Statement of Work

for components supply

Scope of Procurement: the set of fasteners

for Wind Turbine L100-2.5 MW

ТЗ-М18-0001\_03

Moscow

2019

Statement of Work

for components supply

under the Project “Construction of WF 610 MW and WT Plant”

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# SECTION 1. GENERAL INFORMATION

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| Subsection 1.1 Name |
| The set of fasteners for Wind Turbine L100 - 2.5 MW (hereinafter referred to as – the Set). |
| Subsection 1.2 Information of Originality |
| Fasteners included into the Set are to be new, brand – new, not restored and free from third – party rights. |
| Subsection 1.3 Documents for development / fabrication |
| The list of documents required for development and fabrication of Components is presented in Annex А. |
| Subsection 1.4 OKPD code 2(Russian Classification of Products by Economic Activities) |
| 25.94 Fasteners and mounting screws. |

# SECTION 2. SCOPE OF USE

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| The Set consists of rivets, studs, washers, nuts, bolts, screws and pins in number that is enough for assembly and mounting of WT parts internally and to and structural units. |

# SECTION 3. OPERATIONAL CONDITIONS

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| The climatic category is “У” as per GOST 15150-69 «Machines, instruments and other industrial products. Modifications for different climatic regions. Categories, operating, storage and transportation conditions as to environments climatic aspects influence» (or equal to IEC 60068-1).  The environmental class is “1” as per GOST 15150-69 «Machines, instruments and other industrial products. Modifications for different climatic regions. Categories, operating, storage and transportation conditions as to environments climatic aspects influence» (or equal to IEC 60068-1).).  The sea level elevation of the Turbine is a maximum of 1,000 m. |

# SECTION 4. TECHNICAL SPECIFICATIONS

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| Subsection 4.1. Technical, functional and quality parameters (consumer's properties) of the Set. |
| The mechanical characteristics and size dimensions of fasteners must fulfill the document requirements given in Annex A, the component list in Annex B and supply standards.  The thread series except for stated fasteners to be hot dip galvanized is 6g or 6H if other is not agreed in the supply standard. The thread series of fasteners to be hot dip galvanized of 6az or 8H. The internal thread of fasteners that to be hot dip galvanized can be done only after hot dip galvanized layer.  The metal coating of fasteners to be done in accordance with the documentation given in Annex A as per EN ISO 4042, the coating thickness is in accordance with the supply standards, the hot dip galvanized coating is in accordance with ISO 10684, the thickness of the hot dip galvanized coating is a minimum of 50 μm, it is not allowed to measure in the surfaces intersection, the adhesion control is to be done in accordance with ISO 10684 requirements. |
| Subsection 4.2. Reliability Requirement |
| The operating term of the Set is a minimum of 25 years in the open air. Fasteners will be exposed to permanent environmental factors including seasonal temperature fluctuation, sun effect and UV radiation. |
| Subsection 4.3. Requirements to component elements, basic and operating materials |
| Material requirements are in accordance with documents stated in Annex A.  No special requirements to the components. |
| Subsection 4.4. Requirements to marking |
| Fasteners in the Set is to have the marking in accordance with requirements of the supply standards.  Bolts and studs with the hot dip galvanized coating as per ISO 10684 is to have the marking of “U”.  The marking of cargo places is to be done in accordance with samples given in Contract Annexes.  The transport marking is carried out in accordance with requirements of GOST 14192-96 «Marking of cargoes» (or equal to IEC).  Each package is to have a marking label given in Annex 1 in this Statement of work. |
| Subsection 4.5. Requirements to packaging |
| The Set is to be divided into Part 1 and Part 2 in accordance with Annexes B and C, preserved and packed in accordance with requirements of the Supply Contract.  The component supply is carried out in the package with marking. The supplier is responsible for the package sufficiency and reliability.  The delivery places of Part 1 and Part 2 are in accordance with the requirements of the Supply contract. |
| Subsection 4.6 Certification Requirements. |
| The Supplier shall provide the Customer with Certificates for used basic and welded materials. |

# SECTION 5. REQUIREMENTS TO ACCEPTANCE PROCEDURE

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| Subsection 5.1 Testing and acceptance procedure |
| Prior the shipment out of the manufacturer's facilities shall go under the pre-shipment inspection as it is stated in the supply contract. At the delivery to the Customer’s warehouse the Set shall undergo the Incoming Control and an Incoming Control Certificate shall be drawn up in accordance with the Supply Contract.  The Incoming Control of the Set shall include the following:   * Quality Control Document; * Safety of the package and preservation; * Marking in fasteners and its conformity to standard requirements; * Visual control that includes the lack of corrosion and mechanical damages, the quality and safety of electrodeposited coating (if any).   The Quality Control Document shall include the following:   * Test Certificate as per EN 10204, Forms 2.2 or 3.1; * Trade Mark or manufacture’s name (or a supplier’s); * A standard used to fabricate fasteners.   Fasteners shall be tested in accordance with ISO 898-1 (bolts, screws, studs) and ISO 898-2 (nuts). Including but not limited, other fasteners shall be tested in accordance with supply standards.  In special agreed cases the testing procedure shall be added in accordance with requirements in Table 1.  Tests are to be conducted in certified laboratories. In special agreed cases the quality shall be confirmed as per EN 10204, Forms 2.2 or 3.1.     |  |  |  |  |  | | --- | --- | --- | --- | --- | | Table 1 Additional Testing Procedure | | | | | |  | Tightening Torque as per DIN 18800‑7:2008 | Tensile Test and Stress Test as per ISO 898‑1 section 8.2 and 8.4 | Notched-bar impact test as per ISO 898‑1 section 6 test program A. | Thread Smoothness Test  (without jamming and blocking) | | Fasteners as per Specification 30‑10358 | Yes | Yes | Yes | Yes | | Fasteners high-tensile hot dip galvanized 30‑10129 |  | Yes | Yes | Yes | | Fasteners as per Specification 30‑10032 |  | Yes | Yes | Yes | |
| Subsection 5.2 Requirements to Customer’s Delivery of technical and other documents at the set shipment. |
| At the shipment the following documents are to be attached as per the supply contract included but not limited:   * a Set passport with acts and Test Certificates attached, Certificates for basic and welded materials, etc.; * the instruction for transportation, discharging and storage. |

# SECTION 6. REQUIREMENTS TO TRANSPORTATION

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| While shipping the Set shall be protected from mechanical damages and strikes. The Supplier is responsible for package sufficiency and safety. |

# SECTION 7. REQUIREMENTS TO STORAGE

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| The Set is meant to be stored in the package in the open air effected with environmental factors. |

# SECTION 8. REQUIREMENTS TO SCOPE AND/OR TERMS OF WARRANTY

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| The warranty for the Set will begin at the Delivery Date as it is stated in the Supply Contract and it will continue to remain in force within 24 (twenty four) months.  The Supplier guarantees the compliance with the requirements of this statement of Work, standards and / or technical requirements while meeting the rules of the transportation, storage, installation and operation. |

