

GENERAL SPECIFICATION

Field Operations

GS EP EXP 217

Spare Parts requirements for EPCs, Supplier, Manufacturer and MIE Team

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1. Scope and application

1.1 Scope

This specification provides:

- EPCs, suppliers and manufacturers with the method to be used to identify, describe and recommend the spare parts required to maintain the equipment during its lifetime;
- The MIE Team with the method to be used to determine the spare parts needed.

The operational objectives pursued are to:

- Give priority to Initial stock, stored in the affiliate warehouse(s), delivered in time for scheduled start-up of the installations.
- Describe each spare part (stored and non-stored) and reference it in the CMIMS MM module, so that it can easily be procured and/or replenished during the lifetime of the installations.
- Link each spare part to at least one functional location or equipment item through a bill of material (BOM) (SAP PM module).

1.2 Application

This document applies to all construction projects, including erection of new facilities and the modification of existing facilities, implemented either by integrated project groups or by an affiliate's modification/construction or maintenance team(s). It concerns all facilities operated by the Company.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the effective date of this document.

Reference	Title
Not applicable	

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published in the applicable yearly collection.

Reference	Title
GS EP EXP 203	Maintenance and inspection documentation preparation during project phase
GS EP EXP 213	Minimum maintenance requirements

3. Abbreviations and terms definition

In the absence of a specific project document to define the contractual parties in the project, the following definitions apply to a project:

BOM	Bill Of Material
C&P	Contract and Procurement entity
CAPEX	Capital expenditure
CFT	Call For Tenders
CMIMS	Computerized Maintenance & Inspection Management System
Company	TOTAL E&P
EDMS	Electronic Document Management System
EPC	Generic term for Engineering Procurement and Construction contract. It covers different types of contracts: EPSCC, EPCC, etc
EX-WORKS	A trade term requiring the seller to deliver goods from its own place of business. All other transportation costs and risks are assumed by the buyer.
FCA	Free Carrier - the seller is required to deliver goods to the carrier at the seller's place of business
Initial stock	The set of spare parts defined and purchased during the project phase
IOM	Installation Operating and Maintenance manual
Item	The smallest element in a spare parts list (items in different spare parts lists have the same Material Master code, assuming they are identical)
LLI	Long-Lead Items (pieces of equipment with a long delivery time)
Manufacturer	Entity that manufactured a piece of equipment (or sub-equipment)
MIE	Maintenance & Inspection Engineering
MIE Team	Entity (Affiliate or MIE Contractor or MIEC Subcontractor of the EPC) in charge of the Maintenance and Inspection Engineering activities
MM code	Material Master code (descriptive dataset of one spare part). 1 spare part = 1 "MM code" in SAP
MM module	Material Management module in the CMIMS
MMQCT	Material Master Quality Control Tool
MRP	Material Requirements Planning. SAP tool for managing stock and purchase parameters

OEM	Original Equipment Manufacturer
PM module	Plant Management module in the CMIMS
PO	Purchase Order
RFQ	Request For Quotation
SPF-E	Spare Parts File by main Equipment. Single file with data on all the spare parts for a main piece of equipment, including the SPL-E
SPL-E	Spare Parts List for one piece of Equipment or sub-equipment. It represents one or more sheets in the SPF-E. In the MMQCT, this list is managed individually
SPF-R	Spare Parts File by grouping which can be issued by a Manufacturer or Supplier in the MMQCT
SPL-R	Spare Parts List by grouping which can be issued by a Manufacturer or Supplier in the MMQCT
Supplier	Vendor supplying main equipment to the EPC or Company (LLI, Company Items)

4. Spare Parts definition

4.1 Generalities

A spare part is a replaceable component, sub-assembly, and/or assembly identical to and interchangeable with the item it is intended to replace.

In this document, the term "Spare part" includes spare equipment and consumables specific to the equipment.

