

# S.A.I.B. Connectique

## DATA SHEET DT 1038 Rev H



### STAINLESS STEEL CONNECTORS Nuclear Instrumentation

#### NU 25 Series

K2 Classified & Non Classified

3 cts

7 cts

ATEX



SAIB Connectique - 7 rue Salvador Allende - 42350 LA TALAUDIERE - FRANCE



+33 (0)4 77 74 03 17



saib@saib.fr






www.saib.fr

## TABLE OF CONTENTS

<b>Page 3</b>	<b><i>Validation &amp; History of modifications</i></b>
<b>Page 4</b>	<b><i>General description</i></b>
<b>Page 5</b>	<b><i>K2 classified &amp; Non-Classified versions</i></b>
<b>Page 6</b>	<b><i>Technical characteristics</i></b>
<b>Page 8</b>	<b><i>Male receptacles Size 1</i></b>
<b>Page 10</b>	<b><i>Female plugs Size 1</i></b>
<b>Page 11</b>	<b><i>Special female plugs Size 1</i></b>
<b>Page 12</b>	<b><i>ATEX certifiable female plugs Size 1</i></b>
<b>Page 13</b>	<b><i>Male plugs Size 1</i></b>
<b>Page 14</b>	<b><i>ATEX certified extension Size 1</i></b>
<b>Page 15</b>	<b><i>Male receptacles Size 2</i></b>
<b>Page 16</b>	<b><i>Female plugs Size 2</i></b>
<b>Page 17</b>	<b><i>Special female plugs Size 2</i></b>
<b>Page 18</b>	<b><i>ATEX certifiable female plugs Size 2</i></b>
<b>Page 19</b>	<b><i>Male plugs Size 2</i></b>
<b>Page 20</b>	<b><i>ATEX certified extension Size 2</i></b>
<b>Page 21</b>	<b><i>Tooling &amp; Spare parts</i></b>

## VALIDATION

		Dates	Signature
Written by	Olivier BROUSSON	05/07/2023	
Checked by	Fabien GAIFFE	05/07/2023	
Approved by	Christophe BESSON	05/07/2023	

## HISTORY OF MODIFICATIONS

Rev.	Scope of the revisions	Dates
E	Addition of non-classified parts and change of the document layout.	28/11/13
F	Take in account of RCC-E 2012, RCC-E 2016 and CST 74.C.030.03 Addition of ATEX parts number 254-103-411 K2 (Request for modification MOD150801), 254-207-411 K2 (Request for modification MOD180501) and 258-103-411 NC.	31/05/18
G	Addition of parts n° 253-103-401 K2 (Request for modification MOD180601), 258-103-411 K2 (Request for modification MOD180602), 253-207-401 K2 qualification in progress (Req. for Modification MOD190701), 258-207-411 NC and K2 qualification in progress (Req. for modif. MOD190702), Modification of the nominal voltage to 230V (Req. for modif. MOD190703), Precisions about ATEX marking.	13/12/19
H	Addition of parts n° 253-103-40 K2 (Request for modification MOD210801-A), 253-207-400 K2 (Request for modification MOD210901-A), 253-207-401 K2 (Request for modification MOD221001), 258-207-411 K2 (Request for modification MOD221002), Correction of TE reference on tubing 25-44-00: WCSF-200-18/5-75/N-CS411 instead of WCSF-200-18/5-75/N (Request for modification MOD230601-A), Update of the range of cable diameters (Request for modification MOD230602-A, MOD230703-A, MOD230704-A, MOD230705-A), Addition of the NU25 user tool case, Addition of the 90° adapter for size 1 non-classified receptacles.	05/07/23

## GENERAL DESCRIPTION

**NU25 Series:** cylindrical connectors with bayonet coupling ring for **nuclear applications**:

- 🔧 **In accordance with NF L54-120 A standard** (those connectors allow a full compatibility with other connectors designed in accordance with NF L54-120 A standard).
- 🔧 **360° shielding** designed following the requirements of **RCC-E 2005** and **CST 74.C.030.03** and in accordance with **RCC-E 2012** and **RCC-E 2016**.

**360° shielding:** Achieved using the **braid collector washer into the backshell**. Continuity between the plug & receptacle ensured by a **360° conductive O-ring**.

Our connectors are manufactured out of **316L passivated stainless steel** (Z2CND1712).

