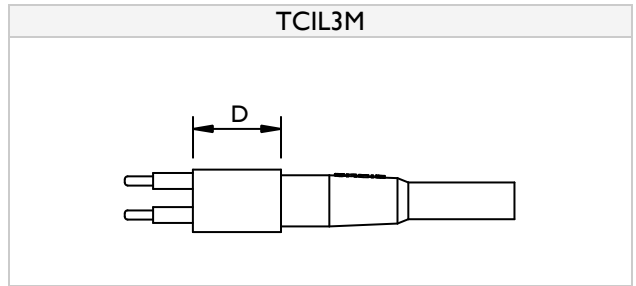
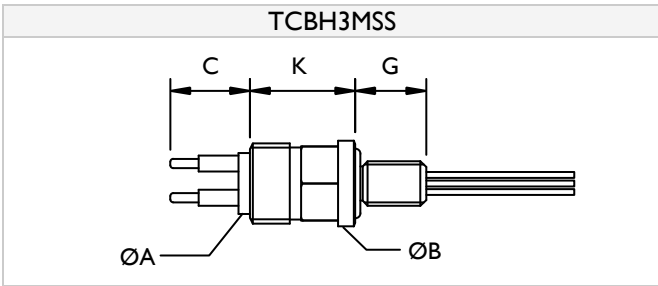
*13 Typically Ethernet. Compatible with MCXX13-BIRNS but with 'SU' type body.



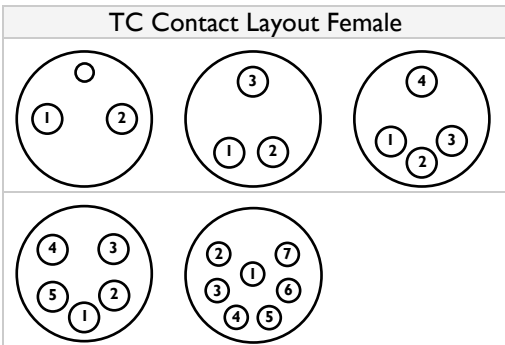
# Contacts	Cable OD [mm]	AWG
9	10	20
10	10.5	
12	11	
16	12	

MC-SU Part Number Format					
MC	BH	9	M	SS	-SU
Series	Type	Contact Num.	Gender	Options	Configuration
MC	BH - Bulkhead IL - Inline DC - Dummy OM - Over mold		F - Female M - Male	SS - Stainless Steel TT - Titanium	SU - Subconn BIRNS - Birns

Order with the 'SU' suffix. For example MCIL9F-SU

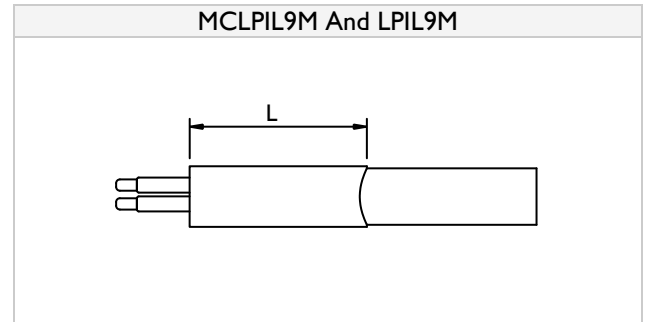
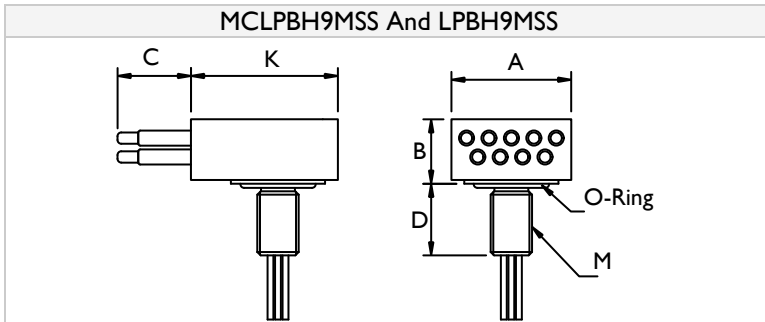


# Contacts	ØA [mm]	ØB [mm]	D [mm]	C [mm]	K [mm]	G [mm]	L [mm]	W [mm]	M [Thread]	HEX [mm]	O-Ring [Nitrile]	Locking Sleeve
2,3,4,5,7	11	15	15.5	12	20.5	12.5	23.5	28.5	5/16-24 2A UNF	13	2-012	FLS-TC MLS-TC

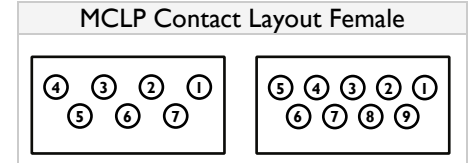
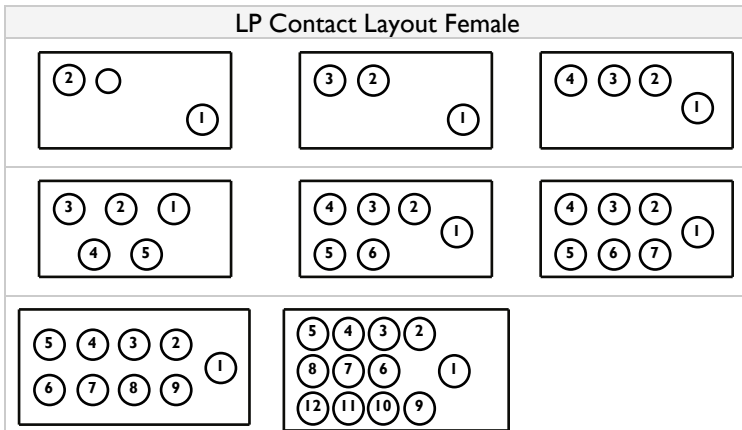


# Contacts	Cable OD [mm]	AWG
2	5.6	20
3	6.5	
4	5.5	
5	5.8	22
7	6.0	

TC Part Number Format				
TC	BH	3	M	SS
Series	Type	Contact Num.	Gender	Options
TC	BH - bulkhead IL - inline DC - dummy OM - over mold		F - female M - male	SS - stainless steel TT - titanium PK - PEEK



# Contacts	A [mm]	B [mm]	C [mm]	L [mm]	K [mm]	W [mm]	M [Thread]	O-Ring	Locking Strap
LP 2	22	14	19.5	42	32				LPBH-RS
LP 3,4,5	25	14	19.5	42	32				LPBH-RS
LP 6,7	25	19	19.5	45	44	19 Or 25	7/16-20 UNF	2-014	LPBH-RS
LP 9,12	31.5	21	19.5	45	45				LPBH-RS
MCLP 7,9	25	14	12.5	42	32				MCLP-RS

