EU MARKET SURVEY 2003

Pipe and pipe-related process equipment

Mailing address: P.O. Box 30009, 3001 DA Rotterdam, The Netherlands
Phone: +31 10 201 34 34 Fax: +31 10 411 40 81
E-mail: cbi@cbi.nl Internet: http://www.cbi.nl
Office: WTC-Beursbuilding, 5th floor
37 Beursplein, Rotterdam, The Netherlands

EU MARKET SURVEY 2003

PIPE AND PIPE-RELATED PROCESS EQUIPMENT

CENTRE FOR THE PROMOTION OF IMPORTS FROM DEVELOPING COUNTRIES

CBI: YOUR EUROPEAN PARTNER FOR THE EUROPEAN MARKET

The CBI (Centre for the Promotion of Imports from developing countries) is an agency of the Dutch Ministry of Foreign Affairs. The CBI was established in 1971. The CBI's mission is to contribute to the economic development of developing countries by strengthening the competitiveness of companies from these countries on the EU market. The CBI considers social values and compliance with the most relevant environmental requirements to be an integral part of its policy and activities.

CBI offers various programmes and services to its target groups:

Market information
A wide variety of tools to keep exporters and Business Support Organisations (BSOs) in developing countries in step with the very latest development on the EU market.
These include market surveys and strategic marketing guides for more than 40 product groups, manuals on export planning and other topics, fashion and interior forecasts and the CBI News Bulletin, a bi-monthly magazine. This information can also be obtained from our website at www.cbi.nl For all information on non-tariff trade barriers in the EU CBI has a special database, AccessGuide, at www.cbi.nl/accessguide
And finally CBI's Business Centre is offering free office facilities, including telephones, computers, internet and copiers for eligible exporters and BSOs. Market reports, international trade magazines, cd-roms and much more can be consulted in the information section of the business centre.

Company matching
The company matching programme links well-versed suppliers in developing countries to reliable importing companies in the EU and vice versa. The online matching database contains profiles of hundreds of CBI-audited and assisted exporters in developing countries that are ready to enter into various forms of business relationships with companies in the EU, as well as many EU companies interested in importing or other forms of partnerships such as subcontracting or private labelling.

Export development programmes (EDPs)
EDPs are designed to assist entrepreneurs in developing countries in entering and succeeding on the EU market and/or in consolidating or expanding their existing market share. Selected participants receive individual support over a number of years by means of on site consultancy, training schemes, trade fair participation, business-to-business activities and general export market entry support. Key elements usually include technical assistance in fields such as product adaptation, improving production, implementing regulations and standards and export marketing and management assistance.

Training programmes
Training programmes for exporters and BSOs on, among others, general export marketing and management; trade promotion; management of international trade fair participations and developing client-oriented market information systems. The duration of the training programmes vary between two days and two weeks and are organized in Rotterdam or on location in developing countries.

BSO development programme
Institutional support for capacity building for selected business support organisations.
The programme is tailored to the specific needs of participating BSOs and can include train-the-trainer assistance, market information systems support and staff training. CBI's role is advisory and facilitative.

Please write to us in English, the working language of the CBI.

Centre for the Promotion of Imports from developing countries
Centrum tot Bevordering van de Import uit de ontwikkelingslanden

Mailing address:
CBI
P.O. Box 30009
3001 DA Rotterdam
Phone +31 (0) 10 201 34 34
Fax +31 (0) 10 411 40 81
E-mail cbi@cbi.nl
Internet www.cbi.nl

Office:
WTC-Beursbuilding, 5th Floor
37 Beursplein, Rotterdam, The Netherlands.

EU MARKET SURVEY

PIPE AND PIPE-RELATED PROCESS EQUIPMENT

Compiled for CBI by:

IPL Consultants

in collaboration with
P. van der Sman

November 2003

CBI Publication with new format and contents, partly replacing EU Market Survey (february 2002) and EU Strategic Marketing Guide (february 2002).

Photo courtesy of:

Van Leeuwen Buizen, Zwijndrecht (NL)

CONTENTS

REPORT SUMMARY

This survey profiles the EU market for pipe and pipe-related process equipment. The emphasis of the survey lies on those products which are of importance to developing country suppliers. The major national markets within the EU for those products are highlighted. In addition, statistical market information on consumption, production and trade plus information on trade structure and prices and margins is provided.

Pipe and pipe-related process equipment can be divided into six product groups:

1. Metal (ferrous and non-ferrous) tubes and pipes;
2. Tubes and pipes made from plastic and composites;
3. Fittings (parts of tube systems, such as flanges, couplings, elbows and tees);
4. Valves (all devices designed to control, reduce or block the flow in a tube or pipe);
5. Vessels (storage tanks, drums, processing vessels and the like);
6. Instruments (only those which are in direct contact with the medium).

Note: We have used the word tube for diameters up to 150 mm and the word pipe for diameters in excess of 150 mm.
The above product groups serve as a guideline throughout the whole survey.

In general, the named product groups are applied in the following type of industries

- (Semi)Processing
- Manufacturing (metal) industry (mainly automotive)
- Construction (utility and housebuilding)
- Furniture (not very interesting for developing country exporters)

Industrial demand
Total spending in these product groups worldwide is estimated to have been 17.1 billion Euro in 2002.

Metal pipes and tubes
The main consumers of steel pipe are the energy-related industries (e.g. oil, gas, nuclear, steam-generating industries) and the petrochemical, automotive, mechanical engineering, mechanical services, and construction industries. The total demand for steel pipe was about 14 million metric tons in 2001.
The industrial demand for aluminium and copper pipe is lower than for steel pipe. In 2002, the aluminium pipe market totalled about 200,000 metric tons and the copper and copper alloy pipe market for about 700,000 metric tons. These types of pipes are mainly used for plumbing (household gas and water lines) and industrial purposes (air conditioning, refrigerators, etc.).

Plastic tubes and pipes
The plastic pipe market, in particular sewage and drainage pipes, tends to reflect trends in the construction industry. In recent years the downturn in building activity has affected the rate of growth of plastic pipes. The largest market for plastic pipes in Europe is Germany, accounting for over one fifth of total consumption, followed by Italy, the UK and France. These four countries together account for over 80 percent of the total European market.

Valves
The European valve market (EU-15) was worth about € 10 billion in 2002, according to CEIR (European valve branche organisation) estimations. The market fell by 7 percent between 2001 and 2002. Only the pharmaceuticals and the water and wastewater market segments showed positive growth. The market outlook for 2003 shows less than 1 percent growth.

Fittings
The use of and demand for fittings is following the same trends as the market for pipes and tubes and the market for valves. Most of the changes in the pipe market are caused by the gas, petrochemical, chemical and water and food industry. Fittings are more attractive for export than tubes, because their smaller size makes their transportation more economical.

Vessels
The European market for 2002 was about € 90 billion (gas appliances, aerosols and pressure vessels). The sector is the subject of a highly complex directive (with the US codes, like ASME; see chapter 9) and strong competition world-wide.

Instruments
In 2002 and 2003 the industrial demand for instruments clearly decreased. At EU level demand fell by about 10 percent in 2002. A slight increase in order intake is expected for 2004.

EU markets
Investments in the **petrochemicals** industry (the largest user of metal tube) were low throughout the period 1998 - 2000. The period 2001 – 2003 marked an increase in investments. New plants are being constructed and existing ones are being thoroughly upgraded.
The **oil and gas exploration** market continues to show a positive trend, due to higher oil prices.
The **energy and water** is undergoing structural reorganisation as it is currently being privatisated in Western Europe. The importance of use makes it a high-interest product. Major investments are being

made by a number of global players. For plastic pipe, tube and fittings, this also opens up opportunities for developing country exporters.
The market in the **machine industry** is relatively stable, with a clear negative investment level in the period 2001 - 2003. The best opportunities lie in the relocation of production to low-wage countries (production and assembly).
The **furniture** industry is a minor player in the pipe and pipe-related industry. Consumption is relatively stable. It is of little interest to developing country exporters.
The market trends for **construction** are the postponing of projects and decline of business, a large number of suppliers, fierce competition and low prices. Efficiency is therefore vital, but there are certain possibilities for exporters of pipe, tube and fittings.

Production
The producion of seamless pipes (especially for oil drilling) in the EU grew by 70 percent in 2000 up to 3.4 million metric tons and by 10 percent in 2001 (3.75 million metric tons). The production of welded pipes measuring up to 406.4 mm in the EU totalled about 7.3 million metric tons in 2001 (7.6 million in 1999 and 2000). The production of welded pipes measuring over 406.4 mm (primarely for pipeline construction) showed a 40 percent growth in the EU in 2001 up to about 2.5 million metric tons. The market for and therefore the production of copper pipes is clearly smaller than for metal pipes. Germany and Italy are the most important producers of copper pipes. EU production is winning market share from the United States.
The production of valves in 2001 totalled about € 13,200 million (2000: € 13,300 million). Total production has remained at about the same level in recent years. The major manufacturing countries are Germany, Italy, France and United Kingdom, which together account for more than 83 percent of total European output, although these countries are losing market share to Denmark (3 percent) and East-European countries (total 3.8 percent).
Production of valves in the United Kingdom and France is developing positively. The forecast growth in 2003 for the United Kingdom is remarkable, especially when compared with demand and production forecasts for other industrial sectors.
Germany, the United Kingdom and France are the three most important production countries for instruments.

Imports
Total EU imports of pipe and pipe-related process equipment amounted to € 28.6 billion in 2001. 29.4 percent was imported from countries outside the European Union. Import from countries outside the EU are still growing. Between 2000 and 2001 total imports increased by only 0.7 percent. Of all EU members, Germany was the country with the highest value of imports, i.e. almost 22 percent of all imports.

Extra-EU imports of pipe and pipe-related process equipment amounted to € 8.4 billion in 2001. This represented an impressive 10 percent increase in comparison to the 2000 figures. In 2001, all the following countries showed a major increase in extra-EU imports compared to 1999: United Kingdom (plus 55 percent), Germany (plus 40 percent), France (plus 30 percent), Italy (plus 23 percent), the Netherlands (plus 29 percent) and Belgium (plus 35 percent). Germany (35 percent) and the United Kingdom (19 percent) are now the leading EU countries, accounting for more than half of total extra-EU imports of pipe and pipe-related process equipment.

Germany was the main supplier of pipe and pipe-related process equipment to other member states in 2001, accounting for € 6.1 million or almost 22 percent of total imports into the European Union. After Germany, other important European suppliers were Italy and France.

At a European level, metal pipes (with a value of € 7,5 million and a volume of 8,3 million tonnes) constituted the largest product group in terms of total imports. In contrast, plastic pipes only accounted for € 2,4 million (0,5 million tonnes). The market for plastic pipes is still minor compared to metal pipes. In percentage terms the total imports are divided over the product groups as follows:

metal pipes	26 percent
valves	21 percent
vessels	18 percent
instruments and safety devices	17 percent
fittings	10 percent
plastic pipes	8 percent

China was the largest developing country exporting to the EU in the period 1999 - 2001, followed by Turkey and the Philippines. China, Mexico, India and the Philippines showed a strong growth in terms of value of imports over the same period. Turkey, Slovenia and Thailand lost some share in 2001. The share of China represented 1.3 percent (1.1 in 2000) of total EU imports and 4.3 percent (3.8 in 2000) of extra-EU imports. Turkey and the Philippines held shares of 0.9 and 0.7 percent of total EU imports respectively. The total market share of developing countries also increased (from 5.1 percent in 2000 to 5.6 percent in 2001). China, the Philippines, Mexico and Thailand showed particularly strong growth, with annual growth rates of between 20 and 40 percent.

Exports
Total EU exports of pipe and pipe-related process equipment amounted to € 39,769 million in 2001. The leading European exporters were Germany, Italy, France, the United Kingdom and the Netherlands. Together these countries represented 77 percent of European exports of pipe and pipe-related process equipment world-wide. EU exports of pipe and pipe-related process equipment were mainly directed at other European countries. The most important destinations outside Europe were the United States, Turkey, China and Russia.

The product groups metal pipes and valves represented 29 and 22 percent repectively of the total value of extra-EU exports. The exported volume of valves was considerably lower, implying that this product group has a much higher value per ton than metal pipes. Measured in tonnes, the share of instruments and safety devices in EU exports is the lowest, but the high value of the products meant that they represented a share in value of 14 percent. Vessels, fittings and plastic pipes also had a higher value per ton than metal pipes, but their trade volume was lower, resulting in market shares of respectively 19 percent, 9 percent and 8 percent.

Opportunities for exporters in developing countries
The best opportunities are lie in:
- Metal pipes (not too complex products)
- Valves (relatively high volumes; high mix of products)

Good opportunities (margins), but more difficult (because of low volumes and complexity of the product) are also to be found in:
- Instruments & safety devices

Opportunities for exporters have arisen thanks to the global markets in which companies (in networks) are now competing and the innovative and cost price pressure with which they are being confronted. Outsourcing is a key item for many European companies, in order to be able to realise the demanded cost prices. This presents opportunities for exporters from developing countries. The sector policies in most of the end markets favour knowledge economy (in technology, logistics, processes). This means focusing on product development, production engineering and the production of prototypes. As soon as they reach normal (mass) production, these companies are expected to relocate production to low-wage regions (optimal price-performance ratio). European importers and suppliers are outsourcing production and/or opening local plants in Eastern Europe and the Far East. Another important item is the growth of the Far East market and the resulting compensation orders from European companies to local Far East companies.
Local sector organisations in the European countries constitute a threat. Theirfocus in on the objectives and goals of local industry and employability. They will not encourage the outsourcing of work to developing countries. A further threat lies in the capital needed to turn your product into a brand and to improve the companies abilities to European standards. You as an exporter must have the financial capacity and the technical knowhow needed to invest in European markets and standards.

INTRODUCTION

This CBI survey is divided into two sections: EU Market Information and Market Access Requirements (Section A) and Export Marketing Guidelines (Section B).

Market Survey

Part A
EU Market Information and Market Access Requirements

EU Market Information *(Chapters 1-8)*	**EU Market Access Requirements** *(Chapter 9)*
Product characteristics Introduction to the EU market Consumption and production Imports and exports Trade structure Prices	Quality and grading standards Environmental, social and health & safety issues Packaging, marking and labelling Tariffs and quotas

Part B
Export Marketing Guidelines: Analysis and Strategy

External Analysis (market audit) *(Chapter 10)*	**Internal Analysis (company audit)** *(Chapter 11)*
Opportunities & Threats	Strengths & Weaknesses

Decision Making
(Chapter 12)

SWOT and situation analysis:
Target markets and segments
Positioning and improving competitiveness
Suitable trade channels and business partners
Critical conditions and success factors (others than mentioned)

Export Marketing
(Chapter 13)

Matching products and product range
Building up a trade relationship
Drawing up an offer
Handling the contract
Sales promotion

Chapters 1 to 8 (part of Section A) profile the EU market for pipe and pipe-related process equipment. The emphasis of the survey lies on those products that are of importance to developing country suppliers. The major national markets within the EU for those products are highlighted. The survey includes contact details of trade associations and other relevant organisations. It also provides statistical market information on consumption, production and trade, and information on trade structure and opportunities for exporters.

Chapter 9 (second part of Section A) describes the requirements that must be met in order to gain market access for the product sector concerned. In addition, it is of vital importance that exporters comply with the requirements of the EU market in terms of product

quality, packaging, labelling and social, health & safety and environmental standards.

Having read Section A, it is important for an exporter to analyse the target markets, sales channels and potential customers in order to formulate marketing and product strategies. Section B then aims to assist (potential) exporters from developing countries in their export-decision-making process.

Having assessed the external (Chapter 10) and internal environment (Chapter 11), the (potential) exporter should be able to determine whether there are interesting export markets for his company.
By matching external opportunities and internal capabilities, the exporter should be able to identify suitable target countries, market segments and target product(s) within those countries, and possible trade channels via which to export the selected products (Chapter 12).

Chapter 13 then outlines which marketing tools can be used to build up successful business relationships.

The survey is interesting for starting exporters as well as for exporters already engaged in exporting (to the EU market). Section B is of particular interest to more experienced exporters starting to export to the EU and exporters looking for new EU markets, sales channels or customers. Starting exporters are advised to read this publication together with the CBI's Export planner, a systematic guide to setting up export activities.

Part A
EU market information and market access requirements

1 PRODUCT CHARACTERISTICS

1.1 Product groups

The products and equipment intended for use in the process industry can roughly be divided into five groups. These groups comprise the equipment necessary to:

1. store the medium (product: solid, liquid or gas);
2. transport/move the medium;
3. process the medium into a final or intermediary product;
4. measure the process variables;
5. control the medium and process.

The first two consist of all the necessary products needed to store and transport process media. Typical examples of these products are pipes, valves, cocks, storage vessels and tanks. Pumps and compressors are examples of equipment used for the second group; these are used for getting and keeping the media in motion. Equipment used to process the media, such as heat exchangers, scrubbers, mixers, vaporisers and condensers are categorised under the third group. The last two groups, electrical and electronic products, are used to measure and monitor the flow and processing of the media and to measure the result achieved. These products include control-room instruments, safety devices, alarm instruments and controllers.

This survey will focus on the first group and parts of the third and fifth groups. The products in the second and fourth groups and parts of the third and fifth group are covered by other CBI surveys entitled Engineering Products, and Instruments respectively. Both surveys can be obtained from CBI, but do not necessarily complement each other.

A division is made into six product groups:

1. Metal (ferrous and non-ferrous) pipes and tubes;
2. Pipes and tubes made from plastic and composites;
3. Fittings (parts of tube systems, such as flanges, couplings, elbows and tees);
4. Valves (all devices designed to control, reduce or block the flow in a tube or pipe);
5. Vessels (storage tanks, drums, processing vessels and the like);
6. Instruments (only those which are in direct contact with the medium).

Note: The term tube is used for diameters up to 150 mm and the term pipe for diameters greater than 150 mm.
The above product groups serve as a guideline throughout the whole survey.

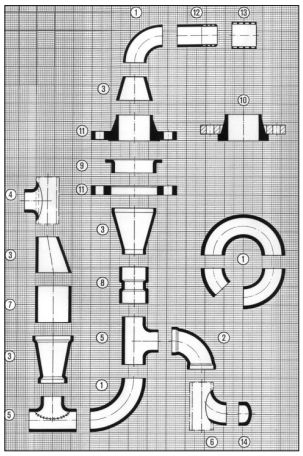
Generally speaking, the product groups are applied in the following types of industries:

- (Semi)Processing (e.g. Chemical industry, Water management and Oil and Gas exploration)
- Parts production (metal) industry (e.g. Automotive)
- Construction (utility and house-building)

In the process industry, the process equipment can be defined as 'reactors, vessels and tanks used for production and storage and connected via tubes or pipes (depending on the processed material)'. Fittings and valves are used to direct the flow. The total process is measured and controlled by instruments. The equipment used in the process industry is characterised by high investments, project control and a limited number of projects but high demand (type and volume) for pipes/pipe-related products. The parts production industry is dominated by requests for pipe-related products (valves, fittings; sometimes tanks and vessels). The products are manufactured in larger batch sizes and assembled in other products (e.g. motor blocks, truck coach-works). The construction industry is a major consumer of pipes (plastic and metal) and fittings.

The illustrations and descriptions below provide a number of examples of different product groups.

Fittings



1: Elbow for welding
2: Elbow for soldering
3: Reducer
4: Welding saddle
5: Tee
6: Bend for welding
7: Pipe
8: Socket for soldering
9: Flange collar
10: Welding neck
11: Welding flange
12: Weld nipple
13: Threaded socket
14: Cap

Valves
Below are the different types of valves and actuators: Gate; globe; check; quarter-turn; diaphragm & pinch; other safety or relief; pressure reducing; process control; pneumatic/ hydraulic actuators; electric actuators; pneumatic control valves; electrohydraulic control valves.

Applications for valves, within the end-user industries, are:
Slurry pipelines; cryogenic; emergency; utility; accommodation; oil pipelines; water pipelines; steam; service; corrosive; non-corrosive; reactor control; hygienic.

1.2 Customs/statistical product classification

On January 1, 1988 a unified coding system was introduced to harmonise the trading classification systems used world-wide and to allow for improved international comparability of foreign trade statistics. This Harmonised System (HS), is based on an 8-digit product classification. The HS codes have a logical structure. The first two digits of the code denote the main group, all following digits provide further detail. Table1.1, lists all the HS codes used in this survey. Though this list covers almost all products falling in the various categories, it is impossible, within the scope of this survey, to include all pipes and pipe-related products available on the various markets. It should also be taken into account that part of this report relies on third-party data sources and analysis. It is not, therefore, always possible to check exactly which product groups have been used by these sources. Though generally valid, the data in this report should not be regarded as absolutely accurate and should be verified for specific product groups before planning to enter a market.

Table 1.1 HS code classification of pipes and pipe-related equipment

HS codes	Products	Markets
	Metal (ferrous and non-ferrous) tubes and pipes;	**Construction; Machine and equipment manufacturing; Hydraulics; Petrochemical industry; Offshore; Energy; Shipbuilding; Food processing; Furniture**
7303	Cast iron tubes, pipes and hollow profiles	
7304	Iron (not cast iron) or steel seamless tubes, pipes and hollow profiles	
7305	Other iron or steel tubes & pipes…..external diameter 406.4mm or more welded rivets	
7306	Other iron or steel tubes, pipes & hollow profiles (not 7305)	
7411	Copper tubes and pipes	
7608	Aluminium tubes and pipes	
	Tubes and pipes made from plastic and composites;	**Petrochemical industry; Water; Energy; Construction sewage and drainage**
3917 (only .29, .31-.33, .39 and .40)	Plastic tubes, pipes & hoses & their fittings, joints, elbows, flanges, artificial guts, sausage casings	
39235090	Plastic stoppers, lids, caps, and other closures (excl. caps and capsules for bottles)	
	Fittings;	**Water, gas and central heating installations**
7307	Iron or steel tube or pipe fittings couplings, elbows, sleeves, flanges	
7412	Copper tube or pipe fittings, couplings, sleeves, elbows	
7609	Aluminium tube or pipe fittings, couplings, elbows, sleeves	
7805	Lead pipes, tubes & fittings couplings, elbows, sleeves	
7906	Zinc tubes, pipes and tube or pipe fittings, couplings, elbows, sleeves	

	Valves;	**Oil and gas (on- and offshore); Basic and other chemicals; Pulp and Paper; Power generation; Water Sewerage; Mineral processing; Food, drink, pharmaceuticals; Metal manufacturing; Ship production/ repair; Domestic Building Services**
8481 (only .10, .30, .8059-.8099, .90)	Taps, cocks, valves and similar appliances for…..pipes, boiler shells, tanks, vats, etc; parts thereof pressure-reducing valves, thermostatically controlled valves	
	Vessels;	**Oil and gas (on- and offshore); Basic and other chemicals; Power-generation; Food, drink;**
392510	Plastic reservoirs, tanks, vats and other containers with capacity over 300 litre	
7309	Iron or steel containers …..over 300 litre capacity (not with mechanical or thermal equipment & not for compressed or liquefied gas) reservoirs, tanks, vats	
7310	Orin or steel containers…..300 or less litre capacity (not with mechanical or thermal equipment & not for compressed or liquefied gas) reservoirs, tanks, vats	
7311	Iron or steel containers …..for compressed or liquefied gas	
7611	Aluminium tanks, vats, reservoirs over 300 litre capacity (not for compressed or liquefied gas & not fitted with mechanical or thermal equipment)	
7612	Aluminium containers, casks, drums, boxes, etc…..not over 300 litre capacity (not fitted with mechanical or thermal equipment)	
7613	Aluminium containers for compressed or liquefied gas	
8402	Steam or other vapour generating boilers(not central heating); super heated water boilers	
8403	Central heating boilers (not 8402) and parts thereof	
	Instruments;	**Oil and gas (on- and offshore); Basic and other chemicals; Pulp and Paper; Power generation; Water Sewerage; Mineral processing; Food, drink, pharmaceuticals; Metal manufacturing; Ship production/ repair; Building Services Domestic**
9026 (only .10, .20, .80, 9014, 9015, 9028, 9032, .90)	Instruments & apparatus for…..measuring/checking liquid/gases…..flow, level pressure (not flow meters, level gauges, manometers, heat meters	
9032	Automatic regulating or control instruments; parts & accessories	
848120	Valves for oleohydraulic or pneumatic transmission	
848140	Safety or relief valves	
84818051	Thermostatically controlled process valves (excl. thermostatically controlled valves for central heating radiators)	

The HS codes and product descriptions have failed to keep up with changes in the goods and trades they refer to and now tend to be antiquated and inaccurate. The aim of the World Customs Organisation is to make the whole structure simpler and more relevant. Following industrial consultation, recommendations based on 'trade practice' have been developed. These will enable the trade to define, record and more effectively use data generated by import statistics.

2 INTRODUCTION TO THE EU MARKET

The European Union (EU) is the current name for the former European Community. Since 1 January 1995 the EU has consisted of 15 member states. Ten new countries are to join the European Union in 2004. Negotiations are in progress with a number of other candidate member states.

In 2002, the size of the EU population totalled 379.4 million and the average GDP per capita amounted to approximately € 21,023.

Within Western Europe – i.e. the 15 EU member countries plus Iceland, Liechtenstein, Norway and Switzerland – more than 20 million enterprises are active. Small and medium-sized enterprises (SMEs) account for the lion's share. In 2000, the average turnover per enterprise of SMEs and large enterprises amounted to € 600 thousand and € 255 million respectively.

EU Harmonisation
The most important aspect of the process of unification (of the former EC countries) affecting trade is the harmonisation of rules in the EU countries. Since the unification allows free movement of capital, goods, services and people, the internal borders have been removed. Goods produced or imported into one member state can be moved around between the other member states without restrictions. A precondition for this free movement is uniformity in the rules and regulations governing locally produced or imported products. Although the European Union is already a fact, not all the regulations have yet been harmonised. Work is still in progress in the fields of environmental pollution, health, safety, quality and education. For more information about harmonisation of the regulations visit AccessGuide, CBI's database on non-tariff trade barriers at www.cbi.nl/accessguide

Monetary unit: Euro
On 1 January 1999, the euro became the legal currency within twelve EU member states: Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, The Netherlands, Spain, and Portugal. In 2002 circulation of euro coins and banknotes replaced national currency in these countries. Denmark, United Kingdom and Sweden have decided not to participate in the Euro.

The most recent Eurostat trade statistics quoted in this survey are from 1999. In this market survey, the € is used as the basic currency unit to indicate value.

Trade figures quoted in this survey must be interpreted and used with extreme caution. The collection of data relating to trade flows has become more difficult since the establishment of the single market on 1 January 1993. Until that date, trade was registered by means of compulsory customs procedures at border crossings, but, since the removal of the intra-EU borders, this is no longer the case. Statistical bodies like Eurostat cannot now depend on the automatic generation of trade figures. In the case of intra-EU trade, statistical reporting is only compulsory for exporting and importing firms whose trade exceeds a certain annual value. The threshold varies considerably from country to country, but it is typically about € 100,000. As a consequence, although figures for trade between the EU

Overview 15 EU countries, 2002

Population	**379.4 million**
Area	**31,443,000 km²**
Density	**83 people per km²**
Languages	**15 (excl. dialects)**
GDP/capita	**€ 21,023**
Currencies	**€, UK£, DKr., SKr.**
Exchange	**€ 1 = US$ 0.99**

Source: The World Factbook 2002

Population and GDP of selected EU countries, 2002

Countries/category	Population in millions	Age 15-64	GDP (€ billion)
Germany	83.3	68%	2,206
France	59.8	65%	1,556
UK	59.8	66%	1,485
Italy	57.7	67%	1,416
Spain	40.1	68%	836
The Netherlands	16.0	68%	417

Source: The World Factbook 2002

and the rest of the world are accurately represented, trade within the EU tends to be underestimated.

In addition, it should be noted that the information used in this market survey is obtained from a variety of different sources. Extreme care must therefore be taken in the qualitative use and interpretation of quantitative data, both in the summary and throughout the text, as well as in drawing comparisons between different EU countries with regard to market approach, distribution structure, etc.

For more information on the EU market, please refer to the CBI's manual Exporting to the European Union.

This survey focuses on the six major EU markets for pipes and pipe-related products. These are Germany, France, the United Kingdom, Italy, The Netherlands and Belgium. These EU member countries are highlighted because of their relative importance in terms of consumption, production, imports and exports.

3 INDUSTRIAL DEMAND

The industrial demand is defined as the volume of pipe and pipe-related process equipment that is demanded by each of the distinguished type of industry. Pipe and pipe-related products are used in very many different parts of the economy. There are four large industry sectors: process, machine, furniture and the construction industry. These industry sectors embrace a multitude of interesting market segments for pipe and pipe-related products:

- Process industry:
  → (petro)chemical
  → maritime
  → offshore
  → paper and board
  → energy
  → water (sewerage and distribution)
  → oil and gas exploration
  → food
- Machine industry:
  → machines

vautomotive

- Furniture industry:
  → metal furniture
- Construction industry:
  → utility
  → house building

In general, the process, automotive and construction industry are the most important users of pipe and pipe-related products. The importance of industries varies from one EU member state to another. In France, the major downstream industries are energy, chemical industry, the food and drink industry, building and construction, and oil and gas. Together they account for 70 percent of the sector's output. Major client industries in Germany are the chemical, automotive, engine construction and energy industries. In the United Kingdom, oil, energy, port and shipping, iron and steel are primary outlets, whilst in Italy the energy, automobile, port and shipping and ventilation industries are major clients.

In the next section the industrial demand will be treated, first per product group and then on country level: EU and per selected country.

3.1 Market size

At a global level, the pipe and pipe-related market can be characterised by uncertain demand, take-overs and mergers of companies and pressure on prices. Globalisation is a fact that almost every company is being forced to take into account. Competition from producers from Middle and Far East is evident. The most important markets have shown a low to moderate investment level. Because of economic uncertainties, consumer confidence and price competition, investment levels diminished in the chemical and construction industries. This led to a negative economic growth for pipe and pipe-related process equipment in the above markets. Delayed maintenance is expected to lead to an increasing demand for maintenance and revision in above markets from 2004 onwards.
The relatively high oil price is leading to increasing investments in the petrochemical and oil and gas exploration industry. The market for water and sewerage is also increasing because of the investments being made in upgrading the infrastructure.

Industrial demand per product group
There are six major product groups in Europe that fall under 'pipe and pipe-related products' (see chapter 1). Total spending in these product groups worldwide is estimated to have been 17.1 billion Euro in 2002. Pipe and pipe-related products are consumed in industry and construction (the latter consumes tubes predominantly, more and more of which are being made from plastic). Pipes, tubes and fittings can be seen as one comprehensive group with roughly the same consumer markets, volumes and trends. The group instruments is the most important one, due to the high demand for products to be used for process automation.

Early in 2002, forecasters estimated that in that year spending on the various product groups would be divided over the global market as shown in table 3.1 below.

Table 3.1 Relative importance per product group

Product group	Part of the market
instruments	38 %
pipes and tubes	27 %
valves	12 %
vessels	17 %
fittings	6 %

Source: Hydrocarbon Processing, February 2002

Metal pipes and tubes
The main consumers of steel pipe are the energy-related industries (e.g. oil, gas, nuclear, steam-generating industries) and the petrochemical, automotive, mechanical engineering, mechanical services, and construction industries. Smaller markets, worth mentioning because of their relatively high consumption of pipes and pipe equipment, are the food (dairy) industry, water purification, transport industry

and ship building. The total demand for steel pipe was about 14 million metric tons in 2001.
The heavy economic contraction at the end of 2001 was followed by a strong downturn in activity as the reduction in industrial output took hold. The current prospects for 2003 and 2004, especially in energy-related products, large diameter pipe sector and power plants, are good. Company sales are increasing thanks to strong demand from the oil drilling pipe business and conduits in the energy sector.

The industrial demand for aluminium and copper pipe is lower than for steel pipe. In 2002, the aluminium pipe market totalled about 200,000 metric tons and the copper and copper alloy pipe market for about 700,000 metric tons. These types of pipes are mainly used for plumbing (household gas and water lines) and industrial purposes (air conditioning, refrigerators, etc.). The construction sector determines to a large degree how business will develop. The prospects for 2003 and 2004 suggest a light negative trend, while the construction sector is expected to show negative growth.

Plastic tubes and pipes
Important applications for plastic pipes are:
- Clean water distribution - in municipal systems and inside buildings;
- Waste water conveyance - in municipal sewer systems and inside buildings;
- Gas distribution;
- Irrigation and land drainage;
- Cable protection;
- Domestic heating;
- Industrial systems.

The pipe market, in particular sewage and drainage pipes, tends to reflect trends in the construction industry. In recent years the downturn in building activity has affected the rate of growth of plastic pipes. The majority of growth in consumption within this sector has been derived from the replacement of existing pipelines, rather than from new installations. The market still constitutes the largest end-use sector for plastic pipes but has suffered in recent years, due to lack of public authority finance in many European countries.

The largest market for plastic pipes in Europe is Germany, accounting for over one fifth of total consumption, followed by Italy, the UK and France. These four countries together account for over 80 percent of the total European market.

Valves
The European valve market (EU-15) was worth about € 10 billion in 2002, according to CEIR (European valve branche organisation) estimations. The domestic and industrial users' shares are almost equal. Domectic use is the demand for valves by the construction and plumbing market (use in buildings). The industrial use is the demand where valves are used in industrial applications.
The market fell by 7 percent between 2001 and 2002. Only the pharmaceuticals and the water and wastewater market segments showed positive growth. The market outlook for 2003 shows less than 1 percent growth.

Global consumption of valves has been relatively stable over the last few years and totalled to € 43.8 billion in 2001. Industrial demand fell in 2002 and 2003 because of cyclical fluctuations caused by the economic situation and cyclical investments in plant and equipment. The most important markets are oil and gas (on- and off-shore) and refining, energy and power plant, chemical, pulp & paper, water and sewage, food and beverages, ship building and metal manufacturing.

Global demand for valves in the **oil and gas** industry is expected to show a five percent growth up to 2005, which would mean € 12.4 billion compared to € 8.9 billion in 2002. The upstream market for valves depends heavily on oil and natural gas prices.
The **chemical** industry is a large user of sophisticated valves. The global chemical market for valves is expected to grow from € 6.3 billion in 2002 to € 7 billion in 2005. The market is not actually very healthy because of extreme competition, low capacity utilisation and falling operating margins. This is resulting in a substantial reduction in capital expenditure. In 2004 and 2005 capacity utilisation and margins will recover, leading to an increase in demand for valves.
The market for **power generation** is growing at solid and stable rates, driven by replacement, economic growth and environmental concerns. The market in the EU (especially Italy, United Kingdom, Spain) will grow because of the necessity to build new plants in order to overcome low energy reserve margins. The global market for valves (especially Europe, Asia/China) in this area is expected to grow by 9 to 10 percent annually up to 2005 (€ 6.9 billion).

Now, more than ever, producers of valves must identify and then target those areas of growth and profitability that will complement their strengths and enhance their position in the market. Companies that fail to devote the necessary resources to tracking the market, developing a response to identified trends and challenging their competitors are likely to drop to marginal positions in the market place.

Fittings
The use of and demand for fittings is following the same trends as the market for pipes and tubes and the market for valves. Most of the changes in the pipe market are caused by the gas, petrochemical, chemical and water and food industry. Fittings are more attractive for export than tubes, because their smaller size makes

their transportation more economical. Furthermore, fittings or couplings are very often castings or forgings, although a major share is still accounted for by copper alloys. More information on castings and forgings can be found in the "EU market survey castings and forgings", which can be obtained from CBI. Plastic fittings have a limited scope in industry, but the development of new composite materials could increase their importance.

Vessels
The product group 'vessels' can generally be divided into markets for storage/metal tanks, boilers and drums. The market for metal tanks and boilers supplies equipment to many branches of other industries. It produces a variety of capital investments goods for the following purposes (in decreasing order of importance): the production of thermal and electrical power; the oil and gas industry; the chemical, petrochemical and pharmaceutical industries; the paper industry; various other industries including automobile, textile, mechanical engineering, cement, rubber and electronics.

Drums are encountering competition from substitute packages, but because of their strength, safety and ease of handling and uniformity, they are still favoured in many sectors, particularly in the lubricating, chemical and allied industries, for transporting and storing liquids in tights drums.

The sector is the subject of a highly complex directive (with the US codes, like ASME; see chapter 9) and strong competition world-wide. The European market for 2002 was about € 90 billion (gas appliances, aerosols and pressure vessels).

Instruments
The group 'instruments' is diverse. Under industrial automation, we have only included field instrumentation, control valves and handheld measuring apparatus (safety). System integration and business IT is in particular demand. This seems to be a European trend. It means that the market for pipe-related instruments will decrease. The offline control of processes is leading to an increasing consumption of instruments, but these are mainly ICT products.
In 2002 and 2003 the industrial demand for instruments clearly decreased. At EU level demand fell by about 10 percent in 2002. A slight increase in order intake is expected for 2004.

Industrial demand for pipe and pipe-related process equipment, on country level

The European Union market
The energy (oil and gas), pharmaceuticals, food and chemicals industries are all showing signs of good market developments in 2003. Business confidence, order books and production are high. This is leading to a growth in capital investments, which in turn is leading to anincrease in demand for pipe and pipe-related products. Within the automotive industry, the aerospace industry has experienced a drop in domestic orders, whilst sales of passenger cars are increasing. However, industrial demand for pipe and pipe-related process equipment has not yet returned to 2000 levels.

It is very difficult to obtain accurate information on industrial demand, due to the large number of markets that purchase pipe and pipe-related products and the wide range of types of products treated in this survey. The industrial demand figures presented in the survey should be treated with extreme caution. They are based on broad aggregations of product groups and derived from calculations based on available data.

The Netherlands
Major industries in the Netherlands are the (petro) chemical industry, gas exploration, food and beverage, machinery and construction. The international orientation of manufacturing companies is evident from the presence of well-known multinationals such as Royal Dutch/Shell (oil), Unilever (fast-moving consumer goods), Philips (electronics) and Heineken (brewing). The country also benefits from significant natural gas resources and is the fourth largest producer in the world after Russia, Canada and the US.
The economic indicators for the processing and manufacturing industry are uncertain for the coming years. Growth was negative in 2002 and 2003. Light growth is forecast for 2004, as the focus is redirected onto the cost price. Companies will need to pay particular attention to the optimisation of organisation, efficiency and occupation rates. Added value is crucial. Creating too little added value will lead to loss of turnover because of the globalisation of the market and production.The Netherlands has a number of system integrators that are gaining a stronger position in the global market. It is a major buyer of products used for the installation and maintenance of plants. Companies should note this trend and respond appropriately.

Due to decreasing manufacturer confidence, high stock levels and diminishing occupation rates, investments in industry will fall. The food and related industries are expected to see a slight increase in sales. Demand is growing whilst - in the internal market in particular - export is deteriorating. Because of decreasing occupation rates, investments will not reach high levels. The process industry is not doing well in terms of consumption and sales prices. Occupation rates are at a low level, and investments in existing plants are decreasing.

The best prospects for the Netherlands lie in oil, food and chemicals/pharmaceuticals. These are two of the

most important market segments for pipe and pipe-related process equipment and show moderate to good future growth prospects.

Domestic sales of the Dutch metal and electrotechnical parts producing industry (delivering to above mentioned industries) dropped by 4.5 percent in 2002. Demand from the construction sector, traditionally an important buyer of metal parts and components (pipe, valves), hardly rose at all because of the low increase in the construction of dwellings and other buildings. Table 3.2 clearly presents the diminished industrial demand for metal pipes in 2001 and 2002.

Table 3.2 Estimated consumption of pipe and pipe-related process equipment in the Netherlands, 2000-2002, € million

Product	2000	2001	2002
Metal pipes	244	155	171
Vessels	463	803	731
Instruments	1138	1101	1147

Source: FME/CBS (2003)

The demand for vessels rose as a result of higher investment levels in the energy industry (high oil price). Industrial demand for instruments for industrial automation was 5.2 percent lower in the first half of 2003 compared to the same period in 2002. A small growth has taken place in the order book, but it is questionable whether this will lead to higher turnovers. Capital expenditure is not expected to increase until and unless the conjuncture increases for some period. A real improvement in industrial demand is not expected until 2004.

France

Over the last two years the French industrial sector has shown an annual growth of about 2 percent. France is therefore performing better than the EU as a whole. However, investments by industry has decreased with 11 percent in 2002. This indicates slaggered trust from companies in economic developments. This will lead to lowered industrial demand for pipe and pipe-related process equipment for new plants.
Each sector has its own characteristics and should be carefully analyzed by those hoping to capture a share of the French market. Industrial demand for metal forming (including metal pipes, valves) amounted to € 3.35 billion in 2002. The automotive is the main market segment, responsible for 65 percent of the industrial demand. The output of the French automotive sector fell by 5 (passenger cars) to 11 (commercial vehicles, trucks) percent in 2001. A fall of 5 percent is expected for 2003. The machinery sector accounts for 5 percent of the industial demand for metal forming products. The construction sector had an output growth of 5 percent in 2002. This leads to a higher industrial demand for metal pipes and vessels (especially boilers).

As the world's fourth largest economy, centrally located within the European Union, there is strong competition for market share in all French industrial and service sectors. Exporters to France generally face more competition from European companies than from Asian ones, although Japanese companies have successfully established a foothold in the French market, primarily through investment.

Germany

National industrial demand is stagnating; growth in the German economy is dependent on exports. Renewed economic growth is expected from the end of 2003 onwards, continuing into 2004.

Table 3.3 Important sectors for pipe and pipe-related process equipment in Germany

Industry type	% of industrial demand value in 2001
Chemical, petrochemical, oil industries	26
Pharmaceuticals, cosmetics, biotechnology	7
Food and beverage	14
Metal working industry	10
Public disposal	8
Energy generation and distribution	6
Coal, steel and metallurgy	6
Plastic industry	5
Heating, air-conditioning and cooling	2
Other industries (e.g. construction)	16

Source: VDMA, 2002

The chemical industry is the most important in Germany. They manufacture products both for industrial buyers and for consumers. Production of chemical raw materials (47.3 percent), pharmaceutical products (19.4 percent), and paint and ink (9 percent) are the most important activities. Total turnover in 2000 was about US$ 110 billion, a growth of 12.3 percent compared to 1999. Germany is the third largest industrial nation in the world, after the USA and Japan.

Industrial demand for metal forming (of which metal pipes and vessels are a subset) amounted to € 7.27 billion in 2002 (an increase of 5 percent compared to 2001). This sector performed better than other

subcontracting sectors (including valves, fittings and instruments).
The automotive sector grew by 5 percent in the first half of 2003. A growth of 3 percent is expected for 2003, while the automotive market is an important customer for the metal forming companies, with 50 percent. The machinery sector accounts for 7 percent of the industial demand for metal forming products (especially vessels).
Strong competetion and price pressure have resulted in decreasing profits. Cost savings failed to compensate for decreasing product prices.

The poor economic situation in the German construction industry has not improved in the entire period from 1997 up to 2003. The order intake for manufacturing still lies at -2.2 percent in 2003. There are now some optimistic forecasts suggesting that 2004 will mark a change for the better. However, it is a fact that the construction levels of the mid-nineties will not be equalled in the next twenty years. For this reason, the German construction and building material machinery industry is continuing to focus on its export activities.

Italy

Italian economy grew with 0.4 percent in 2002. The automotive industry fell by 2 (commercial vehicles) to 12 (passenger cars) percent in 2002. Especially the industrial demand for metal pipes, fittings and valves fell back.
The turnover of the construction sector (€ 22.4 billion; -0.3 percent, compared to last quarter of previous year) and the machinery and equipment sector (€ 24.3 billion; -1.9 percent) decreased in the first quarter of 2003. The industrial demand for pipes (metal and plastic), instruments and vessels (boilers, tanks) fell as a result. As in Germany, producer prices are under pressure. Efficiency operations are failing to compensate for the drop in product prices.

Italy's key strength lies in manufacturing products that require high-quality design and engineering. The strongest component of the Italian economy consists of networks of small and medium-sized family-owned companies, mostly in the north-east and centre of the country. Despite being traditionally export-oriented, Italy's small and medium-sized companies face a serious challenge from global economic integration and increased competition. In particular, their unwillingness to go public to finance expansion has hindered growth and left some companies vulnerable to acquisition by larger foreign firms. This offers possibilities for developing country exporters. Italian companies are loosing share because of their inefficiency.

United Kingdom

The East and West Midlands are still the most industrialised regions. The most important industry segments for pipe and pipe-related process equipment are: food and beverage, chemicals, energy and water.

Table 3.4 Important sectors for pipe and pipe-related process equipment in the United Kingdom (turnover in million US$)

Sector	1999	2000
Food and drink processing	2,614	2,649
Chemical industry	2,399	2,356
Oil and gas production	1,430	1,025
Water industry	1,019	980
Electricity generation	852	785
Estimate for pipe and pipe-related products (16% of total)	1,330	1,247

In 2000, the process industry in the United Kindom demanded about 9,000 million US$ on plant and equipment.
The automotive sector had a falling output of 42 percent in 2002 (2001: -19 percent). The result is a diminishing industrial demand for metal pipes and valves.