**Annex А Drawings List**

|  |  |  |  |
| --- | --- | --- | --- |
| № п/п | Article | Revision | Document Name |
|  | 20-011077 | B | M01-C5-20-011077 - B - Threaded rod M16x85 with hexagonal end.pdf | |
|  | 20-011131 | A | M01-C5-20-011131 - A - U-Bolt M10.pdf | |
|  | 20-020461 | C | M02-C5-20-020461 - C - Yaw brake disk stud M36-10.9.pdf | |
|  | 20-021399 | B | M02-C8-20-021399 - B - Tower top flange bolt M30-10.9 set.pdf | |
|  | 20-021400 | A | M02-C5-20-021400 - A - Tower top flange bolt M30-10.9 set with test.PDF | |
|  | 20-030224 | A | M03-C5-20-030224 - A - Generator cylindrical nut M39.pdf | |
|  | 20-030255 | C | M03-C5-20-030255 - C - Stator lamination cylindrical nut M30.pdf | |
|  | 20-030291 | B | M03-C5-20-030291 - B - Main bearing stud bolt M39-10.9.pdf | |
|  | 20-030328 | C | M03-C5-20-030328 - C - Rotor to bearing stud bolt M20-10.9.pdf | |
|  | 20-031028 | A | M03-C5-20-031028 - A - Stator double end stud M30 - 10.9 MK2.PDF | |
|  | 20-031094 | A | M03-C5-20-031094 - A - Sealing bolt M36.PDF | |
|  | 20-031103 | A | M03-C5-20-031103 - A - Double end stud M39 - 10.9.PDF | |
|  | 20-031108 | B | M03-C8-20-031108 - B - Double end stud M39 - 10.9 set.PDF | |
|  | 20-031109 | B | M03-C8-20-031109 - B - Double end stud M30 - 10.9 set.PDF | |
|  | 20-031111 | A | M03-C5-20-031111 - A - Double end stud M30 - 10.9.PDF | |
|  | 20-031168 | A | M03-C5-20-031168 - A - Double end stud M39 - 10.9 set with test.PDF | |
|  | 20-031169 | A | M03-C5-20-031169 - A - Double end stud M30 - 10.9 set with test.PDF | |
|  | 20-031223 | A | M03-C4-20-031223 - A - Main bearing studbolt M39 - 10.9 set with test.PDF | |
|  | 20-031224 | A | M03-C4-20-031224 - A - Main bearing studbolt M39 - 10.9 set.PDF | |
|  | 20-040195 | C | M04-C5-20-040195 - C - Blade bearing stud M30-10.9.pdf | |
|  | 20-040214 | A | M04-C5-20-040214 - A - Locking washer.pdf | |
|  | 20-040223 | B | M04-C5-20-040223 - B - Pitch drive studbolt M16-10.9.pdf | |
|  | 20-040564 | A | M04-C8-20-040564 - A - Blade bearing stud M30-10.9 set.PDF | |
|  | 20-040579 | A | M04-C4-20-040579 - A - Blade bearing stud M30 10.9 set with testing.PDF | |
|  | 20-050034 | B | M05-C5-20-050034 - B - Double end stud M30 LM 45.3 & 49.1.pdf | |
|  | 20-050055 | A | M05-C5-20-050055 - A - Blade stud M30 LM 45.3 & LM 49.1 set.PDF | |
|  | 20-050056 | A | M05-C5-20-050056 - A - Blade stud M30 LM 45.3 & LM 49.1 with testing.PDF | |
|  | 20-070130 | B | M07-C5-20-070130 - B - Anchor threaded rod - HDG.PDF | |
|  | 20-180002 | A | M18-C5-20-180002 - A - Threaded end M12x280.pdf | |
|  | 20-180005 | B | M18-C5 -20-180005 - B - Threaded end M24x320 8.8.PDF | |
|  | 20-180018 | A | M18-C5-20-180018 - A - Threaded rod M8x540.pdf | |
|  | 20-180020 | A | M18-C5-20-180020 - A - Threaded rod M8x400.pdf | |
|  | 20-180066 | A | M18-C5-20-180066 - A - Threaded rod M24x150 8.8.pdf | |
|  | 20-180086 | A | M18-C5-20-180086 - A - Threaded rod M16x160 A2-70.PDF | |
|  | 20-180090 | A | M18-C5-20-180090 - A - Threaded rod M16x70 8.8.pdf | |
|  | 20-180167 | A | M18-C5-20-180167 - A - Threaded rod M12x80 A2.PDF | |
|  | 30-10032 | R2 | M00-C5-30-10032 R2 Specification mounting materials with attest acc. NEN-EN-10204-3.1.pdf | |
|  | 30-10034 | R4 | M00-C5-30-10034-R4-Specification for welded steel constructions.pdf | |
|  | 30-10129 | R0 | M00-C5-30-10129 - R0 - Hot dip galvanized high strength fasteners acc. ISO 10684.pdf | |
|  | 30-10358 | R0 | M01-C5-30-10358 - R0 - Specification tower bolts.pdf | |

