

Waste Management Systems & Solutions
Marine & Offshore – SHORT INTRODUCTION

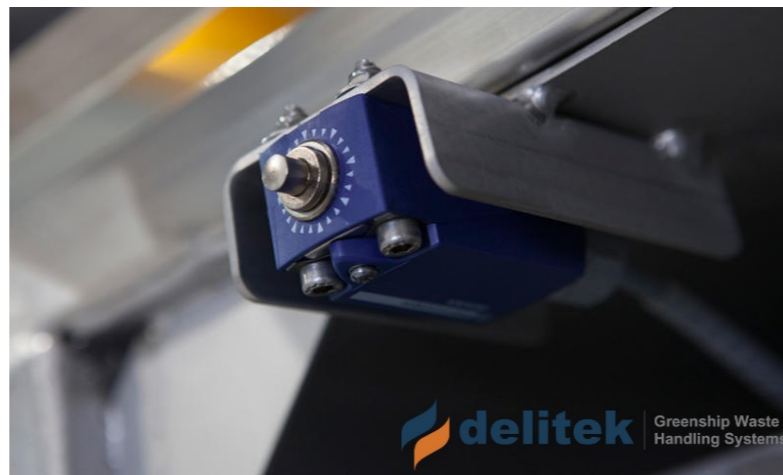


Company Overview

- Designer & manufacturer of Waste Systems since 1992
- HQ / Production in Norway: Alsvag / Alesund / Oslo
- Privately owned family business
- Specialized in Maritime & Offshore Waste Solutions
- “Innovation” track in close cooperation Maritime Industry
- R&D for Fishing industry, Oil & Gas , Shipping
- Equipment designed with end-user focus, fit-for-purpose



Impression of production & equipment features



Key design features ... end-user ship owner

Flexible:

- Multi-use via interchangeable wheeled waste bins and containers
- Multi-function devices (compaction, baling and tin / cartons / small drum densifier in one)
- Plug and play (no commissioning/ no special tools) and standard parts across product lines



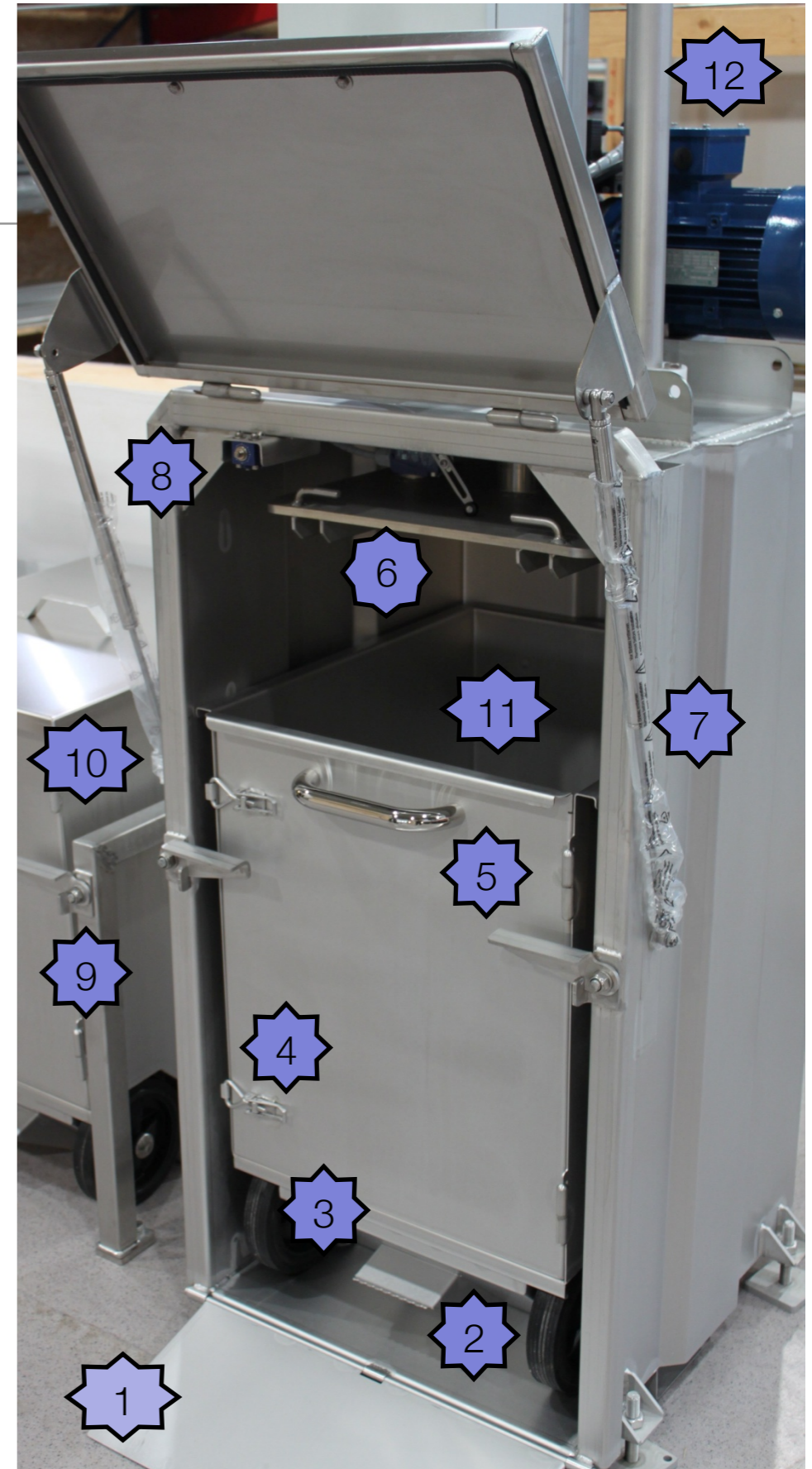
Robust:

- Fit-for-purpose electro – hydraulic power pack (minimum 9000 Kgs. Press force)
- Components / joints fully welded or bolted (no rivets etc.) by in house certified welders
- Stainless steel (AISI304) for outdoor use




Quality is in the details ...

1. Ramp mounted for easy push-in and pull-out
2. A foot mount is placed for easy tilt of container for transport
3. Fitted with wheels
4. The front cover can be opened easily if required
5. A secured system lock
6. Press ramp is fully welded & baling option for straps
7. Opening door is Gas damped
8. Motor Safety Switch fitted in conjunction to front door
9. Framework arrangement storage (bulkhead mounted)
10. Cover lids on individual waste bins
11. Compaction is direct into waste Bags
12. Standardized Motor across Series Press force min > 9 tons



Industry standard and certification



DET NORSKE VERITAS
CERTIFICATE OF CONFORMITY

Certificate No. 89881-2010-CE-NOR-DNV
This Certificate consists of 1 page

This is to certify that the product(s)
Compactors, Crushers and Densifiers
with name and/or type designation(s)
DT-series 100, 200, 500, 1000 and 1500.

Manufactured by
Delitek AS
ALSVÅG, Norway

has, on a voluntary basis been assessed with respect to

Expand to font size 12 the requirements for documentation specified in point 3 of Annex IV of Council Directive 2006/95/EC on Electrical Safety, and found to comply or suitable harmonised standards referred to in Article 7(1)(a) of Council Directive 89/336/EEC on Electromagnetic Compatibility, as amended, and found to comply or the requirements for technical documentation specified in point 1 of Annex IV of Council Directive 2004/108/EC on Electromagnetic Compatibility and found to comply or the requirements for documentation specified in point 3(a) of Annex V of Council Directive 98/37/EC on Machinery, as amended, and found to comply or the requirements for documentation specified in Annex VII, part A, pt. 1(a) and (b) / B (a) and (b) of Council Directive 2006/42/EC on Machinery, as amended, and found to comply or (for integrated) the requirements for documentation specified in point 3(a) of Annex V of 98/37/EC on Machinery, as amended, in point 3 of Annex IV of 2006/95/EC on Electrical Safety, and suitable harmonised standards referred to in Article 7(1)(a) of 89/336/EEC on Electromagnetic Compatibility, as amended, and found to comply

Place and date: Hovik, This Certificate is valid until: _____
for DET NORSKE VERITAS AS

CE

Marianne Spæren
Certification Manager

Technical Reviewer

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Joint Qualification System
for suppliers to the Oil Industry in Norway and Denmark

Certificate of Qualification
Awarded to

DELITEK AS
Company Reg.no: 963864019
Achilles Id. 27456

Achilles Information Centre hereby confirms that
DELITEK AS
is qualified in the Achilles Joint Qualification System
for suppliers to the Oil Industry in Norway and Denmark.
The qualification concerns the product and service
categories listed in the appendix.



