IEC
Electric Road Vehicles

ANSI Workshop

April 5-6, 2011

Part A:
IEC TC69 Electric Vehicle Charging

- TC 69 Electric Road Vehicles – Covers all types of electrically propelled vehicles
  - *Not limited just to Automobiles*
  - *Trucks*
  - *Buses*

IEC TC69 Electric Vehicle Charging

- **IEC 61851-1** Electric vehicle conductive charging system - Part 1: General requirements
  - First Edition Published 2001.
  - Second Edition Published Nov. 2010
  - Revision process started for 1st Amendment

IEC TC69 Electric Vehicle Charging

Also:

- Part 21: Electric vehicle requirements for conductive connection to an a.c./d.c. supply
- Part 22: A.C. electric vehicle charging station
- Part 23: D.C electric vehicle charging station
- Part 24: Control communication protocol between off-board d.c. charger and electric vehicle

IEC TC69 Electric Vehicle Charging

- Part 21: Electric vehicle requirements for conductive connection to an a.c./d.c. supply
- Status: At CD stage.
- TC69 has proposed Joint ISO/IEC WG (mode 5 cooperation) with ISO TC22/SC21 to address needs. No response from ISO TC22/SC21 to date.
- Original Publication target: March 2012 (delayed)

IEC TC69 Electric Vehicle Charging

- Part 22: A.C. electric vehicle charging station

- Status: At CD stage, next meeting planned for June 2011
- Publication: March 2012

IEC TC69 Electric Vehicle Charging

- Part 23: D.C electric vehicle charging station

- Status: At CD stage, next meeting planned for June 2011
- Publication: November 2012

IEC TC69 Electric Vehicle Charging

- Part 24: Control communication protocol between off-board d.c. charger and electric vehicle

- Status: At WD stage, next meeting planned for June 2011
- Publication: June 2013

Part B:
IEC SC23H EV Connector & Inlet

- SC23H Industrial Plugs & Socket-Outlets – Covers all connection products intended for the connection of electric vehicles to the supply network and/or to dedicated supply equipment.

IEC SC23H EV Connector & Inlet

- IEC 62196-1 Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements
  - First Edition Published 2003.
  - Second Edition being prepared, CDV Stage, next meeting planned for May 2011.
  - Publication: March 2012

Types of EV Couplers
(defined by IEC 61851-1)

- Basic - interface for AC mode 1, 2 and 3 charging (Part 2)
- Universal - interface for all modes of charging (Part 3)
  - high power AC and 30/32 Amp AC, or
  - high power DC and 30/32 Amp AC
- High power DC (Part 3)

IEC SC23H EV Connector & Inlet

- Part 2 Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories
  - Status: At CDV stage, next meeting planned for May 2011
  - Publication: April 2012

AC EV Couplers

Three BASIC AC couplers are available Globally.

Type 1

IEC 62196-2 (SAE J1772)

Used in USA & Japan

Rating:

208-240 VAC, 80 A max.
1 phase (USA)

