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# “Joules”

– Nachhaltigkeit mit Alfa Laval

## ALFA LAVAL GRUPPE



>17.000

MITARBEITER  
WELTWEIT

UMSATZ 2019

4,4 Mrd.€

- Kunden in über 100 Ländern
- Mehr als 100 Servicezentren
- 39 Produktionsstätten

## ALFA LAVAL MID EUROPE

>250

MITARBEITER IN  
DEUTSCHLAND,  
ÖSTERREICH UND  
DER SCHWEIZ



DIVISIONEN

Energy  
Food & Water  
Marine  
Service

- Individuelle, lokale Ansprechpartner
- Alles aus einer Hand
- Umfassendes Partner-Netzwerk

# Agenda



- Hintergrund für Initiative
- “Joules”-Einführung
- Programmeinsicht Bsp. Pumpen
- Weitere Möglichkeiten
- Fragen & Antworten



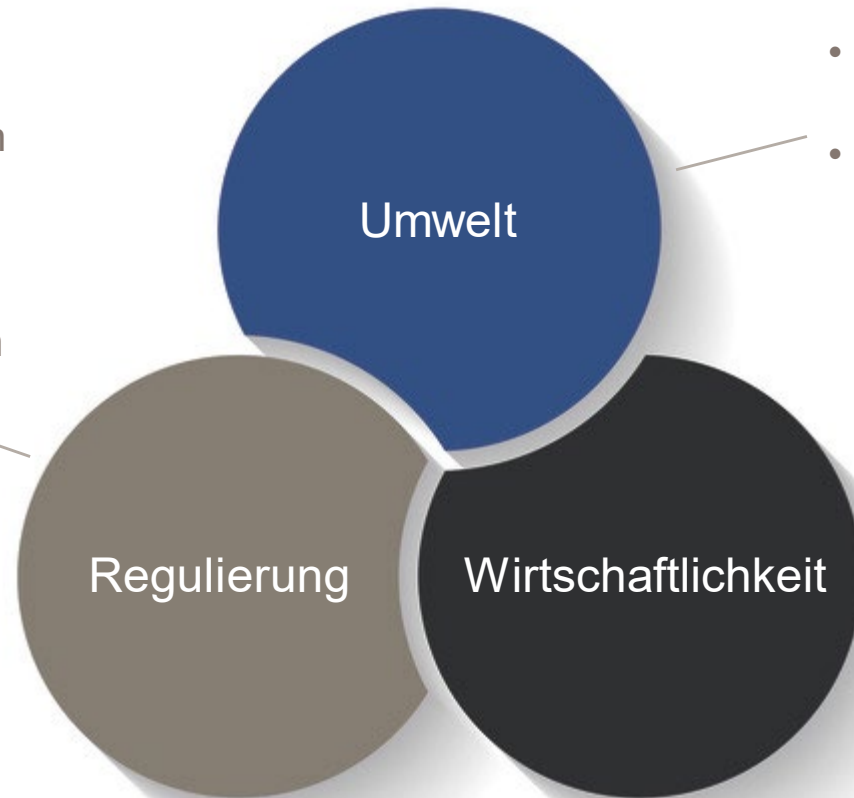
# Was ist nachhaltige Optimierung?

– Sustainability



Bei der nachhaltigen Optimierung geht es darum, Wege zu finden, um Ihre Prozesse effizienter und umweltfreundlicher zu gestalten.

Reduzierung der Emissionen und Verbesserung der Ressourceneffizienz, um lokale, nationale oder internationale Anforderungen und Ziele zu erfüllen



- Reduzieren Sie Ihren Verbrauch von natürlichen Ressourcen und Ihre CO<sub>2</sub>-Emission
- Reduzieren Sie die Auswirkungen Ihres Unternehmens auf den Planeten.

Verbessern Sie Ihre Prozesseffizienz und senken Sie Ihre Betriebskosten, um niedrigere Gesamtbetriebskosten für Ihre Geräte zu erzielen.

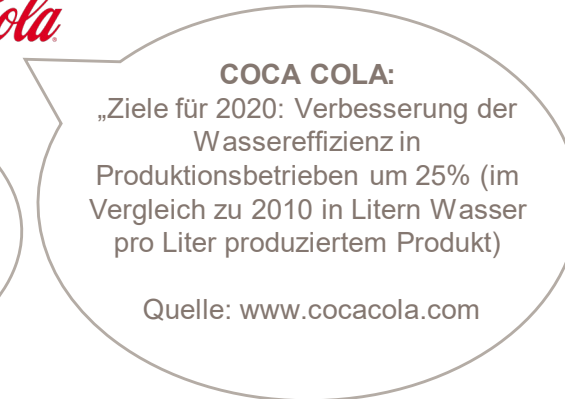
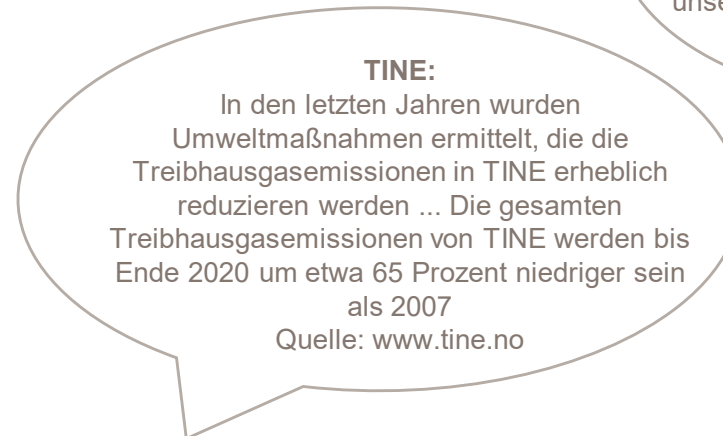
Schützen Sie die Umwelt und unterstützen Sie Ihr Unternehmen.

# Verpflichtungen der Endkunden gegenüber Nachhaltigkeit

– Ziele für die Zukunft



- 80 % von Endkunden haben Klimaziele gesetzt
- 60 % haben Wassersparziele gesetzt



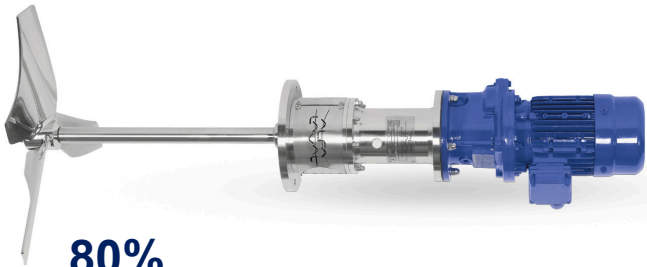


# Wie Alfa Laval die Nachhaltigkeit verbessert

– 4 Bereiche der Nachhaltigkeitsoptimierung



Durch nachhaltige Optimierung können unsere Kunden ihren Energie- und Wasserverbrauch erheblich senken und Abfall minimieren. Hier sind einige Beispiele aus der Praxis für die Verbesserungen, die wir erzielt haben.



**80%**

## Energy reduction

Durch den Ersatz herkömmlicher Rührwerke durch Alfa Laval ALS Rührwerk mit speziell entwickeltem Laufrad.

Fall: Große Molkerei in Deutschland

**30%**

## water reduction

Verwendung von Alfa Laval TJ20G-Drehstrahlköpfen zur regelmäßigen Reinigung vor Ort.

