notes to the accounts

1 ACCOUNTING POLICIES

Basis of preparation
The consolidated accounts, which are prepared under the historical cost convention, supplemented by the revaluation of certain assets in prior years, and which have been prepared in accordance with applicable accounting standards, comprise the accounts of the parent company and its subsidiary undertakings. As permitted by FRS 15 - Tangible fixed assets, a policy of revaluation has not been adopted. The Group has adopted FRS 19 - Deferred Taxation and the comparative statements have been restated accordingly.

Basis of consolidation
The Group accounts include the accounts of the company and its subsidiary undertakings made up to 31st December 2002. Unless otherwise stated, the acquisition method of accounting has been adopted. Under this method, the results of subsidiary undertakings acquired or disposed of in the year are included in the consolidated profit and loss account from the date of acquisition or up to the date of disposal.

Under section 230(4) of the Companies Act 1985 the company is exempt from the requirement to present its own profit and loss account.

Goodwill
Purchased goodwill arising on consolidation in respect of acquisitions since 1st January 1998 has been capitalised and is being amortised over 20 years.

Prior to 1998, goodwill arising on the acquisition of subsidiary undertakings was written off to reserves in the year of acquisition. On the subsequent disposal or termination of a business acquired prior to 1998, the profit or loss on disposal or termination is calculated after charging the gross amount of any related goodwill previously taken to reserves.

Turnover
Turnover comprises net sales to external customers.

Depreciation
Depreciation is calculated on cost or valuation on a straight line basis at rates which write down the value of the assets to their residual values over their estimated useful lives. The principal rates are as follows:

Freehold land	nil	Office furniture and fittings	10%
Freehold buildings	1.5%	Office equipment	12.5 - 20%
Leasehold properties	10%	Motor vehicles	20%
Plant and machinery	10-12.5%	Tooling and patterns	10%

Stocks
Stocks and work in progress are valued at the lower of cost, including overheads where appropriate, and estimated net realisable value.

Cash and liquid resources
Cash, for the purpose of the cash flow statement, comprises cash in hand and deposits repayable on demand, less overdrafts payable on demand. Liquid resources are current asset investments which are disposable without curtailing or disrupting the business and are either readily convertible into known amounts of cash at or close to their carrying values or traded in an active market.

Research and development expenditure
Research and development expenditure is charged against profits as incurred.

1 ACCOUNTING POLICIES *(continued)*

Deferred taxation
Deferred taxation is recognised without discounting at current rates of tax on short and long term timing differences in accordance with Financial Reporting Standard 19 - Deferred Tax which the company has adopted this year.

Foreign currency translation
Foreign currency assets and liabilities are translated into sterling at rates of exchange ruling at 31st December. Trading results of overseas subsidiary undertakings have been translated into sterling at average rates of exchange ruling during the year.

Differences arising from the changes in rates of exchange are treated as part of the trading profit where they relate to items of a trading nature. Exchange differences arising from the retranslation of the opening net investment in overseas subsidiary undertakings, borrowings to hedge those net investments and between the profits for the year translated at average and closing rates, are disclosed as movements on reserves.

Leases
Assets held under finance leases are recorded in the balance sheet as fixed assets and depreciated over the shorter of the lease term and useful economic lives. The obligations relating to finance leases, net of finance charges in respect of future periods, are included as appropriate under creditors due within, or creditors due after more than, one year. The interest element of the rental obligation is allocated to accounting periods during the lease term to reflect a constant rate of interest on the remaining balance of the obligation for each accounting period. Rentals under operating leases are charged to the profit and loss account on an accruals basis.

Pensions and other post-retirement benefits
Pension schemes are operated by the Company and subsidiary undertakings which employ the majority of Group employees. Contributions to the schemes are charged to the consolidated profit and loss account such that the cost is spread over the estimated working lives of employees of the Group. The Group has adopted the transitional requirements of FRS 17 - Retirement Benefits as reported in note 29.

The costs of providing post-retirement benefits other than pensions, principally healthcare, are charged to the profit and loss account on a consistent basis over the average service lives of employees. Such costs are assessed in accordance with the advice of independent qualified actuaries.

2 TURNOVER
The analysis of turnover by reference to the geographical location of customers is as follows:

	2002 £000	2001 £000
United Kingdom	**38,928**	38,869
Continental Europe	**106,490**	101,406
The Americas	**85,385**	87,770
Asia, Australasia and Africa	**65,560**	63,897
	296,363	291,942

The analysis of turnover by reference to the geographical location of the Group's operations is as follows:

	2002 £000	2001 £000
United Kingdom	**89,435**	85,733
Continental Europe	**127,403**	125,589
The Americas	**89,768**	92,267
Asia, Australasia and Africa	**58,843**	57,137
	365,449	360,726
Intra-group sales	**(69,086)**	(68,784)
Sales to third parties	**296,363**	291,942

There were no discontinued operations in 2002 or 2001.
The Group operates in one business segment which is the control of fluids.

notes to the accounts *(continued)*

3 OPERATING COSTS

	2002 £000	2001 £000
Change in stocks of finished goods and work in progress	**2,615**	656
Raw materials and consumables	**75,946**	79,451
Staff costs (note 4)	**109,681**	107,621
Depreciation	**11,935**	11,796
Amortisation of goodwill	**557**	507
Other operating charges	**52,955**	51,108
	253,689	251,139

