




S (I-A) Tuesday, October 15, 2025; 8:30 am – 10:45
am

Noise, Impact including Exposure to silica,
Ergonomics and Safety Risks from Power Tools

Buying for Safety and Productivity - The Logistics of Purchasing

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Agenda: Buying for Safety and Productivity

The Logistics of Purchasing

- Understanding the integration of logistics in procurement processes, buying for Safety
- what is logistics - the importance of buying for safety
- Recognizing industries and ergonomic risks associated with power tools
- Exploring standards and regulations for safe equipment procurement
- Implementing management leadership and accountability in safety
- Utilizing government resources, Industry Standards and EU Directives for compliant purchasing
- Summarizing best practices and future steps in tool safety management

Putting the Logistics into Procurement

Are you part of the Procurement Your Procurement Cycle?

- Procurement officer, the buyer?
- Development of Engineering Requirement's?
- Safety Professionals and/or Industrial Hygienists, Understanding OSHA, NIOSH, and CDC Requirements and guidelines?
- Part of Management?
- A Supervisor?

YOU Should All BE Part of the Procurement CYCLE

Power tool use affects many workers with potential safety and health exposures

What are the common Industries that use Power Tools?

The Department of Defense:

- Army
- Marine Corps
- Navy
- Air Force
- Space Force
- Coast Guard
- National Guard

Federal, State and Local Governments, especially facility maintenance

Commercial Industries:

- Forestry
- Construction
- Aerospace
- Automotive
- Shipbuilding
- Energy
- Mining
- Agriculture

Note – Overlap Between DoD and Commercial Industries.

Hand Vibration Injuries



Hands of vibrating pneumatic hand-tool operator in later stages of irreversible Hand Arm Vibration Syndrome¹



Common "White Finger" effect termed Raynaud's Disease

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Hand Arm Vibration Syndrome (HAVS) is an illness caused by vibration when working with tools or holding a vibrating work piece.

Work Related Injuries and Illness affected by equipment purchasing decisions

Procurement Actions Have Consequences!

Worker Participation with their representatives, in partnership with Management, Technical Experts, and the Procurement Officer makes excellent business sense in minimizing:

Musculoskeletal Disorders (MDS), involving Hand Arm Vibration Syndrome (HAVS),



Work Related Injuries and Illness affected by equipment purchasing decisions

Noise – the use of hearing protection is critical for the user and the personal around the workplace

Physical safety and related injuries

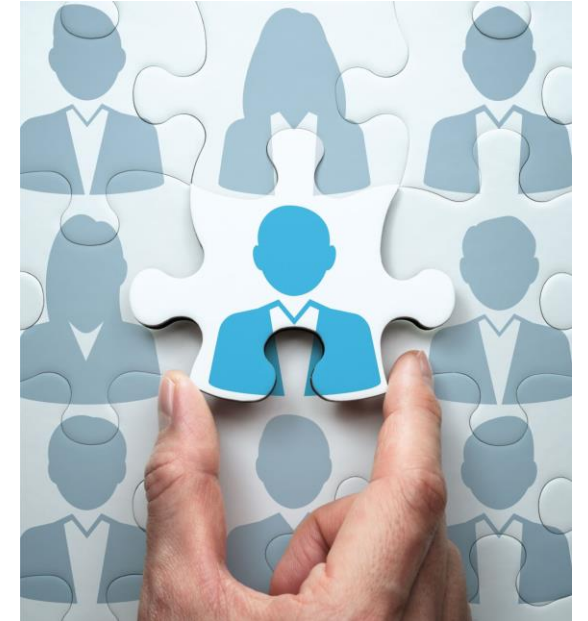
Dust control, especially silica and heavy metals

MANAGEMENT and LEADERSHIP

Management provides the Leadership, Vision, and Resources needed to implement an effective Safety and Health Program.

Management/Leadership means that business owners, managers, and supervisors:

- Make worker safety and health a core organizational value.
- Are fully committed to eliminating hazards, protecting workers, and continuously improving workplace safety and health.
- Provide sufficient resources to implement and maintain safety and health programs.
- Visibly demonstrate and communicate their safety and health commitment to workers and others.
- Set an example through their own actions.



Procurement Accountability

NOT INVENTED HERE SYNDROME

Utilization of European Union Standards.

EU Standards have excellent requirements, and you should use them where appropriate.

- Likely to be required for international organizations operating in Europe

SAE Aerospace Standard - AS6228 A

AS6228A in conjunction with SAE Aerospace Information Report AIR6916, are detailed standards which include, Vibration, Sound Levels, Dust, Weight utilizing a balanced score card for product evaluation

Cheap, Low-cost Products do not pass these standards but increase Health hazards to the user by increasing MSD associated with HAVS.

Procurement Requirements within RFQ

Things You Should Know:

Within the Request for Quote (RFQ), issued by your Procurement Official, The following data **MUST** be furnished by the manufacturer of hand and power tools, including antivibration equipment^(1,2) labeling the tool and box:

Consider European Union (EU) Mandate Machinery Directive (2006/42/EC)¹ for Vibration Levels and Labeling of Hand and Power tools:



(Manufacture Name)

CE marking²

The letters 'CE' appear on many products sold within the European Economic Area (EEA) and the United States. They signify that products sold in the have been assessed to meet high safety, health, and environmental protection requirements.

