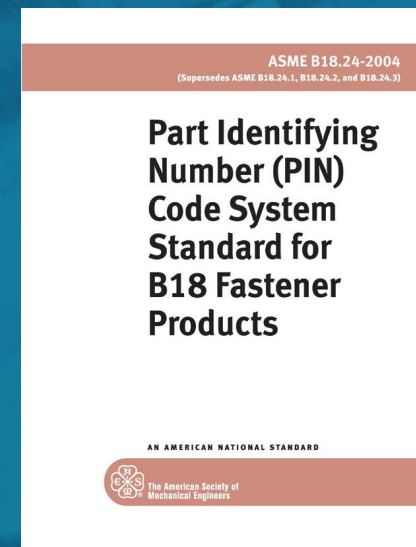


PART SOLUTIONS

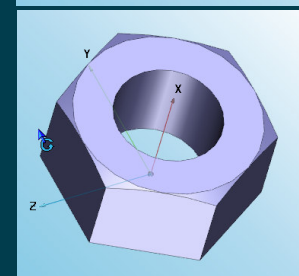
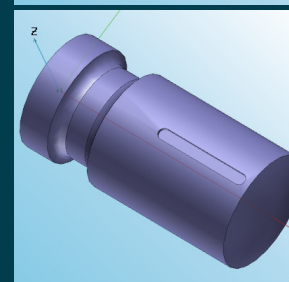
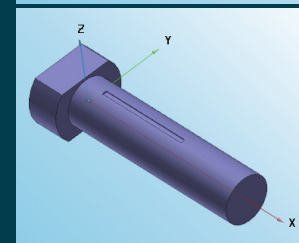
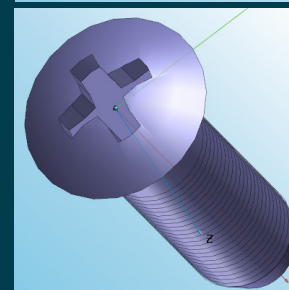
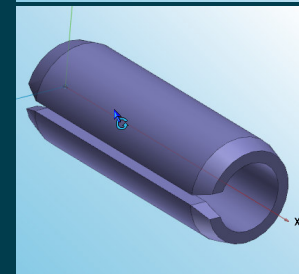
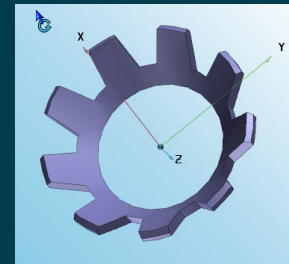
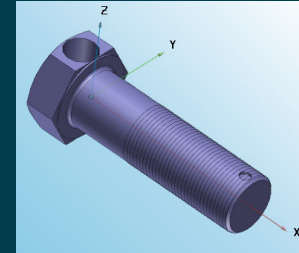
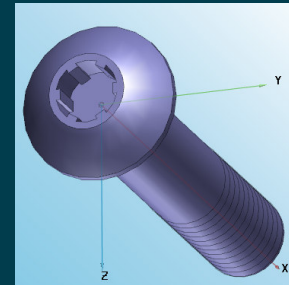
ASME B18 Digital Fastener Library

The first ASME standard
represented digitally



Content

- Who is PARTsolutions?
- Introduction of the ASME new PIN system
- Capabilities and Benefits of the Digital Library
 - Easy specification of fasteners based on all the possible characteristics
 - Automatic generation of 3D model.
 - Automatic generation of the new 18 digit PIN number for the fastener defined..
 - A PIN lookup utility.
 - A PIN converter from old PINs to new.
- Deliver *Your* products in the same type of Digital Product Catalog for your customers
 - Obtain new sales leads, new customers
- Utilize PARTsolutions as a way to consolidate, classify, and manage all your standard parts



Who is PARTsolutions ?

- PARTsolutions is the leading provider of electronic parts management systems, including part cataloging and digital part libraries.
- We are focused on reducing development costs and time to market for supply chains by streamlining the standard, off the shelf part process.
- Key Focus Areas
 - PARTsolutions Enterprise Parts Management
 - eCATALOGsolutions – Digital catalogs for component part manufacturers
 - Industry Standards – Digital mastering & delivery of industry standards
- We have partnered with ASME to represent the B18.24 standard digitally, using the same technology used to deliver digital product catalogs and to manage standard parts in large enterprises.

Introduction

What is ASME B18.24?

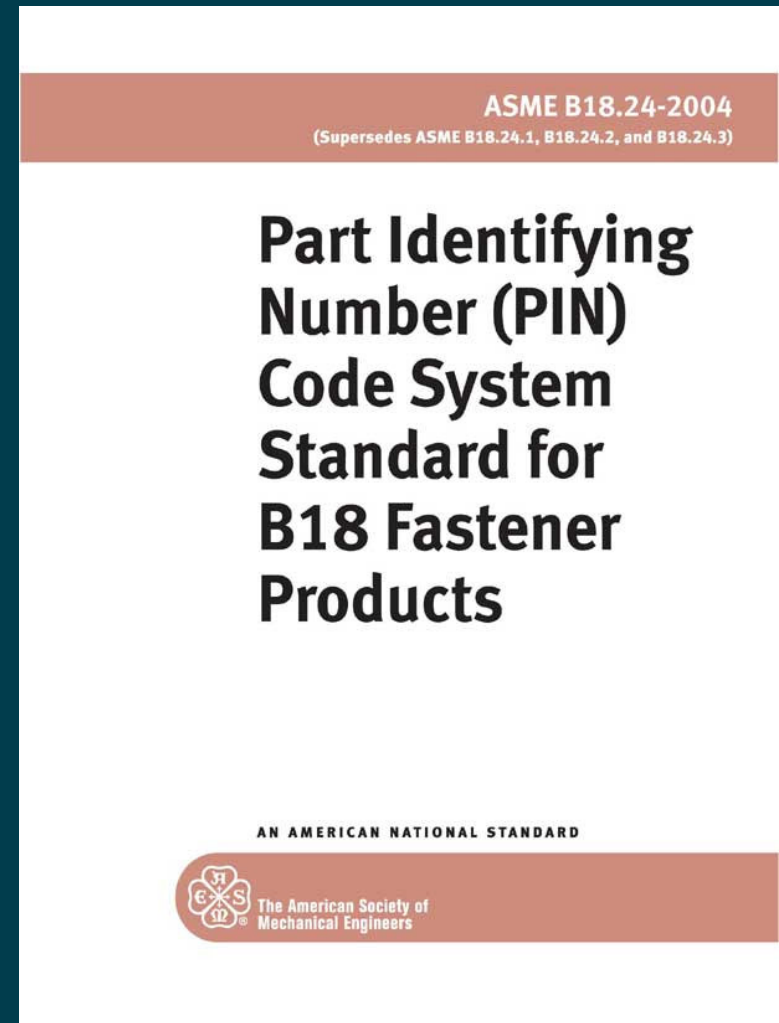
- A numerical system for identifying fasteners, and all their characteristics
- It supercedes B18.24.1, B18.24.2, B18.24.3,

