



THOMPSON VACUUM-PRESSURE UNITS

VACUUM LOADED DOT SPECIFICATION CARGO TANKS **MOST COMMON NON-COMPLIANCES**

DOCUMENTATION: 178.345-15 CERTIFICATION

1. DOT MANUFACTURER'S CERTIFICATE OF COMPLIANCE
2. ASME MANUFACTURER'S DATA REPORT
3. ASME MANUFACTURER'S PARTIAL DATA REPORTS
4. ASME DATA REPORT - REPAIRS OR ALTERATIONS
5. DOT INSPECTION AND RETEST REPORTS

180.417 RECORDED RETENTION REQUIREMENTS

THE OWNER MUST RETAIN ALL THE APPLICABLE DOCUMENTATION THROUGHOUT HIS OWNERSHIP OF THE SPECIFICATION CARGO TANK AND FOR ONE YEAR THEREAFTER.

NAME PLATES - 178.345-14 MARKING

1. DOT NAME/SPECIFICATION PLATE
2. ASME NAME/DATA PLATE

180.407 (d) (vi) MUST BE LEGIBLE

NOTE: *REPLACEMENT OF ASME NAME/DATA PLATES MUST BE DONE AS SPECIFIED IN THE NBIC PART RA-2264, RA-2265 and RA-2266*

DOT 407 178.347-1 (c)

"EACH DOT 407 TANK DESIGNED TO BE LOADED BY VACUUM MUST BE CONSTRUCTED AND CERTIFIED IN ACCORDANCE WITH THE A.S.M.E. CODE." "THE EXTERNAL DESIGN PRESSURE FOR A CARGO TANK LOADED BY VACUUM MUST BE AT LEAST 15 PSI."

DOT 412 178.348-1 (c)

"THE MAWP FOR EACH DOT 412 CARGO TANK DESIGNED TO BE LOADED BY VACUUM MUST BE AT LEAST 25 PSIG INTERNAL AND 15 PSIG EXTERNAL."

178.348-1 (e) (i)

"MAWP GREATER THAN 15 PSIG MUST BE CONSTRUCTED AND CERTIFIED IN CONFORMANCE WITH THE ASME CODE."

180.405 (f) (1) (i) DOT MC-307/MC-312

"A VACUUM LOADED CARGO TANK MUST HAVE AN ASME CODE STAMPED SPECIFICATION PLATE MARKED WITH A MINIMUM INTERNAL DESIGN PRESSURE OF 25 PSI AND BE DESIGNED FOR A MINIMUM EXTERNAL DESIGN PRESSURE OF 15 PSIG."

NOTE: ASME CERTIFICATION REQUIRES THAT THE INTERNAL AND EXTERNAL MAWP BE SPECIFIED ON THE ASME MFG'S DATA REPORT, IN ORDER TO BE STAMPED ON THE ASME NAME/DATA PLATE.

178.345-3 STRUCTURAL INTEGRITY

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178.345-3 (f) (2)

LIGHT WEIGHT ATTACHMENT WITHOUT A MOUNTING PAD MUST BE LESS THAN 72% OF THE THICKNESS TO WHICH IT IS ATTACHED.

178.345-3 (f) (3)

PAD MAXIMUM $T = 1.5$ TIMES SHELL OR HEAD t . A PAD $0.187 t$ CAN BE USED ON A SHELL OR HEAD OVER $0.187 t$.

178.345-3 (f) (3) (iii)

EXTEND AT LEAST 2" IN EACH DIRECTION FROM ANY ATTACHED APPURTANCE.

178.345-3 (f) (3) (iv)

HAVE ROUNDED CORNERS OR OTHERWISE SHAPED TO MINIMIZE STRESS.

178.345-3 (f) (3) (v)

BE ATTACHED BY CONTINUOUS FILLET WELD.

Note: Pads over Weld Seams must have weep holes installed as specified in ASME and DOT regulations. Continuous fillet weld is still required.

178.345-8 ACCIDENT DAMAGE PROTECTION

178.345- 8 (c) (1) ROLLOVER DAMAGE PROTECTION DEVICE

178.345- 8 (a) (3)

“ACCIDENT INDUCED STRESSES,” RESULTING FROM THE APPROPRIATE ACCIDENT DAMAGE PROTECTION DEVICE REQUIREMENTS IN COMBINATION WITH THE STRESSES FROM THE CARGO TANK OPERATING AT THE MAWP MAY NOT RESULT IN A CARGO TANK WALL STRESS GREATER THAN THE ULTIMATE STRENGTH OF THE MATERIAL OF CONSTRUCTION USING A SAFETY FACTOR OF 1.3.”