Fall: Brauerei in Großbritannien



**30%**

## energy reduction

Durch Ersetzen der vorhandenen Pumpe durch

eine Alfa Laval LKH Prime Pump.

Fall: Große Molkerei in Großbritannien

**70%**

## water reduction

Bei optimiertem Sitzlift des Alfa Laval Unique Mixproof Ventils.

Fall: Großer Molkereistandort in Großbritannien

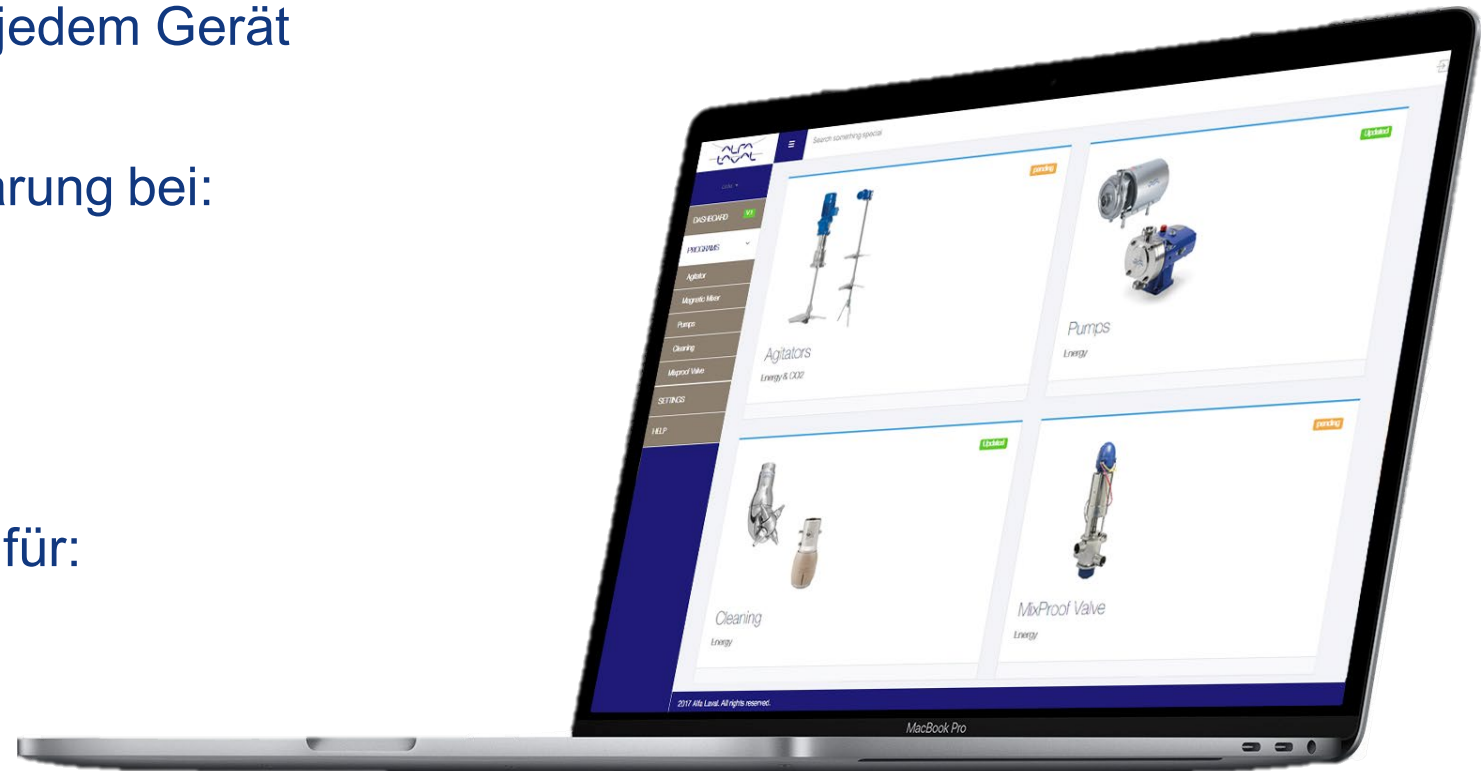


# “Joules”

– Das Werkzeug für Nachhaltigkeit



- Web App – Zugriff von jedem Gerät
- Überprüfung für Einsparung bei:
  - Elektrizität
  - Wasser
  - Reinigungsmedium
- Validiert Einsparungen für:
  - Pumpen
  - Rührwerke
  - Mixproof Ventile
  - Tankreinigung



- Verkäufer
  - vorab eingegebene Daten/Szenarien → Schaffen von Bewusstsein/Interesse
- Techniker
  - Vergleich von Geräten:
    - Alfa Laval vs. Alfa Laval
    - Alfa Laval vs. Marktbegleiter
    - Alfa Laval vs vorhandene – möglicherweise ist ein Geräteaudit erforderlich





# Sustainability trifft auf Energiemanagement

- Unterstützung in der Zielerreichung

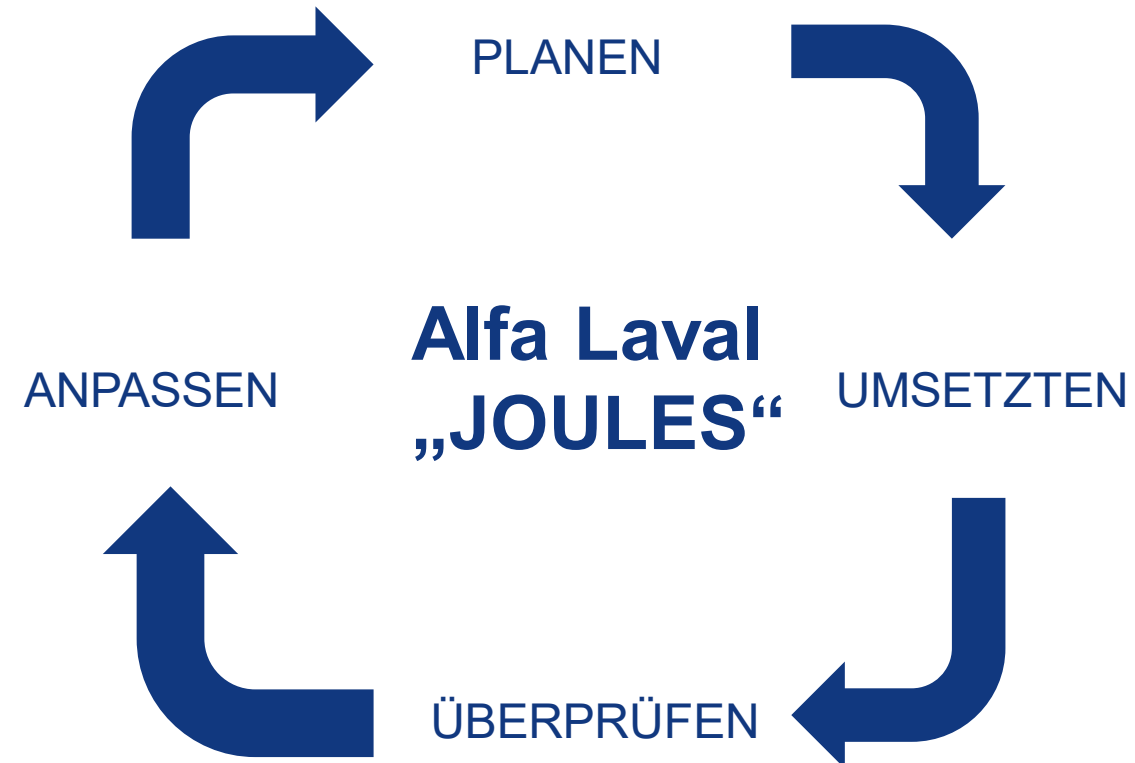


„Energiemanagement ist vorausschauend und systematische Koordinierung der Beschaffung, Umwandlung, Verteilung und Nutzung von Energie innerhalb eines Unternehmens.