When is it effective?

- ASME B18.24 was approved in April 2004, and is now in use
- Released in printed form in June 2005
- Adopted by DOD in August 2005

What is the Digital Fastener Library?

- A partnership between ASME and PARTsolutions has resulted in ASME B18 being represented in a Digital form, as an interactive software tool
- The first standard to be represented digitally in ASME 125 year history

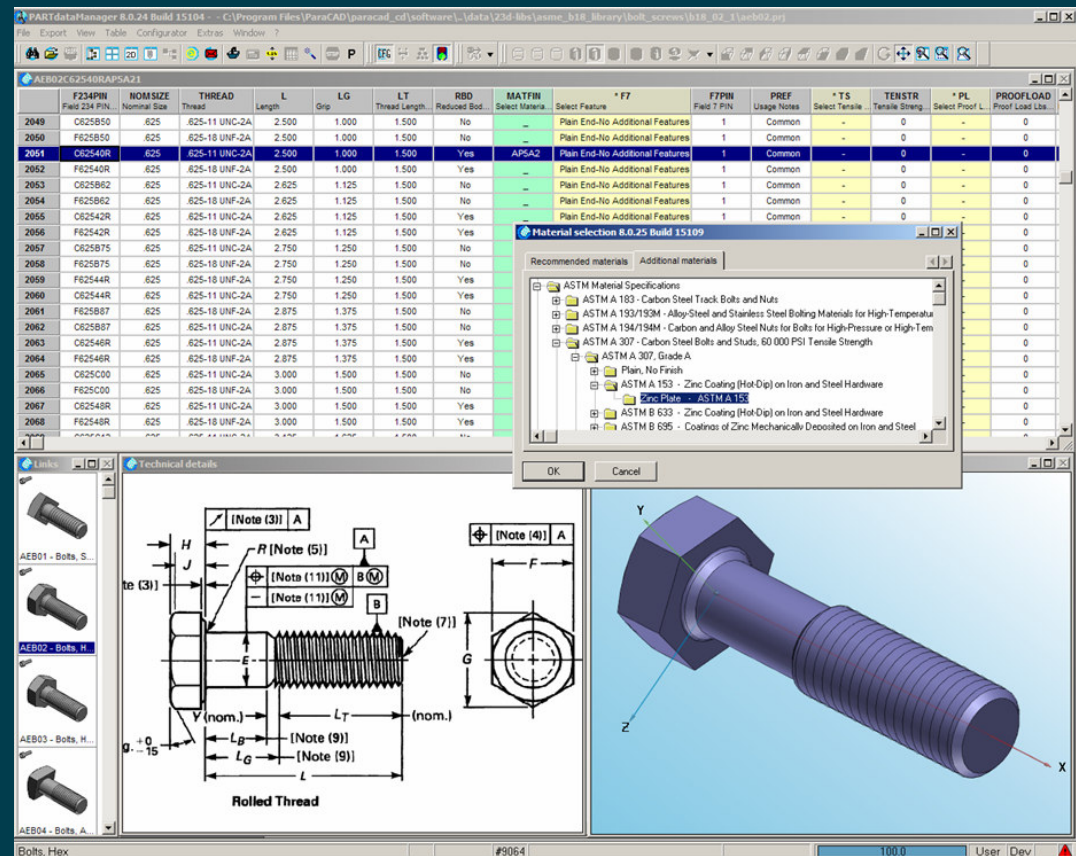


ASME B18 Digital Fastener Library

Overview

The Digital Fastener Library is an interactive system that provides:

- Over 700 unique fastener types
- Up to 500 different configurations per type
- All the ASTM material and heat treat specs
- The result: Literally *Millions* of unique fasteners can be defined and their PIN codes generated automatically
- The Library can provide users with a native CAD model with precise PIN in virtually any major CAD system



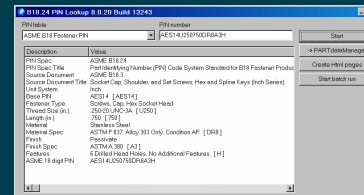
The Digital Fastener Library is an interactive engineering tool

How is the library used?

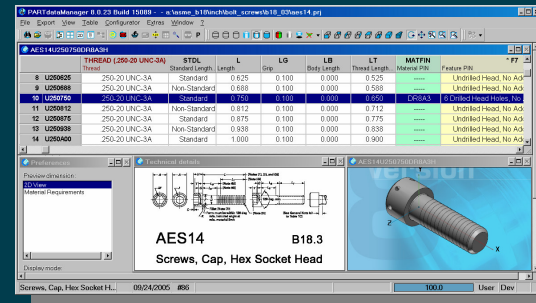
The Digital Fastener Library can be used in 2 distinct ways

- By anyone outside Engineering or the CAD department, to lookup PIN numbers and let the Library display the fastener characteristics and show a 3D view.
- By Engineering to specify fasteners feature-by-feature, and let the Library produce the PINs and CAD model they need for their CAD system.

