



RAPTOR

E-Flight Solutions

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The Raptor product series is a range of high-power, high voltage connectors for e-flight applications.

Raptor is Amphenol LTD's new range of connectors engineered for high voltage and high current systems in E-Flight, E-VTOL and hybrid applications.

Raptor is designed to provide partial discharge free performance at an operating voltage of 2.0KV AC(rms) at 30,000 ft, making it ideal for applications such as batteries, generators, motors & power distribution units.

It is ideal for termination of screened HV power cables in Aerospace applications.

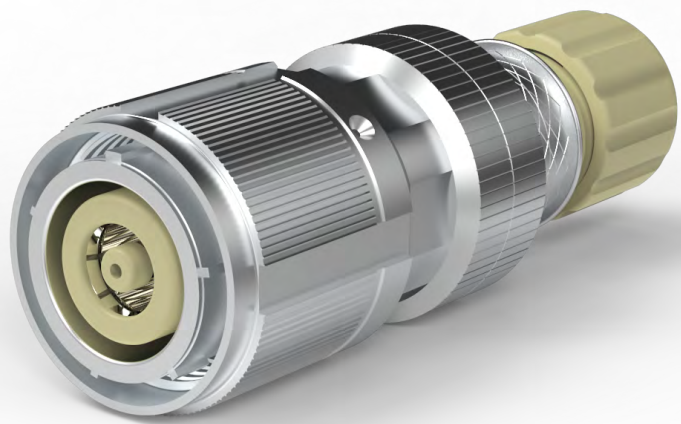
Raptor is based on existing proven Amphenol Ltd Rhino series for ground power applications, re-engineered for Aerospace and using the new TALON contacts offering an increased temperature capability up to 200°C.

IP68 sealing and an anti-decoupling ratchet mechanism on the coupling ring, ensure a reliable connection even under high vibration. With superior EMC performance and a high voltage insulation system, the Raptor connector series meets the future demands of high-power e-flight systems.



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Key Features

- Designed for high operating voltages at aircraft altitudes
- Available in Mil-DTL-38999 Series III derived shell sizes 15 to 25
- High current TALON copper contact
- Designed for standard American Wire Gauge (AWG) cables
- Designed to minimise partial discharge
- Insulator material and creepage/clearance distances increased for high voltages
- Improved insulation geometry for HV electric fields

Shell Size	Cable
15	4 AWG
17	2 AWG
19	0 AWG
21	00 AWG
23	000 AWG
25	0000 AWG





TALON Power Contact

The market needs high power, high temperature contacts.

TALON power contact is the answer. High conductivity copper conductors and high temperature "TALON claw" springs combine their respective properties to give optimum contact performance in the most demanding conditions up to 200°C.



Part Numbering

Example: RAP-06RF21-1P1NB

Plug, electroless nickel plate, size 21 shell, crimp contact termination, pin contact, copper contact, normal keyway, straight EMC Backshell.

(W587) castellated nut for 07 style Rear Mount Jam Nut receptacle connectors if required.

(W765) castellated nut for 17 style Front Mount Jam Nut receptacle connectors if required.

Series	Shell Style	Finish	Shell Size	Contact Termination ¹	Contact Gender	Contact Material	Keyway	Accessory
RAP-	06	XX	XX-	1	X	1	X	X
RAP	06 - In-line Plug	SS - Stainless Steel RF - Electroless Nickel Plated Aluminium RB - Nickel Aluminium Bronze	15 17 19 21 23 25	1 - Crimp	P - Pin S - Socket	1 - Silver Plated Copper	N A B C D E	B - Straight EMC Backshell C - 90° EMC Backshell
RAP-	00	XX	XX-	1	X	1	X	B
RAP	00 - Wall Mount Receptacle	SS - Stainless Steel RF - Electroless Nickel Plated Aluminium RB - Nickel Aluminium Bronze	15 17 19 21 23 25	1 - Crimp	P - Pin S - Socket	1 - Silver Plated Copper	N A B C D E	B - Straight EMC Backshell
RAP-	00	XX	XX-	X	X	1	X	0
RAP	00 - Wall Mount Receptacle	SS - Stainless Steel RF - Electroless Nickel Plated Aluminium RB - Nickel Aluminium Bronze	15 17 19 21 23 25	2 - Threaded Post 3 - Flat Tail with cross hole 5 - Tapped hole with locking flats	P - Pin S - Socket	1 - Silver Plated Copper	N A B C D E	0 - No Backshell
RAP-	07	XX	XX-	1	X	1	X	B
RAP	07 - Rear Mount Jam Nut Receptacle	SS - Stainless Steel RF - Electroless Nickel Plated Aluminium RB - Nickel Aluminium Bronze	15 17 19 21 23 25	1 - Crimp	P - Pin S - Socket	1 - Silver Plated Copper	N A B C D E	B - Straight EMC Backshell
RAP-	07	XX	XX-	X	X	1	X	0
RAP	07 - Rear Mount Jam Nut Receptacle	SS - Stainless Steel RF - Electroless Nickel Plated Aluminium RB - Nickel Aluminium Bronze	15 17 19 21 23	2 - Threaded Post 3 - Flat Tail with cross hole 5 - Tapped hole with locking flats	P - Pin S - Socket	1 - Silver Plated Copper	N A B C D E	0 - No Backshell
RAP-	17	XX	XX-	X	X	1	X	0
RAP	17 - Front Mount Jam Nut Receptacle	SS - Stainless Steel RF - Electroless Nickel Plated Aluminium RB - Nickel Aluminium Bronze	15 17 19 21 23 25	2 - Threaded Post 3 - Flat Tail with cross hole 5 - Tapped hole with locking flats	P - Pin S - Socket	1 - Silver Plated Copper	N A B C D E	0 - No Backshell

Performance Data

AC (rms) DWV (sea level)	7.5KV* ¹
AC (rms) Recommended Max Operating Voltage (sea level)	2.5KV* ¹ (2.25KV* ¹ for 90° plug)
DC Recommended Max Operating Voltage (sea level)	3.5KV* ¹ (3.1KV* ¹ for 90° plug)
AC (rms) DWV (35,000ft)	2.5KV* ¹
AC (rms) Recommended Max Operating Voltage (35,000ft)	850V* ¹
DC Recommended Max Operating Voltage (35,000ft)	1.2KV* ¹
AC (rms) Partial Discharge Free Voltage (35,000ft, 21°C)	1.6KV PDIV (1.25KV PDIV for 90° plug)
Insulation Resistance	>5000 Megohms
Mating Cycles	500
RoHs	Yes
Safety	IP2X finger protection in accordance with BS EN 60529
Fluid Resistance	MIL-DTL-38999 Series III
Shock and Vibration	MIL-DTL-38999 Series III
Salt Spray	Shell Material and Plating Type Dependant e.g. Aluminium, Nickel plated (RF) 48Hrs, Stainless steel 500 Hrs
Sealing (Mated)	IP68
Sealing (Unit Mounted Receptacle)	6 Bar fluid sealing
Operating Temperature Range	-65 +200°C

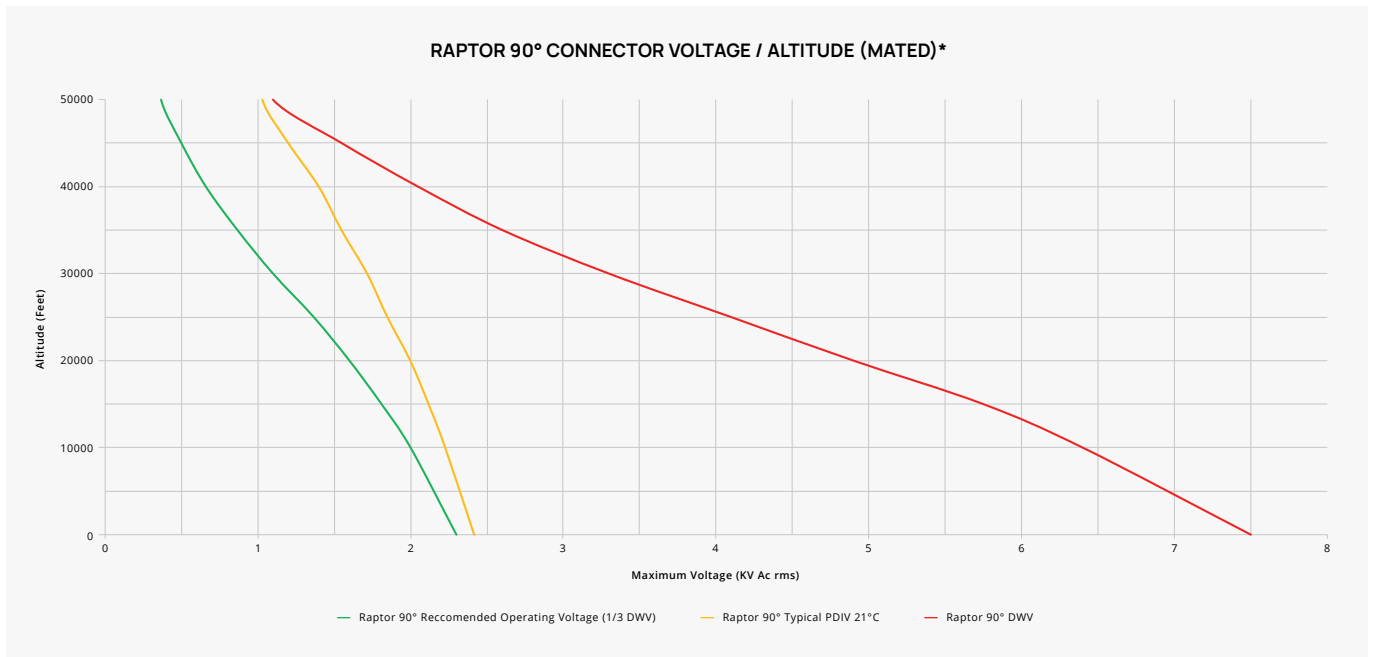
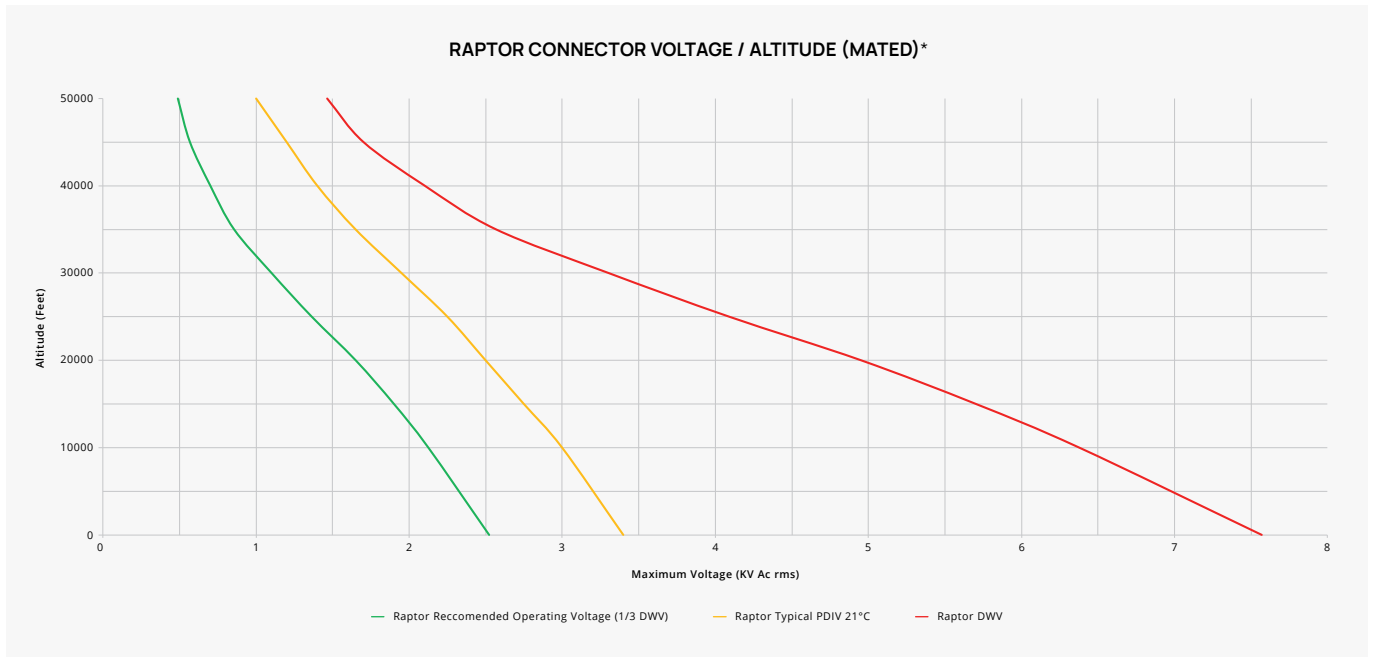
Shell Size	Cable Gauge	Nominal Current Rating* ²
15	4 AWG	275
17	2 AWG	325
19	0 AWG	425
21	00 AWG	575
23	000 AWG	650
25	0000 AWG	800

