

A SERIES

Battery Connector for Industrial Vehicles

- 80 - 160 - 320 Sizes • UL and CSA Rated • RoHS Compliant
- Acid & Impact Resistant • Industrial Applications



APP
Anderson Power Products®

An IDEAL Company

A SERIES BATTERY CONNECTOR

The Anderson™ family of A Series Battery Connectors are expertly designed for ease of use and incorporate an innovative contact carrier to simplify assembly. The A Series connectors include standard 80, 160, and 320 sizes. Robust design and materials offer superior performance. All Materials chosen are RoHS compliant and selected to ensure years of reliability in adverse industrial environments. These attributes make the A Series connectors the ideal choice for a wide range of industrial applications in Material Handling, Battery Charging, Utility Vehicles, Motive Power, and Sweepers/Scrubbers amongst many others.



KEY ATTRIBUTES

Safety Agency Approvals - UL and CSA.



Voltage Keying - A series connectors offer keys for Dry-Cell, Wet-Cell, and Universal applications coded for 24/36/48/72/80 and 96 volts DC applications.

Sturdy Advanced Polymer Housings - Provide superior resistance to impact, acid and temperature extremes.

Silver Plated Copper Contacts - Provide excellent conductivity and superior mating cycle performance.

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A SERIES Battery Connector

SPECIFICATIONS

ELECTRICAL

Current Ratings (Amperes)

Wire Size:	A80		A160		A320	
	CSA*	UL**	CSA*	UL**	CSA*	UL**
10 mm ²	70	90	N/A	N/A	N/A	N/A
16 mm ²	90	120	90	120	N/A	N/A
25 mm ²	110	140	120	160	N/A	N/A
35 mm ²	120	160	140	180	N/A	N/A
50 mm ²	N/A	N/A	160	220	165	220
1/0 AWG	N/A	N/A	N/A	N/A	190	270
70 mm ²	N/A	N/A	N/A	N/A	200	260
3/0 AWG	N/A	N/A	N/A	N/A	240	300
95 mm ²	N/A	N/A	N/A	N/A	245	425
4/0 AWG	N/A	N/A	N/A	N/A	250	425
120 mm ²	N/A	N/A	N/A	N/A	260	450

* CSA allows for maximum temperature rise = 30°C

** UL allows for total temperature (based on min. 25°C ambient) = 105°C

Voltage Ratings

	A80		A160		A320	
	CSA	UL	CSA	UL	CSA	UL
AC / DC	600V	600V	600V	600V	600V	600V
DWV (AC)	2200		2200		2200	

Wire Range

	A80		A160		A 20	
	mm ²	AWG	mm ²	AWG	mm ²	AWG
Power - Min.	10	#8	16	#6	50	1/0
Power - Max.	35	#2	50	1/0	120	4/0
Upper Aux. - Min.	1.5	#18	4	#12	4	#12
Upper Aux. - Max.	2.5	#14	4	#12	4	#12
Lower Pilot Aux. - Min.	1.5	#18	6	#10	6	#10
Lower Pilot Aux. - Max.	2.5	#14	6	#10	6	#10

Average Initial Contact Resistance Across Mated Connector- micro-ohms

	A80	A160	A320
Avg. Contact Resistance - Power	65	55	30
Avg. Contact Resistance - Aux.	1100	920	1000