NOTE: ACCURATE EVALUATION OF ACCIDENT INDUCED STRESSES, TRANSFERRED TO THE CARGO TANK WALL, FROM ACCIDENT DAMAGE PROTECTION DEVICES ARE MANDATORY AND CONSIDERATION IS PRIMARY TO THE DESIGN AND INSTALLATION OF THE DEVICE. VERIFICATION OF COMPLIANCE IS REQUIRED.

172.328 (d)

Use EMERGENCY SHUT-OFF label on INTERNAL Self-Closing Stop Valves. Use EMERGENCY CLOSURE label on EXTERNAL Self-Closing Stop Valves, as defined in 178.345-11 (1) (i).

178.345- 8 (d) (3) REAR END PROTECTION DEVICE

178.345- 8 (b) (1) BOTTOM DAMAGE PROTECTION DEVICE

NOTE: REAR BUMPERS MUST BE DESIGNED CONSIDERING THE ECCENTRICITY, OR THE DISTANCE FROM THE TOP OF THE FRAME TO THE TOP OF THE BUMPER.

178.345 - 8 (b) (2)

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THE REAR BUMPER MUST ALSO BE DESIGNED AS A BOTTOM DAMAGE PROTECTION DEVICE UNLESS THE TANK IS EQUIPPED WITH AN INTERNAL STOP VALVE AND A SACRIFICIAL DEVICE.

178.345 - 8 (d) (2) (ii)

“A NOTCHED, INDENTED OR SEPARATED REAR-END PROTECTION DEVICE MAY BE USED ONLY WHEN THE PIPING AT THE REAR OF THE TANK IS EQUIPPED WITH A SACRIFICIAL DEVICE OUTBOARD OF A SHUT-OFF VALVE.”

178.345 - 10 PRESSURE RELIEF

178.345 - 10 (d) (1)

PRIMARY PRESSURE RELIEF SYSTEM MUST BE SET AT NO LESS THAN 120% AND NO MORE THAN 132% OF THE MAWP.

178.345-11 TANK OUTLETS

178.345-11(b) (1) (ii)

“IF THE ACTUATING SYSTEM IS ACCIDENTLY DAMAGED OR SHEARED OFF DURING TRANSPORTATION, EACH LOADING/UNLOADING OUTLET MUST REMAIN SECURELY CLOSED AND CAPABLE OF RETAINING LADING.”

178.345-11(b) (1) (iii)

“IN ADDITION, OUTLETS ON THESE CARGO TANKS MUST BE CAPABLE OF BEING REMOTELY CLOSED MANUALLY OR MECHANICALLY.”

178.345-11 (2) (c)

“ANY LOADING/UNLOADING OUTLET EXTENDING BEYOND THE INNERMOST EXTERNAL STOP-VALVE WHICH IS PART OF THE SELF CLOSING SYSTEM MUST BE FITTED WITH ANOTHER STOP-VALVE OR LEAK TIGHT CLOSURE AT THE END OF SUCH CONNECTION.”

NOTE: IF THE SELF CLOSING DEVICE FAILS THERE MUST BE A MANUAL OR MECHANICAL MEANS TO CLOSE THE EXTERNAL STOP VALVE.

NOTE: PLASTIC TUBING CAN BE USED AS THE TEMPERATURE ACTUATOR ONLY IF MARKED OR CERTIFIED TO MELT AT LESS THAN 250°F.

180.405 (j)

WITHDRAWAL OF CERTIFICATION “A SPECIFICATION CARGO TANK THAT FOR ANY REASON NO LONGER MEETS THE APPLICABLE SPECIFICATION MAY NOT BE USED TO TRANSPORT HAZARDOUS MATERIALS.”

180.413 (B) (7)

EVERY CARGO TANK TO CAB AND CHASSIS MOUNTING SYSTEM, OR CHANGE, MUST BE APPROVED BY A DOT REGISTERED DESIGN CERTIFYING ENGINEER.

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