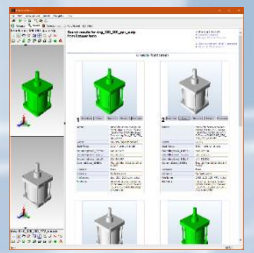
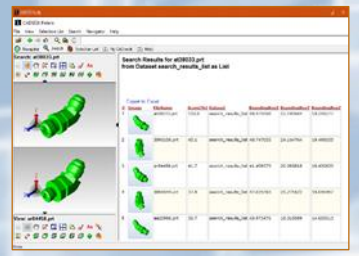
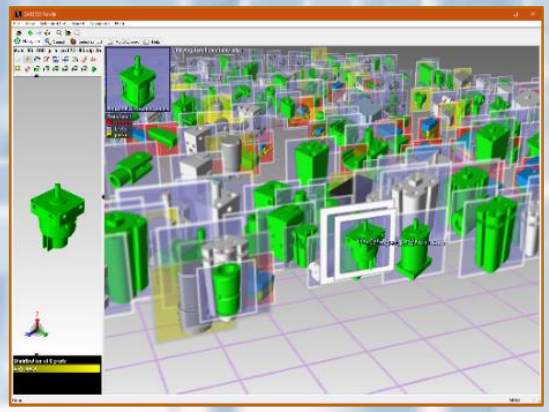
iSEEK Corporation

CADSEEK Polaris

The Search Engine for Shape







How to '*Google*' CAD

machine design

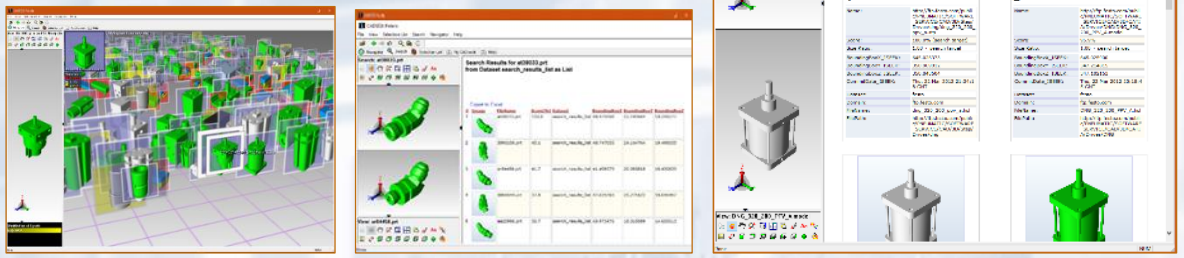
"CADSEEK Polaris was the hands-down winner. We found iSEEK to exceed all expectations.

Brian Rugh, Deere & Company

CADSEEK Polaris
The Search Engine for Shape

Welcome to CADSEEK Polaris, the first and only CAD search application to work from pure geometry.

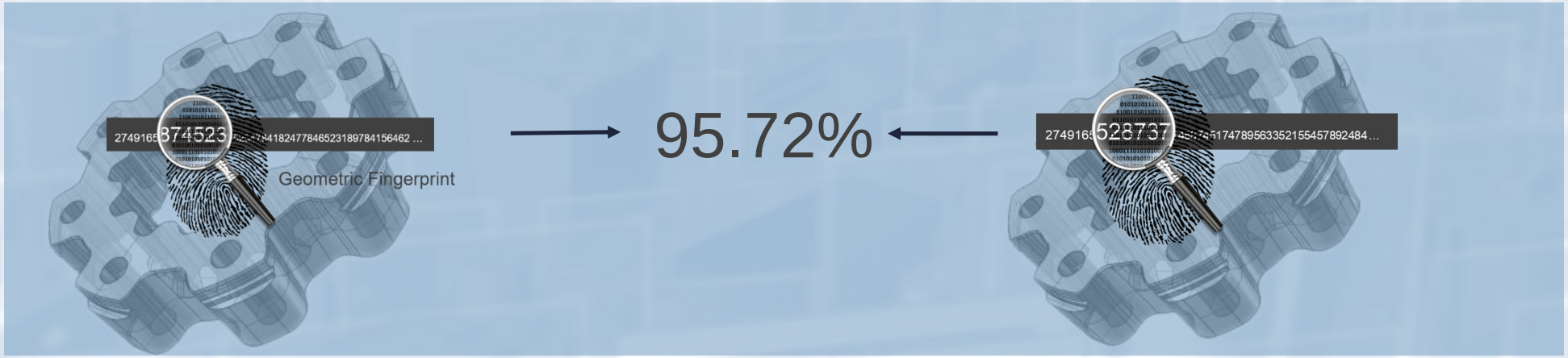
CADSEEK Polaris
The Search Engine for Shape