*¹ Values stated, based on lowest performance unit mount receptacles. Refer to Voltage Derating chart on page 8.

*² Based on Nickel Plated Cables – see also derating charts. Current capacity will be reduced by high ambient temperature and/or high frequency AC.

Performance Data

Voltage Derating

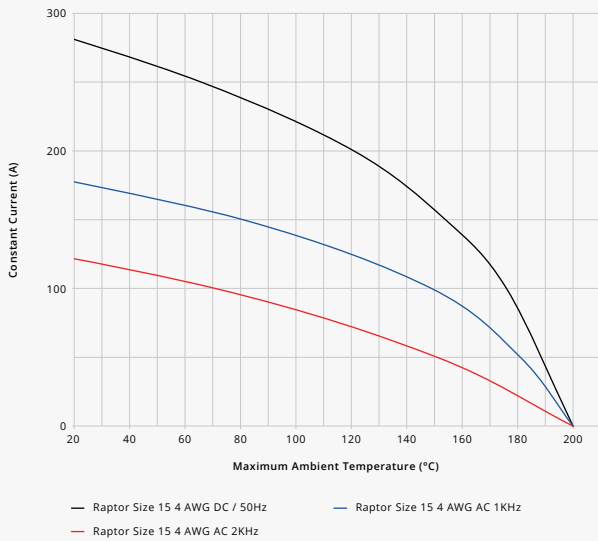


* Based on Copper Contacts (Silver Plated) and Copper Cables (Nickel Plated).

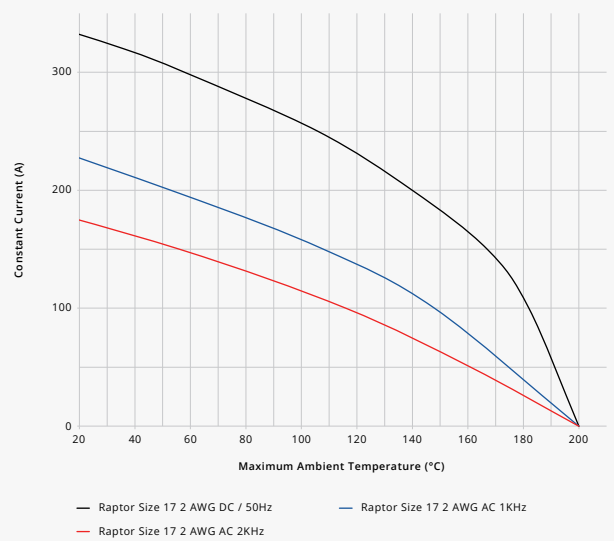
Performance Data

Current Derating

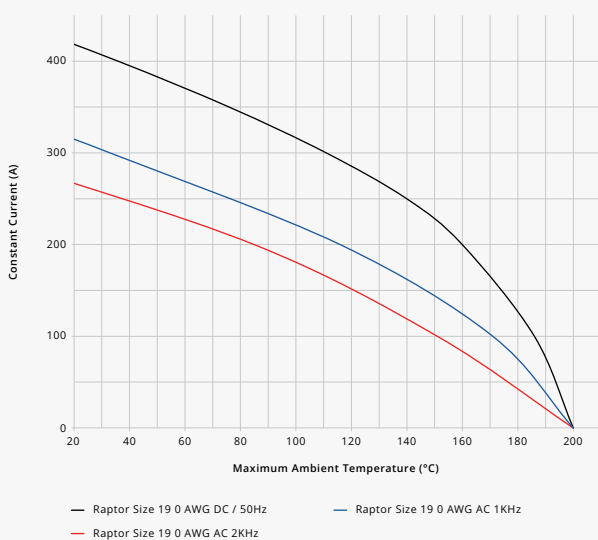
RAPTOR SIZE 15 4 AWG CONSTANT CURRENT AMBIENT TEMPERATURE & FREQUENCY DE-RATING*



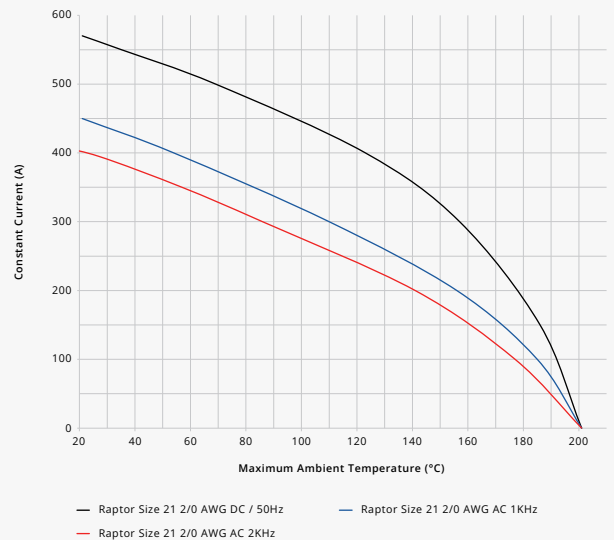
RAPTOR SIZE 17 2 AWG CONSTANT CURRENT AMBIENT TEMPERATURE & FREQUENCY DE-RATING*



RAPTOR SIZE 19 0 AWG CONSTANT CURRENT AMBIENT TEMPERATURE & FREQUENCY DE-RATING*



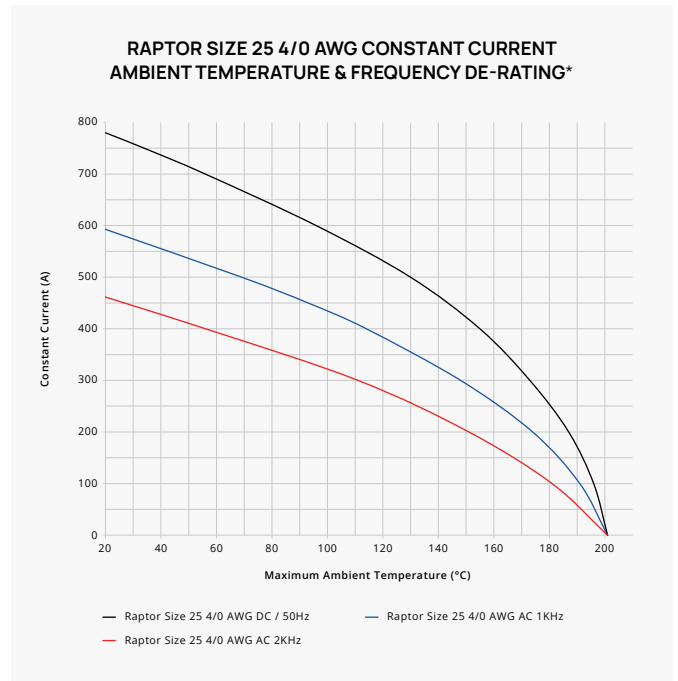
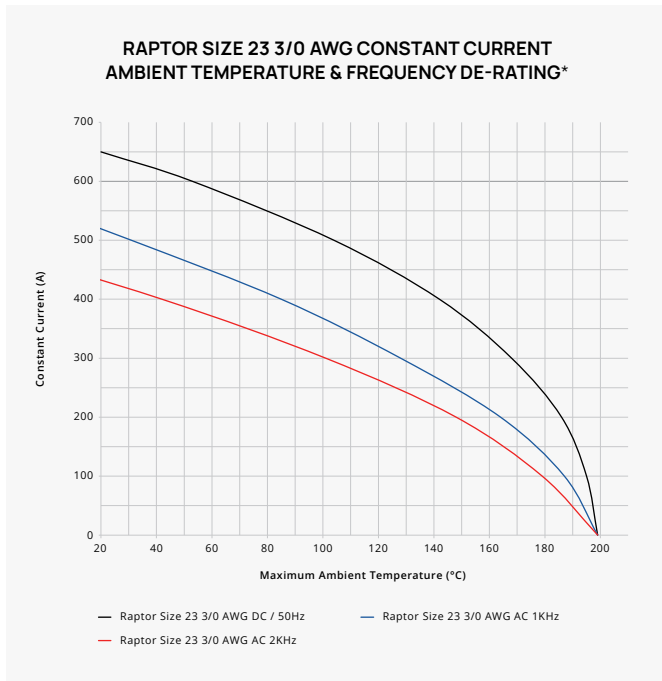
RAPTOR SIZE 21 2/0 AWG CONSTANT CURRENT AMBIENT TEMPERATURE & FREQUENCY DE-RATING*



* Based on Copper Contacts (Silver Plated) and Copper Cables (Nickel Plated).

