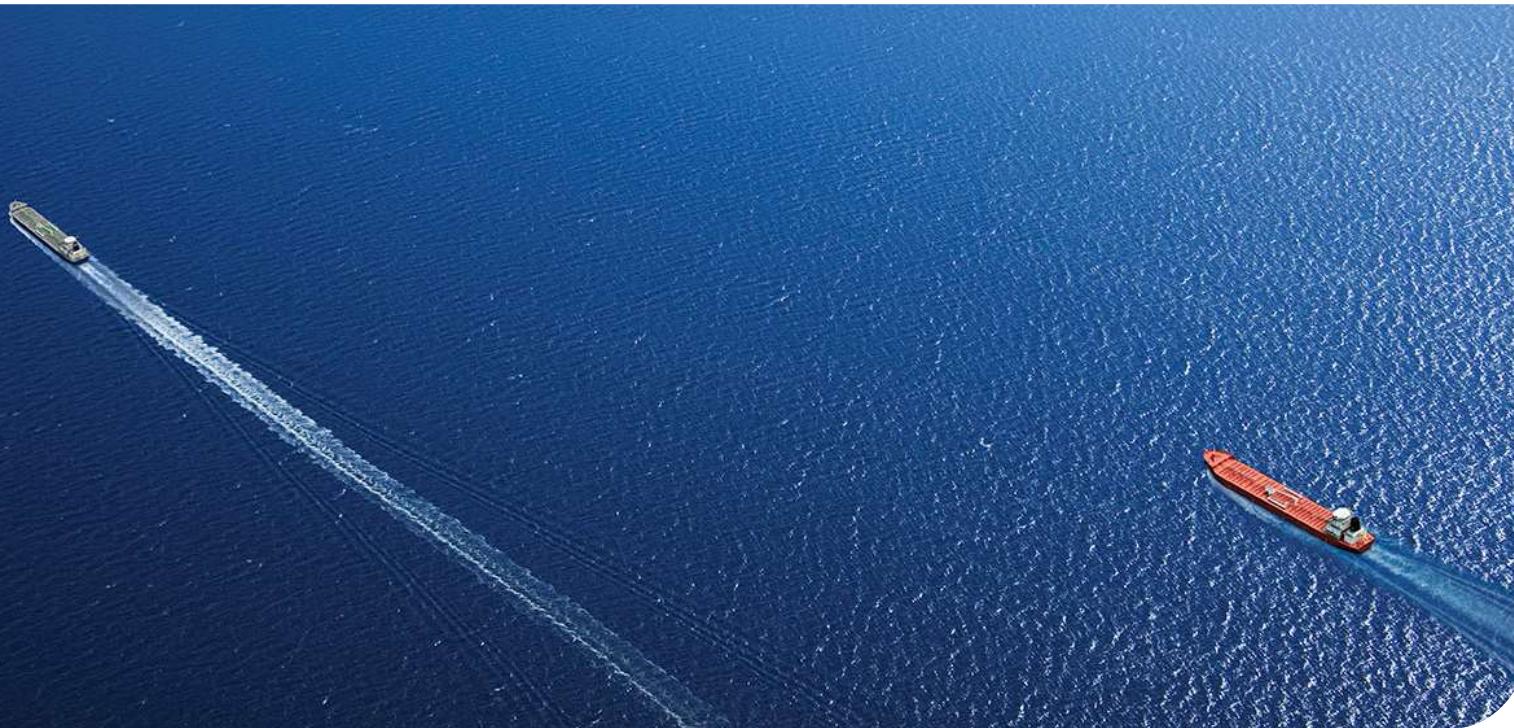


ALFA
TAL



Alfa Laval PureSOx

- Don't just comply – be a step ahead

Boiler & Gas System 営業本部
Alfa Laval KK.
山田 淳一

本日のトピックス

- Pure SOx



TOPIC 1

COVID-19 の影響

TOPIC 2

PureSOxアップデート

TOPIC 3

販売実績

TOPIC 4

Pure SOx Express

TOPIC 5

Global support

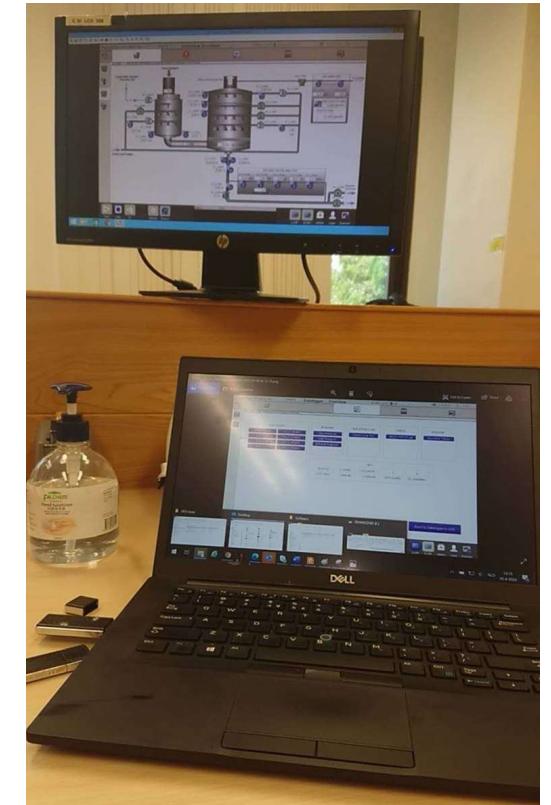
COVID-19

- Challenges and new initiatives



Challenges:

- 受注済みスクラバレトロフィット工事がそのピークを迎えており、プロジェクトによっては遅れがでたものもあります
- 海外渡航や移動が制限され、協力会社の工場も一部閉鎖がつづいております
- PureSOx Remote SAT for VLCC & Product tanker
 - 4月に実施された海上運転では条約試験にエンジニアが立ち合いでいる場合、遠隔操作によりスクラバ承認試験の為の運転を実施し成功裏に承認取得いたしました。
- Full story: <https://tinyurl.com/ybel5ud2>



PureSOx アップデート

- PureSOx update



最新のアップデート情報

- 販売実績
- 新規開発製品 PureSOx Expressの発表



PureSOx
Exhaust Gas
Cleaning Systems

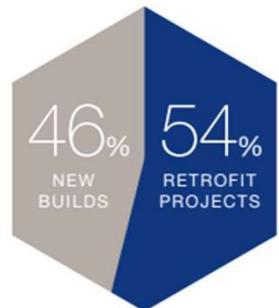
実績表

- PureSOx references



- A decade of experience

TYPE OF INSTALLATION



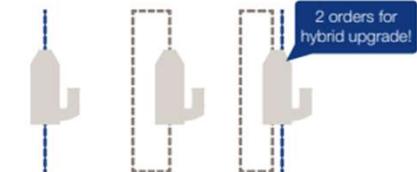
GLOBAL SERVICE CENTERS



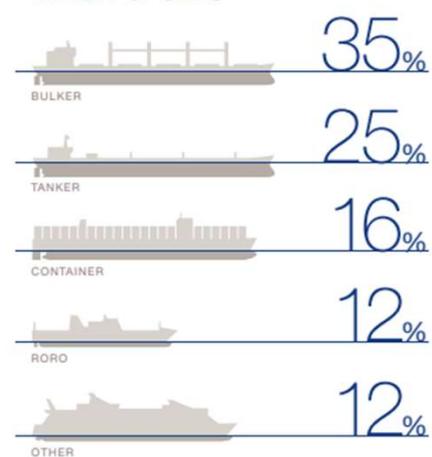
79% of PureSOx systems in operation have an Alfa Laval service contract

