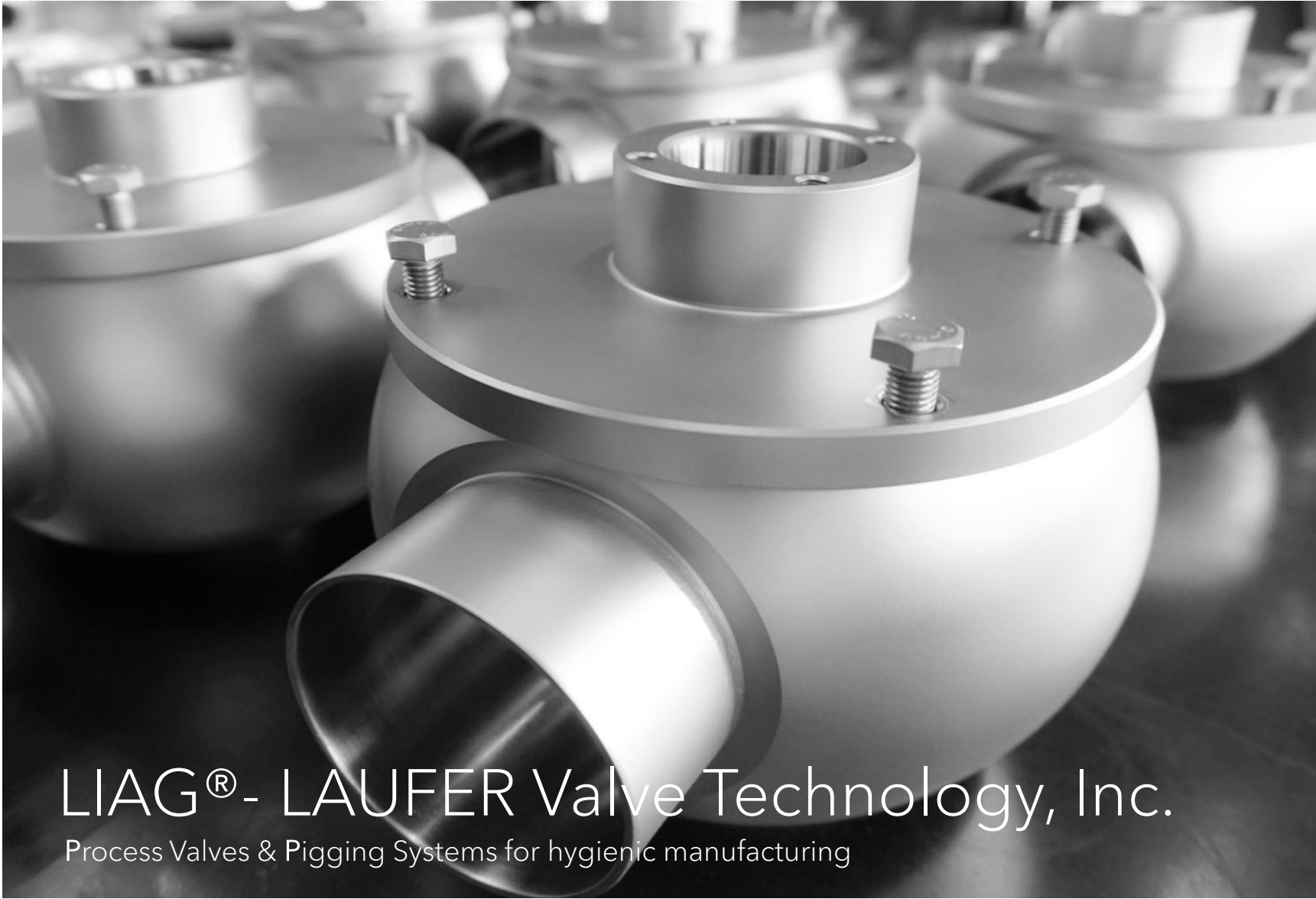


3-A SSI 2023
Education
Program
&
Annual
Meeting



LIAG® - LAUFER Valve Technology, Inc.
Process Valves & Pigging Systems for hygienic manufacturing