Ziel ist die kontinuierliche Reduzierung der Energieverbrauch und damit verbunden Energiekosten.“

## ISO 50001

Wie bei anderen ISO-Managementsystemstandards ist eine Zertifizierung nach ISO 50001 möglich, aber nicht obligatorisch. Einige Organisationen beschließen, den Standard nur für die Vorteile zu implementieren, die er bietet. Andere beschließen, sich zertifizieren zu lassen, um externen Parteien zu zeigen, dass sie ein Energiemanagementsystem implementiert haben. ISO führt keine Zertifizierung durch.



# “Joules”

– Zugang über Partner-Portal

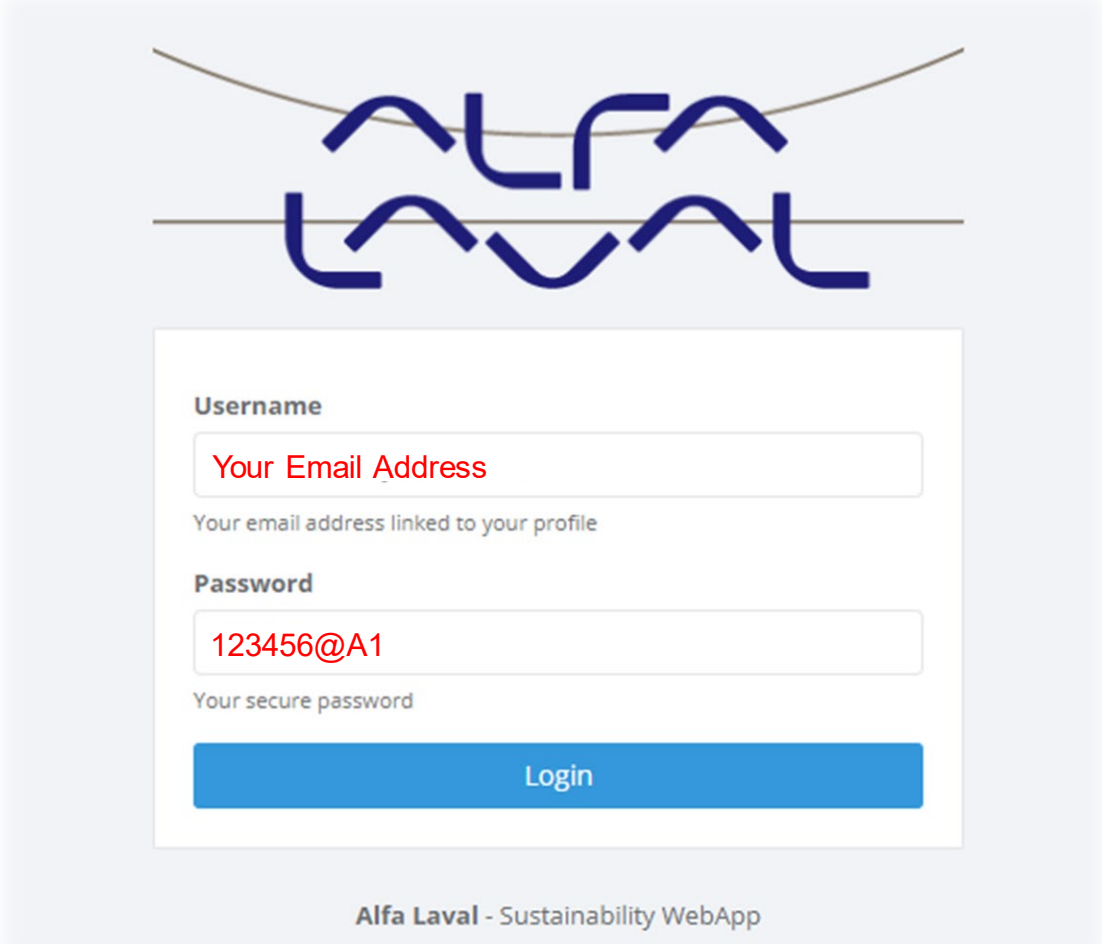


## Nutzung

- Channel Partner / Ingenieurbüros
- Distributor

## Zugang

- personifizierter Zugang über eMail-AD
- PartnerPortal
  - Hygienic Equipment extranet
  - Tools
  - Calculation Tools
  - “Joules”



The image shows a login interface for the Alfa Laval Sustainability WebApp. At the top, the Alfa Laval logo is displayed. Below it, there are two input fields: 'Username' and 'Password'. The 'Username' field contains the text 'Your Email Address' in red. Below this field, a small text label reads 'Your email address linked to your profile'. The 'Password' field contains the text '123456@A1' in red. Below this field, a small text label reads 'Your secure password'. At the bottom of the form is a blue 'Login' button. Below the login form, the text 'Alfa Laval - Sustainability WebApp' is displayed.

# “Joules”

– Direkter Zugang



## Direkter Zugang (ohne Blockaden)

<https://joules.alfalaval.com>

personalisierter  
Zugang  
über eMail-AD



Username

Your Email Address

Your email address linked to your profile

Password

123456@A1

Your secure password

Login

Alfa Laval - Sustainability WebApp

# Einstieg in Joules mit seinen Möglichkeiten

– Welchen Bereich willst du bearbeiten?



