



DESCO INDUSTRIES INC

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## QUALIFICATION REPORT – ANSI/ESD S20.20

### SCS DS 3300 Series

| ANSI/ESD<br>S20.20 | SCS<br>Test Results | Test Methods |
|--------------------|---------------------|--------------|
|--------------------|---------------------|--------------|

**Surface Resistance (ohms) @ 12% RH, 23°C, 48-72 hours conditioning, N=10 specimens, 100V**

|                            |                                                     |             |                   |
|----------------------------|-----------------------------------------------------|-------------|-------------------|
| Interior (Sealing Surface) | $\geq 1.0 \times 10^4$ to<br>$< 1.0 \times 10^{11}$ | See Table 1 | ANSI/ESD STM11.11 |
| Exterior                   | $\geq 1.0 \times 10^4$ to<br>$< 1.0 \times 10^{11}$ | See Table 1 | ANSI/ESD STM11.11 |

**Surface Resistance (ohms) @ 50% RH, 23°C, 48-72 hours conditioning, N=6 specimens, 100V**

|                            |                                                     |             |                   |
|----------------------------|-----------------------------------------------------|-------------|-------------------|
| Interior (Sealing Surface) | $\geq 1.0 \times 10^4$ to<br>$< 1.0 \times 10^{11}$ | See Table 1 | ANSI/ESD STM11.11 |
| Exterior                   | $\geq 1.0 \times 10^4$ to<br>$< 1.0 \times 10^{11}$ | See Table 1 | ANSI/ESD STM11.11 |

**Discharge Shielding (nJ) @ 23°C, minimum 48 hours conditioning, N=6 specimens @ 6 individual readings per specimen**

|          |      |             |                   |
|----------|------|-------------|-------------------|
| @ 12% RH | < 20 | See Table 1 | ANSI/ESD STM11.31 |
| @ 50% RH | < 20 | See Table 1 | ANSI/ESD STM11.31 |

**Test Equipment (Calibration records and test results are located at SCS (Sanford, NC)):**

For Test Method ANSI/ESD STM11.11:

- ETS Controlled Environment Chamber (Model 5532)
- SCS Surface Resistance Meter (Model 770761)
- SCS Concentric Ring Probe (Model 770007)

For Test Method ANSI/ESD STM11.31:

- ETS Controlled Environment Chamber (Model 5532)
- ETS Shielded Bag Test System (Model 4431T)

**Table 1: Test Results:**

| Specimen      | Surface Resistance (ohms)<br>48-72 hours conditioning |                              |                              |                              | Discharge Shielding (nJ)<br>min. 48 hours conditioning |                                           |
|---------------|-------------------------------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------------------------------|-------------------------------------------|
|               | Interior<br>@ 23°C,<br>12%RH                          | Exterior<br>@ 23°C,<br>12%RH | Interior<br>@ 23°C,<br>50%RH | Exterior<br>@ 23°C,<br>50%RH | @ 23°C,<br>12%RH<br>(avg 6<br>individual)              | @ 23°C,<br>50%RH<br>(avg 6<br>individual) |
| 1             | $2.20 \times 10^{10}$                                 | $8.36 \times 10^9$           | $7.56 \times 10^8$           | $1.33 \times 10^9$           | 0.52                                                   | 0.43                                      |
| 2             | $1.80 \times 10^{10}$                                 | $9.60 \times 10^9$           | $5.71 \times 10^8$           | $1.47 \times 10^9$           | 0.54                                                   | 0.45                                      |
| 3             | $1.90 \times 10^{10}$                                 | $8.54 \times 10^9$           | $6.55 \times 10^8$           | $7.11 \times 10^8$           | 0.50                                                   | 0.44                                      |
| 4             | $1.44 \times 10^{10}$                                 | $9.21 \times 10^9$           | $5.09 \times 10^8$           | $1.29 \times 10^9$           | 0.50                                                   | 0.44                                      |
| 5             | $1.58 \times 10^{10}$                                 | $7.81 \times 10^9$           | $6.33 \times 10^8$           | $1.62 \times 10^9$           | 0.53                                                   | 0.45                                      |
| 6             | $1.57 \times 10^{10}$                                 | $8.84 \times 10^9$           | $5.02 \times 10^8$           | $1.95 \times 10^9$           | 0.53                                                   | 0.44                                      |
| 7             | $2.09 \times 10^{10}$                                 | $1.48 \times 10^{10}$        |                              |                              |                                                        |                                           |
| 8             | $2.68 \times 10^{10}$                                 | $1.45 \times 10^{10}$        |                              |                              |                                                        |                                           |
| 9             | $1.53 \times 10^{10}$                                 | $1.38 \times 10^{10}$        |                              |                              |                                                        |                                           |
| 10            | $1.51 \times 10^{10}$                                 | $1.33 \times 10^{10}$        |                              |                              |                                                        |                                           |
| Min Ind=      | $1.44 \times 10^{10}$                                 | $7.81 \times 10^9$           | $5.02 \times 10^8$           | $7.11 \times 10^8$           | 0.49                                                   | 0.42                                      |
| Max Ind=      | $2.68 \times 10^{10}$                                 | $1.48 \times 10^{10}$        | $7.56 \times 10^8$           | $1.95 \times 10^9$           | 0.55                                                   | 0.47                                      |
| Mean of Ind=  | $1.83 \times 10^{10}$                                 | $1.09 \times 10^{10}$        | $6.04 \times 10^8$           | $1.40 \times 10^9$           | 0.52                                                   | 0.44                                      |
| Std Dev Ind = | $3.95 \times 10^9$                                    | $2.84 \times 10^9$           | $9.70 \times 10^7$           | $4.12 \times 10^8$           | 0.02                                                   | 0.01                                      |