Belgium

The regions around Liege, Antwerp, Gand and Charleroi are the most industrialised. The most important industry segments are the (petro)chemical and the automotive industries.

Economic growth in Belgium amounted to less than 1 percent in 2002. Forecast growth for 2003 is not higher than 1.3 percent. Investments decreased in 2002 by –2.6 percent and is only likely to increase in 2003 by a slight 0.5 percent. The demand generated by public investments (water sewerage and distribution) will be especially low. Industrial demand in the construction sector fell by 3 percent in 2002. The main reasons was weak public demand for building and civil engineering. The situation in the automotive sector was better. 2002 was a good year, with increased investments in 4 Belgian assembling companies. However, 2003 is expected to be difficult because of new competition from pre-accession EU-countries with their low wages (especially used for standard products).

Table 3.5 Estimated consumption of pipe and pipe-related process equipment in the Belgium, 2001-2002, € million

Product	2001 € million	2002 € million	2002/2001 (% change)
Metal products (metal pipes is part of it)	8,625	8,609	-4.8
Plastics (plastic pipe is a small part)	1,634	1,624	-1.8
Industrial automation (Instruments is part)	1,540	1,400	-10
Automobile	16,405	16,064	-5.1
Aerospace, defense & safety	1,462	1,309	-9.8

Source: Agoria (2003)

Industrial demand for metal products (including metal pipes) has fallen over the last 5 years by 13 percent. The conjuncture barometer for these products stands at –17 percent, indicating a further fall in demand.
Industrial demand for instruments has been stable for the last 5 years. The conjuncture barometer for this products stands at –21 percent, indicating a fall in demand.

3.2 Market segmentation in Europe

One important factor is the high price level of oil at the moment. This is leading to a **high investment level in oil and gas exploration**. These investments are being pushed even higher by the need to recover oil installations in Iraq. The use of pipe, valves and the production of vessels in particular will profit from this. An overall zero effect is foreseen for the growth of the process industry sectors. This means a stable to a slightly growing consumption of pipe and pipe-related products.
Investments in **petrochemicals** (the largest user of metal tube) were low in 1998 - 2000. The period 2001 – 2003 has shown an increase in investments. New plants are being constructed and existing ones are being thoroughly upgraded.
The **paper and board** market is characterized at the moment by mergers and a negative trend. Prices for raw materials are high, and consumption is decreasing. Investment levels are therefore low. Postponed maintenance is expected to lead to increasing investments in maintenance and upgrading in 2004.
The **energy and water** industry is undergoing structural reorganisation, as it is currently being privatisated in Western Europe. The importance of use makes it a high-interest product. Major investments are being made by a number of global players. For plastic pipe, tube and fittings, this also opens opportunities to developing country exporters (best via agents, because of their familiairity with local country possibilities).

The market in the **machine industry** is relatively stable, showing clear negative investment levels in the period 2001 - 2003. The best opportunities lie in the relocation of production to low-wage countries (production and assembly). The marketing of products from local plants should be handled via exporters and via agents.
Consumption in the **automotive** sector is uncertain. There are reservations about making big investments. The prospects for pipe-related products are therefore also uncertain.

The **construction** sector shows a less promising picture. House-building will be a difficult sector in coming years. Especially the plastic pipe and fitting turnover for this sector will stagnate. The utility sector is declining because of economic downturn and the resulting office vacancy. This is leading to a fall in the number of public projects. The market trends for construction are: postponing of projects and decline of business, a large number of suppliers, fierce competition and low prices. Efficiency is therefore vital, but there are possibilities for exporters of pipe, tube and fittings.

The **furniture** industry is a minor player in the pipe and pipe-related industry. Consumption is fairly stable. It is of little interest to developing country exporters.

Two sectors are highlighted below: the (petro)chemical industry and the maritime industry, followed by a description of industrial demand per product group.

(Petro)chemical (hydrocarbon) industry
In 2001, the most important sectors within the EU chemical industry were: pharmaceuticals (25.9 percent), specialties, performance and consumer-oriented products (21.6 percent), plastics and polymer-oriented products (14.4 percent) and petrochemicals and derivates (13.4 percent). The EU chemical industry is made up of about 34,000 enterprises, 96 percent of which have less than 250 employees (categorised as small and medium-sized).

For **gas processing**, spending will amount to about € 11,400 billion in 2003 and is expected to reach € 12 billion in 2004. Gas processors are building new capacity as well as updating existing plants in order to meet growing demand, improve process flexibility and comply with environmental regulations.
Refining is expected to exceed € 58.2 billion in 2004 (€ 55.9 billion in 2003). This segment is showing particular growth in maintenance and operating budgets.

Petrochemical spending is projected at € 80,300 billion for 2004. Capital expenditures will be flat. Maintenance and operating spending will account for the increase.

Table 3.6 2002 Worldwide (petro)chemical industry, total spending for equipment and materials (US$ million)

Sector	United States	outside United States	EU estimation	Worldwide
Capital	2,450	15,850	8,235	18,300
Maintenance	4,360	12,800	7,722	17,160
Operating	12,200	29,000	18,540	41,200
Totals	**19,010**	**57,650**	**34,497**	**76,660**
of which, for:				
Piping	**488**	**2,383**	**1,300.95**	**2,891**
Valves	**427**	**1,689**	**952.2**	**2,116**
Vessels and internals	**496**	**1,975**	**1,111.95**	**2,471**
Instrumentation	**1,337**	**5,572**	**3,109.05**	**6,909**
Furnaces/Boilers and Tubes	**409**	**1,719**	**957.6**	**2,128**
Storage tanks	**98**	**634**	**329.4**	**732**

Source: Hydrocarbon Processing (2002)
The equipment spending for the EU is estimated at 45 percent of the Worldwide spending

The industrial demand in the (petro)chemical industry is divided into 3 categories:
- Capital: investments in new plants or the upgrade of new plants and or the means
- Maintenance: materials and labour needed to assure proper working equipment
- Operating: materials and labour needed during the production process.

Spending on equipment and materials for maintenance will reach € 16,100 billion in 2003 and is forecast at € 16,900 billion for 2004. Capital spending amount to about € 16,400 billion in 2004. In recent years investments in new or upgraded plants have stabilised. This is reflected in capital spending, which will not match 2002 levels in 2004. The growth can be attributed to maintenance. Companies are reluctant to invest and increase their budgets for the maintenance of existing plants and equipment. This is leading to an increase in the demand for replacement pipe and pipe-related process equipment, rather than for new materials.

Maritime industry
The shipbuilding and repair industry in Europe has become more specialised in recent years. The most important reason is the competition from South Korea in sea ship building (tankers, carriers). They have built up a market share of 40 to 50 percent in 10 years time. The building of heavy ships is dominated by subsidies, so it is concentrated in those countries willing to provide such subsidies. A growing market is the rebuilding of heavy ships, also located in those countries that provide subsidies. Within Europe, the main shipbuilding countries are Germany (2002: 119 ships in portfolio, total 1,935 thousand GT), Poland (84, 1,780 thousand GT), Italy (40, 1,456 thousand GT), Croatia (39, 1,261 thousand GT) and Spain (108, 862 thousand GT). The Netherlands (2002: 147, 474 thousand GT) is also a major player, but concentrates on niche markets, the most important being “general cargo”.
Compared with 2001 Germany has experienced a portfolio decrease of 25 percent. Italy has lost 15 percent and Poland 30 percent. Croatia is rapidly gaining importance.

3.3 Consumption patterns and trends

Price sensivity
The economic situation is leading to fiercer competition. All European companies are focussing on cost reduction. Price reductions cannot, however, be fully compensated for by efficiency operations. This presents opportunities for developing country exporters. The process (chemicals) and automotive industries are still looking for cheaper alternatives. Quality, however must be good, otherwise companies are not in business.

Location of production abroad
The globalisation of the economy, combined with the resulting price pressure, is leading to more and more global sourcing. A trend towards the outsourcing of production from Western Europe to Eastern Europa and the Far East is evident. The expanding Single EU market with 10 new countries in 2004 will boost this process. Price developments are causing companies to reconsider optimum production locations. Many companies (about 50 percent) are expected to relocate to low-wage locations within the next 5 years. This process is only just beginning and will be professionalised in the next few years. **This opens up significant opportunities for professional developing country exporters.**

Large multinational suppliers are expected to dominate the markets for valves in the process industries, though smaller niche players should retain some power because of their greater ability to innovate and manufacture low-volume products. The development of new products and services will take on new significance, as competitors become more aggressive. Companies have already found that they must put ever-increasing effort into research and development, sales and marketing, so the production itself sometimes lags behind. Outsourcing plays a major role in this business. The impetus provided by the rapid industrialisation of the Asia-Pacific region is projected to drive this market, because producers and contractors from The Netherlands often turn to this region when looking for new products.

Supply chain dynamics
The trend of shifting responsibilities in the demand and supply chain will continue in coming years. This will result in companies having to make investments. Scale and specialisation are key aspects. Enterprises must specifically define their added value and invest in their core (human) capital. Simply delivering goods is not enough. Suppliers are also expected to guarantee an approved level of performance. Contracting (maintenance) capability is needed. More large (international) suppliers will emerge in response to the investments needed, and conglomerates will be formed in the key market segments for pipe and pipe-related products.

Rationalisation
Rationalisation can be defined as the restructuring of production processes in industries in order to reduce overall costs. The aim is to enhance labour productivity by choosing better, more modern and economic ways of manufacturing. This rationalisation has also resulted in the decrease of downtime and the amount of wasted raw material, thus creating a more profitable situation in these sectors of industry.

Maintenance costs in the processing industry are constantly under surveillance because of the high wages that have to be paid throughout Europe. Plant owners have made tremendous efforts to operate their factories with minimum staff. New investments sometimes aim at reducing not only the operational costs but primarily at avoiding costly maintenance.

Advanced techniques for asset management, benchmarking, contracting, employability, design-out maintenance, equipment efficiency and process re-engineering are frequently applied by the management of processing plants.

Product quality, design and safety
In general, an enterprise will be out of business unless it produces and guarantees quality. The process industry is subject to extremely stringent safety and quality standards. Products are strictly described according to norms such as API, DIN and ASTM. The ISO 9000 standards and the VCA-standard (prescribing under which circumstances production must take place in order to guarantee safe production conditions for operators) are commonly applied. The ISO 9000 series is a set of international norms and guidelines for quality management systems (see Chapter 9 for more information).

The conditions under which products are delivered must be perfect. The product must be produced, conserved, secured, packaged and transported in such a way that there is a guarantee of no product quality deterioration. Product documentation must be incorparated, proving the degree of care taken in production and distribution. High level production, conservation, warehousing and distribution standards are needed to ensure that European standards are met.

Suppliers within and outside the EU should be aware of existing and forthcoming legislation affecting sales, service, and customer support. The producer is liable for damage caused by a defect in his product, although the victim must be able to prove the existence of the defect and a causal link between defect and injury (bodily as well as material). A reduction of liability on the part of the manufacturer is granted in cases of negligence on the part of the victim. A "development risk" can also free the manufacturer from liability. The statute of limitations is ten years.

Service
Almost all products offered comply with the strict requirements imposed on them by the main end users, as well as with international standards and legal requirements. Suppliers need to offer more than that. Nowadays what is important is the total package they can offer. The product itself is just a part of that. Generally, it is extra service that persuades the client buy the products.

Environmental factors

Continuing globalisation will lead to fiercer competition between companies. In addition, legislation will be sharpened in the field of environment, safety and health. Finally, more attention will be paid to technological developments and possible reductions in use of raw materials and energy. Changing ideas on human living conditions are also leading to an increase in demand for a reduction in emissions, waste and horizontal pollution. Therefore the new generation of process plants will have a different structure in the mid to long term. Changes are expected to include:

- Fewer pipes and tubes;
- Computer-controlled carriers of chemicals;
- Process station; several process steps;
- Chips and microprocessors in the carrier will measure and control the processes;
- Transmitters will send process results to the control room;
- Distillation will give rise to innovative hybrid-concepts.

The above is expected to result in less product losses, less waste water, lower energy use, improved product flexibility and more compact plants. In the short term, however, takeovers and re-organisations are the only movements actually visible.

The competitiveness of the EU industry can be further improved if efforts by manufactures are directed towards R&D and towards complete tailor-made solutions, motivated by growing concern for the environment and the ever-increasing demand for higher efficiency in the downstream industries.

The pipe and pipe-related products industry itself does not pose a serious threat to the environment. Environmental issues are of particular relevance to the downstream industries. Client industries are, however, becoming increasingly aware of safety and environmental issues in the wake of developments in the industry's regulatory environment. In their attempt to meet the needs of their clients, manufacturers are also putting effort into product innovations relating to both safety and environmental issues.

ISO 14001 is a set of management guidelines designed to ensure that organisations are aware of their environmental impact and are continuously reducing them in a systematic manner, while maintaining or improving long-term profitability (see Chapter 9 for more information).

4 PRODUCTION

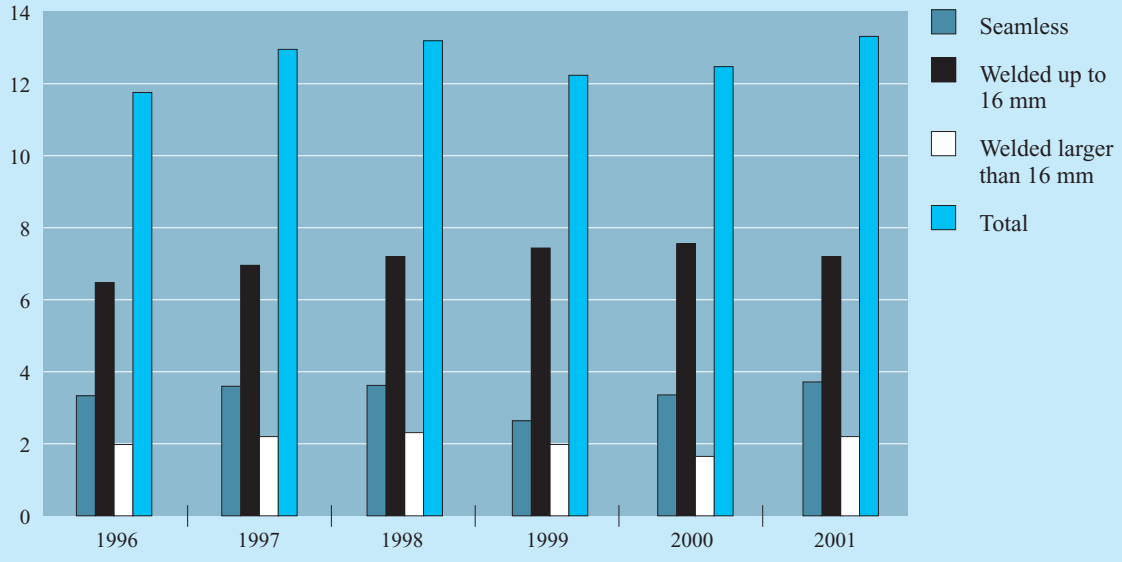
Production information has been gathered at country level for France, Germany, Italy, the Netherlands, Belgium and the United Kingdom. This production data will be presented per product group.

Unfortunately only limited data was available on plastic pipes, fittings and vessels. The other product groups can be treated in more detail. The following pages provide production information per product group.

Metal pipes and tubes
The producion of seamless pipes (especially for oil drilling) in the EU grew by 70 percent in 2000 up to 3.4 million metric tons and by about 10 percent in 2001 (3.75 million metric tons). This was due to a sharp increase in drilling activities in the United States from 2000 onwards. In 2001, the production level equalled that of 1998.
The production of welded pipes measuring up to 406.4 mm in the EU totalled about 7.3 million metric tons in 2001 (7.6 million in 1999 and 2000). It grew steadily in the period 1996 to 2001, with a small dip in 2001.
The production of welded pipes measuring over 406.4 mm (primarely for pipeline construction) showed a 40 percent growth in the EU in 2001 up to about 2.5 million metric tons. Production fell significantly in 1999 and 2000, but is now back at the 1998 level.
Oil and gas production and electricity generation has been increasing in the United Kingdom, since the late nineties. However, investments have been decreasing since a peak in 1998. The chemical industry is the largest manufacturing industry in the United Kingdom and the seventh largest in the world. UK companies are leaders in the manufacture of all types of upstream and downstream process equipment, specialising in 'exotic' materials for sour service conditions. The United Kingdom is the most important producer of pipes and pneumatic and hydraulic components. UK companies produce welded line-pipe for both trunk lines and distribution systems, including pipe within pipe, where high insulation is required to prevent hydrate or wax problems. The United Kingdom is sparticularly strong in pipeline design and the supply of anti-corrosion technology and protection systems.

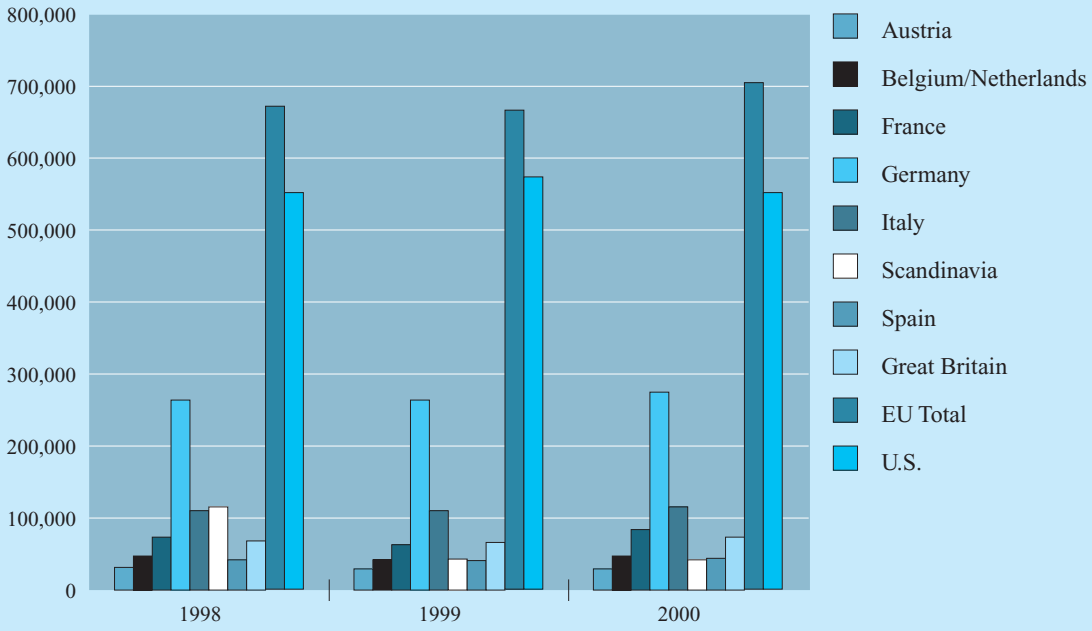
The market for, and therefore the production of copper pipes is clearly smaller than metal pipes. Germany and Italy are the most important producers of copper pipes. EU production is winning market share from the United States.

Figure 4.1 EU production of metal pipes and tubes, 1996-2001, millions of tonnes



Source: Wirtschaftsvereinigung Stahlrohre (2003)

Figure 4.2 Production of copper pipes by major EU countries, 1998-2000, millions of tonnes



Source: World Metal Statistics

Plastic pipes and tubes

The United Kindom recorded the highest production in plastic tubes and pipes (about € 1.1 billion in 1998), followed by Italy (€ 1 billion in 1998) and France. Production in the Netherlands was the lowest. Italy was the only country to show a positive trend in production growth in the last years of last century.

Valves

The production of valves for domestic (58 percent of total) and industrial (42 percent) use in 2001 totalled about € 13,200 million (2000: € 13,300 million). Total production has remained at about the same level in recent years. The major manufacturing countries are Germany, Italy, France and United Kingdom, which together account for more than 83 percent of total European output, although these countries are losing market share to Denmark (3 percent) and East-European countries (total 3.8 percent). About 100,000 persons are currently employed in the sector (see also the site of the European valves branche organisation: www.CEIR-online.org) in Europe.

Table 4.1 European valve production, 2000 – 2001

	2000		2001	
	€ million	%	€ million	%
European Union	13300		13200	
Germany	5586	42	5544	42
Italy	3192	24	3168	24
France	1197	9	1188	9
United Kingdom	1197	9	1056	8
Rest of Europe	2128	16	2244	17

Source: CEIR (2003)

Germany, being the most important producing country in the EU, has about 250 companies with a total of 46,000 employees. In 2002 German companies produced 9 percent less for domestic use and 14 percent more for use abroad. Exports to France (14 percent) and to EU candidate states (5 percent) rose significantly. For 2003, German valve manufacturers anticipate a production downturn of 1 percent.

Fittings

Production of fittings is dominated by the United Kingdom (about € 800 million in 1998). In contrast to Italy (1998: € 400 million) and the United Kingdom, France (1998: € 200 million) is not showing strong

positive growth. The Netherlands has only a very limited share in the production of fittings.
The production of pressure pipes and fittings (nodular iron castings) was in Germany 250.5 thousand tonnes in 2002 (an increase of 0.4 percent compared to 2001). The UK production was stable on 157 thousand tonnes in 2002.

Vessels
The production of vessels has been steadily increasing, with an average annual growth rate of 4.5 percent. In the period 1995 to 1998, the level of production remained fairly stable. Italy had a production output of € 1.1 billion in 1998. The United Kingdom and France dit not differ much, each with an output of about € 500 million in 1998. The Netherlands is only a minor player with regards to production.

Instruments
Production in the United Kingdom and France is developing positively. The forecast growth for the United Kingdom for 2003 is remarkable, when compared to the demand and production forecasts for other industrial sectors. Germany, theUnited Kingdom and France are the three most important production countries for instruments. Belgium showed a negative trend in 2002, but is showing signs of recovery in 2003.

Table 4.2 European instruments production, 2000 – 2003

	2000 € million	2002 % change with 2001	2003 % change with 2002
United Kingdom	18,9	3	12
France	18,8	4	2
Germany	16,2	0	2
Italy	2,6	0,1	-
Belgium	0,9	-6	1
The Netherlands	0,3	0,5	6,5

Source: FME (2003)

5 IMPORTS

5.1 Total imports

Total EU imports of pipes and pipe-related process equipment amounted to more than € 28.6 billion in 2001, 29.4 percent being imported from countries outside the European Union. Between the years 1999 and 2001 total imports increased by 15 percent. However, 2001 imports were only 0.7 percent higher than in 2000. Only the United Kingdom had a solid growth of total imports in 2001. The other countries stabilised or showed a slight decrease in imports. Imports from developing countries grew by a solid 8.8 percent in 2001 compared with 2000 and by 50 percent compared with 1999 (extra-EU imports grew by 34 percent in the same period). Developing countries are gaining in importance as suppliers! Of the EU members, Germany was the still the country with the highest value of imports - well over 21 percent of all imports. France was second with 15 percent.

Extra-EU imports of pipes and pipe-related process equipment amounted to € 8.4 billion in 2001. This represented a substantial increase of 10 percent over the 2000 figures. When 2001 figures are compared with those for 1999, the following six countries all showed a major increase in extra-EU imports: United Kingdom (plus 55 percent), Germany (plus 40 percent), France (plus 30 percent), Italy (plus 23 percent), the Netherlands (plus 29 percent) and Belgium (plus 35 percent). In the last year, the growth in extra-EU imports has been especially strong in the United Kingdom, Ireland and Spain.

Table 5.1 TOTAL EU imports of pipes and process equipment by EU country, 1999 - 2001, € 1,000 / tonnes

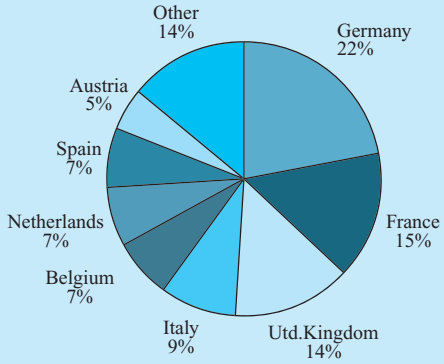
	1999		2000		2001	
	value	volume	value	volume	value	volume
EU	24,939,635	11,007,978	28,491,456	11,816,765	28,688,631	11,725,344
Germany	5,540,516	2,674,708	6,423,647	2,655,456	6,203,875	2,495,264
France	3,557,075	1,600,574	4,253,009	1,809,335	4,211,448	1,764,441
United Kingdom	3,146,349	1,224,099	3,508,766	1,222,455	3,980,344	1,536,906
Italy	2,389,958	983,816	2,658,877	1,110,274	2,670,500	1,076,060
Belgium	1,786,393	822,266	2,019,858	976,816	2,069,367	902,239
Portugal	2,001,457	1,000,457	1,996,827	888,054	2,009,725	939,931
Sweden	1,628,649	701,528	2,009,125	824,613	1,935,867	794,741
Austria	1,353,824	456,054	1,531,692	557,842	1,561,404	604,265
The Netherlands	1,017,722	457,518	1,149,538	465,030	1,113,194	448,816
Denmark	790,746	359,446	857,475	367,060	938,836	397,478
Finland	439,386	173,679	562,353	203,183	568,088	202,799
Spain	476,736	237,739	548,550	237,383	493,260	209,957
Ireland	399,692	143,881	454,168	143,239	484,322	173,885
Greece	297,031	122,862	376,379	325,131	288,860	154,057
Luxembourg	114,115	49,351	141,211	30,894	159,586	24,505

Source: Eurostat (2003)

Figure 5.1 shows the existing (and increasing!) importance of Germany (35 percent when extra-EU imports are observed) and France. Together they account for 37 percent of the total imports of pipe and pipe-related process equipment into the EU. For extra-EU imports, the United Kingdom (19 percent) is one of the leading EU countries accounting for 22 percent of these imports of pipes and pipe-related process equipment. Other significant countries are France (9 percent; decreasing share compared with 2000), Italy (9 percent; stable), the Netherlands (6 percent; decreasing) and Belgium (5 percent; stable).

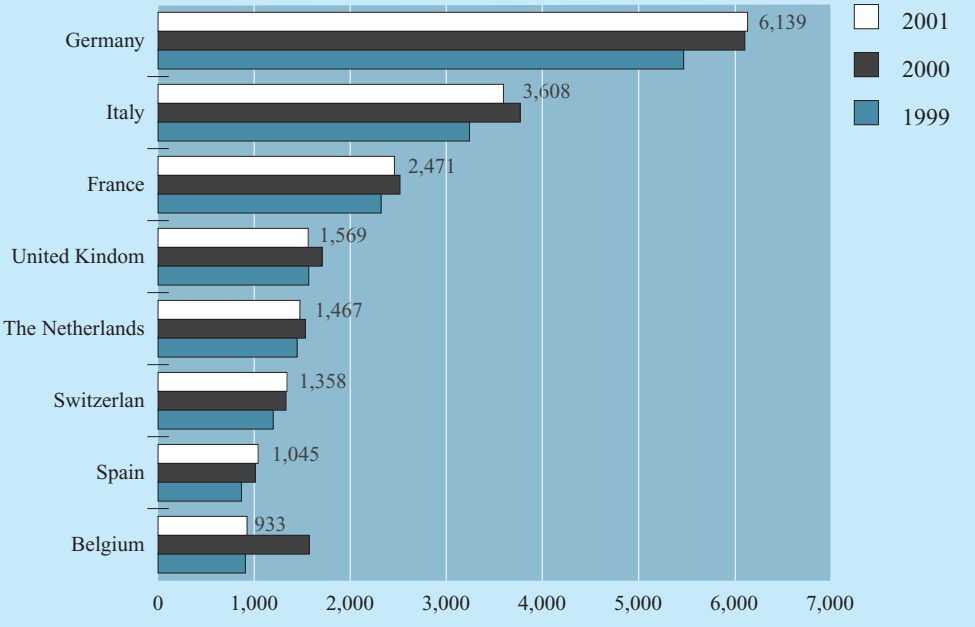
Germany was also the main supplier of pipes and pipe-related process equipment to other member states in 2001, accounting for € 6.1 million or almost 22 percent of total imports into the EU. Alongside Germany, other important European suppliers were Italy and France. The United Kingdom, the Netherlands and Switzerland form the middle group, with only Switzerland showing stable growth. Spain is gradually gaining in importance. Belgium is loosing some importance as important European supplier of pipe and pipe-related process equipment.

Figure 5.1 Total EU imports of pipes and pipe-related process equipment by major EU countries, 2001, percentage of total values



Source: Eurostat (2003)

Figure 5.2 The leading European suppliers of pipes and pipe-related process equipment to the EU, 1999 – 2001, € million



Source: Eurostat (2003)

The Netherlands

Total imports of pipes and pipe-related process equipment amounted to € 2,010 million in 2001, representing a 4 percent increase in total imports since 1999. Metal pipes showed a recovery in 2001 following the dip in 1999 and 2000. Imports grew by 6 percent in 2001. Metal pipes are again the most important product group in terms of import value. The imports are higher than the industrial demand in the Netherlands. This indicates that Dutch companies are mostly importing for use in foreign countries (investments done in EU and abroad. Vessels are still decreasing in import value, with a decrease of 2 percent in imports in 2001over the preceding year. Only fittings show a steady, slightly growth in import value throughout the years.

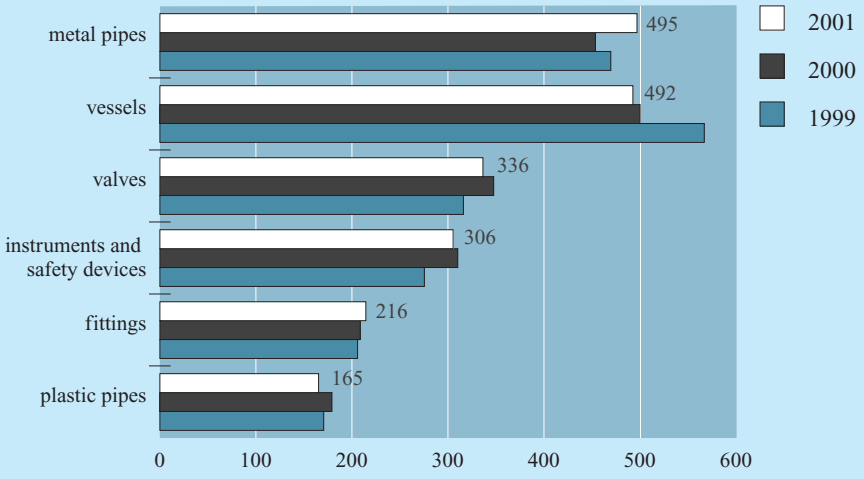
Leading suppliers of pipes and pipe-related process equipment to the Netherlands (percentage of total imported value in 2001)

→ Germany (32%)
→ United States (11%)
→ Belgium (9%)
→ Italy (8%)
→ United Kingdom (7%)

Share of developing countries: 4%
→ China (1%)

Source: Eurostat (2003)

Figure 5.3 Dutch imports of pipes and pipe-related process equipment per product group 1999 – 2001, € million



Source: Eurostat (2003)

France

The value of French imports increased by 18 percent compared to 1999 and decreased by 1 percent compared to 2000. The composition of the imports per product group has changed little in recent years. Instruments has gained slightly in importance. The major product group in total French imports was metal pipes, representing 26 percent of total French imports in 2001, with a value of € 1.1 billion. It was followed by valves (22 percent), vessels (18 percent), instruments and safety devices (16 percent), fittings (9 percent) and plastic pipes (9 percent).

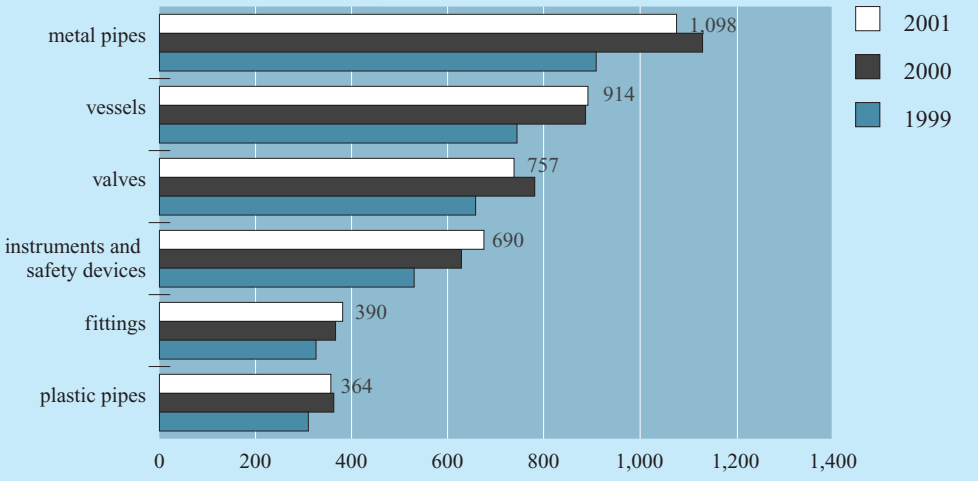
Leading suppliers of pipes and pipe-related process equipment to France
(percentage of total import value in 2001)

→ Germany (28%)
→ Italy (22%)
→ United States (8%)
→ Spain (7%)
→ United Kingdom (7%)

Share of developing countries: 3%
→ China (1%)

Source: Eurostat (2003)

Figure 5.4 French imports of pipes and pipe-related process equipment per product group 1999 – 2001, € million



Source: Eurostat (2003)

Germany

Germany remained the leading European importer in 2001, with imports of pipes and pipe-related process equipment amounting to € 6.2 billion. The German imports showed a decrease in total imports of 12 percent since 1999. Metal pipes constituted the majority of the trade with a value of € 1,538 million in 2001, representing 25 percent. All product groups have shown only slight growth in recent years, except for instruments and safety devices. This product group is becoming more and more important, representing 22 percent of import value in 2001.

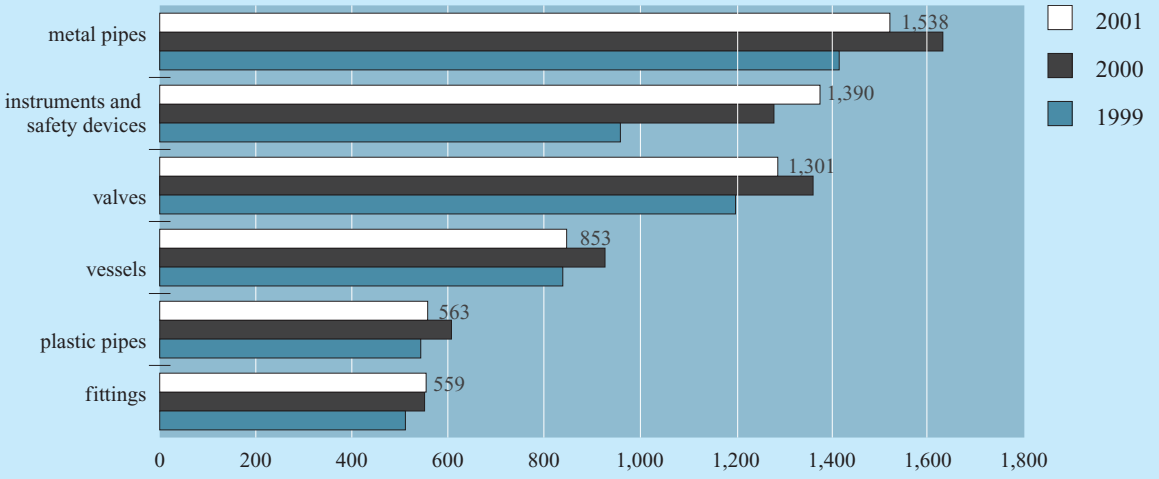
Leading suppliers of pipes and pipe-related process equipment to Germany
(percentage of total import value in 2001)

→ Italy (13%)
→ Switzerland (12%)
→ France (9%)
→ United States (9%)
→ The Netherlands (7%)

Share of developing countries: 8%
→ Philippines (3%)

Source: Eurostat (2003)

Figure 5.5 German imports of pipes and pipe-related process equipment per product group 1999 – 2001, € million



Source: Eurostat (2003)

Italy

All product groups in Italy show stable import values, except for metal pipes and instruments and safety devices. Those two product groups showed rapid growth in 2000 and stabalised in 2001. Total pipe and pipe-related process equipment imports increased by 12 percent between 1999 and 2001, and all product groups showed similar trends, except for instruments and safety devices, imports of which showed an increase of 24 percent and metal pipes (increase of 15 percent). Metal pipes constituted a relatively large share of total imports of pipes and pipe-related process equipment with 30 percent in 2001, although in 1998 their share was 33 percent. The ongoing decrease in industrial demand for metal pipes will lead to a further reduction of this share.

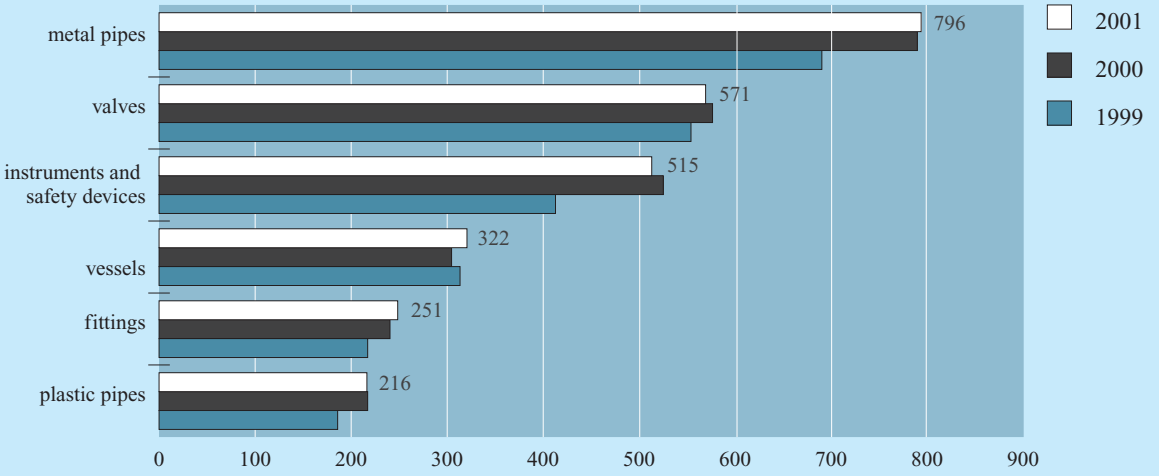
Leading suppliers of pipes and pipe-related process equipment to Italy
(percentage of total import value in 2001)

→ Germany (32%)
→ France (14%)
→ United Kingdom (5%)
→ Spain (5%)
→ Switzerland (4%)

Share of developing countries: 8%
→ China (3%)

Source: Eurostat (2003)

Figure 5.6 Italian imports of pipes and pipe-related process equipment per product group 1999 – 2001, € million



Source: Eurostat (2003)

United Kingdom

Total UK imports of pipe and pipe-related process equipment increased by 27 percent between 1999 and 2001 (about 10 percent compared to import values in 1998). In 2001, the total value was € 3,980 million. Metal pipes enjoyed a major recovery in imports with 43 percent growth between 2000 and 2001. In 2001, valves also grew in importance. The other product groups stayed in the same position relative to each other. The decreasing production capacity in the United Kingdom is clearly visible in the increasing imports. This process will continue the coming years, offering specific opportunities for developing country exporters.

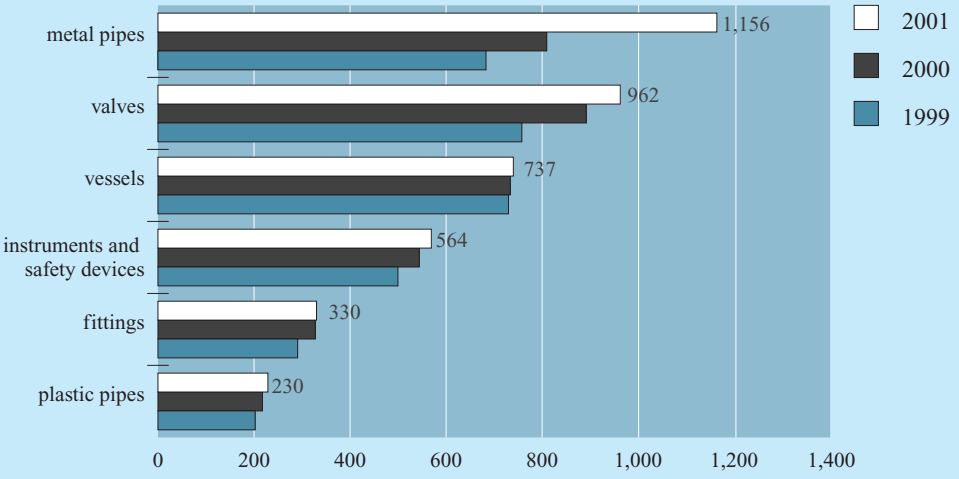
Leading suppliers of pipes and pipe-related process equipment to the United Kingdom (percentage of total import value in 2001)

→ Germany (19%)
→ United States (17%)
→ Italy (14%)
→ France (9%)
→ Japan (7%)

Share of developing countries: 8%
→ China (2%)

Source: Eurostat (2003)

Figure 5.7 UK imports of pipes and pipe-related process equipment per product group 1999 – 2001, € million



Source: Eurostat (2003)

Belgium

Total Belgian imports of pipes and pipe-related process equipment increased by 16 percent between 1999 and 2001. In 2001, the total value was € 2,069 million. In 2001, the shares of the three largest product groups were: vessels (29 percent), metal pipes (22 percent) and valves (17 percent). The industrial demand for metal pipes has decreased with more than 10 percent in the last 5 years., Opportunities are available for developing country exporters, while imports of metal pipes have grown in the same period. Instruments and safety devices showed the largest drop in imports, namely 21 percent between 2000 and 2001. This means a loss in market share of developing countries, while the industrial demand for instruments was stable the last 5 years. Vessels showed the biggest growth in imports, namely 22 percent between 2000 and 2001.

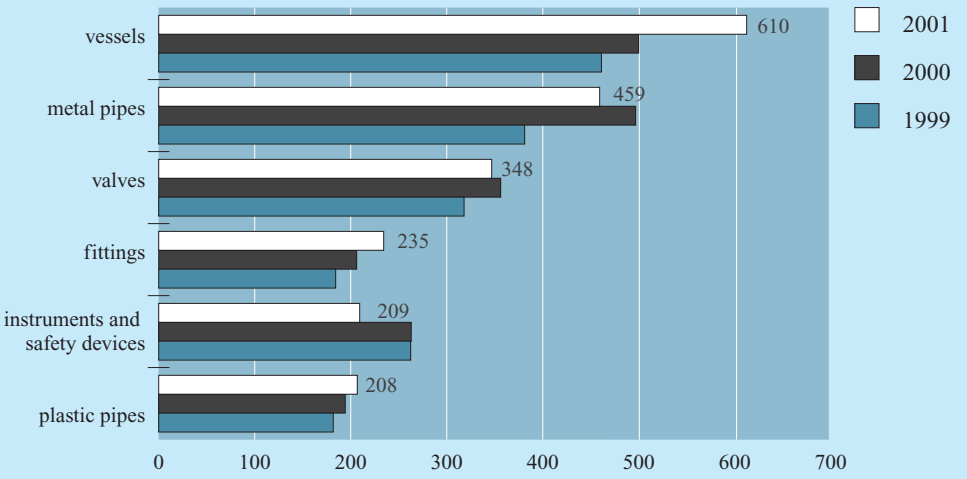
Leading suppliers of pipes and pipe-related process equipment to Belgium
(percentage of total import value in 2001)

→ Germany (24%)
→ France (17%)
→ The Netherlands (15%)
→ Italy (7%)
→ United States (7%)

Share of developing countries: 5%
→ Turkey (2%)

Source: Eurostat (2003)

Figure 5.8 Belgium imports of pipes and pipe-related process equipment per product group 1999 – 2001, € million



Source: Eurostat (2003)

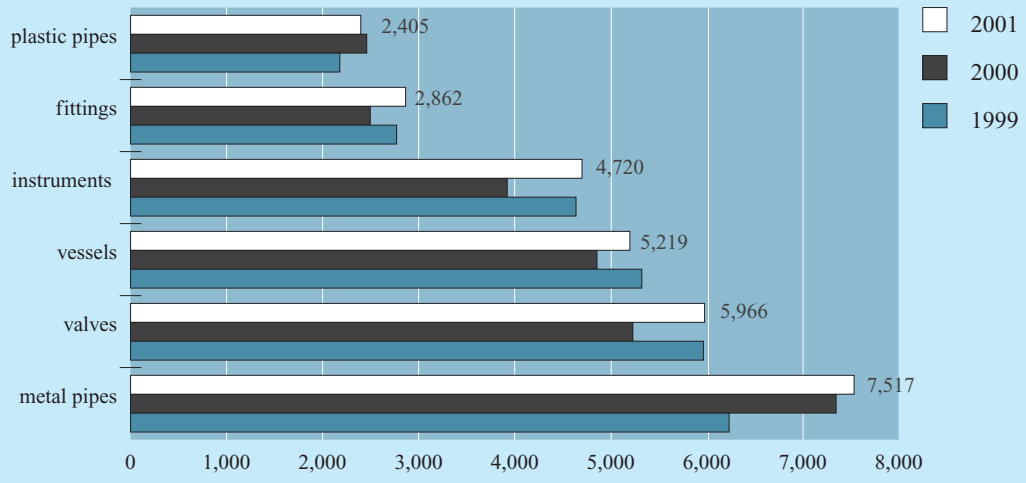
5.2 Imports per product group

As already mentioned in section 5.1, total EU total imports of pipes and pipe-related process equipment in 2001 amounted to € 28.7 million. On a European level, metal pipes (with a value of € 7.5 million and a volume of 8.3 million tonnes) constituted the largest product group within the total imports. In contrast, plastic pipes accounted for just € 2.4 million and a volume of 0.5 million tonnes. The market for plastic pipes is still minor compared to metal pipes. In percentages the total imports are divided over the product groups as follows:

metal pipes	26 percent
valves	21 percent
vessels	18 percent
instruments and safety devices	17 percent
fittings	10 percent
plastic pipes	8 percent

The most important suppliers of pipes and pipe-related process equipment to the European Union are Germany, Italy, France, the United States and the United Kingdom. Together they supplied 56 percent of the total value of imports in 2001. The share of developing countries is still small at 5.6 percent, representing a value of € 1,595 million.