PURESOX CONFIGURATION

82%
OPEN-LOOP
2%
CLOSED-LOOP
16%
HYBRID



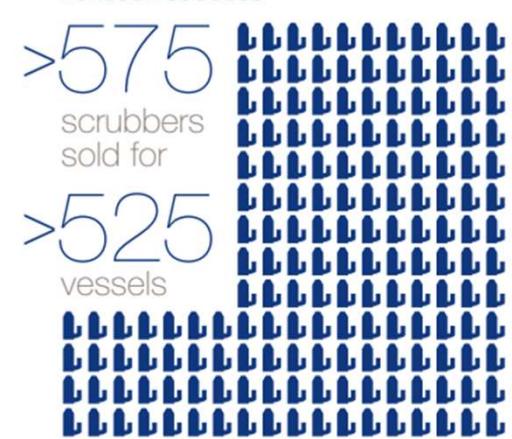
VARIETY OF SHIPS



SHORT FACTS

100	Years of experience in marine industry
50	Years of experience with marine scrubbers
10	Years at sea
>325	Scrubbers installed
>2.6 mill.	Total hours of operation

PURESOX SUCCESS



PureSOx開発の歴史

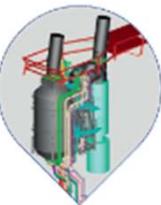
- PureSOx History



• Milestones in the PureSOx development



1967-2006
Scrubber foundation
in inert gas systems



2006
Exhaust gas
cleaning developed



2009
First PureSOx pilot
system: Ficaria



2012
Second PureSOx
pilot system: Plyca



2014
Alfa Laval Test &
Training Centre



2015
ECA 0,1%S limit
comes into force



2016
360 degree service
portfolio



2017
Alfa Laval celebrates
a century at sea



2018
PureSOx Connect
launched



2018
450 orders for
PureSOx systems



2019
Next-gen water
cleaning system



2019
10 years of
PureSOx at sea

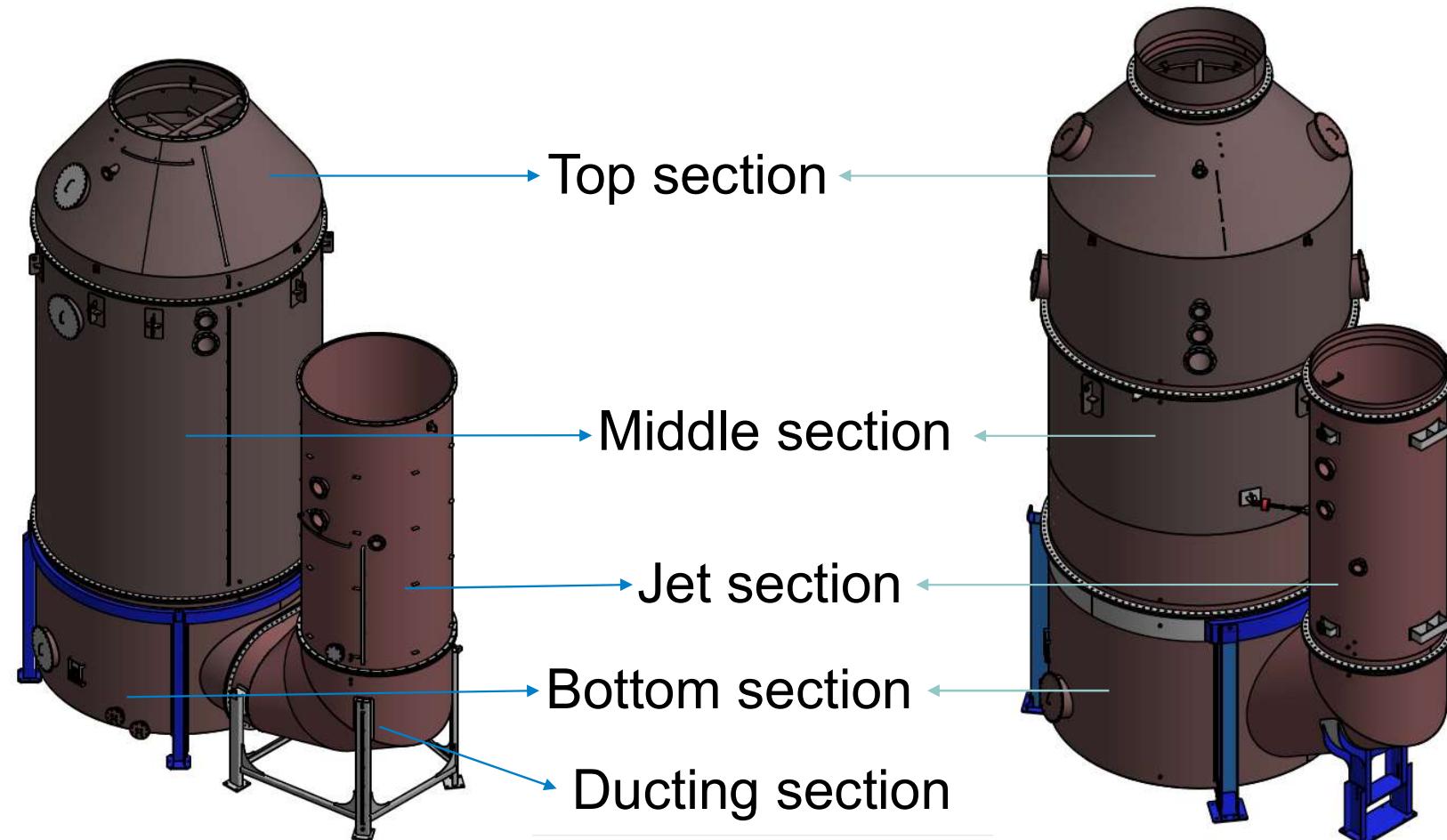


2019
Inauguration PureSOx
training centre



2020
Global Sulphur Cap
comes into force

General Design 3.0 vs 4.0

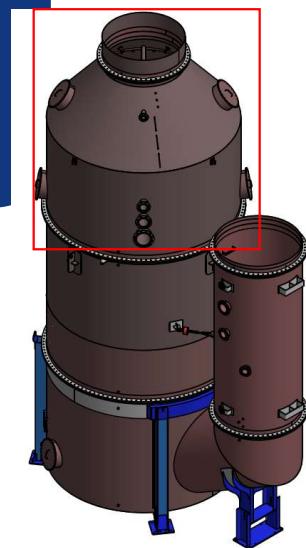
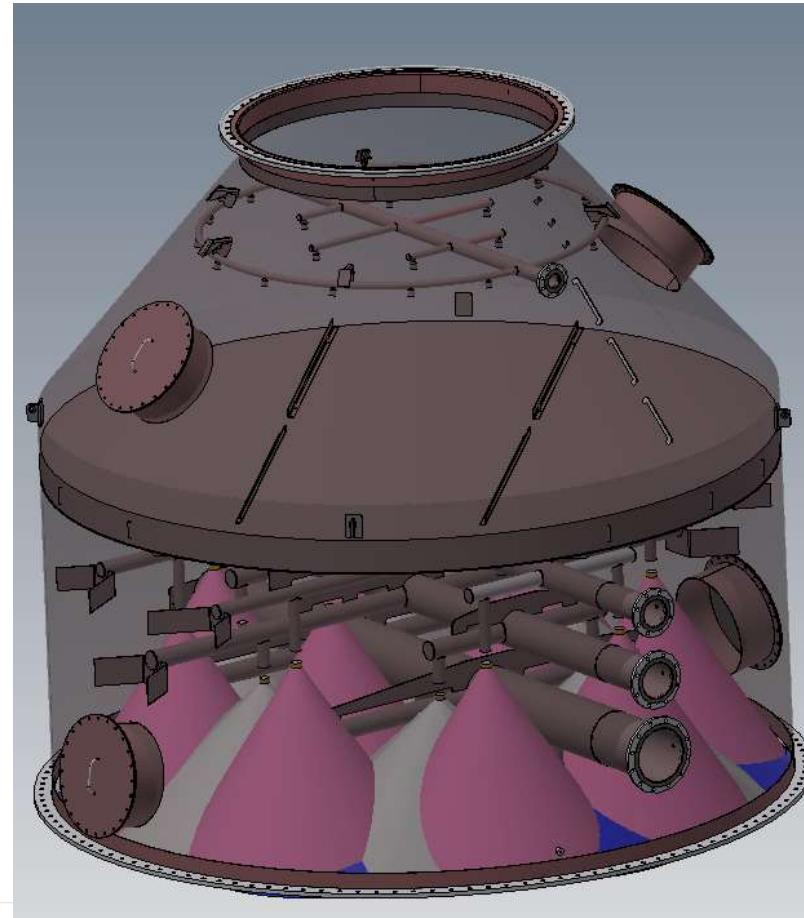
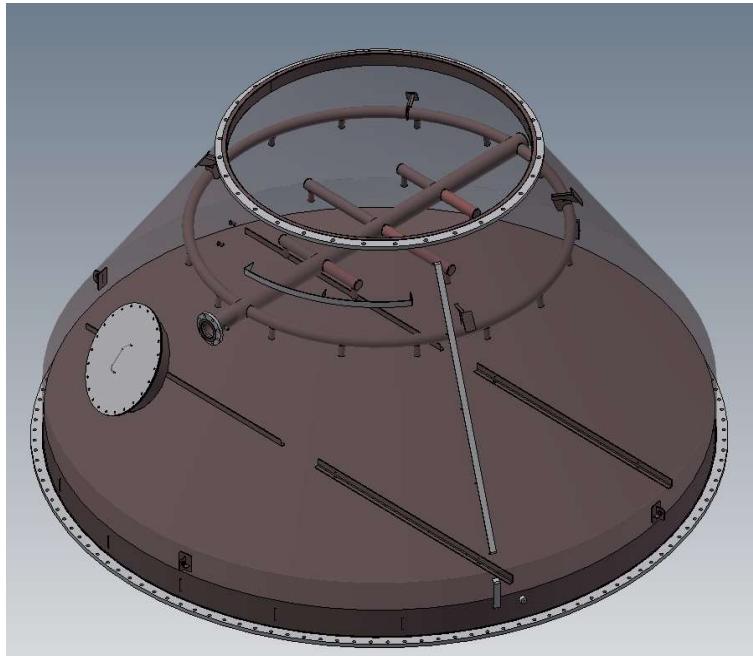


