

52 Pumps, valves and compressors

This Report on the Pumps, Valves and Compressors Industry relates to establishments engaged wholly or mainly in manufacturing pumps for handling liquids (including petrol station pumps); industrial valves and cocks including pneumatic control valves; air and gas compressors (excluding compressors for refrigerators) and exhausters; fluid power equipment including equipment for operating machinery by hydraulic or pneumatic means, including hydraulic pumps and motors, hydraulic control and ancillary valves, pneumatic motors, pneumatic and hydraulic actuators, boosters, cylinders, rams and accumulators and power packs. Parts of pumps, valves and compressors, other than component parts of internal combustion engines, are included.

This industry corresponds to minimum list heading 333 in the Standard Industrial Classification (Revised 1968) which has been used for the first time as a basis of classification in the 1968 Census.

The industry formed part of the Miscellaneous (Non-electrical) Machinery Industry (Part 49) in the Reports on the last detailed Census of Production for 1963 corresponding to the sub-divisions 'Pumps and pumping machinery', 'Industrial valves and cocks' and 'Compressors, etc'. The treatment of parts has been altered considerably for 1968 for this and other mechanical engineering industries. The distinction made in the 1963 reports between parts sold in association with the sale of complete machines, and other parts sold, has been discontinued for 1968 and all parts are now treated in the same way as complete machines for classification ie as principal products of their respective mechanical engineering industries and shown in Table 5.

Throughout this Report, the figures given for 1963 have been reclassified, as far as possible, according to the Standard Industrial Classification (Revised 1968) and to take account of the different treatment of parts adopted for 1968, so that data for 1963 and 1968 are on the same industrial basis. However the reclassification of small firms, which provided limited information only, has been arbitrary.

METHOD OF CLASSIFICATION

In classifying returns to this industry the value of unspecified work done (other than structural and installation work), including repair work, was not taken into account unless it amounted to 80 per cent. or more of the total output of the return in which case the return was classified to General Mechanical Engineering (Part 66). The amount charged for erecting and installing machinery and plant (other than air conditioning, heating and ventilating plant) was treated as part of the selling value of these items in determining the industrial classification of returns. The standard classification procedure as outlined in the notes on page (i) was further modified where a return would have been classified to one of the mechanical engineering industries relating to a specific class of machinery (viz Parts 50 to 66) but where the sales of the principal products of the industry concerned (including parts) accounted for less than 20 per cent. of the total output: in such cases the return was classified to the residual sub-division of the General Mechanical Engineering Industry (Part 66). The classification of returns to sub-divisions of the industry shown in Table 4, followed the standard procedure.

The sales of characteristic products shown in Table 4 include, besides the value of complete pumps, valves and compressors and parts which were taken into account in classifying returns, the value of installation work.

In interpreting the data in the tables it is essential to bear in mind the notes and definitions which appear on pages (i) to (iv).

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- (c) Including services rendered to other organisations (amounts charged for hiring out plant, machinery or other goods, for providing transport, or for technical or other services rendered).
- (d) Administrative, technical and clerical employees.
- (e) Excluding expenditure for establishments not yet in production.
- (f) Acquisitions less disposals.

TABLE 1 Industry summary, 1963 and 1968
United Kingdom (a) (b)

	Unit	All establishments		
		1963	1968	
Number of enterprises	No.	414	450	
Number of establishments	"	478	560	
Gross output	£'000	170,259	318,145	
Net output	"	91,216	160,346	
Net output per head	£	1,383	1,898	
Sales and work done	£'000	goods produced and work done (c)	158,759	296,632
		merchanted goods and canteen takings	12,255	19,683
Purchases	"	materials for use in production and packaging and fuel	62,870	131,416
		goods for merchandising and canteen purchases	9,657	16,398
Payments to other organisations	"	for work done on materials given out	4,362	9,372
		for transport	1,825	1,723
		by road		
	"	by rail and other means excluding postal services		1,093
Stocks and work in progress				
Total stocks and work in progress	"	change during year	- 1,084	+ 4,032
		at end of year	59,630	110,629
Goods on hand for sale	"	change during year	- 228	+ 2,390
		at end of year	13,788	20,461
Work in progress	"	change during year	- 527	- 561
		at end of year	25,559	45,997
Materials, stores and fuel	"	change during year	- 329	+ 2,203
		at end of year	20,283	44,171
Number employed on average during the year	Th.	total, including working proprietors	66.0	84.5
		operatives	43.4	54.3
		other employees (d)	22.2	29.9
Wages and salaries	£'000	of operatives	30,506	52,094
		of other employees (d)	18,966	36,395
Capital expenditure (e)				
Total	"	4,945	11,582	
New building work	"	1,219	2,712	
Land and existing buildings (f)	"	- 86	- 714	
Plant and machinery (f)	"	3,384	8,864	
Vehicles (f)	"	428	720	

(a) For 1968, estimates for establishments not making satisfactory returns and for small establishments, from which only employment data were collected, accounted for 3 per cent. of the total figures in which they were incorporated: of this, unsatisfactory returns accounted for less than 1 per cent. For 1963 the comparable figures were 5 per cent. and 2 per cent. respectively.

