

Gli impianti idroelettrici



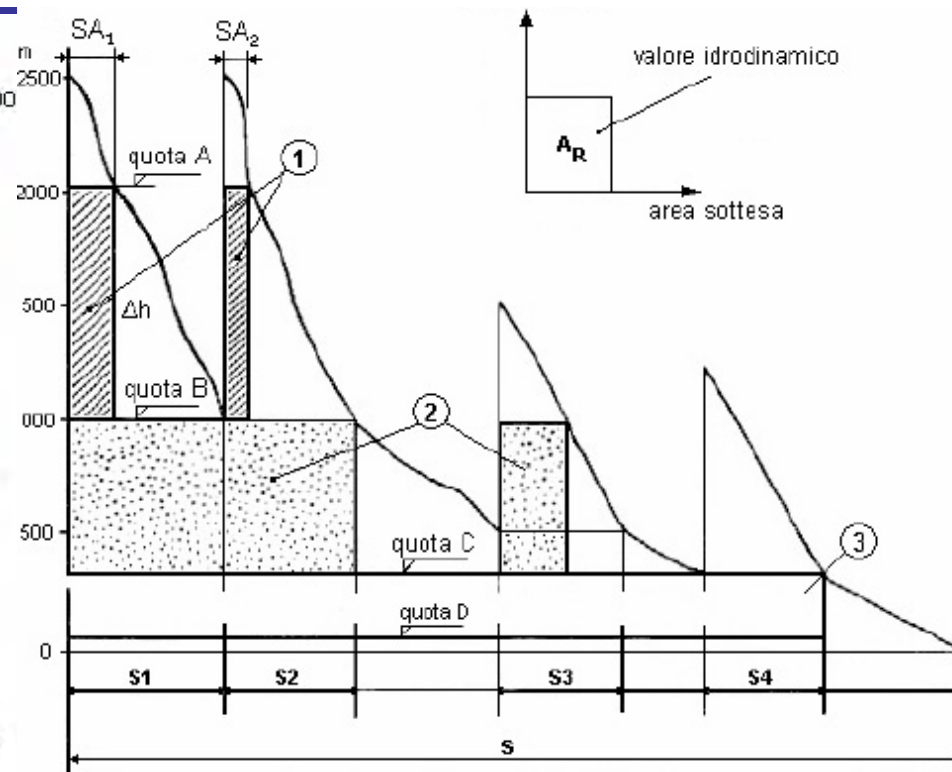
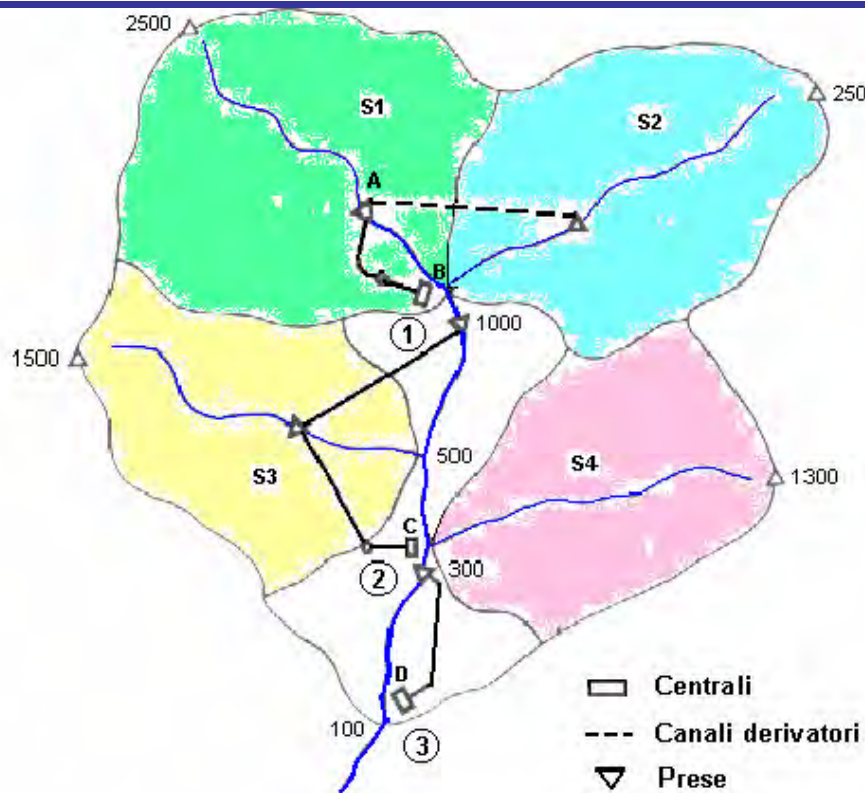


Diagramma cronologico delle portate

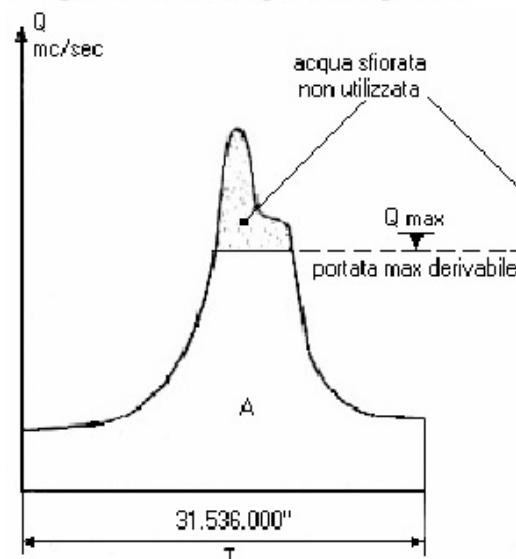
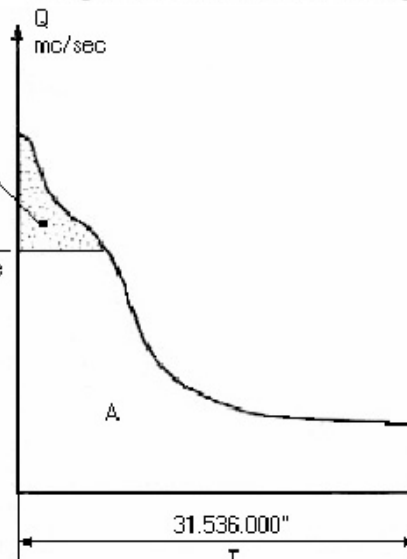
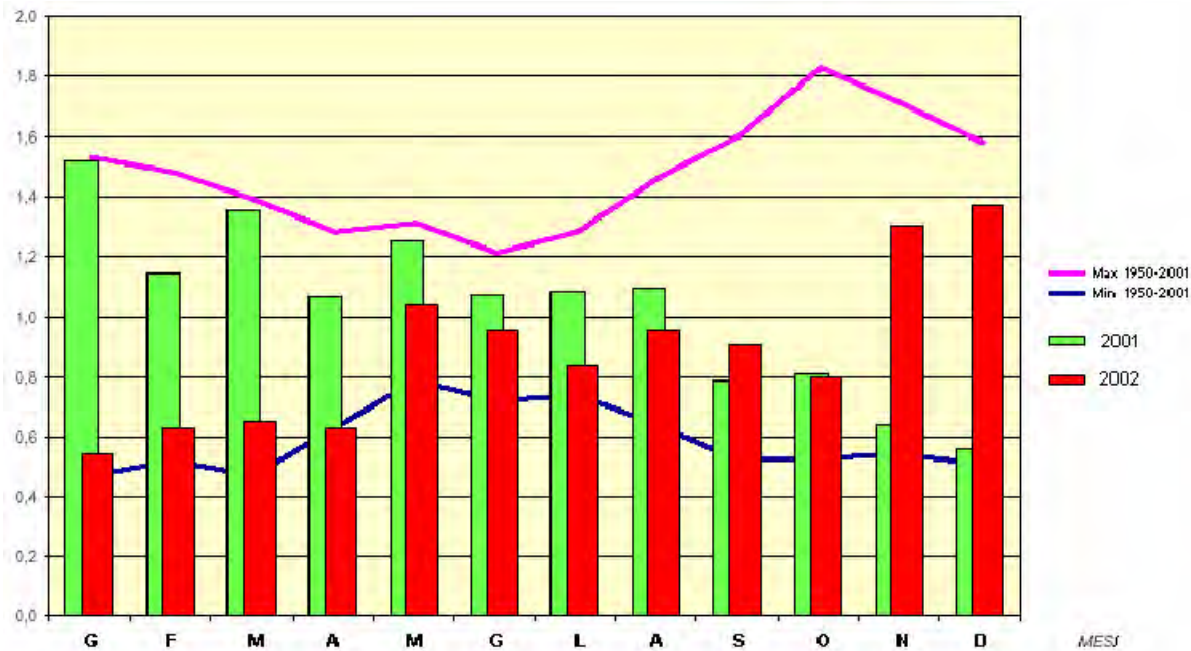


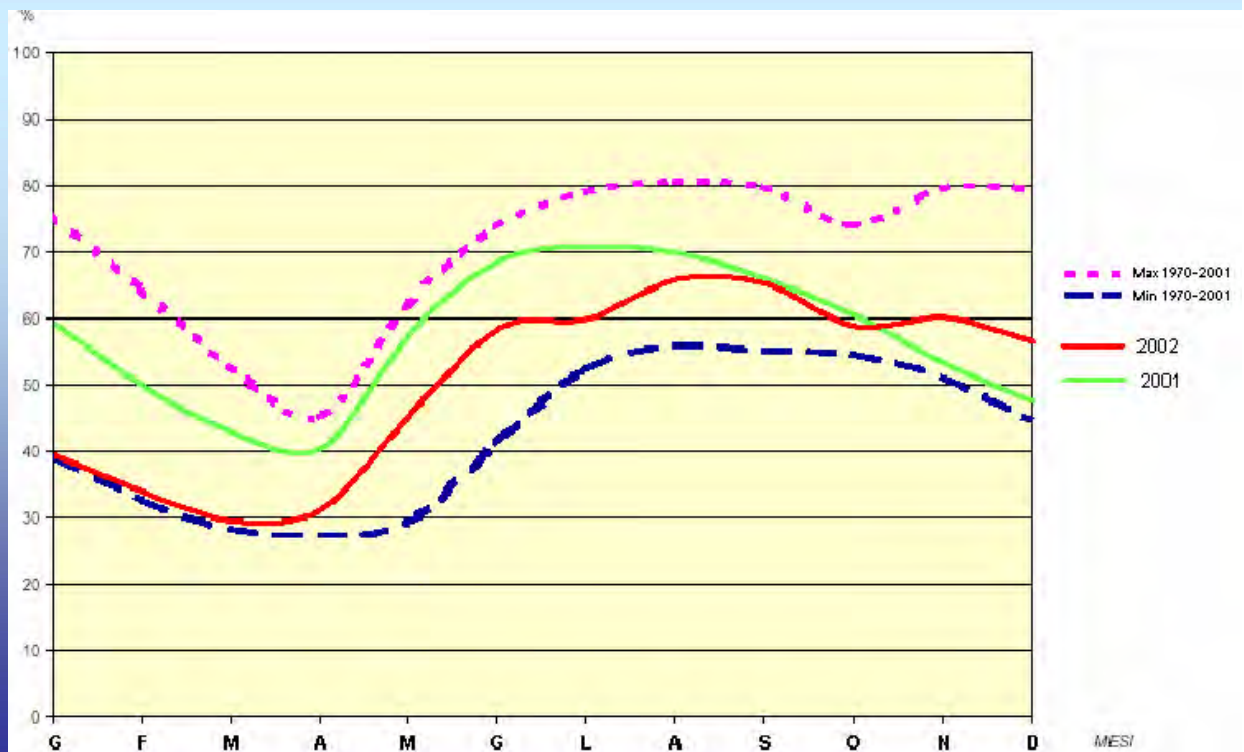
Diagramma delle durate delle portate

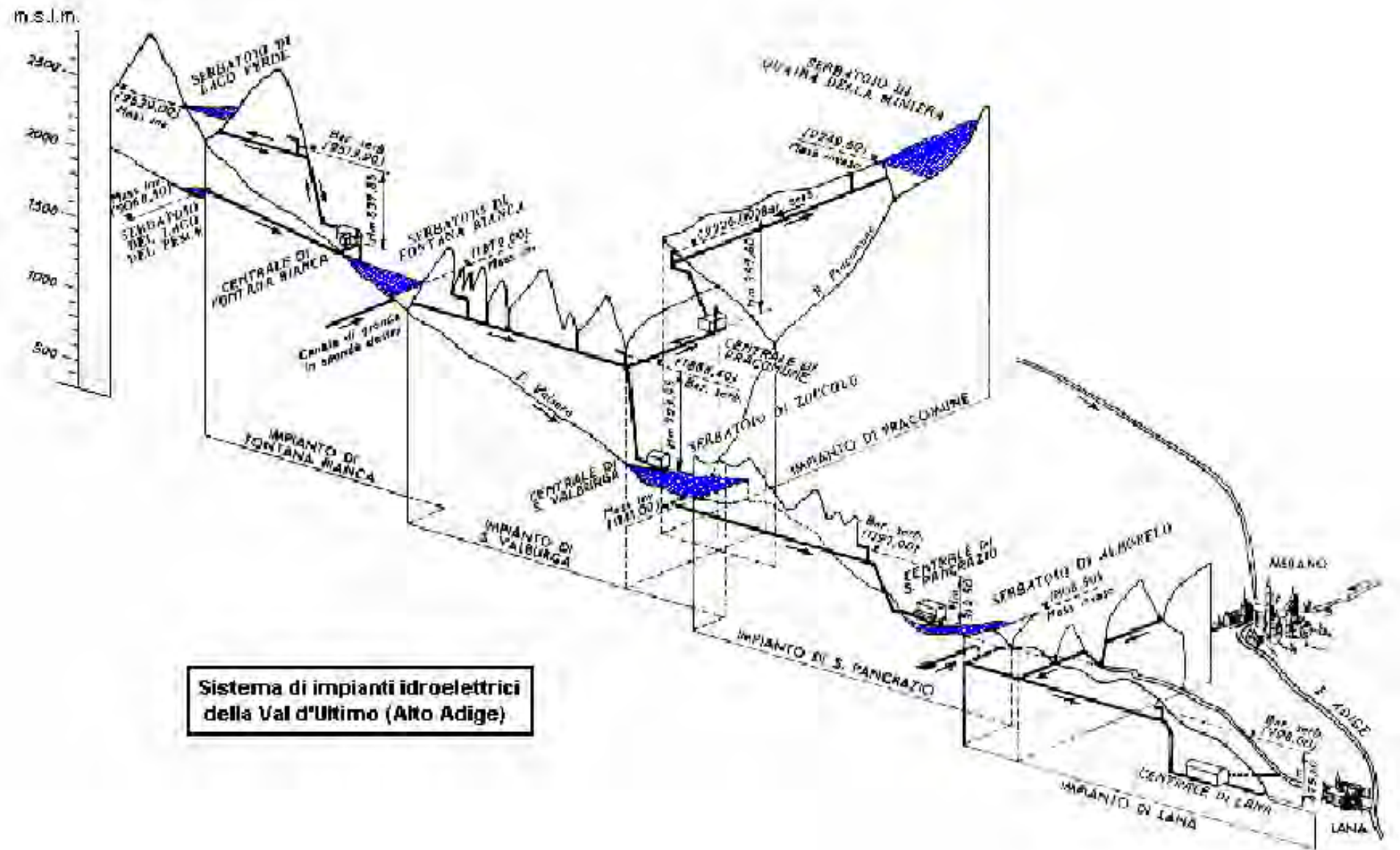




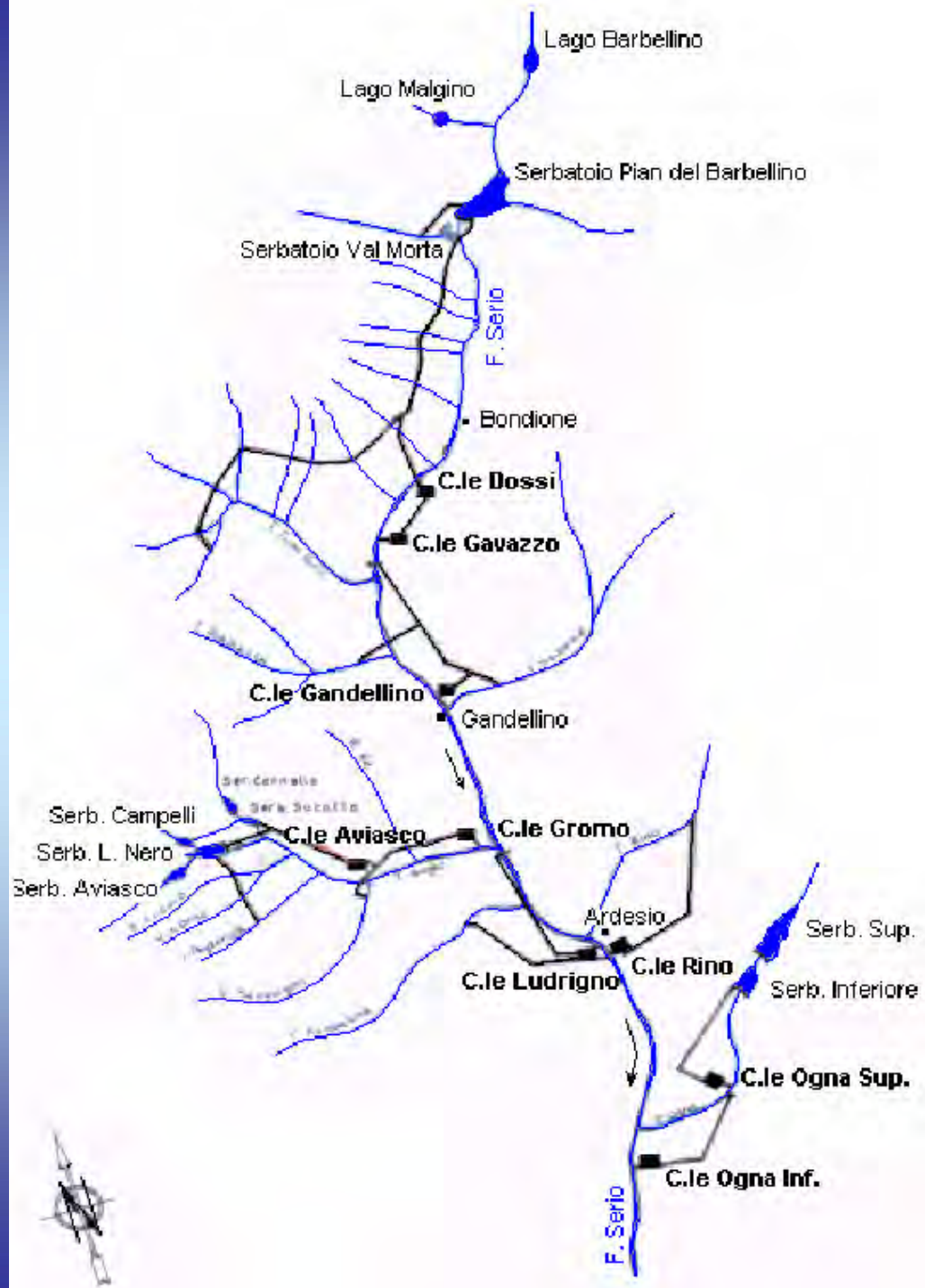
Dispersion stagionale della producibilità idroelettrica

Dispersion stagionale della capacità di invaso serbatoi di accumulo







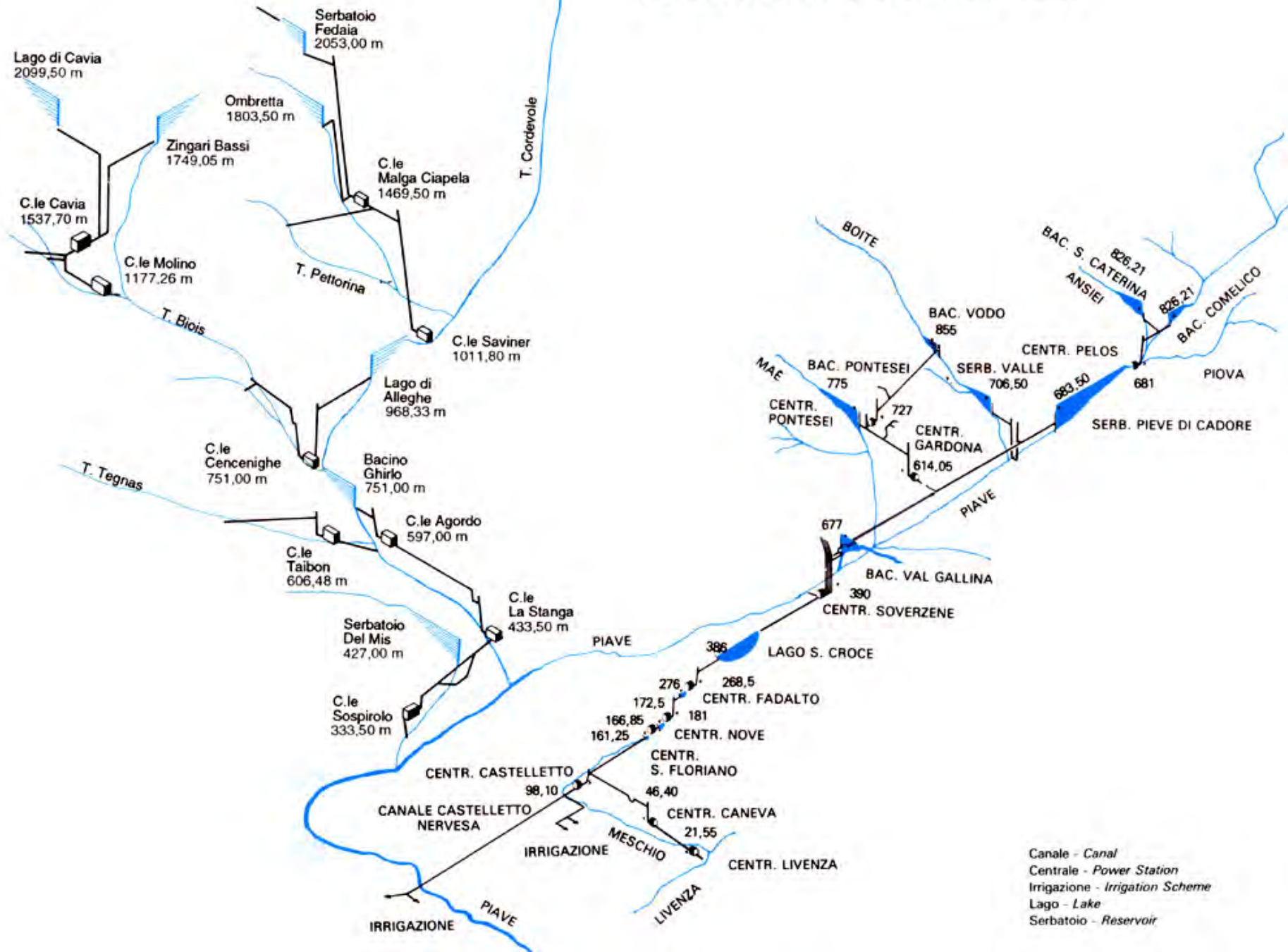
Sistema di impianti idroelettrici della Val d'Ultimo (Alto Adige)