Operating Temperature (all Series): -25 to 75°C

MECHANICAL

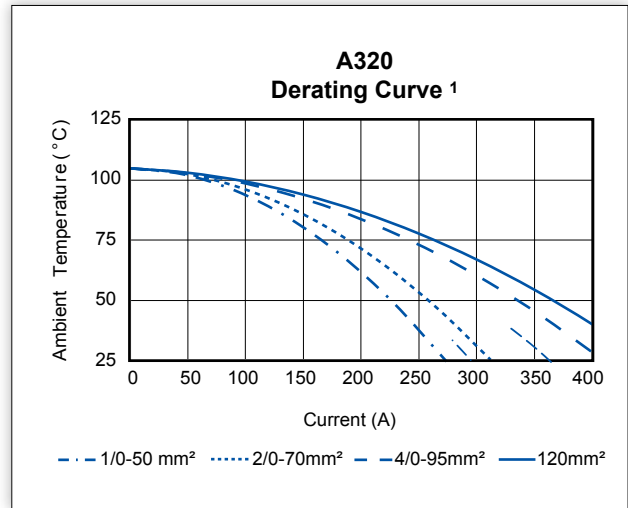
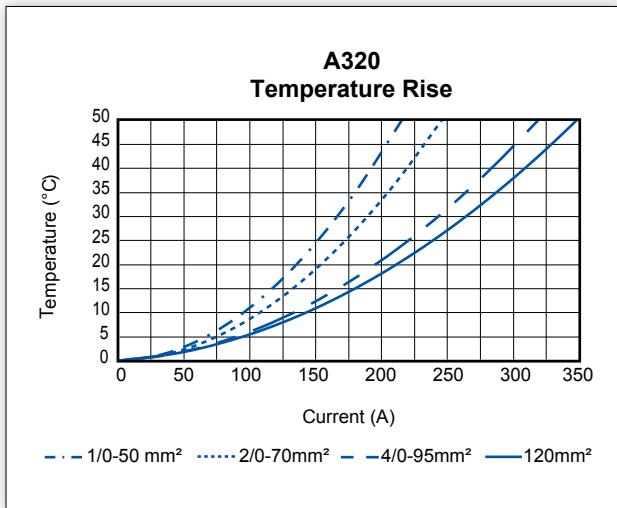
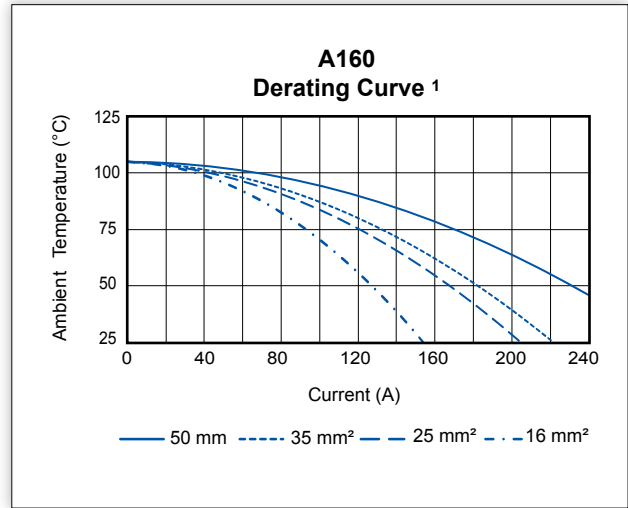
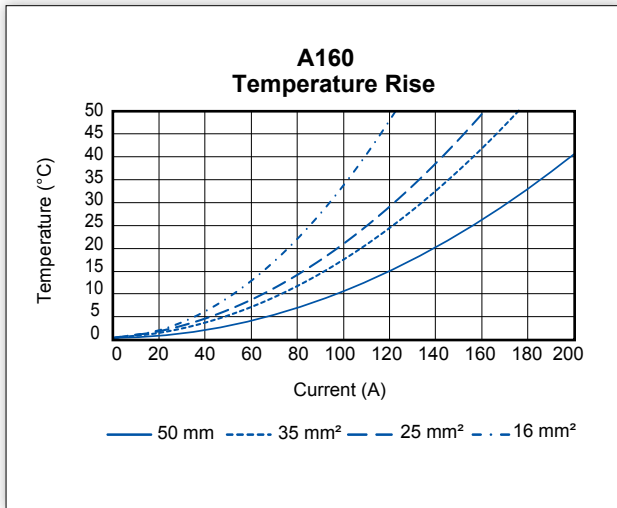
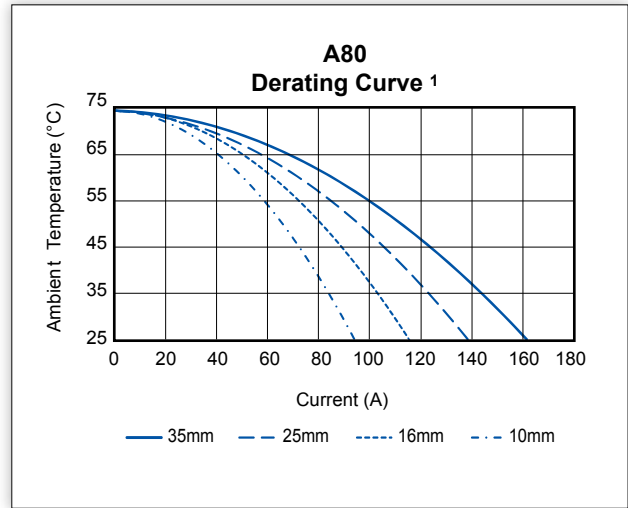
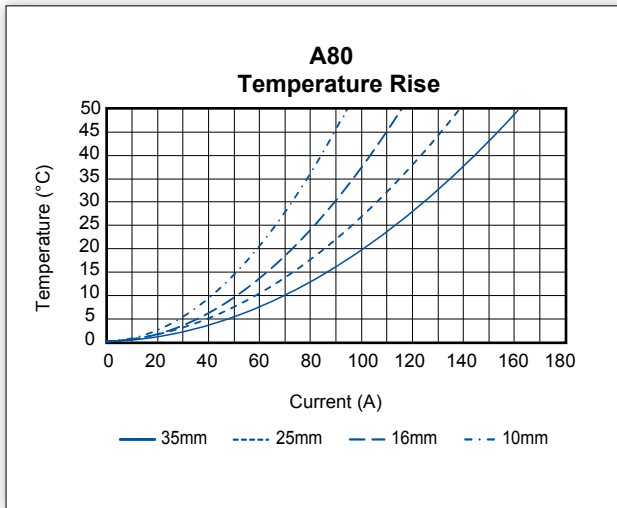
Misc. Data

	A80	A160	A320
Avg. Mating Force N (lb)	68 (15.3)	170 (38.2)	71 (16.0)
Contact Retention N (lb)	134 (30) min	445 (100) min	445 (100) min
Degree of Protection	IP23	IP23	IP23
Flammability	UL94 HB, Horizontal Burn		

MATERIALS

	A80 - A160 - A320
Housings	PA6 (Nylon) glass filled
Contacts	Copper alloy silver plate
Contact Plating - Power (min.)	Silver Plating - 6 microns
Contact Plating - Auxiliary (min.)	Silver Plating - 6 microns
Hardware	Steel, zinc chromate plate

