ASSET DATA DICTIONARY DEFINITION DOCUMENT (AD4) L71164 - EXPANSION JOINTS AND COMPENSATORS

Learning Legacy Document

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1 Introduction

1.1 Asset Details

Class Code:	L71164
Class Name:	Expansion Joints and Compensators
Class Lineage:	Construction Products>Supply/storage/distribution of liquids and gases>Water and general supply-storage-distribution>Pipes and pipework for water supply/distribution>Expansion Joints and Compensators

1.2 Description

Pipe expansion joints or compensators prevent pipes from buckling by allowing long lengths of pipe to expand or contract based on either ambient temperature or the temperature of the fluid they are carrying. Expansion joints are often included in industrial piping systems to accommodate movement due to thermal and mechanical changes in the system.

A typical type of expansion joint for pipe systems is a bellow which can be manufactured from metal (most commonly stainless steel), plastic (such as PTFE), fabric (such as glass fibre) or an elastomer such as rubber.

A bellow is made up of a series of one or more convolutions, with the shape of the convolution designed to withstand the internal pressures of the pipe, but flexible enough to accept the axial, lateral, and/or angular deflections.

1.3 Related Functions

All information on the configuration of asset classes (L-Class) to functions is contained within the latest revision of the Asset Data Dictionary Master Configuration document (eB ref: CRL1-XRL-Z3-ADDSD-CR001-50186)

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2 Asset Tag Identification Rules

Assets will be identified as required by the Asset Identification Standard (CRL1-XRL-O6-STD-CR001-00031) in the following format:

<LCS Code>-<Function Code>-<Incremental number to ensure uniqueness>

e.g. CR076-BAF-12345

Information and guidance on the standard naming convention for all asset classes is contained within the latest revision of the Asset Naming Convention Document (eB ref: CRL1-XR1-Z3-ADDSD-CR001-50413).

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2.1 Example Images

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3 Attributes

3.1 Generic Attributes

All Classes of assets will have a set of Generic Attributes for which data is collected without exception. Full details relating to these assets can be found at:

AD4 – Generic Attributes CRL1-XRL-Z3-ADDSD-CR001-50069

3.2 Class Specific Attributes

Below is a table of the further specific attributes which are associated with this asset class.

Attribute Name	**Base Unit or Formula**	**Value Type** (See Below)	**Decimal Places** (nu Only)	**Defined Values List** (pd only)	**Description**
Axial Compression (Millimetres)	Millimetres	NU	0		The Axial compression
Axial Extension (Millimetres)	Millimetres	NU	0		The Axial extension
Base Load (kN)	kN	NU	2		The Base Load
Expansion Joint Connection Type		PD		Flanged End Vastoned Flanged End Weld End Thread End Sweat End	The connection type
Expansion Joint Fluid Type		PD		Water Oil Air	What type of fluid if the expansion joint or compensate designed for

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Attribute Name	**Base Unit or Formula**	**Value Type** (See Below)	**Decimal Places** (nu Only)	**Defined Values List** (pd only)	**Description**
Expansion Joint Material		PD		Steel Aluminium Polyethylene Glass Fibre Rubber	The material of the joint or compensator
Expansion Joint Type		CH			A description of the type of joint or compensator
External Diameter (Millimetres)	Millimetres	NU	0		Outside diameter of main pipe
External Expansion Joint Diameter (Millimetres)	Millimetres	NU	0		Outside diameter of expansion joint
Fluid Flow Direction		PD		Up Down Horizontal Angular Up Angular Down	The direction of flow
Internal Diameter (Millimetres)	Millimetres	NU	0		Inside diameter of main pipe
Internal Expansion Joint Diameter (Millimetres)	Millimetres	NU	0		Inside diameter expansion joint
Internal Liner/Baffle		CH			A description of the internal liner/baffle
Lateral Deflection (Millimetres)	Millimetres	NU	0		The Lateral deflection
Length (Metres)	Metres	NU	2		Length of expansion joint
Operating Temperature Maximum (Degrees Celsius)	Degrees Celsius	NU	2		What is the design maximum operating temperature

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Attribute Name	**Base Unit or Formula**	**Value Type** (See Below)	**Decimal Places** (nu Only)	**Defined Values List** (pd only)	**Description**
Maximum Pressure (kPa)	kPa	NU	2		The maximum Pressure
Maximum Vacuum (Millimetres of Mercury)	Millimetres of Mercury	NU	2		The maximum Vacuum
Minimum Pressure (kPa)	kPa	NU	2		The minimum Pressure
Minimum Vacuum (Millimetres of Mercury)	Millimetres of Mercury	NU	2		The minimum Vacuum
Number of Convolutions (#)	#	NU	0		The number of convolutions
Peak Load (kN)	kN	NU	2		The Peak Load
Shape of Convolution		CH			A description of the shape of the convolutions
Torsion (Degrees)	Degrees	NU	2		The torsion
Volume Flow (Cubic Metres/Sec)	Cubic Metres/Sec	NU	2		Nominal flow volume per second

pd = Predefined List (Listed Values Only)
nu = Numeric (dp and number format can be stipulated)
ch = Free text (Max 255 Characters)
da = Date (dd-mm-yyyy)
me = Memo (Free text 1GB Limit)

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4 Performance Data

This section is to be used to record the performance data to be gathered from this Class of asset when in operation. To be populated once the performance measures have been agreed with the Infrastructure Managers.

5 Labelling

Information and guidance on the standard labelling convention for all asset classes is contained within the latest revision of the Asset Naming and Labelling Convention Document (eB ref: CRL1-XR1-Z3-ADDSD-CR001-50413).

6 Other Information

Not Applicable

7 Reference Material

- Asset Data Dictionary Master Configuration - CRL1-XRL-Z3-ADDSD-CR001-50186
- Asset Identification Standard - CRL1-XRL-O6-STD-CR001-00031
- AD4 – Generic Attributes - CRL1-XRL-Z3-ADDSD-CR001-50069
- Asset Naming Convention Document - CRL1-XR1-Z3-ADDSD-CR001-50413

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8 Crossrail Technical Approvals

Name	Role	Date
[redacted]	Systemwide Mechanical & Electrical Lead Engineer	19-Sep-2014

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