

**LIST OF ESSENTIAL & DESIRABLE PLANT & MACHINERY AND TESTING FACILITIES REQUIRED FOR
MANUFACTURING OF CARRIER 13A OG & BG**

A : MANUFACTURING FACILITY: Manufacturing should have following presses, resistance welding Machines and other related Plant and Machinery for various operations of carriers:-

SL. NO.	DESCRIPTION OF MACHINE	OPERATION PERFORMED	DESIRABLE / ESSENTIAL
01	Cut to length machine	Sitting & shearing of coils	Desirable
02	Shearing M/c (Minimum Bed size 1300mm)	Shearing of mild steel cold rolled close annealed(SMCRCA) sheet	Desirable
03	Break Press(20 Ton)	Folding & Bending	desirable
04	Power press (100 Ton)	LH & RH of carrier 13A	essential
05	Power Press (60/40 Ton)	Top width ,Bottom width , vertical forming, Embossing of stamping plate	Essential
06	Power Press (20 Ton)	Hook, Top & bottom center plate forming of carrier 13A.	Essential
07	Power press (05 Ton)	Handle clip forming of both Carriers.	Essential
08	Spot welding machines(30KVA/50KVA)	Spotting of various component	Essential
09	Gas welding equipment	Far corner welding of Carrier 13A frame.	Essential
10	Arc/CO2 welding machines (230 KVA/440 KVA)	Welding	Essential
11	Drilling machine	Drilling	Essential
12	Auto riveting machine	Riveting	Essential
13	Seven Tank phosphating plant/Red oxide Zinc Chrome Primer Paint *	For surface treatment of Carriers	Essential
14	Spray painting booth /Conveyer type painting booth	Painting of Carriers	Essential

*Red Oxide Zinc Chrome Primer Paint should be avoided for better salt spray & corrosion less life and to avoid paint peeling during storage.

B: TEST FACILITY : Manufacturer should have following test facilities:

(a) IN HOUSE TEST FACILITY FOR PROPER CONTROL OVE PROCESS(ESSENTIAL):

- (1) Manufacturer should have measuring instrument at least one 0.25 mm vernier caliper gauge and 0.25 mm Micrometer gauge.
- (2) Manufacturer should have in-house testing facility for checking of pointage (total acidity, total alkalinity),coasting weight and pH of the chemicals.
- (3) Manufacturer should have in-house jolt & drop test facility for Carriers as per IA-1169(n)Specification.
- (4) Manufacturer should have handle load testing facility as per IA-1169(n) specification.
- (5) For better control over painting quality, it is essential to conduct some tests on panels./carriers during painting.so manufacturer should have in-house testing facilities of Humidity chamber (to conduct the test on carrier),salt spray chamber(to conduct the test on panel),DFT meter, flexibility and adhesion, cross cut adhesion & pressure test.

(b) IN-HOUSE FACILITY OR TESTING FROM LABS FOR INPUT MATERIAL TESTING (DESIRABLE):

1. The manufacturer should have testing facility for mild steel cold rolled cold annealed (S.M.CRCA) sheet as per parameter of IS 513 or should provide material test certificate as per the standards from the laboratory as mentioned in the SOP version 2.3 for input material inspection.
2. The manufacturer should have testing facility for paint as per IS-168-1966(or latest issue) for liquid painting or IS-13871 for powder coating or should provide test certificate as per the standards from the laboratory as mentioned in SOP version 2.3 for input material inspection.
3. Manufacturer should have rubber stud testing facility as per IMD/ME-584(F) or should provide test certificates as per the standards from the laboratory as mentioned in the SOP version 2.3 for input material inspection.