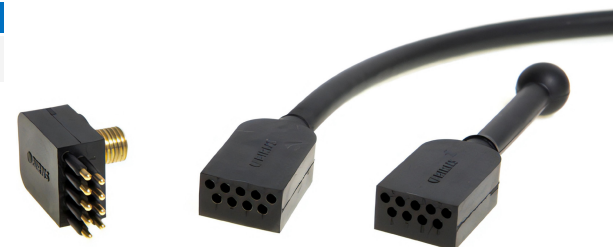


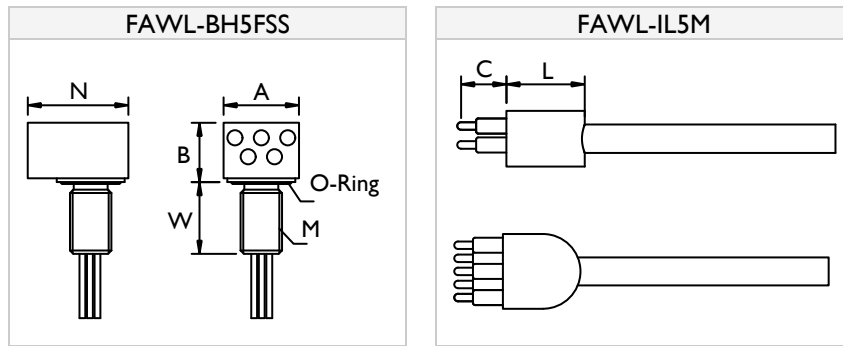
# Contacts	LP		MCLP	
	Cable OD[mm]	AWG	Cable OD[mm]	AWG
2	6			
3	6.7			
4	7	18	NA	NA
5	7.5			
6	7.5			
7	8	18	8.5	20
9	9.5		10	
12	10	20	NA	

LP And MCLP Part Number Format

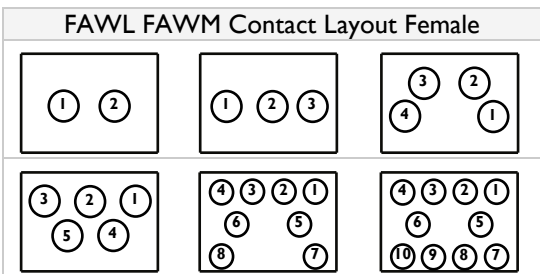
MCLP	BH	7	M	SS	_19MM
Series	Type*	Contact Num.	Gender	Options	BH Thread Length
LP	BH		F - Female	SS - Stainless Steel	19MM
MCLP	IL		M - Male	TT - Titanium	25MM
	DC			Leave Empty For Brass	
	OM				

* BH – Bulkhead, IL – Inline, DC – Dummy, OM - Over Mold





# Contacts	A[mm]	B[mm]	C[mm]	L[mm] Male	N [mm] Female	W[mm]	M[Thread]	O-Ring	Locking Strap
2,3,4,5 FAWL	20.5	14.7	14	21	31	12.5, 19, 25	7/16-20 UNF	2-014	FAWM-RS
8,10 FAWM	21	18	14	25.5	35.5	12.5, 19, 25	7/16-20 UNF	2-014	FAWM-RS

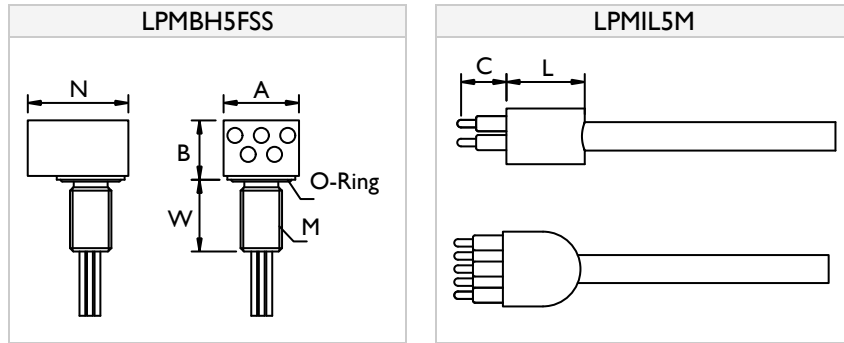


# Contacts	Cable OD [mm]	AWG
2	6	
3	6.7	18
4	7	
5	7.5	
8	9.5	20
10	10	

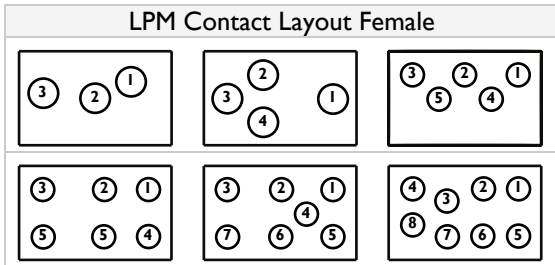
FAWL FAWM Part Number Format

FAWL	-BH	2	M	SS	_19MM
Series	Type	Contact Num.	Gender	Options	Thread Length
FAWL	BH - bulkhead		F - female	SS - stainless steel	12.5MM
FAWM	IL - inline		M - male		19MM
	DC - dummy				25MM
	OM - over mold				Only for BH





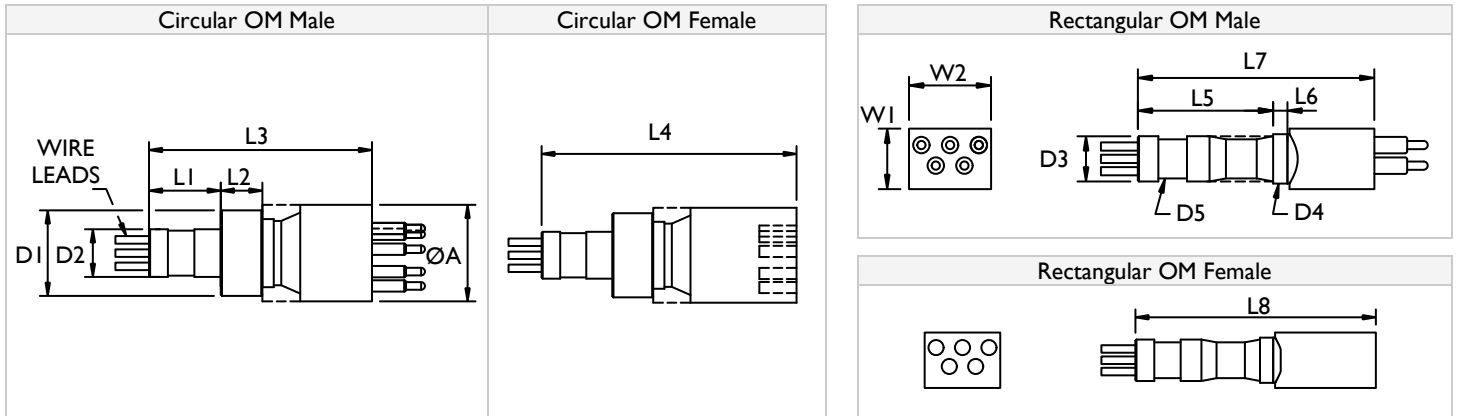
# Contacts	A [mm]	B [mm]	C [mm]	L [mm] Male	N [mm] Female	W [mm]	M[Thread]	O-Ring	Locking Strap
3,4,5,6,7,8	20.5	16.7	19	21	32.5	12.5, 19, 25	7/16-20 UNF	2-014	FAWM-RS



# Contacts	Cable OD [mm]	AWG
3	9.4	18
4	10	
5	8	20
6	8	
7	9	
8	10	

LPM Part Number Format

Series	Type	Contact Num.	Gender	Options	Thread Length
LPM	-BH	3	M	SS	19MM
	BH - bulkhead		F - female	SS - stainless steel	12.5MM
	IL - inline		M - male		19MM
	DC - dummy				25MM
	OM - over mold				Only for BH



