

The Next Generation—IST Released!

HTRI's newest product, IST, is in customers' hands. The most accurate heat exchanger modeling software available, this product promises to simplify the design process for thousands of engineers worldwide.

IST combines the power of a calculation engine based on thirty-five years of advanced research with the ease of use inherent in a Microsoft Windows-based program. The software offers many valuable features, including built-in tubesheet and exchanger drawings, TEMA spec sheet output, and data and results plotting. With the addition of IST, HTRI software now handles all TEMA shell types in a single program using an incremental method. Perhaps its most helpful feature, visual cues step you through case entry. Unlike some other programs on the market, IST makes it easy to find the fields required to run a case.



Contents

Revised Fee Structure Takes Effect	2
New Interface Agreements	2
Fan Selection Code Licensed	2
Annual Meeting of Stockholders	3
Training Enhances Program Use	3
HTRI Welcomes New Participating Affiliates	4
Creating IST Specification Sheet Templates	4
Integrating Output with Windows Programs.	6
Exchanger Tubefield Display	6
Convective Only Boiling Option Now Automatic	7
Boiling Range and the HTRI Programs	7
HTRI-Net™ Expands	7
Upcoming Events	8
To Reach Us	8
Current Software	8

Another IST innovation is its online help and documentation system, the most comprehensive of any heat exchanger software in existence. Providing much more than simple definitions, the system actually approaches being a knowledge base, helping engineers interpret IST output and results.

License agreements for this product were shipped to all Stockholder Representatives in August. If you need assistance with your license agreement, please contact Susan Edwards, Contract Administrator (see *To Reach Us...* on the back cover).

Additional information about IST is available on the World Wide Web at www.HTRI-Net.com.

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Revised Member Fee Structure Takes Effect

Based on the recommendations of a Fee Structure Task Force, HTRI's Board of Directors approved a new Fee Structure in February 1996. The revised structure took effect for all HTRI members in August.

A document outlining the changes was mailed to members and Auxiliary Mailing Service subscribers in April. Information about the fee change can also be found on the HTRI web site. If you have any questions or comments regarding the HTRI fee structure, contact Claudette D. Beyer.

New Interface Agreements

HTRI has signed interface agreements with two additional process simulation companies to develop links to HTRI programs. Hyprotech Ltd. of Calgary, Alberta, Canada, and WinSim, Inc. of Houston, Texas, USA, will create interfaces that allow data transfer between their products and HTRI software.

Interfaces allow members to use HTRI's superior calculation engines and correlations with tools from other sources such as process simulators and databanks.

Fan Selection Code Licensed

Ventilatoren Sirocco Howden B.V., a Dutch company, is licensing source code for fan selection to HTRI. With this code, users will have access to more accurate information on "real world" fan construction and horsepower. The code will be incorporated in the next version of ACE. In October, representatives from the company visited HTRI offices in College Station, Texas, to finalize details.

FY1997 Operating Program Now Available

Copies of the approved HTRI Operating Program for Fiscal Year 1997 are now available to members at no charge. To order a copy, contact Product Sales and Distribution. To receive a copy via e-mail, visit the *Subscriptions and Publications* area on HTRI-Net (www.HTRI-Net.com).

Annual Meeting of Stockholders

HTRI held its 1996 Annual Meeting of Stockholders from Sunday, July 28, through Saturday, August 3, 1996, in Colorado Springs, Colorado, USA. Several notable events were featured:

- **IST Roll-Out and Celebration**
IST was officially unveiled during the business meeting on Tuesday morning. That evening, a celebration dinner was held at the Broadmoor Hotel.
- **IST Workshops**
The first IST workshop, held Sunday and Monday, was well-received. Attendees learned ways to maximize the effectiveness of IST and how best to use IST in conjunction with other HTRI products. A second session was held on Friday and Saturday; both sessions were filled to capacity. Additional workshops have since been held in Montreux, Switzerland, and London, U.K. The IST workshop will be offered again soon.
- **Annual Meeting of Stockholders**
During this session, G. E. Kluppel, Chair of the Board, and Claudette D. Beyer, President and Chief Executive Officer, presented reports. Ray E. Toler, Jr., Communications and Graphics Specialist, demonstrated HTRI's site on the World Wide Web.