TEMPERATURE CHARTS

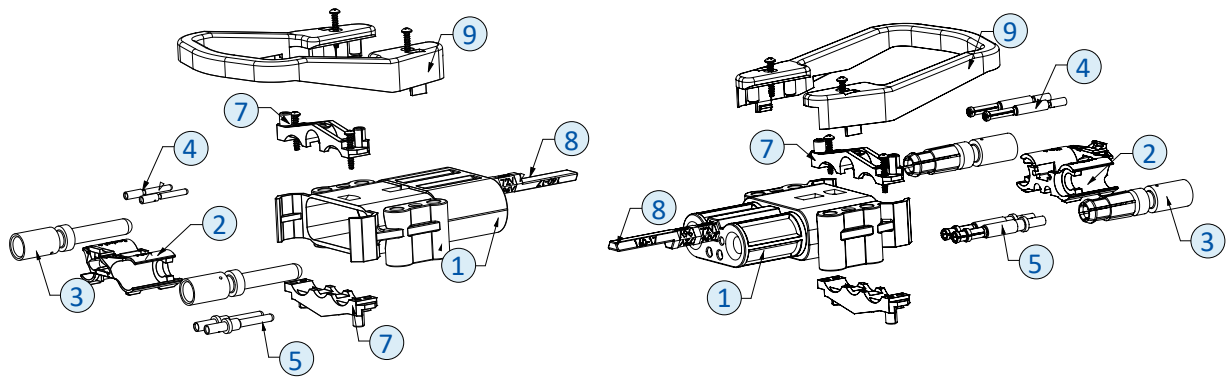


¹ 0.8 Derating per IEC 60512-3

NOTE 1: Temperature ratings based on power contacts energized only.

NOTE 2: Temperature rise charts are based on a 25°C ambient temperature.

ORDERING INFORMATION



Components

Item Number	Description - mm ² (AWG)	A80		A160		A320	
		Male	Female	Male	Female	Male	Female
3	Power Contacts						
	Power Contact 10 mm ² (8 AWG)	80-1010	80-1110	N/A	N/A	N/A	N/A
	Power Contact 16 mm ² (6 AWG)	80-1016	80-1116	160-1016	160-1116	N/A	N/A
	Power Contact 25 mm ² (4 AWG)	80-1025	80-1125	160-1025	160-1125	N/A	N/A
	Power Contact 35 mm ² (2 AWG)	80-1035	80-1135	160-1035	160-1135	N/A	N/A
	Power Contact 50 mm ² (1 AWG to 1/0)	N/A	N/A	160-1050	160-1150	320-1050	320-1150
	Power Contact 70 mm ² (2/0 to 3/0)	N/A	N/A	N/A	N/A	320-1070	320-1170
	Power Contact 95 mm ² (3/0 to 4/0)	N/A	N/A	N/A	N/A	320-1095	320-1195
	Power Contact 120 mm ² (4/0)	N/A	N/A	N/A	N/A	320-1004	320-1104
4	Upper Auxiliary Contact 4mm ² (12 AWG)	NA	NA	160-14	160-15	160-14	160-15
	Upper Auxiliary Contact 1.5mm/2.5 mm - (18/14 AWG)	E80-32	E80-33	320-24	320-25	320-24	320-25
5	Lower Pilot Auxiliary Contact 6mm ² (10 AWG)	NA	NA	160-12	160-13	160-12	160-13
	Lower Pilot Auxiliary Contact 1.5mm / 2.5 mm - (18/14 AWG)	E80-30	E80-31	320-22	320-23	320-22	320-23
8	Voltage Coding Pins						
	Grey Coding Pin - Wet (160 and 320 use same Coding Pins)	80-9	80-9	160-9	160-9	160-9	160-9
	Green Coding Pin - Dry (160 and 320 use same Coding Pins)	80-17	80-17	160-17	160-17	160-17	160-17
	* Yellow Coding Pin - Universal (160 and 320 use same Coding Pins)	80-19	Not Used	160-19	Not Used	160-19	Not Used
9	** Handle - High Profile with screws	N/A	N/A	32-89	32-89	32-89	32-89
	** Handle - Low Profile with screws	80-89	80-89	16-89	16-89	16-89	16-89
	Handle Red - Low Profile with screws	80-8-R	80-8-R	N/A	N/A	N/A	N/A
1	Housing Only	80-1	80-2	160-1	160-2	320-1	320-2
2	Contact Holder	80-5B	80-5B	160-5	160-5	320-5	320-5
7	Cable Clamps with Screws	80-67	80-67	160-67	160-67	320-67	320-67
1+2+7+8	Male Housing with Contact Holder and Cable Clamp with Screws (Gray Key) - Individual Pack	A80400-0009		A16400-0009		A32400-0009	
1+2+7+8	Female Housing with Contact Holder, **** Lower Pilot Auxiliary Holder, Cable Clamps with Screws - (Gray Key) - Individual Pack		A80500-0009		A16500-0009		A32500-0009
1+2+7+8	Male Housing with Contact Holder and Cable Clamp with Screws (Green Key) - Individual Pack	A80400-0209		A16400-0209		A32400-0209	
1+2+7+8	Female Housing with Contact Holder, **** Lower Pilot Auxiliary Holder, Cable Clamps with Screws - (Green Key) - Individual Pack		A80500-0209		A16500-0209		A32500-0209
1+2+7+8	Male Housing with Contact Holder and Cable Clamp with Screws (Yellow Key) - Individual Pack	A80400-0309		A16400-0309		A32400-0309	

