cannon

APD Series

ISO 15170 Derived Connectors



ITT

We Connect

When it matters most

For more than a century, ITT Cannon has developed innovative interconnect solutions for the world's harshest environments. With facilities in the United States, Germany, Italy, Mexico, China and Japan, each with its unique strengths, we offer our customers interconnect solutions that are truly Engineered for Life.

In addition to this truly global footprint, we offer highly specialized, segmented industry expertise. We have a proven track record as an industry leader in harsh-environment applications. This has equipped us with the knowledge needed to continue to produce the most resilient, reliable connectors for our customers' most challenging conditions.

Interconnect solutions for the harshest environments.

cannon

The ITT Cannon difference

- Global capabilities & local support
- Proven application expertise
- A century of interconnect leadership
- A committed innovator & business partner

About ITT

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for the energy, transportation and industrial markets. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in Stamford, Connecticut, with employees in more than 35 countries and sales in a total of approximately 125 countries. For more information, visit www.itt.com.



APD Example Applications



Agriculture



Truck



Bus



Forestry



Construction



Recreation



Mining



Specialty

Dimensions shown in mm
Specifications and dimensions subject to change

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Cannon APD / ISO 15170 Connectors



APD is a versatile range of full plastic direct, in-line and bulkhead connectors. The products were originally designed for the transportation, off-road and special vehicle markets meeting all typical demands of applications in this field. In the meantime APD is also the connector of choice in other areas as e.g. industrial applications that require harsh environment solutions while needing a product that is both, small in size and light in weight.

The APD series covers a wide range of 1 and 2-way power solutions up to 51-way interface connectors, special sensor or PCB type versions and a flexible platform for your customized solutions.

Based on the original DIN72585 standard – now replaced by ISO 15170 – this connector is an ideal solution whenever harsh environment requirements like resistance to engine, transmission or brake fluids, high sealing grades up to IP69K or vibration requirements have to be met. Please be aware that all mentioned connectors are not designed to be disconnected under load.

Dimensions shown in mm
Specifications and dimensions subject to change

APD Product Overview

APD / ISO 15170						
Series	1-way	1-way	2-way	2-way	4-way	4-way
Type	Plug	Receptacle Flange / Jam Nut / Snap-In	Plug	Receptacle Flange / Jam Nut / Snap-In	Plug	Receptacle Flange / Jam Nut
Contacts Materials	Copper alloy silver plated	Copper alloy silver plated	Copper alloy silver plated	Copper alloy silver plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated
Contact style	Machined	Machined	Machined	Machined	Stamped & Formed	Stamped & Formed
Page Number	8	9-11	19	19-21	26	27-28

APD / ISO 15170						
Series	6/7-way	6/7-way	Sensor style 1	Sensor style 2	19-way	19-way
Type	Plug	Receptacle Flange / Jam Nut	Receptacle	Receptacle	Plug	Receptacle Flange / Jam Nut/ Wire-to-wire
Contacts Materials	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated
Contact style	Stamped & Formed Machined	Stamped & Formed Machined	Machined	Machined	Stamped & Formed	Stamped & Formed
Page Number	36	37-38	42	43	45	46-48

APD / ISO 15170				
Series	37-way	37-way	51-way	PCB
Type	Plug	Receptacle Flange	Plug	Receptacle
Contacts Materials	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated	Copper alloy tin, silver, gold plated
Contact style	Stamped & Formed Machined	Stamped & Formed Machined	Stamped & Formed Machined	Machined
Page Number	56	57	63	70

APD Technical Data, High Power 1-way



The APD 1 / 2-way connectors are derived from ISO 15170 and adapted to applications requiring high power. These versions cover wire ranges from 16 mm² up to 50 mm² power and a power consumption up to 245A.

The combination of small size and high power make them an ideal solution for many applications.

Applications

- Tail lifts
- On Board Kitchen
- Power Supply for Antennas and Base Stations

Power Distribution in:

- Trucks
- Tractors

Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	0,4 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	50 Mating Cycles
Coupling Torque	2 Nm max.
Static Load, free connector	350 N (ISO 15170-2, Sec. 4.6)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 125 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 (DIN EN 60529)
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)
Vibration Resistance	Sine, 100 m/s², 3 axis, 24h, RT (EN 60512)

Materials List	
Housing Parts	PBT GF
Sealing Parts	HNBR (alternative FKM)
Coupling Nut	PA 66 GF
Contacts	Copper Alloy, Ag plated

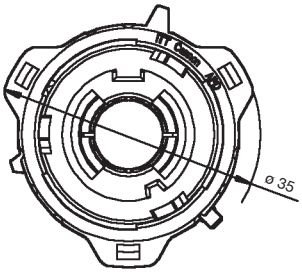
Further information available upon request.

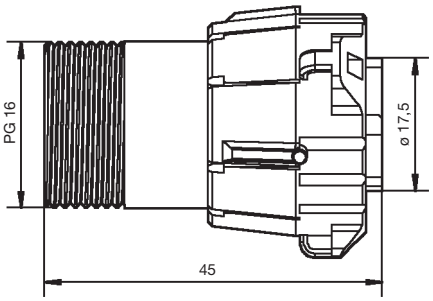
Dimensions shown in mm
Specifications and dimensions subject to change

APD High Power Plug, 1-way

High Power Plug, 1-way







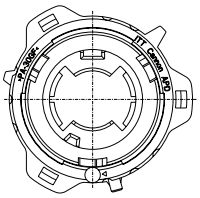
Order No.	Designation	Code	Color
121583-0012	APD-5BSH	5	blue (RAL 5012)
121583-0013	APD-6BSH	6	red (RAL 2002)
121583-0042	APD-7BSH	7	black (RAL 9005)

Packaging unit 100 pcs.
Socket crimp contacts see pages 12 and 13.
Accessories, see pages 15 and 16.
Note: Always use hex nut and cable seal.

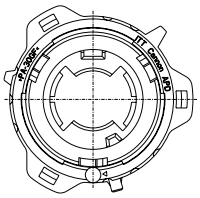
Coding, 1-way layouts

View on Mating Face

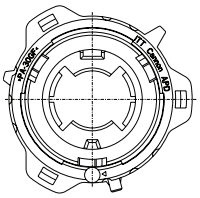
Note: the connectors offer both mechanical keying and visual coding by different colors.



Code 5 blue



Code 6 red

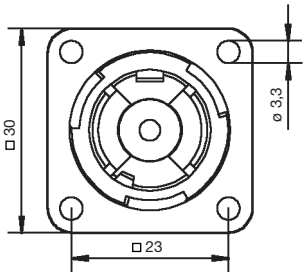


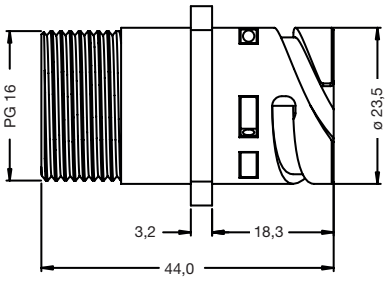
Code 7 black

APD High Power Flange Receptacle, 1-way

High Power Flange Receptacle, 1-way







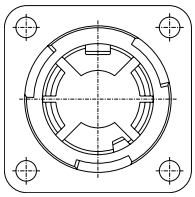
Order No.	Designation	Code	Color
121583-0014	APD-5APH	5	blue (RAL 5012)
121583-0015	APD-6APH	6	red (RAL 2002)
121583-0043	APD-7APH	7	black (RAL 9005)

Packaging unit 100 pcs.
Pin crimp contacts see pages 12, 13 and 14.
Accessories, see pages 15 and 16.

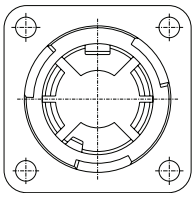
Coding, 1-way layouts

View on Mating Face

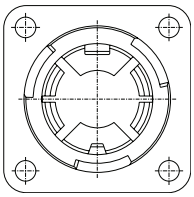
Note: the connectors offer both mechanical keying and visual coding by different colors.



Code 5 blue



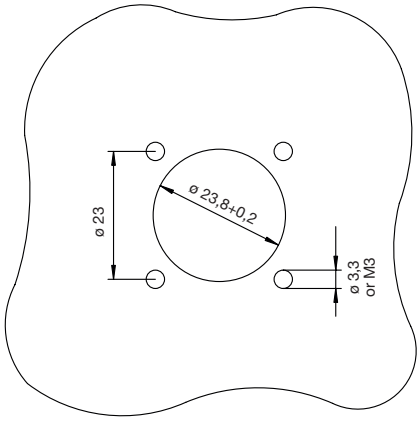
Code 6 red

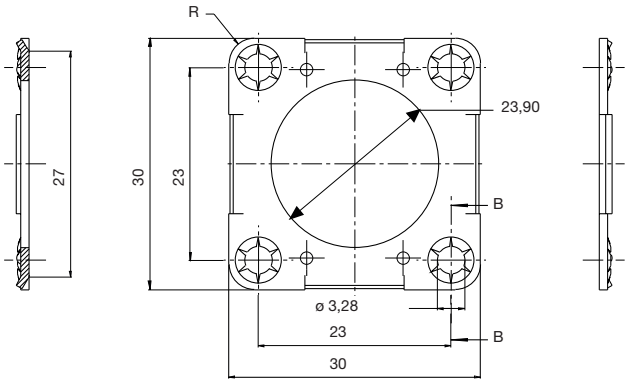


Code 7 black

Panel Cut Out

Flange for all Flange Receptacles





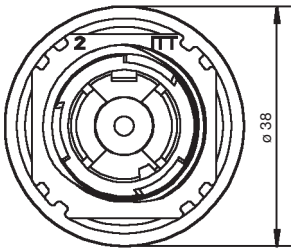
Order Number: 066-8516-005
Metal mounting flange for wall mounting of flange receptacles.

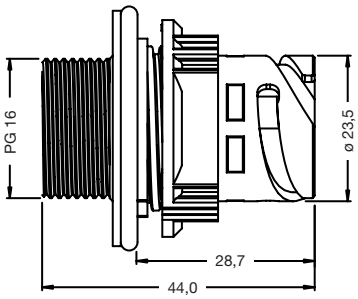
Dimensions shown in mm
Specifications and dimensions subject to change

APD High Power Jam Nut Receptacle, 1-way

High Power Jam Nut Receptacle, 1-way







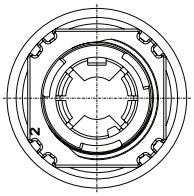
Order No.	Designation	Code	Color
121583-0016	APD-5CPH	5	blue (RAL 5012)
121583-0017	APD-6CPH	6	red (RAL 2002)
121583-0217	APD-7CPH	7	black (RAL 9005)

Packaging unit 100 pcs.
Pin crimp contacts see pages 12, 13 and 14.
Accessories, see pages 15 and 16.
Note: Includes jam nut for wall thickness 1...4 mm. Always use hex nut and cable seal.

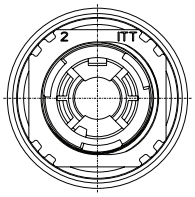
Coding, 1-way layouts

View on Mating Face

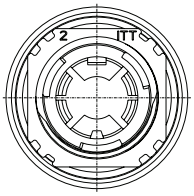
Note: the connectors offer both mechanical keying and visual coding by different colors.



Code 5 blue



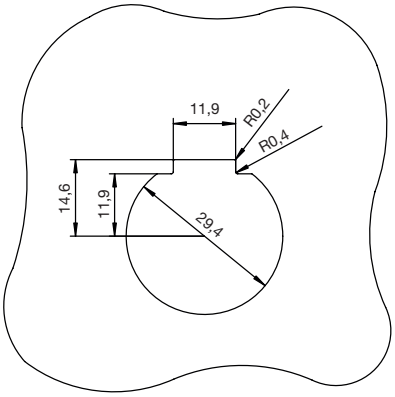
Code 6 red

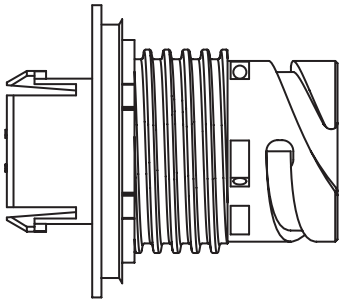


Code 7 black

Panel Cut Out

Flange for all Flange Receptacles





Housing



O-ring



Jam Nut

Wall thickness: Standard Jam Nut: min. 1,0 / max. 4,0 mm
Special Jam Nut: min. 2,0 / max. 5,0 mm

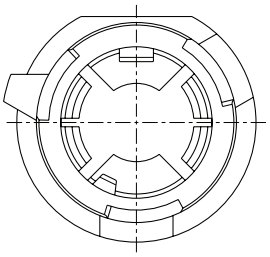
Jam Nut, special

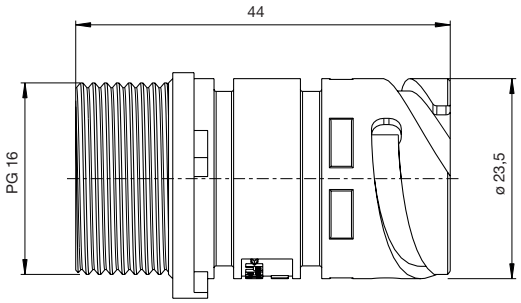
Designation	Order No.
for special wall thickness 2,0 - 5,0 mm	217-8516-001

APD High Power Snap-In Receptacle, 1-way

High Power Snap-In Receptacle, 1-way







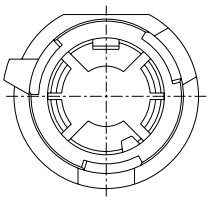
Order No.	Designation	Code	Color
249-8619-005	APD-7SPH	7	black (RAL 9005)
249-8619-006	APD-6SPH	6	red (RAL 2002)
consult factory	APD-5SPH	5	blue (RAL 5012)

Packaging unit 100 pcs.
Pin crimp contacts see pages 12, 13 and 14.
Accessories, see pages 15 and 16.
Note: Always use hex nut and cable seal.

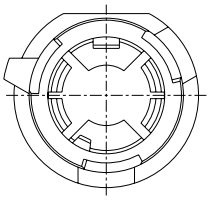
Coding, 1-way layouts

View on Mating Face

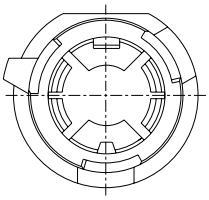
Note: the connectors offer both mechanical keying and visual coding by different colors.



Code 5 blue



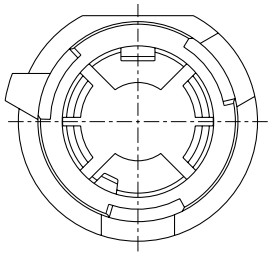
Code 6 red

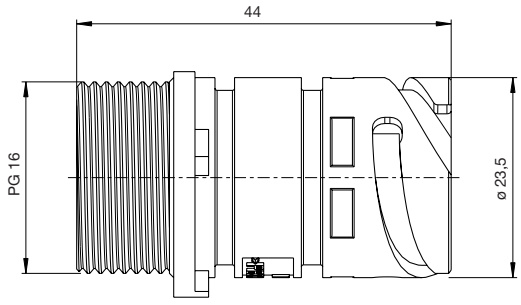


Code 7 black

Panel Cut Out

3D data for design of snap-in cut out available on request. Please consult factory.





Dimensions shown in mm
Specifications and dimensions subject to change

APD High Power 1-way, Contacts

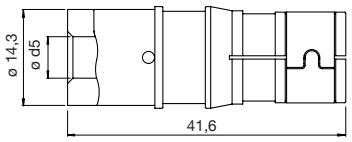
Machined Socket Crimp-Contacts, High Performance Copper, Silver plated

Order No.	AWG	Contact size	d5+0,15
031-8521-030 (16,00 mm²)		0	6,2
031-8521-010 (25,00 mm²)	4	0	7,6
031-8521-020 (35,00 mm²)	2	0	9,1
031-8646-015 (50,00 mm²)	with bunch	0	10,2

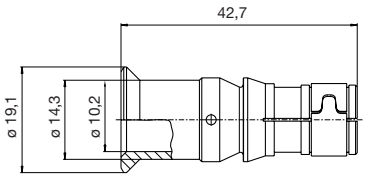
Packaging unit 100 pcs.



16...35 mm²



50 mm²



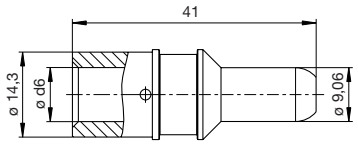
Machined Pin Crimp Contacts, High Performance Copper, Silver plated

Order No.	AWG	Contact size	d6+0,15
030-8614-030 (16,00 mm²)		0	6,2
030-8614-010 (25,00 mm²)	4	0	7,6
030-8614-020 (35,00 mm²)	2	0	9,1
030-8581-029 (50,00 mm²)	with bunch	0	10,2

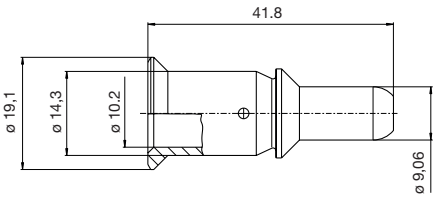
Packaging unit 100 pcs.



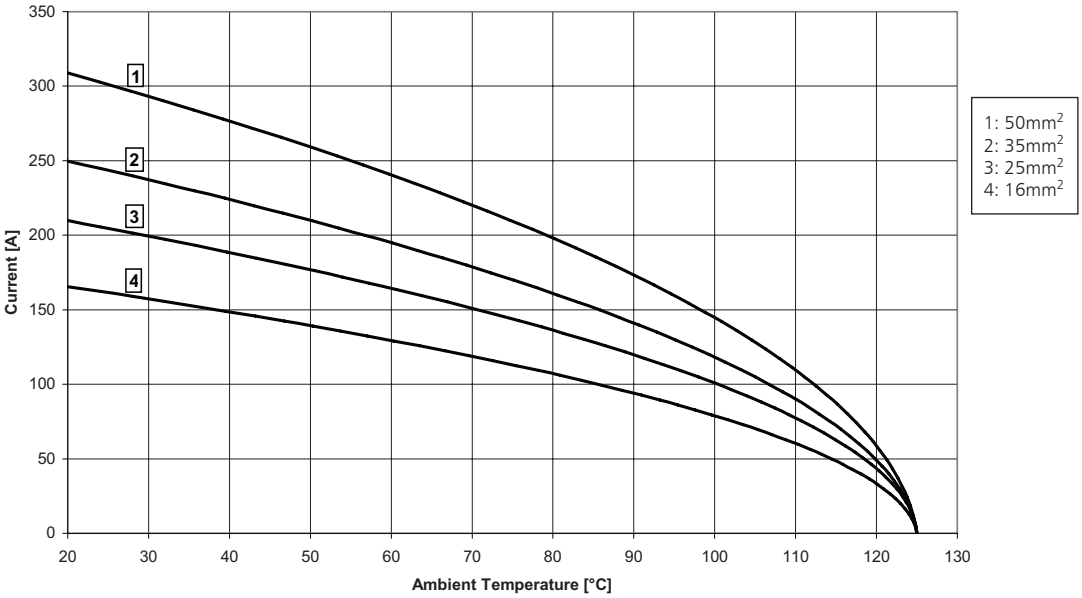
16...35 mm²



50 mm²



Derating Curve, High Performance Copper Contact



Dimensions shown in mm
Specifications and dimensions subject to change

APD High Power 1-way, Contacts

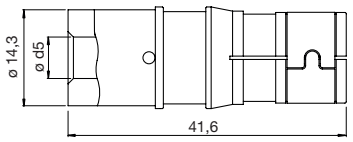
Machined Socket Crimp-Contacts, Standard Brass, Silver plated

Order No.	AWG	Contact size	d5+0,15
031-8531-010 (16,00 mm²)		0	6,2
031-8531-011 (25,00 mm²)	4	0	7,6
031-8531-012 (35,00 mm²)	2	0	9,1
031-8531-013 (50,00 mm²)	with bunch	0	10,2

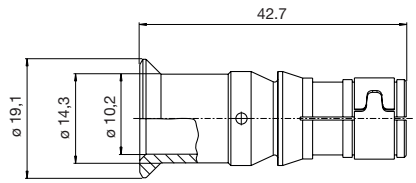
Packaging unit 100 pcs.
*Available by Request



16...35 mm²



50 mm²



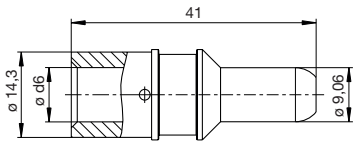
Machined Pin Crimp Contacts, Standard Brass, Silver plated

Order No.	AWG	Contact size	d6+0,15
030-8581-030 (16,00 mm²)		0	6,2
030-8581-031 (25,00 mm²)	4	0	7,6
030-8581-032 (35,00 mm²)	2	0	9,1
030-8581-033 (50,00 mm²)	with bunch	0	10,2

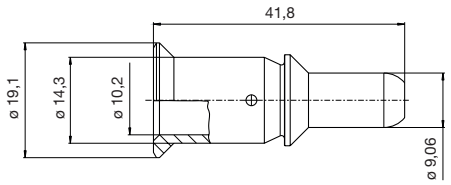
Packaging unit 100 pcs.