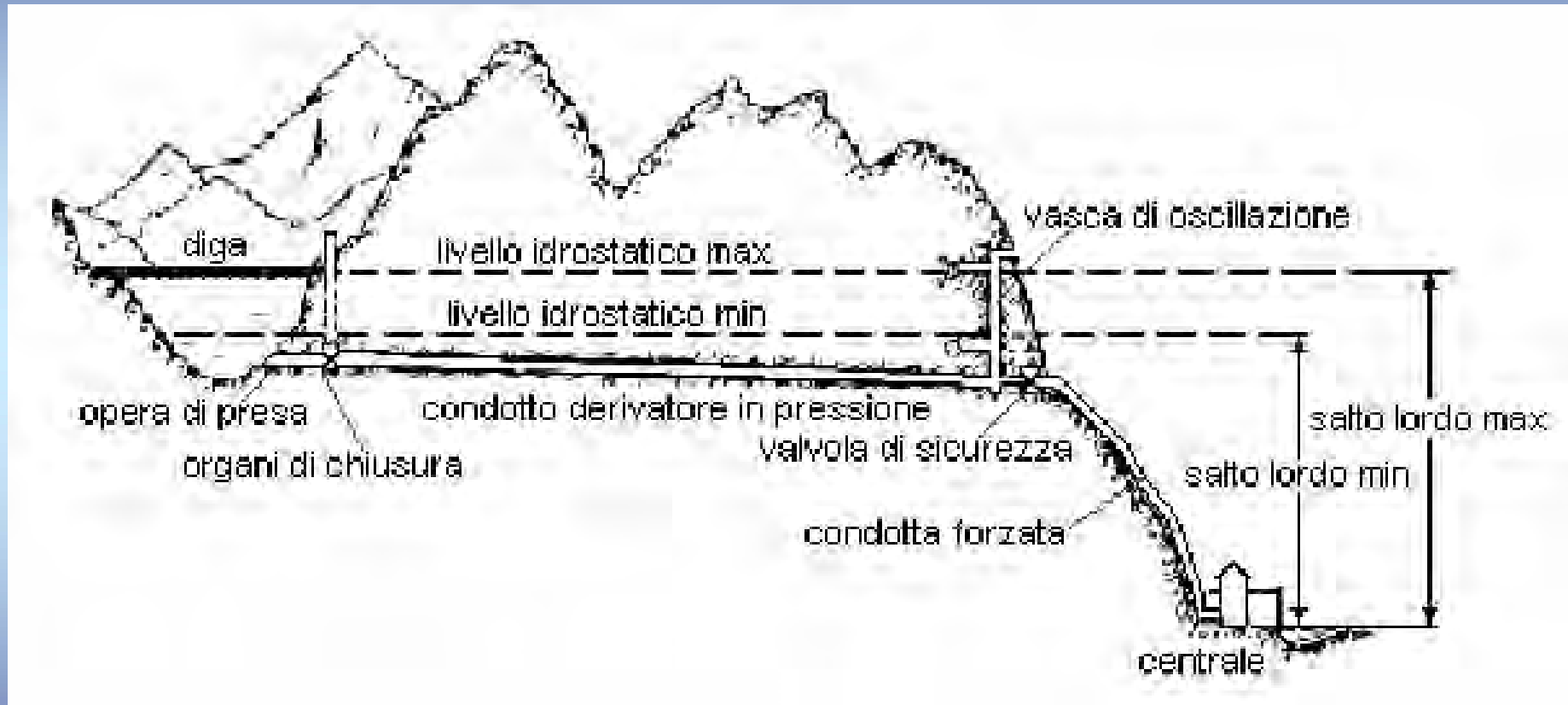


-  Centrali idroelettriche - *Power stations*
-  Centrali idroelettriche ad accumulazione mediante pompaggio
Pumped storage plants
-  Dighe di sbarramento - *Dams*
-  Canali all'aperto - *Canal conduits*
-  Derivazioni in galleria - *Tunnel conduits*
-  Confine bacino imbrifero - *Water shed*

PROFILO LONGITUDINALE - LONGITUDINAL PROFILE



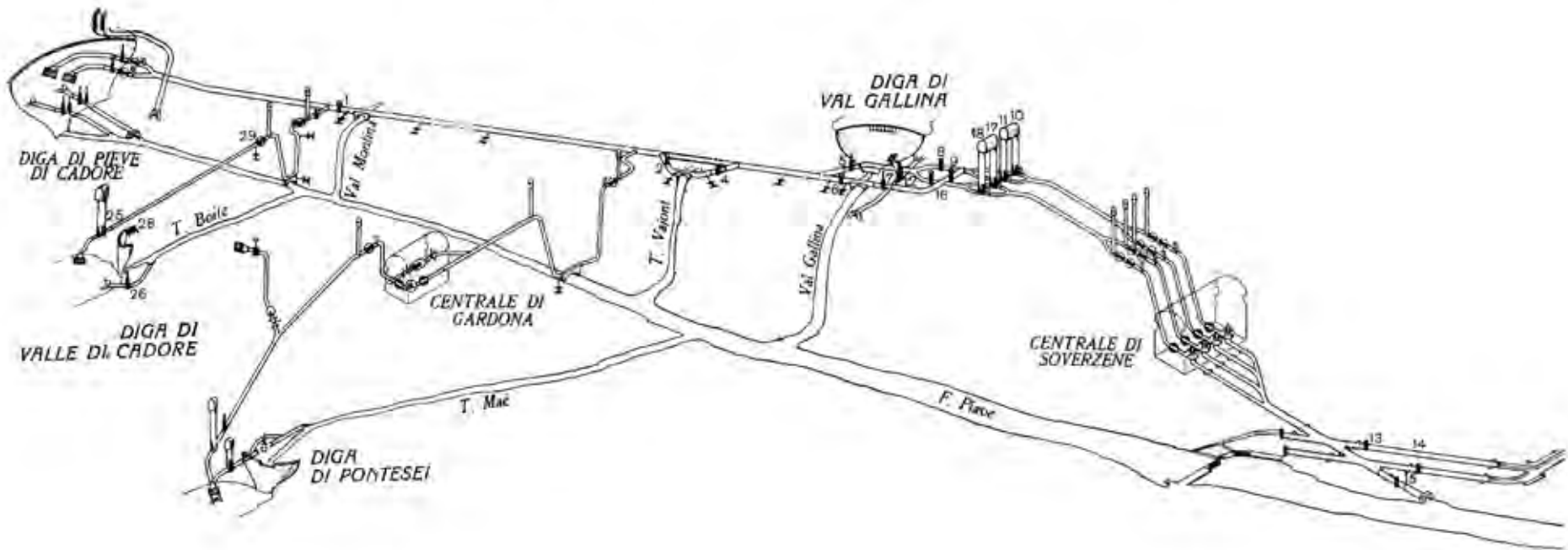
Tipologie di installazione



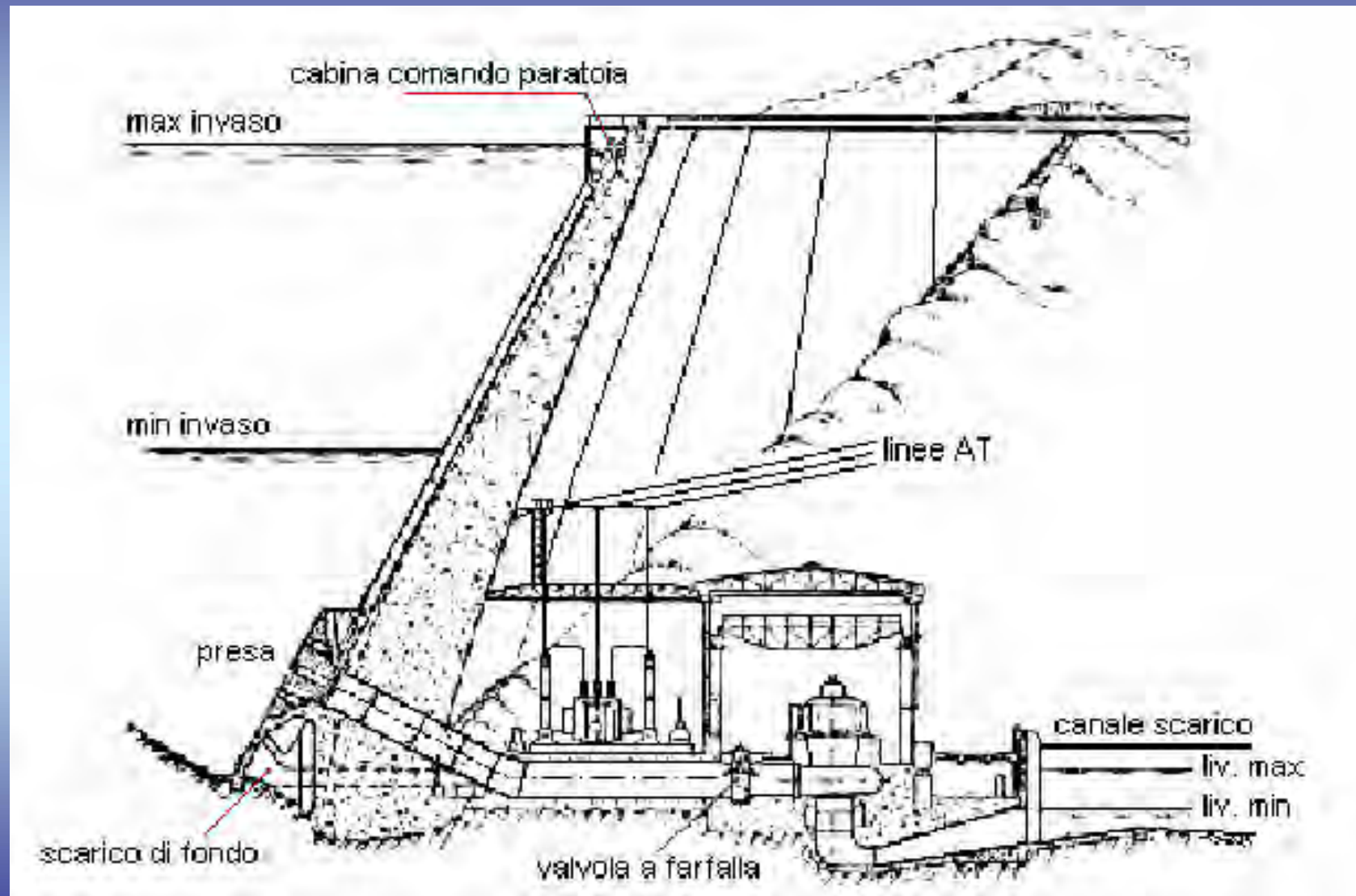
Tipologie di installazione

SCHEMA GENERALE DEGLI ORGANI DI CHIUSURA E SICUREZZA DELL'IMPIANTO

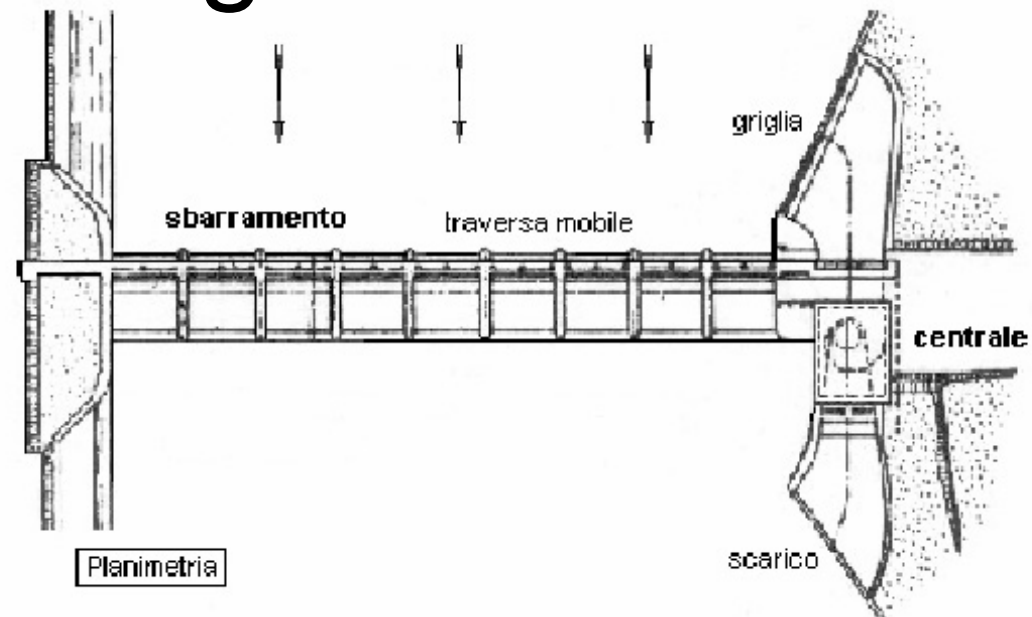
GENERAL LAYOUT OF SHUT-DOWN AND SAFETY EQUIPMENT



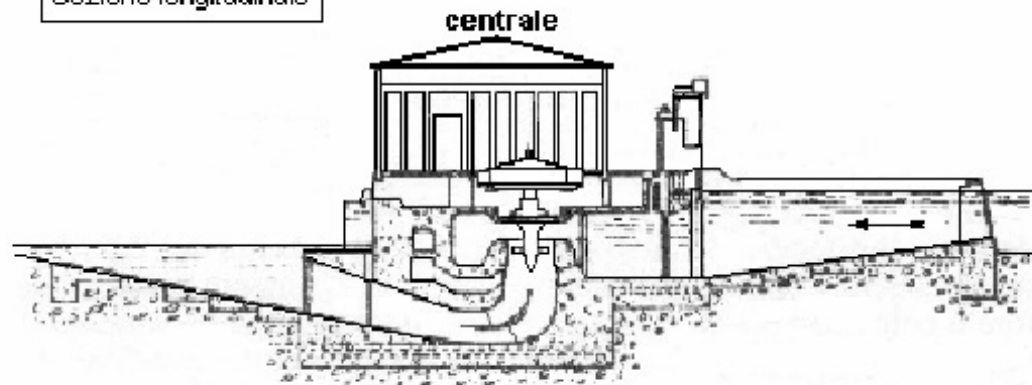
Tipologie di installazione



Tipologie di installazione



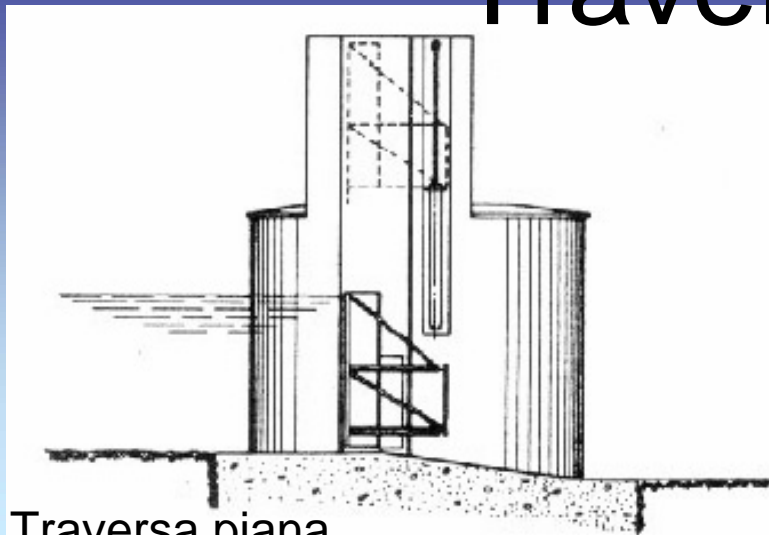
Sezione longitudinale



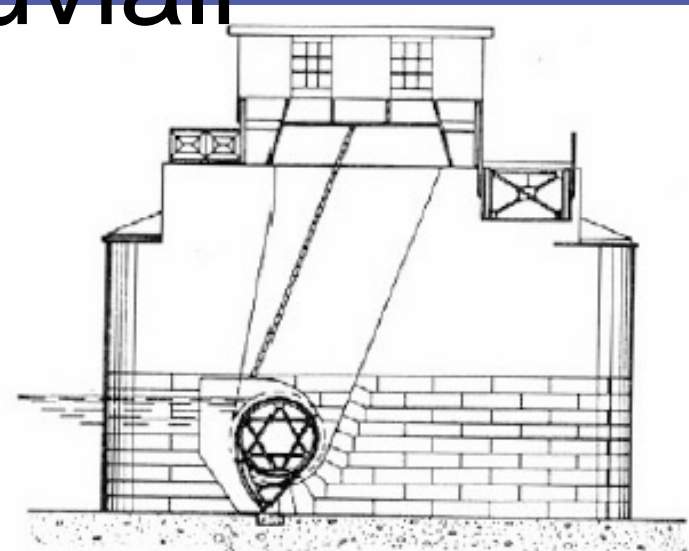
Opere idrauliche

TRAVERSE FLUVIALI	fisse	in muratura, calcestruzzo, terra	
	mobili	piane, a settore, cilindriche, a ventola	
DIGHE	in materiali sciolti	in terra	
		a scogliera	
		in muratura a secco	
	in muratura	a gravità	massiccia
			alleggerita
		a volta	ad arco
			ad arco-gravità
		a cupola	

Traverse fluviali

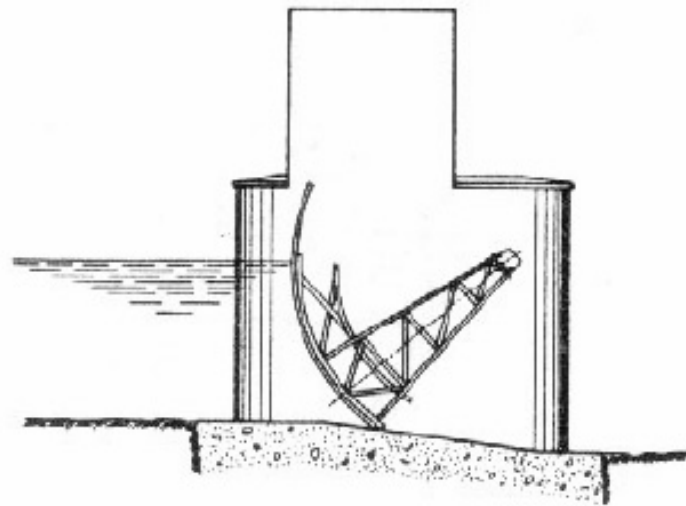


Traversa piana



Traversa a cilindro

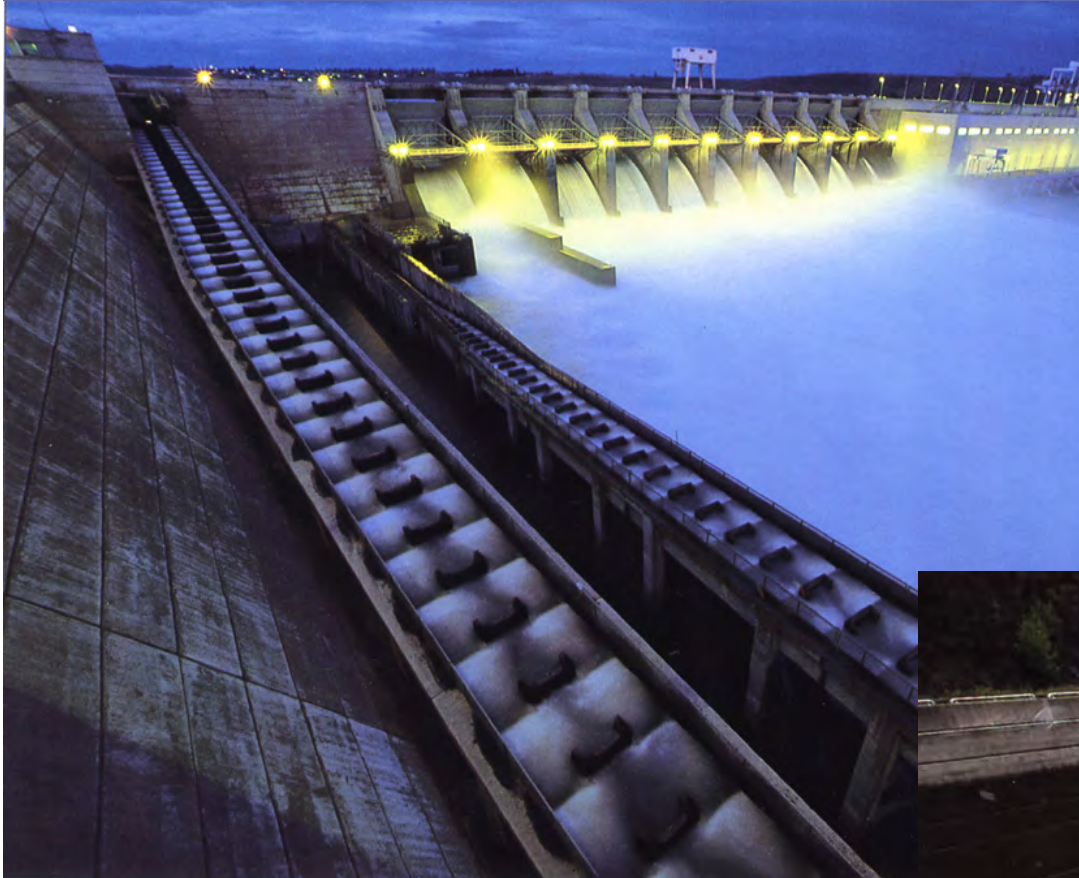
Traversa a settore



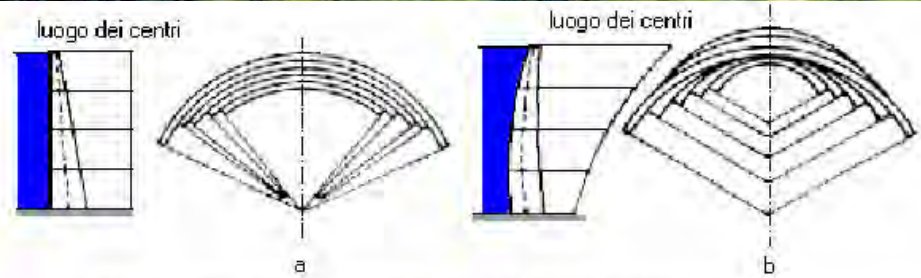
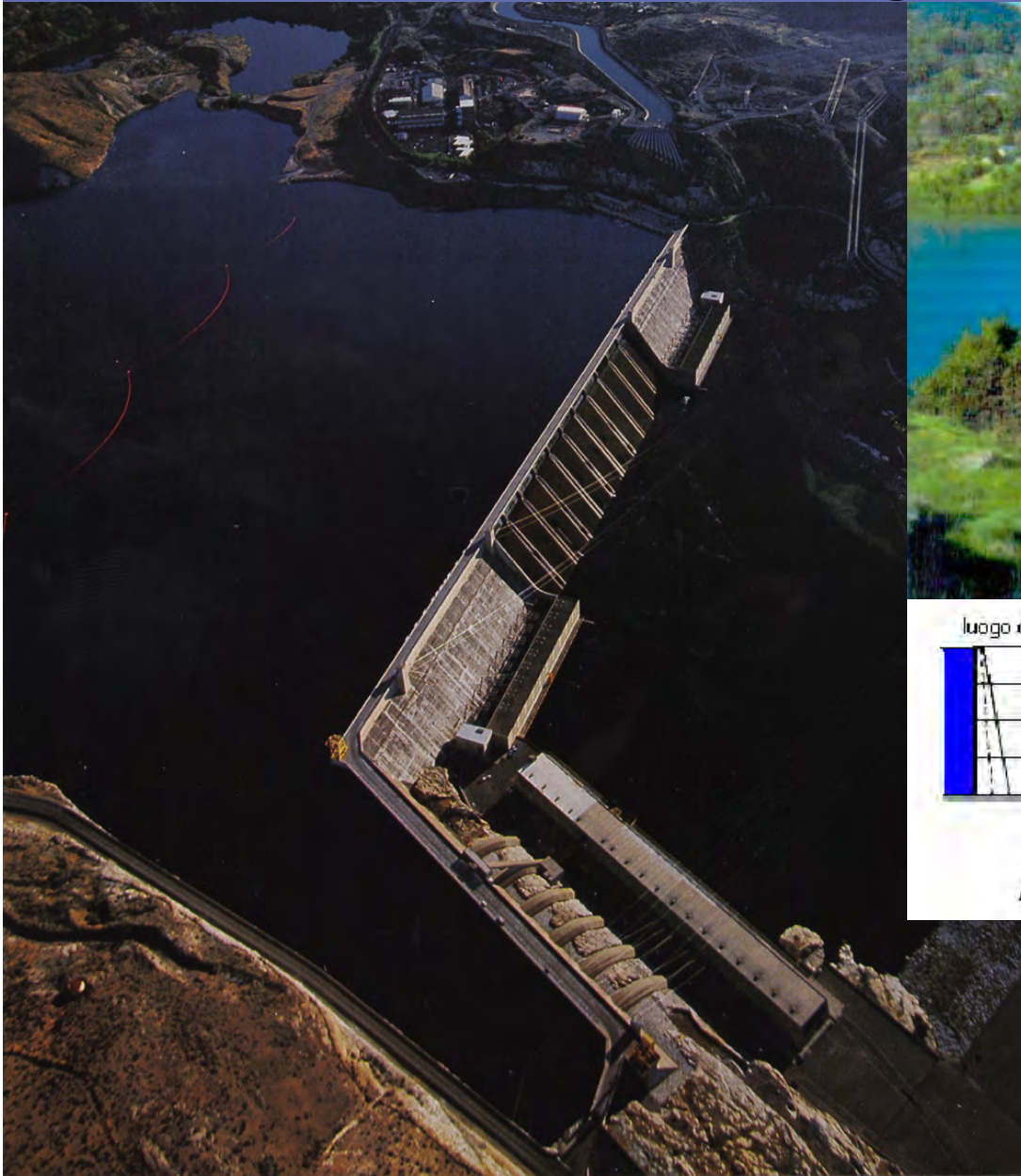
Traversa a ventraglio



