

This appendix refers to the EPD MD-23013-EN, developed according to EN15804+A2:2019. Results in the appendix communicates LCA results in the format described in EN15804+A1:2013, in order to accommodate a need in the transition period between the two standard revisions. The appendix cannot stand alone, as the reference EPD describes the basis of the assessment.

x

**38 mm tube**  
**38 mm tube**

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 7,69E+00 | 0,00E+00 | 6,14E-03  | 2,92E-02 | 4,41E-02 | -2,71E+00 |
| ODP  | [kg CFC11-eq.]  | 6,41E-11 | 0,00E+00 | 9,55E-16  | 3,54E-13 | 9,10E-14 | -4,08E-12 |
| AP   | [kg SO2-eq.]  | 1,38E-02 | 0,00E+00 | 6,85E-06  | 3,55E-05 | 1,12E-04 | -7,98E-03 |
| EP   | [kg PO43--eq.]  | 1,59E-03 | 0,00E+00 | 1,46E-06  | 5,72E-06 | 1,26E-04 | -6,69E-04 |
| POCP   | [kg ethene-eq.]   | 1,55E-03 | 0,00E+00 | -6,29E-07 | 3,36E-06 | 1,01E-05 | -5,18E-04 |
| ADPE   | [kg Sb-eq.]   | 1,81E-06 | 0,00E+00 | 4,11E-10  | 2,38E-09 | 1,27E-09 | -1,36E-07 |
| ADPF   | [MJ]  | 1,21E+02 | 0,00E+00 | 8,36E-02  | 3,35E-01 | 6,49E-01 | -2,95E+01 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

**38 mm tube**

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |  |          |          |          |          |          |           |
|--|--|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit   | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]   | 3,57E+01 | 0,00E+00 | 6,17E-03 | 1,19E-01 | 6,20E-02 | -1,20E+01 |
| PERM   | [MJ]   | 5,01E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]   | 4,07E+01 | 0,00E+00 | 6,17E-03 | 1,19E-01 | 6,20E-02 | -1,20E+01 |
| PENRE  | [MJ]   | 1,24E+02 | 0,00E+00 | 8,53E-02 | 6,04E-01 | 6,84E-01 | -3,79E+01 |
| PENRM  | [MJ]   | 1,56E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]   | 1,39E+02 | 0,00E+00 | 8,53E-02 | 6,04E-01 | 6,84E-01 | -3,79E+01 |
| SM   | [kg]   | 3,06E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]   | 5,45E-02 | 0,00E+00 | 6,76E-06 | 1,61E-04 | 7,67E-06 | -2,44E-02 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of nonrenewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

**38 mm tube**

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 1,35E-07 | 0,00E+00 | 2,64E-13 | 2,51E-11 | 5,73E-11 | -1,35E-09 |
| NHWD   | [kg]  | 8,57E-01 | 0,00E+00 | 1,30E-05 | 2,47E-03 | 6,79E-01 | -5,92E-01 |
| RWD  | [kg]  | 6,78E-03 | 0,00E+00 | 1,59E-07 | 9,27E-05 | 8,09E-06 | -2,73E-03 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 4,35E-02 | 0,00E+00 | 0,00E+00 | 3,75E-01 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 9,08E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 1,06E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

x

50 mm tube  
50 mm tube

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 7,67E+00 | 0,00E+00 | 6,70E-03  | 2,56E-02 | 4,92E-02 | -2,42E+00 |
| ODP  | [kg CFC11-eq.]  | 6,25E-11 | 0,00E+00 | 1,04E-15  | 3,10E-13 | 1,01E-13 | -3,73E-12 |
| AP   | [kg SO2-eq.]  | 1,29E-02 | 0,00E+00 | 7,45E-06  | 3,11E-05 | 1,25E-04 | -7,14E-03 |
| EP   | [kg PO43--eq.]  | 1,47E-03 | 0,00E+00 | 1,59E-06  | 5,01E-06 | 1,41E-04 | -5,99E-04 |
| POCP   | [kg ethene-eq.]   | 1,56E-03 | 0,00E+00 | -6,88E-07 | 2,94E-06 | 1,13E-05 | -4,61E-04 |
| ADPE   | [kg Sb-eq.]   | 1,69E-06 | 0,00E+00 | 4,49E-10  | 2,09E-09 | 1,42E-09 | -1,22E-07 |
| ADPF   | [MJ]  | 1,24E+02 | 0,00E+00 | 9,12E-02  | 2,93E-01 | 7,25E-01 | -2,64E+01 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

