

## FEATURES

- The valves are certified according to IEC 61508 Functional Safety data and have SIL-3 capability (TÜV & Exida certification)
- The solenoid valves are recommended for pilot applications with high flow, wide pressure ranges and no minimum operating pressure
- Coils used in metal enclosures have class H insulation materials
- The core movement is guided to ensure optimal alignment. The special low friction seal accomplishes a balanced construction at the specified temperature and pressure range at minimum power levels
- Special rider rings eliminate sticking and provide exceptional service life
- No minimum operating pressure required
- Pressure can be applied at any port
- 316L stainless steel construction for highly corrosive atmospheres
- The solenoid valves satisfy all relevant EU directives
- Manual Operators are optional including an under pressure removable type
- Environmental NACE compliant and certified vibration resistant in combination with WSCR solenoids

## GENERAL

**Differential pressure** 0 - 10 bar [1 bar = 100kPa]  
**Response times** < 100 ms

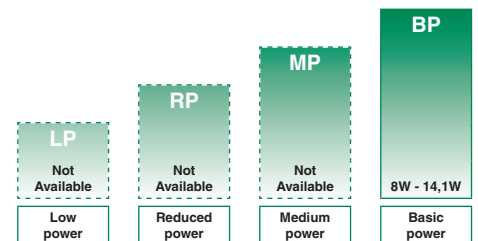
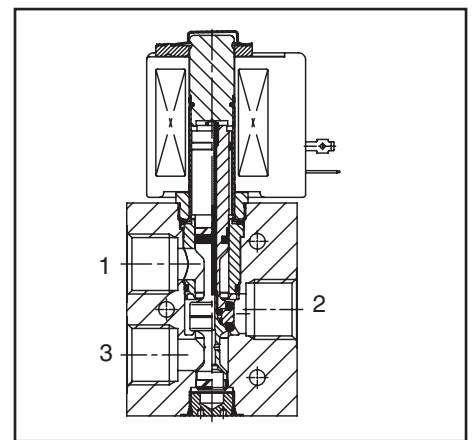
| fluids (*)     | temperature range (TS) <sup>(1)</sup>              | seal materials (*)                                                 |
|----------------|----------------------------------------------------|--------------------------------------------------------------------|
| air, inert gas | - 25 to + 60°C<br>- 10 to + 90°C<br>- 50 to + 60°C | NBR (nitrile)<br>FPM (fluoroelastomer)<br>(F)VMQ ((fluor)silicone) |

<sup>(1)</sup> Can be limited by the operator ambient temperature range for explosion proof solenoids

## MATERIALS IN CONTACT WITH FLUID

(\*) Ensure that the compatibility of the fluids in contact with the materials is verified

|                  | Brass body         | Stainless steel body |
|------------------|--------------------|----------------------|
| Body             | Brass              | AISI 316L SS         |
| Stem             | Stainless steel    | Stainless steel      |
| Core tube        | Stainless steel    | Stainless steel      |
| Core and plugnut | Stainless steel    | Stainless steel      |
| Springs          | Stainless steel    | Stainless steel      |
| Seals            | NBR, FPM or (F)VMQ | NBR, FPM or (F)VMQ   |
| Rider ring       | PTFE               | PTFE                 |



POWER LEVELS - cold electrical holding values (watt)

