General Inspection Check List
for Offshore & Onshore Corrosion Controlling based testing

(Exclusively for Corrosion Controlling based Heavy Engineering & Marine Coating applications and never for the mere decorative painting)

"GENERAL CHECK LIST FOR CORROSION CONTROLLING EXCERCISES PERFORMED IN OFF-SHORE & ON-SHORE INFRASTRUCTURE DEVELOPMENT PROJECTS" DURABILITY SUBJECT TO SECTION-5.5 OF ISO12944-1 & NORSOK-501"				
ITEM NO	**DESCRIPTION OF THE TEST WITH CORRESPONDING STANDARD**	**ACHIVABLE TEST RESULTS**	**TEST CRITERIA (ACCEPTED/REJECTED)**	**REMARKS**
(01)	Environment Test under ASTM D3276-07, ISO8502 or equivalent (Equipment Most reliable equipment brand & Type -**Elcometer 319T or Defelsko-Positetor DPM or DPM-L**	**RH>=85%**	Accepted/Rejected during Surface Preparation	Exceptions applicable subject to Dry-abrasive Sweeping under acceptable weather conditions.
(02)	High Pressure Washing between 200 to 300 bar to lowering down the embedded soluble salts-ISO8502-6 or equivalent Elcometer Conductivity Test Kit with Horiba Conductivity Meter or Defelsko SST Kit	At least **25 µS/cm** prior to Blasting or below	Rejected/Accepted	Re-washing until the specified value is reached
(03)	Dry-abrasive Testing Primary Purity Test (Visual) followed by Conductivity. ISO11127-6 or ASTM D4940 Defelsko-Positector Advance with SST Probe or Elcometer Conductivity Test Kit	Visual & Max-**75.0 µS/cm**	Primer Test Criteria - Rejected/Accepted Secondary Test = Max-75.0 µS/cm	If the conductivity value remains greater, the abrasives to be rejected
(04)	Surface Standard Checks against ISO8501-1:2007(E) Pictorial Presentations conforming the actual surface shade subject to Rust Grade.	**Sa-"2½"** Vs Rust Grades (Minimum)	Rejected/Accepted	If rejected then to Re-Blast until the required surface is achieved.

(05)	Surface Conductivity Test ISO8502-6	Max-≤10.0 µS/cm	Rejected/Accepted	Re-wash & proceed for Re-Blasting
(06)	Surface Profile Test/Checks ASTM D4417 Methods A; B & C. Surface Comparator Defelsko or Elcometer suitable instruments. SPG, 2 & 3D RTR, Testex Tape with Micrometer as applicable & suits.	Rz-40-85µ with sufficient density (Shell Internals & Externals including Roof & common surfaces)	Since the abrasive materials are naturally generated substance, there can be variations which is tolerable as long as surface anchor is generated	However, in the event of Leak Preventions it is a mandatory need to have angular average profile (Rz) If Class "B" Friction Joints the profile shall be 75 – 125 mic with sufficient Peak 3D RTR Probe for Profile Density with (Spd) analysis coated with TSM or ESI prior to final tightening.
(07)	Surface Dust Level Test – ISO8502-3 Certified Dust Testing Standard Card with Elcometer Tape Recommended for Dust Testing	As per the value Specified by the Product Manufacturer.	Rejected/Accepted	Re-Air blowing
08)	RH shall be on or below **85%.** Steel Temperature Maximum (Ts-max) = **50°C** Steel Temperature Minimum (Ts-min) = At least **3°C** higher to the Dew Point corresponds to the RH. TΔ (Ts – Td) = At least **3°C** Higher to the Dew Point. {Conforms to ISO 8502-4, BS 7079-B4, ASTM D3276}	RH>=85% Ts-Max 50C Ts-Min=(Ts-Td) =TΔ ≥ 3°C	Rejected/Accepted	Applicators to wait until weather becomes favorable.