Slidoコード B571

www.alfalaval.com

Top section

- General Design 3.0 vs 4.0



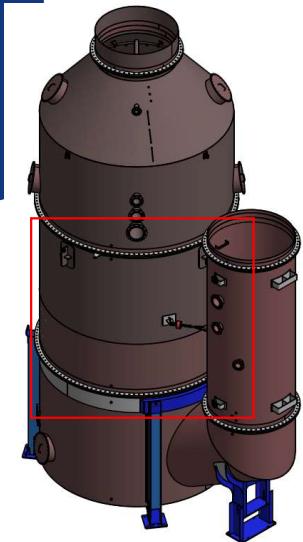
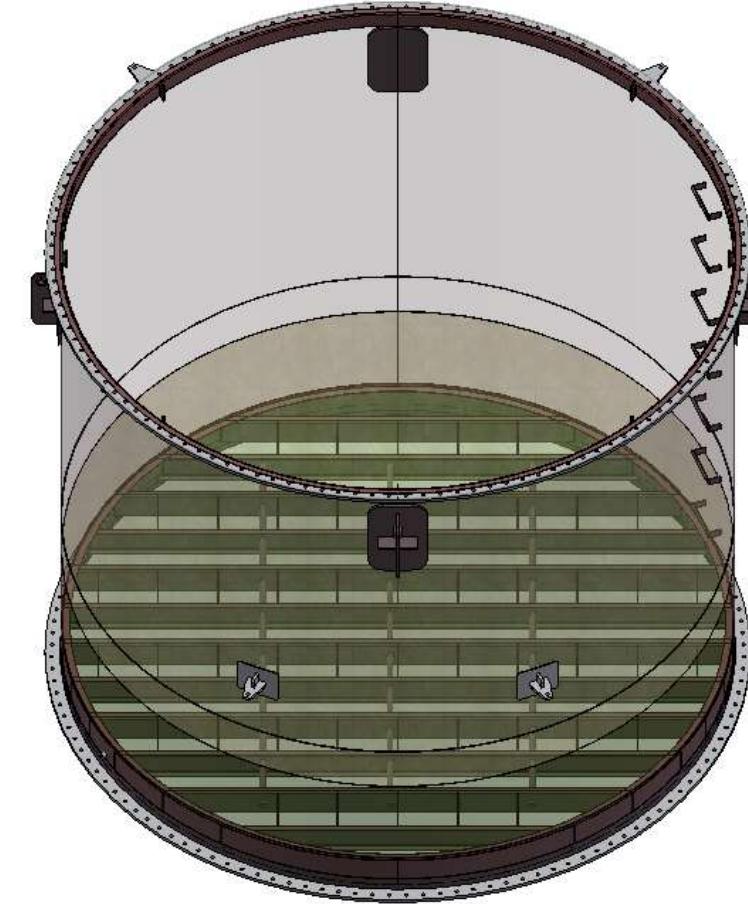
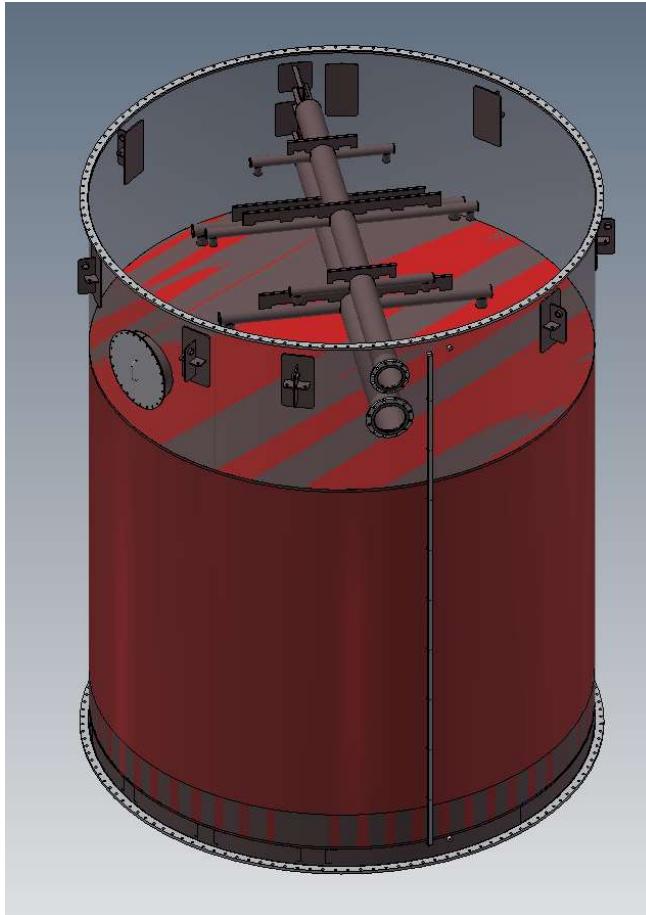
3.0 vs 4.0

