



Energy Infrastructures Ltd.

Infrastructures TUNNEL

SPECIFICATION FOR HYDRAULIC DAMPER SUPPORTS

4575.25-035

July, 2024

4575.25-035

1/8

31/07/2024



Table of Contents

1. GENERAL
2. DESIGN
3. CODES AND STANDARTS
4. MATERIALS
5. FABRICATION
6. QUALITY ASSURANCE
7. GUARANTEE

APPENDIXS

APPENDIX A Example of Hydraulic Damper

APPENDIX B Data Sheet

P0	15/07/24	For Comments	Raslan Soboh	Zeev Sapoznikov	Zeev Sapoznikov
Rev	Date	Description	Prepared by	Checked by	Approved by

1. GENERAL

This specification outlines the minimum technical requirements for the design, fabrication, supply, and testing of hydraulic damper supports for “12 pipelines. The hydraulic dampers, also known as snubbers, are intended to provide stability and control to the pipelines within the “infrastructures tunnel”, ensuring safe and efficient transfer of different distillates to the new fuel terminal. App. A

2. DESIGN

2.1 Performance Criteria:

The hydraulic damper supports shall effectively absorb dynamic loads and vibrations to protect the pipelines from excessive movement and stress with Maximum Stroke of 450 mm and linear mass (Stiffness) of 33,000 [kg/m].

2.2 Load Capacity:

Each damper shall handle the maximum expected dynamic load of 150 [kN].

2.3 Temperature Range:

The dampers shall operate effectively within the temperature range of 5°C to 40°C.

2.4 Design requirements specified in App. B.

3. **CODES AND STANDARDS**

3.1 ASME B31.3: Process Piping

3.2 MSS SP-58: Pipe Hangers and Supports - Materials, Design, Manufacture, and Installation Process Piping.

3.3 MSS SP-69: Pipe Hangers and Supports - Selection and Application.

3.4 MSS SP-77: Guidelines for Pipe Support Contractual Relationships.

4. **MATERIALS**

4.1 All housing components, Cylinders, Pistons, and joint heads shall be made of SS 1.4462 or 1.4404.

4.2 Seals: shall be Constructed from high-grade, oil-dust resistant rubber or synthetic materials compatible with the tunnel operating environment such as NBR, EPDM and FKM or equivalent.

4.3 Hydraulic Fluid: shall be high-quality, fire-resistant hydraulic fluid suitable for the expected temperature range and operating conditions such as Non-Flammable Silicone Oil or equivalent.

4.4 Mounting Hardware: Made from galvanized C.S or 1.4404 stainless steel to prevent corrosion.

5. **FABRICATION**

5.1 All welding shall be in accordance with ASME B31.3 chapter V or AWS B 2.1.

5.2 Welds shall be inspected using non-destructive methods such as ultrasonic testing (UT) or radiographic testing (RT) to ensure they are free of defects such as cracks, porosity, and inclusions.

5.3 Assembly of hydraulic snubber components shall take place in a clean room or controlled environment to prevent contamination of hydraulic fluid and internal components.

5.4 Exposed surfaces of the hydraulic snubbers shall be treated for corrosion resistance.

5.5 Each hydraulic snubber must undergo hydrostatic pressure testing at 1.5 times the maximum operating pressure to ensure there are no leaks or structural weaknesses.

5.6 Leak Testing shall be Performed on all hydraulic connections and seals to ensure there are no leaks under static and dynamic conditions.

6. **QUALITY ASSURANCE**

6.1 The Hydraulic Damper manufacturer must maintain a quality assurance system. A copy of the Quality Assurance Manual must be made available upon request.

6.2 Non-destructive examination requirements are specified on the Hydraulic Damper data sheet. The manufacturer must have written procedures for each type of non-destructive examination specified.