50 mm tube

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]  | 3,20E+01 | 0,00E+00 | 6,73E-03 | 1,05E-01 | 6,91E-02 | -1,08E+01 |
| PERM   | [MJ]  | 2,55E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]  | 3,46E+01 | 0,00E+00 | 6,73E-03 | 1,05E-01 | 6,91E-02 | -1,08E+01 |
| PENRE  | [MJ]  | 1,25E+02 | 0,00E+00 | 9,30E-02 | 5,28E-01 | 7,63E-01 | -3,39E+01 |
| PENRM  | [MJ]  | 1,71E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]  | 1,42E+02 | 0,00E+00 | 9,30E-02 | 5,28E-01 | 7,63E-01 | -3,39E+01 |
| SM   | [kg]  | 1,60E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]  | 5,19E-02 | 0,00E+00 | 7,38E-06 | 1,41E-04 | 8,33E-06 | -2,19E-02 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

50 mm tube

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 8,44E-08 | 0,00E+00 | 2,88E-13 | 2,17E-11 | 6,40E-11 | -1,21E-09 |
| NHWD   | [kg]  | 7,86E-01 | 0,00E+00 | 1,42E-05 | 2,21E-03 | 7,53E-01 | -5,32E-01 |
| RWD  | [kg]  | 6,52E-03 | 0,00E+00 | 1,74E-07 | 8,10E-05 | 9,03E-06 | -2,46E-03 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 3,92E-02 | 0,00E+00 | 0,00E+00 | 3,26E-01 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 1,26E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 1,47E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

x

**Motor, 50 mm tube**

**Motor, 50 mm tube**

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 8,58E+00 | 0,00E+00 | 9,31E-03  | 5,22E-02 | 5,03E-02 | -2,36E+00 |
| ODP  | [kg CFC11-eq.]  | 3,73E-11 | 0,00E+00 | 1,45E-15  | 6,22E-13 | 1,04E-13 | 2,03E-12  |
| AP   | [kg SO2-eq.]  | 1,50E-02 | 0,00E+00 | 1,04E-05  | 6,39E-05 | 1,29E-04 | -6,71E-03 |
| EP   | [kg PO43--eq.]  | 1,62E-03 | 0,00E+00 | 2,22E-06  | 9,79E-06 | 1,43E-04 | -5,18E-04 |
| POCP   | [kg ethene-eq.]   | 2,13E-03 | 0,00E+00 | -9,51E-07 | 6,13E-06 | 1,16E-05 | -5,95E-04 |
| ADPE   | [kg Sb-eq.]   | 1,23E-04 | 0,00E+00 | 6,23E-10  | 3,97E-09 | 1,46E-09 | -6,48E-05 |
| ADPF   | [MJ]  | 1,31E+02 | 0,00E+00 | 1,27E-01  | 6,32E-01 | 7,40E-01 | -2,21E+01 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

**Motor, 50 mm tube**

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]  | 2,33E+01 | 0,00E+00 | 9,35E-03 | 1,74E-01 | 7,10E-02 | -3,78E+00 |
| PERM   | [MJ]  | 1,87E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]  | 2,52E+01 | 0,00E+00 | 9,35E-03 | 1,74E-01 | 7,10E-02 | -3,78E+00 |
| PENRE  | [MJ]  | 1,27E+02 | 0,00E+00 | 1,29E-01 | 1,15E+00 | 7,80E-01 | -2,53E+01 |
| PENRM  | [MJ]  | 1,67E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]  | 1,43E+02 | 0,00E+00 | 1,29E-01 | 1,15E+00 | 7,80E-01 | -2,53E+01 |
| SM   | [kg]  | 2,07E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]  | 4,86E-02 | 0,00E+00 | 1,02E-05 | 2,74E-04 | 1,01E-05 | -1,18E-02 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