**Annex B The component list of the Set (Part 1)**

| № п/п | Article | Rev. | Name | Material | Comments | Quantity, pcs. |
| --- | --- | --- | --- | --- | --- | --- |
|  | 50-01946 |  | Carriage bolt DIN 603 M12x120 | A2 |  | 242 |
|  | 50-02167 |  | Washer ISO7089 (DIN125A) M12 | A2 |  | 371 |
|  | 50-01975 |  | Lock nut ISO10511 (DIN985) M12 | A2 |  | 367 |
|  | 50-02289 |  | Hex. cs. head screw ISO10642 (DIN7991) M4x20 | A2 |  | 97 |
|  | 50-02702 |  | Drive in nut for wood DIN1624 M4 | steel | Zinc plated Fabory : 14110 M4 | 109 |
|  | 50-00172 |  | Hex. bolt ISO4014 (DIN931) M12x120 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 284 |
|  | 50-02305 |  | Lock nut ISO10511 (DIN985) M12 | 8 | Zinc plated | 852 |
|  | 50-01126 |  | Washer ISO7089 (DIN125A) M12 | Steel | Hot dip galvanized As per 30-10129 | 1843 |
|  | 50-03130 |  | 4 Prong Drive-in nut for wood DIN1624 M12 | steel | Fabory | 36 |
|  | 50-03135 |  | Hex socket button head screw with collar ISO7380-2 M12x30 | A2 |  | 36 |
|  | 50-02303 |  | Lock nut ISO10511 (DIN985) M8 | 8 | Zinc plated | 529 |
|  | 50-02490 |  | Threaded rod DIN 976-1 M8x135 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 246 |
|  | 50-00044 |  | Washer ISO7089 (DIN125A) M8 | Steel | Hot dip galvanized As per 30-10129 | 562 |
|  | 50-01218 |  | Hex. Bolt ISO4017 (DIN933) M12x30 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 28 |
|  | 50-00987 |  | Hex. Bolt ISO4017 (DIN933) M8x90 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 18 |
|  | 50-01856 |  | Hex. Bolt ISO4017 (DIN933) M6x70 | 8.8 | Zinc plated | 9 |
|  | 50-01969 |  | Washer ISO7089 (DIN125A) M6 | steel | Zinc plated | 50 |
|  | 50-02310 |  | Lock Nut ISO10511 (DIN985) M6 | 8 | Zinc plated | 25 |
|  | 50-01531 |  | Plain washer DIN 7349 M16 | Steel | Hot dip galvanized As per 30-10129 | 43 |
|  | 50-00217 |  | Hex. bolt ISO4014 (DIN931) M16x140 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 17 |
|  | 50-02306 |  | Lock Nut ISO10511 (DIN985) M16 | 8 | Zinc plated | 118 |
|  | 50-03246 |  | Spring pin ISO8752 (DIN1481) Ø5 L=10 | A1 |  | 16 |
|  | 50-03207 |  | Hex socket button head screw with collar ISO7380-2 M8x40 | A2 |  | 788 |
|  | 50-01904 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x80 | A2 |  | 16 |
|  | 50-01955 |  | Plain Washer ISO7093 (DIN9021) M8 | A2 |  | 174 |
|  | 50-01977 |  | Lock nut ISO10511 (DIN985) M8 | A2 |  | 282 |
|  | 50-00699 |  | Hex. Bolt ISO4017 (DIN933) M12x40 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 160 |
|  | 50-02925 |  | Hex. socket head cap screw ISO4762 (DIN912) M5x25 | A2 |  | 48 |
|  | 50-01967 |  | Washer ISO7089 (DIN125A) M5 | A2 |  | 81 |
|  | 50-01979 |  | Lock Nut ISO10511 (DIN985) M5 | A2 |  | 71 |
|  | 50-02338 |  | Threaded rod DIN 976-1 M12x540 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-01236 |  | Hex. nut ISO4032 (DIN934) M12 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 150 |
|  | 50-02339 |  | Threaded rod DIN 976-1 M12x520 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-02360 |  | Plain washer ISO7093 (DIN9021) M12 | A2 |  | 8 |
|  | 50-02198 |  | Hex. Bolt ISO4017 (DIN933) M12x35 | A2 |  | 4 |
|  | 50-01897 |  | Hex. cs. head screw ISO10642 (DIN7991) M5x16 | A2 |  | 2 |
|  | 50-01990 |  | Hex. Nut ISO4032 (DIN934) M5 | A2 |  | 2 |
|  | 50-02663 |  | Washer ISO7089 (DIN125A) M20 | A2 |  | 2 |
|  | 50-02664 |  | Hex. nut ISO4032 (DIN934) M20 | A2 |  | 2 |
|  | 50-01999 |  | Washer ISO7089 (DIN125A) M8 | A2 |  | 120 |
|  | 50-01987 |  | Hex. nut ISO4032 (DIN934) M8 | A2 |  | 2 |
|  | 50-00686 |  | Hex. Bolt ISO4017 (DIN933) M12x100 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-02118 |  | Plain washer DIN 7349 M12 | Steel | Hot dip galvanized As per 30-10129 | 30 |
|  | 50-02373 |  | Hex. Bolt ISO4017 (DIN933) M8x20 | A2 |  | 2 |
|  | 50-00687 |  | Hex. Bolt ISO4017 (DIN933) M12x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 79 |
|  | 50-01158 |  | Washer ISO7089 (DIN125A) M16 | Steel | Hot dip galvanized As per 30-10129 | 145 |
|  | 50-00749 |  | Hex. Bolt ISO4017 (DIN933) M16x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 10 |
|  | 50-01851 |  | Hex. Bolt ISO4017 (DIN933) M6x20 | 8.8 | Zinc plated | 4 |
|  | 50-02191 |  | Hex. Bolt ISO4017 (DIN933) M16x30 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 3 |
|  | 50-00700 |  | Hex. Bolt ISO4017 (DIN933) M12x35 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 163 |
|  | 50-01152 |  | Hex. nut ISO4032 (DIN934) M16 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 14 |
|  | 50-00984 |  | Hex. Bolt ISO4017 (DIN933) M8x60 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-00688 |  | Hex. Bolt ISO4017 (DIN933) M12x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 220 |
|  | 50-01315 |  | Plain Washer ISO7093 (DIN9021) M8 | Steel | Hot dip galvanized As per 30-10129 | 50 |
|  | 50-02742 |  | Hex. Bolt ISO4017 (DIN933) M6x80 | 8.8 | Zinc plated | 12 |
|  | 50-02358 |  | Plain washer ISO7093 (DIN9021) M12 | steel | Hot dip galvanized As per 30-10129 | 86 |
|  | 50-00985 |  | Hex. Bolt ISO4017 (DIN933) M8x70 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 3 |
|  | 50-04216 |  | Square U-bolt M8 50x50 / 200HV / 286.11.0503 - Steel, HDG | 200HV | <https://www.hazal.nl/download/Hazal_286.pdf> | 2 |
|  | 50-00058 |  | Hex. bolt ISO4014 (DIN931) M8x70 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-02291 |  | Dee Shackle 0.5 ton with screw collar pin | Steel | Green Pin G-4151 | 2 |
|  | 50-00776 |  | Hex. Bolt ISO4017 (DIN933) M16x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 16 |
|  | 50-02778 |  | Drive  in screw 2.9x6.5 / steel / Nickel plated / 23252153 | steel | Nickel plated https://shop.eriks.nl/en/fasteners-screws-hammer-drive-screws | 4 |
|  | 50-01032 |  | Hex. cs. head screw ISO10642 (DIN7991) M5x16 | A4 |  | 6 |
|  | 50-01949 |  | Plain washer ISO7093 (DIN9021) M5 | A2 |  | 6 |
|  | 50-03512 |  | Chipboard screw 4x20 VKKK A2 / Riwema art nr 200.26.19 | A2 | Riwema art nr 200.26.19 http://www.riwema.nl/elvz-spaanplaatschroeven/1686-elvz-spaanderplaatschroeven-4-x-20-vk-kk.html | 140 |
|  | 50-01875 |  | Hex. Bolt ISO4017 (DIN933) M8x25 | A2 |  | 19 |
|  | 50-01997 |  | Washer ISO7089 (DIN125A) M8 | Steel | Zinc plated | 9 |
|  | 50-01913 |  | Hex. socket head cap screw ISO4762 (DIN912) M5x16 | A2 |  | 2 |
|  | 50-03138 |  | Hex socket button head screw with collar ISO7380-2 M12x60 | A2 |  | 67 |
|  | 50-01905 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x90 | A2 |  | 2 |
|  | 50-01738 |  | Washer ISO7089 (DIN125A) M14 | Steel | Hot dip galvanized As per 30-10129 | 51 |
|  | 50-01441 |  | Tapping screw ISO7049 (DIN7981) CZ-ST4.8x19CH |  | zinc plated | 2 |
|  | 50-02334 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x70 | 8.8 | Zinc plated | 4 |
|  | 50-01903 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x35 | A2 |  | 2 |
|  | 50-01518 |  | Hex. Bolt ISO4017 (DIN933) M8x12 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 1 |
|  | 50-02701 |  | Hex. cs. head screw ISO10642 (DIN7991) M4x25 | A2 |  | 12 |
|  | 50-01454 |  | Hex. Bolt ISO4017 (DIN933) M8x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-01276 |  | Countersunk head tapping screw DIN 7982 CZ 4.8x25 | Steel | Zinc plated | 4 |
|  | 50-00164 |  | Hex. bolt ISO4014 (DIN931) M12x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 34 |
|  | 50-01942 |  | Carriage bolt DIN 603 M10x30 | A2 |  | 4 |
|  | 50-01187 |  | Washer ISO7089 (DIN125A) M10 | Steel | Hot dip galvanized As per 30-10129 | 4 |
|  | 50-01193 |  | Hex. nut ISO4032 (DIN934) M10 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 52 |
|  | 50-00689 |  | Hex. Bolt ISO4017 (DIN933) M12x60 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-02976 |  | Cs. head screw ISO10642 (DIN7991) M12x40 | 8.8 | Zinc plated | 8 |
|  | 50-02818 |  | Hex. Bolt ISO4017 (DIN933) M4x16 | A2 |  | 2 |
|  | 50-02001 |  | Washer ISO7089 (DIN125A) M4 | A2 |  | 8 |
|  | 50-01980 |  | Lock Nut ISO10511 (DIN985) M4 | A2 |  | 6 |
|  | 50-02304 |  | Lock nut ISO10511 (DIN985) M10 | 8 | Zinc plated | 2 |
|  | 50-01965 |  | Washer ISO7089 (DIN125A) M10 | Steel | Zinc plated | 4 |
|  | 50-01883 |  | Hex. Bolt ISO 4017 (DIN933) M10x30 | 8.8 | Zinc plated | 2 |
|  | 50-01311 |  | Hex. Bolt ISO4017 (DIN933) M16x45 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 1 |
|  | 50-00248 |  | Hex. bolt ISO4014 (DIN931) M16x60 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 6 |
|  | 50-01849 |  | Hex. Bolt ISO4017 (DIN933) M5x16 | A2 |  | 12 |
|  | 50-02141 |  | Hex. head cap screw ISO4762 (DIN912) M4x12 | A2 |  | 4 |
|  | 50-02387 |  | Threaded rod DIN 976-1 M12x120 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 24 |
|  | 50-00212 |  | Hex. bolt ISO4014 (DIN931) M16x65 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-01963 |  | Spring washer DIN 127 M10 | A2 |  | 2 |
|  | 50-01893 |  | Hex. Bolt ISO 4017 (DIN933) M10x30 | A2 |  | 2 |
|  | 50-01873 |  | Hex. Bolt ISO4017 (DIN933) M8x16 | A2 |  | 1 |
|  | 20-011077 | B | Threaded rod M16x85 with hexagonal end | 8.8 |  | 84 |
|  | 50-01243 |  | Plain washer ISO7093 (DIN9021) M10 | Steel | Hot dip galvanized As per 30-10129 | 48 |
|  | 20-011131 | A | U-bolt M10 | S355J2 | Hazal | 12 |
|  | 50-01986 |  | Hex. nut ISO4032 (DIN934) M8 | 8 | Zinc plated | 4 |
|  | 50-01161 |  | Threaded rod DIN 976-1 M16 L=560 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-01368 |  | Blind rivet nut M6 FO65 Clamp 4-6.5 L=21 / A2. H860X0A20060020 - Stainless steel (1.4567) | A2 | [www.jeveka.com](http://www.jeveka.com/) | 24 |
|  | 50-01916 |  | Hex. head cap screw ISO4762 (DIN912) M6x20 | A2 |  | 24 |
|  | 50-01970 |  | Washer ISO7089 (DIN125A) M6 | A2 |  | 24 |
|  | 50-01831 |  | Hex. bolt ISO4014 (DIN931) M8x30 | A2 |  | 12 |
|  | 50-01726 |  | Hex. thin nut ISO8675 (DIN439B) M14x1.5 | A2 |  | 96 |
|  | 50-04182 |  | Countersunk head tapping screw DIN 7982 CZ 4.8x20" | A2 |  | 72 |
|  | 20-050034 | B | Double end stud M30 LM 45.3 & 49.1 | 10.9 Delta-Tone 9000 + Delta-Seal | Check lists: 29-050019, 29-050024, 29-050034 | 241 |
|  | 50-01336 |  | Washer ISO7416 (DIN6916) M30 | 300 HV | Hot dip galvanized As per 30-10129, 30-10358 | 565 |
|  | 50-01148 |  | Hex. nut ISO4032 (DIN934) M30 | 10 | Hot dip galvanized (ISO FIT) As per 30-10129, 30-10358 | 565 |
|  | 20-070130 | B | Anchor threaded rod - HDG | 10.9 | Hot dip galvanized (ISO FIT) As per 30-10129, 30-10358 | 160 |