(b) The following information relates to small establishments (employing fewer than 25 persons) in this industry. It includes an estimate for small establishments not making satisfactory returns.

	1963	1968
Number of establishments	223	243
Average number employed:		
Working proprietors	289	213
Other persons employed	1,889	2,283

Footnotes continued on page 52/2.

TABLE 2 Analysis by size of establishment within the industry, 1968

(i) Output and employment

All establishments: United Kingdom

Number employed on average during the year by the establishment (a)	Estab-lish-ments	Enter-prises (b)	Total number employed on average during the year (a)	Gross output	Net output	Net output per head
	Number	Number	Number	£'000	£'000	£
1-5	56	55	177	..	..	..
6-10	53	52	422	..	..	..
11-24	103	97	1,769	..	..	..
25-49	69	66	2,584	9,616	4,572	1,769
50-99	70	64	5,076	21,911	10,367	2,042
100-199	59	58	8,179	30,891	16,203	1,981
200-299	43	39	10,675	40,616	20,737	1,943
300-399	20	18	7,016	29,617	13,736	1,958
400-499	9	9	4,104	19,715	8,375	2,041
500-749	20	18	12,647	47,201	22,799	1,803
750-999	10	10	8,703	34,263	18,255	2,098
1,000-1,499	5	4	5,893	17,708	9,523	1,616
1,500-2,499	4	3	7,656	26,963	15,749	2,057
2,500 and over	3	3	9,176	29,145	14,696	1,602
Unsatisfactory returns	36	36	404	..	..	..
Total	560	450	84,481	318,145(c)	160,346(c)	1,898(c)

(ii) Employees, wages and salaries

All establishments: United Kingdom

Number employed on average during the year by the establishment (a)	Employees		Wages and salaries		Wages and salaries per head	
	Oper-atives	Others (d)	Oper-atives	Others (d)	Oper-atives	Others (d)
	Number	Number	£'000	£'000	£	£
1-5	..	..	..	..	..	..
6-10	..	..	..	..	..	..
11-24	..	..	..	..	..	..
25-49	1,742	800	1,606	976	922	1,220
50-99	3,429	1,615	3,219	1,896	939	1,174
100-199	5,396	2,762	5,297	3,252	982	1,177
200-299	6,859	3,812	6,708	4,680	978	1,228
300-399	4,282	2,730	4,014	3,473	937	1,272
400-499	2,754	1,350	2,625	1,592	953	1,180
500-749	8,490	4,156	8,211	5,117	967	1,231
750-999	5,609	3,094	5,261	3,847	938	1,243
1,000-1,499	3,395	2,498	3,063	2,870	902	1,149
1,500-2,499	4,899	2,757	4,684	3,466	956	1,257
2,500 and over	5,792	3,385	5,798	4,126	1,001	1,219
Unsatisfactory returns	..	..	..	..	..	..
Total	54,301(c)	29,864(c)	52,094(c)	36,395(c)	959(c)	1,219(c)

(a) Including working proprietors.

(b) The sum of the figures for the size groups exceeds the total for the industry to the extent that enterprises made returns for establishments in more than one size group.

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

(d) Administrative, technical and clerical employees.

TABLE 3 Percentage analysis of employees, by age and sex, 1969 (a)

All establishments: United Kingdom

Ages	Males	Females	All employees
	Per cent.	Per cent.	Per cent.
Under 18	3	1	4
18 and over	79	17	96
All ages	82	18	100

Source: Department of Employment

(a) The percentages relate to the numbers employed (excluding working proprietors) at June 1969, the earliest date for which the information is available on the basis of the Standard Industrial Classification, (Revised 1968).

Footnotes to Table 4.

- (a) Some establishments employing fewer than 25 persons were included in returns for larger establishments. For both 1968 and 1963 these amounted to 9 establishments.
- (b) The method of classifying returns to sub-divisions of the industry is explained in the notes; the characteristic products of each sub-division are identified in Table 5.
- (c) Owing to the introduction in 1968 of new headings covering fluid power equipment, comparable 1963 data are not available.
- (d) The sum of the figures for the sub-divisions exceeds the total for the industry to the extent that enterprises made returns for more than one sub-division.
- (e) Including services rendered to other organisations (amounts charged for hiring out plant, machinery or other goods, for providing transport, or for technical or other services rendered).
- (f) Direct sales of goods (excluding canteen takings) made to, and work done for, the general public by larger establishments are included. These amounted to £89,000 in 1968. Similar information is not available for 1963.
- (g) Characteristic products relate only to sub-divisions of the industry.
- (h) For sub-divisions of the industry, this is the ratio of sales of characteristic products to total sales of goods produced and work done. For the industry as a whole, this is the ratio of total sales of principal products by the industry to total sales of goods produced and work done.
- (i) Progress payments received for work in progress in 1968 from United Kingdom customers were recorded as £9,892,000 at beginning of year and £9,368,000 at end of year; and from overseas customers £658,000 at beginning of year and £513,000 at end of year. Similar information is not available for 1963.
- (j) Administrative, technical and clerical employees.
- (k) Excluding expenditure for establishments not yet in production.
- (l) Acquisitions less disposals.