## SPECIFICATIONS

| pipe size                                  | orifice size | flow coefficient Kv |       | operating pressure differential (bar) |           | power level | prefix optional solenoids |            |          |    |       |      |    |                      | basic catalogue number |  |
|--------------------------------------------|--------------|---------------------|-------|---------------------------------------|-----------|-------------|---------------------------|------------|----------|----|-------|------|----|----------------------|------------------------|--|
|                                            |              |                     |       | min.                                  | max. (PS) |             | NEMA 7&9                  | ATEX/IECEx |          |    |       | IP65 |    |                      |                        |  |
|                                            |              |                     |       |                                       | air (★)   |             |                           | Ex db      | Ex eb mb |    | Ex mb |      |    |                      |                        |  |
| ❖                                          | (mm)         | (m³/h)              | (l/m) |                                       | ~/=       | ~/=         | EF                        | NF         | WSCR     | EM | WSCRE | PV   | SC | brass <sup>(2)</sup> | stainless steel        |  |
| U - Universal, NBR sealings and poppets    |              |                     |       |                                       |           |             |                           |            |          |    |       |      |    |                      |                        |  |
| 1/4                                        | 12           | 1,5                 | 25,0  | 0                                     | 10        | BP          | -                         | ●          | ●        | ●  | ●     | -    | ●  | ❖ 327A647            | ❖ 327A648              |  |
| 1/2                                        | 12           | 1,5                 | 25,0  | 0                                     | 10        | BP          | -                         | ●          | ●        | ●  | ●     | -    | ●  | ❖ 327A607            | ❖ 327A608              |  |
| U - Universal, FPM sealings and poppets    |              |                     |       |                                       |           |             |                           |            |          |    |       |      |    |                      |                        |  |
| 1/4                                        | 12           | 1,5                 | 25,0  | 0                                     | 10        | BP          | -                         | ●          | ●        | ●  | ●     | -    | ●  | ❖ 327A649            | ❖ 327A650              |  |
| 1/2                                        | 12           | 1,5                 | 25,0  | 0                                     | 10        | BP          | -                         | ●          | ●        | ●  | ●     | -    | ●  | ❖ 327A609            | ❖ 327A610              |  |
| U - Universal, (F)VMQ sealings and poppets |              |                     |       |                                       |           |             |                           |            |          |    |       |      |    |                      |                        |  |
| 1/4                                        | 12           | 1,5                 | 25,0  | 0                                     | 10        | BP          | -                         | ●          | ●        | ●  | ●     | -    | ●  | ❖ 327A645            | ❖ 327A646              |  |
| 1/2                                        | 12           | 1,5                 | 25,0  | 0                                     | 10        | BP          | -                         | ●          | ●        | ●  | ●     | -    | ●  | ❖ 327A605            | ❖ 327A606              |  |

❖ Select 8 for NPT ANSI 1.20.3 or Select G for ISO G(228/1)

● Available feature

○ Available feature in DC only

- Not available

<sup>(2)</sup> Not in combination with WSCR solenoids

## PREFIX TABLE

| prefix |   |   |   |   |   |   | description                                                         | power level |    |    |    |
|--------|---|---|---|---|---|---|---------------------------------------------------------------------|-------------|----|----|----|
| 1      | 2 | 3 | 4 | 5 | 6 | 7 |                                                                     | LP          | RP | MP | BP |
| E      | M |   |   |   |   |   | Waterproof IP66/67 - Metal enclosure (EN/IEC 60079-7,-18 and -31)*  | -           | -  | -  | ●  |
| N      | F | E | T |   |   |   | Threaded conduit/hole (M20 x 1,5)                                   | -           | -  | -  | ●  |
| S      | C |   |   |   |   |   | Flameproof - Aluminium (EN/IEC 60079-1, 60079-31)*                  | -           | -  | -  | ●  |
| W      | P |   |   |   |   |   | Solenoid with spade plug connector (EN/IEC 60730)                   | -           | -  | -  | ●  |
| W      | S |   |   |   |   |   | Waterproof IP67 - Metal enclosure                                   | -           | -  | -  | ●  |
| W      | S |   |   |   |   |   | Waterproof IP67 - 316 SS enclosure                                  | -           | -  | -  | ●  |
| W      | S | C | R |   |   |   | Flameproof 316L SS (EN/IEC 60079-0+1+31)*                           | -           | -  | -  | ●  |
| W      | S | C | R | E | M |   | Increased Safety / Encapsulated 316L SS (EN/IEC 60079-0+7+18+31)*   | -           | -  | -  | ●  |
| W      | S | E | M |   |   |   | Waterproof IP66/67 - 316 SS enclosure (EN/IEC 60079-7,-18 and -31)* | -           | -  | -  | ●  |
| W      | S | N | F |   |   |   | Flameproof - 316L SS (EN/IEC 60079-1, 60079-31)*                    | -           | -  | -  | ●  |
|        |   | T |   |   |   |   | Threaded conduit (1/2" NPT)                                         | -           | -  | -  | ●  |
|        |   |   |   |   |   | X | Other special constructions                                         | -           | -  | -  | ●  |

\* ATEX/IECEx valves using these solenoids are approved according to EN 13463-1 (non electrical)