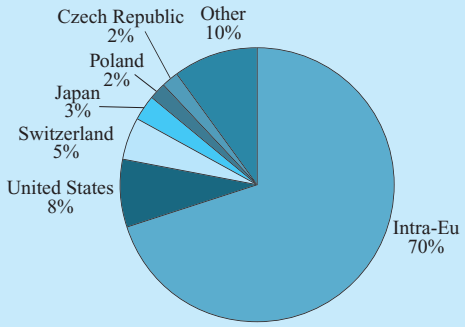
Figure 5.9 EU imports of pipes and pipe-related process equipment per product group 2001, € million



Source: Eurostat (2003)

Most of the EU trade in pipes and pipe-related process equipment was between the EU member countries: 71 percent of EU imports (73 percent in 2000) originated within the EU. Germany was the most important supplier to the EU member countries for every product group. The main suppliers from outside the EU were the United States, Switzerland, Japan, Poland and the Czech Republic. Developing countries supplied 18.9 percent percent of extra-EU imports, with China by far the most important supplier (accounting for 1.2 percent of total EU imports).

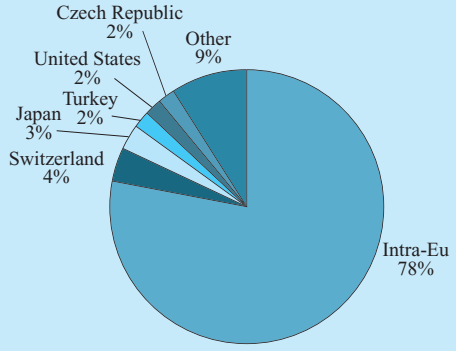
Figure 5.10 Sources of EU imports of pipes and pipe-related process equipment 2001, percentage of total values



Source: Eurostat (2003)

The total value of EU imports of metal pipes in 2001 was € 7,517 million. A percentage of 78 percent (81 percent in 2000) was sourced within the EU. 5 percent was sourced in developing countries representing a value of € 359 million (2000: 350 million).

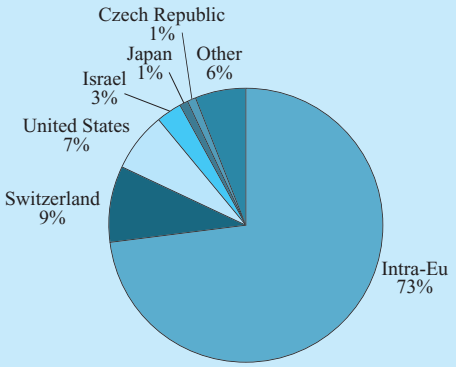
Figure 5.11 Sources of EU imports of metal pipes 2001, percentage of total values



Source: Eurostat (2003)

Plastic pipes represented just 9 percent of total EU imports of pipes and pipe-related process equipment (€ 2,405 million). Only 2 percent of the total EU imports (€ 43 million) originated in developing countries. Germany was the most important supplier within the EU with a share of 25 percent of total EU imports. The main suppliers from outside the EU were Switzerland and the United States.

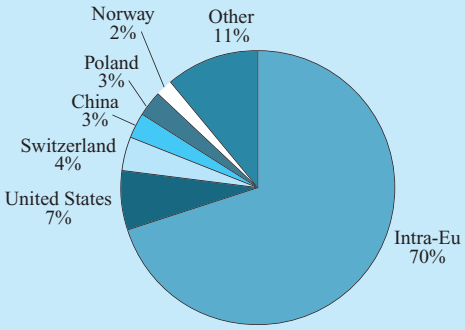
Figure 5.12 Sources of EU imports of plastic pipes 2001 percentage of total values



Source: Eurostat (2003)

The product group fittings represented only 10 percent (€ 2,862 million) of total EU imports of pipes and pipe-related process equipment. China was the main developing country with a 3 percent market share. Other major suppliers were Germany, Italy and France, together supplying 34 percent of the imports.

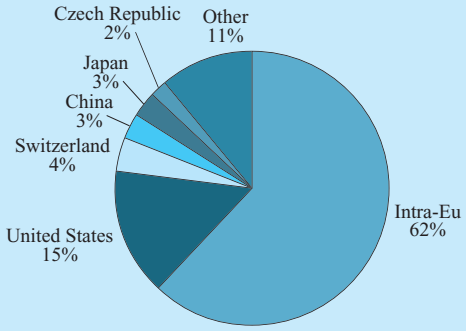
Figure 5.13 Sources of EU imports of fittings 2001, percentage of total values



Source: Eurostat (2003)

The total import of valves totalled € 5,966 million in 2001. Compared to the other product groups, a relatively low percentage of valves originated within the EU. Germany (17 percent), the United States (15 percent) and Italy (13 percent) were the main suppliers of valves to the EU. With 1 percent Turkey was the main developing country supplyer. The total market share of developing countries was almost 7 percent.

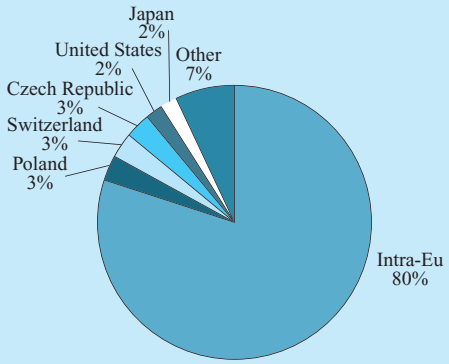
Figure 5.14 Sources of EU imports of valves, 2001, percentage of total values



Source: Eurostat (2003)

The percentage of intra-EU imports was the highest for vessels (total EU imports amounted to € 5,219 million in 2001). Only 20 percent of the value of vessels was imported from outside the EU and came largely from the rest of Europe. The United States, Japan, Turkey and China all had modest shares in the extra-EU imports.

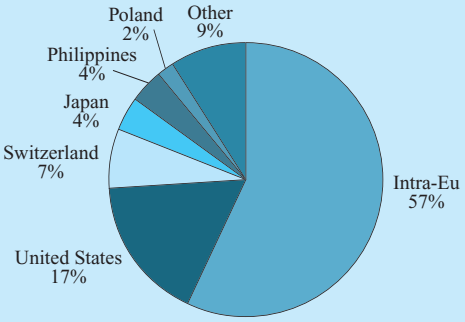
Figure 5.15 Sources of EU imports of vessels 2001, percentage of total values



Source: Eurostat (2003)

Instruments and safety devices was the product group with the highest percentage of imports from countries outside the EU and from developing countries (43 percent of total EU imports of € 4,720 million in 2001). The United States had a significant market share with 17 percent. The Philippines (4 percent; € 200 million) and Mexico together supplied 5 percent of the total imports of this product group, other countries supplying the remaining 3 percent of imports originating in developing countries.

Figure 5.16 Sources of EU imports of instruments and safety devices 2001, percentage of total values

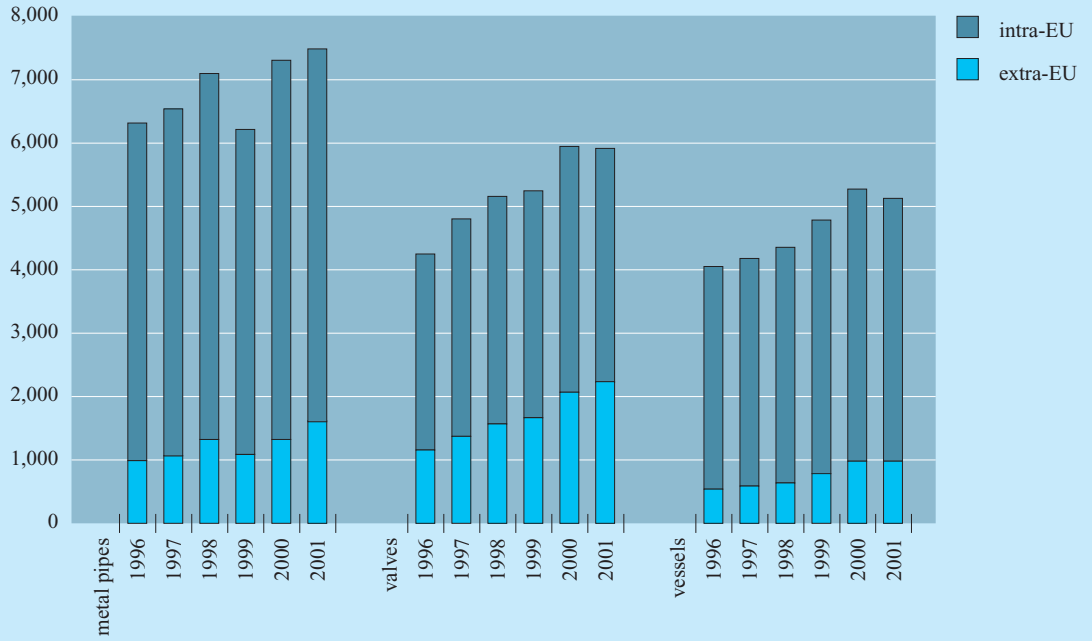


Source: Eurostat (2003)

Figure 5.17 shows a slow increase in total EU imports of metal pipes. The growth of imports of metal pipes was particularly negative in 1999, but recovered in 2000. Valves and vessels each showed a growth of imports in 2000 and a stabilisation of slightly negative growth in 2001. However, the trend in extra-EU imports has been unquestionably positive in the last six years.

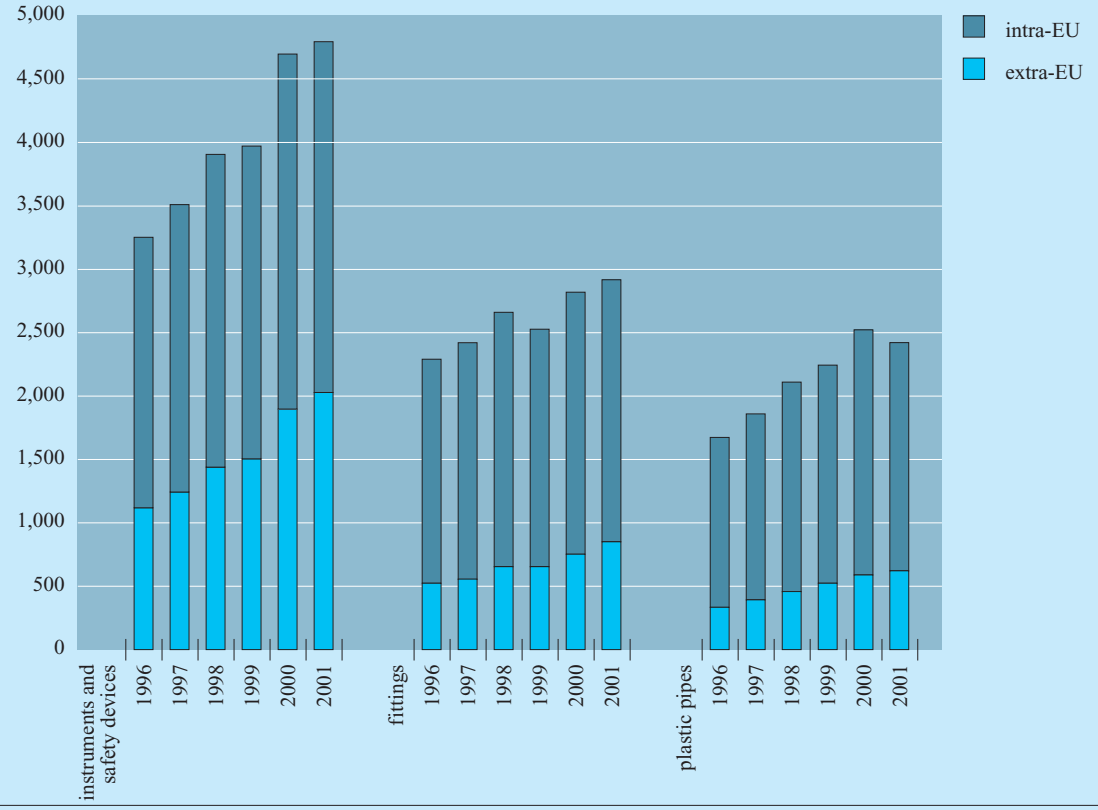
Figure 5.18 shows that the value of extra-EU imports of instruments and safety devices rose steeply in 2000. Growth in imports of plastic pipes was also relatively strong. The total imported value of plastic pipes decreased in 2001. The intra-EU imported value of fittings has remained stable since 1998, the overall growth of imports being due to the growth in extra-EU imports.

Figure 5.17 EU imports of metal pipes, valves and vessels, 1996-2001, € million



Source: Eurostat (2003)

Figure 5.18 EU imports of instruments and safety devices, fittings and plastic pipes, 1996-2001, € million



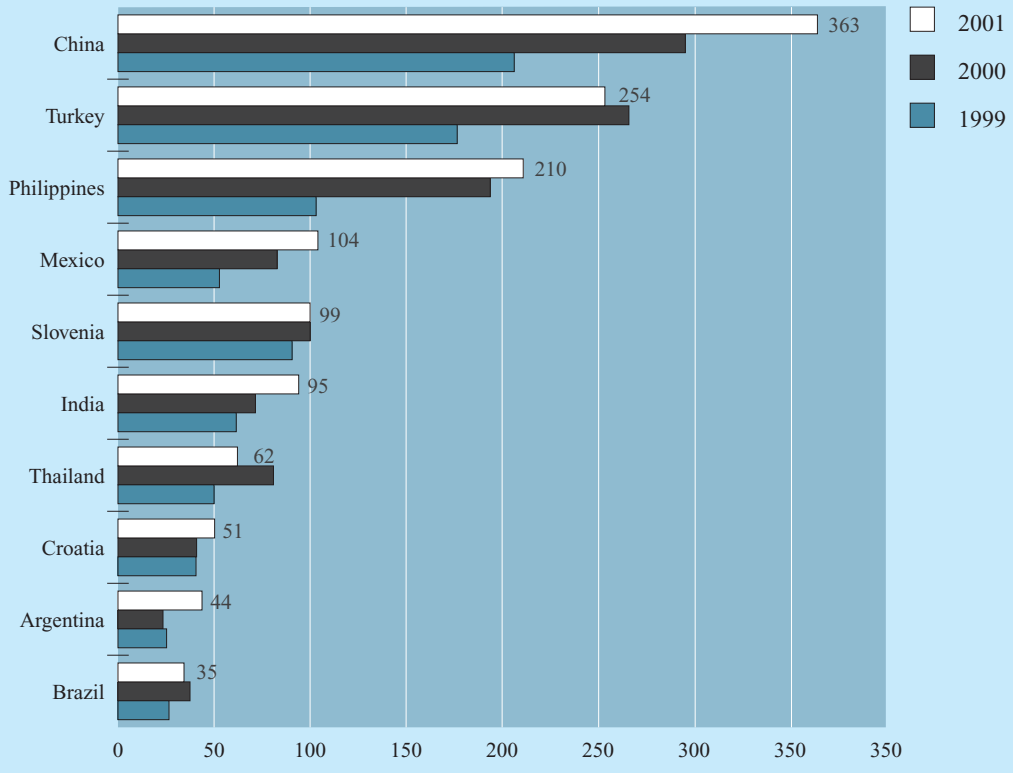
Source: Eurostat (2003)

5.3 The role of developing countries

China was the largest developing country exporting to the EU in the period 1999 - 2001, followed by Turkey and the Philippines. China, Mexico, India and the Philippines have all shown a strong growth in value of imports over the last three years. Turkey, Slovenia and Thailand lost some ground in 2001. The share of China represented 1.3 percent (1.1 in 2000) of total EU imports and 4.3 percent (3.8 in 2000) of extra-EU imports. Turkey and the Philippines had a share of total EU imports of 0.9 and 0.7 percent respectively. The total market share of developing countries also increased (from 5.1 percent in 2000 to 5.6 percent in 2001). China, the Philippines, Mexico and Thailand showed particularly strong growth with annual growth rates ranging from 20 to 40 percent.

of little importance to developing countries: the value and share of developing countries of these imports (both total and extra-EU) is the lowest of all product groups. Developing country exporters are relatively more succesful in metal pipes and fittings, each with a share of 22 percent of extra-EU imports. However, for metal pipes developing countries lost ground in 2001, when extra-EU imports grew faster than in 2000. Developing country exporters need to improve their competitive edge over European suppliers. German, Italian, French and English suppliers together accounted for 50 percent of metal pipe supplies in 2001.
Instruments and safety devices represented a value of € 4,720 million (total imports in 2001). Exporters from developing countries hold a relatively strong position for this product group, with a share of 8 percent of total imports.

Figure 5.19 The leading developing countries supplying pipes and pipe-related process equipment to the EU, 1999–2001
€ million



Source: Eurostat (2003)

Table 5.2 highlights the main opportunities for developing countries. Seen as a percentage of total EU imports, the importance of developing countries appears low, but their share is growing. Judging from the share of developing countries in extra-EU trade, opportunities would seem favourable. Only plastic pipes appear to be

Valves appear to offer more opportunities. Their share in extra-EU imports is modest, but valves is the largest product group in terms of value, representing an extra-EU import value of € 2,262 million. Competition is relatively strong from outside the EU. Developing country exporters should focus especially on

Table 5.2 **Share of imports from developing countries per product group 1998 – 2001, value, € million and percentage of total value**

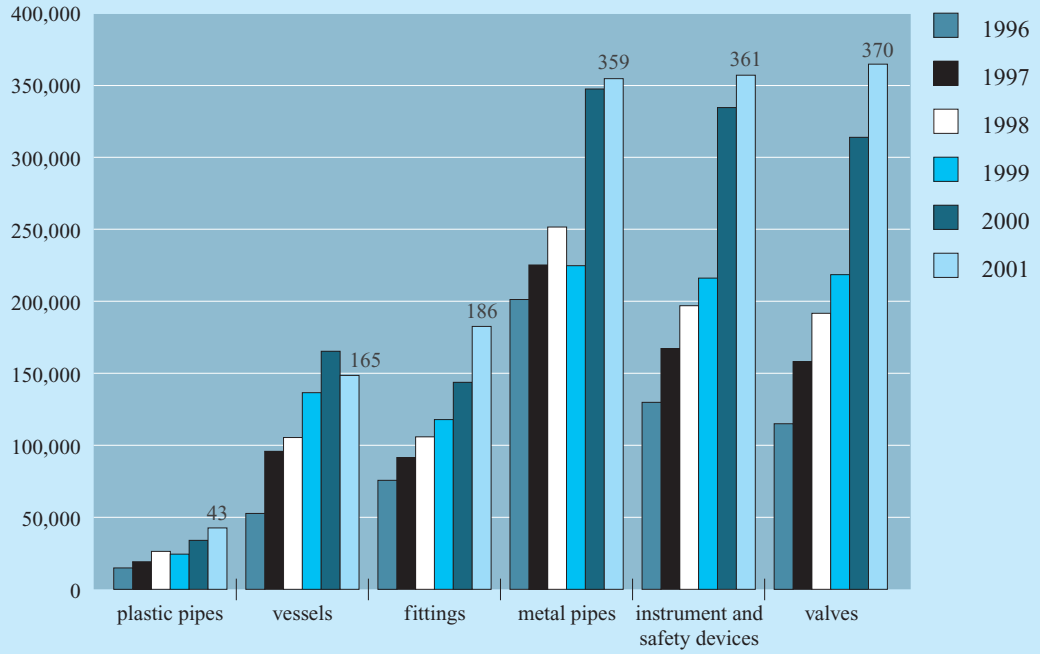
	1998		1999		2000		2001	
	value	% of value	value	% of value	value	% of value	value	% of value
Total imports:								
metal pipes	7,080	4%	6,242	4%	7,323	5%	7,517	5%
plastic pipes	2,041	1%	2,179	1%	2,460	1%	2,405	2%
fittings	2,630	4%	2,514	5%	2,775	5%	2,862	7%
valves	5,203	4%	5,236	4%	5,960	5%	5,966	6%
vessels	4,441	2%	4,851	3%	5,329	3%	5,219	3%
instruments and safety devices	3,857	5%	3,918	6%	4,645	7%	4,720	8%
total pipe and pipe-related process equipment	25,251	4%	24,940	4%	28,491	5%	28,689	5%
Extra-EU imports:								
metal pipes	1,336	19%	1,120	20%	1,355	26%	1,646	22%
plastic pipes	0,452	6%	0,526	5%	0,607	6%	0,639	7%
fittings	0,661	16%	0,658	18%	0,760	19%	0,858	22%
valves	1,605	12%	1,691	13%	2,111	15%	2,262	16%
vessels	0,661	17%	0,804	17%	0,981	17%	1,010	16%
instruments and safety devices	1,425	14%	1,500	15%	1,901	18%	2,021	18%
total pipe and pipe-related process equipment	6,140	15%	6,299	15%	7,716	18%	8,435	18%

Source: Eurostat (2003)

developments among United States suppliers (major suppliers to the EU).
The product group vessels, with a total imported value of € 5,219 million, is larger than instruments and safety devices, but the share held by developing countries is relatively low at 3 percent. The share of extra-EU imports is also relatively low.
In summary, the product groups valves, instruments & safety devices and metal pipes (in descending order) appear to be the most attractive markets for developing countries, firstly because of the market size and secondly because the high share of imports from developing countries in total imports (valves and instruments & safety devices) or in extra-EU imports (metal pipes).

It is clear from the trend in total imported value from developing countries that the importance of developing countries has increased in recent years. The product groups valves, instruments and safety devices and fittings have shown particularly clear and continuous positive trends. The relevance of the imports of plastic pipes is very small, but some growth was evident in 2000 and 2001. The imported value of vessels appears stable. Metal pipes showed the greatest fluctuations in the value of imports, though with a positive trend. The total import value of metal pipe is the highest. However, when extra-EU imports are taken into account valves and instruments & safety devices are of more importance.

Figure 5.20 EU imports of pipes and pipe-related process equipment from developing countries, 1996–2001, € million



Source: Eurostat (2003)

6 EXPORTS

Total EU exports of pipes and pipe-related process equipment amounted to € 39,769 million in 2001. The leading European exporters were Germany, Italy, France, the United Kingdom and the Netherlands. Together these countries represented 77 percent of European exports of pipes and pipe-related process equipment world-wide. EU exports of pipes and pipe-related process equipment were mainly destined for other European countries. The most important destinations outside Europe were the United States, Turkey, China and Russia.

The product groups metal pipes and valves represented 29 and 22 percent respectively of the value of extra-EU exports. The exported volume of valves was considerably lower, implying that this product group had a much higher value per ton than metal pipes. The share of instruments and safety devices in EU exports measured in tonnes was the lowest, but due to the high value of the products this represented a share in value of 14 percent. Vessels, fittings and plastic pipes also had a higher value per ton than metal pipes, but their trade volume was lower, resulting in market shares of 19 percent, 9 percent and 8 percent respectively.

Table 6.1 Total EU exports of pipes and pipe-related process equipment from EU countries, 1999 – 2001, € 1,000 / tonnes

	1999		2000		2001	
	value €	tonnes	value €	tonnes	value €	tonnes
Total EU	34,205,898	13,190,916	38,269,059	15,071,860	39,769,104	15,290,613
Germany	10,506,370	3,536,939	11,595,329	3,922,946	11,885,107	4,108,692
Italy	6,518,532	2,841,192	7,516,526	3,073,594	7,884,900	3,249,645
France	4,323,363	1,560,413	4,526,496	1,681,639	4,831,846	1,796,438
United Kingdom	3,390,863	1,017,636	3,725,275	1,634,273	3,964,684	1,188,226
The Netherlands	1,867,371	710,606	2,046,711	707,361	2,020,223	719,593
Spain	1,413,265	724,656	1,889,544	948,175	1,813,471	947,079
Austria	1,349,602	723,698	1,654,342	920,576	1,721,368	934,268
Belgium	1,405,931	704,462	1,465,470	734,629	1,518,454	814,937
Sweden	1,120,332	323,242	1,290,163	367,616	1,255,668	354,458
Denmark	943,779	243,405	997,202	244,859	1,168,374	252,702
Finland	697,086	420,869	755,369	394,093	811,961	390,729
Greece	186,744	118,189	206,561	137,237	287,817	245,304
Portugal	217,319	135,103	273,143	162,189	265,909	163,666
Luxembourg	154,578	115,801	184,948	126,352	176,999	106,071
Ireland	110,777	14,705	142,007	16,321	162,360	18,805

Source: Eurostat (2003)

Table 6.2 **Total EU exports of pipes and pipe-related process equipment per product group,1999 – 2001, € 1,000 / tonnes**

	1999		2000		2001	
	value €	tonnes	value €	tonnes	value €	tonnes
metal pipes	8,697,108	9,407,463	10,529,039	10,437,744	11,527,725	11,225,260
plastic pipes	2,685,516	526,735	3,176,824	685,614	3,169,046	614,737
fittings	3,110,207	692,762	3,436,422	763,762	3,565,841	790,995
valves	7,660,502	542,390	8,277,920	593,103	8,558,129	593,999
vessels	7,359,221	1,862,235	7,566,963	2,455,297	7,487,707	1,878,586
instruments and safety devices	4,693,358	123,331	5,281,918	161,340	5,460,693	187,036
pipe and pipe related process equipment	34,205,912	13,190,916	38,269,086	15,071,860	39,769,141	15,290,613

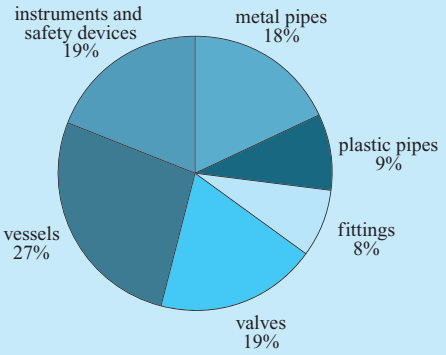
Source: Eurostat (2003)

The following figures focus on the export charecteristics of the selected EU countries.

The Netherlands

The Netherlands, with 28 percent, exported considerably more vessels than the EU average of 19 percent of exports. Intruments are an important product group within Dutch exports. However, metal pipes represented a smaller share of Dutch exports than that of overall EU exports.

Figure 6.1 **Dutch exports of pipes and pipe-related process equipment per product group 2001, percentage of total values**

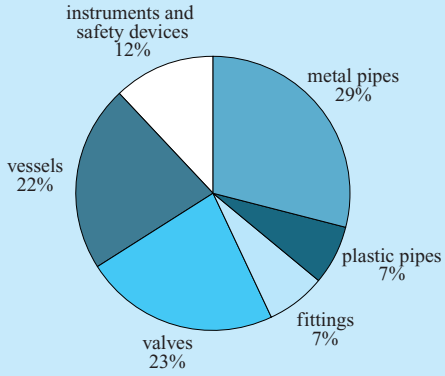


Source: Eurostat (2003)

France

French exports of metal pipes, plastic pipes, fittings and valves tallied with the overall EU average. The share of vessels was higher and that of instruments and safety devices lower.

Figure 6.2 **French exports of pipes and pipe-related process equipment per product group 2001, percentage of total values**

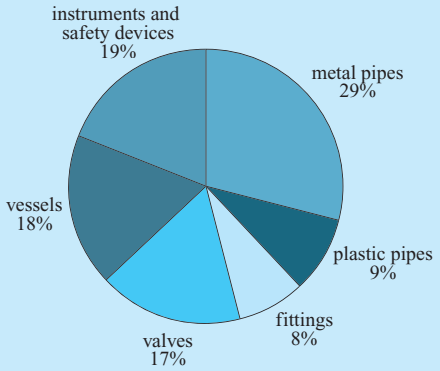


Source: Eurostat (2003)

Germany

German exports showed almost the same pattern as the EU average - no surprise in view of the large share of German exports within the EU. An exception was the relatively low share held by valves (17 percent) and the relatively high share of instruments & safety devices.

Figure 6.3 German exports of pipes and pipe-related process equipment per product group 2001, percentage of total values

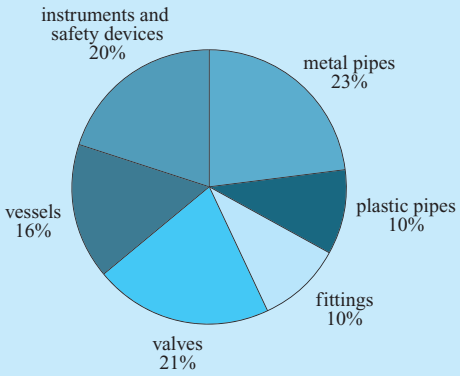


Source: Eurostat (2003)

United Kingdom

The pattern of exports from the United Kingdom showed a share lower than the EU average for metal pipes (23 percent). The share held by instruments (20 percent of total exports) was higher than the EU average of 14 percent.

Figure 6.5 UK exports of pipes and pipe-related process equipment per product group 2001, percentage of total values

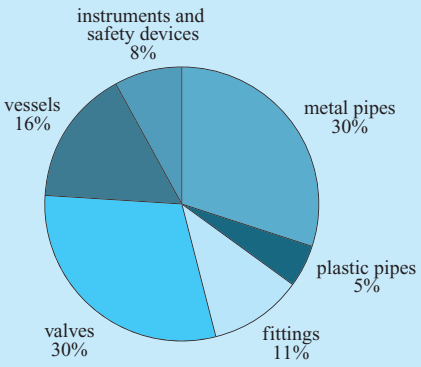


Source: Eurostat (2003)

Italy

Figure 6.4 shows that the percentage of valves and metal pipes in Italian exports was higher than the EU average. The share of instruments & safety devices was markedly lower than the EU average. The percentages of the other product groups did not differ remarkably from the rest of the EU.

Figure 6.4 Italian exports of pipes and pipe-related process equipment per product group 2001, percentage of total values

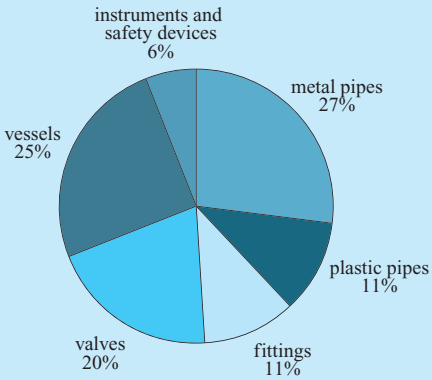


Source: Eurostat (2003)

Belgium

Figure 6.6 shows that the percentage of vessels (markedly with 6 percent) and plastic pipes (3 percent more than EU average) in Belgian exports was higher than the EU average. The share of instruments & safety devices was markedly lower than the EU average. The percentages of the other product groups did not differ remarkably from the rest of the EU.

Figure 6.6 Belgian exports of pipes and pipe-related process equipment per product group 2001, percentage of total values



Source: Eurostat (2003)

7 TRADE STRUCTURE

7.1 EU trade channels

Two different types of industries can be identified for pipes and pipe-related products: the processing industry and the manufacturing industry. The trade channels in the (semi)processing industry will be discussed first, consideration being given to structure, chains and trends. The manufacturing (parts producing) industry will then be outlined in the same manner.

Supply chain (semi)processing industry: focus on project-based deliveries

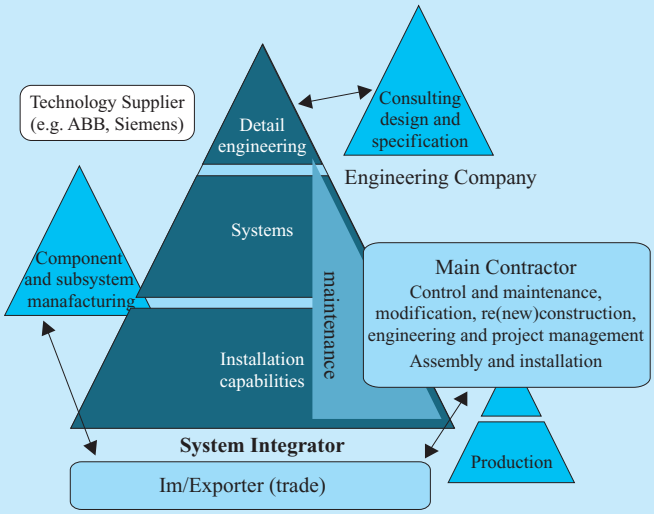
The supply chain for equipment for the processing industry as a whole is depicted in figure 7.1. Two types of companies can be identified as relevant in terms of the consumption of pipes and pipe-related products: the system integrator and the main contractor.

1 The system integrator is given an order by an end user (e.g. a pharmaceutical company like Novartis) and is held responsible for the engineering and realisation of a new or upgraded plant. The end user and an engineering company develop the functional specifications and the processing layout (upper right grey triangle). In the design phase, the engineering company and the system integrator (including technology suppliers, if applicable) work closely together to develop the most cost-effective design. The engineering company has the lead in this phase. The system integrator takes over the lead in the realisation phase. The system integrator possesses the engineering, manufacturing, assembly and installation capabilities required to guarantee a (turn key) problem-free operating plant. This is represented by the green triangle. The system integrator outsources a substantial part of the components to specialised suppliers (left grey triangle). Special plant items (e.g. process control) are outsourced to product suppliers (e.g. Siemens). These companies are responible for the design, engineering and manufacturing of the special item.

2. The maintenance of the plant and the equipment, including modification, is the responsibility of the main contractor. The main contractor is responsible for the service and maintenance of plants or major parts thereof, and guarantees trouble-free operation. The maintenance (including organisation aspects) is increasingly being carried out by the main contractor, on the basis of performance contracts. The specific production skills and product knowledge of suppliers will be used in this process. Most of the production of parts (spare parts or modified parts) is outsourced by them to the specialised supplier (lower right grey triangle).

Developing country exporters have the best chance of becoming part of the supply chain via the specialised suppliers and the main contractor. These companies can best be approached via agents, because of the exporters' unfamiliarity with local country market conditions and opportunities. The importer/agent plays an important role in supplying the components. System integrators and main contractors are reliant on their knowledge.

Figure 7.1 Supply chain for new and upgraded plants



Source: Eurostat (2003)

More and more new plants and major renovations are being specified by engineering companies and realised by system integrators. System integrators are building up their capabilities at all required levels through autonomous growth and mergers. Some are also incorporating consultancy knowledge. The system integrators are responsible for concept and function development, detail engineering, system manufacturing, installation and maintenance and the increasingly important field of IT integration. In the realistion stage, project management is also carried out by the system integrator.

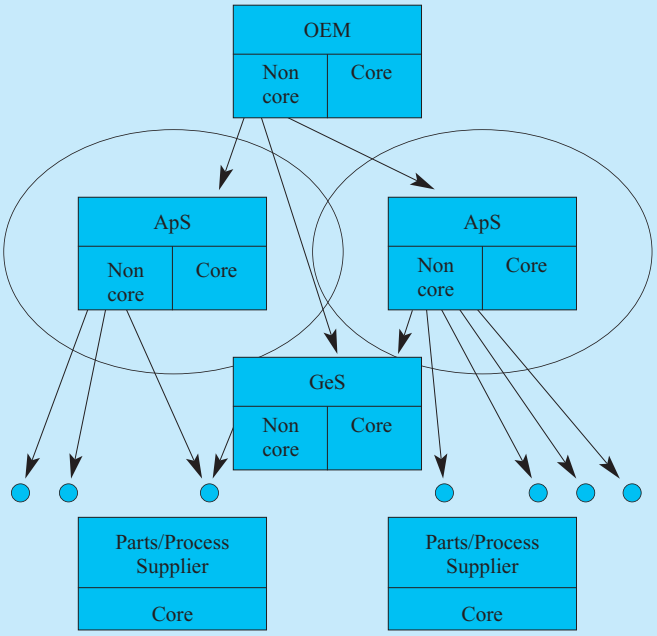
Developing countries can play a role, if the following prerequisites are fulfilled:
In terms of product definition:
- recognisable work packages
- standard components

Companies in developing countries must:
- recognise trends and prepare for specialisation
- obtain information about trends and the growth of system integrators and main contractors (who are the major players, in which direction are they moving, what is their turnover and in which sectors ..)
- develop a relationship with importer(s)/agent(s)
- also offer export facilities (product, capacity)

Supply chain in (parts) manufacturing industry: focus on batch-based deliveries

The supply chain in this type of industry can be characterized as in Figure 7.2 and 7.3. A distinction is drawn between traditional machine constructors, Original Equipment Manufacturers (OEMs), and innovative ones within the supply chain. The traditional companies can be found in Italy, Switzerland and Germany. The Netherlands (less traditional) has a relatively high number of innovative OEMs, functioning as niche players (special equipment, small series). Figures 7.2 and 7.3 present both kinds of companies and their responsibilities in the chain. The OEM is responsible for the production and delivery of goods to the consumer. More and more OEMs are defining their core competences. A procedure for outsourcing is set in motion for the non-core competencies (e.g. parts production) that they are still performing. Figures 7.2 and 7.3 present the supply chain for OEMs which have been developed in recent years, and the responsibilities and activities of the individual types of companies. The engineering and production of assembled parts (units or modules) takes place within companies characterised as "Application System Suppliers". The production of "built to print" units is executed by generic system suppliers. Here, too, the production of common parts is outsourced by system suppliers to parts or process suppliers (the small blue circles in the lower part of Figure 7.2 and 7.3).

Figure 7.2 Position and responsibilities of OEM and its suppliers



Responsibilities / core competences

OEM:
Marketing, sales & technology
development end product
final assembly & testing
distribution, service

Application System Supplier (ApS)(tier 1):
technology management
modules design & engineering

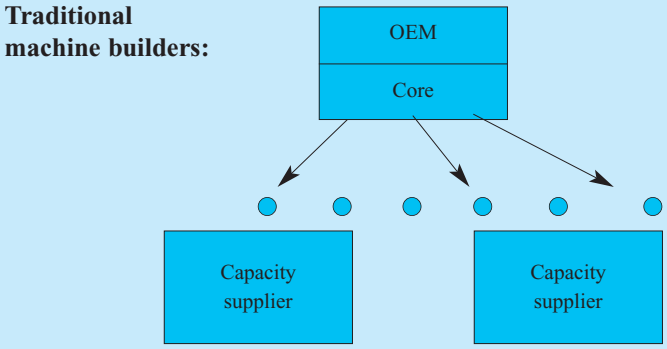
ApS & Generic Supplier (GeS) (tier1):
core parts production
organise logistics
assembly & testing

Parts/ process supplier (tier 2; grey circles):
work preparation

parts production or processing

Traditional OEMs define almost all activities as core. They outsource only on capacity basis. It is far from easy for subcontractors to get involved in business with them.

Figure 7.3 Traditional position of an OEM



The capacity supplier (supplier with no focus, mainly offering general capacity) can make either parts or assembled units, or both.

In the next few years companies in Western Europe are expected to become more and more focussed. This will lead to a supply chain structure like that depicted in Figure 7.2. In Germany, for example, high wages are leading to the relocation of production to specialised production plants (companies outside OEM).
A structural division of tasks (competences) is a general trend visible throughout the chain, the driving force behind this trend being “time to market” and price/performance in conjunction with globalisation. The development of new generation products and prototypes is located mostly in Europe. An increasingly large share of standard products (larger volumes in batch production) are being produced in Eastern Europe and the Far East, presenting opportunities for exporters in developing countries. Application system suppliers and generic system suppliers (tier 1 suppliers) – directly approached or via agents - are the most interesting, in that they are responsible for organising the supply chain of units and parts.

The most important activities per kind of company are defined below:

- OEM

System design
Functional specifications
Procurement subsystems/
Supply chain management
Service and maintenance
Final assembly and testing
Configuration management
Result obligations, system responsibility

→ System level

- (Sub)System supplier (application or generic)

R&D in technological field (ApS only)
process engineering
added-value engineering
logistics and sales
configuration management
service and maintenance
subassembly and testing
result obligations, partial responsibility

→ Subsystem level

- Task specialist (product of process supplier)

process engineering
work preparation
internal logistics
material purchasing
work obligation

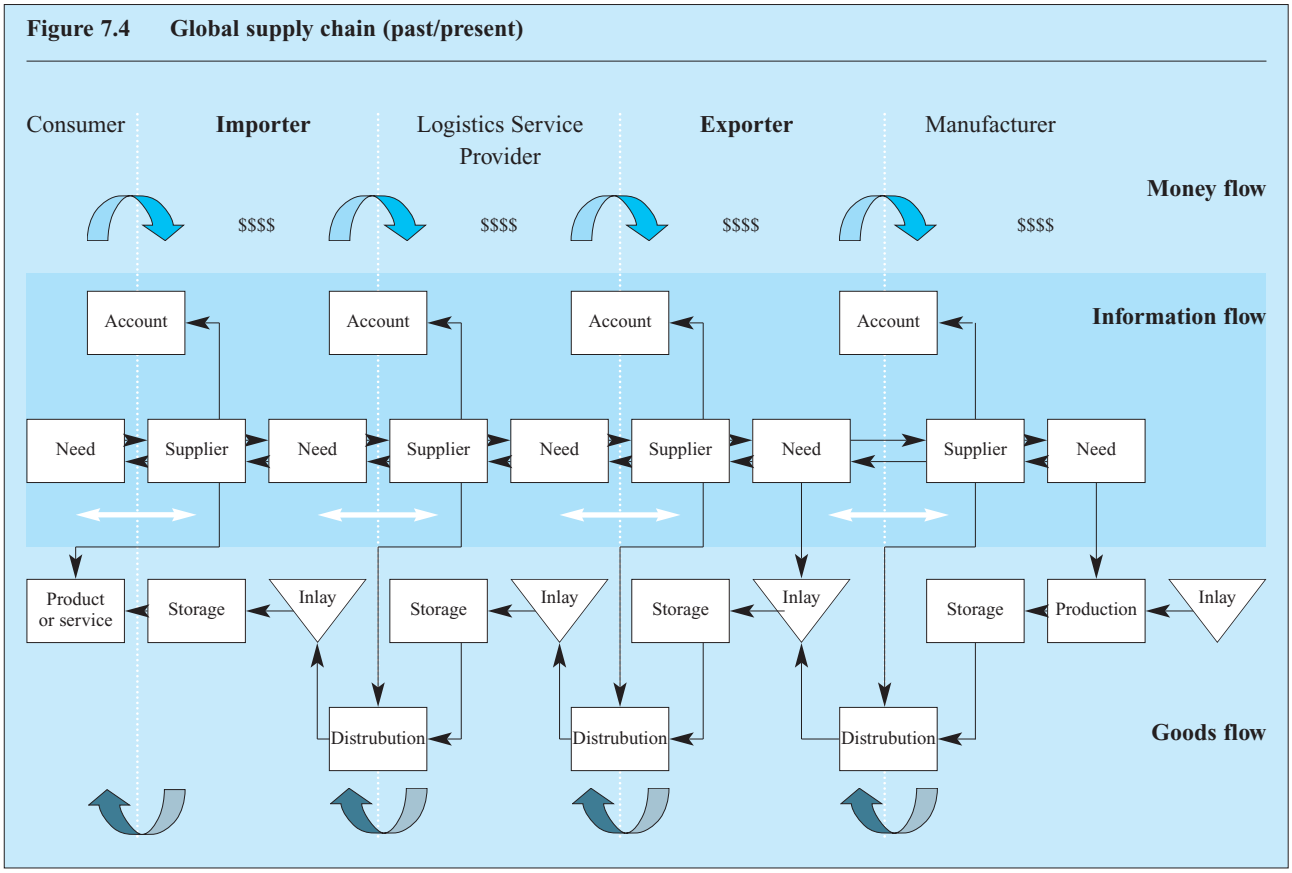
→ Component level

Channels in 'global trade' (of trade articles)
Figure 7.4 shows the traditionally accepted structure of the trade process for the past and the recent past. The Figure represents the goods flow (lower section, in light blue), the information flow (middle section, in dark blue) and the money flow (upper section, in light blue). A triangle represents a stock point, a rectangle represents a point at which a process is executed and the arrows represent the flow of goods, information or money from one point to another. The type of process is depicted in the rectangle. The chain is presented with different players: consumer, producer, exporter, logistics provider, importer. The flows are 'bulk flows', focused on transportation of anonymous products and components between producers and consumers. The importer and exporter play a major role in the control of goods. The flow of goods (from right to left in the Figure) starts with the manufacturer, where raw materials are transformed into products. A number of differents handling steps follow, until the goods reach the end consumer. The information flow (from left to right in the Figure) represents the point at which the consumer's need is detected up until this needs arrives with the manufacturer, where it is translated into a signal to produce goods. The money flow (left to right) indicates who is paying whom for what.
Under the influence of market developments in the "developed western world" a number of starting points have been changed.