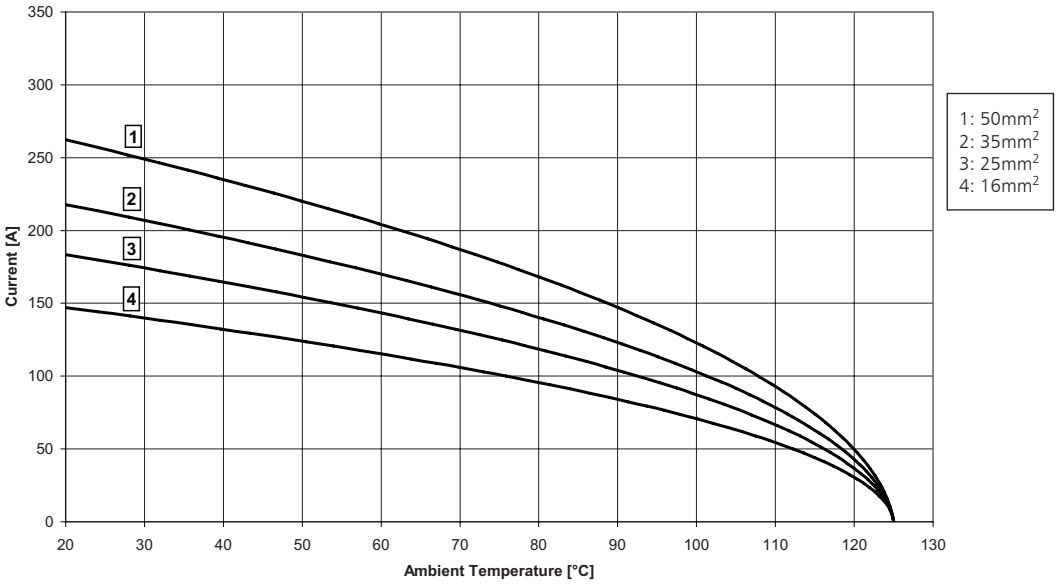
16...35 mm²



50 mm²



Derating Curve, Standard Brass Contact



Dimensions shown in mm
Specifications and dimensions subject to change

APD High Power Finger Protected 1-way, Contacts



A new finger protected pin contact has been implemented for the APD High Power 1-way connector series.

Applications

- Tail lifts
- On Board Navigation
- Power Supply for Antennas and Base Stations

Power Distribution in:

- Trucks
- Tractors
- Hybrid and Electric Vehicles

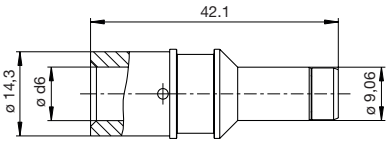
Machined Pin Crimp Contacts, High Performance Copper, Silver plated, Finger Protected

Order No.	AWG	Contact size	d6+0,15
120110-0229 (16,00 mm^2)		0	6,2
120110-0220 (25,00 mm^2)	4	0	7,6
120110-0221 (35,00 mm^2)	2	0	9,1
120110-0222 (50,00 mm^2)	with bunch	0	10,2

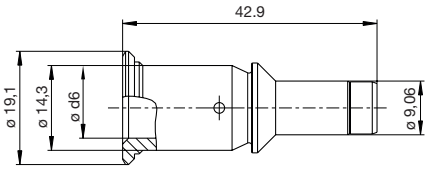
Packaging unit 100 pcs.



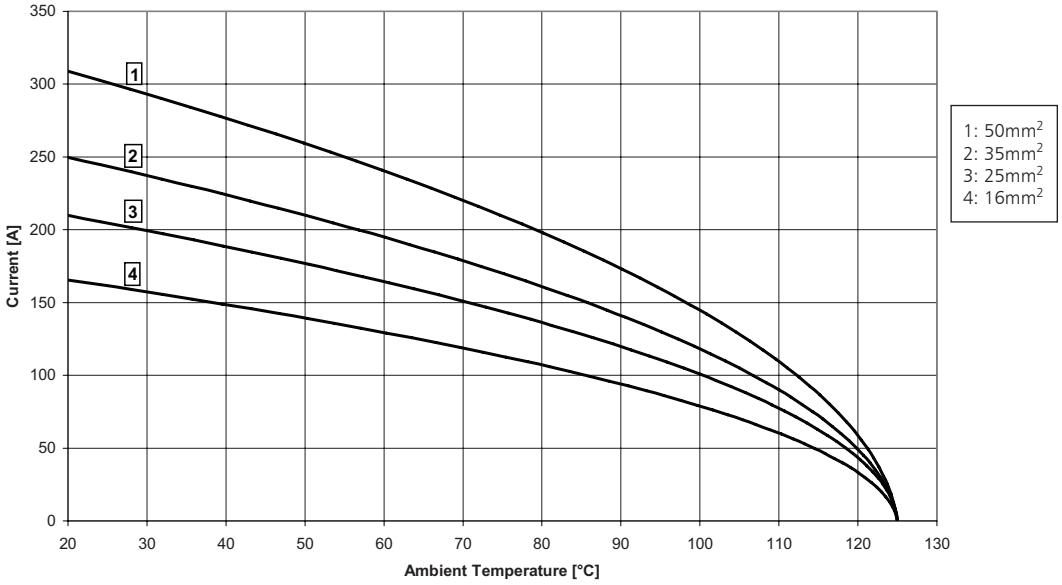
16...35 mm^2



50 mm^2



Derating Curve, High Performance Copper Contact, Finger Protected



Dimensions shown in mm
Specifications and dimensions subject to change

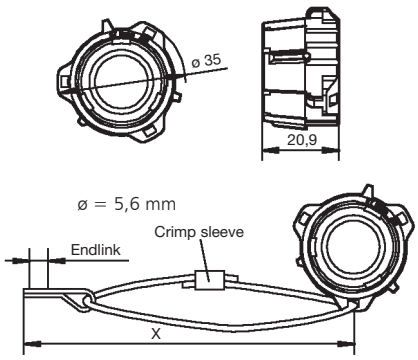
APD High Power 1-way, Contacts, Seals, Nut

Sealing Cap for Receptacle

Designation	Order No.
APD-DP	121583-0021

Packaging unit 100 pcs.
APD-DP with rope, end link and eyelet
X = Total rope length upon request
Order number 120110-0026* X~9cm
* for other lengths please consult the factory





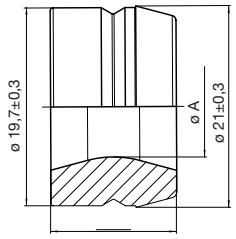
Cable Seal for Cable (in acc. to DIN 670722 FLY/ DIN 72551 FLRY)

High Power 1-way

Order No.	Insulation ø	ø A mm
351-8697-005	5,8 - 7,4	5,4
351-8697-014	7,4 - 8,4	6,5
351-8697-009	8,4 - 10,0	8,0
351-8697-001	10,4 - 12,0	9,8
351-8697-002	12,3 - 13,9	11,9
351-8697-003	14,2 - 15,8	13,8

Packaging unit 100 pcs.





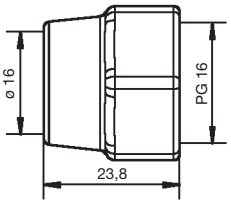
Hexagonal Nut

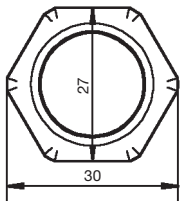
High Power 1-way

Order No.
217-8516-010

Packaging unit 100 pcs.







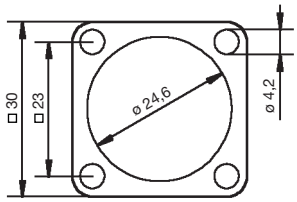
Flange Gasket

For Flange Receptacle, High Power 1-way

Order No.
075-8503-000 (-55/125˚C)
075-8503-004 (-30/200˚C)

Packaging unit 100 pcs.
Nominal Width: 17





Adaptor for Flex Tube

For Flange Receptacle, High Power 1-way

Order No.
980-8672-010 (ø 17 mm)

Packaging unit 100 pcs.



90˚ Endbell

For 1-way Plug and Receptacle up to 25 mm^2 wire

Order No.
980-8672-004

Packaging unit 100 pcs.



ø max. = 17,4 mm
thread = PG 16

Dimensions shown in mm
Specifications and dimensions subject to change

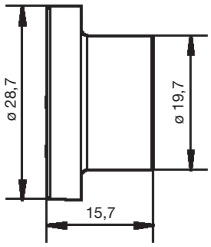
APD Accessories, 1-way

Dust Cap for Plug

Order No.
025-8636-005

Packaging unit 100 pcs.



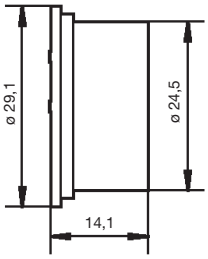


Dust Cap for Receptacle

Order No.
025-0480-000

Packaging unit 100 pcs.





Blind Socket

for 1 / 2 / 4 / 6 / 7-way

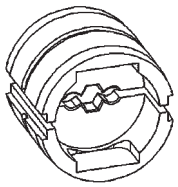
Order No.
120110-0217

Packaging unit 100 pcs.
Note: All cavities closed, mates with 1-7-way APD versions.



APD Tooling High Power, 1-way

Tooling for 1-way High Power Connectors



Contact / Socket	Crimp-Dies
031-8561-000 (50,00 mm²)	121586-5229
031-8521-020 (35,00 mm² / AWG 2)	121586-5229
031-8521-010 (25,00 mm² / AWG 4)	121586-5229
031-8521-030 (16,00 mm²)	121586-5229

Contact / Pin	Crimp-Dies
030-8592-000 (50,00 mm²)	121586-5229
030-8614-020 (35,00 mm² / AWG 2)	121586-5229
030-8614-010 (25,00 mm² / AWG 4)	121586-5229
030-8614-030 (16,00 mm²)	121586-5229
Optional locator	121586-5232

Assembly Tools Jam Nut Receptacle

Square box spanner for torque moment wrench to fix the jam nut.

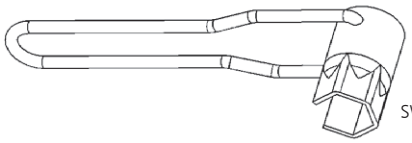


SW30

Designation	Order No.
SS627G	317-8649-034

Assembly Tools (Hexagonal Nut)

To fix the hexagonal fixing nut 217-8516-010.

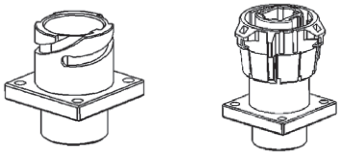


SW27

Order No.
980-8672-005

Torque: 2.5 ± 0.5Nm

Assembly and Torque Wrench Adapter

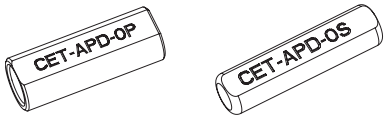


Designation	Order No.
MA-APD-1/ 2-P	248-8653-063
MA-APD-1/ 2-R	249-8619-010

1/4" adaption

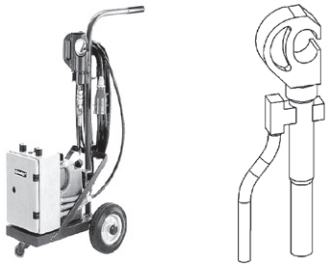
Contract Extraction Tool

Housing can not be reused.



Designation	Order No.
CET-APD-#OP	121586-5192
CET-APD-#OS	121586-5193

Crimp Tool



Designation	Designation	Order No.
Hydraulic, hand operated	HPW400U-ITT	121586-5257
Electro-hydraulic, 230 V AC operated	HP400EL-ITT	121586-5253

For detailed assembly instruction please see CAS 25023

Dimensions shown in mm
Specifications and dimensions subject to change

APD Technical Data, High Power 2-way*

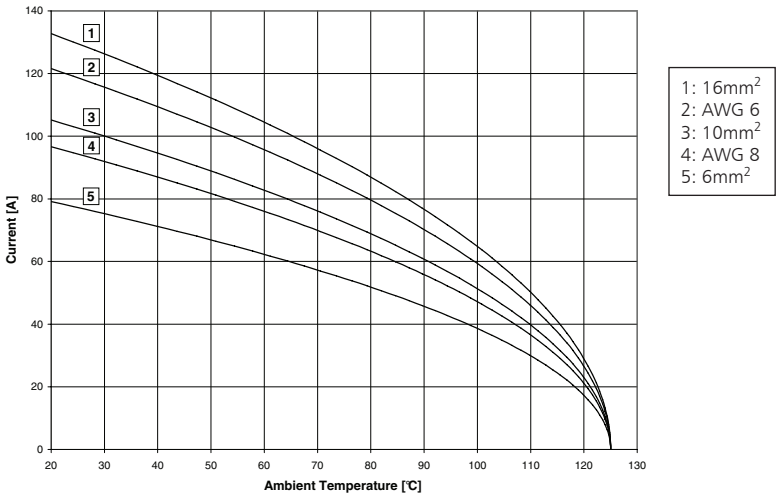
Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	2 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	50 Mating Cycles
Coupling Torque	2 Nm max.
Static Load, free connector	350 N (ISO 15170-2, Sec. 4.6)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 125 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 (DIN EN 60529)*
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*

Materials List	
Housing Parts	PBT GF
Sealing Parts	HNBR (alternative FKM)
Coupling Nut	PA 66 GF
Contacts	Copper Alloy, Ag plated

Derating Curve



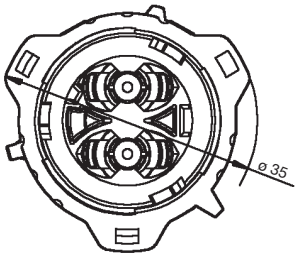
1: 16mm²
2: AWG 6
3: 10mm²
4: AWG 8
5: 6mm²

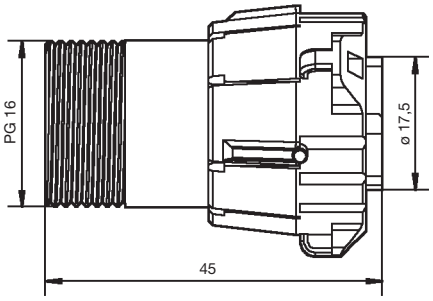
Further information available upon request.

APD High Power, Plug, Flange Receptacle 2-way

High Power Plug, 2-way







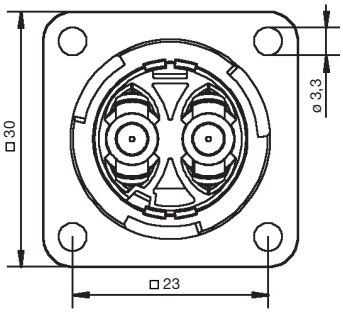
Order No.	Designation	Code	Color
121583-0083	APD-1BSH8-2-12	1	grey (RAL 7036)
121583-0025	APD-1BSH8-2	1	black (RAL 9005)
121583-0084	APD-1BSH8-2-14	1	blue (RAL 5012)

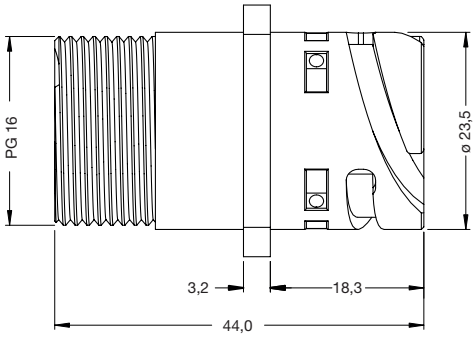
Packaging unit 100 pcs.
Socket Crimp contacts see page 22.

Accessories, see pages 22 and 23.
Note: Always use hext nut and cable seal.

High Power Flange Receptacle, 2-way







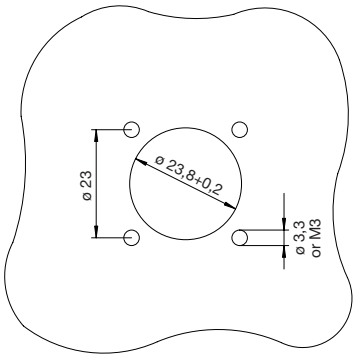
Order No.	Designation	Code	Color
121583-0026	APD-1APH8-2	1	black (RAL 9005)

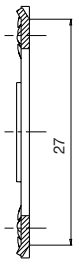
Packaging unit 100 pcs.
Pin crimp contacts see page 22.

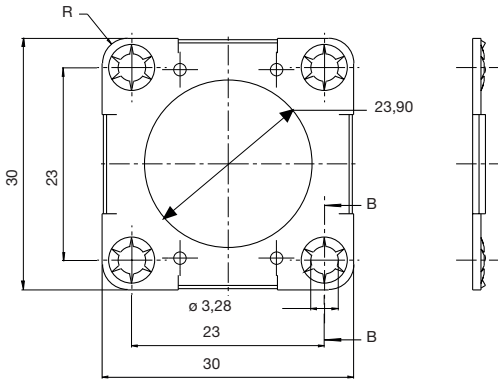
Accessories, see pages 22 and 23.
Note: Always include hext nut and cable seal.

Panel Cut Out

Flange for all Flange Receptacles







Note: Metal mounting flange for wall mounting of flange receptacles

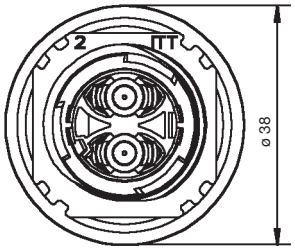
Order No.
066-8516-005

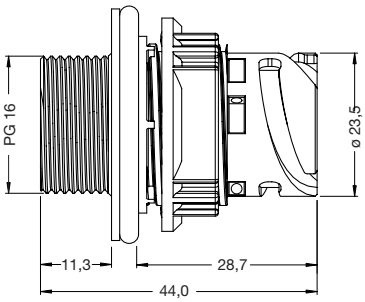
Dimensions shown in mm
Specifications and dimensions subject to change

APD High Power Jam Nut Receptacle, 2-way

High Power Jam Nut Receptacle, 2-way







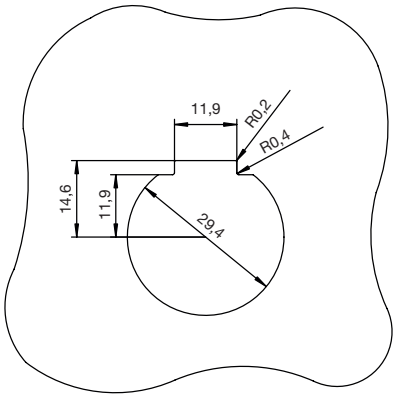
Order No.	Designation	Code	Color
121583-0085	APD-1CPH8-2-12	1	grey (RAL 7036)
121583-0027	APD-1CPH8-2	1	black (RAL 9005)
121583-0086	APD-1CPH8-2-14	1	blue (RAL 5012)

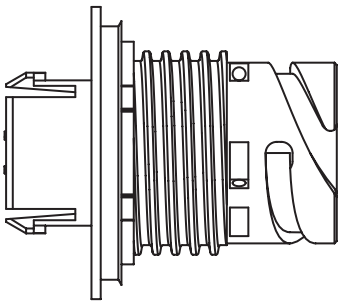
Packaging unit 100 pcs.
Pin crimp contacts see page 22.
Accessories, see pages 22 and 23.

Note: Includes jam nut for wall thickness 1..4 mm.
Always use hex nut and cable seal.

Panel Cut Out

Flange for all Flange Receptacles





Housing



O-ring



Jam Nut

Wall Thickness:
Standard Jam Nut: min. 1,0 / max. 4,0 mm
Special Jam Nut: min. 2,0 / max. 5,0 mm

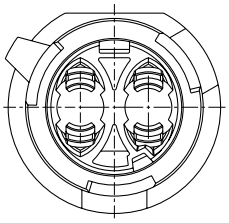
Jam Nut, special

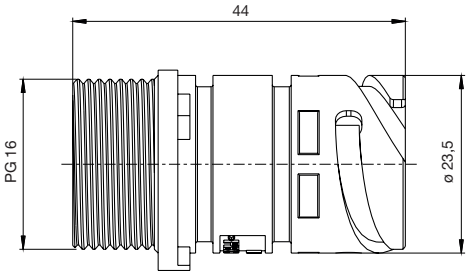
Designation	Order No.
for special wall thickness 2,0 - 5,0 mm	217-8516-001

APD High Power Snap-In Receptacle, 2-way

High Power Snap-In Receptacle, 2-way







Order No.	Designation	Code	Color
249-8619-007	APD-1SPH8-2	1	black (RAL 9005)

Packaging unit 100 pcs.
Pin crimp contacts see page 22.
Accessories, see pages 22 and 23.
Note: Always use hext nut and cable seal.

