

Theory behind Engineering Tables in Proposal

By Anil Seth

The zipper displaces the button and a man lacks just that much time to think while dressing at dawn, a philosophical hour, and thus a melancholy hour.

– Ray Bradbury

What is an engineering table doing in proposal or pre-bid engineering??

This question is always in the mind of project or lead engineers. As far as my memory goes earlier we had only material requisitions. These requisitions were floated in market to collect cost quotes. Later on it was realized that after repeating same we had enough data to cost items in-house. Of course by this time we also had a loyalty back-up from local vendors. So a short cut was developed for “national” repeat clients called “engineering table”.

If we select rotary pumps a typical engineering table will cover the following:

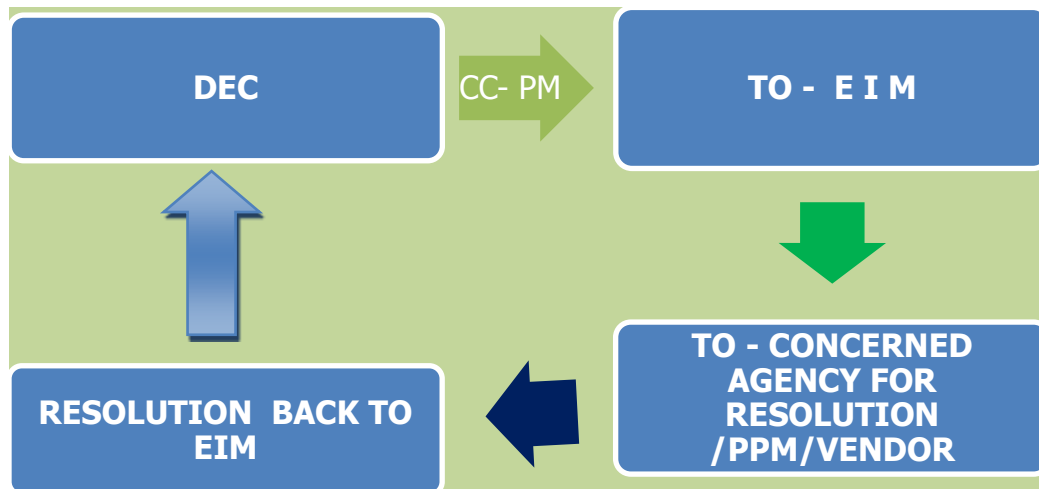
CONSTRUCTION													REMARKS						
Casing / Rotor	SUC. NOZZLE DN/Facing (MM)	DISCH. NOZZLE DN/ Facing (MM)	MOC API Class	API Seal Plan	MECH. SEAL CODE	API FLG. PLAN	API CLG. PLAN	Bearing Type	Application of Machine Monitoring System	Application of Pressurized Lubrication System	Area Classification								
GENERAL				OPERATING CONDITIONS															
SR. NO.	ITEM NO.	Parallel Operation	Flow combined for all working pumps (m3/hr)	DESIGN															
	ITEM NAME	Pump Type	Minimum	PRESURE (kg/cm ² G)	TEMP (DEG C)	Suction pressure (Normal/ Max) (kg/cm ² G)	Discharge Pressure (kg/cm ² G)	Pumping Temperature (DEG C)	DIFF. HEAD (Mtr)	NPSH A / R @ Rtd Pt. @ EOC @ MCF (Mtr)	\$P. GR.	VISC. (Cp)	VAP. PRESS. (Kg/cm ² A)	DIFF. PRESS. (Kg/cm ²)					
	QTY.	Orientation	Normal																
	PUMP MODEL	Liquid Handled	Rated																
PERFORMANCE																			
No of Screws	Viscosity Correction Factor (C _f /C _q /Ch)	RTD/BEP EFF (%)	RATED BKW (KW)	Guaranteed Power Consumption for normal operating point (KW)	Driver	MOTOR RATING (KW)	Q max (M3/Hr)	RV SET Pressure (kg/cm ² G)	Max. BKW (KW)	NSS		MAWP at 15 DEG C / PT / Design Temp	Pump Wt.						
					Type					RO / CV	Driver Wt.								
					Class					Buffer/Barrier fluid	Aux. + BP								
					SPEED (RPM)						Tot. Wt. (Kg) / BP Dimensions								

Now, above example is not a compulsion?
 Meaning...??

Let us go back to the history of engineering table again.....

Earlier the proposals manager of an EPC/EPCM company was issuing material requisitions to vendors to invite item supply, this enabled them to cost for the project under bidding. These requisitions were covering complete scope from engineering, procurement, fabrication, inspection and delivery needs. In due course the engineering and procurement divisions of such companies developed a strong database resulting in lesser dependency on vendor detailed offer. With growing database the estimators in supply chain management started demanding only the table (and not the requisition) with details required for searching the database...and this led to birth of Engineering Table. So far it was good; the tables were helping the supply chain managers to cost within limited schedule and with reasonable accuracy. The problem started when such tables were issued to vendors for quotation.

