**Requirement Specification**

**Electric Towing vehicle for Aircraft type C130 Hercules**

1. **Requirements**

**1.1. Description of the requirement**

Danish Ministry of Defence Acquisition Logistic Organisation (DALO) have a urgent need for buying one towing vehicle for towing Aircraft type C130-j-30 (Hercules) at Airbase Aalborg in Jutland. The main purpose of the towing vehicle is to tow in and out the hangar and inside the hangar. The vehicle will also be used at the Apron.

**1.2. Description and definitions**

The requirement specification, cf. section 1.4, describes all the requirements for the acquisition and consists of six columns with the following information:

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| --- | --- |
| "#" | ID number |
| "Requirement" | Requirement description |
| "Classification" | The classification of the requirement as further described in section 1.3 |
| "DALO remarks" | Further information regarding the requirement |
| "Requirement compliance" | The tenderer's indication of compliance (YES or NO) |
| "Tender description" | Requirements regarding the tenderer's compliance description |

**1.3. Classification**

All requirements are mandatory requirements (SHALL) and shall be fulfilled by the tenderer. If just one of the mandatory requirements is not fulfilled, the tenderer's tender will not be taken into further consideration.

**1.4. Requirement and response sheet**

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| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Requirement** | **Classification** | **DALO remarks** | **To be filled out be the tenderer** | | |
| **Requirement compliance**  **(tick a box)** | | **Tenderer's description** |
| **YES** | **NO** |
| **1** | **Type of Aircraft**  The Towing vehicle shall be able to tow aircraft type C130-j-30 Hercules without any additional equipment. | SHALL |  |  |  |  |
| **2** | **Type of Towing vehicle**  The Towing vehicle shall be equipped with remote control for the operation, and be performed by one personnel. | SHALL | *DALO expect that the remote control communication is made for wireless communication.* |  |  |  |
| **3** | **Operation time / distance**  The vehicle shall have a meter that measures the time that the vehicle has been used or the distance (Odometer) the vehicle has been towing / driving. | SHALL |  |  |  |  |
| **4** | **Towing in snow**  The vehicle shall be able to operate (towing / none towing) in snow up to 5 cm in depth, with only snow tires as additional precautions. | SHALL | *DALO is not considering snow tires as risk to FOD, but tires with spikes or snow chains are not allowed due to Foreign Object Damage/debris (FOD).* |  |  |  |
| **5** | **Towing on wet surface**  The vehicle shall be able to operate on wet surface with a slope of minimum ± 2°. In case of snow only with snow tires as additional precautions. | SHALL | *DALO is not considering snow tires as risk to FOD, but tires with spikes or snow chains are not allowed due to Foreign Object Damage/debris (FOD).* |  |  |  |
| **6** | **Turning Radius**  The vehicle shall have a turning radius of maximum 600 cm. | SHALL | *The measurement shall be the outer contour.* |  |  |  |
| **7** | **Brake**  The vehicle shall have drive brake / parking brake on minimum two wheels. | SHALL |  |  |  |  |
| **8** | **Towing control**  The communication between the remote control and the vehicle shall be made in such a way, that it prevents two or more remote controls to control the same vehicle. | SHALL | *The communication shall also prevent that interference from other electronics devices can take control of the vehicle.* |  |  |  |
| **9** | **Marking light**  The vehicle shall have the necessary marking light to be used on an airfield / apron / runway. | SHALL | *Standard*  *STANAG 3346 or equivalent.*  *ICAO Annex 14.* |  |  |  |
| **10** | **Towing Power – adjustment**  If the vehicle is made for towbarless operation, the Towing force shall be easily limited according to the type of aircraft / helicopter towed. | SHALL | *To avoid overstress of the aircraft towed.* |  |  |  |
| **11** | **Vehicle design**  The design and construction of the vehicle shall be in accordance with the latest edition of DS/EN 12312-7 and its annex or equivalent. | SHALL | *Standard*  *DS/EN 12312-7 or equivalent.* |  |  |  |
| **12** | **Display language**  If the vehicle is equipped with a display / Man Machine Interface (MMI), the displayed text shall be in Danish and/or English language. | SHALL |  |  |  |  |
| **13** | **Operation temperature**  The vehicle shall be operating in the temperature  range - 15° C to + 50° C. | SHALL |  |  |  |  |
| **14** | **Power supply requirement**  It shall be possible to operate/charge the vehicle with the electrical supply available in Denmark, as follows:  3-phase 400 V AC ± 10% 50 Hz in accordance with DS/EN 60038  1-phase 230 V AC ± 10% 50 Hz in accordance with DS/EN 60038 | SHALL |  |  |  |  |