HTRI members and staff celebrate the release of IST.

Members of the Board of Directors and the Technical Committee were presented gifts to recognize their service to HTRI. The stockholders reelected the nine current Directors to another term.

- **Technical Advisory Committee Meeting**
J. E. Schroeder, Technical Committee Chair, led this session, which included reports from F. J. Aguirre, Director of Research, and R. S. Kistler, Director of Software Development, on FY1996 progress, current activities, and future plans. The TAC elected all Technical Committee members to another term.

Other scheduled events included meetings of the subcommittees, the Board, and the Technical Committee.

HTRI members who were unable to attend the Annual Meeting can purchase the meeting book at cost. For more information, contact HTRI Sales and Distribution (see *To Reach Us...* on back cover).

Training Enhances Program Use

Fernando J. Aguirre, Director of Research, traveled to Mexico in September to provide on-site training for Tecnología Industrial Gemminis, S.A. de C.V. Workshops covering RKH/RTF and IST, HTRI's newest product, were presented to five company employees.

Training is a proven, cost-effective way to increase your productivity and enhance the value of your HTRI membership. If your company would like to receive training on site or at HTRI, contact Susan Edwards (see *To Reach Us...* on back cover).

HTRI Welcomes New Participating Affiliates

HTRI welcomes the following new participating affiliates:

Balcke-Dürr Inc., Tampa, Florida, USA
Balcke-Dürr Ltd., Honiley, United Kingdom
Balcke-Dürr and WABAG Technologies, Madras, India
Balcke-Dürr Industrial Cooling, Decin, Czech Republic
Chema Balcke-Dürr Verfahrenstechnik GmbH, Rudisleben, Germany

(Parent Member: Balcke-Dürr Aktiengesellschaft)

Granherne Ltd., Surrey, United Kingdom
(Parent Member: The M. W. Kellogg Company)

Raytheon Engineers and Contractors - Rust Division
(Previously Rust International Corp.), Birmingham, Alabama, USA
(Parent Member: Raytheon)

Shell Deer Park Refining Company, Deer Park, Texas, USA
Shell Norco Refining Company, Norco, Louisiana, USA
Shell Wood River Refining Company, Wood River, Illinois, USA
Shell Martinez Refining Company, Martinez, California, USA
Shell Anacortes Refining Company, Anacortes, Washington, USA
Shell Westhollow Technology Center, Houston, Texas, USA
As/Dansk Shell - Shell Huset, Copenhagen, Denmark
(Parent Member: Shell Oil Company)

Any subsidiary owned more than 50% by an HTRI member is eligible to become a Participating Affiliate and use HTRI products.

We strongly encourage all Participating Affiliates to enroll in the Auxiliary Mailing Service (AMS). AMS participants are able to order products directly. Additionally, publication and software updates can be automatically shipped to participants.

Contact Fernando J. Aguirre for more information on becoming a Participating Affiliate or joining the AMS.

Creating IST Specification Sheet Templates

One of IST's most useful features is its ability to generate a TEMA-style specification sheet (spec sheet). This article outlines the steps needed to create a custom spec sheet template.

The spec sheet contains two types of information: user-entered data (such as project number, customer, etc.) and HTRI-generated values calculated during a program run. When IST runs a case, it stores calculated values in a database output (.DBO) file, a format used by all HTRI programs.

When you choose the Spec Sheet option, IST automatically loads the HTRI-generated values into the spec sheet from the current .DBO file. As values are imported, only the corresponding fields will be overwritten. Any existing user-entered data will remain untouched. You can load other .DBO files by selecting the Load HTRI command from within the HTRI Spec Sheet application. This method enables you to create a spec sheet with the output from any HTRI program.

