



# OPTIMA-METAL SERIES

Industrial connectors



# OPTIMA-METAL

Screened, Dust  
and Watertight  
Metallic  
Connectors



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**Note:** Scame reserves the right to change at any time the characteristics of the products shown in this catalogue.

# Introduction



## ■ SCAME COMPANY

SCAME was founded in 1963 and as a market-oriented company is today an international industrial group of about 800 people in 18 subsidiary and associated companies operating under the parent company headquartered in Parre (Bergamo) - Italy.

SCAME specialises in the manufacture of a wide range of connectors for industrial application according international standard IEC 60309-1, BS4343, NFC63300, VDE 0110: "Plugs, socket-outlets and couplers for industrial purposes".

The products are suitable for many industries principally those with very demanding requirements for technical and quality assurance standards and reliability of service, such as: ports and container terminals, shipyards, mining and tunneling, steel mills and aluminium plants, mobile generators sets, off-shore and railways and transport depots.

## ■ SCAME OFFER

SCAME OPTIMA-METAL Series are mainly power industrial connectors from 200 to 800 A , up to 1.000V in different versions : plug, socket, connector, inlet, for mobile and fixed applications. The manufactured products are distributed around the world by the SCAME sales branches.

All our products are provided with pilot contacts to make electrical interlock, mechanical interlock is provided on serie INHD.

Series available for plug, socket, connector, inlet :

- OPTIMA-METAL Series HDAL250 and HDAS250 250 A - up to 1.000V
- OPTIMA-METAL Series HDAL500 and HDAS500 up to 500 A - up to 1.000V
- OPTIMA-METAL Series HDAL800 and HDAS800 up to 800 A - up to 1.000V
- OPTIMA-METAL Series HDSD200 250 A - up to 690V

Series available for interlocked sockets 250 A, 690 V :

- OPTIMA-METAL Series HDIN Switch Sockets
- OPTIMA-METAL Series HDIN Fuse switch sockets
- OPTIMA-METAL Series HDIN With MCCB
- OPTIMA-METAL Series HDIN With MCCB plus RCD (440V)

The products are manufactured in tempered die cast aluminium, neoprene seals ensure IP67 protection, all fastenings are in stainless steel.

HDAL connectors with insertion-withdrawal lever system and automatic socket lid, designed to be disconnected manually several times during its operation. Contact carriers are in thermosetting material that guarantees exceptional mechanical and thermal resistance. Inserts for female and male contacts are interchangeable in the plug and in the socket body housing. Contacts are in silver plated copper alloy fully effective up to 200°C. Mechanical and electrical interlocked switch sockets guarantee a high level of safety during insertion and withdrawal operations.

## ■ APPLICATION EXAMPLES

Due to outstanding technical characteristics SCAME OPTIMA-METAL Series products can be used in harsh environment as :

- Open cast mines and non-hazardous underground mines as well as tunneling work in progress, excavator works , pipe-jacking operations, mobile generator sets for telecommunication networks
- Port and Shipyards for feeding transformers, land connections of ships, supplying travelling cranes in low and medium voltage applications, refrigerated container and spreaders connections and many off-shore applications .
- Railways for coach to coach couplings for rolling stock and for power supply while rolling stocks are in the workshop for maintenance and the pantograph is removed from the overhead lines for safety reasons.

# OPTIMA-METAL Series

## HDAL and HDAS Type

### ■ ASSISTED CONNECTORS



### ■ REFERENCE STANDARDS

#### EN 60309-1

Plugs, socket outlets and couplers for industrial purposes.  
*Part 1: General requirements*





#### EN 60529

Degrees of protection provided by enclosure.

### ■ HDAL TYPE VERSIONS

	Socket
	Plug
	Connector
	Reversed socket AVAILABLE ON REQUEST
	Reversed plug AVAILABLE ON REQUEST

### ■ HDAS TYPE VERSIONS

	Socket
	Straight plug
	Appliance inlet
	Connector

### ■ MECHANICAL CHARACTERISTICS

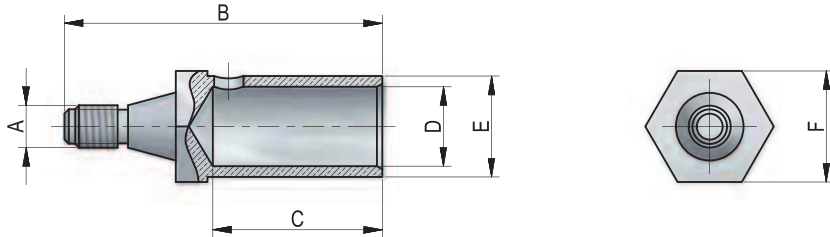
Protection degree:	<b>IP67</b>
Casings:	<b>Corrosion proof tempered cast aluminium</b>
Fastenings:	<b>stainless steel</b>
Temperature range:	<b>-30°C / +60°C</b>
Mechanical shocks withstand:	<b>IK10</b>

### ■ LIST OF MATERIAL USED

Casings:	<b>corrosion proof tempered cast aluminium</b>
Inserts:	<b>thermo-hardening moulded plastic</b>
Contacts:	<b>silver plated copper alloy</b>
Screws and fastenings:	<b>stainless steel</b>
Seals:	<b>neoprene</b>

## ■ CABLE CONNECTION

Back terminals dimensions



Section (mm <sup>2</sup> )		HDAL250 / HDAS250						HDAL500 / HDAS500						HDAL800 / HDAS800						
		A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F	
50	3P+E 4P+E	M5	50	29	Ø10,8	Ø14	17	M8	52	24	Ø10,8	Ø14	21							
		M5	50	24	Ø10,8	Ø14	14													
70	3P+E 4P+E	M5	50	29	Ø13	Ø17	17	M8	56	29	Ø13	Ø17	21							
		M5	52	29	Ø13	Ø17	14													
95	3P+E 4P+E	M5	55	30	Ø15	Ø19	17	M8	60	32	Ø15	Ø19	21							
120	3P+E 4P+E							M8	64	35	Ø16,5	Ø21	21							
150	3P+E 4P+E							M8	64	35	Ø18,5	Ø22,5	21							
185	3P+E 4P+E							M8	62	32	Ø21	Ø25	21							
240	3P+E 4P+E							M8	76	43	Ø23	Ø28	21	M10	74	43	Ø23	Ø28	28	
300	3P+E 4P+E													M10	80	49	Ø27	Ø33	28	

## ■ MAXIMUM CONDUCTOR AND CABLE SIZES

	Cable outside diameter (mm)		A Sheathing stripping length (mm)		B Insulation stripping length (mm)	
	min	max	Phases	⊕		
HDAL250 / HDAS250 (60°)	32	60	110	150	(see table page 7, mark C)	
HDAL500 / HDAS500 (ANGLED HANDLE)	45	80	160	220		
HDAL500 / HDAS500 (STRAIGHT HANDLE)	45	80	200	210		
HDAL800 / HDAS800	52	100	145	145		

## ■ CRIMPING INSTRUCTIONS

Insert the cable into the cable terminal and crimp the cable using a hexagonal crimping tool with the jaw adapted to the cable section.

Thread the cable terminal into the male or female contacts and tighten by a wrench torque using the tightening torque (see table on the side)

OPTIMA-METAL HDAL250: 4Nm

OPTIMA-METAL HDAL500: 20Nm

OPTIMA-METAL HDAL800: 25Nm

## ■ LOCKINGS

HDAL type can be equipped with different type of lockings avoiding use of the connectors by people not allowed. Available an additional satty key.

## ■ MICROSCHITCH

HDAL250, HDAL500 and HDAL800 sockets can be equipped with a microswitch for information transmission.

# OPTIMA-METAL Series

## HDAL - HDIN - HDAS Type

### CONTACTS

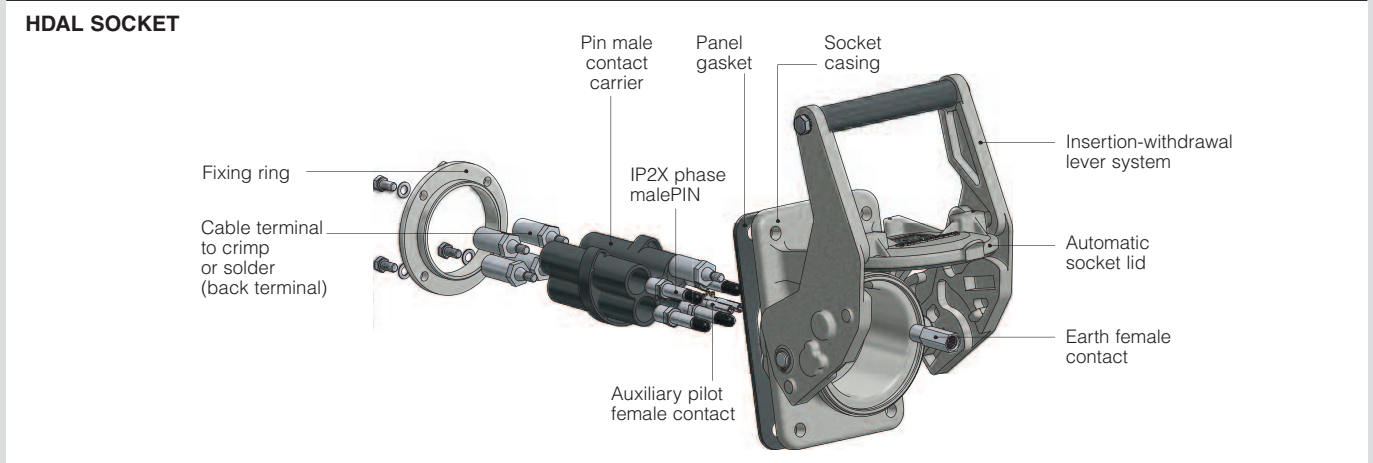
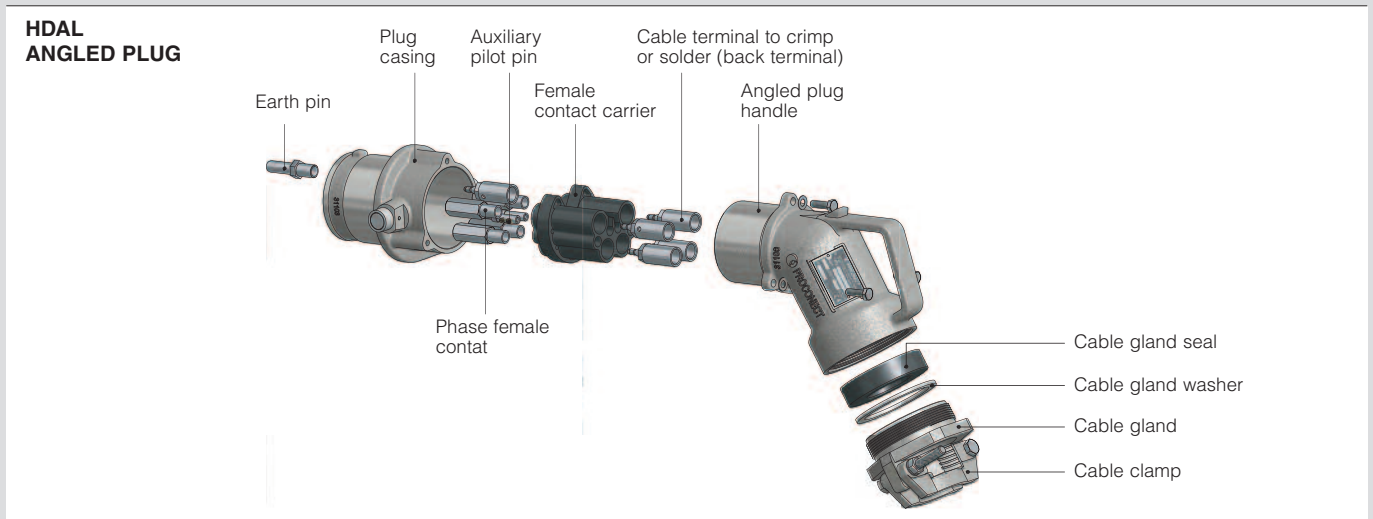
Contacts are built in 2 parts:

- One front part, male or female used for the connection between plug and socket (contact)
- One back part, called the terminal, in which the cable is crimped, screwed or soldered. It is ended by a threaded cone to screw into the contact.

#### HDAL type

HDAL sockets are equipped with insertion-withdrawal lever system which provides simple and quick mating and unmating operations and IP67 coupling. It is recommended for application which require frequent

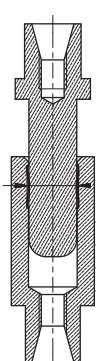
coupling or in presence of strong vibrations. When plug is not inserted, insertion-withdrawal lever provide automatic closing of socket lid to seal socket and provide IP67 protection when it is not in use.