TABLE 4 Analysis of larger establishments, 1963 and 1968

Establishments employing 25 or more persons: Analysis of returns received, United Kingdom (a)

	Unit	Sub-divisions of the industry (b)(c)				Total	
		Pumps	Valves	Com- pressors	Fluid power equipment	1963	1968
		10	20	30	40		
Number of enterprises (d)	No.	72	82	31	61	188	228
Number of establishments	"	84	121	36	80	250	328
Gross output	£'000	83,441	117,933	46,594	60,318	162,485	308,228
Net output	"	39,729	63,766	21,912	29,970	87,051	155,707
Net output per head	£	1,846	1,927	1,944	1,876	1,383	1,833
Sales and work done	£'000	77,154	109,617	44,522	56,148	151,510	287,447
		goods produced and work done (e) (f)					
	"	merchanted goods and canteen takings					
Sales of characteristic products	"	56,413	87,326	31,294	44,598	(g)	19,000
Index of specialisation (h)	Per cent.	73	80	70	79	75	75
Purchases	£'000	35,829	46,018	21,596	23,901	59,999	127,305
		materials for use in production and packaging, and fuel					
	"	goods for merchandising and canteen purchases					
Payments to other organisations	"	1,289	3,392	865	3,535	4,163	9,068
		for work done on materials given out					
	"	for transport					
	"	by road					
	"	by rail and other means excluding postal services					
Stocks and work in progress	"	212	356	305	187	1,742	1,065
Goods on hand for sale	"	+ 171	+ 1,234	+ 28	+ 883	- 218	+ 2,301
	"	change during year					
	"	at end of year					
Work in progress (i)	"	- 1,097	+ 939	- 488	+ 102	- 503	- 547
	"	change during year					
	"	at end of year					
Materials, stores and fuel	"	- 41	+ 973	+ 551	+ 651	- 314	+ 2,113
	"	change during year					
	"	at end of year					
Number employed on average during the year	No.	21,523	33,088	11,273	15,979	62,955	81,866
	"	total, including working proprietors					
	"	operatives					
	"	other employees (j)					
Wages and salaries	£'000	12,129	21,374	7,034	10,068	29,241	50,609
	"	of operatives					
	"	of other employees (j)					
Wages and salaries per head	£	931	944	969	1,026	703	984
	"	operatives					
	"	other employees (j)					
Capital expenditure (k)	£'000	573	1,245	331	479	1,164	2,632
New building work	"	Land and existing buildings					
	"	acquisitions					
	"	disposals					
Plant and machinery	"	1,784	4,555	872	2,153	3,566	9,368
	"	acquisitions					
	"	disposals					
Vehicles	"	361	418	185	197	715	1,166
	"	acquisitions					
	"	disposals					

For notes to this table - see page 52/5.

TABLE 5 Sales of principal products of the industry by larger establishments, including sales by establishments classified to other industries, 1963 and 1968 (a)

Establishments employing 25 or more persons: Analysis of returns received, United Kingdom

Industry sub-division (b)	1963		1968		Enter-prises	Entries
	Quantity	Value	Quantity	Value		
	Number	£'000	Number	£'000		
10 Pumps (excluding hydraulic types) (c)						
Kerbside petrol and oil measuring						
Complete	20,961	3,471	21,493	4,726	11	11
Parts	..	1,192	..	1,348	19	20
Hand pumps (excluding kerbside petrol and oil measuring)						
Complete	89,191	384	183,883	834	28	28
Parts	..	133	..	162		
Mechanically driven pumps (excluding kerbside petrol and oil measuring, and pumps specifically designed for actuating hydraulic equipment) complete						
Reciprocating	8,890	1,319	17,339	2,760	42	42
Centrifugal	..	571				
With stuffing box	..	17,512	59,868	17,655	52	55
Without stuffing box	..	..	431,204	8,602	39	42
Rotary	..	6,421	..	11,195	44	46
Other	..	4,979	18,444	2,054	47	48
			..	3,867		
Parts for mechanically driven pumps (excluding kerbside petrol and oil measuring, and pumps specifically designed for actuating hydraulic equipment)	..	11,731	..	14,408	127	134
Unclassified pumps (excluding hydraulic types)	..	1,248(c)	..	876	5	5
Total pumps (excluding hydraulic types)		48,999(c)		68,758	..	..
20 Valves and cocks for the control of liquids, steam and gases (excluding hydraulic control valves and inlet and exhaust valves for internal combustion engines)						
Industrial						
Pneumatic control valves			783,247	6,072	58	63
			..	7,195		
Other			22,346,747	18,071	99	120
Wholly or mainly of brass and other copper alloys	..	60,302(d)	..	5,584		
Wholly or mainly of cast iron			2,704,069	15,939	73	89
			..	7,281		
Other industrial valves and cocks			3,663,982	30,876	95	112
			..	8,392		
Total industrial valves and cocks		60,302(d)		99,409	..	..