250 V, 32 A, 1 phase
(Japan, IEC)

AC EV Couplers

Type 2

IEC 62196-2

Europe

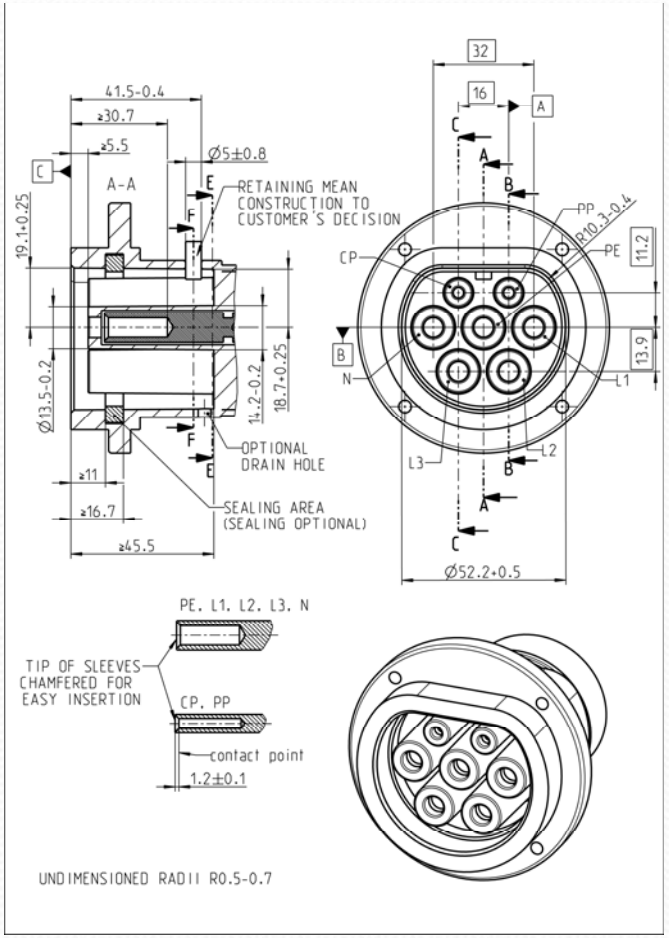
Rating:

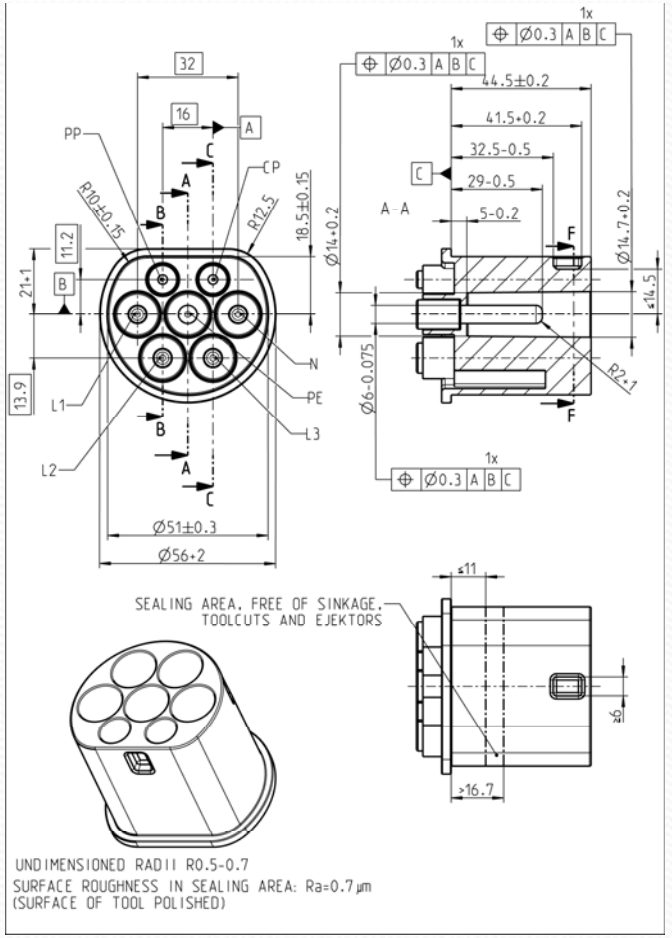
250 V, 13 A, 20 A, 32 A, 63 A, or 70 A, 1 phase;