#### Multipoint contacts

SCAME power connector contacts are silver-plated self cleaning and make use of a special technique using lamellar technology with multicontacts. This technology guarantees a great number of connections points (see table), excellent temperature resistance (up to 200 °C) and low insertion force.

	Amperage	Voltage	Nb contacts	Nb pilots	Section	Diam. Cable
	Max.	up to	Max.	Max.	Max.	Max.
<b>HDAL250/HDAS250</b>	250A	1.000V	5	2	95 mm <sup>2</sup>	60 mm
<b>HDAL500/HDAS500</b>	570A	1.000V	5	2	240 mm <sup>2</sup>	80 mm
<b>HDAL800/HDAS800</b>	800A	1.000V	5	2	300 mm <sup>2</sup>	100 mm



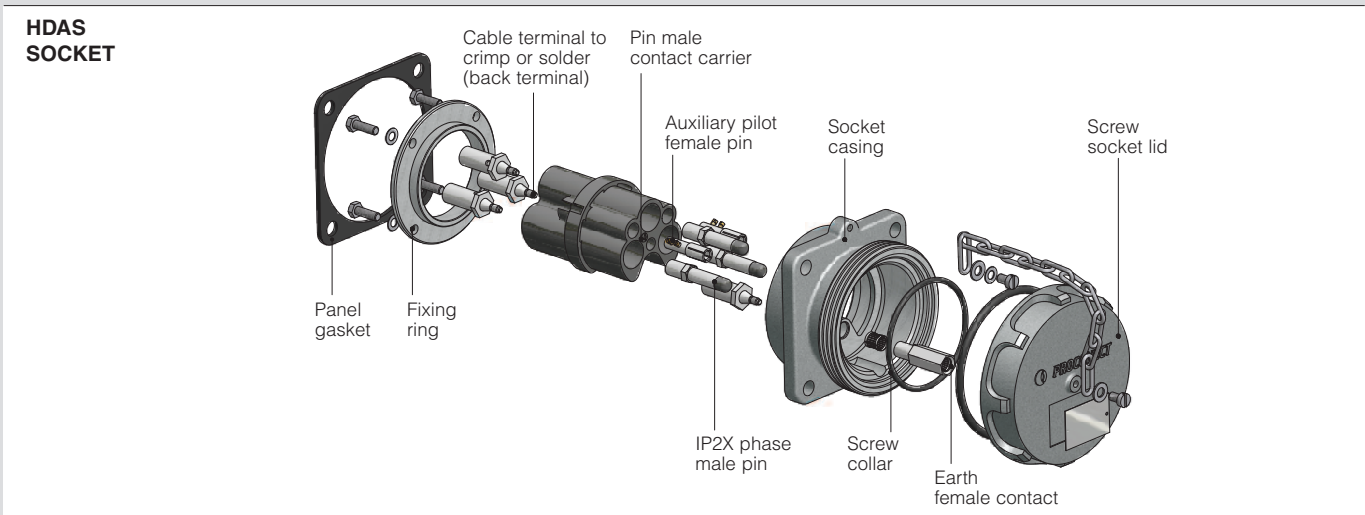
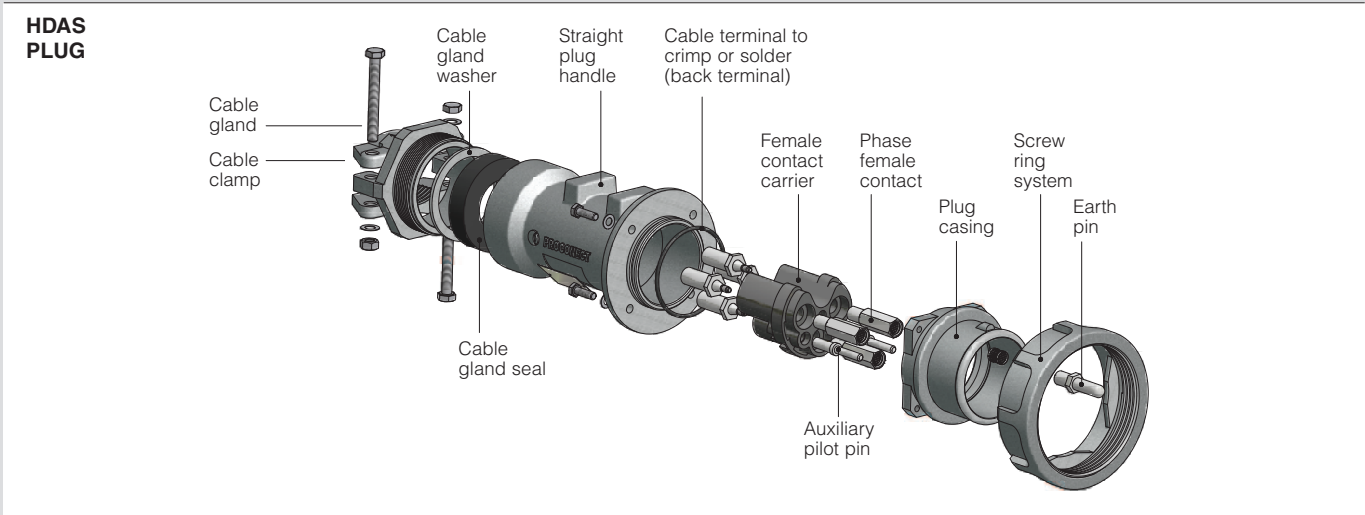
Diam. (mm)	Nb lamelles	Amp.
10	21	250
12	22	320
14	29	400
16	33	500
18	37	640
20	41	800



**HDAS type**

HDAS plugs and sockets are mated and unmated by means of screw collar on plugs and collar ring on sockets giving secure IP67 coupling.

Screw socket lid is supplied as standard on sockets and connectors to provide IP67 protection when they are not in use.



■ **IP2X CONTACTS FOR HDAL250 / HDAL500 / HDIN250 / HDAS250 / HDAS500**

**Male contacts**

Supplying connectors (generally sockets and connectors) are intended the contacts that supply the voltage, they are fitted with insulated cap that guarantee IP2X (Finger protection), this protection is not available for HDAL800 and HDAS800. Male contact pins are supplied with cable terminal in which the cable is crimped or soldered.



**Female contacts**

Receiving connectors (generally plugs and appliance inlets) are intended the contacts that receive the voltage, they are fitted with the slotted sleeve of female contacts. They are supplied with cable terminal in which the cable is crimped or soldered.



**Pilot pins**

All standard products are equipped with 2 pilot pins. Their characteristics of connecting later and disconnecting earlier than phase pins is for making electrical interlock insuring that no connection and disconnection occur under load.

# OPTIMA-METAL Series

## HDAL250 Type - max. 250 A - up to 1.000V

### ■ SOCKET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
3P+E	2P	250A	50-70	2,2	899.AL2DE350V *
	2P	250A	70	2,2	899.AL2DE370
	2P	250A	95	2,2	899.AL2DE395
3P+N+E	2P	250A	50-70	2,2	899.AL2DE450V *
	2P	250A	70	2,2	899.AL2DE470

\* Screw terminal.

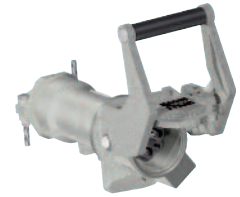
### ■ ANGLED PLUG 60°



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
3P+E	2P	250A	50-70	2,1	899.AL2PR350V *
	2P	250A	70	2,1	899.AL2PR370
	2P	250A	95	2,1	899.AL2PR395
3P+N+E	2P	250A	50-70	2,1	899.AL2PR450V *
	2P	250A	70	2,1	899.AL2PR470

\* Screw terminal.

## CONNECTOR



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
3P+E	2P	250A	50-70	3,5	899.AL2CE350VS *
	2P	250A	70	3,5	899.AL2CE370S
	2P	250A	95	3,5	899.AL2CE395S
3P+N+E	2P	250A	50-70	3,5	899.AL2CE450VS *
	2P	250A	70	3,5	899.AL2CE470S

\* Screw terminal.

## ACCESSORIES



### Description

Plug cover for HDAL250 Type

899.AL2PC

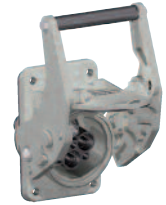
## APPLICATION EXAMPLES



# OPTIMA-METAL Series

## HDAL500 Type - max. 570 A - up to 1.000V

### ■ SOCKET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
<b>3P+E</b>	2P	320A	95	5,3	<b>899.AL5DE395</b>
	2P	370A	120	5,3	<b>899.AL5DE312</b>
	2P	420A	150	5,3	<b>899.AL5DE315</b>
	2P	420A	185	5,3	<b>899.AL5DE318</b>
	2P	570A	240	5,3	<b>899.AL5DE324-18</b>
<b>3P+N+E</b>	2P	320A	95	5,3	<b>899.AL5DE495</b>
	2P	320A	120	5,3	<b>899.AL5DE412</b>
	2P	320A	150	5,3	<b>899.AL5DE415</b>
	2P	420A	150	5,3	<b>899.AL5DE415-16</b>
	2P	500A	185	5,3	<b>899.AL5DE418-16</b>

### ■ ANGLED PLUG 60°



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
<b>3P+E</b>	2P	320A	95	4,6	<b>899.AL5PR395</b>
	2P	370A	120	4,6	<b>899.AL5PR312</b>
	2P	420A	150	4,6	<b>899.AL5PR315</b>
	2P	420A	185	4,6	<b>899.AL5PR318</b>
	2P	570A	240	4,6	<b>899.AL5PR324-18</b>
<b>3P+N+E</b>	2P	320A	95	4,6	<b>899.AL5PR495</b>
	2P	320A	120	4,6	<b>899.AL5PR412</b>
	2P	320A	150	4,6	<b>899.AL5PR415</b>
	2P	420A	150	4,6	<b>899.AL5PR415-16</b>
	2P	500A	185	4,6	<b>899.AL5PR418-16</b>

■ STRAIGHT PLUG



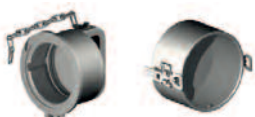
Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
3P+E	2P	320A	95	4,9	899.AL5PR395S
	2P	370A	120	4,9	899.AL5PR312S
	2P	420A	150	4,9	899.AL5PR315S
	2P	420A	185	4,9	899.AL5PR318S
	2P	570A	240	4,9	899.AL5PR324S-18
3P+N+E	2P	320A	95	4,9	899.AL5PR495S
	2P	320A	120	4,9	899.AL5PR412S
	2P	320A	150	4,9	899.AL5PR415S
	2P	420A	150	4,9	899.AL5PR415S-16
	2P	500A	185	4,9	899.AL5PR418S-16

■ CONNECTOR



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
3P+E	2P	320A	95	7,5	899.AL5CE395S
	2P	370A	120	7,5	899.AL5CE312S
	2P	420A	150	7,5	899.AL5CE315S
	2P	420A	185	7,5	899.AL5CE318S
	2P	570A	240	7,5	899.AL5CE324S-18
3P+N+E	2P	320A	95	7,5	899.AL5CE495S
	2P	320A	120	7,5	899.AL5CE412S
	2P	320A	150	7,5	899.AL5CE415S
	2P	420A	150	7,5	899.AL5CE415S-16
	2P	500A	185	7,5	899.AL5CE418S-16

■ ACCESSORIES



**Description**

Plug cover for HDAL500 Type

899.AL5PC

# OPTIMA-METAL Series

## HDAL800 Type - max. 800 A - up to 1.000V

### ■ SOCKET



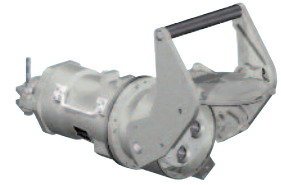
Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (FEMALE)
3P+E	2P	570A	240	7,5	899.AL8DF324
	2P	800A	300	7,5	899.AL8DF330
3P+N+E	2P	570A	240	7,5	899.AL8DF424
	2P	800A	300	7,5	899.AL8DF430

### ■ STRAIGHT PLUG



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (MALE)
3P+E	2P	570A	240	8,8	899.AL8PM324S
	2P	800A	300	8,8	899.AL8PM330S
3P+N+E	2P	570A	240	8,8	899.AL8PM424S
	2P	800A	300	8,8	899.AL8PM430S

## CONNECTOR



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (FEMALE)
3P+E	2P	570A	240	11,7	899.AL8CF324S
	2P	800A	300	11,7	899.AL8CF330S
3P+N+E	2P	570A	240	11,7	899.AL8CF424S
	2P	800A	300	11,7	899.AL8CF430S

## ACCESSORIES



### Description

Plug cover for HDAL800 Type

899.AL8PC

## APPLICATION EXAMPLES



# OPTIMA-METAL Series

## HDAS250 Type - max. 250 A - up to 1.000V

### ■ SOCKET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
3P+E	2P	250A	50-70	1,7	899.AS2DE350V
	2P	250A	70	1,7	899.AS2DE370
	2P	250A	95	1,7	899.AS2DE395
3P+N+E	2P	250A	50-70	1,7	899.AS2DE450V
	2P	250A	70	1,7	899.AS2DE470

### ■ STRAIGHT PLUG



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
3P+E	2P	250A	50-70	2,3	899.AS2PR350V
	2P	250A	70	2,3	899.AS2PR370
	2P	250A	95	2,3	899.AS2PR395
3P+N+E	2P	250A	50-70	2,3	899.AS2PR450V
	2P	250A	70	2,3	899.AS2PR470

### ■ APPLIANCE INLET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
3P+E	2P	250A	50-70	1,8	899.AS2AR350V
	2P	250A	70	1,8	899.AS2AR370
	2P	250A	95	1,8	899.AS2AR395
3P+N+E	2P	250A	50-70	1,8	899.AS2AR450V
	2P	250A	70	1,8	899.AS2AR470



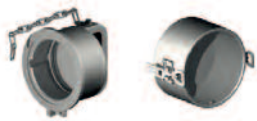
## CONNECTOR



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
3P+E	2P	250A	50-70	2,7	899.AS2CE350VS *
	2P	250A	70	2,7	899.AS2CE370S
	2P	250A	95	2,7	899.AS2CE395S
3P+N+E	2P	250A	50-70	2,7	899.AS2CE450VS *
	2P	250A	70	2,7	899.AS2CE470S

\* Screw terminal.