Performance Data

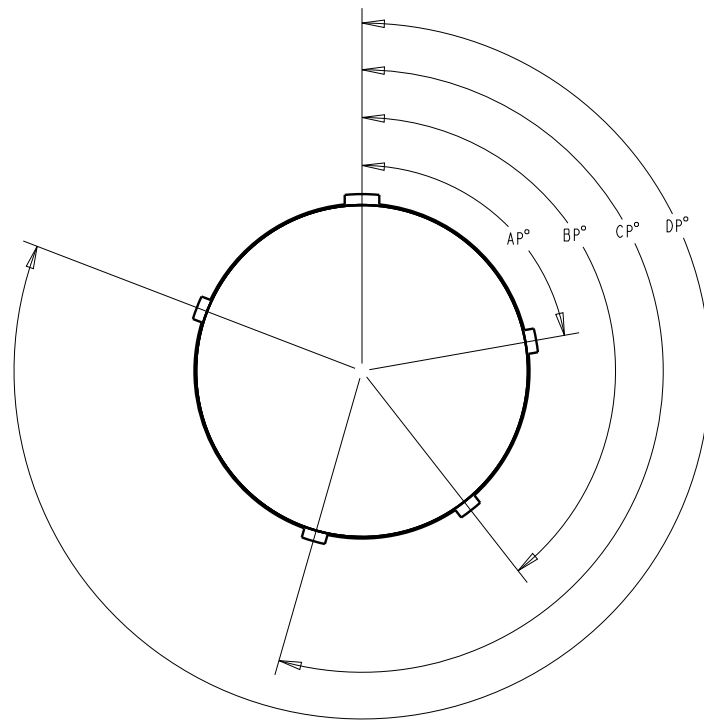
Current Derating (Cont.)



* Based on Copper Contacts (Silver Plated) and Copper Cables (Nickel Plated).

Keyway Orientations

A plug with a given orientation letter will mate with a receptacle with the same orientation letter. The angles for a given connector are the same whether it contains a pin or socket contact. Views shown are from front face of the plug connector, receptacle connector is mirrored.



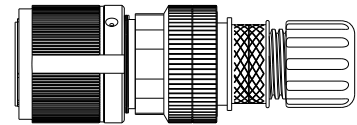
Minor Keyway Positions								
Key Position	Size 15				Size 17-25			
	AP	BP	CP	DP	AP	BP	CP	DP
N	105	151	218	246	90	152	206	303
A	123	166	192	302	145	180	210	320
B	100	155	205	262	59	179	210	254
C	63	166	230	265	76	150	210	267
D	129	156	186	308	72	155	190	290
E	61	151	194	252	89	163	207	282

Plugs Table of Styles

06 In-Line Plug

-B Accessory Style

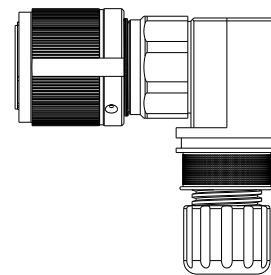
- Cable mounted
- Screened or unshielded cable termination with crimp contact
- 360° screened straight backshell



06 In-Line Plug

-C Accessory Style

- Cable mounted
- Screened or unshielded cable termination with crimp contact
- 360° screened 90° exit angle backshell



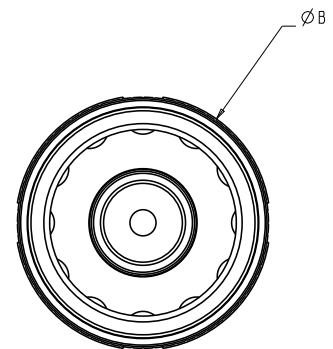
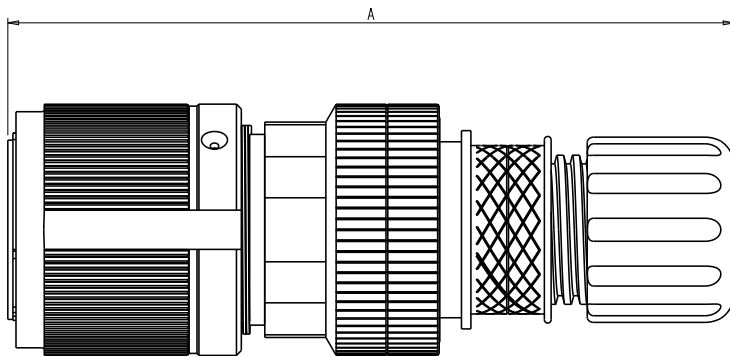
Plugs

06 In-Line Plug -B Accessory Style



RAP-06XXXX-XXXXB

- Cable mount
- Screened or unshielded cable termination with crimp contact
- 360° screened straight backshell



Reference Dimensions, Inch (mm)		
All dimensions are common for pin and socket versions		
Size	A	ØB
15	3.233 (82.12)	1.249 (31.72)
17	3.281 (83.34)	1.386 (35.20)
19	3.513 (89.23)	1.493 (37.92)
21	4.626 (117.50)	1.620 (41.15)
23	4.846 (123.09)	1.737 (44.12)
25	4.946 (125.63)	1.864 (47.35)

Note: Dimension A - when nut at start of engagement

Plugs

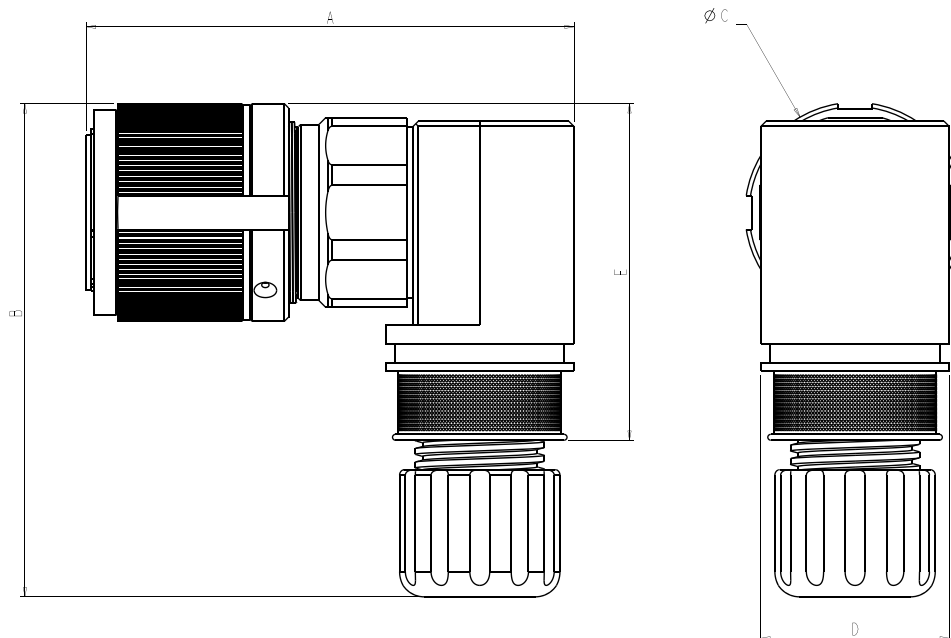
06 In-Line Plug

-C Accessory Style



RAP-06XXXX-XXXXC

- Cable mount
- Screened or unshielded cable termination with crimp contact
- 360° screened 90° exit angle backshell



Reference Dimensions, Inch (mm)					
All dimensions are common for pin and socket versions					
Size	A	B	C	D	E
15	2.959 (75.16)	2.793 (70.94)	1.249 (31.72)	0.950 (24.13)	2.085 (52.96)
17	3.261 (82.83)	3.096 (78.64)	1.386 (35.20)	1.161 (29.49)	2.430 (61.72)
19	3.524 (89.51)	3.098 (78.69)	1.493 (37.92)	1.263 (32.08)	2.411 (61.24)
21	3.724 (94.59)	3.585 (91.06)	1.620 (41.15)	1.387 (35.23)	2.475 (62.87)
23	4.115 (104.52)	3.835 (97.41)	1.737 (44.12)	1.526 (38.76)	2.707 (68.76)
25	4.484 (113.89)	4.085 (103.76)	1.864 (47.35)	1.653 (41.99)	2.972 (75.49)

Note: Dimension B - when nut at start of engagement

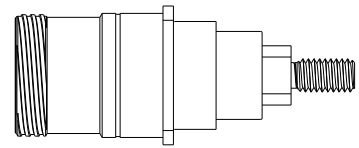
Receptacles

Table of Styles

00 Wall Mount Receptacle

-0 Accessory Style

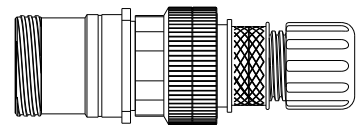
- Rear or Front Panel Mount
- Busbar termination
- No rear accessory



00 Wall Mount Receptacle

-B Accessory Style

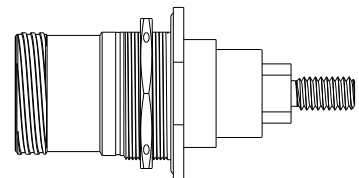
- Rear Panel Mount
- Screened or unshielded cable termination with crimp contact
- 360° screened straight backshell



07 Rear Mount Jam Nut Receptacle

-0 Accessory Style

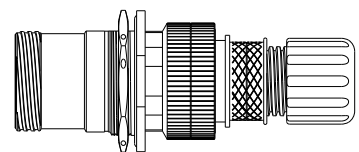
- Rear Panel Mount
- Busbar termination
- No rear accessory



07 Rear Mount Jam Nut Receptacle

-B Accessory Style

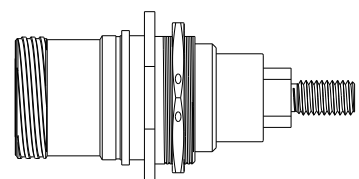
- Rear Panel Mount
- Screened or unshielded cable termination with crimp contact
- 360° screened straight backshell



