

## **Electronic Supplementary Material for:**

### **Fatigue Performance of Ti-6Al-4V processed by wire-arc directed energy deposition**

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## 5 Electronic Supplementary Material

The following table, Table S-I, has listed according to reference: number of tested samples; stress load ratio; frequency; lowest stress amplitude at which the sample did not fail; number of cycles of the corresponding sample. These values were visually assessed from the plotted results in each reference.

*Table S-I - Comparison of minimum fatigue life properties according to processing and heat-treated condition.*

| <b>Ref.</b>  | <b>Process</b>                    | <b>Condition</b>           | <b>N° Samples</b> | <b><math>\sigma_a</math> [MPa]</b> | <b>N<sub>f</sub></b> | <b>R</b> | <b>Freq. [Hz]</b> |
|--------------|-----------------------------------|----------------------------|-------------------|------------------------------------|----------------------|----------|-------------------|
| Current work | CMT-P                             | SR                         | 15                | 475                                | 1*10E7               | 0.1      | 70                |
| [18]         | CMT                               | AB                         | 19                | -                                  | -                    | 0.1      | 130               |
| [4]          | GTAW                              | AB                         | 24                | 300                                | 1*10E7               | 0.1      | 30                |
| [42]         | CMT                               | 920°C/2h                   | 21                | 300                                | 1*10E7               | 0.1      | 80                |
| [41]         | wl-DED                            | AB/HIPed                   | 18                | 750                                | 5*10E7               | 0.1      | -                 |
| [41]         | GTAW                              | AB/HIPed                   | 33                | 780                                | 5*10E7               | 0.1      | -                 |
| [53]         | pl-DED<br>(laser-powder)          | 970°C/1h WQ +<br>538/4h AC | 4                 | 600                                | 5*10E7               | 0.1      | 100               |
| [54]         | wEB-DED<br>(electron beam – wire) | AB + HIPed                 | 60                | 475                                | 1*10E7               | 0.1      | -                 |