## ACCESSORIES



### Description

Plug cover for HDAS250 Type

899.AS2PC

## APPLICATION EXAMPLES



# OPTIMA-METAL Series

## HDAS500 Type - max. 570 A - up to 1.000V

### SOCKET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
<b>3P+E</b>	2P	320A	95	3,1	<b>899.AS5DE395</b>
	2P	370A	120	3,1	<b>899.AS5DE312</b>
	2P	420A	150	3,1	<b>899.AS5DE315</b>
	2P	420A	185	3,1	<b>899.AS5DE318</b>
	2P	570A	240	3,1	<b>899.AS5DE324-18</b>
<b>3P+N+E</b>	2P	320A	95	3,1	<b>899.AS5DE495</b>
	2P	320A	120	3,1	<b>899.AS5DE412</b>
	2P	320A	150	3,1	<b>899.AS5DE415</b>
	2P	420A	150	3,1	<b>899.AS5DE415-16</b>
	2P	500A	185	3,1	<b>899.AS5DE418-16</b>

### STRAIGHT PLUG



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
<b>3P+E</b>	2P	320A	95	4,7	<b>899.AS5PR395</b>
	2P	370A	120	4,7	<b>899.AS5PR312</b>
	2P	420A	150	4,7	<b>899.AS5PR315</b>
	2P	420A	185	4,7	<b>899.AS5PR318</b>
	2P	570A	240	4,7	<b>899.AS5PR324-18</b>
<b>3P+N+E</b>	2P	320A	95	4,7	<b>899.AS5PR495</b>
	2P	320A	120	4,7	<b>899.AS5PR412</b>
	2P	320A	150	4,7	<b>899.AS5PR415</b>
	2P	420A	150	4,7	<b>899.AS5PR415-16</b>
	2P	500A	185	4,7	<b>899.AS5PR418-16</b>

■ APPLIANCE INLET



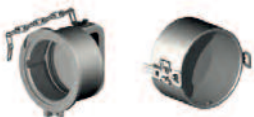
Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (FEMALE)
3P+E	2P	320A	95	3	899.AS5AR395S
	2P	370A	120	3	899.AS5AR312S
	2P	420A	150	3	899.AS5AR315S
	2P	420A	185	3	899.AS5AR318S
	2P	570A	240	3	899.AS5AR324S-18
3P+N+E	2P	320A	95	3	899.AS5AR495S
	2P	320A	120	3	899.AS5AR412S
	2P	320A	150	3	899.AS5AR415S
	2P	420A	150	3	899.AS5AR415S-16
	2P	500A	185	3	899.AS5AR418S-16

■ CONNECTOR



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (MALE)
3P+E	2P	320A	95	5	899.AL5CE395S
	2P	370A	120	5	899.AL5CE312S
	2P	420A	150	5	899.AL5CE315S
	2P	420A	185	5	899.AL5CE318S
	2P	570A	240	5	899.AL5CE324S-18
3P+N+E	2P	320A	95	5	899.AL5CE495S
	2P	320A	120	5	899.AL5CE412S
	2P	320A	150	5	899.AL5CE415S
	2P	420A	150	5	899.AL5CE415S-16
	2P	500A	185	5	899.AL5CE418S-16

■ ACCESSORIES



**Description**

Plug cover for HDAS500 Type

899.AS5PC

# OPTIMA-METAL Series

## HDAS800 Type - max. 800 A - up to 1.000V

### ■ SOCKET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (FEMALE)
3P+E	2P	570A	240	6	899.AS8DF324
	2P	800A	300	6	899.AS8DF330
3P+N+E	2P	570A	240	6	899.AS8DF424
	2P	800A	300	6	899.AS8DF430

### ■ STRAIGHT PLUG



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (MALE)
3P+E	2P	570A	240	8	899.AS8PM324
	2P	800A	300	8	899.AS8PM330
3P+N+E	2P	570A	240	8	899.AS8PM424
	2P	800A	300	8	899.AS8PM430

### ■ APPLIANCE INLET



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Receiving insert (MALE)
3P+E	2P	570A	240	5,4	899.AS8AM324
	2P	800A	300	5,4	899.AS8AM330
3P+N+E	2P	570A	240	5,4	899.AS8AM424
	2P	800A	300	5,4	899.AS8AM430

■ CONNECTOR



Poles	Pilot	Current	Section mm <sup>2</sup>	Weight (Kg)	Supplying Insert (FEMALE)
3P+E	2P	570A	240	9,5	899.AS8CF324
	2P	800A	300	9,5	899.AS8CF330
3P+N+E	2P	570A	240	9,5	899.AS8CF424
	2P	800A	300	9,5	899.AS8CF430

■ ACCESSORIES



**Description**

Plug cover for HDAS800 Type

899.AS8PC

■ APPLICATION EXAMPLES



# OPTIMA-METAL Series

## HDIN250 Interlocked socket

### ■ INTERLOCKED SOCKET



SCAME OPTIMA-METAL Series can also be delivered with mechanical and electrical interlocked socket with housing of polyester powder coating metal sheet enclosure.

Mechanical interlocked socket are provided with a wide range of switches and protection devices as: switch disconnecter, fuse switch disconnecter, MCCB (Molded case Circuit Breaker) and MCCB with RCD (Residual Current Device).

The interlock mechanism prevents making and breaking of power under load.

“The switch cannot be actuated to the ON position until a compatible plug is fully inserted, and the plug cannot be removed until the switch is in the OFF position”.

**Switched socket with interlock HDIN can be mated only with HDAL250 plugs.**

### ■ APPLICATION EXAMPLES



### ■ REFERENCE STANDARDS

#### EN 60309-1

Plugs, socket outlets and couplers for industrial purposes.  
*Part 1: General requirements.*

#### EN 60309-4

Plugs, socket outlets and couplers for industrial purposes.  
*Part 4: Switched socket-outlets and connectors with or without interlock.*

### ■ CONNECTOR CHARACTERISTICS

- OPTIMA-METAL Series HDIN250 Switch Sockets (mechanical interlock):  
3P+E 250 A 400-690 V  
3P+N+ E 250 A 400-690 V
- OPTIMA-METAL Series HDIN250 Fuse switch sockets (mechanical interlock):  
3P+E 250 A 400-690 V (I<sub>cn</sub>: 50 kA - 400V)  
3P+N+ E 250 A 400-690 V (I<sub>cn</sub>: 50 kA - 400V)
- OPTIMA-METAL Series HDIN250 With MCCB (electrical interlock):  
3P+E 250 A 400-690 V (I<sub>cn</sub>: 50 kA - 400V)  
3P+N+ E 250 A 400-690 V (I<sub>cn</sub>: 50 kA - 400V)
- OPTIMA-METAL Series HDIN250 With MCCB plus RCD (electrical interlock):  
3P+E 250 A 400-690 V (I<sub>cn</sub>: 50 kA - 400V)  
3P+N+ E 250 A 400-690 V (I<sub>cn</sub>: 50 kA - 400V)

## ■ INTERLOCKED SOCKET



Poles	Pilot	Volt	Current	Fuse			
				Switch-socket	switch-socket	MCCB	MCCB+RCD (*)
3P+E	2P	400-690V	250A	899.IN25086	899.IN25086F	899.IN25086M	899.IN25086RM
3P+N+E	2P	400-690V	250A	899.IN25087	899.IN25087F	899.IN25087M	899.IN25087RM

(\*) up to 440V - contact SCAME technical service for application above 440V.

## ■ TECHNICAL DATA RATING SWITCH DISCONNECTORS 3P AND 3P+N 250A

Rated current		(A)	25
Rated insulation voltage		(V)	1000
Impulse withstand voltage		(kV)	12
Rated thermal current		(A)	250
Rated operational current	AC21A	415V	(A) 250
		500V	(A) 250
		690V	(A) 250
	AC22A	415V	(A) 250
		500V	(A) 250
		690V	(A) 250
	AC23A	415V	(A) 250
		500V	(A) 200
		690V	(A) 160
Rated making capacity		(A)	2500
Rated breaking capacity		(A)	2000
Short circuit withstand current 1 sec.		(kA)	8
Short circuit withstand current 0.25 sec.		(kA)	16
Short circuit making capacity		(kA)	13.5
Rated operational power		(kW)	130
Rated fuse short-circuit current	Back up fuse	(A)	250
	R.M.S. value	(kA)	50
	Peak value	(kA)	25
	Cable section	mm <sup>2</sup>	120
	Bars dimension	mm <sup>2</sup>	20x5

## ■ ENCLOSURE TECHNICAL CHARACTERISTICS

Polarity:	<b>3P-3P+N</b>
Rated current:	<b>250A</b>
Protection degree:	<b>IP65</b>
Operating temperature according to the reference standard:	<b>-5°C / +40°C</b>
Mix-Max. operating temperature:	<b>-25°C +60°C</b>
Material:	<b>Sheet steel</b>
IK degree:	<b>IK10</b>
Finishing/colour:	<b>Polyester powder grey RAL7032</b>

3P+N with late break early make neutral pole.  
Padlockable handle.  
Equipped with door locking.

## ■ WIRING OPERATIONS

Wiring capacity of the terminals (mm<sup>2</sup>):

Type	min.	max
Switch	70	185
Fuses switch	90	120
MCCB	70	185
MCCB + RCD	70	185

# OPTIMA-METAL Series

## HSDS Type

### ■ SWITCHING CONNECTOR



HSDS200 plugs and sockets are equipped of an innovative system to disconnect the equipment on full load up to 200A by special contacts able to macking carrying and bracking corrent as a switch disconnecter even in case of high inductive loads, like motor loads. So that connections and disconnections can be done under load in complete safty and reability.

HSDS200 plugs and sockets have also a device to avoid wrong mating between plug and socket with different amperage, voltage and number of poles as for IEC60309 plugs and sockets.

Finally a very high level of safety is guaranteed by shotter (safety disc) on the sockets or connectors which are the supplier part normally live (IP4X when lid is open).

HSDS200 range is the complete answer for management who take industrial safety seriously and have many non-specialist personnel needing power for portable tools and equipement.

Our HSDS200 plug and sockets are moulded in high quality plastic materials which combine exceptional impact resistance, tolerance of most industrial chemicals, detergents and exposure to UV light.