**Motor, 50 mm tube**

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 5,83E-08 | 0,00E+00 | 4,00E-13 | 6,20E-11 | 6,50E-11 | -5,96E-10 |
| NHWD   | [kg]  | 5,40E-01 | 0,00E+00 | 1,97E-05 | 1,33E-03 | 7,95E-01 | -2,13E-01 |
| RWD  | [kg]  | 4,21E-03 | 0,00E+00 | 2,42E-07 | 1,78E-04 | 9,22E-06 | -9,61E-04 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 9,44E-02 | 0,00E+00 | 0,00E+00 | 9,34E-01 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 1,25E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 1,46E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

x

65 mm headbox, 38 mm tube

65 mm headbox, 38 mm tube

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 3,07E+01 | 0,00E+00 | 1,19E-02  | 1,85E-01 | 5,83E-02 | -2,20E+01 |
| ODP  | [kg CFC11-eq.]  | 3,58E-10 | 0,00E+00 | 1,85E-15  | 2,21E-12 | 1,22E-13 | -3,41E-11 |
| AP   | [kg SO2-eq.]  | 7,73E-02 | 0,00E+00 | 1,37E-05  | 2,26E-04 | 1,54E-04 | -6,54E-02 |
| EP   | [kg PO43--eq.]  | 7,33E-03 | 0,00E+00 | 2,88E-06  | 3,51E-05 | 1,63E-04 | -5,32E-03 |
| POCP   | [kg ethene-eq.]   | 6,04E-03 | 0,00E+00 | -1,19E-06 | 2,16E-05 | 1,38E-05 | -4,13E-03 |
| ADPE   | [kg Sb-eq.]   | 8,09E-06 | 0,00E+00 | 7,94E-10  | 1,43E-08 | 1,71E-09 | -1,12E-06 |
| ADPF   | [MJ]  | 3,96E+02 | 0,00E+00 | 1,62E-01  | 2,21E+00 | 8,56E-01 | -2,36E+02 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

65 mm headbox, 38 mm tube

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]  | 1,87E+02 | 0,00E+00 | 1,19E-02 | 6,50E-01 | 8,34E-02 | -1,01E+02 |
| PERM   | [MJ]  | 2,02E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]  | 2,07E+02 | 0,00E+00 | 1,19E-02 | 6,50E-01 | 8,34E-02 | -1,01E+02 |
| PENRE  | [MJ]  | 4,77E+02 | 0,00E+00 | 1,65E-01 | 4,01E+00 | 9,02E-01 | -3,05E+02 |
| PENRM  | [MJ]  | 2,11E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]  | 4,98E+02 | 0,00E+00 | 1,65E-01 | 4,01E+00 | 9,02E-01 | -3,05E+02 |
| SM   | [kg]  | 1,24E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]  | 2,83E-01 | 0,00E+00 | 1,31E-05 | 9,84E-04 | 1,59E-05 | -1,99E-01 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

65 mm headbox, 38 mm tube

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 6,15E-07 | 0,00E+00 | 5,11E-13 | 2,05E-10 | 7,41E-11 | -1,12E-08 |
| NHWD   | [kg]  | 6,23E+00 | 0,00E+00 | 2,51E-05 | 7,39E-03 | 9,91E-01 | -4,93E+00 |
| RWD  | [kg]  | 3,81E-02 | 0,00E+00 | 3,08E-07 | 6,21E-04 | 1,07E-05 | -2,28E-02 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 1,43E-01 | 0,00E+00 | 0,00E+00 | 2,76E+00 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 1,13E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 1,31E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

85-95 mm headbox, 50 mm tube

85-95 mm headbox, 50 mm tube

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 1,20E+01 | 0,00E+00 | 5,74E-03  | 6,70E-02 | 3,28E-02 | -7,89E+00 |
| ODP  | [kg CFC11-eq.]  | 1,40E-10 | 0,00E+00 | 8,91E-16  | 8,03E-13 | 6,82E-14 | -1,23E-11 |
| AP   | [kg SO2-eq.]  | 2,95E-02 | 0,00E+00 | 6,55E-06  | 8,18E-05 | 8,51E-05 | -2,34E-02 |
| EP   | [kg PO43--eq.]  | 2,71E-03 | 0,00E+00 | 1,38E-06  | 1,27E-05 | 9,26E-05 | -1,91E-03 |
| POCP   | [kg ethene-eq.]   | 2,38E-03 | 0,00E+00 | -5,79E-07 | 7,82E-06 | 7,64E-06 | -1,48E-03 |
| ADPE   | [kg Sb-eq.]   | 2,99E-06 | 0,00E+00 | 3,84E-10  | 5,21E-09 | 9,55E-10 | -4,01E-07 |
| ADPF   | [MJ]  | 1,60E+02 | 0,00E+00 | 7,81E-02  | 7,98E-01 | 4,82E-01 | -8,46E+01 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