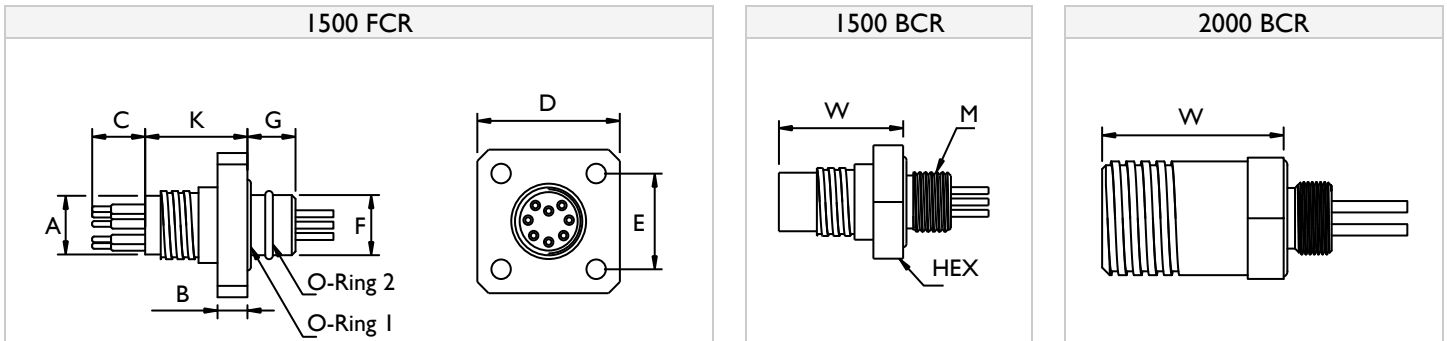
Circular OM connectors									
Series	#	Contact Range	Interface Dimensions [mm]						Ref Diameter
			D1	D2	L1	L2	L3	L4	ØA [mm]
TC	TCOM#	2 to 7	9-0.1	8-0.1	10±0.25	6.7±0.25	31.7	40	11
		2 to 8	13.4-0.1	10.8-0.1	20±0.25	15±0.25	55	60	16
MC	MCOM#	9 to 18	22.6-0.05	12.6-0.1	19±0.25	11-0.1	56.5	66	25
		21	25-0.1	15.8-0.1	19±0.25	11-0.1	56.7	66	32
SC	SCOM#	2 to 5	22.6-0.05	10.9-0.1	19±0.25	10.1-1	55.6	65	25
		6 to 10	25-0.1	15.8-0.1	19±0.25	11-0.1	56.7	66	32
		12 to 25	25-0.1	15.8-0.1	19±0.25	11-0.1	66	69	40.5
HD	HDOM#	2 to 4	22.6-0.05	12.6-0.1	19±0.25	11-0.1	56.5	66	25

Leads: 10 CM

Rectangular OM connectors											
Series	#	Contact Range	Interface Dimensions [mm]						Reference Dimensions [mm]		
			D3	D4	L5	L6	L7	L8	W1	W2	D5
LP	LPOM#	2	11-0.1	12-0.05	22.2±0.1	4±0.1	71.2	71.2	14	22	10-0.1
		3,4,5	11-0.1	12-0.05	22.2±0.1	4±0.1	71.2	71.2	14	25	10-0.1
		6,7	13.4-0.1	16-0.05	20±0.1	10±0.1	81	81	19	25	13.4-0.1
		9,12	13.4-0.1	16-0.05	20±0.1	10±0.1	81	81	21	31.5	13.4-0.1
MCLP	MCLPOM	7,9	11-0.1	12-0.05	22.2±0.1	4±0.1	71.2	71.2	14	25	10-0.1
FAWL	FAWL-OM#	2,3,4,5	11-0.1	12-0.05	33±0.1	4±0.1	58	68	14.7	20.5	10-0.1
FAWM	FAWM-OM#	8,10	12-0.1	15-0.05	33.5±0.1	4±0.1	63	73	18	21	11-0.1

Leads: 10 CM

METAL SHELL (MS)



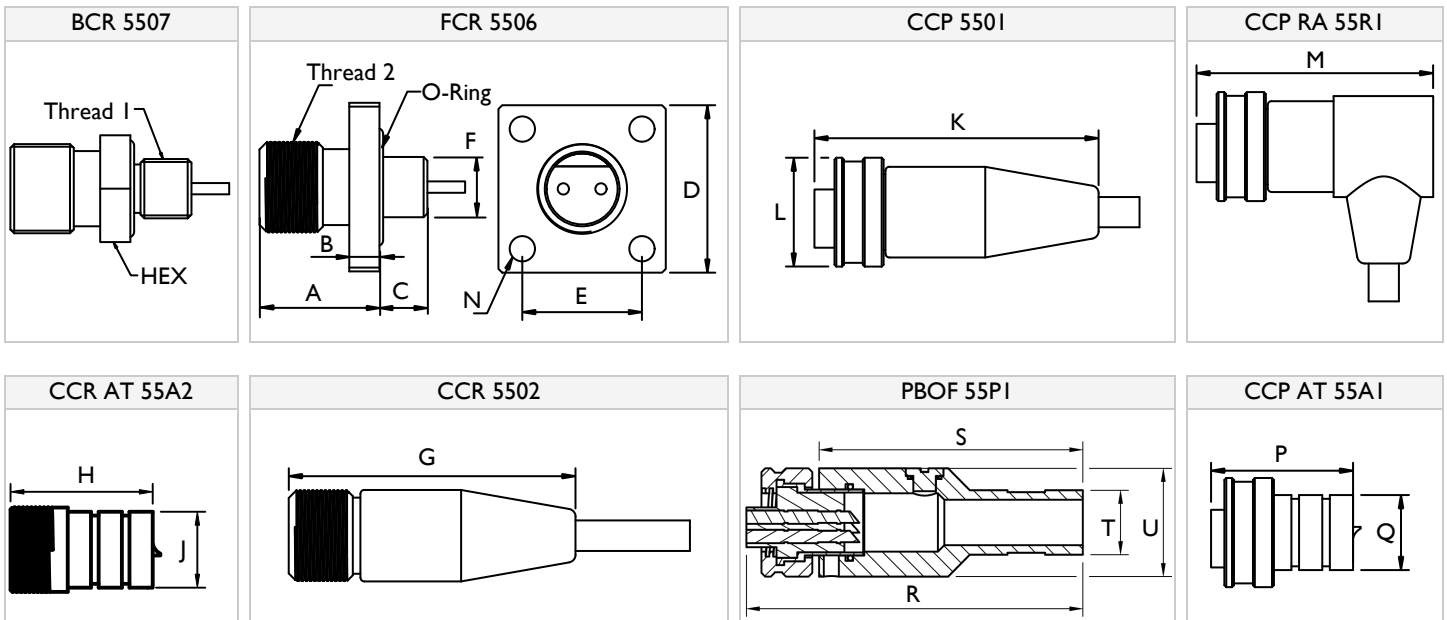
Shell Size	O-Ring 1	O-Ring 2	HEX [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	W [mm]	M [mm] [Thread]
1500	2-017	2-014	30	∅ 15.5	7.9	12.5	38.1	25.4 4 Holes x ∅ 5.2	∅ 15.884 ∅ 15.866		33	5/8-18 UNF 2A
2000	2-018	2-016	32	∅ 31.6	9.5	NA	44.4	31.75 4 Holes x ∅ 6.7	∅ 18.780 ∅ 18.759	12.7	48	3/4-16 UNF 2A
2400	2-122	2-020	41	∅ 38.8	9.5	NA	50.8	38.1 4 Holes x ∅ 6.7	∅ 25.130 ∅ 25.110		48	1-14 UNS 2A