The relevant market segments have been shifting in recent years from a 'pull-market' to a 'push-market', offering more tailor-made products. This entails the modularisation of (product) concepts, individually finished to customer order. Another important factor is traceability along the chain. It must be possible to track and trace the total product throughout the chain. This means detailed registration and controlled processes. Competition increases as trade barriers decrease. Products are offered at lower prices. Production costs must be reduced. This leads to enlargement of scale. At the same time, lead times must be reduced. Lastly, thanks to Internet, many widely used products are becoming available throughout the world. Suppliers of common parts are selected by means of Internet auctions. As a result, trade chains are gradually changing. The shape of the chain is increasingly being determined by consumers, logistics providers and producers.

New services are needed:
- The supplier (logistics service provider, main contractor, system integrator) possesses an increasingly large amount of information regarding the demands of the customer/consumer (supported by Customer Relationship Management systems) and tries to offer tailor-made solutions to consumers. The goal is to offer those products using standard components wherever possible.

Figure 7.4 Global supply chain (past/present)



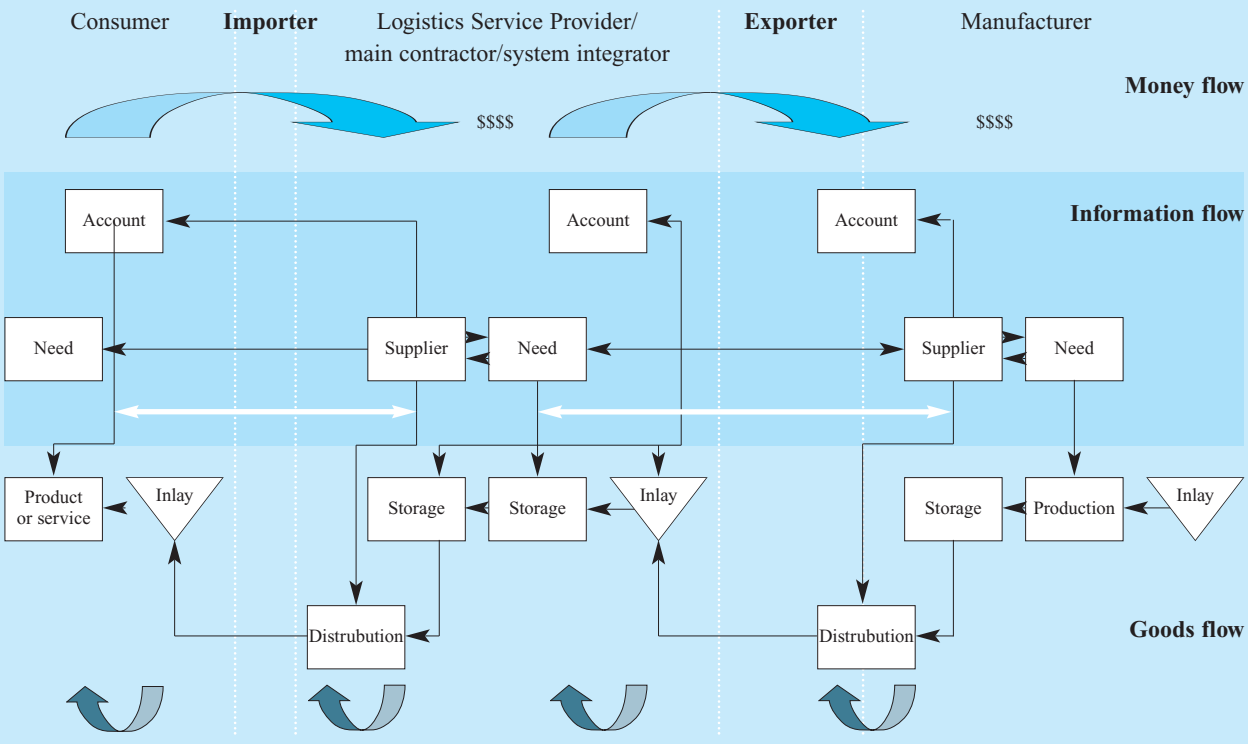
- Value Added Logistics (VAL; transport, distribution and production, assembly) ensures the fast delivery of personalised products
- Manufacturers deliver components (sometimes via VAL-processes of logistics providers) to the main contractor or system integrator specified by the contractor/integrator.

This process is being helped along by developments in the area of information and communication technology. Figure 7.5 shows the re-engineered chain, as it already stands in some market segments and will become commonly accepted in all market segment over the next years. Again the goods flow, information flow and money flow are presented in the same way as in Figure 7.4. The closer contact between fewer companies is clear, as is the diminishing influence of importers and exporters. The figure also shows the resulting elimination of process steps and stock points, leading to shorter lead times for products and a better understanding of each other's needs.

the next few years. Manufacturers should be aware of this change and adapt their strategy by developing relationships with these kinds of enterprises.

Major system integrators are former engineering companies (e.g. Fluor Daniel, Arcadis) and former installation companies (e.g. Siemens, ABB, Tractebel/ GTI, Imtech). Main contractors are chiefly responsible for the installation of part of the plant or equipment and the maintenance of it. Often they are traditional producers of e.g. valves or pipes. They are moving towards participation in the design of parts of the equipment, detail engineering, manufacturing and assembly/ installation of equipment. Their knowledge is used to find optimum solutions for parts of a plant. Examples of such enterprises are Tyco and Invensys. Importers are having to develop a new strategy and define their new added value in response to these developments. At present they rely on their agency for brands which only they can sell (in designated regions). The question is how long they can manage to maintain this position.

Figure 7.5 Global supply chain (recent/future)



Product (Original equipment) manufacturers are returning to their core competencies in order to be able to develop the new services required. Manufacturers and service providers are developing and supplying some of the products as well as the related services, based on market information demanded and/or supplied by the system integrator and the consumer. System integrators and main contractors, together with logistics service providers, are expected to play a major role in

7.2 Distribution channels for developing country exporters

Originally, the traditional agents and importers were the natural trade element of the developing country manufacturing company. Nowadays they are still very important, but the market in which they are playing is changing rapidly. Developing country manufacturers must be aware of this change and adapt to it (offer added value, fullfil necessary tasks and activities).

The important players in the distribution chain are the system integrator, the main contractor and the importer/agent. In order to remain competitive and attractive, importers are providing added valuealongside traditional functions. Much attention is being paid to transitional functions, including:

- quality assurance
- sourcing knowledge
- transfer of knowledge
- stock keeping and fast delivery
- offering different methods of financing.

The importer's activities are increasingly focused on additional services around the product itself. Nowadays they need to be well informed about their customers and market, making maximum use of information sources and the available infrastructures.

It is part of business practice in Europe to trade through importers or agents for almost every technical product. A strong network of representatives in Europe already exists. They have built up a reputation over the years based on market knowledge, adding value to the product in the form of advice, stockholding, instructions, just in-time deliveries and after-sales service.

System integrators and main contractors are gaining in importance. Together with the engineering companies, they are responsible for plant development, realisation and maintenance. It should be noted that system integrators and main contractors only do business based on proven continuity and stable performance. Price, confidence, reliability of management, flexibility and quick responsiveness are of importance when obtaining orders from them. Quality (meeting the specifications) is a given standard. System integrators and main contractors only obtain components via importers and agents, who fulfil an intermediary function backed by their product and market experience. They handle the responsibility of obtaining the right goods in the right quantity, on time. The importer/agent remains the partner with which exporter should deal.

8 PRICES AND MARGINS

8.1 Prices developments

It is difficult to give prices or even price indications for end products because of the wide variety.

Note that the cost price is made up of three main components: the price of the raw material, labour costs (more labour intensive are: valves, vessels, instruments) and energy. Developing country exporters should be sure of having access to enough materials and energy at fair prices.
Products with the best margins in general are those products that are more labour intensive and products for which companies provide real Added Value. Generally this means that the margins for vessels, a number of types of valves and of instruments (non-standard and customer-specific) are acceptable, or even good.
Developing country exporters should develop a competitive edge (specialise in a certain kind of product or field of knowledge) as well as exploiting their advantage in terms of low wages.
Pipes and fittings have relatively low margins, due to severe price competition and highly automated processes (standard products). Developing country exporters still have the advantage of being able to offer low wages but, especially in the case of metal pipes, the transport costs can be significant (bulky products). Exports of metal pipes to European suppliers can be competitive, depending on the batch size and the place of destination of the product.

System integrators and main contractors are seeking better margins by offering extra services (customer-specific definition and production of products, installation and maintenance of products and their direct environment). Component and subsystem (assemblies) suppliers should also consider which products and fields of knowledge offer the best margins. In general the component supplier with no specific expertise (offering general capacity) has the lowest margins. Component suppliers with a specific focus (e.g. pipes, fittings and valves for e.g. the paper production processes) will realise higher margins. Knowlegde of the market and client processes together with the continuous improvement of process planning will result in profitable business. Suppliers of subsystems must first invest in manufacturing engineering, project management, procurement and assembly. This will result in low margins at the start. However, once your company has succeeded in becoming a (sub)system supplier, margins will be higher than those of component suppliers. Prices are developing positively in the oil and gas industry. Prices are under pressure in the food and beverage industry and in the paper industry.

8.2 Sources of price information

Price information for the most common basic metals can be obtained from the London Metals Exchange (LME) and the Dutch metals market. Prices for standard products (pipes/tubes, fittings, valves) can be obtained through trade organisations, trade press or trade fairs. Other possibilities include checking on the Internet, asking for prices from distributors, retail chains and other distribution channels. Please refer to the appendices for details.

As prices are a major competitive factor in international trade in mobile equipment, exporters should pay particular attention to the price-setting of their export product. There are several ways to obtain information about prices and price levels in Europe:

- trade organisations (see appendix 3.3 Trade associations)
- trade fairs (see appendix 3.4 Trade fair organisers)
- magazines (appendix 3.5 Trade press)
- Internet pages (listed in the appendices and in appendix 5 Useful Internet sites)

9 EU MARKET ACCESS REQUIREMENTS

9.1 Non-tariff trade barriers

9.1.1 Quality and grading standards

The trend in the pipe products trade is towards more added-value processing in combination with complex products (for which there are no general standards) and towards lower prices for standard products of a certain specified quality (conformity to standard product and process specifications). It is of great importance that buyer and seller deal in detail with the completion of the product. This includes specifying the tolerance, deciding which defects are accepted or are not accepted and agreeing on the material to be used for making the product. There should be total clarity, in order to avoid claims and possible disrupture of contacts, which have often been built up at great expense in terms of time and energy. At the end of this section, a description is given per product group of the quality and grading standards for pipes, tubes and pipe-related process equipment generally adhered to by the industry in the European Union.

Quality management: ISO 9000

The International Organisation for Standardisation (ISO) has developed the ISO 9000 series for quality management and assurance of the production process. The ISO 9000 standards represent an international consensus on the essential features of a quality system. Quality, health, safety and environmental management programmes are usually strongly interwoven into the overall ISO management plan. Importers in the EU highly value this production quality guarantee.
All users of the current ISO 9001/9002/9003:4000 norms are now required to switch to ISO 9001:2000, which gives guidelines on business excellence using a broader range of objectives to be applied to quality management systems than ISO 9001.
Everyone/everything, which is certified according to the 'old' ISO 9000:1994 series will have to adjust its quality management to meet the new demands before December 15, 2003. Meanwhile accredited certifications of the1994 editions of ISO 9001, ISO 9002, or ISO 9003 will co-exist with ISO 9001:2000.

The revisions are based on seven quality management principles, reflecting best management practices. These are:

- Customer-focused organisation
- Leadership
- Involvement of people
- Process approach
- System approach to management
- Continual improvement
- Factual approach to decision making

The revision of the ISO quality management standards includes a significant change to the structure of ISO 9001 and ISO 9004, which have been redivided into four main sections:

- Management responsibility
- Resource management
- Product realisation
- Measurement, analysis and improvement.

Please refer to ISO's Internet site www.iso.ch for up-to-date information and to CBI's publication 'Exporting to the European Union' for an overview of all ISO 9000 standards.

Technical standards (ANSI, DIN, EN and others)

It is essential to manufacture products according to accepted international norms or standards to be in business. For numerous products, norms apply that not only specify sizes and tolerances but also include strength and finishing requirements. If a standard is available for a product, but that product is not manufactured accordingly, it will be very difficult to sell and will not be competitive with other products. Every EU member state has its own normalisation institute and its own norms. In many cases, standards and norms will be comparable with those in other countries. Access to the European market will be much easier if you conform to the best-known standards in the EU.

The "Deutsche Industrie Norme" (DIN - German Industry Norms), some of the British Standards (BS) or European Norms (EN) and in the processing industries the ASME norms are the important ones to abide by. DIN norms are more well respected than most other norms, and even in the United Kingdom they are increasingly preferred over the British Standard (BS) norms. Occasionally, other norms such as the American ASTM, API or ANSI are also preferred over DIN norms, as is the case in e.g. the oil and gas industry. ASME or API norms for example are frequently prescribed for products, processes and test procedures. As a matter of fact, many European companies working in this market segments have for example ASME certificates.
On a European level, the Comité European de Normalisation (CEN) is working on the establishment of European Norms (EN). Sometimes these are the existing European norms, but then harmonised. European Norms are needed because of the new EU safety directives. The easiest way for a manufacturer to comply with new EU directives and/or the New Approach Directives relating to safety, health and the environment is to conform to the harmonised EN norms. The European Norms are not legislative in

nature, as normalisation is always a voluntary choice. EN norms are being established by CEN, with the help of contributions from all European normalisation institutes.

The EU seal of conformity (CE marking) demonstrating compliance with these essential requirements must be placed on each product before the product can enter the market or be taken into operation. The CE marking is a declaration by the manufacturer (or importer), confirming that the product fulfills the essential demands and has been through a prescribed module for compliance. The CE marking functions as a passport for trans-border traffic travelling to and entering EU and EFTA countries. It constitutes an essential ticket of entry. Products covered by a New Approach Directive, may not be brought in, traded, used or even installed unless they bear the CE marking. Europe's new legislation stretches as far as its outside borders, so those who import products from outside Europe are regarded as manufacturers and are therefore responsible for affixing the CE marking. For more information: www.cbi.nl/accessguide (see legislation overview: Machinery, go to keyword search, type 'legislation overview' and click on 'AccessGuide legislation overview: Machinery')

On May 29, 2002 the old, national legislation covering vessels, pipes and tubes was replaced by a new European Pressure Equipment Directive. The Pressure Equipment Directive starts at 0.5 bar and makes a distinction between several categories. Anyone wanting to sell equipment in Europe that is covered by this directive will have to follow the procedures that lead to the CE marking. Part of the procedure for the CE marking is documentation supplied by the manufacturer describing the precise boundaries within which a product can be used safely. The Pressure Equipment Directive is applied more strictly than the Machinery Directive, which still covers other pipe-related products. In the case of the Machinery Directive, the manufacturer must compile a dossier known as the technical construction file. This file must contain the following documents (amongst others):

- drawings of the machine;
- results of calculations, tests;
- a list of elementary requirements of the Directive, norms, technical specifications;
- description of elementary safety features;
- technical documents, certificates;
- test results of own tests or from certified testing institutes;
- a copy of the instruction manual.

Most pipes and pipe-related products are subject to strict safety requirements. Third-party inspectorates play an important role in assuring the conformity of production to the product demands as laid down in the programme of demands (elaborated during product engineering). New Approach legislation provides for the issuance of a declaration of conformity by the manufacturer and often requires a certificate of conformity from an independent certification body. The independent certification bodies, known as notified bodies, have been officially notified by competent authorities to test and certify to EU requirements. Several kinds of inspection (for example destructive or non- destructive examination) can and must be applied if necessary. The manufacturing company must be able to prepare the documents, invite the inspectorates, facilitate them and incorporate the data results into the product documentation properly and efficiently if they wish to do business in European countries.

Many of the standards are derived from the American Petroleum Institute (API). In the wake of the world-wide growth in oil and gas production since the 1960s, many companies have developed their own standards and specifications to meet the new challenges, e.g. the North Sea and environmental standards for product emissions. Below is a summary of the most commonly used standards and institutes. The addresses of these institutes can be found in the Appendix 3.1 of the EU Market Survey 'Pipes and pipe-related process equipment'.

API, American Petroleum Institute
API is the major American trade association representing the entire petroleum industry: exploration and production, transportation, refining, and marketing. It is a forum for all parts of the oil and natural gas industry, dedicated to pursuing priority public policy objectives and advancing the interests of the industry in a legally appropriate manner. API has developed some 500 equipment and operating standards used around the world. Especially in the energy market (pipes and vessels), customers require companies to manufacture in accordance with API.

ASTM, American Society for Testing and Materials
ASTM provides a forum for producers, users, ultimate consumers, and those with a general interest to meet on common ground and write standards for materials, products, systems, and services. The American Society of Mechanical Engineers (ASME) and the American National Standards Institute (ANSI) are also prominent standardisation organisations in the United States. Especially in the energy market (pipes and vessels), customers require companies to manufacture and control their products and processes in accirdance with ASME.

DIN, Deutsches Institut für Normung
DIN, the German Institute for Standardisation, is a registered association with its head office in Berlin. DIN is not a government agency. The work of

standardisation as undertaken by DIN is a service in the field of science and technology, provided for the entire community.

Norms and standards
Over 5,000 standards exist for the products covered in this survey. Below is a list of a few of the most important ones.

Pressure/temperature ratings for flanges, pipes, valves and fittings etc. can be found in:
ISO 7005, ANSI B16.1, ANSI B16.24, ANSI B16.42, ANSI B16.47, ANSI B16.5, ANSI B93.75, BS 10, BS 1560, BS 3293, BS 4504

The construction and dimensions of pipe fitting are standardised in:
ISO 49, ISO /R508, ISO 2045, ISO 2531, ISO 3458, ISO 3459, ISO 3501, ISO 3503, ISO 4145, ISO 4179, ISO 8179, BS 143, BS 759, BS 1256, BS 1640, BS 1740, BS 1965, BS 2051, BS 3799, BS 4346, BS 4772, BS 5114

For shape and dimensions of flanges, the following standards are the most popular:
ISO 7005 (metric and inch), BS 4504, DIN 2531 to 2533, DIN 2543 to 2549 and 2551, DIN 2628 and 2631 to 2638, DIN 2565 to 2569 (all metric), ANSI B16.5 / BS 1650.

For tube and pipe production:
ISO 65, ISO 416, ASTM A53/A120, ASTM A105/6, ASTM A234, ANSI B36.19, DIN 1629, DIN 2394, DIN 2395, DIN 2440, DIN 2441, DIN 2444, DIN 2448, DIN 2458, DIN 2632, DIN 2634, DIN 2616, DIN 2999, DIN 17100, EN 10025, FE 360, BS 1139 Part 1 (1982), BS 1385, BS 1387, BS 4360, BS 6363

For plastic tubes and fittings:
DIN 2999, DIN 3441, DIN 4102, DIN 4262, DIN 8061, DIN 8063, DIN 8074, DIN 8075, DIN 16962, DIN 16892, DIN 16893, DIN 19560

For valves and fittings:
ISO R7, ISO M2, ISO M4, ISO N4, ISO N8, ISO 5211, ISO 5752, ISO 5754, ISO 5755, ISO 5754, MSS-SP44, API 6FA, API 526, API 594, API 607, API 609, ANSI B 16.5, ANSI B16.10, ANSI B16.11, ANSI B16.25 DIN 267, DIN 2352, DIN 2353, DIN 2501, DIN 2527, DIN 2566, DIN 2605, DIN 2631, DIN 2632, DIN 2633, DIN 2634, DIN 2635, DIN 2980, DIN 2993, DIN 3202-k3, DIN 3202-F1, to F16, DIN 3239, DIN 3357, DIN 3486, DIN 3487, DIN 16282, DIN 16283, DIN 16284, DIN 16288, BS 1560 part 2 RF, BS 2680, BS 3293, BS 5155, BS 5156, BS 5351, BS 6755 part 2.

ASME B 31.3 is currently regarded as the "bible" for piping design codes for the oil, gas and petrochemical industry.

9.1.2 Trade-related environmental, social and health & safety measures

Environmental aspects of products have become a major issue in Europe in recent periods. Depending on the product group in question, environmental aspects may play a vital role in preparing for exports to the European market. As well as government involvement (legislation and regulation), a strong consumer movement is noticeable especially in the northern parts of the EU (Scandinavia, Germany, The Netherlands and the United Kingdom). 'The environment' is more than a trend. It is a lasting issue, affecting all products and nowadays even services. Manufacturers must therefore assess their products and production processes not just in terms of traditional aspects like price, quality, customer demands and standards, but also in terms of the environmental implications. The aim of this section is to highlight briefly several aspects currently playing a major role in the EU.

Environmental standards
Environmental measures in the production process (also called "environmentally sound production" or "ESP" in short) are not legally compulsory in the EU (unlike EU product legislation), but you may be confronted with demands from EU buyers relating to e.g. waste management. If a manufacturer wants to let external parties know that he is manufacturing in an environmentally sound way, then he can choose to comply with the following standards:
- ISO 14001 (most commonly used)

For more information: www.cbi.nl/accessguide (see: environmentally sound production, go to Search at the header, choose Advanced search, parameters: product and choose the relevant HS Code, theme: environment, type of information: labels, codes, management systems, country: not specified).

Social, health and safety measures
There is an international standard for social accountability (SA 8000). The objective is to ensure the ethical production and sourcing of goods and services. It is a voluntary standard and can be applied to any size of organisation or business across all industries. SA 8000 sets basic standards for: child labour, forced labour, health and safety, freedom of association and the right to collective bargaining, discrimination, disciplinary practices, working hours and compensation.
For more information: www.cbi.nl/accessguide (see: SA8000, go to Search at the header, choose Advanced search, parameters: product and choose the relevant HS Code, theme: social, type of information: labels, codes, management systems, country: not specified)) (or use Keyword search and type 'SA8000').

Safety and reliability in manufacturing requires technical, organisational and human solutions. Only

coherent solutions will result in process control in the broadest sense. Organisations must analyse the human causes of failures and look for ways to control them. Corrective and preventive measures (technical solutions, human behaviour, organisational aspects) should be prepared and implemented. This will lead to cost-effective results. In the chemical industry, for example, these steps have already been taken, leading to good results. Other less sophisticated industries will and must follow suit in coming years. Several steps are identified in the CBI's access guide to help prevent accidents.It also provides information about a management system for occupational health and safety (OHSAS) applied in the sector and designed to ensure a systematic approach within a company to ensure proper working conditions.

More information can be found at:
www.cbi.nl/accessguide (go to Search at the header, choose Advanced search, parameters: product and choose the relevant HS Code, theme: social, type of information: occupational health and safety, country: not specified)) (or use Keyword search and type 'ohsas').

9.1.3 Packaging, marking and labelling

Apart from the safety aspects and protection against damage, an important focus within packaging is on environmentally friendly transport (as well as sales promotion packaging). This means, among other things, considering whether returnable systems can be used on a much greater scale than before. European countries (with Germany taking the lead) are also preparing legislation to be applied to industrial packaging. The producing company is to be responsible for the return of the packaging. It is likely that more countries will follow. This means extra overheads and ,more work for exporters.

In general, the customer determines the packaging requirements for semi-finished products. Packaging must be marked in such as way that it is not only identifiable during transport but also that it states the quantity, the weight, the products themselves and the brand. The important thing is to identify the customer's expectations. Traders in Europe and local forwarders must be able to advise on appropriate packaging. Care should be taken to conserve the product in a suitable way. The package should not contain too much moisture (to avoid problems in the event of climate change). Packaging methods have been developed for cast and forged products. It is in everybody's interest to find the right supplier of the right packaging material (e.g. skids, Europallet, Eurocartons, Nedcontainers and seaworthy wooden crates).

Packaging waste
The European Commission presented the Export Packaging Policy Document in October 1992, in line with efforts on the part of the European Union to harmonise national measures relating to the management of packaging and packaging waste. The packaging document was followed by a Directive in December 1994 (94/62/EC). The directive emphasises the recycling of packaging material.

Exporters in developing countries targeting the European market must be aware of these agreements and take appropriate measures if they are to become or remain interesting trade partners for European businesses. The environmental requirements will be passed on to the exporter. That means that packaging (transport packaging, surrounding packaging and sales packaging) materials should be limited and be re-usable or recyclable. Otherwise, the importer will be confronted with additional costs, thus reducing the competitiveness of the exporter.

Since environmental policy is changing rapidly, exporters are advised to ask the importer about the latest regulations and/or requirements related to packaging. For more information about environmental regulations concerning packaging methods, please also refer to ITC.

9.2 Tariffs and quotas

Financial instruments in the EU
Alongside legislation, one of the instruments used by the EU to promote environmentally sound products is the awarding of (tariff) preferences or the levying of so-called 'environmental taxes' on products. An example of preferential systems is the General System of Preferences (GSP) encouragement regime. Under the GSP, developing countries are exempted from the main WTO principles of reciprocity and non-discrimination (see Section 1.2). Since May 1998 the current GSP, which covers the period 1999-2001, has included an encouragement regime designed to stimulate developing countries to establish and implement trade-related social and environmental policies (Regulation EC 1154/98). Import tariffs for those countries producing in an environmentally friendly and humane way may be reduced by as much as 15-35 percent for a selection of products. For countries that already receive maximum preference, the encouragement regime may not be a direct incentive.
For more details on GSP, please refer to CBI's Guide 'Exporting to the European Union'.

In general, all goods, including pipes and pipe-related process equipment, entering the EU are subject to import duties. Imports from CBI client countries (see Appendix 4) are often free from duty, however!
External trade conditions in the European Union are generally determined by EU regulations. In the case of pipes and pipe-related process equipment, the level of

the tariffs depends on:
- the country of origin;
- the product.

In order to support exports from developing countries, the EU operates the Generalised System of Preferences. Under the current EU GSP scheme (Regulation 2820/98/EC), imports from a number of developing countries are admitted at a reduced tariff and imports from a group of least-developed countries at a zero tariff. In 2001, the EU Commission established a new scheme of preferential rights for the period from 1 January 2002 to 31 December 2004. This also applies to pipes and pipe-related process equipment. Under the new GSP, which covers the period 2002-2004, the preferential regime includes:
- preferential market access to Europe for industrial and agricultural goods from developing countries, depending on the sensitivity of goods. The 'sensitivity' of goods refers to the degree to which imported products cause, or threaten to cause, serious difficulties to EU producers of similar or directly competing products;
- special treatment for Least Developed Countries(LDCs), and certain Latin and Central American countries;
- an encouragement regime to stimulate developing countries to establish and implement trade-related social and environment policies.

Table 9.1 EU tariffs for pipes and pipe-related process equipment

HS Group	General Tariff	SPGA1/SPGE	SPGL	Mexico / South Africa/Chile
3917	0[2]-6.5/7.1	0	0[3]	0
3923	6.5	0	0[3]	0
3925	6.5	0	0[3]	0
7303	3.2	0	0[4]	0[6] South Africa: 2.4
7304	0[2]-1	0	0[4]	0
7305	1	0	0[4]	0
7306	0[2]-1	0	0[4]	0
7307[8]	0.6-3.7	0	0-1.2[4]	0[6] South Africa: 2.7
7309	2.2	0	0[4]	0[6] South Africa: 1.6
7310	2.7	0	0[4]	0[6] South Africa: 2
7311	2.7	0	0[4]	0[6] South Africa: 2
7411	4.8	0	1.3[5]	0[7]
7412	5.2	0	1.7[5]	0[7] Chile: 1.2
7608	0[2]-7.5	0	45	0[7] Chile: 3
7609	7	0	3.5[5]	0[7] Chile: 2.6
7611	6	0	2.5[5]	0[7] Chile: 1.8
7612	6	0	2.5[5]	0[7] Chile: 1.8
7613	6	0	2.5[5]	0[7] Chile: 1.8
7805	5	0	1.5[5]	0[7] Chile: 1.1
7906	5	0	1.5[5]	0[7] Chile: 1.1
8402	2.7	0	0	0
8403	2.7	0	0	0
8481	2.2	0	0	0
9026	0[2]	0	0	0
9032	0[2]-2.8	0	0	0

1: excluding Myanmar
2: 0 is only valid for (parts for) civil aircraft
3: excluding Malaysia and Thailand
4: excluding China
5: excluding China, Moldova
6: excluding South Africa
7: excluding Chile
8: 730711 and 730719 have specific tariffs; see website for further details

Source: Dutch Customs Office (www.douane.nl/taric-nl), November 10, 2003

SPGA/SPGE, SPGL is a classification of the degree of development in developing countries.
The site www.douane.nl/taric also presents a list of countries falling under the groups mentioned (SPGA/SPGE, SPGL).
Most recent information on TARIC tariffs can be found under the section Taxation and Customs Union of the European Union's website (europa.eu.int/comm/taxation_customs/dds/en/tarhome.htm).

Having gathered information on the market (industrial demand, trends in demand and the requirements for market access (part A)) the next step is to determine whether the potential exists for your company to export your products to the European Union. Section B introduces the areas to be analysed before you can take a decision on whether exporting is likely to be successful.

Part B
Export marketing guidelines: analysis and strategy

PART B

The EU market information and EU market access requirements (Section A) identified the volume of the different product groups. It also indicated the different type of markets and customers with their demands and the trends in the different markets. Finally the sales and distribution channels were presented, a distinction being made between the different types of companies ("players"). The EU market access requirements name the existing trade barriers (technical and environmental; tariffs). The norms and standards (in both legal and business terms) should be seen as prerequisites to business with EU importers.

The purpose of the Export marketing guidelines (Section B) is to help you as exporter to decide:

- Which markets are most suitable for my actual product portfolio?
- Am I capable of meeting the norms and standards required? Can I follow the technical developments (or are they limited)?
- Can I run a profitable business? Are there large investments needed and what are the uncertainties? How can I manage the risks?
- What position should I aim at most logically (and what direction can I expect to grow in the next few years)?
- Who will be my most serious competitors; what is their strategy and what should my strategy be (e.g. cost and volume or niche player)?
- Is my internal organisation adequate, and if not where must I improve because actual performance is below market requirements?

Chapters 10, 11 and 12 aim at assisting potential exporters in the decision-making process (i.e. whether or not to export) by combining external and internal analysis with critical conditions and success factors. Is the market for my products large enough, can I obtain a position (and, if so, in which market segments and or EU countries), how long will it take and do I have the financial and marketing means required?

Chapter 13 supports the potential exporter once he has made a positive decision, explaining the steps he has to take in order to successfully penetrate the EU market for his chosen product market combination(s). How do I get in touch with potential customers? How do I build up a professional relationship with them? How do I expand the business with each customer?

For general export marketing information, please see the CBI's Export Planner. For general information on conducting market research, the exporter should refer to the CBI's new manual on market research.

Typical starting situations for potential exporters (from developing countries) are:

1. Parts (Simple Product) supplier (FOB)
   An exporter has in place engineering, production, service and a marketing and sales department. This kind of company has specific technology and machinery (e.g. turning and milling) and skilled personnel and produces components and simple assembled products. In the phase of 0-series close contact exist between importer and exporter (in engineering and production, this entails sharing experiences and improving the product). The logistics are under control and the company can guarantee short and reliable delivery times. Flexibility is available such that ups or downs of 25% of standard capacity can be managed.
   A supplier of metal pipes is used as an example.
2. Product supplier
   The producer needs to have technological and production expertise. It will have an assortment of products (one or more product types and a number of variants per type). Experience and knowledge of packaging is present and some kind of service can be delivered.
   A supplier of valves is used as an example.

10 EXTERNAL ANALYSIS

External analysis should be used to determine which markets (e.g. oil and gas and/or power plant and/or pulp & paper) and within those markets which European countries are of interest to you in terms of import volumes, margins and manageable developments (e.g. technical). Having selected your markets and countries, you need to consider your potential competitors and the existing sales channels. This should result in a conclusion as to whether you can obtain a position and, if so, how.
The way in which a potential exporter can carry out its external analysis is laid out in the paragraphs below. You will also find references to websites and other specific information points.

10.1 Market developments and opportunities

Introduction
An experienced exporter knows that he first needs to identify the most promising export product(s), export market(s) and sales channel(s), and determine whether he is capable of meeting the requirements of those market(s) and sales channel(s). He is also aware that he needs to identify segments and niches in the various markets, and spot competition. And he knows that only then is it time to give consideration to the matter of buyers and prices. A (starting) exporter must begin by conducting a market survey and identifying developments and trends in the targetted markets.

Main markets and market developments
Table 10.1 gives an overview of the potential size of that section of the EU-market that is partly produced in developing countries (extra EU-imports) and the actual market share of some developing countries.

In terms of value, the developing country exporters are most successful in valves, instruments & safety devices and metal pipes. Fittings is a product group in which developing country exporters are successful in terms of the percentage of extra-EU imports. The leading exporting developing countries of pipes and pipe-related products are China, Turkey and the Philippines.

Growth prospects and threats
In principle, developing countries have the potential to play an important role in the market for pipes and pipe-related process equipment in the EU, since (especially in the steel sector) labour is one of the main cost factors. Metal pipes and valves offer the best prospects. Instruments is another promising category, but price competition plays only a minor role here. The most interesting markets at the moment for metal pipes are the energy related industries (e.g. oil, gas), pharmaceutics, mechanical services, water purification and the food industry. The most important markets to target for valves in the next few years are the oil and gas market, energy, food and the water industry. The liberalisation of the energy-related markets is leading to investments in organisation development and products. This market will be of special interest in the near future.
Specific market segments per EU country are of interest to developing country exporters. The Netherlands is a relatively small market. The market value of developing countries, however, grew to about € 40 million in 2000. In the next few years the food, pharmaceutical and the energy and water industry will be of particular interest. France and Italy are difficult to approach because of their closely internally controlled economic structure. Germany is interesting by virtue of

Table 10.1 Size and share of extra-EU imports from developing countries per product group 2001, value in € million and percentage of total value

	extra-EU imports rounded value	share of developing countries % of value	value of developing countries rounded value
metal pipes	1650	22%	360
plastic pipes	640	7%	45
fittings	860	22%	190
valves	2260	16%	370
vessels	1010	16%	165
instruments and safety devices	2020	18%	360
pipe and pipe-related process equipment	**8440**	**18%**	**1490**

Source: Eurostat (2003)

being number 1 consumer in Europe. The southern part is the most prosperous part of the country at present. Market conditions, however, are less than favourable (low growth, high unemployability), and investments have diminished. The most promising industries at the moment are (petro)chemicals and food. The United Kingdom is an important producer of pipes. In spite of the fact that many local companies are in financial trouble, foreign and developing country exporters seem to find it difficult to gain entry into the market.

Price competition from Eastern European companies is forcing Western European companies to look for other ways to compete. They are looking for manufacturers who can produce labour-intensive products of European quality at competitive prices and are willing to transfer the necessary expertise. This represents a good opportunity for manufacturers in developing countries. Such manufacturers should, however, be prepared to act (initially) as sub-contractors, comply with the European legal technical requirements, guarantee the same quality and apply the same commercial standards.

Finally the changing shape of the supply chain, together with responsibilities being passed further along, is leading to a shift in customers for foreign and developing country exporters. System integrators and main contractors responsible for the engineering and production or maintenance of new or upgraded plants will increasingly tend to become the customers for parts-producing companies, rather than end users (consumers). The strategy adopted by exporters and manufacturers must take this trend into account.

Questionnaire, export opportunities

The following questions should be answered in order to ascertain whether and, if so, which markets (or market segments) offer realistic opportunities:

What are the (typical) markets for your product(s)?
- How can each market be segmented in greater detail?
- How is each segment organised (chain structure)?
- What type of companies in the chain are typical potential customers?
- How powerful is each type of company?
- How likely is it that your company will obtain a position with the typical potential customer?

What are the main developments (standards, barriers, volumes, technical demands, trade structure; opportunities and threats) per identified market (segment)?
- How well can the demands and developments be met by your company (reference to company's strong and weak points)?

What is the expected sales volume (now; 2005) per market segment?

What is the import volume (also from developing countries)?
- What trends do you see (negative; positive; mean; strong changes expected)?
- How positive are importers towards exporters from developing countries (for product supplies and or for joint ventures)?

How much interest is being shown in your product by EU importers?
- What contacts already exist?
- What contacts could be developed?

In view of the complexity of the market and the wide variety of products, new prospective exporters to EU countries should study information on potential markets from such sources as:
- Chapters **3, 4, 5, 7** and **9** of this survey;
- Internet, e.g. www.tubenet.org.uk, www.ceir-online.org, www.teppfa.com, www.bvama.org.uk and www.itatube.org ;
- your own national trade promotion organisations, associations, chambers of commerce, banks etc.;
- ITC;
- import promotion organisations such as CBI;
- trade press, e.g. Valve world.

In most European countries, producers, importers and sometimes dealers/agents are organised into branch organisations. These organisations can be important sources of market information for new exporters to the EU, and a means of identifying potential trade partners. Addresses, telephone and fax numbers of Import Promotion Organisations and other organisations that may be of assistance in entering the European Union market can be found in Appendix 3.3. The exporter should also take out subscriptions to specialised trade magazines and collect information on products, prices and sizes.

Market developments and opportunities: possible product market combinations

Metal Pipes

Steel pipes represent about 70 percent of the total market for pipes. The product market combinations which could be focused on are the oil drilling pipes, large-diameter pipes and pipes for power plants and related industry. Up to 1999 the market for pipes showed growth. There was a dip in 1999, followed by further growth in the market in 2001 and 2002. The market for welded pipes up to 16 inch represents about 75 percent of the total steel pipe market. A company chooses either a strategy for standard products (big market, dependent on economic situation) or a focus strategy (special pipes for limited number of applications and/or markets).
The products must be made according to recognised standards (see chapter 9.1; ISO, ASTM, DIN).
The market should be approached via agents (in case of the focus strategy) or via European producers (becoming a production plant for them).

Valves

The production of valves has recently shifted from the United States and Europe to the Far East. China is now home to more than 60 percent of the valve production companies. The prospects are best for valves (gate, globe ✓ control; ball) for the oil and gas industry or valves (control; gate, globe &check) for the power industry. In the next few years both sectors are expected to show about 10 percent annual growth in demand. The relatively high oil price is leading to investments in oil and gas. Power generation is expected to grow through replacement of installations, economic growth and environmental concerns. The present crisis in the US and some European countries (Italy for example) will lead to a reduction in investments. Other European countries will invest in the short term.
Valves must also conform to high level norms and standards (see chapter 9.1; ISO, BS, DIN).

10.2 Competitive analysis

The analysis carried out by competitors should focus on interesting product - market combinations for developing country exporters. The section above highlighted the most interesting products and markets. The exporter now needs to build up a picture of the most important competitors and its own position in relation to them.

It can be concluded from chapters 3, 5, 7 and 8 that metal pipes, valves and instruments & safety devices are the most important product groups to target (in terms of import value and percentage share of developing countries). France, Germany and the United Kingdom are the most important countries to target. Belgium should be added for vessels, being a major importer within the EU. Mexico, China, Turkey and the Philippines and, to a lesser degree, India, Thailand, Argentina and Brazil are the main countries with foreign suppliers to the EU.

The chapters named above also indicate the trade structure, potential type of customers and the points along the chain where the business power lies. In general the market is dominated by powerful companies. This means strong competition. Per product group (and within that possibly per market segment) it is essential to detect the chain structure, the potential customers and competitors. Generally speaking, it is main product suppliers who determine the developments in the product and the production structure. Depending on their outsourcing scope (based on market pressure, culture) there may be opportunities to become a supplier.
Pipes and pipe-related processing equipment are manufactured all over the world in line with specifications demanded by the customers, but more importantly in most cases also in line with DIN or other standards mentioned. In the case of regular (standard) products, the traditional producers in Western Europe are no longer able to compete with companies in the emerging markets, due to price disadvantages. These traditional producers are now focussing on the manufacture of products and services with a high added value. The more or less standard products tend to be imported from the emerging markets.

The structure of the pipe industry is changing. Some of the traditional industries are buying production facilities in the emerging markets to strengthen their grip on the market and to be able to produce and deliver their quality products all over the world at low production and transportation costs. On the other hand, some of the newly industrialised countries (and companies within these countries) are investing heavily in building up market share in important markets. It is vital that companies wanting to broaden their markets look into how strong competitors are and what those competitors are offering (product and services).

It is important to identify the most important European and foreign suppliers of those product groups (and within that possibly those market segments) into which your targeted products fits. The following questions should be answered:

1. Who is the competition in the markets that you want to enter?
2. How strong are these companies (and supporting country policy)?

3. What is the focus of these companies, and are you aware of their strategies?
4. What is their market share and their specialisation?
5. What are the core capabilities of the competition?
6. What are the weak spots of the competition (products, production, logistics, marketing, see 11.2.3)?
7. What is their spare capacity and if they have relevant overcapacity, what are they doing with it (e.g. price dumping)?
8. What is their cost price (operational cost)?
9. In what way is your offer (product range and services, but also logistics and marketing) able to compete with the market leaders?
10. What benefits are available to developing country exporters (trade quotes, hour rates, availability of resources …)?

If the answers to these questions give you enough positive indications, you can continue by drawing up a business plan for your target market. If this is not the case, you should stop concentrating your efforts on this market and find yourself another market, or try to find a partner with whom you can join forces.

An exporter to EU countries should study information on competitors from sources such as:
- Chapters 3, 4, 6, 7 of this survey;
- Internet, e.g. sector organisations as www.tubenet.org and www.bvama.org.uk;
- Trade promotion organisations, associations, press, e.g. Valve Word, Hydrocarbon Processing and
- ITC;

Competitive analysis: key competitors and unique selling points

Metal Pipes

The European pipe industry recently underwent a number of mergers, strategic alliances and downsizing of capacity. Germany and Italy are still the most important producing countries. Germany has about 50 major companies. Italy has a large number of small sized welded pipe companies (doing very good business).

Unique selling point must be low cost price and focus on a number of selected markets.

Valves

Competitors can be divided into:
- Conglomerates, determining a substantial part of the market (11 conglomerates together account for 19 percent of the market; together they have 108 companies with a 7.5 billion dollar turnover)
- United States (450 companies, with 83 valve companies accounting for 85 percent of market)
- Europe (23 countries produce valves; 80 percent is covered by Germany, Italy, France and United Kingdom. Germany has about 250 companies, with a total production of € 5.5 billion in 2002, exporting € 2.9 billion. Important markets are United States, France and Italy).
- China (2000 companies; some domestically owned but many also owned by European and United States companies)
- Japan, South Korea and Taiwan (each about 150 companies)

Trends are: globalisation, growing concentration of ownership between end users and global long-range alliances between valve makers and large industries. The ongoing cost reduction offers opportunities for developing country exporters. The unique selling point must be your price. Condition is that you are able to obtain a strong position in a sales channel (via agents or via European valve producers).

10.3 Sales channel assessment

Having evaluated the prospective products and markets and your major competitors, it is time to assess the particular sales channels within these markets. Following an assessment of the performance of your own company (next chapter), a comparison of the requirements of the sales channels with your company's performance will enable you to identify the most suitable sales channel(s) (chapter 12).

Based on the trade structure presented in Figure 7.1 and 7.2 the following matrix represents the different possible combinations of offered products and used sales channels:

Sales channel

Type of product	Importer	agent	System supplier	Parts supplier
Standard component	X3	X1		X1
Standard assembled product	X4	X2	X5	

Source: IPL, 2003

- The x-axis shows the type of supplier in the supply chain; the y-axis defines the type of product a supplier is manufacturing;
- X combined with a number indicates the present position of a supplier and the direction in which a supplier could develop. Development will be towards a larger number (e.g. X1 towards X5) in the case of parts suppliers supplying directly to a system supplier, or towards X2 or X3 in the case of parts suppliers supplying to industrial users via importers and/or agents;
- Parts supplier: manufacturer of (simple) catalogue articles, private ownership of products;
- System supplier: manufacturer of (complex) assembled products; major customer-related design of product.

Most developing country exporters start as parts suppliers, offering capacity or a simple standard product (both X1; component or simple assembly). The exporter can grow towards becoming a system supplier (more complex products; engineered with or without in-house knowledge or technology; X5) or product supplier (own product, distributed via agents or importers; X2, X3, X4)
A developing country supplier should start at X1 or X2 and could choose to develop towards X3-X5.

The developing country exporter should explore the possibilities of an exporting growth strategy, because of:

- The strong position in certain product groups (pipes, valves, instruments) of big importers, viewed as product suppliers;
- The existence of high quality levels (product and process);
- The rapid development in products and mechatronics for engineering products.

Exporters should start by offering standard components to importers or European suppliers supplying to system integrators or main contractors. The export could start with small importers (agents) offering a mixed portfolio of products.