**Annex C The component list of the Set (Part 2)**

| № п/п | Article | Rev. | Name | Material | Comments | Quantity, pcs. |
| --- | --- | --- | --- | --- | --- | --- |
|  | 20-020461 | C | Yaw brake disk stud M36-10.9 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 1 |
|  | 50-01039 |  | Hex. nut ISO4032 (DIN934) M36 | 10 | Hot dip galvanized (ISO FIT) As per 30-10129, 30-10358 | 37 |
|  | 50-01339 |  | Washer ISO7416 (DIN6916) M36 | 300 HV | Hot dip galvanized As per 30-10129, 30-10358 | 73 |
|  | 50-01063 |  | Hex. head cap screw ISO4762 (DIN912) M16x35 | 8.8 | Zinc plated | 8 |
|  | 50-01322 |  | Spring pin ISO8752 (DIN1481) 28x40mm | Steel |  | 2 |
|  | 50-01908 |  | Hex. cs. head screw ISO10642 (DIN7991) M10x20 | A2 |  | 2 |
|  | 50-02251 |  | Contact-lock washer-type P M10 / Steel / Yellow passivated | Steel | Zinc plated | 2 |
|  | 50-00220 |  | Hex. bolt ISO4014 (DIN931) M16x100 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-01158 |  | Washer ISO7089 (DIN125A) M16 | Steel | Hot dip galvanized As per 30-10129 | 551 |
|  | 50-02306 |  | Lock Nut ISO10511 (DIN985) M16 | 8 | Zinc plated | 16 |
|  | 50-01218 |  | Hex. Bolt ISO4017 (DIN933) M12x30 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 90 |
|  | 50-01126 |  | Washer ISO7089 (DIN125A) M12 | Steel | Hot dip galvanized As per 30-10129 | 708 |
|  | 50-02358 |  | Plain washer ISO7093 (DIN9021) M12 | steel | Hot dip galvanized As per 30-10129 | 101 |
|  | 50-01236 |  | Hex. nut ISO4032 (DIN934) M12 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 388 |
|  | 50-00700 |  | Hex. Bolt ISO4017 (DIN933) M12x35 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 104 |
|  | 50-02701 |  | Hex. cs. head screw ISO10642 (DIN7991) M4x25 | A2 |  | 52 |
|  | 50-02702 |  | Drive in nut for wood DIN1624 M4 | steel | Zinc plated Fabory : 14110 M4 | 43 |
|  | 50-02307 |  | Carriage bolt DIN 603 M12x120 | 8.8 | zinc plated | 6 |
|  | 50-02305 |  | Lock nut ISO10511 (DIN985) M12 | 8 | Zinc plated | 27 |
|  | 50-01997 |  | Washer ISO7089 (DIN125A) M8 | Steel | Zinc plated | 192 |
|  | 50-01870 |  | Hex. Bolt ISO4017 (DIN933) M8x35 | 8.8 | Zinc plated | 6 |
|  | 50-02747 |  | Carriage bolt DIN 603 M12x130 | 8.8 | zinc plated | 2 |
|  | 50-00184 |  | Hex. bolt ISO4014 (DIN931) M12x130 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 17 |
|  | 50-01502 |  | Hex. Bolt ISO 4014 (DIN 931) M36x500 | 10.9 | As per 30-10032 | 36 |
|  | 50-01311 |  | Hex. Bolt ISO4017 (DIN933) M16x45 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 56 |
|  | 50-01152 |  | Hex. nut ISO4032 (DIN934) M16 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 228 |
|  | 50-03315 |  | Plain washer DIN 7349 M20 | Steel | Hot dip galvanized As per 30-10129 | 8 |
|  | 50-02764 |  | Hex. Bolt ISO4017 (DIN933) M20x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-01191 |  | Hex. nut ISO4032 (DIN934) M20 | 10 | Hot dip galvanized (ISO FIT) As per 30-10129 | 157 |
|  | 50-00249 |  | Hex. bolt ISO4014 (DIN931) M16x55 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 12 |
|  | 50-00247 |  | Hex. bolt ISO4014 (DIN931) M16x90 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 5 |
|  | 50-00749 |  | Hex. Bolt ISO4017 (DIN933) M16x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 25 |
|  | 50-01225 |  | Washer ISO7089 (DIN125A) M20 | Steel | Hot dip galvanized As per 30-10129 | 80 |
|  | 50-00162 |  | Hex. bolt ISO4014 (DIN931) M12x80 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 16 |
|  | 20-180167 | A | Threaded rod M12x80 A2 | A2 |  | 4 |
|  | 50-03981 |  | Threaded rod M12x1000 A2 DIN976-1 L=80mm | A2-70 |  | 4 |
|  | 50-02432 |  | Spring washer DIN 127 M12 | A2 |  | 6 |
|  | 50-02548 |  | Hex. nut ISO4032 (DIN934) M12 | A2 |  | 4 |
|  | 50-00044 |  | Washer ISO7089 (DIN125A) M8 | Steel | Hot dip galvanized As per 30-10129 | 384 |
|  | 50-01956 |  | Plain Washer ISO7093 (DIN9021) M8 | Steel | Zinc plated | 9 |
|  | 50-01869 |  | Hex. Bolt ISO4017 (DIN933) M8x25 | 8.8 | Zinc plated | 13 |
|  | 50-01176 |  | Hex. nut ISO4032 (DIN934) M8 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 101 |
|  | 50-01531 |  | Plain washer DIN 7349 M16 | Steel | Hot dip galvanized As per 30-10129 | 10 |
|  | 50-04100 |  | Threaded rod DIN 976-1 M16 L=525 mm | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 1 |
|  | 50-01620 |  | Adjusting ring 25 with set screw | A2 |  | 6 |
|  | 50-01453 |  | Ball lock pin 113.2-12-60 | X5CrNi18-10 (AISI 304) | Elesa + Ganter | 3 |
|  | 50-00245 |  | Hex. bolt ISO4014 (DIN931) M16x70 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 12 |
|  | 50-01986 |  | Hex. nut ISO4032 (DIN934) M8 | 8 | Zinc plated | 46 |
|  | 50-02311 |  | Carriage bolt DIN 603 M12x40 | 8.8 | HDG | 4 |
|  | 50-01862 |  | Hex. Bolt ISO4017 (DIN933) M8x30 | 8.8 | Zinc plated | 16 |
|  | 50-00775 |  | Hex. Bolt ISO4017 (DIN933) M16x40 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 9 |
|  | 50-00688 |  | Hex. Bolt ISO4017 (DIN933) M12x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 13 |
|  | 50-02433 |  | Washer ISO7089 (DIN125A) M16 | A2 |  | 1669 |
|  | 50-02350 |  | Hex. Bolt ISO4017 (DIN933) M16x40 | A2 |  | 10 |
|  | 50-01955 |  | Plain Washer ISO7093 (DIN9021) M8 | A2 |  | 103 |
|  | 50-00699 |  | Hex. Bolt ISO4017 (DIN933) M12x40 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 163 |
|  | 50-02330 |  | Straight screw in coupling 35 G1 1/4"" - M45x2" | Steel | Hebu GE35LR Nickel plated | 4 |
|  | 50-01999 |  | Washer ISO7089 (DIN125A) M8 | A2 |  | 227 |
|  | 50-01977 |  | Lock nut ISO10511 (DIN985) M8 | A2 |  | 127 |
|  | 50-02040 |  | Hex. Bolt ISO4017 (DIN933) M8x40 | A2 |  | 29 |
|  | 50-02748 |  | U-bolt M8x99x71x40 | A2 |  | 1 |
|  | 50-01987 |  | Hex. nut ISO4032 (DIN934) M8 | A2 |  | 24 |
|  | 50-01970 |  | Washer ISO7089 (DIN125A) M6 | A2 |  | 177 |
|  | 50-01916 |  | Hex. head cap screw ISO4762 (DIN912) M6x20 | A2 |  | 8 |
|  | 50-01952 |  | Plain washer ISO7093 (DIN9021) M6 | A2 |  | 148 |
|  | 50-01857 |  | Hex. Bolt ISO4017 (DIN933) M6x12 | A2 |  | 51 |
|  | 50-01137 |  | Hex. bolt ISO4014 (DIN931) M12x90 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-01315 |  | Plain Washer ISO7093 (DIN9021) M8 | Steel | Hot dip galvanized As per 30-10129 | 266 |