Welcome Joachim Schick - Last login: 2020-03-01 08:46:47

Updated



Pumps

Energy & CO<sub>2</sub>

Updated



MixProof Valve

CIP Media

Updated



Agitators

Energy & CO<sub>2</sub>

Updated

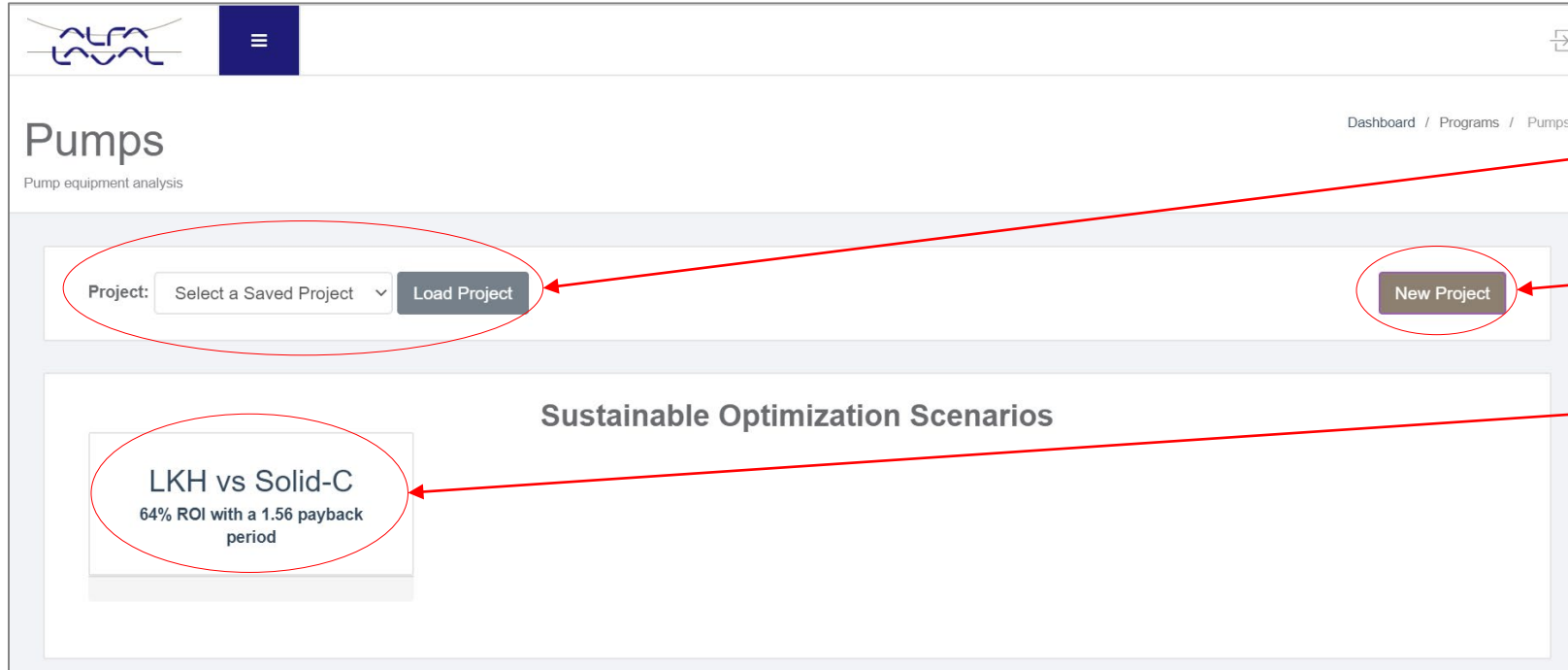


Cleaning

Water & CIP

# “Joules”

– Szenario oder neues Projekt



➤ Zugriff auf gespeichertes Projekt

➤ Erstellen eines neuen Projektes

➤ Einsicht in AL-Beispiel

# Eingaben für das Projekt

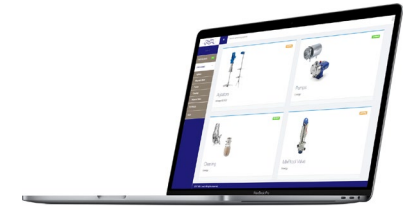
– aktuelle Projektparameter



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Data

Equipment Profiles

Analysis Wizard

Analysis Output

Output Charts

Project name

Compare

Item name

Compare Solid C V LKH

Flow Rate [m<sup>3</sup>/hr]

35

Operating hours per day [hrs/day]

15,000

Operating hours per year

4500

Country

Germany



Electrical energy cost

0,0836



CO<sub>2</sub> per kWh

0,5452

Tag reference

Tag reference

Head [m]

40

Operating days per year [days/yr]

300

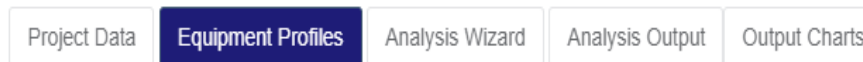
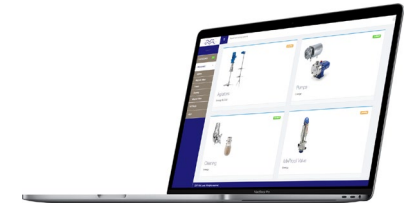
Lifetime [years]

10



# Geräteeingabe

– Vergleichspotential oder Möglichkeiten



## Equipment Profile Error

No Equipment Profiles have been located for this project.

Create New Equipment Profile

Previous

Next

# Geräteeingabe

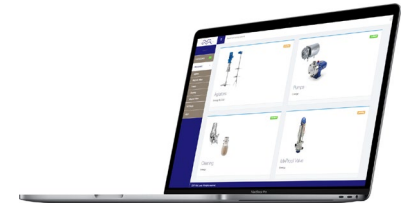
– Vergleichspotential oder Möglichkeiten



1 Operating Parameters

2 Equipment Profile

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Project Data

Equipment Profiles

Analysis Wizard

Analysis Output

Output Charts

## Pump Equipment Profile

Model Name

LKH-25/179

Pump efficiency type

IEC50HzIE3@50Hz

Motor size [kW]

2 poles, 50 Hz, 7,5kW

Motor absorbed power per unit [kW/h]

5,8600

## Equipment Capital Cost Data

List Price per unit

10241,00

Discount Percentage

% 50,0000

Net price per Unit

€ 5120,5

## Additional Equipment Cost Data

Additional investment cost

€ 0,00

Additional running cost per hour

€ 0,00

Additional Investment Cost Notes

Return

Save Equipment Profile

# Ausgabe

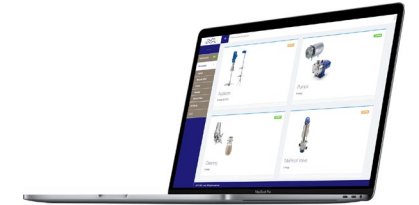
– Analyse & Chart zur Darstellung



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Data

Equipment Profiles

Analysis Wizard

Analysis Output

Output Charts

	Equipment 1	Equipment 2
Motor Size		
Net price excl. add'l investment costs		
Additional Investment costs		
Additional running cost per hour		
Total investment cost		
Total operating cost		
Electrical energy cost per year		
Electrical energy cost during lifetime		
CO2 emission per year		
CO2 emission during lifetime		

Previous

Next

# Ausgabe

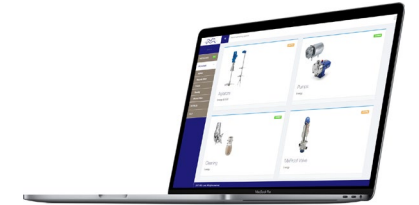
– Analyse & Chart zur Darstellung



1 Operating Parameters

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3 Analysis



Project Data

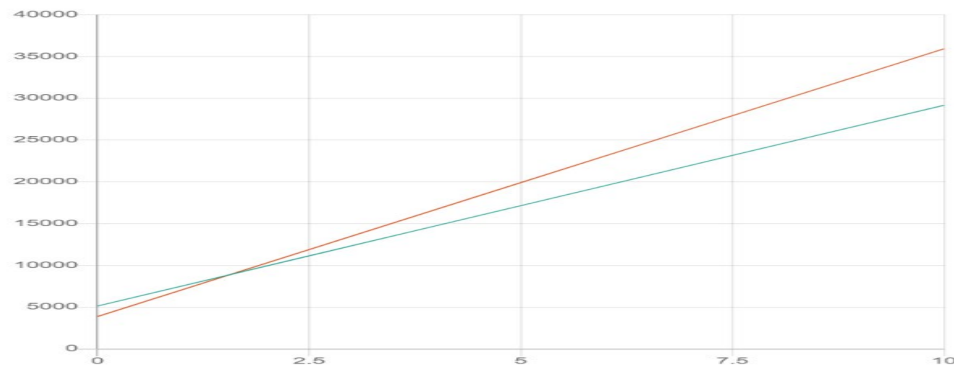
Equipment Profiles

Analysis Wizard

Analysis Output

Output Charts

	Investment Costs	Annual Operational Costs	Energy Costs	CO2 Emissions	TCO	ROI	Payback
LKH-25/179	€5.120,50	€2.404,07	€2.404,07	15678.22	€29.161,20	63.94%	1.56 years
SolidC-3/195	€3.866,50	€3.205,88	€3.205,88	20907.23	€35.925,28		
LKH-25/179 vs. SolidC-3/195 Savings	-€1.254,00	€801,81	€801,81	5229.02	€6.764,08		