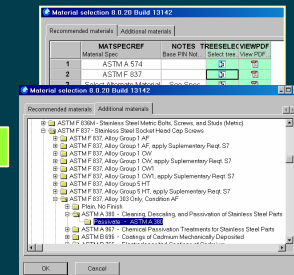
ASME B18 Digital Fastener Library Five Major Utilities



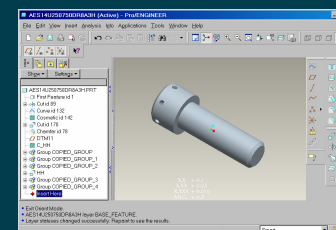
PINlookup Utility
(standalone, or
feeds into
fastener
specification)



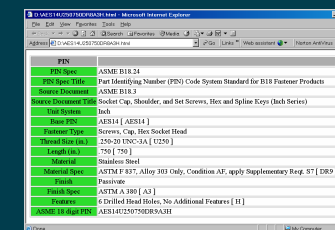
Fastener Specification
within PARTdataManager



Material and
Finish selection



Export the 3D
solid model to
any CAD



Export the PIN and
fastener
characteristics

PIN Lookup Utility

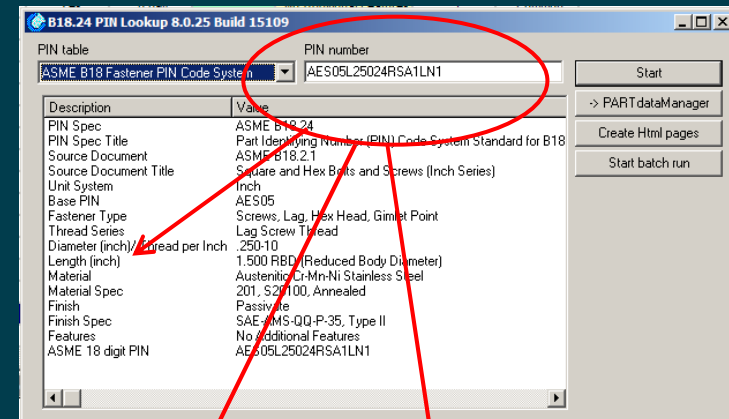
Capability

- Pin lookup utility that takes an old 24 digit PIN, or new 18 digit PIN, and automatically generates that fastener

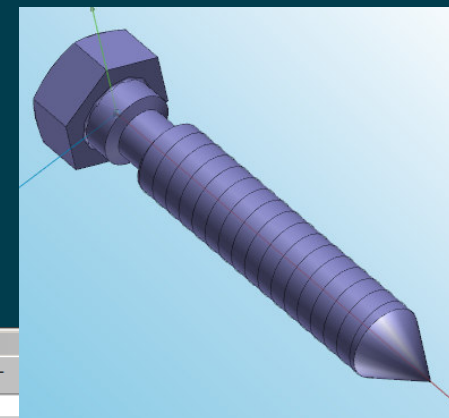
Benefit

- Generates and lists all the characteristics specified by the PIN
- Generates a 3D model so you can “see” the fastener. Rotate, pan, zoom, measure it or section it

1. User enters a PIN



2. The library delivers the details and the model



AES05L25024RSA1LN1														
	F234PIN Field 234 PIN...	NOM SIZE Nominal Size	THREAD Thread	L Length	LT Thread Length...	LG Grip	RBD Reduced Bod...	SMIN Shoulder Length...	MATFIN Select Materia...	* F7 Select Feature	F7PIN Field 7 PIN	PREF Usage Notes	MATERIAL	
198	L25022R	.250	.250-10	1.375	1.188	0.188	Yes	0.094	—	No Additional Features	1	Common	—	—
199	L250A50	.250	.250-10	1.500	1.250	0.250	No	0.094	—	No Additional Features	1	Common	—	—
200	L25024R	.250	.250-10	1.500	1.250	0.250	Yes	0.094	SA1LN	No Additional Features	1	Common	Austenitic Cr-Mn-Ni Stainless Steel	201, S20100, Anne
201	L250A62	.250	.250-10	1.625	1.313	0.313	No	0.094	—	No Additional Features	1	Common	—	—

PIN Lookup Utility

Capability

- Send Fastener characteristics to others
- Publish to web pages or other sources

Benefit

- Understand the specifications of a fastener in a easy-to-read format
- Copy/Paste PIN numbers to avoid typing errors

PIN	
PIN Spec	ASME B18.24
PIN Spec Title	Part Identifying Number (PIN) Code System Standard for B18 Fastener Products
Source Document	ASME B18.6.3
Source Document Title	Machine Screws and Machine Screw Nuts (Inch Series)
Unit System	Inch
Base PIN	AESD8
Fastener Type	Screws, Machine, Flat Head, Undercut, Slotted
Thread Size (in.)	.250-28 UNF-2A [F250]
Length (in.)	.438 [438]
Material	Carbon Steel
Material Spec	SAE J 429 - Grade 2 [WA1]
Finish	Cadmium Plate
Finish Spec	ASTM B 766, Type I, Class 5 [B4]
Features	Plain End-No Additional Features [1]
ASME 18 digit PIN	AESD8F250438WA1B41

Sample Web page output

Define a Fastener

Capability

- Comprehensive table of fastener characteristics appropriate for each type. Automatically builds up the fastener.
 - Nominal size, thread type, lengths, tensile strengths, finish specs, material specs, all head characteristics, special end types, radii, tolerances, etc
 - ASTM material specifications

Benefit

- Easy, multiple-choice selection of characteristics needed for the fastening task at hand

