

PROCESSES, POWER & MARINE SOLUTIONS AT-A-GLANCE



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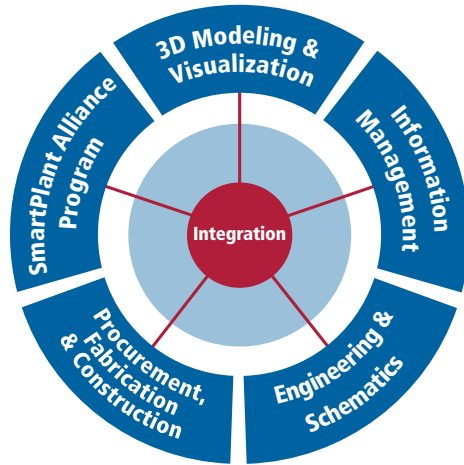
PROCESS, POWER & MARINE

SOLUTIONS AT-A-GLANCE

 INTERGRAPH®



SOLUTIONS



Intergraph® overarching solutions help our customers implement specific work processes by unifying Intergraph products, third-party products, and our customers' legacy software together as an integrated whole. Long-term strategic engineering opportunities should be addressed at the enterprise level. Intergraph has developed a low-risk, modular implementation path through the SmartPlant® Enterprise and SmartMarine® Enterprise, which include the following components:

- ‡ **3D Modeling and Visualization** – Experience economies of knowledge, quality of design, consistency of design, and the ability to leverage best practices globally
- ‡ **Information Management** – Gain a fresh, electronic approach to the creation, storage, and management of engineering information throughout its life cycle
- ‡ **Engineering and Schematics** – Cover the plant front-end and detailed design for plant configuration, control systems, and power distribution
- ‡ **Procurement, Fabrication, and Construction** – Span the complete project execution life cycle from engineering through procurement and tracking to construction
- ‡ **SmartPlant Alliance Program** – Leverage a strong value proposition with solutions provided by complementary software providers

SMARTPLANT ENTERPRISE

Intergraph's SmartPlant Enterprise solution offers a powerful portfolio of best-in-class applications, which may be deployed individually or as a flexible, integrated enterprise solution – allowing an organization to successfully unleash the untapped value often restricted by silo-centric communication and execution. Modular architecture provides scalability to create substantial return on investment while reducing risk.

SmartPlant Enterprise leverages success-critical project information and knowledge to improve and automate work processes, from the very early project phases through operations and maintenance up to decommissioning. By tackling this major “pain point,” SmartPlant Enterprise helps the industry gain multiple hidden benefits – for example, it improves engineering efficiency by up to 30 percent.

SMARTPLANT ENTERPRISE FOR OWNER OPERATORS

Building on Intergraph's experience in operations and maintenance, and Intergraph's leading market share in capital projects, Intergraph offers SmartPlant Enterprise for Owner Operators to manage the engineering design basis in operating plants. This multi-discipline package delivers an integrated engineering solution to support owner operators throughout the plant life cycle.

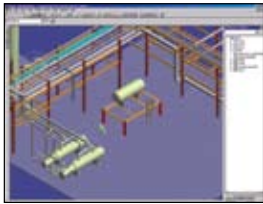
During the plant design, procurement, construction, and completion/start-up phases, Intergraph's planned, pre-configured applications include support for managing engineering and project execution work processes for owner operators. Collaboration with contractors and suppliers is supported via bi-directional data exchange mechanisms facilitating seamless handoff of work flows throughout the value chain. Data exchange with EAM systems such as SAP ensures consistency of information with maintenance. A role-based Web portal provides interoperability between operations systems.

SMARTMARINE ENTERPRISE

Intergraph's SmartMarine Enterprise includes all of the applications, features, and business value of SmartPlant Enterprise with additional integrated applications that support a full range of flexible design, fabrication, assembly, and life cycle management capabilities for ships and offshore platforms.

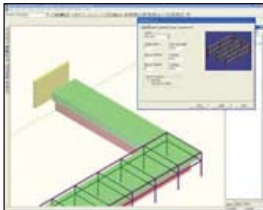
SmartMarine Enterprise helps shipyards, marine, and engineering companies with better decision-support capabilities to facilitate global design, construction, and life cycle optimization – ultimately making contractors and yards more competitive.