To make a spec sheet template and avoid having to reenter the user-entered data every time you create a spec sheet, follow these steps:

1. While in the Spec Sheet application, select New to create a blank sheet.
2. Enter the information common to every spec sheet (your name, company name, etc.).
3. Select Save As to save your template file in Microsoft Excel 4.0 format.

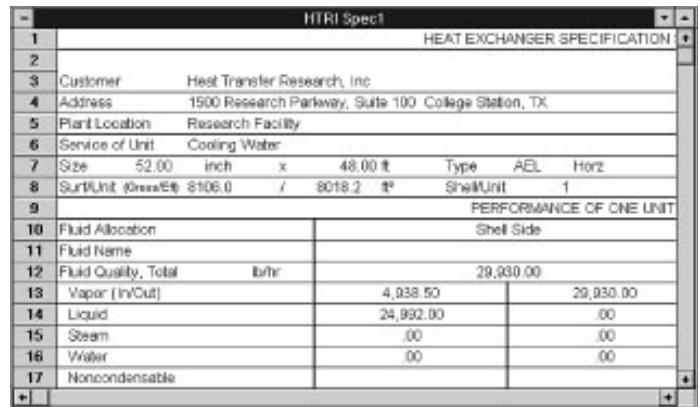
To use your template files, open them using File:Open and then import IST calculated values from the .DBO file using the File:Load HTRI command.

Continues next page...

Software Tips

The HTRI Spec Sheet application saves files in Microsoft Excel 4.0 format. This provides a great deal of flexibility, allowing you to edit existing spec sheets or templates from within Excel. For convenience, you can make the HTRI Spec Sheet program accessible from the Windows File Manager (see sidebar: *Setting Up Icons in Microsoft Windows*).

Templates provide a simple means of quickly generating multiple spec sheets. The output quality is limited only by your printer. If you have any questions regarding the HTRI Spec Sheet application, contact HTRI Technical Support.



HEAT EXCHANGER SPECIFICATION										
1										
2										
3	Customer	Heat Transfer Research, Inc.								
4	Address	1500 Research Parkway, Suite 100 College Station, TX								
5	Plant Location	Research Facility								
6	Service of Unit	Cooling Water								
7	Size	52.00	inch	x	48.00	ft	Type	AEL	Horz	
8	Surf/Unit (Gross/Eft)	8106.0	/	8018.2	ft ²	Shell/Unit	1			
9	PERFORMANCE OF ONE UNIT									
10	Fluid Allocation	Shell Side								
11	Fluid Name									
12	Fluid Quality, Total	b/hr							29,930.00	
13	Vapor (In/Out)	4,938.50						29,930.00		
14	Liquid	24,992.00						.00		
15	Steam	.00						.00		
16	Water	.00						.00		
17	Noncondensable									

Figure 1. An HTRI Specification Sheet

Setting Up Icons in Microsoft Windows

Windows 3.1/Windows NT 3.5

- 1) Select the HTRI program group.
- 2) Select the **File:New** command from the Program Manager.
- 3) Select **Program Item** in the *New Program Object* dialog box, then click **OK**.
- 4) In the *Program Item Properties* dialog box, enter a description of your choice (HTRI Spec). In the command line field, enter the path to the executable file (e.g., C:\IST\HTRISPEC.EXE). Use the **Browse** button to find the executable file. In the *Working Directory* field, enter the directory where your input and output files are stored (e.g., C:\IST).
- 5) Click the **OK** button, and a new icon will be added to the selected group.

Windows95/Windows NT 4.0

- 1) Click the right mouse button on a blank area of the desktop.
- 2) Select the **New:Shortcut** item from the pop-up menu.
- 3) Enter the path to the executable (e.g., C:\IST\HTRISPEC.EXE) in the **Command Line** field. You can use the **Browse** button to find the executable if necessary.
- 4) Click on the **Next** button
- 5) In the *Select a Title for the Program* dialog box, enter a name for your shortcut (e.g., HTRI Spec).
- 6) Click the **Finish** button.
- 7) The new icon will appear on your desktop.

