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DLA LAND AND MARITIME-VAI

August 26, 2025

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Dated Engineering Practice Study

The Finding and Recommendations on Engineering Practice Study dated August 26, 2025 are enclosed.

Document Number	Action Taken	Complete Title	Project Number
EP Study	EPS	EP Study on Reinforcing Wire	4720-2025-013

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Sincerely,

/ SIGNED /

ERIC J. CANDELARIA
Acting Chief,
Interconnection Branch

ENGINEERING PRACTICE STUDY

TITLE:

EP Study on Reinforcing Wire

26 August 2025

Project Number:
4720-2025-013

FINAL REPORT

Study Conducted and
Prepared by

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DSCC-VAI

Introduction:

The purpose of this EPS is to propose a change to the reinforcing wire material to stainless steel, determine the effects it can have on the hose if the material of the reinforcing wire is changed to stainless steel and what are some options to protect the hose from corroding if the material is kept as is.

Background:

Currently, section 3.3.2 of MIL-DTL-8794 calls for “high tensile steel wire braid (corrosion resistant steel (CRES))” which could be a wire that’s not necessarily stainless steel but a steel wire that corrosion resistant. The proposed change to the language will specify the material to be stainless steel for reinforcing wire. This change aims to eliminate or reduce the possibility of reinforcing wire corroding.

Results:

Manufacturer:

A)

1. Performance – Stainless steel is generally lower tensile than carbon steel. The current wording of the wire requirement is “high tensile steel wire braid (corrosion resistant steel (CRES))”. If high tensile wire is desired, carbon steel is a better option. Brass plating this wire makes it corrosion resistant and covering it with a rubber insulation layer and yarn layer further protects it from the environment. Braided stainless steel hose generally has a higher incidence of defects related to broken wires during and after construction.
2. Cost – The cost would increase, as stainless steel is more expensive.
3. Necessity – It is our understanding that the current use of brass plated carbon steel (which is inherently corrosion *resistant*) is sufficient for use.

B)

There are a number of things to consider when changing the material of the reinforcing wire.

1. Hose performance
Will the different material provide the same strength, pressure, flexion, and impulse characteristics, etc. as the current material? Will the layer adhesion performance change? What changes to the product construction will be required to provide the required characteristics?
2. Material Sourcing
Stainless steel wire, depending on performance characteristics, could be difficult to source. This is especially true when other sourcing restrictions are present, such as in this product.

3. Cost

Stainless steel wire is much more expensive than high tensile carbon steel wire. This will indeed increase the cost of the end product. A specialized material is not consumed as readily as a commonly used material. This will significantly increase costs to produce the product. Especially when considering low volume finished goods with raw materials that require high minimum order quantities. It is possible that the minimum order quantity of wire could provide enough wire material for 5 or more years of order volume.

4. Processability

Stainless steel wire does not process as well as high tensile carbon steel wire during reinforcement.

Service:

We do not see an issue changing the wording to "stainless steel for reinforcing wire". However, it may also be helpful to specify the types of steel to use (304, 316, or 321) or reference ASTM A580.

Conclusion: Based on the response received for this study, using stainless steel wire would impact performance, increase cost, and material sourcing.

Recommendations:

Specify type of steel being used for the reinforcement wire within the MIL-DTL-8794. Add language in section 6 (not contractually binding) to protect hose ends exposed to the environment.