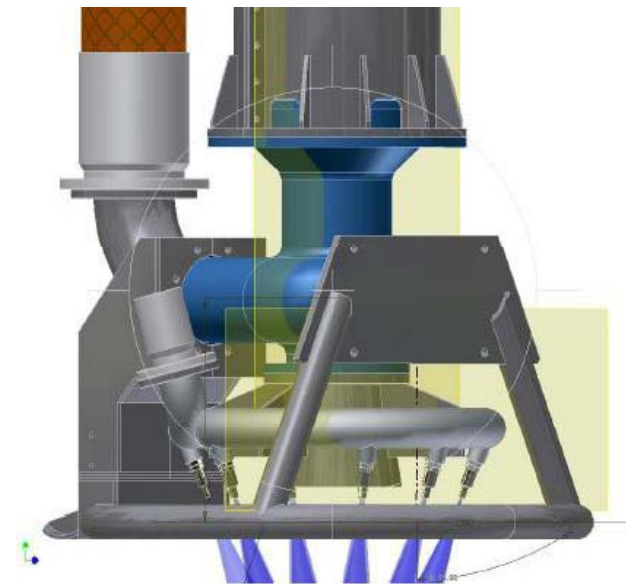
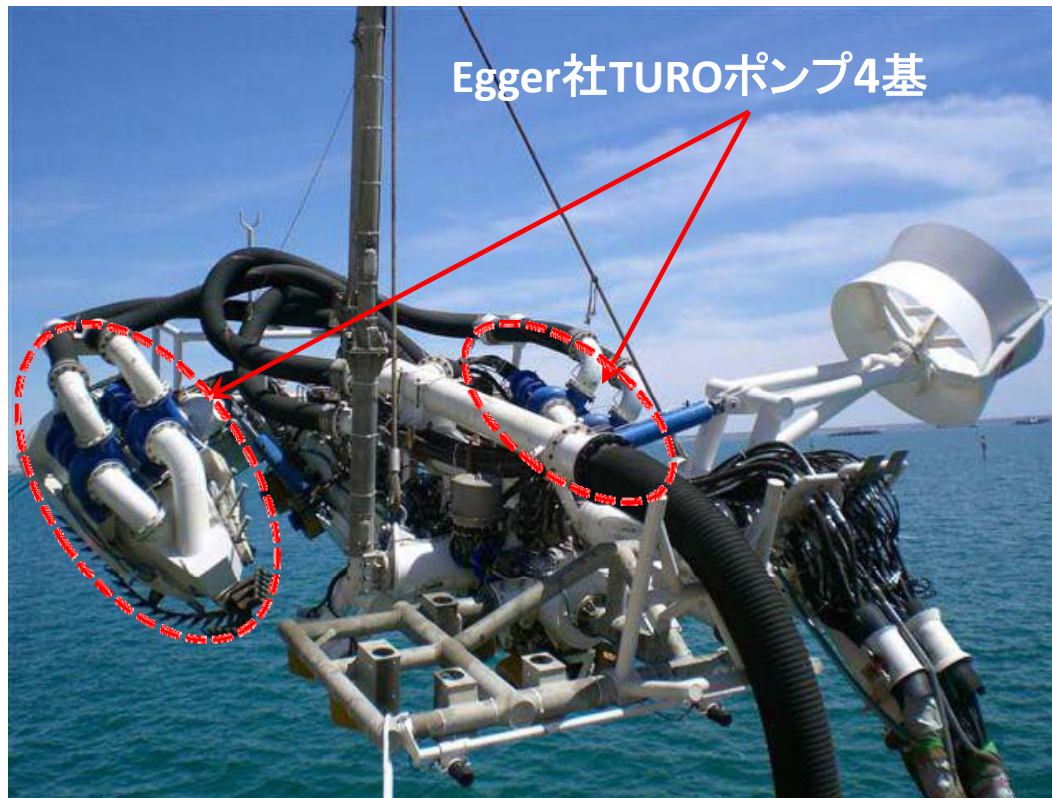