They are equipped with a **silicone insert** (male for the receptacle, female for the plug) and **silicone seals**, complying with **K2 requirements and steam environment (100 °C, 100 h)**.

Crimp contacts, male or female, for **wires with a section of 0,34 to 1,5 mm²**.

**Cable diameters:** see page 6 “Technical Characteristics” and the pages specific to each reference.

Our plugs have been qualified using **adhesive Raychem heat shrinkable tubings**. All the references of the tubings are mentioned on the top of the page of the corresponding plugs.

**These tubings must necessarily be used for both non-classified and K2 classified plugs.**

**Plugs in ATEX version:** Additional locking by grub screw and/or lead seal & wire.



## K2 CLASSIFIED VERSION

These connectors are designed to meet the requirements of **K2 qualification + steam environment (100 °C, 100 h)**.

Every order requiring K2 classification is manufactured with traceability, individual packaging and formalism for the controls, in accordance with the EDF various specifications.

An associated End of Manufacturing Report (EOMR) is necessarily added to the order.

**Marking** of each connector: SAIB, part number, production date YY/WW, **K2**.

**ATEX** version (II 2G Ex eb IIC T4 to T6 Gb) available in **K2 classified version**.

## NON CLASSIFIED VERSION

The non-classified connectors are the same as the K2 classified ones (same design and production processes).

Standard packaging. Basic traceability and formalism of the controls.

**Marking** of each connector: SAIB, part number, production date YY/WW, **NC**.

**ATEX** version (II 2G Ex eb IIC T4 to T6 Gb) available in **Non-classified version**.

## TECHNICAL CHARACTERISTICS

### Electrical

✚ Class	K2 – Rev. A - 500 mating cycles
✚ Voltage withstands	Dielectric holding at 50 Hz: 2 Kv
✚ Short time over-current	250 A during 30 ms
✚ Maximum connection resistance Rm	$R_m < 3 \text{ m}\Omega$
✚ 360° shielding device	YES
✚ Maximum shielding resistance	$< 20 \text{ m}\Omega$
✚ Mating force (applied on the locking ring)	$< 2 \text{ N m}$
✚ Unmating force (applied on the locking ring)	$< 2 \text{ N m}$
✚ Cable clamping ensured by the adhesive heat shrink tubing	YES
✚ Maximum tension force on cable	$F_m = 100 \text{ N}$
✚ Maximum torque on cable	$C_m = 0,5 \text{ N m}$
✚ Nominal voltage (Un)	230 V~
✚ Nominal current (In)	In = 11A for S = 1,5 mm <sup>2</sup> In = 8A for S = 1 mm <sup>2</sup> In = 5A for S = 0,5 mm <sup>2</sup>
✚ Reduced current	Im = 9 A for S = 1,5 mm <sup>2</sup> Im = 6 A for S = 1 mm <sup>2</sup> Im = 4 A for S = 0,5 mm <sup>2</sup>

### Mechanical

✚ Mini/maxi wire cross-sectional area	0,34 mm <sup>2</sup> / 1,5 mm <sup>2</sup>							
✚ Receptacle mounting type	4 screws M3, M20 x 1,5 or ½ NPT thread							
✚ Locking system	Bayonet coupling ring							
✚ Diameter of the cables admissible by the plugs (mm):								
	Size 1 (3 cts)				Size 2 (7 cts)			
	Cable-gland		Shielding continuity		Cable-gland		Shielding continuity	
	NC	K2	NC	K2	NC	K2	NC	K2
Minimum diameter	8	8	8	8	8	8	8	10
Maximum diameter	12,9	12,9	12,9	12,9	12,9	12,9	15	15

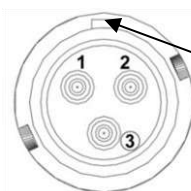
### ***Environmental***

☙ Salt spray	168 H
☙ Ingress Protection	IP66 (Non-classified) / IP65 (K2)
☙ Temperature range (according to K2 qualification)	- 35°C / + 60°C
☙ Steam environment	100 °C, 1 bar, 100% HR, 100 h
☙ Radiations	250 kGy (25 Mrd)

### ***ATEX***

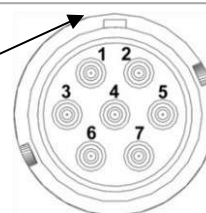
- ☙ Please contact us for the technical characteristics of our ATEX range of connectors.  
(II 2G Ex eb IIC T4 to T6 Gb)