{Rule 1

The spare parts for each piece of equipment or sub-equipment shall be described in the same SPL-E (See SPL-E form in appendix 1).}

See table 1 for the type of management that applies to spare parts:

Table 1: Management type to be used for spare parts

Code	Description	Spare parts conditions
MM	MINI-MAXI	Low HSE and production impact, regular consumption, wear and non-repairable parts, short delivery time to affiliate warehouse.
SU	Supervised	Moderate HSE and production impact, random consumption, repairable part, medium delivery time to affiliate warehouse.
SE	Safety stock	High HSE and production impact, low consumption, repairable part, long delivery time to affiliate warehouse.
ND	Not stored	In case of need, normal procurement process does not cause any substantial HSE or production impact.

4.2 During project phase

4.2.1 Commissioning and start-up spare parts

These are the spare parts needed to cover any equipment failures, including the additional risks induced by different working conditions, during the commissioning and start-up phases.

The EPC contractor submits a proposal to the Company covering all the spare parts and consumables necessary for the commissioning and start-up phases. Depending on the project contracting strategy, the cost of these spare parts and consumables is included in the EPC contract price.

Most of these spare parts are consumed during these two phases.

{Rule 2

The Contractor shall hand over to Company any spare parts remaining after Commissioning and Start-up for integration into the affiliate stock.}

These spare parts are provided at the same time as the corresponding equipment.

4.2.2 Capital spare parts

Capital spare parts are defined by compliance with most of the following criteria:

- High HSE and production impacts (high downtime cost or impact on Company reputation but not likely to fail and not for routine maintenance).
- High value (value being defined for each Project/Affiliate e.g. > k\$ 20).
- Due to their high cost and infrequent rate of use, they are purchased on an investment budget (CAPEX).
- Long delivery times (LLI, typically more than a year) or not off-the-shelf items (unique piece such as rotor) that require early purchase by the Project.

Capital spare parts are provided with their respective equipment.

4.2.3 Operating spare parts

Operating spare parts are all the spare parts required to perform any curative and preventive maintenance operations on the equipment.

{Rule 3

The operating spare parts required during the life of the equipment shall be listed.}

The spare parts are identified by EPC, Supplier, Manufacturer and MIE Team using SPF-E form.

Operating spare parts are all the spare parts pertaining to the equipment (exhaustive list) and are divided into two types:

- **Stored spare parts** purchased and delivered to the affiliate warehouse. The quantity to be kept in stock is determined based on the equipment's criticality, replacement frequencies of consumption, redundancy, installed quantities and delivery time to the

affiliate warehouse. The spare parts philosophy defined by the Project is taken into account.

- **Non-stored spare parts:** if these parts are needed, the normal procurement process does not cause any substantial HSE or production impact.

4.2.4 Specific tools

Specific tools are devices dedicated to a particular piece of equipment or all similar pieces of equipment and required to perform or facilitate specific maintenance activities (e.g. lifting and handling devices for overhaul operations on turbo-machines and major rotating machines, hart pocket, etc.).

Specific tools are managed as spare parts, are delivered at the same time as the respective equipment and identified as "Specific tools" in the "Assembly" column of the SPL-E form.

4.2.5 Priority matrix for spare parts purchasing

Purchasing priority for spare parts is defined as most urgent, urgent or normal according to the criticality of the main equipment as per **GS EP EXP 213**, and EX-WORKS, FCA spare parts delivery time: see matrix in table 2.

Table 2: Matrix

Main equipment criticality	<u>Vital</u>	SP Most Urgent purchasing	SP Most Urgent purchasing	SP Most Urgent purchasing	Minimum stock
	<u>Important</u>	SP Urgent purchasing	SP Most Urgent purchasing	SP Most Urgent purchasing	
	<u>Secondary</u>	SP Normal purchasing	SP Normal purchasing	SP Urgent purchasing	
		<u>Short</u> (0 to 6 months)	<u>Medium</u> (6 to 12 months)	<u>Long</u> (+ than 12 months)	
Spare parts delivery time (EX-WORKS, FCA*)					

* Delivery time to the affiliate warehouse includes logistics and customs aspects.

{Rule 4

100% of the initial stock shall be available in time for the equipment start-up sequence of the different system units under MIE team responsibility.}

4.3 After project phase, during operation

Once the facility is in operation, all spare parts are considered as operating spare parts and are reviewed by maintenance entity in affiliate, once a year in order to optimize stock management on the basis of their consumption and obsolescence.