### ■ REFERENCE STANDARDS

#### EN 60309-1

Plugs, socket outlets and couplers for industrial purposes.  
*Part 1: General requirements.*

#### EN 60947-3

Low voltage switchgear and controlgear.  
*Part 3: switches, disconnectors, switch-disconnectors and fuse combination unit.*

### ■ ELECTRICAL CHARACTERISTICS

Rated current:	<b>150/250A</b>
Max. Voltage:	<b>1000 V AC / 250 V DC</b>
Switching capacity:	<b>150A AC23 (acc. IEC 60 947-3) *</b>
	* up to 150A 500V

### ■ MECHANICAL CHARACTERISTICS

Protection degree:	<b>IP4X when lid open IP66</b>
Housings:	<b>Corrosion proof cast aluminum</b>
Stainless steel fastenings	
Self-closing lid	
Temperature range:	<b>- 30° C / + 60° C</b>
Mechanical shocks withstand:	<b>IK09 (metal)</b>



## ■ LIST OF MATERIAL USED

Size	Casing	Flat Seal	Lip seal	Insert	Latch	Contact	Handle	Wall box	Inclined sleeve	Screw	Plug cap
HSD200	AS7G	Neopren	Nitrile	PA6	AS7G	Copper/ Silver	EPDM	AS7G	AS7G	Stainless steel	PA6

## ■ MAXIMUM CONDUCTOR AND CABLE SIZES

	Cable outside diametre (mm)		Sheathing stripping length (mm)	Insulation stripping length (mm)
	Min.	Max.		
899.SD2G	22	50	155	38
899.SD2GM	25	62	155	38
899.SD2GMA	25	62	155	38

## ■ WATERTIGHT CONNECTORS WITH SWITCHING CAPACITY

Our **HSD200** range of connectors is extremely robust and supersedes the requests of **EN 60309-1** standards in terms of safety, insulation, temperature resistance, heating, life duration, resistance to shocks and traction on the cables.

Besides, due to the special technology of the contacts and the materials chosen, the 3PS series can be used as **SWITCHED sockets**, according to the standard **EN60947-3, AC23**.

## ■ SAFETY DISC (IP4X)

This device protects the user preventing accidental and voluntary contact of live parts of the sockets and connectors even with small linear tool or wire with a diameter of 1 mm. Which correspond to IP4X degree protection.

Conductor cross section (mm <sup>2</sup> )	
Standard	120
Flexible	95
Tightening torque	5

## ■ CONTACTS

**HSD200** connectors are fitted with butt contacts which have a brazed silver alloy tip for low voltage drop and high arc resistance. These contacts warrant an excellent behaviour of the switching function.

The contact terminal will ensure a permanent pressure on the cable due to its elastic slotted sleeve with its expansion limited by a ring. This construction is vibration proof. All conductive parts are tin plated to prevent corrosion.



# OPTIMA-METAL Series

## HDSD200 Type - 200/250 A

### SOCKET



Poles	Pilot	Volt	Current	
3P+E	NO	220/250V	200/250A	899.SD2D30E03
	NO	380/440V	200/250A	899.SD2D30E01
3P+N+E	NO	380/440V	200/250A	899.SD2D3NE01

### APPLIANCE INLET



Poles	Pilot	Volt	Current	
3P+E	NO	220/250V	200/250A	899.SD2A30E03
	NO	380/440V	200/250A	899.SD2A30E01
3P+N+E	NO	380/440V	200/250A	899.SD2A3NE01

### PLUG



Poles	Pilot	Volt	Current	
3P+E	NO	220/250V	200/250A	899.SD2P30E03
	NO	380/440V	200/250A	899.SD2P30E01
3P+N+E	NO	380/440V	200/250A	899.SD2P3NE01

■ ACCESSORIES

Description	for			899.SD2G	899.SD2GM	899.SD2GMA
	Socket	Appliance inlet	Plug			
Handles (neoprene)	✓	✓				
Handles (aluminium)	✓	✓				
Angled Handles (aluminium)	✓	✓				



Description	for			899.SD2LB	899.SD2WAS	899.SD2PC
	Socket	Appliance inlet	Plug			
Panel mounting inclined box (30°)	✓	✓				
Wall mounting inclined box 30°	✓	✓				
Plug cap		✓	✓			



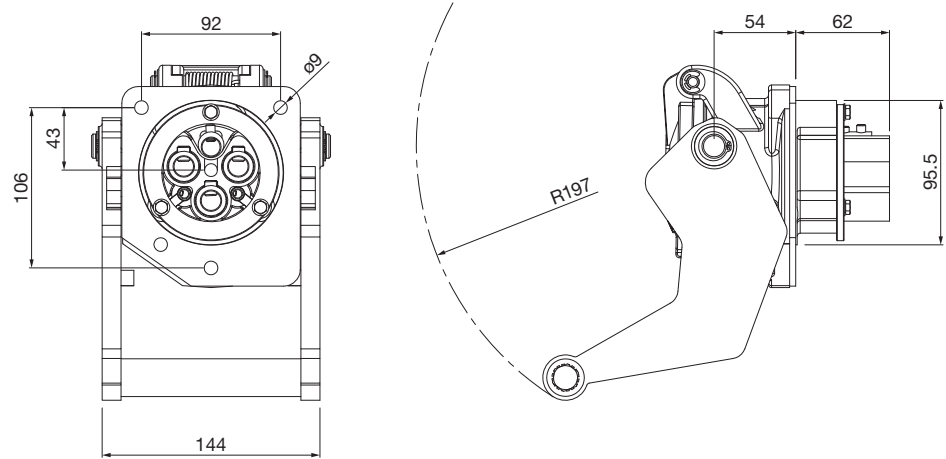
■ LOCKING ARMS



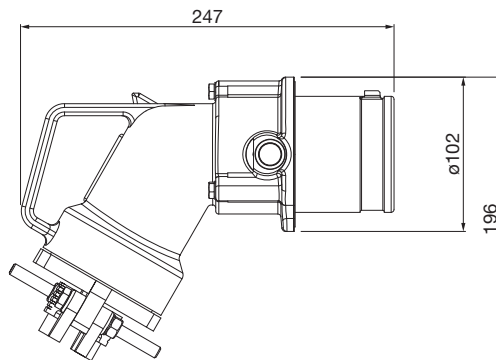
# OPTIMA-METAL Series

## HDAL250 TYPE DIMENSIONS

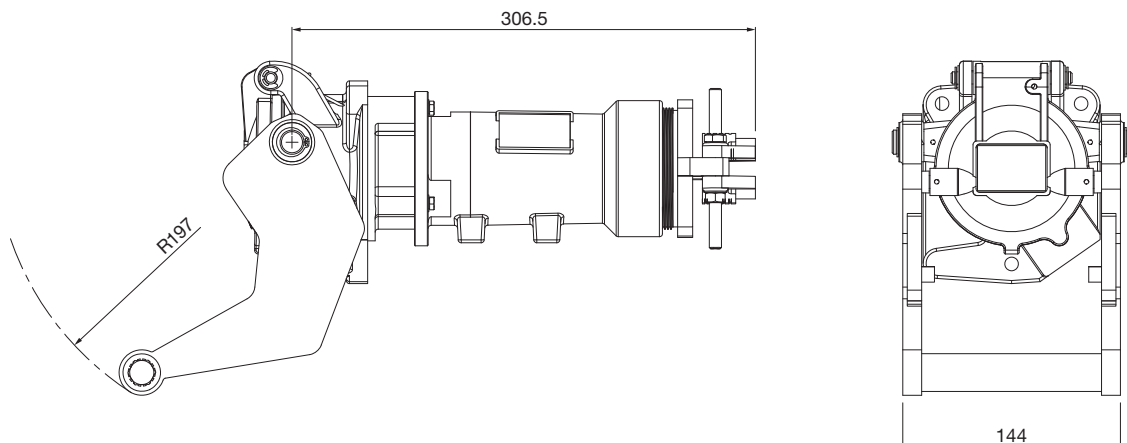
### SOCKET



### ANGLED PLUG 60°

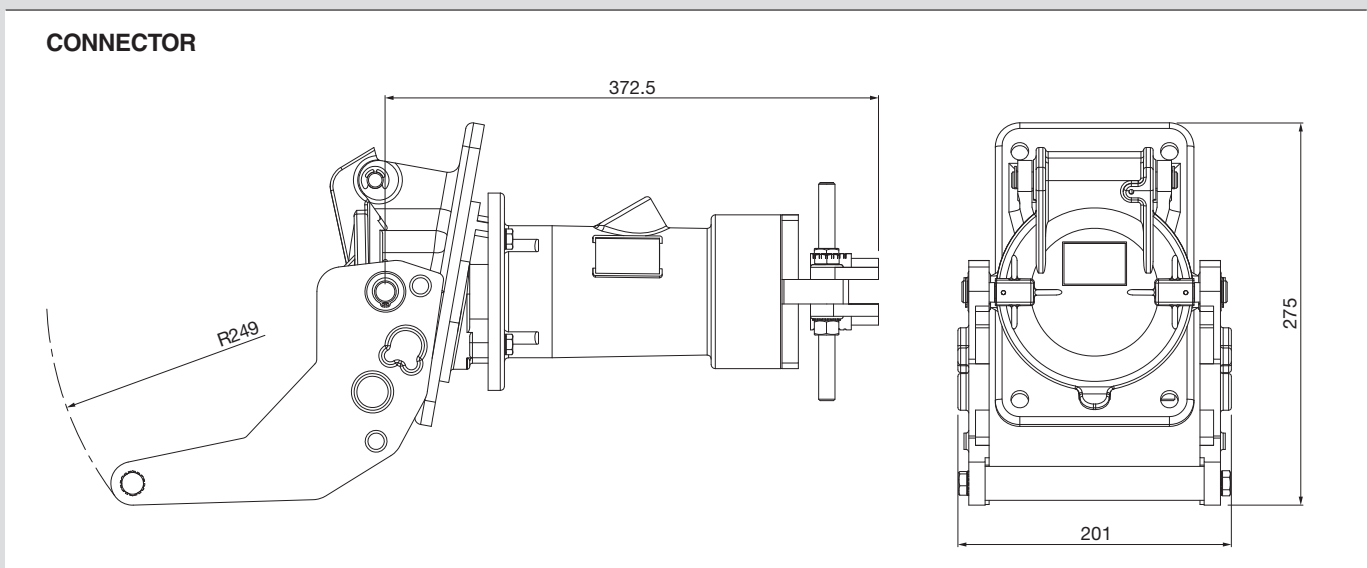
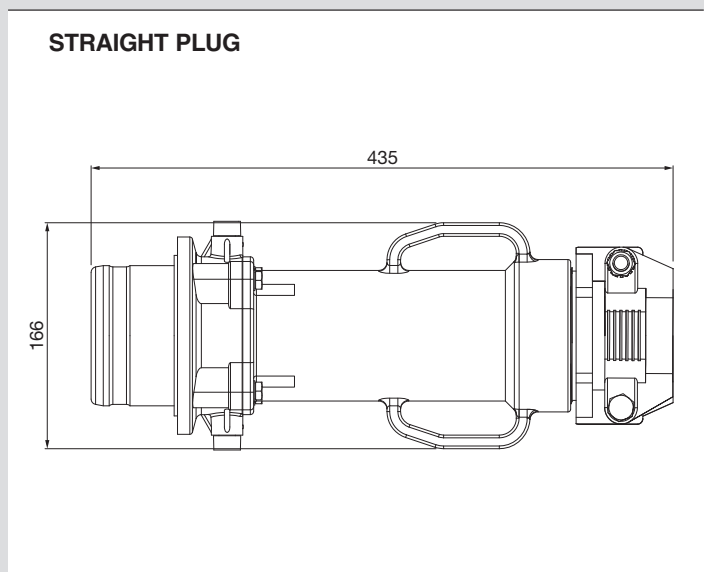
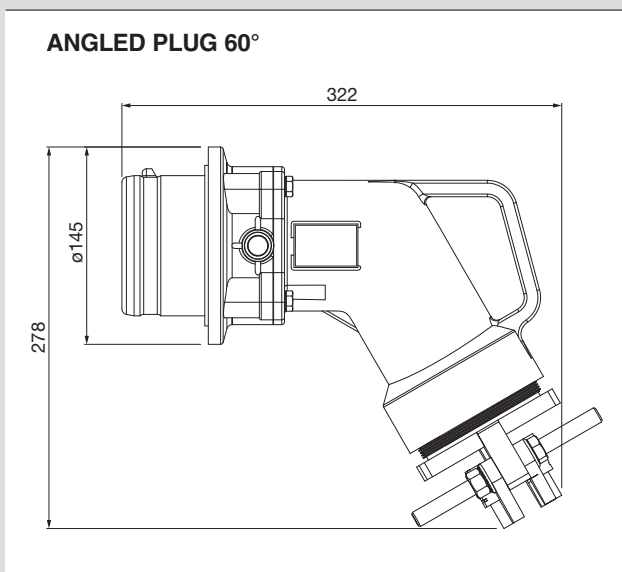
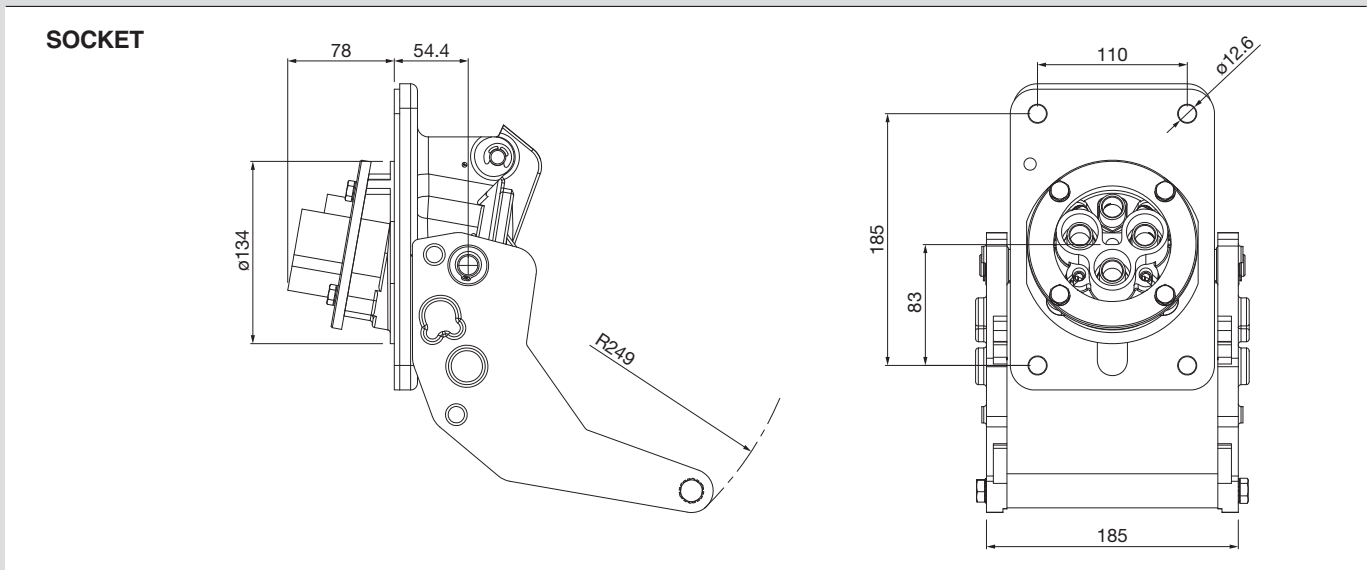


