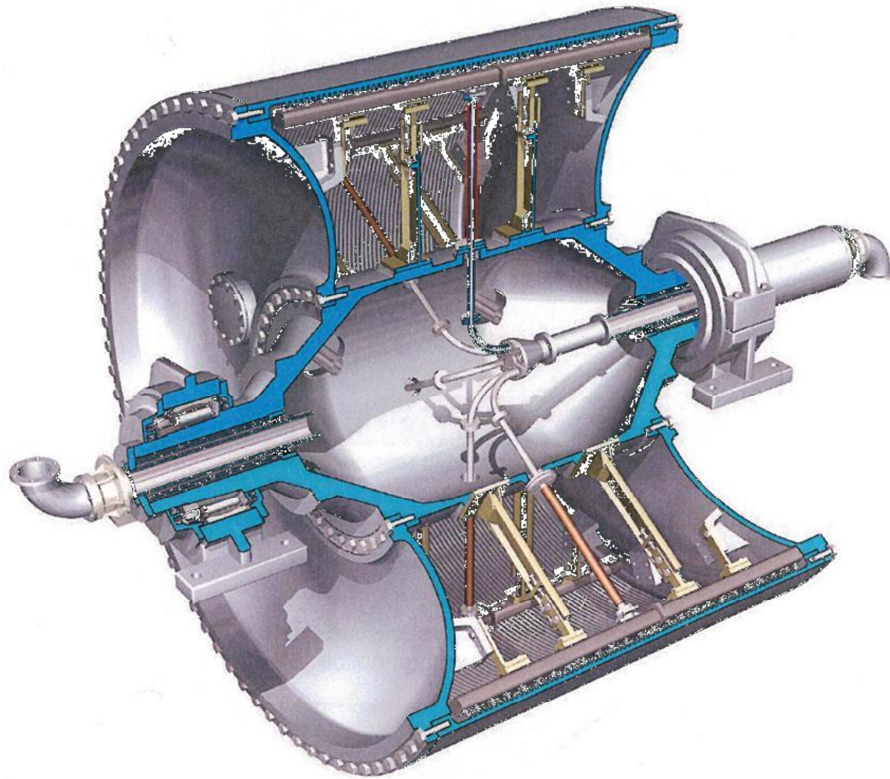


# Basic information

## YANKEE DRYER Service



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1. Required documents
2. Specifications
3. Various testing options
4. Preparatory works to be done prior service
5. Travel and service conditions
6. Confined space YANKEE DRYER safety regulations

## 0. Unsorted Comments

### PWT is an inspection service company

basically inspections are to carry out. No assembly works  
respective no maintenance could be done

### Waiting time

to avoid waiting times, it is recommended to establish the  
testability and the terms of safety prior arriving PWT

### Cleanliness

Prior the tests, the Yankee has to be cleaned according to the  
specified standards.

**The preliminary steps must be performed by the customer**

### The result

at the end of the inspection is an objective report. In special  
cases there could be a recommendation. The result of the In-  
spection document the condition of the Yankee at the time of  
inspection. There is no warranty of future events.

## 1. Required documents prior the inspection

based on these documents the quotation can provided

- drawing
- contact person (incl. mobil number)
- contact address
- required agenda
- purchase order
  
- confirmation of cleaned yankee
- confirmation of testable conditions

## 2. Specifications

For certain procedures the associated specifications are basis to perform the test. Generally all performed tests according to the “YANKEE DRYER SAFETY COMMITTEE”

MT Test	DIN EN 1369 (2013.01)
UT Test	DIN EN 12680-3
Dimensions	ISO 2768 DIN ISO 1101
Laser measurements	
Hardness	DIN EN ISO 6506
Microstructure	DIN EN ISO 945
Material	ASME

### 3. Various testing options

The following tables are intended as a guide. It should be shown the various testing options by PWT.

- Table 1                    dimensional tests
- Table 2                    none destructive tests
- Table 3                    visual tests
- Table 4                    material tests

	<b>Dimension</b>	<b>Dimension</b>	<b>Location</b>	<b>Expected time</b> [hour]
<input type="checkbox"/>	<b>Umfang</b>	<b>Pi-Tape</b>	<b>outside</b>	<b>1</b>
<input type="checkbox"/>	<b>Innendurchmesser m. Laser</b>	<b>Wall thickness - Laser</b>	<b>inside</b>	<b>1</b>
<input type="checkbox"/>	<b>Rundlauf 11 Kreise</b>	<b>Runout / LTIR 11 circles</b>	<b>outside</b>	<b>2</b>
<input type="checkbox"/>	<b>Formmessung kalt</b>	<b>Bombierung / LWC cold</b>	<b>outside</b>	<b>2</b>
<input type="checkbox"/>	<b>Deckelsitz</b>	<b>SpigotFit</b>	<b>inside</b>	<b>2</b>
<input type="checkbox"/>	<b>Deckelneigung</b>	<b>HeadTilt</b>	<b>outside</b>	<b>2</b>
<input type="checkbox"/>	<b>Spaltmass Siphon</b>	<b>Soda straws clearance</b>	<b>inside</b>	<b>2</b>
<input type="checkbox"/>				