4 STAFF COSTS AND NUMBERS

The aggregate payroll costs of persons employed by the Group were as follows:

	2002 £000	2001 £000
Wages and salaries	**87,936**	87,456
Social security costs	**14,907**	15,119
Other pension costs	**6,838**	5,046
	109,681	107,621

The average number of persons employed by the Group (including directors) during the year was as follows:

	Number	Number
United Kingdom	**1,099**	1,132
Overseas	**2,899**	2,927
	3,998	4,059

5 OPERATING PROFIT

The analysis of operating profit by reference to the geographical location of the Group's operations is as follows:

	2002 £000	2001 £000
United Kingdom	**8,014**	8,603
Continental Europe	**13,561**	13,414
The Americas	**11,336**	9,498
Asia, Australasia and Africa	**9,763**	9,288
	42,674	40,803

The profit on disposal of fixed assets in 2001 was split UK £1,134,000 and Americas (£518,000).

6 NON-OPERATING ITEM

	2002 £000	2001 £000
Profit on sale of freehold land and buildings	**-**	616

No tax was payable on the non-operating item.

7 NET INTEREST PAYABLE

		2002 £000	2001 £000
Interest payable:	Bank loans and overdrafts	**1,823**	2,478
	Other loans	**906**	1,310
		2,729	3,788
Interest receivable		**(748)**	(1,010)
		1,981	2,778

8 PROFIT BEFORE TAXATION

Profit before taxation is shown after charging:

	2002 £000	2001 £000
Depreciation of tangible fixed assets held under finance leases	**160**	91
Audit fees (Spirax-Sarco Engineering plc £90,000 (2001: £85,000))	**635**	633
Hire of plant and machinery	**310**	369
Other operating leases	**2,670**	3,045
Research and development	**4,411**	4,593
Share Ownership Plan contributions	**393**	463

Fees paid to the auditors of the parent company and their associates for services other than statutory audits supplied to the Company and the rest of the Group worldwide amounted to £520,000 (2001: £416,000), including amounts paid to the auditors of overseas companies of £227,000 (2001: £236,000). Fees were paid mainly in respect of taxation services.

9 DIRECTORS' EMOLUMENTS

Details of directors' emoluments, share options and pension benefits are shown in The Directors' Remuneration Report on pages 24 to 30.

10 TAXATION

	2002 £000	2001 (Restated) £000
Analysis of charge in period		
UK corporation tax		
Current tax on income for the period	**8,059**	6,069
Adjustments in respect of prior periods	**60**	122
	8,119	6,191
Double taxation relief	**(5,244)**	(4,174)
	2,875	2,017
Foreign tax		
Current tax on income for the period	**11,357**	9,639
Adjustments in respect of prior periods	**(243)**	(227)
	11,114	9,412
Total current tax charge	**13,989**	11,429
Deferred tax	**(102)**	587
Tax on profit on ordinary activities	**13,887**	12,016

The adoption of FRS 19 - Deferred Tax increased the 2001 tax charge by £90,000. It is not practical to quantify the equivalent effect on the 2002 tax charge.

10 TAXATION *(continued)*
Current tax reconciliation

Profit on ordinary activities before tax	**40,693**	38,641
Current tax at 30% (2001: 30%)	**12,208**	11,592
Higher tax rates on overseas earnings	**1,911**	1,553
Non-deductible expenses, provisions and accruals	**1,413**	811
Pension prepayment	**(132)**	(572)
Accelerated capital allowances	**(734)**	(587)
Adjustment to tax in respect of previous periods	**(183)**	(105)
Other	**(494)**	(1,263)
Total current tax charge (see above)	**13,989**	11,429

Factors that may affect the future tax charges:
The Group's tax charge in future years is likely to be affected by the proportion of profits arising and the effective tax rates in the various territories in which the Group operates. No UK tax (after double tax relief for underlying tax) is expected to be payable on the future remittance of the retained earnings of overseas subsidiaries. No provision has been made for deferred tax on property revaluations: the total amount unprovided is £416,000 and it is not envisaged that the tax will become payable in the foreseeable future.

11 PROFIT FOR THE FINANCIAL YEAR
Profit dealt with in the accounts of Spirax-Sarco Engineering plc was £25,117,000 (2001: £18,440,000). Included in this amount are dividends from subsidiary undertakings of £25,803,000 (2001: £18,026,000).

12 DIVIDENDS

			2002 £000	2001 £000
Interim paid	5.8p	(2001: 5.6p) per share	**4,319**	4,140
Final proposed	13.5p	(2001: 13.0p) per share	**10,031**	9,612
	19.3p	(2001: 18.6p) per share	**14,350**	13,752

13 EARNINGS PER SHARE
The calculation of earnings per share (basic) before the disposal of fixed assets is based on earnings of £26,125,000 (2001: £25,424,000) and the calculation of earnings per share (basic) after the disposal of fixed assets is based on earnings of £26,125,000 (2001: £26,040,000), as shown in the Group profit and loss account, divided by the weighted average number of shares in issue during the year of 74,072,923 (2001: 73,808,317). The calculation of earnings per share (diluted) before and after the disposal of fixed assets is based on the earnings shown above and the weighted average number of shares in issue diluted by 121,943 (2001: 101,481) to 74,194,866 (2001: 73,909,798). The dilution is in respect of unexercised share options.