ASTM Material Specifications Table – Top Level



AEB02C62540R_1															
	F234PIN Field 234 PIN...	NOMSIZE Nominal Size	THREAD Thread	L Length	LG Grip	LT Thread Length...	RBD Reduced Bod...	MATFIN Select Materia...	* F7 Select Feature	F7PIN Field 7 PIN	PREF Usage Notes	* TS Select Tensile	TENSTR Tensile Streng...	* PL Select Proof L...	PROOFLOAD Proof Load Lbs...
2049	C625B50	.625	.625-11 UNC-2A	2.500	1.000	1.500	No	—	Plain End-No Additional Features	1	Common	-	0	-	0
2050	F625B50	.625	.625-18 UNF-2A	2.500	1.000	1.500	No	—	Plain End-No Additional Features	1	Common	-	0	-	0
2051	C62540R	.625	.625-11 UNC-2A	2.500	1.000	1.500	Yes	—	Plain End-No Additional Features	1	Common	-	0	-	0
2052	F62540R	.625	.625-18 UNF-2A	2.500	1.000	1.500	Yes	—	Plain End-No Additional Features	1	Common	-	0	-	0
2053	C625B60	.625	.625-11 UNC-2A	2.625	1.125	1.500	No	—	Plain End-No Additional Features	1	Common	-	0	-	0

Portion of Fastener Specifications Table

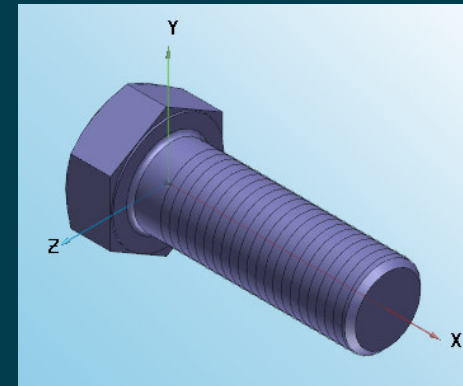
The 18 Digit PIN is Generated

Capability

- Automatic generation of the new 18 digit PIN number for the fastener defined.

Benefit

- Calculated automatically; reduces errors when trying to assemble the number manually
- PIN number is imported into each CAD system also, to ensure correct BOM and ordering.



**PIN Code Number :
AES01CA12C25AP5A21**

ASME B18.24 Fields							
1 - Fastener Type / Base PIN 2 - Thread Configuration 3 - Fastener Size 4 - Length/Other Dimensions 5 - Material and Treatment 6 - Plating, Coating, and Passivation 7 - Additional Features							
18 digit PIN	Base PIN	Thread Configuration Fastener Size		Length/Other Dimensions		Material and Treatment Finish and Coating	
AEB02C250A50AP4A11	AEB02	C	250 A50			AP4 A1	1
B18 Fastener PIN Example	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7

Excerpt from B18.24

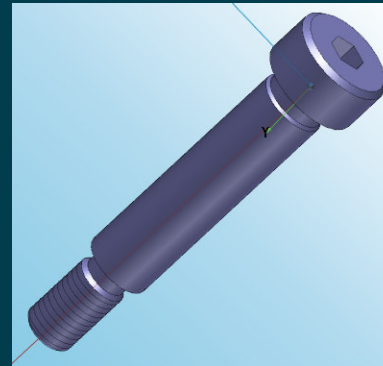
Automatic 3D Model Generation

Capability

- Automatic generation of a dynamic 3D model of the defined fastener for visual verification. The Library can then provide a *native* CAD model in virtually any CAD system. Over 85 formats are possible.

Benefit

- Virtually all major CAD systems get a native model, so you get the correct, complete part in your CAD system
- The 18 digit PIN travels with the part into your CAD, so BOM and ordering are ensured



Native
Inventor
AutoCAD
Pro/Engineer
Unigraphics
UG-NX
I-deas
SolidEdge
SolidWorks
Catia V4
Catia V5
...more

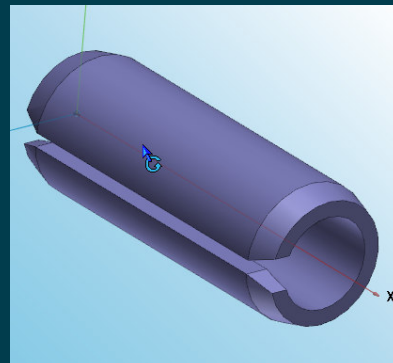
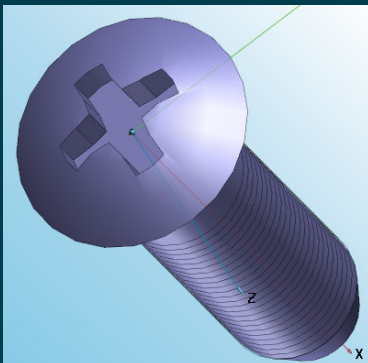
PIN Converter Utility

Capability

- A converter that will take old 24 digit PINs and automatically create the new 18 digit format
- The library delivers the specifications and the 3D model

Benefit

- Eliminates the manual 12 step process using conversion tables
- Ensures accuracy
- Makes transition to the new system easy
- Generates a dynamic 3D model for visualization, and ready for import to any CAD



NONMANDATORY APPENDIX A

B18.24.1, B18.24.2, B18.24.3 PIN SUCCESSION INSTRUCTIONS

These instructions are meant for use with the worksheet in Fig. A-1. Following that is a 21-digit PIN succession example.

- (1) Enter cancelled 21 digit PIN.
- (2) Demarcate digit 1 (field 1) PIN.
- (3) Based on resolved logic for digit 1, enter the applicable "next table" value in cell A2 and the "table pg#"
value in cell C2.
- (4) Demarcate the next 6 or 7 digits (field 2 value) as applicable from "next length" value in cell A2.
- (5) Enter field 2 PIN21 value into cell B2.
- (6) Look up cell B2 PIN21 value in Table B-2 or B-3, as applicable. Enter resolved PIN18 value into cell D2.
- (7) Enter table references by listing them vertically into worksheet beginning from cell A3. Use the simpler

"Bxxx-x" format (table-field length) e.g., B136-1 rather than the "[B-xxx]x" format in Tables B-2 and B-3. For example, [B-136] 1.

- (8) Demarcate remaining fields according to "next length" values starting from cell A3 downward.
- (9) Enter remaining demarcated field values by listing them vertically from cell B3 downward.
- (10) Enter the page numbers vertically beginning from cell C3 downward.
- (11) Look up PIN18 values for tables listed in column A starting from A3 downward. Enter PIN18 values into column D.
- (12) Transpose vertical PIN18 values from column D horizontally to "AE" entry field at bottom of worksheet. This resolves the cancelled B18.24.1-3 PIN to a superseding 18 digit B18.24 PIN.

