



CD92

Conditioning Device
MD-Magnetic Drive

The unique S.I.T
Fuel treatment systems.

The economic way to
beneficial Fuel utilization!

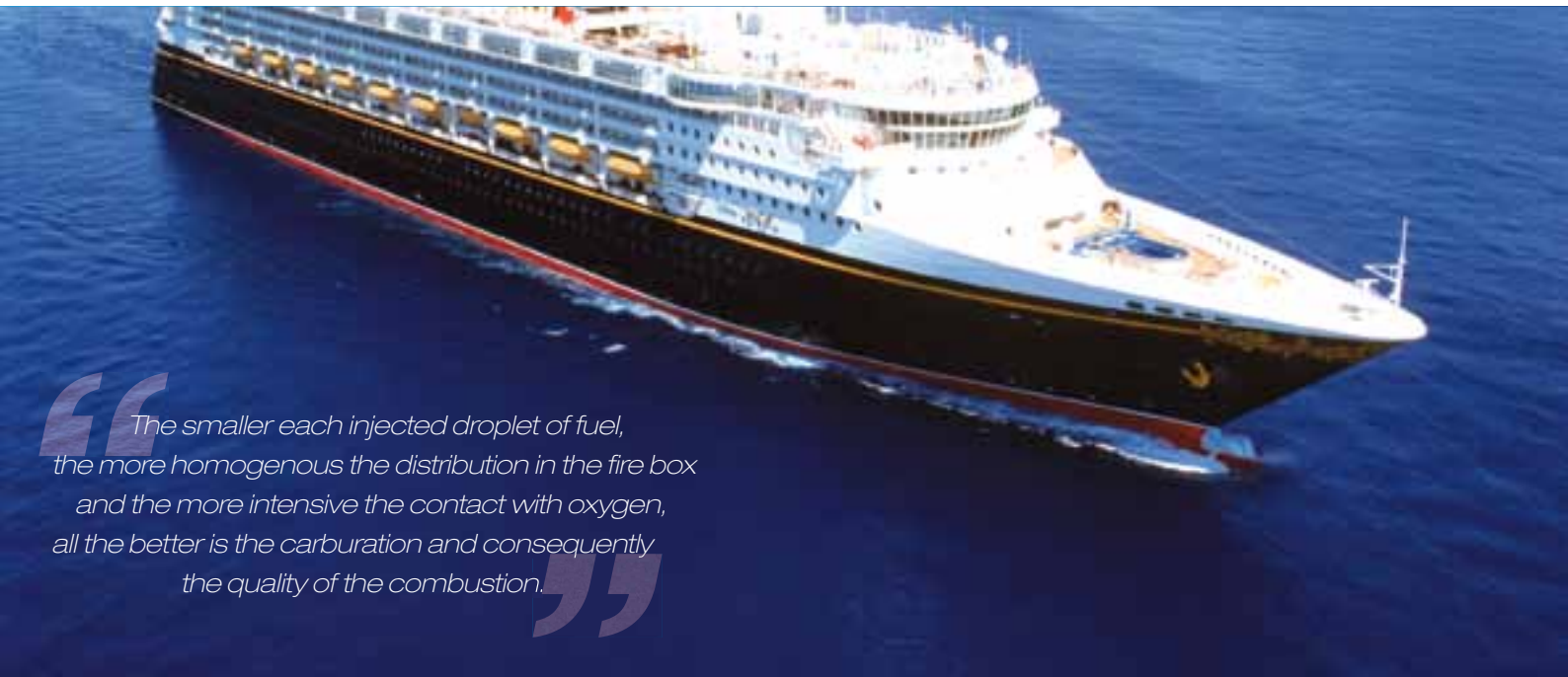


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Progress is a direct function of experience



“The smaller each injected droplet of fuel, the more homogenous the distribution in the fire box and the more intensive the contact with oxygen, all the better is the carburation and consequently the quality of the combustion.”

Micronizer Systems on Board and Ashore

For all these future requirements the new generation (no. 6) of homogenizers can be a valuable tool for an acceptable price. The development of fuel blending unit based on the micronizer is now the latest development of this kind of equipment.

As clearly shown in this paper, to reach the “clean ship certificate” status in ships with diesel engines, a combination of a micronizer system and separators are a useful combination. The separators, accompanied by filters, can eliminate the mineral and metallic particles like cat-fines from the heavy fuel oil. The micronizer produces, through the shearing forces on moving surfaces of heavy fuel oil, a reduction of the non-metallic particle size down to approx. 3 µm. The fuel oil, after passing the micronizer and the separator filter system, is now cleaned and well homogenized and can improve the combustion process.

There is evidence, that the use of a micronizer system can reduce the amount of sludge by approx. 80%. This happens through the reduction of the non-mineral and none-metallic particle size in the micronizer and the cleaning in the separator unit. The final amount of sludge can be further treated by a micronizer system, by which a fuel-oil-water mixture will be produced and finally burned in the incinerator, without any use of gasoil for burning sludge.

On board a ship various combinations of micronizers are possible:

- ☑ One micronizer for reducing sludge, one micronizer for combustion improvements and/or a micronizer for fuel-water-emulsion.
- ☑ Other types of micronizer could also be fitted like sludge reduction, waste-oil-recycling or blending unit.

- Up to 85% reduced sludge generation
- Increased fuel utilization
- Reduced spare parts costs on engines, purifiers, filters, pumps, etc.
- Possibility of using cheapest fuel IFO 700+ without loss of performance

BENEFITS

Economic

- Invisible exhaust emission
- Remarkably reduced NOx emission
- No sludge disposal
- Regeneration of disposable oily wastes

BENEFITS

Ecologic

S.I.T systems are approved by class societies ABS & LR and complying with Marpol 73/78, IMO 2000 requirements.

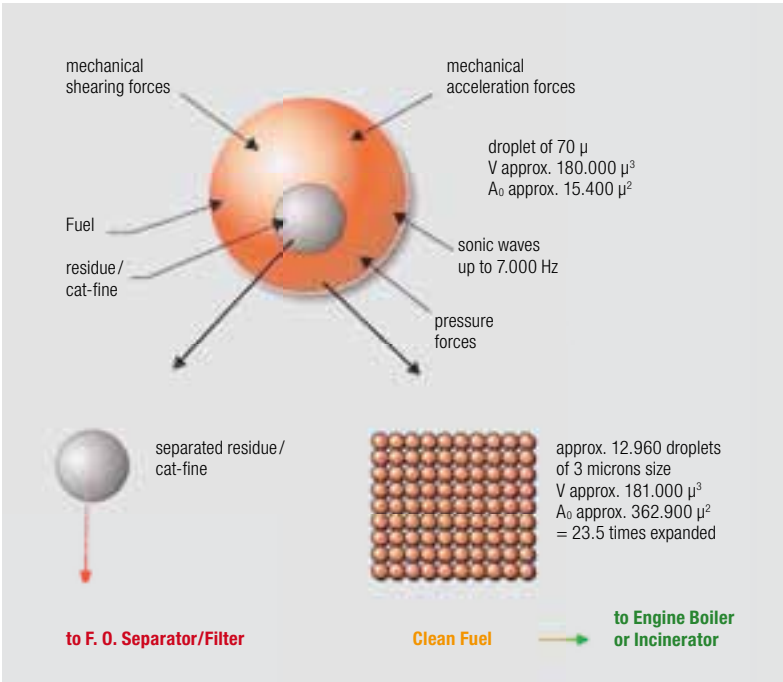
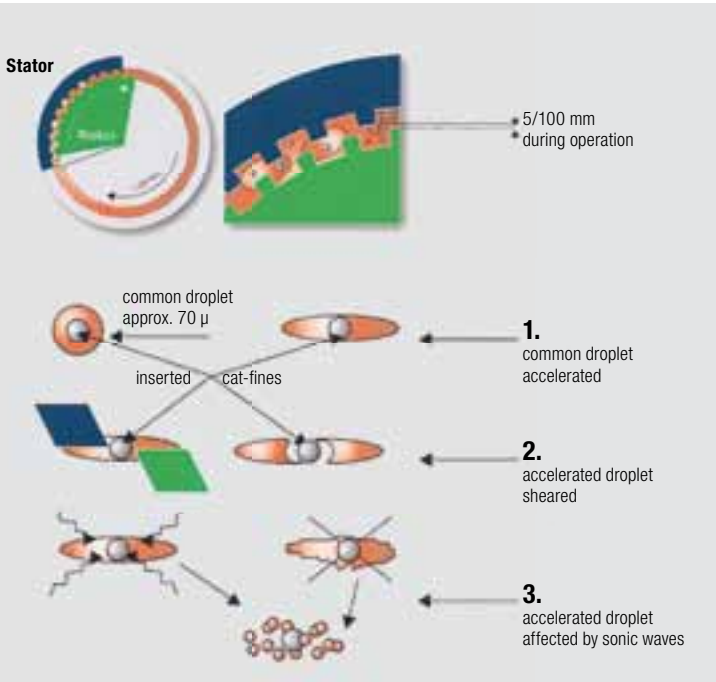


MARPOL

THE CD92™

The tool for improved operation safety of diesel plants.

Physical processing



Function Principle of the CD92

When a common droplet will be accelerated it alters to a stretched droplet. When this accelerated and stretched droplet will be affected by additional shearing forces, it will be divided into numerous smaller droplets. Each fuel particle will be affected this way several times during a CD92™ passage. When this treated droplet will further be affected by sonic frequencies it swings up and will further be divided with each CD92™ passage.

Results:

In general a common droplet of 70 μ has a specific volume of appr. 180.000 μ^3 with a total surface of appr. 15.400 μ^2 . A 3 μ droplet divided has a specific volume of appr. 14 μ^3 with a total surface of 28 μ^2 .

Now the partition of one 70 μ droplet results in appr. 12.960 droplets of 3 μ size.

As found in several independent heavy fuel analyses the structure of common heavy fuels consists of an average droplet-/particle size of abt. 70 μ .

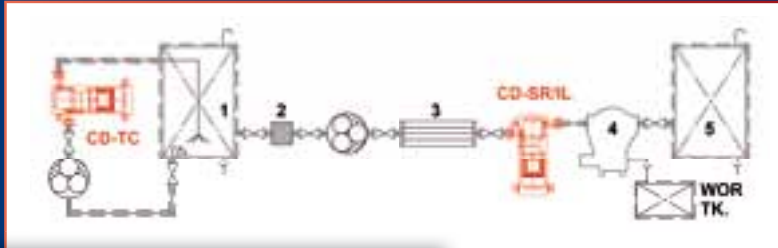
But more than 90% of the fuel are showing droplets/particles larger than 20 μ . The CD92™ conditioning Device affects by its combined working forces the structure to an average droplet-/particle-size of abt. 3 μ to achieve a well-balanced and operative fuel.

All mineral/organic amounts will be divided while hard particles like inserted catalytic fines and similar particles, which may lead to abrasive wear and tear, will stay unaffected. They now can easily be separated from the fuel with purifiers and fine-filters. One common droplet of abt. 70 μ will be divided into more than 12.000 smaller droplets to achieve a 23-fold extended fuel surface.

- Drastically unloaded filters and purifiers
- Less visible exhaust emissions (soot, particles, dust)
- Increased power output of engines and boilers
- Remarkable reduction of abrasive wear and tear on all mechanical parts
- Prolonged stability times on mechanical parts

BENEFITS
Savings

Following see the potential to reduce fuel cost for each system!



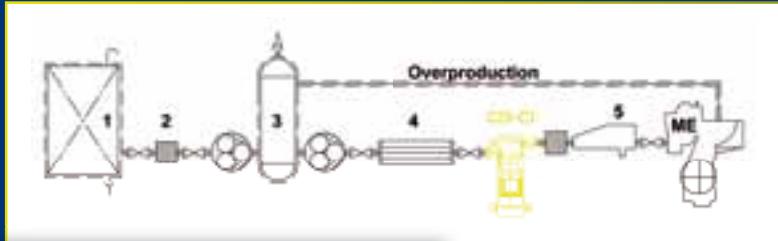
CD-SR

FO-Sludge Reduction

1: F. O. Settling Tank
2: F. O. Filter
3: F. O. Heater
4: Separator
5: Serv. Tank.

- Sludge reduction up to 85%
- Fuel cost reduction
- Avoiding of sedimentation in tanks
- Reduced spare parts demand
- Achievement of compatibility of different fuel specifications
- Cash return within 3-9 month

Example – Cash return:
Assumption 150mt/d; 380 cst = \$ 650
\$ 336.000 POSSIBLE SAVINGS p.a.



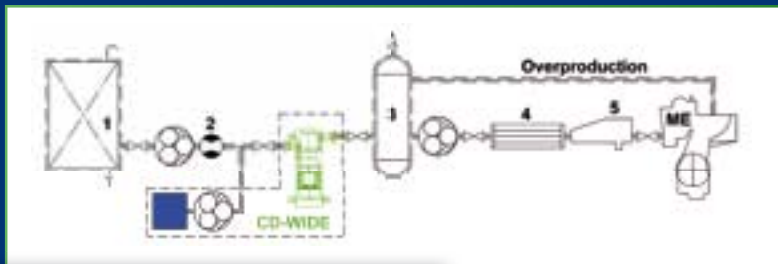
CD-CI

Combustion Improvement

1: F. O. Serv. Tank
2: F. O. Filter
3: Buffer Tank
4: F. O. Heater
5: Viscosimat

- Significant fuel cost reduction
 - By reduction of specific fuel consumption up to 700 cst
 - By consumption of cheaper fuel of higher viscosity
- Up to 50% cost savings for spares and maintenance
- Less soot emissions
- Cash return within 3-9 month

Example – Cash return:
Assumption 150mt/d; 380cst = \$ 650
Price difference IFO 380/500 = \$ 10
\$ 250.000 – \$ 600.000 POSSIBLE SAVINGS p.a.



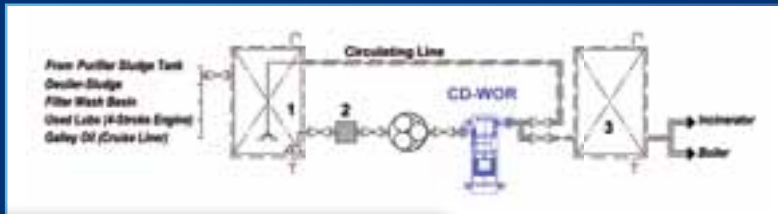
CD-WIDE

NOx-Reduction

1: F. O. Serv. Tank
2: Flowmeter
3: Buffer Tank
4: F. O. Heater
5: Viscosimat

- NOx reduction / invisible smoke
- Significant reduction of fuel consumption
- Eased low load and slow steaming operation
- Less spare and maintenance demand
- Further alternative to shore power supply
- Cash return within 3-9 months

Example – Cash return:
Assumption 150 mt/d; 380cst = \$ 650
Price difference IFO 380/500 = \$ 10
\$ 336.000 POSSIBLE SAVINGS p.a.



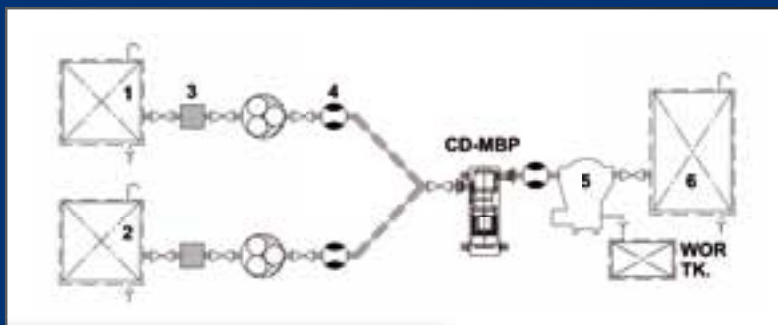
CD-WOR

Waste Oil Regeneration

1: F. O. Settling Tank
2: F. O. Filter
3: F. O. Serv. Tank.

- Convert waste into homogenous and combustible mixture (*Marpol 73/78)
- Remarkable reduction of gas oil demand for incineration
- No further sludge/waste disposal required
- Convert waste oil into boiler fuel
- Cash return within 3-9 month

Example – Cash return:
Assumption MDO consumption for Incineration 200l/day; MDO = \$ 1000/mt
\$ 70.000 POSSIBLE SAVINGS p.a.



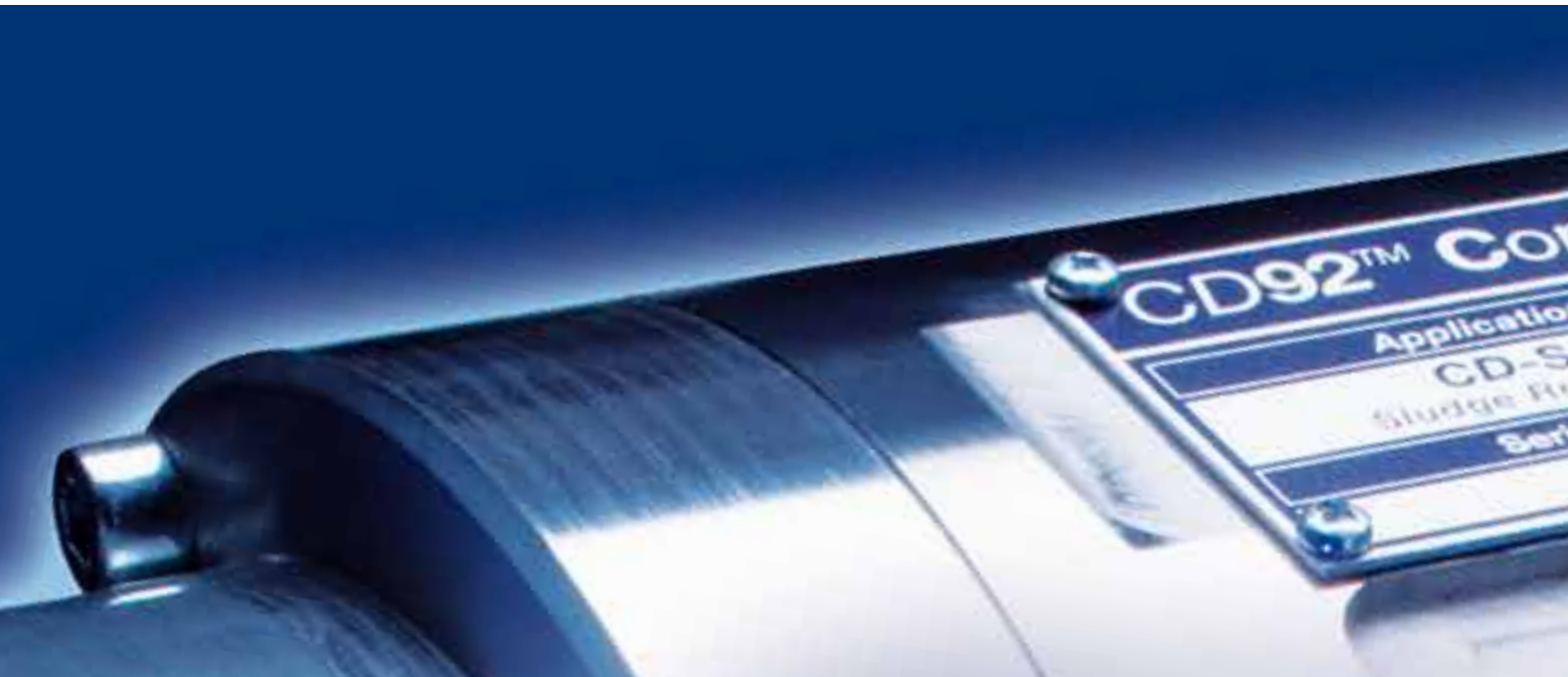
CD-MBP

Mycronising-Blending-Processing

1: HFO-Settling Tank
2: MDO-Serv. Tank
3: F. O. Filter
4: Flowmeter
5: F. O. Separator
6: F. O. Serv. Tank

- Processing stable blends of HFO, MDO, ULS & H₂O
- Processing stable sulfur blend abt. 1% +/-
- Option to blend cheaper fuels
- Cash return within 3-9 month

Example – Cash return:
Assumption 150 mt/d; 380 cst = \$ 650
Price difference IFO 380/500 = \$ 10
\$336.000 POSSIBLE SAVINGS p.a.



**No experiments.
Choose the Original.**

Always when a new product proves to be an efficient and helpful new technology in order to solve specific problems it happens that other similar products appear at the market. Very often the purpose of such products is to get share in a new market in order to create fast profit without any invest of money and time. Since fuel treatment by homogenizing is a complex matter, specific Know-How and experience is needed in order to obtain all possible benefits.

In order to guarantee all the benefits of fuel treatment by using homogenizers without any undesirable side effects it is highly recommended to trust to the experience of more than 40 Years and wide knowledge of S.I.T experts and to the quality of by leading classes type approved CD92 systems. If you don't do experiments but choose the original, your problems caused by using HFO will disappear.



Heino Stache

Original Quality – made in Germany.



SHORE
based



MARINE
based



The Core of each CD92 System: Different application – same CD92-Homogenizer.

Very often customers are asking S.I.T why there are different systems and if the CD92 Homogenizer is included in all S.I.T Fuel treatment systems. When S.I.T founders decided 20 Years ago to concentrate all efforts to produce, promote and further develop the CD92 Homogenizer, the sole application at that time was the CD92-CI in order to improve combustion.

When S.I.T approached the customers in order to introduce the CD92 Homogenizer, very often questions were raised if the Homogenizer can be helpful to solve other problems of using HFO as well. So it happened that caused by the demand of customers S.I.T developed the CD92-SR system in order to reduce the daily generated sludge amount.

After potential to reduce sludge generation up to 85% was proven the S.I.T customers asked if the CD92 can treat the remaining sludge and waste oil as well so that there are no further sludge and waste remaining that must be disposed of. Based on this demand the CD92-WOR system was developed. The idea to create the CD92-WIDE system was born when an engine maker asked S.I.T if the CD92 is able to create a stable fuel-water-emulsion in order to reduce emissions.

Therefore, different systems means different problems by using HFO can be solved, but the core of all solutions is the S.I.T CD92 Homogenizer.

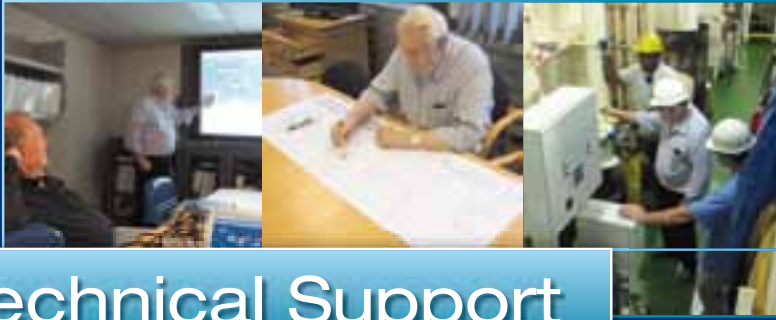
Original Quality – made in Germany.



Egon Stache



Your partner for economical and ecological Fuel treatment!



Technical Presentation
Layout of Systems
Pre-inspection on board

Technical Support



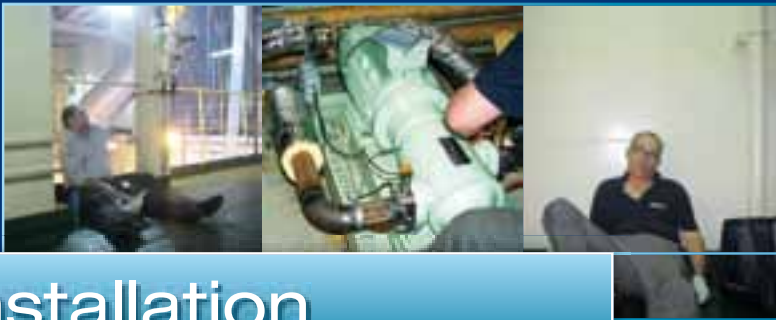
Feedback of operators will be immediately implemented by our in-house designer in order to permanent improve our systems and to remain worlds no. 1 Homogenizer Maker

In-house Design



To deliver the highest possible quality is our prime attribute
Approved by leading classes like i.e. LR / ABS

Production



Our experienced staff guarantees installations of high quality
We don't care about circumstances, for our customers we work to total exhaustion

Installation



Our service includes detailed training of crews and staff before we hand over the systems
World wide after sales service is a matter of course for us

Service



Please contact S.I.T for Independent Analyses, Certificates, LR-Type Approval, Customer Experiences, MARPOL Control Reports, etc. which are available upon request.

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Presented by:

