

**STAINLESS STEEL**  
**AUSTENITIC GRADE \_ STENCIL MATERIAL**  
**DSM 1.2.4**

**Austenitic:** (300 series) 18/8

- Highest corrosion resistance.
- Non-magnetic & Non hardening.
- Can be welded
- Max. service temp. 400°C

**Definition:**

**302 and 304 Austenitic Stainless Steel: (Dual Certification).**

Can be dual certificated, as some vendors do not recognise the subtle variations between these two types of 18/8.

**302 Austenitic Stainless Steel:** Suitable for applications over a wide range of service temperatures, this grade is quite ductile and can be readily drawn, spun & wire formed. Cold working causes this alloy to gain magnetic properties. Post fabrication annealing is recommended to recover maximum corrosion resistance and a non- magnetic condition. Can be welded.

**304 Austenitic Stainless Steel:** This type is the standard “18/8” stainless providing the best all round performance stainless steel at relatively low cost. It has very good low temperature properties and responds well to hardening by cold working. Cold working causes this alloy to gain magnetic properties. Post fabrication annealing is recommended to recover maximum corrosion resistance and a non- magnetic condition. Can be welded.

**DEK Specific Applications:**

Specifically relating to SMT stencils.

The temper condition must be added to the drawing e.g. **DSM 1.2.4\_Full Hard**

| Issue | 01    | 02    | 03    | 04 | 05 | 06 | 07 | 08 | 09 |
|-------|-------|-------|-------|----|----|----|----|----|----|
| DCR   | 31825 | 44682 | 44841 |    |    |    |    |    |    |



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| CHEMICAL ANALYSIS | 302       | 304       | BENEFIT                                              |
|-------------------|-----------|-----------|------------------------------------------------------|
| <b>Chrome</b>     | 17.0/19.0 | 18.0/20.0 | Combines with Ni: high temp corrosion resistance.    |
| <b>Nickel</b>     | 8.0/ 10.0 | 8.0/ 10.5 | High strength work hardening, without ductility loss |
| <b>Carbon</b>     | 0.15 max  | 0.08 max  | Low % content: Good for welding.                     |
| <b>Mang.</b>      | 2.0 max   | 2.0 max   | Improves high temperature ductility.                 |
| <b>Silicon</b>    | 1.0 max   | 1.0 max   | Improves wear resistance & elastic limit.            |
| <b>Sulphur</b>    | 0.15 max  | 0.03 max  | Good for machining.                                  |

| APPROXIMATE INTERNATIONAL COMPARISON | 302           | 304           |
|--------------------------------------|---------------|---------------|
| GERMAN: DIN                          | X5 CrNi 18-7  | X5 CrNi 18-10 |
| AMERICAN: AISI                       | 302           | 304           |
| EUROPEAN STEEL No.                   | 1.4319        | 1.4301        |
| JAPANESE GRADE                       | JIS G SUS 302 | JIS G SUS 304 |
| CHINA GRADE                          | GB 1Cr18Ni9   | GB 0Cr18Ni9   |

**Alternatives:**

Alternative materials are allowed only with the express written permission of ASMPT. Please email details of your request to [engineering\\_enquiries@asmpt.com](mailto:engineering_enquiries@asmpt.com)

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**STAINLESS STEEL****AUSTENITIC GRADE \_ STENCIL MATERIAL****DSM 1.2.4****Gauge Tolerance (ASM/DEK preferred)**

- **Thickness: (mm)**  $0.110 \pm 4\%$   
 $0.140 \pm 4\%$
- **Width:(mm)** 534.5, 600, 610 & 686.9
- **Surface Roughness:**  $Ra \leq 0.25\mu m$ .  
 $Ry \leq 0.2\mu m$ . max peak height to valley depth
- **Flatness:** The max deviation from a flat surface, without an external flattening force for the outer 110mm; will not exceed 1,27mm in height.  
The max deviation from a flat surface, without an external flattening force for the area within the outer 110mm; will not exceed 0,75mm in height.

| Type/<br>Temper        | Tensile<br>Strength<br>Minimum | Yield<br>Strength<br>Minimum | %<br>Elongation<br>at 50,8mm<br>Minimum | Hard<br>ness |
|------------------------|--------------------------------|------------------------------|-----------------------------------------|--------------|
| <b>302<br/>Full Hd</b> | 1276 MPa                       | 965<br>MPa                   | 3%                                      | 40 Rc<br>min |
| <b>304<br/>Full Hd</b> | 1276 MPa                       | 965<br>MPa                   | 3%                                      | 40 Rc<br>min |

**Material Thickness (mm)**

|       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.050 | 0.080 | 0.100 | 0.110 | 0.120 | 0.130 | 0.140 | 0.150 |
| 0.180 | 0.200 | 0.250 | 0.300 | 0.350 | 0.400 |       |       |
|       |       |       |       |       |       |       |       |

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