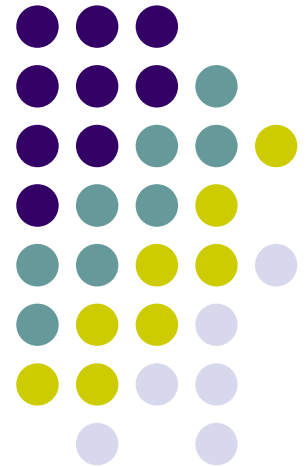

Hellan Strainers Presentation

a better filtration solution

created by

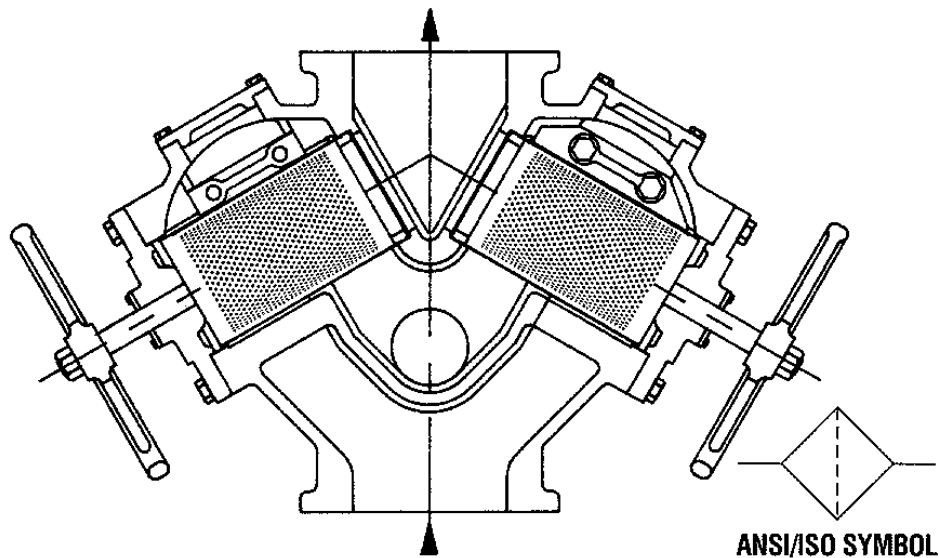
Morris Gallimore



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Hellan Strainers Presentation



The Norwegian inventor Haakon Hellan created a new product in 1942.

The objective was to design a strainer with significantly reduced maintenance and downtime requirements.

The design became known as the Hellan Strainer.



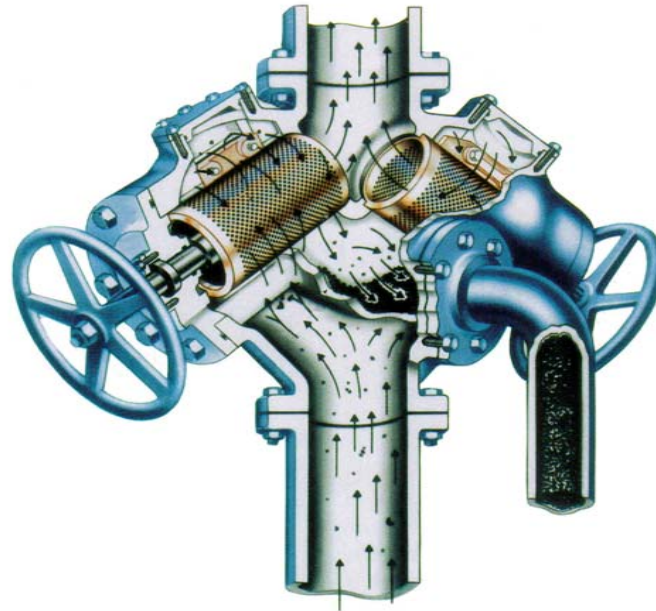
Hellan Strainers Presentation



Haakon Hellan studied the problems with conventional strainer designs:

- 1) Strainers need to be isolated, vented & drained prior to cleaning.
- 2) Strainers have to be opened for cleaning.
- 3) Operators needed to remove and clean each basket manually.
- 4) Strainer cleaning was a tedious time consuming process.
- 5) Many strainer designs were not very robust and required frequent maintenance.