Each defined product-specific sales channel should be appraised by answering the next questions:

1. What is the structure of the sales channel (and of other available channels); what products are sold (and in other related channels); why should and could I be part of it?
2. What standards (product, process, organisation, quality) are demanded; can I meet these requirements?
3. What lot sizes, delivery requirements and logistic performance are demanded; can I meet these requirements?
4. Which companies should be approached, and how; am I able to create appointments and do I have good presentation material ready?

E-commerce development

Within several sub-sectors of the machinery and equipment industry, intermediation by third parties plays a crucial role in the distribution of products. However, ICTs and e-commerce allow suppliers to transact directly with buyers, pushing dis-intermediation forward. The position of intermediaries will be determined by the type of value added services they provide, and by the degree of price transparency they provide. Therefore, e-marketplaces can be expected to gather momentum. An institute of the European Union reports on trends and developments in e-business. For pipes and pipe-related process equipment see: www.ebusiness-watch.org/marketwatch/index.htm and http://www.ebusiness-watch.org/marketwatch/resources/No09-II_Metal.pdf

Competitive analysis: sales channel

Metal Pipes

The sales channel for pipes and fittings products can be characterised as:

OEM-large	OEM-small
pipe company (e.g. v. Leeuwen)	agent (e.g. MCB)
capacity supplier	parts supplier

The developing country exporter could choose to position itself as supplier to an agent, being an independent company. Prerequisites are the specific selection of a limited number of markets (start small), the ability to offer a good quality product for a good price and a start via try-outs in combination with agents.
Another option could be the position of contract manufacturer. The exporter becomes a capacity source for a manufacturer and or trader in Europe. The price pressure will force pipe manufacturers to continue to look for cheap alternatives. Internet presence and attendance at fairs, where exporters position themselves as 2nd tier suppliers for manufacturers or main contractors.

Valves

The sales channel for valves can be characterised as:

OEM-large	OEM-small
prod.supplier (e.g. Ebro)	agent (e.g. Chemovalve)
capacity supplier	parts supplier

The developing country exporter could choose to position itself as supplier to a product supplier, being a dependent company. Prerequisites are being able to offer a good quality product for a low price and excellent production processes. You must be prepared to loose some of your freedom to choose developments. Ensure a clear presence (e.g. internet) and find valve manufacturers (via trade fairs) who are considering outsourcing to low wages countries.

10.4 Logistics

The takeovers and strategic alliances in the sector in recent years were the result of globalisation and fierce price competition. The market situation has also led to high logistic demands. Lead times are becoming shorter and shorter and delivery reliability must be almost 100 percent.
Companies positioning themselves as contract manufacturers must have in place extremely well controlled processes, including excellent logistics management. The work in hand and stocks should be at a minimum level, guaranteeing short and reliable throughput times and little exposure in the distribution channel. The flexibility should be high, offering the possibility to ramp up or down your complete capacity in a limited number of days. You must be in a position to organise transportation to Europe (in case of replenishment orders). Local transport (in case of compensation orders) should be part of the normal day-to-day running of the organisation.

The product supplier supplying brand names to Europe should maintain a continuous focus on cost price reduction and logistic improvement. The response times (time between request for quote and purchase order) must be minimal and controlled. The ability to communicate with system integrators in Europe must be in place (including lead time quotation and management of engineering one-of-a-kind products using catalogue articles). Also, the ability to organise local or overseas transportation must be in place.

Competitive analysis: logistics

Metal Pipes

Since pipes are voluminous products, transport costs will determine an important part of the price. Only those markets in the EU with a high demand for standard products in large batches may be interesting. It should also be possible to forecast the industrial demand accurately. Only then is it feasible to act as a supplier to Europe. An agent acting as intermediary to several markets and major players could fulfil such a role.
An alternative possibility is to supply pipes to existing regional European companies, serving e.g. the Asian Pacific market. Transport costs will be lower. Flexibility (possibility to vary order quantities and product mixes) could represent an advantage over local competitors

Valves

The trend of producing valves in low wages countries can be used to position yourself as an attractive alternative supplier. Your drive for continuous improvement in processes and your ability to realise short and reliable lead times must be presented clearly to European manufacturers or agents. Your ability to vary production capacity should also be underlined.

10.5 Price structure

Products with the best margins tend to be those products that are more labour intensive and products for which companies provide real Added Value. Generally this means that the margins for vessels, a number of types of valves and of instruments (the non-standard and customer-specific ones) are acceptable, or even good. Pipes and fittings have rather low margins due to the severe price competition and the highly automated processes (standard products). See also chapter 8, which deals with price developments and sources of price information. Chapter 13.3 indicates how prices can be set.

Companies are seeking better margins by offering extra services (customer-specific definition and production, installation and maintenance of products and their direct environment).

The box below gives an example of possible mark-ups from export price to retail price.

From export price to retail price, an example

Item	Mark-up	price
FOB (exporter's selling price		100
Freight, insurance, etc. (e.g. 15 percent)	15	
CIF price		115
Duty (if applicable 5-14 percent)	13	
Landed cost		128
Importer / agent / wholesaler's mark-up* (10-50 percent)	35	
Selling price to industrial user		163

* mark-up depends on type of product, distribution channels used and competitive situation

10.6 Product Profiles

Products from the range pipes and pipe-related process equipment are normally specified in DIN or EN standards.
Examples are given below, but you are free to make your own product profile showing the specifics of your product.

PRODUCT PROFILE

1. Product name: Piping bends 45° PP/GRP ACCORDING TO DIN 16966 PART 2 DN 25-200 and specific drawing

2. Market requirements:
European quality standards: EN or DIN.

Sizes/dimensions:
Specifies in table form the assortment bends, e.g. from DN 150 to DN 500 per product, the radius and other relevant dimensions, including the weight (kg).

Minimum labelling:
- Product description/label
- Certificate/logo

Packaging:
According to the contract

Import regulation:
The general import tariff depends on specific agreements between your country and the EU.
Relevant import documents:
- AWB or Bill of Loading
- Proforma invoice
- EUR 1 form for ACP countries
- FORM A for other countries

3. Market structure:
Average prices: (retail)
Due to the fact that there are so many products, we refer to the Internet for current price information (www.tubenet.org). Some price trends are described in Chapter 8 of the EU Market Survey Pipes and pipe-related process equipment.

Main markets:
The main EU markets for pipes and pipe-related process equipment are Germany and France. The main suppliers of Western European in the field of pipes / tubes and related products now come from Eastern European countries. Complex products or products with specific coatings or liners come from Western European countries.

Market trends: Importers tend to focus on suppliers that can supply them with a broad product range, including pipe-related processing equipment and related material. The use of Internet will be essential as a means of providing information and in the commercial process.

4. Main suppliers:
The leading suppliers of pipes/tubes and related products are:
Italy, Germany, France and United Kingdom

Poland, Slovakia, the Czech Republic, Hungary and Russia are major suppliers subcontracting to Western Europe.

China and Korea are important emerging suppliers.

5. How to improve the quality:
Steel tubes and other steel material: Special emphasis should be given to corrosion protection. Oil-based protection is not allowed, due to environmental laws. You should used water-based emulsions.

PRODUCT PROFILE

1. Product name: Nozzle 10" (part of vessel) ACCORDING TO ANSI B 16.5 ASME VIII, div 1 & 2; and specific drawings

2. Market requirements:
International quality standards:
ANSI or ASMI.

Sizes/dimensions:
Specifies in table form: Bill of Material, welding type, tolerances, parts: certificates, material and certificate; surface preparation; the pressure, temperature, press, insulation and other relevant dimensions, including the weight (kg) and capacity.

Minimum labelling:
- Product description/label
- Certificates product, parts and materials/logo

Packaging:
According to the contract

Import regulation:
The general import tariff depends on specific agreements between your country and the EU.
Relevant import documents:
- AWB or Bill of Loading
- Proforma invoice
- EUR 1 form for ACP countries
- FORM A for other countries

3. Market structure:
Average prices: (industry)
Due to the fact that these products are customer specific, specific design and calculation is necessary. In general we refer to the Internet for current price information (www.tubenet.org). Some price trends are described in Chapter 8 of the EU Market Survey Pipes and pipe-related process equipment.

Main markets:
The main EU markets for vessels and related equipment are Germany, Italy and United Kingdom.

Market trends: An increase can be observed in special projects and in contractors (realising products for end users). Importers tend to focus on suppliers that can supply them with complete (sub) products, including knowledge (added value), specific technology and capabilities and maximum price/performance. The use of the Internet will be essential in providing information and in the commercial process.

4. Main suppliers:
The main suppliers of vessels and related products to Western Europe now come from Eastern European countries and the Middle and Far East. Complex products or products with specific welding or surface treatment come from West European countries (Germany, Italy, United Kingdom, Netherlands).

5. How to improve the quality:
Follow developments in materials and their application continuously. Introduce cost-effective processes and inspections (offering an optimal price/performance). Close integration of sales, product – and production engineering. Ability to meet customer-specific demands using as many standard materials and processes as possible (and solutions already found to customer problems in specific product type).

PRODUCT PROFILE

1. Product name: CMVA xx / CMSS xx / CM-F xx Portable Data Collector/FFT analyzer ACCORDING TO ANSI-RAB CE-mark: EN50081-2, EN50082-2

2. Market requirements:
European quality standards: EN, ANSI, CSA, IP

Sizes/dimensions:
Specifies power, processing and measurement data, data displays, application resident programme, modes of data collection, physical data, environmental, communications

Minimum labelling:
- Product description/label
- Certificate/logo

Packaging:
Standard or customer specific

Import regulation:
The general import tariff depends on specific agreements between your country and the EU.
Relevant import documents:
- AWB or Bill of Loading
- Proforma invoice
- EUR 1 form for ACP countries
- FORM A for other countries

3. Market structure:
Average prices: (retail)
See e.g. www.skfcm.com

Main markets:
The main EU markets for pipes and pipe-related process equipment are Germany, Belgium and France.

Market trends:
Importers tend to focus on suppliers that can supply them with a broad product range, including the necessary service. The use of the Internet will be essential in providing information and in the commercial process.

4. Main suppliers:
The leading suppliers of instruments are: Germany, Italy, France and the Netherlands.

5. How to improve the quality:
Offering a recognisable added value (price, or product including service). An excellent logistics system (guaranteeing short and reliable delivery) and a perfect communication structure.

11 INTERNAL ANALYSIS

In chapters 7, 9 and 10 (especially 10.1 and 10.2) it became clear whether there are real exporting opportunities. This chapter helps you to compare the market demands and requirements (product, process, organisation and quality) with the existing internal capabilities. The internal examination is an analysis of the manufacturer's strengths and weaknesses. These strengths and weaknesses indicate how well positioned the company is to sieze opportunities and deal with threats. The competitive strength of the company must be measured in relation to the other suppliers in the market. The customer's attitude to the developing country exporter should also be considered. Competitors and customers must form part of the internal analysis, since a manufacturer's strengths and weaknesses are defined as its capabilities relative to them.

In order to ascertain whether your company is able to meet market demands, it is important to evaluate your company's performance on the basis of five criteria:

1. Product standards & quality, Strategy & unique selling points, Technology & production capacity
2. Logistics
3. Marketing
4. Financing
5. Capabilities

11.1 Product standards, quality, USP and production capacity

You should start by checking whether your company is capable of meeting the requirements and standards being set by potential customers in the target market (see chapters 9 and 10). It is a basic requirement that you meet the required quality standards. In general, the (product) quality will be the order "enabler". Exporters failing to meet the requirements will not be in business. The basic questions to be answered in relation to the different product groups within engineering products can be categorised as follows:

Checklist Standards

i System quality of the exporter:
Are ISO, VDA6 or QS 9000 certificate(s) or their equivalents used in the company?
Adequate organisational quality (ability to communicate at a professional level in English, French (and German); methods and procedures defined for important activities; ability to deal promptly with complaints

ii Process quality:
How controlled are your production processes, and can you demonstrate that these are guaranteed (e.g. CPK measurements)?
What is your waste rate?

ii Product quality:
Does the product meet the common required standards (like DIN, UL, CE, etc; certificates on time, certificates correct and complete)?
But in addition, does the product meet the specifications (build to print, visual appearance, dimensional stability, machined surfaces, packing quality)?

You should not consider embarking on exports if you are not (yet) able to give positive answers to the above questions.

If you meet the basic requirements, the next factor to consider is the added value of your company. Exporters able to meet the basic needs should create order "winners" by offering a unique position (strategy, capabilities) and excelling in price and/or logistics. Sales, communication and marketing should be organised.The checklist below can be used for a quick self-evaluation. The exporter must ask himself which of the points mentioned are particularly important to the importer. The exporter must determine how well the company performs for specific item (does the current positioning and performance meet the importers demands?).

Checklist Strategy, USP and production capacity

Strategy, Unique Selling Points are defined as:

1. Products (which?);
2. Markets (which?; which product market combinations?);
3. Company positioning (focus on low cost price or flexibility or …);
4. Core competencies (in what areas do you really excell?);
5. Core activities (which technical and/or logistical activities are performed in-house?);
6. Critical success factors (how do you measure whether you meet market requirements?);
7. Value chain analysis has been carried out (added value demanded versus offered; analysis of competition and of most important [potential] competitors)
8. Strategy and company proposition (clearly communicated to market?)

Technology, production capacity:

1. Core technology and capabilities
   - E.g.: manufacturing engineering,
   - work preparation,
   - high speed milling)

are defined and derived from strategy

Company analysis: USP, quality, production capacity

Metal Pipe

Prerequisites for market entry are:

- High process and product quality
- specific selection of a limited number of markets (start small),
- offer a good quality product at a sharp price

This will result for a developing country exporter in:

- USP: offering highly skilled personnel, who are flexible and realise a high quality product for a low price. Available conditions are: enough available materials and resources
- Company has access to agents which are clearly present in process industry and agents for it
- Company has process quality standards (e.g. ISO) and is able to manufacture products “copy exactly”
- Technology is state of the art

Valves

Prerequisites for market entry are:

- product for a sharp price
- brand is not necessary
- knowledge of PED qualification, new fugitive emission testing requirements and fire testing

This will result for a developing country exporter in:

- USP: offering a quality product for a low price, including attractive package and manual. After-sales service is a pre. Available conditions are: enough available materials and proven product performance
- Company has access to manufacturers looking for low-wage region alternatives and/or is present via internet and or trade fairs
- Company has proven technology and track record (products)

11.2 Logistics

Customers are demanding customer-specific products and short and reliable delivery times. The exporter must realise that he is part of the goods flow network. The production company must also be reliable in terms of lead times and flexibility (volume, mix of products). This gives rise to the following attention points for the exporter in developing countries:

Checklist Logistics

1. Most important: **Delivery reliability;**
   what is guaranteed by the exporter, in terms of deliveries (planning methods, feedback loops, past performance),
   what are normal lead times (crucial for e.g. moulds)?
2. Quantities; what is the average production level, and what is maximum possible production per period per product?
3. Logistics system
   How professional is the order management system (order entry?, forecast?, stock control?, order progress control? order status reports? shipping details?
   How are orders (and order requests) treated? (paper, fax, EDI, e-mail)
   How good is your organisation at preparing the required documentation?
   How is material availability managed (right kind and quality; price)?
4. Package sorts (e.g. attractive package needed for several types of "parts of transmission" for end consumer markets); what are your possibilities?
5. Delivery conditions
   What type of conditions can be managed?

The exporter must be aware that in order to stay in business it is essential to inform the importer promptly of any problems that may have arisen in production. The nature of the product (quality, time to market, consumer power) demands accurate communication of progress and problems (this applies both to the physical product and to the paperwork).

11.3 Marketing and sales

One of the consequence of globalisation is the professionalism of total production networks and their individual companies. Exporter from developing countries form part of such a network, and must keep pace with these developments. This means awareness of market developments (see Section 10.1) and sales channel structures (see Chapter 7 and Section 10.3) and a careful choice of your type of customers (see matrix in Section 10.3). Per type of customer you should develop a set of marketing and sales tools via which to present your company, its strengths and the way you do business. These must result in the importing companies remembering your name and what you have to offer. A separate sales department, trade fair attendance, internet presence and availability of sales material are all necessary means of creating awareness of your potential. The quality of your presentation and promotion material is of crucial importance, because of the impression it gives of the professionalism of your company!

The checklist below can be used to ascertain whether the sales side of the company is ready. You need to be able to answer these questions positively if you want to enter into business in Europe.

Company analysis: logistics

Metal Pipe

Logistics functions
- Order acceptance
- Workload control
- Materials management
- Warehouse management

Performance indicators
- Capable of serial production
- Lead time in days or limited number of weeks
- Flexibility
- Delivery reliability of 99 percent
- Transport (local and overseas) can be managed

Valves

Logistics functions
- Order acceptance
- Order management (planning and control; all departments)
- Workload and stock control
- Warehouse management and transport planning

Performance indicators
- Serial production
- Lead time in limited number of weeks
- Delivery reliability of 99 percent
- Transport (local and overseas) can be managed
- Knowledge of packaging methods
- Availability of life service and repairability

Marketing and sales

1. Separate sales department? Which languages? (minimum requirement is English; German is preferred for Germany, French for France and Italian for Italy) and which departments (Sales, Logistics, Quality) speak a foreign language? Clear to customers who contact persons are?
2. Presence on internet? (necessary), trade fairs (attend at least once a year in Europe!); availability of clear and complete sales material (company brochure, leaflets, product information; in English and …)? What impression are (potential) customers given (by your verbal presentation and available materials)?
3. Presence in Europe (about once a year; combined with trade fair)?
4. Prompt response to queries ? Quotes complete and correct? Quotes submitted on time?
5. Easy to contact by phone/fax/e-mail? Information provided on time?
6. Invoice and shipping documents in time and correct?

Company analysis: marketing and sales

Metal Pipe
- Clearly chosen core competence, translated into products and performance used by sales people for PR reasons
- Marketing and sales targeted towards importers and/or manufacturers in Europe

Valves
- Marketing directed towards agents and dealers of e.g. HP Valves, Norgren
- Skilled sales people
- Engineering available for managing try-out products with agents

11.4 Financing

Three factors are of importance. The first is the stability of your company. Are you a solid partner to do business with? You need to ask yourself how open you are towards (potential) customers about :
1. Your legal structure
2. The relationships between share holders
3. How solid and reliable an impression your company makes on its environment

The second factor is your financial position. How much financial capcity do you have to make investments in order to stay competitive? The following items are relevant (from the point of view of potential customers):
1. How strong is your cash and solvency position?
2. How large is your turnover per product group?
3. How open are you in financial terms?
4. What is your cash flow and invested capital?

The last factor is the financial day-to-day business practice. Your order calculation and management accounting must be professional. You must be able to provide the assurance that operational costs are controlled and opportunities for improvement will be recognised. A Letter of Credit (LC) is often used in trade with companies from developing countries. In business terms, it is preferable to work towards a standard relationship with quotes, orders and invoices. A credit check of your company prior to embarking on a business relationship is normal. Such relationships are built on sound financial results and a solid financial position.
The term of payment is normally 30 days.

Company analysis: financing

Metal pipe
- Limited: Work in process and some stock
- Product development (limited)

Valves
- Limited: financing work in process and some financing of developments of e.g. new valve types
- Stock (substantial)
- Marketing and sales material

11.5 Capabilities

Suppliers with qualifications equal to those of their present (local) vendors will require a very thorough search, an investigation of all their contacts, and thorough screening. Very few new suppliers pass the tests to iwhich they are subjected, but once they do, they can expect to benefit from enormous input and close collaboration on the part of the customer. Potential exporters therefore have to be at least as professional as their European colleagues. To position themselves "in the picture", their presentation and other promotional activities must also be well placed.

It is still very often the case that interested European importers, traders or end-users are disappointed in their contacts with potential exporters.

Below are some of the most frequently heard complaints:

- they are not responding to any communication;
- communication is very difficult;
- telephone or fax numbers have changed again;
- there is nobody who speaks good English on the phone;
- we differ in our perception of the priorities;
- specifications and drawings are interpreted differently;
- the finished product is not up to expectations;
- after the first shipment, the quality is not maintained consitently.

The above complaints can be summarised as “poor communication”: communication that is made even more difficult by the fact that every European country has its own business habits. The EU market varies from country to country. Each country has its own language and culture. Italy, Germany, France and the United Kingdom have a long tradition in manufacturing. The companies in these countries have always held the total production (including engineering) process in their own hands. In addition, the culture favours the “do it yourself if at all possible” approach. It is very hard to gain entrance.
Germany and the United Kingdom have a fairly formal culture. This means that you will only find openings via:

- patience (acquisition normally takes a number of years),
- politeness (correct behaviour) and
- a proven track record.

France and Italy have a more informal culture. Doing business there means taking time for informal events. However, French and Italian companies are difficult to approach because of their closely internally controlled economic structure. Italy has a large number of small companies, often family-owned and highly internally-focused. It is very hard to gain a foothold without the help of inside contacts.

Although English is the international language, business can only be conducted in Germany, Italy and France if you speak their language. Many companies in Germany, France, Belgium and Italy do not have many employees who speak English. This will give rise to problems in communication. The Netherlands has a more open culture and a shorter tradition in manufacturing. Gaining entrance there is somewhat easier, although proven added value and political stability are still necessary.

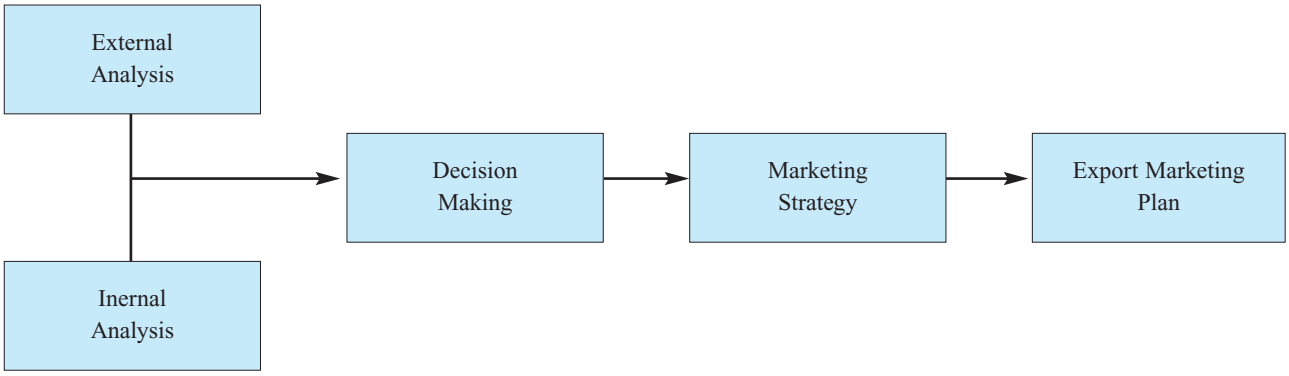
In Conclusion, starting exporting companies from developing countries must:

- Focus on a limited number of products, for certain targeted market segments;
- Determine clear and reachable goals and commit to them; monitor progress regularly;
- Possess good communication skills; be open and clear in presentation, keep appointments (be on time!) and deal with questions and obstacles adequately;
- Speak English and preferably also German, Italian and/or French;
- Be patient; it will take time to explore culture and networks in a country, to create initial contacts and create openings. Only after a few “bad” experiences will you succeed in building up business.

12 DECISION MAKING

12.1 SWOT and situation analysis

The decision regarding whether your company is capable of exporting "pipes and pipe-related process equipment" should be made in steps:



1. Opportunities and Threats: based on the external analysis, you decide whether or not there is sufficient market potential for your products and capabilities (see sections 10.1 to 10.5). You also ascertain which entity in the sales channel is best to sell your products to;
2. Strengths and Weaknesses: the checklists and assessments of the internal analyses (see chapter 11) must be answered positively as a prerequisite to become a partner for European business;
3. If both analyses (and perhaps the resulting action list) are positive, you then need to decide which product(s) for which market(s) to focus on.

If you have come to the decision to export, the next phase of the export marketing process is to draw up an Export Marketing Plan (EMP) which defines a marketing strategy stating how the company is going to penetrate the identified market. The marketing strategy is designed around the information collected in the internal and external analysis and the marketing tools will be described in the following chapter.

Formulating an export marketing strategy based upon sound information and its proper assessment increases the chances that the best options will be selected, resources will be utilised effectively, and efforts will consequently be carried through to completion.

For assistance in writing an EMP and formulating answers to the questions asked in this chapter, CBI's "Export Planner" is an adequate tool. The next section of this chapter deals with that decision and the way(s) in which you could choose to develop further.

12.2 Strategic options & objectives

The first step having taken the basic decision to start exporting to Europe is to develop a market entry plan. This long-range plan should cover:

- objectives (per year: which product in which market(s), product turnover and volume forecast for the next few years, growth in foreign customers, …),
- sales channel definition per product market combination (including what added value you are offering; which type of potential customer should be approached: importing product supplier or agent or system supplier or …),
- what are my core competencies and capabilities (e.g. manufacturing engineering, logistics control, warehouse management; resulting in low product cost price and reliable and short lead times),
- how do you intend to finance foreign market development and the investments you need to make in processes and people,
- action plan per market type.

Chapters 3, 4, 5 and 7 provide an overview of the market for the different product groups and the potential for developing country exporters. The best opportunities lie in:

- Metal pipes (not too complex products; imports increasing faster than industrial demand);
- Valves (relatively high volumes; high mix of products; ongoin relation of production to low wages countries);

Good opportunities (margins), but more difficult (because of low volumes and complexity of the product) are also to be found in:

- Instruments & safety devices (low volume, high mix of products; constant increase of industrial demand).

Opportunities for exporters arise from the global markets in which companies (in networks) compete and the innovative and cost price pressure with which they are confronted. Outsourcing is a key item for many European companies, in order to be able to realise the demanded cost prices. This presents opportunities for exporters from developing countries. The sector policy in most of the end markets is directed towards knowledge economy (in technology, logistics, processes). This means focusing on product development, production engineering and the manufacture of prototypes. As soon as they reach normal (mass) production these companies are expected to transfer production to low-wage regions (optimal price- performance ratio). European importers and suppliers are therefore outsourcing production and/or opening local plants, mainly in Eastern Europe and the Far East.
Another important factor is the growth of the Far East market and the resulting compensation orders from European companies to local Far East companies.
Local sector organisations in the European countries represent a threat. They are focused on the objectives and goals of local industry and employability, and will not encourage the outsourcing of work to developing countries. A further threat lies in the capital needed to transform your product into a brand and to improve the company's abilities to bring them in line with European standards. You as an exporter must have the financial capacity and the technical knowhow to be able to invest in European markets and standards.

Possible routes to success are:
1. A business relationship (possibly a legal relationship) with a European small importer or agent
2. A joint venture with a European supplier
3. An individual growth strategy

CBI's Export Planner can be used to draw up a thorough Export Marketing plan, once you have made the decision to work towards becoming an exporter to European countries (or to improve your exporting qualities).

13 MARKETING TOOLS

13.1 Matching products and the product range

Product selection
As already mentioned, the product group pipes and pipe-related process equipment covers a broad range of products and a large number of end markets (industrial demand). It is very important to first define what kind of products you are supplying at the moment and in what direction you are planning to move (stable; improvement of products and or processes; diversification in product / market combinations). You must able to specify your Unique Selling Points for (potential) customers. See also Section 11.1. The following box will help you to define your supply and presents the basic prerequisites per product type for dealing with Europe.

Secondly you will need to determine which types of markets you are aiming at. All end markets can be characterised by:

→ On-going product advancements and technological developments
→ Customer-specific products, made using standard components wherever possible
→ Globally competing companies, with resulting price pressure
→ Global sourcing, resulting in a continuous search for competent partners offering an optimal combination of quality, logistics, (process) innovation and cost performance

Product type	Product group	Brand	Basic requirements	Organisation
Serial	Pipes Valves Fittings Instruments	Standard product Under licence or private label	High quality product and processes After-sales service Perfect logistics	Sales and marketing staff, direct and customer-friendly response
One of a kind	Vessels	Unique product	Early supplier involvement (engineering) Craftsmanship Prototype production	Sales and marketing staff, close market contact R&D staff, close market contact

Specifying the product characteristics
Enter in the following list all the products you manufacture, together with their varieties. State their size, the period in which you are able to supply and the packaging method:

Product	Variety/treatment	Supply period	Packaging	Availability

Special remarks:
- The reviews will enable potential customers to make an appraisal of your complete product range.
- The reviews must therefore be kept up-to-date at all times.
- The products and the range should be flexible so that adjustments and changes can be made as the need arises.

Packaging
Special transport packaging is necessary to ensure that pipes and pipe-related process equipment arrive in perfect condition at their destination. Unsuitable packaging often causes damage to the product. The packaging design should take the following into account:

- Proper storage and transport
- Standard packing sizes
- Environmentally friendly materials
- Attractive, sales-promoting design

13.2 Building up a relationship with a suitable trading partner

From among the many potential customers you must identify those whose problems, demands and wishes (stated in needed products and translated in required technologies, price, logistics, services and company drive and ambitions) match your own company core competencies, capabilities and product range. These companies will be best suited for building up a trading link. Industrial needs and products always require a thorough understanding of the consumer demands and wishes and of the common business practice. Many (generally intermediary) organisations have major problems in understanding exactly what the product is (as do trade organisations). Area-specific organisations are normally only interested in the needs of their members. Internet, trade fairs and the examination of specific countries (business trips) are therefore useful ways to select potential partners.

Sources of information

In the **producer country**:
- **Internet**
- The foreign-trade chamber of commerce of the country of destination.
- The Economic Affairs departments of the official representative (Embassy or Consulate) of the country of destination.

In the **country of destination**:
- **Internet**
- Trade associations; Trade fairs and trade fair organisations
- Business support organisation
- Your own country's public and private trade promotion bodies
- Trade fair organisers (catalogues)

Start by gaining market information from the countries you are aiming to export to. Potential sources of information are internet and sector/branch organisations. See also Section 11.3 and Appendices 3.3 and 3.6.

The next step should be participation in international trade fairs. Trade fairs and exhibitions are becoming increasingly important (to get a feel for what people are purchasing, and how) as growing use of e-procurement keeps workers more office based. At a trade fair, the company looking for a partner can determine the required profile, identify existing problems, demands and wishes and judge the "hit" results (Internet). Trade fairs are therefore an important means of creating contact with potential co-operative partners. It is important to know in advance who your target groups are at the fair. Approach suitable exhibiting importers with written / printed material about your company and products. Before exhibiting it is often advisable to participate in the fair as a visitor. A well prepared and properly executed visit to a trade fair can constitute a very cost-effective market research exercise. At the fair it will be possible to meet both future competitors and potential

customers. This will allow the exporter to establish direct and personal business contacts with prospective partners. At the same time it is possible to compare prices, quality, varieties and packaging in the market place. Visiting leading international trade fairs such as 'Tube 2004' in Düsseldorf (Germany) and 'Hannover Messe' 04 in Hannover (Germany) have proved to be of vital importance to gaining more knowledge of the European market. See Appendix 3.5 for details.

Customs, habits and traditions often give rise to problems in business contacts, even once both partners have carried out thorough preliminary investigations. European importers of 'pipes and pipe-related process equipment' are careful in their selection of a supplier. Furthermore, they tend to take a no-nonsense (straight-to-business) approach. In some cases this may lead to a culture shock for exporters from developing countries. Be aware that major European importers will also want to visit your production premises to carry out their own investigations into the quality of your organisation, processes and products. This is always the case if importers are ISO 9000 certified. Importers will want access to detailed information on your company. They may use questionnaires to this end. Sometimes these questionnaires can be obtained via the Internet. An example of a questionnaire is given in Appendix 6.

The research and trade fair results can be used as a basis for developing a plan for approaching promising companies. They are also a useful means of checking up on the present strategy and operations of the exporter.

At the end of the identification phase, the supplier should have selected the names and addresses of suitable trading partners. It is advisable to fill out a contact exchange form per potential partner (see Appendix 6). Check your potential buyers' financial status and credibility. Request the company's annual reports. Other sources of financial information are your bank representative, business directories, credit rating agencies (Moody's), credit information centres (Dunn & Bradstreet) or chambers of commerce. An impression must be built up of the credibility, first by checking the general available information (reports) and secondly by obtaining and verifying the indirectly available information (credit and financial information).

Evaluate the names and addresses you receive or find, using the following criteria:

- Is the importer active in the country you have selected?
- Does the importer focus his activities on the corresponding product groups?
- Do you have enough solid information about the reliability of this partner?
- What are the packaging requirements, product conditions and payment terms?

Using these criteria, draw up a priority list of the contact addresses you have received.

13.3 Drawing up an offer

There are two different kinds of offer:
(a) a general offer – or company introduction;
(b) a specific offer.
The general offer is written, material (company information and track record) that generally is used in your first contacts with companies. It gives potential customers a first thorough impression of your capabilities. Once the contact is extended and the first quotes (for samples, followed by orders) for products arrive from a customer, a specific offer is made. The focus lies then on one specific customer with specific needs. The specific offer is dedicated to the customer and its needs.

(a) Drawing up a general offer – or company introduction

The first contact is of paramount importance to the subsequent success of your venture. The importer can pick and choose among many uninvited offers from qualified suppliers. The purpose of a general offer is to make the initial contact with potential trading partners with whom the supplier is not yet personally acquainted.
A general offer consists of sending a:

- short profile of your own company; if you are already a certified supplier (e.g. ISO certification), say so;
- summary of your product range (introduce prices as close to your best price);
- thorough description of your product, substantiated by brochures, photographs or samples;
- references (if possible).

In a personal letter, briefly introduce your company and outline what you have to offer.

If an importer wants to contact you on the basis of your business offer, he might give it just one try. It is therefore of vital importance that it is possible to get in contact with you. Make sure that telephone / fax numbers and e-mail addresses are correct. The availability of English-speaking staff to pass on messages is equally important.
This first follow-up will give you an idea of the needs, purchase pattern and maybe even an impression of the importer's regular business channels. Such information may enable you to judge the compatibility of your product and the status of your initial price suggestion. Unless your product is unique, in shortage, or extremely cheap compared to world market prices, you should never expect the importer to contact you – even on the basis of an introduction with samples. After the first follow-up from your side has been made, there is still a lot of quality standard and organisation level discussion,

price adjustment and persuasion to be done before you can expect to be the target of calls from the importer.

Personal contact by means of a business visit is essential and necessary. This willinclude an inspection of your production facility and discussions with members of your staff. A visit to the importer early on in the relationship is advisable. If your product and general presentation are of relevance to the importer's line of business, it will normally be no problem to set up meetings directly. It is completely acceptable to ask for guidelines such as how to get to their place of business, how much time to allow for getting there from point X, and what they would like to discuss in particular. It is advisable to be well-prepared and ready to respond to very direct questions about qualities, quantities and prices. People will be reluctant if there are no samples to be looked at or if no concrete negotiations are conducted during the meeting.

(b) Drawing up a specific offer
A specific offer is legally binding for a certain period of time. You must therefore be sure you are able to fulfil the terms of contract. You should make up a specific offer only if you know the business partner personally or once you have established the initial contact.

When sending a specific offer, it should consist of three parts:
(1) **written offer**:
- Name of the person responsible in your company;
- Need of the customer and your solution to that need;
- Exact description of the goods offered (preferably using an internationally valid quality standard specification);
- Price of the goods offered in accordance with the Incoterms 2000 (ICC publication; if applicable, divided according to delivery quantities or quality); and
- Possible delivery date and terms of delivery.

(2) **product samples**:
- Product samples must correspond to the goods available for delivery (if they do not, this can have a lasting negative effect on business relations);
- State the treatment methods used (if possible, provide quality certificates from an internationally recognised inspection organisation);

(3) **commercial information**:
- a profile of your company including a statement of your policy, also with respect to the quality;
- and send a reference list of existing customers.

General remarks
Recommended steps for both kinds of offer:
- A telephone call to ask whether the offer (and the samples, if applicable) has/have arrived.
- An invitation to visit your company.
- A visit to the customer. In that case:
  - If necessary, hire an interpreter.
  - Ask your own CBI-consultant or other intermediaries for assistance.

13.4 Handling the contract

Methods and terms of payment
The determination of payment conditions for a regular export transaction is part of the package of negotiations between seller and buyer, who actually have more or less opposing interests. The seller wants to have the largest possible guarantee of financial coverage for the goods he has to supply according to his sales contracts. The buyer wants to be sure about availability, quantity and quality of the goods he buys, before he pays the agreed price.
An experienced exporting firm extends credit cautiously. It evaluates new customers with care and continuously monitors older accounts. Such a firm may wisely decide to decline a customer's request for open account credit if the risk is too great and propose instead payment on delivery terms through a documentary sight draft or irrevocable confirmed letter of credit or even payment in advance. On the other hand, for a fully creditworthy customer, the experienced exporter may decide to allow a month or two to pay, perhaps even on open account.
It is always advisable to check a buyer's credit (even if safest payment methods are employed).

After deduction of the commission and expenses for handling, transport etc., importers or agents generally transfer payment within 30 days. Cash in advance or a Letter of Credit is common practice. The latter is often considered cumbersome and does not allow the option of retaining the money if the consignment does not prove to be as good as expected.
Once relations have been established, importers will try to obtain smoother and less bureaucratic means of payment. Cash against documents (CAD), bank transfers on receipt of goods or an open account (a credit time of 30-90 days) are the most likely options at this stage.

It is recommended that quotations to European customers should be made on a CIF basis. The CIF price includes all domestic freight costs, ocean/air freight and insurance but not import duty or VAT. Based on the landed cost the importer will calculate his mark-up depending on the type of product, market etc. However, supplier and importer are free to negotiate and agree whether quotations and subsequent trade are based on CFR or FOB prices.

See the CBI's Export Planner for definitions of payment methods and delivery terms.

Contract subjects
Incoterms 2000 are the standard trade definitions most commonly used in international sales contracts. Devised and published by the International Chamber of Commerce, they lie at the very heart of world trade. Among the best known Incoterms 2000 are EXW (Ex works), FOB (Free on Board), CIF (Cost, Insurance and Freight), DDU (Delivered Duty Unpaid), and CPT (Carriage Paid To).
See for more details:
www.iccwbo.org/incoterms/understanding.asp

Trading relations between exporter and importer are based on trust and can only be built up by meeting the high expectations of the importer. If an importer finds that the product does not meet his expectations, this will immediately backfire on the business relationship with the exporter.

Be aware that in business in Europe logistics are of the utmost importance. Most importers don't want high volume deliveries as these raise their supply costs. They want the amount they ordered in the time agreed upon. This is stressed by almost all major importers in Western Europe.

13.5 Sales promotion

Sales promotion measures relate to the development and expansion of the following:
- customer relations;
- supply quantities.

Developing customer relations:

- Take good care of existing customers. This includes, for example, expressions of thanks to business partners, regular information on the product range, etc.
- Brochures on your company and the product range can be useful for promoting sales.
- Ask existing customers for letters of reference. Such recommendations are particularly important when approaching new initial contacts.
- Make it possible for your customer to track the status of his order via the Internet (password guarded).

Expanding supply quantities:
- In some cases, you may be able to increase supply quantities to existing customers.
- The product range should be guided by demand. Changes to the product range may become necessary.
- If you can increase the present quantities produced, you could decide to look for new sales outlets.
- You can use your existing export experience to trade with other importing countries.
- Always answer a letter of inquiry. If you cannot supply this contact, say so, explaining that you will get in touch if/when the supply situation changes.

(a) Advertising and communication

Definition
Advertising refers to communication measures with the aim of increasing the sales of your products. The prerequisites for successful communication measures are:

A clearly defined target group	→	"Who buys (wants to buy) my products?"
A well-formulated message	→	"What do I want to tell the customer?"
	→	"How do I want to tell him that?"

Costs and dispersion losses
Two parameters are used to measure the costs of any communication measure:

Cost per contact company/person?"	→	"How much does it cost to convey the message to one target
Total costs	→	"How much does the whole campaign cost?"

It must be borne in mind that not all messages sent actually reach the addressees (target persons). The costs of messages that do not reach the right addressee are called dispersion losses.

Criteria Measures	**Target group**	**Amount of planning and Co-ordination**	**Cost per Contact**	**Total costs**	**Dispersion losses**
Standard printed matter (letterheads etc.)	Existing customers	+	+	+	+
Telephone and mailing campaigns	Existing and potential customers (known by name)	++	++	++	++
Advertising in trade journals	Existing and potential customers (partly unknown)	+++	+++	+++	+++
Promotion through an Internet site	Existing and potential customers (partly unknown)	+++	+++	+++	+++

+++ = high ++ = medium + = low
Source: IPL Consultants

Thanks to search engines, importers find it attractive to use the Internet if they are looking for new producers in a certain region. If you use the Internet be sure that your site will be found via the regular search engines they use or via business directories.

Recommendations
It is advisable to start with communication measures that only require a small amount of planning and co-ordination, such as revising the company's standard printed matter:

- Standardise all printed paper used outside the company (letterheads, visiting cards, fax form, etc.).
- Prepare long-term sales documentation (company brochure, product range reviews, catalogue, etc.).
- Prepare product-specific sales folders.

If your company has an Internet site, you can make sales documentation and folders available electronically. By doing this, you can reduce the amount of printed documentation you need to send, as well as the related costs.

Constant, prompt and reliable communication is a vital prerequisite for maintaining a long-term business relationship with a customer.

(b) Sales organisation

The term "sales organisation" refers to the organisational system that carries out the sales of the company's products and pursues quality control. A sales organisation usually consists of office personnel and a field force.

Office personnel	**Field force**
• Handling correspondence	• Selling
• Handling offers and orders	• Visiting customers
• Issuing forwarding instructions	• Presenting new products
• Issuing and checking invoices	• Discussing and implementing campaigns
• Controlling schedules	• Discussing listings
• Keeping customer records	• Holding yearly reviews with customers
• Expediting product samples	• Implementing selling prices
• Keeping sales statistics	
• Evaluating markets	
• Dispatching goods	
• Quality control	

Organising sales
Business with partners overseas is often concluded on the telephone, by fax or by e-mail. An efficient sales department is therefore an absolute prerequisite for successful market participation.

- The essential tool used in the sales department is a detailed and up-to-date customer database. The customer data base contains the following information:
  - → Basic data on the customer (e.g. long-term data such as name, address, telephone number, e-mail, etc.);
  - → Changing data on the customer (data resulting from business with the customer such as telephone calls, offers, sales statistics, news on his web site etc.).

- The customer database gives a sales person a quick review of the most important customer data when planning to contact the customer whether by telephone, fax or e-mail.

- If possible, the customer database should be computerised, as this simplifies changes, updating, sorting and selection procedures, etc. If computerisation is not possible, the customer data should be kept on file cards (see samples).

(c) Participation in trade fairs

Participation in national and international trade fairs can be a useful sales promotion tool in the trade of pipes and pipe-related process equipment products. This requires comprehensive and detailed planning, comprising:
- selection of a suitable trade fair and preparation for participation;
- participation;
- follow-up.

Before the trade fair:
- update your customer files
- prepare all documentation (business cards, company brochures, product range, etc.)
- send a preparatory mailing, informing existing and potential customers of your stand number and inviting them to visit you at the stand and/or proposing to visit them (i.e. the existing clients).

During the trade fair:
- register all contacts

After the trade fair:
- enter all your contacts in a database
- contact all contacts to thank them for their visit and send them the information (product specifications, trade offer, samples, etc.) you promised
- send a second mailing several months after the first one, reminding your contact that you are available to answer any inquiries.

Business support organisations in the European Union can be of help in providing information about relevant trade fairs. They can also advise and/or assist the exporter with participation in a trade fair.

(d) Internet

Internet is rapidly changing the way business is done. Every industry is being influenced by rapidly developing insights into the new ways companies can position themselves. It is tempting to focus on the technical side of the global computer network, but what really matter are your customers' changing expectations. Applied to the promotion of the company image, Internet offers you the chance to serve your (prospective) buyers one-on-one. Your customers will expect to be able to satisfy their need for information quickly on a well-developed, clear and up-to-date website.
All the questions your customers have should basically be answered by your Internet presence. Most of these questions relate tocompany background, an overview of the staff, the products and their full specifications etc. As well as direct sales promotion, the demand for online support is growing rapidly. Customers expect at least a first line of support in response to their questions.
The very fact that it has become easy and technically possible to publish massive amounts of information places a burden on your company to actually provide the relevant information to your customer in an organised way.
As new buyers carry out more and more of their background checks by looking at the suppliers' websites, it is clear that your presence on the Internet should be planned and executed very carefully. It should reflect, be consistent with and form an integral part of the company image as formulated in the other promotion methods.

B-to-B portals

One practical development is that suppliers of engineering components are participating more and more in global sites promoting these products. Often these sites are the initiatives of private companies backed by government bodies. In this way a number of "country" sites are being developed, the aim of which is to promote national industry. These are not always in the form of a marketplace with direct buy-sell possibilities, but often in the form of brokering trade leads or b-to-b portals. All kinds of additional services such as consultancy, trade information etc are provided. Each site aims to become a meeting place for customers and suppliers, quite often for more than one industry. It is therefore important to consider developing a promotion policy that includes compiling a short list of these market sites and using them to promote (a part of) your product range.

Alibaba.com is the world's largest marketplace for global trade and is the leading provider of online marketing services for importers and exporters. Alibaba.com is the number one destination for buyers and sellers looking for trade opportunities and wishing to promote their businesses online.
See: www.alibaba.com, keyword e.g. pipe.