TCO  
€ 6.764,-

ROI  
64%

Payback  
1,5 years

Equipment 1: LKH-25/179  
Equipment 2: SolidC-3/195



Unlocking Our Potential

# Ausgabe

- Handout für den Kunden - Energiemanager





## Sustainable Optimization Pump Report



RETURN ON INVESTMENT

63.94 %


ENERGY SAVINGS PER YEAR

€801,81

PAYBACK TIME

1.56 years

Compare Project pump replacement report,  
generated Sep 06 2018 by Scenarios



PROJECT NAME: Compare  
REPORT GENERATED: Sep 06 2018  
BY: Scenarios

### INTRODUCTION

The purpose of the Alfa Laval Sustainable Optimization report is to present optimization possibilities on the specified equipment. This report will give estimations on economic improvements based on investment and cost operation numbers.

On the following pages you will see an analysis of the agreed equipment.

Alfa Laval provides complete assistance to realize the estimated savings, and we also provide other services, from installation to maintenance and spare parts.

For further information, please contact:


Scenarios  
demo@alfalaval.com

### OPERATION PARAMETERS

The calculations are based on these settings


PROJECT NAME	Compare
ITEM NAME	Compare Solid C V LKH
TAG REFERENCE	35
FLOW RATE	40
HEAD	15.0000
OPERATING HOURS PER DAY	300
OPERATING DAYS PER YEAR	4500
OPERATING HOURS PER YEAR	10
LIFETIME IN YEARS	Denmark
COUNTRY	0.0836
ELECTRICITY COST	0.5452
CO2 EMISSION PER KWH	

Page 3/6



PUMP 1	PUMP 2
LKH-25/179	SolidC-3/195
IEC50HzIE3@50Hz	IEC50HzIE3@50Hz
7	8
5.8600	7.8400
1241.00	7733.00
0000	50.0000
0.50	3866.50
	0.00
	0.00

Page 4/6



PUMP 2
7.5kW 2 poles, 50 Hz, 11kW
€3.866,50
€0.00
€3.866,50
€3.205,88
€3.205,88
€32.058,78
20907
209072

Page 5/6



# Startseite in Joules mit seinen Möglichkeiten

– Welchen Bereich willst du bearbeiten?



Welcome Joachim Schick - Last login: 2020-03-01 08:46:47

Updated



Pumps

Energy & CO2

Updated



MixProof Valve

CIP Media

Updated



Agitators

Energy & CO2

Updated



Cleaning

Water & CIP



# Eingaben für das Projekt

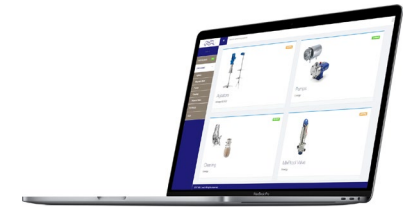
– aktuelle Projektparameter



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project name

Ump 65\_TT basic vs. TT V70

Item name

item name

Tag reference

Tag reference

CIP Program

Dairy

Number of Valves

26

Total number of seatlifts per CIP

5

CIP Fluid Cost per liter

0,0300

Cip per Day

2

Cip days per Week

5

Cip weeks per Year

50

Next

# Geräteeingabe

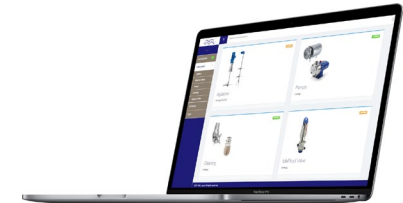
– Sammlung & Vertiefung



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Data

Equipment Data

Analysis

Unit model

ThinkTop V70 Digital 24V Cable Gland 3x3/2-way\_9615400011

Equipment lifetime [yrs]

10

Valve Equipment Profile

Valve Size

65

Upper Seat Lift Data

CIP Media Pressure [bar]

2,00

Open Time [sec]

0,50

Lower Seat Lift Data

CIP Media Pressure [bar]

1,00

Open Time [sec]

0,50

Overall Seat Lift Data

Volume per seatlift

0,86



Equipment Capital Cost Data

List Price per unit

€ 1170,00

Discount

% 50,00

Net price per Unit

€ 585

Additional Equipment Cost Data

Additional running cost per hour

€ 0,00

Additional investment cost total

€ 0,00

Additional Investment Cost Notes

Return

Save Equipment Profile

# Ausgabe

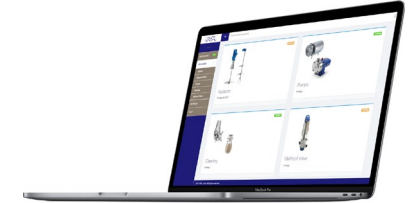
– Analyse & Chart zur Darstellung



1 Operating Parameters

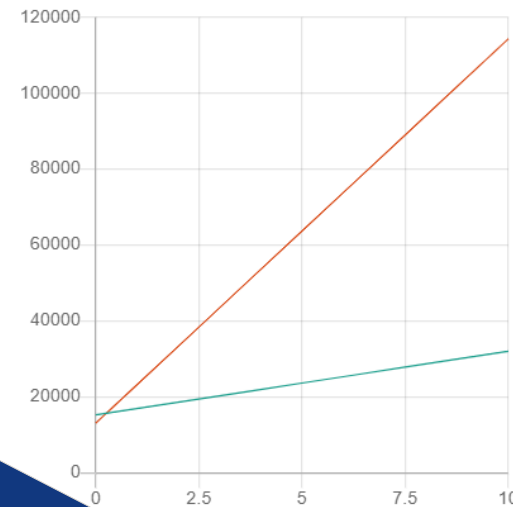
2 Equipment Profile

3 Analysis



Project Data Equipment Data Analysis

	ThinkTop V70 Digital 24V C2	ThinkTop basic 10-30 VDC F
No. of units	26	26
No. CIP seatlifts Lifts	5	5
Price per unit	€585.00	€501.50
Total investment cost	€15,210.00	€13,039.00
CIP Media Usage per year	55,900 liters	337,350 liters
CIP Media cost per year	€1,677	€10,121
Lifetime Cost (investment cost + operating cost)	€31,980	€114,244
ROI / Payback Period	388.92% ROI resulting in an investment payback of 0.26 years	