380-480 V, 13 A, 20 A, 32 A, or 63 A, 3 phase

AC EV Socket-Outlet & Plug

Type 2 IEC 62196-2 Europe





AC EV Couplers

Type 3

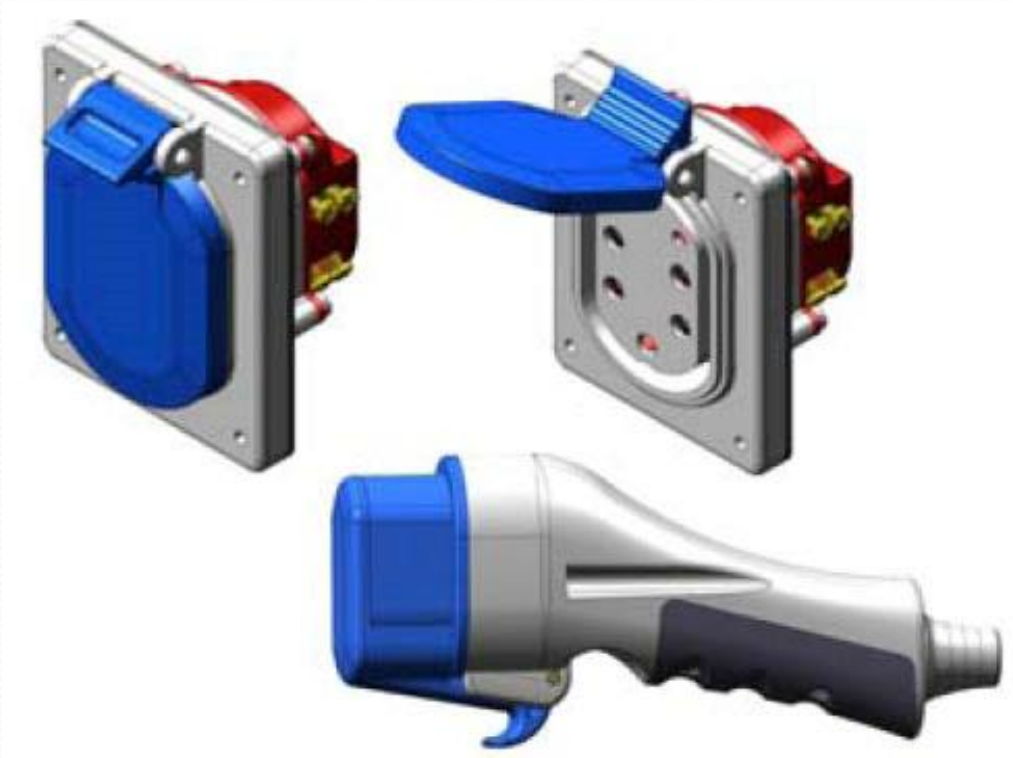
IEC 62196-2

Shuttered design

Italy, may be used in other countries requiring shutters

Rating:

250 V, 16 A or 32 A, single phase and 380-480 V, 32 A, or 63 A three-phase



IEC SC23H EV Connector & Inlet

- Part 3: Dimensional interchangeability requirements for pin & contact-tube coupler, rated operating voltage & current up to 1000 V d.c., 400 A for dedicated d.c. charging
  - Status: WD stage, next meeting April 2011
  - Publication: Fall 2013

DC EV Connector

Two High Power DC couplers have been proposed.

Japan - Type 1

High Power DC

IEC 62196-3

Rating:

600V, 200 A d.c.