Issued Date: 16-Nov-2010
Expiry Date: 07-Nov-2011

The participating Oil Companies and Main Contractors may use Achilles JQS as the basis for preparation of bidder lists directly or together with additional qualification criteria established by the individual Company. Other qualification stages may be added by the individual Company if more information is found necessary to complete the preparation of bidder lists



CERTIFICATE

Delitek AS
Company Registration No.: 963864019
Connexio ID: 165040

We hereby confirm that Delitek AS is registered as a pre-qualified supplier in Connexio, the supplier information system for utilities in Germany, Eastern and Central Europe, for the product/service categories listed in the appendix.



Date of issue: 4-Jan-2011
Expiry date: 03-Jan-2012



Markets, ref. customers and service-coverage .



Shipping:

Vroon,
BP Shipping Ltd,
Teekay Ltd,
Fugro,
Boskalis /Smit,
Heerema,
Bourbon Offshore,
Subsea 7,
Fairstar,
V-Ships,
Van Oord,
Seaway Heavy Lifting,
Maersk



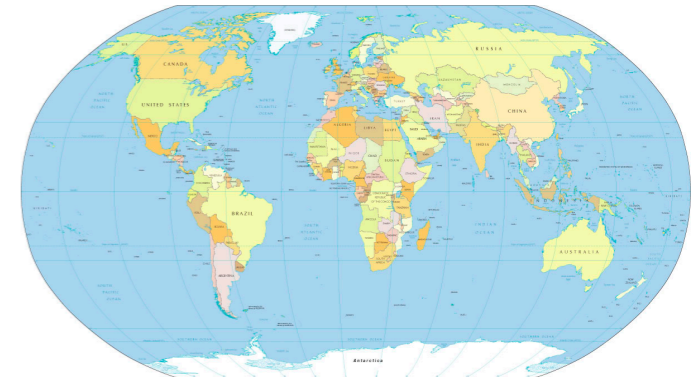
Offshore / Oil & Gas:

Shell E&P,
BP E&P,
BW Offshore,
SBM Offshore,
Saipem / Eni,
Maersk O&G,
Transocean,
Chevron,
Odebrecht O&G,
DOF,
StatOil Hydro,
Odfjell,
Saudi Aramco



Shipyards:

IHC Merwede,
Damen
FSG,
STX Europe,
DSME,
HHI,
SHI,
Labroy,
PPL ,
Yantai Raffles,
Cosco,
Jurong
KeppelFels



Global network of sales / service stations:

- standard spares off shelf
- waste bags available
- transparent pricing policy
- commissioning not required

Multi fraction Waste Compactors (balers)

- Powerful drives / motor for high compaction ratio's (85% >)
- Electro Hydraulic or Pneumatic drive / ATEX version
- Direct Compaction of Waste Fraction in HD PVC bags and/or Big Bags (lifting)
- Fitted with wheeled waste containers (+/+ for segregation Marpol 73/78)
- Containers may be used between DeliTek Series machines
- Baling possible for Cardboard / Carton etc.
- Safety: compaction cycle start after door safety switch activation



Shredders



- A vital part for complete waste management system (reduction rate)
- Suitable for hard plastics & cardboard / dunnage / lining / metal tins Soda cans / small woods / PE up to 5 gallon.
- Powerful El. motor drive coupled gear / shaft (Minimum. Torque 1900Nm)
- Double (reverse) rotating pick-up bite , additional hand lever to facilitate shredding
- Safety switch on door levers and feeding hopper lid mounted
- Auto-Stop / Reverse Prevents damage to shredding mechanism



Optional equipment to the series

Glass Crusher(s)

Efficient direct-coupled double blade hammer (Aisi304) or (HARDOX 450)

Output : 0,2 mm to 2,5 cm

Rpm : 1420 / 1,5 Kw El. Motor

Glass Dust Prevention cover

80% reduction rate



Drum / filter reducer:

Larger Drum/ Tins / Filter(s)

Drained Waste Oil is collected

Electrical or Pneumatic drive

2000 Kgs Press force (200 ltr)



High volume Baler(s):