海底掘削、ドレッシング用、水ジェット カスピ海、海底開発プロジェクト

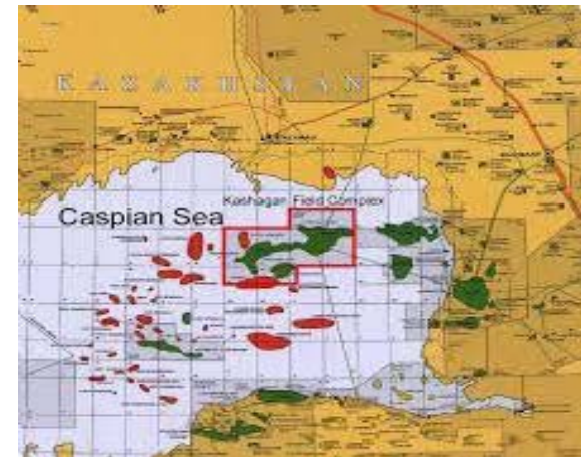


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Kashagan Project



Kashagan Project



Kashagan - Isola Artificiale A in inverno



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Turo Italia SpA: SUBSEA APPLICATION

3

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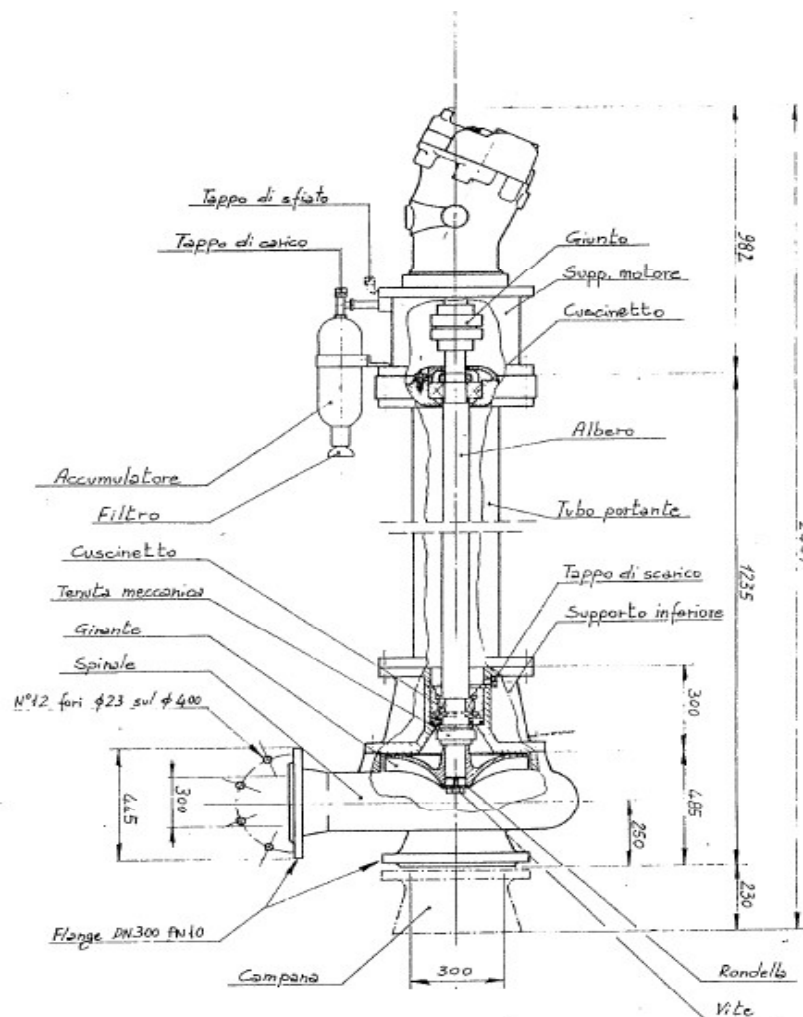
RAGNO DUE PROJECT – 1978 / 1994

The first pump sold to Saipem – Tecnomare Division (development of marine technology) for these application was a T 9-300 SWH in Cast Iron (matr. IT 6505) on May, 25th 1978.

In 1983 a second pump, identical to the first one, followed (matr. IT 11907).

In 1991 T 9-300 SWN in Ni – Resist (matr. IT 19591/2).