3D MODELING AND VISUALIZATION



SmartPlant 3D

- ‡ A 3D model of the plant structure, including piping, vessels, and structural steel, for visualization and integration capabilities
- ‡ Efficient workflow for 3D modeling and visualization, including integration with other software tools
- ‡ 4D simulation for project management, including cost control and integration capabilities



SmartPlant Layout

- ‡ A 3D model of the plant layout, including walkways, stairs, and structural steel, for visualization and plant layout optimization
- ‡ Detailed 3D model of the plant layout, including walkways, stairs, and structural steel, for visualization and plant layout optimization
- ‡ A 3D model of the plant layout, including walkways, stairs, and structural steel, for visualization and plant layout optimization



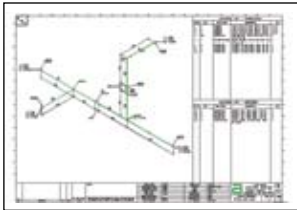
SmartMarine 3D

- ‡ 6D model of the marine facility, including production, and life cycle management
- ‡ Detailed 3D model of the marine facility, including production, and life cycle management
- ‡ 7D model of the marine facility, including production, and life cycle management
- ‡ ; Ugly 3D model of the marine facility, including production, and life cycle management



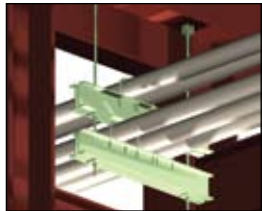
PDS®

- ‡ 6D model of the industrial plant, including construction, and operations
- ‡ 7D model of the industrial plant, including construction, and operations
- ‡ ; Detailed 3D model of the industrial plant, including construction, and operations



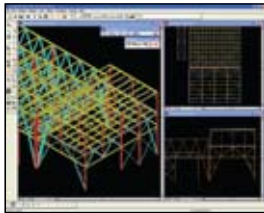
SmartPlant Isometrics

- ‡ 6VéY` e` W ad_ aV[Vé Wj[ef[Y b]bWf` Vé adb]b[Y ekefW_ e [` a` k_ [gfVé S` V YWVéSfVé [ea_ WfU drawings in seconds with ISOGEN®
- ‡ 8adTdaí ` WW bda`Wfêl W STVé 7B5_ d_ e adai ` WlabVéSfae fa gbVéSfWS` V VaUg_ Wf SeZTg[f b]b[Y systems electronically, aiding plant modification and reducing errors and costly rework



SupportModeler™

- ‡ 4g[Ve Ua_ bS` k efS` VSd/e [fa hVdk Wj[T`W[T`dSdVé aXb]bWegbbae SeeW_ T`Vé
- ‡ 3UUVéSfVé fZW_ aVWf` Y S` V VVVS[f` Y aXTafZ efS` VSd/ S` V WY[WWV b]bWegbbae



FrameWorks® Plus

- ‡ Bdh[Vé bai Wg`efdgUfgd`^_ aVWf` Y S` V VdSi [Y faa`fZSf egbbae kagdfafS`i ad` ai , VdSi [Yf modeling, analysis, and reporting
- ‡ 3VVe hSgWfa kagd_ aVWf` Y bdaUWé Tk [fWVdSf[Y efdgUfgd`^fSe] e i [fZ fZWb`S` f UdSfja` bdaUWé



SmartPlant Review

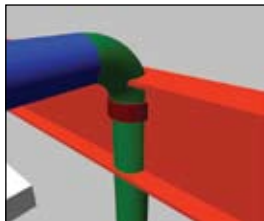
- ‡ 7` STVé [fVdSUR[hWdWVW S` V S` S`keje aX`Sd`VW Ua_ bWj` %6_ aVWé aXbdaUWéel bai Wd`S` V_ Sq` WefdgUfgdVé
- ‡ A`XVé S`^aXfZW[hegS`f` Sfa` faa`ê kag` WWV fa dWVW VVéY` e Vgd` Y WY[WWV Yf Ua` efdgUfja` f abWéSfja` el ad maintenance – in one powerful application

3D MODELING AND VISUALIZATION



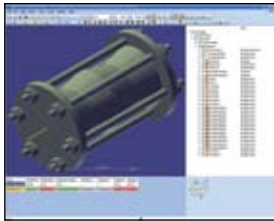
SmartPlant Review Publisher

- ‡ 3D visualization of the plant design
- ‡ Economical distribution for easy viewing over the network and Web



Clash Manager

- ‡ Identifies and reports on clashes between objects in the 3D model
- ‡ Provides a detailed report of clashes, including location and severity
- ‡ Allows for easy resolution of clashes