**Table 1**

	ZFP	NDT	location	expected time [hour]
<input type="checkbox"/>	UT Schrauben – Mantel	UT bolts head – shell	outside	1,5 / side
<input type="checkbox"/>	UT Schrauben – Hohlwelle	UT bolts head-hollowshaft	outside	1,5 / side
<input type="checkbox"/>	MT Deckel – Mantel Übergänge	MT head – shell transitions	outside	2,5 / side
<input type="checkbox"/>	MT – Deckel – Hohlwelle Übergänge	MT head – hollowshaft transitions	outside	2,5 / side
<input type="checkbox"/>	MT Mantel – Oberfläche Außendurchmesser	MT shell – surface outer diameter	outside	5
<input type="checkbox"/>	MT Mannloch	MT 2 manholes	outside	0,5 / side

**Table 2**

	Visuell	Visual	location	expected time [hour]
<input type="checkbox"/>	Schrauben visuell außen	bolts visual	outside	1
<input type="checkbox"/>	Schrauben visuell innen	bolts visual	inside	1
<input type="checkbox"/>	Innenoberfläche	inside surface	inside	1
<input type="checkbox"/>	Störleisten / Störclips	spoiler bars / spoiler clips	inside	1
<input type="checkbox"/>	Schraubensicherungen	fasteners condensate system	inside	1
<input type="checkbox"/>	Allgemeine VT	fasteners steam system	inside	1

**Table 3**

	Werkstoffprüfung	material tests	location	expected time [hour]
<input type="checkbox"/>	Härteprüfung am Mantel	hardness test at shell	outside	0,5 per line
<input type="checkbox"/>	mobile Gefügeuntersuchung	microstructure	outside	1,5 per line

**Table 4**

## 4. Preparatory works to be done prior service

Inspection to perform	Preparatory works to be done by customer	Preparatory works to be done by PWT
Head Tilt	space between the head to shell bolts FS and BS to be tested: every tenth bolt, starting between bolt # 10 and #11, 20 and 21 and so on (see also fi.1)	calibrate device at zero position
Visual outside	all visually inspected areas, shell-cover transition on both sides of the entire circumference (see also fi.2)	
Visual inside	acc. Safety regulations internal inspection, Lighting max 24V, no condensate allowed	
Spigot Fit	acc. Safety regulations internal inspection  no condensate allowed	
Run out	cleaning of the shell with the blade (scraper) (see also fi.3)	abrasive paper
MT of the transitions – hollow shaft – head +radius and cover – shell +radius	clean up the surfaces have 50 microns color layer and free of dust and grease (see also fi.4)	
MT of the shell	the shell clean with the blades (scraper), the shell should be free of oil (see also fi.5)	
UT Bolts outside	clean up the fronts of the bolts have 50 microns color layer and free of dust and grease (see also fi.6)	



**Fig.1:** cleaned area prior Head Tilt



**Fig. 2:** suitable surface of transition head to shell



**Fig. 3:** bare surface (no lint and lo dust) of the shell for Run Out



**Fig. 4:** bolt heads are properly cleaned for UT





**Fig. 5:** clean areas for MT



**Fig. 6:** no testable surface for MT (there is oil on it)

## 5. Travel and service conditions

	<b>Anreise</b>	<b>Arrival</b>	<b>Costs [€]</b>
<input type="checkbox"/>	Flughafentransfer	transfer to airport	0,58
<input type="checkbox"/>	Economy Flug bis 5h Flugzeit	Eco flight, up to 5h flight	costs per real effort
<input type="checkbox"/>	Business Flug ab 5h Flugzeit	Business flight, longer than 5h flight	costs per real effort
<input type="checkbox"/>	Mietwagen vor Ort	rental car on site	costs per real effort
<input type="checkbox"/>	Reisezeit 0 – 6h	travel time 0 – 6h	½ daily rate
<input type="checkbox"/>	Reisezeit 0-12h	travel time 6 – 12h	1 daily rate
<input type="checkbox"/>	Reisezeit länger als 12h	travel time longer than 12h	1 daily rate + hourly rate
<input type="checkbox"/>	Übernachtung zu ortsüblichen Preisen	accommodation at local rates	costs per real effort

	<b>Rückreise</b>	<b>Departure</b>	<b>Costs [€]</b>
<input type="checkbox"/>	Flughafentransfer	transfer to airport	0,58
<input type="checkbox"/>	Economy Flug bis 5h Flugzeit	Eco flight, up to 5h flight	costs per real effort
<input type="checkbox"/>	Business Flug ab 5h Flugzeit	Business flight, longer than 5h flight	costs per real effort
<input type="checkbox"/>	Reisezeit 0 – 6h	travel time 0 – 6h	½ daily rate
<input type="checkbox"/>	Reisezeit 0-12h	travel time 6 – 12h	1 daily rate
<input type="checkbox"/>	Reisezeit länger als 12h	travel time longer than 12h	1 daily rate + hourly rate