Metal Shell Contact Layout Female	
1500	
2000	
2400	

Series	Contact Num. VS. AWG	
	AWG 20	AWG 18
1500	5,6,8	2,3,4
2000	10,12	2,3,4
2400		6,8,10

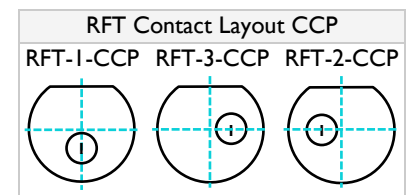
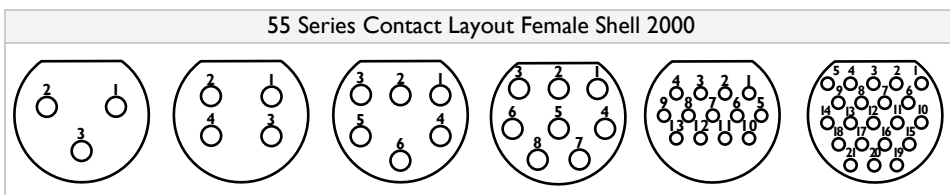
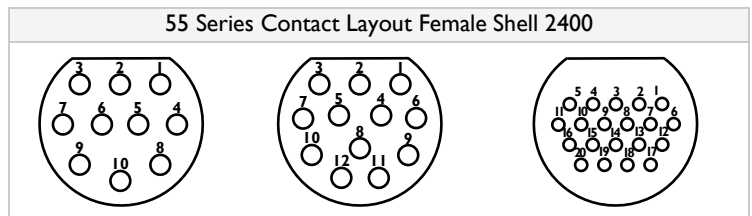
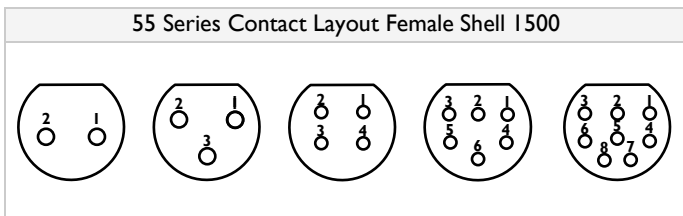
Metal Shell Part Number Format

FCR	15	02	M	SS
Type	Size	Contact Num.	Gender	Options
FCR - flange BCR - hex	15, 20, 24		F - female M - male	SS - stainless steel only



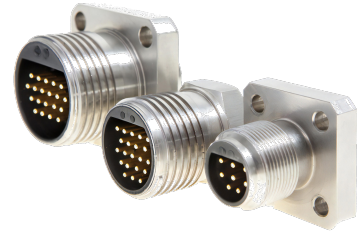
Shell Size	O-Ring	Thread 1	Thread 2	HEX [mm]	A[mm]	B[mm]	C[mm]	D[mm]	E[mm]	F[mm]	G[mm]	H[mm]	J[mm]
15	2-116	5/8-18 UNF	15/16-20	28.4 (1.12 IN.)	31.8	8	12.7	38	25.4	17.2	75	37.3	19.8
20	2-118	3/4-16 UNF	1-1/4-9	31.8 (1.25 IN.)	38	9.5	12.7	44.5	31.8	18.9	128	40.4	27
RFT											95		
24	2-122	1-14 UNF	1-1/2-9	38.1 (1.5 IN.)	38.1	9.5	12.7	50.8	38.1	25.15	128	42.7	33.5

Shell Size	K [mm]	L [mm]	M [mm]	N [mm]	P [mm]	Q [mm]	R [mm]	S [mm]	T [mm]	U [mm]
15	75	27.7	70	5.2	39.4	17.3	96.52	69.85	17.07	28.45
20	128	38	85	7	42	27.7	102.62	74.68	17.07	38.1
RFT	95									
24	128	44.5	100	7.4	42.2	33.6	106.43	81.79	17.07	44.45



5500 SERIES Ordering Table

55	0	I	-20	03	-0003
Series	A - Attachable C - Cap (dust cap) P - Pressure Balanced (oil filled) R - Right Angle 0 - 600V Standard	Type: 1 - CCP 2 - CCR 6 - FCR 7 - BCR	Size 15 20 24	Contact count	Length In Feet