CADSEEK Polaris
The Search Engine for Shape

A New Approach …

CADseek is a type of pattern recognition technology that transforms a model's entire geometry into a **numerical signature** at the full resolution of CAD.

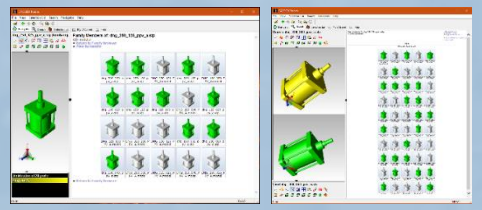


The more similar the geometry, the more similar the numerical signatures, allowing precise and meaningful calculations of the degree of similarity… instantly.

CADSEEK Polaris
The Search Engine for Shape

Key Performance Advantages of CADSEEK Technology

Accuracy

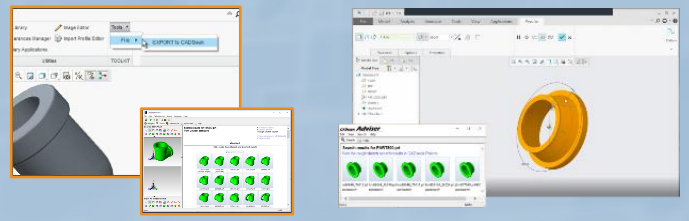


High precision searches with accuracy at the resolution of CAD.

Intelligence for Similarity

Pattern recognition provides CADseek an intelligence to accurately calculate the **degree of similarity**.

Real-Time Search with New Models

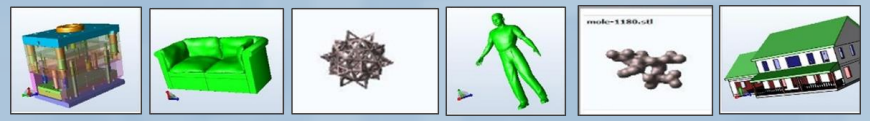


Numerical signatures allow the flexibility to use **new models** as search targets with immediate results.

Automatic

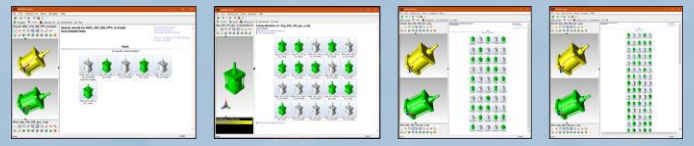
The processes for creation and updating of the search index are **fully automatic**.

Universal



CADseek is able to encode models and assemblies across **all types of domains** without requiring any training or customization of the encoding algorithm.

Flexible



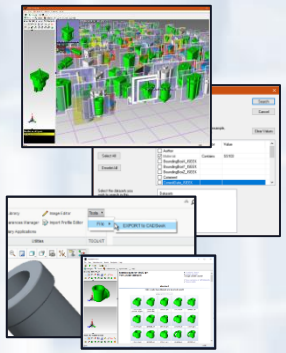
Capturing all facets of shape allows the flexibility to change search criteria across four search tiers.

More detail on these performance advantages can be found in *Introduction to CADseek Technology* presentation.