* Universal yellow coding key is only used on male connectors

** ABC 160 and ABC 320 handles work with both the ABC 160 and ABC 320 series connectors

PART NUMBER CONFIGURATOR

A80 Connector Part Number Selection

Series	Gender	Main Contact	Handle	Coding Key	Auxiliary Contacts	Packing
A80	4 or 5	25	- 1	0	0	9
4	Male					9 Individual
5	Female					8 Bulk
00	None - Order Separately				0 None	
10	10 mm ² (#8 AWG)				A (2) Lower Pilot Auxiliary Contacts	
16	16 mm ² (#6 AWG)				B (2) Upper Auxiliary Contacts	
25	25 mm ² (#4 AWG)				C (2) Lower Pilot Auxiliary Contacts & (2) Upper Auxiliary Contacts	
35	35 mm ² (#2 AWG)					
0	No		0	Grey, Wet Cell		
1	Black		2	Green, Dry Cell		
2	Red		3	Yellow, Universal (use with male housing only)		

A160 Connector Part Number Selection

Series	Gender	Main Contact	Handle	Coding Key	Auxiliary Contacts	Packing
A16	4 or 5	25	- 1	0	0	9
4	Male					9 Individual
5	Female					8 Bulk
00	None - Order Separately				0 None	
16	16 mm ² (#6 AWG)					mm ² AWG
25	25 mm ² (#4 AWG)				A (2) Lower Auxiliary Contacts	6 10
35	35 mm ² (#2 AWG)				B (2) Upper Auxiliary Contacts	4 12
50	50 mm ² (1/0 AWG to #1 AWG)				C (2) Lower Auxiliary Contacts & (2) Upper Auxiliary Contacts	6 10
0	No				D (2) Lower Auxiliary Contacts	4 12
1	Black				E (2) Upper Auxiliary Contacts	1.5/2.5 18/14
			0	Grey, Wet Cell	F (2) Lower Auxiliary Contacts & (2) Upper Auxiliary Contacts	1.5/2.5 18/14
			2	Green, Dry Cell		1.5/2.5 18/14
			3	Yellow, Universal (use with male housing only)		1.5/2.5 18/14

A320 Connector Part Number Selection

Series	Gender	Main Contact	Handle	Coding Key	Auxiliary Contacts	Packing
A32	4 or 5	50	- 1	0	0	9
4	Male					9 Individual
5	Female					8 Bulk
00	None - Order Separately				0 None	
50	50 mm ² (1/0 AWG to #1 AWG)					mm ² AWG
70	70 mm ² (2/0 AWG to 3/0 AWG)				A (2) Lower Auxiliary Contacts	1.5/2.5 18/14
95	95 mm ² (3/0 AWG to 4/0 AWG)				B (2) Upper Auxiliary Contacts	1.5/2.5 18/14
12	120 mm ² (4/0 AWG)				C (2) Lower Auxiliary Contacts & (2) Upper Auxiliary Contacts	1.5/2.5 18/14
0	No				D (2) Lower Auxiliary Contacts	6 10
1	Black				E (2) Upper Auxiliary Contacts	4 12
			0	Grey, Wet Cell	F (2) Lower Auxiliary Contacts & (2) Upper Auxiliary Contacts	6 10
			2	Green, Dry Cell		4 12
			3	Yellow, Universal (use with male housing only)		

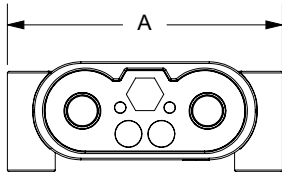
Packaging: Individual (Kits) - all components for a complete connector are packaged together in individual bags within one box. Bulk (Kits) - all components required are packaged separately by part number selected in one bag/box. **Handles:** A80 comes with the low profile T handle • A160 comes with the low profile handle • A320 comes with the high profile handle.

DRAWINGS

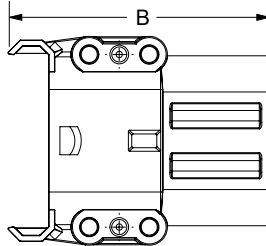


Housing Dimensions							
		A80		A160		A320	
		mm	in	mm	in	mm	in
Male Housings	A	68.0	2.68	83.5	3.29	89.5	3.52
	B	74.4	2.93	103.8	4.09	123.5	4.86
	C	26.1	1.03	33.4	1.31	40.8	1.61
Female Housings	A	68.0	2.68	83.5	3.29	89.5	3.52
	B	73.8	2.91	104.0	4.09	117.0	4.61
	C	26.1	1.03	32.6	1.28	37.6	1.48

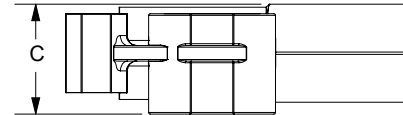
Male Front View



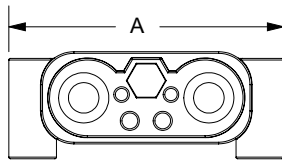
Male Top View



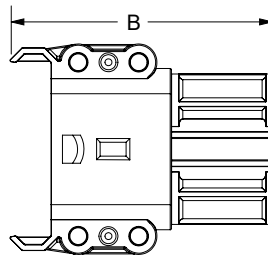
Male Side View



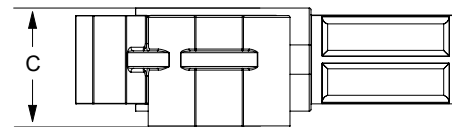
Female Front View



Female Top View



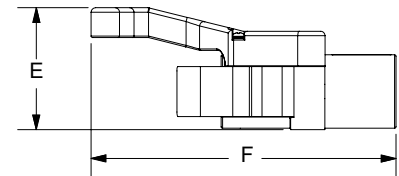
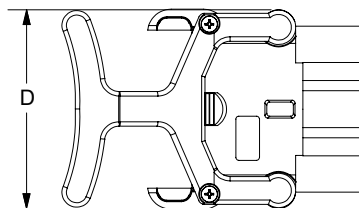
Female Side View