(09)	Proceed with application monitoring the wet film thickness (wft) by Elcometer or recognized brand of Wet Film Comb Gauge. ISO 2808, ASTM D4414, AS/NZS 1580.107.3, JIS K 5600-1-7, NF T30-125, US NAVY NSI 009-32	Airless Spray	Rejected/Accepted Tip Selection must be checked as per the PDS and wft to be checked & adjusted.	Wft must be calculated on New-VS. SC (Stripe Coat) is exempted for wft measuring instead limiting factor is the requirement
(10)	DFT checks correspond to SSPC PA-2 Table-1 Level: II Defelsko Positector Advance Gauge with Probe-6000 FNS, Elcometer 456 or equivalent program to SSPC SP-2, ISO 19840, ASTM B244/B499/ASTM D1186	SSPC PA-2 Table-1 Leve-2	Shall need to be built up until the specified thickness is achieved.	
(11)	LVHD (Low Voltage Holiday Detection Test Except Zinc Primer Corresponds to ISO2808-7B & BS3900C5 by Defelsko Positector LPD, Elcometer D270—4 Low Voltage Holiday Detector or Equivalent.	Zero Misses or Pinholes	Rejected/Accepted	Corrections must be done until no positive Beeping Signaling repeats.

(12)- <u>Thresholds on Maximum permitted Time for Coating upon completion of Blasting</u>

RH	**Maximum permitted Time for Coating**
85% or above	"No Blasting"
80 - 84%	2 hours
70 - 79%	4 hours
60 - 69%	10 hours
50 - 59%	12 hours
30 - 49%	24 hours
- < 30%	01 week

Environment Monitoring & Steel Temperature Test Standards
ISO 8502-4, BS 7079-B4, ASTM D3276, IMO PSPC, SSPC-PA7, US Navy NSI 009-32 or equivalent

Dry-Abrasive Purity & Conductivity Test Standards
ISO11127-6 or ASTM D4940 or equivalent

(A) (B) (C)

Compressed Air Testing in Compliance to ISO8573-1 & ISO12500

Most Common & suitable test either by using Clear Absorbent Paper or any Soft paper to for onto to the airflow & check for Oil & Carbon Particles passing through including the moisture.

Basic Water Quality Testing (ASTM D1293-18 & ASTM D1125-14) primarily the visual followed by mainly the TDS/Conductivity while pH as indicative

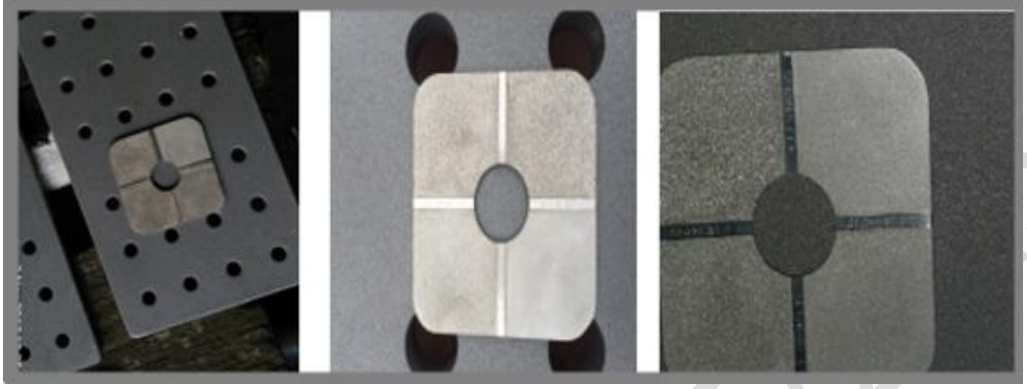
Surface Standard identification Immediately upon Blasting under ISO8501-1:2007(E) A-D Sa-2.5 or Equivalent

SURFACE PREPARATION STANDARDS

ABRASIVE BLAST CLEANING	SSPC	ISO	NACE	JSRA
EXTREMELY THOROUGH WHITE METAL BLAST	SP5	Sa 3	No 1	Sd 3
VERY THOROUGH NEAR WHITE METAL BLAST	SP10	Sa 2.5	No 2	Sd 2
THOROUGH COMMERCIAL BLAST	SP6	Sa 2	No 3	Sd 1
LIGHT BRUSH-OFF BLAST	SP7	Sa 1	No 4	