ROI  
388,92%

Payback  
0,26 years

CIP SAVING PER YEAR  
281.450 liters



Unlocking Our Potential

# Ausgabe

- Handout für den Kunden - Energiemanager



## Sustainable Optimization Valve Report

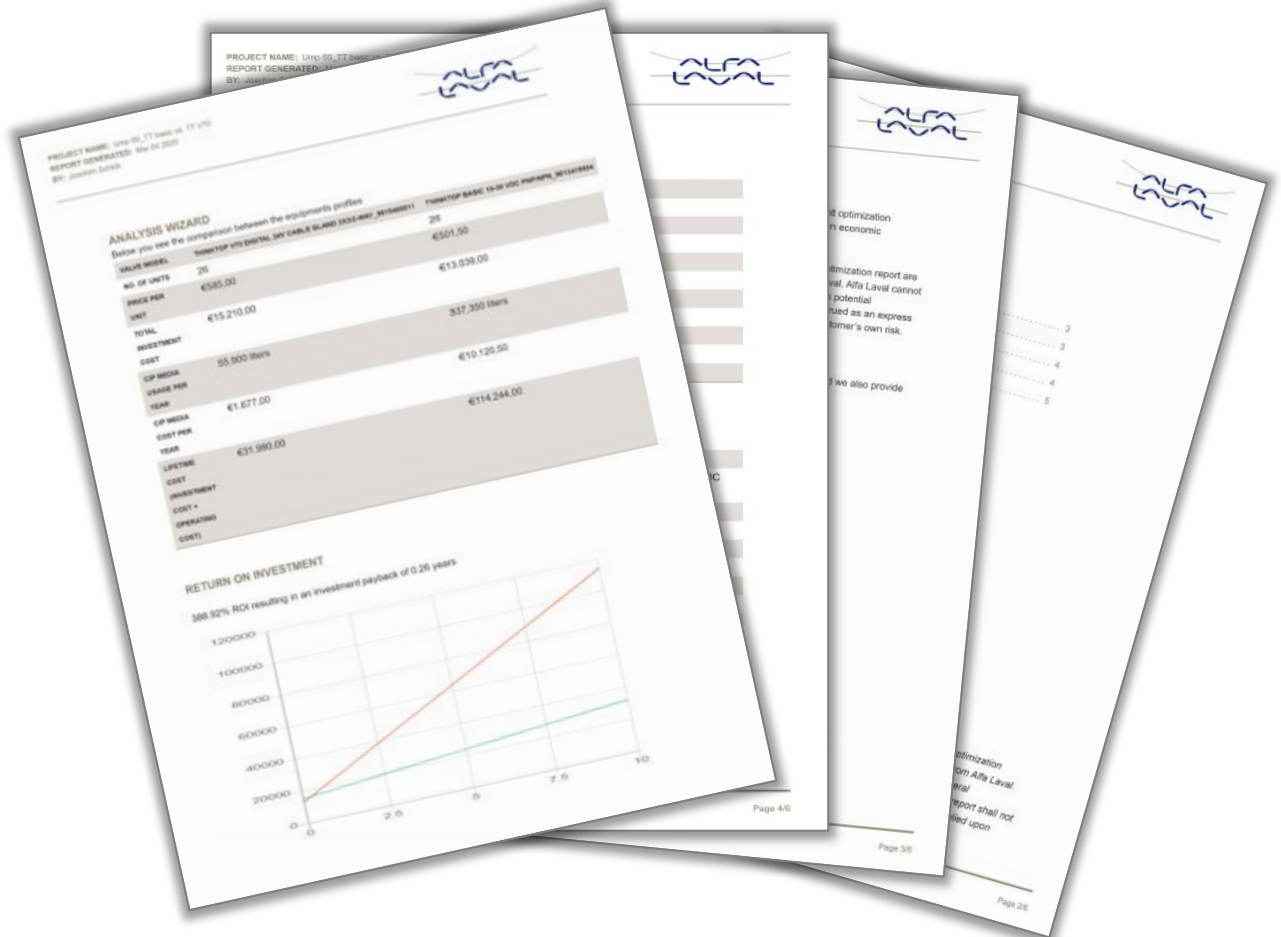


RETURN ON INVESTMENT **388.92%**

CIP SAVINGS PER YEAR  
**281.450**  
liters

PAYBACK TIME  
**0.26 years**

Ump 65\_TT basic vs. TT V70 valve replacement report,  
generated Mar 04 2020 by Joachim Schick



# Startseite in Joules mit seinen Möglichkeiten

– Welchen Bereich willst du bearbeiten?



Welcome Joachim Schick - Last login: 2020-03-01 08:46:47

Updated



## Pumps

Energy & CO2

Updated



## MixProof Valve

CIP Media

Updated



## Agitators

Energy & CO2

Updated



## Cleaning

Water & CIP

# Eingaben für das Projekt

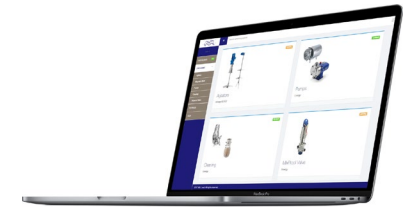
– aktuelle Projektparameter



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Overview

Equipment Profiles

Analysis Wizard

Analysis Output

Charts

Project name

BRAU\_Agitator

Item name

Tank\_01

Lifetime [years]

10

Country

Germany

Tag reference

Tag reference

CO2 Produced per kWh



0,5452

kg/kWh

Electrical energy cost

€

0,1586

kWh



Batches per week

5

Weeks per year

50

Batches per year

250

Batch time [hours]

24,00

Operating hours per year

6000

Coefficient of Performance cooling

The coefficient of performance or COP (sometimes CP or CoP) is a ratio of useful heating or cooling provided to work required. Higher COPs equate to lower operating costs.

0,0000

Next



# Geräteeingabe

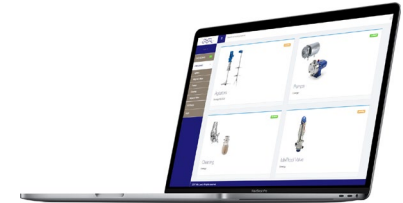
– Sammlung & Vertiefung



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Overview

Equipment Profiles

Analysis Wizard

Analysis Output

Charts

Unit Model

direct drive ALS-ME-30LF-S1-S449-P350D3P

Motor absorbed power per unit [kW/h]

4,00



Create New Equipment Profile

Direct drive als-me-30lf-s1-s449-p350d3p

Motor Power: 4.00 kW/h

Capital Unit Cost: €5.215,00

List price per unit

€ 5215,00

Discount Percentage

0,00

%

Net price per unit

€ 5215

Additional investment cost total

€ 500,00

Additional Investment Cost Notes

Welding

Additional running cost total per hour

€ 0,00

Return

Save Equipment Profile

Previous

Next

# Ausgabe

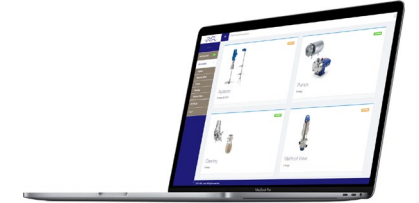
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1 Operating Parameters