### ***CONFIGURATION Size 1 & 2***



**Size 1 , 3 cts**

Keyway



**Size 2 , 7 cts**

**Front view of the receptacle**

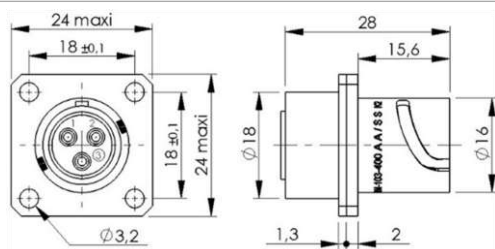
## DIMENSIONAL CHARACTERISTICS

### MALE RECEPTACLES Size 1

Note: The receptacles are provided assembled with their insulator; contact pins (provided) remain to be wired.

The wiring of the receptacles can be an additional service by SAIB.

#### Male receptacle 3 cts with square flange



Weight 30 g

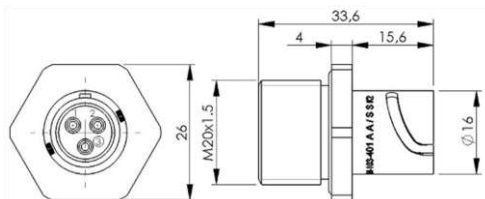
Watertightness ensured by a silicone flat seal.

**251-103-400 K2 (K2 classified)**

**251-103-400 (Non-classified)**



#### Male receptacle 3 cts with thread M20 x 1,5



Weight 40 g

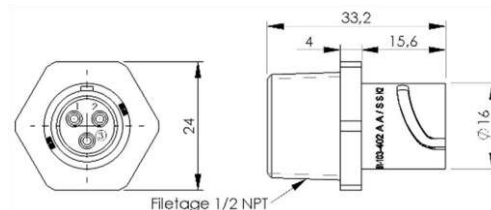
Watertightness ensured by a silicone o-ring seal.

**251-103-401 K2 (K2 classified)**

**251-103-401 (Non-classified)**



#### Male receptacle 3 cts with thread 1/2 NPT



Weight 40 g

Watertightness ensured by applying threadlocker on the conic thread.

**251-103-402 K2 (K2 classified)**

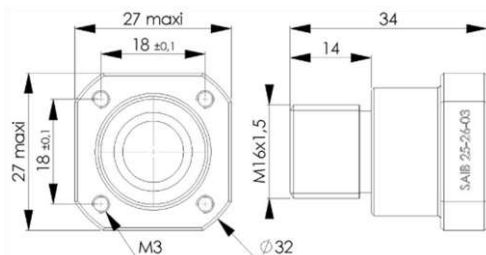
**251-103-402 (Non-classified)**





### Adapter M16x1,5 for receptacle Size 1

**25-26-03 (Non-classified)**

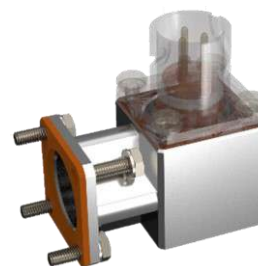
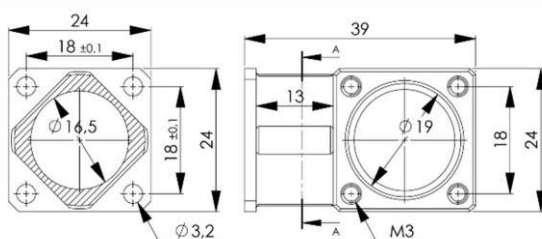


Weight 54 g

Watertightness ensured by a silicone o-ring seal. Provided with screw kit.

### 90° adapter for receptacle Size 1

**25-70-12 (Non-classified)**



Weight 54 g

Watertightness ensured by a silicone flat seal. Provided with seal and screw kit. Receptacle sold separately.

## FEMALE PLUGS Size 1

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

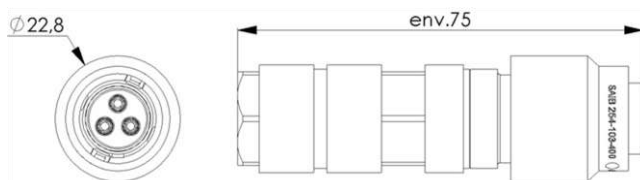
- RAYCHEM WCSF-200-18/5-75/N-CS411 (red glue) for **K2 classified plugs**  
 PN: 25-44-00
- RAYCHEM MWTM 25/8-80/S10 (transparent glue) for **Non-classified plugs**  
 PN: 25-44-02

The tubing is sold separately.