Hellan Strainers Presentation



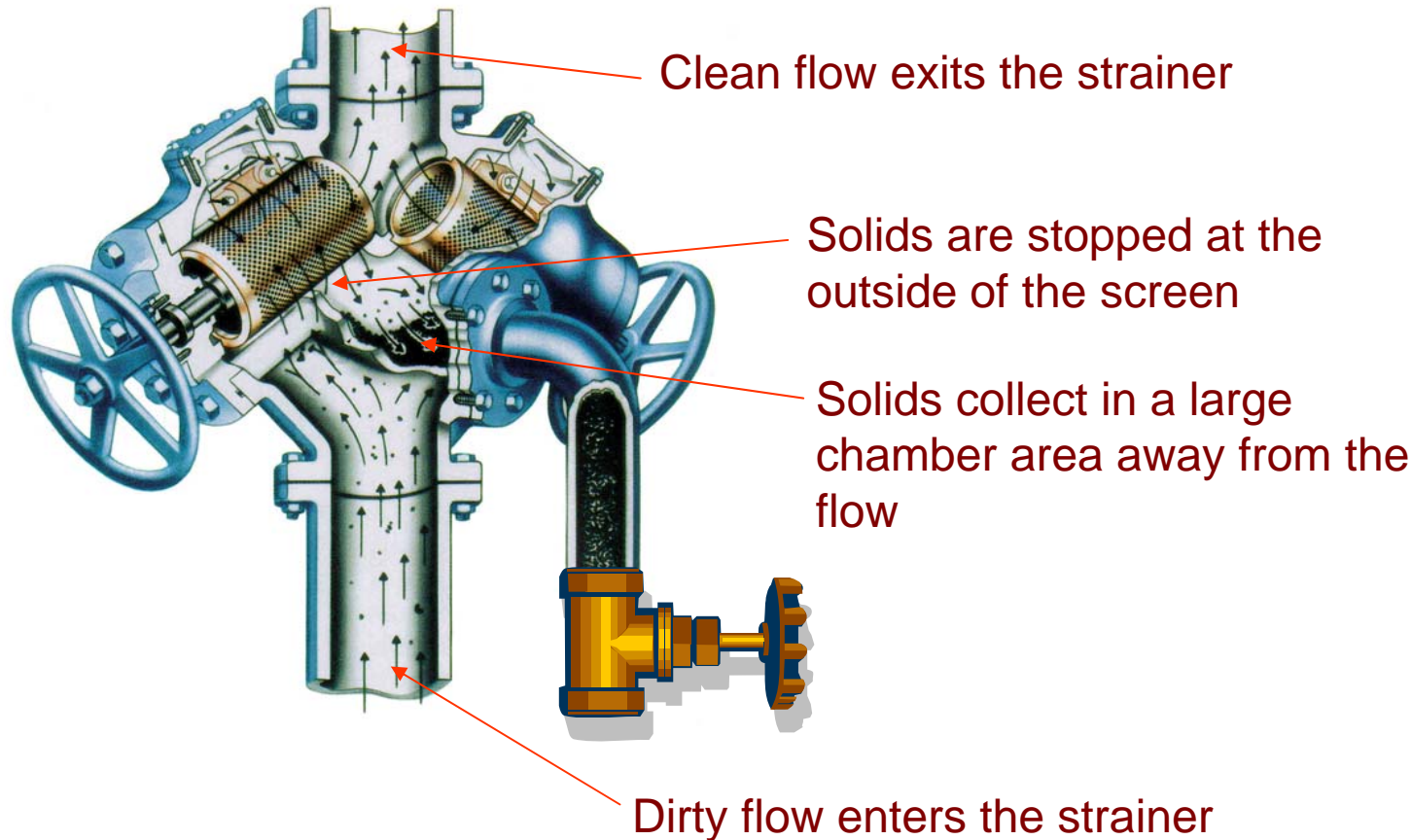
Addressing these problems Haakon Hellan designed a strainer that:

- 1) was constructed to be robust for long maintenance free operation.
- 2) did not require isolation of the strainer for cleaning.
- 3) did not require basket removal for cleaning.
- 4) had a simple and uncomplicated cleaning cycle.
- 5) could be cleaned within less than 1-minute.