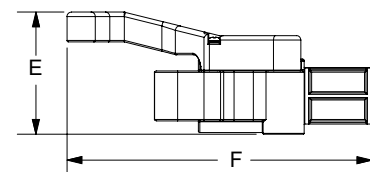
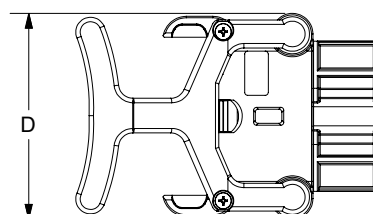
Dimensions of Housings With Handles

		A80	
		mm	in
Male Housings	D	68.0	2.68
	E	41.2	1.62
	F	110.6	4.35
Female Housings	D	70.0	2.76
	E	41.2	1.62
	F	110.6	4.35

A80 Male Housing with Handle



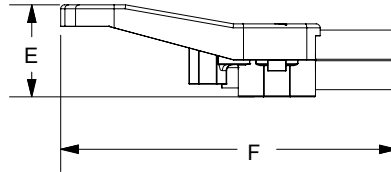
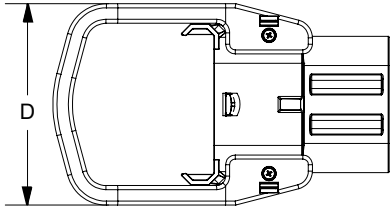
A80 Female Housing with Handle



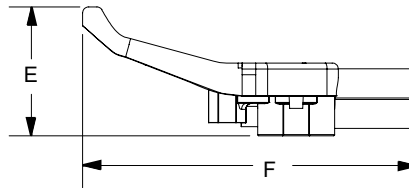
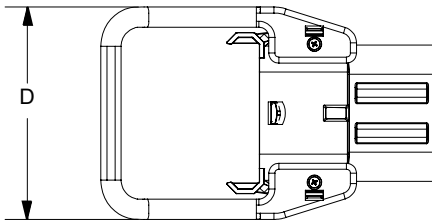
A160 Handles

		Low Profile		High Profile				Low Profile		High Profile	
		mm	in	mm	in			mm	in	mm	in
Male Housings	D	101	4.0	106	4.2	Female Housings	D	101	4.0	106	4.2
	E	46	1.8	64	2.5		E	46	1.8	64	2.5
	F	168	6.6	167	6.6		F	173	6.8	172	6.8

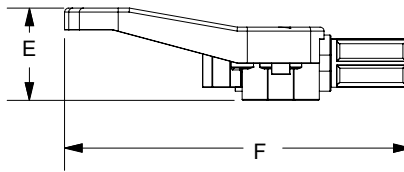
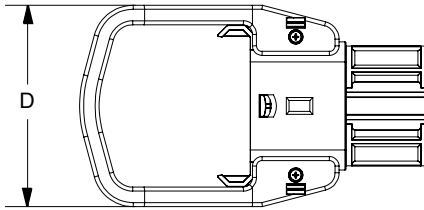
Male Housing Low Profile Handle



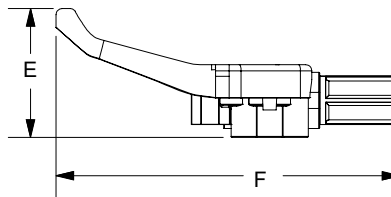
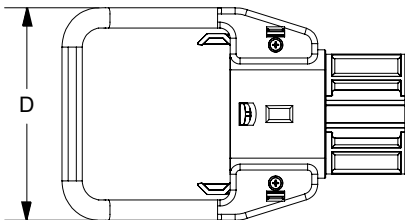
Male Housing High Profile Handle



Female Housing Low Profile Handle



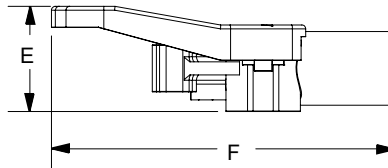
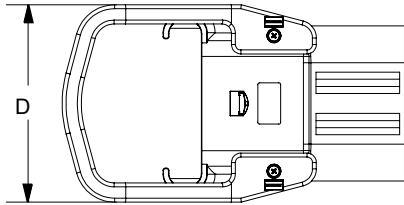
Female Housing High Profile Handle



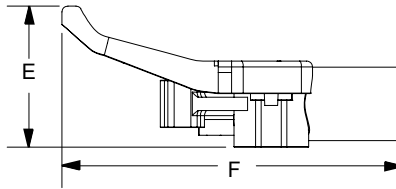
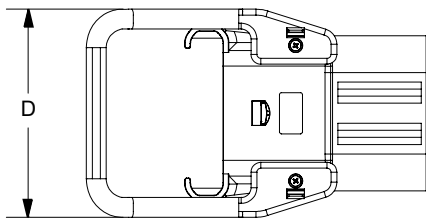
A320 Handles

		Low Profile		High Profile				Low Profile		High Profile	
		mm	in	mm	in			mm	in	mm	in
Male Housings	D	101	4.0	106	4.2	Female Housings	D	101	4.0	106	4.2
	E	54	2.1	72	2.8		E	53	2.1	71	2.8
	F	175	6.9	174	6.9		F	171	6.7	173	6.8

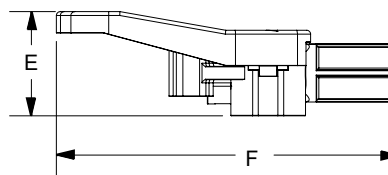
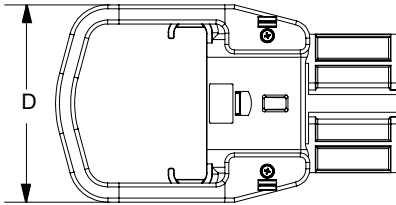
Male Housing Low Profile Handle