### Female plug 3 cts with shielding continuity

**254-103-400 K2** (K2 classified)

**254-103-400** (Non-classified)



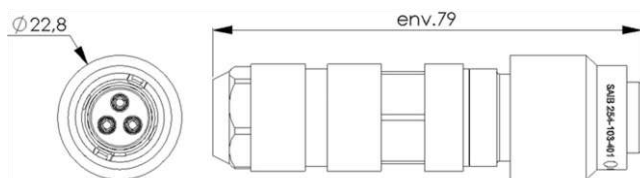
Weight 80 g

Cable Ø 8 to 12.9 mm.

### Female plug 3 cts with cable gland

**254-103-401 K2** (K2 classified)

**254-103-401** (Non-classified)



Weight 80 g

Cable Ø 8 to 12.9 mm.

Plugs are provided with 3 different cable gland seals to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm

## ***SPECIAL FEMALE PLUGS Size 1***

These plugs have been developed for particular needs; their compatibility of use depends on the cable and will thus be examined on a case-by-case basis.

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

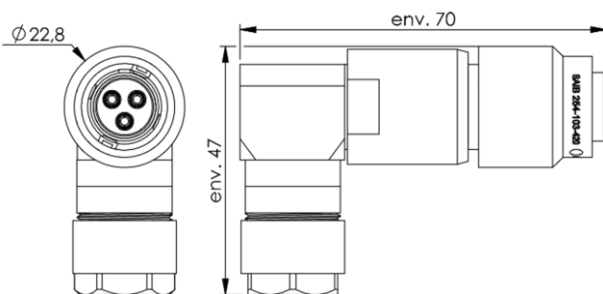
🌈 RAYCHEM MWMTM 25/8-80/S10 (transparent glue) **for Non-classified plugs**  
PN: 25-44-02

The tubing is sold separately.

### **Female plug 3 cts with 90° angled backshell, 360° adjustable outlet and shielding continuity**

K2 qualification in progress

**254-103-420 (Non-classified)**

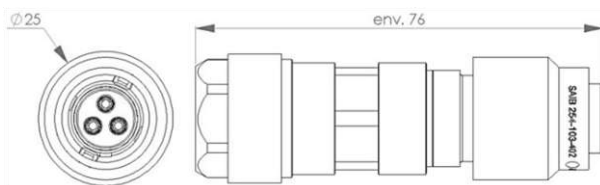


Weight 126 g

Cable Ø 8 to 12.9 mm.

### **Female plug 3 cts with armoured continuity**

**254-103-402 (Non-classified)**

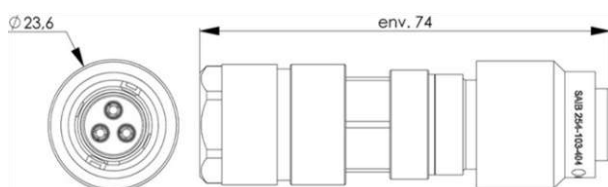


Weight 93 g

Specific cable, contact us

### **Female plug 3 cts with shielding continuity for cable Ø15 mm**

**254-103-404 (Non-classified)**



Weight 93 g

Cable Ø 8 to 15 mm.

## ATEX CERTIFIABLE FEMALE PLUGS Size 1

These plugs can be used to certify ATEX a measuring instrument and its connections.

NU25 ATEX connectors are intended for use in explosive atmospheres. They comply with European Parliament Directive 2014/34 / EU (II 2G Ex eb IIC T4 to T6 Gb)

They are equipped with a locking system that prevents unlocking without tools (by sealing and / or set screws).

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

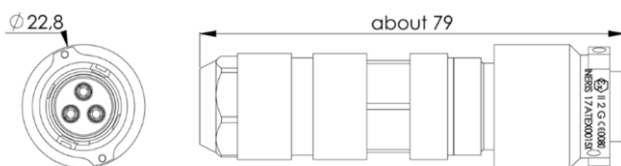
- ✚ RAYCHEM WCSF-200-18/5-75/N-CS411 (red glue) **for K2 classified plugs**  
PN: 25-44-00
- ✚ RAYCHEM MWTM 25/8-80/S10 (transparent glue) **for Non-classified plugs**  
PN: 25-44-02

The tubing is sold separately.