14 FIXED ASSETS: INTANGIBLE ASSETS

	THE GROUP Goodwill £000
Cost:	
At 1st January 2002	10,149
Exchange adjustments	144
	10,293
Additions (note 32)	1,876
At 31st December 2002	**12,169**
Amortisation:	
At 1st January 2002	1,191
Exchange adjustments	32
	1,223
Charged in year	562
At 31st December 2002	**1,785**
Net book value:	
At 31st December 2002	**10,384**
At 31st December 2001	8,958

15 FIXED ASSETS: TANGIBLE ASSETS

	THE GROUP				
	Land and buildings				
	Freehold £000	Short leasehold £000	Plant and machinery £000	Fixtures, fittings, tools and equipment £000	Total £000
Cost or valuation:					
At 1st January 2002	48,410	1,564	75,742	49,120	174,836
Exchange adjustments	(1,887)	(140)	(2,643)	(1,216)	(5,886)
	46,523	1,424	73,099	47,904	168,950
Additions	1,486	98	6,408	3,556	11,548
Disposals	(1)	(9)	(2,124)	(1,145)	(3,279)
At 31st December 2002	**48,008**	**1,513**	**77,383**	**50,315**	**177,219**
Depreciation:					
At 1st January 2002	5,866	252	43,684	33,128	82,930
Exchange adjustments	(484)	(19)	(1,737)	(1,034)	(3,274)
	5,382	233	41,947	32,094	79,656
Charged in year	945	42	6,535	4,436	11,958
Disposals	-	(9)	(1,885)	(1,094)	(2,988)
At 31st December 2002	**6,327**	**266**	**46,597**	**35,436**	**88,626**
Net book value:					
At 31st December 2002	**41,681**	**1,247**	**30,786**	**14,879**	**88,593**
At 31st December 2001	42,544	1,312	32,058	15,992	91,906

15 FIXED ASSETS: TANGIBLE ASSETS *(continued)*

Freehold land and buildings at cost or valuation on the basis of open market values for existing use comprises:

		2002	2001
		£000	£000
Valuation	1976	**63**	63
	1986	**6,939**	6,819
	1991	**2,195**	2,421
Cost		**38,811**	39,107
		48,008	48,410

The historic cost net book value of freehold land and buildings at 31st December 2002 was £37,453,000.
Freehold land of £7,758,000 is not depreciated.

Included in the above are finance leases with net book value of £1,917,000.

As permitted by FRS 15 - Tangible Fixed Assets, it is not currently the intention to update valuations.

16 FIXED ASSETS: INVESTMENTS

	PARENT COMPANY		
	Shares in subsidiary undertakings £000	Loans to subsidiary undertakings £000	Total £000
Cost:			
At 1st January 2002	44,515	12,144	56,659
Exchange adjustments	-	166	166
	44,515	12,310	56,825
Transfer	1,839	-	1,839
Repayments	-	(1,155)	(1,155)
At 31st December 2002	**46,354**	**11,155**	**57,509**
Amounts written off:			
At 1st January 2002 and 31st December 2002.	994	1,042	2,036
Net book value:			
At 31st December 2002	**45,360**	**10,113**	**55,473**
At 31st December 2001	43,521	11,102	54,623

Investments are stated at cost less provisions for any impairment in value.

Details relating to subsidiary undertakings are given on pages 14 and 15. Except where stated on those pages all classes of shares were 100% owned by the Group at 31st December 2002. The country of incorporation of the principal Group companies is the same as the country of operation with the exception of companies operating in the United Kingdom which are incorporated in Great Britain and registered in England and Wales. All are in the fluid control business except Spirax-Sarco Investments Ltd., Spirax-Sarco Overseas Ltd., Sarco International Corp., Watson-Marlow Bredel Holdings B.V., Spirax-Sarco Engineering S.L., Spirax-Sarco Engineering B.V. and Spirax-Sarco Investments B.V. which are investment holding companies.

Spirax-Marshall Limited, in which the Group has a 40% interest, and Spirax-Sarco Mexicana S.A., in which the Group has a 49% interest, have been consolidated as subsidiaries because the Group has participating interests in them and exercises a dominant influence over them. The dominant influence is on the basis that the operating and financial policies of these companies are set in accordance with the wishes of the Group and for the Group's benefit.

17 STOCKS

	THE GROUP	
	2002	2001
	£000	£000
Raw materials and consumables	**19,062**	20,346
Work in progress	**9,636**	10,500
Finished goods and goods for resale	**28,890**	31,994
	57,588	62,840

18 DEBTORS

	THE GROUP		PARENT COMPANY	
	2002	2001 (Restated)	**2002**	2001
	£000	£000	**£000**	£000
Trade debtors	**70,139**	70,435	**-**	-
Amounts owed by subsidiary undertakings	**-**	-	**18,515**	21,793
Other debtors	**9,802**	9,538	**112**	103
Prepayments and accrued income	**2,927**	4,584	**74**	113
Taxation recoverable	**884**	642	**59**	260
Deferred tax	**3,378**	3,186	**-**	-
	87,130	88,385	**18,760**	22,269

Taxation recoverable in the Group balance sheet represents advance corporation tax of £Nil (2001: £236,000) and other amounts recoverable of £884,000 (2001: £406,000).
Taxation recoverable in the parent company balance sheet represents advance corporation tax of £Nil (2001: £236,000) and other amounts recoverable of £59,000 (2001: £24,000).