### CONNECTOR



(Dimensions in mm)

■ HDAL500 TYPE DIMENSIONS

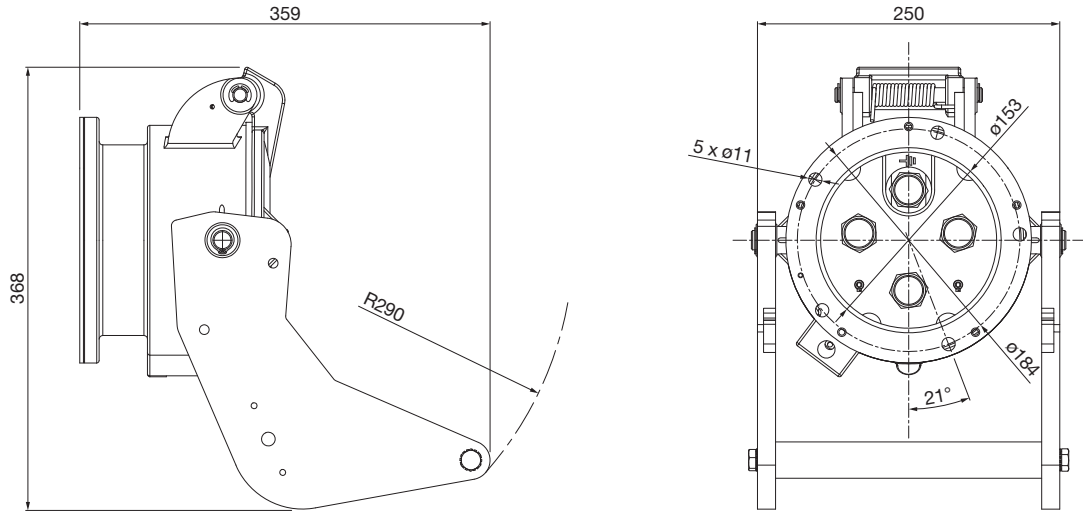


(Dimensions in mm)

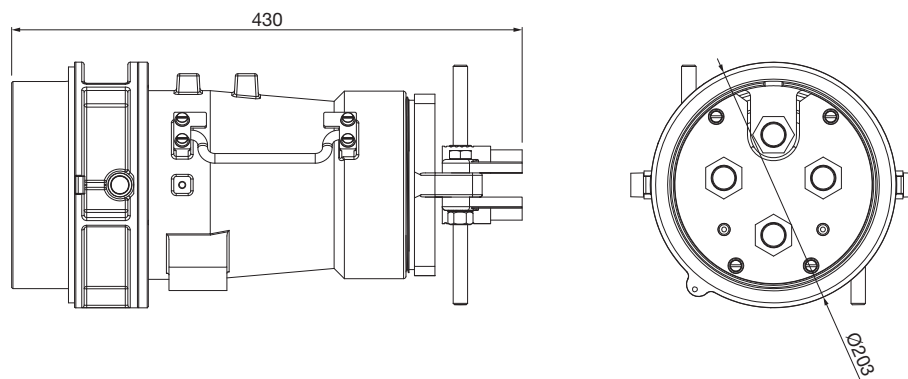
# OPTIMA-METAL Series

## HDAL800 TYPE DIMENSIONS

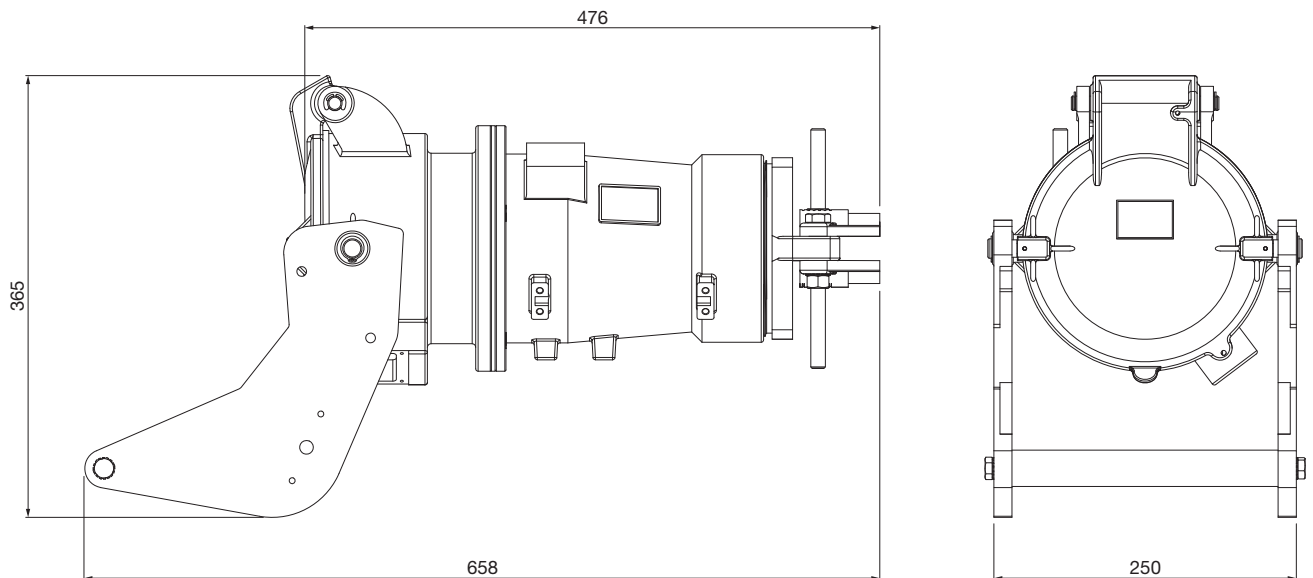
### SOCKET



### STRAIGHT PLUG



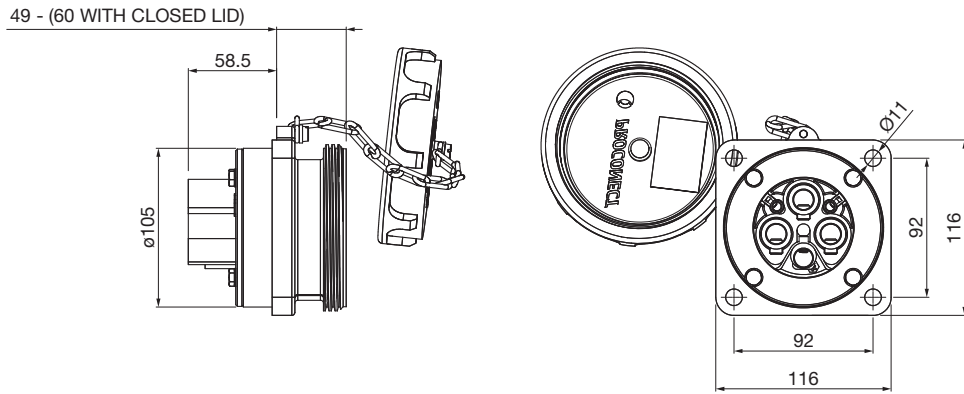
### CONNECTOR



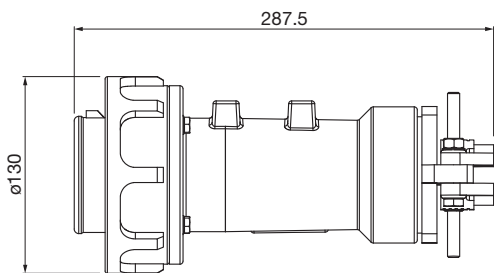
(Dimensions in mm)