Background



1996

Founding of Läufer International AG (LIAG®) in Meersburg/Germany as the parent company of „Firma LEVENT OY“ Ventilfertigung in Toijala/Finnland

1997

3-A approval 51-01 of the LIAG arc valve series

2001

Relocation of manufacturing from Finland to Germany

2002

Expansion of the product portfolio:
Pigging technology for low-germ processes

2009

Implementation of DIN ISO 9001 and 14001

LIAG Arc/Shutter Valve series successfully passes EHEDG Class I cleanability test

2015

3-A approval 101-00 of the LIAG pigging system(s)

2016

Foundation of "LAUFER Valve Technology Inc." in the USA (100% subsidiary)

2019

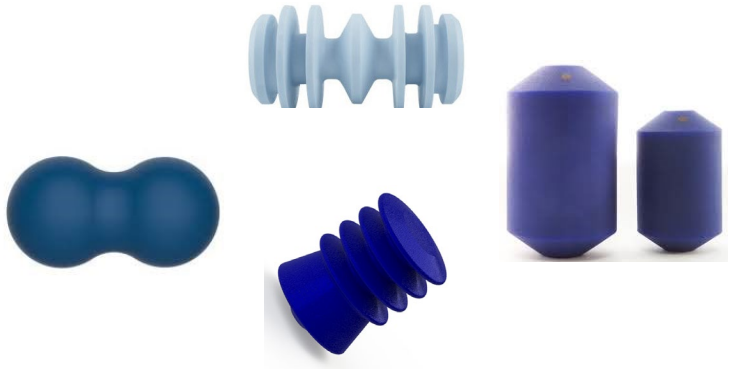
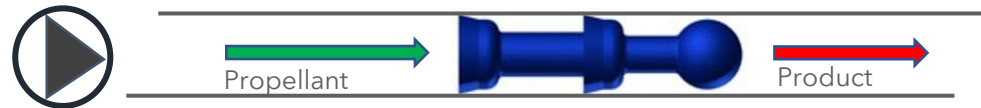
Relocation to the new company headquarters in Salem, Germany

Overview

- What is pigging / product recovery?
- CIP
- Waste & Sustainability
- ROI
- Yields / capacity
- Project Management
- Issues / Pit falls



What is Pigging?



CIP Benefits

- Reduce chemical usage
 - Less time
 - Fewer CIP cycles
 - E.g., clearing allergen inclusions
- Lower wear and tear on CIP loops/equipment
 - Fewer cycles = less wear and tear
 - Pumps, piping, weight supports, seals, clamps, actuators, valves, etc.



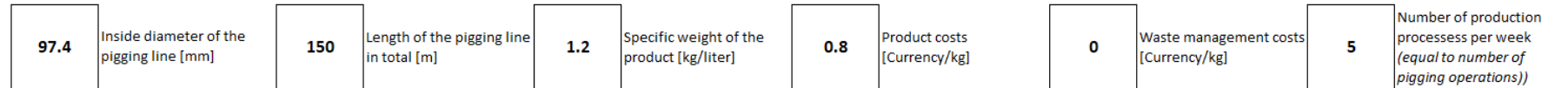
Waste & Sustainability

- Freshwater usage
- Product down the drain
- Mixed phase ruining new batch
- Wastewater
- Environmental stability
 - Predictable water usage
 - Chemical treatments



ROI

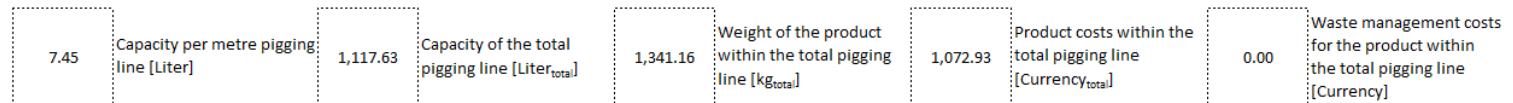
Input fields



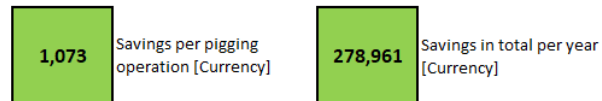
Following please find the pipe sizes which are available with DMV-Pigging systems of LIAG (please choose an inside diameter)