Slidoコード B571

www.alfalaval.com

Middle section

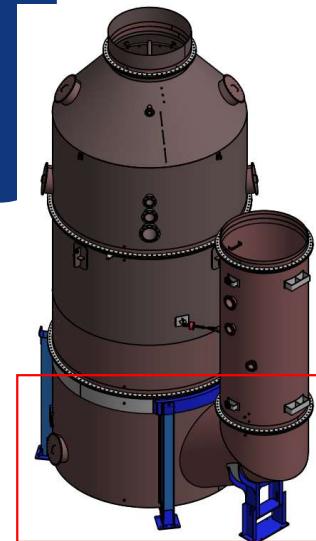
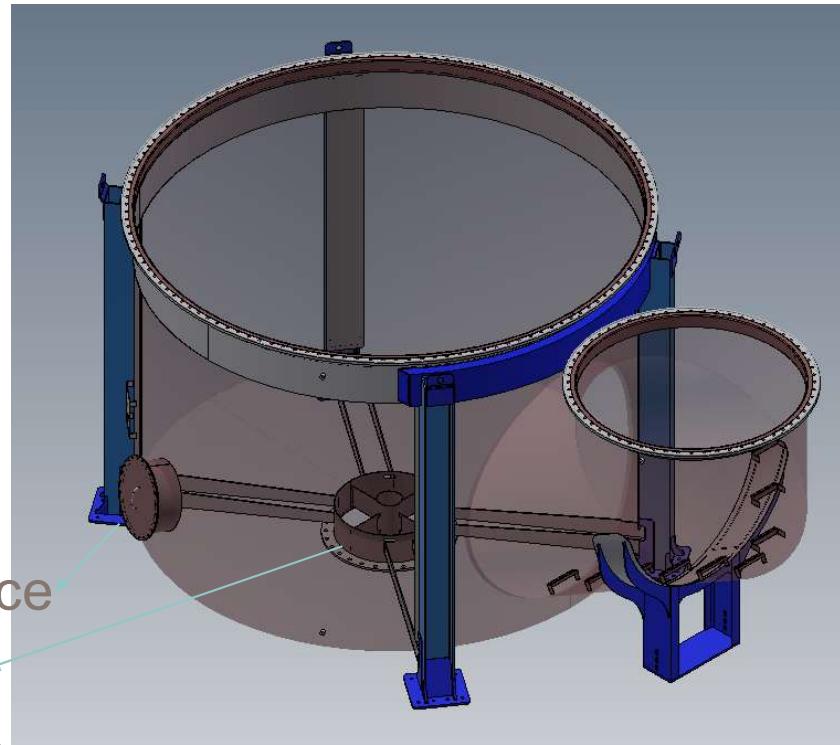
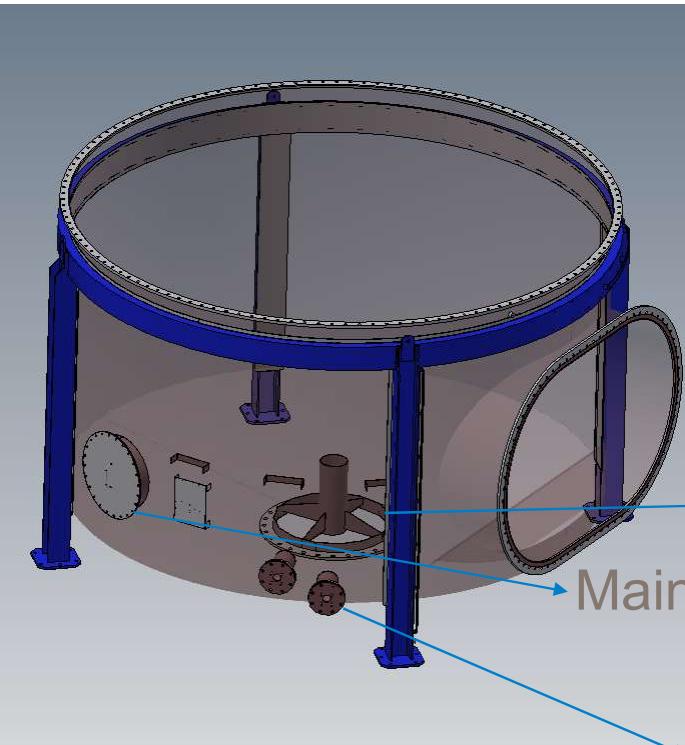
- General Design 3.0 vs 4.0



3.0 vs 4.0

Bottom section

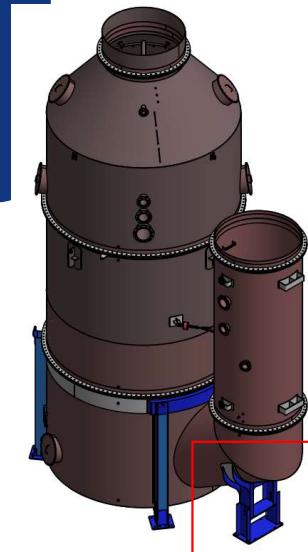
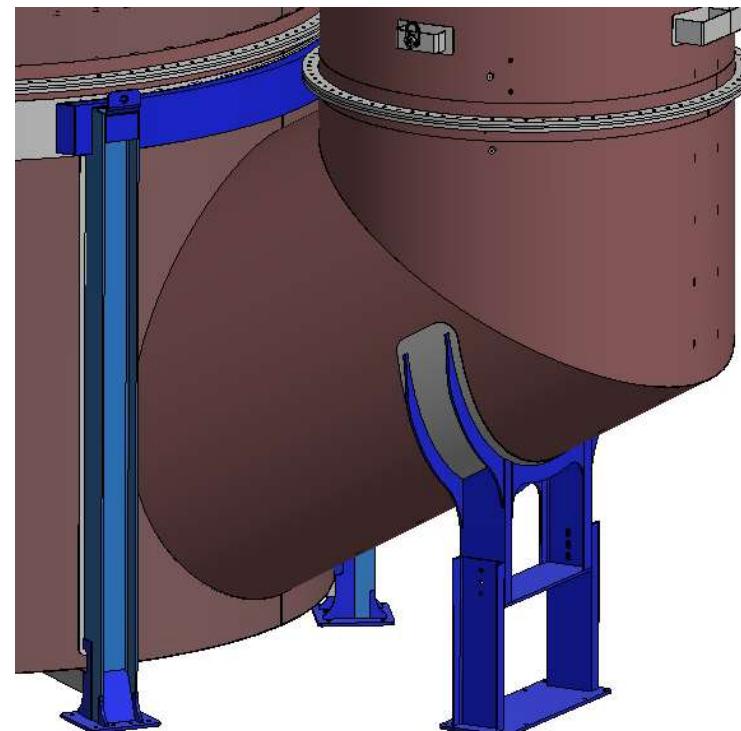
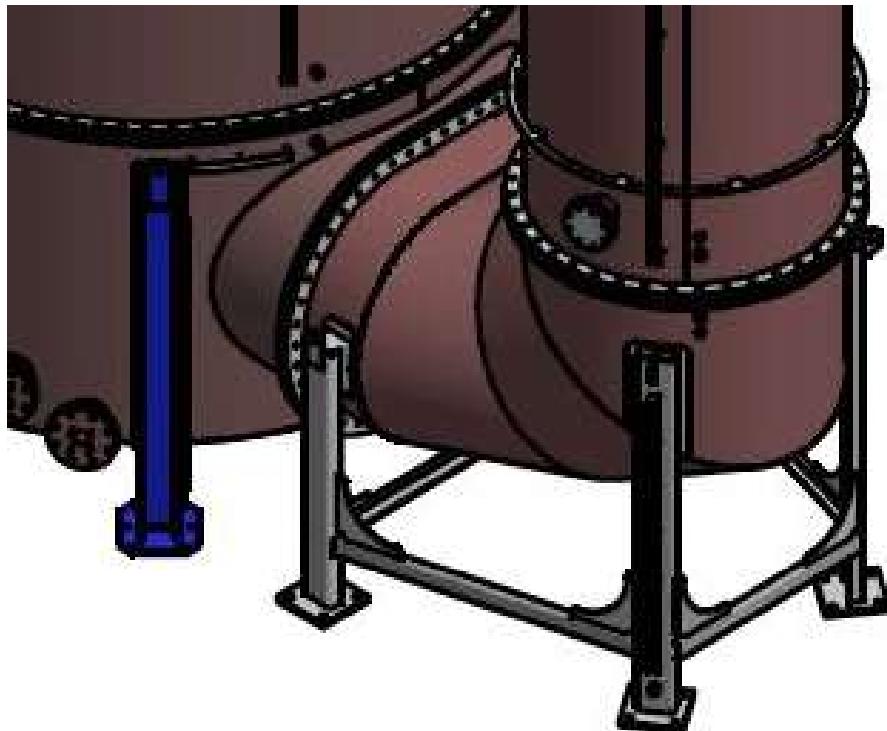
- General Design 3.0 vs 4.0