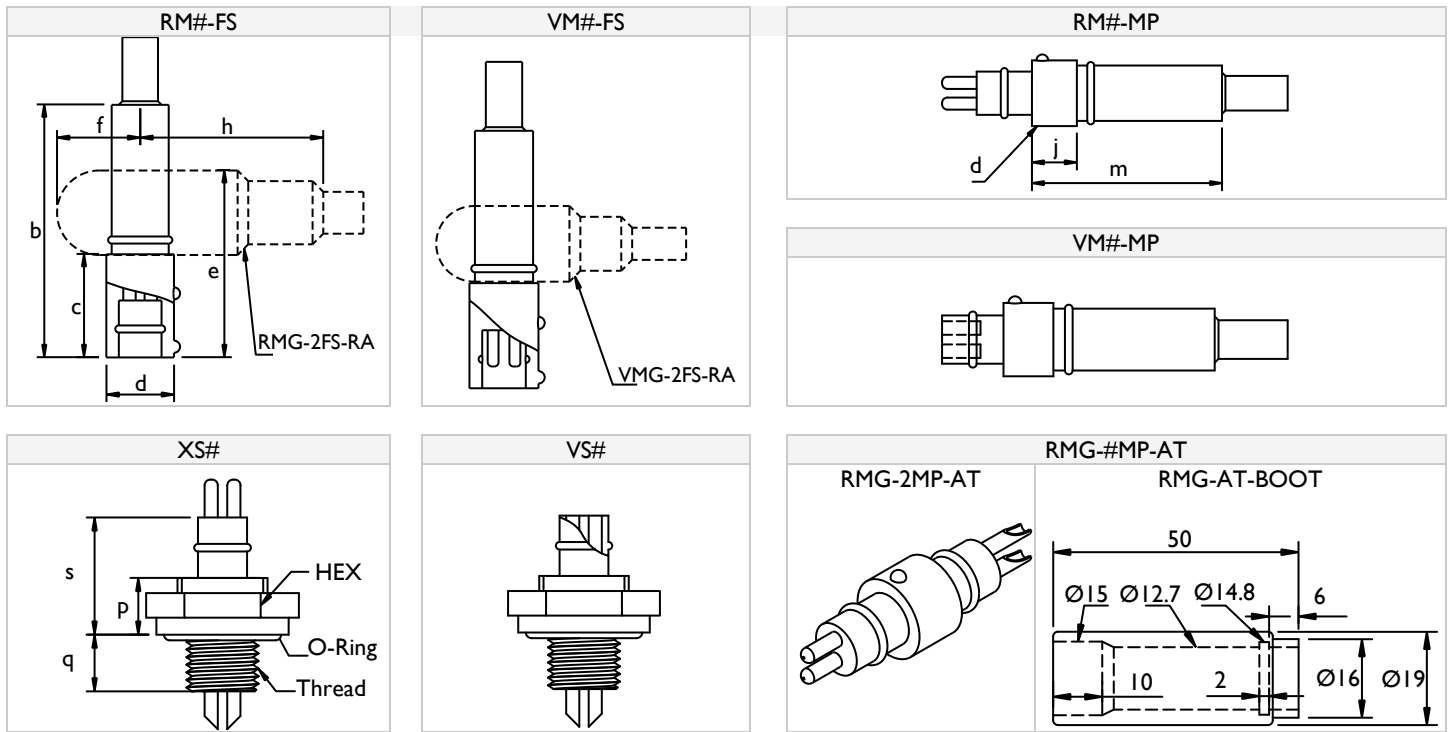


RFT Ordering Table

RFT	-I	-CCP	-DC
Series	1 - Pin Position 1 2 - Pin Position 2 3 - Pin Position 3	Type: CCP CCR FCR BCR	DC Dummy

Example	Description	Legacy Ref.
RFT-1-CCP	RFT Cable Connector Plug POSITION 1	RFTF-1
RFT-2-CCP	RFT Cable Connector Plug POSITION 2	RFTF-2
RFT-3-CCP	RFT Cable Connector Plug POSITION 3	RFTF-3
RFT-1-CCR	RFT Cable Connector Receptacle POSITION 1	RFTM-1
RFT-2-CCR	RFT Cable Connector Receptacle POSITION 2	RFTM-2
RFT-3-CCR	RFT Cable Connector Receptacle POSITION 3	RFTM-3
RFT-1-BCR	RFT Bulkhead Connector Receptacle POS 1	NA
RFT-2-BCR	RFT Bulkhead Connector Receptacle POS 2	NA

Series	Contact Num. VS. AWG		
	AWG4	AWG18	AWG16
55 Size 1500		4,6,8	2,3
55 Size 2000		13,21	3,4,6,8
RFT	I		
55 Size 2400		20	12,10



Cable Connector RM and VM, Dimensions in [mm]

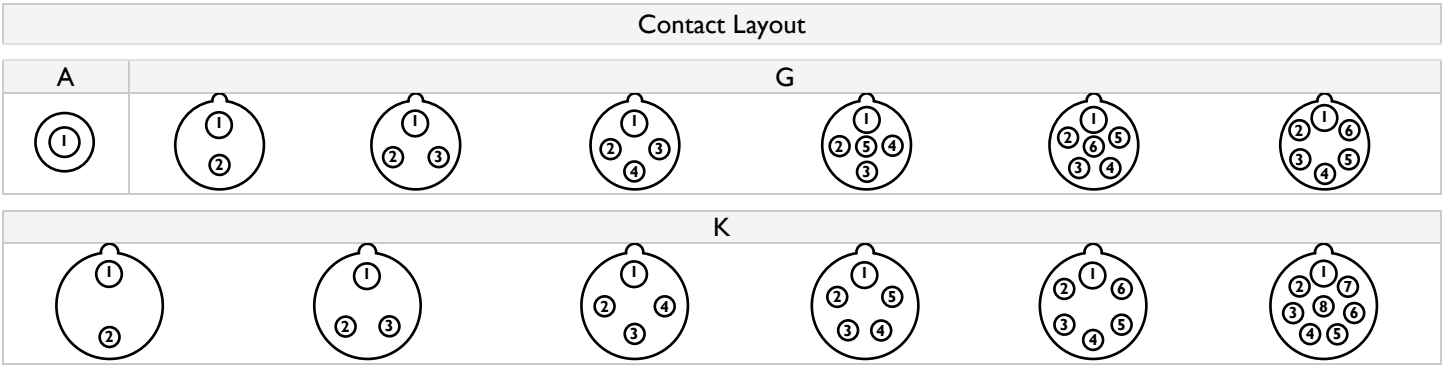
Size	-FS					-MP		
	b	c	e	f	h	Ød	j	m
A	65	36	N/A	8.9	28	8	16	49.5
G	73.5	28.5	54	19	47	19	13	58.5
K	68	41	68	19	47	27	19	46

Bulkhead Connector VS and XS

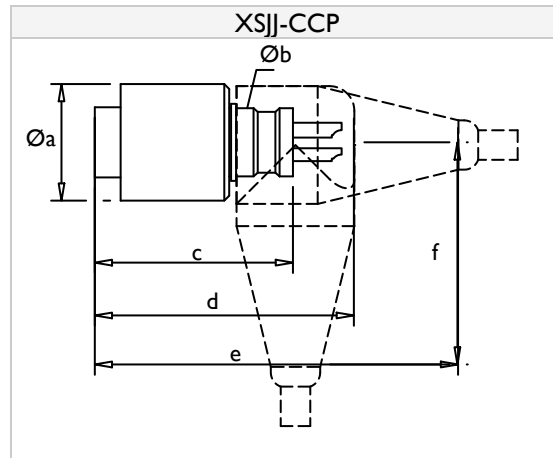
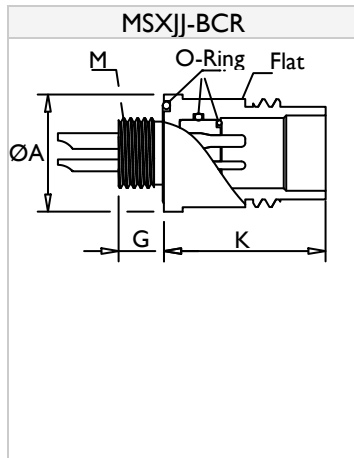
Size	Bulkhead Type	Designator	Dimensions in [mm]				O-Ring	Thread	Locking Sleeve
			p	q	s	HEX			
A	Solder Cups	VS#-BCL	4.6	15.7	14.5	11.2	2-012	5/16-24 UNF-2A	FLS-A-RM
		XS#-BCL							
G	Wire Leads	VSG-PBCLM	14	12.7	30	23.9	2-017	1/2-20 UNF-2A	FLS-G
	Wire Leads - High Pressure	XSG-BCL-HP-SS	21	10	37				
K	Solder Cups	VS#-BCL	16	16	32	35	2-213	3/4-16 UNF-2A	FLS-K
		XS#-BCL	16	25.4	28.6	41	2-217	1-14 NS-2A	

Mating Options

Cable Connector	Mating Bulkhead Connectors	Size	Contact Num. VS. AWG		
			AWG18	AWG16	
RM#-FS	RM#-MP	A	1		
	XS#-BCL		G	1,2,3,4,5,6	
	XS#-PBCLM				
VM#-FS	VM#-MP	K	2,3,4,5,6,8		
	VS#-BCL				
	VS#-PBCLM				