### ATEX Female plug 3 cts with cable gland

**254-103-411 K2** (K2 classified)

**254-103-411** (Non-classified)



Weight 80 g

Cable Ø 8 to 12.9 mm.

Plugs are provided with 3 different cable gland seals to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm



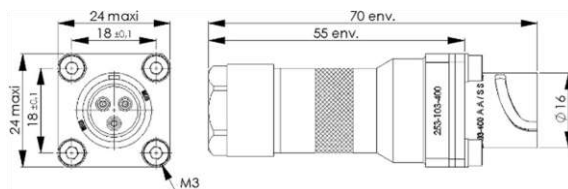
## MALE PLUGS Size 1

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

- RAYCHEM WCSF-200-18/5-75/N (red glue) for **K2 classified plugs**  
PN: 25-44-00
- RAYCHEM MWTM 25/8-80/S10 (transparent glue) for **Non-classified plugs**  
PN: 25-44-02

The tubing is sold separately.

### Male plug 3 cts with shielding continuity



Weight 76 g

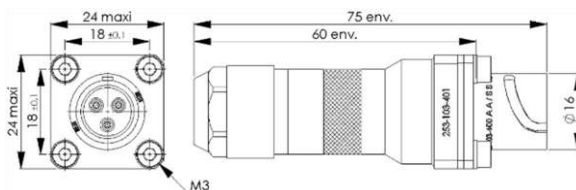
**253-103-400 K2 (K2 classified)**

**253-103-400 (Non-classified)**



Cable Ø 8 to 12.9 mm.  
Provided with screw kit.

### Male plug 3 cts with cable gland



Weight 79 g

**253-103-401 K2 (K2 classified)**

**253-103-401 (Non-classified)**



Cable Ø 8 to 12.9 mm.

Plugs are provided with 3 different cable gland seals to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm

## SPECIFIC PRODUCT

### ATEX CERTIFIED EXTENSION Size 1

The NU25 ATEX 258-103-411 Extensions comply with the European Parliament Directive 2014/34 / EU (II 2G Ex eb IIC T4 to T6 Gb) and are ATEX certified by the notified organization INERIS under the certification 17ATEX0015X.

They are equipped with a locking system that prevents unlocking without tools (by sealing and / or set screws).

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

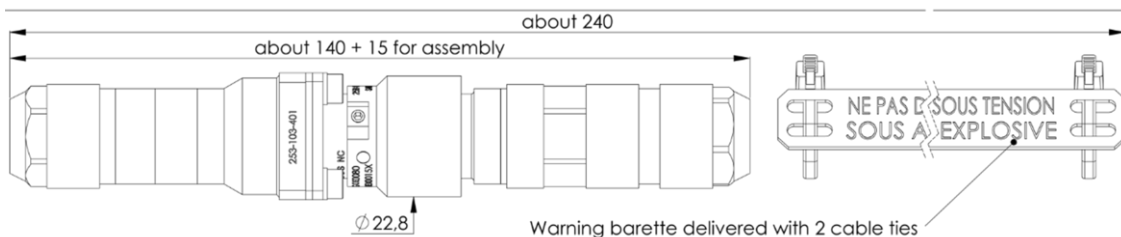
- ✚ RAYCHEM WCSF-200-18/5-75/N-CS411 (red glue) **for K2 classified plugs**  
PN: 25-44-00
- ✚ RAYCHEM MWTM 25/8-80/S10 (transparent glue) **for Non-classified plugs**  
PN: 25-44-02

The tubings are **included** with the ATEX extensions.

ATEX extension 3 cts with cable gland

258-103-411 K2 (K2 classified)

258-103-411 (Non-classified)



Weight 167 g

Cable Ø 8 to 12.9 mm.

Both male and female plugs composing the extension are provided with screw kit and 3 different cable gland seals each, to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm

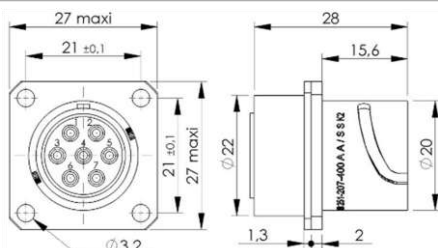
## MALE RECEPTACLES Size 2

Note: The receptacles are provided assembled with their insulator; contact pins (provided) remain to be wired.