Continued on next page.

TABLE 5 (continued)

Industry sub-division (b)	1963		1968			
	Quantity	Value	Quantity	Value	Enterprises	Entries
30 Air compressors and exhausters	Number	£'000	Number	£'000	Number	Number
Reciprocating						
Portable						
Complete						
Not exceeding 50 cu.ft. per minute	..	290	12,317	561	14	14
Exceeding 50 cu.ft. per minute	1,932	1,671	2,916	2,943	10	10
Parts	..	357	..	1,985	25	26
Stationary						
Complete						
Not exceeding 80 cu.ft. per minute	17,290	1,856	34,872	3,424	21	22
Exceeding 80 cu.ft. per minute, not exceeding 650 cu.ft. per minute	..	2,321	3,287	3,164	15	16
Exceeding 650 cu.ft. per minute	{ 275	{ 1,106	{ 391	{ 2,409	{ 8	{ 8
Parts	..	2,342	..	3,730	35	36
Rotary						
Portable, complete						
Not exceeding 50 cu.ft. per minute	{ 6,289	{ 4,868	{ 3,303	{ 122	{ 5	{ 5
Exceeding 50 cu.ft. per minute	..	2,594	10,844	11,478	9	10
Stationary						
Not exceeding 80 cu.ft. per minute	..	1,547	29,564	1,495	12	12
Exceeding 80 cu.ft. per minute	..	855	5,757	2,983	18	20
Turbo-types, complete						
Geared types	216	309	..	639	8	9
Other types	..	434	..	..	..	..
Parts for rotary and turbo-types air compressors and exhausters	..	2,231	..	4,210	34	40
Gas compressors and exhausters (excluding refrigerator compressors)						
Complete	{ 831	{ 1,230	{ 1,120	{ 2,100	{ 18	{ 21
Parts	..	563	..	2,123	..	..
Parts	..	203	..	1,424	16	19
Total compressors and exhausters		26,424		44,790	..	..

TABLE 5 (continued)

Industry sub-division (b)	1963		1968			
	Quantity	Value	Quantity	Value	Enterprises	Entries
40 Fluid power equipment (e)		£'000	Number	£'000	Number	Number
Oil hydraulic equipment						
Pumps and motors			..	14,959	58	63
Control and ancillary valves			..	8,938	52	55
Actuators and cylinders			..	7,693	41	43
Accumulators			..	554	8	8
Power packs			{ 5,518	{ 2,293	{ 27	{ 28
Other oil hydraulic equipment and parts	..	6,502(f)	..	230	..	..
Pneumatic power equipment and parts (including pneumatic motors, actuators, boosters, rams and accumulators)			..	12,674	61	71
Other fluid power equipment			..	6,752	31	32
Total fluid power equipment			..	4,357	41	41
Total fluid power equipment		6,502		58,450	..	..
Other products	..	407	..	228	18	18
Waste products						
Scrap metals	Th.tons		Th.tons			
Iron and steel	{ 21.4	{ 133	{ 31.4	{ 227	{ 86	{ 102
Brass	..	37	..	1,573	..	..
Copper	3.6	453	0.2	50	83	100
Other scrap metal	..	57	..	8	29	30
Other waste products	..	116	..	514	66	75
Pumps, valves and compressors erected and installed	..	135	..	33	13	13
Total		143,750		275,211	..	..
Sales in other industries (see Table 6)		29,797		47,898	..	..
Principal products of this industry sold by establishments in the industry		113,953		227,313	227	287(g)

- (a) Data for 1963 and 1968 are not strictly comparable because of differences in the commodity detail used in the two censuses.
- (b) The number given is that of the sub-division of which the item is a characteristic product. The sales shown are total sales by larger establishments, not merely sales by establishments classified to the sub-division.
- (c) Including hydraulic type pumps other than hydraulic accumulators and rams for 1963.
- (d) Including hydraulic control valves for 1963.
- (e) For 1963 described as 'Hydraulic machinery, not elsewhere specified, excluding hydraulic equipment for motor vehicles, aircraft, machine tools, pumps, hydraulic accumulators and rams, valves and presses and other pneumatic appliances not elsewhere specified'.
- (f) So far as recorded separately.
- (g) This figure represents the total number of returns made for larger establishments in this industry which is less than the total number of establishments shown in Table 4 on account of combined returns covering more than one establishment.