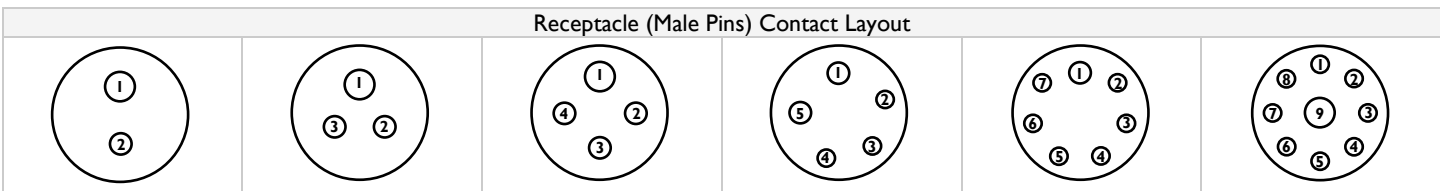


RM Part Number Format					
RM	G	-6	FS	-AT	-BCL
Type	Size	Contacts.	Gender	Options	XS And VS Bulkheads
cable connector	A		FS – female Socket	AT – attachable	BCL – solder cups
RM	G		MP – male plug	RA – right angle	
VM	K		FSD – FS dummy	RADIAL –	PBCLM – wires, availability:
Bulkhead connector			MPD – MP dummy	#6 pin only see layout	VSG-2-PBCLM
XS					VSG-3-PBCLM
VS					VSG-4-PBCLM
					BCL-HP-SS – wires, high pressure availability:
					XSG-2-BCL-HP-SS
					XSG-3-BCL-HP-SS
					XSG-4-BCL-HP-SS
					XSG-5-BCL-HP-SS
					XSG-6-BCL-HP-SS



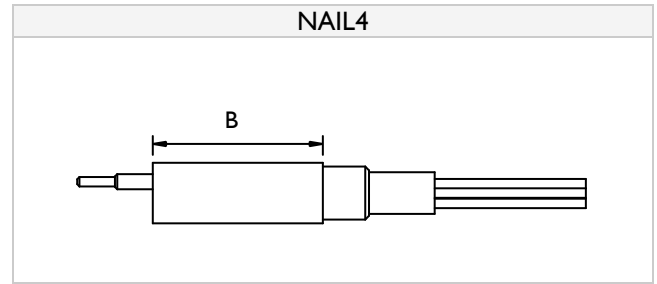
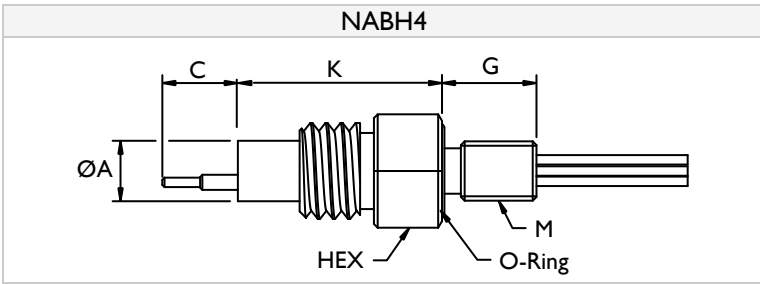
MSXJJ-BCR					
ØA	[mm]			M[Thread]	O-Ring
	G	K	Flat		
23.8	9.2	32.8	22	9/16-18 UNF-2A	5-254 2-015 5-058

XSJJ-CCP					
Unterminated connector [mm]			Molding* [mm]		
Øa	Øb	c	d	e	f
23.6	13.8	40.2	67	86	50

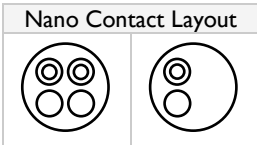


XS GRE Part Number Format		
MSXJJ	-2	-BCR
Sub family XSJJ MSXJJ	Contacts 2	Type BCR Bulkhead Connector Receptacle CCR Cable Connector Receptacle CCP Cable Connector Plug
Future availability* XSEE, MSXEE, XSL, MSXL XSM, MSXM	Future availability* 3-9	

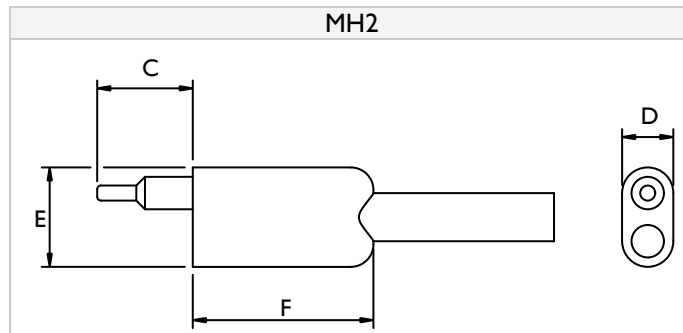
*Future Availability, inquire for options



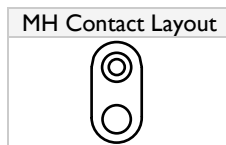
# Contacts	A [mm]	B [mm]	C [mm]	K [mm]	G [mm]	M[Thread]	HEX[mm]	O-Ring	Locking Sleeve
2,4	10	22.5	11	25	12.5	5/16-24 2A UNF	15	2-012	FLS-NA, MLS-NA



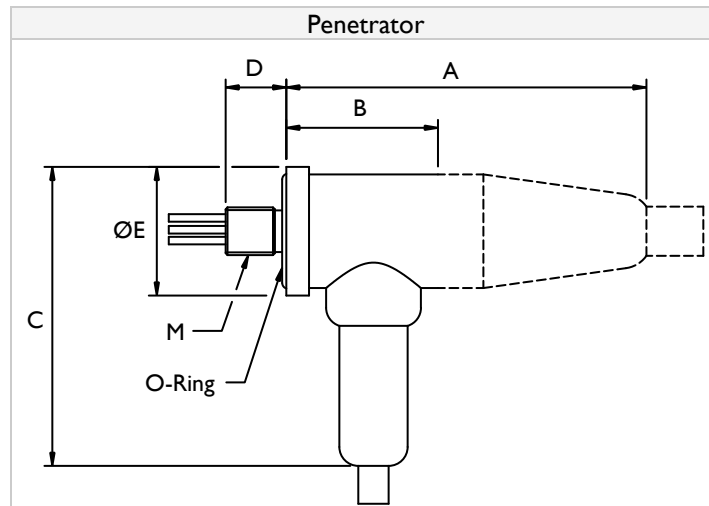
NANO Data Table		
Number of contacts	2	4
PN cable connector	NAIL2	NAIL4
PN bulkhead	NABH2	NABH4
AWG	20	



# Contacts	C [mm]	D [mm]	E [mm]	F [mm]
2	12.7	6.8	13.2	24



MH Data Table	
Number of contacts	2
Cable dim [mm]	6.4
Ordering number single cable lead	MH2
Ordering number dual cable lead	MH2-DW
AWG	20



	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	O-Ring [Nitrile]	M Thread
Size B	63.5	28.2	60.5	16	25.4	2-017	1/2-20 UNF-2A
Size C	106	36	67	25	38	2-213	3/4-16 UNF-2A

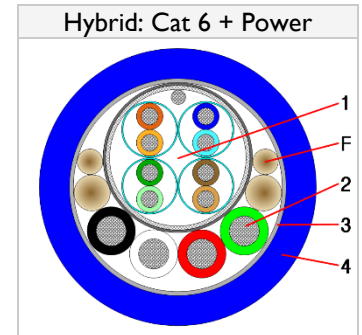
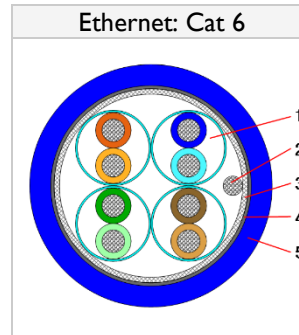
# Contacts	Cable OD [mm]	AWG
2	7.5	18
3	8.1	
4	9	
5	12	
6	12.3	
7	13	
8	13.5	