17 Front Mount Jam Nut Receptacle

-0 Accessory Style

- Front Panel Mount
- Busbar termination
- No rear accessory



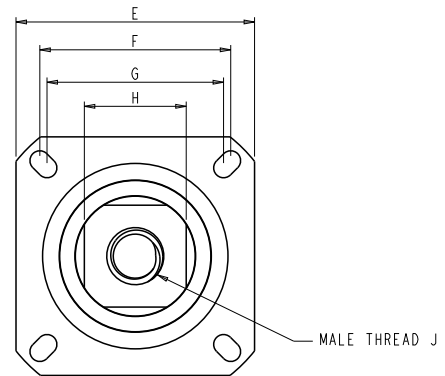
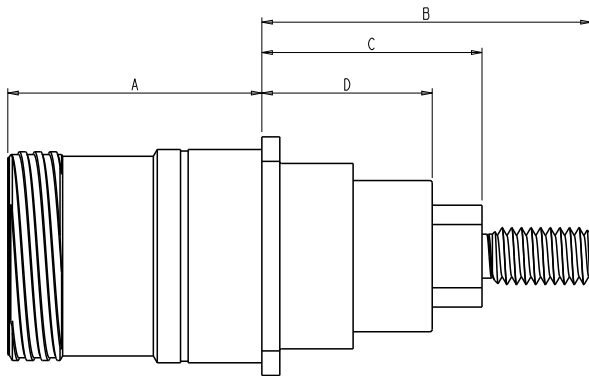
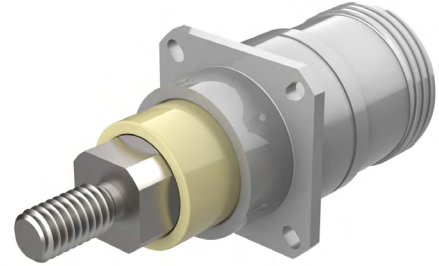
Receptacles

00 Wall Mount Receptacle

-0 Accessory Style

RAP-00XXXX-2XXX0

- Rear or Front Panel Mount
- Busbar termination - Threaded post
- No rear accessory



Reference Dimensions, Inch (mm)									
All dimensions are common for pin and socket versions									
Size	A	B	C	D	E	F	G	H	J
15	1.338 (33.99)	1.677 (42.59)	1.199 (30.45)	0.999 (25.37)	1.219 (30.96)	0.969 (24.61)	0.906 (23.01)	0.391 (9.93)	1/4-20 UNC
17	1.502 (38.15)	1.859 (47.21)	1.262 (32.05)	0.999 (25.37)	1.312 (33.32)	1.062 (26.97)	0.969 (24.61)	0.510 (12.95)	5/16-18 UNC
19	1.685 (42.80)	2.040 (51.82)	1.325 (33.66)	0.999 (25.37)	1.438 (36.53)	1.156 (29.36)	1.062 (26.97)	0.587 (14.91)	5/16-18 UNC
21	1.664 (42.27)	2.157 (54.79)	1.442 (36.63)	1.116 (28.35)	1.562 (39.67)	1.250 (31.75)	1.156 (29.36)	0.667 (16.94)	3/8-16 UNC
23	1.654 (42.01)	2.449 (62.20)	1.656 (42.06)	1.236 (31.39)	1.689 (42.90)	1.375 (34.93)	1.250 (31.75)	0.746 (18.95)	1/2-13 UNC
25	1.735 (44.07)	2.449 (62.20)	1.656 (42.06)	1.236 (31.39)	1.812 (46.02)	1.500 (38.10)	1.375 (34.93)	0.746 (18.95)	1/2-13UNC

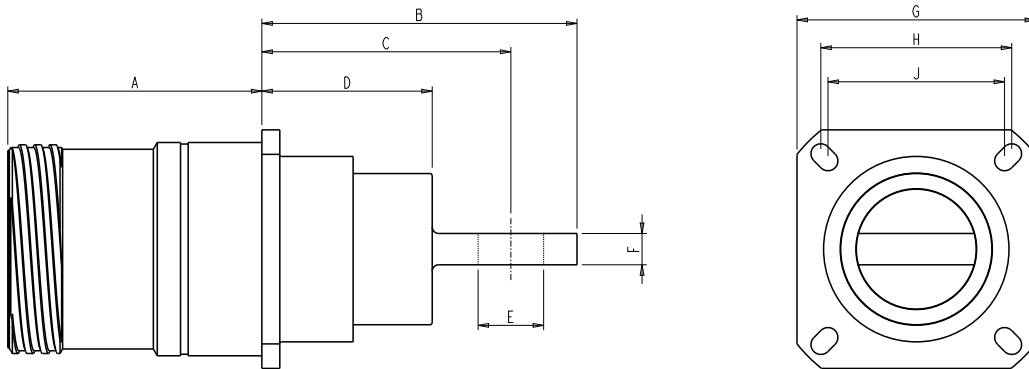
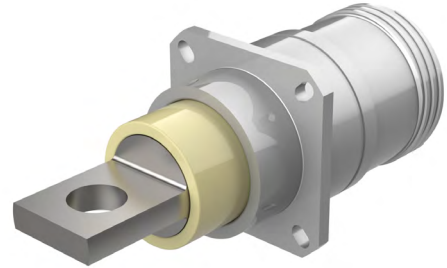
Receptacles

00 Wall Mount Receptacle

-0 Accessory Style

RAP-00XXXX-3XXX0

- Rear or Front Panel Mount
- Busbar termination - Flat tail
- No rear accessory



Reference Dimensions, Inch (mm)									
All dimensions are common for pin and socket versions									
Size	A	B	C	D	E	F	G	H	J
15	1.338 (33.99)	1.947 (49.45)	1.514 (38.46)	0.999 (25.37)	0.285 (7.24)	0.145 (3.68)	1.219 (30.96)	0.969 (24.61)	0.906 (23.01)
17	1.502 (38.15)	1.947 (49.45)	1.514 (38.46)	0.999 (25.37)	0.358 (9.09)	0.205 (5.21)	1.312 (33.32)	1.062 (26.97)	0.969 (24.61)
19	1.685 (42.80)	1.947 (49.45)	1.514 (38.46)	0.999 (25.37)	0.358 (9.09)	0.205 (5.21)	1.438 (36.53)	1.156 (29.36)	1.062 (26.97)
21	1.664 (42.27)	2.064 (52.43)	1.631 (41.43)	1.116 (28.35)	0.429 (10.90)	0.205 (5.21)	1.562 (39.67)	1.250 (31.75)	1.156 (29.36)
23	1.654 (42.01)	2.33 (59.41)	1.867 (47.42)	1.236 (31.39)	0.522 (13.26)	0.255 (6.48)	1.689 (42.90)	1.375 (34.93)	1.250 (31.75)
25	1.735 (44.07)	2.33 (59.41)	1.867 (47.42)	1.236 (31.39)	0.522 (13.26)	0.255 (6.48)	1.812 (46.02)	1.500 (38.10)	1.375 (34.93)

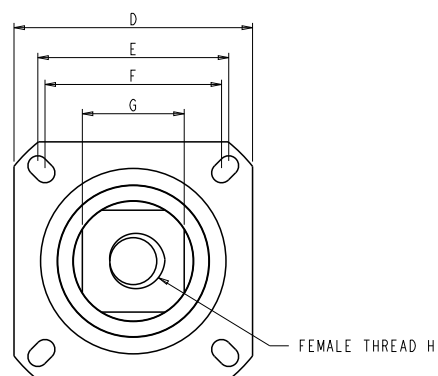
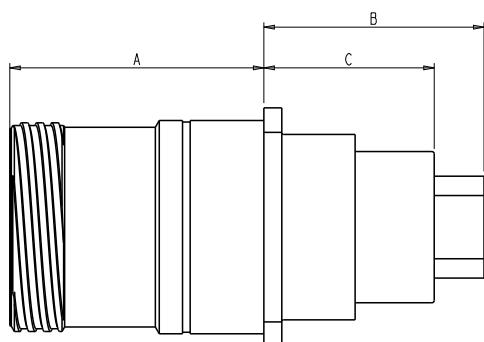
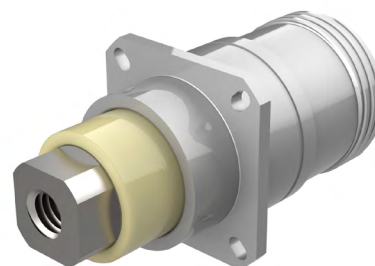
Receptacles

00 Wall Mount Receptacle

-0 Accessory Style

RAP-00XXXX-5XXX0

- Rear or Front Panel Mount
- Busbar termination - Tapped hole
- No rear accessory



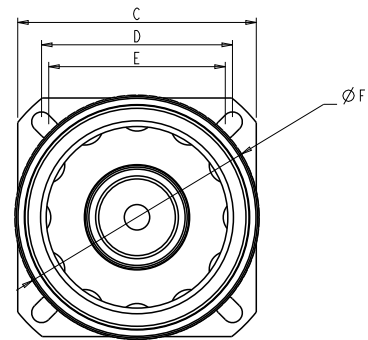
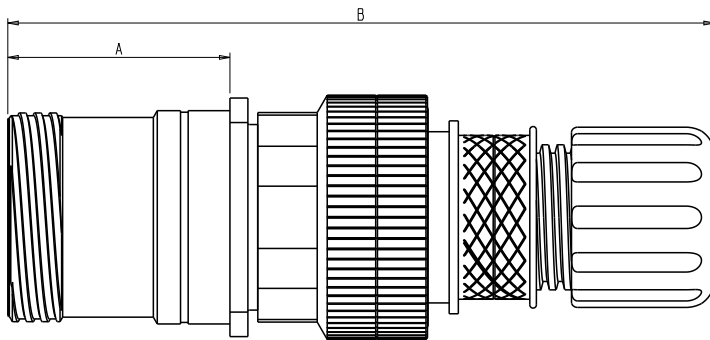
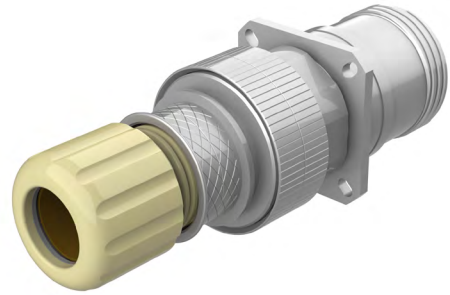
Reference Dimensions, Inch (mm)								
All dimensions are common for pin and socket versions								
Size	A	B	C	D	E	F	G	H
15	1.338 (33.99)	1.199 (30.45)	0.999 (25.37)	1.219 (30.96)	0.969 (24.61)	0.906 (23.01)	0.391 (9.93)	1/4-20 UNC
17	1.502 (38.15)	1.262 (32.05)	0.999 (25.37)	1.312 (33.32)	1.062 (26.97)	0.969 (24.61)	0.510 (12.95)	5/16-18 UNC
19	1.685 (42.80)	1.325 (33.66)	0.999 (25.37)	1.438 (36.53)	1.156 (29.36)	1.062 (26.97)	0.587 (14.91)	5/16-18 UNC
21	1.664 (42.27)	1.442 (36.63)	1.116 (28.35)	1.562 (39.67)	1.250 (31.75)	1.156 (29.36)	0.667 (16.94)	3/8-16 UNC
23	1.654 (42.01)	1.656 (42.06)	1.236 (31.39)	1.689 (42.90)	1.375 (34.93)	1.250 (31.75)	0.746 (18.95)	1/2-13 UNC
25	1.735 (44.07)	1.656 (42.06)	1.236 (31.39)	1.812 (46.02)	1.500 (38.10)	1.375 (34.93)	0.746 (18.95)	1/2-13UNC