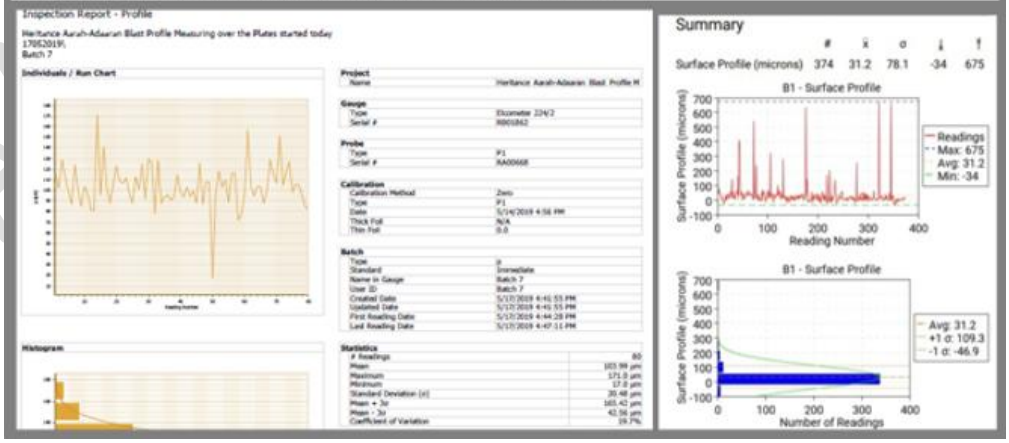
Surface Profile Testing to conform & agreeable as per the PDS or Engineering design criteria considering the mechanical movements to ASTM D4417 Method-A to C

ASTM D4417 Method "A"



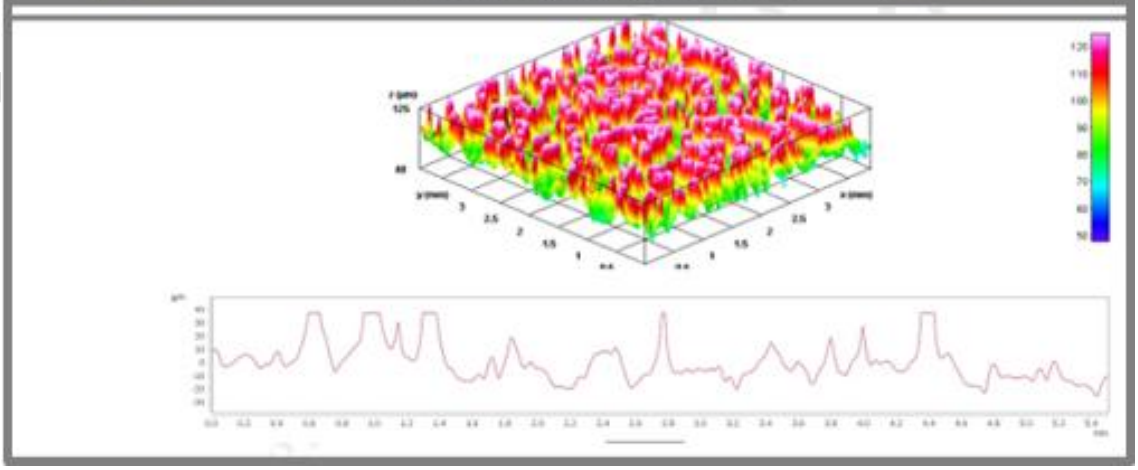
ASTM D4417 Method "B"

Statistical Analysis of the Blast Profile Size and its distribution



ASTM D4417 Method "C"

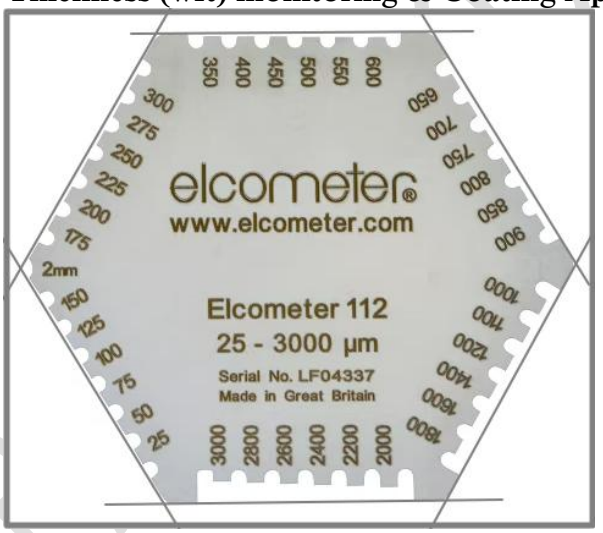
ASTM D4417 Method-C 3D RTR Analyzer



Trial 3D Profile Test Parameters

Short Filter (λs):	None	
Cutoff Filter (λc):	None	
Discard:	None	
Ra:	11.0 µm	roughness average
Rq:	14.5 µm	root mean square roughness
Rz:	62.5 µm	average maximum height of the profile
Rp:	37.2 µm	maximum profile peak height
Rv:	25.3 µm	maximum profile valley depth
Rt:	62.5 µm	maximum height of the profile
Rpc:	27.3 /cm	peak density
c1:	.5 µm	Rpc boundary c1
Spd:	12.4 /mm²	area peak density
Sa:	10.9 µm	average roughness
Sq:	14.1 µm	root mean square roughness
Sz:	76.6 µm	maximum area height
Sp:	32.5 µm	maximum area peak height
Sv:	44.1 µm	maximum area valley depth

