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Business Monitor

A publication of the Government Statistical Service

Report on the Census of Production

Refractory goods



Department of Industry
Business Statistics Office

HMSO

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Business Monitor

A publication of the Government Statistical Service

**Report on the
Census of Production
1972**

Refractory goods

Presented by the Secretary of State for Industry
to Parliament in pursuance of the Statistics of Trade Act 1947
(10 & 11 Geo.6 Cha.39 sec 7)

**Department of Industry
Business Statistics Office**

London: Her Majesty's Stationery Office 1975

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PA461.1 REFRACTORY GOODS

The information in this report relates to establishments classified to the Refractory goods industry, minimum list heading 461/1 in the Standard Industrial Classification (revised 1968). The activities of the industry include:-

Manufacturing heat-resisting products such as ganister, magnesite and silica bricks, fireclay and graphite crucibles, gas retort and kiln linings, steel moulders composition and radiants for gas and electric fires.

Prior to 1971, for census purposes, the manufacture of refractory goods and building bricks and non-refractory goods formed part of the Bricks, fireclay and refractory goods industry and separate figures are not available. Aggregate results for the two parts of MLH 461 are shown in tables 1a and 2a; the remaining tables relate only to MLH 461.1.

In interpreting the data in the tables it is essential to bear in mind the notes and definitions which commence on page (iii).

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TABLE 1a

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Input and output, 1970, 1971 and 1972
All United Kingdom establishments classified to the Refractory goods, and Building bricks and non-refractory goods industries (a)

	Unit	1970	1971	1972
Enterprises	Number	428	349	315
Establishments	"	585	553	502
Sales of goods produced and work done	£'000	208,358	228,202	277,401
Services rendered to other organisations (b)	"	537	994	1,027
Goods merchanted or factored	"	12,074	11,490	7,961
Canteen takings	"	426	448	536
Total sales and work done	"	221,394	241,135	286,925
Increase during the year, work in progress and goods on hand for sale	"	- 494	885	306
Gross output	"	220,900	242,020	287,231
Cost of purchases	"	81,965	88,340	108,703
Increase during the year, stocks of materials, stores and fuel	"	1,647	1,666	717
Payments to other organisations for work done on materials given out	"	505	239	185
for transport by road	"	18,711	19,404	20,982
for transport by rail, water, air and Post Office parcel services	"	1,264	1,169	972
Total costs	"	100,798	107,487	130,125
Net output	"	120,102	134,534	157,106
Total employment (including working proprietors) (c)	Thousands	51.5	49.6	49.2
Net output per head	£	2,334	2,713	3,196

(a) For 1972, estimates for establishments not making satisfactory returns and for establishments employing less than 25 persons, accounted for 13 per cent of the total figures in which they were incorporated: of this unsatisfactory returns accounted for 7 per cent.

(b) Amounts charged for hiring out plant, machinery or other goods, for providing transport, or for any technical or other services rendered.

(c) Average number employed (full and part time; see table 6) during the year (including working proprietors) by the establishment.

TABLE 1b

PA461.1 3

Input and output, 1971 and 1972
All United Kingdom establishments classified to the Refractory goods industry (a)

	Unit	1971	1972
Enterprises	Number	125	110
Establishments	"	191	166
Sales of goods produced and work done	£'000	93,623	96,361
Services rendered to other organisations (b)	"	598	618
Goods merchanted or factored	"	5,897	5,196
Canteen takings	"	152	186
Total sales and work done	"	100,270	102,361
Increase during the year, work in progress and goods on hand for sale	"	2,544	325
Gross output	"	102,814	102,687
Cost of purchases	"	49,962	50,651
Increase during the year, stocks of materials, stores and fuel	"	1,193	- 133
Payments to other organisations for work done on materials given out	"	129	123
for transport by road	"	5,651	5,398
for transport by rail, water, air and Post Office parcel services	"		
Total costs	"		
Net output	"	48,266	46,382
Total employment (including working proprietors) (c)	Thousands	16.8	15.7
Net output per head	£	2,865	2,956

(a) For 1972, estimates for establishments not making satisfactory returns and for establishments employing less than 25 persons, accounted for 17 per cent of the total figures in which they were incorporated: of this unsatisfactory returns accounted for 11 per cent.