Panel Cut Out

3D data for design of snap-in cut out available on request. Please consult factory.

Dimensions shown in mm
Specifications and dimensions subject to change

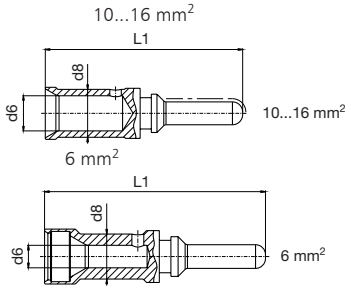
APD High Power 2-way, Contacts, Accessories

Machined Pin Crimp Contacts, Standard Silver Plated

Order No.	d6	d8	L1
430-8645-000 (6,00 mm²) *	3,4	6,8	33,4
430-8645-009 (10,00 mm²)	4,3	6,8	30,9
430-8645-003 (AWG 8)	3,8	6,8	30,9
430-8645-002 (AWG 6)	5,3	6,8	30,9
430-8645-007 (16,00 mm²)	5,5	7,5	30,9

Packaging unit 100 pcs.
* use individual wire seal or grommet



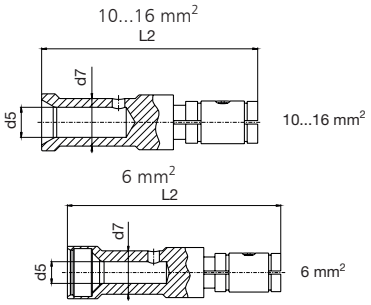


Machined Socket Crimp Contacts, Standard Silver Plated

Order No.	d5	d7	L2
031-8646-010 (6,00 mm²) *	3,4	6,8	33,4
031-8646-011 (10,00 mm²)	4,3	6,8	30,9
031-8646-002 (AWG 8)	3,8	6,8	30,9
031-8646-003 (AWG 6)	5,3	6,8	30,9
031-8646-001 (16,00 mm²)	5,5	7,5	30,9

Packaging unit 100 pcs.
* use individual wire seal or grommet





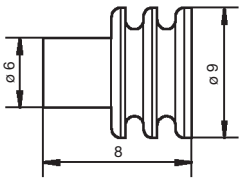
Individual Wire Seals

For High Power 2-way 6 mm² only

Designation	Order No.
16GN5824	121668-0035

wire insulation ø 4,3 - 4,8 mm / green





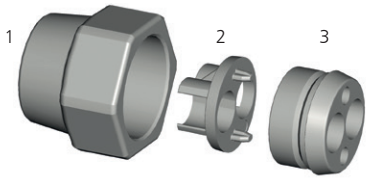
Cable Sealing Set

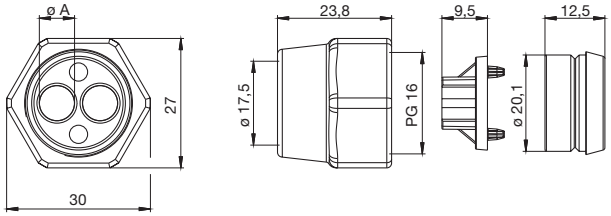
For High Power 2-way

Set consists of:
Hexagonal Nut (1)
Compression Support Plate for Cable Seal (2)
Cable Seal for Cable (3)

Order No.	Wire Insulation ø	ø A
121583-1000	4,2 - 5,8	3,8
121583-1001	5,7 - 7,3	5,3
121583-1002	7,4 - 8,3	7,3
121583-1003	6,8 - 8,3	6,5

Packaging unit 100 pcs.





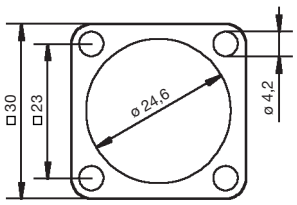
Flange Gasket

For Flange Receptacle, High Power 2-way

Order No.
075-8503-000 (-55/125°C)
075-8503-004 (-30/200°C)

Packaging unit 100 pcs.





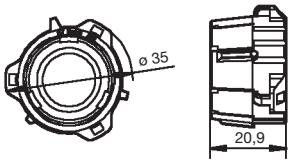
APD High Power 2-way, Accessories

Sealing Cap for Receptacle

Designation	Order No.
APD-DP	121583-0021

Packaging unit 100 pcs.



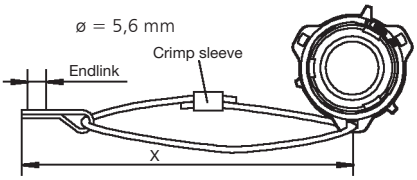


APD-DP with rope, end link and eyelet

X = Total rope length upon request

Order No.
120110-0026* X~9cm

* for other lengths please consult the factory



Adaptor for Flex Tube

For 2-way Plug and Receptacle

Order No.
980-8672-010 (ø 17 mm)

Packaging unit 100 pcs.
Nominal Width: 17



90° Endbell

For 2-way Plug and Receptacle

Order No.
980-8672-004

Packaging unit 100 pcs.



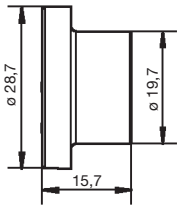
ø max. = 17,4 mm
thread = PG 16

Dust Cap for Plug

Order No.
025-8636-005

Packaging unit 100 pcs.



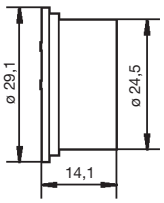


Dust Cap for Receptacle

Order No.
025-0480-000

Packaging unit 100 pcs.





Blind Socket

For 1 / 2 / 4 / 6 / 7-way

Order No.
120110-0217

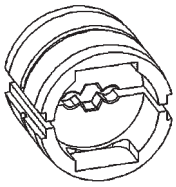
Packaging unit 100 pcs.
Note: All cavities closed, mates with 1-7-way APD versions.



Dimensions shown in mm
Specifications and dimensions subject to change

APD Tooling High Power, 2-way

Crimp Die Tooling for 2-way High Power Connectors

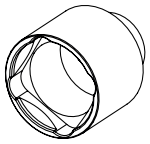


Contact / Socket	Designation	Order No.
031-8646-010 (6,00 mm^2) with individual wire seal	CT120090-165	120090-0165
031-8646-011 (10,00 mm^2)	CT120090-165	120090-0165
031-8646-002 (AWG 8)	CT120090-165	120090-0165
031-8646-003 (AWG 6)	CT120090-165	120090-0165
031-8646-001 (16,0 mm^2)	CT120090-171	120090-0171

Contact / Socket	Designation	Order No.
430-8645-000 (6,00 mm^2) with individual wire seal	CT120090-165	120090-0165
430-8645-009 (10,00 mm^2)	CT120090-165	120090-0165
430-8645-003 (AWG 8)	CT120090-165	120090-0165
430-8645-002 (AWG 6)	CT120090-165	120090-0165
430-8645-007 (16,0 mm^2)	CT120090-171	120090-0171

Assembly Tools Jam Nut Receptacle

Square box spanner for torque wrench to tighten the jam nut.

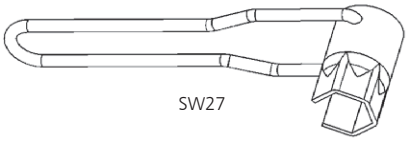


SW30

Order No.
317-8649-034

Assembly Tools Hexagonal Nut

To tighten the hexagonal fixing nut 217-8516-010.

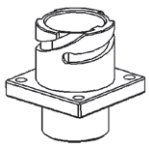


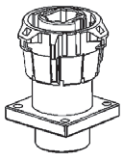
SW27

Designation	Order No.
SS627G	980-8672-005

Torque 2,5 +/- 0,5 Nm

Assembly and Torque Wrench Adapter

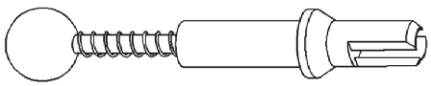




Designation	Order No.
MA-APD-1/2-P	248-8653-063
MA-APD-1/2-R	249-8619-010

1/4" adaption

Contract Extraction Tool



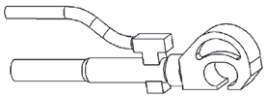
Designation	Order No.
CET- APD-2	121586-5149

for pin and socket contacts

Crimp Tool



Crimp Tool	Designation	Order No.
Hydraulic, hand operated:	HK120-25	121586-5077
Electro-hydraulic, 230 V AC operated	HK12-EL	121586-5075
Hand Crimp Tool 6 / 10 / 16 mm^2		121586-5244





Dimensions shown in mm
Specifications and dimensions subject to change

APD Technical Data, 4-way



APD 4-way connectors are the original DIN72585 (now ISO 15170) versions using a 2,5 mm contact system.

Designed for automotive applications they also meet the requirements of transportation, off-road and special vehicle markets.

Applications for the 4- and 7-way connector include:

- Sensors
- Traction / Skid Control
- Brake Control
- Magnetic Switch Control Systems
- Lightening systems on Trucks and Trailers

Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	5 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	50 Mating Cycles
Coupling Torque	1,2 Nm max.
Static Load, mated Connector	250 N axial, 150 N lat. (ISO 15170-2, Sec. 4.5)
Static Load, free connector	350 N (ISO 15170-2, Sec. 4.6)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 140 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 and IP 69k (DIN EN 60529)*
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*
Vibration Resistance	Sine, 300m/s², 3 x 100h, RT and 120°C (ISO 15170-2)*

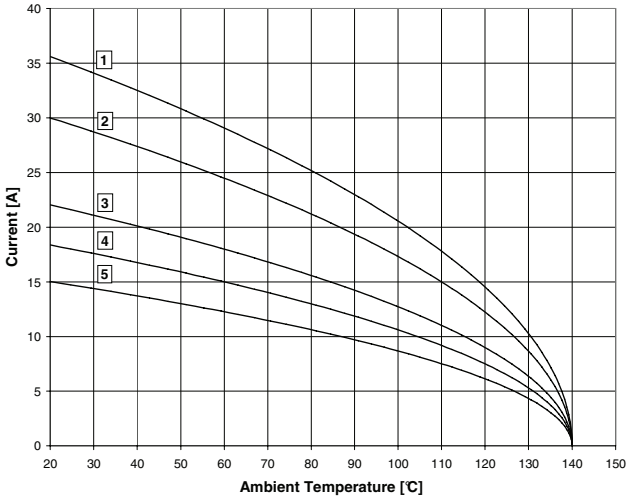
Materials List	
Housing Parts	PBT GF
Sealing Parts	HNBR (alternative FKM)
Coupling Nut	PA 66 GF
Contacts	Copper Alloy, Ag plated

* Further information available upon request.

Dimensions shown in mm
Specifications and dimensions subject to change

APD Plug, 4-way

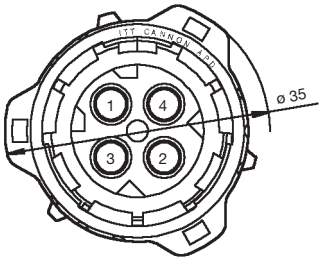
Derating Curve

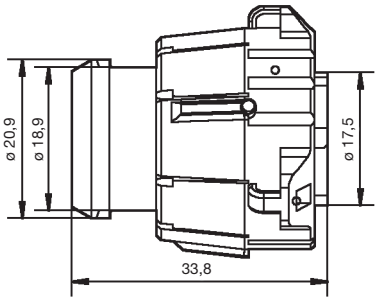


1: APK-_25-40/ 4,0mm²
2: APK-_25-25/ 2,5mm²
3: APK-_25-25/ 1,5mm²
4: APK-_25-10/ 1,0mm²
5: APK-_25-10/ 0,5mm²

Plug, 4-way







Order No.	Designation	Code	Color
121583-0000	APD-1BS-K2	1	black (RAL 9005)
121583-0001	APD-2BS-K2	2	grey (RAL 7036)
121583-0002	APD-3BS-K2	3	green (RAL 6029)
121583-0003	APD-4BS-K2	4	blue (RAL 5012)

Packaging unit 100 pcs.
Socket crimp contacts see page 32.
Accessories, see pages 32 and 33.

Coding, 4-way layouts

View on Mating Face


Code 1 black


Code 2 grey


Code 3 green

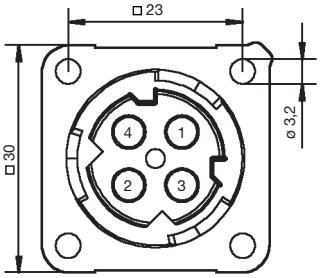

Code 4 blue

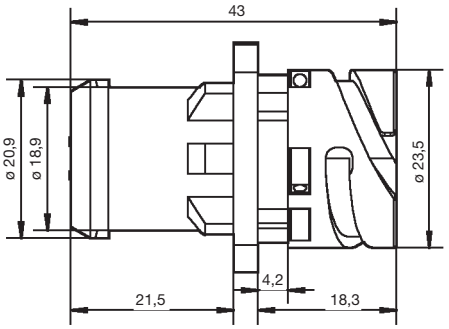
Note: The connectors offer both mechanical keying and visual coding by different colors.

APD Flange Receptacle, 4-way

Flange Receptacle, 4-way





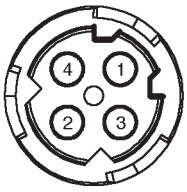


Order No.	Designation	Code	Color
121583-0004	APD-1AP-K2	1	black (RAL 9005)
121583-0005	APD-2AP-K2	2	grey (RAL 7036)
121583-0006	APD-3AP-K2	3	green (RAL 6029)
121583-0007	APD-4AP-K2	4	blue (RAL 5012)

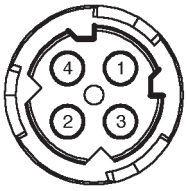
Packaging unit 100 pcs.
Pin crimp contacts see page 32.
Accessories, see pages 32 and 33.

Coding, 4-way layouts

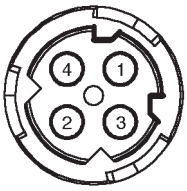
View on Mating Face



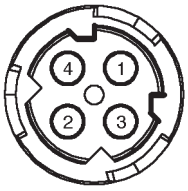
Code 1 black



Code 2 grey



Code 3 green

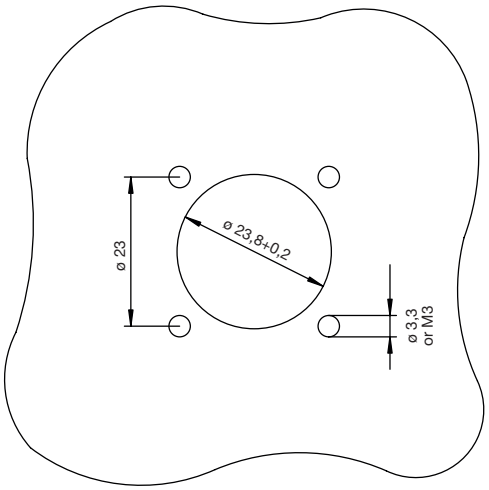


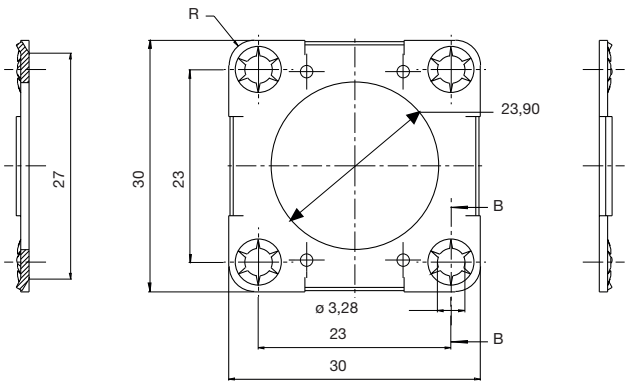
Code 4 blue

Note: The connectors offer both mechanical keying and visual coding by different colors.

Panel Cut Out

Flange for all Flange Receptacles





Order No.
066-8516-005

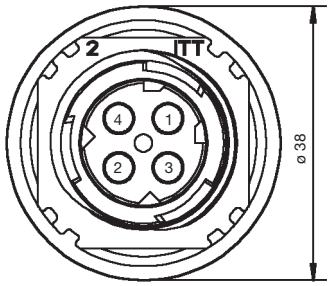
Note: Metal mounting flange for wall mounting of flange receptacle.

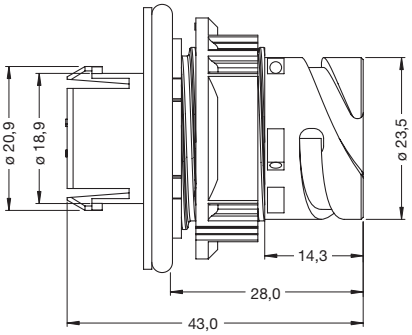
Dimensions shown in mm
Specifications and dimensions subject to change

APD Jam Nut Receptacle, 4-way

Jam Nut Receptacle, 4-way







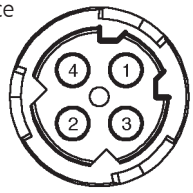
Order No.	Designation	Code	Color
121583-0008	APD-1CP-K2	1	black (RAL 9005)
121583-0009	APD-2CP-K2	2	grey (RAL 7036)
121583-0010	APD-3CP-K2	3	green (RAL 6029)
121583-0011	APD-4CP-K2	4	blue (RAL 5012)

Packaging unit 100 pcs.
Pin crimp contacts see page 32.
Accessories, see pages 32 and 33.

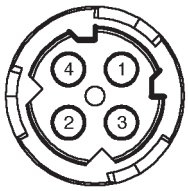
Note: Includes jam nut for wall thickness 1...4 mm.

Coding, 4-way layouts

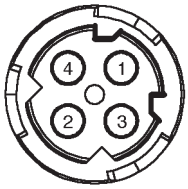
View on Mating Face



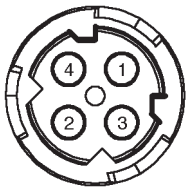
Code 1 black



Code 2 grey



Code 3 green

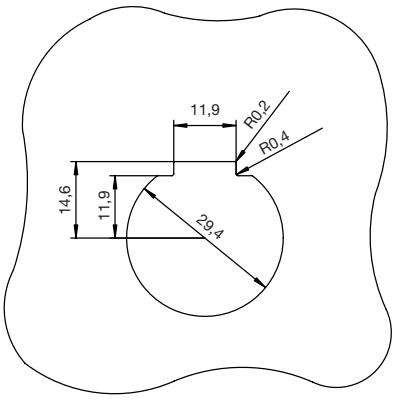


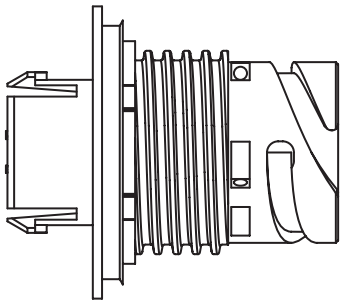
Code 4 blue

Note: The connectors offer both mechanical keying and visual coding by different colors.

Panel Cut Out

Piece Parts / Assembly Instruction




Housing


O-ring


Jam Nut

ø 20,9
□ 23

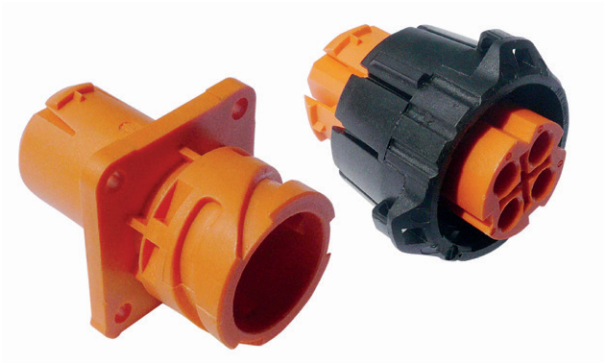
Wall Thickness: Standard Jam Nut: min. 1,0 / max. 4,0 mm Special Jam Nut: min. 2,0 / max. 5,0 mm

Jam Nut, special

Designation	Order No.
for special wall thickness 2,0 - 5,0 mm	217-8516-001

Dimensions shown in mm
Specifications and dimensions subject to change

APD Technical Data, 4-way High Voltage



APD 4-way connectors are the original DIN72585 (now ISO 15170) versions using a 2,5 mm contact system.

Designed for automotive applications they also meet the requirements of transportation, off-road and special vehicle markets. ITT has come up with a new high voltage version of the APD 4-way connector.

Applications for the 4-way connector include:

- Sensors
- Traction / Skid Control
- Brake Control
- Magnetic Switch Control Systems
- Lightening systems on Trucks and Trailers
- Electric Vehicles

Attention! Connector must not be disconnected under load!

