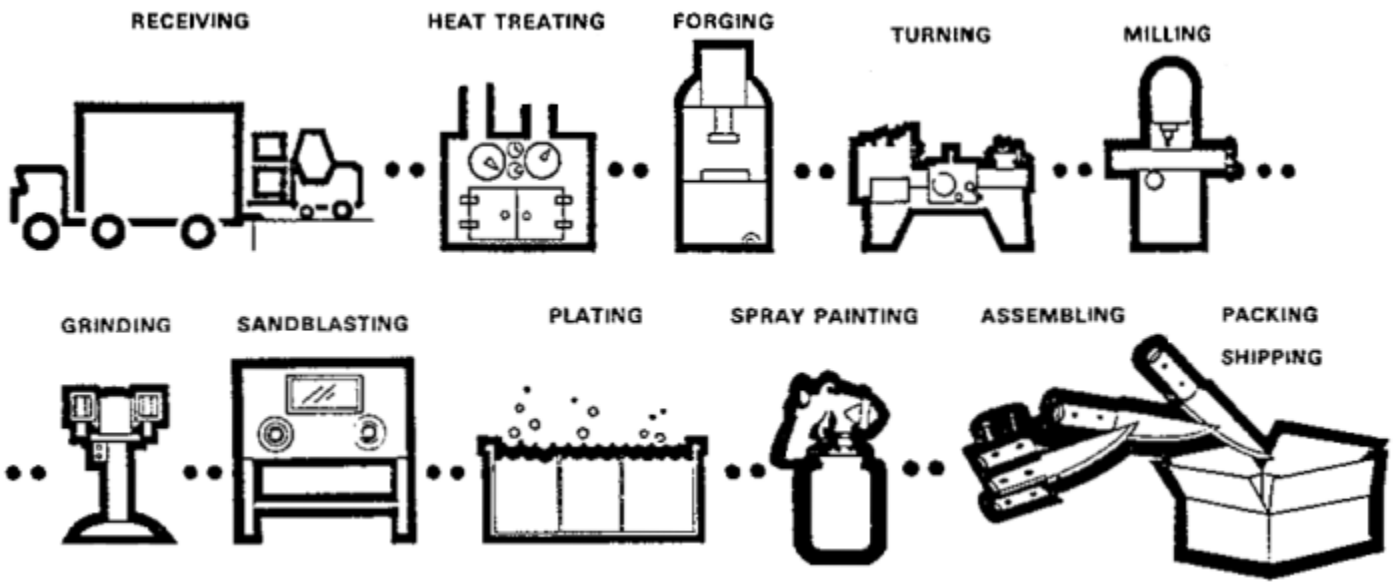
NORTH CAROLINA DEPARTMENT OF LABOR	No. 34-3
OSH DIVISION	Date: 10/2009
OSHNC INDUSTRIAL DATA REPORT	Pages: 3

Industry: **Fabricated Metal Products**	Sub-Group: **Cutlery, Hand Tools, General Hardware**
SIC: **3421, 3423 and 3429**	NAICS: **332211 and 332212**

PROCESS DESCRIPTION: Drop or machine forged hand tools are formed from billets which are heated and rough forced by drop hammer. The unit is then reheated and finish forged to its final form. Machining and further treating may be required prior to finishing operations. Other hand tools or hardware are machined directly from stock material to desired forms prior to finishing. Cutlery is shaped as a forged part, then machined with an additional heat treatment prior to finishing operations. Finishing operations for all the above items may include sand-blasting, grinding, plating and painting.

Hand tools and cutlery would then be fitted with wood or plastic handles and packed for final shipping. A typical example of manufacturing processes (carbided tip circular saw blades) would include grinding, recessing, tinning the tip, brazing, gumming, sandblasting, second grinding, hammering, carbide operations, polishing, oiling, protection of teeth, packing and shipping.

PROCESS FLOW:



Hazards Analysis

Major Hazards			Other Hazards		
Location	**Item**	**Hazard**	**Location**	**Item**	**Hazard**
Receiving and warehousing	Bar stock, billets, unsecured stacking	Lifting (back injuries, hernia), crushed toes, falling material	Throughout	Housekeeping Noise	Tripping, slipping, falling Hearing loss

	Grinding, point of operations	Eye injuries, amputations and crushed limbs	Shipping and receiving	Powered Industrial Trucks	Accidents, Carbon Monoxide
Finishing	Sand blasting Plating Sharp edges Spray painting, heat curing	Silicosis Burns, toxic fumes Cuts Fire, explosion, burns			
Shipping	Finished products	Back injuries and hernia			
General	Compressed air Electrical Flying particles	Eye and skin injuries Fire and explosion, electrocution Eye injuries			

Key OSHNC Standards

Reference	29 CFR 1910 — General Industry Standards
ANSI B30.6	Overhead underhung hoists
Subpart D	Walking and working surfaces
Subpart E	Means of egress
Subpart I	Personal protective equipment
Subpart O	Machinery and machine guarding
Subpart S	Electrical
1910.94	Ventilation
1910.95	Occupational Hearing Loss
1910.106	Flammable and combustible liquids handling and storage
1910.107	Spray finishing with flammable and combustible liquids
1910.122 - .126	Dipping and coating operations
1910.147	Control of hazardous energy – (lock-out/tag-out)
1910.151	Eyewash and emergency showers
1910.176	Handling materials
1910.178	Powered industrial trucks
1910.179	Overhead and gantry cranes

	NORTH CAROLINA DEPARTMENT OF LABOR	No. 34-3
	OSH DIVISION	Date: 10/2009
	OSHNC INDUSTRIAL DATA REPORT	Pages: 3

1910.1000	Air contaminants
1910.1200	Hazard communication

Inspection Analysis

The inspection should begin in the receiving and storage area, checking especially the powered industrial trucks, dock boards, walking and working surfaces and the stacking of material. Next the pre-heating department must be checked for adequate fire protection and personal protection equipment. A noise survey must be conducted in the forging area. Also, points of operation along with gear, belt, chain and sprocket drives must be checked for proper guarding. Check the turning, milling and grinding areas for similar hazards and for dust. The sand-blasting area must receive thorough inspection noting especially the presence of silica, and the plating and spray paint rooms for fire and explosive hazards. Check for toxic fumes and the spray paint area for construction, excessive residues, ventilation and storage of flammables. In the assembly area observe points of operation guarding along with compressed air used for cleaning purposes. Housekeeping must be checked throughout the establishment. Dip tanks must be checked for safety features. In the curing area, determining adequacy of ventilation and fire protection if vapors and fumes are present. Check the shipping area for those items noted in receiving.

Other Pertinent Comments:

Cutlery Manufacturing: Usually the major exposures are inorganic dust, cuts and flying particles. The inorganic dusts containing silica can cause respiratory system damage. Cuts occur on the hands and arms. Eye injuries are caused by grinding and plating. Control is attained by adequate ventilation, proper personal protective equipment and ample washing facilities.

Hand Tools and Hardware Manufacturing: The major exposures are oily rags and scrap metals, paint, solder and varnish vapors, electric current, flying metal particles, dust and noise. Control is achieved by placing oily rags in self-closing metal containers and good ventilation, removal of scrap metal daily, provision and use of proper personal protective equipment, proper fire control equipment, adequate exits and an effective noise reduction program.