A good Internet marketing policy can present your company to every potential client with access to the Internet, in any country. This approach means, however, that your organisation must be thoroughly prepared to deal with requests from all over the world.

When using Internet you will need to look at complementary products and products fulfilling the same demands. The Internet sites of Standard Organisations and Trade Associations (see Appendix 3.1 and 3.3 of CBI's EU Market Survey 'Pipes and pipe-related process equipment' respectively) are a good source of information on guidelines, services, news and events.

If you build into your site links to other interesting sites, you will be providing added value. If other sites place links to your site, you will also attract more visitors.

Since each customer decides for himself where he chooses to browse on the Internet, it is important to address him personally. **Many European suppliers are taking the possibility of global outsourcing increasingly seriously. Often, they make their initial selection via internet. It is essential that your company is on internet, to ensure that you are included in the initial selection phase.**

Appendices

APPENDIX 1 HS CODES

HS code	Definition of product type
3917	tubes, pipes and hoses, together with fittings, seals and connectors, e.G. Elbow joints, flanges and the like, of plastics
391710	artificial guts 'sausage casings' of hardened protein or cellulose materials
39171010	artificial guts 'sausage casings' of hardened protein
39171090	artificial guts 'sausage casings' of cellulose materials
391721	rigid tubes, pipes and hoses of polymers of ethylene, whether or not with fittings, seals or connectors
39172110	rigid tubes, pipes and hoses of polymers of ethylene, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39172191	rigid tubes, pipes and hoses of polymers of ethylene, for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft
39172199	rigid tubes, pipes and hoses of polymers of ethylene, whether or not with fittings, seals or connectors (excl. Seamless and cut to length only, together with tubes for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft)
391722	rigid tubes, pipes and hoses of polymers of propylene, whether or not with fittings, seals or connectors
39172210	rigid tubes, pipes and hoses, of polymers of propylene, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39172291	rigid tubes, pipes and hoses of polymers of propylene for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft
39172299	rigid tubes, pipes and hoses of polymers of propylene, whether or not with fittings, seals or connectors (excl. Seamless and cut to length only, together with tubes for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft)
391723	rigid tubes, pipes and hoses of polymers of vinyl chloride, whether or not with fittings, seals or connectors
39172310	rigid tubes, pipes and hoses of polymers of vinyl chloride, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39172391	rigid tubes, pipes and hoses of polymers of vinyl chloride, for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft
39172399	rigid tubes, pipes and hoses of polymers of vinyl chloride, whether or not with fittings, seals or connectors (excl. Seamless and cut to length only, together with tubes for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft)
391729	rigid tubes, pipes and hoses of plastics, whether or not with fittings, seals or connectors (excl. Tubes of polymers of ethylene, propylene and vinyl chloride)
39172911	rigid tubes, pipes and hoses of epoxide resins, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39172912	rigid tubes, pipes and hoses, of condensation or rearrangement polymerization products, seamless and of a length > the maximum cross-sectional dimension, whether or not surface-worked, but not otherwise worked
39172913	rigid tubes, pipes and hoses of condensation or rearrangement polymerization products, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked (excl. Those of epoxide resins)
39172915	rigid tubes, pipes and hoses of addition polymerization products, seamless and of a length greater than the maximum diamter, whether or not surface-worked but not further worked (excl. Those of polymers of ethylene, propylene and vinyl chloride)
39172919	rigid tubes, pipes and hoses of plastics, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked (excl. Those of addition polymerization products, condensation or rearrangement polymerization products, whether or not chemically modified)
39172991	rigid tubes, pipes and hoses of plastics, for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft (excl. Those of polymers of ethylene, propylene and vinyl chloride)
39172999	rigid tubes, pipes and hoses of plastics, whether of not with fittings, seals or connectors (excl. Those of polymers of ethylene, propylene and vinyl chloride; seamless and cut to length only; tubes for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft)
391731	flexible tubes, pipes and hoses of plastics, burst pressure >= 27.6 mpa, whether or not with fittings, seals or connectors

39173110	flexible tubes, pipes and hoses of plastics, burst pressure >= 27.6 mpa, with fittings, seals or connectors, for civil aircraft
39173190	flexible tubes, pipes and hoses of plastics, burst pressure >= 27.6 mpa, whether or not with fittings, seals or connectors (excl. Those with fittings, seals or connectors for civil aircraft)
391732	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, without fittings, seals or connectors
39173210	flexible tubes, pipes and hoses, of condensation or rearrangement polymerization products, whether or not chemically modified, not reinforced or otherwise combined with other materials, seamless and of a length > the maximum cross-sectional dimension, whether or not surface-worked, but not otherwise worked
39173211	flexible tubes, pipes and hoses of epoxide resins, not reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39173219	flexible tubes, pipes and hoses of condensation or rearrangement polymerization products, whether or not chemically modified, not reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked (excl. Those of epoxyde resins)
39173231	flexible tubes, pipes and hoses of polymers of ethylene, not reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39173235	flexible tubes, pipes and hoses of polymers of vinyl chloride, not reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked
39173239	flexible tubes, pipes and hoses of addition polymerization products, not reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked (excl. Those of polymers of ethylene or vinyl chloride)
39173251	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not further worked (excl. Tubes of addition polymerization products, condensation or reaaranement polymerization products, whether or not chemically modified)
39173291	artificial guts 'sausage casings' (excl. Those of hardened protein or cellulose materials)
39173299	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, without fittings, seals or connectors (excl. Seamless and cut to length only and artificial guts)
391733	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, with fittings, seals or connectors
39173310	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, with fittings, seals or connectors, for the piping of gases or liquids, for civil aircraft
39173390	flexible tubes, pipes and hoses of plastics, not reinforced or otherwise combined with other materials, with fittings, seals or connectors (excl. Tubes for the piping of gases or liquids, for civil aircraft)
391739	flexible tubes, pipes and hoses of plastics, reinforced or otherwise combined with other materials, whether or not with fittings, seals or connectors (excl. Those with a burst pressure of >= 27.6 mpa)
39173911	flexible tubes, pipes and hoses of epoxide resins, reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not otherwise worked (excl. Those with a burst pressure of >= 27.6 mpa)
39173912	flexible tubes, pipes and hoses of condensation or rearrangement polymerization products, whether or not chemically modified, reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not otherwise worked (excl. Tubes with a burst pressure of >= 27,6 mpa)
39173913	flexible tubes, pipes and hoses of condensation or rearrangement polymerization products, whether or not chemically modified, reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not otherwise worked (excl. Those of epoxide resins and tubes with a burst pressure of >= 27.6 mpa)
39173915	flexible tubes, pipes and hoses of addition polymerization products, reinforced or otherwise combined with other materials, seamless and of a length greater than the maximum diameter, whether or not surface-worked but not otherwise worked (excl. Those with a burst pressure of >= 27.6 mpa)
39173919	flexible tubes, pipes and hoses, of plastics, reinforced or otherwise combined with other materials, seamless and of a length exceeding the maximum cross-sectional dimension, whether or not surface-worked, but not otherwise

	worked (excl. Addition polymerization products, condensation polymerization products and rearrangement polymerization products, and products able to withstand a pressure of >= 27.6 mpa)
39173991	flexible tubes, pipes and hoses of plastics, reinforced or otherwise combined with other materials, for the piping of gases or liquids, with fittings, seals and connectors, for civil aircraft (excl. Tubes, pipes and hoses with a burst pressure of >= 27.6 mpa)
39173999	flexible tubes, pipes and hoses of plastics, reinforced or otherwise combined with other materials, whether or not with fittings, seals or connectors (excl. Seamless or cut to length only; tubes with a burst pressure of >= 27.6 mpa; tubes for the piping of gases or liquids, with fittings, seals or connectors, for civil aircraft)
391740	fittings, seals and connectors, e.G. Elbow joints, flanges and the like, of plastics, for tubes, pipes and hoses
39174010	fittings, seals and connectors, e.G. Elbow joints, flanges and the like, of plastics, for tubes, pipes and hoses, for civil aircraft
39174090	fittings, seals and connectors, e.G. Elbow joints, flanges and the like, of plastics, for tubes, pipes and hoses (excl. Those for civil aircraft)
3923	articles for the conveyance or packaging of goods, of plastics; stoppers, lids, caps and other closures, of plastics
392350	stoppers, lids, caps and other closures, of plastics
39235010	caps and capsules for bottles, of plastics
39235090	stoppers, lids, caps and other closures, of plastics (excl. Caps and capsules for bottles)
392510	reservoirs, tanks, vats and similar containers, of plastics, with a capacity of > 300 l
39251000	reservoirs, tanks, vats and similar containers, of plastics, with a capacity of > 300 l
7303	tubes, pipes and hollow profiles, of cast iron
730300	tubes, pipes and hollow profiles, of cast iron
73030010	tubes and pipes of a kind used in pressure systems, of cast iron
73030090	tubes, pipes and hollow profiles, of cast iron (excl. Products of a kind used in pressure systems)
7303s6	confidential trade of sub-chapter 7303 and sitc group 6
7303s679	confidential trade of sub-chapter 7303 and sitc group 679
7304	tubes, pipes and hollow profiles, seamless, of iron or steel (excl. Products of cast iron)
730410	line pipe of a kind used for oil or gas pipelines, seamless, of iron or steel (excl. Products of cast iron)
73041010	line pipe of a kind used for oil or gas pipelines, seamless, of iron or steel, of an external diameter of =< 168.3 mm (excl. Products of cast iron)
73041030	line pipe of a kind used for oil or gas pipelines, seamless, of iron or steel, of an external diameter of > 168.3 mm but =< 406.4 mm (excl. Products of cast iron)
73041090	line pipe of a kind used for oil or gas pipelines, seamless, of iron or steel, of an external diameter of > 406.4 mm (excl. Products of cast iron)
730421	drill pipe, seamless, of a kind used in drilling for oil or gas, of iron or steel (excl. Products of cast iron)
73042100	drill pipe, seamless, of a kind used in drilling for oil or gas, of iron or steel (excl. Products of cast iron)
730429	casing and tubing of a kind used in drilling for oil or gas, seamless, of iron or steel (excl. Products of cast iron)
73042911	casing and tubing of a kind used for drilling for oil or gas, seamless, of iron or steel, of an external diameter <= 406.4 mm (excl. Products of cast iron)
73042919	casing and tubing of a kind used for drilling for oil or gas, seamless, of iron or steel, of an external diameter > 406.4 mm (excl. Products of cast iron)
730431	tubes, pipes and hollow profiles seamless, of circular cross-section, of iron or non-alloy steel, cold-drawn or cold-rolled 'cold-reduced' (excl. Cast iron products and line pipe of a kind used for oil or gas pipelines or casing and tubing of a kind used for drilling for oil or gas)
73043110	tubes, pipes and hollow profiles seamless, of circular cross-section, of iron or non-alloy steel, cold-drawn or cold-rolled 'cold-reduced', with attached fittings, for gases or liquids, for civil aircraft (excl. Cast iron products)
73043191	precision tubes, seamless, of circular cross-section, of non-alloy steel, cold-drawn or cold-rolled 'cold-reduced' (excl. Cast iron products and line pipe of a kind used for oil or gas pipelines or casing and tubing of a kind used for drilling for oil or gas and pipes with attached fittings, for gases or liquids, for civil aircraft)
73043199	tubes, pipes and hollow profiles seamless, of circular cross-section, of iron or non-alloy steel, cold-drawn or cold-rolled 'cold-reduced' (excl. Cast iron products, line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and pipes with attached fittings, for gases or liquids, for civil aircraft, and precision tubes)
730439	tubes, pipes and hollow profiles seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced' (excl. Cast iron products, line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas)
73043910	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or

	cold-rolled 'cold-reduced', unworked, straight and of uniform wall-thickness, for use solely in the manufacture of tubes and pipes with other cross-sections and wall-thicknesses (excl. Cast iron products)
73043920	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', with attached fittings, for gases or liquids, for civil aircraft (excl. Cast iron products)
73043930	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of > 421 mm and a wall-thickness of > 10.5 mm (excl. Cast iron products, line pipe of a kind used for oil or gas pipelines and casing and tubing of a kind used for drilling for oil or gas)
73043951	threaded or threadable tubes, seamless, of iron or non-alloy steel, plated or coated with zinc (excl. Cast iron products)
73043959	threaded or threadable tubes, seamless, of iron or non-alloy steel (excl. Cast iron products and products plated or coated with zinc)
73043991	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of =< 168.3 mm (excl. Cast iron products, line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.39-10 to 7304.39-59)
73043993	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of > 168.3 mm but =< 406.4 mm (excl. Cast iron products, line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.39-10 to 7304.39-59)
73043999	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of > 406.4 mm (excl. Cast iron products, line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.39-10 to 7304.39-59)
730441	tubes, pipes and hollow profiles, seamless, of circular cross-section, of stainless steel, cold-drawn or cold-rolled 'cold-reduced' (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas)
73044110	tubes, pipes and hollow profiles, seamless, of circular cross-section, of stainless steel, cold-drawn or cold-rolled 'cold-reduced', with attached fittings, for gases or liquids, for civil aircraft
73044190	tubes, pipes and hollow profiles, seamless, of circular cross-section, of stainless steel, cold-drawn or cold-rolled 'cold-reduced' (excl. Line pipe of a kind used for oil or gas pipelines or of a kind used for drilling for oil or gas and pipes with attached fittings, for gases or liquids, for civil aircraft)
730449	tubes, pipes and hollow profiles, seamless, of circular cross-section, of stainless steel, not cold-drawn or cold-rolled 'cold-reduced' (excl. Line pipe of a kind used for oil or gas pipelines or of a kind used for drilling for oil or gas)
73044910	tubes, pipes and hollow profiles, seamless, of circular cross-section, of stainless steel, not cold-drawn or cold-rolled 'cold-reduced', unworked, straight and of uniform wall-thickness, for use solely in the manufacture of tubes and pipes with other cross-sections and wall-thicknesses
73044930	tubes and pipes of circular cross-section, of stainless steel, not cold-drawn or cold-rolled, seamless, with attached fittings, for gases or liquids, for civil aircraft
73044991	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of =< 406.4 mm (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.49-10 to 7304.49-30)
73044999	tubes, pipes and hollow profiles, seamless, of circular cross-section, of iron or non-alloy steel, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of > 406.4 mm (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.49-10 to 7304.49-30)
730451	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, cold-drawn or cold-rolled 'cold-reduced' (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil)
73045111	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, cold-drawn or cold-rolled 'cold-reduced', straight and of uniform wall-thickness, containing by weight >=0.9% but =< 1.15% carbon and >= 0.5% but =< 2% chrome, whether or not containing by weight =< 0.5% molybdenum, of a length of =< 4.5 m (excl. Tubes, pipes and hollow profiles of headings 7304.10 and 7304.20)
73045119	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, cold-

	drawn or cold-rolled 'cold-reduced', straight and of uniform wall-thickness, containing by weight >=0.9% but =< 1.15% carbon and >= 0.5% but =< 2% chrome, whether or not containing by weight =< 0.5% molybdenum, of a length of > 4.5 m (excl. Tubes, pipes and hollow profiles of headings 7304.10 and 7304.20)
73045130	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, cold-drawn or cold-rolled 'cold-reduced', with attached fittings, for gases or liquids, for civil aircraft (excl. Tubes, pipes and hollow profiles of headings 7304.51-11 and 7304.51-19)
73045191	steel precision tubes, seamless, of circular cross-section, of alloy steel other than stainless, cold-drawn or cold-rolled 'cold-reduced', with attached fittings, for gases or liquids, for civil aircraft (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil and tubes, pipes and hollow profiles of headings 7304.51-11 to 7304.51-30)
73045199	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced' (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil, precision tubes, and tubes, pipes and hollow profiles of headings 7304.51-11 to 7304.51-30)
730459	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced' (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil)
73045910	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced', unworked, straight and of uniform wall-thickness, for use solely in the manufacture of tubes and pipes with other cross-sections and wall-thicknesses
73045931	tubes, pipes and hollow profiles of alloy steel (excl. Stainless), seamless, of circular cross-section, (not cold-drawn or cold-rolled), straight and of uniform wall-thickness, of a length =< 4.5m, containing by weight >= 0.9% but =< 1.15% carbon and >= 0.5% but =< 2% chrome, whether or not containing by weight =< 0.5% molybdenum (excl. Tubes, pipes and hollow profiles of headings 7304.10, 7304.20 and 7304.59-10)
73045939	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel (excl. Stainless) (not cold-drawn or cold-rolled) straight and of uniform wall-thickness, containing by weight > =0.9% but =< 1.15% carbon and >= 0.5% but =< 2% chrome, whether or not containing by weight =< 0.5% molybdenum, of a length of > 4.5 m (excl. Tubes, pipes and hollow profiles of headings 7304.10, 7304.20 and 7304.59-10)
73045950	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced', with attached fittings, for gases or liquids, for civil aircraft (excl. Tubes, pipes and hollow profiles of headings 7304.59-31 to 7304.59-39)
73045991	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of =< 168.3 mm (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.59-10 to 7304.59-50)
73045993	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of >= 168.3 mm but =< 406.4 mm (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.59-10 to 7304.59-39)
73045999	tubes, pipes and hollow profiles, seamless, of circular cross-section, of alloy steel other than stainless, not cold-drawn or cold-rolled 'cold-reduced', of an external diameter of >= 406.4 mm (excl. Line pipe of a kind used for oil or gas pipelines, casing and tubing of a kind used for drilling for oil or gas and tubes, pipes and hollow profiles of headings 7304.59-10 to 7304.59-39)
730490	tubes, pipes and hollow profiles, seamless, of non-circular cross-section, of iron or steel (excl. Products of cast iron)
73049010	58tubes, pipes and hollow profiles, seamless, of non-circular cross-section, of iron or steel, with attached fittings, for gases or liquids, for civil aircraft (excl. Products of cast iron)
73049090	tubes, pipes and hollow profiles, seamless, of non-circular cross-section, of iron or steel (excl. Products of cast iron, and tubes, pipes and hollow profiles with attached fittings, for gases or liquids, for civil aircraft)
7304i0	components of complete industrial plants of sub-chapter 7304; energy (including production and distribution of steam and hot water)
7304i000	components of complete industrial plants of sub-chapter 7304; energy (including production and distribution of steam and hot water)
7304i1	components of complete industrial plants of sub-chapter 7304; extraction of non-energy-producing minerals (including preparation of metalliferous ores and peat extraction); manufacture of non-metallic mineral products (including manufacture of glass and glassware)

7304i100	components of complete industrial plants of sub-chapter 7304; extraction of non-energy-producing minerals (including preparation of metalliferous ores and peat extraction); manufacture of non-metallic mineral products (including manufacture of glass and glassware)
7304i2	components of complete industrial plants of sub-chapter 7304; iron and steel industry; manufacture of metal articles excluding mechanical engineering and construction of means of transport
7304i200	components of complete industrial plants of sub-chapter 7304; iron and steel industry; manufacture of metal articles excluding mechanical engineering and construction of means of transport
7304i3	components of complete industrial plants of sub-chapter 7304; mechanical engineering and construction of means of transport; instrument engineering
7304i300	components of complete industrial plants of sub-chapter 7304; mechanical engineering and construction of means of transport; instrument engineering
7304i9	components of complete industrial plants of sub-chapter 7304; collection, purification and distribution of water; services connected with transport; economic activities not classified elsewhere
7304i900	components of complete industrial plants of sub-chapter 7304; collection, purification and distribution of water; services connected with transport; economic activities not classified elsewhere
7305	other tubes and pipes, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel 'for example, welded, riveted or similarly closed'
730511	line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally submerged arc welded
73051100	line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally submerged arc welded
730512	line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally arc welded (excl. Products longitudinally submerged arc welded)
73051200	line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally arc welded (excl. Products longitudinally submerged arc welded)
730519	line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel (excl. Products longitudinally arc welded)
73051900	line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel (excl. Products longitudinally arc welded)
730520	casing of a kind used in drilling for oil or gas, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel
73052010	casing of a kind used in drilling for oil or gas, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally welded
73052090	casing of a kind used in drilling for oil or gas, having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel (excl. Products longitudinally welded)
730531	tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally welded (excl. Products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73053100	tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, longitudinally welded (excl. Products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
730539	tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, welded (excl. Products longitudinally welded or of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73053900	tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, of iron or steel, welded (excl. Products longitudinally welded or of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
730590	tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel, welded (excl. Welded products or products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73059000	tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, of flat-rolled products of iron or steel, welded (excl. Welded products or products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
7305s6	confidential trade of sub-chapter 7305 and sitc group 6

7305s679	confidential trade of sub-chapter 7305 and sitc group 679
7306	other tubes, pipes and hollow profiles 'for example, open-seam or welded, riveted or similarly closed', of iron or steel (excl. Seamless tubes and pipes and tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm)
730610	line pipe of a kind used for oil or gas pipelines, of iron or steel, of an external diameter of =< 406.4 mm)
73061011	line pipe of a kind used for oil or gas pipelines, of iron or steel, longitudinally welded, of an external diameter of =< 186.3 mm
73061019	line pipe of a kind used for oil or gas pipelines, of iron or steel, longitudinally welded, of an external diameter of > 168.3 mm but =< 406.4 mm, of iron or steel
73061090	line pipe of a kind used for oil or gas pipelines, of iron or steel, longitudinally welded, of an external diameter of =< 406.4 mm
730620	casing and tubing used in drilling for oil or gas, of flat-rolled products of iron or steel, of an external diameter of =< 406.4 mm
73062000	casing and tubing used in drilling for oil or gas, of flat-rolled products of iron or steel, of an external diameter of =< 406.4 mm
730630	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of iron or non-alloy steel (excl. Products having internal and external circular cross-sections and an external diameter of > 406.4 mm, or products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73063010	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of iron or non-alloy steel, with attached fittings, for gases or liquids, for civil aircraft
73063021	precision steel tubes, welded, having a circular cross-section, of iron or non-alloy steel, of a wall-thickness of =< 2 mm
73063029	precision steel tubes, welded, having a circular cross-section, of iron or non-alloy steel, of a wall-thickness of > 2 mm
73063051	threaded or threadable tubes 'gas pipe', welded, having a circular cross-section, of iron or non-alloy steel, plated or coated with zinc
73063059	threaded or threadable tubes 'gas pipe', welded, having a circular cross-section, of iron or non-alloy steel (excl. Products plated or coated with zinc
73063071	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of iron or non-alloy steel, of an external diameter of =< 168.3 mm, plated or coated with zinc (excl. Products with attached fittings, for gases or liquids, for civil aircraft, or products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73063078	tubes and pipes of circular cross-section, of iron or non-alloy steel, (excl. Plated or coated with zinc), welded, of external diameter =< 168.3 mm, (excl. 7306.10-11 and 7306.10-90 to 7306.30-59)
73063090	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of iron or steel, of an external diameter of > 168.3 mm but =< 406.4 mm (excl. Products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas, or precision steel tubes, electrical conduit tubes or threaded or threadable tubes 'gas pipe')
730640	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of stainless steel (excl. Products having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73064010	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of stainless steel with attached fittings, for gases or liquids, for civil aircraft,with attached fittings, for gases or liquids, for civil aircraft
73064091	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of stainless steel, cold-drawn or cold-rolled 'cold-reduced' (excl. Products having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73064099	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of stainless steel (excl. Products cold-drawn or cold-rolled 'cold-reduced', tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
730650	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of stainless steel (excl. Tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73065010	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of stainless steel, with attached fittings, for gases or liquids, for civil aircraft

73065091	precision steel tubes, welded, having a circular cross-section, of alloy steel other than stainless
73065099	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of alloy steel other than stainless (excl. Tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas, and precision steel tubes)
730660	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of iron or steel (excl. Tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas)
73066010	other tubes, pipes and hollow profiles, welded, having a circular cross-section, of iron or steel, with attached fittings, for gases or liquids, for civil aircraft
73066031	other tubes and pipes and hollow profiles, welded, of rectangular 'including square' cross-section, of a wall-thickness of =< 2 mm, of iron or steel
73066039	other tubes and pipes and hollow profiles, welded, of rectangular 'including square' cross-section, of a wall-thickness of > 2 mm, of iron or steel
73066090	other tubes, pipes and hollow profiles, welded, of non-circular cross-section, of iron or steel (excl. Tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm, and products of a kind used for oil or gas pipelines or of a kind used in drilling for oil or gas, and tubes and pipes and hollow profiles of rectangular 'including square' cross-section)
730690	other tubes, pipes and hollow profiles, produced by rivetting or seaming, of iron or steel (excl. Tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm)
73069000	other tubes, pipes and hollow profiles, produced by rivetting or seaming, of iron or steel (excl. Tubes and pipes having internal and external circular cross-sections and an external diameter of > 406.4 mm)
7306i0	components of complete industrial plants of sub-chapter 7306; energy (including production and distribution of steam and hot water)
7306i000	components of complete industrial plants of sub-chapter 7306; energy (including production and distribution of steam and hot water)
7306i4	components of complete industrial plants of sub-chapter 7306; chemical industry (including man-made fibres industry); rubber and plastics industry
7306i400	components of complete industrial plants of sub-chapter 7306; chemical industry (including man-made fibres industry); rubber and plastics industry
7306s6	confidential trade of sub-chapter 7306 and sitc group 6
7306s679	confidential trade of sub-chapter 7306 and sitc group 679
7307	tube or pipe fittings 'for example couplings, elbows, sleeves', of iron or steel
730711	tube or pipe fittings of non-malleable cast iron
73071110	tube or pipe fittings of non-malleable cast iron, of a kind used in pressure systems
73071190	tube or pipe fittings of non-malleable cast iron (excl. Products of a kind used in pressure systems)
730719	tube or pipe fittings of cast iron (excl. Products of non-malleable cast iron)
73071910	tube or pipe fittings of malleable cast iron
73071990	tube or pipe fittings of iron or steel (excl. Products of malleable cast iron)
730721	flanges of stainless steel (excl. Cast products)
73072100	flanges of stainless steel (excl. Cast products)
730722	threaded elbows, bends and sleeves of stainless steel (excl. Cast products)
73072210	sleeves, of stainless steel, threaded (excl. Cast)
73072290	elbows and bends, of stainless steel, threaded (excl. Cast)
730723	butt welding tube or pipe fittings of stainless steel (excl. Cast products)
73072310	butt welding elbows and bends of stainless steel (excl. Cast products)
73072390	butt welding tube or pipe fittings of stainless steel (excl. Cast products and elbows and bends)
730729	tube or pipe fittings of stainless steel (excl. Cast products, flanges, threaded elbows, bends and sleeves, couplings, elbows and sleeves, for butt welding)
73072910	threaded tube or pipe fittings of stainless steel (excl. Cast products, flanges, elbows, bends and sleeves)
73072930	tube or pipe fittings of stainless steel, for welding (excl. Cast products and flanges)
73072990	threaded tube or pipe fittings of stainless steel (excl. Cast products, threaded products or products for butt welding or welding, and flanges)
730791	flanges of iron or steel (excl. Cast or stainless products)
73079100	flanges of iron or steel (excl. Cast or stainless products)
730792	threaded tube or pipe fittings of stainless steel (excl. Cast or stainless products)

73079210	sleeves, of iron or steel, threaded (excl. Cast or of stainless steel)
73079290	elbows and bends, of iron or steel, threaded (excl. Cast or of stainless steel)
730793	butt welding fittings of iron or steel (excl. Cast iron or stainless steel products, and flanges)
73079311	butt welding elbows and bends, of iron or steel, with greatest external diameter =< 609.6 mm (excl. Cast iron or stainless steel products)
73079319	butt welding fittings of iron or steel, with greatest external diameter =< 609.6 mm (excl. Cast iron or stainless steel products, elbows, bends and flanges)
73079391	butt welding elbows and bends, of iron or steel, with greatest external diameter > 609.6 mm (excl. Cast iron or stainless steel products)
73079399	butt welding fittings of iron or steel, with greatest external diameter > 609.6 mm (excl. Cast iron or stainless steel products, elbows, bends and flanges)
730799	tube or pipe fittings, of iron or steel (excl. Cast iron or stainless steel products; flanges; threaded elbows, bends and sleeves; butt welding fittings)
73079910	threaded tube or pipe fittings, of iron or steel (excl. Cast iron or stainless steel products, flanges, elbows, bends and sleeves)
73079930	threaded tube or pipe fittings, of iron or steel, for welding (excl. Cast iron or stainless steel products, and flanges)
73079990	tube or pipe fittings, of iron or steel, for welding (excl. Products of cast iron or stainless steel, threaded products, products for butt welding or welding and flanges)
7307i0	components of complete industrial plants of sub-chapter 7307; energy (including production and distribution of steam and hot water)
7307i000	components of complete industrial plants of sub-chapter 7307; energy (including production and distribution of steam and hot water)
7309	reservoirs, tanks, vats and similar containers, of iron or steel, for any material 'other than compressed or liquefied gas', of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated (excl. Containers specifically constructed or equipped for one or more types of transport)
730900	reservoirs, tanks, vats and similar containers, of iron or steel, for any material 'other than compressed or liquefied gas', of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated (excl. Containers specifically constructed or equipped for one or more types of transport)
73090010	reservoirs, tanks, vats and similar containers, of iron or steel, for gases other than compressed or liquefied gas, of a capacity of > 300 l (excl. Containers fitted with mechanical or thermal equipment and containers specifically constructed or equipped for one or more types of transport)
73090030	reservoirs, tanks, vats and similar containers, of iron or steel, for liquids, lined or heat-insulated and of a capacity of > 300 l (excl. Containers fitted with mechanical or thermal equipment and containers specifically constructed or equipped for one or more types of transport)
73090051	reservoirs, tanks, vats and similar containers, of iron or steel, for liquids, of a capacity of > 100 000 l (excl. Containers lined or heat-insulated or fitted with mechanical or thermal equipment and containers specifically constructed or equipped for one or more types of transport)
73090059	reservoirs, tanks, vats and similar containers, of iron or steel, for liquids, of a capacity of =< 100 000 litres but > 300 litres (excl. Containers lined or heat-insulated or fitted with mechanical or thermal equipment and containers specifically constructed or equipped for one or more types of transport)
73090090	reservoirs, tanks, vats and similar containers, of iron or steel, for solids, of a capacity of > 300 litres (excl. Containers lined or heat-insulated or fitted with mechanical or thermal equipment and containers specifically constructed or equipped for one or more types of transport)
7309i0	components of complete industrial plants of sub-chapter 7309; energy (including production and distribution of steam and hot water)
7309i000	components of complete industrial plants of sub-chapter 7309; energy (including production and distribution of steam and hot water)
7309i2	components of complete industrial plants of sub-chapter 7309; iron and steel industry; manufacture of metal articles excluding mechanical engineering and construction of means of transport
7309i200	components of complete industrial plants of sub-chapter 7309; iron and steel industry; manufacture of metal articles excluding mechanical engineering and construction of means of transport
7309i4	components of complete industrial plants of sub-chapter 7309; chemical industry (including man-made fibres industry); rubber and plastics industry
7309i400	components of complete industrial plants of sub-chapter 7309; chemical industry (including man-made fibres industry); rubber and plastics industry

7309i7	components of complete industrial plants of sub-chapter 7309; timber and paper industry (including printing and publishing); manufacturing industries not classified elsewhere
7309i700	components of complete industrial plants of sub-chapter 7309; timber and paper industry (including printing and publishing); manufacturing industries not classified elsewhere
7310	tanks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material 'other than compressed or liquefied gas', of a capacity of =< 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated, n.E.S.
731010	anks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material, of a capacity of >= 50 l but =< 300 l, n.E.S. (excl. Containers for compressed or liquefied gas, or containers fitted with mechanical or thermal equipment,products)
73101000	tanks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material, of a capacity of >= 50 l but =< 300 l, n.E.S. (excl. Containers for compressed or liquefied gas, or containers fitted with mechanical or thermal equipment)
731021	cans of iron or steel, of a capacity of < 50 l, which are to be closed by soldering or crimping (excl. Containers for compressed or liquefied gas)
73102111	cans of iron or steel, of a capacity of < 50 l, which are to be closed by soldering or crimping, of a kind used for preserving food
73102119	cans of iron or steel, of a capacity of < 50 l, which are to be closed by soldering or crimping, of a kind used for preserving drink
73102191	cans of iron or steel, of a capacity of < 50 l, which are to be closed by soldering or crimping, of a wall-thickness of < 0.5 mm (excl. Cans for compressed or liquefied gas, and cans of a kind used for preserving food and drink)
73102199	cans of iron or steel, of a capacity of < 50 l, which are to be closed by soldering or crimping, of a wall-thickness of >= 0.5 mm (excl. Cans for compressed or liquefied gas, and cans of a kind used for preserving food and drink)
731029	tanks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material, of a capacity of < 50 l, n.E.S. (excl. Containers for compressed or liquefied gas, or containers fitted with mechanical or thermal equipment, and cans)
73102910	tanks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material, of a capacity of < 50 l and of a wall-thickness of < 0.5 mm, n.E.S. (excl. Containers for compressed or liquefied gas, or containers fitted with mechanical or thermal equipment, and cans)
73102990	anks, casks, drums, cans, boxes and similar containers, of iron or steel, for any material, of a capacity of < 50 l and of a wall-thickness of >= 0.5 mm, n.E.S. (excl. Containers for compressed or liquefied gas, or containers fitted with mechanical or thermal equipment, and cans)
7311	containers of iron or steel, for compressed or liquefied gas (excl. Containers specifically constructed or equipped for one or more types of transport)
731100	containers of iron or steel, for compressed or liquefied gas (excl. Containers specifically constructed or equipped for one or more types of transport)
73110010	containers of iron or steel, seamless, for compressed or liquefied gas (excl. Containers specifically constructed or equipped for one or more types of transport)
73110091	containers of iron or steel, seamless, for compressed or liquefied gas, of a capacity of < 1 000 l (excl. Seamless containers and containers specifically constructed or equipped for one or more types of transport)
73110099	containers of iron or steel, seamless, for compressed or liquefied gas, of a capacity of >= 1 000 l (excl. Seamless containers and containers specifically constructed or equipped for one or more types of transport)
7311i0	components of complete industrial plants of sub-chapter 7311; energy (including production and distribution of steam and hot water)
7311i000	components of complete industrial plants of sub-chapter 7311; energy (including production and distribution of steam and hot water)
7411	copper tubes and pipes
741110	tubes and pipes of refined copper
74111011	tubes and pipes of refined copper, straight, of a wall thickness of > 0.6 mm
74111019	tubes and pipes of refined copper, straight, of a wall thickness of =< 0.6 mm
74111090	tubes and pipes of refined copper, in coils or otherwise bent
741121	tubes and pipes of copper-zinc base alloys 'brass'
74112110	tubes and pipes of copper-zinc base alloys 'brass', straight
74112190	tubes and pipes of copper-zinc base alloys 'brass', in coils or otherwise bent
741122	tubes and pipes of copper-nickel alloys (cupro-nickel) or copper-nickel-zinc alloys (nickel silver)

74112200	tubes and pipes of copper-nickel alloys (cupro-nickel) or copper-nickel-zinc alloys (nickel silver)
741129	tubes and pipes of copper alloys (excl. Copper-zinc base alloys 'brass', copper-nickel base alloys 'cupro-nickel' and copper-nickel-zinc base alloys 'nickel silver')
74112900	'tubes and pipes of copper alloys (excl. Copper-zinc base alloys "brass", copper-nickel base alloys "cupro-nickel" and copper-nickel-zinc base alloys "nickel silver")'
74112910	tubes and pipes of copper alloys, straight (excl. Copper-zinc base alloys 'brass', copper-nickel base alloys 'cupro-nickel' and copper-nickel-zinc base alloys 'nickel silver')
74112990	tubes and pipes of copper alloys, in coils or otherwise bent (excl. Copper-zinc base alloys 'brass', copper-nickel base alloys 'cupro-nickel' and copper-nickel-zinc base alloys 'nickel silver')
7412	copper tube or pipe fittings 'for example, couplings, elbows, sleeves'
741210	refined copper tube or pipe fittings 'for example, couplings, elbows, sleeves'
74121000	refined copper tube or pipe fittings 'for example, couplings, elbows, sleeves'
741220	copper alloy tube or pipe fittings 'for example, couplings, elbows, sleeves'
74122000	copper alloy tube or pipe fittings 'for example, couplings, elbows, sleeves'
7507	tubes, pipes and tube or pipe fittings 'for example, couplings, elbows, sleeves', of nickel
750711	tubes and pipes of non-alloy nickel
75071100	tubes and pipes of non-alloy nickel
750712	tubes and pipes of nickel alloys
75071200	tubes and pipes of nickel alloys
750720	tube or pipe fittings, of nickel
75072000	tube or pipe fittings, of nickel
7608	aluminium tubes and pipes (excl. Hollow profiles)
760810	tubes and pipes of non-alloy aluminium (excl. Hollow profiles)
76081010	tubes and pipes of non-alloy aluminium, suitable for gases or liquids, with attached fittings, for civil aircraft
76081090	tubes and pipes of non-alloyed aluminium (other than for conducting gas or liquids, with attached fittings, for use in civil aircraft, and hollow sections)
760820	tubes and pipes of aluminium alloys (excl. Hollow profiles)
76082010	tubes and pipes of aluminium alloys, suitable for gases or liquids, with attached fittings, for civil aircraft (excl. Hollow profiles)
76082030	tubes and pipes of aluminium alloys, welded (excl. Such products suitable for gases or liquids, with attached fittings, for civil aircraft, and hollow profiles)
76082091	tubes and pipes of aluminium alloys, not further worked than extruded (excl. Such products suitable for gases or liquids, with attached fittings, for civil aircraft, and hollow profiles)
76082099	tubes and pipes of aluminium alloys (excl. Such products welded or not further worked than extruded, suitable for gases or liquids, with attached fittings, for civil aircraft, and hollow profiles)
7609	aluminium tube or pipe fittings 'for example, couplings, elbows, sleeves'
760900	aluminium tube or pipe fittings 'for example, couplings, elbows, sleeves'
76090000	aluminium tube or pipe fittings 'for example, couplings, elbows, sleeves'
7611	reservoirs, tanks, vats and similar containers, of aluminium, for any material 'other than compressed or liquefied gas', of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated (excl. Containers specifically constructed or equipped for one or more types of transport)
761100	reservoirs, tanks, vats and similar containers, of aluminium, for any material 'other than compressed or liquefied gas', of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated (excl. Containers specifically constructed or equipped for one or more types of transport)
76110000	reservoirs, tanks, vats and similar containers, of aluminium, for any material 'other than compressed or liquefied gas', of a capacity of > 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated (excl. Containers specifically constructed or equipped for one or more types of transport)
7612	tanks, casks, drums, cans, boxes and similar containers, including rigid or collapsible tubular containers, of aluminium, for any material 'other than compressed or liquefied gas', of a capacity of =< 300 l, not fitted with mechanical or thermal equipment, whether or not lined or heat-insulated, n.E.S.
761210	collapsible tubular containers, of aluminium
76121000	collapsible tubular containers, of aluminium
761290	tanks, casks, drums, cans, boxes and similar containers, including rigid or collapsible tubular containers, of aluminium, for any material 'other than compressed or liquefied gas', of a capacity of =< 300 l, n.E.S.
76129010	collapsible tubular containers, of aluminium
76129020	containers of the type commonly used for aerosols, of aluminium

76129091	tanks, casks, drums, cans, boxes and similar containers, of aluminium, for any material 'other than compressed or liquefied gas', of a capacity of >= 50 l but =< 300 l, n.E.S.
76129098	casks, drums, cans, boxes and similar containers, of aluminium, for any material (other than compressed or liquefied gas), with a capacity of < 50 l, n.E.S. (other than collapsible tubular containers, rigid tubular containers and containers for aerosols)
7613	aluminium containers for compressed or liquefied gas
761300	aluminium containers for compressed or liquefied gas
76130000	aluminium containers for compressed or liquefied gas
7805	tubes, pipes and tube or pipe fittings 'for example, couplings, elbows, sleeves', of lead
780500	tubes, pipes and tube or pipe fittings, of lead
78050000	tubes, pipes and tube or pipe fittings, of lead
7906	tubes, pipe and tube or pipe fittings 'for example, couplings, elbows, sleeves', of zinc
790600	tubes, pipe and tube or pipe fittings, of zinc
79060000	tubes, pipe and tube or pipe fittings, of zinc
8006	tin tubes, pipes and tube or pipe fittings, e.G. Couplings, elbows and sleeves
800600	tin tubes, pipes and tube or pipe fittings
80060000	tin tubes, pipes and tube or pipe fittings
8307	flexible tubing of base metal, with or without fittings
830710	flexible tubing of iron or steel, with or without fittings
83071010	flexible tubing of iron or steel, with fittings, for civil aircraft
83071090	flexible tubing of iron or steel, with or without fittings (excl. That with fittings for civil aircraft)
830790	flexible tubing of base metal other than iron or steel, with or without fittings
83079010	flexible tubing of base metal other than iron or steel, with fittings, for civil aircraft
83079090	flexible tubing of base metal other than iron or steel, with or without fittings (excl. That with fittings for civil aircraft)
8402	steam or other vapour generating boilers (excl. Central heating hot water boilers capable also of producting low pressure steam); super-heated water boilers
840211	watertube boilers with a steam production > 45 t per hour
84021100	watertube boilers with a steam production > 45 t per hour
840212	watertube boilers with a steam production =< 45 t per hour (excl. Central heating hot water boilers capable also of producing low pressure steam)
84021200	watertube boilers with a steam production =< 45 t per hour (excl. Central heating hot water boilers capable also of producing low pressure steam)
840219	vapour generating boilers, incl. Hybrid boilers (excl. Central heating hot water boilers capable also of producing low pressure steam)
84021910	firetube boilers (excl. Central heating hot water boilers capable also of producing low pressure steam)
84021990	vapour generating boilers, incl. Hybrid boilers (excl. Watertube boilers, firetube boilers and central heating hot water boilers capable also of producing low pressure steam)
840220	super-heated water boilers
84022000	super-heated water boilers
840290	parts of vapour generating boilers and super-heated water boilers n.E.S.
84029000	parts of vapour generating boilers and super-heated water boilers n.E.S.
8402i0	components of complete industrial plants of sub-chapter 8402; energy (including production and distribution of steam and hot water)
8402i000	components of complete industrial plants of sub-chapter 8402; energy (including production and distribution of steam and hot water)
8402i1	components of complete industrial plants of sub-chapter 8402; extraction of non-energy-producing minerals (including preparation of metalliferous ores and peat extraction); manufacture of non-metallic mineral products (including manufacture of glass and glassware)
8402i100	components of complete industrial plants of sub-chapter 8402; extraction of non-energy-producing minerals (including preparation of metalliferous ores and peat extraction); manufacture of non-metallic mineral products (including manufacture of glass and glassware)
8402i2	components of complete industrial plants of sub-chapter 8402; iron and steel industry; manufacture of metal articles excluding mechanical engineering and construction of means of transport
8402i200	components of complete industrial plants of sub-chapter 8402; iron and steel industry; manufacture of metal articles excluding mechanical engineering and construction of means of transport