(b) Amounts charged for hiring out plant, machinery or other goods, for providing transport, or for any technical or other services rendered.

(c) Average number employed (full and part time; see table 6) during the year (including working proprietors) by the establishment.

TABLE 2a

PA461.1 4

Capital expenditure and stocks, 1970, 1971 and 1972

All United Kingdom establishments classified to the Refractory goods, and Building bricks and non-refractory goods industries (a)

£'000

	1970	1971	1972	
Capital expenditure (b)	£'000	£'000	£'000	
New building work	2,071	2,220	2,950	
Land and existing buildings				
Acquisitions	493	1,409	515	
Disposals	545	1,915	1,152	
Plant and machinery				
Acquisitions	9,133	12,920	13,702	
Disposals	491	530	411	
Vehicles				
Acquisitions	1,405	1,911	2,253	
Disposals	430	655	730	
Total net capital expenditure (c)	11,636	15,360	17,126	
Increase in stocks and work in progress, 1970, 1971 and 1972	Increase	Increase	Increase	Value at end of year
Value of stocks and work in progress at end of 1972				
Materials, stores and fuel	1,647	1,666	717	14,492
Work in progress	345	70	442	3,872
Goods on hand for sale	-839	816	-137	15,012
Total	1,153	2,551	1,023	33,376

(a) Including estimates for establishments not making satisfactory returns and for establishments employing less than 25 persons.

(b) Capital expenditure in respect of manufacturing establishments where production had not commenced before the end of the year, is included.

(c) Acquisitions less disposals.

TABLE 2b

PA461.1 5

Capital expenditure and stocks, 1971 and 1972

All United Kingdom establishments classified to the Refractory goods industry (a)

£'000

	1971	1972	
Capital expenditure (b)			
New building work	964	573	
Land and existing buildings			
Acquisitions	54 (c)	32	
Disposals		321	
Plant and machinery			
Acquisitions	6,544	4,485	
Disposals	122	128	
Vehicles			
Acquisitions	432	466	
Disposals	169	207	
Total net capital expenditure (c)	7,702	4,900	
Increase in stocks and work in progress, 1970, 1971 and 1972	Increase	Increase	Value at end of year
Value of stocks and work in progress at end of 1972			
Materials, stores and fuel	1,193	-133	9,302
Work in progress	-124	50	1,892
Goods on hand for sale	2,668	275	9,406
Total	3,737	193	20,600

(a) Including estimates for establishments not making satisfactory returns and for establishments employing less than 25 persons.

(b) Capital expenditure in respect of manufacturing establishments where production had not commenced before the end of the year, is included.

(c) Acquisitions less disposals.

TABLE 3

Analysis of establishments by size, 1972

All United Kingdom establishments classified to the Refractory goods industry (a)

Size group (b)	Estab-lish-ments	Enter-prises (c)	Total employment (b)	Employees		Wages and salaries		Wages and salaries per head		Total sales and work done (e)	Gross output	Net output	Net output per head	Capital expenditure (net) (f)	Total stocks and work in progress at end of year
				Operatives	Others (d)	Operatives	Others (d)	Operatives	Others (d)						
	Number	Number	Number	Number	Number	£'000	£'000	£	£	£'000	£'000	£'000	£	£'000	£'000
1-10	49	46	262	2,593	411	3,780	734	1,458	1,785	19,858	19,924	8,494	2,779	442	4,193
11-24	40	37	674												
25-49	11	9	412												
50-99	23	17	1,708	2,525	663	3,508	1,136	1,389	1,714	19,536	19,532	9,648	3,019	1,326	3,483
100-199	21	14	3,196												
200-399	14	10	3,271												
400 and over	8	7	6,168	4,374	1,794	7,206	3,462	1,647	1,929	35,714	35,888	16,829	2,728	1,236	9,077
Total	166	110	15,691	11,995	3,636	18,193	6,938	1,517	1,908	102,361	102,687	46,382	2,956	4,900	20,600

(a) Including estimates for establishments not making satisfactory returns and for establishments employing less than 25 persons.

(b) Average number employed (full and part time; see table 6) during the year (including working proprietors) by the establishment.

(c) Some enterprises control establishments in more than one size group: the sum of the figures for the size groups will therefore exceed the total for the industry.

(d) Administrative, technical and clerical employees.