## SUFFIX TABLE

| suffix |   |   |   |   | description                                   | power level |    |    |    |
|--------|---|---|---|---|-----------------------------------------------|-------------|----|----|----|
| 1      | 2 | 3 | 4 | 5 |                                               | LP          | RP | MP | BP |
| V      |   |   |   |   | FPM (fluoroelastomer)                         | -           | -  | -  | ●  |
|        | C | O |   |   | Epoxy coating on all external surfaces        | -           | -  | -  | ●  |
|        |   |   | M | O | Push type manual operator <sup>(2)</sup>      | -           | -  | -  | ●  |
|        |   |   | M | S | Screw type manual operator <sup>(1) (2)</sup> | -           | -  | -  | ●  |

● Available feature ○ Available feature in DC only - Not available

<sup>(1)</sup> Functional Safety certification is not applicable with this feature

<sup>(2)</sup> Under pressure removable execution (see page 5)

## OPTIONS & ACCESSORIES

| catalogue number | spare part kit no. <sup>(2)</sup> | mounting bracket |
|------------------|-----------------------------------|------------------|
|                  | ~ / =                             |                  |
| SC ❖327A605      | C117638                           | ■                |
| SC ❖327A606      | C117638                           | ■                |
| SC ❖327A607      | C117640                           | ■                |
| SC ❖327A608      | C117640                           | ■                |
| SC ❖327A609      | C117640V                          | ■                |
| SC ❖327A610      | C117640V                          | ■                |
| SC ❖327A645      | C117638                           | ■                |
| SC ❖327A646      | C117638                           | ■                |
| SC ❖327A647      | C117640                           | ■                |
| SC ❖327A648      | C117640                           | ■                |
| SC ❖327A649      | C117640V                          | ■                |
| SC ❖327A650      | C117640V                          | ■                |

❖ Select 8 for NPT ANSI 1.20.3 or select G for ISO G(228/1)

<sup>(2)</sup> Standard prefixes/suffixes are also applicable to kits

■ Mounting holes in body

## ORDERING EXAMPLES VALVES:

|        |   |         |              |
|--------|---|---------|--------------|
| SC     | 8 | 327A607 | 24V / DC     |
| WSEMT  | G | 327A608 | MS 24V / DC  |
| NFET   | G | 327A607 | 230V / 50 Hz |
| WSCREM | G | 327A608 | MS 24V / DC  |
| NF     | 8 | 327A645 | 24V / DC     |
| WS     | G | 327A648 | MS 24V / DC  |
| EM     | 8 | 327A607 | 230V / 50 Hz |
| WSNF   | G | 327A608 | MS 24V / DC  |

prefix      pipe thread      basic number      voltage      suffix

## ORDERING EXAMPLES KITS:

|                        |
|------------------------|
| C117640 <sup>(1)</sup> |
| WSEM C117640 MS        |
| NF C117640             |
| WSEM C117640 MS        |

prefix      basic number      suffix

<sup>(1)</sup> Basic kit number applies to SC coil construction

## PRODUCT SELECTION GUIDE

### STEP 1

Select the fluid temperature range and seal material from the general table on page 1. Select, based on the selected seal material (if applicable), the basic catalogue number. Also select the pipe thread identification letter.

**Example: G327A607**

### STEP 2

Select prefix (combination): Select the appropriate operator from the prefix table on the left. Select for this operator in the electrical characteristics table on page 3: the power level (LP,RP,MP,BP) the type of electrical enclosure protection and the desired temperature class.

**Warning: the ambient temperature range of your application may not exceed the temperature range of your operator** (see also on page 3 the section: Explanation of temperature ranges of solenoid valves).

**Example: SC G327A607**

### STEP 3

Select suffix (combination) if required. Refer to the suffix table on page 2, respect the indicated power level.

**Example: VMS**

### STEP 4

Select voltage. Refer to standard voltages on page 3.

**Example: 230V / 50Hz**

### STEP 5

Final catalogue / ordering number.