7. GUARANTEE

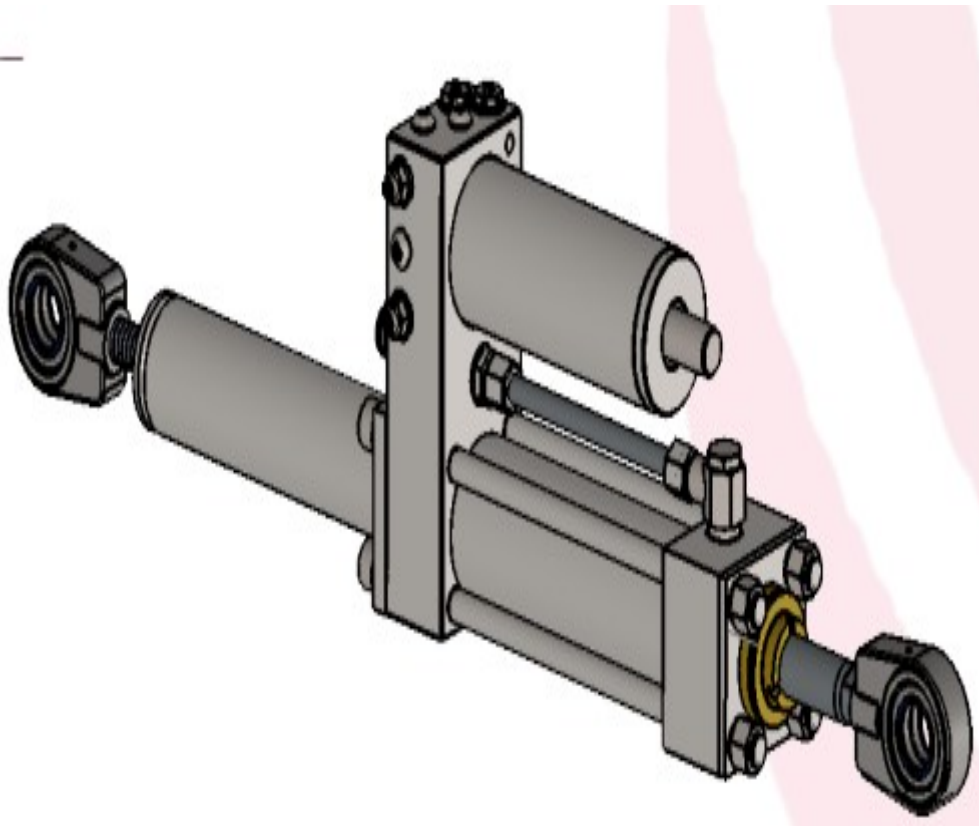
7.1 The vendor shall guarantee that all materials and equipment furnished is of first grade and the vendor's work is performed in a skillful and workmanlike manner.

7.2 Should any defect due to faulty design, materials or bad workmanship become apparent during the guarantee period, the vendor shall repair or otherwise rectify the defects, free of charge to purchaser (including traveling expenses to the site). Changes shall be made at a time and in a manner agreeable to the client.

7.3 The above activities are at full responsibility of vendor. Vendor will borne all the costs associated with those activities.

APPINDIX A

Example



4575.25-035

7/8

31/07/2024

APPINDIX B

Data Sheet

HYDRAULIC SNUBBER DATA SHEET

Customer: Energy Inf. Ltd		Date: 21.07.24	Pg.: 1
Project: Inf Tunnel			
Applicable Codes and Standards: As Specified	Prep. By: "PAZ" Eng. & Man. (1980) Ltd.		Rev.: P0- For Comments
Item or Tag Number:			
Quantity:	520		
Size (pipe):	12"		
Style or Type:	HYDRAULIC SNUBBER – rigid strut		
Stroke	Maximum Stroke	450 mm	
	Cylinder Bore	100 mm	
Rated Axial Load	KN	150	
	Kg	150,000	
Temperature	Design	0-55 [deg. C]	
	Operating	4-40 [deg. C]	
Design Life	years	40+	
Dimensions	Overall Length: from Rear Bracket to Pipe Clamp	1,300 [mm]	