VDE REG.–Nr. D587

Electrical Data	
Operating Voltage	500 V DC/AC*
Operating Current	see derating curve
Contact Resistance	5 mΩ max.
Voltage Proof	3500 VAC, 30 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	50 Mating Cycles
Coupling Torque	1,2 Nm max.
Static Load, mated Connector	250 N axial, 150 N lat. (ISO 15170-2, Sec. 4.5)
Static Load, free connector	350 N (ISO 15170-2, Sec. 4.6)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 140 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 and IP 69k (DIN EN 60529)*
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*
Vibration Resistance	Sine, 300m/s², 3 x 100h, RT and 120°C (ISO 15170-2)*

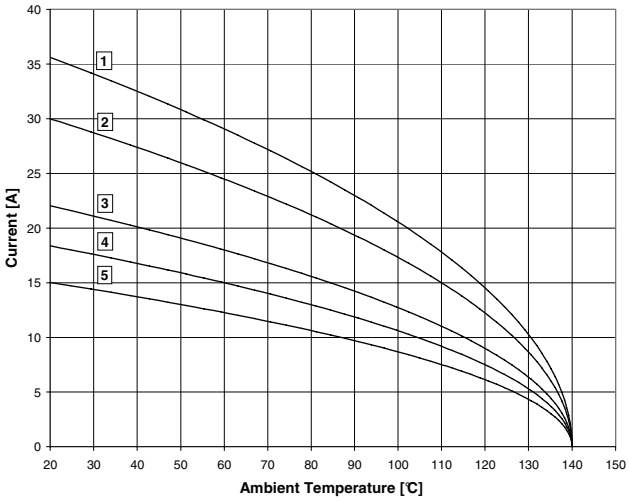
Materials List	
Housing Parts	PBT GF
Sealing Parts	HNBR (alternative FKM)
Coupling Nut	PA 66 GF
Contacts	Copper Alloy, Sn or Au plated

* Further information available upon request.

Dimensions shown in mm
Specifications and dimensions subject to change

APD Plug, 4-way High Voltage

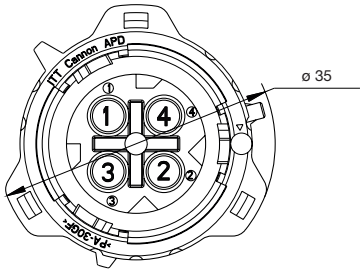
Derating Curve

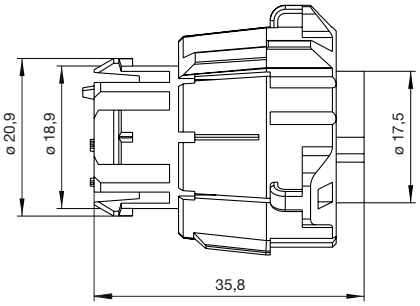


1: APK-_25-40/ 4,0mm²
2: APK-_25-25/ 2,5mm²
3: APK-_25-25/ 1,5mm²
4: APK-_25-10/ 1,0mm²
5: APK-_25-10/ 0,5mm²

Plug, 4-way High Voltage





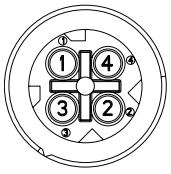


Order No.	Designation	Code	Color
121583-0213	APD-59BS-HV	5	orange (RAL 2003)
121583-0214	APD-69BS-HV	6	orange (RAL 2003)

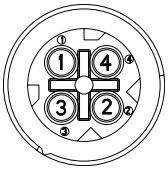
Packaging unit 100 pcs.
Socket crimp contacts see page 32.
Accessories, see pages 32 and 33.

Coding, 4-way layouts High Voltage

View on Mating Face



Code 5 orange



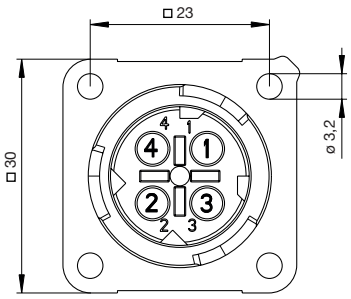
Code 6 orange

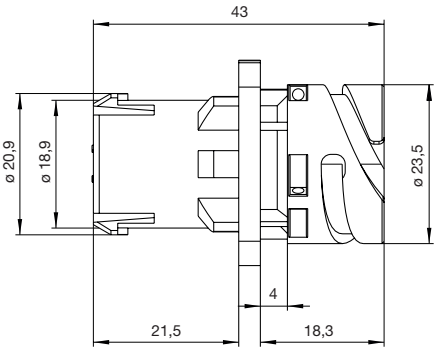
Note: The connectors offer both mechanical keying and visual coding by different colors.

APD Flange Receptacle, 4-way High Voltage

Flange Receptacle, 4-way High Voltage





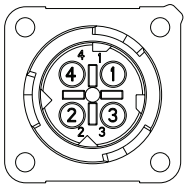


Order No.	Designation	Code	Color
121583-0215	APD-59AP-HV	5	orange (RAL 2003)
121583-0216	APD-69AP-HV	6	orange (RAL 2003)

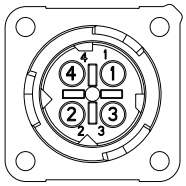
Packaging unit 100 pcs.
Pin crimp contacts see page 32.
Accessories, see pages 32 and 33.

Coding, 4-way layouts High Voltage

View on Mating Face



Code 5 orange

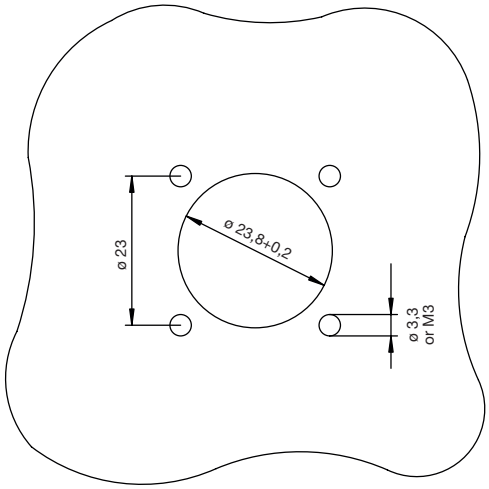


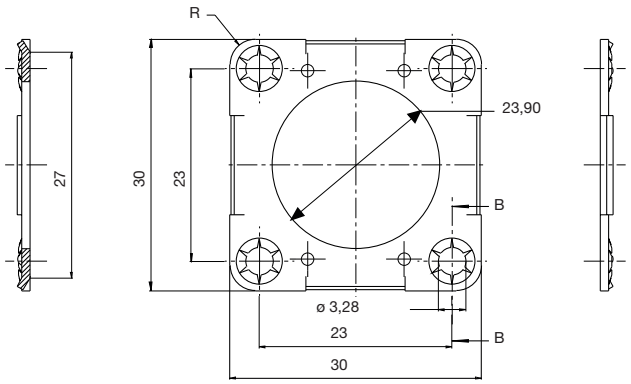
Code 6 orange

Note: The connectors offer mechanical keying.

Panel Cut Out

Flange for all Flange Receptacles





Order No.	
066-8516-005	Metal mounting flange for wall mounting of flange receptacle

Dimensions shown in mm
Specifications and dimensions subject to change

APD Contacts, Accessories 4-way

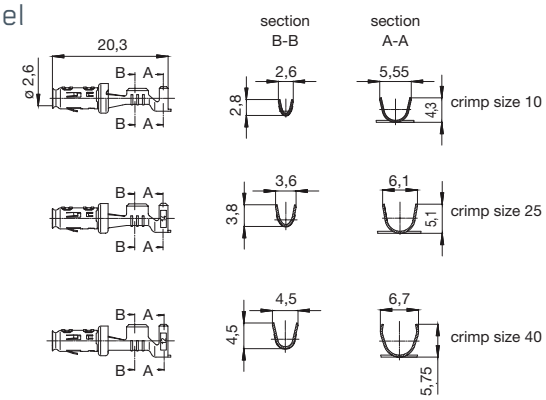
Socket Crimp-Contacts Standard Tinned, 3000 contacts per reel

Designation - Standard	Order No.
APK-SB25A10-002 (0,5 - 1,0 mm²)	121668-0125
APK-SB25A25-002 (1,5 - 2,5 mm²)	121668-0126
APK-SB25A40-002 (2,5 - 4,0 mm²)	121668-0127

Optional with Au-flash	Order No.
APK-SB25H10-002 (0,5 - 1,0 mm²)	121668-0022
APK-SB25H25-002 (1,5 - 2,5 mm²)	121668-0128
APK-SB25H40-002 (2,5 - 4,0 mm²)	121668-0124

Note: For versions with silver plating please consult factory.





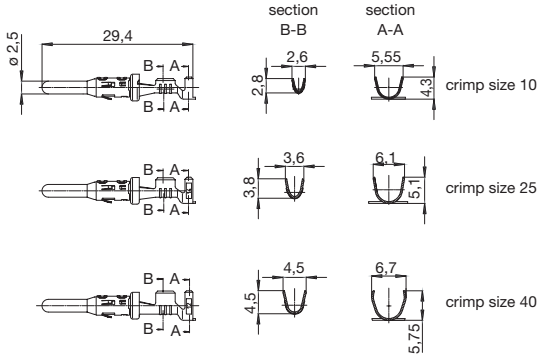
Pin Crimp-Contacts Standard Tinned, 3000 contacts per reel

Designation - Standard	Order No.
APK-PB25A10-002 (0,5 - 1 mm²)	121668-0026
APK-PB25A25-002 (1,5 - 2,5 mm²)	121668-0027
APK-PB25A40-002 (2,5 - 4,0 mm²)	121668-0028

Optional with Au-flash	Order No.
APK-PB25H10-002 (0,5 - 1 mm²)	121668-0021
APK-PB25H25-002 (1,5 - 2,5 mm²)	121668-0029
APK-PB25H40-002 (2,5 - 4,0 mm²)	121668-0025

Note: For versions with silver plating please consult factory





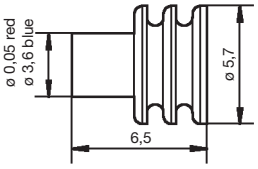
Individual Wire Seals

For all versions 4-way

Designation	Order No.
10RD5821 Wire insulation ø 1,4 - 2,0 mm / red	121668-0032
15BL5822 Wire insulation ø 2,1 - 2,9 mm / blue	121668-0033

Note: Packaging unit 5000 pcs.





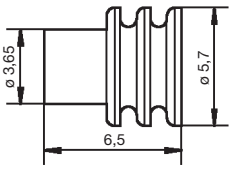
Wire Filler

For all versions 4-way

Designation	Order No.
15WH5823 white	121668-0034

Note: Packaging unit 5000 pcs.





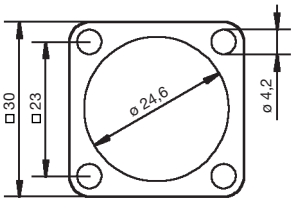
Flange Gasket

For Flange Receptacle, 4-way

Order No.
075-8503-000 (-55/125°C)
075-8503-004 (-30/200°C)

Note: Packaging unit 5000 pcs.





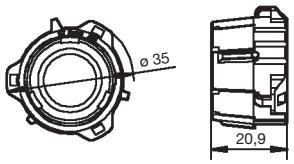
APD Accessories, 4-way

Sealing Cap for Receptacle

Designation	Order No.
APD-DP	121583-0021

Packaging unit 100 pcs.



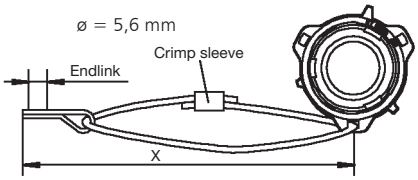


APD-DP with rope, end link and eyelet

X = Total rope length upon request

Order No.
120110-0026* X~9cm

* for other lengths please consult the factory

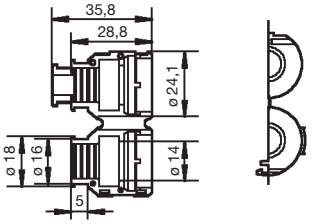


Straight Endbell for Flex Tube

Order No.
058-8578-100 (ø 8,5 mm)
058-8578-102 (ø 10,0 mm)

Packaging unit 100 pcs.



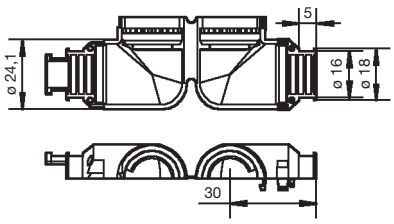


90° Endbell for Flex Tube

Order No.
058-8578-101 (ø 8,5 mm)
058-8578-103 (ø 10,0 mm)
058-8578-105 (ø 11,0 mm)

Packaging unit 100 pcs.



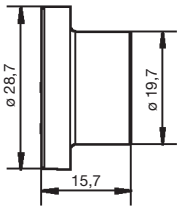


Dust Cap for Plug

Order No.
025-8636-005

Packaging unit 100 pcs.



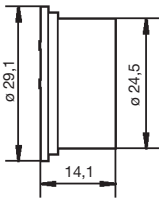


Dust Cap for Receptacle

Order No.
025-0480-000

Packaging unit 100 pcs.





Blind Socket

For 1 / 2 / 4 / 6 / 7-way

Order No.
120110-0217

Packaging unit 100 pcs.
Note: All cavities closed, mates with 1-7-way APD versions.



Dimensions shown in mm
Specifications and dimensions subject to change

APD Tooling, 4-way

Crimp and Assembly Tools for APK 25 Contacts

Contact / Socket	Designation	Order No.
APK-SB25A10-002 (0,5 - 1,0 mm^2)	CHT-APK-25-002-Seal	121586-5242
APK-SB25A25-002 (1,5 - 2,5 mm^2)	CHT-APK-25-002-Seal	121586-5242
APK-SB25A40-002 (2,5 - 4,0 mm^2)	CHT-APK-25-002-Seal	121586-5242

Contact / Pin	Designation	Order No.
APK-PB25A10-002 (0,5 - 1,0 mm^2)	CHT-APK-25-002-Seal	121586-5242
APK-PB25A25-002 (1,5 - 2,5 mm^2)	CHT-APK-25-002-Seal	121586-5242
APK-PB25A40-002 (2,5 - 4,0 mm^2)	CHT-APK-25-002-Seal	121586-5242

Quick Change Tool for above Crimp Machine: (Mini Applicator)

Contact / Socket	Designation	Order No. (to be mentioned on order)
APK-SB25A10-002 (0,5 - 1,0 mm^2)	WWZ.20-100-APK25-10-002	121586-5134
APK-SB25A25-002 (1,5 - 2,5 mm^2)	WWZ.20-100-APK25-25-002	121586-5135
APK-SB25A40-002 (2,5 - 4,0 mm^2)	WWZ.20-100-APK25-40-002	121586-5136
APK-SB25A40-002 (2,5 - 4,0 mm^2)	WWZ-Mecal-APK25-40-002	121586-5249

Contact / Pin	Designation	Order No. (to be mentioned on order)
APK-PB25A10-002 (0,5 - 1,0 mm^2)	WWZ.20-100-APK25-10-002	121586-5134
APK-PB25A25-002 (1,5 - 2,5 mm^2)	WWZ.20-100-APK25-25-002	121586-5135
APK-PB25A40-002 (2,5 - 4,0 mm^2)	WWZ.20-100-APK25-40-002	121586-5136
APK-PB25A40-002 (2,5 - 4,0 mm^2)	WWZ-Mecal-APK25-40-002	121586-5249



Contact Extraction Tool

Order No.	Designation
121086-3278	CET-APK25



APD Technical Data, 6/7-way



APD 6/7-way connectors are a derivate of the 4-way connector providing higher pin counts using a 1,6 mm connector system. They are available as versions with stamped and machined contacts.

Applications for the 6- and 7-way connector include:

- Sensors
- Traction / Skid Control
- Brake Control
- Magnetic Switch Control Systems
- Lightening systems on Trucks and Trailers

Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	5 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	50 Mating Cycles
Coupling Torque	1,2 Nm max.
Static Load, free connector	350 N (ISO 15170-2, Sec. 4.6)
Dynamic Impact	2 J (49mm- ball- drop- test, height 400mm)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 125 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 and IP 69k (DIN EN 60529)*
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*
Vibration Resistance	Sine, 200m/s², 3 x 100h, RT and 120°C (ISO 15170-2)*

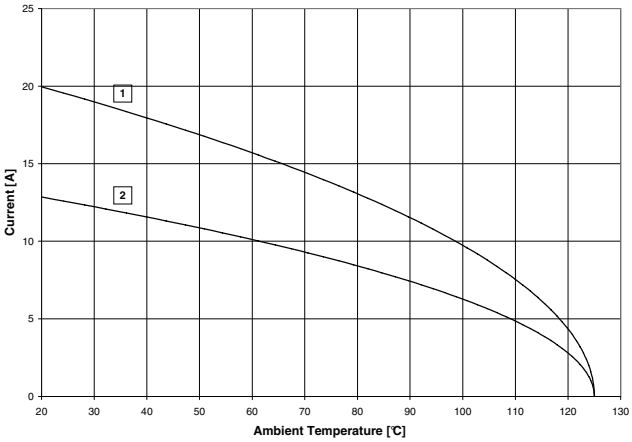
Materials List	
Housing Parts	PBT GF
Sealing Parts	HNBR (alternative FKM)
Coupling Nut	PA 66 GF
Contacts	Copper Alloy, Sn, Ag or Au plated*

* Further information available upon request.

Dimensions shown in mm
Specifications and dimensions subject to change

APD Plug, 6 /7-way

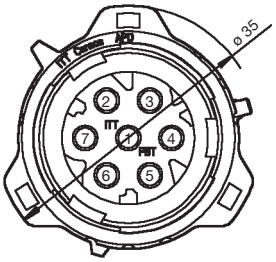
Derating Curve

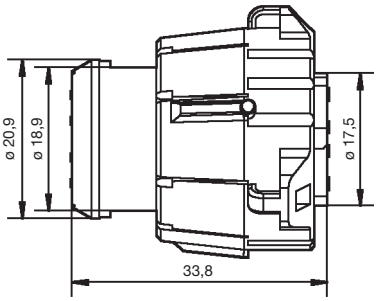


1: 1,5mm^2
2: 0,5mm^2

Plug, 6/7-way







	Order No.	Designation	Code	Color
6-way*	120110-0024	APD-1BS6	1	black (RAL 9005)
7-way	121583-0211	APD-14BS7	1	blue (RAL 5012)
7-way	121583-0018	APD-1BS7	1	black (RAL 9005)

Packaging unit 100 pcs.
Socket crimp contacts see page 39.

Accessories, see pages 39 and 40.
*contact cavity 1 closed

Coding, 6/7-way layouts



6-way



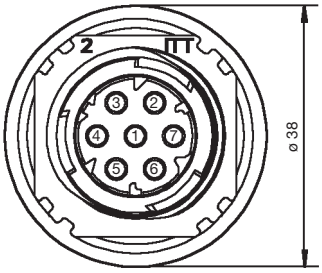
7-way

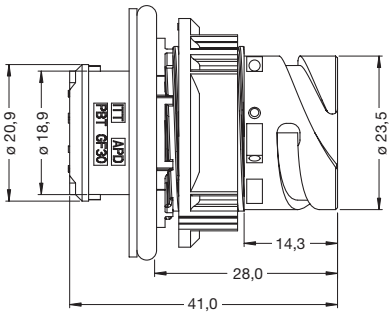
APD Jam Nut Receptacle, 6/7-way

Jam Nut Receptacle

6/7-way for standard contacts







	Order No.	Designation	Code	Color
6-way*	121583-0061	APD-1CP6	1	black (RAL 9005)
7-way	121583-0019	APD-1CP7	1	black (RAL 9005)

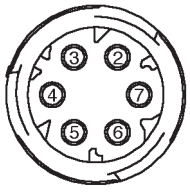
Packaging unit 100 pcs.

* Contact cavity 1 closed

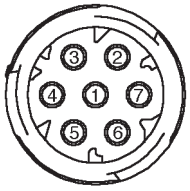
Jam Nut Receptacle

6/7-way for crimp press-in contacts

	Order No.	Designation	Code	Color
6-way	on request	-	-	-
7-way	121583-0028	APD-1CP7-EP	1	black (RAL 9005)



6-way



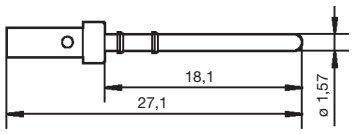
7-way

Press-in Crimp Contact

For Flange and
Jam Nut Receptacle



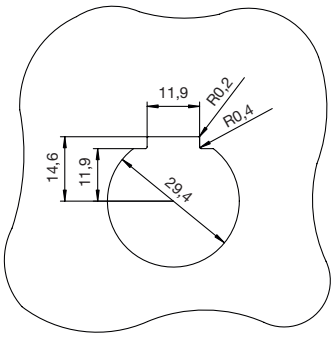
Order No.
330-8672-021 (tinned) (0,75 - 1,5 mm^2)
330-8672-019 (tinned) (0,35 - 0,75 mm^2)
with gold flash plating upon request



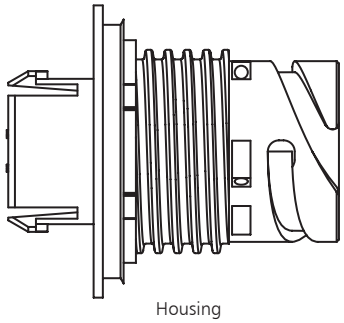
Packaging unit 100 pcs.
Note: Press-in Crimp Contacts are not removable after insertion.