(e) Including sales of goods merchanted or factored, canteen takings and services rendered to other organisations (amounts charged for hiring out plant, machinery or other goods, for providing transport, or for any technical or other services rendered).

(f) Acquisitions less disposals.

TABLE 4

PA461.1 7

Regional distribution of employment, net capital expenditure and net output, 1972
All United Kingdom establishments classified to the Refractory goods industry

Area	Average number employed (a)		Net capital expenditure (b)		Net output and employment in the region of establishments with more than 80 per cent of their employment in the region (c)		
	Thousands	per cent of United Kingdom	£'000	per cent of United Kingdom	Estimated net output	Average number employed as a percentage of total average number employed in the industry in the region	Net output as percentage of total of the industry in the United Kingdom
Standard regions of England							
North	*	*	*	*	*	*	*
Yorkshire and Humberside	2.9	18.5	1,155	23.6	6,424	90.3	13.8
East Midlands	1.9	12.3	1,693	34.6	3,743	53.1	8.1
East Anglia	*	*	*	*	*	*	*
South East	0.7	4.5	182	3.7	1,913	71.4	4.1
South West	*	*	*	*	*	*	*
West Midlands	*	*	*	*	*	*	*
North West	*	*	*	*	*	*	*
England	11.5	73.3	3,874	79.1	27,590	78.2	59.5
Wales	0.7	4.3	92	1.8	1,382	85.7	3.0
Scotland	3.5	22.3	934	19.1	6,987	84.4	15.1
Great Britain	15.7	100.0	4,900	100.0	35,959	79.9	77.6
Northern Ireland	-	-	-	-	-	-	-
Unallocated (d)	-	-	-	-	10,423	-	22.4
United Kingdom	15.7	100.0	4,900	100.0	46,382		100.0

- (a) Average number employed (full and part time; see table 6) during the year (including working proprietors) by the establishment.
- (b) New building work plus acquisitions less disposals of land and existing buildings, plant and machinery and vehicles.
- (c) Where a census return covered addresses in two or more regions an estimate was made of the net output attributable to the region only where more than 80 per cent of the establishment's employees were located in the region. The estimate was made by assuming that net output at each address covered by a return was proportionate to employment at the address. The establishment's residual net output was included in unallocated net output.
- (d) Includes estimates of net output for establishments not making satisfactory returns and establishments employing less than 25 employees, and unallocated net output of establishments covering addresses in two or more regions.

TABLE 5

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Percentage analysis of twelve-month periods covered by returns received from United Kingdom establishments employing 25 or more persons, 1972 classified to the Refractory goods industry

Accounting year ended	Percentage of total returns received	Percentage of total number employed
	per cent	per cent
1972 April (a)	0.0	0.0
May	0.0	0.0
June	0.0	0.0
July	1.5	0.4
August	1.5	1.4
September	1.5	0.3
October	3.0	2.0
November	0.0	0.0
December	61.2	75.2
1973 January	0.0	0.0
February	1.5	0.2
March(b)	29.8	20.5
	100.0	100.0

(a) From 6th April

(b) Including returns made for twelve-month period ended 1st to 5th April 1973

TABLE 6

Percentage analysis of employees, by full and part time employment and sex, 1972 (a)
Bricks, fireclay and Refractory goods industry, minimum list heading 461

Sex	Full time	Part time	All employees
	per cent	per cent	per cent
Male	90	1	91
Female	7	2	9
	97	3	100

Source: Department of Employment

(a) The percentages relate to the numbers employed (excluding working proprietors) in the United Kingdom in minimum list heading 461 at mid-June, 1972. In the 1972 Census of Production the employment of the "Refractory goods" industry represented 32 per cent of the employment of minimum list heading 461 as a whole.