DIN series	ID Ø [mm]	Inch series	IDØ [mm]
40	38	1,5"	34.9
50	50	2"	47.6
65	66	2,5"	60.2
80	81	3"	72.9
100	100	4"	97.4

Interim results



Cost savings



Yields & Capacity

- Clean pipes = purer product
- Packaging entire batches
- Preserving excess for later
- Reduced downtime
 - Lowered cleaning cycles/times
 - Separate batches by pig
- Plant design imperfections
 - Points that don't drain
 - Tight bends vs sweeps
- Automation



Project Management

1. Details of customer :

Company : _____

Contact : _____

Street : _____

Post code / city : _____

Country : _____

Tel./Fax/Email : _____ or business card

2. Product specification :

Name of product : _____

Density : _____ kg / dm³

Viscosity : _____ mPa x s

Operating temperature : °C / °F

Operating pressure : bar / psi

Flow rate : _____ m³ / h

Product characteristics foamy greasing abrasive

other _____

(In case of more than one product and different specifications please use last page)

3. Tube / valve specifications :

Facility existing planned

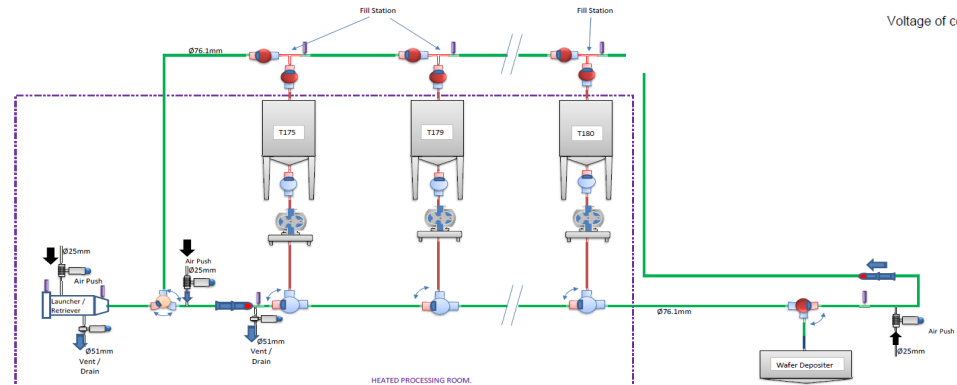
Material : _____

Tube length : _____ m

Height difference : from launching station towards receiving station: _____

falling ascending

Tube type / Size DIN Inch SMS Size: _____



Connections Welded ends Clamps (Tri-Clamp)

Male ends (DIN 11851) Male ends (SMS 1145)

Aseptic male ends (DIN 11864-1)

Aseptic clamp connection (DIN 11864-2)

Other _____

O-ring seals material EPDM FPM (Viton)

FEP Other: _____

4. Pigging specifications :

Pressure media Air oil free dry

Air pressure available: min. _____ bar / _____ psi

Water

Water pressure available: min. _____ bar / _____ psi

Other: _____

Pressure available: min. _____ bar / _____ psi

CIP Yes No

Product / substance / characteristics: _____

Concentration: _____ %

Temperature: _____ °C / _____ °F

Duration of CIP: _____ minutes

SIP Yes No

Temperature: _____

Duration of SIP: _____

Operation pneumatic manual

Air pressure for actuators: oil free

Air pressure available: min. _____

Voltage of controller: 230 110

Checklist
Run-Up Assistance DMV Pigging System

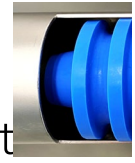
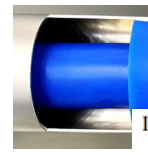
Step	Description	Status
1	Delivery complete	
2	Installation complete	
3	Electrical installation complete	
4	Pneumatic installation complete	
5	Valves assembled correctly (Shutter position ok)	
6	Pigging line without barrier-free (no butterfly valves, no changes in pipe Ø, no filters)	
7	Pressure test of pipeline	
8	Software sequence according specification	
9	Dry program sequence test (without air, water, product pig). Pig signal simulated from outside the pipe.	
10	1. Pipeline pigging	
	Pipeline filled with water or product	
	Pressure limiter for inlet pressure closed	
	Pig starting. Pressure regulator starting to open till pig has moved. Note the pressure value.	
	Check stopping position of pig at filling station	
11	2. Pipeline pigging full automated	