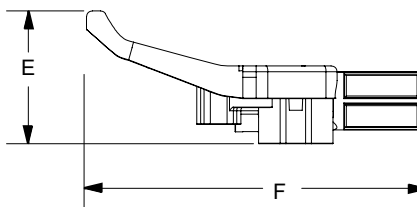
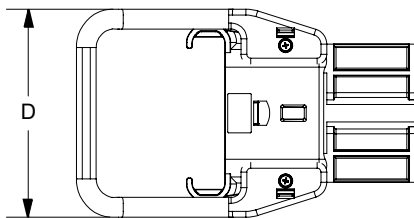
Male Housing High Profile Handle



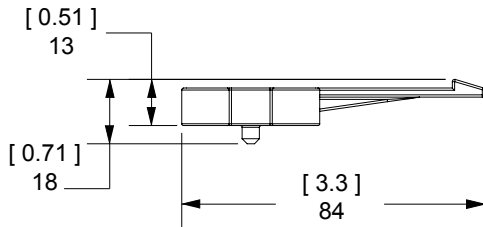
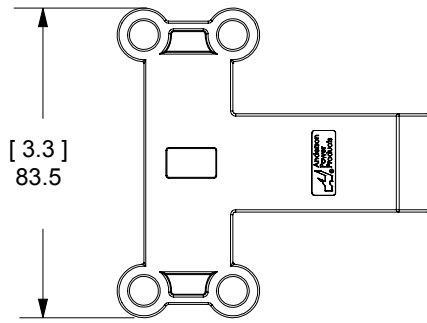
Female Housing Low Profile Handle



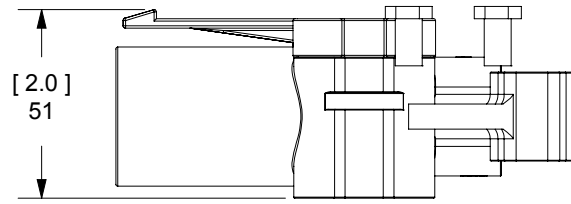
Female Housing High Profile Handle



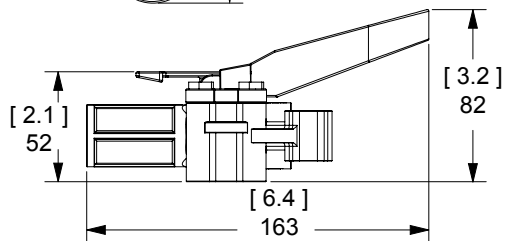
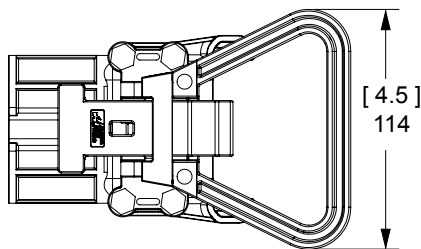
Latch Plate 160 & 320
P/N: A320-LP



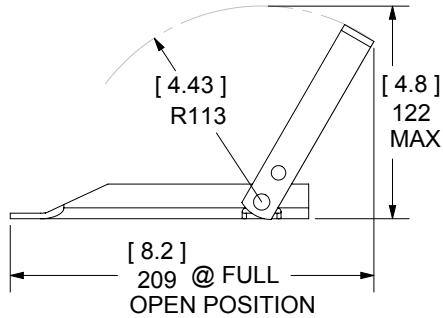
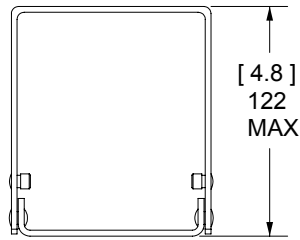
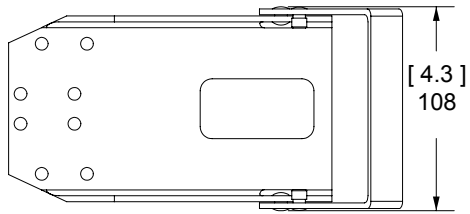
Latch Plate on
A160 & 320 Male Housing



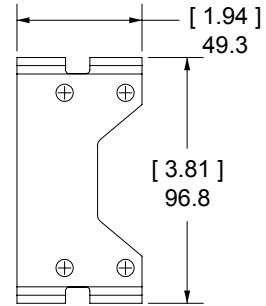
Handle & Lever Assembly
on A160 & 320 Female Housing:
P/N: A320HL



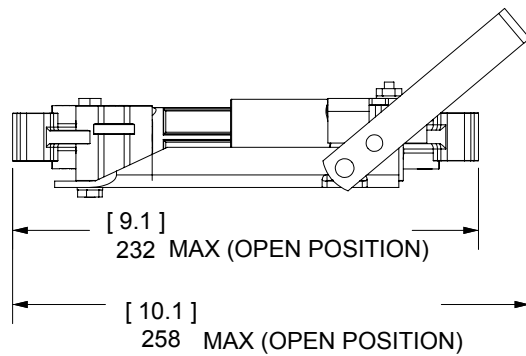
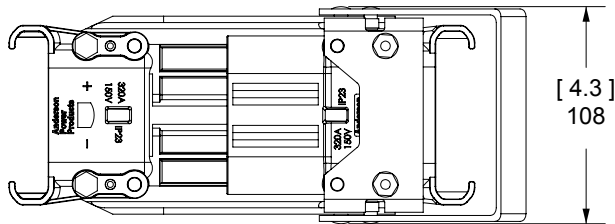
**Manual Release for A160 & 320
P/N: 994G4**



