

THE SPRING RESEARCH AND MANUFACTURERS' ASSOCIATION

A SUMMARY OF SPRING
MANUFACTURING AND TESTING EQUIPMENT

REPORT No. 390

Compiled by

G. B. GRAVES A. Met., C. Eng., M.I.M.

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A SUMMARY OF SPRING MANUFACTURING
AND TESTING EQUIPMENT

1. INTRODUCTION

To aid members in the selection of machines and equipment for the manufacture and processing of helical compression, extension and torsion springs and the manufacture of flat springs an extensive survey of machinery and equipment, available to UK springmakers, has been undertaken by the Association.

For ease of reference the technical information has been summarised and is presented under the following broad subject headings:-

- i Automatic Spring Coiling Machines
- ii Lathe Coilers
- iii Grinding Machines
- iv Multi-slide machines
- v Load Testing Equipment

The technical data for each group includes information concerning U.K. agents, capacity of the machine or equipment, approximate prices, and any special features. Of necessity the information contained in these machinery/equipment summaries has had to be restricted but sufficient data is given to enable broad comparisons of the features of the machinery/equipment to be made between the various manufacturers' products. For detailed information the reader is recommended to obtain the appropriate technical brochure from the manufacturer or agent.

To the best of our knowledge the technical details given were correct at the time of compiling this document but all manufacturers reserve the right to change the technical details without notice. Likewise, the prices of foreign machinery and equipment are subject to variations in the exchange rate.

Every effort has been made to obtain current prices for equipment but in certain areas this has not always been possible due to a variety of reasons. In a number of instances there was a reluctance by suppliers to quote against 'general interest' enquiries.

<u>No.</u>	<u>Company</u>	<u>Address or UK Agent</u>
1	Asahi-Seiki Manufacturing Co. Ltd.	UK Agent:- Frank Whitelegg (Mfg) Ltd. Curtis Road, Dorking, Surrey RH4 1EJ Tel: 0306-881337
2	Bennett Mahler Ltd.	Unit 5, Colemeadow Road, North Moons Moat Industrial Estate, Redditch B98 9PB Tel: 0527-64444
3	Bobbio, Otto S.R.L.	UK Agent:- Bennett Mahler Ltd.
4	H.T.C. Machines (Hsin Tong Cheng Machinery Co. Ltd)	UK Agent:- Frank Whitelegg (Mfg) Ltd
5	Itaya Engineering Ltd.	UK Agent:- Hammond Machinery Ltd. 26 Belmont Row, Birmingham B4 7RE Tel: 021-359-3717
6	MEC (Matsuoka Eng. Co. Ltd)	UK Agent:- Bennett Mahler Ltd
7	Okuno Machine Co. Ltd.	UK Agent:- Process Automation, Bradley House, 333 Bradley Road, Huddersfield, West Yorkshire, HD2 1PX Tel: 0484 23492
8	Sato Kikai Co. Ltd.	UK Agent:- Frank Whitelegg (Mfg) Ltd
9	Schenker Maschinen AG	UK Agent:- Frank Whitelegg (Mfg) Ltd
10	Shinko Machinery Co. Ltd	UK Agent:- Spring Tooling (Midlands) Ltd., Manor Works, Worcester Road, Bromsgrove B61 7AZ Tel: 0527 76412
11	Simplex Rapid	UK Agent:- S.A.H. Machine Tools Ltd 90 High Street, Eaton Bray, Nr. Dunstable, Bedfordshire OU6 2DP Tel: 0525 220795

<u>No.</u>	<u>Company</u>	<u>Address or UK Agent</u>
12	Sleeper & Hartley Corporation	P.O. Box 10, 335 Chandler Street, Worcester, Massachusetts 01602 U.S.A.
13	TC-HP Machines Herckelbout	UK Agent:- Kubach & Sambrook Ltd., The Sussex Suite, City Gates, South Gate, Chichester, PO19 2DJ Tel: 0243 771711
14	TCM (Tokyo Coiling Machine Co. Ltd)	114-3 Nanabayashi, Funabashi City, Chiba Prefecture, Japan.
15	Torin Corporation	UK Agent:- Torin Corporation, Greenbridge Estate, Swindon, Wilts SN3 3JB Tel: 0793 24291
16	US Baird Corporation	UK Agent:- Bennett Mahler Ltd.
17	Wafios Maschinenfabrik	UK Agent:- Metoma Ltd., Canon Newton House, 70 Evesham Walk, Redditch B97 4HA Tel: 0527 65396

AUTOMATIC SPRING COILERS

EQUIPMENT BRIEF

COMPANY NO.	MODEL	MACHINE TYPE	WIRE DIA mm	MAX COIL DIA. mm	MAX SPINDLE DIA mm	SPEED s.p.m.	WIRE FEED mm	MOTOR KW	FLOOR SPACE mm	SPRING TYPE (C.Ex.T.)	APPROX PRICE £	NOTES	
1	SF1	cam	0.15-0.86			10-83	0-660	0.4	600x600	Ex.	21,100	Baird 'SprinGenerator'	
	SF2	cam	0.86-1.50			10-72	100-1000	1.5	960x800	Ex.	32,000	under another name	
	NSF-2	computer	0.6-2.0	20.0			10,000		850x800	C.Ex.	63,000		
2	NSF-3	computer	1.0-3.5	40			10,000	11	1200x900	Ex.	79,000		
	SCO	rack&pinion	0.13-0.7	12.7		28-240	838			C.Ex.	7,300		
	SC08	segment	0.1-0.8	19		25-450	1,022			C.Ex.	15,700		
	DA1		0.4-2	38		20-300	1,780			C.Ex.	26,700		
	SA-30-C	clutch	0.63-3.15	60		3-100	24,000			C.Ex.	24,700	torsion spring attachment	
	SA-30-S	segment	0.63-3.15	60		24-212	2,500			C.Ex.	24,700	"	
	SA-40-C	clutch											"
	SA-40-S	segment											
	SA-60-C	clutch	2.0-6.3	100		1-75	32,000			C.Ex.	30,000		torsion spring attachment
	SA-60-S	segment	2.0-6.3	100		12-120	4,700			C.Ex.	30,000		"
	SCC3	clutch	1.8-7.6	100		1-50	20,000			C.Ex.	53,300		"
	EM8	clutch	1.2-3.6	63.5		25 max	unlimited			Ex.	14,500		"
	Sprin Generator												
	Bantam			0.2-0.6	8		45 max	50.8			Ex.	14,300	made under licence
	TCC			0.2-1.0		25	8-75	100			T.	19,500	
TCL			0.5-2.6		31.5	12- 70	203			T.			
TCC			1.6-5.4		50.8		356			T.			
3	BTS 100	segment	0.1-0.8	20		500 max	1,300	0.75	750x850	C.Ex.			
	BX 200		0.4-1.7	40		300 max	5,500	1.5	1100x1200	C.Ex.			
	BS 80		0.15-0.8	20		300 max	3,000	0.5		C.Ex.			
	BFO 1	electronic	0.4-1.5	40		150 max	11,000	3	1700x1800	C.Ex.T.		with end looping facility	
	BSE 400	electronic	0.8-4	70		150 max	100m	6	3000x1800	C.Ex.		Programmed machine	
	BX 400	clutch	0.8-4	70		185 max	28,000	6	1550x1360	C.Ex.			
	BTS 400	segment	0.8-3.5	70		210 max	2,400	4		C.Ex.			
	BNC 800		3 - 8	100		70 max	19,000	20		C.Ex.		Numerical control	
	BS 1100		4 - 10	100		120			10	C.Ex.			
	TOR 1		0.2-1.5			80			1	T.			
	TOR 2		0.8-3.5			50			2.5	T.			
	TOR 3		1.5-6						5	T.			
4	HTC -3	segment	0.15-0.4	8		200 max	500	0.5 HP	620x 650	C.	6,100		
	HTC-5E	segment	0.2-0.7	7		60 max	1,000	1 HP	560x 840	Ex.	15,100	with looper	
	HTC-8HS	segment	0.12-0.8	20		400 max	1,000	1 HP	850x 750	C.	9,800		
	HTC-11E	segment	0.2-1.2							Ex.	27,000	with looper	
	HTC-14	segment	0.2-1.4	30		100 max	2,400	1 HP	720x 800	C.	4,900		
	HTC-14CT	segment	0.2-1.4	30		100 max	2,400	1 HP	720x 800	C.T.	6,200	with torsion spring device	
	HTC-15SR	segment	0.4-1.5	20		600 max	200	1/2 HP	600x 600	-	3,800	single rings	
	HTC-16DT	segment	0.6-2.0	20		30 max	400	2 HP	1050x1100	T.	15,700	double torsion winder	
	HTC-18	clutch	0.6-2.0	35		-	10,000	2 HP	1100x1100	C.	7,300		

Sheet 2: AUTOMATIC SPRING COLLERS

COMPANY NO	MODEL	MACHINE TYPE	WIRE DIA. mm	MAX. COIL DIA mm	MAX SPINDLE DIA mm	SPEED s.p.m.	WIRE FEED mm	MOTOR KW	FLOOR SPACE mm	SPRING TYPE (C.EX.T.)	APPROX PRICE £	NOTES	
4	HTC-35	segment	1.8-4.0	75		60 max	3,000	3HP	1500x1250	C	14,900		
	HTC-35E	segment	2.0-3.6	40		30 max	3,000	3HP	1700x1800	Ex.	28,800		
5	MCS-8E	computer	0.2-0.8	7			10,000	0.8	930x 500	C.Ex.T	67,500		
	MCS-15E	"	-1.5	12			10,000	1.6	970x 560	"	40,500		
	MCS-30E	"	1.5-3.0	24			10,000	4	1550x1040	"	70,700		
	MCT-10D	"	1.0		20		1,000	0.4	530x 720	T	-		
	MCT-20E	"	2.0		30		1,000	4.7	720x1470	T	45,400		
	MCT-40E	"	4.0		42		1,000	4	2150x2030	T			
6	SC-4		0.05-0.40	10			1,000	0.75		C			
	SC-8		0.1-0.7	20		280 max	1,000	0.75	350x 660	C			
	CL-10	computer	0.12-1.0		10	80	6,000	0.7		Ex			
	VRS-10	computer	0.15-1.0		16	10-80	100	0.6		T			
	VRS-23	computer	0.5-2.3		30	5-50	200	2.25		T			
	FR-10	computer	0.12-1.0			20-200							
7	CM-30CNC	computer	0.8-3.0	60			∞	11	2000x4000				
	CM-50CNC	"	2.0-5.0	80			∞	18.5	2000x4500	C			
	CM-80CNC	"	3.0-8.0	100			∞	30	2500x5000	C			
	CM-120CNC	"	6.0-12	150			∞	37	3000x8000	C			
	CM-200CNC	"	10-20	200			∞	45	3500x10000	C			
8	CST-1	"	0.1-1.0							T	27,600	Torsion spring coiler	
	CST-2	"	0.5-2.0							T	32,400	" "	
	CST-3	"	1.0-3.0	30						T	65,300	" "	
	CSD-01	cam	0.1-0-3	5		200 max	300	10	1900x2200	T			
	CSD-1	segment	0.2-1.0	25		140 max	1,000	0.75	500x 290	C			
	CSD-1B	"	"	"		"	"	"	850x 850	C		Std. single point	
	CSD-1E	"	"	"		"	"	"	850x1150	C.T			
	CSD-1L	"	"	"		"	"	"	850x 890	C		twin point coiler	
	CSD-2	"	0.4-2.0	50		120 max	1,500	1.5	1020x 800	C		long springs and spirals	
	CSD-2B	"	"	"		"	"	"	1020x1100	C.T		std. single point	
	CSD-2E	"	0.4-2.3	40		132 "	"	"	1050x1200	C		twin point coiler	
	CSD-2L	"	"	"		"	200m	1.8	1350x1200	C		long springs and spirals	
	CSD-3	"	1.0-3.0	60		100 max	3,000	2.2	1350x1500	C.T		std. single point	
	CSD-3B	"	"	"		"	"	"	1060x 940	C		twin point coiler	
	CSD-3E	"	"	"		"	"	"	1750x1320	C		long springs and spirals	
	CSD-3L	"	"	"		"	200m	2.6	1750x1250	C		std. single point	
	CSD-5	"	2.0-5.0	70		85 max	3,500	5.5	2920x2300	C		twin point coiler	
	CSD-5E	"	"	100		80 max	"	"	2980x2360	C.T	98,400	" "	
	CSD-8E	clutch	"	120		"	20,500	15			C.T	110,600	" "
	CSD-10E	"	4.0-12.0	150		"	30,000	18.5			C.T		" "

Sheet 3: AUTOMATIC SPRING COILERS

COMPANY NO.	MODEL	MACHINE TYPE	WIRE DIA mm	MAX COIL DIA. mm	MAX SPINDLE DIA mm	SPEED s.p.m.	WIRE FEED mm	MOTOR kW	FLOOR SPACE mm	SPRING TYPE (C.Ex.T.)	APPROX PRICE £	NOTES
9	15S-ECASET	Segment	0.4-1.5	30		400max	1200	2.2	1150x 900	C.Ex.T.	33,000	External cam setting
	30S-ECASET	"	0.8-3.0	60		225max	1600	3.7	1200x1100	C.Ex.T.	52,900	"
	FA-5S	"	0.1-0.5	20		500max	420	0.35	600x 620	C	10,700	"
	FA-6S	"	0.1-0.8	20		500max	1050	0.5	740x 650	C	12,700	"
	FA-15S	"	0.4-1.5	30		15-400	1200	2.2	1150x 900	C		"
	FA-20S	"	0.6-2.0	40		250max	1500	2.2	800x 750	C	23,400	"
	FA-30K	clutch	0.6-3.0	60		125max	15000	4	1400x 950	C		"
	FA-45S	Segment	1.5-4.5	80		250max	2500	7.5	1475x1355	C	49,200	Supplementary drive available
	FA-70S	"	2 - 7.0	100		166max	3650	15	2070x1300	C		"
	12T	spindle	0.2-1.2	15		100max		1	1300x 800	T		"
10	VF-704		0.1-0.4									
	VF-712		0.4-1.2									
	VF-720		0.9-2.0									
	VF-730		1.4-3.2									
	VF-740		2.0-4.0									
	VF-760		3.0-6.0									
	VF-804	computer	0.1-0.4									
	VF-812	"	0.4-1.2									
	VF-820	"	0.9-2.0									
	VF-830	"	1.4-3.2									
	VF-840	"	2.0-4.0									
	VF-860	"	3.0-6.0									
11	M5/O	segment	0.1-0.6	16		600max	415	0.4	700x 650	C.Ex.	10,000	
	M5/1	"	0.15-1.0	20		600max	1260	1.5	800x 750	"	10,800	
	M5/2	"	0.8-3.0	42		250max	1530	3.0	1000x 800	"	24,600	
	A/O	clutch	0.2-1.0	20		600max	777	1.1	820x 790	C.Ex.	10,410	
	A/1	"	0.15-1.5	35		230max	5300	1.5	900x 500	"	13,700	
	A/1-S	"	0.15-1.7	35		230max	5300	1.5	900x 500	"	16,200	torsion & looping attachments
	A/1-S/CA	"	0.15-1.7	35		230max	5600	1.13	1350x1600	"	17,900	Four wire feed-rolls "
	A/1-S/Special	"	0.20-1.0	35		120max		1.5	1000x 800	"	20,800	Two or Four feed rolls "
	A/1-S/DO	"	0.3-1.5	14		50		1.5	1500x 800	Ex.	35,000	Garter springs
	A/1-S/Expander	"	0.2-1.2					1.5	950x1300		20,800	with loops
	A/1-S/TOR	"	0.2-1.8					0.7			25,400	Piston ring springs
	ROT-Special	"										Magazine springs
	A/2-S/60	"	1.0-4.5	70		180max	37800	8 (HP)	1300x3500	C	41,700	Flying cut off
	A/2-S/93	"	1.0-5.0	85		160max	67000	12 (HP)	1400x3500	C	43,300	

MAX. WIRE FEED mm
 SF ST EL DA
 150 300 1000m 100m
 350 700 " " " "
 500 1000 " " " "
 600 1200 " " " "
 900 1800 " " " "
 1200 2400 " " " "

The 700 series machines are each available as four different modules according to wire feed length. viz SF, ST, EL and DA (computer control). SF & ST segment feed. EL & DA segment and servo motor feed.

Two modules are available FT and MFT. Each produce compression and torsion springs. The MFT also produces extension springs.

torsion & looping attachments
 Four wire feed-rolls "
 Two or Four feed rolls "
 Garter springs
 with loops
 Piston ring springs
 Magazine springs

} Flying cut off

Sheet 4: AUTOMATIC SPRING COILERS

COMPANY NO.	MODEL	MACHINE TYPE	WIRE DIA mm	MAX COIL DIA. mm	MAX SPINDLE DIA. mm	SPEED S.P.M.	WIRE FEED mm	MOTOR kW	FLOOR SPACE mm (C.E.X.T.)	SPRING TYPE (C.E.X.T.)	APPROX PRICE E	NOTES	
11	A/200-1	clutch	1.0-5.0	85		280max	500	12 (HP)	1300x1600	C	44,200	} Flying cut off Max. spring length 80mm " " " 150mm " " " 220mm " " " 37.5mm	
	A/200-2	"	1.0-5.0	85		180max	1300	12 (HP)	1300x1600	C	"		
	" -3	"	1.0-4.0	85		180max	1500	12 (HP)	1300x1600	C	44,200		
	A/12	"	5.0-12	160		34000		22.6 (HP)	2250x2000	C.Ex	83,300		
	MT/1	spindle	0.2-1.2		20	120max		1 (HP)	1200x 900	T	10,000		
	MT/2	"	0.8-3.5		50	80max		4 (HP)	1800x1300	T	15,800		
	MT/3	"	1.5-6.0		65	50max		6 (HP)	2200x1450	T	19,200		
	TPS/25	"	1.0-2.5			125max		2.6	1900x1100	T/ bending	49,200		
	SH00-S7900			0.13-0.5		800max	440						
	SH3-S790			0.2-1.0		600max	730						
	SH1.1/3 S791			0.6-2.7		450max	1600						
13	PR10	segment	0.2-1.0	20		400	1500	0.9	700x 650	C		1 or 2 point coiling Torsion attachment available " " " " TDO1 looping attachment TDO3 " " looping by second operation Auto looping machine. Auto feed " " " " Hand " " " " " Programmed, torsion coiler	
	PR20	"	0.4-1.8			500max	1500	4 (5.4HP)	800x 750	C			
	PR22	clutch	0.4-2.2	50		166max	200	1.5	1200x 950	C.Ex			
	TC80	"	2.0-8.0	100		100max	24000	7.5 (HP)	2500x1300	C.Ex.			
	PR101-TD01	segment	0.2-1.0	25		133max	1500	1		C.Ex.T			
	PR301-TD03	segment	0.7-3.0	60		240max	3000	6 (HP)	1250x1100	C.Ex.T.			
	AT400	CNC	1.0-4.0	150		unlimited		30	1300x2100	C.Ex.T.			
	RT1	"	0.2-1.0	10		"	"	1 (HP)	650x 550	Ex.			
	RT3	"	0.7-3.0	30		"	"	2 (HP)	1250x 750	Ex.			
	AO25/100	"	0.2-1.0	8		66max	-	-	0.5 (HP)	650x 750	Ex.		
	AO100/300	"	0.7-3.0	30		41max	-	-	2 (HP)	1800x1100	Ex.		
	AOS25/100	"	0.2-1.0	8		66max	-	-	0.5 (HP)	600x 400	Ex.		
	NT1000	computer		1.0	20					1000x 540	T.		
	W-100A	segment		0.07-0.38	7		400max	610	0.37	510x 310	C.T.		
	W-10A	"		0.2-0.7	22		240max	1397	0.37	710x 530	"		
	W-11A	"		0.38-1.8	39		200max	2670	1.5	880x 640	"		
	W-115A	"		0.8-2.8	54		200max	3050	2.2	760x 910	"		
W-12A	"		1.2-3.8	70		180max	3730	3.7	1780x1220	"			
W-125A	"		2.0-5.2	95		140max	4340	7.5	2130x1520	"			
W-125SA	"		2.6-6.3	108		115max	4440	7.5	2180x1520	"			
W-13A	"		3.2-7.9	117		82max	4550	15.0	2390x1830	"			
W-24	"		4.7-12.7	152		64max	13800	22	1880x2030	"			
W-24S	"		6.3-15.8	152		50max	13800	30	1880x2030	"			
W-25	"		6.3-19	254		58max	65000	37	3560x2360	"			
W-425-S	cam		-6.3			150max	965	22	2540x1700	"			
W-411	"		0.5-2.0	39		400max	559						
W-420	"		1.5-4.0	70		220max	838						
W-810	segment		0.25-1.0	22		300max	1397	1.1	460x 660				

Sheet No. 5 AUTOMATIC SPRING COILERS

COMPANY NO	MODEL	MACHINE TYPE	WIRE DIA mm	MAX COIL DIA mm	MAX SPINDLE DIA mm	SPEED s.p.m.	WIRE FEED mm	MOTOR kW	FLOOR SPACE mm	SPRING TYPE (C.E.X.T.)	PRICE £	DATE	NOTES
15	W-3000	spindle	0.38-1.0			150max	114	0.18	660x 760				
	W-3001	"	0.76-2.0			120max	159	0.75	865x 965				
	W-3015	"	1.8-3.4			75max	305	2.2	1120x1490				
	W-3002	"	1.8-4.75			36	419	3.7	1400x1930				
16	M1	Generator	0.2-0.8			83	660max	0.37	560x 690	Ex	30,000		
	M2	"	0.76-1.5			70	1500max	1.1	1040x1040	Ex			
17	FUL 3	Electronic NC									60,000	3/85	basic price accessories extra
	FUL 4	"	0.8-4.0	70		110max	unlimited	7	4000x1200	C.Ex.T	84,000	"	"
	FUL 6	"	1.5-6.0	90		100max	"	15	3000x2000	"	100,000	"	"
	FUL 8	"	2.0-9.0	120		90max	"	19	4000x2000	"	116,000	"	"
	FUL 9	"	4.0-12.0	200		70max	"	32	2400x4800	"	147,000	"	"
	FUL 10	"	5.0-16.0	240		50max	"	42	2500x5500	"	189,000	"	"
	FS. 01	segment	0.1-0.5	12		450max	200	0.37	700x 500	C.Ex	9,300	"	"
	FS. 02	"	0.2-0.8	20		450max	400	0.75	800x 600	"	11,500	"	"
	FS. 031	"	0.3-1.5	30		500max	400			"	21,100	"	"
	FS 2	"	0.2-0.8	20		420max	900			"	15,700	"	"
	FS 3	"	0.4-2.5	40		320max	1500	3		"	25,600	"	"
	FS 4	"	0.8-4.0	70		200max	2500	5.5		"	38,300	"	"
	FS 5	"	1.0-5.0	80		200max	1200	7.5		"	57,700	"	"
	FS 6	"	1.5-7.0	60		160max	1500	15		"	66,700	"	"
	FSI II	electronic	0.2-0.8	8			140m				27,100		garter spring coiler
	FSI 2	"	0.5-1.3	12			130m				33,500		"
	ARL5	"	0.5-1.5	15							13,140	3/85	also long spirals
	AR30		1.0-3.0	30							13,800	"	"
	AR50		1.5-5.0	50							20,800	"	"
	FTU0	spindle	0.1-0.5	-	5	120max		0.37	600x1200	T	18,500		Torsion coiler
	FTU1	"	0.2-1.0	-	10	100max		1.1	1000x2500	T	26,100		"
	FTU2	"	0.5-2.0		20	70max		3.0	1300x3000	T	38,300		"
	FTU3	"	0.8-4.5		35	40max		5.5	1300x2400	T	75,000		"
	ZO 1		0.1-0.5	5		70	1000			Ex.	42,140		Coiler and looper
	ZO 2		0.5-1.3	16		65max	3250			"	48,700		"
	ZO 4		1.0-3.6	30		60max	10000	4.5		"	75,200		Coiler and looper
	ZO 6		2.0-6.5	75		25max		30	4000x4000	"	47,350		"
	ZO41		1.0-3.6	30		60max	8800			"	15,500	garter spring	joining machine
	FSX 1		0.2-0.6	4		100max	20-110*			"	17,900	"	Spring length
	FSX*		0.25-0.7	5		80max	70-170*			"	18,100	"	"
	FSX 1/3		0.3-0.8	5		60max	150-250*			"		"	"

LATHE COILERS

Sheet 1 of 1

<u>No.</u>	<u>Company</u>	<u>Address or Uk Agent</u>
1	Bennett Mahler Ltd.	Unit 5, Colemeadow Road, North Moons Moat Industrial Estate, Redditch B98 9PB Tel: 0527 64444
2	The Carlson Co. Inc., P.O.Box 71, Highway 9 West, Clinton, Arkansas, U.S.A.	UK Agent:- Bennett Mahler Ltd
3	Fairbank Brearley Ltd.,	Church Street, Bingley, West Yorkshire, BD16 2DA Tel: 0274 560115
4	Gogan Machine Corporation,	1440-54 East 55th Street Cleveland Ohio 44103 U.S.A.
5	Taihei Manufacturing Ltd. Osaka Japan	UK Agent:- Frank Whitelegg Ltd., Curtis Road, Dorking, Surrey RH4 1EJ Tel: 0306 881337

EQUIPMENT BRIEF

Sheet 1: LATHE COLLERS

COMPANY NO	MODEL	WIRE SIZE RANGE (mm)	MAX SPRING DIA. (mm)	MAX SPRING LENGTH (mm)	PRODUCTION RATE s.p.h.r.	FLOOR SPACE (mm)	MOTOR SIZE kW (HP)	APPROX PRICE £	NOTES
1	Maxicoil 1 Maxicoil 2	2 - 8 4 -16 (hard) 4 -20 (ann)	150 200	890 1700	100 max 100 max	2440x840 4300x1120	1	11,900 21,600	
2	No. 1 No. 2	0.1 -1.6 1.0 -3.2	25 50	102 200	200-400 200-400		- -	1,233 1,375	Built under licence by Bennett Mahler
3	Model-50	10 -50	506	1070	-	7060x1680	15		
4	HP - Auto Std - Auto HP - Rail HD - Uni GUC	-32 -44	250 305 406 760	760 915 1220 2440	800 max 600 max				solid state controls
5	Supercoil:- TSS-500 TSD-650 TSR-250	2-10 2-13 7-25	160 180 250	500 650 600		1800x 500 2650x 690 3400x 910	2.2 (3HP) 3.7 (5HP) 7.5 (10HP)	35,000 48,100 70,000	basic price can range to £95,000 depending on options

SPRING GRINDING MACHINES

Sheet 1 of 2

<u>No.</u>	<u>Company</u>	<u>Address or UK Agent</u>
1	Bennett-Mahler Ltd.,	Unit 5, Colemeadow Road, North Moons Moat Industrial Estate, Redditch B98 9PB Tel: 0527 64444
2	Bendix-Besly Corporation	Bendix Corp., Disc Grinding Division, 100 Dearborn Street, South Beloit, Illinois 61080, U.S.A.
3	Carlson Company Inc.,	P.O. Box 174, Highway 9 West, Clinton, Arkansas 72031, U.S.A.
4	Gardner Machine	South Beloit, Illinois 61080, U.S.A.
5	Maktel A.S.	Sanayi Cad No. 26, Kartal, Istanbul, Turkey.
6	Moyer Mfg. Company Inc.	1311 Wohlert Street, Angola, Indiana 46703, U.S.A.
7	O.M.D.	UK Agent:- Metoma Ltd., Canon Newton House, 70 Evesham Walk, Redditch B97 4HA Tel: 0527 65396
8	Rowland F. E and Co. Ltd.	Climax Works, Station Road, Reddish, Stockport. Tel: 061 432 3201
9	Schenker Maschinen AG	UK Agent:- Frank Whitelegg (Mfg)Ltd Curtis Road, Dorking, Surrey RH4 1EJ Tel: 0306 881337

SPRING GRINDING MACHINES

Sheet 2 of 2

- 10 Syowa Zoki Co. Ltd. 121 Shibiraki,
Urawa City,
Saitama Pref.
Japan
- 11 TC-HP Machines Herekelbout UK Agent:- Kubach and Sambrook Ltd
The Sussex Suite,
City Gates,
South Gate,
Chichester,
PO19 2DJ
Tel: 0243 771711
- 12 Wafios Maschinenfabrik UK Agent:- Metoma Ltd.,
Canon Newton House,
70 Evesham Walk,
Redditch B97 4HA
Tel: 0527 65396

SPRING GRINDING MACHINES

EQUIPMENT BRIEF

COMPANY NO	MODEL	MAX SPRING DIA. (mm)	MAX SPRING LENGTH (mm)	MAX WIRE/BAR SIZE (mm)	PRODUCTION RATE (MAX) s.p.hr	WHEEL SIZE (mm)	MOTOR SIZE (HP)	APPROX PRICE £	DATE	NOTES	
1	SGI-200	16	100	2	8000	200x40x89	0.75	4900	3/85		
	SGI-14	38	171	6.4	8000	356x63x67	2.0	12300	"		
	SGI-600	80	350	8.0		600x63.5x100	20			Down feed grinder	
	UG-600DF	80	350	9.0	6500	600x63.5x200	20			Four wheel machine	
	SG2-600	80	350	8.0		600x63.5x100	20				
	Maxi-Grind	150	6 min	25		915x75x200	7.5	9000	3/85		
	EC1	35	100	8	5000		10	12300	"	external chamfering machine down feed and rotary systems	
	UG-18	63.5	178	10	6500	457x63x90	10				
	905			2.5		813	5				available in tandem for roughing and finishing
	918			9.5		914	25				
3	SG-1			3		250	1.5				
	2V18-24			4.7		610					
4	2V36M-36			11		914					
	4V36TR-36			11		914	20-25				
	8401	50	150	6	2000	660	7.5			Twin head	
6	75-18-2V					460	7.5			Twin head, vertical	
	20-30-2V		165			760	20			" "	
7	M	15	50	0.2-1.0		150	2x0.5			Twin head	
	M8P	30	100	0.4-3.0		175	2x2.0			" "	
	M6P	60	160	0.5-5.0		225	2x3.0			Twin head Wet and Dry	
	M6	60	150	0.4-3.0		400	2x3.0			" "	
	M8P	100	350	0.6-8.0		450	2x7.0			" "	
	M8D	80	450	1.5-8.0		450	4x6.5			Four wheel machine	
	M8-2	80	330	1-8.0		450	2x10			Down feed only	
	M12-1	120	500	2-12		650	2x15			crash/down feed	
	M12-2	120	330	2-12		650	2x15			Down feed only	
	M12-3	120	500	2-12		650	4x15			Four wheel machine	
	M16-1	140	500	2-16		650	2x20			crash/down feed	
	FM 900	150	200	2-8		918	2x30			crash only	
	M6/E										Electronic length control
	M9 P/E	100	300	1-9		450	2x7			" "	" "
	M12/E1										" "
	FG-2	40	70								outside deburring
FG-1	25	80								inside	
FG-2	50	100		1000						" "	
FG-3	60	160		2600						" "	
				3300						" "	
8	NDD		210			300	7.5			Rotary feed	
	HDD		265			510	25				
	3HD		285			510	30			Through feed	

Sheet: 2 SPRING GRINDING MACHINES

COMPANY NO	MODEL	MAX SPRING DIA. (mm)	MAX SPRING LENGTH (mm)	MAX WIRE/BAR SIZE (mm)	EQUIPMENT BRIEF		APPROX PRICE	NOTES	
					PRODUCTION RATE (MAX) s.p.hr	WHEEL SIZE (mm)			
8	ADD		350			760		Oscillating feed	
9	FS-1	15	50	0.3-1		200	8250	3/85	
	FS-3	40	150	0.3-3	10000	400	15500	"	
	FS-8	120	425	3-8		660	41400	crash/down feed	
	FS-12	120	450	2-12		800		wet/dry	
	FS-40	250		6-40		800		wet	
	FS-60	500		15-60		1500		wet	
10	VP4/40-D(SS)	50(90)*	120(200)	1.6-4.5(6)	5800	455	39000	Standard four wheel machine	
	VP4/40-D(FS)	"	"	"	"	"	53000	with auto compensation for wheel wear.	
	VP6/60-D(SS)	70(120)	150(300)	2.3-6(8)	3600	610	55000	Auto measurement	
	VP6/60-D(FS)	"	"	"	"	"	72000	Std. 4 wheel machine	
	VP8/80-D(SS)	80(150)	150(300)	2.9-7(10)	4300	760	80000	Auto spring measurement, auto wheel wear comp.	
	VP8/80-D(FS)	"	"	"	"	"	102000	Std 4 wheel machines	
	HR-F5600 II	200	500	6-25		560	26000	Auto measurement and wheel compensation	
	HS-G-760 II	400	1000	6-50		760	48600	"	
	11	M1		100	1	4000	178		
		M2		140	2	4000	355		
M3			240	4	4000	600			
12	FED2	65	110	1.5-6.0			67000	duplex machine	
	FEL3	120	180	2.0-10.0			68000	"	

* Values in brackets for 2 or 3 pass grinding

MULTI-SLIDE MACHINES

Sheet 1 of 2

<u>No.</u>	<u>Company</u>	<u>Origin</u>	<u>Address or Uk Agent</u>
1	Asahi-Seiki Mfg Co. Ltd.	Japan	UK Agent:- Frank Whitelegg Ltd., Curtis Road, Dorking, RH4 1EJ Surrey Tel: 0306 881337
2	Bihler, Otto	W.Germany	UK Agent:- Embassy Machine Tool Co. Ltd 104 High Street, London Colney, St. Albans, Herts AL2 1QL Tel: 0727 23461
3	Buendgens GmbH & Co.	W. Germany	UK Agent:- Schumag (UK) Ltd., Berrington Road, Sydenham, Leamington Spa, CV31 1NB Tel: 0926 30226
4	Finzer Machine Mfg GmbH		UK Agent:- Agron Manufacturing Co. Ltd., 26 Breakfield, Coulston, Surrey CR3 2HS Tel: 01 668 5287
5	Koradi	Italy	UK Agent:- Frank Whitelegg Ltd.
6	Latour & Fils SA	France	UK Agent:- Frank Whitelegg Ltd.
7	Meyer, Roth & Pastor	W. Germany	UK Agent:- Soag Machinery Ltd., Transport Avenue, Great West Road, Brentford, Middlesex TW8 9HB Tel: 01 560 5181
8	Müller-Weingarten AG	W. Germany	UK Agent:- Pearson Panke Ltd., 1-3 Halegrove Gardens, London NW7 3LR Tel: 01 959 3232
9	Okuno Machine Co. Ltd.	Japan	UK Agent:- Process Automation, Bradley House, 333 Bradley Road, Huddersfield West Yorkshire HD2 1PX Tel: 0484 23492

MULTI-SLIDE MACHINES

Sheet 2 of 2

<u>No.</u>	<u>Company</u>	<u>Origin</u>	<u>Address or UK Agent</u>
10	O.M.C.G.	Italy	UK Agent:- Process Automation
11	Post Sondermaschinen	W.Germany	Post Sondermaschinen, Hauptstrasse 70, D-7880 Bad Sackingen, Wallbach West Germany.
12	P & R Metal Forming Machine Tools Ltd.	UK	Maley & Taunton Building Merrills Hall Lane, Wednesfield, Wolverhampton, WV11 3QP Tel: 0902 732631
13	Rockwell Machine Tool Co. Ltd.	UK	Welsh Harp, Edgware Road, London NW2 7AA Tel: 01 452 0033
14	Sato Kikai Co. Ltd.	Japan	UK Agent:- Frank Whitelegg (Mfg) Ltd
15	TC-HP Machines Herckelbout	France	UK Agent:- Kubach & Sambrook Ltd The Sussex Suite, City Gates, South Gate, Chichester PO19 2DJ Tel: 0243 771711
16	Torin Corporation	USA	UK Agent:- Torin Corporation Greenbridge Estate, Swindon, Wilts SN3 3JB Tel: 0793 24291

Sheet 2: MULTI-SLIDE MACHINES (WIRE AND STRIP)

COMPANY NO	MODEL NO	MAX WIRE DIA. (mm)	MAX STRIP THICKNESS (mm)	MAX STRIP WIDTH (mm)	MAX FEED LENGTH (mm)	MAX SLIDE STROKE (mm)	MAX SPEED P.p.min	STAMPING FORCE (kN)	MAIN MOTOR (kW)	APPROX PRICE £	NOTES
6	8	8	5.0	35	540	100	110	-	5.5		Feed length on special 450mm
	8P	8	3.0	70	540	100	110	250	5.5		" " "
	G2000	8		40	2000	100	120	-	4.0		cam
7	UB1	0.3-1.0	0.3	6	60	24	350	-	0.5		In all cases the feed length can be approx. doubled with special attachment.
	UB2	0.5-2.0	0.5	20	150	30	300	10	1.1		
	UB3	0.8-3.0	0.6	30	240	45	225	26	1.5		
	UB4	1.0-4.0	0.8	40	240	56	200	44	2.2		
	UB4L	2.0-4.5	-	-	700	100	85	-	3		
	UB6	2.0-6.0	1.0	50	350	70	150	106	4		
	UB2B	0.5-2.0	0.5	20	150	40	300	44	1.1		
	UB3B	0.8-3.0	0.6	30	240	50	225	133	1.5		
	UB4B	1.0-4.0	0.8	40	240	60	150	133	2.2		
	UB6B	2.0-6.0	1.0	60	350	90	120	310	4		
8	UM1000			50			1200	120	4.6		Programmable control
	UM1500			150			750	300 or 500	11		" "
	UM2000			300	800		200	1000 or 2000	11 or 18		" "
9	MCF-10	0.3-1.0	-	-	infinite			-	3.7		wire shapes, torsion springs. Computer control
10	TRG 10	6		50 or 70	200	50	300	100	4		strip thickness according to material strength
	TRG 30	6		50 or 70	200	50	300	300	7.5		
	TRG 60	10		60 or 80	400	50	120	600	11		
	MOD 250	5	2	20	250		180	-	2.3		
	MOD 530	8	2	25	530		120	-	4.5		
	MOD 750	8	2	25	750		90	-	4.4		optional feed up to 1200mm
	M 59	11						1000			
11	ABM 2000	8	-	-	3000	100	60	100 or 200	7.5		
12	S 25	2.6		25	150	28	270	50			
	S 50	4		50	254	50	150	70			
	S 57	5		57	254	89	100	120			
	W 2.6	2.6		-	150	28	270	-			
	W 4	4		-	254	50	150	-			
	W 5	5		-	254	89	100	-			
13	1	2.4		19	152		255		0.75		US Baird Corporation, built under licence in the U.K.
	28		1.6	38	203		240		1.7		
	33		2.4	64	318		160		4.2		
	35		2.4	76	330		160		6.3		
	104		0.8	22	107		550				
	620		4.8	152	508		130		12.7		

Sheet 3: MULTI-SLIDE MACHINES (WIRE AND STRIP)

COMPANY	MODEL	MAX WIRE DIA. (mm)	MAX STRIP THICKNESS (mm)	MAX STRIP WIDTH (mm)	MAX FEED LENGTH (mm)	MAX SLIDE STROKE (mm)	MAX SPEED p.p.min	STAMPING FORCE (kN)	MAIN MOTOR (kW)	APPROX PRICE £	NOTES	
14	W15	2.0	1.0	3.0	105		200			13,720	Multi-slide	
	W18	2.0	1.0	15.0	250	40	180	30	0.75	26,400	" "	
	W19	3.0	1.5	25.0	300	50	160	50	2.2	35,600	" "	
	W25	5.0	2.0	40.0	400	60	150	70	3.7	50,600	" "	
	VF1	1.5	0.5	5.0	120	30	180	-	0.75	21,400	4-slides	
	VF3	3.0	1.5	25.0	240	440	260	50	1.5	36,200	" "	
	HF3	5.0			420	100		15	5.5	33,600	Multi-slide hydraulic	
	HF15	15.0			500	150		60	18.5	56,200	" "	
	15	MS 05	0.5		5	50		400		0.7		
		MS 10	1.5		20	120		300	30	1.1		
		MS 30	4.0		30	200		300	80	1.5		
		MS 30S	3.0		25	80 to 200		550	80	3.0		
		MG 20	2.0		50	120		240		0.7		
		MAT 310				170	40	300	100	3.0		
		T-1-S	2.4	0.9	32	280	51	200	70	1.5		Four-slide machines
T-3-S		4.7	1.6	50	430	89	160	220	3.7		" "	
16	V 80	1.6	0.8	18	130	19	500	44	1.1		verti slides	
	V 81	4.0	1.6	40	200	38	300	178	1.5		" "	
	V 82	5.0	1.6	60	300	57	200	356	2.2		" "	
	V825	6.0	1.6	80	300	70	160	445	3.7		" "	
	V 83	6.0	2.5	100	350	64	120	623	5.6		" "	

SPRING LOAD TESTING EQUIPMENT

Sheet 1 of 3

<u>No.</u>	<u>Company</u>	<u>Origin</u>	<u>Address or UK Agent</u>
1	Ametek, Hunter Spring Division	USA	UK Agent:- Auriema Ltd., 442 Bath Road, Slough SL1 6BB Tel: 06286 4353
2	Avery-Denison Ltd	UK	Moor Road, Leeds, West Yorkshire LS10 2DE Tel: 0532 708011
3	Carlson Company Inc.	USA	UK Agent:- Bennett Mahler Ltd
4	Chatillon, John & Sons Inc.	USA	UK Agent:- Mecmesin Ltd., Newton House, Cross Road, Tadworth, Surrey KT20 5DR Tel: 073781 4113
5	Coats Machine Tool Co. Ltd.	UK	291 Lower High Street, Watford, Herts WD1 2HZ Tel: 0923 26626
6	Ellis Kirkaldy Eng. Ltd.	UK	UK Agent:- Bennett Mahler Ltd., Unit 5, Colemeadow Road, North Moons Moat Ind. Estate, Redditch B98 9PB Tel: 0527 64444
7	Evans' Sons, Inc.	USA	John Evans' Sons, Inc., Spring Avenue, Lansdale, Pennsylvania 19446, USA.
8	Fujii Seiki Co. Ltd.	Japan	Kawasaki, Japan
9	Herckelbout TC-HP	France	UK Agent:- Kubach & Sambrook Ltd., The Sussex Suite, City Gates, South Gate, Chichester West Sussex PO19 2DJ Tel: 0243 771711

SPRING LOAD TESTING EQUIPMENT

Sheet 2 of 3

<u>No.</u>	<u>Company</u>	<u>Origin</u>	<u>Address or UK Agent</u>
10	Larson Systems Inc.	USA	5205 Lakeland Avenue, Minneapolis, Minnesota 55429, USA.
11	Link Engineering Company	USA	13840 Elmira Avenue, Detroit, Michigan 48227, USA
12	Lion Precision Corp.	USA	UK Agent:- Industrial Monitoring Equipment Ltd., Penn House, Penn Place, Rickmansworth, Herts, WD3 1SN Tel: 0923 721155
13	Probat Werke	W. Germany	UK Agent:- Dartec Ltd., Mill Race Lane, Stourbridge, West Midlands DY8 1HU Tel: 0384 377433
14	Reicherter, Geo.	W. Germany	UK Agent:- Metoma Ltd., Canon Newton House, 70 Evesham Walk, Redditch, B97 4HA Tel: 0527 65396
15	Salter Springs & Pressings	UK	Spring Road, Smethwick, Warley, West Midlands B66 1PF Tel: 021 553 2929
16	Simplex Rapid	Italy	UK Agent:- SAH Machine Tools Ltd., 90 High Street, Eaton Bray, Nr. Dunstable Bedfordshire OU6 2DP Tel: 0525 220795

SPRING LOAD TESTING EQUIPMENT

Sheet 3 of 3

<u>No.</u>	<u>Company</u>	<u>Origin</u>	<u>Address or UK Agent</u>
17	S.R.A.M.A.	UK	Henry Street, Sheffield S3 7EQ Tel: 0742 760771
18	Sunakawa Seiki	Japan	European Agent:- Simplex Rapid hence UK agent is SAH Machine Tools Ltd.
19	Torin Corporation	USA	UK Agent:- Torin Corporation, Greenbridge Estate, Swindon SN3 3JB Tel: 0793 24291
20	Wagner Instruments Inc.	USA	P.O. Box 1217, Greenwich, Connecticut 06838 USA

Sheet 1: Spring Load Testing Equipment

EQUIPMENT BRIEF

* M = Manual
 SA = Semi-automatic
 A = Automatic

Company No.	Model	Type	Max. Capacity (N)	Number of Scales	Smallest division (N)	Operation*	Load Indication	Deflection Indication	Space between platens/hooks (mm) compression tension	Notes
1	RM	Mech	2200	0-2200	20.0	M	Dial	Dial gauge	228	available with other force gauges of lower capacity
2	6505	Mech	1000	0-1000	1.0	M	Dial	Dial gauge	350	BS1610 Grade 1 £3840 approx
	6506	Mech	200	0-200	0.1	M	"	"	350	BS1610 Grade 1 £2800 "
3	CET 1	Electronic	1.96	0-1.96	0.001	M	Digital	Dial gauge	100	
	CET 2	"	19.6	0-19.6	0.01	M	"	"	100	
	CET 3	"	196	0-196	0.1	M	"	"	200	
	CLT 5	Weights	24.5	0.01-24.5	-	M	Weights	Dial gauge	150	
	CLT25	"	100	0.02-100	-	M	"	"	150	
	CPT200	Weights	890	0.14-890	-	M	"	"	300	
	EST1000D	Load cell	4450	0-4450	1	M	Digital	scale	610	
	TTL1/2A	Weights	452Nmm	0.4-452Nmm	-	M	Weights	scale	-	Torsion spring tester
	TTLA	"	9040Nmm	7-9040Nmm	-	M	Weights	scale	-	" "
4	MST-10	Mech.	44	0-44	0.09	M	Dial	scale	305	Calibrated spring
	" 25	"	110	0-110	0.2	M	"	"	"	"
	" 50	"	220	0-220	0.4	M	"	"	"	"
	" 100	"	445	0-445	0.9	M	"	"	"	"
	" 250	"	1100	0-1100	2.2	M	"	"	"	"
	" 500	"	2200	0-2200	4.4	M	"	"	"	"
	DST40	Electronic	180	0-180	0.1	M	Digital	optical encoder	200	Automatic spring rate, printer; also socket for X-Y plotter
	DST80	Electronic	360	0-360	0.2	M	Digital	optical encoder	200	As above
5										no new machines being offered. Their range is being re-designed
6	EK200	Electronic	2000	200-2000	1.0	Automatic	Screen	length transducer	125	range of load cells of smaller capacity available
	EK4000	"	40000 (optional)	2000-4000 25-5000 10-2000	20 2.5 1.0	Automatic	Screen	"	1000	Data analysis, programmable, printer. Programmable, full statistical analysis
7	CATS	Electronic	667	0-667		M	Screen	optical encoder	457	TRS-80 computer, printer video, statistical software

Sheet 2: Spring Load Testing Equipment

Company No	Model	Type	Max. Capacity (N)	Number of Scales	Smallest division (N)	Operation*	Load Indication	Deflection Indication	Space between platens/hooks (mm) compression tension	Notes	
8	USA-200	Electronic	10			Auto	Digital		100	Computerised, printout Automatic load sorting machine	
	FPS-A1	Electronic				Auto					
	" A2	"	20			"			100	As above	
	" A3	"	30			"			100	"	
	" A5	"	50			"			100	"	
	" A10	"	100			"			100	"	
9	Logitest 20	Electronic	400	0- 400	0.1	M	Digital	Digital	150 200	Printer	
				0- 200	0.01						
	TCS-1	Electronic	100	0- 50	0.01	Auto			- 160	Auto load and sort tester for extension springs	
10	Digitest T1	"	2	0- 2	0.001	M	Digital	Dial	50 100		
	" T2	"	20	0- 20	0.01	M	"	"	" "		
	LS1	Electronic	2220	0-2220	1.0	A & M	Digital	Digital	230 300	Programmable, printer optional, statistical data	
		additional cells available		0-1330	0.5						
				0- 445	0.2						
11				0- 222	0.1						
				0- 111	0.05						
	This company claims to manufacture some 55 different spring load testers. Many are special purpose testers and for the sake of brevity are not included in this list. Only those machines which have proved popular and in wide use in the USA are detailed below.										
	ELO	Electronic	22	-	0.004	M	Digital	Digital	101 76	Also 44N load cell available	
	EL1	"	89		0.018	"	"	"	" "		
	EL3	"	1334		1.3	"	"	"	152	also 440N, 220N, 110N load cells available	
	EL4	"	1334		1.3	"	"	"	330	As above	
	EL5	"	3336		3.3	"	"	"	305	Also 2224N load cell available.	
	EL6	"	6670		6.6	"	"	"	381	" 4448N "	
	PB3	Mech.	1112			"	Dial	Dial	152	Also mechanical load sensors of 44N, 220N and 556N	
	PB4	"	1112			"	"	"	330		
PB5	"	4448			"	"	"	760	Also mechanical load sensors of 2224N, 3336N		
TP2000	Electronic	8896	-	8.8	"	Digital	Digital	450 450	Also other load cells of 4448N, 2224N, 1112N		

Sheet 3: Spring Load Testing Equipment

Company No	Model	Type	Max. Capacity (N)	Number of Scales	Smallest division (N)	Operation*	Load Indication	Deflection Indication	Space between platens/hooks (mm) compression tension	Notes
12	CSTS	Electronic	444			M & A	Digital	Digital	150	Programmable, printer data processing £20,000 Automatic load and rate sorter. Price £60,000
	1000	"	89	-	-	A	-	-	51	
13	SF201	Electronic	200	20-200 10-100	0.1 0.1	M	Digital	Digital	150 150	with computer for statistical quality control as above
	SF202	"	2000	200-2000 100-1000	1 1	M	Digital	Digital	150 150	
				50-500	0.1					
				20-200	0.1					
				10-100	0.01					
				0-100	0.1					
14	SF100EL	"	100	0-100	0.1	M	Digital	Digital	80 120	Data processing unit available as above or optional ranges 5, 10 and 15N
	SF1000EL	"	1000	0-20 0-1000 0-200	0.01 1 0.1	M	Digital	Digital	300 320	
	SF22	Mech.	30	0-30	0.02	M	Dial	scale	80 120	
	SF25/2	Mech	1000	0-1000	1	M	Dial	Vernier	300 320	
	SF21/2	Mech.	5000	0-200 0-5000	0.2 2	M	Dial	Vernier	560 590	
	SF21/2EL	Electronic	5000	0-1000 0-5000	0.5 1	M	Digital	Vernier	560 590	
	SF26/2	Mech	20000	0-500 0-20000	0.1 20	M	Dial	Vernier	1000 1085	
	SF26/2EL	Electronic	20000	0-4000 0-20000 0-2000	10 10 1	M	Digital	Vernier	1000 1085	
	TO 14EL	Electronic	5000Nmm	0-5000Nmm 0-1000Nmm	- -	M	Digital	scale	- -	
	TO 12SEL	Electronic	500kNmm	0-500kNmm 0-50kNmm	- -	M	Digital	scale	- -	
NRE-D1	Electronic	100	0-100 0-10	0.01 0.001	M	Digital	vernier	100 140		

Also available as 5000 or 10000 max capacity
As above
Electronic torsion spring load tester. Range switch 1:10 Switchable load range in a 1:10 ratio
other load modules available on request

Sheet 4: Spring Load Testing Equipment

Company No.	Model	Type	Max. Capacity (N)	Number of Scales	Smallest division (N)	Operation*	Load Indication	Deflection Indication	Space between platens/hooks compression tension	Notes	
14	NRE-D2	Electronic	100	0-100 0-10	0.01 0.001	M	Digital	Digital	100	140	Other load modules available on request
	NRE-D3	Electronic	100	0-100 0-10	0.01 0.001	Semi Auto	Digital	Digital	100	140	Complete with work table, ejection and sorting arrangement.
	R80 DU	Weights	1000	0-1000		M	Weights	vernier	300	300	also available with 500mm testing space.
	VF	Mech.	1000	0-1000	1	M	Dial	"	90	-	for valve and clutch springs. Workshop machine.
	EPL	Mech	2000	0-2000 0-1000	1.0 0.5	M	Dial	vernier or dial	500 300	520 320	also available 500 and 520mm testing space.
	EE1	Electronic	2000	0-250 0-2000	0.1 1	M	Digital	"	200 500	220 520	also available 300 and 320mm testing space.
	E1000	Mech.	10000	0-500 0-10000	0.1	M	Dial	vernier	800	800	Also available as 5k, 2k and 1kN models.
	EE4	Electronic	20000	0-20000		Semi Auto	Digital	Digital			Also available as 500N/100N load tester
	EEH2	Electronic	200k	0-10000 0-5000	0.1k	Semi Auto	Digital	Digital	1000	-	Also available as 100k/10k and 50k/5k load testers.
	RS 2	Weights	20	0-20k 0-20	0.01k	M	Weights	vernier	300	300	available with 50N capacity
	AEK 1		200	0-200 0-100 0-10		Auto	Digital	Digital		-	
	AE1	Electronic	2000	0-2000 1000 500 200	4 2 1 0.4	Auto	scale	analog	140	-	Pneumatic scragging unit and automatic sorting. Compression spring only
	ET1D-20	Electronic	20Nmm	0-20	0.01Nmm	M	Digital	scale			Torsion spring testers
	ET1D-200	"	200Nmm	0-200	0.1Nmm	M	"	"	35	100	Also ET1DW are similar machines with digital readout of angular deflection.
	ET1D-1000	"	1000Nmm	0-1000	1	"	"	"	55	"	output to automatic X-Y Plotter
	ET1DN-20	"	20Nmm	0-20	0.01Nmm	Semi Auto	"	"	35	50	

Spring size (mm)
Diameter length

Sheet 5: Spring Load Testing Equipment

Company No.	Model	Type	Max. Capacity (N)	Number of scales	Smallest division (N)	Operation* Load Indication	Deflection Indication	Space between platens/hooks (mm) compression tension	Notes
14	ET1DM-200	Electronic	200Nmm	0- 200	0.1Nmm	Semi Auto	Digital	55	
	" 1000	"	1000Nmm	0-1000	1 "	"	scale	50	
	ET1DMR2-20	"	20Nmm	0- 20	0.01Nmm	Auto	"	50	
	-200	"	200Nmm	0- 200	0.1 "	"	Digital	35	Automatic recording of torque/angular deflection both on loading and unloading. Output to X-Y plotter.
	-1000	"	1000Nmm	0-1000	1 "	"	"	55	also available 20kNmm machine
15	T10	Balance	1000Nmm	0-1000Nmm		M	Weights	140	
	T60	"	10kNmm	0- 10kNmm		M	"	250	
	ET2	Electronic	2000Nmm	0-2000Nmm		M	digital	200	
	ET3	"	100kNmm	0- 100kNmm		M	"	360	
	200/10	Electronic	10	0- 10	0.01	M	Digital	150	output to printer, computer
16	" /100	"	100	0- 100	0.1	M	"	150	as above
	" /200	"	200	0- 200	0.1	"	"	150	optional extras, printer, sorting unit.
	500	"	2225	0-2225	1.0	"	Digital	200	
	40000	"	40000	0- 40k	5	"	"	900	
	P M5	Electronic	50	0- 50	0.01	"	Digital	200	outputs for printer, plotter etc.
17	P M10	"	100	0- 100	0.02	"	"	"	
	P M25	"	250	0- 250	0.05	"	"	"	
	1000	Electronic	0-1000	0-1000	1	M	Digital	300	Also available as 2000N/200N machine.
	SPA LES	Electronic	9.8	0- 9.8	0.001	M & A	Digital	150	Marketed in Europe by Simplex Rapid
	SPA 2ES	"	19.6	0-19.6	0.01	"	"	"	All models with printer
18	SPA 5ES	"	49	0- 49	0.01	"	"	"	
	SPA 10ES	"	98	0- 98	0.01	"	"	"	
	SPA 20ES	"	196	0- 196	0.1	"	"	"	
	SPA 50ES	"	490	0-19.6	0.01	"	"	280	
				0- 490	0.1	"	"	"	

19 The above Sunakawa SPA range of load testers are also marketed by Torin who indicate in their literature that the machines are manufactured in Japan by Okuno.

Sheet 6: Spring Load Testing Equipment

Company No.	Model	Type	Max Capacity (N)	Number of load scales	Smallest division (N)	Operation* Load Indication	Deflection Indication	Space between platens/hooks (mm) compression tension	Notes
19	SSV 5EC	Electronic	49	0- 49	0.01	M & A	V.D.U.	320	Very similar to the SPA range but with added features including VDU, statistical programmes, graphing, printer.
	SSV 1OEC	"	98	0- 4.9	0.001	"	"	"	
	SSV 2OEC	"	196	0- 98	0.01	"	"	"	
	SSV 5OEC	"	490	0- 196	0.1	"	"	"	
20	SPD 1T	Electronic	9.8	0- 490	0.1	"	"	"	Torsion spring load testers by Okumo for Torin. Optional extra-a printer.
	SPD 2T	"	19.6	0- 49	0.01	M	Digital	-	
	SPD 10T	"	98	0- 9.8	0.001	"	"	-	
	Dial II	Electronic	86	0- 19.6	0.01	"	"	-	
						M	Digital	Vernier	Several other models of different capacity are available.