Traverse fluviali

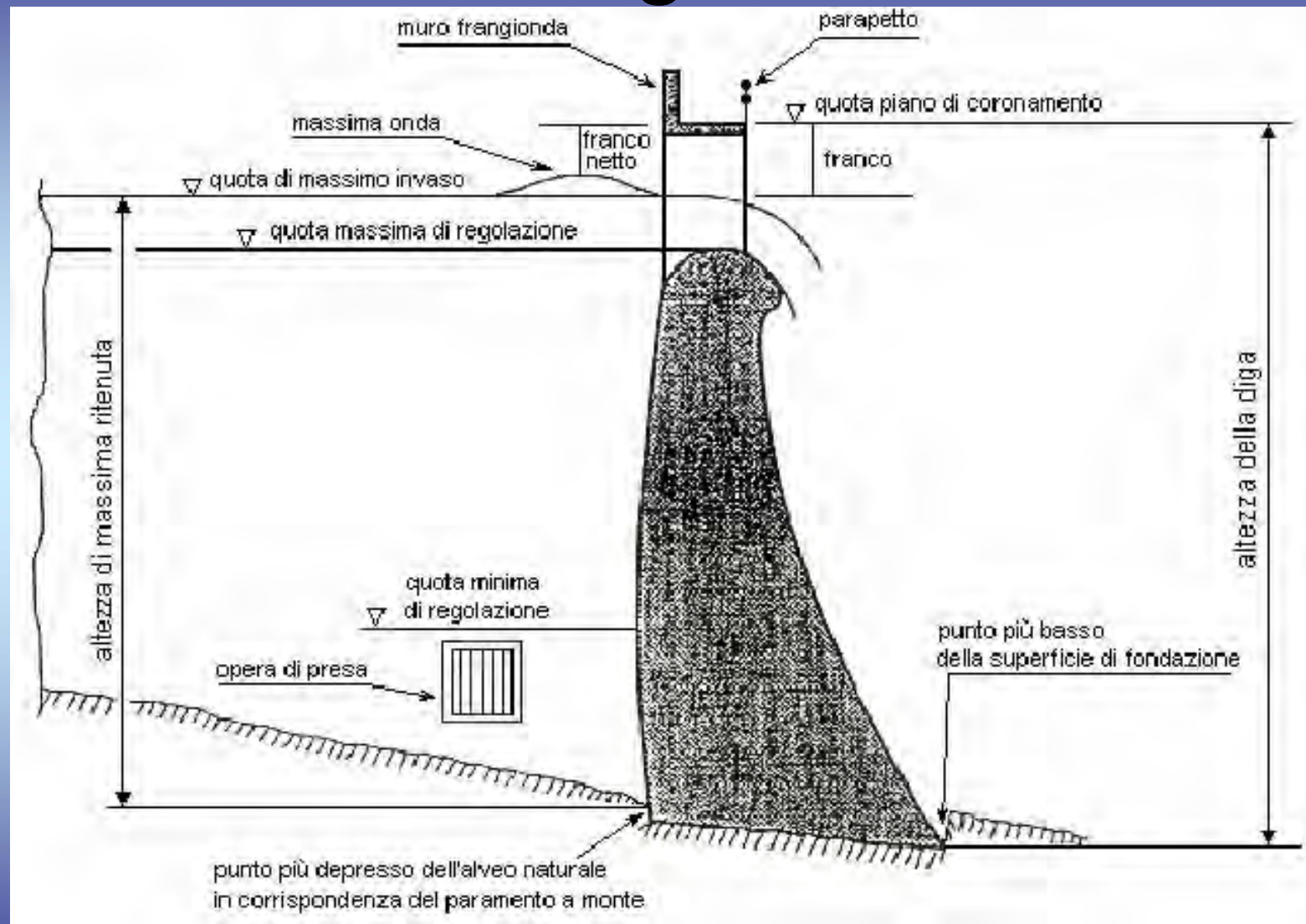


Dighe



Diga a volta a raggio costante (a) e ad angolo costante (b)

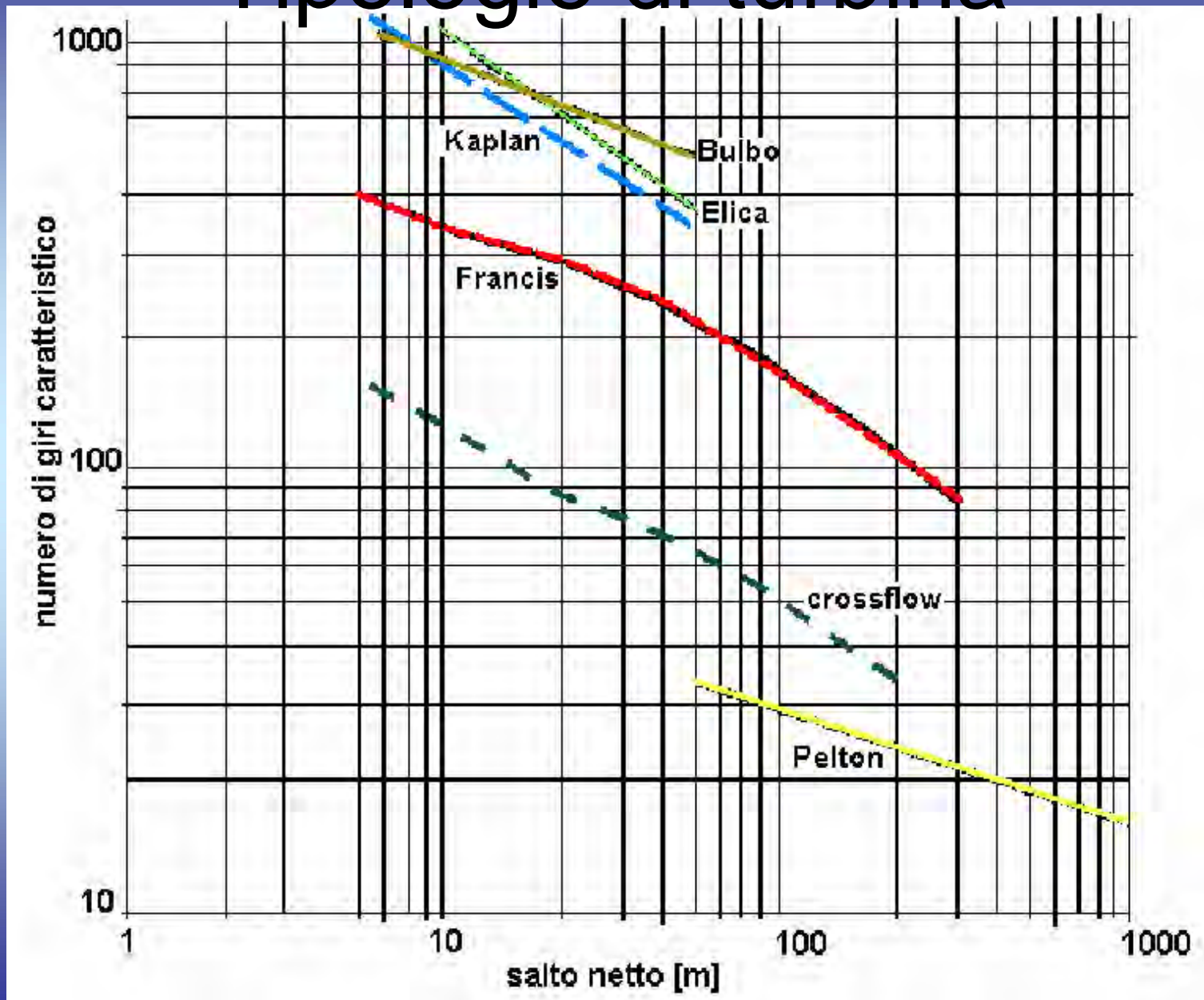
Dighe



Dighe



Tipologie di turbina

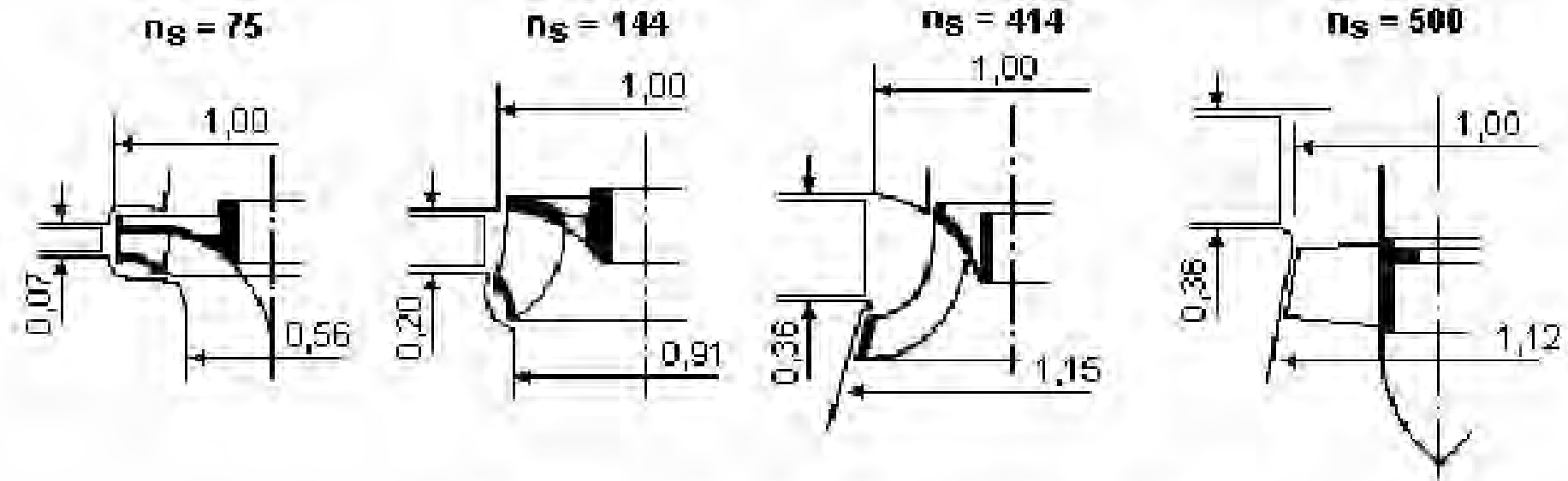


Tipologie di turbina

Portata turbinabile

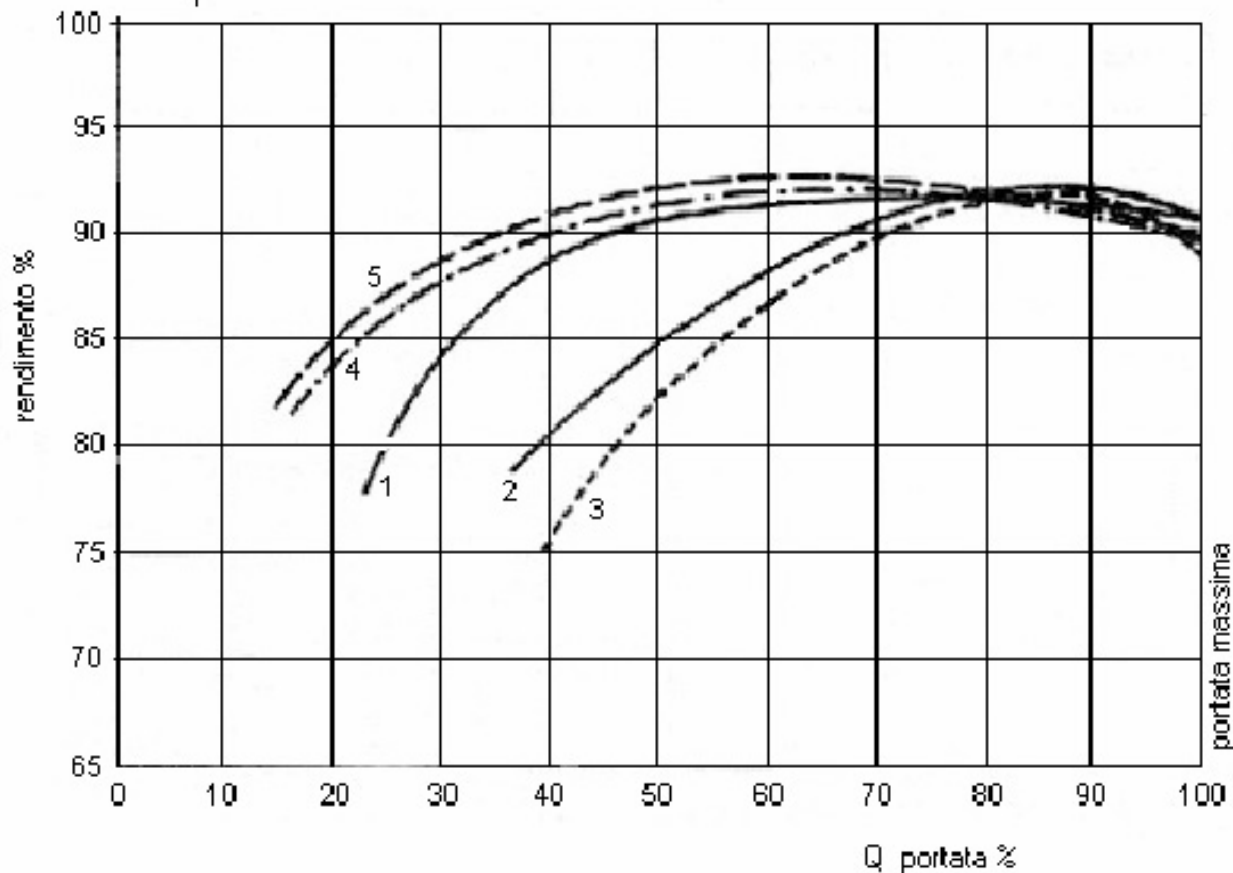
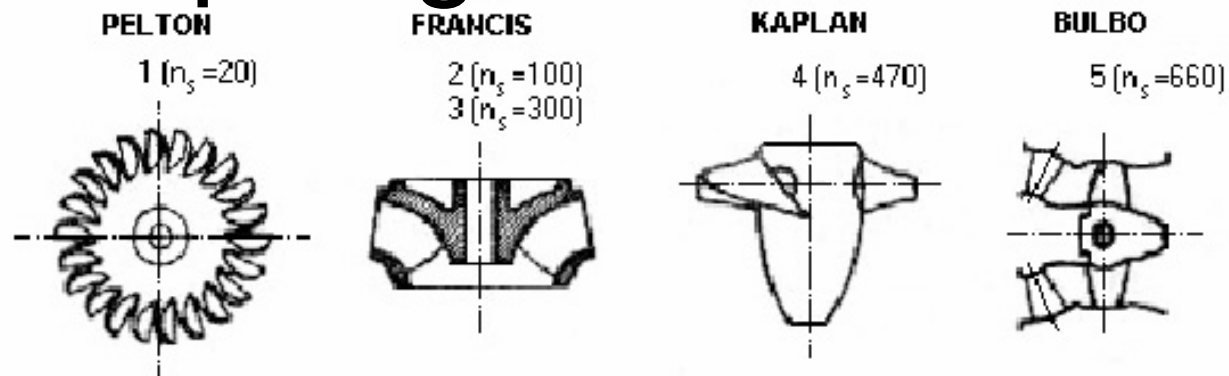