Systems if not explained properly to the next line managers will lead to confusion and finally chaos. This eventually will lead to collapse/failure of system. Having said so let us observe the steps /protocol followed for collecting details from vendor.



- DEC - Design & Engineering Center
- EIM - Engineering Interface Manager
- PPM - Project Procurement Manager
- PM - Project Manager

The above cycle is standard and each step has a time schedule. Incomplete information flowing in this loop can result into various misunderstandings and ultimately loss of productive engineering man-hours:

Misunderstanding at PPM-

Date: 04/05/2013 11:15 AM
Subject: Queries - Pumps

Dear Sir,

Please respond to rotary queries

1. Fire water pumps: Discharge & suction pressure are not given in engineering table and vendors also didn't mention same. Please also confirm any special design Standard are to be followed for fire fighting pumps such as TAC/OISD Norms/NFPA-20 or UL/FM etc.

2. Reciprocating pumps: XY (revised offer) has quoted for acoustical simulation studies, is this study required? (Similar requirement was not mentioned in engineering table for pumps)

Please check and revert

Regards

Misunderstanding with DEC & Vendors

----- Forwarded by PPM on 04/05/2013 11:37 AM -----

Subject Technical Clarification required

Dear Sir,

We acknowledge the receipt of the revised enquiry and thanks for the same. We had reviewed the enquiry specifications and please be noted that there are changes in the duty conditions provided in the datasheets for some of the items. Also for the below mentioned tags the pump type is not specified

- 72X-P-104 A/B
- 72Y-P-106 A/B
- 74Z-P-106 A/B

Subject: PI respond to query raised

Dear Sir,

PI provide type of pumps for three tags.

Regards

EIM

----- Forwarded by PA 04/06/2013 10:41 AM -----

Subject: FW: PI respond to query raised

Pls respond...

----- Forwarded by Lead on 04/06/2013 11:12 AM -----

Dear

Please refer Addendum-1 of Engineering table rev.02

Thanks and Regards,
Lead

Misunderstanding with DEC & Vendor

----- Forwarded by EIM on 18-03-2013 16:24 -----

Dear Sir,

M/s P pump has offered Duplex Piston Pumps instead of TRIPLEX PLUNGER PUMPS to meet basic process parameters as per process datasheets.

Pl confirm are DUPLEX PISTON PUMPS acceptable?

Regards
EIM

----- Forwarded by Lead on 18-03-2013 04:40 PM -----

A MR specification does not restrict the use of duplex pumps. Vendor may please be asked to submit the revised offer since the previous offer submitted by P was based on Engineering Table Revision -01.

Thanks and Regards
Lead

All the above misunderstandings are the result of implementing right thing at wrong place. Since we were aware about ...Engineering Table, we were in position to advise and correct the approach. Many Project Managers may not be that lucky.

Subject: Re: Equipment List-As per Revised ITB & MR release plan

Your response needs clarity; since for vessels/LT pumps etc. the engineering table is provided, we are of the opinion that you may not go to vendors for quotation.

It is in proposal interest if all the items in equipment list are segregated as requested. Kindly help all.

Regards,

Anil Seth

Subject: Re: Equipment List-As per Revised ITB & MR release plan

Dear Sir,

As discussed during VC on 7-2-2013, it was agreed that all revised MRs will be released before 20-2-2013.

From the attached release plan, it seems majority MRs will be released after 19-2-2013.

Request you to give priority in releasing MRs before 20-2-2013.

With reference to your query, please note currently we propose to approach vendors for all bought out items.

Regards

Subject: Equipment List-As per Revised ITB & MR release plan

Dear All,

The equipment list is released for use.

Dear PPM: Although the requisition document release plan is attached, kindly mark in the attached equipment list which item cost will be through the database (in-house) and where you may go for vendor cost.

Regards,
Anil Seth
Attachment.: RELEASE PLAN Rev01.xlsx

Somehow we feel that with growing time crunch, performance pressure, loss of faith in SOPs, fear of inadequate backups and giving responsibilities without due diligence is actually harming the inquisitive nature of an engineer.
How I wish to be quoted wrong this time!

There are few things that are so unpardonably neglected in our country as poker. The upper class knows very little about it. Now and then you find ambassadors who have sort of a general knowledge of the game, but the ignorance of the people is fearful. Why, I have known clergymen, good men, kind-hearted, liberal, sincere, and all that, who did not know the meaning of a "flush." It is enough to make one ashamed of the species.

~Mark Twain

About the Author



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