Panel Cut Out

Flange for all Flange Receptacles



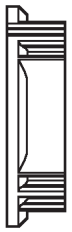
Wall Thickness: Standard Jam Nut:
min. 1,0 / max. 4,0 mm Special
Jam Nut: min. 2,0 / max. 5,0 mm



Housing



O-ring



Jam Nut

Jam Nut, special

Designation	Order No.
for special wall thickness 2,0 - 5,0 mm	217-8516-001

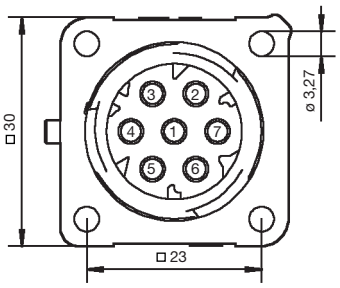
Dimensions shown in mm
Specifications and dimensions subject to change

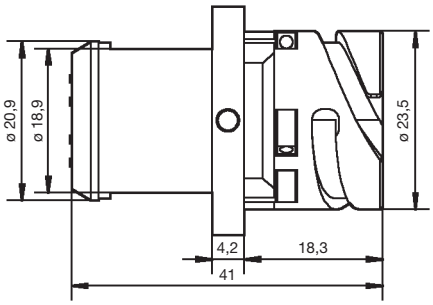
APD Flange Receptacle, 6/7-way

Flange Receptacle

6/7-way for standard contacts







	Order No.	Designation	Code	Color
7-way	121583-0020	APD-1AP7	1	black (RAL 9005)
7-way	121583-0212	APD-14AP7-EP	1	blue (RAL 5012)
6-way*	120110-0083	APD-1AP6	1	black (RAL 9005)

Packaging unit 100 pcs.
* Contact cavity 1 closed

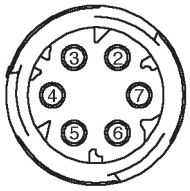
Flange Receptacle

6/7-way for crimp press-in contacts

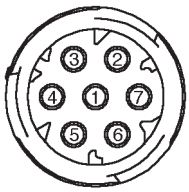
	Order No.	Designation	Code	Color
6-way*	120110-0020	APD-1AP6-EP	1	black (RAL 9005)
7-way	121583-0205	APD-1AP7-EP	1	black (RAL 9005)

Packaging unit 100 pcs.
* Contact cavity 1 closed

Pin crimp contacts see page 39.
Accessories, see pages 39 and 40.



6-way



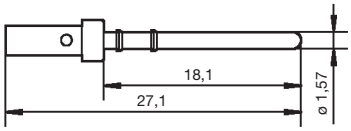
7-way

Press-in Crimp Contact

For Flange and
Jam Nut Receptacle



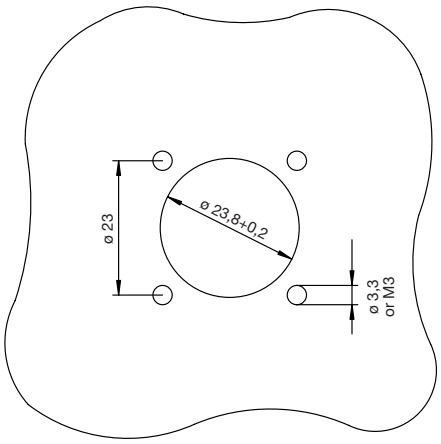
Order No.
330-8672-021 (tinned) (0,75 - 1,5 mm²)
330-8672-019 (tinned) (0,35 - 0,75 mm²)
with gold flash plating upon request

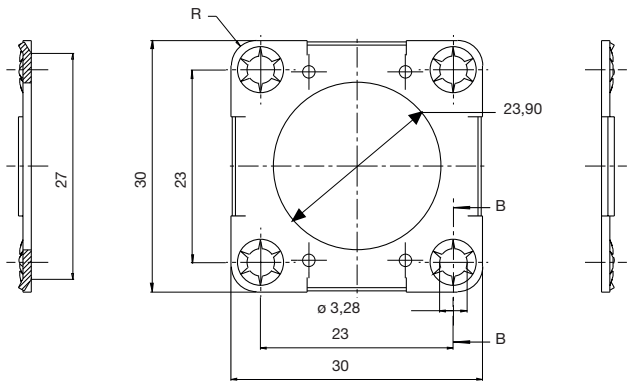


Packaging unit 100 pcs.
Note: Press-in Crimp Contacts are not removable after insertion.

Panel Cut Out

Flange for all Flange Receptacles





Dimensions shown in mm
Specifications and dimensions subject to change

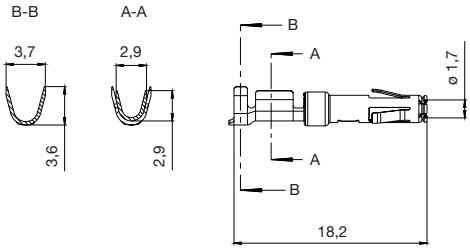
APD Contacts, Accessories, 6/7-way

Socket Crimp-Contacts 1,6 mm Standard Tinned

3000 contacts per reel

Order No.
192900-0001 (0,5 - 1,5 mm^2)
*192900-0003 Loose Piece Bulk Pack

* Crimp Tool - 121586-5237

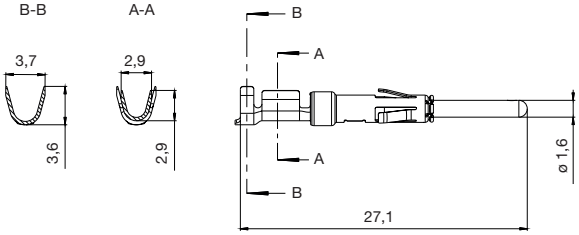


Pin Crimp-Contacts 1,6 mm Standard Tinned

3000 contacts per reel

Order No.
192900-0000 * (0,5 - 1,5 mm^2)
192900-0002 Loose Piece Bulk Pack

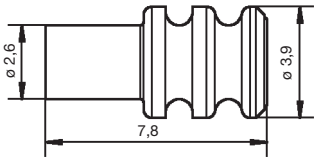
* Crimp Tool - 112108-0014



Individual Wire Seals

Designation	Order No.
Wire insulation ø 1,4 - 2,0 mm / grey	121667-0022
Wire insulation ø 1,9 - 2,1 mm / yellow	121667-0023
Wire insulation ø 1,2 - 1,6 mm / red	121667-0024

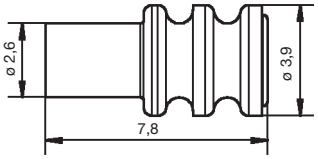




Wire Filler

Designation	Order No.
10WH3940	121667-0025



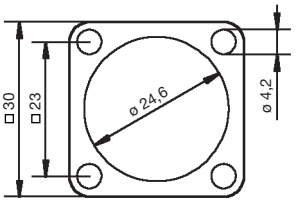


Gasket for all Flange Receptacles

Order No.
075-8503-000 (-55/125˚C)
075-8503-004 (-30/200˚C)

Packaging unit 100 pcs.





Blind Socket

For 1 / 2 / 4 / 6 / 7-way

Order No.
120110-0217

Packaging unit 100 pcs.
Note: All cavities closed, mates with 1-7-way APD versions.



Dimensions shown in mm
Specifications and dimensions subject to change

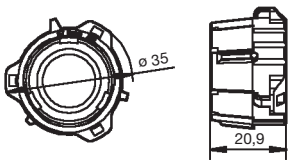
APD Accessories, 6/7-way

Sealing Cap for Receptacle

Designation	Order No.
APD-DP	121583-0021

Packaging unit 100 pcs.



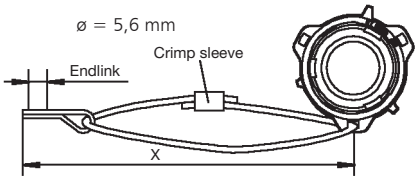


APD-DP with rope, end link and eyelet

X = Total rope length upon request

Order No.
120110-0026* X~9cm

* for other lengths please consult the factory

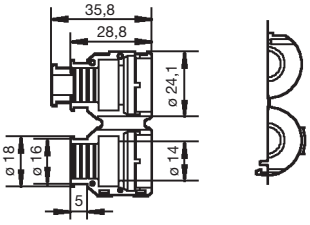


Straight Endbell for Flex Tube

Order No.
058-8578-100 (ø 8,5 mm)
058-8578-102 (ø 10,0 mm)

Packaging unit 100 pcs.



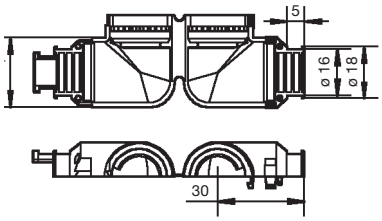


90° Endbell for Flex Tube

Order No.
058-8578-101 (ø 8,5 mm)
058-8578-103 (ø 10,0 mm)
058-8578-105 (ø 11,0 mm)

Packaging unit 100 pcs.



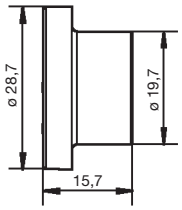


Dust Cap for Plug

Order No.
025-8636-005

Packaging unit 100 pcs.



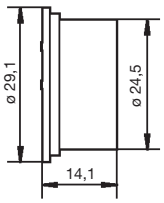


Dust Cap for Receptacle

Order No.
025-0480-000

Packaging unit 100 pcs.





APD Tooling for 6/7-way

Hand Tool for formed (stamped contacts)



Contact Pin	Contact Socket	Designation	Order No. (to be mentioned on order)
192990-0100	192990-0110	CHT-Trident-16-18	121586-5237
192900-0446	192900-0450	CHT-Trident-16-18	121586-5237
192990-0060	192990-0070	CHT-Trident-16-18	121586-5237
192900-0002	192990-0003	CHT-Trident-16-18	121586-5237

Quick Change Tool for above Crimp Machine: (Mini Applicator)



Contact / Socket and Pin	Designation (to be mentioned on order)	Order No.
192900-0001 (socket) (0,75 - 1,5 mm^2)	WWZ-Mecal-16-18-EVS	121586-5217
192900-0000 (pin) (0,75 - 1,5 mm^2)	WWZ-Mecal-16-18-EVS	121586-5217

Contact Extraction Tool

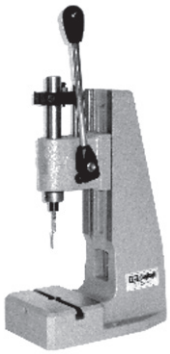


Description	Order No.
Trident Extraction Tool	192922-1450

Wire Insulation Stripping length: 4,5 mm

Crimp and assembly Tools for press in contacts





Basic - Hand Crimp Tool	Order No.
M22520-1-01	995-0001-585
Turret	120190-0163

Insertion Tool	Order No.
CIT-APD 16-TIP	317-8648-008

Hand Lever - Press	Order No.
CHPZ-240	121586-0081

Ragged Tool	Order No.
Ragged Tool	192990-7600

Dimensions shown in mm
Specifications and dimensions subject to change

APD Sensor Connectors



APD Sensor connectors are special 1-4-way versions based on the ISO 15170 4-way layout.

They are designed to be directly adapted to sensor housing and typically customized versions.

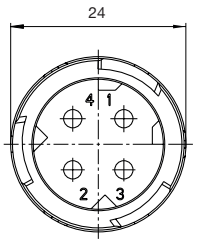
The offering includes several basic versions / variations for pressure sensoring and options for flow solder and crimp contacts.

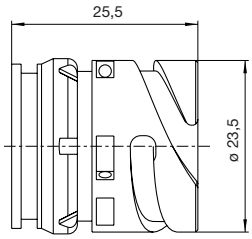
Typical Applications include:

- Pressure Sensoring (absolute and relative)
- Temperature Sensoring
- Humidity Sensoring

Sensor Connectors, Style 1





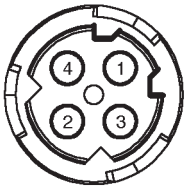


Order No.	Code	Contact Cavity closed no.	Color
248-8653-031	1	3 + 4	black (RAL 9005)
248-8653-053	2	3 + 4	grey (RAL 7036)
248-8653-105	1	4	black (RAL 9005)
248-8653-106	1	-	black (RAL 9005)
248-8653-134	4	2 + 4	blue (RAL 5012)

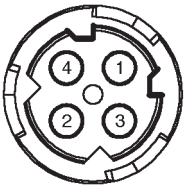
Consult factory for customized versions.
Note: Mate with APD 4-way plug.

Coding, Basic layouts*

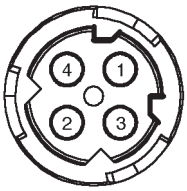
View on Mating Face



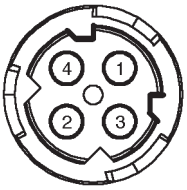
Code 1 black



Code 2 grey



Code 3 green

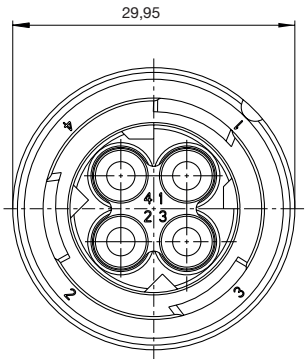


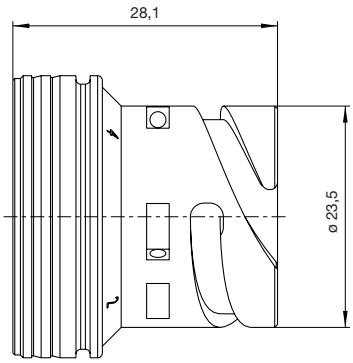
Code 4 blue

Note: The connectors offer both mechanical keying and visual coding by different colors.
* Versions with closed cavities are not shown.

Sensor Connectors, Style 2







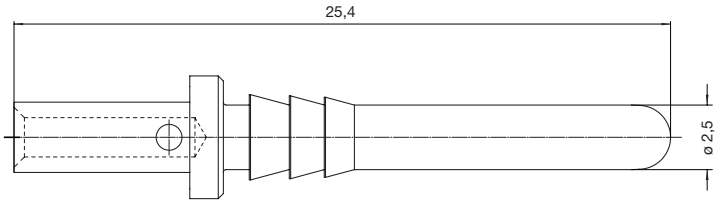
* Pictures and drawings shown are examples.

Consult factory for details. Products can be supplied with:

- Codings 1, 2, 3 and 4
- Partially closed cavities
- Ventilation pin for absolute pressure application

Contacts (machined)





- 2,5 mm contact diameter
- PCB versions available
- Press-in types

Order Design	Order No.	Crimp Wire Size
AP120110-13	120110-0013	0,15 - 0,38 mm^2
AP120110-11	120110-0011	0,5 - 1,0 mm^2
AP120110-14	120110-0014	0,75 - 1,5 mm^2

Dimensions shown in mm
Specifications and dimensions subject to change

APD Technical Data, 19-way



APD 19-way is the latest addition to ITT's APD connector range. Based on ISO 15170 it adds additional features to the standard harsh environment capabilities.

Secondary lock, adaptation of market available standard accessories and ease of assembly and disassembly not demanding any special tooling characterize this connector. Moreover, APD 19 is set up around a flexible design platform which allows for customized solutions up to 27 contacts.

Applications for the 19-way include:

- Sensors
- Traction / Skid Control
- Brake Control
- Magnetic Switch Control Systems
- Lightening systems on Trucks and Trailers

Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	5 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	50 Mating Cycles
Coupling Torque	3,5 Nm max.
Static Load, free connector	250 N axial, 150 N lat. (ISO 15170-2, Sec. 4.5)
Dynamic Impact	Free fall with cable (EN 61984 Sec. A9, height 1m)

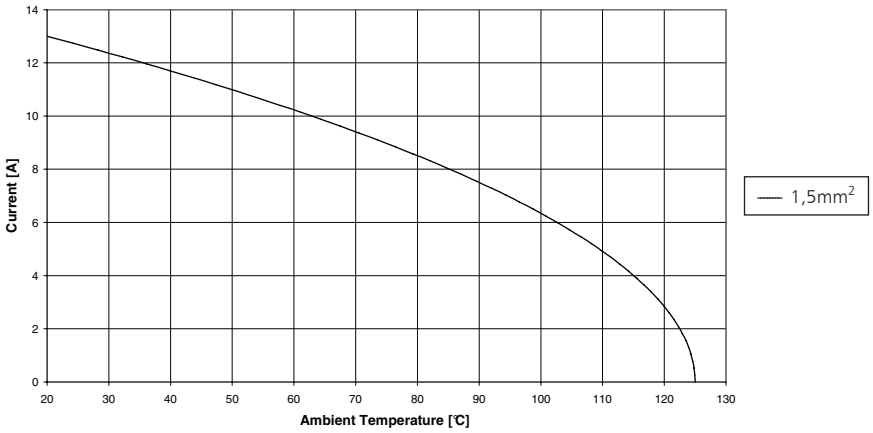
Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 125 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 + IP 69k (DIN EN 60529)
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*
Vibration Resistance	Sine, 300m/s², 3 x 100h, RT and 120°C (ISO 15170-2)*

Materials List	
Housing Parts	PBT GF
Sealing Parts	FKM
Coupling Nut	PA 46 GF
Contacts	Copper Alloy, Au, Ag or Sn plated*

* Further information available upon request.

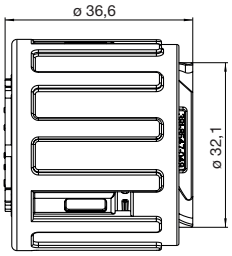
APD Plug, 19-way

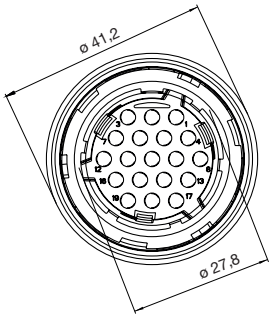
Derating Curve



Plug, 19-way



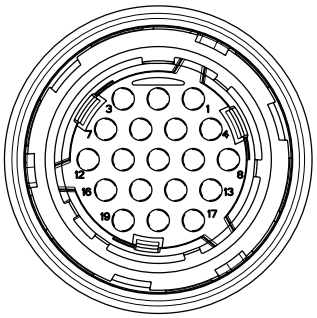




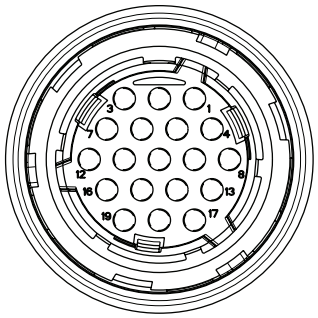
Order No.	Designation	Code	Color
121583-0119	APD-1BS19S	1	black (RAL 9005)
121583-0121	APD-2BS19S	2	grey (RAL 7036)
121583-0123	APD-3BS19S	3	green (RAL 6029
121583-0125	APD-4BS19S	4	blue (RAL 5012)

Packaging unit 50 pcs.
Note: Each packaging unit includes one release tool.
Socket crimp contacts see page 49.
Accessories, see pages 50, 51, and 52.

