**Annex 2 – modification 1: Technical specifications**

**Procurement title: Third brush system for prototypes and zero series - diesel**

Procurement record number: 22-10.19

The requirements defined by the Technical Specifications represent the minimum characteristics and standards that the offered object of the procurement must meet.

Tenderer shall complete only cells marked **with gray color**.

The column "NOTES" tenderer can fill up if deemed necessary.

For offer to be consider as compliant, offered object of the procurement must meet all the requirements presented in the Technical Specifications.

For the subject of the procurement, for all (sub)items/descriptions/referring to the place which may be affixed to a trademark, patent, type, norm or specific origin, the Tenderer may offer "equivalent" to the requested or specified and Contracting Authority will accept other equivalent quality assurance measures, but in that case the Tenderer must enclose proof of equivalence (catalog, manufacturer’s certificates or the similar). "Equivalent" is all off offered that is not within the prescribed description but meets the minimum technical characteristics of the required (sub)items. Where applicable, the characteristics must correspond to the defined ones, with the deviation up to +/- 1%, unless the range is otherwise defined by the Contracting Authority. Except for the aesthetic characteristics, the Contracting Authority will accept a higher percentage of deviation if it represents a higher standard or technical characteristics that are better from the prescribed minimum.

| **ITEM** | **REQUIRED TECHNICAL SPECIFICATIONS / FUNCTIONALITIES** | | **OFFERED** | **NOTES**  *(if deemed necessary)* |
| --- | --- | --- | --- | --- |
| **SUBITEM NAME/DESCRIPTION** | |
| **1. Third brush system for prototypes: 1 set**  **2. Third brush system for zero series: 5 sets** | **1.1. Hydraulic block – shock valves, third brush – 1 pc/set**  **2.1. Hydraulic block – shock valves, third brush – 1 pc/set** | | | |
| Length: | max. 132 mm |  |  |
| Width: | max. 54 mm |  |  |
| Height: | max. 62 mm |  |  |
| Required ports: | According to ISO 1179, part 2, 3 and 4 or equivalent, types B, G, H and E. A1, A2, B1, B2 = G 1/4“  T = G 3/4“  Reffer to RASCO drawing nr. 57102734 |  |  |
| Material, surface protection: | Housing: steel, zinc plated |  |  |
| Valves: zinc plated |  |  |
| Seals:: NBR/PTFE or equivalent |  |  |
| Ambient temperature range: | Minimum range from -20 °C to +60 °C. Higher temperature range is acceptable |  |  |
| Operating pressure: | min 200 bar |  |  |
| Flow rate: | minimum 15l/min. Higher flow rate is acceptable |  |  |
| Hydraulic fluid: | Hydraulic oil to DIN 51524 Part 1, 2 and 3, or equivalent |  |  |
| Temperature range of hydraulic fluid: | minimum range from -20 °C to +60°C. Higher temperature range is acceptable |  |  |
| Viscosity range of hydraulic fluid: | minimum from 10 mm²/S to 420 mm²/s. Higher viscosity range is acceptable |  |  |
| Mounting position: | optional |  |  |
| Functionality: | Required functionality is described with RASCO manifold schematic 57102734. On all schematic parts rule of equivalency is applied. |  |  |
| **1.2. Hydraulic manifold – third brush manipulation – 1 pc/set**  **2.2. Hydraulic manifold – third brush manipulation – 1 pc/set** | | | |
| Length: | max. 260 mm |  |  |
| Width: | max. 250 mm |  |  |
| Height: | max. 120 mm |  |  |
| Required ports: | According to ISO 1179, part 2, 3 and 4 or equivalent, types B, G, H and E. Required port sizes are defined in RASCO manifold schematic 57102737 |  |  |
| Material, surface protection: | Housing: aluminium, anodized |  |  |
| Seals:: NBR/PTFE or equivalent |  |  |
| Ambient temperature range: | Minimum range from -20 °C to +60 °C. Higher temperature range is acceptable |  |  |
| Operating pressure: | min 200 bar |  |  |
| Flow rate: | minimum 15 l/min. Higher flow rate is acceptable |  |  |
| Hydraulic fluid: | Hydraulic oil to DIN 51524 Part 1, 2 and 3, or equivalent |  |  |
| Temperature range of hydraulic fluid: | minimum range from -20 °C to +80°C. Higher temperature range is acceptable |  |  |
| Viscosity range of hydraulic fluid: | minimum from 10 mm²/s to 420 mm²/s. Higher viscosity range is acceptable |  |  |
| Mounting position: | optional |  |  |
| Electrical connections | Deutsch connector DT04-2p-EP04 or equivalent |  |  |
| Safety type: | IP65/IP67/IP6K9K, according to DIN EN 60529 or equivalent |  |  |
| Type of voltage: | DC |  |  |
| Nominal voltage/Supply voltage: | 12V |  |  |