CADSEEK Polaris
The Search Engine for Shape

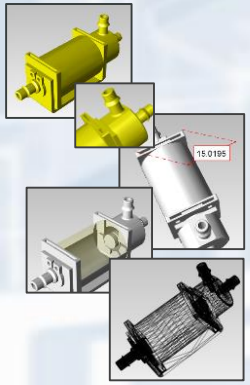
Polaris Features

Search Options

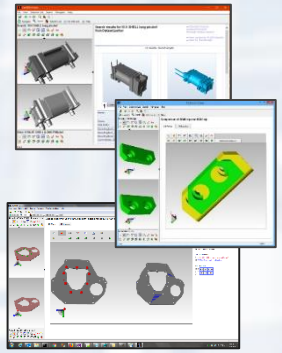


Search Tiers

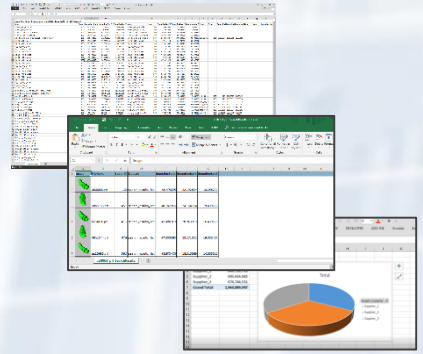
Inspection Tools



Comparison Tools



Exporting Search Results

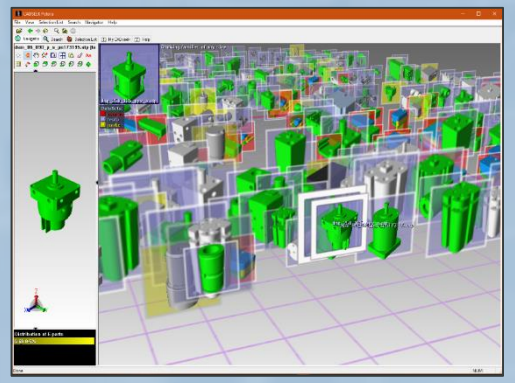


CADSEEK Polaris
The Search Engine for Shape

Search Options

The first step to performing a shape-based search is finding a **search target**, i.e., *find more like this…*
Polaris provides several options.

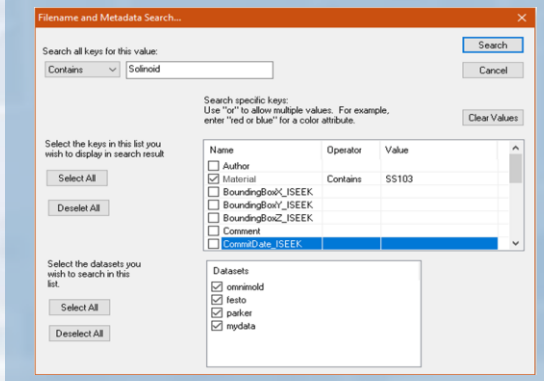
NAVIGATOR



The **Navigator** is a visualization of the entire CAD library, where each tile represents a family of similar parts.

Several different types of filters allow thinning the tiles to pick a family of relevant models.

ATTRIBUTES



Metadata or bounding box dimensions can be used to find search targets or to filter geometric searches.

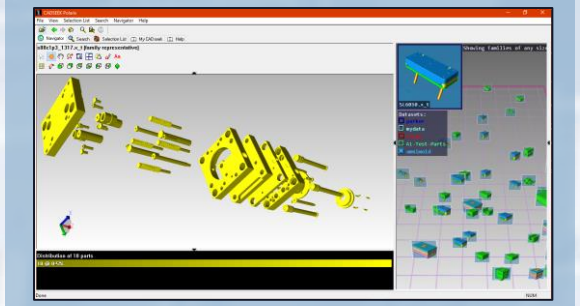
FILE IMPORT

Import from local drive

Import from CAD

Native CAD models or neutral formats such as IGES can be imported to Polaris for use as search targets.

ASSEMBLY EXTRACT

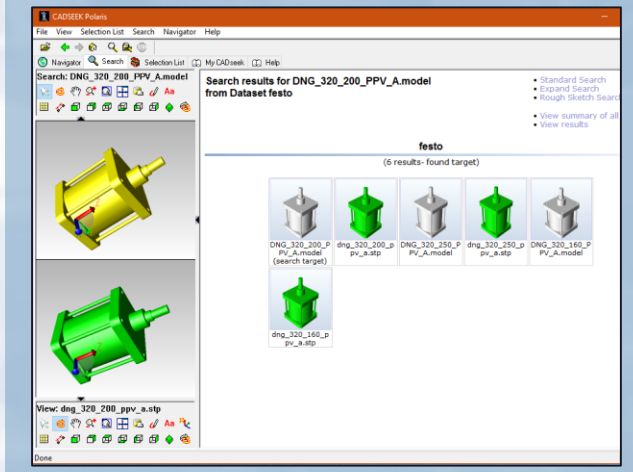


Components can be extracted from assemblies and used as search targets.