Salto idrico disponibile



**Profilo delle pale delle turbine a reazione
al variare del numero di giri caratteristico**

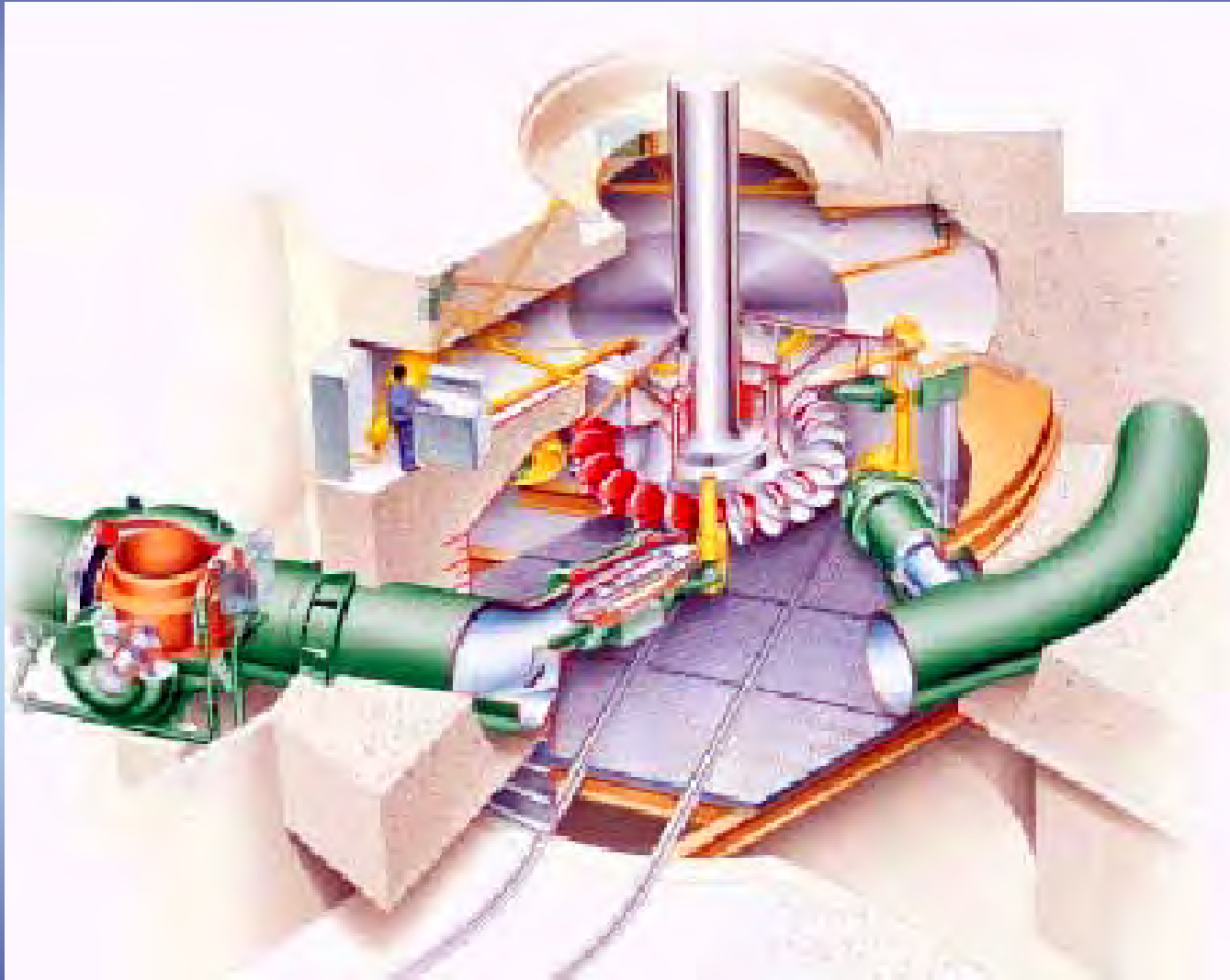
Tipologie di turbina



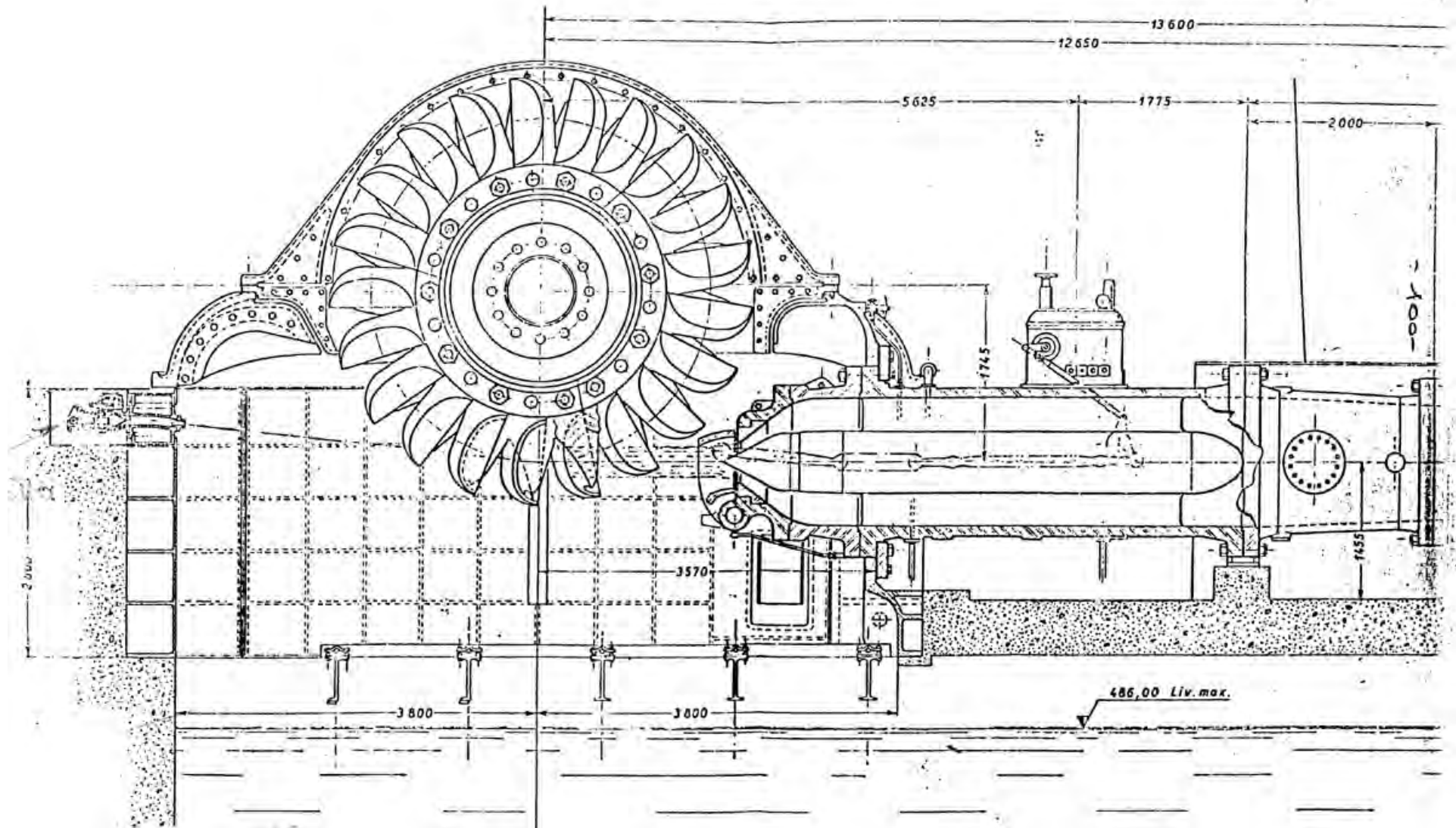
Turbina Pelton



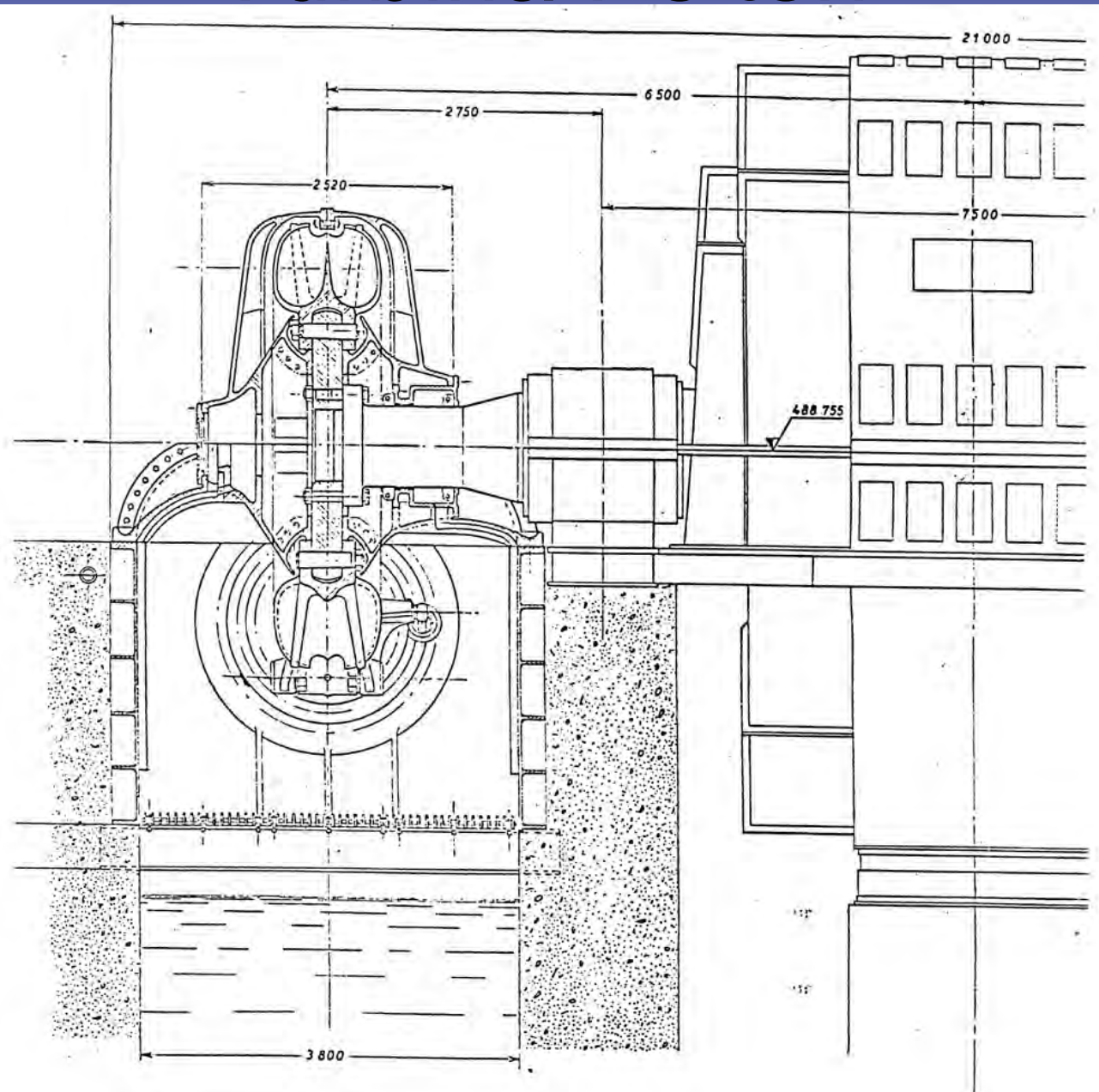
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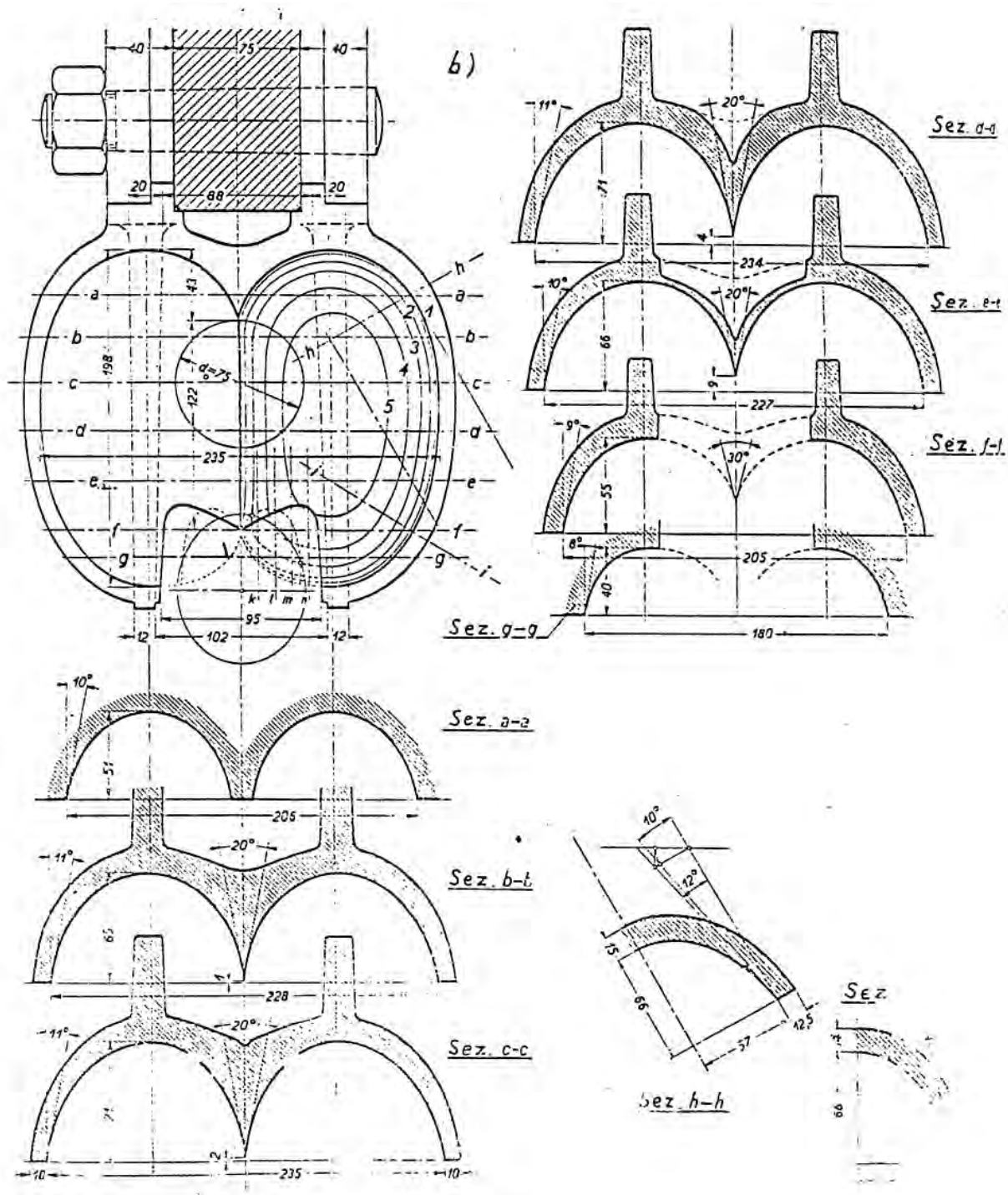


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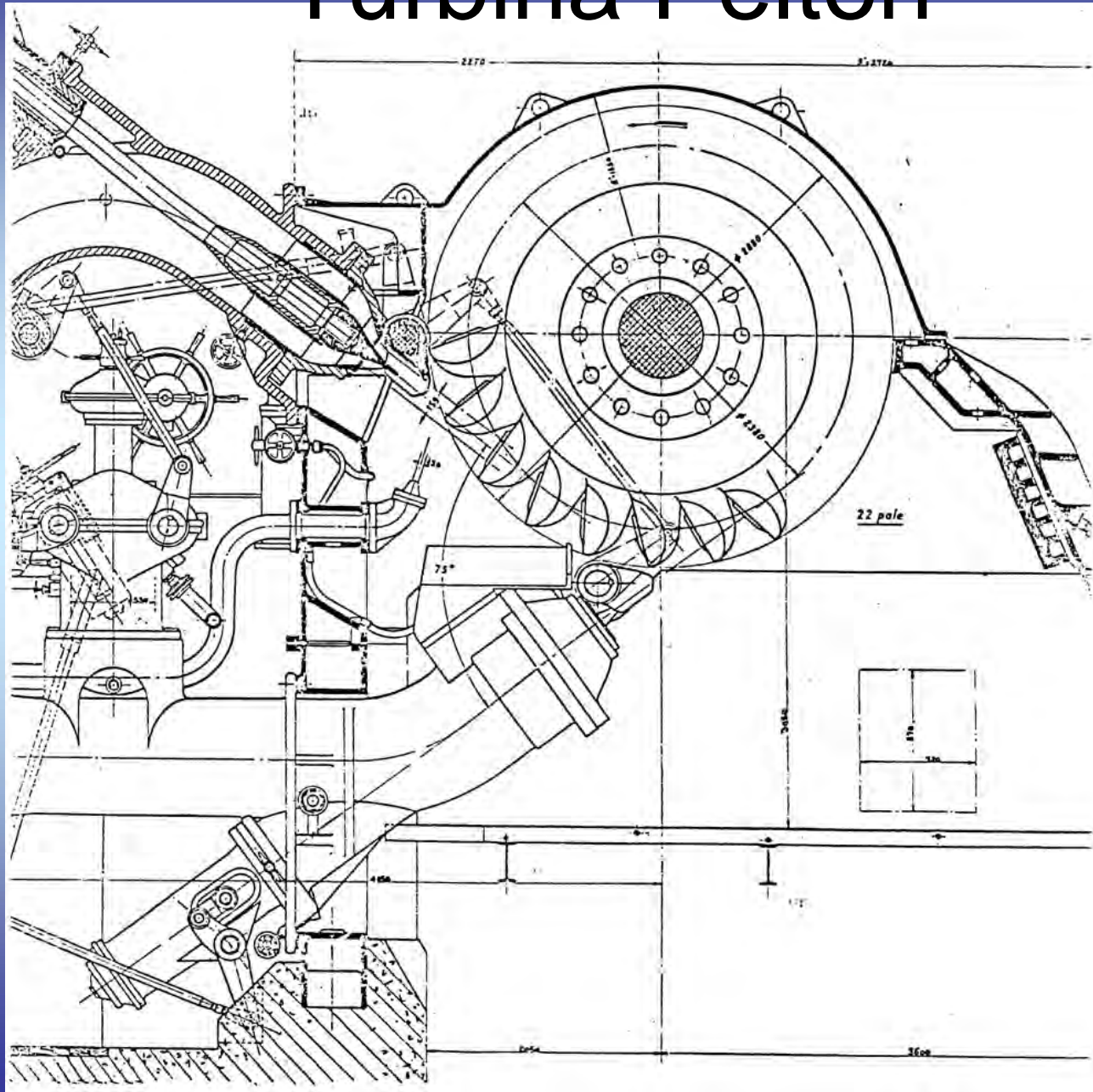


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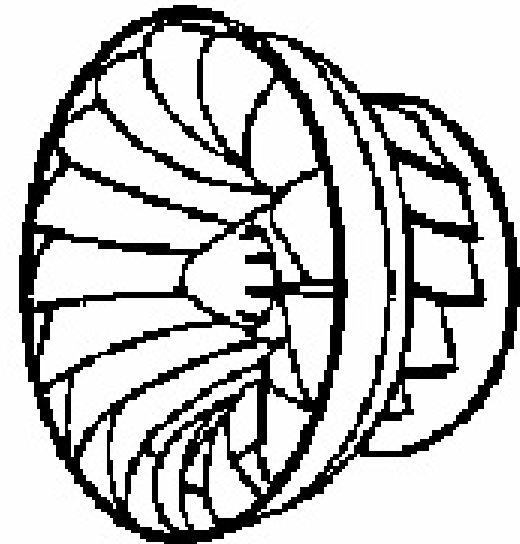
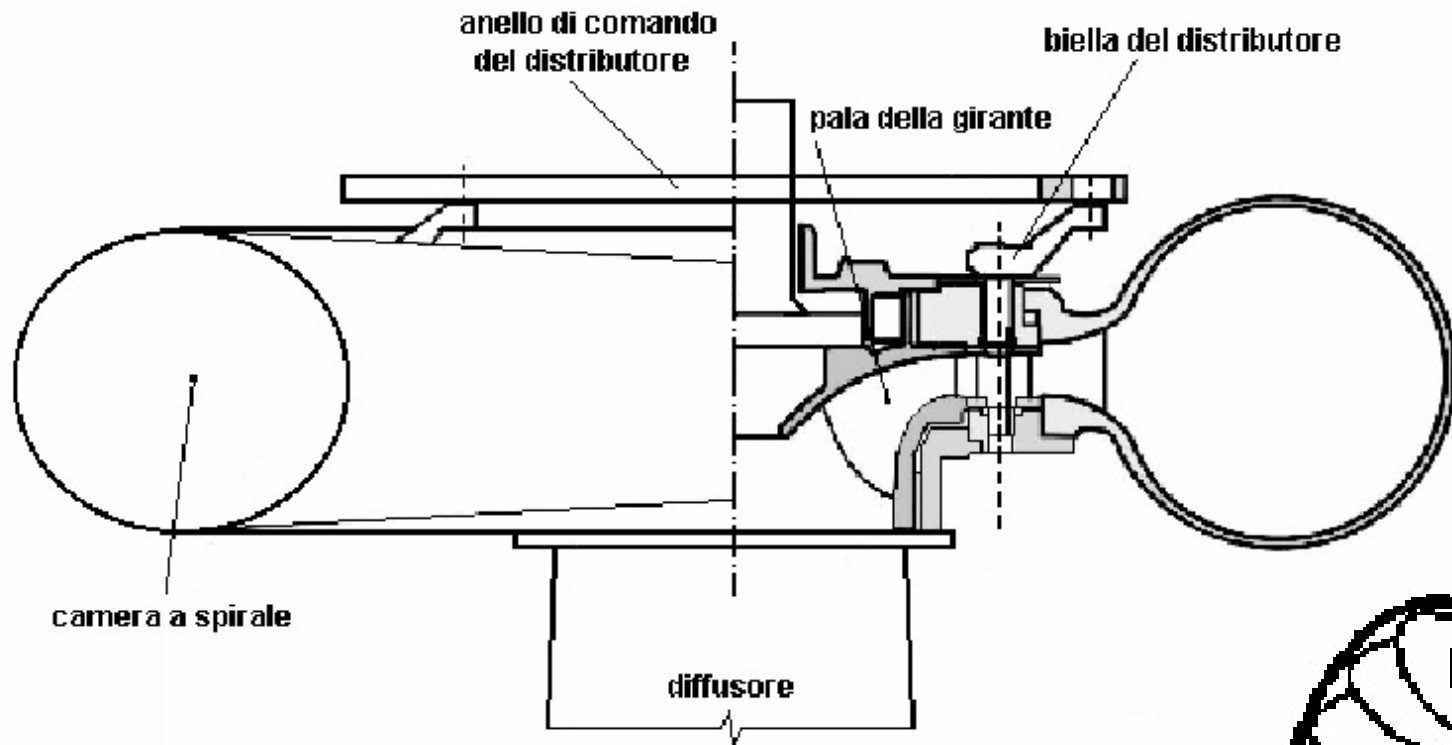


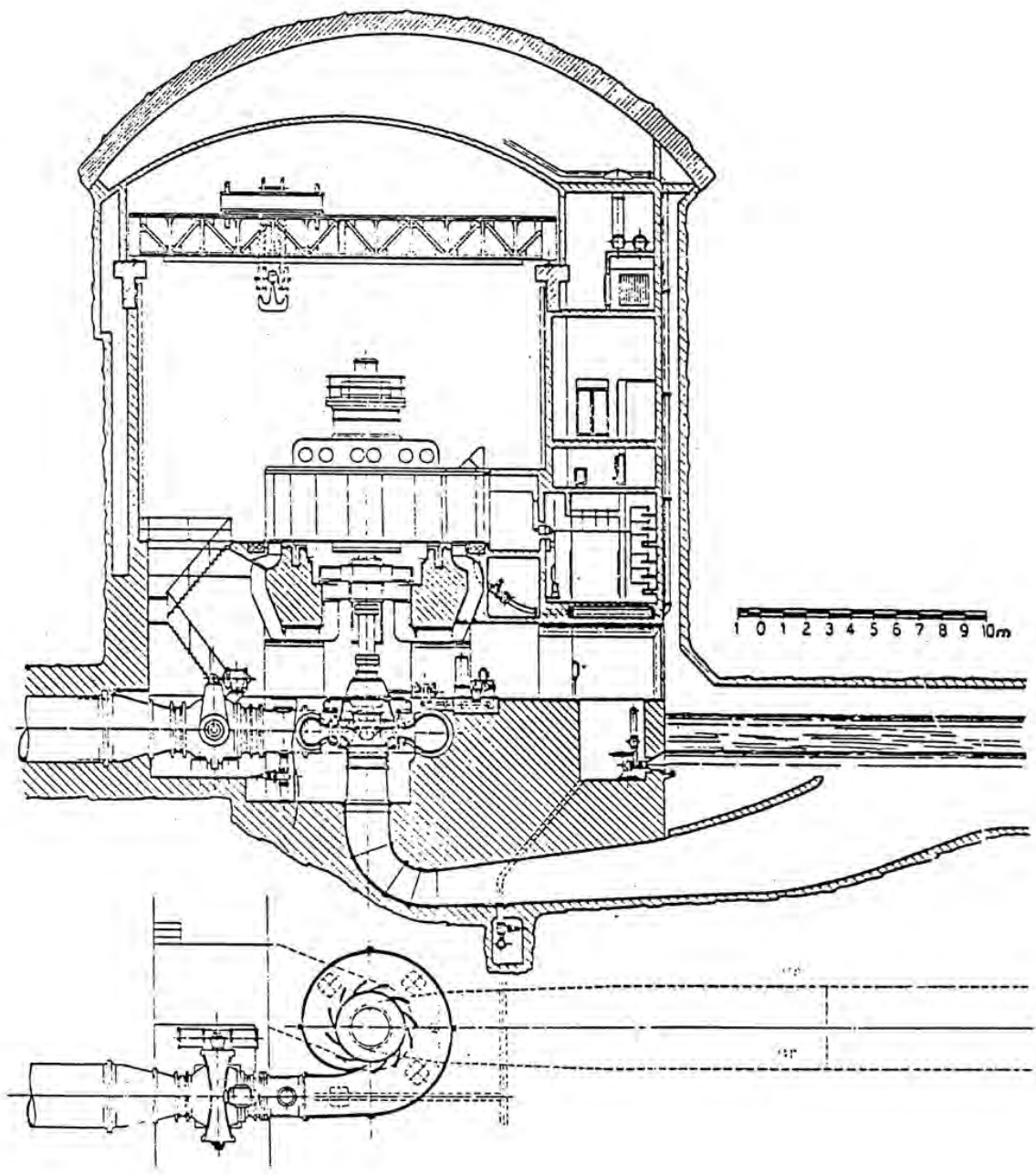


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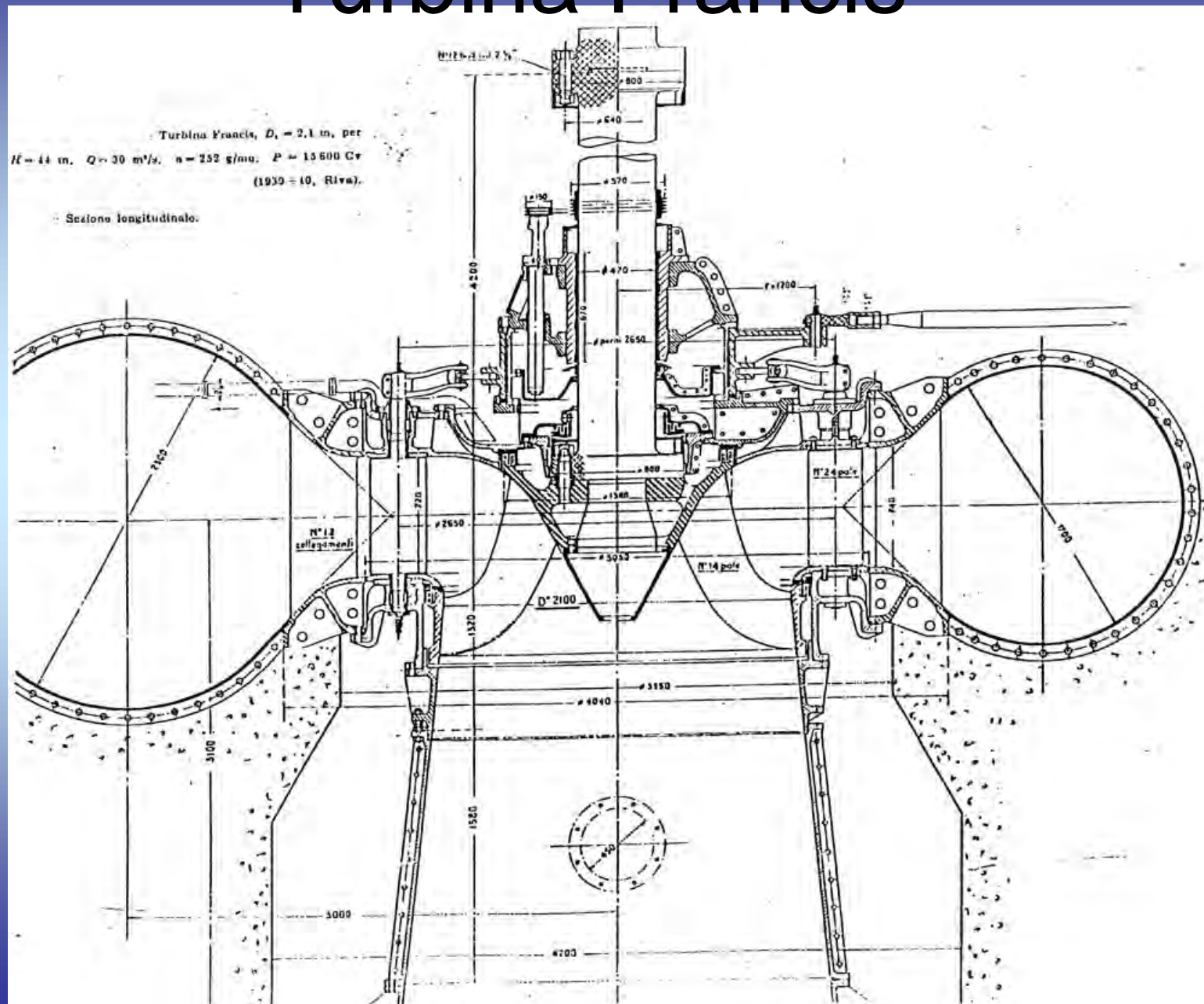


