TABLE 1. TEMPERATURES AND HUMIDITIES APPLICABLE TO INDUSTRIAL AIR CONDITIONING—(Continued)

| PROCESS | TEMP. F | R.H. % |
|---|---|---|
| **PRECISION MACHINING** (Continued) | | |
| Accurate gaging & inspection | 75 | 45–50 |
| Precision gage manufacture & adjustment | 68–75 | 45–50 |
| Precision gear drive assembly | 72 | 42–50 |
| Watch main spring calibration | 76 | 45 |
| Gage room | 78 | 50 |
| Precision parts—honing | 75–80 | 35–45 |

For product improvement and increased personnel efficiency some manufacturing areas are being provided with summer air conditioning. Where air conditioning is not provided, an ample supply of outdoor air and air motion are relied upon to provide acceptable working conditions.

Low relative humidity is usually maintained to prevent corrosion.

Temperature control within a narrow range is more important than temperature maintained.

Dust control is required wherever polishing operations occur.

Air distribution is important to maintain constant conditions throughout the area.

| PROCESS | TEMP. F | R.H. % |
|---|---|---|
| **PRINTING** | | |
| Pressroom: | | |
| Multicolor offset lithography | 75–80 | 46–48 |
| Other sheet fed printing | 75–80 | 45–50 |
| Newspaper & other web printing | 75–80 | 50–55 |
| Stock room: | | |
| Multicolor offset lithography | 73–80 | [a] 5–8% above pressroom |
| Other paper storage | 70–80 | [b] |
| Binding, cutting, drying, folding and gluing | 70–80 | 45–50 |
| Roll storage | 73–80 | 50 |
| [a] 5 to 8% above pressroom<br>[b] same as pressroom | | |

Lithography requires constant humidity control of entire pressroom with paper conditioned 5 to 8 percent higher relative humidity at start. All printing requires conditioned paper otherwise it will not lie flat, with 40 to 45 percent R.H. low limit to eliminate static electricity; and 60 percent R.H. high limit to prevent swelling of the rolls and slow ink drying. Temperature is not critical, but extremes should be avoided due to softening of the rolls at high temperature and improper ink distribution at low temperatures.

Hoods must be provided for gas dryers, with solvent recovery recommended for all except job shops. Exhaust system with dust collectors incorporated is required for type and plate cleaning areas. Check use of gasoline and other solvents. Normal air cleaning is adequate. Air distribution must prevent drafts on paper in storage or process. Gas flame dryers impose unusual loads.

Air from press and storage rooms should not be recirculated through office areas.

| PROCESS | TEMP. F | R.H. % |
|---|---|---|
| **REFRIGERATION EQUIPMENT** | | |
| Valve Manufacturing | 75 | 40 |
| Compressor Assembly | 70 to 76 | 30 to 45 |
| Refrigerator Assembly | 75 | 30 to 50 |
| Testing | 65 to 82 | 47 |

| PROCESS | TEMP. F | R.H. % |
|---|---|---|
| **RUBBER DIPPED GOODS** | | |
| Manufacture | 90 | |
| Cementing | 80 | 25–30 |
| Dipping surgical articles | 75–90 | 25–30 |
| Storage prior to manufacture | 60–75 | 40–50 |
| Laboratory (*ASTM* Standard) | 73.4 | 50 |

Solvents used in manufacturing processes are usually explosive and toxic, requiring positive ventilation.

Volume manufacturers usually install a solvent recovery system.



TABLE 1. TEMPERATURES AND HUMIDITIES APPLICABLE TO INDUSTRIAL AIR CONDITIONING—(Continued)

| PROCESS | TEMP. F | R.H. % |
|---|---|---|
| **TEXTILES** | | |
| Cotton: Opening | 70–75 | 55–60 |
| Picking | 75 | 55–60 |
| Carding, Winter | 75–80 | 55 |
| Carding, Summer | 83 | 90 |
| Carding, Summer | or 85 | 80 |
| Carding, Summer | or 87 | 70 |
| Drawing | 80 | 60 |
| Roving | 80 | 60 |
| Ring Spinning | | |
| Conventional | 80–85 | 70 |
| Long Draft | 80–85 | 55 |
| Frame Spinning | 80–85 | 55–60 |
| Spooling & Warping | 78–80 | 65 |
| Weaving | 78–80 | 70–85 |
| Cloth Room | 75 | 65–70 |
| Combing | 75 | 50–65 |
| Linen: Carding | 75–80 | 60 |
| Spinning | 75–80 | 60 |
| Weaving | 80 | 80 |
| Woolens: Pickers | 80–85 | 60 |
| Carding | 80–85 | 65–70 |
| Spinning | 80–85 | 50–60 |
| Dressing | 75–80 | 60 |
| Weaving | | |
| Light goods | 80–85 | 60 |
| Overcoating (32 oz.) | 80–85 | 60–65 |
| Drawing | 75 | 50–60 |
| Worsteds: Carding | 80–85 | 65 |
| Combing | 80–85 | 65–70 |
| Gilling | 80–85 | 65–70 |
| Top Storage | 70–85 | 75–80 |
| Drawing | 80–85 | 65 |
| Cap Spinning | 80–85 | 50–55 |
| Spooling & Winding | 75 | 65–70 |
| Weaving | 80 | 55–70 |
| Finishing | 75 | 60 |
| Silk: Preparatory | 80 | 60–65 |
| Weaving | 80 | 60–70 |
| Dressing | 80 | 60–65 |
| Spinning | 80 | 65–70 |
| Throwing | 80 | 60 |
| Rayon: Spinning | 80–90 | 50–60 |
| Throwing | 80 | 55–60 |
| Weaving | | |
| Regenerated | 80 | 50–65 |
| Acetate | 80 | 55–60 |
| Spun rayon | 80 | 80 |
| Picking | 75–80 | 50–60 |
| Carding, roving, drawing | 80–90 | 50–60 |
| Knitting | | |
| Viscose or cuprammonium | 80–85 | 65 |
| Acetate | 80–85 | 60 |
| Laboratory (*ASTM*) | 70 | 65 |
| Rayon synthetic fiber processing: | | |
| Viscose | | |
| Preparatory | 80 | 60 |
| Weaving | 80 | 60 |
| Celanese | | |
| Preparatory | 80 | 70 |
| Weaving | 80 | 70–75 |
| Nylon | | |
| Preparatory | 80 | 50–60 |
| Weaving | 80 | 50–60 |

*Cotton:* Relative humidity maintained in ring spinning depends on staple, twist and whether leather aprons are used for conveying long draft stock. Aprons readily absorb moisture causing cotton to stick when relative humidity is above 55 percent.

With conventional 3 or 4 roll spinning, relative humidity may be as high as 70 percent dependent upon draft, twist and staple.

Relative humidity carried in cotton weaving depends upon construction of the cloth. When automatic machines are to be tended and the warps are heavily sized, it may be as high as 90 percent.

*Woolen:* In woolen spinning, the relative humidity maintained for mules is generally 55 percent, with conditions over frame spinning at 55 to 60 percent. Both types of spinning depend on the class of stock spun, also the regain in the roving.