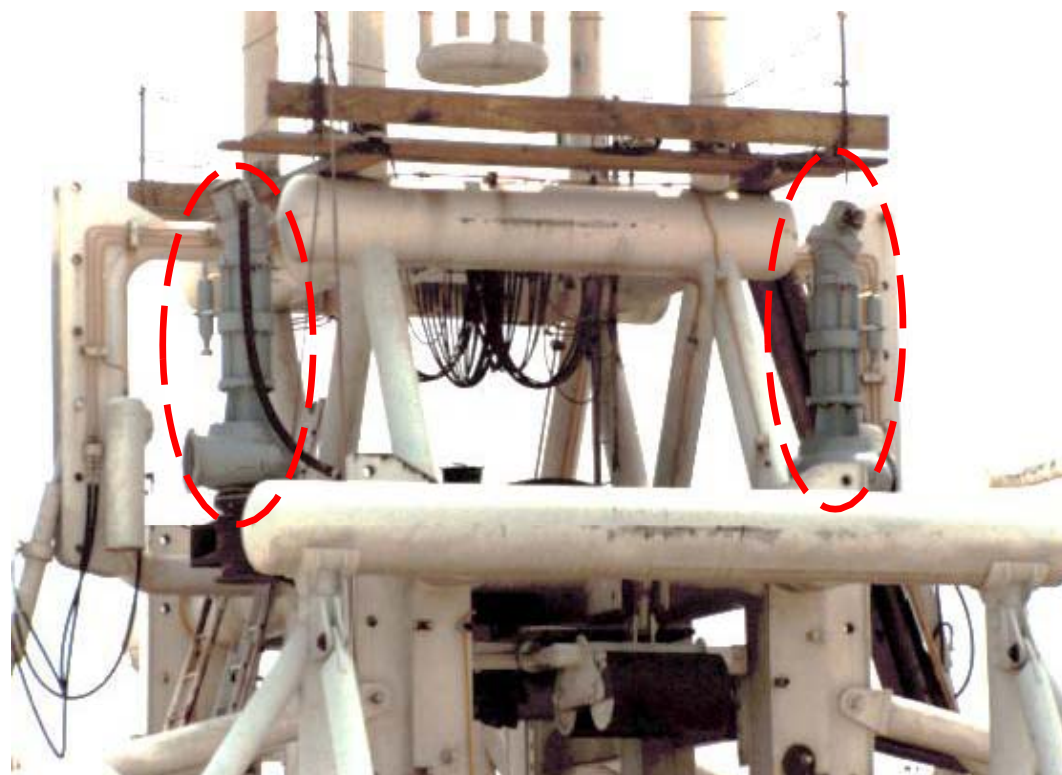
In 1994 a fourth pump, identical to the first two ones, followed (matr. IT 20652).



RAGNO DUE PROJECT – 1978 / 1994



Pumped Liquid : *Seawater with solids*
Casing / Impeller : *Ni – Resist*
Q = 750 mc /h @ H = 5,5 m