Receptacles

00 Wall Mount Receptacle -B Accessory Style

RAP-00XXXX-1XXXB

- Rear Panel Mount
- Screened or unshielded cable termination with crimp contact
- 360° screened straight backshell



Reference Dimensions, Inch (mm)						
All dimensions are common for pin and socket versions						
Size	A	B	C	D	E	ØF
15	1.035 (26.29)	3.454 (87.73)	1.219 (30.96)	0.969 (24.61)	0.906 (23.01)	1.142 (29.01)
17	1.175 (29.85)	3.624 (92.05)	1.312 (33.32)	1.062 (26.97)	0.969 (24.61)	1.396 (35.46)
19	1.315 (33.40)	3.734 (94.84)	1.438 (36.53)	1.156 (29.36)	1.062 (26.97)	1.528 (38.81)
21	1.455 (36.96)	4.627 (117.53)	1.562 (39.67)	1.250 (31.75)	1.156 (29.36)	1.599 (40.61)
23	1.595 (40.51)	4.847 (123.11)	1.689 (42.90)	1.375 (34.93)	1.250 (31.75)	1.764 (44.81)
25	1.735 (44.07)	4.947 (125.65)	1.812 (46.02)	1.500 (38.10)	1.375 (34.93)	1.889 (47.98)

Note: Dimension B - when nut at start of engagement

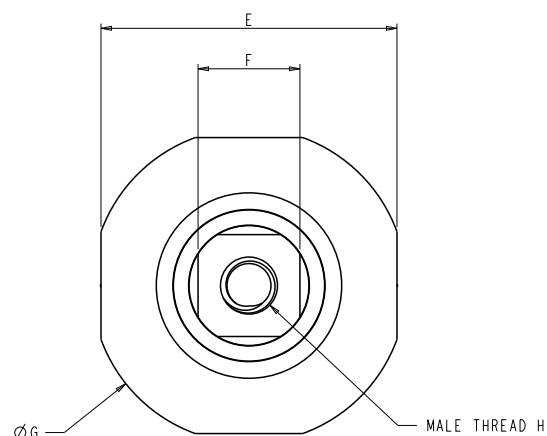
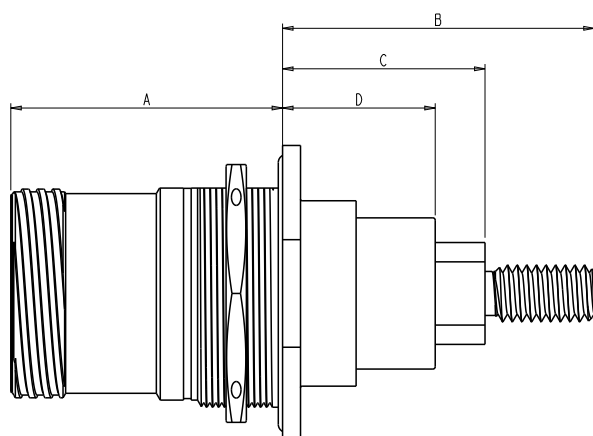
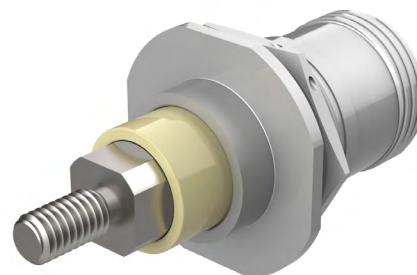
Receptacles

07 Rear Mount Jam Nut Receptacle

-0 Accessory Style

RAP-07XXXX-2XXXX

- Rear Panel Mount
- Busbar termination - Threaded post
- No rear accessory



Reference Dimensions, Inch (mm)								
All dimensions are common for pin and socket versions								
Size	A	B	C	D	E	F	ØG	H
15	1.454 (36.93)	1.561 (39.65)	1.083 (27.51)	0.883 (22.43)	1.500 (38.10)	0.391 (9.93)	1.625 (41.28)	1/4-20 UNC
17	1.618 (41.10)	1.743 (44.27)	1.146 (29.11)	0.883 (22.43)	1.625 (41.28)	0.510 (12.95)	1.750 (44.45)	5/16-18 UNC
19	1.801 (45.75)	1.924 (48.87)	1.209 (30.71)	0.883 (22.43)	1.812 (46.02)	0.587 (14.91)	1.936 (49.17)	5/16-18 UNC
21	1.780 (45.21)	2.041 (51.84)	1.326 (33.68)	1.000 (25.40)	1.938 (49.23)	0.667 (16.94)	2.062 (52.37)	3/8-16 UNC
23	1.890 (48.01)	2.213 (56.21)	1.420 (36.07)	1.000 (25.40)	2.062 (52.37)	0.746 (18.95)	2.188 (55.58)	1/2-13 UNC
25	1.971 (50.06)	2.213 (56.21)	1.420 (36.07)	1.000 (25.40)	2.188 (55.58)	0.746 (18.95)	2.311 (58.70)	1/2-13UNC

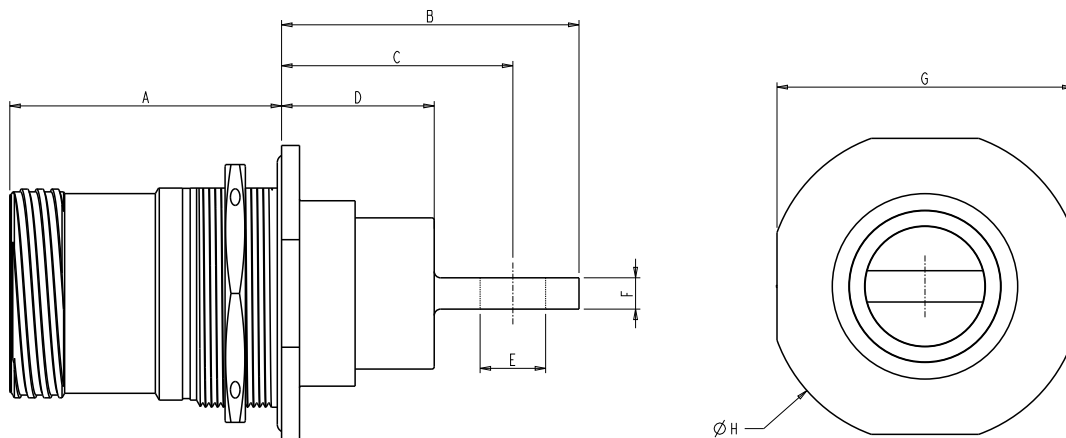
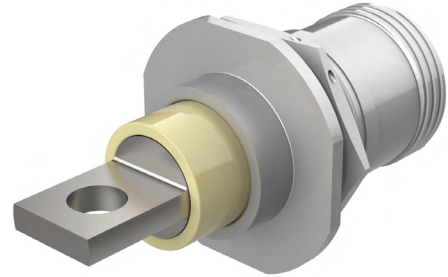
Receptacles

07 Rear Mount Jam Nut Receptacle

-0 Accessory Style

RAP-07XXXX-3XXX0

- Rear Panel Mount
- Busbar termination - Flat tail
- No rear accessory



Reference Dimensions, Inch (mm)								
All dimensions are common for pin and socket versions								
Size	A	B	C	D	E	F	G	ØH
15	1.454 (36.93)	1.831 (46.51)	1.398 (35.51)	0.883 (22.43)	0.285 (7.24)	0.145 (3.68)	1.500 (38.10)	1.625 (41.28)
17	1.618 (41.10)	1.831 (46.51)	1.398 (35.51)	0.883 (22.43)	0.358 (9.09)	0.205 (5.21)	1.625 (41.28)	1.750 (44.45)
19	1.801 (45.75)	1.831 (46.51)	1.398 (35.51)	0.883 (22.43)	0.358 (9.09)	0.205 (5.21)	1.812 (46.02)	1.936 (49.17)
21	1.780 (45.21)	1.948 (49.48)	1.515 (38.48)	1.000 (25.40)	0.429 (10.90)	0.205 (5.21)	1.938 (49.23)	2.062 (52.37)
23	1.890 (48.01)	2.103 (53.42)	1.631 (41.43)	1.000 (25.40)	0.522 (13.26)	0.255 (6.48)	2.062 (52.37)	2.188 (55.58)
25	1.971 (50.06)	2.103 (53.42)	1.631 (41.43)	1.000 (25.40)	0.522 (13.26)	0.255 (6.48)	2.188 (55.58)	2.311 (58.70)

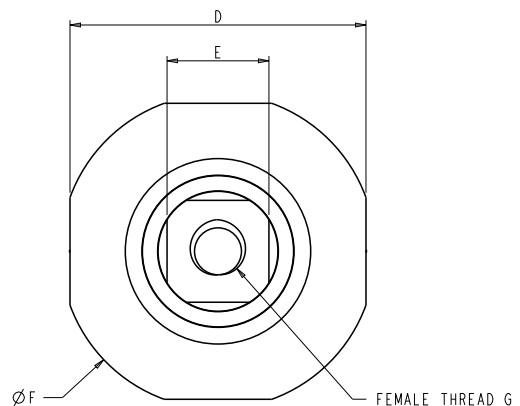
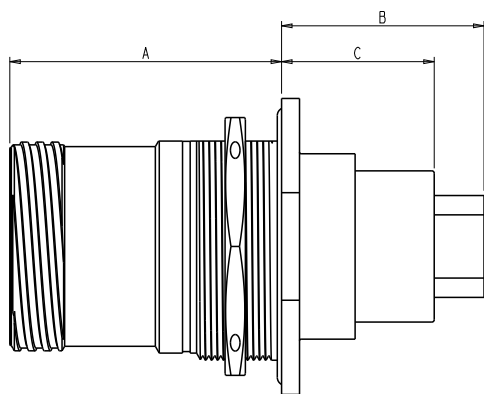
Receptacles