■ HDAS250 TYPE DIMENSIONS

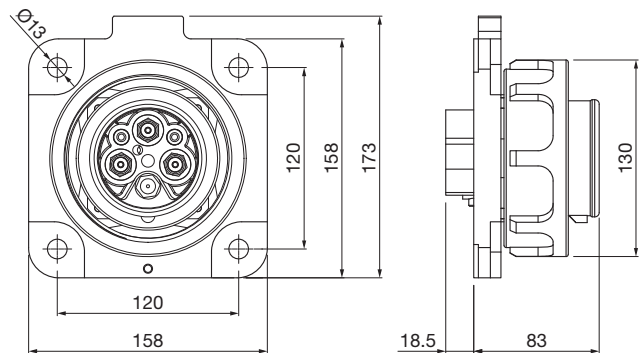
SOCKET



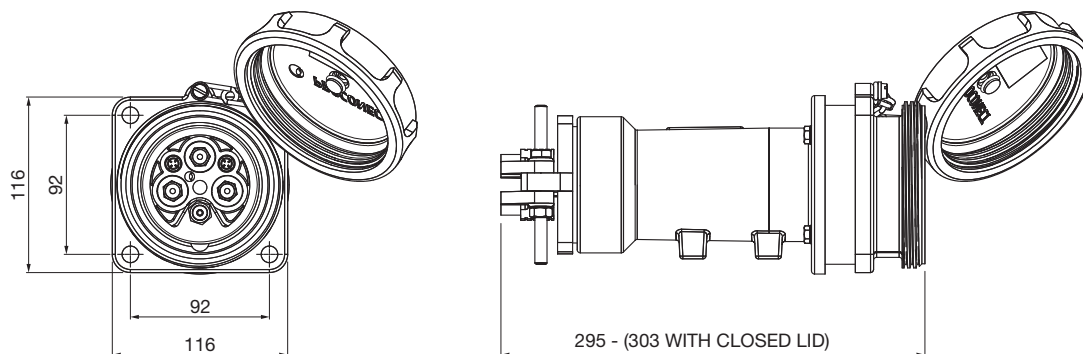
STRAIGHT PLUG



APPLIANCE INLET



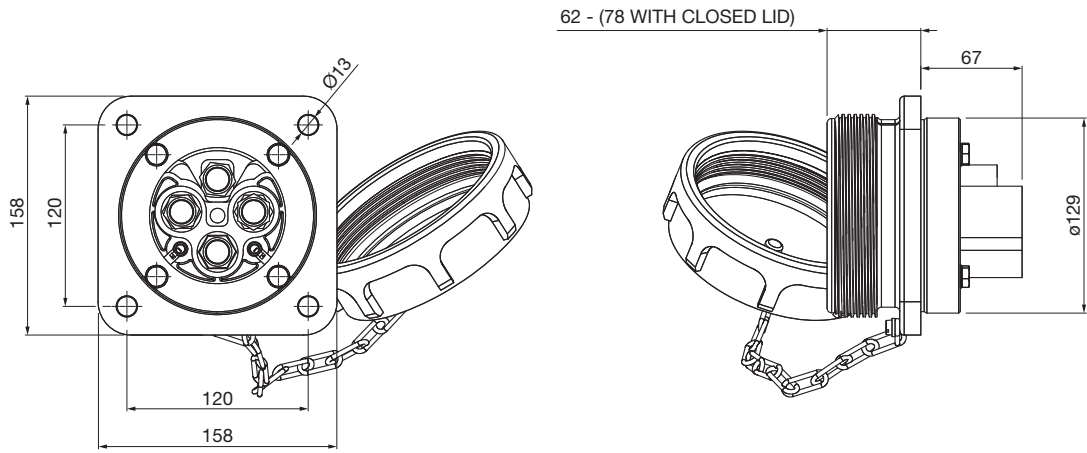
CONNECTOR



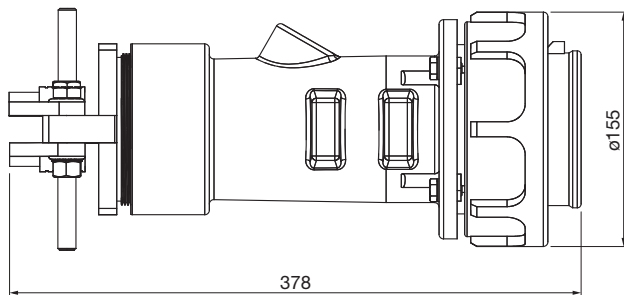
# OPTIMA-METAL Series

## HDAS500 TYPE DIMENSIONS

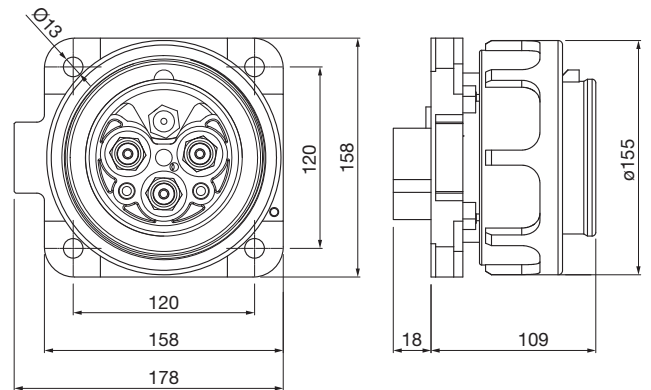
### SOCKET



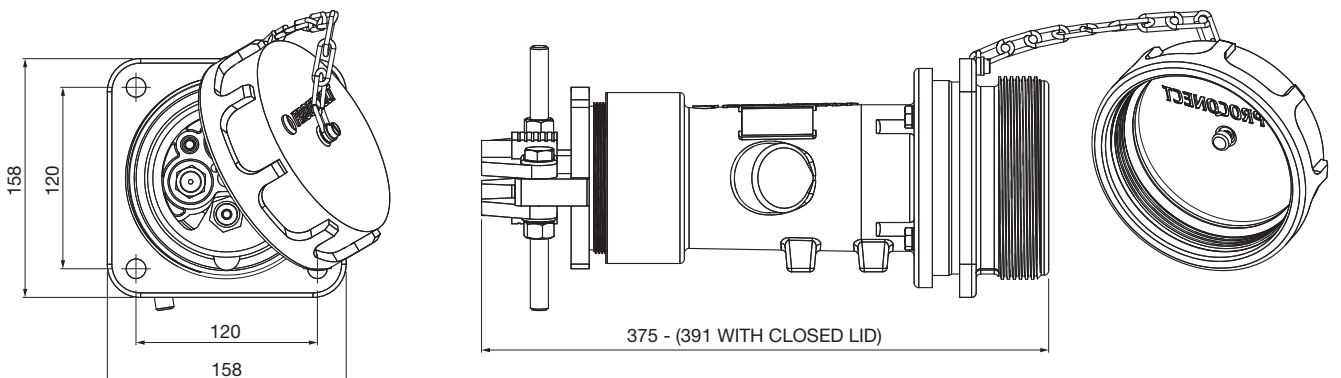
### STRAIGHT PLUG



### APPLIANCE INLET



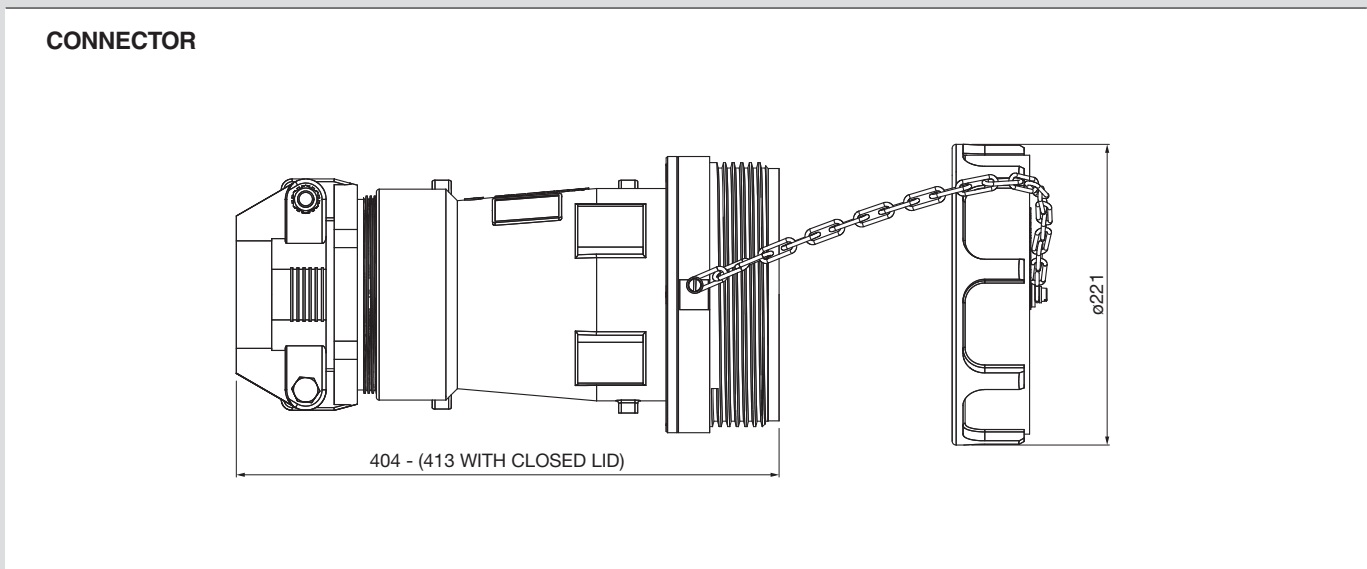
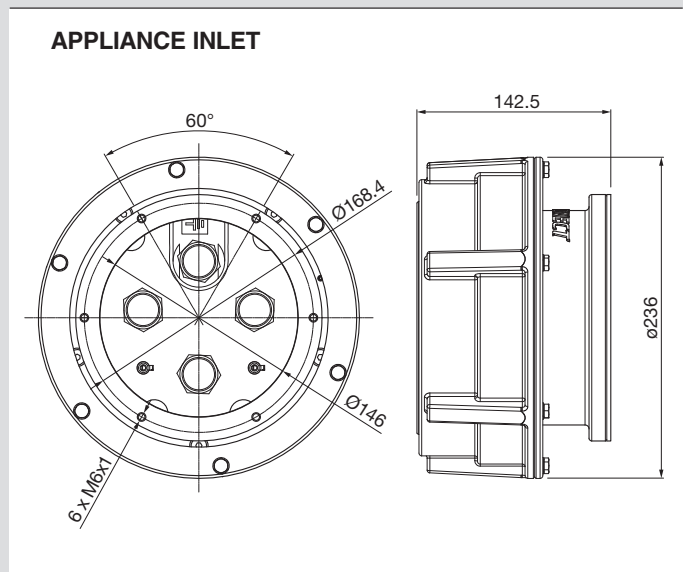
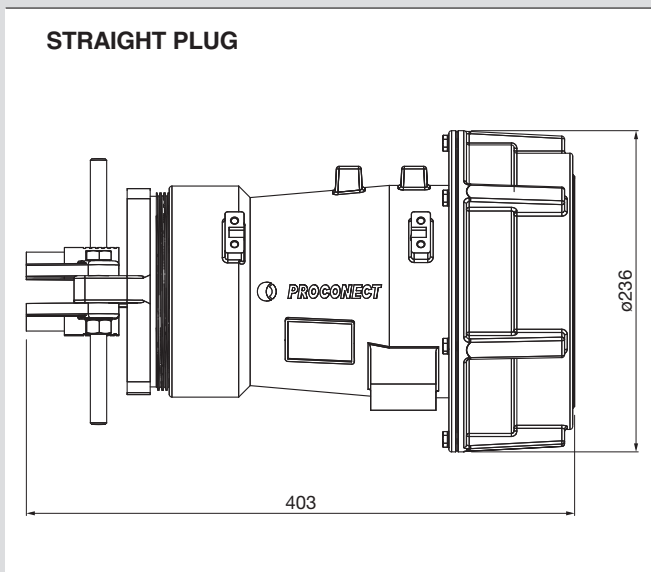
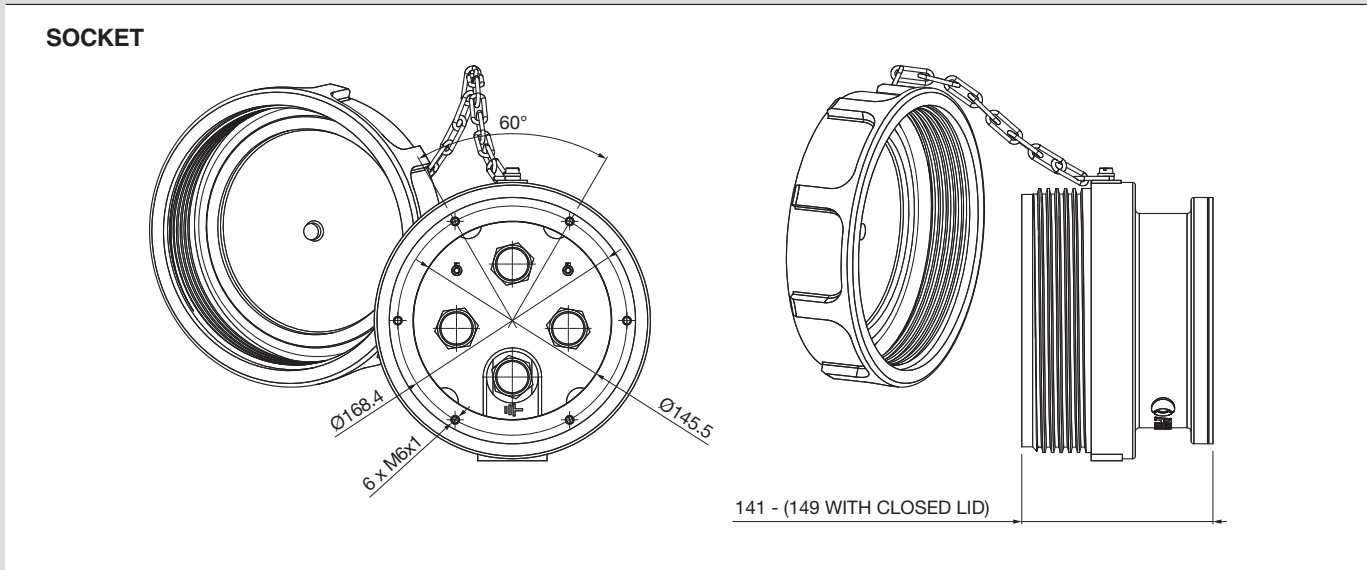
### CONNECTOR



(Dimensions in mm)



■ HDAS800 TYPE DIMENSIONS

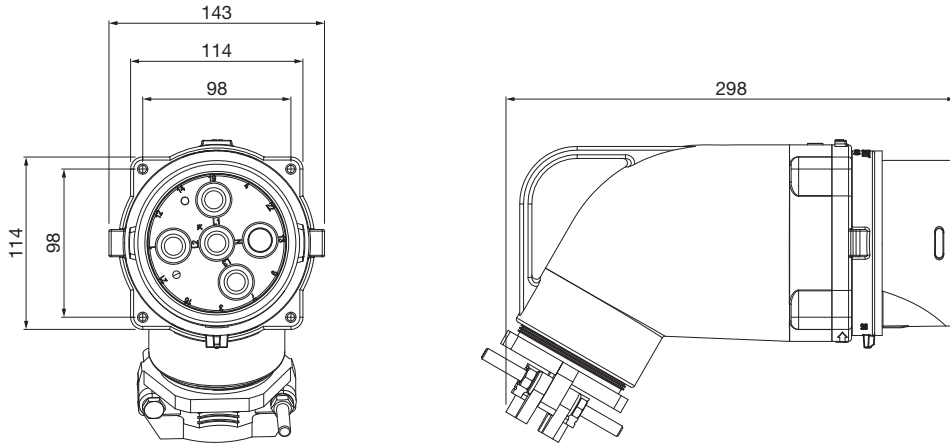


(Dimensions in mm)