Penetrator Part Number Format

PN	-B	-6	-RA
Series	Size B C	Contact Num. Size B - 1,2, 3, 4, 6, 8,9 Size C - 1,2, 3, 4, 6, 8,9,10	Options RA - right angle



Cable Build		
	Ethernet: Cat 6	Hybrid: Cat 6 + Power
1	twisted pairs shielded 100%	Cat6 Cable
2	Drain AWG26	4 x AWG18
3	Outer braid 80% coverage	
4	Non-woven tape	12mm OD.
5	8mm OD.	NA
F	NA	Filler
Jacket Material: TP		



Compatibility			
Birns Aq.	Ref Company	Ref PN	Compatibility
SCXX8-ETH		DXX8X	NO
MCLPXX9-ETH	Subconn	DLPXX9X	YES
MCXX13-ETHI3		DXX13X	YES
550X-1508-ETH	Eaton Burton	550X-1508-EXXX	YES
550X-2013-ETHI3		550X-2013-EXXX	YES

* MCBH13-BIRNS-ETHI3 threading differs from MCBH13-SU-ETHI3. See

[MC page.](#)

Ethernet Specification		
Designator	-ETH	-ETHI3
Type	Ethernet: Cat 6	Hybrid: Cat 6 + Power
Power	NA	AWG18x4
Volt Rating	150v	500v
Ethernet	Cat6 Patch AWG24 x 8	
Data Rate	1 Gbs up to 30 m.	
Cable OD	8mm	12mm
Bend Rad.	6 x OD ≈~48mm	6 x OD ≈~72mm
Standard	Bulkhead / Cable Connector = 1M	
Cable Length	Over Mold connector = 0.1M	
RJ45 Jack	Simply45: S45-1755P, hookup: T568B Supplied without RJ45 jack. To order RJ45 jack: -Unterminated RJ45 use P/N: S45-1755P -Terminated* RJ45 use P/N: RJ45-TRM	

*Do not pre-terminate RJ45 on bulkhead smaller than 5/8" thread.

Ethernet Part Number Format		
Ethernet add "-ETH"		
Ethernet + Power add "-ETHI3"		
Series	Bulkheads	Cable Connector
MC	MCBH8FSS-ETH	MCIL8M-ETH
	MCBH13MSS-BIRNS-ETHI3	MCIL13M-BIRNS-ETHI3
	MCBH13MSS-SU-ETHI3	MCIL13M-SU-ETHI3
SC	SCBH8FSS-ETH	SCIL8M-ETH
	SCBH16MSS-ETHI3	SCIL16F-ETHI3
MCLP	MCLPBH9FSS-ETH	MCLPIL9M-ETH
FCR/BCR	FCRI508MSS-ETH	MCIL8F-ETH
LP	LPBH9FSS-ETH	LPIL9M-ETH
FAWM	FAWM-BH8MSS-ETH	FAWM-IL8F-ETH
	FAWM-BH10MSS-ETHI3	FAWM-IL10F-ETHI3
5500	5506-2008-ETH	5501-2008-ETH
	5506-2013-ETHI3	5501-2013-ETHI3

ETHI3 Application:

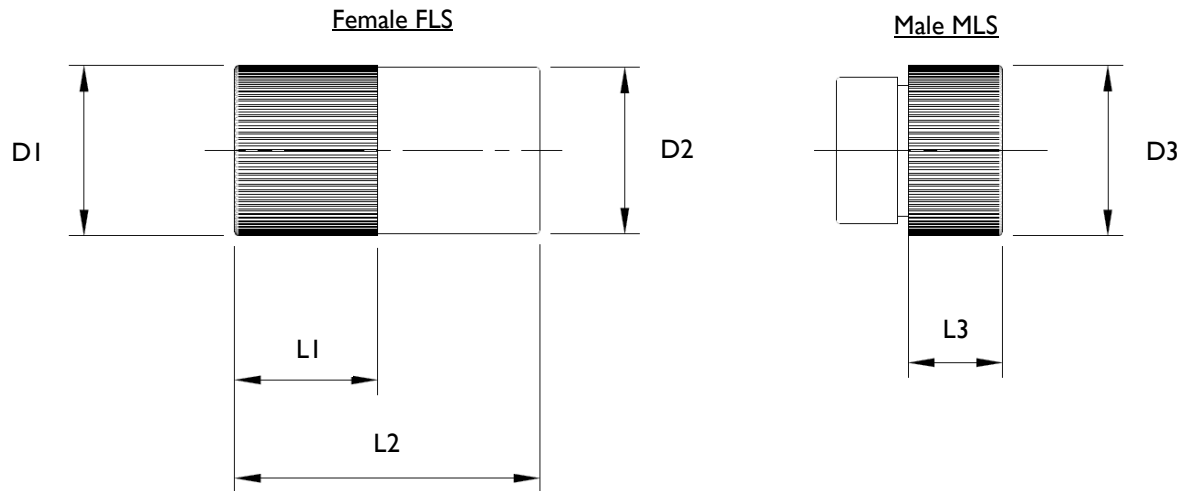
Bulkhead and Over Mold: Cat 6 + separate power leads.

Cable Connector: Hybrid cable, Cat6+power Integrated.

Over Mold - replace 'IL' with OM.

For instance, MCIL8F-ETH becomes MCOM8F-ETH

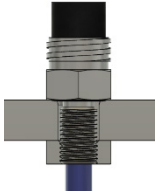
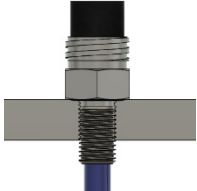
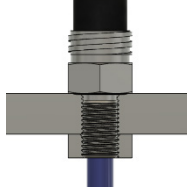
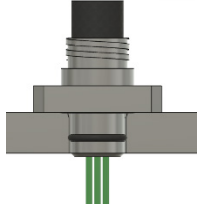
Wire Color Code - Ethernet			
Wire #	Connector Contact Count		
	8 Wires	9 Wires	10+ Wires
1	Brown*	Brown*	Black
2	Light Brown*	Light Brown*	Screen
3	Blue*	Blue*	White
4	Light Blue*	Light Blue*	Brown*
5	Orange*	Orange*	Light Brown*
6	Light Orange*	Light Orange*	Blue*
7	Green*	Green*	Light Blue*
8	Light Green*	Light Green*	Orange*
9		Screen	Light Orange*
10			Green*
11			Light Green*
12			Red
13			Green
14+	Standard color code		
*	Twisted pairs		