Baling direct on EUR pallets

Large loading Hatch

Easy Bale Ejection Frame

1500 Kgs Press Force

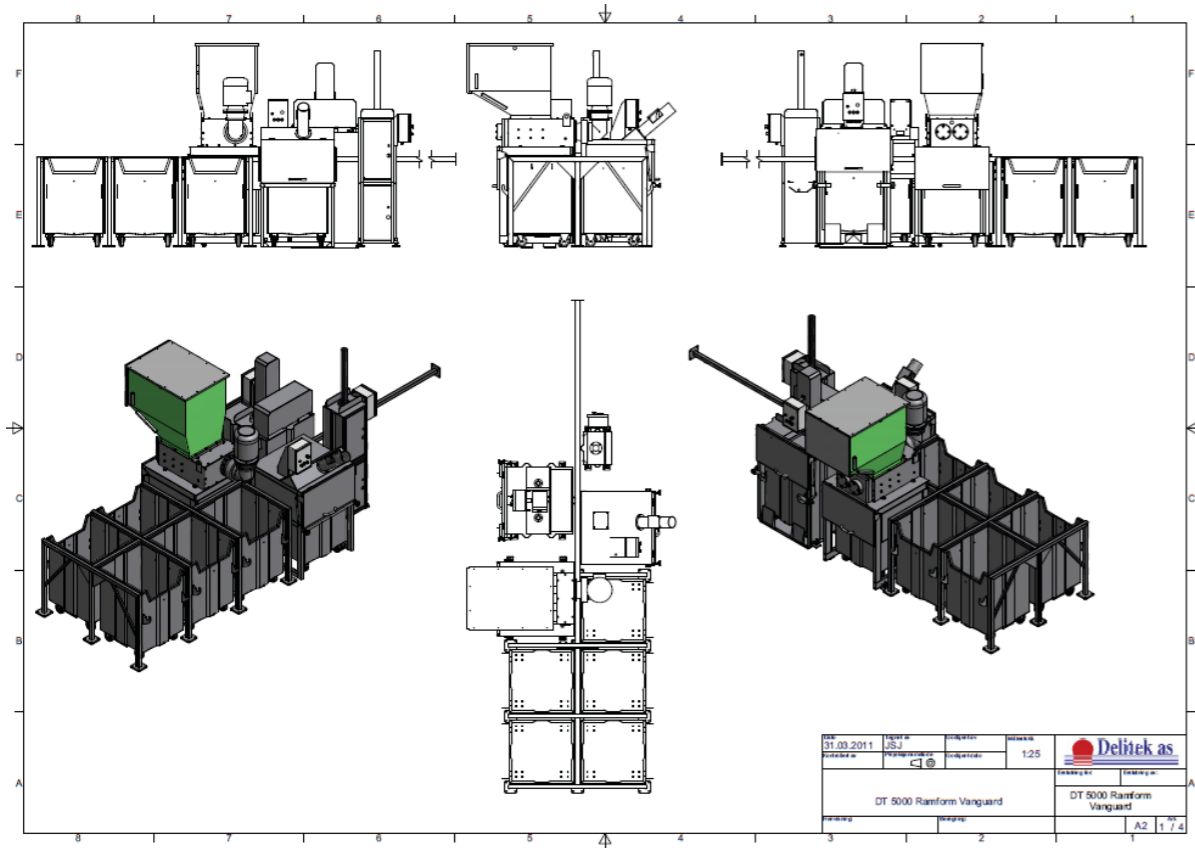


... safe and convenient garbage storage / disposal

Framework arrangements:

_Floorplan & routing and service space

Secures full waste containers (200 kgs>)