19 CASH DEPOSITS AND SHORT-TERM INVESTMENTS

Cash deposits and short-term investments in the Group balance sheet comprise money market deposits of £31,796,000 (2001: £16,147,000) and £16,500,000 (2001: £3,550,000) in the parent company, all with major banks, all of which have a maturity of three months or less from inception.

20 CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	THE GROUP		PARENT COMPANY	
	2002	2001	**2002**	2001
	£000	£000	**£000**	£000
Bank loans and overdrafts				
Overdrafts	**6,794**	4,099	**-**	-
Other loans	**12,542**	17,823	**-**	-
Trade creditors	**14,396**	15,289	**-**	-
Bills of exchange payable	**834**	1,093	**-**	-
Obligations under finance leases (note 22)	**349**	61	**-**	-
Amount owing to subsidiary undertakings	**-**	-	**-**	3,000
Corporation tax	**2,032**	866	**-**	-
Overseas tax	**5,341**	5,395	**-**	-
Social security	**2,129**	2,089	**-**	-
Other creditors	**8,795**	6,414	**-**	46
Accruals	**10,616**	9,272	**856**	200
Proposed dividend	**10,031**	9,612	**10,031**	9,612
	73,859	72,013	**10,887**	12,858

Bank loans and overdrafts amounting to £155,000 (2001: £417,000) are secured on current assets of certain Group companies.

21 CREDITORS: AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR

	THE GROUP		PARENT COMPANY	
	2002 £000	2001 £000	**2002 £000**	2001 £000
Bank and other loans - Repayable between 1 and 2 years	**19,545**	4,246	**-**	-
- Repayable between 2 and 5 years	**18,946**	33,029	**-**	-
Obligations under finance leases (note 22)	**1,168**	1,674	**-**	-
Amount owed to subsidiary undertakings	**-**	-	**1,398**	941
Tax payable	**27**	-	**-**	-
Accruals	**1,349**	1,135	**-**	-
	41,035	40,084	**1,398**	941

The Company together with other Group companies has jointly and severally guaranteed loans granted to subsidiary undertakings amounting to £56,940,000 at 31st December 2002 (2001: £55,536,000).

22 OBLIGATIONS UNDER FINANCE LEASES

	THE GROUP	
	2002 £000	2001 £000
Aggregate amounts repayable:		
Over 5 years	**326**	347
between 2 and 5 years	**473**	895
between 1 and 2 years	**369**	432
	1,168	1,674
in 1 year or less	**349**	61
	1,517	1,735

23 PROVISIONS FOR LIABILITIES AND CHARGES

	THE GROUP			
	Deferred taxation provisions £000	Post retirement benefits £000	Warranty and other provisions £000	Total £000
Provisions at 1st January 2002 (as previously reported)	2,782	9,084	325	12,191
Adjustment in respect of FRS 19 - Deferred Tax	3,145	-	-	3,145
Provisions at 1st January 2002 - restated	5,927	9,084	325	15,336
Exchange adjustments	(137)	321	-	184
	5,790	9,405	325	15,520
Charge for the year	146	1,619	-	1,765
Utilised during the year	-	(1,099)	-	(1,099)
Provisions at 31st December 2002	**5,936**	**9,925**	**325**	**16,186**

An analysis of deferred taxation is set out below.

	THE GROUP	
	Provided	
	2002	2001 (Restated)
	£000	£000
Accelerated capital allowances	**3,614**	3,134
Provisions disallowed	**(3,452)**	(2,719)
Other timing differences	**2,396**	2,326
	2,558	2,741
Deferred tax liabilities	**5,936**	5,927
Deferred tax asset (see note 18)	**3,378**	3,186
	2,558	2,741

The impact of the adoption of FRS 19 - Deferred Tax on the 2001 balance sheet was to increase deferred tax assets by £2,186,000 and to increase deferred tax provisions by £3,145,000.

24 NET ASSETS

The analysis of net assets by reference to the geographical location of the Group's operations is as follows:

	THE GROUP	
	2002	2001 (Restated)
	£000	£000
United Kingdom	**47,178**	46,937
Continental Europe	**61,271**	59,660
The Americas	**33,909**	47,162
Asia, Australasia and Africa	**34,483**	36,141
	176,841	189,900
Cash at bank and in hand	**(4,882)**	(4,312)
Capital employed	**171,959**	185,588
Net debt	**(22,666)**	(40,473)
Net assets	**149,293**	145,115

25 CALLED UP SHARE CAPITAL

	THE GROUP		PARENT COMPANY	
	2002	2001	**2002**	2001
	£000	£000	**£000**	£000
Ordinary shares of 25p each:				
Authorised 120,000,000	**30,000**	30,000	**30,000**	30,000
Allotted, called up and fully paid 74,300,622	**18,575**	18,484	**18,575**	18,484

244,994 ordinary shares, having an aggregate nominal value of £61,248, were issued pursuant to the Spirax-Sarco Engineering plc Employee Share Ownership Plan on 4th October 2002 for a consideration of £785,000 received by the Company. 2,963 ordinary shares, having an aggregate nominal value of £741, were issued pursuant to the Spirax-Sarco Engineering Employee Share Ownership Plan in lieu of dividends of £12,000. 117,294 ordinary shares, having an aggregate nominal value of £29,323, were issued during the year pursuant to the Spirax-Sarco Engineering Share Option Schemes for a consideration of £347,000 received by the Company.