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3 Analysis



Project Overview

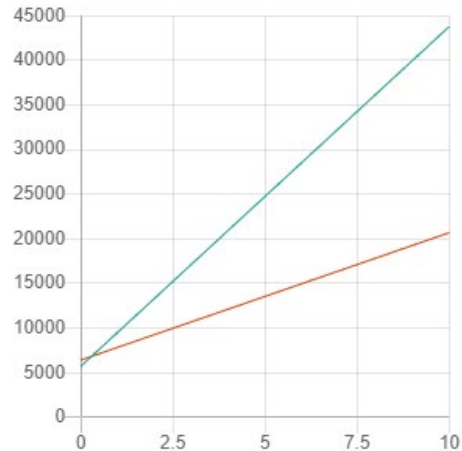
Equipment Profiles

Analysis Wizard

Analysis Output

Charts

	Investment Costs	Annual Operational Costs	Energy Costs	CO2 Emissions	TCO	ROI	Payback
direct drive ALS-ME-30LF-S1-S449-P350D3P	€5.715,00	€3.806,40	€3.806,40	13084.80	€43.779,00	340.34%	0.29 years
Gear drive ALS-ME-GC-BC160D/30LF-S2-S499-P499-P600D3P	€6.414,00	€1.427,40	€1.427,40	4906.80	€20.688,00		
direct drive ALS-ME-30LF-S1-S449-P350D3P vs. Gear drive ALS-ME-GC-BC160D/30LF-S2-S499-P499-P600D3P Savings	€699,00	-€2.379,00	-€2.379,00	-8178.00	-€23.091,00		



Equipment A: direct drive ALS-ME-30LF-S1-S449-P350D3P

Equipment B: Gear drive ALS-ME-GC-BC160D/30LF-S2-S499-P499-P600D3P

Total Cost of Ownership  
Einsparung bei Gear drive  
23.091,00 €

ROI  
340,34%

Payback  
0,29 years

# Ausgabe

- Handout für den Kunden - Energiemanager



## Sustainable Optimization Agitator Report



RETURN ON INVESTMENT	ENERGY SAVINGS PER YEAR	PAYBACK TIME
<b>340.34 %</b>	<b>-€2.379,00</b>	<b>0.29 years</b>

BRAU\_Agitator agitator project report,  
generated May 18 2020 by Joachim Schick



# Startseite in Joules mit seinen Möglichkeiten

– Welchen Bereich willst du bearbeiten?



Welcome Joachim Schick - Last login: 2020-03-01 08:46:47

Updated



## Pumps

Energy & CO2

Updated



## MixProof Valve

CIP Media

Updated



## Agitators

Energy & CO2

Updated



## Cleaning

Water & CIP

# Eingaben für das Projekt

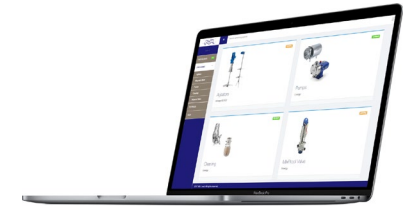
– aktuelle Projektparameter



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Data

Equipment Data

CIP Program

Cleaning CIP Analysis

Equipment Comparison Results

Project name

FoodGeneral

Tank name

20m3 mixing tank (batch process)

Tag reference

MT1

CIP Application Type

Food

Number of CIP per week [CIP/wk]

7

Number of CIP per year [CIP/yr]

364

Cleaning complexity

Difficult removable residuals

Weeks per year [wks/yr]

52

Next

# Geräteeingabe

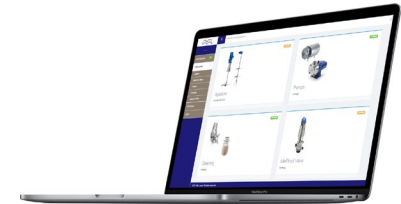
– Sammlung & Vertiefung



1 Operating Parameters

2 Equipment Profile

3 Analysis



Project Data

Equipment Data

CIP Program

Cleaning CIP Analysis

Equipment Comparison Results

## Cleaning Equipment Profile

Equipment Name

RotaryJetHead

Equipment Technology

Rotary Jet Head

Cleaning Equipment Data

Unit model

TJ20G 4x3.9

Pressure [bar]

5,00

Flow Rate [M3/hr]

6,5000

Total lifetime [yrs]

5

## Equipment Overview

TJ20G 4x3.9 - Rotary Jet Head

Pressure: 5.0000 bar / 72.5188690000 psi

Flow: 6.5000 m3h / 28.6186 gpm

Time: 408.0000 / 6.8000 mins

## Equipment Capital Cost Data

List Price per unit

\$ 5869,00

Discount

0,00

%

Net price per Unit

\$ 5869

## Additional Cost Data

Additional investment cost total

\$ 0,00

Additional Investment Cost Notes

Additional running cost per hour

\$ 0,00



# CIP-Programm



Project Data Equipment Data **CIP Program** Cleaning CIP Analysis Equipment Comparison Results

			Existing SprayHead ▾			Rotary JetHead ▾		
			Qty	2		Qty	1	
CIP Step	Heating	Media Cost	Re-Use %		Step Time	CIP Re-Use		Step Time
1 Pre-rinse Water Media:	Non-Heated Step ▾	4,0000	0,00	%	10,00	0,0000	%	6,00
2 Caustic Media:	Heated Step ▾	5,0000	90,00	%	30,00	9,9999	%	20,00
3 Intermediate rinse Water Media:	Non-Heated Step ▾	4,0000	50,00	%	8,00	9,9999	%	5,00
4 Acid Media:	Heated Step ▾	5,0000	90,00	%	30,00	9,9999	%	20,00
5 Final rinse Water Media:	Non-Heated Step ▾	4,0000	100,00	%	8,00	9,9999	%	5,00

Previous Next

- Aufnahme des CIP-Programms
- evtl. Optimierung bzw. Überarbeitung
- Potentiale Erkennen mit dem Ziel der kundenspezifischen Anforderungen

# Analyse

– Chart & Diagramm



Project Data Equipment Data CIP Program **Cleaning CIP Analysis** Equipment Comparison Results

			Existing SprayHead		Rotary JetHead	
CIP Step	CIP Sequence	Cleaning Media	Step Volume	Step Cost	Step Volume	Step Cost
1	Pre-rinse Water		2.0000 m3	8.0000	0.6500 m3	2.6000
2	Caustic		0.6000 m3	3.0000	0.2200 m3	1.0800
3	Intermediate rinse Water		0.8000 m3	3.2000	0.2700 m3	1.0800
4	Acid		0.6000 m3	3.0000	0.2200 m3	1.0800
5	Final rinse Water		0.0000 m3	0.0000	0.0000 m3	0.0000
Total per CIP			4.00 m3	17.20	1.36 m3	5.84
			Existing SprayHead		Rotary JetHead	
Annual Usage Data			Vol. [m3/yr]	Cost [\$ /yr]	Vol. [m3/yr]	Cost [\$ /yr]
Total Running Costs ex. downtime			1456.00	6260.80	495.04	2125.76
Water			1019.20	4076.80	334.88	1339.52
Caustic			218.40	1092.00	80.08	393.12
Acid			218.40	1092.00	80.08	393.12
			Existing SprayHead		Rotary JetHead	
Equipment Lifetime			5 years		5 years	
Lifetime Operations			7,280 m3 CIP Media	31,304	2475 m3 CIP Media	10629
Lifetime Ownership Cost			64,058		16,498	

