

Software support of CFIHOS business process

Standard version – 2.0 (Conformance template revision B)

Conformance Coversheet	2
Phase A – Project Standard Preparation.....	3
Category A1 – Store CFIHOS Standard	3
Category A2 – Define Project Standard from CFIHOS Template	4
Category A3 – Support ITT & Contract.....	5
Category A4 – Communicate Project Standard	6
Phase B – Contractor System Setup.....	7
Category B1 – Implement Project Standard in Creation Tools	7
Category B2 – Implement Project Standard in Gathering and Aggregation Tools	8
Category B3 – Implement Project Standard in Validation Tools.....	9
Phase C - Information Supply Chain Setup	10
Category C1 – Communicate Project Standard	10
Category C2 – Support Information Collection and Aggregation	11
Phase D - Contractor Information Delivery.....	12
Category D1 – Create Information.....	12
Category D2 – Gather and Integrate Information	13
Category D4 – Transfer Information	14
Phase F - Principal Handover to Business Systems.....	15
Category F1 – Deliver to Business Systems.....	15
Category F2 – Track and Update.....	16

Conformance Coversheet

Software submission identifier: Engineering Base 2025

Company name(s): AUCOTEC AG

Overview

Engineering Base is a cooperative plant engineering platform. As an authoring CAE-Environment Engineering Base combines a digital twin (1D) in with powerful 2D-diagramming capabilities to enable engineers from different domains (process, electrical, automation) to design their systems.

The support across all project phases in one platform reduces the need of handovers to a minimum and enables parallel and flexible collaboration. The synergies that are created by working closely together across the engineering domains make the work faster, more efficient and allow teams across the globe to concentrate on their craft.

Collaboration with contractors, vendors and other parties is supported by various features, formats and templates to ease the work of the users to represent their data in the way needed in every situation.

Integrations to other systems and applications like ERP, Simulation and 3D are supported by flexible interfaces from file-based data exchange up until our powerful REST-API of our web service.

Engineering Base's software architecture allows it to be scaled from a local installation to a complete datacenter in the cloud with distributed client via Citrix spread around the globe.

Conformance

Engineering Base can cover and support the following phases and categories:

A1, A2, A3, A4

B1, B2, B3

C1, C2

D1, D2, D4

F1, F2

Notes

Despite the requirements described in the CFIHOS business process, Engineering Base takes care of many other aspects of a modern work environment that is as complex as in plant engineering, which are:

- Dictionaries to enable international projects
- A symbol library for various disciplines and different standards
- Access permissions base on Active Directory groups that secure sensitive parts of the database and inside the projects itself.

Unrestricted

Phase A – Project Standard Preparation

Category A1 – Store CFIHOS Standard

Demonstrate how the principal can use a release of the CFIHOS standard as a baseline for one or more projects and manage any impact from subsequent releases of the standard (e.g. different projects based on different releases).

Supported: Yes. Engineering Base covers large parts of CFIHOS ontology as well as the RDL. In this category we will show how the database can be prepared and adopted manually and automatically according to CFIHOS needs.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Ontology Projects of Engineering Base follow the IEC 81346 standard which is complementing the ISO 15926 and can cover the essential parts of the CFIHOS data model. The evidence document demonstrates how Engineering Base's project aspects (Product, Function, Location) align with the CFIHOS data model. ERP is shown as an example for an integration of other system.	3 - 4
Taxonomy Engineering Base combines several classifications out of various engineering domains. In the evidence document you can see a faction of what classes Engineering Base offers and how specific depth of detail in the taxonomy can be handled.	5 - 8
Properties Engineering Base attributes can be extended easily and fit perfectly to the CFIHOS understanding of properties. In the evidence document you can see how the CFIHOS RDL can be integrated inside an Engineering Base database.	9
Units of measurement Engineering Base has a comprehensive units of measurement system. In the evidence document you can see how it is assigned to a property and how it can be organized and customized.	10
Picklists Engineering Base supports picklists which can be class, type and project related	11
Property import assistant Demo how properties, according to the RDL, can be imported with an custom assistant	12

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- <https://youtu.be/AxQpO2vBozY>
- CFIHOS Scope and Procedure, sections 9.1, 9.2
- CFIHOS Guide for Principal, section 3.1.1
- CFIHOS Guide for Contractor, section 2.1.2

Category A2 – Define Project Standard from CFIHOS Template

Demonstrate how the organization or project can adapt the CFIHOS standard to their specific context.

