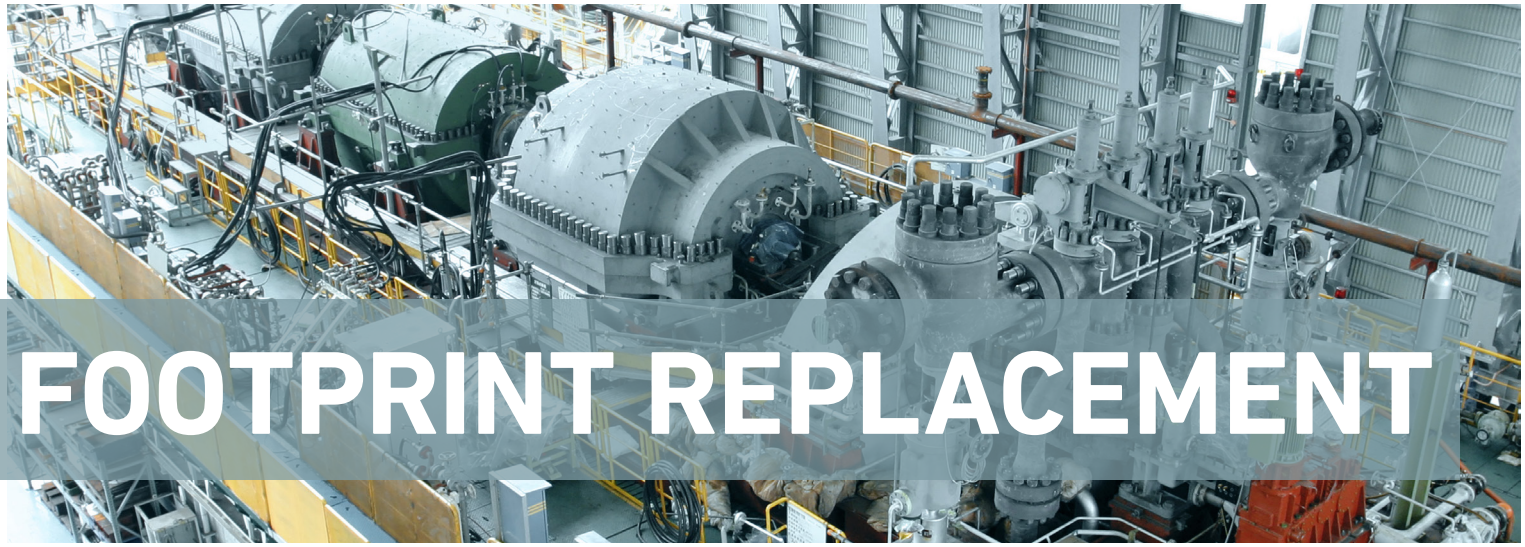
MITSUBISHI HEAVY INDUSTRIES
COMPRESSOR INTERNATIONAL



FOOTPRINT REPLACEMENT

IMPROVE PERFORMANCE WITH FOOTPRINT REPLACEMENT

Footprint replacement (FPR) is the process of replacing existing compressors and steam turbines with higher efficiency, higher performance machines designed to match the existing footprint with minimal modifications to process piping and foundations.

Mitsubishi Heavy Industries Compressor International (MCO-I) has extensive experience supplyingFPR projects for a variety of applications. Backed by Mitsubishi Heavy Industries Compressor Corporation (MCO) engineering, we custom design replacement casings with castings and forgings produced in our own MHI foundries.

BENEFITS OF FOOTPRINT REPLACEMENT

- High performance efficiencies of new compressors and steam turbines allow for significant increases in capacity with reduced energy consumption
- Larger expansions can be implemented at a lower cost per ton of incremental product when compared to projects that re-rotor existing machines
- Installation is designed to increase operating margins and allow for additional plant debottlenecking
- Delivers higher capacity upgrades of over 100% versus the 10-20% increases achieved by re-rotoring
- Compressor and steam turbine performance is verified by shop testing before shipping

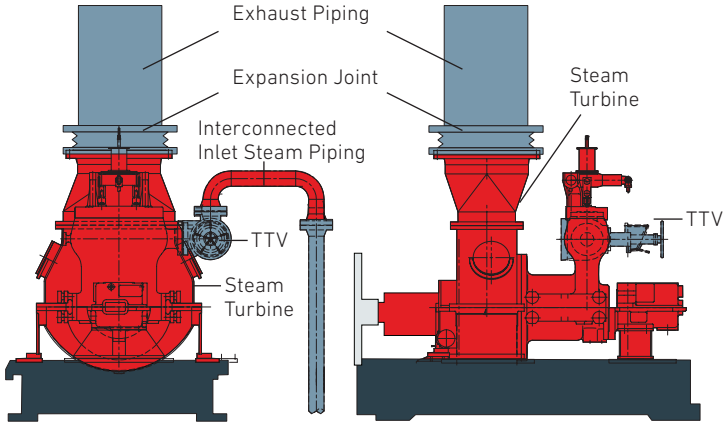
MCO/FPR SUPPLY RECORD

Global installed base since 1987	
Compressors	224
Steam Turbines	102

REAL PROJECT RESULTS

Ethylene lant capacity expansion projects	
Before	**After**
771 KTA	1,100 KTA
875 KTA	1,050 KTA
Charge gas compressor train	
771 KTA	1,100 KTA
875 KTA	1,050 KTA
Flexible nozzle design engineered to match existing nozzle positions	

STEAM TURBINE REPLACEMENT



REPLACE
S/T & Piping

RE-USE
TTV & Steam Piping
Baseplate
Comp & Gear

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