MULTI-STAGE COMPRESSOR PRODUCT UPDATE

SERVICE BULLETIN	Supersedes: Nothing	694	Form 220.11-NM1(SB2)

There are a number of items which need to be addressed on Multistage Compressors.

The first is a matter concerning the decision to use non-asbestos materials for gasketing throughout the compressor product line. For nearly three decades we have recommended that the gaskets be coated with oil of the proper YORK designation during assembly. The use of non-asbestos gaskets has warranted a change to that policy. When using the current gasketing (Durabla Durlon 8500 which is a mottled green color), the gaskets are to be assembled without oil. The only gasket that will receive any treatment is the casing horizontal joint gasket which is to be coated with Copaltite, ASO Part Number 013-01386-000, on the bottom half joint, and Teflon Dry Lubricant ASO Part Number 044-02206-000 on the top half joint. The use of coatings or oil on any other gasket joints could result in excessive compression or gasket creep and possible premature leakage at the joint. All "O" rings will continue to be prelubricated with the oil of the proper designation before installation.

As a matter of record the recommended assembly lubrication for the internal parts are as follows:

Journal Bearings Balance Piston Drum	Light coating of Molybdenum disulfide P/N 011-00253-000 and YORK oil of the proper designation.
Labyrinth Shaft Gas Seals Balance Piston Seal Ring	Liquid Molykote P/N 013-00834-000
Impeller Eye Seals at Eye Labyrinth Steps and Main Shaft at Shaft Labyrinth locations	Molykote Paste made with 50% Petroleum grease P/N 044-00892-000 and 50% Molybdenum disulfide 011-00253-000

The general overhaul of a Multistage Compressor is covered by the compressor service literature Form 160.71-M, on current production and Forms 220.10-NM1 and 220.11-NM1 on prior production units. Please pay particular attention to the procedure for diffuser stacking/unstacking as described in the current literature (160.71M pages 40-42). This procedure is performed with the rotor supported in the bearings. For specific details of a compressor's construction details it is imperative to use the cross-sectional assembly print as a reference. This drawing will contain the Part Numbers incorporated in the original production of the compressor as well as special notes covering special features that were included in the design or manufacture of the compressor. One specific item that warrants mention is the shaft driven oil pump runout. The current maximum values are as follows:

COMPRESSOR SIZE	MAXIMUM RUNOUT (T.I.R. IN INCHES)	
	FACE	RIM
26"	.0007	.0006
38"	.0010	.0008
55"	.0013	.001

This change was brought about with the use of proximeter probes on the pump or shaft and is shown on the drawings for current production units using probes. We have also incorporated a two piece oil pump housing into the current production compressor which now permits the oil pump volute ring clearance to be checked and centered with the parts assembled into the machine. The current volute ring diametral clearance to the centrifugal oil pump is as follows:

COMPRESSOR SIZE	CLEARANCE (in Inches)	
	ALUMINUM VOLUTE	BRONZE VOLUTE
26"	.003 - .007	.0035 - .0075
38"	.003 - .007	.004 - .008
55"	.004 - .009	.005 - .010

Until recently all multistage compressors had been completely assembled at the time of original manufacture. This meant that every machine that was disassembled/reassembled in the field had already had the attention of a skilled craftsperson involved in its original fitting of parts. The advent of rotor retrofit including diffuser packages adds a new dimension to the installation of those parts. Occasionally some specialized hand fitting of parts may be required, casting protrusions may need to be ground off to assure the proper fit of the new parts. There are many reasons for these needs and it must be recognized that the parts must never be "forced" to fit, all parts in the multistage are a sliding fit. The assembly of a retrofit package into a casing also means that a new log of the rotor end float values and clearances should be taken to allow for the proper positioning of the impellers in the diffuser openings. Remember that the individual who is doing the initial assembly of the retrofit package into the casing has the

role of skilled craftsperson performing the assembly of the complete compressor for the first time with those parts.

It may be necessary to repipe the lubrication system in part or in total during a retrofit, or it may be necessary to repair a leak on a threaded joint while performing maintenance activities or warranty repairs. It is imperative that the threads be of good quality and proper size, properly cleaned and if necessary primed with the proper Loctite Primer N ASO P/N 013-01753-000 to maximize the success in sealing the threaded joint. The multistage compressor design group has concluded that all permanent threaded joints will be sealed using Loctite Grade AVV, ASO P/N 013-01671-000 and all serviceable joints will be sealed with Loctite PST567 ASO P/N 013-02280-000. It is recommended that the piping drawing for the specific compressor be used to ensure the proper joint description and sealant usage.

This product update is intended to communicate information that may not be available in the current literature and as additional information develops concerning changes we will communicate them in a similar fashion.

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