85-95 mm headbox, 50 mm tube

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]  | 6,87E+01 | 0,00E+00 | 5,76E-03 | 2,39E-01 | 4,65E-02 | -3,60E+01 |
| PERM   | [MJ]  | 3,12E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]  | 7,18E+01 | 0,00E+00 | 5,76E-03 | 2,39E-01 | 4,65E-02 | -3,60E+01 |
| PENRE  | [MJ]  | 1,87E+02 | 0,00E+00 | 7,96E-02 | 1,45E+00 | 5,07E-01 | -1,09E+02 |
| PENRM  | [MJ]  | 1,16E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]  | 1,99E+02 | 0,00E+00 | 7,96E-02 | 1,45E+00 | 5,07E-01 | -1,09E+02 |
| SM   | [kg]  | 1,93E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]  | 1,07E-01 | 0,00E+00 | 6,31E-06 | 3,58E-04 | 7,49E-06 | -7,15E-02 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

85-95 mm headbox, 50 mm tube

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 1,39E-07 | 0,00E+00 | 2,47E-13 | 7,25E-11 | 4,21E-11 | -4,02E-09 |
| NHWD   | [kg]  | 2,40E+00 | 0,00E+00 | 1,21E-05 | 2,98E-03 | 5,33E-01 | -1,77E+00 |
| RWD  | [kg]  | 1,48E-02 | 0,00E+00 | 1,49E-07 | 2,24E-04 | 6,00E-06 | -8,17E-03 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 1,27E-01 | 0,00E+00 | 0,00E+00 | 9,86E-01 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 3,55E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 4,14E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

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**Motor, 85 mm headbox, 50 mm tube**

**Motor, 85 mm headbox, 50 mm tube**

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 2,21E+01 | 0,00E+00 | 1,54E-02  | 1,50E-01 | 6,45E-02 | -1,19E+01 |
| ODP  | [kg CFC11-eq.]  | 1,76E-10 | 0,00E+00 | 2,39E-15  | 1,78E-12 | 1,35E-13 | -8,10E-12 |
| AP   | [kg SO2-eq.]  | 5,09E-02 | 0,00E+00 | 1,74E-05  | 1,83E-04 | 1,69E-04 | -3,49E-02 |
| EP   | [kg PO43--eq.]  | 4,72E-03 | 0,00E+00 | 3,69E-06  | 2,80E-05 | 1,81E-04 | -2,75E-03 |
| POCP   | [kg ethene-eq.]   | 5,06E-03 | 0,00E+00 | -1,56E-06 | 1,76E-05 | 1,51E-05 | -2,50E-03 |
| ADPE   | [kg Sb-eq.]   | 2,50E-04 | 0,00E+00 | 1,03E-09  | 1,13E-08 | 1,89E-09 | -1,32E-04 |
| ADPF   | [MJ]  | 2,92E+02 | 0,00E+00 | 2,09E-01  | 1,82E+00 | 9,47E-01 | -1,20E+02 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

**Motor, 85 mm headbox, 50 mm tube**

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]  | 9,35E+01 | 0,00E+00 | 1,54E-02 | 4,89E-01 | 9,20E-02 | -4,17E+01 |
| PERM   | [MJ]  | 3,87E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]  | 9,73E+01 | 0,00E+00 | 1,54E-02 | 4,89E-01 | 9,20E-02 | -4,17E+01 |
| PENRE  | [MJ]  | 3,31E+02 | 0,00E+00 | 2,13E-01 | 3,31E+00 | 9,98E-01 | -1,50E+02 |
| PENRM  | [MJ]  | 1,38E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]  | 3,44E+02 | 0,00E+00 | 2,13E-01 | 3,31E+00 | 9,98E-01 | -1,50E+02 |
| SM   | [kg]  | 4,01E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]  | 1,66E-01 | 0,00E+00 | 1,69E-05 | 7,82E-04 | 1,65E-05 | -8,99E-02 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

**Motor, 85 mm headbox, 50 mm tube**

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 1,77E-07 | 0,00E+00 | 6,61E-13 | 1,82E-10 | 8,23E-11 | -4,97E-09 |
| NHWD   | [kg]  | 3,24E+00 | 0,00E+00 | 3,25E-05 | 3,04E-03 | 1,08E+00 | -2,08E+00 |
| RWD  | [kg]  | 1,92E-02 | 0,00E+00 | 3,99E-07 | 5,15E-04 | 1,18E-05 | -9,63E-03 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 2,94E-01 | 0,00E+00 | 0,00E+00 | 2,62E+00 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 1,76E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 2,05E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