07 Rear Mount Jam Nut Receptacle

-0 Accessory Style

RAP-07XXXX-5XXX0

- Rear Panel Mount
- Busbar termination - Tapped hole
- No rear accessory



Reference Dimensions, Inch (mm)
All dimensions are common for pin and socket versions

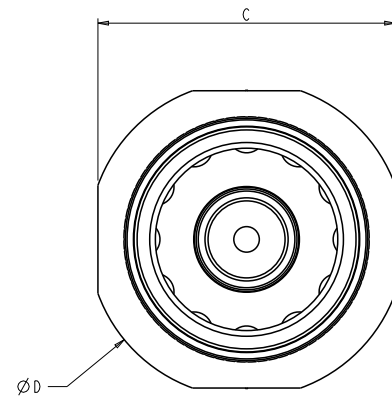
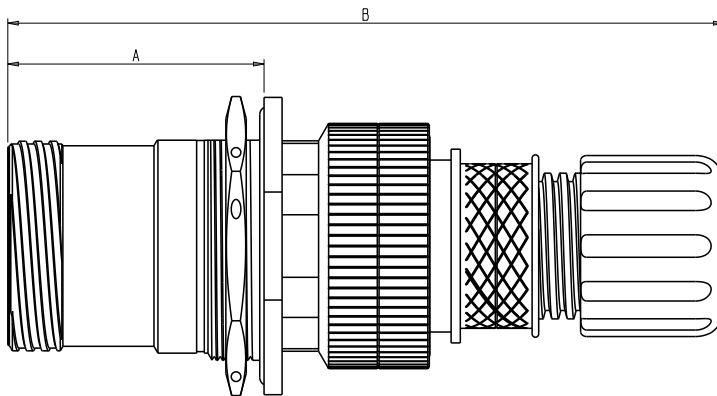
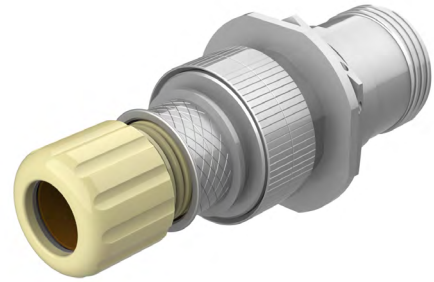
Size	A	B	C	D	E	ØF	G
15	1.454 (36.93)	1.083 (27.51)	0.883 (22.43)	1.500 (38.10)	0.391 (9.93)	1.625 (41.28)	1/4-20 UNC
17	1.618 (41.10)	1.146 (29.11)	0.883 (22.43)	1.625 (41.28)	0.510 (12.95)	1.750 (44.45)	5/16-18 UNC
19	1.801 (45.75)	1.209 (30.71)	0.883 (22.43)	1.812 (46.02)	0.587 (14.91)	1.936 (49.17)	5/16-18 UNC
21	1.780 (45.21)	1.326 (33.68)	1.000 (25.40)	1.938 (49.23)	0.667 (16.94)	2.062 (52.37)	3/8-16 UNC
23	1.890 (48.01)	1.420 (36.07)	1.000 (25.40)	2.062 (52.37)	0.746 (18.95)	2.188 (55.58)	1/2-13 UNC
25	1.971 (50.06)	1.420 (36.07)	1.000 (25.40)	2.188 (55.58)	0.746 (18.95)	2.311 (58.70)	1/2-13UNC

Receptacles

07 Rear Mount Jam Nut Receptacle -B Accessory Style

RAP-07XXXX-1XXXB

- Rear Panel Mount
- Screened or unshielded cable termination with crimp contact
- 360° screened straight backshell



Reference Dimensions, Inch (mm)				
All dimensions are common for pin and socket versions				
Size	A	B	C	ØD
15	1.171 (29.74)	3.194 (81.13)	1.500 (38.10)	1.625 (41.28)
17	1.311 (33.30)	3.334 (84.68)	1.625 (41.28)	1.750 (44.45)
19	1.451 (36.86)	3.514 (89.26)	1.812 (46.02)	1.936 (49.17)
21	1.591 (40.41)	4.627 (117.53)	1.938 (49.23)	2.062 (52.37)
23	1.811 (46.00)	4.847 (123.12)	2.062 (52.37)	2.188 (55.58)
25	1.951 (49.56)	4.947 (125.65)	2.188 (55.58)	2.311 (58.70)

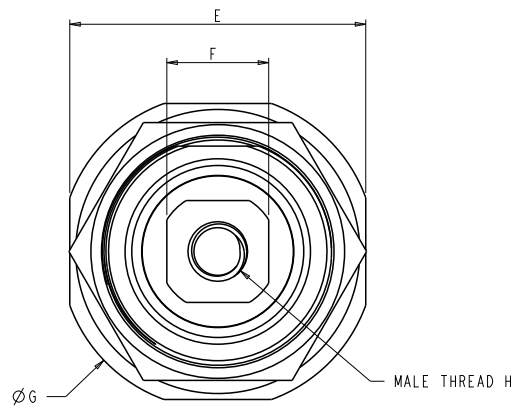
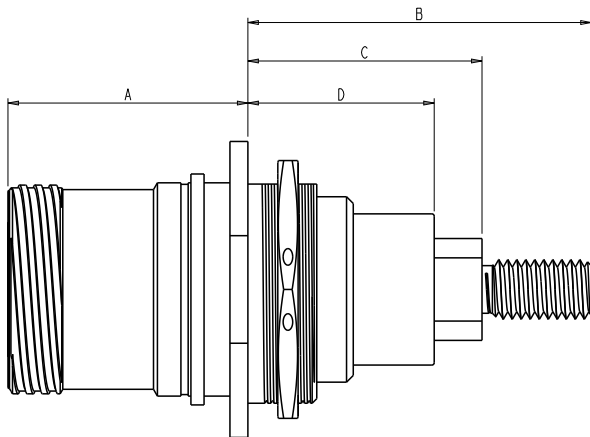
Note: Dimension B - when nut at start of engagement

Receptacles

17 Front Mount Jam Nut Receptacle -0 Accessory Style

RAP-17XXXX-2XXX0

- Front Panel Mount
- Busbar termination - Threaded post
- No rear accessory



Reference Dimensions, Inch (mm)								
All dimensions are common for pin and socket versions								
Size	A	B	C	D	E	F	ØG	H
15	1.246 (31.65)	1.768 (44.91)	1.290 (32.77)	1.090 (27.69)	1.500 (38.10)	0.391 (9.93)	1.625 (41.28)	1/4-20 UNC
17	1.410 (35.81)	1.950 (49.53)	1.353 (34.37)	1.090 (27.69)	1.625 (41.28)	0.510 (12.95)	1.750 (44.45)	5/16-18 UNC
19	1.593 (40.46)	2.131 (54.13)	1.416 (35.97)	1.090 (27.69)	1.812 (46.02)	0.587 (14.91)	1.936 (49.17)	5/16-18 UNC
21	1.572 (39.93)	2.248 (57.10)	1.533 (38.94)	1.207 (30.66)	1.938 (49.23)	0.667 (16.94)	2.062 (52.37)	3/8-16 UNC
23	1.802 (45.77)	2.300 (58.42)	1.507 (38.28)	1.087 (27.61)	2.062 (52.37)	0.746 (18.95)	2.188 (55.58)	1/2-13 UNC
25	1.833 (46.56)	2.300 (58.42)	1.507 (38.28)	1.087 (27.61)	2.188 (55.58)	0.746 (18.95)	2.311 (58.70)	1/2-13UNC

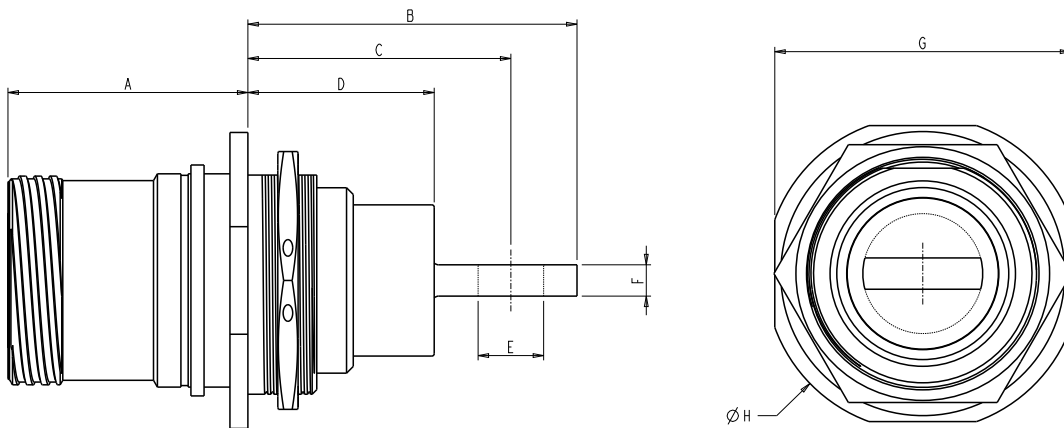
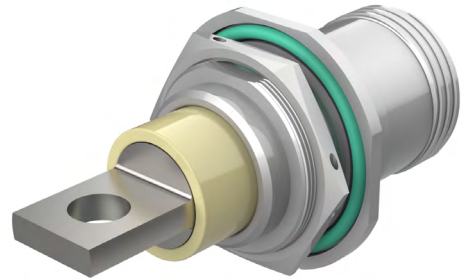
Receptacles

17 Front Mount Jam Nut Receptacle

-0 Accessory Style

RAP-17XXXX-3XXX0

- Front Panel Mount
- Busbar termination - Flat tail
- No rear accessory



Reference Dimensions, Inch (mm)
All dimensions are common for pin and socket versions