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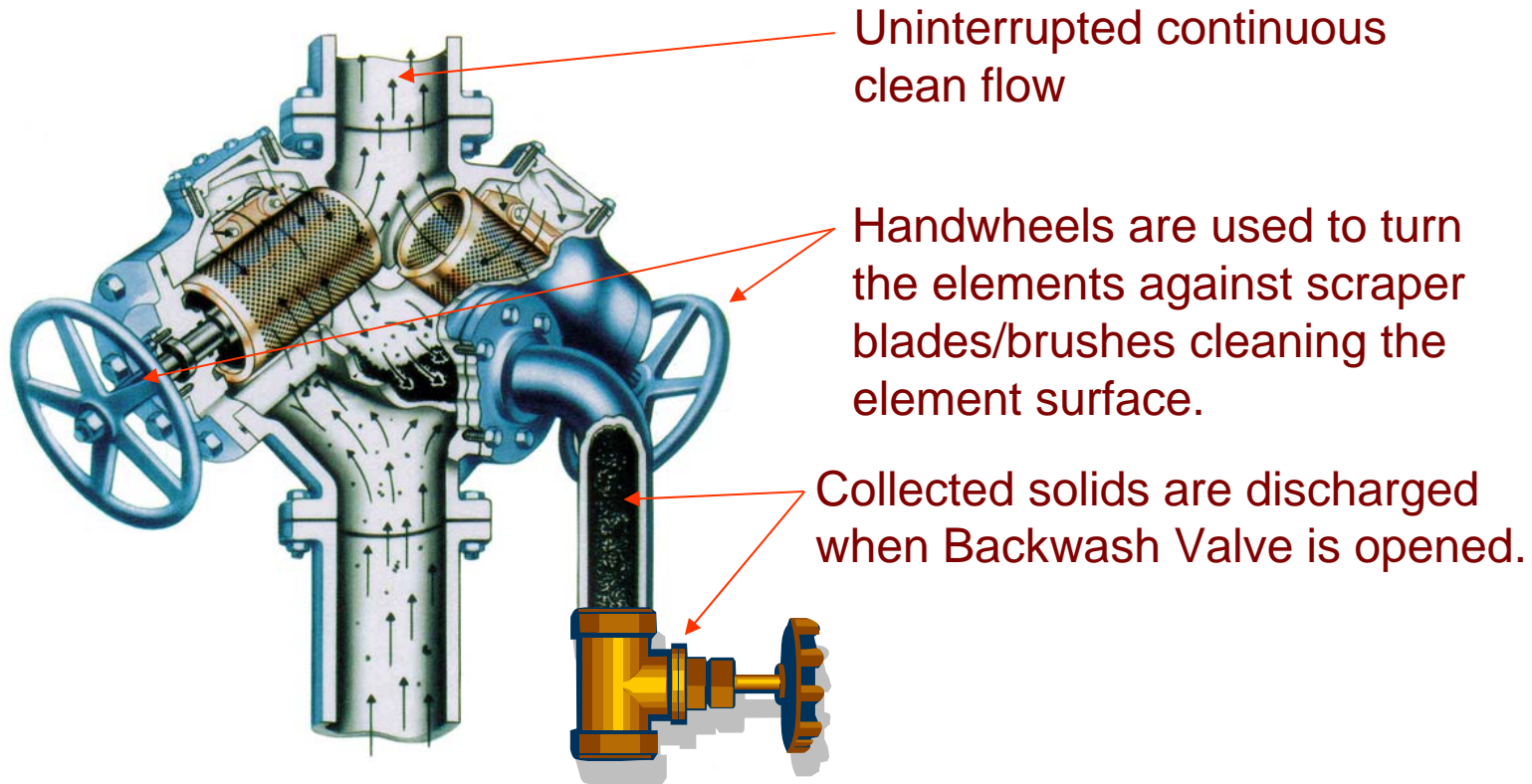
Strainer Operation