**Motor, 95 mm headbox, 50 mm tube**

**Motor, 95 mm headbox, 50 mm tube**

| ENVIRONMENTAL EFFECTS PER PRODUKT PER M <sup>2</sup> |   |          |          |           |          |          |           |
|--|---|----------|----------|-----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2        | C3       | C4       | D         |
| GWP  | [kg CO2-eq.]  | 1,55E+01 | 0,00E+00 | 1,04E-02  | 1,13E-01 | 3,53E-02 | -9,64E+00 |
| ODP  | [kg CFC11-eq.]  | 1,34E-10 | 0,00E+00 | 1,62E-15  | 1,35E-12 | 7,43E-14 | -7,85E-12 |
| AP   | [kg SO2-eq.]  | 4,00E-02 | 0,00E+00 | 1,19E-05  | 1,39E-04 | 9,42E-05 | -2,88E-02 |
| EP   | [kg PO43--eq.]  | 3,55E-03 | 0,00E+00 | 2,51E-06  | 2,13E-05 | 9,83E-05 | -2,26E-03 |
| POCP   | [kg ethene-eq.]   | 3,62E-03 | 0,00E+00 | -1,05E-06 | 1,33E-05 | 8,39E-06 | -2,02E-03 |
| ADPE   | [kg Sb-eq.]   | 2,22E-04 | 0,00E+00 | 6,98E-10  | 8,60E-09 | 1,04E-09 | -1,20E-04 |
| ADPF   | [MJ]  | 1,97E+02 | 0,00E+00 | 1,42E-01  | 1,38E+00 | 5,19E-01 | -9,86E+01 |
| Caption  | GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources |          |          |           |          |          |           |

**Motor, 95 mm headbox, 50 mm tube**

| RESSOURCE CONSUMPTION PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| PERE   | [MJ]  | 7,33E+01 | 0,00E+00 | 1,05E-02 | 3,75E-01 | 5,08E-02 | -3,52E+01 |
| PERM   | [MJ]  | 4,73E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PERT   | [MJ]  | 7,80E+01 | 0,00E+00 | 1,05E-02 | 3,75E-01 | 5,08E-02 | -3,52E+01 |
| PENRE  | [MJ]  | 2,29E+02 | 0,00E+00 | 1,45E-01 | 2,50E+00 | 5,46E-01 | -1,24E+02 |
| PENRM  | [MJ]  | 8,22E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| PENRT  | [MJ]  | 2,37E+02 | 0,00E+00 | 1,45E-01 | 2,50E+00 | 5,46E-01 | -1,24E+02 |
| SM   | [kg]  | 4,00E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| RSF  | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| NRSF   | [MJ]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| FW   | [m3]  | 1,26E-01 | 0,00E+00 | 1,15E-05 | 5,94E-04 | 1,05E-05 | -7,51E-02 |
| Caption  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water |          |          |          |          |          |           |

**Motor, 95 mm headbox, 50 mm tube**

| WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUKT PER M <sup>2</sup> |   |          |          |          |          |          |           |
|--|---|----------|----------|----------|----------|----------|-----------|
| Parameter  | Unit  | A1-A3    | C1       | C2       | C3       | C4       | D         |
| HWD  | [kg]  | 1,76E-07 | 0,00E+00 | 4,48E-13 | 1,36E-10 | 4,47E-11 | -4,15E-09 |
| NHWD   | [kg]  | 2,64E+00 | 0,00E+00 | 2,20E-05 | 2,65E-03 | 6,14E-01 | -1,73E+00 |
| RWD  | [kg]  | 1,49E-02 | 0,00E+00 | 2,71E-07 | 3,88E-04 | 6,45E-06 | -8,09E-03 |
| CRU  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| MFR  | [kg]  | 2,12E-01 | 0,00E+00 | 0,00E+00 | 2,00E+00 | 0,00E+00 | 0,00E+00  |
| MER  | [kg]  | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EEE  | [MJ]  | 3,54E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| EET  | [MJ]  | 4,13E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| Caption  | HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy |          |          |          |          |          |           |

Checked and approved by

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