Integrating Output with Windows Programs

Have you ever wanted to place monitor output from an HTRI program directly into a report or word processing document? If so, this article can help. By running ACE, CST, PHE, RKH, or ST in a DOS shell and using the clipboard, a standard Windows feature, you can easily place bitmap screenshots in other Windows programs. If you are not sure how to run HTRI programs in a Windows DOS shell, see the file GUIDE.TXT, which was automatically installed on your hard drive along with your HTRI software.

Follow these steps to copy monitor output to another program.

1. Open the document into which you wish to copy HTRI output. For this example, we will assume it is a word processing document.
2. Switch to the File Manager and start one of the HTRI programs mentioned above in a DOS shell.
3. If the program opens as a full screen and not in a window, press <ALT><ENTER>. Your DOS process appears in a window, allowing you to see the Windows environment.
4. When the HTRI screen you want to copy is displayed in the DOS window, make a screenshot by pressing <ALT><PRINT SCREEN>.
5. Switch back to the word processing document and place your cursor in the desired location.
6. Use the PASTE command to place the HTRI screen image in your word processing document.

Once your screenshot has been pasted into one Windows document, it can be copied and pasted into others, enabling you to incorporate information from HTRI's character-based programs into reports and presentations without retyping the data.

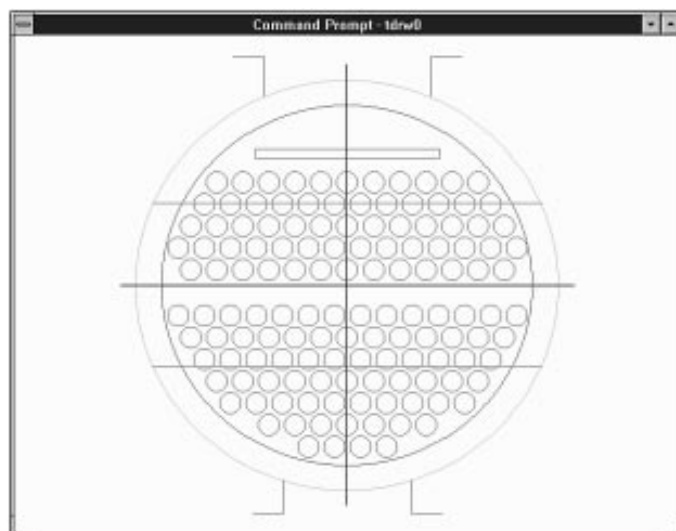
Exchanger Tubefield Display

As with IST, current versions of CST, RKH, and ST use a new rigorous tube count procedure. Subroutines donated to HTRI by Toyo Engineering Corporation dramatically improve the programs' ability to calculate the number of tubes in the exchanger. If the programs warn that the number of tubes will not fit in the shell, you should carefully check the geometry and change as necessary.

Special thanks to Toyo Engineering Corporation for making their tube layout subroutines available to HTRI.

The PC interactive versions of CST, RKH, and ST can display the tube layout allowing you to zoom in and out while viewing. Although you cannot change or resize the display as you can with IST, you can determine where the program has located the tubes and verify the suitability of your input data.

To view the tube layout, type **T** and press <ENTER> while at the second page of the short output (interactive mode). A typical output is shown below. If you are running the programs under MS Windows (3.1, 95, or NT), you can capture the tube layout and print it using Paintbrush or other programs. You can also copy the output to another document.



Convective Only Boiling Option Now Automatic

Based on the user-specified or program-calculated boiling range, the new boiling method in CST and IST automatically suppresses nucleate boiling, when appropriate, to approach the convective only coefficient. This characteristic is significant in applications with wide-boiling mixtures, particularly feed-effluent exchangers. You should no longer specify the convective-only boiling code on CST screen ME2P or the IST Methods panel. Limiting the boiling coefficient to only convective or nucleate can produce unexpected results.

