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Stacking off the rotary diecutter

Scope

Since the introduction of the rotary diecutter, the method of stacking diecut sheets can be a limiting factor in obtaining maximum rated output of the press. In recent years, significant major advances have been made in the design of stackers for this purpose.

Safety precautions

Accomplish actions with the drive stopped. Use “Lock Out/Tag Out” Procedures” established by the plant before initial setup.

Content

Unlike stackers on a conventional printer slotter, stackers in back of the rotary diecutter face more potential operating problems which directly affect the total piece output over a shift. These include configuration, scrap, multiple outs/ups, excessive warp, and speed/size/weight of the finished diecut. All or any combination of these factors will contribute to the ultimate limiting factor: jam-ups. Not only do the resulting jam-ups limit overall production in unwanted downtime, but they usually cause needless waste of material which is then destined for the scrap pile.

More recent versions of stackers offered by machinery manufacturers are designed with the above problems in mind. Most stackers include a sandwich belt section adjacent to the press. This section must be capable of being easily moved to allow access to the press when changing setups or rerubbing during a run. How the section is moved is immaterial. The basic purpose of the sandwich section is to allow the individual blanks to be handled at high take-away speeds so that scrap removal auxiliaries can perform without disturbing the flow of material. In this respect, it is not suggested that the stacker be used in actual stripping, which is an operation normally associated with the cutting die. However, it must be recognized that many cutouts do not drop off the blank, and at high speeds much scrap can be carried into the sandwich belt area. This scrap must be removed to achieve the ultimate in scrap-free loads and a substantial reduction in jam-ups can be attributed to scrap not reaching the stacking area. Several methods have been incorporated with success to accomplish this end. These include beaters, air blowers, and brushes. For these components to function correctly, and to achieve a virtually scrap free load, the cutting die must be designed in a manner that cuts scrap into small 2 in. × 2 in. pieces. It has been proven that the cleanliness of the load is a direct result of scrap size (i.e., the smaller the scrap, the cleaner the load).

To maximize the throughput of a rotary diecutter, it is necessary to make dies to handle two, three, and/or four across the width of the machine. These multiple-across blanks can be notched together or constructed as separated blanks. If the blanks are notched, they then are separated in a secondary operation, either manually or using automated devices.

While notching blanks may be necessary in some instances, the goal typically is to deliver these sheets in a separated form not only when batch counting but also when stacking full height units. Several accepted methods of separating multiple up and across sheets are common on a modern rotary diecut stacker. In all cases, these systems must be set with greater care and attention to detail as the number of sheets run in the across machine direction are increased.

However, as expected, the running of multiple-out sheets increases the opportunity for potential jam-ups. This normally occurs in the area of the backstop or accumulator mechanism. This is the area in which all stackers are particularly vulnerable. In attempting to provide mechanisms which allow for fairly neat edges on loads, it is necessary to set the backstop separators to a degree that invites jam-ups. When the backstops are left open to minimize potential jams, the result is uneven stacks which are unacceptable for immediate banding. It is important to gain control in the sandwich belts and maintain this control all the way to the hopper of the stacker. Once again, as multiple blanks across the machine are increased, greater care and precision in setting of the separating mechanism is needed. In addition, at the front-end assembly (hopper), it is not uncommon to find that the plant has used "corrugated" or "wood" to make their own special attachment to accommodate a specific diecut design or shape. Over time, these "specials" have tape and glue residue left on the face of the various attachments, or have been dented, scrapped, or gouged, so that they are no longer clean and smooth, and thus are now a surface that will impede the blanks travel into the stack/bundle. Once again, the potential for an unnecessary jam-up has been created.

Another requirement of the stacker is that it be equipped to deliver accurately counted bundles, delivered in batches of 25 to 50 pieces. The auxiliary equipment used in batch counting, such as a skate roller type conveyor, or belt conveyor, must be easily removed from in front of the stacker when it is not required. The type of counter and accumulator must be actuated quickly to ensure accurate batch counts.

In cases where rotary diecut sections are added to flexo printer slotters, the stacker must also be able to handle the additional output which can run as high as 14,000 pieces per hour when the press is being utilized as a printer slotter. This requires that the stacker be able to accept shingled sheets prior to delivery to the stacking area. Additionally, operators should be taught to determine what is causing a jam-up and should attempt to alleviate the problem at its origin rather than take corrective measures downstream.

Keywords

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Additional information

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Working Group:

David R Vollick, Chairman, SSCC.

John R Troyke, Georgia-Pacific Corporation, LLC

Shawn E. DeJong, Henkel Corporation