Size	A	B	C	D	E	F	G	ØH
15	1.246 (31.65)	1.831 (46.51)	1.605 (40.77)	1.090 (27.69)	0.285 (7.24)	0.145 (3.68)	1.500 (38.10)	1.625 (41.28)
17	1.410 (35.81)	1.831 (46.51)	1.605 (40.77)	1.090 (27.69)	0.358 (9.09)	0.205 (5.21)	1.625 (41.28)	1.750 (44.45)
19	1.593 (40.46)	1.831 (46.51)	1.605 (40.77)	1.090 (27.69)	0.358 (9.09)	0.205 (5.21)	1.812 (46.02)	1.936 (49.17)
21	1.572 (39.93)	1.948 (49.48)	1.722 (43.74)	1.207 (30.66)	0.429 (10.90)	0.205 (5.21)	1.938 (49.23)	2.062 (52.37)
23	1.802 (45.77)	2.103 (53.42)	1.718 (43.64)	1.087 (27.61)	0.522 (13.26)	0.255 (6.48)	2.062 (52.37)	2.188 (55.58)
25	1.833 (46.56)	2.103 (53.42)	1.718 (43.64)	1.087 (27.61)	0.522 (13.26)	0.255 (6.48)	2.188 (55.58)	2.311 (58.70)

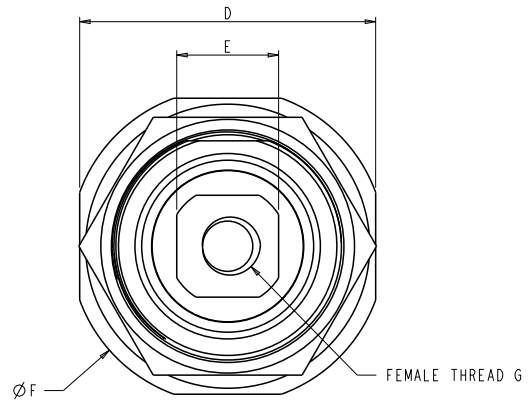
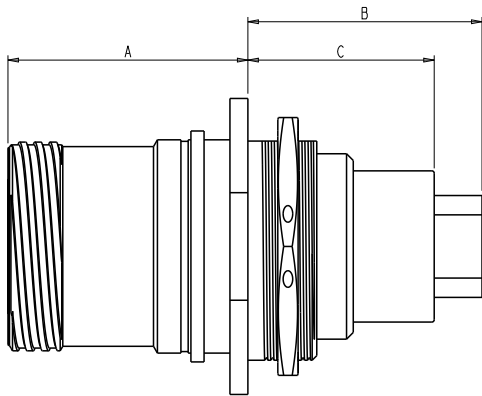
Receptacles

17 Front Mount Jam Nut Receptacle

-0 Accessory Style

RAP-17XXXX-5XXX0

- Front Panel Mount
- Busbar termination - Tapped hole
- No rear accessory



Reference Dimensions, Inch (mm)
All dimensions are common for pin and socket versions

Size	A	B	C	D	E	ØF	G
15	1.246 (31.65)	1.290 (32.77)	1.090 (27.69)	1.500 (38.10)	0.391 (9.93)	1.625 (41.28)	1/4-20 UNC
17	1.410 (35.81)	1.353 (34.37)	1.090 (27.69)	1.625 (41.28)	0.510 (12.95)	1.812 (46.02)	5/16-18 UNC
19	1.593 (40.46)	1.416 (35.97)	1.090 (27.69)	1.812 (46.02)	0.587 (14.91)	1.938 (49.23)	5/16-18 UNC
21	1.572 (39.93)	1.533 (38.94)	1.207 (30.66)	1.938 (49.23)	0.667 (16.94)	2.062 (52.37)	3/8-16 UNC
23	1.802 (45.77)	1.507 (38.28)	1.087 (27.61)	2.062 (52.37)	0.746 (18.95)	2.188 (55.58)	1/2-13 UNC
25	1.833 (46.56)	1.507 (38.28)	1.087 (27.61)	2.188 (55.58)	0.746 (18.95)	2.311 (58.70)	1/2-13UNC

Installation

Guide to installation documents available on request.

The following are available on request or from our website to provide additional information regarding the termination and installation of Raptor connectors.

Raptor 3D files are available on request to aid with system integration.

Document title	Description
123GB-0929	Raptor Crimp Instructions
123GB-0930	Raptor Torque Instructions
123gb-0931	Raptor Panel Cut-out Dimensions
123GB-0952	Raptor Plug Assembly Instructions
123GB-0953	Raptor Receptacle Assembly Instructions
123GB-0992	Raptor Cable Sealing Guide
123GB-1004	Raptor 90° Assembly Instructions
123GB-1005	Raptor 90° Contact Torque Instructions



Tooling

294GB tools to be ordered from Amphenol LTD, Power Tools and Die Sets to be ordered from OEM.

Crimp Tooling

Connector		Barrel Size	Cable	Power Tool	Die Set
Part Number	ID	AWG	DMC / Military	DMC / Military	
RAP-XXXX15-1XXXX	1	4	HD120 / M5259/8-01 Equivalent to TBHD1M / MS25441-1	HD485-4 / MS90485-4	
RAP-XXXX17-1XXXX	1	2		HD485-2 / MS90485-2	
RAP-XXXX19-1XXXX	1	1/0		HD485-01 / MS90485-01	
RAP-XXXX21-1XXXX	1	2/0		HD485-02 / MS90485-02	
RAP-XXXX23-1XXXX	1	3/0		HD485-03 / MS90485-03	
RAP-XXXX25-1XXXX	1	4/0		HD485-04 / MS90485-04	

Backshell Torque Fixtures

Connector		Tooling		
Part Number	Plugs (06)	Receptacles (00,07)	Plugs/Receptacles	
RAP-XXXX15-1XXXB	294GB-5081-15X	294GB-5082-15X	Bench vice Strap wrench Torque wrench	
RAP-XXXX17-1XXXB	294GB-5081-17X	294GB-5082-17X		
RAP-XXXX19-1XXXB	294GB-5081-19X	294GB-5082-19X		
RAP-XXXX21-1XXXB	294GB-5081-21X	294GB-5082-21X		
RAP-XXXX23-1XXXB	294GB-5081-23X	294GB-5082-23X		
RAP-XXXX25-1XXXB	294GB-5081-25X	294GB-5082-25X		

X = N, A, B, C, D, E

Tooling

90° Contact Assembly Tooling

The tooling below is required to terminate 90° connectors which have part numbers ending in "C", denoting a right angled backshell. The tools are required to secure the contact into the backshell assembly. Tooling is gender specific but generic across shell styles and keyway orientations. Refer to documents 123GB-1004 and 123GB-1005 for Rhino 90° assembly instructions and torque settings.

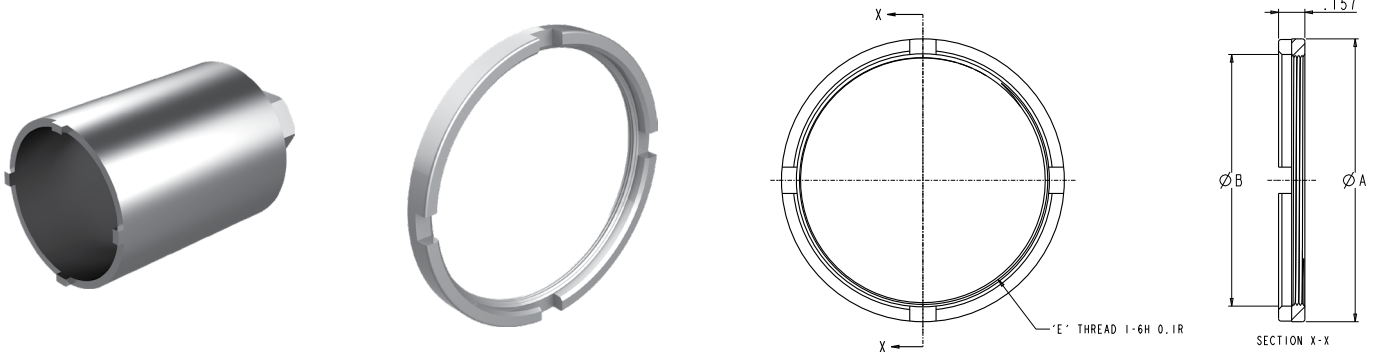
Connector		All 90° Assemblies	Socket contacts		Pin contacts	
Part Number		Contact tool	Torque wrench	Contact tool	Torque wrench	
RAP-XXXX15-1XXXC	Sealey - AK5988 -Crow's Foot Adjustable Wrench and Torque wrench ½" drive	294GB-5089-15	1/4" drive	Draper 50193 Deep socket set - 8mm	3/8" drive	
RAP-XXXX17-1XXXC		294GB-5089-17		Draper 50193 Deep socket set - 10mm		
RAP-XXXX19-1XXXC		294GB-5089-19		Draper 50193 Deep socket set - 12mm		
RAP-XXXX21-1XXXC		294GB-5089-21		Draper 50193 Deep socket set - 13mm		
RAP-XXXX23-1XXXC		294GB-5089-23		Draper 50193 Deep socket set - 15mm		
RAP-XXXX25-1XXXC		294GB-5089-25		Draper 50193 Deep socket set - 19mm		

Tooling

For standard jam nut connectors off-the-shelf tooling (e.g spanner, torque wrench, adaptor) can be used with the below recommended torque values.

Panel Nut Tooling

Connector	Tooling	Torque
Part Number	All Receptacles	Nm
RAP-XXXX15-1XXXX	Socket adaptor M10 Torque wrench	7.9-8.5
RAP-XXXX17-1XXXX		9.0-9.6
RAP-XXXX19-1XXXX		10.2-10.7
RAP-XXXX21-1XXXX		11.3-12.4
RAP-XXXX23-1XXXX		12.4-13.6
RAP-XXXX25-1XXXX		13.6-14.7



Castellated panel nut (W587)

Part Number	A	B	'E' Thread
418-2280-13-XX	1.188 (30.18)	0.998 (25.35)	M25
418-2280-15-XX	1.300 (33.02)	1.118 (28.40)	M28
418-2280-17-XX	1.438 (36.53)	1.274 (32.36)	M32
418-2280-21-XX	1.688 (42.88)	1.465 (37.21)	M38
418-2280-23-XX	1.812 (46.02)	1.628 (41.35)	M41
418-2280-25-XX	2.000 (50.80)	1.746 (44.35)	M44

Raptor Feedthrough

Raptor Feedthrough is Amphenol LTD's solution for semi-permanent installations where frequent disconnection is not required and when space and weight saving is important. The Feedthrough is two shell sizes smaller than the equivalent Raptor Connector for the same cable gauge.

Feedthroughs are offered in Jam Nut or Square Flange styles, with a double o-ring internal sealing arrangement making them ideal for liquid cooled e-machines, batteries or inverters.