Boiling Range and the HTRI Programs

You do not need to know the exact boiling range to take advantage of the HTRI nucleate boiling suppression model; a rough estimate is sufficient. Enter at least an approximate value, since an estimate provides more accurate results than entering nothing.

Additionally, you should specify only the boiling range of the liquid phase entering the exchanger; do not include noncondensables such as hydrogen, methane, or other gas. If the program calculates the boiling range, check the estimated value (line 12 of the CST or IST Final Results printout) and, if necessary, override the program-calculated value.

Pass it on!

If you've finished reading this copy of *The Exchanger*, please pass it on to a friend or a co-worker. If you would like to be added to *The Exchanger* mailing list, contact Elaine Jimerson at 1-409-260-6213 (Phone), 1-409-260-6249 (Fax), or HTRI@HTRI-Net.com (Internet).

HTRI-Net™ Expands, Offers New Features

Growth Continues

HTRI is expanding its Internet presence. The web site, located at www.HTRI-Net.com, continues to grow in size and popularity with visitors from around the world.

In June, we made some changes to allow better access speed, more features, and improved service for those visiting the site. Currently, you can access a wide range of corporate information, including recent issues of *The Exchanger*, abstracts of *Q*, and information on upcoming events. Online meeting registration will be available by the end of the year. Check the site regularly to take advantage of new features as they are offered.

HTRI E-Flash!™

HTRI-Net's newest feature is HTRI *E-Flash!*™, a periodic electronic bulletin containing important HTRI news and announcements. To register for HTRI *E-Flash!*, go to the HTRI web site, choose *Subscriptions and Publications*, and complete the online subscription form. You can also use this form to subscribe to the print version of *The Exchanger*. HTRI members have the additional options of subscribing to *Q* and ordering electronic versions of select HTRI documents.

What's a PDF?

If you've spent any time on the web, you've probably encountered files with a .PDF extension. PDF stands for **Portable Document Format**, a standard introduced by Adobe Inc. for distributing documents over a network. These files, also known as *Acrobat* files (after the program used to create them), allow electronic documents to retain the same formatting as the paper version and to be printed to a local printer.

HTRI currently provides PDF versions of *The Exchanger* and meeting registration brochures online. To view a PDF file, you'll need to use Acrobat Reader, a program available at no charge from the Adobe web site (www.Adobe.com). HTRI-Net will feature more documents in this cutting-edge format in the near future.

Upcoming Events

1997 Winter Meeting

The Ritz-Carlton Houston
Houston, Texas, USA
February 16-21, 1997

1997 Annual Meeting of Stockholders 35th Anniversary Celebration

The Ritz-Carlton Huntington Hotel
Pasadena, California, USA
July 28-August 1, 1997



1997 Pacific-Asian Meeting

Osaka, Japan
October 6-9, 1997

1998 Annual Meeting of Stockholders

The Ritz-Carlton Amelia Island
Amelia Island, Florida, USA
July 26-31, 1998

For information on meetings, contact Susan Edwards.

Meeting information can also be obtained by faxing 1-409-260-6249 or sending e-mail to Meetings@HTRI-Net.com.

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Jo Ann Cole, 1-409-260-6205

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Susan M. Edwards, 1-409-260-6203

MEMBERSHIP

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PRODUCT SALES AND DISTRIBUTION

Elaine Jimerson, 1-409-260-6213

TECHNICAL SUPPORT

1-409-260-HTRI (1-409-260-4874)
Support@HTRI-Net.com (Internet)

Current Software

ACE-2	1.30-1.30
CST-3	0.00-1.40
FH-0	0.00-0.00
IST	1.01
PHE-1	0.21-1.30
RKH-3	0.20-1.40
RTF-2	7.21-1.30
ST-5	0.60-1.40
TWALL	0.12
VIB-0	0.00-0.00

To order an update for any HTRI computer program, contact Product Sales and Distribution