

# **UTS** **Integrated** **Gear Software™**

## **Integrated Gear Software: Setting the Standard in Gear Design Technology**

Whether you're designing metal, plastic, or powdered metal gears, Integrated Gear Software (IGS) is the most comprehensive gear knowledge system for eliminating noise and premature failure, reducing trial and error, lowering design and production costs, and speeding time to market.

With over 75 programs and a broad range of expert consulting services, Universal Technical Systems, Inc. has over 60 years of combined design experience representing a multi-million-dollar commitment to developing industry-standard technology that empowers engineers to design with confidence.

## **From A to Z**

From initial sizing, gear design and analysis, and modeling of environmental extremes, to full optimization with tolerance analysis and manufacturing specs? Integrated Gear Software does it all!

What's more, a powerful math engine with the unique ability to solve for a variety of combinations of input and output variables? known as backsolving, allows you to easily test what-if scenarios, develop accurate specifications for manufacturing replacement gears, and optimize designs without hours of tedious calculations or programming. Just point, click, and solve.

## **Managing Expert Knowledge**

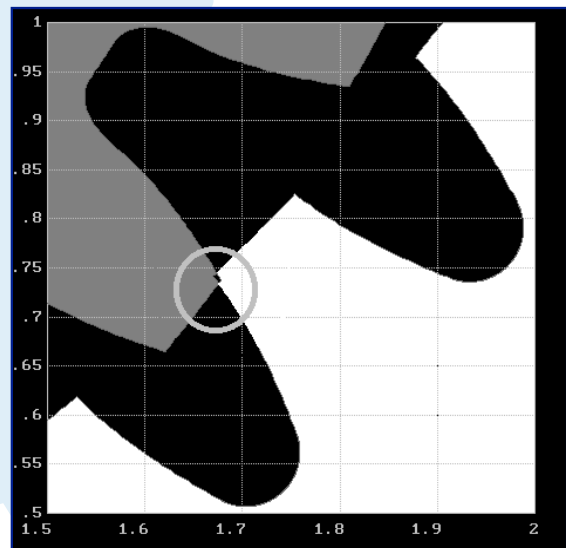
One of the biggest challenges for many companies in an era of greater employee mobility becomes managing expert knowledge as a valuable resource. Most companies have a core group of long-standing employees that represent the collective repository of gear knowledge. But what happens when that "expert" knowledge walks out the door? With IGS you can capture and share design data and even reverse engineer designs and effectively leverage expert knowledge throughout your organization.

IGS can help you solve manufacturing problems like designing cutting tools, calculating measurement over pins, analyzing batch variations, or locating the appropriate cutting tools from your inventory. You'll also be able to reuse tools such as hobs, shaper cutters, shaving cutters, and grinding wheels? for big cost savings!

Bottom Line: IGS provides you with everything you need to help you maintain your competitive edge.

## **Powerful Technology**

IGS was developed by gear people, for gear people and combines more than 75 individual programs—each representing a particular stage in the gear design and manufacturing process—into one, interoperable, user-friendly knowledge environment that calculates, shares data, archives designs, performs tolerance analyses, and provides users with virtually unlimited design flexibility.



## Integrated Gear Software At a Glance

- Project Manager—for tracking and documenting design projects
- Power User Form—for custom data entry
- Data Entry Wizard—for guided data entry
- Plotting—for data analysis and visualization
- Automatic Unit Conversion—for model sharing flexibility
- Report Wizard—for on-demand custom reporting

Other key components of IGS include a relational database that stores all programs and design data and a powerful, comprehensive reporting engine for producing detailed and insightful reports. Data can be connected horizontally—one program to another—and vertically, by project and program.

## IGS Packages

- Advanced Gear Design and Manufacturing
- Basic Gear Design and Manufacturing for Metal Gears
- Basic Gear Design and Manufacturing for Plastic Gears
- Crossed Axis Gear Design
- Epicyclic Gear Design
- Spline Design and Manufacturing

UTS offers classroom training in beginning and advanced plastic and metal gear design at its corporate headquarters and an interactive fundamentals training course via the Web. In addition, we offer extensive consulting services in gear design and manufacturing as well as customer site training. Visit UTS on the web @ [www.uts.us.com](http://www.uts.us.com) for more information.