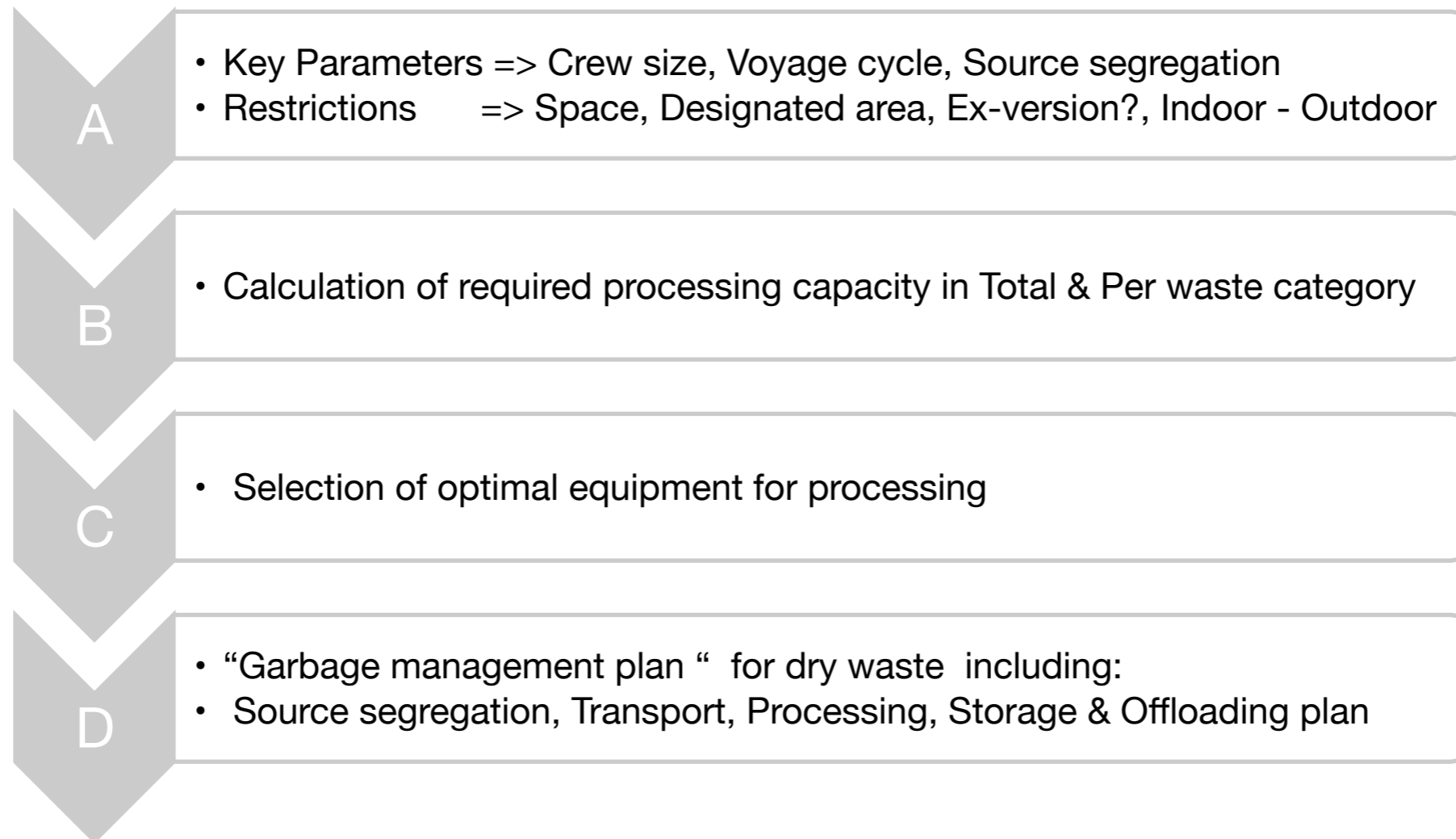
“Big Bag” offloading /disposal:

Reusable Bags (PVC&HD Inner lining)

Suitable for lifting with ship’s crane



Capacity calculation: no rocket-science, but still... essential for equipment selection and (dry) waste stream handling, processing and storage



Many yards are not yet thinking this way so within technical contractual specification it is advised to ensure crew will have machines that work for them onboard

DeliTek series (Compactor – Shredder - Crusher)

	Vessel type	Crew	Max .Voyage
DT 190 series (mini)	Reefer / Feeder / Bulker Short sea Shipping	< 15	10 days
DT 200 series	Tankers (Afra – Suez) / Bulkers / AHT / PSV All Deep Sea Shipping (merchant)	15 - 30	20- 30 days
DT 500 series	Specialized vessels : Offshore supply, Construction Installation Dredgers/ CSV / DSV / Cable Layer	30 – 80	30 days >
DT 1500 series	Offshore structures , cruise vessels , Accomodation support , Live Stock carriers	80 >	various



HSE considerations following Capacity calculation for garbage mngt plan

- ✓ # of Bags of Compacted Dry waste equals around 2000 Kgs
- ✓ Transport , conveying and off loading of Waste Bags (75 Kgs per piece)
 - ❖ Wheeled bins, foot mounting & ramps
 - ❖ System of reinforced inner lining re-usable Waste Bags (lifting hooks?)
- ✓ Segregation (Marpol 73/78) and identification of segregated waste easy to facilitate ?
- ✓ Secured locking of waste bins (high seas and rolling ship's)
- ✓ Protection of hands, eyes & fingers:
 - ❖ Motor-power & start protection // Glass "dust" prevention

Thank you for your attention