**Example:**

**SC G327A607 VMS 230V / 50 Hz**

## EXPLANATION OF TEMPERATURE RANGES OF SOLENOID VALVES

|                                    |                                                                                                                                                                               |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Valve temperature range            | The valve temperature range (TS) is determined by the selected seal material, the temperature range for proper operation of the valve and sometimes by the fluid (e.g. steam) |
| Operator ambient temperature range | The operator ambient temperature range is determined by the selected power level and the safety code                                                                          |
| Total temperature range            | The temperature range of the complete solenoid valve is determined by the limitations of both temperature ranges above                                                        |

## ELECTRICAL CHARACTERISTICS

|                       |                                                                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Coil insulation class | H <sup>(1)</sup> / F <sup>(2)</sup>                                                                                                         |
| Electrical safety     | IEC 60335-1                                                                                                                                 |
| Standard voltages     | DC (=) 24V - 48V; Allowable voltage variation $\pm 10\%$<br>AC (~) 24V - 48V - 115V - 230V/50/60Hz; Other voltages are available on request |

| prefix<br>option | power ratings |              |      |               | operator<br>ambient<br>temperature<br>range<br><br>(C°) <sup>(3)</sup> | safety code                                       | electrical<br>enclosure<br>protection<br>(EN 60529) | replacement coil / kit |            | type <sup>(4)</sup> |
|------------------|---------------|--------------|------|---------------|------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------|------------------------|------------|---------------------|
|                  | inrush<br>~   | holding<br>~ |      | hot/cold<br>= |                                                                        |                                                   |                                                     | ~                      | =          |                     |
|                  | (VA)          | (VA)         | (W)  | (W)           |                                                                        |                                                   |                                                     | 230V/50/60 Hz          | 24V/DC     |                     |
| Basic power (BP) |               |              |      |               |                                                                        |                                                   |                                                     |                        |            |                     |
| SC               | 10,0          | 10,0         | 10,0 | 9/10          | -40 to +60                                                             | EN 60730                                          | IP65, moulded                                       | 400924-197             | 400923-342 | 01                  |
| SC               | 14,1          | 14,1         | 14,1 | 11/14         | -40 to +90                                                             | EN 60730                                          | IP65, moulded                                       | 400924-697             | 400923-642 | 01                  |
| WP/WS            | 10,0          | 10,0         | 10,0 | 9/10          | -40 to +60                                                             | EN 60730                                          | IP67, steel /SS                                     | 400921-197             | 400911-342 | 02                  |
| WP/WS            | 14,1          | 14,1         | 14,1 | 11/14         | -40 to +90                                                             | EN 60730                                          | IP67, steel /SS                                     | 400921-697             | 400911-642 | 02                  |
| WSCR             | 8,0           | 8,0          | 8,0  | 6,4/8         | -60 to +25/40/60                                                       | II2G Ex db IIC Gb T6/T5/T4, II2D Ex t IIIC Db     | IP66/67, SS                                         | 400962-497             | 400961-042 | 04                  |
| WSCR             | 10,0          | 10,0         | 10,0 | 9/10          | -60 to +25/60/90                                                       | II2G Ex db IIC Gb T5/T4/T3, II2D Ex t IIIC Db     | IP67, alu./SS                                       | 400962-197             | 400961-342 | 04                  |
| NF/WSNF          | 10,0          | 10,0         | 10,0 | 9/10          | -60 to +40/60                                                          | II2G Ex db IIC Gb T6/T5, II2D Ex tb IIIC Db       | IP66/67, alu./SS                                    | 400921-197             | 400911-342 | 03                  |
| NF/WSNF          | 14,1          | 14,1         | 14,1 | 11/14         | -60 to +40/60/90                                                       | II2G Ex db IIC Gb T6/T5, II2D Ex tb IIIC Db       | IP66/67, alu./SS                                    | 400921-697             | 400911-642 | 03                  |
| WSCREM           | 8,0           | 8,0          | 8,0  | 6,4/8         | -60 to +25/40/60                                                       | II2G Ex eb mb IIC Gb T6/T5/T4, II2D Ex tb IIIC Db | IP66/67, SS                                         | 400962-497             | 400961-042 | 04                  |
| WSCREM           | 10,0          | 10,0         | 10,0 | 9/10          | -60 to +25/60/90                                                       | II2G Ex eb mb IIC Gb T5/T4/T3, II2D Ex tb IIIC Db | IP66/67, SS                                         | 400962-197             | 400961-342 | 04                  |
| EM/WSEM          | 10,0          | 10,0         | 10,0 | 9/10          | -40 to +40/60                                                          | II2G Ex eb mb IIC Gb T4/T3, II2D Ex tb IIIC Db    | IP66/67, steel /SS                                  | 400921-197             | 400911-342 | 02                  |
| EM/WSEM          | 14,1          | 14,1         | 14,1 | 11/14         | -40 to +40                                                             | II2G Ex eb mb IIC Gb T3, II2D Ex tb IIIC Db       | IP66/67, steel /SS                                  | 400921-697             | 400911-642 | 02                  |