AGENDA
1 = closed position, valve "E" open, signal on proximity switch, signal on magnet sensor ("MS")
0 = open position, valve ("3") closed, no signal on proximity switch, no signal on magnet sensor ("MS")
RED Marked numbers: Signal for starting this function.
BLUE Marked numbers: Signal has changed.
Not mentioned signals are not relevant for this step.

STEPS OF FUNCTION	Launching Turning Station			Arc Valve			Product Filling Station			Receiving Turning Station		
	B1	B2	B3	MS1	V1	V2	B4	MS2	B5	B6	MS3	
SCHUTTER POSITION	1	2	3		1	2	1	2	1	2		
Standard Situation (Product pumping)	0	1	0	0	0	0	1	0	1	0	0	
Product Pushing	0	0	0	0	0	0	1	0	1	0	0	
Clean pig inside launching turning station	0	1	0	0	0	0	1	0	1	0	0	
Starting point to push pig	0	0	1	0	0	0	0	0	1	0	0	
Pushing pig	0	0	1	0	0	0	0	1	1	0	0	
Pig reaches filling station	0	0	1	0	1	0	0	0	1	0	0	
Starting point to push pig further	0	0	1	0	0	0	0	1	0	1	0	
Pushing pig further	0	0	1	0	0	0	0	1	0	1	0	
Pig reaches receiving turning station	1	0	0	0	0	0	1	0	1	0	0	
Pig inside receiving turning station	1	0	0	0	0	0	1	0	0	1	0	
Starting point to push pig back	1	0	0	0	0	0	1	0	0	0	0	
Pushing pig back	1	0	0	0	1	0	0	1	0	0	0	
Pig reaches launching turning station	0	1	0	0	1	0	0	1	0	1	0	
Pig ready for CIP cleaning	0	1	0	0	0	0	0	1	0	1	0	
Starting point	0	1	0	0	0	0	1	0	1	0	0	
CIP cleaning	0	1	0	0	0	0	1	0	1	0	0	
From product inlet to product outlet	0	1	0	0	0	0	1	0	1	0	0	
From product inlet to outlet receiving station	0	1	0	0	0	0	1	0	0	1	0	
Switching receiving turning station	0	1	0	0	0	0	1	0	0	0	1	
Switching back receiving turning station	0	1	0	0	0	0	0	1	0	0	1	
From launching turning st. to receiving turning st.	0	1	0	0	0	0	0	1	0	0	1	
From launching turning st. to product outlet	0	1	0	0	0	0	1	0	1	0	1	
CIP draining through product outlet with air blowing	0	1	0	0	0	0	1	0	1	0	1	
CIP draining supported with air blowing	0	1	0	0	0	0	0	1	0	1	0	
Venting the line	0	1	0	0	1	0	0	0	1	0	1	
Back to standard situation	0	1	0	0	0	0	1	0	1	0	0	

Issues & Pitfalls

- It is a projectile
- Over-measured vs Dynamic
- Bad welds, dents, other obstacles
 - Sloughing
- Pig in product flow
- Unsuitable equipment
- 3A systems to include certs for CIP models



ISSUE DATE: January 01,

NUMBER: 1788

Am W

3-A Symb

101-

CIP Models: DMV Produ
components: DMV Turni
Station, and DMV 2-Lipp

VALID THROUGH: De

Timothy R. Rugh
Executive Director
3-A Sanitary Standards, In



of the following
receiving

Thank you for your
Attention!