TABLE 7

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Sales of principal products of the Refractory goods industry by establishments employing 25 or more persons, including sales by establishments classified to other industries, 1972 (a)

	1972	
FIREBRICKS AND SHAPES	TONNES	513,035
	£ THOUS	10,335
HIGH ALUMINA BRICKS (44% TO 60% ALUMINA)	TONNES	34,197
	£ THOUS	2,593
HIGH ALUMINA BRICKS (60% OR MORE ALUMINA)	TONNES	84,376
	£ THOUS	6,380
SILICA BRICKS AND SHAPES	TONNES	36,233
	£ THOUS	1,423
BRICKS AND SHAPES CONTAINING MAGNESITE AND CHROME	TONNES	180,699
	£ THOUS	12,880
REFRACTORY INSULATING BRICKS	TONNES	18,117
	£ THOUS	1,825
REFRACTORY HOLLOW-WARE FOR CASTING PITS	TONNES	110,278
	£ THOUS	4,814
BLOCKS AND CRUCIBLES OF GRAPHITE AND OTHER MATERIALS	TONNES	21,730
	£ THOUS	8,189
REFRACTORY JOINTING CEMENT	TONNES	60,262
	£ THOUS	2,172
CASTABLES AND MOULDABLES AND RAMMING MATERIALS	TONNES	247,656
	£ THOUS	8,357
OTHER REFRACTORY GOODS	£ THOUS	20,385
SALES OF OTHER GOODS NOT ELSEWHERE SPECIFIED	£ THOUS	213
WASTE PRODUCTS, RESIDUES, ETC.	£ THOUS	40
WORK DONE	£ THOUS	856
TOTAL SALES OF PRINCIPAL PRODUCTS OF THE REFRACTORY GOODS INDUSTRY (MLH 461.1) AND WORK DONE	£ THOUS	80,462

Source: Business Monitor (PQ461.1) - Quarterly Statistics

(a) Sales are deliveries on sale for home or abroad. Forward sales are excluded. Values are net selling values; purchase tax, trade discounts and commissions are excluded.

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Notes

These notes give the main information needed for interpreting the figures in the industry reports, (more detailed information about the census is given in a separate booklet—"Introductory Notes", Part PA 1001 of the Report on the Census of Production for 1972).

GENERAL INFORMATION *Changes made for 1972*

There were only minor changes in the scope of certain industry reports compared with 1971. Any such changes are explained in the introductions to the industry reports concerned or by footnotes to the tables.

Industrial classification

The Annual Censuses of Production are conducted on the Business Statistics Office's Production Register. Normally establishments on the Register are classified to industries on the basis of major activity in conformity with the Standard Industrial Classification (revised 1968). Generally an establishment is classified to an industry if its sales of the principal products of that industry accounts for a greater proportion of its total sales than its sales of the principal products of any other industry; classification is generally based on an establishment's returns to the quarterly production inquiry. Where this is not possible—for example where a quarterly production inquiry has not been introduced—the classification of an establishment reflects its return to the Census of Production, 1968. Establishments for which information is not available either from the quarterly inquiries or the 1968 Census are classified on the basis of the description of the business given by the establishments to the Business Statistics Office, for instance, in the course of registration.

Coverage

Detailed census returns were generally sought only from establishments employing on average 25 or more persons, but in some industries where firms employing less than 25 persons account for a relatively high proportion of total employment and output the exemption limit was lowered to 11. Census returns were also sent to establishments whose employment was not known to the Business Statistics Office at the time of dispatch.

TERMS USED IN THE CENSUS REPORT

Average number employed

Establishments were required to state the number of persons on the payroll (i.e. whose national insurance cards were held by them) on the average during the year of return, whether full-time or part time employees. Separate figures were required for (a) administrative, technical and clerical employees and (b) all other employees (operatives). Averages could be calculated from figures relating to the last week of each calendar month. Establishments were also required to state the number of working proprietors where appropriate and these are included in total employment figures. Outworkers (i.e. persons employed by establishments who worked in their own homes etc. on materials supplied by the establishments) are excluded.

The figures include persons engaged on merchanting or factoring and canteen workers where particulars in respect of these activities could not be excluded from the return.

Working Proprietors

These include all persons regarded as "self employed" for national insurance purposes and members of their families who worked in the business without receiving a wage or salary; but such persons who worked less than half the normal number of working hours are excluded. Directors working in the business but not in receipt of a definite wage, salary or commission are included under this heading; directors paid by fee only are not included.

Employees

Administrative, technical and clerical employees include managing and other directors in receipt of a definite wage, salary or commission, managers, superintendents and works foremen; research, experimental development, technical and design employees (other than operatives); draughtsmen and tracers; editorial staff, staff reporters, canvassers, competition and advertising staff; travellers; and office (including works office) employees.