### Male receptacle 7 cts with square flange

**251-207-400 K2 (K2 classified)**

**251-207-400 (Non-classified)**



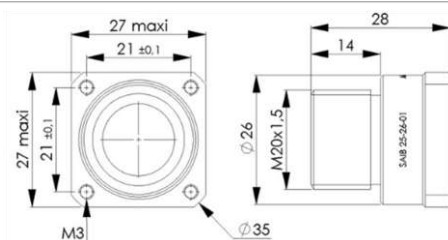
Weight 35 g

Watertightness ensured by a silicone flat seal.

### M20 x 1,5 Adapter for square receptacle Size 2

**25-26-01 K2 (K2 classified)**

**25-26-01 (Non-classified)**

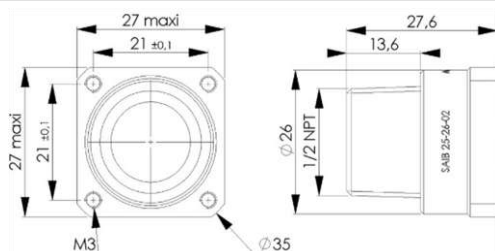


Weight 34 g

Watertightness ensured by a silicone O-ring seal.  
Provided with screw kit.

### 1/2 NPT Adapter for square receptacle Size 2

**25-26-02 (Non-classified)**



Weight 38 g

Watertightness ensured by applying threadlocker on the conic thread.  
Provided with screw kit.

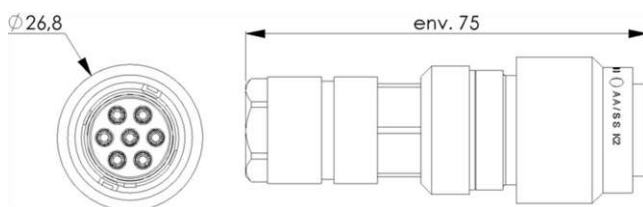
## FEMALE PLUGS Size 2

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

- RAYCHEM WCSF-300-28/8-75/N (red glue) **for K2 classified plug**  
PN: 25-44-01
- RAYCHEM MWTM 25/8-80/S10 (transparent glue) **for Non classified plug**  
PN: 25-44-02

The tubing is sold separately.

### Female plug 7 cts with shielding continuity



**254-207-400 K2 (K2 classified)**

**254-207-400 (Non-classified)**



Weight 98 g

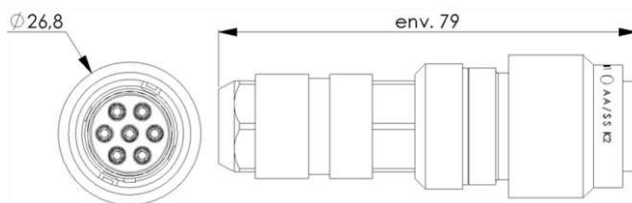
K2 Classified

Cable Ø 10 to 15 mm

Non-classified

Cable Ø 8 to 15 mm. (Cable adapter PN 25-70-07 -sold separately- is needed for cables with Ø from 8 to 10 mm)

### Female plug 7 cts with cable gland



**254-207-401 K2 (K2 classified)**

**254-207-401 (Non-classified)**



Poids 95 g

Cable Ø 8 to 12.9 mm.

Plugs are provided with 3 different cable gland seals to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm



## ***SPECIAL FEMALE PLUGS Size 2***

These plugs have been developed for particular needs; their compatibility of use depends on the cable used and will thus be examined on a case-by-case basis.

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

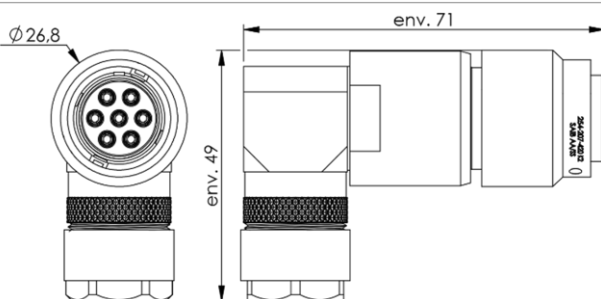
🌈 RAYCHEM MWTM 25/8-80/S10 (transparent glue) **for Non-classified plugs**  
PN: 25-44-02

The tubing is sold separately.

