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Machinery considerations and selection

Scope

Criteria to consider when evaluating new, used, or transferred equipment for a plant.

Safety precautions

No safety precautions apply.

Introduction

The following checklist is offered not as a hard and fast set of rules and regulations, but as a thought-provoking guideline for the reader to use in setting criteria for evaluating new, used, or transferred equipment for a plant.

Checklist

I. Machine size determination

- A. Product mix review
 - 1. Average blank sizes, recognizing range
 - 2. Maximum and minimum blank width (running direction)
 - 3. Maximum and minimum blank length
 - 4. Maximum and minimum printing area width (running direction)
 - 5. Maximum and minimum printing area length
 - 6. Panel size combination and limitations (do you need to run self-divided boxes)
 - 7. Number of print stations
 - 8. Percentage of one-color
 - 9. Percentage of two-color
 - 10. Needs for 3-4 multi-color work
 - 11. Percentage of diecutting
 - 12. Average order size
 - 13. Need for close register/fine line or block work
- B. Need for skip feed
- C. Form to review product mix

II. Speed of machine

- A. Blanks per minute
- B. Speed through machine in feet per minute
- C. Actual speed achieved on similar machines

III. Controls

- A. Type
 - 1. Manual
 - 2. Manual - motorized
 - 3. Numerical control (NC) dial in
 - 4. Computer numerical control (CNC) memory setup
- B. Number of axes controlled
- C. Preset capabilities
- D. Automatic zero
- E. Diagnostic service
- F. Interface with other in plant computers
- G. Backfeed control (voltage leveler)
- H. Location on the machine
- I. Safety controls
- J. Software platform used
- K. Is software proprietary or open?
- L. Are software backups and documents provided?
- M. Are PLC programs documented and provided?

IV. Basic construction

- A. Opening/non-opening
 - 1. Feed section
 - 2. Printing stations
 - 3. Creaser/Slotter
 - 4. Diecutter
 - 5. Folder gluer
 - 6. Counter ejector
- B. Weight
 - 1. Overall
 - 2. Per section
- C. Powertrain-check for backlash
 - 1. Boxmaking section
 - 2. Folding section
 - 3. Counter ejector
- D. Safety
 - 1. Guards
 - 2. Lockout controls
 - 3. Lights and horns
 - 4. Manufacturer's updates/recommendations

V. Feed section

- A. Type
- B. Options
- C. Alignment (on or off center)
- D. Height of table above floor

- E. Special features
- F. Feeding assists
- 1. Automatic feeders (See TIP 0305-09)

VI. Printing

- A. Top or bottom printing
- B. Print plate attachment systems (see TIP 0305-14)
- C. Running register
 - 1. Mechanical
 - 2. Electrical
- D. Ink systems
 - 1. Metering roll
 - 2. Metering blade, reverse angle blade, chambered system
 - 3. Blade composition
 - 4. Closed or open system
 - 5. Warning devices
 - 6. Amount of ink resident in the press
- E. Anilox rollers (see TIP 0305-17)
 - 1. Type - lines per inch screen
 - 2. Cell configuration / Volume (BCM rating – billion cubic microns)
 - 3. Ceramic chrome
 - 4. Mechanical or laser engraved
- F. Washup system
 - 1. Automatic
 - 2. Manual
 - 3. How and when to use
 - 4. Time for washup
 - 5. Amount of ink washed down the drain
 - 6. Environmental clean-up
 - 7. Quality of washup water
- G. Setup
 - 1. On line
 - 2. Off line
- H. Pull rolls
 - 1. Hard
 - 2. Soft (zero crush)
 - 3. None – Vacuum transfer

VII. Creasing and slotting section

- A. Slotting heads
 - 1. Width of slots
 - 2. Offset capability
 - 3. Split heads
- B. Slotter/creaser head movement
 - 1. Lateral movement - manual or motorized
 - 2. Yoked heads
 - 3. Trim knives - manual or motorized
 - 4. Split heads
 - 5. Ganged adjustment of slotting blades
 - 6. One or two sets of slotting shafts
- C. Creasing heads
 - 1. Profile
 - 2. Split heads
 - 3. Replaceable profiles