# Certificate

## Quality-Assurance System
## for Manufacturer of Materials
## acc. to Directive 2014/68/EU

| | |
|---|---|
| Certificate no.: | **01 202 I/Q-13 6602** |
| Name and address of the manufacturer: | **Forgiatura A. Vienna S.r.l**<br>**Via Ospiate 46/48**<br>**I - 20017 Rho (MI)** |
| | Herewith we certify that the material manufacturer has established and applies a Quality Management System. The system was audited according to the European Directive 2014/68/EU, Annex I, Par. 4.3, with regard to the materials as listed in the scope of approval. |
| Tested acc. to Directive 2014/68/EU: | **QM System acc. to EN 764-5, article 4.2 and AD 2000-Merkblatt W0** |
| Audit report no.: | I/Q-13 6602 |
| Area of validity: | Production of open die forgings, hot rolled rings and shell rings, pre machined and finish machined items for various application Production of ingot with Electroslag Remelting Process (ESR), see annex to certificate |
| Manufacturing plant: | Forgiatura A. Vienna S.r.l<br>Via Ospiate 46/48<br>I - 20017 Rho (MI) |
| Valid until: | February 7, 2022 |

Cologne, May 27, 2019

Dipl.-Ing. (FH) Roman Alexander Meyers

TÜV Rheinland® 0035 Notified Body

TÜV Rheinland Industrie Service GmbH
Notifizierte Stelle für Druckgeräte, Kennnummer: 0035
Am Grauen Stein, D-51105 Köln

E-008-D-Rev22

www.tuv.com

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**Annex to Certificate No. : 01 202 I/Q-13 6602**

TÜVRheinland®

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 1<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Up to | Dimensions ⌀ mm from | Up to | Weight max 1=t / 2=kg ⇓ | result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |
| **1. Materials according to harmonized European standards (hEN) and European Approval for Materials (EAM) acc. Directive 2014/68/EU** | | | | | | | | | | | | |
| **The use of the materials according to Directive 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.** | | | | | | | | | | | | |
| 1 | P245GH (1.0352) | EN 10222-2 | +N | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | EN 10222-1 | |
| 2 | P250GH (1.0460) | EN 10222-2 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 3 | P265GH (1.0425) | EN 10222-2 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 4 | P280GH (1.0426) | EN 10222-2 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 5 | P295GH (1.0481) | EN 10222-2 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 6 | P305GH (1.0436) | EN 10222-2 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 7 | P285NH (1.0477) | EN 10222-4 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 8 | P355NH (1.0565) | EN 10222-4 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 9 | P420NH (1.8932) | EN 10222-4 | +N | | - | - | - | - | 1 | | EN 10222-1 | |
| 10 | P285QH (1.0478) | EN 10222-4 | +QT | | - | - | - | - | 1 | | EN 10222-1 | |
| 11 | P355QH (1.0571) | EN 10222-4 | +QT | | - | - | - | - | 1 | | EN 10222-1 | |

**Remarks**

+AT = solution annealed
+AR = as rolled
+M = thermo mechanical treated
+N = normalized or normalizing formed
+NT = normalized and tempered
+QT = quenched and tempered
+S = soft annealed
+SR = stress relieved
a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
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| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Dimensions Thick-ness mm Up to | Dimensions ∅ mm from | Dimensions ∅ mm Up to | Weight max 1=t / 2=kg ⇓ | Weight max result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |
| **1. Materials according to harmonized European standards (hEN) and European Approval for Materials (EAM) acc. Directive 2014/68/EU** | | | | | | | | | | | | |
| **The use of the materials according to Directive 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.** | | | | | | | | | | | | |
| 12 | P420QH (1.8936) | EN 10222-4 | +QT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling, rings | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | EN 10222-1 | |
| 13 | 11CrMo9-10 (1.7383) | EN 10222-2 | +NT +QT | | - | - | - | - | 1 | | EN 10222-1 | |
| 14 | 12Ni14 (1.5637) | EN 10222- 3 | +N +NT +QT | | - | - | - | - | 1 | | EN 10222-1 | |
| 15 | 13CrMo4.5 (1.7335) | EN 10222-2 | +NT +QT | | - | - | - | - | 1 | | EN 10222-1 | |
| 16 | 16Mo3 (1.5415) | EN 10222-2 | +N +QT | | - | - | - | - | 1 | | EN 10222-1 | |
| 17 | X10CrMoVNb9-1 (1.4903) | EN 10222-2 | +NT | | - | - | - | - | 1 | | EN 10222-1 | |
| 18 | 20MnMoNi4-5 (1.6311) | EN 10250-3 | +QT | | - | - | - | - | 1 | | EN 10250-1<br>EN 10083-1 | |
| 19 | X1CrNiMoCuN20-18-7 (1.4547) | EN10272<br>EN 10222-5<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 20 | X2CrNi18-9 (1.4307) | EN 10222-5<br>EN 10250-4<br>EN 10272 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |

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| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
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| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Dimensions Thick-ness mm Up to | Dimensions ∅ mm from | Dimensions ∅ mm Up to | Weight max 1=t / 2=kg ⇓ | Weight max result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |
| **1. Materials according to harmonized European standards (hEN) and European Approval for Materials (EAM) acc. Directive 2014/68/EU** | | | | | | | | | | | | |
| **The use of the materials according to Directive 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.** | | | | | | | | | | | | |
| 21 | X2CrNi19-11 (1.4306) | EN 10222-5<br>EN 10250-4<br>EN 10272 | +AT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | EN 10088-3<br>EN 10222-1 | |
| 22 | X2CrNiMo17-12-2 (1.4404) | EN 10222-5<br>EN 10250-4<br>EN 10272 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 23 | X2CrNiMo 17-12-3 (1.4432) | EN 10222-5<br>EN 10272 | +AT | | - | - | - | - | | | EN 10088-3<br>EN 10222-1 | |
| 24 | X2CrNiMo18-14-3 (1.4435) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 25 | X2CrNiMoCuWN25-7-4 (1.4501) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 26 | X2CrNiMoN 22-5-3 (1.4462) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 27 | X3CrNiMo17-13-3 (1.4436) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |

**Remarks**

| | | | | | |
|---|---|---|---|---|---|
| +AT | = solution annealed | +NT | = normalized and tempered | a | = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary |
| +AR | = as rolled | +QT | = quenched and tempered | | |
| +M | = thermo mechanical treated | +S | = soft annealed | | |
| +N | = normalized or normalizing formed | +SR | = stress relieved | | |

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
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| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Dimensions Thick-ness mm Up to | Dimensions ∅ mm from | Dimensions ∅ mm Up to | Weight max 1=t / 2=kg ⇓ | Weight max 1=t / 2=kg result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |
| **1. Materials according to harmonized European standards (hEN) and European Approval for Materials (EAM) acc. Directive 2014/68/EU** | | | | | | | | | | | | |
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| 28 | X5CrNi18-10 (1.4301) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | EN 10088-3<br>EN 10222-1 | |
| 29 | X5CrNiMo17.12.2 (1.4401) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 30 | X6CrNi18-10 (1.4948) | EN 10222-5 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 31 | X6CrNiNb18-10 (1.4550) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |
| 32 | X6CrNiTi18-10 (1.4541) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | EN 10088-3<br>EN 10222-1 | |

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a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
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| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Dimensions Thick-ness mm Up to | Dimensions ∅ mm from | Dimensions ∅ mm Up to | Weight max 1=t / 2=kg ⇓ | Weight max result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 2. Materials according to the AD 2000-Code

**The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.**

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | from | Up to | from | Up to | ⇓ | result | Technical Specifications | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | P245GH (1.0352) | EN 10222-2 | +N +NT +QT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | AD2000 W9 – W13 | Inspection Certificate 3.1 acc. EN 10204 is required |
| 2 | P250GH (1.0460) | EN 10222-2 | +N | | - | - | - | - | 1 | | AD2000- W9 – W12 – W13 | |
| 3 | P265GH (1.0425) | EN 10222-2 | +N | | - | - | - | - | 1 | | AD2000 W9 – W12 – W13 | |
| 4 | P280GH (1.0426) | EN 10222-2 | +N +NT +QT | | - | - | - | - | 1 | | AD2000 W9 – W13 | |
| 5 | P295GH (1.0481) | En 10222-2 | +N | | - | - | - | - | 1 | | AD2000 W9 – W13 | |
| 6 | P305GH (1.0436) | EN 10222-2 | +N +NT +QT | | - | - | - | - | 1 | | AD2000 W9 – W13 | Inspection Certificate 3.2 acc. EN 10204 is required |
| 7 | P355NH (1.0565) | EN 10222-4 VdTuv 354-3 | +N | | - | - | - | - | 1 | | AD2000 W9 – W12 – W13 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |

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a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

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| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Up to | Dimensions ∅ mm from | Up to | Weight max 1=t / 2=kg ⇓ | result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 2. Materials according to the AD 2000-Code

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | P420NH (1.8932) | EN 10222-4 VdTuv 356-3 | +N | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | AD2000 W12 – W13 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 9 | P460NH (1.8935) | VdTuv 357-3 | +N | | - | - | - | - | 1 | | AD2000 W9 – W12 – W13 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 10 | P420QH (1.8936) | EN 10222-4 VdTuv 356-3 | +QT | | - | - | - | - | 1 | | AD2000 W12 – W13 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 11 | S235 JRG2 (1.0038) | EN 10250-2 | +N | | - | - | - | - | 1 | | AD2000 W9 – W13 | |
| 12 | S235 J2G3 (1.0116) | EN 10250-2 | +N | | - | - | - | - | 1 | | AD2000 W9 – W13 | |
| 13 | S355 J2G3 (1.0570) | EN 10250-2 | +N | | - | - | - | - | 1 | | AD2000 W9 – W13 | |
| 14 | P355 NL (1.0566) | EN 10222-4 VdTuv 354-3 | +N | | - | - | - | - | 1 | | AD2000 W9 – W13 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 15 | 11CrMo9-10 (1.7383) | EN 10222-2 | +NT +QT | | - | - | - | - | 1 | | AD2000 W12 – W13 | Certificate 3.2 acc. EN 10204 is required. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 2. Materials according to the AD 2000-Code

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 12CrMo9-10 (1.7375) | VdTuv 404-3 | +NT +QT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | AD2000 W2-W10-W13 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 17 | 12Ni14 (1.5637) | EN 10222-3 | +N +NT +QT | | - | - | - | - | 1 | | AD2000 W9 – W10 - W12 – W13 | Certificate 3.2 acc. EN 10204 is required |
| 18 | 13CrMo4.5 (1.7335) | EN 10222-2 | +NT +QT | | - | - | - | - | 1 | | AD2000 W9 –W12 – W13 | Certificate 3.2 acc. EN 10204 is required |
| 19 | 16Mo3 (1.5415) | EN 10222-2 | +N +QT | | - | - | - | - | 1 | | AD2000 W9 –W13 | |
| 20 | C21 (1.0432) | VdTuv 399-3 | +N | | - | - | - | - | 1 | | AD2000 W13-W9 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 21 | P250GH / C22.8 (1.0460) | EN 10222-2 VdTuv 350-3 | +N | | - | - | - | - | 1 | | AD2000 W13-W9 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |

**Remarks**

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+QT = quenched and tempered
+S = soft annealed
+SR = stress relieved
a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

TÜVRheinland Industrial Services 232508

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 8<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Up to | Dimensions ∅ mm from | Up to | Weight max 1=t / 2=kg ⇓ | result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |
| **2. Materials according to the AD 2000-Code** | | | | | | | | | | | | |
| **The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.** | | | | | | | | | | | | |
| 22 | X2CrNi18-9 (1.4307) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 23 | X2CrNi19-11 (1.4306) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 24 | X2CrNiMo18.15.4 (1.4438) | EN 10088-1 | +AT | | - | - | - | - | 1 | | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 25 | X2CrNiMo17-12-2 (1.4404) | EN 10222-5<br>EN 10272<br>EN 10250-4 | +AT | | - | - | - | - | 1 | | AD2000-W2 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 26 | X2CrNiMo 17-12-3 (1.4432) | EN 10222-5<br>EN 10272 | +AT | | - | - | - | - | 1 | | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 27 | X2CrNiMo18-14-3 (1.4435) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | | - | - | - | - | 1 | | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |

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+SR = stress relieved
a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 9<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Dimensions Thick-ness mm Up to | Dimensions ∅ mm from | Dimensions ∅ mm Up to | Weight max 1=t / 2=kg ⇓ | Weight max 1=t / 2=kg result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 2. Materials according to the AD 2000-Code

