

Graphic design company TGG (Büro für Technische Grafische Gestaltung) has been operating from its base in Bietigheim-Bissingen, Germany, since summer 1993. Since its founding, the company has enjoyed partnerships with an advertising agency and a typesetting and repro company. Over the course of time, TGG has expanded these partnerships to include a translation agency, an office for editorial systems and a technical author.

These links have enabled TGG to expand its key service area of graphics so that the company now provides cutting-edge technical illustration for all media. TGG's work rests heavily on its versatility, customer focus, creativity, reliability and quality and the company enjoys a close working relationship with a customer base from all over Germany.

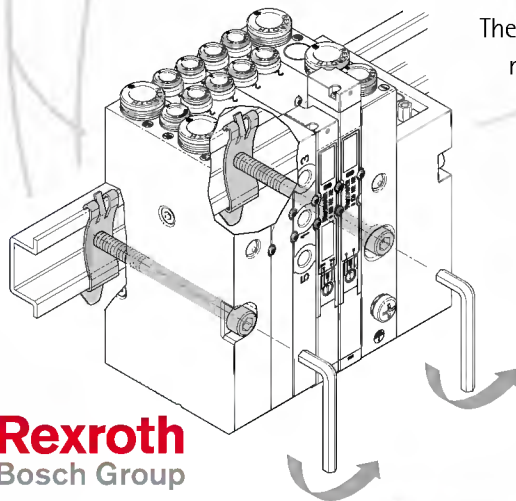
Soon after going into business, the company developed a clear focus: Customers increasingly wanted to use their existing DXF data as the basis for their technical illustrations, ultimately to realize potential savings. After extensive research, TGG opted for the IsoDraw software from ITEDO in 1994 as the results after importing the DXF data were and still are much better than in general graphics programs like CorelDraw, Freehand and Adobe Illustrator which are not geared specifically to technical illustration.

With these programs, processing of the imported data is limited solely to how the lines are depicted. However, IsoDraw version 2.6 has featured a 3D window since 1992. 3D data can be transferred into this window and the user can select the perspective they want. If the customer has no 3D data available, after importing the DXF views into IsoDraw, the parts can be projected in the isometric view or other views with the projection tool. This is of particular benefit during the manual creation of 3D components.

One of TGG's key customers is Bosch Rexroth AG, who at the time was the first to express a desire to utilize 3D data from ProEngineer for documentation purposes. Almost at the same time, IsoDraw CADprocess came on the market. IsoDraw CADprocess is a software package that converts 3D design data into technical illustrations, removing hidden lines and automatically creating thick and thin lines. After successful data tests with the support of ITEDO, it was quickly decided that the results from this software best met the requirements of Bosch Rexroth.

An important advantage for TGG in its role as a service provider is that IsoDraw CADprocess does not specialize in just one 3D CAD software. On the contrary, data from practically all leading CAD programs can be processed by means of the "IGES" data exchange format. This enables TGG to serve several customers all with different systems.

In the case of Bosch Rexroth AG, TGG works with the documentation and design departments directly. The CAD data, which TGG receives as IGES exports, is mostly in the



**Rexroth**  
Bosch Group

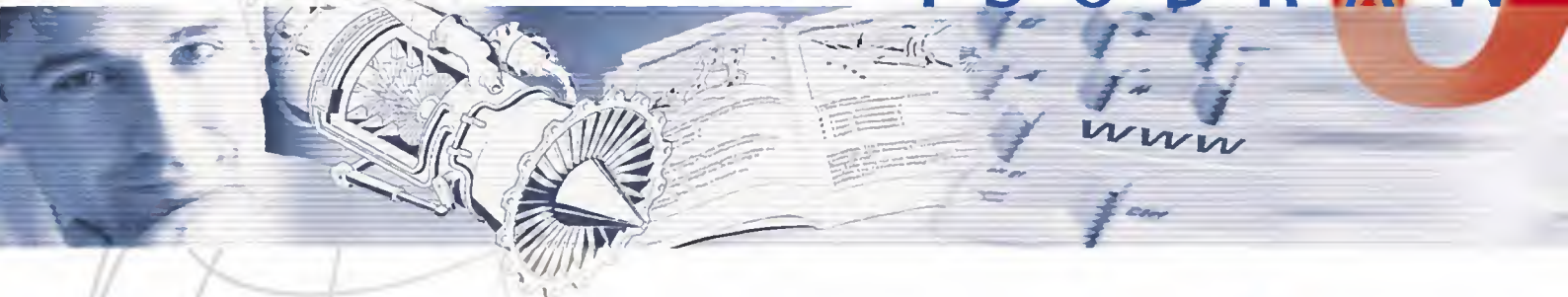
Valve Terminal System HFO4  
mounted on a DIN rail