25 CALLED UP SHARE CAPITAL *(continued)*

Directors and 105 other senior employees and former employees of the Group have been granted options to purchase 2,873,113 ordinary shares with an aggregate nominal value of £718,278. Options are exercisable as follows:

	Number of shares	Price to be paid per share
Between 1996 and 2003	27,968	301.8p
Between 1996 and 2003	81,145	355.1p
Between 1997 and 2004	5,338	363.0p
Between 1997 and 2004	214,662	427.0p
Between 1998 and 2005	230,000	611.0p
Between 1999 and 2006	270,500	739.0p
Between 2000 and 2007	264,500	669.0p
Between 2001 and 2008	307,500	420.0p
Between 2002 and 2009	294,500	525.0p
Between 2003 and 2010	369,500	319.2p
Between 2004 and 2011	444,000	397.7p
Between 2005 and 2012	363,500	436.0p
	2,873,113	

Where relevant these figures reflect adjustments made to the options as a result of the Company's bonus issue.

The performance criteria applicable to directors' share options set out on page 25 also apply to these options.

26 RESERVES

	THE GROUP				
	Share premium account £000	Revaluation reserve £000	Capital redemption reserve £000	Profit and loss account £000	Total £000
Balance at 1st January 2002 (as previously reported)	33,327	4,618	1,832	84,585	124,362
Adjustment in respect of FRS 19 - Deferred Tax	-	-	-	(959)	(959)
Balance at 1st January 2002 - restated	33,327	4,618	1,832	83,626	123,403
Effect of exchange rate adjustments	-	(402)	-	(8,073)	(8,475)
	33,327	4,216	1,832	75,553	114,928
Retained profit for the financial year	-	-	-	11,775	11,775
Premium on the issue of shares	1,053	-	-	-	1,053
Balance at 31st December 2002	**34,380**	**4,216**	**1,832**	**87,328**	**127,756**

The cumulative amount of goodwill resulting from acquisitions prior to 1998 (less goodwill on disposals) deducted from reserves amounted to £67,322,000 (2001: £67,322,000).

	PARENT COMPANY				
Balance at 1st January 2002	33,327	-	1,832	13,000	48,159
Retained profit for the financial year	-	-	-	10,767	10,767
Premium on the issue of shares	1,053	-	-	-	1,053
Balance at 31st December 2002	**34,380**	**-**	**1,832**	**23,767**	**59,979**

27 CAPITAL COMMITMENTS

	THE GROUP		PARENT COMPANY	
	2002 £000	2001 £000	**2002 £000**	2001 £000
Capital expenditure contracted for but not provided	**1,201**	1,356	**-**	-

28 LEASE OBLIGATIONS

	THE GROUP			
	Buildings		Other operating leases	
	2002 £000	2001 £000	**2002 £000**	2001 £000
Rental payments due in 2003 are under current operating leases terminating in the following years:				
2003	**653**	681	**730**	745
2004 to 2007	**772**	1,050	**891**	1,036
2008 onwards	**636**	157	**1**	9
	2,061	1,888	**1,622**	1,790

29 PENSIONS AND OTHER POST-RETIREMENT BENEFITS

The total pension charge for the Group this year was £6,838,000 (2001: £5,046,000) of which £2,782,000 (2001: £2,651,000) relates to the overseas schemes.

The Group operates three defined benefit schemes in the UK and one defined contribution scheme. Two of the defined benefit schemes were closed to new entrants during 2001. The defined contribution scheme was established in 2001 to provide pension benefits to new employees. The cost of the UK defined benefit pension schemes was determined using the projected unit and attained age methods following the advice of a qualified actuary. The cost of the defined contribution scheme is equal to the contributions paid.

The most recent actuarial valuations in the UK schemes were carried out at either 31st December 2001 or 5th April 2002. The valuations show that the market value of the assets was £109,700,000 and was sufficient to cover 98 per cent of the benefits that had accrued to members, after allowing for expected future increases in earnings. This shortfall should be eliminated within the average working lifetime of the employees in the UK.

The most important assumptions used in the valuations for accounting purposes concern the rate of return on investments and the rates of increases in salary and pensions. It was assumed that investment returns would exceed salary increases by an average of 2.9 per cent per annum and pension increases by an average of 3.9 per cent per annum.

Included in other debtors in the Group balance sheet are prepaid pension costs of £5,942,000 (2001: £5,481,000).

In respect of certain overseas schemes the excess of £9,323,000 (2001: £8,474,000) of the accumulated pension cost over the amount funded is provided in the accounts (note 23). Part of this provision relates to the unfunded German defined benefit scheme.

The charge for post-retirement benefits other than pensions for the Group in 2002 was £107,000 (2001: £51,000) and related to health care. Provisions for the benefit obligations at 31st December 2002 amounted to £602,000 (2001: £610,000) and are included in provisions for post retirement benefits (note 23). The future costs of benefits are assessed in accordance with the advice of independent qualified actuaries and are based on assumed discount rates of 6.75%.