8402i3	components of complete industrial plants of sub-chapter 8402; mechanical engineering and construction of means of transport; instrument engineering
8402i300	components of complete industrial plants of sub-chapter 8402; mechanical engineering and construction of means of transport; instrument engineering
8402i7	components of complete industrial plants of sub-chapter 8402; timber and paper industry (including printing and publishing); manufacturing industries not classified elsewhere
8402i700	components of complete industrial plants of sub-chapter 8402; timber and paper industry (including printing and publishing); manufacturing industries not classified elsewhere
8403	central heating boilers, non-electric (excl. Vapour generating boilers and super-heated water boilers of heading no 8402)
840310	central heating boilers, non-electric (excl. Vapour generating boilers and super-heated water boilers of heading no 8402)
84031010	central heating boilers, non-electric, of cast iron (excl. Vapour generating boilers and super-heated water boilers of heading no 8402)
84031090	central heating boilers, non-electric, of materials other than cast iron (excl. Vapour generating boilers and super-heated water boilers of heading no 8402)
840390	parts of central heating boilers n.E.S.
84039010	parts of central heating boilers of cast iron, n.E.S.
84039090	parts of central heating boilers n.E.S.
8481	taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, incl. Pressure-reducing valves and thermostatically controlled valves
848110	pressure-reducing valves
84811005	pressure-reducing valves combined with filters or lubricators
84811011	pressure-reducing valves, of cast iron or steel, combined with filters or lubricators
84811019	pressure-reducing valves, of cast iron or steel (not combined with filters or lubricators)
84811091	pressure-reducing valves, of base metal, combined with filters or lubricators
84811099	pressure-reducing valves, of base metal (not combined with filters or lubricators)
848120	valves for oleohydraulic or pneumatic transmission
84812010	valves for the control of oleohydraulic power transmission
84812090	valves for the control of pneumatic power transmission
848130	check valves
84813010	check valves for pneumatic tyres and inner-tubes
84813091	check valves of cast iron or steel (excl. Those for pneumatic tyres and inner tubes)
84813099	check valves (excl. Those of cast iron or steel and those for pneumatic tyres and inner tubes)
848140	safety or relief valves
84814010	safety or relief valves of cast iron or steel
84814090	safety or relief valves (excl. Those of cast iron or steel)
848180	appliances for pipes, boiler shells, tanks, vats or the like (excl. Pressure-reducing valves, valves for the control of pneumatic power transmission, check valves and safety or relief valves)
84818011	mixing valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures
84818019	taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures (excl. Mixing valves)
84818031	thermostatically controlled valves for central heating radiators
84818039	central heating radiator valves (excl. Thermostatically controlled valves)
84818051	thermostatically controlled process valves (excl. Thermostatically controlled valves for central heating radiators)
84818059	process control valves (excl. Thermostatically controlled process valves, pressure-reducing valves, valves for the control of oleohydraulic or pneumatic power transmission, check valves and safety or relief valves, taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures and central heating radiator valves)
84818061	gate valves of cast iron for pipes, boiler shells, tanks, vats or the like (excl. Taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures and central heating radiator valves)
84818063	gate valves of steel for pipes, boiler shells, tanks, vats or the like (excl. Taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures and central heating radiator valves)
84818069	gate valves for pipes, boiler shells, tanks, vats or the like (excl. Taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures and central heating radiator valves)
84818071	globe valves of cast iron (excl. Thermostatically controlled process valves, pressure-reducing valves, valves for

	the control of oleohydraulic or pneumatic power transmission, check valves and safety or relief valves, process control valves, taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures, and central heating radiator valves)
84818073	globe valves of steel (excl. Thermostatically controlled process valves, pressure-reducing valves, valves for the control of oleohydraulic or pneumatic power transmission, check valves and safety or relief valves, process control valves, taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures, and central heating radiator valves)
84818079	globe valves (excl. Valves of cast iron or steel, thermostatically controlled process valves, pressure-reducing valves, valves for the control of oleohydraulic or pneumatic power transmission, check valves and safety or relief valves, process control valves, taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures, and central heating radiator valves)
84818081	ball and plug valves (excl. Taps, cocks and valves for sinks, wash basins, bidets, water cisterns, baths and similar fixtures, and central heating radiator valves)
84818085	butterfly valves for pipes, boiler shells, tanks, vats or the like (excl. Check valves)
84818087	diaphragm valves for pipes, boiler shells, tanks, vats or the like
84818099	valves and similar articles for pipes, boiler shells, tanks, vats or the like (excl. Globe valves, gate valves, plug valves, butterfly valves and diaphragm valves)
848190	parts of valves and similar articles for pipes, boiler shells, tanks, vats or the like, n.E.S.
84819000	parts of valves and similar articles for pipes, boiler shells, tanks, vats or the like, n.E.S.
8481i0	components of complete industrial plants of sub-chapter 8481; energy (including production and distribution of steam and hot water)
8481i000	components of complete industrial plants of sub-chapter 8481; energy (including production and distribution of steam and hot water)
902610	instruments and apparatus for measuring or checking the flow or level of liquids (excl. Meters and regulators)
90261010	instruments and apparatus for measuring or checking the flow or level of liquids, for civil aircraft (excl. Meters and regulators)
90261051	electronic flow meters for liquids (excl. For civil aircraft, meters and regulators)
90261059	electronic instruments and apparatus for measuring or checking the flow or level of liquids (excl. For civil aircraft, flow meters, meters and regulators)
90261091	flow meters for liquids (excl. Electronic, for civil aircraft, meters and regulators)
90261099	instruments and apparatus for measuring or checking the flow or level of liquids (excl. Electronic, for civil aircraft, flow meters, meters and regulators)
90262010	instruments and apparatus for measuring or checking the pressure of liquids or gases, for civil aircraft (excl. Regulators)
90262090	instruments and apparatus for measuring or checking the pressure of liquids or gases (excl. Electronic, for civil aircraft, spiral or metal diaphragm tyre pressure gauges, and regulators)
90268010	instruments or apparatus for measuring or checking variables of liquids or gases, for civil aircraft, n.E.S.
90268091	electronic instruments or apparatus for measuring or checking variables of liquids or gases, n.E.S.
90268099	instruments or apparatus for measuring or checking variables of liquids or gases, n.E.S. (excl. Electronic)
90269010	parts and accessories for instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases, for civil aircraft, n.E.S.
90269090	parts and accessories for instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases n.E.S. (excl. For civil aircraft)
90321010	thermostats, for civil aircraft
90321091	thermostats, automatic regulating or controlling, non-electronic, with electrical triggering device (excl. For civil aircraft of subheading 9032.10-10)
90322010	manostats, for civil aircraft (excl. Taps, cocks and valves of heading 8481)
90322090	manostats (excl. For civil aircraft and taps, cocks and valves of heading 8481)
90328110	hydraulic or pneumatic regulating or controlling instruments and apparatus, for civil aircraft (excl. Manostats and taps, cocks and valves of heading 8481)
90328190	hydraulic or pneumatic regulating or controlling instruments and apparatus (excl. For civil aircraft, manostats and taps, cocks and valves of heading 8481)

APPENDIX 2 DETAILED IMPORT/EXPORT STATISTICS

Imports of pipe and process equipment into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	volume	value €	volume	value €	volume
Total	**24,939,635**	**11,007,978**	**28,491,456**	**11,816,765**	**28,688,631**	**11,725,344**
Extra-EU	**6,299,089**	**2,649,052**	**7,715,521**	**2,954,311**	**8,435,486**	**3,177,864**
Developping countries	**1,065,980**	**765,576**	**1,466,037**	**937,457**	**1,595,240**	**967,022**
Major suppliers:						
Germany	5,482,211	2,007,356	6,113,640	2,220,535	6,138,863	2,300,771
Italy	3,249,389	1,687,954	3,783,664	1,739,878	3,608,147	1,700,497
France	2,324,529	1,076,780	2,513,800	1,214,125	2,471,056	1,093,922
United States	1,792,669	142,770	2,203,032	131,145	2,276,626	127,183
United Kingdom	1,578,402	630,790	1,703,801	580,397	1,568,612	574,346
the Netherlands	1,445,951	619,727	1,524,150	592,645	1,467,199	583,179
Switzerland	1,190,532	357,970	1332,195	386,287	1,357,682	354,048
Spain	855,640	494,897	1,006,923	606,046	1,045,160	567,348
Belgium	896,036	433,760	998,210	506,611	932,726	444,257
Japan	451,271	64,396	545,179	44,084	754,497	236,097
Sweden	668,349	212,556	762,376	250,418	735,771	230,791
Austria	657,556	401,718	750,375	427,735	705,058	367,054
Denmark	610,444	164,228	649,068	162,345	622,926	141,057
Poland	297,483	223,244	435,027	267,143	511,620	283,406
Czech Republic	350,161	309,797	417,367	344,619	488,246	346,719
Finland	414,923	375,008	414,197	277,702	406,612	260,440
China	205,943	96,433	294,553	107,674	363,092	128,490
Hungary	157,503	115,660	227,757	123,229	256,117	107,632
Turkey	176,578	320,955	266,069	432,120	253,967	415,369
Norway	199,168	106,399	218,267	117,809	234,281	94,807
Philippines	103,090	1,788	193,774	2,412	210,457	2,658
Portugal	135,710	1121,701	165,678	136,867	166,178	135,908
Ireland	126,784	14,572	137,486	18,343	139,590	25,584
Slovakia	94,196	110,151	108,357	110,343	132,696	121,449
Romania	79,233	107,313	79,107	103,165	110,934	141,876

Imports of metal pipes into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	**volume**	**value €**	**volume**	**value €**	**volume**
Total	**6,241,658**	**7,621,079**	**7,323,225**	**8,107,284**	**7,516,508**	**8,314,741**
Extra-EU	**1,120,181**	**1,871,224**	**1,354,747**	**2,111,885**	**1,645,969**	**2,247,051**
Developping countries	**254,202**	**573,644**	**378,717**	**733,479**	**388,237**	**728,969**
Major suppliers:						
Germany	1,392,916	1,313,058	1,584,903	1,486,482	1,652,860	1,593,317
Italy	1,002,006	1,188,856	1,242,432	1,229,906	1,206,303	1,262,952
France	625,337	726,725	711,987	761,638	709,772	770,758
United Kingdom	375,561	460,103	358,689	401,548	361,325	409,584
Spain	260,218	353,424	319,879	404,485	326,531	407,728
Sewden	276,949	158,608	348,740	189,187	318,076	171,555
the Netherlands	287,579	400,055	323,846	395,141	311,826	384,975
Switzerland	274,279	281,979	318,309	303,396	305,733	271,717
Austria	257,026	291,227	307,269	309,557	289,050	289,715
Japan	72,662	48,819	71,473	29,185	249,597	177,669
Finland	245,336	351,686	256,897	256,104	223,994	237,778
Belgium	162,649	237,642	235,058	289,737	208,907	272,799
Turkey	102,034	303,208	173,106	411,481	145,907	391,455
United States	126,004	555,219	110,754	46,639	144,800	47,816
Czech Republic	91,258	209,770	113,404	235,116	128,882	233,423
Denmark	105,578	98,831	107,880	94,257	95,048	78,265
Poland	45,256	107,176	55,012	122,762	75,664	135,127
Greece	54,227	26,010	79,050	37,429	71,942	35,760
Slovakia	46,537	87,972	49,621	86,385	56,879	95,321
Russia	25,548	99,984	47,614	155,902	55,872	160,713
Romania	29,729	72,569	32,850	68,846	55,185	105,678
Norway	47,820	84,266	58,710	91,678	54,177	64,245
Ukraine	41,275	125,428	24,795	68,066	41,181	96,386
Portugal	25,533	61,187	35,036	69,786	38,460	80,465
Mexico	8,223	8,888	15,809	15,149	37,694	38,296

Imports of fittings into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	**volume**	**value €**	**volume**	**value €**	**volume**
Total	**2,514,153**	**632,253**	**2,774,792**	**666,914**	**2862,187**	**705,183**
Extra-EU	**658,142**	**203,268**	**760,110**	**216,156**	**858,147**	**250,263**
Developping countries	**138,009**	**70,063**	**171,298**	**743751**	**211,506**	**96,971**
Major suppliers:						
Germany	498,979	111,198	564,710	114,627	561,858	127,003
Italy	386,655	109,787	423,690	109,725	443,152	108,826
United States	148,982	14,056	187,371	14,826	211,178	15,310
France	215,536	53,289	220,543	59,377	209,344	58,505
United Kingdom	183,274	29,307	194,046	29,706	172,451	29,252
the Netherlands	113,842	20,487	115,873	22,197	129,032	26,179
Switzerland	94,658	6,661	105,080	6,876	105,982	6,775
Spain	89,405	24,001	98,971	29,836	105,923	25,655
Sweden	74,828	12,562	84,244	14,166	90,869	15,896
Belgium	88,368	22,808	98,373	23,108	86,026	17,625
Austria	87,461	23,076	87,460	21,492	85,205	22,514
China	55,423	38,366	66,585	38,078	85,135	53,157
Poland	52,417	32,808	69,258	41,705	85,036	46,421
Denmark	63,402	12,380	56,721	12,124	67,398	12,580
Norway	49,860	4,600	46,616	4,038	46,113	4,442
Czech Republic	36,936	18,315	37,424	18,800	43,814	20,332
Romania	19,533	20,177	19,744	210,24	25,025	22,794
Finland	20,742	3,473	27,219	4,770	25,012	4,779
Hungary	10,817	3,586	15,953	39,24	22,076	4,387
India	11,599	4,634	13,898	4,547	20,703	5,941
South Korea	14,220	3,085	19,442	4,148	19,791	3,651
Japan	15,760	2,929	18,216	1,818	16,621	2,171
Slovakia	11,472	5,478	10,548	5,026	13,527	6,373
Malaysia	7,547	2,082	12,664	3,814	13,376	4,287
Slovenia	8,623	3,437	12,339	5,205	13,334	5,744

Imports of plastic pipes into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	**volume**	**value €**	**volume**	**value €**	**volume**
Total	**2,178,673**	**602,079**	**2,459,650**	**622,249**	**2,404,989**	**551,099**
Extra-EU	**526,201**	**90,704**	**607,151**	**99,523**	**638,565**	**95,658**
Developping countries	**27,937**	**6,938**	**40,372**	**8,300**	**49,474**	**10,368**
Major suppliers:						
Germany	531,520	159,580	598,375	164,310	611,291	159,316
Italy	194,426	61,401	232,796	81,620	227,020	74,148
Switzerland	190,718	30,777	207,208	32,156	220,776	34,533
France	168,712	53,976	184,220	51,671	183,262	46,058
United Kingdom	199,382	32,580	229,495	35,863	182,545	24,873
United States	122,535	13,074	149,937	16,742	159,340	12,755
the Netherlands	133,734	62,094	148,590	34,535	127,140	39,346
Belgium	127,130	27,459	135,000	31,644	116,913	28,176
Spain	68,831	23,671	71,187	20,882	77,162	25,454
Austria	67,520	46,009	79,302	53,349	75,967	14,037
Israel	52,614	10,344	59,980	11,221	61,153	10,712
Sweden	49,149	11,681	50,315	11,203	45,517	8,440
Denmark	31,028	7,391	36,537	8,554	35,061	8,058
Japan	30,595	1,476	38,794	2,524	30,581	1,232
Czech Republic	25,842	9,111	29,003	6,,537	30,050	5,543
Poland	8,516	2,058	13,442	3,317	24,467	5,062
Ireland	26,863	4,969	25,713	4,479	24,459	8,833
Finland	21,672	4,389	22,202	7,964	21,507	4,129
Portugal	18,535	9,206	20,606	10,055	20,769	8,390
Norway	13,949	4,610	14,854	5,083	13,362	4,212
China	9,342	2,206	10,866	2,244	13,030	2,633
Greece	11,828	6,427	11,764	5,318	11,233	4,666
Hungary	4,566	1,777	6,822	2,793	9,738	3,580
Australia	5,871	790	5,281	694	6,954	1,277
Canada	7,180	2,150	7,999	2,125	6,922	1,637

Imports of valves into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	**volume**	**value €**	**volume**	**value €**	**volume**
Total	**5,235,774**	**556,789**	**5,960,469**	**555,454**	**5,966,269**	**499,081**
Extra-EU	**1,690,608**	**158,297**	**2,111,470**	**174,121**	**2,261,913**	**198,603**
Developping countries	**248,477**	**52,307**	**350,216**	**65,674**	**402,352**	**78,405**
Major suppliers:						
Germany	988,672	117,448	1,059,657	100,805	1,029,735	81,316
United States	651,643	24,015	835,849	23,164	867,827	22,447
Italy	809,354	144,037	904,581	121,298	801,344	81,488
France	462,920	41,867	489,056	46,440	479,102	37,150
United Kingdom	270,652	12,860	293,892	12,854	282,410	13,601
Spain	213,355	24,450	239,380	27,934	273,264	31,140
Switzerland	230,772	8,502	253,000	9,645	252,204	9,386
the Netherlands	192,210	17,641	222,724	24,936	212,784	17,267
China	93,398	26,933	154,729	38,625	196,607	48,849
Denmark	170,574	10,787	188,835	12,008	179,274	9,712
Japan	152,956	5,439	181,267	5,116	172,402	6,526
Czech Republic	72,748	13,757	86,372	14,968	116,141	18,093
Belgium	111,908	7,078	118,962	11,776	109,734	6,759
Poland	59,661	21,849	88,965	22,226	103,660	26,036
Sweden	107,488	5,327	100,804	5,652	99,895	4,595
Austria	87,772	7,281	93,785	6,026	85,604	6,051
Hungary	52,610	4,572	64,772	5,650	66,139	5,940
India	29,551	6,889	34,706	8,069	45,861	10,334
Canada	29,890	1,791	38,651	2,101	44,852	2,198
Finland	56,554	2,589	46,487	2,316	44,487	2,100
Luxembourg	24,790	1,676	35,730	2,884	41,010	3,156
Ireland	25,538	744	31,316	1,540	36,061	1,110
Norway	23,174	1,944	30,605	2,635	35,451	2,425
South Korea	25,199	5,514	30,362	5,015	30,711	5,165
Slovenia	26,825	3,516	25,485	3,560	24,111	3,049

Imports of vessels into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	**volume**	**value €**	**volume**	**value €**	**volume**
Total	**4,850,998**	**1,486,810**	**5,328,639**	**1,747,088**	**5,218,733**	**1,497,047**
Extra-EU	**804,069**	**292,625**	**980,717**	**318,574**	**1,009,698**	**308,878**
Developping countries	**169,413**	**56,355**	**180,105**	**48,452**	**174,079**	**43,449**
Major suppliers:						
Germany	1,165,073	283,004	1,277,123	327,081	1,238,660	311,731
Italy	612,134	172,239	693,539	180,629	658,919	158,470
France	585,739	191,474	606,679	285,849	597,714	172,110
the Netherlands	481,184	113,796	476,887	110,422	445,062	109,741
United Kingdom	269,370	87,734	300,998	91,673	283,616	89,332
Belgium	270,323	136,316	244,713	147,863	240,074	116,364
Spain	171,035	63,190	217,108	120,206	202,469	74,720
Poland	110,511	58,431	177,606	75,376	147,136	66,824
Switzerland	123,837	25,906	138,670	29,756	144,270	27,394
Austria	125,429	33,236	142,515	36,146	133,272	33,997
Czech Republic	103,857	57,871	122,885	67,883	132,065	67,888
Sweden	90,870	22,273	107,994	27,080	108,983	28,827
United States	110,780	23,711	129,333	19,459	101,642	18,363
Denmark	91,614	29,986	88,735	29,361	83,878	25,402
Japan	12,155	1,893	6,986	739	78,656	4,648
Portugaal	67,890	36,915	83,121	50,802	76,912	39,500
Finland	58,227	12,036	47,394	6,323	76,648	11,448
Turkey	49,728	11,062	64,174	12,936	75,187	15,482
Hungary	38,156	13,460	64,044	16,764	57,537	17,670
Slovakia	27,981	14,645	37,622	15,431	53,147	17,775
Norway	30,268	10,065	38,573	13,793	45,111	18,787
Ireland	41,966	5,394	33,901	4,743	31,542	4,930
China	27,708	7,171	33,289	7,552	29,983	6,522
Slovenia	18,643	5,644	19,612	4,794	20,657	5,272
Greece	111,144	4,187	17,987	6,501	17,412	6,023

Imports of instruments and safety devices into EU by country of origin, 1999-2001
€ 1,000 / tonnes

	1999		2000		2001	
	value €	**volume**	**value €**	**volume**	**value €**	**volume**
Total	**3,918,379**	**108,968**	**4,644,681**	**117,776**	**4,719,945**	**158,193**
Extra-EU	**1,499,888**	**32,934**	**1,901,326**	**34,052**	**2,021,194**	**77,411**
Developping countries	**227,942**	**6,269**	**345,329**	**7,801**	**369,592**	**8,860**
Major suppliers:						
Germany	905,051	23,068	1,028,872	27,230	1,044,459	28,088
United States	632,725	12,695	789,788	10,315	791,839	10,492
Switzerland	276,268	4,145	309,928	4,458	328,717	4,243
France	266,285	9,449	301,315	9,150	291,862	9,341
United Kingdom	280,163	8,206	326,681	8,753	286,265	7,704
Italy	244,814	11,634	286,626	16,700	271,409	14,613
the Netherlands	237,402	5,654	236,230	5,414	241,355	5,671
Japan	167,143	3,840	228,443	4,702	206,640	43,851
Philippines	95,020	1,528	187,169	2,270	200,780	2,342
Belgium	135,658	2,457	166,104	2,483	171,072	2,534
Denmark	148,248	4,853	170,360	6,041	162,267	7,040
Poland	21,122	922	30,744	1,757	75,657	3,936
Sweden	69,068	2,105	70,279	3,130	72,431	1,478
Hungary	19,753	506	31,869	697	64,972	1,154
Spain	52,796	6,161	60,398	2,703	59,811	2,651
Mexico	36,786	735	45,096	655	43,456	513
Norway	34,097	914	28,909	582	40,067	696
Czech Republic	19,520	973	28,279	1,315	37,294	1,440
Austria	32,348	889	40,044	1,165	35,960	740
China	8,933	775	16,831	1,231	24,327	2,041
Ireland	16,706	225	23,347	219	23,741	201
Slovania	18,350	850	20,494	1,001	21,138	1,040
Canada	23,927	614	24,719	345	21,041	305
Singapore	16,767	161	19,965	166	19,533	233
Thailand	14,363	128	16,716	148	15,263	113

Exports of pipes and process equipment by the EU by country of destination, 1998-2001
US$ 1,000 / € 1,000 / tonnes

	1998		1999		2000		2001	
	value €	volume	value €	volume	value €	volume	value €	volume
Total	**40,933,860**	**14,975,589**	**35,855,092**	**33,642,114**	**12,999,466**	**34,429,055**	**37,344,260**	**14,763,500**
Extra-EU	**17,916,855**	**5,923,848**	**14,922,539**	**14,001,519**	**4,463,358**	**14,444,114**	**15,667,138**	**5,211,222**
Developping countries	**7,249,127**	**2,473,668**	**5,510,685**	**5,170,565**	**1,509,770**	**5,156,100**	**5,592,682**	**1,973,728**
Major destinations:								
Germany	4,658,468	1,858,098	4,221,867	3,961,293	1,835,352	3,886,867	4,215,979	1,816,384
France	3,537,631	1,496,330	3,284,246	3,081,542	1,512,683	3,314,257	3,594,884	1,704,001
United States	2,338,446	584,572	2,234,002	2,096,119	463,400	2,627,674	2,850,167	886,089
United Kingdom	2,799,081	867,805	2,388,946	2,241,500	694,806	2,226,799	2,415,348	752,945
Netherlands	2,335,239	1,036,872	2,053,898	1,927,131	984,793	1,820,973	1,975,160	1,140,899
Spain	1,551,923	566,073	1,612,804	1,513,262	587,050	1,648,343	1,787,913	677,811
Italy	1,837,741	537,422	1,696,362	1,591,662	510,652	1,622,191	1,759,546	580,771
Belgium	-	-	1,415,389	1,328,031	557,829	1,294,045	1,403,615	588,960
Austria	1,076,416	352,235	954,044	895,160	300,799	978,315	1,061,152	387,192
Switzerland	1,015,137	253,588	971,952	911,963	286,824	922,404	1,000,506	282,835
Sweden	976,836	372,338	873,885	819,949	313,148	862,461	935,488	346,753
Poland	1,043,901	428,535	840,397	788,528	237,013	762,776	827,362	239,610
Denmark	802,385	329,247	666,436	625,304	260,868	632,194	685,724	269,834
Norway	1,315,425	630,600	810,993	760,938	253,853	588,566	638,401	184,290
Czech Republic	551,600	172,104	528,905	496,261	198,650	570,960	619,305	234,072
Turkey	449,643	100,723	374,821	351,687	95,632	561,296	608,822	296,226
China	729,026	175,492	619,913	581,652	118,281	499,139	541,403	120,171
Portugal	509,479	239,341	488,955	458,777	223,537	488,526	529,891	212,655
Russia	569,344	138,959	536,745	503,617	343,491	429,494	465,861	244,531
Ireland	429,181	151,441	456,415	428,245	184,507	417,223	452,550	467,464
Finland	452,565	221,695	386,940	363,058	139,337	389,171	422,123	152,347
Hungary	355,301	111,686	359,305	337,129	124,168	381,150	413,423	133,576
United Arabic Emirates	397,021	182,813	429,938	403,402	122,246	361,591	392,208	190,211
Canada	309,396	92,363	286,538	268,853	75,650	325,742	353,324	102,446
Singapore	297,036	71,200	274,907	257,940	55,887	303,523	329,223	89,750
Iran	282,060	75,749	165,800	155,567	50,058	296,344	321,436	179,758
Japan	246,651	18,930	246,582	231,363	15,354	279,314	302,964	20,587
Saudi Arabia	558,045	225,475	389,326	365,297	121,686	274,458	297,697	75,388
South Korea	318,290	41,520	254,014	238,336	39,661	271,790	294,803	50,626
Egypt	412,163	295,529	446,608	419,043	187,551	252,192	273,546	157,461
Greece	263,651	65,992	251,669	236,136	68,693	248,090	269,096	73,098
India	395,545	135,184	241,089	49,740	207,193	224,737	224,737	44,812
Mexico	245,395	87,034	184,265	172,892	50,791	199,157	216,020	47,736
Australia	271,878	43,322	211,661	198,597	32,396	197,202	213,900	32,093
Brazil	346,249	81,230	251,485	235,963	27,023	190,362	206,480	26,443
Hong Kong	181,598	31,692	160,217	150,328	26,891	169,312	183,648	22,571
Romania	148,167	35,564	139,087	130,503	36,445	168,432	182,694	50,589
Taiwan	226,933	42,755	184,071	172,710	31,312	166,126	180,192	28,275
Algeria	229,850	92,181	173,913	163,179	78,789	164,638	178,578	86,654
South Africa	203,124	39,803	168,021	157,651	32,879	163,728	177,591	40,781

APPENDIX 3 USEFUL ADDRESSES

3.1 Standards Organisations

INTERNATIONAL

International Organisation for Standardisation (ISO)
Address: 1, Rue de Varembé, P.O. Box 56, CH-1211 Geneva 20, Switzerland
Telephone: + 41 (0)22 7490111
Fax: + 41 (0)22 7333430
E-mail: central@iso.ch
Internet: www.iso.ch

American Petroleum Institute (API)
Address: 1220 L Street, NW, Washington, DC 20005-4070, USA
Telephone: +1 (0)202 6828000
Fax: -
E-mail: -
Internet: api-ep.api.org

American National Standards Institute (ANSI)
Address: 1819 L Street, NW, 6th Fl., Washington, DC 20036, USA
Telephone: +1 (0)212 6424900
Fax: +1 (0)202 2939287
E-mail: -
Internet: www.ansi.org

American Society for Testing and Materials (ASTM)
Address: 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA
Telephone: +1 (0)610 8329585
Fax: +1 (0)610 8329555
E-mail: service@astm.org
Internet: www.astm.org

ASME International
Address: Three Park Avenue, New York, NY 10016-5990, USA
Telephone: +1 (0)973 8821167
Fax: -
E-mail: infocentral@asme.org
Internet: www.asme.org

EUROPEAN UNION

Comité Européen de Normalisation (CEN)
Address: Rue de Stassart 36, B-1050 Brussels, Belgium
Telephone: + 32 (0)2 25500811
Fax: + 32 (0)2 25500819
E-mail: infodesk@cenorm.be
Internet: www.cenorm.be

THE NETHERLANDS

Nederlands Normalisatie-instituut (NEN)
Address: P.O. Box 5059, NL-2600 GB DELFT, The Netherlands
Telephone: +31 (0)15 2690390
Fax: +31 (0)15 2690190
E-mail: info@nen.nl
Internet: www.nen.nl

FRANCE

Association Française de Normalisation (AFNOR)
Address: 11, Avenue Francis de Pressensé, F-93571 Saint-Denise La Plaine Cedex, France
Telephone: +33 (0)1 41628000
Fax: +33 (0)1 49179000
E-mail: norminfo@afnor.fr
Internet: www.afnor.fr

GERMANY

Deutsches Institut für Normung e.V. (DIN)
Address: Burggrafenstrasse 6, D-10787 Berlin, Germany
Telephone: +49 (0)30 26010
Fax: +49 (0)30 2601123
E-mail: webmaster@din.de
Internet: www.din.de

RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V.
Address: Siegburger Strasse 39, D-53757 Sankt Augustin, Germany
Telephone: + 49 (0)2241 16050
Fax: + 49 (0)2241 160511
E-mail: ral-institut@t-online.de
Internet: www.ral.de

ITALY

Ente Nazionale Italiano de Unificazione (UNI)
Address: Via Battistotti Sassi 11b, I-20133 Milano MI, Italy
Telephone: +39 (0)2 700241
Fax: +39 (0)2 70106106
E-mail: uni@uni.com
Internet: www.uni.com

UNITED KINGDOM

British Standards Institution (BSI)
Address: 389 Chiswick Highroad, London W4 4 AL, United Kingdom
Telephone: +44 (0)20 89969000
Fax: +44 (0)20 89967400
E-mail: info@bsi-global.com
Internet: www.bsi-global.com

BM TRADA Certification Limited
Address: Chiltem House, Stocking Lane Hughenden Valley, High Wycombe,
Buckinghamshire HP14 4NB, United Kingdom
Telephone: +44 (0)1494 569700
Fax: +44 (0)1494 565487
E-mail: enquiries@bmtrada.com
Internet: www.bmtrada.com

Apart from the above-mentioned official institutes there is a number of commercial companies which offer services aimed at achieving certificates like the CE marking or ISO certification.

3.2 Sources of price information

Price information can be obtained through trade organisations, trade press or trade fairs. Other possibilities include checking for prices on the Internet, asking for prices at distributors, agents and other distribution channels. Please refer to the other appendices for details.

The London Metal Exchange Limited
Information: various metal prices
Address: 56 Leadenhall Street, London EC3A 2DX, United Kingdom
Telephone: +44 (0)207 2645555
Fax: +44 (0)207 6800505
E-mail: info@lme.co.uk
Internet: www.lme.co.uk

KWD Globalpipe
Information: various plastics prices
Publisher: Verlagsbüro Christa Hamich
Address: Jahnstraße 57, D-64285 Darmstadt, Germany
Telephone: +49 (0)6151 61848
Fax: +49 (0)6151 61548
E-mail: info@kwd-globalpipe.com
Internet: www.kwd-globalpipe.com

Japan Metal Bulletin
Information: iron, steel and non-ferrous metal market prices
Publisher: Media Project Agency, Sangyo Press Co., Ltd.
Address: P.O. Box 550, Daini-Fuji Building, 1-5-15, Utsubo-honmachi, Nishi-ku, Osaka City, Japan
Telephone: +81 (0)6 4438551
Fax: +81 (0)6 4433828
E-mail: jmb@sangyo.co.jp
Internet: www.japanmetalbulletin.com

3.3 Trade Associations

EUROPEAN UNION

Association of Petrochemicals Producers in Europe (APPE)
Address: Avenue E. van Nieuwenhuyse 4, B-1160 Brussels Belgium
Telephone: +32 (0)2 6767276
Fax: +32 (0)2 6767230
E-mail: -
Internet: -

Association of Plastics Manufacturers in Europe (APME)
Address: Avenue E. van Nieuwenhuyse 4, Box 3, B-1160 Brussels, Belgium
Telephone: +32 (0)2 6753297
Fax: +32 (0)2 6753935
E-mail: info.apme@apme.org
Internet: www.apme.org

Association of the International Federation of Steel, Tube and Metal Merchants
Address: 65, Avenue Victor Hugo, F-75116 Paris, France
Telephone: +33 (0)1 45007250
Fax: +33 (0)1 45007137
E-mail: -
Internet: -

European Association of Machine Tool Merchants (EAMTM)
Address: Villalaan 83, B-1190 Brussels, Belgium
Telephone: +32 (0)2 5341515
Fax: +32 (0)2 5381214
E-mail: info@eamtm.org
Internet: www.eamtm.org

European Chemical Industry Council (CEFIC)
Address: Avenue Van Nieuwenhuyse 4, Box 1, B-1160 Brussels, Belgium
Telephone: +32 (0)2 6767211
Fax: +32 (0)2 6767300
E-mail: mail@cefic.be
Internet: www.cefic.org

European Committee for Valve Industry (CEIR)
Address: Boulevard Auguste Reyers 80, B-1030 Brussels, Belgium
Telephone: +32 (0)2 7068235
Fax: +32 (0)2 7068250
E-mail: guy.vandoorslaer@orgalime.org
Internet: www.ceir-online.org

European Committee of Boiler, Vessel and Pipework Manufacturers (ECBPM)
Address: Kirchenweg 4, CH-8032 Zürich, Switzerland
Telephone: +41 (0)1 3844844
Fax: +41 (0)1 3844848
E-mail: -
Internet: -

European Committee of Compressors, Vacuum Pumps and Pneumatic Tools (PNEUROP)
Address: Boulevard Auguste Reyers 80, B-1030 Brussels, Belgium
Telephone: +32 (0)2 7068230
Fax: +32 (0)2 7068250
E-mail: secretariat@pneurop.com
Internet: www.pneurop.com

European Confederation of Iron and Steel Industry (EUROFER)
Address: Rue du Noyer 211, B-1000 Brussels, Belgium
Telephone: +32 (0)2 7387920
Fax: +32 (0)2 7363001
E-mail: -
Internet: www.eurofer.org

European Federation of Association of Steel, Tube and Metal Merchants (EUROMETAL)
Address: Boulevard de la Woluwe 46 B7, B-1200 Brussels, Belgium
Telephone: +32 (0)2 7715340
Fax: +32 (0)2 7721977
E-mail: contact@eurometal.net
Internet: www.eurometal.net

European Federation of Engineering Consultancy Associations (EFCA)
Address: Avenue des Arts 3-5, B-1210 Brussels, Belgium
Telephone: +32 (0)2 2090770
Fax: +32 (0)2 2090771
E-mail: efca@efca.be
Internet: www.efca.be

European Petroleum Industry Association (Europia)
Address: Boulevard du Souverain, B-1160 Brussels, Belgium
Telephone: +32 (0)2 5669100
Fax: +32 (0)2 5669100
E-mail: info@europia.com
Internet: www.europia.com

European Plastic Converters (EuPC)
Address: Avenue de Cortenbergh 66, Box 4, B-1000 Brussels, Belgium
Telephone: +32 (0)2 7324124
Fax: +32 (0)2 7324218
E-mail: eupc@skynet.be
Internet: www.eupc.org

European Sealing Associations e.V. (ESA)
Address: Bowerham House, The Grove, Lancaster LA1 3AL, United Kingdom
Telephone: +44 (0)15 24844222
Fax: +44 (0)15 24844222
E-mail: bse@europeansealing.com
Internet: www.europeansealing.com

European Steel Tube Association
Address: Kaiserswerther Strasse 137, D-40474 Düsseldorf, Germany
Telephone: +49 (0)211 434756
Fax: -
E-mail: -
Internet: -

European Tube Association (ETA)
Address: Tersteegenstrasse 28, D-40045 Düsseldorf, Germany
Telephone: +49 (0)211 454710
Fax: +49 (0)211 4547111
E-mail: -
Internet: -

International Tube Association
Address: 46 Holly Walk, Leamington Spa, Warwickshire CV32 4HY, United Kingdom
Telephone: +44 (0)1926 334137
Fax: +44 (0)1926 314755
E-mail: ita@intras.co.uk
Internet: www.itatube.org

ORGALIME
Liaison group of the European mechanical, electrical, electronic and metalworking industries
Address: Boulevard Auguste Reyers 80, B-1030 Brussels, Belgium
Telephone: +32 (0)2 7068235
Fax: +32 (0)2 7068250
E-mail: secretariat@orgalime.org
Internet: www.orgalime.org

Society of Plastic Engineers (SPE) - European Member Bureau
Address: Bistkapellei 44, B-2180 Antwerp, Belgium
Telephone: +32 (0)3 541 7755
Fax: +32 (0)3 541 8425
E-mail: ypauwels@4spe.org
Internet: www.4spe.org

The European Plastics Pipe and Fittings Association (TEPPFA)
Address: Avenue de Cortenbergh 66, B-1000 Brussels, Belgium
Telephone: +32 (0)2 7362406
Fax: -
E-mail: info@teppfa.com
Internet: www.teppfa.com

BELGIUM

The Multisector Federation for the Technology Industry AGORIA
Address: Boulevard Auguste Reyers 80, B-1030 Brussels, Belgium
Telephone: +32 (0)2 7067800
Fax: +32 (0)2 7067801
E-mail: info@agoria.be
Internet: www.agoria.be

DENMARK

Dansk Industri
Address: 18, H.C. Andersens Boulevard, DK-1787 Copenhagen V, Denmark
Telephone: +45 (0)33 773377
Fax: +45 (0)33 773300
E-mail: di@di.dk
Internet: www.di.dk

THE NETHERLANDS

Association of Dutch Suppliers in the Oil and Gas Industry (IRO)
Address: P.O. Box 7261, NL-2701 AG Zoetermeer, The Netherlands
Telephone: +31 (0)79 3411981
Fax: +31 (0)79 3419764
E-mail: info@iro.nl
Internet: www.iro.nl

Federatie Het Instrument (FHI) – Industriële Automatisering
Address: P.O. Box 2099, NL-3800 CB Amersfoort, The Netherlands
Telephone: +31 (0)33 4657507
Fax: +31 (0)33 4616638
E-mail: info@fhi.nl
Internet: www.fhi.nl

Staalfederatie
Address: P.O. Box 30447, NL-2500 GK The Hague, The Netherlands
Telephone: +31 (0)70 3450200
Fax: +31 (0)70 3636681
E-mail: info@staalfederatie.nl
Internet: www.staalfederatie.nl

Vereniging van Fabrikanten van Kunststofleidingsystemen (FKS)
Address: P.O. Box 152, NL-2260 AD Leidschendam, The Netherlands
Telephone: +31 (0)70 4440650
Fax: +31 (0)70 4440661
E-mail: -
Internet: www.fks.nl

Vereniging FME-CWM
Address: P.O. Box 190, NL-2700 AD Zoetermeer, The Netherlands
Telephone: +31 (0)79 353 11 00
Fax: +31 (0)79 353 13 65
E-mail: alg@fme.nl
Internet: www.fme.nl

Vereniging Importeurs en Fabrikanten van Industriële Appendages (VIFIA)
Address: P.O. Box 4, NL-2640 AA Pijnacker, The Netherlands
Telephone: +31 (0)15 3694226
Fax: +31 (0)15 3697633
E-mail: info@vifia.nl
Internet: www.vifia.nl

Vereniging Nederlandse Chemische Industrie (VNCI)
Address: P.O. Box 443, NL-2260 AK Leidschendam, The Netherlands
Telephone: +31 (0)70 3378787
Fax: +31 (0)70 3203903
E-mail: info@vnci.nl
Internet: www.vnci.nl

FINLAND

Chemical Industry Federation
Address: Eteläranta 10, P.O. Box 4, FIN-00131 Helsinki, Finland
Telephone: +358 (0)9 172841
Fax: +358 (0)9 630225
E-mail: -
Internet: www.chemind.fi

Federation of Finnish Metal, Engineering and Electrotechnical Industries (MET)
Address: Eteläranta 10, P.O. Box 10, FIN-00131 Helsinki, Finland
Telephone: +358 (0)9 19231
Fax: +358 (0)9 624462
E-mail: -
Internet: www.met.fi

FRANCE

Association Française des Pompes et de la Robinetterie (AFCP – AFIR)
Address: 45 Rue Louis Blanc, F-92038 Paris la Défense Cedex, France
Telephone: +33 (0)1 47176298
Fax: +33 (0)1 47176300
E-mail: afcp-afir@afcp-afir.org
Internet: www.afcp-afir.org

Fédération des Industries Mécaniques (FIM)
Address: 39-41 Rue Louis Blanc, F-92400 Courbevoie, France
Telephone: +33 (0)1 47176000
Fax: -
E-mail: info@mail.fimeca.com
Internet: www.fim.net

Mouvement des Entreprises de France (MEDEF)
Address: 31 av Pierre 1er de Serbie, F-75784 Paris Cédex 16, France
Telephone: +33 (0)1 40694444
Fax: +33 (0)1 47234732
E-mail: -
Internet: www.medef.fr

Syndicat National des Tubes et Raccords en PVC (STR-PVC)
Address: 11 bis de Milan, F-75009 Paris, France
Telephone: +33 (0)1 53 32 79 79
Fax: +33 (0)1 53 32 79 70
E-mail: contact@str-pvc.org
Internet: www.str-pvc.org

GERMANY

Deutscher Verein des Gas- und Wasserfaches e.V. (DVGW)
Address: Josef-Wirmer-Strasse 1-3, D-53123 Bonn, Germany
Telephone: +49 (0)228 9188807
Fax: +49 (0)228 9188993
E-mail: zgw@dvgw.de
Internet: www.dvgw.de

Fachverband Dampfkessel-, Behälter- und Rohrleitungsbau e.V. (FDBR)
Address: P.O. Box 320420, D-40419 Düsseldorf, Germany
Telephone: +49 (0)211 498700
Fax: +49 (0)211 4987036
E-mail: info@fdbr.de
Internet: www.fdbr.de

Fachverband der Kunststoffrohr-Industrie (KRV)
Address: Dyroffstrasse 2, D-53113 Bonn, Germany
Telephone: +49 (0)228 914770
Fax: +49 (0)228 211309
E-mail: kunststoffrohrverband@krv.de
Internet: www.krv.de

Gesamtverband Kunststoffverarbeitende Industrie e.V. (GKV)
Address: Am Hauptbahnhof 12, D-60329 Frankfurt am Main, Germany
Telephone: +49 (0)69 2710520
Fax: +49 (0)69 232799
E-mail: info@gkv.de
Internet: www.gkv.de

Gütegemeinschaft Kupferrohr e.V.
Address: Am Bonneshof 5, P.O. Box 105463, D-40045 Düsseldorf
Telephone: +49 (0)211 47960
Fax: +49 (0)211 4796400
E-mail: zilkens@ne-metalnet.de
Internet: www.guete-kupferrohr.de

Verband der Chemischen Industrie e.V.
Address: Karlstrasse 21, D-60329 Frankfurt am Main, Germany
Telephone: +49 (0)69 25560
Fax: +49 (0)69 25561471
E-mail: internetinfo@vci.de
Internet: www.vci.de

Verband Deutscher Machinen und Anlagenbau e.V. (VDMA)
Process plant and equipment division
Address: Lyoner Strasse 18, P.O. Box 710864, D-60498 Frankfurt am Main, Germany
Telephone: +49 (0)69 66031394
Fax: +49 (0)69 66031421
E-mail: vtma@vdma.org
Internet: www.processtech.vdma.org

IRELAND

Irish Business and Employers Confederation (IBEC)
Address: Confederation House, 84/86 Lower Baggot Street, Dublin, Ireland
Telephone: +353 (0)1 6601011
Fax: +353 (0)1 6601717
E-mail: info@ibec.ie
Internet: www.ibec.ie

ITALY

ASSOCOMAPLAST
Address: P.O. Box 24, I-20090 Assago-Milano, Italy
Telephone: +39 (0)2 8228371
Fax: +39 (0)2 57512490
E-mail: assocomaplast@ assocomaplast.com
Internet: www.assocomaplast.com

Federazione delle Associazioni Nazionali della Industria Meccanica Varia ed Affine (ANIMA)
- **UCC**: Association of the manufacturers of boilers and pressure vessels
- **ACISM**: Association of gas, fuel and water meter manufacturers
- **AVR**: Association of valve and fitting manufacturers

Address: Via Luisa Battistotti Sassi 11/b, I-20133 Milano, Italy
Telephone: +39 (0)2 73971
Fax: +39 (0)2 7397316
E-mail: anima@anima-it.com
Internet: www.anima-it.com

LUXEMBOURG

Fédération des Industriels Luxembourgeois (FEDIL)
Address: P.O. Box 1304, L-1013 Luxembourg, Luxembourg
Telephone: +352 (0)43 53661
Fax: +352 (0)43 2328
E-mail: fedil@fedil.lu
Internet: www.fedil.lu

PORTUGAL

Associação Nacional das Empresas Metalúrgicas e Metalomecânicas (ANEMM)
Address: Estrada do Paço do Lumiar, Pólo Tecnológico de Lisboa, Lote 13, PT-1600 Lisboa, Portugal
Telephone: +351 (0)21 7152172
Fax: +351 (0)21 7150403
E-mail: anemm@anemm.pt
Internet: www.anemm.pt

SPAIN

Asociación Española de Fabricantes de Tubos y Accesorios Plásticos (ASETUB)
Address: Coslada 18, E-28028 Madrid, Spain
Telephone: +34 (0)91 3565059
Fax: +34 (0)91 3565628
E-mail: qral@asetub.es
Internet: www.asetub.es

Asociación Nacional de Fabricantes de Bienes de Equipo (SERCOBE)
Address: P.O. Box 1313, E-28001 Madrid, Spain
Telephone: +34 (0)91 4357240
Fax: +34 (0)91 5770910
E-mail: sercobe@sercobe.es
Internet: www.sercobe.es

Confederación Española de Empresarios de Plásticos (ANAIP)
Address: Coslada 18, E-28028 Madrid, Spain
Telephone: +34 (0)91 3565059
Fax: +34 (0)91 3565628
E-mail: anaip@anaip.es
Internet: www.anaip.es

Confederación Española de Organizaciones Empresariales del Metal (CONFEMETAL)
Address: Príncipe de Vergara 74, E-28006 Madrid, Spain
Telephone: +34 (0)91 5625590
Fax: +34 (0)91 5635758
E-mail: confemetal@confemetal.es
Internet: www.confemetal.es

SWEDEN

Sveriges Verkstadindustrier (VI) - Svensk Armaturindustri
Address: P.O. Box 5510, SE-11485 Stockholm, Sweden
Telephone: +46 (0)8 7820800
Telefax: +46 (0)8 6603378
E-mail: vibab@vi.se
Internet: www.vibab.se