<sup>(1)</sup> Coils used in metal enclosures have class H insulation materials

<sup>(2)</sup> Encapsulated (open) coils have class F insulation standard

<sup>(3)</sup> Temperature range can be limited by sealings

<sup>(4)</sup> Refer to the dimensional drawings on page 4 and 5

- Not available

## ELECTRICAL CONNECTIONS

| prefix           | connection                                                                                                       |
|------------------|------------------------------------------------------------------------------------------------------------------|
| SC               | Spade plug connector with cable gland EN175301-803A (ISO 4400) for cables with an outer diameter from 6 to 10 mm |
| WP, WS, EM, WSEM | M20 plastics cable gland for cables with an outer diameter from 7 to 12 mm.                                      |
| WSCREM           | M20 316 SS cable gland for cables with an outer diameter from 7,2 to 11,7 mm.                                    |
| NF, WSNF, WSCR   | 1/2" NPT threaded cable entry. Enclosures are supplied without cable gland                                       |
| NFET, WSNFET     | M20 x 1,5 threaded cable entry. Enclosures are supplied without cable gland                                      |

## ADDITIONAL OPTIONS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Manual operator MO (push type) and MS (screw type)</li> <li>3/8" pipe thread execution</li> <li>1/2" NPT (prefix "T") and M20 x 1,5 (prefix "ET") conduits (aluminium or 316 SS) available for steel solenoid housing</li> <li>Solid state components for peak voltage suppression and/or rectification</li> <li>For manual reset type see page PIC-11-25</li> <li>Manual Operators are available as shown on page 5</li> <li>Class H insulation for encapsulated coils</li> <li>Material certification like EN 10204 3.1 on the 316L Stainless Steel bodies are available on request</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## INSTALLATION

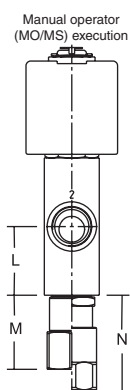
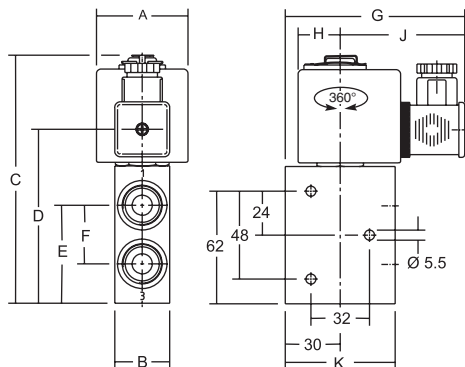
|                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Multi language installation/maintenance instructions are included with each valve</li> <li>The solenoid valves can be mounted in any position without affecting operation</li> <li>The mounting holes are provided in the valve body</li> <li>Threaded pipe connection identifier is 8 = NPT (ANSI 1.20.3); G = G (ISO 228/1)</li> <li>Declarations of conformity are available on request</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## DIMENSIONS (mm), WEIGHT (kg)



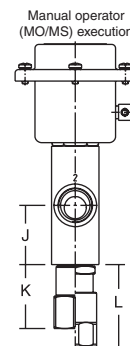
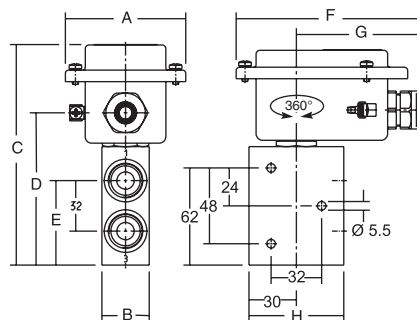
**TYPE 01:**  
Epoxy moulded  
SC: IEC 60335-1 / ISO 4400