CADSEEK Polaris
The Search Engine for Shape

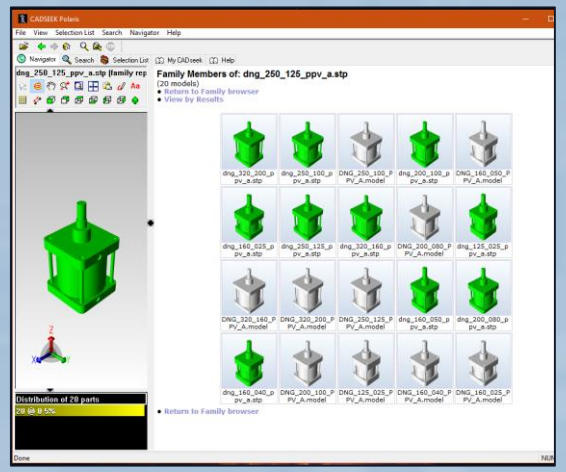
Multiple Search Tiers

Because Polaris encompasses all facets of shape, a search can be expanded through multiple tiers using different criteria for detail, size, shape and prominent features at each stage, allowing expanded searches without obscuring clutter.



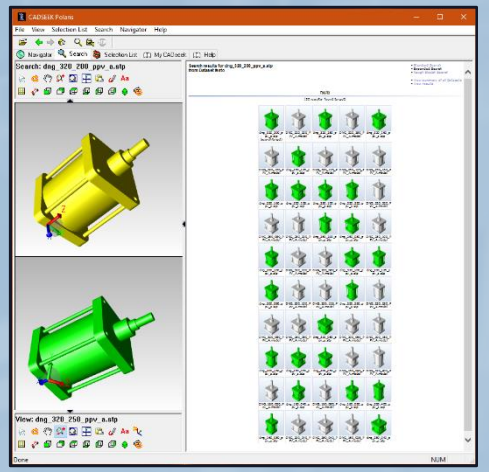
Standard Search

Tight settings for both shape and size



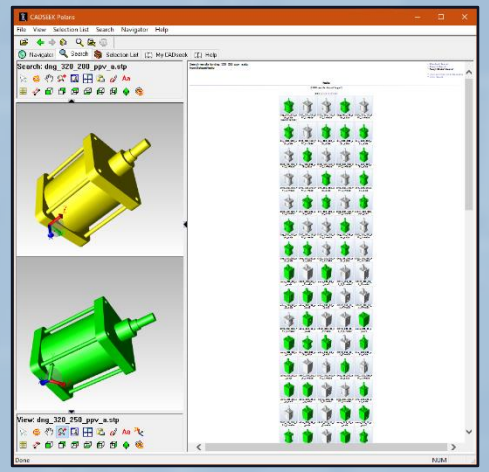
Expanded Search

Expanded settings for shape and wider selection for size



Rough Sketch Search

Further expansion for shape and **no** consideration for size

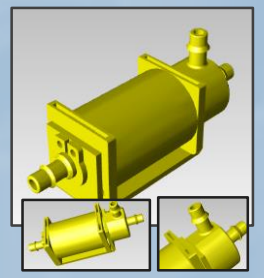


Exploratory Search

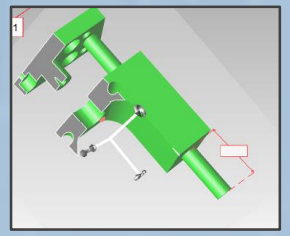
Focus on prominent **features** with **no** consideration for detail or size

Model Inspection Tools

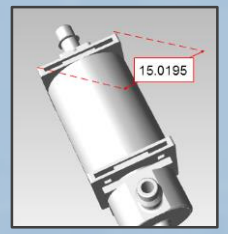
Polaris incorporates numerous CAD-like tools for model inspection, which are convenient for designers, and especially valuable for supply chain and other uses who may not have CAD software on their desktop.



