

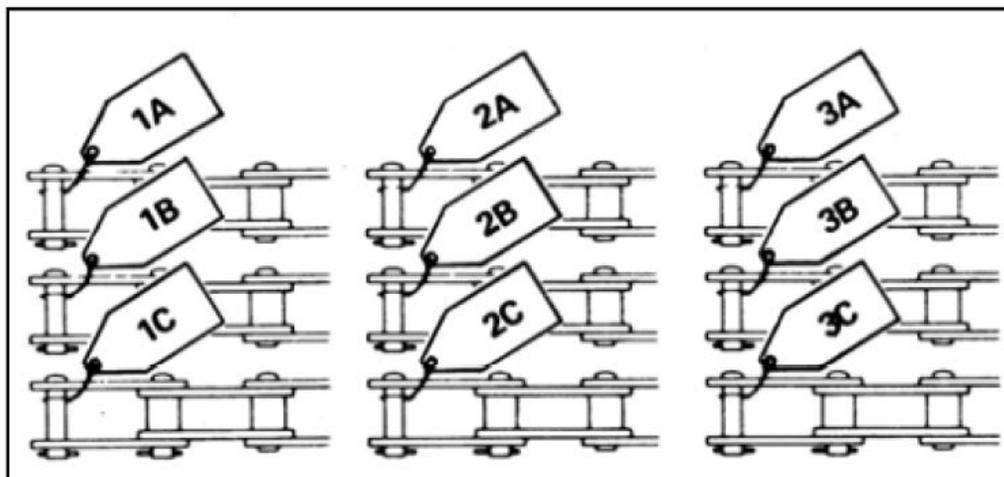


CONVEYOR EQUIPMENT
MANUFACTURERS ASSOCIATION

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Conveyor Chain - Matched Strands



Conveyor Equipment Manufacturers Association, Inc.

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CONVEYOR CHAIN - MATCHED STRANDS

Matching Left-Hand and Right-Hand Strands

Right-hand and left-hand strands may be required in multiple-strand installations where the chain or the attachments are not symmetrical. In this situation, right-hand and left-hand strands should be specified when ordering chain from the supplier, (See Figure 1). Specification of right-hand and left-hand conveyor strands should not be confused with the concept of left- and right-hand attachments. If the application has more than two parallel strands of chain the same issues apply but the terminology may change to “sets” of chain.

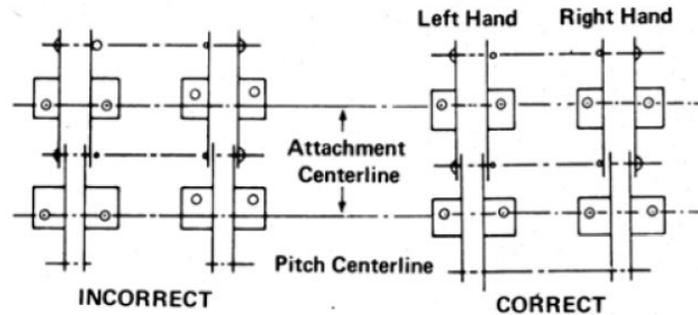


Figure 1. Right-hand and left-hand strands where attachments are not symmetrical

Direction of Travel for Left-Hand and Right-Hand Strands

Chains and attachments used in conveyor service are not always symmetrical. It should be noted that many such chains have a recommended direction of travel relative to the head sprocket. When there is such a recommendation, it should be clearly shown on the conveyor drawings or be part of the contractor’s specifications.

Matching and Tagging Strands for Length

When pairs or groups of chain are used in parallel, it is best practice to use matched strands to minimize differences in overall length. All chain is made to length tolerance specifications, but there can be variation within the tolerance range, especially from different manufacturing lots. The matching of strands ensures that sections of chain and attachments maintain proper relations to one another when running in the application.

Matched strands share load more equally and ensure uniform alignment between strands. It is particularly important where through rods, scraper flights, or other carrying attachments are used to rigidly connect multiple strands of chain. Unmatched strands may result in unequal loading which can cause uneven wear resulting in racking problems as shown in Figure 2.

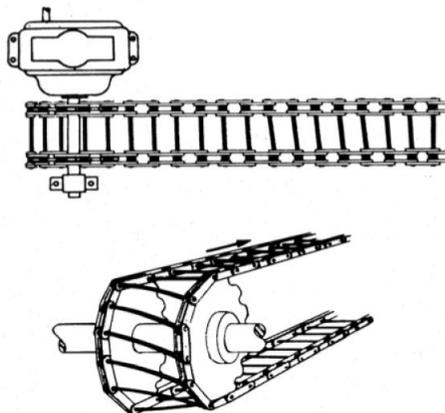


Figure 2. Effect of two strands of unequal length

Pairs or groups of chains may be matched in overall length by selectively pairing or grouping based on their

dimensional (length) characteristics. This process is generally described as “matching and tagging”. Attachments along the length of the strand are also compared to one another to assure their positions are located properly for the application. The product is then packaged and shipped to provide matched sets of chain for installation. There are different techniques or processes that can be applied depending on the circumstances to achieve the “matched and tagged” condition.

Chains from a specific production run tend to be very consistent in strand length. Simply assembling the chain as pairs or sets from the same production run will usually create matched sets that will be adequate for many applications. If a tighter range or improved consistency is required a pre-stress operation may be added. This process is common on smaller chains but becomes less effective or may not be practical on larger chains.

During the pre-stress process, a one-time tensile load usually between 30% and 50% of the chain tensile or breaking strength is applied. Pre-stressing forces the chain components to physically engage one another to assure proper length measurement during the matching process.

If an application requires very close matching of strand lengths, especially when multiple sets are connected together, each strand of chain can be placed under load and measured to determine the exact strand length. With the strand uniquely identified and measured the total length of each assembled strand can be kept in balance by carefully selecting which strands to “pair” and calculating the accumulated length.

When an application requires matched sets of chain it is best practice to discuss the application and the matching tolerance desired with the manufacturer. Each manufacturer can provide a process or specification recommendation based on the circumstances (chain size / type, application requirements, cost impact, lead time impact, shipping strand lengths, etc.). Ideally this discussion is part of the quotation process, but the requirements need to be clearly identified when the chain is ordered.

It is common practice to tag or otherwise identify the matched sets of chain. When multiple parallel strands are matched it is common to use a tagging format similar to what is shown below in Figure 3. If there is a specific tagging or marking requirement that also should be included in all quotation and order documentation.

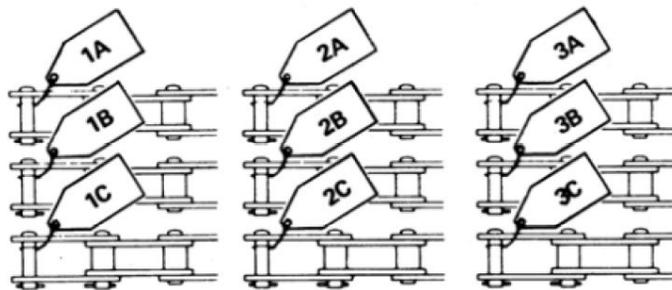


Figure 3. Matched and tagged chain strands