FRS 17 disclosures

Whilst the Group continues to account for pension costs in accordance with Statement of Standard Accounting Practice 24 ‘Accounting for Pension costs’, under FRS 17 ‘Retirement benefits’ the following transitional disclosures are required:

The actuarial valuations of the Group’s defined benefit schemes were carried out at various dates between 1st January 2000 and 31st December 2002. The results produced at earlier valuation dates were updated to the 31st December 2002 by independent qualified actuaries.

29 PENSIONS AND OTHER POST-RETIREMENT BENEFITS *(continued)*

The financial assumptions used at 31st December were:

	Assumptions weighted by value of liabilities % per annum			
	UK pensions		Overseas pensions and medical	
	2002	2001	2002	2001
Rate of increase in salaries	3.3	3.5	3.4	4.2
Rate of increase in pensions	2.3	2.5	1.8	2.0
Discount rate	5.6	5.8	6.2	6.5
Rate of price inflation	2.3	2.5	N/A	N/A
Medical trend rate			5.0	6.0

The assumptions used by the actuary are the best estimates chosen from a range of possible actuarial assumptions which, due to the timescale covered, may not necessarily be borne out in practice.

	Assumptions weighted by market value of assets % per annum			
	UK pensions		Overseas pensions and medical	
	2002	2001	2002	2001
Expected rate of return on assets (aggregate)	7.5	7.0	7.6	8.2
Bonds	5.0	5.1	6.0	6.8
Equities	8.2	7.8	9.0	8.5
Other	5.9	5.3	2.7	3.8

The market value of the schemes'assets, which are not intended to be realised in the short term and may be subject to significant change before they are realised, and the present value of the schemes' liabilities, which are derived from cash flow projections over long periods and thus inherently uncertain, at 31st December 2002 were:

	UK pensions		Overseas pensions and medical		Total	
	2002 £000	2001 £000	2002 £000	2001 £000	2002 £000	2001 £000
Total market value in aggregate	91,100	109,600	11,900	16,700	103,000	126,300
Bonds	15,900	22,900	3,800	500	19,700	23,400
Equities	70,100	77,800	7,300	14,400	77,400	92,200
Other	5,100	8,900	800	1,800	5,900	10,700

	UK pensions £000	Overseas pensions and medical £000	Total £000
Total market value of schemes' assets	91,100	11,900	103,000
Present value of the schemes' liabilities	(124,400)	(27,300)	(151,700)
Deficit in the schemes	(33,300)	(15,400)	(48,700)
Related deferred tax asset	10,000	3,300	13,300
Net pension liability	(23,300)	(12,100)	(35,400)

29 PENSIONS AND OTHER POST-RETIREMENT BENEFITS *(continued)*

The movement in deficits in the schemes during the year were:

	UK pensions £000	Overseas pensions and medical £000	Total £000
Net pension liability at beginning of year	(4,900)	(9,280)	(14,180)
Contributions paid	4,500	1,000	5,500
Current service cost	(5,100)	(850)	(5,950)
Other finance income (charge)	1,000	(450)	550
Actuarial loss	(26,700)	(3,600)	(30,300)
Adjustment to deferred tax asset	7,900	1,080	8,980
Net pension liability at end of year	(23,300)	(12,100)	(35,400)

The components for the defined benefit cost for the year ended 31st December 2002 under FRS 17 were:

	UK pensions £000	Overseas pensions and medical £000	Total £000
Current service cost	(5,100)	(850)	(5,950)
Past service cost	-	-	-
Total charge to operating profit	(5,100)	(850)	(5,950)
Interest on pension scheme liabilities	(6,700)	(1,550)	(8,250)
Expected return on assets in the pension scheme	7,700	1,100	8,800
Net (charge) credit to other finance income	1,000	(450)	550
Total charge before tax	(4,100)	(1,300)	(5,400)

The amounts to be recognised in the Group statement of total recognised gains and losses (STRGL) were:

	UK pensions £000	Overseas pensions and medical £000	Total £000
Loss on assets	(27,700)	(1,700)	(29,400)
Experience gain/(loss) on liabilities	500	(1,500)	(1,000)
Gain/(loss) on change of assumptions (financial and demographic)	500	(400)	100
Total loss recognised in STRGL before adjustment for tax	(26,700)	(3,600)	(30,300)

The history of experience gains and losses was:

	UK pensions £000	Overseas pensions and medical £000	Total £000
Loss on assets	(27,700)	(1,700)	(29,400)
% of schemes' assets at end of year	(30.4%)	(14.3%)	(28.5%)
Experience gain/(loss) on liabilities	500	(1,500)	(1,000)
% of schemes' liabilities at end of year	0.4%	(5.5%)	(0.7%)
Total loss recognised in STRGL	(26,700)	(3,600)	(30,300)
% of schemes' liabilities at end of year	(21.5%)	(13.2%)	(20.0%)

notes to the accounts *(continued)*

29 PENSIONS AND OTHER POST-RETIREMENT BENEFITS *(continued)*

If the above amounts had been recognised in the accounts, the Group's net assets and profit and loss account reserve at 31st December 2002 would be as follows:

	£000
Net assets (page 33)	149,293
Unprovided pension liability	(33,700)
Adjusted net assets including pension liability	115,593
Profit and loss account reserve (page 33)	87,328
Unprovided pension liability	(33,700)
Adjusted profit and loss account reserve	53,628

The net pension liability of £35,400,000 calculated in accordance with FRS 17 compares with the net pension provision currently recorded of £1,700,000.