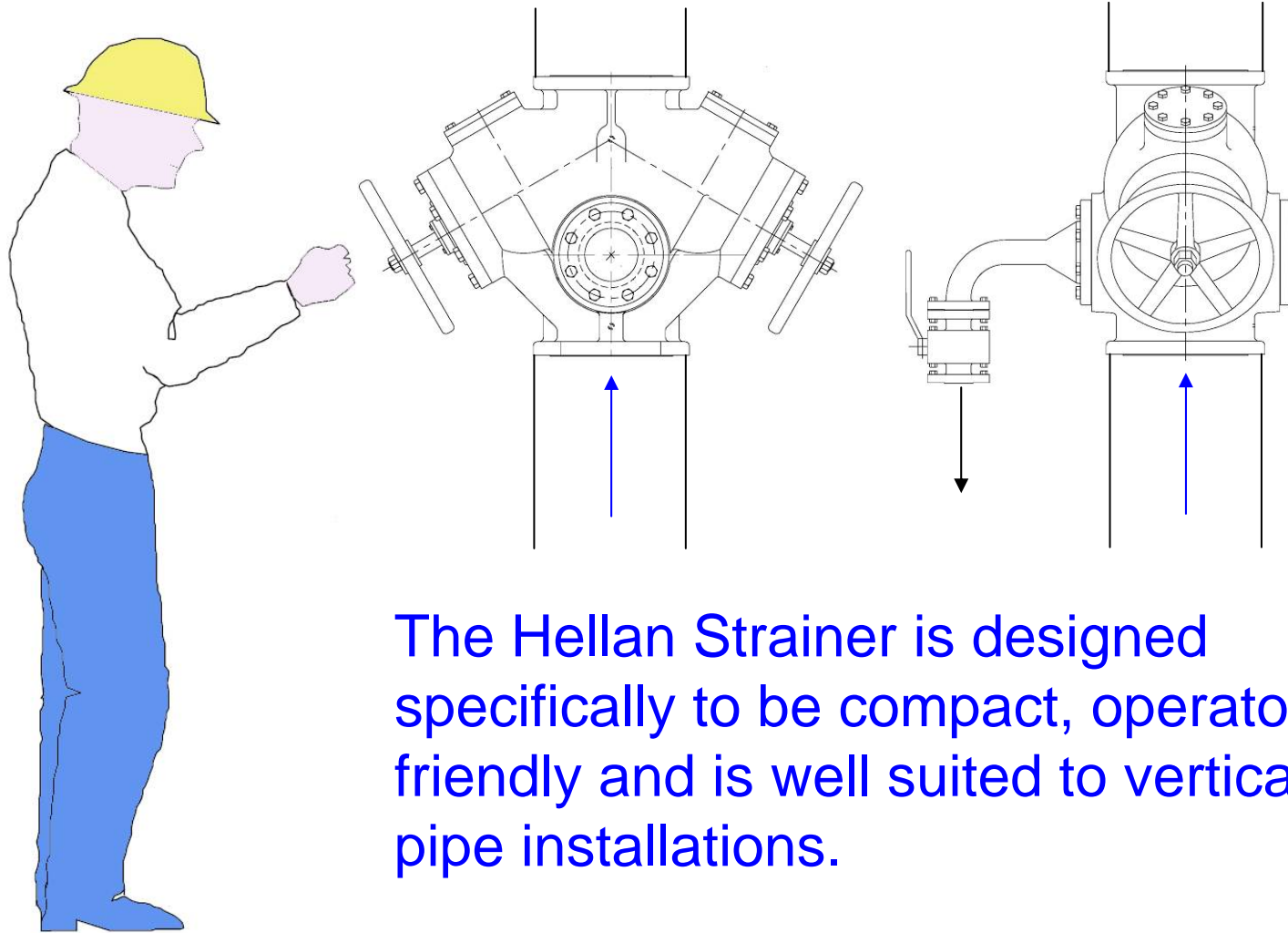
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Strainer Cleaning Cycle





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The Hellan Strainer is designed specifically to be compact, operator friendly and is well suited to vertical pipe installations.



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KEY BENEFITS OF USING HELLAN STRAINERS

HMS friendly

Does not require any entry into the filter for basket removal during cleaning so operators do not come in contact with the process fluid.

Operator friendly

Online cleaning effective in seconds, can be automated with motors.

Space/Weight friendly

Compact and light inline solution either vertical or horizontal.

Cost Friendly

Competitive alternative to dual and backwash strainers.