Supported: Yes. In an Engineering Base database it is possible to support multiple standard, formats and template in different projects. In this category we demonstrate how the project context and scope can be set up to fit the environmental and engineering needs.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Project context In Engineering Base projects there several functionalities to define a specific project context. In the evidence document you can see the most important features.	13
Object type definition In Engineering Base there are three levels of customization. In the evidence document you can see how the first level, the basic type definitions, are configured which is database wide. The second level, built by the object templates, can be used for all projects or just specific ones. The thirds level would be the individual object instance inside of a project.	14
Units of measurement A predefined unit system is selected at the project level and applied to properties.	15
Picklists On project level defined picklist can be used inside the project on the specified object property.	16
Dictionaries The on project level defined dictionaries and can be used inside the project on an object property show the configured languages.	17
Symbols In Engineering Base symbols can be created and edited. Specified set (palettes) of symbols can be pre-configured on projects and according to the in the project needed standards and engineering needs.	18 - 19
Access permissions Engineering Base uses MS Active Directory users and groups to limit the access to parts of the database and a project. Based on this groups you can also configure which objects and which properties users can see. This way the different domains and roles get a tailored view on the project without getting an information overload.	20

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.2
- CFIHOS Guide for Principal, sections 3.1.2 to 3.1.5
- CFIHOS Guide for Contractor, sections 2.1.2, 2.1.3

Category A3 – Support ITT & Contract

Demonstrate how the tender and contract award process is supported, including processing of any requests for information (RFIs) allowing the potential contractors to clarify requirements and so provide a better-informed bid.

Supported: Yes, Engineering Base generally provides multiple ways to quickly generate initial estimates. Features as the Tendering manager allow the comparison of multiple projects from different suppliers.

Software: **Engineering Base 2025** with the license **Plant Engineering**

References:

- CFIHOS Scope and Procedure, sections 9.1 to 9.3
- CFIHOS Guide for Principal, sections 3.1.6 to 3.1.8

Category A4 – Communicate Project Standard

Demonstrate how the principal shares the project standard with the selected contractor so that they can deliver the expected information on time.

Supported: Yes, ideally the principal shares the same database and project which is already prepared in the correct context with the corresponding object libraries, dictionaries and expected document templates.

Software: **Engineering Base 2025** with the license **Plant Engineering**

References:

- CFIHOS Scope and Procedure, sections 9.1, 9.4, Annex B
- CFIHOS Guide for Principal, section 3.1.9

Phase B – Contractor System Setup

Category B1 – Implement Project Standard in Creation Tools

Demonstrate how the contractor can configure any information authoring features (e.g. design tools) based on the project standard, so that the principal's requirements can be honored from the outset.

This is a preparation step for Category D1.

Supported: Yes, Engineering Base is an authoring tool. Ideally all involved parties work in the same environment. If this is not possible, exchanging a prepared databases is another option as well as synchronizing the database customizing. If different applications must be used, neutral formats can facilitate interoperability (s. C2).

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Digital Twin across engineering domains and project phases	21
Single source of truth	22
External Collaboration	23
Synchronizing database customizing	24

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.5
- CFIHOS Guide for Contractor, section 2.2.5

Category B2 – Implement Project Standard in Gathering and Aggregation Tools

Demonstrate how the contractor can configure the project standard into any features that are used to collate information from separate systems or from further down the information supply chain, so that this information can be mapped or transformed to what is needed.

This is a preparation step for Category D2.

Supported: Yes, there are custom solution which exporting all type definition via Excel so the project standard can be communicated in a simple way. Document template can be exported as PDF and Excel.

Software: **Engineering Base 2025** with the license **Plant Engineering**

References:

- CFIHOS Scope and Procedure, sections 9.1, 9.5
- CFIHOS Guide for Contractor, section 2.2.5

Category B3 – Implement Project Standard in Validation Tools

Demonstrate how the contractor can configure any validation features based on the project standard, so that they can make sure the authored information conforms to the principal's requirements.

This is a preparation step for Category D3.