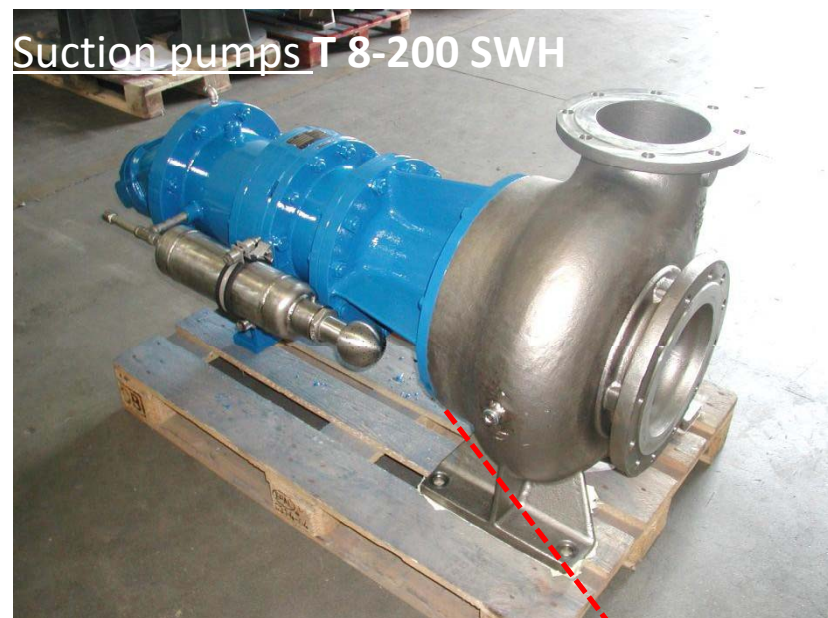


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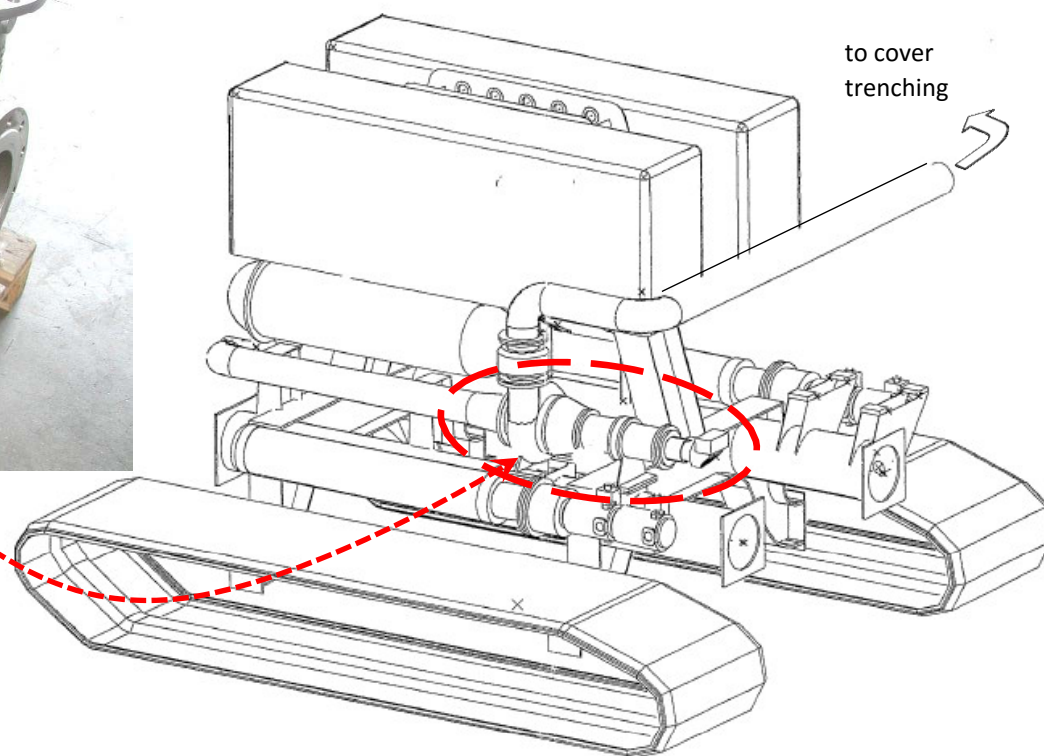
PIOVRA PROJECT – 1996

Suction pumps (matr. IT 34407 - IT 21089) to be installed on submersible trenching vehicle up to 1500 m sea depth.



