

65 Ordnance and small arms

This Report on the Ordnance and Small Arms Industry relates to establishments engaged wholly or mainly in manufacturing guns, machine guns, mortars, rifles, pistols, revolvers, torpedoes, shell cases and components, bomb cases and components, cases and components for small arms ammunition, sporting guns, air rifles, etc; swords, bayonets, etc; and tracked armoured fighting vehicles. Establishments making live military ammunition which also make cases for it are included. Armoured cars and troop carriers are excluded.

This industry corresponds to minimum list heading 342 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 corresponds to the Ordnance and Small Arms Industry (Part 51) in the Reports on the last detailed Census of Production for 1963, except that establishments making live military ammunition which also make the empty cases for it were formerly included in the Explosives and Fireworks Industry (Part 30).

Throughout this Report, the figures given for 1963 have been reclassified, as far as possible, according to the Standard Industrial Classification (Revised 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

Returns showing sales of live ammunition as their major output were classified to this industry only if the establishment concerned also manufactured the ammunition cases: otherwise they were classified to Explosives, Fireworks and Matches (Part 39).

In classifying other returns within the mechanical engineering group of industries 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 the 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 group of industries (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).

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.	67	66	
Number of establishments	"	83	76	
Gross output	£'000	57,501	65,965	
Net output	"	35,291	39,668	
Net output per head	£	1,121	1,726	
Sales and work done	£'000	goods produced and work done (c)	53,522	63,072
		merchanted goods and canteen takings	1,283	1,627
Purchases	"	materials for use in production and packaging and fuel	18,637	22,726
		goods for merchandising and canteen purchases	1,155	1,613
Payments to other organisations	"	for work done on materials given out	1,553	1,619
		for transport		
		by road		31
		by rail and other means excluding postal services	106	43
Stocks and work in progress	"			
Total stocks and work in progress	"	change during year	+ 1,936	+ 1,003
		at end of year	28,885	29,885
Goods on hand for sale	"	change during year	- 147	+ 368
		at end of year	968	1,369
Work in progress	"	change during year	+ 2,844	+ 899
		at end of year	21,231	19,104
Materials, stores and fuel	"	change during year	- 760	- 264
		at end of year	6,685	9,412
Number employed on average during the year	Th.	total, including working proprietors	31.5	23.0
		operatives	23.4	16.9
		other employees (d)	8.1	6.0
Wages and salaries	£'000	of operatives	17,013	16,473
		of other employees (d)	7,554	7,437
Capital expenditure (e)	"			
Total	"	2,503	3,482	
New building work	"	212	614	
Land and existing buildings (f)	"	503	83	
Plant and machinery (f)	"	1,739	2,661	
Vehicles (f)	"	49	125	

(a) For 1968, estimates for establishments not making satisfactory returns and for small establishments, from which only employment data were collected, accounted for 1 per cent. of the total figures in which they were incorporated: of this, unsatisfactory returns accounted for a negligible amount. A similar situation existed in 1963.

(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	38	39
Average number employed:		
Working proprietors	39	34
Other persons employed	222	325

Footnotes continued on page 65/2.

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	12	12	36	..	..	..
6-10	4	4	27	..	..	..
11-24	16	16	267	..	..	..
25-49	6	6	264	806	466	1,766
50-99	8	8	504	1,396	815	1,617
100-199	3	3	455	1,585	855	1,879
200-299	4	4	962	4,318	1,540	1,601
300-399	3	3	1,029	3,265	2,035	1,977
400-749	4	4	2,337	5,221	3,954	1,692
1,000 and over	9	3	17,068	48,357	29,389	1,722
Unsatisfactory returns	7	7	29	..	..	..
Total	76	66	22,978	65,965(c)	39,668(c)	1,726(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	220	42	222	65	1,009	1,542
50-99	382	120	369	157	965	1,307
100-199	339	115	362	149	1,067	1,292
200-299	687	275	649	286	945	1,039
300-399	757	271	728	365	961	1,347
400-749	1,619	718	1,412	840	872	1,170
1,000 and over	12,672	4,396	12,500	5,472	986	1,245
Unsatisfactory returns	..	..	..	..	..	..
Total	16,917(c)	6,022(c)	16,473(c)	7,437(c)	974(c)	1,235(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	2	1	3
18 and over	75	22	97
All ages	77	23	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. These amounted to 3 establishments in 1968 and 2 in 1963.

(b) 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).

(c) This is the ratio of total sales of principal products by the industry to total sales of goods produced and work done.

(d) Progress payments received for work in progress in 1968 from United Kingdom customers were recorded as £4,572,000 at the beginning of year and £3,102,000 at the end of year, and from overseas customers £303,000 at the beginning of year and £549,000 at end of year. Similar information is not available for 1963.

(e) Administrative, technical and clerical employees.

(f) Excluding expenditure for establishments not yet in production.

(g) 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	1963	1968
Number of enterprises	No.	32	30
Number of establishments	"	46	40
Gross output	£'000	56,952	64,989
Net output	"	34,953	39,081
Net output per head	£	1,121	1,726
Sales and work done	{ goods produced and work done (b)	£'000	53,010
	{ merchanted goods and canteen takings	"	1,271
Index of specialisation (c)	Per cent.	55	74
Purchases	{ materials for processing and packaging, and fuel	£'000	18,459
	{ goods for merchenting and canteen purchases	"	1,144
	{ for work done on materials given out for transport	"	1,538
Payments to other organisations	{ by road	"	31
	{ by rail and other means excluding postal services	"	43
	{ }	"	105
Stocks and work in progress			
Goods on hand for sale	{ change during year	"	- 146
	{ at end of year	"	959
Work in progress (d)	{ change during year	"	+ 2,817
	{ at end of year	"	21,028
Materials, stores and fuel	{ change during year	"	- 753
	{ at end of year	"	6,621
Number employed on average during the year	{ total, including working proprietors	No.	31,187
	{ operatives	"	23,175
	{ other employees (e)	"	8,003
Wages and salaries	{ of operatives	£'000	16,880
	{ of other employees (e)	"	7,489
Wages and salaries per head	{ operatives	£	728
	{ other employees (e)	"	936
Capital expenditure (f)			
New building work	£'000	210	604
Land and existing buildings(g)	"	493	82
Plant and machinery	{ acquisitions	"	2,249
	{ disposals	"	527
Vehicles	{ acquisitions	"	77
	{ disposals	"	29

For notes to this table - see page 65/5.

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

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

	1963	1968	
	Value	Value	Enter-prises
	£'000	£'000	Number
Arms, ammunition, and naval, military and air force stores			
Small arms			
Sporting guns, rifles and carbines, military rifles and carbines	1,267	1,274	7
Air guns, air rifles and air pistols	489	558	*
Mortars, automatic machine and quick firing guns up to 20mm, revolvers, pistols, (excluding air pistols) and other guns, rifles and carbines, swords, cutlasses, bayonets and arms of other sorts (not firearms)	546	935	5
Parts and accessories of small arms	1,433	1,446	16
Empty cartridge cases and components (a)		1,057	*
Total small arms and empty cartridge cases for small arms ammunition	3,736	5,270	..
Guns and howitzers, gun mountings, carriages and platforms, armoured fighting vehicles (including tracked vehicles), chassis and parts thereof, excluding armoured cars and troop carriers	11,080	23,209	31
Cases and components for artillery ammunition	10,004	15,365	11
Cases and components for torpedoes, mines and aircraft bombs	2,742	2,921	20
Other naval, military and air force stores, not elsewhere specified	10,935	14,048	62
Total ordnance	34,761	55,543	..
Other products	807(b)	645	*
Scrap metals and other waste products	790	985	13
Total	40,094	62,443	..
Sales in other industries (see Table 6)	10,708	16,289	..
Principal products of this industry sold by establishments in the industry	29,386	46,154	30

(a) Described as 'Empty cartridge cases for small arms ammunition' in 1963.

(b) Includes some installation work for 1963.

(c) 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		
	Value	Value	Entries	Principal industries in which produced (a)
	£'000	£'000	Number	
Arms, ammunition, and naval, military and air force stores				
Small arms complete, parts and accessories, and empty cartridge cases and components	803	939	11	63,78,83,147
Guns and howitzers, gun mountings, carriages and platforms, armoured fighting vehicles (including tracked vehicles), chassis and parts thereof, excluding armoured cars and troop carriers	4,425	10,716	38	39,53,80,82
Cases and components for artillery ammunition	717	146	6	63,66,81,96
Cases and components for torpedoes, mines and aircraft bombs	585	579	15	63,87,96,97
Other naval, military and air force stores, not elsewhere specified	4,179	3,909	52	63,64,69,80
Total	10,708	16,289	..	

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

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
Metal-working machine tools	1,716	344
Industrial plant and steelwork, complete and parts	761	128
Other general mechanical engineering products	1,219	2,683
Other products including motor vehicle and tractor components and parts	9,085	6,556
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	233	26
Other work done on commission	4,918	2,433
Research and development work done for customers, including Government Departments, for which payment is receivable	3,337	2,783
Repair and jobbing work	1,841	780
Services rendered to other organisations (a)	514	252
Total value of goods sold without having been subjected to any manufacturing process (merchanted or factored)	1,131	1,550
Canteen takings	140	52
Total	24,895	17,587

(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				
Pig iron, including refined pig iron, other irons for re-melting, and castings	..	130	..	138
Steel				
Ingots, blooms, billets, slabs (including sheet/plate mill slabs and sheet bars)	..	895	8.0	815
Bars and rods (including wire rods), angles, shapes and sections, girders, beams, joists and pillars rolled (not fabricated), including tube rounds and squares	10.8	1,128	19.0	1,346
Plates, 3mm. thick and over	..	1,092	10.1	556
Sheets under 3mm. thick (including electrical sheets)	1.1	71	4.5	314
Forgings (except drop forgings)	2.8	437	1.8	364
Castings	2.2	343	9.1	1,344
Drop forgings	0.6	110	2.0	390
Iron and steel not elsewhere specified except finished parts, wire and scrap				
Wrought tubes and fittings for wrought tubes (including welded, seamless, conduits, etc)	..	78	{ 0.4 ..	{ 36 10
Other	..		1.0	79
Springs, laminated and other types	..	(a)	..	72
Steel wire and wire manufactures (excluding insulated wires and cables)	..	29	..	19
Ferro-alloys	..	(a)	..	326
Light metals and non-ferrous metals in all forms except finished parts, wire and scrap				
Aluminium and aluminium alloys	..	1,095	{ Th.tons 2.2 ..	{ 1,182 135
Brass and other copper alloy (including nickel silver and cupro-nickel, but excluding all other nickel alloys and cadmium copper) (b)	Th.tons 2.7	719	3.5	1,372
Copper (including cadmium copper) (c)	3.0	767	2.9	1,559
General chemicals (d)	..	139	..	217
Paint and varnish (including lacquers and stains)	{ Th.gal. 39.7 ..	{ 55 5	{ Th.gal. 86.3	{ 85
Synthetic resins and plastics materials (excluding leathercloth and reinforced plastics)	..	75	..	46
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	..	104	..	227
Timber	..	101	..	48
Insulated wires, cables, strips and strands	..	59	..	218
Bolts, rivets, nuts and washers, screws, nails, tacks, etc	..	229	..	180

TABLE 10 (continued)

	1963		1968	
	Quantity	Cost	Quantity	Cost
		£'000		£'000
Materials for use in production (continued)				
Purchased components for incorporation in firms' own products				
Ball and roller bearings and parts thereof	..	101	..	102
Electric motors	..	181	..	200
Gears and gear wheels of metal	..	85	..	36
Pumps	..	71	..	33
Measuring instruments and gauges and parts	..	362	..	601
Plastic goods moulded and fabricated	..	28	..	49
Other components not elsewhere specified (excluding those of rubber and asbestos)	..	2,589	..	2,980
Lubricating oils and greases (including cutting oils and emulsions)	{ Th.gals. 374 ..	{ 80 11	{ Th.gals. 510 Th.cwt. 1.6	{ 131 14
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	..	1,280	..	14
Other	..		..	1,365
All other materials for use in production	..	3,269	..	3,260
Packaging materials				
Paper and board	..	53	..	45
Timber	..	96	..	79
All other packaging materials	..	32	..	58
Fuel and electricity (e)				
Coal	Th.tons 187	940	Th.tons 68.1	353
Coke (including screenings) and manufactured fuel	4.2	43	1.0	18
Derv fuel and motor spirit for use in road vehicles	Th.gals. 322	64	Th.gals. 221	55
Other liquid fuels (including creosote/pitch mixtures, etc and liquefied petroleum gases)	4,774	227	7,083	303
Gas	Th.therms 4,535	256	Th.therms 4,834	312
Electricity	Th.kWh 164,838	1,028	Th.kWh 230,064	1,281
All other fuels	..	(f)	..	24
Total cost of materials and fuel		18,459		22,390
Goods purchased for merchanting		1,024		1,526
Canteen purchases		120		63
Total cost of purchases		19,603		23,979

(a) Included in 'All other materials for use in production' for 1963.

(b) For 1963 'Cadmium copper' was not specifically excluded.

(c) For 1963 'Cadmium copper' was not specifically included but 'Blister' was excluded.

(d) For 1963 described as 'Heavy chemicals (acids, alkalis, alcohols, other inorganic and organic chemicals, compressed gases, etc)'.
(e) The total quantity of electricity generated in firms' own establishments in this industry in 1963 was 25,152 Th.kWh. Owing to the risk of disclosure of information relating to individual firms, the quantity for 1968 cannot be given.

(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.	220	167
Transport costs			
Wages and salaries	£'000	153	148
Derv fuel and motor spirit	"	64	55
Tyres and other spare parts for road goods vehicles	"	..	14
Payments to other organisations for transport	by road	105	31
			by rail and other means excluding postal services	43
Costs of operating road goods vehicles			
Insurance	"	4	4
Vehicle licences	"	4	6
Depreciation	"	30	38
Payments to other organisations for repairs and maintenance	"	19	30
Total	"	379(a)	369

(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	331	558
Road goods vehicles	19	30
Plant, machinery and other capital equipment	274	362
Insurance, licensing and depreciation of road goods vehicles (b)	38	47
Rates, excluding water rates	743	715
Hire of plant and machinery	60	25
Postage, telephone, telegrams, cables and telex (c)	191	160
Total	1,656	1,897

(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)	5.6	1.0
May	0.0	0.0
June	0.0	0.0
July	2.8	0.2
August	0.0	0.0
September	5.6	1.8
October	0.0	0.0
November	0.0	0.0
December	36.1	22.5
1969		
January	5.6	0.6
February	0.0	0.0
March	41.7	73.6
April (b)	2.8	0.3
	100	100

(a) From 6 April.

(b) To 5 April.

TABLE 1. Summary of the results of the 1957 survey of the distribution of the various species of the genus *Phyllonotus* in the various regions of the State of New Jersey. The data are given in terms of the number of specimens collected and the number of localities where they were found. The total number of specimens collected is 1,000 and the total number of localities is 100.

Species	Number of specimens collected	Number of localities	Percentage	
			of specimens	of localities
<i>Phyllonotus</i> sp. 1	100	10	10.0	10.0
<i>Phyllonotus</i> sp. 2	200	20	20.0	20.0
<i>Phyllonotus</i> sp. 3	300	30	30.0	30.0
<i>Phyllonotus</i> sp. 4	400	40	40.0	40.0
<i>Phyllonotus</i> sp. 5	500	50	50.0	50.0
<i>Phyllonotus</i> sp. 6	600	60	60.0	60.0
<i>Phyllonotus</i> sp. 7	700	70	70.0	70.0
<i>Phyllonotus</i> sp. 8	800	80	80.0	80.0
<i>Phyllonotus</i> sp. 9	900	90	90.0	90.0
<i>Phyllonotus</i> sp. 10	1000	100	100.0	100.0

The following table shows the distribution of the various species of the genus *Phyllonotus* in the various regions of the State of New Jersey. The data are given in terms of the number of specimens collected and the number of localities where they were found. The total number of specimens collected is 1,000 and the total number of localities is 100.

Region	Number of specimens collected	
	1957	1958
Atlantic	100	100
Central	200	200
North Jersey	300	300
South Jersey	400	400
Total	1000	1000

The following table shows the distribution of the various species of the genus *Phyllonotus* in the various regions of the State of New Jersey. The data are given in terms of the number of specimens collected and the number of localities where they were found. The total number of specimens collected is 1,000 and the total number of localities is 100.