| Functionality: | Required functionality is described with RASCO manifold schematic 57102737. On all schematic parts rule of equivalency is applied. |  |  |
| **1.3. Hydraulic manifold – third brush RPM – 1 pc/set**  **2.3. Hydraulic manifold – third brush RPM – 1 pc/set** | | | |
| Length: | max. 245 mm |  |  |
| Width: | max. 70 mm |  |  |
| Height: | max. 110 mm |  |  |
| Required ports: | According to ISO 1179, part 2, 3 and 4 or equivalent, types B, G, H and E . Required port sizes: G 3/4“ |  |  |
| Material, surface protection: | Housing: steel, zinc plated |  |  |
| Valves: zinc plated |  |  |
| Seals: NBR/PTFE or equivalent |  |  |
| Ambient temperature range: | Minimum range from -20 °C to +60 °C. Higher temperature range is acceptable |  |  |
| Operating pressure: | min 300 bar |  |  |
| Flow rate: | minimum 40 l/min. Higher flow rate is acceptable |  |  |
| Hydraulic fluid: | Hydraulic oil to DIN 51524 Part 1, 2 and 3, or equivalent |  |  |
| Temperature range of hydraulic fluid: | minimum range from -20 °C to +80°C. Higher temperature range is acceptable |  |  |
| Viscosity range of hydraulic fluid: | minimum from 10 mm²/S to 420 mm²/s. Higher viscosity range is acceptable |  |  |
| Mounting position: | optional |  |  |
| Electrical connections | Deutsch connector DT04-2P-EP04 or equivalent |  |  |
| Safety type: | IP65/IP67/IP6K9K, according to DIN EN 60529 or equivalent |  |  |
| Type of voltage: | DC |  |  |
| Nominal voltage/Supply voltage: | 12V |  |  |
| Functionality: | Required functionality is described with RASCO manifold schematic 57102738. On all schematic parts rule of equivalency is applied. |  |  |
| **1.4. Hydraulic manifold – third brush direction of rotation – 1 pc/set**  **2.4. Hydraulic manifold – third brush direction of rotation – 1 pc/set** | | | |
| Length: | max. 160 mm |  |  |
| Width: | max. 80 mm |  |  |
| Height: | max. 45 mm |  |  |
| Required ports: | According to ISO 1179, part 2, 3 and 4 or equivalent, types B, G, H and E. Required port sizes G1/2“ |  |  |
| Material, surface protection: | Housing: aluminium, anodized |  |  |
| Seals: NBR/PTFE or equivalent |  |  |
| Ambient temperature range: | Minimum range from -20 °C to +60 °C. Higher temperature range is acceptable |  |  |
| Operating pressure: | min 200 bar |  |  |
| Flow rate: | minimum 50 l/min. Higher flow rate is acceptable |  |  |
| Hydraulic fluid: | Hydraulic oil to DIN 51524 Part 1, 2 and 3, or equivalent |  |  |
| Temperature range of hydraulic fluid: | minimum range from -20 °C to +80°C. Higher temperature range is acceptable |  |  |
| Viscosity range of hydraulic fluid: | minimum from 10 mm²/S to 420 mm²/s. Higher viscosity range is acceptable |  |  |
| Mounting position: | optional |  |  |
| Electrical connections | Deutsch connector DT04-2P-EP04 or equivalent |  |  |
| Safety type: | IP65/IP67/IP6K9K, according to DIN EN 60529 or equivalent |  |  |
| Type of voltage: | DC |  |  |
| Nominal voltage/Supply voltage: | 12V |  |  |
| Functionality: | Required functionality is described with RASCO manifold schematic 57102757. On all schematic parts rule of equivalency is applied. |  |  |
| **1.5. Hydraulic manifold – third brush turn on/turn off – 1 pc/set**  **2.5. Hydraulic manifold – third brush turn on/turn off – 1 pc/set** | | | |
| Length: | max. 170 mm |  |  |
| Width: | max. 70 mm |  |  |
| Height: | max. 45 mm |  |  |
| Required ports: | According to ISO 1179, part 2, 3 and 4 or equivalent, types B, G, H and E. Required port sizes G 1/2“ |  |  |
| Material, surface protection: | Housing: aluminium, anodized |  |  |
| Valves: zinc plated |  |  |
| Seals: NBR/PTFE or equivalent |  |  |
| Ambient temperature range: | Minimum range from -20 °C to +60 °C. Higher temperature range is acceptable |  |  |
| Operating pressure: | min 200 bar |  |  |
| Flow rate: | minimum 100 l/min. Higher flow rate is acceptable |  |  |
| Hydraulic fluid: | Hydraulic oil according to DIN 51524 Part 1, 2 and 3, or equivalent |  |  |
| Temperature range of hydraulic fluid: | minimum range from -20 °C to +100°C. Higher temperature range is acceptable |  |  |
| Viscosity range of hydraulic fluid: | minimum from 10 mm²/S to 420 mm²/s. Higher viscosity range is acceptable |  |  |
| Mounting position: | optional |  |  |
| Electrical connections | Deutsch connector DT04-2P-EP04 or equivalent |  |  |
| Safety type: | IP65/IP67/IP6K9K, according to DIN EN 60529 or equivalent |  |  |
| Type of voltage: | DC |  |  |
| Nominal voltage/Supply voltage: | 12V |  |  |
| Functionality: | Required functionality is described with RASCO manifold schematic 57102739. On all schematic parts rule of equivalency is applied. |  |  |