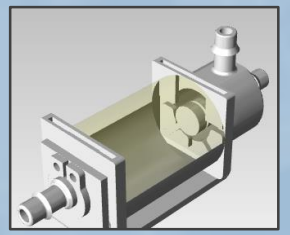
Rotation & Zoom



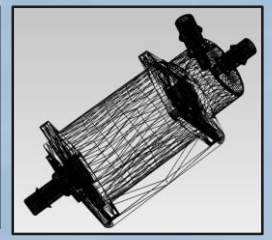
Clipping



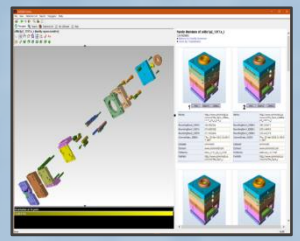
Measure



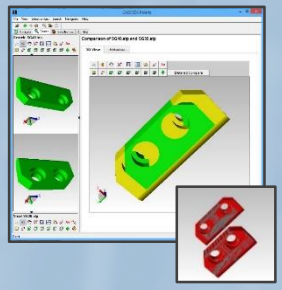
Transparency



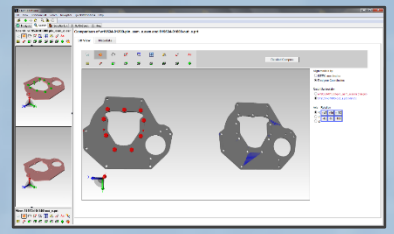
Wireframe



Explode



Compare

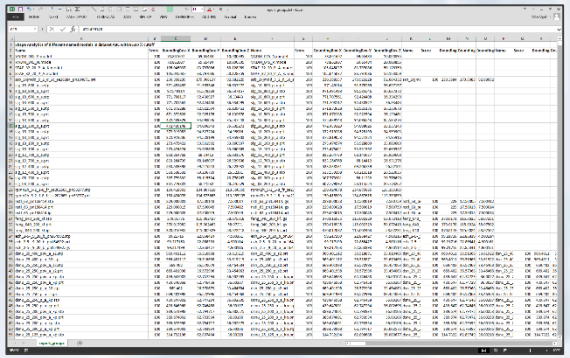


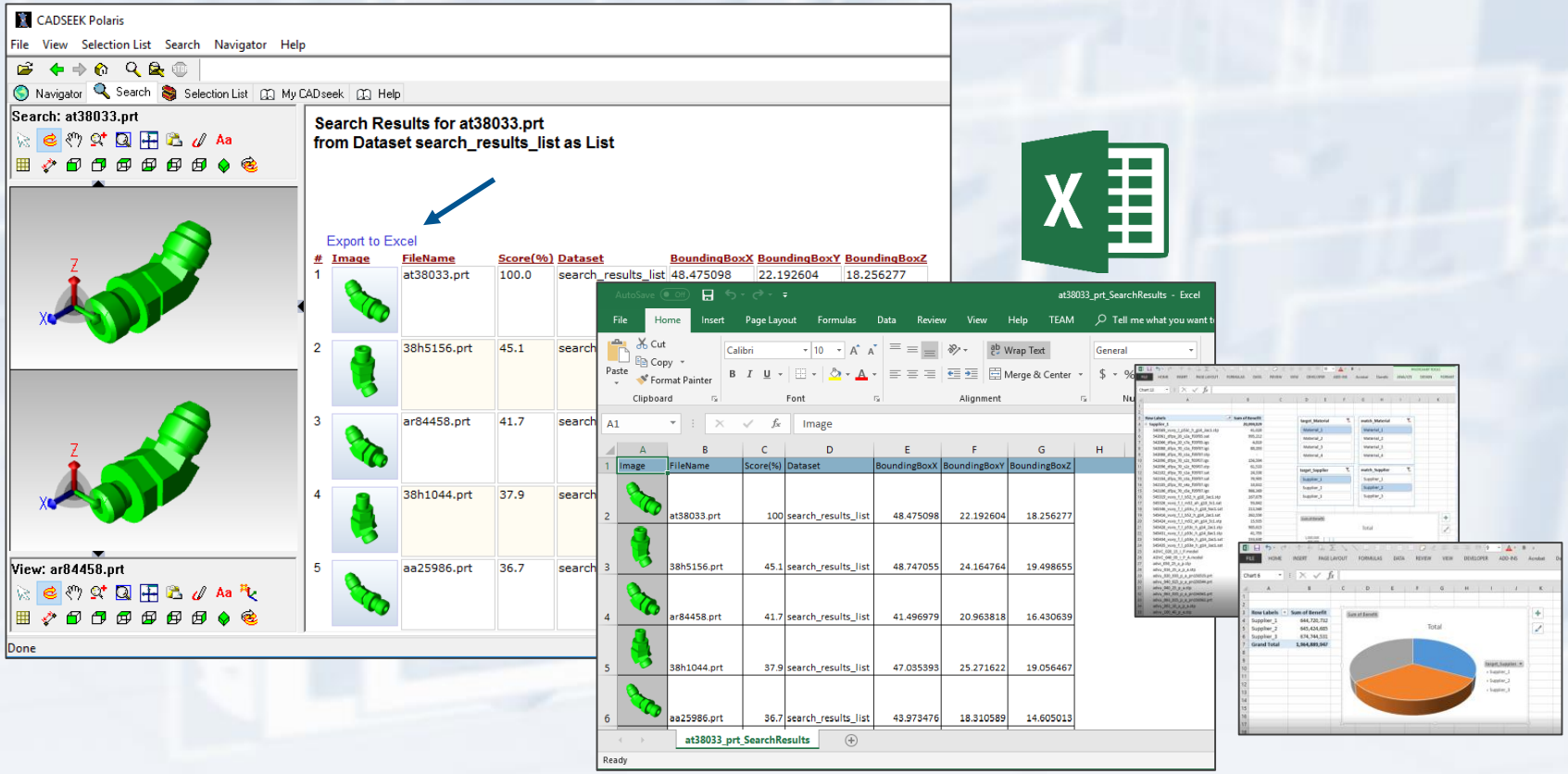
Difference

Search Export

The results of any search tier, including similarity scores, size scores, and all attribute values, can be exported into a .txt delimited file, which can be easily imported to a spreadsheet for additional analysis.