Turbina Francis



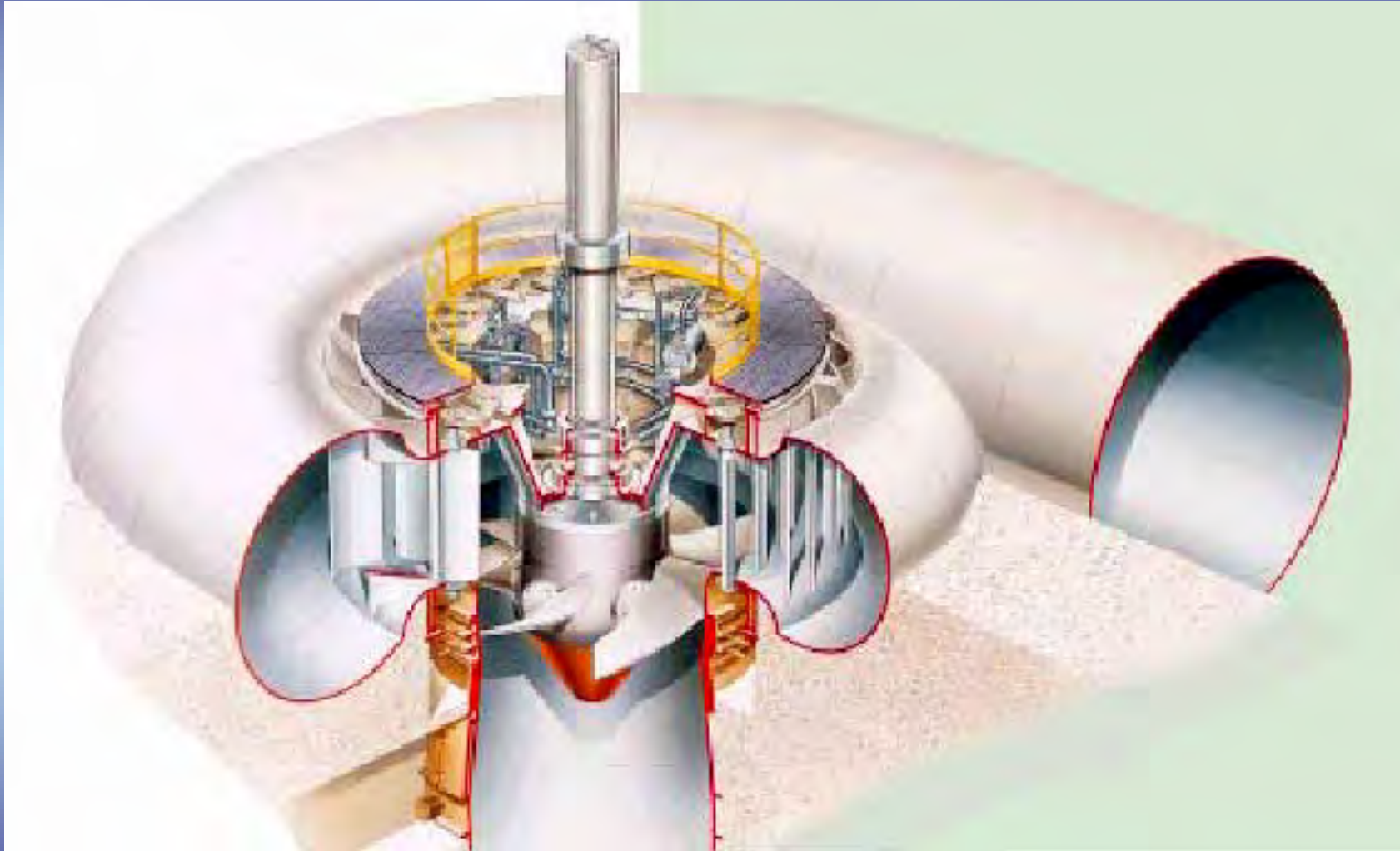


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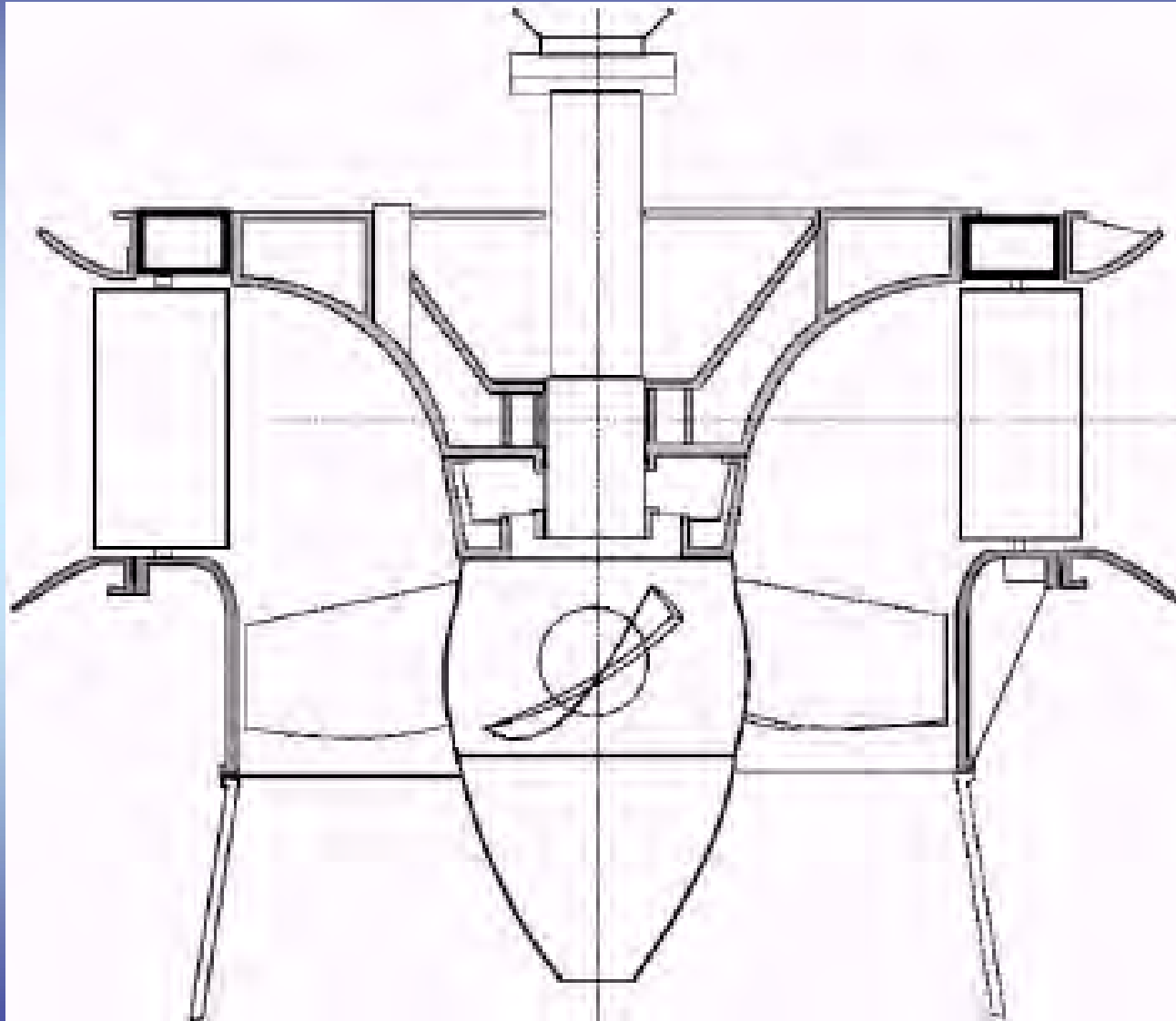