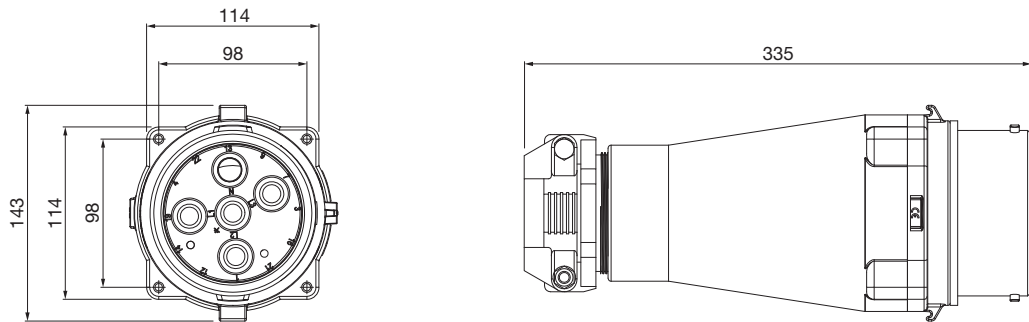
# OPTIMA-METAL Series

## ■ HSD200 TYPE DIMENSIONS

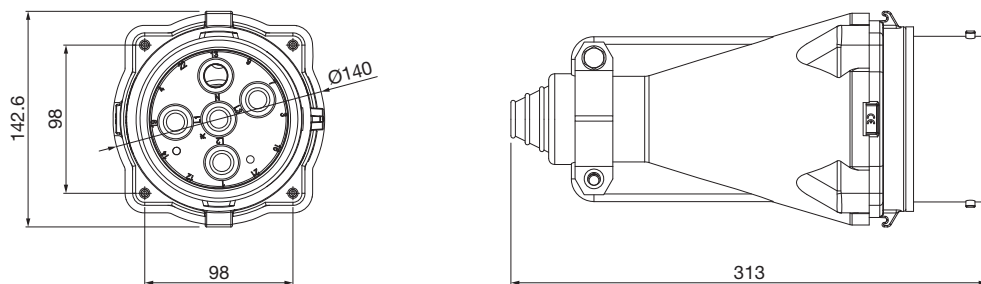
### PLUG WITH ANGLED ALUMINIUM HANDLE



### PLUG WITH STRAIGHT ALUMINIUM HANDLE

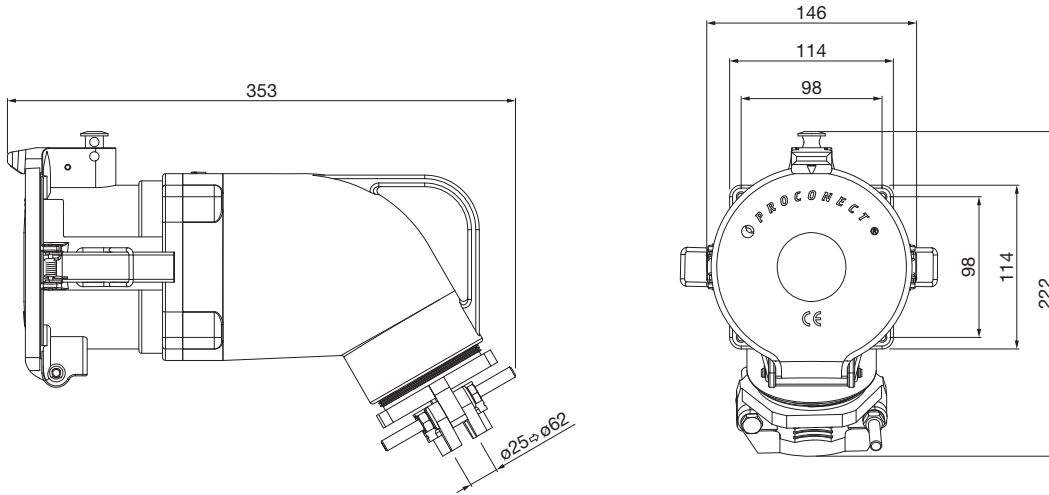


### VPLUG WITH STRAIGHT NEOPRENE HANDLE

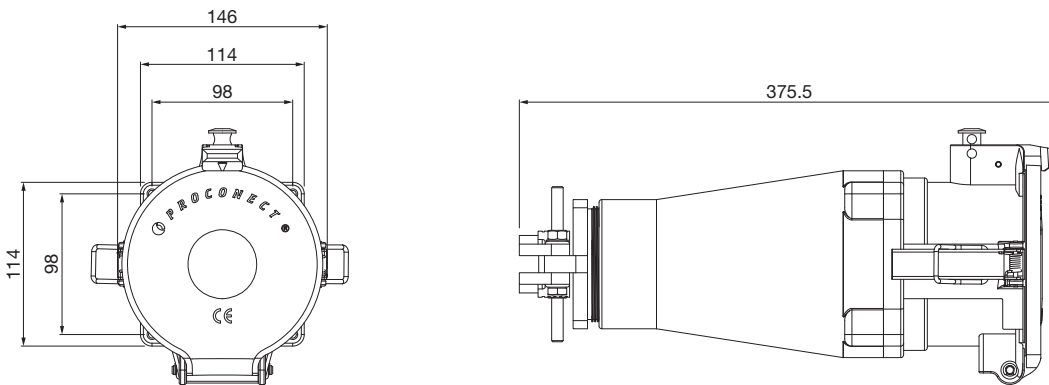


(Dimensions in mm)

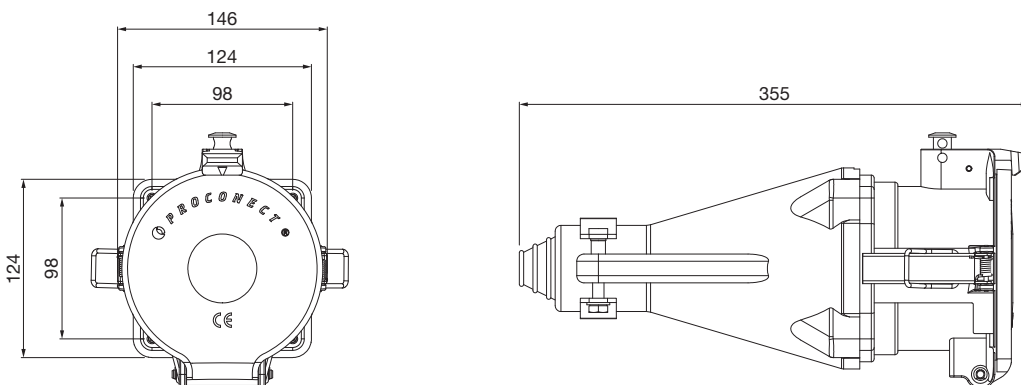
**CONNECTOR WITH ANGLES ALUMINIUM HANDLE**



**CONNECTOR WITH STRAIGHT ALUMINIUM HANDLE**



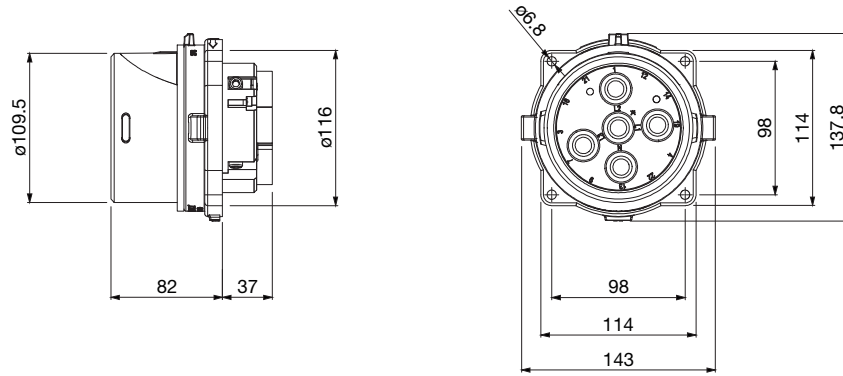
**CONNECTOR WITH STRAIGHT NEOPRENE HANDLE**



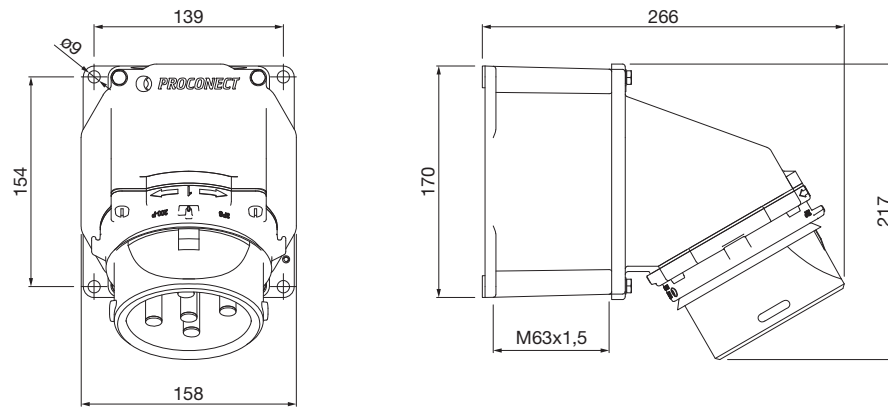
# OPTIMA-METAL Series

## ■ HSD200 TYPE DIMENSIONS

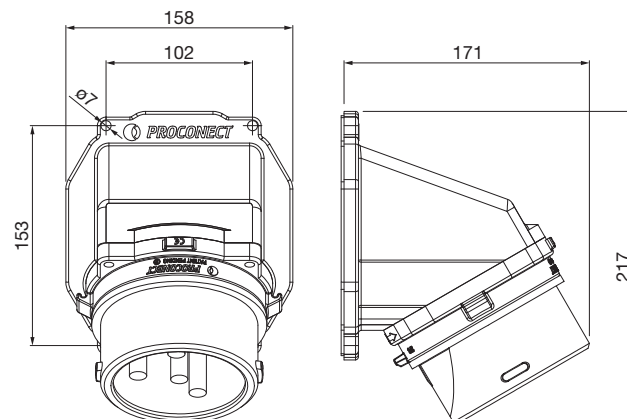
### INLET



### WALL MOUNTING APPLIANCE INLET

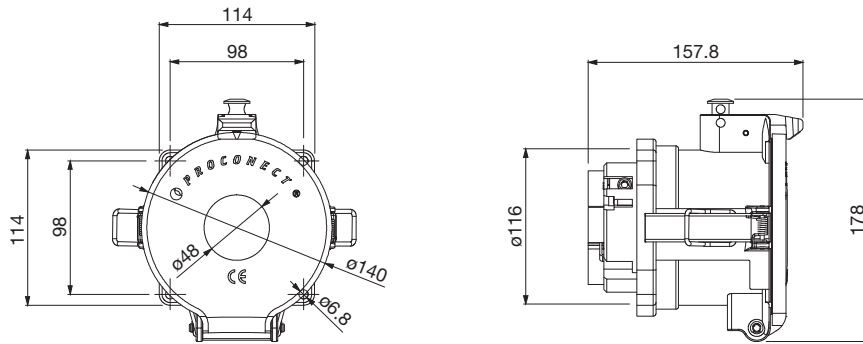


### PANEL MOUNTING APPLIANCE INLET

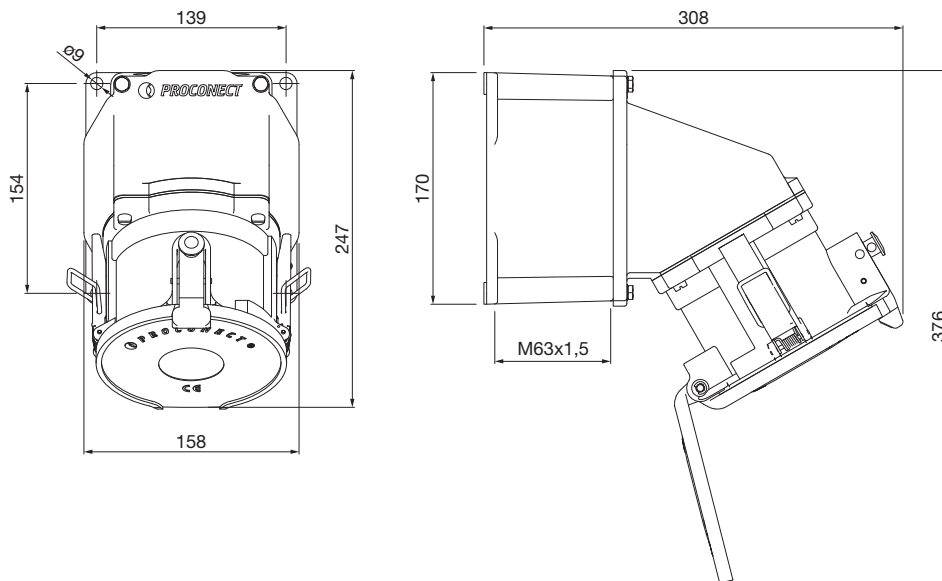


(Dimensions in mm)

