

October 15, 1940

Mr. Johnson:

Subj: Packing for Joint Faces of Pump Cases
and similar applications.

A meeting was held Thursday afternoon, October 10, 1940 in the Restaurant and attended by members of the Shop and Engineering Department for the purpose of standardizing on suitable sheet packing for use in our pumps.

The following persons were in attendance at this meeting:
Mr. Gartman, Mr. Riley, Mr. Jurgensen, Mr. Chidley, Mr. Barratt, Mr. Leonard, Mr. Klar, Mr. Rupell, Mr. Toft, Mr. Martin, Mr. Quigley, Mr. Mason and myself.

I. ASBESTOS SHEET PACKING 1/64" THICK

This packing is now used on all multistage Pump joints and is also satisfactory for use on steam joints.

Samples of the following makes had been investigated previous to the meeting:

"Tauril" Anchorite Packing. (This was our previous standard).
#590 and #591 Belmont Packing
Johns Manville Packing
#170, #172 and #190 Vellumoid Packing
#2150 John Crane Packing.

Measuring of all these makes of packing indicates that the minimum variation that can be expected in the thickness is approximately $\pm 10\%$, which incidentally is the tolerance allowed in the Navy Specification for this type of packing. It was, therefore, decided to purchase the packing to the following specifications in the future: $.015" \pm .002"$.

Only two of the samples available came up to this specification, the No. 591 Belmont Packing and the No. 2150 John Crane Packing. As the Belmont Packing sells for \$.73¢/lb. and the Crane Packing for \$.39¢/lb. it is recommended that we purchase #2150 John Crane Packing exclusively for the time being.

This packing is not oil resistant and for oil joints it will still be necessary to purchase Johns Manville #23 or a similar type oil resistant packing.

It is also recommended that the pump casings where the above packing is used be bored theoretically with a $.012"$ thick shim — with necessary adjustments for mechanical conditions on the horizontal boring mills.

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II. CASING FITS

Existing fits between casing bore and diaphragms for stage pumps vary from .000" to .004" Loos for the smaller sizes, to .003" to .006" Loos for the "H" and "P" sizes. It is recommended that the drawings be changed uniformly to call for a casing bore of nominal size $\pm .0002$ Dia., and a diaphragm size of $-.002$ " below nominal with a tolerance of $\pm .0002$ ". This will give a tolerance of .002" Loos to .006" Loos. Case ring fits will remain as at present, the bore being nominal size $\pm .0002$ ", and the case ring diameter nominal size $\pm .0002$ Dia.

III. PACKING FOR STANDARD SINGLE STAGE PUMPS AND SERIES PUMPS.

The joint faces of our standard pumps were until recently packed with .007" Manila paper. It has now been decided to substitute a better packing material in the form of a plant fibre gasket .010" thick made by Vellumoid and others. This packing is suitable for water, oil and gasoline where the temperatures do not exceed about 250°. The plant fibre gasket has considerably more compressibility than the Manila paper previously used and it is recommended that the pumps where this packing is used be bored theoretically with a .005" metal shim (with necessary adjustment for mechanical condition of boring mill). This is the same procedure as was used previously for boring the casings when using Manila paper gaskets.

J. A. Brophy

JAB:AP

B.P.copies to Messrs: Carlson, Jurgensen, Riley, Salmon, Dockter, Martin, Chidley, Barrett, Leonard, Rupell, Klar, Dickinson, Toft, Quigley, and Mason. REFERENCE

DATE: 7-16-61

JOINTFACE GASKETS FOR CENTRIFUGAL PUMPS. DELAVAL STEAM TURBINE CO. TRENTON, N.J.

PUMP	TYPE	THICKNESS OF SHIM TO BE USED WHEN BORING PUMP CASE	GASKET MATERIAL	REMARKS
SINGLE SUCTION SINGLE STAGE	F BF	NONE	USE: .010" THICK VELLUMOID SOFT FIBRE SHEET PACKING. TOLERANCE $\pm .002$" LIMITING TEMP. 300°F. SUITABLE FOR PACKING WATER, OIL, GREASE, GASOLINE, ORGANIC LIQUIDS & SOLVENTS. NO SHELLAC TO BE USED.	NOTE: SHIMS LISTED ARE NOMINAL AND MUST BE VARIED TO SUIT THE PRECISE CONDITION OF THE BORING MILL.
DOUBLE SUCTION SINGLE STAGE	G.L.U.I.P. W.K.T.X	.005" *		
SINGLE SUCTION SINGLE STAGE	G.I.K	.005" *		
O SERIES PUMPS	2KD	.005" *		
DOUBLE SUCTION	2LD, 3KD	.005" *		
CLOGLESS PUMP	G.I.L.P.T	.005" *		
PROPELLER PUMP	GP	.005" *		
MIXED FLOW PUMP	MF	.005" *	USE: JOHN CRANE COMPRESSED ASBESTOS PACKING STYLE 2150. TOLERANCE $\pm .015$" $\pm .002$" SUITABLE FOR PACKING WATER, STEAM BRINE, ALKALI AND MANY ACIDS. JOHN MANVILLE 23 SHEET .015" THICK TO BE USED FOR OIL.	TX0041
CONDENSATE PUMP	H	.005" *		
MULTI-STAGE PUMPS. VOLUTE TYPE	K-3, L-4 M-5, N-6, P-8	.012" *		
4 STAGE SERIES PUMP	Q15	.012" *		
MULTI-STAGE DIFFUSING VANE PUMP	J.K.L.M. N.P	.012" *		
5 SERIES PUMP, SINGLE SUCTION, 2 STAGE	215, 2K5. 2L5.	.012" *		