FEEDERCALC

the latest versions of the computer program for the design of optimised feeding systems

FEEDERCALC enables the foundry engineer to make rapid, accurate calculations for the design of feeding systems.

The latest advances in programming techniques in combination with Foseco's extensive foundry product experience has resulted in a program, encompassing all aspects of foundry methods design. This program can be used as an important tool in the production of sound castings at minimum cost.

The program is designed to determine the correct size of Foseco sleeves to be used in a given application. The recommendation can also be compared with the calculated sand feeder dimensions.

The latest FEEDERCALC programs will be available for use in both iron and steel foundries, with versions for both DOS - figure 1 - and Windows™ see figure 2.

Program Content - General

Both the DOS and Windows™ versions of FEEDERCALC contain the same basic functionality, this includes:-

- ***Weight Estimation:***
  Combinations of geometric shapes can be easily manipulated to estimate the weight of complex casting or casting sections.

- ***Feeding Distance:***
  Feeding distances can be calculated, with and without the use of chills. This allows the rapid determination of the number of feeders required for the casting or casting section.

- ***Feeder size calculation:***
  Accurately calculates the optimum feeder size from a selection based on the complete range of Foseco feeding products. A selection can then be made to meet individual production requirements.

- ***Side-Neck calculation:***
  Facilitates in the calculation of neck dimensions, weight and fettling areas from the minimum neck modulus supplied in the feeder size calculation.

- ***Cost Analysis:***
  Enables the foundry engineer to select not only the optimum but also the most cost effective technique for each casting. Cost data defaults can be used or values specific to the foundry can be entered by the operator.

- ***Casting Information:***
  Information relevant to each casting analysed using FEEDERCALC can be saved along with the above data, namely Methods Engineer, Pattern No., Drawing Number etcetera. Therefore, all records applicable to the casting can be stored and retrieved using FEEDERCALC.

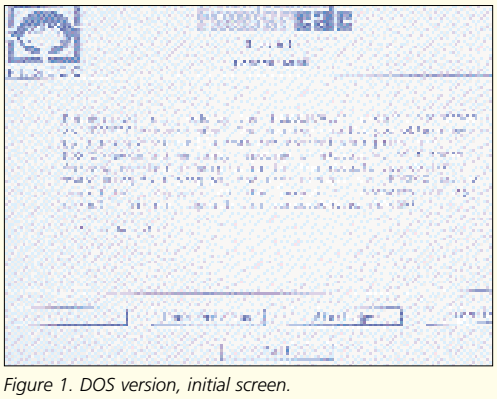


Figure 1. DOS version, initial screen.

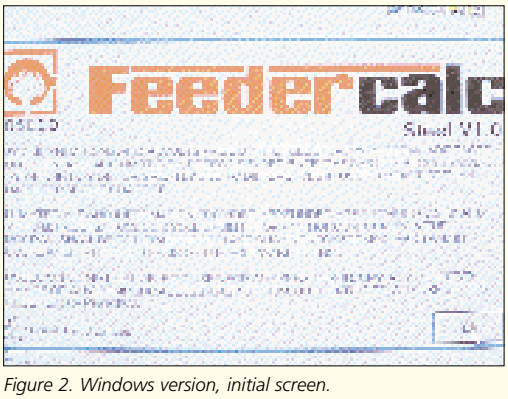


Figure 2. Windows version, initial screen.

The latest features incorporated into both the DOS and Windows™ versions of FEEDERCALC take advantage of the latest in computer technology and algorithms developed at Foseco. The following sections deal in some detail with these and other features found in the programs.

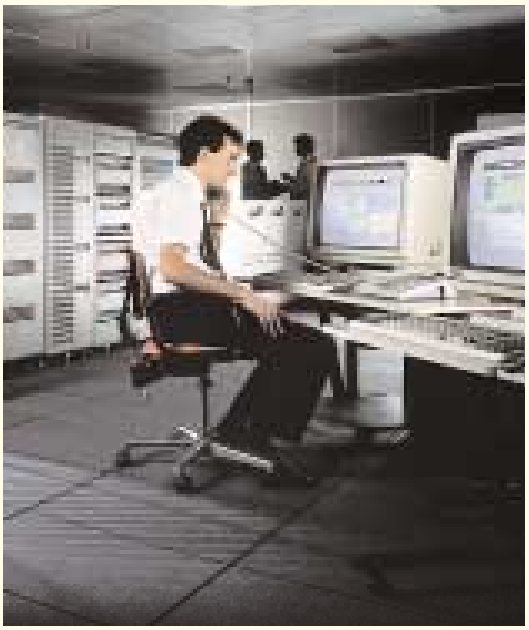
FEEDERCALC for DOS (Version 5.3)

This program was developed to update the existing program and to meet the requirements of those users who do not have Windows™.

Hardware requirements:

- 100% IBM compatible computer (286/386/486 m/c's).
- Min. 1 MB memory.
- Hard Disk.
- $3^1/_2$ or $5^1/_4$ floppy disk drive.
- DOS version 3.3 or later.
- Microsoft© Mouse.
- VGA graphics capability.
- Any IBM compatible printer using the standard ASCII character set.

Input to the programme is handled by a combination of the keyboard and the mouse. The mouse is used to select buttons to take the user to other sections within the program - see figure 3 opposite.



The mouse can also be used to enter values directly into calculation fields. This is achieved in three separate ways. Firstly, the user 'clicks' onto a selected field and then types in the required value. Or, secondly, double clicking on a calculation or text field makes an alphanumeric keyboard appear on screen and characters or numbers selected can be entered here - see figure 4.