TABLE 6 Sales of principal products of the industry by larger establishments classified to other industries, 1963 and 1968

Establishments employing 25 or more persons: Analysis of returns received, United Kingdom

	1963		1968			Principal industries in which produced (a)
	Quantity	Value	Quantity	Value	Entries	
	Number	£'000	Number	£'000	Number	
Pumps (excluding hydraulic types (b))						
Kerbside petrol and oil measuring, complete and parts	..	1,243	..	751	14	63
Hand pumps (excluding kerbside petrol and oil measuring)						
Complete	{ 63,351	161	{ 15,284	142	{ 15	{ 66,78,97
Parts	..	110	..	138	..	..
Mechanically driven pumps (excluding kerbside petrol and oil measuring, and pumps specifically designed for actuating hydraulic equipment) complete						
Reciprocating	{ 4,251	239	{ 6,282	833	20	53,55,64,66
Centrifugal	..	148	..	..	..	..
With stuffing box	{ ..	3,468	{ 5,886	1,443	24	55,61,64,66
Without stuffing box	..	..	{ 15,040	993	13	53,55,62,63
Rotary	..	1,668	..	2,060	21	44,63,64,66
Other	..	2,935	{ 5,487	975	{ 31	{ (c)
Parts for mechanically driven pumps (excluding kerbside petrol and oil measuring, and pumps specifically designed for actuating hydraulic equipment)	..	4,485	..	2,787	69	55,63,64,66
Unclassified pumps (excluding hydraulic types)	..	360(b)	9,871	876	5	71,74,109
Total pumps (excluding hydraulic types)		14,841(b)		12,065	..	
Valves and cocks for the control of liquids, steam and gases (excluding hydraulic control valves and inlet and exhaust valves for internal combustion engines)						
Industrial						
Pneumatic control valves	{ ..	{ 381,732	{ 1,134	1,175	{ 25	61,63,66,84
Other						
Wholly or mainly of brass and other copper alloys	{ ..	{ 8,547,736	{ 5,437	1,745	{ 50	48,66,70,97
Wholly or mainly of cast iron	..	7,153	{ 31,328	821	{ 29	62,64,70,97
Other industrial valves and cocks			{ 65,330	1,400	{ 43	45,48,64,97
Parts			..	980	..	..
Total industrial valves and cocks		7,153		12,886	..	

TABLE 6 (continued)

	1963		1968			Principal industries in which produced (a)
	Quantity	Value	Quantity	Value	Entries	
		£'000	Number	£'000	Number	
Air compressors and exhausters						
Reciprocating						
Portable						
Complete						
Not exceeding 50 cu.ft. per minute			7,682	237	7	46,63,65,66
Exceeding 50 cu.ft. per minute			634	940	*	53,63,66
Parts			..	865	14	53,63,66
Stationary						
Complete						
Not exceeding 80 cu.ft. per minute	..	3,257(d)	2,975	269	9	58,63,66,70
Exceeding 80 cu.ft. per minute			..	1,138	8	54,58,63,64
Parts			..	569	19	53,54,63,64
Rotary						
Portable, complete			..	2,449	9	53,58,63,71
Stationary						
Not exceeding 80 cu.ft. per minute						
Exceeding 80 cu.ft. per minute			2,513	1,154	5	63,64
Turbo-types, complete			..	1,898	18	63,64,66,71
Parts for rotary and turbo-types air compressors and exhausters	..	1,696(e)				
Gas compressors and exhausters (excluding refrigerator compressors)						
Complete	{ ..	{ 763	{ ..	1,338	{ 7	45,61,63,71
Parts	139	7	61,63,65
Total compressors and exhausters		5,716		10,996	..	

Continued on next page.

TABLE 6 (continued)

	1963		1968		Entries	Principal industries in which produced (a)
	Quantity	Value	Quantity	Value		
Fluid power equipment (f)		£'000		£'000	Number	
Oil hydraulic equipment						
Pumps and motors	..		4,134		23	64,74,80,84
Control and ancillary valves	..		1,420		21	64,71,79,82
Actuators and cylinders	..		1,049		10	58,60,62,82
Other oil hydraulic equipment and parts	..	1,972	4,313		44	63,71,82,84
Pneumatic power equipment and parts (including pneumatic motors, actuators, boosters, rams and accumulators)	..		619		11	61,63,66
Other fluid power equipment	..		408		15	(c)
Total fluid power equipment		1,972	11,943		..	
Pumps, valves and compressors erected and installed		115	6		*	
Total		29,797	47,898		..	

(a) The references given are to the list of industries at the front of this report.

(b) Including hydraulic type pumps other than hydraulic accumulators and rams for 1963.

(c) Production is widely distributed.