Battery Bracket - P/N: 993G4



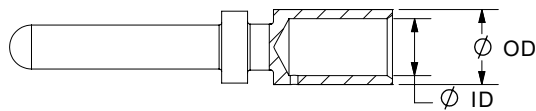
Manual Release with Connectors



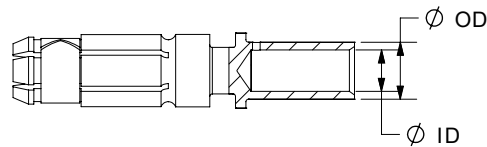
Contacts						
Series	Wire Size		OD		ID	
	Metric	AWG	mm	in	mm	in
A80	10 mm ²	#6 to 8	6.0	0.24	4.5	0.18
A80 / 160	16 mm ²	#4 to 6	8.4	0.33	6.0	0.24
	25 mm ²	#2 to 4	11.0	0.43	8.0	0.31
A160 / 320	35 mm ²	#1 to 2	12.5	0.49	9.0	0.35
	50 mm ²	#1 to 1/0	14.5	0.57	11.0	0.43
A320	70 mm ²	2/0 to 3/0	17.0	0.67	13.0	0.51
	95 mm ²	3/0 to 4/0	19.8	0.78	15.0	0.59
	120 mm ²	4/0	19.8	0.78	15.6	0.61



Male Power Contact



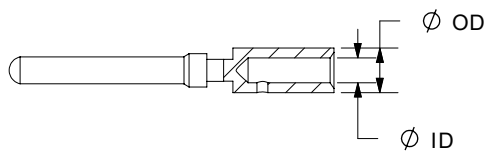
Female Power Contact



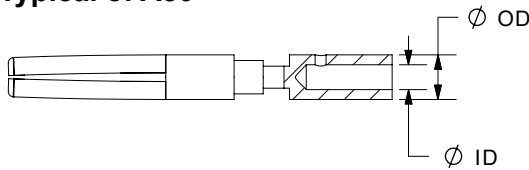
Auxiliary Contacts

Series	Part Number	Position	mm ²	AWG	OD		ID	
					mm	IN	mm	IN
A80	E80-32 / E80-33	Upper	1.5 / 2.5	18 / 14	3.9	0.15	2.2	0.09
	E80-30 / E80-31	Lower	1.5 / 2.5	18 / 14	3.9	0.15	2.2	0.09
A160	160-14 / 160-15	Upper	4	12	4.1	0.16	2.9	0.11
	320-24 / 320-25	Upper	1.5 / 2.5	18 / 14	4.6	0.18	2.2	0.09
A320	160-12 / 160-13	Lower	6	10	5	0.2	3.9	0.15
	320-22 / 320-23	Lower	1.5 / 2.5	18 / 14	4.6	0.18	2.2	0.09

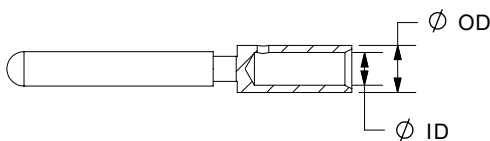
Upper Auxiliary Pin Typical of A80



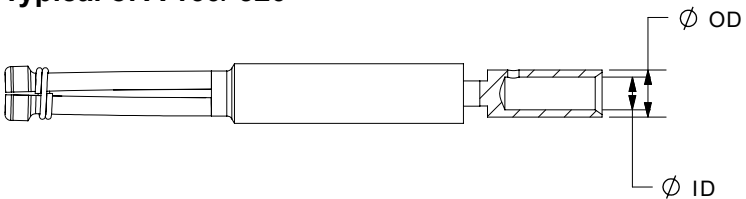
Upper Auxiliary Socket Typical of A80



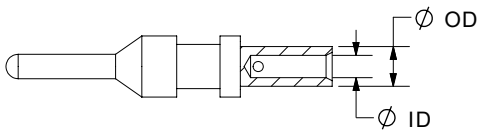
Upper Auxiliary Pin Typical of A160 / 320



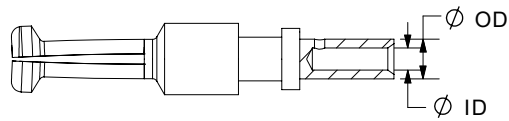
Upper Auxiliary Socket Typical of A 160/ 320



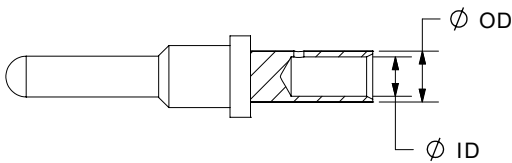
**Lower Pilot Auxiliary Pin
Typical of A80**



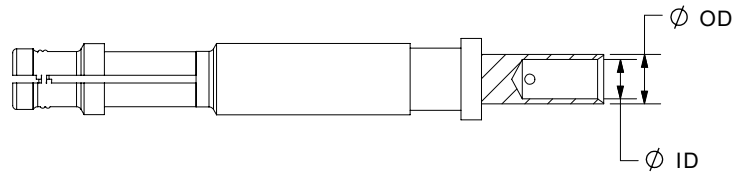
**Lower Auxiliary Socket
Typical of A80**