Polaris also allows the direct export of any search results directly to Microsoft Excel, including thumbnail images.

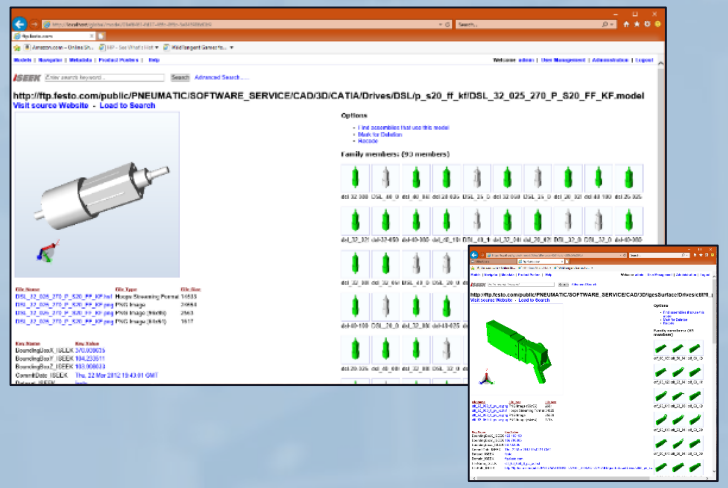




Optional Integrated Products

CADSEEK Polaris
The Search Engine for Shape

CADSEEK Connect

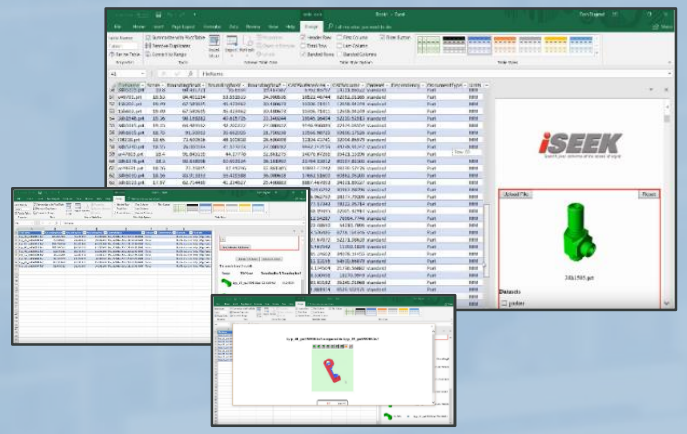


Connect provides access to geometric search via a web browser. Instead of the Navigator, Connect provides a 2-dimensional hyperlinked catalog with shape and attribute search capability.