SWITZERLAND

Schweizer Maschinen-, Elektro- und Metall-Industrie (SWISSMEM)
Address: Kirchenweg 4, CH-8008 Zürich, Switzerland
Telephone: +41 (0)1 3844111
Fax: +41 (0)1 3844242
E-mail: info@swissmem.ch
Internet: www.swissmem.ch

UNITED KINGDOM

British Valve & Actuator Manufacturers' Association
Address: The McLaren Building, 35 Dale End, Birmingham, B4 7LN, United Kingdom
Telephone: +44 (0)121 2001297
Fax: +44 (0)121 2001308
E-mail: enquiry@bvama.org.uk
Internet: www.bvama.org.uk

Pipes Group of the British Plastics Federation
Address: 6 Bath Place, Rivington Street, London, EC2A 3JE, United Kingdom
Telephone: +44 (0)207 4575017
Fax: +44 (0)207 4575018
E-mail: admin@pipesgroup.co.uk
Internet: www.pipesgroup.co.uk

3.4 Trade fair organisers

THE NETHERLANDS

Automation in Petrochemicals
Item: Conference and product show on technology, cost, safety and profit in the chemical and petrochemical industry
Date: 19-20 November 2003
Location: Delft
Frequency: -
Organiser: FHI Industriële Automatisering
Address: P.O. Box 2099, NL-3800 AB Amersfoort, the Netherlands
Telephone: +31 (0)33 4657507
Fax: +31 (0)33 4616638
E-mail: info@fhi.nl
Internet: www.petrochemicals.nl

Aquatech

Item:	International trade event of water technology and water management
Date:	28 September – 1 October 2004
Location:	Amsterdam
Frequency:	Every two years
Organiser:	Amsterdam Rai
Address:	P.O. Box 77777, NL-1070 MS Amsterdam, The Netherlands
Telephone:	+31 (0)20 5491212
Fax:	+31 (0)20 5491893
E-mail:	aquatech@rai.nl
Internet:	www.aquatechtrade.com

Europort

Item:	International maritime exhibition
Date:	18-22 November 2003
Location:	Amsterdam
Frequency:	Every two years
Organiser:	Amsterdam Rai
Address:	P.O. Box 77777, NL-1070 MS Amsterdam, The Netherlands
Telephone:	+31 (0)20 5491212
Fax:	+31 (0)20 5491843
E-mail:	europort@rai.nl
Internet:	www.europort2003.com

Industrial Processing

Item:	Trade fair for processing, equipment, processing automation and processing engineering
Date:	5-8 October 2004
Location:	Utrecht
Frequency:	Every two years
Organiser:	Jaarbeurs Exhibitions & Media
Address:	P.O. Box 8800, NL-3503 RV Utrecht, The Netherlands
Telephone:	+31 (0)30 2952802
Fax:	+31 (0)30 2952804
E-mail:	info@jem.nl
Internet:	www.industrialprocessing.nl

Maintenance en Techniek

Item:	Maintenance and technology trade fair
Date:	4-6 May 2004
Location:	Maastricht
Frequency:	Every two years
Organiser:	MECC Exhibitions
Address:	P.O. Box 1630, NL-6201 BP Maastricht, The Netherlands
Telephone:	+31 (0)43 3838383
Fax:	+31 (0)43 3838300
E-mail:	maintenance@mecc.nl
Internet:	www.maintenance-techniek.nl

Petrotech

Item:	Trade show for the industrial chain in the Rhine-Schelde delta
Date:	25-27 May 2004
Location:	Rotterdam
Frequency:	Every two years
Organiser:	Ahoy' Rotterdam
Address:	P.O. Box 5106, NL-3008 AC Rotterdam, The Netherlands
Telephone:	+31 (0)10 2933234
Fax:	+31 (0)10 2933238
E-mail:	info@petrotech.nl
Internet:	www.petrotech.nl

Valve World Conference and Expo

Item:	Valves and pipes in the chemical, petrochemical, power generation, oil and gas and process industries
Date:	9-11 November 2004
Location:	Maastricht
Frequency:	Every two years
Organiser:	Valve World
Address:	P.O. Box 396, NL-7200 AJ Zutphen, The Netherlands
Telephone:	+31 (0)575 585270
Fax:	+31 (0)575 511099
E-mail:	vw2004@kci-world.com
Internet:	www.valve-world.net/conf2004/

BELGIUM

M+R

Item:	Control and instrumentation in process industry
Date:	-
Location:	Benelux
Frequency:	Monthly
Organiser:	Fairtec
Address:	Autolei 337, B-2160 Wommelgem (Antwerpen), Belgium
Telephone:	+32 (0)3 3540880
Fax:	+32 (0)3 3540810
E-mail:	info@fairtec.com
Internet:	www.fairtec.com

Maintenance

Item:	Industrial maintenance fair
Date:	23-25 March 2004
Location:	Antwerp
Frequency:	Every two years
Organiser:	IMEXO b.v.b.a.
Address:	Jan van Rijswijcklaan 275, B-2020 Antwerpen, Belgium
Telephone:	+32 3 2388583
Fax:	+32 3 2376781
E-mail:	schellekens@imexo.be
Internet:	www.maintenancefairs.com / www.imexo.be

Pumps and Valves

Item:	Fair on pumps and valves
Date:	13-15 October 2004
Location:	Antwerp
Frequency:	Every two years
Organiser:	Fairtec
Address:	Autolei 337, B-2160 Wommelgem (Antwerpen), Belgium
Telephone:	+32 (0)3 3540880
Fax:	+32 (0)3 3540810
E-mail:	info@fairtec.com
Internet:	www.fairtec.com

FRANCE

Maintenance

Item:	Fair on maintenance management
Date:	19-21 November 2002
Location:	Paris
Frequency:	-
Organiser:	Groupe Solutions
Address:	97 Rue du Cherche Midi, F-75006 Paris, France
Telephone:	+33 (0)1 44398500
Fax:	+33 (0)1 45443040
E-mail:	info@infopromotions.fr
Internet:	www.groupesolutions.com

MIDEST

Item:	International sub-contracting exhibition
Date:	18-21 November 2003
Location:	Paris
Frequency:	Every year
Organiser:	Reed Exhibitions France
Address:	70 Rue Rivay, F-92532 Levallois Perret Cedex, France
Telephone:	+33 (0)1 47562166
Fax:	+33 (0)1 47562140
E-mail:	info@midest.com
Internet:	www.midest.com

POLLUTEC

Item:	International exhibition of environmental equipment, technology and services
Date:	2-5 December 2003
Location:	Paris
Frequency:	Every year
Organiser:	Reed Exhibitions France
Address:	70 Rue Rivay, F-92532 Levallois Perret Cedex, France
Telephone:	+33 (0)1 47562124
Fax:	+33 (0)1 47562120
E-mail:	info@reedexpo.fr
Internet:	www.pollutec.com

GERMANY

ACHEMA

Item:	International exhibition on chemical engineering, environmental protection and biotechnology
Date:	19-24 May 2003
Location:	Frankfurt am Main
Frequency:	Every three years
Organiser:	DECHEMA e.V.
Address:	P.O. Box 150104, D-60061 Frankfurt am Main, Germany
Telephone:	+49 (0)69 75640
Fax:	+49 (0)69 7564201
E-mail:	internetinfo@dechema.de
Internet:	www.achema.de

AMB

Item:	International exhibition for metalworking
Date:	14-18 September 2003
Location:	Stuttgart
Frequency:	Every 2 years
Organiser:	Stuttgarter Messe- und Kongressgesellschaft mbH
Address:	Postfach 10 32 52, D-70028, Stuttgart, Germany
Telephone:	+49 (0)711 25890
Fax:	+49 (0)711 2589440
E-mail:	info@messe-stuttgart.de
Internet:	www.messe-stuttgart.de/AMB

HANNOVER MESSE

Item:	Trade fair on mechanical engineering, electrical engineering, information technology
Date:	19-24 April 2004
Location:	Hannover
Frequency:	Every year
Organiser:	Deutsche Messe AG
Address:	Messegelände, D-30521 Hannover, Germany
Telephone:	+49 (0)511 890
Fax:	+49 (0)511 8932626
E-mail:	info@messe.de
Internet:	www.hannovermesse.de

INTERKAMA

Item:	International trade fair for automation in production and business processes
Date:	19-24 April 2003
Location:	Düsseldorf
Frequency:	Every two years
Organiser:	Messe Düsseldorf GmbH
Address:	P.O. Box 101006, D-40001 Düsseldorf
Telephone:	+49 (0)211 456001
Fax:	+49 (0)211 4560668
E-mail:	-
Internet:	www.interkama.com

ISH

Item:	International trade fair for sanitation and heating
Date:	15-19 March 2005
Location:	Frankfurt am Main
Frequency:	Every two years
Organiser:	Messe Frankfurt GmbH
Address:	Ludwig-Erhard-Anlage 1, D-60327 Frankfurt am Main, Germany
Telephone:	+49 (0)69 75750
Fax:	+49 (0)69 75756433
E-mail:	ish@messefrankfurt.com
Internet:	www.ish-frankfurt.com

K

Item:	International trade fair for plastics and rubber
Date:	20-27 October 2004
Location:	Düsseldorf
Frequency:	Every three years
Organiser:	Messe Düsseldorf GmbH
Address:	P.O. Box 101006, D-40001 Düsseldorf
Telephone:	+49 (0)211 456001
Fax:	+49 (0)211 4560668
E-mail:	k-online@messe-duesseldorf.de
Internet:	www.k-online.de

Tube

Item:	International tube and pipe trade fair
Date:	29 March-3 April 2004
Location:	Düsseldorf
Frequency:	Every two years
Organiser:	International Tube Association
Address:	Postbox 10 10 06, D-40001 Düsseldorf, Germany
Telephone:	+49 (0)211 4560 01
Fax:	+49 (0)211 45 60668
E-mail:	-
Internet:	www.messe-duesseldorf.de/tube2004/

ITALY

Lamiera

Item:	Machines and plant equipment for work involving sheet metal, pipes, bars and wires
Date:	12-15May 2004
Location:	Bologna
Frequency:	Every two years
Organiser:	Fiera Internazionali di Bologna
Address:	viale Fulvio Testi 128, 20092 Cinisello Balsamo MI, Italy
Telephone:	+39 0226 255230
Fax:	+39 0226255894
E-mail:	dir.com@bolognafiere.it
Internet:	www.lamiera.net

Plast

Item:	Fair for plastics
Date:	2006
Location:	Milano
Frequency:	Every three years
Organiser:	Ente Fiere Plastica e Gomma (ENFIPLAST)
Address:	Centro Commerciale Milanofiori - Palazzo F/2, I-20090 Assago (Milano), Italy
Telephone:	+39 (0)2 82283743
Fax:	+39 (0)2 57512490
E-mail:	plast@assocomaplast.com
Internet:	www.plast2000.org

SMI

Item:	International exhibition and conference on the maintenance of industrial plants
Date:	2005
Location:	Bologna
Frequency:	Every two years
Organiser:	Fiera Internazionali di Bologna
Address:	Viale della Fiera 20, I-40128 Bologna, Italy
Telephone:	+39 (0)51 282111
Fax:	+39 (0)51 282332
E-mail:	dir.com@bolognafiere.it
Internet:	www.smi.bolognafiere.it

PORTUGAL

SUBCONTRATO

Item:	International subcontracting exhibition
Location:	Porto
Frequency:	-
Organiser:	EXPONOR - Feira Internacional do Porto
Address:	4450-617 Leça da Palmeira, Portugal
Telephone:	+351 (0)229 981400
Fax:	+351 (0)229 957499
E-mail:	info@exponor.pt
Internet:	www.exponor.pt

INTERGÁS

Item:	Fair of products, equipment and services for natural gas
Location:	Porto
Organiser:	EXPONOR - Feira Internacional do Porto
Address:	4450-617 Leça da Palmeira, Portugal
Telephone:	+351 (0)229 981400
Fax:	+351 (0)229 957499
E-mail:	info@exponor.pt
Internet:	www.exponor.pt

SPAIN

Fira de Barcelona

Item:	Barcelona exhibition and congress centre
Address:	Avda. Reina Ma. Cristina, E-08004 Barcelona, Spain
Telephone:	+34 (0)93 2332000
Fax:	+34 (0)93 2332198
E-mail:	info@firabcn.es
Internet:	www.firabcn.es

UNITED KINGDOM

EUROCHEM

Item:	International fair for process engineering equipment
Date:	30 March – 1 April 2004
Location:	Birmingham
Frequency:	Every three years
Organiser:	Reed Exhibition Companies
Address:	Oriel House, 26 The Quadrant, Richmond, Surrey TW9 1DL, United Kingdom
Telephone:	+44 (0)20 89107910
Fax:	+44 (0)20 8940 2171
E-mail:	-
Internet:	www.reedexpo.com

IWEX

Item:	International water and effluent treatment exhibition
Date:	2005
Location:	Birmingham
Frequency:	Every two years
Organiser:	Turret RAI plc
Address:	Armstrong House, 38, Market Square, Uxbridge, Middlesex UB8 1TG, United Kingdom
Telephone:	+44 (0)1895 454545
Fax:	+44 (0)1895 454647
E-mail:	info@turret-rai.co.uk
Internet:	www.iwex.co.uk

Subcon

Item:	International exhibition on subcontracting
Date:	2004
Location:	Birmingham
Frequency:	Every two years
Organiser:	Centaur Engineering Media Group
Address:	St. Giles House, 50 Poland Street, London W1F 7AX, United Kingdom
Telephone:	+44 (0)20 79704000
Fax:	+44 (0)20 79704099
E-mail:	-
Internet:	www.subconshow.co.uk

3.5 Trade Press

DUTCH TRADE PRESS

Chemisch2Weekblad

Publisher:	Ten Hagen & Stam uitgevers
Address:	P.O. Box 34, NL-2501 AG Den Haag, The Netherlands
Telephone:	+31 (0)70 3045700
Fax:	+31 (0)70 3045797
E-mail:	c2w@wkths.nl
Internet:	www.c2w.nl
Language:	Dutch
Distribution:	-
Frequency:	weekly

PetroChem

Publisher:	Keesing Bedrijfsinformatie B.V.
Address:	P.O. Box 1118, NL-1000 BC Amsterdam, The Netherlands
Telephone:	+31 (0)20 5641111
Fax:	+31 (0)20 5641271
E-mail:	petrochem@keesing.nl
Internet:	www.petrochem.nl
Contents:	oil and gas sector, refining and (petro)chemical industry
Language:	Dutch
Distribution:	the Netherlands
Frequency:	11 times per annum

Process Control

Publisher:	Array Publications B.V.
Address:	P.O. Box 2211, NL-2400 CE Alphen aan den Rijn, The Netherlands
Telephone:	+31 (0)172 469030
Fax:	+31 (0)172 424381
E-mail:	pc@array.nl
Internet:	www.array.nl
Contents:	processing control in laboratories and production facilities in (semi)process industries
Language:	Dutch
Distribution:	the Netherlands
Frequency:	10 times per annum

PT Industrie

Publisher:	Ten Hagen & Stam uitgevers
Address:	P.O. Box 34, NL-2501 AG Den Haag, The Netherlands
Telephone:	+31 (0)70 3045700
Fax:	+31 (0)70 3045797
E-mail:	info@ptindustrie.nl
Internet:	www.ptindustrie.nl
Contents:	technical and industrial management in industry
Language:	Dutch
Distribution:	the Netherlands
Frequency:	12 times per annum

EUROPEAN TRADE PRESS

3R international Rohre Rohrleitungsbau, Rohrleitungstransport

Publisher:	Vulkan Verlag GmbH
Address:	P.O. Box 103962, D-45039 Essen, Germany
Telephone:	+49 (0)201 822020
Fax:	+49 (0)201 8200240
E-mail:	-
Internet:	www.oldenbourg.de
Contents:	tube and pipe manufacturing, systems, and construction and related components
Language:	German
Frequency:	10 times per annum

The Chemical Engineer

Publisher:	The Institution of Chemical Engineers
Address:	Davis Building, 165 –189 Railway Terrace, Rugby CV21 3HQ, United Kingdom
Telephone:	+44 (0)1788 578214
Fax:	+44 (0)1788 534412
E-mail:	csmith@icheme.org.uk
Internet:	www.tce-online.com
Contents:	News in the chemical and processing industries
Language:	English
Distribution:	world-wide
Frequency:	12 times per annum

Chemical Engineering and Technology

Publisher:	John Wiley & Sons, Ltd
Address:	1 Oldlands Way, Bognor Regis, West Sussex PO22 9SA, United Kingdom
Telephone:	+44 (0)1243 779777
Fax:	+44 (0)1243 843232
E-mail:	cet@wiley-vch.de
Internet:	www.wiley-vch.de
Contents:	scientific papers from all areas of chemical engineering, industrial chemistry, plant equipment, control engineering, process engineering and biotechnology
Language:	English
Distribution:	world-wide
Frequency:	12 times per annum

Chemie PRODUKTION

Publisher:	verlag moderne industrie AG & Co. KG verlag moderne industrie
Address:	Justus-von-Liebig-Straße 1, D-86899 Landsberg, Germany
Telephone:	+49 (0)8191 1250
Fax:	+49 (0)8191 125339
E-mail:	cp@mi-verlag.de
Internet:	www.chemieproduktion.de
Contents:	the chemical and pharmaceutical industries and related outfitters, suppliers and service-providers. reports on engineering, processes, technologies, machines and processes as well as innovative products, components and systems and their complete range of applications
Language:	German
Frequency:	12 times per annum

The Engineer

Publisher:	Centaur Engineering Media Group
Address:	St. Giles House, 50 Poland Street, London W1F 7AX, United Kingdom
Telephone:	+44 (0)20 79704000
Fax:	+44 (0)20 79704099
E-mail:	-
Internet:	www.theengineer.co.uk
Contents:	business, innovation and technology for the professional engineering community
Language:	English
Distribution:	world-wide
Frequency:	weekly

Hydrocarbons Processing

Publisher:	Gulf Publishing Company
Address:	P.O. Box 2608, Houston, Texas 77252 USA
Telephone:	+1 (0)713 5294301
Fax:	+1 (0)713 5204433
E-mail:	circulation@gulfpub.com
Internet:	www.hydrocarbonsprocessing.com / www.gulfpub.com
Contents:	engineering and process technology
Language:	English
Distribution:	world-wide
Frequency:	12 times per annum

Industriearmaturen

Publisher:	Vulkan Verlag GmbH
Address:	P.O. Box 103962, D-45039 Essen, Germany
Telephone:	+49 (0)201 822020
Fax:	+49 (0)201 8200240
E-mail:	-
Internet:	www.oldenbourg.de
Contents:	das gesamte Gebiet der Industriearmaturentechnik behandelt
Language:	German
Frequency:	4 times per annum

International Journal of Pressure Vessels and Piping

Publisher:	Elsevier Science
Address:	P.O. Box 211, NL-1000 AE Amsterdam, The Netherlands
Telephone:	+31 (0)20 4853757
Fax:	+31 (0)20 4853432
E-mail:	nlinfo-f@elsevier.nl
Internet:	www.elsevier.com/locate/ijpvp/
Contents:	design, manufacture and operation of pressurised components, structural integrity and plant life management
Language:	English
Distribution:	world-wide
Frequency:	12 times per annum

Kelly's Oil and Gas Directory

Publisher: Reed Business Information Ltd.
Address: Windsor Court, East Grinstead House, Wood Street, East Grinstead, West Sussex RH19 1XA, United Kingdom
Telephone: +44 (0)1342 335862
Fax: +44 (0)1342 335612
E-mail: pmanning@reedinfo.co.uk
Internet: www.reedbusiness.com/products/dir_kellys_oil_gas.asp
Language: English
Distribution: world-wide
Contents: guide to the companies who supply products and services to the oil and gas industry
Frequency: -

Konstruktion + Engineering

Publisher: verlag moderne industrie AG & Co. KG
Address: Justus-von-Liebig-Straße 1, D-86899 Landsberg, Germany
Telephone: +49 (0)8191 1250
Fax: +49 (0)8191 125339
E-mail: ke@mi-verlag.de
Internet: www.k-e.de
Contents: trends and developments in products and processes, implementation of components and systems, as well as organisational aspects of design engineering management
Language: German
Frequency: 12 times per annum

KWD Globalpipe

Publisher: Verlagsbüro Christa Hamich
Address: Jahnstraße 57, D-64285 Darmstadt, Germany
Telephone: +49 (0)6151 61848
Fax: +49 (0)6151 61548
E-mail: info@kwd-globalpipe.com
Internet: www.kwd-globalpipe.com
Contents: -
Language: German
Frequency: 11 times per annum

Macplas International

Publisher: Promaplast srl
Address: Centro Commerciale Milanofiori, Palazzo F2, I-20090 Assago-Milano, Italy
Telephone: +39 (0)2 82283775
Fax: +39 (0)2 57512490
E-mail: info@macplas.it
Internet: -
Contents: plastics
Language: Italian, English and Spanish
Distribution: world-wide
Frequency: -

MPT Metallurgical Plant and Technology International

Publisher: Verlag Stahleisen GmbH
Address: P.O. Box 105164, D-40042 Düsseldorf, Germany
Telephone: +49 (0)211 67070
Fax: +49 (0)211 6707517
Language: Chinese, English and Russian
Contents: branch orientated international magazine for metallurgical processing
E-mail: mpt@stahleisen.de
Internet: www.stahleisen.de
Distribution: world-wide
Frequency: 6 times per annum

Oil Gas European Magazine

Publisher: Urban Verlag GmbH
Address: Hamburg, Germany
Telephone: +49 (0)40 6569450
Fax: +49 (0)40 6567075
E-mail: webmaster@oilgaspublisher.de
Internet: www.oilgaspublisher.de
Contents: up-stream and downstream oil and natural gas industries, and the petrochemicals industry
Language: English
Distribution: world-wide
Frequency: 4 times per annum

Oil, Gas & Petrochem Equipment

Publisher: PennWell Publishing Company
Address: P.O. Box 1260, Tulsa OK 74101-1260, United States
Telephone: +1 (0)918 9329351
Fax: +1 (0)918 9329201
E-mail: jba@penwell.com
Internet: www.ogpe.com
Contents: oil industry equipment, products, systems, and services
Language: English
Distribution: world-wide
Frequency: 12 times per annum

Pipe Line & Gas Industry

Publisher: Gulf Publishing Company
Address: P.O. Box 2608, Houston, Texas 77252 USA
Telephone: +1 (0)713 5294301
Fax: +1 (0)713 5204433
E-mail: circulation@gulfpub.com
Internet: www.pipe-line.com / www.gulfpub.com
Contents: gas operations, automation and maintenance
Language: English
Distribution: world-wide
Frequency: 12 times per annum

Process Engineering

Publisher:	Centaur Engineering Media Group
Address:	St. Giles House, 50 Poland Street, London W1F 7AX, United Kingdom
Telephone:	+44 (0)20 79704000
Fax:	+44 (0)20 79704099
E-mail:	-
Internet:	www.centaur.co.uk
Contents:	technical and management issues in the chemicals, pharmaceuticals, oil and gas, food processing, utilities and other sectors
Language:	English
Distribution:	world-wide
Frequency:	12 times per annum

PROCESS Worldwide

Publisher:	Vogel Life Science Medien GmbH & co. KG
Address:	Max Planck Str. 7/9, D-97082 Würzburg, Germany
Telephone:	+49 (0)931 4182107
Fax:	+49 (0)931 4182750
E-mail:	redaktion@process.de
Internet:	www.process-worldwide.com
Contents:	Chemical and pharmaceutical engineering in the chemical industry, the pharmaceutical industry and the related process engineering industries.
Language:	Chinese, German and English
Distribution:	world-wide
Frequency:	4 times per annum

Protective Coatings Europe Magazine

Publisher:	Technology Publishing Company
Address:	H.A. Lorentzstraat 4, NL-3331 EE Zwijndrecht, The Netherlands
Telephone:	+31 (0)78 620 2833
Fax:	+31 (0)78 620 2834
E-mail:	jlagrand@paintsquare.com
Internet:	www.paintsquare.com
Contents:	Coatings for steel and concrete in industrial and marine environments
Language:	English
Distribution:	world-wide
Frequency:	12 times per annum

Pumps Magazine Benelux

Publisher:	Mainpress nv/sa
Address:	Belcrowlaan 5, B-2100 Antwerpen, Belgium
Telephone:	+ 32 (0)3 3265616
Fax:	+ 32 (0)3 3265636
E-mail:	info@mainpress.com
Internet:	www.mainpress.com
Contents:	pumps, (control) valves and sealing technology
Language:	Dutch, English and French
Distribution:	Belgium, Netherlands and Luxemburg
Frequency:	4 times per annum

Stainless Steel World

Publisher:	KCI Publishing B.V.
Address:	P.O. Box 396, NL-7200 AJ Zutphen, The Netherlands
Telephone:	+31 (0)575 585270
Fax:	+31 (0)575 511099
E-mail:	vw@kci-world.com
Internet:	www.stainless-steel-world.net
Contents:	stainless steel and corrosion resistant alloys
Language:	English
Distribution:	world-wide
Frequency:	10 times per annum

Steel Times International

Publisher:	dmg world media
Address:	Equitable House, Lyon Road, Harrow HA1 2EW, United Kingdom
Telephone:	+44 (0)20 8515 2000
Fax:	+44 (0)20 8515 2169
E-mail:	timsmith@uk.dmgworldmedia.com
Internet:	www.steeltimesint.com
Contents:	developments in the industry from raw materials to semi-finished product
Language:	Chinese, English, Russian, Spanish
Distribution:	world-wide
Frequency:	10 times per annum

Steel Week

Publisher:	Cru International
Address:	31 Mount Pleasant, LONDON WC1X 0AD, United Kingdom
Telephone:	+44 (0)20 7903 2150
Fax:	+44 (0)20 7903 2172
E-mail:	info@steelweek.com
Internet:	www.steelweek.co.uk / www.cru.co.uk
Contents:	production and trade information in the European market
Language:	English
Distribution:	world-wide
Frequency:	50 times per annum

Subcon

Publisher:	Centaur Engineering Media Group
Address:	St. Giles House, 50 Poland Street, London W1F 7AX, United Kingdom
Telephone:	+44 (0)20 79704000
Fax:	+44 (0)20 79704099
E-mail:	-
Internet:	www.centaur.co.uk
Contents:	subcontracting in the manufacturing industry
Language:	English
Distribution:	world-wide
Frequency:	6 times per annum

Tm Technisches Messen

Publisher: Oldenbourg Wissenschaftsverlag
Address: P.O. Box 801360, D-81613 München, Germany
Telephone: +49 (0)89 450510
Fax: +49 (0)89 45051333
E-mail: -
Internet: www.tm-messen.de
Contents: sensors, appliances and systems for industrial measurement technology
Language: German
Frequency: 11 times per annum

TPJ The Tube & Pipe Journal
The Fabricator
Practical Welding Today

Publisher: The Croydon Group Ltd.
Address: 833 Featherstone Road, Rockford, Illinois 61107, 6302 USA
Telephone: +1 (0)815 3998700
Fax: +1 (0)815 3997279
E-mail: -
Internet: www.fmametalfab.org/croydon2k/newcroydnhome.htm
Contents: tube producing, hydroforming, bending, welding, cutting, sawing, coil and material handling, end forming and preparation, testing and quality control, and tooling
Language: English
Distribution: world-wide
Frequency: 12 / 12 / 6 times per annum

Tube & Pipe Technology Magazine

Publisher: Intras Limited
Address: 46 Holly Walk, Leamington Spa, Warwickshire CV32 4HY, United Kingdom
Telephone: +44 (0)1926 334137
Fax: +44 (0)1926 314755
E-mail: tpt@intras.co.uk
Internet: www.read-tpt.com
Contents: industry news and technical articles, corporate and product information and reviews of the newest technology available within the tube & pipe industry relevant to both users and producers of tube and pipe materials, as well as machinery & equipment manufacturers and tube & pipe processors
Language: English
Distribution: world-wide
Frequency: 6 times per annum

Valve World

Publisher: KCI Publishing B.V.
Address: P.O. Box 396, NL-7200 AJ Zutphen, The Netherlands
Telephone: +31 (0)575 585270
Fax: +31 (0)575 511099
E-mail: vw@kci-world.com
Internet: www.valve-world.net
Contents: valves and associated products
Language: English
Distribution: world-wide
Frequency: 6 times per annum

3.6 Other useful addresses

EUROPEAN UNION

Commission of the European Union
Directorate General for Communities (CEC) DG VIII Development and Cooperation

Address: Wetstraat 200, B-1449 Brussels, Belgium
Telephone: +32 22 991111
Fax: +32 22 993002
E-mail: info@dg8.cec.be
Internet: www.europa.eu.int/comm/dg08/index.htm

Eurostat

Address: 5 Rue Alphonse Weicker, L-2721 Luxembourg, Luxembourg
Telephone: +35 2430134567
Fax: +35 232594
E-mail: media.support@eurostat.cec.be
Internet: www.europa.eu.int/comm/eurostat

Eurochambres (Association of European Chambers of Commerce and Industry)

Address: Rue Archimède 5, Box 4, B-1000 Brussels, Belgium
Telephone: +32 (0)2 2820850
Fax: +32 (0)2 2300038
E-mail: Eurochambers@Eurochambers.be
Internet: www.eurochambers.be

International Chamber of Commerce (ICC)

Address: 38, Cours Albert 1er, F-75008 Paris, France
Telephone: +33 (0)1 491532828
Fax: +33 (0)1 491532859
E-mail: icc@iccwbo.org
Internet: www.iccwbo.org

International Trade Centre UNCTAD/WTO (ITC)

Address: Palais des Nations, 54-56 Rue de Montbrillant, CH-1211 Geneva 10, Switzerland
Telephone: +41 (0)22 7300111
Fax: +41 (0)22 7334439
E-mail: itcreg@intracen.org
Internet: www.intracen.org

AUSTRIA

Wirtschaftskammern Österreichs-Austrian Economic Chamber
Address: P.O. Box 150, A-1045 Vienna, Austria
Telephone: +43 (0)1 501054194
Fax: +43 (0)1 50105
E-mail: callcenter@wko.at
Internet: www.wko.at

Österreichische Forschungsstiftung für Entwicklungshilfe (ÖFSE)
Address: Berggasse 7, A-1090 Vienna, Austria
Telephone: +43 (0)1 3174010
Fax: +43 (0)1 3174015
E-mail: office@oefse.at
Internet: www.oefse.at

BELGIUM

Belgian Foreign Trade Board (BFTB)
Address: World Trade Center-Tower 1, Boulevard du Roi Albert II 30-b36, B-1000 Brussels, Belgium
Telephone: +32 (0)2 206 35 11
Fax: +32 (0)2 203 18 12
E-mail: info@obcebdbh.be
Internet: www.obcebdbh.be

DENMARK

Danish Import Promotion Office for Products from Developing Countries (DIPO)
Address: Børsen, DK-1217 Kopenhagen K, Denmark
Telephone: +45 (0)33 950500
Fax: +45 (0)33 120525
E-mail: dipo@commere.dk
Internet: www.dipo.dk

FINLAND

Ministry for Foreign Affairs-Department for International Development Cooperation
Address: P.O. Box 176, FIN-00161 Helsinki, Finland
Telephone: +358 (0)9 13416370
Fax: +358 (0)9 13416375
E-mail: kyoinfo@formin.fi
Internet: global.finland.fi

FRANCE

Agence française de Développement (AfD)
Address: 5, rue Roland Barthes, F-75598 Paris Cedex 12, France
Telephone: +33 (0)1 53443131
Fax: +33 (0)1 44879939
E-mail: com@afd.fr
Internet: www.afd.fr

GERMANY

Deutsche Gesellschaft für Technische Zusammenarbeit (DTZ)
German Agency for Technical Cooperation
Address: Dag-Hammerskjöld-Weg 1-5, D-65726 Eschborn, Germany
Telephone: +49 (0)61 96790
Fax: +49 (0)61 96791115
E-mail: -
Internet: www.gtz.de

Bundesagentur für Aussenwirtschaft (BfAI)
Federal Office of Foreign Trade Information
Address: P.O. Box 100522, D-50455 Cologne, Germany
Telephone: +49 (0)221 20570
Fax: +49 (0)221 2057212
E-mail: info@bfai.de
Internet: www.bfai.de

GREECE

Hellenic Foreign Trade Board (HEPO)
Address: 86 Mar. Antypa Str, GR-16346 Helioupolis, Greece
Telephone: +30 (0)1 9982100
Fax: +30 (0)1 9969100
E-mail: infocenter@hepo.gr
Internet: www.hepo.gr

ICELAND

Trade Council of Iceland
Address: Hallveigarstígur 1, IS-101 Reykjavík, Iceland
Telephone: +354 (0)5114000
Fax: +354 (0)5114040
E-mail: icetrade@icetrade.is
Internet: www.icetrade.is

The Icelandic International Development Agency (ICEIDA)
Address: P.O. Box 5330, IS-125 Reykjavik, Iceland
Telephone: +354 (0)545 8980
Fax: +354 (0)545 8985
E-mail: iceida@utn.stjr.is
Internet: www.iceida.is

ITALY

Istituto nazionale per il Commercio Estero (ICE)
Address: Via Liszt 21, I-00144 Rome, Italy
Telephone: +39 (0)6 59921
Fax: +39 (0)6 59647382
E-mail: dirtecn@ice.it
Internet: www.ice.it

THE NETHERLANDS

Centre for the Promotion of Imports from Developing Countries (CBI)
Address: P.O. Box 30009, NL-3001 DA Rotterdam, The Netherlands
Telephone: +31 (0)10 2013434
Fax: +31 (0)10 4114081
E-mail: cbi@cbi.nl
Internet: www.cbi.nl

AccessGuide
CBI's database on non-tariff trade barriers
Address: PO Box 30009, 3001 DA Rotterdam , The Netherlands
Telephone: +31 (0)10 2013434
Fax: +31 (0)10 4114081
E-mail: accessguide@cbi.nl
Internet: www.cbi.nl/accessguide

Ministry of Development Cooperation
Dutch Ministry of Foreign Affairs
Directorate General for International Cooperation
Address: P.O. Box 20061, NL-2500 EB The Hague, The Netherlands
Telephone: +31 (0)70 3486486
Fax: +31 (0)70 3484848
E-mail: minbuza@minbuza.nl
Internet: www.minbuza.nl

Economische Voorlichtingsdienst (EVD)
Dutch Foreign Trade Agency
Address: Bezuidenhoutseweg 181, NL-2594 AH The Hague, The Netherlands
Telephone: +31 (0)70 3798933
Fax: +31 (0)70 3797878
E-mail: eic@evd.nl
Internet: www.evd.nl

Financierings Maatschappij voor Ontwikkelingslanden (FMO)
Dutch Development Finance Company
Address: Koningskade 40, NL-2596 AA The Hague, The Netherlands
Telephone: +31 70 3149696
Fax: +31 70 3246187
E-mail: fmo@wxs.nl
Internet: www.fmo.nl

NORWAY

Norwegian Agency for Development Cooperation (Norad)
Address: P.O. Box 8034 Dep, N-0030 Oslo, Norway
Telephone: +47 (0)22 242030
Fax: +47 (0)22 242031
E-mail: postmottak@norad.no
Internet: www.norad.no

SPAIN

Agencia Española de Cooperación Internacional (AECI)
Address: Avenida De Los Reyes Católicos 4, E-28040 Madrid, Spain
Telephone: +34 (0)91 5838100
Fax: +34 (0)91 5838310
E-mail: -
Internet: www.aeci.es

SWEDEN

Swedish International Development Cooperation Agency (SIDA)
Address: S-10525 Stockholm, Sweden
Telephone: +46 (0)8 6985000
Fax: +46 (0)8 208864
E-mail: info@sida.se
Internet: www.sida.se

SWITZERLAND

Direktion für Entwicklung und Zusammenarbeit (DEZA)
Swiss Agency for Development and Cooperation (SDC)
Address: Freiburgstrasse 130, Bern, Switzerland
Telephone: -
Fax: -
E-mail: info@deza.admin.ch
Internet: www.deza.admin.ch

Swiss Import Promotion Programme (SIPPO)
Address: P.O. Box 492, CH-8035 Zürich, Switzerland
Telephone: +41 (0)1 3655151
Fax: +41 (0)1 3655221
E-mail: info@sippo.ch
Internet: www.sippo.ch

UNITED KINGDOM

Department for International Development (DFID)
Address: 94 Victoria Street, London SW1E 5JL, United Kingdom
Telephone: +44 (0)1355 843132
Fax: +44 (0)1355 843632
Email: enquiry@dfid.gov.uk
Internet: www.dfid.gov.uk

APPENDIX 4 LIST OF DEVELOPING COUNTRIES

Afghanistan
Albania
Algeria
Angola
Anguilla
Antigua and Barbuda
Argentina
Armenia
Aruba
Azerbaijan
Bahrain
Bangladesh
Barbados
Belize
Benin
Bhutan
Bolivia
Bosnia & Herzegovina
Botswana
Brazil
Burkina Faso
Burundi
Cambodia
Cameroon
Cape Verde
Central African Rep
Chad
Chile
China
Colombia
Comoros
Congo
Cook Islands
Costa Rica
Côte d'Ivoire
Croatia
Cuba
Djibouti
Dominica
Dominican Republic
East Timor
Ecuador
Egypt
El Salvador
Equatorial Guinea
Eritrea
Ethiopia
Fiji
French Polynesia
Gabon
Gambia
Georgia
Ghana
Gibraltar
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
India
Indonesia
Iran
Iraq
Jamaica
Jordan
Kazakstan
Kenya
Kiribati
Korea, Republic of
Kyrghyz Rep.
Laos
Lebanon
Lesotho
Liberia
Libya
Macao
Macedonia
Madagascar
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mayotte
Mexico
Micronesia, Federal States of
Moldova
Mongolia
Montserrat
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Netherlands Antilles
New Caledonia
Nicaragua
Niger
Nigeria
Niue
Northern Marianas
Oman
Pakistan
Palau Islands
Palestinian Admin. Areas
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Rwanda
Saint Helena
Saint Kitts-Nevis
Saint Lucia
Saint Vincent and Grenadines
Samoa
Sao Tome and Principe
Saudi Arabia
Senegal
Seychelles
Sierra Leone
Slovenia
Solomon Islands
Somalia
South Africa
Sri Lanka
Sudan
Suriname
Swaziland
Syria
Tajikistan
Tanzania
Thailand
Togo
Tokelau
Tonga
Trinidad & Tobago
Tunisia
Turkey
Turkmenistan
Turks & Caicos Islands
Tuvalu
Uganda
Uruguay
Uzbekistan
Vanuatu
Venezuela
Viet Nam
Virgin Islands (UK)
Wallis & Futuna
Yemen
Yugoslavia, Federal Republic of
Zaire
Zambia
Zimbabwe

APPENDIX 5 USEFUL INTERNET SITES

Most trade associations have excellent websites with numerous links and a lot of information about their markets. The details of these associations, including their web address are listed in Appendix 3.3.

Best Manufacturing Practices (BMP)
www.bmpcoe.org
The BMP Programme is a US industry and government cooperative technology transfer effort and has become a resource in helping organizations benchmark with the best, learn from others' attempts, and avoid costly and time-consuming duplication.

EU Directorate-General for Taxation and the Customs Union
www.europa.eu.int/comm/taxation_customs/index_en.htm
General EU taxation and Customs information including links to national taxation and Customs sites and databases with tariff quotas and ceilings, and the integrated Community tariff.

EU Market access sectoral and trade barriers database
www.mkaccdb.eu.int
A market access sectoral and trade barriers database per country with trade figures between the European Union and selected countries.

Kompass
www.kompass.com
Business-to-business search engine with address and contact details, board of directors, key figures and financial information.

New Approach
www.newapproach.org
EU website about the New Approach standardization in the internal market with information on directives and standards per product families.

Pressure Equipment Directive
www.ped.eurodyn.com
EU website dedicated to the Pressure Equipment Directive containing essential reference information in order to design, produce, market and put into service Pressure Equipment and Pressure Assemblies in Europe, including practical hints on the application of the directive and information about on-going research projects and studies.

Process Industry Information
www.processiic.com
Process industry information on plant owners, licensors, engineers, contractors and suppliers.

TICQA
www.ticqa.eotc.be
TICQA provides reports on more than 3,200 European providers of Testing, Calibration, Inspection and Certification services located in 29 European countries (EU, EFTA, Eastern Europe). TICQA is a project of the European Organisation for Conformity Assessment, an independent and non-profit making European body.

TubeNet
www.tubenet.org.uk
Website dedicated to the tube and pipe industries with industry and product news, technical information, marketplace and more.

APPENDIX 6

Customer Data Sheet

Company:

Company:	.....	Customer No.:	_ _ _ _ _ _ _ _
Street:	.....	Customer class*:	☐ A ☐ B ☐ C
P.O. Box:	.....	First contact date:	_ _ / _ _ / _ _
Postal code:	.....	Sales person:	.....
Town:	.....	Customer type:	.....
Country:	.....	(agent, importer, manufacturer)	
Tel.:	.....	Sales last year:	.....
Fax:	.....	Sales planned this year:	.....
E-mail:	.....	Method of payment:	.....
Internet:	.....	Delivery conditions:	.....
Bank:	.....	Remarks:	.....
Bank address:	.....		.....
Account No:	.....		.....

Business partners:

1 Title: ..... First name: ..... Name: .....
Function: ..... Tel.: ..... Fax: ..... E-mail: .....

2 Title: ..... First name: ..... Name: .....
Function: ..... Tel.: ..... Fax: ..... E-mail: .....

3 Title: ..... First name: ..... Name: .....
Function: ..... Tel.: ..... Fax: ..... E-mail: .....

4 Title: ..... First name: ..... Name: .....
Function: ..... Tel.: ..... Fax: ..... E-mail: .....

* Classify customers by importance to your company (sales potential, quality of relation, etc).

Customer contact record

Date	Contact person	Topic / Offer	Contract

EXAMPLE QUESTIONNAIRE USED BY THE IMPORTER
(to be completed by the exporter, providing information for potential clients)

1. GENERAL INFORMATION

1.1. Addresses and communication

Name of company: .....
Office address: .....
Postal address: .....
Country: .....
Telephone no. : .....
Telefax no. : .....
E-mail address: .....
Internet site: .....
V.A.T. no. : ..... Number of employees: .....

1.2 Contact persons in your company:

Sales director Name: .....
Direct E-mail address : .....
Direct tel. no. : ..... Direct fax. no. : .....

Sales manager Name: .....
Direct E-mail address : .....
Direct tel. no. : ..... Direct fax. no. : .....

Financial manager Name: .....
Direct E-mail address : .....
Direct tel. no. : ..... Direct fax. no. : .....

QA-QC manager Name: .....
Direct E-mail address : .....
Direct tel. no. : ..... Direct fax. no. : .....

1.3 Company structure

Please specify if you are a member of a group, holding company, etc.:
.....

1.4 Company type

Please indicate type of your company, such as:
☐ Producer
☐ Stockist
☐ Agent
☐ Additional processing company

If you are an agent, please indicate the relevant manufacturer(s) you represent:

1. .....
2. .....
3. .....

continued

continue example questionnaire

2. DELIVERY / PRODUCTION PROGRAMME

Please indicate your product range:

Products

1.	.....	Material:	.....
2.	.....	Material:	.....
3.	.....	Material:	.....
4.	.....	Material:	.....

Size range: min. ..... max. .....

According to:

☐ DIN
☐ ASTM
☐ ANSI
☐ API
☐ ISO
☐ NF
☐ BS
☐ EN

Annually produced quantities ..... metric tons
Stock quantities ..... metric tons
Minimal delivery per order ..... kg

3. MATERIAL CERTIFICATES AND INSPECTION DOCUMENTS

Will you comply with our requirement to have the material test certificates / test reports available at our company at the time of arrival of goods?

☐ Yes
☐ No

4. QUALITY ASSURANCE / QUALITY CONTROL

4.1

Do you have a quality assurance system as per ISO 9000 which has been assessed by a qualified body

☐ Yes
☐ No
☐ Date of latest assessment: .....

4.2

Please specify your manufacturing / product approvals, if any:

☐ CE marking following the Pressure Equipment Directive (PED) 97/23/EC (including scope)
☐ CE marking following the Machine Directive (MD) 89/392/EC (including scope)
☐ T.U.V. AD Merkblatt WO/TRD 100/HP 0 (including scope)
☐ Lloyd's Register
☐ Stoomwezen
☐ Germanischer Lloyd
☐ Det Norske Veritas
☐ Bureau Veritas
☐ American Bureau of Shipping
☐ American Petroleum Institute
☐ Übereinstimmingsnachweis (Ü-Zeichen) Germany
☐ If other, please specify: .....

continued

continue example questionnaire

5. AUTHORIZATION

5.1

Comments of vendor:.....

.....

5.2

Required documentation:

→ Copies of certificates of approval, see 4
→ Company brochure
→ Delivery / production programme
→ Financial annual report

☐ Bursting test reports (please mark if sent with this document)
☐ Fittings drawings / calculations (please mark if sent with this document)

5.3

This questionnaire has been completed by:

Name: ..... Position: .....

Signature: ..... Date : .....