**Lower Pilot Auxiliary Pin
Typical of A160 / 320**

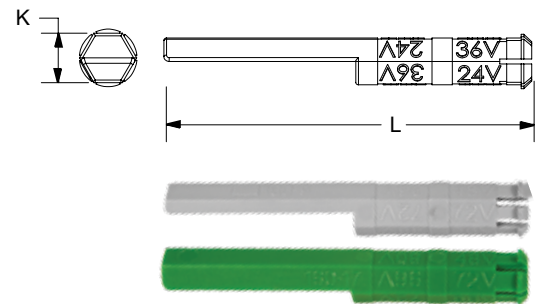


**Lower Auxiliary Socket
Typical of A160 / 320**



Wet / Dry Voltage Key					Universal Voltage Key			
Series	K		L		K		L	
	mm	in	mm	in	mm	in	mm	in
A80	8.0	0.31	46	1.77	8.0	0.31	46	1.77
A160 / 320	9.3	0.37	69	2.72	9.3	0.37	69	2.72

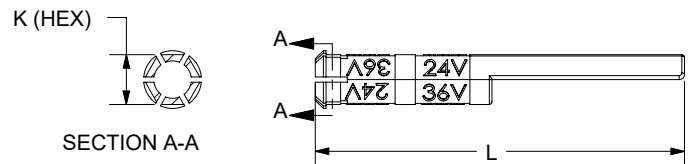
Wet / Dry Voltage Key - Grey or Green



Keying Plug	Identification	Assembled In
	Used for Wet Cell Battery /Charger - Color Grey	Battery Receptacle and Charging Plug
	Used for Dry Cell Battery/Charger - Color Green	Battery Receptacle and Charging Plug
	Used for Vehicle only - Yellow (Universal)	Vehicle Plug only - used when vehicle may use wet or dry cell batteries.

Universal Voltage Key - Yellow
(Use with male housing only)

Universal (Yellow) voltage keys are to be used exclusively at the vehicle side to permit both the use of wet-cell and dry-cell batteries.



TOOLING INFORMATION

A Series 80A, 160A, & 320A Hydraulic Tooling									
Wire Size		Part Numbers	Loose Piece Contact Crimp Tools						
mm ²	AWG	Power Contact	Hydraulic Hand Bench Tool	+	Die	OR	Hydraulic Hand Bench Tool		
10 mm ²	#8 to #6	80-1010	1387G3 OR 1370G1		1322G16		N/A		
		80-1110			1322G9				
	#6	80-1016			1322G10				
		80-1116							
16 mm ²		80-1016			1322G15				
		80-1116							
25 mm ²	#4 to #2	80-1025			N/A			N/A	
		80-1125							
35 mm ²	#2 to #1	80-1035			1387G3 OR 1370G1				1322G9
		80-1135							
16 mm ²	#6 to #4	160-1016	1322G12						
		160-1116							
25 mm ²	#4 to #2	160-1025	1322G7						
		160-1125							
35 mm ²	#2 to #1	160-1035	1322G4						
		160-1135							
50 mm ²	#1 to 1/0	160-1050	1387G3 OR 1370G1			1322G4			
		160-1150							
50 mm ²	1/0 AWG	320-1050			1322G3 (K) 8*				
		320-1150							
70 mm ²	2/0 AWG	320-1070			1322G2				
		320-1170							
95 mm ²	3/0 AWG	320-1095			1322G1				
		320-1195							
120 mm ²	4/0 AWG	320-1004			N/A		N/A		
		320-1104							
Pilot/Auxiliary Contacts									
ALL	Pins		SOLDER ONLY						
	Sockets								

*Use 1322G3 with K stranded wire only.



1370G1 & 1387G3



1368



1368-NL



1368-B

A Series 80A, 160A, & 320A Pneumatic Tooling

Wire Size		Part Numbers	Loose Piece Contact Crimp Tools									
mm ²	AWG	Power Contact	Pneumatic Bench Tool	+	Die	+	Locator (Single Crimp)					
10 mm ²	#8 to #6	80-1010	N/A	+	N/A	+	N/A					
		80-1110										
16 mm ²	#6 to #4	80-1016										
		80-1116										
25 mm ²	#4 to #2	80-1025										
		80-1125										
35 mm ²	#2 to #1	80-1035										
		80-1135										
mm ²	AWG	Power Contact						Pneumatic Bench Tool	+	Die	+	Locator (Double Crimp)
16 mm ²	#6 to #4	160-1016						1387G2	+	1303G14	+	1304G21 SOCKET 1304G20 PIN
		160-1116	1303G13									
25 mm ²	#4 to #2	160-1025										
		160-1125										
35 mm ²	#2 to #1	160-1035										
		160-1135										
50 mm ²	#1 to 1/0	160-1050										
		160-1150	1303G8									
50 mm ²	#1 to 1/0	320-1050	1387G2	+	1303G8	+	1304G29 Pins 1304G18 Sockets					
		320-1150			1303G11							
70 mm ²	2/0 AWG	320-1070										
		320-1170										
95 mm ²	3/0 AWG	320-1095										
	4/0 AWG	320-1195										
120 mm ²	4/0 AWG	320-1004										
		320-1104			1303G3							
Pilot/Auxiliary Contacts												
ALL	All Crimp Pins				SOLDER ONLY							
	All Crimp Sockets											



1387G1 & 1387G2

ADDITIONAL PRODUCTS FOR INDUSTRIAL VEHICLES

EBC Series

- Meets DIN 43589-1
- Meets EN1175-1
- Chemical Resistant Plastic
- RoHS Compliant



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