|  | 50-00982 |  | Hex. Bolt ISO4017 (DIN933) M8x20 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 62 |
|  | 50-01454 |  | Hex. Bolt ISO4017 (DIN933) M8x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 90 |
|  | 50-01455 |  | Hex. Bolt ISO4017 (DIN933) M8x35 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 92 |
|  | 50-01243 |  | Plain washer ISO7093 (DIN9021) M10 | Steel | Hot dip galvanized As per 30-10129 | 24 |
|  | 50-00662 |  | Hex. Bolt ISO 4017 (DIN933) M10x30 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 16 |
|  | 50-01969 |  | Washer ISO7089 (DIN125A) M6 | steel | Zinc plated | 37 |
|  | 50-01809 |  | Hex. bolt ISO4014 (DIN931) M6x50 | 8.8 | Zinc plated | 4 |
|  | 50-02310 |  | Lock Nut ISO10511 (DIN985) M6 | 8 | Zinc plated | 20 |
|  | 50-01197 |  | Hex. bolt ISO4014 (DIN931) M8x35 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 5 |
|  | 50-01900 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x20 | A2 |  | 14 |
|  | 50-02317 |  | Cs. head screw ISO10642 (DIN7991) M12x35 | 8.8 | Zinc plated | 10 |
|  | 50-01275 |  | Countersunk head tapping screw DIN 7982 CZ 4.8x19 | Steel | Zinc plated | 54 |
|  | 50-01861 |  | Hex. Bolt ISO4017 (DIN933) M8x20 | 8.8 | Zinc plated | 122 |
|  | 50-00687 |  | Hex. Bolt ISO4017 (DIN933) M12x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 10 |
|  | 50-02408 |  | Hex. Bolt ISO4017 (DIN933) M12x60 | A2 |  | 4 |
|  | 50-01975 |  | Lock nut ISO10511 (DIN985) M12 | A2 |  | 94 |
|  | 50-02288 |  | Hex. Bolt ISO4017 (DIN933) M8x30 | A2 |  | 28 |
|  | 50-01858 |  | Hex. Bolt ISO4017 (DIN933) M6x20 | A2 |  | 20 |
|  | 50-00665 |  | Hex. Bolt ISO 4017 (DIN933) M10x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-01187 |  | Washer ISO7089 (DIN125A) M10 | Steel | Hot dip galvanized As per 30-10129 | 64 |
|  | 50-01193 |  | Hex. nut ISO4032 (DIN934) M10 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 24 |
|  | 50-01978 |  | Lock Nut ISO10511 (DIN985) M6 | A2 |  | 80 |
|  | 50-02373 |  | Hex. Bolt ISO4017 (DIN933) M8x20 | A2 |  | 25 |
|  | 50-01873 |  | Hex. Bolt ISO4017 (DIN933) M8x16 | A2 |  | 85 |
|  | 50-00983 |  | Hex. Bolt ISO4017 (DIN933) M8x30 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 18 |
|  | 50-02303 |  | Lock nut ISO10511 (DIN985) M8 | 8 | Zinc plated | 208 |
|  | 50-01852 |  | Hex. Bolt ISO4017 (DIN933) M6x25 | 8.8 | Zinc plated | 4 |
|  | 50-01872 |  | Hex. Bolt ISO4017 (DIN933) M8x16 | 8.8 | Zinc plated | 2 |
|  | 50-01912 |  | Hex. socket head cap screw ISO4762 (DIN912) M5x45 | A2 |  | 10 |
|  | 50-01967 |  | Washer ISO7089 (DIN125A) M5 | A2 |  | 16 |
|  | 50-01979 |  | Lock Nut ISO10511 (DIN985) M5 | A2 |  | 16 |
|  | 50-02512 |  | Washer ISO7089 (DIN125A) M3 | A2 |  | 16 |
|  | 50-02515 |  | Hex. head cap screw ISO4762 (DIN912) M3x30 | A2 |  | 2 |
|  | 50-02514 |  | Lock Nut ISO10511 (DIN985) M3 | A2 |  | 14 |
|  | 50-01317 |  | Washer DIN 435 - 14 | 200HV | Hot dip galvanized As per 30-10129 | 6 |
|  | 50-02125 |  | Spring Pin DIN 1481 Ш4x32 | S235JR |  | 1 |
|  | 50-02429 |  | Hex. head cap screw ISO4762 (DIN912) M4x6 | 8.8 | Zinc plated | 1 |
|  | 50-02392 |  | Hex. head cap screw ISO4762 (DIN912) M3x10 | A2 |  | 3 |
|  | 50-01259 |  | Plain washer ISO7093 (DIN9021) M6 | Steel | Hot dip galvanized As per 30-10129 | 22 |
|  | 50-02248 |  | Hex. Bolt ISO4017 (DIN933) M6x12 | 8.8 | Zinc plated | 4 |
|  | 50-02249 |  | Contact-lock washer-type P M6 | Steel | Zinc plated | 22 |
|  | 50-02247 |  | Hex. Bolt ISO4017 (DIN933) M6x10 | 8.8 | Zinc plated | 12 |
|  | 50-01851 |  | Hex. Bolt ISO4017 (DIN933) M6x20 | 8.8 | Zinc plated | 32 |
|  | 50-01988 |  | Hex. nut ISO4032 (DIN934) M6 | 8 | Zinc plated | 24 |
|  | 50-01928 |  | Carriage bolt DIN 603 M6x30 | A2 |  | 11 |
|  | 50-01261 |  | Plain washer ISO7093 (DIN9021) M4 | Steel | Zinc plated | 2 |
|  | 50-01948 |  | Plain washer ISO7093 (DIN9021) M4 | A2 |  | 41 |
|  | 50-01980 |  | Lock Nut ISO10511 (DIN985) M4 | A2 |  | 58 |
|  | 50-02807 |  | Hex. head cap screw ISO4762 (DIN912) M4x20 | A2 |  | 3 |
|  | 50-01918 |  | Hex. head cap screw ISO4762 (DIN912) M8x30 | A2 |  | 6 |
|  | 50-01877 |  | Hex. cs. head screw ISO10642 (DIN7991) M4x16 | A2 |  | 25 |
|  | 50-02959 |  | Split pin 2x16 | Stainless steel |  | 2 |
|  | 50-01831 |  | Hex. bolt ISO4014 (DIN931) M8x30 | A2 |  | 10 |
|  | 50-01964 |  | Washer ISO7089 (DIN125A) M10 | A2 |  | 38 |
|  | 50-01843 |  | Hex. bolt ISO4014 (DIN931) M10x40 | A2 |  | 38 |
|  | 50-01976 |  | Lock nut ISO10511 (DIN985) M10 | A2 |  | 34 |
|  | 50-04109 |  | Threaded insert Ensat-S M6x14 | 1.4305 (X8CrNiS18-9) | Groneman art. nr. 302.000.060.500 | 18 |
|  | 50-01958 |  | Plain washer ISO7093 (DIN9021) M10 | A2 |  | 56 |
|  | 50-02778 |  | Drive  in screw 2.9x6.5 / steel / Nickel plated / 23252153 | steel | Nickel plated https://shop.eriks.nl/en/fasteners-screws-hammer-drive-screws | 12 |
|  | 50-02360 |  | Plain washer ISO7093 (DIN9021) M12 | A2 |  | 30 |
|  | 50-02354 |  | Hex. bolt ISO4014 (DIN931) M12x50 | A2 |  | 20 |
|  | 50-00996 |  | Hex. Bolt ISO4017 (DIN933) M8x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 54 |
|  | 50-02260 |  | Hex. cs. head screw ISO10642 (DIN7991) M6x20 | 8.8 | Zinc plated | 3 |
|  | 50-00984 |  | Hex. Bolt ISO4017 (DIN933) M8x60 | 8.8 | Hot dip galvanized (ISO FIT) | 2 |
|  | 50-01953 |  | Plain washer ISO7093 (DIN9021) M6 | Steel | Zinc plated | 16 |
|  | 50-03568 |  | Self drilling screw (DIN7504K) ST6.3x24 | 8.8 | Zinc plated | 4 |
|  | 50-02167 |  | Washer ISO7089 (DIN125A) M12 | A2 |  | 106 |
|  | 50-02842 |  | Hex. Bolt ISO4017 (DIN933) M6x16 | A2 |  | 18 |
|  | 50-02056 |  | Screw - Self drilling cross DIN 7504 M 19mm | Steel | Zinc plated | 15 |
|  | 50-02573 |  | Washer ISO7416 (DIN6916) M39 | 300HV | Hot dip galvanized As per 30-10129, 30-10358 | 140 |
|  | 50-00038 |  | Hex. Nut ISO 4032 (DIN 934) M39 | 10 | Hot dip galvanized (ISO FIT) As per 30-10129, 30-10358 | 140 |
|  | 50-01148 |  | Hex. nut ISO4032 (DIN934) M30 | 10 | Hot dip galvanized (ISO FIT) acc. to 30-10358 | 559 |
|  | 50-01336 |  | Washer ISO7416 (DIN6916) M30 | 300 HV | Hot dip galvanized As per 30-10129, 30-10358 | 559 |
|  | 20-021399 | B | Tower top flange bolt M30-10.9 set |  |  | 1 |
|  | 50-02243 |  | Hex. Bolt ISO 4014 (DIN 931) M30x350 | 10.9 | As per 30-10032 | 81 |