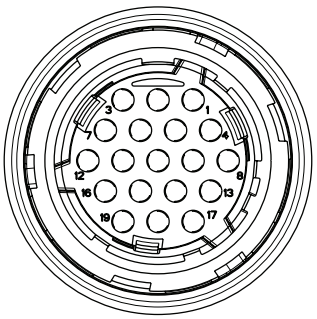
Coding, 19-way layouts



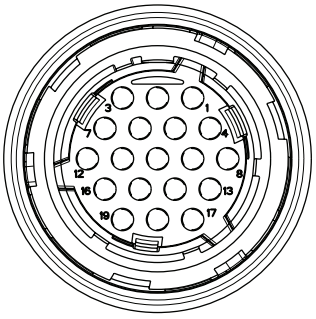
Code 1 black



Code 2 grey



Code 3 green

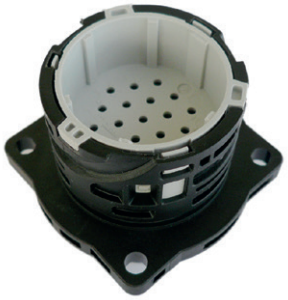


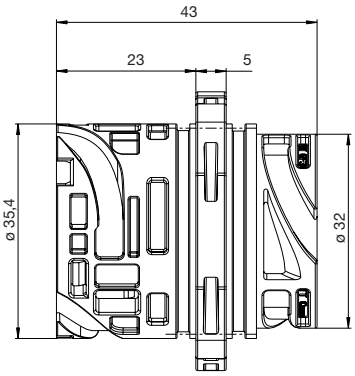
Code 4 blue

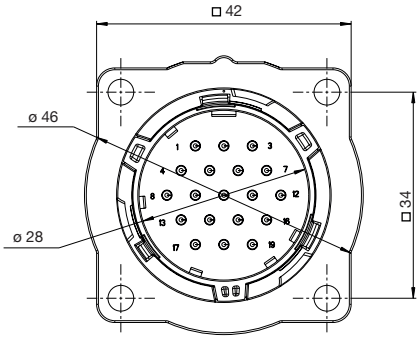
Dimensions shown in mm
Specifications and dimensions subject to change

APD Flange Receptacle, 19-way

Flange Receptacle, 19-way







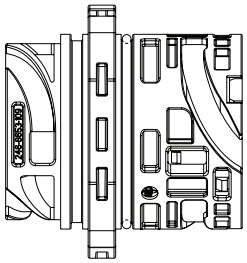
Order No.	Designation	Code	Color
121583-0120	APD-1AP19S	1	black (RAL 9005)
121583-0122	APD-2AP19S	2	grey (RAL 7036)
121583-0124	APD-3AP19S	3	green (RAL 6029)
121583-0126	APD-4AP19S	4	blue (RAL 5012)

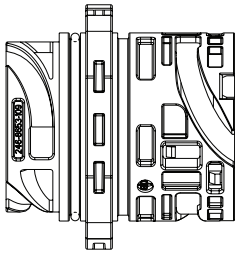
Version with o-ring for rear panel mounting:

Order No.	Designation	Code	Color
121583-0127	APD-1AP19S-R	1	black (RAL 9005)
121583-0129	APD-2AP19S-R	2	grey (RAL 7036)
121583-0131	APD-3AP19S-R	3	green (RAL 6029
121583-0133	APD-4AP19S-R	4	blue (RAL 5012)

Version with o-ring for front panel mounting:

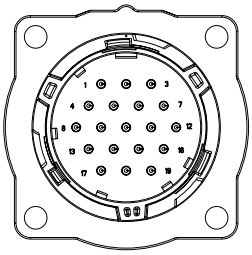
Order No.	Designation	Code	Color
121583-0128	APD-1AP19S-F	1	black (RAL 9005)
121583-0130	APD-2AP19S-F	2	grey (RAL 7036)
121583-0132	APD-3AP19S-F	3	green (RAL 6029
121583-0134	APD-4AP19S-F	4	blue (RAL 5012)

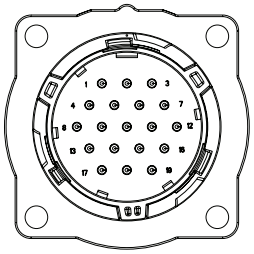


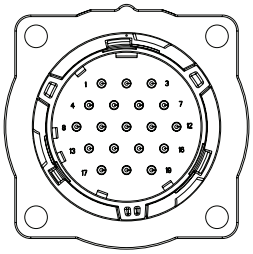


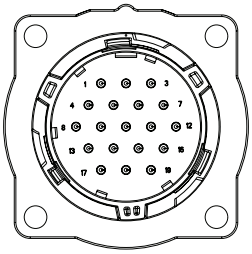
Packaging unit 50 pcs.
Note: Each packaging unit includes one release tool.
Pin crimp contacts see page 49.
Accessories, see pages 50, 51, and 52.

Coding, 19-way layouts

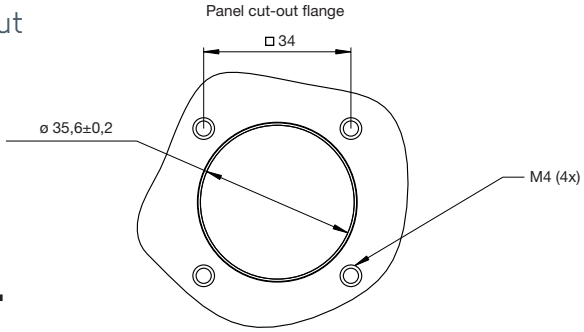

Code 1 black


Code 2 grey


Code 3 green


Code 4 blue

Panel Cut Out

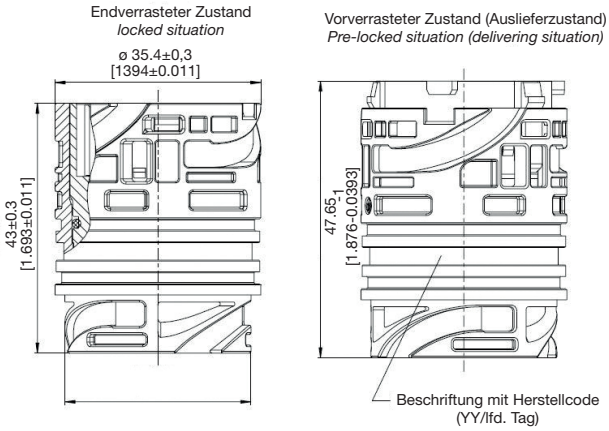


Dimensions shown in mm
Specifications and dimensions subject to change

APD Wire-to-Wire Receptacle, 19-way

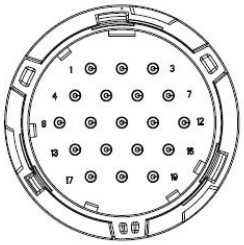
Wire-to-Wire Receptacle, 19-way



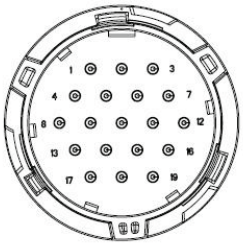


Order No.	Designation	Code	Color
121583-0135	APD-1BP19S	1	black (RAL 9005)
121583-0136	APD-2BP19S	2	grey (RAL7036)

Coding, 19-way layouts



Code 1 black

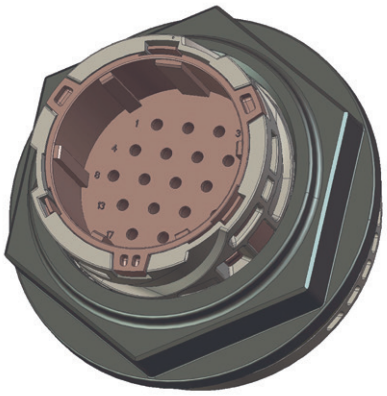


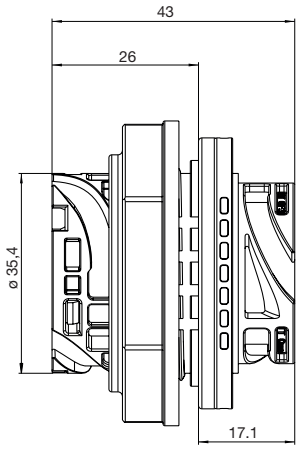
Code 2 grey

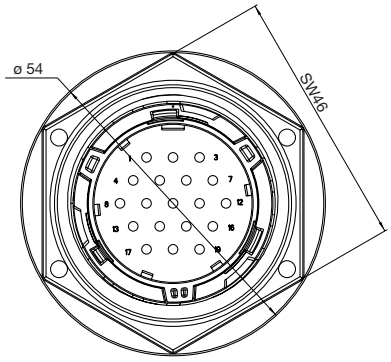
Dimensions shown in mm
Specifications and dimensions subject to change

APD Jam Nut Receptacle, 19-way

Jam Nut Receptacle, 19-way







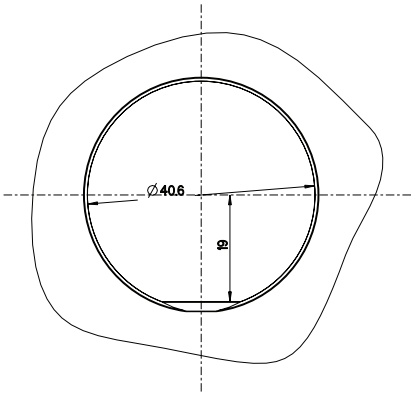
Order No.	Designation	Code	Color
Consult Factory	APD-1CP19S	1	black (RAL 9005)
Consult Factory	APD-2CP19S	2	grey (RAL 7036)
Consult Factory	APD-3CP19S	3	green (RAL 6029
Consult Factory	APD-4CP19S	4	blue (RAL 5012)

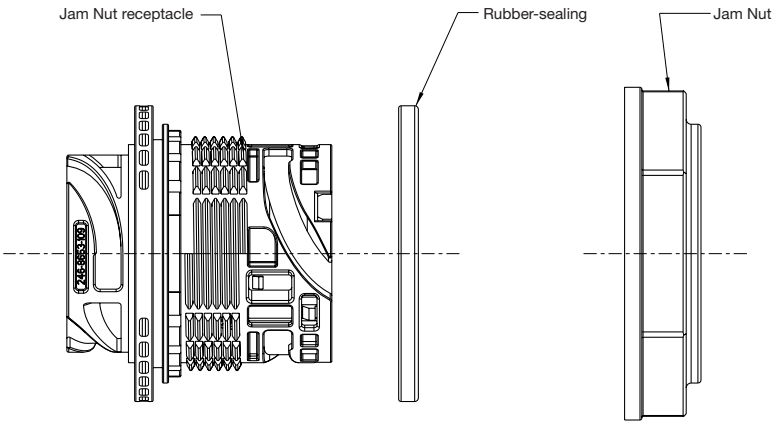
Packaging unit 50 pcs.
Note: Each packaging unit includes one release tool.
Pin crimp contacts see page 49.
Accessories, see pages 50, 51, and 52.

Coding, 19-way layouts

Keying positions: See coding, 19-way layouts plug or flange receptacle.

Panel Cut Out





Contacts / Seals, 19-way

Contacts



- Low contact resistance (max. 5mΩ) for maximum signal integrity
- Current carrying capacity: 12A max.
- Machined press-in contacts. (other machined contacts available on request)
- Silver plating, please consult factory

For 19-way

Contacts (stamped & formed)	Plating	Crimp Range	Reeled (5000 pcs)		Loose Piece (bags of 100)	
			Designation	Part number	Designation	Part number
Socket contacts	tin	0,35 - 0,75 mm²	APK-SA16A07-002	121668-0221	APK-SA16A07-002-B	121668-0274
		0,75 - 1,5 mm²	APK-SA16A15-002	121668-0202	APK-SA16A15-002-B	121668-0276
	gold (0,8 µm)	0,35 - 0,75 mm²	APK-SA16G07-002	121668-0270	APK-SA16G07-002-B	121668-0278
		0,75 - 1,5 mm²	APK-SA16G15-002	121668-0272	APK-SA16G15-002-B	121668-0280
Pin contacts	tin	0,35 - 0,75 mm²	APK-PA16A07-002	121668-0252	APK-PA16A07-002-B	121668-0275
		0,75 - 1,5 mm²	APK-PA16A15-002	121668-0253	APK-PA16A15-002-B	121668-0277
	gold (0,8 µm)	0,35 - 0,75 mm²	APK-PA16G07-002	121668-0269	APK-PA16G07-002-B	121668-0279
		0,75 - 1,5 mm²	APK-PA16G15-002	121668-0271	APK-PA16G15-002-B	121668-0281

Press-In Contacts

Contacts (stamped & formed)	Plating	Crimp Range	Reeled		Single piece	
			Designation	Part number	Designation	Part number
Pin contacts	tin	0,3 - 0,6 mm²	-	-	APK-PA16A06-E	Consult Factory
	gold (0,8 µm)	0,3 - 0,6 mm²	-	-	APK-PA16G06-E	Consult Factory
		0,5 - 1,0 mm²	-	-	APK-PA16G10-E	Consult Factory
		1,0 - 1,5 mm²	-	-	APK-PA16G15-E	Consult Factory

Individual Wire Seals / Blind Seals

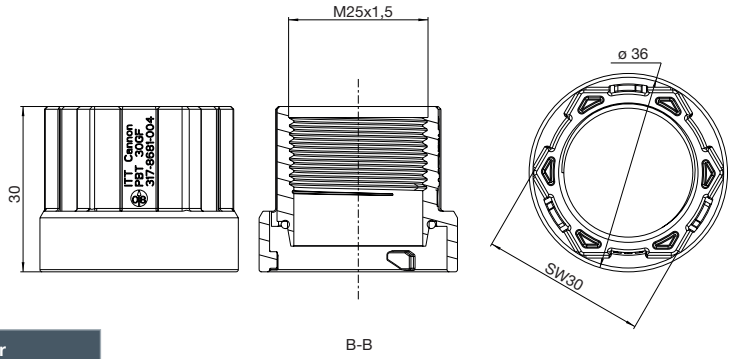
Description	Insulation Diameter	Color	Part number
Single Wire Sealing	1,2 - 1,6 mm	Red	121667-0024
	1,4 - 2,0 mm	Grey	121667-0022
	1,9 - 2,1 mm	Yellow	121667-0023
Blind Seal	1,4 - 2,0 mm	White	121667-0025

Dimensions shown in mm
Specifications and dimensions subject to change

APD Accessories, 19-way

Endbell, 19-way





Order No.	Designation	Color
044-8597-002	Enbell for APD 19 version only	black (RAL 9005)

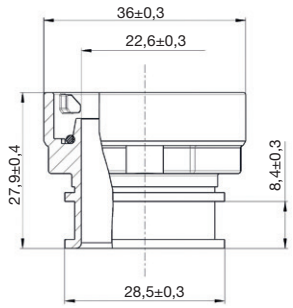
Endbell Adapter, 19-way

For the use of standard 90° / Straight conduit accessories

Order No.
044-8597-004*

* Can be used in combination with PN 980-8672-034. Further adapters available upon request

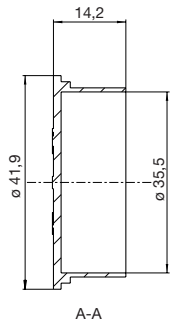




Dust Cap for Plug

Order No.
025-8636-053

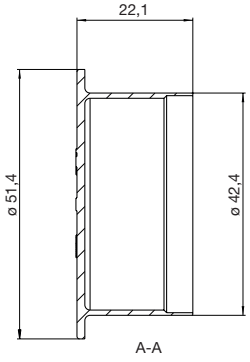




Dust Cap for Receptacle

Order No.
025-0487-000

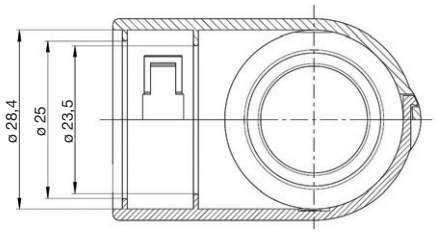


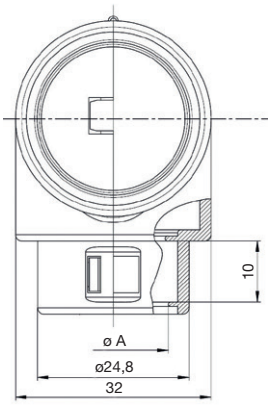


Dimensions shown in mm
Specifications and dimensions subject to change

90° Endbell for Flex Tube







Order No.	Designation	Color	ø A	Nominal Dimension of Conduit
980-8672-034	90° Endbell Adapter	black	18	17
980-8672-035	90° Endbell Adapter	black	14	13

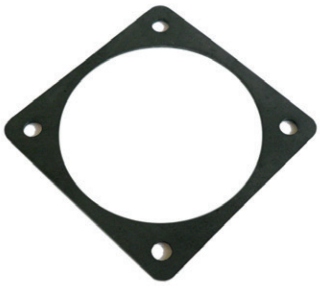
Packaging unit 100 pcs.

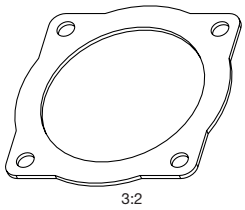
Dimensions shown in mm
Specifications and dimensions subject to change

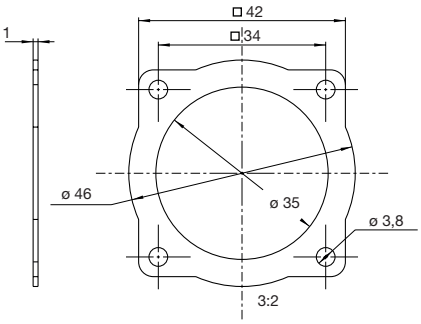
Accessories, 19-way

Flange Gasket, 19-way

Order No.
075-8566-003







Conduit Adaptors, 19-way

Order No.	Designation
980-8672-015	90°, M25, NW23
980-8672-016	Straight, M25, NW17
980-8672-018	Elbow, M25, NW17
980-8672-020	45°, M25, NW23

All versions in black color.



Clamping Bracket

Order No.	Designation
980-8672-021	NW17

All versions in black color.



Conduit Splitters, 19-way

Order No.	Designation
980-8672-017	Y-Splitter 17X17X23
980-8672-019	T-Splitter 17X17X17

All versions in black color.



Note: Other versions available, consult factory for more information.

Tooling, 19-way

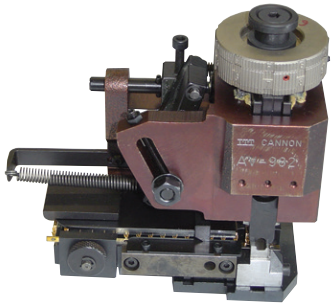
Hand Crimp Tool for Stamped and Formed Contacts

Contact	Hand Tool	Crimp Die
0,35 - 0,75 mm^2	121586-5156	121586-5260
0,75 - 1,5 mm^2	121586-5156	121586-5197



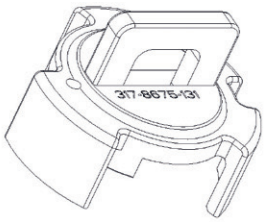
Mini Applicator for Stamped and Formed Contacts

Contact	Order No.	Designation
0,35 - 0,75 mm^2	121586-5131	WWZ-20-100-APK16-07-002
0,75 - 1,5 mm^2	121586-5132	WWZ-20-100-APK16-15-002

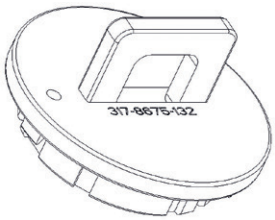


Support Tools, 19-way

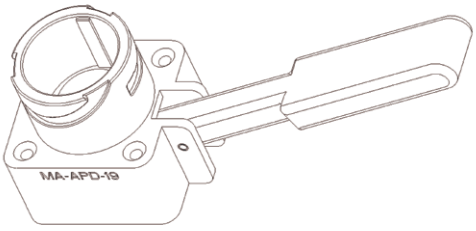
Designation	Order No.*
Release tool, secondary lock, plug	121586-5235
Release tool, secondary lock, receptacle	121586-5234



Assembly Adaptor	Order No.
MA-APD-19	Consult Factory



Locking tool for 19-way plug connectors



Dimensions shown in mm
Specifications and dimensions subject to change

Tooling, 19-way

Hand Crimp Tool for Press-in Contacts

Basic Hand Crimp Tool	Order No.
M225201/1-01	995-0001-585

Locator	Order No.
M225201/1-05	95-0001-507



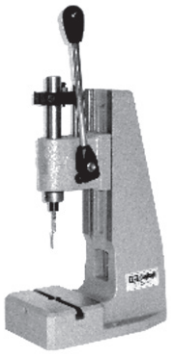
Automatic Crimp Tooling for Press-in Contacts

Designation	Order No.	Description
WAZ7F-CE	121586-5067	Pneumatic Tool
M22501/1-05	995-0001-507	Locator
BM-2	121586-5068	Bench Mount
WA-10	121586-5069	Food Pedal



Assembly Tooling for Press-in Contacts

Designation	Order No.	Description
CHPZ-240	121586-0081	Hand Lever Press
CIT-APD16-TIP	317-8648-008	Mounting Tip



APD Technical Data, 37-way*





APD 37-way is a highly reliable, cost effective multi-pin connector with signal contacts (multi-layout power / signal on demand). It offers wire-to-wire and wire-to-board connection solutions. Derived from ISO 15170, the connector is dedicated for harsh environmental usage. Various customer specific designs (e.g. different coding) are possible.

Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	5 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

Mechanical Data	
Durability	20 Mating Cycles
Coupling Torque	4 Nm max.
Static Load, free connector	250 N axial, 150 N lat. (ISO 15170-2, Sec. 4.5)
Dynamic Impact	Free fall with cable (EN 61984 Sec. A9, height 1m)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 125 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 + IP 69k (DIN EN 60529)
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*
Vibration Resistance	Sine, 300m/s², 3 x 100h, RT and 120°C (ISO 15170-2)*

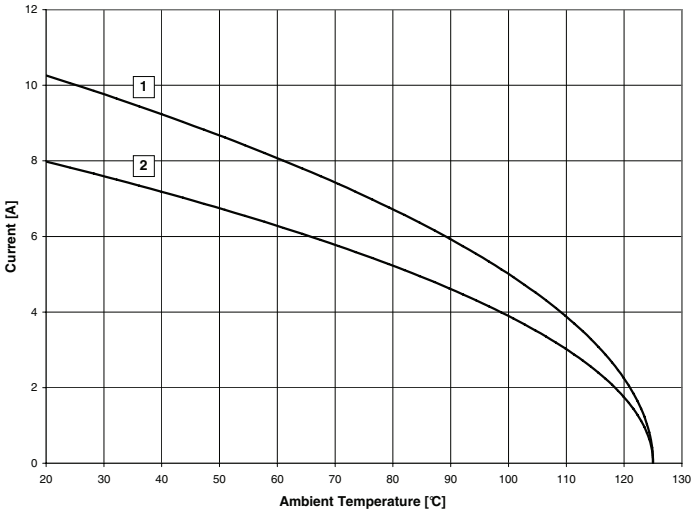
Materials List	
Housing Parts	PA 66 GF
Sealing Parts	FKM (alternative FVMQ)
Coupling Nut	PA 6 GF
Contacts	Copper Alloy, Au or Sn plated*

* Further information available upon request.