| **15** | **Power supply charging management**  The Battery charging for the electric drive for the vehicle, shall have a charging system that have an intelligent battery management charger, which gives the most optimal charging with regards to the life time and maintenance of the batteries. | SHALL |  |  |  |  |
| **16** | **Manual: User**  The Supplier shall as part of the delivery, deliver user manuals written in Danish and English. The manual shall provide all information required to operate the vehicle. | SHALL | The manuals shall be delivered on 2 separate units of electronic media (CD/DVD) as PDF or S1000D format. |  |  |  |
| **17** | **Manual: Maintaining/service**  The Supplier shall as part of the delivery, deliver service component maintenance manuals (CMM). The CMM shall be delivered written in either Danish and/or English. The manual shall provide all information required to carry out any service, maintenance and repair. | SHALL | The manuals shall be delivered on 2 separate units of electronic media (CD/DVD) as PDF or S1000D format. |  |  |  |
| **18** | **Parts list: Spare parts**  The CMM shall include a complete Parts list of all parts of the vehicle, incl. sub systems | SHALL | *The parts list must state producer and the supplier´s stock number, as well as the Original Equipment Manufacturers (OEM) name and stock number.*  *If the supplier is aware that a given component has a NATO Stock Number (NSN), such a number must be added to the parts list.* |  |  |  |
| **19** | **Hazardous materials**  The CMM shall include a catalogue/list of all the hazardous materials and consumables that are used for the Vehicle and subsystem. | SHALL |  |  |  |  |
| **20** | **Hazardous materials data sheet**  For each hazardous material and consumable in the Catalogue/list in the CMM, the CMM shall include a Safety data sheet. | SHALL |  |  |  |  |
| **21** | **Disposal**  The CMM shall include a description of the disposal (or recycling) of all parts of the Vehicle, incl. sub systems. | SHALL | The disposal (or recycling) shall comply with applicable law, including EU law applicable in Denmark. |  |  |  |
| **22** | **Training: User**  The Supplier shall offer one User Course that enables the User to use the equipment in a safe way. Furthermore the course shall content how to carry out the daily maintenance such as, service and checking of the equipment. | SHALL | The Course sessions shall be carried out with use of the supplied vehicle at DALO premises in Jutland (Aalborg). |  |  |  |
| **23** | **Training: Engineer/Technician**  The Supplier shall offer one Technical course that enables the Danish Defence workshop engineers and technicians to make and carry out all maintenances, services, checks and repairs of the delivered equipment in its entire lifetime. | SHALL | The Course sessions shall be carried out with use of the supplied vehicle at DALO premises in Jutland (Aalborg). |  |  |  |
| **24** | **Communication**  The vehicle and equipment shall have no possibility to be accessed by an unauthorised person through the internet, mobile phone or any wireless equipment. | SHALL |  |  |  |  |
| **25** | **CE approval**  The vehicle, including all equipment shall be CE-marked/conform with the requirements that apply to CE marking. | SHALL |  |  |  |  |
| **26** | **Machinery Directive**  The vehicle, including all components/equipment/accessories and software, shall comply with the Danish Machinery Directive. | SHALL | *Reference standard:*  *IEC 60204-1 or equivalent*  *ISO 13849-1 or equivalent*  *ISO 13850 or equivalent*  *DS/EN 1037 or equivalent*  *The Danish Working Environment Act* *The Danish Working Environment Act – Consolidated Act No. 1072 of 7 September 2010*  *DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC* *Executive Order No. 693 on the design etc. of machinery.* |  |  |  |
| **27** | **Emergency stop for equipment**  The vehicle and all constituent components/equipment shall be equipped with the emergency stops required by law. | SHALL | *Such emergency stop requirements may arise from: Danish Machinery Directive (IEC/EN 60204, EN/ISO 13849). The Supplier shall describe the quantity and function of emergency stops for the Towing vehicle etc.*  *Reference standard:*  *IEC/EN 60204 or equivalent*  *EN/ISO 13849 or equivalent*  *DS/EN 1037 or equivalent*  *The Danish Working Environment Act* *The Danish Working Environment Act – Consolidated Act No. 1072 of 7 September 2010*  *DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC* *Executive Order No. 693 on the design etc. of machinery.* |  |  |  |
| **28** | **Delivery time**  The vehicle shall be delivered no later than week 11/ 2020 in Denmark. | SHALL |  |  |  |  |
| **29** | **Towing speed**  The vehicle shall be able to tow aircraft at a top speed of at least 3,5 km/h. on a surface that is Wet / Dry condition but not with icy surface. | SHALL |  |  |  |  |