3D Symbol Designer

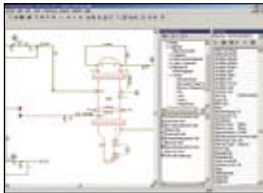
- ‡ Allows for the creation and modification of 3D symbols
- ‡ Supports the use of bulkload sheets for SmartPlant 3D
- ‡ No programming skills needed



SmartPlant Markup

- ‡ Allows for the creation and management of 3D markups
- ‡ Supports the use of SmartPlant Markup and SmartSketch
- ‡ Integrates with other applications that manage documents, drawings, and markups

ENGINEERING AND SCHEMATICS



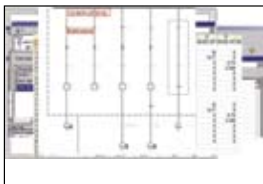
SmartPlant P&ID

- ‡ Provides a single source of truth for all plant-related process, equipment, instrumentation, and piping data for the life of the plant
- ‡ : Maintains a single source of truth for all plant data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant



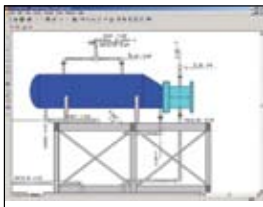
SmartPlant Instrumentation

- ‡ Allows users to create and manage instrumentation data for a plant
- ‡ Provides a single source of truth for all instrumentation data
- ‡ Allows users to create and manage instrumentation data for a plant



SmartPlant Electrical

- ‡ Provides a single source of truth for all electrical data and maintenance, including start-up, continuous operation, emergencies, and shutdowns
- ‡ Provides a single source of truth for all electrical data by the engineers



SmartSketch

- ‡ Allows users to create and manage 3D models of industrial equipment
- ‡ Provides a single source of truth for all 3D model data



SmartPlant Process Safety

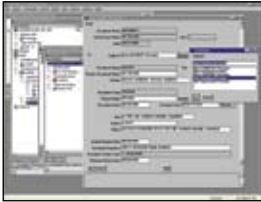
- ‡ Provides a single source of truth for all process safety data
- ‡ Provides a single source of truth for all process safety data

INFORMATION MANAGEMENT



SmartPlant Foundation

- ‡ 7` ST Vê VWUfcb` [U_ S` SYW_ W f aXS^aXfZWbS` fie WY[VWd` Y [Xad_ Sfja` t [fVYdSf` Y VSfS a` fZWbZke[US^ asset, processes, and regulatory and safety imperatives
- ‡ 7` Ua_ bSeeVê S bS` fie VVê[Y` t _ aV[USfja` el gbYdSVVêl S` V dVgdT[eZ_ W f VVWUf[hVWk _ S` SY[Y fZVWVha h[Y plant con guration from front-end engineering design to plant decommissioning



AIM/Directa

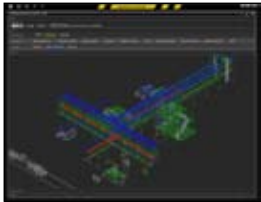
- ‡ 3VVdVêVê bcbTW_ e ahVaa] VW Tk Ua` hW fja` S^VaUg_ W f _ S` SYW_ W f bcbVgUfe
- ‡ Ea hVê ebWU[U [eegVê egUZ Se fcs` e_ [fS^e/Ua` fcb^VW V[efqTgrja` aXVaUg_ W feffi bS` f efcjUfgdVê/dVsf[Y fSYel SeeVêl VaUg_ W feffi S` V VVê[Y` faa^ [fVYdSfja` /_ bad` aX\$6 eUZW_ Sf[Uel Ua` ` WUfh[hk USee[USfja` efi

PROCUREMENT, FABRICATION, AND CONSTRUCTION



SmartPlant Materials

- ‡ Bcbh[VVê S` [fVYdSfW ^XWUKUW_ SfVdS^S` V egbb`k UZS[_ S` SYW_ W f ea`gfja`
- ‡ A VVê S Ua_ _ a` Ua`STadSfja` b`SfAd_ S` V bcbVWUf i ad`TWUZ XadS^bSd` Vê [S` k bcbVWUf egbb`k UZS[t whether it is an owner operator, EPC company, or fabricator
- ‡ A dYS` [Vê _ g f[V[eU]b [WZ[VdSdZ[US^T [e aX_ SfVdS^S` dVg[e]fja` _ S` SYW_ W f eabZ[ef[USfW purchasing management, fabrication tracking, and site management



