Leading edge technology

Innovative solutions for Offshore Gas compression

May 2017

Rick Covey
Torbjörn Andersson
Alfa Laval leading the way

“... size matters, and failure is not an option...”

- TK20BW – Higher pressure for semi-welded
- DuroShell – Solving reliability issues of plate & shell exhangers
Tough offshore industry expectations

- Thermal performance
- Reliability
- Compactness
- Serviceability
Expanded performance envelope

- TK20BWFX - High pressure semi-welded exchanger

ASME code design pressure

- [psi]
  - 0
  - 225
  - 450
  - 675
  - 900

- [bar]
  - 0
  - 31
  - 62

Conv. SWPHE

TK20BWFX
Alternative technology
- TK20BWFX - comparison to S&T gas compressor cooler

- Footprint saving (75% reduction)
- Weight saving (80% reduction)
- Minimal service area required
Unique features and benefits
- TK20BWFX - patented innovations that makes the difference

Alfa Laval RefTight™  Alfa Laval CurveFlow™  Alfa Laval ClipGrip™
Meeting the industry expectations
- TK20BW - innovation and simplicity combined into a unique offering

- Expanded operation envelope
- Maximized energy efficiency
- Compactness
- Reliable performance
- Flexibility for production increases
- Easy access & global service support

Thermal performance  Reliability  Compactness  Serviceability
Unprecedented robustness
- DuroShell – a plate-and-shell made tougher

The patented DuroShell design provides a new level of robustness compared to conventional plate-and-shell technology:

- **2 times** thermal fatigue resistance
- **5 times** pressure fatigue resistance
Unique plate design

- Multi-pass configuration and plate pack support
Unique plate design gives robustness
- Alfa Laval DuroShell vs conventional plate-and-shell

Conventional Plate & Shell Heat Exchanger
- Uneven radial expansion gives stress concentrations
- No plate pack support
- Peak stresses leads to poor fatigue resistance

DuroShell Heat Exchanger
- Even radial expansion results in no peak stress areas
- Plate pack reinforced by distribution tube
- No weak spots leads to good fatigue resistance
Unique plate design gives distribution
- Alfa Laval DuroShell vs conventional plate-and-shell

Conventional Plate & Shell Heat Exchanger
✦ Low flow zones - poor heat transfer and fouling
✦ Shell side can by-pass - poor heat transfer

DuroShell
✦ Distribution tube provide even flow distribution - good heat transfer
✦ Large plate opening on shell side gives even flow distribution - good heat transfer
Alfa Laval DuroShell
- Plate-and-shell made tougher

- Robustness due to fully welded design and unique plate design
- High resistance to thermal and mechanical fatigue
- Superior thermal performance
- Compact solution
- Global service

Thermal performance  Reliability  Compactness  Serviceability
Thank you