327A605 / A606 / A607 / A608 / A609 / A610  
327A645 / A646 / A647 / A648 / A649 / A650



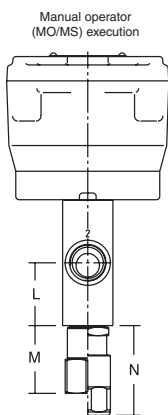
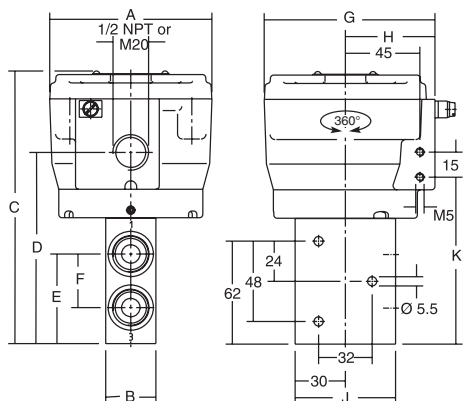
**TYPE 02:**  
Metal, epoxy coated / AISI 316L SS  
WP / WS : IEC 60335-1  
EM / WSEM : EN/IEC 60079-7+18+31

327A605 / A606 / A607 / A608 / A609 / A610  
327A645 / A646 / A647 / A648 / A649 / A650



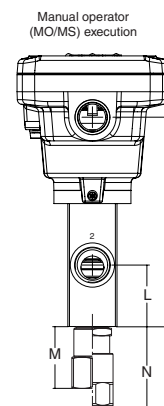
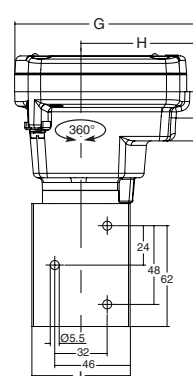
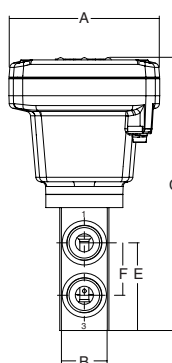
**TYPE 03:**  
Aluminium, epoxy coated / AISI 316L SS  
NF / WSNF: EN/IEC 60079-1+31

327A605 / A606 / A607 / A608 / A609 / A610  
327A645 / A646 / A647 / A648 / A649 / A650



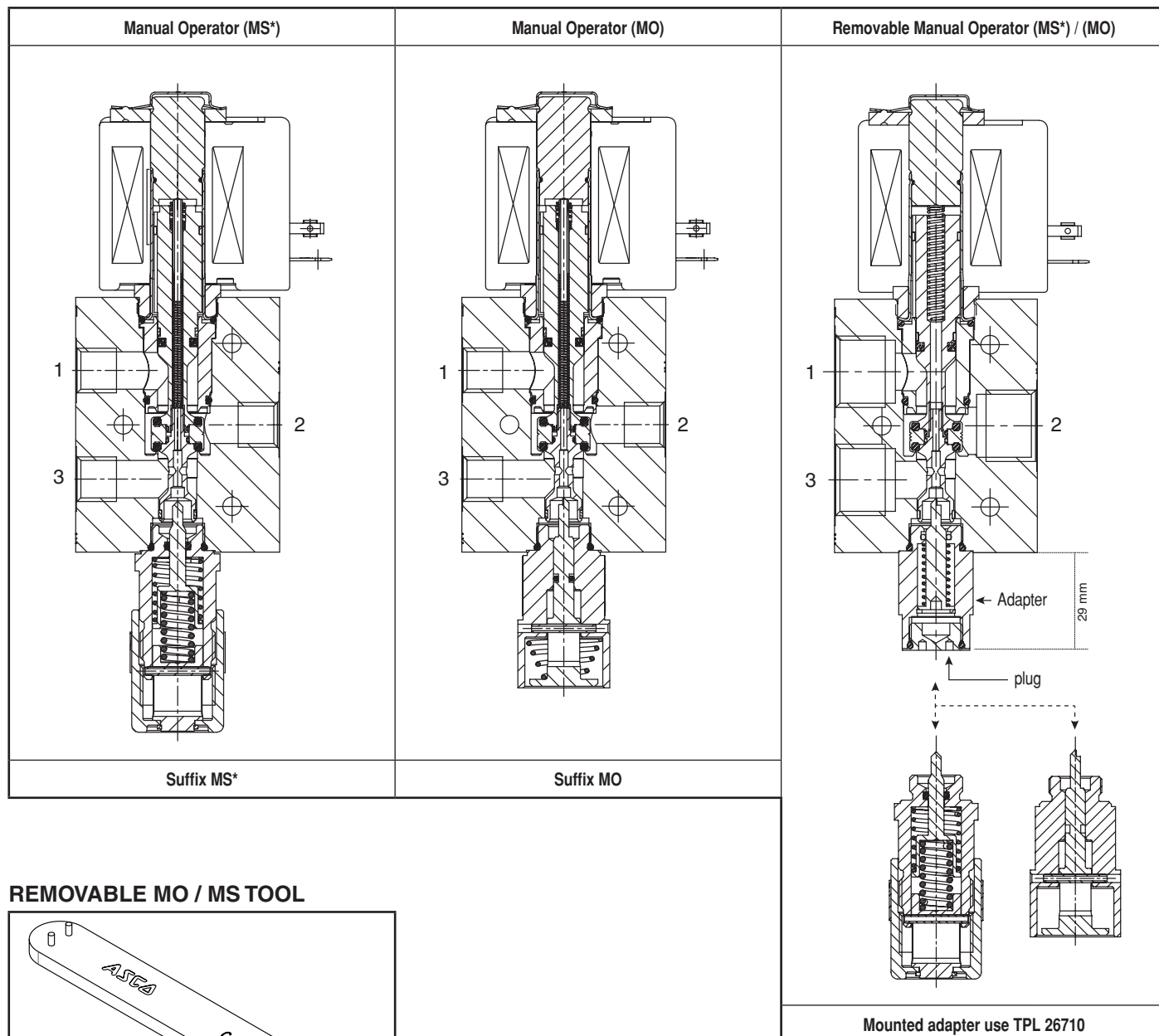
**TYPE 04:**  
AISI 316L SS  
WSCR : EN/IEC 60079-0, 60079-1, 60079-31  
WSCREM : EN/IEC 60079-0, 60079-7, 60079-18,  
EN/IEC 60079-31

