STEAM LINK[®]

PUTTING IT ALL TOGETHER





- . KNOWLEDGE
- **. PERFORMANCE**
- PROFIT

COST EFFECTIVE – ENERGY EFFICIENT - SUSTAINABLE

STEAM LINK® WHO ARE WE?

WE ARE SOLUTION PROVIDER



WHEN IT COMES TO PROJECTS INVOLVING STEAM

Call on STEAM LINK® for results

We have the runs on the board in optimising the economics of the following industries

- Abattoirs
- Autoclaves
- Bakeries and Biscuit Factories
- Biomass Gassifiers
- Breweries
- Canneries
- Cardboard
- Commercial Kitchens
- Concrete Product Curing
- Cheese Making
- Dairies, Milk Powder Plants
- Distilleries
- Food processing

Fruit Juice Processing

- Horticulture and Nurseries
- Hospitals, Universities
- Laundries, Dry Cleaners
- Polystyrene Plants
- Particle Board Factories
- Pharmaceuticals and Essences
- Rubber Products Industries
- Smallgoods Manufacturers
- Waste Sterilising
- Sugar Mills
- Stockfeed Manufacturers
- Timber Drying Kilns, and more,...

In all cases,

STEAM LINK introduced innovations in technology and operational efficiencies which reduced their plant's whole of life, costs. After many years of service these plants are still out performing similar plants that have not taken advantage of **our specialised services to help establish a plant performance baseline**. We work in partnership with our clients to identify opportunities and to provide that surety which comes when you know that STEAM LINK, the people you are dealing with are:

• Highly competent in their fields of expertise

- Understand your particular steam applications
- Have extensive experience in the steam process industry

Our team are qualified and experienced professionals, not salesmen out to flog you the company line. We begin by fully appraising your whole of process needs; then identify the areas of your project for which we are most competent to truly help you in achieving:

THE OPTIMAL ECONOMICS FOR YOUR THERMAL PROCESS SYSTEM.

GET REAL!

Production Managers and Plant Operators want their thermal processing systems to run themselves.

Practitioners of "Best Practice" say that complex automated processes require active operators to achieve outstanding plant performances. But in most industrial settings it is invariably the case that Production Managers and plant operators expect industrial plants to run themselves. Due to cost pressures, active operators are perceived as an unnecessary cost. This perception highlights the primary critical question: What is the true comparative cost of a competent operator against the aggregate cost of:

- Interrupted and lost production
- Downtime of production staff.
- Product rejected for poor quality.
- Repair costs and breakdowns
- Necessity for major upgrades due to preventable wear.



- Demands on management time
- Distraction of management focus.
- Loss of customers due to poor service.

Two important realities flow from this scenario of being unaware and uninterested in the COMPARATIVE PERFORMANCE of the plant.

- Thousands of dollars of plant operator's costs are saved but millions lost.
- True product costs are overstated and corporate management is denied the knowledge of differential costing (i.e. the true cost of inefficiencies) that is critical in differential product pricing in a competitive market place, the Company's growth, and its survival.

Behavioural Science proves that:

"People would rather be consistent than be right"

It is this power of the familiar which causes people to stubbornly justify their present position or decision and resist change, even to the detriment of the Company.

ESTABLISH A BASELINE

STEAM LINK[®] contends that a baseline study of the theoretical performance of the thermal process system be carried out before designs for new projects are finalised.

STEAM LINK[®] maintains that in order to make the right decisions about new plant selection and existing plant improvements a critical theoretical baseline should be determined. This is achieved by calculating the amount of thermal energy required to efficiently perform the process. Once the load is established the pipe circuits and valving are determined and from these figures energy losses are calculated. These energy losses are added to the process requirements; the product of these calculations then determines the boiler size and operating costs. These figures now form the basis of the theoretical performance baseline.

IF YOU CAN'T MEASURE IT, YOU **CAN'T** MANAGE IT Consistent with the well proven management axiom, **STEAM** LINK[®] maintains that in order to measure performance, a baseline is critical.

Remove the uncertainty associated with your new project. Commission STEAM LINK[®] to design and implement a baseline study for the section of your new project where thermal energy, materials handling and process procedures are integrated, in order to optimise the design and plant selection for the project.

This baseline study will then be used as a performance reference point throughout the life of the plant.

The benefit of the baseline study is that Production Managers and plant operators now have a point of reference from which to manage changes in performance over time and to make adjustments when necessary to bring the plant back to specification. Our experience is that this is not happening in most of the plants we visit; we can help you to be sure that it is not happening in your plant.

Remove the uncertainty; put us to the test!

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STEAM PLANT PERFORMANCE AWARENESS



STEAM LINK[®] CAN PERFORM INFRA RED STEAM AUDITS, TO MONITOR THE CONDITION OF YOUR STEAM TRAPS, VALVES, INSULATION AND PLANT.

STEAM LINK's experienced technicians can perform regular check-ups of your plant to ensure ongoing optimum performance and maintenance of your baseline.

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STEAM PLANT - ENERGY ASSET

In recognition of the volume of steam used and the consequences of lost production as the result of system failures, it makes sound business sense that plant managers place the thermal process system and the production of steam at the top of their list of priority assets.