Dimensions shown in mm
Specifications and dimensions subject to change

APD Plug, 37-way

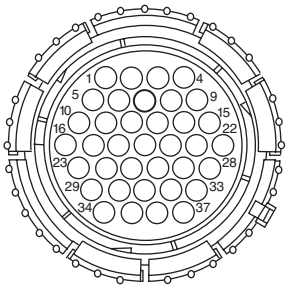
Derating Curve

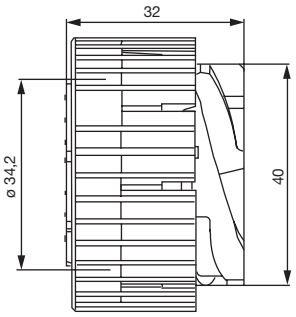


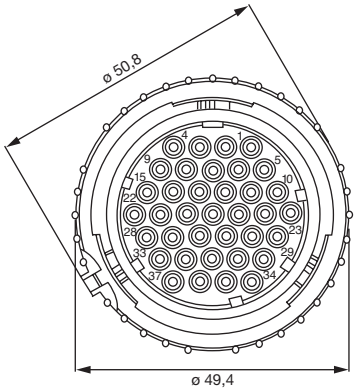
1: 1,0mm²
2: 0,75mm²

Plug, 37-way







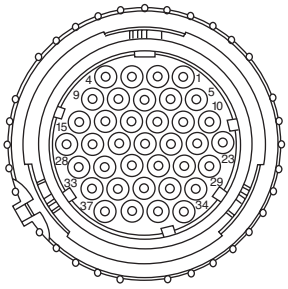


Order No.	Designation	Code	Color
121583-0058	APD-1BS37	1	black (RAL 9005)

Packaging unit 100 pcs.
Socket crimp contacts see page 58.
Accessories, see pages 58 and 59.

Coding 37-way layout

View on Mating Face

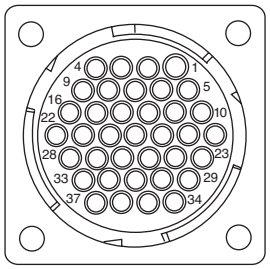


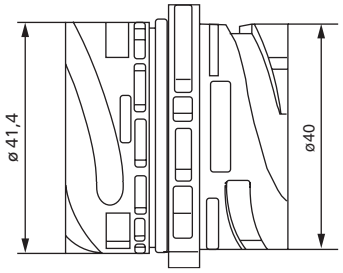
Note: Additional coding on demand.

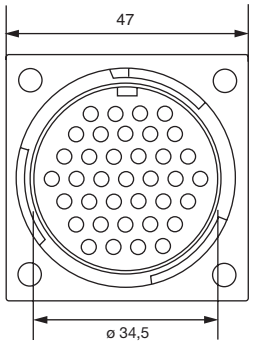
APD Flange Receptacle, 37-way

Flange Receptacle, 37-way









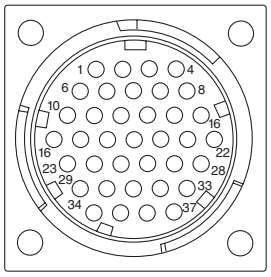
Order No.	Designation	Code	Color	Comment
249-8619-017	APD-1AP37-R	1	black (RAL 9005	with O-ring
248-8653-026	APD-1AP37	1	black (RAL 9005	without O-ring

Packaging unit 100 pcs.
Pin crimp contacts see page 58.

Accessories, see pages 58 and 59.
Note: Requires use of alignment disc.

Coding 37-way layout

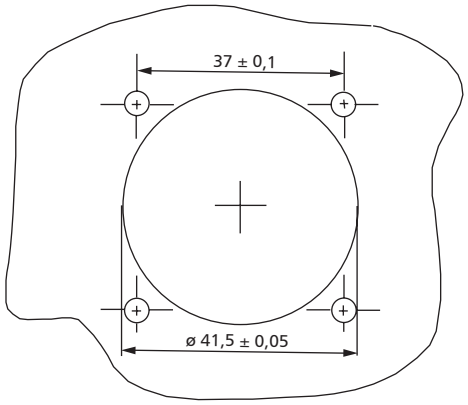
View on Mating Face

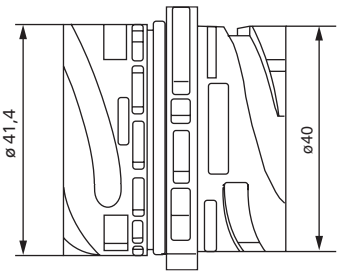


Note: Additional coding on demand.

Panel Cut Out

Flange for all Flange Receptacles





Note: Dimension if used as version with radial o-ring seal (249-8619-017).

Dimensions shown in mm
Specifications and dimensions subject to change

APD Contacts / Accessories, 37-way

Contacts



- Low contact resistance (max. 5mΩ) for maximum signal integrity
- Current carrying capacity: 12A max.
- Machined press-in contacts. (other machined contacts available on request)
- Silver plating, please consult factory

For APD 37-way

Contacts (stamped & formed)	Plating	Crimp Range	Reeled 5000 pcs/reel	
			Designation	Part number
Socket contacts	tin	0,35 - 0,75 mm²	APK-SA16A07-002-C	121668-0220
		0,75 - 1,50 mm²	APK-SA16A15-002-C	121668-0222
	gold (0,8 µm)	0,35 - 0,75 mm²	APK-SA16G07-002-C	121668-0266
		0,75 - 1,50 mm²	APK-SA16G15-002-C	121668-0268
Pin contacts	tin	0,35 - 0,75 mm²	APK-PA16A07-002-C	121668-0254
		0,75 - 1,50 mm²	APK-PA16A15-002-C	121668-0255
	gold (0,8 µm)	0,35 - 0,75 mm²	APK-PA16G07-002-C	121668-0265
		0,75 - 1,50 mm²	APK-PA16G15-002-C	121668-0267

Press-In Contacts (machined)

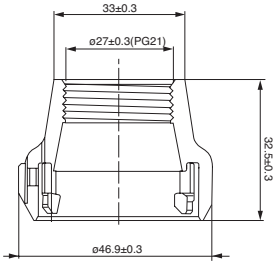
Contacts (stamped & formed)	Plating	Crimp Range	Reeled 5000 pcs/reel	
			Designation	Part number
Pin contacts	tin	0,30 - 0,60 mm²	APK-PA16A06-E	330-8674-020
	gold (0,8 µm)	0,50 - 1,00 mm²	APK-PA16G10-E	330-8674-025

Individual Wire Seals / Blind Seals

Description	Insulation Diameter	Color	Part number
Single Wire Sealing	1,2 - 1,6 mm	Red	121667-0024
	1,4 - 2,0 mm	Grey	121667-0022
	1,9 - 2,1 mm	Yellow	121667-0023
Blind Seal		White	121667-0025

Endbell, 37-way

Order No.	Designation	Color
044-8597-000	Endbell for APD 37-way version only	black (RAL 9005)

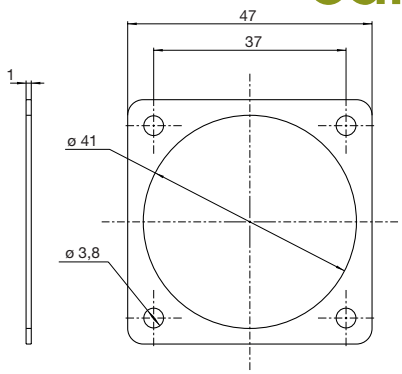


APD Accessories, 37-way

Flange Gasket

Order No.
075-8566-004

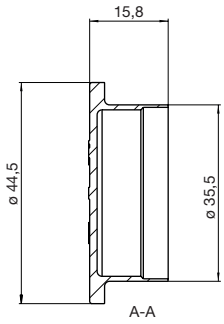




Dust Cap for Plug

Order No.
025-8636-037



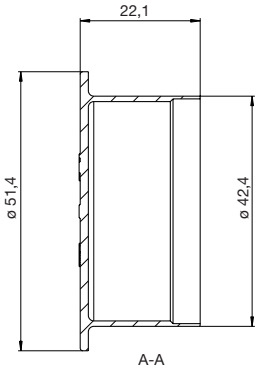




Dust Cap for Receptacle

Order No.
025-8636-053



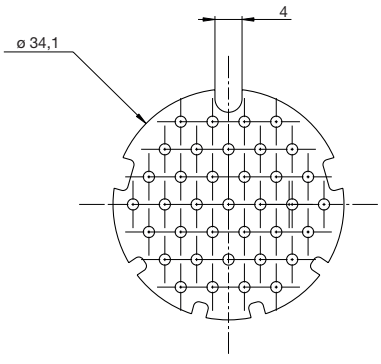


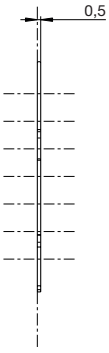


Alignment Disc 37-way

For 37-way Flange Receptacle

Order No.
052-8509-004





Dimensions shown in mm
Specifications and dimensions subject to change

APD Tooling, 37-way

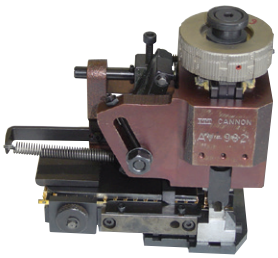
Hand Crimp Tool for Stamped and Formed Contacts

Contact	Hand Tool Order No.	Crimp Die
0,35 - 0,75 mm^2	121586-5156	121586-5260
0,75 - 1,5 mm^2	121586-5156	121586-5197



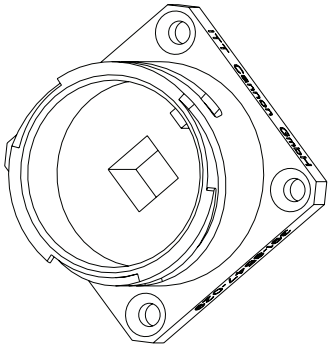
Automatic Crimp Tooling for Press-in Contacts

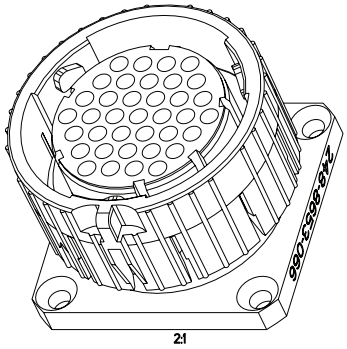
Designation	Order No.	Description
0,35 - 0,75 mm^2	121586-5131	WWZ-20-100-APK16-07-002
0,75 - 1,5 mm^2	121586-5132	WWZ-20-100-APK16-15-002



Support Tools, 37-way







Designation	Order No.
Assembly Adaptor for plug MA-APD-37-R	391-8547-029
Assembly Adaptor for receptacle MA-APD-37-P	248-8653-066
Replacement Nut for MA-APD-37P	217-8516-007
Contact Insertion Tool CIT-APK-16-15-C	121586-5200
Contact Extraction Tool CET-APK-16-C	121586-5195

APD Tooling, 37-way

Hand Crimp Tool for Press-in Contacts

Basic Hand Crimp Tool	Order No.
M225201/1-01	995-0001-585

Locator	Order No.
M225201/1-05	995-0001-507



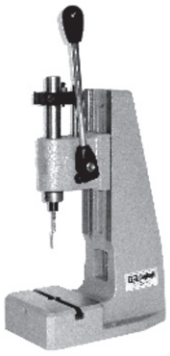
Automatic Crimp Tooling for Press-in Contacts

Designation	Order No.	Description
WAZ7F-CE	121586-5067	Pneumatic Tool
M22501/1-05	995-0001-507	Locator
BM-2	121586-5068	Bench Mount
WA-10	121586-5069	Food Pedal



Assembly Tooling for Press-in Contacts

Designation	Order No.	Description
CHPZ-240	121586-0081	Hand Lever Press
CIT-APD16-TIP	317-8648-008	Mounting Tip



Dimensions shown in mm
Specifications and dimensions subject to change

APD Technical Data, 51-way*



The APD 51-way connector offers the same features as the 37-way solution. With a secondary lock for added security the connector features up to 8 mechanical key and visual color coding options for better mating identification and to avoid mis-mating.

Standard Code 1: Green
Code 2: Yellow
Code 3: Brown
Code 4: Purple

For other coding consult factory

Electrical Data	
Operating Voltage	48 VDC*
Operating Current	see derating curve
Contact Resistance	5 mΩ max.
Voltage Proof	1000 VAC, 60 seconds
Insulation Resistance	10 MΩ min.

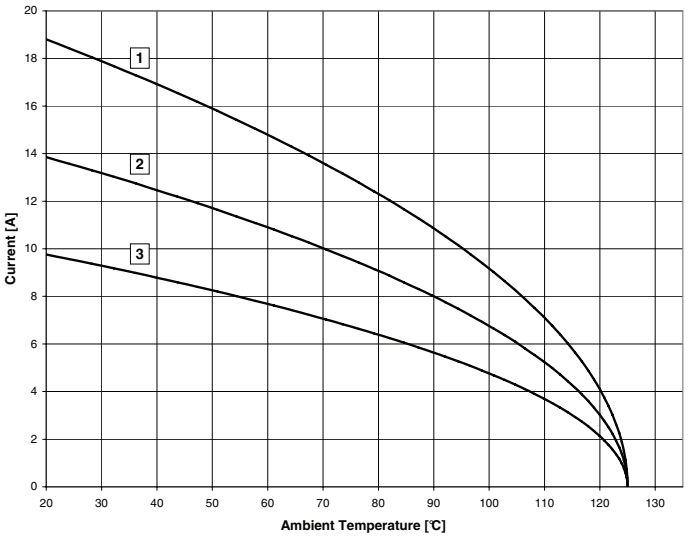
Mechanical Data	
Durability	40 Mating Cycles
Coupling Torque	4,5 Nm max.
Static Load, free connector	250 N axial, 150 N lat. (ISO 15170-2, Sec. 4.5)
Dynamic Impact	2 J (40mm- ball- drop- test, height 800mm)

Environmental Data (acc. ISO 15170)	
Temperature Range	-40 °C up to 125 °C (ISO 15170-2, Sec. 6.4)
Humidity Range	up to 95 % r.h. (ISO 15170-2, Sec. 6.4)
Sealing	IP 67 + IP 69k (DIN EN 60529)
Salt Spray	96 h, 35 °C (ISO 15170-2, Sec. 6.2)
Industrial Climate	SO_2, 0,67 % (ISO 15170-2, Sec. 6.3)
Fluid Compatibility	Brakefluid, ATF, fuel, .. (ISO 15170-2, Sec. 6.6)*
Vibration Resistance	Random, 0,2$(m/s^2)^2$/Hz, 3 x 24h, RT

Materials List	
Housing Parts	PBT GF
Sealing Parts	FKM
Coupling Nut	PA 6 GF
Contacts	Copper Alloy, Sn, Ag or Au plated*

* Further information available upon request.

Derating Curve

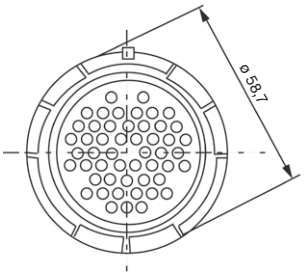


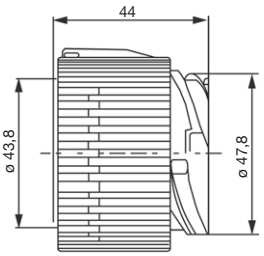
1: 1,5mm^2
2: 0,75mm^2
3: 0,35mm^2

APD Plug, 51-way

Plug, 51-way, Secondary Lock Version





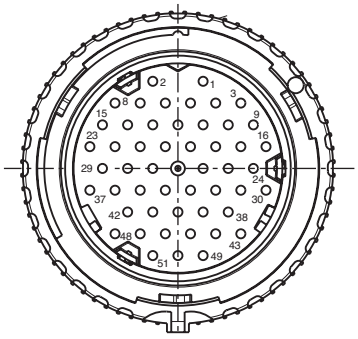


Order No.	Designation	Code	Color
121583-0187	APD-1BP51SN	1	green (RAL 6018)
121583-0188	APD-2BP51SN	2	yellow (RAL 1018)
121583-0189	APD-3BP51SN	3	brown (RAL 3009)
121583-0190	APD-4BP51SN	4	purple (RAL 4001)

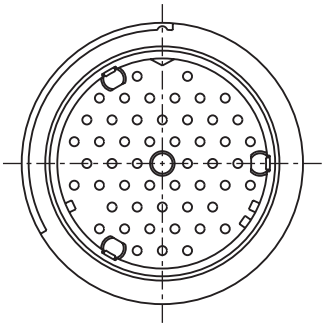
Packaging unit 100 pcs.
Pin crimp contacts see page 69.
Accessories, see page 70.

Coding 51-way layout

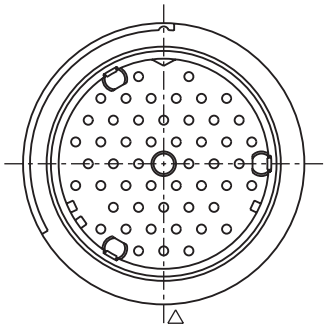
View on Mating Face



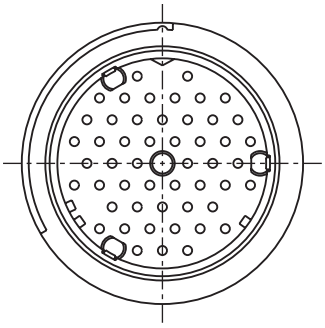
Code 1 green



Code 2 yellow



Code 3 brown



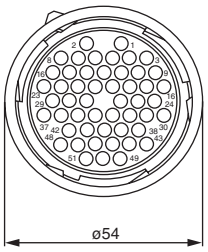
Code 4 purple

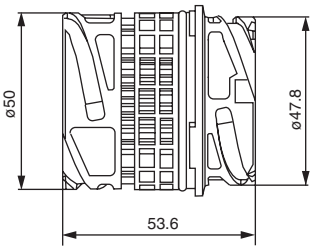
Note: The connectors offer both mechanical keying and visual coding by different colors.

APD Snap-In Receptacle, 51-way

Snap-In Receptacle, 51-way, Secondary Lock Version





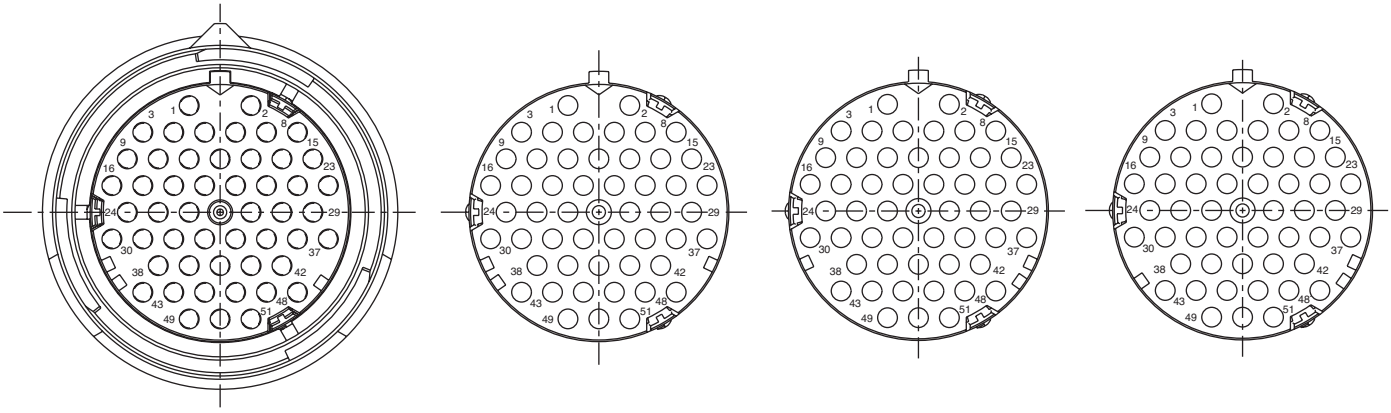


Order No.	Designation	Code	Color
121583-0091	APD-1SS51S	1	green (RAL 6018)
121583-0092	APD-2SS51S	2	yellow (RAL 1018)
121583-0093	APD-3SS51S	3	brown (RAL 3009)
121583-0094	APD-4SS51S	4	purple (RAL 4001)

Packaging unit 100 pcs.
Socket crimp contacts see page 69.
Accessories, see page 70.