3.0 vs 4.0

Jet support

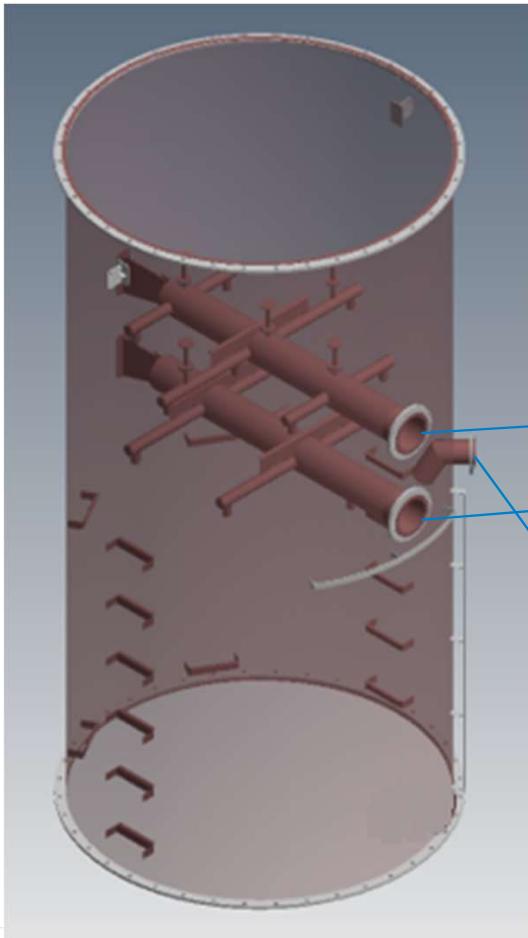
- General Design 3.0 vs 4.0



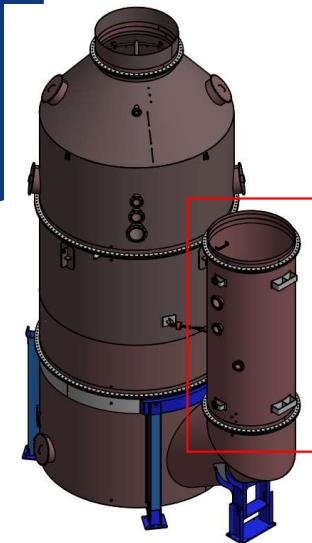
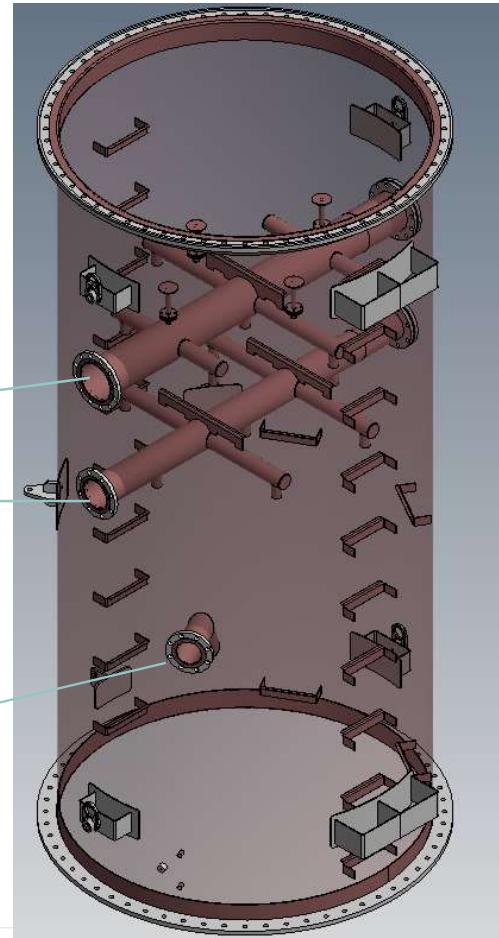
3.0 vs 4.0

Jet section

- General Design 3.0 vs 4.0



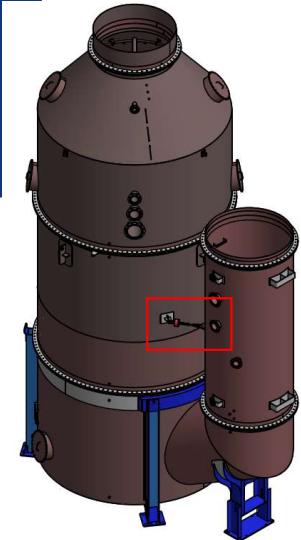
L89.1
L89.2
L04 Purge air
L230 Purge air



3.0 vs 4.0

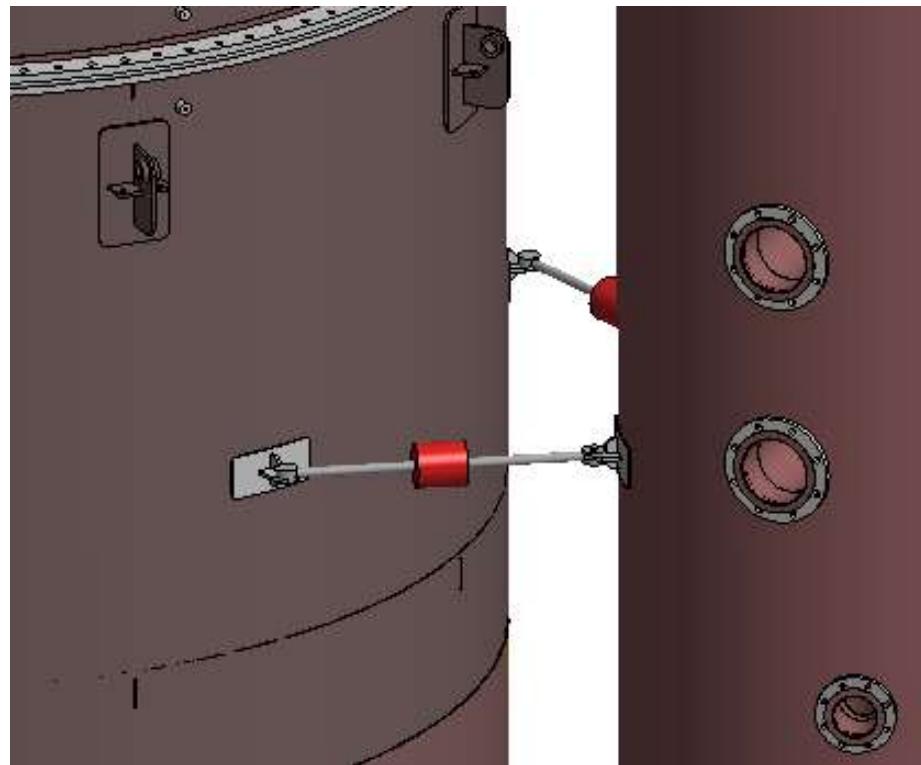
Shock absorbers

- General Design 3.0 vs 4.0



Jet section bracing to middle section

Use vibration dampers to connect / brace
the jet section to the middle section.
(solid bars are NOT allowed.)

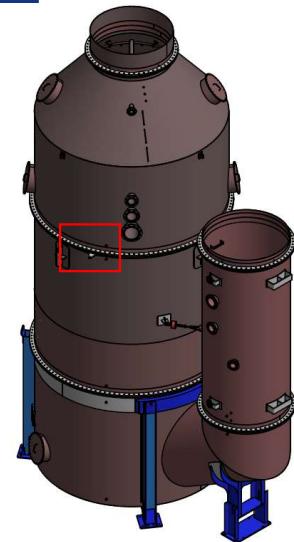
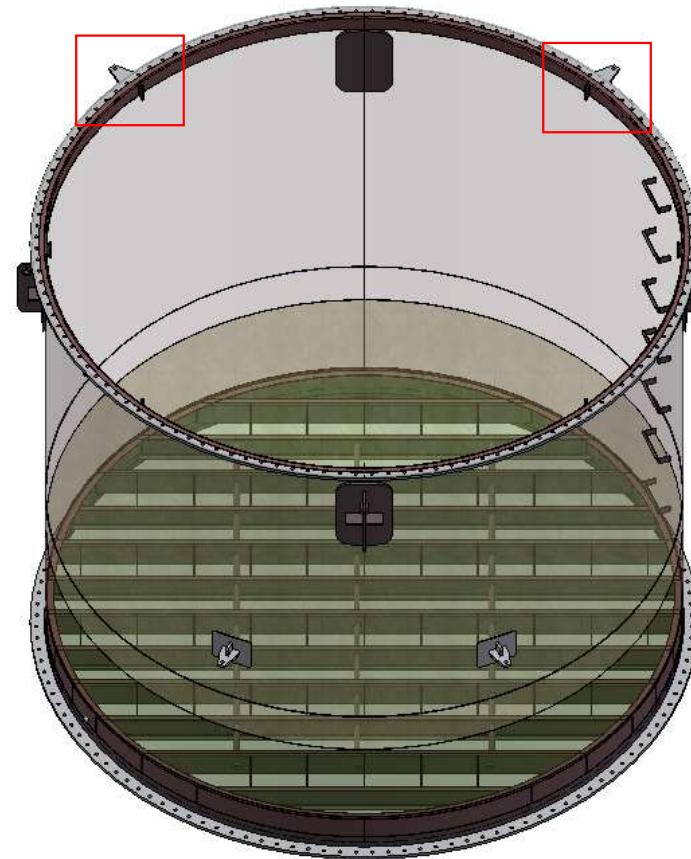
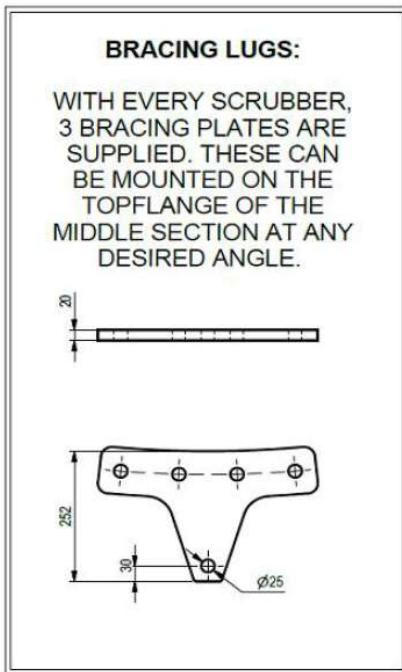


4.0

Bracing to the ship

- General Design 3.0 vs 4.0

- Use vibration dampers to connect / brace the bracing lugs to the ship.
(solid bars are NOT allowed.)



4.0

Main Control Cabinet

- General Design 3.0 vs 4.0

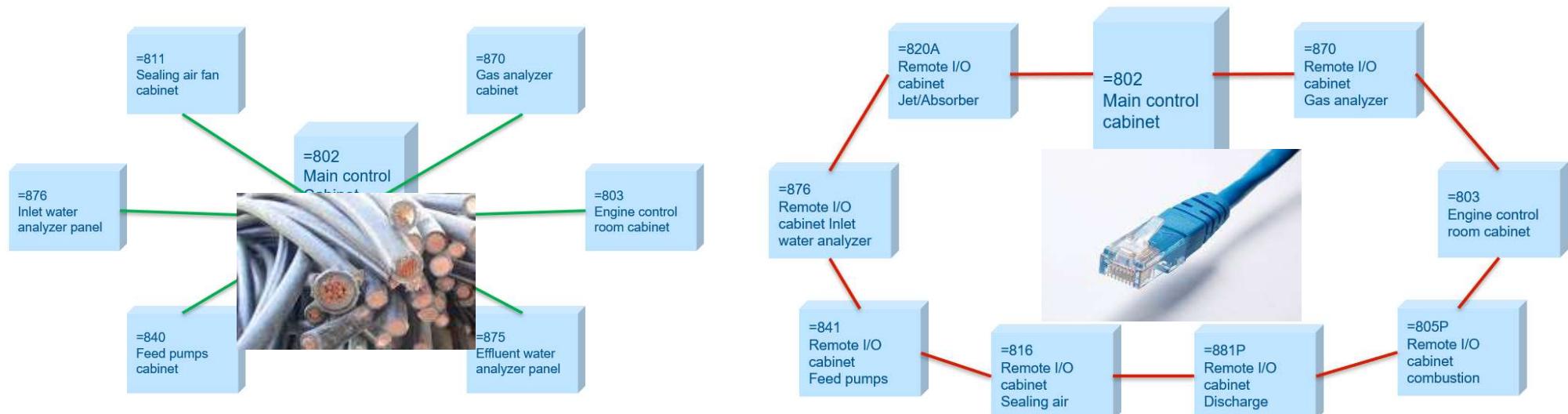


Slidoコード B571

16 | www.alfalaval.com

Wiring connection

- General Design 3.0 vs 4.0



PureSOx Connectivity

- Remote Monitoring

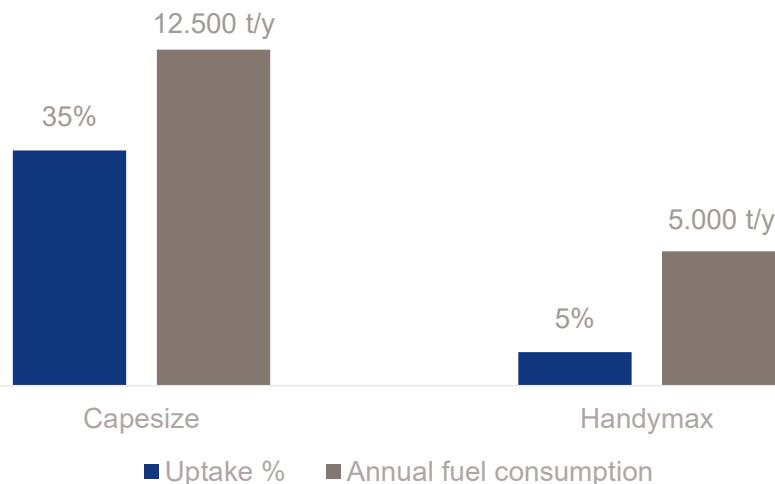


既存SOxスクラバーの搭載状況



- Scrubber adaptation

- 現在どの船型がSOxスクラバーを適合手段として選択しているのでしょうか？



World Fleet	Vessels (#)	EGCS (%)
Capesize Bulkers 100,000+ dwt	1956	38
Panamax Bulkers 65-99,999 dwt	2935	10
Handymax Bulkers 40-64,999 dwt	3978	8
Handysize Bulkers 10-39,999 dwt	3756	1

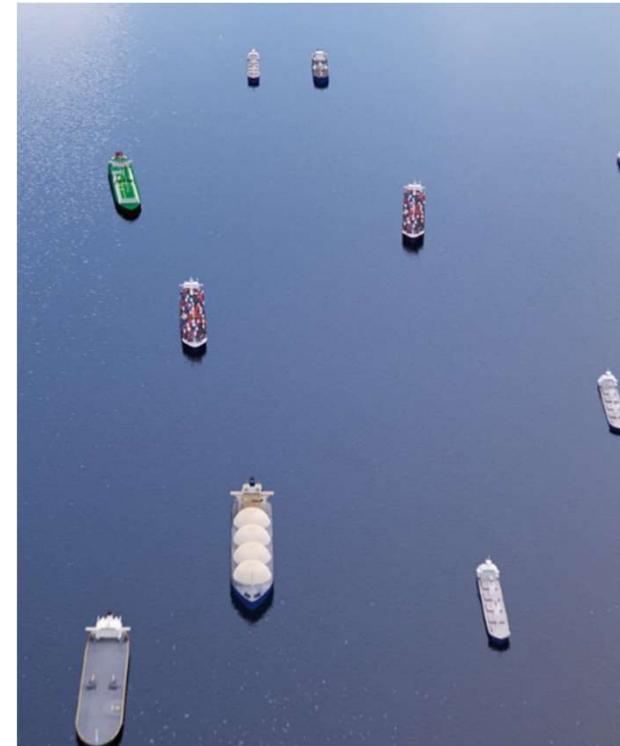
Japanese Owners	Vessels (#)	EGCS (%)
Capesize Bulkers 100,000+ dwt	402	29
Panamax Bulkers 65-99,999 dwt	511	11
Handymax Bulkers 40-64,999 dwt	628	10
Handysize Bulkers 10-39,999 dwt	476	4

小型船舶へのソリューション

- Which vessel segments choose scrubbers as their compliance option?



- 小型船舶:
 - 燃料消費量が少なく、初期投資の大きいSOxスクラバやLNG燃料は見合いません
 - 適合油への切り替えが唯一の実際的な規制適合手段となっています
- アルファ・ラバルは小型船舶のセグメントに新たな対応を提供することを考えました
- 搭載コストを大幅に低減可能なSOxスクラバーはつくれないのでしょうか？



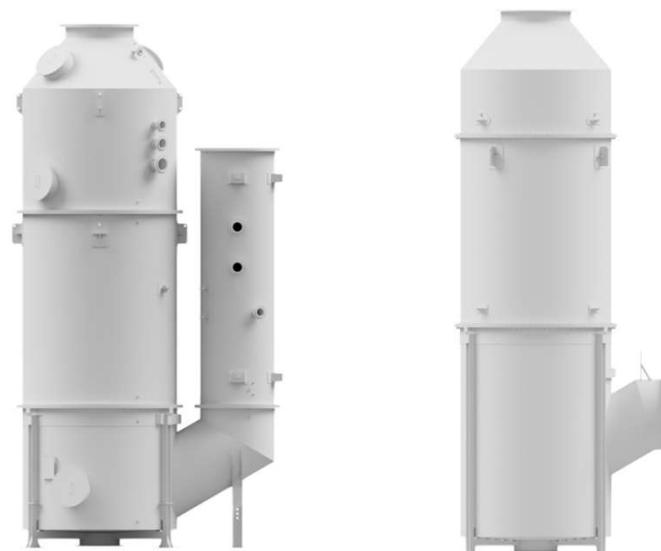
搭載コスト低減へのアプローチ

- Scrubber – simplification



信頼性をそのままに、より単純化したデザインへ

- 従来型の設計を見直し
- 堅牢で信頼性が高く そして高効率



搭載コスト低減へのアプローチ

- How did we reduce costs?



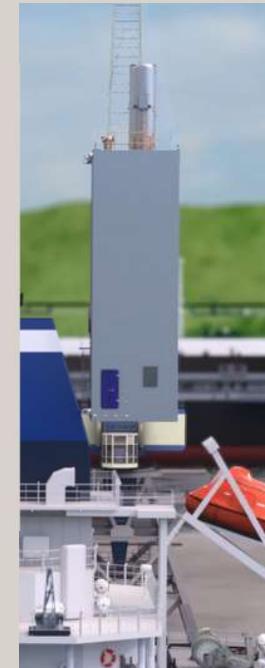
ワンタイム エンジニアリング



スクラバ構造の単純化



ファンネル一体モジュール



<https://marine.alfalaval.com/alfa-laval-puresox-express>

Slidoコード B571

PureSOx Express

- Introduce PureSOx Express



- 处理能力:

- 75 t/h exhaust gas
- Up to 10 MW

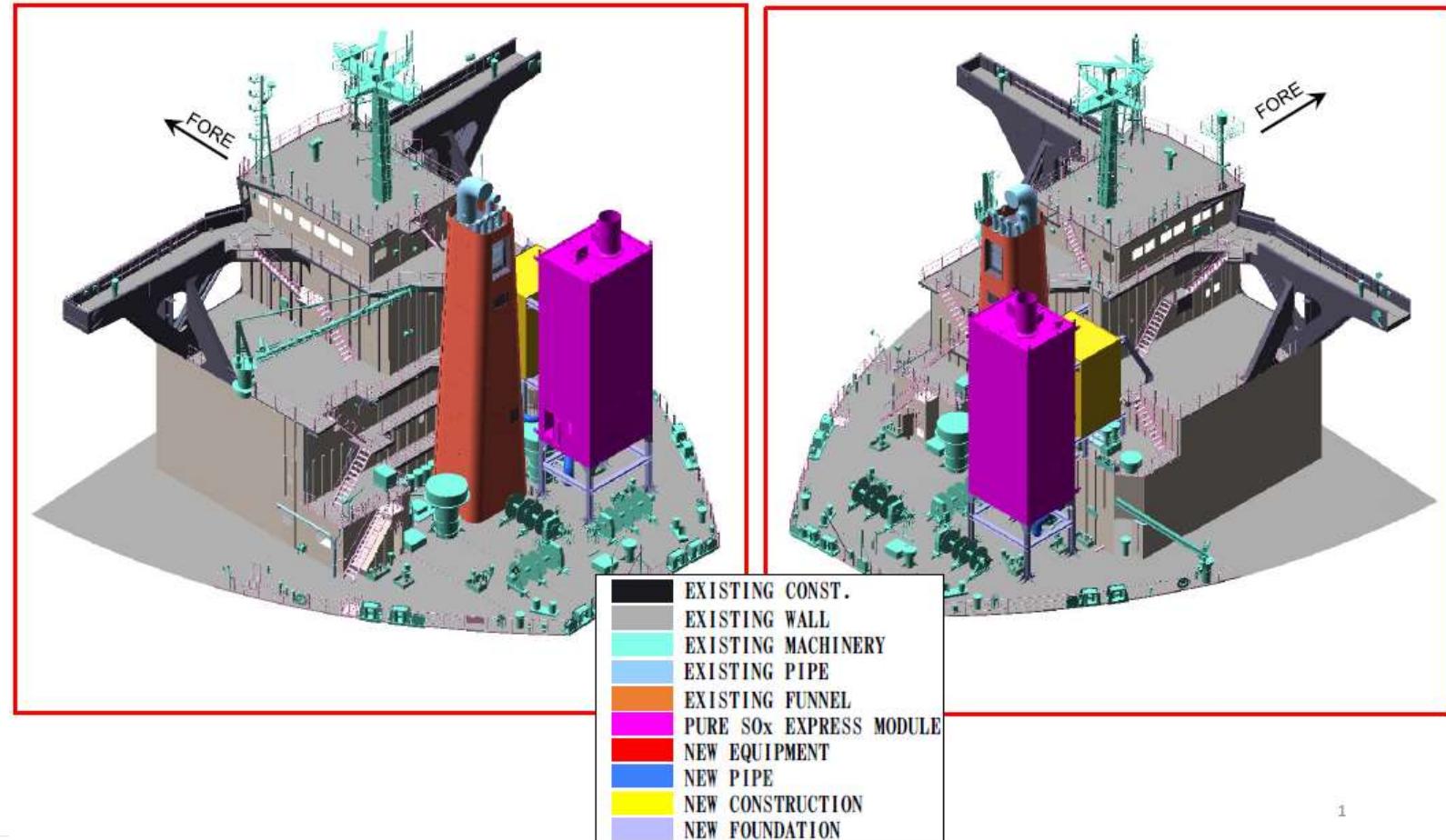
- 主要寸法:

- L 4,2m x W 5,1m x H 12,8m
- Weight ~50t



PureSOx Express

- Introduce PureSOx Express



1

Slidoコード B571

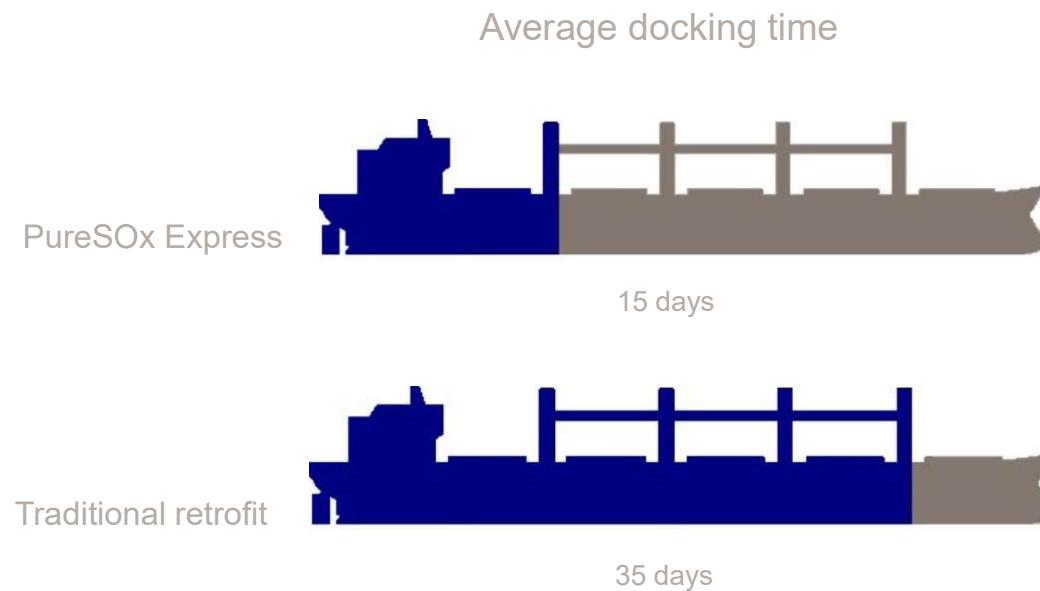
27 | www.alfalaval.com

搭載コスト低減へのアプローチ

- Significant Reduce of entire retrofit period



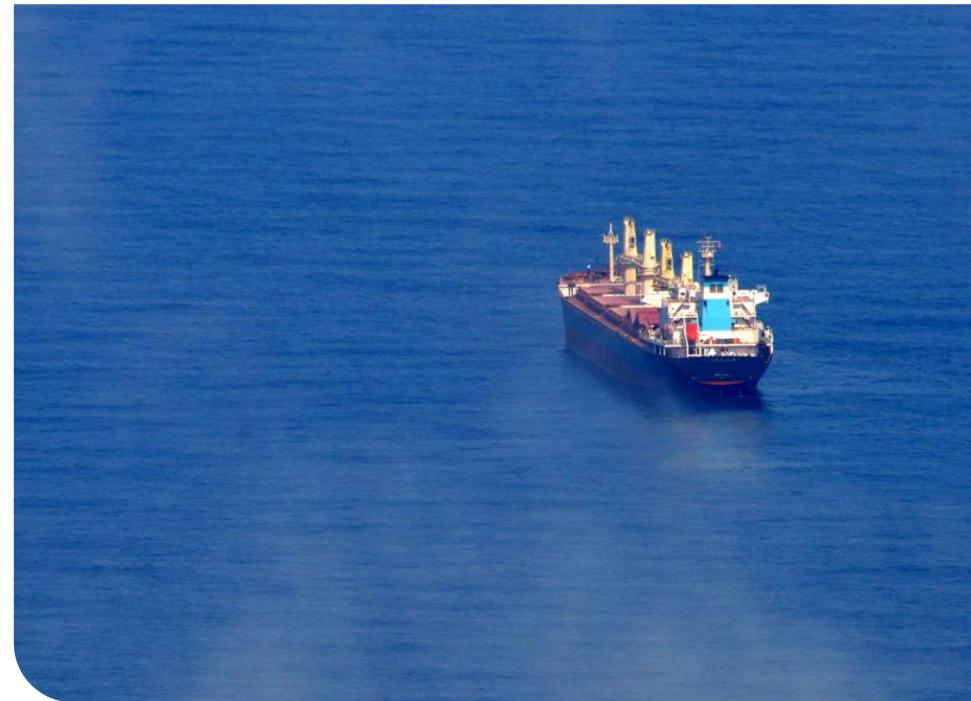
搭載工事期間を50%短縮



何故PureSOx Expressなのでしょう?

- Why PureSOx

- ✓ シンプルで迅速な搭載工事
- ✓ 短いリードタイムと工期
- ✓ スクラバファンネルとして必要なコンポーネントをプレハブしモジュール化
- ✓ ハイブリッドレディーに対応
- ✓ エンジニアリングとプロジェクトマネージメントを大幅に簡略化
- ✓ 卓越した技術・経験に基づく設計とアルファ・ラバルのグローバルネットワークによる万全のサポート



アルファ・ラバルのグローバルネットワーク

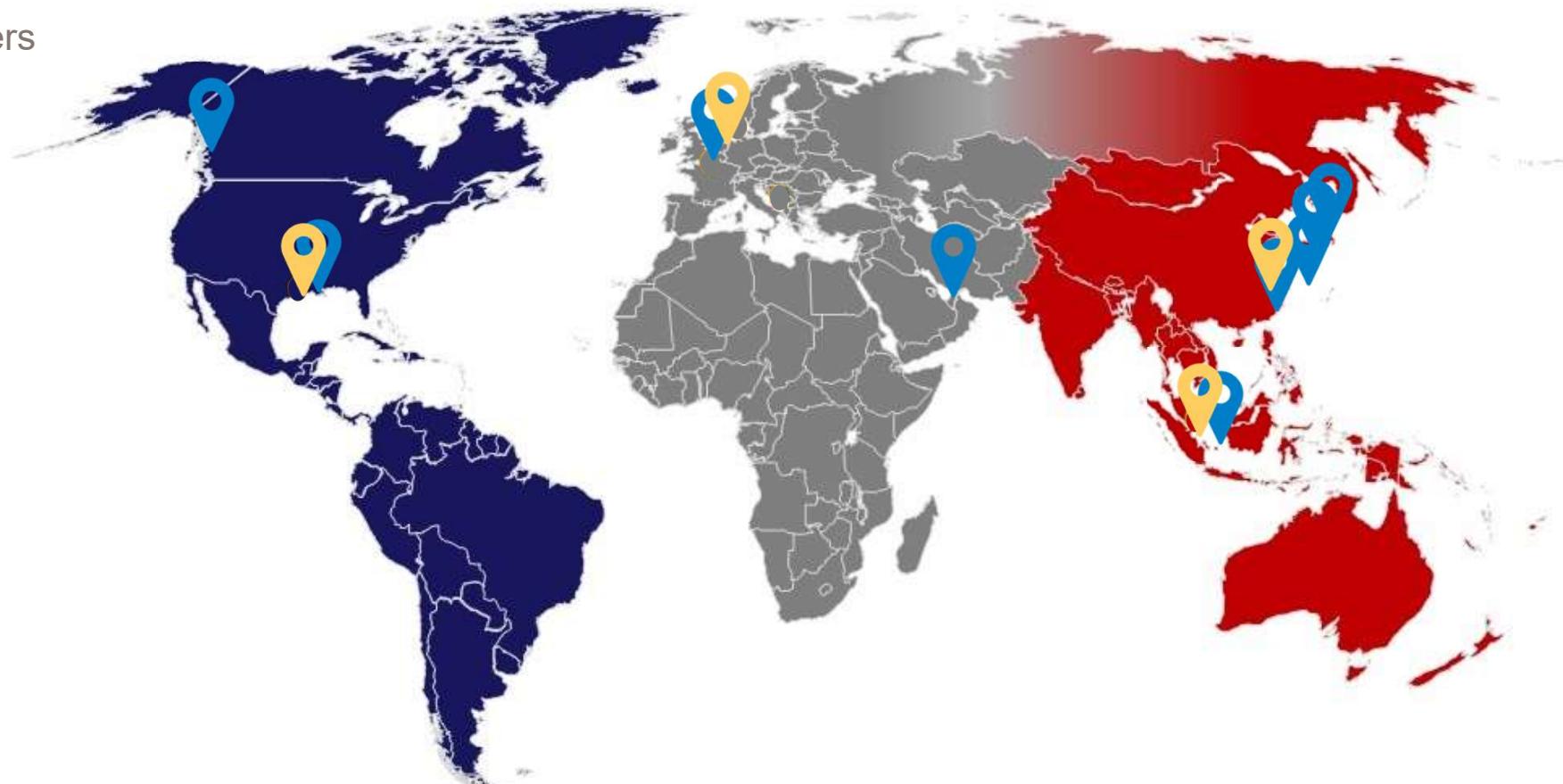
- Global support



Service Engineers



Global pool of service engineers available for visits onboard



Service desks



24/7 Remote troubleshooting and technical support

ALFA
TAL