PIN Conversion 12-step Instructions

B|210NA01|C|AD|16|468GA|AB|1

Enter cancelled 21 digit PIN

if digit 1 above = **B, M, S, or T**
then cell A2 below has a value of **B2-7**
if digit 1 above = **E, N, P, R, V, or W**
then cell A2 below has a value of **B3-6**

	A	B	C	D
	next—next table—length	PIN21	table pg. no.	PIN18
1	B 2-7	210NA01		AE B03
2	B 4-1	C		
3	B 6-2	AD		
4	B 11-2	16		
5	B 134-5	468GA		
6	B 136-2	AB		
7	B 137-1	1		

PIN Conversion Step/Table #9

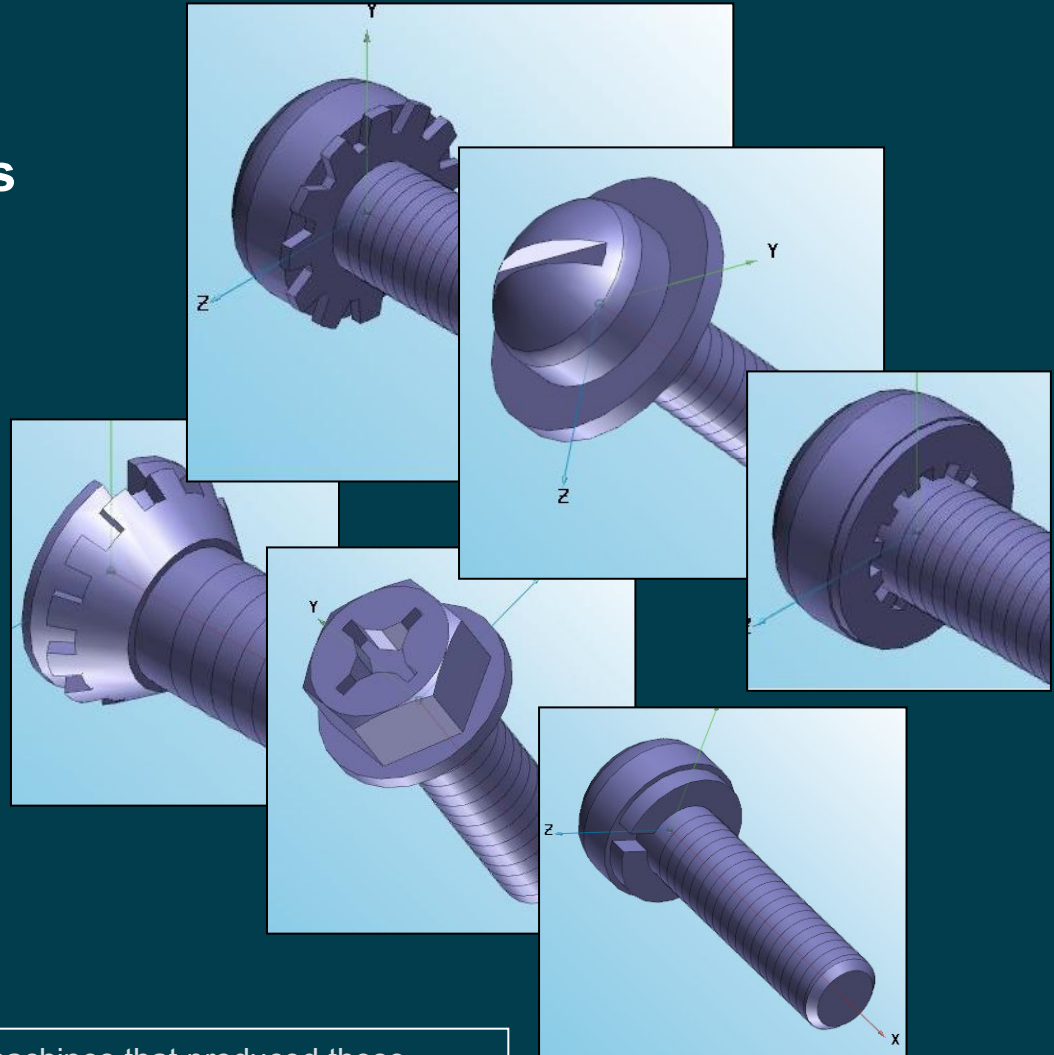
SEMS Screw and Washer Assemblies

Capability

- Specify and configure SEMS assemblies
- Multiple washer types and thickness configured for each fastener type

Benefit

- Automatically creates all components necessary for SEMS
- Assemblies are read into any CAD



In the 1930's, The Illinois Tool Works first made machines that produced these patented pre-assembled washers and screws. They've been called SEMs ever since.

For more information

- See the PARTsolutions/ASME Web page at www.partsolutions.com
Go to: Products, Intelligent Parts Management, Content, ASME
- From the Web site, you can
 - Learn more about the product
 - See an on-line summary of the product
 - Download an order form, and order the product
- Or contact PARTsolutions and we will be happy to assist you
 - ASME@partsolutions.com
 - (513) 453-0453

PARTsolutions

- The same Digital Fastener Library technology used with the ASME library can also be used to make **YOUR** company's components available digitally to your customers
- Benefits to end users: they can configure your products, and download them into their CAD designs, ensuring *your* products are chosen and specified.
- Benefits to suppliers are numerous. They are summarized in the following pages. Among them, studies show that nearly 80% of parts specified in up-front design are eventually purchased.
- Learn how other companies have benefited from PARTsolutions Digital Parts Catalogs at <http://www.part-solutions.com/>

