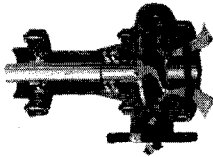


Flow Analysis of Non-Clog Centrifugal Pumps

2004 December



오종식 (MEEREX 대표)
 양태열 (금정공업㈜ 대표)

JongSik Oh
 ceo@meerex.com

MEEREX

Mobile : 011-409-6528

Shrouded Centrifugal Impeller

- Two-vaned
- One-vaned



	Good	No Good
Two-vaned	<ul style="list-style-type: none"> • Higher pump efficiency 	<ul style="list-style-type: none"> • Smaller throatlet size
One-vaned	<ul style="list-style-type: none"> • Larger throatlet size (Around 3 inch) 	<ul style="list-style-type: none"> • Out of balance • Cannot be trimmed • Steep head curves

Mixed-flow Impeller

- More than 4 inch, and with higher efficiency

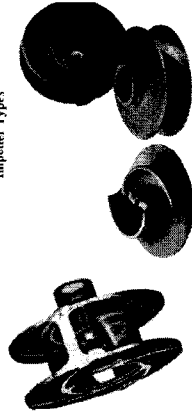
JongSik Oh
 ceo@meerex.com

MEEREX

Mobile : 011-409-6528

Non-Clog Pump

Impeller Types



- Sewage
- Wastewater
- Effluent
- Sludges

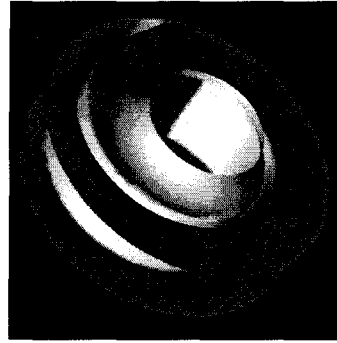
- Ability to pass solid material that would normally clog the impeller
- Violate many of standard design rules
- Throatlet Size = Open internal passage through the impeller
 - Number of impeller blades
 - Leading-edge thickness
- About 80% of Cut-water Diameter

JongSik Oh
 ceo@meerex.com

MEEREX

Mobile : 011-409-6528

TWO PUMPS FOR STUDY



Impeller (A)

JongSik Oh
 ceo@meerex.com

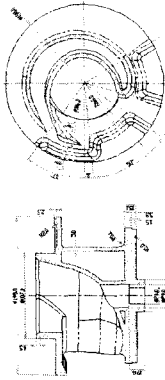
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Impeller (B)

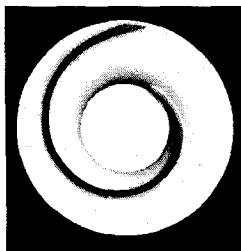
IMPELLER (B)

- Unique Two-vaned Type
- 3 inch Throughlet
- Volute Pump
- Higher Efficiency



IMPELLER (A)

- Conventional One-vaned Type
- 3 inch Throughlet
- Volute Pump
- Lower Efficiency



JongSik Oh
ceo@meerex.com

MEEREX

Mobile : 011-409-6528

CFD - Impeller (B)



JongSik Oh
ceo@meerex.com

MEEREX

Mobile : 011-409-6528

CFD - Impeller (B)

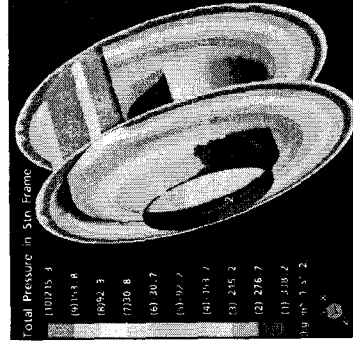


JongSik Oh
ceo@meerex.com

MEEREX

Mobile : 011-409-6528

CFD - Impeller (A)



JongSik Oh
ceo@meerex.com

MEEREX

Mobile : 011-409-6528