Operatives include all other classes of employees, that is, broadly speaking, all manual wage earners. They include those employed in and about the factory or works; operatives employed in power houses, transport work (including roundsmen), stores, warehouses, shops and canteens; inspectors, viewers and similar workers; maintenance workers and cleaners. Operatives engaged in outside work of erecting, fitting etc. are also included, but out-workers are excluded.

Capital expenditure

Capital expenditure during the year in respect of manufacturing units where production had not started before the end of the year is included in the figures for both 1970, 1971 and 1972. Establishments were asked to include in the value of capital expenditure, amounts received under the Local Employment Acts, 1960 to 1971 and any investment grants received under the Industrial Development Act, 1966 or regional development grants under the Industry Act, 1972.

(a) *New building work*

This represents the cost incurred during the year of new building and other constructional work (including office buildings, canteens and the like used in connection with the business covered by the return, but not dwelling houses for employees). The value is that charged to capital account during the year of return; it includes expenditure on new buildings or on the extension of reconstruction of old buildings, the value of works of a capital nature carried out by the establishment's own staff and the cost of any newly constructed buildings purchased. Figures shown include any legal charges, stamp duties, agents' commissions, etc.

(b) *Land and existing buildings*

The items shown are the capital cost of freeholds purchased and the capital cost of premium payable for leaseholds acquired (excluding the value of any assets acquired in taking over an existing business), and the amounts receivable for any freeholds or leaseholds disposed of. The value is that charged to capital account during the year of return.

(c) *Plant, machinery and vehicles*

The items shown are the value of plant and machinery and of vehicles acquired, both new and second-hand, and the amount received for items disposed of during year. The value of plant and machinery acquired includes plant, etc., which firms produced for their own use in connection with the business covered by the return. The value of plant, etc., acquired is the expenditure charged to capital account during the year of return less any discounts received, but including the cost of transport and installation. No deduction is made for depreciation, amortization or obsolescence. The proceeds of items disposed of during the year exclude amounts written off for items scrapped.

Enterprise

The term enterprise is used in this report to mean one or more establishments under common ownership or control (as defined in the Companies Act 1948) making returns to the census. An enterprise may consist of a single establishment, or of more than one establishment owned by one legal unit, usually a company, or of a number of establishments owned by a parent company and subsidiary company or companies. Information about the relationship between constituent companies of enterprises was obtained mainly from published sources such as the Stock Exchange Year Book supplemented by information from company reports and information supplied by establishments. The information available is not complete but covers the largest and most important groups of industrial establishments and is believed sufficient to provide a worthwhile basis for analysis.

Establishment

The definition of an establishment in 1970, 1971 and 1972 was that of the Standard Industrial Classification (revised 1968): "the smallest unit which can provide the information normally required for an economic census, for example, employment, expenses, turnover, capital formation". Sometimes activities which are conducted as a single business are carried on at a number of addresses, termed local units. Where the activities of such a business are closely integrated, and detailed census information is not available for each unit, it is treated as a multi-unit establishment and a single return accepted. Separate figures are obtained, however, of employment and net capital expenditure at each unit.

Gross output

Gross output measures the total value of production (including work done) by establishments during the year. It is calculated as follows:—

Value of sales and work done
Plus/Less: Increase/decrease in value of stocks of goods on hand for sale
Plus/Less: Increase/decrease in value of work in progress
= Gross output.

Net output

Net output represents the value added to materials by the process of production (including the margin on selling any merchanted or factored goods). It is calculated as follows:—

Gross output
Less: Purchases adjusted for change in value of stocks of fuel and raw materials
Less: Payments for work given to other establishments
Less: Payments for transport
Less: Net amount of any duties, subsidies, allowances and levies payable
= Net output.

Net output per person employed

The figures of net output per person employed are derived by dividing the net output by the average number of persons employed (full time and part time) on all activities covered by the returns, including operatives, administrative, technical and clerical employees and working proprietors, but excluding outworkers.

Purchases

Purchases include the cost of materials and components bought for use in production; of fuel and electricity for all purposes; of packaging materials including the cost of returnable cases and containers when first purchased; of workshop materials, office materials and materials for repairs to establishment's own buildings, plants and vehicles when carried out by their own work people included in the returns; of consumable tools; and of parts for machinery purchased during the year as replacements. Water charges are also included. In general, purchases of goods for merchanting or factoring and canteen supplies are included. Materials supplied by customers for processing are excluded, as are all purchases charged to capital account.