	<b>Prüfung</b>	<b>Yankee service</b>	<b>Costs [€]</b>
<input type="checkbox"/>	Prüfung 0 – 6h	Yankee service 0 – 6h	½ daily rate
<input type="checkbox"/>	Prüfung 6 – 12h	Yankee service 6 – 12h	1 daily rate
<input type="checkbox"/>	Prüfung > 12h	Yankee service > 12h	1 daily rate + hourly rate

	<b>sonstige Aufwendungen</b>	<b>Other expenses</b>	<b>Costs [€]</b>
<input type="checkbox"/>	Bericht	report	½ daily rate
<input type="checkbox"/>	Reisevorbereitung Zoll / Carnet, sep. Transportkosten, Länderspezifische Dokumente (A1, Gesundheitszertifikat, )	prior travel work custom/carnet, transport costs, documents regarding country specific recommendations (A1, Health certificate, )	costs per real effort
<input type="checkbox"/>	Reisenachbereitung	travel up work	costs per real effort

## 6. confined space Yankee dryer safety regulations

### English

a) **leak of oxygen**

**inadequate ventilation, unrecognizable air source**  
ensure that limits are observed by measuring instrument  
provide adequate ventilation

b) **increased temperature**

**less cooling down max. temp onto the hollow shaft < 40°C**  
observed temperature by measuring instrument

c) **rotation of Yankee**

**the Yankee can rotate**  
disconnect the Yankee from power supply – during service key at PWT  
secure Yankee to rotate mechanically - during service key at PWT  
disconnect the steam system - during service key at PWT  
warning signs

d) **electrical power inside - for portable equipment**

**lamp, UV lamp, MT joke, Laser tracker,**  
isolation transformer outside  
residual current circuit breakers >30mA (FI)  
connect only 1 electrical consumer

e) **difficult access**

**Access possible via manhole**  
familiar German-speaking security person direct outside of the manhole  
safety stretcher be available  
manhole has to be accessible, if necessary to install - 6Uhr Position,  
if necessary install framework

f) **Protection**

**according to inside installed condensate system high hazard potential**  
always wear protective equipment PSE

- g)** Mechanical Processing as grinding and drilling  
**Holes for wall thickness determination (UT)**  
PWT Personal is allowed to perform little grinding with sandpaper  
grinding with hand tools to do by customer sided staff  
Holes for the Wall thickness determination to do by customer sided staff
- h)** Lack of lighting  
**inside the Yankee it is very dark despite open manhole.**  
2 independent LED light necessary  
use of personally headlamp
- i)** HSE Book of PWT  
**Disagreement regarding the safety regulations**  
HSE Book of PWT is basis for own staff and customer for security.

## Deutsch

- Sauerstoffmangel  
**mangelhafte Belüftung, nicht erkennbare Luftquelle**  
sicherstellen, dass Grenzwerte eingehalten werden – Messgerät  
für ausreichend Belüftung sorgen
- erhöhte Temperaturen (Kreislauf)  
**Zylinder zu wenig abgekühlt. (Temperatur auf der Hohlwelle < 40°C)**  
Temperatur überwachen – Messgerät
- bauliche Einrichtung (drehen des Zylinders)  
**Zylinder kann sich drehen**  
Zylinder vom Stromnetz trennen und verriegeln – Schloss bei PWT  
Zylinder mechanisch gegen verdrehen sichern – Schloss bei PWT  
Warnschilder anbringen  
Sicherheit gegen Dampfeintritt gewährleisten – Schloss bei PWT

elektrischer Strom – ortsveränderliche Betriebsmittel

Bohrmaschine, UV Leuchte, Handmagnet, Stablampe, Tracker

Trenntrafo außerhalb

Fehlerstromschalter >30mA (FI)

nur jeweils 1 Verbraucher anschließen

**j)** erschwerter Zugang

Zugang ist nur über Mannloch möglich

vertraute deutsch sprechende Sicherungsperson außen am Mannloch

Rettungstrage muss verfügbar sein

Mannloch muss unten zugänglich sein - 6Uhr Position, falls notwendig Gerüst anbringen

**k)** Körperschutz

Durch eingebautes Siphon- und Kondensat System hohes Gefährdungspotential

PSA Schutzausrüstung immer tragen

**l)** mech. Bearbeitung z.B. schleifen/bohren

Bohrungen für die Wanddickenbestimmung (UT)

Schleifen ohne Maschine durch PWT Personal

Bohrung für UT Wanddickenmessung durch PWT Personal

Schleifen. bzw. arbeiten mit Handwerkzeug durch Kundenseitiges Personal

**m)** mangelhafte Beleuchtung

Zylinder ist innen trotz geöffnetem Mannloch sehr dunkel

2 unabhängige Beleuchtungen (Akku LED)

Stirnlampe am Mann

**n)** HSE Buch der PWT

HSE Buch der PWT ist Grundlage für die Sicherheit