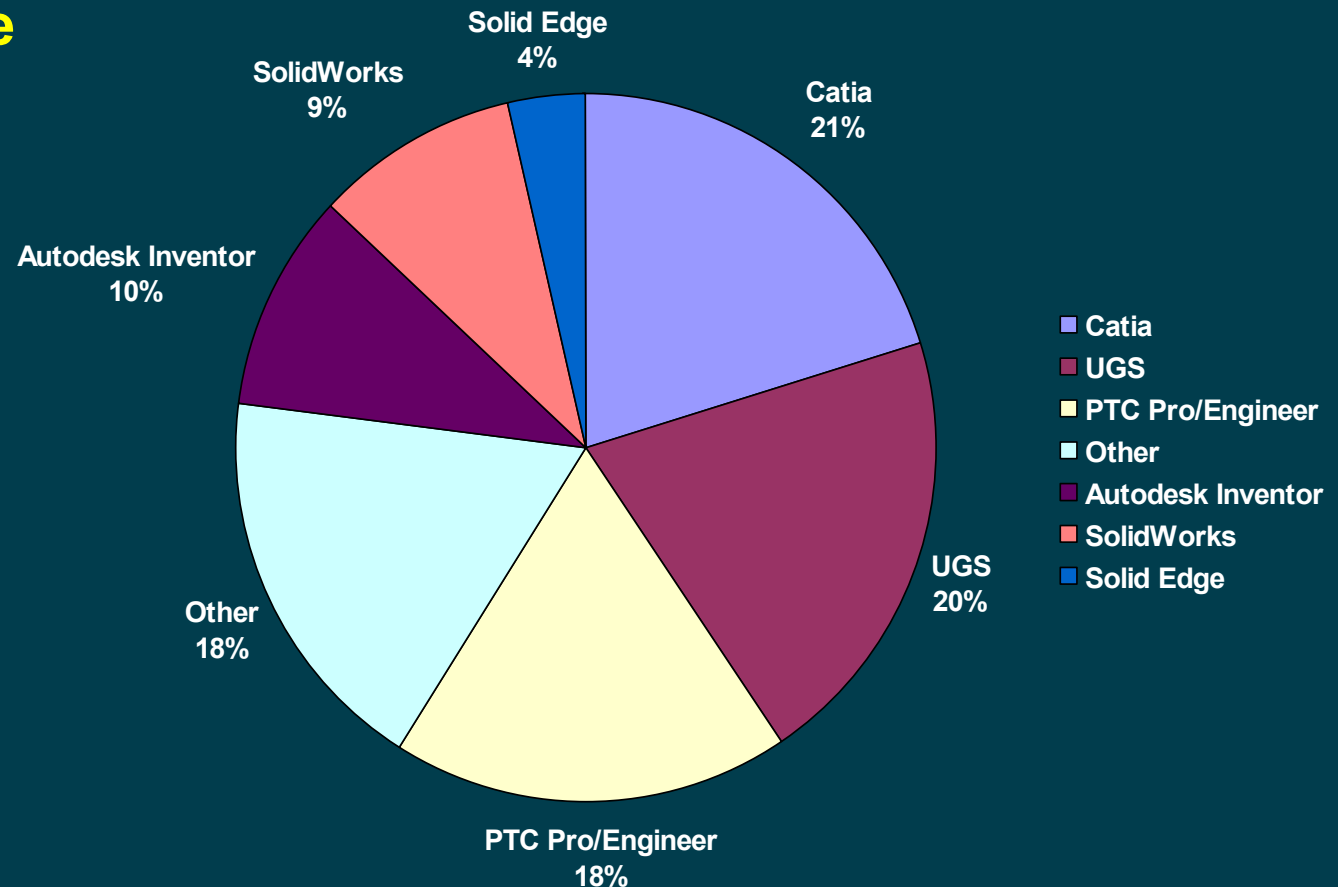
**What
technologies are
your customers
using?**

**Deliver your
products to
everyone**

2004 3D CAD Installed Seats Market Share for Commercial Users

(Excludes Educational Users)

Source: International Data Corporation, August 2005



- ☐ If your target is 100% of the market, PARTsolutions is the only choice!
- ☐ CAD vendor catalog solutions offer access to that vendor's market share only...

Your Digital Part Catalog

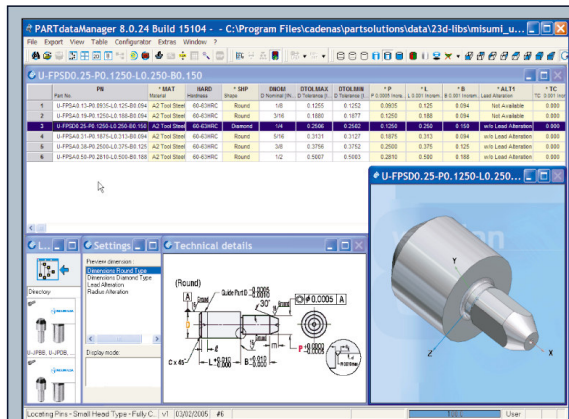
PART
SOLUTIONS

eCATALOGsolutions – A Single Source Master

A single source digital master can drive several marketing and business deliverables for your company:

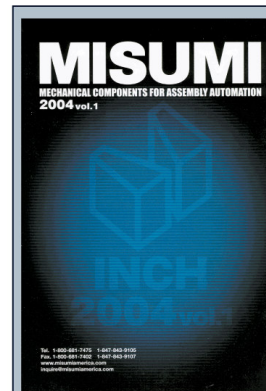
- e-catalog
- on-line web pages,
- print catalogs,
- offline CD catalog,