²) <https://europa.eu/youreurope/business/product-requirements/labels-markings/ce-marking/indexen.htm>

¹) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32006L0042>

MACHINERY DIRECTIVE (2006/42/EC)

Our (manufacturer's) responsibility - Outcome

One Example of a Manufacturer's Product



Technical data

Noise and vibration emission

Noise (in accordance with ISO15744)		dB(A)
Sound pressure level		92
Sound power level		103
Uncertainty		3
Vibration total value, valid from 2010 (3-axes value in accordance with ISO28927-10)		m/s²
Vibration value		4.8
Uncertainty		1.6

Model	Vibration total value (3 axes value) according to ISO 28927-10 Valid from 2010		Sound pressure levels and sound power levels ^a according to ISO 15744	
	Value 3-axes m/s ²	Uncertainty m/s ²	Sound pressure dB(A)	Sound power dB(A)
Percussive				
Chipping hammers				
Vibration-damped				
RRF21	3.5	0.8	95	106
RRF31	5	1.6	94	105
RRD37	<2.5	-	95	106
RRD57	<2.5	-	96	107
Conventional type				
RRC22F	6.1	1.7	99	110
RRC34B	7.7	1.3	99	110
RRC65B	12	1.6	103	114
RRC75B	11.5	1.5	102	113
Scalers				
RVM07	5	1.9	74	-
RRC13	11.5	2.7	91	102
RRC13N	8.1	1.8	91	102
Riveting hammers				
Vibration damped				
RRH04P	<2.5	-	93	104
RRH06P	3.9	1.4	91	102
RRH08P	4.8	1.6	92	103
RRH10P	5.1	1.7	91	102
RRH12P	4.4	1.1	93	104
RRH14P	5.4	2.9	93	104
Conventional type				
RRN11P	4	1.6	98	109

Procurement Requirements within RFQ

Alternative to utilizing the EU Machinery Directive within the Procurement Document

The Procurement Document “Shall” Callout all “Hand and Power Tools Must meet the Requirements of SAE Aerospace Standard AS6228A.”

In Addition, The following data MUST be furnished by the manufacturer of hand and power tools, including antivibration equipment* labeling the tool and box:

- a) All hand-held tools that produce vibration shall carry a label stating the frequency-unweighted acceleration level (m/sec²) produced by the tool during normal operation
- b) The manufacturer of anti-vibration equipment and hand gear shall provide information on the vibration-damping characteristics of each type of antivibration item produced for sale
- c) Users using power tools should use anti-vibration gloves and the requirement for gloves Must include gloves IAW ISO10819, testing of anti-vibration gloves
- d) The tools operating noise level
- e) The weight of the tool

*Criteria for a recommended standard, occupational exposure to Hand-Arm Vibration September 1989.

<https://sam.gov/content/home>

What does this mean?

Assuring You and your Employees are provided the safest tools that fit their Body's framework for the the Jobs they are performing.

- Hand Vibration
 - Weight of tool
 - Noise
- ***Within Your Procurements Document, Place Safety REQUIREMENTS!!***

EU requirements Superior to US OSHA

- Directives and Related Standards
Became Law in the EU July 6, 2005
- There are Three different vibration values:
 - **Manufacture's declared Vibration** – This value must be supplied with all tools sold within the European Union.
 - Start by having your procurement and Engineering staff add this requirement to your procurements.
 - **In-Use Vibration** – Is the vibration the operator experiences when the tool is running in a real work situation in a specific workplace.
 - **The Vibration Exposure A(8)** – is the rms average of the in-use vibration over an 8-hour period.

Vibration Directive – EU

Make this Your Directive!

In the EU Directive, there is one action and one limit value defined

These values refer to the daily exposure

- The action *Exposure Limit Value* (ELV) is 2.5 m/s^2 average over an 8-hour working day
- A worker will not be allowed to be exposed to *Exposure Action Value* (EAV) a *rms average* value of 5.0 m/s^2 over an 8-hour day

Summary and Suggested Way Ahead

- SAE Aerospace Standard AS6228A™ uses a cost and life cycle approach for Power Hand tool selection. A semi-quantitative scale is used to compare factors such as noise, vibration, ergonomic risks, procurement cost and life-cycle costs.
- AS6228A™ helps safety professionals and engineers understand and implement tool selection with risk factors for ergonomic, noise and vibration injury reduction.
- Aerospace Information Report AIR6916™ -Layman's guide -explains hazards and makes the AS6228A standard understandable in basic terms for a wider audience.
- Further outreach is needed to help implement this process management approach for hand-held power tools and apply to other areas of risk management.
- Your engagement is needed to use the standards approach and select equipment based on safety, health and productivity criteria. Consider involvement with the SAE EG1B1 Committee.

The Bottom Line:

- Power tools are critical to modern industry – improvements can benefit productivity and safety. A standards approach was developed to provide comparison of tools.
- Involvement in the logistics process is vital to safety and health success
- These approaches can be extended to other products and processes

Need Assistance in Locating the Correct Power Tool?

- If help is needed in locating your product in accordance with your requirements, please do not hesitate to send an email, and within the SUBJECT Line place “Power Tool Procurement Support:”
- John M. Ster, JMS Engineering and Consulting at JMSAerospace@gmail.com

and/or
- Mark Geiger at Mark2357@cox.net

Recognition,
Evaluation &
Control of Hand-
Arm Vibration -
Noise,
Ergonomic &
Safety Risks
from Power
Hand-Tools -
NEW!



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