Connect is often preferred by supply chain users due to advanced tools for browsing models by meta-data categories and attribute values.

CADSEEK Excel

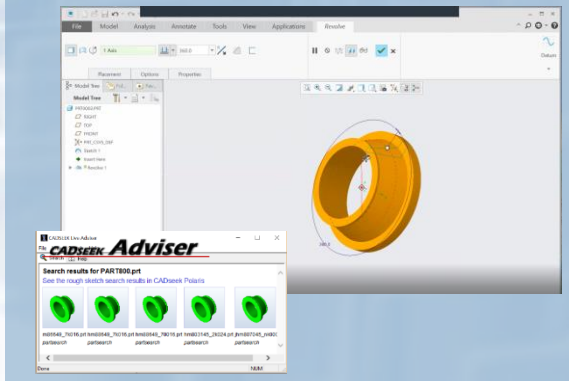
Microsoft Excel Add-In



The CADseek Excel Add-in is ideal for users who prefer to perform analysis in the Microsoft Excel environment. The Excel Add-in makes all attribute and shape search data in the CADseek Server available to Excel Add-in users. The application even includes a built-in compare function

CADSEEK Adviser

Live-Search



Adviser Live-Search is a predictive search tool which monitors a CAD design session in real-time and periodically performs a search for similar models as the design matures.

When Adviser finds a similar model the Live-search window appears, alerting the designer to potential reuse options.

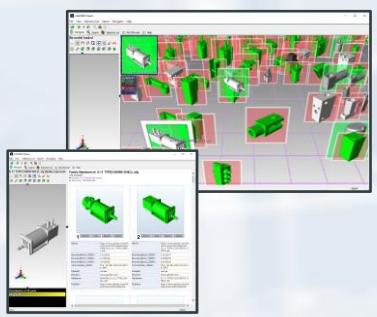
CADSEEK Polaris
The Search Engine for Shape

A Suite of Solutions

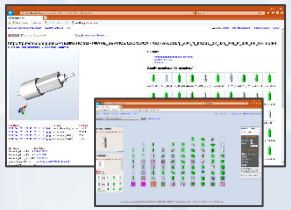
Polaris is part of an integrated suite of products with solutions spanning the enterprise.

Design | Supply Chain | Engineering Management & I/T | Sales | Manufacturing | Distribution & Service Parts

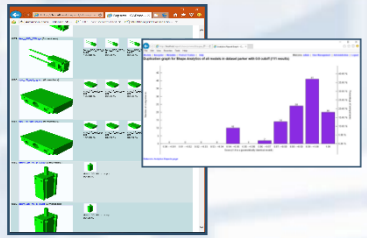
CADSEEK Polaris
The Search Engine for Shape