DC EV Connector

China – Type 2

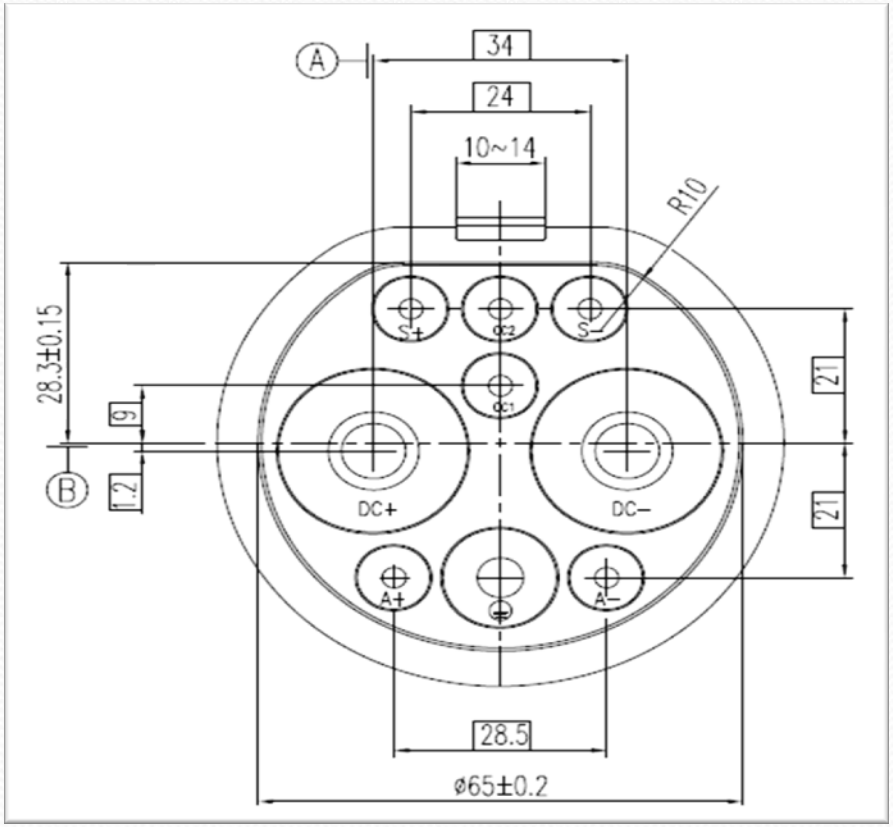
High Power DC

IEC 62196-3

Rating:

750V, 250 A d.c.

Connector



Universal AC/DC Coupler

US (SAE) Connector
IEC 62196-3

Inlet
Rating: 600 V, 200 A DC

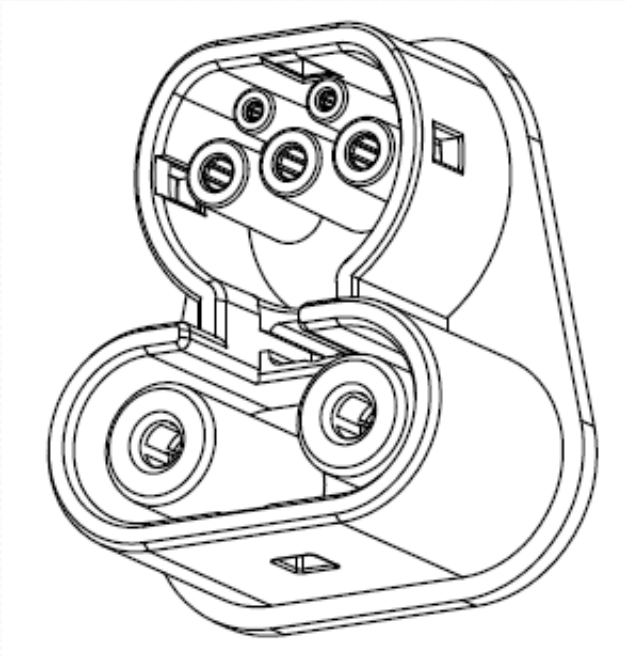
Universal AC/DC Coupler

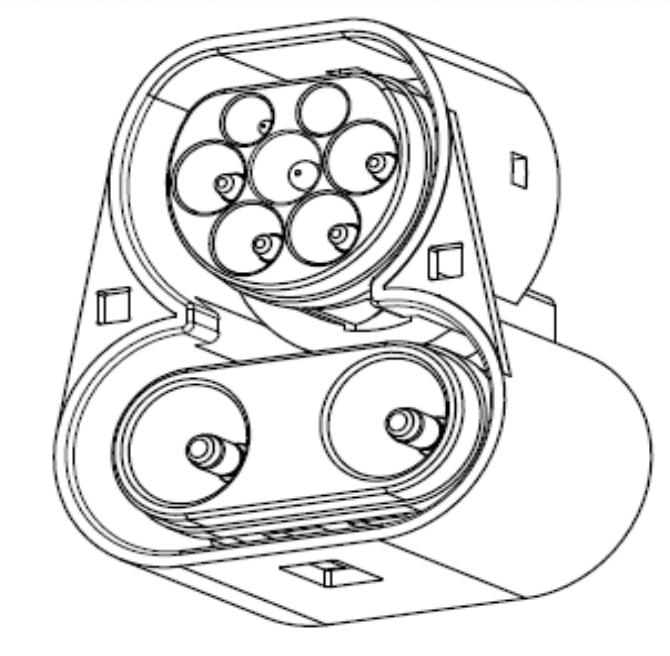
German Connector

IEC 62196-3

Inlet

Rating: 850 V, 200 A d.c.





Questions?

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