|  | 50-01875 |  | Hex. Bolt ISO4017 (DIN933) M8x25 | A2 |  | 34 |
|  | 50-01542 |  | U-bolt M6x42x29x20 | A2 |  | 4 |
|  | 50-00997 |  | Hex. Bolt ISO4017 (DIN933) M8x40 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 17 |
|  | 50-02198 |  | Hex. Bolt ISO4017 (DIN933) M12x35 | A2 |  | 36 |
|  | 50-03227 |  | Conical spring Washer DIN 6796 M12 | A2 |  | 24 |
|  | 50-02320 |  | Hex. head cap screw ISO4762 (DIN912) M18x90 | 10.9 | Acc. Spec. 30-10032 | 144 |
|  | 50-02569 |  | Washer ISO7416 (DIN6916) M18 | 300HV | Acc. Spec. 30-10032 | 144 |
|  | 50-01844 |  | Hex. Bolt ISO4017 (DIN933) M4x30 | A2 |  | 2 |
|  | 50-02001 |  | Washer ISO7089 (DIN125A) M4 | A2 |  | 50 |
|  | 50-01481 |  | Spring cotter 2x50 | C45 |  | 2 |
|  | 50-00776 |  | Hex. Bolt ISO4017 (DIN933) M16x25 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-00751 |  | Hex. Bolt ISO4017 (DIN933) M16x80 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 3 |
|  | 50-02404 |  | Hex nut DIN 431 A G3-4 | A4 |  | 2 |
|  | 50-02199 |  | Hex. Bolt ISO4017 (DIN933) M12x40 | A2 |  | 12 |
|  | 50-01989 |  | Hex. nut ISO4032 (DIN934) M6 | A2 |  | 8 |
|  | 50-02025 |  | Threaded end DIN 976-1 M6x60 | A2 |  | 4 |
|  | 50-02165 |  | Hex. head cap screw ISO4762 (DIN912) M4x15 | A2 |  | 2 |
|  | 50-01714 |  | Blind rivet ISO15977 Ø5x20 alu | Aluminium |  | 26 |
|  | 20-180005 | B | Threaded end M24x320 8.8 |  |  | 2 |
|  | 50-02726 |  | Threaded rod M24 DIN976 L=320 mm | 8.8 | Hot dip galvanized (ISO fit) As per 30-10129 | 10 |
|  | 50-01256 |  | Washer ISO7089 (DIN125A) M24 | Steel | Hot dip galvanized As per 30-10129 | 31 |
|  | 50-01034 |  | Hex. nut ISO4032 (DIN934) M24 | 8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 18 |
|  | 50-01203 |  | Set screw ISO4029 (DIN916) M10x16 | 8.8 | Zinc plated | 2 |
|  | 50-02366 |  | Hex. head cap screw ISO4762 (DIN912) M12x180 | 8.8 | zinc plated | 8 |
|  | 50-00147 |  | Hex. bolt ISO4014 (DIN931) M10x100 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-02186 |  | Hex. cs. head screw ISO10642 (DIN7991) M6x40 | 8.8 | Zinc plated | 8 |
|  | 50-01824 |  | Hex. bolt ISO4014 (DIN931) M8x100 | 8.8 | Zinc plated | 2 |
|  | 50-01209 |  | Hex. bolt ISO4014 (DIN931) M10x40 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-00248 |  | Hex. bolt ISO4014 (DIN931) M16x60 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-02368 |  | Eye bolt - DIN 444 LB M12x60 | Steel | Zinc plated | 6 |
|  | 50-02286 |  | Hex. bolt ISO4014 (DIN931) M10x45 | A2 |  | 6 |
|  | 50-02141 |  | Hex. head cap screw ISO4762 (DIN912) M4x12 | A2 |  | 2 |
|  | 50-03731 |  | Hex. head cap screw ISO4762 (DIN912) M8x20 | A2 |  | 2 |
|  | 50-02191 |  | Hex. Bolt ISO4017 (DIN933) M16x30 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 140 |
|  | 20-031028 | A | Stator double end stud M30 - 10.9 MK2 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 72 |
|  | 20-030255 | C | Stator lamination cylindrical nut M30 | 42CrMo4 |  | 72 |
|  | 50-01532 |  | Spring Pin ISO8752 (DIN1481) 10x50mm | A2 |  | 8 |
|  | 50-01072 |  | Hex. head cap screw ISO4762 (DIN912) M6x40 | 8.8 | Zinc plated | 72 |
|  | 50-02164 |  | Spring pin ISO8752 (DIN1481) Ø16x36 | steel | Heavy duty | 18 |
|  | 50-01996 |  | Spring washer DIN 127 M6 | A2 |  | 8 |
|  | 50-01922 |  | Hex. head low cap screw DIN 6912 M4x10 | A2 |  | 15 |
|  | 50-01518 |  | Hex. Bolt ISO4017 (DIN933) M8x12 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-03615 |  | Set screw ISO4029 (DIN916) M6x6 | A2 |  | 74 |
|  | 50-02206 |  | Hex. bolt ISO4014 (DIN931) M6x80 | A2 |  | 3 |
|  | 50-01917 |  | Hex. head cap screw ISO4762 (DIN912) M6x16 | A2 |  | 2 |
|  | 20-031223 | A | Main bearing studbolt M39 - 10.9 set with test |  |  | 1 |
|  | 20-031224 | A | Main bearing studbolt M39 - 10.9 set |  |  | 1 |
|  | 20-030291 | B | Main bearing stud bolt M39-10.9 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 41 |
|  | 50-02325 |  | Hex nut DIN 431 A G1-8 | A2 |  | 2 |
|  | 50-01913 |  | Hex. socket head cap screw ISO4762 (DIN912) M5x16 | A2 |  | 6 |
|  | 50-01815 |  | Hex. bolt ISO4014 (DIN931) M6x70 | A2 |  | 7 |
|  | 20-180090 | A | Threaded rod M16x70 8.8 |  |  | 132 |
|  | 50-02728 |  | Threaded rod M16 DIN976 L=70mm | 8.8 | Hot dip galvanized (ISO fit) | 132 |
|  | 50-03246 |  | Spring pin ISO8752 (DIN1481) Ø5 L=10 | A1 |  | 132 |
|  | 50-03248 |  | Spring pin ISO8752 (DIN1481) Ø5 L=18 | A1 |  | 132 |
|  | 20-180086 | A | Threaded rod M16x160 A2-70 |  |  | 1452 |
|  | 50-02971 |  | Threaded rod DIN976 M16 A2-70 L=160 mm |  |  | 1452 |
|  | 50-02403 |  | Hex. nut ISO4032 (DIN934) M16 | A2 |  | 1651 |
|  | 50-02942 |  | Spring pin ISO8752 (DIN1481) Ø10 L=20 |  |  | 132 |
|  | 50-01200 |  | Set screw ISO4029 (DIN916) M10x30 | A2 |  | 132 |
|  | 50-01860 |  | Hex. Bolt ISO4017 (DIN933) M6x40 | A2 |  | 20 |
|  | 50-02818 |  | Hex. Bolt ISO4017 (DIN933) M4x16 | A2 |  | 6 |
|  | 50-02797 |  | Hex. cs. head screw ISO10642 (DIN7991) M3x10 | A2 |  | 12 |
|  | 50-01847 |  | Hex. Bolt ISO4017 (DIN933) M4x10 | A2 |  | 6 |
|  | 50-04079 |  | Spring pin ISO8752 (DIN1481) Ø16x40 | steel | Heavy duty | 1 |
|  | 20-030328 | C | Rotor to bearing studbolt M20-10.9 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 145 |
|  | 50-02570 |  | Washer ISO7416 (DIN6916) M20 | 300HV | Hot dip galvanized As per 30-10129 | 149 |
|  | 20-031168 | A | Double end stud M39 - 10.9 set with test |  |  | 1 |
|  | 20-031108 | B | Double end stud M39 - 10.9 set |  |  | 1 |
|  | 20-031103 | A | Double end stud M39 - 10.9 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 46 |
|  | 20-030224 | A | Generator cylindrical nut M39 | 42CrMo4 |  | 9 |
|  | 50-02572 |  | Washer ISO7416 (DIN6916) M27 | 300HV | Hot dip galvanized As per 30-10129, 30-10358 | 32 |
|  | 50-01133 |  | Hex. nut ISO4032 (DIN934) M27 | 10 | Hot dip galvanized (ISO FIT) As per 30-10129 | 16 |
|  | 50-00446 |  | Hex. bolt ISO4014 (DIN931) M27x300 | 10.9 | As per 30-10032 | 16 |
|  | 50-03355 |  | Hex. Bolt ISO4017 (DIN933) M16x70 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 20-031169 | A | Double end stud M30 - 10.9 set with test |  |  | 1 |
|  | 20-031109 | B | Double end stud M30 - 10.9 set |  |  | 1 |
|  | 20-031111 | A | Double end stud M30 - 10.9 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 67 |