Supported: Yes, data can be validated based on object- and attribute states and a Quality management feature.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Data can be checked with an integrated feature called Quality management tool. Additionally a flexible feature called Workflow manager can define quality gates based on conditions and states and start specific actions.	25

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.5
- CFIHOS Guide for Contractor, section 2.2.5

Phase C - Information Supply Chain Setup

Category C1 – Communicate Project Standard

Demonstrate how the contractor can share the project standard with any other information suppliers (e.g. subcontractors, vendors).

Supported: Yes, the same approach as described in B1.

Software: **Engineering Base 2025** with the license **Plant Engineering**

References:

- CFIHOS Scope and Procedure, sections 5.3.1, 5.3.2, 9.1, 9.5, Annex B
- CFIHOS Guide for Contractor, sections 2.2.3, 2.2.4

Category C2 – Support Information Collection and Aggregation

Demonstrate how other information suppliers (e.g. subcontractors, vendors) can communicate their information deliverables to the contractor, and how the contractor can store these deliverables so they can later be prepared for handover to the principal.

Supported: Yes, this is supported and can be handled in different ways in Engineering Base.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Out of Engineering Base provided Excel and SmartPDF templates are used by subcontractors and can be fed back into Engineering Base	26
Neutral formats can be used like DEXPI, AutomationML, DWG which can be imported/migrated	27 - 28
The last resort is to insert a file in any data format into the project or database as it is.	

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.5, Annex B
- CFIHOS Guide for Contractor, section 2.2.5, 2.2.6

Phase D - Contractor Information Delivery

Category D1 – Create Information

Demonstrate how the contractor authors information as documents and data, and later corrects that information in response to comments from the principal.

Supported: Yes. An author can create information in numerous ways in Engineering Base. Project templates, Modules and list- or document templates are a very fast way to generate data. Individual objects can be created manually in the object model or graphically by placing a symbol on an diagram.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Modularization with projects	29
Project internal modules	30 - 31
Document templates	32

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.5
- CFIHOS Guide for Principal, section 3.2.4
- CFIHOS Guide for Contractor, section 2.2.6

Category D2 – Gather and Integrate Information

Demonstrate how the contractor prepares information deliverables for handover to the principal, integrating information they have authored or revised with information from elsewhere in the supply chain, so that a set of deliverables is ready to be quality checked.

Supported: Yes. Ideally the data was created in a shared environment. If not the data can be handed over in the native Engineering Base format. Otherwise, data loss is very likely due to system-specific capabilities and dependencies.

Software: **Engineering Base 2025** with the license **Plant Engineering**

References:

- CFIHOS Scope and Procedure, sections 9.1, 9.5
- CFIHOS Guide for Contractor, section 2.2.6

Category D4 – Transfer Information

Demonstrate how the information deliverables are transferred from the contractor to the principal.

Supported: Yes, please refer to the categories B1 and C2.

Software: **Engineering Base 2025** with the license **Plant Engineering**

References:

- CFIHOS Scope and Procedure, sections 9.1, 9.5, Annex B
- CFIHOS Guide for Contractor, section 2.2.7

Phase F - Principal Handover to Business Systems

Category F1 – Deliver to Business Systems

Demonstrate how the principal's project team can prepare the project information for delivery to business systems that support ongoing activities (e.g. operations and maintenance teams).

Supported: Yes. Engineering Base offers a lot of integrations to other systems. If a direct integration or connection via web service is not possible various exchange formats are supported.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Integrations of / to other systems	33
Supported data exchange formats	34
Flexible Excel import and export	35

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.6
- CFIHOS Guide for Principal, section 3.3

Category F2 – Track and Update

Demonstrate how all deliverables are tracked and updated (including final deliverables).

Supported: Yes. Engineering Base supports different level of tracking and change management. The need for updates inside the system is reduced to a minimum because of the single source of truth principle. Data exchange features offer a change tracking functionality and a preview. Generated deliverables are replaced in most cases due to not always transparent object dependency and uncertain conditions and consequences.

Software: **Engineering Base 2025** with the license **Plant Engineering**

Evidence: AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf

Evidence	Slide
Change management	36

References:

- AUCOTEC_Engineering_Base_CFIHOS_V2.0_Conformance.pdf
- CFIHOS Scope and Procedure, sections 9.1, 9.6
- CFIHOS Guide for Principal, section 3.3