Suction pumps T 8-200 SWH

Submersible trenching vehicle



Pumped Liquid : *Seawater with solids*

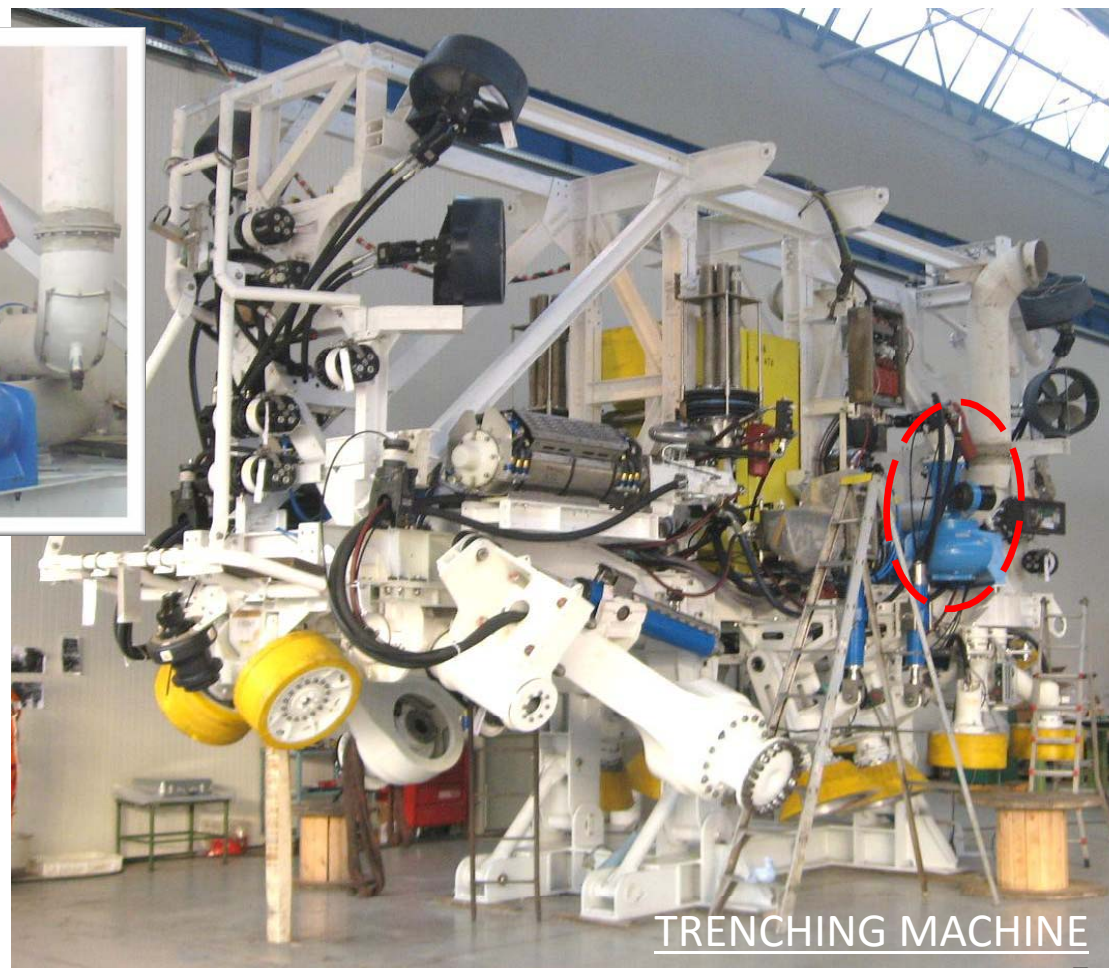
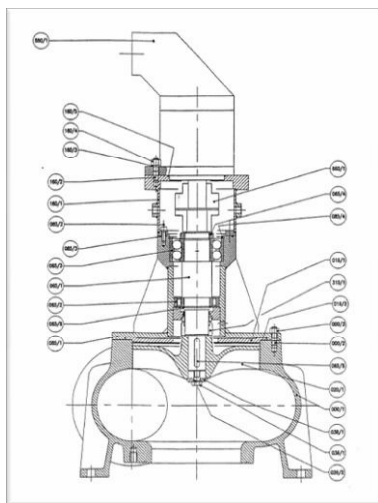
Casing / Impeller : *Inox*

Q = 750 mc /h @ H = 6 m

BLUE STREAM PROJECT – 2000

BELUGA TRENCHING MACHINE

Suction pump T 9-300 VWR



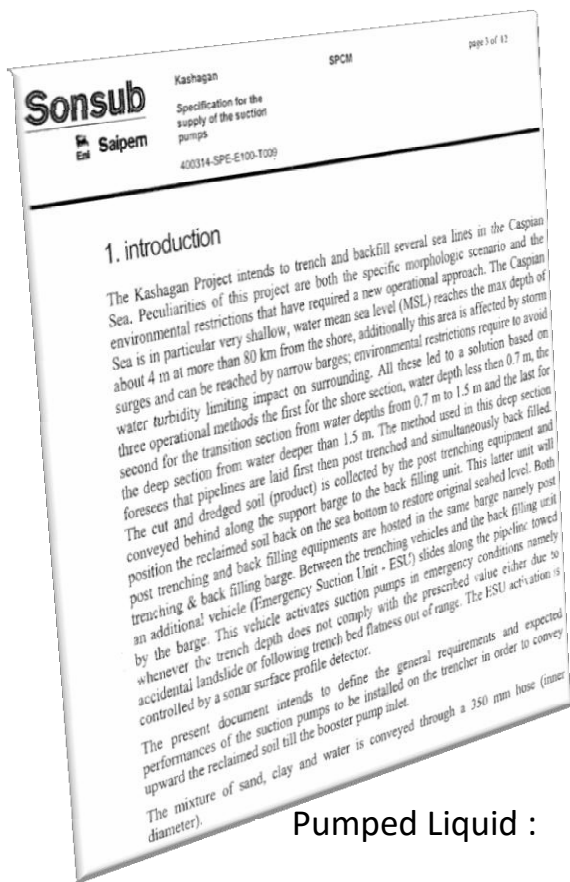
Pumped Liquid : *Seawater with solids*
 Casing / Impeller : *HG 15.3*
 Bearing housing : *Aluminium*
 $Q = 1200 \text{ mc/h}$ @ m
 $H = 5 \text{ m}$