Previous

Next

Lifetime Ownership Cost  
Existing SprayHead  
64.058,- €

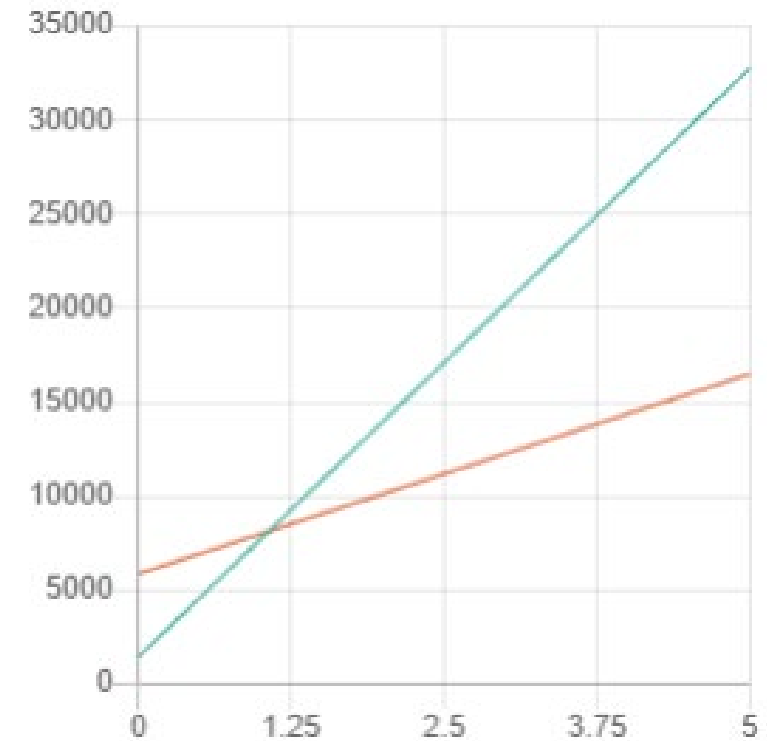
Lifetime Ownership Cost  
RJH  
16.498,- €

# Analyse

– Chart & Diagramm



Equipment A: ExistingSprayHead  
Equipment B: RotaryJetHead



# Ausgabe

- Handout für den Kunden - Energiemanager



## Sustainable Optimization Cleaning Report



RETURN ON INVESTMENT

94 %

CLEANING MEDIA REDUCED

961 m3

PAYBACK TIME

1,1 yr

FoodGeneral Project report,  
generated by Joachim Schick



PROJECT NAME: FoodGeneral  
REPORT GENERATED: Joachim Schick  
BY:

### CLEANING CIP ANALYSIS

Below you see the comparison between the equipment profiles

	SANIMIDGET 360 CLIP-ON	TJ20G 4x3.9	
STEP VOLUME	STEP COST	STEP VOLUME	STEP COST
1 Pre-rinse Water	2.0000 m3 €8,00	0.6500 m3 €2,60	
2 Cautic	0.6000 m3 €3,00	0.2200 m3 €1,08	
3 Intermediate rinse Water	0.8000 m3 €3,20	0.2700 m3 €1,08	
4 Acid	0.6000 m3 €3,00	0.2200 m3 €1,08	
5 Final rinse Water	0.0000 m3 €0,00	0.0000 m3 €0,00	
Total per CIP	4.00 m3 €17,20	1.36 m3 €5,84	

### RETURN ON INVESTMENT



TCM 2

RotaryJetHead

Rotary Jet Head

TJ20G 4x3.9

5.00

6.5000

1

5

€5.869,00

0 %

€5.869,00

0,00

100 /hr

ST [€/YR]

39,52

1,12

12

5

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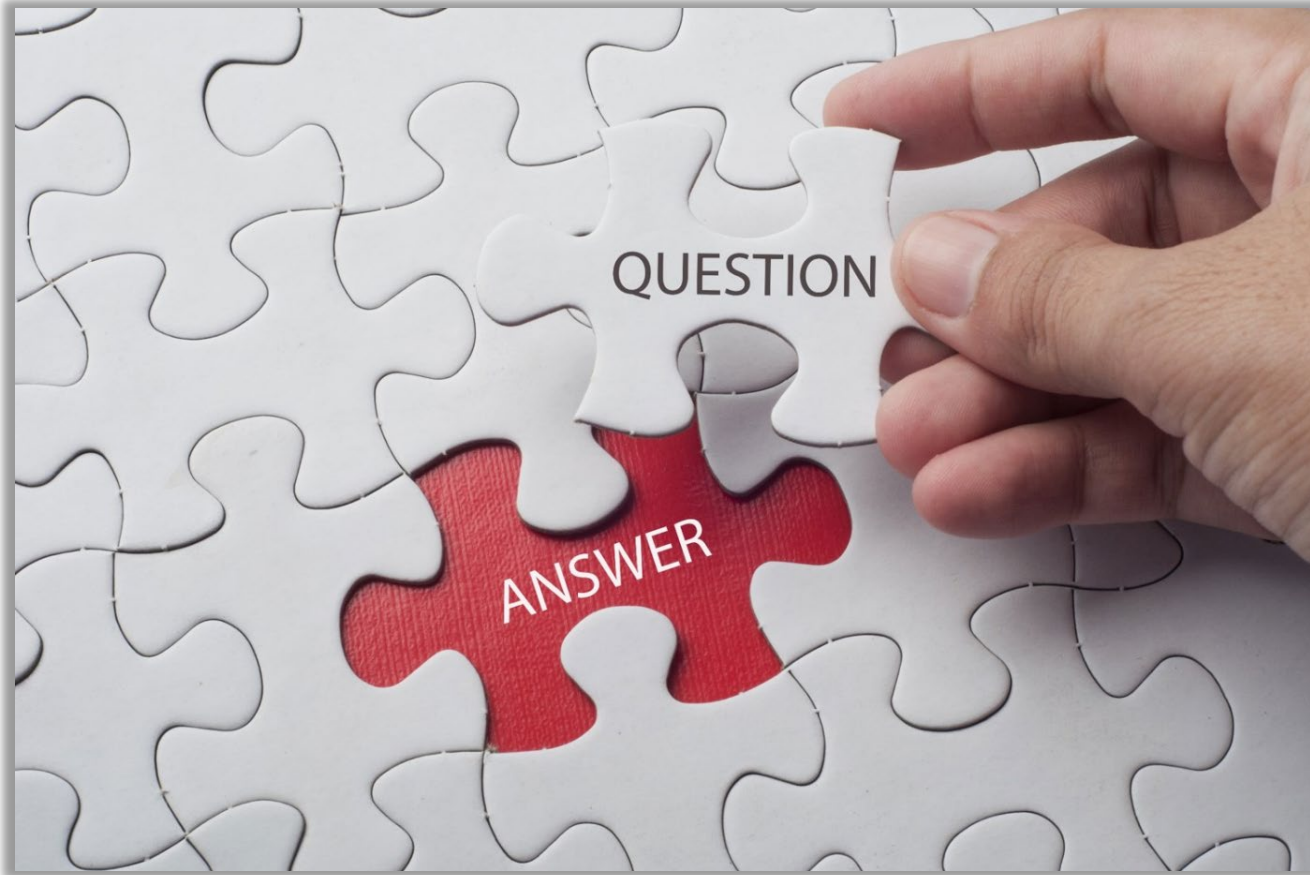
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# Abschluss

– Fazit



Bei Fragen stehe ich Ihnen gerne zur Seite

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