Valve Terminal System HFO4 with D-Sub adapter



# CADprocess

# ISO DRAW



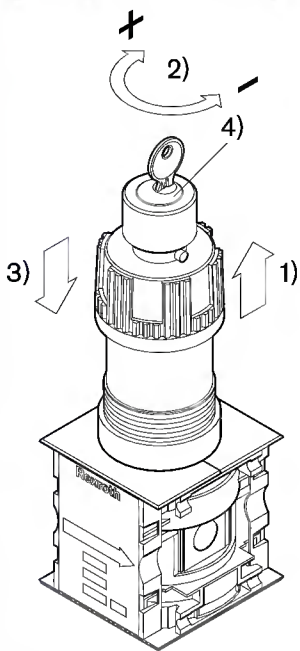
form of complete units. This frees Bosch from the time-intensive process of preparing the data and TGG can then either specifically leave these assemblies as a unit according to the application in question (catalog, assembly instructions, etc.) or break them down into the required components. Rotations of the unit or assemblies for new views are possible. If the technical author at Bosch Rexroth still cannot identify the individual components, he will receive an initial explosion drawing from TGG.



*"Thanks to the ongoing improvements made by ITEDO, we are now in a position to tackle a larger number of*

*drawings with less manpower. This is the only way to deal with the ever-growing development pressure and the need to finalize assembly instructions shortly before delivery. The time we have saved is being increasingly ploughed into additional display options, something that we previously shied away from due to a lack of time and the costs involved."*

**Wolfgang Murasch**  
Founder and CEO of TGG



The vector drawings converted with IsoDraw CADprocess are of high quality and the quantity of data is also extremely small. The rapid improvements made to this technology mean countless additional options for processing the 3D CAD data are now open to the illustrator and he does not require access to a generating CAD system for these. He can, for example, create cross-sections through a component or even quarter sections in the 3D object, providing an easy means of clearly depicting complex representations in the 3D body. After converting the 3D data, he can then process the resulting technical illustrations as he wishes. For example, arrows, callouts and hands etc. can be added quickly, something which is not possible in the design system. Preparatory work for electronic use with hotspots and links is also easy to perform.

Once converted, there are numerous possibilities for utilizing graphics. Vector graphics can be used as line drawings, as photo-realistic graphics or - exported to Flash - as language-neutral films (e.g. for assembly instructions). The small quantity of data means there are also no problems with regard to online usage. If the data is to be then processed photo-realistically in other programs like Photoshop, Adobe Illustrator or Cinema 4D, data exchange is extremely simple thanks to the numerous filters in IsoDraw.

Maintenance unit, Ci series

Working with IsoDraw CADprocess has made things much simpler - complicated representations are no longer designed from scratch, but are generated directly from the design data. Previously, this method of working entailed a lot of preparatory work for the designer, but nowadays the illustrator is totally independent from the designer and the 3D system. The processing possibilities available and the overview of the data for the illustrator are so good that sometimes the illustrator even notices minor design faults in the course of his work and then discusses these with the design department!

Ultimately, the development of IsoDraw and IsoDraw CADprocess has consistently focused on market and user requirements and ITEDO remains committed to continuing this development. Consequently, these software products have become established as standard tools in the field of technical illustration and enable even smaller companies and service providers to meet customer requirements time-efficiently and cost-effectively.

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