The Feedthrough termination system for screened cables uses a crimped lug bolted to the feedthrough conductor. The screen cone insulator is designed to manage the high voltages in the termination area between the conductor and screen then a heatshrink boot provides external environmental protection. At the rear, the through hole flat terminal is ideal for internal busbar or cable crimp lug style connection. Alternate designs are available for screened cable termination both sides.

Feedthrough is in production with size 17 (2/0AWG cable), other sizes are in development and will be available soon, please consult the factory with your requirements.



Performance Data

AC (rms) DWV (sea level)	7.5KV*
AC (rms) Recommended Max Operating Voltage (sea level)	2.5KV*
DC Recommended Max Operating Voltage (sea level)	3.5KV*
AC (rms) DWV (35,000ft)	1.75KV*
AC (rms) Recommended Max Operating Voltage (35,000ft)	625V*
DC Recommended Max Operating Voltage (35,000ft)	880V
AC (rms) Partial Discharge Free Voltage (35,000ft, 21°C)	2.0KV PDIV
Insulation Resistance	>5000 Megohms
RoHs	Yes
Fluid Resistance	MIL-DTL-38999 Series III
Shock and Vibration	MIL-DTL-38999 Series III
Salt Spray	Shell Material and Plating Type Dependant e.g. Aluminium, Nickel plated (RF) 48Hrs, Stainless steel 500 Hrs
Sealing (Mated)	IP68
Sealing (Unit Mounted Receptacle)	4 Bar fluid sealing
Operating Temperature Range	-65 +150°C

* Values stated, based on lowest performance unit mount receptacles. Refer to Voltage Derating chart on page 8.

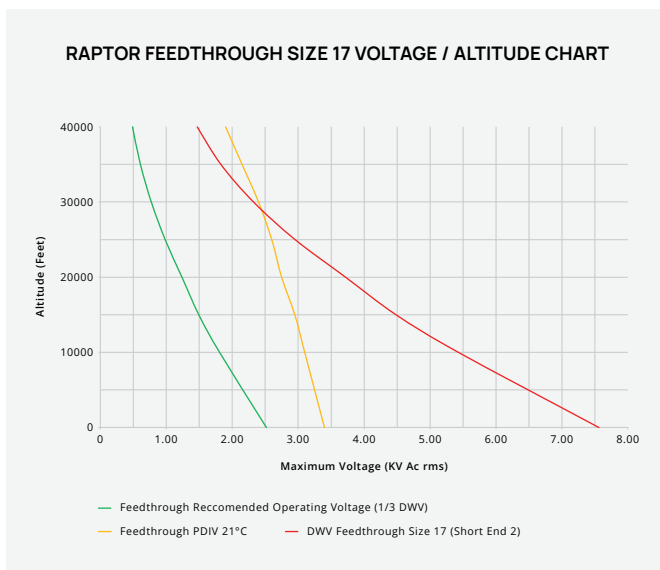
Raptor Feedthrough

Feedthrough Shell Size	Cable Gauge	Nominal Current Rating* ¹
13	2 AWG	225A
15	0 AWG	325A
17	00 AWG	450A
19	000 AWG	525A
21	0000 AWG	675A

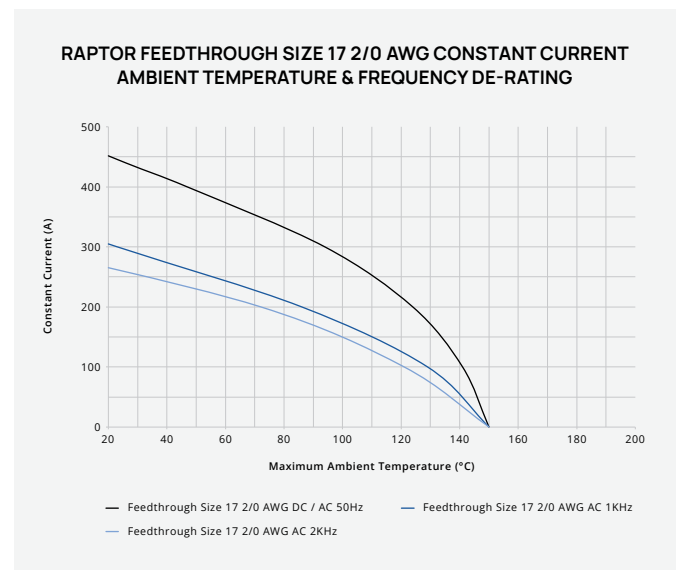
Part Numbering

Series	Shell Style	Finish	Shell Size	Contact Termination		Length	Contact Material	Colour Band
				End 1	End 2			
RAP	07FT	RF	17-	1	3	2	1	X
RAP	07FT - Jam Nut Feed Thru	RF - Electroless Nickel Plated Aluminium	17	1 - Crimp	3 - Flat Tail	2 - Short	1 - Copper	0 - None 1 - Black 2 - Red 3 - Blue

Voltage Derating*²



Current Derating*²

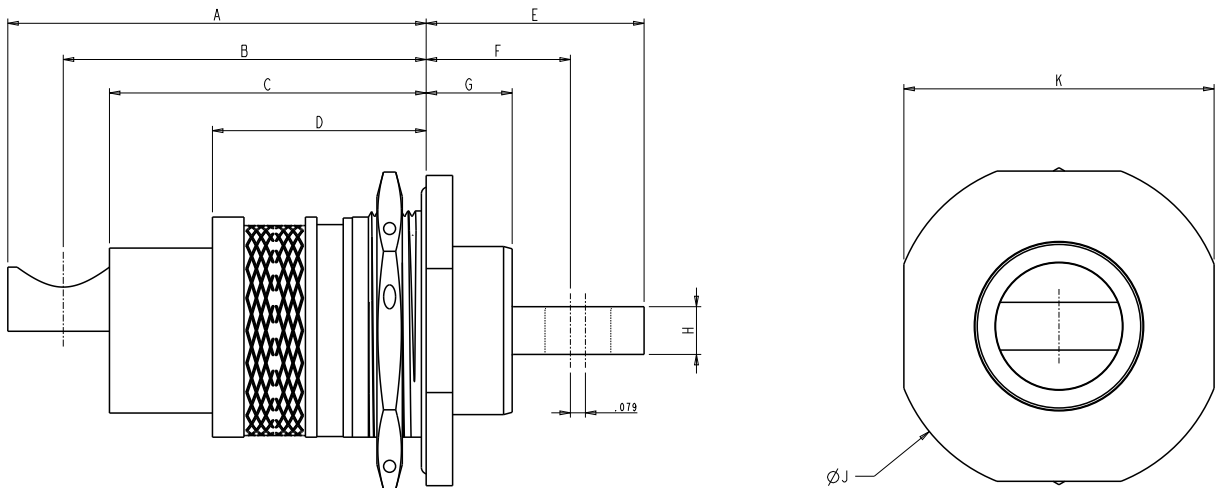


*¹ Based on Nickel Plated Copper Cables – Current capacity will be reduced by High Ambient Temperature and/or High Frequency AC, please consult de-rating chart.

*² Based on Copper Contacts (Silver Plated) and Copper Cables (Nickel Plated).

Raptor Feedthrough

RAP-07FT17-XXXX0




Reference Dimensions, Inch (mm)										
All dimensions are common for pin and socket versions										
Size	A	B	C	D	E	F	G	H	ØJ	K
17	2.192 (55.68)	1.901 (48.29)	1.659 (42.14)	1.120 (28.45)	1.142 (28.99)	0.7555 (19.19)	0.451 (11.44)	0.250 (6.35)	1.750 (44.25)	1.625 (41.28)

Raptor Feedthrough Termination Kit

To be ordered in addition to RAP-07FT17-XXXXX to facilitate termination.

Series	Style	Shell Size	Crimp Size	Contact Material	Accessories
RAP-	FTKIT-	17-	1	1-	XXX
RAP	FTKIT - Feed Thru Kit	17	1 - Standard	1 - Copper	<p>003 - Non Keyed Lug with Locking Helicoil, Torx Screw & Amphenol parts only (No Heatshrink Boot, Band Straps, or Braid Tube)</p> <p>004 - Non Keyed Lug with Locking Helicoil, Full Kit, Torx Screw & Amphenol parts, Heatshrink Boot, Band Straps & Braid Tube</p> <p>005 - Left Keyed Lug with Locking Helicoil, Torx Screw & Amphenol parts only (No Heatshrink Boot, Band Straps, or Braid Tube)</p> <p>006 - Centre Keyed Lug with Locking Helicoil, Torx Screw & Amphenol parts only (No Heatshrink Boot, Band Straps, or Braid Tube)</p> <p>007 - Right Keyed Lug with Locking Helicoil, Torx Screw & Amphenol parts only (No Heatshrink Boot, Band Straps, or Braid Tube)</p> <p>008 - Left Keyed Lug with Locking Helicoil, Full Kit, Torx Screw & Amphenol parts, Heatshrink Boot, Band Straps & Braid Tube</p> <p>009 - Centre Keyed Lug with Locking Helicoil, Full Kit, Torx Screw & Amphenol parts, Heatshrink Boot, Band Straps & Braid Tube</p> <p>010 - Right Keyed Lug with Locking Helicoil, Full Kit, Torx Screw & Amphenol parts, Heatshrink Boot, Band Straps & Braid Tube</p>

Raptor Feedthrough Termination Kit

Item	RAP-FTKIT-17-1-1-XXX								
	003	004	005	006	007	008	009	010	
Crimp / Contact 350-5000-17-1-1-3-0 (Not Keyed) 	x1	x1	-	-	-	-	-	-	
Crimp / Contact 350-5000-17-1-1-3-1 (Left Key) 	-	-	x1	-	-	x1	-	-	
Crimp / Contact 350-5000-17-1-1-3-2 (Centre Key) 	-	-	-	x1	-	-	x1	-	
Crimp / Contact 350-5000-17-1-1-3-3 (Right Key) 	-	-	-	-	x1	-	-	x1	
Insulator Cone 418-3678-17-1 	x1	x1	x1	x1	x1	x1	x1	x1	
Torx Screw M16x12 (ISO14581) 	x1	x1	x1	x1	x1	x1	x1	x1	
Heatshrink Boot 202D-242-3/42-0 	-	x1	-	-	-	x1	x1	x1	
Braid Tube Ray 101-20.0 	-	x1	-	-	-	x1	x1	x1	
Band Strap (600-057-1) 	-	x1	-	-	-	x1	x1	x1	
Band Strap (600-083-1) 	-	x1	-	-	-	x1	x1	x1	

RAPTOR

Amphenol LTD
MILITARY & AEROSPACE

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