|  | 50-03317 |  | Hex. Bolt ISO4017 (DIN933) M16x35 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-02982 |  | Hex. Bolt ISO4017 (DIN933) M12x30 | A2 |  | 4 |
|  | 50-03206 |  | Hex socket button head screw with collar ISO7380-2 M8x30 | A2 |  | 4 |
|  | 50-02765 |  | Hex. Bolt ISO4017 (DIN933) M20x55 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 72 |
|  | 50-02967 |  | Hex. Bolt ISO4017 (DIN933) M16x20 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 12 |
|  | 20-031094 | A | Sealing bolt M36 | AW-6082 T6 - AlMgSi1 |  | 16 |
|  | 20-040223 | B | Pitch drive studbolt M16-10.9 | 10.9 Delta-Tone 9000 + Delta-Seal |  | 36 |
|  | 50-04304 |  | Threaded rod DIN 976-1 M16 L=200 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 6 |
|  | 50-01153 |  | Hex. nut ISO4032 (DIN934) M16 | 10 | Hot dip galvanized (ISO FIT) As per 30-10129 | 36 |
|  | 50-02568 |  | Washer ISO7416 (DIN6916) M16 | 300HV | As per 30-10032 | 36 |
|  | 20-040195 | C | Blade bearing stud M30-10.9 | Steel class 10.9 |  | 241 |
|  | 50-04174 |  | Threaded rod DIN 976-1 M16 L=125 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 12 |
|  | 50-01819 |  | Hex. bolt ISO4014 (DIN931) M8x50 | 8.8 | Zinc plated | 3 |
|  | 50-01883 |  | Hex. Bolt ISO 4017 (DIN933) M10x30 | 8.8 | Zinc plated | 10 |
|  | 50-01965 |  | Washer ISO7089 (DIN125A) M10 | Steel | Zinc plated | 33 |
|  | 50-01201 |  | Set screw ISO4029 (DIN916) M10x40 | 8.8 | Zinc plated | 1 |
|  | 50-01981 |  | Hex. thin nut ISO4035 (DIN439B) M10 | A2 |  | 1 |
|  | 50-00804 |  | Hex. Bolt ISO4017 (DIN933) M24x50 | 8.8 | Hot dip galvanized (ISO fit) As per 30-10129 | 9 |
|  | 50-00212 |  | Hex. bolt ISO4014 (DIN931) M16x65 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-00174 |  | Hex. bolt ISO4014 (DIN931) M12x140 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 3 |
|  | 50-01812 |  | Hex. bolt ISO4014 (DIN931) M6x90 | 8.8 | Zinc plated | 4 |
|  | 50-01836 |  | Hex. bolt ISO4014 (DIN931) M10x40 | 8.8 | Zinc plated | 12 |
|  | 50-01984 |  | Hex. nut ISO4032 (DIN934) M10 | 8 | Zinc plated | 24 |
|  | 50-01215 |  | Hex nut DIN 431 A G1-1/4 | A4 |  | 2 |
|  | 50-03223 |  | Threaded insert Ensat-S M10x18 | 1.4305 (X8CrNiS18-9) | Groneman art. nr. 302.000.100.500 | 12 |
|  | 50-01308 |  | Square washer DIN 436 M16 | A2 |  | 18 |
|  | 50-02352 |  | Hex. Bolt ISO4017 (DIN933) M16x50 | A2 |  | 6 |
|  | 50-02363 |  | Cs. head screw ISO 10642 (DIN 7991) M12x30 | A2 |  | 6 |
|  | 50-03009 |  | Screw - self-drilling ISO15481 (DIN7504M) ST4.8x25mm | A2 | Fabory 51332048025 | 24 |
|  | 50-03719 |  | Hex. head cap screw ISO4762 (DIN912) M8x40 | A2 |  | 1 |
|  | 50-01138 |  | Hex. bolt ISO4014 (DIN931) M16x130 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 5 |
|  | 50-02669 |  | Speed  nut M8 type B 1.8-3.2  springsteel/zink plated / rectangular hole 12.3mm tol. 0 to -0.2 |  | rectangular hole 12.3mm tol. 0 to -0.2 Fabory 72350080001 | 24 |
|  | 50-03224 |  | Counternut G2 | X5CrNi18-10 (AISI 304) | Hellebeuk art nr ZM06034007 | 2 |
|  | 50-01220 |  | Spring washer DIN 127 M8 | 200HV |  | 4 |
|  | 50-02620 |  | Rigging screw Jaw Jaw M12 | S235JR | Mennens E-6353 DIN1480 M12 | 8 |
|  | 20-180066 | A | Threaded rod M24x150 8.8 |  |  | 8 |
|  | 50-02920 |  | Hex. Nut ISO4035 (DIN439) M24 | Steel | Hot dip galvanized (ISO FIT) As per 30-10129 | 8 |
|  | 50-03742 |  | MMS-plus Concrete bolt 10x60 with HP-coating | 8.8 | Heco-schrauben.nl art.nr 48439 | 16 |
|  | 50-02666 |  | Eye Nut Grade 80 M24 / 8 (10) / Red paint / YE.8.030.24 | 8 (10) | Red paint assets.holder.nl | 4 |
|  | 50-02928 |  | Hex. Bolt ISO4017 (DIN933) M24x45 | 8.8 | Hot dip galvanized (ISO fit) As per 30-10129 | 4 |
|  | 50-00072 |  | Hex. bolt ISO4014 (DIN931) M8x50 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 2 |
|  | 50-00058 |  | Hex. bolt ISO4014 (DIN931) M8x70 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 4 |
|  | 50-02435 |  | Carriage bolt DIN 603 M6x80 | Steel | Zinc plated | 4 |
|  | 50-03137 |  | Hex socket button head screw with collar ISO7380-2 M12x50 | A2 |  | 30 |
|  | 50-01903 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x35 | A2 |  | 10 |
|  | 50-03512 |  | Chipboard screw 4x20 VKKK A2 / Riwema art nr 200.26.19 | A2 | Riwema art nr 200.26.19 | 4 |
|  | 50-02037 |  | Hex. head cap screw ISO4762 (DIN912) M12x50 | 8.8 | zinc plated | 2 |
|  | 50-02289 |  | Hex. cs. head screw ISO10642 (DIN7991) M4x20 | A2 |  | 19 |
|  | 50-03207 |  | Hex socket button head screw with collar ISO7380-2 M8x40 | A2 |  | 4 |
|  | 50-02774 |  | Threaded rod M8 DIN976-1 L=540 mm | 8.8 | Zinc plated | 2 |
|  | 50-02709 |  | Wedge anchor M8x49 / Multifix Art. nr.: 040669 |  | Multifix Art. nr.: 040669 | 4 |
|  | 50-01902 |  | Hex. cs. head screw ISO10642 (DIN7991) M8x30 | A2 |  | 20 |
|  | 50-03461 |  | Hex. head cap screw ISO4762 (DIN912) M10x50 | 8.8 | zinc plated | 560 |
|  | 50-01552 |  | Mounting rail nut | Steel | Stauff art nr: GMV 3-5S M W3 | 560 |
|  | 50-00691 |  | Hex. Bolt ISO4017 (DIN933) M12x70 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 5 |
|  | 50-02490 |  | Threaded rod DIN 976-1 M8x135 | 8.8 | Hot dip galvanized (ISO FIT) As per 30-10129 | 12 |
|  | 50-01935 |  | Carriage bolt DIN 603 M8x45 | A2 |  | 10 |
|  | 50-01814 |  | Hex. bolt ISO4014 (DIN931) M6x40 | A2 |  | 4 |
|  | 50-02937 |  | Hex. Bolt ISO4017 (DIN933) M6x16 | 8.8 | Zinc plated | 2 |
|  | 50-02725 |  | Threaded rod M12 DIN976-1 L=260 mm | 8.8 | Hot dip galvanized (ISO fit) As per 30-10129 | 2 |
|  | 50-02118 |  | Plain washer DIN 7349 M12 | Steel | Hot dip galvanized As per 30-10129 | 14 |
|  | 50-02291 |  | Dee Shackle 0.5 ton with screw collar pin | Steel | Green Pin G-4151 | 2 |
|  | 50-02088 |  | Drill bush DIN 172-A6.0x16 | 15CrMo5 |  | 8 |
|  | 50-01985 |  | Hex. nut ISO4032 (DIN934) M10 | A2 |  | 4 |
|  | 50-02090 |  | Eye bolt - DIN 444 LB M10x80 | steel |  | 2 |
|  | 50-02070 |  | Bow shackle 0.5 ton with screw collar pin | Steel | Green Pin G-4161 | 4 |
|  | 50-01845 |  | Hex. Bolt ISO4017 (DIN933) M4x35 | A2 |  | 14 |
|  | 50-02638 |  | Eye bolt - DIN 444 LB M10x120 | Steel | Zinc plated | 2 |
|  | 50-02304 |  | Lock nut ISO10511 (DIN985) M10 | 8 | Zinc plated | 6 |
|  | 50-01885 |  | Hex. Bolt ISO 4017 (DIN933) M10x60 | 8.8 | Zinc plated | 2 |