TRENCHING MACHINE

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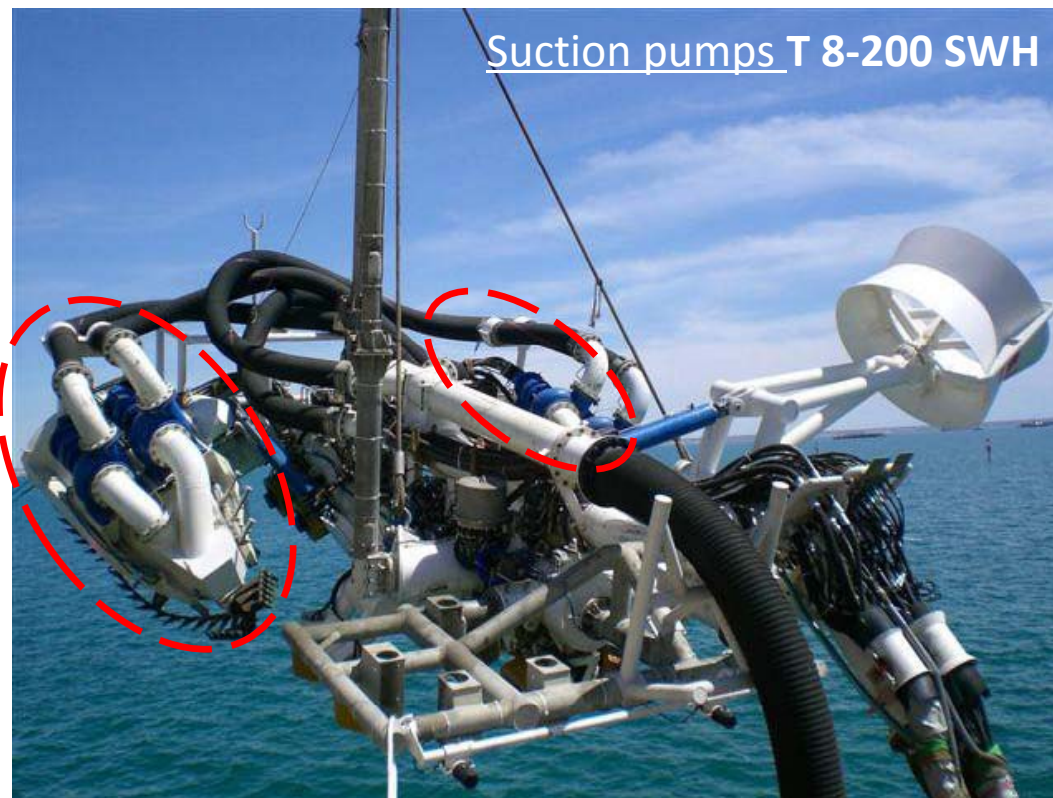
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KASHAGAN PROJECT – 2005



The Kashagan Project intends to trench and backfill several sea lines in the Caspian Sea.

The present document intends to define the general requirements and expected performances of the suction pumps to be installed on the trencher in order to convey upward the reclaimed soil till the booster pump inlet.



Suction pumps T 8-200 SWH

Pumped Liquid : *Seawater with solids*

Casing / Impeller : *Inox*

Q = 680 mc/h H = 16 m

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KASHAGAN PROJECT – 2006



The present document intends to define the general requirements and expected performances of the centrifugal pumps to be installed on TRB for the water jetting system of Underwater Deburial Machine (UDM).



