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	OSH DIVISION	**Date: 10/2009**
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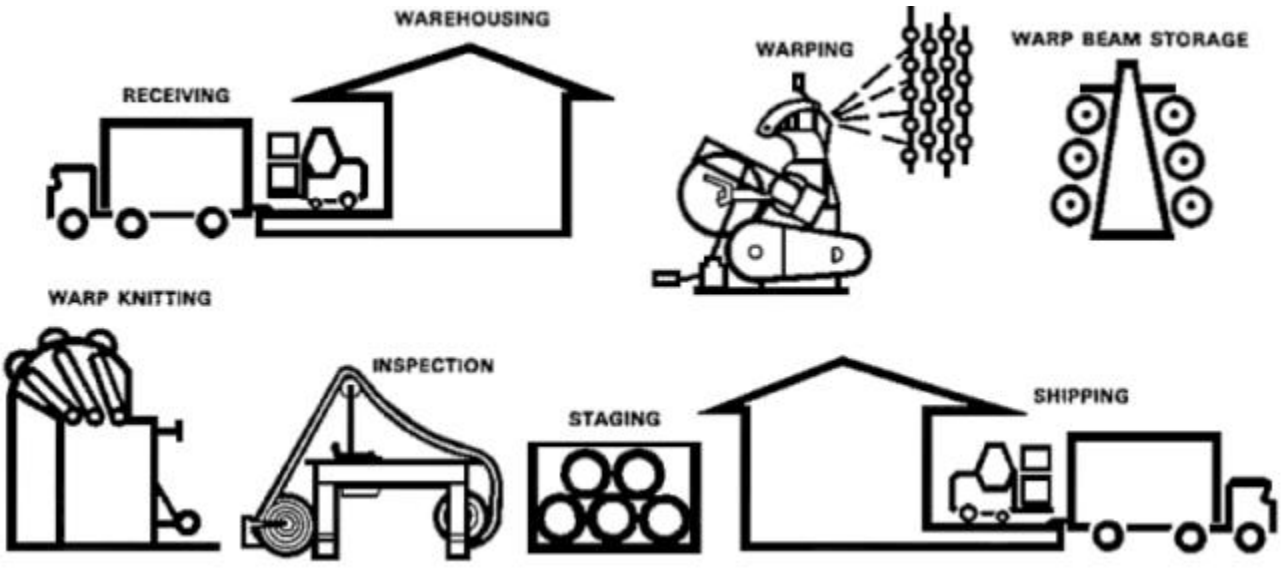
Industry: **Textiles**	Sub-Group: **Warp Knitting**
SIC: **2258**	NAICS: **313249**

PROCESS DESCRIPTION: Finished yarn is received on cones or tubes in cases weighing from 100 to 350 pounds (1½ to 10 pounds per cone or tube). Yarn will be either dyed or natural. Yarn is received and warehoused by identification number for future allocation to production floor. It is moved from the yard warehouse with hand trucks and taken to warpers. Each cone is individually creeled in the warper creel and the yarn is run off the cone or tube onto a warper beam. The full beam is transported to storage where sets will be made up to be placed on the warp kitting machine. Approximately 4 to 8 beams will be loaded on the warp knitting machine using a tramrail hoist. The yard is then run into the needle section where it is knitted into fabric. When the fabric roll reaches approximately 200 pounds in weight, it is cut off and removed from the warp knitting machine with a hand jack truck. The roll of fabric, ranging from 60 to 80 inches long and weighing 200 pounds, is transported to the inspection department by a lift truck with a ram-rod attachment. The roll is inspected and placed on portable racks to be shipped to the finishing process.

PROCESS FLOW:



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Hazards Analysis

Major Hazards			Other Hazards		
Location	**Item**	**Hazard**	**Location**	**Item**	**Hazard**
Warehouse	Mechanical power transmission apparatus and forklifts Cases and cartons of yarn and warp beams	Amputations and crushed limbs, carbon monoxide exposure, accidents Falling potential of 100-300 pounds of cartons and approximately 2,000 pound warp beams	Warper	Rotating beams on warper	Amputations and crushed limbs
Throughout	Cotton – flyings and lint Housekeeping Floor operated cranes and tramrail hoists	Fire hazards Slip, trip and fall hazards Falling objects (beams) crushing/breaking extremities (feet and toes)	Warp beam storage	Material handling of approximately 2,000 pound warp beams	Broken and crushed limbs
			Warp knitting machine	Material handling of beams, in-running nip points of beam and power transmission apparatus Noise	Broken limbs and amputations Hearing loss
			Inspection	In-running nip points of beam and roll power transmission apparatus	Broken limbs, lacerations and amputations

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Key OSHNC Standards

Reference	29 CFR 1910 - General Industry Standards
ANSI-B30.6	Overhead underhung hoists
NCGS 95-129	General duty clause - ergonomics
Subpart D	Walking and working surfaces
Subpart E	Exit Routes, Emergency Action Plans, and Fire Prevention Plans
Subpart I	Personal protective equipment
Subpart O	Machinery and machine guarding (where 1910.262 does not apply)
Subpart S	Electrical
1910.95	Occupational noise exposure
1910.141	Sanitation
1910.147	Control of hazardous energy (lockout/tagout)
1910.176	Handling materials - general
1910.178	Powered industrial trucks
1910.179	Overhead and gantry cranes
1910.1000	Air contaminants
1910.1200	Hazard Communication

Inspection Analysis

Begin the inspection in the receiving area and the warehouse. Check powered industrial trucks, walking working surfaces, stacking, chocking of beams and storage of beams. Check knitting machines for positioning of beams and power transmission apparatus. Look for in-running nip points on the warp knitting machines. Hoisting of beams and status of floor operated cranes and their component parts must be carefully analyzed. The warpers must be checked for speed and for possible requirements of double bar gates. Inspection department shall be analyzed for in-running nip points of beams. Power transmission apparatus on the inspection machines must be guarded. At the staging and shipping area, material handling and storage procedures of the heavy beams must be analyzed for possible foot injuries and overall handling of the beams for shipping. Check all operations for potential employee exposure and need for locking and tagging power sources.

Other Pertinent Comments: