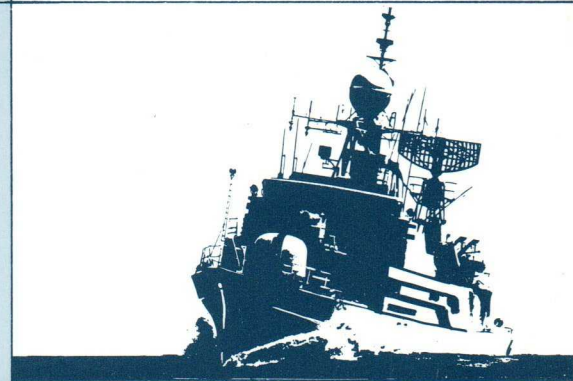


SELENIA MICROWAVE TUBES



SHORT FORM CATALOGUE



SELENIA

La Selenia Industrie Elettroniche Associate nasce nel giugno del 1960 dalla fusione delle Società Microlambda e Sindel.

Già nei primi anni di attività l'azienda si fa luce sui mercati esteri con linee di radar di propria progettazione per il controllo del traffico aereo, per la difesa, la meteorologia, la navigazione. Oltre che in Italia si installano sistemi radar in Svezia, in Norvegia, in Danimarca, in Germania, in India. Le telecomunicazioni, la missilistica, i programmi speciali per la difesa e l'automazione sono gli altri settori nei quali la Società si afferma negli anni '70 con produzioni innovative.

Nel 1982 la Selenia diventa capofila del Raggruppamento Selenia Elsag costituito all'interno del Gruppo IRI/STET riunendo le aziende che operano nella elettronica dei grandi sistemi per impieghi civili e militari. Il Raggruppamento dispone di un organico complessivo di 13.000 dipendenti, di cui oltre la metà laureati e tecnici specializzati.

La Società, articolata in **Divisioni, Fabbriche, Laboratori di ricerca e sviluppo, Direzioni di supporto e Servizi centrali** occupa oggi 7.000 dipendenti di cui 4.000 laureati e tecnici.

Alle **Fabbriche Radar, Missili, Apparati Speciali, Informatica e Telecomunicazioni, Tubi a microonde**, è affidata la progettazione e produzione dei vari prodotti della Società.

Selenia-Industrie Elettroniche Associate was created in June 1960 by the merger of Microlambda and Sindel.

In its early years Selenia was already entering foreign markets with its own radars for air traffic control, for defence, meteorology and navigation. Radar systems were installed in Sweden, Norway, Denmark, west Germany and India, as well as in Italy itself. Other sectors where the Company made its mark during these years of innovation were in telecommunications, missilery and special programmes for defence and automation.

In 1982 Selenia became the leading company in the Raggruppamento Selenia Elsag, a pooling of the companies within the IRI/STET Group which operate in large systems electronics for civil and military applications. Of RSE's total workforce of 13,000 employees, over half are graduates or specialized technicians.

The Company structure is subdivided into operational divisions, factories, R&D laboratories, support management, and central services.

It now employs 7000 people, of whom 4000 are graduates or technicians. The Radar, Missile, Special Equipment, Informatics and Telecommunications, and Microwave Tubes Factories have responsibility for design and manufacture of the Company's range of equipment.

La Selenia sviluppa e produce i Tubi a Microonde nello stabilimento di Palermo, nel quale operano oltre 300 persone di elevata qualificazione professionale.

La **Fabbrica Tubi a microonde** ha collaborato nel passato in importanti programmi Europei di Cooperazione tra cui il sistema Missilistico HAWK ed il programma MRCA per il veivolo TORNADO.

Oggi è particolarmente impegnata nella ricerca, sviluppo e produzione di un'ampia serie di Tubi a Microonde per applicazioni radaristiche avanzate (sistemi PHASED ARRAY) e per telecomunicazioni.

Cospicue risorse vengono destinate alla attività di R&S nella quale viene investito circa il 15% del fatturato.

Le attività principali di ricerca riguardano:

- **Tubi ad onda progressiva a cavità accoppiate;**
- **Klystron amplificatori di potenza ed a basso rumore;**
- **Magnetron;**
- **Sviluppo Tubi di alta potenza a radiofrequenza per applicazioni scientifiche.**

Microwave Tubes department

Selenia develops and produces the Microwave Tubes in its plant in Palermo in which are employed more than 300 highly skilled persons.

The Microwave Tubes factory in the past has collaborated in important European Co-operation programmes such as the HAWK missile system and the MRCA programme for the TORNADO aircraft.

Nowadays is particularly involved in the research, development and production of a wide range of Microwave Tubes for advanced radar (PHASED ARRAY) and telecommunications applications.

Remarkable resources are devoted to the R&D activities in which the Microwave Tubes Dept. invest nearly 15% of its budget.

The leading Research activities concern:

- **Coupled cavities Travelling Wave Tubes;**
- **Low noise power Klystron amplifiers;**
- **Magnetrons;**
- **Development High Power RF Tubes for scientific applications.**

MAGNETRONS

	Frequency Range (GHz)	Power Output (Kw)	Duty Cycle	Peak Anode Voltage (Kv)	Peak Anode Current (a)	Maximum Pulse Duration (μ s)	F.O. (1)	C. (2)	T. (3)	R.F. Output (4)	Preheat		Weight (Kg)	Tuning Rate (rpm or Hz)	Frequency Bandwidth (MHz)	N.S.N.	Tube Type
											Heater Voltage (V)	Heater Current (A)					
L-Band	1.305-1.365	2,000	0.00125	39	140	4,5	M	EL/FL	CV	WG	20	13-15	20	600rpm	60	—	ET128A
	1.25-1.31	2,000	0.00125	39	140	4,5	M	EL/FL	CV	WG	20	13-15	20	600rpm	60	—	ET128B
S-Band	2.75-2.86	5,000	0.001	71	130	2	F	FL	CV	WG	7.3-9.3	85	26	—	—	5960.00.812.9980	ET6410A(**)
X-Band	9.25-9.50	220	0.001	21.5	27.5	2	M	FA	CV	WG	13.75	2.8-3.5	4.2	1200rpm	350	5960.00.905.2718	ET120
	8.50-9.60	220	0.001	21.5	27.5	2	M	FA	CV	WG	13.75	2.8-3.5	4.2	1200rpm	1100	5960.15.075.7742	ET121
	8.90-9.40	4.00	0.0005	5	2.5	0.5	F	C	CV	WG	5.0	0.3-0.6	0.65	—	—	—	ET126
	8.90-9.30	4.00	0.0005	5	2.5	0.5	M	C	CV	WG	5.0	0.3-0.6	0.7	—	400	—	ET127A
	9.10-9.30	4.00	0.0005	5	2.5	0.5	M	C	CV	WG	5.0	0.3-0.6	0.7	—	200	—	ET127
	8.50-9.60	220	0.001	21.5	27.5	3	M	FA	CX	WG	13.75	2.8-3.3	6.7	1200rpm	900	5960.15.060.5120	ET130
	8.50-9.60	220	0.001	21.5	27.5	3	M	FA	CX	WG	13.75	2.8-3.3	6.7	1200rpm	1100	—	ET130/1
	9.00-9.50	220	0.001	21.5	27.5	3	A	FA	CX	WG	13.75	2.8-3.3	6.8	15Hz	500	5960.15.059.5403	ET131A(**)
	8.90-9.30	220	0.001	21.5	27.5	3	A	FA	CX	WG	13.75	2.8-3.3	6.8	15Hz	400	—	ET131B(**)
	8.55-8.95	220	0.001	21.5	27.5	3	A	FA	CX	WG	13.75	2.8-3.3	6.8	15Hz	400	—	ET131C(**)
	8.85-9.25	220	0.001	21.5	27.5	3	A	FA	CX	WG	13.75	2.8-3.3	6.8	15Hz	400	—	ET131D(**)
	9.25-9.50	220	0.001	21.5	27.5	1	A	FA	CX	WG	13.75	2.8-3.3	6.8	15Hz	250	—	ET132(**)
8.57-9.53	220	0.0013	21.5	27.5	1	M	FA	CX	WG	13.75	2.8-3.3	6.8	—	960	—	ET134	
9.40-9.70	10	0.001	6	5	0.5	M	FA/CD	CV	WG	6.3	0.5-1.2	2	—	300	—	ET765	
Ku-Band	15.5-17.5	120	0.001	17.5	19	2.5	M	FA	CX	WG	12.6	3.0-3.5	6.1	—	2000	—	ET140
	16.0-17.0	80	0.001	14.5	16	0.4	D	FA	CX	WG	11.6-13.6	2.5	3.5	—	500	—	ET2142
Ka-Band	34.6- 5.4	25	0.002	12.5	9	0.5	A	FA	CX	WG	6.3	3.0-3.6	5	—	800	—	ET150

(*) These tubes are manufactured, tested and warranted under MIL Specs.

(**) These agile magnetrons may be supplied also with frequency control readout modules.

(***) The tuning is accomplished through an external stabilizing cavity

(1) F.O. = Frequency of operation
 F = Fixed frequency
 M = Mechanical tunable
 A = Agile tunable frequency
 D = Dither tuning

(2) C. = Cooling
 C = Convection
 FA = Forced air
 FL = Forced liquid
 EL = Ebulient liquid
 CD = Conduction

STABILOTRON OSCILLATOR

Frequency Range (GHz)	Power Output (Kw)	Duty Cycle	Peak Anode Voltage (Kv)	Peak Anode Current (a)	Pulse Duration (μ S)	Heater Voltage (V)	Heater Current (A)	F.O. (1)	C. (2)	R.F. Output (4)	Weight (Kg)	N.S.N.	Tube Type
1.25-1.35	600	0.0024	37	37	3	30	2.3-2.7	M(***)	FL	CX	7	5960.00.767.9048	ET630

LOW NOISE KLYSTRONS

Frequency Range (GHz)	Power Output (W)	Duty	Operating Beam Voltage (kV)	Cathode Current (mA)	Heater Voltage (V)	Heater Current (A)	Cooling (2)	F.O. (1)	Tuning Range (MHz)	Weight (Kg)	Tube Type	
X-Band	9.9-10.3	60	CW	10	75	3.2	6.4	FL	M	300	1.8	ET2808
	9.9-10.3	200	CW	13	130	3.2	6.4	EL	M	125	1.2	ET2828
	9.7-10.0	2	CW	4.4	30	6.3	0.7	CD	F	—	3.1	ET2860
	9.9-10.3	500	CW	5.4	330	5	2	FA	M	300	8	ET2870
	9.9-10.6	220	0.25	4	180	4	3	FA	F	—	2.5	ET2872

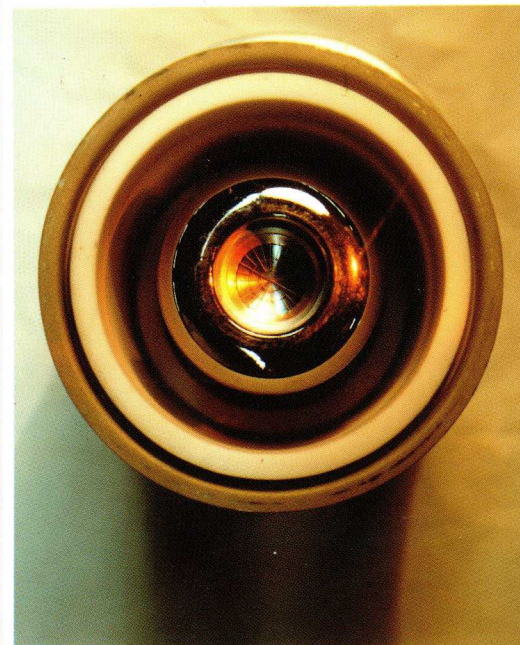
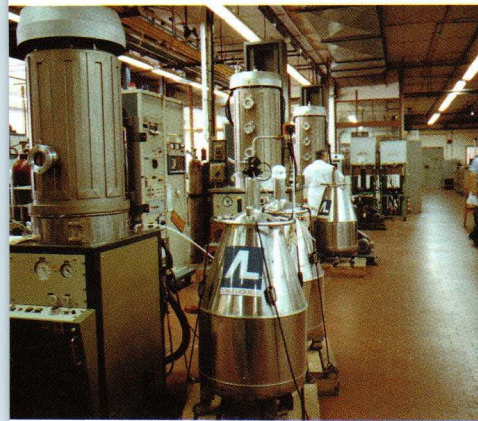
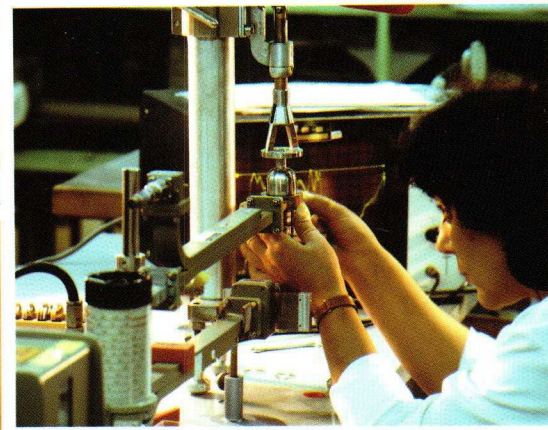
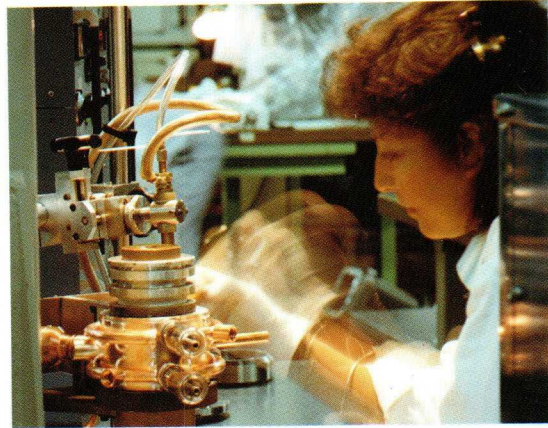
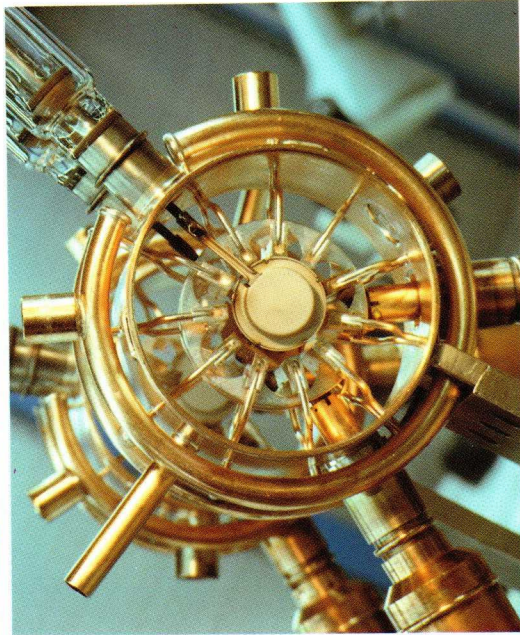
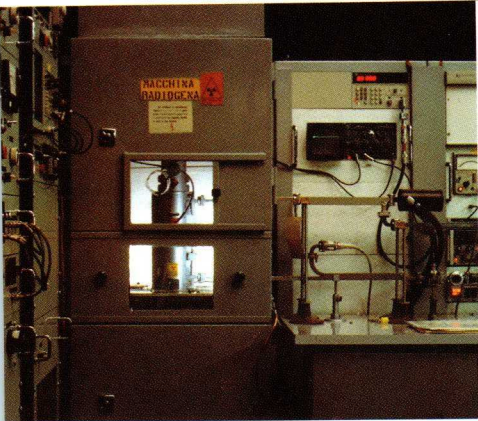
TRAVELLING - WAVE TUBES

Frequency Range	Power Output (Kw)	Duty Cycle	Saturated Gain (dB)	Cathode Voltage Ek (kV)	Cathode Current Ik	Dimensions LxWxH (cm)	Weight (Kg)	Focusing (5)	Modulation Control	Cooling (2)	Tube Type	
S-Band	3.1-3.5	135	0.06	48	-42	17	115.7 x 24 DIA	85	I.S.	Shadow grid	FL	ET920
X-Band	8.5-9.5	15	0.025	54	-23	4	57 x 11 DIA	8	P.P.M.	Shadow grid	FA	ET960
	8.6-9.5	25	0.01	50	-25	6	45.5 x 9 DIA	6.5	P.P.M.	Shadow grid	FA	ET961
Ku-Band	16.5-17	14	0.025	48	-30	2.0	36 x 13 DIA	5	P.P.M.	Shadow grid	FL	ET2980

(3) T = Type
CV = Conventional
CX = Coaxial

(4) R.F. Output
CX = Coaxial
WG = Waveguide

(5) Focusing
I.S. = Integral Solenoid
PPM = Periodic Permanent Magnet





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