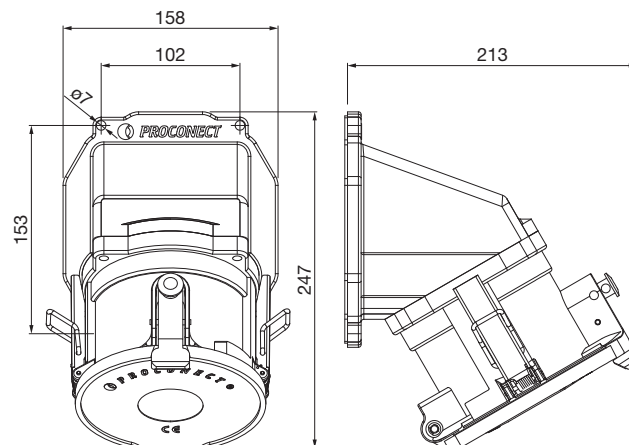
SOCKET



WALL MOUNTING SOCKET

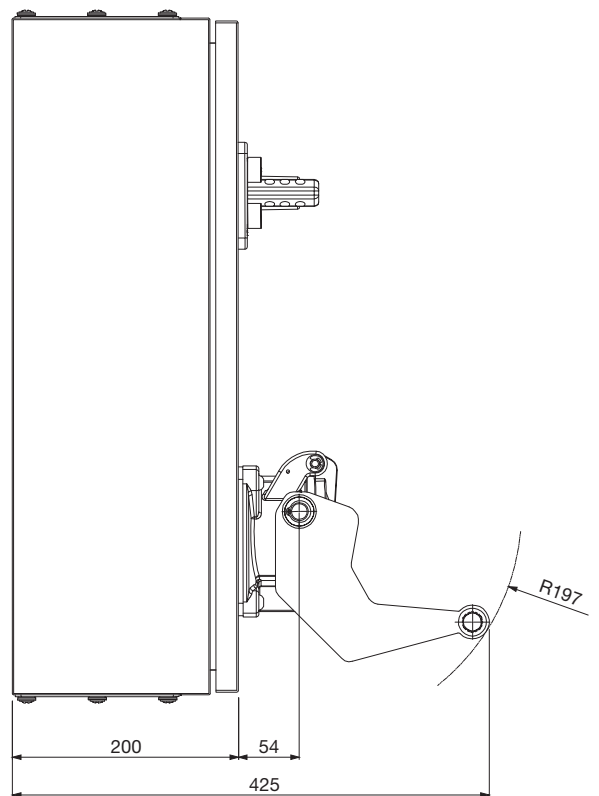
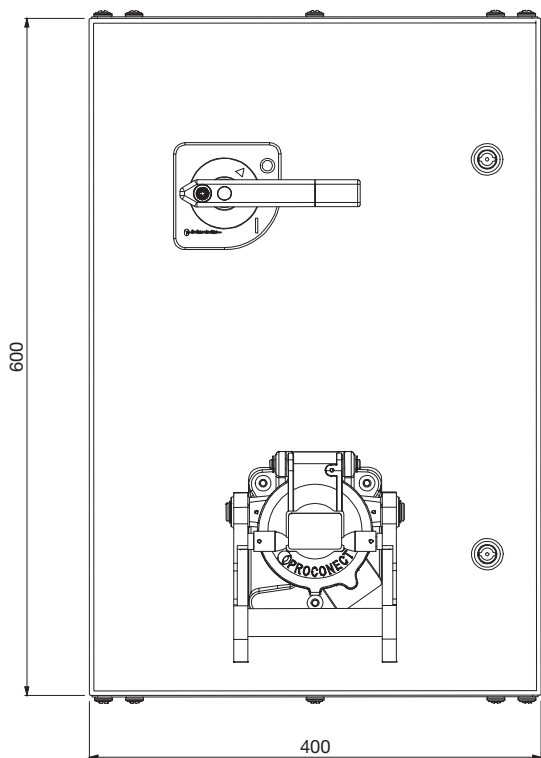
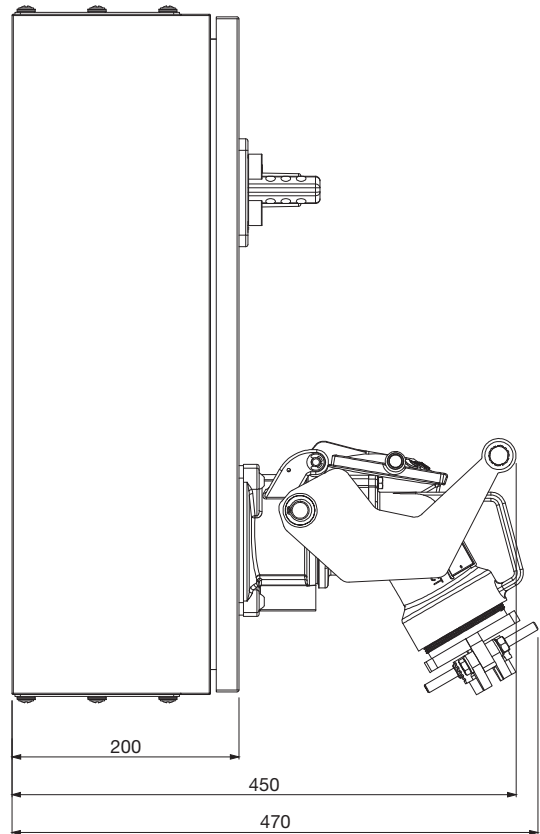
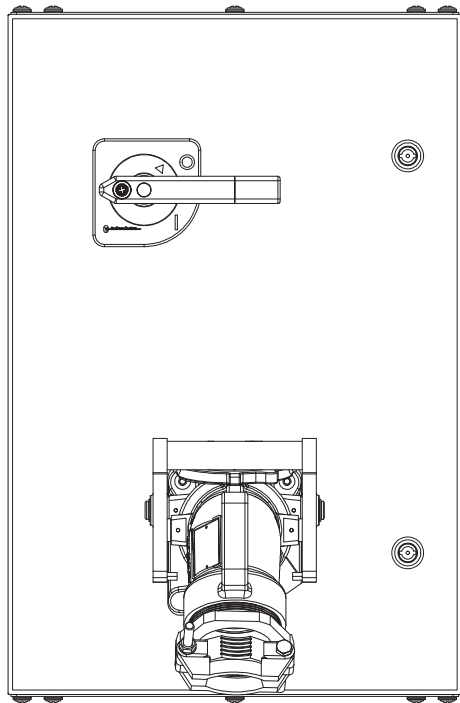


PANEL MOUNTING SOCKET



# OPTIMA-METAL Series

## ■ HDIN250 TYPE DIMENSIONS



### 1<sup>ST</sup> NUMBER

Protection for people from contact with hazardous parts (see also ADDITIONAL LETTER) and protection of equipment from the entry of solid foreign bodies.

IP	Solid foreign objects	Access to hazardous parts	
0			<b>No protection</b>
1			Protection from solid objects larger than 50mm (eg accidental contact of the hand)
2			Protection from solid objects larger than 12mm (eg the finger of a hand)
3			Protection from solid objects larger than 2.5mm (eg tools, wires)
4			Protection from solid objects larger than 1mm (eg fine tools and small wires)
5			Protection from dust (no harmful deposits)
6			Completely protected from dust

1st : Protection against solids. According to standards: EN60529

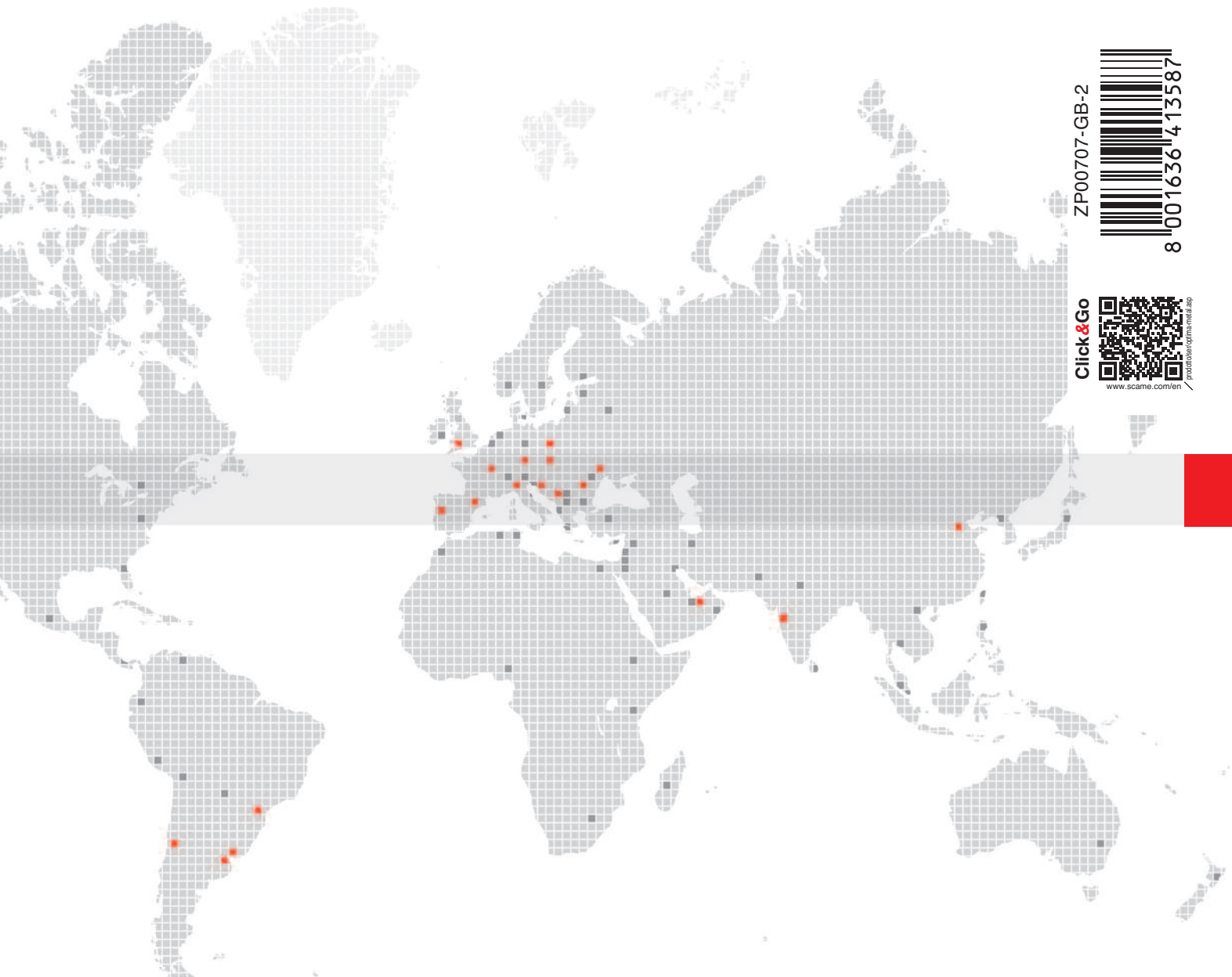
### 2<sup>ND</sup> NUMBER

Protection of equipment from water entry.

IP		Prove
0		<b>No protection</b>
1		Protected from vertically falling water drops
2		Protected from vertically falling water drops at up to 15° from the vertical
3		Protected from vertically falling water drops at up to 60° from the vertical (rain)
4		Protected from splashing water in all directions
5		Protected from jets of water in all directions
6		Protected from jets of water similar to heavy seas
7		Protected from the effects of immersion
8		Protected from the effects of submersion

2nd figure: Protection against liquids.

According to standards: EN60529.



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Chile
- SCAME**<sup>TOP</sup>  
China
- SCAME**<sup>HR</sup>  
Croatia
- SCAME**<sup>CZ</sup>  
Czech Republic
- SOBEM**<sup>FRANCE</sup>  
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**ScameOnLine**  
 www.scame.com  
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**SCAME PARRE S.p.A.**  
 VIA COSTA ERTA, 15  
 24020 PARRE (BG) ITALY  
 TEL. +39 035 705000  
 FAX +39 035 703122