**The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.**

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Thick-ness from | Thick-ness Up to | ∅ from | ∅ Up to | ⇓ | result | Technical Specifications | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | X2CrNiMoCuWN25-7-4 (1.4501) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | AD2000-W2 | Certificate 3.2 acc. EN 10204 is required |
| 29 | X2CrNiMoN 22-5-3 (1.4462) | EN 10222-5<br>EN 10272<br>EN10250-4<br>VdTuv 418 | +AT | | - | - | - | - | 1 | | AD2000-W2 | Material Manufacturer is listed in the VdTUV material data sheet. Inspection Certificate 3.2 acc. EN 10204 is required. |
| 30 | X3CrNiMo17-13-3 (1.4436) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | | - | - | - | - | 1 | | AD2000<br>W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 160 mm |
| 31 | X5CrNi18-10 (1.4301) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | | - | - | - | - | 1 | | AD2000<br>W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 32 | X5CrNiMo17.12.2 (1.4401) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | | - | - | - | - | 1 | | AD2000<br>W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 33 | X6CrNi18-10 (1.4948) | EN 10222-5 | +AT | | - | - | - | - | 1 | | AD2000-W2 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |

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a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 10<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Up to | ∅ mm from | Up to | Weight max 1=t / 2=kg ⇓ | result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 2. Materials according to the AD 2000-Code

**The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.**

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Thick-ness from | Up to | ∅ from | Up to | Weight max | result | Technical Specifications | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | X6CrNiMoTi17-12-2 (1.4571) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | * Discs, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging & ring rolling up to 200 tons | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 35 | X6CrNiNb18-10 (1.4550) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | | - | - | - | - | 1 | | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |
| 36 | X6CrNiTi18-10 (1.4541) | EN 10222-5<br>EN 10272<br>EN10250-4 | +AT | | - | - | - | - | 1 | | AD2000 W2 – W10 | Certificate 3.2 acc. EN 10204 is required for thickness > 250mm |

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+SR = stress relieved

a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

TÜVRheinland Industrial Services 23450B

| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 11<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Up to | ∅ mm from | Up to | Weight max 1=t / 2=kg ⇓ | result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 3. Materials according to international standards ( e. g. ISO, ASTM, ASME, IBR etc. )

**The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.**

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Thick-ness from | Up to | ∅ from | Up to | Weight max | result | Technical Specifications | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | X2CrNiMo17.12.2 controlled Nitrogen 316L(N)-IG | (*) | +AT | * Disks, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Press forging unit weight up to 20 tons | *) = As defined in the specifications ITER_D_2DX6KS v1.4, ITER_D_2EFZGP v1.3 and RCC-MR Edition 2007 Sect.RM 3321 | a |
| 2 | A105/A105M | ASTM A105 | +N<br>+NT<br>+QT | | - | - | - | - | 1 | Forging and ring rolling up to 50/200 Tons | ASTMA105 | a |
| 3 | F1, F2 , F5 , F9, F21<br>F11 Cl.1 / Cl.2 /Cl.3<br>F12 Cl.1 / Cl.2,<br>F21, F22 Cl.1 / Cl.3 | ASTM A182/A182M | +A<br>+NT | | - | - | - | - | 1 | | ASTM A182 | a |
| | F6 Cl.1 / Cl.2 | | +A<br>+NT +T | | | | | | | | | |
| | F6 Cl.3 | | +A<br>+NT | | | | | | | | | |
| | F 6 NM | | +NT | | | | | | | | | |
| | F51 / F53 / F55 | | +AT | | | | | | | | | |
| | F91 | | +NT | | | | | | | | | |

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+S = soft annealed
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| Scope according to | ☒ Directive 2014/68/EU Annex I §4.3 | ☐ EN 764-4 | ☒ AD 2000-Merkblatt W0 | ☐ FPC, Regulation (EU) No. 305/2011(System 2+) |
|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 12<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thickness mm from | Dimensions Thickness mm Up to | Dimensions ∅ mm from | Dimensions ∅ mm Up to | Weight max 1=t / 2=kg ⇓ | Weight max result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 3. Materials according to international standards ( e. g. ISO, ASTM, ASME, IBR etc. )