30 ANALYSIS OF CASH FLOWS FOR HEADINGS NETTED IN THE CASH FLOW STATEMENT

	THE GROUP	
	2002 £000	2001 £000
Returns on investments and servicing of finance		
Interest received	**748**	1,012
Interest paid	**(2,553)**	(3,654)
Interest element of finance lease rentals payments	**(109)**	(78)
Dividends paid by subsidiary undertakings to minority interests	**(527)**	(534)
Net cash outflow for returns on investments and servicing of finance	**(2,441)**	(3,254)
Capital expenditure		
Purchase of tangible fixed assets	**(11,684)**	(18,584)
Sales of tangible fixed assets	**345**	1,750
Net cash outflow for capital expenditure	**(11,339)**	(16,834)
Acquisitions and disposals		
Purchase of subsidiary undertakings	**(1,687)**	(404)
Net cash and overdrafts acquired with subsidiary	**170**	-
Sale of subsidiary undertakings	**131**	-
Net cash outflow for acquisitions	**(1,386)**	(404)
Management of liquid resources*		
Net cash put on deposit	**(15,918)**	1,735
Net cash outflow from management of liquid resources	**(15,918)**	1,735
Financing		
Issue of ordinary share capital	**1,144**	1,316
Debt due within a year: net decrease in short term borrowings	**(5,581)**	(3,679)
Debt due beyond a year: net increase in long term borrowings	**1,342**	(2,139)
Capital element of finance lease rentals payments	**(253)**	341
Decrease in debt	**(4,492)**	(5,477)
Net cash outflow from financing	**(3,348)**	(4,161)

* Spirax-Sarco Engineering plc includes as liquid resources term deposits of less than a year.

31 ANALYSIS OF CHANGES IN NET DEBT

	At 1st Jan 2002	Cash flow	Other non-cash changes	Exchange movement	At 31st Dec 2002
	£000	£000	£000	£000	£000
Cash in hand and at bank	4,312	1,009	-	(439)	4,882
Overdrafts	(4,099)	(2,414)	-	(281)	(6,794)
		(1,405)			
Debt due within a year	(17,823)	5,581	-	(300)	(12,542)
Debt due beyond a year	(37,275)	(1,342)	(21)	147	(38,491)
Finance leases	(1,735)	253	-	(35)	(1,517)
		4,492			
Current asset investments	16,147	15,918	-	(269)	31,796
Total	**(40,473)**	**19,005**	**(21)**	**(1,177)**	**(22,666)**

32 PURCHASE OF SUBSIDIARY UNDERTAKINGS

		Ampe			Marford			Christian Berner	
		Book value	Accounting policy adjustments	Fair value	Book value	Accounting policy adjustments	Fair value	Book and fair value	Total
		£000	£000	£000	£000	£000	£000	£000	£000
Tangible fixed assets		254	(46)	208	105	-	105	-	313
Current assets									
	Stock	761	(38)	723	188	(50)	138	-	861
	Debtors	9	-	9	162	-	162	-	171
	Cash	-	-	-	165	-	165	-	165
		770	(38)	732	515	(50)	465	-	1,197
Current liabilities									
	Trade creditors	(672)	-	(672)	(132)	-	(132)	-	(804)
	Other creditors	(14)	(137)	(151)	-	-	-	-	(151)
		(686)	(137)	(823)	(132)	-	(132)	-	(955)
Net current assets (liabilities)		84	(175)	(91)	383	(50)	333	-	242
Pension provision		(172)	(17)	(189)			-	-	(189)
Total net assets (liabilities)		166	(238)	(72)	488	(50)	438	-	366
Goodwill				771			738	367	1,876
Purchase consideration				**699**			**1,176**	**367**	**2,242**
Satisfied by	Cash paid			55			968	339	1,362
	Deferred consideration			499			-	-	499
	Acquisition expenses			145			208	28	381
				699			**1,176**	**367**	**2,242**
Analysis of net flow of cash and cash equivalents in respect of purchase of subsidiaries									
Cash consideration				180			1,154	353	1,687
Cash acquired				-			(170)	-	(170)
Net cash outflow				**180**			**984**	**353**	**1,517**

The acquisition of Marford Feedwater Treatment (Aust.) Pty Ltd was completed on 18th January 2002. The acquisition was accounted for by the acquisition method of accounting. Consideration of A$2,769,000 (£968,000) was paid on completion. The book value of stock has been adjusted to reflect Spirax Sarco's accounting policies in order to arrive at its fair value.

The acquisition of Ampe srl was completed on 31st December 2002. The acquisition was accounted for by the acquisition method of accounting. Consideration of €84,000 (£55,000) was paid on completion. The book value of net assets has been adjusted to reflect Spirax Sarco's accounting policies in order to arrive at their fair value.

The total profits after tax of the businesses acquired in the period in 2002 prior to acquisition were £124,000. The total profits for 2001 of the businesses acquired were £158,000.

In addition there was goodwill of £367,000 on the acquisition of Christian Berner AB the distributor for Watson-Marlow Bredel in Sweden.