...And be integral to your Enterprise standards parts management

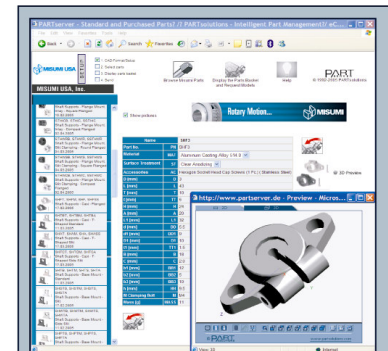


PARTsolutions Enterprise

- Intelligent Part Management
- anyCAD/anyERP/anyPLM Integration

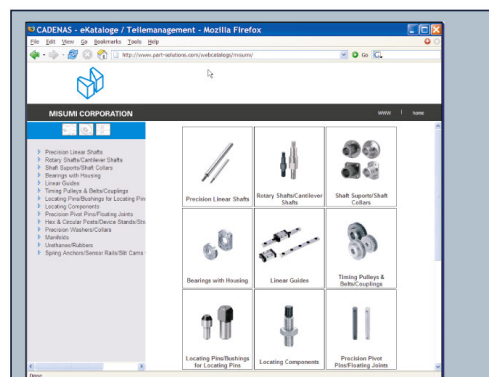


Print Catalogs

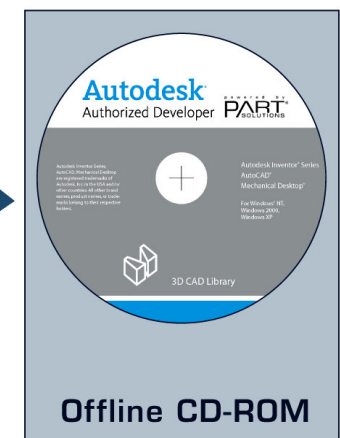


Online eCATALOGS

- Partserver.com
- Customer Websites
- Listing Services
- Other...



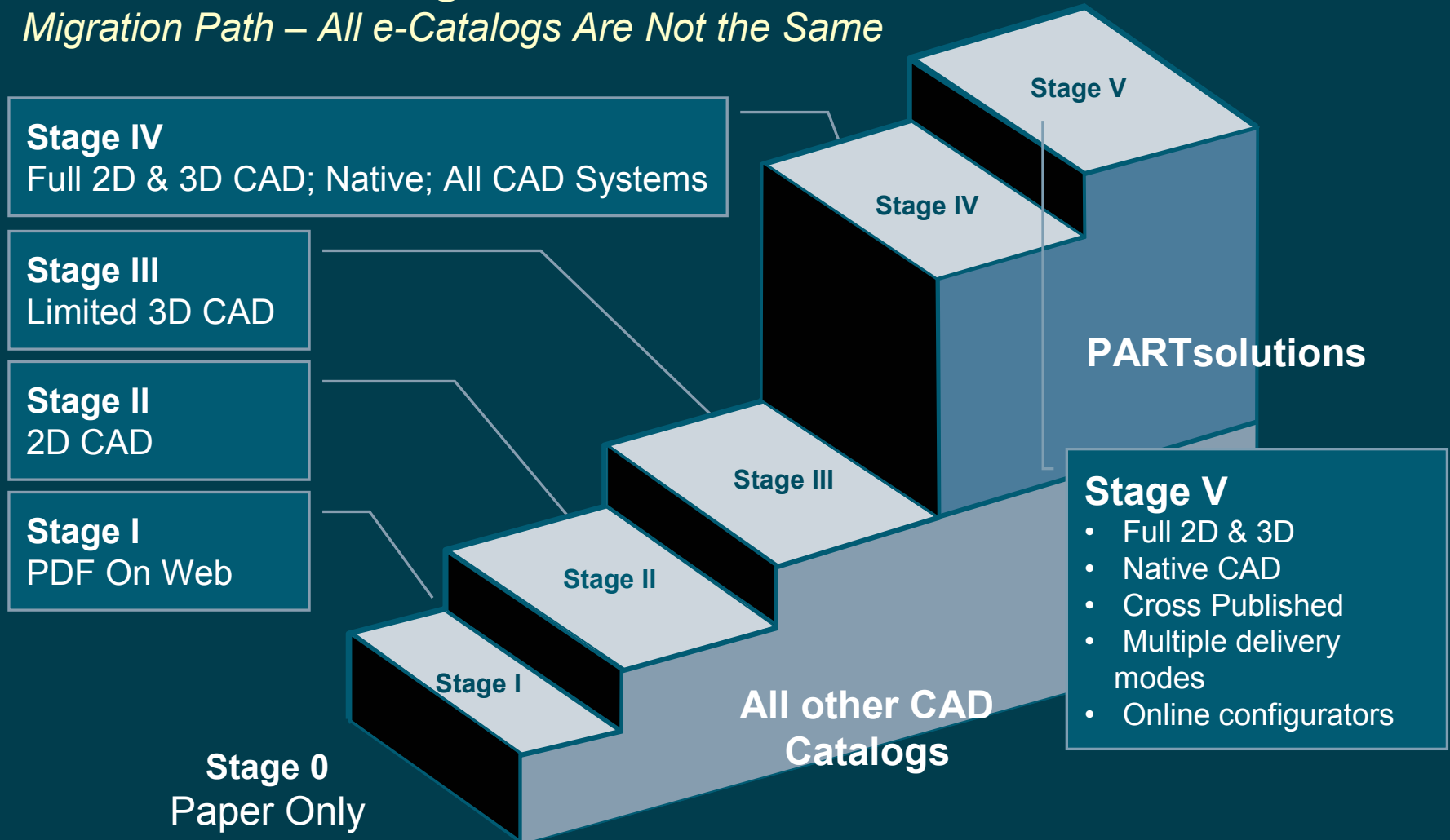
"Products" Pages



Offline CD-ROM

Levels of e-Catalogs

Migration Path – All e-Catalogs Are Not the Same



Your Digital Part Catalog

PART
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Customer Reporting

Real-Time Sales Leads

- It is YOUR data, put it anywhere you can use it: Excel, Salesforce.com, your CRM system.....
- Send the data directly to sales or distributors for follow-up