Wet Film Thickness (wft) monitoring & Coating Application



$$\text{WFT} = \frac{\text{DFT x 100}}{\text{VS}}$$

$$\text{Wet Film Thickness} = \frac{\text{Dry Film Thickness x 100}}{\text{Volume Solid}}$$

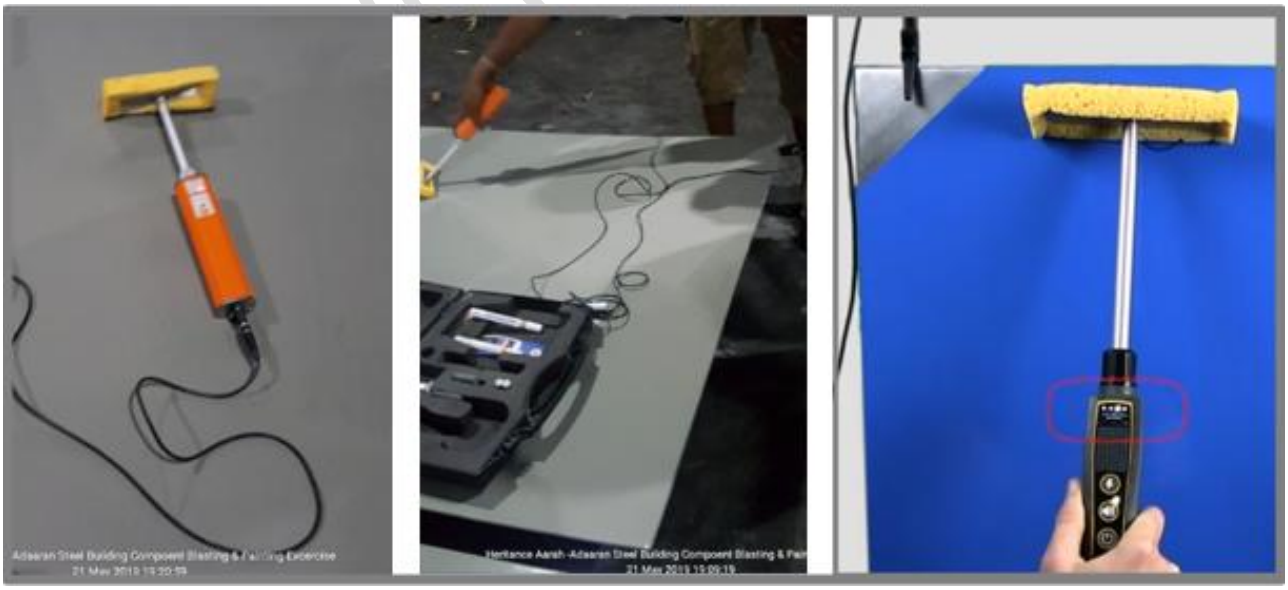
Volume Solid (VS) = Solid Content = Solid Volume [One of these different terminologies be used by different manufacturers which explains the Solid % of the Paint which is given in the Product Data Sheet]

Wet Film Thickness (wft) = Film Thickness gauging obtains by a Wet Film Comb immediately after application in wet condition.

Dry Film Thickness (dft) = Film Thickness gauging obtains after allocating the minimum drying time

Electromagnetic Dry Film Tester or Magnetic Pull-off gauge (Reference Standard-SSPC PA-2 ISO2808:2019 or ASTM D7091-13)

LVHD (Low Voltage Holiday Detection) Test ASTM D5162-08/NACE SP 0188 /ISO 2746/ JIS K6766



This document has been prepared to highlight the very basic field test that are conducted in Offshore & Onshore corrosion controlling which is related to ISO12944, Eurocode-2, Norsok-501 or equivalent other standards differentiating the conventional aesthetics/ decorative coating applications commonly done & seen which must properly be demarcated. Also note that the instruments used are subject to replenish with the new versions that are used in the industry time to time.

No exceptions applicable by the service providers unless agreed with the owner's engineering staff members by presenting the justifiable & agreeable reasons.