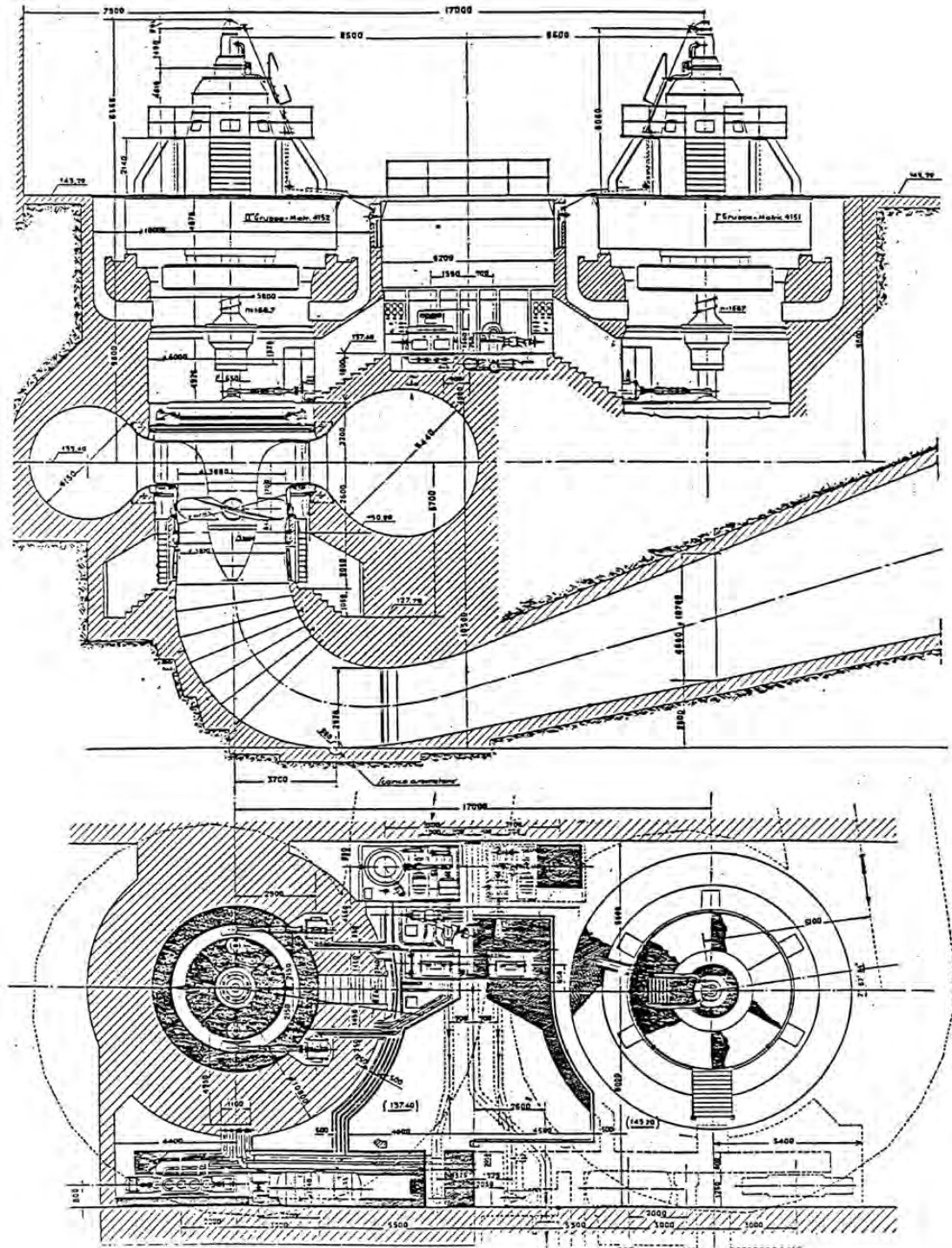


Turbina Kaplan

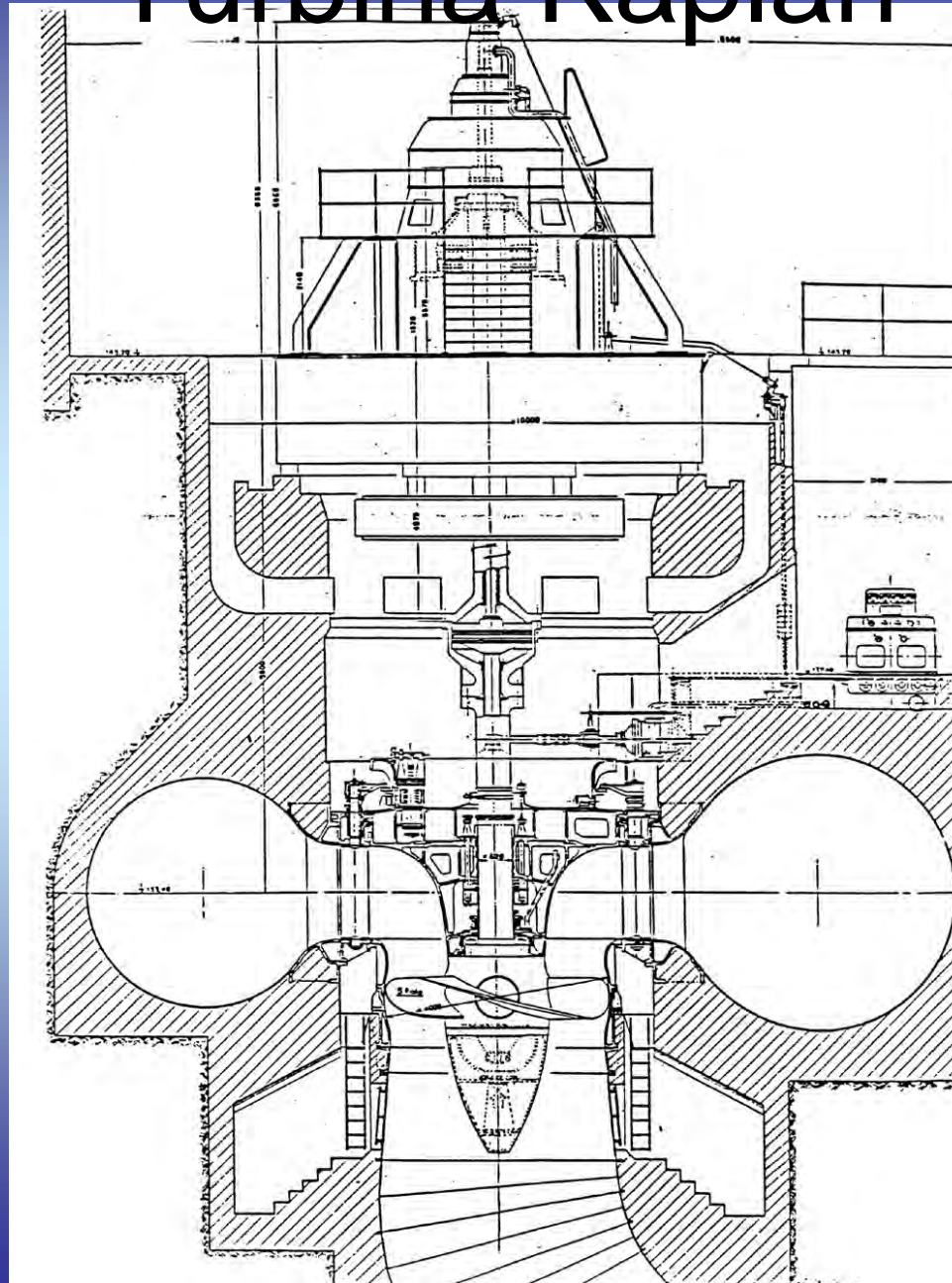


Turbina Kaplan

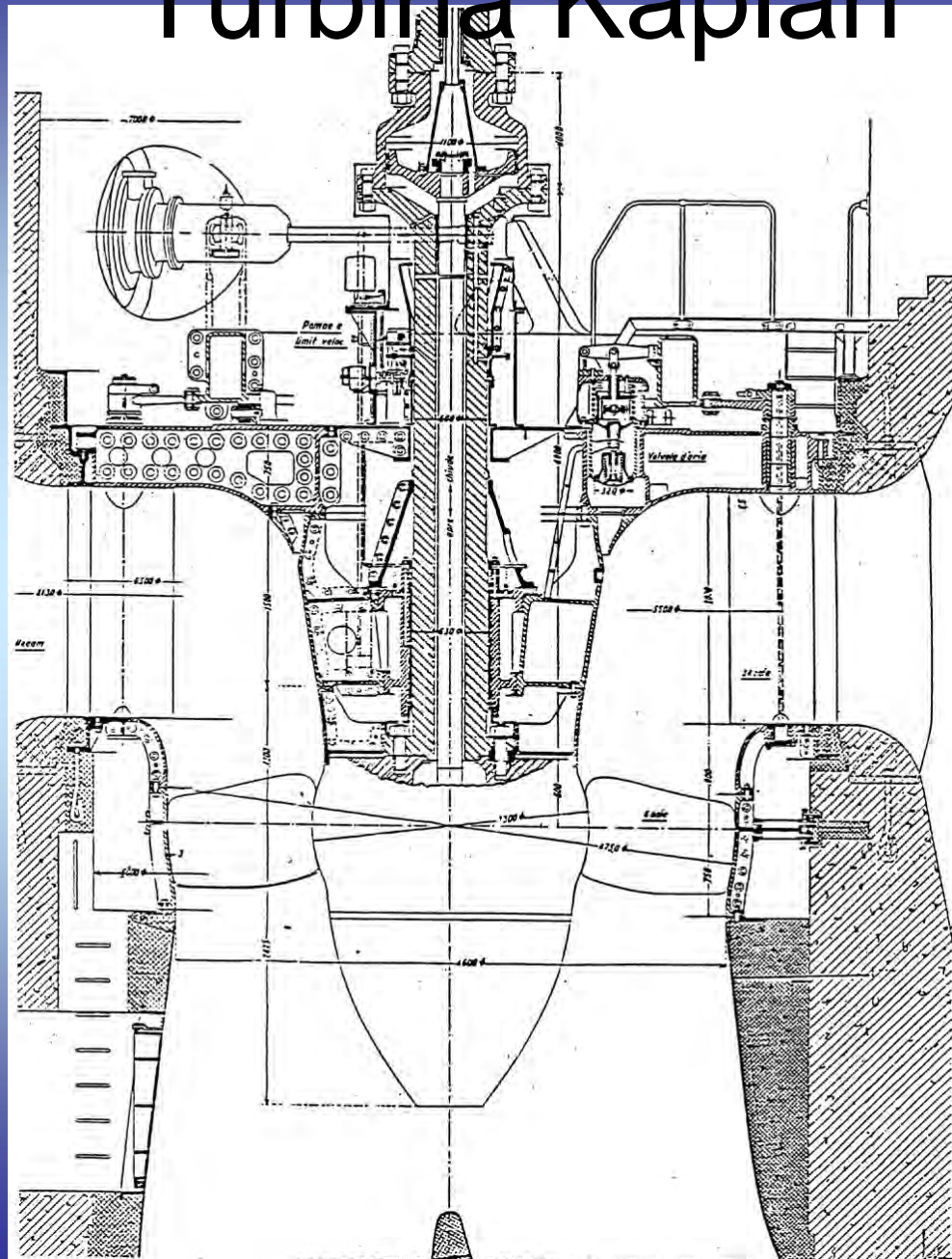




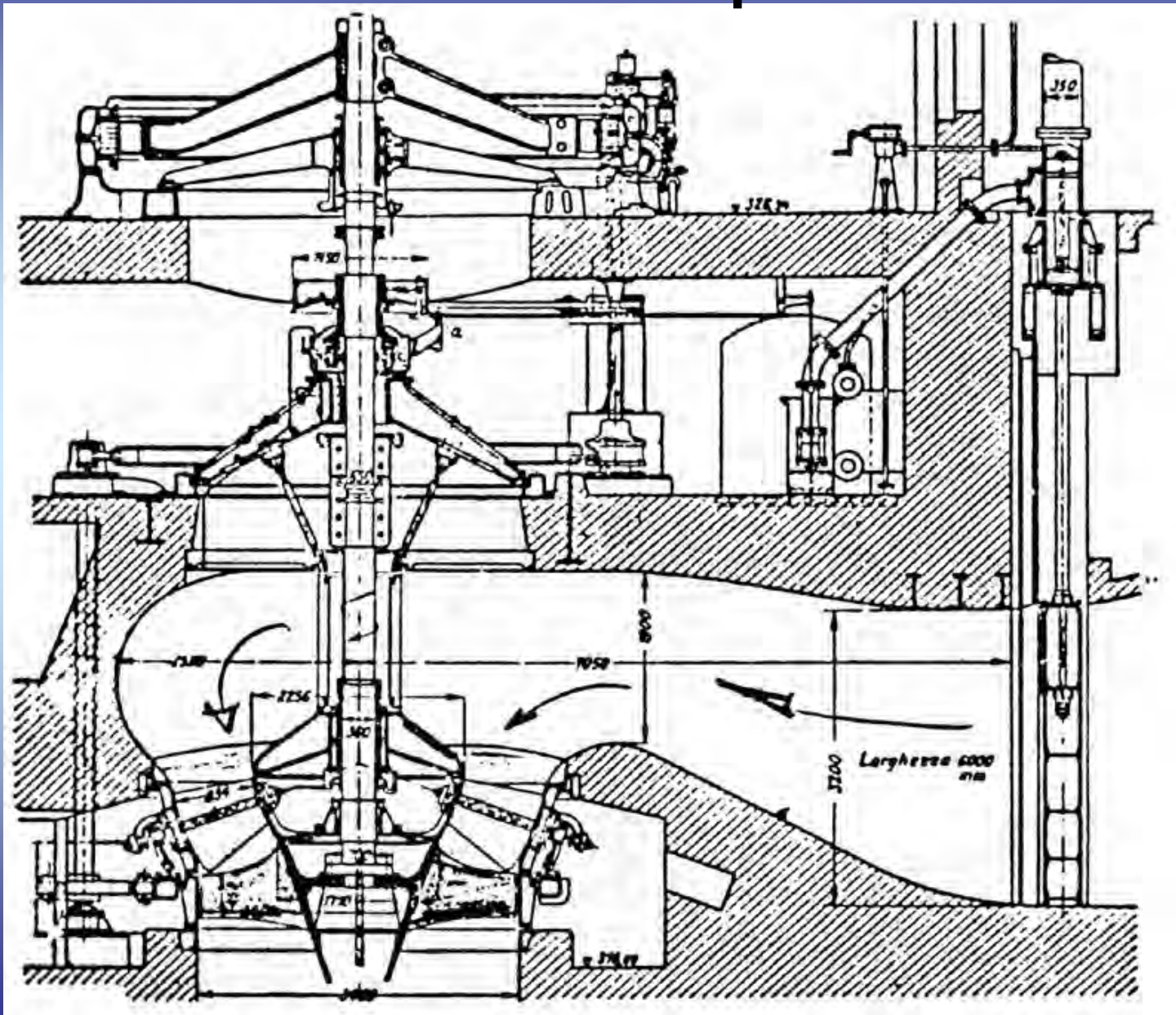
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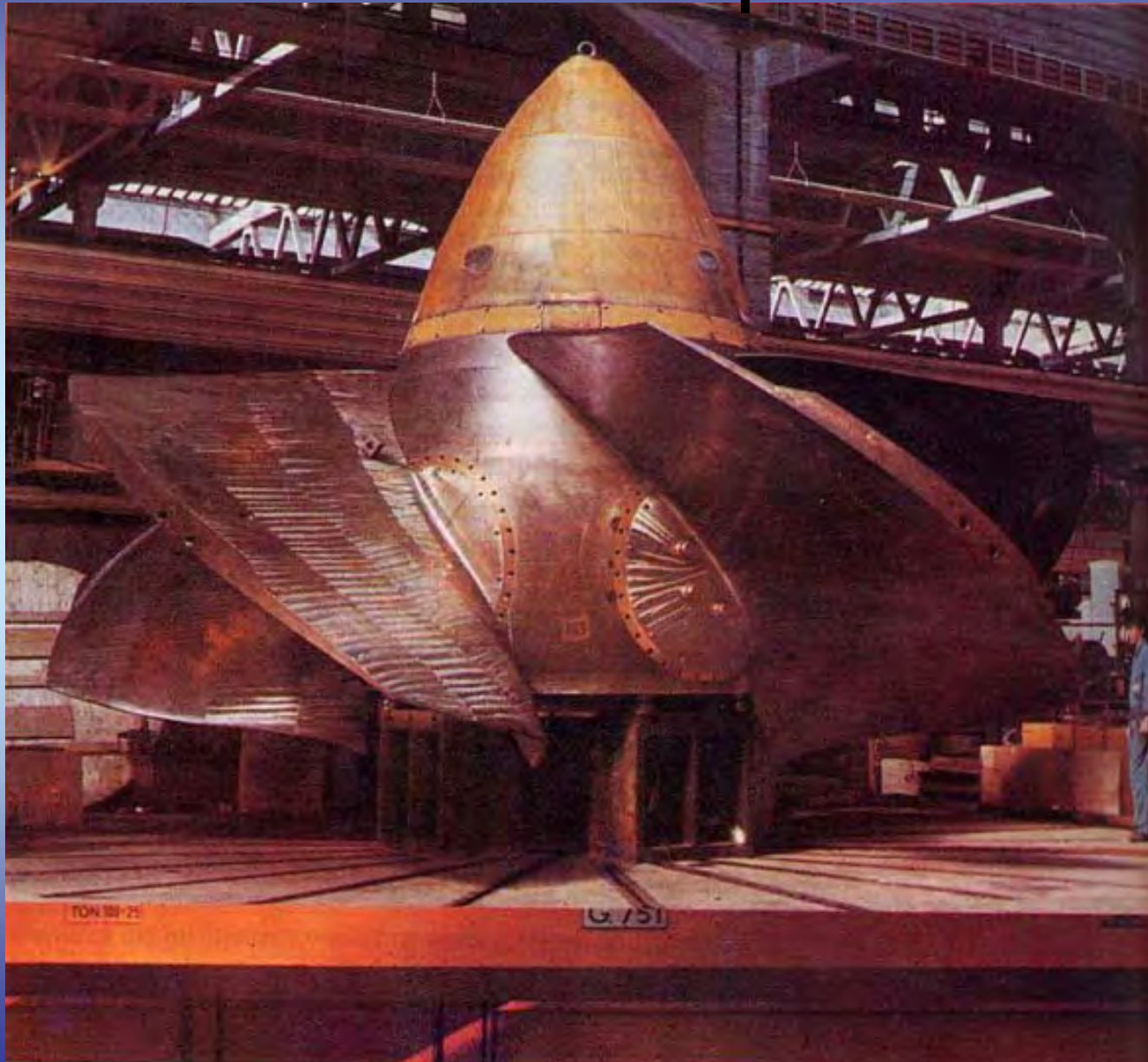
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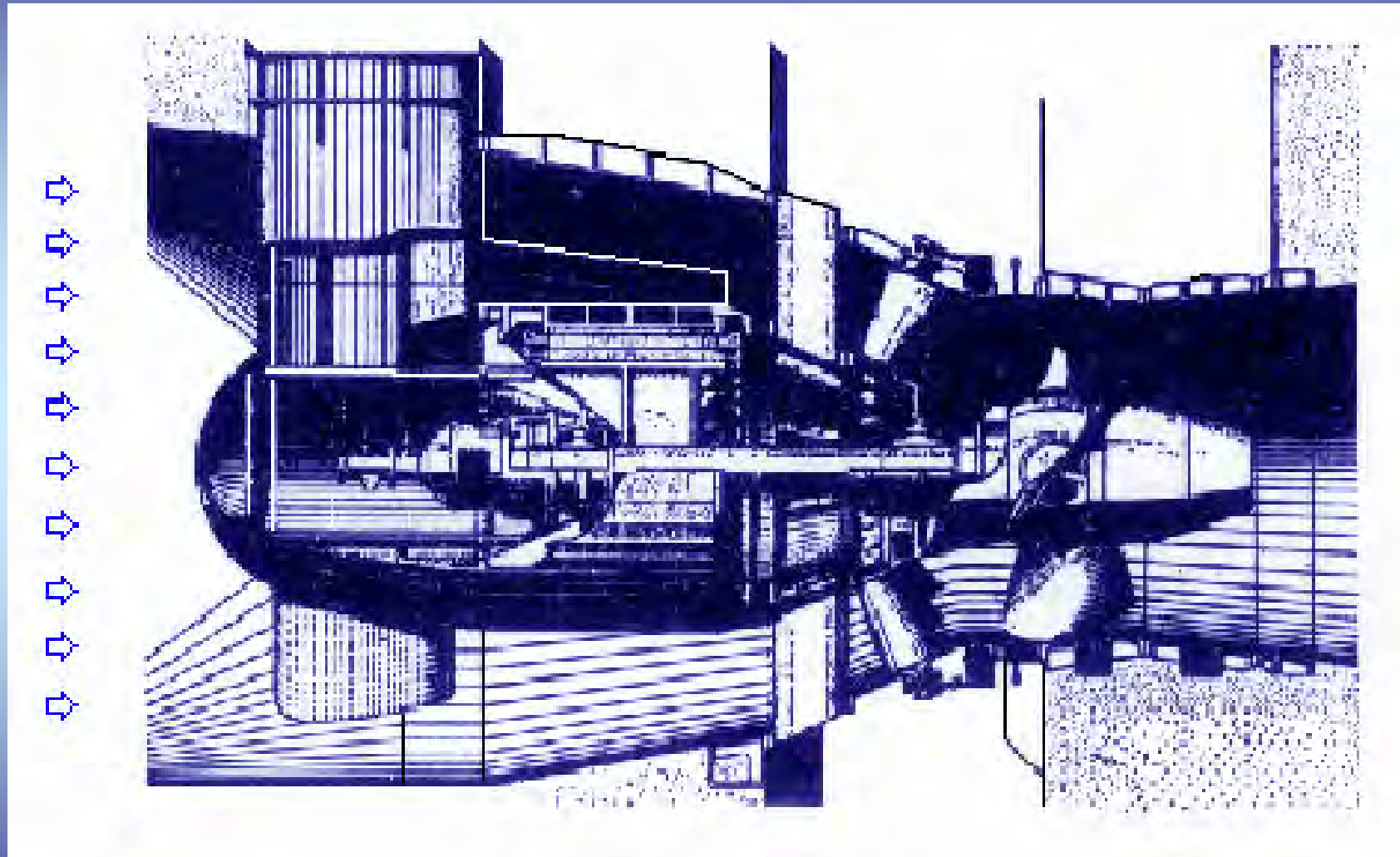
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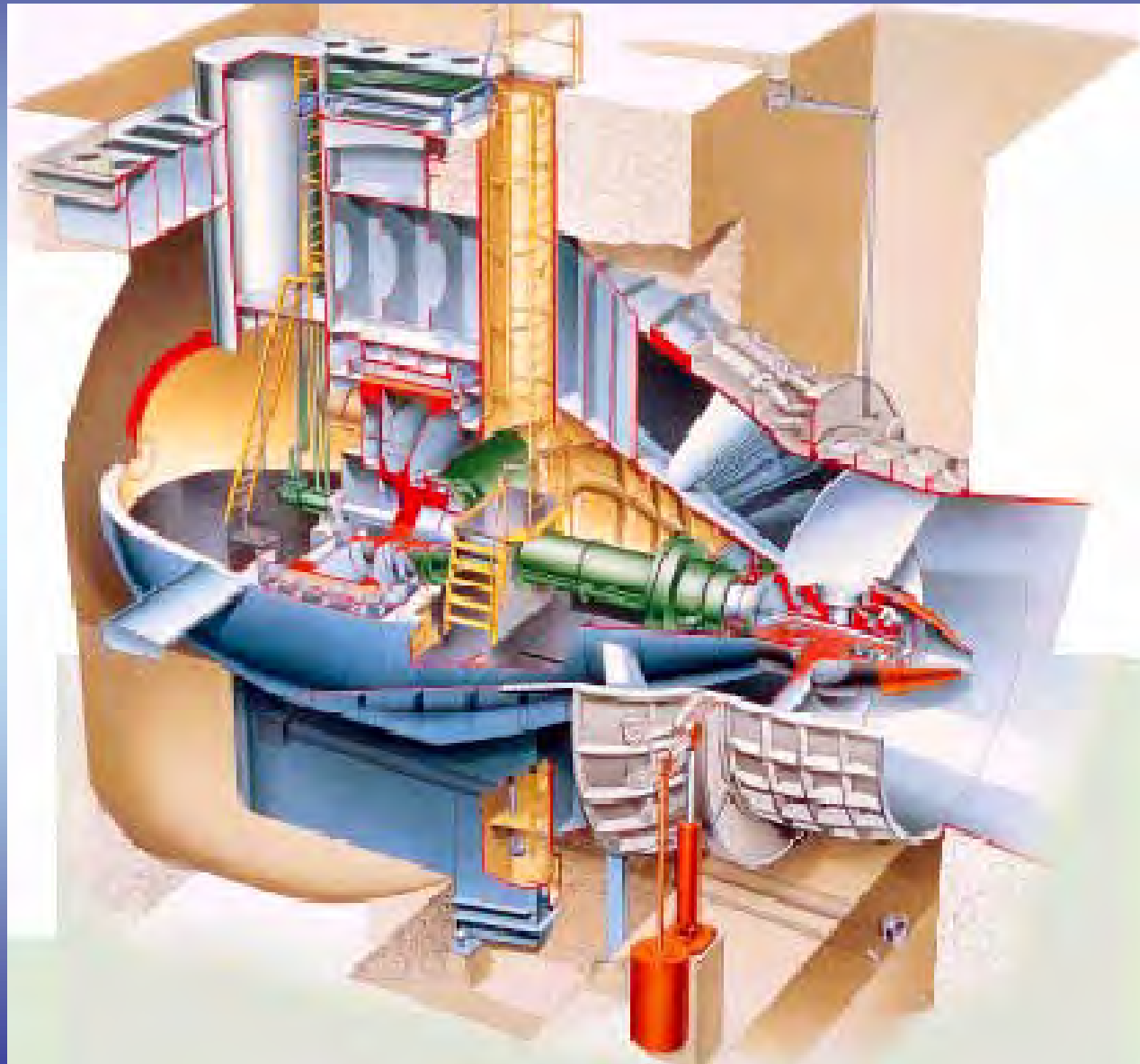
Turbina Kaplan



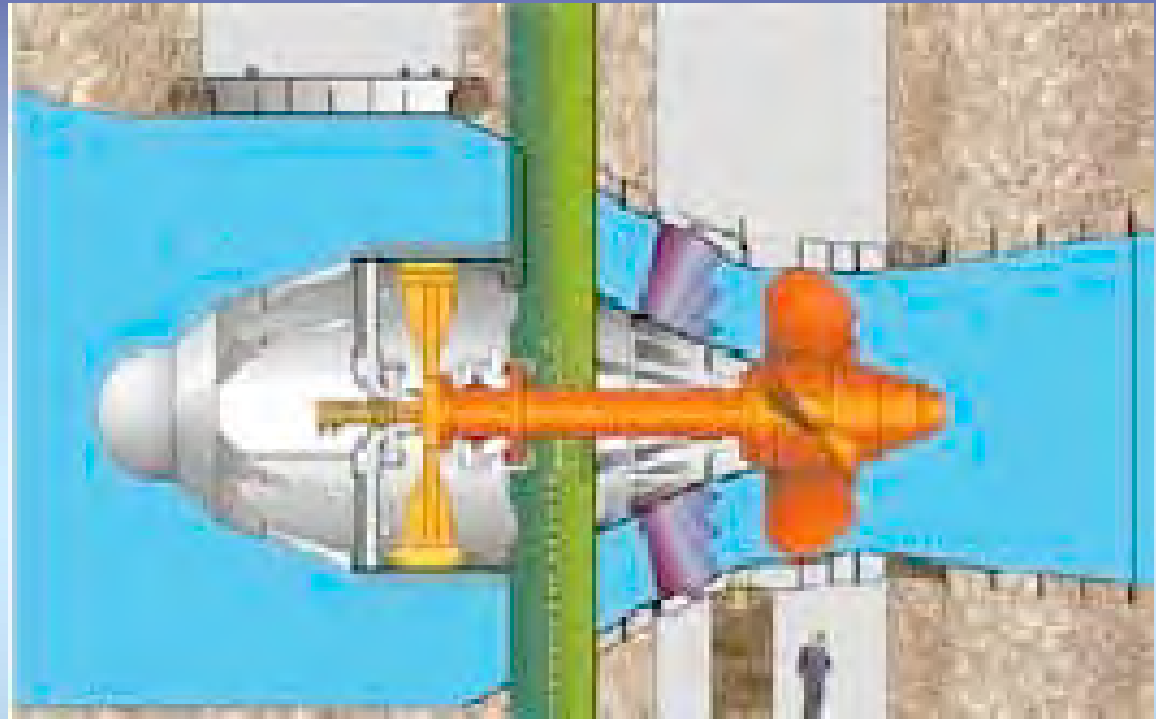
Turbina assiale a bulbo



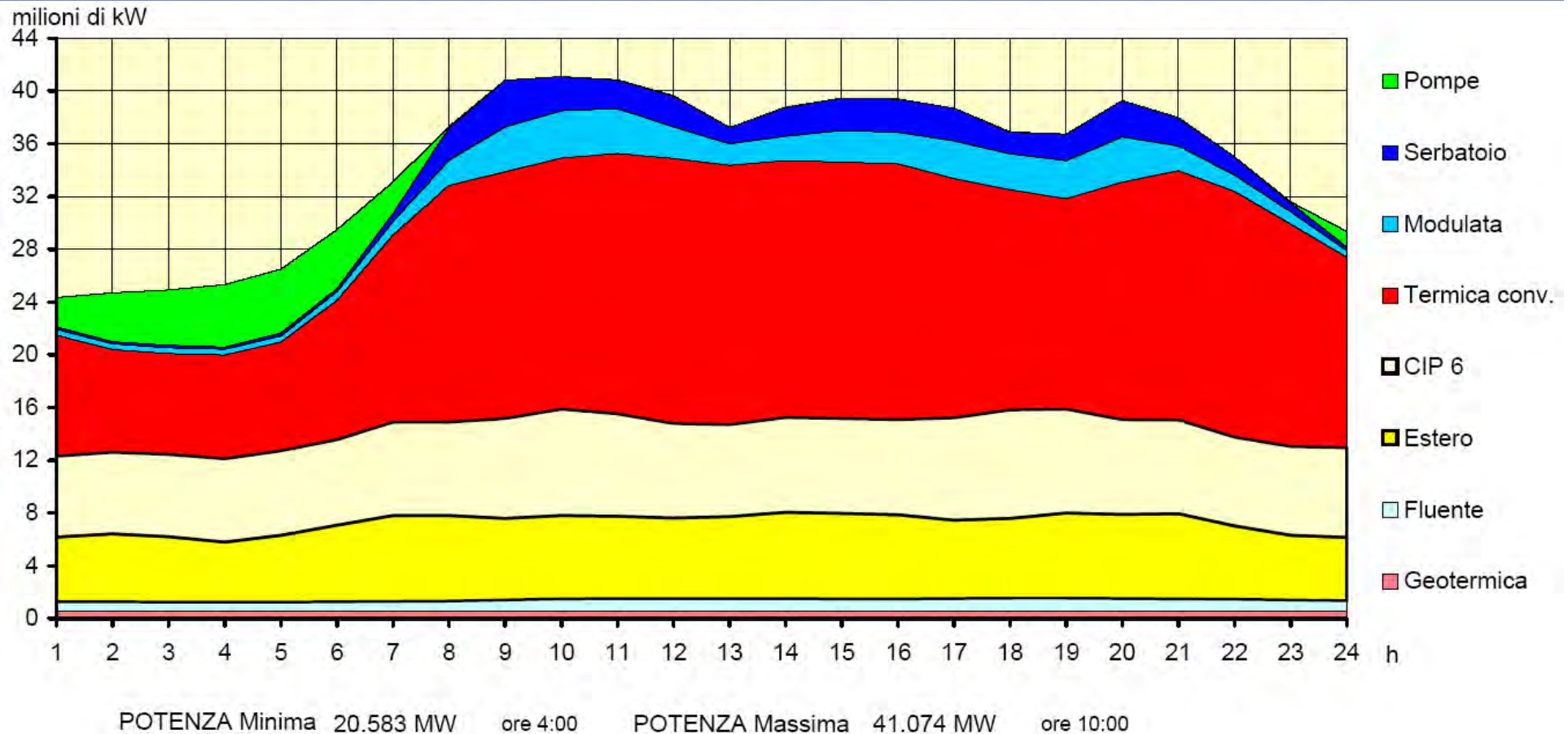
Turbina assiale a bulbo



Turbina assiale a bulbo



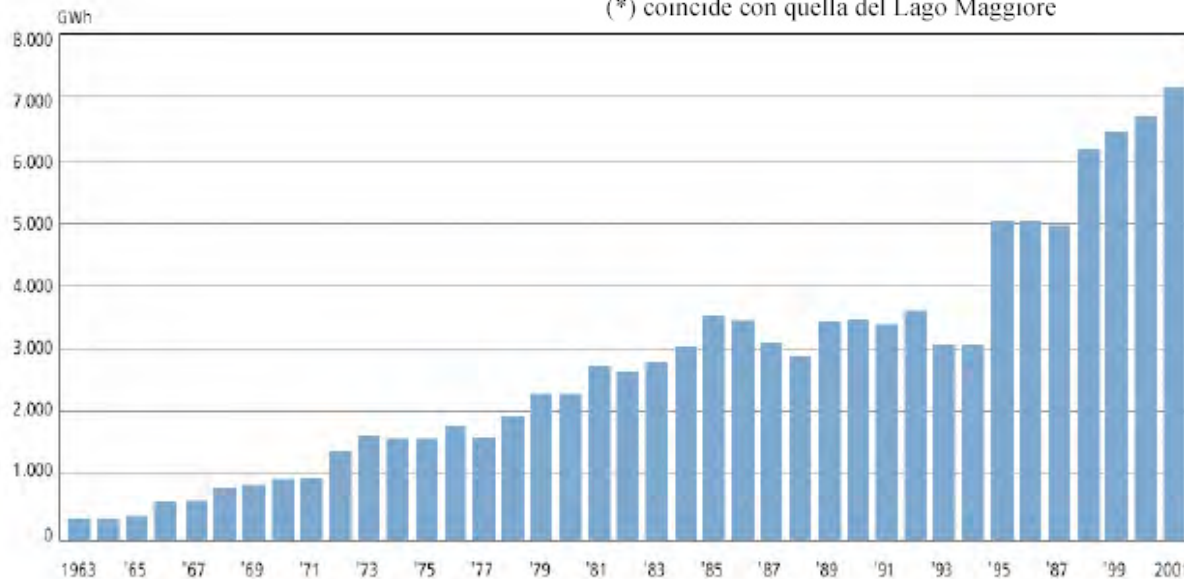
Copertura domanda 30 marzo 2004



Impianti di pompaggio

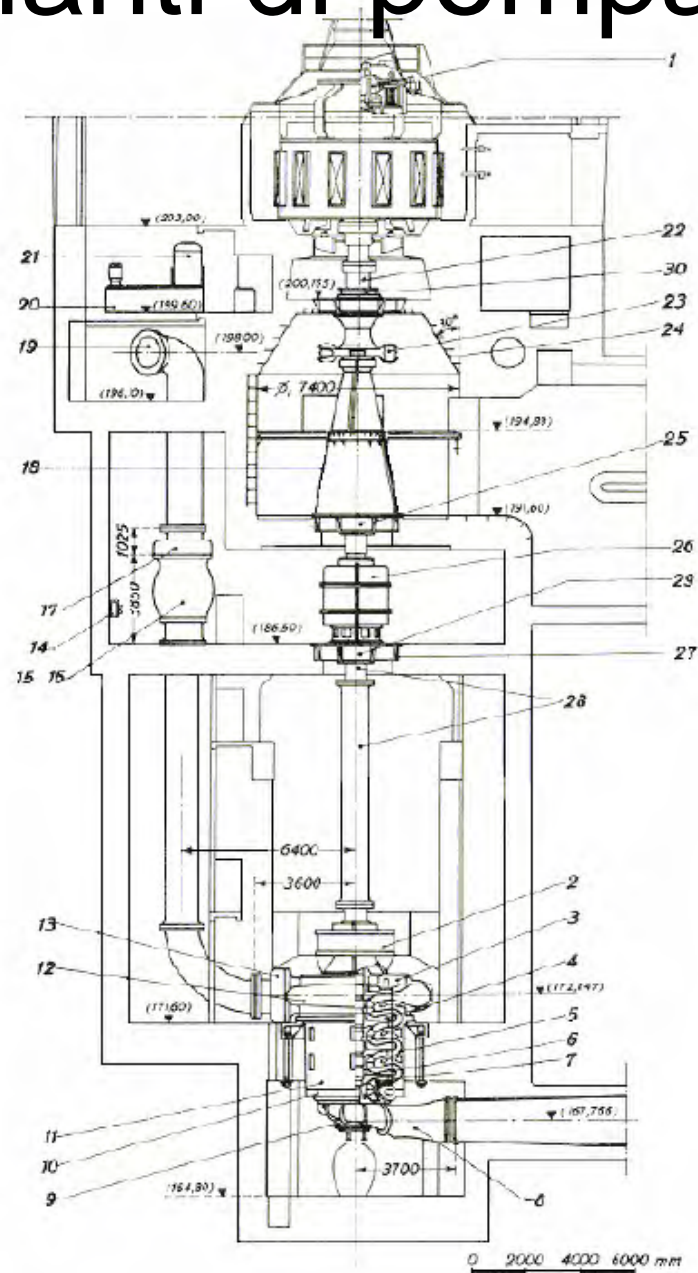
Impianto	Anno entrata in servizio 1° gruppo	Potenza effettiva totale in generazione [MW]	Potenza effettiva totale in pompaggio [MW]	Capacità utile serbatoi		Ore equival. accum. in max. potenza di generaz. [h]	Lungh. derivaz. (L _d) [m]	Salto massimo (H _m) [m]	L _d /H _m
				superiore [10 ⁶ m ³]	inferiore [10 ⁶ m ³]				
Lago Delio	1971	1000	768	9,8	(*)	17	2000	753	2,7
S. Fiorano	1973	568	228	36,8	0,6	8	7000	1439	4,9
Suviana	1975	330	310	4,4	21,5	8	5750	377	15,3
Taloro	1978	240	240	50,9	15,2	52	5140	312,5	16,4
Alto Gesso (Rovina)	1980	125	125	1,2	9,0	16	7600	598	12,7
Alto Gesso (Chiotas)	1982	1065	1240	27,3	9,0	16	9100	1048	8,7
Edolo	1983	978	975	17,0	1,3	5	11450	1266	9,0
Anapo	1989	500	500	5,6	7,3	8	1350	310	4,4
Presezano	1990	1000	1000	6,0	6,0	7	3450	495	7,0