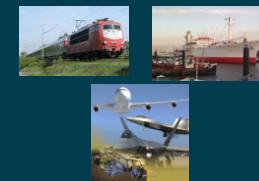
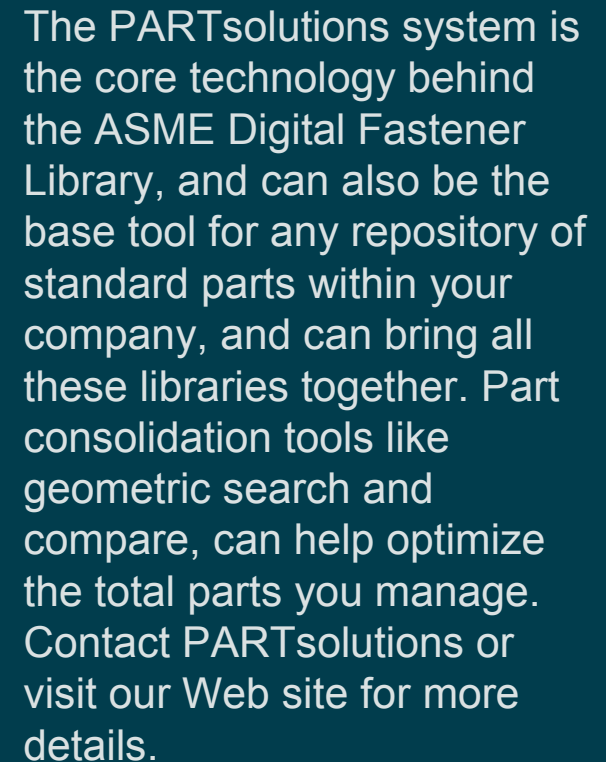
Date	Name	Type	Reporting	Attachment
10/10/2005	John Paine	Lead	10/10/2005	10/10/2005

Date	E-Mail	Description	Company	Name	Street	Zip	City	State	Country	Phone
10.10.2005	jpaine@bartellmachinery.com	16CH08201S	Bartell Machinery Syst	John Paine	6321 Elmer H	13440	Rome	New York	USA	315-336-7
11.10.2005	james_lunders@bobcat.com	16CA05101S	Bobcat Co.	James Lunders	521 S. 22nd S	58504	Bismarck	North Dak	USA	701-222-5427
11.10.2005	WOOD@DIVISIONSERVICES.COM	81PA04501S	DIVISION SERVICES	JAMES WOOD	5680 EAST S	38141	MEMPHIS	TN	USA	901-366-4220
12.10.2005	morelli@ecosogem.ro	02TM03X41S	ecosogem	Baldassarre More	spl unire 8	5000	bucarest	bucarest	Romania	004021319536
11.10.2005	chrishopkins@goodman-theatre	PD0410108	Goodman Scenic	Chris Hopkins		60612	Chicago	IL	USA	
11.10.2005	chrishopkins@goodman-theatre	16PD04101R	Goodman Scenic	Chris Hopkins		60612	Chicago	IL	USA	
12.10.2005	tom.gwinn@paccar.com	94FS08501RBBL	Kenworth Truck Co.	Tom Gwinn		98057	Renton		USA	
12.10.2005	tom.gwinn@paccar.com	94FS08501SBBL	Kenworth Truck Co.	Tom Gwinn		98057	Renton		USA	
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12.10.2005	tom.gwinn@paccar.com	94FS08509RTRL	Kenworth Truck Co.	Tom Gwinn		98057	Renton		USA	
12.10.2005	tom.gwinn@paccar.com	94FS08509STRL	Kenworth Truck Co.	Tom Gwinn		98057	Renton		USA	
11.10.2005	marco.spott@merck.de	02RR03001S	Merck KGaA	Marco Spott	Frankfurter St	64271	Darmstadt	Hessen	Germany	
11.10.2005	marco.spott@merck.de	18SF06227S	Merck KGaA	Marco Spott	Frankfurter St	64271	Darmstadt	Hessen	Germany	
10.10.2005	ken@monode.com	72MR06201S	Monode Marking Produ	Ken Kothera		44060	Mentor		USA	
10.10.2005	rco@strikodynarad.com	16MR04201S	StrikoDynarad	Rick Costner	501 E. Roose	49464	Zeeland		USA	
11.10.2005	bhenry@shn.net	VH0870920	Superior Highwall Minir	Bob Henry	351 Raglan R	25801	Beckley	WV	USA	304-253-0206
10.10.2005	terry.winterheimer@pinpinx.com	16PIN04201S	THE PINNIX GROUP	TERRY WINTERHEIMER	2303 Washing	35811	Huntsville	AL	USA	256-534-4600

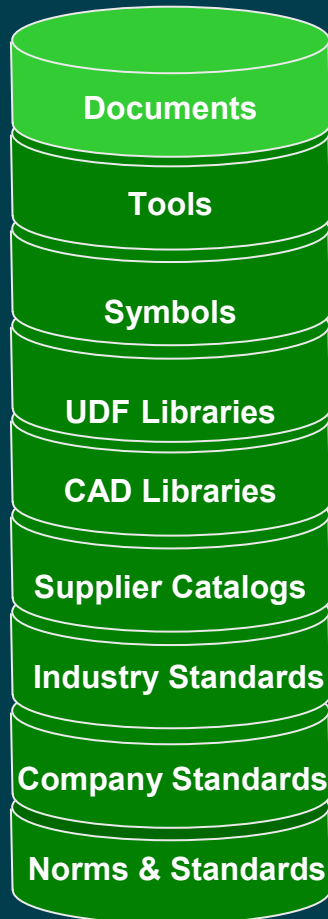
Name
Company
Address
Phone
E-mail
What parts
How often

...

PART
SOLUTIONS



Enterprise Parts Management



Capability

- Cross database search and find
 - Keyword, versions, geometry, patterns, measurements, ERP data (price, material, ID#)...
- Version control
- Part reduction
 - Mass comparison of existing parts, business rules drive deletion of duplicates
 - Prevent duplicates from point of entry
- IN-house portal of suppliers and their catalogs
 - Ensure your engineers are all using the same suppliers and parts

Benefit

- Reduce duplication of standard parts across departments and libraries
- Eliminate the introduction of duplicates

To learn more about the benefits of digital catalogs or
intelligent standard parts management, please contact
us:



www.part-solutions.com

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Cincinnati, Ohio 45245
Tel: +453.0453
Fax: +1.513.453.0460**

Plus Detroit, Los Angeles, New York,
Augsburg, Stuttgart, Wolfsburg, Paris