Maintenance Friendly

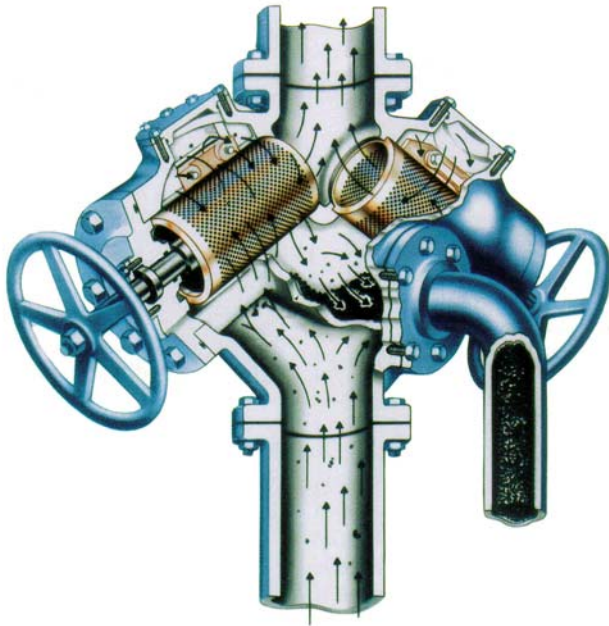
Many strainers operating maintenance free for over 10-years in service.

Proven Solution

Over 30-years on Ekofisk and over 20-years on Valhall with proven performance in the field and minimum maintenance requirements.

Offshore Solution

Available in various standard and exotic hi-alloy materials all in accordance with Offshore and PED requirements.





Hellan Strainers Presentation

Application Examples – Cooling Medium Systems

FPSO, Brazil, 2007

Hellan Strainers were installed to protect high pressure heat exchangers from fouling in a cooling medium (water/glycol) system.

Hellan Strainers were selected because they were compact, easy to operate and were more competitive than a duplex (2x100%) strainer alternative.





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Application Examples – Heating Medium Systems



Statoil Sleipner T Platform

In 2002, a Hellan strainer solved Statoil's problem where they needed a compact strainer to protect plate heat exchangers. It had to be possible to clean the strainer quickly and frequently. HMS concerns also required that operators should avoid contact with the process. They needed a robust reliable design for high temperature service (160 °C).

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Application Examples – Firewater Protection



ConocoPhillips Ekofisk 2/4E Tor Platform



ConocoPhillips Eldfisk 2/7E Platform



BP Norge Valhall Living Quarters

Hellan strainers have been used by operators such as ConocoPhillips and BP Norge for over 20-years to protect their critical service firewater seawater systems. Many of these strainers have been in operation in more than 10-years without any major service requirements.



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Application Examples – Firewater Protection



Hellan Strainer in 25Cr ConocoPhillips Eldfisk 2/7E Platform

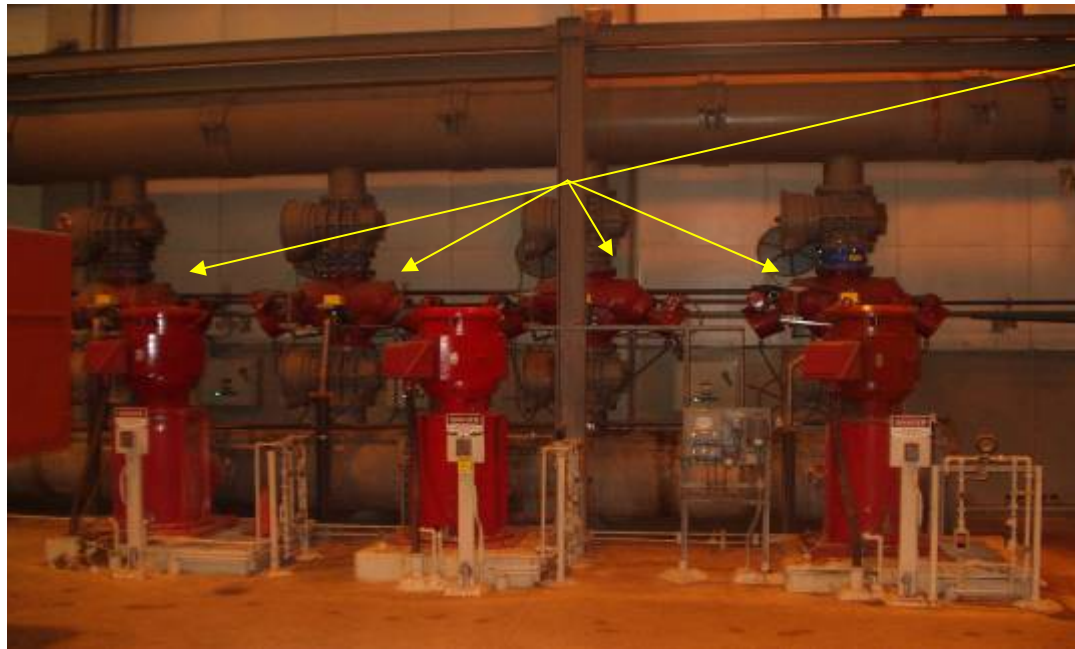
Hellan Strainers in 25Cr (cast quality ASTM A890 UNS J93404) in accordance with Norsok M-630 Rev. 4 MDS requirements using a foundry qualified to Norsok M-650 Rev. 3. Tech-Trade AS have delivered 6", 8", 10" and 12" 25Cr Spher Duplex Hellan Strainers to ConocoPhillips.