The values shown include any duty paid (less rebate, etc.) but exclude trade discounts allowed. The cost of transport is included only if included in the cost of materials as invoiced: amounts paid to transport organisations, including an establishment's own separate transport organisations for delivery of materials and fuel are, therefore, excluded. Materials purchased overseas are included at the c.i.f. cost plus any duty payable if the cost of transport from the docks was not included in the invoiced price, but at their full delivery cost if invoiced "carriage paid home". Materials and fuel transferred from another department of the establishment not covered by the same return are included at the estimated selling value recorded by the other department.

Sales

Sales are in respect of goods made by the business covered by the return, goods made for it by outworkers or by other establishments from materials given out to them (sometimes described as goods made on commission) and waste products. Any machinery or other capital items produced for use in the business covered by the return are included, the value being that adopted in the establishment's asset accounts. Goods sold without being subjected to any manufacturing process (i.e. merchanted or factored) and canteen takings are included.

The value shown for sales is the net selling value, defined as the amount charged to customers whether on an ex-works or delivered basis excluding any trade discounts, agents' commissions, allowances for returnable cases, purchase tax, etc.: the net amount charged for packaging materials is included. Goods charged on a delivered basis to customers overseas are included at the f.o.b. value.

Goods produced in one establishment and transferred to another establishment of the same firm not covered by the return were treated as sales by the producing establishment and valued as far as possible as if they had been sold to an independent purchaser. Goods transferred to wholesale or retail selling organisations for which separate accounts were kept were valued on the same basis.

To the extent that sales of finished products of one establishment constitute the materials purchased by another, total figures of

the value of sales (and of materials and fuel purchased) include an element of duplication. In some industries, e.g. motor vehicle manufacturing, and woollen and worsted, this duplication is substantial: and aggregates for a number of industries contain significant amounts of duplication. For work done on commission, sub-contract work, etc., the value shown is the total amount charged for the work, including the value of any materials bought and used in such work.

Services rendered

This represents the amounts charged for hiring out plant, machinery and other goods, providing transport, or for any technical or other services rendered to other organisations. It includes amounts credited for similar services rendered to other establishments of the same enterprise not covered by the return.

Standard Industrial Classification

Industry classification is based on the Standard Industrial Classification (revised 1968). It is published by HM Stationery Office together with a separate index in the form of an alphabetical list of industries.

Stocks and work in progress

Values are given of stocks of goods on hand for sale, and of materials and fuel, at the end of the year of return, including any stocks of goods held for merchanting or factoring. Values of the change during the year are also shown. The values include duty in the case of dutiable goods held out of bond.

The value of work in progress at the end of, and the change during the year are also usually shown. This excludes any progress payments made to sub-contractors, and no deduction is made on account of progress payments received.

Transport payments

These represent the total amount paid or credited during the year for both outwards transport of finished goods sold and inwards transport of materials and fuel purchased. They include payment to other establishments, and to any separate transport organisation of the same establishment not covered by the return, but exclude the value of transport services provided by the business covered by the return. The items included are payments for hired cartage and for inwards and outwards carriage by all forms of inland transport, i.e. railways, road haulage, canals, coastwise shipping, air, etc. Payments made for sea and air freight on goods sold to customers overseas and on materials and fuel purchased from overseas suppliers are excluded.

Wages and salaries

These are amounts paid during the year to operatives and to administrative, technical and clerical employees. Payments to working proprietors, whether called salaries or not, are excluded. The values shown include all overtime payments, bonuses and commissions, whether paid regularly or not, and no deduction is made for income tax, insurances, contributory pensions, etc. The value of any payments in kind, travelling expenses, lodging allowances, etc. and employers' contributions to national insurances and pension schemes is excluded.

Work given out

The figures shown represent the total amount paid for work done by other establishments (whether part of the same enterprise or not) on materials supplied to them. They do not include payments to individual outworkers or payments for business and other services.

SYMBOLS USED

The following symbols are used throughout the report:

- .. not available
- nil or less than half the final digit shown
- * figures cannot be shown owing to the risk of disclosing information about individual enterprises
- R revised

ROUNDING OF FIGURES

Figures in the tables have, where necessary, been rounded to the nearest final digit; there may be an apparent slight discrepancy between the sum of the constituent items and the total shown.

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