SmartPlant Construction

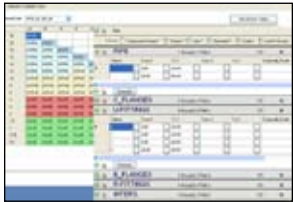
- ‡ E f dVê _ [Vê Ua` efcjUfja` S` V [fVYdSfVê WY[VWd` Y fa [bcbhW53B7J VVU[W Uk
- ‡ DVWgUê d[e] S` V [bcbhVê fcs` ebSdW Uk aXUa` efcjUfja`
- ‡ ;_ bcbhVê VVU[eja` Ž_ S] [Y USbST [fVê fZdgYZ SVZZaU dVbad[Y a` Ua` efcjUfja` bcbYdVêl d[e] el S` V UZS` YWUaefe

PROCUREMENT, FABRICATION, AND CONSTRUCTION



SmartPlant Reference Data

- ‡ Provides a central repository for material data used in the design, procurement, fabrication, and construction phases of a project.
- ‡ : Serves as a single source of truth for all disciplines and tools.



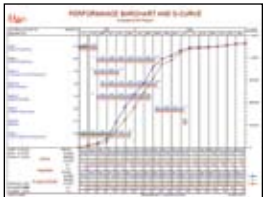
Standard Database for SmartPlant Reference Data

- ‡ Provides a structured format for material data, ensuring consistency and ease of integration with other systems.
- ‡ : Includes data such as material specifications, grades, and properties, which are essential for accurate cost estimation and scheduling.



SmartPlant Spoolgen®

- ‡ : Generates detailed material takeoff (MTO) and bill of materials (BOM) for piping systems, ensuring that all required materials are identified and quantified.
- ‡ : Facilitates the re-entry of material data, allowing for updates and corrections to the MTO and BOM as the project progresses.



PRISM Management Suite

- ‡ : Provides a comprehensive view of project performance, including cost, schedule, and risk, enabling project managers to make informed decisions.
- ‡ : Integrates data from estimate, budget, schedule, cost control, earned value curves, and project risk in a single suite of applications.

COMPLEMENTARY SOLUTIONS

F: ;D6ŽB3DFK EA >GF;A @E

- ‡ %E @Wf ;` Už, AdZa9W
- ‡ 6W @ad] WfSe/6@HfiEaXi SdW,
Nauticus Early Design
- ‡ 83>5A@77D FWUZ` a`aYVé, 83>5A@77D

Take a Closer Look

OrthoGen delivers powerful multi-discipline drawing solutions. Automatic drawings generated from 3D models are created in a fraction of the time previously spent, and they accurately and consistently reflect model conditions.

Nauticus Early Design supplies a complete package for early design of ship hull structures. The software integrates 3D CAD and ship analysis systems. Ship designers can perform contract and classification design quickly and efficiently.

83>5A@77D bch[Vvé bchUvé [Xad Sf[a` _ S` SYW_ Wf plus process performance auditing and advising to make plants smarter and safer. Process information can be managed in real-time for improved productivity.

EFDG5FGD3> EA >GF;A @E

Fabrication

- ‡ 3UW5SV, Efdg5SV
- ‡ 6Vé[Y` 6SfS, E6E!\$
- ‡ FWY`S 5abacSf[a` , FWY`S EfdgUfgdVé

Analysis and Design

- ‡ 5a_ bgfVé` EfdgUfgdVé ;` Už, E3B\$ " " "
- ‡ 7` Y[VWd Y 6k` S_ [Uel ;` Už, E35E
- ‡ 9Vad[S FWUZ DWéVSDUZ 5abacSf[a` , 9F EFDG6>
- ‡ DWéVSDUZ 7` Y[VWé ;` fVd Sf[a` S^, EF336

Other Partners

- ‡ 357 EfdgUfgdS^7` Y[VWd Y 3bb[VUSf[a` e/357E73fi,
357 8dS_ W adje Bge 8B> Gf[VfVé
- ‡ 6[We[a` S^Ea`gf[a` el ;` Už, 8ag` VSf[a` %6

SMARTPLANT ALLIANCE PROGRAM

3@6 BDA 6G5FŽEGBBA DF76
;@F79D3F;A @ B3DF@7DE

The primary goal of the SmartPlant Alliance Program is to increase the value of SmartPlant Enterprise for our clients by growing into neighboring and complementary business areas. Benefiting from SmartPlant Enterprise's open architecture, the SmartPlant Alliance Program encourages complementary solution providers to offer more extensive and valuable solutions for SmartPlant Enterprise clients. SmartPlant Alliance Members can leverage the strong value proposition of SmartPlant Enterprise for their own business. There are three types of SmartPlant Alliance Members:

- ‡ **SmartPlant Alliance Technology members** – Software and solution providers who integrate their products with SmartPlant Enterprise technology
- ‡ **SmartPlant Alliance Services members** – Consultants and service providers who offer service-centric solutions around SmartPlant Enterprise
- ‡ **SmartPlant Alliance Content members** – Companies who develop content for SmartPlant Enterprise products – for example, suppliers provide their electronic catalogs in a SmartPlant Enterprise-readable format



TECHNOLOGY MEMBERS

- ‡ 344 , 344 *""j 3 WY[VWd Y
- ‡ 53JbVfe
- ‡ 7_ Wba` BcbUve ? S` SYW_ Wf , 6WfSH
- ‡ 7` Y[VWd Y BS` ` [Y ` ? S` SYW_ Wf ; Uz/7B? fi,
GENESIS Solution Suite including the EDISON Suite
- ‡ : a` Vki W^

Intergraph supports existing condition data capture for revamp projects:

- ‡ : Z5SV , Lk8
- ‡ >WUS
- ‡ CgS` fSba[f
- ‡ Fd_ T^W

SERVICES MEMBERS

- ‡ 3cgSfWUZ ; fVd Sf[a` S^
- ‡ 5E5
- ‡ 9S@ 5abadSf[a`

Take a Closer Look

Aquatech International offers water and wastewater treatment solutions and services to industrial and infrastructure clients. The company offers services based on E_ SdB S` f 8ag` VSf[a` ž

CSC provides business process transformation and enterprise IT system deployment in assisting clients to realize the full potential of SmartPlant Enterprise.

GaN Corporation delivers innovative software development and information technologies to maximize clients' productivity in customizing SmartPlant Enterprise

CONTENT MEMBERS

The following companies have either current or planned activities to place their data into Intergraph formats.

Catalogs

- ‡ 5Sd Vè
- ‡ 5aabVd
- ‡ >[VST ESXW
- ‡ ? Wfcdgf
- ‡ EUZ` VWVd7 VWfdU
- ‡ E_ 6gUf
- ‡ Eb[dS`? S` gXSufgd Y 5a_ bS` k
- ‡ FkUa 8ai 5a` fcb^
- ‡ H[UfSg^U

Hanger and Support Vendor Libraries

- ‡ 3` h[^; fVd Sf[a` S^
- ‡ 4VZd YVd
- ‡ 4VdW ZBai VdB|bWEgbbadè
- ‡ 4[VWd9 dgb
- ‡ 5SdbW fVd` BSfWba`
- ‡ : [f]
- ‡ >;E793
- ‡ BF` B
- ‡ BSd Egbbadè >[_ fVW
- ‡ FZa_ Se ` 4Vfe

- ‡ FdZ5 ahWd/3XS >ShSfi
- ‡ G` [efdf
- ‡ I Sg] WkZS 5ZWtkZ4gdW^

Other

- ‡ 3_ Wd[US` @Sf[a` S^E fS` VSd/e ;` efffgfW/3@E;fi
- ‡ 3_ Wd[US` BWda Ng_ ;` efffgfW/3B;fi
- ‡ 3_ Wd[US` EaU[Wk XadFVef[Y S` V ? SfWd[S e /3EF? fi
- ‡ 3_ Wd[US` EaU[Wk aX? WUZS` [US^7` Y[Wd e /3E? 7fi
- ‡ 3_ Wd[US` I SfWdI ad e 3eeaU[Sf[a` /3I I 3fi
- ‡ 6VgfeUZV e ;` efffgf Xid@ad_ g` Y WkZ/6;@fi
- ‡ ;` fWd Sf[a` S^A d/S` [Sf[a` XadE fS` VSd/[Sf[a` /EA fi
- ‡ ? S` gSUfgdV e E fS` VSd/[Sf[a` EaU[Wk /? EE fi
- ‡ A dSUW
- ‡ B3E[;` Uz
- ‡ BdUW e ;` Vgefck BdSuf[UW e /B;Bfi
- ‡ H9 4 Bai WdFWUZ WkZ! ==E Bai WdBS` f
 Classification System

PRODUCT-SUPPORTED INTEGRATION PARTNERS

- ‡ 7F3B
- ‡ ;4?
- ‡ >[UW eW Ua` fW f/egUZ Se 3B; S` V ==E fi
- ‡ ? WdV[g_
- ‡ ? [UdheaX
- ‡ E3B®
- ‡ 3` V _ adW