327A605 / A606 / A607 / A608 / A609 / A610  
327A645 / A646 / A647 / A648 / A649 / A650

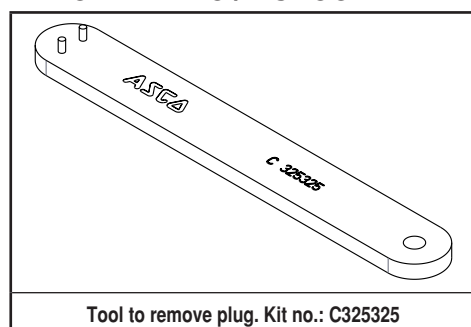


| type | prefix/option   | power level | A  | B  | C   | D   | E  | F   | G   | H  | J  | K   | L  | M  | N  | weight |
|------|-----------------|-------------|----|----|-----|-----|----|-----|-----|----|----|-----|----|----|----|--------|
| 01   | SC              | BP          | 50 | 30 | 135 | 95  | 54 | 32  | 100 | 23 | 70 | 60  | 38 | 40 | 54 | 1,6 kg |
| 02   | WP, WS, EM/WSEM | BP          | 75 | 30 | 140 | 95  | 54 | 120 | 80  | 60 | 38 | 40  | 54 | -  | -  | 1,6 kg |
| 03   | NF              | BP          | 97 | 30 | 165 | 115 | 54 | 32  | 102 | 55 | 60 | 100 | 38 | 40 | 54 | 2,4 kg |
|      | WSNF            | BP          | 97 | 30 | 165 | 115 | 54 | 32  | 102 | 55 | 60 | 100 | 38 | 40 | 54 | 3,8 kg |
| 04   | WSCR, WSCREM    | BP          | 92 | 30 | 167 | 128 | 54 | 32  | 116 | 75 | 60 | -   | 38 | 40 | 54 | 3,2 kg |

### SECTIONAL DRAWINGS



### REMOVABLE MO / MS TOOL



\* MS type is not covered in the Functional Safety (SIL) certification

### EXHAUST PROTECTOR

| pipe size | thread    | part number         |                      | mesh/filtering | wrench size (REF A.) |  |
|-----------|-----------|---------------------|----------------------|----------------|----------------------|--|
|           |           | brass nickel plated | 316L stainless steel |                |                      |  |
| 1/4       | ISO 228/1 | 131875-001          | 131875-014           | 100 - 200 µm   | 16 mm                |  |
|           | NPT       | 131875-002          | 131875-015           |                |                      |  |
| 1/2       | ISO 228/1 | 131875-005          | 131875-012           | 100 - 200 µm   | 23 mm                |  |
|           | NPT       | 131875-006          | 131875-013           |                |                      |  |