**The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.**

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Thickness mm from | Thickness mm Up to | ∅ mm from | ∅ mm Up to | Weight max ⇓ | Weight max result | Technical Specifications | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | F304 / 304L / 304H<br>F310 / 310H /310MoLN<br>F316 / F316L / 316LN /<br>F316Ti / Urea grade<br>F317L / 317LN<br>F321 / 321H<br>F347 / 347H | ASTM A182/A182M | +AT | * Disks, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | | Forging and ring rolling up to 50/200 Tons<br>ASTM A182 | a |
| 5 | A350-LF2 / LF3 / LF6 | ASTM A350/350M | +N +QT | | - | - | - | - | 1 | | ASTM A350 | a |
| 6 | Cl.1/2/4 , A266 Gr.2/4 | ASTM A266/266M | +N +QT | | - | - | - | - | 1 | | ASTM A266 | a |
| 7 | F1 / F5 /F5A / F11 / F22 / F91 | ASTM A336/336M | +AT +NT | | - | - | - | - | 1 | | ASTM A336 | a |
| 8 | F304 / 304L / 304H<br>F310H / F316 / 316L<br>F321/ 321H / F347 / 347H | ASTM A965/965M | +AT | | - | - | - | - | 1 | | ASTM A695 | a |

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+SR = stress relieved
a = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary

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|---|---|---|---|---|

| Manufacturer | Work | Nationality | Date | Page No.. | |
|---|---|---|---|---|---|
| Company Name: Forgiatura A.Vienna S.r.l.<br>Location: Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | Forgiatura A.Vienna S.r.l.<br>Via Ospiate, 46/48<br>I-20017 Rho (Milan) - Italy | IT | 25.01.19<br>Rev.:02 | 13<br>of : 13 | TÜV Rheinland Industrie Service GmbH |

| Cur - | Materials-term Materials-No. | Material Specification | Delivery Cond. | Article Type of Product | Dimensions Thick-ness mm from | Up to | Dimensions ∅ mm from | Up to | Weight max 1=t / 2=kg ⇓ | result | Technical Specifications Requirements Technical Regulations | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6a | 6b | 7a | 7b | 8a | 8b | 9 | 10 |

## 3. Materials according to international standards ( e. g. ISO, ASTM, ASME, IBR etc. )

**The use of the materials according to DGR 2014/68/EU is bound to the publication of Harmonized European Standards or to the qualification by a European material approval or to the particular material appraisal. With that the manufacturing reliability for equivalent material grades according to other standards (e.g. BS, AFNOR, ASME) is proved. The requirements and limits of the applicable code respectively the PED must be observed for the use of material grades listed in column 2 to 4.**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Cl.1/Cl.2/Cl.3/Cl.4 | ASTM A508/508M | +QT | * Disks, flanges, shafts, plates, rods and mechanical pieces for several uses.<br>** Production Process: Hot-Forging Hot Pressing and Ring-Rolling | - | - | - | - | 1 | Forging and ring rolling up to 200 Tons | ASTM A508 | a |
| 9 | Gr.I / Gr.II / Gr.III | ASTM A765/765M | +N+SR | | - | - | - | - | 1 | | ASTM A765 | a |
| 10 | F52 / F60 / F65 / F70 | ASTM A694/694M | +QT | | - | - | - | - | 1 | | ASTM A694 | a |
| 11 | UNS N04400/N08811<br>UNS N08800/N08810<br>UNS N08825/N10276 | ASTM B564/564M | +AT | | - | - | - | - | 1 | Forging and ring rolling up to 5 Tons | ASTM B564 | a |
| 12 | UNS N08904 | ASTM A480/480M | +AT | | - | - | - | - | 1 | | ASTM A480 | a |
| 13 | S355 JR (1.0570) | EN 10250-2 | +N | | - | - | - | - | 1 | Forging and ring rolling up to 50/200 Tons | EN 10250-1 | a |
| 14 | WStE355 (P355NH) (1.0565) | DIN 17102 (EN 10222-4) | +N | | - | - | - | - | 1 | | DIN 17102 | a |
| 15 | WStE460 (1.8935) | DIN 17102 | +QT | | - | - | - | - | 1 | | DIN 17102 | a |
| 16 | X6CrNiTiMoVB25-15-2 | (*) | +AT | | - | - | - | - | 1 | | *) = As defined in the specifications ITER_D_AHJVPJ v1.2 | |

**Remarks**

| | | | | | |
|---|---|---|---|---|---|
| +AT | = solution annealed | +NT | = normalized and tempered | a | = PMA for the use in pressure equipment in Directive 2014/68/EU neccessary |
| +AR | = as rolled | +QT | = quenched and tempered | | |
| +M | = thermo mechanical treated | +S | = soft annealed | | |
| +N | = normalized or normalizing formed | +SR | = stress relieved | | |