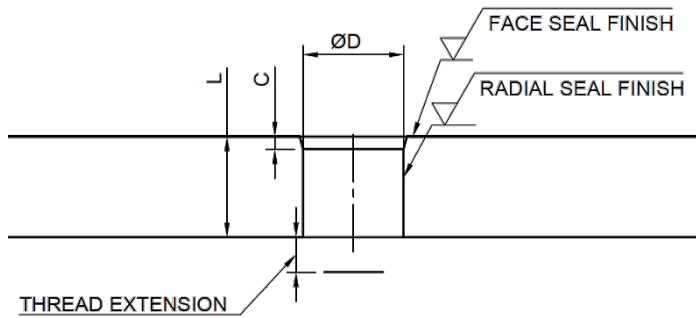


PN	Reference PN	Application	D1 [mm]	D2 [mm]	D3 [mm]	L1 [mm]	L2 [mm]	L3 [mm]
FLS-A MLS-A	DLSA-F DLSA-M	SC 2-5 MC-SU 9-16	34	33	34	16	32	23
FLS-B MLS-B	DLSB-F DLSB-M	SC 6-10	40	39	39	16.5	32.5	23
FLS-C MLS-C	DLSC-F DLSC-M	SC 12, 16, 25	59	59	59	30	30	19.5
FLS-MC MLS-MC	MCDLS-F MCDLS-M	MC 2-8 METAL SHELL 1500	23	22.5	23	19.3	41.3	12.7
FLS-MCA MLS-MCA		MC 9-21 Birns HD 2-4	34	33	34	26.7	52.7	23
FLS-TC MLS-TC		TC	17.3	16.5	16.5	20	36	10
FLS-NA MLS-NA		NANO	17.3	16.5	16.5	20	40.5	15.5
LS2000		METAL SHELL 2000	34	33	NA	16	32	NA
LS2400		METAL SHELL 2400	40	39	NA	16.5	32.5	NA
FLS-A-RM MLS-A-RM	A-FLS-D A-MLS-D	RM size A	17	12.7	17	13.6	45.6	13.5
FLS-G MLS-G	G-FLS-D G-MLS-D	RM size G	28.5	27.5	28.5	22	34.7	11
FLS-K MLS-K	K-FLS-D K-MLS-D	RM size K	36	36	38.1	48	48	17.8

Note:
 Material: Delrin Black
 Available Stainless Steel: FLS-A-SS; FLS-MC-SS; MLS-MC-SS; LS2000-SS;

Connector Mounting Configurations

Straight Hole + Nut	Threaded Hole	Threaded Hole + Nut	Flange
			
<p>Standard application, Enables orientation adjustment</p>	<p>Used in limited space / access application. Or if wall thickness prevents nut</p>	<p>Used to prevent accidental release.</p>	<p>Enables radial seal as well as face seal. Better connector orientation, accuracy and fastening access. More expensive.</p>



Connector	Mounting Hole Dimensions		C [mm]	L [mm]
	Straight Hole [mm]	Threaded Hole		
5/16"-24 UNF	8.12±0.1	5/16-24 UNF	0.2 MAX x 45°	NA
7/16"-20 UNF	11.29±0.1	7/16-20 UNF		
1/2"-20 UNF	12.88±0.1	1/2"-20 UNF		
5/8"-18 UNF	16.05±0.1	5/8-18 UNF		
3/4"-16 UNF	19.23±0.1	3/4-16 UNF		
1"-14 UNS	25.58±0.1	1-14 UNS		
FCR1500	15.9+0.027	NA	1.5 x 15°	13 min
FCR2000	18.8+0.033			
FCR2400	25.15+0.033			

FACE/ RADIAL SEAL FINISH
N7 (Ra 1.6) or better on O-ring contact surfaces.

Closing Torque		
Thread	Stainless Steel Or Titanium	
	lb-ft	Nm
5/16"-24 UNF	3	4
7/16"-20 UNF	9	13
1/2"-20 UNF	14	19
5/8"-18 UNF	27	37
3/4"-16 UNF	42	57
1"-14 UNS	67	90

*Brass or Aluminum 70% of listed
**PEEK or GRE 30% of listed

Maintenance

Before mating use PTFE based lubricant such as Super Lube® by Synco (grease for O-rings and aerosol for connectors)
For cleaning use contact cleaner (isopropyl alcohol) or soap and water.
For longest life clean connectors after each job, dry, relubricate, and cover until ready for next job.

Americas				
North America	USA	New England	Electronic Sales Of New England	33 Main St., Unit E Old Saybrook, CT 06475 sales@esalesne.com www.esalesne.com
		Mid-Atlantic	Lindgren Associates, Inc.	8711 Plantation Lane Manassas, VA. 20110 www.LindgrenAssociates.com
		Gulf Coast	Cis Interconnect	2580 Broadway ST. San Leon Texas 77539 www.cis-interconnect.com
	Canada	Axsub Inc.	112, Montée Industrielle Rimouski, Québec, G5M 1B1 sales@axsub.com www.axsub.com	
South America	Brazil:		Mako Services Ltd.	Av. Beira Mar, no 262 SI 704 – Castelo 20021-060 Rio de Jaaneiro www.makoservices.com.br

Asia				
East Asia	China		Shanghai Linkearth Electronics Co.,Ltd	Room 403, NO. 1455 Pingcheng Road Jiading, Shanghai, China 201899 www.linkearthelec.com
			Shanghai Rock-Firm Interconnect Systems Co Ltd	Block B, 23th Floor, No.33 Fushan Road,Shanghai, China P.C. 200120 www.rock-firm.com
			Shanghai P-Nav Scientific	Instruments Co.,Ltd Rm3A08 Bld B North Block E-Link World 999 HuaXu Road, Shanghai,China 201702 Sales@P-Nav.com.cn www.P-Nav.cn
	Japan		Cosmos Shoji Ltd	Sanyo Yasuda Bld. 7F 2-11, Kanda Nihiki-Cho, Chiyo-Ku, Tokyo 101- 0054 JAPAN www.cosmos-shoji.co.jp
	Korea		K2 Korea Co. Ltd.	Ilsan Techno Town Room 1023 Goyang-Si, Ilsan-Donggu, Ilsanro 138 Gyeonggi-Do, ROK 10442 www.konnector.co.kr
Southeast Asia	Singapore		Sea And Land Technologies	Block 2029, Bukit Batok Industrial Park A #01-290, Singapore 2365 www.sea-landtech.com
South Asia	India		Polar Technologies	129, First Floor, ABW Rectangle One Building, Saket , District Center, New Delhi-110017 polar@polartech.org www.polartech.org

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Central Europe	Germany	Develogic Gmbh	Subsea Systems Hammer Deich 70 D-20537 Hamburg	sales@develogic.com www.develogic.com
Western Europe	United Kingdom	Scorpion Oceanics Ltd.	Unit 2, Park Farm Gt. Chesterford Essex, CB10 1RN	www.scorpionoceanics.co.uk
	Holland	Seascope	De Hoogjens 24 4254 XW Sleenwijk	www.seascopesubsea.com
	Belgium + France	De Zeeman Pro	Steenhoevestraat, 4 B-2800 Mechelen Belgium	info@dezeeman.be www.dezeeman.com
Northern Europe	Norway	Norwegian Electronic Supply A/S	PB 83, Gamle Vormedalsvei 11 5544 Vormedal	post@supply.as www.supply.no
Southern Europe	Italy	Telesub Lanterna S.R.L.	Via Vincinella 15 19035 - Ponzano Magra (SP)	info@telesublanterna.com www.telesublanterna.com/en/contacts/
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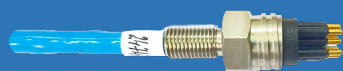
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