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Application Examples – Waste Water Treatment



Hellan Strainers

Hellan strainers installed in 1974 for solids protection in a waste water treatment plant. High solids loading requires strainers that can be cleaned quickly and efficiently.



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Application Examples – Power Generation



Hellan strainers are installed extensively on power generation applications in areas where there is high solids loading. Typical examples are make-up water from rivers, ponds, lakes; suction strainers for boiler feedwater pumps; cooling water system to protect heat exchangers and critical equipment.



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Application Examples – US Navy



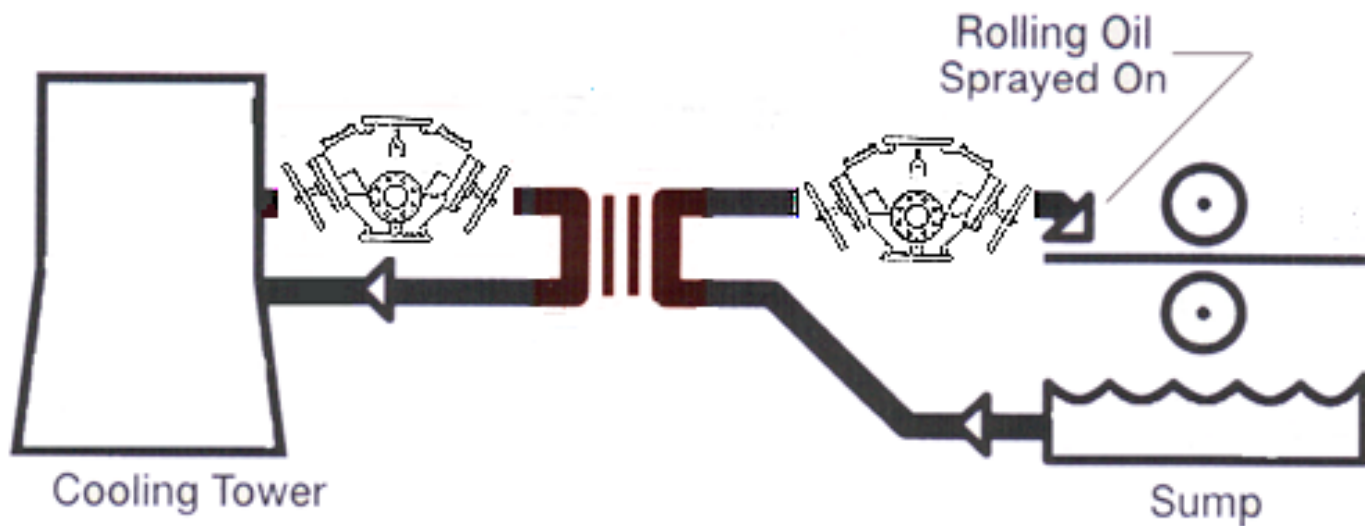
Hellan strainers are selected by the US Navy for protection of their seawater cooling circuits to critical electronic equipment (sonar, radar, close in weapon systems etc.) and lube oil, firemain systems and fuel filtration. Hellan strainers were selected as the most compact and reliable solutions for these purposes.

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Application Examples – Metal Processing



Hellan strainers are used to protect spray nozzles and to remove solids in critical areas of metal processing applications. Hellan strainers were selected as the most cost-effective solution for the operating life of the plant.

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a better filtration solution

End of Presentation

For more information contact:

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