(d) Complete machines only.

(e) Including parts for reciprocating pumps.

(f) For 1963 described as hydraulic machinery not elsewhere specified, excluding hydraulic equipment for motor vehicles, aircraft, machine tools, pumps, hydraulic accumulators and rams, valves and presses and other pneumatic appliances not elsewhere specified.

TABLE 7 Sales of other than principal products by larger establishments in the industry, 1963 and 1968

Establishments employing 25 or more persons:
Analysis of returns received, United Kingdom

	1963	1968
	Value	Value
	£'000	£'000
Iron castings in the rough or machined	2,801	3,773
Non-ferrous metal manufactures		
Copper, brass and other copper alloys	551	457
Miscellaneous base metals	73	240
Mechanical engineering		
Metal-working machine tools		
Metal cutting, complete and parts	257	493
Other metal-working machine tools, complete and parts		216
Industrial engines		
Gas turbines, complete and parts	1,062	419
Other turbines, complete and parts		2,354
Construction and earth-moving equipment, complete and parts	147	990
Mechanical handling equipment		
Hoists (hydraulic, mechanical and pneumatic)	517	276
Other mechanical handling equipment, complete and parts		328
Space heating, ventilating and air-conditioning equipment, complete and parts	2,234	662
Food and drink processing and sterilising machinery, complete and parts	22	135
Miscellaneous (non-electrical) machinery		
Portable power tools, complete and parts	5,314	4,479
Garage equipment and plant	29	185
Chemical, petro-chemical and oil refining machinery and plant, complete and parts	239	296
Other miscellaneous machinery, complete and parts	4,057	2,241
Industrial (including process) plant and steelwork		
Water treatment plant	260	558
Fabricated iron and steelwork	438	1,756
Other plant, complete and parts	2,784	5,973
General mechanical engineering		
Oil fuel burners (including other burners)	1,595	507
Other and unclassified engineering products	1,979	5,606
Scientific, industrial instruments and apparatus, complete and parts	2,213	2,546
Electrical engineering		
Electrical machinery, complete and parts	1,516	1,434
Other electrical engineering products, complete and parts	315	107
Shipbuilding, ship repairing and marine engineering	1,221	1,128
Motor vehicle and tractor manufacture, components and parts	324	1,773

Continued on next page.

TABLE 7 (continued)

	1963	1968
	Value	Value
	£'000	£'000
Engineers small tools and gauges	450	315
Miscellaneous metal manufactures	1,287	5,076
Other products	364	2,973
Work done		
Building and civil engineering work carried out in Great Britain including the erection of constructional steelwork and the erection and installation of air-conditioning, heating and ventilating plant, but not of complete process plant	19	744
Machinery and plant erected and installed and other installation work, other than pumps, valves and compressors	-	936
Repair and jobbing work	3,810	8,123
Other work done on commission	1,122	2,040
Research and development work	384	638
Services rendered to other organisations (a)	174	351
Total value of goods sold without having been subjected to any manufacturing process (merchanted or factored)	11,179	18,428
Canteen takings	516	645
Total	49,253	79,201

(a) Amounts charged for hiring out plant, machinery or other goods, for providing transport, or for technical or other services rendered to other organisations.

TABLE 8 Production of certain principal products of the industry by larger establishments, 1963 and 1968

This table is not applicable to this industry.

TABLE 9 Purchases by larger establishments of selected principal products of the industry, 1968

This table is not applicable to this industry.

TABLE 10 Purchases by larger establishments in the industry, 1963 and 1968

Establishments employing 25 or more persons: Analysis of returns received, United Kingdom

	1963		1968	
	Quantity	Cost	Quantity	Cost
	Th.tons	£'000	Th.tons	£'000
Materials for use in production				
Iron				
Pig iron, including refined pig iron and other irons for re-melting	28.5	671	34.2	779
Castings	29.4	3,102	41.4	5,960
Steel	..	616	..	734
Ingots, blooms, billets, slabs (including sheet/plate mill slabs and sheet bars)	1.0	64	3.3	297
Bars and rods (including wire rods), angles, shapes and sections, girders, beams, joists and pillars rolled (not fabricated), including tube rounds and squares	..	35	..	85
Plates, 3 mm. thick and over	21.0	2,325	55.9	6,472
Sheets under 3 mm. thick (including electrical sheets)	7.0	405	12.8	886
Hoop and strip (including tape of all thicknesses)	2.6	192	4.3	331
Forgings (except drop forgings)	0.3	27	0.7	63
Castings	..	..	..	57
Drop forgings	4.8	737	6.9	1,478
Iron and steel not elsewhere specified except finished parts, wire and scrap	15.2	3,331	26.9	6,271
Wrought tubes and fittings for wrought tubes (including welded, seamless, conduits, etc)	..	..	..	1,499
Other	4.7	843	7.8	1,446
Precision chain (eg transmission and timing)	..	..	..	365
Springs, laminated and other types	..	20	..	54
Steel wire and wire manufactures (excluding insulated wires and cables)	..	238	..	428
Wire (single wire)	..	7	..	14
Wire manufactures (including wire cables and ropes and stranded wire of two or more ply)	..	19	..	71
Ferro-alloys	..	222	..	549
Iron and steel scrap	..	561	..	763
Light metals and non-ferrous metals in all forms except finished parts, wire and scrap	..	..	..	..
Aluminium and aluminium alloys	1.7	683	5.7	2,487
Brass and other copper alloys (including nickel silver and cupro nickel, but excluding all other nickel alloys and cadmium copper) (a)	..	292	..	360
Copper (including cadmium copper) (b)	17.2	5,229	29.6	13,380
Lead and alloys of lead (excluding solder)	..	930	..	1,944
Zinc and alloys of zinc	0.8	242	1.3	709
Tin	..	25	..	28
	0.7	77	1.2	209
	Th.cwt.		Th.cwt.	
	1.0	45	1.1	61

Continued on next page.

TABLE 10 (continued)

	1963		1968	
	Quantity	Cost	Quantity	Cost
Materials for use in production (continued)		£'000		£'000
Solder, soft	..	6	..	63
Non-ferrous metal wire (single wire, not insulated)	..	32	..	14
Non-ferrous metal scrap	..	193	..	611
Glass in all forms (including finished parts)	..	148	..	138
General chemicals (c)				
Inorganic (including inorganic gases)			..	83
Organic (including organic gases)	..	102	..	28
Other (eg mixtures of inorganic and organic chemicals)			..	37
	Th.gal.		Th.gal.	
Paint and varnish (including lacquers and stains)	98.2	157	144	239
	..	33	..	38
Synthetic resins and plastics materials (excluding leathercloth and reinforced plastics)				
Polyethylene and polypropylene and copolymers: sheet, rod, film, profile shapes and monofilament			Th.cwt. 2.1	92
Polyvinyl chloride (including copolymers) plasticised and unplasticised sheet, film, rod, tube, profile shapes and foam			..	110
Phenolics and allied products: resins (the net resin content), solutions, emulsions, dispersions, moulding and extrusion compounds	..	121	..	3
Thermosetting polyesters, including epoxide resins (the net resin content excluding filler), and resin glass fibre mixtures			..	115
Refractory materials	..	197	..	155
Manufactures wholly or mainly of rubber (including synthetic rubber), balata and gutta-percha, including sheeting, but excluding replacement parts for firms' own machinery, plant, vehicles, etc	..	757	..	3,411
Timber	Th.stds.		Th.stds.	
Softwood, sawn or planed but not further prepared or manufactured	0.4	60	0.5	74
	..	13	..	..
	Th.cu.ft.		Th.cu.ft.	
Hardwood, sawn or planed, but not further prepared or manufactured	17.0	23	8.1	13
			..	8
	Th.sq.ft.		Th.sq.ft.	
Plywood, including blockboard, laminboard and battenboard	18.1	8	163	16
	..	2	..	..
Asbestos in all forms (including finished parts)	..	148	..	186
Other thermal insulating materials	..	14	..	13
Insulating wires, cables, strips and strands	..	272	..	365
Bolts, rivets, nuts and washers, screws, nails, tacks, etc	..	1,379	..	3,323
Machinery and plant bought for installation and erection	..	1,122	..	2,129

TABLE 10 (continued)

	1963		1968	
	Quantity	Cost	Quantity	Cost
Materials for use in production (continued)		£'000		£'000
Purchased components for incorporation in firms' own products				
Ball and roller bearings and parts thereof	..	530	..	1,248
Electric motors				
Of less than 1 h.p.	..	900	..	2,150
Of 1 h.p. and over	..	3,043	..	3,100
			Number	
Internal combustion engines	..	1,560	18,476	3,283
Industrial valves	..	787	..	2,304
Gears and gear wheels of metal	..	441	..	967
Pumps	..	1,012	..	1,778
Measuring instruments and gauges and parts				
Industrial process measuring and control instruments and equipment	..	392	..	1,402
Other	..	1,057	..	989
Plastic goods moulded and fabricated	..	173	..	758
Other components not elsewhere specified (excluding those of rubber and asbestos)	..	11,028	..	23,829
	Th.gal.		Th.gal.	
Lubricating oils and greases (including cutting oils and emulsions)	363	115	809	244
	..	54	Th.cwt. 2.6	19
			..	61
Replacement parts for firms' own machinery, plant and vehicles, and accessories and consumable tools bought as replacement				
Tyres and other spare parts for firms' own road goods vehicles	..	1,790	..	82
Other	..	..	..	2,808
All other materials for use in production	..	6,379	..	12,641
Packaging materials				
Paper and board				
Boxes, cartons, drums and canisters (with or without metal ends) of paper and cardboard	..	174	..	287
Fibreboard packing cases	..	..	..	28
Wrapping and packing paper (including paper coated with plastics and any laminates incorporating paper but not metal)	..	82	..	91
Other packaging materials of paper and paperboard (including moulded pulp units and labels, but excluding bags, multiwall paper sacks and paper and board for converting into packaging materials)	..	..	..	32
Packaging materials of metal (other than aluminium) including crown corks, wire, foil and any laminates incorporating foil, foil labels and closures, tensional steel strappings, etc, but excluding cans, boxes, barrels, kegs and drums	..	(d)	..	20

Continued on next page.

TABLE 10 (continued)

	1963		1968	
	Quantity	Cost	Quantity	Cost
Packaging materials (continued)		£'000		£'000
Timber				
Containers wholly or mainly of wood (including plywood boxes and drums) baskets and wickerwork crates	..	316	..	619
Timber (sawn or planed) for manufacture into packing cases, etc	..	213	Th.cuft. 402	206
Other wood products for packaging (including wood wool, but excluding plywood for manufacture into packing cases)	..	(d)	..	26
All other packaging materials	..	86	..	117
Fuel and electricity (e)	Th.tons		Th.tons	
Coal	32.0	183	29.4	205
Coke (including screenings) and manufactured fuel	35.0	399	30.8	411
	Th.gal.		Th.gal.	
Derv fuel and motor spirit for use in road vehicles	841	189	1,599	464
			..	71
Other liquid fuels (including creosote/pitch mixtures, etc and liquified petroleum gases)	7,499	349	10,571	642
	..	49		
	Th.therms		Th.therms	
Gas	3,677	194	5,220	412
	..	92	..	54
	Th.kWh		Th.kWh	
Electricity	229,599	1,040	291,335	2,296
	..	324	..	396
All other fuels	..	(f)	..	205
Total cost of materials and fuel		59,999		127,343
Goods purchased for merchanting		8,714		15,162
Canteen purchases		502		728
Total cost of purchases		69,215		143,233

- (a) For 1963 cadmium copper was not specifically excluded.
 (b) For 1963 'Cadmium copper' was not specifically included but 'Blister' was excluded.
 (c) For 1963 described as 'Heavy chemicals'.
 (d) Included in 'All other packaging materials' for 1963.
 (e) The total quantity of electricity generated in establishments employing 25 or more persons in this industry was 5,912 Th.kWh in 1968 and 2,557 Th.kWh in 1963.
 (f) Not recorded separately for 1963.

TABLE 11 Transport costs and employment of larger establishments, 1963 and 1968

Establishments employing 25 or more persons:
 Analysis of returns received, United Kingdom

	Unit	1963	1968
Average number mainly employed on transport	No.	373	537
Transport costs			
Wages and salaries	£'000	273	573
Derv fuel and motor spirit	"	189	535
Tyres and other spare parts for road goods vehicles	"	..	82
Payments to other organisations for transport	"	1,742	1,670
	{ by road		
	{ by rail and other means excluding postal services		1,059
Costs of operating road goods vehicles			
Insurance	"	22	56
Vehicle licences	"	17	51
Depreciation	"	130	292
Payments to other organisations for repairs and maintenance	"	63	119
Total	"	2,437 (a)	4,438

(a) Excluding tyres and other spare parts for road goods vehicles, not collected separately for 1963.

TABLE 12 Payments for certain services, etc by larger establishments, 1963 and 1968 (a)

Establishments employing 25 or more persons:
 Analysis of returns received, United Kingdom

	Amounts payable	
	1963	1968
Repairs and maintenance to	£'000	£'000
Buildings	366	601
Road goods vehicles	63	119
Plant, machinery and other capital equipment	498	1,065
Insurance, licensing and depreciation of road goods vehicles (b)	170	399
Rates, excluding water rates	915	1,971
Hire of plant and machinery	81	382
Postage, telephone, telegrams, cables and telex (c)	935	1,729
Total	3,027	6,267

- (a) No deduction is made for these payments to arrive at the figures of net output given in this report.
 (b) For details see Table 11.
 (c) Excluding telex for 1963.

TABLE 13 Percentage analysis of twelve-month periods covered by returns from larger establishments, 1968

Establishments employing 25 or more persons:
Analysis of returns received, United Kingdom

Year ended	Percentage of total returns received	Percentage of total number employed
1968	Per cent.	Per cent.
April (a)	1.4	0.8
May	1.0	0.3
June	3.1	2.1
July	3.1	3.8
August	2.4	0.7
September	8.0	7.5
October	3.5	1.9
November	3.5	1.4
December	46.6	53.8
1969		
January	2.4	4.4
February	0.3	0.7
March	22.6	21.9
April (b)	2.1	0.7
	100	100

(a) From 6 April.

(b) To 5 April.