# Annex 1 to Statement of Work ТЗ-М18-0001\_03

# The Set of WT Fasteners

**Marking label sample / Образец маркировочной надписи**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 190  55  80  55 |  |  |  | размеры в мм / dimensions in mm |
| Покупатель/ Buyer |  | Грузополучатель / Consignee |  | 80  Наименование ВЭС / Wind Farm name  4  12  13  8  14  18  15 |
| **(1)** | | **(2)** | | **(3)** |
| **(4)**  Номер позиции / Components Specification item No  Номер места / Общее число мест / Cargo item / Total number of cargo items | | | | |
| **(5)**  Поставщик / Supplier | | **(6)**  Наименование позиции / Position name  Наименование позиции / Position name | | |
| **(7)** | | **(8)**  Количество / Quantity | | |
| **(9)**  Заводской номер/ Serial / Factory No.  Номер Контракта / Contract No. | | **(10)**  Номер отгрузочной спецификации  Shipping Specification number  Вес брутто/ нетто, кг/ кг / Weight gross / net kg/ kg | | |
| **(11)** | | **(12)** | | Длина / ширина/ высота, см/ см/ см  Length / width / height, cm / cm / cm  **(13)** |
|
| **(1) – Покупатель / Buyer** | | | | |
| **(2) – Грузополучатель / Consignee** | | | | |
| **(3) – Наименование ВЭС / Wind Farm name** | | | | |
| **(4) – Номер места \_\_\_\_Общее число мест / Cargo item No \_\_ Total number of cargo items** | | | | |
| **(5) – Номер позиции спецификации Компонентов / Components Specification item No** | | | | |
| **(6) – Наименование позиции (Русский) / Position name (English)** | | | | |
| **(7) – Поставщик / Supplier** | | | | |
| **(8) – Количество** / **Quantity** | | | | |
| **(9) – Серийный / заводской номер/ Serial / Factory No.** | | | | |
| **(10) – Номер отгрузочной спецификации / Shipping Specification number** | | | | |
| **(11)** **–** **Номер Контракта на поставку / Contract No**. | | | | |
| **(12) – Вес брутто/нетто, кг/кг / Weight gross/net, kg/kg** | | | | |
| **(13) – Габариты упаковки (длина/ширина/высота, см) / Dimensions of package (length/width/height, cm)** | | | | |