**Female plug 7 cts with 90° angled backshell, 360° adjustable outlet and shielding continuity**

K2 qualification in progress

**254-207-420 (Non-classified)**



Poids xx g

Câble  $\varnothing$  8 à 15 mm.

## ATEX CERTIFIABLE FEMALE PLUGS Size 2

These plugs can be used to certify ATEX a measuring instrument and its connections.

NU25 ATEX connectors are intended for use in explosive atmospheres. They comply with European Parliament Directive 2014/34 / EU (II 2G Ex eb IIC T4 to T6 Gb).

They are equipped with a locking system that prevents unlocking without tools (by sealing and / or set screws).

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

🔧 RAYCHEM WCSF-300-28/8-75/N (red glue) **for K2 classified plugs**

PN: 25-44-01

🔧 RAYCHEM MWTM 25/8-80/S10 (transparent glue) **for Non classified plugs**

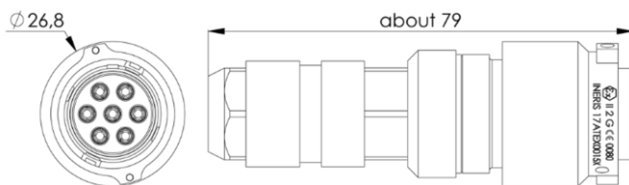
PN: 25-44-02

The tubing is sold separately.

### ATEX Female plug 7 cts with cable gland

**254-207-411 K2** (K2 classified)

**254-207-411** (Non-classified)



Weight 95 g

Cable Ø 8 to 12.9 mm.

Plugs are provided with 3 different cable gland seals to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm

## MALE PLUGS Size 2

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

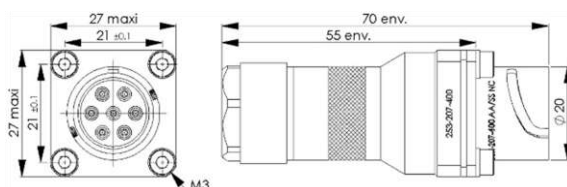
- ✚ RAYCHEM WCSF-200-18/5-75/N-CS411 (red glue) for K2 classified plugs with cable gland.  
 PN: 25-44-00
- ✚ RAYCHEM WCSF-300-28/8-75/N (red glue) for K2 classified plugs with shielding continuity.  
 PN: 25-44-01
- ✚ RAYCHEM MWTM 25/8-80/S10 (transparent glue) for Non classified plugs  
 PN: 25-44-02

The tubing is sold separately.

### Male plug 7 cts with shielding continuity

**253-207-400 K2 (K2 classified)**

**253-207-400 (Non-classified)**



K2 Classified

Cable Ø 10 to 15 mm

Non-classified

Cable Ø 8 to 15 mm. (Cable adapter PN 25-70-07 -sold separately- is needed for cables with Ø from 8 to 10 mm)

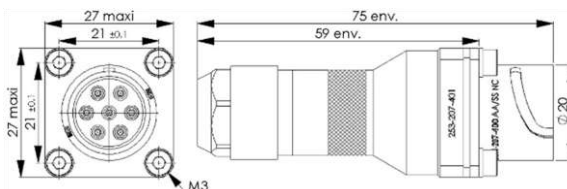
Weight 92 g

Provided with screw kit.

### Male plug 7 cts with cable gland

**253-207-401 K2 (K2 classified)**

**253-207-401 (Non-classified)**



Weight 89 g

Cable Ø 8 to 12.9 mm.

Plugs are provided with 3 different cable gland seals to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm

## SPECIFIC PRODUCT

### ATEX CERTIFIED EXTENSION Size 2

The NU25 ATEX 258-207-411 Extensions comply with the European Parliament Directive 2014/34 / EU (II 2G Ex eb IIC T4 to T6 Gb) and are ATEX certified by the notified organization INERIS under the certification 17ATEX0015X.

They are equipped with a locking system that prevents unlocking without tools (by sealing and / or set screws).