Coding 51-way layout

View on Mating Face



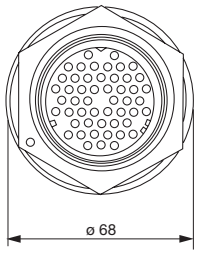
Code 1 green | Code 2 yellow | Code 3 brown | Code 4 purple

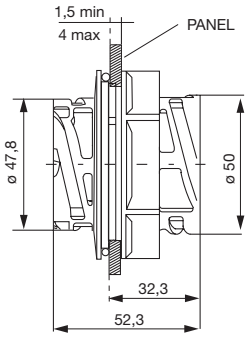
Note: The connectors offer both mechanical keying and visual coding by different colors.
Snap-In dimension on demand 3-D-image available.

APD Jam Nut Receptacle, 51-way

Jam Nut Receptacle, 51-way, Secondary Lock Version





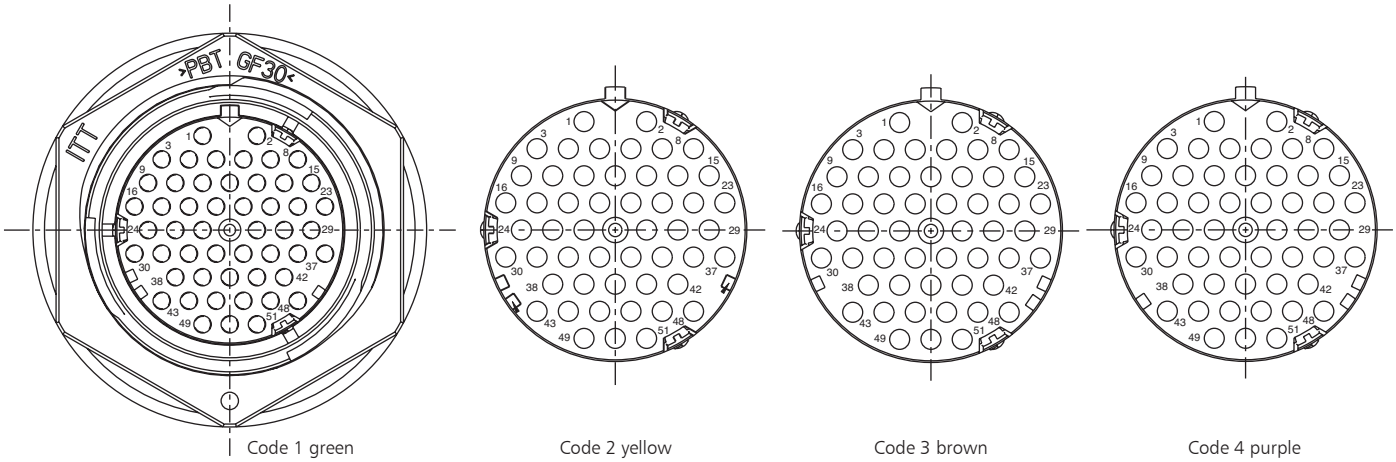


Order No.	Designation	Code	Color
121583-0095	APD-1CS51S	1	green (RAL 6018)
121583-0096	APD-2CS51S	2	yellow (RAL 1018)
121583-0097	APD-3CS51S	3	brown (RAL 3009)
121583-0098	APD-4CS51S	4	purple (RAL 4001)

Packaging unit 100 pcs.
Socket crimp contacts see page 69.
Accessories, see page 70.

Coding 51-way layout

View on Mating Face

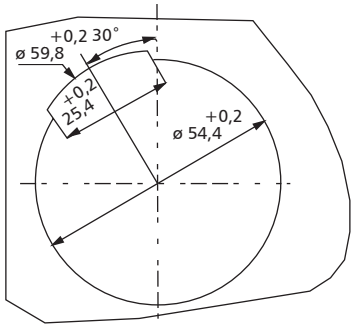


Code 1 green | Code 2 yellow | Code 3 brown | Code 4 purple

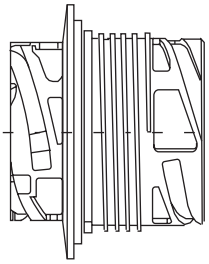
Note: The connectors offer both mechanical keying and visual coding by different colors.

Panel Cut Out

Piece Parts / Assembly Instruction

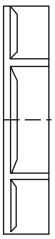


Wall Thickness
Standard: min. 1,5 / max. 4,0 mm



Housing

O-Ring



Jam Nut

APD Contacts / Seals, 51-way

Contacts

- Low contact resistance (max. 5mΩ) for maximum signal integrity
- Current carrying capacity: 12A max.
- Machined press-in contacts. (other machined contacts available on request)
- Silver plating, please consult factory

For 51-way Secondary Lock Version

Contacts (stamped & formed)	Plating	Crimp Range	Reeled (5000 pcs)		Loose Piece (bags of 100)	
			Designation	Part number	Designation	Part number
Socket contacts	tin	0,35 - 0,75 mm²	APK-SA16A07-002	121668-0221	APK-SA16A07-002-B	121668-0274
		0,75 - 1,5 mm²	APK-SA16A15-002	121668-0202	APK-SA16A15-002-B	121668-0276
	gold (0,8 µm)	0,35 - 0,75 mm²	APK-SA16G07-002	121668-0270	APK-SA16G07-002-B	121668-0278
		0,75 - 1,5 mm²	APK-SA16G15-002	121668-0272	APK-SA16G15-002-B	121668-0280
Pin contacts	tin	0,35 - 0,75 mm²	APK-PA16A07-002	121668-0252	APK-PA16A07-002-B	121668-0275
		0,75 - 1,5 mm²	APK-PA16A15-002	121668-0253	APK-PA16A15-002-B	121668-0277
	gold (0,8 µm)	0,35 - 0,75 mm²	APK-PA16G07-002	121668-0269	APK-PA16G07-002-B	121668-0279
		0,75 - 1,5 mm²	APK-PA16G15-002	121668-0271	APK-PA16G15-002-B	121668-0281

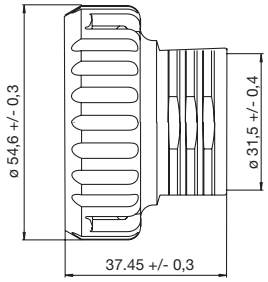
Individual Wire Seals / Blind Seals

Description	Insulation Diameter	Color	Part number
Single Wire Sealing	1,2 - 1,6 mm	Red	121667-0024
	1,4 - 2,0 mm	Grey	121667-0022
	1,9 - 2,1 mm	Yellow	121667-0023
Blind Seal	-	White	121667-0025

APD Accessories, 51-way

Endbell, 51-way





Order No.	Designation	Color
120110-0075	Endbell for APD 51-way version only	black (RAL 9005)

Dimensions shown in mm
Specifications and dimensions subject to change

Packaging unit 100 pcs.

APD Tooling, 51-way

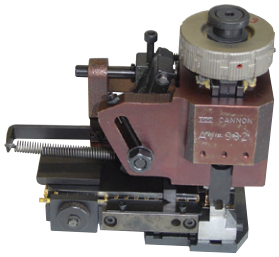
Hand Crimp Tool for Stamped and Formed Contacts

Contact	Hand Tool Order No.	Locator
0,35 - 0,75 mm^2	121586-5156	121586-5260
0,75 - 1,5 mm^2	121586-5156	121586-5197

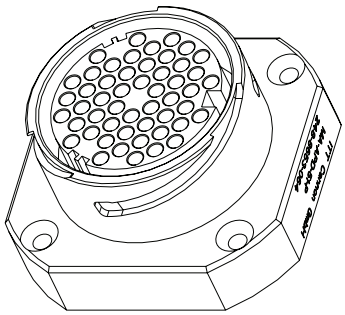


Mini Applications for Stamped and Formed Contacts

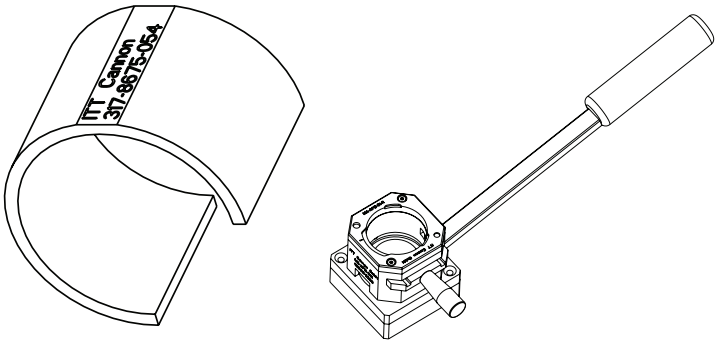
Contact	Order No.	Designation
0,35 - 0,75 mm^2	121586-5131	WWZ-20-100-APK16-07-002
0,75 - 1,5 mm^2	121586-5132	WWZ-20-100-APK16-15-002



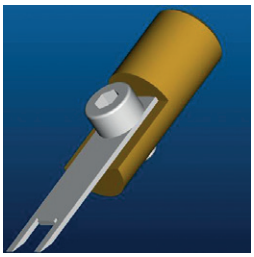
Support Tools, 51-way





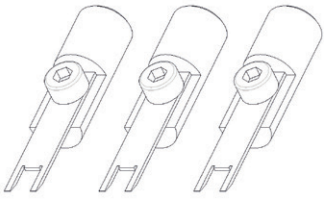






Designation	Order No.
Replacement Nut for MA-APD-51-R	217-8516-005
Assembly adaptor for plug MA-APD-51-P-SEC-LOCK	121586-5202
Assembly adaptor for receptacle MA-APD-51-R-SEC-LOCK	121586-5203
Assembly adaptor for Jam nut MA-APD-51-FL-SEC-LOCK	121586-5206
Unlocking Device	317-8675-054
Secondary Lock Set CET-ADP-51	121586-5259*

*For plug only



APD Tooling, 51-way

Hand Crimp Tool for Press-in Contacts

Basic Hand Crimp Tool	Order No.
M225201/1-01	995-0001-585

Locator	Order No.
M225201/1-05	995-0001-507



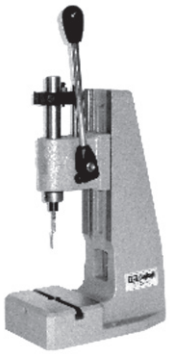
Automatic Crimp Tooling for Press-in Contacts

Designation	Order No.	Description
WAZ7F-CE	121586-5067	Pneumatic Tool
M22501/1-05	995-0001-507	Locator
BM-2	121586-5068	Bench Mount
WA-10	121586-5069	Food Pedal



Assembly Tooling for Press-in Contacts

Designation	Order No.	Description
CHPZ-240	121586-0081	Hand Lever Press
CIT-APD16-TIP	317-8648-008	Mounting Tip



Dimensions shown in mm
Specifications and dimensions subject to change

APD PCB Connectors



The demand within the transportation & industrial markets for direct PC board connections is increasing. Solutions demanding space savings, reduction of assembly costs or standardized assembly methods are just a selection of reasons driving this trend. PCB type connectors complement the offering of crimp and solder cup type connections within the APD product range.

APD connectors with PCB contacts can be offered for most of our products shown in this catalog. This chapter will provide a first impression of technical features and benefits as well as examples of PCB connector solution.

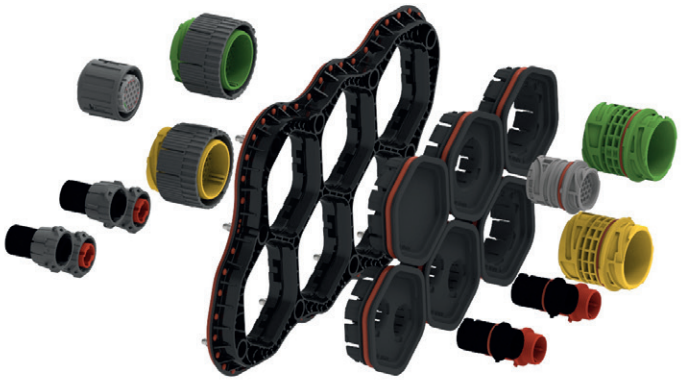
Technical Specifications

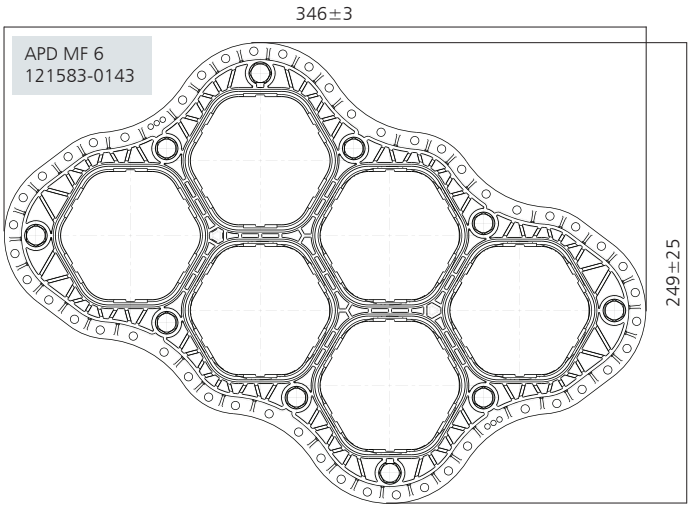
Mechanical Data	All PCB connectors are derived from standard APD lines and feature similar properties
Electrical Data	Depends on exact design of contacts and requirements of solution, generally similar to respective APD standard product
Environmental	IP67 / IP69K with improved long term stability against fluids e.g. motor oil due to press- in assembly into connector. Resistance against fluids according to ISO 15170

- PCB contacts are useable in all non secondary lock versions
- Increased long term stability – sealing against e.g. motor oil
- Individual defintion of contact length – adaptation to application
- Pre-assembled versions can be delivered - avoids additional harnessing work
- Useable for printed flex board applications
- Increases reliability (no harness errors)
- Avoids additional harness costs and reduces complexity of total manufacturing process

Modular APD Interface

Enabling quick and simple management of APD connectors incabin to chassis and centralized interconnect applications.





The Challenge

Mating, un-mating, reconfiguring or adding cabin to chassis and centralized interconnects on the production line can be a complex, time consuming and costly exercise. In some instances the cabin can be removed from the chassis several times during the assembly process.

Similarly, subsequent upgrades, services and refurbishments can very often necessitate additions or amendments to power and signal connectivity within the vehicle. Once again managing and working with these traditional interconnect configurations can be surprisingly complex.

The ITT Cannon Solution

In order to solve this issue ITT Cannon's engineers developed the innovative and patented Modular APD Interface that ensure installing, reconfiguring, mating and un-mating of Cannon's class leading APD interconnects is simple, fast and pain free.

The easy to install modular interface saves time, saves space and reduces complexity during initial assembly and subsequent service and upgrade activity. The system delivers exceptional flexibility to add or change connectors as additional vehicle services are developed and to implement standardized yet customizable connector systems for multiple applications.

Key Features

- Simple to install
- Flexible modular design providing
  – Ability to easily add and reconfigure connectors
  – Standardized solution for multiple applications
- Space saving
- Reduces assembly time and complexity
- For use with class leading APD interconnect range
- Fully customizable plate and modules

Modular AP Interface technical data	
Temperature Range	-40°C to +85°C
Water tightness	IP54 / IP6K5 depending on mounting position
Material	Module: PBT GF10 Sealing of Module: HNBR Frame: PBT GF30 Frame Seal: TPE

Dimensions shown in mm
Specifications and dimensions subject to change

APD Customized Solutions

The APD Series is a fully proven and diversified solution for harsh environment applications. Still, on occasions, there is an off-road and heavy vehicle applications with non-standard requirements that cannot be met by off-the-shelf connectors. This is where ITT Cannon can help, as APD is a great starting point for developing a truly bespoke solution. Some examples of how APD, combined with deep application knowledge and engineering expertise, has delivered for customers include…

Connector Solution for Use Within Diesel Engines

A German engine manufacturing company came to ITT Cannon requiring a custom receptacle for large diesel engines such as those found in ships and trains. These connectors were used within the engine, so they had to provide excellent sealing against engine oils while maintaining the integrity of the contact in the presence of extreme vibration.

To address the needs of this design, APD 7-way connectors from the standard APD series served as a starting point. They included customizations such as an additional o-ring to improve tightness, vibration resistance, and pressure resistance and a stainless steel spring clip to hold the connector in place. In addition, due to severe space limitations, the overall connector footprint was reduced to ½ the size of the standard connector solution.

Connector Solution for Double-Clutch Gearbox

A major agricultural and construction equipment manufacturer required a custom solution for a double-clutch gearbox for tractor transmissions. This gearbox required six different connections: two larger 6-way power connectors based on the APD 19-way interface and 4 smaller APD 4-way-based connectors for signal transmission.

Several customizations were required to meet design specifications. A radical change in the form and shape of the connectors was necessary for them to fit within the unique shape of the gearbox. Two connectors would be highly exposed to gear oil, and all had vibration resistance requirements that were met by two bespoke purple o-rings.

Connectors for a Diesel Pump Housing

A global Tier 1 supplier for commercial vehicle manufacturers required connectors that would be exposed to diesel exhaust fluid (AdBlue) within a Selective Catalytic Reduction (SCR) pump and contacted ITT Cannon for a custom solution. With APD 37-way as a starting point, as requested by the customer who was familiar with this product, key customization included substantial amendments to the receptacle form factor and size so that the connectors would fit within the customer pump housing and a stainless steel bracket to hold the connector securely in place. The application required 7 of the available 37 contact positions and the unused contact cavities were closed in the production process, ensuring the customer didn't need to seal cavities. ITT Cannon delivered a full cable assembly, incorporating the custom connector, to the customer facility to minimize integration time and complexity.

APD Conversion Charts

Cross Reference AWG Size / metric size (mm^2)

AWG	mm^2	AWG	mm^2	AWG	mm^2
6/0	170,3	10	5,27	25	0,163
5/0	135,1	11	4,15	26	0,128
4/0	107,2	12	3,31	27	0,102
3/0	85,0	13	2,63	28	0,0804
2/0	67,5	14	2,08	29	0,0646
0	53,4	15	1,65	30	0,0503
1	42,4	16	1,31	31	0,0400
2	33,6	17	1,04	32	0,0320
3	26,7	18	0,823	33	0,0252
4	21,2	19	0,653	34	0,0200
5	16,8	20	0,519	35	0,0161
6	13,3	21	0,412	36	0,0123
7	10,6	22	0,325	37	0,0100
8	8,35	23	0,259	38	0,00795
9	6,62	24	0,205	39	0,00632

Conversion Chart for mm to Inches

mm	inches	mm	inches	mm	inches
1	0.04	18	0.71	35	1.38
2	0.08	19	0.75	36	1.42
3	0.12	20	0.79	37	1.46
4	0.16	21	0.83	38	1.50
5	0.20	22	0.87	39	1.54
6	0.24	23	0.91	40	1.57
7	0.28	24	0.94	41	1.61
8	0.31	25	0.98	42	1.65
9	0.35	26	1.02	43	1.69
10	0.39	27	1.06	44	1.73
11	0.43	28	1.10	45	1.77
12	0.47	29	1.14	46	1.81
13	0.51	30	1.18	47	1.85
14	0.55	31	1.22	48	1.89
15	0.59	32	1.26	49	1.93
16	0.63	33	1.30	50	1.97
17	0.67	34	1.34		

Equation for converting mm to inches: mm divided by 25.4 = inches

Conversion Chart for Centigrade to Fahrenheit

°C	°F	°C	°F	°C	°F
-40	-40.0	-10	+14.0	+10	+50.0
-38	-36.4	-9	+15.8	+11	+51.8
-36	-32.8	-8	+17.6	+12	+53.6
-34	-29.2	-7	+19.4	+13	+55.4
-32	-25.6	-6	+21.2	+14	+57.2
-30	-22.0	-5	+23.0	+15	+59.0
-28	-18.4	-4	+24.8	+16	+60.8
-26	-14.8	-3	+26.6	+17	+62.6
-24	-11.2	-2	+28.4	+18	+64.4
-22	-7.6	-1	+30.2	+19	+66.2
-20	-4.0	0	+32.0	+20	+68.0
-19	-2.2	+1	+33.8	+21	+69.8
-18	+0.4	+2	+35.6	+22	+71.6
-17	+1.4	+3	+37.4	+23	+73.4
-16	+3.2	+4	+39.2	+24	+75.2
-15	+5.0	+5	+41.0	+25	+77.0
-14	+6.8	+6	+42.8	+26	+78.8
-13	+8.6	+7	+44.6	+27	+80.6
-12	+10.4	+8	+46.4	+28	+82.4
-11	+12.2	+9	+48.2	+29	+84.2
				+30	+86.0

Equation for converting Centigrade to Fahrenheit: 32 + (°C x 1.8) = Fahrenheit

Dimensions shown in mm
Specifications and dimensions subject to change

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