(*) coincide con quella del Lago Maggiore

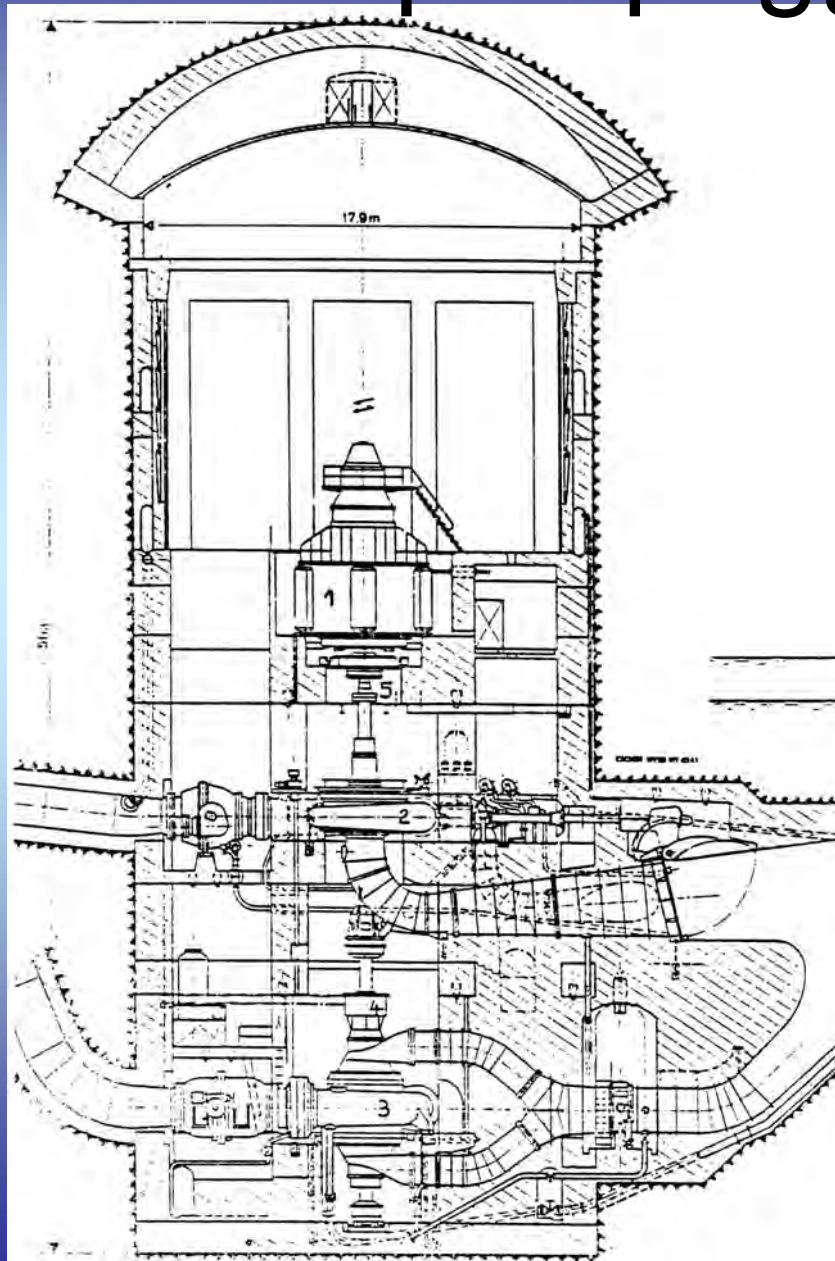


Produzione di energia idroelettrica in Italia da apporti di pompaggio

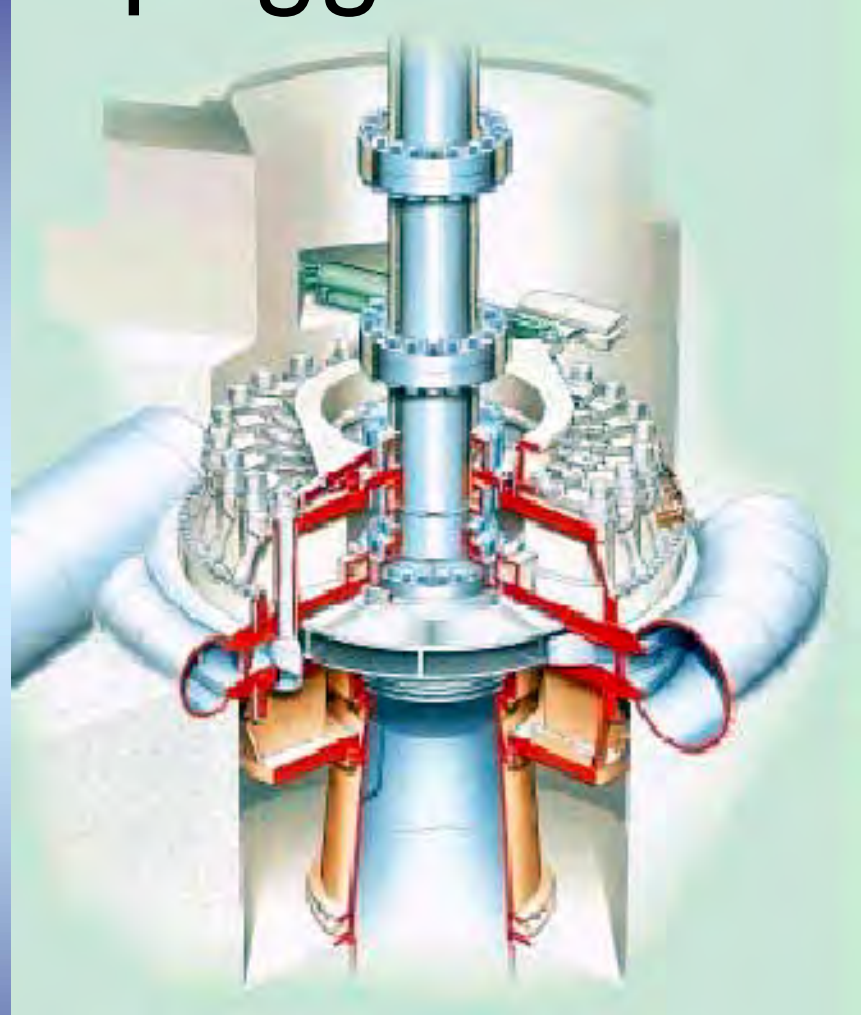
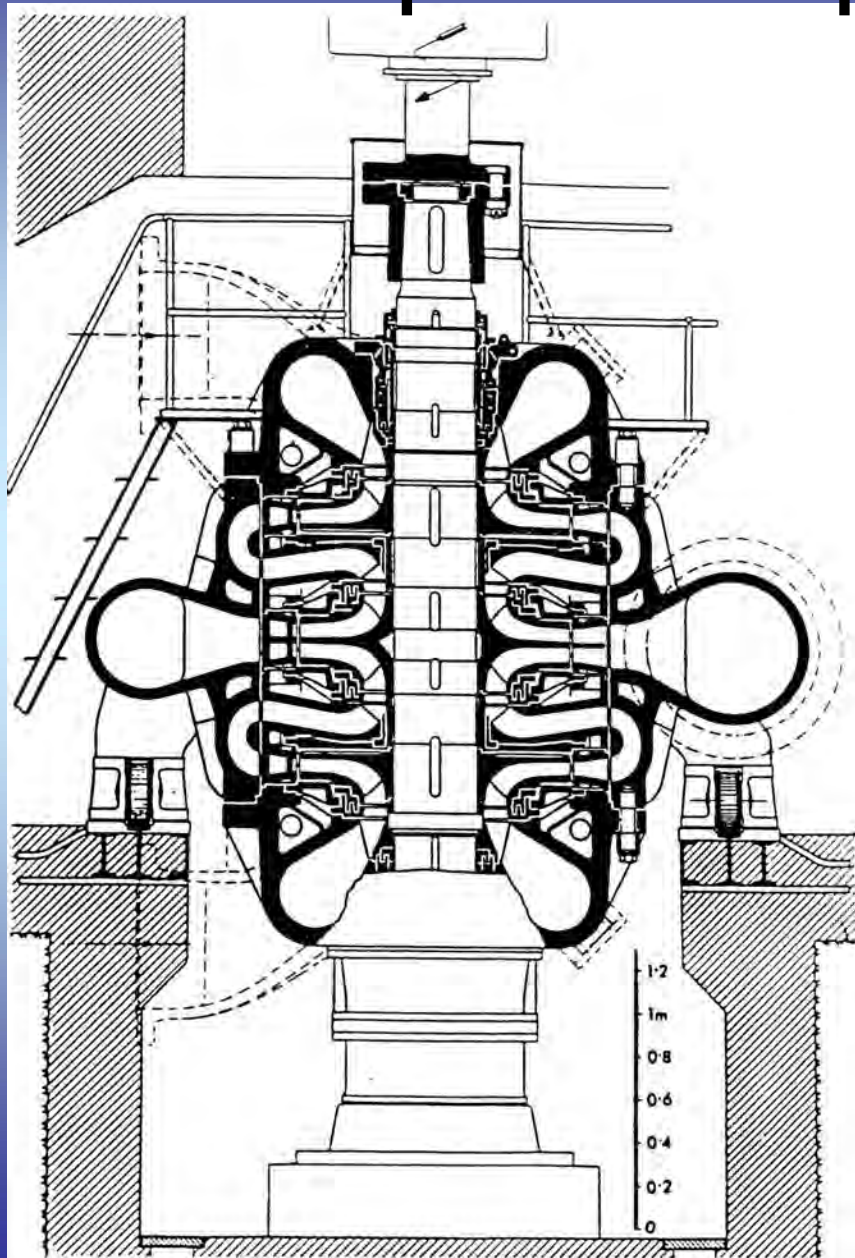
Impianti di pompaggio