Note: plugs **must be** assembled with an adhesive heat shrink tubing:

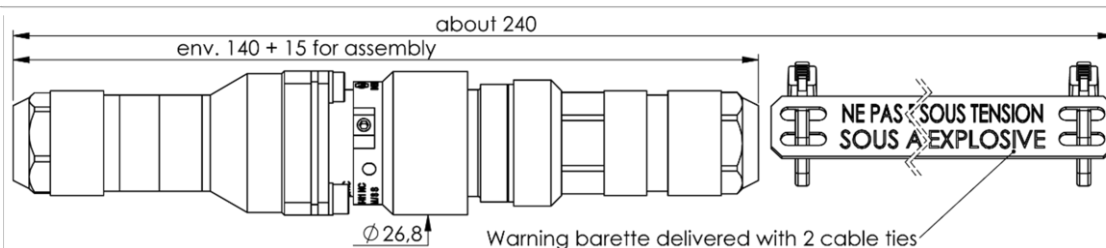
- ✚ RAYCHEM WCSF-200-18/5-75/N-CS411 (red glue) **for the K2 classified male plugs**  
 PN: 25-44-00
- ✚ RAYCHEM WCSF-300-28/8-75/N (red glue) **for the K2 classified female plugs**  
 PN: 25-44-01
- ✚ RAYCHEM MWTM 25/8-80/S10 (transparent glue) **for Non classified plugs (both male and female)**  
 PN: 25-44-02

The tubings are **included** with the ATEX extension.

**ATEX extension 7 cts with cable gland**

**258-207-411 K2 (K2 classified)**

**258-207-411 (Non-classified)**



Weight 192 g

Cable Ø 8 to 12.9 mm.

Both male and female plugs composing the extensions are provided with screw kit and 3 different cable gland seals each to fit with the diameter of the cable:



Cable Ø 8 to 9 mm



Cable Ø 9 to 10,5 mm



Cable Ø 10,5 to 12,9 mm



## TOOLS & SPARE PARTS

### SPARE PARTS

Even though our connectors are delivered complete, the following parts can be ordered separately in case of loss or damage during assembly:

<b>25-11-01</b>	Female contact (socket) to be crimped Ø 1,5 mm	
<b>25-60-02</b>	Male contact (pin) to be crimped Ø 1,5 mm	
<b>25-39-02</b>	Shielding braid collector washer Size 1	
<b>25-39-03</b>	Shielding braid collector washer Size 2	
<b>889-000-01</b>	Cable gland seals kit	
<b>25-07-01</b>	Cap with chain for receptacle Size 1	
<b>25-07-02</b>	Cap with chain for receptacle Size 2	
<b>25-70-07</b>	Cable adapter for Ø 8 to 10 mm for plugs 254-207-400 and 253-207-400	

## TOOLING

085-025-01

Male / female contact insertion tool



086-025-01

Female contact extraction tool



086-025-02

Male contact extraction tool



084-000-01

Crimping tool frame (M22520/1-01)



084-000-02

Crimping gauge  
(M22520/3-1)



084-025-02

Turret  
(M22520/1-02)



087-025-01

Tightening support  
for plug Size 1



087-025-02

Tightening support  
for plug Size 2



For end wrench  
17 mm

## NU25 USER TOOL CASE

080-U25-00

NU user tool case



NU25 tool case contains following tools and spare parts:

Part number	Quantity	Designation
084-000-01	1	DMC Crimping tool frame (M22520/1-01)
084-000-02	1	Crimping gauge (M22520/3-1)
084-025-02	1	Turret (M22520/1-02)
085-025-01	1	Male / female contact insertion tool
086-025-01	1	Female contact extraction tool
086-025-02	1	Male contact extraction tool
087-025-01	1	Tightening support for plug Size 1
087-025-02	1	Tightening support for plug Size 2
889-000-01	5	Cable gland seals kit
25-11-01	50	Female contact (socket) to be crimped Ø 1,5 mm
25-44-00	3	Raychem tubing WCSF-200-18/5-75/N-CS411 S1 (K2 classified)
25-44-01	3	Raychem tubing WCSF-300-28/8-75/N S2 (K2 classified)
25-44-02	3	Raychem tubing MWTM 25/8-80/S10 Sizes 1 and 2 NC
25-61-01	5	Female insulator size 1
25-61-03	5	Female insulator size 2
25-60-02	50	Male contact (pin) to be crimped Ø 1,5 mm