CADSEEK Connect

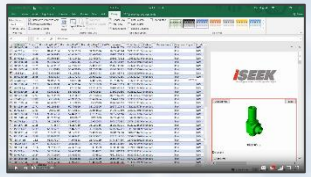


CADSEEK Analytics

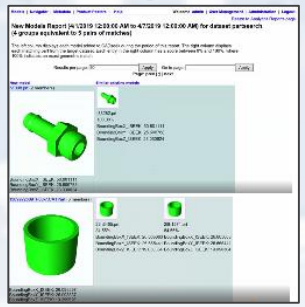


iDENTIFY

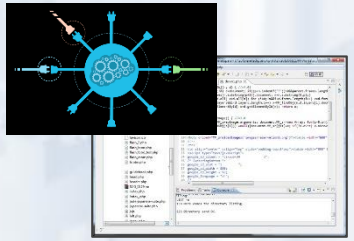
CADSEEK Excel
Microsoft Excel Add-In



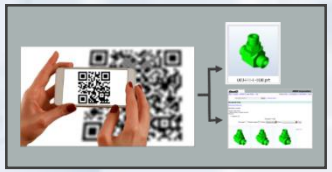
CADSEEK Sentry



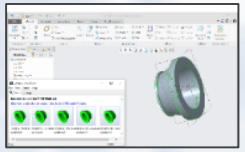
Embedded Solutions



ShapeID
Intelligent Part Codes



CADSEEK Adviser
Live Search



CADSEEK Polaris
The Search Engine for Shape

Return on Investment Examples

Model and Part Reuse

	Scenario 1	Scenario 2	
	100	500	Number of Designers
x	50	50	New Models / Designer / Year
x	10%	15%	Redundancy Rate
=	500	3,750	New Unnecessary Models per year
x	$11,750	$15,550	Design & Qual. Cost / Part
=	**$5,875,000**	**$58,312,500**	**Avoidable Exp - Design + Qual.**
x	3,750	3,750	5 Year Carrying Cost per Year
x	**1,875,000**	**14,062,500**	Inventory Carrying Cost
=	**$7,750,000**	**$72,375,000**	**Total Savings from Reuse**

"According to our research, as many as 30% to 40% of manufacturers' parts are duplicates or have acceptable substitutes."

ABERDEEN GROUP

"It's no secret that reusing existing part models can lead to savings of $5,000 to $20,000 per part, improve engineering capacity by 20 to 100 hours per part, decrease risk and improve quality."

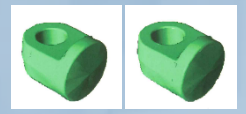
ENGINEERING.COM

Consolidation / Standardization

	Scenario 1	Scenario 2	
	50,000	1,000,000	Size of Dataset
x	10%	15%	Redundancy Rate
x	2,500	75,000	# of Parts Reduced (1/2)
x	3,750	3,750	5 Year Inventory Carrying Cost
	$9,375,000	**$281,250,000**	Total Savings

A study by the Parts Standardization and Management Committee of the Dept. of Defense calculated a five year inventory carrying cost for an average part of $3,750.

A customer estimated the savings from consolidating two functionally redundant parts at greater than $10,000 annually over the life of the parts.

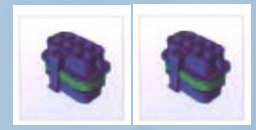


Vendor Price Discrepancy

	Supplier A	Supplier B	
	6,000	8,500	Number of Parts Purchased
x	70.71	75.96	Price per Unit
x		$44,625	Amount over paying per year
x		5	Part Life
		$223,125	**Amount saved**
x		100	Number of Similar Situations
x		**$22,312,500**	**Total Potential Savings**

Shape-based classification makes it easy to group and align similarly-shape parts with their cost information to spot price variances.

A customer discovered two identical parts, sold by the same supplier under different part numbers, and at different prices. The correction saved the business thousands of dollars.



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"CADSEEK Polaris was the hands down winner.

We found iSEEK to exceed all expectations."

Brian Rugh,
Deere & Company

John Deere & Company

How to 'Google' CAD

machine design

"CADSEEK saves time, improves consistency and most importantly, is exceptionally easy to use."

KENWORTH. The World's Best.®

George Taylor,
General Manager, Kenworth

"Effective shape-based search must tackle two primary jobs: identifying topology similarities and displaying results in a comprehensible fashion. CADSEEK accomplishes both with ease and simplicity."

DE Digital Engineering's VIRTUAL DESKTOP

"CADSEEK has the functionality necessary to help our company reduce costs through several paths. iSEEK's technical expertise have been well proven in our evaluations."

Rick Mihelic,
Peterbilt Motors Company

Peterbilt

"We attained several times the return on our investment within seven months of deploying CADSEEK."

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iSEEK Corporation

Thank you for your interest in CADSEEK Polaris.

To request a demonstration of any of our products please contact sales@iseekcorp.com, or place a request via the Contact Us page of our website at www.iseekcorp.com/contact.

We would also happily have you refer your trusted integration partners to iSEEK.

Photo curtesy of the Iowa State University Research Park