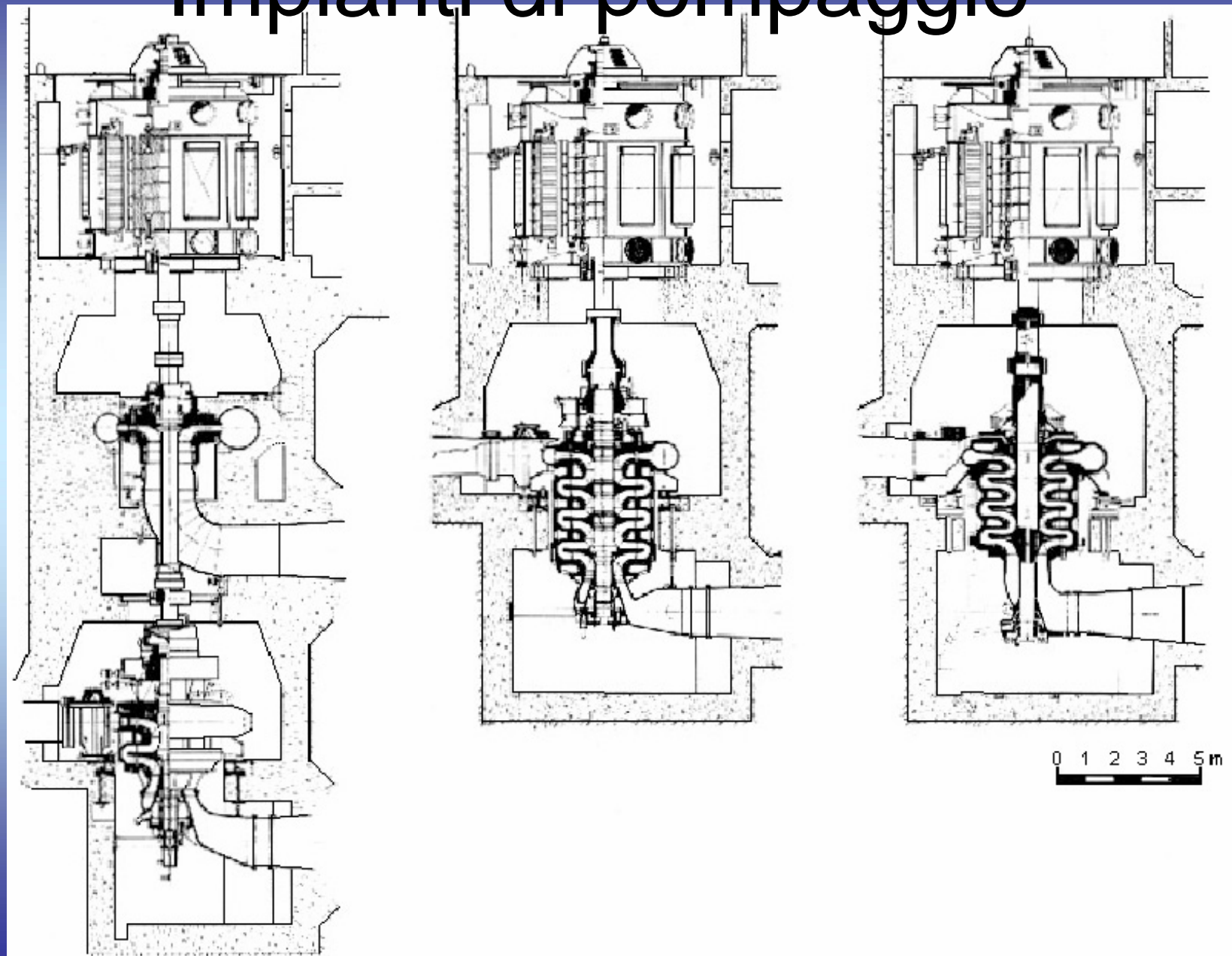
Impianti di pompaggio



Impianti di pompaggio

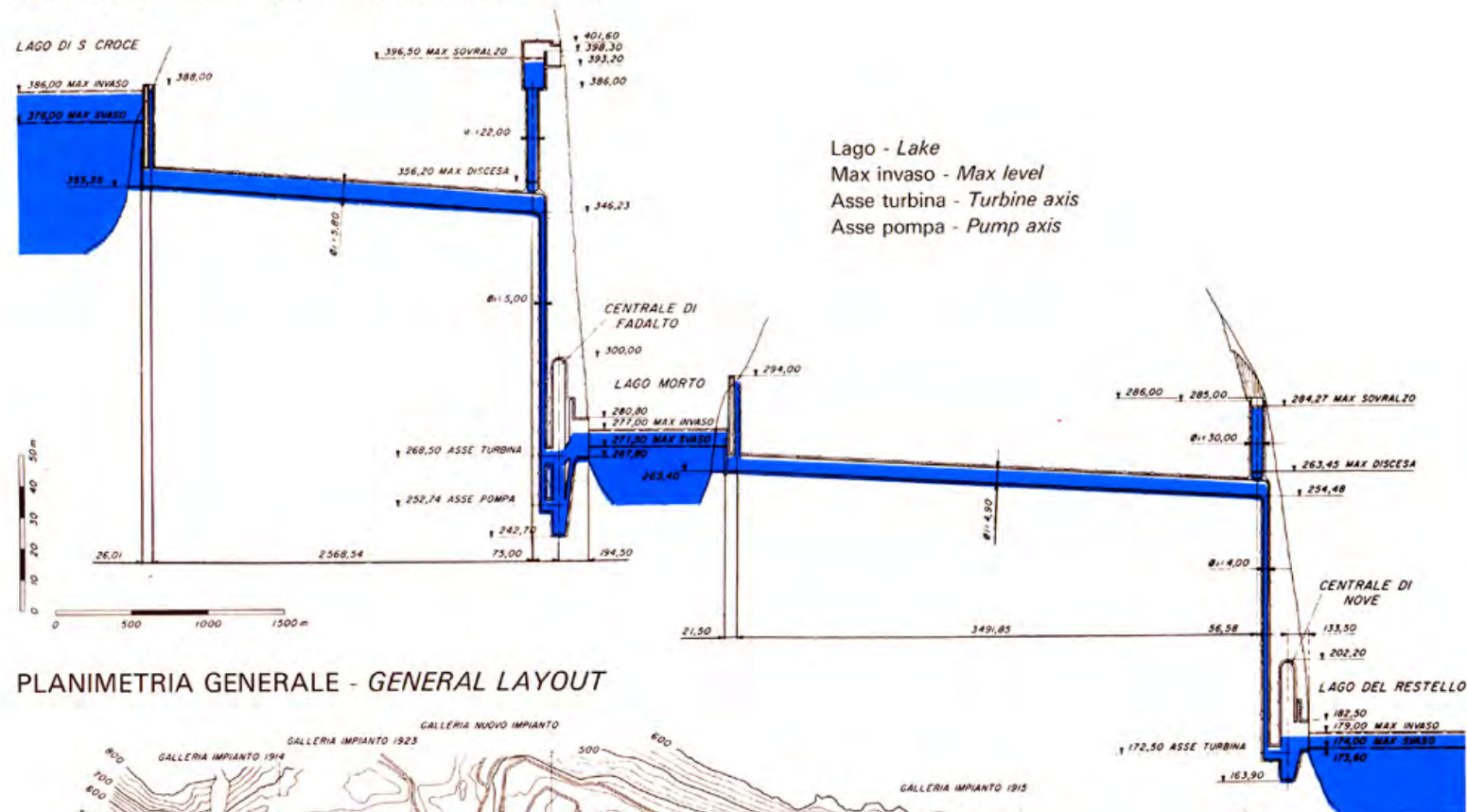


Impianti di pompaggio

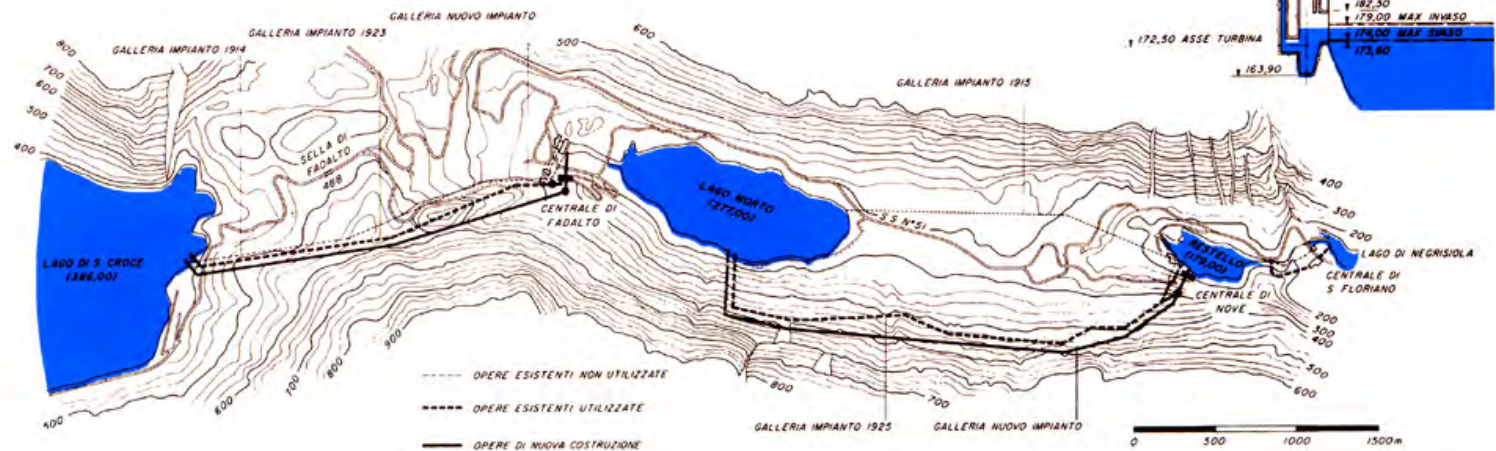


Impianti di pompaggio: Fadalto

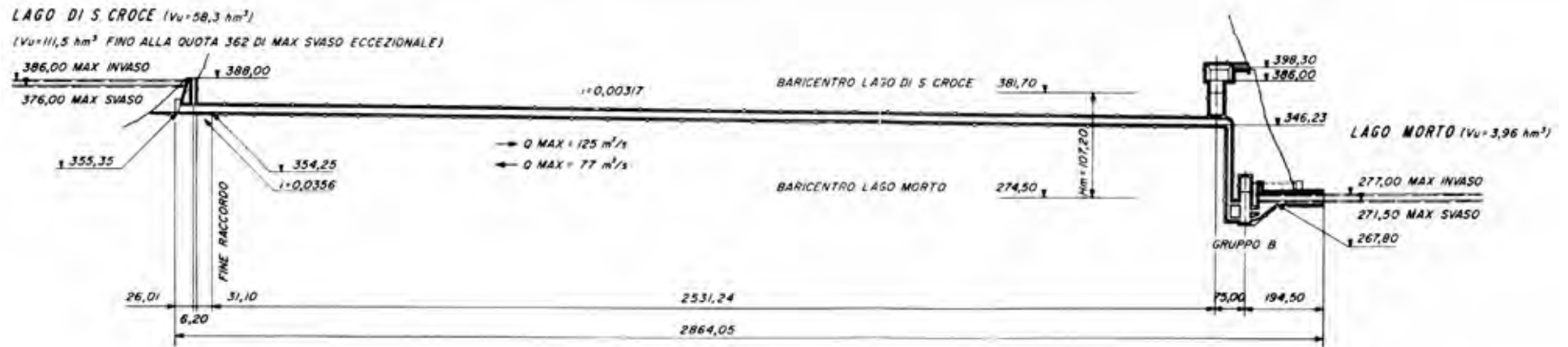
PROFILO SCHEMATICO - SCHEMATIC PROFILE



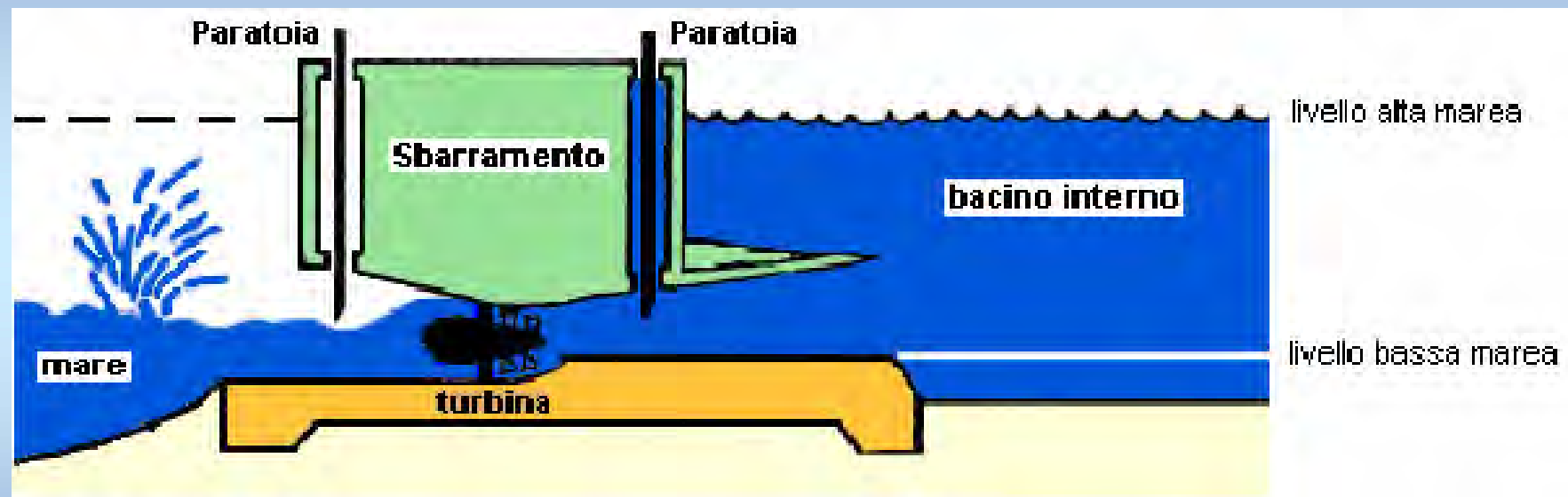
PLANIMETRIA GENERALE - GENERAL LAYOUT



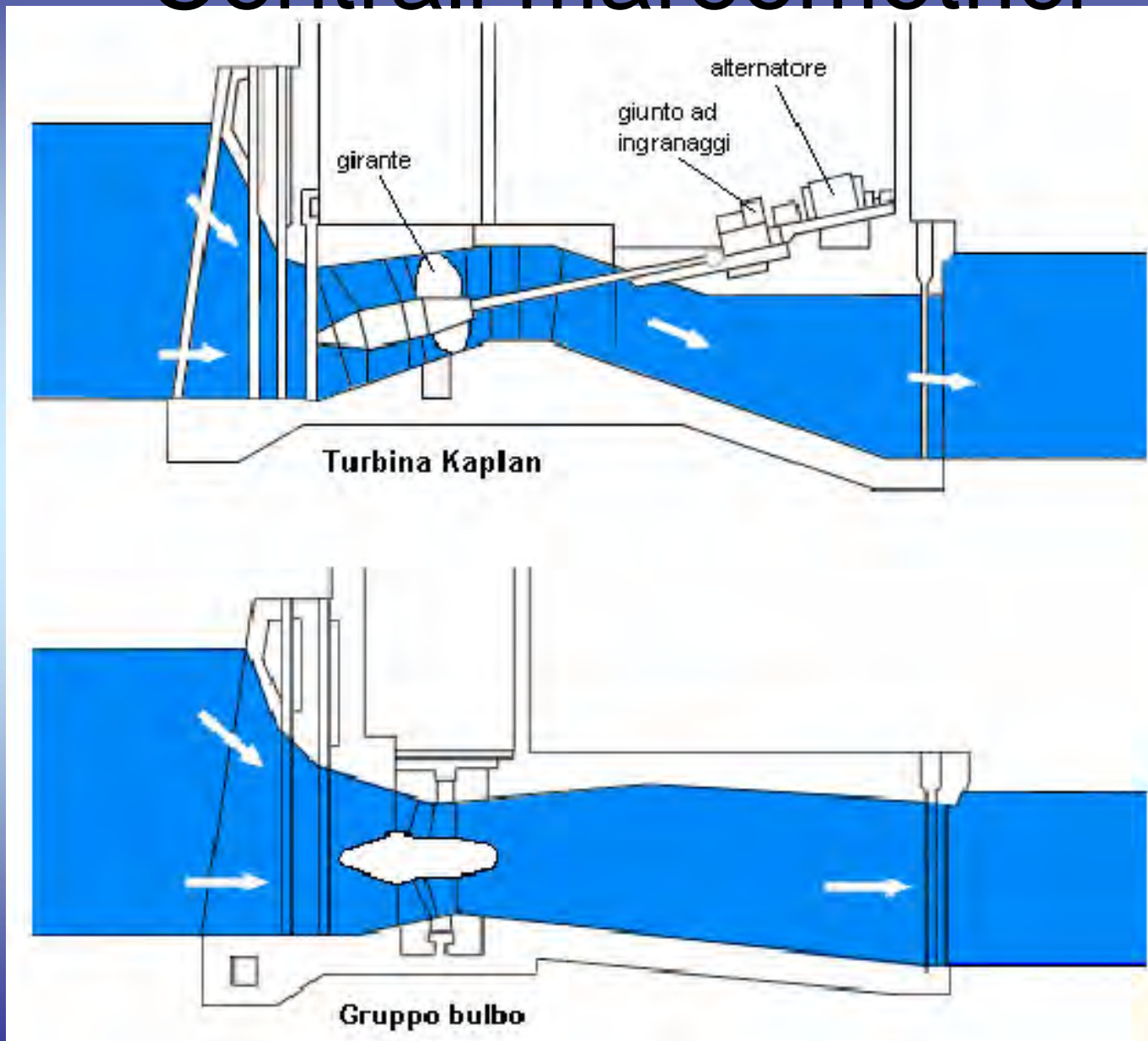
Impianti di pompaggio: Fadalto



Centrali mareomotrici



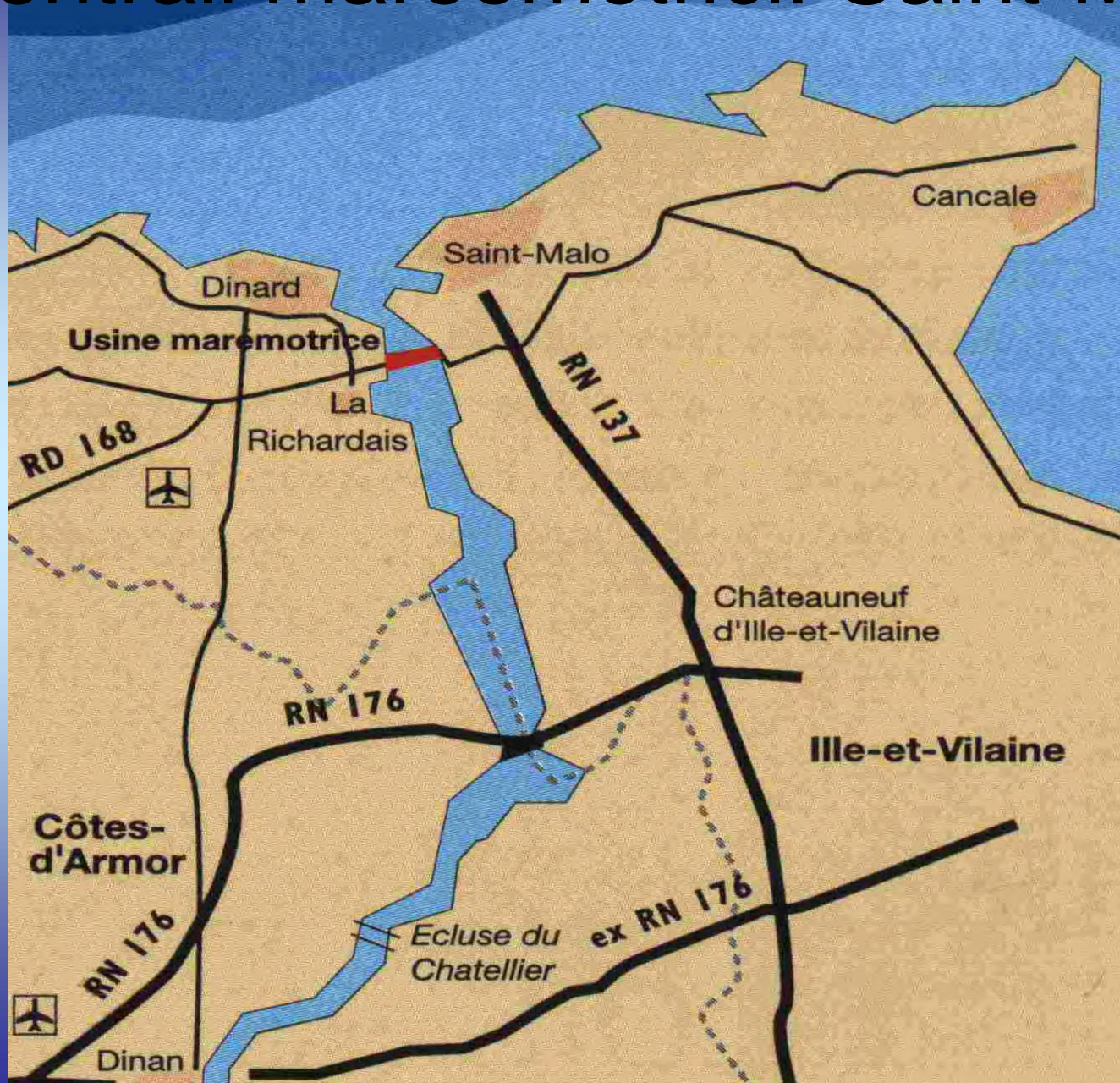
Centrali mareomotrici



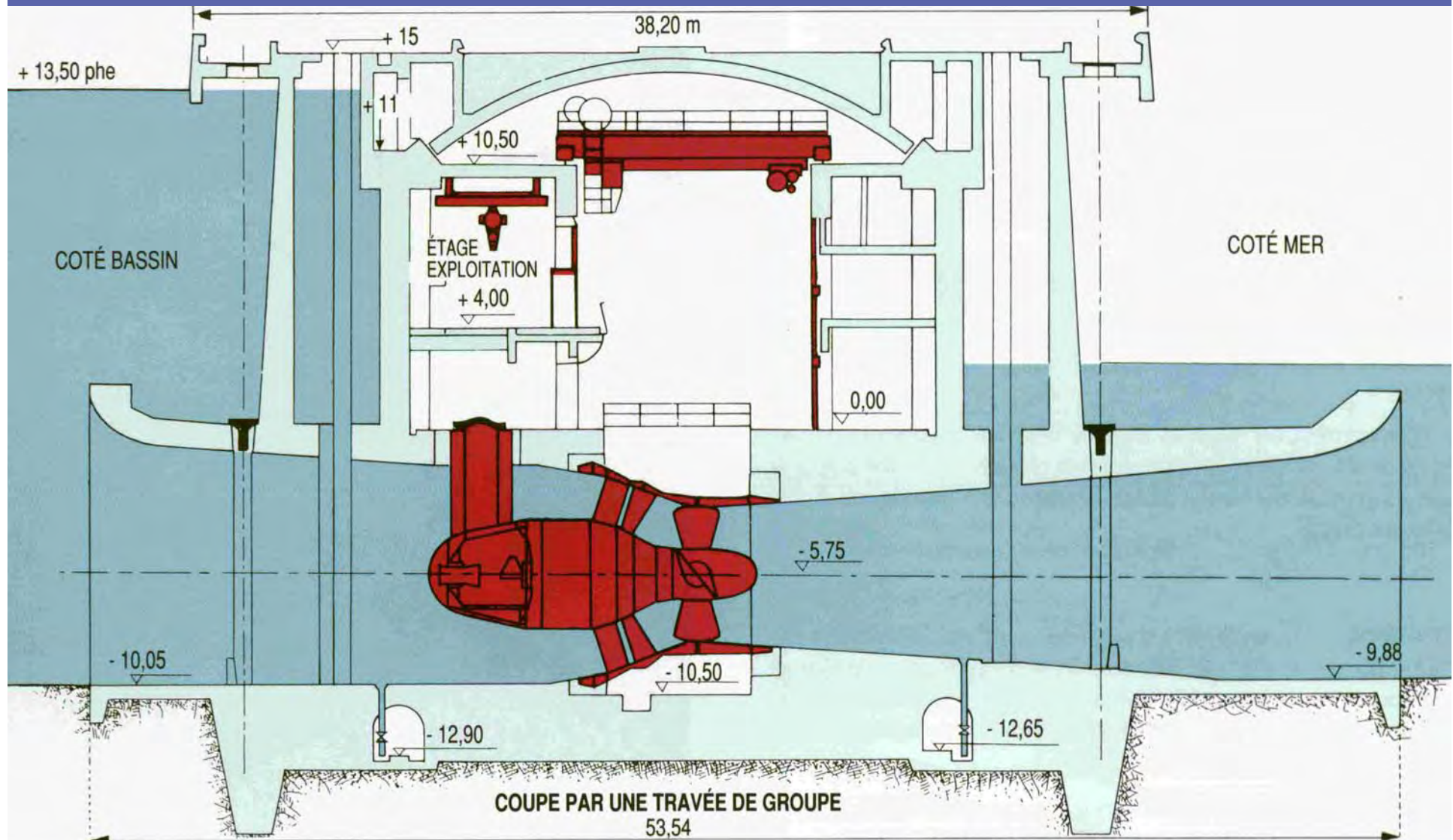
Centrali mareomotrici: Saint-Malo



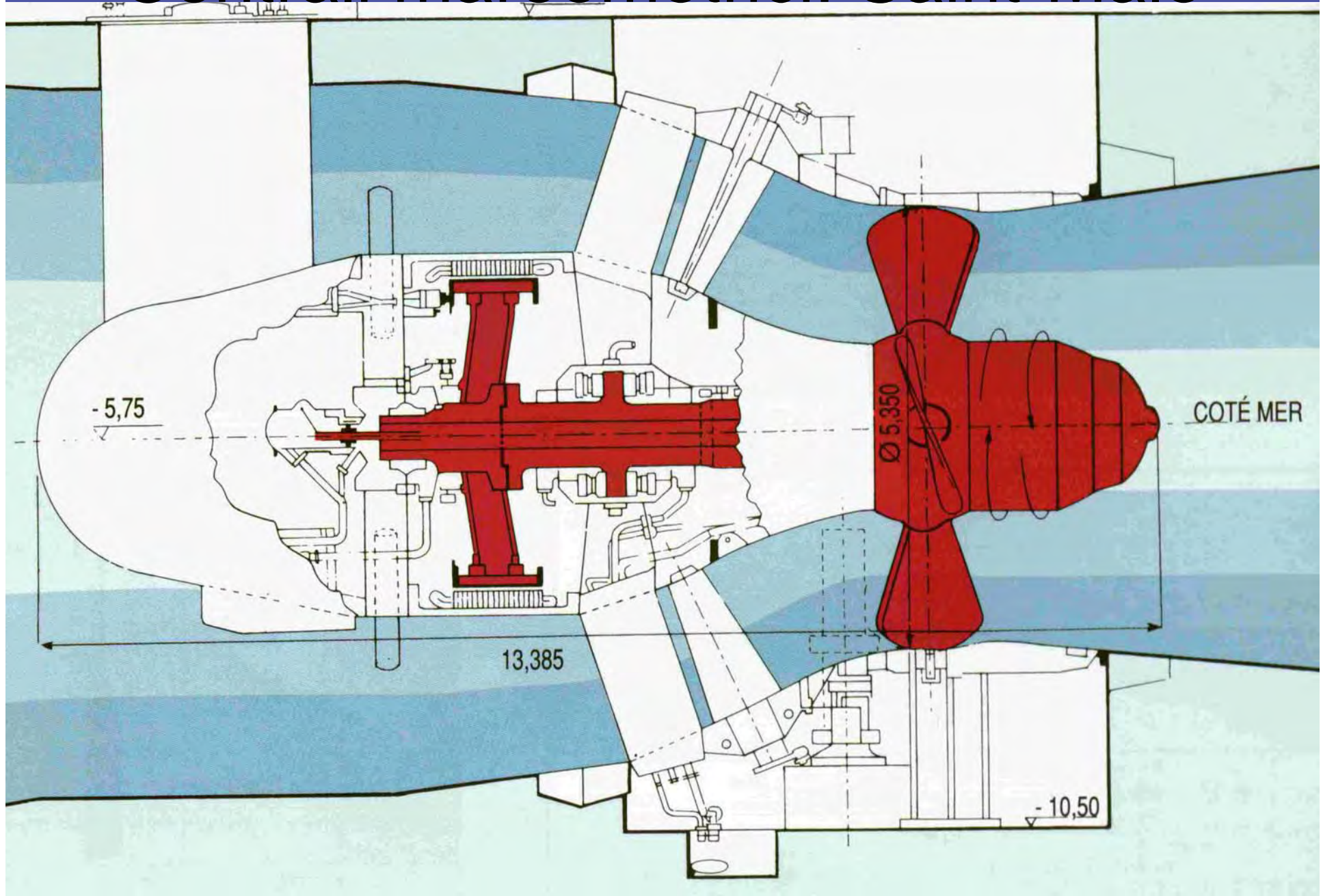
Centrali mareomotrici: Saint-Malo

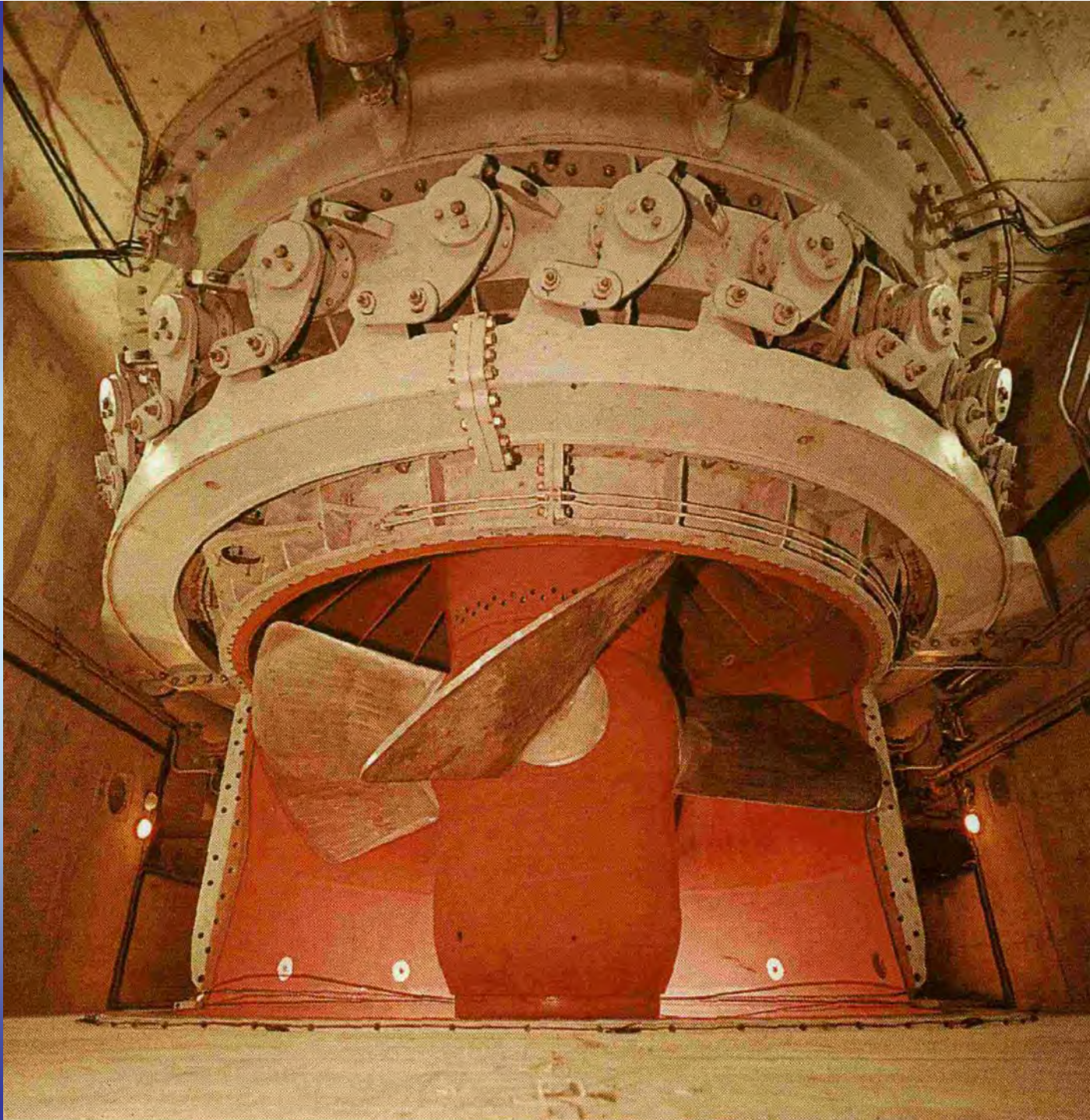


Centrali mareomotrici: Saint-Malo



Centrali mareomotrici: Saint-Malo





Centrali mareomotrici: Saint-Malo

Vue du bassin



Vue de la mer



FINE PRESENTAZIONE