Integrated Gear Software is a powerful solution at an affordable price and is available in a Standard and Premium edition that includes the TK Solver Solution Optimizer. IGS supports Windows 2000 and XP platforms.

### Generate Informative Reports

**Tools**

- Rotary Shaving Cutters
- Circular Shaper Cutters
- Grinding Wheels
- Involute Gear Hobs

**Minimum Weight Gear Size (Program 560)**

Estimated Weight: 13.22 Pounds

| Blind Process Angle      | Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 | Stage 6 | Stage 7 | Stage 8 | Stage 9 | Stage 10 | Stage 11 | Stage 12 |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| Gear Type                | Spur    | Spur    | Spur    | Spur    | Spur    | Spur    | Spur    | Spur    | Spur    | Spur     | Spur     | Spur     |
| Number of Offsets/Flutes | NA      | NA      | NA      | NA      | NA      | NA      | NA      | NA      | NA      | NA       | NA       | NA       |
| Phase 1                  | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00     | 1.00     | 1.00     |
| Phase 2                  | NA      | NA      | NA      | NA      | NA      | NA      | NA      | NA      | NA      | NA       | NA       | NA       |

**Import Export Analysis**

| Analysis Name   | Unit System  | Record Last Updated |
|---|--------------|---------------------|
| <input checked="" type="checkbox"/> Orig Rev Eng - Inch | US Units     | March 25 2003       |
| <input checked="" type="checkbox"/> Orig Rev Eng - M    | Metric Units | March 02 2004       |
| <input checked="" type="checkbox"/> Near Rev Eng - M    | Metric Units | March 02 2004       |
| <input checked="" type="checkbox"/> Rev Eng Pinion      | US Units     | March 25 2003       |
| <input checked="" type="checkbox"/> Rev Eng Gear        | US Units     | March 25 2003       |
| <input checked="" type="checkbox"/> Rev Eng Pinion - M  | Metric Units | March 02 2004       |
| <input checked="" type="checkbox"/> Rev Eng Gear - M    | Metric Units | March 02 2004       |
| <input checked="" type="checkbox"/> Rev Eng Pinion - M  | Metric Units | March 02 2004       |
| <input checked="" type="checkbox"/> Rev Eng Gear - M    | Metric Units | March 02 2004       |
| <input checked="" type="checkbox"/> Rev Eng Inch        | US Units     | March 02 2003       |

**Non Topping Hob (Driver)**

Hub Tooth Thickness at Reference: 0.5056  
 Tip to Reference Line: 0.4667  
 Hub Tooth Tip Radius: 0.1328  
 Hub Profile: 0.0095

**Generate Informative Reports**

| Description   | Value   | Unit  | Comment |
|---|---------|-------|---------|
| Lead  |         | in    |         |
| Root face width                                     | 0.0000  | in    |         |
| Outside diameter                                    | 10.6000 | in    |         |
| Roll at OD  |         |       |         |
| Normal tip land width                               |         |       |         |
| Start of tip modification                           |         |       |         |
| Roll at start of tip modification                   |         |       |         |
| Normal OD lip relief                                | 1.6750  |       |         |
| Max Possible Helical Contact Ratio From ER OD to TF | 0.0000  |       |         |
| Max Possible Helical Contact Ratio                  | 1.6750  |       |         |
| Max Possible Total Contact Ratio                    | 1.6750  |       |         |
| Formed Basic Rack Form                              |         |       |         |
| Flank angle   | 20.0000 | deg   |         |
| Tip to Reference Line                               | 0.9333  | in    |         |
| Tooth Thickness at Reference Line                   | 1.0472  | in    |         |
| Tip radius  | 0.2626  | in    |         |
| Radial tip chamfer (add mod)                        | 0.0000  | in    |         |
| Normal tip relief amount                            | 0.0000  | in    |         |
| Molding shrinkage rate                              | 0.0000  | in/in |         |

## About Universal Technical Systems, Inc.

Universal Technical Systems, Inc., established in 1984, is the leading provider of high-productivity problem-solving software products and custom developed solutions. With headquarters in Rockford, Illinois and subsidiaries in the UK and India, UTS serves customers worldwide. For over twenty years UTS has focused exclusively on providing solutions that help companies in the scientific, engineering, operations research and management, and financial communities simplify complex calculations and streamline the processes that drive their businesses. UTS products and custom solutions are available for desktop and web use.

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