Water jetting pumps TE 9-150 VFPH

Pumped Liquid : *Seawater*
 Casing / Impeller : *Cast Iron / Inox*
 Q = *500 mc/h*
 H = *80 m*

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KASHAGAN PROJECT – 2006

PROJECT UPGRADE:

Duty point and material



Pumped Liquid : *Seawater with solids*

Casing / Impeller : *HG 15.3*

Q = *900 mc/h* @ H = *6 m*



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MONDINE CASPIAN SEA PROJECT –

Suction pumps 4x T 8200 SWH + booster pumps on trencher barge 4x D 10-300 VWH

2007



Suction pumps T 8-200 SWH

Q = 600 mc/h @ H = 10 m

Pumped Liquid : Seawater with solids

Casing / Impeller : Inox



Booster pumps D 10-300 VWH

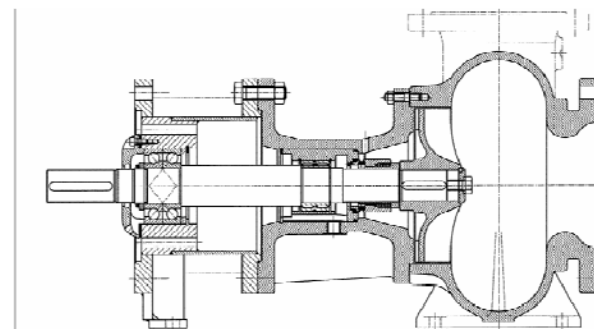
Q = 1200 mc/h @ H = 10 m

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FLEXJET 2 PROJECT – 2007

Sectional drawing of the suction pumps installed on the submersible trenching vehicle.



Suction pumps T 6-150 SWH



Suction pump T 6-150 SWH

Pumped Liquid : *Seawater with solids*

Casing / Impeller : *HG 15.3*

Q = *300 mc/h @ H = 10 m*

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KASHAGAN PROJECT – 2008

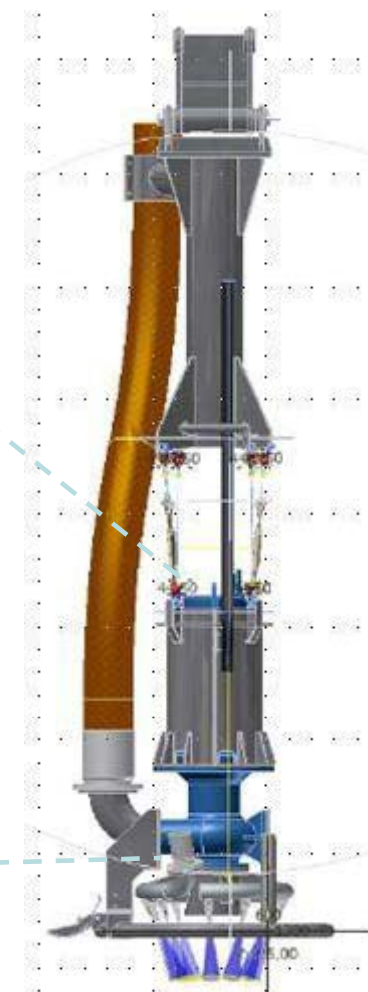
Submersible Pump T 8-200 UM with submersible motor EMOD

Pumped Liquid : *Seawater with solids*

Casing / Impeller : *HG 15.3*

Q = 540 mc/h @ H = 22 m

Submersible pump T 8-200 UM



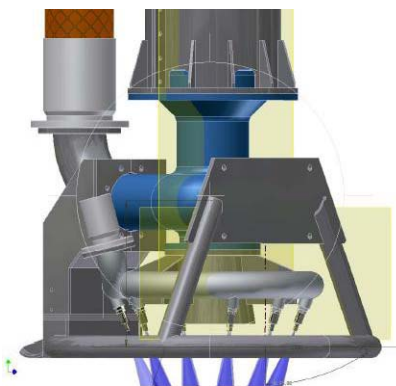
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KASHAGAN PROJECT – 2010

PROJECT UPGRADE:

Suction pump T 9-300 SWH modified for recessed and double vane impeller TZZ.



Pumped Liquid : *Seawater with solids*
 Casing / Impeller : *HG 15.3*
 Bearing housing : *Inox*
 Q = 850 mc/h @ H = 14,5 m



KASHAGAN PROJECT – 2010



Pumped Liquid : *Seawater*
 Casing / Impeller : *Cast Iron /
 Inox*
 Q = 600 mc/h @
 H = 80 m

Pumped Liquid : *Seawater with
 solids*
 Casing / Impeller : *HG 15.3*
Bearing housing : *Aluminium*
 Q = 1200 mc/h @ H = 20 m



ドレッジング・海底開発に朗報 低剪断力ポンプの威力！

ご静聴有難う御座いました。

The **SUBSEA APPLICATION** since 1978

by Turo Italia S.p.a.

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