Finally, data can be entered by drawing the letters or numbers directly into a calculation field by using the mouse cursor as a pen with the left mouse button held down. Figure 5 shows a larger area for directly drawing characters, available from the alphanumeric keyboard by selecting the  symbol.

Other features available in this version are:-

Composition based shrinkage calculation. (figure 6)

Extensive use of graphics. (figure 7)

In-built help screens. (figure 8)

Up to date product selection listings incorporating scroll-screen selection of products. (figure 9)

The improvements were made to make the program easier to use and speed up the determination of optimum feeders for use in the casting industry.

FEEDERCALC for DOS will be available for both ductile iron and steel foundries in the following languages:- English, German, French, Spanish, Portuguese and Italian.

These versions will be available for use in mid 1995 and all other areas of the globe by the fourth quarter 1995.

Figure 3. Main Menu.

Figure 4. Pop-up keyboard - double click

Figure 5. Drawing characters directly.

Figure 6. Shrinkage calculation.

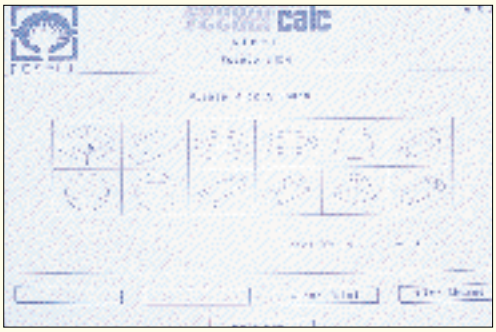


Figure 7. Drawing characters directly.

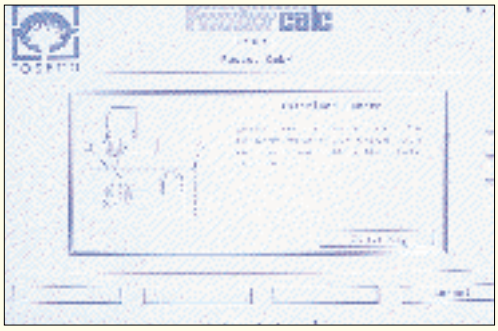


Figure 8. Example of Help Screen.

Figure 9. Product selection.

Figure 10. Introductory screen.

Figure 11. Fedder Design screen.

FEEDERCALC for Windows™ (Version 2.0)

The Windows™ versions of FEEDERCALC were commissioned to meet the requirements of those customers using the Microsoft Windows™ Operating System. The flexibility of the Windows™ environment in conjunction with the latest programming techniques - Visual Basic Professional edition - has produced an easy to use, flexible tool for use by the foundry methods engineer.

Hardware requirements:

- 100% IBM compatible computer (386/486/Pentium m/c's).
- Min. 4 MB memory.
- Hard Disk.
- $3^1/_2$ or $5^1/_4$ floppy disk drive.
- Windows™ version 3.1 or later.
- Microsoft© mouse.
- VGA (or higher) graphics capability.
- Any Printer configured for use with Windows™.

These versions of FEEDERCALC are based on the DOS program previously explained and differ only slightly in functionality. As with all Windows™ based programs FEEDERCALC is an event driven program i.e. an action must occur - such as pressing a button - before any processing takes place. FEEDERCALC uses the same commands and has the same features as most other Windows™ based programs.

Figure 10 shows the opening screen of the actual program. There is a menu bar incorporating the usual functions found there such as Print, Save etc..

Instead of a menu selection for working with each section of the program the tabs at the bottom of the screen allow these sections to be chosen when clicked, allowing rapid movement from one section to the next.

The following differences are apparent between the Windows™ versions and the DOS versions:-

The program will now allow multiple risers to be calculated for a specific casting, unlike the previous version where each calculation was for one riser feeding a casting or casting section see figure 11. For each feeder the relevant information is entered normally see figure 12.

Because of this feature the user needs to determine the weight of all the casting sections which require feeding. To allow this, the weight estimation section of the program can sub-total the weight of casting sections as well as giving the total casting weight, see figure 13. This section weight list can be edited and annotated for future reference.

As in the DOS version the Windows™ program has a composition based shrinkage determination, see figure 14.

The cost analysis section is much easier to use than the original version and allows users to save multiple base costs namely sand cost, metal cost etcetera for different practices and gives a clear summary of all the costs involved see figure 15.

Finally, the feeding distance section of the program has been improved to include the calculation of metal padding used to extend feeding distances, see figure 16. Figure 16 also shows the pop-up calculator function which can be called directly from the menu or by double clicking on a field which requires numeric input. The result from the calculator is passed directly to the numeric field. This is helpful in some circumstances where the user may normally need to resort to a hand held calculator.

The steel version of the program in English is currently being better tested in North America and will be available to customers in the USA in the fourth quarter of 1995. The ductile iron version of the program will be released in early 1996.

Acknowledgements

The author would like to thank the following:-

1. S. Philppott of Tangent Technology Design Associates, Loughborough for his help on the DOS version of FEEDERCALC.
2. G. Grib, contract programmer to Foseco NorAm for producing the Windows™ version of the program.

Figure 12. Feeder information.

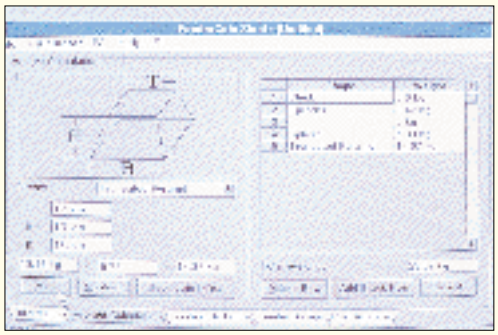


Figure 13. Weight estimation screen.

Figure 14. Shrinkage calculation.

Figure 15.

Figure 16. Feeding Distance & Calculator.