In former times the steam assets were maintained by your experienced in- house maintenance staff. However in current times these experienced staff members are retiring and are not being replaced by men who have been trained to take over.

The current trend sees a more mobile workforce which moves on before they have gained sufficient experience to expertly maintain your steam assets. In order to ensure their plant continues to operate Production Managers turn to outside contractors to perform the roles once performed in-house. However most of the external contractors are not suitably qualified either, with the result that the operational efficiency of the thermal plant asset is severely compromised. Most Production Managers are uncertain of the methodology for evaluating the performance of these contractors, with the result that they mostly avoid engaging with the optimisation of the thermal process equipment.

We at STEAM LINK[®] understand their predicament and take great pains to work cooperatively with the Production Managers, to demonstrate our competence and the ability of our support teams to steer the process in the direction of our Clients best interests. We derive great satisfaction in gaining our Clients trust and their recognition of our expertise in transforming and improving their production facilities.

STEAM LINK® WORKING WITH INDUSTRY



THE STEAM LINK® SOLUTION

We at **STEAM** LINK[®] understand the evolutionary path of steam technology.

We also understand the commercial pressures that a corporation faces with respect to costs and increased competition from imported products within the broader globalisation of trade.

STEAM LINK[®] itself is also a product of these circumstances. That is why we have developed our particular expertise and connexions with suppliers of the most advanced thermal processes to deliver cost effective solutions to you.

THE VALUE FOR MONEY SOLUTION

IN THE COMMERCIAL WORLD IT HAS BEEN REPEATEDLY DEMONSTRATED THAT THE LOWEST PRICE IS NEVER THE BEST VALUE FOR MONEY

Even if the lowest price is the result of an under-quoting error by a Supplier, it is NOT the best value-for-money because that Supplier will be reluctant to provide firstclass service at that price! Thus, service failures are highly likely at the Client's expense due to disruption.

The fact of commercial life is that the price that represents **BEST VALUE FOR MONEY** will be in the lower quartile of prices. Therefore, the task facing the Client is to determine the relative **VALUE** of the prices and the content in the lower quartile of Offers received. And the BEST VALUE must be determined in relation to the WHOLE OF LIFE COST of the thermal asset.

Part of the VALUE FOR MONEY SOLUTION provided by STEAM LINK[®] is to assist Clients with the methodology (used by major corporations, Governments, and the military etc.) for determining BEST VALUE. The methodology provides a complete audit trail of objective comparative reasoning that leads to a decision, or in the case of a major project, a recommendation to the Corporate Board of Directors.

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STEAM LINK[®]

Gauge Pressure	Temperature	Enthalpy of Water (M)	Enthalpy of Evaporation (hfg)	Enthalpy of Steam (hg)	Specific Volume
kPa 'G'	degC	kJ/kg	kJ/kg	kJ/kg	m3/kg
0	100.0	419.04	2257.0	2676.0	1.673
100	120.4	505.6	2201.1	2706.7	0.881
110	122.0	512.2	2197.0	2709.2	0.841
120	123.5	518.7	2192.8	2711.5	0.806
200	133.7	562.2	2163.3	2725.5	0.603
225	136.4	574.0	2155.3	2729.3	0.560
250	139.0	585.0	2147.6	2732.6	0.522
300	143.8	605.3	2133.4	2738.7	0.461
700	170.5	721.4	2047.7	2769.1	0.240
1000	184.1	781.6	2000.1	2781.7	0.177

Saturated Steam Table

Pipe Line Capacities at Specific Velocities

Pressure	Velocity	4 E 100 100	20.000.000	2 Emans	20,000,000	pipe c	liameter	6 E ma ma	8 a mana	100mm	4.0Emm	150mm
Bar / Gauge	m/s	15mm	20mm	zəmm	32mm	40mm	Somm	05000	60mm	Toomm	125000	TSUMM
						Capacity	kg/h					
	15	8	17	29	43	65	112	182	260	470	694	1020
1.0	25	12	26	48	72	100	193	300	445	730	1160	1660
	40	19	39	71	112	172	311	465	640	1150	1800	2500
	15	12	25	45	70	100	182	280	410	715	1125	1580
2.0	25	19	43	70	112	162	295	428	656	1215	1755	2520
	40	30	64	115	178	275	475	745	1010	1895	2925	4175
	15	19	42	70	108	156	281	432	635	1166	1685	2460
4.0	25	30	63	115	180	270	450	742	1080	1980	2925	4225
	40	49	116	197	295	456	796	1247	1825	3120	4940	7050
	15	29	63	110	165	260	445	705	952	1815	2765	3990
7.0	25	49	114	190	288	450	785	1205	1750	3025	4815	6900
	40	76	177	303	455	690	1210	1865	2520	4585	7560	10880
	15	41	95	155	250	372	626	1012	1465	2495	3995	5860
10.0	25	66	146	257	405	562	990	1530	2205	3825	6295	8995
	40	104	216	408	615	910	1635	2545	3600	6230	9880	14390

The capacities shown are based on the nominal pipe diameter, the velocity and the steam's specific volume, No allowances have been made for actual inside pipe diameter, turbulent flow and pipe roughness, etc. ABOVE CHART DATA IS AN INDICATION ONLY

EFFECTIVE STEAM SYSTEMS deliver EFFICIENT STEAM ENERGY