33 DERIVATIVES AND OTHER FINANCIAL INSTRUMENTS

The Group does not enter into significant derivative transactions. The Group's principal financial instruments comprise bank loans, guaranteed senior notes, cash and short-term deposits. The main purpose of these financial instruments is to raise finance for the Group's operations. The Group has various other financial instruments such as trade debtors and trade creditors, which arise directly from its operations. It is, and has been throughout the period under review, the Group's policy that no trading in financial instruments shall be undertaken.

The main risks arising from the Group's financial instruments are interest rate risk, liquidity risk and foreign currency risk. The board reviews and agrees policies for managing each of these risks and they are summarised below. These policies have remained fundamentally unchanged since the beginning of 2000.

Interest rate risk

The Group borrows in desired currencies at both fixed and floating rates of interest as appropriate to the purposes of the borrowing depending on which gives best value. At the year-end 19% of the Group's debts were at fixed rates.

Liquidity risk

The Group's objective is to maintain a balance between continuity of funding and flexibility through the use of overdrafts, loans and finance leases as appropriate.

Foreign currency risk

The Group has operations around the world and therefore its balance sheet can be significantly affected by movements in the rate of exchange between sterling and various other currencies particularly the US dollar and euro. The Group seeks to mitigate the effect of this structural currency exposure by borrowing in these currencies where appropriate while maintaining a low cost of debt. At 31st December 2002 the percentage of debt to net assets, excluding debt, was 63% (2001: 68%) for the euro and 48% (2001: 49%) for the US dollar.

The Group also has transactional currency exposures principally as a result of trading between Group companies. Such exposures arise from sales or purchases by an operating unit in currencies other than the unit's functional currency. Net cash flows between any two currencies of less than £1m per annum would not usually be considered sufficiently material to warrant forward cover. Forward cover is not taken out more than twelve months in advance or for more than 80% of the forecast exposure.

The disclosures below exclude short-term debtors and creditors.

Interest rate risk profile of financial liabilities

The interest rate profile of the financial liabilities of the Group as at 31st December was as follows:

2002	Total	Fixed rate financial liabilities	Floating rate financial liabilities	Financial liabilities on which no interest is paid
	£000	£000	£000	£000
Euro	39,481	1,524	36,608	1,349
US dollar	11,870	9,908	1,962	-
Other	9,342	98	9,244	-
	60,693	**11,530**	**47,814**	**1,349**
2001				
	£000	£000	£000	£000
Euro	41,392	2,345	37,912	1,135
US dollar	13,645	13,645	-	-
Other	7,030	1,040	5,990	-
	62,067	17,030	43,902	1,135

In respect of fixed rate financial liabilities the interest rate for euro financial liabilities is 4.6% fixed for 3.3 years (2001: 4.4 years). The interest rate for US dollar financial liabilities is 6.7% fixed for 3.1 years (2001: 4.1 years).

The benchmark rates for the floating rate financial liabilities are as follows:

Canadian dollar, Japanese yen, US dollar	LIBOR
Euro	LIBOR/EURIBOR

33 DERIVATIVES AND OTHER FINANCIAL INSTRUMENTS *(continued)*

Interest rate risk profile of financial assets
The interest rate profile of the financial assets of the Group as at 31st December was as follows:

2002	Total £000	Floating rate financial assets £000	Financial assets on which no interest is earned £000
Sterling	16,606	16,500	106
Other	20,072	15,296	4,776
	36,678	**31,796**	**4,882**

2001	£000	£000	£000
Sterling	4,147	4,083	64
Other	16,312	12,064	4,248
	20,459	16,147	4,312

Floating rate financial assets comprise cash placed on money market deposit mainly at call and three month rates.

Currency exposures
As explained above, the Group's objectives in managing the currency exposures arising from its net investment overseas (in other words, its structural currency exposures) are to maintain a low cost of debt while partially hedging against currency depreciation. All gains and losses arising from these structural currency exposures are dealt with in the statement of total recognised gains and losses.

Transactional (or non-structural) exposures give rise to net currency gains and losses that are recognised in the profit and loss account. Such exposures include the monetary assets and monetary liabilities in the Group balance sheet that are not denominated in the operating (or 'functional') currency of the operating unit involved. At 31st December the currency exposures in respect of the euro was a net monetary asset of £273,000 (2001: £105,000 net monetary liability) and in respect of the US dollar a net monetary asset of £1,032,000 (2001: £882,000).

Foreign exchange contracts
There were no forward exchange contracts outstanding at 31st December 2002.

Maturity of financial liabilities
The maturity profile of the Group's financial liabilities at 31st December was as follows:

	2002 £000	2001 £000
In one year or less, or on demand	**19,685**	21,983
In more than one year but no more than two	**20,757**	5,006
In more than two years but no more than five	**19,925**	35,078
In more than five years	**326**	-
	60,693	62,067

Borrowing Facilities
The Group has various borrowing facilities available to it. The undrawn committed facilities available at 31st December in respect of which all conditions precedent had been met at that date were as follows:

	2002 £000	2001 £000
Expiring in one year or less	**17,872**	9,495

Fair values of financial assets and financial liabilities
A US dollar loan with a book value of £9,908,000 (2001: £13,644,000) had a fair value at 31st December of £10,525,000 (2001: £14,107,000). Apart from this loan, fair values of financial assets and liabilities at that date were not considered to be materially different from book values due to their size or the fact that they were at short term rates of interest.